Planetary Gearbox
گیربکس خورشیدی

شرکت توکا طرح صفاهان

# توکا طرح صفاهان

# TOOKATARH SAFAHAN

DESIGNING & ENGINEERING OF GEAR BOX PRODUCTS

## About us

The technical group of TOOKATARH began activates in 1374 in the factory an area of 1500 $m^2$ located at AMIRKABIR Esfahan industrial area. TOOKATARH groups caps that arouse interest of customers effectively with technical knowledge experience use of specialists and brilliant empires, progressive machines and convenient technology and product are market for customers, the group has production of planetary gearbox. the company's commitment to global standard in 1384 has been awarded the certificate ISO 9001:2000. consumption products company in iron and steel industry, copper, cement, power plant production factors (brick, lime, rock), and paper industry, carton factory and etc.

## درباره توکا طرح

گروه فنی مهندسی توکا طرح در سال ۱۳۷۴ کار خود را در کارخانه ای به مساحت ۱۵۰۰ متر مربع، واقع در منطقه صنعتی امیرکبیر اصفهان آغاز نمود. این مجموعه پس از سال ها تولید گیربکس های هلیکال شافت مستقیم با کوله باری از تجربه و دانش فنی و نیز بهره گیری از متخصصان و کارشناسان کارآزموده، ماشین آلات پیشرفته و تکنولوژی روز اقدام به تولید گیربکس های خورشیدی نیز نموده است و قصد دارد محصولی از هر حیث کارا و مطمئن را به مشتریان خود عرضه نماید.

این شرکت با تعهد به استاندارد های جهانی در سال ۱۳۸۴ موفق به دریافت گواهینامه ISO 9001:2000 نیز شده است. تولیدات شرکت در صنایع آهن و فولاد، مس، سیمان، نیروگاه ها، کارخانجات تولید آجر، آهک و سنگ، صنایع کاغذ سازی و کارتن سازی و غیره مورد استفاده قرار می گیرد.

## Planetary gearboxes

The gears in these gearboxes consists of at least one sun gear, several planetary gears, a ring gear and a retaining case. Solar gearboxes are used for power transmission and usually reduce the output speed. These gearboxes can be directly or indirectly connected to a variety of motors (electric and hydraulic).

In the above figure, a planetary set with the direction of rotation of the parts is shown.

## Advantages of planetary gearbox

- ✓ Suitable volume relative to other types of gearboxes
- ✓ Solar gearboxes occupy about half the size of other gearboxes needed volume. This is very important in the installation process and the stylish design of the power transmission system.
- ✓ Other advantages of the low lightness of the solar gearboxes are the convenience of replacing the parts according to the appropriate space
- ✓ Lower weight than other types of gearboxes, which is effective in smaller and lighter supporting structures.
- ✓ The proper weight allows direct connection to the drive shaft
- ✓ The higher efficiency, the efficiency of 90 to 95 percent of the solar gearboxes is very significant compared to the low efficiency of other gearboxes (even at a higher than 1:2000 ratio).
- ✓ Long life and easy maintenance
- ✓ The correct implementation of the installation process ensures long life of the gearbox.
- ✓ Torque 650 to 500,000 Nm

## گیربکس خورشیدی یا سیاره ای

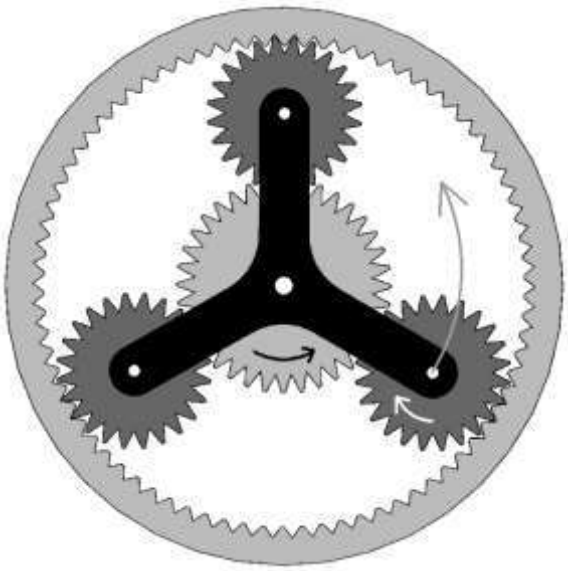
مجموعه ی چرخدنده در این گیربکس ها حداقل از یک چرخدنده خورشیدی ، چند چرخدنده سیاره ای ، یک چرخدنده رینگی و یک محفظه نگهدارنده تشکیل شده است. گیربکس های خورشیدی برای انتقال قدرت و معمولا کاهش دور خروجی نسبت به دور ورودی استفاده می شوند. این گیربکس ها می توانند به طور مستقیم یا غیر مستقیم به انواع موتور ها (الکتریکی و هیدرولیکی) متصل شوند.

در شکل زیر یک مجموعه سیاره ای به همراه جهت چرخش قطعات نشان داده شده است.

## مزایای گیربکس خورشیدی

- ✓ حجم مناسب نسبت به دیگر انواع گیربکس ها
- ✓ گیربکس های خورشیدی تقریبا نصف حجم گیربکس های دیگر، فضا اشغال می‌کنند. این امر در فرآیند نصب و شکیل بودن طراحی سیستم انتقال قدرت بسیار حائز اهمیت است.
- ✓ امتیاز دیگر کم حجم بودن گیربکس های خورشیدی راحتی در تعویض قطعات با توجه به فضای مناسب موجود است.
- ✓ وزن کمتر نسبت به دیگر انواع گیربکس ها که در کوچک تر و سبک تر شدن سازه پشتیبان موثر است.
- ✓ وزن مناسب امکان اتصال مستقیم به محور محرک را فراهم می کند.
- ✓ راندمان بالاتر، راندمان۹۰ تا ۹۵ درصدی گیربکس های خورشیدی در مقایسه با راندمان پایین برخی گیربکس ها دیگر بسیار قابل توجه است ( حتی در نسبت دورهای بالاتر از ۱:۲۰۰۰ ).
- ✓ عمر طولانی و تعمیر و نگهداری آسان
- ✓ اجرای صحیح فرآیند نصب تضمین کننده عمر طولانی مجموعه است.
- ✓ گشتاور ۶۵۰ الی ۵۰۰۰۰۰ نیوتن متر
- ✓ سر و صدای کم
- ✓ تنوع دور خروجی ۰.۲ تا ۵۰۰ دور در دقیقه
- ✓ تحمل بار عمودی و افقی بسیار زیاد بر روی شافت

- ✓ Low noise
- ✓ Output speed from 0.2 to 500 rpm
  - ✓ Tolerance extremely high vertical and horizontal load on the shaft



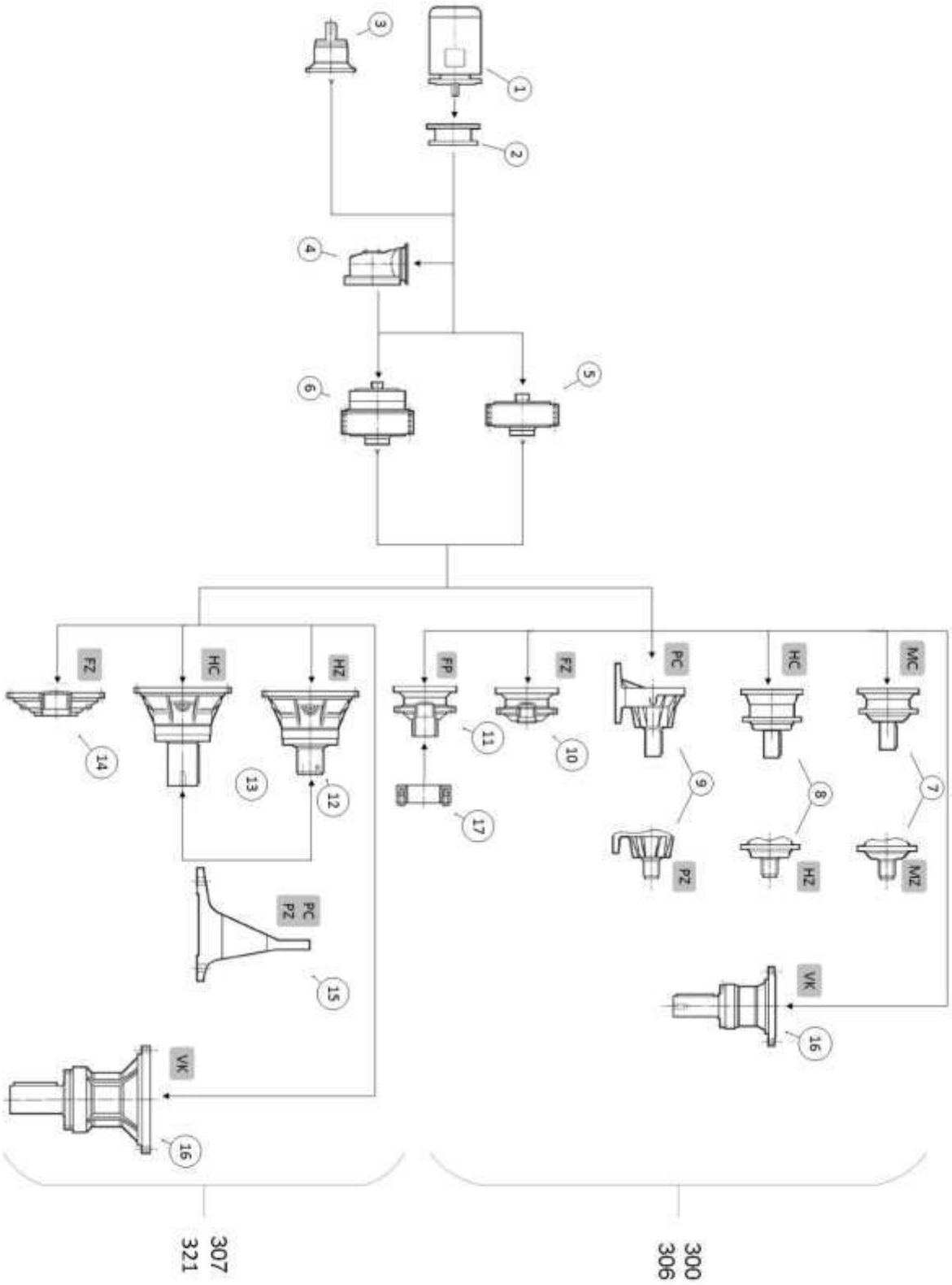
## Applications

- ❖ Food industry, chemical industry and plastic
- ❖ Turbines and generators
- ❖ Wood, Ceramic and Tile industries
- ❖ Material handling equipment (crane, conveyor ...)
- ❖ Metal forming and packaging equipment
- ❖ Batching machines and crusher

## کاربرد

- ❖ صنایع غذایی ، صنایع شیمیایی و پلاستیک
- ❖ توربین ها و ژنراتور ها
- ❖ صنایع چوب، کاشی و سرامیک
- ❖ تجهیزات انتقال مواد ( جرثقیل ، نوار نقاله و ... )
- ❖ تجهیزات فرم دهی فلزات و بسته بندی
- ❖ دستگاه های بچینگ و سنگ شکن ها

## Assembly system



1) IEC electric motor
2) Adapter for electric motor
3) Solid input shaft
4) Right-angle reduction stage
5) Single planetary reduction stage
6) Two or more planetary reduction stages
7) MC/MZ - Keyed or splined solid shaft output
8) HC/HZ - Keyed or splined heavy duty solid output shaft
9) PC/PZ - Output with support bracket and keyed or splined solid shaft
10) FZ - Splined hollow output shaft
11) FP - Hollow output shaft for shrink disc
12) HC - Parallel solid output shaft
13) HZ - Splined solid output shaft
14) FZ - Splined hollow output shaft
15) PC - Foot mount
16) VK - Reinforced output with parallel shaft for stirrers and mixers

۱) موتور الکتریکی IEC
۲) آداپتور موتور الکتریکی
۳) شافت ورودی
۴) استیج کاهشی راست زاویه
۵) کاهش یک مرحله ای
۶) کاهش دو یا چند مرحله ای
۷) MC / MZ- شافت خروجی تک خار یا هزار خار
۸) HC / HZ- شافت خروجی سنگین تک خار یا هزار خار
۹) PC / PZ- شافت خروجی پایه دار تک خار یا هزار خار
۱۰) FZ- شافت خروجی توخالی هزار خار
۱۱) FP- شافت خروجی توخالی برای شیرینک دیسک
۱۲) HC- شافت خروجی تک خار
۱۳) HZ- شافت خروجی هزار خار
۱۴) FZ- شفت خروجی توخالی هزار خار
۱۵) PC- پایه
۱۶) VK- خروجی تقویت شده با شافت موازی برای همزن ها و میکسر ها

## SYMBOLS AND UNITS

## نماد ها و واحد ها

| Symb. | | Description | شرح |
|---|---|---|---|
| **Ac2** | [N] | Calculated thrust load at gearbox output shaft | بار محوری محاسبه شده در شفت خروجی گیربکس |
| **Ar2** | [N] | Thrust load at gearbox output shaft | بار محوری در شفت خروجی گیربکس |
| **An2** | [N] | Rated thrust load at gearbox output shaft | بار محوری مجاز در شفت خروجی گیربکس |
| **fL** | | Lifetime factor | ضریب طول عمر |
| **fm** | | Adjusting factor | فاکتور تنظیم کننده |
| **fn1, fn2** | | Speed factor referred to input and output shaft loading | فاکتور سرعت در مواجه با بار ورودی و خروجی محور |
| **fs** | | Service factor | فاکتور خدمات |
| **ft** | | Thermal factor | فاکتور حرارتی |
| **fh1, fh2** | | Load corrective factor on shafts | فاکتور اصلاح بار در شفت |
| **h** | [h] | Lifetime in hours | طول عمر در ساعت |
| **i** | | Gear ratio | نسبت دنده |
| **Ka** | | Axial load duty factor | فاکتور وظیفه بار محوری |
| **Kr** | | Radial load factor | فاکتور بار شعاعی |
| **I** | | Intermittence factor | عامل وقفه |
| **Mb** | [Nm] | Rated brake torque | نرخ گشتاور ترمز |
| **Mc2** | [Nm] | Calculated output torque | گشتاور خروجی محاسبه شده |
| **M2** | [Nm] | Torque delivered to output shaft | گشتاور تحویل داده شده به شفت خروجی |
| **Mn2** | [Nm] | Gearbox rated output torque | گشتاور خروجی مجاز گیربکس |
| **M2max** | [Nm] | Gearbox max. output torque | حداکثر گشتاور خروجی گیربکس |
| **Mr1** | [Nm] | Required torque at input shaft | گشتاور مورد نیاز در شفت ورودی |
| **Mr2** | [Nm] | Required torque at output shaft | گشتاور مورد نیاز در شفت خروجی |
| **n1** | [min-1] | Speed of input shaft | سرعت شفت ورودی |
| **n2** | [min-1] | Speed of output shaft | سرعت شفت خروجی |
| **P1** | [kW] | Max. power that can be applied to input shaft | حداکثر قدرتی که می تواند به شفت ورودی اعمال شود |
| **P2** | [kW] | Power delivered to output shaft | قدرت تحویلی به شفت خروجی |
| **Pn** | [kW] | Motor rated power | قدرت موتور مجاز |
| **Pr1** | [kW] | Required input power | قدرت ورودی مورد نیاز |
| **Pr2** | [kW] | Output power at n2 max | قدرت خروجی در حداکثر دور خروجی |
| **Ps** | [kW] | Power to be dissipated | توان منجر به تخریب |
| **Pt** | [kW] | Gearbox thermal capacity | ظرفیت حرارتی گیربکس |
| **Rc1** | [N] | Calculated radial load at gearbox input shaft | بار شعاعی محاسبه شده در شفت ورودی گیربکس |
| **Rc2** | [N] | Calculated radial load at gearbox output shaft | بار شعاعی محاسبه شده در شفت خروجی گیربکس |
| **Rn1, Rn2** | [N] | Rated radial load at shaft mid-point, input and output | بار شعاعی در محور شفت، ورودی و خروجی |
| **Rx2** | [N] | Admissible overhung load for forces applying off the shaft midpoint | بارهای باربری مجاز برای نیروهایی که از نقطه اوج شفت استفاده می کنند |
| **S** | | Safety factor | ضریب ایمنی |
| **ta** | [°C] | Ambient temperature | دمای محیط |
| **X** | [mm] | Load application distance from shaft shoulder | فاصله بار کاربردی از شانه شفت |
| **d** | | Dynamic efficiency | کارایی دینامیکی |
| **Z** | | Starts per hour | استارت ها در ساعت |

## معرفی پارامتر های مورد نیاز

### ۱. گشتاور خروجی

- گشتاور تحویلی گیربکس $M_2$ [Nm]

این گشتاور خالصی است که به شفت خروجی، با قدرت $P_n$ نصب شده، فاکتور ایمنی S و طول عمر نظری آن ۱۰۰۰۰ ساعت خواهد بود، تحویل داده می شود. این مقدار گشتاور در بهره وری گیربکس باید در نظر گرفته شود.

- گشتاور خروجی مجاز $M_{n2}$ [Nm]

این خروجی گشتاور گیربکس می تواند با خیال راحت بر اساس:

- بارگذاری یکنواخت و با فاکتور ایمنی S = 1
- طول عمر تئوری ۱۰۰۰۰ ساعت، مقادیر $M_{n2}$ مطابق با استانداردهای تولید می باشد.

- حداکثر گشتاور $M_{2max}$ [Nm]

این گشتاور خروجی است که گیربکس می تواند در شرایط ایستا یا تقریبا ایستا مقاومت کند. به طور کلی به معنای حداکثر بار لحظه ای یا گشتاور راه اندازی تحت بار است. مقادیر در جداول فقط در نسخه های با شفت خروجی هزارخار معتبر است.

- گشتاور مورد نیاز $M_{r2}$ [Nm]

گشتاور کاربردی در نظر گرفته شده. این باید همیشه برابر یا کمتر از گشتاور خروجی مجاز $M_{n2}$ برای گیربکس مورد نظر باشد.

- گشتاور محاسبه شده $M_{c2}$ [Nm]

مقدار گشتاور محاسباتی که به هنگام انتخاب گیربکس استفاده می شود، با توجه به گشتاور مورد نیاز $M_{R2}$ و فاکتور خدمات $f_S$. از طریق معادله زیر به دست آمده است:

## Introduction of required parameters

### 1. Output torque

- Gearbox delivered torque $M_2$ [Nm]

This is the net torque delivered to the output shaft, with installed power $P_n$, safety factor S, which will yield a theoretical lifetime of 10000 hours. This torque value takes gearbox efficiency into consideration.

- Rated output torque $M_{n2}$ [Nm]

This is the torque output the gearbox can deliver safely, based on:

- uniform loading and safety factor S=1

- The theoretical lifetime of 10,000 hours, the $M_{n2}$ values are in accordance with production standards.

- Maximum torque $M_{2max}$ [Nm]

This is the output torque that the gearbox can withstand under static or almost static conditions. It is generally meant as a momentary peak load or starting- up torque under load. The values in the tables are valid only in versions with output splined shaft.

- Required torque $M_{r2}$ [Nm]

The torque drawn by the application. It must always be equal to or less than rated output torque $M_{n2}$ for the gearbox under study.

- Calculated torque $M_{c2}$ [Nm]

Computational torque value to be used when selecting the gearbox, considering required torque Mr2 and service factor fs. It is obtained through the equation:

$$M_{c2} = M_{r2} \times f_s \leq M_{n2}$$

## 2. POWER

- Rated input power $P_{n1}$ [kW]

$P_{n1}$ is the maximum power that can be safely applied to the gearbox when the same is operated:

- at a n1 drive speed
- under a safety factor S=1
- yielding a theoretical lifetime of 10000 hours.

- Output power $P_2$ [kW]

This value is the net power delivered to the output shaft. It can be calculated through the following formulas:

$$P_2 = P_1 \times \eta_d$$

$$P = \frac{M_{r2} \times n_2}{9550}$$

Efficiency values are listed in table (A2).

## 3. THERMAL CAPACITY $P_t$ [kW]

This parameter is linked to the gearbox thermal limit.

Values for the thermal capacity are listed within the rating charts of gearboxes and gearmotors and represent the mechanical power that can be transmitted continuously at an input speed n1 and at an ambient temperature of 20°C, without the lubricant exceeding the temperature of 85-90°C and the gear case the temperature of 75-80°C, without the use a supplementary cooling system.

When the duty cycle is formed by short operating periods and rest time is long enough for the unit to cool down, the thermal capacity is hardly significant and it may be omitted from calculation. Should the ambient temperature be different from 20°C

## ۲. توان

- توان ورودی مجاز $P_{n1}$ [kW]

$P_{n1}$حداکثر توانی است که می توان به صورت ایمن به گیربکس اعمال کرد، وقتی که همزمان به صورت زیر راه اندازی می شود:

- در سرعت درایو n1
- تحت فاکتور ایمنی S = 1
- ارزیابی در یک طول عمر تئوری ۱۰۰۰۰ ساعت

- توان خروجی $P_2$ [kW]

این مقدار توان خالصی است که به شافت خروجی تحویل داده می شود. این را می توان از طریق فرمول های زیر محاسبه کرد:

مقادیر کارایی در جدول (A2) ذکر شده است.

## ۳. ظرفیت گرمایشی $P_t$ [kW]

این پارامتر به محدودیت حرارتی گیربکس مرتبط است.

مقادیر ظرفیت حرارتی در نمودارهای طبقه بندی شده گیربکس ها ذکر شده و نشان دهنده قدرت مکانیکی است که می تواند به طور مداوم با سرعت ورودی $n_1$ و در دمای محیط ۲۰ درجه سانتیگراد، بدون روان کننده بیش از دمای ۹۰-۸۵ سانتی گراد و برای دنده دمای ۷۵-۸۰ درجه سانتیگراد، بدون استفاده از یک سیستم خنک کننده مکمل استفاده شود.

زمانی که سیکل کاری از فعالیت های کوتاه مدت متناوب و زمان استراحت به اندازه کافی بلند تا واحد خنک شود تشکیل شده، ظرفیت حرارتی به سختی قابل توجه است و ممکن است از محاسبه حذف شود. اگر دمای محیط از ۲۰ درجه سانتیگراد متفاوت باشد و یا وظیفه متناوب باشد، ظرفیت حرارتی $P_t$ باید از طریق فاکتور حرارتی $f_t$ مطابق جدول ذکر شده (A1) تنظیم شود.

در نهایت، اطمینان حاصل کنید که شرایط زیر همیشه برقرار است:

and/or duty be intermittent, the thermal capacity Pt is to be adjusted through thermal factor $f_t$ as listed in table (A1).

Finally, make sure that the following condition is always satisfied:

$$P_{r1} \leq P_t \times f_t$$

جدولA1

| ft | | | | | |
|---|---|---|---|---|---|
| ta [°C] | Continuous duty کارکرد پیوسته | Intermittent duty کارکرد متناوب | | | |
| | | Cyclic duration factor فاکتور طول سیکل | | | |
| | | 80% | 60% | 40% | 20% |
| 10 | 1.2 | 1.3 | 1.6 | 1.8 | 2 |
| 20 | 1 | 1.1 | 1.3 | 1.5 | 1.7 |
| 30 | 0.9 | 1 | 1.2 | 1.3 | 1.5 |
| 40 | 0.7 | 0.8 | 0.9 | 1 | 1.2 |
| 50 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 |

Cyclic duration factor is the relationship of operating time under load $t_f$ to total cycle time ($t_f + t_r$, where $t_r$ stands for time at rest), expressed as a percentage.

فاکتور طول سیکل که رابطه زمان عملیاتی زیر بار $t_f$ به زمان کل چرخه ($t_f + t_r$، که $t_r$ زمان استراحت گیربکس می باشد) است، که به صورت در صد تعریف می شود.

$$l = \frac{t_f}{t_f + t_r} \times 100$$

## 4. EFFICIENCY

## ۴. بازده

- Dynamic efficiency [$\eta_d$]

The parameter is defined as the relationship of the net power delivered to the output shaft P2 to the power applied to the input shaft P1:

- بازده دینامیکی

پارامتری به عنوان رابطه توان خالص، که به شافت خروجی $P_2$ تحویل داده شده، به قدرت اعمال شده به شافت ورودی $P_1$ تعریف می شود:

$$\eta_d = \frac{P_2}{P_1}$$

Indicative values for the efficiency are listed in the table A2.

مقادیر شاخص برای بازده در نمودار A2 ذکر شده است.

جدولA2

| No. of reductions<br>تعداد کاهش | Planetary<br>خورشیدی |
|---|---|
| 1 | 0.97 |
| 2 | 0.94 |
| 3 | 0.91 |
| 4 | 0.88 |

## ۵. نسبت گیربکس i

این تعریف به عنوان رابطه سرعت شافت ورودی به سرعت تحویلی در شافت خروجی یک گیربکس است.

$$i = \frac{n_1}{n_2}$$

## ۶. سرعت عملیاتی

- سرعت ورودی گیربکس

سرعت گیربکس وابسطه به راننده است.

اگر موتور به طور مستقیم به گیربکس متصل شود، سرعت گیربکس با موتور همخوانی دارد.

در صورتی که گیربکس از طریق انتقال خارجی هدایت شود، سرعت ورودی گیربکس، سرعت موتور به کاهش انتقال خارجی می باشد.

در این مورد، توصیه می شود که سرعت ورودی کمتر از ۱۴۰۰ دور بر دقیقه باشد.

سرعت ورودی نباید بیش از مقدار ذکر شده در جدول مجاز گیربکس باشد.

- سرعت خروجی گیربکس

این مقدار از سرعت ورودی $n_1$ به نسبت دنده i محاسبه می شود، همانطور که در معادله زیر است:

## 5. GEAR RATIO « i »

It is defined as the relationship of the speed the input shaft is driven at and the speed delivered at the output shaft of a gearbox.

$$i = \frac{n_1}{n_2}$$

## 6. OPERATING SPEED

- Input speed $n_1$ [RPM]

The speed the gearbox is driven at. The value is coincident with the motor speed if this is directly connected to the gearbox.
In case the gearbox is driven through an external transmission, the gearbox input speed is the speed of the motor divided by the reduction of the external transmission.
In this case, it is recommended that the input speed be lower than 1400 RPM.
Input speed should never exceed the value listed in the gearbox rating chart.

- Output speed $n_2$ [RPM]

It is calculated from drive speed $n_1$ and gear ratio i, as per the following equation:

$$n_2 = \frac{n_1}{i}$$

## SERVICE FACTOR [fs]

A parameter representing the severity of the application. This factor takes into account, although approximately, the type of load the gearbox operates with, the specific duty as well as the operating daily hours. The table (A3) is of reference when determining the appropriate service factor.

## عامل خدمات [fs]

یک پارامتر که نشان دهنده شدت برنامه است. این عامل، اگر چه تقریبا، نوع بار گیربکس با کار، وظیفه خاص و همچنین ساعت های کاری روزانه را در نظر می گیرد. جدول (A3) هنگام تعیین فاکتور خدمات مناسب مرجع است.

جدول(A3)

| Service factor (fs)<br>فاکتور خدمات | | | | | | |
|---|---|---|---|---|---|---|
| Type of load | Number of starts/hour<br>تعداد استارت در ساعت<br>Z | Total operating hours (h)<br>مجموع ساعات کاری | | | | |
| | | ≤5000 | 10000 | 15000 | 25000 | 50000 |
| | | Daily operating hours (h)<br>ساعات کاری روزانه | | | | |
| | | h< 10 | 4<h< 8 | 8<h< 12 | 12<h<16 | 16<h<24 |
| Uniform load | Z< 10 | 0.9 | 1 | 1.15 | 1.3 | 1.6 |
| | 10<Z< 30 | 0.95 | 1.15 | 1.3 | 1.5 | 1.8 |
| | 30<Z< 100 | 1 | 1.25 | 1.45 | 1.6 | 2 |
| Moderate shock load | Z< 10 | 1 | 1.25 | 1.45 | 1.6 | 2 |
| | 10<Z< 30 | 1.1 | 1.4 | 1.6 | 1.8 | 2.2 |
| | 30<Z< 100 | 1.2 | 1.5 | 1.7 | 2 | 2.4 |
| Heavy shock load | Z< 10 | 1.2 | 1.5 | 1.7 | 2 | 2.4 |
| | 10<Z< 30 | 1.3 | 1.6 | 1.8 | 2.1 | 2.6 |
| | 30<Z< 100 | 1.4 | 1.75 | 2 | 2.3 | 2.8 |

## SAFETY FACTOR [S]

This is the relationship of the gear unit rated power to the power of the electric motor actually driving the unit.

## ضریب ایمنی [S]

این رابطه قدرت مجاز گیربکس به قدرت موتور الکتریکی در واقع همان راننده است.

$$S = \frac{P_{n1}}{P_1}$$

## Selecting a gearmotor

Consider the specific application and establish on beforehand:

a) service factor fs according to type of load, number of starts per hour and expected lifetime (tab. A3.);
b) Required drive power:

## انتخاب یک گیرموتور

کاربرد خاصی را در نظر گرفته و قبل از آن ایجاد کنید:

a) فاکتور خدمات $f_s$ با توجه به نوع بار، تعداد شروع در ساعت و طول عمر مورد انتظار از جدول A3 بخوانید.
b) قدرت درایو مورد نیاز:

$$P_{r1} = \frac{M_{r2} \times n_2}{9550 \times \eta_d}$$

Table (A2) lists the indicative values of efficiency $\eta_d$ for the different types of gearboxes.

در جدول (A2) لیست مقادیر بازده $\eta_d$ برای انواع مختلف گیربکس مشخص شده است.

c) After required power $P_{r1}$ and output speed $n_2$ are known, locate the gearmotor rating charts and select the one relevant to normalized power $P_n$ equal to or greater than $P_{r1}$:

c) پس از نیروی مورد نیاز $P_{r1}$ و سرعت خروجی $n_2$ که شناخته شده است، به جدول گیربکس ها رفته و یک مورد مربوط به توان $P_n$ برابر یا بیشتر از $P_{r1}$ را انتخاب کنید:

$$P_n \geq P_{r1}$$

For the output speed n2, or closest to, select the gearmotor that yields a safety factor S meeting the following condition:

برای سرعت خروجی $n_2$، یا نزدیکترین به آن، گیرموتوری را انتخاب کنید که فاکتور ایمنی S مطابق با شرایط زیر باشد:

$$S \geq f_s$$

## Selecting a gearbox

Examine the application and establish:

a) service factor fs according to type of load, number of starts per hour and required lifetime (tab. A4);
b) Determine calculated torque according to required output torque Mr2 as follows:

## انتخاب یک گیربکس

بررسی کاربرد و ایجاد آن:

a) فاکتور خدمات $f_s$ با توجه به نوع بار، تعداد شروع در ساعت و طول عمر مورد انتظار از جدول A3 بخوانید.
b) گشتاور محاسبه شده را با توجه به گشتاور خروجی مورد نظر $M_{r2}$ به صورت زیر تعیین کنید:

$$M_{c2} = M_{r2} \times f_s$$

Determine gear ratio from required output speed $n_2$ and drive speed $n_1$:

مقدار نسبت گیربکس را از سرعت خروجی مورد نیاز $n_2$ و سرعت درایو $n_1$ تعیین کنید:

$$i = \frac{n_1}{n_2}$$

Once $M_{c2}$ and i are determined, locate the gearbox rating chart for the drive speed $n_1$ and select a gearbox featuring the ratio i nearest to calculated ratio that also satisfies the condition:

هنگامی که $M_{c2}$ و i تعیین می شود، به جدول انتخاب گیربکس سرعت درایو n1 رفته و یک گیربکس با نسبت نزدیکترین به محاسبه را انتخاب می کنیم که همچنین شرایط را رعایت کند:

$$M_{n2} \geq M_{c2}$$

## VERIFICATIONS

## تائیدیه

After the gearbox has been selected check the following:

پس از انتخاب گیربکس، موارد زیر را بررسی کنید:

### a) Thermal capacity

### a) ظرفیت گرمایی

Make sure that the thermal capacity of the gearbox is equal to or greater than the mechanical power required by the application, as per equation at page 6. If this is not the case provide a supplementary cooling system (see chap. 29) or select a larger gearbox.

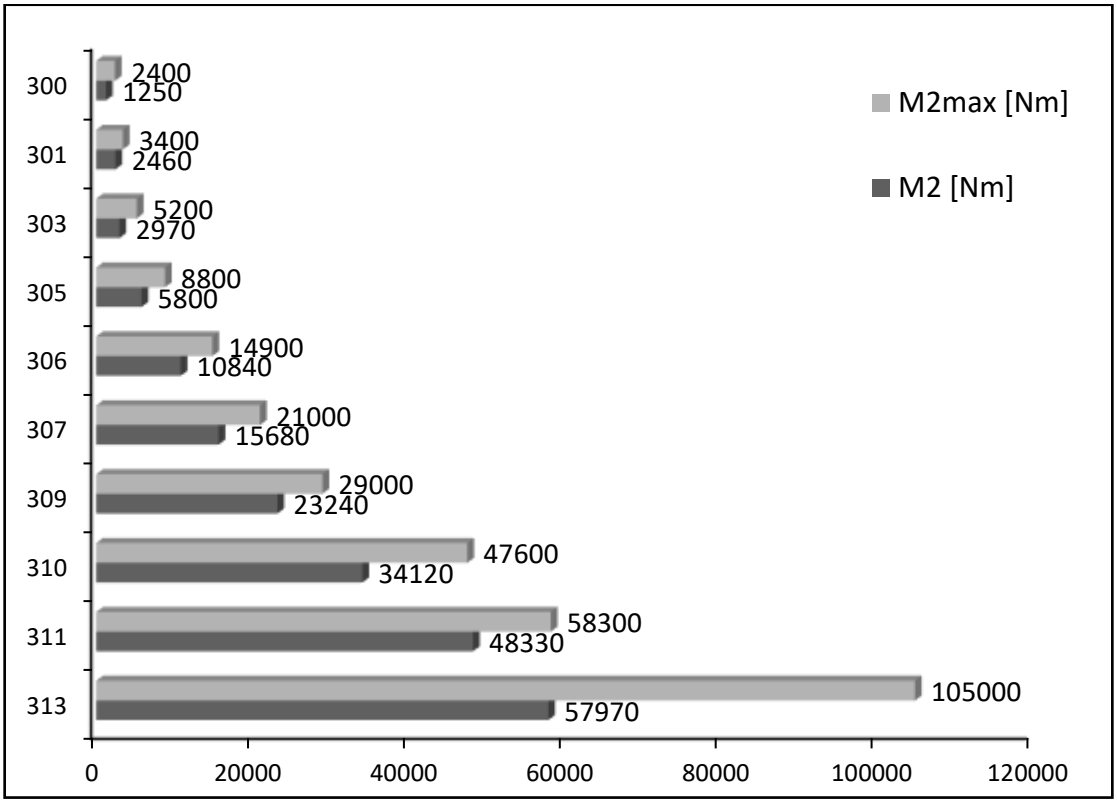
اطمینان حاصل کنید که ظرفیت حرارتی گیربکس برابر یا بیشتر از قدرت مکانیکی مورد نیاز کاربرد باشد، همانطور که در معادله صفحه ۶ آمده. اگر این مورد نیست، یک سیستم خنک کننده مکمل فراهم شود یا یک گیربکس بزرگتر را انتخاب کنید.

### b) Maximum torque

### b) بیشترین گشتاور

Make sure that neither the momentary peak torque nor the starting torque under load ever exceed the $M_{2max}$ value that the gearbox is rated for (see figure).

اطمینان حاصل کنید که نه گشتاور اوج لحظه ای و نه گشتاور شروع تحت بار از مقدار $M_{2max}$ که برای گیربکس مجاز است فراتر نرود (به نمودار نگاه کنید).




**Overhung load**

Examine the application and establish:

overhung load applying to input and/or output shaft through the following formula:

$$R_{c1-2} = \frac{2000 \times M_{c1-2} \times K_r}{d}$$

$R_{c1-2}$ overhung load (N)

1 = for input shaft

2 = for output shaft

$M_{r1-2}$ Torque at the shaft (Nm)

d P.C.D (mm) of transmission element (sprocket, gear, pulley, etc.)

$K_r$ =1 chain transmission

$K_r$ =1.25 gear transmission

$K_r$ =1.5-2.5 V-belt transmission

**بار معلق**

کاربرد را بررسی و ایجاد کنید:

بار معلق وارده به شافت ورودی و / یا خروجی از طریق

فرمول زیر محاسبه می شود:

$R_{c1-2}$ بار معلق (N)

۱ = برای شفت ورودی

۲ = برای شفت خروجی

$M_{r1-2}$ گشتاور در شافت (Nm)

d. P.C.D (میلی متر) عنصر انتقال (زنجیر، چرخ دنده، قرقره و غیره)

$K_r$ = 1 انتقال با زنجیره

$K_r$ = 1.25 انتقال با دنده

$K_r$ = 1.5-2.5 V انتقال با تسمه

## I. output shaft

Define the trust load position X onto shaft. Check this value with the chart indicating the load $R_{x2}$ bearable by the gearbox. Check that the following is satisfied:

$$R_{c2} \leq R_{x2} \times fh$$

## a) input shaft

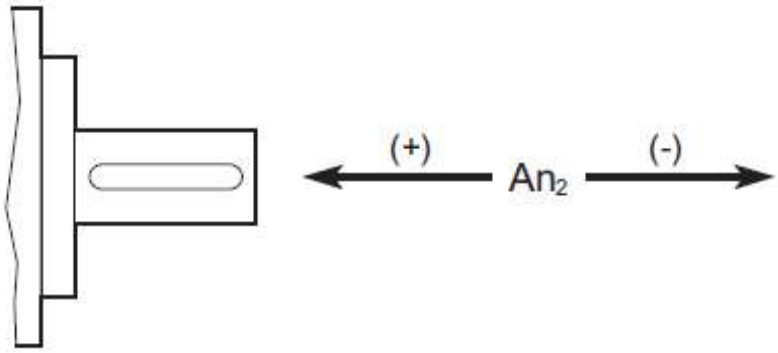
Define the trust load position X onto shaft. Check this value with the chart indicating the load $R_{x1}$ bearable by the gearbox. Check that the following is satisfied:

$$R_{c1} \leq R_{x1} \times fh$$

## Thrust loads

Check the thrust load, when exerted onto the output shaft, as specified for the radial load. The following should be satisfied:

$$\pm A_{C2} \leq \pm A_{n2} \times fh_2$$




## SELECTING THE MOTOR

a) Through the formula here after calculate the power required to gearbox input shaft. The following parameters must be determined on beforehand:
   - required torque $M_{r2}$
   - output speed $n_2$
- - efficiency $\eta_d$

$$P_{r1} = \frac{M_{r2} \times n_2}{9550 \times \eta_d}$$

## I. شافت خروجی

تعریف موقعیت بار محوری X بر روی شافت. این مقدار را با جدول که $R_{x2}$ بار قابل تحمل گیربکس است چک می کنیم. از اجرای موارد زیر اطمینان حاصل کنید:

## II. شافت ورودی

موقعیت بار محوری X بر روی شافت را تعیین کنید. این مقدار را با جدول که $R_{x1}$ بار قابل تحمل گیربکس است چک می کنیم. از اجرای موارد زیر اطمینان حاصل کنید:

## بار محوری

هنگام بارگذاری بر روی محور خروجی، همانطور که برای بار شعاعی مشخص شده است، بار محوری را باید بررسی کنید. از حصول شرط زیر اطمینان حاصل کنید:

## انتخاب موتور

a) از طریق فرمول زیر توان مورد نیاز برای شافت ورودی گیربکس را محاسبه می کنیم. پارامترهای زیر باید قبل از آن مشخص شوند:
   - گشتاور مورد نیاز $M_{r2}$
   - سرعت خروجی $n_2$
   - بهره وری $\eta_d$ –

Table (A2) lists the efficiency values $\eta_d$ for the various types of gearboxes.

i. select a motor that is sufficiently rated, as per the following condition:

$$P_n \geq P_{r1}$$

## INSTALLATION

Observing a few rules for correct installation is essential to the reliable and proper operation of the gearbox. The rules set out here are intended as a preliminary guide to selecting gearbox. Following is a brief outline of installation rules:

### i. Fastening

Place the gearbox on a surface providing adequate rigidity. Mating surfaces should be machined and flat.

This applies specially to flange-mounted gearboxes with splined hollow output

shafts.

In applications that involve high radial loads at the output end, flange mounting is recommended for some gearboxes as this mounting pattern benefits from the double pilot diameters provided on these gearboxes.

Make sure the gearbox is suitable for the required mounting position.

Use bolts of grade 8.8 or greater to secure the gearbox. Tighten the bolts to the rated values specified in the relevant charts. With transmitted torque greater than or equal to 70% of the given $M_{2max}$, and with frequent reversals, use bolts with minimum grade 10.9. Some gearboxes can be fastened using both bolts and pins. If a pin is used, the portion of the pin inserted into the structure the gearbox is being installed to should be at least 1.5 times its diameter.

جدول (A2) مقادیر بازده $\eta_d$ برای انواع مختلف گیربکس ها را فهرست می کند.

b) یک موتور را انتخاب کنید که در آن شرط زیر اجرا شود:

## نصب

رعایت چند قاعده برای نصب صحیح و عملکرد قابل اطمینان و مناسب گیربکس ضروری است. قوانین مندرج در اینجا به عنوان راهنمایی اولیه برای انتخاب گیربکس می باشد. در زیر شرح مختصری از قوانین نصب است:

### i. بست

گیربکس را در یک سطح با استحکام کافی قرار داده. سطوحی که با گیربکس تماس مستقیم دارند باید ماشینکاری شده و مسطح باشند.

این به ویژه برای گیربکس های هالو شافت هزار خار فلنچدار صادق می باشد.

در کاربرد هایی که دارای بارهای شعاعی بالایی در خروجی هستند، برای برخی از گیربکس ها، نصب فلنچ توصیه می شود، زیرا این الگوی نصب از دو قطر دوگانه در این گیربکس ها استفاده می کند.

اطمینان حاصل کنید که گیربکس برای موقعیت نصب مورد نیاز مناسب است.

از پیچ و مهره های با درجه ۸.۸ یا بیشتر برای ایمن کردن گیربکس استفاده کنید. پیچ ها را به مقادیر مشخص شده در جدول مربوطه سفت کنید. برای گشتاور های بزرگتر یا مساوی با ۷۰٪ از $M_{2max}$ داده شده و با معکوس کردن دور مکرر، از پیچ و مهره با حداقل درجه ۱۰.۹ استفاده شود. برخی از گیربکس ها می توانند با استفاده از هر دوی پیچ و پین بسته شوند. اگر از پین استفاده شود، قسمت پین وارد شده به ساختار گیربکس نصب شده باید حداقل ۱.۵ برابر قطر آن باشد.

## ii. Connections

When fitting transmission elements onto the gearbox do not tap them with hammers or similar tools. To slide these parts in, use the service screws and taps provided at the shaft ends. Be sure to clean off any grease or rust preventative from the shafts before fitting any parts.

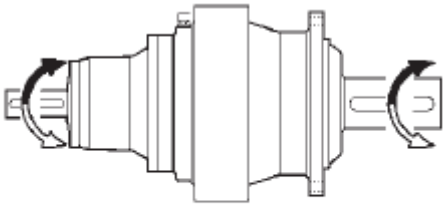
Direction of rotation Before wiring the motor please note the input/output shaft arrangement, as described in the diagram here after:

## ii. اتصالات

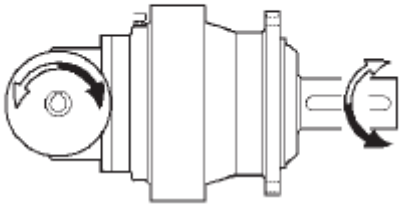
هنگامیکه اتصالات انتقال را روی گیربکس قرار دهید، آنها را با چکش یا ابزار مشابهی متصل نکنید. برای کشیدن این قسمت ها، از پیچ ها و خزینه های ارائه شده روی شافت استفاده کنید. قبل از نصب هر بخش، مطمئن شوید که گریس یا زنگ زدگی را از روی شافت تمیز کرده باشید.

لطفاً به جهت چرخش قبل از سیم کشی موتور برای شافت ورودی / خروجی، همانطور که در شکل زیر شرح داده شده توجه داشته باشید:

In line (L)



Right angle (R)



## iii. Lubrication

Prior to commissioning, fill the gearbox with the recommended type and quantity of oil (see: Lubrication (prior to start-up)). The level is to be checked through the appropriate plug, or sight glass, each gearbox is provided with, and located according to the mounting position originally specified.

## iii. روانکاری

قبل از راه اندازی، گیربکس را با نوع و مقدار توصیه شده روغن پر کنید (به روانکاری (در زمان راه اندازی) مراجعه شود). سطح باید از طریق درپوش مناسب یا شیشه بینایی، برای هر گیربکس با توجه به موقعیت نصب شده که باید در ابتدا مشخص شده باشد، مورد بررسی قرار گیرد.

## MAINTENANCE

Check the tightness of mounting bolts after the initial 50 hours of operation. Change the oil first after 100-150 hours operation.

Subsequently, change the oil every 2000 - 3000 hours operation, depending on the application. Alternatively change oil once a year.

However, oil level should be checked at regular intervals and topped up as required.

Check monthly if unit operates under intermittent duty, more frequently if duty is continuous.

## نگهداری

بعد از ۵۰ ساعت اول کاری، سفتی پیچ و مهره های نصب را بررسی کنید. برای اولین بار بعد از ۱۰۰-۱۵۰ ساعت، روغن را تعویض کنید.

پس از آن، بسته به کاربرد، هر ۲۰۰۰ تا ۳۰۰۰ ساعت عملیات را تغییر دهید. به نوبت روغن را یک بار در سال تغییر دهید.

با این حال، سطح روغن باید در فواصل منظم بررسی شود و در صورت لزوم اضافه شود.

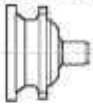
در صورت کارکرد متناوب ، سطح روغن را به طور ماهانه چک کنید، اگر کارکرد مستمر باشد، بیشتر بکار می رود.

## GEARBOX DESIGNATION

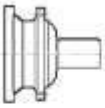
## نامگذاری گیربکس

**3 11 L 2 16.7 HZ**

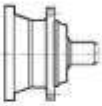
OUTPUT VERSION / خروجی



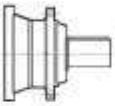
**MZ:** Splined male shaft
شافت خروجی هزار خار



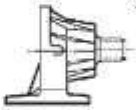
**MC:** Solid keyed shaft
شافت خروجی تک خار



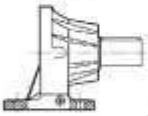
**HZ:** Heavy duty splined male shaft
شافت خروجی سنگین هزار خار



**HC:** Heavy duty solid keyed shaft
شافت خروجی سنگین تک خار



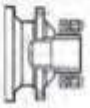
**PZ:** Foot base with splined shaft
شافت خروجی پایه دار هزار خار



**PC:** Foot base with solid keyed shaft
شافت خروجی پایه دار تک خار

**FZ / FZB:** Hollow splined shaft
شافت خروجی توخالی هزار خار

**VK:** Reinforced output with heavy duty keyed shaft for stirrers and mixer
خروجی تقویت شده با شافت موازی برای همزن ها و میکسر ها

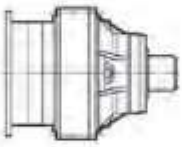


**FP:** Hollow shaft for shrink disc
شافت خروجی توخالی برای شیرینک

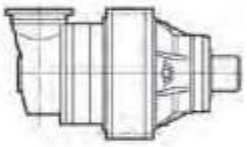
Reduction ratio/نسبت تبدیل

No. OF REDUCTIONS / تعداد استیج
**1, 2, 3, 4**

DESIGN / مدل
**L** = Linear مستقیم



**R** = Right angle راست زاویه



GEARBOX SIZE / سایز گیربکس

| | | | | |
|---|---|---|---|---|
| **00** = 300 | **05** = 305 | **10** = 310 | **16** = 316 | **21** = 321 |
| **01** = 301 | **06** = 306 | **11** = 311 | **17** = 317 | |
| **03** = 303 | **07** = 307 | **13** = 313 | **18** = 318 | |
| **04** = 304 | **09** = 309 | **15** = 315 | **19** = 319 | |

SERIES

## MOUNTING POSITION

The product designation is only complete when the mounting position is also specified. Please refer to table (A4) for in-line gear units and to (A5) for right angle drives.

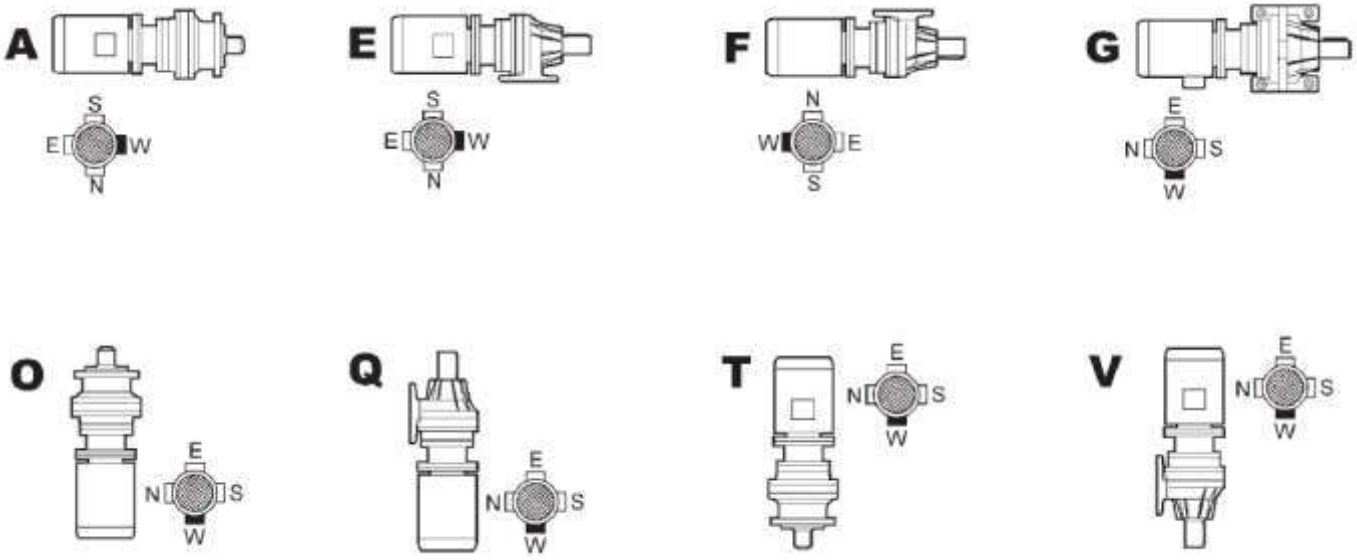
## I. In-line units

## حالات نصب

تعیین محصول زمانی کامل می شود که موقعیت نصب نیز مشخص شود. لطفاً به جدول (A4) برای گیربکس های مستقیم و (A5) برای گیربکس های زاویه راست مراجعه شود.

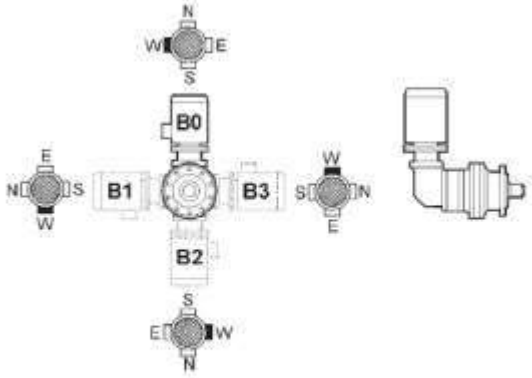
## I. گیربکس های مستقیم

جدول (A4)

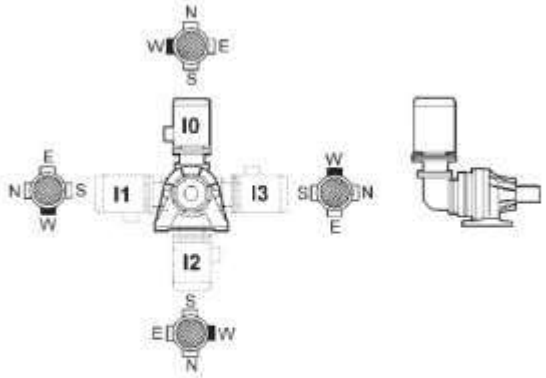


جدول (A6)

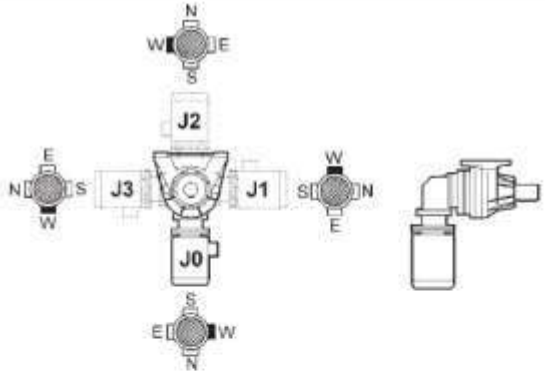
## B0 - B1 - B2 - B3



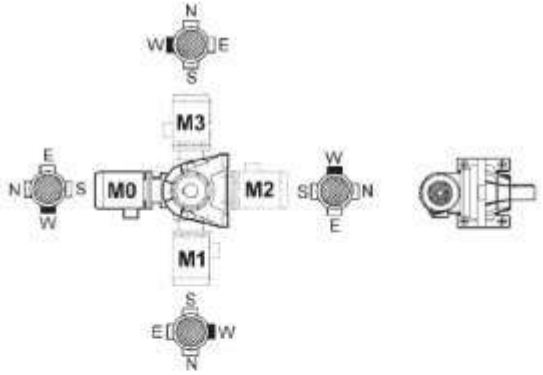

## I0 - I1 - I2 - I3



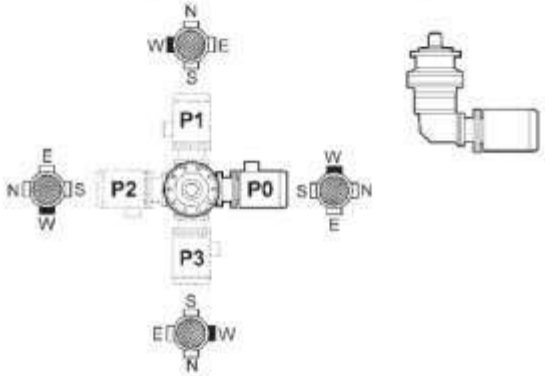

## J0 - J1 - J2 - J3



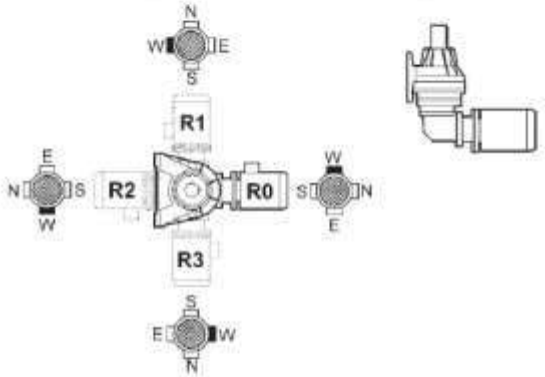

## M0 - M1 - M2 - M3



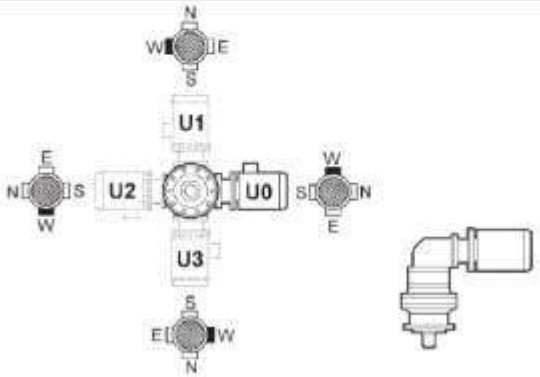

## P0 - P1 - P2 - P3



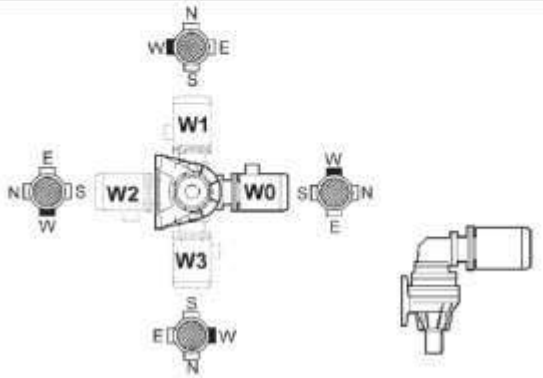

## R0 - R1 - R2 - R3




## U0 - U1 - U2 - U3




## W0 - W1 - W2 - W3



## **LUBRICATION** (prior to start-up)

Gear units are oil lubricated. For gearboxes specified for vertical installation, whereas the oil coverage may not be sufficient to ensure proper lubrication of the uppermost bearings, extra lubrication provisions are used.

Operation of gear units is permitted at ambient temperatures between -20°C and +40°C. However, for temperatures between -20°C and -10°C unit may only start up after it has been progressively and evenly pre-heated, or otherwise initially operated unloaded. Load may then be connected to the output shaft when the gear unit has reached the temperature of -10°C, or higher.

Prior to starting-up, fill the gearbox with the appropriate quantity of oil, selecting the viscosity as per table (A14).

The table (A14) lists the most common brands of lubricant and the types recommended for normal applications.

- Note: For applications with non-routine operating conditions, consult factory with complete information.
- Oil temperature must not exceed 85-90°C in operation.
- The oil capacities listed for the various types of unit are indicative only. Fill the gearbox up to the level plug, located as per the mounting position specified.
- Should transmitted power exceed the thermal capacity of the unit a supplementary cooling unit must be provided.

## **روانکاری** (قبل از راه اندازی)

گیربکس روغن کاری شده است. برای گیربکس تعیین شده برای نصب عمودی، در حالی که پوشش روغن ممکن است برای اطمینان از روغنکاری مناسب بالاترین یاتاقان کافی نباشد، مقررات روانکاری اضافی استفاده می شود

عملکرد گیربکس در دما های محیط بین ۲۰- درجه سانتی گراد و ۴۰+ درجه سانتیگراد مجاز است. با این حال، برای درجه حرارت بین ۲۰- C ° و ۱۰- C ° واحد ممکن است تنها پس از آن که به طور مداوم و به طور مساوی قبل از شروع به کار گرم شود، یا در غیر این صورت در ابتدا بارگیری نشود. سپس بار می تواند به شفت خروجی متصل شود، هنگامی که دستگاه گیربکس به دمای ۱۰- درجه سانتیگراد یا بالاتر رسیده باشد.

قبل از راه اندازی، گیربکس را با مقدار مناسب روغن پر کنید، برای انتخاب ویسکوزیته به جدول (A7) مراجعه کنید.

جدول (A7) لیستی از رایج ترین مارک های روان کننده و انواع توصیه شده برای کاربرد های معمول را نشان می دهد.

- توجه: برای کاربرد های با شرایط عملیاتی غیر معمول، برای اطلاعات کامل با کارخانه مشورت کنید.
- دمای روغن نباید بیش از ۸۵-۹۰ درجه سانتیگراد در عمل باشد.
- ظرفیت های واسکازین ذکر شده برای انواع مختلف گیربکس تنها اخباری است. گیربکس را تا سطح پلاگین پر کنید، همانطور که در موقعیت مکانی مشخص شده است.
- - اگر قدرت ورودی از ظرفیت حرارتی واحد فراتر رود، واحد خنک کننده مکمل باید ارائه شود.

| ISO standard 3448 EP grade | | | |
|---|---|---|---|
| **Ta** | **-10°C / +30°C** | **+10°C / +45°C** | **-20°C / +60°C** |
| | ISO VG 150 | ISO VG 220 | ISO VG 150-220 |
| SHELL | OMALA S4 WE 150 | OMALA S4 WE 220 | OMALA S4 WE |
| TOTAL | CARTER EP 1500 | CARTER EP 2200 | CARTER SH 150-220 |
| **بهران بردبار** | **بهران بردبار ۱۵۰** | **بهران بردبار ۲۲۰** | |

The temperature of the gear case should never exceed 80-85°C at the hottest point.

دمای پوسته گیربکس هرگز نباید بیش از ۸۰-۸۵ درجه سانتیگراد در داغ ترین نقطه باشد.

## Oil plug positions

## موقعیت درپوش های روغن

### ALL UNITS

1 Filler/breather oil plug

2 Oil level plug

3 Oil draining plug

### تمام واحد ها

۱ درپوش پرکننده روغن

۲ درپوش سطح روغن

۳ درپوش تخلیه روغن

### 1 STAGE IN-LINE GEAR UNITS

1A Filler/breather oil plug

3A Oil draining plug

### ۱ استیج مستقیم

A۱ درپوش پرکننده روغن

A۳ درپوش تخلیه روغن

### 2 STAGE RIGHT ANGLE GEAR UNITS

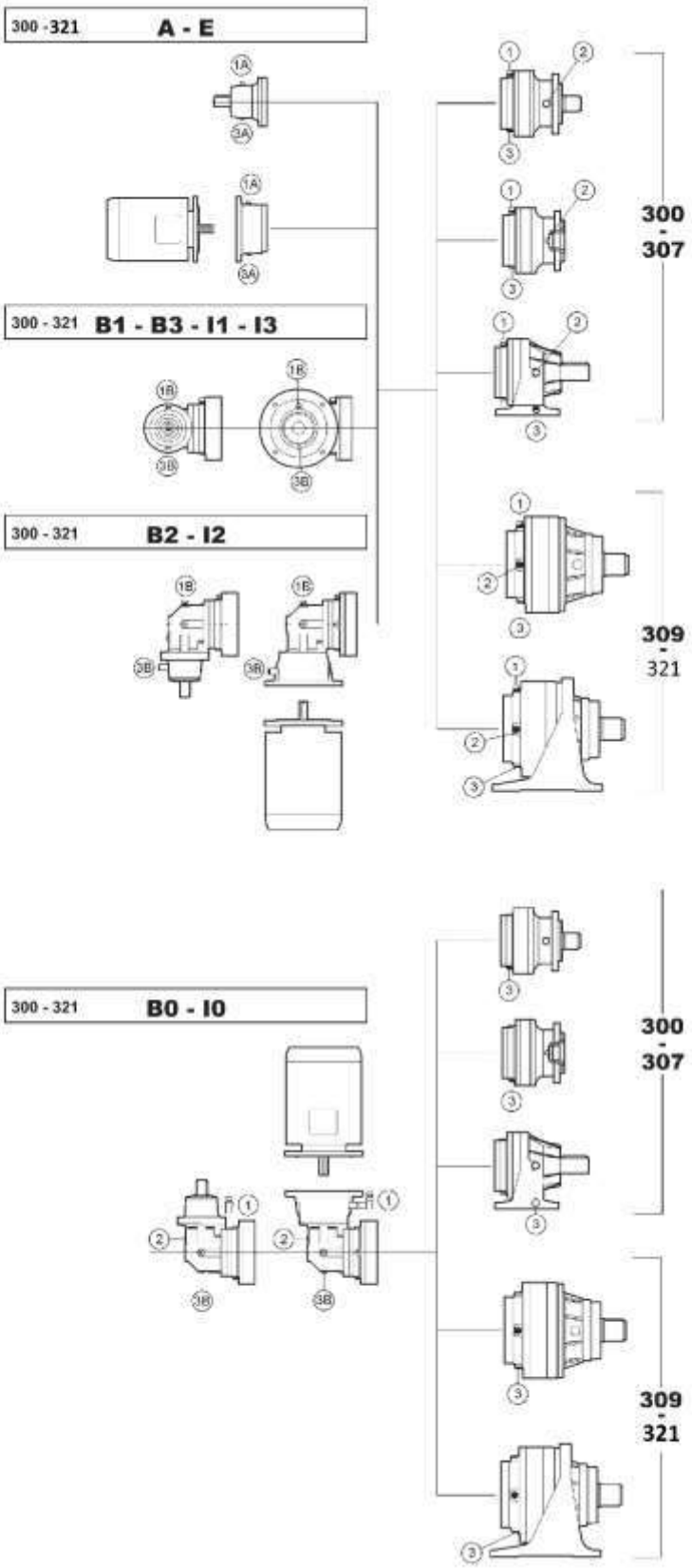
1B Filler/breather oil plug

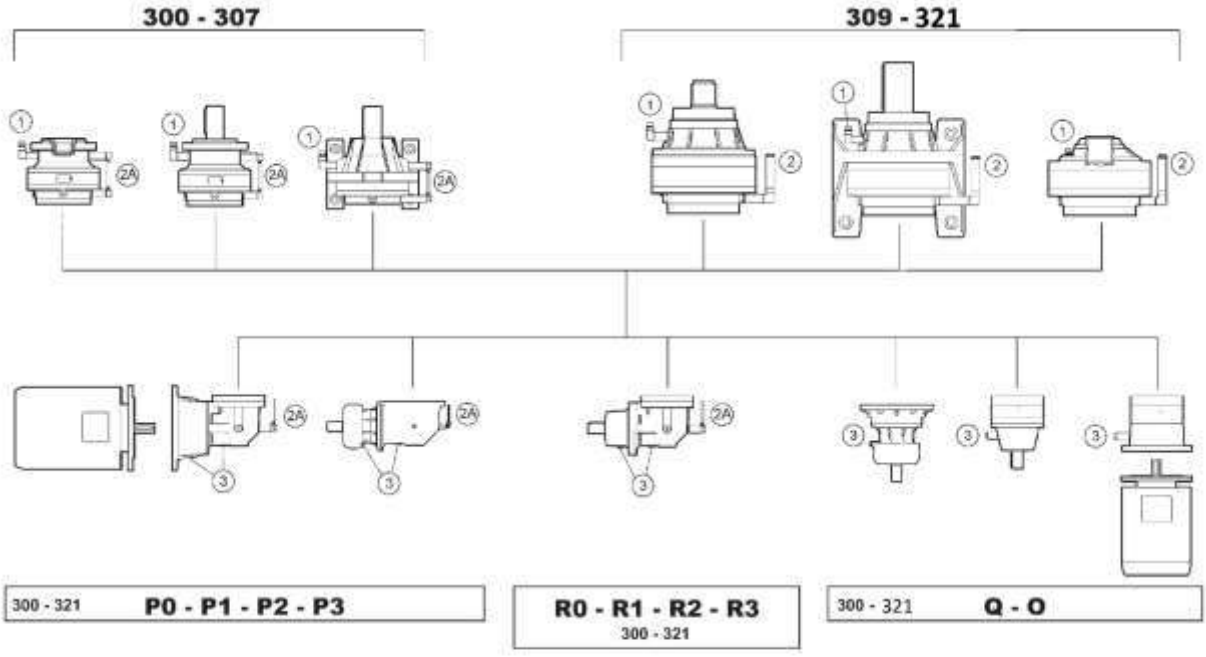
3B Oil draining plug

### ۲ استیج راست زاویه

B۱ درپوش پرکننده روغن

B۳ درپوش تخلیه روغن


300 -321 A - E
300 - 321 B1 - B3 - I1 - I3
300 - 321 B2 - I2
300 - 321 B0 - I0
300 - 307
309 - 321
300 - 307
309 - 321

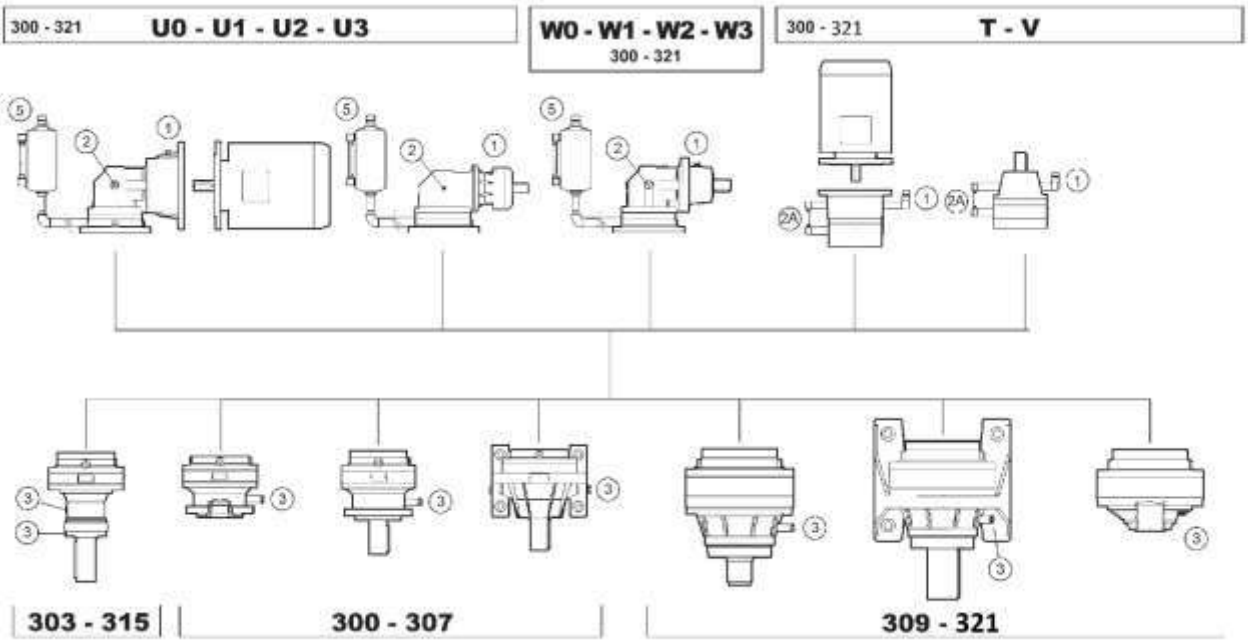



## ALL GEARBOXES

1 Filler/breather oil plug
2 Oil level plug
3 Transparent oil level pipe
4 Oil draining plug
5 Expansion tank for continuous duty

## همه گیربکس ها

۱ درپوش پرکننده روغن
۲ درپوش سطح روغن
۳ لوله سطح شفاف
۴ درپوش تخلیه روغن
۵ مخزن انبساط برای وظیفه مستمر



## Oil quantity (l) 3_L Series

## مقدار روغن (l) سری 3_L

| | | Mounting position موقعیت نصب | | |
|---|---|---|---|---|
| | | A | T | O |
| 300 | L1 | 0.6 | 1 | 0.9 |
| | L2 | 0.9 | 1.3 | 1.2 |
| | L3 | 1.2 | 1.6 | 1.5 |
| | L4 | 1.5 | 1.9 | 1.8 |
| 301 | L1 | 0.8 | 1.2 | 1.1 |
| | L2 | 1.1 | 1.5 | 1.4 |
| | L3 | 1.4 | 1.8 | 1.7 |
| | L4 | 1.7 | 2.1 | 2 |
| 303 | L1 | 1.3 | 2.3 | 2 |
| | L2 | 1.6 | 2.6 | 2.3 |
| | L3 | 1.9 | 2.9 | 2.6 |
| | L4 | 2.2 | 3.2 | 2.9 |
| 305 | L1 | 1.6 | 2.6 | 2.4 |
| | L2 | 2.1 | 3.1 | 2.9 |
| | L3 | 2.4 | 3.4 | 3.2 |
| | L4 | 2.7 | 3.7 | 3.5 |
| 306 | L1 | 2.5 | 3.5 | 3.2 |
| | L2 | 3.3 | 4.3 | 4 |
| | L3 | 3.6 | 4.6 | 4.3 |
| 307 | L1 | 3.5 | 5 | 4.5 |
| | L2 | 4.5 | 6 | 5.5 |
| | L3 | 5 | 6.5 | 6 |
| | L4 | 5.3 | 6.8 | 6.3 |
| 309 | L1 | 4 | 5.5 | 5 |
| | L2 | 5 | 6.5 | 6 |
| | L3 | 5.5 | 7 | 6.5 |
| | L4 | 5.8 | 7.3 | 6.8 |
| 310 | L1 | 5 | 6.5 | 6 |
| | L2 | 6.3 | 7.8 | 7.3 |
| | L3 | 7.1 | 8.6 | 8.1 |
| | L4 | 7.4 | 8.9 | 8.4 |

| | | Mounting position موقعیت نصب | | |
|---|---|---|---|---|
| | | A | T | O |
| 310 | L1 | 5 | 6.5 | 6 |
| | L2 | 6.3 | 7.8 | 7.3 |
| | L3 | 7.1 | 8.6 | 8.1 |
| | L4 | 7.4 | 8.9 | 8.4 |
| 311 | L1 | 7 | 12 | 10 |
| | L2 | 9 | 14 | 12 |
| | L3 | 10 | 15 | 13 |
| | L4 | 11 | 16 | 14 |
| 313 | L1 | 9 | 14 | 12 |
| | L2 | 12 | 17 | 15 |
| | L3 | 13 | 18 | 16 |
| | L4 | 13 | 18 | 16 |
| 315 | L1 | 15 | 23 | 19 |
| | L2 | 19 | 27 | 23 |
| | L3 | 21 | 29 | 25 |
| | L4 | 22 | 31 | 26 |
| 316 | L2 | 22 | 30 | 26 |
| | L3 | 24 | 32 | 28 |
| | L4 | 25 | 33 | 29 |
| 317 | L2 | 26 | 41 | 36 |
| | L3 | 29 | 44 | 39 |
| | L4 | 32 | 45 | 40 |
| 318 | L2 | 35 | 50 | 45 |
| | L3 | 40 | 55 | 50 |
| | L4 | 43 | 58 | 53 |
| 319 | L2 | 45 | 65 | 55 |
| | L3 | 50 | 70 | 60 |
| | L4 | 53 | 73 | 63 |
| 321 | L3 | 56 | 76 | 66 |
| | L4 | 60 | 80 | 70 |

## Oil quantity (l) 3_R Series

## مقدار روغن (l) سری 3_R

|  | | Mounting position<br>موقعیت نصب | | |
|---|---|---|---|---|
| | | B0 | U_ | P_ |
| 300 | R2 | 1.2 | 1.7 | 1.5 |
| | R3 | 1.5 | 2 | 1.8 |
| | R4 | 1.8 | 2.3 | 2.1 |
| 301 | R2 | 1.6 | 2.1 | 1.9 |
| | R3 | 1.9 | 2.4 | 2.2 |
| | R4 | 2.2 | 2.7 | 2.5 |
| 303 | R2 | 2.2 | 2.8 | 2.6 |
| | R3 | 2.5 | 3.1 | 2.9 |
| | R4 | 2.8 | 3.4 | 3.2 |
| 305 | R2 | 2.5 | 3.1 | 2.9 |
| | R3 | 3 | 3.6 | 3.4 |
| | R4 | 3.3 | 3.9 | 3.7 |
| 306 | R2 | 4 | 5 | 4.8 |
| | R3 | 4.8 | 5.8 | 5.6 |
| | R4 | 5.1 | 6.1 | 5.9 |
| 307 | R2 | 6 | 8 | 7 |
| | R3 | 7 | 9 | 8 |
| | R4 | 7.5 | 9.5 | 8.5 |

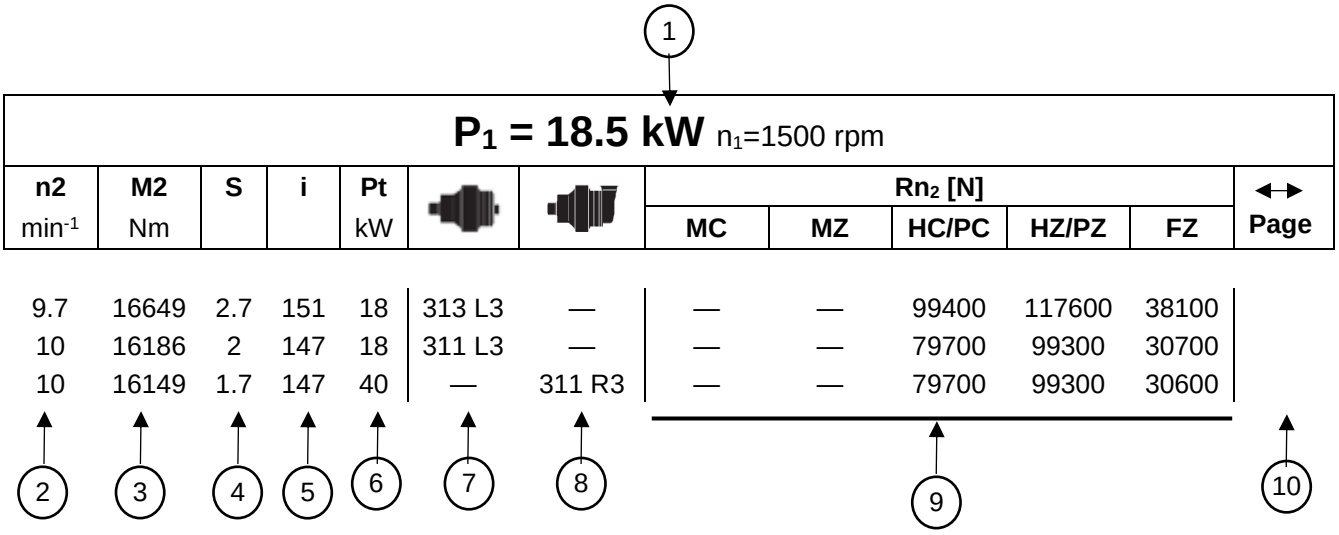
N.B. Oil quantities are indicative. Check actual level after filling through the appropriate plug.

|  | | Mounting position<br>موقعیت نصب | | |
|---|---|---|---|---|
| | | B0 | U_ | P_ |
| 309 | R2 | 6.5 | 8.5 | 7.5 |
| | R3 | 7.5 | 9.5 | 8.5 |
| | R4 | 8 | 10 | 9 |
| 310 | R2 | 13 | 15 | 14 |
| | R3 | 11 | 13 | 12 |
| | R4 | 12 | 14 | 13 |
| 311 | R2 | 14 | 19 | 17 |
| | R3 | 16 | 21 | 19 |
| | R4 | 17 | 22 | 20 |
| 313 | R2 | 16 | 21 | 19 |
| | R3 | 19 | 24 | 22 |
| | R4 | 20 | 25 | 23 |
| 315 | R3 | 27 | 35 | 31 |
| | R4 | 30 | 38 | 34 |
| 316 | R3 | 30 | 38 | 34 |
| | R4 | 33 | 41 | 37 |
| 317 | R3 | 38 | 52 | 48 |
| | R4 | 42 | 56 | 52 |
| 318 | R4 | 48 | 63 | 58 |

توجه شود مقادیر روغن اخباری هستند. پس از پر کردن از طریق درپوش مناسب، سطح واقعی را بررسی کنید.

## 3_ L – 3_ R GEARMOTOR RATING CHARTS

## جدول گیرموتور سری 3_ R – 3_ L بر اساس نسبت آن




1. Rating of electric motor connected to the gearbox
2. Gearbox output speed
3. Torque delivered at output shaft
4. Safety factor
5. Gear ratio
6. Gearbox thermal capacity
7. Frame size of the in-line gear unit
8. Frame size of the right-angled gear unit

NOTE: Suffix (B) or (C) alongside the frame size refer to different bevel gear sets. See installation drawings for reference

9. Permitted overhung loading on output shaft, based on:
   - safety factor S=1
   - 10000 hrs. theoretical lifetime

For forces not applying at shaft midpoint, see diagrams provided in the pages following dimensions of the specific gearbox

10. gearbox dimensions page

۱. توان موتور الکتریکی متصل به گیربکس
۲. سرعت خروجی گیربکس
۳. گشتاور تحویلی در شافت خروجی
۴. ضریب ایمنی
۵. نسبت گیربکس
۶. ظرفیت حرارتی گیربکس
۷. سایز گیربکس مستقیم
۸. سایز گیربکس راست زاویه

نکته: علامت (B) یا (C) در کنار اندازه قاب، به مجموعه های مختلف چرخ دنده اشاره دارد. نقشه های نصب را برای مرجع مشاهده کنید.

۹. حد مجاز بارگذاری بر روی شافت خروجی، بر اساس:
   - فاکتور ایمنی S = 1
   - ۱۰۰۰۰ ساعت عمر نظری

برای نیروهایی که در نقطه مرکزی شافت قرار ندارند، نمودارهای را که در صفحات بعد از ابعاد گیربکس ارائه شده است، مشاهده کنید

۱۰. شماره صفحه ابعاد گیربکس

## $P_1$ = 0.25 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.47 | 4439 | 1.6 | 2916 | 6 | 306 L4 | — | 45000 | 51000 | 101000 | 119000 | 35000 | 248 |
| 0.57 | 3688 | 3 | 2423 | 7.5 | 307 L4 | — | — | — | 109000 | 145000 | 45000 | 256 |
| 0.59 | 3557 | 2 | 2337 | 6 | 306 L4 | — | 45000 | 51000 | 101000 | 119000 | 35000 | 248 |
| 0.62 | 3415 | 1.1 | 2243 | 6 | 305 L4 | — | 36000 | 42000 | 64000 | 74000 | 24000 | 240 |
| 0.67 | 3157 | 2.2 | 2074 | 6 | 306 L4 | — | 45000 | 51000 | 101000 | 119000 | 35000 | 248 |
| 0.69 | 3031 | 0.9 | 1991 | 6 | 303 L4 | — | 36000 | 42000 | 64000 | 74000 | 24000 | 232 |
| 0.69 | 3031 | 1.8 | 1991 | 6 | 305 L4 | — | 36000 | 42000 | 64000 | 74000 | 24000 | 240 |
| 0.74 | 2823 | 1.7 | 1854 | 6 | 305 L4 | — | 36000 | 42000 | 64000 | 74000 | 24000 | 240 |
| 0.87 | 2415 | 0.9 | 1586 | 6 | 303 L4 | — | 36000 | 42000 | 64000 | 74000 | 24000 | 232 |
| 0.87 | 2415 | 2 | 1586 | 6 | 305 L4 | — | 36000 | 42000 | 64000 | 74000 | 24000 | 240 |
| 1 | 2086 | 1.2 | 1370 | 6 | 303 L4 | — | 36000 | 42000 | 62200 | 74000 | 23800 | 232 |
| 1 | 2086 | 2.2 | 1370 | 6 | 305 L4 | — | 36000 | 42000 | 62200 | 74000 | 23800 | 240 |
| 1.1 | 1946 | 1.4 | 1278 | 6 | 303 L4 | — | 36000 | 41900 | 60900 | 73300 | 23300 | 232 |
| 1.1 | 1946 | 2.8 | 1278 | 6 | 305 L4 | — | 36000 | 41900 | 60900 | 73300 | 23300 | 240 |
| 1.1 | 1941 | 1.2 | 1275 | 6 | 301 L4 | — | 11800 | 11800 | 29800 | 34000 | 7750 | 226 |
| 1.2 | 1687 | 1 | 1108 | 6 | 301 L4 | — | 11300 | 11300 | 28600 | 32900 | 7400 | 226 |
| 1.3 | 1671 | 1.4 | 1098 | 6 | 303 L4 | — | 34500 | 39800 | 58200 | 70000 | 22100 | 232 |
| 1.3 | 1671 | 2.7 | 1098 | 6 | 305 L4 | — | 34500 | 39800 | 58200 | 70000 | 22100 | 240 |
| 1.4 | 1555 | 1.5 | 1022 | 6 | 301 L4 | — | 11000 | 11000 | 27900 | 32100 | 7200 | 229 |
| 1.4 | 1551 | 1.8 | 1018 | 6 | 303 L4 | — | 33600 | 38800 | 56900 | 68500 | 21600 | 232 |
| 1.5 | 1434 | 1.6 | 942 | 6 | 301 L4 | — | 10700 | 10700 | 27200 | 31300 | 7010 | 226 |
| 1.5 | 1364 | 1.6 | 896 | 6 | 303 L4 | — | 32200 | 37200 | 54800 | 65900 | 20700 | 232 |
| 1.7 | 1254 | 1.8 | 824 | 12 | — | 303 R4 | 31300 | 36200 | 53400 | 64300 | 20100 | 233 |
| 1.7 | 1246 | 0.9 | 819 | 6 | 300 L4 | — | 9940 | 9940 | 25600 | 29400 | 6540 | 220 |
| 1.7 | 1246 | 1.8 | 819 | 6 | 301 L4 | — | 10200 | 10200 | 26100 | 30000 | 6690 | 226 |
| 1.7 | 1242 | 2.2 | 816 | 6 | 303 L4 | — | 31300 | 36100 | 53300 | 64100 | 20000 | 232 |
| 1.7 | 1213 | 1.5 | 797 | 12 | — | 303 R4 | 31000 | 35800 | 52900 | 63600 | 19900 | 233 |
| 1.7 | 1213 | 2.8 | 797 | 12 | — | 305 R4 | 31000 | 35800 | 52900 | 63600 | 19900 | 240 |
| 1.8 | 1167 | 1.3 | 766 | 10 | — | 301 R4 | 9950 | 9950 | 25600 | 29400 | 6540 | 232 |
| 1.8 | 1149 | 1 | 755 | 6 | 300 L4 | — | 9680 | 9680 | 25000 | 28700 | 6360 | 220 |
| 1.8 | 1149 | 1.9 | 755 | 6 | 301 L4 | — | 9900 | 9900 | 25500 | 29300 | 6510 | 226 |
| 1.9 | 1093 | 2 | 718 | 6 | 303 L4 | — | 29900 | 34600 | 51300 | 61700 | 19200 | 232 |
| 2.1 | 1003 | 2.1 | 659 | 12 | — | 303 R4 | 29100 | 33600 | 50000 | 60100 | 18700 | 233 |
| 2.1 | 989 | 2.3 | 649 | 6 | 303 L4 | — | 29000 | 33400 | 49700 | 59800 | 18600 | 232 |
| 2.2 | 938 | 1.1 | 616 | 6 | 300 L4 | — | 9260 | 9260 | 24000 | 27600 | 6090 | 220 |
| 2.2 | 938 | 2.3 | 616 | 6 | 301 L4 | — | 9260 | 9260 | 24000 | 27600 | 6090 | 226 |
| 2.3 | 933 | 1.6 | 613 | 10 | — | 301 R4 | 9240 | 9240 | 23900 | 27500 | 6080 | 227 |
| 2.4 | 863 | 2.8 | 567 | 12 | — | 303 R4 | 27700 | 32000 | 47700 | 57400 | 17800 | 233 |
| 2.5 | 849 | 1.2 | 558 | 6 | 300 L4 | — | 8950 | 8950 | 23300 | 26700 | 5890 | 220 |
| 2.5 | 849 | 2.5 | 558 | 6 | 301 L4 | — | 8950 | 8950 | 23300 | 26700 | 5890 | 226 |
| 2.6 | 804 | 2.5 | 528 | 12 | — | 303 R4 | 27000 | 31200 | 46700 | 56200 | 17300 | 233 |
| 2.8 | 752 | 1.4 | 494 | 6 | 300 L4 | — | 8600 | 8600 | 22400 | 25800 | 5650 | 220 |
| 2.8 | 752 | 2.8 | 494 | 6 | 301 L4 | — | 8600 | 8600 | 22400 | 25800 | 5650 | 233 |

## $P_1$ = 0.25 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | $Rn_2$ [N] | | | | | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | MC | MZ | HC/PC | HZ/PZ | FZ | |
| 2.8 | 748 | 0.9 | 491 | 10 | — | 300 R4 | 8580 | 8580 | 22400 | 25700 | 5640 | 221 |
| 2.8 | 748 | 1.9 | 491 | 10 | — | 301 R4 | 8580 | 8580 | 22400 | 25700 | 5640 | 227 |
| 3 | 690 | 1.5 | 453 | 10 | — | 300 R4 | 8350 | 8350 | 21900 | 25100 | 5490 | 221 |
| 3 | 690 | 2.8 | 453 | 10 | — | 301 R4 | 8350 | 8350 | 21900 | 25100 | 5490 | 227 |
| 3.1 | 681 | 1.5 | 447 | 6 | 300 L4 | — | 8320 | 8320 | 21800 | 25000 | 5470 | 220 |
| 3.1 | 681 | 3 | 447 | 6 | 301 L4 | — | 8320 | 8320 | 21800 | 25000 | 5470 | 226 |
| 3.4 | 614 | 1.1 | 403 | 6 | 300 L4 | — | 8040 | 8040 | 21100 | 24300 | 5280 | 220 |
| 3.4 | 614 | 2.2 | 403 | 6 | 301 L4 | — | 8040 | 8040 | 21100 | 24300 | 5280 | 226 |
| 3.5 | 599 | 1.1 | 394 | 10 | — | 300 R4 | 7970 | 7970 | 21000 | 24100 | 5240 | 221 |
| 3.5 | 599 | 2.3 | 394 | 10 | — | 301 R4 | 7970 | 7970 | 21000 | 24100 | 5240 | 227 |
| 3.5 | 612 | 2.8 | 389 | 7.5 | 303 L3 | — | 24400 | 28200 | 42600 | 51300 | 15700 | 233 |
| 3.7 | 589 | 1.1 | 374 | 7.5 | 300 L3 | — | 7840 | 7840 | 20600 | 23700 | 5150 | 220 |
| 3.7 | 589 | 2.3 | 374 | 7.5 | 301 L3 | — | 7840 | 7840 | 20600 | 23700 | 5150 | 226 |
| 3.8 | 553 | 1.8 | 363 | 10 | — | 300 R4 | 7760 | 7760 | 20500 | 23500 | 5100 | 221 |
| 4.2 | 503 | 1.9 | 330 | 6 | 300 L4 | — | 7520 | 7520 | 19900 | 22900 | 4940 | 220 |
| 4.6 | 471 | 1.4 | 299 | 7.5 | 300 L3 | — | 7270 | 7270 | 19300 | 22200 | 4780 | 220 |
| 4.6 | 471 | 2.8 | 299 | 7.5 | 301 L3 | — | 7270 | 7270 | 19300 | 22200 | 4780 | 226 |
| 4.7 | 443 | 2.1 | 291 | 10 | — | 300 R4 | 7210 | 7210 | 19100 | 22000 | 4740 | 221 |
| 5.1 | 408 | 2.3 | 268 | 10 | — | 300 R4 | 7020 | 7020 | 18700 | 21500 | 4610 | 221 |
| 5.8 | 377 | 1.7 | 240 | 7.5 | 300 L3 | — | 6760 | 6760 | 18100 | 20800 | 4440 | 220 |
| 5.8 | 361 | 1.8 | 237 | 10 | — | 300 R4 | 6740 | 6740 | 18000 | 20700 | 4430 | 221 |
| 6.2 | 348 | 2.6 | 221 | 7.5 | 300 L3 | — | 6580 | 6580 | 17600 | 20300 | 4320 | 220 |
| 6.4 | 327 | 2.8 | 215 | 10 | — | 300 R4 | 6520 | 6520 | 17500 | 20100 | 4280 | 221 |
| 7.2 | 302 | 2.2 | 192 | 7.5 | 300 L3 | — | 6280 | 6280 | 16900 | 19400 | 4130 | 220 |
| 9.6 | 218 | 3 | 143 | 10 | — | 300 R4 | 5690 | 5690 | 15500 | 17800 | 3740 | 221 |
| 10.4 | 209 | 2.6 | 133 | 12 | — | 300 R3 | 5550 | 5550 | 15100 | 17400 | 3650 | 221 |

## $P_1$ = 0.37 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | $Rn_2$ [N] | | | | | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | MC | MZ | HC/PC | HZ/PZ | FZ | |
| 0.47 | 6672 | 1 | 2916 | 6 | 306 L4 | — | 45000 | 51000 | 101000 | 119000 | 35000 | 248 |
| 0.57 | 5543 | 2 | 2423 | 7.5 | 307 L4 | — | — | — | 109000 | 145000 | 45000 | 256 |
| 0.59 | 5346 | 1.3 | 2337 | 6 | 306 L4 | — | 45000 | 51000 | 101000 | 119000 | 35000 | 248 |
| 0.66 | 4744 | 1.5 | 2074 | 6 | 306 L4 | — | 45000 | 51000 | 101000 | 119000 | 35000 | 248 |
| 0.69 | 4555 | 1.2 | 1991 | 6 | 305 L4 | — | 36000 | 42000 | 64000 | 74000 | 24000 | 240 |
| 0.74 | 4243 | 1.1 | 1854 | 6 | 305 L4 | — | 36000 | 42000 | 64000 | 74000 | 24000 | 240 |
| 0.74 | 4217 | 2.4 | 1843 | 6 | 306 L4 | — | 45000 | 51000 | 101000 | 119000 | 35000 | 248 |
| 0.86 | 3653 | 2.4 | 1597 | 6 | 306 L4 | — | 45000 | 51000 | 101000 | 119000 | 35000 | 248 |
| 0.86 | 3629 | 1.3 | 1586 | 6 | 305 L4 | — | 36000 | 42000 | 64000 | 74000 | 24000 | 240 |

## $P_1$ = 0.37 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.93 | 3374 | 3 | 1475 | 6 | 306 L4 | — | 45000 | 51000 | 101000 | 119000 | 35000 | 248 |
| 1 | 3135 | 1.5 | 1370 | 6 | 305 L4 | — | 36000 | 42000 | 62200 | 74000 | 23800 | 240 |
| 1.1 | 2927 | 2.9 | 1279 | 6 | 306 L4 | — | 45000 | 51000 | 99700 | 116100 | 34000 | 248 |
| 1.1 | 2924 | 1 | 1278 | 6 | 303 L4 | — | 36000 | 41900 | 60900 | 73300 | 23300 | 232 |
| 1.1 | 2924 | 1.9 | 1278 | 6 | 305 L4 | — | 36000 | 41900 | 60900 | 73300 | 23300 | 240 |
| 1.2 | 2512 | 0.9 | 1098 | 6 | 303 L4 | — | 33700 | 38900 | 57000 | 68600 | 21600 | 232 |
| 1.2 | 2512 | 1.8 | 1098 | 6 | 305 L4 | — | 34500 | 39800 | 58200 | 70000 | 22100 | 240 |
| 1.3 | 2338 | 1 | 1022 | 6 | 301 L4 | — | 10700 | 10700 | 27300 | 31400 | 7040 | 226 |
| 1.3 | 2330 | 1.2 | 1018 | 6 | 303 L4 | — | 33600 | 38800 | 56900 | 68500 | 21600 | 232 |
| 1.3 | 2330 | 2.3 | 1018 | 6 | 305 L4 | — | 33600 | 38800 | 56900 | 68500 | 21600 | 240 |
| 1.5 | 2156 | 1.1 | 942 | 6 | 301 L4 | — | 10700 | 10700 | 27200 | 31300 | 7010 | 226 |
| 1.5 | 2051 | 1.1 | 896 | 6 | 303 L4 | — | 32200 | 37200 | 54800 | 65900 | 20700 | 232 |
| 1.5 | 2051 | 2.1 | 896 | 6 | 305 L4 | — | 32200 | 37200 | 54800 | 65900 | 20700 | 240 |
| 1.7 | 1884 | 1.2 | 824 | 12 | — | 303 R4 | 31300 | 36200 | 53400 | 64300 | 20100 | 233 |
| 1.7 | 1884 | 2.2 | 824 | 12 | — | 305 R4 | 31300 | 36200 | 53400 | 64300 | 20100 | 241 |
| 1.7 | 1873 | 1.2 | 819 | 6 | 301 L4 | — | 10200 | 10200 | 26100 | 30000 | 6690 | 226 |
| 1.7 | 1867 | 1.5 | 816 | 6 | 303 L4 | — | 31300 | 36100 | 53300 | 64100 | 20000 | 238 |
| 1.7 | 1867 | 2.9 | 816 | 6 | 305 L4 | — | 31300 | 36100 | 53300 | 64100 | 20000 | 240 |
| 1.7 | 1824 | 1 | 797 | 12 | — | 303 R4 | 31000 | 35800 | 52900 | 63600 | 19900 | 233 |
| 1.7 | 1824 | 1.9 | 797 | 12 | — | 305 R4 | 31000 | 35800 | 52900 | 63600 | 19900 | 241 |
| 1.8 | 1727 | 1.3 | 755 | 6 | 301 L4 | — | 9900 | 9900 | 25500 | 29300 | 6510 | 232 |
| 1.9 | 1643 | 1.3 | 718 | 6 | 303 L4 | — | 29900 | 34600 | 51300 | 61700 | 19200 | 232 |
| 1.9 | 1643 | 2.5 | 718 | 6 | 305 L4 | — | 29900 | 34600 | 51300 | 61700 | 19200 | 240 |
| 2.1 | 1508 | 1.4 | 659 | 12 | — | 303 R4 | 29100 | 33600 | 50000 | 60100 | 18700 | 233 |
| 2.1 | 1508 | 2.7 | 659 | 12 | — | 305 R4 | 29100 | 33600 | 50000 | 60100 | 18700 | 241 |
| 2.1 | 1486 | 1.6 | 649 | 6 | 303 L4 | — | 29000 | 33400 | 49700 | 59800 | 18600 | 232 |
| 2.2 | 1410 | 1.5 | 616 | 6 | 301 L4 | — | 9260 | 9260 | 24000 | 27600 | 6090 | 224 |
| 2.2 | 1403 | 1 | 613 | 10 | — | 301 R4 | 9240 | 9240 | 23900 | 27500 | 6080 | 227 |
| 2.4 | 1297 | 1.9 | 567 | 12 | — | 303 R4 | 27700 | 32000 | 47700 | 57400 | 17800 | 233 |
| 2.5 | 1276 | 1.7 | 558 | 6 | 301 L4 | — | 8950 | 8950 | 23300 | 26700 | 5890 | 226 |
| 2.5 | 1272 | 2.2 | 556 | 6 | 303 L4 | — | 27500 | 31700 | 47500 | 57100 | 17600 | 232 |
| 2.6 | 1208 | 1.7 | 528 | 12 | — | 303 R4 | 27000 | 31200 | 46700 | 56200 | 17300 | 241 |
| 2.8 | 1130 | 0.9 | 494 | 6 | 300 L4 | — | 8400 | 8400 | 22000 | 25300 | 5520 | 220 |
| 2.8 | 1130 | 1.8 | 494 | 6 | 301 L4 | — | 8600 | 8600 | 22400 | 25800 | 5650 | 226 |
| 2.8 | 1126 | 2.4 | 492 | 6 | 303 L4 | — | 26400 | 30500 | 45800 | 55100 | 16900 | 232 |
| 2.8 | 1124 | 1.3 | 491 | 10 | — | 301 R4 | 8580 | 8580 | 22400 | 25700 | 5640 | 227 |
| 3 | 1037 | 1 | 453 | 10 | — | 300 R4 | 8350 | 8350 | 21900 | 25100 | 5490 | 221 |
| 3 | 1037 | 1.9 | 453 | 10 | — | 301 R4 | 8350 | 8350 | 21900 | 25100 | 5490 | 227 |
| 3 | 1033 | 2.2 | 452 | 12 | — | 303 R4 | 25700 | 29600 | 44600 | 53700 | 16500 | 233 |
| 3.1 | 1023 | 1 | 447 | 6 | 300 L4 | — | 8320 | 8320 | 21800 | 25000 | 5470 | 221 |
| 3.1 | 1023 | 2 | 447 | 6 | 301 L4 | — | 8320 | 8320 | 21800 | 25000 | 5470 | 227 |
| 3.1 | 1020 | 2.8 | 446 | 6 | 303 L4 | — | 25500 | 29500 | 44400 | 53400 | 16400 | 232 |
| 3.3 | 945 | 2.5 | 413 | 6 | 303 L4 | — | 24900 | 28800 | 43400 | 52200 | 16000 | 232 |

## $P_1$ = 0.37 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.4 | 922 | 1.5 | 403 | 6 | 301 L4 | — | 8040 | 8040 | 21100 | 24300 | 5280 | 226 |
| 3.4 | 951 | 2 | 402 | 7.5 | 303 L3 | — | 24700 | 28500 | 43100 | 51800 | 15800 | 232 |
| 3.5 | 901 | 1.5 | 394 | 10 | — | 301 R4 | 7970 | 7970 | 21000 | 24100 | 5240 | 227 |
| 3.5 | 893 | 2.2 | 390 | 12 | — | 303 R4 | 24400 | 28200 | 42700 | 51400 | 15700 | 233 |
| 3.5 | 920 | 1.8 | 389 | 7.5 | 303 L3 | — | 24400 | 28200 | 42600 | 51300 | 15700 | 232 |
| 3.7 | 885 | 1.5 | 374 | 7.5 | 301 L3 | — | 7840 | 7840 | 20600 | 23700 | 5150 | 226 |
| 3.8 | 833 | 2.8 | 364 | 12 | — | 303 R4 | 23900 | 27600 | 41800 | 50300 | 15300 | 232 |
| 3.8 | 831 | 1.2 | 363 | 10 | — | 300 R4 | 7760 | 7760 | 20500 | 23500 | 5100 | 221 |
| 3.8 | 831 | 2.4 | 363 | 10 | — | 301 R4 | 7760 | 7760 | 20500 | 23500 | 5100 | 227 |
| 4.1 | 768 | 3 | 336 | 12 | — | 303 R4 | 23200 | 26800 | 40800 | 49100 | 14900 | 233 |
| 4.1 | 756 | 1.3 | 330 | 6 | 300 L4 | — | 7520 | 7520 | 19900 | 22900 | 4940 | 220 |
| 4.1 | 756 | 2.5 | 330 | 6 | 301 L4 | — | 7520 | 7520 | 19900 | 22900 | 4940 | 226 |
| 4.3 | 760 | 2.4 | 321 | 7.5 | 303 L3 | — | 22900 | 26400 | 40300 | 48500 | 14700 | 232 |
| 4.4 | 715 | 2.6 | 313 | 12 | — | 303 R4 | 22700 | 26200 | 39900 | 48100 | 14600 | 233 |
| 4.6 | 708 | 0.9 | 299 | 7.5 | 300 L3 | — | 7270 | 7270 | 19300 | 22200 | 4780 | 220 |
| 4.6 | 708 | 1.8 | 299 | 7.5 | 301 L3 | — | 7270 | 7270 | 19300 | 22200 | 4780 | 226 |
| 4.7 | 666 | 1.4 | 291 | 10 | — | 300 R4 | 7210 | 7210 | 19100 | 22000 | 4740 | 221 |
| 4.7 | 666 | 2.8 | 291 | 10 | — | 301 R4 | 7210 | 7210 | 19100 | 22000 | 4740 | 227 |
| 5.1 | 614 | 1.5 | 268 | 10 | — | 300 R4 | 7020 | 7020 | 18700 | 21500 | 4610 | 221 |
| 5.7 | 567 | 1.1 | 240 | 7.5 | 300 L3 | — | 6760 | 6760 | 18100 | 20800 | 4440 | 220 |
| 5.7 | 567 | 2.3 | 240 | 7.5 | 301 L3 | — | 6760 | 6760 | 18100 | 20800 | 4440 | 226 |
| 5.8 | 543 | 1.2 | 237 | 10 | — | 300 R4 | 6740 | 6740 | 18000 | 20700 | 4430 | 221 |
| 5.8 | 543 | 2.4 | 237 | 10 | — | 301 R4 | 6740 | 6740 | 18000 | 20700 | 4430 | 227 |
| 6.2 | 523 | 1.7 | 221 | 7.5 | 300 L3 | — | 6580 | 6580 | 17600 | 20300 | 4320 | 220 |
| 6.4 | 492 | 1.9 | 215 | 10 | — | 300 R4 | 6520 | 6520 | 17500 | 20100 | 4280 | 221 |
| 7.1 | 454 | 1.4 | 192 | 7.5 | 300 L3 | — | 6280 | 6280 | 16900 | 19400 | 4130 | 220 |
| 7.1 | 454 | 2.9 | 192 | 7.5 | 301 L3 | — | 6280 | 6280 | 16900 | 19400 | 4130 | 226 |
| 7.7 | 419 | 2.1 | 177 | 7.5 | 300 L3 | — | 6110 | 6110 | 16500 | 19000 | 4020 | 220 |
| 7.8 | 401 | 2.2 | 175 | 10 | — | 300 R4 | 6090 | 6090 | 16500 | 18900 | 4000 | 221 |
| 8.6 | 363 | 2.4 | 159 | 10 | — | 300 R4 | 5890 | 5890 | 16000 | 18300 | 3870 | 221 |
| 9.6 | 328 | 2 | 143 | 10 | — | 300 R4 | 5690 | 5690 | 15500 | 17800 | 3740 | 221 |
| 9.7 | 336 | 2.6 | 142 | 7.5 | 300 L3 | — | 5670 | 5670 | 15400 | 17700 | 3730 | 220 |
| 10.3 | 314 | 1.7 | 133 | 12 | — | 300 R3 | 5550 | 5550 | 15100 | 17400 | 3650 | 221 |
| 10.5 | 310 | 2.8 | 131 | 7.5 | 300 L3 | — | 5520 | 5520 | 15100 | 17300 | 3630 | 220 |
| 10.6 | 297 | 2.9 | 130 | 10 | — | 300 R4 | 5510 | 5510 | 15000 | 17300 | 3620 | 221 |
| 11.8 | 274 | 2.4 | 116 | 7.5 | 300 L3 | — | 5300 | 5300 | 14500 | 16700 | 3490 | 220 |
| 12.9 | 252 | 2.6 | 106 | 12 | — | 300 R3 | 5160 | 5160 | 14200 | 16300 | 3390 | 220 |

## $P_1$ = 0.55 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.57 | 8101 | 1.4 | 2423 | 7.5 | 307 L4 | — | — | — | 109000 | 145000 | 45000 | 256 |
| 0.57 | 8101 | 2.1 | 2423 | 7.5 | 309 L4 | — | — | — | 110000 | 145000 | 36000 | 264 |
| 0.67 | 6934 | 1 | 2074 | 6 | 306 L4 | — | 45000 | 51000 | 101000 | 119000 | 35000 | 248 |
| 0.68 | 6826 | 2.1 | 2041 | 7.5 | 307 L4 | — | — | — | 109000 | 145000 | 45000 | 256 |
| 0.69 | 6697 | 2.5 | 2003 | 7.5 | 309 L4 | — | — | — | 110000 | 145000 | 36000 | 264 |
| 0.75 | 6164 | 1.6 | 1843 | 6 | 306 L4 | — | 45000 | 51000 | 101000 | 119000 | 35000 | 248 |
| 0.79 | 5910 | 2.7 | 1767 | 7.5 | 307 L4 | — | — | — | 109000 | 145000 | 45000 | 256 |
| 0.81 | 5761 | 3 | 1723 | 7.5 | 309 L4 | — | — | — | 110000 | 145000 | 36000 | 264 |
| 0.87 | 5339 | 1.6 | 1597 | 6 | 306 L4 | — | 45000 | 51000 | 101000 | 119000 | 35000 | 248 |
| 0.87 | 5319 | 2.8 | 1591 | 7.5 | 307 L4 | — | — | — | 109000 | 145000 | 45000 | 256 |
| 0.94 | 4931 | 2 | 1475 | 6 | 306 L4 | — | 45000 | 51000 | 101000 | 119000 | 35000 | 248 |
| 1 | 4582 | 1 | 1370 | 6 | 305 L4 | — | 36000 | 42000 | 62200 | 74000 | 23800 | 240 |
| 1.1 | 4278 | 2 | 1279 | 6 | 306 L4 | — | 45000 | 51000 | 99700 | 116100 | 34000 | 248 |
| 1.1 | 4274 | 1.3 | 1278 | 6 | 305 L4 | — | 36000 | 41900 | 60900 | 73300 | 23300 | 240 |
| 1.1 | 4262 | 2.9 | 1274 | 7.5 | 307 L4 | — | — | — | 107100 | 140400 | 43600 | 256 |
| 1.3 | 3671 | 1.2 | 1098 | 6 | 305 L4 | — | 34500 | 39800 | 58200 | 70000 | 22100 | 238 |
| 1.3 | 3660 | 2.1 | 1095 | 6 | 306 L4 | — | 42900 | 48600 | 95200 | 110800 | 32200 | 248 |
| 1.4 | 3406 | 1.6 | 1018 | 6 | 305 L4 | — | 33600 | 38800 | 56900 | 68500 | 21600 | 240 |
| 1.4 | 3394 | 2.8 | 1015 | 6 | 306 L4 | — | 41900 | 47400 | 93000 | 108300 | 31400 | 248 |
| 1.6 | 2997 | 1.4 | 896 | 6 | 305 L4 | — | 32200 | 37200 | 54800 | 65900 | 20700 | 240 |
| 1.6 | 2933 | 2.6 | 877 | 6 | 306 L4 | — | 39900 | 45200 | 89000 | 103700 | 29900 | 248 |
| 1.7 | 2776 | 2.3 | 830 | 12 | — | 306 R4 | 39100 | 44300 | 87600 | 102000 | 29400 | 249 |
| 1.7 | 2754 | 1.5 | 824 | 12 | — | 305 R4 | 31300 | 36200 | 53400 | 64300 | 20100 | 241 |
| 1.7 | 2729 | 1 | 816 | 6 | 303 L4 | — | 31300 | 36100 | 53300 | 64100 | 20000 | 232 |
| 1.7 | 2729 | 2 | 816 | 6 | 305 L4 | — | 31300 | 36100 | 53300 | 64100 | 20000 | 240 |
| 1.7 | 2705 | 2.8 | 809 | 6 | 306 L4 | — | 38800 | 44000 | 86900 | 101200 | 29200 | 246 |
| 1.7 | 2665 | 1.3 | 797 | 12 | — | 305 R4 | 31000 | 35800 | 52900 | 63600 | 19900 | 241 |
| 1.9 | 2401 | 1.7 | 718 | 6 | 305 L4 | — | 29900 | 34600 | 51300 | 61700 | 19200 | 240 |
| 2.1 | 2225 | 2.7 | 665 | 12 | — | 306 R4 | 36400 | 41200 | 82000 | 95400 | 27300 | 249 |
| 2.1 | 2203 | 1 | 659 | 12 | — | 303 R4 | 29100 | 33600 | 50000 | 60100 | 18700 | 233 |
| 2.1 | 2203 | 1.8 | 659 | 12 | — | 305 R4 | 29100 | 33600 | 50000 | 60100 | 18700 | 241 |
| 2.1 | 2172 | 1.1 | 649 | 6 | 303 L4 | — | 29000 | 33400 | 49700 | 59800 | 18600 | 232 |
| 2.1 | 2172 | 2.1 | 649 | 6 | 305 L4 | — | 29000 | 33400 | 49700 | 59800 | 18600 | 240 |
| 2.3 | 2061 | 1 | 616 | 6 | 301 L4 | — | 9260 | 9260 | 24000 | 27600 | 6090 | 226 |
| 2.5 | 1895 | 1.3 | 567 | 12 | — | 303 R4 | 27700 | 32000 | 47700 | 57400 | 17800 | 241 |
| 2.5 | 1895 | 2.6 | 567 | 12 | — | 305 R4 | 27700 | 32000 | 47700 | 57400 | 17800 | 241 |
| 2.5 | 1865 | 1.1 | 558 | 6 | 301 L4 | — | 8950 | 8950 | 23300 | 26700 | 5890 | 226 |
| 2.5 | 1860 | 1.5 | 556 | 6 | 303 L4 | — | 27500 | 31700 | 47500 | 57100 | 17600 | 232 |
| 2.5 | 1860 | 3 | 556 | 6 | 305 L4 | — | 27500 | 31700 | 47500 | 57100 | 17600 | 240 |
| 2.6 | 1765 | 1.1 | 528 | 12 | — | 303 R4 | 27000 | 31200 | 46700 | 56200 | 17300 | 233 |
| 2.6 | 1765 | 2.2 | 528 | 12 | — | 305 R4 | 27000 | 31200 | 46700 | 56200 | 17300 | 241 |
| 2.8 | 1651 | 1.3 | 494 | 6 | 301 L4 | — | 8600 | 8600 | 22400 | 25800 | 5650 | 226 |
| 2.8 | 1646 | 1.6 | 492 | 6 | 303 L4 | — | 26400 | 30500 | 45800 | 55100 | 16900 | 232 |

## $P_1$ = 0.55 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.1 | 1515 | 1.3 | 453 | 10 | — | 301 R4 | 8350 | 8350 | 21900 | 25100 | 5490 | 227 |
| 3.1 | 1510 | 1.5 | 452 | 12 | — | 303 R4 | 25700 | 29600 | 44600 | 53700 | 16500 | 233 |
| 3.1 | 1495 | 1.4 | 447 | 6 | 301 L4 | — | 8320 | 8320 | 21800 | 25000 | 5470 | 226 |
| 3.1 | 1490 | 1.9 | 446 | 6 | 303 L4 | — | 25500 | 29500 | 44400 | 53400 | 16400 | 232 |
| 3.4 | 1382 | 1.7 | 413 | 6 | 303 L4 | — | 24900 | 28800 | 43400 | 52200 | 16000 | 232 |
| 3.4 | 1348 | 1 | 403 | 6 | 301 L4 | — | 8040 | 8040 | 21100 | 24300 | 5280 | 226 |
| 3.5 | 1389 | 1.4 | 402 | 7.5 | 303 L3 | — | 24700 | 28500 | 43100 | 51800 | 15800 | 232 |
| 3.5 | 1389 | 2.7 | 402 | 7.5 | 305 L3 | — | 24700 | 28500 | 43100 | 51800 | 15800 | 240 |
| 3.5 | 1316 | 1 | 394 | 10 | — | 301 R4 | 7970 | 7970 | 21000 | 24100 | 5240 | 227 |
| 3.6 | 1305 | 1.5 | 390 | 12 | — | 303 R4 | 24400 | 28200 | 42700 | 51400 | 15700 | 233 |
| 3.6 | 1305 | 2.9 | 390 | 12 | — | 305 R4 | 24400 | 28200 | 42700 | 51400 | 15700 | 241 |
| 3.6 | 1344 | 1.3 | 389 | 7.5 | 303 L3 | — | 24400 | 28200 | 42600 | 51300 | 15700 | 232 |
| 3.6 | 1344 | 2.4 | 389 | 7.5 | 305 L3 | — | 24400 | 28200 | 42600 | 51300 | 15700 | 240 |
| 3.7 | 1293 | 1 | 374 | 7.5 | 301 L3 | — | 7840 | 7840 | 20600 | 23700 | 5150 | 226 |
| 3.8 | 1217 | 1.9 | 364 | 12 | — | 303 R4 | 23900 | 27600 | 41800 | 50300 | 15300 | 233 |
| 3.8 | 1214 | 1.6 | 363 | 10 | — | 301 R4 | 7760 | 7760 | 20500 | 23500 | 5100 | 227 |
| 4.1 | 1180 | 2.1 | 341 | 7.5 | 304 L3 | — | 23400 | 27000 | 41000 | 49300 | 15000 | call |
| 4.1 | 1122 | 2 | 336 | 12 | — | 303 R4 | 23200 | 26800 | 40800 | 49100 | 14900 | 233 |
| 4.2 | 1105 | 1.7 | 330 | 6 | 301 L4 | — | 7520 | 7520 | 19900 | 22900 | 4940 | 226 |
| 4.3 | 1111 | 1.7 | 321 | 7.5 | 303 L3 | — | 22900 | 26400 | 40300 | 48500 | 14700 | 232 |
| 4.4 | 1045 | 1.8 | 313 | 12 | — | 303 R4 | 22700 | 26200 | 39900 | 48100 | 14600 | 233 |
| 4.6 | 1034 | 1.3 | 299 | 7.5 | 301 L3 | — | 7270 | 7270 | 19300 | 22200 | 4780 | 226 |
| 4.8 | 973 | 1 | 291 | 10 | — | 300 R4 | 7210 | 7210 | 19100 | 22000 | 4740 | 221 |
| 4.8 | 973 | 1.9 | 291 | 10 | — | 301 R4 | 7210 | 7210 | 19100 | 22000 | 4740 | 227 |
| 4.8 | 970 | 2.7 | 290 | 12 | — | 303 R4 | 22100 | 25600 | 39100 | 47000 | 14200 | 233 |
| 5 | 956 | 2.3 | 276 | 7.5 | 303 L3 | — | 21800 | 25200 | 38500 | 46300 | 14000 | 232 |
| 5.2 | 897 | 1 | 268 | 10 | — | 300 R4 | 7020 | 7020 | 18700 | 21500 | 4610 | 221 |
| 5.2 | 897 | 2.1 | 268 | 10 | — | 301 R4 | 7020 | 7020 | 18700 | 21500 | 4610 | 227 |
| 5.4 | 891 | 2.1 | 258 | 7.5 | 303 L3 | — | 21300 | 24600 | 37700 | 45300 | 13600 | 232 |
| 5.4 | 853 | 2.2 | 255 | 12 | — | 303 R4 | 21200 | 24500 | 37600 | 45200 | 13600 | 233 |
| 5.8 | 829 | 1.6 | 240 | 7.5 | 301 L3 | — | 6760 | 6760 | 18100 | 20800 | 4440 | 226 |
| 5.9 | 794 | 1.6 | 237 | 10 | — | 301 R4 | 6740 | 6740 | 18000 | 20700 | 4430 | 227 |
| 6 | 772 | 2.4 | 231 | 12 | — | 303 R4 | 20500 | 23700 | 36500 | 43900 | 13200 | 233 |
| 6.3 | 764 | 1.2 | 221 | 7.5 | 300 L3 | — | 6580 | 6580 | 17600 | 20300 | 4320 | 220 |
| 6.3 | 764 | 2.3 | 221 | 7.5 | 301 L3 | — | 6580 | 6580 | 17600 | 20300 | 4320 | 226 |
| 6.3 | 762 | 3 | 220 | 7.5 | 303 L3 | — | 20200 | 23300 | 36000 | 43300 | 13000 | 232 |
| 6.5 | 719 | 1.3 | 215 | 10 | — | 300 R4 | 6520 | 6520 | 17500 | 20100 | 4280 | 221 |
| 6.5 | 719 | 2.5 | 215 | 10 | — | 301 R4 | 6520 | 6520 | 17500 | 20100 | 4280 | 227 |
| 7.2 | 664 | 1 | 192 | 7.5 | 300 L3 | — | 6280 | 6280 | 16900 | 19400 | 4130 | 220 |
| 7.2 | 664 | 2 | 192 | 7.5 | 301 L3 | — | 6280 | 6280 | 16900 | 19400 | 4130 | 226 |
| 7.3 | 658 | 2.8 | 190 | 7.5 | 303 L3 | — | 19200 | 22200 | 34400 | 41400 | 12300 | 232 |
| 7.8 | 612 | 1.4 | 177 | 7.5 | 300 L3 | — | 6110 | 6110 | 16500 | 19000 | 4020 | 220 |
| 7.8 | 612 | 2.9 | 177 | 7.5 | 301 L3 | — | 6110 | 6110 | 16500 | 19000 | 4020 | 226 |

## $P_1$ = 0.55 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7.9 | 587 | 1.5 | 175 | 10 | — | 300 R4 | 6090 | 6090 | 16500 | 18900 | 4000 | 221 |
| 8.8 | 531 | 1.6 | 159 | 10 | — | 300 R4 | 5890 | 5890 | 16000 | 18300 | 3870 | 221 |
| 9.7 | 479 | 1.4 | 143 | 10 | — | 300 R4 | 5690 | 5690 | 15500 | 17800 | 3740 | 221 |
| 9.7 | 479 | 2.7 | 143 | 10 | — | 301 R4 | 5690 | 5690 | 15500 | 17800 | 3740 | 227 |
| 9.8 | 491 | 1.8 | 142 | 7.5 | 300 L3 | — | 5670 | 5670 | 15400 | 17700 | 3730 | 220 |
| 10.5 | 459 | 1.2 | 133 | 12 | — | 300 R3 | 5420 | 5420 | 14800 | 17000 | 3570 | 221 |
| 10.5 | 459 | 2.5 | 133 | 12 | — | 301 R3 | 5550 | 5550 | 15100 | 17400 | 3650 | 221 |
| 10.6 | 453 | 1.9 | 131 | 7.5 | 300 L3 | — | 5520 | 5520 | 15100 | 17300 | 3630 | 220 |
| 10.7 | 434 | 2 | 130 | 10 | — | 300 R4 | 5510 | 5510 | 15000 | 17300 | 3620 | 221 |
| 12 | 401 | 1.6 | 116 | 7.5 | 300 L3 | — | 5300 | 5300 | 14500 | 16700 | 3490 | 218 |
| 13.1 | 368 | 1.8 | 106 | 12 | — | 300 R3 | 5160 | 5160 | 14200 | 16300 | 3390 | 219 |
| 13.1 | 354 | 2.4 | 106 | 10 | — | 300 R4 | 5150 | 5150 | 14100 | 16200 | 3380 | 219 |
| 13.3 | 363 | 2.4 | 105 | 7.5 | 300 L3 | — | 5130 | 5130 | 14100 | 16200 | 3370 | 218 |
| 16.2 | 296 | 2.9 | 85.6 | 7.5 | 300 L3 | — | 4790 | 4790 | 13300 | 15200 | 3150 | 218 |
| 16.3 | 294 | 2.2 | 85.2 | 12 | — | 300 R3 | 4790 | 4790 | 13200 | 15200 | 3150 | 221 |
| 19.9 | 242 | 2.7 | 69.9 | 7.5 | 300 L3 | — | 4480 | 4480 | 12500 | 14300 | 2950 | 220 |
| 20.4 | 236 | 2.8 | 68.2 | 12 | — | 300 R3 | 4440 | 4440 | 12400 | 14200 | 2920 | 221 |
| 21.5 | 231 | 2.4 | 64.8 | 7.5 | 300 L2 | — | 4370 | 4370 | 12200 | 14000 | 2870 | 220 |

## $P_1$ = 0.75 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.57 | 11103 | 2.3 | 2523 | 11 | 310 L4 | — | — | — | 133000 | 166000 | 65000 | 272 |
| 0.59 | 10659 | 1 | 2423 | 7.5 | 307 L4 | — | — | — | 109000 | 145000 | 45000 | 256 |
| 0.59 | 10659 | 1.6 | 2423 | 7.5 | 309 L4 | — | — | — | 110000 | 145000 | 36000 | 264 |
| 0.7 | 8981 | 1.6 | 2041 | 7.5 | 307 L4 | — | — | — | 109000 | 145000 | 45000 | 256 |
| 0.71 | 8897 | 2.9 | 2022 | 11 | 310 L4 | — | — | — | 133000 | 166000 | 65000 | 272 |
| 0.71 | 8812 | 1.9 | 2003 | 7.5 | 309 L4 | — | — | — | 110000 | 145000 | 36000 | 264 |
| 0.78 | 8110 | 1.2 | 1843 | 6 | 306 L4 | — | 45000 | 51000 | 101000 | 119000 | 35000 | 248 |
| 0.81 | 7776 | 2 | 1767 | 7.5 | 307 L4 | — | — | — | 109000 | 145000 | 45000 | 256 |
| 0.83 | 7580 | 2.2 | 1723 | 7.5 | 309 L4 | — | — | — | 110000 | 145000 | 36000 | 264 |
| 0.89 | 7061 | 2.4 | 1605 | 7.5 | 309 L4 | — | — | — | 110000 | 145000 | 36000 | 264 |
| 0.9 | 7026 | 1.2 | 1597 | 6 | 306 L4 | — | 45000 | 51000 | 101000 | 119000 | 35000 | 248 |
| 0.9 | 6998 | 2.1 | 1591 | 7.5 | 307 L4 | — | — | — | 109000 | 145000 | 45000 | 256 |
| 0.97 | 6488 | 1.6 | 1475 | 6 | 306 L4 | — | 45000 | 51000 | 101000 | 119000 | 35000 | 248 |
| 1 | 6196 | 2.5 | 1408 | 7.5 | 307 L4 | — | — | — | 109000 | 144700 | 45000 | 256 |
| 1 | 6074 | 2.7 | 1380 | 7.5 | 309 L4 | — | — | — | 110000 | 143800 | 35800 | 264 |
| 1.1 | 5657 | 2.9 | 1286 | 7.5 | 309 L4 | — | — | — | 109200 | 140800 | 35000 | 264 |

## $P_1$ = 0.75 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | Rn$_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.1 | 5630 | 1.5 | 1279 | 6 | 306 L4 | — | 45000 | 51000 | 99700 | 116100 | 34000 | 248 |
| 1.1 | 5624 | 1 | 1278 | 6 | 305 L4 | — | 36000 | 41900 | 60900 | 73300 | 23300 | 240 |
| 1.1 | 5608 | 2.2 | 1274 | 7.5 | 307 L4 | — | — | — | 107100 | 140400 | 43600 | 256 |
| 1.2 | 5089 | 2.8 | 1157 | 7.5 | 307 L4 | — | — | — | 104100 | 136400 | 42200 | 256 |
| 1.3 | 4831 | 0.9 | 1098 | 6 | 305 L4 | — | 33700 | 38900 | 57000 | 68600 | 21600 | 240 |
| 1.3 | 4816 | 1.6 | 1095 | 6 | 306 L4 | — | 42900 | 48600 | 95200 | 110800 | 32200 | 248 |
| 1.4 | 4481 | 1.2 | 1018 | 6 | 305 L4 | — | 33600 | 38800 | 56900 | 68500 | 21600 | 240 |
| 1.4 | 4466 | 2.1 | 1015 | 6 | 306 L4 | — | 41900 | 47400 | 93000 | 108300 | 31400 | 248 |
| 1.6 | 3943 | 1.1 | 896 | 6 | 305 L4 | — | 32200 | 37200 | 54800 | 65900 | 20700 | 240 |
| 1.6 | 3859 | 2 | 877 | 6 | 306 L4 | — | 39900 | 45200 | 89000 | 103700 | 29900 | 248 |
| 1.7 | 3653 | 1.7 | 830 | 12 | — | 306 R4 | 39100 | 44300 | 87600 | 102000 | 29400 | 249 |
| 1.7 | 3624 | 1.2 | 824 | 12 | — | 305 R4 | 31300 | 36200 | 53400 | 64300 | 20100 | 241 |
| 1.8 | 3591 | 1.5 | 816 | 6 | 305 L4 | — | 31300 | 36100 | 53300 | 64100 | 20000 | 240 |
| 1.8 | 3559 | 2.2 | 809 | 6 | 306 L4 | — | 38800 | 44000 | 86900 | 101200 | 29200 | 248 |
| 1.8 | 3507 | 1 | 797 | 12 | — | 305 R4 | 31000 | 35800 | 52900 | 63600 | 19900 | 241 |
| 2 | 3160 | 1.3 | 718 | 6 | 305 L4 | — | 29900 | 34600 | 51300 | 61700 | 19200 | 238 |
| 2.1 | 2927 | 2.1 | 665 | 12 | — | 306 R4 | 36400 | 41200 | 82000 | 95400 | 27300 | 249 |
| 2.2 | 2899 | 1.4 | 659 | 12 | — | 305 R4 | 29100 | 33600 | 50000 | 60100 | 18700 | 240 |
| 2.2 | 2858 | 1.6 | 649 | 6 | 305 L4 | — | 29000 | 33400 | 49700 | 59800 | 18600 | 240 |
| 2.5 | 2494 | 1 | 567 | 12 | — | 303 R4 | 27700 | 32000 | 47700 | 57400 | 17800 | 233 |
| 2.5 | 2494 | 1.9 | 567 | 12 | — | 305 R4 | 27700 | 32000 | 47700 | 57400 | 17800 | 240 |
| 2.6 | 2447 | 1.1 | 556 | 6 | 303 L4 | — | 27500 | 31700 | 47500 | 57100 | 17600 | 232 |
| 2.6 | 2447 | 2.2 | 556 | 6 | 305 L4 | — | 27500 | 31700 | 47500 | 57100 | 17600 | 240 |
| 2.7 | 2323 | 1.7 | 528 | 12 | — | 305 R4 | 27000 | 31200 | 46700 | 56200 | 17300 | 241 |
| 2.9 | 2173 | 1 | 494 | 6 | 301 L4 | — | 8400 | 8400 | 22000 | 25300 | 5520 | 226 |
| 2.9 | 2166 | 1.2 | 492 | 6 | 303 L4 | — | 26400 | 30500 | 45800 | 55100 | 16900 | 232 |
| 2.9 | 2166 | 2.5 | 492 | 6 | 305 L4 | — | 26400 | 30500 | 45800 | 55100 | 16900 | 240 |
| 3.2 | 1993 | 1 | 453 | 10 | — | 301 R4 | 8350 | 8350 | 21900 | 25100 | 5490 | 226 |
| 3.2 | 1987 | 1.1 | 452 | 12 | — | 303 R4 | 25700 | 29600 | 44600 | 53700 | 16500 | 233 |
| 3.2 | 1987 | 2.4 | 452 | 12 | — | 305 R4 | 25700 | 29600 | 44600 | 53700 | 16500 | 241 |
| 3.2 | 1967 | 1 | 447 | 6 | 301 L4 | — | 8320 | 8320 | 21800 | 25000 | 5470 | 226 |
| 3.2 | 1961 | 1.4 | 446 | 6 | 303 L4 | — | 25500 | 29500 | 44400 | 53400 | 16400 | 232 |
| 3.2 | 1961 | 2.8 | 446 | 6 | 305 L4 | — | 25500 | 29500 | 44400 | 53400 | 16400 | 240 |
| 3.5 | 1818 | 1.3 | 413 | 6 | 303 L4 | — | 24900 | 28800 | 43400 | 52200 | 16000 | 232 |
| 3.5 | 1818 | 2.6 | 413 | 6 | 305 L4 | — | 24900 | 28800 | 43400 | 52200 | 16000 | 240 |
| 3.6 | 1828 | 1.1 | 402 | 7.5 | 303 L3 | — | 24700 | 28500 | 43100 | 51800 | 15800 | 232 |
| 3.6 | 1828 | 2.1 | 402 | 7.5 | 305 L3 | — | 24700 | 28500 | 43100 | 51800 | 15800 | 240 |
| 3.7 | 1717 | 1.1 | 390 | 12 | — | 303 R4 | 24400 | 28200 | 42700 | 51400 | 15700 | 233 |
| 3.7 | 1717 | 2.2 | 390 | 12 | — | 305 R4 | 24400 | 28200 | 42700 | 51400 | 15700 | 241 |
| 3.7 | 1769 | 1 | 389 | 7.5 | 303 L3 | — | 24400 | 28200 | 42600 | 51300 | 15700 | 233 |
| 3.7 | 1769 | 1.8 | 389 | 7.5 | 305 L3 | — | 24400 | 28200 | 42600 | 51300 | 15700 | 241 |
| 3.9 | 1601 | 1.4 | 364 | 12 | — | 303 R4 | 23900 | 27600 | 41800 | 50300 | 15300 | 233 |
| 3.9 | 1601 | 2.9 | 364 | 12 | — | 305 R4 | 23900 | 27600 | 41800 | 50300 | 15300 | 241 |

## $P_1$ = 0.75 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | Rn$_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.9 | 1597 | 1.2 | 363 | 10 | — | 301 R4 | 7760 | 7760 | 20500 | 23500 | 5100 | 227 |
| 4.3 | 1477 | 1.5 | 336 | 12 | — | 303 R4 | 23200 | 26800 | 40800 | 49100 | 14900 | 233 |
| 4.3 | 1453 | 1.3 | 330 | 6 | 301 L4 | — | 7520 | 7520 | 19900 | 22900 | 4940 | 226 |
| 4.4 | 1462 | 1.3 | 321 | 7.5 | 303 L3 | — | 22900 | 26400 | 40300 | 48500 | 14700 | 232 |
| 4.4 | 1462 | 2.5 | 321 | 7.5 | 305 L3 | — | 22900 | 26400 | 40300 | 48500 | 14700 | 240 |
| 4.6 | 1375 | 1.3 | 313 | 12 | — | 303 R4 | 22700 | 26200 | 39900 | 48100 | 14600 | 233 |
| 4.6 | 1375 | 2.6 | 313 | 12 | — | 305 R4 | 22700 | 26200 | 39900 | 48100 | 14600 | 240 |
| 4.8 | 1361 | 1 | 299 | 7.5 | 301 L3 | — | 7270 | 7270 | 19300 | 22200 | 4780 | 226 |
| 4.9 | 1280 | 1.5 | 291 | 10 | — | 301 R4 | 7210 | 7210 | 19100 | 22000 | 4740 | 227 |
| 4.9 | 1276 | 2.1 | 290 | 12 | — | 303 R4 | 22100 | 25600 | 39100 | 47000 | 14200 | 233 |
| 5.2 | 1258 | 1.8 | 276 | 7.5 | 303 L3 | — | 21800 | 25200 | 38500 | 46300 | 14000 | 232 |
| 5.3 | 1180 | 1.6 | 268 | 10 | — | 301 R4 | 7020 | 7020 | 18700 | 21500 | 4610 | 227 |
| 5.6 | 1172 | 1.6 | 258 | 7.5 | 303 L3 | — | 21300 | 24600 | 37700 | 45300 | 13600 | 232 |
| 5.6 | 1123 | 1.6 | 255 | 12 | — | 303 R4 | 21200 | 24500 | 37600 | 45200 | 13600 | 233 |
| 6 | 1090 | 1.2 | 240 | 7.5 | 301 L3 | — | 6760 | 6760 | 18100 | 20800 | 4440 | 226 |
| 6 | 1045 | 1.2 | 237 | 10 | — | 301 R4 | 6740 | 6740 | 18000 | 20700 | 4430 | 227 |
| 6.2 | 1016 | 1.8 | 231 | 12 | — | 303 R4 | 20500 | 23700 | 36500 | 43900 | 13200 | 233 |
| 6.5 | 1006 | 0.9 | 221 | 7.5 | 300 L3 | — | 6430 | 6430 | 17300 | 19800 | 4230 | 220 |
| 6.5 | 1006 | 1.8 | 221 | 7.5 | 301 L3 | — | 6580 | 6580 | 17600 | 20300 | 4320 | 226 |
| 6.5 | 1002 | 2.2 | 220 | 7.5 | 303 L3 | — | 20200 | 23300 | 36000 | 43300 | 13000 | 232 |
| 6.7 | 946 | 1 | 215 | 10 | — | 300 R4 | 6370 | 6370 | 17100 | 19700 | 4190 | 221 |
| 6.7 | 946 | 1.9 | 215 | 10 | — | 301 R4 | 6520 | 6520 | 17500 | 20100 | 4280 | 227 |
| 6.7 | 943 | 2.9 | 214 | 12 | — | 303 R4 | 20000 | 23100 | 35700 | 42900 | 12800 | 232 |
| 7.4 | 874 | 1.5 | 192 | 7.5 | 301 L3 | — | 6280 | 6280 | 16900 | 19400 | 4130 | 226 |
| 7.5 | 866 | 2.1 | 190 | 7.5 | 303 L3 | — | 19200 | 22200 | 34400 | 41400 | 12300 | 232 |
| 7.7 | 814 | 2.8 | 185 | 12 | — | 303 R4 | 19100 | 22000 | 34100 | 41100 | 12200 | 232 |
| 8.1 | 808 | 2.7 | 178 | 7.5 | 303 L3 | — | 18800 | 21700 | 33700 | 40600 | 12100 | 232 |
| 8.1 | 806 | 1.1 | 177 | 7.5 | 300 L3 | — | 6110 | 6110 | 16500 | 19000 | 4020 | 220 |
| 8.1 | 806 | 2.2 | 177 | 7.5 | 301 L3 | — | 6110 | 6110 | 16500 | 19000 | 4020 | 226 |
| 8.1 | 772 | 1.1 | 175 | 10 | — | 300 R4 | 6090 | 6090 | 16500 | 18900 | 4000 | 219 |
| 8.1 | 772 | 2.3 | 175 | 10 | — | 301 R4 | 6090 | 6090 | 16500 | 18900 | 4000 | 227 |
| 8.7 | 745 | 3 | 164 | 7.5 | 303 L3 | — | 18300 | 21100 | 32900 | 39600 | 11700 | 232 |
| 9 | 699 | 1.2 | 159 | 10 | — | 300 R4 | 5890 | 5890 | 16000 | 18300 | 3870 | 220 |
| 9 | 699 | 2.5 | 159 | 10 | — | 301 R4 | 5890 | 5890 | 16000 | 18300 | 3870 | 227 |
| 9.4 | 694 | 2.6 | 152 | 7.5 | 303 L3 | — | 17900 | 20600 | 32200 | 38700 | 11500 | 232 |
| 10 | 630 | 1 | 143 | 10 | — | 300 R4 | 5690 | 5690 | 15500 | 17800 | 3740 | 221 |
| 10 | 630 | 2.1 | 143 | 10 | — | 301 R4 | 5690 | 5690 | 15500 | 17800 | 3740 | 227 |
| 10.1 | 646 | 1.3 | 142 | 7.5 | 300 L3 | — | 5670 | 5670 | 15400 | 17700 | 3730 | 220 |
| 10.1 | 646 | 2.7 | 142 | 7.5 | 301 L3 | — | 5670 | 5670 | 15400 | 17700 | 3730 | 226 |
| 10.8 | 604 | 0.9 | 133 | 12 | — | 300 R3 | 5420 | 5420 | 14800 | 17000 | 3570 | 227 |
| 10.8 | 604 | 1.9 | 133 | 12 | — | 301 R3 | 5550 | 5550 | 15100 | 17400 | 3650 | 227 |
| 10.9 | 595 | 1.4 | 131 | 7.5 | 300 L3 | — | 5520 | 5520 | 15100 | 17300 | 3630 | 220 |
| 10.9 | 595 | 2.9 | 131 | 7.5 | 301 L3 | — | 5520 | 5520 | 15100 | 17300 | 3630 | 226 |

## $P_1$ = 0.75 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | Rn$_2$ [N] | | | | | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | MC | MZ | HC/PC | HZ/PZ | FZ | |
| 11 | 570 | 1.5 | 130 | 10 | — | 300 R4 | 5510 | 5510 | 15000 | 17300 | 3620 | 221 |
| 12.3 | 527 | 1.2 | 116 | 7.5 | 300 L3 | — | 5300 | 5300 | 14500 | 16700 | 3490 | 218 |
| 12.3 | 527 | 2.5 | 116 | 7.5 | 301 L3 | — | 5300 | 5300 | 14500 | 16700 | 3490 | 226 |
| 13.4 | 484 | 1.3 | 106 | 12 | — | 300 R3 | 5160 | 5160 | 14200 | 16300 | 3390 | 221 |
| 13.4 | 484 | 2.7 | 106 | 12 | — | 300 R3 | 5160 | 5160 | 14200 | 16300 | 3390 | 221 |
| 13.5 | 466 | 1.8 | 106 | 10 | — | 300 R4 | 5150 | 5150 | 14100 | 16200 | 3380 | 221 |
| 13.6 | 477 | 1.8 | 105 | 7.5 | 300 L3 | — | 5130 | 5130 | 14100 | 16200 | 3370 | 220 |
| 16.7 | 389 | 2.2 | 85.6 | 7.5 | 300 L3 | — | 4790 | 4790 | 13300 | 15200 | 3150 | 220 |
| 16.8 | 387 | 1.7 | 85.2 | 12 | — | 300 R3 | 4790 | 4790 | 13200 | 15200 | 3150 | 221 |
| 18.2 | 358 | 2.4 | 78.7 | 12 | — | 300 R3 | 4660 | 4660 | 12900 | 14900 | 3060 | 221 |
| 18.5 | 353 | 2.4 | 77.5 | 7.5 | 300 L3 | — | 4640 | 4640 | 12900 | 14800 | 3050 | 220 |
| 20.5 | 318 | 2 | 69.9 | 7.5 | 300 L3 | — | 4480 | 4480 | 12500 | 14300 | 2950 | 220 |
| 21 | 310 | 2.1 | 68.2 | 12 | — | 300 R3 | 4440 | 4440 | 12400 | 14200 | 2920 | 221 |
| 22.1 | 305 | 1.8 | 64.8 | 7.5 | 300 L2 | — | 4370 | 4370 | 12200 | 14000 | 2870 | 220 |
| 22.6 | 288 | 3 | 63.2 | 7.5 | 300 L3 | — | 4330 | 4330 | 12100 | 13900 | 2850 | 220 |
| 22.7 | 286 | 3 | 62.9 | 12 | — | 300 R3 | 4330 | 4330 | 12100 | 13900 | 2840 | 221 |
| 27.5 | 244 | 2.7 | 51.9 | 7.5 | 300 L2 | — | 4060 | 4060 | 11400 | 13100 | 2670 | 220 |

## $P_1$ = 1.1 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | Rn$_2$ [N] | | | | | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | MC | MZ | HC/PC | HZ/PZ | FZ | |
| 0.57 | 16433 | 1.6 | 2523 | 11 | 310 L4 | — | — | — | 133000 | 166000 | 65000 | 272 |
| 0.59 | 15775 | 1.1 | 2423 | 7.5 | 309 L4 | — | — | — | 110000 | 145000 | 36000 | 264 |
| 0.68 | 13652 | 2.5 | 2096 | 11 | 311 L4 | — | — | — | 157000 | 195000 | 65000 | 280 |
| 0.7 | 13292 | 1.1 | 2041 | 7.5 | 307 L4 | — | — | — | 109000 | 145000 | 45000 | 256 |
| 0.71 | 13167 | 2 | 2022 | 11 | 310 L4 | — | — | — | 133000 | 166000 | 65000 | 272 |
| 0.71 | 13041 | 1.3 | 2003 | 7.5 | 309 L4 | — | — | — | 110000 | 145000 | 36000 | 262 |
| 0.8 | 11686 | 2.2 | 1794 | 11 | 310 L4 | — | — | — | 133000 | 166000 | 65000 | 272 |
| 0.81 | 11508 | 1.4 | 1767 | 7.5 | 307 L4 | — | — | — | 109000 | 145000 | 45000 | 256 |
| 0.83 | 11218 | 1.5 | 1723 | 7.5 | 309 L4 | — | — | — | 110000 | 145000 | 36000 | 264 |
| 0.86 | 10885 | 2.4 | 1672 | 11 | 310 L4 | — | — | — | 133000 | 166000 | 65000 | 272 |
| 0.89 | 10450 | 1.6 | 1605 | 7.5 | 309 L4 | — | — | — | 110000 | 145000 | 36000 | 262 |
| 0.9 | 10358 | 1.4 | 1591 | 7.5 | 307 L4 | — | — | — | 109000 | 145000 | 45000 | 256 |
| 0.97 | 9602 | 1.1 | 1475 | 6 | 306 L4 | — | 45000 | 51000 | 101000 | 119000 | 35000 | 248 |
| 0.99 | 9363 | 2.8 | 1438 | 11 | 310 L4 | — | — | — | 133000 | 166000 | 65000 | 272 |
| 1 | 9171 | 1.7 | 1408 | 7.5 | 307 L4 | — | — | — | 109000 | 144700 | 45000 | 256 |
| 1 | 8989 | 1.9 | 1380 | 7.5 | 309 L4 | — | — | — | 110000 | 143800 | 35800 | 264 |
| 1.1 | 8373 | 2 | 1286 | 7.5 | 309 L4 | — | — | — | 109200 | 140800 | 35000 | 264 |
| 1.1 | 8332 | 1 | 1279 | 6 | 306 L4 | — | 45000 | 51000 | 99700 | 116100 | 34000 | 248 |

## $P_1$ = 1.1 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | Rn$_2$ [N] | | | | | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | MC | MZ | HC/PC | HZ/PZ | FZ | |
| 1.1 | 8299 | 1.5 | 1274 | 7.5 | 307 L4 | — | — | — | 107100 | 140400 | 43600 | 256 |
| 1.2 | 7532 | 1.9 | 1157 | 7.5 | 307 L4 | — | — | — | 104100 | 136400 | 42200 | 256 |
| 1.2 | 7485 | 2.2 | 1149 | 7.5 | 309 L4 | — | — | — | 105500 | 136100 | 33700 | 264 |
| 1.3 | 7128 | 1.1 | 1095 | 6 | 306 L4 | — | 42900 | 48600 | 95200 | 110800 | 32200 | 248 |
| 1.4 | 6610 | 1.4 | 1015 | 6 | 306 L4 | — | 41900 | 47400 | 93000 | 108300 | 31400 | 248 |
| 1.4 | 6506 | 2.1 | 999 | 7.5 | 307 L4 | — | — | — | 99600 | 130500 | 40200 | 256 |
| 1.4 | 6506 | 2.8 | 999 | 7.5 | 309 L4 | — | — | — | 101200 | 130500 | 32200 | 264 |
| 1.6 | 5902 | 2.6 | 906 | 7.5 | 307 L4 | — | — | — | 96700 | 126800 | 38900 | 256 |
| 1.6 | 5711 | 1.3 | 877 | 6 | 306 L4 | — | 39900 | 45200 | 89000 | 103700 | 29900 | 248 |
| 1.7 | 5407 | 1.2 | 830 | 12 | — | 306 R4 | 39100 | 44300 | 87600 | 102000 | 29400 | 249 |
| 1.8 | 5314 | 1 | 816 | 6 | 305 L4 | — | 31300 | 36100 | 53300 | 64100 | 20000 | 240 |
| 1.8 | 5267 | 1.5 | 809 | 6 | 306 L4 | — | 38800 | 44000 | 86900 | 101200 | 29200 | 248 |
| 1.8 | 5213 | 2.6 | 801 | 7.5 | 307 L4 | — | — | — | 93200 | 122100 | 37400 | 256 |
| 2 | 4556 | 2.1 | 700 | 6 | 306 L4 | — | 37000 | 41900 | 83200 | 96900 | 27800 | 248 |
| 2.1 | 4492 | 2.2 | 690 | 15 | — | 307 R4 | — | — | 89100 | 116800 | 35500 | 257 |
| 2.1 | 4332 | 1.4 | 665 | 12 | — | 306 R4 | 36400 | 41200 | 82000 | 95400 | 27300 | 249 |
| 2.2 | 4291 | 0.9 | 659 | 12 | — | 305 R4 | 29100 | 33600 | 50000 | 60100 | 18700 | 241 |
| 2.2 | 4229 | 1.1 | 649 | 6 | 305 L4 | — | 29000 | 33400 | 49700 | 59800 | 18600 | 240 |
| 2.3 | 4139 | 2.3 | 636 | 6 | 306 L4 | — | 35800 | 40600 | 80800 | 94100 | 26900 | 248 |
| 2.4 | 3845 | 2.2 | 590 | 12 | — | 306 R4 | 34900 | 39600 | 79100 | 92100 | 26200 | 249 |
| 2.4 | 3838 | 2.4 | 589 | 6 | 306 L4 | — | 34900 | 39600 | 79000 | 92000 | 26200 | 248 |
| 2.5 | 3691 | 1.3 | 567 | 12 | — | 305 R4 | 27700 | 32000 | 47700 | 57400 | 17800 | 241 |
| 2.6 | 3622 | 1.5 | 556 | 6 | 305 L4 | — | 27500 | 31700 | 47500 | 57100 | 17600 | 240 |
| 2.6 | 3581 | 2 | 550 | 12 | — | 306 R4 | 34100 | 38700 | 77400 | 90100 | 25600 | 249 |
| 2.7 | 3438 | 1.1 | 528 | 12 | — | 305 R4 | 27000 | 31200 | 46700 | 56200 | 17300 | 241 |
| 2.8 | 3316 | 2.8 | 509 | 6 | 306 L4 | — | 33300 | 37700 | 75600 | 88100 | 25000 | 248 |
| 2.9 | 3206 | 1.7 | 492 | 6 | 305 L4 | — | 26400 | 30500 | 45800 | 55100 | 16900 | 240 |
| 2.9 | 3194 | 2.9 | 490 | 15 | — | 307 R4 | — | — | 80500 | 105400 | 31700 | 256 |
| 2.9 | 3178 | 2.8 | 488 | 12 | — | 306 R4 | 32800 | 37100 | 74700 | 87000 | 24600 | 249 |
| 3.1 | 2961 | 2.4 | 455 | 12 | — | 306 R4 | 32000 | 36300 | 73100 | 85100 | 24100 | 249 |
| 3.2 | 2941 | 1.6 | 452 | 12 | — | 305 R4 | 25700 | 29600 | 44600 | 53700 | 16500 | 240 |
| 3.2 | 2902 | 1 | 446 | 6 | 303 L4 | — | 25500 | 29500 | 44400 | 53400 | 16400 | 232 |
| 3.2 | 2902 | 1.9 | 446 | 6 | 305 L4 | — | 25500 | 29500 | 44400 | 53400 | 16400 | 240 |
| 3.5 | 2691 | 1.8 | 413 | 6 | 305 L4 | — | 24900 | 28800 | 43400 | 52200 | 16000 | 240 |
| 3.5 | 2727 | 2.1 | 405 | 7.5 | 306 L3 | — | 30800 | 34900 | 70600 | 82200 | 23100 | 248 |
| 3.6 | 2705 | 1.4 | 402 | 7.5 | 305 L3 | — | 24700 | 28500 | 43100 | 51800 | 15800 | 240 |
| 3.7 | 2546 | 2.7 | 391 | 6 | 306 L4 | — | 30400 | 34500 | 69900 | 81400 | 22900 | 248 |
| 3.7 | 2541 | 1.5 | 390 | 12 | — | 305 R4 | 24400 | 28200 | 42700 | 51400 | 15700 | 240 |
| 3.7 | 2533 | 3 | 389 | 12 | — | 306 R4 | 30400 | 34400 | 69800 | 81200 | 22800 | 249 |
| 3.7 | 2618 | 1.2 | 389 | 7.5 | 305 L3 | — | 24400 | 28200 | 42600 | 51300 | 15700 | 240 |
| 3.9 | 2370 | 1 | 364 | 12 | — | 303 R4 | 23900 | 27600 | 41800 | 50300 | 15300 | 233 |
| 3.9 | 2370 | 1.9 | 364 | 12 | — | 305 R4 | 23900 | 27600 | 41800 | 50300 | 15300 | 241 |
| 4.3 | 2185 | 1 | 336 | 12 | — | 303 R4 | 23200 | 26800 | 40800 | 49100 | 14900 | 233 |

## $P_1$ = 1.1 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | Rn$_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4.3 | 2185 | 2.1 | 336 | 12 | — | 305 R4 | 23200 | 26800 | 40800 | 49100 | 14900 | 241 |
| 4.4 | 2185 | 2.5 | 325 | 7.5 | 306 L3 | — | 28600 | 32400 | 66100 | 76900 | 21500 | 248 |
| 4.4 | 2164 | 1.7 | 321 | 7.5 | 305 L3 | — | 22900 | 26400 | 40300 | 48500 | 14700 | 240 |
| 4.6 | 2036 | 0.9 | 313 | 12 | — | 303 R4 | 22200 | 25600 | 39100 | 47100 | 14200 | 233 |
| 4.6 | 2036 | 1.8 | 313 | 12 | — | 305 R4 | 22700 | 26200 | 39900 | 48100 | 14600 | 240 |
| 4.9 | 1894 | 1 | 291 | 10 | — | 301 R4 | 7210 | 7210 | 19100 | 22000 | 4740 | 227 |
| 4.9 | 1888 | 1.4 | 290 | 12 | — | 303 R4 | 22100 | 25600 | 39100 | 47000 | 14200 | 233 |
| 4.9 | 1888 | 2.8 | 290 | 12 | — | 305 R4 | 22100 | 25600 | 39100 | 47000 | 14200 | 241 |
| 5 | 1939 | 2.8 | 288 | 7.5 | 306 L3 | — | 27500 | 31200 | 63700 | 74200 | 20700 | 248 |
| 5.2 | 1862 | 1.2 | 276 | 7.5 | 303 L3 | — | 21800 | 25200 | 38500 | 46300 | 14000 | 232 |
| 5.2 | 1862 | 2.4 | 276 | 7.5 | 305 L3 | — | 21800 | 25200 | 38500 | 46300 | 14000 | 240 |
| 5.3 | 1747 | 1.1 | 268 | 10 | — | 301 R4 | 7020 | 7020 | 18700 | 21500 | 4610 | 227 |
| 5.6 | 1734 | 1.1 | 258 | 7.5 | 303 L3 | — | 21300 | 24600 | 37700 | 45300 | 13600 | 232 |
| 5.6 | 1734 | 2.1 | 258 | 7.5 | 305 L3 | — | 21300 | 24600 | 37700 | 45300 | 13600 | 240 |
| 5.6 | 1662 | 1.1 | 255 | 12 | — | 303 R4 | 21200 | 24500 | 37600 | 45200 | 13600 | 233 |
| 5.6 | 1662 | 2.2 | 255 | 12 | — | 305 R4 | 21200 | 24500 | 37600 | 45200 | 13600 | 241 |
| 6.2 | 1504 | 1.2 | 231 | 12 | — | 303 R4 | 20500 | 23700 | 36500 | 43900 | 13200 | 233 |
| 6.2 | 1504 | 2.4 | 231 | 12 | — | 305 R4 | 20500 | 23700 | 36500 | 43900 | 13200 | 241 |
| 6.5 | 1488 | 1.2 | 221 | 7.5 | 301 L3 | — | 6580 | 6580 | 17600 | 20300 | 4320 | 226 |
| 6.5 | 1484 | 1.5 | 220 | 7.5 | 303 L3 | — | 20200 | 23300 | 36000 | 43300 | 13000 | 233 |
| 6.7 | 1400 | 1.3 | 215 | 10 | — | 301 R4 | 6520 | 6520 | 17500 | 20100 | 4280 | 227 |
| 6.7 | 1395 | 2 | 214 | 12 | — | 303 R4 | 20000 | 23100 | 35700 | 42900 | 12800 | 233 |
| 7.4 | 1293 | 1 | 192 | 7.5 | 301 L3 | — | 6280 | 6280 | 16900 | 19400 | 4130 | 226 |
| 7.5 | 1282 | 1.4 | 190 | 7.5 | 303 L3 | — | 19200 | 22200 | 34400 | 41400 | 12300 | 232 |
| 7.5 | 1282 | 2.8 | 190 | 7.5 | 305 L3 | — | 19200 | 22200 | 34400 | 41400 | 12300 | 240 |
| 7.7 | 1204 | 1.9 | 185 | 12 | — | 303 R4 | 19100 | 22000 | 34100 | 41100 | 12200 | 233 |
| 8.1 | 1195 | 1.8 | 178 | 7.5 | 303 L3 | — | 18800 | 21700 | 33700 | 40600 | 12100 | 232 |
| 8.1 | 1192 | 1.5 | 177 | 7.5 | 301 L3 | — | 6110 | 6110 | 16500 | 19000 | 4020 | 226 |
| 8.1 | 1143 | 1.5 | 175 | 10 | — | 301 R4 | 6090 | 6090 | 16500 | 18900 | 4000 | 227 |
| 8.7 | 1102 | 2 | 164 | 7.5 | 303 L3 | — | 18300 | 21100 | 32900 | 39600 | 11700 | 232 |
| 9 | 1034 | 1.7 | 159 | 10 | — | 301 R4 | 5890 | 5890 | 16000 | 18300 | 3870 | 227 |
| 9 | 1031 | 2.6 | 158 | 12 | — | 303 R4 | 18100 | 20900 | 32600 | 39200 | 11600 | 233 |
| 9.4 | 1027 | 1.8 | 152 | 7.5 | 303 L3 | — | 17900 | 20600 | 32200 | 38700 | 11500 | 232 |
| 9.7 | 965 | 2.4 | 148 | 12 | — | 303 R4 | 17700 | 20400 | 31900 | 38400 | 11400 | 233 |
| 10 | 933 | 1.4 | 143 | 10 | — | 301 R4 | 5690 | 5690 | 15500 | 17800 | 3740 | 227 |
| 10.1 | 956 | 0.9 | 142 | 7.5 | 300 L3 | — | 5540 | 5540 | 15100 | 17400 | 3650 | 220 |
| 10.1 | 956 | 1.8 | 142 | 7.5 | 301 L3 | — | 5670 | 5670 | 15400 | 17700 | 3730 | 226 |
| 10.1 | 953 | 2.7 | 141 | 7.5 | 303 L3 | — | 17400 | 20100 | 31500 | 37900 | 11200 | 232 |
| 10.8 | 895 | 1.3 | 133 | 12 | — | 301 R3 | 5550 | 5550 | 15100 | 17400 | 3650 | 227 |
| 10.9 | 881 | 1 | 131 | 7.5 | 300 L3 | — | 5520 | 5520 | 15100 | 17300 | 3630 | 220 |
| 10.9 | 881 | 2 | 131 | 7.5 | 301 L3 | — | 5520 | 5520 | 15100 | 17300 | 3630 | 226 |
| 11 | 844 | 1 | 130 | 10 | — | 300 R4 | 5510 | 5510 | 15000 | 17300 | 3620 | 220 |
| 11 | 844 | 2 | 130 | 10 | — | 301 R4 | 5510 | 5510 | 15000 | 17300 | 3620 | 227 |

## $P_1$ = 1.1 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | $Rn_2$ [N] | | | | | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | MC | MZ | HC/PC | HZ/PZ | FZ | |
| 11.5 | 838 | 2.2 | 124 | 7.5 | 303 L3 | — | 16700 | 19300 | 30300 | 36500 | 10700 | 233 |
| 12.3 | 780 | 1.7 | 116 | 7.5 | 301 L3 | — | 5300 | 5300 | 14500 | 16700 | 3490 | 226 |
| 12.5 | 770 | 2.4 | 114 | 14 | — | 303 R3 | 16200 | 18700 | 29500 | 35500 | 10400 | 233 |
| 12.7 | 759 | 2.4 | 113 | 7.5 | 303 L3 | — | 16200 | 18600 | 29400 | 35400 | 10400 | 232 |
| 13.4 | 717 | 0.9 | 106 | 12 | — | 300 R3 | 5040 | 5040 | 13900 | 15900 | 3310 | 221 |
| 13.4 | 717 | 1.8 | 106 | 12 | — | 301 R3 | 5160 | 5160 | 14200 | 16300 | 3390 | 227 |
| 13.5 | 689 | 1.2 | 106 | 10 | — | 300 R4 | 5150 | 5150 | 14100 | 16200 | 3380 | 221 |
| 13.5 | 689 | 2.5 | 106 | 10 | — | 301 R4 | 5150 | 5150 | 14100 | 16200 | 3380 | 227 |
| 13.6 | 706 | 1.2 | 105 | 7.5 | 300 L3 | — | 5130 | 5130 | 14100 | 16200 | 3370 | 220 |
| 13.6 | 706 | 2.4 | 105 | 7.5 | 301 L3 | — | 5130 | 5130 | 14100 | 16200 | 3370 | 226 |
| 15.6 | 616 | 3 | 91.5 | 14 | — | 303 R3 | 15100 | 17400 | 27600 | 33200 | 9670 | 233 |
| 16.7 | 576 | 1.5 | 85.6 | 7.5 | 300 L3 | — | 4790 | 4790 | 13300 | 15200 | 3150 | 220 |
| 16.7 | 576 | 2.9 | 85.6 | 7.5 | 301 L3 | — | 4790 | 4790 | 13300 | 15200 | 3150 | 226 |
| 16.8 | 573 | 1.1 | 85.2 | 12 | — | 300 R3 | 4790 | 4790 | 13200 | 15200 | 3150 | 221 |
| 16.8 | 573 | 2.3 | 85.2 | 12 | — | 301 R3 | 4790 | 4790 | 13200 | 15200 | 3150 | 227 |
| 18.2 | 530 | 1.6 | 78.7 | 12 | — | 300 R3 | 4660 | 4660 | 12900 | 14900 | 3060 | 221 |
| 18.2 | 530 | 3 | 78.7 | 12 | — | 301 R3 | 4660 | 4660 | 12900 | 14900 | 3060 | 227 |
| 18.5 | 522 | 1.6 | 77.5 | 7.5 | 300 L3 | — | 4640 | 4640 | 12900 | 14800 | 3050 | 220 |
| 20.5 | 470 | 1.4 | 69.9 | 7.5 | 300 L3 | — | 4480 | 4480 | 12500 | 14300 | 2950 | 220 |
| 20.5 | 470 | 2.8 | 69.9 | 7.5 | 301 L3 | — | 4480 | 4480 | 12500 | 14300 | 2950 | 226 |
| 21 | 459 | 1.4 | 68.2 | 12 | — | 300 R3 | 4440 | 4440 | 12400 | 14200 | 2920 | 221 |
| 21 | 459 | 2.8 | 68.2 | 12 | — | 301 R3 | 4440 | 4440 | 12400 | 14200 | 2920 | 227 |
| 22.1 | 451 | 1.2 | 64.8 | 7.5 | 300 L2 | — | 4370 | 4370 | 12200 | 14000 | 2870 | 220 |
| 22.1 | 451 | 2.6 | 64.8 | 7.5 | 301 L2 | — | 4370 | 4370 | 12200 | 14000 | 2870 | 226 |
| 22.6 | 426 | 2 | 63.2 | 7.5 | 300 L3 | — | 4330 | 4330 | 12100 | 13900 | 2850 | 220 |
| 22.7 | 424 | 2 | 62.9 | 12 | — | 300 R3 | 4330 | 4330 | 12100 | 13900 | 2840 | 221 |
| 27.5 | 361 | 1.8 | 51.9 | 7.5 | 300 L2 | — | 4060 | 4060 | 11400 | 13100 | 2670 | 220 |
| 27.7 | 348 | 2.4 | 51.6 | 7.5 | 300 L3 | — | 4050 | 4050 | 11400 | 13100 | 2660 | 220 |
| 28.4 | 340 | 2.5 | 50.4 | 12 | — | 300 R3 | 4020 | 4020 | 11300 | 13000 | 2640 | 221 |
| 34 | 289 | 2.2 | 41.5 | 7.5 | 300 L2 | — | 3770 | 3770 | 10700 | 12300 | 2480 | 220 |
| 35 | 277 | 2.3 | 41.2 | 12 | — | 300 R3 | 3760 | 3760 | 10600 | 12200 | 2470 | 221 |
| 43 | 232 | 2.8 | 33.3 | 7.5 | 300 L2 | — | 3500 | 3500 | 9990 | 11500 | 2300 | 220 |
| 78 | 128 | 2.9 | 18.5 | 12 | — | 300 R2 | 2870 | 2870 | 8370 | 9620 | 1890 | 221 |

## $P_1$ = 1.5 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | $Rn_2$ [N] | | | | | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | MC | MZ | HC/PC | HZ/PZ | FZ | |
| 0.57 | 22206 | 1.2 | 2523 | 11 | 310 L4 | — | — | — | 133000 | 166000 | 65000 | 272 |
| 0.65 | 19246 | 2.5 | 2187 | 11 | 313 L4 | — | — | — | 192000 | 231000 | 80000 | 288 |

## $P_1$ = 1.5 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.68 | 18448 | 1.8 | 2096 | 11 | 311 L4 | — | — | — | 157000 | 195000 | 65000 | 280 |
| 0.71 | 17794 | 1.5 | 2022 | 11 | 310 L4 | — | — | — | 133000 | 166000 | 65000 | 273 |
| 0.71 | 17623 | 1 | 2003 | 7.5 | 309 L4 | — | — | — | 110000 | 145000 | 36000 | 264 |
| 0.8 | 15791 | 1.6 | 1794 | 11 | 310 L4 | — | — | — | 133000 | 166000 | 65000 | 272 |
| 0.81 | 15552 | 1 | 1767 | 7.5 | 307 L4 | — | — | — | 109000 | 145000 | 45000 | 256 |
| 0.81 | 15545 | 2.8 | 1766 | 11 | 311 L4 | — | — | — | 157000 | 195000 | 65000 | 280 |
| 0.83 | 15160 | 1.1 | 1723 | 7.5 | 309 L4 | — | — | — | 110000 | 145000 | 36000 | 264 |
| 0.85 | 14782 | 2.3 | 1680 | 11 | 311 L4 | — | — | — | 157000 | 195000 | 65000 | 280 |
| 0.86 | 14709 | 1.8 | 1672 | 11 | 310 L4 | — | — | — | 133000 | 166000 | 65000 | 272 |
| 0.89 | 14121 | 1.2 | 1605 | 7.5 | 309 L4 | — | — | — | 110000 | 145000 | 36000 | 264 |
| 0.9 | 13997 | 1.1 | 1591 | 7.5 | 307 L4 | — | — | — | 109000 | 145000 | 45000 | 256 |
| 0.99 | 12653 | 2 | 1438 | 11 | 310 L4 | — | — | — | 133000 | 166000 | 65000 | 272 |
| 1 | 12393 | 1.3 | 1408 | 7.5 | 307 L4 | — | — | — | 109000 | 144700 | 45000 | 256 |
| 1 | 12147 | 1.4 | 1380 | 7.5 | 309 L4 | — | — | — | 110000 | 143800 | 35800 | 264 |
| 1.1 | 11315 | 1.5 | 1286 | 7.5 | 309 L4 | — | — | — | 109200 | 140800 | 35000 | 264 |
| 1.1 | 11215 | 1.1 | 1274 | 7.5 | 307 L4 | — | — | — | 107100 | 140400 | 43600 | 256 |
| 1.1 | 11079 | 2.5 | 1259 | 11 | 310 L4 | — | — | — | 128500 | 161600 | 62700 | 272 |
| 1.2 | 10246 | 2.9 | 1164 | 11 | 310 L4 | — | — | — | 125500 | 157900 | 61100 | 272 |
| 1.2 | 10179 | 1.4 | 1157 | 7.5 | 307 L4 | — | — | — | 104100 | 136400 | 42200 | 256 |
| 1.2 | 10114 | 1.6 | 1149 | 7.5 | 309 L4 | — | — | — | 105500 | 136100 | 33700 | 264 |
| 1.4 | 8932 | 1.1 | 1015 | 6 | 306 L4 | — | 41900 | 47400 | 93000 | 108300 | 31400 | 248 |
| 1.4 | 8792 | 1.6 | 999 | 7.5 | 307 L4 | — | — | — | 99600 | 130500 | 40200 | 256 |
| 1.4 | 8792 | 2.1 | 999 | 7.5 | 309 L4 | — | — | — | 101200 | 130500 | 32200 | 264 |
| 1.6 | 7975 | 1.9 | 906 | 7.5 | 307 L4 | — | — | — | 96700 | 126800 | 38900 | 256 |
| 1.6 | 7975 | 2.2 | 906 | 7.5 | 309 L4 | — | — | — | 98300 | 126800 | 31100 | 264 |
| 1.6 | 7903 | 2.9 | 898 | 15 | — | 310 R4 | — | — | 116100 | 146000 | 56100 | 273 |
| 1.6 | 7718 | 1 | 877 | 6 | 306 L4 | — | 39900 | 45200 | 89000 | 103700 | 29900 | 248 |
| 1.8 | 7117 | 1.1 | 809 | 6 | 306 L4 | — | 38800 | 44000 | 86900 | 101200 | 29200 | 248 |
| 1.8 | 7045 | 1.9 | 801 | 7.5 | 307 L4 | — | — | — | 93200 | 122100 | 37400 | 256 |
| 1.8 | 7045 | 2.6 | 801 | 7.5 | 309 L4 | — | — | — | 94700 | 122100 | 29900 | 264 |
| 2 | 6355 | 2.4 | 722 | 7.5 | 307 L4 | — | — | — | 90400 | 118400 | 36100 | 256 |
| 2 | 6156 | 1.5 | 700 | 6 | 306 L4 | — | 37000 | 41900 | 83200 | 96900 | 27800 | 248 |
| 2.1 | 6070 | 1.6 | 690 | 15 | — | 307 R4 | — | — | 89100 | 116800 | 35500 | 257 |
| 2.1 | 6070 | 2.4 | 690 | 15 | — | 309 R4 | — | — | 90600 | 116800 | 28400 | 265 |
| 2.1 | 5854 | 1 | 665 | 12 | — | 306 R4 | 36400 | 41200 | 82000 | 95400 | 27300 | 249 |
| 2.2 | 5751 | 2.2 | 654 | 7.5 | 307 L4 | — | — | — | 87700 | 114900 | 34900 | 256 |
| 2.3 | 5593 | 1.7 | 636 | 6 | 306 L4 | — | 35800 | 40600 | 80800 | 94100 | 26900 | 248 |
| 2.4 | 5196 | 1.6 | 590 | 12 | — | 306 R4 | 34900 | 39600 | 79100 | 92100 | 26200 | 249 |
| 2.4 | 5186 | 1.8 | 589 | 6 | 306 L4 | — | 34900 | 39600 | 79000 | 92000 | 26200 | 248 |
| 2.5 | 5114 | 2.5 | 581 | 15 | — | 307 R4 | 38600 | 48500 | 84700 | 110900 | 33600 | 257 |
| 2.5 | 5092 | 2.9 | 579 | 7.5 | 307 L4 | — | — | — | 84500 | 110800 | 33500 | 256 |
| 2.5 | 4988 | 1 | 567 | 12 | — | 305 R4 | 27700 | 32000 | 47700 | 57400 | 17800 | 241 |
| 2.6 | 4894 | 1.1 | 556 | 6 | 305 L4 | — | 27500 | 31700 | 47500 | 57100 | 17600 | 241 |

## $P_1$ = 1.5 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | Rn$_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.6 | 4840 | 1.5 | 550 | 12 | — | 306 R4 | 34100 | 38700 | 77400 | 90100 | 25600 | 249 |
| 2.8 | 4481 | 2.1 | 509 | 6 | 306 L4 | — | 33300 | 37700 | 75600 | 88100 | 25000 | 248 |
| 2.9 | 4332 | 1.2 | 492 | 6 | 305 L4 | — | 26400 | 30500 | 45800 | 55100 | 16900 | 240 |
| 2.9 | 4316 | 2.2 | 490 | 15 | — | 307 R4 | — | — | 80500 | 105400 | 31700 | 256 |
| 2.9 | 4295 | 2.1 | 488 | 12 | — | 306 R4 | 32800 | 37100 | 74700 | 87000 | 24600 | 249 |
| 3.1 | 4091 | 3 | 465 | 7.5 | 307 L4 | — | — | — | 79200 | 103700 | 31200 | 257 |
| 3.1 | 4001 | 1.8 | 455 | 12 | — | 306 R4 | 32000 | 36300 | 73100 | 85100 | 24100 | 249 |
| 3.2 | 3975 | 1.2 | 452 | 12 | — | 305 R4 | 25700 | 29600 | 44600 | 53700 | 16500 | 241 |
| 3.2 | 3922 | 1.4 | 446 | 6 | 305 L4 | — | 25500 | 29500 | 44400 | 53400 | 16400 | 240 |
| 3.2 | 3909 | 2.5 | 444 | 6 | 306 L4 | — | 31800 | 36000 | 72600 | 84500 | 23900 | 248 |
| 3.4 | 3695 | 2.4 | 420 | 12 | — | 306 R4 | 31200 | 35300 | 71400 | 83100 | 23400 | 249 |
| 3.5 | 3636 | 1.3 | 413 | 6 | 305 L4 | — | 24900 | 28800 | 43400 | 52200 | 16000 | 240 |
| 3.5 | 3686 | 1.5 | 405 | 7.5 | 306 L3 | — | 30800 | 34900 | 70600 | 82200 | 23100 | 248 |
| 3.6 | 3656 | 1 | 402 | 7.5 | 305 L3 | — | 24700 | 28500 | 43100 | 51800 | 15800 | 241 |
| 3.7 | 3440 | 2 | 391 | 6 | 306 L4 | — | 30400 | 34500 | 69900 | 81400 | 22900 | 248 |
| 3.7 | 3433 | 1.1 | 390 | 12 | — | 305 R4 | 24400 | 28200 | 42700 | 51400 | 15700 | 241 |
| 3.7 | 3423 | 2.2 | 389 | 12 | — | 306 R4 | 30400 | 34400 | 69800 | 81200 | 22800 | 249 |
| 3.9 | 3202 | 1.4 | 364 | 12 | — | 305 R4 | 23900 | 27600 | 41800 | 50300 | 15300 | 241 |
| 4.3 | 3062 | 2.9 | 336 | 11 | 307 L3 | — | — | — | 71900 | 94200 | 28000 | 257 |
| 4.3 | 2953 | 1.5 | 336 | 12 | — | 305 R4 | 23200 | 26800 | 40800 | 49100 | 14900 | 241 |
| 4.4 | 2953 | 1.9 | 325 | 7.5 | 306 L3 | — | 28600 | 32400 | 66100 | 76900 | 21500 | 248 |
| 4.4 | 2925 | 1.2 | 321 | 7.5 | 305 L3 | — | 22900 | 26400 | 40300 | 48500 | 14700 | 240 |
| 4.6 | 2751 | 1.3 | 313 | 12 | — | 305 R4 | 22700 | 26200 | 39900 | 48100 | 14600 | 241 |
| 4.6 | 2742 | 2.8 | 312 | 12 | — | 306 R4 | 28200 | 32000 | 65300 | 76000 | 21200 | 249 |
| 4.9 | 2552 | 1 | 290 | 12 | — | 303 R4 | 22100 | 25600 | 39100 | 47000 | 14200 | 233 |
| 4.9 | 2552 | 2.1 | 290 | 12 | — | 305 R4 | 22100 | 25600 | 39100 | 47000 | 14200 | 241 |
| 5 | 2621 | 2.1 | 288 | 7.5 | 306 L3 | — | 27500 | 31200 | 63700 | 74200 | 20700 | 248 |
| 5.2 | 2516 | 1.8 | 276 | 7.5 | 305 L3 | — | 21800 | 25200 | 38500 | 46300 | 14000 | 240 |
| 5.3 | 2441 | 2.3 | 268 | 7.5 | 306 L3 | — | 26900 | 30400 | 62400 | 72700 | 20200 | 248 |
| 5.6 | 2344 | 1.5 | 258 | 7.5 | 305 L3 | — | 21300 | 24600 | 37700 | 45300 | 13600 | 240 |
| 5.6 | 2246 | 1.6 | 255 | 12 | — | 305 R4 | 21200 | 24500 | 37600 | 45200 | 13600 | 241 |
| 6.2 | 2033 | 0.9 | 231 | 12 | — | 303 R4 | 20100 | 23100 | 35700 | 43000 | 12900 | 233 |
| 6.2 | 2033 | 1.8 | 231 | 12 | — | 305 R4 | 20500 | 23700 | 36500 | 43900 | 13200 | 241 |
| 6.5 | 2005 | 1.1 | 220 | 7.5 | 303 L3 | — | 20200 | 23300 | 36000 | 43300 | 13000 | 232 |
| 6.5 | 2005 | 2.4 | 220 | 7.5 | 305 L3 | — | 20200 | 23300 | 36000 | 43300 | 13000 | 240 |
| 6.7 | 1892 | 1 | 215 | 10 | — | 301 R4 | 6520 | 6520 | 17500 | 20100 | 4280 | 227 |
| 6.7 | 1886 | 1.4 | 214 | 12 | — | 303 R4 | 20000 | 23100 | 35700 | 42900 | 12800 | 233 |
| 6.7 | 1886 | 2.9 | 214 | 12 | — | 305 R4 | 19600 | 22600 | 34900 | 42000 | 12500 | 241 |
| 7.5 | 1732 | 1.1 | 190 | 7.5 | 303 L3 | — | 19200 | 22200 | 34400 | 41400 | 12300 | 232 |
| 7.5 | 1732 | 2.1 | 190 | 7.5 | 305 L3 | — | 19200 | 22200 | 34400 | 41400 | 12300 | 240 |
| 7.7 | 1627 | 1.4 | 185 | 12 | — | 303 R4 | 19100 | 22000 | 34100 | 41100 | 12200 | 233 |
| 7.7 | 1627 | 2.8 | 185 | 12 | — | 305 R4 | 19100 | 22000 | 34100 | 41100 | 12200 | 241 |
| 8.1 | 1615 | 1.4 | 178 | 7.5 | 303 L3 | — | 18800 | 21700 | 33700 | 40600 | 12100 | 232 |

## $P_1$ = 1.5 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | $Rn_2$ [N] | | | | | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | MC | MZ | HC/PC | HZ/PZ | FZ | |
| 8.1 | 1615 | 2.7 | 178 | 7.5 | 305 L3 | — | 18800 | 21700 | 33700 | 40600 | 12100 | 238 |
| 8.1 | 1611 | 1.1 | 177 | 7.5 | 301 L3 | — | 6110 | 6110 | 16500 | 19000 | 4020 | 226 |
| 8.1 | 1544 | 1.1 | 175 | 10 | — | 301 R4 | 6090 | 6090 | 16500 | 18900 | 4000 | 226 |
| 8.7 | 1490 | 1.5 | 164 | 7.5 | 303 L3 | — | 18300 | 21100 | 32900 | 39600 | 11700 | 232 |
| 8.7 | 1490 | 3 | 164 | 7.5 | 305 L3 | — | 18300 | 21100 | 32900 | 39600 | 11700 | 240 |
| 9 | 1398 | 1.2 | 159 | 10 | — | 301 R4 | 5890 | 5890 | 16000 | 18300 | 3870 | 226 |
| 9 | 1393 | 1.9 | 158 | 12 | — | 303 R4 | 18100 | 20900 | 32600 | 39200 | 11600 | 239 |
| 9.4 | 1388 | 1.3 | 152 | 7.5 | 303 L3 | — | 17900 | 20600 | 32200 | 38700 | 11500 | 232 |
| 9.4 | 1388 | 2.6 | 152 | 7.5 | 305 L3 | — | 17900 | 20600 | 32200 | 38700 | 11500 | 240 |
| 9.7 | 1304 | 1.8 | 148 | 12 | — | 303 R4 | 17700 | 20400 | 31900 | 38400 | 11400 | 233 |
| 10 | 1260 | 1 | 143 | 10 | — | 301 R4 | 5690 | 5690 | 15500 | 17800 | 3740 | 227 |
| 10.1 | 1291 | 1.3 | 142 | 7.5 | 301 L3 | — | 5670 | 5670 | 15400 | 17700 | 3730 | 226 |
| 10.1 | 1287 | 2 | 141 | 7.5 | 303 L3 | — | 17400 | 20100 | 31500 | 37900 | 11200 | 230 |
| 10.8 | 1209 | 1 | 133 | 12 | — | 301 R3 | 5550 | 5550 | 15100 | 17400 | 3650 | 227 |
| 10.9 | 1191 | 1.4 | 131 | 7.5 | 301 L3 | — | 5520 | 5520 | 15100 | 17300 | 3630 | 226 |
| 11 | 1141 | 1.5 | 130 | 10 | — | 301 R4 | 5510 | 5510 | 15000 | 17300 | 3620 | 227 |
| 11.1 | 1137 | 2.3 | 129 | 12 | — | 303 R4 | 16900 | 19500 | 30600 | 36900 | 10800 | 233 |
| 11.5 | 1133 | 1.6 | 124 | 7.5 | 303 L3 | — | 16700 | 19300 | 30300 | 36500 | 10700 | 232 |
| 12.3 | 1054 | 1.2 | 116 | 7.5 | 301 L3 | — | 5300 | 5300 | 14500 | 16700 | 3490 | 226 |
| 12.5 | 1041 | 1.7 | 114 | 14 | — | 303 R3 | 16200 | 18700 | 29500 | 35500 | 10400 | 233 |
| 12.7 | 1025 | 1.8 | 113 | 7.5 | 303 L3 | — | 16200 | 18600 | 29400 | 35400 | 10400 | 232 |
| 13.4 | 969 | 1.3 | 106 | 12 | — | 301 R3 | 5160 | 5160 | 14200 | 16300 | 3390 | 227 |
| 13.5 | 931 | 0.9 | 106 | 10 | — | 300 R4 | 5030 | 5030 | 13800 | 15900 | 3310 | 221 |
| 13.5 | 931 | 1.8 | 106 | 10 | — | 301 R4 | 5150 | 5150 | 14100 | 16200 | 3380 | 227 |
| 13.6 | 954 | 0.9 | 105 | 7.5 | 300 L3 | — | 5010 | 5010 | 13800 | 15900 | 3300 | 220 |
| 13.6 | 954 | 1.8 | 105 | 7.5 | 301 L3 | — | 5130 | 5130 | 14100 | 16200 | 3370 | 226 |
| 13.7 | 951 | 2.7 | 105 | 7.5 | 303 L3 | — | 15800 | 18200 | 28800 | 34600 | 10100 | 232 |
| 15.6 | 833 | 2.2 | 91.5 | 14 | — | 303 R3 | 15100 | 17400 | 27600 | 33200 | 9670 | 233 |
| 15.9 | 821 | 2.7 | 90.2 | 7.5 | 303 L3 | — | 15000 | 17300 | 27500 | 33100 | 9620 | 232 |
| 16.7 | 779 | 1.1 | 85.6 | 7.5 | 300 L3 | — | 4790 | 4790 | 13300 | 15200 | 3150 | 220 |
| 16.7 | 779 | 2.2 | 85.6 | 7.5 | 301 L3 | — | 4790 | 4790 | 13300 | 15200 | 3150 | 226 |
| 16.8 | 775 | 1.7 | 85.2 | 12 | — | 301 R3 | 4790 | 4790 | 13200 | 15200 | 3150 | 227 |
| 18.2 | 716 | 1.2 | 78.7 | 12 | — | 300 R3 | 4660 | 4660 | 12900 | 14900 | 3060 | 221 |
| 18.2 | 716 | 2.2 | 78.7 | 12 | — | 301 R3 | 4660 | 4660 | 12900 | 14900 | 3060 | 226 |
| 18.5 | 705 | 1.2 | 77.5 | 7.5 | 300 L3 | — | 4640 | 4640 | 12900 | 14800 | 3050 | 220 |
| 18.5 | 705 | 2.4 | 77.5 | 7.5 | 301 L3 | — | 4640 | 4640 | 12900 | 14800 | 3050 | 226 |
| 19.5 | 667 | 2.7 | 73.3 | 14 | — | 303 R3 | 14000 | 16200 | 25900 | 31100 | 8980 | 233 |
| 20.5 | 636 | 1 | 69.9 | 7.5 | 300 L3 | — | 4480 | 4480 | 12500 | 14300 | 2950 | 220 |
| 20.5 | 636 | 2 | 69.9 | 7.5 | 301 L3 | — | 4480 | 4480 | 12500 | 14300 | 2950 | 226 |
| 21 | 621 | 1 | 68.2 | 12 | — | 300 R3 | 4440 | 4440 | 12400 | 14200 | 2920 | 221 |
| 21 | 621 | 2.1 | 68.2 | 12 | — | 301 R3 | 4440 | 4440 | 12400 | 14200 | 2920 | 227 |
| 22.1 | 609 | 0.9 | 64.8 | 7.5 | 300 L2 | — | 4270 | 4270 | 12000 | 13700 | 2810 | 220 |
| 22.1 | 609 | 1.9 | 64.8 | 7.5 | 301 L2 | — | 4370 | 4370 | 12200 | 14000 | 2870 | 226 |

## $P_1$ = 1.5 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | $Rn_2$ [N] | | | | | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | MC | MZ | HC/PC | HZ/PZ | FZ | |
| 22.6 | 576 | 1.5 | 63.2 | 7.5 | 300 L3 | — | 4330 | 4330 | 12100 | 13900 | 2850 | 220 |
| 22.6 | 576 | 2.9 | 63.2 | 7.5 | 301 L3 | — | 4330 | 4330 | 12100 | 13900 | 2850 | 226 |
| 22.7 | 573 | 1.5 | 62.9 | 12 | — | 300 R3 | 4330 | 4330 | 12100 | 13900 | 2840 | 221 |
| 22.7 | 573 | 2.9 | 62.9 | 12 | — | 301 R3 | 4330 | 4330 | 12100 | 13900 | 2840 | 227 |
| 27.5 | 488 | 1.3 | 51.9 | 7.5 | 300 L2 | — | 4060 | 4060 | 11400 | 13100 | 2670 | 220 |
| 27.5 | 488 | 2.7 | 51.9 | 7.5 | 301 L2 | — | 4060 | 4060 | 11400 | 13100 | 2670 | 226 |
| 27.7 | 470 | 1.8 | 51.6 | 7.5 | 300 L3 | — | 4050 | 4050 | 11400 | 13100 | 2660 | 220 |
| 28.4 | 459 | 1.9 | 50.4 | 12 | — | 300 R3 | 4020 | 4020 | 11300 | 13000 | 2640 | 221 |
| 34 | 390 | 1.7 | 41.5 | 7.5 | 300 L2 | — | 3770 | 3770 | 10700 | 12300 | 2480 | 220 |
| 35 | 375 | 1.7 | 41.2 | 12 | — | 300 R3 | 3760 | 3760 | 10600 | 12200 | 2470 | 221 |
| 37 | 361 | 2.3 | 38.4 | 7.5 | 300 L2 | — | 3670 | 3670 | 10400 | 12000 | 2410 | 220 |
| 38 | 339 | 2.5 | 37.3 | 12 | — | 300 R3 | 3630 | 3630 | 10300 | 11900 | 2390 | 221 |
| 43 | 313 | 2.1 | 33.3 | 7.5 | 300 L2 | — | 3500 | 3500 | 9990 | 11500 | 2300 | 220 |
| 47 | 289 | 2.9 | 30.7 | 7.5 | 300 L2 | — | 3410 | 3410 | 9750 | 11200 | 2240 | 221 |
| 78 | 173 | 2.1 | 18.5 | 12 | — | 300 R2 | 2870 | 2870 | 8370 | 9620 | 1890 | 221 |

## $P_1$ = 2.2 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | $Rn_2$ [N] | | | | | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | MC | MZ | HC/PC | HZ/PZ | FZ | |
| 0.65 | 28291 | 1.7 | 2187 | 11 | 313 L4 | — | — | — | 192000 | 231000 | 80000 | 286 |
| 0.68 | 27119 | 1.3 | 2096 | 11 | 311 L4 | — | — | — | 157000 | 195000 | 65000 | 281 |
| 0.71 | 26157 | 1 | 2022 | 11 | 310 L4 | — | — | — | 133000 | 166000 | 65000 | 272 |
| 0.79 | 23503 | 2.5 | 1817 | 11 | 313 L4 | — | — | — | 192000 | 231000 | 80000 | 286 |
| 0.8 | 23213 | 1.1 | 1794 | 11 | 310 L4 | — | — | — | 133000 | 166000 | 65000 | 272 |
| 0.81 | 22850 | 1.9 | 1766 | 11 | 311 L4 | — | — | — | 157000 | 195000 | 65000 | 281 |
| 0.85 | 21730 | 1.6 | 1680 | 11 | 311 L4 | — | — | — | 157000 | 195000 | 65000 | 281 |
| 0.86 | 21623 | 1.2 | 1672 | 11 | 310 L4 | — | — | — | 133000 | 166000 | 65000 | 272 |
| 0.95 | 19429 | 3 | 1502 | 11 | 313 L4 | — | — | — | 192000 | 231000 | 80000 | 288 |
| 0.99 | 18600 | 1.4 | 1438 | 11 | 310 L4 | — | — | — | 133000 | 166000 | 65000 | 272 |
| 1 | 18310 | 2.3 | 1415 | 11 | 311 L4 | — | — | — | 157000 | 195000 | 65000 | 281 |
| 1 | 18032 | 2.9 | 1394 | 11 | 313 L4 | — | — | — | 192000 | 229000 | 79900 | 289 |
| 1 | 17856 | 0.9 | 1380 | 7.5 | 309 L4 | — | — | — | 110000 | 143800 | 35800 | 264 |
| 1.1 | 16633 | 1 | 1286 | 7.5 | 309 L4 | — | — | — | 109200 | 140800 | 35000 | 264 |
| 1.1 | 16286 | 1.7 | 1259 | 11 | 310 L4 | — | — | — | 128500 | 161600 | 62700 | 272 |
| 1.2 | 15916 | 2.8 | 1230 | 11 | 311 L4 | — | — | — | 150800 | 187900 | 62300 | 281 |
| 1.2 | 15061 | 1.9 | 1164 | 11 | 310 L4 | — | — | — | 125500 | 157900 | 61100 | 272 |
| 1.2 | 14963 | 0.9 | 1157 | 7.5 | 307 L4 | — | — | — | 101900 | 133600 | 41300 | 256 |
| 1.2 | 14868 | 1.1 | 1149 | 7.5 | 309 L4 | — | — | — | 105500 | 136100 | 33700 | 264 |
| 1.4 | 13202 | 2.2 | 1021 | 11 | 310 L4 | — | — | — | 120700 | 151800 | 58500 | 272 |

## $P_1$ = 2.2 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.4 | 12925 | 1.1 | 999 | 7.5 | 307 L4 | — | — | — | 99600 | 130500 | 40200 | 256 |
| 1.4 | 12925 | 1.4 | 999 | 7.5 | 309 L4 | — | — | — | 101200 | 130500 | 32200 | 264 |
| 1.5 | 12145 | 2.7 | 939 | 11 | 310 L4 | — | — | — | 117700 | 148000 | 56900 | 272 |
| 1.6 | 11724 | 1.3 | 906 | 7.5 | 307 L4 | — | — | — | 96700 | 126800 | 38900 | 256 |
| 1.6 | 11724 | 1.5 | 906 | 7.5 | 309 L4 | — | — | — | 98300 | 126800 | 31100 | 264 |
| 1.6 | 11618 | 2 | 898 | 15 | — | 310 R4 | — | — | 116100 | 146000 | 56100 | 271 |
| 1.7 | 10579 | 2.6 | 818 | 11 | 310 L4 | — | — | — | 112900 | 142000 | 54300 | 272 |
| 1.8 | 10356 | 1.3 | 801 | 7.5 | 307 L4 | — | — | — | 93200 | 122100 | 37400 | 256 |
| 1.8 | 10356 | 1.8 | 801 | 7.5 | 309 L4 | — | — | — | 94700 | 122100 | 29900 | 264 |
| 1.9 | 9789 | 2.7 | 757 | 15 | — | 310 R4 | — | — | 110300 | 138700 | 52900 | 273 |
| 2 | 9388 | 2.9 | 726 | 11 | 310 L4 | — | — | — | 108900 | 137000 | 52200 | 272 |
| 2 | 9342 | 1.6 | 722 | 7.5 | 307 L4 | — | — | — | 90400 | 118400 | 36100 | 256 |
| 2 | 9342 | 2.3 | 722 | 7.5 | 309 L4 | — | — | — | 91800 | 118400 | 28900 | 264 |
| 2 | 9050 | 1 | 700 | 6 | 306 L4 | — | 37000 | 41900 | 83200 | 96900 | 27800 | 248 |
| 2.1 | 8923 | 1.1 | 690 | 15 | — | 307 R4 | — | — | 89100 | 116800 | 35500 | 257 |
| 2.1 | 8923 | 1.7 | 690 | 15 | — | 309 R4 | — | — | 90600 | 116800 | 28400 | 263 |
| 2.2 | 8454 | 1.5 | 654 | 7.5 | 307 L4 | — | — | — | 87700 | 114900 | 34900 | 254 |
| 2.2 | 8454 | 2.1 | 654 | 7.5 | 309 L4 | — | — | — | 89100 | 114900 | 27900 | 264 |
| 2.2 | 8262 | 2.6 | 639 | 15 | — | 310 R4 | — | — | 104800 | 131800 | 50000 | 273 |
| 2.3 | 8221 | 1.1 | 636 | 6 | 306 L4 | — | 35800 | 40600 | 80800 | 94100 | 26900 | 248 |
| 2.4 | 7637 | 1.1 | 590 | 12 | — | 306 R4 | 34900 | 39600 | 79100 | 92100 | 26200 | 248 |
| 2.4 | 7628 | 2.9 | 590 | 15 | — | 310 R4 | — | — | 102400 | 128700 | 48700 | 273 |
| 2.4 | 7624 | 1.2 | 589 | 6 | 306 L4 | — | 34900 | 39600 | 79000 | 92000 | 26200 | 248 |
| 2.5 | 7518 | 1.7 | 581 | 15 | — | 307 R4 | — | — | 84700 | 110900 | 33600 | 257 |
| 2.5 | 7518 | 2.1 | 581 | 15 | — | 309 R4 | — | — | 86000 | 110900 | 26900 | 265 |
| 2.5 | 7486 | 2 | 579 | 7.5 | 307 L4 | — | — | — | 84500 | 110800 | 33500 | 256 |
| 2.5 | 7486 | 2.8 | 579 | 7.5 | 309 L4 | — | — | — | 85900 | 110800 | 26800 | 264 |
| 2.6 | 7114 | 1 | 550 | 12 | — | 306 R4 | 34100 | 38700 | 77400 | 90100 | 25600 | 249 |
| 2.8 | 6588 | 1.4 | 509 | 6 | 306 L4 | — | 33300 | 37700 | 75600 | 88100 | 25000 | 248 |
| 2.8 | 6587 | 2.1 | 509 | 7.5 | 307 L4 | — | — | — | 81400 | 106600 | 32100 | 256 |
| 2.8 | 6587 | 2.2 | 509 | 7.5 | 309 L4 | — | — | — | 82700 | 106600 | 25700 | 264 |
| 2.9 | 6345 | 1.5 | 490 | 15 | — | 307 R4 | — | — | 80500 | 105400 | 31700 | 256 |
| 2.9 | 6345 | 2.2 | 490 | 15 | — | 309 R4 | — | — | 81700 | 105400 | 25400 | 264 |
| 2.9 | 6314 | 1.4 | 488 | 12 | — | 306 R4 | 32800 | 37100 | 74700 | 87000 | 24600 | 249 |
| 3.1 | 6013 | 2 | 465 | 7.5 | 307 L4 | — | 35800 | 45000 | 79200 | 103700 | 31200 | 256 |
| 3.1 | 5910 | 2.3 | 457 | 15 | — | 309 R4 | — | — | 80000 | 103200 | 24800 | 262 |
| 3.1 | 5881 | 1.2 | 455 | 12 | — | 306 R4 | 32000 | 36300 | 73100 | 85100 | 24100 | 249 |
| 3.2 | 5858 | 2.3 | 453 | 15 | — | 307 R4 | — | — | 78600 | 102900 | 30900 | 256 |
| 3.2 | 5765 | 1 | 446 | 6 | 305 L4 | — | 25500 | 29500 | 44400 | 53400 | 16400 | 240 |
| 3.2 | 5747 | 1.7 | 444 | 6 | 306 L4 | — | 31800 | 36000 | 72600 | 84500 | 23900 | 248 |
| 3.4 | 5431 | 1.6 | 420 | 12 | — | 306 R4 | 31200 | 35300 | 71400 | 83100 | 23400 | 249 |
| 3.5 | 5346 | 2.2 | 413 | 15 | — | 307 R4 | — | — | 76400 | 100100 | 30000 | 257 |
| 3.5 | 5246 | 2.3 | 406 | 7.5 | 307 L4 | — | — | — | 76000 | 99600 | 29800 | 256 |

## $P_1$ = 2.2 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | Rn$_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.5 | 5418 | 1 | 405 | 7.5 | 306 L3 | — | 30800 | 34900 | 70600 | 82200 | 23100 | 248 |
| 3.7 | 5057 | 1.4 | 391 | 6 | 306 L4 | — | 30400 | 34500 | 69900 | 81400 | 22900 | 248 |
| 3.7 | 5031 | 1.5 | 389 | 12 | — | 306 R4 | 30400 | 34400 | 69800 | 81200 | 22800 | 249 |
| 3.8 | 4843 | 3 | 374 | 15 | — | 309 R4 | — | — | 75400 | 97200 | 23200 | 264 |
| 3.9 | 4707 | 1 | 364 | 12 | — | 305 R4 | 23900 | 27600 | 41800 | 50300 | 15300 | 241 |
| 3.9 | 4694 | 2.6 | 363 | 15 | — | 307 R4 | — | — | 73500 | 96300 | 28700 | 257 |
| 4.3 | 4501 | 2 | 336 | 11 | 307 L3 | — | — | — | 71900 | 94200 | 28000 | 256 |
| 4.3 | 4501 | 2.9 | 336 | 11 | 309 L3 | — | — | — | 73000 | 94200 | 22400 | 264 |
| 4.3 | 4341 | 1.1 | 336 | 12 | — | 305 R4 | 23200 | 26800 | 40800 | 49100 | 14900 | 241 |
| 4.3 | 4284 | 2.7 | 331 | 15 | — | 307 R4 | — | — | 71500 | 93700 | 27800 | 257 |
| 4.4 | 4341 | 1.3 | 325 | 7.5 | 306 L3 | — | 28600 | 32400 | 66100 | 76900 | 21500 | 248 |
| 4.6 | 4031 | 1.9 | 312 | 12 | — | 306 R4 | 28200 | 32000 | 65300 | 76000 | 21200 | 249 |
| 4.9 | 3751 | 1.4 | 290 | 12 | — | 305 R4 | 22100 | 25600 | 39100 | 47000 | 14200 | 241 |
| 4.9 | 3738 | 2.2 | 289 | 12 | — | 306 R4 | 27500 | 31200 | 63800 | 74300 | 20700 | 249 |
| 5 | 3853 | 1.4 | 288 | 7.5 | 306 L3 | — | 27500 | 31200 | 63700 | 74200 | 20700 | 248 |
| 5 | 3792 | 3 | 284 | 11 | 307 L3 | — | — | — | 68300 | 89400 | 26400 | 256 |
| 5.2 | 3698 | 1.2 | 276 | 7.5 | 305 L3 | — | 21800 | 25200 | 38500 | 46300 | 14000 | 240 |
| 5.3 | 3589 | 1.5 | 268 | 7.5 | 306 L3 | — | 26900 | 30400 | 62400 | 72700 | 20200 | 248 |
| 5.6 | 3445 | 1 | 258 | 7.5 | 305 L3 | — | 21300 | 24600 | 37700 | 45300 | 13600 | 240 |
| 5.6 | 3301 | 1.1 | 255 | 12 | — | 305 R4 | 21200 | 24500 | 37600 | 45200 | 13600 | 241 |
| 5.8 | 3216 | 2.5 | 249 | 12 | — | 306 R4 | 26200 | 29700 | 61000 | 71000 | 19700 | 249 |
| 6 | 3201 | 2.7 | 239 | 11 | 307 L3 | — | — | — | 64900 | 85000 | 25000 | 256 |
| 6 | 3185 | 2.6 | 238 | 7.5 | 306 L3 | — | 25800 | 29200 | 60200 | 70100 | 19400 | 248 |
| 6.2 | 2988 | 1.2 | 231 | 12 | — | 305 R4 | 20500 | 23700 | 36500 | 43900 | 13200 | 240 |
| 6.2 | 2979 | 2.5 | 230 | 12 | — | 306 R4 | 25500 | 28900 | 59600 | 69400 | 19200 | 249 |
| 6.4 | 2967 | 2.2 | 222 | 7.5 | 306 L3 | — | 25200 | 28600 | 58900 | 68600 | 18900 | 248 |
| 6.5 | 2947 | 1.6 | 220 | 7.5 | 305 L3 | — | 20200 | 23300 | 36000 | 43300 | 13000 | 240 |
| 6.7 | 2772 | 1 | 214 | 12 | — | 303 R4 | 20000 | 23100 | 35700 | 42900 | 12800 | 233 |
| 6.7 | 2772 | 1.9 | 214 | 12 | — | 305 R4 | 20000 | 23100 | 35700 | 42900 | 12800 | 241 |
| 7 | 2740 | 3 | 205 | 7.5 | 306 L3 | — | 24500 | 27800 | 57600 | 67000 | 18400 | 248 |
| 7.5 | 2546 | 1.4 | 190 | 7.5 | 305 L3 | — | 19200 | 22200 | 34400 | 41400 | 12300 | 240 |
| 7.5 | 2538 | 2.6 | 190 | 7.5 | 306 L3 | — | 23900 | 27100 | 56200 | 65500 | 18000 | 248 |
| 7.7 | 2392 | 1 | 185 | 12 | — | 303 R4 | 18600 | 21500 | 33400 | 40200 | 11900 | 233 |
| 7.7 | 2392 | 1.9 | 185 | 12 | — | 305 R4 | 19100 | 22000 | 34100 | 41100 | 12200 | 241 |
| 8.1 | 2375 | 0.9 | 178 | 7.5 | 303 L3 | — | 18800 | 21700 | 33700 | 40600 | 12100 | 232 |
| 8.1 | 2375 | 1.9 | 178 | 7.5 | 305 L3 | — | 18800 | 21700 | 33700 | 40600 | 12100 | 240 |
| 8.7 | 2190 | 1 | 164 | 7.5 | 303 L3 | — | 18300 | 21100 | 32900 | 39600 | 11700 | 231 |
| 8.7 | 2190 | 2 | 164 | 7.5 | 305 L3 | — | 18300 | 21100 | 32900 | 39600 | 11700 | 240 |
| 9 | 2048 | 1.3 | 158 | 12 | — | 303 R4 | 18100 | 20900 | 32600 | 39200 | 11600 | 233 |
| 9 | 2048 | 2.6 | 158 | 12 | — | 305 R4 | 18100 | 20900 | 32600 | 39200 | 11600 | 241 |
| 9.4 | 2040 | 1.8 | 152 | 7.5 | 305 L3 | — | 17900 | 20600 | 32200 | 38700 | 11500 | 240 |
| 9.7 | 1917 | 1.2 | 148 | 12 | — | 303 R4 | 17700 | 20400 | 31900 | 38400 | 11400 | 233 |
| 9.7 | 1917 | 2.3 | 148 | 12 | — | 305 R4 | 17700 | 20400 | 31900 | 38400 | 11400 | 241 |

## $P_1$ = 2.2 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9.9 | 1928 | 2.8 | 144 | 14 | — | 306 R3 | 21800 | 24700 | 51800 | 60300 | 16400 | 249 |
| 10.1 | 1898 | 0.9 | 142 | 7.5 | 301 L3 | — | 5540 | 5540 | 15100 | 17400 | 3650 | 226 |
| 10.1 | 1892 | 1.4 | 141 | 7.5 | 303 L3 | — | 17400 | 20100 | 31500 | 37900 | 11200 | 232 |
| 10.1 | 1892 | 2.7 | 141 | 7.5 | 305 L3 | — | 17400 | 20100 | 31500 | 37900 | 11200 | 240 |
| 10.9 | 1750 | 1 | 131 | 7.5 | 301 L3 | — | 5520 | 5520 | 15100 | 17300 | 3630 | 226 |
| 11 | 1677 | 1 | 130 | 10 | — | 301 R4 | 5510 | 5510 | 15000 | 17300 | 3620 | 227 |
| 11.1 | 1672 | 1.6 | 129 | 12 | — | 303 R4 | 16900 | 19500 | 30600 | 36900 | 10800 | 233 |
| 11.5 | 1665 | 1.1 | 124 | 7.5 | 303 L3 | — | 16700 | 19300 | 30300 | 36500 | 10700 | 232 |
| 11.5 | 1665 | 2.2 | 124 | 7.5 | 305 L3 | — | 16700 | 19300 | 30300 | 36500 | 10700 | 240 |
| 12.5 | 1530 | 1.2 | 114 | 14 | — | 303 R3 | 16200 | 18700 | 29500 | 35500 | 10400 | 233 |
| 12.5 | 1530 | 2.3 | 114 | 14 | — | 305 R3 | 16200 | 18700 | 29500 | 35500 | 10400 | 241 |
| 12.7 | 1507 | 1.2 | 113 | 7.5 | 303 L3 | — | 16200 | 18600 | 29400 | 35400 | 10400 | 232 |
| 12.7 | 1507 | 2.4 | 113 | 7.5 | 305 L3 | — | 16200 | 18600 | 29400 | 35400 | 10400 | 240 |
| 13.4 | 1424 | 0.9 | 106 | 12 | — | 301 R3 | 5160 | 5160 | 14200 | 16300 | 3390 | 227 |
| 13.5 | 1369 | 1.2 | 106 | 10 | — | 301 R4 | 5150 | 5150 | 14100 | 16200 | 3380 | 227 |
| 13.6 | 1403 | 1.2 | 105 | 7.5 | 301 L3 | — | 5130 | 5130 | 14100 | 16200 | 3370 | 226 |
| 13.7 | 1398 | 1.8 | 105 | 7.5 | 303 L3 | — | 15800 | 18200 | 28800 | 34600 | 10100 | 232 |
| 15.6 | 1224 | 1.5 | 91.5 | 14 | — | 303 R3 | 15100 | 17400 | 27600 | 33200 | 9670 | 233 |
| 15.6 | 1224 | 2.9 | 91.5 | 14 | — | 305 R3 | 15100 | 17400 | 27600 | 33200 | 9670 | 241 |
| 15.9 | 1207 | 1.9 | 90.2 | 7.5 | 303 L3 | — | 15000 | 17300 | 27500 | 33100 | 9620 | 232 |
| 16.7 | 1145 | 1.5 | 85.6 | 7.5 | 301 L3 | — | 4790 | 4790 | 13300 | 15200 | 3150 | 226 |
| 16.8 | 1139 | 1.1 | 85.2 | 12 | — | 301 R3 | 4790 | 4790 | 13200 | 15200 | 3150 | 227 |
| 18.2 | 1053 | 2.1 | 78.7 | 14 | — | 303 R3 | 14300 | 16500 | 26400 | 31800 | 9190 | 233 |
| 18.2 | 1052 | 1.5 | 78.7 | 12 | — | 301 R3 | 4660 | 4660 | 12900 | 14900 | 3060 | 227 |
| 18.5 | 1036 | 1.6 | 77.5 | 7.5 | 301 L3 | — | 4640 | 4640 | 12900 | 14800 | 3050 | 226 |
| 18.5 | 1033 | 2.4 | 77.2 | 7.5 | 303 L3 | — | 14200 | 16400 | 26300 | 31600 | 9140 | 232 |
| 19.5 | 981 | 1.9 | 73.3 | 14 | — | 303 R3 | 14000 | 16200 | 25900 | 31100 | 8980 | 233 |
| 19.8 | 967 | 2.3 | 72.3 | 7.5 | 303 L3 | — | 13900 | 16100 | 25700 | 31000 | 8940 | 232 |
| 20.5 | 935 | 1.4 | 69.9 | 7.5 | 301 L3 | — | 4480 | 4480 | 12500 | 14300 | 2950 | 226 |
| 21 | 913 | 1.4 | 68.2 | 12 | — | 301 R3 | 4440 | 4440 | 12400 | 14200 | 2920 | 227 |
| 22.1 | 895 | 1.3 | 64.8 | 7.5 | 301 L2 | — | 4370 | 4370 | 12200 | 14000 | 2870 | 226 |
| 22.6 | 846 | 1 | 63.2 | 7.5 | 300 L3 | — | 4330 | 4330 | 12100 | 13900 | 2850 | 226 |
| 22.6 | 846 | 2 | 63.2 | 7.5 | 301 L3 | — | 4330 | 4330 | 12100 | 13900 | 2850 | 226 |
| 22.7 | 844 | 2.6 | 63.1 | 14 | — | 303 R3 | 13300 | 15400 | 24700 | 29700 | 8540 | 232 |
| 22.7 | 843 | 3 | 63.1 | 7.5 | 303 L3 | — | 13300 | 15400 | 24700 | 29700 | 8540 | 232 |
| 22.7 | 842 | 1 | 62.9 | 12 | — | 300 R3 | 4330 | 4330 | 12100 | 13900 | 2840 | 221 |
| 22.7 | 842 | 2 | 62.9 | 12 | — | 301 R3 | 4330 | 4330 | 12100 | 13900 | 2840 | 227 |
| 25.6 | 771 | 2.4 | 55.8 | 9 | 303 L2 | — | 12800 | 14800 | 23800 | 28700 | 8200 | 232 |
| 26.4 | 725 | 2.5 | 54.2 | 14 | — | 303 R3 | 12700 | 14600 | 23600 | 28400 | 8120 | 232 |
| 27.5 | 717 | 0.9 | 51.9 | 7.5 | 300 L2 | — | 3970 | 3970 | 11200 | 12900 | 2610 | 220 |
| 27.5 | 717 | 1.8 | 51.9 | 7.5 | 301 L2 | — | 4060 | 4060 | 11400 | 13100 | 2670 | 226 |
| 27.7 | 691 | 1.2 | 51.6 | 7.5 | 300 L3 | — | 4050 | 4050 | 11400 | 13100 | 2660 | 220 |
| 27.7 | 691 | 2.4 | 51.6 | 7.5 | 301 L3 | — | 4050 | 4050 | 11400 | 13100 | 2660 | 226 |

## $P_1$ = 2.2 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 28.4 | 674 | 1.3 | 50.4 | 12 | — | 300 R3 | 4020 | 4020 | 11300 | 13000 | 2640 | 220 |
| 28.4 | 674 | 2.4 | 50.4 | 12 | — | 301 R3 | 4020 | 4020 | 11300 | 13000 | 2640 | 227 |
| 32 | 617 | 3 | 44.6 | 9 | 303 L2 | — | 11900 | 13700 | 22300 | 26800 | 7610 | 232 |
| 34 | 574 | 1.1 | 41.5 | 7.5 | 300 L2 | — | 3770 | 3770 | 10700 | 12300 | 2480 | 220 |
| 34 | 574 | 2.3 | 41.5 | 7.5 | 301 L2 | — | 3770 | 3770 | 10700 | 12300 | 2480 | 226 |
| 35 | 551 | 1.2 | 41.2 | 12 | — | 300 R3 | 3760 | 3760 | 10600 | 12200 | 2470 | 221 |
| 35 | 551 | 2.4 | 41.2 | 12 | — | 301 R3 | 3760 | 3760 | 10600 | 12200 | 2470 | 227 |
| 37 | 530 | 1.6 | 38.4 | 7.5 | 300 L2 | — | 3670 | 3670 | 10400 | 12000 | 2410 | 220 |
| 37 | 530 | 2.9 | 38.4 | 7.5 | 301 L2 | — | 3670 | 3670 | 10400 | 12000 | 2410 | 226 |
| 38 | 498 | 1.7 | 37.3 | 12 | — | 300 R3 | 3630 | 3630 | 10300 | 11900 | 2390 | 221 |
| 43 | 460 | 1.4 | 33.3 | 7.5 | 300 L2 | — | 3500 | 3500 | 9990 | 11500 | 2300 | 220 |
| 43 | 460 | 2.8 | 33.3 | 7.5 | 301 L2 | — | 3500 | 3500 | 9990 | 11500 | 2300 | 226 |
| 47 | 424 | 2 | 30.7 | 7.5 | 300 L2 | — | 3410 | 3410 | 9750 | 11200 | 2240 | 220 |
| 47 | 407 | 2.1 | 30.4 | 12 | — | 300 R3 | 3400 | 3400 | 9730 | 11200 | 2230 | 221 |
| 58 | 332 | 2.2 | 24.8 | 12 | — | 300 R3 | 3170 | 3170 | 9150 | 10500 | 2090 | 221 |
| 58 | 342 | 2.5 | 24.8 | 18 | — | 303 R2 | 9750 | 11300 | 18700 | 22500 | 6250 | 233 |
| 58 | 340 | 2.4 | 24.6 | 7.5 | 300 L2 | — | 3160 | 3160 | 9130 | 10500 | 2080 | 220 |
| 71 | 277 | 2.3 | 20.1 | 7.5 | 300 L2 | — | 2960 | 2960 | 8590 | 9870 | 1940 | 220 |
| 78 | 255 | 1.5 | 18.5 | 12 | — | 300 R2 | 2870 | 2870 | 8370 | 9620 | 1890 | 221 |
| 78 | 255 | 2.9 | 18.5 | 12 | — | 301 R2 | 2870 | 2870 | 8370 | 9620 | 1890 | 227 |
| 79 | 251 | 3 | 18.2 | 7.5 | 300 L2 | — | 2860 | 2860 | 8330 | 9580 | 1880 | 221 |
| 97 | 204 | 2.5 | 14.8 | 12 | — | 300 R2 | 2670 | 2670 | 7830 | 9000 | 1750 | 221 |
| 159 | 128 | 2.5 | 9 | 7.5 | 300 L1 | — | 2260 | 2260 | 6750 | 7750 | 1490 | 220 |

## $P_1$ = 3 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.65 | 38491 | 1.3 | 2187 | 11 | 313 L4 | — | — | — | 192000 | 231000 | 80000 | 288 |
| 0.68 | 36897 | 0.9 | 2096 | 11 | 311 L4 | — | — | — | 157000 | 195000 | 65000 | 280 |
| 0.78 | 31977 | 1.8 | 1817 | 11 | 313 L4 | — | — | — | 192000 | 231000 | 80000 | 288 |
| 0.8 | 31089 | 1.4 | 1766 | 11 | 311 L4 | — | — | — | 157000 | 195000 | 65000 | 280 |
| 0.85 | 29565 | 1.2 | 1680 | 11 | 311 L4 | — | — | — | 157000 | 195000 | 65000 | 280 |
| 0.95 | 26435 | 2.2 | 1502 | 11 | 313 L4 | — | — | — | 192000 | 231000 | 80000 | 288 |
| 0.99 | 25307 | 1 | 1438 | 11 | 310 L4 | — | — | — | 133000 | 166000 | 65000 | 272 |
| 1 | 24911 | 1.7 | 1415 | 11 | 311 L4 | — | — | — | 157000 | 195000 | 65000 | 280 |
| 1 | 24533 | 2.1 | 1394 | 11 | 313 L4 | — | — | — | 192000 | 229000 | 79900 | 288 |
| 1.1 | 22274 | 2.5 | 1266 | 11 | 313 L4 | — | — | — | 188000 | 222500 | 77400 | 288 |
| 1.1 | 22158 | 1.2 | 1259 | 11 | 310 L4 | — | — | — | 128500 | 161600 | 62700 | 272 |
| 1.2 | 21655 | 2 | 1230 | 11 | 311 L4 | — | — | — | 150800 | 187900 | 62300 | 280 |

## $P_1$ = 3 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ◄► Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.2 | 20491 | 1.4 | 1164 | 11 | 310 L4 | — | — | — | 125500 | 157900 | 61100 | 272 |
| 1.3 | 19658 | 2.7 | 1117 | 11 | 313 L4 | — | — | — | 181100 | 214300 | 74200 | 288 |
| 1.3 | 18628 | 2.3 | 1058 | 11 | 311 L4 | — | — | — | 144200 | 179600 | 59200 | 280 |
| 1.4 | 17963 | 1.6 | 1021 | 11 | 310 L4 | — | — | — | 120700 | 151800 | 58500 | 272 |
| 1.4 | 17584 | 1 | 999 | 7.5 | 309 L4 | — | — | — | 101200 | 130500 | 32200 | 264 |
| 1.4 | 17352 | 2.4 | 986 | 11 | 311 L4 | — | — | — | 141100 | 175800 | 57800 | 280 |
| 1.5 | 16524 | 2 | 939 | 11 | 310 L4 | — | — | — | 117700 | 148000 | 56900 | 272 |
| 1.6 | 15951 | 1 | 906 | 7.5 | 307 L4 | — | — | — | 94700 | 124200 | 38000 | 256 |
| 1.6 | 15951 | 1.1 | 906 | 7.5 | 309 L4 | — | — | — | 98300 | 126800 | 31100 | 264 |
| 1.6 | 15905 | 2.9 | 904 | 11 | 311 L4 | — | — | — | 137500 | 171300 | 56200 | 280 |
| 1.6 | 15807 | 1.5 | 898 | 15 | — | 310 R4 | — | — | 116100 | 146000 | 56100 | 273 |
| 1.7 | 14393 | 1.9 | 818 | 11 | 310 L4 | — | — | — | 112900 | 142000 | 54300 | 272 |
| 1.8 | 14090 | 0.9 | 801 | 7.5 | 307 L4 | — | — | — | 91300 | 119600 | 36500 | 256 |
| 1.8 | 14090 | 1.3 | 801 | 7.5 | 309 L4 | — | — | — | 94700 | 122100 | 29900 | 264 |
| 1.9 | 13319 | 2 | 757 | 15 | — | 310 R4 | — | — | 110300 | 138700 | 52900 | 273 |
| 1.9 | 13132 | 2.3 | 746 | 22 | — | 311 R4 | — | — | 129800 | 161700 | 52700 | 280 |
| 2 | 12773 | 2.1 | 726 | 11 | 310 L4 | — | — | — | 108900 | 137000 | 52200 | 272 |
| 2 | 12711 | 1.2 | 722 | 7.5 | 307 L4 | — | — | — | 90400 | 118400 | 36100 | 256 |
| 2 | 12711 | 1.7 | 722 | 7.5 | 309 L4 | — | — | — | 91800 | 118400 | 28900 | 264 |
| 2.1 | 12140 | 1.2 | 690 | 15 | — | 309 R4 | — | — | 90600 | 116800 | 28400 | 265 |
| 2.2 | 11502 | 1.1 | 654 | 7.5 | 307 L4 | — | — | — | 87700 | 114900 | 34900 | 256 |
| 2.2 | 11502 | 1.6 | 654 | 7.5 | 309 L4 | — | — | — | 89100 | 114900 | 27900 | 264 |
| 2.2 | 11240 | 1.9 | 639 | 15 | — | 310 R4 | — | — | 104800 | 131800 | 50000 | 273 |
| 2.2 | 11205 | 2.4 | 637 | 11 | 310 L4 | — | — | — | 104700 | 131700 | 50000 | 272 |
| 2.4 | 10378 | 2.1 | 590 | 15 | — | 310 R4 | — | — | 102400 | 128700 | 48700 | 273 |
| 2.4 | 10229 | 1.2 | 581 | 15 | — | 307 R4 | — | — | 84700 | 110900 | 33600 | 257 |
| 2.4 | 10229 | 1.5 | 581 | 15 | — | 309 R4 | — | — | 86000 | 110900 | 26900 | 265 |
| 2.5 | 10185 | 1.5 | 579 | 7.5 | 307 L4 | — | — | — | 84500 | 110800 | 33500 | 256 |
| 2.5 | 10185 | 2.1 | 579 | 7.5 | 309 L4 | — | — | — | 85900 | 110800 | 26800 | 264 |
| 2.7 | 9102 | 2.8 | 517 | 15 | — | 310 R4 | — | — | 98400 | 123800 | 46600 | 273 |
| 2.8 | 8963 | 1.1 | 509 | 6 | 306 L4 | — | 33300 | 37700 | 75600 | 88100 | 25000 | 248 |
| 2.8 | 8962 | 1.6 | 509 | 7.5 | 307 L4 | — | — | — | 81400 | 106600 | 32100 | 256 |
| 2.8 | 8962 | 1.6 | 509 | 7.5 | 309 L4 | — | — | — | 82700 | 106600 | 25700 | 264 |
| 2.8 | 8929 | 2.9 | 507 | 11 | 310 L4 | — | — | — | 97900 | 123000 | 46300 | 272 |
| 2.9 | 8633 | 1.1 | 490 | 15 | — | 307 R4 | — | — | 80500 | 105400 | 31700 | 257 |
| 2.9 | 8633 | 1.6 | 490 | 15 | — | 309 R4 | — | — | 81700 | 105400 | 25400 | 265 |
| 2.9 | 8590 | 1.1 | 488 | 12 | — | 306 R4 | 32800 | 37100 | 74700 | 87000 | 24600 | 249 |
| 3.1 | 8181 | 1.5 | 465 | 7.5 | 307 L4 | — | — | — | 79200 | 103700 | 31200 | 256 |
| 3.1 | 8181 | 2.2 | 465 | 7.5 | 309 L4 | — | — | — | 80400 | 103700 | 24900 | 264 |
| 3.1 | 8041 | 1.7 | 457 | 15 | — | 309 R4 | — | — | 80000 | 103200 | 24800 | 265 |
| 3.1 | 7993 | 2.5 | 454 | 15 | — | 310 R4 | — | — | 94700 | 119000 | 44700 | 273 |
| 3.1 | 7970 | 1.7 | 453 | 15 | — | 307 R4 | — | — | 78600 | 102900 | 30900 | 257 |
| 3.2 | 7819 | 1.3 | 444 | 6 | 306 L4 | — | 31800 | 36000 | 72600 | 84500 | 23900 | 248 |

## $P_1$ = 3 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.4 | 7389 | 1.2 | 420 | 12 | — | 306 R4 | 31200 | 35300 | 71400 | 83100 | 23400 | 248 |
| 3.4 | 7274 | 1.6 | 413 | 15 | — | 307 R4 | — | — | 76400 | 100100 | 30000 | 257 |
| 3.4 | 7274 | 2.5 | 413 | 15 | — | 309 R4 | — | — | 77700 | 100100 | 24000 | 265 |
| 3.5 | 7137 | 1.7 | 406 | 7.5 | 307 L4 | — | — | — | 76000 | 99600 | 29800 | 256 |
| 3.5 | 7137 | 2.5 | 406 | 7.5 | 309 L4 | — | — | — | 77200 | 99600 | 23800 | 264 |
| 3.6 | 6893 | 2.8 | 392 | 11 | 310 L4 | — | — | — | 90500 | 113900 | 42500 | 272 |
| 3.6 | 6880 | 1 | 391 | 6 | 306 L4 | — | 30400 | 34500 | 69900 | 81400 | 22900 | 248 |
| 3.7 | 6845 | 1.1 | 389 | 12 | — | 306 R4 | 30400 | 34400 | 69800 | 81200 | 22800 | 249 |
| 3.8 | 6589 | 2.2 | 374 | 15 | — | 309 R4 | — | — | 75400 | 97200 | 23200 | 265 |
| 3.9 | 6387 | 1.9 | 363 | 15 | — | 307 R4 | — | — | 73500 | 96300 | 28700 | 257 |
| 4.1 | 6144 | 2.4 | 349 | 7.5 | 307 L4 | — | — | — | 72700 | 95200 | 28300 | 256 |
| 4.2 | 6124 | 1.4 | 336 | 11 | 307 L3 | — | — | — | 71900 | 94200 | 28000 | 256 |
| 4.2 | 6124 | 2.2 | 336 | 11 | 309 L3 | — | — | — | 73000 | 94200 | 22400 | 264 |
| 4.3 | 5828 | 2 | 331 | 15 | — | 307 R4 | — | — | 71500 | 93700 | 27800 | 257 |
| 4.3 | 5828 | 3 | 331 | 15 | — | 309 R4 | — | — | 72700 | 93700 | 22300 | 264 |
| 4.4 | 5906 | 0.9 | 325 | 7.5 | 306 L3 | — | 28600 | 32400 | 66100 | 76900 | 21500 | 248 |
| 4.6 | 5485 | 1.4 | 312 | 12 | — | 306 R4 | 28200 | 32000 | 65300 | 76000 | 21200 | 249 |
| 4.7 | 5280 | 2.7 | 300 | 15 | — | 307 R4 | — | — | 69400 | 91000 | 26900 | 257 |
| 4.9 | 5104 | 1 | 290 | 12 | — | 305 R4 | 22100 | 25600 | 39100 | 47000 | 14200 | 241 |
| 4.9 | 5086 | 1.6 | 289 | 12 | — | 306 R4 | 27500 | 31200 | 63800 | 74300 | 20700 | 249 |
| 4.9 | 5242 | 1 | 288 | 7.5 | 306 L3 | — | 27500 | 31200 | 63700 | 74200 | 20700 | 248 |
| 5 | 5007 | 2.3 | 284 | 15 | — | 307 R4 | — | — | 68300 | 89500 | 26500 | 257 |
| 5 | 5160 | 2.2 | 284 | 11 | 307 L3 | — | — | — | 68300 | 89400 | 26400 | 256 |
| 5.3 | 4883 | 1.1 | 268 | 7.5 | 306 L3 | — | 26900 | 30400 | 62400 | 72700 | 20200 | 248 |
| 5.7 | 4375 | 1.9 | 249 | 12 | — | 306 R4 | 26200 | 29700 | 61000 | 71000 | 19700 | 249 |
| 5.9 | 4355 | 2 | 239 | 11 | 307 L3 | — | — | — | 64900 | 85000 | 25000 | 256 |
| 5.9 | 4355 | 3 | 239 | 11 | 309 L3 | — | — | — | 65900 | 85000 | 20000 | 264 |
| 6 | 4333 | 1.9 | 238 | 7.5 | 306 L3 | — | 25800 | 29200 | 60200 | 70100 | 19400 | 248 |
| 6.1 | 4087 | 2.7 | 232 | 15 | — | 307 R4 | — | — | 64300 | 84200 | 24700 | 257 |
| 6.2 | 4053 | 1.9 | 230 | 12 | — | 306 R4 | 25500 | 28900 | 59600 | 69400 | 19200 | 249 |
| 6.4 | 4036 | 1.6 | 222 | 7.5 | 306 L3 | — | 25200 | 28600 | 58900 | 68600 | 18900 | 248 |
| 6.4 | 4010 | 1.2 | 220 | 7.5 | 305 L3 | — | 20200 | 23300 | 36000 | 43300 | 13000 | 240 |
| 6.6 | 3771 | 1.4 | 214 | 12 | — | 305 R4 | 20000 | 23100 | 35700 | 42900 | 12800 | 241 |
| 6.6 | 3760 | 2.6 | 214 | 12 | — | 306 R4 | 24900 | 28200 | 58300 | 67900 | 18700 | 249 |
| 6.9 | 3727 | 2.2 | 205 | 7.5 | 306 L3 | — | 24500 | 27800 | 57600 | 67000 | 18400 | 248 |
| 7 | 3669 | 3 | 202 | 11 | 307 L3 | — | — | — | 61600 | 80700 | 23600 | 256 |
| 7.5 | 3464 | 1 | 190 | 7.5 | 305 L3 | — | 19200 | 22200 | 34400 | 41400 | 12300 | 240 |
| 7.5 | 3453 | 1.9 | 190 | 7.5 | 306 L3 | — | 23900 | 27100 | 56200 | 65500 | 18000 | 248 |
| 7.7 | 3254 | 1.4 | 185 | 12 | — | 305 R4 | 19100 | 22000 | 34100 | 41100 | 12200 | 241 |
| 7.8 | 3185 | 3 | 181 | 12 | — | 306 R4 | 23600 | 26700 | 55500 | 64600 | 17700 | 247 |
| 8 | 3231 | 1.4 | 178 | 7.5 | 305 L3 | — | 18800 | 21700 | 33700 | 40600 | 12100 | 240 |
| 8.5 | 2953 | 2.6 | 168 | 12 | — | 306 R4 | 23000 | 26000 | 54200 | 63100 | 17300 | 249 |
| 8.7 | 2979 | 1.5 | 164 | 7.5 | 305 L3 | — | 18300 | 21100 | 32900 | 39600 | 11700 | 240 |

## $P_1$ = 3 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 | 2787 | 1 | 158 | 12 | — | 303 R4 | 18100 | 20900 | 32600 | 39200 | 11600 | 232 |
| 9 | 2787 | 1.9 | 158 | 12 | — | 305 R4 | 18100 | 20900 | 32600 | 39200 | 11600 | 240 |
| 9.3 | 2775 | 1.3 | 152 | 7.5 | 305 L3 | — | 17900 | 20600 | 32200 | 38700 | 11500 | 240 |
| 9.3 | 2767 | 2.7 | 152 | 7.5 | 306 L3 | — | 22200 | 25200 | 52600 | 61300 | 16700 | 248 |
| 9.6 | 2608 | 1.7 | 148 | 12 | — | 305 R4 | 17700 | 20400 | 31900 | 38400 | 11400 | 241 |
| 9.9 | 2623 | 2.1 | 144 | 14 | — | 306 R3 | 21800 | 24700 | 51800 | 60300 | 16400 | 248 |
| 10 | 2575 | 1 | 141 | 7.5 | 303 L3 | — | 17400 | 20100 | 31500 | 37900 | 11200 | 232 |
| 10 | 2575 | 2 | 141 | 7.5 | 305 L3 | — | 17400 | 20100 | 31500 | 37900 | 11200 | 240 |
| 11 | 2275 | 1.2 | 129 | 12 | — | 303 R4 | 16900 | 19500 | 30600 | 36900 | 10800 | 233 |
| 11 | 2275 | 2.3 | 129 | 12 | — | 305 R4 | 16900 | 19500 | 30600 | 36900 | 10800 | 240 |
| 11.4 | 2265 | 1.6 | 124 | 7.5 | 305 L3 | — | 16700 | 19300 | 30300 | 36500 | 10700 | 240 |
| 11.9 | 2169 | 3 | 119 | 14 | — | 306 R3 | 20500 | 23200 | 48900 | 57000 | 15400 | 249 |
| 12.4 | 2082 | 1.7 | 114 | 14 | — | 305 R3 | 16200 | 18700 | 29500 | 35500 | 10400 | 241 |
| 12.6 | 2051 | 1.8 | 113 | 7.5 | 305 L3 | — | 16200 | 18600 | 29400 | 35400 | 10400 | 240 |
| 13.4 | 1863 | 0.9 | 106 | 10 | — | 301 R4 | 5030 | 5030 | 13800 | 15900 | 3310 | 226 |
| 13.6 | 1902 | 1.4 | 105 | 7.5 | 303 L3 | — | 15800 | 18200 | 28800 | 34600 | 10100 | 232 |
| 13.6 | 1902 | 2.6 | 105 | 7.5 | 305 L3 | — | 15800 | 18200 | 28800 | 34600 | 10100 | 240 |
| 15.5 | 1666 | 1.1 | 91.5 | 14 | — | 303 R3 | 15100 | 17400 | 27600 | 33200 | 9670 | 233 |
| 15.5 | 1666 | 2.1 | 91.5 | 14 | — | 305 R3 | 15100 | 17400 | 27600 | 33200 | 9670 | 241 |
| 15.7 | 1642 | 1.4 | 90.2 | 7.5 | 303 L3 | — | 15000 | 17300 | 27500 | 33100 | 9620 | 232 |
| 15.7 | 1642 | 2.6 | 90.2 | 7.5 | 305 L3 | — | 15000 | 17300 | 27500 | 33100 | 9620 | 240 |
| 16.6 | 1558 | 1.1 | 85.6 | 7.5 | 301 L3 | — | 4790 | 4790 | 13300 | 15200 | 3150 | 226 |
| 18 | 1433 | 1.5 | 78.7 | 14 | — | 303 R3 | 14300 | 16500 | 26400 | 31800 | 9190 | 233 |
| 18.1 | 1432 | 1.1 | 78.7 | 12 | — | 301 R3 | 14300 | 16500 | 26400 | 31800 | 9190 | 227 |
| 18.3 | 1410 | 1.2 | 77.5 | 7.5 | 301 L3 | — | 4640 | 4640 | 12900 | 14800 | 3050 | 224 |
| 18.4 | 1406 | 1.8 | 77.2 | 7.5 | 303 L3 | — | 14200 | 16400 | 26300 | 31600 | 9140 | 232 |
| 19.4 | 1335 | 1.4 | 73.3 | 14 | — | 303 R3 | 14000 | 16200 | 25900 | 31100 | 8980 | 233 |
| 19.4 | 1335 | 2.7 | 73.3 | 14 | — | 305 R3 | 14000 | 16200 | 25900 | 31100 | 8980 | 240 |
| 19.6 | 1315 | 1.7 | 72.3 | 7.5 | 303 L3 | — | 13900 | 16100 | 25700 | 31000 | 8940 | 232 |
| 20.3 | 1272 | 1 | 69.9 | 7.5 | 301 L3 | — | 4480 | 4480 | 12500 | 14300 | 2950 | 226 |
| 20.8 | 1242 | 1 | 68.2 | 12 | — | 301 R3 | 4440 | 4440 | 12400 | 14200 | 2920 | 227 |
| 21.9 | 1218 | 0.9 | 64.8 | 7.5 | 301 L2 | — | 4370 | 4370 | 12200 | 14000 | 2870 | 226 |
| 22.5 | 1151 | 1.4 | 63.2 | 7.5 | 301 L3 | — | 4330 | 4330 | 12100 | 13900 | 2850 | 226 |
| 22.5 | 1148 | 1.9 | 63.1 | 14 | — | 303 R3 | 13300 | 15400 | 24700 | 29700 | 8540 | 233 |
| 22.5 | 1148 | 2.2 | 63.1 | 7.5 | 303 L3 | — | 13300 | 15400 | 24700 | 29700 | 8540 | 232 |
| 22.6 | 1145 | 1.4 | 62.9 | 12 | — | 301 R3 | 4330 | 4330 | 12100 | 13900 | 2840 | 227 |
| 25.4 | 1049 | 1.7 | 55.8 | 9 | 303 L2 | — | 12800 | 14800 | 23800 | 28700 | 8200 | 232 |
| 26.2 | 986 | 1.8 | 54.2 | 14 | — | 303 R3 | 12700 | 14600 | 23600 | 28400 | 8120 | 233 |
| 26.6 | 972 | 2.2 | 53.4 | 7.5 | 303 L3 | — | 12600 | 14500 | 23500 | 28300 | 8080 | 232 |
| 27.3 | 976 | 1.3 | 51.9 | 7.5 | 301 L2 | — | 4060 | 4060 | 11400 | 13100 | 2670 | 226 |
| 27.5 | 940 | 0.9 | 51.6 | 7.5 | 300 L3 | — | 3960 | 3960 | 11200 | 12800 | 2600 | 220 |
| 27.5 | 940 | 1.7 | 51.6 | 7.5 | 301 L3 | — | 4050 | 4050 | 11400 | 13100 | 2660 | 226 |
| 28.2 | 918 | 0.9 | 50.4 | 12 | — | 300 R3 | 3930 | 3930 | 11100 | 12700 | 2580 | 221 |

## $P_1$ = 3 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | Rn$_2$ [N] | | | | | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | MC | MZ | HC/PC | HZ/PZ | FZ | |
| 28.2 | 918 | 1.8 | 50.4 | 12 | — | 301 R3 | 4020 | 4020 | 11300 | 13000 | 2640 | 227 |
| 28.3 | 915 | 2.6 | 50.3 | 14 | — | 303 R3 | 12300 | 14200 | 23100 | 27800 | 7920 | 233 |
| 30 | 848 | 2.5 | 46.6 | 14 | — | 303 R3 | 12000 | 13900 | 22600 | 27200 | 7720 | 233 |
| 32 | 839 | 2.2 | 44.6 | 9 | 303 L2 | — | 11900 | 13700 | 22300 | 26800 | 7610 | 232 |
| 33 | 775 | 2.7 | 42.6 | 14 | — | 303 R3 | 11700 | 13500 | 22000 | 26400 | 7490 | 233 |
| 34 | 781 | 1.7 | 41.5 | 7.5 | 301 L2 | — | 3770 | 3770 | 10700 | 12300 | 2480 | 226 |
| 35 | 749 | 1.7 | 41.2 | 12 | — | 301 R3 | 3760 | 3760 | 10600 | 12200 | 2470 | 227 |
| 37 | 722 | 3 | 38.4 | 9 | 303 L2 | — | 11300 | 13000 | 21300 | 25600 | 7240 | 232 |
| 37 | 721 | 1.2 | 38.4 | 7.5 | 300 L2 | — | 3670 | 3670 | 10400 | 12000 | 2410 | 220 |
| 37 | 721 | 2.1 | 38.4 | 7.5 | 301 L2 | — | 3670 | 3670 | 10400 | 12000 | 2410 | 226 |
| 38 | 678 | 1.2 | 37.3 | 12 | — | 300 R3 | 3630 | 3630 | 10300 | 11900 | 2390 | 221 |
| 38 | 678 | 2.4 | 37.3 | 12 | — | 301 R3 | 3630 | 3630 | 10300 | 11900 | 2390 | 225 |
| 40 | 672 | 2.7 | 35.8 | 9 | 303 L2 | — | 10800 | 12400 | 20400 | 24600 | 6910 | 232 |
| 43 | 626 | 1 | 33.3 | 7.5 | 300 L2 | — | 3420 | 3420 | 9790 | 11200 | 2250 | 220 |
| 43 | 626 | 2.1 | 33.3 | 7.5 | 301 L2 | — | 3420 | 3420 | 9790 | 11200 | 2250 | 226 |
| 46 | 577 | 1.5 | 30.7 | 7.5 | 300 L2 | — | 3330 | 3330 | 9550 | 11000 | 2190 | 220 |
| 46 | 577 | 2.7 | 30.7 | 7.5 | 301 L2 | — | 3410 | 3410 | 9750 | 11200 | 2240 | 226 |
| 47 | 554 | 1.5 | 30.4 | 12 | — | 300 R3 | 3400 | 3400 | 9730 | 11200 | 2230 | 221 |
| 47 | 554 | 2.9 | 30.4 | 12 | — | 301 R3 | 3400 | 3400 | 9730 | 11200 | 2230 | 221 |
| 57 | 452 | 1.6 | 24.8 | 12 | — | 300 R3 | 3170 | 3170 | 9150 | 10500 | 2090 | 221 |
| 57 | 466 | 1.8 | 24.8 | 18 | — | 303 R2 | 9750 | 11300 | 18700 | 22500 | 6250 | 233 |
| 58 | 462 | 1.7 | 24.6 | 7.5 | 300 L2 | — | 3160 | 3160 | 9130 | 10500 | 2080 | 220 |
| 71 | 377 | 1.7 | 20.1 | 7.5 | 300 L2 | — | 2960 | 2960 | 8590 | 9870 | 1940 | 220 |
| 77 | 347 | 1.1 | 18.5 | 12 | — | 300 R2 | 2870 | 2870 | 8370 | 9620 | 1890 | 221 |
| 77 | 347 | 2.1 | 18.5 | 12 | — | 301 R2 | 2870 | 2870 | 8370 | 9620 | 1890 | 227 |
| 78 | 342 | 2.2 | 18.2 | 7.5 | 300 L2 | — | 2860 | 2860 | 8330 | 9580 | 1880 | 220 |
| 96 | 279 | 2.6 | 14.8 | 7.5 | 300 L2 | — | 2670 | 2670 | 7840 | 9010 | 1760 | 220 |
| 96 | 277 | 1.8 | 14.8 | 12 | — | 300 R2 | 2670 | 2670 | 7830 | 9000 | 1750 | 221 |
| 117 | 228 | 3 | 12.1 | 7.5 | 300 L2 | — | 2500 | 2500 | 7380 | 8480 | 1640 | 220 |
| 120 | 222 | 2.7 | 11.8 | 12 | — | 300 R2 | 2480 | 2480 | 7330 | 8420 | 1630 | 221 |
| 158 | 175 | 1.8 | 9 | 7.5 | 300 L1 | — | 2260 | 2260 | 6750 | 7750 | 1490 | 220 |
| 197 | 140 | 2.9 | 7.2 | 7.5 | 300 L1 | — | 2100 | 2100 | 6310 | 7250 | 1380 | 220 |

## $P_1$ = 4 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | Rn$_2$ [N] | | | | | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | MC | MZ | HC/PC | HZ/PZ | FZ | |
| 0.66 | 51963 | 0.9 | 2187 | 11 | 313 L4 | — | — | — | 192000 | 231000 | 80000 | 288 |
| 0.79 | 43169 | 1.3 | 1817 | 11 | 313 L4 | — | — | — | 192000 | 231000 | 80000 | 288 |
| 0.82 | 41970 | 1 | 1766 | 11 | 311 L4 | — | — | — | 157000 | 195000 | 65000 | 280 |

## $P_1$ = 4 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.96 | 35687 | 1.6 | 1502 | 11 | 313 L4 | — | — | — | 192000 | 231000 | 80000 | 288 |
| 1 | 33630 | 1.3 | 1415 | 11 | 311 L4 | — | — | — | 157000 | 195000 | 65000 | 280 |
| 1 | 33119 | 1.6 | 1394 | 11 | 313 L4 | — | — | — | 192000 | 229000 | 79900 | 288 |
| 1.1 | 30069 | 1.9 | 1266 | 11 | 313 L4 | — | — | — | 188000 | 222500 | 77400 | 288 |
| 1.1 | 29913 | 0.9 | 1259 | 11 | 310 L4 | — | — | — | 128500 | 161600 | 62700 | 272 |
| 1.2 | 29234 | 1.5 | 1230 | 11 | 311 L4 | — | — | — | 150800 | 187900 | 62300 | 280 |
| 1.2 | 27663 | 1.1 | 1164 | 11 | 310 L4 | — | — | — | 125500 | 157900 | 61100 | 272 |
| 1.3 | 26538 | 2 | 1117 | 11 | 313 L4 | — | — | — | 181100 | 214300 | 74200 | 288 |
| 1.4 | 25148 | 1.7 | 1058 | 11 | 311 L4 | — | — | — | 144200 | 179600 | 59200 | 288 |
| 1.4 | 24249 | 1.2 | 1021 | 11 | 310 L4 | — | — | — | 120700 | 151800 | 58500 | 272 |
| 1.4 | 24094 | 2.3 | 1014 | 11 | 313 L4 | — | — | — | 175900 | 208200 | 71800 | 288 |
| 1.5 | 23425 | 1.8 | 986 | 11 | 311 L4 | — | — | — | 141100 | 175800 | 57800 | 280 |
| 1.5 | 22307 | 1.5 | 939 | 11 | 310 L4 | — | — | — | 117700 | 148000 | 56900 | 272 |
| 1.6 | 21472 | 2.2 | 904 | 11 | 311 L4 | — | — | — | 137500 | 171300 | 56200 | 280 |
| 1.6 | 21339 | 1.1 | 898 | 15 | — | 310 R4 | — | — | 116100 | 146000 | 56100 | 273 |
| 1.6 | 21130 | 2.5 | 889 | 11 | 313 L4 | — | — | — | 169100 | 200100 | 68800 | 288 |
| 1.7 | 19596 | 2.3 | 825 | 11 | 311 L4 | — | — | — | 133800 | 166600 | 54500 | 280 |
| 1.8 | 19431 | 1.4 | 818 | 11 | 310 L4 | — | — | — | 112900 | 142000 | 54300 | 272 |
| 1.8 | 19022 | 1 | 801 | 7.5 | 309 L4 | — | — | — | 94700 | 122100 | 29900 | 265 |
| 1.8 | 18768 | 2.8 | 790 | 11 | 313 L4 | — | — | — | 163200 | 193100 | 66100 | 288 |
| 1.9 | 18494 | 2.4 | 778 | 22 | — | 313 R4 | — | — | 162500 | 192300 | 65800 | 289 |
| 1.9 | 17980 | 1.5 | 757 | 15 | — | 310 R4 | — | — | 110300 | 138700 | 52900 | 273 |
| 1.9 | 17728 | 1.7 | 746 | 22 | — | 311 R4 | — | — | 129800 | 161700 | 52700 | 280 |
| 2 | 17244 | 1.6 | 726 | 11 | 310 L4 | — | — | — | 108900 | 137000 | 52200 | 278 |
| 2 | 17205 | 2.7 | 724 | 11 | 311 L4 | — | — | — | 128700 | 160300 | 52200 | 286 |
| 2 | 17160 | 1.2 | 722 | 7.5 | 309 L4 | — | — | — | 91800 | 118400 | 28900 | 264 |
| 2.1 | 16388 | 0.9 | 690 | 15 | — | 309 R4 | — | — | 90600 | 116800 | 28400 | 265 |
| 2.2 | 15527 | 1.2 | 654 | 7.5 | 309 L4 | — | — | — | 89100 | 114900 | 27900 | 264 |
| 2.3 | 15174 | 1.4 | 639 | 15 | — | 310 R4 | — | — | 104800 | 131800 | 50000 | 273 |
| 2.3 | 15126 | 1.8 | 637 | 11 | 310 L4 | — | — | — | 104700 | 131700 | 50000 | 272 |
| 2.3 | 14937 | 2.7 | 629 | 22 | — | 311 R4 | — | — | 123300 | 153600 | 49800 | 281 |
| 2.3 | 14890 | 2.7 | 627 | 11 | 311 L4 | — | — | — | 123200 | 153500 | 49700 | 280 |
| 2.4 | 14010 | 1.6 | 590 | 15 | — | 310 R4 | — | — | 102400 | 128700 | 48700 | 273 |
| 2.5 | 13809 | 0.9 | 581 | 15 | — | 307 R4 | — | — | 82900 | 108700 | 32800 | 257 |
| 2.5 | 13809 | 1.1 | 581 | 15 | — | 309 R4 | — | — | 86000 | 110900 | 26900 | 265 |
| 2.5 | 13750 | 1.1 | 579 | 7.5 | 307 L4 | — | — | — | 82800 | 108500 | 32800 | 257 |
| 2.5 | 13750 | 1.5 | 579 | 7.5 | 309 L4 | — | — | — | 85900 | 110800 | 26800 | 264 |
| 2.6 | 13208 | 2.4 | 556 | 11 | 310 L4 | — | — | — | 100600 | 126500 | 47800 | 272 |
| 2.8 | 12287 | 2.1 | 517 | 15 | — | 310 R4 | — | — | 98400 | 123800 | 46600 | 273 |
| 2.8 | 12099 | 1.2 | 509 | 7.5 | 307 L4 | — | — | — | 81400 | 106600 | 32100 | 256 |
| 2.8 | 12099 | 1.2 | 509 | 7.5 | 309 L4 | — | — | — | 82700 | 106600 | 25700 | 264 |
| 2.8 | 12054 | 2.1 | 507 | 11 | 310 L4 | — | — | — | 97900 | 123000 | 46300 | 272 |
| 2.9 | 11654 | 1.2 | 490 | 15 | — | 309 R4 | — | — | 81700 | 105400 | 25400 | 265 |

## $P_1$ = 4 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.9 | 11639 | 3 | 490 | 22 | — | 311 R4 | — | — | 114400 | 142500 | 45800 | 280 |
| 3.1 | 11045 | 1.1 | 465 | 7.5 | 307 L4 | — | — | — | 79200 | 103700 | 31200 | 256 |
| 3.1 | 11045 | 1.7 | 465 | 7.5 | 309 L4 | — | — | — | 80400 | 103700 | 24900 | 264 |
| 3.2 | 10856 | 1.3 | 457 | 15 | — | 309 R4 | — | — | 80000 | 103200 | 24800 | 265 |
| 3.2 | 10791 | 1.9 | 454 | 15 | — | 310 R4 | — | — | 94700 | 119000 | 44700 | 2723 |
| 3.2 | 10760 | 1.2 | 453 | 15 | — | 307 R4 | — | — | 78600 | 102900 | 30900 | 257 |
| 3.2 | 10708 | 2.8 | 451 | 11 | 310 L4 | — | — | — | 94400 | 118700 | 44500 | 272 |
| 3.2 | 10555 | 0.9 | 444 | 6 | 306 L4 | — | 31100 | 35200 | 71100 | 82800 | 23300 | 248 |
| 3.4 | 9963 | 2.9 | 419 | 15 | — | 310 R4 | — | — | 92400 | 116200 | 43500 | 273 |
| 3.5 | 9820 | 1.2 | 413 | 15 | — | 307 R4 | — | — | 76400 | 100100 | 30000 | 257 |
| 3.5 | 9820 | 1.8 | 413 | 15 | — | 309 R4 | — | — | 77700 | 100100 | 24000 | 265 |
| 3.6 | 9635 | 1.2 | 406 | 7.5 | 307 L4 | — | — | — | 76000 | 99600 | 29800 | 256 |
| 3.6 | 9635 | 1.8 | 406 | 7.5 | 309 L4 | — | — | — | 77200 | 99600 | 23800 | 264 |
| 3.7 | 9306 | 2.1 | 392 | 11 | 310 L4 | — | — | — | 90500 | 113900 | 42500 | 272 |
| 3.8 | 8895 | 1.6 | 374 | 15 | — | 309 R4 | — | — | 75400 | 97200 | 23200 | 265 |
| 4 | 8630 | 2.8 | 363 | 15 | — | 310 R4 | — | — | 88500 | 111300 | 41500 | 273 |
| 4 | 8622 | 1.4 | 363 | 15 | — | 307 R4 | — | — | 73500 | 96300 | 28700 | 257 |
| 4.1 | 8294 | 1.8 | 349 | 7.5 | 307 L4 | — | — | — | 72700 | 95200 | 28300 | 256 |
| 4.1 | 8294 | 2.6 | 349 | 7.5 | 309 L4 | — | — | — | 73800 | 95200 | 22700 | 264 |
| 4.3 | 8267 | 1.1 | 336 | 11 | 307 L3 | — | — | — | 71900 | 94200 | 28000 | 256 |
| 4.3 | 8267 | 1.6 | 336 | 11 | 309 L3 | — | — | — | 73000 | 94200 | 22400 | 264 |
| 4.3 | 7868 | 1.5 | 331 | 15 | — | 307 R4 | — | — | 71500 | 93700 | 27800 | 263 |
| 4.3 | 7868 | 2.2 | 331 | 15 | — | 309 R4 | — | — | 72700 | 93700 | 22300 | 265 |
| 4.6 | 7405 | 1 | 312 | 12 | — | 306 R4 | 28200 | 32000 | 65300 | 76000 | 21200 | 249 |
| 4.8 | 7127 | 2 | 300 | 15 | — | 307 R4 | — | — | 69400 | 91000 | 26900 | 257 |
| 5 | 6866 | 1.2 | 289 | 12 | — | 306 R4 | 27500 | 31200 | 63800 | 74300 | 20700 | 249 |
| 5.1 | 6759 | 1.7 | 284 | 15 | — | 307 R4 | — | — | 68300 | 89500 | 26500 | 257 |
| 5.1 | 6759 | 2.5 | 284 | 15 | — | 309 R4 | — | — | 69400 | 89500 | 21200 | 265 |
| 5.1 | 6966 | 1.6 | 284 | 11 | 307 L3 | — | — | — | 68300 | 89400 | 26400 | 256 |
| 5.1 | 6966 | 2.3 | 284 | 11 | 309 L3 | — | — | — | 69400 | 89400 | 21100 | 264 |
| 5.6 | 6131 | 2.4 | 258 | 15 | — | 307 R4 | — | — | 66400 | 87000 | 25600 | 257 |
| 5.6 | 6131 | 2.8 | 258 | 15 | — | 309 R4 | — | — | 67400 | 87000 | 20500 | 265 |
| 5.8 | 5906 | 1.4 | 249 | 12 | — | 306 R4 | 26200 | 29700 | 61000 | 71000 | 19700 | 249 |
| 6 | 5879 | 1.5 | 239 | 11 | 307 L3 | — | — | — | 64900 | 85000 | 25000 | 256 |
| 6 | 5879 | 2.2 | 239 | 11 | 309 L3 | — | — | — | 65900 | 85000 | 20000 | 264 |
| 6 | 5850 | 1.4 | 238 | 7.5 | 306 L3 | — | 25800 | 29200 | 60200 | 70100 | 19400 | 249 |
| 6.2 | 5517 | 2 | 232 | 15 | — | 307 R4 | — | — | 64300 | 84200 | 24700 | 257 |
| 6.3 | 5472 | 1.4 | 230 | 12 | — | 306 R4 | 25500 | 28900 | 59600 | 69400 | 19200 | 249 |
| 6.5 | 5476 | 2.4 | 223 | 11 | 309 L3 | — | — | — | 64500 | 83200 | 19500 | 264 |
| 6.5 | 5449 | 1.2 | 222 | 7.5 | 306 L3 | — | 25200 | 28600 | 58900 | 68600 | 18900 | 248 |
| 6.5 | 5428 | 2.3 | 221 | 11 | 307 L3 | — | — | — | 63300 | 83000 | 24300 | 256 |
| 6.7 | 5091 | 1.1 | 214 | 12 | — | 305 R4 | 20000 | 23100 | 35700 | 42900 | 12800 | 241 |
| 6.7 | 5076 | 1.9 | 214 | 12 | — | 306 R4 | 24900 | 28200 | 58300 | 67900 | 18700 | 249 |

## $P_1$ = 4 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 4886 | 2.9 | 206 | 15 | — | 307 R4 | — | — | 62000 | 81200 | 23700 | 257 |
| 7 | 5032 | 1.6 | 205 | 7.5 | 306 L3 | — | 24500 | 27800 | 57600 | 67000 | 18400 | 248 |
| 7.1 | 4953 | 2.2 | 202 | 11 | 307 L3 | — | — | — | 61600 | 80700 | 23600 | 256 |
| 7.6 | 4661 | 1.4 | 190 | 7.5 | 306 L3 | — | 23900 | 27100 | 56200 | 65500 | 18000 | 248 |
| 7.8 | 4394 | 1 | 185 | 12 | — | 305 R4 | 19100 | 22000 | 34100 | 41100 | 12200 | 241 |
| 8 | 4299 | 2.2 | 181 | 12 | — | 306 R4 | 23600 | 26700 | 55500 | 64600 | 17700 | 249 |
| 8.1 | 4362 | 1 | 178 | 7.5 | 305 L3 | — | 18800 | 21700 | 33700 | 40600 | 12100 | 240 |
| 8.1 | 4349 | 2.8 | 177 | 11 | 307 L3 | — | — | — | 59300 | 77700 | 22600 | 256 |
| 8.6 | 3987 | 1.9 | 168 | 12 | — | 306 R4 | 23000 | 26000 | 54200 | 63100 | 17300 | 247 |
| 8.8 | 4022 | 1.1 | 164 | 7.5 | 305 L3 | — | 18300 | 21100 | 32900 | 39600 | 11700 | 240 |
| 8.9 | 3969 | 2.7 | 162 | 11 | 307 L3 | — | — | — | 57700 | 75600 | 21900 | 256 |
| 9.1 | 3762 | 1.4 | 158 | 12 | — | 305 R4 | 18100 | 20900 | 32600 | 39200 | 11600 | 241 |
| 9.1 | 3751 | 2.6 | 158 | 12 | — | 306 R4 | 22500 | 25500 | 53200 | 62000 | 16900 | 249 |
| 9.4 | 3747 | 1 | 152 | 7.5 | 305 L3 | — | 17900 | 20600 | 32200 | 38700 | 11500 | 240 |
| 9.5 | 3735 | 2 | 152 | 7.5 | 306 L3 | — | 22200 | 25200 | 52600 | 61300 | 16700 | 248 |
| 9.7 | 3520 | 1.3 | 148 | 12 | — | 305 R4 | 17700 | 20400 | 31900 | 38400 | 11400 | 241 |
| 10 | 3542 | 1.6 | 144 | 14 | — | 306 R3 | 21800 | 24700 | 51800 | 60300 | 16400 | 249 |
| 10.2 | 3476 | 1.5 | 141 | 7.5 | 305 L3 | — | 17400 | 20100 | 31500 | 37900 | 11200 | 240 |
| 10.2 | 3464 | 2.3 | 141 | 7.5 | 306 L3 | — | 21700 | 24600 | 51500 | 59900 | 16300 | 248 |
| 11.1 | 3071 | 1.7 | 129 | 12 | — | 305 R4 | 16900 | 19500 | 30600 | 36900 | 10800 | 241 |
| 11.6 | 3058 | 1.2 | 124 | 7.5 | 305 L3 | — | 16700 | 19300 | 30300 | 36500 | 10700 | 240 |
| 11.9 | 2979 | 2.6 | 121 | 7.5 | 306 L3 | — | 20600 | 23400 | 49200 | 57300 | 15500 | 248 |
| 12 | 2942 | 2.9 | 120 | 22 | — | 307 R3 | — | — | 52700 | 69100 | 19800 | 257 |
| 12.1 | 2928 | 2.2 | 119 | 14 | — | 306 R3 | 20500 | 23200 | 48900 | 57000 | 15400 | 249 |
| 12.6 | 2811 | 1.3 | 114 | 14 | — | 305 R3 | 16200 | 18700 | 29500 | 35500 | 10400 | 241 |
| 12.8 | 2769 | 1.3 | 113 | 7.5 | 305 L3 | — | 16200 | 18600 | 29400 | 35400 | 10400 | 241 |
| 12.8 | 2760 | 2.7 | 112 | 7.5 | 306 L3 | — | 20100 | 22800 | 48100 | 56000 | 15100 | 248 |
| 13.8 | 2568 | 1 | 105 | 7.5 | 303 L3 | — | 15800 | 18200 | 28800 | 34600 | 10100 | 232 |
| 13.8 | 2568 | 2 | 105 | 7.5 | 305 L3 | — | 15800 | 18200 | 28800 | 34600 | 10100 | 240 |
| 14.6 | 2420 | 2.7 | 98.5 | 14 | — | 306 R3 | 19200 | 21800 | 46200 | 53800 | 14400 | 247 |
| 15.7 | 2248 | 1.6 | 91.5 | 14 | — | 305 R3 | 15100 | 17400 | 27600 | 33200 | 9670 | 239 |
| 16 | 2216 | 1 | 90.2 | 7.5 | 303 L3 | — | 15000 | 17300 | 27500 | 33100 | 9620 | 230 |
| 16 | 2216 | 1.9 | 90.2 | 7.5 | 305 L3 | — | 15000 | 17300 | 27500 | 33100 | 9620 | 238 |
| 18.3 | 1934 | 1.1 | 78.7 | 14 | — | 303 R3 | 14300 | 16500 | 26400 | 31800 | 9190 | 233 |
| 18.3 | 1934 | 2.2 | 78.7 | 14 | — | 305 R3 | 14300 | 16500 | 26400 | 31800 | 9190 | 241 |
| 18.6 | 1898 | 1.3 | 77.2 | 7.5 | 303 L3 | — | 14200 | 16400 | 26300 | 31600 | 9140 | 233 |
| 18.6 | 1898 | 2.5 | 77.2 | 7.5 | 305 L3 | — | 14200 | 16400 | 26300 | 31600 | 9140 | 240 |
| 19.6 | 1802 | 1 | 73.3 | 14 | — | 303 R3 | 14000 | 16200 | 25900 | 31100 | 8980 | 233 |
| 19.6 | 1802 | 2 | 73.3 | 14 | — | 305 R3 | 14000 | 16200 | 25900 | 31100 | 8980 | 241 |
| 19.9 | 1776 | 1.3 | 72.3 | 7.5 | 303 L3 | — | 13900 | 16100 | 25700 | 31000 | 8940 | 233 |
| 19.9 | 1776 | 2.3 | 72.3 | 7.5 | 305 L3 | — | 13900 | 16100 | 25700 | 31000 | 8940 | 240 |
| 22.8 | 1554 | 1.1 | 63.2 | 7.5 | 301 L3 | — | 4330 | 4330 | 12100 | 13900 | 2850 | 226 |
| 22.8 | 1550 | 1.4 | 63.1 | 14 | — | 303 R3 | 13300 | 15400 | 24700 | 29700 | 8540 | 233 |

## $P_1$ = 4 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 22.8 | 1550 | 2.8 | 63.1 | 14 | — | 305 R3 | 13300 | 15400 | 24700 | 29700 | 8540 | 241 |
| 22.8 | 1549 | 1.6 | 63.1 | 7.5 | 303 L3 | — | 13300 | 15400 | 24700 | 29700 | 8540 | 233 |
| 22.9 | 1546 | 1.1 | 62.9 | 12 | — | 301 R3 | 4330 | 4330 | 12100 | 13900 | 2840 | 227 |
| 25.8 | 1416 | 1.3 | 55.8 | 9 | 303 L2 | — | 12800 | 14800 | 23800 | 28700 | 8200 | 233 |
| 25.8 | 1416 | 2.5 | 55.8 | 9 | 305 L2 | — | 12800 | 14800 | 23800 | 28700 | 8200 | 240 |
| 26.6 | 1331 | 1.4 | 54.2 | 14 | — | 303 R3 | 12700 | 14600 | 23600 | 28400 | 8120 | 233 |
| 26.6 | 1331 | 2.7 | 54.2 | 14 | — | 305 R3 | 12700 | 14600 | 23600 | 28400 | 8120 | 241 |
| 27 | 1312 | 1.7 | 53.4 | 7.5 | 303 L3 | — | 12600 | 14500 | 23500 | 28300 | 8080 | 233 |
| 27.7 | 1318 | 1 | 51.9 | 7.5 | 301 L2 | — | 4060 | 4060 | 11400 | 13100 | 2670 | 226 |
| 27.9 | 1269 | 1.3 | 51.6 | 7.5 | 301 L3 | — | 4050 | 4050 | 11400 | 13100 | 2660 | 226 |
| 28.6 | 1239 | 1.3 | 50.4 | 12 | — | 301 R3 | 4020 | 4020 | 11300 | 13000 | 2640 | 227 |
| 28.6 | 1235 | 1.9 | 50.3 | 14 | — | 303 R3 | 12300 | 14200 | 23100 | 27800 | 7920 | 233 |
| 31 | 1145 | 1.9 | 46.6 | 14 | — | 303 R3 | 12000 | 13900 | 22600 | 27200 | 7720 | 233 |
| 32 | 1133 | 1.6 | 44.6 | 9 | 303 L2 | — | 11900 | 13700 | 22300 | 26800 | 7610 | 232 |
| 34 | 1046 | 2 | 42.6 | 14 | — | 303 R3 | 11700 | 13500 | 22000 | 26400 | 7490 | 233 |
| 35 | 1054 | 1.2 | 41.5 | 7.5 | 301 L2 | — | 3770 | 3770 | 10700 | 12300 | 2480 | 226 |
| 35 | 1011 | 1.3 | 41.2 | 12 | — | 301 R3 | 3760 | 3760 | 10600 | 12200 | 2470 | 227 |
| 38 | 975 | 2.2 | 38.4 | 9 | 303 L2 | — | 11300 | 13000 | 21300 | 25600 | 7240 | 233 |
| 38 | 974 | 1.6 | 38.4 | 7.5 | 301 L2 | — | 3670 | 3670 | 10400 | 12000 | 2410 | 226 |
| 39 | 915 | 0.9 | 37.3 | 12 | — | 300 R3 | 3550 | 3550 | 10100 | 11600 | 2330 | 221 |
| 39 | 915 | 1.7 | 37.3 | 12 | — | 301 R3 | 3630 | 3630 | 10300 | 11900 | 2390 | 227 |
| 39 | 913 | 2.6 | 37.1 | 14 | — | 303 R3 | 11200 | 12900 | 21100 | 25400 | 7160 | 233 |
| 40 | 908 | 2 | 35.8 | 9 | 303 L2 | — | 11000 | 12700 | 20800 | 25100 | 7070 | 232 |
| 43 | 845 | 1.5 | 33.3 | 7.5 | 301 L2 | — | 3500 | 3500 | 9990 | 11500 | 2300 | 226 |
| 46 | 773 | 2.7 | 31.5 | 14 | — | 303 R3 | 10600 | 12200 | 20100 | 24100 | 6770 | 233 |
| 47 | 781 | 2.7 | 30.8 | 9 | 303 L2 | — | 10500 | 12100 | 19900 | 24000 | 6720 | 232 |
| 47 | 779 | 1.1 | 30.7 | 7.5 | 300 L2 | — | 3410 | 3410 | 9750 | 11200 | 2240 | 220 |
| 47 | 779 | 2 | 30.7 | 7.5 | 301 L2 | — | 3410 | 3410 | 9750 | 11200 | 2240 | 226 |
| 47 | 747 | 1.1 | 30.4 | 12 | — | 300 R3 | 3400 | 3400 | 9730 | 11200 | 2230 | 221 |
| 47 | 747 | 2.1 | 30.4 | 12 | — | 301 R3 | 3400 | 3400 | 9730 | 11200 | 2230 | 227 |
| 54 | 671 | 2.7 | 26.4 | 9 | 303 L2 | — | 9960 | 11500 | 19000 | 22900 | 6390 | 232 |
| 58 | 610 | 1.2 | 24.8 | 12 | — | 300 R3 | 3170 | 3170 | 9150 | 10500 | 2090 | 221 |
| 58 | 610 | 2.3 | 24.8 | 12 | — | 301 R3 | 3170 | 3170 | 9150 | 10500 | 2090 | 227 |
| 58 | 629 | 1.4 | 24.8 | 18 | — | 303 R2 | 9750 | 11300 | 18700 | 22500 | 6250 | 233 |
| 59 | 624 | 1.3 | 24.6 | 7.5 | 300 L2 | — | 3160 | 3160 | 9130 | 10500 | 2080 | 221 |
| 59 | 624 | 2.4 | 24.6 | 7.5 | 301 L2 | — | 3160 | 3160 | 9130 | 10500 | 2080 | 226 |
| 72 | 510 | 1.3 | 20.1 | 7.5 | 300 L2 | — | 2960 | 2960 | 8590 | 9870 | 1940 | 220 |
| 72 | 510 | 2.5 | 20.1 | 7.5 | 301 L2 | — | 2960 | 2960 | 8590 | 9870 | 1940 | 226 |
| 78 | 468 | 1.6 | 18.5 | 12 | — | 301 R2 | 2870 | 2870 | 8370 | 9620 | 1890 | 227 |
| 79 | 461 | 1.6 | 18.2 | 7.5 | 300 L2 | — | 2860 | 2860 | 8330 | 9580 | 1880 | 220 |
| 79 | 461 | 2.9 | 18.2 | 7.5 | 301 L2 | — | 2860 | 2860 | 8330 | 9580 | 1880 | 226 |
| 97 | 377 | 1.9 | 14.8 | 7.5 | 300 L2 | — | 2670 | 2670 | 7840 | 9010 | 1760 | 220 |
| 98 | 375 | 1.4 | 14.8 | 12 | — | 300 R2 | 2670 | 2670 | 7830 | 9000 | 1750 | 221 |

## $P_1$ = 4 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | $Rn_2$ [N] | | | | | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | MC | MZ | HC/PC | HZ/PZ | FZ | |
| 98 | 375 | 2.5 | 14.8 | 12 | — | 301 R2 | 2670 | 2670 | 7830 | 9000 | 1750 | 226 |
| 119 | 307 | 2.2 | 12.1 | 7.5 | 300 L2 | — | 2500 | 2500 | 7380 | 8480 | 1640 | 220 |
| 122 | 300 | 2 | 11.8 | 12 | — | 300 R2 | 2480 | 2480 | 7330 | 8420 | 1630 | 221 |
| 160 | 236 | 1.4 | 9 | 7.5 | 300 L1 | — | 2260 | 2260 | 6750 | 7750 | 1490 | 220 |
| 160 | 236 | 2.7 | 9 | 7.5 | 301 L1 | — | 2260 | 2260 | 6750 | 7750 | 1490 | 226 |
| 165 | 222 | 2.8 | 8.74 | 12 | — | 300 R2 | 2240 | 2240 | 6690 | 7690 | 1470 | 221 |
| 200 | 189 | 2.2 | 7.2 | 7.5 | 300 L1 | — | 2100 | 2100 | 6310 | 7250 | 1380 | 220 |

## $P_1$ = 5.5 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | $Rn_2$ [N] | | | | | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | MC | MZ | HC/PC | HZ/PZ | FZ | |
| 0.8 | 57559 | 1 | 1817 | 11 | 313 L4 | — | — | — | 192000 | 231000 | 80000 | 288 |
| 0.81 | 57190 | 1.5 | 1805 | 18 | 315 L4 | — | — | — | 206000 | 243000 | 90000 | 296 |
| 0.81 | 56908 | 1.2 | 1796 | 15 | 314 L4 | — | — | — | 206000 | 243000 | 90000 | call |
| 0.97 | 47582 | 1.2 | 1502 | 11 | 313 L4 | — | — | — | 192000 | 231000 | 80000 | 288 |
| 0.98 | 47277 | 1.8 | 1492 | 18 | 315 L4 | — | — | — | 206000 | 243000 | 90000 | 296 |
| 0.98 | 47044 | 1.4 | 1485 | 15 | 314 L4 | — | — | — | 206000 | 243000 | 90000 | call |
| 1 | 44840 | 1 | 1415 | 11 | 311 L4 | — | — | — | 157000 | 195000 | 65000 | 280 |
| 1 | 44159 | 1.2 | 1394 | 11 | 313 L4 | — | — | — | 192000 | 229000 | 79900 | 288 |
| 1.1 | 40669 | 2.4 | 1284 | 18 | 315 L4 | — | — | — | 201500 | 236600 | 87400 | 296 |
| 1.1 | 40468 | 1.9 | 1277 | 15 | 314 L4 | — | — | — | 201200 | 236300 | 87300 | call |
| 1.2 | 40092 | 1.4 | 1266 | 11 | 313 L4 | — | — | — | 188000 | 222500 | 77400 | 288 |
| 1.2 | 38979 | 1.1 | 1230 | 11 | 311 L4 | — | — | — | 150800 | 187900 | 62300 | 280 |
| 1.3 | 35384 | 1.5 | 1117 | 11 | 313 L4 | — | — | — | 181100 | 214300 | 74200 | 288 |
| 1.3 | 34984 | 2.7 | 1104 | 18 | 315 L4 | — | — | — | 192600 | 226200 | 83200 | 296 |
| 1.3 | 34811 | 2.2 | 1099 | 15 | 314 L4 | — | — | — | 192400 | 225800 | 83000 | call |
| 1.4 | 33530 | 1.3 | 1058 | 11 | 311 L4 | — | — | — | 144200 | 179600 | 59200 | 280 |
| 1.4 | 32869 | 2.5 | 1038 | 15 | 314 L4 | — | — | — | 189100 | 222000 | 81400 | call |
| 1.4 | 32125 | 1.7 | 1014 | 11 | 313 L4 | — | — | — | 175900 | 208200 | 71800 | 288 |
| 1.5 | 31233 | 1.4 | 986 | 11 | 311 L4 | — | — | — | 141100 | 175800 | 57800 | 288 |
| 1.6 | 29743 | 1.1 | 939 | 11 | 310 L4 | — | — | — | 115300 | 145000 | 55600 | 272 |
| 1.6 | 29331 | 2.5 | 926 | 15 | 314 L4 | — | — | — | 182700 | 214500 | 78400 | call |
| 1.6 | 28807 | 2.7 | 909 | 40 | — | 315 R4 | — | — | 181700 | 213400 | 77900 | 297 |
| 1.6 | 28630 | 1.6 | 904 | 11 | 311 L4 | — | — | — | 137500 | 171300 | 56200 | 280 |
| 1.6 | 28174 | 1.9 | 889 | 11 | 313 L4 | — | — | — | 169100 | 200100 | 68800 | 288 |
| 1.7 | 27172 | 3 | 858 | 15 | 314 L4 | — | — | — | 178600 | 209700 | 76400 | call |
| 1.8 | 26127 | 1.7 | 825 | 11 | 311 L4 | — | — | — | 133800 | 166600 | 54500 | 280 |
| 1.8 | 25908 | 1.1 | 818 | 11 | 310 L4 | — | — | — | 112900 | 142000 | 54300 | 272 |
| 1.8 | 25024 | 2.1 | 790 | 11 | 313 L4 | — | — | — | 163200 | 193100 | 66100 | 288 |

## $P_1$ = 5.5 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | Rn$_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ◄► Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.9 | 24658 | 1.8 | 778 | 22 | — | 313 R4 | — | — | 162500 | 192300 | 65800 | 287 |
| 1.9 | 23973 | 1.1 | 757 | 15 | — | 310 R4 | — | — | 110300 | 138700 | 52900 | 273 |
| 2 | 23637 | 1.3 | 746 | 22 | — | 311 R4 | — | — | 129800 | 161700 | 52700 | 281 |
| 2 | 22992 | 1.2 | 726 | 11 | 310 L4 | — | — | — | 108900 | 137000 | 52200 | 272 |
| 2 | 22941 | 2 | 724 | 11 | 311 L4 | — | — | — | 128700 | 160300 | 52200 | 280 |
| 2 | 22879 | 0.9 | 722 | 7.5 | 309 L4 | — | — | — | 89900 | 116000 | 28200 | 264 |
| 2.1 | 22021 | 2.3 | 695 | 11 | 313 L4 | — | — | — | 157000 | 185900 | 63300 | 288 |
| 2.3 | 20485 | 2.5 | 647 | 22 | — | 313 R4 | — | — | 153700 | 181900 | 61800 | 289 |
| 2.3 | 20233 | 1.1 | 639 | 15 | — | 310 R4 | — | — | 104800 | 131800 | 50000 | 273 |
| 2.3 | 20168 | 1.3 | 637 | 11 | 310 L4 | — | — | — | 104700 | 131700 | 50000 | 272 |
| 2.3 | 20051 | 2.6 | 633 | 11 | 313 L4 | — | — | — | 152700 | 180700 | 61400 | 288 |
| 2.3 | 19916 | 2 | 629 | 22 | — | 311 R4 | — | — | 123300 | 153600 | 49800 | 281 |
| 2.3 | 19853 | 2 | 627 | 11 | 311 L4 | — | — | — | 123200 | 153500 | 49700 | 280 |
| 2.4 | 19443 | 3 | 614 | 22 | — | 314 R4 | — | — | 161500 | 189600 | 68400 | call |
| 2.5 | 18681 | 1.2 | 590 | 15 | — | 310 R4 | — | — | 102400 | 128700 | 48700 | 272 |
| 2.5 | 18333 | 1.2 | 579 | 7.5 | 309 L4 | — | — | — | 85900 | 110800 | 26800 | 264 |
| 2.6 | 17984 | 2.4 | 568 | 11 | 311 L4 | — | — | — | 119600 | 149000 | 48100 | 280 |
| 2.6 | 17611 | 1.8 | 556 | 11 | 310 L4 | — | — | — | 100600 | 126500 | 47800 | 272 |
| 2.7 | 16935 | 2.9 | 535 | 22 | — | 313 R4 | — | — | 145100 | 171800 | 58000 | 289 |
| 2.8 | 16464 | 2.3 | 520 | 22 | — | 311 R4 | — | — | 116500 | 145100 | 46700 | 281 |
| 2.8 | 16383 | 1.6 | 517 | 15 | — | 310 R4 | — | — | 98400 | 123800 | 46600 | 272 |
| 2.8 | 16273 | 3 | 514 | 11 | 313 L4 | — | — | — | 143400 | 169700 | 57300 | 288 |
| 2.9 | 16224 | 2.7 | 512 | 11 | 311 L4 | — | — | — | 116000 | 144500 | 46500 | 280 |
| 2.9 | 16072 | 1.6 | 507 | 11 | 310 L4 | — | — | — | 97900 | 123000 | 46300 | 272 |
| 3 | 15539 | 0.9 | 490 | 15 | — | 309 R4 | — | — | 80100 | 103300 | 24800 | 265 |
| 3 | 15519 | 2.2 | 490 | 22 | — | 311 R4 | — | — | 114400 | 142500 | 45800 | 281 |
| 3.1 | 14726 | 1.2 | 465 | 7.5 | 309 L4 | — | — | — | 80400 | 103700 | 24900 | 264 |
| 3.2 | 14474 | 1 | 457 | 15 | — | 309 R4 | — | — | 80000 | 103200 | 24800 | 265 |
| 3.2 | 14388 | 1.4 | 454 | 15 | — | 310 R4 | — | — | 94700 | 119000 | 44700 | 273 |
| 3.2 | 14277 | 2.1 | 451 | 11 | 310 L4 | — | — | — | 94400 | 118700 | 44500 | 272 |
| 3.3 | 13873 | 2.7 | 438 | 22 | — | 311 R4 | — | — | 110600 | 137800 | 44100 | 281 |
| 3.5 | 13284 | 2.2 | 419 | 15 | — | 310 R4 | — | — | 92400 | 116200 | 43500 | 273 |
| 3.5 | 13093 | 1.4 | 413 | 15 | — | 309 R4 | — | — | 77700 | 100100 | 24000 | 265 |
| 3.6 | 12847 | 1.4 | 406 | 7.5 | 309 L4 | — | — | — | 77200 | 99600 | 23800 | 264 |
| 3.7 | 12407 | 1.6 | 392 | 11 | 310 L4 | — | — | — | 90500 | 113900 | 42500 | 272 |
| 3.9 | 11860 | 1.2 | 374 | 15 | — | 309 R4 | — | — | 75400 | 97200 | 23200 | 264 |
| 4 | 11507 | 2.1 | 363 | 15 | — | 310 R4 | — | — | 88500 | 111300 | 41500 | 273 |
| 4.2 | 11482 | 1.7 | 350 | 18 | 310 L3 | — | — | — | 87600 | 110100 | 41000 | 272 |
| 4.2 | 11058 | 1.9 | 349 | 7.5 | 309 L4 | — | — | — | 73800 | 95200 | 22700 | 264 |
| 4.3 | 11022 | 1.2 | 336 | 11 | 309 L3 | — | — | — | 73000 | 94200 | 22400 | 264 |
| 4.4 | 10586 | 2.6 | 334 | 15 | — | 310 R4 | — | — | 86300 | 108600 | 40300 | 273 |
| 4.4 | 10491 | 1.6 | 331 | 15 | — | 309 R4 | — | — | 72700 | 93700 | 22300 | 264 |
| 4.8 | 9660 | 2.4 | 305 | 15 | — | 310 R4 | — | — | 84000 | 105600 | 39100 | 273 |

## $P_1$ = 5.5 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | $Rn_2$ [N] | | | | | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | MC | MZ | HC/PC | HZ/PZ | FZ | |
| 4.9 | 9674 | 2.4 | 295 | 18 | 310 L3 | — | — | — | 83200 | 104600 | 38700 | 272 |
| 5 | 9539 | 2.8 | 291 | 18 | 311 L3 | — | — | — | 97900 | 121900 | 38500 | 280 |
| 5.1 | 9012 | 1.9 | 284 | 15 | — | 309 R4 | — | — | 69400 | 89500 | 21200 | 265 |
| 5.1 | 9287 | 1.7 | 284 | 11 | 309 L3 | — | — | — | 69400 | 89400 | 21100 | 264 |
| 5.2 | 8967 | 2.9 | 283 | 15 | — | 310 R4 | — | — | 82100 | 103300 | 38100 | 273 |
| 5.7 | 8183 | 2.8 | 258 | 15 | — | 310 R4 | — | — | 79900 | 100500 | 37000 | 273 |
| 5.7 | 8175 | 2.1 | 258 | 15 | — | 309 R4 | — | — | 67400 | 87000 | 20500 | 265 |
| 5.9 | 8165 | 2.3 | 249 | 18 | 310 L3 | — | — | — | 79100 | 99400 | 36600 | 272 |
| 6.1 | 7838 | 1.7 | 239 | 11 | 309 L3 | — | — | — | 65900 | 85000 | 20000 | 264 |
| 6.3 | 7356 | 2.3 | 232 | 15 | — | 309 R4 | — | — | 65300 | 84200 | 19800 | 265 |
| 6.3 | 7539 | 2.8 | 230 | 18 | 310 L3 | — | — | — | 77200 | 97100 | 35600 | 272 |
| 6.6 | 7301 | 1.8 | 223 | 11 | 309 L3 | — | — | — | 64500 | 83200 | 19500 | 264 |
| 7.2 | 6604 | 2.5 | 202 | 11 | 309 L3 | — | — | — | 62600 | 80700 | 18900 | 264 |
| 7.7 | 6041 | 2.9 | 191 | 15 | — | 309 R4 | — | — | 61600 | 79400 | 18500 | 265 |
| 8 | 5983 | 2.4 | 183 | 11 | 309 L3 | — | — | — | 60800 | 78400 | 18300 | 264 |
| 23.1 | 2066 | 1.1 | 63.1 | 14 | — | 303 R3 | 13300 | 15400 | 24700 | 29700 | 8540 | 232 |
| 26.9 | 1775 | 1 | 54.2 | 14 | — | 303 R3 | 12700 | 14600 | 23600 | 28400 | 8120 | 232 |
| 29 | 1652 | 1 | 50.4 | 12 | — | 301 R3 | 3930 | 3930 | 11100 | 12700 | 2580 | 227 |
| 29 | 1647 | 1.4 | 50.3 | 14 | — | 303 R3 | 12300 | 14200 | 23100 | 27800 | 7920 | 233 |
| 31 | 1527 | 1.4 | 46.6 | 14 | — | 303 R3 | 12000 | 13900 | 22600 | 27200 | 7720 | 233 |
| 34 | 1395 | 1.5 | 42.6 | 14 | — | 303 R3 | 11700 | 13500 | 22000 | 26400 | 7490 | 233 |
| 35 | 1348 | 1 | 41.2 | 12 | — | 301 R3 | 3760 | 3760 | 10600 | 12200 | 2470 | 227 |
| 39 | 1221 | 1.3 | 37.3 | 12 | — | 301 R3 | 3630 | 3630 | 10300 | 11900 | 2390 | 227 |
| 39 | 1217 | 2 | 37.1 | 14 | — | 303 R3 | 11200 | 12900 | 21100 | 25400 | 7160 | 233 |
| 46 | 1031 | 2 | 31.5 | 14 | — | 303 R3 | 10600 | 12200 | 20100 | 24100 | 6770 | 233 |
| 48 | 996 | 1.6 | 30.4 | 12 | — | 301 R3 | 3400 | 3400 | 9730 | 11200 | 2230 | 227 |
| 57 | 841 | 2.4 | 25.7 | 14 | — | 303 R3 | 9870 | 11400 | 18900 | 22700 | 6330 | 233 |
| 59 | 813 | 1.7 | 24.8 | 12 | — | 301 R3 | 3170 | 3170 | 9150 | 10500 | 2090 | 227 |

## $P_1$ = 7.5 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | $Rn_2$ [N] | | | | | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | MC | MZ | HC/PC | HZ/PZ | FZ | |
| 0.77 | 81609 | 1.9 | 1893 | 18 | 317 L4 | — | — | — | 442000 | 470000 | 150000 | 310 |
| 0.81 | 77842 | 1.1 | 1805 | 18 | 315 L4 | — | — | — | 206000 | 243000 | 90000 | 296 |
| 0.92 | 68763 | 2.5 | 1595 | 18 | 317 L4 | — | — | — | 442000 | 470000 | 150000 | 310 |
| 0.98 | 64350 | 1.3 | 1492 | 18 | 315 L4 | — | — | — | 206000 | 243000 | 90000 | 296 |
| 0.98 | 64032 | 1 | 1485 | 15 | 314 L4 | — | — | — | 206000 | 243000 | 90000 | call |
| 1.1 | 56844 | 3 | 1318 | 18 | 317 L4 | — | — | — | 434300 | 462400 | 147000 | 310 |
| 1.1 | 55354 | 1.8 | 1284 | 18 | 315 L4 | — | — | — | 201500 | 236600 | 87400 | 296 |

## $P_1$ = 7.5 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ◄► Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.1 | 55081 | 1.4 | 1277 | 15 | 314 L4 | — | — | — | 201200 | 236300 | 87300 | call |
| 1.2 | 54570 | 1 | 1266 | 11 | 313 L4 | — | — | — | 188000 | 222500 | 77400 | 288 |
| 1.2 | 53360 | 2.3 | 1237 | 18 | 316 L4 | — | — | — | 331400 | 368600 | 144000 | 304 |
| 1.3 | 48161 | 1.1 | 1117 | 11 | 313 L4 | — | — | — | 181100 | 214300 | 74200 | 288 |
| 1.3 | 47617 | 2 | 1104 | 18 | 315 L4 | — | — | — | 192600 | 226200 | 83200 | 296 |
| 1.3 | 47382 | 1.6 | 1099 | 15 | 314 L4 | — | — | — | 192400 | 225800 | 83000 | call |
| 1.4 | 45638 | 0.9 | 1058 | 11 | 311 L4 | — | — | — | 141200 | 175900 | 57900 | 280 |
| 1.4 | 44960 | 2.3 | 1043 | 18 | 315 L4 | — | — | — | 189400 | 222300 | 81600 | 296 |
| 1.4 | 44960 | 2.9 | 1043 | 18 | 316 L4 | — | — | — | 314800 | 350100 | 136000 | 304 |
| 1.4 | 44738 | 1.8 | 1038 | 15 | 314 L4 | — | — | — | 189100 | 222000 | 81400 | call |
| 1.4 | 43726 | 1.2 | 1014 | 11 | 313 L4 | — | — | — | 175900 | 208200 | 71800 | 288 |
| 1.5 | 42512 | 1 | 986 | 11 | 311 L4 | — | — | — | 141100 | 175800 | 57800 | 280 |
| 1.6 | 40096 | 2.3 | 930 | 18 | 315 L4 | — | — | — | 183000 | 214800 | 78500 | 296 |
| 1.6 | 39923 | 1.9 | 926 | 15 | 314 L4 | — | — | — | 182700 | 214500 | 78400 | call |
| 1.6 | 39209 | 2 | 909 | 40 | — | 315 R4 | — | — | 181700 | 213400 | 77900 | 297 |
| 1.6 | 38968 | 1.2 | 904 | 11 | 311 L4 | — | — | — | 137500 | 171300 | 56200 | 280 |
| 1.6 | 38348 | 1.4 | 889 | 11 | 313 L4 | — | — | — | 169100 | 200100 | 68800 | 288 |
| 1.7 | 37167 | 2.7 | 862 | 18 | 315 L4 | — | — | — | 178800 | 210000 | 76600 | 296 |
| 1.7 | 36984 | 2.2 | 858 | 15 | 314 L4 | — | — | — | 178600 | 209700 | 76400 | call |
| 1.8 | 35562 | 1.3 | 825 | 11 | 311 L4 | — | — | — | 133800 | 166600 | 54500 | 280 |
| 1.8 | 34060 | 1.5 | 790 | 11 | 313 L4 | — | — | — | 163200 | 193100 | 66100 | 288 |
| 1.9 | 33729 | 2.7 | 782 | 40 | — | 315 R4 | — | — | 173700 | 203900 | 74100 | 297 |
| 1.9 | 33563 | 1.3 | 778 | 22 | — | 313 R4 | — | — | 162500 | 192300 | 65800 | 289 |
| 2 | 32173 | 0.9 | 746 | 22 | — | 311 R4 | — | — | 129800 | 161700 | 52700 | 281 |
| 2 | 31814 | 2.5 | 738 | 15 | 314 L4 | — | — | — | 170700 | 200400 | 72700 | call |
| 2 | 31225 | 1.5 | 724 | 11 | 311 L4 | — | — | — | 128700 | 160300 | 52200 | 280 |
| 2.1 | 29974 | 1.7 | 695 | 11 | 313 L4 | — | — | — | 157000 | 185900 | 63300 | 286 |
| 2.2 | 28818 | 2.8 | 668 | 15 | 314 L4 | — | — | — | 165700 | 194500 | 70300 | call |
| 2.3 | 27883 | 1.8 | 647 | 22 | — | 313 R4 | — | — | 153700 | 181900 | 61800 | 287 |
| 2.3 | 27452 | 1 | 637 | 11 | 310 L4 | — | — | — | 104700 | 131700 | 50000 | 270 |
| 2.3 | 27291 | 1.9 | 633 | 11 | 313 L4 | — | — | — | 152700 | 180700 | 61400 | 288 |
| 2.3 | 27108 | 1.5 | 629 | 22 | — | 311 R4 | — | — | 123300 | 153600 | 49800 | 281 |
| 2.3 | 27023 | 1.5 | 627 | 11 | 311 L4 | — | — | — | 123200 | 153500 | 49700 | 280 |
| 2.4 | 26465 | 2.2 | 614 | 22 | — | 314 R4 | — | — | 161500 | 189600 | 68400 | call |
| 2.6 | 24478 | 1.8 | 568 | 11 | 311 L4 | — | — | — | 119600 | 149000 | 48100 | 280 |
| 2.6 | 24309 | 2.3 | 564 | 11 | 313 L4 | — | — | — | 147500 | 174500 | 59100 | 288 |
| 2.6 | 23971 | 1.3 | 556 | 11 | 310 L4 | — | — | — | 100600 | 126500 | 47800 | 272 |
| 2.7 | 23050 | 2.1 | 535 | 22 | — | 313 R4 | — | — | 145100 | 171800 | 58000 | 289 |
| 2.8 | 22410 | 1.7 | 520 | 22 | — | 311 R4 | — | — | 116500 | 145100 | 46700 | 281 |
| 2.8 | 22299 | 1.1 | 517 | 15 | — | 310 R4 | — | — | 98400 | 123800 | 46600 | 273 |
| 2.8 | 22149 | 2.2 | 514 | 11 | 313 L4 | — | — | — | 143400 | 169700 | 57300 | 288 |
| 2.9 | 22082 | 2 | 512 | 11 | 311 L4 | — | — | — | 116000 | 144500 | 46500 | 280 |
| 2.9 | 21875 | 1.2 | 507 | 11 | 310 L4 | — | — | — | 97900 | 123000 | 46300 | 272 |

## $P_1$ = 7.5 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ◄► Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.9 | 21392 | 2.4 | 496 | 22 | — | 313 R4 | — | — | 141900 | 168000 | 56600 | 289 |
| 3 | 21123 | 1.6 | 490 | 22 | — | 311 R4 | — | — | 114400 | 142500 | 45800 | 281 |
| 3.1 | 20044 | 0.9 | 465 | 7.5 | 309 L4 | — | — | — | 78800 | 101600 | 24400 | 265 |
| 3.2 | 19583 | 1 | 454 | 15 | — | 310 R4 | — | — | 94700 | 119000 | 44700 | 273 |
| 3.2 | 19479 | 2.8 | 452 | 11 | 313 L4 | — | — | — | 138000 | 163300 | 54900 | 288 |
| 3.2 | 19432 | 1.5 | 451 | 11 | 310 L4 | — | — | — | 94400 | 118700 | 44500 | 272 |
| 3.2 | 19422 | 2.5 | 450 | 22 | — | 313 R4 | — | — | 137900 | 163200 | 54800 | 289 |
| 3.3 | 18882 | 2 | 438 | 22 | — | 311 R4 | — | — | 110600 | 137800 | 44100 | 281 |
| 3.5 | 18081 | 1.6 | 419 | 15 | — | 310 R4 | — | — | 92400 | 116200 | 43500 | 273 |
| 3.5 | 17821 | 1 | 413 | 15 | — | 309 R4 | — | — | 77700 | 100100 | 24000 | 265 |
| 3.5 | 17798 | 2.3 | 413 | 22 | — | 311 R4 | — | — | 108700 | 135400 | 43300 | 287 |
| 3.6 | 17694 | 2.3 | 410 | 11 | 311 L4 | — | — | — | 108500 | 135200 | 43200 | 280 |
| 3.6 | 17486 | 1 | 406 | 7.5 | 309 L4 | — | — | — | 77200 | 99600 | 23800 | 264 |
| 3.7 | 16888 | 1.1 | 392 | 11 | 310 L4 | — | — | — | 90500 | 113900 | 42500 | 272 |
| 3.8 | 16707 | 2.8 | 387 | 22 | — | 313 R4 | — | — | 131800 | 156000 | 52100 | 288 |
| 4 | 15663 | 1.5 | 363 | 15 | — | 310 R4 | — | — | 88500 | 111300 | 41500 | 273 |
| 4.2 | 15628 | 1.2 | 350 | 18 | 310 L3 | — | — | — | 87600 | 110100 | 41000 | 272 |
| 4.2 | 15052 | 1 | 349 | 7.5 | 307 L4 | — | — | — | 71200 | 93300 | 27700 | 256 |
| 4.2 | 15052 | 1.4 | 349 | 7.5 | 309 L4 | — | — | — | 73800 | 95200 | 22700 | 264 |
| 4.2 | 14988 | 2.7 | 348 | 11 | 311 L4 | — | — | — | 103200 | 128600 | 40900 | 280 |
| 4.3 | 14713 | 2.7 | 341 | 22 | — | 311 R4 | — | — | 102700 | 127900 | 40600 | 281 |
| 4.4 | 14408 | 1.9 | 334 | 15 | — | 310 R4 | — | — | 86300 | 108600 | 40300 | 279 |
| 4.4 | 14279 | 1.2 | 331 | 15 | — | 309 R4 | — | — | 72700 | 93700 | 22300 | 271 |
| 4.5 | 13869 | 2.8 | 322 | 22 | — | 311 R4 | — | — | 100900 | 125600 | 39800 | 287 |
| 4.8 | 13149 | 1.8 | 305 | 15 | — | 310 R4 | — | — | 84000 | 105600 | 39100 | 279 |
| 4.8 | 13544 | 2.9 | 304 | 18 | 313 L3 | — | — | — | 122500 | 145000 | 48100 | 295 |
| 4.9 | 12935 | 1.1 | 300 | 15 | — | 307 R4 | — | — | 69400 | 91000 | 26900 | 257 |
| 4.9 | 13168 | 1.8 | 295 | 18 | 310 L3 | — | — | — | 83200 | 104600 | 38700 | 272 |
| 5 | 12983 | 2.1 | 291 | 18 | 311 L3 | — | — | — | 97900 | 121900 | 38500 | 280 |
| 5.1 | 12266 | 0.9 | 284 | 15 | — | 307 R4 | — | — | 66900 | 87700 | 25900 | 257 |
| 5.1 | 12266 | 1.4 | 284 | 15 | — | 309 R4 | — | — | 69400 | 89500 | 21200 | 265 |
| 5.1 | 12641 | 1.2 | 284 | 11 | 309 L3 | — | — | — | 69400 | 89400 | 21100 | 264 |
| 5.2 | 12205 | 2.1 | 283 | 15 | — | 310 R4 | — | — | 82100 | 103300 | 38100 | 273 |
| 5.7 | 11138 | 2 | 258 | 15 | — | 310 R4 | — | — | 79900 | 100500 | 37000 | 273 |
| 5.7 | 11127 | 1.3 | 258 | 15 | — | 307 R4 | — | — | 66400 | 87000 | 25600 | 257 |
| 5.7 | 11127 | 1.6 | 258 | 15 | — | 309 R4 | — | — | 67400 | 87000 | 20500 | 265 |
| 5.9 | 11113 | 1.7 | 249 | 18 | 310 L3 | — | — | — | 79100 | 99400 | 36600 | 272 |
| 6.1 | 10669 | 1.2 | 239 | 11 | 309 L3 | — | — | — | 65900 | 85000 | 20000 | 264 |
| 6.2 | 10089 | 2.4 | 234 | 15 | — | 310 R4 | — | — | 77600 | 97600 | 35800 | 273 |
| 6.3 | 10013 | 1.1 | 232 | 15 | — | 307 R4 | — | — | 64300 | 84200 | 24700 | 257 |
| 6.3 | 10013 | 1.7 | 232 | 15 | — | 309 R4 | — | — | 65300 | 84200 | 19800 | 265 |
| 6.3 | 10261 | 2.1 | 230 | 18 | 310 L3 | — | — | — | 77200 | 97100 | 35600 | 272 |
| 6.6 | 9938 | 1.3 | 223 | 11 | 309 L3 | — | — | — | 64500 | 83200 | 19500 | 264 |

## $P_1$ = 7.5 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ◄► Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6.6 | 9850 | 1.3 | 221 | 11 | 307 L3 | — | — | — | 63300 | 83000 | 24300 | 256 |
| 6.8 | 9211 | 1.1 | 214 | 12 | — | 306 R4 | 24900 | 28200 | 58300 | 67900 | 18700 | 249 |
| 7.1 | 8876 | 2.5 | 206 | 15 | — | 310 R4 | — | — | 74700 | 93900 | 34300 | 273 |
| 7.1 | 8867 | 1.6 | 206 | 15 | — | 307 R4 | — | — | 62000 | 81200 | 23700 | 257 |
| 7.1 | 8867 | 2.2 | 206 | 15 | — | 309 R4 | — | — | 63000 | 81200 | 19000 | 265 |
| 7.2 | 8999 | 2.4 | 202 | 18 | 310 L3 | — | — | — | 74200 | 93300 | 34100 | 272 |
| 7.2 | 8989 | 1.2 | 202 | 11 | 307 L3 | — | — | — | 61600 | 80700 | 23600 | 257 |
| 7.2 | 8989 | 1.8 | 202 | 11 | 309 L3 | — | — | — | 62600 | 80700 | 18900 | 264 |
| 7.7 | 8222 | 1.7 | 191 | 15 | — | 307 R4 | — | — | 60600 | 79400 | 23200 | 257 |
| 7.7 | 8222 | 2.1 | 191 | 15 | — | 309 R4 | — | — | 61600 | 79400 | 18500 | 265 |
| 7.7 | 8165 | 2.8 | 189 | 15 | — | 310 R4 | — | — | 72800 | 91500 | 33400 | 272 |
| 8 | 8143 | 1.8 | 183 | 11 | 309 L3 | — | — | — | 60800 | 78400 | 18300 | 264 |
| 8.1 | 7803 | 1.2 | 181 | 12 | — | 306 R4 | 23600 | 26700 | 55500 | 64600 | 17700 | 249 |
| 8.2 | 7903 | 2.3 | 177 | 18 | 310 L3 | — | — | — | 71400 | 89800 | 32600 | 272 |
| 8.2 | 7893 | 1.6 | 177 | 11 | 307 L3 | — | — | — | 59300 | 77700 | 22600 | 257 |
| 8.7 | 7235 | 1 | 168 | 12 | — | 306 R4 | 23000 | 26000 | 54200 | 63100 | 17300 | 249 |
| 8.8 | 7122 | 2.3 | 165 | 15 | — | 309 R4 | — | — | 59000 | 76100 | 17700 | 265 |
| 9 | 7203 | 1.5 | 162 | 11 | 307 L3 | — | — | — | 57700 | 75600 | 21900 | 256 |
| 9 | 7203 | 2.3 | 162 | 11 | 309 L3 | — | — | — | 58600 | 75600 | 17500 | 264 |
| 9.2 | 6807 | 1.4 | 158 | 12 | — | 306 R4 | 22500 | 25500 | 53200 | 62000 | 16900 | 249 |
| 9.6 | 6779 | 1.1 | 152 | 7.5 | 306 L3 | — | 22200 | 25200 | 52600 | 61300 | 16700 | 248 |
| 9.6 | 6552 | 2.8 | 152 | 15 | — | 309 R4 | — | — | 57500 | 74200 | 17200 | 265 |
| 10 | 6525 | 2.1 | 146 | 11 | 307 L3 | — | — | — | 56000 | 73300 | 21200 | 256 |
| 10.4 | 6286 | 1.3 | 141 | 7.5 | 306 L3 | — | 21700 | 24600 | 51500 | 59900 | 16300 | 248 |
| 10.5 | 6188 | 1.7 | 139 | 11 | 307 L3 | — | — | — | 55100 | 72200 | 20800 | 256 |
| 10.5 | 6188 | 2.6 | 139 | 11 | 309 L3 | — | — | — | 56000 | 72200 | 16700 | 264 |
| 11.3 | 5574 | 0.9 | 129 | 12 | — | 305 R4 | 16900 | 19500 | 30600 | 36900 | 10800 | 241 |
| 11.6 | 5613 | 2.3 | 126 | 11 | 307 L3 | — | — | — | 53500 | 70100 | 20200 | 256 |
| 11.6 | 5613 | 2.9 | 126 | 11 | 309 L3 | — | — | — | 54400 | 70100 | 16100 | 264 |
| 11.8 | 5348 | 2 | 124 | 15 | — | 307 R4 | — | — | 56900 | 74500 | 21600 | 256 |
| 12 | 5407 | 1.4 | 121 | 7.5 | 306 L3 | — | 20600 | 23400 | 49200 | 57300 | 15500 | 248 |
| 12.2 | 5340 | 1.6 | 120 | 22 | — | 307 R3 | — | — | 52700 | 69100 | 19800 | 257 |
| 12.2 | 5340 | 2.4 | 120 | 22 | — | 309 R3 | — | — | 53600 | 69100 | 15900 | 265 |
| 12.3 | 5313 | 1.2 | 119 | 14 | — | 306 R3 | 20500 | 23200 | 48900 | 57000 | 15400 | 248 |
| 12.9 | 5051 | 2.1 | 113 | 11 | 307 L3 | — | — | — | 51800 | 67900 | 19500 | 256 |
| 13 | 5009 | 1.5 | 112 | 7.5 | 306 L3 | — | 20100 | 22800 | 48100 | 56000 | 15100 | 248 |
| 13.9 | 4530 | 3 | 105 | 15 | — | 307 R4 | — | — | 55400 | 72700 | 21000 | 257 |
| 14 | 4661 | 1.1 | 105 | 7.5 | 305 L3 | — | 15800 | 18200 | 28800 | 34600 | 10100 | 240 |
| 14 | 4647 | 1.9 | 104 | 7.5 | 306 L3 | — | 19600 | 22200 | 47000 | 54700 | 14700 | 249 |
| 14.6 | 4473 | 2.8 | 100 | 11 | 307 L3 | — | — | — | 50000 | 65500 | 18700 | 256 |
| 14.7 | 4414 | 1.9 | 99 | 22 | — | 307 R3 | — | — | 49800 | 65200 | 18600 | 257 |
| 14.7 | 4414 | 2.9 | 99 | 22 | — | 309 R3 | — | — | 50600 | 65200 | 14900 | 265 |
| 14.8 | 4392 | 1.5 | 98.5 | 14 | — | 306 R3 | 19200 | 21800 | 46200 | 53800 | 14400 | 257 |

## $P_1$ = 7.5 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ◄► Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15.7 | 4148 | 2.9 | 93 | 11 | 307 L3 | — | — | — | 48900 | 64000 | 18200 | 256 |
| 16.2 | 4022 | 1.1 | 90.2 | 7.5 | 305 L3 | — | 15000 | 17300 | 27500 | 33100 | 9620 | 240 |
| 16.5 | 3936 | 2.2 | 88.3 | 7.5 | 306 L3 | — | 18500 | 21000 | 44700 | 52100 | 13900 | 248 |
| 17.2 | 3778 | 2 | 84.7 | 14 | — | 306 R3 | 18300 | 20700 | 44200 | 51400 | 13700 | 249 |
| 17.5 | 3719 | 2.7 | 83.4 | 22 | — | 307 R3 | 20200 | 25400 | 47300 | 62000 | 17600 | 257 |
| 17.8 | 3650 | 1.9 | 81.9 | 7.5 | 306 L3 | — | 18100 | 20500 | 43700 | 50900 | 13600 | 248 |
| 18.1 | 3593 | 2.8 | 80.6 | 11 | 307 L3 | — | — | — | 46800 | 61300 | 17400 | 256 |
| 18.5 | 3510 | 1.2 | 78.7 | 14 | — | 305 R3 | 14300 | 16500 | 26400 | 31800 | 9190 | 241 |
| 18.9 | 3444 | 1.4 | 77.2 | 7.5 | 305 L3 | — | 14200 | 16400 | 26300 | 31600 | 9140 | 240 |
| 19 | 3434 | 2.4 | 77 | 7.5 | 306 L3 | — | 17700 | 20100 | 42900 | 50000 | 13300 | 248 |
| 19.9 | 3270 | 1.1 | 73.3 | 14 | — | 305 R3 | 14000 | 16200 | 25900 | 31100 | 8980 | 241 |
| 20 | 3250 | 2.3 | 72.9 | 14 | — | 306 R3 | 17400 | 19700 | 42200 | 49200 | 13100 | 249 |
| 20.1 | 3339 | 1.6 | 72.5 | 13 | 306 L2 | — | 17400 | 19700 | 42100 | 49100 | 13000 | 248 |
| 20.2 | 3223 | 1.3 | 72.3 | 7.5 | 305 L3 | — | 13900 | 16100 | 25700 | 31000 | 8940 | 240 |
| 21.6 | 3011 | 2.4 | 67.5 | 14 | — | 306 R3 | 17000 | 19200 | 41300 | 48000 | 12700 | 249 |
| 22.4 | 2908 | 2.6 | 65.2 | 7.5 | 306 L3 | — | 16800 | 19000 | 40800 | 47500 | 12600 | 248 |
| 23.1 | 2813 | 1.5 | 63.1 | 14 | — | 305 R3 | 13300 | 15400 | 24700 | 29700 | 8540 | 241 |
| 23.2 | 2811 | 1.7 | 63.1 | 7.5 | 305 L3 | — | 13300 | 15400 | 24700 | 29700 | 8540 | 240 |
| 25.1 | 2590 | 2.9 | 58.1 | 14 | — | 306 R3 | 16100 | 18300 | 39400 | 45900 | 12100 | 249 |
| 26 | 2591 | 2 | 56.3 | 13 | 306 L2 | — | 16000 | 18100 | 39100 | 45500 | 12000 | 248 |
| 26.2 | 2570 | 1.4 | 55.8 | 9 | 305 L2 | — | 12800 | 14800 | 23800 | 28700 | 8200 | 240 |
| 26.9 | 2416 | 1.5 | 54.2 | 14 | — | 305 R3 | 12700 | 14600 | 23600 | 28400 | 8120 | 241 |
| 27.3 | 2382 | 0.9 | 53.4 | 7.5 | 303 L3 | — | — | — | — | — | — | 232 |
| 27.3 | 2382 | 1.7 | 53.4 | 7.5 | 305 L3 | — | 12600 | 14500 | 23500 | 28300 | 8080 | 240 |
| 27.4 | 2374 | 3 | 53.2 | 7.5 | 306 L3 | — | 15700 | 17800 | 38400 | 44700 | 11800 | 248 |
| 29 | 2241 | 1.1 | 50.3 | 14 | — | 303 R3 | 12300 | 14200 | 23100 | 27800 | 7920 | 232 |
| 29 | 2241 | 2 | 50.3 | 14 | — | 305 R3 | 12300 | 14200 | 23100 | 27800 | 7920 | 241 |
| 31 | 2078 | 1 | 46.6 | 14 | — | 303 R3 | 12000 | 13900 | 22600 | 27200 | 7720 | 232 |
| 31 | 2078 | 2.1 | 46.6 | 14 | — | 305 R3 | 12000 | 13900 | 22600 | 27200 | 7720 | 241 |
| 33 | 2056 | 1.7 | 44.6 | 9 | 305 L2 | — | 11900 | 13700 | 22300 | 26800 | 7610 | 240 |
| 34 | 1899 | 1.1 | 42.6 | 14 | — | 303 R3 | 11700 | 13500 | 22000 | 26400 | 7490 | 233 |
| 34 | 1899 | 2 | 42.6 | 14 | — | 305 R3 | 11700 | 13500 | 22000 | 26400 | 7490 | 241 |
| 38 | 1769 | 1.2 | 38.4 | 9 | 303 L2 | — | 11300 | 13000 | 21300 | 25600 | 7240 | 232 |
| 38 | 1769 | 2.4 | 38.4 | 9 | 305 L2 | — | 11300 | 13000 | 21300 | 25600 | 7240 | 240 |
| 39 | 1661 | 1 | 37.3 | 12 | — | 301 R3 | 3550 | 3550 | 10100 | 11600 | 2330 | 226 |
| 39 | 1656 | 1.4 | 37.1 | 14 | — | 303 R3 | 11200 | 12900 | 21100 | 25400 | 7160 | 233 |
| 39 | 1656 | 2.6 | 37.1 | 14 | — | 305 R3 | 11200 | 12900 | 21100 | 25400 | 7160 | 241 |
| 41 | 1648 | 1.1 | 35.8 | 9 | 303 L2 | — | 11000 | 12700 | 20800 | 25100 | 7070 | 232 |
| 41 | 1648 | 2.2 | 35.8 | 9 | 305 L2 | — | 11000 | 12700 | 20800 | 25100 | 7070 | 240 |
| 46 | 1403 | 1.5 | 31.5 | 14 | — | 303 R3 | 10600 | 12200 | 20100 | 24100 | 6770 | 233 |
| 46 | 1403 | 2.7 | 31.5 | 14 | — | 305 R3 | 10600 | 12200 | 20100 | 24100 | 6770 | 241 |
| 47 | 1417 | 1.5 | 30.8 | 9 | 303 L2 | — | 10500 | 12100 | 19900 | 24000 | 6720 | 232 |
| 48 | 1414 | 1.1 | 30.7 | 7.5 | 301 L2 | — | 3410 | 3410 | 9750 | 11200 | 2240 | 220 |

## $P_1$ = 7.5 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | Rn$_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 48 | 1356 | 1.2 | 30.4 | 12 | — | 301 R3 | 3400 | 3400 | 9730 | 11200 | 2230 | 227 |
| 55 | 1217 | 1.5 | 26.4 | 9 | 303 L2 | — | 9960 | 11500 | 19000 | 22900 | 6390 | 232 |
| 55 | 1217 | 2.9 | 26.4 | 9 | 305 L2 | — | 9960 | 11500 | 19000 | 22900 | 6390 | 240 |
| 57 | 1145 | 1.8 | 25.7 | 14 | — | 303 R3 | 9870 | 11400 | 18900 | 22700 | 6330 | 233 |
| 59 | 1107 | 1.3 | 24.8 | 12 | — | 301 R3 | 3170 | 3170 | 9150 | 10500 | 2090 | 227 |
| 59 | 1133 | 1.3 | 24.6 | 7.5 | 301 L2 | — | 3160 | 3160 | 9130 | 10500 | 2080 | 226 |
| 60 | 1129 | 1.9 | 24.5 | 9 | 303 L2 | — | 9720 | 11200 | 18600 | 22400 | 6230 | 232 |
| 64 | 1047 | 2 | 22.7 | 9 | 303 L2 | — | 9470 | 10900 | 18200 | 21900 | 6080 | 232 |
| 70 | 957 | 1.9 | 20.8 | 9 | 303 L2 | — | 9190 | 10600 | 17700 | 21300 | 5900 | 232 |
| 73 | 925 | 1.4 | 20.1 | 7.5 | 301 L2 | — | 2960 | 2960 | 8590 | 9870 | 1940 | 226 |
| 76 | 885 | 1.8 | 19.2 | 18 | — | 303 R2 | 8960 | 10300 | 17300 | 20800 | 5750 | 233 |
| 80 | 837 | 1.6 | 18.2 | 7.5 | 301 L2 | — | 2860 | 2860 | 8330 | 9580 | 1880 | 226 |
| 81 | 835 | 2.4 | 18.1 | 9 | 303 L2 | — | 8780 | 10100 | 17000 | 20400 | 5630 | 233 |
| 92 | 732 | 2.5 | 15.9 | 18 | — | 303 R2 | 8410 | 9710 | 16300 | 19700 | 5390 | 233 |
| 95 | 707 | 2.4 | 15.3 | 9 | 303 L2 | — | 8310 | 9590 | 16200 | 19500 | 5330 | 232 |
| 98 | 683 | 1.1 | 14.8 | 7.5 | 300 L2 | — | 2610 | 2610 | 7680 | 8820 | 1720 | 220 |
| 98 | 683 | 1.9 | 14.8 | 7.5 | 301 L2 | — | 2670 | 2670 | 7840 | 9010 | 1760 | 226 |
| 99 | 680 | 1.4 | 14.8 | 12 | — | 301 R2 | 2670 | 2670 | 7830 | 9000 | 1750 | 227 |
| 117 | 577 | 2.8 | 12.5 | 9 | 303 L2 | — | 7770 | 8970 | 15200 | 18300 | 4980 | 232 |
| 121 | 558 | 1.2 | 12.1 | 7.5 | 300 L2 | — | 2500 | 2500 | 7380 | 8480 | 1640 | 220 |
| 121 | 558 | 2.2 | 12.1 | 7.5 | 301 L2 | — | 2500 | 2500 | 7380 | 8480 | 1640 | 226 |
| 123 | 545 | 1.1 | 11.8 | 12 | — | 300 R2 | 2480 | 2480 | 7330 | 8420 | 1630 | 220 |
| 123 | 545 | 2.1 | 11.8 | 12 | — | 301 R2 | 2480 | 2480 | 7330 | 8420 | 1630 | 227 |
| 151 | 459 | 1.6 | 9.67 | 11 | 303 L1 | — | 7120 | 8220 | 14100 | 16900 | 4570 | 232 |
| 162 | 428 | 1.5 | 9 | 7.5 | 301 L1 | — | 2260 | 2260 | 6750 | 7750 | 1490 | 227 |
| 167 | 403 | 1.5 | 8.74 | 12 | — | 300 R2 | 2240 | 2240 | 6690 | 7690 | 1470 | 221 |
| 167 | 403 | 2.7 | 8.74 | 12 | — | 301 R2 | 2240 | 2240 | 6690 | 7690 | 1470 | 227 |
| 203 | 342 | 1.2 | 7.2 | 7.5 | 300 L1 | — | 2100 | 2100 | 6310 | 7250 | 1380 | 220 |
| 203 | 342 | 2.2 | 7.2 | 7.5 | 301 L1 | — | 2100 | 2100 | 6310 | 7250 | 1380 | 220 |
| 205 | 329 | 1.8 | 7.13 | 12 | — | 300 R2 | 2090 | 2090 | 6300 | 7230 | 1380 | 221 |
| 253 | 274 | 1.7 | 5.77 | 7.5 | 300 L1 | — | 1950 | 1950 | 5910 | 6790 | 1280 | 220 |
| 342 | 203 | 2.4 | 4.26 | 7.5 | 300 L1 | — | 1760 | 1760 | 5390 | 6200 | 1160 | 220 |
| 420 | 165 | 2.8 | 3.48 | 7.5 | 300 L1 | — | 1610 | 1610 | 4970 | 5710 | 1060 | 220 |

## $P_1$ = 11 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | Rn$_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.77 | 119915 | 1.3 | 1893 | 18 | 317 L4 | — | — | — | 442000 | 470000 | 150000 | 310 |
| 0.92 | 101039 | 1.7 | 1595 | 18 | 317 L4 | — | — | — | 442000 | 470000 | 150000 | 310 |

## $P_1$ = 11 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | Rn$_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ◄► Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.1 | 83526 | 2 | 1318 | 18 | 317 L4 | — | — | — | 434300 | 462400 | 147000 | 310 |
| 1.1 | 81337 | 1.2 | 1284 | 18 | 315 L4 | — | — | — | 201500 | 236600 | 87400 | 296 |
| 1.1 | 80935 | 1 | 1277 | 15 | 314 L4 | — | — | — | 201200 | 236300 | 87300 | call |
| 1.2 | 78406 | 1.6 | 1237 | 18 | 316 L4 | — | — | — | 331400 | 368600 | 144000 | 304 |
| 1.3 | 71850 | 2.3 | 1134 | 18 | 317 L4 | — | — | — | 415100 | 442000 | 139800 | 310 |
| 1.3 | 69967 | 1.4 | 1104 | 18 | 315 L4 | — | — | — | 192600 | 226200 | 83200 | 296 |
| 1.3 | 69622 | 1.1 | 1099 | 15 | 314 L4 | — | — | — | 192400 | 225800 | 83000 | call |
| 1.4 | 66064 | 1.6 | 1043 | 18 | 315 L4 | — | — | — | 189400 | 222300 | 81600 | 296 |
| 1.4 | 66064 | 2 | 1043 | 18 | 316 L4 | — | — | — | 314800 | 350100 | 136000 | 310 |
| 1.4 | 65738 | 1.3 | 1038 | 15 | 314 L4 | — | — | — | 189100 | 222000 | 81400 | call |
| 1.4 | 65408 | 2.8 | 1032 | 18 | 317 L4 | — | — | — | 403600 | 429700 | 135500 | 310 |
| 1.5 | 60402 | 2.4 | 953 | 50 | — | 317 R4 | — | — | 394100 | 419600 | 132000 | 311 |
| 1.6 | 58917 | 1.6 | 930 | 18 | 315 L4 | — | — | — | 183000 | 214800 | 78500 | 296 |
| 1.6 | 58663 | 1.3 | 926 | 15 | 314 L4 | — | — | — | 182700 | 214500 | 78400 | call |
| 1.6 | 57614 | 1.3 | 909 | 40 | — | 315 R4 | — | — | 181700 | 213400 | 77900 | 297 |
| 1.6 | 57256 | 2.9 | 904 | 18 | 317 L4 | — | — | — | 387800 | 412900 | 129600 | 310 |
| 1.6 | 56347 | 0.9 | 889 | 11 | 313 L4 | — | — | — | 169100 | 200100 | 68800 | 288 |
| 1.7 | 54613 | 1.9 | 862 | 18 | 315 L4 | — | — | — | 178800 | 210000 | 76600 | 296 |
| 1.7 | 54613 | 2.4 | 862 | 18 | 316 L4 | — | — | — | 297400 | 330700 | 127600 | 304 |
| 1.7 | 54343 | 1.5 | 858 | 15 | 314 L4 | — | — | — | 178600 | 209700 | 76400 | call |
| 1.8 | 51479 | 2.5 | 812 | 18 | 316 L4 | — | — | — | 292100 | 324900 | 125100 | 310 |
| 1.9 | 50047 | 1 | 790 | 11 | 313 L4 | — | — | — | 163200 | 193100 | 66100 | 288 |
| 1.9 | 49560 | 1.8 | 782 | 40 | — | 315 R4 | — | — | 173700 | 203900 | 74100 | 297 |
| 2 | 46950 | 2.2 | 741 | 18 | 315 L4 | — | — | — | 170900 | 200700 | 72800 | 296 |
| 2 | 46950 | 2.7 | 741 | 18 | 316 L4 | — | — | — | 284200 | 316100 | 121400 | 304 |
| 2 | 46747 | 1.7 | 738 | 15 | 314 L4 | — | — | — | 170700 | 200400 | 72700 | call |
| 2 | 46017 | 2.8 | 726 | 18 | 316 L4 | — | — | — | 282500 | 314100 | 120500 | 304 |
| 2 | 45881 | 1 | 724 | 11 | 311 L4 | — | — | — | 128700 | 160300 | 52200 | 280 |
| 2.1 | 44043 | 1.2 | 695 | 11 | 313 L4 | — | — | — | 157000 | 185900 | 63300 | 288 |
| 2.1 | 43375 | 2.9 | 685 | 18 | 316 L4 | — | — | — | 277500 | 308600 | 118200 | 304 |
| 2.2 | 42556 | 2.4 | 672 | 18 | 315 L4 | — | — | — | 165900 | 194800 | 70500 | 296 |
| 2.2 | 42346 | 1.9 | 668 | 15 | 314 L4 | — | — | — | 165700 | 194500 | 70300 | call |
| 2.2 | 41759 | 2.1 | 659 | 40 | — | 315 R4 | — | — | 165000 | 193700 | 70000 | 297 |
| 2.3 | 40971 | 1.2 | 647 | 22 | — | 313 R4 | — | — | 153700 | 181900 | 61800 | 289 |
| 2.3 | 40102 | 1.3 | 633 | 11 | 313 L4 | — | — | — | 152700 | 180700 | 61400 | 288 |
| 2.3 | 39833 | 1 | 629 | 22 | — | 311 R4 | — | — | 123300 | 153600 | 49800 | 281 |
| 2.3 | 39707 | 1 | 627 | 11 | 311 L4 | — | — | — | 123200 | 153500 | 49700 | 280 |
| 2.4 | 39493 | 2.5 | 623 | 40 | — | 315 R4 | — | — | 162300 | 190500 | 68700 | 297 |
| 2.4 | 39493 | 2.9 | 623 | 45 | — | 316 R4 | — | — | 269800 | 300100 | 114500 | 304 |
| 2.4 | 38887 | 1.5 | 614 | 22 | — | 314 R4 | — | — | 161500 | 189600 | 68400 | call |
| 2.5 | 37436 | 2.7 | 591 | 18 | 315 L4 | — | — | — | 159700 | 187500 | 67500 | 296 |
| 2.5 | 37252 | 2.1 | 588 | 15 | 314 L4 | — | — | — | 159500 | 187200 | 67400 | call |
| 2.6 | 35968 | 1.2 | 568 | 11 | 311 L4 | — | — | — | 119600 | 149000 | 48100 | 280 |

## $P_1$ = 11 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.6 | 35720 | 1.5 | 564 | 11 | 313 L4 | — | — | — | 147500 | 174500 | 59100 | 286 |
| 2.6 | 35113 | 2.3 | 554 | 15 | 314 L4 | — | — | — | 156600 | 183900 | 66100 | call |
| 2.7 | 33869 | 1.4 | 535 | 22 | — | 313 R4 | — | — | 145100 | 171800 | 58000 | 289 |
| 2.7 | 33799 | 2.9 | 533 | 18 | 315 L4 | — | — | — | 154900 | 181800 | 65200 | 296 |
| 2.8 | 33451 | 2.1 | 528 | 22 | — | 314 R4 | — | — | 154400 | 181300 | 65000 | call |
| 2.8 | 33277 | 3 | 525 | 40 | — | 315 R4 | — | — | 154100 | 181000 | 64900 | 297 |
| 2.8 | 32928 | 1.2 | 520 | 22 | — | 311 R4 | — | — | 116500 | 145100 | 46700 | 280 |
| 2.9 | 32545 | 1.5 | 514 | 11 | 313 L4 | — | — | — | 143400 | 169700 | 57300 | 288 |
| 2.9 | 32447 | 1.4 | 512 | 11 | 311 L4 | — | — | — | 116000 | 144500 | 46500 | 281 |
| 3 | 31433 | 1.7 | 496 | 22 | — | 313 R4 | — | — | 141900 | 168000 | 56600 | 289 |
| 3 | 31334 | 2.5 | 495 | 15 | 314 L4 | — | — | — | 151400 | 177700 | 63600 | call |
| 3 | 31039 | 1.1 | 490 | 22 | — | 311 R4 | — | — | 114400 | 142500 | 45800 | 281 |
| 3.2 | 29027 | 2.7 | 458 | 15 | 314 L4 | — | — | — | 148000 | 173700 | 62000 | call |
| 3.2 | 28622 | 1.9 | 452 | 11 | 313 L4 | — | — | — | 138000 | 163300 | 54900 | 288 |
| 3.3 | 28553 | 1 | 451 | 11 | 310 L4 | — | — | — | 92500 | 116300 | 43500 | 272 |
| 3.3 | 28538 | 1.7 | 450 | 22 | — | 313 R4 | — | — | 137900 | 163200 | 54800 | 289 |
| 3.3 | 28186 | 2.4 | 445 | 22 | — | 314 R4 | — | — | 146700 | 172200 | 61400 | call |
| 3.3 | 27745 | 1.4 | 438 | 22 | — | 311 R4 | — | — | 110600 | 137800 | 44100 | 281 |
| 3.5 | 26656 | 3 | 421 | 22 | — | 314 R4 | — | — | 144200 | 169300 | 60300 | call |
| 3.5 | 26568 | 1.1 | 419 | 15 | — | 310 R4 | — | — | 92400 | 116200 | 43500 | 273 |
| 3.5 | 26153 | 1.6 | 413 | 22 | — | 311 R4 | — | — | 108700 | 135400 | 43300 | 281 |
| 3.6 | 25999 | 1.6 | 410 | 11 | 311 L4 | — | — | — | 108500 | 135200 | 43200 | 280 |
| 3.7 | 24969 | 2.2 | 394 | 11 | 313 L4 | — | — | — | 132500 | 156800 | 52400 | 288 |
| 3.8 | 24549 | 1.9 | 387 | 22 | — | 313 R4 | — | — | 131800 | 156000 | 52100 | 289 |
| 4 | 23015 | 1 | 363 | 15 | — | 310 R4 | — | — | 88500 | 111300 | 41500 | 273 |
| 4.2 | 22303 | 2.4 | 352 | 11 | 313 L4 | — | — | — | 128000 | 151500 | 50500 | 288 |
| 4.2 | 22117 | 1 | 349 | 7.5 | 309 L4 | — | — | — | 72300 | 93300 | 22100 | 264 |
| 4.2 | 22023 | 1.8 | 348 | 11 | 311 L4 | — | — | — | 103200 | 128600 | 40900 | 280 |
| 4.2 | 21894 | 2.4 | 346 | 22 | — | 313 R4 | — | — | 127300 | 150700 | 50200 | 289 |
| 4.3 | 21620 | 1.8 | 341 | 22 | — | 311 R4 | — | — | 102700 | 127900 | 40600 | 281 |
| 4.4 | 21171 | 1.3 | 334 | 15 | — | 310 R4 | — | — | 86300 | 108600 | 40300 | 272 |
| 4.6 | 20379 | 1.9 | 322 | 22 | — | 311 R4 | — | — | 100900 | 125600 | 39800 | 281 |
| 4.7 | 19562 | 2.3 | 309 | 22 | — | 313 R4 | — | — | 123100 | 145700 | 48300 | 289 |
| 4.8 | 19321 | 1.2 | 305 | 15 | — | 310 R4 | — | — | 84000 | 105600 | 39100 | 273 |
| 4.8 | 19902 | 2 | 304 | 18 | 313 L3 | — | — | — | 122500 | 145000 | 48100 | 288 |
| 5 | 19349 | 1.2 | 295 | 18 | 310 L3 | — | — | — | 83200 | 104600 | 38700 | 272 |
| 5 | 18598 | 2 | 294 | 22 | — | 311 R4 | — | — | 98100 | 122200 | 38600 | 279 |
| 5 | 19077 | 1.4 | 291 | 18 | 311 L3 | — | — | — | 97900 | 121900 | 38500 | 280 |
| 5.1 | 18024 | 0.9 | 284 | 15 | — | 309 R4 | — | — | 68000 | 87700 | 20700 | 264 |
| 5.2 | 17933 | 1.5 | 283 | 15 | — | 310 R4 | — | — | 82100 | 103300 | 38100 | 273 |
| 5.2 | 17812 | 2.7 | 281 | 22 | — | 313 R4 | — | — | 119700 | 141700 | 46800 | 289 |
| 5.5 | 16847 | 2.2 | 266 | 22 | — | 311 R4 | — | — | 95300 | 118700 | 37400 | 281 |
| 5.7 | 16366 | 1.4 | 258 | 15 | — | 310 R4 | — | — | 79900 | 100500 | 37000 | 273 |

## $P_1$ = 11 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ◄► Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.7 | 16350 | 1.1 | 258 | 15 | — | 309 R4 | — | — | 67400 | 87000 | 20500 | 263 |
| 5.8 | 16534 | 2.7 | 252 | 18 | 313 L3 | — | — | — | 115900 | 137100 | 45200 | 288 |
| 5.9 | 16330 | 1.1 | 249 | 18 | 310 L3 | — | — | — | 79100 | 99400 | 36600 | 272 |
| 6 | 16074 | 2.1 | 245 | 18 | 311 L3 | — | — | — | 93000 | 115800 | 36400 | 280 |
| 6.2 | 15008 | 2.7 | 237 | 22 | — | 313 R4 | — | — | 113700 | 134600 | 44200 | 278 |
| 6.3 | 14825 | 1.7 | 234 | 15 | — | 310 R4 | — | — | 77600 | 97600 | 35800 | 273 |
| 6.3 | 14713 | 1.1 | 232 | 15 | — | 309 R4 | — | — | 65300 | 84200 | 19800 | 265 |
| 6.4 | 15077 | 1.4 | 230 | 18 | 310 L3 | — | — | — | 77200 | 97100 | 35600 | 272 |
| 6.4 | 14492 | 2.4 | 229 | 22 | — | 311 R4 | — | — | 91100 | 113400 | 35500 | 281 |
| 7.1 | 13042 | 1.7 | 206 | 15 | — | 310 R4 | — | — | 74700 | 93900 | 34300 | 273 |
| 7.1 | 13029 | 1.1 | 206 | 15 | — | 307 R4 | — | — | 62000 | 81200 | 23700 | 257 |
| 7.1 | 13029 | 1.5 | 206 | 15 | — | 309 R4 | — | — | 63000 | 81200 | 19000 | 265 |
| 7.2 | 13288 | 2.5 | 203 | 18 | 311 L3 | — | — | — | 87800 | 109400 | 34100 | 280 |
| 7.3 | 13223 | 1.7 | 202 | 18 | 310 L3 | — | — | — | 74200 | 93300 | 34100 | 273 |
| 7.3 | 13209 | 1.2 | 202 | 11 | 309 L3 | — | — | — | 62600 | 80700 | 18900 | 264 |
| 7.3 | 12713 | 2.7 | 201 | 22 | — | 313 R4 | — | — | 108200 | 128000 | 41900 | 289 |
| 7.4 | 12553 | 2.7 | 198 | 22 | — | 311 R4 | — | — | 87200 | 108600 | 33900 | 281 |
| 7.7 | 12526 | 2.6 | 191 | 18 | 311 L3 | — | — | — | 86300 | 107500 | 33500 | 280 |
| 7.7 | 12081 | 1.2 | 191 | 15 | — | 307 R4 | — | — | 60600 | 79400 | 23200 | 257 |
| 7.7 | 12081 | 1.4 | 191 | 15 | — | 309 R4 | — | — | 61600 | 79400 | 18500 | 264 |
| 7.7 | 11997 | 1.9 | 189 | 15 | — | 310 R4 | — | — | 72800 | 91500 | 33400 | 273 |
| 7.9 | 11695 | 2.7 | 185 | 22 | — | 313 R4 | — | — | 105500 | 124900 | 40700 | 289 |
| 8 | 11965 | 1.2 | 183 | 11 | 309 L3 | — | — | — | 60800 | 78400 | 18300 | 264 |
| 8 | 11548 | 2.7 | 182 | 22 | — | 311 R4 | — | — | 85100 | 106000 | 32900 | 281 |
| 8.3 | 11612 | 1.6 | 177 | 18 | 310 L3 | — | — | — | 71400 | 89800 | 32600 | 272 |
| 8.3 | 11598 | 1.1 | 177 | 11 | 307 L3 | — | — | — | 59300 | 77700 | 22600 | 257 |
| 8.6 | 11197 | 2.9 | 171 | 18 | 311 L3 | — | — | — | 83400 | 103900 | 32200 | 280 |
| 8.9 | 10466 | 1.6 | 165 | 15 | — | 309 R4 | — | — | 59000 | 76100 | 17700 | 264 |
| 9 | 10721 | 2.1 | 164 | 18 | 310 L3 | — | — | — | 69700 | 87600 | 31800 | 272 |
| 9.1 | 10584 | 1 | 162 | 11 | 307 L3 | — | — | — | 57700 | 75600 | 21900 | 256 |
| 9.1 | 10584 | 1.5 | 162 | 11 | 309 L3 | — | — | — | 58600 | 75600 | 17500 | 264 |
| 9.1 | 10162 | 2.2 | 160 | 15 | — | 310 R4 | — | — | 69300 | 87100 | 31600 | 273 |
| 9.3 | 10002 | 1 | 158 | 12 | — | 306 R4 | 22000 | 24900 | 52100 | 60700 | 16500 | 249 |
| 9.5 | 9782 | 2.7 | 154 | 22 | — | 311 R4 | — | — | 80900 | 100800 | 31200 | 280 |
| 9.6 | 9627 | 1.9 | 152 | 15 | — | 309 R4 | — | — | 57500 | 74200 | 17200 | 265 |
| 10 | 9609 | 2.8 | 147 | 40 | — | 311 R3 | — | — | 79700 | 99300 | 30600 | 281 |
| 10 | 9587 | 1.4 | 146 | 11 | 307 L3 | — | — | — | 56000 | 73300 | 21200 | 256 |
| 10.3 | 9287 | 2.2 | 142 | 18 | 310 L3 | — | — | — | 66700 | 83900 | 30300 | 272 |
| 10.6 | 9092 | 1.2 | 139 | 11 | 307 L3 | — | — | — | 55100 | 72200 | 20800 | 256 |
| 10.6 | 9092 | 1.8 | 139 | 11 | 309 L3 | — | — | — | 56000 | 72200 | 16700 | 264 |
| 10.8 | 8608 | 2.4 | 136 | 15 | — | 310 R4 | — | — | 65900 | 82900 | 29900 | 273 |
| 11.2 | 8544 | 2.4 | 130 | 18 | 310 L3 | — | — | — | 65100 | 81900 | 29500 | 272 |
| 11.6 | 8247 | 1.6 | 126 | 11 | 307 L3 | — | — | — | 53500 | 70100 | 20200 | 256 |

## $P_1$ = 11 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11.6 | 8247 | 2 | 126 | 11 | 309 L3 | — | — | — | 54400 | 70100 | 16100 | 264 |
| 11.8 | 7859 | 1.4 | 124 | 15 | — | 307 R4 | — | — | 56900 | 74500 | 21600 | 257 |
| 12.1 | 7945 | 1 | 121 | 7.5 | 306 L3 | — | 20600 | 23400 | 49200 | 57300 | 15500 | 248 |
| 12.2 | 7846 | 1.1 | 120 | 22 | — | 307 R3 | — | — | 52700 | 69100 | 19800 | 257 |
| 12.2 | 7846 | 1.6 | 120 | 22 | — | 309 R3 | — | — | 53600 | 69100 | 15900 | 265 |
| 12.2 | 7846 | 2.2 | 120 | 22 | — | 310 R3 | — | — | 63500 | 79800 | 28600 | 273 |
| 12.3 | 7797 | 2.5 | 119 | 18 | 310 L3 | — | — | — | 63300 | 79600 | 28600 | 272 |
| 12.9 | 7422 | 1.4 | 113 | 11 | 307 L3 | — | — | — | 51800 | 67900 | 19500 | 256 |
| 12.9 | 7422 | 2.1 | 113 | 11 | 309 L3 | — | — | — | 52700 | 67900 | 15600 | 264 |
| 13 | 7360 | 1 | 112 | 7.5 | 306 L3 | — | 20100 | 22800 | 48100 | 56000 | 15100 | 248 |
| 13.3 | 7237 | 2.7 | 110 | 18 | 310 L3 | — | — | — | 61900 | 77900 | 27900 | 272 |
| 13.9 | 6657 | 2 | 105 | 15 | — | 307 R4 | — | — | 55400 | 72700 | 21000 | 257 |
| 14.1 | 6828 | 1.3 | 104 | 7.5 | 306 L3 | — | 19600 | 22200 | 47000 | 54700 | 14700 | 248 |
| 14.5 | 6604 | 2.8 | 101 | 18 | 310 L3 | — | — | — | 60300 | 75800 | 27000 | 272 |
| 14.6 | 6572 | 1.9 | 100 | 11 | 307 L3 | — | — | — | 50000 | 65500 | 18700 | 256 |
| 14.6 | 6572 | 2.5 | 100 | 11 | 309 L3 | — | — | — | 50800 | 65500 | 15000 | 264 |
| 14.8 | 6486 | 1.3 | 99 | 22 | — | 307 R3 | — | — | 49800 | 65200 | 18600 | 256 |
| 14.8 | 6486 | 2 | 99 | 22 | — | 309 R3 | — | — | 50600 | 65200 | 14900 | 265 |
| 14.8 | 6486 | 2.5 | 99 | 22 | — | 310 R3 | — | — | 59900 | 75400 | 26900 | 273 |
| 14.9 | 6454 | 1 | 98.5 | 14 | — | 306 R3 | 19200 | 21800 | 46200 | 53800 | 14400 | 249 |
| 15.8 | 6094 | 2 | 93 | 11 | 307 L3 | — | — | — | 48900 | 64000 | 18200 | 256 |
| 15.8 | 6094 | 2.5 | 93 | 11 | 309 L3 | — | — | — | 49600 | 64000 | 14600 | 264 |
| 16.6 | 5783 | 1.5 | 88.3 | 7.5 | 306 L3 | — | 18500 | 21000 | 44700 | 52100 | 13900 | 248 |
| 17.3 | 5552 | 1.4 | 84.7 | 14 | — | 306 R3 | 18300 | 20700 | 44200 | 51400 | 13700 | 249 |
| 17.6 | 5465 | 1.9 | 83.4 | 22 | — | 307 R3 | — | — | 47300 | 62000 | 17600 | 256 |
| 17.6 | 5465 | 2.6 | 83.4 | 22 | — | 309 R3 | — | — | 48000 | 62000 | 14100 | 265 |
| 17.6 | 5465 | 2.7 | 83.4 | 22 | — | 310 R3 | — | — | 56900 | 71600 | 25400 | 273 |
| 17.9 | 5363 | 1.3 | 81.9 | 7.5 | 306 L3 | — | 18100 | 20500 | 43700 | 50900 | 13600 | 248 |
| 18.2 | 5279 | 1.9 | 80.6 | 11 | 307 L3 | — | — | — | 46800 | 61300 | 17400 | 256 |
| 18.2 | 5279 | 2.8 | 80.6 | 11 | 309 L3 | — | — | — | 47600 | 61300 | 13900 | 264 |
| 18.6 | 5151 | 2.7 | 78.6 | 22 | — | 310 R3 | — | — | 55900 | 70300 | 24900 | 273 |
| 18.6 | 5151 | 2.2 | 78.6 | 22 | — | 307 R3 | — | — | 46500 | 60900 | 17200 | 256 |
| 19 | 5061 | 1 | 77.2 | 7.5 | 305 L3 | — | 13900 | 16100 | 25700 | 30900 | 8930 | 240 |
| 19 | 5045 | 1.7 | 77 | 7.5 | 306 L3 | — | 17700 | 20100 | 42900 | 50000 | 13300 | 248 |
| 19.8 | 4856 | 2.4 | 74.1 | 11 | 307 L3 | — | — | — | 45600 | 59800 | 16900 | 256 |
| 20.1 | 4776 | 1.6 | 72.9 | 14 | — | 306 R3 | 17400 | 19700 | 42200 | 49200 | 13100 | 249 |
| 20.2 | 4907 | 1.1 | 72.5 | 13 | 306 L2 | — | 17400 | 19700 | 42100 | 49100 | 13000 | 248 |
| 20.4 | 4701 | 2.1 | 71.8 | 22 | — | 307 R3 | — | — | 45200 | 59200 | 16700 | 256 |
| 20.4 | 4701 | 2.7 | 71.8 | 22 | — | 309 R3 | — | — | 45900 | 59200 | 13400 | 265 |
| 20.4 | 4701 | 2.7 | 71.8 | 22 | — | 310 R3 | — | — | 54400 | 68400 | 24100 | 273 |
| 21.7 | 4424 | 1.6 | 67.5 | 14 | — | 306 R3 | 17000 | 19200 | 41300 | 48000 | 12700 | 249 |
| 22.5 | 4274 | 1.8 | 65.2 | 7.5 | 306 L3 | — | 16800 | 19000 | 40800 | 47500 | 12600 | 248 |
| 22.5 | 4258 | 2.7 | 65 | 22 | — | 310 R3 | — | — | 52800 | 66400 | 23400 | 273 |

## $P_1$ = 11 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 22.5 | 4258 | 2.6 | 65 | 22 | — | 307 R3 | — | — | 43900 | 57500 | 16200 | 257 |
| 22.5 | 4258 | 2.6 | 65 | 22 | — | 309 R3 | — | — | 44600 | 57500 | 12900 | 265 |
| 23.2 | 4131 | 1.1 | 63.1 | 7.5 | 305 L3 | — | 13000 | 15000 | 24200 | 29100 | 8340 | 240 |
| 24.2 | 3964 | 2.8 | 60.5 | 11 | 307 L3 | — | — | — | 42900 | 56300 | 15800 | 256 |
| 25.2 | 3806 | 2 | 58.1 | 14 | — | 306 R3 | 16100 | 18300 | 39400 | 45900 | 12100 | 248 |
| 26 | 3807 | 1.4 | 56.3 | 13 | 306 L2 | — | 16000 | 18100 | 39100 | 45500 | 12000 | 264 |
| 26.2 | 3663 | 2.7 | 55.9 | 22 | — | 310 R3 | 17700 | 22200 | 41900 | 55000 | 15400 | 273 |
| 26.2 | 3663 | 2.7 | 55.9 | 22 | — | 307 R3 | — | — | 42600 | 55000 | 12300 | 257 |
| 26.2 | 3663 | 2.7 | 55.9 | 22 | — | 309 R3 | — | — | 50500 | 63500 | 22200 | 265 |
| 26.3 | 3777 | 0.9 | 55.8 | 9 | 305 L2 | — | 12500 | 14400 | 23300 | 28100 | 8010 | 240 |
| 27.4 | 3499 | 1.1 | 53.4 | 7.5 | 305 L3 | — | 12600 | 14500 | 23500 | 28300 | 8080 | 240 |
| 27.5 | 3489 | 2 | 53.2 | 7.5 | 306 L3 | — | 15700 | 17800 | 38400 | 44700 | 11800 | 264 |
| 31 | 3163 | 2.6 | 46.7 | 18 | 307 L2 | — | — | — | 39700 | 52100 | 14500 | 257 |
| 32 | 3147 | 2.1 | 46.5 | 13 | 306 L2 | — | 15000 | 17000 | 36900 | 43000 | 11300 | 248 |
| 32 | 3033 | 2.5 | 46.3 | 14 | — | 306 R3 | 15000 | 16900 | 36800 | 42900 | 11200 | 248 |
| 33 | 3021 | 1.2 | 44.6 | 9 | 305 L2 | — | 11900 | 13700 | 22300 | 26800 | 7610 | 240 |
| 33 | 2919 | 2.7 | 44.6 | 22 | — | 310 R3 | — | — | 47200 | 59300 | 20600 | 272 |
| 33 | 2919 | 2.7 | 44.6 | 22 | — | 307 R3 | — | — | 39200 | 51300 | 14300 | 257 |
| 33 | 2919 | 2.7 | 44.6 | 22 | — | 309 R3 | — | — | 39800 | 51300 | 11400 | 265 |
| 37 | 2569 | 2.5 | 39.2 | 14 | — | 306 R3 | 14100 | 16000 | 35000 | 40800 | 10600 | 249 |
| 38 | 2602 | 2.5 | 38.4 | 13 | 306 L2 | — | 14100 | 15900 | 34800 | 40600 | 10600 | 248 |
| 38 | 2599 | 1.7 | 38.4 | 9 | 305 L2 | — | 11300 | 13000 | 21300 | 25600 | 7240 | 240 |
| 39 | 2473 | 2.7 | 37.7 | 22 | — | 310 R3 | — | — | 44900 | 56400 | 19500 | 273 |
| 39 | 2473 | 2.7 | 37.7 | 22 | — | 307 R3 | — | — | 37300 | 48800 | 13500 | 257 |
| 39 | 2473 | 2.7 | 37.7 | 22 | — | 309 R3 | — | — | 37900 | 48800 | 10800 | 265 |
| 41 | 2421 | 1.5 | 35.8 | 9 | 305 L2 | — | 11000 | 12700 | 20800 | 25100 | 7070 | 240 |
| 44 | 2176 | 2.7 | 33.2 | 14 | — | 306 R3 | 13400 | 15200 | 33300 | 38800 | 10100 | 249 |
| 46 | 2072 | 2.7 | 31.6 | 22 | — | 307 R3 | — | — | 35400 | 46300 | 12700 | 257 |
| 46 | 2072 | 2.7 | 31.6 | 22 | — | 309 R3 | — | — | 35900 | 46300 | 10200 | 265 |
| 48 | 2082 | 1 | 30.8 | 9 | 303 L2 | — | 10500 | 12100 | 19900 | 24000 | 6720 | 232 |
| 48 | 2082 | 2.1 | 30.8 | 9 | 305 L2 | — | 10500 | 12100 | 19900 | 24000 | 6720 | 240 |
| 55 | 1789 | 1 | 26.4 | 9 | 303 L2 | — | 9960 | 11500 | 19000 | 22900 | 6390 | 232 |
| 55 | 1789 | 2 | 26.4 | 9 | 305 L2 | — | 9960 | 11500 | 19000 | 22900 | 6390 | 240 |
| 60 | 1659 | 1.3 | 24.5 | 9 | 303 L2 | — | 9720 | 11200 | 18600 | 22400 | 6230 | 232 |
| 60 | 1659 | 2.3 | 24.5 | 9 | 305 L2 | — | 9720 | 11200 | 18600 | 22400 | 6230 | 240 |
| 64 | 1539 | 1.4 | 22.7 | 9 | 303 L2 | — | 9470 | 10900 | 18200 | 21900 | 6080 | 232 |
| 64 | 1539 | 2.6 | 22.7 | 9 | 305 L2 | — | 9470 | 10900 | 18200 | 21900 | 6080 | 240 |
| 71 | 1406 | 1.3 | 20.8 | 9 | 303 L2 | — | 9190 | 10600 | 17700 | 21300 | 5900 | 232 |
| 71 | 1406 | 2.3 | 20.8 | 9 | 305 L2 | — | 9190 | 10600 | 17700 | 21300 | 5900 | 240 |
| 76 | 1301 | 2.7 | 19.2 | 18 | — | 306 R2 | 11200 | 12600 | 28300 | 33000 | 8380 | 249 |
| 81 | 1226 | 1.6 | 18.1 | 9 | 303 L2 | — | 8780 | 10100 | 17000 | 20400 | 5630 | 232 |
| 81 | 1226 | 3 | 18.1 | 9 | 305 L2 | — | 8780 | 10100 | 17000 | 20400 | 5630 | 240 |
| 92 | 1075 | 2.7 | 15.9 | 18 | — | 306 R2 | 10500 | 11900 | 26700 | 31100 | 7870 | 249 |

## $P_1$ = 11 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | Rn$_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ◄► Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 95 | 1039 | 1.6 | 15.3 | 9 | 303 L2 | — | 8310 | 9590 | 16200 | 19500 | 5330 | 232 |
| 95 | 1039 | 2.9 | 15.3 | 9 | 305 L2 | — | 8310 | 9590 | 16200 | 19500 | 5330 | 240 |
| 107 | 925 | 2.7 | 13.7 | 18 | — | 306 R2 | 9960 | 11300 | 25500 | 29700 | 7480 | 249 |
| 117 | 848 | 1.9 | 12.5 | 9 | 303 L2 | — | 7770 | 8970 | 15200 | 18300 | 4980 | 232 |
| 135 | 737 | 2.7 | 10.9 | 18 | — | 306 R2 | 9230 | 10500 | 23900 | 27800 | 6930 | 249 |
| 152 | 675 | 1.1 | 9.67 | 11 | 303 L1 | — | 7120 | 8220 | 14100 | 16900 | 4570 | 232 |
| 159 | 624 | 2.7 | 9.23 | 18 | — | 306 R2 | 8730 | 9900 | 22700 | 26400 | 6560 | 249 |
| 195 | 524 | 2.3 | 7.5 | 11 | 303 L1 | — | 2260 | 2260 | 6750 | 7750 | 1490 | 232 |

## $P_1$ = 15 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | Rn$_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ◄► Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.77 | 163217 | 1 | 1893 | 18 | 317 L4 | — | — | — | 442000 | 470000 | 150000 | 310 |
| 0.92 | 137526 | 1.2 | 1595 | 18 | 317 L4 | — | — | — | 442000 | 470000 | 150000 | 310 |
| 1.1 | 113688 | 1.5 | 1318 | 18 | 317 L4 | — | — | — | 434300 | 462400 | 147000 | 310 |
| 1.2 | 106719 | 1.1 | 1237 | 18 | 316 L4 | — | — | — | 331400 | 368600 | 144000 | 304 |
| 1.3 | 97796 | 1.7 | 1134 | 18 | 317 L4 | — | — | — | 415100 | 442000 | 139800 | 310 |
| 1.3 | 95233 | 1 | 1104 | 18 | 315 L4 | — | — | — | 192600 | 226200 | 83200 | 296 |
| 1.4 | 89921 | 1.1 | 1043 | 18 | 315 L4 | — | — | — | 189400 | 222300 | 81600 | 296 |
| 1.4 | 89921 | 1.5 | 1043 | 18 | 316 L4 | — | — | — | 314800 | 350100 | 136000 | 304 |
| 1.4 | 89477 | 0.9 | 1038 | 15 | 314 L4 | — | — | — | 189100 | 222000 | 81400 | call |
| 1.4 | 89028 | 2 | 1032 | 18 | 317 L4 | — | — | — | 403600 | 429700 | 135500 | 310 |
| 1.5 | 82213 | 1.8 | 953 | 50 | — | 317 R4 | — | — | 394100 | 419600 | 132000 | 310 |
| 1.6 | 80193 | 1.2 | 930 | 18 | 315 L4 | — | — | — | 183000 | 214800 | 78500 | 310 |
| 1.6 | 79847 | 0.9 | 926 | 15 | 314 L4 | — | — | — | 182700 | 214500 | 78400 | call |
| 1.6 | 78419 | 1 | 909 | 40 | — | 315 R4 | — | — | 181700 | 213400 | 77900 | 297 |
| 1.6 | 77931 | 2.1 | 904 | 18 | 317 L4 | — | — | — | 387800 | 412900 | 129600 | 310 |
| 1.7 | 74334 | 1.4 | 862 | 18 | 315 L4 | — | — | — | 178800 | 210000 | 76600 | 296 |
| 1.7 | 74334 | 1.7 | 862 | 18 | 316 L4 | — | — | — | 297400 | 330700 | 127600 | 310 |
| 1.7 | 73967 | 1.1 | 858 | 15 | 314 L4 | — | — | — | 178600 | 209700 | 76400 | call |
| 1.8 | 70068 | 1.9 | 812 | 18 | 316 L4 | — | — | — | 292100 | 324900 | 125100 | 304 |
| 1.8 | 69272 | 2.4 | 803 | 50 | — | 317 R4 | — | — | 374300 | 398500 | 124600 | 311 |
| 1.8 | 68302 | 2.7 | 792 | 18 | 317 L4 | — | — | — | 372700 | 396900 | 124100 | 310 |
| 1.9 | 67457 | 1.3 | 782 | 40 | — | 315 R4 | — | — | 173700 | 203900 | 74100 | 311 |
| 2 | 63904 | 1.6 | 741 | 18 | 315 L4 | — | — | — | 170900 | 200700 | 72800 | 296 |
| 2 | 63904 | 2 | 741 | 18 | 316 L4 | — | — | — | 284200 | 316100 | 121400 | 304 |
| 2 | 63628 | 1.3 | 738 | 15 | 314 L4 | — | — | — | 170700 | 200400 | 72700 | call |
| 2 | 62634 | 2.1 | 726 | 18 | 316 L4 | — | — | — | 282500 | 314100 | 120500 | 304 |
| 2 | 62012 | 2.9 | 719 | 18 | 317 L4 | — | — | — | 362100 | 385500 | 120100 | 310 |

## $P_1$ = 15 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ◄► Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.1 | 59039 | 2.2 | 685 | 18 | 316 L4 | — | — | — | 277500 | 308600 | 118200 | 304 |
| 2.2 | 58368 | 2.8 | 677 | 50 | — | 317 R4 | — | — | 355600 | 378600 | 117700 | 311 |
| 2.2 | 57923 | 1.7 | 672 | 18 | 315 L4 | — | — | — | 165900 | 194800 | 70500 | 296 |
| 2.2 | 57637 | 1.4 | 668 | 15 | 314 L4 | — | — | — | 165700 | 194500 | 70300 | call |
| 2.2 | 56839 | 1.6 | 659 | 40 | — | 315 R4 | — | — | 165000 | 193700 | 70000 | 297 |
| 2.3 | 55766 | 0.9 | 647 | 22 | — | 313 R4 | — | — | 150500 | 178100 | 60400 | 289 |
| 2.3 | 54583 | 1 | 633 | 11 | 313 L4 | — | — | — | 152700 | 180700 | 61400 | 288 |
| 2.3 | 53978 | 2.9 | 626 | 50 | — | 317 R4 | — | — | 347300 | 369800 | 114700 | 310 |
| 2.3 | 53845 | 2.3 | 624 | 18 | 316 L4 | — | — | — | 270000 | 300300 | 114600 | 304 |
| 2.4 | 53755 | 1.9 | 623 | 40 | — | 315 R4 | — | — | 162300 | 190500 | 68700 | 297 |
| 2.4 | 53755 | 2.1 | 623 | 45 | — | 316 R4 | — | — | 269800 | 300100 | 114500 | 304 |
| 2.4 | 52929 | 1.1 | 614 | 22 | — | 314 R4 | — | — | 161500 | 189600 | 68400 | call |
| 2.5 | 50955 | 2 | 591 | 18 | 315 L4 | — | — | — | 159700 | 187500 | 67500 | 296 |
| 2.5 | 50955 | 2.4 | 591 | 18 | 316 L4 | — | — | — | 265500 | 295300 | 112500 | 304 |
| 2.5 | 50703 | 1.6 | 588 | 15 | 314 L4 | — | — | — | 159500 | 187200 | 67400 | call |
| 2.6 | 48805 | 2.5 | 566 | 18 | 316 L4 | — | — | — | 262100 | 291500 | 110900 | 304 |
| 2.6 | 48619 | 1.1 | 564 | 11 | 313 L4 | — | — | — | 147500 | 174500 | 59100 | 288 |
| 2.6 | 47793 | 1.7 | 554 | 15 | 314 L4 | — | — | — | 156600 | 183900 | 66100 | call |
| 2.7 | 46100 | 1.1 | 535 | 22 | — | 313 R4 | — | — | 145100 | 171800 | 58000 | 289 |
| 2.7 | 46004 | 2.2 | 533 | 18 | 315 L4 | — | — | — | 154900 | 181800 | 65200 | 296 |
| 2.7 | 46004 | 2.6 | 533 | 18 | 316 L4 | — | — | — | 257500 | 286400 | 108700 | 304 |
| 2.8 | 45531 | 1.5 | 528 | 22 | — | 314 R4 | — | — | 154400 | 181300 | 65000 | call |
| 2.8 | 45293 | 2.2 | 525 | 40 | — | 315 R4 | — | — | 154100 | 181000 | 64900 | 296 |
| 2.8 | 45293 | 2.6 | 525 | 45 | — | 316 R4 | — | — | 256300 | 285000 | 108200 | 311 |
| 2.9 | 44298 | 1.1 | 514 | 11 | 313 L4 | — | — | — | 143400 | 169700 | 57300 | 288 |
| 2.9 | 44164 | 1 | 512 | 11 | 311 L4 | — | — | — | 116000 | 144500 | 46500 | 280 |
| 3 | 42783 | 1.2 | 496 | 22 | — | 313 R4 | — | — | 141900 | 168000 | 56600 | 289 |
| 3 | 42650 | 1.9 | 495 | 15 | 314 L4 | — | — | — | 151400 | 177700 | 63600 | call |
| 3 | 41983 | 2.4 | 487 | 18 | 315 L4 | — | — | — | 150700 | 176900 | 63300 | 296 |
| 3 | 41983 | 2.8 | 487 | 18 | 316 L4 | — | — | — | 250500 | 278600 | 105500 | 304 |
| 3.2 | 39509 | 2 | 458 | 15 | 314 L4 | — | — | — | 148000 | 173700 | 62000 | call |
| 3.2 | 38957 | 1.4 | 452 | 11 | 313 L4 | — | — | — | 138000 | 163300 | 54900 | 288 |
| 3.3 | 38843 | 1.2 | 450 | 22 | — | 313 R4 | — | — | 137900 | 163200 | 54800 | 289 |
| 3.3 | 38364 | 1.8 | 445 | 22 | — | 314 R4 | — | — | 146700 | 172200 | 61400 | call |
| 3.3 | 38030 | 2.6 | 441 | 18 | 315 L4 | — | — | — | 146300 | 171700 | 61200 | 304 |
| 3.3 | 37764 | 1 | 438 | 22 | — | 311 R4 | — | — | 110600 | 137800 | 44100 | 281 |
| 3.5 | 36282 | 2.2 | 421 | 22 | — | 314 R4 | — | — | 144200 | 169300 | 60300 | call |
| 3.5 | 35597 | 1.1 | 413 | 22 | — | 311 R4 | — | — | 108700 | 135400 | 43300 | 285 |
| 3.6 | 35388 | 1.2 | 410 | 11 | — | 311 R4 | — | — | 108500 | 135200 | 43200 | 280 |
| 3.6 | 35294 | 2.8 | 409 | 40 | — | 315 R4 | — | — | 143000 | 167900 | 59700 | 297 |
| 3.7 | 33985 | 1.6 | 394 | 11 | 313 L4 | — | — | — | 132500 | 156800 | 52400 | 288 |
| 3.8 | 33467 | 2.3 | 388 | 15 | 314 L4 | — | — | — | 140800 | 165300 | 58700 | call |
| 3.8 | 33414 | 1.4 | 387 | 22 | — | 313 R4 | — | — | 131800 | 156000 | 52100 | 289 |

## $P_1$ = 15 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4.1 | 30571 | 2.6 | 354 | 22 | — | 314 R4 | — | — | 137000 | 160800 | 56900 | call |
| 4.2 | 30356 | 1.7 | 352 | 11 | 313 L4 | — | — | — | 128000 | 151500 | 50500 | 288 |
| 4.2 | 29976 | 1.3 | 348 | 11 | 311 L4 | — | — | — | 103200 | 128600 | 40900 | 280 |
| 4.2 | 29801 | 1.8 | 346 | 22 | — | 313 R4 | — | — | 127300 | 150700 | 50200 | 289 |
| 4.3 | 29427 | 1.3 | 341 | 22 | — | 311 R4 | — | — | 102700 | 127900 | 40600 | 281 |
| 4.4 | 28817 | 1 | 334 | 15 | — | 310 R4 | — | — | 84600 | 106300 | 39400 | 273 |
| 4.6 | 27738 | 1.4 | 322 | 22 | — | 311 R4 | — | — | 100900 | 125600 | 39800 | 281 |
| 4.7 | 27083 | 2.9 | 314 | 15 | 314 L4 | — | — | — | 132100 | 155100 | 54700 | call |
| 4.7 | 26627 | 1.7 | 309 | 22 | — | 313 R4 | — | — | 123100 | 145700 | 48300 | 289 |
| 4.8 | 27088 | 1.4 | 304 | 18 | 313 L3 | — | — | — | 122500 | 145000 | 48100 | 288 |
| 5 | 25313 | 1.5 | 294 | 22 | — | 311 R4 | — | — | 98100 | 122200 | 38600 | 281 |
| 5 | 25966 | 1 | 291 | 18 | 311 L3 | — | — | — | 97900 | 121900 | 38500 | 280 |
| 5.2 | 24409 | 1.1 | 283 | 15 | — | 310 R4 | — | — | 82100 | 103300 | 38100 | 273 |
| 5.2 | 24244 | 2 | 281 | 22 | — | 313 R4 | — | — | 119700 | 141700 | 46800 | 289 |
| 5.5 | 22930 | 1.6 | 266 | 22 | — | 311 R4 | — | — | 95300 | 118700 | 37400 | 281 |
| 5.7 | 22276 | 1 | 258 | 15 | — | 310 R4 | — | — | 79900 | 100500 | 37000 | 273 |
| 5.8 | 22504 | 2 | 252 | 18 | 313 L3 | — | — | — | 115900 | 137100 | 45200 | 288 |
| 6 | 21879 | 1.6 | 245 | 18 | 311 L3 | — | — | — | 93000 | 115800 | 36400 | 280 |
| 6.1 | 21360 | 2.4 | 240 | 25 | 314 L3 | — | — | — | 119300 | 140100 | 48800 | call |
| 6.2 | 20428 | 2 | 237 | 22 | — | 313 R4 | — | — | 113700 | 134600 | 44200 | 289 |
| 6.3 | 20178 | 1.2 | 234 | 15 | — | 310 R4 | — | — | 77600 | 97600 | 35800 | 273 |
| 6.4 | 20522 | 1 | 230 | 18 | 310 L3 | — | — | — | 77200 | 97100 | 35600 | 272 |
| 6.4 | 19725 | 1.8 | 229 | 22 | — | 311 R4 | — | — | 91100 | 113400 | 35500 | 281 |
| 7 | 18603 | 2.4 | 209 | 18 | 313 L3 | — | — | — | 109400 | 129500 | 42400 | 288 |
| 7.1 | 17751 | 1.2 | 206 | 15 | — | 310 R4 | — | — | 74700 | 93900 | 34300 | 272 |
| 7.1 | 17733 | 1.1 | 206 | 15 | — | 309 R4 | — | — | 63000 | 81200 | 19000 | 265 |
| 7.2 | 18087 | 1.8 | 203 | 18 | 311 L3 | — | — | — | 87800 | 109400 | 34100 | 280 |
| 7.3 | 17997 | 1.2 | 202 | 18 | 310 L3 | — | — | — | 74200 | 93300 | 34100 | 272 |
| 7.3 | 17979 | 0.9 | 202 | 11 | 309 L3 | — | — | — | 61300 | 79100 | 18400 | 264 |
| 7.3 | 17304 | 2 | 201 | 22 | — | 313 R4 | — | — | 108200 | 128000 | 41900 | 289 |
| 7.4 | 17087 | 2 | 198 | 22 | — | 311 R4 | — | — | 87200 | 108600 | 33900 | 281 |
| 7.6 | 17265 | 2.8 | 194 | 18 | 313 L3 | — | — | — | 107000 | 126700 | 41400 | 288 |
| 7.7 | 17049 | 1.9 | 191 | 18 | 311 L3 | — | — | — | 86300 | 107500 | 33500 | 281 |
| 7.7 | 16444 | 1.1 | 191 | 15 | — | 309 R4 | — | — | 61600 | 79400 | 18500 | 265 |
| 7.7 | 16329 | 1.4 | 189 | 15 | — | 310 R4 | — | — | 72800 | 91500 | 33400 | 273 |
| 7.9 | 15918 | 2 | 185 | 22 | — | 313 R4 | — | — | 105500 | 124900 | 40700 | 289 |
| 8 | 15718 | 2 | 182 | 22 | — | 311 R4 | — | — | 85100 | 106000 | 32900 | 281 |
| 8 | 16231 | 2.4 | 182 | 18 | 313 L3 | — | — | — | 105100 | 124300 | 40500 | 288 |
| 8.3 | 15805 | 1.2 | 177 | 18 | 310 L3 | — | — | — | 71400 | 89800 | 32600 | 272 |
| 8.3 | 15675 | 2.9 | 176 | 18 | 313 L3 | — | — | — | 104000 | 123000 | 40100 | 288 |
| 8.6 | 15240 | 2.1 | 171 | 18 | 311 L3 | — | — | — | 83400 | 103900 | 32200 | 280 |
| 8.9 | 14245 | 1.1 | 165 | 15 | — | 309 R4 | — | — | 59000 | 76100 | 17700 | 265 |
| 9 | 14593 | 1.5 | 164 | 18 | 310 L3 | — | — | — | 69700 | 87600 | 31800 | 272 |

## $P_1$ = 15 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ◄► Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9.1 | 14406 | 1.1 | 162 | 11 | 309 L3 | — | — | — | 58600 | 75600 | 17500 | 264 |
| 9.1 | 14365 | 2.2 | 161 | 18 | 311 L3 | — | — | — | 82000 | 102100 | 31600 | 280 |
| 9.1 | 13832 | 1.6 | 160 | 15 | — | 310 R4 | — | — | 69300 | 87100 | 31600 | 272 |
| 9.5 | 13314 | 2 | 154 | 22 | — | 311 R4 | — | — | 80900 | 100800 | 31200 | 281 |
| 9.6 | 13645 | 2.9 | 153 | 40 | — | 313 R3 | — | — | 99700 | 118000 | 38200 | 289 |
| 9.6 | 13104 | 1.4 | 152 | 15 | — | 309 R4 | — | — | 57500 | 74200 | 17200 | 265 |
| 10 | 13109 | 2.4 | 147 | 18 | 311 L3 | — | — | — | 79700 | 99300 | 30700 | 280 |
| 10 | 13079 | 2.1 | 147 | 40 | — | 311 R3 | — | — | 79700 | 99300 | 30600 | 281 |
| 10 | 13050 | 1 | 146 | 11 | 307 L3 | — | — | — | 56000 | 73300 | 21200 | 256 |
| 10.3 | 12641 | 1.6 | 142 | 18 | 310 L3 | — | — | — | 66700 | 83900 | 30300 | 272 |
| 10.6 | 12375 | 1.3 | 139 | 11 | 309 L3 | — | — | — | 56000 | 72200 | 16700 | 264 |
| 10.8 | 11716 | 1.8 | 136 | 15 | — | 310 R4 | — | — | 65900 | 82900 | 29900 | 272 |
| 11 | 11875 | 2.5 | 133 | 18 | 311 L3 | — | — | — | 77400 | 96400 | 29700 | 280 |
| 11.2 | 11629 | 1.8 | 130 | 18 | 310 L3 | — | — | — | 65100 | 81900 | 29500 | 272 |
| 11.6 | 11225 | 1.2 | 126 | 11 | 307 L3 | — | — | — | 53500 | 70100 | 20200 | 256 |
| 11.6 | 11225 | 1.5 | 126 | 11 | 309 L3 | — | — | — | 54400 | 70100 | 16100 | 264 |
| 11.7 | 11194 | 2.6 | 126 | 18 | 311 L3 | — | — | — | 76100 | 94700 | 29100 | 280 |
| 11.8 | 10697 | 1 | 124 | 15 | — | 307 R4 | — | — | 56900 | 74500 | 21600 | 257 |
| 11.9 | 11021 | 2.7 | 124 | 40 | — | 311 R3 | — | — | 75700 | 94300 | 28900 | 281 |
| 12.2 | 10679 | 1.2 | 120 | 22 | — | 309 R3 | — | — | 53600 | 69100 | 15900 | 265 |
| 12.2 | 10679 | 1.6 | 120 | 22 | — | 310 R3 | — | — | 63500 | 79800 | 28600 | 273 |
| 12.3 | 10612 | 1.9 | 119 | 18 | 310 L3 | — | — | — | 63300 | 79600 | 28600 | 272 |
| 12.8 | 10215 | 2.8 | 115 | 18 | 311 L3 | — | — | — | 74000 | 92200 | 28200 | 280 |
| 12.9 | 10102 | 1 | 113 | 11 | 307 L3 | — | — | — | 51800 | 67900 | 19500 | 257 |
| 12.9 | 10102 | 1.5 | 113 | 11 | 309 L3 | — | — | — | 52700 | 67900 | 15600 | 264 |
| 13.3 | 9850 | 2 | 110 | 18 | 310 L3 | — | — | — | 61900 | 77900 | 27900 | 272 |
| 13.9 | 9061 | 1.5 | 105 | 15 | — | 307 R4 | — | — | 55400 | 72700 | 21000 | 257 |
| 14.1 | 9293 | 1 | 104 | 7.5 | 306 L3 | — | 19200 | 21700 | 46000 | 53600 | 14400 | 248 |
| 14.5 | 8989 | 2.1 | 101 | 18 | 310 L3 | — | — | — | 60300 | 75800 | 27000 | 272 |
| 14.6 | 8945 | 1.4 | 100 | 11 | 307 L3 | — | — | — | 50000 | 65500 | 18700 | 256 |
| 14.6 | 8945 | 1.8 | 100 | 11 | 309 L3 | — | — | — | 50800 | 65500 | 15000 | 264 |
| 14.8 | 8828 | 1 | 99 | 22 | — | 307 R3 | — | — | 49800 | 65200 | 18600 | 257 |
| 14.8 | 8828 | 1.4 | 99 | 22 | — | 309 R3 | — | — | 50600 | 65200 | 14900 | 265 |
| 14.8 | 8828 | 1.9 | 99 | 22 | — | 310 R3 | — | — | 59900 | 75400 | 26900 | 273 |
| 15.8 | 8295 | 1.5 | 93 | 11 | 307 L3 | — | — | — | 48900 | 64000 | 18200 | 256 |
| 15.8 | 8295 | 1.8 | 93 | 11 | 309 L3 | — | — | — | 49600 | 64000 | 14600 | 264 |
| 16 | 8143 | 2.3 | 91.3 | 18 | 310 L3 | — | — | — | 58500 | 73600 | 26200 | 272 |
| 16.6 | 7872 | 1.1 | 88.3 | 7.5 | 306 L3 | — | 18100 | 20500 | 43800 | 51000 | 13600 | 248 |
| 17.3 | 7557 | 1 | 84.7 | 14 | — | 306 R3 | 18300 | 20700 | 44200 | 51400 | 13700 | 249 |
| 17.6 | 7438 | 1.4 | 83.4 | 22 | — | 307 R3 | — | — | 47300 | 62000 | 17600 | 257 |
| 17.6 | 7438 | 1.9 | 83.4 | 22 | — | 309 R3 | — | — | 48000 | 62000 | 14100 | 265 |
| 17.6 | 7438 | 2 | 83.4 | 22 | — | 310 R3 | — | — | 56900 | 71600 | 25400 | 273 |
| 17.9 | 7300 | 0.9 | 81.9 | 7.5 | 306 L3 | — | 17700 | 20000 | 42800 | 49900 | 13300 | 248 |

## $P_1$ = 15 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | Rn$_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ◄► Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18.2 | 7186 | 1.4 | 80.6 | 11 | 307 L3 | — | — | — | 46800 | 61300 | 17400 | 256 |
| 18.2 | 7186 | 2.1 | 80.6 | 11 | 309 L3 | — | — | — | 47600 | 61300 | 13900 | 264 |
| 18.2 | 7163 | 2.4 | 80.3 | 18 | 310 L3 | — | — | — | 56300 | 70800 | 25100 | 272 |
| 18.6 | 7012 | 2 | 78.6 | 22 | — | 310 R3 | — | — | 55900 | 70300 | 24900 | 273 |
| 18.6 | 7012 | 1.6 | 78.6 | 22 | — | 307 R3 | — | — | 46500 | 60900 | 17200 | 257 |
| 19 | 6867 | 1.2 | 77 | 7.5 | 306 L3 | — | 17700 | 20100 | 42900 | 50000 | 13300 | 248 |
| 19.8 | 6610 | 1.8 | 74.1 | 11 | 307 L3 | — | — | — | 45600 | 59800 | 16900 | 256 |
| 19.8 | 6610 | 2.3 | 74.1 | 11 | 309 L3 | — | — | — | 46400 | 59800 | 13500 | 264 |
| 19.8 | 6590 | 2.7 | 73.9 | 18 | 310 L3 | — | — | — | 54900 | 69000 | 24400 | 272 |
| 20.1 | 6500 | 1.1 | 72.9 | 14 | — | 306 R3 | 17400 | 19700 | 42200 | 49200 | 13100 | 249 |
| 20.4 | 6399 | 1.6 | 71.8 | 22 | — | 307 R3 | — | — | 45200 | 59200 | 16700 | 257 |
| 20.4 | 6399 | 2 | 71.8 | 22 | — | 309 R3 | — | — | 45900 | 59200 | 13400 | 265 |
| 20.4 | 6399 | 2 | 71.8 | 22 | — | 310 R3 | — | — | 54400 | 68400 | 24100 | 273 |
| 21.7 | 6022 | 1.2 | 67.5 | 14 | — | 306 R3 | 17000 | 19200 | 41300 | 48000 | 12700 | 249 |
| 22.5 | 5817 | 1.3 | 65.2 | 7.5 | 306 L3 | — | 16800 | 19000 | 40800 | 47500 | 12600 | 248 |
| 22.5 | 5796 | 2 | 65 | 22 | — | 310 R3 | — | — | 52800 | 66400 | 23400 | 273 |
| 22.5 | 5796 | 1.9 | 65 | 22 | — | 307 R3 | — | — | 43900 | 57500 | 16200 | 257 |
| 22.5 | 5796 | 1.9 | 65 | 22 | — | 309 R3 | — | — | 44600 | 57500 | 12900 | 263 |
| 23.4 | 5582 | 3 | 62.6 | 18 | 310 L3 | — | — | — | 52200 | 65700 | 23100 | 272 |
| 24.2 | 5396 | 2.1 | 60.5 | 11 | 307 L3 | — | — | — | 42900 | 56300 | 15800 | 256 |
| 24.2 | 5396 | 2.6 | 60.5 | 11 | 309 L3 | — | — | — | 43600 | 56300 | 12600 | 264 |
| 25.2 | 5180 | 1.5 | 58.1 | 14 | — | 306 R3 | 16100 | 18300 | 39400 | 45900 | 12100 | 249 |
| 26 | 5182 | 1 | 56.3 | 13 | 306 L2 | — | 16000 | 18100 | 39100 | 45500 | 12000 | 248 |
| 26.2 | 4986 | 2 | 55.9 | 22 | — | 310 R3 | — | — | 50500 | 63500 | 22200 | 273 |
| 26.2 | 4986 | 2 | 55.9 | 22 | — | 307 R3 | — | — | 41900 | 55000 | 15400 | 257 |
| 26.2 | 4986 | 2 | 55.9 | 22 | — | 309 R3 | — | — | 42600 | 55000 | 12300 | 265 |
| 27.5 | 4748 | 1.5 | 53.2 | 7.5 | 306 L3 | — | 15700 | 17800 | 38400 | 44700 | 11800 | 248 |
| 28.6 | 4571 | 2.3 | 51.3 | 11 | 307 L3 | — | — | — | 40900 | 53500 | 14900 | 256 |
| 28.6 | 4571 | 2.9 | 51.3 | 11 | 309 L3 | — | — | — | 41500 | 53500 | 12000 | 264 |
| 31 | 4305 | 1.9 | 46.7 | 18 | 307 L2 | — | — | — | 39700 | 52100 | 14500 | 256 |
| 31 | 4305 | 2.9 | 46.7 | 18 | 309 L2 | — | — | — | 40400 | 52100 | 11600 | 264 |
| 32 | 4284 | 1.5 | 46.5 | 13 | 306 L2 | — | 15000 | 17000 | 36900 | 43000 | 11300 | 248 |
| 32 | 4128 | 1.8 | 46.3 | 14 | — | 306 R3 | 15000 | 16900 | 36800 | 42900 | 11200 | 249 |
| 33 | 3973 | 2 | 44.6 | 22 | — | 310 R3 | — | — | 47200 | 59300 | 20600 | 273 |
| 33 | 3973 | 2 | 44.6 | 22 | — | 307 R3 | — | — | 39200 | 51300 | 14300 | 257 |
| 33 | 3973 | 2 | 44.6 | 22 | — | 309 R3 | — | — | 39800 | 51300 | 11400 | 265 |
| 37 | 3497 | 1.9 | 39.2 | 14 | — | 306 R3 | 14100 | 16000 | 35000 | 40800 | 10600 | 249 |
| 38 | 3559 | 2.3 | 38.6 | 18 | 307 L2 | — | — | — | 37500 | 49200 | 13600 | 254 |
| 38 | 3541 | 1.8 | 38.4 | 13 | 306 L2 | — | 14100 | 15900 | 34800 | 40600 | 10600 | 248 |
| 38 | 3537 | 1.2 | 38.4 | 9 | 305 L2 | — | 11300 | 13000 | 21300 | 25600 | 7240 | 240 |
| 39 | 3366 | 2 | 37.7 | 22 | — | 310 R3 | — | — | 44900 | 56400 | 19500 | 273 |
| 39 | 3366 | 2 | 37.7 | 22 | — | 307 R3 | — | — | 37300 | 48800 | 13500 | 257 |
| 39 | 3366 | 2 | 37.7 | 22 | — | 309 R3 | — | — | 37900 | 48800 | 10800 | 265 |

## $P_1$ = 15 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ◄► Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 41 | 3295 | 1.1 | 35.8 | 9 | 305 L2 | — | 11000 | 12700 | 20800 | 25100 | 7070 | 240 |
| 44 | 2962 | 2 | 33.2 | 14 | — | 306 R3 | 13400 | 15200 | 33300 | 38800 | 10100 | 249 |
| 44 | 3046 | 2.3 | 33.1 | 13 | 306 L2 | — | 13400 | 15100 | 33300 | 38800 | 10000 | 248 |
| 46 | 2821 | 2 | 31.6 | 22 | — | 307 R3 | — | — | 35400 | 46300 | 12700 | 257 |
| 46 | 2821 | 2 | 31.6 | 22 | — | 309 R3 | — | — | 35900 | 46300 | 10200 | 265 |
| 48 | 2834 | 1.5 | 30.8 | 9 | 305 L2 | — | 10500 | 12100 | 19900 | 24000 | 6720 | 240 |
| 52 | 2620 | 2.6 | 28.4 | 13 | 306 L2 | — | 12700 | 14400 | 31800 | 37100 | 9550 | 248 |
| 55 | 2435 | 1.4 | 26.4 | 9 | 305 L2 | — | 9960 | 11500 | 19000 | 22900 | 6390 | 240 |
| 56 | 2427 | 2.6 | 26.4 | 13 | 306 L2 | — | 12400 | 14000 | 31100 | 36200 | 9310 | 248 |
| 60 | 2259 | 1 | 24.5 | 9 | 303 L2 | — | 9490 | 11000 | 18200 | 21900 | 6090 | 232 |
| 60 | 2259 | 1.7 | 24.5 | 9 | 305 L2 | — | 9720 | 11200 | 18600 | 22400 | 6230 | 240 |
| 64 | 2095 | 1 | 22.7 | 9 | 303 L2 | — | 9470 | 10900 | 18200 | 21900 | 6080 | 232 |
| 64 | 2095 | 1.9 | 22.7 | 9 | 305 L2 | — | 9470 | 10900 | 18200 | 21900 | 6080 | 240 |
| 65 | 2088 | 2.9 | 22.7 | 13 | 306 L2 | — | 11800 | 13400 | 29700 | 34600 | 8850 | 248 |
| 71 | 1913 | 1 | 20.8 | 9 | 303 L2 | — | 8980 | 10400 | 17300 | 20900 | 5760 | 232 |
| 71 | 1913 | 1.7 | 20.8 | 9 | 305 L2 | — | 9190 | 10600 | 17700 | 21300 | 5900 | 240 |
| 76 | 1771 | 2 | 19.2 | 18 | — | 306 R2 | 11200 | 12600 | 28300 | 33000 | 8380 | 232 |
| 81 | 1669 | 1.2 | 18.1 | 9 | 303 L2 | — | 8780 | 10100 | 17000 | 20400 | 5630 | 232 |
| 81 | 1669 | 2.2 | 18.1 | 9 | 305 L2 | — | 8780 | 10100 | 17000 | 20400 | 5630 | 240 |
| 92 | 1464 | 2 | 15.9 | 18 | — | 306 R2 | 10500 | 11900 | 26700 | 31100 | 7870 | 233 |
| 95 | 1414 | 1.2 | 15.3 | 9 | 303 L2 | — | 8310 | 9590 | 16200 | 19500 | 5330 | 232 |
| 95 | 1414 | 2.2 | 15.3 | 9 | 305 L2 | — | 8310 | 9590 | 16200 | 19500 | 5330 | 240 |
| 107 | 1259 | 2 | 13.7 | 18 | — | 306 R2 | 9960 | 11300 | 25500 | 29700 | 7480 | 249 |
| 117 | 1154 | 1.4 | 12.5 | 9 | 303 L2 | — | 7770 | 8970 | 15200 | 18300 | 4980 | 232 |
| 117 | 1154 | 2.5 | 12.5 | 9 | 305 L2 | — | 7770 | 8970 | 15200 | 18300 | 4980 | 240 |
| 135 | 1003 | 2 | 10.9 | 18 | — | 306 R2 | 9230 | 10500 | 23900 | 27800 | 6930 | 233 |
| 159 | 850 | 2 | 9.23 | 18 | — | 306 R2 | 8730 | 9900 | 22700 | 26400 | 6560 | 249 |
| 195 | 713 | 1.7 | 7.5 | 11 | 303 L1 | — | 6550 | 7560 | 13000 | 15700 | 4200 | 232 |
| 236 | 589 | 2.4 | 6.2 | 11 | 303 L1 | — | 6140 | 7090 | 12300 | 14800 | 3940 | 232 |
| 275 | 507 | 2.9 | 5.33 | 11 | 303 L1 | — | 5840 | 6750 | 11800 | 14200 | 3750 | 232 |

## $P_1$ = 18.5 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ◄► Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.92 | 169802 | 1 | 1595 | 18 | 317 L4 | — | — | — | 442000 | 470000 | 150000 | 310 |
| 1.1 | 147863 | 2.4 | 1389 | 30 | 319 L4 | — | — | — | 636100 | 700800 | 199500 | 322 |
| 1.1 | 140370 | 1.2 | 1318 | 18 | 317 L4 | — | — | — | 434300 | 462400 | 147000 | 310 |
| 1.2 | 131765 | 0.9 | 1237 | 18 | 316 L4 | — | — | — | 331400 | 368600 | 144000 | 310 |
| 1.2 | 127194 | 2.8 | 1195 | 30 | 319 L4 | — | — | — | 608000 | 669900 | 189700 | 322 |

## $P_1$ = 18.5 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | Rn$_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.3 | 120748 | 1.4 | 1134 | 18 | 317 L4 | — | — | — | 415100 | 442000 | 139800 | 310 |
| 1.4 | 112771 | 2.4 | 1059 | 22 | 318 L4 | — | — | — | 503000 | 520700 | 182200 | 316 |
| 1.4 | 111025 | 0.9 | 1043 | 18 | 315 L4 | — | — | — | 189400 | 222300 | 81600 | 296 |
| 1.4 | 111025 | 1.2 | 1043 | 18 | 316 L4 | — | — | — | 314800 | 350100 | 136000 | 304 |
| 1.4 | 109922 | 1.6 | 1032 | 18 | 317 L4 | — | — | — | 403600 | 429700 | 135500 | 310 |
| 1.5 | 101508 | 1.4 | 953 | 50 | — | 317 R4 | — | — | 394100 | 419600 | 132000 | 311 |
| 1.6 | 99014 | 0.9 | 930 | 18 | 315 L4 | — | — | — | 183000 | 214800 | 78500 | 296 |
| 1.6 | 97007 | 2.8 | 911 | 22 | 318 L4 | — | — | — | 487700 | 497700 | 173300 | 316 |
| 1.6 | 96221 | 1.7 | 904 | 18 | 317 L4 | — | — | — | 387800 | 412900 | 129600 | 310 |
| 1.7 | 91780 | 1.1 | 862 | 18 | 315 L4 | — | — | — | 178800 | 210000 | 76600 | 296 |
| 1.7 | 91780 | 1.4 | 862 | 18 | 316 L4 | — | — | — | 297400 | 330700 | 127600 | 304 |
| 1.8 | 86513 | 1.5 | 812 | 18 | 316 L4 | — | — | — | 292100 | 324900 | 125100 | 304 |
| 1.8 | 85530 | 1.9 | 803 | 50 | — | 317 R4 | — | — | 374300 | 398500 | 124600 | 311 |
| 1.8 | 84332 | 2.2 | 792 | 18 | 317 L4 | — | — | — | 372700 | 396900 | 124100 | 310 |
| 1.9 | 83289 | 1.1 | 782 | 40 | — | 315 R4 | — | — | 173700 | 203900 | 74100 | 297 |
| 2 | 78901 | 1.3 | 741 | 18 | 315 L4 | — | — | — | 170900 | 200700 | 72800 | 296 |
| 2 | 78901 | 1.6 | 741 | 18 | 316 L4 | — | — | — | 284200 | 316100 | 121400 | 304 |
| 2 | 78561 | 1 | 738 | 15 | 314 L4 | — | — | — | 170700 | 200400 | 72700 | call |
| 2 | 77333 | 1.7 | 726 | 18 | 316 L4 | — | — | — | 282500 | 314100 | 120500 | 304 |
| 2 | 76565 | 2.3 | 719 | 18 | 317 L4 | — | — | — | 362100 | 385500 | 120100 | 310 |
| 2.1 | 72895 | 1.8 | 685 | 18 | 316 L4 | — | — | — | 277500 | 308600 | 118200 | 304 |
| 2.2 | 72067 | 2.3 | 677 | 50 | — | 317 R4 | — | — | 355600 | 378600 | 117700 | 311 |
| 2.2 | 71517 | 1.4 | 672 | 18 | 315 L4 | — | — | — | 165900 | 194800 | 70500 | 296 |
| 2.2 | 71164 | 1.1 | 668 | 15 | 314 L4 | — | — | — | 165700 | 194500 | 70300 | call |
| 2.2 | 70179 | 1.3 | 659 | 40 | — | 315 R4 | — | — | 165000 | 193700 | 70000 | 297 |
| 2.3 | 66647 | 2.3 | 626 | 50 | — | 317 R4 | — | — | 347300 | 369800 | 114700 | 311 |
| 2.3 | 66482 | 1.9 | 624 | 18 | 316 L4 | — | — | — | 270000 | 300300 | 114600 | 304 |
| 2.4 | 66371 | 1.5 | 623 | 40 | — | 315 R4 | — | — | 162300 | 190500 | 68700 | 297 |
| 2.4 | 66371 | 1.7 | 623 | 45 | — | 316 R4 | — | — | 269800 | 300100 | 114500 | 305 |
| 2.4 | 65863 | 2.7 | 619 | 18 | 317 L4 | — | — | — | 346100 | 368500 | 114200 | 310 |
| 2.5 | 62914 | 1.6 | 591 | 18 | 315 L4 | — | — | — | 159700 | 187500 | 67500 | 296 |
| 2.5 | 62914 | 1.9 | 591 | 18 | 316 L4 | — | — | — | 265500 | 295300 | 112500 | 304 |
| 2.5 | 62603 | 1.3 | 588 | 15 | 314 L4 | — | — | — | 159500 | 187200 | 67400 | call |
| 2.6 | 60260 | 2.1 | 566 | 18 | 316 L4 | — | — | — | 262100 | 291500 | 110900 | 304 |
| 2.6 | 59010 | 1.4 | 554 | 15 | 314 L4 | — | — | — | 156600 | 183900 | 66100 | call |
| 2.7 | 58741 | 3 | 552 | 18 | 317 L4 | — | — | — | 334400 | 356100 | 110000 | 310 |
| 2.7 | 56801 | 1.8 | 533 | 18 | 315 L4 | — | — | — | 154900 | 181800 | 65200 | 294 |
| 2.7 | 56801 | 2.1 | 533 | 18 | 316 L4 | — | — | — | 257500 | 286400 | 108700 | 304 |
| 2.8 | 55924 | 1.8 | 525 | 40 | — | 315 R4 | — | — | 154100 | 181000 | 64900 | 297 |
| 2.8 | 55924 | 2.1 | 525 | 45 | — | 316 R4 | — | — | 256300 | 285000 | 108200 | 305 |
| 2.8 | 55368 | 3 | 520 | 50 | — | 317 R4 | — | — | 328500 | 349800 | 107800 | 311 |
| 3 | 52659 | 1.5 | 495 | 15 | 314 L4 | — | — | — | 151400 | 177700 | 63600 | call |
| 3 | 51836 | 1.9 | 487 | 18 | 315 L4 | — | — | — | 150700 | 176900 | 63300 | 296 |

## $P_1$ = 18.5 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ◄► Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 51836 | 2.3 | 487 | 18 | 316 L4 | — | — | — | 250500 | 278600 | 105500 | 304 |
| 3.2 | 48782 | 1.6 | 458 | 15 | 314 L4 | — | — | — | 148000 | 173700 | 62000 | call |
| 3.3 | 47121 | 2.5 | 443 | 45 | — | 316 R4 | — | — | 243500 | 270800 | 102200 | 305 |
| 3.3 | 46956 | 2.1 | 441 | 18 | 315 L4 | — | — | — | 146300 | 171700 | 61200 | 296 |
| 3.3 | 46956 | 2.5 | 441 | 18 | 316 L4 | — | — | — | 243200 | 270500 | 102100 | 304 |
| 3.6 | 43577 | 2.3 | 409 | 40 | — | 315 R4 | — | — | 143000 | 167900 | 59700 | 297 |
| 3.6 | 43577 | 2.6 | 409 | 45 | — | 316 R4 | — | — | 237800 | 264500 | 99600 | 305 |
| 3.8 | 41321 | 1.9 | 388 | 15 | 314 L4 | — | — | — | 140800 | 165300 | 58700 | call |
| 4 | 39353 | 2.5 | 370 | 18 | 315 L4 | — | — | — | 138700 | 162900 | 57700 | 296 |
| 4 | 39353 | 2.8 | 370 | 18 | 316 L4 | — | — | — | 230600 | 256500 | 96200 | 304 |
| 4.2 | 36717 | 2.6 | 345 | 40 | — | 315 R4 | — | — | 135900 | 159500 | 56400 | 297 |
| 4.2 | 36717 | 2.9 | 345 | 45 | — | 316 R4 | — | — | 225900 | 251200 | 94000 | 305 |
| 4.7 | 33439 | 2.3 | 314 | 15 | 314 L4 | — | — | — | 132100 | 155100 | 54700 | call |
| 4.8 | 33446 | 1.2 | 304 | 18 | 313 L3 | — | — | — | 122500 | 145000 | 48100 | 288 |
| 5.5 | 28611 | 2.9 | 269 | 40 | — | 315 R4 | — | — | 126100 | 148000 | 51900 | 297 |
| 5.8 | 27786 | 1.6 | 252 | 18 | 313 L3 | — | — | — | 115900 | 137100 | 45200 | 288 |
| 6 | 27014 | 1.3 | 245 | 18 | 311 L3 | — | — | — | 93000 | 115800 | 36400 | 280 |
| 6.1 | 26503 | 2.5 | 241 | 30 | 315 L3 | — | — | — | 122000 | 143200 | 50000 | 296 |
| 6.1 | 26373 | 2 | 240 | 25 | 314 L3 | — | — | — | 121800 | 143000 | 50000 | call |
| 7 | 22970 | 2 | 209 | 18 | 313 L3 | — | — | — | 109400 | 129500 | 42400 | 288 |
| 7.1 | 22686 | 2.8 | 206 | 25 | 314 L3 | — | — | — | 116400 | 136700 | 47500 | call |
| 7.2 | 22332 | 1.5 | 203 | 18 | 311 L3 | — | — | — | 87800 | 109400 | 34100 | 280 |
| 7.3 | 22221 | 1 | 202 | 18 | 310 L3 | — | — | — | 74200 | 93300 | 34100 | 272 |
| 7.6 | 21317 | 2.2 | 194 | 18 | 313 L3 | — | — | — | 107000 | 126700 | 41400 | 288 |
| 7.7 | 21050 | 1.5 | 191 | 18 | 311 L3 | — | — | — | 86300 | 107500 | 33500 | 280 |
| 8 | 20040 | 1.9 | 182 | 18 | 313 L3 | — | — | — | 105100 | 124300 | 40500 | 288 |
| 8.3 | 19515 | 0.9 | 177 | 18 | 310 L3 | — | — | — | 71400 | 89800 | 32600 | 272 |
| 8.3 | 19354 | 2.3 | 176 | 18 | 313 L3 | — | — | — | 104000 | 123000 | 40100 | 288 |
| 8.6 | 18816 | 1.7 | 171 | 18 | 311 L3 | — | — | — | 83400 | 103900 | 32200 | 280 |
| 9 | 18018 | 1.2 | 164 | 18 | 310 L3 | — | — | — | 69700 | 87600 | 31800 | 272 |
| 9 | 17962 | 2.6 | 163 | 18 | 313 L3 | — | — | — | 101700 | 120300 | 39100 | 288 |
| 9.1 | 17736 | 1.8 | 161 | 18 | 311 L3 | — | — | — | 82000 | 102100 | 31600 | 280 |
| 9.6 | 16847 | 2.3 | 153 | 40 | — | 313 R3 | — | — | 99700 | 118000 | 38200 | 289 |
| 9.7 | 16649 | 2.7 | 151 | 18 | 313 L3 | — | — | — | 99400 | 117600 | 38100 | 288 |
| 10 | 16186 | 2 | 147 | 18 | 311 L3 | — | — | — | 79700 | 99300 | 30700 | 280 |
| 10 | 16149 | 1.7 | 147 | 40 | — | 311 R3 | — | — | 79700 | 99300 | 30600 | 281 |
| 10.2 | 15745 | 2.8 | 143 | 18 | 313 L3 | — | — | — | 97700 | 115700 | 37400 | 288 |
| 10.3 | 15608 | 1.3 | 142 | 18 | 310 L3 | — | — | — | 66700 | 83900 | 30300 | 272 |
| 10.9 | 14848 | 3 | 135 | 18 | 313 L3 | — | — | — | 96000 | 113600 | 36700 | 288 |
| 11 | 14662 | 2 | 133 | 18 | 311 L3 | — | — | — | 77400 | 96400 | 29700 | 280 |
| 11.2 | 14358 | 1.4 | 130 | 18 | 310 L3 | — | — | — | 65100 | 81900 | 29500 | 272 |
| 11.5 | 13996 | 2.9 | 127 | 40 | — | 313 R3 | — | — | 94300 | 111600 | 36000 | 289 |
| 11.7 | 13821 | 2.1 | 126 | 18 | 311 L3 | — | — | — | 76100 | 94700 | 29100 | 280 |

## $P_1$ = 18.5 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | Rn$_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ◄► Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11.9 | 13607 | 2.2 | 124 | 40 | — | 311 R3 | — | — | 75700 | 94300 | 28900 | 281 |
| 12.3 | 13103 | 1.5 | 119 | 18 | 310 L3 | — | — | — | 63300 | 79600 | 28600 | 272 |
| 12.8 | 12613 | 2.3 | 115 | 18 | 311 L3 | — | — | — | 74000 | 92200 | 28200 | 280 |
| 13.3 | 12162 | 1.6 | 110 | 18 | 310 L3 | — | — | — | 61900 | 77900 | 27900 | 272 |
| 14.1 | 11465 | 2.5 | 104 | 40 | — | 311 R3 | — | — | 71900 | 89600 | 27300 | 281 |
| 14.1 | 11425 | 2.4 | 104 | 18 | 311 L3 | — | — | — | 71800 | 89500 | 27300 | 288 |
| 14.5 | 11099 | 1.7 | 101 | 18 | 310 L3 | — | — | — | 60300 | 75800 | 27000 | 272 |
| 15.2 | 10603 | 2.6 | 96.3 | 40 | — | 311 R3 | — | — | 70200 | 87500 | 26600 | 281 |
| 16 | 10054 | 1.9 | 91.3 | 18 | 310 L3 | — | — | — | 58500 | 73600 | 26200 | 272 |
| 16.4 | 9828 | 2.7 | 89.3 | 18 | 311 L3 | — | — | — | 68100 | 84900 | 25700 | 280 |
| 18.1 | 8934 | 2.9 | 81.1 | 40 | — | 311 R3 | — | — | 66700 | 83100 | 25200 | 281 |
| 18.2 | 8845 | 2 | 80.3 | 18 | 310 L3 | — | — | — | 56300 | 70800 | 25100 | 272 |
| 18.9 | 8514 | 3 | 77.3 | 18 | 311 L3 | — | — | — | 65800 | 81900 | 24800 | 280 |
| 19.8 | 8136 | 2.2 | 73.9 | 18 | 310 L3 | — | — | — | 54900 | 69000 | 24400 | 272 |
| 23.4 | 6892 | 2.4 | 62.6 | 18 | 310 L3 | — | — | — | 52200 | 65700 | 23100 | 278 |
| 27.6 | 5838 | 2.7 | 53 | 18 | 310 L3 | — | — | — | 49700 | 62500 | 21800 | 272 |
| 31 | 5315 | 1.6 | 46.7 | 18 | 307 L2 | — | — | — | 39700 | 52100 | 14500 | 256 |
| 31 | 5315 | 2.4 | 46.7 | 18 | 309 L2 | — | — | — | 40400 | 52100 | 11600 | 264 |
| 31 | 5315 | 2.7 | 46.7 | 22 | 310 L2 | — | — | — | 47800 | 60200 | 20900 | 272 |
| 32 | 5289 | 1.2 | 46.5 | 13 | 306 L2 | — | 15000 | 17000 | 36900 | 43000 | 11300 | 248 |
| 38 | 4394 | 1.9 | 38.6 | 18 | 307 L2 | — | — | — | 37500 | 49200 | 13600 | 256 |
| 38 | 4394 | 2.8 | 38.6 | 18 | 309 L2 | — | — | — | 38100 | 49200 | 10900 | 264 |
| 38 | 4372 | 1.5 | 38.4 | 13 | 306 L2 | — | 14100 | 15900 | 34800 | 40600 | 10600 | 248 |
| 44 | 3761 | 1.8 | 33.1 | 13 | 306 L2 | — | 13400 | 15100 | 33300 | 38800 | 10000 | 248 |
| 45 | 3702 | 2.5 | 32.6 | 18 | 307 L2 | — | — | — | 35700 | 46700 | 12800 | 256 |
| 48 | 3490 | 2.7 | 30.7 | 18 | 307 L2 | — | — | — | 35000 | 45900 | 12600 | 256 |
| 52 | 3235 | 2.1 | 28.4 | 13 | 306 L2 | — | 12700 | 14400 | 31800 | 37100 | 9550 | 248 |
| 52 | 3185 | 2.9 | 28 | 18 | 307 L2 | — | — | — | 34100 | 44700 | 12200 | 256 |
| 56 | 2997 | 2.1 | 26.4 | 13 | 306 L2 | — | 12400 | 14000 | 31100 | 36200 | 9310 | 256 |
| 62 | 2677 | 3 | 23.5 | 35 | — | 307 R2 | 13300 | 16600 | 32400 | 42400 | 11500 | 257 |
| 65 | 2578 | 2.4 | 22.7 | 13 | 306 L2 | — | 11800 | 13400 | 29700 | 34600 | 8850 | 248 |
| 81 | 2054 | 2.9 | 18.1 | 13 | 306 L2 | — | 10900 | 12400 | 27800 | 32300 | 8210 | 248 |
| 96 | 1740 | 2.9 | 15.3 | 13 | 306 L2 | — | 10300 | 11700 | 26400 | 30800 | 7770 | 248 |
| 195 | 880 | 1.4 | 7.5 | 11 | 303 L1 | — | 6550 | 7560 | 13000 | 15700 | 4200 | 232 |
| 195 | 880 | 2.6 | 7.5 | 13 | 305 L1 | — | 6550 | 7560 | 13000 | 15700 | 4200 | 240 |
| 236 | 728 | 1.9 | 6.2 | 11 | 303 L1 | — | 6140 | 7090 | 12300 | 14800 | 3940 | 232 |
| 275 | 626 | 2.4 | 5.33 | 11 | 303 L1 | — | 5840 | 6750 | 11800 | 14200 | 3750 | 232 |
| 345 | 499 | 2.9 | 4.25 | 11 | 303 L1 | — | 5420 | 6250 | 11000 | 13200 | 3480 | 232 |

## $P_1$ = 22 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.1 | 174748 | 2 | 1389 | 30 | 319 L4 | — | — | — | 636100 | 700800 | 199500 | 322 |
| 1.1 | 165892 | 1 | 1318 | 18 | 317 L4 | — | — | — | 425400 | 452900 | 143700 | 310 |
| 1.2 | 150321 | 2.4 | 1195 | 30 | 319 L4 | — | — | — | 608000 | 669900 | 189700 | 322 |
| 1.3 | 142703 | 1.2 | 1134 | 18 | 317 L4 | — | — | — | 415100 | 442000 | 139800 | 310 |
| 1.4 | 133274 | 2.1 | 1059 | 22 | 318 L4 | — | — | — | 503000 | 520700 | 182200 | 316 |
| 1.4 | 131211 | 1 | 1043 | 18 | 316 L4 | — | — | — | 314800 | 350100 | 136000 | 304 |
| 1.4 | 129908 | 1.4 | 1032 | 18 | 317 L4 | — | — | — | 403600 | 429700 | 135500 | 310 |
| 1.5 | 126659 | 2.7 | 1007 | 30 | 319 L4 | — | — | — | 577600 | 636300 | 179200 | 322 |
| 1.5 | 119964 | 1.2 | 953 | 50 | — | 317 R4 | — | — | 394100 | 419600 | 132000 | 310 |
| 1.6 | 114733 | 2.9 | 912 | 30 | 319 L4 | — | — | — | 560700 | 617700 | 173400 | 322 |
| 1.6 | 114645 | 2.4 | 911 | 22 | 318 L4 | — | — | — | 487700 | 497700 | 173300 | 316 |
| 1.6 | 114053 | 2.9 | 906 | 115 | — | 319 R4 (C) | — | — | 559700 | 616600 | 173000 | 323 |
| 1.6 | 113716 | 1.5 | 904 | 18 | 317 L4 | — | — | — | 387800 | 412900 | 129600 | 310 |
| 1.7 | 108468 | 0.9 | 862 | 18 | 315 L4 | — | — | — | 178800 | 210000 | 76600 | 296 |
| 1.7 | 108468 | 1.2 | 862 | 18 | 316 L4 | — | — | — | 297400 | 330700 | 127600 | 304 |
| 1.8 | 102242 | 1.3 | 812 | 18 | 316 L4 | — | — | — | 292100 | 324900 | 125100 | 304 |
| 1.8 | 101081 | 1.6 | 803 | 50 | — | 317 R4 | — | — | 374300 | 398500 | 124600 | 311 |
| 1.8 | 99665 | 1.9 | 792 | 18 | 317 L4 | — | — | — | 372700 | 396900 | 124100 | 310 |
| 1.9 | 98432 | 0.9 | 782 | 40 | — | 315 R4 | — | — | 173700 | 203900 | 74100 | 297 |
| 1.9 | 96599 | 2.8 | 768 | 22 | 318 L4 | — | — | — | 463300 | 472800 | 163700 | 316 |
| 2 | 93247 | 1.1 | 741 | 18 | 315 L4 | — | — | — | 170900 | 200700 | 72800 | 296 |
| 2 | 93247 | 1.4 | 741 | 18 | 316 L4 | — | — | — | 284200 | 316100 | 121400 | 304 |
| 2 | 91394 | 1.4 | 726 | 18 | 316 L4 | — | — | — | 282500 | 314100 | 120500 | 304 |
| 2 | 91357 | 2.9 | 726 | 22 | 318 L4 | — | — | — | 455600 | 464900 | 160700 | 316 |
| 2 | 90486 | 2 | 719 | 18 | 317 L4 | — | — | — | 362100 | 385500 | 120100 | 310 |
| 2.1 | 86149 | 1.5 | 685 | 18 | 316 L4 | — | — | — | 277500 | 308600 | 118200 | 304 |
| 2.2 | 85170 | 1.9 | 677 | 50 | — | 317 R4 | — | — | 355600 | 378600 | 117700 | 311 |
| 2.2 | 84520 | 1.2 | 672 | 18 | 315 L4 | — | — | — | 165900 | 194800 | 70500 | 296 |
| 2.2 | 84103 | 1 | 668 | 15 | 314 L4 | — | — | — | 165700 | 194500 | 70300 | call |
| 2.2 | 82938 | 1.1 | 659 | 40 | — | 315 R4 | — | — | 165000 | 193700 | 70000 | 297 |
| 2.3 | 78764 | 2 | 626 | 50 | — | 317 R4 | — | — | 347300 | 369800 | 114700 | 311 |
| 2.3 | 78569 | 1.6 | 624 | 18 | 316 L4 | — | — | — | 270000 | 300300 | 114600 | 304 |
| 2.4 | 78438 | 1.3 | 623 | 40 | — | 315 R4 | — | — | 162300 | 190500 | 68700 | 297 |
| 2.4 | 78438 | 1.5 | 623 | 45 | — | 316 R4 | — | — | 269800 | 300100 | 114500 | 305 |
| 2.4 | 77838 | 2.3 | 619 | 18 | 317 L4 | — | — | — | 346100 | 368500 | 114200 | 310 |
| 2.5 | 74353 | 1.3 | 591 | 18 | 315 L4 | — | — | — | 159700 | 187500 | 67500 | 297 |
| 2.5 | 74353 | 1.6 | 591 | 18 | 316 L4 | — | — | — | 265500 | 295300 | 112500 | 304 |
| 2.5 | 73986 | 1.1 | 588 | 15 | 314 L4 | — | — | — | 159500 | 187200 | 67400 | call |
| 2.6 | 71216 | 1.7 | 566 | 18 | 316 L4 | — | — | — | 262100 | 291500 | 110900 | 304 |
| 2.6 | 69739 | 1.1 | 554 | 15 | 314 L4 | — | — | — | 156600 | 183900 | 66100 | call |
| 2.7 | 69421 | 2.5 | 552 | 18 | 317 L4 | — | — | — | 334400 | 356100 | 110000 | 310 |
| 2.7 | 67129 | 1.5 | 533 | 18 | 315 L4 | — | — | — | 154900 | 181800 | 65200 | 296 |
| 2.7 | 67129 | 1.8 | 533 | 18 | 316 L4 | — | — | — | 257500 | 286400 | 108700 | 304 |

## $P_1$ = 22 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.8 | 66091 | 1.5 | 525 | 40 | — | 315 R4 | — | — | 154100 | 181000 | 64900 | 296 |
| 2.8 | 66091 | 1.8 | 525 | 45 | — | 316 R4 | — | — | 256300 | 285000 | 108200 | 304 |
| 2.8 | 65435 | 2.5 | 520 | 50 | — | 317 R4 | — | — | 328500 | 349800 | 107800 | 310 |
| 3 | 62234 | 1.3 | 495 | 15 | 314 L4 | — | — | — | 151400 | 177700 | 63600 | call |
| 3 | 62027 | 2.7 | 493 | 18 | 317 L4 | — | — | — | 323300 | 344200 | 105900 | 310 |
| 3 | 61261 | 1.6 | 487 | 18 | 315 L4 | — | — | — | 150700 | 176900 | 63300 | 296 |
| 3 | 61261 | 1.9 | 487 | 18 | 316 L4 | — | — | — | 250500 | 278600 | 105500 | 304 |
| 3.2 | 57651 | 1.4 | 458 | 15 | 314 L4 | — | — | — | 148000 | 173700 | 62000 | call |
| 3.3 | 56477 | 2.9 | 449 | 18 | 317 L4 | — | — | — | 314300 | 334700 | 102700 | 310 |
| 3.3 | 55688 | 2.1 | 443 | 45 | — | 316 R4 | — | — | 243500 | 270800 | 102200 | 305 |
| 3.3 | 55493 | 1.8 | 441 | 18 | 315 L4 | — | — | — | 146300 | 171700 | 61200 | 296 |
| 3.3 | 55493 | 2.1 | 441 | 18 | 316 L4 | — | — | — | 243200 | 270500 | 102100 | 304 |
| 3.3 | 55135 | 2.8 | 438 | 50 | — | 317 R4 | — | — | 312100 | 332300 | 101800 | 311 |
| 3.6 | 51500 | 1.9 | 409 | 40 | — | 315 R4 | — | — | 143000 | 167900 | 59700 | 297 |
| 3.6 | 51500 | 2.2 | 409 | 45 | — | 316 R4 | — | — | 237800 | 264500 | 99600 | 305 |
| 3.7 | 50201 | 2.9 | 399 | 50 | — | 317 R4 | — | — | 303400 | 323100 | 98700 | 311 |
| 3.8 | 48834 | 1.6 | 388 | 15 | 314 L4 | — | — | — | 140800 | 165300 | 58700 | call |
| 4 | 46509 | 2.1 | 370 | 18 | 315 L4 | — | — | — | 138700 | 162900 | 57700 | 296 |
| 4 | 46509 | 2.4 | 370 | 18 | 316 L4 | — | — | — | 230600 | 256500 | 96200 | 304 |
| 4.2 | 43393 | 2.2 | 345 | 40 | — | 315 R4 | — | — | 135900 | 159500 | 56400 | 296 |
| 4.2 | 43393 | 2.5 | 345 | 45 | — | 316 R4 | — | — | 225900 | 251200 | 94000 | 305 |
| 4.4 | 42299 | 2.9 | 336 | 50 | — | 317 R4 | — | — | 288200 | 306900 | 93200 | 311 |
| 4.5 | 41351 | 2.6 | 329 | 18 | 316 L4 | — | — | — | 222700 | 247600 | 92500 | 304 |
| 4.7 | 39519 | 2 | 314 | 15 | 314 L4 | — | — | — | 132100 | 155100 | 54700 | call |
| 4.8 | 39527 | 1 | 304 | 18 | 313 L3 | — | — | — | 122500 | 145000 | 48100 | 288 |
| 4.8 | 38040 | 2.5 | 302 | 18 | 315 L4 | — | — | — | 130600 | 153300 | 54000 | 296 |
| 4.8 | 38040 | 2.7 | 302 | 18 | 316 L4 | — | — | — | 217100 | 241500 | 90000 | 304 |
| 5.1 | 36368 | 2.9 | 289 | 45 | — | 316 R4 | — | — | 214200 | 238300 | 88700 | 305 |
| 5.5 | 33813 | 2.4 | 269 | 40 | — | 315 R4 | — | — | 126100 | 148000 | 51900 | 297 |
| 5.5 | 33813 | 2.9 | 269 | 45 | — | 316 R4 | — | — | 209600 | 233100 | 86500 | 305 |
| 5.6 | 32961 | 2.9 | 262 | 50 | — | 317 R4 | — | — | 267500 | 284800 | 85800 | 311 |
| 5.8 | 32838 | 1.4 | 252 | 18 | 313 L3 | — | — | — | 115900 | 137100 | 45200 | 288 |
| 6 | 31926 | 1.1 | 245 | 18 | 311 L3 | — | — | — | 93000 | 115800 | 36400 | 280 |
| 6.1 | 31322 | 2.1 | 241 | 30 | 315 L3 | — | — | — | 122000 | 143200 | 50000 | 296 |
| 6.1 | 31168 | 1.7 | 240 | 25 | 314 L3 | — | — | — | 121800 | 143000 | 50000 | call |
| 6.5 | 28339 | 2.7 | 225 | 40 | — | 315 R4 | — | — | 119600 | 140400 | 48900 | 297 |
| 6.7 | 27624 | 2.9 | 220 | 50 | — | 317 R4 | — | — | 253600 | 270100 | 80900 | 311 |
| 7 | 27146 | 1.7 | 209 | 18 | 313 L3 | — | — | — | 109400 | 129500 | 42400 | 288 |
| 7.1 | 26944 | 3 | 207 | 30 | 315 L3 | — | — | — | 116600 | 136900 | 47600 | 296 |
| 7.1 | 26811 | 2.4 | 206 | 25 | 314 L3 | — | — | — | 116400 | 136700 | 47500 | call |
| 7.2 | 26392 | 1.3 | 203 | 18 | 311 L3 | — | — | — | 87800 | 109400 | 34100 | 280 |
| 7.6 | 25193 | 1.9 | 194 | 18 | 313 L3 | — | — | — | 107000 | 126700 | 41400 | 288 |
| 7.7 | 24877 | 1.3 | 191 | 18 | 311 L3 | — | — | — | 86300 | 107500 | 33500 | 280 |

## $P_1$ = 22 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | Rn$_2$ [N] | | | | | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | MC | MZ | HC/PC | HZ/PZ | FZ | |
| 8 | 23684 | 1.6 | 182 | 18 | 313 L3 | — | — | — | 105100 | 124300 | 40500 | 288 |
| 8.3 | 22873 | 2 | 176 | 18 | 313 L3 | — | — | — | 104000 | 123000 | 40100 | 288 |
| 8.4 | 22591 | 2.8 | 174 | 25 | 314 L3 | — | — | — | 110600 | 129800 | 44900 | call |
| 8.6 | 22238 | 1.5 | 171 | 18 | 311 L3 | — | — | — | 83400 | 103900 | 32200 | 280 |
| 9 | 21294 | 1 | 164 | 18 | 310 L3 | — | — | — | 69700 | 87600 | 31800 | 272 |
| 9 | 21227 | 2.2 | 163 | 18 | 313 L3 | — | — | — | 101700 | 120300 | 39100 | 288 |
| 9.1 | 20961 | 1.5 | 161 | 18 | 311 L3 | — | — | — | 82000 | 102100 | 31600 | 280 |
| 9.3 | 20443 | 2.5 | 157 | 55 | — | 314 R3 (C) | — | — | 107300 | 126000 | 43400 | call |
| 9.6 | 19910 | 2 | 153 | 40 | — | 313 R3 | — | — | 99700 | 118000 | 38200 | 289 |
| 9.7 | 19676 | 2.3 | 151 | 18 | 313 L3 | — | — | — | 99400 | 117600 | 38100 | 288 |
| 10 | 19129 | 1.7 | 147 | 18 | 311 L3 | — | — | — | 79700 | 99300 | 30700 | 280 |
| 10 | 19085 | 1.4 | 147 | 40 | — | 311 R3 | — | — | 79700 | 99300 | 30600 | 281 |
| 10.2 | 18608 | 2.4 | 143 | 18 | 313 L3 | — | — | — | 97700 | 115700 | 37400 | 288 |
| 10.3 | 18446 | 1.1 | 142 | 18 | 310 L3 | — | — | — | 66700 | 83900 | 30300 | 272 |
| 10.9 | 17548 | 2.5 | 135 | 18 | 313 L3 | — | — | — | 96000 | 113600 | 36700 | 288 |
| 11 | 17328 | 1.7 | 133 | 18 | 311 L3 | — | — | — | 77400 | 96400 | 29700 | 280 |
| 11.2 | 16969 | 1.2 | 130 | 18 | 310 L3 | — | — | — | 65100 | 81900 | 29500 | 272 |
| 11.5 | 16541 | 2.5 | 127 | 40 | — | 313 R3 | — | — | 94300 | 111600 | 36000 | 288 |
| 11.7 | 16333 | 1.8 | 126 | 18 | 311 L3 | — | — | — | 76100 | 94700 | 29100 | 280 |
| 11.9 | 16081 | 1.9 | 124 | 40 | — | 311 R3 | — | — | 75700 | 94300 | 28900 | 281 |
| 12.2 | 15679 | 2.7 | 120 | 18 | 313 L3 | — | — | — | 92800 | 109900 | 35300 | 288 |
| 12.3 | 15485 | 1.3 | 119 | 18 | 310 L3 | — | — | — | 63300 | 79600 | 28600 | 272 |
| 12.8 | 14906 | 1.9 | 115 | 18 | 311 L3 | — | — | — | 74000 | 92200 | 28200 | 280 |
| 13.3 | 14373 | 1.4 | 110 | 18 | 310 L3 | — | — | — | 61900 | 77900 | 27900 | 272 |
| 13.4 | 14276 | 2.9 | 110 | 18 | 313 L3 | — | — | — | 90300 | 106800 | 34200 | 288 |
| 13.7 | 13937 | 2.8 | 107 | 40 | — | 313 R3 | — | — | 89600 | 106000 | 34000 | 288 |
| 14.1 | 13550 | 2.1 | 104 | 40 | — | 311 R3 | — | — | 71900 | 89600 | 27300 | 281 |
| 14.1 | 13502 | 2.1 | 104 | 18 | 311 L3 | — | — | — | 71800 | 89500 | 27300 | 280 |
| 14.5 | 13117 | 1.4 | 101 | 18 | 310 L3 | — | — | — | 60300 | 75800 | 27000 | 272 |
| 15 | 12690 | 2.9 | 97.5 | 40 | — | 313 R3 | — | — | 87100 | 103100 | 32900 | 289 |
| 15.2 | 12531 | 2.2 | 96.3 | 40 | — | 311 R3 | — | — | 70200 | 87500 | 26600 | 281 |
| 16 | 11882 | 1.6 | 91.3 | 18 | 310 L3 | — | — | — | 58500 | 73600 | 26200 | 272 |
| 16.4 | 11615 | 2.3 | 89.3 | 18 | 311 L3 | — | — | — | 68100 | 84900 | 25700 | 280 |
| 17.8 | 10692 | 2.9 | 82.2 | 40 | — | 313 R3 | — | — | 82800 | 97900 | 31100 | 289 |
| 18.1 | 10558 | 2.5 | 81.1 | 40 | — | 311 R3 | — | — | 66700 | 83100 | 25200 | 285 |
| 18.2 | 10453 | 1.7 | 80.3 | 18 | 310 L3 | — | — | — | 56300 | 70800 | 25100 | 272 |
| 18.9 | 10061 | 2.5 | 77.3 | 18 | 311 L3 | — | — | — | 65800 | 81900 | 24800 | 280 |
| 19.8 | 9616 | 1.8 | 73.9 | 18 | 310 L3 | — | — | — | 54900 | 69000 | 24400 | 272 |
| 20.6 | 9256 | 2.7 | 71.1 | 18 | 311 L3 | — | — | — | 64100 | 79900 | 24100 | 280 |
| 20.9 | 9102 | 2.9 | 69.9 | 40 | — | 313 R3 | — | — | 78900 | 93300 | 29500 | 289 |
| 21.5 | 8849 | 2.7 | 68 | 40 | — | 311 R3 | — | — | 63300 | 78800 | 23700 | 281 |
| 22.9 | 8332 | 2.9 | 64 | 40 | — | 313 R3 | — | — | 76800 | 90900 | 28600 | 289 |
| 23.2 | 8227 | 2.9 | 63.2 | 40 | — | 311 R3 | — | — | 61900 | 77100 | 23100 | 281 |

## $P_1$ = 22 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 23.4 | 8145 | 2 | 62.6 | 18 | 310 L3 | — | — | — | 52200 | 65700 | 23100 | 272 |
| 27.3 | 6983 | 2.9 | 53.7 | 40 | — | 313 R3 | — | — | 72800 | 86200 | 27000 | 289 |
| 27.6 | 6899 | 2.3 | 53 | 18 | 310 L3 | — | — | — | 49700 | 62500 | 21800 | 272 |
| 27.6 | 6895 | 2.9 | 53 | 40 | — | 311 R3 | — | — | 58700 | 73100 | 21800 | 281 |
| 31 | 6282 | 1.3 | 46.7 | 18 | 307 L2 | — | — | — | 39700 | 52100 | 14500 | 256 |
| 31 | 6282 | 2 | 46.7 | 18 | 309 L2 | — | — | — | 40400 | 52100 | 11600 | 264 |
| 31 | 6282 | 2.3 | 46.7 | 22 | 310 L2 | — | — | — | 47800 | 60200 | 20900 | 272 |
| 32 | 6251 | 1 | 46.5 | 13 | 306 L2 | — | 15000 | 17000 | 36900 | 43000 | 11300 | 248 |
| 38 | 5193 | 1.6 | 38.6 | 18 | 307 L2 | — | — | — | 37500 | 49200 | 13600 | 256 |
| 38 | 5193 | 2.4 | 38.6 | 18 | 309 L2 | — | — | — | 38100 | 49200 | 10900 | 264 |
| 38 | 5193 | 2.6 | 38.6 | 22 | 310 L2 | — | — | — | 45200 | 56800 | 19600 | 274 |
| 38 | 5167 | 1.3 | 38.4 | 13 | 306 L2 | — | 14100 | 15900 | 34800 | 40600 | 10600 | 248 |
| 44 | 4445 | 1.5 | 33.1 | 13 | 306 L2 | — | 13400 | 15100 | 33300 | 38800 | 10000 | 248 |
| 45 | 4375 | 2.2 | 32.6 | 18 | 307 L2 | — | — | — | 35700 | 46700 | 12800 | 264 |
| 45 | 4375 | 3 | 32.6 | 18 | 309 L2 | — | — | — | 36200 | 46700 | 10300 | 264 |
| 48 | 4124 | 2.3 | 30.7 | 18 | 307 L2 | — | — | — | 35000 | 45900 | 12600 | 256 |
| 52 | 3824 | 1.8 | 28.4 | 13 | 306 L2 | — | 12700 | 14400 | 31800 | 37100 | 9550 | 248 |
| 52 | 3764 | 2.4 | 28 | 18 | 307 L2 | — | — | — | 34100 | 44700 | 12200 | 264 |
| 56 | 3542 | 1.8 | 26.4 | 13 | 306 L2 | — | 12400 | 14000 | 31100 | 36200 | 9310 | 248 |
| 58 | 3409 | 2.7 | 25.4 | 18 | 307 L2 | — | — | — | 33100 | 43400 | 11800 | 256 |
| 62 | 3164 | 2.9 | 23.5 | 35 | — | 309 R2 | — | — | 32900 | 42400 | 9220 | 265 |
| 62 | 3164 | 2.5 | 23.5 | 35 | — | 307 R2 | — | — | 32400 | 42400 | 11500 | 257 |
| 65 | 3047 | 2 | 22.7 | 13 | 306 L2 | — | 11800 | 13400 | 29700 | 34600 | 8850 | 248 |
| 67 | 2933 | 3 | 21.8 | 18 | 307 L2 | — | — | — | 31600 | 41400 | 11200 | 256 |
| 74 | 2666 | 2.9 | 19.8 | 35 | — | 309 R2 | — | — | 31200 | 40300 | 8710 | 264 |
| 74 | 2666 | 2.9 | 19.8 | 35 | — | 307 R2 | — | — | 30700 | 40300 | 10900 | 256 |
| 81 | 2428 | 2.4 | 18.1 | 13 | 306 L2 | — | 10900 | 12400 | 27800 | 32300 | 8210 | 248 |
| 95 | 2077 | 2.9 | 15.5 | 35 | — | 309 R2 | — | — | 29000 | 37400 | 8020 | 265 |
| 95 | 2077 | 2.9 | 15.5 | 35 | — | 307 R2 | — | — | 28500 | 37400 | 10000 | 257 |
| 96 | 2057 | 2.4 | 15.3 | 13 | 306 L2 | — | 10300 | 11700 | 26400 | 30800 | 7770 | 248 |
| 113 | 1742 | 2.8 | 13 | 13 | 306 L2 | — | 9780 | 11100 | 25100 | 29300 | 7350 | 248 |
| 113 | 1741 | 2.9 | 13 | 35 | — | 309 R2 | — | — | 27500 | 35400 | 7560 | 265 |
| 113 | 1741 | 2.9 | 13 | 35 | — | 307 R2 | — | — | 27000 | 35400 | 9450 | 257 |
| 195 | 1040 | 1.2 | 7.5 | 11 | 303 L1 | — | 6550 | 7560 | 13000 | 15700 | 4200 | 232 |
| 195 | 1040 | 2.2 | 7.5 | 13 | 305 L1 | — | 6550 | 7560 | 13000 | 15700 | 4200 | 240 |
| 236 | 860 | 1.6 | 6.2 | 11 | 303 L1 | — | 6140 | 7090 | 12300 | 14800 | 3940 | 232 |
| 275 | 740 | 2 | 5.33 | 11 | 303 L1 | — | 5840 | 6750 | 11800 | 14200 | 3750 | 232 |
| 345 | 590 | 2.4 | 4.25 | 11 | 303 L1 | — | 5420 | 6250 | 11000 | 13200 | 3480 | 232 |
| 407 | 499 | 2.8 | 3.6 | 11 | 303 L1 | — | 5010 | 5780 | 10300 | 12300 | 3210 | 232 |

## $P_1$ = 30 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.1 | 239514 | 1.5 | 1389 | 30 | 319 L4 | | — | — | 636100 | 700800 | 199500 | 322 |
| 1.2 | 206034 | 1.7 | 1195 | 30 | 319 L4 | | — | — | 608000 | 669900 | 189700 | 322 |
| 1.3 | 193443 | 2.7 | 1122 | 35 | 321 L4 | | — | — | 731900 | 867900 | 1114500 | 328 |
| 1.4 | 182670 | 1.5 | 1059 | 22 | 318 L4 | | — | — | 503000 | 520700 | 182200 | 316 |
| 1.4 | 178055 | 1 | 1032 | 18 | 317 L4 | | — | — | 403600 | 429700 | 135500 | 310 |
| 1.5 | 173603 | 2 | 1007 | 30 | 319 L4 | | — | — | 577600 | 636300 | 179200 | 322 |
| 1.6 | 157257 | 2.1 | 912 | 30 | 319 L4 | | — | — | 560700 | 173400 | 173400 | 322 |
| 1.6 | 157135 | 1.7 | 911 | 22 | 318 L4 | | — | — | 487700 | 497700 | 173300 | 316 |
| 1.6 | 156325 | 2.1 | 906 | 115 | — | 319 R4 (C) | — | — | 559700 | 616600 | 173000 | 323 |
| 1.6 | 155863 | 1.1 | 904 | 18 | 317 L4 | | — | — | 387800 | 412900 | 129600 | 310 |
| 1.7 | 146694 | 2.5 | 850 | 30 | 319 L4 | | — | — | 549100 | 605000 | 169400 | 322 |
| 1.8 | 140136 | 0.9 | 812 | 18 | 316 L4 | | — | — | 286100 | 318200 | 122300 | 305 |
| 1.8 | 138545 | 1.2 | 803 | 50 | — | 317 R4 | — | — | 374300 | 398500 | 124600 | 311 |
| 1.8 | 136603 | 1.4 | 792 | 18 | 317 L4 | | — | — | 372700 | 396900 | 124100 | 310 |
| 1.9 | 134473 | 2.5 | 780 | 115 | — | 319 R4 (C) | — | — | 535000 | 589400 | 164500 | 323 |
| 1.9 | 132401 | 2 | 768 | 22 | 318L4 | | — | — | 463300 | 472800 | 163700 | 316 |
| 2 | 127807 | 1 | 741 | 18 | 316L4 | | — | — | 284200 | 316100 | 121400 | 304 |
| 2 | 125267 | 1 | 726 | 18 | 316L4 | | — | — | 282500 | 314100 | 120500 | 304 |
| 2 | 125217 | 2.1 | 726 | 22 | 318L4 | | — | — | 455600 | 464900 | 160700 | 316 |
| 2 | 124023 | 1.4 | 719 | 18 | 317L4 | | — | — | 362100 | 385500 | 120100 | 310 |
| 2 | 123603 | 2.9 | 717 | 30 | 319L4 | | — | — | 521600 | 574700 | 160000 | 322 |
| 2.1 | 119224 | 2.2 | 691 | 110 | — | 318R4(C) | | — | 448900 | 458100 | 158100 | 317 |
| 2.1 | 118078 | 1.1 | 685 | 18 | 316L4 | | — | — | 277500 | 308600 | 118200 | 304 |
| 2.2 | 116737 | 1.4 | 677 | 50 | — | 317R4 | | — | 355600 | 378600 | 117700 | 311 |
| 2.2 | 113306 | 2.8 | 657 | 115 | — | 319R4(C) | | — | 508200 | 559900 | 155400 | 323 |
| 2.2 | 112919 | 2.8 | 655 | 95 | — | 319R4(B) | | — | 507700 | 559300 | 155200 | 323 |
| 2.3 | 111560 | 2.4 | 647 | 22 | 318L4 | | — | — | 440100 | 449100 | 154600 | 317 |
| 2.3 | 107957 | 1.4 | 626 | 50 | — | 317R4 | | — | 347300 | 369800 | 114700 | 311 |
| 2.3 | 107690 | 1.2 | 624 | 18 | 316L4 | | — | — | 270000 | 300300 | 114600 | 304 |
| 2.3 | 107510 | 0.9 | 623 | 40 | — | 315R4 | | — | 162300 | 190500 | 68700 | 297 |
| 2.3 | 107510 | 1.1 | 623 | 45 | — | 316R4 | | — | 269800 | 300100 | 114500 | 305 |
| 2.4 | 106687 | 1.7 | 619 | 18 | 317L4 | | — | — | 346100 | 368500 | 114200 | 308 |
| 2.4 | 105507 | 2.5 | 612 | 22 | 318L4 | | — | — | 432800 | 441700 | 151800 | 316 |
| 2.5 | 102558 | 2.6 | 595 | 110 | — | 318R4(C) | | — | 429100 | 437900 | 150300 | 317 |
| 2.5 | 101910 | 1 | 591 | 18 | 315L4 | | — | — | 159700 | 187500 | 67500 | 296 |
| 2.5 | 101910 | 1.2 | 591 | 18 | 316L4 | — | — | — | 265500 | 295300 | 112500 | 304 |
| 2.6 | 97611 | 1.3 | 566 | 18 | 316L4 | — | — | — | 262100 | 291500 | 110900 | 304 |
| 2.6 | 95150 | 1.8 | 552 | 18 | 317L4 | — | — | — | 334400 | 356100 | 110000 | 310 |
| 2.7 | 92009 | 1.1 | 533 | 18 | 315L4 | — | — | — | 154900 | 181800 | 65200 | 296 |
| 2.7 | 92009 | 1.3 | 533 | 18 | 316L4 | — | — | — | 257500 | 286400 | 108700 | 304 |
| 2.8 | 90587 | 1.1 | 525 | 40 | — | 315R4 | — | — | 154100 | 181000 | 64900 | 297 |
| 2.8 | 90587 | 1.3 | 525 | 45 | — | 316R4 | — | — | 256300 | 285000 | 108200 | 305 |

## $P_1$ = 30 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.8 | 89687 | 1.8 | 520 | 50 | — | 317R4 | | — | 328500 | 349800 | 107800 | 309 |
| 2.8 | 88899 | 2.8 | 515 | 22 | 318L4 | | — | — | 411100 | 419500 | 143300 | 316 |
| 2.9 | 86415 | 2.9 | 501 | 110 | — | 318R4(C) | — | — | 407600 | 416000 | 142000 | 317 |
| 2.9 | 86120 | 2.9 | 499 | 90 | — | 318R4(B) | | | 407200 | 415600 | 141800 | 317 |
| 3 | 85299 | 0.9 | 495 | 15 | 314L4 | | — | — | 151400 | 177700 | 63600 | call |
| 3 | 85016 | 2 | 493 | 18 | 317L4 | | — | — | 323300 | 344200 | 105900 | 310 |
| 3 | 83966 | 1.2 | 487 | 18 | 315L4 | | — | — | 150700 | 176900 | 63300 | 296 |
| 3 | 83966 | 1.4 | 487 | 18 | 316L4 | | — | — | 250500 | 278600 | 105500 | 304 |
| 3.2 | 79018 | 1 | 458 | 15 | 314 L4 | | — | — | 148000 | 173700 | 62000 | call |
| 3.3 | 77409 | 2.1 | 449 | 18 | 317 L4 | | — | — | 314300 | 334700 | 102700 | 310 |
| 3.3 | 76328 | 1.5 | 443 | 45 | — | 316R4 | | — | 243500 | 270800 | 102200 | 304 |
| 3.3 | 76060 | 1.3 | 441 | 18 | 315 L4 | | — | — | 146300 | 171700 | 61200 | 296 |
| 3.3 | 76060 | 1.5 | 441 | 18 | 316 L4 | | — | — | 243200 | 270500 | 102100 | 304 |
| 3.3 | 75570 | 2.1 | 438 | 50 | — | 317R4 | — | — | 312100 | 332300 | 101800 | 311 |
| 3.6 | 70587 | 1.4 | 409 | 40 | — | 315R4 | — | — | 143000 | 167900 | 59700 | 297 |
| 3.6 | 70587 | 1.6 | 409 | 45 | — | 316R4 | — | — | 237800 | 264500 | 99600 | 304 |
| 3.7 | 68808 | 2.2 | 399 | 50 | — | 317R4 | — | — | 303400 | 323100 | 98700 | 311 |
| 3.8 | 66933 | 1.2 | 388 | 15 | 314L4 | | — | — | 140800 | 165300 | 58700 | call |
| 4 | 63746 | 1.5 | 370 | 18 | 315L4 | | — | — | 138700 | 162900 | 57700 | 296 |
| 4 | 63746 | 1.7 | 370 | 18 | 316L4 | | — | — | 230600 | 256500 | 96200 | 304 |
| 4.1 | 62139 | 2.5 | 360 | 18 | 317L4 | | — | — | 294300 | 313300 | 95400 | 310 |
| 4.2 | 59476 | 1.6 | 345 | 40 | — | 315R4 | | — | 135900 | 159500 | 56400 | 297 |
| 4.2 | 59476 | 1.8 | 345 | 45 | — | 316R4 | | — | 225900 | 251200 | 94000 | 305 |
| 4.3 | 57977 | 2.2 | 336 | 50 | — | 317R4 | | — | 288200 | 306900 | 93200 | 311 |
| 4.4 | 56677 | 1.9 | 329 | 18 | 316 L4 | | — | — | 222700 | 247600 | 92500 | 305 |
| 4.6 | 54166 | 1.4 | 314 | 15 | 314 L4 | | — | — | 132100 | 155100 | 54700 | call |
| 4.7 | 53453 | 2.7 | 310 | 18 | 317 L4 | | — | — | 281300 | 299500 | 90700 | 308 |
| 4.8 | 52138 | 1.9 | 302 | 18 | 315 L4 | | — | — | 130600 | 153300 | 54000 | 294 |
| 4.8 | 52138 | 2 | 302 | 18 | 316 L4 | | — | — | 217100 | 241500 | 90000 | 302 |
| 5.1 | 49847 | 2.1 | 289 | 45 | — | 316R4 | — | — | 214200 | 238300 | 88700 | 303 |
| 5.4 | 46345 | 1.8 | 269 | 40 | — | 315R4 | — | — | 126100 | 148000 | 51900 | 297 |
| 5.4 | 46345 | 2.2 | 269 | 45 | — | 316R4 | — | — | 209600 | 233100 | 86500 | 305 |
| 5.6 | 45177 | 2.2 | 262 | 50 | — | 317R4 | — | — | 267500 | 284800 | 85800 | 311 |
| 5.7 | 44164 | 2.2 | 256 | 18 | 316 L4 | | — | — | 206600 | 229800 | 85100 | 304 |
| 5.8 | 45008 | 1 | 252 | 18 | 317 L3 | | — | — | 115900 | 137100 | 45200 | 310 |
| 5.8 | 45008 | 2.7 | 252 | 35 | 313 L3 | | — | — | 264500 | 281600 | 84700 | 288 |
| 6.1 | 42931 | 1.5 | 241 | 30 | 315 L3 | | — | — | 122000 | 143200 | 50000 | 296 |
| 6.1 | 42719 | 1.2 | 240 | 25 | 314 L3 | | — | — | 121800 | 143000 | 50000 | call |
| 6.5 | 38842 | 2 | 225 | 40 | — | 315R4 | — | — | 119600 | 140400 | 48900 | 296 |
| 6.5 | 38842 | 2.4 | 225 | 45 | — | 316R4 | — | — | 198800 | 221100 | 81600 | 304 |
| 6.7 | 37862 | 2.1 | 220 | 50 | — | 317R4 | — | — | 253600 | 270100 | 80900 | 311 |
| 6.8 | 37014 | 2.5 | 215 | 18 | 316L4 | | — | — | 195900 | 217900 | 80300 | 304 |
| 7 | 37207 | 1.2 | 209 | 18 | 313L3 | | — | — | 109400 | 129500 | 42400 | 288 |

## $P_1$ = 30 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ◄► Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7.1 | 36930 | 2.2 | 207 | 30 | 315L3 | | — | — | 116600 | 136900 | 47600 | 296 |
| 7.1 | 36748 | 1.7 | 206 | 25 | 314L3 | | — | — | 116400 | 136700 | 47500 | call |
| 7.2 | 36173 | 0.9 | 203 | 18 | 311L3 | | — | — | 86000 | 107200 | 33400 | 280 |
| 7.5 | 34530 | 1.4 | 194 | 18 | 313L3 | | — | — | 107000 | 126700 | 41400 | 288 |
| 7.6 | 34097 | 0.9 | 191 | 18 | 311L3 | | — | — | 86300 | 107500 | 33500 | 280 |
| 8 | 32462 | 1.2 | 182 | 18 | 313L3 | | — | — | 105100 | 124300 | 40500 | 288 |
| 8.3 | 31350 | 1.4 | 176 | 18 | 313L3 | | — | — | 104000 | 123000 | 40100 | 288 |
| 8.4 | 31117 | 2.5 | 174 | 30 | 315L3 | | — | — | 110700 | 130000 | 45000 | 296 |
| 8.4 | 30963 | 2 | 174 | 25 | 314L3 | | — | — | 110600 | 129800 | 44900 | call |
| 8.5 | 30479 | 1.1 | 171 | 18 | 311L3 | | — | — | 83400 | 103900 | 32200 | 280 |
| 8.8 | 29429 | 2.7 | 165 | 30 | 315L3 | | — | — | 108900 | 127900 | 44100 | 296 |
| 8.8 | 29429 | 2.8 | 165 | 35 | 316L3 | | — | — | 181100 | 201400 | 73500 | 304 |
| 8.9 | 29283 | 2.2 | 164 | 25 | 314L3 | | — | — | 108700 | 127700 | 44100 | call |
| 9 | 29095 | 1.6 | 163 | 18 | 313L3 | | — | — | 101700 | 120300 | 39100 | 288 |
| 9.1 | 28730 | 1.1 | 161 | 18 | 311L3 | | — | — | 82000 | 102100 | 31600 | 280 |
| 9.3 | 28020 | 1.9 | 157 | 55 | — | 314R3(C) | — | — | 107300 | 126000 | 43400 | call |
| 9.3 | 28020 | 2.3 | 157 | 90 | — | 315R3(C) | — | — | 107300 | 126000 | 43400 | 297 |
| 9.5 | 27289 | 1.4 | 153 | 40 | — | 313R3 | — | — | 99700 | 118000 | 38200 | 280 |
| 9.7 | 26968 | 1.7 | 151 | 18 | 313L3 | | — | — | 99400 | 117600 | 38100 | 288 |
| 9.9 | 26219 | 1.2 | 147 | 18 | 311L3 | | — | — | 79700 | 99300 | 30700 | 280 |
| 10 | 26159 | 1 | 147 | 40 | — | 311R3 | — | — | 79700 | 99300 | 30600 | 281 |
| 10.2 | 25505 | 1.7 | 143 | 18 | 313L3 | | — | — | 97700 | 115700 | 37400 | 288 |
| 10.6 | 24674 | 2.6 | 138 | 25 | 314L3 | | — | — | 103300 | 121300 | 41600 | call |
| 10.8 | 24103 | 2.5 | 135 | 55 | — | 314R3(C) | — | — | 102600 | 120400 | 41300 | call |
| 10.8 | 24052 | 1.8 | 135 | 18 | 313L3 | | — | — | 96000 | 113600 | 36700 | 288 |
| 11 | 23750 | 1.3 | 133 | 18 | 311L3 | | — | — | 77400 | 96400 | 29700 | 280 |
| 11.5 | 22671 | 1.8 | 127 | 40 | — | 313R3 | — | — | 94300 | 111600 | 36000 | 289 |
| 11.6 | 22387 | 1.3 | 126 | 18 | 311L3 | | — | — | 76100 | 94700 | 29100 | 280 |
| 11.8 | 22041 | 1.4 | 124 | 40 | — | 311R3 | — | — | 75700 | 94300 | 28900 | 281 |
| 12.1 | 21490 | 2 | 120 | 18 | 313L3 | | — | — | 92800 | 109900 | 35300 | 288 |
| 12.3 | 21225 | 0.9 | 119 | 18 | 310L3 | | — | — | 63300 | 79600 | 28600 | 272 |
| 12.7 | 20430 | 1.4 | 115 | 18 | 311L3 | | — | — | 74000 | 92200 | 28200 | 280 |
| 12.8 | 20309 | 2.5 | 114 | 55 | — | 314R3(C) | — | — | 97400 | 114400 | 39000 | call |
| 12.9 | 20240 | 2.4 | 113 | 55 | — | 314R3 | — | — | 97300 | 114300 | 38900 | call |
| 12.9 | 20240 | 3 | 113 | 75 | — | 315R3(B) | — | — | 97300 | 114300 | 38900 | 297 |
| 13.2 | 19701 | 1 | 110 | 18 | 310L3 | | — | — | 60700 | 76300 | 27200 | 272 |
| 13.3 | 19567 | 2.1 | 110 | 18 | 313L3 | | — | — | 90300 | 106800 | 34200 | 288 |
| 13.5 | 19226 | 3 | 108 | 25 | 314L3 | | — | — | 95900 | 112500 | 38300 | call |
| 13.6 | 19207 | 2.6 | 108 | 55 | — | 314R3(C) | — | — | 95800 | 112500 | 38300 | call |
| 13.6 | 19102 | 2 | 107 | 40 | — | 313R3 | — | — | 89600 | 106000 | 34000 | 289 |
| 14 | 18572 | 1.5 | 104 | 40 | — | 311R3 | — | — | 71900 | 89600 | 27300 | 281 |

## $P_1$ = 30 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18.2 | 14327 | 1.2 | 80.3 | 18 | 310L3 | | — | — | 56300 | 70800 | 25100 | 272 |
| 18.6 | 13966 | 2.7 | 78.3 | 18 | 313L3 | | — | — | 81600 | 96500 | 30600 | 288 |
| 18.9 | 13790 | 1.8 | 77.3 | 18 | 311L3 | | — | — | 65800 | 81900 | 24800 | 280 |
| 19.8 | 13179 | 1.3 | 73.9 | 18 | 310L3 | | — | — | 54900 | 69000 | 24400 | 272 |
| 20.3 | 12847 | 2.8 | 72 | 18 | 313L3 | | — | — | 79600 | 94100 | 29800 | 288 |
| 20.5 | 12686 | 2 | 71.1 | 18 | 311L3 | | — | — | 64100 | 79900 | 24100 | 280 |
| 20.9 | 12475 | 2.1 | 69.9 | 40 | — | 313R3 | — | — | 78900 | 93300 | 29500 | 289 |
| 21.5 | 12128 | 2 | 68 | 40 | — | 311R3 | — | — | 63300 | 78800 | 23700 | 281 |
| 22.8 | 11420 | 2.1 | 64 | 40 | — | 313R3 | — | — | 76800 | 90900 | 28600 | 289 |
| 23.1 | 11276 | 2.1 | 63.2 | 40 | — | 311R3 | — | — | 61900 | 77100 | 23100 | 281 |
| 23.3 | 11164 | 1.5 | 62.6 | 18 | 310L3 | | — | — | 52200 | 65700 | 23100 | 272 |
| 24.2 | 10746 | 2.2 | 60.2 | 18 | 311L3 | | — | — | 61000 | 76000 | 22800 | 280 |
| 27.2 | 9571 | 2.1 | 53.7 | 40 | — | 313R3 | — | — | 72800 | 86200 | 27000 | 289 |
| 27.5 | 9456 | 1.7 | 53 | 18 | 310L3 | | — | — | 49700 | 62500 | 21800 | 272 |
| 27.6 | 9451 | 2.1 | 53 | 40 | — | 311R3 | — | — | 58700 | 73100 | 21800 | 281 |
| 28.9 | 9006 | 2.5 | 50.5 | 18 | 311L3 | | — | — | 57900 | 72100 | 21500 | 280 |
| 31 | 8610 | 1 | 46.7 | 18 | 307L2 | | 16700 | 20900 | 39700 | 52100 | 14500 | 256 |
| 31 | 8610 | 1.5 | 46.7 | 18 | 309L2 | | — | — | 40400 | 52100 | 11600 | 264 |
| 31 | 8610 | 1.6 | 46.7 | 22 | 310L2 | | — | — | 47800 | 60200 | 20900 | 272 |
| 38 | 7153 | 2.8 | 38.8 | 26 | 311L2 | | — | — | 53500 | 66600 | 19700 | 280 |
| 38 | 7117 | 1.2 | 38.6 | 18 | 307L2 | | 15600 | 19600 | 37500 | 49200 | 13600 | 256 |
| 38 | 7117 | 1.8 | 38.6 | 18 | 309L2 | | — | — | 38100 | 49200 | 10900 | 264 |
| 38 | 7117 | 1.9 | 38.6 | 22 | 310L2 | | — | — | 45200 | 56800 | 19600 | 272 |
| 38 | 7082 | 0.9 | 38.4 | 13 | 306L2 | | 13700 | 15600 | 34100 | 39700 | 10300 | 248 |
| 44 | 6092 | 1.1 | 33.1 | 13 | 306L2 | | 13400 | 15100 | 33300 | 38800 | 10000 | 248 |
| 45 | 5997 | 1.6 | 32.6 | 18 | 307L2 | | 14800 | 18500 | 35700 | 46700 | 12800 | 256 |
| 45 | 5997 | 2.2 | 32.6 | 18 | 309L2 | | — | — | 36200 | 46700 | 10300 | 264 |
| 45 | 5997 | 2.2 | 32.6 | 22 | 310L2 | | — | — | 42900 | 54000 | 18600 | 272 |
| 48 | 5653 | 2.4 | 30.7 | 22 | 310L2 | | — | — | 42200 | 53000 | 18200 | 272 |
| 48 | 5653 | 1.7 | 30.7 | 18 | 307L2 | | 14500 | 18200 | 35000 | 45900 | 12600 | 256 |
| 51 | 5241 | 1.3 | 28.4 | 13 | 306L2 | | 12700 | 14400 | 31800 | 37100 | 9550 | 248 |
| 52 | 5159 | 1.8 | 28 | 18 | 307L2 | | 14100 | 17600 | 34100 | 44700 | 12200 | 256 |
| 52 | 5159 | 2.4 | 28 | 18 | 309L2 | | — | — | 34600 | 44700 | 9770 | 264 |
| 52 | 5159 | 2.5 | 28 | 22 | 310L2 | | — | — | 41000 | 51600 | 17600 | 272 |
| 55 | 4855 | 1.3 | 26.4 | 13 | 306L2 | | 12400 | 14000 | 31100 | 36200 | 9310 | 248 |
| 58 | 4673 | 2.7 | 25.4 | 22 | 310L2 | | — | — | 39800 | 50100 | 17100 | 272 |
| 58 | 4673 | 1.9 | 25.4 | 18 | 307L2 | | 13600 | 17100 | 33100 | 43400 | 11800 | 256 |
| 58 | 4673 | 2.2 | 25.4 | 18 | 309L2 | | — | — | 33600 | 43400 | 9460 | 264 |
| 58 | 4668 | 2.6 | 25.3 | 55 | — | 310R2 | — | — | 39800 | 50100 | 17100 | 272 |
| 62 | 4337 | 2.1 | 23.5 | 35 | — | 309R2 | — | — | 32900 | 42400 | 9220 | 265 |
| 62 | 4337 | 1.8 | 23.5 | 35 | — | 307R2 | 13300 | 16600 | 32400 | 42400 | 11500 | 257 |
| 64 | 4176 | 1.5 | 22.7 | 13 | 306L2 | | 11800 | 13400 | 29700 | 34600 | 8850 | 248 |
| 67 | 4020 | 2.2 | 21.8 | 18 | 307L2 | | 12900 | 16200 | 31600 | 41400 | 11200 | 256 |

## $P_1$ = 30 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 67 | 4020 | 2.5 | 21.8 | 18 | 309L2 | | — | — | 32100 | 41400 | 8990 | 264 |
| 68 | 3934 | 3 | 21.3 | 55 | — | 310R2(C) | — | — | 37800 | 47600 | 16100 | 273 |
| 74 | 3654 | 2.1 | 19.8 | 35 | — | 309R2 | — | — | 31200 | 40300 | 8710 | 265 |
| 74 | 3654 | 2.1 | 19.8 | 35 | — | 307R2 | 12500 | 15700 | 30700 | 40300 | 10900 | 257 |
| 81 | 3328 | 1.8 | 18.1 | 13 | 306L2 | | 10900 | 12400 | 27800 | 32300 | 8210 | 248 |
| 84 | 3203 | 2.5 | 17.4 | 18 | 307L2 | | 12000 | 15000 | 29500 | 38700 | 10400 | 257 |
| 94 | 2847 | 2.1 | 15.5 | 35 | — | 309R2 | — | — | 29000 | 37400 | 8020 | 265 |
| 94 | 2847 | 2.1 | 15.5 | 35 | — | 307R2 | 11500 | 14500 | 28500 | 37400 | 10000 | 257 |
| 95 | 2819 | 1.8 | 15.3 | 13 | 306L2 | | 10300 | 11700 | 26400 | 30800 | 7770 | 248 |
| 99 | 2713 | 2.8 | 14.7 | 18 | 307L2 | | 11300 | 14200 | 28100 | 36800 | 9860 | 256 |
| 113 | 2388 | 2 | 13 | 13 | 306L2 | | 9780 | 11100 | 25100 | 29300 | 7350 | 246 |
| 113 | 2386 | 2.1 | 13 | 35 | — | 309R2 | — | — | 27500 | 35400 | 7560 | 265 |
| 113 | 2386 | 2.1 | 13 | 35 | — | 307R2 | 10900 | 13600 | 27000 | 35400 | 9450 | 257 |
| 195 | 1426 | 1.6 | 7.5 | 13 | 305L1 | | 6550 | 7560 | 13000 | 15700 | 4200 | 240 |
| 195 | 1426 | 2.9 | 7.5 | 18 | 306L1 | | 8150 | 9240 | 21300 | 24800 | 6120 | 248 |
| 222 | 1249 | 1.5 | 6.57 | 12 | 304L1 | | 6260 | 7230 | 12500 | 15100 | 4020 | call |
| 235 | 1179 | 1.2 | 6.2 | 11 | 303L1 | | 6140 | 7090 | 12300 | 14800 | 3940 | 232 |
| 235 | 1179 | 2.2 | 6.2 | 13 | 305L1 | | 6140 | 7090 | 12300 | 14800 | 3940 | 240 |
| 274 | 1014 | 1.5 | 5.33 | 11 | 303L1 | | 5840 | 6750 | 11800 | 14200 | 3750 | 232 |
| 274 | 1014 | 2 | 5.33 | 12 | 304L1 | | 5840 | 6750 | 11800 | 14200 | 3750 | call |
| 274 | 1014 | 2.5 | 5.33 | 13 | 305L1 | | 5840 | 6750 | 11800 | 14200 | 3750 | 240 |
| 344 | 808 | 1.8 | 4.25 | 11 | 303L1 | | 5420 | 6250 | 11000 | 13200 | 3480 | 232 |
| 344 | 808 | 2.4 | 4.25 | 12 | 304L1 | | 5420 | 6250 | 11000 | 13200 | 3480 | call |
| 406 | 684 | 2 | 3.6 | 13 | 303L1 | | 5420 | 6250 | 11000 | 13200 | 3480 | 232 |
| 406 | 684 | 2.7 | 3.6 | 18 | 304L1 | | 6750 | 7640 | 18000 | 21000 | 5070 | call |

## $P_1$ = 37 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.1 | 292061 | 1.2 | 1389 | 30 | 319L4 | | — | — | 636100 | 700800 | 199500 | 322 |
| 1.2 | 251235 | 1.4 | 1195 | 30 | 319L4 | | — | — | 608000 | 669900 | 189700 | 322 |
| 1.3 | 235882 | 2.2 | 1122 | 35 | 321L4 | | — | — | 731900 | 867900 | 1114500 | 328 |
| 1.4 | 222745 | 1.2 | 1059 | 22 | 318L4 | | — | — | 503000 | 520700 | 182200 | 316 |
| 1.5 | 211689 | 1.6 | 1007 | 30 | 319L4 | | — | — | 577600 | 636300 | 179200 | 322 |
| 1.6 | 198752 | 2.9 | 945 | 35 | 321 L4 | | — | — | 695300 | 824500 | 1052600 | 328 |
| 1.6 | 191757 | 1.8 | 912 | 30 | 319 L4 | | — | — | 560700 | 617700 | 173400 | 322 |
| 1.6 | 191609 | 1.4 | 911 | 22 | 318 L4 | | — | — | 487700 | 497700 | 173300 | 316 |
| 1.6 | 190621 | 1.8 | 906 | 115 | — | 319R4(C) | — | — | 559700 | 616600 | 173000 | 323 |
| 1.7 | 178877 | 2 | 850 | 30 | 319 L4 | | — | — | 549100 | 605000 | 169400 | 322 |

## $P_1$ = 37 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | Rn$_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.9 | 163975 | 2 | 780 | 115 | — | 319R4(C) | — | — | 535000 | 589400 | 164500 | 323 |
| 1.9 | 161448 | 1.7 | 768 | 22 | 318L4 | | — | — | 463300 | 472800 | 163700 | 316 |
| 2 | 152688 | 1.7 | 726 | 22 | 318L4 | | — | — | 455600 | 464900 | 160700 | 316 |
| 2.1 | 150721 | 2.4 | 717 | 30 | 319L4 | | — | — | 521600 | 574700 | 160000 | 322 |
| 2.1 | 145380 | 1.8 | 691 | 110 | — | 318R4(C) | — | — | 448900 | 458100 | 158100 | 317 |
| 2.2 | 142543 | 2.5 | 678 | 30 | 319L4 | | — | — | 513000 | 565100 | 157000 | 322 |
| 2.3 | 138164 | 2.3 | 657 | 115 | — | 319R4(C) | | — | 508200 | 559900 | 155400 | 323 |
| 2.3 | 137692 | 2.3 | 655 | 95 | — | 319R4(B) | | — | 507700 | 559300 | 155200 | 329 |
| 2.3 | 136035 | 1.9 | 647 | 22 | 318L4 | | — | — | 440100 | 449100 | 154600 | 316 |
| 2.4 | 128654 | 2 | 612 | 22 | 318L4 | | — | — | 432800 | 441700 | 151800 | 316 |
| 2.5 | 125058 | 2.1 | 595 | 110 | — | 318R4(C) | | — | 429100 | 437900 | 150300 | 317 |
| 2.6 | 120105 | 2.9 | 571 | 30 | 319L4 | | — | — | 487300 | 536800 | 148300 | 322 |
| 2.6 | 118445 | 2.6 | 563 | 95 | — | 319R4(B) | — | — | 485200 | 534600 | 147600 | 323 |
| 2.7 | 116749 | 2.6 | 555 | 115 | — | 319R(C) | — | — | 483100 | 532300 | 146900 | 323 |
| 2.8 | 110414 | 2.7 | 525 | 115 | — | 319R4(C) | — | — | 475100 | 523500 | 144200 | 323 |
| 2.9 | 108403 | 2.3 | 515 | 22 | 318L4 | | — | — | 411100 | 419500 | 143300 | 316 |
| 3 | 105373 | 2.4 | 501 | 110 | — | 318R4(C) | — | — | 407600 | 416000 | 142000 | 317 |
| 3 | 105013 | 2.4 | 499 | 90 | — | 318R4(B) | — | — | 407200 | 415600 | 141800 | 317 |
| 3.1 | 100250 | 2.5 | 477 | 22 | 318L4 | | — | — | 401600 | 409800 | 139700 | 316 |
| 3.1 | 99656 | 2.5 | 474 | 110 | — | 318R4(C) | | — | 400900 | 409100 | 139400 | 317 |
| 3.4 | 90334 | 2.7 | 430 | 90 | — | 318R4(B) | — | — | 389200 | 397200 | 134900 | 317 |
| 3.5 | 88839 | 2.7 | 422 | 22 | 318L4 | | — | — | 387300 | 395200 | 134100 | 316 |
| 3.7 | 84470 | 2.8 | 402 | 22 | 318L4 | | — | — | 381500 | 389300 | 131900 | 316 |
| 3.7 | 83969 | 2.8 | 399 | 110 | — | 318R4(C) | | — | 380800 | 388600 | 131600 | 317 |
| 5.9 | 54883 | 2.2 | 252 | 35 | 317L3 | | — | — | 264500 | 281600 | 84700 | 310 |
| 6.1 | 52350 | 1.2 | 241 | 30 | 315L3 | | — | — | 122000 | 143200 | 50000 | 296 |
| 6.2 | 52091 | 1 | 240 | 25 | 314L3 | | — | — | 121800 | 143000 | 50000 | call |
| 7.1 | 45032 | 1.8 | 207 | 30 | 315L3 | | — | — | 116600 | 136900 | 47600 | 296 |
| 7.2 | 44810 | 1.4 | 206 | 25 | 314L3 | | — | — | 116400 | 136700 | 47500 | call |
| 8.5 | 37944 | 2.1 | 174 | 30 | 315L3 | | — | — | 110700 | 130000 | 45000 | 296 |
| 8.5 | 37756 | 1.7 | 174 | 25 | 314L3 | | — | — | 110600 | 129800 | 44900 | call |
| 9 | 35885 | 2.2 | 165 | 30 | 315L3 | | — | — | 108900 | 127900 | 44100 | 296 |
| 9 | 35885 | 2.3 | 165 | 35 | 316L3 | | — | — | 181100 | 201400 | 73500 | 304 |
| 9 | 35708 | 1.8 | 164 | 25 | 314L3 | | — | — | 108700 | 127700 | 44100 | call |
| 9.4 | 34167 | 1.5 | 157 | 55 | — | 314R3(C) | | — | 107300 | 126000 | 43400 | call |
| 9.4 | 34167 | 1.9 | 157 | 90 | — | 315R3(C) | | — | 107300 | 126000 | 43400 | 297 |
| 10.6 | 30236 | 2.7 | 139 | 30 | 315L3 | | — | — | 103500 | 121500 | 41700 | 296 |
| 10.6 | 30236 | 2.7 | 139 | 35 | 316L3 | | — | — | 172000 | 191300 | 69500 | 302 |
| 10.7 | 30087 | 2.2 | 138 | 25 | 314L3 | | — | — | 103300 | 121300 | 41600 | call |
| 11 | 29391 | 2.1 | 135 | 55 | — | 314R3(C) | | — | 102600 | 120400 | 41300 | call |
| 11 | 29391 | 2.6 | 135 | 90 | — | 315R3(C) | — | — | 102600 | 120400 | 41300 | 297 |
| 13 | 24765 | 2.1 | 114 | 55 | — | 314R3(C) | — | — | 97400 | 114400 | 39000 | call |
| 13 | 24765 | 2.6 | 114 | 90 | — | 315R3(C) | — | — | 97400 | 114400 | 39000 | 297 |

## $P_1$ = 37 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | Rn$_2$ [N] | | | | | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | MC | MZ | HC/PC | HZ/PZ | FZ | |
| 13 | 24680 | 1.9 | 113 | 55 | — | 314R3(B) | — | — | 97300 | 114300 | 38900 | call |
| 13 | 24680 | 2.4 | 113 | 75 | — | 315R3(B) | — | — | 97300 | 114300 | 38900 | 297 |
| 13.7 | 23444 | 2.4 | 108 | 25 | 314L3 | | — | — | 95900 | 112500 | 38300 | call |
| 13.7 | 23421 | 2.1 | 108 | 55 | — | 314R3(C) | — | — | 95800 | 112500 | 38300 | call |
| 13.7 | 23421 | 2.7 | 108 | 90 | — | 315R3(C) | — | — | 95800 | 112500 | 38300 | 297 |
| 15.2 | 21230 | 2.6 | 97.6 | 55 | — | 314R3(B) | — | — | 93000 | 109200 | 37000 | call |
| 16 | 20167 | 2.7 | 92.7 | 25 | 314L3 | | — | — | 91600 | 107600 | 36400 | call |
| 16.3 | 19734 | 2.4 | 90.7 | 55 | — | 314R3(C) | — | — | 91000 | 106900 | 36200 | call |
| 16.3 | 19734 | 3 | 90.7 | 90 | — | 315R3(C) | — | — | 91000 | 106900 | 36200 | 297 |
| 18 | 17889 | 2.9 | 82.3 | 55 | — | 314R3(B) | — | — | 88400 | 103800 | 35000 | call |
| 20.9 | 15378 | 2.9 | 70.7 | 55 | — | 314R3(C) | — | — | 84500 | 99200 | 33300 | call |
| 32 | 10499 | 1.4 | 46.7 | 22 | 310L2 | | — | — | 47800 | 60200 | 20900 | 273 |
| 38 | 8722 | 2.3 | 38.8 | 26 | 311L2 | | — | — | 53500 | 66600 | 19700 | 280 |
| 38 | 8679 | 1.6 | 38.6 | 22 | 310L2 | | — | — | 45200 | 56800 | 19600 | 272 |
| 45 | 7349 | 2.7 | 32.7 | 26 | 311L2 | | — | — | 50800 | 63300 | 18600 | 280 |
| 45 | 7313 | 1.8 | 32.6 | 22 | 310L2 | | — | — | 42900 | 54000 | 18600 | 272 |
| 48 | 6893 | 1.9 | 30.7 | 22 | 310L2 | | — | — | 42200 | 53000 | 18200 | 272 |
| 53 | 6290 | 2 | 28 | 22 | 310L2 | | — | — | 41000 | 51600 | 17600 | 272 |
| 58 | 5698 | 2.2 | 25.4 | 22 | 310L2 | | — | — | 39800 | 50100 | 17100 | 272 |
| 58 | 5693 | 2.1 | 25.3 | 55 | — | 310R2(C) | — | — | 39800 | 50100 | 17100 | 273 |
| 68 | 4902 | 2.5 | 21.8 | 22 | 310L2 | | — | — | 38100 | 47900 | 16200 | 272 |
| 69 | 4796 | 2.5 | 21.3 | 55 | — | 310R2(C) | — | — | 37800 | 47600 | 16100 | 273 |
| 81 | 4112 | 2.7 | 18.3 | 55 | — | 310R2(B) | — | — | 36100 | 45400 | 15300 | 273 |
| 85 | 3906 | 2.9 | 17.4 | 22 | 310L2 | | — | — | 35600 | 44700 | 15100 | 272 |
| 89 | 3738 | 3 | 16.6 | 55 | — | 310R2(C) | — | — | 35100 | 44100 | 14800 | 273 |
| 197 | 1739 | 2.4 | 7.5 | 18 | 306L1 | | 8150 | 9240 | 21300 | 24800 | 6120 | 248 |
| 239 | 1437 | 2.9 | 6.2 | 18 | 306L1 | | 7650 | 8670 | 20200 | 23500 | 5750 | 248 |

## $P_1$ = 45 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | Rn$_2$ [N] | | | | | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | MC | MZ | HC/PC | HZ/PZ | FZ | |
| 1.1 | 355606 | 1 | 1389 | 30 | 319L4 | | — | — | 636100 | 700800 | 199500 | 322 |
| 1.2 | 327642 | 2.7 | 1279 | 50 | 323L4 | | — | — | — | — | 1043200 | call |
| 1.2 | 305897 | 1.2 | 1195 | 30 | 319L4 | | — | — | 608000 | 669900 | 189700 | 322 |
| 1.3 | 287204 | 1.8 | 1122 | 35 | 321L4 | | — | — | 731900 | 867900 | 1114500 | 328 |
| 1.4 | 271209 | 1 | 1059 | 22 | 318L4 | | — | — | 499800 | 510000 | 178100 | 316 |
| 1.5 | 257747 | 1.3 | 1007 | 30 | 319L4 | | — | — | 577600 | 636300 | 179200 | 322 |
| 1.6 | 241996 | 2.4 | 945 | 35 | 321L4 | | — | — | 695300 | 824500 | 1052600 | 328 |
| 1.6 | 233478 | 1.4 | 912 | 30 | 319L4 | | — | — | 560700 | 617700 | 173400 | 322 |
| 1.6 | 233298 | 1.2 | 911 | 22 | 318L4 | | — | — | 487700 | 497700 | 173300 | 316 |
| 1.6 | 232095 | 1.4 | 906 | 115 | — | 319R4(C) | | — | 559700 | 616600 | 173000 | 323 |

## $P_1$ = 45 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | $Rn_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ◄► Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.7 | 217796 | 1.7 | 850 | 30 | 319 L4 | | — | — | 549100 | 605000 | 169400 | 322 |
| 1.9 | 203904 | 2.7 | 796 | 35 | 321 L4 | | — | — | 660400 | 783200 | 994200 | 328 |
| 1.9 | 199651 | 1.7 | 780 | 115 | — | 319R4(C) | — | — | 535000 | 589400 | 164500 | 323 |
| 1.9 | 196575 | 1.4 | 768 | 22 | 318 L4 | | — | — | 463300 | 472800 | 163700 | 316 |
| 2 | 188568 | 2.9 | 736 | 35 | 321 L4 | | — | — | 645100 | 765000 | 968700 | 328 |
| 2 | 187451 | 2.8 | 732 | 125 | — | 321R4(C) | — | — | 644000 | 763700 | 966700 | 329 |
| 2 | 185909 | 1.4 | 726 | 22 | 318 L4 | | — | — | 455600 | 464900 | 160700 | 316 |
| 2.1 | 183513 | 1.9 | 717 | 30 | 319 L4 | | — | — | 521600 | 574700 | 160000 | 322 |
| 2.1 | 177011 | 1.5 | 691 | 110 | — | 318R4(C) | — | — | 448900 | 458100 | 158100 | 317 |
| 2.2 | 173556 | 2 | 678 | 30 | 319 L4 | | — | — | 513000 | 565100 | 157000 | 322 |
| 2.3 | 168225 | 1.9 | 657 | 115 | — | 319R4(C) | — | — | 508200 | 559900 | 155400 | 323 |
| 2.3 | 167650 | 1.9 | 655 | 95 | — | 319R4(B) | — | — | 507700 | 559300 | 155200 | 323 |
| 2.3 | 165633 | 1.6 | 647 | 22 | 318L4 | | — | — | 440100 | 449100 | 154600 | 316 |
| 2.4 | 156646 | 1.7 | 612 | 22 | 318L4 | | — | — | 432800 | 441700 | 151800 | 316 |
| 2.5 | 152268 | 1.7 | 595 | 110 | — | 318R4(C) | — | — | 429100 | 437900 | 150300 | 317 |
| 2.6 | 146237 | 2.4 | 571 | 30 | 319L4 | | — | | 487300 | 536800 | 148300 | 323 |
| 2.6 | 144215 | 2.2 | 563 | 95 | — | 319R4(B) | — | — | 485200 | 534600 | 147600 | 323 |
| 2.7 | 142150 | 2.2 | 555 | 115 | — | 319R4 (C) | — | — | 483100 | 532300 | 146900 | 323 |
| 2.8 | 135239 | 2.5 | 528 | 30 | 319L4 | | — | | 476000 | 524400 | 144500 | 322 |
| 2.8 | 134437 | 2.2 | 525 | 115 | — | 319R4(C) | — | — | 475100 | 523500 | 144200 | 323 |
| 2.9 | 131988 | 1.9 | 515 | 22 | 318L4 | | — | | 411100 | 419500 | 143300 | 316 |
| 3 | 128299 | 2 | 501 | 110 | — | 318R4(C) | — | — | 407600 | 416000 | 142000 | 317 |
| 3 | 127861 | 2 | 499 | 90 | — | 318R4(B) | — | — | 407200 | 415600 | 141800 | 317 |
| 3.1 | 122062 | 2 | 477 | 22 | 318L4 | | — | | 401600 | 409800 | 139700 | 316 |
| 3.1 | 121515 | 2.5 | 475 | 95 | — | 319R4(B) | — | — | 460900 | 507800 | 139400 | 323 |
| 3.1 | 121338 | 2 | 474 | 110 | — | 318R4(C) | — | — | 400900 | 409100 | 139400 | 317 |
| 3.3 | 113951 | 2.8 | 445 | 30 | 319L4 | | — | | 452100 | 498100 | 136500 | 322 |
| 3.3 | 113276 | 2.5 | 442 | 115 | — | 319R4(C) | — | — | 451300 | 497200 | 136200 | 323 |
| 3.4 | 109988 | 2.2 | 430 | 90 | — | 318R4(B) | — | — | 389200 | 397200 | 134900 | 317 |
| 3.5 | 108168 | 2.2 | 422 | 22 | 318L4 | | — | — | 387300 | 395200 | 134100 | 316 |
| 3.7 | 102848 | 2.3 | 402 | 22 | 318L4 | | — | — | 381500 | 389300 | 131900 | 316 |
| 3.7 | 102239 | 2.3 | 399 | 110 | — | 318R4(C) | — | — | 380800 | 388600 | 131600 | 317 |
| 4.1 | 92675 | 2.5 | 362 | 90 | — | 318 R4(B) | — | — | 369700 | 377300 | 127400 | 317 |
| 4.3 | 88267 | 2.9 | 345 | 115 | — | 319 R4(C) | — | — | 418800 | 461400 | 125400 | 323 |
| 4.3 | 87647 | 2.6 | 342 | 90 | — | 318 R4(B) | — | — | 363600 | 371000 | 125100 | 317 |
| 4.4 | 86197 | 2.6 | 337 | 22 | 318 L4 | | — | — | 361800 | 369200 | 124400 | 316 |
| 4.7 | 80141 | 2.8 | 313 | 22 | 318 L4 | | — | — | 353900 | 361200 | 121400 | 316 |
| 4.8 | 79666 | 2.8 | 311 | 110 | — | 318 R4(C) | — | — | 353300 | 360600 | 121100 | 317 |
| 5.1 | 73851 | 2.9 | 288 | 90 | — | 318 R4(B) | — | — | 345400 | 352500 | 118100 | 317 |
| 5.9 | 66824 | 1.8 | 252 | 35 | 317 L3 | | — | — | 264500 | 281600 | 84700 | 310 |
| 6.1 | 63740 | 1 | 241 | 30 | 315 L3 | | — | — | 122000 | 143200 | 50000 | 296 |
| 7 | 56305 | 2.5 | 213 | 35 | 317 L3 | | — | — | 251200 | 267500 | 80000 | 310 |
| 7.1 | 54830 | 1.5 | 207 | 30 | 315 L3 | | — | — | 116600 | 136900 | 47600 | 296 |

## $P_1$ = 45 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | Rn$_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ◄► Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7.1 | 54830 | 1.5 | 207 | 30 | 315 L3 | | — | — | 116600 | 136900 | 47600 | 296 |
| 7.2 | 54559 | 1.2 | 206 | 25 | 314L3 | | — | — | 116400 | 136700 | 47500 | call |
| 8.3 | 47442 | 2.9 | 179 | 35 | 317L3 | | — | — | 238700 | 254100 | 75600 | 310 |
| 8.5 | 46199 | 1.7 | 174 | 30 | 315L3 | | — | — | 110700 | 130000 | 45000 | 296 |
| 8.5 | 45971 | 1.4 | 174 | 25 | 314L3 | | — | — | 110600 | 129800 | 44900 | call |
| 8.9 | 43874 | 2.7 | 166 | 35 | 317L3 | | — | — | 233100 | 248200 | 73600 | 310 |
| 9 | 43692 | 1.8 | 165 | 30 | 315L3 | | — | — | 108900 | 127900 | 44100 | 296 |
| 9 | 43692 | 1.9 | 165 | 35 | 316L3 | | — | — | 181100 | 201400 | 73500 | 310 |
| 9 | 43614 | 2.7 | 165 | 100 | — | 317R3(C) | — | — | 232700 | 247800 | 73500 | 311 |
| 9 | 43477 | 1.5 | 164 | 25 | 314L3 | | — | — | 108700 | 127700 | 44100 | call |
| 9.4 | 41601 | 1.2 | 157 | 55 | — | 314R3(C) | — | — | 107300 | 126000 | 43400 | call |
| 9.4 | 41601 | 1.6 | 157 | 90 | — | 315R3(C) | — | — | 107300 | 126000 | 43400 | 297 |
| 10.6 | 36815 | 2.2 | 139 | 30 | 315L3 | | — | — | 103500 | 121500 | 41700 | 296 |
| 10.6 | 36815 | 2.2 | 139 | 35 | 316L3 | | — | — | 172000 | 191300 | 69500 | 304 |
| 10.7 | 36633 | 1.8 | 138 | 25 | 314L3 | | — | — | 103300 | 121300 | 41600 | call |
| 11 | 35786 | 1.7 | 135 | 55 | — | 314R3(C) | — | — | 102600 | 120400 | 41300 | call |
| 11 | 35786 | 2.1 | 135 | 90 | — | 315R3(C) | — | — | 102600 | 120400 | 41300 | 297 |
| 12.6 | 31020 | 2.6 | 117 | 35 | 316L3 | | — | — | 163400 | 181700 | 65600 | 304 |
| 13 | 30153 | 1.7 | 114 | 55 | — | 314R3(C) | — | — | 97400 | 114400 | 39000 | call |
| 13 | 30153 | 2.1 | 114 | 90 | — | 315R3(C) | — | — | 97400 | 114400 | 39000 | 297 |
| 13 | 30050 | 1.6 | 113 | 55 | — | 314R3(B) | — | — | 97300 | 114300 | 38900 | call |
| 13 | 30050 | 2 | 113 | 75 | — | 315R3(B) | — | — | 97300 | 114300 | 38900 | 297 |
| 13.7 | 28687 | 2.5 | 108 | 30 | 315L3 | | — | — | 96000 | 112700 | 38400 | 297 |
| 13.7 | 28687 | 2.6 | 108 | 35 | 316L3 | | — | — | 159600 | 177500 | 63900 | 296 |
| 13.7 | 28545 | 2 | 108 | 25 | 314L3 | | — | — | 95900 | 112500 | 38300 | call |
| 13.7 | 28517 | 1.7 | 108 | 55 | — | 314R3(C) | — | — | 95800 | 112500 | 38300 | call |
| 13.7 | 28517 | 2.2 | 108 | 90 | — | 315R3(C) | — | — | 95800 | 112500 | 38300 | 295 |
| 13.7 | 28517 | 2.5 | 108 | 90 | — | 316R3(C) | — | — | 159300 | 177200 | 63800 | 303 |
| 15.2 | 25850 | 2.1 | 97.6 | 55 | — | 314R3(B) | — | — | 93000 | 109200 | 37000 | call |
| 15.2 | 25850 | 2.7 | 97.6 | 75 | — | 315R3(B) | — | — | 93000 | 109200 | 37000 | 297 |
| 16 | 24555 | 2.2 | 92.7 | 25 | 314L3 | | — | — | 91600 | 107600 | 36400 | call |
| 16.2 | 24171 | 2.8 | 91.3 | 30 | 315L3 | | — | — | 91200 | 107100 | 36200 | 296 |
| 16.2 | 24171 | 3 | 91.3 | 35 | 316L3 | | — | — | 151600 | 168600 | 60400 | 304 |
| 16.3 | 24028 | 2 | 90.7 | 55 | — | 314R3(C) | — | — | 91000 | 106900 | 36200 | call |
| 16.3 | 24028 | 2.5 | 90.7 | 90 | — | 315R3(C) | — | — | 91000 | 106900 | 36200 | 297 |
| 16.3 | 24028 | 2.9 | 90.7 | 90 | — | 316R3(C) | — | — | 151300 | 168300 | 60300 | 305 |
| 18 | 21781 | 2.4 | 82.3 | 100 | — | 314R3(B) | — | — | 194000 | 206600 | 60100 | call |
| 19 | 20599 | 2.5 | 77.8 | 55 | — | 314R3(B) | — | — | 88400 | 103800 | 35000 | call |
| 20 | 19567 | 2.6 | 73.9 | 55 | 314L3 | | — | — | 86900 | 102000 | 34300 | call |
| 20.9 | 18723 | 2.3 | 70.7 | 35 | — | 314R3(C) | — | — | 143800 | 159900 | 56900 | call |
| 20.9 | 18723 | 2.9 | 70.7 | 25 | — | 315R3(C) | — | — | 85600 | 100500 | 33800 | 297 |
| 22.6 | 17356 | 2.9 | 65.5 | 30 | — | 314R3(B) | — | — | 84600 | 99300 | 33300 | call |
| 23.6 | 16575 | 2.9 | 62.6 | 35 | 314L3 | | — | — | 140700 | 156500 | 55600 | call |

## $P_1$ = 45 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | Rn$_2$ [N] | | | | | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | MC | MZ | HC/PC | HZ/PZ | FZ | |
| 29 | 13524 | 2.8 | 51.1 | 55 | — | 314R3(B) | — | — | 76600 | 89900 | 29800 | call |
| 32 | 12783 | 1.1 | 46.7 | 22 | 310L2 | | — | — | 47800 | 60200 | 20900 | 272 |
| 37 | 11078 | 2.7 | 40.5 | 30 | 313L2 | | — | — | 66900 | 79200 | 24600 | 288 |
| 38 | 10620 | 1.9 | 38.8 | 26 | 311L2 | | — | — | 53500 | 66600 | 19700 | 280 |
| 38 | 10567 | 1.3 | 38.6 | 22 | 310L2 | | — | — | 45200 | 56800 | 19600 | 272 |
| 45 | 8948 | 2.3 | 32.7 | 26 | 311L2 | | — | — | 50800 | 63300 | 18600 | 280 |
| 45 | 8904 | 1.5 | 32.6 | 22 | 310L2 | | — | — | 42900 | 54000 | 18600 | 272 |
| 48 | 8393 | 1.6 | 30.7 | 22 | 310L2 | | — | — | 42200 | 53000 | 18200 | 272 |
| 53 | 7659 | 1.7 | 28 | 22 | 310L2 | | — | — | 41000 | 51600 | 17600 | 272 |
| 54 | 7539 | 2.5 | 27.6 | 26 | 311L2 | | — | — | 48300 | 60100 | 17600 | 280 |
| 58 | 6972 | 2.6 | 25.5 | 26 | 311L2 | | — | — | 47100 | 58700 | 17100 | 280 |
| 58 | 6938 | 1.8 | 25.4 | 22 | 310L2 | | — | — | 39800 | 50100 | 17100 | 272 |
| 58 | 6931 | 1.8 | 25.3 | 55 | — | 310R2(C) | — | — | 39800 | 50100 | 17100 | 273 |
| 58 | 6931 | 2.5 | 25.3 | 90 | — | 311R2(C) | — | — | 47100 | 58600 | 17100 | 281 |
| 68 | 5968 | 2 | 21.8 | 22 | 310 L2 | | — | — | 38100 | 47900 | 16200 | 272 |
| 69 | 5875 | 3 | 21.5 | 26 | 311 L2 | | — | — | 44800 | 55800 | 16200 | 380 |
| 69 | 5840 | 2 | 21.3 | 55 | — | 310R2(C) | — | — | 37800 | 47600 | 16100 | 373 |
| 69 | 5840 | 2.9 | 21.3 | 90 | — | 311R2(C) | — | — | 44700 | 55700 | 16100 | 281 |
| 81 | 5007 | 2.2 | 18.3 | 55 | — | 310R2(B) | — | — | 36100 | 45400 | 15300 | 273 |
| 85 | 4756 | 2.4 | 17.4 | 22 | 310 L2 | | — | — | 35600 | 44700 | 15100 | 272 |
| 89 | 4551 | 2.5 | 16.6 | 55 | — | 310R2(C) | — | — | 35100 | 44100 | 14800 | 273 |
| 96 | 4218 | 2.5 | 15.4 | 55 | — | 310R2(B) | — | — | 34300 | 43100 | 14500 | 273 |
| 100 | 4028 | 2.7 | 14.7 | 22 | 310 L2 | | — | — | 33800 | 42600 | 14200 | 272 |
| 197 | 2117 | 1.9 | 7.5 | 18 | 306 L1 | | 8150 | 9240 | 21300 | 24800 | 6120 | 348 |
| 239 | 1750 | 2.4 | 6.2 | 18 | 306 L1 | | 7650 | 8670 | 20200 | 23500 | 5750 | 348 |
| 278 | 1505 | 2.7 | 5.33 | 18 | 306 L1 | | 7280 | 8240 | 19300 | 22400 | 5470 | 348 |

## $P_1$ = 55 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | Rn$_2$ [N] | | | | | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | MC | MZ | HC/PC | HZ/PZ | FZ | |
| 1.2 | 399701 | 2.2 | 1279 | 50 | 323L4 | — | — | — | — | — | 1043200 | call |
| 1.2 | 373174 | 0.9 | 1195 | 30 | 319L4 | — | — | — | 595600 | 656200 | 185400 | 320 |
| 1.3 | 350369 | 1.5 | 1122 | 35 | 321L4 | — | — | — | 731900 | 867900 | 1114500 | 326 |
| 1.3 | 343828 | 2.5 | 1101 | 50 | 323L4 | — | — | — | — | — | 992100 | call |
| 1.4 | 320273 | 2.7 | 1025 | 50 | 323L4 | — | — | — | — | — | 968900 | call |
| 1.5 | 314433 | 1.1 | 1007 | 30 | 319L4 | | — | — | 577600 | 636300 | 179200 | 322 |
| 1.6 | 295218 | 2 | 945 | 35 | 321L4 | | — | — | 695300 | 824500 | 1052600 | 328 |
| 1.6 | 284828 | 1.2 | 912 | 30 | 319L4 | | — | — | 560700 | 617700 | 173400 | 322 |
| 1.6 | 284607 | 1 | 911 | 22 | 318L4 | | — | — | 477700 | 487500 | 169400 | 316 |
| 1.6 | 283140 | 1.2 | 906 | 115 | — | 319R4(C) | — | — | 559700 | 616600 | 173000 | 323 |

## $P_1$ = 55 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | Rn$_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.2 | 399701 | 2.2 | 1279 | 50 | 323 L4 | | — | — | — | — | 1043200 | call |
| 1.2 | 373174 | 0.9 | 1195 | 30 | 319 L4 | | — | — | 595600 | 656200 | 185400 | 322 |
| 1.3 | 350369 | 1.5 | 1122 | 35 | 321 L4 | | — | — | 731900 | 867900 | 1114500 | 328 |
| 1.3 | 343828 | 2.5 | 1101 | 50 | 323 L4 | | — | — | — | — | 992100 | call |
| 1.4 | 320273 | 2.7 | 1025 | 50 | 323 L4 | | — | — | — | — | 968900 | call |
| 1.5 | 314433 | 1.1 | 1007 | 30 | 319 L4 | | — | — | 577600 | 636300 | 179200 | 322 |
| 1.6 | 295218 | 2 | 945 | 35 | 321 L4 | | — | — | 695300 | 824500 | 1052600 | 328 |
| 1.6 | 284828 | 1.2 | 912 | 30 | 319 L4 | | — | — | 560700 | 617700 | 173400 | 322 |
| 1.6 | 284607 | 1 | 911 | 22 | 318 L4 | | — | — | 477700 | 487500 | 169400 | 316 |
| 1.6 | 283140 | 1.2 | 906 | 115 | — | 319R4(C) | | — | 559700 | 616600 | 173000 | 323 |
| 1.7 | 265696 | 1.4 | 850 | 30 | 319L4 | | — | — | 549100 | 605000 | 169400 | 322 |
| 1.9 | 248748 | 2.2 | 796 | 35 | 321L4 | | — | — | 660400 | 783200 | 994200 | 328 |
| 1.9 | 243561 | 1.4 | 780 | 115 | — | 319R4(C) | | — | 535000 | 589400 | 164500 | 323 |
| 1.9 | 239808 | 1.1 | 768 | 22 | 318L4 | | — | — | 463300 | 472800 | 163700 | 316 |
| 2 | 230040 | 2.4 | 736 | 35 | 321L4 | | — | — | 645100 | 765000 | 968700 | 328 |
| 2 | 228677 | 2.3 | 732 | 125 | — | 321R4(C) | | — | 644000 | 763700 | 966700 | 329 |
| 2 | 226796 | 1.2 | 726 | 22 | 318L4 | | — | — | 455600 | 464900 | 160700 | 316 |
| 2.1 | 223874 | 1.6 | 717 | 30 | 319L4 | | — | — | 521600 | 574700 | 160000 | 322 |
| 2.1 | 215941 | 1.2 | 691 | 110 | — | 318R4(C) | | — | 448900 | 458100 | 158100 | 317 |
| 2.2 | 211727 | 1.7 | 678 | 30 | 319L4 | | — | — | 513000 | 565100 | 157000 | 322 |
| 2.3 | 205223 | 1.6 | 657 | 115 | — | 319R4(C) | | — | 508200 | 559900 | 155400 | 323 |
| 2.3 | 204522 | 1.6 | 655 | 95 | — | 319R4(B) | | — | 507700 | 559300 | 155200 | 322 |
| 2.3 | 202060 | 1.3 | 647 | 22 | 318L4 | | — | — | 440100 | 449100 | 154600 | 316 |
| 2.4 | 192681 | 2.6 | 617 | 125 | — | 321R4(C) | | — | 611700 | 725400 | 913100 | 329 |
| 2.4 | 191110 | 2.7 | 612 | 35 | 321L4 | | — | — | 610200 | 723600 | 910600 | 328 |
| 2.4 | 191097 | 1.4 | 612 | 22 | 318L4 | | — | — | 432800 | 441700 | 151800 | 316 |
| 2.5 | 185756 | 1.4 | 595 | 110 | — | 318R4(C) | | — | 429100 | 437900 | 150300 | 317 |
| 2.6 | 178399 | 1.9 | 571 | 30 | 319L4 | | — | — | 487300 | 536800 | 148300 | 322 |
| 2.6 | 175933 | 1.8 | 563 | 95 | — | 319R4(B) | | — | 485200 | 534600 | 147600 | 323 |
| 2.7 | 173413 | 1.8 | 555 | 115 | — | 319R4(C) | | — | 483100 | 532300 | 146900 | 323 |
| 2.8 | 165181 | 2.9 | 529 | 105 | — | 321R4(B) | | — | 584100 | 692700 | 867400 | 329 |
| 2.8 | 164982 | 2 | 528 | 30 | 319L4 | | — | — | 476000 | 524400 | 144500 | 322 |
| 2.8 | 164004 | 1.8 | 525 | 115 | — | 319R4(C) | | — | 475100 | 523500 | 144200 | 323 |
| 2.9 | 161017 | 1.6 | 515 | 22 | 318L4 | | — | — | 411100 | 419500 | 143300 | 316 |
| 2.9 | 160074 | 2.6 | 512 | 125 | — | 321R4(C) | | — | 578600 | 686200 | 858400 | 329 |
| 3 | 156517 | 1.6 | 501 | 110 | — | 318R4(C) | | — | 407600 | 416000 | 142000 | 317 |
| 3 | 155982 | 1.6 | 499 | 90 | — | 318R4(B) | | — | 407200 | 415600 | 141800 | 317 |
| 3.1 | 150141 | 2.6 | 481 | 125 | — | 321R4(C) | | — | 567600 | 673100 | 840200 | 329 |
| 3.1 | 148907 | 1.7 | 477 | 22 | 318L4 | | — | — | 401600 | 409800 | 139700 | 316 |
| 3.1 | 148240 | 2 | 475 | 95 | — | 319R4(B) | | — | 460900 | 507800 | 139400 | 323 |
| 3.1 | 148024 | 1.7 | 474 | 110 | — | 318R4(C) | | — | 400900 | 409100 | 139400 | 317 |
| 3.3 | 139181 | 2.9 | 446 | 105 | — | 321R4(B) | | — | 554800 | 658000 | 819300 | 329 |

## $P_1$ = 55 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW |  |  | Rn$_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.3 | 139012 | 2.3 | 445 | 30 | 319L4 | | — | — | 452100 | 498100 | 136500 | 322 |
| 3.3 | 138189 | 2 | 442 | 115 | — | 319R4(C) | — | — | 451300 | 497200 | 136200 | 323 |
| 3.4 | 134178 | 1.8 | 430 | 90 | — | 318R4(B) | — | — | 389200 | 397200 | 134900 | 317 |
| 3.5 | 131958 | 1.8 | 422 | 22 | 318L4 | | — | — | 387300 | 395200 | 134100 | 316 |
| 3.7 | 125468 | 1.9 | 402 | 22 | 318L4 | | — | — | 381500 | 389300 | 131900 | 316 |
| 3.7 | 125263 | 2.5 | 401 | 95 | — | 319R4(B) | — | — | 438200 | 482800 | 131800 | 323 |
| 3.7 | 124733 | 2.6 | 399 | 125 | — | 321R4(C) | — | — | 536900 | 636700 | 789900 | 329 |
| 3.7 | 124724 | 1.9 | 399 | 110 | — | 318R4(C) | — | — | 380800 | 388600 | 131600 | 316 |
| 3.9 | 118466 | 2.6 | 379 | 95 | — | 319R4(B) | — | — | 430900 | 474800 | 129400 | 323 |
| 4 | 115627 | 3 | 370 | 105 | — | 321R4(B) | — | — | 524800 | 622400 | 770200 | 329 |
| 4.1 | 113058 | 2 | 362 | 90 | — | 318R4(B) | — | — | 369700 | 377300 | 127400 | 317 |
| 4.3 | 108452 | 3 | 347 | 105 | — | 321R4(B) | — | — | 514800 | 610500 | 753900 | 319 |
| 4.3 | 108321 | 2.8 | 347 | 30 | 319L4 | | — | — | 419500 | 462200 | 125600 | 322 |
| 4.3 | 107679 | 2.4 | 345 | 115 | — | 319R4(C) | — | — | 418800 | 461400 | 125400 | 323 |
| 4.3 | 106923 | 2.1 | 342 | 90 | — | 318R4(B) | — | — | 363600 | 371000 | 125100 | 317 |
| 4.4 | 105154 | 2.1 | 337 | 22 | 318L4 | | — | — | 361800 | 369200 | 124400 | 316 |
| 4.6 | 99819 | 2.9 | 320 | 95 | — | 319R4(B) | — | — | 409400 | 451000 | 122200 | 323 |
| 4.7 | 97767 | 2.3 | 313 | 22 | 318L4 | | — | — | 353900 | 361200 | 121400 | 316 |
| 4.8 | 97188 | 2.3 | 311 | 110 | — | 318R4(C) | — | — | 353300 | 360600 | 121100 | 317 |
| 4.8 | 95694 | 2.6 | 306 | 125 | — | 321R4(C) | — | — | 495900 | 588000 | 723100 | 329 |
| 5.1 | 90099 | 2.9 | 288 | 105 | — | 321R4(B) | — | — | 487000 | 577500 | 708700 | 329 |
| 5.1 | 90093 | 2.4 | 288 | 90 | — | 318R4(B) | — | — | 345400 | 352500 | 118100 | 317 |
| 5.6 | 81938 | 2.6 | 262 | 22 | 318L4 | | — | — | 335700 | 342600 | 114400 | 316 |
| 5.9 | 81520 | 1.5 | 252 | 35 | 317L3 | | — | — | 471100 | 558700 | 683100 | 316 |
| 5.9 | 77781 | 2.9 | 249 | 95 | — | 319R4(B) | — | — | 379800 | 418500 | 112500 | 323 |
| 6.6 | 70202 | 2.9 | 225 | 90 | — | 318R4(B) | — | — | 320500 | 327000 | 108700 | 317 |
| 6.7 | 69124 | 3 | 221 | 105 | — | 321R4(B) | — | — | 449800 | 533400 | 648800 | 329 |
| 7 | 68689 | 2.1 | 213 | 35 | 317L3 | | — | — | 251200 | 267500 | 80000 | 310 |
| 7.1 | 66889 | 1.2 | 207 | 30 | 315L3 | | — | — | 116600 | 136900 | 47600 | 296 |
| 7.2 | 66558 | 1 | 206 | 25 | 314L3 | | — | — | 116400 | 136700 | 47500 | call |
| 8.3 | 57876 | 2.4 | 179 | 35 | 317L3 | | — | — | 238700 | 254100 | 75600 | 310 |
| 8.5 | 56360 | 1.4 | 174 | 30 | 315L3 | | — | — | 110700 | 130000 | 45000 | 296 |
| 8.5 | 56081 | 1.1 | 174 | 25 | 314L3 | | — | — | 110600 | 129800 | 44900 | call |
| 8.9 | 53524 | 2.3 | 166 | 35 | 317L3 | | — | — | 233100 | 248200 | 73600 | 310 |
| 9 | 53302 | 1.5 | 165 | 30 | 315L3 | | — | — | 108900 | 127900 | 44100 | 296 |
| 9 | 53302 | 1.5 | 165 | 35 | 316L3 | | — | — | 181100 | 201400 | 73500 | 304 |
| 9 | 53206 | 2.2 | 165 | 100 | — | 317R3(C) | — | — | 232700 | 247800 | 73500 | 311 |
| 9 | 53039 | 1.2 | 164 | 25 | 314L3 | | — | — | 108700 | 127700 | 44100 | call |
| 9.4 | 50751 | 1 | 157 | 55 | — | 314R3(C) | — | — | 107300 | 126000 | 43400 | call |
| 9.4 | 50751 | 1.3 | 157 | 90 | — | 315R3(C) | — | — | 107300 | 126000 | 43400 | 297 |
| 10.6 | 44912 | 1.8 | 139 | 30 | 315L3 | | — | — | 103500 | 121500 | 41700 | 297 |
| 10.6 | 44912 | 1.8 | 139 | 35 | 316L3 | | — | — | 172000 | 191300 | 69500 | 304 |
| 10.7 | 44831 | 2.6 | 139 | 100 | — | 317R3(C) | — | — | 221000 | 235400 | 69400 | 311 |

## $P_1$ = 55 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | Rn$_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10.7 | 44690 | 1.4 | 138 | 25 | 314L3 | | — | — | 103300 | 121300 | 41600 | call |
| 10.8 | 44466 | 2.6 | 138 | 35 | 317L3 | | — | — | 220500 | 234800 | 69200 | 310 |
| 11 | 43656 | 1.4 | 135 | 55 | — | 314R3(C) | — | — | 102600 | 120400 | 41300 | call |
| 11 | 43656 | 1.7 | 135 | 90 | — | 315R3(C) | — | — | 102600 | 120400 | 41300 | 297 |
| 12.4 | 38433 | 2.9 | 119 | 90 | — | 317R3(B) | — | — | 211100 | 224700 | 65900 | 311 |
| 12.6 | 37842 | 2.1 | 117 | 35 | 316L3 | | — | — | 163400 | 181700 | 65600 | 304 |
| 12.8 | 37466 | 2.9 | 116 | 35 | 317L3 | | — | — | 209500 | 223000 | 65400 | 310 |
| 12.8 | 37244 | 2.6 | 115 | 100 | — | 317R3(C) | — | — | 209100 | 222600 | 65300 | 311 |
| 13 | 36785 | 1.4 | 114 | 55 | — | 314R3(C) | — | — | 97400 | 114400 | 39000 | call |
| 13 | 36785 | 1.8 | 114 | 90 | — | 315R3(C) | — | — | 97400 | 114400 | 39000 | 297 |
| 13 | 36659 | 1.3 | 113 | 40 | — | 314R3(B) | — | — | 95300 | 111900 | 38100 | call |
| 13 | 36659 | 1.6 | 113 | 75 | — | 315R3(B) | — | — | 97300 | 114300 | 38900 | 297 |
| 13.7 | 34996 | 2 | 108 | 30 | 315L3 | | — | — | 96000 | 112700 | 38400 | 296 |
| 13.7 | 34996 | 2.2 | 108 | 35 | 316L3 | | — | — | 159600 | 177500 | 63900 | 304 |
| 13.7 | 34933 | 2.6 | 108 | 100 | — | 317R3(C) | — | — | 205100 | 218400 | 63900 | 311 |
| 13.7 | 34823 | 1.6 | 108 | 25 | 314L3 | | — | — | 95900 | 112500 | 38300 | call |
| 13.7 | 34789 | 1.4 | 108 | 55 | — | 314R3(C) | — | — | 95800 | 112500 | 38300 | call |
| 13.7 | 34789 | 1.8 | 108 | 90 | — | 315R3(C) | — | — | 95800 | 112500 | 38300 | 297 |
| 13.7 | 34789 | 2.1 | 108 | 90 | — | 316R3(C) | — | — | 159300 | 177200 | 63800 | 305 |
| 14.8 | 32383 | 3 | 100 | 90 | — | 317R3(B) | — | — | 200500 | 213500 | 62300 | 310 |
| 15.2 | 31535 | 1.7 | 97.6 | 40 | — | 314R3(B) | — | — | 91100 | 107000 | 36200 | call |
| 15.2 | 31535 | 2.2 | 97.6 | 75 | — | 315R3(B) | — | — | 93000 | 109200 | 37000 | 297 |
| 16 | 29956 | 1.8 | 92.7 | 25 | 314L3 | | — | — | 91600 | 107600 | 36400 | call |
| 16.2 | 29487 | 2.3 | 91.3 | 30 | 315L3 | | — | — | 91200 | 107100 | 36200 | 297 |
| 16.2 | 29487 | 2.4 | 91.3 | 35 | 316L3 | | — | — | 151600 | 168600 | 60400 | 304 |
| 16.3 | 29313 | 1.6 | 90.7 | 55 | — | 314R3(C) | — | — | 91000 | 106900 | 36200 | call |
| 16.3 | 29313 | 2 | 90.7 | 90 | — | 315R3(C) | — | — | 91000 | 106900 | 36200 | 297 |
| 16.3 | 29313 | 2.4 | 90.7 | 90 | — | 316R3(C) | — | — | 151300 | 168300 | 60300 | 305 |
| 16.5 | 29022 | 2.6 | 89.8 | 100 | — | 317R3(C) | — | — | 194000 | 206600 | 60100 | 311 |
| 17.8 | 26903 | 3 | 83.3 | 90 | — | 317R3(B) | — | — | 189700 | 201900 | 58600 | 311 |
| 18 | 26571 | 2 | 82.3 | 40 | — | 314R3(B) | — | — | 86600 | 101600 | 34200 | call |
| 18 | 26571 | 2.5 | 82.3 | 75 | — | 315R3(B) | — | — | 88400 | 103800 | 35000 | 297 |
| 18.9 | 25234 | 3 | 78.1 | 90 | — | 317R3(B) | — | — | 186000 | 198100 | 57300 | 311 |
| 19 | 25129 | 2 | 77.8 | 40 | — | 314R3(B) | — | — | 85100 | 100000 | 33600 | call |
| 19 | 25129 | 2.6 | 77.8 | 75 | — | 315R3(B) | — | — | 86900 | 102000 | 34300 | 297 |
| 19 | 25129 | 2.6 | 77.8 | 75 | — | 316R3(B) | — | — | 144500 | 160700 | 57200 | 305 |
| 19.3 | 24713 | 2.8 | 76.5 | 35 | 316L3 | | — | — | 143800 | 159900 | 56900 | 304 |
| 20 | 23871 | 2.1 | 73.9 | 25 | 314L3 | | — | — | 85600 | 100500 | 33800 | call |
| 20.8 | 22977 | 2.7 | 71.1 | 30 | 315L3 | | — | — | 84600 | 99300 | 33300 | 296 |
| 20.8 | 22977 | 2.9 | 71.1 | 35 | 316L3 | | — | — | 140700 | 156500 | 55600 | 304 |
| 20.9 | 22841 | 1.9 | 70.7 | 55 | — | 314R3(C) | — | — | 84500 | 99200 | 33300 | call |
| 20.9 | 22841 | 2.4 | 70.7 | 90 | — | 315R3(C) | — | — | 84500 | 99200 | 33300 | 296 |
| 20.9 | 22841 | 2.6 | 70.7 | 90 | — | 316R3(C) | — | — | 140400 | 156200 | 55400 | 305 |

## $P_1$ = 55 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | Rn$_2$ [N] | | | | | ↔ Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | MC | MZ | HC/PC | HZ/PZ | FZ | |
| 21.5 | 22265 | 2.6 | 68.9 | 100 | — | 317R3(C) | — | — | 179200 | 190800 | 55000 | 311 |
| 22.6 | 21174 | 2.3 | 65.5 | 40 | — | 314R3(B) | — | — | 80900 | 94900 | 31700 | call |
| 22.6 | 21174 | 2.9 | 65.5 | 75 | — | 315R3(B) | — | — | 82600 | 96900 | 32400 | 297 |
| 22.8 | 20963 | 2.9 | 64.9 | 90 | — | 317R3(B) | — | — | 176000 | 187400 | 53900 | 311 |
| 23.6 | 20220 | 2.4 | 62.6 | 25 | 314L3 | | — | — | 81400 | 95600 | 31900 | call |
| 29 | 16499 | 2.3 | 51.1 | 40 | — | 314R3(B) | — | — | 75000 | 88100 | 29200 | call |
| 29 | 16499 | 2.9 | 51.1 | 75 | — | 315R3(B) | — | — | 76600 | 89900 | 29800 | 297 |
| 29.7 | 16083 | 2.9 | 49.8 | 90 | — | 317R3(B) | — | — | 162500 | 173000 | 49300 | 311 |
| 32 | 15594 | 0.9 | 46.7 | 22 | 310L2 | | — | — | 47800 | 60200 | 20900 | 272 |
| 37 | 13515 | 2.2 | 40.5 | 30 | 313L2 | | — | — | 66900 | 79200 | 24600 | 288 |
| 38 | 12955 | 1.5 | 38.8 | 26 | 311L2 | | — | — | 53500 | 66600 | 19700 | 280 |
| 38 | 12891 | 1.1 | 38.6 | 22 | 310L2 | | — | — | 45200 | 56800 | 19600 | 272 |
| 38 | 12891 | 2.7 | 38.6 | 40 | 314L2 | | — | — | 69000 | 81000 | 26600 | call |
| 44 | 11228 | 2.6 | 33.6 | 30 | 313L2 | | — | — | 63300 | 74900 | 23100 | 288 |
| 45 | 10916 | 1.9 | 32.7 | 26 | 311L2 | | — | — | 50800 | 63300 | 18600 | 280 |
| 45 | 10862 | 1.2 | 32.6 | 22 | 310L2 | | — | — | 42900 | 54000 | 18600 | 262 |
| 48 | 10239 | 1.3 | 30.7 | 22 | 310L2 | | — | — | 42200 | 53000 | 18200 | 262 |
| 52 | 9460 | 2.9 | 28.4 | 30 | 313L2 | | — | — | 60100 | 71200 | 21800 | 288 |
| 53 | 9344 | 1.4 | 28 | 22 | 310L2 | | — | — | 41000 | 51600 | 17600 | 272 |
| 54 | 9198 | 2.1 | 27.6 | 26 | 311L2 | | — | — | 48300 | 60100 | 17600 | 280 |
| 56 | 8821 | 2.6 | 26.4 | 90 | — | 313R2(C) | — | — | 58900 | 69700 | 21300 | 289 |
| 58 | 8506 | 2.2 | 25.5 | 26 | 311L2 | | — | — | 47100 | 58700 | 17100 | 281 |
| 58 | 8464 | 1.5 | 25.4 | 22 | 310L2 | | — | — | 39800 | 50100 | 17100 | 272 |
| 58 | 8455 | 2.1 | 25.3 | 55 | — | 311R2(C) | — | — | 39800 | 50100 | 17100 | 281 |
| 67 | 7328 | 2.6 | 22 | 90 | — | 313R2(C) | — | — | 47100 | 58600 | 17100 | 289 |
| 68 | 7281 | 1.7 | 21.8 | 22 | 310L2 | | — | — | 38100 | 47900 | 16200 | 272 |
| 69 | 7167 | 2.4 | 21.5 | 26 | 311L2 | | — | — | 44800 | 55800 | 16200 | 280 |
| 69 | 7124 | 2.4 | 21.3 | 90 | — | 311R2(C) | — | — | 44700 | 55700 | 16100 | 281 |
| 78 | 6372 | 3 | 19.1 | 75 | — | 313R2(B) | — | — | 53400 | 63200 | 19100 | 289 |
| 81 | 6108 | 2.6 | 18.3 | 75 | — | 311R2(B) | — | — | 42700 | 53200 | 15300 | 281 |
| 82 | 6007 | 2.8 | 18 | 26 | 311L2 | | — | — | 42500 | 52900 | 15200 | 280 |
| 85 | 5802 | 1.9 | 17.4 | 22 | 310L2 | | — | — | 35600 | 44700 | 15100 | 271 |
| 88 | 5622 | 2.6 | 16.8 | 90 | — | 313R2(C) | — | — | 51400 | 60900 | 18300 | 289 |
| 88 | 5585 | 2.9 | 16.7 | 26 | 311L2 | | — | — | 41600 | 51800 | 14900 | 280 |
| 89 | 5552 | 2.6 | 16.6 | 90 | — | 311R2(C) | — | — | 41500 | 51700 | 14800 | 281 |
| 93 | 5293 | 3 | 15.9 | 75 | — | 313R2(B) | — | — | 50500 | 59800 | 18000 | 289 |
| 96 | 5146 | 3 | 15.4 | 75 | — | 311R2(B) | — | — | 40500 | 50500 | 14500 | 281 |
| 100 | 4914 | 2.2 | 14.7 | 22 | 310L2 | | — | — | 33800 | 42600 | 14200 | 272 |
| 122 | 4061 | 3 | 12.2 | 75 | — | 313R2(B) | — | — | 46700 | 55200 | 16400 | 289 |
| 123 | 4010 | 3 | 12 | 75 | — | 311R2(B) | — | — | 37600 | 46900 | 13300 | 281 |
| 197 | 2583 | 1.6 | 7.5 | 18 | 306L1 | | 8150 | 9240 | 21300 | 24800 | 6120 | 248 |
| 238 | 2146 | 2.7 | 6.23 | 22 | 307L1 | | 8520 | 10700 | 21700 | 28500 | 7400 | 256 |

## $P_1$ = 55 kW $n_1$=1500 rpm

| n2 min$^{-1}$ | M2 Nm | S | i | Pt kW | | | Rn$_2$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | ◄► Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 239 | 2135 | 2 | 6.2 | 18 | 306L1 | | 7650 | 8670 | 20200 | 23500 | 5750 | 248 |
| 278 | 1837 | 2.2 | 5.33 | 18 | 306L1 | | 7280 | 8240 | 19300 | 22400 | 5470 | 248 |
| 348 | 1463 | 2.7 | 4.25 | 18 | 306L1 | | 6750 | 7640 | 18000 | 21000 | 5070 | 248 |

## RATING CHARTS FOR IN-LINE UNITS 3_ _L

## نمودار طبقه بندی شده برای گیربکس های مستقیم 3_ _L

(12) → **301 L** | Page 224

(1) → **2460 Nm**

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **301 L1** | **3.48** | 431 | 840 | 30 | 7.5 | 71-80-90-100-112-132 | 1610 | 1610 | 4970 | 5710 | 1060 | 3400 |
| | **301 L1** | **4.26** | 352 | 880 | 30 | 7.5 | 71-80-90-100-112-132 | 1720 | 1720 | 5280 | 6070 | 1130 | 3400 |
| | **301 L1** | **5.77** | 260 | 930 | 26 | 7.5 | 71-80-90-100-112-132 | 1910 | 1910 | 5790 | 6650 | 1250 | 3400 |
| | **301 L2** | **12.1** | 124 | 1220 | 16.8 | 7.5 | 71-80-90-100-112-132 | 2440 | 2440 | 7230 | 8300 | 1600 | 3400 |
| | **301 L2** | **14.8** | 101 | 1280 | 14.4 | 7.5 | 71-80-90-100-112-132 | 2610 | 2610 | 7680 | 8820 | 1720 | 3400 |

(2) (3) (4) (5) (6) (7) (8) (9) (10) (11)

1. Reference torque
2. Gearbox drive speed
3. Frame size of the in-line gear unit
4. Gear ratio
5. Gearbox output speed
6. Gearbox rated output torque based on:
   - safety factor S=1
   - 10000 h theoretical lifetime
7. Gearbox rated input power, based on:
   - safety factor S=1
   - 10000 h theoretical lifetime
8. Gearbox thermal capacity
9. Frame size of available IEC motor
10. Permitted overhung loading on output shaft, based on:
    - safety factor S=1
    - 10000 h theoretical lifetime.

For forces applying off midpoint of the shaft, see diagrams provided in the pages following dimensions of the specific gearbox

11. Maximum torque
12. Page installation drawing can be found at

۱. گشتاور مرجع
۲. سرعت درایو گیربکس
۳. سایز گیربکس مستقیم
۴. نسبت گیربکس
۵. سرعت خروجی گیربکس
۶. گشتاور خروجی مجاز بر اساس:
   - فاکتور ایمنی S = 1
   - ۱۰۰۰۰ ساعت عمر نظری
۷. قدرت ورودی مجاز گیربکس بر اساس:
   - فاکتور ایمنی S = 1
   - ۱۰۰۰۰ ساعت عمر نظری
۸. ظرفیت حرارتی گیربکس
۹. اندازه قاب موتور IEC در دسترس
۱۰. حد مجاز بارگذاری بر روی شافت خروجی، بر اساس:
   - فاکتور ایمنی S = 1
   - ۱۰۰۰۰ ساعت عمر نظری.

برای نیروهایی که در نقطه مرکزی شافت قرار ندارند، نمودارهای را که در صفحات بعد از ابعاد گیربکس ارائه شده است، مشاهده کنید

۱۱. حداکثر گشتاور
۱۲. شماره صفحه ابعاد گیربکس

# 300 L

Page 220

# 1250 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1500 | 300 L1 | 3.48 | 431 | 470 | 20 | 7.5 | 71-80-90-100-112-132 | 1610 | 1610 | 4970 | 5710 | 1060 | 2000 |
| | 300 L1 | 4.26 | 352 | 490 | 18.8 | 7.5 | 71-80-90-100-112-132 | 1720 | 1720 | 5280 | 6070 | 1130 | 2400 |
| | 300 L1 | 5.77 | 260 | 470 | 13.3 | 7.5 | 71-80-90-100-112-132 | 1910 | 1910 | 5790 | 6650 | 1250 | 2400 |
| | 300 L1 | 7.2 | 208 | 410 | 9.2 | 7.5 | 71-80-90-100-112-132 | 2050 | 2050 | 6180 | 7100 | 1350 | 2400 |
| | 300 L1 | 9 | 167 | 320 | 5.7 | 7.5 | 71-80-90-100-112-132 | 2210 | 2210 | 6610 | 7600 | 1450 | 2400 |
| | 300 L2 | 12.1 | 124 | 680 | 9.4 | 7.5 | 71-80-90-100-112-132 | 2440 | 2440 | 7230 | 8300 | 1600 | 2000 |
| | 300 L2 | 14.8 | 101 | 720 | 8.1 | 7.5 | 71-80-90-100-112-132 | 2610 | 2610 | 7680 | 8820 | 1720 | 2000 |
| | 300 L2 | 18.2 | 83 | 750 | 6.9 | 7.5 | 71-80-90-100-112-132 | 2790 | 2790 | 8160 | 9380 | 1840 | 2400 |
| | 300 L2 | 20.1 | 75 | 640 | 5.3 | 7.5 | 71-80-90-100-112-132 | 2890 | 2890 | 8410 | 9660 | 1900 | 2000 |
| | 300 L2 | 24.6 | 61 | 800 | 5.5 | 7.5 | 71-80-90-100-112-132 | 3090 | 3090 | 8940 | 10300 | 2030 | 2400 |
| | 300 L2 | 30.7 | 49 | 840 | 4.6 | 7.5 | 71-80-90-100-112-132 | 3330 | 3330 | 9550 | 11000 | 2190 | 2400 |
| | 300 L2 | 33.3 | 45 | 650 | 3.3 | 7.5 | 71-80-90-100-112-132 | 3420 | 3420 | 9790 | 11200 | 2250 | 2400 |
| | 300 L2 | 38.4 | 39 | 840 | 3.7 | 7.5 | 71-80-90-100-112-132 | 3590 | 3590 | 10200 | 11700 | 2360 | 2400 |
| | 300 L2 | 41.5 | 36 | 650 | 2.6 | 7.5 | 71-80-90-100-112-132 | 3680 | 3680 | 10500 | 12000 | 2420 | 2400 |
| | 300 L2 | 51.9 | 28.9 | 650 | 2.1 | 7.5 | 71-80-90-100-112-132 | 3970 | 3970 | 11200 | 12900 | 2610 | 2400 |
| | 300 L2 | 64.8 | 23.1 | 550 | 1.4 | 7.5 | 71-80-90-100-112-132 | 4270 | 4270 | 12000 | 13700 | 2810 | 2400 |
| | 300 L3 | 51.6 | 29.1 | 850 | 2.8 | 7.5 | 71-80-90-100-112-132 | 3960 | 3960 | 11200 | 12800 | 2600 | 2000 |
| | 300 L3 | 63.2 | 23.7 | 850 | 2.3 | 7.5 | 71-80-90-100-112-132 | 4240 | 4240 | 11900 | 13600 | 2780 | 2400 |
| | 300 L3 | 69.9 | 21.5 | 650 | 1.6 | 7.5 | 71-80-90-100-112-132 | 4380 | 4380 | 12200 | 14000 | 2880 | 2000 |
| | 300 L3 | 77.5 | 19.4 | 850 | 1.9 | 7.5 | 71-80-90-100-112-132 | 4530 | 4530 | 12600 | 14500 | 2980 | 2400 |
| | 300 L3 | 85.6 | 17.5 | 850 | 1.7 | 7.5 | 71-80-90-100-112-132 | 4680 | 4680 | 13000 | 14900 | 3080 | 2400 |
| | 300 L3 | 105 | 14.3 | 860 | 1.4 | 7.5 | 71-80-90-100-112-132 | 5010 | 5010 | 13800 | 15900 | 3300 | 2400 |
| | 300 L3 | 116 | 13 | 650 | 0.97 | 7.5 | 71-80-90-100-112-132 | 5180 | 5180 | 14200 | 16300 | 3410 | 2400 |
| | 300 L3 | 131 | 11.5 | 860 | 1.1 | 7.5 | 71-80-90-100-112-132 | 5400 | 5400 | 14800 | 17000 | 3550 | 2400 |
| | 300 L3 | 142 | 10.6 | 860 | 1 | 7.5 | 71-80-90-100-112-132 | 5540 | 5540 | 15100 | 17400 | 3650 | 2400 |
| | 300 L3 | 177 | 8.5 | 880 | 0.86 | 7.5 | 71-80-90-100-112-132 | 5970 | 5970 | 16200 | 18600 | 3920 | 2400 |
| | 300 L3 | 192 | 7.8 | 650 | 0.58 | 7.5 | 71-80-90-100-112-132 | 6130 | 6130 | 16600 | 19000 | 4030 | 2400 |
| | 300 L3 | 221 | 6.8 | 910 | 0.71 | 7.5 | 71-80-90-100-112-132 | 6430 | 6430 | 17300 | 19800 | 4230 | 2400 |
| | 300 L3 | 240 | 6.3 | 650 | 0.47 | 7.5 | 71-80-90-100-112-132 | 6600 | 6600 | 17700 | 20300 | 4340 | 2400 |
| | 300 L3 | 299 | 5 | 650 | 0.37 | 7.5 | 71-80-90-100-112-132 | 7110 | 7110 | 18900 | 21700 | 4670 | 2400 |
| | 300 L3 | 374 | 4 | 670 | 0.31 | 7.5 | 71-80-90-100-112-132 | 7660 | 7660 | 20200 | 23200 | 5030 | 2400 |
| | 300 L4 | 330 | 4.5 | 970 | 0.52 | 6 | 71-80-90-100-112-132 | 7350 | 7350 | 19500 | 22400 | 4830 | 2400 |
| | 300 L4 | 403 | 3.7 | 680 | 0.3 | 6 | 71-80-90-100-112-132 | 7850 | 7850 | 20700 | 23800 | 5160 | 2400 |
| | 300 L4 | 447 | 3.4 | 1020 | 0.4 | 6 | 71-80-90-100-112-132 | 8130 | 8130 | 21300 | 24500 | 5340 | 2400 |
| | 300 L4 | 494 | 3 | 1030 | 0.37 | 6 | 71-80-90-100-112-132 | 8400 | 8400 | 22000 | 25300 | 5520 | 2400 |
| | 300 L4 | 558 | 2.7 | 1060 | 0.34 | 6 | 71-80-90-100-112-132 | 8750 | 8750 | 22800 | 26200 | 5750 | 2400 |
| | 300 L4 | 616 | 2.4 | 1070 | 0.31 | 6 | 71-80-90-100-112-132 | 9050 | 9050 | 23500 | 27000 | 5950 | 2400 |
| | 300 L4 | 755 | 2 | 1110 | 0.26 | 6 | 71-80-90-100-112-132 | 9680 | 9680 | 25000 | 28700 | 6360 | 2400 |
| | 300 L4 | 819 | 1.8 | 1130 | 0.24 | 6 | 71-80-90-100-112-132 | 9940 | 9940 | 25600 | 29400 | 6540 | 2400 |
| | 300 L4 | 942 | 1.6 | 1160 | 0.22 | 6 | 71-80-90-100-112-132 | 10400 | 10400 | 26700 | 30700 | 6850 | 2400 |

# 300 L

Page 220

# 1250 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **300 L4** | **1022** | 1.5 | 1170 | 0.2 | 6 | 71-80-90-100-112-132 | 10700 | 10700 | 27300 | 31400 | 7040 | 2400 |
| | **300 L4** | **1108** | 1.4 | 810 | 0.13 | 6 | 71-80-90-100-112-132 | 11000 | 11000 | 28000 | 32200 | 7230 | 2400 |
| | **300 L4** | **1275** | 1.2 | 1220 | 0.17 | 6 | 71-80-90-100-112-132 | 11500 | 11500 | 29200 | 33600 | 7580 | 2400 |
| | **300 L4** | **1383** | 1.1 | 850 | 0.11 | 6 | 71-80-90-100-112-132 | 11800 | 11800 | 29900 | 34000 | 7790 | 2400 |
| | **300 L4** | **1591** | 0.94 | 1250 | 0.14 | 6 | 71-80-90-100-112-132 | 12000 | 12400 | 31000 | 34000 | 8000 | 2400 |
| | **300 L4** | **1725** | 0.87 | 860 | 0.09 | 6 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 2400 |
| | **300 L4** | **2153** | 0.7 | 860 | 0.07 | 6 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 2400 |
| | **300 L4** | **2692** | 0.56 | 1000 | 0.07 | 6 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 2400 |
| **1000** | **300 L1** | **3.48** | 287 | 530 | 16.5 | 9 | 71-80-90-100-112-132 | 1840 | 1840 | 5610 | 6450 | 1210 | 2000 |
| | **300 L1** | **4.26** | 235 | 560 | 14.1 | 9 | 71-80-90-100-112-132 | 1970 | 1970 | 5970 | 6860 | 1300 | 2400 |
| | **300 L1** | **5.77** | 173 | 530 | 10 | 9 | 71-80-90-100-112-132 | 2180 | 2180 | 6530 | 7510 | 1430 | 2400 |
| | **300 L1** | **7.2** | 139 | 460 | 6.9 | 9 | 71-80-90-100-112-132 | 2350 | 2350 | 6980 | 8020 | 1540 | 2400 |
| | **300 L1** | **9** | 111 | 360 | 4.3 | 9 | 71-80-90-100-112-132 | 2530 | 2530 | 7470 | 8580 | 1660 | 2400 |
| | **300 L2** | **12.1** | 83 | 730 | 6.7 | 9 | 71-80-90-100-112-132 | 2790 | 2790 | 8160 | 9380 | 1840 | 2000 |
| | **300 L2** | **14.8** | 67 | 790 | 5.9 | 9 | 71-80-90-100-112-132 | 2990 | 2990 | 8670 | 9970 | 1970 | 2000 |
| | **300 L2** | **18.2** | 55 | 820 | 5 | 9 | 71-80-90-100-112-132 | 3200 | 3200 | 9220 | 10600 | 2100 | 2400 |
| | **300 L2** | **20.1** | 50 | 650 | 3.6 | 9 | 71-80-90-100-112-132 | 3310 | 3310 | 9500 | 10900 | 2170 | 2000 |
| | **300 L2** | **24.6** | 41 | 840 | 3.8 | 9 | 71-80-90-100-112-132 | 3540 | 3540 | 10100 | 11600 | 2330 | 2400 |
| | **300 L2** | **30.7** | 33 | 850 | 3.1 | 9 | 71-80-90-100-112-132 | 3810 | 3810 | 10800 | 12400 | 2500 | 2400 |
| | **300 L2** | **33.3** | 30 | 650 | 2.2 | 9 | 71-80-90-100-112-132 | 3910 | 3910 | 11100 | 12700 | 2570 | 2400 |
| | **300 L2** | **38.4** | 26.1 | 850 | 2.5 | 9 | 71-80-90-100-112-132 | 4100 | 4100 | 11500 | 13300 | 2700 | 2400 |
| | **300 L2** | **41.5** | 24.1 | 650 | 1.7 | 9 | 71-80-90-100-112-132 | 4210 | 4210 | 11800 | 13600 | 2770 | 2400 |
| | **300 L2** | **51.9** | 19.3 | 650 | 1.4 | 9 | 71-80-90-100-112-132 | 4540 | 4540 | 12600 | 14500 | 2980 | 2400 |
| | **300 L2** | **64.8** | 15.4 | 550 | 0.94 | 9 | 71-80-90-100-112-132 | 4890 | 4890 | 13500 | 15500 | 3210 | 2400 |
| | **300 L3** | **51.6** | 19.4 | 850 | 1.9 | 9 | 71-80-90-100-112-132 | 4530 | 4530 | 12600 | 14500 | 2980 | 2000 |
| | **300 L3** | **63.2** | 15.8 | 850 | 1.5 | 9 | 71-80-90-100-112-132 | 4850 | 4850 | 13400 | 15400 | 3190 | 2400 |
| | **300 L3** | **69.9** | 14.3 | 650 | 1.1 | 9 | 71-80-90-100-112-132 | 5010 | 5010 | 13800 | 15900 | 3290 | 2000 |
| | **300 L3** | **77.5** | 12.9 | 860 | 1.3 | 9 | 71-80-90-100-112-132 | 5190 | 5190 | 14200 | 16400 | 3410 | 2400 |
| | **300 L3** | **85.6** | 11.7 | 860 | 1.2 | 9 | 71-80-90-100-112-132 | 5360 | 5360 | 14700 | 16900 | 3530 | 2400 |
| | **300 L3** | **105** | 9.5 | 870 | 0.95 | 9 | 71-80-90-100-112-132 | 5740 | 5740 | 15600 | 17900 | 3770 | 2400 |
| | **300 L3** | **116** | 8.6 | 650 | 0.64 | 9 | 71-80-90-100-112-132 | 5930 | 5930 | 16100 | 18500 | 3900 | 2400 |
| | **300 L3** | **131** | 7.6 | 890 | 0.78 | 9 | 71-80-90-100-112-132 | 6180 | 6180 | 16700 | 19200 | 4060 | 2400 |
| | **300 L3** | **142** | 7 | 900 | 0.73 | 9 | 71-80-90-100-112-132 | 6350 | 6350 | 17100 | 19600 | 4170 | 2400 |
| | **300 L3** | **177** | 5.6 | 930 | 0.6 | 9 | 71-80-90-100-112-132 | 6830 | 6830 | 18300 | 21000 | 4490 | 2400 |
| | **300 L3** | **192** | 5.2 | 650 | 0.39 | 9 | 71-80-90-100-112-132 | 7020 | 7020 | 18700 | 21500 | 4620 | 2400 |
| | **300 L3** | **221** | 4.5 | 970 | 0.5 | 9 | 71-80-90-100-112-132 | 7360 | 7360 | 19500 | 22400 | 4840 | 2400 |
| | **300 L3** | **240** | 4.2 | 670 | 0.32 | 9 | 71-80-90-100-112-132 | 7560 | 7560 | 20000 | 23000 | 4970 | 2400 |
| | **300 L3** | **299** | 3.3 | 700 | 0.27 | 9 | 71-80-90-100-112-132 | 8140 | 8140 | 21400 | 24500 | 5350 | 2400 |
| | **300 L3** | **374** | 2.7 | 720 | 0.22 | 9 | 71-80-90-100-112-132 | 8770 | 8770 | 22800 | 26200 | 5760 | 2400 |

# 300 L

Page 220

# 1250 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1000** | **300 L4** | **330** | 3 | 1040 | 0.37 | 7.2 | 71-80-90-100-112-132 | 8410 | 8410 | 22000 | 25300 | 5530 | 2400 |
| | **300 L4** | **403** | 2.5 | 730 | 0.21 | 7.2 | 71-80-90-100-112-132 | 8990 | 8990 | 23400 | 26800 | 5910 | 2400 |
| | **300 L4** | **447** | 2.2 | 1090 | 0.29 | 7.2 | 71-80-90-100-112-132 | 9300 | 9300 | 24100 | 27700 | 6120 | 2400 |
| | **300 L4** | **494** | 2 | 1110 | 0.27 | 7.2 | 71-80-90-100-112-132 | 9620 | 9620 | 24800 | 28500 | 6320 | 2400 |
| | **300 L4** | **558** | 1.8 | 1130 | 0.24 | 7.2 | 71-80-90-100-112-132 | 10000 | 10000 | 25800 | 29600 | 6590 | 2400 |
| | **300 L4** | **616** | 1.6 | 1150 | 0.22 | 7.2 | 71-80-90-100-112-132 | 10400 | 10400 | 26500 | 30500 | 6810 | 2400 |
| | **300 L4** | **755** | 1.3 | 1190 | 0.19 | 7.2 | 71-80-90-100-112-132 | 11100 | 11100 | 28200 | 32400 | 7280 | 2400 |
| | **300 L4** | **819** | 1.2 | 1210 | 0.17 | 7.2 | 71-80-90-100-112-132 | 11400 | 11400 | 28900 | 33200 | 7480 | 2400 |
| | **300 L4** | **942** | 1.1 | 1240 | 0.16 | 7.2 | 71-80-90-100-112-132 | 11900 | 11900 | 30100 | 34000 | 7840 | 2400 |
| | **300 L4** | **1022** | 0.98 | 1250 | 0.14 | 7.2 | 71-80-90-100-112-132 | 12000 | 12300 | 30900 | 34000 | 8000 | 2400 |
| | **300 L4** | **1108** | 0.9 | 860 | 0.09 | 7.2 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 2400 |
| | **300 L4** | **1275** | 0.78 | 1250 | 0.12 | 7.2 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 2400 |
| | **300 L4** | **1383** | 0.72 | 860 | 0.07 | 7.2 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 2400 |
| | **300 L4** | **1591** | 0.63 | 1250 | 0.09 | 7.2 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 2400 |
| | **300 L4** | **1725** | 0.58 | 860 | 0.06 | 7.2 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 2400 |
| | **300 L4** | **2153** | 0.46 | 860 | 0.05 | 7.2 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 2400 |
| | **300 L4** | **2692** | 0.37 | 1000 | 0.04 | 7.2 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 2400 |
| **500** | **300L1** | **3.48** | 144 | 650 | 10.2 | 15 | 71-80-90-100-112-132 | 2320 | 2320 | 6910 | 7940 | 1530 | 2000 |
| | **300L1** | **4.26** | 117 | 690 | 8.7 | 15 | 71-80-90-100-112-132 | 2490 | 2490 | 7350 | 8440 | 1630 | 2400 |
| | **300L1** | **5.77** | 87 | 630 | 5.9 | 15 | 71-80-90-100-112-132 | 2750 | 2750 | 8040 | 9240 | 1810 | 2400 |
| | **300L1** | **7.2** | 69 | 530 | 4 | 15 | 71-80-90-100-112-132 | 2960 | 2960 | 8600 | 9880 | 1950 | 2400 |
| | **300L1** | **9** | 56 | 370 | 2.2 | 15 | 71-80-90-100-112-132 | 3190 | 3190 | 9190 | 10600 | 2100 | 2400 |
| | **300L2** | **12.1** | 41 | 730 | 3.4 | 15 | 71-80-90-100-112-132 | 3520 | 3520 | 10000 | 11500 | 2310 | 2000 |
| | **300L2** | **14.8** | 34 | 840 | 3.2 | 15 | 71-80-90-100-112-132 | 3770 | 3770 | 10700 | 12300 | 2480 | 2000 |
| | **300L2** | **18.2** | 27.5 | 850 | 2.6 | 15 | 71-80-90-100-112-132 | 4030 | 4030 | 11300 | 13000 | 2650 | 2400 |
| | **300L2** | **20.1** | 24.9 | 650 | 1.8 | 15 | 71-80-90-100-112-132 | 4170 | 4170 | 11700 | 13400 | 2740 | 2000 |
| | **300L2** | **24.6** | 20.3 | 850 | 1.9 | 15 | 71-80-90-100-112-132 | 4460 | 4460 | 12400 | 14300 | 2930 | 2400 |
| | **300L2** | **30.7** | 16.3 | 850 | 1.5 | 15 | 71-80-90-100-112-132 | 4800 | 4800 | 13300 | 15300 | 3160 | 2400 |
| | **300L2** | **33.3** | 15 | 650 | 1.1 | 15 | 71-80-90-100-112-132 | 4930 | 4930 | 13600 | 15600 | 3240 | 2400 |
| | **300L2** | **38.4** | 13 | 860 | 1.2 | 15 | 71-80-90-100-112-132 | 5170 | 5170 | 14200 | 16300 | 3400 | 2400 |
| | **300L2** | **41.5** | 12 | 650 | 0.87 | 15 | 71-80-90-100-112-132 | 5310 | 5310 | 14500 | 16700 | 3490 | 2400 |
| | **300L2** | **51.9** | 9.6 | 650 | 0.7 | 15 | 71-80-90-100-112-132 | 5720 | 5720 | 15600 | 17900 | 3760 | 2400 |
| | **300L2** | **64.8** | 7.7 | 550 | 0.47 | 15 | 71-80-90-100-112-132 | 6160 | 6160 | 16600 | 19100 | 4050 | 2400 |
| | **300L3** | **51.6** | 9.7 | 860 | 0.96 | 15 | 71-80-90-100-112-132 | 5710 | 5710 | 15500 | 17800 | 3750 | 2000 |
| | **300L3** | **63.2** | 7.9 | 890 | 0.81 | 15 | 71-80-90-100-112-132 | 6110 | 6110 | 16500 | 19000 | 4020 | 2400 |
| | **300L3** | **69.9** | 7.2 | 650 | 0.53 | 15 | 71-80-90-100-112-132 | 6310 | 6310 | 17000 | 19500 | 4150 | 2000 |
| | **300L3** | **77.5** | 6.5 | 920 | 0.68 | 15 | 71-80-90-100-112-132 | 6540 | 6540 | 17500 | 20100 | 4300 | 2400 |
| | **300L3** | **85.6** | 5.8 | 930 | 0.62 | 15 | 71-80-90-100-112-132 | 6760 | 6760 | 18100 | 20800 | 4440 | 2400 |
| | **300L3** | **105** | 4.8 | 960 | 0.52 | 15 | 71-80-90-100-112-132 | 7230 | 7230 | 19200 | 22100 | 4750 | 2400 |

## 300 L

Page 220

## 1250 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **500** | **300L3** | **116** | 4.3 | 670 | 0.33 | 15 | 71-80-90-100-112-132 | 7470 | 7470 | 19800 | 22700 | 4910 | 2400 |
| | **300L3** | **131** | 3.8 | 990 | 0.44 | 15 | 71-80-90-100-112-132 | 7780 | 7780 | 20500 | 23600 | 5120 | 2400 |
| | **300L3** | **142** | 3.5 | 1010 | 0.41 | 15 | 71-80-90-100-112-132 | 8000 | 8000 | 21000 | 24200 | 5260 | 2400 |
| | **300L3** | **177** | 2.8 | 1050 | 0.34 | 15 | 71-80-90-100-112-132 | 8610 | 8610 | 22500 | 25800 | 5660 | 2400 |
| | **300L3** | **192** | 2.6 | 730 | 0.22 | 15 | 71-80-90-100-112-132 | 8850 | 8850 | 23000 | 26500 | 5820 | 2400 |
| | **300L3** | **221** | 2.3 | 1090 | 0.28 | 15 | 71-80-90-100-112-132 | 9270 | 9270 | 24000 | 27600 | 6090 | 2400 |
| | **300L3** | **240** | 2.1 | 750 | 0.18 | 15 | 71-80-90-100-112-132 | 9520 | 9520 | 24600 | 28300 | 6260 | 2400 |
| | **300L3** | **299** | 1.7 | 780 | 0.15 | 15 | 71-80-90-100-112-132 | 10300 | 10300 | 26300 | 30200 | 6740 | 2400 |
| | **300L3** | **374** | 1.3 | 820 | 0.13 | 15 | 71-80-90-100-112-132 | 11000 | 11000 | 28100 | 32300 | 7260 | 2400 |
| | **300L4** | **330** | 1.5 | 1170 | 0.21 | 12 | 71-80-90-100-112-132 | 10600 | 10600 | 27100 | 31100 | 6970 | 2400 |
| | **300L4** | **403** | 1.2 | 830 | 0.12 | 12 | 71-80-90-100-112-132 | 11300 | 11300 | 28800 | 33000 | 7450 | 2400 |
| | **300L4** | **447** | 1.1 | 1230 | 0.16 | 12 | 71-80-90-100-112-132 | 11700 | 11700 | 29700 | 34000 | 7710 | 2400 |
| | **300L4** | **494** | 1 | 1250 | 0.15 | 12 | 71-80-90-100-112-132 | 12000 | 12100 | 30600 | 34000 | 7970 | 2400 |
| | **300L4** | **558** | 0.9 | 1250 | 0.13 | 12 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 2400 |
| | **300L4** | **616** | 0.81 | 1250 | 0.12 | 12 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 2400 |
| | **300L4** | **755** | 0.66 | 1250 | 0.1 | 12 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 2400 |
| | **300L4** | **819** | 0.61 | 1250 | 0.09 | 12 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 2400 |
| | **300L4** | **942** | 0.53 | 1250 | 0.08 | 12 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 2400 |
| | **300L4** | **1022** | 0.49 | 1250 | 0.07 | 12 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 2400 |
| | **300L4** | **1108** | 0.45 | 860 | 0.05 | 12 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 2400 |
| | **300L4** | **1275** | 0.39 | 1250 | 0.06 | 12 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 2400 |
| | **300L4** | **1383** | 0.36 | 860 | 0.04 | 12 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 2400 |
| | **300L4** | **1591** | 0.31 | 1250 | 0.05 | 12 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 2400 |
| | **300L4** | **1725** | 0.29 | 860 | 0.03 | 12 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 2400 |
| | **300L4** | **2153** | 0.23 | 860 | 0.02 | 12 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 2400 |
| | **300L4** | **2692** | 0.19 | 1000 | 0.02 | 12 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 2400 |

## 301 L

Page 226

## 2460 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **301 L1** | **3.48** | 431 | 840 | 30 | 7.5 | 71-80-90-100-112-132 | 1610 | 1610 | 4970 | 5710 | 1060 | 3400 |
| | **301 L1** | **4.26** | 352 | 880 | 30 | 7.5 | 71-80-90-100-112-132 | 1720 | 1720 | 5280 | 6070 | 1130 | 3400 |
| | **301 L1** | **5.77** | 260 | 930 | 26 | 7.5 | 71-80-90-100-112-132 | 1910 | 1910 | 5790 | 6650 | 1250 | 3400 |
| | **301 L1** | **7.2** | 208 | 750 | 17 | 7.5 | 71-80-90-100-112-132 | 2050 | 2050 | 6180 | 7100 | 1350 | 3400 |
| | **301 L1** | **9** | 167 | 630 | 11.3 | 7.5 | 71-80-90-100-112-132 | 2210 | 2210 | 6610 | 7600 | 1450 | 3400 |
| | **301 L2** | **12.1** | 124 | 1220 | 16.8 | 7.5 | 71-80-90-100-112-132 | 2440 | 2440 | 7230 | 8300 | 1600 | 3400 |
| | **301 L2** | **14.8** | 101 | 1280 | 14.4 | 7.5 | 71-80-90-100-112-132 | 2610 | 2610 | 7680 | 8820 | 1720 | 3400 |

# 301 L

Page 226

# 2460 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **301 L2** | **18.2** | 83 | 1360 | 12.5 | 7.5 | 71-80-90-100-112-132 | 2790 | 2790 | 8160 | 9380 | 1840 | 3400 |
| | **301 L1** | **3.48** | 431 | 840 | 30 | 7.5 | 71-80-90-100-112-132 | 1610 | 1610 | 4970 | 5710 | 1060 | 3400 |
| | **301 L1** | **4.26** | 352 | 880 | 30 | 7.5 | 71-80-90-100-112-132 | 1720 | 1720 | 5280 | 6070 | 1130 | 3400 |
| | **301 L1** | **5.77** | 260 | 930 | 26 | 7.5 | 71-80-90-100-112-132 | 1910 | 1910 | 5790 | 6650 | 1250 | 3400 |
| | **301 L1** | **7.2** | 208 | 750 | 17 | 7.5 | 71-80-90-100-112-132 | 2050 | 2050 | 6180 | 7100 | 1350 | 3400 |
| | **301 L1** | **9** | 167 | 630 | 11.3 | 7.5 | 71-80-90-100-112-132 | 2210 | 2210 | 6610 | 7600 | 1450 | 3400 |
| | **301 L2** | **12.1** | 124 | 1220 | 16.8 | 7.5 | 71-80-90-100-112-132 | 2440 | 2440 | 7230 | 8300 | 1600 | 3400 |
| | **301 L2** | **14.8** | 101 | 1280 | 14.4 | 7.5 | 71-80-90-100-112-132 | 2610 | 2610 | 7680 | 8820 | 1720 | 3400 |
| | **301 L2** | **18.2** | 83 | 1360 | 12.5 | 7.5 | 71-80-90-100-112-132 | 2790 | 2790 | 8160 | 9380 | 1840 | 3400 |
| | **301 L2** | **20.1** | 75 | 1260 | 10.5 | 7.5 | 71-80-90-100-112-132 | 2890 | 2890 | 8410 | 9660 | 1900 | 3400 |
| | **301 L2** | **24.6** | 61 | 1490 | 10.1 | 7.5 | 71-80-90-100-112-132 | 3090 | 3090 | 8940 | 10300 | 2030 | 3400 |
| | **301 L2** | **30.7** | 49 | 1580 | 8.6 | 7.5 | 71-80-90-100-112-132 | 3330 | 3330 | 9550 | 11000 | 2190 | 3400 |
| | **301 L2** | **33.3** | 45 | 1300 | 6.5 | 7.5 | 71-80-90-100-112-132 | 3420 | 3420 | 9790 | 11200 | 2250 | 3400 |
| | **301 L2** | **38.4** | 39 | 1540 | 6.7 | 7.5 | 71-80-90-100-112-132 | 3590 | 3590 | 10200 | 11700 | 2360 | 3400 |
| | **301 L2** | **41.5** | 36 | 1300 | 5.2 | 7.5 | 71-80-90-100-112-132 | 3680 | 3680 | 10500 | 12000 | 2420 | 3400 |
| | **301 L2** | **51.9** | 28.9 | 1300 | 4.2 | 7.5 | 71-80-90-100-112-132 | 3970 | 3970 | 11200 | 12900 | 2610 | 3400 |
| | **301 L2** | **64.8** | 23.1 | 1150 | 3 | 7.5 | 71-80-90-100-112-132 | 4270 | 4270 | 12000 | 13700 | 2810 | 3400 |
| | **301L3** | **51.6** | 29.1 | 1630 | 5.4 | 7.5 | 71-80-90-100-112-132 | 3960 | 3960 | 11200 | 12800 | 2600 | 3400 |
| | **301L3** | **63.2** | 23.7 | 1650 | 4.5 | 7.5 | 71-80-90-100-112-132 | 4240 | 4240 | 11900 | 13600 | 2780 | 3400 |
| | **301L3** | **69.9** | 21.5 | 1300 | 3.2 | 7.5 | 71-80-90-100-112-132 | 4380 | 4380 | 12200 | 14000 | 2880 | 3400 |
| | **301L3** | **77.5** | 19.4 | 1670 | 3.7 | 7.5 | 71-80-90-100-112-132 | 4530 | 4530 | 12600 | 14500 | 2980 | 3400 |
| | **301L3** | **85.6** | 17.5 | 1680 | 3.4 | 7.5 | 71-80-90-100-112-132 | 4680 | 4680 | 13000 | 14900 | 3080 | 3400 |
| | **301L3** | **105** | 14.3 | 1700 | 2.8 | 7.5 | 71-80-90-100-112-132 | 5010 | 5010 | 13800 | 15900 | 3300 | 3400 |
| | **301L3** | **116** | 13 | 1300 | 1.9 | 7.5 | 71-80-90-100-112-132 | 5180 | 5180 | 14200 | 16300 | 3410 | 3400 |
| | **301L3** | **131** | 11.5 | 1720 | 2.3 | 7.5 | 71-80-90-100-112-132 | 5400 | 5400 | 14800 | 17000 | 3550 | 3400 |
| | **301L3** | **142** | 10.6 | 1720 | 2.1 | 7.5 | 71-80-90-100-112-132 | 5540 | 5540 | 15100 | 17400 | 3650 | 3400 |
| | **301L3** | **177** | 8.5 | 1770 | 1.7 | 7.5 | 71-80-90-100-112-132 | 5970 | 5970 | 16200 | 18600 | 3920 | 3400 |
| | **301L3** | **192** | 7.8 | 1300 | 1.2 | 7.5 | 71-80-90-100-112-132 | 6130 | 6130 | 16600 | 19000 | 4030 | 3400 |
| | **301L3** | **221** | 6.8 | 1790 | 1.4 | 7.5 | 71-80-90-100-112-132 | 6430 | 6430 | 17300 | 19800 | 4230 | 3400 |
| | **301L3** | **240** | 6.3 | 1300 | 0.93 | 7.5 | 71-80-90-100-112-132 | 6600 | 6600 | 17700 | 20300 | 4340 | 3400 |
| | **301L3** | **299** | 5 | 1300 | 0.75 | 7.5 | 71-80-90-100-112-132 | 7110 | 7110 | 18900 | 21700 | 4670 | 3400 |
| | **301L3** | **374** | 4 | 1350 | 0.62 | 7.5 | 71-80-90-100-112-132 | 7660 | 7660 | 20200 | 23200 | 5030 | 3400 |
| | **301L4** | **330** | 4.5 | 1920 | 1 | 6 | 71-80-90-100-112-132 | 7350 | 7350 | 19500 | 22400 | 4830 | 3400 |
| | **301 L4** | **403** | 3.7 | 1370 | 0.6 | 6 | 71-80-90-100-112-132 | 7850 | 7850 | 20700 | 23800 | 5160 | 3400 |
| | **301 L4** | **447** | 3.4 | 2030 | 0.81 | 6 | 71-80-90-100-112-132 | 8130 | 8130 | 21300 | 24500 | 5340 | 3400 |
| | **301 L4** | **494** | 3 | 2070 | 0.74 | 6 | 71-80-90-100-112-132 | 8400 | 8400 | 22000 | 25300 | 5520 | 3400 |
| | **301 L4** | **558** | 2.7 | 2110 | 0.67 | 6 | 71-80-90-100-112-132 | 8750 | 8750 | 22800 | 26200 | 5750 | 3400 |
| | **301 L4** | **616** | 2.4 | 2150 | 0.62 | 6 | 71-80-90-100-112-132 | 9050 | 9050 | 23500 | 27000 | 5950 | 3400 |
| | **301 L4** | **755** | 2 | 2220 | 0.52 | 6 | 71-80-90-100-112-132 | 9680 | 9680 | 25000 | 28700 | 6360 | 3400 |
| | **301 L4** | **819** | 1.8 | 2240 | 0.49 | 6 | 71-80-90-100-112-132 | 9940 | 9940 | 25600 | 29400 | 6540 | 3400 |

| 301 L | Page 226 | 2460 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **301 L4** | **942** | 1.6 | 2290 | 0.43 | 6 | 71-80-90-100-112-132 | 10400 | 10400 | 26700 | 30700 | 6850 | 3400 |
| | **301 L4** | **1022** | 1.5 | 2320 | 0.4 | 6 | 71-80-90-100-112-132 | 10700 | 10700 | 27300 | 31400 | 7040 | 3400 |
| | **301 L4** | **1108** | 1.4 | 1630 | 0.26 | 6 | 71-80-90-100-112-132 | 11000 | 11000 | 28000 | 32200 | 7230 | 3400 |
| | **301 L4** | **1275** | 1.2 | 2400 | 0.33 | 6 | 71-80-90-100-112-132 | 11500 | 11500 | 29200 | 33600 | 7580 | 3400 |
| | **301 L4** | **1383** | 1.1 | 1700 | 0.22 | 6 | 71-80-90-100-112-132 | 11800 | 11800 | 29900 | 34000 | 7790 | 3400 |
| | **301 L4** | **1591** | 0.94 | 2000 | 0.22 | 6 | 71-80-90-100-112-132 | 12000 | 12400 | 31000 | 34000 | 8000 | 3400 |
| | **301 L4** | **1725** | 0.87 | 1720 | 0.18 | 6 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 3400 |
| | **301 L4** | **2153** | 0.7 | 1720 | 0.14 | 6 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 3400 |
| | **301 L4** | **2692** | 0.56 | 1720 | 0.11 | 6 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 3400 |
| **1000** | **301 L1** | **3.48** | 287 | 950 | 29 | 9 | 71-80-90-100-112-132 | 1840 | 1840 | 5610 | 6450 | 1210 | 3400 |
| | **301 L1** | **4.26** | 235 | 990 | 25 | 9 | 71-80-90-100-112-132 | 1970 | 1970 | 5970 | 6860 | 1300 | 3400 |
| | **301 L1** | **5.77** | 173 | 1050 | 19.7 | 9 | 71-80-90-100-112-132 | 2180 | 2180 | 6530 | 7510 | 1430 | 3400 |
| | **301 L1** | **7.2** | 139 | 850 | 12.8 | 9 | 71-80-90-100-112-132 | 2350 | 2350 | 6980 | 8020 | 1540 | 3400 |
| | **301 L1** | **9** | 111 | 710 | 8.5 | 9 | 71-80-90-100-112-132 | 2530 | 2530 | 7470 | 8580 | 1660 | 3400 |
| | **301 L2** | **12.1** | 83 | 1330 | 12.3 | 9 | 71-80-90-100-112-132 | 2790 | 2790 | 8160 | 9380 | 1840 | 3400 |
| | **301 L2** | **14.8** | 67 | 1440 | 10.8 | 9 | 71-80-90-100-112-132 | 2990 | 2990 | 8670 | 9970 | 1970 | 3400 |
| | **301 L2** | **18.2** | 55 | 1530 | 9.4 | 9 | 71-80-90-100-112-132 | 3200 | 3200 | 9220 | 10600 | 2100 | 3400 |
| | **301 L2** | **20.1** | 50 | 1300 | 7.2 | 9 | 71-80-90-100-112-132 | 3310 | 3310 | 9500 | 10900 | 2170 | 3400 |
| | **301 L2** | **24.6** | 41 | 1600 | 7.2 | 9 | 71-80-90-100-112-132 | 3540 | 3540 | 10100 | 11600 | 2330 | 3400 |
| | **301 L2** | **30.7** | 33 | 1620 | 5.9 | 9 | 71-80-90-100-112-132 | 3810 | 3810 | 10800 | 12400 | 2500 | 3400 |
| | **301 L2** | **33.3** | 30 | 1300 | 4.3 | 9 | 71-80-90-100-112-132 | 3910 | 3910 | 11100 | 12700 | 2570 | 3400 |
| | **301 L2** | **38.4** | 26.1 | 1550 | 4.5 | 9 | 71-80-90-100-112-132 | 4100 | 4100 | 11500 | 13300 | 2700 | 3400 |
| | **301 L2** | **41.5** | 24.1 | 1300 | 3.5 | 9 | 71-80-90-100-112-132 | 4210 | 4210 | 11800 | 13600 | 2770 | 3400 |
| | **301 L2** | **51.9** | 19.3 | 1300 | 2.8 | 9 | 71-80-90-100-112-132 | 4540 | 4540 | 12600 | 14500 | 2980 | 3400 |
| | **301 L2** | **64.8** | 15.4 | 1150 | 2 | 9 | 71-80-90-100-112-132 | 4890 | 4890 | 13500 | 15500 | 3210 | 3400 |
| | **301 L3** | **51.6** | 19.4 | 1670 | 3.7 | 9 | 71-80-90-100-112-132 | 4530 | 4530 | 12600 | 14500 | 2980 | 3400 |
| | **301 L3** | **63.2** | 15.8 | 1690 | 3.1 | 9 | 71-80-90-100-112-132 | 4850 | 4850 | 13400 | 15400 | 3190 | 3400 |
| | **301 L3** | **69.9** | 14.3 | 1300 | 2.1 | 9 | 71-80-90-100-112-132 | 5010 | 5010 | 13800 | 15900 | 3290 | 3400 |
| | **301 L3** | **77.5** | 12.9 | 1710 | 2.5 | 9 | 71-80-90-100-112-132 | 5190 | 5190 | 14200 | 16400 | 3410 | 3400 |
| | **301 L3** | **85.6** | 11.7 | 1710 | 2.3 | 9 | 71-80-90-100-112-132 | 5360 | 5360 | 14700 | 16900 | 3530 | 3400 |
| | **301 L3** | **105** | 9.5 | 1740 | 1.9 | 9 | 71-80-90-100-112-132 | 5740 | 5740 | 15600 | 17900 | 3770 | 3400 |
| | **301 L3** | **116** | 8.6 | 1300 | 1.3 | 9 | 71-80-90-100-112-132 | 5930 | 5930 | 16100 | 18500 | 3900 | 3400 |
| | **301 L3** | **131** | 7.6 | 1790 | 1.6 | 9 | 71-80-90-100-112-132 | 6180 | 6180 | 16700 | 19200 | 4060 | 3400 |
| | **301 L3** | **142** | 7 | 1810 | 1.5 | 9 | 71-80-90-100-112-132 | 6350 | 6350 | 17100 | 19600 | 4170 | 3400 |
| | **301 L3** | **177** | 5.6 | 1860 | 1.2 | 9 | 71-80-90-100-112-132 | 6830 | 6830 | 18300 | 21000 | 4490 | 3400 |
| | **301 L3** | **192** | 5.2 | 1300 | 0.78 | 9 | 71-80-90-100-112-132 | 7020 | 7020 | 18700 | 21500 | 4620 | 3400 |
| | **301 L3** | **221** | 4.5 | 1850 | 0.96 | 9 | 71-80-90-100-112-132 | 7360 | 7360 | 19500 | 22400 | 4840 | 3400 |
| | **301 L3** | **240** | 4.2 | 1340 | 0.64 | 9 | 71-80-90-100-112-132 | 7560 | 7560 | 20000 | 23000 | 4970 | 3400 |
| | **301L3** | **299** | 3.3 | 1390 | 0.53 | 9 | 71-80-90-100-112-132 | 8140 | 8140 | 21400 | 24500 | 5350 | 3400 |

## 301 L

Page 226

## 2460 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1000** | **301L3** | **374** | 2.7 | 1440 | 0.44 | 9 | 71-80-90-100-112-132 | 8770 | 8770 | 22800 | 26200 | 5760 | 3400 |
| | **301 L4** | **330** | 3 | 2070 | 0.74 | 7.2 | 71-80-90-100-112-132 | 8410 | 8410 | 22000 | 25300 | 5530 | 3400 |
| | **301 L4** | **403** | 2.5 | 1460 | 0.43 | 7.2 | 71-80-90-100-112-132 | 8990 | 8990 | 23400 | 26800 | 5910 | 3400 |
| | **301 L4** | **447** | 2.2 | 2180 | 0.58 | 7.2 | 71-80-90-100-112-132 | 9300 | 9300 | 24100 | 27700 | 6120 | 3400 |
| | **301 L4** | **494** | 2 | 2210 | 0.53 | 7.2 | 71-80-90-100-112-132 | 9620 | 9620 | 24800 | 28500 | 6320 | 3400 |
| | **301 L4** | **558** | 1.8 | 2250 | 0.48 | 7.2 | 71-80-90-100-112-132 | 10000 | 10000 | 25800 | 29600 | 6590 | 3400 |
| | **301 L4** | **616** | 1.6 | 2290 | 0.44 | 7.2 | 71-80-90-100-112-132 | 10400 | 10400 | 26500 | 30500 | 6810 | 3400 |
| | **301 L4** | **755** | 1.3 | 2360 | 0.37 | 7.2 | 71-80-90-100-112-132 | 11100 | 11100 | 28200 | 32400 | 7280 | 3400 |
| | **301 L4** | **819** | 1.2 | 2390 | 0.34 | 7.2 | 71-80-90-100-112-132 | 11400 | 11400 | 28900 | 33200 | 7480 | 3400 |
| | **301 L4** | **942** | 1.1 | 2440 | 0.31 | 7.2 | 71-80-90-100-112-132 | 11900 | 11900 | 30100 | 34000 | 7840 | 3400 |
| | **301 L4** | **1022** | 0.98 | 2460 | 0.28 | 7.2 | 71-80-90-100-112-132 | 12000 | 12300 | 30900 | 34000 | 8000 | 3400 |
| | **301 L4** | **1108** | 0.9 | 1720 | 0.18 | 7.2 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 3400 |
| | **301 L4** | **1275** | 0.78 | 2460 | 0.23 | 7.2 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 3400 |
| | **301 L4** | **1383** | 0.72 | 1720 | 0.15 | 7.2 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 3400 |
| | **301 L4** | **1591** | 0.63 | 2000 | 0.15 | 7.2 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 3400 |
| | **301 L4** | **1725** | 0.58 | 1720 | 0.12 | 7.2 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 3400 |
| | **301 L4** | **2153** | 0.46 | 1720 | 0.09 | 7.2 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 3400 |
| | **301 L4** | **2692** | 0.37 | 1720 | 0.08 | 7.2 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 3400 |

## 301 L

Page 226

## 2460 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **500** | **301L1** | **3.48** | 144 | 1170 | 18.1 | 15 | 71-80-90-100-112-132 | 2320 | 2320 | 6910 | 7940 | 1530 | 3400 |
| | **301L1** | **4.26** | 117 | 1220 | 15.4 | 15 | 71-80-90-100-112-132 | 2490 | 2490 | 7350 | 8440 | 1630 | 3400 |
| | **301L1** | **5.77** | 87 | 1250 | 11.7 | 15 | 71-80-90-100-112-132 | 2750 | 2750 | 8040 | 9240 | 1810 | 3400 |
| | **301L1** | **7.2** | 69 | 1050 | 7.8 | 15 | 71-80-90-100-112-132 | 2960 | 2960 | 8600 | 9880 | 1950 | 3400 |
| | **301L1** | **9** | 56 | 730 | 4.4 | 15 | 71-80-90-100-112-132 | 3190 | 3190 | 9190 | 10600 | 2100 | 3400 |
| | **301L2** | **12.1** | 41 | 1430 | 6.6 | 15 | 71-80-90-100-112-132 | 3520 | 3520 | 10000 | 11500 | 2310 | 3400 |
| | **301L2** | **14.8** | 34 | 1620 | 6.1 | 15 | 71-80-90-100-112-132 | 3770 | 3770 | 10700 | 12300 | 2480 | 3400 |
| | **301L2** | **18.2** | 27.5 | 1630 | 5 | 15 | 71-80-90-100-112-132 | 4030 | 4030 | 11300 | 13000 | 2650 | 3400 |
| | **301L2** | **20.1** | 24.9 | 1300 | 3.6 | 15 | 71-80-90-100-112-132 | 4170 | 4170 | 11700 | 13400 | 2740 | 3400 |
| | **301L2** | **24.6** | 20.3 | 1660 | 3.8 | 15 | 71-80-90-100-112-132 | 4460 | 4460 | 12400 | 14300 | 2930 | 3400 |
| | **301L2** | **30.7** | 16.3 | 1680 | 3.1 | 15 | 71-80-90-100-112-132 | 4800 | 4800 | 13300 | 15300 | 3160 | 3400 |
| | **301L2** | **33.3** | 15 | 1300 | 2.2 | 15 | 71-80-90-100-112-132 | 4930 | 4930 | 13600 | 15600 | 3240 | 3400 |
| | **301L2** | **38.4** | 13 | 1560 | 2.3 | 15 | 71-80-90-100-112-132 | 5170 | 5170 | 14200 | 16300 | 3400 | 3400 |
| | **301L2** | **41.5** | 12 | 1300 | 1.7 | 15 | 71-80-90-100-112-132 | 5310 | 5310 | 14500 | 16700 | 3490 | 3400 |
| | **301L2** | **51.9** | 9.6 | 1300 | 1.4 | 15 | 71-80-90-100-112-132 | 5720 | 5720 | 15600 | 17900 | 3760 | 3400 |
| | **301L2** | **64.8** | 7.7 | 1150 | 0.99 | 15 | 71-80-90-100-112-132 | 6160 | 6160 | 16600 | 19100 | 4050 | 340 |

| 301 L | Page 226 | 2460 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **500** | **301L3** | **51.6** | 9.7 | 1740 | 1.9 | 15 | 71-80-90-100-112-132 | 5710 | 5710 | 15500 | 17800 | 3750 | 3400 |
| | **301L3** | **63.2** | 7.9 | 1780 | 1.6 | 15 | 71-80-90-100-112-132 | 6110 | 6110 | 16500 | 19000 | 4020 | 3400 |
| | **301L3** | **69.9** | 7.2 | 1300 | 1.1 | 15 | 71-80-90-100-112-132 | 6310 | 6310 | 17000 | 19500 | 4150 | 3400 |
| | **301L3** | **77.5** | 6.5 | 1830 | 1.4 | 15 | 71-80-90-100-112-132 | 6540 | 6540 | 17500 | 20100 | 4300 | 3400 |
| | **301L3** | **85.6** | 5.8 | 1850 | 1.2 | 15 | 71-80-90-100-112-132 | 6760 | 6760 | 18100 | 20800 | 4440 | 3400 |
| | **301L3** | **105** | 4.8 | 1910 | 1 | 15 | 71-80-90-100-112-132 | 7230 | 7230 | 19200 | 22100 | 4750 | 3400 |
| | **301L3** | **116** | 4.3 | 1330 | 0.66 | 15 | 71-80-90-100-112-132 | 7470 | 7470 | 19800 | 22700 | 4910 | 3400 |
| | **301L3** | **131** | 3.8 | 1980 | 0.87 | 15 | 71-80-90-100-112-132 | 7780 | 7780 | 20500 | 23600 | 5120 | 3400 |
| | **301L3** | **142** | 3.5 | 2010 | 0.81 | 15 | 71-80-90-100-112-132 | 8000 | 8000 | 21000 | 24200 | 5260 | 3400 |
| | **301L3** | **177** | 2.8 | 2090 | 0.68 | 15 | 71-80-90-100-112-132 | 8610 | 8610 | 22500 | 25800 | 5660 | 3400 |
| | **301L3** | **192** | 2.6 | 1450 | 0.43 | 15 | 71-80-90-100-112-132 | 8850 | 8850 | 23000 | 26500 | 5820 | 3400 |
| | **301L3** | **221** | 2.3 | 2000 | 0.52 | 15 | 71-80-90-100-112-132 | 9270 | 9270 | 24000 | 27600 | 6090 | 3400 |
| | **301L3** | **240** | 2.1 | 1510 | 0.36 | 15 | 71-80-90-100-112-132 | 9520 | 9520 | 24600 | 28300 | 6260 | 3400 |
| | **301L3** | **299** | 1.7 | 1570 | 0.3 | 15 | 71-80-90-100-112-132 | 10300 | 10300 | 26300 | 30200 | 6740 | 3400 |
| | **301L3** | **374** | 1.3 | 1630 | 0.25 | 15 | 71-80-90-100-112-132 | 11000 | 11000 | 28100 | 32300 | 7260 | 3400 |
| | **301L4** | **330** | 1.5 | 2310 | 0.41 | 12 | 71-80-90-100-112-132 | 10600 | 10600 | 27100 | 31100 | 6970 | 3400 |
| | **301L4** | **403** | 1.2 | 1650 | 0.24 | 12 | 71-80-90-100-112-132 | 11300 | 11300 | 28800 | 33000 | 7450 | 3400 |
| | **301L4** | **447** | 1.1 | 2420 | 0.32 | 12 | 71-80-90-100-112-132 | 11700 | 11700 | 29700 | 34000 | 7710 | 3400 |
| | **301L4** | **494** | 1 | 2460 | 0.29 | 12 | 71-80-90-100-112-132 | 12000 | 12100 | 30600 | 34000 | 7970 | 3400 |
| | **301L4** | **558** | 0.9 | 2460 | 0.26 | 12 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 3400 |
| | **301L4** | **616** | 0.81 | 2460 | 0.24 | 12 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 3400 |
| | **301L4** | **755** | 0.66 | 2460 | 0.19 | 12 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 3400 |
| | **301L4** | **819** | 0.61 | 2460 | 0.18 | 12 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 3400 |
| | **301L4** | **942** | 0.53 | 2460 | 0.15 | 12 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 3400 |
| | **301L4** | **1022** | 0.49 | 2460 | 0.14 | 12 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 3400 |
| | **301L4** | **1108** | 0.45 | 1720 | 0.09 | 12 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 3400 |
| | **301L4** | **1275** | 0.39 | 2460 | 0.11 | 12 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 3400 |
| | **301L4** | **1383** | 0.36 | 1720 | 0.07 | 12 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 3400 |
| | **301L4** | **1591** | 0.31 | 2000 | 0.07 | 12 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 3400 |
| | **301L4** | **1725** | 0.29 | 1720 | 0.06 | 12 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 3400 |
| | **301L4** | **2153** | 0.23 | 1720 | 0.05 | 12 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 3400 |
| | **301L4** | **2692** | 0.19 | 1720 | 0.04 | 12 | 71-80-90-100-112-132 | 12000 | 12500 | 31000 | 34000 | 8000 | 3400 |

| 303 L | Page 232 | 2970 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **303 L1** | **3.6** | 417 | 1380 | 40 | 11 | 132-160-180-200 | 5010 | 5780 | 10300 | 12300 | 3210 | 5200 |
| | **303 L1** | **4.25** | 353 | 1430 | 40 | 11 | 132-160-180-200 | 5290 | 6110 | 10800 | 13000 | 3400 | 5200 |
| | **303 L1** | **5.33** | 281 | 1490 | 40 | 11 | 132-160-180-200 | 5710 | 6590 | 11500 | 13900 | 3660 | 5200 |
| | **303 L1** | **6.2** | 242 | 1400 | 36 | 11 | 132-160-180-200 | 6000 | 6930 | 12100 | 14500 | 3850 | 5200 |
| | **303 L1** | **7.5** | 200 | 1220 | 26 | 11 | 132-160-180-200 | 6400 | 7390 | 12800 | 15400 | 4100 | 5200 |
| | **303 L1** | **9.67** | 155 | 750 | 12.6 | 11 | 132-160-180-200 | 6960 | 8040 | 13800 | 16600 | 4470 | 5200 |
| | **303 L2** | **12.5** | 120 | 1640 | 20 | 9 | 71-80-90-100-112-132-160 | 7590 | 8760 | 14900 | 17900 | 4870 | 5200 |
| | **303 L2** | **15.3** | 98 | 1710 | 18.6 | 9 | 71-80-90-100-112-132-160 | 8120 | 9380 | 15800 | 19100 | 5210 | 5200 |
| | **303 L2** | **18.1** | 83 | 2020 | 18.6 | 9 | 71-80-90-100-112-132-160 | 8580 | 9910 | 16600 | 20000 | 5510 | 5200 |
| | **303 L2** | **20.8** | 72 | 1820 | 14.6 | 9 | 71-80-90-100-112-132-160 | 8980 | 10400 | 17300 | 20900 | 5760 | 5200 |
| | **303 L2** | **22.7** | 66 | 2100 | 15.4 | 9 | 71-80-90-100-112-132-160 | 9260 | 10700 | 17800 | 21400 | 5940 | 5200 |
| | **303 L2** | **24.5** | 61 | 2150 | 14.6 | 9 | 71-80-90-100-112-132-160 | 9490 | 11000 | 18200 | 21900 | 6090 | 5200 |
| | **303 L2** | **26.4** | 57 | 1820 | 11.5 | 9 | 71-80-90-100-112-132-160 | 9740 | 11200 | 18600 | 22400 | 6250 | 5200 |
| | **303 L2** | **30.8** | 49 | 2140 | 11.6 | 9 | 71-80-90-100-112-132-160 | 10200 | 11800 | 19500 | 23500 | 6570 | 5200 |
| | **303 L2** | **35.8** | 42 | 1820 | 8.5 | 9 | 71-80-90-100-112-132-160 | 10800 | 12400 | 20400 | 24600 | 6910 | 5200 |
| | **303 L2** | **38.4** | 39 | 2150 | 9.3 | 9 | 71-80-90-100-112-132-160 | 11000 | 12700 | 20900 | 25100 | 7070 | 5200 |
| | **303 L2** | **44.6** | 34 | 1820 | 6.8 | 9 | 71-80-90-100-112-132-160 | 11600 | 13400 | 21800 | 26300 | 7440 | 5200 |
| | **303 L2** | **55.8** | 26.9 | 1820 | 5.4 | 9 | 71-80-90-100-112-132-160 | 12500 | 14400 | 23300 | 28100 | 8010 | 5200 |
| | **303 L3** | **53.4** | 28.1 | 2170 | 7 | 7.5 | 71-80-90-100-112-132-160 | 12300 | 14200 | 23000 | 27700 | 7900 | 5200 |
| | **303 L3** | **63.1** | 23.8 | 2510 | 6.8 | 7.5 | 71-80-90-100-112-132-160 | 13000 | 15000 | 24200 | 29100 | 8340 | 5200 |
| | **303 L3** | **72.3** | 20.8 | 2230 | 5.3 | 7.5 | 71-80-90-100-112-132-160 | 13600 | 15700 | 25200 | 30300 | 8730 | 5200 |
| | **303 L3** | **77.2** | 19.4 | 2520 | 5.6 | 7.5 | 71-80-90-100-112-132-160 | 13900 | 16100 | 25700 | 30900 | 8930 | 5200 |
| | **303 L3** | **90.2** | 16.6 | 2250 | 4.3 | 7.5 | 71-80-90-100-112-132-160 | 14700 | 16900 | 26900 | 32400 | 9400 | 5200 |
| | **303 L3** | **105** | 14.4 | 2580 | 4.2 | 7.5 | 71-80-90-100-112-132-160 | 15400 | 17800 | 28200 | 33900 | 9880 | 5200 |
| | **303 L3** | **113** | 13.3 | 1820 | 2.8 | 7.5 | 71-80-90-100-112-132-160 | 15800 | 18200 | 28800 | 34700 | 10100 | 5200 |
| | **303 L3** | **124** | 12.1 | 1820 | 2.5 | 7.5 | 71-80-90-100-112-132-160 | 16300 | 18800 | 29700 | 35700 | 10500 | 5200 |
| | **303 L3** | **141** | 10.6 | 2610 | 3.2 | 7.5 | 71-80-90-100-112-132-160 | 17000 | 19700 | 30800 | 37100 | 10900 | 5200 |
| | **303 L3** | **152** | 9.8 | 1820 | 2.1 | 7.5 | 71-80-90-100-112-132-160 | 17500 | 20200 | 31500 | 37900 | 11200 | 5200 |
| | **303 L3** | **164** | 9.2 | 2200 | 2.3 | 7.5 | 71-80-90-100-112-132-160 | 17900 | 20600 | 32200 | 38800 | 11500 | 5200 |
| | **303 L3** | **178** | 8.5 | 2210 | 2.1 | 7.5 | 71-80-90-100-112-132-160 | 18400 | 21200 | 33000 | 39700 | 11800 | 5200 |
| | **303 L3** | **190** | 7.9 | 1830 | 1.7 | 7.5 | 71-80-90-100-112-132-160 | 18800 | 21700 | 33700 | 40600 | 12100 | 5200 |
| | **303 L3** | **220** | 6.8 | 2250 | 1.8 | 7.5 | 71-80-90-100-112-132-160 | 19700 | 22800 | 35200 | 42400 | 12700 | 5200 |
| | **303 L3** | **258** | 5.8 | 1840 | 1.2 | 7.5 | 71-80-90-100-112-132-160 | 20800 | 24000 | 36900 | 44400 | 13300 | 5200 |
| | **303 L3** | **276** | 5.4 | 2230 | 1.4 | 7.5 | 71-80-90-100-112-132-160 | 21300 | 24600 | 37700 | 45400 | 13700 | 5200 |
| | **303 L3** | **321** | 4.7 | 1860 | 1 | 7.5 | 71-80-90-100-112-132-160 | 22400 | 25800 | 39400 | 47500 | 14400 | 5200 |
| | **303 L3** | **389** | 3.9 | 1690 | 0.75 | 7.5 | 71-80-90-100-112-132-160 | 23900 | 27500 | 41800 | 50300 | 15300 | 5200 |
| | **303 L3** | **402** | 3.7 | 1940 | 0.83 | 7.5 | 71-80-90-100-112-132-160 | 24100 | 27800 | 42200 | 50700 | 15500 | 5200 |
| | **303 L4** | **413** | 3.6 | 2360 | 1 | 6 | 71-80-90-100-112-132-160 | 24300 | 28100 | 42500 | 51200 | 15600 | 5200 |
| | **303 L4** | **446** | 3.4 | 2810 | 1.1 | 6 | 71-80-90-100-112-132-160 | 25000 | 28800 | 43500 | 52400 | 16000 | 5200 |
| | **303 L4** | **492** | 3 | 2690 | 0.97 | 6 | 71-80-90-100-112-132-160 | 25800 | 29800 | 44800 | 53900 | 16600 | 5200 |

| 303 L | Page 232 | 2970 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1000** | **303 L4** | **556** | 2.7 | 2810 | 0.9 | 6 | 71-80-90-100-112-132-160 | 26900 | 31000 | 46500 | 55900 | 17200 | 5200 |
| | **303 L4** | **649** | 2.3 | 2320 | 0.63 | 6 | 71-80-90-100-112-132-160 | 28300 | 32700 | 48700 | 58600 | 18200 | 5200 |
| | **303 L4** | **718** | 2.1 | 2150 | 0.53 | 6 | 71-80-90-100-112-132-160 | 29300 | 33800 | 50200 | 60400 | 18800 | 5200 |
| | **303 L4** | **816** | 1.8 | 2720 | 0.59 | 6 | 71-80-90-100-112-132-160 | 30500 | 35300 | 52200 | 62800 | 19600 | 5200 |
| | **303 L4** | **896** | 1.7 | 2230 | 0.44 | 6 | 71-80-90-100-112-132-160 | 31500 | 36400 | 53700 | 64600 | 20200 | 5200 |
| | **303 L4** | **1018** | 1.5 | 2740 | 0.48 | 6 | 71-80-90-100-112-132-160 | 32900 | 38000 | 55800 | 67100 | 21100 | 5200 |
| | **303 L4** | **1098** | 1.4 | 2310 | 0.37 | 6 | 71-80-90-100-112-132-160 | 33700 | 38900 | 57000 | 68600 | 21600 | 5200 |
| | **303 L4** | **1278** | 1.2 | 2790 | 0.39 | 6 | 71-80-90-100-112-132-160 | 35500 | 40900 | 59700 | 71800 | 22800 | 5200 |
| | **303 L4** | **1370** | 1.1 | 2400 | 0.31 | 6 | 71-80-90-100-112-132-160 | 36000 | 41900 | 60900 | 73300 | 23300 | 5200 |
| | **303 L4** | **1586** | 0.95 | 2250 | 0.25 | 6 | 71-80-90-100-112-132-160 | 36000 | 42000 | 63700 | 74000 | 24000 | 5200 |
| | **303 L4** | **1854** | 0.81 | 2440 | 0.23 | 6 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 5200 |
| | **303 L4** | **1991** | 0.75 | 2850 | 0.25 | 6 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 5200 |
| | **303 L4** | **2243** | 0.67 | 2000 | 0.16 | 6 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 5200 |
| | **303 L4** | **2799** | 0.54 | 2000 | 0.13 | 6 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 5200 |
| **1000** | **303 L1** | **3.6** | 278 | 1560 | 40 | 13.2 | 132-160-180-200 | 5730 | 6620 | 11600 | 13900 | 3680 | 5200 |
| | **303 L1** | **4.25** | 235 | 1620 | 40 | 13.2 | 132-160-180-200 | 6060 | 7000 | 12200 | 14600 | 3890 | 5200 |
| | **303 L1** | **5.33** | 188 | 1680 | 34 | 13.2 | 132-160-180-200 | 6540 | 7550 | 13000 | 15700 | 4190 | 5200 |
| | **303 L1** | **6.2** | 161 | 1580 | 27 | 13.2 | 132-160-180-200 | 6870 | 7930 | 13600 | 16400 | 4410 | 5200 |
| | **303 L1** | **7.5** | 133 | 1380 | 19.8 | 13.2 | 132-160-180-200 | 7320 | 8450 | 14400 | 17400 | 4700 | 5200 |
| | **303 L1** | **9.67** | 103 | 850 | 9.5 | 13.2 | 132-160-180-200 | 7970 | 9200 | 15600 | 18700 | 5110 | 5200 |
| | **303 L2** | **12.5** | 80 | 1850 | 16.4 | 10.8 | 71-80-90-100-112-132-160 | 8690 | 10000 | 16800 | 20300 | 5570 | 5200 |
| | **303 L2** | **15.3** | 65 | 1940 | 14 | 10.8 | 71-80-90-100-112-132-160 | 9300 | 10700 | 17900 | 21500 | 5960 | 5200 |
| | **303 L2** | **18.1** | 55 | 2280 | 14 | 10.8 | 71-80-90-100-112-132-160 | 9830 | 11300 | 18800 | 22600 | 6300 | 5200 |
| | **303 L2** | **20.8** | 48 | 2030 | 10.9 | 10.8 | 71-80-90-100-112-132-160 | 10300 | 11900 | 19600 | 23600 | 6600 | 5200 |
| | **303 L2** | **22.7** | 44 | 2140 | 10.5 | 10.8 | 71-80-90-100-112-132-160 | 10600 | 12200 | 20100 | 24200 | 6800 | 5200 |
| | **303 L2** | **24.5** | 41 | 2320 | 10.5 | 10.8 | 71-80-90-100-112-132-160 | 10900 | 12500 | 20600 | 24800 | 6970 | 5200 |
| | **303 L2** | **26.4** | 38 | 1820 | 7.7 | 10.8 | 71-80-90-100-112-132-160 | 11100 | 12900 | 21100 | 25300 | 7150 | 5200 |
| | **303 L2** | **30.8** | 33 | 2160 | 7.8 | 10.8 | 71-80-90-100-112-132-160 | 11700 | 13500 | 22000 | 26500 | 7520 | 5200 |
| | **303 L2** | **35.8** | 28 | 1820 | 5.7 | 10.8 | 71-80-90-100-112-132-160 | 12300 | 14200 | 23100 | 27700 | 7910 | 5200 |
| | **303 L2** | **38.4** | 26 | 2160 | 6.3 | 10.8 | 71-80-90-100-112-132-160 | 12600 | 14600 | 23600 | 28300 | 8100 | 5200 |
| | **303 L2** | **44.6** | 22.4 | 1820 | 4.5 | 10.8 | 71-80-90-100-112-132-160 | 13300 | 15300 | 24600 | 29600 | 8510 | 5200 |
| | **303 L2** | **55.8** | 17.9 | 1820 | 3.6 | 10.8 | 71-80-90-100-112-132-160 | 14300 | 16500 | 26300 | 31700 | 9170 | 5200 |
| | **303 L3** | **53.4** | 18.7 | 2230 | 4.8 | 9 | 71-80-90-100-112-132-160 | 14100 | 16300 | 26000 | 31300 | 9040 | 5200 |
| | **303 L3** | **63.1** | 15.9 | 2570 | 4.7 | 9 | 71-80-90-100-112-132-160 | 14900 | 17200 | 27300 | 32900 | 9550 | 5200 |
| | **303 L3** | **72.3** | 13.8 | 2270 | 3.6 | 9 | 71-80-90-100-112-132-160 | 15600 | 18000 | 28500 | 34300 | 10000 | 5200 |
| | **303 L3** | **77.2** | 12.9 | 2600 | 3.9 | 9 | 71-80-90-100-112-132-160 | 15900 | 18400 | 29000 | 34900 | 10200 | 5200 |
| | **303 L3** | **90.2** | 11.1 | 2300 | 2.9 | 9 | 71-80-90-100-112-132-160 | 16800 | 19400 | 30400 | 36600 | 10800 | 5200 |
| | **303 L3** | **105** | 9.6 | 2660 | 2.9 | 9 | 71-80-90-100-112-132-160 | 17600 | 20300 | 31800 | 38300 | 11300 | 5200 |
| | **303 L3** | **113** | 8.9 | 1820 | 1.9 | 9 | 71-80-90-100-112-132-160 | 18100 | 20900 | 32500 | 39100 | 11600 | 5200 |
| | **303 L3** | **124** | 8 | 1830 | 1.7 | 9 | 71-80-90-100-112-132-160 | 18700 | 21600 | 33500 | 40300 | 12000 | 5200 |

## 303 L

Page 232

## 2970 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1000** | **303 L4** | **556** | 2.7 | 2810 | 0.9 | 6 | 71-80-90-100-112-132-160 | 26900 | 31000 | 46500 | 55900 | 17200 | 5200 |
| | **303 L4** | **649** | 2.3 | 2320 | 0.63 | 6 | 71-80-90-100-112-132-160 | 28300 | 32700 | 48700 | 58600 | 18200 | 5200 |
| | **303 L4** | **718** | 2.1 | 2150 | 0.53 | 6 | 71-80-90-100-112-132-160 | 29300 | 33800 | 50200 | 60400 | 18800 | 5200 |
| | **303 L4** | **816** | 1.8 | 2720 | 0.59 | 6 | 71-80-90-100-112-132-160 | 30500 | 35300 | 52200 | 62800 | 19600 | 5200 |
| | **303 L4** | **896** | 1.7 | 2230 | 0.44 | 6 | 71-80-90-100-112-132-160 | 31500 | 36400 | 53700 | 64600 | 20200 | 5200 |
| | **303 L4** | **1018** | 1.5 | 2740 | 0.48 | 6 | 71-80-90-100-112-132-160 | 32900 | 38000 | 55800 | 67100 | 21100 | 5200 |
| | **303 L4** | **1098** | 1.4 | 2310 | 0.37 | 6 | 71-80-90-100-112-132-160 | 33700 | 38900 | 57000 | 68600 | 21600 | 5200 |
| | **303 L4** | **1278** | 1.2 | 2790 | 0.39 | 6 | 71-80-90-100-112-132-160 | 35500 | 40900 | 59700 | 71800 | 22800 | 5200 |
| | **303 L4** | **1370** | 1.1 | 2400 | 0.31 | 6 | 71-80-90-100-112-132-160 | 36000 | 41900 | 60900 | 73300 | 23300 | 5200 |
| | **303 L4** | **1586** | 0.95 | 2250 | 0.25 | 6 | 71-80-90-100-112-132-160 | 36000 | 42000 | 63700 | 74000 | 24000 | 5200 |
| | **303 L4** | **1854** | 0.81 | 2440 | 0.23 | 6 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 5200 |
| | **303 L4** | **1991** | 0.75 | 2850 | 0.25 | 6 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 5200 |
| | **303 L4** | **2243** | 0.67 | 2000 | 0.16 | 6 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 5200 |
| | **303 L4** | **2799** | 0.54 | 2000 | 0.13 | 6 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 5200 |

## 303 L

Page 232

## 2970 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **500** | **303L2** | **30.8** | 16.3 | 2180 | 3.9 | 18 | 71-80-90-100-112-132-160 | 14800 | 17100 | 27100 | 32600 | 9480 | 5200 |
| | **303L2** | **35.8** | 14 | 1820 | 2.8 | 18 | 71-80-90-100-112-132-160 | 15500 | 17900 | 28400 | 34200 | 9960 | 5200 |
| | **303L2** | **38.4** | 13 | 2190 | 3.2 | 18 | 71-80-90-100-112-132-160 | 15900 | 18400 | 29000 | 34900 | 10200 | 5200 |
| | **303L2** | **44.6** | 11.2 | 1820 | 2.3 | 18 | 71-80-90-100-112-132-160 | 16700 | 19300 | 30300 | 36500 | 10700 | 5200 |
| | **303L2** | **55.8** | 9 | 1820 | 1.8 | 18 | 71-80-90-100-112-132-160 | 18000 | 20800 | 32400 | 39000 | 11600 | 5200 |
| | **303L3** | **53.4** | 9.4 | 2310 | 2.5 | 15 | 71-80-90-100-112-132-160 | 17800 | 20500 | 32000 | 38500 | 11400 | 5200 |
| | **303L3** | **63.1** | 7.9 | 2700 | 2.5 | 15 | 71-80-90-100-112-132-160 | 18800 | 21700 | 33600 | 40500 | 12000 | 5200 |
| | **303L3** | **72.3** | 6.9 | 2310 | 1.8 | 15 | 71-80-90-100-112-132-160 | 19600 | 22700 | 35100 | 42200 | 12600 | 5200 |
| | **303L3** | **77.2** | 6.5 | 2750 | 2 | 15 | 71-80-90-100-112-132-160 | 20100 | 23200 | 35800 | 43000 | 12900 | 5200 |
| | **303L3** | **90.2** | 5.5 | 2310 | 1.5 | 15 | 71-80-90-100-112-132-160 | 21100 | 24400 | 37500 | 45100 | 13600 | 5200 |
| | **303L3** | **105** | 4.8 | 2810 | 1.5 | 15 | 71-80-90-100-112-132-160 | 22200 | 25600 | 39200 | 47100 | 14200 | 5200 |
| | **303L3** | **113** | 4.4 | 1880 | 0.96 | 15 | 71-80-90-100-112-132-160 | 22800 | 26300 | 40100 | 48200 | 14600 | 5200 |
| | **303L3** | **124** | 4 | 1910 | 0.88 | 15 | 71-80-90-100-112-132-160 | 23500 | 27200 | 41300 | 49600 | 15100 | 5200 |
| | **303L3** | **141** | 3.5 | 2670 | 1.1 | 15 | 71-80-90-100-112-132-160 | 24600 | 28400 | 42900 | 51600 | 15800 | 5200 |
| | **303L3** | **152** | 3.3 | 1980 | 0.75 | 15 | 71-80-90-100-112-132-160 | 25200 | 29100 | 43900 | 52800 | 16200 | 5200 |
| | **303L3** | **164** | 3.1 | 2430 | 0.85 | 15 | 71-80-90-100-112-132-160 | 25800 | 29800 | 44800 | 53900 | 16500 | 5200 |
| | **303L3** | **178** | 2.8 | 2470 | 0.8 | 15 | 71-80-90-100-112-132-160 | 26500 | 30600 | 45900 | 55200 | 17000 | 5200 |
| | **303L3** | **190** | 2.6 | 2060 | 0.62 | 15 | 71-80-90-100-112-132-160 | 27100 | 31300 | 46900 | 56400 | 17400 | 5200 |
| | **303L3** | **220** | 2.3 | 2210 | 0.57 | 15 | 71-80-90-100-112-132-160 | 28500 | 32900 | 49000 | 58900 | 18300 | 5200 |
| | **303L3** | **258** | 1.9 | 2170 | 0.48 | 15 | 71-80-90-100-112-132-160 | 30000 | 34600 | 51300 | 61700 | 19200 | 5200 |
| | **303L3** | **276** | 1.8 | 2580 | 0.54 | 15 | 71-80-90-100-112-132-160 | 30700 | 35400 | 52400 | 63100 | 19700 | 5200 |

## 303 L

Page 232

## 2970 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **500** | **303L3** | **321** | 1.6 | 2260 | 0.4 | 15 | 71-80-90-100-112-132-160 | 32300 | 37300 | 54900 | 66000 | 20700 | 5200 |
| | **303L3** | **389** | 1.3 | 1930 | 0.28 | 15 | 71-80-90-100-112-132-160 | 34400 | 39700 | 58100 | 69900 | 22100 | 5200 |
| | **303L3** | **402** | 1.2 | 2350 | 0.34 | 15 | 71-80-90-100-112-132-160 | 34800 | 40200 | 58600 | 70600 | 22300 | 5200 |
| | **303L4** | **413** | 1.2 | 2780 | 0.4 | 12 | 71-80-90-100-112-132-160 | 35100 | 40500 | 59100 | 71200 | 22500 | 5200 |
| | **303L4** | **446** | 1.1 | 2950 | 0.39 | 12 | 71-80-90-100-112-132-160 | 36000 | 41600 | 60500 | 72800 | 23100 | 5200 |
| | **303L4** | **492** | 1 | 2770 | 0.33 | 12 | 71-80-90-100-112-132-160 | 36000 | 42000 | 62300 | 74000 | 23900 | 5200 |
| | **303L4** | **556** | 0.9 | 2970 | 0.32 | 12 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 5200 |
| | **303L4** | **649** | 0.77 | 2410 | 0.22 | 12 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 5200 |
| | **303L4** | **718** | 0.7 | 2440 | 0.2 | 12 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 5200 |
| | **303L4** | **816** | 0.61 | 2770 | 0.2 | 12 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 5200 |
| | **303L4** | **896** | 0.56 | 2440 | 0.16 | 12 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 5200 |
| | **303L4** | **1018** | 0.49 | 2770 | 0.16 | 12 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 5200 |
| | **303L4** | **1098** | 0.46 | 2440 | 0.13 | 12 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 5200 |
| | **303L4** | **1278** | 0.39 | 2850 | 0.13 | 12 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 5200 |
| | **303L4** | **1370** | 0.36 | 2440 | 0.11 | 12 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 5200 |
| | **303L4** | **1586** | 0.32 | 2250 | 0.08 | 12 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 5200 |
| | **303L4** | **1854** | 0.27 | 2440 | 0.08 | 12 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 5200 |
| | **303L4** | **1991** | 0.25 | 2850 | 0.08 | 12 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 5200 |
| | **303L4** | **2243** | 0.22 | 2000 | 0.05 | 12 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 5200 |
| | **303L4** | **2799** | 0.18 | 2000 | 0.04 | 12 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 5200 |

## 305 L

Page 240

## 5800 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **305 L1** | **3.6** | 417 | 2370 | 60 | 13 | 132-160-180-200 | 5010 | 5780 | 10300 | 12300 | 3210 | 8800 |
| | **305 L1** | **4.25** | 353 | 2450 | 60 | 13 | 132-160-180-200 | 5290 | 6110 | 10800 | 13000 | 3400 | 8800 |
| | **305 L1** | **5.33** | 281 | 2560 | 60 | 13 | 132-160-180-200 | 5710 | 6590 | 11500 | 13900 | 3660 | 8800 |
| | **305 L1** | **6.2** | 242 | 2650 | 60 | 13 | 132-160-180-200 | 6000 | 6930 | 12100 | 14500 | 3850 | 8800 |
| | **305 L1** | **7.5** | 200 | 2270 | 49 | 13 | 132-160-180-200 | 6400 | 7390 | 12800 | 15400 | 4100 | 8800 |
| | **305L2** | **12.5** | 120 | 2930 | 30 | 9 | 71-80-90-100-112-132-160 | 7590 | 8760 | 14900 | 17900 | 4870 | 8800 |
| | **305 L2** | **15.3** | 98 | 3060 | 30 | 9 | 71-80-90-100-112-132-160 | 8120 | 9380 | 15800 | 19100 | 5210 | 8800 |
| | **305 L2** | **18.1** | 83 | 3620 | 30 | 9 | 71-80-90-100-112-132-160 | 8580 | 9910 | 16600 | 20000 | 5510 | 8800 |
| | **305 L2** | **20.8** | 72 | 3250 | 26 | 9 | 71-80-90-100-112-132-160 | 8980 | 10400 | 17300 | 20900 | 5760 | 8800 |
| | **305 L2** | **22.7** | 66 | 3940 | 29 | 9 | 71-80-90-100-112-132-160 | 9260 | 10700 | 17800 | 21400 | 5940 | 8800 |
| | **305 L2** | **24.5** | 61 | 3830 | 26 | 9 | 71-80-90-100-112-132-160 | 9490 | 11000 | 18200 | 21900 | 6090 | 8800 |

| 305 L | Page 240 | 5800 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **305 L2** | **26.4** | 57 | 3530 | 22 | 9 | 71-80-90-100-112-132-160 | 9740 | 11200 | 18600 | 22400 | 6250 | 8800 |
| | **305 L2** | **30.8** | 49 | 4280 | 23 | 9 | 71-80-90-100-112-132-160 | 10200 | 11800 | 19500 | 23500 | 6570 | 8800 |
| | **305 L2** | **35.8** | 42 | 3560 | 16.6 | 9 | 71-80-90-100-112-132-160 | 10800 | 12400 | 20400 | 24600 | 6910 | 8800 |
| | **305 L2** | **38.4** | 39 | 4300 | 18.7 | 9 | 71-80-90-100-112-132-160 | 11000 | 12700 | 20900 | 25100 | 7070 | 8800 |
| | **305 L2** | **44.6** | 34 | 3560 | 13.3 | 9 | 71-80-90-100-112-132-160 | 11600 | 13400 | 21800 | 26300 | 7440 | 8800 |
| | **305 L2** | **55.8** | 26.9 | 3540 | 10.6 | 9 | 71-80-90-100-112-132-160 | 12500 | 14400 | 23300 | 28100 | 8010 | 8800 |
| | **305 L3** | **53.4** | 28.1 | 4000 | 12.9 | 7.5 | 71-80-90-100-112-132-160 | 12300 | 14200 | 23000 | 27700 | 7900 | 8800 |
| | **305 L3** | **63.1** | 23.8 | 4720 | 12.9 | 7.5 | 71-80-90-100-112-132-160 | 13000 | 15000 | 24200 | 29100 | 8340 | 8800 |
| | **305 L3** | **72.3** | 20.8 | 4160 | 9.9 | 7.5 | 71-80-90-100-112-132-160 | 13600 | 15700 | 25200 | 30300 | 8730 | 8800 |
| | **305 L3** | **77.2** | 19.4 | 4820 | 10.7 | 7.5 | 71-80-90-100-112-132-160 | 13900 | 16100 | 25700 | 30900 | 8930 | 8800 |
| | **305 L3** | **90.2** | 16.6 | 4260 | 8.1 | 7.5 | 71-80-90-100-112-132-160 | 14700 | 16900 | 26900 | 32400 | 9400 | 8800 |
| | **305 L3** | **105** | 14.4 | 5030 | 8.3 | 7.5 | 71-80-90-100-112-132-160 | 15400 | 17800 | 28200 | 33900 | 9880 | 8800 |
| | **305 L3** | **113** | 13.3 | 3590 | 5.5 | 7.5 | 71-80-90-100-112-132-160 | 15800 | 18200 | 28800 | 34700 | 10100 | 8800 |
| | **305 L3** | **124** | 12.1 | 3590 | 5 | 7.5 | 71-80-90-100-112-132-160 | 16300 | 18800 | 29700 | 35700 | 10500 | 8800 |
| | **305 L3** | **141** | 10.6 | 5180 | 6.3 | 7.5 | 71-80-90-100-112-132-160 | 17000 | 19700 | 30800 | 37100 | 10900 | 8800 |
| | **305 L3** | **152** | 9.8 | 3600 | 4.1 | 7.5 | 71-80-90-100-112-132-160 | 17500 | 20200 | 31500 | 37900 | 11200 | 8800 |
| | **305 L3** | **164** | 9.2 | 4410 | 4.6 | 7.5 | 71-80-90-100-112-132-160 | 17900 | 20600 | 32200 | 38800 | 11500 | 8800 |
| | **305 L3** | **178** | 8.5 | 4420 | 4.3 | 7.5 | 71-80-90-100-112-132-160 | 18400 | 21200 | 33000 | 39700 | 11800 | 8800 |
| | **305 L3** | **190** | 7.9 | 3600 | 3.3 | 7.5 | 71-80-90-100-112-132-160 | 18800 | 21700 | 33700 | 40600 | 12100 | 8800 |
| | **305 L3** | **220** | 6.8 | 4750 | 3.7 | 7.5 | 71-80-90-100-112-132-160 | 19700 | 22800 | 35200 | 42400 | 12700 | 8800 |
| | **305 L3** | **258** | 5.8 | 3600 | 2.4 | 7.5 | 71-80-90-100-112-132-160 | 20800 | 24000 | 36900 | 44400 | 13300 | 8800 |
| | **305 L3** | **276** | 5.4 | 4460 | 2.8 | 7.5 | 71-80-90-100-112-132-160 | 21300 | 24600 | 37700 | 45400 | 13700 | 8800 |
| | **305 L3** | **321** | 4.7 | 3640 | 1.9 | 7.5 | 71-80-90-100-112-132-160 | 22400 | 25800 | 39400 | 47500 | 14400 | 8800 |
| | **305 L3** | **389** | 3.9 | 3170 | 1.4 | 7.5 | 71-80-90-100-112-132-160 | 23900 | 27500 | 41800 | 50300 | 15300 | 8800 |
| | **305 L3** | **402** | 3.7 | 3760 | 1.6 | 7.5 | 71-80-90-100-112-132-160 | 24100 | 27800 | 42200 | 50700 | 15500 | 8800 |
| | **305 L4** | **413** | 3.6 | 4720 | 2 | 6 | 71-80-90-100-112-132-160 | 24300 | 28100 | 42500 | 51200 | 15600 | 8800 |
| | **305 L4** | **446** | 3.4 | 5490 | 2.2 | 6 | 71-80-90-100-112-132-160 | 25000 | 28800 | 43500 | 52400 | 16000 | 8800 |
| | **305 L4** | **492** | 3 | 5340 | 1.9 | 6 | 71-80-90-100-112-132-160 | 25800 | 29800 | 44800 | 53900 | 16600 | 8800 |
| | **305 L4** | **556** | 2.7 | 5500 | 1.8 | 6 | 71-80-90-100-112-132-160 | 26900 | 31000 | 46500 | 55900 | 17200 | 8800 |
| | **305 L4** | **649** | 2.3 | 4510 | 1.2 | 6 | 71-80-90-100-112-132-160 | 28300 | 32700 | 48700 | 58600 | 18200 | 8800 |
| | **305 L4** | **718** | 2.1 | 4130 | 1 | 6 | 71-80-90-100-112-132-160 | 29300 | 33800 | 50200 | 60400 | 18800 | 8800 |
| | **305 L4** | **816** | 1.8 | 5410 | 1.2 | 6 | 71-80-90-100-112-132-160 | 30500 | 35300 | 52200 | 62800 | 19600 | 8800 |
| | **305 L4** | **896** | 1.7 | 4290 | 0.85 | 6 | 71-80-90-100-112-132-160 | 31500 | 36400 | 53700 | 64600 | 20200 | 8800 |
| | **305 L4** | **1018** | 1.5 | 5450 | 0.95 | 6 | 71-80-90-100-112-132-160 | 32900 | 38000 | 55800 | 67100 | 21100 | 8800 |
| | **305 L4** | **1098** | 1.4 | 4440 | 0.72 | 6 | 71-80-90-100-112-132-160 | 33700 | 38900 | 57000 | 68600 | 21600 | 8800 |
| | **305L4** | **1278** | 1.2 | 5500 | 0.76 | 6 | 71-80-90-100-112-132-160 | 35500 | 40900 | 59700 | 71800 | 22800 | 8800 |
| | **305 L4** | **1370** | 1.1 | 4620 | 0.6 | 6 | 71-80-90-100-112-132-160 | 36000 | 41900 | 60900 | 73300 | 23300 | 8800 |
| | **305 L4** | **1586** | 0.95 | 4750 | 0.53 | 6 | 71-80-90-100-112-132-160 | 36000 | 42000 | 63700 | 74000 | 24000 | 8800 |
| | **305 L4** | **1854** | 0.81 | 4690 | 0.45 | 6 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 8800 |

## 305 L

Page 240

## 5800 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **305 L4** | **1991** | 0.75 | 5600 | 0.5 | 6 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 8800 |
| | **305 L4** | **2243** | 0.67 | 3800 | 0.3 | 6 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 8800 |
| | **305 L4** | **2799** | 0.54 | 3800 | 0.24 | 6 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 8800 |
| **1000** | **305 L1** | **3.6** | 278 | 2680 | 60 | 15.6 | 132-160-180-200 | 5730 | 6620 | 11600 | 13900 | 3680 | 8800 |
| | **305 L1** | **4.25** | 235 | 2770 | 60 | 15.6 | 132-160-180-200 | 6060 | 7000 | 12200 | 14600 | 3890 | 8800 |
| | **305 L1** | **5.33** | 188 | 2890 | 58 | 15.6 | 132-160-180-200 | 6540 | 7550 | 13000 | 15700 | 4190 | 8800 |
| | **305 L1** | **6.2** | 161 | 3000 | 52 | 15.6 | 132-160-180-200 | 6870 | 7930 | 13600 | 16400 | 4410 | 8800 |
| | **305 L1** | **7.5** | 133 | 2560 | 37 | 15.6 | 132-160-180-200 | 7320 | 8450 | 14400 | 17400 | 4700 | 8800 |
| | **305 L2** | **12.5** | 80 | 3300 | 29 | 10.8 | 71-80-90-100-112-132-160 | 8690 | 10000 | 16800 | 20300 | 5570 | 8800 |
| | **305 L2** | **15.3** | 65 | 3460 | 25 | 10.8 | 71-80-90-100-112-132-160 | 9300 | 10700 | 17900 | 21500 | 5960 | 8800 |
| | **305 L2** | **18.1** | 55 | 4090 | 25 | 10.8 | 71-80-90-100-112-132-160 | 9830 | 11300 | 18800 | 22600 | 6300 | 8800 |
| | **305 L2** | **20.8** | 48 | 3650 | 19.5 | 10.8 | 71-80-90-100-112-132-160 | 10300 | 11900 | 19600 | 23600 | 6600 | 8800 |
| | **305 L2** | **22.7** | 44 | 4290 | 21 | 10.8 | 71-80-90-100-112-132-160 | 10600 | 12200 | 20100 | 24200 | 6800 | 8800 |
| | **305 L2** | **24.5** | 41 | 4200 | 19.1 | 10.8 | 71-80-90-100-112-132-160 | 10900 | 12500 | 20600 | 24800 | 6970 | 8800 |
| | **305 L2** | **26.4** | 38 | 3560 | 15 | 10.8 | 71-80-90-100-112-132-160 | 11100 | 12900 | 21100 | 25300 | 7150 | 8800 |
| | **305 L2** | **30.8** | 33 | 4310 | 15.6 | 10.8 | 71-80-90-100-112-132-160 | 11700 | 13500 | 22000 | 26500 | 7520 | 8800 |
| | **305 L2** | **35.8** | 28 | 3570 | 11.1 | 10.8 | 71-80-90-100-112-132-160 | 12300 | 14200 | 23100 | 27700 | 7910 | 8800 |
| | **305 L2** | **38.4** | 26 | 4330 | 12.5 | 10.8 | 71-80-90-100-112-132-160 | 12600 | 14600 | 23600 | 28300 | 8100 | 8800 |
| | **305 L2** | **44.6** | 22.4 | 3570 | 8.9 | 10.8 | 71-80-90-100-112-132-160 | 13300 | 15300 | 24600 | 29600 | 8510 | 8800 |
| | **305 L2** | **55.8** | 17.9 | 3560 | 7.1 | 10.8 | 71-80-90-100-112-132-160 | 14300 | 16500 | 26300 | 31700 | 9170 | 8800 |
| | **305 L3** | **53.4** | 18.7 | 4190 | 9 | 9 | 71-80-90-100-112-132-160 | 14100 | 16300 | 26000 | 31300 | 9040 | 8800 |
| | **305 L3** | **63.1** | 15.9 | 4980 | 9.1 | 9 | 71-80-90-100-112-132-160 | 14900 | 17200 | 27300 | 32900 | 9550 | 8800 |
| | **305 L3** | **72.3** | 13.8 | 4340 | 6.9 | 9 | 71-80-90-100-112-132-160 | 15600 | 18000 | 28500 | 34300 | 10000 | 8800 |
| | **305 L3** | **77.2** | 12.9 | 5110 | 7.6 | 9 | 71-80-90-100-112-132-160 | 15900 | 18400 | 29000 | 34900 | 10200 | 8800 |
| | **305 L3** | **90.2** | 11.1 | 4440 | 5.7 | 9 | 71-80-90-100-112-132-160 | 16800 | 19400 | 30400 | 36600 | 10800 | 8800 |
| | **305 L3** | **105** | 9.6 | 5310 | 5.8 | 9 | 71-80-90-100-112-132-160 | 17600 | 20300 | 31800 | 38300 | 11300 | 8800 |
| | **305 L3** | **113** | 8.9 | 3600 | 3.7 | 9 | 71-80-90-100-112-132-160 | 18100 | 20900 | 32500 | 39100 | 11600 | 8800 |
| | **305 L3** | **124** | 8 | 3600 | 3.3 | 9 | 71-80-90-100-112-132-160 | 18700 | 21600 | 33500 | 40300 | 12000 | 8800 |
| | **305 L3** | **141** | 7.1 | 5260 | 4.3 | 9 | 71-80-90-100-112-132-160 | 19500 | 22500 | 34800 | 41900 | 12500 | 8800 |
| | **305 L3** | **152** | 6.6 | 3600 | 2.7 | 9 | 71-80-90-100-112-132-160 | 20000 | 23100 | 35600 | 42900 | 12800 | 8800 |
| | **305 L3** | **164** | 6.1 | 4450 | 3.1 | 9 | 71-80-90-100-112-132-160 | 20500 | 23600 | 36400 | 43800 | 13100 | 8800 |
| | **305 L3** | **178** | 5.6 | 4460 | 2.9 | 9 | 71-80-90-100-112-132-160 | 21000 | 24300 | 37300 | 44900 | 13500 | 8800 |
| | **305 L3** | **190** | 5.3 | 3600 | 2.2 | 9 | 71-80-90-100-112-132-160 | 21500 | 24800 | 38100 | 45800 | 13800 | 8800 |
| | **305 L3** | **220** | 4.5 | 4750 | 2.5 | 9 | 71-80-90-100-112-132-160 | 22600 | 26100 | 39800 | 47900 | 14500 | 8800 |
| | **305 L3** | **258** | 3.9 | 3740 | 1.7 | 9 | 71-80-90-100-112-132-160 | 23800 | 27500 | 41700 | 50200 | 15300 | 8800 |
| | **305 L3** | **276** | 3.6 | 4670 | 1.9 | 9 | 71-80-90-100-112-132-160 | 24400 | 28100 | 42600 | 51200 | 15600 | 8800 |
| | **305L3** | **321** | 3.1 | 3870 | 1.4 | 9 | 71-80-90-100-112-132-160 | 25600 | 29600 | 44600 | 53600 | 16400 | 8800 |
| | **305L3** | **389** | 2.6 | 3290 | 0.97 | 9 | 71-80-90-100-112-132-160 | 27300 | 31500 | 47200 | 56800 | 17500 | 8800 |
| | **305L3** | **402** | 2.5 | 4000 | 1.1 | 9 | 71-80-90-100-112-132-160 | 27600 | 31900 | 47600 | 57300 | 17700 | 8800 |

## 305 L

Page 240

## 5800 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1000** | **305 L4** | **413** | 2.4 | 5060 | 1.4 | 7.2 | 71-80-90-100-112-132-160 | 27900 | 32200 | 48000 | 57800 | 17900 | 8800 |
| | **305 L4** | **446** | 2.2 | 5530 | 1.5 | 7.2 | 71-80-90-100-112-132-160 | 28600 | 33000 | 49100 | 59100 | 18300 | 8800 |
| | **305 L4** | **492** | 2 | 5390 | 1.3 | 7.2 | 71-80-90-100-112-132-160 | 29500 | 34100 | 50600 | 60900 | 19000 | 8800 |
| | **305 L4** | **556** | 1.8 | 5610 | 1.2 | 7.2 | 71-80-90-100-112-132-160 | 30800 | 35500 | 52500 | 63200 | 19700 | 8800 |
| | **305 L4** | **649** | 1.5 | 4600 | 0.84 | 7.2 | 71-80-90-100-112-132-160 | 32400 | 37400 | 55000 | 66200 | 20800 | 8800 |
| | **305 L4** | **718** | 1.4 | 4430 | 0.73 | 7.2 | 71-80-90-100-112-132-160 | 33500 | 38700 | 56700 | 68200 | 21500 | 8800 |
| | **305 L4** | **816** | 1.2 | 5490 | 0.8 | 7.2 | 71-80-90-100-112-132-160 | 35000 | 40400 | 58900 | 70900 | 22400 | 8800 |
| | **305 L4** | **896** | 1.1 | 4600 | 0.61 | 7.2 | 71-80-90-100-112-132-160 | 36000 | 41600 | 60600 | 72900 | 23100 | 8800 |
| | **305 L4** | **1018** | 0.98 | 5530 | 0.64 | 7.2 | 71-80-90-100-112-132-160 | 36000 | 42000 | 63000 | 74000 | 24000 | 8800 |
| | **305 L4** | **1098** | 0.91 | 4690 | 0.51 | 7.2 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 8800 |
| | **305 L4** | **1278** | 0.78 | 5600 | 0.52 | 7.2 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 8800 |
| | **305 L4** | **1370** | 0.73 | 4690 | 0.4 | 7.2 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 8800 |
| | **305 L4** | **1586** | 0.63 | 4750 | 0.35 | 7.2 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 8800 |
| | **305 L4** | **1854** | 0.54 | 4690 | 0.3 | 7.2 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 8800 |
| | **305 L4** | **1991** | 0.5 | 5600 | 0.33 | 7.2 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 8800 |
| | **305 L4** | **2243** | 0.45 | 3800 | 0.2 | 7.2 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 8800 |
| | **305 L4** | **2799** | 0.36 | 3800 | 0.16 | 7.2 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 8800 |
| **500** | **305L1** | **3.6** | 139 | 3300 | 49 | 26 | 132-160-180-200 | 7220 | 8340 | 14300 | 17200 | 4630 | 8800 |
| | **305L1** | **4.25** | 118 | 3410 | 43 | 26 | 132-160-180-200 | 7630 | 8810 | 15000 | 18000 | 4900 | 8800 |
| | **305L1** | **5.33** | 94 | 3560 | 36 | 26 | 132-160-180-200 | 8240 | 9510 | 16000 | 19300 | 5280 | 8800 |
| | **305L1** | **6.2** | 81 | 3490 | 30 | 26 | 132-160-180-200 | 8660 | 10000 | 16800 | 20200 | 5560 | 8800 |
| | **305L1** | **7.5** | 67 | 2910 | 21 | 26 | 132-160-180-200 | 9230 | 10700 | 17800 | 21400 | 5920 | 8800 |
| | **305L2** | **12.5** | 40 | 3890 | 17.3 | 18 | 71-80-90-100-112-132-160 | 10900 | 12600 | 20700 | 24900 | 7020 | 8800 |
| | **305L2** | **15.3** | 33 | 3930 | 14.3 | 18 | 71-80-90-100-112-132-160 | 11700 | 13500 | 22000 | 26500 | 7510 | 8800 |
| | **305L2** | **18.1** | 27.6 | 4580 | 14.1 | 18 | 71-80-90-100-112-132-160 | 12400 | 14300 | 23100 | 27800 | 7940 | 8800 |
| | **305L2** | **20.8** | 24.1 | 3970 | 10.6 | 18 | 71-80-90-100-112-132-160 | 13000 | 15000 | 24100 | 29000 | 8310 | 8800 |
| | **305L2** | **22.7** | 22 | 4340 | 10.6 | 18 | 71-80-90-100-112-132-160 | 13400 | 15400 | 24800 | 29800 | 8570 | 8800 |
| | **305L2** | **24.5** | 20.4 | 4680 | 10.6 | 18 | 71-80-90-100-112-132-160 | 13700 | 15800 | 25300 | 30500 | 8780 | 8800 |
| | **305L2** | **26.4** | 18.9 | 3580 | 7.5 | 18 | 71-80-90-100-112-132-160 | 14000 | 16200 | 25900 | 31200 | 9010 | 8800 |
| | **305L2** | **30.8** | 16.3 | 4360 | 7.9 | 18 | 71-80-90-100-112-132-160 | 14800 | 17100 | 27100 | 32600 | 9480 | 8800 |
| | **305L2** | **35.8** | 14 | 3590 | 5.6 | 18 | 71-80-90-100-112-132-160 | 15500 | 17900 | 28400 | 34200 | 9960 | 8800 |
| | **305L2** | **38.4** | 13 | 4380 | 6.3 | 18 | 71-80-90-100-112-132-160 | 15900 | 18400 | 29000 | 34900 | 10200 | 8800 |
| | **305L2** | **44.6** | 11.2 | 3600 | 4.5 | 18 | 71-80-90-100-112-132-160 | 16700 | 19300 | 30300 | 36500 | 10700 | 8800 |
| | **305L2** | **55.8** | 9 | 3600 | 3.6 | 18 | 71-80-90-100-112-132-160 | 18000 | 20800 | 32400 | 39000 | 11600 | 8800 |
| | **305L3** | **53.4** | 9.4 | 4490 | 4.8 | 15 | 71-80-90-100-112-132-160 | 17800 | 20500 | 32000 | 38500 | 11400 | 8800 |
| | **305L3** | **63.1** | 7.9 | 5360 | 4.9 | 15 | 71-80-90-100-112-132-160 | 18800 | 21700 | 33600 | 40500 | 12000 | 8800 |
| | **305L3** | **72.3** | 6.9 | 4490 | 3.6 | 15 | 71-80-90-100-112-132-160 | 19600 | 22700 | 35100 | 42200 | 12600 | 8800 |
| | **305L3** | **77.2** | 6.5 | 5410 | 4 | 15 | 71-80-90-100-112-132-160 | 20100 | 23200 | 35800 | 43000 | 12900 | 8800 |
| | **305L3** | **90.2** | 5.5 | 4490 | 2.9 | 15 | 71-80-90-100-112-132-160 | 21100 | 24400 | 37500 | 45100 | 13600 | 8800 |
| | **305L3** | **105** | 4.8 | 5480 | 3 | 15 | 71-80-90-100-112-132-160 | 22200 | 25600 | 39200 | 47100 | 14200 | 8800 |

## 305 L

Page 240

## 5800 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **500** | **305L3** | **113** | 4.4 | 3670 | 1.9 | 15 | 71-80-90-100-112-132-160 | 22800 | 26300 | 40100 | 48200 | 14600 | 8800 |
| | **305L3** | **124** | 4 | 3720 | 1.7 | 15 | 71-80-90-100-112-132-160 | 23500 | 27200 | 41300 | 49600 | 15100 | 8800 |
| | **305L3** | **141** | 3.5 | 5320 | 2.2 | 15 | 71-80-90-100-112-132-160 | 24600 | 28400 | 42900 | 51600 | 15800 | 8800 |
| | **305L3** | **152** | 3.3 | 3840 | 1.4 | 15 | 71-80-90-100-112-132-160 | 25200 | 29100 | 43900 | 52800 | 16200 | 8800 |
| | **305L3** | **164** | 3.1 | 4870 | 1.7 | 15 | 71-80-90-100-112-132-160 | 25800 | 29800 | 44800 | 53900 | 16500 | 8800 |
| | **305L3** | **178** | 2.8 | 4940 | 1.6 | 15 | 71-80-90-100-112-132-160 | 26500 | 30600 | 45900 | 55200 | 17000 | 8800 |
| | **305L3** | **190** | 2.6 | 3970 | 1.2 | 15 | 71-80-90-100-112-132-160 | 27100 | 31300 | 46900 | 56400 | 17400 | 8800 |
| | **305L3** | **220** | 2.3 | 4750 | 1.2 | 15 | 71-80-90-100-112-132-160 | 28500 | 32900 | 49000 | 58900 | 18300 | 8800 |
| | **305L3** | **258** | 1.9 | 4180 | 0.93 | 15 | 71-80-90-100-112-132-160 | 30000 | 34600 | 51300 | 61700 | 19200 | 8800 |
| | **305L3** | **276** | 1.8 | 5140 | 1.1 | 15 | 71-80-90-100-112-132-160 | 30700 | 35400 | 52400 | 63100 | 19700 | 8800 |
| | **305L3** | **321** | 1.6 | 4340 | 0.78 | 15 | 71-80-90-100-112-132-160 | 32300 | 37300 | 54900 | 66000 | 20700 | 8800 |
| | **305L3** | **389** | 1.3 | 3660 | 0.54 | 15 | 71-80-90-100-112-132-160 | 34400 | 39700 | 58100 | 69900 | 22100 | 8800 |
| | **305L3** | **402** | 1.2 | 4520 | 0.64 | 15 | 71-80-90-100-112-132-160 | 34800 | 40200 | 58600 | 70600 | 22300 | 8800 |
| | **305L4** | **413** | 1.2 | 5480 | 0.78 | 12 | 71-80-90-100-112-132-160 | 35100 | 40500 | 59100 | 71200 | 22500 | 8800 |
| | **305L4** | **446** | 1.1 | 5760 | 0.76 | 12 | 71-80-90-100-112-132-160 | 36000 | 41600 | 60500 | 72800 | 23100 | 8800 |
| | **305L4** | **492** | 1 | 5530 | 0.66 | 12 | 71-80-90-100-112-132-160 | 36000 | 42000 | 62300 | 74000 | 23900 | 8800 |
| | **305L4** | **556** | 0.9 | 5800 | 0.62 | 12 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 8800 |
| | **305L4** | **649** | 0.77 | 4700 | 0.43 | 12 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 8800 |
| | **305L4** | **718** | 0.7 | 4690 | 0.39 | 12 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 8800 |
| | **305L4** | **816** | 0.61 | 5530 | 0.4 | 12 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 8800 |
| | **305L4** | **896** | 0.56 | 4690 | 0.31 | 12 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 8800 |
| | **305L4** | **1018** | 0.49 | 5530 | 0.32 | 12 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 8800 |
| | **305L4** | **1098** | 0.46 | 4690 | 0.25 | 12 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 8800 |
| | **305L4** | **1278** | 0.39 | 5600 | 0.26 | 12 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 8800 |
| | **305L4** | **1370** | 0.36 | 4690 | 0.2 | 12 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 8800 |
| | **305L4** | **1586** | 0.32 | 4750 | 0.18 | 12 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 8800 |
| | **305L4** | **1854** | 0.27 | 4690 | 0.15 | 12 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 8800 |
| | **305L4** | **1991** | 0.25 | 5600 | 0.17 | 12 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 8800 |
| | **305L4** | **2243** | 0.22 | 3800 | 0.1 | 12 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 8800 |
| | **305L4** | **2799** | 0.18 | 3800 | 0.08 | 12 | 71-80-90-100-112-132-160 | 36000 | 42000 | 64000 | 74000 | 24000 | 8800 |

## 306 L

Page 248

## 10840 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **306 L1** | **3.6** | 417 | 3760 | 75 | 18 | 160-180-200-225-250 | 6240 | 7070 | 16800 | 19500 | 4690 | 14900 |
| | **306 L1** | **4.25** | 353 | 3890 | 75 | 18 | 160-180-200-225-250 | 6590 | 7470 | 17600 | 20500 | 4950 | 14900 |
| | **306 L1** | **5.33** | 281 | 4060 | 75 | 18 | 160-180-200-225-250 | 7110 | 8060 | 18900 | 22000 | 5340 | 14900 |
| | **306 L1** | **6.2** | 242 | 4200 | 75 | 18 | 160-180-200-225-250 | 7480 | 8470 | 19700 | 23000 | 5620 | 14900 |
| | **306 L1** | **7.5** | 200 | 4090 | 75 | 18 | 160-180-200-225-250 | 7970 | 9030 | 20900 | 24300 | 2980 | 14900 |

| 306 L | Page 248 | 10840 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **306L2** | **13** | 116 | 4820 | 40 | 13 | 132-160-180-200 | 9560 | 10800 | 24600 | 28700 | 7180 | 14900 |
| | **306L2** | **15.3** | 98 | 4990 | 40 | 13 | 132-160-180-200 | 10100 | 11400 | 25900 | 30100 | 7590 | 14900 |
| | **306L2** | **18.1** | 83 | 5890 | 40 | 13 | 132-160-180-200 | 10700 | 12100 | 27200 | 31700 | 8020 | 14900 |
| | **306L2** | **22.7** | 66 | 6140 | 40 | 13 | 132-160-180-200 | 11500 | 13000 | 29100 | 33900 | 8650 | 14900 |
| | **306L2** | **26.4** | 57 | 6370 | 40 | 13 | 132-160-180-200 | 12100 | 13700 | 30500 | 35500 | 9100 | 14900 |
| | **306L2** | **28.4** | 53 | 6700 | 39 | 13 | 132-160-180-200 | 12400 | 14100 | 31200 | 36300 | 9330 | 14900 |
| | **306L2** | **33.1** | 45 | 6870 | 35 | 13 | 132-160-180-200 | 13100 | 14800 | 32600 | 38000 | 9810 | 14900 |
| | **306L2** | **38.4** | 39 | 6470 | 28 | 13 | 132-160-180-200 | 13700 | 15600 | 34100 | 39700 | 10300 | 14900 |
| | **306L2** | **46.5** | 32 | 6470 | 23 | 13 | 132-160-180-200 | 14600 | 16600 | 36100 | 42100 | 11000 | 14900 |
| | **306L2** | **56.3** | 26.7 | 5210 | 15.5 | 13 | 132-160-180-200 | 15600 | 17700 | 38300 | 44500 | 11700 | 14900 |
| | **306L2** | **72.5** | 20.7 | 5290 | 12.2 | 13 | 132-160-180-200 | 17000 | 19200 | 41300 | 48100 | 12700 | 14900 |
| | **306L3** | **53.2** | 28.2 | 7100 | 20 | 7.5 | 71-80-90-100-112-132-160 | 15300 | 17300 | 37600 | 43800 | 11500 | 14900 |
| | **306L3** | **65.2** | 23 | 7480 | 19.7 | 7.5 | 71-80-90-100-112-132-160 | 16400 | 18600 | 40000 | 46600 | 12300 | 14900 |
| | **306L3** | **77** | 19.5 | 8350 | 18.7 | 7.5 | 71-80-90-100-112-132-160 | 17300 | 19600 | 42000 | 48900 | 13000 | 14900 |
| | **306L3** | **81.9** | 18.3 | 6890 | 14.5 | 7.5 | 71-80-90-100-112-132-160 | 17700 | 20000 | 42800 | 49900 | 13300 | 14900 |
| | **306L3** | **88.3** | 17 | 8550 | 16.7 | 7.5 | 71-80-90-100-112-132-160 | 18100 | 20500 | 43800 | 51000 | 13600 | 14900 |
| | **306L3** | **104** | 14.4 | 8900 | 14.7 | 7.5 | 71-80-90-100-112-132-160 | 19200 | 21700 | 46000 | 53600 | 14400 | 14900 |
| | **306L3** | **112** | 13.4 | 7410 | 11.3 | 7.5 | 71-80-90-100-112-132-160 | 19600 | 22200 | 47100 | 54800 | 14800 | 14900 |
| | **306L3** | **121** | 12.4 | 7790 | 11.1 | 7.5 | 71-80-90-100-112-132-160 | 20100 | 22800 | 48200 | 56100 | 15100 | 14900 |
| | **306L3** | **141** | 10.6 | 7900 | 9.6 | 7.5 | 71-80-90-100-112-132-160 | 21200 | 24000 | 50400 | 58700 | 15900 | 14900 |
| | **306L3** | **152** | 9.9 | 7590 | 8.6 | 7.5 | 71-80-90-100-112-132-160 | 21700 | 24600 | 51600 | 60000 | 16300 | 14900 |
| | **306L3** | **190** | 7.9 | 6510 | 5.9 | 7.5 | 71-80-90-100-112-132-160 | 23400 | 26500 | 55100 | 64200 | 17600 | 14900 |
| | **306L3** | **205** | 7.3 | 8110 | 6.8 | 7.5 | 71-80-90-100-112-132-160 | 24000 | 27200 | 56400 | 65600 | 18000 | 14900 |
| | **306L3** | **222** | 6.8 | 6520 | 5.1 | 7.5 | 71-80-90-100-112-132-160 | 24600 | 27900 | 57700 | 67200 | 18500 | 14900 |
| | **306L3** | **238** | 6.3 | 8180 | 5.9 | 7.5 | 71-80-90-100-112-132-160 | 25200 | 28600 | 59000 | 68700 | 19000 | 14900 |
| | **306L3** | **268** | 5.6 | 5500 | 3.5 | 7.5 | 71-80-90-100-112-132-160 | 26200 | 29700 | 61100 | 71200 | 19700 | 14900 |
| | **306L3** | **288** | 5.2 | 5500 | 3.3 | 7.5 | 71-80-90-100-112-132-160 | 26900 | 30500 | 62400 | 72700 | 20200 | 14900 |
| | **306L3** | **325** | 4.6 | 5540 | 2.9 | 7.5 | 71-80-90-100-112-132-160 | 28000 | 31700 | 64700 | 75400 | 21000 | 14900 |
| | **306L3** | **405** | 3.7 | 5670 | 2.4 | 7.5 | 71-80-90-100-112-132-160 | 30100 | 34100 | 69200 | 80500 | 22600 | 14900 |
| | **306L4** | **391** | 3.8 | 6840 | 3.1 | 6 | 71-80-90-100-112-132-160 | 29800 | 33700 | 68400 | 79700 | 22400 | 14900 |
| | **306L4** | **444** | 3.4 | 9850 | 3.9 | 6 | 71-80-90-100-112-132-160 | 31100 | 35200 | 71100 | 82800 | 23300 | 14900 |
| | **306L4** | **509** | 2.9 | 9450 | 3.3 | 6 | 71-80-90-100-112-132-160 | 32500 | 36800 | 74100 | 86300 | 24400 | 14900 |
| | **306L4** | **589** | 2.5 | 9320 | 2.8 | 6 | 71-80-90-100-112-132-160 | 34100 | 38700 | 77400 | 90100 | 25600 | 14900 |
| | **306L4** | **636** | 2.4 | 9450 | 2.6 | 6 | 71-80-90-100-112-132-160 | 35000 | 39600 | 79200 | 92200 | 26300 | 14900 |
| | **306L4** | **700** | 2.1 | 9470 | 2.4 | 6 | 71-80-90-100-112-132-160 | 36100 | 40900 | 81500 | 94900 | 27100 | 14900 |
| | **306L4** | **809** | 1.9 | 7690 | 1.7 | 6 | 71-80-90-100-112-132-160 | 37900 | 43000 | 85100 | 99100 | 28500 | 14900 |
| | **306L4** | **877** | 1.7 | 7710 | 1.6 | 6 | 71-80-90-100-112-132-160 | 39000 | 44100 | 87200 | 101600 | 29300 | 14900 |

## 306 L

Page 248

## 10840 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **306L4** | **1015** | 1.5 | 9460 | 1.7 | 6 | 71-80-90-100-112-132-160 | 40900 | 46300 | 91100 | 106100 | 30700 | 14900 |
| | **306L4** | **1095** | 1.4 | 7790 | 1.3 | 6 | 71-80-90-100-112-132-160 | 41900 | 47500 | 93200 | 108500 | 31500 | 14900 |
| | **306L4** | **1279** | 1.2 | 8400 | 1.2 | 6 | 71-80-90-100-112-132-160 | 44200 | 50100 | 97700 | 113700 | 33200 | 14900 |
| | **306L4** | **1475** | 1 | 10100 | 1.2 | 6 | 71-80-90-100-112-132-160 | 45000 | 51000 | 101000 | 118700 | 34800 | 14900 |
| | **306L4** | **1597** | 0.94 | 8630 | 0.96 | 6 | 71-80-90-100-112-132-160 | 45000 | 51000 | 101000 | 119000 | 35000 | 14900 |
| | **306L4** | **1843** | 0.81 | 10100 | 0.97 | 6 | 71-80-90-100-112-132-160 | 45000 | 51000 | 101000 | 119000 | 35000 | 14900 |
| | **306L4** | **2074** | 0.72 | 7000 | 0.6 | 6 | 71-80-90-100-112-132-160 | 45000 | 51000 | 101000 | 119000 | 35000 | 14900 |
| | **306L4** | **2337** | 0.64 | 7000 | 0.53 | 6 | 71-80-90-100-112-132-160 | 45000 | 51000 | 101000 | 119000 | 35000 | 14900 |
| | **306L4** | **2916** | 0.51 | 7000 | 0.43 | 6 | 71-80-90-100-112-132-160 | 45000 | 51000 | 101000 | 119000 | 35000 | 14900 |
| **1000** | **306L1** | **3.6** | 278 | 4250 | 75 | 22 | 160-180-200-225-250 | 7140 | 8090 | 18900 | 22100 | 5360 | 14900 |
| | **306L1** | **4.25** | 235 | 4390 | 75 | 22 | 160-180-200-225-250 | 7550 | 8550 | 19900 | 23200 | 5670 | 14900 |
| | **306L1** | **5.33** | 188 | 4580 | 75 | 22 | 160-180-200-225-250 | 8140 | 9220 | 21300 | 24800 | 6120 | 14900 |
| | **306L1** | **6.2** | 161 | 4750 | 75 | 22 | 160-180-200-225-250 | 8560 | 9700 | 22300 | 26000 | 6430 | 14900 |
| | **306L1** | **7.5** | 133 | 4620 | 67 | 22 | 160-180-200-225-250 | 9120 | 10300 | 23600 | 27500 | 6850 | 14900 |
| | **306L2** | **13** | 77 | 5450 | 40 | 15.6 | 132-160-180-200 | 10900 | 12400 | 27800 | 32400 | 8220 | 14900 |
| | **306L2** | **15.3** | 65 | 5640 | 40 | 15.6 | 132-160-180-200 | 11600 | 13100 | 29200 | 34000 | 8690 | 14900 |
| | **306L2** | **18.1** | 55 | 6650 | 40 | 15.6 | 132-160-180-200 | 12200 | 13800 | 30700 | 35800 | 9180 | 14900 |
| | **306L2** | **22.7** | 44 | 6840 | 34 | 15.6 | 132-160-180-200 | 13200 | 14900 | 32900 | 38300 | 9910 | 14900 |
| | **306L2** | **26.4** | 38 | 6780 | 29 | 15.6 | 132-160-180-200 | 13900 | 15700 | 34400 | 40100 | 10400 | 14900 |
| | **306L2** | **28.4** | 35 | 7040 | 28 | 15.6 | 132-160-180-200 | 14200 | 16100 | 35200 | 41000 | 10700 | 14900 |
| | **306L2** | **33.1** | 30 | 7150 | 24 | 15.6 | 132-160-180-200 | 15000 | 16900 | 36800 | 42900 | 11200 | 14900 |
| | **306L2** | **38.4** | 26 | 6480 | 18.7 | 15.6 | 132-160-180-200 | 15700 | 17800 | 38500 | 44900 | 11800 | 14900 |
| | **306L2** | **46.5** | 21.5 | 6480 | 15.5 | 15.6 | 132-160-180-200 | 16800 | 19000 | 40800 | 47500 | 12600 | 14900 |
| | **306L2** | **56.3** | 17.8 | 5330 | 10.5 | 15.6 | 132-160-180-200 | 17800 | 20200 | 43200 | 50300 | 13400 | 14900 |
| | **306L2** | **72.5** | 13.8 | 5400 | 8.3 | 15.6 | 132-160-180-200 | 19400 | 22000 | 46600 | 54300 | 14600 | 14900 |
| | **306L3** | **53.2** | 18.8 | 7890 | 17 | 9 | 71-80-90-100-112-132-160 | 17500 | 19900 | 42500 | 49500 | 13200 | 14900 |
| | **306L3** | **65.2** | 15.3 | 8320 | 14.6 | 9 | 71-80-90-100-112-132-160 | 18800 | 21200 | 45200 | 52600 | 14100 | 14900 |
| | **306L3** | **77** | 13 | 9090 | 13.5 | 9 | 71-80-90-100-112-132-160 | 19800 | 22500 | 47500 | 55300 | 14900 | 14900 |
| | **306L3** | **81.9** | 12.2 | 7310 | 10.2 | 9 | 71-80-90-100-112-132-160 | 20200 | 22900 | 48400 | 56300 | 15200 | 14900 |
| | **306L3** | **88.3** | 11.3 | 9230 | 12 | 9 | 71-80-90-100-112-132-160 | 20700 | 23500 | 49500 | 57600 | 15600 | 14900 |
| | **306L3** | **104** | 9.6 | 9610 | 10.6 | 9 | 71-80-90-100-112-132-160 | 21900 | 24800 | 52000 | 60500 | 16500 | 14900 |
| | **306L3** | **112** | 8.9 | 7590 | 7.8 | 9 | 71-80-90-100-112-132-160 | 22500 | 25500 | 53200 | 61900 | 16900 | 14900 |
| | **306L3** | **121** | 8.2 | 8050 | 7.6 | 9 | 71-80-90-100-112-132-160 | 23100 | 26100 | 54400 | 63300 | 17300 | 14900 |
| | **306L3** | **141** | 7.1 | 8120 | 6.6 | 9 | 71-80-90-100-112-132-160 | 24200 | 27500 | 56900 | 66300 | 18200 | 14900 |
| | **306L3** | **152** | 6.6 | 7590 | 5.7 | 9 | 71-80-90-100-112-132-160 | 24900 | 28200 | 58200 | 67800 | 18700 | 14900 |
| | **306L3** | **190** | 5.3 | 6530 | 3.9 | 9 | 71-80-90-100-112-132-160 | 26800 | 30300 | 62200 | 72500 | 20100 | 14900 |
| | **306L3** | **205** | 4.9 | 8330 | 4.7 | 9 | 71-80-90-100-112-132-160 | 27500 | 31100 | 63700 | 74100 | 20600 | 14900 |
| | **306L3** | **222** | 4.5 | 6650 | 3.4 | 9 | 71-80-90-100-112-132-160 | 28200 | 31900 | 65200 | 75900 | 21200 | 14900 |

## 306 L

Page 248

## 10840 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1000** | **306L3** | **238** | 4.2 | 8550 | 4.1 | 9 | 71-80-90-100-112-132-160 | 28900 | 32700 | 66600 | 77600 | 21700 | 14900 |
| | **306L3** | **268** | 3.7 | 5670 | 2.4 | 9 | 71-80-90-100-112-132-160 | 30000 | 34000 | 69000 | 80400 | 22600 | 14900 |
| | **306L3** | **288** | 3.5 | 5710 | 2.3 | 9 | 71-80-90-100-112-132-160 | 30800 | 34900 | 70500 | 82100 | 23100 | 14900 |
| | **306L3** | **325** | 3.1 | 5780 | 2 | 9 | 71-80-90-100-112-132-160 | 32000 | 36300 | 73100 | 85100 | 24100 | 14900 |
| | **306L3** | **405** | 2.5 | 5910 | 1.7 | 9 | 71-80-90-100-112-132-160 | 34500 | 39100 | 78100 | 91000 | 25900 | 14900 |
| | **306L4** | **391** | 2.6 | 7340 | 2.2 | 7.2 | 71-80-90-100-112-132-160 | 34100 | 38600 | 77300 | 90000 | 25600 | 14900 |
| | **306L4** | **444** | 2.3 | 9910 | 2.6 | 7.2 | 71-80-90-100-112-132-160 | 35500 | 40300 | 80300 | 93500 | 26700 | 14900 |
| | **306L4** | **509** | 2 | 9450 | 2.2 | 7.2 | 71-80-90-100-112-132-160 | 37200 | 42200 | 83700 | 97400 | 27900 | 14900 |
| | **306L4** | **589** | 1.7 | 9650 | 1.9 | 7.2 | 71-80-90-100-112-132-160 | 39100 | 44300 | 87400 | 101800 | 29300 | 14900 |
| | **306L4** | **636** | 1.6 | 9450 | 1.8 | 7.2 | 71-80-90-100-112-132-160 | 40100 | 45400 | 89400 | 104100 | 30100 | 14900 |
| | **306L4** | **700** | 1.4 | 9790 | 1.7 | 7.2 | 71-80-90-100-112-132-160 | 41400 | 46900 | 92000 | 107200 | 31100 | 14900 |
| | **306L4** | **809** | 1.2 | 7820 | 1.1 | 7.2 | 71-80-90-100-112-132-160 | 43400 | 49200 | 96100 | 111900 | 32600 | 14900 |
| | **306L4** | **877** | 1.1 | 7850 | 1.1 | 7.2 | 71-80-90-100-112-132-160 | 44600 | 50500 | 98500 | 114700 | 33500 | 14900 |
| | **306L4** | **1015** | 0.99 | 9540 | 1.1 | 7.2 | 71-80-90-100-112-132-160 | 45000 | 51000 | 101000 | 119000 | 35000 | 14900 |
| | **306L4** | **1095** | 0.91 | 7890 | 0.85 | 7.2 | 71-80-90-100-112-132-160 | 45000 | 51000 | 101000 | 119000 | 35000 | 14900 |
| | **306L4** | **1279** | 0.78 | 8630 | 0.8 | 7.2 | 71-80-90-100-112-132-160 | 45000 | 51000 | 101000 | 119000 | 35000 | 14900 |
| | **306L4** | **1475** | 0.68 | 10100 | 0.81 | 7.2 | 71-80-90-100-112-132-160 | 45000 | 51000 | 101000 | 119000 | 35000 | 14900 |
| | **306L4** | **1597** | 0.63 | 8630 | 0.64 | 7.2 | 71-80-90-100-112-132-160 | 45000 | 51000 | 101000 | 119000 | 35000 | 14900 |
| | **306L4** | **1843** | 0.54 | 10100 | 0.65 | 7.2 | 71-80-90-100-112-132-160 | 45000 | 51000 | 101000 | 119000 | 35000 | 14900 |
| | **306L4** | **2074** | 0.48 | 7000 | 0.4 | 7.2 | 71-80-90-100-112-132-160 | 45000 | 51000 | 101000 | 119000 | 35000 | 14900 |
| | **306L4** | **2337** | 0.43 | 7000 | 0.35 | 7.2 | 71-80-90-100-112-132-160 | 45000 | 51000 | 101000 | 119000 | 35000 | 14900 |
| | **306L4** | **2916** | 0.34 | 7000 | 0.28 | 7.2 | 71-80-90-100-112-132-160 | 45000 | 51000 | 101000 | 119000 | 35000 | 14900 |
| **500** | **306L1** | **3.6** | 139 | 5230 | 75 | 36 | 160-180-200-225-250 | 9000 | 10200 | 23300 | 27200 | 6760 | 14900 |
| | **306L1** | **4.25** | 118 | 5410 | 69 | 36 | 160-180-200-225-250 | 9510 | 10800 | 24500 | 28500 | 7140 | 14900 |
| | **306L1** | **5.33** | 94 | 5640 | 57 | 36 | 160-180-200-225-250 | 10300 | 11600 | 26200 | 30600 | 7700 | 14900 |
| | **306L1** | **6.2** | 81 | 5770 | 50 | 36 | 160-180-200-225-250 | 10800 | 12200 | 27400 | 32000 | 8100 | 14900 |
| | **306L1** | **7.5** | 67 | 5040 | 36 | 36 | 160-180-200-225-250 | 11500 | 13000 | 29100 | 33800 | 8630 | 14900 |
| | **306L2** | **13** | 39 | 6470 | 28 | 26 | 132-160-180-200 | 13800 | 15600 | 34200 | 39900 | 10400 | 14900 |
| | **306L2** | **15.3** | 33 | 6830 | 25 | 26 | 132-160-180-200 | 14600 | 16500 | 36000 | 41900 | 10900 | 14900 |
| | **306L2** | **18.1** | 27.7 | 7760 | 24 | 26 | 132-160-180-200 | 15400 | 17400 | 37800 | 44100 | 11600 | 14900 |
| | **306L2** | **22.7** | 22.1 | 7820 | 19.2 | 26 | 132-160-180-200 | 16600 | 18800 | 40500 | 47200 | 12500 | 14900 |
| | **306L2** | **26.4** | 19 | 7190 | 15.2 | 26 | 132-160-180-200 | 17500 | 19800 | 42400 | 49300 | 13100 | 14900 |
| | **306L2** | **28.4** | 17.6 | 7530 | 14.7 | 26 | 132-160-180-200 | 17900 | 20300 | 43400 | 50500 | 13500 | 14900 |
| | **306L2** | **33.1** | 15.1 | 7640 | 12.9 | 26 | 132-160-180-200 | 18800 | 21300 | 45400 | 52800 | 14200 | 14900 |
| | **306L2** | **38.4** | 13 | 6490 | 9.4 | 26 | 132-160-180-200 | 19800 | 22400 | 47500 | 55300 | 14900 | 14900 |
| | **306L2** | **46.5** | 10.8 | 6500 | 7.8 | 26 | 132-160-180-200 | 21100 | 23900 | 50200 | 58500 | 15900 | 14900 |
| | **306L2** | **56.3** | 8.9 | 5500 | 5.4 | 26 | 132-160-180-200 | 22500 | 25500 | 53200 | 61900 | 16900 | 14900 |
| | **306L2** | **72.5** | 6.9 | 5500 | 4.2 | 26 | 132-160-180-200 | 24500 | 27700 | 57400 | 66800 | 18400 | 14900 |

| 306 L | Page 248 | 10840 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **306L3** | **53.2** | 9.4 | 9300 | 10 | 15 | 71-80-90-100-112-132-160 | 22100 | 25000 | 52300 | 60900 | 16600 | 14900 |
| | **306L3** | **65.2** | 7.7 | 9320 | 8.2 | 15 | 71-80-90-100-112-132-160 | 23600 | 26800 | 55600 | 64800 | 17800 | 14900 |
| **500** | **306L3** | **77** | 6.5 | 9750 | 7.3 | 15 | 71-80-90-100-112-132-160 | 25000 | 28300 | 58400 | 68100 | 18800 | 14900 |
| | **306L3** | **81.9** | 6.1 | 7650 | 5.4 | 15 | 71-80-90-100-112-132-160 | 25500 | 28900 | 59500 | 69300 | 19100 | 14900 |
| | **306L3** | **88.3** | 5.7 | 9450 | 6.1 | 15 | 71-80-90-100-112-132-160 | 26100 | 29600 | 60900 | 70900 | 19600 | 14900 |
| | **306L3** | **104** | 4.8 | 9850 | 5.4 | 15 | 71-80-90-100-112-132-160 | 27600 | 31300 | 64000 | 74500 | 20800 | 14900 |
| | **306L3** | **112** | 4.5 | 7590 | 3.9 | 15 | 71-80-90-100-112-132-160 | 28300 | 32100 | 65500 | 76200 | 21300 | 14900 |
| | **306L3** | **121** | 4.1 | 8580 | 4.1 | 15 | 71-80-90-100-112-132-160 | 29100 | 32900 | 67000 | 78000 | 21800 | 14900 |
| | **306L3** | **141** | 3.5 | 8800 | 3.6 | 15 | 71-80-90-100-112-132-160 | 30500 | 34600 | 70100 | 81600 | 23000 | 14900 |
| | **306L3** | **152** | 3.3 | 7590 | 2.9 | 15 | 71-80-90-100-112-132-160 | 31300 | 35500 | 71700 | 83500 | 23500 | 14900 |
| | **306L3** | **190** | 2.6 | 7300 | 2.2 | 15 | 71-80-90-100-112-132-160 | 33700 | 38200 | 76600 | 89200 | 25300 | 14900 |
| | **306L3** | **205** | 2.4 | 9370 | 2.6 | 15 | 71-80-90-100-112-132-160 | 34600 | 39200 | 78400 | 91300 | 26000 | 14900 |
| | **306L3** | **222** | 2.3 | 7500 | 1.9 | 15 | 71-80-90-100-112-132-160 | 35500 | 40300 | 80300 | 93500 | 26700 | 14900 |
| | **306L3** | **238** | 2.1 | 9390 | 2.3 | 15 | 71-80-90-100-112-132-160 | 36400 | 41200 | 82000 | 95500 | 27300 | 14900 |
| | **306L3** | **268** | 1.9 | 6230 | 1.3 | 15 | 71-80-90-100-112-132-160 | 37900 | 42900 | 85000 | 99000 | 28400 | 14900 |
| | **306L3** | **288** | 1.7 | 6320 | 1.3 | 15 | 71-80-90-100-112-132-160 | 38800 | 43900 | 86800 | 101100 | 29100 | 14900 |
| | **306L3** | **325** | 1.5 | 6460 | 1.1 | 15 | 71-80-90-100-112-132-160 | 40300 | 45700 | 90000 | 104800 | 30300 | 14900 |
| | **306L3** | **405** | 1.2 | 6730 | 0.95 | 15 | 71-80-90-100-112-132-160 | 43400 | 49200 | 96200 | 112000 | 32600 | 14900 |
| | **306L4** | **391** | 1.3 | 8270 | 1.3 | 12 | 71-80-90-100-112-132-160 | 42900 | 48600 | 95200 | 110800 | 32200 | 14900 |
| | **306L4** | **444** | 1.1 | 10300 | 1.4 | 12 | 71-80-90-100-112-132-160 | 44800 | 50700 | 98900 | 115100 | 33600 | 14900 |
| | **306L4** | **509** | 0.98 | 9450 | 1.1 | 12 | 71-80-90-100-112-132-160 | 45000 | 51000 | 101000 | 119000 | 35000 | 14900 |
| | **306L4** | **589** | 0.85 | 10100 | 1 | 12 | 71-80-90-100-112-132-160 | 45000 | 51000 | 101000 | 119000 | 35000 | 14900 |
| | **306L4** | **636** | 0.79 | 9450 | 0.88 | 12 | 71-80-90-100-112-132-160 | 45000 | 51000 | 101000 | 119000 | 35000 | 14900 |
| | **306L4** | **700** | 0.71 | 10100 | 0.85 | 12 | 71-80-90-100-112-132-160 | 45000 | 51000 | 101000 | 119000 | 35000 | 14900 |
| | **306L4** | **809** | 0.62 | 7890 | 0.58 | 12 | 71-80-90-100-112-132-160 | 45000 | 51000 | 101000 | 119000 | 35000 | 14900 |
| | **306L4** | **877** | 0.57 | 7890 | 0.53 | 12 | 71-80-90-100-112-132-160 | 45000 | 51000 | 101000 | 119000 | 35000 | 14900 |
| | **306L4** | **1015** | 0.49 | 9540 | 0.56 | 12 | 71-80-90-100-112-132-160 | 45000 | 51000 | 101000 | 119000 | 35000 | 14900 |
| | **306L4** | **1095** | 0.46 | 7890 | 0.43 | 12 | 71-80-90-100-112-132-160 | 45000 | 51000 | 101000 | 119000 | 35000 | 14900 |
| | **306L4** | **1279** | 0.39 | 8630 | 0.4 | 12 | 71-80-90-100-112-132-160 | 45000 | 51000 | 101000 | 119000 | 35000 | 14900 |
| | **306L4** | **1475** | 0.34 | 10100 | 0.4 | 12 | 71-80-90-100-112-132-160 | 45000 | 51000 | 101000 | 119000 | 35000 | 14900 |
| | **306L4** | **1597** | 0.31 | 8630 | 0.32 | 12 | 71-80-90-100-112-132-160 | 45000 | 51000 | 101000 | 119000 | 35000 | 14900 |
| | **306L4** | **1843** | 0.27 | 10100 | 0.32 | 12 | 71-80-90-100-112-132-160 | 45000 | 51000 | 101000 | 119000 | 35000 | 14900 |
| | **306L4** | **2074** | 0.24 | 7000 | 0.2 | 12 | 71-80-90-100-112-132-160 | 45000 | 51000 | 101000 | 119000 | 35000 | 14900 |
| | **306L4** | **2337** | 0.21 | 7000 | 0.18 | 12 | 71-80-90-100-112-132-160 | 45000 | 51000 | 101000 | 119000 | 35000 | 14900 |
| | **306L4** | **2916** | 0.17 | 7000 | 0.14 | 12 | 71-80-90-100-112-132-160 | 45000 | 51000 | 101000 | 119000 | 35000 | 14900 |

| 307 L | Page 256 | 15680 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **307L1** | **3.43** | 438 | 5110 | 115 | 22 | 180-200-225-250 | — | — | 17800 | 23300 | 5930 | 18600 |
| | **307L1** | **4.09** | 367 | 5260 | 115 | 22 | 180-200-225-250 | — | — | 18700 | 24600 | 6290 | 21000 |
| | **307L1** | **5.25** | 286 | 5540 | 115 | 22 | 180-200-225-250 | — | — | 20200 | 26500 | 6830 | 21000 |
| | **307L1** | **6.23** | 241 | 5750 | 115 | 22 | 180-200-225-250 | — | — | 21300 | 27900 | 7230 | 21000 |
| | **307L2** | **12.3** | 122 | 7510 | 60 | 18 | 132-160-180-200 | — | — | 26100 | 34200 | 9080 | 18600 |
| | **307L2** | **14.7** | 102 | 7730 | 60 | 18 | 132-160-180-200 | — | — | 27500 | 36100 | 9640 | 21000 |
| | **307L2** | **17.4** | 86 | 8120 | 60 | 18 | 132-160-180-200 | — | — | 28900 | 37900 | 10200 | 21000 |
| | **307L2** | **21.8** | 69 | 8690 | 60 | 18 | 132-160-180-200 | — | — | 31000 | 40600 | 11000 | 21000 |
| | **307L2** | **25.4** | 59 | 9090 | 60 | 18 | 132-160-180-200 | — | — | 32400 | 42500 | 11600 | 21000 |
| | **307L2** | **28** | 54 | 9150 | 55 | 18 | 132-160-180-200 | — | | 33400 | 43700 | 11900 | 21000 |
| | **307L2** | **30.7** | 49 | 9590 | 52 | 18 | 132-160-180-200 | — | — | 34300 | 45000 | 12300 | 21000 |
| | **307L2** | **32.6** | 46 | 9410 | 48 | 18 | 132-160-180-200 | — | — | 34900 | 45800 | 12600 | 21000 |
| | **307L2** | **38.6** | 39 | 8310 | 36 | 18 | 132-160-180-200 | — | — | 36800 | 48200 | 13300 | 21000 |
| | **307L2** | **46.7** | 32 | 8360 | 30 | 18 | 132-160-180-200 | — | — | 38900 | 51000 | 14200 | 21000 |
| | **307L3** | **51.3** | 29.3 | 10700 | 30 | 11 | 71-80-90-100-112-132-160 | — | — | 40000 | 52400 | 14600 | 21000 |
| | **307L3** | **60.5** | 24.8 | 11100 | 30 | 11 | 71-80-90-100-112-132-160 | — | — | 42100 | 55100 | 15400 | 21000 |
| | **307L3** | **74.1** | 20.2 | 11600 | 27 | 11 | 71-80-90-100-112-132-160 | — | — | 44700 | 58600 | 16500 | 21000 |
| | **307L3** | **80.6** | 18.6 | 10200 | 22 | 11 | 71-80-90-100-112-132-160 | — | — | 45800 | 60100 | 17000 | 21000 |
| | **307L3** | **93** | 16.1 | 12200 | 23 | 11 | 71-80-90-100-112-132-160 | — | — | 47900 | 62700 | 17800 | 21000 |
| | **307L3** | **100** | 15 | 12400 | 21 | 11 | 71-80-90-100-112-132-160 | — | — | 49000 | 64100 | 18300 | 21000 |
| | **307L3** | **113** | 13.2 | 10500 | 16 | 11 | 71-80-90-100-112-132-160 | — | — | 50800 | 66500 | 19000 | 21000 |
| **1500** | **307L3** | **126** | 11.9 | 13000 | 17.8 | 11 | 71-80-90-100-112-132-160 | — | — | 52400 | 68700 | 19700 | 21000 |
| | **307L3** | **139** | 10.8 | 10700 | 13.3 | 11 | 71-80-90-100-112-132-160 | — | — | 54000 | 70700 | 20400 | 21000 |
| | **307L3** | **146** | 10.3 | 13400 | 15.8 | 11 | 71-80-90-100-112-132-160 | — | — | 54800 | 71800 | 20700 | 21000 |
| | **307L3** | **162** | 9.3 | 10800 | 11.6 | 11 | 71-80-90-100-112-132-160 | — | — | 56500 | 74000 | 21400 | 21000 |
| | **307L3** | **177** | 8.5 | 12300 | 12 | 11 | 71-80-90-100-112-132-160 | — | — | 58000 | 76100 | 22100 | 21000 |
| | **307L3** | **202** | 7.4 | 11000 | 9.4 | 11 | 71-80-90-100-112-132-160 | — | — | 60400 | 79100 | 23100 | 21000 |
| | **307L3** | **221** | 6.8 | 12700 | 9.9 | 11 | 71-80-90-100-112-132-160 | — | — | 62000 | 81300 | 23800 | 21000 |
| | **307L3** | **239** | 6.3 | 8700 | 6.3 | 11 | 71-80-90-100-112-132-160 | — | — | 63500 | 83300 | 24400 | 21000 |
| | **307L3** | **284** | 5.3 | 11300 | 6.8 | 11 | 71-80-90-100-112-132-160 | — | — | 66900 | 87600 | 25800 | 21000 |
| | **307L3** | **336** | 4.5 | 8840 | 4.5 | 11 | 71-80-90-100-112-132-160 | — | — | 70400 | 92200 | 27300 | 21000 |
| | **307L4** | **349** | 4.3 | 14900 | 7.6 | 7.5 | 71-80-90-100-112-132-160 | — | — | 71200 | 93300 | 27700 | 21000 |
| | **307L4** | **406** | 3.7 | 11900 | 5.2 | 7.5 | 71-80-90-100-112-132-160 | — | — | 74400 | 97500 | 29100 | 21000 |
| | **307L4** | **465** | 3.2 | 12200 | 4.6 | 7.5 | 71-80-90-100-112-132-160 | — | — | 77500 | 101600 | 30500 | 21000 |
| | **307L4** | **509** | 2.9 | 14000 | 4.9 | 7.5 | 71-80-90-100-112-132-160 | — | — | 79700 | 104400 | 31400 | 21000 |

| 307 L | Page 256 | 15680 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **307 L4** | **579** | 2.6 | 14900 | 4.6 | 7.5 | 71-80-90-100-112-132-160 | — | — | 82800 | 108500 | 32800 | 21000 |
| | **307 L4** | **654** | 2.3 | 12900 | 3.5 | 7.5 | 71-80-90-100-112-132-160 | — | — | 85900 | 112600 | 34100 | 21000 |
| | **307 L4** | **722** | 2.1 | 15000 | 3.7 | 7.5 | 71-80-90-100-112-132-160 | — | — | 88500 | 116000 | 35300 | 21000 |
| | **307 L4** | **801** | 1.9 | 13300 | 3 | 7.5 | 71-80-90-100-112-132-160 | — | — | 91300 | 119600 | 36500 | 21000 |
| | **307 L4** | **906** | 1.7 | 15200 | 3 | 7.5 | 71-80-90-100-112-132-160 | — | — | 94700 | 124200 | 38000 | 21000 |
| | **307 L4** | **999** | 1.5 | 13800 | 2.5 | 7.5 | 71-80-90-100-112-132-160 | — | — | 97600 | 127800 | 39300 | 21000 |
| | **307 L4** | **1157** | 1.3 | 14200 | 2.2 | 7.5 | 71-80-90-100-112-132-160 | — | — | 101900 | 133600 | 41300 | 21000 |
| | **307 L4** | **1274** | 1.2 | 12300 | 1.7 | 7.5 | 71-80-90-100-112-132-160 | — | — | 104900 | 137500 | 42600 | 21000 |
| | **307 L4** | **1408** | 1.1 | 15600 | 2 | 7.5 | 71-80-90-100-112-132-160 | — | — | 108100 | 141700 | 44100 | 21000 |
| | **307 L4** | **1591** | 0.94 | 15000 | 1.7 | 7.5 | 71-80-90-100-112-132-160 | — | — | 109000 | 145000 | 45000 | 21000 |
| | **307 L4** | **1767** | 0.85 | 15700 | 1.6 | 7.5 | 71-80-90-100-112-132-160 | — | — | 109000 | 145000 | 45000 | 21000 |
| | **307 L4** | **2041** | 0.73 | 14300 | 1.2 | 7.5 | 71-80-90-100-112-132-160 | — | — | 109000 | 145000 | 45000 | 21000 |
| | **307 L4** | **2423** | 0.62 | 11000 | 0.81 | 7.5 | 71-80-90-100-112-132-160 | — | — | 109000 | 145000 | 45000 | 21000 |
| **1000** | **307 L1** | **3.43** | 292 | 5770 | 115 | 26 | 180-200-225-250 | — | — | 20100 | 26300 | 6790 | 18600 |
| | **307 L1** | **4.09** | 244 | 5940 | 115 | 26 | 180-200-225-250 | — | — | 21200 | 27700 | 7200 | 21000 |
| | **307 L1** | **5.25** | 190 | 6260 | 115 | 26 | 180-200-225-250 | — | — | 22800 | 29900 | 7820 | 21000 |
| | **307 L1** | **6.23** | 160 | 6500 | 113 | 26 | 180-200-225-250 | — | — | 24000 | 31500 | 8280 | 21000 |
| | **307 L2** | **12.3** | 81 | 8060 | 60 | 22 | 132-160-180-200 | — | — | 29500 | 38600 | 10400 | 18600 |
| | **307 L2** | **14.7** | 68 | 8720 | 60 | 22 | 132-160-180-200 | — | — | 31100 | 40700 | 11000 | 21000 |
| | **307 L2** | **17.4** | 58 | 9170 | 59 | 22 | 132-160-180-200 | — | — | 32700 | 42800 | 11700 | 21000 |
| | **307 L2** | **21.8** | 46 | 9740 | 50 | 22 | 132-160-180-200 | — | — | 35000 | 45800 | 12600 | 21000 |
| | **307 L2** | **25.4** | 39 | 10100 | 44 | 22 | 132-160-180-200 | — | — | 36600 | 48000 | 13200 | 21000 |
| | **307 L2** | **28** | 36 | 9630 | 38 | 22 | 132-160-180-200 | — | — | 37700 | 49400 | 13700 | 21000 |
| | **307 L2** | **30.7** | 33 | 10200 | 37 | 22 | 132-160-180-200 | — | — | 38800 | 50800 | 14100 | 21000 |
| | **307 L2** | **32.6** | 31 | 9760 | 33 | 22 | 132-160-180-200 | — | — | 39400 | 51700 | 14400 | 21000 |
| | **307 L2** | **38.6** | 25.9 | 8430 | 24 | 22 | 132-160-180-200 | — | — | 41500 | 54400 | 15200 | 21000 |
| | **307 L2** | **46.7** | 21.4 | 8480 | 20 | 22 | 132-160-180-200 | — | — | 44000 | 57600 | 16200 | 21000 |
| | **307 L3** | **51.3** | 19.5 | 11700 | 26 | 13.2 | 71-80-90-100-112-132-160 | — | — | 45200 | 59200 | 16700 | 21000 |
| | **307 L3** | **60.5** | 16.5 | 12100 | 23 | 13.2 | 71-80-90-100-112-132-160 | — | — | 47500 | 62300 | 17700 | 21000 |
| | **307 L3** | **74.1** | 13.5 | 12700 | 19.6 | 13.2 | 71-80-90-100-112-132-160 | — | — | 50500 | 66200 | 18900 | 21000 |
| | **307 L3** | **80.6** | 12.4 | 10600 | 15.1 | 13.2 | 71-80-90-100-112-132-160 | — | — | 51800 | 67800 | 19400 | 21000 |
| | **307 L3** | **93** | 10.8 | 13300 | 16.4 | 13.2 | 71-80-90-100-112-132-160 | — | — | 54000 | 70800 | 20400 | 21000 |
| | **307 L3** | **100** | 10 | 13500 | 15.5 | 13.2 | 71-80-90-100-112-132-160 | — | — | 55300 | 72400 | 20900 | 21000 |
| | **307 L3** | **113** | 8.8 | 10900 | 11 | 13.2 | 71-80-90-100-112-132-160 | — | — | 57300 | 75100 | 21800 | 21000 |
| | **307 L3** | **126** | 7.9 | 14000 | 12.7 | 13.2 | 71-80-90-100-112-132-160 | — | — | 59200 | 77600 | 22600 | 21000 |
| | **307 L3** | **139** | 7.2 | 11000 | 9.1 | 13.2 | 71-80-90-100-112-132-160 | — | — | 60900 | 79900 | 23300 | 21000 |
| | **307 L3** | **146** | 6.8 | 13800 | 10.8 | 13.2 | 71-80-90-100-112-132-160 | — | — | 61900 | 81100 | 23700 | 21000 |
| | **307 L3** | **162** | 6.2 | 11100 | 7.9 | 13.2 | 71-80-90-100-112-132-160 | — | — | 63800 | 83600 | 24500 | 21000 |

| 307 L | Page 256 | 15680 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1000** | **307 L3** | **177** | 5.6 | 12300 | 8 | 13.2 | 71-80-90-100-112-132-160 | — | — | 65600 | 85900 | 25300 | 21000 |
| | **307 L3** | **202** | 5 | 11300 | 6.4 | 13.2 | 71-80-90-100-112-132-160 | — | — | 68200 | 89300 | 26400 | 21000 |
| | **307 L3** | **221** | 4.5 | 13000 | 6.8 | 13.2 | 71-80-90-100-112-132-160 | — | — | 70100 | 91800 | 27200 | 21000 |
| | **307 L3** | **239** | 4.2 | 8920 | 4.3 | 13.2 | 71-80-90-100-112-132-160 | — | — | 71800 | 94000 | 27900 | 21000 |
| | **307 L3** | **284** | 3.5 | 12000 | 4.8 | 13.2 | 71-80-90-100-112-132-160 | — | — | 75500 | 98900 | 29600 | 21000 |
| | **307 L3** | **336** | 3 | 9370 | 3.2 | 13.2 | 71-80-90-100-112-132-160 | — | — | 79500 | 104200 | 31300 | 21000 |
| | **307 L4** | **349** | 2.9 | 14900 | 5 | 9 | 71-80-90-100-112-132-160 | — | — | 80400 | 105300 | 31700 | 21000 |
| | **307 L4** | **406** | 2.5 | 12700 | 3.7 | 9 | 71-80-90-100-112-132-160 | — | — | 84100 | 110200 | 33300 | 21000 |
| | **307 L4** | **465** | 2.2 | 13000 | 3.3 | 9 | 71-80-90-100-112-132-160 | — | — | 87600 | 114800 | 34900 | 21000 |
| | **307 L4** | **509** | 2 | 14300 | 3.3 | 9 | 71-80-90-100-112-132-160 | — | — | 90000 | 117900 | 35900 | 21000 |
| | **307 L4** | **579** | 1.7 | 15200 | 3.1 | 9 | 71-80-90-100-112-132-160 | — | — | 93500 | 122600 | 37500 | 21000 |
| | **307 L4** | **654** | 1.5 | 13800 | 2.5 | 9 | 71-80-90-100-112-132-160 | — | — | 97000 | 127100 | 39100 | 21000 |
| | **307 L4** | **722** | 1.4 | 15400 | 2.5 | 9 | 71-80-90-100-112-132-160 | — | — | 100000 | 131000 | 40400 | 21000 |
| | **307 L4** | **801** | 1.2 | 14300 | 2.1 | 9 | 71-80-90-100-112-132-160 | — | — | 103100 | 135100 | 41800 | 21000 |
| | **307 L4** | **906** | 1.1 | 15600 | 2 | 9 | 71-80-90-100-112-132-160 | — | — | 107000 | 140200 | 43500 | 21000 |
| | **307 L4** | **999** | 1 | 14800 | 1.8 | 9 | 71-80-90-100-112-132-160 | — | — | 109000 | 144400 | 45000 | 21000 |
| | **307 L4** | **1157** | 0.86 | 14800 | 1.5 | 9 | 71-80-90-100-112-132-160 | — | — | 109000 | 145000 | 45000 | 21000 |
| | **307 L4** | **1274** | 0.78 | 12300 | 1.1 | 9 | 71-80-90-100-112-132-160 | — | — | 109000 | 145000 | 45000 | 21000 |
| | **307 L4** | **1408** | 0.71 | 15700 | 1.3 | 9 | 71-80-90-100-112-132-160 | — | — | 109000 | 145000 | 45000 | 21000 |
| | **307 L4** | **1591** | 0.63 | 15000 | 1.1 | 9 | 71-80-90-100-112-132-160 | — | — | 109000 | 145000 | 45000 | 21000 |
| | **307 L4** | **1767** | 0.57 | 15700 | 1 | 9 | 71-80-90-100-112-132-160 | — | — | 109000 | 145000 | 45000 | 21000 |
| | **307 L4** | **2041** | 0.49 | 14300 | 0.83 | 9 | 71-80-90-100-112-132-160 | — | — | 109000 | 145000 | 45000 | 21000 |
| | **307 L4** | **2423** | 0.41 | 11000 | 0.54 | 9 | 71-80-90-100-112-132-160 | — | — | 109000 | 145000 | 45000 | 21000 |
| **500** | **307L1** | **3.43** | 146 | 7110 | 112 | 44 | 180-200-225-250 | — | — | 24700 | 32400 | 8550 | 18600 |
| | **307L1** | **4.09** | 122 | 7320 | 97 | 44 | 180-200-225-250 | — | — | 26100 | 34200 | 9070 | 21000 |
| | **307L1** | **5.25** | 95 | 7700 | 79 | 44 | 180-200-225-250 | — | — | 28100 | 36800 | 9850 | 21000 |
| | **307L1** | **6.23** | 80 | 7720 | 67 | 44 | 180-200-225-250 | — | — | 29600 | 38800 | 10400 | 21000 |
| | **307L2** | **12.3** | 41 | 8390 | 38 | 36 | 132-160-180-200 | — | — | 36300 | 47600 | 13100 | 18600 |
| | **307L2** | **14.7** | 34 | 10400 | 39 | 36 | 132-160-180-200 | — | — | 38300 | 50200 | 13900 | 21000 |
| | **307L2** | **17.4** | 28.8 | 10800 | 34 | 36 | 132-160-180-200 | — | — | 40200 | 52700 | 14700 | 21000 |
| | **307L2** | **21.8** | 22.9 | 11300 | 29 | 36 | 132-160-180-200 | — | — | 43100 | 56400 | 15800 | 21000 |
| | **307L2** | **25.4** | 19.7 | 11700 | 26 | 36 | 132-160-180-200 | — | — | 45100 | 59000 | 16700 | 21000 |
| | **307L2** | **28** | 17.9 | 10200 | 20 | 36 | 132-160-180-200 | — | — | 46400 | 60800 | 17200 | 21000 |
| | **307L2** | **30.7** | 16.3 | 11400 | 21 | 36 | 132-160-180-200 | — | — | 47700 | 62500 | 17700 | 21000 |
| | **307L2** | **32.6** | 15.4 | 10400 | 17.7 | 36 | 132-160-180-200 | — | — | 48600 | 63600 | 18100 | 21000 |
| | **307L2** | **38.6** | 12.9 | 8620 | 12.4 | 36 | 132-160-180-200 | — | — | 51100 | 67000 | 19200 | 21000 |
| | **307L2** | **46.7** | 10.7 | 8680 | 10.3 | 36 | 132-160-180-200 | — | — | 54100 | 70900 | 20400 | 21000 |

| 307 L | Page 256 | 15680 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **5000** | **307L3** | **51.3** | 9.8 | 13600 | 15.2 | 22 | 71-80-90-100-112-132-160 | — | — | 55600 | 72900 | 21100 | 21000 |
| | **307L3** | **60.5** | 8.3 | 13900 | 13.2 | 22 | 71-80-90-100-112-132-160 | — | — | 58500 | 76600 | 22300 | 21000 |
| | **307L3** | **74.1** | 6.7 | 14300 | 11 | 22 | 71-80-90-100-112-132-160 | — | — | 62200 | 81500 | 23800 | 21000 |
| | **307L3** | **80.6** | 6.2 | 11100 | 7.9 | 22 | 71-80-90-100-112-132-160 | — | — | 63700 | 83500 | 24500 | 21000 |
| | **307L3** | **93** | 5.4 | 14700 | 9.1 | 22 | 71-80-90-100-112-132-160 | — | — | 66500 | 87200 | 25700 | 21000 |
| | **307L3** | **100** | 5 | 14900 | 8.5 | 22 | 71-80-90-100-112-132-160 | — | — | 68100 | 89200 | 26300 | 21000 |
| | **307L3** | **113** | 4.4 | 11500 | 5.8 | 22 | 71-80-90-100-112-132-160 | — | — | 70600 | 92500 | 27400 | 21000 |
| | **307L3** | **126** | 4 | 14900 | 6.8 | 22 | 71-80-90-100-112-132-160 | — | — | 72900 | 95500 | 28400 | 21000 |
| | **307L3** | **139** | 3.6 | 11900 | 4.9 | 22 | 71-80-90-100-112-132-160 | — | — | 75000 | 98300 | 29400 | 21000 |
| | **307L3** | **146** | 3.4 | 14000 | 5.5 | 22 | 71-80-90-100-112-132-160 | — | — | 76200 | 99900 | 29900 | 21000 |
| | **307L3** | **162** | 3.1 | 12300 | 4.4 | 22 | 71-80-90-100-112-132-160 | — | — | 78500 | 102900 | 30900 | 21000 |
| | **307L3** | **177** | 2.8 | 12300 | 4 | 22 | 71-80-90-100-112-132-160 | — | — | 80700 | 105800 | 31800 | 21000 |
| | **307L3** | **202** | 2.5 | 12700 | 3.6 | 22 | 71-80-90-100-112-132-160 | — | — | 83900 | 110000 | 33200 | 21000 |
| | **307L3** | **221** | 2.3 | 13900 | 3.6 | 22 | 71-80-90-100-112-132-160 | — | — | 86300 | 113000 | 34300 | 21000 |
| | **307L3** | **239** | 2.1 | 9860 | 2.4 | 22 | 71-80-90-100-112-132-160 | — | — | 88300 | 115800 | 35200 | 21000 |
| | **307L3** | **284** | 1.8 | 13300 | 2.7 | 22 | 71-80-90-100-112-132-160 | — | — | 93000 | 121800 | 37200 | 21000 |
| | **307L3** | **336** | 1.5 | 10400 | 1.8 | 22 | 71-80-90-100-112-132-160 | — | — | 97900 | 128200 | 39400 | 21000 |
| | **307L4** | **349** | 1.4 | 15400 | 2.6 | 15 | 71-80-90-100-112-132-160 | — | — | 98900 | 129700 | 39900 | 21000 |
| | **307L4** | **406** | 1.2 | 14300 | 2.1 | 15 | 71-80-90-100-112-132-160 | — | — | 103500 | 135600 | 42000 | 21000 |
| | **307L4** | **465** | 1.1 | 14700 | 1.9 | 15 | 71-80-90-100-112-132-160 | — | — | 107800 | 141300 | 43900 | 21000 |
| | **307L4** | **509** | 0.98 | 15000 | 1.7 | 15 | 71-80-90-100-112-132-160 | — | — | 109000 | 145000 | 45000 | 21000 |
| | **307L4** | **579** | 0.86 | 15700 | 1.6 | 15 | 71-80-90-100-112-132-160 | — | — | 109000 | 145000 | 45000 | 21000 |
| | **307L4** | **654** | 0.77 | 14800 | 1.3 | 15 | 71-80-90-100-112-132-160 | — | — | 109000 | 145000 | 45000 | 21000 |
| | **307L4** | **722** | 0.69 | 15700 | 1.3 | 15 | 71-80-90-100-112-132-160 | — | — | 109000 | 145000 | 45000 | 21000 |
| | **307L4** | **801** | 0.62 | 14800 | 1.1 | 15 | 71-80-90-100-112-132-160 | — | — | 109000 | 145000 | 45000 | 21000 |
| | **307L4** | **906** | 0.55 | 15700 | 1 | 15 | 71-80-90-100-112-132-160 | — | — | 109000 | 145000 | 45000 | 21000 |
| | **307L4** | **999** | 0.5 | 14800 | 0.88 | 15 | 71-80-90-100-112-132-160 | — | — | 109000 | 145000 | 45000 | 21000 |
| | **307L4** | **1157** | 0.43 | 14800 | 0.76 | 15 | 71-80-90-100-112-132-160 | — | — | 109000 | 145000 | 45000 | 21000 |
| | **307L4** | **1274** | 0.39 | 12300 | 0.57 | 15 | 71-80-90-100-112-132-160 | — | — | 109000 | 145000 | 45000 | 21000 |
| | **307L4** | **1408** | 0.36 | 15700 | 0.66 | 15 | 71-80-90-100-112-132-160 | — | — | 109000 | 145000 | 45000 | 21000 |
| | **307L4** | **1591** | 0.31 | 15000 | 0.56 | 15 | 71-80-90-100-112-132-160 | — | — | 109000 | 145000 | 45000 | 21000 |
| | **307L4** | **1767** | 0.28 | 15700 | 0.52 | 15 | 71-80-90-100-112-132-160 | — | — | 109000 | 145000 | 45000 | 21000 |
| | **307L4** | **2041** | 0.24 | 14300 | 0.42 | 15 | 71-80-90-100-112-132-160 | — | — | 109000 | 145000 | 45000 | 21000 |
| | **307L4** | **2423** | 0.21 | 11000 | 0.27 | 15 | 71-80-90-100-112-132-160 | — | — | 109000 | 145000 | 45000 | 21000 |

## 309 L

Page 264

## 23240 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **309 L1** | **3.43** | 438 | 7010 | 150 | 25 | 180-200-225-250 | — | — | 18100 | 23300 | 4740 | 27900 |
| | **309 L1** | **4.09** | 367 | 7220 | 150 | 25 | 180-200-225-250 | — | — | 19000 | 24600 | 5030 | 29000 |
| | **309 L1** | **5.25** | 286 | 7600 | 150 | 25 | 180-200-225-250 | — | — | 20500 | 26500 | 5470 | 29000 |
| | **309 L1** | **6.23** | 241 | 7900 | 150 | 25 | 180-200-225-250 | — | — | 21600 | 27900 | 5790 | 29000 |
| | **309 L2** | **12.3** | 122 | 7890 | 60 | 18 | 132-160-180-200 | — | — | 26500 | 34200 | 7270 | 27900 |
| | **309 L2** | **14.7** | 102 | 9410 | 60 | 18 | 132-160-180-200 | — | — | 28000 | 36100 | 7710 | 29000 |
| | **309 L2** | **17.4** | 86 | 9730 | 60 | 18 | 132-160-180-200 | — | — | 29400 | 37900 | 8150 | 29000 |
| | **309 L2** | **21.8** | 69 | 10100 | 60 | 18 | 132-160-180-200 | — | — | 31500 | 40600 | 8790 | 29000 |
| | **309 L2** | **25.4** | 59 | 10500 | 60 | 18 | 132-160-180-200 | — | — | 32900 | 42500 | 9240 | 29000 |
| | **309 L2** | **28** | 54 | 12500 | 60 | 18 | 132-160-180-200 | — | — | 33900 | 43700 | 9550 | 29000 |
| | **309 L2** | **32.6** | 46 | 13000 | 60 | 18 | 132-160-180-200 | — | — | 35500 | 45800 | 10000 | 29000 |
| | **309 L2** | **38.6** | 39 | 12500 | 54 | 18 | 132-160-180-200 | — | — | 37400 | 48200 | 10600 | 29000 |
| | **309 L2** | **46.7** | 32 | 12500 | 45 | 18 | 132-160-180-200 | — | — | 39600 | 51000 | 11300 | 29000 |
| | **309 L3** | **51.3** | 29.3 | 13400 | 30 | 11 | 71-80-90-100-112-132-160 | — | — | 40700 | 52400 | 11700 | 29000 |
| | **309 L3** | **60.5** | 24.8 | 14100 | 30 | 11 | 71-80-90-100-112-132-160 | — | — | 42700 | 55100 | 12300 | 29000 |
| | **309 L3** | **74.1** | 20.2 | 15000 | 30 | 11 | 71-80-90-100-112-132-160 | — | — | 45400 | 58600 | 13200 | 29000 |
| | **309 L3** | **80.6** | 18.6 | 14800 | 30 | 11 | 71-80-90-100-112-132-160 | — | — | 46600 | 60100 | 13600 | 29000 |
| | **309 L3** | **93** | 16.1 | 15100 | 28 | 11 | 71-80-90-100-112-132-160 | — | — | 48600 | 62700 | 14200 | 29000 |
| | **309 L3** | **100** | 15 | 16500 | 28 | 11 | 71-80-90-100-112-132-160 | — | — | 49700 | 64100 | 14600 | 29000 |
| | **309 L3** | **113** | 13.2 | 15500 | 24 | 11 | 71-80-90-100-112-132-160 | — | — | 51600 | 66500 | 15200 | 29000 |
| | **309 L3** | **126** | 11.9 | 16400 | 22 | 11 | 71-80-90-100-112-132-160 | — | — | 53200 | 68700 | 15800 | 29000 |
| | **309 L3** | **139** | 10.8 | 16000 | 19.9 | 11 | 71-80-90-100-112-132-160 | — | — | 54800 | 70700 | 16300 | 29000 |
| | **309 L3** | **162** | 9.3 | 16300 | 17.3 | 11 | 71-80-90-100-112-132-160 | — | — | 57400 | 74000 | 17100 | 29000 |
| | **309 L3** | **183** | 8.2 | 14300 | 13.5 | 11 | 71-80-90-100-112-132-160 | — | — | 59500 | 76800 | 17800 | 29000 |
| | **309 L3** | **202** | 7.4 | 16500 | 14.1 | 11 | 71-80-90-100-112-132-160 | — | — | 61300 | 79100 | 18400 | 29000 |
| | **309 L3** | **223** | 6.7 | 13000 | 10 | 11 | 71-80-90-100-112-132-160 | — | — | 63200 | 81500 | 19100 | 29000 |
| | **309 L3** | **239** | 6.3 | 13000 | 9.4 | 11 | 71-80-90-100-112-132-160 | — | — | 64600 | 83300 | 19500 | 29000 |
| | **309 L3** | **284** | 5.3 | 15700 | 9.6 | 11 | 71-80-90-100-112-132-160 | — | — | 67900 | 87600 | 20700 | 29000 |
| | **309 L3** | **336** | 4.5 | 13200 | 6.8 | 11 | 71-80-90-100-112-132-160 | — | — | 71500 | 92200 | 21900 | 29000 |
| | **309 L4** | **349** | 4.3 | 21300 | 10.8 | 7.5 | 71-80-90-100-112-132-160 | — | — | 72300 | 93300 | 22100 | 29000 |
| | **309 L4** | **406** | 3.7 | 17800 | 7.8 | 7.5 | 71-80-90-100-112-132-160 | — | — | 75600 | 97500 | 23300 | 29000 |
| | **309 L4** | **465** | 3.2 | 18300 | 7 | 7.5 | 71-80-90-100-112-132-160 | — | — | 78800 | 101600 | 24400 | 29000 |
| | **309 L4** | **509** | 2.9 | 14300 | 5 | 7.5 | 71-80-90-100-112-132-160 | — | — | 81000 | 104400 | 25100 | 29000 |
| | **309 L4** | **579** | 2.6 | 21300 | 6.5 | 7.5 | 71-80-90-100-112-132-160 | — | — | 84100 | 108500 | 26200 | 29000 |
| | **309 L4** | **654** | 2.3 | 18100 | 4.9 | 7.5 | 71-80-90-100-112-132-160 | — | — | 87300 | 112600 | 27300 | 29000 |
| | **309 L4** | **722** | 2.1 | 21300 | 5.2 | 7.5 | 71-80-90-100-112-132-160 | — | — | 89900 | 116000 | 28200 | 29000 |
| | **309 L4** | **801** | 1.9 | 18200 | 4 | 7.5 | 71-80-90-100-112-132-160 | — | — | 92800 | 119600 | 29200 | 29000 |
| | **309 L4** | **906** | 1.7 | 17900 | 3.5 | 7.5 | 71-80-90-100-112-132-160 | — | — | 96300 | 124200 | 30400 | 29000 |
| | **309 L4** | **999** | 1.5 | 18200 | 3.2 | 7.5 | 71-80-90-100-112-132-160 | — | — | 99100 | 127800 | 31400 | 29000 |
| | **309 L4** | **1149** | 1.3 | 16200 | 2.5 | 7.5 | 71-80-90-100-112-132-160 | — | — | 103400 | 133300 | 32900 | 29000 |

## 309 L

Page 264

## 23240 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **309 L4** | **1286** | 1.2 | 16500 | 2.3 | 7.5 | 71-80-90-100-112-132-160 | — | — | 106900 | 137900 | 34200 | 29000 |
| | **309 L4** | **1380** | 1.1 | 16700 | 2.2 | 7.5 | 71-80-90-100-112-132-160 | — | — | 109200 | 140900 | 35000 | 29000 |
| | **309 L4** | **1605** | 0.93 | 17000 | 1.9 | 7.5 | 71-80-90-100-112-132-160 | — | — | 110000 | 145000 | 36000 | 29000 |
| | **309 L4** | **1723** | 0.87 | 17000 | 1.8 | 7.5 | 71-80-90-100-112-132-160 | — | — | 110000 | 145000 | 36000 | 29000 |
| | **309 L4** | **2003** | 0.75 | 17000 | 1.5 | 7.5 | 71-80-90-100-112-132-160 | — | — | 110000 | 145000 | 36000 | 29000 |
| | **309 L4** | **2423** | 0.62 | 17000 | 1.2 | 7.5 | 71-80-90-100-112-132-160 | — | — | 110000 | 145000 | 36000 | 29000 |
| **1000** | **309 L1** | **3.43** | 292 | 7920 | 150 | 30 | 180-200-225-250 | — | — | 20400 | 26300 | 5430 | 27900 |
| | **309 L1** | **4.09** | 244 | 8150 | 150 | 30 | 180-200-225-250 | — | — | 21500 | 27700 | 5760 | 29000 |
| | **309 L1** | **5.25** | 190 | 8580 | 150 | 30 | 180-200-225-250 | — | — | 23200 | 29900 | 6260 | 29000 |
| | **309 L1** | **6.23** | 160 | 8920 | 150 | 30 | 180-200-225-250 | — | — | 24400 | 31500 | 6620 | 29000 |
| | **309 L2** | **12.3** | 81 | 8900 | 60 | 22 | 132-160-180-200 | — | — | 30000 | 38600 | 8320 | 27900 |
| | **309 L2** | **14.7** | 68 | 10600 | 60 | 22 | 132-160-180-200 | — | — | 31600 | 40700 | 8820 | 29000 |
| | **309 L2** | **17.4** | 58 | 11000 | 60 | 22 | 132-160-180-200 | — | — | 33200 | 42800 | 9330 | 29000 |
| | **309 L2** | **21.8** | 46 | 11400 | 58 | 22 | 132-160-180-200 | — | — | 35500 | 45800 | 10100 | 29000 |
| | **309 L2** | **25.4** | 39 | 11500 | 50 | 22 | 132-160-180-200 | — | — | 37200 | 48000 | 10600 | 29000 |
| | **309 L2** | **28** | 36 | 13500 | 53 | 22 | 132-160-180-200 | — | — | 38300 | 49400 | 10900 | 29000 |
| | **309 L2** | **32.6** | 31 | 13800 | 47 | 22 | 132-160-180-200 | — | — | 40100 | 51700 | 11500 | 29000 |
| | **309 L2** | **38.6** | 25.9 | 12600 | 36 | 22 | 132-160-180-200 | — | — | 42200 | 54400 | 12200 | 29000 |
| | **309 L2** | **46.7** | 21.4 | 12700 | 30 | 22 | 132-160-180-200 | — | — | 44700 | 57600 | 13000 | 29000 |
| | **309 L3** | **51.3** | 19.5 | 14900 | 30 | 13.2 | 71-80-90-100-112-132-160 | — | — | 45900 | 59200 | 13400 | 29000 |
| | **309 L3** | **60.5** | 16.5 | 16000 | 30 | 13.2 | 71-80-90-100-112-132-160 | — | — | 48300 | 62300 | 14100 | 29000 |
| | **309 L3** | **74.1** | 13.5 | 17000 | 26 | 13.2 | 71-80-90-100-112-132-160 | — | — | 51300 | 66200 | 15100 | 29000 |
| | **309 L3** | **80.6** | 12.4 | 15700 | 22 | 13.2 | 71-80-90-100-112-132-160 | — | — | 52600 | 67800 | 15500 | 29000 |
| | **309 L3** | **93** | 10.8 | 16800 | 21 | 13.2 | 71-80-90-100-112-132-160 | — | — | 54900 | 70800 | 16300 | 29000 |
| | **309 L3** | **100** | 10 | 18600 | 21 | 13.2 | 71-80-90-100-112-132-160 | — | — | 56200 | 72400 | 16700 | 29000 |
| | **309 L3** | **113** | 8.8 | 16300 | 16.5 | 13.2 | 71-80-90-100-112-132-160 | — | — | 58300 | 75100 | 17400 | 29000 |
| | **309 L3** | **126** | 7.9 | 17300 | 15.7 | 13.2 | 71-80-90-100-112-132-160 | — | — | 60100 | 77600 | 18000 | 29000 |
| | **309 L3** | **139** | 7.2 | 16500 | 13.7 | 13.2 | 71-80-90-100-112-132-160 | — | — | 61900 | 79900 | 18600 | 29000 |
| | **309 L3** | **162** | 6.2 | 16700 | 11.9 | 13.2 | 71-80-90-100-112-132-160 | — | — | 64800 | 83600 | 19600 | 29000 |
| | **309 L3** | **183** | 5.5 | 14300 | 9 | 13.2 | 71-80-90-100-112-132-160 | — | — | 67200 | 86700 | 20400 | 29000 |
| | **309 L3** | **202** | 5 | 17000 | 9.7 | 13.2 | 71-80-90-100-112-132-160 | — | — | 69300 | 89300 | 21100 | 29000 |
| | **309 L3** | **223** | 4.5 | 13200 | 6.8 | 13.2 | 71-80-90-100-112-132-160 | — | — | 71400 | 92100 | 21800 | 29000 |
| | **309 L3** | **239** | 4.2 | 13300 | 6.4 | 13.2 | 71-80-90-100-112-132-160 | — | — | 72900 | 94000 | 22300 | 29000 |
| | **309 L3** | **284** | 3.5 | 15800 | 6.4 | 13.2 | 71-80-90-100-112-132-160 | — | — | 76700 | 98900 | 23600 | 29000 |
| | **309 L3** | **336** | 3 | 14000 | 4.8 | 13.2 | 71-80-90-100-112-132-160 | — | — | 80800 | 104200 | 25000 | 29000 |
| | **309 L4** | **349** | 2.9 | 21300 | 7.2 | 9 | 71-80-90-100-112-132-160 | — | — | 81700 | 105300 | 25300 | 29000 |
| | **309 L4** | **406** | 2.5 | 19100 | 5.6 | 9 | 71-80-90-100-112-132-160 | — | — | 85400 | 110200 | 26600 | 29000 |
| | **309 L4** | **465** | 2.2 | 19500 | 5 | 9 | 71-80-90-100-112-132-160 | — | — | 89000 | 114800 | 27900 | 29000 |
| | **309 L4** | **509** | 2 | 14400 | 3.3 | 9 | 71-80-90-100-112-132-160 | — | — | 91500 | 117900 | 28700 | 29000 |

# 309 L

Page 264

# 23240 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1000** | **309 L4** | **579** | 1.7 | 21400 | 4.4 | 9 | 71-80-90-100-112-132-160 | — | — | 95000 | 122600 | 30000 | 29000 |
| | **309 L4** | **654** | 1.5 | 18200 | 3.3 | 9 | 71-80-90-100-112-132-160 | — | — | 98600 | 127100 | 31200 | 29000 |
| | **309 L4** | **722** | 1.4 | 21500 | 3.5 | 9 | 71-80-90-100-112-132-160 | — | — | 101600 | 131000 | 32300 | 29000 |
| | **309 L4** | **801** | 1.2 | 18300 | 2.7 | 9 | 71-80-90-100-112-132-160 | — | — | 104700 | 135100 | 33400 | 29000 |
| | **309 L4** | **906** | 1.1 | 18400 | 2.4 | 9 | 71-80-90-100-112-132-160 | — | — | 108700 | 140200 | 34800 | 29000 |
| | **309 L4** | **999** | 1 | 18300 | 2.2 | 9 | 71-80-90-100-112-132-160 | — | — | 110000 | 144400 | 36000 | 29000 |
| | **309 L4** | **1149** | 0.87 | 17000 | 1.7 | 9 | 71-80-90-100-112-132-160 | — | — | 110000 | 145000 | 36000 | 29000 |
| | **309 L4** | **1286** | 0.78 | 17000 | 1.6 | 9 | 71-80-90-100-112-132-160 | — | — | 110000 | 145000 | 36000 | 29000 |
| | **309 L4** | **1380** | 0.72 | 17000 | 1.5 | 9 | 71-80-90-100-112-132-160 | — | — | 110000 | 145000 | 36000 | 29000 |
| | **309 L4** | **1605** | 0.62 | 17000 | 1.3 | 9 | 71-80-90-100-112-132-160 | — | — | 110000 | 145000 | 36000 | 29000 |
| | **309 L4** | **1723** | 0.58 | 17000 | 1.2 | 9 | 71-80-90-100-112-132-160 | — | — | 110000 | 145000 | 36000 | 29000 |
| | **309 L4** | **2003** | 0.5 | 17000 | 1 | 9 | 71-80-90-100-112-132-160 | — | — | 110000 | 145000 | 36000 | 29000 |
| | **309 L4** | **2423** | 0.41 | 17000 | 0.83 | 9 | 71-80-90-100-112-132-160 | — | — | 110000 | 145000 | 36000 | 29000 |
| **500** | **309L1** | **3.43** | 146 | 9750 | 150 | 50 | 180-200-225-250 | — | — | 25100 | 32400 | 6840 | 27900 |
| | **309L1** | **4.09** | 122 | 10000 | 132 | 50 | 180-200-225-250 | — | — | 26500 | 34200 | 7250 | 29000 |
| | **309L1** | **5.25** | 95 | 10600 | 109 | 50 | 180-200-225-250 | — | — | 28500 | 36800 | 7880 | 29000 |
| | **309L1** | **6.23** | 80 | 10900 | 94 | 50 | 180-200-225-250 | — | — | 30000 | 38800 | 8350 | 29000 |
| | **309L2** | **12.3** | 41 | 10600 | 48 | 36 | 132-160-180-200 | — | — | 36900 | 47600 | 10500 | 27900 |
| | **309L2** | **14.7** | 34 | 12900 | 49 | 36 | 132-160-180-200 | — | — | 38900 | 50200 | 11100 | 29000 |
| | **309L2** | **17.4** | 28.8 | 13500 | 43 | 36 | 132-160-180-200 | — | — | 40900 | 52700 | 11800 | 29000 |
| | **309L2** | **21.8** | 22.9 | 13700 | 35 | 36 | 132-160-180-200 | — | — | 43800 | 56400 | 12700 | 29000 |
| | **309L2** | **25.4** | 19.7 | 12800 | 28 | 36 | 132-160-180-200 | — | — | 45800 | 59000 | 13300 | 29000 |
| | **309L2** | **28** | 17.9 | 14900 | 30 | 36 | 132-160-180-200 | — | — | 47200 | 60800 | 13800 | 29000 |
| | **309L2** | **32.6** | 15.4 | 15200 | 26 | 36 | 132-160-180-200 | — | — | 49300 | 63600 | 14500 | 29000 |
| | **309L2** | **38.6** | 12.9 | 12900 | 18.6 | 36 | 132-160-180-200 | — | — | 51900 | 67000 | 15300 | 29000 |
| | **309L2** | **46.7** | 10.7 | 13000 | 15.4 | 36 | 132-160-180-200 | — | — | 55000 | 70900 | 16300 | 29000 |
| | **309L3** | **51.3** | 9.8 | 17700 | 19.8 | 22 | 71-80-90-100-112-132-160 | — | — | 56500 | 72900 | 16800 | 29000 |
| | **309L3** | **60.5** | 8.3 | 19300 | 18.3 | 22 | 71-80-90-100-112-132-160 | — | — | 59400 | 76600 | 17800 | 29000 |
| | **309L3** | **74.1** | 6.7 | 20100 | 15.5 | 22 | 71-80-90-100-112-132-160 | — | — | 63200 | 81500 | 19100 | 29000 |
| | **309L3** | **80.6** | 6.2 | 16700 | 11.9 | 22 | 71-80-90-100-112-132-160 | — | — | 64800 | 83500 | 19600 | 29000 |
| | **309L3** | **93** | 5.4 | 17500 | 10.8 | 22 | 71-80-90-100-112-132-160 | — | — | 67600 | 87200 | 20600 | 29000 |
| | **309L3** | **100** | 5 | 21300 | 12.2 | 22 | 71-80-90-100-112-132-160 | — | — | 69200 | 89200 | 21100 | 29000 |
| | **309L3** | **113** | 4.4 | 17100 | 8.7 | 22 | 71-80-90-100-112-132-160 | — | — | 71700 | 92500 | 21900 | 29000 |
| | **309L3** | **126** | 4 | 17500 | 8 | 22 | 71-80-90-100-112-132-160 | — | — | 74000 | 95500 | 22700 | 29000 |
| | **309L3** | **139** | 3.6 | 17500 | 7.2 | 22 | 71-80-90-100-112-132-160 | — | — | 76200 | 98300 | 23500 | 29000 |
| | **309L3** | **162** | 3.1 | 18400 | 6.5 | 22 | 71-80-90-100-112-132-160 | — | — | 79800 | 102900 | 24700 | 29000 |
| | **309L3** | **183** | 2.7 | 14300 | 4.5 | 22 | 71-80-90-100-112-132-160 | — | — | 82800 | 106800 | 25700 | 29000 |
| | **309L3** | **202** | 2.5 | 19100 | 5.4 | 22 | 71-80-90-100-112-132-160 | — | — | 85300 | 110000 | 26600 | 29000 |
| | **309L3** | **223** | 2.2 | 14700 | 3.8 | 22 | 71-80-90-100-112-132-160 | — | — | 87900 | 113300 | 27500 | 29000 |

## 309 L

Page 264

## 23240 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 500 | 309L3 | 239 | 2.1 | 14900 | 3.6 | 22 | 71-80-90-100-112-132-160 | — | — | 89800 | 115800 | 28200 | 29000 |
| | 309L3 | 284 | 1.8 | 15800 | 3.2 | 22 | 71-80-90-100-112-132-160 | — | — | 94500 | 121800 | 29800 | 29000 |
| | 309L3 | 336 | 1.5 | 15800 | 2.7 | 22 | 71-80-90-100-112-132-160 | — | — | 99400 | 128200 | 31500 | 29000 |
| | 309L4 | 349 | 1.4 | 21500 | 3.6 | 15 | 71-80-90-100-112-132-160 | — | — | 100500 | 129700 | 31900 | 29000 |
| | 309L4 | 406 | 1.2 | 21300 | 3.1 | 15 | 71-80-90-100-112-132-160 | — | — | 105200 | 135600 | 33600 | 29000 |
| | 309L4 | 465 | 1.1 | 21700 | 2.8 | 15 | 71-80-90-100-112-132-160 | — | — | 109600 | 141300 | 35100 | 29000 |
| | 309L4 | 509 | 0.98 | 14700 | 1.7 | 15 | 71-80-90-100-112-132-160 | — | — | 110000 | 145000 | 36000 | 29000 |
| | 309L4 | 579 | 0.86 | 21600 | 2.2 | 15 | 71-80-90-100-112-132-160 | — | — | 110000 | 145000 | 36000 | 29000 |
| | 309L4 | 654 | 0.77 | 18300 | 1.7 | 15 | 71-80-90-100-112-132-160 | — | — | 110000 | 145000 | 36000 | 29000 |
| | 309L4 | 722 | 0.69 | 21600 | 1.8 | 15 | 71-80-90-100-112-132-160 | — | — | 110000 | 145000 | 36000 | 29000 |
| | 309L4 | 801 | 0.62 | 18300 | 1.4 | 15 | 71-80-90-100-112-132-160 | — | — | 110000 | 145000 | 36000 | 29000 |
| | 309L4 | 906 | 0.55 | 18500 | 1.2 | 15 | 71-80-90-100-112-132-160 | — | — | 110000 | 145000 | 36000 | 29000 |
| | 309L4 | 999 | 0.5 | 18300 | 1.1 | 15 | 71-80-90-100-112-132-160 | — | — | 110000 | 145000 | 36000 | 29000 |
| | 309L4 | 1149 | 0.44 | 17000 | 0.87 | 15 | 71-80-90-100-112-132-160 | — | — | 110000 | 145000 | 36000 | 29000 |
| | 309L4 | 1286 | 0.39 | 17000 | 0.78 | 15 | 71-80-90-100-112-132-160 | — | — | 110000 | 145000 | 36000 | 29000 |
| | 309L4 | 1380 | 0.36 | 17000 | 0.73 | 15 | 71-80-90-100-112-132-160 | — | — | 110000 | 145000 | 36000 | 29000 |
| | 309L4 | 1605 | 0.31 | 17000 | 0.63 | 15 | 71-80-90-100-112-132-160 | — | — | 110000 | 145000 | 36000 | 29000 |
| | 309L4 | 1723 | 0.29 | 17000 | 0.58 | 15 | 71-80-90-100-112-132-160 | — | — | 110000 | 145000 | 36000 | 29000 |
| | 309L4 | 2003 | 0.25 | 17000 | 0.5 | 15 | 71-80-90-100-112-132-160 | — | — | 110000 | 145000 | 36000 | 29000 |
| | 309L4 | 2423 | 0.21 | 17000 | 0.42 | 15 | 71-80-90-100-112-132-160 | — | — | 110000 | 145000 | 36000 | 29000 |

## 310 L

Page 272

## 34120 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1500 | 310 L1 | 4.09 | 367 | 7330 | 175 | 35 | 200-225-250 | — | — | 22600 | 28400 | 9080 | 47600 |
| | 310 L1 | 5.25 | 286 | 7710 | 175 | 35 | 200-225-250 | — | — | 24300 | 30600 | 9870 | 47600 |
| | 310 L1 | 6.23 | 241 | 8020 | 175 | 35 | 200-225-250 | — | — | 25600 | 32200 | 10400 | 47600 |
| | 310 L2 | 14.7 | 102 | 10800 | 75 | 22 | 160-180-200-225-250 | — | — | 33100 | 41700 | 13900 | 47600 |
| | 310 L2 | 17.4 | 86 | 11300 | 75 | 22 | 160-180-200-225-250 | — | — | 34800 | 43800 | 14700 | 47600 |
| | 310 L2 | 21.8 | 69 | 12100 | 75 | 22 | 160-180-200-225-250 | — | — | 37300 | 46900 | 15900 | 47600 |
| | 310 L2 | 25.4 | 59 | 12700 | 75 | 22 | 160-180-200-225-250 | — | — | 39000 | 49100 | 16700 | 47600 |
| | 310 L2 | 28 | 54 | 12800 | 75 | 22 | 160-180-200-225-250 | — | — | 40200 | 50500 | 17200 | 47600 |
| | 310 L2 | 30.7 | 49 | 13400 | 73 | 22 | 160-180-200-225-250 | — | — | 41300 | 51900 | 17800 | 47600 |
| | 310 L2 | 32.6 | 46 | 13300 | 68 | 22 | 160-180-200-225-250 | — | — | 42000 | 52900 | 18100 | 47600 |
| | 310 L2 | 38.6 | 39 | 13600 | 59 | 22 | 160-180-200-225-250 | — | — | 44300 | 55700 | 19200 | 47600 |
| | 310 L2 | 46.7 | 32 | 14200 | 51 | 22 | 160-180-200-225-250 | — | — | 46900 | 58900 | 20500 | 47600 |

| 310 L | Page 272 | 34120 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **310L3** | **53** | 28.3 | 15800 | 40 | 18 | 132-160-180-200 | — | — | 48700 | 61200 | 21300 | 47600 |
| | **310 L3** | **62.6** | 24 | 16600 | 40 | 18 | 132-160-180-200 | — | — | 51200 | 64300 | 22500 | 47600 |
| | **310 L3** | **73.9** | 20.3 | 17500 | 40 | 18 | 132-160-180-200 | — | — | 53800 | 67600 | 23800 | 47600 |
| | **310 L3** | **80.3** | 18.7 | 17500 | 37 | 18 | 132-160-180-200 | — | — | 55100 | 69300 | 24500 | 47600 |
| | **310 L3** | **91.3** | 16.4 | 18600 | 35 | 18 | 132-160-180-200 | — | — | 57300 | 72100 | 25600 | 47600 |
| | **310 L3** | **101** | 14.9 | 18700 | 32 | 18 | 132-160-180-200 | — | — | 59000 | 74200 | 26400 | 47600 |
| | **310 L3** | **110** | 13.6 | 19700 | 31 | 18 | 132-160-180-200 | — | — | 60700 | 76300 | 27200 | 47600 |
| | **310 L3** | **119** | 12.6 | 19700 | 28 | 18 | 132-160-180-200 | — | — | 62000 | 78000 | 27900 | 47600 |
| | **310 L3** | **130** | 11.5 | 20700 | 27 | 18 | 132-160-180-200 | — | — | 63800 | 80200 | 28800 | 47600 |
| | **310 L3** | **142** | 10.6 | 20700 | 25 | 18 | 132-160-180-200 | — | — | 65400 | 82200 | 29600 | 47600 |
| | **310 L3** | **164** | 9.2 | 22200 | 23 | 18 | 132-160-180-200 | — | — | 68300 | 85800 | 31100 | 47600 |
| | **310 L3** | **177** | 8.5 | 18300 | 17.7 | 18 | 132-160-180-200 | — | — | 69900 | 87900 | 31900 | 47600 |
| | **310 L3** | **202** | 7.4 | 22000 | 18.8 | 18 | 132-160-180-200 | — | — | 72700 | 91400 | 33300 | 47600 |
| | **310 L3** | **230** | 6.5 | 21200 | 15.8 | 18 | 132-160-180-200 | — | — | 75600 | 95100 | 34800 | 47600 |
| | **310 L3** | **249** | 6 | 18400 | 12.7 | 18 | 132-160-180-200 | — | — | 77400 | 97400 | 35700 | 47600 |
| | **310 L3** | **295** | 5.1 | 23300 | 13.6 | 18 | 132-160-180-200 | — | — | 81500 | 102500 | 37800 | 47600 |
| | **310 L3** | **350** | 4.3 | 19000 | 9.3 | 18 | 132-160-180-200 | — | — | 85800 | 107900 | 40000 | 47600 |
| | **310 L4** | **392** | 3.8 | 19400 | 8.8 | 11 | 71-80-90-100-112-132-160 | — | — | 88700 | 111500 | 41500 | 47600 |
| | **310 L4** | **451** | 3.3 | 29800 | 11.7 | 11 | 71-80-90-100-112-132-160 | — | — | 92500 | 116300 | 43500 | 47600 |
| | **310 L4** | **507** | 3 | 25500 | 8.9 | 11 | 71-80-90-100-112-132-160 | — | — | 95800 | 120500 | 45300 | 47600 |
| | **310 L4** | **556** | 2.7 | 31600 | 10.1 | 11 | 71-80-90-100-112-132-160 | — | — | 98500 | 123900 | 46700 | 47600 |
| | **310 L4** | **637** | 2.4 | 26500 | 7.4 | 11 | 71-80-90-100-112-132-160 | — | — | 102600 | 129000 | 48800 | 47600 |
| | **310 L4** | **726** | 2.1 | 27100 | 6.6 | 11 | 71-80-90-100-112-132-160 | — | — | 106700 | 134200 | 51000 | 47600 |
| | **310 L4** | **818** | 1.8 | 27600 | 6 | 11 | 71-80-90-100-112-132-160 | — | — | 110600 | 139100 | 53100 | 47600 |
| | **310 L4** | **939** | 1.6 | 33200 | 6.3 | 11 | 71-80-90-100-112-132-160 | — | — | 115300 | 145000 | 55600 | 47600 |
| | **310 L4** | **1021** | 1.5 | 28700 | 5 | 11 | 71-80-90-100-112-132-160 | — | — | 118200 | 148600 | 57200 | 47600 |
| | **310 L4** | **1164** | 1.3 | 29300 | 4.5 | 11 | 71-80-90-100-112-132-160 | — | — | 123000 | 154600 | 59700 | 47600 |
| | **310 L4** | **1259** | 1.2 | 27600 | 3.9 | 11 | 71-80-90-100-112-132-160 | — | — | 125900 | 158300 | 61300 | 47600 |
| | **310 L4** | **1438** | 1 | 25800 | 3.2 | 11 | 71-80-90-100-112-132-160 | — | — | 131000 | 164700 | 64100 | 47600 |
| | **310 L4** | **1672** | 0.9 | 26000 | 2.8 | 11 | 71-80-90-100-112-132-160 | — | — | 133000 | 166000 | 65000 | 47600 |
| | **310 L4** | **1794** | 0.84 | 26000 | 2.6 | 11 | 71-80-90-100-112-132-160 | — | — | 133000 | 166000 | 65000 | 47600 |
| | **310 L4** | **2022** | 0.74 | 26000 | 2.3 | 11 | 71-80-90-100-112-132-160 | — | — | 133000 | 166000 | 65000 | 47600 |
| | **310 L4** | **2523** | 0.59 | 26000 | 1.8 | 11 | 71-80-90-100-112-132-160 | — | — | 133000 | 166000 | 65000 | 47600 |
| **1000** | **310 L1** | **4.09** | 244 | 8280 | 175 | 42 | 200-225-250 | — | — | 25500 | 32100 | 10400 | 47600 |
| | **310 L1** | **5.25** | 190 | 8710 | 175 | 42 | 200-225-250 | — | — | 27500 | 34500 | 11300 | 47600 |
| | **310 L1** | **6.23** | 160 | 9060 | 157 | 42 | 200-225-250 | — | — | 28900 | 36400 | 12000 | 47600 |
| | **310 L2** | **14.7** | 68 | 12200 | 75 | 26 | 160-180-200-225-250 | — | — | 37400 | 47100 | 15900 | 47600 |
| | **310 L2** | **17.4** | 58 | 12800 | 75 | 26 | 160-180-200-225-250 | — | — | 39300 | 49500 | 16800 | 47600 |
| | **310 L2** | **21.8** | 46 | 13700 | 70 | 26 | 160-180-200-225-250 | — | — | 42100 | 53000 | 18200 | 47600 |
| | **310 L2** | **25.4** | 39 | 14300 | 63 | 26 | 160-180-200-225-250 | — | — | 44100 | 55400 | 19100 | 47600 |

| 310 L | Page 272 | 34120 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1000** | **310 L2** | **28** | 36 | 14400 | 57 | 26 | 160-180-200-225-250 | — | — | 45400 | 57100 | 19700 | 47600 |
| | **310 L2** | **30.7** | 33 | 14900 | 54 | 26 | 160-180-200-225-250 | — | — | 46700 | 58700 | 20300 | 47600 |
| | **310 L2** | **32.6** | 31 | 15100 | 52 | 26 | 160-180-200-225-250 | — | — | 47500 | 59700 | 20800 | 47600 |
| | **310 L2** | **38.6** | 25.9 | 14800 | 43 | 26 | 160-180-200-225-250 | — | — | 50000 | 62900 | 22000 | 47600 |
| | **310 L2** | **46.7** | 21.4 | 15500 | 37 | 26 | 160-180-200-225-250 | — | — | 52900 | 66600 | 23400 | 47600 |
| | **310 L3** | **53** | 18.9 | 17800 | 39 | 22 | 132-160-180-200 | — | — | 55000 | 69100 | 24400 | 47600 |
| | **310 L3** | **62.6** | 16 | 18800 | 34 | 22 | 132-160-180-200 | — | — | 57800 | 72700 | 25800 | 47600 |
| | **310 L3** | **73.9** | 13.5 | 19700 | 31 | 22 | 132-160-180-200 | — | — | 60700 | 76400 | 27300 | 47600 |
| | **310 L3** | **80.3** | 12.4 | 19800 | 28 | 22 | 132-160-180-200 | — | — | 62300 | 78300 | 28000 | 47600 |
| | **310 L3** | **91.3** | 11 | 21000 | 26 | 22 | 132-160-180-200 | — | — | 64700 | 81400 | 29300 | 47600 |
| | **310 L3** | **101** | 9.9 | 21100 | 24 | 22 | 132-160-180-200 | — | — | 66700 | 83800 | 30300 | 47600 |
| | **310 L3** | **110** | 9.1 | 22200 | 23 | 22 | 132-160-180-200 | — | — | 68500 | 86200 | 31200 | 47600 |
| | **310 L3** | **119** | 8.4 | 21600 | 21 | 22 | 132-160-180-200 | — | — | 70100 | 88100 | 32000 | 47600 |
| | **310 L3** | **130** | 7.7 | 23400 | 21 | 22 | 132-160-180-200 | — | — | 72000 | 90600 | 33000 | 47600 |
| | **310 L3** | **142** | 7.1 | 22200 | 18 | 22 | 132-160-180-200 | — | — | 73800 | 92800 | 33900 | 47600 |
| | **310 L3** | **164** | 6.1 | 25000 | 17.5 | 22 | 132-160-180-200 | — | — | 77100 | 96900 | 35600 | 47600 |
| | **310 L3** | **177** | 5.6 | 18400 | 11.9 | 22 | 132-160-180-200 | — | — | 79000 | 99300 | 36500 | 47600 |
| | **310 L3** | **202** | 5 | 23400 | 13.3 | 22 | 132-160-180-200 | — | — | 82100 | 103200 | 38100 | 47600 |
| | **310 L3** | **230** | 4.3 | 21800 | 10.9 | 22 | 132-160-180-200 | — | — | 85400 | 107400 | 39800 | 47600 |
| | **310 L3** | **249** | 4 | 19300 | 8.9 | 22 | 132-160-180-200 | — | — | 87500 | 110000 | 40900 | 47600 |
| | **310 L3** | **295** | 3.4 | 24700 | 9.6 | 22 | 132-160-180-200 | — | — | 92000 | 115700 | 43300 | 47600 |
| | **310 L3** | **350** | 2.9 | 20600 | 6.8 | 22 | 132-160-180-200 | — | — | 96900 | 121800 | 45800 | 47600 |
| | **310 L4** | **392** | 2.6 | 21100 | 6.4 | 13.2 | 71-80-90-100-112-132-160 | — | — | 100200 | 125900 | 47600 | 47600 |
| | **310 L4** | **451** | 2.2 | 32600 | 8.5 | 13.2 | 71-80-90-100-112-132-160 | — | — | 104500 | 131400 | 49800 | 47600 |
| | **310 L4** | **507** | 2 | 27300 | 6.4 | 13.2 | 71-80-90-100-112-132-160 | — | — | 108200 | 136100 | 51800 | 47600 |
| | **310 L4** | **556** | 1.8 | 33000 | 7 | 13.2 | 71-80-90-100-112-132-160 | — | — | 111300 | 139900 | 53400 | 47600 |
| | **310 L4** | **637** | 1.6 | 28400 | 5.3 | 13.2 | 71-80-90-100-112-132-160 | — | — | 115900 | 145700 | 55900 | 47600 |
| | **310 L4** | **726** | 1.4 | 29000 | 4.7 | 13.2 | 71-80-90-100-112-132-160 | — | — | 120500 | 151500 | 58400 | 47600 |
| | **310 L4** | **818** | 1.2 | 29600 | 4.3 | 13.2 | 71-80-90-100-112-132-160 | — | — | 124900 | 157100 | 60800 | 47600 |
| | **310 L4** | **939** | 1.1 | 34000 | 4.3 | 13.2 | 71-80-90-100-112-132-160 | — | — | 130200 | 163700 | 63600 | 47600 |
| | **310 L4** | **1021** | 0.98 | 30600 | 3.5 | 13.2 | 71-80-90-100-112-132-160 | — | — | 133000 | 166000 | 65000 | 47600 |
| | **310 L4** | **1164** | 0.86 | 30600 | 3.1 | 13.2 | 71-80-90-100-112-132-160 | — | — | 133000 | 166000 | 65000 | 47600 |
| | **310 L4** | **1259** | 0.79 | 28000 | 2.6 | 13.2 | 71-80-90-100-112-132-160 | — | — | 133000 | 166000 | 65000 | 47600 |
| | **310 L4** | **1438** | 0.7 | 26000 | 2.1 | 13.2 | 71-80-90-100-112-132-160 | — | — | 133000 | 166000 | 65000 | 47600 |
| | **310 L4** | **1672** | 0.6 | 26000 | 1.8 | 13.2 | 71-80-90-100-112-132-160 | — | — | 133000 | 166000 | 65000 | 47600 |
| | **310 L4** | **1794** | 0.56 | 26000 | 1.7 | 13.2 | 71-80-90-100-112-132-160 | — | — | 133000 | 166000 | 65000 | 47600 |
| | **310 L4** | **2022** | 0.49 | 26000 | 1.5 | 13.2 | 71-80-90-100-112-132-160 | — | — | 133000 | 166000 | 65000 | 47600 |
| | **310 L4** | **2523** | 0.4 | 26000 | 1.2 | 13.2 | 71-80-90-100-112-132-160 | — | — | 133000 | 166000 | 65000 | 47600 |

| 310 L | Page 272 | 34120 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **500** | **310L1** | **4.09** | 122 | 10200 | 134 | 70 | 200-225-250 | — | — | 31400 | 39500 | 13100 | 47600 |
| | **310L1** | **5.25** | 95 | 10700 | 110 | 70 | 200-225-250 | — | — | 33800 | 42500 | 14200 | 47600 |
| | **310L1** | **6.23** | 80 | 11200 | 97 | 70 | 200-225-250 | — | — | 35600 | 44800 | 15100 | 47600 |
| | **310L2** | **14.7** | 34 | 15000 | 57 | 44 | 160-180-200-225-250 | — | — | 46100 | 58000 | 20100 | 47600 |
| | **310L2** | **17.4** | 28.8 | 15700 | 50 | 44 | 160-180-200-225-250 | — | — | 48400 | 60900 | 21200 | 47600 |
| | **310L2** | **21.8** | 22.9 | 16800 | 43 | 44 | 160-180-200-225-250 | — | — | 51900 | 65200 | 22900 | 47600 |
| | **310L2** | **25.4** | 19.7 | 17600 | 39 | 44 | 160-180-200-225-250 | — | — | 54200 | 68200 | 24100 | 47600 |
| | **310L2** | **28** | 17.9 | 17700 | 35 | 44 | 160-180-200-225-250 | — | — | 55900 | 70300 | 24900 | 47600 |
| | **310L2** | **30.7** | 16.3 | 17800 | 32 | 44 | 160-180-200-225-250 | — | — | 57400 | 72200 | 25600 | 47600 |
| | **310L2** | **32.6** | 15.4 | 18600 | 32 | 44 | 160-180-200-225-250 | — | — | 58500 | 73500 | 26100 | 47600 |
| | **310L2** | **38.6** | 12.9 | 17200 | 25 | 44 | 160-180-200-225-250 | — | — | 61500 | 77400 | 27700 | 47600 |
| | **310L2** | **46.7** | 10.7 | 18000 | 21 | 44 | 160-180-200-225-250 | — | — | 65200 | 81900 | 29500 | 47600 |
| | **310L3** | **53** | 9.4 | 22000 | 24 | 36 | 132-160-180-200 | — | — | 67700 | 85100 | 30800 | 47600 |
| | **310L3** | **62.6** | 8 | 23100 | 21 | 36 | 132-160-180-200 | — | — | 71100 | 89400 | 32500 | 47600 |
| | **310L3** | **73.9** | 6.8 | 24300 | 18.8 | 36 | 132-160-180-200 | — | — | 74800 | 94000 | 34400 | 47600 |
| | **310L3** | **80.3** | 6.2 | 22600 | 16.2 | 36 | 132-160-180-200 | — | — | 76700 | 96400 | 35300 | 47600 |
| | **310L3** | **91.3** | 5.5 | 25900 | 16.2 | 36 | 132-160-180-200 | — | — | 79700 | 100200 | 36900 | 47600 |
| | **310L3** | **101** | 5 | 23400 | 13.3 | 36 | 132-160-180-200 | — | — | 82100 | 103200 | 38100 | 47600 |
| | **310L3** | **110** | 4.5 | 27300 | 14.2 | 36 | 132-160-180-200 | — | — | 84400 | 106100 | 39300 | 47600 |
| | **310L3** | **119** | 4.2 | 24000 | 11.6 | 36 | 132-160-180-200 | — | — | 86300 | 108500 | 40300 | 47600 |
| | **310L3** | **130** | 3.8 | 28700 | 12.6 | 36 | 132-160-180-200 | — | — | 88700 | 111500 | 41500 | 47600 |
| | **310L3** | **142** | 3.5 | 24800 | 10 | 36 | 132-160-180-200 | — | — | 90900 | 114300 | 42700 | 47600 |
| | **310L3** | **164** | 3.1 | 30300 | 10.6 | 36 | 132-160-180-200 | — | — | 94900 | 119300 | 44800 | 47600 |
| | **310L3** | **177** | 2.8 | 20700 | 6.7 | 36 | 132-160-180-200 | — | — | 97200 | 122200 | 46000 | 47600 |
| | **310L3** | **202** | 2.5 | 26300 | 7.5 | 36 | 132-160-180-200 | — | — | 101100 | 127100 | 48000 | 47600 |
| | **310L3** | **230** | 2.2 | 21800 | 5.4 | 36 | 132-160-180-200 | — | — | 105100 | 132200 | 50200 | 47600 |
| | **310L3** | **249** | 2 | 22300 | 5.1 | 36 | 132-160-180-200 | — | — | 107700 | 135400 | 51500 | 47600 |
| | **310L3** | **295** | 1.7 | 26800 | 5.2 | 36 | 132-160-180-200 | — | — | 113300 | 142500 | 54500 | 47600 |
| | **310L3** | **350** | 1.4 | 24000 | 3.9 | 36 | 132-160-180-200 | — | — | 119300 | 150000 | 57700 | 47600 |
| | **310L4** | **392** | 1.3 | 24600 | 3.7 | 22 | 71-80-90-100-112-132-160 | — | — | 123300 | 155100 | 59900 | 47600 |
| | **310L4** | **451** | 1.1 | 33900 | 4.5 | 22 | 71-80-90-100-112-132-160 | — | — | 128600 | 161700 | 62800 | 47600 |
| | **310L4** | **507** | 0.99 | 30600 | 3.6 | 22 | 71-80-90-100-112-132-160 | — | — | 133000 | 166000 | 65000 | 47600 |
| | **310L4** | **556** | 0.9 | 34100 | 3.6 | 22 | 71-80-90-100-112-132-160 | — | — | 133000 | 166000 | 65000 | 47600 |
| | **310L4** | **637** | 0.79 | 30600 | 2.8 | 22 | 71-80-90-100-112-132-160 | — | — | 133000 | 166000 | 65000 | 47600 |
| | **310L4** | **726** | 0.69 | 30600 | 2.5 | 22 | 71-80-90-100-112-132-160 | — | — | 133000 | 166000 | 65000 | 47600 |
| | **310L4** | **818** | 0.61 | 30600 | 2.2 | 22 | 71-80-90-100-112-132-160 | — | — | 133000 | 166000 | 65000 | 47600 |
| | **310L4** | **939** | 0.53 | 34100 | 2.1 | 22 | 71-80-90-100-112-132-160 | — | — | 133000 | 166000 | 65000 | 47600 |
| | **310L4** | **1021** | 0.49 | 30600 | 1.8 | 22 | 71-80-90-100-112-132-160 | — | — | 133000 | 166000 | 65000 | 47600 |
| | **310L4** | **1164** | 0.43 | 30600 | 1.6 | 22 | 71-80-90-100-112-132-160 | — | — | 133000 | 166000 | 65000 | 47600 |

## 310 L — Page 272 — 34120 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **500** | **310L4** | **1259** | 0.4 | 28000 | 1.3 | 22 | 71-80-90-100-112-132-160 | — | — | 133000 | 166000 | 65000 | 47600 |
| | **310L4** | **1438** | 0.35 | 26000 | 1.1 | 22 | 71-80-90-100-112-132-160 | — | — | 133000 | 166000 | 65000 | 47600 |
| | **310L4** | **1672** | 0.3 | 26000 | 0.92 | 22 | 71-80-90-100-112-132-160 | — | — | 133000 | 166000 | 65000 | 47600 |
| | **310L4** | **1794** | 0.28 | 26000 | 0.86 | 22 | 71-80-90-100-112-132-160 | — | — | 133000 | 166000 | 65000 | 47600 |
| | **310L4** | **2022** | 0.25 | 26000 | 0.76 | 22 | 71-80-90-100-112-132-160 | — | — | 133000 | 166000 | 65000 | 47600 |
| | **310L4** | **2523** | 0.2 | 26000 | 0.61 | 22 | 71-80-90-100-112-132-160 | — | — | 133000 | 166000 | 65000 | 47600 |

## 311 L — Page 280 — 48330 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **311 L1** | **4.09** | 367 | 10600 | 200 | 35 | — | — | — | 26700 | 33200 | 9080 | 58300 |
| | **311 L1** | **5.25** | 286 | 11700 | 200 | 35 | — | — | — | 28700 | 35800 | 9870 | 58300 |
| | **311 L1** | **6.23** | 241 | 11600 | 200 | 35 | — | — | — | 30300 | 37700 | 10400 | 58300 |
| | **311 L2** | **14** | 107 | 15300 | 115 | 26 | 180-200-225-250 | — | — | 38600 | 48100 | 13700 | 58300 |
| | **311 L2** | **16.7** | 90 | 16100 | 115 | 26 | 180-200-225-250 | — | — | 40700 | 50700 | 14500 | 58300 |
| | **311 L2** | **21.5** | 70 | 17400 | 115 | 26 | 180-200-225-250 | — | — | 43900 | 54600 | 15800 | 58300 |
| | **311 L2** | **25.5** | 59 | 18300 | 115 | 26 | 180-200-225-250 | — | — | 46200 | 57500 | 16700 | 58300 |
| | **311 L2** | **27.6** | 54 | 19200 | 115 | 26 | 180-200-225-250 | — | — | 47300 | 58900 | 17200 | 58300 |
| | **311 L2** | **32.7** | 46 | 20200 | 103 | 26 | 180-200-225-250 | — | — | 49800 | 62000 | 18200 | 58300 |
| | **311 L2** | **38.8** | 39 | 19700 | 85 | 26 | 180-200-225-250 | — | — | 52400 | 65300 | 19200 | 58300 |
| | **311 L3** | **50.5** | 29.7 | 22400 | 60 | 18 | 132-160-180-200 | — | — | 56700 | 70600 | 21000 | 58300 |
| | **311 L3** | **60.2** | 24.9 | 23700 | 60 | 18 | 132-160-180-200 | — | — | 59800 | 74500 | 22300 | 58300 |
| | **311 L3** | **71.1** | 21.1 | 24900 | 60 | 18 | 132-160-180-200 | — | — | 62800 | 78300 | 23500 | 58300 |
| | **311 L3** | **77.3** | 19.4 | 25500 | 57 | 18 | 132-160-180-200 | — | — | 64400 | 80200 | 24200 | 58300 |
| | **311 L3** | **89.3** | 16.8 | 26600 | 51 | 18 | 132-160-180-200 | — | — | 67300 | 83800 | 25400 | 58300 |
| | **311 L3** | **104** | 14.5 | 27800 | 46 | 18 | 132-160-180-200 | — | — | 70400 | 87600 | 26700 | 58300 |
| | **311 L3** | **115** | 13.1 | 28700 | 43 | 18 | 132-160-180-200 | — | — | 72500 | 90300 | 27600 | 58300 |
| | **311 L3** | **126** | 12 | 29500 | 40 | 18 | 132-160-180-200 | — | — | 74500 | 92800 | 28400 | 58300 |
| | **311 L3** | **133** | 11.3 | 30000 | 39 | 18 | 132-160-180-200 | — | — | 75800 | 94500 | 29000 | 58300 |
| | **311 L3** | **147** | 10.2 | 31800 | 37 | 18 | 132-160-180-200 | — | — | 78100 | 97300 | 30000 | 58300 |
| | **311 L3** | **161** | 9.3 | 31800 | 34 | 18 | 132-160-180-200 | — | — | 80300 | 100000 | 30900 | 58300 |
| | **311 L3** | **171** | 8.8 | 32600 | 33 | 18 | 132-160-180-200 | — | — | 81700 | 101800 | 31500 | 58300 |
| | **311 L3** | **191** | 7.8 | 32200 | 29 | 18 | 132-160-180-200 | — | — | 84500 | 105300 | 32700 | 58300 |
| | **311 L3** | **203** | 7.4 | 33400 | 28 | 18 | 132-160-180-200 | — | — | 86000 | 107200 | 33400 | 58300 |
| | **311 L3** | **245** | 6.1 | 34300 | 24 | 18 | 132-160-180-200 | — | — | 91100 | 113500 | 35500 | 58300 |
| | **311 L3** | **291** | 5.2 | 27000 | 16 | 18 | 132-160-180-200 | — | — | 95900 | 119400 | 37600 | 58300 |
| | **311 L4** | **348** | 4.3 | 39800 | 20 | 11 | 71-80-90-100-112-132-160 | — | — | 101100 | 126000 | 39900 | 58300 |

| 311 L | Page 280 | 48330 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **311 L4** | **410** | 3.7 | 41500 | 18 | 11 | 71-80-90-100-112-132-160 | — | — | 106300 | 132400 | 42200 | 58300 |
| | **311 L4** | **512** | 2.9 | 44000 | 15.2 | 11 | 71-80-90-100-112-132-160 | — | — | 113600 | 141500 | 45400 | 58300 |
| | **311 L4** | **568** | 2.6 | 43000 | 13.4 | 11 | 71-80-90-100-112-132-160 | — | — | 117200 | 145900 | 47000 | 58300 |
| | **311 L4** | **627** | 2.4 | 39800 | 11.3 | 11 | 71-80-90-100-112-132-160 | — | — | 120700 | 150300 | 48600 | 58300 |
| | **311 L4** | **724** | 2.1 | 46300 | 11.4 | 11 | 71-80-90-100-112-132-160 | — | — | 126000 | 157000 | 51000 | 58300 |
| | **311 L4** | **825** | 1.8 | 44600 | 9.6 | 11 | 71-80-90-100-112-132-160 | — | — | 131000 | 163200 | 53300 | 58300 |
| | **311 L4** | **904** | 1.7 | 46900 | 9.2 | 11 | 71-80-90-100-112-132-160 | — | — | 134700 | 167800 | 54900 | 58300 |
| | **311 L4** | **986** | 1.5 | 42500 | 7.7 | 11 | 71-80-90-100-112-132-160 | — | — | 138300 | 172200 | 56500 | 58300 |
| | **311 L4** | **1058** | 1.4 | 43000 | 7.2 | 11 | 71-80-90-100-112-132-160 | — | — | 141200 | 175900 | 57900 | 58300 |
| | **311 L4** | **1230** | 1.2 | 43900 | 6.3 | 11 | 71-80-90-100-112-132-160 | — | — | 147800 | 184000 | 60800 | 58300 |
| | **311 L4** | **1415** | 1.1 | 42800 | 5.4 | 11 | 71-80-90-100-112-132-160 | — | — | 154100 | 191900 | 63800 | 58300 |
| | **311 L4** | **1680** | 0.89 | 34000 | 3.6 | 11 | 71-80-90-100-112-132-160 | — | — | 157000 | 195000 | 65000 | 58300 |
| | **311 L4** | **1766** | 0.85 | 43000 | 4.3 | 11 | 71-80-90-100-112-132-160 | — | — | 157000 | 195000 | 65000 | 58300 |
| | **311 L4** | **2096** | 0.72 | 34000 | 2.9 | 11 | 71-80-90-100-112-132-160 | — | — | 157000 | 195000 | 65000 | 58300 |
| **1000** | **311 L1** | **4.09** | 244 | 11900 | 200 | 42 | — | — | — | 30100 | 37500 | 10400 | 58300 |
| | **311 L1** | **5.25** | 190 | 13200 | 200 | 42 | — | — | — | 32500 | 40400 | 11300 | 58300 |
| | **311 L1** | **6.23** | 160 | 13100 | 200 | 42 | — | — | — | 34200 | 42600 | 12000 | 58300 |
| | **311L2** | **14** | 71 | 17300 | 115 | 31 | 180-200-225-250 | — | — | 43600 | 54300 | 15700 | 58300 |
| | **311L2** | **16.7** | 60 | 18200 | 115 | 31 | 180-200-225-250 | — | — | 46000 | 57300 | 16600 | 58300 |
| | **311L2** | **18** | 56 | 19100 | 115 | 31 | 180-200-225-250 | — | — | 47000 | 58500 | 17000 | 58300 |
| | **311L2** | **21.5** | 47 | 19600 | 102 | 31 | 180-200-225-250 | — | — | 49500 | 61700 | 18100 | 58300 |
| | **311L2** | **25.5** | 39 | 20600 | 90 | 31 | 180-200-225-250 | — | — | 52200 | 65000 | 19100 | 58300 |
| | **311L2** | **27.6** | 36 | 21700 | 88 | 31 | 180-200-225-250 | — | — | 53400 | 66500 | 19600 | 58300 |
| | **311L2** | **32.7** | 31 | 22800 | 78 | 31 | 180-200-225-250 | — | — | 56200 | 70000 | 20800 | 58300 |
| | **311L2** | **38.8** | 25.8 | 21700 | 62 | 31 | 180-200-225-250 | — | — | 59200 | 73700 | 22000 | 58300 |
| | **311 L3** | **60.2** | 16.6 | 26700 | 51 | 22 | 132-160-180-200 | — | — | 67500 | 84100 | 25500 | 58300 |
| | **311 L3** | **71.1** | 14.1 | 28100 | 45 | 22 | 132-160-180-200 | — | — | 71000 | 88400 | 26900 | 58300 |
| | **311 L3** | **77.3** | 12.9 | 28800 | 43 | 22 | 132-160-180-200 | — | — | 72800 | 90600 | 27700 | 58300 |
| | **311 L3** | **89.3** | 11.2 | 30100 | 39 | 22 | 132-160-180-200 | — | — | 76000 | 94600 | 29000 | 58300 |
| | **311 L3** | **104** | 9.6 | 31400 | 35 | 22 | 132-160-180-200 | — | — | 79500 | 99000 | 30500 | 58300 |
| | **311 L3** | **115** | 8.7 | 32400 | 32 | 22 | 132-160-180-200 | — | — | 81900 | 102000 | 31600 | 58300 |
| | **311 L3** | **126** | 8 | 33300 | 30 | 22 | 132-160-180-200 | — | — | 84100 | 104800 | 32500 | 58300 |
| | **311 L3** | **133** | 7.5 | 33900 | 29 | 22 | 132-160-180-200 | — | — | 85600 | 106700 | 33200 | 58300 |
| | **311 L3** | **147** | 6.8 | 33800 | 26 | 22 | 132-160-180-200 | — | — | 88200 | 109900 | 34300 | 58300 |
| | **311 L3** | **161** | 6.2 | 35900 | 26 | 22 | 132-160-180-200 | — | — | 90700 | 112900 | 35400 | 58300 |
| | **311 L3** | **171** | 5.9 | 34500 | 23 | 22 | 132-160-180-200 | — | — | 92300 | 115000 | 36100 | 58300 |
| | **311 L3** | **191** | 5.2 | 34300 | 21 | 22 | 132-160-180-200 | — | — | 95500 | 118900 | 37400 | 58300 |
| | **311 L3** | **203** | 4.9 | 35300 | 20 | 22 | 132-160-180-200 | — | — | 97200 | 121000 | 38200 | 58300 |
| | **311 L3** | **245** | 4.1 | 36400 | 17 | 22 | 132-160-180-200 | — | — | 102900 | 128100 | 40700 | 58300 |
| | **311 L3** | **291** | 3.4 | 28300 | 11.2 | 22 | 132-160-180-200 | — | — | 108300 | 134900 | 43100 | 58300 |

| 311 L | Page 280 | 48330 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1000** | **311 L4** | **348** | 2.9 | 44200 | 15 | 13.2 | 71-80-90-100-112-132-160 | — | — | 114200 | 142300 | 45700 | 58300 |
| | **311 L4** | **410** | 2.4 | 45900 | 13.2 | 13.2 | 71-80-90-100-112-132-160 | — | — | 120000 | 149500 | 48300 | 58300 |
| | **311 L4** | **512** | 2 | 46500 | 10.7 | 13.2 | 71-80-90-100-112-132-160 | — | — | 128300 | 159800 | 52000 | 58300 |
| | **311 L4** | **568** | 1.8 | 44700 | 9.3 | 13.2 | 71-80-90-100-112-132-160 | — | — | 132300 | 164800 | 53800 | 58300 |
| | **311 L4** | **627** | 1.6 | 42200 | 8 | 13.2 | 71-80-90-100-112-132-160 | — | — | 136300 | 169800 | 55600 | 58300 |
| | **311 L4** | **724** | 1.4 | 47400 | 7.7 | 13.2 | 71-80-90-100-112-132-160 | — | — | 142300 | 177300 | 58400 | 58300 |
| | **311 L4** | **825** | 1.2 | 46200 | 6.6 | 13.2 | 71-80-90-100-112-132-160 | — | — | 148000 | 184300 | 61000 | 58300 |
| | **311 L4** | **904** | 1.1 | 48000 | 6.3 | 13.2 | 71-80-90-100-112-132-160 | — | — | 152100 | 189500 | 62800 | 58300 |
| | **311 L4** | **986** | 1 | 45100 | 5.4 | 13.2 | 71-80-90-100-112-132-160 | — | — | 156100 | 194500 | 64700 | 58300 |
| | **311 L4** | **1058** | 0.94 | 45200 | 5.1 | 13.2 | 71-80-90-100-112-132-160 | — | — | 157000 | 195000 | 65000 | 58300 |
| | **311 L4** | **1230** | 0.81 | 45200 | 4.3 | 13.2 | 71-80-90-100-112-132-160 | — | — | 157000 | 195000 | 65000 | 58300 |
| | **311 L4** | **1415** | 0.71 | 43000 | 3.6 | 13.2 | 71-80-90-100-112-132-160 | — | — | 157000 | 195000 | 65000 | 58300 |
| | **311 L4** | **1680** | 0.6 | 34000 | 2.4 | 13.2 | 71-80-90-100-112-132-160 | — | — | 157000 | 195000 | 65000 | 58300 |
| | **311 L4** | **1766** | 0.57 | 43000 | 2.9 | 13.2 | 71-80-90-100-112-132-160 | — | — | 157000 | 195000 | 65000 | 58300 |
| | **311 L4** | **2096** | 0.48 | 34000 | 1.9 | 13.2 | 71-80-90-100-112-132-160 | — | — | 157000 | 195000 | 65000 | 58300 |
| **500** | **311L1** | **4.09** | 122 | 14700 | 194 | 70 | — | — | — | 37100 | 46200 | 13100 | 58300 |
| | **311L1** | **5.25** | 95 | 16200 | 167 | 70 | — | — | — | 40000 | 49800 | 14200 | 58300 |
| | **311L1** | **6.23** | 80 | 16100 | 140 | 70 | — | — | — | 42100 | 52400 | 15100 | 58300 |
| | **311L2** | **14** | 36 | 21200 | 84 | 52 | 180-200-225-250 | — | — | 53700 | 66900 | 19800 | 58300 |
| | **311L2** | **16.7** | 29.9 | 22400 | 74 | 52 | 180-200-225-250 | — | — | 56600 | 70500 | 20900 | 58300 |
| | **311L2** | **18** | 27.8 | 23500 | 73 | 52 | 180-200-225-250 | — | — | 57800 | 72100 | 21500 | 58300 |
| | **311L2** | **21.5** | 23.3 | 24100 | 63 | 52 | 180-200-225-250 | — | — | 61000 | 76000 | 22800 | 58300 |
| | **311L2** | **25.5** | 19.6 | 25400 | 55 | 52 | 180-200-225-250 | — | — | 64200 | 80000 | 24100 | 58300 |
| | **311L2** | **27.6** | 18.1 | 26700 | 54 | 52 | 180-200-225-250 | — | — | 65700 | 81900 | 24700 | 58300 |
| | **311L2** | **32.7** | 15.3 | 28200 | 48 | 52 | 180-200-225-250 | — | — | 69200 | 86200 | 26200 | 58300 |
| | **311L2** | **38.8** | 12.9 | 25500 | 36 | 52 | 180-200-225-250 | — | — | 72800 | 90700 | 27700 | 58300 |
| | **311L3** | **50.5** | 9.9 | 31200 | 35 | 36 | 132-160-180-200 | — | — | 78800 | 98200 | 30300 | 58300 |
| | **311L3** | **60.2** | 8.3 | 32900 | 31 | 36 | 132-160-180-200 | — | — | 83100 | 103500 | 32100 | 58300 |
| | **311L3** | **71.1** | 7 | 34600 | 28 | 36 | 132-160-180-200 | — | — | 87400 | 108800 | 33900 | 58300 |
| | **311L3** | **77.3** | 6.5 | 35400 | 26 | 36 | 132-160-180-200 | — | — | 89600 | 111600 | 34900 | 58300 |
| | **311L3** | **89.3** | 5.6 | 37000 | 24 | 36 | 132-160-180-200 | — | — | 93500 | 116500 | 36600 | 58300 |
| | **311L3** | **104** | 4.8 | 38700 | 21 | 36 | 132-160-180-200 | — | — | 97800 | 121900 | 38500 | 58300 |
| | **311L3** | **115** | 4.4 | 39200 | 19.7 | 36 | 132-160-180-200 | — | — | 100800 | 125500 | 39800 | 58300 |
| | **311L3** | **126** | 4 | 40600 | 18.6 | 36 | 132-160-180-200 | — | — | 103600 | 129000 | 41000 | 58300 |
| | **311L3** | **133** | 3.8 | 40300 | 17.4 | 36 | 132-160-180-200 | — | — | 105400 | 131300 | 41800 | 58300 |
| | **311L3** | **147** | 3.4 | 37600 | 14.7 | 36 | 132-160-180-200 | — | — | 108600 | 135300 | 43200 | 58300 |
| | **311L3** | **161** | 3.1 | 41700 | 14.9 | 36 | 132-160-180-200 | — | — | 111600 | 139000 | 44600 | 58300 |
| | **311L3** | **171** | 2.9 | 38500 | 12.9 | 36 | 132-160-180-200 | — | — | 113600 | 141500 | 45400 | 58300 |
| | **311L3** | **191** | 2.6 | 34500 | 10.4 | 36 | 132-160-180-200 | — | — | 117500 | 146400 | 47200 | 58300 |
| | **311L3** | **203** | 2.5 | 39600 | 11.2 | 36 | 132-160-180-200 | — | — | 119600 | 149000 | 48100 | 58300 |

## 311 L

Page 280

## 48330 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **500** | **311L3** | **245** | 2 | 40300 | 9.4 | 36 | 132-160-180-200 | — | — | 126600 | 157800 | 51300 | 58300 |
| | **311L3** | **291** | 1.7 | 31300 | 6.2 | 36 | 132-160-180-200 | — | — | 133300 | 166100 | 54300 | 58300 |
| | **311L4** | **348** | 1.4 | 47300 | 8.1 | 22 | 71-80-90-100-112-132-160 | — | — | 140600 | 175100 | 57600 | 58300 |
| | **311L4** | **410** | 1.2 | 47800 | 6.9 | 22 | 71-80-90-100-112-132-160 | — | — | 147800 | 184100 | 60900 | 58300 |
| | **311L4** | **512** | 0.98 | 48300 | 5.6 | 22 | 71-80-90-100-112-132-160 | — | — | 157000 | 195000 | 65000 | 58300 |
| | **311L4** | **568** | 0.88 | 46900 | 4.9 | 22 | 71-80-90-100-112-132-160 | — | — | 157000 | 195000 | 65000 | 58300 |
| | **311L4** | **627** | 0.8 | 45200 | 4.3 | 22 | 71-80-90-100-112-132-160 | — | — | 157000 | 195000 | 65000 | 58300 |
| | **311L4** | **724** | 0.69 | 48300 | 3.9 | 22 | 71-80-90-100-112-132-160 | — | — | 157000 | 195000 | 65000 | 58300 |
| | **311L4** | **825** | 0.61 | 46900 | 3.4 | 22 | 71-80-90-100-112-132-160 | — | — | 157000 | 195000 | 65000 | 58300 |
| | **311L4** | **904** | 0.55 | 48300 | 3.2 | 22 | 71-80-90-100-112-132-160 | — | — | 157000 | 195000 | 65000 | 58300 |
| | **311L4** | **986** | 0.51 | 45200 | 2.7 | 22 | 71-80-90-100-112-132-160 | — | — | 157000 | 195000 | 65000 | 58300 |
| | **311L4** | **1058** | 0.47 | 45200 | 2.5 | 22 | 71-80-90-100-112-132-160 | — | — | 157000 | 195000 | 65000 | 58300 |
| | **311L4** | **1230** | 0.41 | 45200 | 2.2 | 22 | 71-80-90-100-112-132-160 | — | — | 157000 | 195000 | 65000 | 58300 |
| | **311L4** | **1415** | 0.35 | 43000 | 1.8 | 22 | 71-80-90-100-112-132-160 | — | — | 157000 | 195000 | 65000 | 58300 |
| | **311L4** | **1680** | 0.3 | 34000 | 1.2 | 22 | 71-80-90-100-112-132-160 | — | — | 157000 | 195000 | 65000 | 58300 |
| | **311L4** | **1766** | 0.28 | 43000 | 1.4 | 22 | 71-80-90-100-112-132-160 | — | — | 157000 | 195000 | 65000 | 58300 |
| | **311L4** | **2096** | 0.24 | 34000 | 0.96 | 22 | 71-80-90-100-112-132-160 | — | — | 157000 | 195000 | 65000 | 58300 |

## 313 L

Page 288

## 57970 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **313 L2** | **14.2** | 106 | 22600 | 150 | 30 | 180-200-225-250 | — | — | 47900 | 56700 | 16900 | 105000 |
| | **313 L2** | **16.9** | 89 | 23500 | 150 | 30 | 180-200-225-250 | — | — | 50500 | 59700 | 18000 | 105000 |
| | **313 L2** | **18.5** | 81 | 24100 | 150 | 30 | 180-200-225-250 | — | — | 51800 | 61400 | 18500 | 105000 |
| | **313 L2** | **21.8** | 69 | 25500 | 150 | 30 | 180-200-225-250 | — | — | 54400 | 64400 | 19500 | 105000 |
| | **313 L2** | **25.8** | 58 | 26700 | 150 | 30 | 180-200-225-250 | — | — | 57300 | 67800 | 20700 | 105000 |
| | **313 L2** | **28.4** | 53 | 27300 | 150 | 30 | 180-200-225-250 | — | — | 58900 | 69700 | 21300 | 105000 |
| | **313 L2** | **33.6** | 45 | 28800 | 143 | 30 | 180-200-225-250 | — | — | 62000 | 73400 | 22600 | 105000 |
| | **313 L2** | **40.5** | 37 | 29500 | 122 | 30 | 180-200-225-250 | — | — | 65600 | 77600 | 24000 | 105000 |
| | **313 L3** | **51.1** | 29.3 | 32700 | 60 | 18 | 132-160-180-200 | — | — | 70300 | 83200 | 25900 | 105000 |
| | **313 L3** | **61** | 24.6 | 34500 | 60 | 18 | 132-160-180-200 | — | — | 74100 | 87700 | 27500 | 105000 |
| | **313 L3** | **72** | 20.8 | 36300 | 60 | 18 | 132-160-180-200 | — | — | 77900 | 92200 | 29100 | 105000 |
| | **313 L3** | **78.3** | 19.2 | 37300 | 60 | 18 | 132-160-180-200 | — | — | 79900 | 94600 | 29900 | 105000 |
| | **313 L3** | **92.4** | 16.2 | 39300 | 60 | 18 | 132-160-180-200 | — | — | 84000 | 99400 | 31600 | 105000 |
| | **313 L3** | **110** | 13.7 | 41200 | 60 | 18 | 132-160-180-200 | — | — | 88400 | 104600 | 33500 | 105000 |
| | **313 L3** | **120** | 12.4 | 42100 | 60 | 18 | 132-160-180-200 | — | — | 90900 | 107600 | 34500 | 105000 |
| | **313 L3** | **135** | 11.1 | 44000 | 56 | 18 | 132-160-180-200 | — | — | 94100 | 111300 | 35800 | 105000 |

| 313 L | Page 288 | 57970 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **313 L3** | **143** | 10.5 | 44400 | 53 | 18 | 132-160-180-200 | — | — | 95700 | 113300 | 36500 | 105000 |
| | **313 L3** | **151** | 9.9 | 45000 | 51 | 18 | 132-160-180-200 | — | — | 97300 | 115200 | 37200 | 105000 |
| | **313 L3** | **163** | 9.2 | 46000 | 49 | 18 | 132-160-180-200 | — | — | 99600 | 117800 | 38200 | 105000 |
| | **313 L3** | **176** | 8.5 | 45000 | 44 | 18 | 132-160-180-200 | — | — | 101800 | 120500 | 39100 | 105000 |
| | **313 L3** | **182** | 8.2 | 39000 | 37 | 18 | 132-160-180-200 | — | — | 102900 | 121800 | 39600 | 105000 |
| | **313 L3** | **194** | 7.7 | 47600 | 42 | 18 | 132-160-180-200 | — | — | 104800 | 124100 | 40400 | 105000 |
| | **313 L3** | **209** | 7.2 | 45000 | 37 | 18 | 132-160-180-200 | — | — | 107200 | 126900 | 41400 | 105000 |
| | **313 L3** | **252** | 5.9 | 45000 | 31 | 18 | 132-160-180-200 | — | — | 113500 | 134300 | 44200 | 105000 |
| | **313 L3** | **304** | 4.9 | 39100 | 22 | 18 | 132-160-180-200 | — | — | 120000 | 142000 | 47000 | 105000 |
| | **313 L4** | **352** | 4.3 | 52500 | 26 | 11 | 71-80-90-100-112-132-160 | — | — | 125400 | 148400 | 49300 | 105000 |
| | **313 L4** | **394** | 3.8 | 55000 | 25 | 11 | 71-80-90-100-112-132-160 | — | — | 129700 | 153500 | 51200 | 105000 |
| | **313 L4** | **452** | 3.3 | 54000 | 21 | 11 | 71-80-90-100-112-132-160 | — | — | 135200 | 160000 | 53600 | 105000 |
| | **313 L4** | **514** | 2.9 | 48600 | 16.8 | 11 | 71-80-90-100-112-132-160 | — | — | 140500 | 166300 | 56000 | 105000 |
| | **313 L4** | **564** | 2.7 | 54800 | 17.2 | 11 | 71-80-90-100-112-132-160 | — | — | 144500 | 171000 | 57700 | 105000 |
| | **313 L4** | **633** | 2.4 | 52000 | 14.6 | 11 | 71-80-90-100-112-132-160 | — | — | 149600 | 177000 | 60000 | 105000 |
| | **313 L4** | **695** | 2.2 | 51000 | 13 | 11 | 71-80-90-100-112-132-160 | — | — | 153800 | 182100 | 61900 | 105000 |
| | **313 L4** | **790** | 1.9 | 52200 | 11.7 | 11 | 71-80-90-100-112-132-160 | — | — | 159800 | 189200 | 64600 | 105000 |
| | **313 L4** | **889** | 1.7 | 53100 | 10.6 | 11 | 71-80-90-100-112-132-160 | — | — | 165600 | 196000 | 67200 | 105000 |
| | **313 L4** | **1014** | 1.5 | 54300 | 9.5 | 11 | 71-80-90-100-112-132-160 | — | — | 172300 | 203900 | 70200 | 105000 |
| | **313 L4** | **1117** | 1.3 | 52500 | 8.3 | 11 | 71-80-90-100-112-132-160 | — | — | 177300 | 209900 | 72500 | 105000 |
| | **313 L4** | **1266** | 1.2 | 56300 | 7.9 | 11 | 71-80-90-100-112-132-160 | — | — | 184100 | 217900 | 75600 | 105000 |
| | **313 L4** | **1394** | 1.1 | 52700 | 6.7 | 11 | 71-80-90-100-112-132-160 | — | — | 189500 | 224300 | 78100 | 105000 |
| | **313 L4** | **1502** | 1 | 58000 | 6.8 | 11 | 71-80-90-100-112-132-160 | — | — | 192000 | 229400 | 80000 | 105000 |
| | **313 L4** | **1817** | 0.83 | 58000 | 5.7 | 11 | 71-80-90-100-112-132-160 | — | — | 192000 | 231000 | 80000 | 105000 |
| | **313 L4** | **2187** | 0.69 | 49000 | 4 | 11 | 71-80-90-100-112-132-160 | — | — | 192000 | 231000 | 80000 | 105000 |
| **1000** | **313 L2** | **14.2** | 70 | 25600 | 150 | 36 | 180-200-225-250 | — | — | 54100 | 64000 | 19400 | 105000 |
| | **313 L2** | **16.9** | 59 | 26500 | 150 | 36 | 180-200-225-250 | — | — | 57000 | 67500 | 20500 | 105000 |
| | **313 L2** | **18.5** | 54 | 27200 | 150 | 36 | 180-200-225-250 | — | — | 58500 | 69300 | 21200 | 105000 |
| | **313 L2** | **21.8** | 46 | 28700 | 147 | 36 | 180-200-225-250 | — | — | 61400 | 72700 | 22300 | 105000 |
| | **313 L2** | **25.8** | 39 | 30100 | 130 | 36 | 180-200-225-250 | — | — | 64700 | 76600 | 23600 | 105000 |
| | **313 L2** | **28.4** | 35 | 30900 | 121 | 36 | 180-200-225-250 | — | — | 66500 | 78700 | 24400 | 105000 |
| | **313 L2** | **33.6** | 29.7 | 32500 | 107 | 36 | 180-200-225-250 | — | — | 70000 | 82900 | 25800 | 105000 |
| | **313 L2** | **40.5** | 24.7 | 32200 | 88 | 36 | 180-200-225-250 | — | — | 74000 | 87600 | 27500 | 105000 |
| | **313 L3** | **51.1** | 19.6 | 37000 | 60 | 22 | 132-160-180-200 | — | — | 79400 | 94000 | 29700 | 105000 |
| | **313 L3** | **61** | 16.4 | 39000 | 60 | 22 | 132-160-180-200 | — | — | 83700 | 99100 | 31500 | 105000 |
| | **313 L3** | **72** | 13.9 | 41000 | 60 | 22 | 132-160-180-200 | — | — | 88000 | 104100 | 33300 | 105000 |
| | **313 L3** | **78.3** | 12.8 | 42200 | 60 | 22 | 132-160-180-200 | — | — | 90200 | 106800 | 34200 | 105000 |
| | **313 L3** | **92.4** | 10.8 | 44300 | 55 | 22 | 132-160-180-200 | — | — | 94800 | 112200 | 36200 | 105000 |
| | **313 L3** | **110** | 9.1 | 46100 | 48 | 22 | 132-160-180-200 | — | — | 99800 | 118200 | 38300 | 105000 |

| 313 L | Page 288 | 57970 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1000** | **313L3** | **120** | 8.3 | 45000 | 43 | 22 | 132-160-180-200 | — | — | 102700 | 121500 | 39500 | 105000 |
| | **313 L3** | **135** | 7.4 | 49300 | 42 | 22 | 132-160-180-200 | — | — | 106200 | 125700 | 41000 | 105000 |
| | **313 L3** | **143** | 7 | 45000 | 36 | 22 | 132-160-180-200 | — | — | 108100 | 127900 | 41800 | 105000 |
| | **313 L3** | **151** | 6.6 | 45000 | 34 | 22 | 132-160-180-200 | — | — | 109900 | 130100 | 42600 | 105000 |
| | **313 L3** | **163** | 6.1 | 50200 | 35 | 22 | 132-160-180-200 | — | — | 112500 | 133100 | 43700 | 105000 |
| | **313 L3** | **176** | 5.7 | 45000 | 29 | 22 | 132-160-180-200 | — | — | 115000 | 136100 | 44800 | 105000 |
| | **313 L3** | **182** | 5.5 | 39000 | 25 | 22 | 132-160-180-200 | — | — | 116200 | 137500 | 45300 | 105000 |
| | **313 L3** | **194** | 5.2 | 51700 | 31 | 22 | 132-160-180-200 | — | — | 118400 | 140100 | 46300 | 105000 |
| | **313 L3** | **209** | 4.8 | 45300 | 25 | 22 | 132-160-180-200 | — | — | 121100 | 143300 | 47400 | 105000 |
| | **313 L3** | **252** | 4 | 46500 | 21 | 22 | 132-160-180-200 | — | — | 128200 | 151700 | 50600 | 105000 |
| | **313 L3** | **304** | 3.3 | 41000 | 15.5 | 22 | 132-160-180-200 | — | — | 135500 | 160400 | 53800 | 105000 |
| | **313 L4** | **352** | 2.8 | 52500 | 17.6 | 13.2 | 71-80-90-100-112-132-160 | — | — | 141600 | 167600 | 56500 | 105000 |
| | **313 L4** | **394** | 2.5 | 55000 | 16.5 | 13.2 | 71-80-90-100-112-132-160 | — | — | 146500 | 173400 | 58700 | 105000 |
| | **313 L4** | **452** | 2.2 | 55100 | 14.4 | 13.2 | 71-80-90-100-112-132-160 | — | — | 152700 | 180700 | 61400 | 105000 |
| | **313 L4** | **514** | 1.9 | 51900 | 11.9 | 13.2 | 71-80-90-100-112-132-160 | — | — | 158700 | 187800 | 64100 | 105000 |
| | **313 L4** | **564** | 1.8 | 55200 | 11.6 | 13.2 | 71-80-90-100-112-132-160 | — | — | 163100 | 193100 | 66100 | 105000 |
| | **313 L4** | **633** | 1.6 | 52400 | 9.8 | 13.2 | 71-80-90-100-112-132-160 | — | — | 168900 | 199900 | 68700 | 105000 |
| | **313 L4** | **695** | 1.4 | 54500 | 9.3 | 13.2 | 71-80-90-100-112-132-160 | — | — | 173700 | 205600 | 70900 | 105000 |
| | **313 L4** | **790** | 1.3 | 52600 | 7.9 | 13.2 | 71-80-90-100-112-132-160 | — | — | 180500 | 213600 | 74000 | 105000 |
| | **313 L4** | **889** | 1.1 | 56800 | 7.6 | 13.2 | 71-80-90-100-112-132-160 | — | — | 187100 | 221400 | 76900 | 105000 |
| | **313 L4** | **1014** | 0.99 | 58000 | 6.8 | 13.2 | 71-80-90-100-112-132-160 | — | — | 192000 | 230300 | 80000 | 105000 |
| | **313 L4** | **1117** | 0.9 | 52800 | 5.6 | 13.2 | 71-80-90-100-112-132-160 | — | — | 192000 | 231000 | 80000 | 105000 |
| | **313 L4** | **1266** | 0.79 | 58000 | 5.4 | 13.2 | 71-80-90-100-112-132-160 | — | — | 192000 | 231000 | 80000 | 105000 |
| | **313 L4** | **1394** | 0.72 | 52800 | 4.5 | 13.2 | 71-80-90-100-112-132-160 | — | — | 192000 | 231000 | 80000 | 105000 |
| | **313 L4** | **1502** | 0.67 | 58000 | 4.6 | 13.2 | 71-80-90-100-112-132-160 | — | — | 192000 | 231000 | 80000 | 105000 |
| | **313 L4** | **1817** | 0.55 | 58000 | 3.8 | 13.2 | 71-80-90-100-112-132-160 | — | — | 192000 | 231000 | 80000 | 105000 |
| **500** | **313L1** | **4.14** | 121 | 21700 | 250 | 95 | — | — | — | 46000 | 54400 | 16200 | 105000 |
| | **313L1** | **5.4** | 93 | 23100 | 231 | 95 | — | — | — | 49800 | 58900 | 17700 | 105000 |
| | **313L1** | **6.5** | 77 | 24400 | 202 | 95 | — | — | — | 52700 | 62300 | 18800 | 105000 |
| | **313L2** | **14.2** | 35 | 31500 | 124 | 60 | 180-200-225-250 | — | — | 66600 | 78800 | 24400 | 105000 |
| | **313L2** | **16.9** | 29.5 | 32700 | 107 | 60 | 180-200-225-250 | — | — | 70200 | 83100 | 25900 | 105000 |
| | **313L2** | **18.5** | 27 | 33400 | 100 | 60 | 180-200-225-250 | — | — | 72100 | 85300 | 26700 | 105000 |
| | **313L2** | **21.8** | 23 | 35400 | 90 | 60 | 180-200-225-250 | — | — | 75600 | 89500 | 28100 | 105000 |
| | **313L2** | **25.8** | 19.4 | 37100 | 80 | 60 | 180-200-225-250 | — | — | 79600 | 94200 | 29800 | 105000 |
| | **313L2** | **28.4** | 17.6 | 38000 | 75 | 60 | 180-200-225-250 | — | — | 81900 | 96900 | 30700 | 105000 |
| | **313L2** | **33.6** | 14.9 | 40000 | 66 | 60 | 180-200-225-250 | — | — | 86200 | 102000 | 32500 | 105000 |
| | **313L2** | **40.5** | 12.3 | 37300 | 51 | 60 | 180-200-225-250 | — | — | 91200 | 107900 | 34600 | 105000 |
| | **313L3** | **51.1** | 9.8 | 45300 | 51 | 36 | 132-160-180-200 | — | — | 97800 | 115700 | 37400 | 105000 |
| | **313L3** | **61** | 8.2 | 47200 | 44 | 36 | 132-160-180-200 | — | — | 103100 | 122000 | 39700 | 105000 |

| 313 L | Page 288 | 57970 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **500** | **313L3** | **72** | 6.9 | 48900 | 39 | 36 | 132-160-180-200 | — | — | 108300 | 128200 | 41900 | 105000 |
| | **313L3** | **78.3** | 6.4 | 51400 | 38 | 36 | 132-160-180-200 | — | — | 111100 | 131500 | 43100 | 105000 |
| | **313L3** | **92.4** | 5.4 | 53800 | 33 | 36 | 132-160-180-200 | — | — | 116800 | 138200 | 45600 | 105000 |
| | **313L3** | **110** | 4.6 | 52000 | 27 | 36 | 132-160-180-200 | — | — | 122900 | 145500 | 48300 | 105000 |
| | **313L3** | **120** | 4.1 | 46200 | 22 | 36 | 132-160-180-200 | — | — | 126400 | 149600 | 49800 | 105000 |
| | **313L3** | **135** | 3.7 | 55000 | 23 | 36 | 132-160-180-200 | — | — | 130800 | 154800 | 51700 | 105000 |
| | **313L3** | **143** | 3.5 | 47400 | 19 | 36 | 132-160-180-200 | — | — | 133100 | 157500 | 52700 | 105000 |
| | **313L3** | **151** | 3.3 | 47800 | 18.1 | 36 | 132-160-180-200 | — | — | 135300 | 160200 | 53700 | 105000 |
| | **313L3** | **163** | 3.1 | 54300 | 19.1 | 36 | 132-160-180-200 | — | — | 138500 | 163900 | 55100 | 105000 |
| | **313L3** | **176** | 2.8 | 48800 | 15.9 | 36 | 132-160-180-200 | — | — | 141600 | 167600 | 56500 | 105000 |
| | **313L3** | **182** | 2.7 | 41900 | 13.2 | 36 | 132-160-180-200 | — | — | 143100 | 169300 | 57100 | 105000 |
| | **313L3** | **194** | 2.6 | 52000 | 15.4 | 36 | 132-160-180-200 | — | — | 145800 | 172500 | 58300 | 105000 |
| | **313L3** | **209** | 2.4 | 50100 | 13.8 | 36 | 132-160-180-200 | — | — | 149100 | 176400 | 59800 | 105000 |
| | **313L3** | **252** | 2 | 51700 | 11.8 | 36 | 132-160-180-200 | — | — | 157800 | 186800 | 63700 | 105000 |
| | **313L3** | **304** | 1.6 | 45300 | 8.6 | 36 | 132-160-180-200 | — | — | 166800 | 197500 | 67800 | 105000 |
| | **313L4** | **352** | 1.4 | 54300 | 9.1 | 22 | 71-80-90-100-112-132-160 | — | — | 174400 | 206400 | 71200 | 105000 |
| | **313L4** | **394** | 1.3 | 55300 | 8.3 | 22 | 71-80-90-100-112-132-160 | — | — | 180400 | 213500 | 73900 | 105000 |
| | **313L4** | **452** | 1.1 | 55400 | 7.2 | 22 | 71-80-90-100-112-132-160 | — | — | 187900 | 222400 | 77300 | 105000 |
| | **313L4** | **514** | 0.97 | 58000 | 6.7 | 22 | 71-80-90-100-112-132-160 | — | — | 192000 | 231000 | 80000 | 105000 |
| | **313L4** | **564** | 0.89 | 55400 | 5.8 | 22 | 71-80-90-100-112-132-160 | — | — | 192000 | 231000 | 80000 | 105000 |
| | **313L4** | **633** | 0.79 | 52800 | 4.9 | 22 | 71-80-90-100-112-132-160 | — | — | 192000 | 231000 | 80000 | 105000 |
| | **313L4** | **695** | 0.72 | 58000 | 4.9 | 22 | 71-80-90-100-112-132-160 | — | — | 192000 | 231000 | 80000 | 105000 |
| | **313L4** | **790** | 0.63 | 52800 | 4 | 22 | 71-80-90-100-112-132-160 | — | — | 192000 | 231000 | 80000 | 105000 |
| | **313L4** | **889** | 0.56 | 58000 | 3.9 | 22 | 71-80-90-100-112-132-160 | — | — | 192000 | 231000 | 80000 | 105000 |
| | **313L4** | **1014** | 0.49 | 58000 | 3.4 | 22 | 71-80-90-100-112-132-160 | — | — | 192000 | 231000 | 80000 | 105000 |
| | **313L4** | **1117** | 0.45 | 52800 | 2.8 | 22 | 71-80-90-100-112-132-160 | — | — | 192000 | 231000 | 80000 | 105000 |
| | **313L4** | **1266** | 0.4 | 58000 | 2.7 | 22 | 71-80-90-100-112-132-160 | — | — | 192000 | 231000 | 80000 | 105000 |
| | **313L4** | **1394** | 0.36 | 52800 | 2.2 | 22 | 71-80-90-100-112-132-160 | — | — | 192000 | 231000 | 80000 | 105000 |
| | **313L4** | **1502** | 0.33 | 58000 | 2.3 | 22 | 71-80-90-100-112-132-160 | — | — | 192000 | 231000 | 80000 | 105000 |
| | **313L4** | **1817** | 0.28 | 58000 | 1.9 | 22 | 71-80-90-100-112-132-160 | — | — | 192000 | 231000 | 80000 | 105000 |
| | **313L4** | **2187** | 0.23 | 49000 | 1.3 | 22 | 71-80-90-100-112-132-160 | — | — | 192000 | 231000 | 80000 | 105000 |

| 315 L | Page 296 | 105000 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC)  | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **315L2** | **17.4** | 86 | 41400 | 200 | 42 | — | — | — | 54300 | 63800 | 20400 | 135000 |
| | **315L2** | **22.3** | 67 | 46800 | 200 | 42 | — | — | — | 58500 | 68700 | 22100 | 135000 |
| | **315L2** | **26.5** | 57 | 46600 | 200 | 42 | — | — | — | 61600 | 72300 | 23400 | 135000 |
| | **315L2** | **28** | 54 | 47800 | 200 | 42 | — | — | — | 62700 | 73600 | 23900 | 135000 |
| | **315L2** | **33.2** | 45 | 50300 | 200 | 42 | — | — | — | 66000 | 77400 | 25300 | 135000 |
| | **315L2** | **38.6** | 39 | 44100 | 190 | 42 | — | — | — | 69000 | 81000 | 26600 | 135000 |
| | **315L3** | **59.6** | 25.2 | 59900 | 115 | 30 | 180-200-225-250 | — | — | 78600 | 92300 | 30700 | 135000 |
| | **315L3** | **71.1** | 21.1 | 63100 | 115 | 30 | 180-200-225-250 | — | — | 82900 | 97300 | 32600 | 135000 |
| | **315L3** | **91.3** | 16.4 | 68000 | 115 | 30 | 180-200-225-250 | — | — | 89300 | 104900 | 35400 | 135000 |
| | **315L3** | **108** | 13.8 | 71600 | 114 | 30 | 180-200-225-250 | — | — | 94000 | 110400 | 37500 | 135000 |
| | **315L3** | **139** | 10.8 | 81100 | 100 | 30 | 180-200-225-250 | — | — | 101300 | 119000 | 40700 | 135000 |
| | **315L3** | **165** | 9.1 | 80400 | 84 | 30 | 180-200-225-250 | — | — | 106700 | 125200 | 43100 | 135000 |
| | **315L3** | **174** | 8.6 | 78800 | 78 | 30 | 180-200-225-250 | — | — | 108500 | 127400 | 43900 | 135000 |
| | **315L3** | **207** | 7.2 | 79800 | 66 | 30 | 180-200-225-250 | — | — | 114200 | 134100 | 46500 | 135000 |
| | **315L3** | **241** | 6.2 | 65000 | 46 | 30 | 180-200-225-250 | — | — | 119500 | 140300 | 48900 | 135000 |
| | **315L4** | **302** | 5 | 97000 | 57 | 18 | 132-160-180-200 | — | — | 127900 | 150200 | 52800 | ` |
| | **315L4** | **370** | 4.1 | 97900 | 47 | 18 | 132-160-180-200 | — | — | 135900 | 159500 | 56400 | 135000 |
| | **315L4** | **441** | 3.4 | 98700 | 40 | 18 | 132-160-180-200 | — | — | 143300 | 168200 | 59800 | 135000 |
| | **315L4** | **487** | 3.1 | 99100 | 36 | 18 | 132-160-180-200 | — | — | 147600 | 173300 | 61800 | 135000 |
| | **315L4** | **533** | 2.8 | 99500 | 33 | 18 | 132-160-180-200 | — | — | 151700 | 178100 | 63800 | 135000 |
| | **315L4** | **591** | 2.5 | 99900 | 30 | 18 | 132-160-180-200 | — | — | 156400 | 183600 | 66000 | 135000 |
| | **315L4** | **672** | 2.2 | 100600 | 27 | 18 | 132-160-180-200 | — | — | 162500 | 190800 | 68900 | 135000 |
| | **315L4** | **741** | 2 | 101100 | 24 | 18 | 132-160-180-200 | — | — | 167400 | 196600 | 71200 | 135000 |
| | **315L4** | **862** | 1.7 | 101900 | 21 | 18 | 132-160-180-200 | — | — | 175200 | 205700 | 74800 | 135000 |
| | **315L4** | **930** | 1.6 | 92600 | 17.6 | 18 | 132-160-180-200 | — | — | 179200 | 210400 | 76800 | 135000 |
| | **315L4** | **1043** | 1.4 | 103000 | 17.5 | 18 | 132-160-180-200 | — | — | 185500 | 217800 | 79700 | 135000 |
| | **315L4** | **1104** | 1.4 | 94800 | 15.2 | 18 | 132-160-180-200 | — | — | 188700 | 221500 | 81300 | 135000 |
| | **315L4** | **1284** | 1.2 | 96900 | 13.4 | 18 | 132-160-180-200 | — | — | 197400 | 231800 | 85400 | 135000 |
| | **315L4** | **1492** | 1 | 83400 | 9.9 | 18 | 132-160-180-200 | — | — | 206000 | 242500 | 89800 | 135000 |
| | **315L4** | **1805** | 0.83 | 83500 | 8.2 | 18 | 132-160-180-200 | — | — | 206000 | 243000 | 90000 | 135000 |
| **1000** | **315L2** | **17.4** | 58 | 46700 | 200 | 50 | — | — | — | 61300 | 72000 | 23300 | 135000 |
| | **315L2** | **22.3** | 45 | 52700 | 200 | 50 | — | — | — | 66100 | 77600 | 25300 | 135000 |
| | **315L2** | **26.5** | 38 | 52600 | 200 | 50 | — | — | — | 69600 | 81700 | 26800 | 135000 |
| | **315L2** | **28** | 36 | 53800 | 200 | 50 | — | — | — | 70800 | 83100 | 27300 | 135000 |
| | **315L2** | **33.2** | 30 | 56600 | 189 | 50 | — | — | — | 74500 | 87500 | 28900 | 135000 |
| | **315L2** | **38.6** | 25.9 | 49500 | 143 | 50 | — | — | — | 77900 | 91500 | 30400 | 135000 |
| | **315L3** | **59.6** | 16.8 | 67600 | 115 | 36 | 180-200-225-250 | — | — | 88800 | 104200 | 35200 | 135000 |
| | **315L3** | **71.1** | 14.1 | 71300 | 115 | 36 | 180-200-225-250 | — | — | 93600 | 109900 | 37300 | 135000 |

| 315 L | Page 296 | 105000 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC)  | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1000** | **315L3** | **91.3** | 11 | 76900 | 97 | 36 | 180-200-225-250 | — | — | 100900 | 118400 | 40500 | 135000 |
| | **315L3** | **59.6** | 16.8 | 67600 | 115 | 36 | 180-200-225-250 | — | — | 88800 | 104200 | 35200 | 135000 |
| | **315L3** | **71.1** | 14.1 | 71300 | 115 | 36 | 180-200-225-250 | — | — | 93600 | 109900 | 37300 | 135000 |
| | **315L3** | **91.3** | 11 | 76900 | 97 | 36 | 180-200-225-250 | — | — | 100900 | 118400 | 40500 | 135000 |
| | **315L3** | **108** | 9.2 | 80900 | 86 | 36 | 180-200-225-250 | — | — | 106200 | 124700 | 42900 | 135000 |
| | **315L3** | **139** | 7.2 | 89400 | 74 | 36 | 180-200-225-250 | — | — | 114400 | 134400 | 46600 | 135000 |
| | **315L3** | **165** | 6.1 | 91300 | 63 | 36 | 180-200-225-250 | — | — | 120500 | 141500 | 49400 | 135000 |
| | **315L3** | **174** | 5.7 | 81100 | 53 | 36 | 180-200-225-250 | — | — | 122500 | 143800 | 50300 | 135000 |
| | **315L3** | **207** | 4.8 | 82100 | 45 | 36 | 180-200-225-250 | — | — | 129000 | 151400 | 53200 | 135000 |
| | **315L3** | **241** | 4.2 | 66700 | 32 | 36 | 180-200-225-250 | — | — | 134900 | 158400 | 56000 | 135000 |
| | **315L4** | **302** | 3.3 | 98800 | 39 | 22 | 132-160-180-200 | — | — | 144500 | 169600 | 60400 | 135000 |
| | **315L4** | **370** | 2.7 | 99700 | 32 | 22 | 132-160-180-200 | — | — | 153500 | 180200 | 64600 | 135000 |
| | **315L4** | **441** | 2.3 | 100500 | 27 | 22 | 132-160-180-200 | — | — | 161800 | 190000 | 68500 | 135000 |
| | **315L4** | **487** | 2.1 | 101100 | 25 | 22 | 132-160-180-200 | — | — | 166700 | 195700 | 70800 | 135000 |
| | **315L4** | **533** | 1.9 | 101500 | 23 | 22 | 132-160-180-200 | — | — | 171300 | 201100 | 73000 | 135000 |
| | **315L4** | **591** | 1.7 | 102100 | 20 | 22 | 132-160-180-200 | — | — | 176600 | 207400 | 75500 | 135000 |
| | **315L4** | **672** | 1.5 | 102800 | 18.1 | 22 | 132-160-180-200 | — | — | 183600 | 215500 | 78800 | 135000 |
| | **315L4** | **741** | 1.3 | 103300 | 16.5 | 22 | 132-160-180-200 | — | — | 189100 | 222000 | 81500 | 135000 |
| | **315L4** | **862** | 1.2 | 104200 | 14.3 | 22 | 132-160-180-200 | — | — | 197800 | 232300 | 85700 | 135000 |
| | **315L4** | **930** | 1.1 | 98000 | 12.5 | 22 | 132-160-180-200 | — | — | 202400 | 237700 | 87900 | 135000 |
| | **315L4** | **1043** | 0.96 | 105000 | 11.9 | 22 | 132-160-180-200 | — | — | 206000 | 243000 | 90000 | 135000 |
| | **315L4** | **1104** | 0.91 | 99000 | 10.6 | 22 | 132-160-180-200 | — | — | 206000 | 243000 | 90000 | 135000 |
| | **315L4** | **1284** | 0.78 | 99000 | 9.1 | 22 | 132-160-180-200 | — | — | 206000 | 243000 | 90000 | 135000 |
| | **315L4** | **1492** | 0.67 | 83500 | 6.6 | 22 | 132-160-180-200 | — | — | 206000 | 243000 | 90000 | 135000 |
| | **315L4** | **1805** | 0.55 | 83500 | 5.5 | 22 | 132-160-180-200 | — | — | 206000 | 243000 | 90000 | 135000 |
| **500** | **315L1** | **4.25** | 118 | 40800 | 260 | 60 | — | — | — | 49500 | 58100 | 18400 | 135000 |
| | **315L1** | **5.33** | 94 | 40500 | 260 | 60 | — | — | — | 53000 | 62200 | 19800 | 135000 |
| | **315L1** | **6.2** | 81 | 35500 | 260 | 60 | — | — | — | 55400 | 65100 | 20800 | 135000 |
| | **315L2** | **17.4** | 28.8 | 57500 | 184 | 84 | — | — | — | 75500 | 88700 | 29400 | 135000 |
| | **315L2** | **22.3** | 22.4 | 65000 | 162 | 84 | — | — | — | 81400 | 95600 | 31900 | 135000 |
| | **315L2** | **26.5** | 18.9 | 64600 | 136 | 84 | — | — | — | 85700 | 100600 | 33800 | 135000 |
| | **315L2** | **28** | 17.9 | 65900 | 131 | 84 | — | — | — | 87100 | 102300 | 34400 | 135000 |
| | **315L2** | **33.2** | 15 | 69200 | 116 | 84 | — | — | — | 91700 | 107700 | 36500 | 135000 |
| | **315L2** | **38.6** | 12.9 | 60400 | 87 | 84 | — | — | — | 96000 | 112700 | 38300 | 135000 |
| | **315L3** | **59.6** | 8.4 | 83200 | 80 | 60 | 180-200-225-250 | — | — | 109300 | 128300 | 44300 | 135000 |
| | **315L3** | **71.1** | 7 | 87700 | 71 | 60 | 180-200-225-250 | — | — | 115200 | 135300 | 47000 | 135000 |
| | **315L3** | **91.3** | 5.5 | 94400 | 59 | 60 | 180-200-225-250 | — | — | 124200 | 145800 | 51100 | 135000 |

## 315 L — Page 296 — 105000 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **500** | **315L3** | **91.3** | 5.5 | 94400 | 59 | 60 | 180-200-225-250 | — | — | 124200 | 145800 | 51100 | 135000 |
| | **315L3** | **108** | 4.6 | 97300 | 52 | 60 | 180-200-225-250 | — | — | 130700 | 153500 | 54100 | 135000 |
| | **315L3** | **139** | 3.6 | 98400 | 41 | 60 | 180-200-225-250 | — | — | 140900 | 165400 | 58700 | 135000 |
| | **315L3** | **165** | 3 | 99200 | 34 | 60 | 180-200-225-250 | — | — | 148300 | 174100 | 62200 | 135000 |
| | **315L3** | **207** | 2.4 | 87400 | 24 | 60 | 180-200-225-250 | — | — | 158800 | 186400 | 67100 | 135000 |
| | **315L3** | **241** | 2.1 | 74000 | 17.6 | 60 | 180-200-225-250 | — | — | 166100 | 195000 | 70500 | 135000 |
| | **315L4** | **302** | 1.7 | 102200 | 20 | 36 | 132-160-180-200 | — | — | 177900 | 208800 | 76100 | 135000 |
| | **315L4** | **370** | 1.4 | 103300 | 16.5 | 36 | 132-160-180-200 | — | — | 188900 | 221800 | 81400 | 135000 |
| | **315L4** | **441** | 1.1 | 104300 | 14 | 36 | 132-160-180-200 | — | — | 199200 | 233900 | 86300 | 135000 |
| | **315L4** | **487** | 1 | 104900 | 12.7 | 36 | 132-160-180-200 | — | — | 205200 | 240900 | 89200 | 135000 |
| | **315L4** | **533** | 0.94 | 105000 | 11.6 | 36 | 132-160-180-200 | — | — | 206000 | 243000 | 90000 | 135000 |
| | **315L4** | **591** | 0.85 | 105000 | 10.5 | 36 | 132-160-180-200 | — | — | 206000 | 243000 | 90000 | 135000 |
| | **315L4** | **672** | 0.74 | 105000 | 9.2 | 36 | 132-160-180-200 | — | — | 206000 | 243000 | 90000 | 135000 |
| | **315L4** | **741** | 0.67 | 105000 | 8.4 | 36 | 132-160-180-200 | — | — | 206000 | 243000 | 90000 | 135000 |
| | **315L4** | **862** | 0.58 | 105000 | 7.2 | 36 | 132-160-180-200 | — | — | 206000 | 243000 | 90000 | 135000 |
| | **315L4** | **930** | 0.54 | 99000 | 6.3 | 36 | 132-160-180-200 | — | — | 206000 | 243000 | 90000 | 135000 |
| | **315L4** | **1043** | 0.48 | 105000 | 6 | 36 | 132-160-180-200 | — | — | 206000 | 243000 | 90000 | 135000 |
| | **315L4** | **1104** | 0.45 | 99000 | 5.3 | 36 | 132-160-180-200 | — | — | 206000 | 243000 | 90000 | 135000 |
| | **315L4** | **1284** | 0.39 | 99000 | 4.6 | 36 | 132-160-180-200 | — | — | 206000 | 243000 | 90000 | 135000 |
| | **315L4** | **1492** | 0.34 | 83500 | 3.3 | 36 | 132-160-180-200 | — | — | 206000 | 243000 | 90000 | 135000 |
| | **315L4** | **1805** | 0.28 | 83500 | 2.7 | 36 | 132-160-180-200 | — | — | 206000 | 243000 | 90000 | 135000 |

## 316 L — Page 304 — 138820 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **316L2** | **17.4** | 86 | 43900 | 200 | 50 | — | — | — | 90300 | 100400 | 33900 | 192000 |
| | **316L2** | **22.3** | 67 | 48500 | 200 | 50 | — | — | — | 97300 | 108200 | 36900 | 192000 |
| | **316L2** | **26.5** | 57 | 47700 | 200 | 50 | — | — | — | 102500 | 113900 | 39100 | 192000 |
| | **316L3** | **59.6** | 25.2 | 63400 | 115 | 35 | 180-200-225-250 | — | — | 130700 | 145300 | 51200 | 192000 |
| | **316L3** | **71.1** | 21.1 | 66900 | 115 | 35 | 180-200-225-250 | — | — | 137800 | 153300 | 54300 | 192000 |
| | **316L3** | **76.5** | 19.6 | 70100 | 115 | 35 | 180-200-225-250 | — | — | 140800 | 156600 | 55600 | 192000 |
| | **316L3** | **91.3** | 16.4 | 72100 | 115 | 35 | 180-200-225-250 | — | — | 148500 | 165200 | 59000 | 192000 |
| | **316L3** | **108** | 13.8 | 75900 | 115 | 35 | 180-200-225-250 | — | — | 156300 | 173900 | 62500 | 192000 |
| | **316L3** | **117** | 12.8 | 79400 | 115 | 35 | 180-200-225-250 | — | — | 160000 | 178000 | 64100 | 192000 |
| | **316L3** | **139** | 10.8 | 81800 | 101 | 35 | 180-200-225-250 | — | — | 168500 | 187400 | 67900 | 192000 |
| | **316L3** | **165** | 9.1 | 82500 | 86 | 35 | 180-200-225-250 | — | — | 177400 | 197300 | 71900 | 192000 |

| 316 L | Page 304 | 138820 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **316L4** | **215** | 7 | 93200 | 60 | 18 | 132-160-180-200 | — | — | 191900 | 213500 | 78500 | 192000 |
| | **316L4** | **256** | 5.9 | 98200 | 60 | 18 | 132-160-180-200 | — | — | 202400 | 225100 | 83200 | 192000 |
| | **316L4** | **302** | 5 | 103200 | 60 | 18 | 132-160-180-200 | — | — | 212700 | 236600 | 87900 | 192000 |
| | **316L4** | **329** | 4.6 | 105800 | 57 | 18 | 132-160-180-200 | — | — | 218100 | 242600 | 90400 | 192000 |
| | **316L4** | **370** | 4.1 | 109400 | 53 | 18 | 132-160-180-200 | — | — | 225900 | 251300 | 94000 | 192000 |
| | **316L4** | **441** | 3.4 | 115200 | 46 | 18 | 132-160-180-200 | — | — | 238200 | 264900 | 99700 | 192000 |
| | **316L4** | **487** | 3.1 | 118600 | 43 | 18 | 132-160-180-200 | — | — | 245400 | 272900 | 103100 | 192000 |
| | **316L4** | **533** | 2.8 | 121800 | 40 | 18 | 132-160-180-200 | — | — | 252200 | 280500 | 106300 | 192000 |
| | **316L4** | **566** | 2.7 | 123900 | 39 | 18 | 132-160-180-200 | — | — | 256700 | 285500 | 108400 | 192000 |
| | **316L4** | **591** | 2.5 | 122500 | 37 | 18 | 132-160-180-200 | — | — | 260100 | 289200 | 110000 | 192000 |
| | **316L4** | **625** | 2.4 | 126500 | 36 | 18 | 132-160-180-200 | — | — | 264500 | 294100 | 112000 | 192000 |
| | **316L4** | **685** | 2.2 | 127800 | 33 | 18 | 132-160-180-200 | — | — | 271800 | 302300 | 115500 | 192000 |
| | **316L4** | **726** | 2.1 | 128600 | 31 | 18 | 132-160-180-200 | — | — | 276700 | 307700 | 117800 | 192000 |
| | **316L4** | **741** | 2 | 126500 | 30 | 18 | 132-160-180-200 | — | — | 278400 | 309600 | 118600 | 192000 |
| | **316L4** | **812** | 1.8 | 130000 | 28 | 18 | 132-160-180-200 | — | — | 286100 | 318200 | 122300 | 192000 |
| | **316L4** | **862** | 1.7 | 129000 | 27 | 18 | 132-160-180-200 | — | — | 291300 | 323900 | 124700 | 192000 |
| | **316L4** | **1043** | 1.4 | 132300 | 23 | 18 | 132-160-180-200 | — | — | 308400 | 343000 | 132900 | 192000 |
| | **316L4** | **1237** | 1.2 | 122100 | 17.5 | 18 | 132-160-180-200 | — | — | 324600 | 361100 | 140700 | 192000 |
| **1000** | **316L2** | **17.4** | 58 | 49500 | 200 | 60 | — | — | — | 102000 | 113400 | 38900 | 192000 |
| | **316L2** | **22.3** | 45 | 55000 | 200 | 60 | — | — | — | 109900 | 122200 | 42200 | 192000 |
| | **316L2** | **26.5** | 38 | 53800 | 200 | 60 | — | — | — | 115700 | 128700 | 44700 | 192000 |
| | **316L3** | **59.6** | 16.8 | 71600 | 115 | 42 | 180-200-225-250 | — | — | 147600 | 164100 | 58600 | 192000 |
| | **316L3** | **71.1** | 14.1 | 75600 | 115 | 42 | 180-200-225-250 | — | — | 155600 | 173100 | 62100 | 192000 |
| | **316L3** | **76.5** | 13.1 | 78900 | 115 | 42 | 180-200-225-250 | — | — | 159100 | 176900 | 63700 | 192000 |
| | **316L3** | **91.3** | 11 | 81400 | 102 | 42 | 180-200-225-250 | — | — | 167700 | 186500 | 67500 | 192000 |
| | **316L3** | **108** | 9.2 | 85700 | 91 | 42 | 180-200-225-250 | — | — | 176600 | 196400 | 71500 | 192000 |
| | **316L3** | **117** | 8.5 | 89800 | 88 | 42 | 180-200-225-250 | — | — | 180800 | 201000 | 73400 | 192000 |
| | **316L3** | **139** | 7.2 | 92400 | 76 | 42 | 180-200-225-250 | — | — | 190300 | 211600 | 77700 | 192000 |
| | **316L3** | **165** | 6.1 | 93100 | 65 | 42 | 180-200-225-250 | — | — | 200300 | 222800 | 82300 | 192000 |
| | **316L4** | **215** | 4.7 | 105100 | 58 | 22 | 132-160-180-200 | — | — | 216700 | 241100 | 89800 | 192000 |
| | **316L4** | **256** | 3.9 | 110700 | 51 | 22 | 132-160-180-200 | — | — | 228500 | 254200 | 95300 | 192000 |
| | **316L4** | **302** | 3.3 | 116100 | 45 | 22 | 132-160-180-200 | — | — | 240200 | 267200 | 100700 | 192000 |
| | **316L4** | **329** | 3 | 119000 | 43 | 22 | 132-160-180-200 | — | — | 246300 | 273900 | 103500 | 192000 |
| | **316L4** | **370** | 2.7 | 123100 | 39 | 22 | 132-160-180-200 | — | — | 255100 | 283800 | 107600 | 192000 |
| | **316L4** | **441** | 2.3 | 127300 | 34 | 22 | 132-160-180-200 | — | — | 269000 | 299200 | 114200 | 192000 |
| | **316L4** | **487** | 2.1 | 128600 | 31 | 22 | 132-160-180-200 | — | — | 277100 | 308200 | 118000 | 192000 |

| 316L | Page 304 | 138820 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1000** | **316L4** | **533** | 1.9 | 129900 | 29 | 22 | 132-160-180-200 | — | — | 284800 | 316800 | 121700 | 192000 |
| | **316L4** | **566** | 1.8 | 130700 | 27 | 22 | 132-160-180-200 | — | — | 289900 | 322500 | 124100 | 192000 |
| | **316L4** | **591** | 1.7 | 129500 | 26 | 22 | 132-160-180-200 | — | — | 293700 | 326600 | 125900 | 192000 |
| | **316L4** | **625** | 1.6 | 132100 | 25 | 22 | 132-160-180-200 | — | — | 298700 | 332200 | 128200 | 192000 |
| | **316L4** | **685** | 1.5 | 133400 | 23 | 22 | 132-160-180-200 | — | — | 307000 | 341400 | 132200 | 192000 |
| | **316L4** | **726** | 1.4 | 134200 | 22 | 22 | 132-160-180-200 | — | — | 312500 | 347500 | 134800 | 192000 |
| | **316L4** | **741** | 1.3 | 133400 | 21 | 22 | 132-160-180-200 | — | — | 314400 | 349700 | 135800 | 192000 |
| | **316L4** | **812** | 1.2 | 135800 | 19.8 | 22 | 132-160-180-200 | — | — | 323200 | 359400 | 140000 | 192000 |
| | **316L4** | **862** | 1.2 | 136100 | 18.7 | 22 | 132-160-180-200 | — | — | 328900 | 365800 | 142800 | 192000 |
| | **316L4** | **1043** | 0.96 | 138800 | 15.7 | 22 | 132-160-180-200 | — | — | 345000 | 385000 | 150000 | 192000 |
| | **316L4** | **1237** | 0.81 | 124000 | 11.9 | 22 | 132-160-180-200 | — | — | 345000 | 385000 | 150000 | 192000 |
| **500** | **316L2** | **17.4** | 28.8 | 60900 | 195 | 100 | — | — | — | 125600 | 139600 | 49000 | 192000 |
| | **316L2** | **22.3** | 22.4 | 67400 | 168 | 100 | — | — | — | 135300 | 150500 | 53200 | 192000 |
| | **316L2** | **26.5** | 18.9 | 66200 | 139 | 100 | — | — | — | 142400 | 158400 | 56300 | 192000 |
| | **316L3** | **59.6** | 8.4 | 88200 | 85 | 70 | 180-200-225-250 | — | — | 181700 | 202100 | 73800 | 192000 |
| | **316L3** | **71.1** | 7 | 93000 | 75 | 70 | 180-200-225-250 | — | — | 191600 | 213100 | 78300 | 192000 |
| | **316L3** | **76.5** | 6.5 | 98000 | 74 | 70 | 180-200-225-250 | — | — | 195800 | 217800 | 80200 | 192000 |
| | **316L3** | **91.3** | 5.5 | 100200 | 63 | 70 | 180-200-225-250 | — | — | 206500 | 229600 | 85100 | 192000 |
| | **316L3** | **108** | 4.6 | 105400 | 56 | 70 | 180-200-225-250 | — | — | 217400 | 241800 | 90100 | 192000 |
| | **316L3** | **117** | 4.3 | 111100 | 54 | 70 | 180-200-225-250 | — | — | 222500 | 247500 | 92500 | 192000 |
| | **316L3** | **139** | 3.6 | 112100 | 46 | 70 | 180-200-225-250 | — | — | 234300 | 260500 | 97900 | 192000 |
| | **316L3** | **165** | 3 | 110200 | 38 | 70 | 180-200-225-250 | — | — | 246600 | 274300 | 103700 | 192000 |
| | **316L4** | **215** | 2.3 | 126900 | 35 | 36 | 132-160-180-200 | — | — | 266800 | 296800 | 113100 | 192000 |
| | **316L4** | **256** | 2 | 129300 | 30 | 36 | 132-160-180-200 | — | — | 281400 | 312900 | 120000 | 192000 |
| | **316L4** | **302** | 1.7 | 131600 | 26 | 36 | 132-160-180-200 | — | — | 295700 | 328900 | 126800 | 192000 |
| | **316L4** | **329** | 1.5 | 132800 | 24 | 36 | 132-160-180-200 | — | — | 303200 | 337200 | 130400 | 192000 |
| | **316L4** | **370** | 1.4 | 134500 | 22 | 36 | 132-160-180-200 | — | — | 314100 | 349300 | 135600 | 192000 |
| | **316L4** | **441** | 1.1 | 137000 | 18.4 | 36 | 132-160-180-200 | — | — | 331200 | 368400 | 143800 | 192000 |
| | **316L4** | **487** | 1 | 138400 | 16.8 | 36 | 132-160-180-200 | — | — | 341200 | 379500 | 148700 | 192000 |
| | **316L4** | **533** | 0.94 | 138800 | 15.4 | 36 | 132-160-180-200 | — | — | 345000 | 385000 | 150000 | 192000 |
| | **316L4** | **566** | 0.88 | 138800 | 14.5 | 36 | 132-160-180-200 | — | — | 345000 | 385000 | 150000 | 192000 |
| | **316L4** | **591** | 0.85 | 138800 | 13.9 | 36 | 132-160-180-200 | — | — | 345000 | 385000 | 150000 | 192000 |
| | **316L4** | **625** | 0.8 | 138800 | 13.1 | 36 | 132-160-180-200 | — | — | 345000 | 385000 | 150000 | 192000 |
| | **316L4** | **685** | 0.73 | 138800 | 12 | 36 | 132-160-180-200 | — | — | 345000 | 385000 | 150000 | 192000 |
| | **316L4** | **726** | 0.69 | 138800 | 11.3 | 36 | 132-160-180-200 | — | — | 345000 | 385000 | 150000 | 192000 |
| | **316L4** | **741** | 0.67 | 138800 | 11.1 | 36 | 132-160-180-200 | — | — | 345000 | 385000 | 150000 | 192000 |
| | **316L4** | **812** | 0.62 | 138800 | 10.1 | 36 | 132-160-180-200 | — | — | 345000 | 385000 | 150000 | 192000 |
| | **316L4** | **862** | 0.58 | 138800 | 9.5 | 36 | 132-160-180-200 | — | — | 345000 | 385000 | 150000 | 192000 |

## 316L

Page 304

## 138820 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **500** | **316L4** | **1043** | 0.48 | 138800 | 7.9 | 36 | 132-160-180-200 | — | — | 345000 | 385000 | 150000 | 192000 |
| | **316L4** | **1237** | 0.4 | 124000 | 5.9 | 36 | 132-160-180-200 | — | — | 345000 | 385000 | 150000 | 192000 |

## 317L

Page 310

## 208110 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **317L3** | **58.1** | 25.8 | 90300 | 150 | 35 | 180-200-225-250 | — | — | 166800 | 177500 | 50800 | 393000 |
| | **317L3** | **69.3** | 21.6 | 93300 | 150 | 35 | 180-200-225-250 | — | — | 175800 | 187200 | 53800 | 393000 |
| | **317L3** | **89** | 16.9 | 101000 | 150 | 35 | 180-200-225-250 | — | — | 189500 | 201800 | 58500 | 393000 |
| | **317L3** | **106** | 14.2 | 105800 | 150 | 35 | 180-200-225-250 | — | — | 199500 | 212400 | 61900 | 393000 |
| | **317L3** | **116** | 12.9 | 108300 | 150 | 35 | 180-200-225-250 | — | — | 205200 | 218400 | 63900 | 393000 |
| | **317L3** | **138** | 10.9 | 114000 | 143 | 35 | 180-200-225-250 | — | — | 216000 | 230000 | 67700 | 393000 |
| | **317L3** | **166** | 9.1 | 120500 | 125 | 35 | 180-200-225-250 | — | — | 228300 | 243100 | 72000 | 393000 |
| | **317L3** | **179** | 8.4 | 136600 | 131 | 35 | 180-200-225-250 | — | — | 233800 | 248900 | 73900 | 393000 |
| | **317L3** | **213** | 7.1 | 142200 | 115 | 35 | 180-200-225-250 | — | — | 246100 | 262000 | 78200 | 393000 |
| | **317L3** | **252** | 5.9 | 119700 | 82 | 35 | 180-200-225-250 | — | — | 259100 | 275800 | 82800 | 393000 |
| | **317L4** | **310** | 4.8 | 146200 | 60 | 18 | 132-160-180-200 | — | — | 275500 | 293400 | 88700 | 393000 |
| | **317L4** | **360** | 4.2 | 152900 | 60 | 18 | 132-160-180-200 | — | — | 288300 | 306900 | 93200 | 393000 |
| | **317L4** | **449** | 3.3 | 163300 | 60 | 18 | 132-160-180-200 | — | — | 307900 | 327800 | 100300 | 393000 |
| | **317L4** | **493** | 3 | 166900 | 60 | 18 | 132-160-180-200 | — | — | 316700 | 337200 | 103500 | 393000 |
| | **317L4** | **552** | 2.7 | 174500 | 56 | 18 | 132-160-180-200 | — | — | 327600 | 348800 | 107500 | 393000 |
| | **317L4** | **619** | 2.4 | 177200 | 51 | 18 | 132-160-180-200 | — | — | 339000 | 361000 | 111600 | 393000 |
| | **317L4** | **719** | 2.1 | 178400 | 44 | 18 | 132-160-180-200 | — | — | 354700 | 377600 | 117400 | 393000 |
| | **317L4** | **792** | 1.9 | 186500 | 42 | 18 | 132-160-180-200 | — | — | 365100 | 388700 | 121200 | 393000 |
| | **317L4** | **904** | 1.7 | 166600 | 33 | 18 | 132-160-180-200 | — | — | 379800 | 404400 | 126700 | 393000 |
| | **317L4** | **1032** | 1.5 | 181300 | 31 | 18 | 132-160-180-200 | — | — | 395300 | 420900 | 132400 | 393000 |
| | **317L4** | **1134** | 1.3 | 168100 | 26 | 18 | 132-160-180-200 | — | — | 406600 | 432900 | 136600 | 393000 |
| | **317L4** | **1318** | 1.1 | 169100 | 23 | 18 | 132-160-180-200 | — | — | 425400 | 452900 | 143700 | 393000 |
| | **317L4** | **1595** | 0.94 | 170000 | 18.9 | 18 | 132-160-180-200 | — | — | 442000 | 470000 | 150000 | 393000 |
| | **317L4** | **1893** | 0.79 | 156200 | 14.6 | 18 | 132-160-180-200 | — | — | 442000 | 470000 | 150000 | 393000 |
| **1000** | **317L3** | **58.1** | 17.2 | 101900 | 150 | 42 | 180-200-225-250 | — | — | 188300 | 200500 | 58100 | 393000 |
| | **317L3** | **69.3** | 14.4 | 105300 | 150 | 42 | 180-200-225-250 | — | — | 198600 | 211400 | 61600 | 393000 |
| | **317L3** | **89** | 11.2 | 114000 | 147 | 42 | 180-200-225-250 | — | — | 214000 | 227800 | 67000 | 393000 |
| | **317L3** | **106** | 9.5 | 119500 | 130 | 42 | 180-200-225-250 | — | — | 225300 | 239900 | 70900 | 393000 |
| | **317L3** | **116** | 8.6 | 122300 | 121 | 42 | 180-200-225-250 | — | — | 231700 | 246700 | 73200 | 393000 |
| | **317L3** | **138** | 7.3 | 128800 | 107 | 42 | 180-200-225-250 | — | — | 243900 | 259700 | 77400 | 393000 |
| | **317L3** | **166** | 6 | 136100 | 94 | 42 | 180-200-225-250 | — | — | 257900 | 274600 | 82400 | 393000 |

| 317L | Page 310 | 208110 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1000** | **317L3** | **179** | 5.6 | 150100 | 96 | 42 | 180-200-225-250 | — | — | 264000 | 281100 | 84600 | 393000 |
| | **317L3** | **213** | 4.7 | 154900 | 84 | 42 | 180-200-225-250 | — | — | 277900 | 295900 | 89500 | 393000 |
| | **317L3** | **252** | 4 | 124600 | 57 | 42 | 180-200-225-250 | — | — | 292600 | 311500 | 94800 | 393000 |
| | **317L4** | **310** | 3.2 | 165100 | 60 | 22 | 132-160-180-200 | — | — | 311200 | 331300 | 101500 | 393000 |
| | **317L4** | **360** | 2.8 | 172700 | 57 | 22 | 132-160-180-200 | — | — | 325600 | 346600 | 106700 | 393000 |
| | **317L4** | **449** | 2.2 | 181600 | 48 | 22 | 132-160-180-200 | — | — | 347700 | 370200 | 114800 | 393000 |
| | **317L4** | **493** | 2 | 178600 | 43 | 22 | 132-160-180-200 | — | — | 357700 | 380800 | 118500 | 393000 |
| | **317L4** | **552** | 1.8 | 188400 | 40 | 22 | 132-160-180-200 | — | — | 369900 | 393900 | 123000 | 393000 |
| | **317L4** | **619** | 1.6 | 180400 | 35 | 22 | 132-160-180-200 | — | — | 382900 | 407600 | 127800 | 393000 |
| | **317L4** | **719** | 1.4 | 181600 | 30 | 22 | 132-160-180-200 | — | — | 400600 | 426500 | 134400 | 393000 |
| | **317L4** | **792** | 1.3 | 199300 | 30 | 22 | 132-160-180-200 | — | — | 412300 | 439000 | 138800 | 393000 |
| | **317L4** | **904** | 1.1 | 169300 | 22 | 22 | 132-160-180-200 | — | — | 429000 | 456700 | 145000 | 393000 |
| | **317L4** | **1032** | 0.97 | 184300 | 21 | 22 | 132-160-180-200 | — | — | 442000 | 470000 | 150000 | 393000 |
| | **317L4** | **1134** | 0.88 | 170000 | 17.7 | 22 | 132-160-180-200 | — | — | 442000 | 470000 | 150000 | 393000 |
| | **317L4** | **1318** | 0.76 | 170000 | 15.3 | 22 | 132-160-180-200 | — | — | 442000 | 470000 | 150000 | 393000 |
| | **317L4** | **1595** | 0.63 | 170000 | 12.6 | 22 | 132-160-180-200 | — | — | 442000 | 470000 | 150000 | 393000 |
| | **317L4** | **1893** | 0.53 | 156200 | 9.8 | 22 | 132-160-180-200 | — | — | 442000 | 470000 | 150000 | 393000 |
| **500** | **317L2** | **16.9** | 29.5 | 86700 | 250 | 116 | — | — | — | 160200 | 170600 | 48500 | 393000 |
| | **317L2** | **22.1** | 22.6 | 91400 | 230 | 116 | — | — | — | 173500 | 184700 | 53000 | 393000 |
| | **317L2** | **26.6** | 18.8 | 96700 | 202 | 116 | — | — | — | 183400 | 195300 | 56400 | 393000 |
| | **317L2** | **28.4** | 17.6 | 110500 | 217 | 116 | — | — | — | 186900 | 199000 | 57600 | 393000 |
| | **317L2** | **34.1** | 14.7 | 116800 | 191 | 116 | — | — | — | 197600 | 210400 | 61300 | 393000 |
| | **317L2** | **40.5** | 12.3 | 112800 | 155 | 116 | — | — | — | 208100 | 221500 | 64900 | 393000 |
| | **317L3** | **58.1** | 8.6 | 125400 | 124 | 70 | 180-200-225-250 | — | — | 231900 | 246900 | 73200 | 393000 |
| | **317L3** | **69.3** | 7.2 | 129700 | 107 | 70 | 180-200-225-250 | — | — | 244500 | 260300 | 77600 | 393000 |
| | **317L3** | **89** | 5.6 | 140100 | 90 | 70 | 180-200-225-250 | — | — | 263500 | 280500 | 84400 | 393000 |
| | **317L3** | **106** | 4.7 | 147100 | 80 | 70 | 180-200-225-250 | — | — | 277400 | 295300 | 89300 | 393000 |
| | **317L3** | **116** | 4.3 | 150500 | 74 | 70 | 180-200-225-250 | — | — | 285300 | 303700 | 92200 | 393000 |
| | **317L3** | **138** | 3.6 | 158400 | 66 | 70 | 180-200-225-250 | — | — | 300300 | 319700 | 97600 | 393000 |
| | **317L3** | **166** | 3 | 151900 | 53 | 70 | 180-200-225-250 | — | — | 317500 | 338000 | 103800 | 393000 |
| | **317L3** | **179** | 2.8 | 162300 | 52 | 70 | 180-200-225-250 | — | — | 325000 | 346100 | 106500 | 393000 |
| | **317L3** | **213** | 2.4 | 164400 | 44 | 70 | 180-200-225-250 | — | — | 342200 | 364300 | 112800 | 393000 |
| | **317L3** | **252** | 2 | 139600 | 32 | 70 | 180-200-225-250 | — | — | 360200 | 383500 | 119400 | 393000 |
| | **317L4** | **310** | 1.6 | 191500 | 37 | 36 | 132-160-180-200 | — | — | 383100 | 407900 | 127900 | 393000 |
| | **317L4** | **360** | 1.4 | 196200 | 32 | 36 | 132-160-180-200 | — | — | 400800 | 426700 | 134500 | 393000 |
| | **317L4** | **449** | 1.1 | 203400 | 27 | 36 | 132-160-180-200 | — | — | 428100 | 455800 | 144700 | 393000 |
| | **317L4** | **493** | 1 | 184200 | 22 | 36 | 132-160-180-200 | — | — | 440300 | 468800 | 149300 | 393000 |
| | **317L4** | **552** | 0.91 | 207100 | 22 | 36 | 132-160-180-200 | — | — | 442000 | 470000 | 150000 | 393000 |

## 317L

Page 310

## 208110 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **500** | **317L4** | **619** | 0.81 | 184300 | 17.6 | 36 | 132-160-180-200 | — | — | 442000 | 470000 | 150000 | 393000 |
| | **317L4** | **719** | 0.7 | 184300 | 15.2 | 36 | 132-160-180-200 | — | — | 442000 | 470000 | 150000 | 393000 |
| | **317L4** | **792** | 0.63 | 207100 | 15.5 | 36 | 132-160-180-200 | — | — | 442000 | 470000 | 150000 | 393000 |
| | **317L4** | **904** | 0.55 | 170000 | 11.1 | 36 | 132-160-180-200 | — | — | 442000 | 470000 | 150000 | 393000 |
| | **317L4** | **1032** | 0.48 | 184300 | 10.6 | 36 | 132-160-180-200 | — | — | 442000 | 470000 | 150000 | 393000 |
| | **317L4** | **1134** | 0.44 | 170000 | 8.9 | 36 | 132-160-180-200 | — | — | 442000 | 470000 | 150000 | 393000 |
| | **317L4** | **1318** | 0.38 | 170000 | 7.6 | 36 | 132-160-180-200 | — | — | 442000 | 470000 | 150000 | 393000 |
| | **317L4** | **1595** | 0.31 | 170000 | 6.3 | 36 | 132-160-180-200 | — | — | 442000 | 470000 | 150000 | 393000 |
| | **317L4** | **1893** | 0.26 | 156200 | 4.9 | 36 | 132-160-180-200 | — | — | 442000 | 470000 | 150000 | 393000 |

## 318L

Page 316

## 280580 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **318L3** | **76.5** | 19.6 | 144900 | 200 | 40 | — | — | — | 227200 | 231900 | 74200 | 500000 |
| | **318L3** | **98.2** | 15.3 | 156100 | 200 | 40 | — | — | — | 244900 | 249900 | 80600 | 500000 |
| | **318L3** | **117** | 12.9 | 164400 | 200 | 40 | — | — | — | 257800 | 263100 | 85300 | 500000 |
| | **318L3** | **123** | 12.2 | 167200 | 200 | 40 | — | — | — | 262100 | 267500 | 86900 | 500000 |
| | **318L3** | **146** | 10.3 | 176000 | 200 | 40 | — | — | — | 275900 | 281600 | 92000 | 500000 |
| | **318L3** | **170** | 8.8 | 184100 | 186 | 40 | — | — | — | 288700 | 294600 | 96800 | 500000 |
| | **318L4** | **262** | 5.7 | 209700 | 115 | 22 | 180-200-225-250 | — | — | 328800 | 335600 | 111800 | 500000 |
| | **318L4** | **313** | 4.8 | 220800 | 115 | 22 | 180-200-225-250 | — | — | 346700 | 353800 | 118600 | 500000 |
| | **318L4** | **337** | 4.5 | 225200 | 115 | 22 | 180-200-225-250 | — | — | 354400 | 361600 | 121500 | 500000 |
| | **318L4** | **402** | 3.7 | 236100 | 104 | 22 | 180-200-225-250 | — | — | 373600 | 381300 | 128900 | 500000 |
| | **318L4** | **422** | 3.6 | 239300 | 101 | 22 | 180-200-225-250 | — | — | 379300 | 387100 | 131100 | 500000 |
| | **318L4** | **477** | 3.1 | 247200 | 92 | 22 | 180-200-225-250 | — | — | 393300 | 401400 | 136500 | 500000 |
| | **318L4** | **515** | 2.9 | 252500 | 87 | 22 | 180-200-225-250 | — | — | 402700 | 410900 | 140100 | 500000 |
| | **318L4** | **612** | 2.5 | 263300 | 76 | 22 | 180-200-225-250 | — | — | 423900 | 432600 | 148300 | 500000 |
| | **318L4** | **647** | 2.3 | 264400 | 73 | 22 | 180-200-225-250 | — | — | 431100 | 439900 | 151100 | 500000 |
| | **318L4** | **726** | 2.1 | 266600 | 65 | 22 | 180-200-225-250 | — | — | 446300 | 455400 | 157000 | 500000 |
| | **318L4** | **768** | 2 | 267600 | 62 | 22 | 180-200-225-250 | — | — | 453800 | 463100 | 160000 | 500000 |
| | **318L4** | **911** | 1.6 | 270900 | 53 | 22 | 180-200-225-250 | — | — | 477700 | 487500 | 169400 | 500000 |
| | **318L4** | **1059** | 1.4 | 273800 | 46 | 22 | 180-200-225-250 | — | — | 499800 | 510000 | 178100 | 500000 |
| **1000** | **318L3** | **76.5** | 13.1 | 163600 | 200 | 48 | — | — | — | 256600 | 261900 | 84900 | 500000 |
| | **318L3** | **98.2** | 10.2 | 176300 | 200 | 48 | — | — | — | 276500 | 282200 | 92300 | 500000 |
| | **318L3** | **117** | 8.6 | 185600 | 183 | 48 | — | — | — | 291100 | 297100 | 97700 | 500000 |
| | **318L3** | **123** | 8.1 | 188800 | 176 | 48 | — | — | — | 296000 | 302100 | 99500 | 500000 |
| | **318L3** | **146** | 6.8 | 198700 | 156 | 48 | — | — | — | 311600 | 318000 | 105400 | 500000 |

| 318L | Page 316 | 280580 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1000** | **318L3** | **170** | 5.9 | 207900 | 140 | 48 | — | — | — | 326000 | 332700 | 110800 | 500000 |
| | **318L4** | **262** | 3.8 | 234800 | 106 | 26 | 180-200-225-250 | — | — | 371300 | 379000 | 128000 | 500000 |
| | **318L4** | **313** | 3.2 | 246200 | 93 | 26 | 180-200-225-250 | — | — | 391500 | 399600 | 135800 | 500000 |
| | **318L4** | **337** | 3 | 251100 | 88 | 26 | 180-200-225-250 | — | — | 400200 | 408400 | 139100 | 500000 |
| | **318L4** | **402** | 2.5 | 263100 | 77 | 26 | 180-200-225-250 | — | — | 422000 | 430600 | 147600 | 500000 |
| | **318L4** | **422** | 2.4 | 264000 | 74 | 26 | 180-200-225-250 | — | — | 428400 | 437200 | 150100 | 500000 |
| | **318L4** | **477** | 2.1 | 266300 | 66 | 26 | 180-200-225-250 | — | — | 444200 | 453300 | 156200 | 500000 |
| | **318L4** | **515** | 1.9 | 267700 | 61 | 26 | 180-200-225-250 | — | — | 454800 | 464100 | 160400 | 500000 |
| | **318L4** | **612** | 1.6 | 271000 | 52 | 26 | 180-200-225-250 | — | — | 478700 | 488600 | 169800 | 500000 |
| | **318L4** | **647** | 1.5 | 272100 | 50 | 26 | 180-200-225-250 | — | — | 486800 | 496800 | 173000 | 500000 |
| | **318L4** | **726** | 1.4 | 274300 | 45 | 26 | 180-200-225-250 | — | — | 503000 | 514300 | 179800 | 500000 |
| | **318L4** | **768** | 1.3 | 275400 | 42 | 26 | 180-200-225-250 | — | — | 503000 | 523000 | 183100 | 500000 |
| | **318L4** | **911** | 1.1 | 278700 | 36 | 26 | 180-200-225-250 | — | — | 503000 | 550600 | 193900 | 500000 |
| | **318L4** | **1059** | 0.94 | 280600 | 31 | 26 | 180-200-225-250 | — | — | 503000 | 565000 | 200000 | 500000 |
| **500** | **318L2** | **18.7** | 26.7 | 132000 | 260 | 63 | — | — | — | 207000 | 211300 | 66900 | 500000 |
| | **318L2** | **23.5** | 21.3 | 141300 | 260 | 63 | — | — | — | 221600 | 226200 | 72100 | 500000 |
| | **318L2** | **27.3** | 18.3 | 147800 | 260 | 63 | — | — | — | 231800 | 236600 | 75900 | 500000 |
| | **318L3** | **76.5** | 6.5 | 201500 | 151 | 80 | — | — | — | 315900 | 322400 | 107000 | 500000 |
| | **318L3** | **98.2** | 5.1 | 217100 | 127 | 80 | — | — | — | 340400 | 347400 | 116200 | 500000 |
| | **318L3** | **117** | 4.3 | 227500 | 112 | 80 | — | — | — | 358400 | 365700 | 123100 | 500000 |
| | **318L3** | **123** | 4.1 | 230900 | 108 | 80 | — | — | — | 364400 | 371900 | 125400 | 500000 |
| | **318L3** | **146** | 3.4 | 241800 | 95 | 80 | — | — | — | 383700 | 391500 | 132800 | 500000 |
| | **318L3** | **170** | 2.9 | 251700 | 85 | 80 | — | — | — | 401400 | 409600 | 139600 | 500000 |
| | **318L4** | **262** | 1.9 | 268100 | 60 | 44 | 180-200-225-250 | — | — | 457200 | 466600 | 161300 | 500000 |
| | **318L4** | **313** | 1.6 | 271400 | 51 | 44 | 180-200-225-250 | — | — | 482000 | 491900 | 171100 | 500000 |
| | **318L4** | **337** | 1.5 | 272800 | 48 | 44 | 180-200-225-250 | — | — | 492700 | 502800 | 175300 | 500000 |
| | **318L4** | **402** | 1.2 | 276300 | 41 | 44 | 180-200-225-250 | — | — | 503000 | 530200 | 185900 | 500000 |
| | **318L4** | **422** | 1.2 | 277300 | 39 | 44 | 180-200-225-250 | — | — | 503000 | 538200 | 189100 | 500000 |
| | **318L4** | **477** | 1 | 279600 | 35 | 44 | 180-200-225-250 | — | — | 503000 | 558100 | 196800 | 500000 |
| | **318L4** | **515** | 0.97 | 280600 | 32 | 44 | 180-200-225-250 | — | — | 503000 | 565000 | 200000 | 500000 |
| | **318L4** | **612** | 0.82 | 280600 | 27 | 44 | 180-200-225-250 | — | — | 503000 | 565000 | 200000 | 500000 |
| | **318L4** | **647** | 0.77 | 280600 | 26 | 44 | 180-200-225-250 | — | — | 503000 | 565000 | 200000 | 500000 |
| | **318L4** | **726** | 0.69 | 280600 | 23 | 44 | 180-200-225-250 | — | — | 503000 | 565000 | 200000 | 500000 |
| | **318L4** | **768** | 0.65 | 280600 | 22 | 44 | 180-200-225-250 | — | — | 503000 | 565000 | 200000 | 500000 |
| | **318L4** | **911** | 0.55 | 280600 | 18.2 | 44 | 180-200-225-250 | — | — | 503000 | 565000 | 200000 | 500000 |
| | **318L4** | **1059** | 0.47 | 280600 | 15.7 | 44 | 180-200-225-250 | — | — | 503000 | 565000 | 200000 | 500000 |

| 319L | Page 322 | 476410 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **319L3** | **84.8** | 17.7 | 195400 | 200 | 50 | — | — | — | 269300 | 296700 | 76700 | 680000 |
| | **319L3** | **109** | 13.8 | 222400 | 200 | 50 | — | — | — | 290200 | 319800 | 83400 | 680000 |
| | **L3193** | **129** | 11.6 | 220800 | 200 | 50 | — | — | — | 305500 | 336600 | 88300 | 680000 |
| | **319L3** | **137** | 11 | 226500 | 200 | 50 | — | — | — | 310700 | 342300 | 90000 | 680000 |
| | **319L3** | **162** | 9.3 | 250300 | 200 | 50 | — | — | — | 326800 | 360000 | 95200 | 680000 |
| | **319L3** | **188** | 8 | 209800 | 192 | 50 | — | — | — | 342200 | 377000 | 100100 | 680000 |
| | **319L3** | **223** | 6.7 | 246100 | 190 | 50 | — | — | — | 359900 | 396500 | 105900 | 680000 |
| | **319L4** | **347** | 4.3 | 298000 | 115 | 30 | 180-200-225-250 | — | — | 410900 | 452700 | 122700 | 680000 |
| | **319L4** | **445** | 3.4 | 319800 | 115 | 30 | 180-200-225-250 | — | — | 442900 | 487900 | 133400 | 680000 |
| | **319L4** | **528** | 2.8 | 335700 | 113 | 30 | 180-200-225-250 | — | — | 466200 | 513700 | 141200 | 680000 |
| | **319L4** | **571** | 2.6 | 344400 | 107 | 30 | 180-200-225-250 | — | — | 477300 | 525800 | 145000 | 680000 |
| | **319L4** | **678** | 2.2 | 354900 | 93 | 30 | 180-200-225-250 | — | — | 502400 | 553600 | 153500 | 680000 |
| | **319L4** | **717** | 2.1 | 355800 | 88 | 30 | 180-200-225-250 | — | — | 510900 | 562900 | 156300 | 680000 |
| | **319L4** | **850** | 1.8 | 363400 | 76 | 30 | 180-200-225-250 | — | — | 537900 | 592600 | 165500 | 680000 |
| | **319L4** | **912** | 1.6 | 336100 | 65 | 30 | 180-200-225-250 | — | — | 549200 | 605100 | 169400 | 680000 |
| | **319L4** | **1007** | 1.5 | 344900 | 61 | 30 | 180-200-225-250 | — | — | 565700 | 623300 | 175100 | 680000 |
| | **319L4** | **1195** | 1.3 | 354500 | 53 | 30 | 180-200-225-250 | — | — | 595600 | 656200 | 185400 | 680000 |
| | **319L4** | **1389** | 1.1 | 355900 | 45 | 30 | 180-200-225-250 | — | — | 623100 | 686500 | 194900 | 680000 |
| **1000** | **319L3** | **84.8** | 11.8 | 220700 | 200 | 60 | — | — | — | 304100 | 335100 | 87900 | 680000 |
| | **319L3** | **109** | 9.2 | 251200 | 200 | 60 | — | — | — | 327800 | 361100 | 95500 | 680000 |
| | **319L3** | **129** | 7.7 | 249300 | 200 | 60 | — | — | — | 345000 | 380100 | 101100 | 680000 |
| | **319L3** | **137** | 7.3 | 255500 | 200 | 60 | — | — | — | 350900 | 386600 | 103000 | 680000 |
| | **319L3** | **162** | 6.2 | 263500 | 187 | 60 | — | — | — | 369000 | 406600 | 108900 | 680000 |
| | **319L3** | **188** | 5.3 | 236700 | 144 | 60 | — | — | — | 386400 | 425800 | 114600 | 680000 |
| | **319L3** | **223** | 4.5 | 274900 | 141 | 60 | — | — | — | 406500 | 447800 | 121300 | 680000 |
| | **319L4** | **347** | 2.9 | 334200 | 114 | 36 | 180-200-225-250 | — | — | 464100 | 511300 | 140500 | 680000 |
| | **319L4** | **445** | 2.2 | 354100 | 94 | 36 | 180-200-225-250 | — | — | 500200 | 551000 | 152700 | 680000 |
| | **319L4** | **528** | 1.9 | 364000 | 82 | 36 | 180-200-225-250 | — | — | 526500 | 580100 | 161700 | 680000 |
| | **319L4** | **571** | 1.8 | 368700 | 76 | 36 | 180-200-225-250 | — | — | 539000 | 593900 | 165900 | 680000 |
| | **319L4** | **678** | 1.5 | 379100 | 66 | 36 | 180-200-225-250 | — | — | 567400 | 625200 | 175700 | 680000 |
| | **319L4** | **717** | 1.4 | 374100 | 62 | 36 | 180-200-225-250 | — | — | 577000 | 635700 | 179000 | 680000 |
| | **319L4** | **850** | 1.2 | 382200 | 53 | 36 | 180-200-225-250 | — | — | 607400 | 669200 | 189500 | 680000 |
| | **319L4** | **912** | 1.1 | 355200 | 46 | 36 | 180-200-225-250 | — | — | 620200 | 683400 | 193900 | 680000 |
| | **319L4** | **1007** | 0.99 | 367600 | 43 | 36 | 180-200-225-250 | — | — | 638000 | 702000 | 200000 | 680000 |
| | **319L4** | **1195** | 0.84 | 367600 | 36 | 36 | 180-200-225-250 | — | — | 638000 | 702000 | 200000 | 680000 |
| | **319L4** | **1389** | 0.72 | 359700 | 31 | 36 | 180-200-225-250 | — | — | 638000 | 702000 | 200000 | 680000 |
| **500** | **319L2** | **20.7** | 24.1 | 191800 | 260 | 70 | — | — | — | 245400 | 270300 | 69200 | 680000 |
| | **319L2** | **24.5** | 20.4 | 200300 | 260 | 70 | — | — | — | 258100 | 284300 | 73200 | 680000 |
| | **319L2** | **26** | 19.2 | 191600 | 260 | 70 | — | — | — | 262700 | 289400 | 74700 | 680000 |

## 319L

Page 322

## 476410 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **500** | **319L2** | **30.2** | 16.5 | 168600 | 260 | 70 | — | — | — | 274800 | 302800 | 78500 | 680000 |
| | **319L2** | **35.8** | 14 | 199000 | 260 | 70 | — | — | — | 289000 | 318500 | 83000 | 680000 |
| | **319L3** | **84.8** | 5.9 | 272100 | 184 | 100 | — | — | — | 374400 | 412500 | 110700 | 680000 |
| | **319L3** | **109** | 4.6 | 306300 | 162 | 100 | — | — | — | 403500 | 444600 | 120300 | 680000 |
| | **319L3** | **129** | 3.9 | 306100 | 136 | 100 | — | — | — | 424800 | 468000 | 127400 | 680000 |
| | **319L3** | **137** | 3.7 | 312300 | 131 | 100 | — | — | — | 432000 | 475900 | 129700 | 680000 |
| | **319L3** | **162** | 3.1 | 302300 | 107 | 100 | — | — | — | 454400 | 500600 | 137200 | 680000 |
| | **319L3** | **188** | 2.7 | 290800 | 89 | 100 | — | — | — | 475800 | 524200 | 144400 | 680000 |
| | **319L3** | **223** | 2.2 | 322300 | 83 | 100 | — | — | — | 500400 | 551300 | 152800 | 680000 |

## 321L

Page 328

## 655740 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **321L4** | **258** | 5.8 | 401700 | 150 | 35 | 180-200-225-250 | — | — | 461500 | 547200 | 667600 | 934000 |
| | **321L4** | **308** | 4.9 | 423600 | 150 | 35 | 180-200-225-250 | — | — | 486600 | 577000 | 708100 | 934000 |
| | **321L4** | **395** | 3.8 | 456500 | 150 | 35 | 180-200-225-250 | — | — | 524400 | 621900 | 769500 | 934000 |
| | **321L4** | **469** | 3.2 | 480500 | 150 | 35 | 180-200-225-250 | — | — | 552000 | 654600 | 814700 | 934000 |
| | **321L4** | **515** | 2.9 | 494200 | 150 | 35 | 180-200-225-250 | — | — | 567800 | 673300 | 840500 | 934000 |
| | **321L4** | **612** | 2.5 | 519900 | 150 | 35 | 180-200-225-250 | — | — | 597700 | 708800 | 889900 | 934000 |
| | **321L4** | **736** | 2 | 545400 | 131 | 35 | 180-200-225-250 | — | — | 631900 | 749400 | 946600 | 934000 |
| | **321L4** | **796** | 1.9 | 556600 | 124 | 35 | 180-200-225-250 | — | — | 646900 | 767100 | 971600 | 934000 |
| | **321L4** | **945** | 1.6 | 581800 | 109 | 35 | 180-200-225-250 | — | — | 681000 | 807600 | 1028700 | 934000 |
| | **321L4** | **1122** | 1.3 | 530200 | 84 | 35 | 180-200-225-250 | — | — | 716900 | 850200 | 1089200 | 934000 |
| **1000** | **321L3** | **75.3** | 13.3 | 313500 | 250 | 60 | — | — | — | 360100 | 427000 | 506800 | 934000 |
| | **321L3** | **98.2** | 10.2 | 339400 | 250 | 60 | — | — | — | 389900 | 462400 | 553600 | 934000 |
| | **321L3** | **118** | 8.5 | 358800 | 250 | 60 | — | — | — | 412200 | 488800 | 588900 | 934000 |
| | **321L3** | **126** | 7.9 | 365800 | 250 | 60 | — | — | — | 420200 | 498300 | 601600 | 934000 |
| | **321L3** | **152** | 6.6 | 386700 | 250 | 60 | — | — | — | 444200 | 526800 | 639900 | 934000 |
| | **321L3** | **180** | 5.6 | 407100 | 250 | 60 | — | — | — | 467700 | 554600 | 677500 | 934000 |
| | **321L4** | **258** | 3.9 | 453700 | 150 | 42 | 180-200-225-250 | — | — | 521200 | 618000 | 764200 | 934000 |
| | **321L4** | **308** | 3.2 | 478300 | 150 | 42 | 180-200-225-250 | — | — | 549500 | 651700 | 810500 | 934000 |
| | **321L4** | **395** | 2.5 | 515500 | 150 | 42 | 180-200-225-250 | — | — | 592200 | 702300 | 880800 | 934000 |
| | **321L4** | **469** | 2.1 | 539100 | 136 | 42 | 180-200-225-250 | — | — | 623400 | 739300 | 932600 | 934000 |
| | **321L4** | **515** | 1.9 | 552400 | 127 | 42 | 180-200-225-250 | — | — | 641200 | 760400 | 962200 | 934000 |
| | **321L4** | **612** | 1.6 | 577400 | 112 | 42 | 180-200-225-250 | — | — | 675000 | 800500 | 1018700 | 934000 |
| | **321L4** | **736** | 1.4 | 605800 | 97 | 42 | 180-200-225-250 | — | — | 713600 | 846300 | 1083600 | 934000 |
| | **321L4** | **796** | 1.3 | 618200 | 92 | 42 | 180-200-225-250 | — | — | 730600 | 866400 | 1112200 | 934000 |

| 321L | Page 328 | 655740 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1000** | **321L4** | **945** | 1.1 | 646200 | 81 | 42 | 180-200-225-250 | — | — | 769100 | 912000 | 1177600 | 934000 |
| | **321L4** | **1122** | 0.89 | 536400 | 57 | 42 | 180-200-225-250 | — | — | 779000 | 923000 | 1200000 | 934000 |
| **500** | **321L3** | **75.3** | 6.6 | 385900 | 250 | 127 | — | — | — | 443300 | 525700 | 638500 | 934000 |
| | **321L3** | **98.2** | 5.1 | 417900 | 244 | 127 | — | — | — | 480000 | 569300 | 697500 | 934000 |
| | **321L3** | **118** | 4.2 | 441800 | 214 | 127 | — | — | — | 507500 | 601800 | 742000 | 934000 |
| | **321L3** | **126** | 4 | 450300 | 205 | 127 | — | — | — | 517300 | 613500 | 758000 | 934000 |
| | **321L3** | **152** | 3.3 | 476100 | 180 | 127 | — | — | — | 546900 | 648600 | 806300 | 934000 |
| | **321L3** | **180** | 2.8 | 501200 | 160 | 127 | — | — | — | 575800 | 682800 | 853700 | 934000 |
| | **321L4** | **258** | 1.9 | 552700 | 127 | 70 | 180-200-225-250 | — | — | 641600 | 760900 | 962800 | 934000 |
| | **321L4** | **308** | 1.6 | 578500 | 111 | 70 | 180-200-225-250 | — | — | 676500 | 802300 | 1021200 | 934000 |
| | **321L4** | **395** | 1.3 | 617100 | 92 | 70 | 180-200-225-250 | — | — | 729100 | 864600 | 1109700 | 934000 |
| | **321L4** | **469** | 1.1 | 645100 | 81 | 70 | 180-200-225-250 | — | — | 767500 | 910200 | 1174900 | 934000 |
| | **321L4** | **515** | 0.97 | 655700 | 75 | 70 | 180-200-225-250 | — | — | 779000 | 923000 | 1200000 | 934000 |
| | **321L4** | **612** | 0.82 | 655700 | 63 | 70 | 180-200-225-250 | — | — | 779000 | 923000 | 1200000 | 934000 |
| | **321L4** | **736** | 0.68 | 655700 | 53 | 70 | 180-200-225-250 | — | — | 779000 | 923000 | 1200000 | 934000 |
| | **321L4** | **796** | 0.63 | 655700 | 49 | 70 | 180-200-225-250 | — | — | 779000 | 923000 | 1200000 | 934000 |
| | **321L4** | **945** | 0.53 | 655700 | 41 | 70 | 180-200-225-250 | — | — | 779000 | 923000 | 1200000 | 934000 |
| | **321L4** | **1122** | 0.45 | 536400 | 28 | 70 | 180-200-225-250 | — | — | 779000 | 923000 | 1200000 | 934000 |

## RATING CHARTS FOR RIGHT-ANGLE UNITS 3_ _R

## نمودار طبقه بندی شده برای گیربکس های راست زاویه 3_ _R

(12) → **301 R** | Page 227

(1) → **2460 Nm**

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **301 L1** | **3.48** | 431 | 840 | 30 | 7.5 | 71-80-90-100-112-132 | 1610 | 1610 | 4970 | 5710 | 1060 | 3400 |
| | **301 L1** | **4.26** | 352 | 880 | 30 | 7.5 | 71-80-90-100-112-132 | 1720 | 1720 | 5280 | 6070 | 1130 | 3400 |
| | **301 L1** | **5.77** | 260 | 930 | 26 | 7.5 | 71-80-90-100-112-132 | 1910 | 1910 | 5790 | 6650 | 1250 | 3400 |
| | **301 L2** | **12.1** | 124 | 1220 | 16.8 | 7.5 | 71-80-90-100-112-132 | 2440 | 2440 | 7230 | 8300 | 1600 | 3400 |
| | **301 L2** | **14.8** | 101 | 1280 | 14.4 | 7.5 | 71-80-90-100-112-132 | 2610 | 2610 | 7680 | 8820 | 1720 | 3400 |

(2) (3) (4) (5) (6) (7) (8) (9) (10) (11)

1. Reference torque
2. Gearbox drive speed
3. Frame size of the right-angle gear unit.

NOTE: letters (B) (C) near size indication identify different angle reduction dimensions. See pages relevant to dimensions.

4. Gear ratio
5. Gearbox output speed
6. Gearbox rated output torque based on:
   - safety factor S=1
   - 10000 h theoretical lifetime
7. Gearbox rated input power, based on:
   - safety factor S=1
   - 10000 h theoretical lifetime
8. Gearbox thermal capacity
9. Frame size of available IEC motor
10. Permitted overhung loading on output shaft, based on:
    - safety factor S=1
    - 10000 h theoretical lifetime.

For forces applying off midpoint of the shaft, see diagrams provided in the pages following dimensions of the specific gearbox

۱. گشتاور مرجع

۲. سرعت درایو گیربکس

۳. سایز گیربکس راست زاویه

نکته: حروف (B) (C) در کنار اندازه، نشانگر ابعاد قسمت R میباشد. صفحات مربوط به ابعاد را ببینید.

۴. نسبت گیربکس

۵. سرعت خروجی گیربکس

۶. گشتاور خروجی مجاز بر اساس:

- فاکتور ایمنی S = 1
- ۱۰۰۰۰ ساعت عمر نظری

۷. قدرت ورودی مجاز گیربکس بر اساس:

- فاکتور ایمنی S = 1
- ۱۰۰۰۰ ساعت عمر نظری

۸. ظرفیت حرارتی گیربکس

۹. اندازه قاب موتور IEC در دسترس

۱۰. حد مجاز بارگذاری بر روی شافت خروجی، بر اساس:

- فاکتور ایمنی S = 1
- ۱۰۰۰۰ ساعت عمر نظری.

برای نیروهایی که در نقطه مرکزی شافت قرار ندارند، نمودارهای را که در صفحات بعد از ابعاد گیربکس ارائه شده است، مشاهده کنید

11. Maximum torque
12. Page installation drawing can be found at

۱۱.حداکثر گشتاور
۱۲.شماره صفحه ابعاد گیربکس

| 300 R | Page 221 | 1250 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **300 R2** | **7.13** | 210 | 580 | 13.7 | 12 | 71-80-90-100-112-132 | — | — | 6170 | 7080 | 1350 | 2000 |
| | **300 R2** | **8.74** | 172 | 610 | 11.7 | 12 | 71-80-90-100-112-132 | — | — | 6550 | 7530 | 1440 | 2400 |
| | **300 R2** | **11.8** | 127 | 590 | 8.3 | 12 | 71-80-90-100-112-132 | — | — | 7180 | 8240 | 1590 | 2400 |
| | **300 R2** | **14.8** | 102 | 510 | 5.7 | 12 | 71-80-90-100-112-132 | — | — | 7670 | 8810 | 1710 | 2400 |
| | **300 R2** | **18.5** | 81 | 370 | 3.3 | 12 | 71-80-90-100-112-132 | — | — | 8200 | 9420 | 1850 | 2400 |
| | **300 R3** | **24.8** | 60 | 730 | 5.1 | 12 | 71-80-90-100-112-132 | — | — | 8960 | 10300 | 2040 | 2000 |
| | **300 R3** | **30.4** | 49 | 840 | 4.8 | 12 | 71-80-90-100-112-132 | — | — | 9530 | 10900 | 2180 | 2400 |
| | **300 R3** | **37.3** | 40 | 840 | 3.9 | 12 | 71-80-90-100-112-132 | — | — | 10100 | 11600 | 2330 | 2400 |
| | **300 R3** | **41.2** | 36 | 650 | 2.7 | 12 | 71-80-90-100-112-132 | — | — | 10400 | 12000 | 2410 | 2400 |
| | **300 R3** | **50.4** | 29.8 | 850 | 2.9 | 12 | 71-80-90-100-112-132 | — | — | 11100 | 12700 | 2580 | 2400 |
| | **300 R3** | **62.9** | 23.8 | 850 | 2.3 | 12 | 71-80-90-100-112-132 | — | — | 11800 | 13600 | 2780 | 2400 |
| | **300 R3** | **68.2** | 22 | 650 | 1.6 | 12 | 71-80-90-100-112-132 | — | — | 12100 | 13900 | 2860 | 2400 |
| | **300 R3** | **78.7** | 19.1 | 850 | 1.9 | 12 | 71-80-90-100-112-132 | — | — | 12700 | 14600 | 2990 | 2400 |
| | **300 R3** | **85.2** | 17.6 | 650 | 1.3 | 12 | 71-80-90-100-112-132 | — | — | 13000 | 14900 | 3070 | 2400 |
| | **300 R3** | **106** | 14.1 | 650 | 1.1 | 12 | 71-80-90-100-112-132 | — | — | 13900 | 15900 | 3310 | 2400 |
| | **300 R3** | **133** | 11.3 | 550 | 0.71 | 12 | 71-80-90-100-112-132 | — | — | 14800 | 17000 | 3570 | 2400 |
| | **300 R4** | **106** | 14.2 | 860 | 1.4 | 10 | 71-80-90-100-112-132 | — | — | 13800 | 15900 | 3310 | 2400 |
| | **300 R4** | **130** | 11.6 | 860 | 1.2 | 10 | 71-80-90-100-112-132 | — | — | 14700 | 16900 | 3540 | 2400 |
| | **300 R4** | **143** | 10.5 | 650 | 0.81 | 10 | 71-80-90-100-112-132 | — | — | 15200 | 17400 | 3660 | 2400 |
| | **300 R4** | **159** | 9.4 | 870 | 0.97 | 10 | 71-80-90-100-112-132 | — | — | 15600 | 18000 | 3780 | 2400 |
| | **300 R4** | **175** | 8.5 | 880 | 0.89 | 10 | 71-80-90-100-112-132 | — | — | 16100 | 18500 | 3910 | 2400 |
| | **300 R4** | **215** | 7 | 910 | 0.75 | 10 | 71-80-90-100-112-132 | — | — | 17100 | 19700 | 4190 | 2400 |
| | **300 R4** | **237** | 6.3 | 650 | 0.49 | 10 | 71-80-90-100-112-132 | — | — | 17600 | 20300 | 4330 | 2400 |
| | **300 R4** | **268** | 5.6 | 930 | 0.62 | 10 | 71-80-90-100-112-132 | — | — | 18300 | 21000 | 4510 | 2400 |
| | **300 R4** | **291** | 5.2 | 950 | 0.58 | 10 | 71-80-90-100-112-132 | — | — | 18800 | 21500 | 4630 | 2400 |
| | **300 R4** | **363** | 4.1 | 980 | 0.48 | 10 | 71-80-90-100-112-132 | — | — | 20000 | 23000 | 4990 | 2400 |
| | **300 R4** | **394** | 3.8 | 680 | 0.31 | 10 | 71-80-90-100-112-132 | — | — | 20500 | 23600 | 5120 | 2400 |
| | **300 R4** | **453** | 3.3 | 1020 | 0.4 | 10 | 71-80-90-100-112-132 | — | — | 21400 | 24600 | 5370 | 2400 |
| | **300 R4** | **491** | 3.1 | 710 | 0.25 | 10 | 71-80-90-100-112-132 | — | — | 21900 | 25200 | 5510 | 2400 |
| | **300 R4** | **613** | 2.4 | 730 | 0.21 | 10 | 71-80-90-100-112-132 | — | — | 23500 | 27000 | 5940 | 2400 |
| | **300 R4** | **766** | 2 | 760 | 0.18 | 10 | 71-80-90-100-112-132 | — | — | 25100 | 28800 | 6400 | 2400 |
| **1000** | **300 R2** | **7.13** | 140 | 660 | 10.3 | 14.4 | 71-80-90-100-112-132 | — | — | 6960 | 8000 | 1540 | 2000 |
| | **300 R2** | **8.74** | 114 | 690 | 8.8 | 14.4 | 71-80-90-100-112-132 | — | — | 7400 | 8500 | 1650 | 2400 |

| 300 R | Page 221 | 1250 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1000** | **300 R2** | **11.8** | 85 | 630 | 6 | 14.4 | 71-80-90-100-112-132 | — | — | 8100 | 9310 | 1820 | 2400 |
| | **300 R2** | **14.8** | 68 | 530 | 4 | 14.4 | 71-80-90-100-112-132 | — | — | 8660 | 9950 | 1960 | 2400 |
| | **300 R2** | **18.5** | 54 | 370 | 2.2 | 14.4 | 71-80-90-100-112-132 | — | — | 9260 | 10600 | 2110 | 2400 |
| | **300 R3** | **24.8** | 40 | 730 | 3.4 | 14.4 | 71-80-90-100-112-132 | — | — | 10100 | 11600 | 2330 | 2000 |
| | **300 R3** | **30.4** | 33 | 850 | 3.2 | 14.4 | 71-80-90-100-112-132 | — | — | 10800 | 12400 | 2500 | 2400 |
| | **300 R3** | **37.3** | 26.8 | 850 | 2.6 | 14.4 | 71-80-90-100-112-132 | — | — | 11400 | 13100 | 2670 | 2400 |
| | **300 R3** | **41.2** | 24.3 | 650 | 1.8 | 14.4 | 71-80-90-100-112-132 | — | — | 11800 | 13500 | 2760 | 2400 |
| | **300 R3** | **50.4** | 19.8 | 850 | 1.9 | 14.4 | 71-80-90-100-112-132 | — | — | 12500 | 14400 | 2960 | 2400 |
| | **300 R3** | **62.9** | 15.9 | 850 | 1.6 | 14.4 | 71-80-90-100-112-132 | — | — | 13400 | 15400 | 3180 | 2400 |
| | **300 R3** | **68.2** | 14.7 | 650 | 1.1 | 14.4 | 71-80-90-100-112-132 | — | — | 13700 | 15800 | 3270 | 2400 |
| | **300 R3** | **78.7** | 12.7 | 860 | 1.3 | 14.4 | 71-80-90-100-112-132 | — | — | 14300 | 16400 | 3430 | 2400 |
| | **300 R3** | **85.2** | 11.7 | 650 | 0.88 | 14.4 | 71-80-90-100-112-132 | — | — | 14700 | 16800 | 3520 | 2400 |
| | **300 R3** | **106** | 9.4 | 650 | 0.7 | 14.4 | 71-80-90-100-112-132 | — | — | 15700 | 18000 | 3790 | 2400 |
| | **300 R3** | **133** | 7.5 | 550 | 0.48 | 14.4 | 71-80-90-100-112-132 | — | — | 16700 | 19200 | 4080 | 2400 |
| | **300 R4** | **106** | 9.4 | 870 | 0.97 | 12 | 71-80-90-100-112-132 | — | — | 15600 | 18000 | 3780 | 2400 |
| | **300 R4** | **130** | 7.7 | 890 | 0.81 | 12 | 71-80-90-100-112-132 | — | — | 16600 | 19100 | 4050 | 2400 |
| | **300 R4** | **143** | 7 | 650 | 0.54 | 12 | 71-80-90-100-112-132 | — | — | 17100 | 19700 | 4190 | 2400 |
| | **300 R4** | **159** | 6.3 | 920 | 0.68 | 12 | 71-80-90-100-112-132 | — | — | 17700 | 20300 | 4330 | 2400 |
| | **300 R4** | **175** | 5.7 | 930 | 0.63 | 12 | 71-80-90-100-112-132 | — | — | 18200 | 20900 | 4480 | 2400 |
| | **300 R4** | **215** | 4.7 | 960 | 0.53 | 12 | 71-80-90-100-112-132 | — | — | 19300 | 22200 | 4790 | 2400 |
| | **300 R4** | **237** | 4.2 | 670 | 0.33 | 12 | 71-80-90-100-112-132 | — | — | 19900 | 22900 | 4950 | 2400 |
| | **300 R4** | **268** | 3.7 | 1000 | 0.44 | 12 | 71-80-90-100-112-132 | — | — | 20700 | 23800 | 5160 | 2400 |
| | **300 R4** | **291** | 3.4 | 1010 | 0.41 | 12 | 71-80-90-100-112-132 | — | — | 21200 | 24300 | 5300 | 2400 |
| | **300 R4** | **363** | 2.8 | 1050 | 0.34 | 12 | 71-80-90-100-112-132 | — | — | 22600 | 26000 | 5710 | 2400 |
| | **300 R4** | **394** | 2.5 | 730 | 0.22 | 12 | 71-80-90-100-112-132 | — | — | 23200 | 26600 | 5860 | 2400 |
| | **300 R4** | **453** | 2.2 | 1090 | 0.29 | 12 | 71-80-90-100-112-132 | — | — | 24200 | 27800 | 6140 | 2400 |
| | **300 R4** | **491** | 2 | 760 | 0.18 | 12 | 71-80-90-100-112-132 | — | — | 24800 | 28500 | 6310 | 2400 |
| | **300 R4** | **613** | 1.6 | 790 | 0.15 | 12 | 71-80-90-100-112-132 | — | — | 26500 | 30400 | 6800 | 2400 |
| | **300 R4** | **766** | 1.3 | 820 | 0.13 | 12 | 71-80-90-100-112-132 | — | — | 28300 | 32500 | 7320 | 2400 |
| **500** | **300R2** | **7.13** | 70 | 730 | 5.7 | 24 | 71-80-90-100-112-132 | — | — | 8570 | 9850 | 1940 | 2000 |
| | **300R2** | **8.74** | 57 | 820 | 5.2 | 24 | 71-80-90-100-112-132 | — | — | 9110 | 10500 | 2080 | 2400 |
| | **300R2** | **11.8** | 42 | 650 | 3.1 | 24 | 71-80-90-100-112-132 | — | — | 9980 | 11500 | 2300 | 2400 |
| | **300R2** | **14.8** | 34 | 550 | 2.1 | 24 | 71-80-90-100-112-132 | — | — | 10700 | 12300 | 2470 | 2400 |
| | **300R2** | **18.5** | 27.1 | 370 | 1.1 | 24 | 71-80-90-100-112-132 | — | — | 11400 | 13100 | 2660 | 2400 |
| | **300R3** | **24.8** | 20.1 | 730 | 1.7 | 24 | 71-80-90-100-112-132 | — | — | 12500 | 14300 | 2940 | 2000 |
| | **300R3** | **30.4** | 16.4 | 850 | 1.6 | 24 | 71-80-90-100-112-132 | — | — | 13200 | 15200 | 3150 | 2400 |
| | **300R3** | **37.3** | 13.4 | 860 | 1.3 | 24 | 71-80-90-100-112-132 | — | — | 14100 | 16200 | 3370 | 2400 |

## 300 R — Page 221 — 1250 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **500** | **300R3** | **41.2** | 12.1 | 650 | 0.91 | 24 | 71-80-90-100-112-132 | — | — | 14500 | 16700 | 3480 | 2400 |
| | **300R3** | **50.4** | 9.9 | 860 | 0.98 | 24 | 71-80-90-100-112-132 | — | — | 15400 | 17700 | 3720 | 2400 |
| | **300R3** | **62.9** | 7.9 | 890 | 0.81 | 24 | 71-80-90-100-112-132 | — | — | 16500 | 18900 | 4010 | 2400 |
| | **300R3** | **68.2** | 7.3 | 650 | 0.55 | 24 | 71-80-90-100-112-132 | — | — | 16900 | 19400 | 4120 | 2400 |
| | **300R3** | **78.7** | 6.4 | 920 | 0.67 | 24 | 71-80-90-100-112-132 | — | — | 17600 | 20200 | 4320 | 2400 |
| | **300R3** | **85.2** | 5.9 | 650 | 0.44 | 24 | 71-80-90-100-112-132 | — | — | 18000 | 20700 | 4430 | 2400 |
| | **300R3** | **106** | 4.7 | 660 | 0.35 | 24 | 71-80-90-100-112-132 | — | — | 19300 | 22200 | 4780 | 2400 |
| | **300R3** | **133** | 3.8 | 570 | 0.25 | 24 | 71-80-90-100-112-132 | — | — | 20600 | 23700 | 5140 | 2400 |
| | **300R4** | **106** | 4.7 | 960 | 0.54 | 20 | 71-80-90-100-112-132 | — | — | 19300 | 22100 | 4770 | 2400 |
| | **300R4** | **130** | 3.9 | 990 | 0.45 | 20 | 71-80-90-100-112-132 | — | — | 20500 | 23500 | 5100 | 2400 |
| | **300R4** | **143** | 3.5 | 690 | 0.29 | 20 | 71-80-90-100-112-132 | — | — | 21100 | 24200 | 5270 | 2400 |
| | **300R4** | **159** | 3.1 | 1030 | 0.38 | 20 | 71-80-90-100-112-132 | — | — | 21700 | 25000 | 5460 | 2400 |
| | **300R4** | **175** | 2.8 | 1050 | 0.35 | 20 | 71-80-90-100-112-132 | — | — | 22400 | 25700 | 5640 | 2400 |
| | **300R4** | **215** | 2.3 | 1080 | 0.3 | 20 | 71-80-90-100-112-132 | — | — | 23800 | 27400 | 6040 | 2400 |
| | **300R4** | **237** | 2.1 | 750 | 0.19 | 20 | 71-80-90-100-112-132 | — | — | 24500 | 28200 | 6240 | 2400 |
| | **300R4** | **268** | 1.9 | 1120 | 0.25 | 20 | 71-80-90-100-112-132 | — | — | 25500 | 29200 | 6500 | 2400 |
| | **300R4** | **291** | 1.7 | 1140 | 0.23 | 20 | 71-80-90-100-112-132 | — | — | 26100 | 30000 | 6680 | 2400 |
| | **300R4** | **363** | 1.4 | 1180 | 0.19 | 20 | 71-80-90-100-112-132 | — | — | 27900 | 32000 | 7190 | 2400 |
| | **300R4** | **394** | 1.3 | 820 | 0.12 | 20 | 71-80-90-100-112-132 | — | — | 28600 | 32800 | 7390 | 2400 |
| | **300R4** | **453** | 1.1 | 1230 | 0.16 | 20 | 71-80-90-100-112-132 | — | — | 29800 | 34000 | 7740 | 2400 |
| | **300R4** | **491** | 1 | 860 | 0.1 | 20 | 71-80-90-100-112-132 | — | — | 30500 | 34000 | 7950 | 2400 |
| | **300R4** | **613** | 0.82 | 860 | 0.08 | 20 | 71-80-90-100-112-132 | — | — | 31000 | 34000 | 8000 | 2400 |
| | **300R4** | **766** | 0.65 | 860 | 0.07 | 20 | 71-80-90-100-112-132 | — | — | 31000 | 34000 | 8000 | 2400 |

## 301 R — Page 227 — 2060 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **301 R2** | **7.13** | 210 | 1040 | 15 | 12 | 71-80-90-100-112-132 | — | — | 6170 | 7080 | 1350 | 3200 |
| | **301 R2** | **8.74** | 172 | 1090 | 15 | 12 | 71-80-90-100-112-132 | — | — | 6550 | 7530 | 1440 | 3200 |
| | **301 R2** | **11.8** | 127 | 1150 | 15 | 12 | 71-80-90-100-112-132 | — | — | 7180 | 8240 | 1590 | 3200 |
| | **301 R2** | **14.8** | 102 | 940 | 10.6 | 12 | 71-80-90-100-112-132 | — | — | 7670 | 8810 | 1710 | 3200 |
| | **301 R2** | **18.5** | 81 | 740 | 6.7 | 12 | 71-80-90-100-112-132 | — | — | 8200 | 9420 | 1850 | 3200 |
| | **301 R3** | **24.8** | 60 | 1390 | 9.7 | 12 | 71-80-90-100-112-132 | — | — | 8960 | 10300 | 2040 | 3400 |
| | **301 R3** | **30.4** | 49 | 1580 | 8.9 | 12 | 71-80-90-100-112-132 | — | — | 9530 | 10900 | 2180 | 3400 |
| | **301 R3** | **37.3** | 40 | 1600 | 7.4 | 12 | 71-80-90-100-112-132 | — | — | 10100 | 11600 | 2330 | 3400 |

## 301 R

Page 227

## 2060 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **301 R3** | **41.2** | 36 | 1300 | 5.4 | 12 | 71-80-90-100-112-132 | — | — | 10400 | 12000 | 2410 | 3400 |
| | **301 R3** | **50.4** | 29.8 | 1630 | 5.6 | 12 | 71-80-90-100-112-132 | — | — | 11100 | 12700 | 2580 | 3400 |
| | **301 R3** | **62.9** | 23.8 | 1650 | 4.5 | 12 | 71-80-90-100-112-132 | — | — | 11800 | 13600 | 2780 | 3400 |
| | **301 R3** | **68.2** | 22 | 1300 | 3.3 | 12 | 71-80-90-100-112-132 | — | — | 12100 | 13900 | 2860 | 3400 |
| | **301 R3** | **78.7** | 19.1 | 1570 | 3.4 | 12 | 71-80-90-100-112-132 | — | — | 12700 | 14600 | 2990 | 3400 |
| | **301 R3** | **85.2** | 17.6 | 1300 | 2.6 | 12 | 71-80-90-100-112-132 | — | — | 13000 | 14900 | 3070 | 3400 |
| | **301 R3** | **106** | 14.1 | 1300 | 2.1 | 12 | 71-80-90-100-112-132 | — | — | 13900 | 15900 | 3310 | 3400 |
| | **301 R3** | **133** | 11.3 | 1150 | 1.5 | 12 | 71-80-90-100-112-132 | — | — | 14800 | 17000 | 3570 | 3400 |
| | **301 R4** | **106** | 14.2 | 1700 | 2.8 | 10 | 71-80-90-100-112-132 | — | — | 13800 | 15900 | 3310 | 3400 |
| | **301 R4** | **130** | 11.6 | 1720 | 2.3 | 10 | 71-80-90-100-112-132 | — | — | 14700 | 16900 | 3540 | 3400 |
| | **301 R4** | **143** | 10.5 | 1300 | 1.6 | 10 | 71-80-90-100-112-132 | — | — | 15200 | 17400 | 3660 | 3400 |
| | **301 R4** | **159** | 9.4 | 1740 | 1.9 | 10 | 71-80-90-100-112-132 | — | — | 15600 | 18000 | 3780 | 3400 |
| | **301 R4** | **175** | 8.5 | 1770 | 1.8 | 10 | 71-80-90-100-112-132 | — | — | 16100 | 18500 | 3910 | 3400 |
| | **301 R4** | **215** | 7 | 1820 | 1.5 | 10 | 71-80-90-100-112-132 | — | — | 17100 | 19700 | 4190 | 3400 |
| | **301 R4** | **237** | 6.3 | 1300 | 0.97 | 10 | 71-80-90-100-112-132 | — | — | 17600 | 20300 | 4330 | 3400 |
| | **301 R4** | **268** | 5.6 | 1870 | 1.2 | 10 | 71-80-90-100-112-132 | — | — | 18300 | 21000 | 4510 | 3400 |
| | **301 R4** | **291** | 5.2 | 1890 | 1.2 | 10 | 71-80-90-100-112-132 | — | — | 18800 | 21500 | 4630 | 3400 |
| | **301 R4** | **363** | 4.1 | 1960 | 0.96 | 10 | 71-80-90-100-112-132 | — | — | 20000 | 23000 | 4990 | 3400 |
| | **301 R4** | **394** | 3.8 | 1360 | 0.61 | 10 | 71-80-90-100-112-132 | — | — | 20500 | 23600 | 5120 | 3400 |
| | **301 R4** | **453** | 3.3 | 1930 | 0.76 | 10 | 71-80-90-100-112-132 | — | — | 21400 | 24600 | 5370 | 3400 |
| | **301 R4** | **491** | 3.1 | 1410 | 0.51 | 10 | 71-80-90-100-112-132 | — | — | 21900 | 25200 | 5510 | 3400 |
| | **301 R4** | **613** | 2.4 | 1470 | 0.42 | 10 | 71-80-90-100-112-132 | — | — | 23500 | 27000 | 5940 | 3400 |
| | **301 R4** | **766** | 2 | 1530 | 0.35 | 10 | 71-80-90-100-112-132 | — | — | 25100 | 28800 | 6400 | 3400 |
| **1000** | **301 R2** | **7.13** | 140 | 1170 | 15 | 14.4 | 71-80-90-100-112-132 | — | — | 6960 | 8000 | 1540 | 3200 |
| | **301 R2** | **8.74** | 114 | 1230 | 15 | 14.4 | 71-80-90-100-112-132 | — | — | 7400 | 8500 | 1650 | 3200 |
| | **301 R2** | **11.8** | 85 | 1250 | 11.8 | 14.4 | 71-80-90-100-112-132 | — | — | 8100 | 9310 | 1820 | 3200 |
| | **301 R2** | **14.8** | 68 | 1050 | 7.9 | 14.4 | 71-80-90-100-112-132 | — | — | 8660 | 9950 | 1960 | 3200 |
| | **301 R2** | **18.5** | 54 | 740 | 4.5 | 14.4 | 71-80-90-100-112-132 | — | — | 9260 | 10600 | 2110 | 3200 |
| | **301 R3** | **24.8** | 40 | 1430 | 6.6 | 14.4 | 71-80-90-100-112-132 | — | — | 10100 | 11600 | 2330 | 3400 |
| | **301 R3** | **30.4** | 33 | 1620 | 6.1 | 14.4 | 71-80-90-100-112-132 | — | — | 10800 | 12400 | 2500 | 3400 |
| | **301 R3** | **37.3** | 26.8 | 1640 | 5 | 14.4 | 71-80-90-100-112-132 | — | — | 11400 | 13100 | 2670 | 3400 |
| | **301 R3** | **41.2** | 24.3 | 1300 | 3.6 | 14.4 | 71-80-90-100-112-132 | — | — | 11800 | 13500 | 2760 | 3400 |
| | **301 R3** | **50.4** | 19.8 | 1660 | 3.8 | 14.4 | 71-80-90-100-112-132 | — | — | 12500 | 14400 | 2960 | 3400 |
| | **301 R3** | **62.9** | 15.9 | 1690 | 3.1 | 14.4 | 71-80-90-100-112-132 | — | — | 13400 | 15400 | 3180 | 3400 |
| | **301 R3** | **68.2** | 14.7 | 1300 | 2.2 | 14.4 | 71-80-90-100-112-132 | — | — | 13700 | 15800 | 3270 | 3400 |
| | **301 R3** | **78.7** | 12.7 | 1590 | 2.3 | 14.4 | 71-80-90-100-112-132 | — | — | 14300 | 16400 | 3430 | 3400 |
| | **301 R3** | **85.2** | 11.7 | 1300 | 1.8 | 14.4 | 71-80-90-100-112-132 | — | — | 14700 | 16800 | 3520 | 3400 |
| | **301 R3** | **106** | 9.4 | 1300 | 1.4 | 14.4 | 71-80-90-100-112-132 | — | — | 15700 | 18000 | 3790 | 3400 |
| | **301 R3** | **133** | 7.5 | 1150 | 0.99 | 14.4 | 71-80-90-100-112-132 | — | — | 16700 | 19200 | 4080 | 3400 |

| 301 R | Page 227 | 2060 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **301 R4** | **106** | 9.4 | 1740 | 1.9 | 12 | 71-80-90-100-112-132 | — | — | 15600 | 18000 | 3780 | 3400 |
| | **301 R4** | **130** | 7.7 | 1790 | 1.6 | 12 | 71-80-90-100-112-132 | — | — | 16600 | 19100 | 4050 | 3400 |
| | **301 R4** | **143** | 7 | 1300 | 1.1 | 12 | 71-80-90-100-112-132 | — | — | 17100 | 19700 | 4190 | 3400 |
| | **301 R4** | **159** | 6.3 | 1840 | 1.4 | 12 | 71-80-90-100-112-132 | — | — | 17700 | 20300 | 4330 | 3400 |
| | **301 R4** | **175** | 5.7 | 1870 | 1.3 | 12 | 71-80-90-100-112-132 | — | — | 18200 | 20900 | 4480 | 3400 |
| | **301 R4** | **215** | 4.7 | 1920 | 1.1 | 12 | 71-80-90-100-112-132 | — | — | 19300 | 22200 | 4790 | 3400 |
| | **301 R4** | **237** | 4.2 | 1340 | 0.67 | 12 | 71-80-90-100-112-132 | — | — | 19900 | 22900 | 4950 | 3400 |
| | **301 R4** | **268** | 3.7 | 2000 | 0.88 | 12 | 71-80-90-100-112-132 | — | — | 20700 | 23800 | 5160 | 3400 |
| | **301 R4** | **291** | 3.4 | 2030 | 0.82 | 12 | 71-80-90-100-112-132 | — | — | 21200 | 24300 | 5300 | 3400 |
| | **301 R4** | **363** | 2.8 | 2100 | 0.69 | 12 | 71-80-90-100-112-132 | — | — | 22600 | 26000 | 5710 | 3400 |
| | **301 R4** | **394** | 2.5 | 1460 | 0.44 | 12 | 71-80-90-100-112-132 | — | — | 23200 | 26600 | 5860 | 3400 |
| | **301 R4** | **453** | 2.2 | 2000 | 0.52 | 12 | 71-80-90-100-112-132 | — | — | 24200 | 27800 | 6140 | 3400 |
| | **301 R4** | **491** | 2 | 1510 | 0.36 | 12 | 71-80-90-100-112-132 | — | — | 24800 | 28500 | 6310 | 3400 |
| | **301 R4** | **613** | 1.6 | 1580 | 0.3 | 12 | 71-80-90-100-112-132 | — | — | 26500 | 30400 | 6800 | 3400 |
| | **301 R4** | **766** | 1.3 | 1640 | 0.25 | 12 | 71-80-90-100-112-132 | — | — | 28300 | 32500 | 7320 | 3400 |
| **500** | **301R2** | **7.13** | 70 | 1370 | 10.6 | 24 | 71-80-90-100-112-132 | — | — | 8570 | 9850 | 1940 | 3200 |
| | **301R2** | **8.74** | 57 | 1520 | 9.7 | 24 | 71-80-90-100-112-132 | — | — | 9110 | 10500 | 2080 | 3200 |
| | **301R2** | **11.8** | 42 | 1300 | 6.1 | 24 | 71-80-90-100-112-132 | — | — | 9980 | 11500 | 2300 | 3200 |
| | **301R2** | **14.8** | 34 | 1150 | 4.3 | 24 | 71-80-90-100-112-132 | — | — | 10700 | 12300 | 2470 | 3200 |
| | **301R2** | **18.5** | 27.1 | 740 | 2.2 | 24 | 71-80-90-100-112-132 | — | — | 11400 | 13100 | 2660 | 3200 |
| | **301R3** | **24.8** | 20.1 | 1430 | 3.3 | 24 | 71-80-90-100-112-132 | — | — | 12500 | 14300 | 2940 | 3400 |
| | **301R3** | **30.4** | 16.4 | 1680 | 3.2 | 24 | 71-80-90-100-112-132 | — | — | 13200 | 15200 | 3150 | 3400 |
| | **301R3** | **37.3** | 13.4 | 1700 | 2.6 | 24 | 71-80-90-100-112-132 | — | — | 14100 | 16200 | 3370 | 3400 |
| | **301R3** | **41.2** | 12.1 | 1300 | 1.8 | 24 | 71-80-90-100-112-132 | — | — | 14500 | 16700 | 3480 | 3400 |
| | **301R3** | **50.4** | 9.9 | 1730 | 2 | 24 | 71-80-90-100-112-132 | — | — | 15400 | 17700 | 3720 | 3400 |
| | **301R3** | **62.9** | 7.9 | 1760 | 1.6 | 24 | 71-80-90-100-112-132 | — | — | 16500 | 18900 | 4010 | 3400 |
| | **301R3** | **68.2** | 7.3 | 1300 | 1.1 | 24 | 71-80-90-100-112-132 | — | — | 16900 | 19400 | 4120 | 3400 |
| | **301R3** | **78.7** | 6.4 | 1600 | 1.2 | 24 | 71-80-90-100-112-132 | — | — | 17600 | 20200 | 4320 | 3400 |
| | **301R3** | **85.2** | 5.9 | 1300 | 0.88 | 24 | 71-80-90-100-112-132 | — | — | 18000 | 20700 | 4430 | 3400 |
| | **301R3** | **106** | 4.7 | 1310 | 0.71 | 24 | 71-80-90-100-112-132 | — | — | 19300 | 22200 | 4780 | 3400 |
| | **301R3** | **133** | 3.8 | 1150 | 0.5 | 24 | 71-80-90-100-112-132 | — | — | 20600 | 23700 | 5140 | 3400 |
| | **301R4** | **106** | 4.7 | 1920 | 1.1 | 20 | 71-80-90-100-112-132 | — | — | 19300 | 22100 | 4770 | 3400 |
| | **301R4** | **130** | 3.9 | 1990 | 0.91 | 20 | 71-80-90-100-112-132 | — | — | 20500 | 23500 | 5100 | 3400 |
| | **301R4** | **143** | 3.5 | 1380 | 0.57 | 20 | 71-80-90-100-112-132 | — | — | 21100 | 24200 | 5270 | 3400 |
| | **301R4** | **159** | 3.1 | 2060 | 0.77 | 20 | 71-80-90-100-112-132 | — | — | 21700 | 25000 | 5460 | 3400 |
| | **301R4** | **175** | 2.8 | 2090 | 0.71 | 20 | 71-80-90-100-112-132 | — | — | 22400 | 25700 | 5640 | 3400 |
| | **301R4** | **215** | 2.3 | 2160 | 0.6 | 20 | 71-80-90-100-112-132 | — | — | 23800 | 27400 | 6040 | 3400 |
| | **301R4** | **237** | 2.1 | 1510 | 0.37 | 20 | 71-80-90-100-112-132 | — | — | 24500 | 28200 | 6240 | 3400 |
| | **301R4** | **268** | 1.9 | 2240 | 0.49 | 20 | 71-80-90-100-112-132 | — | — | 25500 | 29200 | 6500 | 3400 |

## 301 R — Page 227 — 2060 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **500** | **301R4** | **291** | 1.7 | 2270 | 0.46 | 20 | 71-80-90-100-112-132 | — | — | 26100 | 30000 | 6680 | 3400 |
| | **301R4** | **363** | 1.4 | 2340 | 0.38 | 20 | 71-80-90-100-112-132 | — | — | 27900 | 32000 | 7190 | 3400 |
| | **301R4** | **394** | 1.3 | 1650 | 0.25 | 20 | 71-80-90-100-112-132 | — | — | 28600 | 32800 | 7390 | 3400 |
| | **301R4** | **453** | 1.1 | 2000 | 0.26 | 20 | 71-80-90-100-112-132 | — | — | 29800 | 34000 | 7740 | 3400 |
| | **301R4** | **491** | 1 | 1710 | 0.21 | 20 | 71-80-90-100-112-132 | — | — | 30500 | 34000 | 7950 | 3400 |
| | **301R4** | **613** | 0.82 | 1720 | 0.17 | 20 | 71-80-90-100-112-132 | — | — | 31000 | 34000 | 8000 | 3400 |
| | **301R4** | **766** | 0.65 | 1720 | 0.13 | 20 | 71-80-90-100-112-132 | — | — | 31000 | 34000 | 8000 | 3400 |

## 303 R — Page 233 — 2970 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **303 R2** | **9.23** | 163 | 1680 | 30 | 18 | 71-80-90-100-112-132 | — | — | 13600 | 16400 | 4400 | 5200 |
| | **303 R2** | **10.9** | 138 | 1900 | 29 | 18 | 71-80-90-100-112-132 | — | — | 14300 | 17200 | 4650 | 5200 |
| | **303 R2** | **13.7** | 110 | 1970 | 24 | 18 | 71-80-90-100-112-132 | — | — | 15300 | 18400 | 5010 | 5200 |
| | **303 R2** | **15.9** | 94 | 1820 | 19.1 | 18 | 71-80-90-100-112-132 | — | — | 16000 | 19300 | 5270 | 5200 |
| | **303 R2** | **19.2** | 78 | 1550 | 13.5 | 18 | 71-80-90-100-112-132 | — | — | 16900 | 20400 | 5620 | 5200 |
| | **303 R2** | **24.8** | 61 | 860 | 5.8 | 18 | 71-80-90-100-112-132 | | | 18300 | 22000 | 6110 | 5200 |
| | **303 R3** | **25.7** | 58 | 2030 | 13.6 | 14 | 71-80-90-100-112-132 | — | — | 18500 | 22200 | 6190 | 5200 |
| | **303 R3** | **31.5** | 48 | 2110 | 11.5 | 14 | 71-80-90-100-112-132 | — | — | 19600 | 23600 | 6620 | 5200 |
| | **303 R3** | **37.1** | 40 | 2390 | 11.1 | 14 | 71-80-90-100-112-132 | — | — | 20600 | 24800 | 7000 | 5200 |
| | **303 R3** | **42.6** | 35 | 2070 | 8.4 | 14 | 71-80-90-100-112-132 | — | — | 21500 | 25900 | 7320 | 5200 |
| | **303 R3** | **46.6** | 32 | 2160 | 8 | 14 | 71-80-90-100-112-132 | — | — | 22100 | 26600 | 7550 | 5200 |
| | **303 R3** | **50.3** | 29.8 | 2380 | 8.2 | 14 | 71-80-90-100-112-132 | — | — | 22600 | 27200 | 7740 | 5200 |
| | **303 R3** | **54.2** | 27.7 | 1820 | 5.8 | 14 | 71-80-90-100-112-132 | — | — | 23100 | 27800 | 7930 | 5200 |
| | **303 R3** | **63.1** | 23.8 | 2170 | 5.9 | 14 | 71-80-90-100-112-132 | — | — | 24200 | 29100 | 8350 | 5200 |
| | **303 R3** | **73.3** | 20.5 | 1820 | 4.3 | 14 | 71-80-90-100-112-132 | — | — | 25300 | 30500 | 8780 | 5200 |
| | **303 R3** | **78.7** | 19.1 | 2180 | 4.8 | 14 | 71-80-90-100-112-132 | — | — | 25900 | 31100 | 8990 | 5200 |
| | **303 R3** | **91.5** | 16.4 | 1820 | 3.4 | 14 | 71-80-90-100-112-132 | — | — | 27100 | 32600 | 9450 | 5200 |
| | **303 R3** | **114** | 13.1 | 1820 | 2.7 | 14 | 71-80-90-100-112-132 | — | — | 28900 | 34800 | 10200 | 5200 |
| | **303 R4** | **129** | 11.6 | 2620 | 3.6 | 12 | 71-80-90-100-112-132 | — | — | 30000 | 36100 | 10600 | 5200 |
| | **303 R4** | **148** | 10.1 | 2310 | 2.8 | 12 | 71-80-90-100-112-132 | — | — | 31300 | 37600 | 11100 | 5200 |
| | **303 R4** | **158** | 9.5 | 2660 | 3 | 12 | 71-80-90-100-112-132 | — | — | 31900 | 38400 | 11300 | 5200 |
| | **303 R4** | **185** | 8.1 | 2310 | 2.2 | 12 | 71-80-90-100-112-132 | — | — | 33400 | 40200 | 11900 | 5200 |
| | **303 R4** | **214** | 7 | 2730 | 2.3 | 12 | 71-80-90-100-112-132 | — | — | 34900 | 42000 | 12500 | 5200 |
| | **303 R4** | **231** | 6.5 | 1830 | 1.4 | 12 | 71-80-90-100-112-132 | — | — | 35700 | 43000 | 12900 | 5200 |

## 303 R

Page 233

## 2970 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **303 R4** | **255** | 5.9 | 1840 | 1.3 | 12 | 71-80-90-100-112-132 | — | — | 36800 | 44300 | 13300 | 5200 |
| | **303 R4** | **290** | 5.2 | 2650 | 1.6 | 12 | 71-80-90-100-112-132 | — | — | 38300 | 46000 | 13900 | 5200 |
| | **303 R4** | **313** | 4.8 | 1850 | 1.1 | 12 | 71-80-90-100-112-132 | — | — | 39100 | 47100 | 14200 | 5200 |
| | **303 R4** | **336** | 4.5 | 2270 | 1.2 | 12 | 71-80-90-100-112-132 | — | — | 40000 | 48100 | 14600 | 5200 |
| | **303 R4** | **364** | 4.1 | 2310 | 1.1 | 12 | 71-80-90-100-112-132 | — | — | 40900 | 49300 | 15000 | 5200 |
| | **303 R4** | **390** | 3.8 | 1930 | 0.88 | 12 | 71-80-90-100-112-132 | — | — | 41800 | 50300 | 15300 | 5200 |
| | **303 R4** | **452** | 3.3 | 2250 | 0.88 | 12 | 71-80-90-100-112-132 | — | — | 43700 | 52600 | 16100 | 5200 |
| | **303 R4** | **528** | 2.8 | 2030 | 0.68 | 12 | 71-80-90-100-112-132 | — | — | 45800 | 55100 | 16900 | 5200 |
| | **303 R4** | **567** | 2.6 | 2430 | 0.76 | 12 | 71-80-90-100-112-132 | — | — | 46800 | 56300 | 17400 | 5200 |
| | **303 R4** | **659** | 2.3 | 2110 | 0.57 | 12 | 71-80-90-100-112-132 | — | — | 48900 | 58900 | 18200 | 5200 |
| | **303 R4** | **797** | 1.9 | 1820 | 0.41 | 12 | 71-80-90-100-112-132 | — | — | 51800 | 62300 | 19400 | 5200 |
| | **303 R4** | **824** | 1.8 | 2200 | 0.47 | 12 | 71-80-90-100-112-132 | — | — | 52300 | 62900 | 19700 | 5200 |
| **1000** | **303 R2** | **9.23** | 108 | 1890 | 23 | 22 | 71-80-90-100-112-132 | — | — | 15400 | 18500 | 5030 | 5200 |
| | **303 R2** | **10.9** | 92 | 2140 | 22 | 22 | 71-80-90-100-112-132 | — | — | 16100 | 19400 | 5320 | 5200 |
| | **303 R2** | **13.7** | 73 | 2080 | 16.9 | 22 | 71-80-90-100-112-132 | — | — | 17300 | 20800 | 5740 | 5200 |
| | **303 R2** | **15.9** | 63 | 1820 | 12.7 | 22 | 71-80-90-100-112-132 | — | — | 18100 | 21700 | 6030 | 5200 |
| | **303 R2** | **19.2** | 52 | 1640 | 9.5 | 22 | 71-80-90-100-112-132 | — | — | 19100 | 23000 | 6430 | 5200 |
| | **303 R2** | **24.8** | 40 | 860 | 3.9 | 22 | 71-80-90-100-112-132 | — | — | 20700 | 24800 | 7000 | 5200 |
| | **303 R3** | **25.7** | 39 | 2160 | 9.6 | 16.8 | 71-80-90-100-112-132 | — | — | 20900 | 25100 | 7080 | 5200 |
| | **303 R3** | **31.5** | 32 | 2160 | 7.9 | 16.8 | 71-80-90-100-112-132 | — | — | 22200 | 26700 | 7580 | 5200 |
| | **303 R3** | **37.1** | 26.9 | 2460 | 7.6 | 16.8 | 71-80-90-100-112-132 | — | — | 23300 | 28100 | 8010 | 5200 |
| | **303 R3** | **42.6** | 23.5 | 2110 | 5.7 | 16.8 | 71-80-90-100-112-132 | — | — | 24300 | 29200 | 8380 | 5200 |
| | **303 R3** | **46.6** | 21.5 | 2170 | 5.3 | 16.8 | 71-80-90-100-112-132 | — | — | 25000 | 30000 | 8640 | 5200 |
| | **303 R3** | **50.3** | 19.9 | 2470 | 5.6 | 16.8 | 71-80-90-100-112-132 | — | — | 25500 | 30700 | 8860 | 5200 |
| | **303 R3** | **54.2** | 18.5 | 1820 | 3.9 | 16.8 | 71-80-90-100-112-132 | — | — | 26100 | 31400 | 9080 | 5200 |
| | **303 R3** | **63.1** | 15.9 | 2180 | 4 | 16.8 | 71-80-90-100-112-132 | — | — | 27300 | 32900 | 9550 | 5200 |
| | **303 R3** | **73.3** | 13.6 | 1820 | 2.8 | 16.8 | 71-80-90-100-112-132 | — | — | 28600 | 34400 | 10000 | 5200 |
| | **303 R3** | **78.7** | 12.7 | 2190 | 3.2 | 16.8 | 71-80-90-100-112-132 | — | — | 29200 | 35100 | 10300 | 5200 |
| | **303 R3** | **91.5** | 10.9 | 1820 | 2.3 | 16.8 | 71-80-90-100-112-132 | — | — | 30600 | 36800 | 10800 | 5200 |
| | **303 R3** | **114** | 8.7 | 1820 | 1.8 | 16.8 | 71-80-90-100-112-132 | — | — | 32700 | 39300 | 11700 | 5200 |
| | **303 R4** | **129** | 7.7 | 2710 | 2.5 | 14.4 | 71-80-90-100-112-132 | — | — | 33900 | 40800 | 12100 | 5200 |
| | **303 R4** | **148** | 6.7 | 2310 | 1.8 | 14.4 | 71-80-90-100-112-132 | — | — | 35300 | 42500 | 12700 | 5200 |
| | **303 R4** | **158** | 6.3 | 2760 | 2.1 | 14.4 | 71-80-90-100-112-132 | — | — | 36000 | 43300 | 13000 | 5200 |
| | **303 R4** | **185** | 5.4 | 2310 | 1.5 | 14.4 | 71-80-90-100-112-132 | — | — | 37700 | 45400 | 13700 | 5200 |
| | **303 R4** | **214** | 4.7 | 2810 | 1.6 | 14.4 | 71-80-90-100-112-132 | — | — | 39500 | 47500 | 14400 | 5200 |
| | **303 R4** | **231** | 4.3 | 1890 | 0.97 | 14.4 | 71-80-90-100-112-132 | — | — | 40300 | 48500 | 14700 | 5200 |
| | **303 R4** | **255** | 3.9 | 1920 | 0.89 | 14.4 | 71-80-90-100-112-132 | — | — | 41600 | 50000 | 15200 | 5200 |
| | **303 R4** | **290** | 3.4 | 2680 | 1.1 | 14.4 | 71-80-90-100-112-132 | — | — | 43200 | 52000 | 15900 | 5200 |

| 303 R | Page 233 | 2970 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1000** | **303 R4** | **313** | 3.2 | 1990 | 0.75 | 14.4 | 71-80-90-100-112-132 | — | — | 44200 | 53200 | 16300 | 5200 |
| | **303 R4** | **336** | 3 | 2440 | 0.86 | 14.4 | 71-80-90-100-112-132 | — | — | 45100 | 54300 | 16700 | 5200 |
| | **303 R4** | **364** | 2.7 | 2480 | 0.81 | 14.4 | 71-80-90-100-112-132 | — | — | 46200 | 55600 | 17100 | 5200 |
| | **303 R4** | **390** | 2.6 | 2070 | 0.63 | 14.4 | 71-80-90-100-112-132 | — | — | 47200 | 56800 | 17500 | 5200 |
| | **303 R4** | **452** | 2.2 | 2250 | 0.59 | 14.4 | 71-80-90-100-112-132 | — | — | 49300 | 59400 | 18400 | 5200 |
| | **303 R4** | **528** | 1.9 | 2180 | 0.49 | 14.4 | 71-80-90-100-112-132 | — | — | 51700 | 62200 | 19400 | 5200 |
| | **303 R4** | **567** | 1.8 | 2600 | 0.54 | 14.4 | 71-80-90-100-112-132 | — | — | 52800 | 63500 | 19900 | 5200 |
| | **303 R4** | **659** | 1.5 | 2270 | 0.41 | 14.4 | 71-80-90-100-112-132 | — | — | 55300 | 66500 | 20900 | 5200 |
| | **303 R4** | **797** | 1.3 | 1930 | 0.29 | 14.4 | 71-80-90-100-112-132 | — | — | 58500 | 70400 | 22300 | 5200 |
| | **303 R4** | **824** | 1.2 | 2360 | 0.34 | 14.4 | 71-80-90-100-112-132 | — | — | 59100 | 71100 | 22500 | 5200 |
| **500** | **303R2** | **9.23** | 54 | 2260 | 13.7 | 36 | 71-80-90-100-112-132 | — | — | 18900 | 22700 | 6340 | 5200 |
| | **303R2** | **10.9** | 46 | 2570 | 13.2 | 36 | 71-80-90-100-112-132 | — | — | 19900 | 23900 | 6700 | 5200 |
| | **303R2** | **13.7** | 37 | 2150 | 8.8 | 36 | 71-80-90-100-112-132 | — | — | 21300 | 25600 | 7230 | 5200 |
| | **303R2** | **15.9** | 31 | 1820 | 6.4 | 36 | 71-80-90-100-112-132 | — | — | 22300 | 26800 | 7600 | 5200 |
| | **303R2** | **19.2** | 26 | 1650 | 4.8 | 36 | 71-80-90-100-112-132 | — | — | 23600 | 28300 | 8100 | 5200 |
| | **303R2** | **24.8** | 20.2 | 860 | 1.9 | 36 | 71-80-90-100-112-132 | — | — | 25400 | 30600 | 8810 | 5200 |
| | **303R3** | **25.7** | 19.5 | 2230 | 5 | 28 | 71-80-90-100-112-132 | — | — | 25700 | 30900 | 8920 | 5200 |
| | **303R3** | **31.5** | 15.9 | 2250 | 4.1 | 28 | 71-80-90-100-112-132 | — | — | 27300 | 32900 | 9550 | 5200 |
| | **303R3** | **37.1** | 13.5 | 2590 | 4 | 28 | 71-80-90-100-112-132 | — | — | 28700 | 34500 | 10100 | 5200 |
| | **303R3** | **42.6** | 11.7 | 2190 | 3 | 28 | 71-80-90-100-112-132 | — | — | 29900 | 36000 | 10600 | 5200 |
| | **303R3** | **46.6** | 10.7 | 2200 | 2.7 | 28 | 71-80-90-100-112-132 | — | — | 30700 | 37000 | 10900 | 5200 |
| | **303R3** | **50.3** | 9.9 | 2620 | 3 | 28 | 71-80-90-100-112-132 | — | — | 31400 | 37800 | 11200 | 5200 |
| | **303R3** | **54.2** | 9.2 | 1820 | 1.9 | 28 | 71-80-90-100-112-132 | — | — | 32200 | 38700 | 11400 | 5200 |
| | **303R3** | **63.1** | 7.9 | 2210 | 2 | 28 | 71-80-90-100-112-132 | — | — | 33700 | 40500 | 12000 | 5200 |
| | **303R3** | **73.3** | 6.8 | 1830 | 1.4 | 28 | 71-80-90-100-112-132 | — | — | 35200 | 42400 | 12700 | 5200 |
| | **303R3** | **78.7** | 6.4 | 2220 | 1.6 | 28 | 71-80-90-100-112-132 | — | — | 36000 | 43300 | 13000 | 5200 |
| | **303R3** | **91.5** | 5.5 | 1840 | 1.2 | 28 | 71-80-90-100-112-132 | — | — | 37600 | 45300 | 13600 | 5200 |
| | **303R3** | **114** | 4.4 | 1880 | 0.94 | 28 | 71-80-90-100-112-132 | — | — | 40200 | 48400 | 14700 | 5200 |
| | **303R4** | **129** | 3.9 | 2810 | 1.3 | 24 | 71-80-90-100-112-132 | — | — | 41700 | 50200 | 15300 | 5200 |
| | **303R4** | **148** | 3.4 | 2310 | 0.92 | 24 | 71-80-90-100-112-132 | — | — | 43500 | 52300 | 16000 | 5200 |
| | **303R4** | **158** | 3.2 | 2810 | 1 | 24 | 71-80-90-100-112-132 | — | — | 44400 | 53400 | 16400 | 5200 |
| | **303R4** | **185** | 2.7 | 2310 | 0.74 | 24 | 71-80-90-100-112-132 | — | — | 46500 | 55900 | 17200 | 5200 |
| | **303R4** | **214** | 2.3 | 2820 | 0.78 | 24 | 71-80-90-100-112-132 | — | — | 48600 | 58400 | 18100 | 5200 |
| | **303R4** | **231** | 2.2 | 2130 | 0.55 | 24 | 71-80-90-100-112-132 | — | — | 49700 | 59800 | 18600 | 5200 |
| | **303R4** | **255** | 2 | 2170 | 0.5 | 24 | 71-80-90-100-112-132 | — | — | 51200 | 61600 | 19200 | 5200 |
| | **303R4** | **290** | 1.7 | 2730 | 0.56 | 24 | 71-80-90-100-112-132 | — | — | 53200 | 64000 | 20000 | 5200 |
| | **303R4** | **313** | 1.6 | 2250 | 0.43 | 24 | 71-80-90-100-112-132 | — | — | 54400 | 65400 | 20500 | 5200 |
| | **303R4** | **336** | 1.5 | 2700 | 0.48 | 24 | 71-80-90-100-112-132 | — | — | 55600 | 66900 | 21000 | 5200 |

## 303 R

Page 233

## 2970 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **500** | **303R4** | **364** | 1.4 | 2730 | 0.44 | 24 | 71-80-90-100-112-132 | — | — | 56900 | 68500 | 21600 | 5200 |
| | **303R4** | **390** | 1.3 | 2340 | 0.35 | 24 | 71-80-90-100-112-132 | — | — | 58100 | 69900 | 22100 | 5200 |
| | **303R4** | **452** | 1.1 | 2250 | 0.29 | 24 | 71-80-90-100-112-132 | — | — | 60700 | 73100 | 23200 | 5200 |
| | **303R4** | **528** | 0.95 | 2440 | 0.27 | 24 | 71-80-90-100-112-132 | — | — | 63700 | 74000 | 24000 | 5200 |
| | **303R4** | **567** | 0.88 | 2850 | 0.3 | 24 | 71-80-90-100-112-132 | — | — | 64000 | 74000 | 24000 | 5200 |
| | **303R4** | **659** | 0.76 | 2440 | 0.22 | 24 | 71-80-90-100-112-132 | — | — | 64000 | 74000 | 24000 | 5200 |
| | **303R4** | **797** | 0.63 | 2000 | 0.15 | 24 | 71-80-90-100-112-132 | — | — | 64000 | 74000 | 24000 | 5200 |
| | **303R4** | **824** | 0.61 | 2440 | 0.18 | 24 | 71-80-90-100-112-132 | — | — | 64000 | 74000 | 24000 | 5200 |

## 305 R

Page 241

## 5600 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **305 R2** | **9.23** | 163 | 1680 | 30 | 18 | 71-80-90-100-112-132 | — | — | 13600 | 16400 | 4400 | 7700 |
| | **305 R2** | **10.9** | 138 | 1980 | 30 | 18 | 71-80-90-100-112-132 | — | — | 14300 | 17200 | 4650 | 7700 |
| | **305 R2** | **13.7** | 110 | 2490 | 30 | 18 | 71-80-90-100-112-132 | — | — | 15300 | 18400 | 5010 | 7700 |
| | **305 R2** | **15.9** | 94 | 2890 | 30 | 18 | 71-80-90-100-112-132 | — | — | 16000 | 19300 | 5270 | 7700 |
| | **305 R2** | **19.2** | 78 | 2860 | 25 | 18 | 71-80-90-100-112-132 | — | — | 16900 | 20400 | 5620 | 7700 |
| | **305 R3** | **25.7** | 58 | 3630 | 15 | 14 | 71-80-90-100-112-132 | — | — | 18500 | 22200 | 6190 | 8800 |
| | **305 R3** | **31.5** | 48 | 3770 | 15 | 14 | 71-80-90-100-112-132 | — | — | 19600 | 23600 | 6620 | 8800 |
| | **305 R3** | **37.1** | 40 | 4340 | 15 | 14 | 71-80-90-100-112-132 | — | — | 20600 | 24800 | 7000 | 8800 |
| | **305 R3** | **42.6** | 35 | 3790 | 15 | 14 | 71-80-90-100-112-132 | — | — | 21500 | 25900 | 7320 | 8800 |
| | **305 R3** | **46.6** | 32 | 4310 | 15 | 14 | 71-80-90-100-112-132 | — | — | 22100 | 26600 | 7550 | 8800 |
| | **305 R3** | **50.3** | 29.8 | 4410 | 15 | 14 | 71-80-90-100-112-132 | — | — | 22600 | 27200 | 7740 | 8800 |
| | **305 R3** | **54.2** | 27.7 | 3570 | 11.3 | 14 | 71-80-90-100-112-132 | — | — | 23100 | 27800 | 7930 | 8800 |
| | **305 R3** | **63.1** | 23.8 | 4330 | 11.8 | 14 | 71-80-90-100-112-132 | — | — | 24200 | 29100 | 8350 | 8800 |
| | **305 R3** | **73.3** | 20.5 | 3580 | 8.4 | 14 | 71-80-90-100-112-132 | — | — | 25300 | 30500 | 8780 | 8800 |
| | **305 R3** | **78.7** | 19.1 | 4350 | 9.5 | 14 | 71-80-90-100-112-132 | — | — | 25900 | 31100 | 8990 | 8800 |
| | **305 R3** | **91.5** | 16.4 | 3580 | 6.7 | 14 | 71-80-90-100-112-132 | — | — | 27100 | 32600 | 9450 | 8800 |
| | **305 R3** | **114** | 13.1 | 3580 | 5.4 | 14 | 71-80-90-100-112-132 | — | — | 28900 | 34800 | 10200 | 8800 |
| | **305 R4** | **129** | 11.6 | 5200 | 7.1 | 12 | 71-80-90-100-112-132 | — | — | 30000 | 36100 | 10600 | 8800 |
| | **305 R4** | **148** | 10.1 | 4480 | 5.4 | 12 | 71-80-90-100-112-132 | — | —— | 31300 | 37600 | 11100 | 8800 |
| | **305 R4** | **158** | 9.5 | 5310 | 6 | 12 | 71-80-90-100-112-132 | — | — | 31900 | 38400 | 11300 | 8800 |
| | **305 R4** | **185** | 8.1 | 4490 | 4.3 | 12 | 71-80-90-100-112-132 | — | — | 33400 | 40200 | 11900 | 8800 |
| | **305 R4** | **214** | 7 | 5390 | 4.5 | 12 | 71-80-90-100-112-132 | — | — | 34900 | 42000 | 12500 | 8800 |
| | **305 R4** | **231** | 6.5 | 3600 | 2.8 | 12 | 71-80-90-100-112-132 | — | — | 35700 | 43000 | 12900 | 8800 |
| | **305 R4** | **255** | 5.9 | 3600 | 2.5 | 12 | 71-80-90-100-112-132 | — | — | 36800 | 44300 | 13300 | 8800 |

## 305 R

Page 241

## 5600 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **305 R4** | **290** | 5.2 | 5300 | 3.2 | 12 | 71-80-90-100-112-132 | — | — | 38300 | 46000 | 13900 | 8800 |
| | **305 R4** | **313** | 4.8 | 3620 | 2.1 | 12 | 71-80-90-100-112-132 | — | — | 39100 | 47100 | 14200 | 8800 |
| | **305 R4** | **336** | 4.5 | 4560 | 2.4 | 12 | 71-80-90-100-112-132 | — | — | 40000 | 48100 | 14600 | 8800 |
| | **305 R4** | **364** | 4.1 | 4620 | 2.3 | 12 | 71-80-90-100-112-132 | — | — | 40900 | 49300 | 15000 | 8800 |
| | **305 R4** | **390** | 3.8 | 3750 | 1.7 | 12 | 71-80-90-100-112-132 | — | — | 41800 | 50300 | 15300 | 8800 |
| | **305 R4** | **452** | 3.3 | 4750 | 1.9 | 12 | 71-80-90-100-112-132 | — | — | 43700 | 52600 | 16100 | 8800 |
| | **305 R4** | **528** | 2.8 | 3920 | 1.3 | 12 | 71-80-90-100-112-132 | — | — | 45800 | 55100 | 16900 | 8800 |
| | **305 R4** | **567** | 2.6 | 4860 | 1.5 | 12 | 71-80-90-100-112-132 | — | — | 46800 | 56300 | 17400 | 8800 |
| | **305 R4** | **659** | 2.3 | 4070 | 1.1 | 12 | 71-80-90-100-112-132 | — | — | 48900 | 58900 | 18200 | 8800 |
| | **305 R4** | **797** | 1.9 | 3450 | 0.77 | 12 | 71-80-90-100-112-132 | — | — | 51800 | 62300 | 19400 | 8800 |
| | **305 R4** | **824** | 1.8 | 4230 | 0.91 | 12 | 71-80-90-100-112-132 | — | — | 52300 | 62900 | 19700 | 8800 |
| **1000** | **305 R2** | **9.23** | 108 | 1890 | 23 | 22 | 71-80-90-100-112-132 | — | — | 15400 | 18500 | 5030 | 7700 |
| | **305 R2** | **10.9** | 92 | 2240 | 23 | 22 | 71-80-90-100-112-132 | — | — | 16100 | 19400 | 5320 | 7700 |
| | **305 R2** | **13.7** | 73 | 2810 | 23 | 22 | 71-80-90-100-112-132 | — | — | 17300 | 20800 | 5740 | 7700 |
| | **305 R2** | **15.9** | 63 | 3270 | 23 | 22 | 71-80-90-100-112-132 | — | — | 18100 | 21700 | 6030 | 7700 |
| | **305 R2** | **19.2** | 52 | 2990 | 17.3 | 22 | 71-80-90-100-112-132 | — | — | 19100 | 23000 | 6430 | 7700 |
| | **305 R3** | **25.7** | 39 | 3900 | 15 | 16.8 | 71-80-90-100-112-132 | — | — | 20900 | 25100 | 7080 | 8800 |
| | **305 R3** | **31.5** | 32 | 3950 | 14.4 | 16.8 | 71-80-90-100-112-132 | — | — | 22200 | 26700 | 7580 | 8800 |
| | **305 R3** | **37.1** | 26.9 | 4600 | 14.2 | 16.8 | 71-80-90-100-112-132 | — | — | 23300 | 28100 | 8010 | 8800 |
| | **305 R3** | **42.6** | 23.5 | 3990 | 10.7 | 16.8 | 71-80-90-100-112-132 | — | — | 24300 | 29200 | 8380 | 8800 |
| | **305 R3** | **46.6** | 21.5 | 4340 | 10.7 | 16.8 | 71-80-90-100-112-132 | — | — | 25000 | 30000 | 8640 | 8800 |
| | **305 R3** | **50.3** | 19.9 | 4700 | 10.7 | 16.8 | 71-80-90-100-112-132 | — | — | 25500 | 30700 | 8860 | 8800 |
| | **305 R3** | **54.2** | 18.5 | 3580 | 7.6 | 16.8 | 71-80-90-100-112-132 | — | — | 26100 | 31400 | 9080 | 8800 |
| | **305 R3** | **63.1** | 15.9 | 4370 | 7.9 | 16.8 | 71-80-90-100-112-132 | — | — | 27300 | 32900 | 9550 | 8800 |
| | **305 R3** | **73.3** | 13.6 | 3590 | 5.6 | 16.8 | 71-80-90-100-112-132 | — | — | 28600 | 34400 | 10000 | 8800 |
| | **305 R3** | **78.7** | 12.7 | 4380 | 6.4 | 16.8 | 71-80-90-100-112-132 | — | — | 29200 | 35100 | 10300 | 8800 |
| | **305 R3** | **91.5** | 10.9 | 3600 | 4.5 | 16.8 | 71-80-90-100-112-132 | — | — | 30600 | 36800 | 10800 | 8800 |
| | **305 R3** | **114** | 8.7 | 3600 | 3.6 | 16.8 | 71-80-90-100-112-132 | — | — | 32700 | 39300 | 11700 | 8800 |
| | **305 R4** | **129** | 7.7 | 5370 | 4.9 | 14.4 | 71-80-90-100-112-132 | — | — | 33900 | 40800 | 12100 | 8800 |
| | **305 R4** | **148** | 6.7 | 4490 | 3.6 | 14.4 | 71-80-90-100-112-132 | — | — | 35300 | 42500 | 12700 | 8800 |
| | **305 R4** | **158** | 6.3 | 5420 | 4 | 14.4 | 71-80-90-100-112-132 | — | — | 36000 | 43300 | 13000 | 8800 |
| | **305 R4** | **185** | 5.4 | 4490 | 2.9 | 14.4 | 71-80-90-100-112-132 | — | — | 37700 | 45400 | 13700 | 8800 |
| | **305 R4** | **214** | 4.7 | 5480 | 3 | 14.4 | 71-80-90-100-112-132 | — | — | 39500 | 47500 | 14400 | 8800 |
| | **305 R4** | **231** | 4.3 | 3680 | 1.9 | 14.4 | 71-80-90-100-112-132 | — | — | 40300 | 48500 | 14700 | 8800 |
| | **305 R4** | **255** | 3.9 | 3740 | 1.7 | 14.4 | 71-80-90-100-112-132 | — | — | 41600 | 50000 | 15200 | 8800 |
| | **305 R4** | **290** | 3.4 | 5350 | 2.2 | 14.4 | 71-80-90-100-112-132 | — | — | 43200 | 52000 | 15900 | 8800 |
| | **305 R4** | **313** | 3.2 | 3850 | 1.5 | 14.4 | 71-80-90-100-112-132 | — | — | 44200 | 53200 | 16300 | 8800 |
| | **305 R4** | **336** | 3 | 4890 | 1.7 | 14.4 | 71-80-90-100-112-132 | — | — | 45100 | 54300 | 16700 | 8800 |

## 305 R

Page 241

## 5600 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1000** | **305 R4** | **364** | 2.7 | 4960 | 1.6 | 14.4 | 71-80-90-100-112-132 | — | — | 46200 | 55600 | 17100 | 8800 |
| | **305 R4** | **390** | 2.6 | 3980 | 1.2 | 14.4 | 71-80-90-100-112-132 | — | — | 47200 | 56800 | 17500 | 8800 |
| | **305 R4** | **452** | 2.2 | 4750 | 1.2 | 14.4 | 71-80-90-100-112-132 | — | — | 49300 | 59400 | 18400 | 8800 |
| | **305 R4** | **528** | 1.9 | 4200 | 0.94 | 14.4 | 71-80-90-100-112-132 | — | — | 51700 | 62200 | 19400 | 8800 |
| | **305 R4** | **567** | 1.8 | 5160 | 1.1 | 14.4 | 71-80-90-100-112-132 | — | — | 52800 | 63500 | 19900 | 8800 |
| | **305 R4** | **659** | 1.5 | 4360 | 0.78 | 14.4 | 71-80-90-100-112-132 | — | — | 55300 | 66500 | 20900 | 8800 |
| | **305 R4** | **797** | 1.3 | 3670 | 0.54 | 14.4 | 71-80-90-100-112-132 | — | — | 58500 | 70400 | 22300 | 8800 |
| | **305 R4** | **824** | 1.2 | 4530 | 0.65 | 14.4 | 71-80-90-100-112-132 | | | 59100 | 71100 | 22500 | 8800 |
| **500** | **305R2** | **9.23** | 54 | 2330 | 14.1 | 36 | 71-80-90-100-112-132 | — | — | 18900 | 22700 | 6340 | 7700 |
| | **305R2** | **10.9** | 46 | 2750 | 14 | 36 | 71-80-90-100-112-132 | — | — | 19900 | 23900 | 6700 | 7700 |
| | **305R2** | **13.7** | 37 | 3340 | 13.6 | 36 | 71-80-90-100-112-132 | — | — | 21300 | 25600 | 7230 | 7700 |
| | **305R2** | **15.9** | 31 | 3530 | 12.4 | 36 | 71-80-90-100-112-132 | — | — | 22300 | 26800 | 7600 | 7700 |
| | **305R2** | **19.2** | 26 | 3040 | 8.8 | 36 | 71-80-90-100-112-132 | — | — | 23600 | 28300 | 8100 | 7700 |
| | **305R3** | **25.7** | 19.5 | 4190 | 9.4 | 28 | 71-80-90-100-112-132 | — | — | 25700 | 30900 | 8920 | 8800 |
| | **305R3** | **31.5** | 15.9 | 4260 | 7.8 | 28 | 71-80-90-100-112-132 | — | — | 27300 | 32900 | 9550 | 8800 |
| | **305R3** | **37.1** | 13.5 | 5080 | 7.8 | 28 | 71-80-90-100-112-132 | — | — | 28700 | 34500 | 10100 | 8800 |
| | **305R3** | **42.6** | 11.7 | 4340 | 5.9 | 28 | 71-80-90-100-112-132 | — | — | 29900 | 36000 | 10600 | 8800 |
| | **305R3** | **46.6** | 10.7 | 4390 | 5.4 | 28 | 71-80-90-100-112-132 | — | — | 30700 | 37000 | 10900 | 8800 |
| | **305R3** | **50.3** | 9.9 | 5230 | 6 | 28 | 71-80-90-100-112-132 | — | — | 31400 | 37800 | 11200 | 8800 |
| | **305R3** | **54.2** | 9.2 | 3600 | 3.8 | 28 | 71-80-90-100-112-132 | — | — | 32200 | 38700 | 11400 | 8800 |
| | **305R3** | **63.1** | 7.9 | 4420 | 4 | 28 | 71-80-90-100-112-132 | — | — | 33700 | 40500 | 12000 | 8800 |
| | **305R3** | **73.3** | 6.8 | 3600 | 2.8 | 28 | 71-80-90-100-112-132 | — | — | 35200 | 42400 | 12700 | 8800 |
| | **305R3** | **78.7** | 6.4 | 4450 | 3.2 | 28 | 71-80-90-100-112-132 | — | — | 36000 | 43300 | 13000 | 8800 |
| | **305R3** | **91.5** | 5.5 | 3600 | 2.3 | 28 | 71-80-90-100-112-132 | — | — | 37600 | 45300 | 13600 | 8800 |
| | **305R3** | **114** | 4.4 | 3670 | 1.8 | 28 | 71-80-90-100-112-132 | — | — | 40200 | 48400 | 14700 | 8800 |

## 306 R

Page 249

## 7300 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **306 R2** | **9.23** | 163 | 1680 | 30 | 18 | 71-80-90-100-112-132-160 | — | — | 22200 | 25900 | 6410 | 12000 |
| | **306 R2** | **10.9** | 138 | 1980 | 30 | 18 | 71-80-90-100-112-132-160 | — | — | 23400 | 27200 | 6780 | 12000 |
| | **306 R2** | **13.7** | 110 | 2490 | 30 | 18 | 71-80-90-100-112-132-160 | — | — | 25000 | 29100 | 7310 | 12000 |
| | **306 R2** | **15.9** | 94 | 2890 | 30 | 18 | 71-80-90-100-112-132-160 | — | — | 26200 | 30500 | 7690 | 12000 |
| | **306 R2** | **19.2** | 78 | 3490 | 30 | 18 | 71-80-90-100-112-132-160 | — | — | 27700 | 32300 | 8190 | 12000 |
| | **306 R3** | **33.2** | 45 | 5810 | 30 | 14 | 71-80-90-100-112-132-160 | — | — | 32700 | 38000 | 9830 | 14900 |
| | **306 R3** | **39.2** | 38 | 6550 | 29 | 14 | 71-80-90-100-112-132-160 | — | — | 34300 | 40000 | 10400 | 14900 |
| | **306 R3** | **46.3** | 32 | 7510 | 28 | 14 | 71-80-90-100-112-132-160 | — | — | 36100 | 42000 | 11000 | 14900 |

## 306 R

Page 249

## 7300 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **306 R3** | **58.1** | 25.8 | 7580 | 22 | 14 | 71-80-90-100-112-132-160 | — | — | 38600 | 45000 | 11800 | 14900 |
| | **306 R3** | **67.5** | 22.2 | 7090 | 18.1 | 14 | 71-80-90-100-112-132-160 | — | — | 40400 | 47100 | 12500 | 14900 |
| | **306 R3** | **72.9** | 20.6 | 7420 | 17.5 | 14 | 71-80-90-100-112-132-160 | — | — | 41300 | 48100 | 12800 | 14900 |
| | **306 R3** | **84.7** | 17.7 | 7530 | 15.3 | 14 | 71-80-90-100-112-132-160 | — | — | 43300 | 50400 | 13400 | 14900 |
| | **306 R3** | **98.5** | 15.2 | 6490 | 11.3 | 14 | 71-80-90-100-112-132-160 | — | — | 45300 | 52700 | 14100 | 14900 |
| | **306 R3** | **119** | 12.6 | 6490 | 9.4 | 14 | 71-80-90-100-112-132-160 | — | — | 47900 | 55800 | 15000 | 14900 |
| | **306 R3** | **144** | 10.4 | 5490 | 6.6 | 14 | 71-80-90-100-112-132-160 | — | — | 50700 | 59100 | 16000 | 14900 |
| | **306 R4** | **158** | 9.5 | 9620 | 10.8 | 12 | 71-80-90-100-112-132-160 | — | — | 52100 | 60700 | 16500 | 14900 |
| | **306 R4** | **168** | 8.9 | 7560 | 8 | 12 | 71-80-90-100-112-132-160 | — | — | 53100 | 61800 | 16900 | 14900 |
| | **306 R4** | **181** | 8.3 | 9450 | 9.3 | 12 | 71-80-90-100-112-132-160 | — | — | 54300 | 63200 | 17300 | 14900 |
| | **306 R4** | **214** | 7 | 9730 | 8.1 | 12 | 71-80-90-100-112-132-160 | — | — | 57100 | 66500 | 18300 | 14900 |
| | **306 R4** | **230** | 6.5 | 7590 | 5.8 | 12 | 71-80-90-100-112-132-160 | — | — | 58400 | 68000 | 18700 | 14900 |
| | **306 R4** | **249** | 6 | 8200 | 5.9 | 12 | 71-80-90-100-112-132-160 | — | — | 59700 | 69600 | 19200 | 14900 |
| | **306 R4** | **289** | 5.2 | 8280 | 5.1 | 12 | 71-80-90-100-112-132-160 | — | — | 62500 | 72800 | 20200 | 14900 |
| | **306 R4** | **312** | 4.8 | 7590 | 4.3 | 12 | 71-80-90-100-112-132-160 | — | — | 63900 | 74500 | 20700 | 14900 |
| | **306 R4** | **389** | 3.9 | 7590 | 3.5 | 12 | 71-80-90-100-112-132-160 | — | — | 68300 | 79600 | 22300 | 14900 |
| | **306 R4** | **420** | 3.6 | 8790 | 3.7 | 12 | 71-80-90-100-112-132-160 | — | — | 69900 | 81400 | 22900 | 14900 |
| | **306 R4** | **455** | 3.3 | 7020 | 2.7 | 12 | 71-80-90-100-112-132-160 | — | — | 71600 | 83400 | 23500 | 14900 |
| | **306 R4** | **488** | 3.1 | 9020 | 3.3 | 12 | 71-80-90-100-112-132-160 | — | — | 73200 | 85200 | 24100 | 14900 |
| | **306 R4** | **550** | 2.7 | 7260 | 2.3 | 12 | 71-80-90-100-112-132-160 | — | — | 75800 | 88300 | 25100 | 14900 |
| | **306 R4** | **590** | 2.5 | 8480 | 2.5 | 12 | 71-80-90-100-112-132-160 | — | — | 77400 | 90200 | 25600 | 14900 |
| | **306 R4** | **665** | 2.3 | 6010 | 1.6 | 12 | 71-80-90-100-112-132-160 | — | — | 80300 | 93500 | 26700 | 14900 |
| | **306 R4** | **830** | 1.8 | 6270 | 1.3 | 12 | 71-80-90-100-112-132-160 | — | — | 85800 | 99900 | 28700 | 14900 |
| **1000** | **306 R2** | **9.23** | 108 | 1890 | 23 | 22 | 71-80-90-100-112-132-160 | — | — | 25100 | 29200 | 7340 | 12000 |
| | **306 R2** | **10.9** | 92 | 2240 | 23 | 22 | 71-80-90-100-112-132-160 | — | — | 26400 | 30700 | 7760 | 12000 |
| | **306 R2** | **13.7** | 73 | 2810 | 23 | 22 | 71-80-90-100-112-132-160 | — | — | 28300 | 32900 | 8370 | 12000 |
| | **306 R2** | **15.9** | 63 | 3270 | 23 | 22 | 71-80-90-100-112-132-160 | — | — | 29600 | 34400 | 8800 | 12000 |
| | **306 R2** | **19.2** | 52 | 3940 | 23 | 22 | 71-80-90-100-112-132-160 | — | — | 31300 | 36500 | 9380 | 12000 |
| | **306 R3** | **33.2** | 30 | 6330 | 22 | 16.8 | 71-80-90-100-112-132-160 | — | — | 36900 | 43000 | 11300 | 14900 |
| | **306 R3** | **39.2** | 25.5 | 7280 | 21 | 16.8 | 71-80-90-100-112-132-160 | — | — | 38800 | 45100 | 11900 | 14900 |
| | **306 R3** | **46.3** | 21.6 | 8170 | 20 | 16.8 | 71-80-90-100-112-132-160 | — | — | 40800 | 47500 | 12600 | 14900 |
| | **306 R3** | **58.1** | 17.2 | 8200 | 16.2 | 16.8 | 71-80-90-100-112-132-160 | — | — | 43600 | 50800 | 13600 | 14900 |
| | **306 R3** | **67.5** | 14.8 | 7340 | 12.5 | 16.8 | 71-80-90-100-112-132-160 | — | — | 45600 | 53100 | 14300 | 14900 |
| | **306 R3** | **72.9** | 13.7 | 7710 | 12.1 | 16.8 | 71-80-90-100-112-132-160 | — | — | 46700 | 54400 | 14600 | 14900 |
| | **306 R3** | **84.7** | 11.8 | 7820 | 10.6 | 16.8 | 71-80-90-100-112-132-160 | — | — | 48900 | 56900 | 15400 | 14900 |
| | **306 R3** | **98.5** | 10.2 | 6500 | 7.6 | 16.8 | 71-80-90-100-112-132-160 | — | — | 51100 | 59500 | 16200 | 14900 |
| | **306 R3** | **119** | 8.4 | 6510 | 6.3 | 16.8 | 71-80-90-100-112-132-160 | — | — | 54100 | 63000 | 17200 | 14900 |
| | **306 R3** | **144** | 6.9 | 5500 | 4.4 | 16.8 | 71-80-90-100-112-132-160 | — | — | 57300 | 66700 | 18400 | 14900 |

## 306 R

Page 249

## 7300 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1000** | **306 R4** | **158** | 6.3 | 9760 | 7.3 | 14.4 | 71-80-90-100-112-132-160 | — | — | 58900 | 68600 | 18900 | 14900 |
| | **306 R4** | **168** | 6 | 7660 | 5.4 | 14.4 | 71-80-90-100-112-132-160 | — | — | 60000 | 69800 | 19300 | 14900 |
| | **306 R4** | **181** | 5.5 | 9450 | 6.2 | 14.4 | 71-80-90-100-112-132-160 | — | — | 61300 | 71400 | 19800 | 14900 |
| | **306 R4** | **214** | 4.7 | 9850 | 5.5 | 14.4 | 71-80-90-100-112-132-160 | — | — | 64500 | 75100 | 20900 | 14900 |
| | **306 R4** | **230** | 4.3 | 7590 | 3.9 | 14.4 | 71-80-90-100-112-132-160 | — | — | 65900 | 76800 | 21500 | 14900 |
| | **306 R4** | **249** | 4 | 8620 | 4.1 | 14.4 | 71-80-90-100-112-132-160 | — | — | 67500 | 78600 | 22000 | 14900 |
| | **306 R4** | **289** | 3.5 | 8840 | 3.6 | 14.4 | 71-80-90-100-112-132-160 | — | — | 70600 | 82200 | 23100 | 14900 |
| | **306 R4** | **312** | 3.2 | 7590 | 2.9 | 14.4 | 71-80-90-100-112-132-160 | — | — | 72200 | 84100 | 23700 | 14900 |
| | **306 R4** | **389** | 2.6 | 7590 | 2.3 | 14.4 | 71-80-90-100-112-132-160 | — | — | 77200 | 89900 | 25500 | 14900 |
| | **306 R4** | **420** | 2.4 | 9390 | 2.6 | 14.4 | 71-80-90-100-112-132-160 | — | — | 79000 | 91900 | 26200 | 14900 |
| | **306 R4** | **455** | 2.2 | 7530 | 2 | 14.4 | 71-80-90-100-112-132-160 | — | — | 80900 | 94200 | 26900 | 14900 |
| | **306 R4** | **488** | 2 | 9390 | 2.3 | 14.4 | 71-80-90-100-112-132-160 | — | — | 82600 | 96200 | 27600 | 14900 |
| | **306 R4** | **550** | 1.8 | 7740 | 1.7 | 14.4 | 71-80-90-100-112-132-160 | — | — | 85600 | 99700 | 28700 | 14900 |
| | **306 R4** | **590** | 1.7 | 8910 | 1.8 | 14.4 | 71-80-90-100-112-132-160 | — | — | 87500 | 101800 | 29400 | 14900 |
| | **306 R4** | **665** | 1.5 | 6490 | 1.2 | 14.4 | 71-80-90-100-112-132-160 | — | — | 90700 | 105600 | 30600 | 14900 |
| | **306 R4** | **830** | 1.2 | 6760 | 0.96 | 14.4 | 71-80-90-100-112-132-160 | — | | 96900 | 112800 | 32900 | 14900 |
| **500** | **306R2** | **9.23** | 54 | 2330 | 14.1 | 36 | 71-80-90-100-112-132-160 | — | — | 30900 | 36000 | 9250 | 12000 |
| | **306R2** | **10.9** | 46 | 2750 | 14 | 36 | 71-80-90-100-112-132-160 | — | — | 32500 | 37800 | 9770 | 12000 |
| | **306R2** | **13.7** | 37 | 3460 | 14.1 | 36 | 71-80-90-100-112-132-160 | — | — | 34800 | 40500 | 10500 | 12000 |
| | **306R2** | **15.9** | 31 | 4020 | 14.1 | 36 | 71-80-90-100-112-132-160 | — | — | 36400 | 42400 | 11100 | 12000 |
| | **306R2** | **19.2** | 26 | 4510 | 13.1 | 36 | 71-80-90-100-112-132-160 | — | — | 38500 | 44900 | 11800 | 12000 |
| | **306R3** | **33.2** | 15.1 | 7350 | 12.7 | 28 | 71-80-90-100-112-132-160 | — | — | 45400 | 52900 | 14200 | 14900 |
| | **306R3** | **39.2** | 12.8 | 8730 | 12.8 | 28 | 71-80-90-100-112-132-160 | — | — | 47700 | 55600 | 15000 | 14900 |
| | **306R3** | **46.3** | 10.8 | 9450 | 11.7 | 28 | 71-80-90-100-112-132-160 | — | — | 50200 | 58400 | 15800 | 14900 |
| | **306R3** | **58.1** | 8.6 | 9100 | 9 | 28 | 71-80-90-100-112-132-160 | — | — | 53700 | 62500 | 17100 | 14900 |
| | **306R3** | **67.5** | 7.4 | 7590 | 6.4 | 28 | 71-80-90-100-112-132-160 | — | — | 56200 | 65400 | 18000 | 14900 |
| | **306R3** | **72.9** | 6.9 | 8140 | 6.4 | 28 | 71-80-90-100-112-132-160 | — | — | 57500 | 66900 | 18400 | 14900 |
| | **306R3** | **84.7** | 5.9 | 8210 | 5.6 | 28 | 71-80-90-100-112-132-160 | — | — | 60100 | 70000 | 19400 | 14900 |
| | **306R3** | **98.5** | 5.1 | 6530 | 3.8 | 28 | 71-80-90-100-112-132-160 | — | — | 62900 | 73300 | 20400 | 14900 |
| | **306R3** | **119** | 4.2 | 6730 | 3.2 | 28 | 71-80-90-100-112-132-160 | — | — | 66600 | 77600 | 21700 | 14900 |
| | **306R3** | **144** | 3.5 | 5710 | 2.3 | 28 | 71-80-90-100-112-132-160 | — | — | 70500 | 82100 | 23100 | 14900 |
| | **306R4** | **158** | 3.2 | 9850 | 3.7 | 24 | 71-80-90-100-112-132-160 | — | — | 72500 | 84400 | 23800 | 14900 |
| | **306R4** | **168** | 3 | 7700 | 2.7 | 24 | 71-80-90-100-112-132-160 | — | — | 73800 | 86000 | 24300 | 14900 |
| | **306R4** | **181** | 2.8 | 9450 | 3.1 | 24 | 71-80-90-100-112-132-160 | — | — | 75500 | 87900 | 24900 | 14900 |
| | **306R4** | **214** | 2.3 | 9890 | 2.7 | 24 | 71-80-90-100-112-132-160 | — | — | 79400 | 92400 | 26400 | 14900 |
| | **306R4** | **230** | 2.2 | 7640 | 2 | 24 | 71-80-90-100-112-132-160 | — | — | 81200 | 94500 | 27000 | 14900 |
| | **306R4** | **249** | 2 | 9520 | 2.3 | 24 | 71-80-90-100-112-132-160 | — | — | 83100 | 96700 | 27700 | 14900 |
| | **306R4** | **289** | 1.7 | 9430 | 1.9 | 24 | 71-80-90-100-112-132-160 | — | — | 86900 | 101200 | 29200 | 14900 |
| | **306R4** | **312** | 1.6 | 7730 | 1.5 | 24 | 71-80-90-100-112-132-160 | — | — | 88900 | 103500 | 29900 | 14900 |
| | **306R4** | **389** | 1.3 | 8240 | 1.3 | 24 | 71-80-90-100-112-132-160 | — | — | 95000 | 110600 | 32200 | 14900 |

## 306 R

Page 249

## 7300 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **500** | **306R4** | **420** | 1.2 | 9940 | 1.4 | 24 | 71-80-90-100-112-132-160 | — | — | 97200 | 113200 | 33000 | 14900 |
| | **306R4** | **455** | 1.1 | 8490 | 1.1 | 24 | 71-80-90-100-112-132-160 | — | — | 99600 | 115900 | 33900 | 14900 |
| | **306R4** | **488** | 1 | 9530 | 1.2 | 24 | 71-80-90-100-112-132-160 | — | — | 101000 | 118400 | 34700 | 14900 |
| | **306R4** | **550** | 0.91 | 8500 | 0.91 | 24 | 71-80-90-100-112-132-160 | — | — | 101000 | 119000 | 35000 | 14900 |
| | **306R4** | **590** | 0.85 | 9500 | 0.95 | 24 | 71-80-90-100-112-132-160 | — | — | 101000 | 119000 | 35000 | 14900 |
| | **306R4** | **665** | 0.75 | 7000 | 0.62 | 24 | 71-80-90-100-112-132-160 | — | — | 101000 | 119000 | 35000 | 14900 |
| | **306R4** | **830** | 0.6 | 7000 | 0.5 | 24 | 71-80-90-100-112-132-160 | — | — | 101000 | 119000 | 35000 | 14900 |

## 307 R

Page 257

## 14000 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **307 R2** | **13** | 116 | 5110 | 66 | 35 | 132-160-180-200 | — | — | 26500 | 34700 | 9230 | 18600 |
| | **307 R2** | **15.5** | 97 | 6090 | 66 | 35 | 132-160-180-200 | — | — | 27900 | 36600 | 9790 | 21000 |
| | **307 R2** | **19.8** | 76 | 7820 | 66 | 35 | 132-160-180-200 | — | — | 30100 | 39400 | 10600 | 21000 |
| | **307 R2** | **23.5** | 64 | 7970 | 57 | 35 | 132-160-180-200 | — | — | 31700 | 41500 | 11300 | 21000 |
| | **307 R3** | **31.6** | 47 | 5570 | 30 | 22 | 71-80-90-100-112-132-160 | — | — | 34600 | 45400 | 12400 | 18600 |
| | **307 R3** | **37.7** | 40 | 6650 | 30 | 22 | 71-80-90-100-112-132-160 | — | — | 36500 | 47800 | 13200 | 21000 |
| | **307 R3** | **44.6** | 34 | 7860 | 30 | 22 | 71-80-90-100-112-132-160 | — | — | 38400 | 50300 | 13900 | 21000 |
| | **307 R3** | **55.9** | 26.8 | 9860 | 30 | 22 | 71-80-90-100-112-132-160 | — | — | 41100 | 53800 | 15000 | 21000 |
| | **307 R3** | **65** | 23.1 | 11000 | 29 | 22 | 71-80-90-100-112-132-160 | — | — | 43000 | 56300 | 15800 | 21000 |
| | **307 R3** | **71.8** | 20.9 | 10100 | 24 | 22 | 71-80-90-100-112-132-160 | — | — | 44300 | 58000 | 16300 | 21000 |
| | **307 R3** | **78.6** | 19.1 | 11100 | 24 | 22 | 71-80-90-100-112-132-160 | — | — | 45500 | 59600 | 16800 | 21000 |
| | **307 R3** | **83.4** | 18 | 10200 | 21 | 22 | 71-80-90-100-112-132-160 | — | — | 46300 | 60700 | 17200 | 21000 |
| | **307 R3** | **99** | 15.2 | 8580 | 14.9 | 22 | 71-80-90-100-112-132-160 | — | — | 48800 | 63900 | 18200 | 21000 |
| | **307 R3** | **120** | 12.5 | 8630 | 12.4 | 22 | 71-80-90-100-112-132-160 | — | — | 51600 | 67600 | 19400 | 21000 |
| | **307 R4** | **152** | 9.9 | 13500 | 15 | 15 | 71-80-90-100-112-132-160 | — | — | 55400 | 72700 | 21000 | 21000 |
| | **307 R4** | **165** | 9.1 | 10900 | 11.7 | 15 | 71-80-90-100-112-132-160 | — | — | 56900 | 74500 | 21600 | 21000 |
| | **307 R4** | **191** | 7.9 | 14000 | 13 | 15 | 71-80-90-100-112-132-160 | — | — | 59400 | 77800 | 22600 | 21000 |
| | **307 R4** | **206** | 7.3 | 14100 | 12.2 | 15 | 71-80-90-100-112-132-160 | — | — | 60700 | 79600 | 23200 | 21000 |
| | **307 R4** | **232** | 6.5 | 11100 | 8.5 | 15 | 71-80-90-100-112-132-160 | — | — | 63000 | 82500 | 24200 | 21000 |
| | **307 R4** | **258** | 5.8 | 14600 | 10 | 15 | 71-80-90-100-112-132-160 | — | — | 65000 | 85200 | 25000 | 21000 |
| | **307 R4** | **284** | 5.3 | 11300 | 7 | 15 | 71-80-90-100-112-132-160 | — | — | 66900 | 87700 | 25900 | 21000 |
| | **307 R4** | **300** | 5 | 14000 | 8.3 | 15 | 71-80-90-100-112-132-160 | — | — | 68000 | 89100 | 26300 | 21000 |
| | **307 R4** | **331** | 4.5 | 11500 | 6.2 | 15 | 71-80-90-100-112-132-160 | — | — | 70000 | 91800 | 27200 | 21000 |
| | **307 R4** | **363** | 4.1 | 12300 | 6 | 15 | 71-80-90-100-112-132-160 | — | — | 72000 | 94300 | 28000 | 21000 |
| | **307 R4** | **413** | 3.6 | 11900 | 5.1 | 15 | 71-80-90-100-112-132-160 | — | — | 74900 | 98100 | 29300 | 21000 |
| | **307 R4** | **453** | 3.3 | 13400 | 5.3 | 15 | 71-80-90-100-112-132-160 | — | — | 76900 | 100800 | 30200 | 21000 |

## 307 R

Page 257

## 14000 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **307 R4** | **490** | 3.1 | 9330 | 3.4 | 15 | 71-80-90-100-112-132-160 | — | — | 78800 | 103300 | 31000 | 21000 |
| | **307 R4** | **581** | 2.6 | 12600 | 3.9 | 15 | 71-80-90-100-112-132-160 | — | — | 82900 | 108700 | 32800 | 21000 |
| | **307 R4** | **690** | 2.2 | 9800 | 2.5 | 15 | 71-80-90-100-112-132-160 | — | — | 87300 | 114400 | 34700 | 21000 |
| **1000** | **307 R2** | **13** | 77 | 5770 | 50 | 42 | 132-160-180-200 | — | — | 29900 | 39200 | 10600 | 18600 |
| | **307 R2** | **15.5** | 65 | 6880 | 50 | 42 | 132-160-180-200 | — | — | 31500 | 41300 | 11200 | 21000 |
| | **307 R2** | **19.8** | 50 | 8830 | 50 | 42 | 132-160-180-200 | — | — | 34000 | 44500 | 12200 | 21000 |
| | **307 R2** | **23.5** | 42 | 8290 | 39 | 42 | 132-160-180-200 | — | — | 35800 | 46900 | 12900 | 21000 |
| | **307 R3** | **31.6** | 32 | 6180 | 22 | 26 | 71-80-90-100-112-132-160 | — | — | 39100 | 51200 | 14200 | 18600 |
| | **307 R3** | **37.7** | 26.5 | 7510 | 23 | 26 | 71-80-90-100-112-132-160 | — | — | 41200 | 54000 | 15100 | 21000 |
| | **307R3** | **44.6** | 11.2 | 10900 | 14.1 | 44 | 71-80-90-100-112-132-160 | — | — | 53400 | 69900 | 20100 | 21000 |
| | **307R3** | **55.9** | 8.9 | 13500 | 13.9 | 44 | 71-80-90-100-112-132-160 | — | — | 57100 | 74800 | 21700 | 21000 |
| | **307R3** | **65** | 7.7 | 13700 | 12.1 | 44 | 71-80-90-100-112-132-160 | — | — | 59800 | 78300 | 22800 | 21000 |
| | **307R3** | **71.8** | 7 | 11100 | 8.8 | 44 | 71-80-90-100-112-132-160 | — | — | 61600 | 80700 | 23600 | 21000 |
| | **307R3** | **78.6** | 6.4 | 12300 | 9 | 44 | 71-80-90-100-112-132-160 | — | — | 63300 | 82900 | 24300 | 21000 |
| | **307R3** | **83.4** | 6 | 11200 | 7.7 | 44 | 71-80-90-100-112-132-160 | — | — | 64400 | 84400 | 24800 | 21000 |
| | **307R3** | **99** | 5.1 | 8700 | 5 | 44 | 71-80-90-100-112-132-160 | — | — | 67800 | 88800 | 26200 | 21000 |
| | **307R3** | **120** | 4.2 | 8930 | 4.3 | 44 | 71-80-90-100-112-132-160 | — | — | 71800 | 94100 | 27900 | 21000 |
| | **307R4** | **152** | 6.6 | 14300 | 11.2 | 18 | 71-80-90-100-112-132-160 | — | — | 62600 | 82100 | 24000 | 21000 |
| | **307R4** | **165** | 6.1 | 11200 | 8 | 18 | 71-80-90-100-112-132-160 | — | — | 64200 | 84100 | 24700 | 21000 |
| | **307R4** | **191** | 5.2 | 14800 | 9.2 | 18 | 71-80-90-100-112-132-160 | — | — | 67000 | 87800 | 25900 | 21000 |
| | **307R4** | **206** | 4.9 | 14900 | 8.6 | 18 | 71-80-90-100-112-132-160 | — | — | 68600 | 89900 | 26600 | 21000 |
| | **307R4** | **232** | 4.3 | 11600 | 5.9 | 18 | 71-80-90-100-112-132-160 | — | — | 71100 | 93200 | 27700 | 21000 |
| | **307R4** | **258** | 3.9 | 14900 | 6.8 | 18 | 71-80-90-100-112-132-160 | — | — | 73400 | 96200 | 28600 | 21000 |
| | **307R4** | **284** | 3.5 | 12000 | 5 | 18 | 71-80-90-100-112-132-160 | — | — | 75600 | 99000 | 29600 | 21000 |
| | **307R4** | **300** | 3.3 | 14000 | 5.5 | 18 | 71-80-90-100-112-132-160 | — | — | 76800 | 100600 | 30100 | 21000 |
| **500** | **307R2** | **13** | 39 | 6780 | 29 | 70 | 132-160-180-200 | — | — | 36800 | 48300 | 13300 | 18600 |
| | **307R2** | **15.5** | 32 | 7950 | 29 | 70 | 132-160-180-200 | — | — | 38800 | 50900 | 14100 | 21000 |
| | **307R2** | **19.8** | 25.2 | 9630 | 27 | 70 | 132-160-180-200 | — | — | 41900 | 54800 | 15300 | 21000 |
| | **307R2** | **23.5** | 21.2 | 8480 | 20 | 70 | 132-160-180-200 | — | — | 44100 | 57700 | 16200 | 21000 |
| | **307R3** | **31.6** | 15.8 | 7380 | 13.4 | 44 | 71-80-90-100-112-132-160 | — | — | 48100 | 63100 | 17900 | 18600 |
| | **307R3** | **37.7** | 13.2 | 9250 | 14.1 | 44 | 71-80-90-100-112-132-160 | — | — | 50800 | 66500 | 19000 | 21000 |
| | **307R3** | **44.6** | 11.2 | 10900 | 14.1 | 44 | 71-80-90-100-112-132-160 | — | — | 53400 | 69900 | 20100 | 21000 |
| | **307R3** | **55.9** | 8.9 | 13500 | 13.9 | 44 | 71-80-90-100-112-132-160 | — | — | 57100 | 74800 | 21700 | 21000 |
| | **307R3** | **65** | 7.7 | 13700 | 12.1 | 44 | 71-80-90-100-112-132-160 | — | — | 59800 | 78300 | 22800 | 21000 |
| | **307R3** | **71.8** | 7 | 11100 | 8.8 | 44 | 71-80-90-100-112-132-160 | — | — | 61600 | 80700 | 23600 | 21000 |
| | **307R3** | **78.6** | 6.4 | 12300 | 9 | 44 | 71-80-90-100-112-132-160 | — | — | 63300 | 82900 | 24300 | 21000 |
| | **307R3** | **83.4** | 6 | 11200 | 7.7 | 44 | 71-80-90-100-112-132-160 | — | — | 64400 | 84400 | 24800 | 21000 |
| | **307R3** | **99** | 5.1 | 8700 | 5 | 44 | 71-80-90-100-112-132-160 | — | — | 67800 | 88800 | 26200 | 21000 |

## 307 R — Page 257 — 14000 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **500** | **307R3** | **120** | 4.2 | 8930 | 4.3 | 44 | 71-80-90-100-112-132-160 | — | — | 71800 | 94100 | 27900 | 21000 |
| | **307R4** | **152** | 3.3 | 14900 | 5.8 | 30 | 71-80-90-100-112-132-160 | — | — | 77100 | 101000 | 30300 | 21000 |
| | **307R4** | **165** | 3 | 12300 | 4.4 | 30 | 71-80-90-100-112-132-160 | — | — | 79100 | 103600 | 31100 | 21000 |
| | **307R4** | **191** | 2.6 | 14900 | 4.6 | 30 | 71-80-90-100-112-132-160 | — | — | 82500 | 108100 | 32600 | 21000 |
| | **307R4** | **206** | 2.4 | 14900 | 4.3 | 30 | 71-80-90-100-112-132-160 | — | — | 84400 | 110600 | 33500 | 21000 |
| | **307R4** | **232** | 2.2 | 13000 | 3.3 | 30 | 71-80-90-100-112-132-160 | — | — | 87600 | 114700 | 34800 | 21000 |
| | **307R4** | **258** | 1.9 | 15100 | 3.5 | 30 | 71-80-90-100-112-132-160 | — | — | 90400 | 118400 | 36100 | 21000 |
| | **307R4** | **284** | 1.8 | 13500 | 2.8 | 30 | 71-80-90-100-112-132-160 | — | — | 93100 | 121900 | 37300 | 21000 |
| | **307R4** | **300** | 1.7 | 14400 | 2.8 | 30 | 71-80-90-100-112-132-160 | — | — | 94500 | 123900 | 38000 | 21000 |
| | **307R4** | **331** | 1.5 | 13800 | 2.5 | 30 | 71-80-90-100-112-132-160 | — | — | 97400 | 127600 | 39200 | 21000 |
| | **307R4** | **363** | 1.4 | 12300 | 2 | 30 | 71-80-90-100-112-132-160 | — | — | 100100 | 131200 | 40400 | 21000 |
| | **307R4** | **413** | 1.2 | 14400 | 2.1 | 30 | 71-80-90-100-112-132-160 | — | — | 104100 | 136400 | 42200 | 21000 |
| | **307R4** | **453** | 1.1 | 14900 | 1.9 | 30 | 71-80-90-100-112-132-160 | — | — | 107000 | 140200 | 43500 | 21000 |
| | **307R4** | **490** | 1 | 11000 | 1.3 | 30 | 71-80-90-100-112-132-160 | — | — | 109000 | 143600 | 44700 | 21000 |
| | **307R4** | **581** | 0.86 | 14300 | 1.5 | 30 | 71-80-90-100-112-132-160 | — | — | 109000 | 145000 | 45000 | 21000 |
| | **307R4** | **690** | 0.72 | 11000 | 0.94 | 30 | 71-80-90-100-112-132-160 | — | — | 109000 | 145000 | 45000 | 21000 |

## 309 R — Page 263 — 16460 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **309 R2** | **13** | 116 | 5110 | 66 | 35 | 132-160-180-200 | — | — | 26900 | 34700 | 7390 | 27400 |
| | **309 R2** | **15.5** | 97 | 6090 | 66 | 35 | 132-160-180-200 | — | — | 28400 | 36600 | 7830 | 27400 |
| | **309 R2** | **19.8** | 76 | 7820 | 66 | 35 | 132-160-180-200 | — | — | 30600 | 39400 | 8510 | 27400 |
| | **309 R2** | **23.5** | 64 | 9280 | 66 | 35 | 132-160-180-200 | — | — | 32200 | 41500 | 9010 | 27400 |
| | **309 R3** | **31.6** | 47 | 5580 | 30 | 22 | 71-80-90-100-112-132-160 | — | — | 35200 | 45400 | 9950 | 27900 |
| | **309 R3** | **37.7** | 40 | 6650 | 30 | 22 | 71-80-90-100-112-132-160 | — | — | 37100 | 47800 | 10500 | 29000 |
| | **309 R3** | **44.6** | 34 | 7860 | 30 | 22 | 71-80-90-100-112-132-160 | — | — | 39000 | 50300 | 11100 | 29000 |
| | **309 R3** | **55.9** | 26.8 | 9860 | 30 | 22 | 71-80-90-100-112-132-160 | — | — | 41700 | 53800 | 12000 | 29000 |
| | **309 R3** | **65** | 23.1 | 11200 | 30 | 22 | 71-80-90-100-112-132-160 | — | — | 43700 | 56300 | 12600 | 29000 |
| | **309 R3** | **71.8** | 20.9 | 12700 | 30 | 22 | 71-80-90-100-112-132-160 | — | — | 45000 | 58000 | 13100 | 29000 |
| | **309 R3** | **83.4** | 18 | 14000 | 29 | 22 | 71-80-90-100-112-132-160 | — | — | 47100 | 60700 | 13700 | 29000 |
| | **309 R3** | **99** | 15.2 | 12800 | 22 | 22 | 71-80-90-100-112-132-160 | — | — | 49500 | 63900 | 14500 | 29000 |
| | **309 R3** | **120** | 12.5 | 12900 | 18.6 | 22 | 71-80-90-100-112-132-160 | — | — | 52500 | 67600 | 15500 | 29000 |
| | **309 R4** | **152** | 9.9 | 18600 | 15 | 15 | 71-80-90-100-112-132-160 | — | — | 56300 | 72700 | 16800 | 29000 |
| | **309 R4** | **165** | 9.1 | 16300 | 15 | 15 | 71-80-90-100-112-132-160 | — | — | 57800 | 74500 | 17300 | 29000 |
| | **309 R4** | **191** | 7.9 | 17300 | 15 | 15 | 71-80-90-100-112-132-160 | — | — | 60300 | 77800 | 18100 | 29000 |

## 309 R

Page 263

## 16460 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **309 R4** | **206** | 7.3 | 19800 | 15 | 15 | 71-80-90-100-112-132-160 | — | — | 61700 | 79600 | 18600 | 29000 |
| | **309 R4** | **232** | 6.5 | 16700 | 12.7 | 15 | 71-80-90-100-112-132-160 | — | — | 64000 | 82500 | 19300 | 29000 |
| | **309 R4** | **258** | 5.8 | 17400 | 12 | 15 | 71-80-90-100-112-132-160 | — | — | 66000 | 85200 | 20000 | 29000 |
| | **309 R4** | **284** | 5.3 | 16900 | 10.5 | 15 | 71-80-90-100-112-132-160 | — | — | 68000 | 87700 | 20700 | 29000 |
| | **309 R4** | **331** | 4.5 | 17200 | 9.2 | 15 | 71-80-90-100-112-132-160 | — | — | 71200 | 91800 | 21800 | 29000 |
| | **309 R4** | **374** | 4 | 14300 | 6.8 | 15 | 71-80-90-100-112-132-160 | — | — | 73800 | 95200 | 22700 | 29000 |
| | **309 R4** | **413** | 3.6 | 17900 | 7.7 | 15 | 71-80-90-100-112-132-160 | — | — | 76100 | 98100 | 23400 | 29000 |
| | **309 R4** | **457** | 3.3 | 13800 | 5.4 | 15 | 71-80-90-100-112-132-160 | — | — | 78400 | 101100 | 24200 | 29000 |
| | **309 R4** | **490** | 3.1 | 14000 | 5.1 | 15 | 71-80-90-100-112-132-160 | — | — | 80100 | 103300 | 24800 | 29000 |
| | **309 R4** | **581** | 2.6 | 15800 | 4.8 | 15 | 71-80-90-100-112-132-160 | — | — | 84300 | 108700 | 26200 | 29000 |
| | **309 R4** | **690** | 2.2 | 14800 | 3.8 | 15 | 71-80-90-100-112-132-160 | — | — | 88700 | 114400 | 27800 | 29000 |
| **1000** | **309 R2** | **13** | 77 | 5770 | 50 | 42 | 132-160-180-200 | — | — | 30400 | 39200 | 8450 | 27400 |
| | **309 R2** | **15.5** | 65 | 6880 | 50 | 42 | 132-160-180-200 | — | — | 32100 | 41300 | 8970 | 27400 |
| | **309 R2** | **19.8** | 50 | 8830 | 50 | 42 | 132-160-180-200 | — | — | 34500 | 44500 | 9740 | 27400 |
| | **309 R2** | **23.5** | 42 | 10200 | 48 | 42 | 132-160-180-200 | — | — | 36400 | 46900 | 10300 | 27400 |
| | **309 R3** | **31.6** | 32 | 6300 | 23 | 26 | 71-80-90-100-112-132-160 | — | — | 39700 | 51200 | 11400 | 27900 |
| | **309 R3** | **37.7** | 26.5 | 7510 | 23 | 26 | 71-80-90-100-112-132-160 | — | — | 41900 | 54000 | 12100 | 29000 |
| | **309 R3** | **44.6** | 22.4 | 8870 | 23 | 26 | 71-80-90-100-112-132-160 | — | — | 44000 | 56800 | 12800 | 29000 |
| | **309 R3** | **55.9** | 17.9 | 11100 | 23 | 26 | 71-80-90-100-112-132-160 | — | — | 47100 | 60800 | 13800 | 29000 |
| | **309 R3** | **65** | 15.4 | 12500 | 22 | 26 | 71-80-90-100-112-132-160 | — | — | 49300 | 63600 | 14500 | 29000 |
| | **309 R3** | **71.8** | 13.9 | 14300 | 23 | 26 | 71-80-90-100-112-132-160 | — | — | 50800 | 65500 | 15000 | 29000 |
| | **309 R3** | **83.4** | 12 | 15500 | 21 | 26 | 71-80-90-100-112-132-160 | — | — | 53100 | 68500 | 15700 | 29000 |
| | **309 R3** | **99** | 10.1 | 13000 | 15.1 | 26 | 71-80-90-100-112-132-160 | — | — | 56000 | 72200 | 16700 | 29000 |
| | **309 R3** | **120** | 8.4 | 13000 | 12.5 | 26 | 71-80-90-100-112-132-160 | — | — | 59200 | 76400 | 17700 | 29000 |
| | **309 R4** | **152** | 6.6 | 20200 | 15 | 18 | 71-80-90-100-112-132-160 | — | — | 63600 | 82100 | 19200 | 29000 |
| | **309 R4** | **165** | 6.1 | 16700 | 12 | 18 | 71-80-90-100-112-132-160 | — | — | 65200 | 84100 | 19800 | 29000 |
| | **309 R4** | **191** | 5.2 | 17500 | 10.8 | 18 | 71-80-90-100-112-132-160 | — | — | 68100 | 87800 | 20700 | 29000 |
| | **309 R4** | **206** | 4.9 | 21300 | 12.2 | 18 | 71-80-90-100-112-132-160 | — | — | 69700 | 89900 | 21200 | 29000 |
| | **309 R4** | **232** | 4.3 | 17200 | 8.8 | 18 | 71-80-90-100-112-132-160 | — | — | 72300 | 93200 | 22100 | 29000 |
| | **309 R4** | **258** | 3.9 | 17500 | 8 | 18 | 71-80-90-100-112-132-160 | — | — | 74600 | 96200 | 22900 | 29000 |
| | **309 R4** | **284** | 3.5 | 17500 | 7.3 | 18 | 71-80-90-100-112-132-160 | — | — | 76800 | 99000 | 23700 | 29000 |
| | **309 R4** | **331** | 3 | 18500 | 6.6 | 18 | 71-80-90-100-112-132-160 | — | — | 80400 | 103700 | 24900 | 29000 |
| | **309 R4** | **374** | 2.7 | 14300 | 4.5 | 18 | 71-80-90-100-112-132-160 | — | — | 83400 | 107500 | 25900 | 29000 |
| | **309 R4** | **413** | 2.4 | 19200 | 5.5 | 18 | 71-80-90-100-112-132-160 | — | — | 85900 | 110800 | 26800 | 29000 |
| | **309 R4** | **457** | 2.2 | 14800 | 3.8 | 18 | 71-80-90-100-112-132-160 | — | — | 88500 | 114200 | 27700 | 29000 |
| | **309 R4** | **490** | 2 | 14900 | 3.6 | 18 | 71-80-90-100-112-132-160 | — | — | 90400 | 116600 | 28400 | 29000 |
| | **309 R4** | **581** | 1.7 | 15800 | 3.2 | 18 | 71-80-90-100-112-132-160 | — | — | 95200 | 122700 | 30000 | 29000 |
| | **309 R4** | **690** | 1.4 | 15900 | 2.7 | 18 | 71-80-90-100-112-132-160 | — | — | 100200 | 129200 | 31800 | 29000 |

## 309 R

Page 263

## 16460 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **500** | **309R2** | **13** | 39 | 6780 | 29 | 70 | 132-160-180-200 | — | — | 37400 | 48300 | 10700 | 27400 |
| | **309R2** | **15.5** | 32 | 7950 | 29 | 70 | 132-160-180-200 | — | — | 39500 | 50900 | 11300 | 27400 |
| | **309R2** | **19.8** | 25.2 | 10200 | 29 | 70 | 132-160-180-200 | — | — | 42500 | 54800 | 12300 | 27400 |
| | **309R2** | **23.5** | 21.2 | 11200 | 26 | 70 | 132-160-180-200 | — | — | 44800 | 57700 | 13000 | 27400 |
| | **309R3** | **31.6** | 15.8 | 7760 | 14.1 | 44 | 71-80-90-100-112-132-160 | — | — | 48900 | 63100 | 14300 | 27900 |
| | **309R3** | **37.7** | 13.2 | 9250 | 14.1 | 44 | 71-80-90-100-112-132-160 | — | — | 51600 | 66500 | 15200 | 29000 |
| | **309R3** | **44.6** | 11.2 | 10900 | 14.1 | 44 | 71-80-90-100-112-132-160 | — | — | 54200 | 69900 | 16100 | 29000 |
| | **309R3** | **55.9** | 8.9 | 13700 | 14.1 | 44 | 71-80-90-100-112-132-160 | — | — | 58000 | 74800 | 17300 | 29000 |
| | **309R3** | **65** | 7.7 | 14100 | 12.5 | 44 | 71-80-90-100-112-132-160 | — | — | 60700 | 78300 | 18200 | 29000 |
| | **309R3** | **71.8** | 7 | 16400 | 13.1 | 44 | 71-80-90-100-112-132-160 | — | — | 62500 | 80700 | 18800 | 29000 |
| | **309R3** | **83.4** | 6 | 16700 | 11.5 | 44 | 71-80-90-100-112-132-160 | — | — | 65400 | 84400 | 19800 | 29000 |
| | **309R3** | **99** | 5.1 | 13000 | 7.5 | 44 | 71-80-90-100-112-132-160 | — | — | 68900 | 88800 | 21000 | 29000 |
| | **309R3** | **120** | 4.2 | 13400 | 6.4 | 44 | 71-80-90-100-112-132-160 | — | — | 72900 | 94100 | 22400 | 29000 |
| | **309R4** | **152** | 3.3 | 21300 | 8.3 | 30 | 71-80-90-100-112-132-160 | — | — | 78300 | 101000 | 24200 | 29000 |
| | **309R4** | **165** | 3 | 18400 | 6.6 | 30 | 71-80-90-100-112-132-160 | — | — | 80300 | 103600 | 24900 | 29000 |
| | **309R4** | **191** | 2.6 | 17500 | 5.4 | 30 | 71-80-90-100-112-132-160 | — | — | 83900 | 108100 | 26100 | 29000 |
| | **309R4** | **206** | 2.4 | 21300 | 6.1 | 30 | 71-80-90-100-112-132-160 | — | — | 85800 | 110600 | 26800 | 29000 |
| | **309R4** | **232** | 2.2 | 18100 | 4.6 | 30 | 71-80-90-100-112-132-160 | — | — | 89000 | 114700 | 27900 | 29000 |
| | **309R4** | **258** | 1.9 | 17800 | 4.1 | 30 | 71-80-90-100-112-132-160 | — | — | 91800 | 118400 | 28900 | 29000 |
| | **309R4** | **284** | 1.8 | 18200 | 3.8 | 30 | 71-80-90-100-112-132-160 | — | — | 94500 | 121900 | 29800 | 29000 |
| | **309R4** | **331** | 1.5 | 20600 | 3.7 | 30 | 71-80-90-100-112-132-160 | — | — | 99000 | 127600 | 31400 | 29000 |
| | **309R4** | **374** | 1.3 | 14600 | 2.3 | 30 | 71-80-90-100-112-132-160 | — | — | 102700 | 132400 | 32700 | 29000 |
| | **309R4** | **413** | 1.2 | 21300 | 3.1 | 30 | 71-80-90-100-112-132-160 | — | — | 105800 | 136400 | 33800 | 29000 |
| | **309R4** | **457** | 1.1 | 16700 | 2.2 | 30 | 71-80-90-100-112-132-160 | — | — | 109000 | 140600 | 34900 | 29000 |
| | **309R4** | **490** | 1 | 16900 | 2 | 30 | 71-80-90-100-112-132-160 | — | — | 110000 | 143600 | 35800 | 29000 |
| | **309R4** | **581** | 0.86 | 15800 | 1.6 | 30 | 71-80-90-100-112-132-160 | — | — | 110000 | 145000 | 36000 | 29000 |
| | **309R4** | **690** | 0.72 | 17000 | 1.5 | 30 | 71-80-90-100-112-132-160 | — | — | 110000 | 145000 | 36000 | 29000 |

## 310 R

Page 273

## 34120 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **310 R2 (B)** | **12** | 125 | 10100 | 130 | 55 | 180-200-225 | — | — | 31200 | 39200 | 13000 | 47600 |
| | **310 R2 (B)** | **15.4** | 97 | 10700 | 115 | 55 | 180-200-225 | — | — | 33600 | 42300 | 14100 | 47600 |
| | **310 R2 (B)** | **18.3** | 82 | 11100 | 101 | 55 | 180-200-225 | — | — | 35400 | 44500 | 15000 | 47600 |
| | **310 R2 (C)** | **16.6** | 90 | 11200 | 112 | 55 | 180-200-225-250 | — | — | 34400 | 43200 | 14500 | 47600 |
| | **310 R2 (C)** | **21.3** | 70 | 11800 | 92 | 55 | 180-200-225-250 | — | — | 37100 | 46600 | 15800 | 47600 |
| | **310 R2 (C)** | **25.3** | 59 | 12200 | 81 | 55 | 180-200-225-250 | — | — | 39000 | 49000 | 16700 | 47600 |

| 310 R | Page 273 | 34120 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **310 R3** | **37.7** | 40 | 6650 | 30 | 22 | 71-80-90-100-112-132-160 | — | — | 44000 | 55300 | 19000 | 47600 |
| | **310 R3** | **44.6** | 34 | 7860 | 30 | 22 | 71-80-90-100-112-132-160 | — | — | 46200 | 58100 | 20100 | 47600 |
| | **310 R3** | **55.9** | 26.8 | 9860 | 30 | 22 | 71-80-90-100-112-132-160 | — | — | 49500 | 62200 | 21700 | 47600 |
| | **310 R3** | **65** | 23.1 | 11500 | 30 | 22 | 71-80-90-100-112-132-160 | — | — | 51700 | 65100 | 22800 | 47600 |
| | **310 R3** | **71.8** | 20.9 | 12700 | 30 | 22 | 71-80-90-100-112-132-160 | — | — | 53300 | 67000 | 23600 | 47600 |
| | **310 R3** | **78.6** | 19.1 | 13900 | 30 | 22 | 71-80-90-100-112-132-160 | — | — | 54800 | 68900 | 24300 | 47600 |
| | **310 R3** | **83.4** | 18 | 14700 | 30 | 22 | 71-80-90-100-112-132-160 | — | — | 55800 | 70100 | 24800 | 47600 |
| | **310 R3** | **99** | 15.2 | 16400 | 29 | 22 | 71-80-90-100-112-132-160 | — | — | 58700 | 73800 | 26300 | 47600 |
| | **310 R3** | **120** | 12.5 | 17400 | 25 | 22 | 71-80-90-100-112-132-160 | — | — | 62200 | 78200 | 28000 | 47600 |
| | **310 R4** | **136** | 11 | 21000 | 27 | 15 | 71-80-90-100-112-132-160 | — | — | 64600 | 81200 | 29200 | 47600 |
| | **310 R4** | **160** | 9.4 | 22000 | 24 | 15 | 71-80-90-100-112-132-160 | — | — | 67800 | 85300 | 30900 | 47600 |
| | **310 R4** | **189** | 7.9 | 23200 | 22 | 15 | 71-80-90-100-112-132-160 | — | — | 71300 | 89700 | 32600 | 47600 |
| | **310 R4** | **206** | 7.3 | 22100 | 19 | 15 | 71-80-90-100-112-132-160 | — | — | 73100 | 91900 | 33500 | 47600 |
| | **310 R4** | **234** | 6.4 | 24700 | 18.7 | 15 | 71-80-90-100-112-132-160 | — | — | 76000 | 95600 | 35000 | 47600 |
| | **310 R4** | **258** | 5.8 | 22800 | 15.7 | 15 | 71-80-90-100-112-132-160 | — | — | 78300 | 98400 | 36200 | 47600 |
| | **310 R4** | **283** | 5.3 | 26100 | 16.4 | 15 | 71-80-90-100-112-132-160 | — | — | 80500 | 101200 | 37300 | 47600 |
| | **310 R4** | **305** | 4.9 | 23400 | 13.6 | 15 | 71-80-90-100-112-132-160 | — | — | 82300 | 103500 | 38200 | 47600 |
| | **310 R4** | **334** | 4.5 | 27400 | 14.6 | 15 | 71-80-90-100-112-132-160 | — | — | 84600 | 106300 | 39400 | 47600 |
| | **310 R4** | **363** | 4.1 | 24100 | 11.8 | 15 | 71-80-90-100-112-132-160 | — | — | 86700 | 109000 | 40500 | 47600 |
| | **310 R4** | **419** | 3.6 | 29000 | 12.3 | 15 | 71-80-90-100-112-132-160 | — | — | 90500 | 113800 | 42500 | 47600 |
| | **310 R4** | **454** | 3.3 | 20000 | 7.8 | 15 | 71-80-90-100-112-132-160 | — | — | 92700 | 116600 | 43600 | 47600 |
| | **310 R4** | **517** | 2.9 | 25600 | 8.8 | 15 | 71-80-90-100-112-132-160 | — | — | 96400 | 121200 | 45600 | 47600 |
| | **310 R4** | **590** | 2.5 | 21800 | 6.6 | 15 | 71-80-90-100-112-132-160 | — | — | 100300 | 126100 | 47600 | 47600 |
| | **310 R4** | **639** | 2.3 | 21500 | 6 | 15 | 71-80-90-100-112-132-160 | — | — | 102700 | 129100 | 48900 | 47600 |
| | **310 R4** | **757** | 2 | 26400 | 6.2 | 15 | 71-80-90-100-112-132-160 | — | — | 108100 | 135900 | 51700 | 47600 |
| | **310 R4** | **898** | 1.7 | 23200 | 4.6 | 15 | 71-80-90-100-112-132-160 | — | — | 113800 | 143100 | 54800 | 47600 |
| **1000** | **310 R2 (B)** | **12** | 83 | 11400 | 106 | 66 | 180-200-225 | — | — | 35200 | 44300 | 14900 | 47600 |
| | **310 R2 (B)** | **15.4** | 65 | 12000 | 87 | 66 | 180-200-225 | — | — | 38000 | 47700 | 16200 | 47600 |
| | **310 R2 (B)** | **18.3** | 55 | 12500 | 76 | 66 | 180-200-225 | — | — | 40000 | 50200 | 17100 | 47600 |
| | **310 R2 (C)** | **16.6** | 60 | 12600 | 84 | 66 | 180-200-225-250 | — | — | 38800 | 48800 | 16600 | 47600 |
| | **310 R2 (C)** | **21.3** | 47 | 13300 | 69 | 66 | 180-200-225-250 | — | — | 41800 | 52600 | 18000 | 47600 |
| | **310 R2 (C)** | **25.3** | 39 | 13500 | 59 | 66 | 180-200-225-250 | — | — | 44100 | 55400 | 19100 | 47600 |
| | **310 R3** | **37.7** | 26.5 | 7510 | 23 | 26 | 71-80-90-100-112-132-160 | — | — | 49600 | 62400 | 21800 | 47600 |
| | **310 R3** | **44.6** | 22.4 | 8870 | 23 | 26 | 71-80-90-100-112-132-160 | — | — | 52200 | 65600 | 23000 | 47600 |
| | **310 R3** | **55.9** | 17.9 | 11100 | 23 | 26 | 71-80-90-100-112-132-160 | — | — | 55900 | 70200 | 24900 | 47600 |
| | **310 R3** | **65** | 15.4 | 12900 | 23 | 26 | 71-80-90-100-112-132-160 | — | — | 58400 | 73500 | 26100 | 47600 |
| | **310 R3** | **71.8** | 13.9 | 14300 | 23 | 26 | 71-80-90-100-112-132-160 | — | — | 60200 | 75700 | 27000 | 47600 |
| | **310 R3** | **78.6** | 12.7 | 15700 | 23 | 26 | 71-80-90-100-112-132-160 | — | — | 61900 | 77800 | 27800 | 47600 |
| | **310 R3** | **83.4** | 12 | 16600 | 23 | 26 | 71-80-90-100-112-132-160 | — | — | 63000 | 79200 | 28400 | 47600 |

| 310 R | Page 273 | 34120 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1000** | **310 R3** | **83.4** | 12 | 16600 | 23 | 26 | 71-80-90-100-112-132-160 | — | — | 63000 | 79200 | 28400 | 47600 |
| | **310 R3** | **99** | 10.1 | 18200 | 21 | 26 | 71-80-90-100-112-132-160 | — | — | 66300 | 83400 | 30100 | 47600 |
| | **310 R3** | **120** | 8.4 | 18300 | 17.5 | 26 | 71-80-90-100-112-132-160 | — | — | 70200 | 88300 | 32000 | 47600 |
| | **310 R4** | **136** | 7.4 | 23700 | 21 | 18 | 71-80-90-100-112-132-160 | — | — | 72900 | 91700 | 33400 | 47600 |
| | **310 R4** | **160** | 6.2 | 24900 | 18.3 | 18 | 71-80-90-100-112-132-160 | — | — | 76600 | 96400 | 35300 | 47600 |
| | **310 R4** | **189** | 5.3 | 26100 | 16.3 | 18 | 71-80-90-100-112-132-160 | — | — | 80500 | 101300 | 37300 | 47600 |
| | **310 R4** | **206** | 4.9 | 23500 | 13.5 | 18 | 71-80-90-100-112-132-160 | — | — | 82600 | 103800 | 38400 | 47600 |
| | **310 R4** | **234** | 4.3 | 27800 | 14 | 18 | 71-80-90-100-112-132-160 | — | — | 85800 | 107900 | 40100 | 47600 |
| | **310 R4** | **258** | 3.9 | 24400 | 11.2 | 18 | 71-80-90-100-112-132-160 | — | — | 88400 | 111200 | 41400 | 47600 |
| | **310 R4** | **283** | 3.5 | 29300 | 12.3 | 18 | 71-80-90-100-112-132-160 | — | — | 90900 | 114300 | 42700 | 47600 |
| | **310 R4** | **305** | 3.3 | 25100 | 9.7 | 18 | 71-80-90-100-112-132-160 | — | — | 92900 | 116800 | 43800 | 47600 |
| | **310 R4** | **334** | 3 | 30700 | 10.9 | 18 | 71-80-90-100-112-132-160 | — | — | 95500 | 120100 | 45100 | 47600 |
| | **310 R4** | **363** | 2.8 | 25800 | 8.4 | 18 | 71-80-90-100-112-132-160 | — | — | 97900 | 123100 | 46400 | 47600 |
| | **310 R4** | **419** | 2.4 | 32000 | 9 | 18 | 71-80-90-100-112-132-160 | — | — | 102200 | 128600 | 48700 | 47600 |
| | **310 R4** | **454** | 2.2 | 21800 | 5.7 | 18 | 71-80-90-100-112-132-160 | — | — | 104700 | 131700 | 50000 | 47600 |
| | **310 R4** | **517** | 1.9 | 27400 | 6.3 | 18 | 71-80-90-100-112-132-160 | — | — | 108900 | 136900 | 52200 | 47600 |
| | **310 R4** | **590** | 1.7 | 21800 | 4.4 | 18 | 71-80-90-100-112-132-160 | — | — | 113200 | 142400 | 54500 | 47600 |
| | **310 R4** | **639** | 1.6 | 23500 | 4.4 | 18 | 71-80-90-100-112-132-160 | — | — | 116000 | 145800 | 56000 | 47600 |
| **500** | **310R2(B)** | **12** | 42 | 14100 | 65 | 110 | 160-180-200-225 | — | — | 43400 | 54500 | 18800 | 47600 |
| | **310R2(B)** | **15.4** | 32 | 14800 | 53 | 110 | 160-180-200-225 | — | — | 46700 | 58800 | 20400 | 47600 |
| | **310R2(B)** | **18.3** | 27.3 | 14700 | 45 | 110 | 160-180-200-225 | — | — | 49200 | 61900 | 21600 | 47600 |
| | **310R2(C)** | **16.6** | 30 | 15500 | 52 | 110 | 160-180-200-225-250 | — | — | 47800 | 60100 | 20900 | 47600 |
| | **310R2(C)** | **21.3** | 23.4 | 16300 | 43 | 110 | 160-180-200-225-250 | — | — | 51500 | 64800 | 22700 | 47600 |
| | **310R2(C)** | **25.3** | 19.7 | 15700 | 35 | 110 | 160-180-200-225-250 | — | — | 54200 | 68200 | 24100 | 47600 |
| | **310R3** | **37.7** | 13.2 | 9250 | 14.1 | 44 | 71-80-90-100-112-132-160 | — | — | 61100 | 76900 | 27500 | 47600 |
| | **310R3** | **44.6** | 11.2 | 10900 | 14.1 | 44 | 71-80-90-100-112-132-160 | — | — | 64200 | 80800 | 29000 | 47600 |
| | **310R3** | **55.9** | 8.9 | 13700 | 14.1 | 44 | 71-80-90-100-112-132-160 | — | — | 68800 | 86500 | 31300 | 47600 |
| | **310R3** | **65** | 7.7 | 15900 | 14.1 | 44 | 71-80-90-100-112-132-160 | — | — | 71900 | 90500 | 32900 | 47600 |
| | **310R3** | **71.8** | 7 | 17600 | 14.1 | 44 | 71-80-90-100-112-132-160 | — | — | 74100 | 93200 | 34000 | 47600 |
| | **310R3** | **78.6** | 6.4 | 18900 | 13.8 | 44 | 71-80-90-100-112-132-160 | — | — | 76200 | 95800 | 35100 | 47600 |
| | **310R3** | **83.4** | 6 | 20500 | 14.1 | 44 | 71-80-90-100-112-132-160 | — | — | 77500 | 97500 | 35800 | 47600 |
| | **310R3** | **99** | 5.1 | 18400 | 10.7 | 44 | 71-80-90-100-112-132-160 | — | — | 81600 | 102600 | 37900 | 47600 |
| | **310R3** | **120** | 4.2 | 19100 | 9.2 | 44 | 71-80-90-100-112-132-160 | — | — | 86400 | 108700 | 40400 | 47600 |
| | **310R4** | **136** | 3.7 | 29000 | 12.6 | 30 | 71-80-90-100-112-132-160 | — | — | 89800 | 112900 | 42100 | 47600 |
| | **310R4** | **160** | 3.1 | 30400 | 11.2 | 30 | 71-80-90-100-112-132-160 | — | — | 94300 | 118600 | 44500 | 47600 |
| | **310R4** | **189** | 2.6 | 31800 | 9.9 | 30 | 71-80-90-100-112-132-160 | — | — | 99200 | 124700 | 47000 | 47600 |
| | **310R4** | **206** | 2.4 | 26400 | 7.6 | 30 | 71-80-90-100-112-132-160 | — | — | 101700 | 127800 | 48400 | 47600 |
| | **310R4** | **234** | 2.1 | 32600 | 8.2 | 30 | 71-80-90-100-112-132-160 | — | — | 105700 | 132900 | 50500 | 47600 |

## 310 R

Page 273

## 34120 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **500** | **310R4** | **258** | 1.9 | 27400 | 6.3 | 30 | 71-80-90-100-112-132-160 | — | — | 108800 | 136900 | 52200 | 47600 |
| | **310R4** | **283** | 1.8 | 33000 | 6.9 | 30 | 71-80-90-100-112-132-160 | — | — | 111900 | 140700 | 53800 | 47600 |
| | **310R4** | **305** | 1.6 | 28200 | 5.5 | 30 | 71-80-90-100-112-132-160 | — | — | 114400 | 143800 | 55100 | 47600 |
| | **310R4** | **334** | 1.5 | 33300 | 5.9 | 30 | 71-80-90-100-112-132-160 | — | — | 117600 | 147800 | 56800 | 47600 |
| | **310R4** | **363** | 1.4 | 29000 | 4.7 | 30 | 71-80-90-100-112-132-160 | — | — | 120600 | 151600 | 58400 | 47600 |
| | **310R4** | **419** | 1.2 | 33700 | 4.8 | 30 | 71-80-90-100-112-132-160 | — | — | 125900 | 158300 | 61300 | 47600 |
| **500** | **310R4** | **454** | 1.1 | 25400 | 3.3 | 30 | 71-80-90-100-112-132-160 | — | — | 128900 | 162100 | 62900 | 47600 |
| | **310R4** | **517** | 0.97 | 30600 | 3.5 | 30 | 71-80-90-100-112-132-160 | — | — | 133000 | 166000 | 65000 | 47600 |
| | **310R4** | **590** | 0.85 | 21800 | 2.2 | 30 | 71-80-90-100-112-132-160 | — | — | 133000 | 166000 | 65000 | 47600 |
| | **310R4** | **639** | 0.78 | 26000 | 2.4 | 30 | 71-80-90-100-112-132-160 | — | — | 133000 | 166000 | 65000 | 47600 |
| | **310R4** | **757** | 0.66 | 28000 | 2.2 | 30 | 71-80-90-100-112-132-160 | — | — | 133000 | 166000 | 65000 | 47600 |
| | **310R4** | **898** | 0.56 | 26000 | 1.7 | 30 | 71-80-90-100-112-132-160 | — | — | 133000 | 166000 | 65000 | 47600 |

## 311 R

Page 281

## 48330 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **311 R2 (B)** | **12** | 125 | 11900 | 150 | 75 | 180-200-225-250 | — | — | 36900 | 45900 | 13000 | 58300 |
| | **311 R2 (B)** | **15.4** | 97 | 15400 | 150 | 75 | 180-200-225-250 | — | — | 39700 | 49500 | 14100 | 58300 |
| | **311 R2 (A)** | **17.7** | 85 | 8400 | 74 | 75 | 132-160-180-200 | — | — | 42300 | 52600 | 15200 | 58300 |
| | **311 R2 (B)** | **18.3** | 82 | 16000 | 146 | 75 | 180-200-225-250 | — | — | 41800 | 52100 | 15000 | 58300 |
| | **311 R2 (A)** | **22.8** | 66 | 10800 | 74 | 75 | 132-160-180-200 | — | — | 45600 | 56700 | 16500 | 58300 |
| | **311 R2 (A)** | **27** | 55 | 12800 | 74 | 75 | 132-160-180-200 | — | — | 48000 | 59600 | 17400 | 58300 |
| | **311 R3** | **53** | 28.3 | 20300 | 66 | 40 | 132-160-180-200 | — | — | 57500 | 71600 | 21300 | 58300 |
| | **311 R3** | **63.2** | 23.7 | 24000 | 65 | 40 | 132-160-180-200 | — | — | 60600 | 75500 | 22600 | 58300 |
| | **311 R3** | **68** | 22.1 | 24000 | 61 | 40 | 132-160-180-200 | — | — | 62000 | 77200 | 23200 | 58300 |
| | **311 R3** | **81.1** | 18.5 | 25900 | 55 | 40 | 132-160-180-200 | — | — | 65400 | 81400 | 24600 | 58300 |
| | **311 R3** | **96.3** | 15.6 | 27200 | 49 | 40 | 132-160-180-200 | — | — | 68800 | 85700 | 26000 | 58300 |
| | **311 R3** | **104** | 14.4 | 28700 | 47 | 40 | 132-160-180-200 | — | — | 70400 | 87700 | 26700 | 58300 |
| | **311 R3** | **124** | 12.1 | 30200 | 42 | 40 | 132-160-180-200 | — | — | 74100 | 92400 | 28300 | 58300 |
| | **311 R3** | **147** | 10.2 | 26900 | 32 | 40 | 132-160-180-200 | — | — | 78100 | 97200 | 29900 | 58300 |
| | **311 R4** | **154** | 9.7 | 26400 | 30 | 22 | 71-80-90-100-112-132-160 | — | — | 79300 | 98700 | 30500 | 58300 |
| | **311 R4** | **182** | 8.2 | 31200 | 30 | 22 | 71-80-90-100-112-132-160 | — | — | 83300 | 103800 | 32200 | 58300 |
| | **311 R4** | **198** | 7.6 | 33800 | 30 | 22 | 71-80-90-100-112-132-160 | — | — | 85400 | 106400 | 33100 | 58300 |
| | **311 R4** | **229** | 6.6 | 35300 | 27 | 22 | 71-80-90-100-112-132-160 | — | — | 89200 | 111100 | 34700 | 58300 |
| | **311 R4** | **266** | 5.6 | 36900 | 25 | 22 | 71-80-90-100-112-132-160 | — | — | 93300 | 116200 | 36500 | 58300 |
| | **311 R4** | **294** | 5.1 | 38000 | 23 | 22 | 71-80-90-100-112-132-160 | — | — | 96100 | 119700 | 37700 | 58300 |
| | **311 R4** | **322** | 4.7 | 39000 | 22 | 22 | 71-80-90-100-112-132-160 | — | — | 98800 | 123100 | 38900 | 58300 |

| 311 R | Page 281 | 48330 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **311 R4** | **341** | 4.4 | 39200 | 20 | 22 | 71-80-90-100-112-132-160 | — | — | 100600 | 125300 | 39700 | 58300 |
| | **311 R4** | **413** | 3.6 | 40600 | 17.4 | 22 | 71-80-90-100-112-132-160 | — | — | 106500 | 132600 | 42300 | 58300 |
| | **311 R4** | **438** | 3.4 | 37500 | 15.2 | 22 | 71-80-90-100-112-132-160 | — | — | 108400 | 135000 | 43100 | 58300 |
| | **311 R4** | **490** | 3.1 | 34500 | 12.5 | 22 | 71-80-90-100-112-132-160 | — | — | 112100 | 139600 | 44800 | 58300 |
| | **311 R4** | **520** | 2.9 | 38600 | 13.2 | 22 | 71-80-90-100-112-132-160 | — | — | 114100 | 142100 | 45700 | 58300 |
| | **311 R4** | **629** | 2.4 | 39700 | 11.2 | 22 | 71-80-90-100-112-132-160 | — | — | 120800 | 150500 | 48600 | 58300 |
| | **311 R4** | **746** | 2 | 30500 | 7.3 | 22 | 71-80-90-100-112-132-160 | — | — | 127200 | 158400 | 51500 | 58300 |
| **1000** | **311 R2 (B)** | **12** | 83 | 13500 | 125 | 90 | 180-200-225-250 | — | — | 41600 | 51800 | 14900 | 58300 |
| | **311 R2 (B)** | **15.4** | 65 | 17400 | 126 | 90 | 180-200-225-250 | — | — | 44900 | 55900 | 16200 | 58300 |
| | **311 R2 (A)** | **17.7** | 56 | 9600 | 54 | 90 | 132-160-180-200 | — | — | 48300 | 60000 | 17600 | 58300 |
| | **311 R2 (B)** | **18.3** | 55 | 18100 | 110 | 90 | 180-200-225-250 | — | — | 47200 | 58800 | 17100 | 58300 |
| | **311 R2 (A)** | **22.8** | 44 | 12300 | 54 | 90 | 132-160-180-200 | — | — | 52100 | 64700 | 19100 | 58300 |
| | **311 R2 (A)** | **27** | 37 | 14600 | 54 | 90 | 132-160-180-200 | — | — | 54800 | 68100 | 20200 | 58300 |
| | **311 R3** | **53** | 18.9 | 22900 | 50 | 48 | 132-160-180-200 | — | — | 65000 | 80900 | 24400 | 58300 |
| | **311 R3** | **63.2** | 15.8 | 27100 | 49 | 48 | 132-160-180-200 | — | — | 68500 | 85300 | 25900 | 58300 |
| | **311 R3** | **68** | 14.7 | 27100 | 46 | 48 | 132-160-180-200 | — | — | 70000 | 87200 | 26500 | 58300 |
| | **311 R3** | **81.1** | 12.3 | 29200 | 41 | 48 | 132-160-180-200 | — | — | 73800 | 91900 | 28100 | 58300 |
| | **311 R3** | **96.3** | 10.4 | 30700 | 37 | 48 | 132-160-180-200 | — | — | 77700 | 96800 | 29800 | 58300 |
| | **311 R3** | **104** | 9.6 | 32200 | 35 | 48 | 132-160-180-200 | — | — | 79500 | 99100 | 30600 | 58300 |
| | **311 R3** | **124** | 8.1 | 33000 | 31 | 48 | 132-160-180-200 | — | — | 83700 | 104300 | 32400 | 58300 |
| | **311 R3** | **147** | 6.8 | 27000 | 21 | 48 | 132-160-180-200 | — | — | 88200 | 109800 | 34300 | 58300 |
| | **311 R4** | **154** | 6.5 | 29800 | 23 | 26 | 71-80-90-100-112-132-160 | — | — | 89500 | 111500 | 34900 | 58300 |
| | **311 R4** | **182** | 5.5 | 35200 | 23 | 26 | 71-80-90-100-112-132-160 | — | — | 94100 | 117200 | 36900 | 58300 |
| | **311 R4** | **198** | 5 | 38200 | 23 | 26 | 71-80-90-100-112-132-160 | — | — | 96500 | 120200 | 37900 | 58300 |
| | **311 R4** | **229** | 4.4 | 39600 | 21 | 26 | 71-80-90-100-112-132-160 | — | — | 100700 | 125500 | 39800 | 58300 |
| | **311 R4** | **266** | 3.8 | 41200 | 18.3 | 26 | 71-80-90-100-112-132-160 | — | — | 105400 | 131300 | 41800 | 58300 |
| | **311 R4** | **294** | 3.4 | 41000 | 16.5 | 26 | 71-80-90-100-112-132-160 | — | — | 108600 | 135200 | 43200 | 58300 |
| | **311 R4** | **322** | 3.1 | 43300 | 15.9 | 26 | 71-80-90-100-112-132-160 | — | — | 111600 | 139000 | 44500 | 58300 |
| | **311 R4** | **341** | 2.9 | 42200 | 14.6 | 26 | 71-80-90-100-112-132-160 | — | — | 113600 | 141500 | 45400 | 58300 |
| | **311 R4** | **413** | 2.4 | 43500 | 12.5 | 26 | 71-80-90-100-112-132-160 | — | — | 120200 | 149800 | 48400 | 58300 |
| | **311 R4** | **438** | 2.3 | 40100 | 10.8 | 26 | 71-80-90-100-112-132-160 | — | — | 122400 | 152500 | 49400 | 58300 |
| | **311 R4** | **490** | 2 | 34700 | 8.4 | 26 | 71-80-90-100-112-132-160 | — | — | 126600 | 157700 | 51200 | 58300 |
| | **311 R4** | **520** | 1.9 | 40500 | 9.2 | 26 | 71-80-90-100-112-132-160 | — | — | 128800 | 160500 | 52300 | 58300 |
| | **311 R4** | **629** | 1.6 | 41200 | 7.8 | 26 | 71-80-90-100-112-132-160 | — | — | 136400 | 169900 | 55700 | 58300 |
| | **311 R4** | **746** | 1.3 | 32500 | 5.2 | 26 | 71-80-90-100-112-132-160 | — | — | 143600 | 178900 | 59000 | 58300 |
| **500** | **311R2(B)** | **12** | 42 | 16700 | 77 | 150 | 180-200-225-250 | — | — | 51200 | 63800 | 18800 | 58300 |
| | **311R2(B)** | **15.4** | 32 | 21400 | 77 | 150 | 180-200-225-250 | — | — | 55200 | 68800 | 20400 | 58300 |
| | **311R2(B)** | **18.3** | 27.3 | 21400 | 65 | 150 | 180-200-225-250 | — | — | 58100 | 72400 | 21600 | 58300 |
| | **311R2(C)** | **16.6** | 30 | 20000 | 67 | 180 | 180-200-225-250 | — | — | 56500 | 70400 | 20900 | 58300 |

## 311 R

Page 281

## 48330 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **500** | **311R2(C)** | **21.3** | 23.4 | 23500 | 61 | 180 | 180-200-225-250 | — | — | 60900 | 75800 | 22700 | 58300 |
| | **311R2(C)** | **25.3** | 19.7 | 22500 | 49 | 180 | 180-200-225-250 | — | — | 64100 | 79800 | 24100 | 58300 |
| | **311R3** | **53** | 9.4 | 28100 | 30 | 80 | 132-160-180-200 | — | — | 80000 | 99600 | 30800 | 58300 |
| | **311R3** | **63.2** | 7.9 | 33400 | 30 | 80 | 132-160-180-200 | — | — | 84300 | 105000 | 32600 | 58300 |
| | **311R3** | **68** | 7.4 | 32400 | 27 | 80 | 132-160-180-200 | — | — | 86200 | 107400 | 33400 | 58300 |
| | **311R3** | **81.1** | 6.2 | 36000 | 25 | 80 | 132-160-180-200 | — | — | 90900 | 113200 | 35500 | 58300 |
| | **311R3** | **96.3** | 5.2 | 34300 | 20 | 80 | 132-160-180-200 | — | — | 95700 | 119200 | 37500 | 58300 |
| | **311R3** | **104** | 4.8 | 35500 | 19.5 | 80 | 132-160-180-200 | — | — | 97900 | 122000 | 38500 | 58300 |
| | **311R3** | **124** | 4 | 36500 | 16.9 | 80 | 132-160-180-200 | — | — | 103100 | 128400 | 40800 | 58300 |
| | **311R3** | **147** | 3.4 | 28400 | 11.1 | 80 | 132-160-180-200 | — | — | 108500 | 135200 | 43200 | 58300 |
| | **311R4** | **154** | 3.2 | 36700 | 14.1 | 44 | 71-80-90-100-112-132-160 | — | — | 110200 | 137300 | 43900 | 58300 |
| | **311R4** | **182** | 2.7 | 43400 | 14.1 | 44 | 71-80-90-100-112-132-160 | — | — | 115800 | 144300 | 46400 | 58300 |
| | **311R4** | **198** | 2.5 | 43300 | 12.9 | 44 | 71-80-90-100-112-132-160 | — | — | 118800 | 148000 | 47700 | 58300 |
| | **311R4** | **229** | 2.2 | 46200 | 11.9 | 44 | 71-80-90-100-112-132-160 | — | — | 124000 | 154500 | 50100 | 58300 |
| | **311R4** | **266** | 1.9 | 46600 | 10.4 | 44 | 71-80-90-100-112-132-160 | — | — | 129700 | 161600 | 52700 | 58300 |
| | **311R4** | **294** | 1.7 | 44800 | 9 | 44 | 71-80-90-100-112-132-160 | — | — | 133600 | 166500 | 54400 | 58300 |
| | **311R4** | **322** | 1.6 | 47100 | 8.7 | 44 | 71-80-90-100-112-132-160 | — | — | 137400 | 171100 | 56100 | 58300 |
| | **311R4** | **341** | 1.5 | 45400 | 7.9 | 44 | 71-80-90-100-112-132-160 | — | — | 139800 | 174200 | 57200 | 58300 |
| | **311R4** | **413** | 1.2 | 46200 | 6.6 | 44 | 71-80-90-100-112-132-160 | — | — | 148000 | 184400 | 61000 | 58300 |
| | **311R4** | **438** | 1.1 | 44300 | 6 | 44 | 71-80-90-100-112-132-160 | — | — | 150700 | 187700 | 62200 | 58300 |
| | **311R4** | **490** | 1 | 35200 | 4.2 | 44 | 71-80-90-100-112-132-160 | — | — | 155800 | 194100 | 64600 | 58300 |
| | **311R4** | **520** | 0.96 | 43000 | 4.9 | 44 | 71-80-90-100-112-132-160 | — | — | 157000 | 195000 | 65000 | 58300 |
| | **311R4** | **629** | 0.8 | 43000 | 4 | 44 | 71-80-90-100-112-132-160 | — | — | 157000 | 195000 | 65000 | 58300 |
| | **311R4** | **746** | 0.67 | 34000 | 2.7 | 44 | 71-80-90-100-112-132-160 | — | — | 157000 | 195000 | 65000 | 58300 |

## 313 R

Page 289

## 57970 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **313R2(B)** | **12.2** | 123 | 12100 | 150 | 75 | 180-200-225-250 | — | — | 45700 | 54100 | 16100 | 86300 |
| | **313R2(B)** | **15.9** | 95 | 15700 | 150 | 75 | 180-200-225-250 | — | — | 49500 | 58600 | 17600 | 86300 |
| | **313R2(B)** | **19.1** | 79 | 19100 | 150 | 75 | 180-200-225-250 | — | — | 52300 | 61900 | 18700 | 86300 |
| | **313R2(C)** | **16.8** | 89 | 14600 | 144 | 90 | 180-200-225-250 | — | — | 50400 | 59600 | 17900 | 105000 |
| | **313R2(C)** | **22** | 68 | 19000 | 144 | 90 | 180-200-225-250 | — | — | 54600 | 64600 | 19600 | 105000 |
| | **313R2(C)** | **26.4** | 57 | 22800 | 144 | 90 | 180-200-225-250 | — | — | 57700 | 68300 | 20800 | 105000 |
| | **313R3** | **53.7** | 28 | 20500 | 66 | 40 | 132-160-180-200 | — | — | 71300 | 84400 | 26400 | 105000 |
| | **313R3** | **64** | 23.4 | 24500 | 66 | 40 | 132-160-180-200 | — | — | 75200 | 89000 | 28000 | 105000 |
| | **313R3** | **69.9** | 21.4 | 26700 | 66 | 40 | 132-160-180-200 | — | — | 77200 | 91400 | 28800 | 105000 |

| 313 R | Page 288 | 57970 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC)  | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **313R3** | **82.2** | 18.3 | 31400 | 66 | 40 | 132-160-180-200 | — | — | 81100 | 95900 | 30400 | 105000 |
| | **313R3** | **97.5** | 15.4 | 37300 | 66 | 40 | 132-160-180-200 | — | — | 85300 | 101000 | 32200 | 105000 |
| | **313R3** | **107** | 14 | 38800 | 62 | 40 | 132-160-180-200 | — | — | 87800 | 103900 | 33200 | 105000 |
| | **313R3** | **127** | 11.8 | 40700 | 55 | 40 | 132-160-180-200 | — | — | 92400 | 109400 | 35100 | 105000 |
| | **313R3** | **153** | 9.8 | 39000 | 44 | 40 | 132-160-180-200 | — | — | 97700 | 115600 | 37400 | 105000 |
| | **313R4** | **185** | 8.1 | 31600 | 30 | 22 | 71-80-90-100-112-132-160 | — | — | 103300 | 122300 | 39800 | 105000 |
| | **313R4** | **201** | 7.5 | 34300 | 30 | 22 | 71-80-90-100-112-132-160 | — | — | 106000 | 125400 | 40900 | 105000 |
| | **313R4** | **237** | 6.3 | 40500 | 30 | 22 | 71-80-90-100-112-132-160 | — | — | 111400 | 131800 | 43200 | 105000 |
| | **313R4** | **281** | 5.3 | 48100 | 30 | 22 | 71-80-90-100-112-132-160 | — | — | 117200 | 138800 | 45800 | 105000 |
| | **313R4** | **309** | 4.9 | 44500 | 26 | 22 | 71-80-90-100-112-132-160 | — | — | 120600 | 142700 | 47200 | 105000 |
| | **313R4** | **346** | 4.3 | 53000 | 27 | 22 | 71-80-90-100-112-132-160 | — | — | 124700 | 147600 | 49000 | 105000 |
| | **313R4** | **387** | 3.9 | 46700 | 21 | 22 | 71-80-90-100-112-132-160 | — | — | 129100 | 152800 | 50900 | 105000 |
| | **313R4** | **450** | 3.3 | 47700 | 18.8 | 22 | 71-80-90-100-112-132-160 | — | — | 135100 | 159800 | 53600 | 105000 |
| | **313R4** | **496** | 3 | 52100 | 18.6 | 22 | 71-80-90-100-112-132-160 | — | — | 139000 | 164500 | 55300 | 105000 |
| | **313R4** | **535** | 2.8 | 48900 | 16.2 | 22 | 71-80-90-100-112-132-160 | — | — | 142200 | 168300 | 56700 | 105000 |
| | **313R4** | **647** | 2.3 | 50400 | 13.8 | 22 | 71-80-90-100-112-132-160 | — | — | 150500 | 178100 | 60400 | 105000 |
| | **313R4** | **778** | 1.9 | 44200 | 10.1 | 22 | 71-80-90-100-112-132-160 | — | — | 159100 | 188300 | 64300 | 105000 |
| **1000** | **313 R2 (B)** | **12.2** | 82 | 13700 | 126 | 90 | 180-200-225-250 | — | — | 51600 | 61100 | 18400 | 86300 |
| | **313 R2 (B)** | **15.9** | 63 | 17700 | 124 | 90 | 180-200-225-250 | — | — | 55900 | 66100 | 20100 | 86300 |
| | **313 R2 (A)** | **18** | 55 | 9700 | 54 | 90 | 132-160-180-200 | — | — | 59300 | 71400 | 21700 | 86300 |
| | **313 R2 (B)** | **19.1** | 52 | 21800 | 127 | 90 | 180-200-225-250 | — | — | 59100 | 69900 | 21400 | 86300 |
| | **313 R2 (A)** | **23.4** | 43 | 12700 | 54 | 90 | 132-160-180-200 | — | — | 64200 | 77300 | 23700 | 86300 |
| | **313 R2 (A)** | **28.2** | 35 | 15200 | 54 | 90 | 132-160-180-200 | — | — | 67900 | 81700 | 25200 | 86300 |
| | **313 R3** | **53.7** | 18.6 | 23200 | 50 | 48 | 132-160-180-200 | — | — | 80600 | 95300 | 30200 | 105000 |
| | **313 R3** | **64** | 15.6 | 27700 | 50 | 48 | 132-160-180-200 | — | — | 84900 | 100500 | 32000 | 105000 |
| | **313 R3** | **69.9** | 14.3 | 30200 | 50 | 48 | 132-160-180-200 | — | — | 87200 | 103200 | 33000 | 105000 |
| | **313 R3** | **82.2** | 12.2 | 35500 | 50 | 48 | 132-160-180-200 | — | — | 91500 | 108300 | 34800 | 105000 |
| | **313 R3** | **97.5** | 10.3 | 42100 | 50 | 48 | 132-160-180-200 | — | — | 96400 | 114100 | 36800 | 105000 |
| | **313 R3** | **107** | 9.3 | 42800 | 46 | 48 | 132-160-180-200 | — | — | 99100 | 117300 | 38000 | 105000 |
| | **313 R3** | **127** | 7.9 | 43400 | 39 | 48 | 132-160-180-200 | — | — | 104400 | 123500 | 40200 | 105000 |
| | **313 R3** | **153** | 6.5 | 39000 | 29 | 48 | 132-160-180-200 | — | — | 110300 | 130600 | 42800 | 105000 |
| | **313 R4** | **185** | 5.4 | 35700 | 23 | 26 | 71-80-90-100-112-132-160 | — | — | 116700 | 138100 | 45500 | 105000 |
| | **313 R4** | **201** | 5 | 38800 | 23 | 26 | 71-80-90-100-112-132-160 | — | — | 119700 | 141600 | 46800 | 105000 |
| | **313 R4** | **237** | 4.2 | 45600 | 23 | 26 | 71-80-90-100-112-132-160 | — | — | 125800 | 148900 | 49500 | 105000 |
| | **313 R4** | **281** | 3.6 | 49700 | 21 | 26 | 71-80-90-100-112-132-160 | — | — | 132400 | 156700 | 52400 | 105000 |
| | **313 R4** | **309** | 3.2 | 47600 | 18.2 | 26 | 71-80-90-100-112-132-160 | — | — | 136200 | 161200 | 54100 | 105000 |
| | **313 R4** | **346** | 2.9 | 54500 | 18.6 | 26 | 71-80-90-100-112-132-160 | — | — | 140900 | 166700 | 56100 | 105000 |
| | **313 R4** | **387** | 2.6 | 49500 | 15.1 | 26 | 71-80-90-100-112-132-160 | — | — | 145800 | 172500 | 58300 | 105000 |

| 313 R | Page 289 | 57970 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1000** | **313 R4** | **450** | 2.2 | 50700 | 13.3 | 26 | 71-80-90-100-112-132-160 | — | — | 152500 | 180500 | 61300 | 105000 |
| | **313 R4** | **496** | 2 | 52200 | 12.5 | 26 | 71-80-90-100-112-132-160 | — | — | 157000 | 185800 | 63300 | 105000 |
| | **313 R4** | **535** | 1.9 | 52200 | 11.6 | 26 | 71-80-90-100-112-132-160 | — | — | 160600 | 190000 | 64900 | 105000 |
| | **313 R4** | **647** | 1.5 | 53900 | 9.9 | 26 | 71-80-90-100-112-132-160 | — | — | 170000 | 201200 | 69200 | 105000 |
| | **313 R4** | **778** | 1.3 | 47100 | 7.2 | 26 | 71-80-90-100-112-132-160 | — | — | 179700 | 212700 | 73600 | 105000 |
| **500** | **313R2(B)** | **12.2** | 41 | 17000 | 78 | 150 | 180-200-225-250 | — | — | 63600 | 75200 | 23200 | 86300 |
| | **313R2(B)** | **15.9** | 32 | 21900 | 77 | 150 | 180-200-225-250 | — | — | 68800 | 81400 | 25300 | 86300 |
| | **313R2(B)** | **19.1** | 26.2 | 26900 | 78 | 150 | 180-200-225-250 | — | — | 72700 | 86100 | 26900 | 86300 |
| | **313R2(C)** | **16.8** | 29.7 | 20200 | 67 | 180 | 180-200-225-250 | — | — | 70100 | 82900 | 25800 | 105000 |
| | **313R2(C)** | **22** | 22.8 | 26400 | 67 | 180 | 180-200-225-250 | — | — | 75900 | 89800 | 28200 | 105000 |
| | **313R2(C)** | **26.4** | 18.9 | 28300 | 60 | 180 | 180-200-225-250 | — | — | 80200 | 94900 | 30000 | 105000 |
| | **313R3** | **53.7** | 9.3 | 28400 | 30 | 80 | 132-160-180-200 | — | — | 99200 | 117400 | 38000 | 105000 |
| | **313R3** | **64** | 7.8 | 34100 | 31 | 80 | 132-160-180-200 | — | — | 104600 | 123800 | 40300 | 105000 |
| | **313R3** | **69.9** | 7.1 | 37200 | 31 | 80 | 132-160-180-200 | — | — | 107400 | 127100 | 41500 | 105000 |
| | **313R3** | **82.2** | 6.1 | 43700 | 31 | 80 | 132-160-180-200 | — | — | 112700 | 133400 | 43800 | 105000 |
| | **313R3** | **97.5** | 5.1 | 50000 | 29 | 80 | 132-160-180-200 | — | — | 118700 | 140400 | 46400 | 105000 |
| | **313R3** | **107** | 4.7 | 45100 | 24 | 80 | 132-160-180-200 | — | — | 122000 | 144400 | 47900 | 105000 |
| | **313R3** | **127** | 3.9 | 46600 | 21 | 80 | 132-160-180-200 | — | — | 128500 | 152000 | 50700 | 105000 |
| | **313R3** | **153** | 3.3 | 41100 | 15.4 | 80 | 132-160-180-200 | — | — | 135800 | 160700 | 53900 | 105000 |
| | **313R4** | **185** | 2.7 | 43900 | 14.1 | 44 | 71-80-90-100-112-132-160 | — | — | 143700 | 170000 | 57400 | 105000 |
| | **313R4** | **201** | 2.5 | 47700 | 14.1 | 44 | 71-80-90-100-112-132-160 | — | — | 147300 | 174400 | 59000 | 105000 |
| | **313R4** | **237** | 2.1 | 53000 | 13.2 | 44 | 71-80-90-100-112-132-160 | — | — | 154900 | 183300 | 62400 | 105000 |
| | **313R4** | **281** | 1.8 | 51300 | 10.8 | 44 | 71-80-90-100-112-132-160 | — | — | 163000 | 192900 | 66000 | 105000 |
| | **313R4** | **309** | 1.6 | 53500 | 10.2 | 44 | 71-80-90-100-112-132-160 | — | — | 167700 | 198400 | 68100 | 105000 |
| | **313R4** | **346** | 1.4 | 55200 | 9.5 | 44 | 71-80-90-100-112-132-160 | — | — | 173400 | 205200 | 70700 | 105000 |
| | **313R4** | **387** | 1.3 | 55500 | 8.5 | 44 | 71-80-90-100-112-132-160 | — | — | 179500 | 212400 | 73500 | 105000 |
| | **313R4** | **450** | 1.1 | 57000 | 7.5 | 44 | 71-80-90-100-112-132-160 | — | — | 187800 | 222200 | 77300 | 105000 |
| | **313R4** | **496** | 1 | 53000 | 6.3 | 44 | 71-80-90-100-112-132-160 | — | — | 192000 | 228800 | 79800 | 105000 |
| | **313R4** | **535** | 0.94 | 58000 | 6.4 | 44 | 71-80-90-100-112-132-160 | — | — | 192000 | 231000 | 80000 | 105000 |
| | **313R4** | **647** | 0.77 | 58000 | 5.3 | 44 | 71-80-90-100-112-132-160 | — | — | 192000 | 231000 | 80000 | 105000 |
| | **313R4** | **778** | 0.64 | 49000 | 3.7 | 44 | 71-80-90-100-112-132-160 | — | — | 192000 | 231000 | 80000 | 105000 |

| 315 R | Page 296 | 105000 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **315R3(B)** | **51.1** | 29.4 | 48100 | 150 | 75 | 180-200-225-250 | — | — | 75000 | 88100 | 29200 | 135000 |
| | **315R3(B)** | **65.5** | 22.9 | 62100 | 150 | 75 | 180-200-225-250 | — | — | 80900 | 94900 | 31700 | 135000 |
| | **315R3(B)** | **77.8** | 19.3 | 64400 | 143 | 75 | 180-200-225-250 | — | — | 85100 | 100000 | 33600 | 135000 |
| | **315R3(B)** | **82.3** | 18.2 | 65500 | 137 | 75 | 180-200-225-250 | — | — | 86600 | 101600 | 34200 | 135000 |
| | **315R3(B)** | **97.6** | 15.4 | 68800 | 121 | 75 | 180-200-225-250 | — | — | 91100 | 107000 | 36200 | 135000 |
| **1500** | **315R3(B)** | **113** | 13.2 | 60000 | 91 | 75 | 180-200-225-250 | — | — | 95300 | 111900 | 38100 | 135000 |
| | **315R3(C)** | **70.7** | 21.2 | 54900 | 134 | 90 | 180-200-225-250 | — | — | 82700 | 97100 | 32500 | 135000 |
| | **315R3(C)** | **90.7** | 16.5 | 59200 | 112 | 90 | 180-200-225-250 | — | — | 89200 | 104700 | 35300 | 135000 |
| | **315R3(C)** | **108** | 13.9 | 62300 | 100 | 90 | 180-200-225-250 | — | — | 93900 | 110200 | 37400 | 135000 |
| | **315R3(C)** | **114** | 13.2 | 64700 | 98 | 90 | 180-200-225-250 | — | — | 95400 | 112100 | 38100 | 135000 |
| | **315R3(C)** | **135** | 11.1 | 75700 | 96 | 90 | 180-200-225-250 | — | — | 100500 | 118000 | 40300 | 135000 |
| | **315R3(C)** | **157** | 9.5 | 65000 | 71 | 90 | 180-200-225-250 | — | — | 105100 | 123400 | 42400 | 135000 |
| | **315R4** | **225** | 6.7 | 77700 | 61 | 40 | 132-160-180-200 | — | — | 117100 | 137500 | 47800 | 135000 |
| | **315R4** | **269** | 5.6 | 82000 | 54 | 40 | 132-160-180-200 | — | — | 123500 | 145000 | 50700 | 135000 |
| | **315R4** | **345** | 4.3 | 96000 | 49 | 40 | 132-160-180-200 | — | — | 133100 | 156200 | 55100 | 135000 |
| | **315R4** | **409** | 3.7 | 98300 | 43 | 40 | 132-160-180-200 | — | — | 140100 | 164500 | 58400 | 135000 |
| | **315R4** | **525** | 2.9 | 99400 | 34 | 40 | 132-160-180-200 | — | — | 151000 | 177300 | 63400 | 135000 |
| | **315R4** | **623** | 2.4 | 100200 | 29 | 40 | 132-160-180-200 | — | — | 158900 | 186600 | 67200 | 135000 |
| | **315R4** | **659** | 2.3 | 88200 | 24 | 40 | 132-160-180-200 | — | — | 161600 | 189800 | 68400 | 135000 |
| | **315R4** | **782** | 1.9 | 90300 | 20 | 40 | 132-160-180-200 | — | — | 170200 | 199800 | 72400 | 135000 |
| | **315R4** | **909** | 1.6 | 76900 | 15 | 40 | 132-160-180-200 | — | — | 178000 | 209000 | 76200 | 135000 |
| **1000** | **315R3(B)** | **51.1** | 19.6 | 54400 | 122 | 90 | 180-200-225-250 | — | — | 84700 | 99500 | 33400 | 135000 |
| | **315R3(B)** | **65.5** | 15.3 | 70700 | 124 | 90 | 180-200-225-250 | — | — | 91300 | 107200 | 36300 | 135000 |
| | **315R3(B)** | **77.8** | 12.9 | 72500 | 107 | 90 | 180-200-225-250 | — | — | 96100 | 112900 | 38400 | 135000 |
| | **315R3(B)** | **82.3** | 12.2 | 73700 | 103 | 90 | 180-200-225-250 | — | — | 97800 | 114800 | 39100 | 135000 |
| | **315R3(B)** | **97.6** | 10.2 | 77500 | 91 | 90 | 180-200-225-250 | — | — | 102900 | 120800 | 41400 | 135000 |
| | **315R3(B)** | **113** | 8.8 | 65000 | 66 | 90 | 180-200-225-250 | — | — | 107700 | 126400 | 43600 | 135000 |
| | **315R3(C)** | **70.7** | 14.1 | 62000 | 101 | 108 | 180-200-225-250 | — | — | 93400 | 109700 | 37200 | 135000 |
| | **315R3(C)** | **90.7** | 11 | 66800 | 85 | 108 | 180-200-225-250 | — | — | 100700 | 118200 | 40400 | 135000 |
| | **315R3(C)** | **108** | 9.3 | 70400 | 75 | 108 | 180-200-225-250 | — | — | 106000 | 124500 | 42800 | 135000 |
| | **315R3(C)** | **114** | 8.8 | 72100 | 73 | 108 | 180-200-225-250 | — | — | 107800 | 126600 | 43600 | 135000 |
| | **315R3(C)** | **135** | 7.4 | 79600 | 68 | 108 | 180-200-225-250 | — | — | 113500 | 133200 | 46200 | 135000 |
| | **315R3(C)** | **157** | 6.4 | 65000 | 47 | 108 | 180-200-225-250 | — | — | 118700 | 139400 | 48600 | 135000 |
| | **315R4** | **225** | 4.4 | 86800 | 46 | 48 | 132-160-180-200 | — | — | 132300 | 155300 | 54800 | 135000 |
| | **315R4** | **269** | 3.7 | 90500 | 40 | 48 | 132-160-180-200 | — | — | 139500 | 163700 | 58100 | 135000 |
| | **315R4** | **345** | 2.9 | 98900 | 34 | 48 | 132-160-180-200 | — | — | 150300 | 176500 | 63100 | 135000 |
| | **315R4** | **409** | 2.4 | 100100 | 29 | 48 | 132-160-180-200 | — | — | 158200 | 185800 | 66800 | 135000 |
| | **315R4** | **525** | 1.9 | 101500 | 23 | 48 | 132-160-180-200 | — | — | 170500 | 200200 | 72600 | 135000 |

| 315 R | Page 296 | 105000 Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1000** | **315R4** | **623** | 1.6 | 102400 | 19.4 | 48 | 132-160-180-200 | — | — | 179500 | 210800 | 76900 | 135000 |
| | **315R4** | **659** | 1.5 | 93300 | 16.8 | 48 | 132-160-180-200 | — | — | 182500 | 214300 | 78300 | 135000 |
| | **315R4** | **782** | 1.3 | 95600 | 14.5 | 48 | 132-160-180-200 | — | — | 192200 | 225600 | 82900 | 135000 |
| | **315R4** | **909** | 1.1 | 82200 | 10.7 | 48 | 132-160-180-200 | — | — | 201000 | 236000 | 87200 | 135000 |
| **500** | **315R3(B)** | **51.1** | 9.8 | 67000 | 75 | 150 | 180-200-225-250 | — | — | 104300 | 122500 | 42100 | 135000 |
| | **315R3(B)** | **65.5** | 7.6 | 86800 | 76 | 150 | 180-200-225-250 | — | — | 112400 | 132000 | 45700 | 135000 |
| | **315R3(B)** | **77.8** | 6.4 | 89600 | 66 | 150 | 180-200-225-250 | — | — | 118400 | 139000 | 48400 | 135000 |
| | **315R3(B)** | **82.3** | 6.1 | 80700 | 56 | 150 | 180-200-225-250 | — | — | 120400 | 141300 | 49300 | 135000 |
| | **315R3(B)** | **97.6** | 5.1 | 81700 | 48 | 150 | 180-200-225-250 | — | — | 126700 | 148800 | 52200 | 135000 |
| | **315R3(B)** | **113** | 4.4 | 66200 | 33 | 150 | 180-200-225-250 | — | — | 132600 | 155600 | 54900 | 135000 |
| | **315R3(C)** | **70.7** | 7.1 | 76400 | 62 | 180 | 180-200-225-250 | — | — | 115000 | 135100 | 46900 | 135000 |
| | **315R3(C)** | **90.7** | 5.5 | 82300 | 52 | 180 | 180-200-225-250 | — | — | 124000 | 145500 | 51000 | 135000 |
| | **315R3(C)** | **108** | 4.6 | 86200 | 46 | 180 | 180-200-225-250 | — | — | 130500 | 153200 | 53900 | 135000 |
| | **315R3(C)** | **114** | 4.4 | 82800 | 42 | 180 | 180-200-225-250 | — | — | 132700 | 155800 | 55000 | 135000 |
| | **315R3(C)** | **135** | 3.7 | 84000 | 36 | 180 | 180-200-225-250 | — | — | 139700 | 164000 | 58200 | 135000 |
| | **315R3(C)** | **157** | 3.2 | 69300 | 25 | 180 | 180-200-225-250 | — | — | 146200 | 171600 | 61200 | 135000 |
| | **315R4** | **225** | 2.2 | 98500 | 26 | 80 | 132-160-180-200 | — | — | 162800 | 191200 | 69000 | 135000 |
| | **315R4** | **269** | 1.9 | 100900 | 22 | 80 | 132-160-180-200 | — | — | 171700 | 201600 | 73200 | 135000 |
| | **315R4** | **345** | 1.4 | 102900 | 17.7 | 80 | 132-160-180-200 | — | — | 185000 | 217200 | 79500 | 135000 |
| | **315R4** | **409** | 1.2 | 103900 | 15 | 80 | 132-160-180-200 | — | — | 194800 | 228700 | 84200 | 135000 |
| | **315R4** | **525** | 0.95 | 105000 | 11.8 | 80 | 132-160-180-200 | — | — | 206000 | 243000 | 90000 | 135000 |
| | **315R4** | **623** | 0.8 | 105000 | 10 | 80 | 132-160-180-200 | — | — | 206000 | 243000 | 90000 | 135000 |
| | **315R4** | **659** | 0.76 | 99000 | 8.9 | 80 | 132-160-180-200 | — | — | 206000 | 243000 | 90000 | 135000 |
| | **315R4** | **782** | 0.64 | 99000 | 7.5 | 80 | 132-160-180-200 | — | — | 206000 | 243000 | 90000 | 135000 |
| | **315R4** | **909** | 0.55 | 83500 | 5.4 | 80 | 132-160-180-200 | — | — | 206000 | 243000 | 90000 | 135000 |
| **500** | **315R3(B)** | **51.1** | 9.8 | 67000 | 75 | 150 | 180-200-225-250 | — | — | 104300 | 122500 | 42100 | 135000 |
| | **315R3(B)** | **65.5** | 7.6 | 86800 | 76 | 150 | 180-200-225-250 | — | — | 112400 | 132000 | 45700 | 135000 |
| | **315R3(B)** | **77.8** | 6.4 | 89600 | 66 | 150 | 180-200-225-250 | — | — | 118400 | 139000 | 48400 | 135000 |
| | **315R3(B)** | **82.3** | 6.1 | 80700 | 56 | 150 | 180-200-225-250 | — | — | 120400 | 141300 | 49300 | 135000 |
| | **315R3(B)** | **97.6** | 5.1 | 81700 | 48 | 150 | 180-200-225-250 | — | — | 126700 | 148800 | 52200 | 135000 |
| | **315R3(B)** | **113** | 4.4 | 66200 | 33 | 150 | 180-200-225-250 | — | — | 132600 | 155600 | 54900 | 135000 |
| | **315R3(C)** | **70.7** | 7.1 | 76400 | 62 | 180 | 180-200-225-250 | — | — | 115000 | 135100 | 46900 | 135000 |
| | **315R3(C)** | **90.7** | 5.5 | 82300 | 52 | 180 | 180-200-225-250 | — | — | 124000 | 145500 | 51000 | 135000 |
| | **315R3(C)** | **108** | 4.6 | 86200 | 46 | 180 | 180-200-225-250 | — | — | 130500 | 153200 | 53900 | 135000 |
| | **315R3(C)** | **114** | 4.4 | 82800 | 42 | 180 | 180-200-225-250 | — | — | 132700 | 155800 | 55000 | 135000 |
| | **315R3(C)** | **135** | 3.7 | 84000 | 36 | 180 | 180-200-225-250 | — | — | 139700 | 164000 | 58200 | 135000 |
| | **315R3(C)** | **157** | 3.2 | 69300 | 25 | 180 | 180-200-225-250 | — | — | 146200 | 171600 | 61200 | 135000 |
| | **315R4** | **225** | 2.2 | 98500 | 26 | 80 | 132-160-180-200 | — | — | 162800 | 191200 | 69000 | 135000 |

## 315 R

Page 296

## 105000 Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **500** | **315R4** | **225** | 2.2 | 98500 | 26 | 80 | 132-160-180-200 | — | — | 162800 | 191200 | 69000 | 135000 |
| | **315R4** | **269** | 1.9 | 100900 | 22 | 80 | 132-160-180-200 | — | — | 171700 | 201600 | 73200 | 135000 |
| | **315R4** | **345** | 1.4 | 102900 | 17.7 | 80 | 132-160-180-200 | — | — | 185000 | 217200 | 79500 | 135000 |
| | **315R4** | **409** | 1.2 | 103900 | 15 | 80 | 132-160-180-200 | — | — | 194800 | 228700 | 84200 | 135000 |
| | **315R4** | **525** | 0.95 | 105000 | 11.8 | 80 | 132-160-180-200 | — | — | 206000 | 243000 | 90000 | 135000 |
| | **315R4** | **623** | 0.8 | 105000 | 10 | 80 | 132-160-180-200 | — | — | 206000 | 243000 | 90000 | 135000 |
| | **315R4** | **659** | 0.76 | 99000 | 8.9 | 80 | 132-160-180-200 | — | — | 206000 | 243000 | 90000 | 135000 |
| | **315R4** | **782** | 0.64 | 99000 | 7.5 | 80 | 132-160-180-200 | — | — | 206000 | 243000 | 90000 | 135000 |
| | **315R4** | **909** | 0.55 | 83500 | 5.4 | 80 | 132-160-180-200 | — | — | 206000 | 243000 | 90000 | 135000 |

## 316 R

Page 305

## 138820Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **316R3(B)** | **51.1** | 29.4 | 50000 | 150 | 75 | 180-200-225-250 | — | — | 124800 | 138800 | 48600 | 192000 |
| | **316R3(B)** | **65.5** | 22.9 | 63800 | 150 | 75 | 180-200-225-250 | — | — | 134500 | 149500 | 52800 | 192000 |
| | **316R3(B)** | **77.8** | 19.3 | 65800 | 146 | 75 | 180-200-225-250 | — | — | 141600 | 157400 | 55900 | 192000 |
| | **316R3©** | **70.7** | 21.2 | 59300 | 144 | 90 | 180-200-225-250 | — | — | 137600 | 153000 | 54200 | 192000 |
| | **316R3©** | **90.7** | 16.5 | 69800 | 132 | 90 | 180-200-225-250 | — | — | 148200 | 164900 | 58900 | 192000 |
| | **316R3©** | **108** | 13.9 | 72500 | 116 | 90 | 180-200-225-250 | — | — | 156100 | 173600 | 62300 | 192000 |
| | **316R4** | **225** | 6.7 | 94500 | 74 | 45 | 132-160-180-200 | — | — | 194700 | 216600 | 79700 | 192000 |
| | **316R4** | **269** | 5.6 | 99700 | 66 | 45 | 132-160-180-200 | — | — | 205300 | 228300 | 84600 | 192000 |
| | **316R4** | **289** | 5.2 | 105700 | 65 | 45 | 132-160-180-200 | — | — | 209900 | 233400 | 86600 | 192000 |
| | **316R4** | **345** | 4.3 | 107300 | 55 | 45 | 132-160-180-200 | — | — | 221300 | 246100 | 91900 | 192000 |
| | **316R4** | **409** | 3.7 | 112700 | 49 | 45 | 132-160-180-200 | — | — | 232900 | 259100 | 97300 | 192000 |
| | **316R4** | **443** | 3.4 | 117300 | 47 | 45 | 132-160-180-200 | — | — | 238500 | 265200 | 99900 | 192000 |
| | **316R4** | **525** | 2.9 | 118900 | 40 | 45 | 132-160-180-200 | — | — | 251000 | 279200 | 105700 | 192000 |
| | **316R4** | **623** | 2.4 | 115400 | 33 | 45 | 132-160-180-200 | — | — | 264300 | 293900 | 111900 | 192000 |
| **1000** | **316R3(B)** | **51.1** | 19.6 | 56900 | 128 | 90 | 180-200-225-250 | — | — | 140900 | 156700 | 55700 | 192000 |
| | **316R3(B)** | **65.5** | 15.3 | 72400 | 127 | 90 | 180-200-225-250 | — | — | 151900 | 168900 | 60500 | 192000 |
| | **316R3(B)** | **77.8** | 12.9 | 74300 | 110 | 90 | 180-200-225-250 | — | — | 159900 | 177800 | 64000 | 192000 |
| | **316R3©** | **70.7** | 14.1 | 66900 | 109 | 108 | 180-200-225-250 | — | — | 155300 | 172800 | 62000 | 192000 |
| | **316R3©** | **90.7** | 11 | 78800 | 100 | 108 | 180-200-225-250 | — | — | 167400 | 186200 | 67400 | 192000 |
| | **316R3©** | **108** | 9.3 | 81900 | 87 | 108 | 180-200-225-250 | — | — | 176200 | 196000 | 71400 | 192000 |
| | **316R4** | **225** | 4.4 | 106600 | 56 | 54 | 132-160-180-200 | — | — | 219900 | 244600 | 91300 | 192000 |
| | **316R4** | **269** | 3.7 | 112200 | 49 | 54 | 132-160-180-200 | — | — | 231900 | 257900 | 96800 | 192000 |
| | **316R4** | **289** | 3.5 | 116700 | 48 | 54 | 132-160-180-200 | — | — | 237000 | 263600 | 99200 | 192000 |
| | **316R4** | **345** | 2.9 | 120700 | 41 | 54 | 132-160-180-200 | — | — | 249900 | 277900 | 105200 | 192000 |
| | **316R4** | **409** | 2.4 | 126200 | 36 | 54 | 132-160-180-200 | — | — | 263100 | 292600 | 111400 | 192000 |

## 316 R

Page 305

## 138820Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1000** | **316R4** | **443** | 2.3 | 127400 | 34 | 54 | 132-160-180-200 | — | — | 269300 | 299500 | 114300 | 192000 |
| | **316R4** | **525** | 1.9 | 127500 | 29 | 54 | 132-160-180-200 | — | — | 283500 | 315300 | 121000 | 192000 |
| | **316R4** | **623** | 1.6 | 119300 | 23 | 54 | 132-160-180-200 | — | — | 298500 | 331900 | 128100 | 192000 |
| **500** | **316R3(B)** | **51.1** | 9.8 | 70800 | 79 | 150 | 180-200-225-250 | — | — | 173500 | 192900 | 70100 | 192000 |
| | **316R3(B)** | **65.5** | 7.6 | 90400 | 79 | 150 | 180-200-225-250 | — | — | 187000 | 207900 | 76200 | 192000 |
| | **316R3(B)** | **77.8** | 6.4 | 91500 | 67 | 150 | 180-200-225-250 | — | — | 196800 | 218900 | 80700 | 192000 |
| | **316R3(C)** | **70.7** | 7.1 | 82400 | 67 | 180 | 180-200-225-250 | — | — | 191300 | 212700 | 78100 | 192000 |
| | **316R3(C)** | **90.7** | 5.5 | 97000 | 61 | 180 | 180-200-225-250 | — | — | 206100 | 229200 | 84900 | 192000 |
| | **316R3(C)** | **108** | 4.6 | 99600 | 53 | 180 | 180-200-225-250 | — | — | 217000 | 241300 | 89900 | 192000 |
| | **316R4** | **225** | 2.2 | 127600 | 34 | 90 | 132-160-180-200 | — | — | 270700 | 301100 | 115000 | 192000 |
| | **316R4** | **269** | 1.9 | 130000 | 29 | 90 | 132-160-180-200 | — | — | 285500 | 317500 | 122000 | 192000 |
| | **316R4** | **289** | 1.7 | 131000 | 27 | 90 | 132-160-180-200 | — | — | 291800 | 324500 | 124900 | 192000 |
| | **316R4** | **345** | 1.4 | 133500 | 23 | 90 | 132-160-180-200 | — | — | 307700 | 342200 | 132500 | 192000 |
| | **316R4** | **409** | 1.2 | 135900 | 19.6 | 90 | 132-160-180-200 | — | — | 323900 | 360200 | 140300 | 192000 |
| | **316R4** | **443** | 1.1 | 137000 | 18.3 | 90 | 132-160-180-200 | — | — | 331600 | 368700 | 144000 | 192000 |
| | **316R4** | **525** | 0.95 | 138800 | 15.6 | 90 | 132-160-180-200 | — | — | 345000 | 385000 | 150000 | 192000 |
| | **316R4** | **623** | 0.8 | 124000 | 11.8 | 90 | 132-160-180-200 | — | — | 345000 | 385000 | 150000 | 192000 |

## 317R

Page 303

## 187860Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **317R3(B)** | **49.8** | 30 | 46900 | 150 | 90 | 180-200-225-250 | — | — | 159200 | 169500 | 48200 | 393000 |
| | **317R3(B)** | **64.9** | 23.1 | 61200 | 150 | 90 | 180-200-225-250 | — | — | 172400 | 183500 | 52700 | 393000 |
| | **317R3(B)** | **78.1** | 19.2 | 75100 | 150 | 90 | 180-200-225-250 | — | — | 182200 | 194000 | 56000 | 393000 |
| | **317R3(B)** | **83.3** | 18 | 80200 | 150 | 90 | 180-200-225-250 | — | — | 185800 | 197800 | 57200 | 393000 |
| | **317R3(B)** | **100** | 15 | 96200 | 150 | 90 | 180-200-225-250 | — | — | 196400 | 209100 | 60900 | 393000 |
| | **317R3(B)** | **119** | 12.6 | 111000 | 150 | 90 | 180-200-225-250 | — | — | 206700 | 220100 | 64400 | 393000 |
| | **317R3(C)** | **68.9** | 21.8 | 57800 | 144 | 100 | 180-200-225-250 | — | — | 175500 | 186900 | 53700 | 393000 |
| | **317R3(C)** | **89.8** | 16.7 | 75300 | 144 | 100 | 180-200-225-250 | — | — | 190000 | 202300 | 58700 | 393000 |
| | **317R3(C)** | **108** | 13.9 | 90600 | 144 | 100 | 180-200-225-250 | — | — | 200900 | 213900 | 62400 | 393000 |
| | **317R3(C)** | **115** | 13 | 96600 | 144 | 100 | 180-200-225-250 | — | — | 204800 | 218100 | 63800 | 393000 |
| | **317R3(C)** | **139** | 10.8 | 116300 | 144 | 100 | 180-200-225-250 | — | — | 216500 | 230500 | 67800 | 393000 |
| | **317R3(C)** | **165** | 9.1 | 118900 | 124 | 100 | 180-200-225-250 | — | — | 227900 | 242700 | 71800 | 393000 |
| | **317R4** | **220** | 6.8 | 81400 | 66 | 50 | 132-160-180-200 | — | — | 248500 | 264500 | 79000 | 393000 |

| 317R | Page 311 | 187860Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **317R4** | **262** | 5.7 | 97200 | 66 | 50 | 132-160-180-200 | — | — | 262000 | 278900 | 83800 | 393000 |
| | **317R4** | **336** | 4.5 | 124700 | 66 | 50 | 132-160-180-200 | — | — | 282300 | 300600 | 91100 | 393000 |
| | **317R4** | **399** | 3.8 | 148000 | 66 | 50 | 132-160-180-200 | — | — | 297200 | 316500 | 96500 | 393000 |
| | **317R4** | **438** | 3.4 | 157000 | 64 | 50 | 132-160-180-200 | — | — | 305700 | 325500 | 99500 | 393000 |
| | **317R4** | **520** | 2.9 | 164800 | 56 | 50 | 132-160-180-200 | — | — | 321800 | 342600 | 105400 | 393000 |
| | **317R4** | **626** | 2.4 | 155000 | 44 | 50 | 132-160-180-200 | — | — | 340200 | 362200 | 112100 | 393000 |
| | **317R4** | **677** | 2.2 | 164700 | 43 | 50 | 132-160-180-200 | — | — | 348300 | 370800 | 115000 | 393000 |
| | **317R4** | **803** | 1.9 | 165900 | 37 | 50 | 132-160-180-200 | — | — | 366700 | 390400 | 121800 | 393000 |
| | **317R4** | **953** | 1.6 | 145000 | 27 | 50 | 132-160-180-200 | — | — | 386000 | 411000 | 129000 | 393000 |
| **1000** | **317R3(B)** | **49.8** | 20.1 | 53000 | 122 | 108 | 180-200-225-250 | — | — | 179800 | 191400 | 55200 | 393000 |
| | **317R3(B)** | **64.9** | 15.4 | 69100 | 122 | 108 | 180-200-225-250 | — | — | 194700 | 207300 | 60300 | 393000 |
| | **317R3(B)** | **78.1** | 12.8 | 85500 | 126 | 108 | 180-200-225-250 | — | — | 205800 | 219100 | 64100 | 393000 |
| | **317R3(B)** | **83.3** | 12 | 90800 | 125 | 108 | 180-200-225-250 | — | — | 209800 | 223400 | 65500 | 393000 |
| | **317R3(B)** | **100** | 10 | 109300 | 125 | 108 | 180-200-225-250 | — | — | 221800 | 236100 | 69700 | 393000 |
| | **317R3(B)** | **119** | 8.4 | 119100 | 115 | 108 | 180-200-225-250 | — | — | 233500 | 248600 | 73800 | 393000 |
| | **317R3(C)** | **68.9** | 14.5 | 65200 | 109 | 120 | 180-200-225-250 | — | — | 198200 | 211000 | 61500 | 393000 |
| | **317R3(C)** | **89.8** | 11.1 | 85000 | 109 | 120 | 180-200-225-250 | — | — | 214600 | 228500 | 67200 | 393000 |
| | **317R3(C)** | **108** | 9.2 | 102400 | 109 | 120 | 180-200-225-250 | — | — | 226900 | 241600 | 71500 | 393000 |
| | **317R3(C)** | **115** | 8.7 | 109100 | 109 | 120 | 180-200-225-250 | — | — | 231300 | 246300 | 73000 | 393000 |
| | **317R3(C)** | **139** | 7.2 | 131400 | 109 | 120 | 180-200-225-250 | — | — | 244500 | 260300 | 77700 | 393000 |
| | **317R3(C)** | **165** | 6.1 | 119600 | 83 | 120 | 180-200-225-250 | — | — | 257400 | 274100 | 82200 | 393000 |
| | **317R4** | **220** | 4.6 | 92000 | 50 | 60 | 132-160-180-200 | — | — | 280600 | 298700 | 90500 | 393000 |
| | **317R4** | **262** | 3.8 | 109700 | 50 | 60 | 132-160-180-200 | — | — | 295900 | 315000 | 96000 | 393000 |
| | **317R4** | **336** | 3 | 140800 | 50 | 60 | 132-160-180-200 | — | — | 318900 | 339500 | 104300 | 393000 |
| | **317R4** | **399** | 2.5 | 167100 | 50 | 60 | 132-160-180-200 | — | — | 335700 | 357400 | 110400 | 393000 |
| | **317R4** | **438** | 2.3 | 172800 | 47 | 60 | 132-160-180-200 | — | — | 345200 | 367600 | 113900 | 393000 |
| | **317R4** | **520** | 1.9 | 175200 | 40 | 60 | 132-160-180-200 | — | — | 363400 | 387000 | 120600 | 393000 |
| | **317R4** | **626** | 1.6 | 155000 | 29 | 60 | 132-160-180-200 | — | — | 384200 | 409100 | 128300 | 393000 |
| | **317R4** | **677** | 1.5 | 167400 | 29 | 60 | 132-160-180-200 | — | — | 393300 | 418800 | 131700 | 393000 |
| | **317R4** | **803** | 1.2 | 168500 | 25 | 60 | 132-160-180-200 | — | — | 414100 | 440900 | 139400 | 393000 |
| | **317R4** | **953** | 1 | 154900 | 19.2 | 60 | 132-160-180-200 | — | — | 435900 | 464100 | 147600 | 393000 |
| **500** | **317R3(B)** | **49.8** | 10 | 65200 | 75 | 180 | 180-200-225-250 | — | — | 221300 | 235700 | 69500 | 393000 |
| | **317R3(B)** | **64.9** | 7.7 | 85000 | 75 | 180 | 180-200-225-250 | — | — | 239700 | 255200 | 75900 | 393000 |
| | **317R3(B)** | **78.1** | 6.4 | 106500 | 78 | 180 | 180-200-225-250 | — | — | 253400 | 269800 | 80800 | 393000 |
| | **317R3(B)** | **83.3** | 6 | 113100 | 78 | 180 | 180-200-225-250 | — | — | 258300 | 275000 | 82500 | 393000 |
| | **317R3(B)** | **100** | 5 | 134900 | 77 | 180 | 180-200-225-250 | — | — | 273100 | 290700 | 87800 | 393000 |
| | **317R3(B)** | **119** | 4.2 | 123400 | 60 | 180 | 180-200-225-250 | — | — | 287500 | 306100 | 92900 | 393000 |
| | **317R3(C)** | **68.9** | 7.3 | 80300 | 67 | 200 | 180-200-225-250 | — | — | 244000 | 259800 | 77500 | 393000 |

## 317 R

Page 311

## 187860Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **500** | **317R3(C)** | **89.8** | 5.6 | 104700 | 67 | 200 | 180-200-225-250 | — | — | 264200 | 281300 | 84600 | 393000 |
| | **317R3(C)** | **108** | 4.6 | 123600 | 66 | 200 | 180-200-225-250 | — | — | 279300 | 297400 | 90000 | 393000 |
| | **317R3(C)** | **115** | 4.3 | 134400 | 67 | 200 | 180-200-225-250 | — | — | 284800 | 303200 | 92000 | 393000 |
| | **317R3(C)** | **139** | 3.6 | 154600 | 64 | 200 | 180-200-225-250 | — | — | 301000 | 320500 | 97800 | 393000 |
| | **317R3(C)** | **165** | 3 | 130200 | 45 | 200 | 180-200-225-250 | — | — | 316900 | 337400 | 103600 | 393000 |
| | **317R4** | **220** | 2.3 | 112500 | 30 | 100 | 132-160-180-200 | — | — | 345400 | 367800 | 114000 | 393000 |
| | **317R4** | **262** | 1.9 | 134900 | 30 | 100 | 132-160-180-200 | — | — | 364200 | 387800 | 120900 | 393000 |
| | **317R4** | **336** | 1.5 | 173400 | 31 | 100 | 132-160-180-200 | — | — | 392600 | 418000 | 131400 | 393000 |
| | **317R4** | **399** | 1.3 | 196500 | 29 | 100 | 132-160-180-200 | — | — | 413200 | 440000 | 139100 | 393000 |
| | **317R4** | **438** | 1.1 | 182400 | 25 | 100 | 132-160-180-200 | — | — | 425000 | 452500 | 143500 | 393000 |
| | **317R4** | **520** | 0.96 | 184300 | 21 | 100 | 132-160-180-200 | — | — | 442000 | 470000 | 150000 | 393000 |
| | **317R4** | **626** | 0.8 | 155000 | 14.6 | 100 | 132-160-180-200 | — | — | 442000 | 470000 | 150000 | 393000 |
| | **317R4** | **677** | 0.74 | 170000 | 14.9 | 100 | 132-160-180-200 | — | — | 442000 | 470000 | 150000 | 393000 |
| | **317R4** | **803** | 0.62 | 170000 | 12.5 | 100 | 132-160-180-200 | — | — | 442000 | 470000 | 150000 | 393000 |
| | **317R4** | **953** | 0.52 | 156200 | 9.7 | 100 | 132-160-180-200 | — | — | 442000 | 470000 | 150000 | 393000 |

## 318 R

Page 317

## 280580Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **318R4(B)** | **225** | 6.7 | 200200 | 150 | 90 | 180-200-225-250 | — | — | 313900 | 320300 | 106200 | 500000 |
| | **318R4(B)** | **288** | 5.2 | 215700 | 133 | 90 | 180-200-225-250 | — | — | 338300 | 345200 | 115400 | 500000 |
| | **318R4(B)** | **342** | 4.4 | 226200 | 117 | 90 | 180-200-225-250 | — | — | 356100 | 363400 | 122200 | 500000 |
| | **318R4(B)** | **362** | 4.1 | 229600 | 113 | 90 | 180-200-225-250 | — | — | 362100 | 369600 | 124500 | 500000 |
| | **318R4(B)** | **430** | 3.5 | 240400 | 99 | 90 | 180-200-225-250 | — | — | 381200 | 389100 | 131800 | 500000 |
| | **318R4(B)** | **499** | 3 | 250300 | 89 | 90 | 180-200-225-250 | — | — | 398900 | 407000 | 138600 | 500000 |
| | **318R4(C)** | **311** | 4.8 | 220500 | 126 | 110 | 180-200-225-250 | — | — | 346100 | 353200 | 118400 | 500000 |
| | **318R4(C)** | **399** | 3.8 | 235700 | 105 | 110 | 180-200-225-250 | — | — | 373000 | 380600 | 128700 | 500000 |
| | **318R4(C)** | **474** | 3.2 | 246800 | 92 | 110 | 180-200-225-250 | — | — | 392600 | 400700 | 136200 | 500000 |
| | **318R4(C)** | **501** | 3 | 250600 | 89 | 110 | 180-200-225-250 | — | — | 399300 | 407500 | 138800 | 500000 |
| | **318R4(C)** | **595** | 2.5 | 262400 | 78 | 110 | 180-200-225-250 | — | — | 420300 | 428900 | 146900 | 500000 |
| | **318R4(C)** | **691** | 2.2 | 265600 | 68 | 110 | 180-200-225-250 | — | — | 439700 | 448800 | 154500 | 500000 |
| **1000** | **318R4(B)** | **225** | 4.5 | 225300 | 119 | 108 | 180-200-225-250 | — | — | 354500 | 361800 | 121600 | 500000 |
| | **318R4(B)** | **288** | 3.5 | 240900 | 99 | 108 | 180-200-225-250 | — | — | 382100 | 389900 | 132100 | 500000 |
| | **318R4(B)** | **342** | 2.9 | 252200 | 87 | 108 | 180-200-225-250 | — | — | 402200 | 410500 | 139900 | 500000 |
| | **318R4(B)** | **362** | 2.8 | 256000 | 84 | 108 | 180-200-225-250 | — | — | 409000 | 417400 | 142500 | 500000 |
| | **318R4(B)** | **430** | 2.3 | 264300 | 73 | 108 | 180-200-225-250 | — | — | 430600 | 439400 | 150900 | 500000 |
| | **318R4(B)** | **499** | 2 | 267100 | 63 | 108 | 180-200-225-250 | — | — | 450400 | 459700 | 158700 | 500000 |

## 318R

Page 317

## 280580Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1000** | **318R4(C)** | **311** | 3.2 | 245800 | 93 | 132 | 180-200-225-250 | — | — | 390800 | 398900 | 135500 | 500000 |
| | **318R4(C)** | **399** | 2.5 | 262900 | 78 | 132 | 180-200-225-250 | — | — | 421200 | 429900 | 147300 | 500000 |
| | **318R4(C)** | **474** | 2.1 | 266200 | 66 | 132 | 180-200-225-250 | — | — | 443400 | 452500 | 155900 | 500000 |
| | **318R4(C)** | **501** | 2 | 267200 | 63 | 132 | 180-200-225-250 | — | — | 450900 | 460200 | 158800 | 500000 |
| | **318R4(C)** | **595** | 1.7 | 270500 | 54 | 132 | 180-200-225-250 | — | — | 474700 | 484400 | 168200 | 500000 |
| | **318R4(C)** | **691** | 1.4 | 273400 | 47 | 132 | 180-200-225-250 | — | — | 496600 | 506800 | 176800 | 500000 |
| **500** | **318R4(B)** | **225** | 2.2 | 265200 | 70 | 180 | 180-200-225-250 | — | — | 436500 | 445400 | 153200 | 500000 |
| | **318R4(B)** | **288** | 1.7 | 269900 | 55 | 180 | 180-200-225-250 | — | — | 470400 | 480000 | 166500 | 500000 |
| | **318R4(B)** | **342** | 1.5 | 273200 | 47 | 180 | 180-200-225-250 | — | — | 495200 | 505300 | 176300 | 500000 |
| | **318R4(B)** | **362** | 1.4 | 274200 | 45 | 180 | 180-200-225-250 | — | — | 503000 | 513900 | 179600 | 500000 |
| | **318R4(B)** | **430** | 1.2 | 277600 | 38 | 180 | 180-200-225-250 | — | — | 503000 | 541000 | 190100 | 500000 |
| | **318R4(B)** | **499** | 1 | 280600 | 33 | 180 | 180-200-225-250 | — | — | 503000 | 565000 | 199900 | 500000 |
| | **318R4(C)** | **311** | 1.6 | 271300 | 52 | 220 | 180-200-225-250 | — | — | 481200 | 491100 | 170700 | 500000 |
| | **318R4(C)** | **399** | 1.3 | 276200 | 41 | 220 | 180-200-225-250 | — | — | 503000 | 529200 | 185500 | 500000 |
| | **318R4(C)** | **474** | 1.1 | 279500 | 35 | 220 | 180-200-225-250 | — | — | 503000 | 557100 | 196400 | 500000 |
| | **318R4(C)** | **501** | 1 | 280600 | 33 | 220 | 180-200-225-250 | — | — | 503000 | 565000 | 200000 | 500000 |
| | **318R4(C)** | **595** | 0.84 | 280600 | 28 | 220 | 180-200-225-250 | — | — | 503000 | 565000 | 200000 | 500000 |
| | **318R4(C)** | **691** | 0.72 | 280600 | 24 | 220 | 180-200-225-250 | — | — | 503000 | 565000 | 200000 | 500000 |

## 319R

Page 323

## 403720Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **319R4(B)** | **249** | 6 | 227700 | 150 | 95 | 180-200-225-250 | — | — | 372100 | 409900 | 109900 | 680000 |
| | **319R4(B)** | **320** | 4.7 | 289000 | 150 | 95 | 180-200-225-250 | — | — | 401000 | 441800 | 119400 | 680000 |
| | **319R4(B)** | **379** | 4 | 304200 | 142 | 95 | 180-200-225-250 | — | — | 422100 | 465100 | 126500 | 680000 |
| | **319R4(B)** | **401** | 3.7 | 310500 | 137 | 95 | 180-200-225-250 | — | — | 429200 | 472900 | 128800 | 680000 |
| | **319R4(B)** | **475** | 3.2 | 300900 | 112 | 95 | 180-200-225-250 | — | — | 451500 | 497400 | 136300 | 680000 |
| | **319R4(B)** | **563** | 2.7 | 313000 | 99 | 95 | 180-200-225-250 | — | — | 475300 | 523700 | 144300 | 680000 |
| | **319R4(B)** | **655** | 2.3 | 321300 | 87 | 95 | 180-200-225-250 | — | — | 497300 | 547900 | 151700 | 680000 |
| | **319R4(C)** | **345** | 4.4 | 259700 | 134 | 115 | 180-200-225-250 | — | — | 410200 | 451900 | 122500 | 680000 |
| | **319R4(C)** | **442** | 3.4 | 279900 | 112 | 115 | 180-200-225-250 | — | — | 442100 | 487100 | 133100 | 680000 |
| | **319R4(C)** | **525** | 2.9 | 294600 | 100 | 115 | 180-200-225-250 | — | — | 465400 | 512700 | 140900 | 680000 |
| | **319R4(C)** | **555** | 2.7 | 306300 | 98 | 115 | 180-200-225-250 | — | — | 473200 | 521400 | 143600 | 680000 |
| | **319R4(C)** | **657** | 2.3 | 322200 | 87 | 115 | 180-200-225-250 | — | — | 497800 | 548400 | 151900 | 680000 |
| | **319R4(C)** | **780** | 1.9 | 331100 | 75 | 115 | 180-200-225-250 | — | — | 524000 | 577300 | 160800 | 680000 |
| | **319R4(C)** | **906** | 1.7 | 335900 | 66 | 115 | 180-200-225-250 | — | — | 548200 | 604000 | 169100 | 680000 |

## 319R

Page 323

## 403720Nm

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1000** | **319R4(B)** | **249** | 4 | 257100 | 122 | 114 | 180-200-225-250 | — | — | 420200 | 462900 | 125800 | 680000 |
| | **319R4(B)** | **320** | 3.1 | 323900 | 120 | 114 | 180-200-225-250 | — | — | 452800 | 498900 | 136700 | 680000 |
| | **319R4(B)** | **379** | 2.6 | 342600 | 107 | 114 | 180-200-225-250 | — | — | 476700 | 525200 | 144800 | 680000 |
| | **319R4(B)** | **401** | 2.5 | 348100 | 103 | 114 | 180-200-225-250 | — | — | 484800 | 534100 | 147500 | 680000 |
| | **319R4(B)** | **475** | 2.1 | 326400 | 81 | 114 | 180-200-225-250 | — | — | 509900 | 561800 | 156000 | 680000 |
| | **319R4(B)** | **563** | 1.8 | 335400 | 70 | 114 | 180-200-225-250 | — | — | 536800 | 591400 | 165200 | 680000 |
| | **319R4(B)** | **655** | 1.5 | 339600 | 61 | 114 | 180-200-225-250 | — | — | 561600 | 618700 | 173700 | 680000 |
| | **319R4(C)** | **345** | 2.9 | 293300 | 101 | 138 | 180-200-225-250 | — | — | 463300 | 510400 | 140200 | 680000 |
| | **319R4(C)** | **442** | 2.3 | 316100 | 85 | 138 | 180-200-225-250 | — | — | 499300 | 550100 | 152400 | 680000 |
| | **319R4(C)** | **525** | 1.9 | 332800 | 75 | 138 | 180-200-225-250 | — | — | 525600 | 579100 | 161300 | 680000 |
| | **319R4(C)** | **555** | 1.8 | 338600 | 72 | 138 | 180-200-225-250 | — | — | 534500 | 588800 | 164400 | 680000 |
| | **319R4(C)** | **657** | 1.5 | 343700 | 62 | 138 | 180-200-225-250 | — | — | 562200 | 619400 | 173900 | 680000 |
| | **319R4(C)** | **780** | 1.3 | 353300 | 54 | 138 | 180-200-225-250 | — | — | 591800 | 652000 | 184100 | 680000 |
| | **319R4(C)** | **906** | 1.1 | 354900 | 46 | 138 | 180-200-225-250 | — | — | 619100 | 682100 | 193600 | 680000 |
| **500** | **319R4(B)** | **249** | 2 | 316600 | 75 | 190 | 180-200-225-250 | — | — | 517300 | 570000 | 158500 | 680000 |
| | **319R4(B)** | **320** | 1.6 | 373900 | 69 | 190 | 180-200-225-250 | — | — | 557500 | 614200 | 172300 | 680000 |
| | **319R4(B)** | **379** | 1.3 | 386000 | 60 | 190 | 180-200-225-250 | — | — | 586900 | 646600 | 182400 | 680000 |
| | **319R4(B)** | **401** | 1.2 | 379400 | 56 | 190 | 180-200-225-250 | — | — | 596800 | 657500 | 185800 | 680000 |
| | **319R4(B)** | **475** | 1.1 | 364500 | 45 | 190 | 180-200-225-250 | — | — | 627700 | 691600 | 196500 | 680000 |
| | **319R4(B)** | **563** | 0.89 | 367600 | 39 | 190 | 180-200-225-250 | — | — | 638000 | 702000 | 200000 | 680000 |
| | **319R4(B)** | **655** | 0.76 | 359700 | 32 | 190 | 180-200-225-250 | — | — | 638000 | 702000 | 200000 | 680000 |
| | **319R4(C)** | **345** | 1.5 | 361100 | 62 | 230 | 180-200-225-250 | — | — | 570300 | 628400 | 176700 | 680000 |
| | **319R4(C)** | **442** | 1.1 | 389200 | 52 | 230 | 180-200-225-250 | — | — | 614700 | 677200 | 192000 | 680000 |
| | **319R4(C)** | **525** | 0.95 | 403700 | 45 | 230 | 180-200-225-250 | — | — | 638000 | 702000 | 200000 | 680000 |
| | **319R4(C)** | **555** | 0.9 | 389900 | 42 | 230 | 180-200-225-250 | — | — | 638000 | 702000 | 200000 | 680000 |
| | **319R4(C)** | **657** | 0.76 | 367600 | 33 | 230 | 180-200-225-250 | — | — | 638000 | 702000 | 200000 | 680000 |
| | **319R4(C)** | **780** | 0.64 | 367600 | 28 | 230 | 180-200-225-250 | — | — | 638000 | 702000 | 200000 | 680000 |
| | **319R4(C)** | **906** | 0.55 | 359700 | 23 | 230 | 180-200-225-250 | — | — | 638000 | 702000 | 200000 | 680000 |

## 321R

Page 329

## 655200Nm

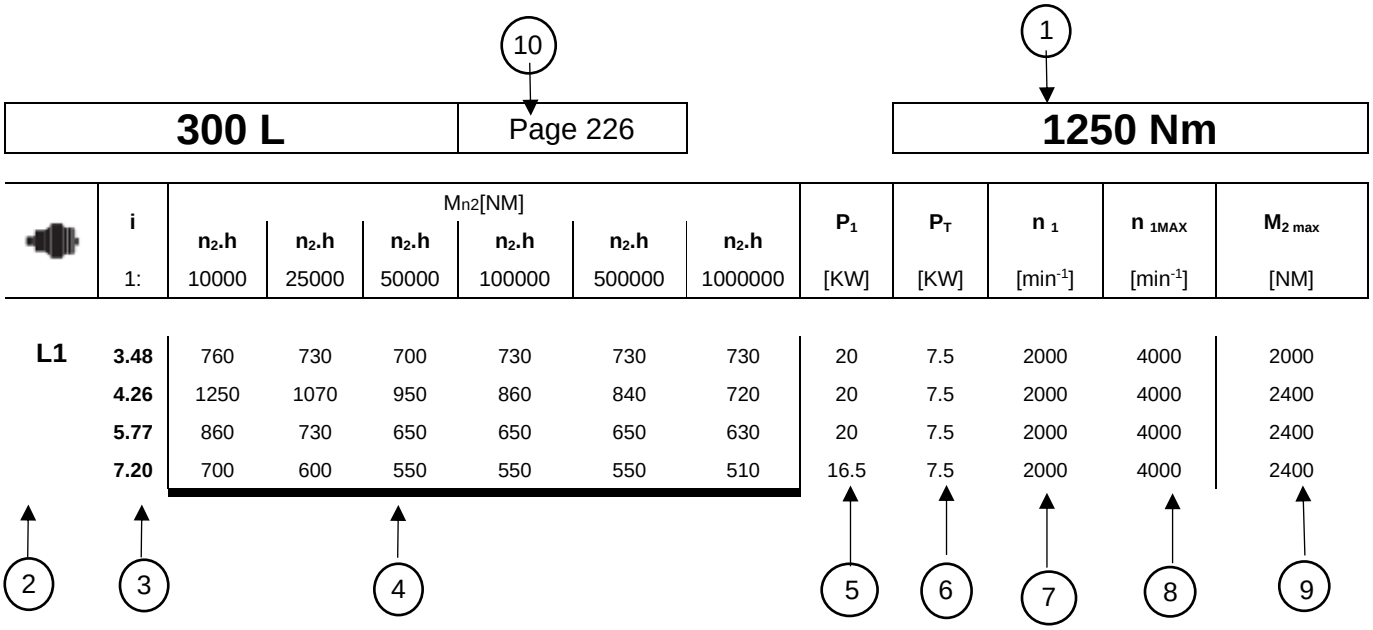
| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **321R4(B)** | **221** | 6.8 | 205600 | 150 | 105 | 180-200-225-250 | — | — | 440600 | 522400 | 634000 | 934000 |
| | **321R4(B)** | **288** | 5.2 | 265300 | 150 | 105 | 180-200-225-250 | — | — | 477000 | 565700 | 692600 | 934000 |
| | **321R4(B)** | **347** | 4.3 | 320600 | 150 | 105 | 180-200-225-250 | — | — | 504300 | 598000 | 736800 | 934000 |
| | **321R4(B)** | **370** | 4.1 | 341300 | 150 | 105 | 180-200-225-250 | — | — | 514100 | 609600 | 752700 | 934000 |
| | **321R4(B)** | **446** | 3.4 | 409600 | 150 | 105 | 180-200-225-250 | — | — | 543500 | 644500 | 800600 | 934000 |
| | **321R4(B)** | **529** | 2.8 | 484700 | 150 | 105 | 180-200-225-250 | — | — | 572100 | 678500 | 847700 | 934000 |

| 321R | Page 329 | 655200Nm |
|---|---|---|

| $n_1$ min$^{-1}$ | | i | $n_2$ min$^{-1}$ | $M_{n2}$ Nm | $P_{n1}$ kW | $P_t$ kW | P (IEC) | $R_{n2}$ [N] MC | MZ | HC/PC | HZ/PZ | FZ | $M_{2\,max}$ Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500** | **321R4(B)** | **221** | 6.8 | 205600 | 150 | 105 | 180-200-225-250 | — | — | 440600 | 522400 | 634000 | 934000 |
| | **321R4(B)** | **288** | 5.2 | 265300 | 150 | 105 | 180-200-225-250 | — | — | 477000 | 565700 | 692600 | 934000 |
| | **321R4(B)** | **347** | 4.3 | 320600 | 150 | 105 | 180-200-225-250 | — | — | 504300 | 598000 | 736800 | 934000 |
| | **321R4(B)** | **370** | 4.1 | 341300 | 150 | 105 | 180-200-225-250 | — | — | 514100 | 609600 | 752700 | 934000 |
| | **321R4(B)** | **446** | 3.4 | 409600 | 150 | 105 | 180-200-225-250 | — | — | 543500 | 644500 | 800600 | 934000 |
| | **321R4(B)** | **529** | 2.8 | 484700 | 150 | 105 | 180-200-225-250 | — | — | 572100 | 678500 | 847700 | 934000 |
| | **321R4(C)** | **306** | 4.9 | 249000 | 144 | 125 | 180-200-225-250 | — | — | 485700 | 576000 | 706700 | 934000 |
| | **321R4(C)** | **399** | 3.8 | 324600 | 144 | 125 | 180-200-225-250 | — | — | 525900 | 623700 | 771900 | 934000 |
| | **321R4(C)** | **481** | 3.1 | 390700 | 144 | 125 | 180-200-225-250 | — | — | 556000 | 659300 | 821100 | 934000 |
| | **321R4(C)** | **512** | 2.9 | 416600 | 144 | 125 | 180-200-225-250 | — | — | 566800 | 672100 | 838900 | 934000 |
| | **321R4(C)** | **617** | 2.4 | 501400 | 144 | 125 | 180-200-225-250 | — | — | 599200 | 710600 | 892300 | 934000 |
| | **321R4(C)** | **732** | 2 | 521400 | 126 | 125 | 180-200-225-250 | — | — | 630800 | 748000 | 944800 | 934000 |
| **1000** | **321R4(B)** | **221** | 4.5 | 233700 | 125 | 126 | 180-200-225-250 | — | — | 497500 | 590000 | 725800 | 934000 |
| | **321R4(B)** | **288** | 3.5 | 304200 | 125 | 126 | 180-200-225-250 | — | — | 538700 | 638800 | 792800 | 934000 |
| | **321R4(B)** | **347** | 2.9 | 361600 | 123 | 126 | 180-200-225-250 | — | — | 569500 | 675400 | 843400 | 934000 |
| | **321R4(B)** | **370** | 2.7 | 391600 | 125 | 126 | 180-200-225-250 | — | — | 580600 | 688500 | 861600 | 934000 |
| | **321R4(B)** | **446** | 2.2 | 460100 | 122 | 126 | 180-200-225-250 | — | — | 613800 | 727900 | 916500 | 934000 |
| | **321R4(B)** | **529** | 1.9 | 513000 | 115 | 126 | 180-200-225-250 | — | — | 646100 | 766200 | 970400 | 934000 |
| | **321R4(C)** | **306** | 3.3 | 281200 | 109 | 150 | 180-200-225-250 | — | — | 548500 | 650500 | 808900 | 934000 |
| | **321R4(C)** | **399** | 2.5 | 366600 | 109 | 150 | 180-200-225-250 | — | — | 593900 | 704300 | 883600 | 934000 |
| | **321R4(C)** | **481** | 2.1 | 441300 | 109 | 150 | 180-200-225-250 | — | — | 627900 | 744600 | 940000 | 934000 |
| | **321R4(C)** | **512** | 2 | 470500 | 109 | 150 | 180-200-225-250 | — | — | 640100 | 759100 | 960200 | 934000 |
| | **321R4(C)** | **617** | 1.6 | 566500 | 109 | 150 | 180-200-225-250 | — | — | 676700 | 802500 | 1021500 | 934000 |
| | **321R4(C)** | **732** | 1.4 | 529800 | 86 | 150 | 180-200-225-250 | — | — | 712400 | 844800 | 1081500 | 934000 |
| **500** | **321R4(B)** | **221** | 2.3 | 290300 | 78 | 210 | 180-200-225-250 | — | — | 612500 | 726400 | 914500 | 934000 |
| | **321R4(B)** | **288** | 1.7 | 379500 | 78 | 210 | 180-200-225-250 | — | — | 663200 | 786500 | 998900 | 934000 |
| | **321R4(B)** | **347** | 1.4 | 450300 | 77 | 210 | 180-200-225-250 | — | — | 701200 | 831500 | 1062600 | 934000 |
| | **321R4(B)** | **370** | 1.4 | 483100 | 77 | 210 | 180-200-225-250 | — | — | 714800 | 847600 | 1085500 | 934000 |
| | **321R4(B)** | **446** | 1.1 | 567200 | 75 | 210 | 180-200-225-250 | — | — | 755600 | 896100 | 1154700 | 934000 |
| | **321R4(B)** | **529** | 0.95 | 536400 | 60 | 210 | 180-200-225-250 | — | — | 779000 | 923000 | 1200000 | 934000 |
| | **321R4(C)** | **306** | 1.6 | 346300 | 67 | 250 | 180-200-225-250 | — | — | 675300 | 800800 | 1019200 | 934000 |
| | **321R4(C)** | **399** | 1.3 | 451600 | 67 | 250 | 180-200-225-250 | — | — | 731200 | 867100 | 1113300 | 934000 |
| | **321R4(C)** | **481** | 1 | 543700 | 67 | 250 | 180-200-225-250 | — | — | 773000 | 916700 | 1184300 | 934000 |
| | **321R4(C)** | **512** | 0.98 | 575400 | 66 | 250 | 180-200-225-250 | — | — | 779000 | 923000 | 1200000 | 934000 |
| | **321R4(C)** | **617** | 0.81 | 655200 | 63 | 250 | 180-200-225-250 | — | — | 779000 | 923000 | 1200000 | 934000 |
| | **321R4(C)** | **732** | 0.68 | 536400 | 43 | 250 | 180-200-225-250 | — | — | 779000 | 923000 | 1200000 | 934000 |

## RATING CHARTS FOR IN-LINE UNITS 3_ _L

## نمودار طبقه بندی شده برای گیربکس های مستقیم 3_ _L




| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [$min^{-1}$] | [$min^{-1}$] | [NM] |
| L1 | **3.48** | 760 | 730 | 700 | 730 | 730 | 730 | 20 | 7.5 | 2000 | 4000 | 2000 |
| | **4.26** | 1250 | 1070 | 950 | 860 | 840 | 720 | 20 | 7.5 | 2000 | 4000 | 2400 |
| | **5.77** | 860 | 730 | 650 | 650 | 650 | 630 | 20 | 7.5 | 2000 | 4000 | 2400 |
| | **7.20** | 700 | 600 | 550 | 550 | 550 | 510 | 16.5 | 7.5 | 2000 | 4000 | 2400 |




1.Reference torque
2. Number of reduction stages (in-line gear unit)
3. Gear ratio
4. Gearbox rated output torque based on:
- service factor fs=1
- n2·h indicated
5. Maximum power transmitted to input shaft
6. Gearbox thermal capacity
7. Input angular velocity
8. Maximum input angular velocity
9. Maximum output torque at gearbox
10. Page where dimensions can be sorted from

۱. گشتاور مرجع
۲. تعداد استیج
۳. نسبت دنده
۴. گشتاور خروجی گیربکس براساس فاکتورخدمات fs=1 و سرعت در ساعت
۵. حداکثر توان منتقل شده به شافت ورودی
۶. ظرفیت حرارتی گیربکس
۷. سرعت زاویه ای ورودی
۸. حداکثر سرعت زاویه ای ورودی
۹. حداکثرگشتاور
۱۰. شماره صفحه ابعاد گیربکس

| 300 L | Page 220 | 1250 Nm |
|---|---|---|

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **L1** | **3.48** | 760 | 730 | 730 | 730 | 730 | 730 | 20 | 7.5 | 2000 | 4000 | 2000 |
| | **4.26** | 1250 | 1070 | 950 | 860 | 840 | 720 | 20 | 7.5 | 2000 | 4000 | 2400 |
| | **5.77** | 860 | 730 | 650 | 650 | 650 | 630 | 20 | 7.5 | 2000 | 4000 | 2400 |
| | **7.2** | 700 | 600 | 550 | 550 | 550 | 510 | 16.5 | 7.5 | 2000 | 4000 | 2400 |
| | **9** | 460 | 390 | 370 | 370 | 370 | 370 | 8.9 | 7.5 | 2000 | 4000 | 2400 |
| **L2** | **12.1** | 760 | 730 | 730 | 730 | 730 | 730 | 11.9 | 7.5 | 2000 | 4000 | 2000 |
| | **14.8** | 1250 | 1070 | 950 | 860 | 840 | 720 | 12.6 | 7.5 | 2000 | 4000 | 2000 |
| | **18.2** | 1250 | 1070 | 950 | 860 | 840 | 720 | 10.4 | 7.5 | 2000 | 4000 | 2400 |
| | **20.1** | 860 | 730 | 650 | 650 | 650 | 630 | 7.2 | 7.5 | 2000 | 4000 | 2000 |
| | **24.6** | 1250 | 1070 | 950 | 860 | 840 | 720 | 7.8 | 7.5 | 2000 | 4000 | 2400 |
| | **30.7** | 1250 | 1070 | 950 | 860 | 840 | 720 | 6.4 | 7.5 | 2000 | 4000 | 2400 |
| | **33.3** | 860 | 730 | 650 | 650 | 650 | 630 | 4.3 | 7.5 | 2000 | 4000 | 2400 |
| | **38.4** | 1250 | 1070 | 950 | 860 | 840 | 720 | 5.2 | 7.5 | 2000 | 4000 | 2400 |
| | **41.5** | 860 | 730 | 650 | 650 | 650 | 630 | 3.5 | 7.5 | 2000 | 4000 | 2400 |
| | **51.9** | 860 | 730 | 650 | 650 | 650 | 630 | 2.9 | 7.5 | 2000 | 4000 | 2400 |
| | **64.8** | 700 | 600 | 550 | 550 | 550 | 510 | 2 | 7.5 | 2000 | 4000 | 2400 |
| **L3** | **51.6** | 1250 | 1070 | 950 | 860 | 840 | 720 | 4.2 | 7.5 | 2000 | 4000 | 2000 |
| | **63.2** | 1250 | 1070 | 950 | 860 | 840 | 720 | 3.5 | 7.5 | 2000 | 4000 | 2400 |
| | **69.9** | 860 | 730 | 650 | 650 | 650 | 630 | 2.4 | 7.5 | 2000 | 4000 | 2000 |
| | **77.5** | 1250 | 1070 | 950 | 860 | 840 | 720 | 3 | 7.5 | 2000 | 4000 | 2400 |
| | **85.6** | 1250 | 1070 | 950 | 860 | 840 | 720 | 2.7 | 7.5 | 2000 | 4000 | 2400 |
| | **105** | 1250 | 1070 | 950 | 860 | 840 | 720 | 2.2 | 7.5 | 2000 | 4000 | 2400 |
| | **116** | 860 | 730 | 650 | 650 | 650 | 630 | 1.6 | 7.5 | 2000 | 4000 | 2400 |
| | **131** | 1250 | 1070 | 950 | 860 | 840 | 720 | 1.8 | 7.5 | 2000 | 4000 | 2400 |
| | **142** | 1250 | 1070 | 950 | 860 | 840 | 720 | 1.6 | 7.5 | 2000 | 4000 | 2400 |
| | **177** | 1250 | 1070 | 950 | 860 | 840 | 720 | 1.3 | 7.5 | 2000 | 4000 | 2400 |
| | **192** | 860 | 730 | 650 | 650 | 650 | 630 | 1 | 7.5 | 2000 | 4000 | 2400 |
| | **221** | 1250 | 1070 | 950 | 860 | 840 | 720 | 1 | 7.5 | 2000 | 4000 | 2400 |
| | **240** | 860 | 730 | 650 | 650 | 650 | 630 | 0.82 | 7.5 | 2000 | 4000 | 2400 |
| | **299** | 860 | 730 | 650 | 650 | 650 | 630 | 0.66 | 7.5 | 2000 | 4000 | 2400 |
| | **374** | 860 | 730 | 650 | 650 | 650 | 630 | 0.53 | 7.5 | 2000 | 4000 | 2400 |
| **L4** | **330** | 1250 | 1070 | 950 | 860 | 840 | 720 | 0.72 | 6 | 2000 | 4000 | 2400 |
| | **403** | 860 | 730 | 650 | 650 | 650 | 630 | 0.5 | 6 | 2000 | 4000 | 2400 |
| | **447** | 1250 | 1070 | 950 | 860 | 840 | 720 | 0.53 | 6 | 2000 | 4000 | 2400 |
| | **494** | 1250 | 1070 | 950 | 860 | 840 | 720 | 0.48 | 6 | 2000 | 4000 | 2400 |
| | **558** | 1250 | 1070 | 950 | 860 | 840 | 720 | 0.42 | 6 | 2000 | 4000 | 2400 |
| | **616** | 1250 | 1070 | 950 | 860 | 840 | 720 | 0.38 | 6 | 2000 | 4000 | 2400 |
| | **755** | 1250 | 1070 | 950 | 860 | 840 | 720 | 0.31 | 6 | 2000 | 4000 | 2400 |

## 300 L | Page 220 | 1250 Nm

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **L4** | **819** | 1250 | 1070 | 950 | 860 | 840 | 720 | 0.29 | 6 | 2000 | 4000 | 2400 |
| | **942** | 1250 | 1070 | 950 | 860 | 840 | 720 | 0.25 | 6 | 2000 | 4000 | 2400 |
| | **1022** | 1250 | 1070 | 950 | 860 | 840 | 720 | 0.23 | 6 | 2000 | 4000 | 2400 |
| | **1108** | 860 | 730 | 650 | 650 | 650 | 630 | 0.18 | 6 | 2000 | 4000 | 2400 |
| | **1275** | 1250 | 1070 | 950 | 860 | 840 | 720 | 0.19 | 6 | 2000 | 4000 | 2400 |
| | **1383** | 860 | 730 | 650 | 650 | 650 | 630 | 0.15 | 6 | 2000 | 4000 | 2400 |
| | **1591** | 1250 | 1070 | 950 | 860 | 840 | 720 | 0.15 | 6 | 2000 | 4000 | 2400 |
| | **1725** | 860 | 730 | 650 | 650 | 650 | 630 | 0.12 | 6 | 2000 | 4000 | 2400 |
| | **2153** | 860 | 730 | 650 | 650 | 650 | 630 | 0.09 | 6 | 2000 | 4000 | 2400 |
| | **2692** | 1000 | 1000 | 890 | 850 | 760 | 630 | 0.09 | 6 | 2000 | 4000 | 2400 |

## 301 L | Page 226 | 2460 Nm

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **L1** | **3.48** | 1490 | 1430 | 1430 | 1430 | 1430 | 1300 | 30 | 7.5 | 2000 | 4000 | 3400 |
| | **4.26** | 2460 | 2140 | 1890 | 1730 | 1580 | 1280 | 30 | 7.5 | 2000 | 4000 | 3400 |
| | **5.77** | 1720 | 1460 | 1300 | 1300 | 1300 | 1240 | 30 | 7.5 | 2000 | 4000 | 3400 |
| | **7.2** | 1150 | 1150 | 1150 | 1150 | 1150 | 940 | 30 | 7.5 | 2000 | 4000 | 3400 |
| | **9** | 920 | 780 | 730 | 730 | 730 | 730 | 15.8 | 7.5 | 2000 | 4000 | 3400 |
| **L2** | **12.1** | 1490 | 1430 | 1430 | 1430 | 1430 | 1300 | 23.9 | 7.5 | 2000 | 4000 | 3400 |
| | **14.8** | 2460 | 2140 | 1890 | 1730 | 1580 | 1280 | 25 | 7.5 | 2000 | 4000 | 3400 |
| | **18.2** | 2460 | 2140 | 1890 | 1730 | 1580 | 1280 | 20.7 | 7.5 | 2000 | 4000 | 3400 |
| | **20.1** | 1720 | 1460 | 1300 | 1300 | 1300 | 1240 | 14.4 | 7.5 | 2000 | 4000 | 3400 |
| | **24.6** | 2460 | 2140 | 1890 | 1730 | 1580 | 1280 | 15.6 | 7.5 | 2000 | 4000 | 3400 |
| | **30.7** | 2000 | 2000 | 1830 | 1730 | 1580 | 1280 | 12.6 | 7.5 | 2000 | 4000 | 3400 |
| | **33.3** | 1720 | 1460 | 1300 | 1300 | 1300 | 1240 | 8.7 | 7.5 | 2000 | 4000 | 3400 |
| | **38.4** | 1600 | 1570 | 1570 | 1570 | 1530 | 1280 | 10.1 | 7.5 | 2000 | 4000 | 3400 |
| | **41.5** | 1720 | 1460 | 1300 | 1300 | 1300 | 1240 | 7 | 7.5 | 2000 | 4000 | 3400 |
| | **51.9** | 1720 | 1460 | 1300 | 1300 | 1300 | 1240 | 5.9 | 7.5 | 2000 | 4000 | 3400 |
| | **64.8** | 1150 | 1150 | 1150 | 1150 | 1150 | 940 | 4 | 7.5 | 2000 | 4000 | 3400 |
| **L3** | **51.6** | 2460 | 2140 | 1890 | 1730 | 1580 | 1280 | 8.3 | 7.5 | 2000 | 4000 | 3400 |
| | **63.2** | 2460 | 2140 | 1890 | 1730 | 1580 | 1280 | 7 | 7.5 | 2000 | 4000 | 50 |

| 301 L | Page 226 | 2460 Nm |
|---|---|---|

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **L3** | **69.9** | 1720 | 1460 | 1300 | 1300 | 1300 | 1240 | 4.7 | 7.5 | 2000 | 4000 | 50 |
| | **77.5** | 2460 | 2140 | 1890 | 1730 | 1580 | 1280 | 5.9 | 7.5 | 2000 | 4000 | 50 |
| | **85.6** | 2460 | 2140 | 1890 | 1730 | 1580 | 1280 | 5.4 | 7.5 | 2000 | 4000 | 50 |
| | **105** | 2460 | 2140 | 1890 | 1730 | 1580 | 1280 | 4.4 | 7.5 | 2000 | 4000 | 50 |
| | **116** | 1720 | 1460 | 1300 | 1300 | 1300 | 1240 | 3.1 | 7.5 | 2000 | 4000 | 50 |
| | **131** | 2460 | 2140 | 1890 | 1730 | 1580 | 1280 | 3.5 | 7.5 | 2000 | 4000 | 50 |
| | **142** | 2460 | 2140 | 1890 | 1730 | 1580 | 1280 | 3.2 | 7.5 | 2000 | 4000 | 50 |
| | **177** | 2460 | 2140 | 1890 | 1730 | 1580 | 1280 | 2.6 | 7.5 | 2000 | 4000 | 50 |
| | **192** | 1720 | 1460 | 1300 | 1300 | 1300 | 1240 | 2 | 7.5 | 2000 | 4000 | 50 |
| | **221** | 2000 | 2000 | 1830 | 1730 | 1580 | 1280 | 2.1 | 7.5 | 2000 | 4000 | 50 |
| | **240** | 1720 | 1460 | 1300 | 1300 | 1300 | 1240 | 1.6 | 7.5 | 2000 | 4000 | 50 |
| | **299** | 1720 | 1460 | 1300 | 1300 | 1300 | 1240 | 1.3 | 7.5 | 2000 | 4000 | 50 |
| | **374** | 1720 | 1460 | 1300 | 1300 | 1300 | 1240 | 1 | 7.5 | 2000 | 4000 | 50 |
| **L4** | **330** | 2460 | 2140 | 1890 | 1730 | 1580 | 1280 | 1.4 | 6 | 2000 | 4000 | 3400 |
| | **403** | 1720 | 1460 | 1300 | 1300 | 1300 | 1240 | 1 | 6 | 2000 | 4000 | 3400 |
| | **447** | 2460 | 2140 | 1890 | 1730 | 1580 | 1280 | 1.06 | 6 | 2000 | 4000 | 3400 |
| | **494** | 2460 | 2140 | 1890 | 1730 | 1580 | 1280 | 0.96 | 6 | 2000 | 4000 | 3400 |
| | **558** | 2460 | 2140 | 1890 | 1730 | 1580 | 1280 | 0.85 | 6 | 2000 | 4000 | 3400 |
| | **616** | 2460 | 2140 | 1890 | 1730 | 1580 | 1280 | 0.77 | 6 | 2000 | 4000 | 3400 |
| | **755** | 2460 | 2140 | 1890 | 1730 | 1580 | 1280 | 0.63 | 6 | 2000 | 4000 | 3400 |
| | **819** | 2460 | 2140 | 1890 | 1730 | 1580 | 1280 | 0.58 | 6 | 2000 | 4000 | 3400 |
| | **942** | 2460 | 2140 | 1890 | 1730 | 1580 | 1280 | 0.5 | 6 | 2000 | 4000 | 3400 |
| | **1022** | 2460 | 2140 | 1890 | 1730 | 1580 | 1280 | 0.46 | 6 | 2000 | 4000 | 3400 |
| | **1108** | 1720 | 1460 | 1300 | 1300 | 1300 | 1240 | 0.36 | 6 | 2000 | 4000 | 3400 |
| | **1275** | 2460 | 2140 | 1890 | 1730 | 1580 | 1280 | 0.37 | 6 | 2000 | 4000 | 3400 |
| | **1383** | 1720 | 1460 | 1300 | 1300 | 1300 | 1240 | 0.29 | 6 | 2000 | 4000 | 3400 |
| | **1591** | 2000 | 2000 | 1830 | 1730 | 1580 | 1280 | 0.3 | 6 | 2000 | 4000 | 3400 |
| | **1725** | 1720 | 1460 | 1300 | 1300 | 1300 | 1240 | 0.23 | 6 | 2000 | 4000 | 3400 |
| | **2153** | 1720 | 1460 | 1300 | 1300 | 1300 | 1240 | 0.19 | 6 | 2000 | 4000 | 3400 |
| | **2692** | 1720 | 1460 | 1300 | 1300 | 1300 | 1240 | 0.15 | 6 | 2000 | 4000 | 3400 |

| 303 L | Page 226 | 2970 Nm |
|---|---|---|

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **L1** | **3.6** | 2410 | 2310 | 2310 | 2310 | 2310 | 2120 | 40 | 11 | 1800 | 3800 | 5200 |
| | **4.25** | 2970 | 2810 | 2810 | 2650 | 2570 | 2090 | 40 | 11 | 1800 | 3800 | 5200 |
| | **5.33** | 2850 | 2520 | 2230 | 2200 | 2140 | 2030 | 40 | 11 | 1800 | 3800 | 5200 |
| | **6.2** | 2440 | 2080 | 1840 | 1820 | 1820 | 1820 | 40 | 11 | 1800 | 3800 | 5200 |
| | **7.5** | 2000 | 1750 | 1650 | 1650 | 1650 | 1500 | 40 | 11 | 1800 | 3800 | 5200 |
| | **9.67** | 1050 | 900 | 860 | 860 | 860 | 860 | 17.3 | 11 | 1800 | 3800 | 5200 |
| | **12.5** | 2410 | 2310 | 2310 | 2310 | 2130 | 1730 | 20 | 9 | 2000 | 4000 | 5200 |
| **L2** | **15.3** | 2410 | 2310 | 2310 | 2310 | 2100 | 1700 | 20 | 9 | 2000 | 4000 | 5200 |
| | **18.1** | 2970 | 2810 | 2810 | 2650 | 2350 | 1910 | 20 | 9 | 2000 | 4000 | 5200 |
| | **20.8** | 2410 | 2210 | 2210 | 2210 | 2030 | 1650 | 20 | 9 | 2000 | 4000 | 5200 |
| | **22.7** | 2850 | 2520 | 2230 | 2200 | 2140 | 2030 | 20 | 9 | 2000 | 4000 | 5200 |
| | **24.5** | 2770 | 2700 | 2650 | 2620 | 2280 | 1850 | 20 | 9 | 2000 | 4000 | 5200 |
| | **26.4** | 2440 | 2080 | 1840 | 1820 | 1820 | 1820 | 15.2 | 9 | 2000 | 4000 | 5200 |
| | **30.8** | 2850 | 2520 | 2230 | 2200 | 2140 | 2030 | 15.9 | 9 | 2000 | 4000 | 5200 |
| | **35.8** | 2440 | 2080 | 1840 | 1820 | 1820 | 1820 | 11.2 | 9 | 2000 | 4000 | 5200 |
| | **38.4** | 2850 | 2450 | 2230 | 2200 | 2140 | 2030 | 12.8 | 9 | 2000 | 4000 | 5200 |
| | **44.6** | 2440 | 2080 | 1840 | 1820 | 1820 | 1820 | 9.2 | 9 | 2000 | 4000 | 5200 |
| | **55.8** | 2300 | 2080 | 1840 | 1820 | 1820 | 1820 | 7.6 | 9 | 2000 | 4000 | 5200 |
| **L3** | **53.4** | 2410 | 2310 | 2310 | 2310 | 2100 | 1700 | 9.3 | 7.5 | 2000 | 4000 | 5200 |
| | **63.1** | 2970 | 2810 | 2810 | 2650 | 2390 | 1940 | 9.8 | 7.5 | 2000 | 4000 | 5200 |
| | **72.3** | 2410 | 2310 | 2310 | 2310 | 2130 | 1730 | 7 | 7.5 | 2000 | 4000 | 5200 |
| | **77.2** | 2970 | 2810 | 2810 | 2650 | 2350 | 1910 | 8.2 | 7.5 | 2000 | 4000 | 5200 |
| | **90.2** | 2410 | 2310 | 2310 | 2310 | 2130 | 1730 | 5.6 | 7.5 | 2000 | 4000 | 5200 |
| | **105** | 2970 | 2810 | 2810 | 2650 | 2350 | 1910 | 6.2 | 7.5 | 2000 | 4000 | 5200 |
| | **113** | 2440 | 2080 | 1840 | 1820 | 1820 | 1820 | 4.4 | 7.5 | 2000 | 4000 | 5200 |
| | **124** | 2440 | 2080 | 1840 | 1820 | 1820 | 1820 | 4 | 7.5 | 2000 | 4000 | 5200 |
| | **141** | 2770 | 2700 | 2650 | 2620 | 2280 | 1850 | 4.4 | 7.5 | 2000 | 4000 | 5200 |
| | **152** | 2440 | 2080 | 1840 | 1820 | 1820 | 1820 | 3.4 | 7.5 | 2000 | 4000 | 5200 |
| | **164** | 2850 | 2520 | 2230 | 2200 | 2140 | 2030 | 3.9 | 7.5 | 2000 | 4000 | 5200 |
| | **178** | 2850 | 2520 | 2230 | 2200 | 2140 | 2030 | 3.6 | 7.5 | 2000 | 4000 | 5200 |
| | **190** | 2440 | 2080 | 1840 | 1820 | 1820 | 1820 | 2.8 | 7.5 | 2000 | 4000 | 5200 |
| | **220** | 2250 | 2200 | 2250 | 2250 | 1830 | 1800 | 2.3 | 7.5 | 2000 | 4000 | 5200 |
| | **258** | 2440 | 2080 | 1840 | 1820 | 1820 | 1820 | 2 | 7.5 | 2000 | 4000 | 5200 |
| | **276** | 2850 | 2450 | 2230 | 2200 | 2140 | 2030 | 2.4 | 7.5 | 2000 | 4000 | 5200 |
| | **321** | 2440 | 2080 | 1840 | 1820 | 1820 | 1820 | 1.6 | 7.5 | 2000 | 4000 | 5200 |
| | **389** | 2000 | 1750 | 1650 | 1650 | 1650 | 1500 | 1.2 | 7.5 | 2000 | 4000 | 5200 |

## 303 L — Page 226 — 2970 Nm

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **L3** | **402** | 2440 | 2080 | 1840 | 1820 | 1820 | 1820 | 1.3 | 7.5 | 2000 | 4000 | 5200 |
| **L4** | **413** | 2850 | 2520 | 2230 | 2200 | 2140 | 2030 | 1.6 | 6 | 2000 | 4000 | 5200 |
| | **446** | 2970 | 2810 | 2810 | 2650 | 2350 | 1910 | 1.5 | 6 | 2000 | 4000 | 5200 |
| | **492** | 2770 | 2700 | 2650 | 2620 | 2280 | 1850 | 1.3 | 6 | 2000 | 4000 | 5200 |
| | **556** | 2970 | 2810 | 2810 | 2650 | 2350 | 1910 | 1.2 | 6 | 2000 | 4000 | 5200 |
| | **649** | 2410 | 2310 | 2310 | 2310 | 2130 | 1730 | 0.84 | 6 | 2000 | 4000 | 5200 |
| | **718** | 2440 | 2080 | 1840 | 1820 | 1820 | 1820 | 0.76 | 6 | 2000 | 4000 | 5200 |
| | **816** | 2770 | 2700 | 2650 | 2620 | 2280 | 1850 | 0.8 | 6 | 2000 | 4000 | 5200 |
| | **896** | 2440 | 2080 | 1840 | 1820 | 1820 | 1820 | 0.61 | 6 | 2000 | 4000 | 5200 |
| | **1018** | 2770 | 2700 | 2650 | 2620 | 2280 | 1850 | 0.64 | 6 | 2000 | 4000 | 5200 |
| | **1098** | 2440 | 2080 | 1840 | 1820 | 1820 | 1820 | 0.5 | 6 | 2000 | 4000 | 5200 |
| | **1278** | 2850 | 2520 | 2230 | 2200 | 2140 | 2030 | 0.53 | 6 | 2000 | 4000 | 5200 |
| | **1370** | 2440 | 2080 | 1840 | 1820 | 1820 | 1820 | 0.4 | 6 | 2000 | 4000 | 5200 |
| | **1586** | 2250 | 2250 | 2250 | 2250 | 1830 | 1800 | 0.34 | 6 | 2000 | 4000 | 5200 |
| | **1854** | 2440 | 2080 | 1840 | 1820 | 1820 | 1820 | 0.29 | 6 | 2000 | 4000 | 5200 |
| | **1991** | 2850 | 2450 | 2230 | 2200 | 2140 | 2030 | 0.34 | 6 | 2000 | 4000 | 5200 |
| | **2243** | 2000 | 1750 | 1650 | 1650 | 1650 | 1500 | 0.21 | 6 | 2000 | 4000 | 5200 |
| | **2799** | 2000 | 1750 | 1650 | 1650 | 1650 | 1500 | 0.17 | 6 | 2000 | 4000 | 5200 |

## 305 L — Page 240 — 5800Nm

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **L1** | **3.6** | 4700 | 4490 | 4490 | 4490 | 4480 | 3640 | 60 | 13 | 1800 | 3800 | 8800 |
| | **4.25** | 5800 | 5500 | 5480 | 5300 | 4410 | 3580 | 60 | 13 | 1800 | 3800 | 8800 |
| | **5.33** | 5600 | 5040 | 4470 | 4400 | 4280 | 3490 | 60 | 13 | 1800 | 3800 | 8800 |
| | **6.2** | 4690 | 4000 | 3600 | 3600 | 3550 | 3460 | 60 | 13 | 1800 | 3800 | 8800 |
| | **7.5** | 3800 | 3300 | 3100 | 3100 | 3000 | 2790 | 60 | 13 | 1800 | 3800 | 8800 |
| **L2** | **12.5** | 4700 | 4490 | 4490 | 4490 | 3800 | 3090 | 30 | 9 | 2000 | 4000 | 8800 |
| | **15.3** | 4700 | 4490 | 4490 | 4490 | 3750 | 3040 | 30 | 9 | 2000 | 4000 | 8800 |
| | **18.1** | 5800 | 5500 | 5480 | 5300 | 4210 | 3420 | 30 | 9 | 2000 | 4000 | 8800 |
| | **20.8** | 4700 | 4450 | 4430 | 4430 | 3630 | 2950 | 30 | 9 | 2000 | 4000 | 8800 |
| **L2** | **22.7** | 5600 | 5040 | 4470 | 4400 | 4280 | 3490 | 30 | 9 | 2000 | 4000 | 8800 |

| 305 L | Page 240 | 5800Nm |
|---|---|---|

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **L2** | **24.5** | 5530 | 5400 | 5300 | 5230 | 4070 | 3310 | 30 | 9 | 2000 | 4000 | 8800 |
| | **26.4** | 4690 | 4000 | 3600 | 3600 | 3550 | 3460 | 30 | 9 | 2000 | 4000 | 8800 |
| | **30.8** | 5600 | 5040 | 4470 | 4400 | 4280 | 3490 | 30 | 9 | 2000 | 4000 | 8800 |
| | **35.8** | 4690 | 4000 | 3600 | 3600 | 3550 | 3460 | 22.4 | 9 | 2000 | 4000 | 8800 |
| | **38.4** | 5600 | 4900 | 4470 | 4400 | 4280 | 3490 | 25.5 | 9 | 2000 | 4000 | 8800 |
| | **44.6** | 4690 | 4000 | 3600 | 3600 | 3550 | 3460 | 18.3 | 9 | 2000 | 4000 | 8800 |
| | **55.8** | 4430 | 4000 | 3600 | 3600 | 3500 | 3460 | 15.2 | 9 | 2000 | 4000 | 8800 |
| **L3** | **53.4** | 4700 | 4490 | 4490 | 4490 | 3750 | 3040 | 18.8 | 7.5 | 2000 | 4000 | 8800 |
| | **63.1** | 5800 | 5480 | 5480 | 5300 | 4270 | 3470 | 19.4 | 7.5 | 2000 | 4000 | 160 |
| | **72.3** | 4700 | 4490 | 4490 | 4490 | 3800 | 3090 | 14.1 | 7.5 | 2000 | 4000 | 100 |
| | **77.2** | 5800 | 5500 | 5480 | 5300 | 4210 | 3420 | 16.3 | 7.5 | 2000 | 4000 | 100 |
| | **90.2** | 4700 | 4490 | 4490 | 4490 | 3800 | 3090 | 11.4 | 7.5 | 2000 | 4000 | 100 |
| | **105** | 5800 | 5500 | 5480 | 5300 | 4210 | 3420 | 12.3 | 7.5 | 2000 | 4000 | 100 |
| | **113** | 4690 | 4000 | 3600 | 3600 | 3550 | 3460 | 8.7 | 7.5 | 2000 | 4000 | 100 |
| | **124** | 4690 | 4000 | 3600 | 3600 | 3550 | 3460 | 8 | 7.5 | 2000 | 4000 | 50 |
| | **141** | 5530 | 5350 | 5300 | 5230 | 4070 | 3310 | 8.9 | 7.5 | 2000 | 4000 | 100 |
| | **152** | 4690 | 4000 | 3600 | 3600 | 3550 | 3460 | 6.7 | 7.5 | 2000 | 4000 | 50 |
| | **164** | 5600 | 5040 | 4470 | 4400 | 4280 | 3490 | 7.7 | 7.5 | 2000 | 4000 | 50 |
| | **178** | 5600 | 5040 | 4470 | 4400 | 4280 | 3490 | 7.2 | 7.5 | 2000 | 4000 | 50 |
| | **190** | 4690 | 4000 | 3600 | 3600 | 3550 | 3460 | 5.5 | 7.5 | 2000 | 4000 | 50 |
| | **220** | 4750 | 4750 | 4750 | 4750 | 3660 | 3210 | 4.9 | 7.5 | 2000 | 4000 | 50 |
| | **258** | 4690 | 4000 | 3600 | 3600 | 3550 | 3460 | 4.1 | 7.5 | 2000 | 4000 | 50 |
| | **276** | 5600 | 4900 | 4470 | 4400 | 4280 | 3490 | 4.6 | 7.5 | 2000 | 4000 | 50 |
| | **321** | 4690 | 4000 | 3600 | 3600 | 3550 | 3460 | 3.3 | 7.5 | 2000 | 4000 | 50 |
| | **389** | 3800 | 3300 | 3100 | 3100 | 3000 | 2790 | 2.2 | 7.5 | 2000 | 4000 | 50 |
| | **402** | 4690 | 4000 | 3600 | 3600 | 3550 | 3460 | 2.6 | 6 | 2000 | 4000 | 50 |
| **L4** | **413** | 5600 | 5040 | 4470 | 4400 | 4280 | 3490 | 3.2 | 6 | 2000 | 4000 | 8800 |
| | **446** | 5800 | 5500 | 5480 | 5300 | 4210 | 3420 | 3.1 | 6 | 2000 | 4000 | 8800 |
| | **492** | 5530 | 5350 | 5300 | 5230 | 4070 | 3310 | 2.6 | 6 | 2000 | 4000 | 8800 |
| | **556** | 5800 | 5500 | 5480 | 5300 | 4210 | 3420 | 2.5 | 6 | 2000 | 4000 | 8800 |
| | **649** | 4700 | 4490 | 4490 | 4490 | 3800 | 3090 | 1.7 | 6 | 2000 | 4000 | 8800 |
| | **718** | 4690 | 4000 | 3600 | 3600 | 3550 | 3460 | 1.5 | 6 | 2000 | 4000 | 8800 |
| | **816** | 5530 | 5350 | 5300 | 5230 | 4070 | 3310 | 1.6 | 6 | 2000 | 4000 | 8800 |
| | **896** | 4690 | 4000 | 3600 | 3600 | 3550 | 3460 | 1.2 | 6 | 2000 | 4000 | 8800 |
| | **1018** | 5530 | 5350 | 5300 | 5230 | 4070 | 3310 | 1.3 | 6 | 2000 | 4000 | 8800 |
| | **1098** | 4690 | 4000 | 3600 | 3600 | 3550 | 3460 | 0.99 | 6 | 2000 | 4000 | 8800 |
| | **1278** | 5600 | 5040 | 4470 | 4400 | 4280 | 3490 | 1 | 6 | 2000 | 4000 | 8800 |
| | **1370** | 4690 | 4000 | 3600 | 3600 | 3550 | 3460 | 0.79 | 6 | 2000 | 4000 | 8800 |
| | **1586** | 4750 | 4750 | 4750 | 4750 | 3660 | 3210 | 0.71 | 6 | 2000 | 4000 | 8800 |
| | **1854** | 4690 | 4000 | 3600 | 3600 | 3550 | 3460 | 0.59 | 6 | 2000 | 4000 | 8800 |

## 305 L — Page 240 — 5800Nm

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **L4** | **1991** | 5600 | 4900 | 4470 | 4400 | 4280 | 3490 | 0.67 | 6 | 2000 | 4000 | 8800 |
| | **2243** | 3800 | 3300 | 3100 | 3100 | 3000 | 2790 | 0.4 | 6 | 2000 | 4000 | 8800 |
| | **2799** | 3800 | 3300 | 3100 | 3100 | 3000 | 2790 | 0.32 | 6 | 2000 | 4000 | 8800 |

## 306 L — Page 248 — 10840Nm

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **L1** | **3.6** | 10840 | 10380 | 10380 | 10380 | 7100 | 5770 | 75 | 18 | 1600 | 3000 | 14900 |
| | **4.25** | 10420 | 9850 | 9850 | 9600 | 6990 | 5680 | 75 | 18 | 1600 | 3000 | 2600 |
| | **5.33** | 10080 | 9350 | 8300 | 7950 | 6810 | 5530 | 75 | 18 | 1600 | 3000 | 2100 |
| | **6.2** | 8630 | 7370 | 6530 | 6500 | 6460 | 5480 | 75 | 18 | 1600 | 3000 | 1500 |
| | **7.5** | 7000 | 5900 | 5500 | 5500 | 5040 | 5040 | 75 | 18 | 1600 | 3000 | 1100 |
| **L2** | **13** | 8020 | 8020 | 8020 | 8020 | 6210 | 5040 | 40 | 13 | 1800 | 3800 | 14900 |
| | **15.3** | 9770 | 9340 | 9340 | 9300 | 6110 | 4960 | 40 | 13 | 1800 | 3800 | 14900 |
| | **18.1** | 10420 | 9850 | 9850 | 9600 | 6860 | 5570 | 40 | 13 | 1800 | 3800 | 14900 |
| | **22.7** | 9560 | 9100 | 9100 | 9100 | 6680 | 5430 | 40 | 13 | 1800 | 3800 | 14900 |
| | **26.4** | 7890 | 7590 | 7590 | 7590 | 6620 | 5380 | 40 | 13 | 1800 | 3800 | 14900 |
| | **28.4** | 10080 | 9350 | 8300 | 7950 | 6810 | 5530 | 40 | 13 | 1800 | 3800 | 14900 |
| | **33.1** | 9540 | 9350 | 8300 | 7950 | 6810 | 5530 | 40 | 13 | 1800 | 3800 | 14900 |
| | **38.4** | 8630 | 7370 | 6530 | 6500 | 6460 | 5480 | 34 | 13 | 1800 | 3800 | 14900 |
| | **46.5** | 8500 | 7370 | 6530 | 6500 | 6460 | 5480 | 29 | 13 | 1800 | 3800 | 14900 |
| | **56.3** | 7000 | 5900 | 5500 | 5500 | 5040 | 5040 | 21 | 13 | 1800 | 3800 | 14900 |
| | **72.5** | 6400 | 5900 | 5500 | 5500 | 5040 | 5040 | 16.3 | 13 | 1800 | 3800 | 14900 |
| **L3** | **53.2** | 9770 | 9340 | 9340 | 9300 | 6110 | 4960 | 20 | 7.5 | 2000 | 4000 | 14900 |
| | **65.2** | 9770 | 9340 | 9340 | 9300 | 6110 | 4960 | 20 | 7.5 | 2000 | 4000 | 160 |
| | **77** | 10420 | 9850 | 9850 | 9600 | 6860 | 5570 | 20 | 7.5 | 2000 | 4000 | 160 |
| | **81.9** | 8320 | 7700 | 7700 | 7530 | 5950 | 4830 | 20 | 7.5 | 2000 | 4000 | 160 |
| | **88.3** | 9450 | 9450 | 9450 | 9450 | 6970 | 5660 | 20 | 7.5 | 2000 | 4000 | 160 |
| | **104** | 10420 | 9850 | 9850 | 9600 | 6860 | 5570 | 20 | 7.5 | 2000 | 4000 | 160 |
| | **112** | 7890 | 7590 | 7590 | 7590 | 6620 | 5380 | 15.2 | 7.5 | 2000 | 4000 | 160 |
| | **121** | 10080 | 9350 | 8300 | 7950 | 6810 | 5530 | 17.2 | 7.5 | 2000 | 4000 | 100 |
| | **141** | 9540 | 9350 | 8300 | 7950 | 6810 | 5530 | 14.8 | 7.5 | 2000 | 4000 | 100 |
| | **152** | 7890 | 7590 | 7590 | 7590 | 6620 | 5380 | 11.3 | 7.5 | 2000 | 4000 | 100 |
| | **190** | 8630 | 7370 | 6530 | 6500 | 6460 | 5480 | 10.2 | 7.5 | 2000 | 4000 | 100 |
| | **205** | 10080 | 9350 | 8300 | 7950 | 6810 | 5530 | 10.6 | 7.5 | 2000 | 4000 | 100 |

## 306 L | Page 248 | 10840Nm

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **L3** | **222** | 8630 | 7370 | 6530 | 6500 | 6460 | 5480 | 8.8 | 7.5 | 2000 | 4000 | 50 |
| | **238** | 9540 | 9350 | 8300 | 7950 | 6810 | 5530 | 9 | 7.5 | 2000 | 4000 | 50 |
| | **268** | 7000 | 5900 | 5500 | 5500 | 5040 | 5040 | 6 | 7.5 | 2000 | 4000 | 50 |
| | **288** | 7000 | 5900 | 5500 | 5500 | 5040 | 5040 | 5.6 | 7.5 | 2000 | 4000 | 50 |
| | **325** | 7000 | 5900 | 5500 | 5500 | 5040 | 5040 | 4.9 | 7.5 | 2000 | 4000 | 50 |
| | **405** | 7000 | 5900 | 5500 | 5500 | 5040 | 5040 | 4 | 7.5 | 2000 | 4000 | 50 |
| **L4** | **391** | 8630 | 7370 | 6530 | 6500 | 6460 | 5480 | 5.1 | 6 | 2000 | 4000 | 14900 |
| | **444** | 10420 | 9850 | 9850 | 9600 | 6860 | 5570 | 5.3 | 6 | 2000 | 4000 | 14900 |
| | **509** | 9450 | 9450 | 9450 | 9450 | 6970 | 5660 | 4.1 | 6 | 2000 | 4000 | 14900 |
| | **589** | 10080 | 9350 | 8300 | 7950 | 6810 | 5530 | 3.8 | 6 | 2000 | 4000 | 14900 |
| | **636** | 9450 | 9450 | 9450 | 9450 | 6970 | 5660 | 3.3 | 6 | 2000 | 4000 | 14900 |
| | **700** | 10080 | 9350 | 8300 | 7950 | 6810 | 5530 | 3.2 | 6 | 2000 | 4000 | 14900 |
| | **809** | 7890 | 7590 | 7590 | 7590 | 6620 | 5380 | 2.2 | 6 | 2000 | 4000 | 14900 |
| | **877** | 7890 | 7590 | 7590 | 7590 | 6620 | 5380 | 2 | 6 | 2000 | 4000 | 14900 |
| | **1015** | 9540 | 9350 | 8300 | 7950 | 6810 | 5530 | 2.2 | 6 | 2000 | 4000 | 14900 |
| | **1095** | 7890 | 7590 | 7590 | 7590 | 6620 | 5380 | 1.6 | 6 | 2000 | 4000 | 14900 |
| | **1279** | 8630 | 7370 | 6530 | 6500 | 6460 | 5480 | 1.6 | 6 | 2000 | 4000 | 14900 |
| | **1475** | 10080 | 9350 | 8300 | 7950 | 6810 | 5530 | 1.5 | 6 | 2000 | 4000 | 14900 |
| | **1597** | 8630 | 7370 | 6530 | 6500 | 6460 | 5480 | 1.3 | 6 | 2000 | 4000 | 14900 |
| | **1843** | 10080 | 9350 | 8300 | 7950 | 6810 | 5530 | 1.2 | 6 | 2000 | 4000 | 14900 |
| | **2074** | 7000 | 5900 | 5500 | 5500 | 5040 | 5040 | 0.8 | 6 | 2000 | 4000 | 14900 |
| | **2337** | 7000 | 5900 | 5500 | 5500 | 5040 | 5040 | 0.71 | 6 | 2000 | 4000 | 14900 |
| | **2916** | 7000 | 5900 | 5500 | 5500 | 5040 | 5040 | 0.57 | 6 | 2000 | 4000 | 14900 |

## 307 L | Page 256 | 15680Nm

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1\,MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **L1** | **3.43** | 9000 | 9000 | 9000 | 9000 | 8300 | 7960 | 115 | 22 | 1500 | 2500 | 18600 |
| | **4.09** | 15680 | 14890 | 14890 | 13510 | 9560 | 7770 | 115 | 22 | 1500 | 2500 | 21000 |
| | **5.25** | 14840 | 12700 | 11300 | 10790 | 9340 | 7590 | 115 | 22 | 1500 | 2500 | 21000 |
| | **6.23** | 11000 | 9600 | 8700 | 8700 | 8240 | 7490 | 115 | 22 | 1500 | 2500 | 21000 |
| **L2** | **12.3** | 9000 | 9000 | 9000 | 9000 | 8300 | 7960 | 60 | 18 | 1800 | 3800 | 18600 |
| | **14.7** | 15680 | 14890 | 14890 | 13510 | 9560 | 7770 | 60 | 18 | 1800 | 3800 | 21000 |
| | **17.4** | 15680 | 14890 | 14890 | 13510 | 9560 | 7770 | 60 | 18 | 1800 | 3800 | 21000 |
| | **21.8** | 15680 | 14890 | 14890 | 13510 | 9560 | 7770 | 60 | 18 | 1800 | 3800 | 21000 |

| 307 L | Page 256 | 15680Nm |
|---|---|---|

| | i | $M_{n2}$[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1\,MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [$min^{-1}$] | [$min^{-1}$] | [NM] |
| **L2** | **25.4** | 14670 | 14010 | 14010 | 13510 | 9560 | 7770 | 60 | 18 | 1800 | 3800 | 21000 |
| | **28** | 14840 | 12700 | 11300 | 10790 | 9340 | 7590 | 60 | 18 | 1800 | 3800 | 21000 |
| | **30.7** | 12300 | 12300 | 12300 | 12300 | 9560 | 7770 | 60 | 18 | 1800 | 3800 | 21000 |
| | **32.6** | 14840 | 12700 | 11300 | 10790 | 9340 | 7590 | 60 | 18 | 1800 | 3800 | 21000 |
| | **38.6** | 11000 | 9600 | 8700 | 8700 | 8240 | 7490 | 46 | 18 | 1800 | 3800 | 21000 |
| | **46.7** | 11000 | 9600 | 8700 | 8700 | 8240 | 7490 | 39 | 18 | 1800 | 3800 | 21000 |
| **L3** | **51.3** | 15680 | 14890 | 14890 | 13510 | 9560 | 7770 | 30 | 11 | 2000 | 4000 | 21000 |
| | **60.5** | 15680 | 14890 | 14890 | 13510 | 9560 | 7770 | 30 | 11 | 2000 | 4000 | 21000 |
| | **74.1** | 15680 | 14890 | 14890 | 13510 | 9560 | 7770 | 30 | 11 | 2000 | 4000 | 21000 |
| | **80.6** | 14840 | 12700 | 11300 | 10790 | 9340 | 7590 | 30 | 11 | 2000 | 4000 | 21000 |
| | **93** | 15680 | 14890 | 14890 | 13510 | 9560 | 7770 | 30 | 11 | 2000 | 4000 | 21000 |
| | **100** | 15680 | 14890 | 14890 | 13510 | 9560 | 7770 | 30 | 11 | 2000 | 4000 | 21000 |
| | **113** | 14840 | 12700 | 11300 | 10790 | 9340 | 7590 | 26 | 11 | 2000 | 4000 | 21000 |
| | **126** | 15680 | 14890 | 14890 | 13510 | 9560 | 7770 | 26 | 11 | 2000 | 4000 | 21000 |
| | **139** | 14840 | 12700 | 11300 | 10790 | 9340 | 7590 | 22 | 11 | 2000 | 4000 | 21000 |
| | **146** | 15000 | 14010 | 14010 | 13510 | 9560 | 7770 | 23 | 11 | 2000 | 4000 | 21000 |
| | **162** | 14840 | 12700 | 11300 | 10790 | 9340 | 7590 | 19.4 | 11 | 2000 | 4000 | 21000 |
| | **177** | 12300 | 12300 | 12300 | 12300 | 9560 | 7770 | 15.9 | 11 | 2000 | 4000 | 21000 |
| | **202** | 14840 | 12700 | 11300 | 10790 | 9340 | 7590 | 15.9 | 11 | 2000 | 4000 | 21000 |
| | **221** | 15000 | 13800 | 12900 | 12500 | 9560 | 7770 | 15.6 | 11 | 2000 | 4000 | 21000 |
| | **239** | 11000 | 9600 | 8700 | 8700 | 8240 | 7490 | 10.5 | 11 | 2000 | 4000 | 21000 |
| | **284** | 14330 | 12700 | 11300 | 10790 | 9340 | 7590 | 11.3 | 11 | 2000 | 4000 | 21000 |
| | **336** | 11000 | 9600 | 8700 | 8700 | 8240 | 7490 | 7.5 | 11 | 2000 | 4000 | 21000 |
| **L4** | **349** | 15680 | 14890 | 14890 | 13510 | 9560 | 7770 | 10.2 | 7.5 | 2000 | 4000 | 21000 |
| | **406** | 14840 | 12700 | 11300 | 10790 | 9340 | 7590 | 8.2 | 7.5 | 2000 | 4000 | 21000 |
| | **465** | 14840 | 12700 | 11300 | 10790 | 9340 | 7590 | 7.1 | 7.5 | 2000 | 4000 | 21000 |
| | **509** | 15000 | 14010 | 14010 | 13510 | 9560 | 7770 | 7 | 7.5 | 2000 | 4000 | 21000 |
| | **579** | 15680 | 14890 | 14890 | 13510 | 9560 | 7770 | 6.1 | 7.5 | 2000 | 4000 | 21000 |
| | **654** | 14840 | 12700 | 11300 | 10790 | 9340 | 7590 | 5.1 | 7.5 | 2000 | 4000 | 21000 |
| | **722** | 15680 | 14890 | 14890 | 13510 | 9560 | 7770 | 4.9 | 7.5 | 2000 | 4000 | 21000 |
| | **801** | 14840 | 12700 | 11300 | 10790 | 9340 | 7590 | 4.1 | 7.5 | 2000 | 4000 | 21000 |
| | **906** | 15680 | 14890 | 14890 | 13510 | 9560 | 7770 | 3.9 | 7.5 | 2000 | 4000 | 21000 |
| | **999** | 14840 | 12700 | 11300 | 10790 | 9340 | 7590 | 3.3 | 7.5 | 2000 | 4000 | 21000 |
| | **1157** | 14840 | 12700 | 11300 | 10790 | 9340 | 7590 | 2.9 | 7.5 | 2000 | 4000 | 21000 |
| | **1274** | 12300 | 12300 | 12300 | 12300 | 9560 | 7770 | 2.3 | 7.5 | 2000 | 4000 | 21000 |
| | **1408** | 15680 | 14890 | 14890 | 13510 | 9560 | 7770 | 2.5 | 7.5 | 2000 | 4000 | 21000 |
| | **1591** | 15000 | 13800 | 12900 | 12500 | 9560 | 7770 | 2.2 | 7.5 | 2000 | 4000 | 21000 |
| | **1767** | 15680 | 14890 | 14890 | 13510 | 9560 | 7770 | 2 | 7.5 | 2000 | 4000 | 21000 |
| | **2041** | 14330 | 12700 | 11300 | 10790 | 9340 | 7590 | 1.6 | 7.5 | 2000 | 4000 | 21000 |

## 307 L — Page 256 — 15680Nm

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1\,MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **L4** | **2423** | 11000 | 9600 | 8700 | 8700 | 8240 | 7490 | 1.1 | 7.5 | 2000 | 4000 | 21000 |

## 309 L — Page 264 — 23240Nm

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1\,MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **L1** | **3.43** | 13000 | 13000 | 13000 | 13000 | 12310 | 10920 | 150 | 25 | 1500 | 2000 | 27900 |
| | **4.09** | 23240 | 22070 | 22070 | 20260 | 13120 | 10660 | 150 | 25 | 1500 | 2000 | 29000 |
| | **5.25** | 21980 | 19060 | 16940 | 16190 | 12810 | 10410 | 150 | 25 | 1500 | 2000 | 29000 |
| | **6.23** | 17000 | 14400 | 13000 | 13000 | 12370 | 10280 | 150 | 25 | 1500 | 2000 | 29000 |
| **L2** | | | | | | | | | | | | |
| | **12.3** | 13000 | 13000 | 13000 | 13000 | 10290 | 8360 | 60 | 18 | 1800 | 3800 | 27900 |
| | **14.7** | 17730 | 17730 | 17730 | 17730 | 11650 | 9460 | 60 | 18 | 1800 | 3800 | 29000 |
| | **17.4** | 21620 | 21260 | 21260 | 18580 | 11460 | 9310 | 60 | 18 | 1800 | 3800 | 29000 |
| | **21.8** | 18510 | 17500 | 17500 | 17140 | 11160 | 9070 | 60 | 18 | 1800 | 3800 | 29000 |
| | **25.4** | 14670 | 14300 | 14300 | 14300 | 11060 | 8990 | 60 | 18 | 1800 | 3800 | 29000 |
| | **28** | 21980 | 19060 | 16940 | 16190 | 12810 | 10410 | 60 | 18 | 1800 | 3800 | 29000 |
| | **32.6** | 18300 | 18100 | 16940 | 16190 | 12810 | 10410 | 60 | 18 | 1800 | 3800 | 29000 |
| | **38.6** | 17000 | 14400 | 13000 | 13000 | 12370 | 10280 | 60 | 18 | 1800 | 3800 | 29000 |
| | **46.7** | 17000 | 14400 | 13000 | 13000 | 12370 | 10280 | 58 | 18 | 1800 | 3800 | 29000 |
| **L3** | **51.3** | 17730 | 17730 | 17730 | 17730 | 11650 | 9460 | 30 | 11 | 2000 | 4000 | 29000 |
| | **60.5** | 21620 | 21260 | 21260 | 18580 | 11460 | 9310 | 30 | 11 | 2000 | 4000 | 29000 |
| | **223** | 17000 | 14400 | 13000 | 13000 | 12370 | 10280 | 17.5 | 11 | 2000 | 4000 | 29000 |
| | **239** | 17000 | 14400 | 13000 | 13000 | 12370 | 10280 | 16.3 | 11 | 2000 | 4000 | 29000 |
| | **284** | 15800 | 15800 | 15800 | 15000 | 12810 | 10410 | 12.8 | 11 | 2000 | 4000 | 29000 |
| | **336** | 17000 | 14400 | 13000 | 13000 | 12370 | 10280 | 11.6 | 11 | 2000 | 4000 | 29000 |
| **L4** | **349** | 21620 | 21260 | 21260 | 18580 | 11460 | 9310 | 14.4 | 7.5 | 2000 | 4000 | 29000 |
| | **406** | 21980 | 19060 | 16940 | 16190 | 12810 | 10410 | 12.3 | 7.5 | 2000 | 4000 | 29000 |
| | **465** | 21980 | 19060 | 16940 | 16190 | 12810 | 10410 | 10.7 | 7.5 | 2000 | 4000 | 29000 |
| | **509** | 14670 | 14300 | 14300 | 14300 | 11060 | 8990 | 6.7 | 7.5 | 2000 | 4000 | 29000 |
| | **579** | 21620 | 21260 | 21260 | 18580 | 11460 | 9310 | 8.7 | 7.5 | 2000 | 4000 | 29000 |
| | **654** | 18300 | 18100 | 16940 | 16190 | 12810 | 10410 | 6.6 | 7.5 | 2000 | 4000 | 29000 |
| | **722** | 21620 | 21260 | 21260 | 18580 | 11460 | 9310 | 7 | 7.5 | 2000 | 4000 | 29000 |
| | **801** | 18300 | 18100 | 16940 | 16190 | 12810 | 10410 | 5.4 | 7.5 | 2000 | 4000 | 29000 |
| | **906** | 18510 | 17500 | 17500 | 17140 | 11160 | 9070 | 4.7 | 7.5 | 2000 | 4000 | 29000 |
| | **999** | 18300 | 18100 | 16940 | 16190 | 12810 | 10410 | 4.3 | 7.5 | 2000 | 4000 | 29000 |
| | **1149** | 17000 | 14400 | 13000 | 13000 | 12370 | 10280 | 3.5 | 7.5 | 2000 | 4000 | 29000 |
| | **1286** | 17000 | 14400 | 13000 | 13000 | 12370 | 10280 | 3.1 | 7.5 | 2000 | 4000 | 29000 |

## 309 L — Page 264 — 23240Nm

| | i | Mn2[NM] | | | | | | P1 | PT | n 1 | n1 MAX | M2 max |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | n2.h | n2.h | n2.h | n2.h | n2.h | n2.h | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min-1] | [min-1] | [NM] |
| L4 | 1380 | 17000 | 14400 | 13000 | 13000 | 12370 | 10280 | 2.9 | 7.5 | 2000 | 4000 | 29000 |
| | 1605 | 17000 | 14400 | 13000 | 13000 | 12370 | 10280 | 2.5 | 7.5 | 2000 | 4000 | 29000 |
| | 1723 | 17000 | 14400 | 13000 | 13000 | 12370 | 10280 | 2.3 | 7.5 | 2000 | 4000 | 29000 |
| | 2003 | 17000 | 14400 | 13000 | 13000 | 12370 | 10280 | 1.9 | 7.5 | 2000 | 4000 | 29000 |
| | 2423 | 17000 | 14400 | 13000 | 13000 | 12370 | 10280 | 1.7 | 7.5 | 2000 | 4000 | 29000 |

## 310 L — Page 272 — 34120Nm

| | i | Mn2[NM] | | | | | | P1 | PT | n 1 | n1 MAX | M2 max |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | n2.h | n2.h | n2.h | n2.h | n2.h | n2.h | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min-1] | [min-1] | [NM] |
| L1 | 4.09 | 34120 | 32340 | 26580 | 21590 | 13320 | 10820 | 175 | 35 | 1500 | 1800 | 47600 |
| | 5.25 | 30600 | 26240 | 23350 | 21100 | 13020 | 10570 | 175 | 35 | 1500 | 1800 | 47600 |
| | 6.23 | 26000 | 21200 | 18420 | 18230 | 12860 | 10440 | 175 | 35 | 1500 | 1800 | 47600 |
| L2 | 14.7 | 34120 | 32340 | 26580 | 21590 | 13320 | 10820 | 75 | 22 | 1600 | 3000 | 47600 |
| | 17.4 | 34120 | 32340 | 26580 | 21590 | 13320 | 10820 | 75 | 22 | 1600 | 3000 | 47600 |
| | 21.8 | 34120 | 31930 | 26580 | 21590 | 13320 | 10820 | 75 | 22 | 1600 | 3000 | 47600 |
| | 25.4 | 27110 | 25910 | 25910 | 21590 | 13320 | 10820 | 75 | 22 | 1600 | 3000 | 47600 |
| | 28 | 30600 | 26240 | 23350 | 21100 | 13020 | 10570 | 75 | 22 | 1600 | 3000 | 47600 |
| | 30.7 | 21800 | 21800 | 21800 | 20150 | 13320 | 10820 | 75 | 22 | 1600 | 3000 | 47600 |
| | 32.6 | 30600 | 26240 | 23350 | 21100 | 13020 | 10570 | 75 | 22 | 1600 | 3000 | 47600 |
| | 38.6 | 26000 | 21200 | 18420 | 18230 | 12860 | 10440 | 75 | 22 | 1600 | 3000 | 47600 |
| | 46.7 | 26000 | 21200 | 18420 | 18230 | 12860 | 10440 | 75 | 22 | 1600 | 3000 | 47600 |
| L3 | 53 | 34120 | 32340 | 26580 | 21590 | 13320 | 10820 | 40 | 18 | 1800 | 3800 | 47600 |
| | 62.6 | 34120 | 32340 | 26580 | 21590 | 13320 | 10820 | 40 | 18 | 1800 | 3800 | 47600 |
| | 73.9 | 34120 | 32340 | 26580 | 21590 | 13320 | 10820 | 40 | 18 | 1800 | 3800 | 47600 |
| | 80.3 | 30600 | 26240 | 23350 | 21100 | 13020 | 10570 | 40 | 18 | 1800 | 3800 | 47600 |
| | 91.3 | 34120 | 32340 | 26580 | 21590 | 13320 | 10820 | 40 | 18 | 1800 | 3800 | 47600 |
| | 101 | 30600 | 26240 | 23350 | 21100 | 13020 | 10570 | 40 | 18 | 1800 | 3800 | 47600 |
| | 110 | 34120 | 32340 | 26580 | 21590 | 13320 | 10820 | 40 | 18 | 1800 | 3800 | 47600 |
| | 119 | 30600 | 26240 | 23350 | 21100 | 13020 | 10570 | 40 | 18 | 1800 | 3800 | 47600 |
| | 130 | 34120 | 32340 | 26580 | 21590 | 13320 | 10820 | 40 | 18 | 1800 | 3800 | 47600 |
| | 142 | 30600 | 26240 | 23350 | 21100 | 13020 | 10570 | 40 | 18 | 1800 | 3800 | 47600 |
| | 164 | 34120 | 31930 | 26580 | 21590 | 13320 | 10820 | 38 | 18 | 1800 | 3800 | 47600 |
| | 177 | 26000 | 21200 | 18420 | 18230 | 12860 | 10440 | 30 | 18 | 1800 | 3800 | 47600 |
| | 202 | 30600 | 26240 | 23350 | 21100 | 13020 | 10570 | 30 | 18 | 1800 | 3800 | 47600 |

## 310 L — Page 272 — 34120Nm

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1\,MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **L3** | **230** | 21800 | 21800 | 21800 | 20150 | 13320 | 10820 | 19.6 | 18 | 1800 | 3800 | 47600 |
| | **249** | 26000 | 21200 | 18420 | 18230 | 12860 | 10440 | 22 | 18 | 1800 | 3800 | 47600 |
| | **295** | 28000 | 25880 | 23350 | 21100 | 13020 | 10570 | 19.6 | 18 | 1800 | 3800 | 47600 |
| | **350** | 26000 | 21200 | 18420 | 18230 | 12860 | 10440 | 15.3 | 18 | 1800 | 3800 | 47600 |

## 311 L — Page 280 — 48330Nm

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **L1** | **4.09** | 48330 | 45840 | 38290 | 31100 | 19190 | 15590 | 200 | 35 | 1500 | 1800 | 58300 |
| | **5.25** | 45210 | 39550 | 35220 | 32000 | 19700 | 16000 | 200 | 35 | 1500 | 1800 | 58300 |
| | **6.23** | 34000 | 29500 | 27000 | 27000 | 18600 | 15100 | 200 | 35 | 1500 | 1800 | 58300 |
| **L2** | **14** | 35700 | 35700 | 35700 | 31100 | 19190 | 15590 | 115 | 26 | 1500 | 2500 | 58300 |
| | **16.7** | 48330 | 45840 | 38290 | 31100 | 19190 | 15590 | 115 | 26 | 1500 | 2500 | 58300 |
| | **18** | 43000 | 39550 | 35220 | 32000 | 19700 | 16000 | 115 | 26 | 1500 | 2500 | 58300 |
| | **21.5** | 46920 | 43390 | 38290 | 31100 | 19190 | 15590 | 115 | 26 | 1500 | 2500 | 58300 |
| | **25.5** | 35200 | 34500 | 34500 | 31100 | 19190 | 15590 | 115 | 26 | 1500 | 2500 | 58300 |
| | **27.6** | 45210 | 39550 | 35220 | 32000 | 19700 | 16000 | 115 | 26 | 1500 | 2500 | 58300 |
| | **32.7** | 43000 | 39550 | 35220 | 32000 | 19700 | 16000 | 115 | 26 | 1500 | 2500 | 58300 |
| | **38.8** | 34000 | 29500 | 27000 | 27000 | 18600 | 15100 | 115 | 26 | 1500 | 2500 | 58300 |
| **L3** | **50.5** | 35700 | 35700 | 35700 | 31100 | 19190 | 15590 | 60 | 18 | 1800 | 3800 | 58300 |
| | **60.2** | 48330 | 45840 | 38290 | 31100 | 19190 | 15590 | 60 | 18 | 1800 | 3800 | 58300 |
| | **71.1** | 48330 | 45840 | 38290 | 31100 | 19190 | 15590 | 60 | 18 | 1800 | 3800 | 58300 |
| | **77.3** | 46920 | 43390 | 38290 | 31100 | 19190 | 15590 | 60 | 18 | 1800 | 3800 | 58300 |
| | **89.3** | 48330 | 45840 | 38290 | 31100 | 19190 | 15590 | 60 | 18 | 1800 | 3800 | 58300 |
| | **104** | 48330 | 45840 | 38290 | 31100 | 19190 | 15590 | 60 | 18 | 1800 | 3800 | 58300 |
| | **115** | 46920 | 43390 | 38290 | 31100 | 19190 | 15590 | 60 | 18 | 1800 | 3800 | 58300 |
| | **126** | 48330 | 45840 | 38290 | 31100 | 19190 | 15590 | 60 | 18 | 1800 | 3800 | 58300 |
| | **133** | 46920 | 43390 | 38290 | 31100 | 19190 | 15590 | 60 | 18 | 1800 | 3800 | 58300 |
| | **147** | 45210 | 39550 | 35220 | 32000 | 19700 | 16000 | 59 | 18 | 1800 | 3800 | 58300 |
| | **161** | 46920 | 43390 | 38290 | 31100 | 19190 | 15590 | 56 | 18 | 1800 | 3800 | 58300 |
| | **171** | 45210 | 39550 | 35220 | 32000 | 19700 | 16000 | 52 | 18 | 1800 | 3800 | 58300 |
| | **191** | 35200 | 34500 | 34500 | 31100 | 19190 | 15590 | 38 | 18 | 1800 | 3800 | 58300 |
| | **203** | 43000 | 39550 | 35220 | 32000 | 19700 | 16000 | 44 | 18 | 1800 | 3800 | 58300 |

## 311 L — Page 280 — 48330Nm

| | i | Mn2[NM] | | | | | | P1 | PT | n 1 | n 1MAX | M2 max |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | n2.h | n2.h | n2.h | n2.h | n2.h | n2.h | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min-1] | [min-1] | [NM] |
| L3 | 203 | 43000 | 39550 | 35220 | 32000 | 19700 | 16000 | 44 | 18 | 1800 | 3800 | 58300 |
| | 245 | 43000 | 39550 | 35220 | 32000 | 19700 | 16000 | 36 | 18 | 1800 | 3800 | 58300 |
| | 291 | 34000 | 29500 | 27000 | 27000 | 18600 | 15100 | 24 | 18 | 1800 | 3800 | 58300 |
| L4 | 348 | 48330 | 45840 | 38290 | 31100 | 19190 | 15590 | 30 | 11 | 2000 | 4000 | 58300 |
| | 410 | 48330 | 45840 | 38290 | 31100 | 19190 | 15590 | 26 | 11 | 2000 | 4000 | 58300 |
| | 512 | 48330 | 45840 | 38290 | 31100 | 19190 | 15590 | 21 | 11 | 2000 | 4000 | 58300 |
| | 568 | 46920 | 43390 | 38290 | 31100 | 19190 | 15590 | 18.4 | 11 | 2000 | 4000 | 58300 |
| | 627 | 45210 | 39550 | 35220 | 32000 | 19700 | 16000 | 16.2 | 11 | 2000 | 4000 | 58300 |
| | 724 | 48330 | 45840 | 38290 | 31100 | 19190 | 15590 | 14.7 | 11 | 2000 | 4000 | 58300 |
| | 825 | 46920 | 43390 | 38290 | 31100 | 19190 | 15590 | 12.6 | 11 | 2000 | 4000 | 58300 |
| | 904 | 48330 | 45840 | 38290 | 31100 | 19190 | 15590 | 11.8 | 11 | 2000 | 4000 | 58300 |
| | 986 | 45210 | 39550 | 35220 | 32000 | 19700 | 16000 | 10.3 | 11 | 2000 | 4000 | 58300 |
| | 1058 | 45210 | 39550 | 35220 | 32000 | 19700 | 16000 | 9.6 | 11 | 2000 | 4000 | 58300 |
| | 1230 | 45210 | 39550 | 35220 | 32000 | 19700 | 16000 | 8.3 | 11 | 2000 | 4000 | 58300 |
| | 1415 | 43000 | 39550 | 35220 | 32000 | 19700 | 16000 | 7.2 | 11 | 2000 | 4000 | 58300 |
| | 1680 | 34000 | 29500 | 27000 | 27000 | 18600 | 15100 | 4.8 | 11 | 2000 | 4000 | 58300 |
| | 1766 | 43000 | 39550 | 35220 | 32000 | 19700 | 16000 | 5.8 | 11 | 2000 | 4000 | 58300 |
| | 2096 | 34000 | 29500 | 27000 | 27000 | 18600 | 15100 | 3.8 | 11 | 2000 | 4000 | 58300 |

## 313 L — Page 288 — 57970Nm

| | i | Mn2[NM] | | | | | | P1 | PT | n 1 | n 1MAX | M2 max |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | n2.h | n2.h | n2.h | n2.h | n2.h | n2.h | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min-1] | [min-1] | [NM] |
| L1 | 4.14 | 55410 | 55000 | 55000 | 46000 | 28400 | 23000 | 250 | 45 | 900 | 1200 | 105000 |
| | 5.4 | 57970 | 49730 | 45000 | 45000 | 27800 | 22600 | 250 | 45 | 900 | 1200 | 105000 |
| | 6.5 | 49000 | 42400 | 39000 | 39000 | 27800 | 22500 | 250 | 45 | 900 | 1200 | 105000 |
| L2 | 14.2 | 52000 | 52000 | 52000 | 46000 | 28400 | 23000 | 150 | 30 | 1500 | 2000 | 105000 |
| | 16.9 | 55410 | 55000 | 54000 | 45210 | 27900 | 22660 | 150 | 30 | 1500 | 2000 | 105000 |
| | 18.5 | 57970 | 49730 | 45000 | 45000 | 27800 | 22600 | 150 | 30 | 1500 | 2000 | 105000 |
| | 21.8 | 55410 | 55000 | 55000 | 45400 | 28000 | 22800 | 150 | 30 | 1500 | 2000 | 105000 |
| | 25.8 | 53000 | 52000 | 52000 | 45210 | 27900 | 22660 | 150 | 30 | 1500 | 2000 | 105000 |
| | 28.4 | 57970 | 49730 | 45000 | 45000 | 27800 | 22600 | 150 | 30 | 1500 | 2000 | 105000 |
| | 33.6 | 57970 | 49730 | 45000 | 45000 | 27800 | 22600 | 150 | 30 | 1500 | 2000 | 105000 |
| | 40.5 | 49000 | 42400 | 39000 | 39000 | 27700 | 22500 | 150 | 30 | 1500 | 2000 | 105000 |

| 313 L | Page 288 | 57970Nm |
|---|---|---|

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1\,MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **L3** | **51.1** | 52000 | 52000 | 49140 | 45210 | 27900 | 22660 | 60 | 18 | 1800 | 3800 | 105000 |
| | **61** | 55410 | 55000 | 52510 | 45210 | 27900 | 22660 | 60 | 18 | 1800 | 3800 | 105000 |
| | **72** | 55410 | 55000 | 52510 | 45210 | 27900 | 22660 | 60 | 18 | 1800 | 3800 | 105000 |
| | **78.3** | 55410 | 55000 | 55000 | 45400 | 28000 | 22800 | 60 | 18 | 1800 | 3800 | 105000 |
| | **92.4** | 55410 | 55000 | 55000 | 45400 | 28000 | 22800 | 60 | 18 | 1800 | 3800 | 105000 |
| | **110** | 53000 | 52000 | 52000 | 45210 | 27900 | 22660 | 60 | 18 | 1800 | 3800 | 105000 |
| | **120** | 57970 | 49730 | 45000 | 45000 | 27800 | 22600 | 60 | 18 | 1800 | 3800 | 105000 |
| | **135** | 55410 | 55000 | 55000 | 45400 | 28000 | 22800 | 60 | 18 | 1800 | 3800 | 105000 |
| | **143** | 57970 | 49730 | 45000 | 45000 | 27800 | 22600 | 60 | 18 | 1800 | 3800 | 105000 |
| | **151** | 57970 | 49730 | 45000 | 45000 | 27800 | 22600 | 60 | 18 | 1800 | 3800 | 105000 |
| | **163** | 55410 | 55000 | 52510 | 45210 | 27900 | 22660 | 60 | 18 | 1800 | 3800 | 105000 |
| | **176** | 57970 | 49730 | 45000 | 45000 | 27800 | 22600 | 60 | 18 | 1800 | 3800 | 105000 |
| | **182** | 49000 | 42400 | 39000 | 39000 | 27700 | 22500 | 56 | 18 | 1800 | 3800 | 105000 |
| | **194** | 53000 | 52000 | 52000 | 45210 | 27900 | 22660 | 57 | 18 | 1800 | 3800 | 105000 |
| | **209** | 57970 | 49730 | 45000 | 45000 | 27800 | 22600 | 54 | 18 | 1800 | 3800 | 105000 |
| | **252** | 57970 | 49730 | 45000 | 45000 | 27800 | 22600 | 45 | 18 | 1800 | 3800 | 105000 |
| | **304** | 49000 | 42400 | 39000 | 39000 | 27700 | 22500 | 33 | 18 | 1800 | 3800 | 105000 |
| **L4** | **352** | 55410 | 52510 | 52510 | 45210 | 27900 | 22660 | 30 | 11 | 2000 | 4000 | 105000 |
| | **394** | 55410 | 55000 | 55000 | 45400 | 28000 | 22800 | 30 | 11 | 2000 | 4000 | 105000 |
| | **452** | 55410 | 55000 | 52510 | 45210 | 27900 | 22660 | 29 | 11 | 2000 | 4000 | 105000 |
| | **514** | 57970 | 49730 | 45000 | 45000 | 27800 | 22600 | 25 | 11 | 2000 | 4000 | 105000 |
| | **564** | 55410 | 55000 | 52510 | 45210 | 27900 | 22660 | 23 | 11 | 2000 | 4000 | 105000 |
| | **633** | 52800 | 52000 | 52000 | 45210 | 27900 | 22660 | 19.7 | 11 | 2000 | 4000 | 105000 |
| | **695** | 57970 | 49730 | 45000 | 45000 | 27800 | 22600 | 18.7 | 11 | 2000 | 4000 | 105000 |
| **L4** | **790** | 52800 | 52000 | 52000 | 45210 | 27900 | 22660 | 15.8 | 11 | 2000 | 4000 | 105000 |
| | **889** | 57970 | 49730 | 45000 | 45000 | 27800 | 22600 | 14.6 | 11 | 2000 | 4000 | 105000 |
| | **1014** | 57970 | 49730 | 45000 | 45000 | 27800 | 22600 | 12.8 | 11 | 2000 | 4000 | 105000 |
| | **1117** | 52800 | 52000 | 52000 | 45210 | 27900 | 22660 | 11.2 | 11 | 2000 | 4000 | 105000 |
| | **1266** | 57970 | 49730 | 45000 | 45000 | 27800 | 22600 | 10.3 | 11 | 2000 | 4000 | 105000 |
| | **1394** | 52800 | 52000 | 52000 | 45210 | 27900 | 22660 | 9 | 11 | 2000 | 4000 | 105000 |
| | **1502** | 57970 | 49730 | 45000 | 45000 | 27800 | 22600 | 8.7 | 11 | 2000 | 4000 | 105000 |
| | **1817** | 57970 | 49730 | 45000 | 45000 | 27800 | 22600 | 7.2 | 11 | 2000 | 4000 | 105000 |
| | **2187** | 49000 | 42400 | 39000 | 39000 | 27700 | 22500 | 5.3 | 11 | 2000 | 4000 | 105000 |

| 315 L | Page 296 | 105000Nm |
|---|---|---|

| | i | Mn2[NM] | | | | | | P1 | PT | n 1 | n 1MAX | M2 max |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | n2.h | n2.h | n2.h | n2.h | n2.h | n2.h | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min-1] | [min-1] | [NM] |
| L1 | 4.25 | 105000 | 100000 | 97000 | 85000 | 53000 | 42800 | 260 | 60 | 500 | 800 | 135000 |
| | 5.33 | 99000 | 87000 | 81830 | 78000 | 49000 | 39700 | 260 | 60 | 500 | 800 | 135000 |
| | 6.2 | 83490 | 71770 | 65000 | 65000 | 41000 | 33300 | 260 | 60 | 500 | 800 | 135000 |
| L2 | 17.4 | 105000 | 100000 | 97000 | 79000 | 48700 | 39600 | 200 | 45 | 1500 | 1800 | 135000 |
| | 22.3 | 105000 | 100000 | 97000 | 83000 | 51000 | 41700 | 200 | 45 | 1500 | 1800 | 135000 |
| | 26.5 | 105000 | 100000 | 97000 | 78000 | 48400 | 39400 | 200 | 45 | 1500 | 1800 | 135000 |
| | 28 | 99000 | 87000 | 81830 | 78000 | 48800 | 39700 | 200 | 45 | 1500 | 1800 | 135000 |
| | 33.2 | 99000 | 87000 | 81830 | 78000 | 48800 | 39700 | 200 | 45 | 1500 | 1800 | 135000 |
| | 38.6 | 83490 | 71770 | 65000 | 65000 | 41000 | 33300 | 200 | 45 | 1500 | 1800 | 135000 |
| L3 | 59.6 | 105000 | 100000 | 97000 | 79000 | 48700 | 39600 | 115 | 30 | 1500 | 2500 | 135000 |
| | 71.1 | 105000 | 100000 | 97000 | 79000 | 48700 | 39600 | 115 | 30 | 1500 | 2500 | 135000 |
| | 91.3 | 105000 | 100000 | 97000 | 79000 | 48700 | 39600 | 115 | 30 | 1500 | 2500 | 135000 |
| | 108 | 105000 | 100000 | 97000 | 79000 | 48700 | 39600 | 115 | 30 | 1500 | 2500 | 135000 |
| | 139 | 105000 | 100000 | 97000 | 83000 | 51000 | 41700 | 115 | 30 | 1500 | 2500 | 135000 |
| | 165 | 105000 | 100000 | 97000 | 78000 | 48400 | 39400 | 110 | 30 | 1500 | 2500 | 135000 |
| | 174 | 99000 | 87000 | 81830 | 78000 | 48800 | 39700 | 98 | 30 | 1500 | 2500 | 135000 |
| | 207 | 99000 | 87000 | 81830 | 78000 | 48800 | 39700 | 82 | 30 | 1500 | 2500 | 135000 |
| | 241 | 83490 | 71770 | 65000 | 65000 | 41000 | 33300 | 57 | 30 | 1500 | 2500 | 135000 |
| L4 | 302 | 105000 | 100000 | 97000 | 79000 | 48700 | 39600 | 60 | 18 | 1800 | 3800 | 135000 |
| | 370 | 105000 | 100000 | 97000 | 79000 | 48700 | 39600 | 60 | 18 | 1800 | 3800 | 135000 |
| | 441 | 105000 | 100000 | 97000 | 79000 | 48700 | 39600 | 51 | 18 | 1800 | 3800 | 135000 |
| | 487 | 105000 | 100000 | 97000 | 79000 | 48700 | 39600 | 46 | 18 | 1800 | 3800 | 135000 |
| | 533 | 105000 | 100000 | 97000 | 79000 | 48700 | 39600 | 42 | 18 | 1800 | 3800 | 135000 |
| | 591 | 105000 | 100000 | 97000 | 83000 | 51000 | 41700 | 38 | 18 | 1800 | 3800 | 135000 |
| | 672 | 105000 | 100000 | 97000 | 79000 | 48700 | 39600 | 33 | 18 | 1800 | 3800 | 135000 |
| | 741 | 105000 | 100000 | 97000 | 83000 | 51000 | 41700 | 30 | 18 | 1800 | 3800 | 135000 |
| | 862 | 105000 | 100000 | 97000 | 83000 | 51000 | 41700 | 26 | 18 | 1800 | 3800 | 135000 |
| | 930 | 99000 | 87000 | 81830 | 78000 | 48800 | 39700 | 23 | 18 | 1800 | 3800 | 135000 |
| | 1043 | 105000 | 100000 | 97000 | 83000 | 51000 | 41700 | 21 | 18 | 1800 | 3800 | 135000 |
| | 1104 | 99000 | 87000 | 81830 | 78000 | 48800 | 39700 | 19.1 | 18 | 1800 | 3800 | 135000 |
| | 1284 | 99000 | 87000 | 81830 | 78000 | 48800 | 39700 | 16.4 | 18 | 1800 | 3800 | 135000 |
| | 1492 | 83490 | 71770 | 65000 | 65000 | 41000 | 33300 | 11.4 | 18 | 1800 | 3800 | 135000 |
| L4 | 1805 | 83490 | 71770 | 65000 | 65000 | 41000 | 33300 | 9.4 | 18 | 1800 | 3800 | 135000 |

| 316L | Page 304 | 138820Nm |
|---|---|---|

| | i | Mn2[NM] | | | | | | P1 | PT | n 1 | n1 MAX | M2 max |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | n2.h | n2.h | n2.h | n2.h | n2.h | n2.h | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min-1] | [min-1] | [NM] |
| L1 | 4.25 | 138820 | 130420 | 113000 | 100000 | 66000 | 54000 | 280 | 68 | 350 | 500 | 192000 |
| L2 | 17.4 | 138820 | 126000 | 103000 | 83700 | 51600 | 42000 | 200 | 50 | 1500 | 1800 | 192000 |
| | 22.3 | 138820 | 126000 | 107000 | 85300 | 53300 | 42700 | 200 | 50 | 1500 | 1800 | 192000 |
| | 26.5 | 124000 | 115000 | 98650 | 80130 | 49440 | 40500 | 200 | 50 | 1500 | 1800 | 192000 |
| L3 | 59.6 | 138820 | 126000 | 103000 | 83700 | 51600 | 42000 | 115 | 35 | 1500 | 2500 | 192000 |
| | 71.1 | 138820 | 126000 | 103000 | 83700 | 51600 | 42000 | 115 | 35 | 1500 | 2500 | 192000 |
| | 76.5 | 138820 | 126000 | 107000 | 85300 | 53300 | 42700 | 115 | 35 | 1500 | 2500 | 192000 |
| | 91.3 | 138820 | 126000 | 103000 | 83700 | 51600 | 42000 | 115 | 35 | 1500 | 2500 | 192000 |
| | 108 | 138820 | 125920 | 103000 | 83700 | 51600 | 42000 | 115 | 35 | 1500 | 2500 | 192000 |
| | 117 | 138820 | 126000 | 107000 | 85300 | 53300 | 42700 | 115 | 35 | 1500 | 2500 | 192000 |
| | 139 | 138820 | 122980 | 103000 | 83700 | 51600 | 42000 | 115 | 35 | 1500 | 2500 | 192000 |
| | 165 | 124000 | 115000 | 98650 | 80130 | 49440 | 40500 | 115 | 35 | 1500 | 2500 | 192000 |
| L4 | 215 | 138820 | 126000 | 103000 | 83700 | 51600 | 42000 | 60 | 18 | 1800 | 3800 | 192000 |
| | 256 | 138820 | 126000 | 103000 | 83700 | 51600 | 42000 | 60 | 18 | 1800 | 3800 | 192000 |
| | 302 | 138820 | 126000 | 103000 | 83700 | 51600 | 42000 | 60 | 18 | 1800 | 3800 | 192000 |
| | 329 | 138820 | 126000 | 103000 | 83700 | 51600 | 42000 | 60 | 18 | 1800 | 3800 | 192000 |
| L4 | 370 | 138820 | 126000 | 103000 | 83700 | 51600 | 42000 | 60 | 18 | 1800 | 3800 | 192000 |
| | 441 | 138820 | 126000 | 103000 | 83700 | 51600 | 42000 | 60 | 18 | 1800 | 3800 | 192000 |
| | 487 | 138820 | 126000 | 103000 | 83700 | 51600 | 42000 | 59 | 18 | 1800 | 3800 | 192000 |
| | 533 | 138820 | 126000 | 103000 | 83700 | 51600 | 42000 | 54 | 18 | 1800 | 3800 | 192000 |
| | 566 | 138820 | 126000 | 103000 | 83700 | 51600 | 42000 | 51 | 18 | 1800 | 3800 | 192000 |
| | 591 | 138820 | 122980 | 103000 | 83700 | 51600 | 42000 | 48 | 18 | 1800 | 3800 | 192000 |
| | 625 | 138820 | 126000 | 107000 | 85300 | 53300 | 42700 | 46 | 18 | 1800 | 3800 | 192000 |
| | 685 | 138820 | 126000 | 103000 | 83700 | 51600 | 42000 | 42 | 18 | 1800 | 3800 | 192000 |
| | 726 | 138820 | 126000 | 107000 | 85300 | 53300 | 42700 | 40 | 18 | 1800 | 3800 | 192000 |
| | 741 | 138820 | 122980 | 103000 | 83700 | 51600 | 42000 | 38 | 18 | 1800 | 3800 | 192000 |
| | 812 | 138820 | 125920 | 103000 | 83700 | 51600 | 42000 | 35 | 18 | 1800 | 3800 | 192000 |
| | 862 | 138820 | 122980 | 103000 | 83700 | 51600 | 42000 | 33 | 18 | 1800 | 3800 | 192000 |
| | 1043 | 138820 | 122980 | 103000 | 83700 | 51600 | 42000 | 27 | 18 | 1800 | 3800 | 192000 |
| | 1237 | 124000 | 115000 | 98650 | 80130 | 49440 | 40500 | 21 | 18 | 1800 | 3800 | 192000 |

| 317L | Page 310 | 208110Nm |
|---|---|---|

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1\,MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **L1** | **4.09** | 208110 | 196530 | 166000 | 135000 | 83000 | 67240 | 300 | 85 | 200 | 300 | 393000 |
| | **5.25** | 187860 | 172400 | 154050 | 131030 | 80850 | 65670 | 300 | 85 | 200 | 300 | 393000 |
| | **6.23** | 156150 | 134380 | 119950 | 118770 | 79850 | 64860 | 300 | 85 | 200 | 300 | 393000 |
| **L2** | **16.9** | 207080 | 180000 | 147000 | 120000 | 74000 | 60000 | 250 | 55 | 900 | 1200 | 393000 |
| | **22.1** | 184310 | 177000 | 144000 | 117000 | 72000 | 59000 | 250 | 55 | 900 | 1200 | 393000 |
| | **26.6** | 155000 | 155000 | 144000 | 117000 | 72000 | 59000 | 250 | 55 | 900 | 1200 | 393000 |
| | **28.4** | 187860 | 172400 | 154050 | 131030 | 80850 | 65670 | 250 | 55 | 900 | 1200 | 393000 |
| | **34.1** | 170000 | 163960 | 154050 | 131030 | 80850 | 65670 | 250 | 55 | 900 | 1200 | 393000 |
| | **40.5** | 156150 | 134380 | 119950 | 118770 | 79850 | 64860 | 250 | 55 | 900 | 1200 | 393000 |
| **L3** | **58.1** | 207080 | 180000 | 147000 | 120000 | 74000 | 60000 | 150 | 35 | 1500 | 2000 | 393000 |
| | **69.3** | 207080 | 178190 | 144740 | 117560 | 72540 | 58920 | 150 | 35 | 1500 | 2000 | 393000 |
| | **89** | 207080 | 179000 | 145000 | 118000 | 73000 | 59000 | 150 | 35 | 1500 | 2000 | 393000 |
| | **106** | 207080 | 178190 | 144740 | 117560 | 72540 | 58920 | 150 | 35 | 1500 | 2000 | 393000 |
| | **116** | 184310 | 177000 | 144000 | 117000 | 72000 | 59000 | 150 | 35 | 1500 | 2000 | 393000 |
| | **138** | 184310 | 177000 | 144000 | 117000 | 72000 | 59000 | 150 | 35 | 1500 | 2000 | 393000 |
| | **166** | 155000 | 155000 | 144000 | 117000 | 72000 | 59000 | 150 | 35 | 1500 | 2000 | 393000 |
| | **179** | 170000 | 163960 | 154050 | 131030 | 80850 | 65670 | 150 | 35 | 1500 | 2000 | 393000 |
| | **213** | 170000 | 163960 | 154050 | 131030 | 80850 | 65670 | 138 | 35 | 1500 | 2000 | 393000 |
| | **252** | 156150 | 134380 | 119950 | 118770 | 79850 | 64860 | 99 | 35 | 1500 | 2000 | 393000 |
| **L4** | **310** | 207080 | 178190 | 144740 | 117560 | 72540 | 58920 | 60 | 18 | 1800 | 3800 | 393000 |
| | **360** | 207080 | 178190 | 144740 | 117560 | 72540 | 58920 | 60 | 18 | 1800 | 3800 | 393000 |
| | **449** | 207080 | 178190 | 144740 | 117560 | 72540 | 58920 | 60 | 18 | 1800 | 3800 | 393000 |
| | **493** | 184310 | 177000 | 144000 | 117000 | 72000 | 59000 | 60 | 18 | 1800 | 3800 | 393000 |
| | **552** | 207080 | 179000 | 145000 | 118000 | 73000 | 59000 | 60 | 18 | 1800 | 3800 | 393000 |
| | **619** | 184310 | 177000 | 144000 | 117000 | 72000 | 59000 | 60 | 18 | 1800 | 3800 | 393000 |
| | **719** | 184310 | 177000 | 144000 | 117000 | 72000 | 59000 | 53 | 18 | 1800 | 3800 | 393000 |
| | **792** | 207080 | 178190 | 144740 | 117560 | 72540 | 58920 | 48 | 18 | 1800 | 3800 | 393000 |
| | **904** | 170000 | 163960 | 154050 | 131030 | 80850 | 65670 | 40 | 18 | 1800 | 3800 | 393000 |
| | **1032** | 184310 | 177000 | 144000 | 117000 | 72000 | 59000 | 37 | 18 | 1800 | 3800 | 393000 |
| | **1134** | 170000 | 163960 | 154050 | 131030 | 80850 | 65670 | 32 | 18 | 1800 | 3800 | 393000 |
| | **1318** | 170000 | 163960 | 154050 | 131030 | 80850 | 65670 | 27 | 18 | 1800 | 3800 | 393000 |
| | **1595** | 170000 | 163960 | 154050 | 131030 | 80850 | 65670 | 23 | 18 | 1800 | 3800 | 393000 |
| | **1893** | 156150 | 134380 | 119950 | 118770 | 79850 | 64860 | 16.3 | 18 | 1800 | 3800 | 393000 |

## 318L | Page 316 | 280580Nm

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1\,MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **L1** | **4.4** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 340 | 95 | 200 | 300 | 500000 |
| **L2** | **18.7** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 260 | 63 | 500 | 800 | 500000 |
| | **23.5** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 260 | 63 | 500 | 800 | 500000 |
| | **27.3** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 260 | 63 | 500 | 800 | 500000 |
| **L3** | **76.5** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 200 | 40 | 1500 | 1800 | 500000 |
| | **98.2** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 200 | 40 | 1500 | 1800 | 500000 |
| | **117** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 200 | 40 | 1500 | 1800 | 500000 |
| | **123** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 200 | 40 | 1500 | 1800 | 500000 |
| | **146** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 200 | 40 | 1500 | 1800 | 500000 |
| | **170** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 200 | 40 | 1500 | 1800 | 500000 |
| **L4** | **262** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 115 | 22 | 1500 | 2500 | 500000 |
| | **313** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 115 | 22 | 1500 | 2500 | 500000 |
| | **337** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 115 | 22 | 1500 | 2500 | 500000 |
| | **402** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 110 | 22 | 1500 | 2500 | 500000 |
| | **422** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 105 | 22 | 1500 | 2500 | 500000 |
| | **477** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 93 | 22 | 1500 | 2500 | 500000 |
| | **515** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 86 | 22 | 1500 | 2500 | 500000 |
| | **612** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 73 | 22 | 1500 | 2500 | 500000 |
| | **647** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 69 | 22 | 1500 | 2500 | 500000 |
| | **726** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 61 | 22 | 1500 | 2500 | 500000 |
| | **768** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 58 | 22 | 1500 | 2500 | 500000 |
| | **911** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 49 | 22 | 1500 | 2500 | 500000 |
| | **1059** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 41 | 22 | 1500 | 2500 | 500000 |

## 319L | Page 322 | 476410Nm

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **L1** | **4.88** | 476410 | 383900 | 311830 | 253280 | 156280 | 126940 | 380 | 115 | 200 | 300 | 680000 |
| | **5.77** | 367580 | 317550 | 284270 | 249240 | 153790 | 124910 | 380 | 115 | 200 | 300 | 680000 |
| **L2** | **20.7** | 403720 | 348000 | 308000 | 250000 | 154000 | 125000 | 260 | 70 | 500 | 800 | 680000 |
| | **24.5** | 367580 | 317550 | 280280 | 248000 | 153000 | 124000 | 260 | 70 | 500 | 800 | 680000 |

## 319L | Page 322 | 476410Nm

| | i | Mn2[NM] | | | | | | P1 | PT | n 1 | n1 MAX | M2 max |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | n2.h | n2.h | n2.h | n2.h | n2.h | n2.h | | | | | |
| | 1: | 10000 | 25000 | 50000 | 10000 | 500000 | 1000000 | [KW] | [KW] | [min-1] | [min-1] | [NM] |
| **L2** | **27.3** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 260 | 63 | 500 | 800 | 500000 |
| **L3** | **76.5** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 200 | 40 | 1500 | 1800 | 500000 |
| | **98.2** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 200 | 40 | 1500 | 1800 | 500000 |
| | **117** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 200 | 40 | 1500 | 1800 | 500000 |
| | **123** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 200 | 40 | 1500 | 1800 | 500000 |
| | **146** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 200 | 40 | 1500 | 1800 | 500000 |
| | **170** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 200 | 40 | 1500 | 1800 | 500000 |
| **L4** | **262** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 115 | 22 | 1500 | 2500 | 500000 |
| | **313** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 115 | 22 | 1500 | 2500 | 500000 |
| | **337** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 115 | 22 | 1500 | 2500 | 500000 |
| | **402** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 110 | 22 | 1500 | 2500 | 500000 |
| | **422** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 105 | 22 | 1500 | 2500 | 500000 |
| | **477** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 93 | 22 | 1500 | 2500 | 500000 |
| | **515** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 86 | 22 | 1500 | 2500 | 500000 |
| | **612** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 73 | 22 | 1500 | 2500 | 500000 |
| | **647** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 69 | 22 | 1500 | 2500 | 500000 |
| | **726** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 61 | 22 | 1500 | 2500 | 500000 |
| | **768** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 58 | 22 | 1500 | 2500 | 500000 |
| | **911** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 49 | 22 | 1500 | 2500 | 500000 |
| | **1059** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 41 | 22 | 1500 | 2500 | 500000 |

## 321L | Page 328 | 6557040Nm

| | i | Mn2[NM] | | | | | | P1 | PT | n 1 | n 1MAX | M2 max |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | n2.h | n2.h | n2.h | n2.h | n2.h | n2.h | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min-1] | [min-1] | [NM] |
| **L1** | **4.44** | 655740 | 517290 | 420170 | 341290 | 210580 | 171050 | 540 | 115 | 200 | 300 | 934000 |
| **L2** | **18.2** | 655740 | 517290 | 420170 | 341290 | 210580 | 171050 | 300 | 95 | 200 | 300 | 934000 |
| | **23.3** | 655740 | 517290 | 420170 | 341290 | 210580 | 172000 | 300 | 95 | 200 | 300 | 934000 |
| | **27.7** | 536350 | 517290 | 420170 | 341290 | 210580 | 171050 | 300 | 95 | 200 | 300 | 934000 |
| **L3** | **75.3** | 655740 | 517290 | 420170 | 341290 | 210580 | 171050 | 250 | 60 | 1000 | 1200 | 934000 |
| | **98.2** | 655740 | 517290 | 420170 | 341290 | 210580 | 171050 | 250 | 60 | 1000 | 1200 | 934000 |
| | **118** | 655740 | 517290 | 420170 | 341290 | 210580 | 171050 | 250 | 60 | 1000 | 1200 | 934000 |
| | **126** | 655740 | 517290 | 420170 | 341290 | 210580 | 172000 | 250 | 60 | 1000 | 1200 | 934000 |
| | **152** | 655740 | 517290 | 420170 | 341290 | 210580 | 172000 | 250 | 60 | 1000 | 1200 | 934000 |

| 321L | Page 328 | 6557040Nm |
|---|---|---|

| | i | Mn2[NM] | | | | | | P1 | PT | n 1 | n 1MAX | M2 max |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | n2.h | n2.h | n2.h | n2.h | n2.h | n2.h | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min-1] | [min-1] | [NM] |
| **L3** | **180** | 536350 | 517290 | 420170 | 341290 | 210580 | 171050 | 250 | 60 | 1000 | 1200 | 934000 |
| **L4** | **258** | 655740 | 517290 | 420170 | 341290 | 210580 | 171050 | 150 | 35 | 1500 | 2000 | 934000 |
| | **308** | 655740 | 517290 | 420170 | 341290 | 210580 | 171050 | 150 | 35 | 1500 | 2000 | 934000 |
| | **395** | 655740 | 517290 | 420170 | 341290 | 210580 | 171050 | 150 | 35 | 1500 | 2000 | 934000 |
| | **469** | 655740 | 517290 | 420170 | 341290 | 210580 | 171050 | 150 | 35 | 1500 | 2000 | 934000 |
| | **515** | 655740 | 517290 | 420170 | 341290 | 210580 | 171050 | 150 | 35 | 1500 | 2000 | 934000 |
| | **612** | 655740 | 517290 | 420170 | 341290 | 210580 | 171050 | 150 | 35 | 1500 | 2000 | 934000 |
| | **736** | 655740 | 517290 | 420170 | 341290 | 210580 | 171050 | 130 | 35 | 1500 | 2000 | 934000 |
| | **796** | 655740 | 517290 | 420170 | 341290 | 210580 | 172000 | 120 | 35 | 1500 | 2000 | 934000 |
| | **945** | 655740 | 517290 | 420170 | 341290 | 210580 | 172000 | 101 | 35 | 1500 | 2000 | 934000 |
| | **1122** | 536350 | 517290 | 420170 | 341290 | 210580 | 171050 | 79 | 35 | 1500 | 2000 | 934000 |

## RATING CHARTS FOR RIGHT-ANGLE UNITS 3_ _R

## نمودار طبقه بندی شده برای واحدهای داخلی گیربکس 300-R

| 300 R | Page 221 | 1250 Nm |
|---|---|---|

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 10000 | 10000 | 10000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| R2 | **7.13** | 760 | 730 | 730 | 730 | 730 | 730 | 15 | 12 | 2000 | 4000 | 2000 |
| | **8.74** | 1250 | 1070 | 950 | 860 | 840 | 720 | 15 | 12 | 2000 | 4000 | 2400 |
| | **11.8** | 860 | 730 | 650 | 650 | 650 | 630 | 12.2 | 12 | 2000 | 4000 | 2400 |
| | **14.8** | 700 | 600 | 550 | 550 | 550 | 510 | 8.3 | 12 | 2000 | 4000 | 2400 |
| | **18.5** | 460 | 390 | 370 | 370 | 370 | 370 | 4.5 | 12 | 2000 | 4000 | 2400 |

1.Reference torque
2. Number of reduction stages (in-line gear unit)
3. Gear ratio
4. Gearbox rated output torque based on:
- service factor fs=1
- n2·h indicated
5. Maximum power transmitted to input shaft
6. Gearbox thermal capacity
7. Input angular velocity
8. Maximum input angular velocity
9. Maximum output torque at gearbox
10. Page where dimensions can be sorted from

۱. گشتاور مرجع
۲. تعداد استیج
۳. نسبت دنده
۴. گشتاور خروجی گیربکس براساس فاکتورخدمات fs=1 و سرعت در ساعت
۵. حداکثر توان منتقل شده به شافت ورودی
۶. ظرفیت حرارتی گیربکس
۷. سرعت زاویه ای ورودی
۸. حداکثر سرعت زاویه ای ورودی
۹. حداکثرگشتاور
۱۰. شماره صفحه ابعاد گیربکس

| 300 R | Page 221 | 1250 Nm |
|---|---|---|

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **R2** | **7.13** | 760 | 730 | 730 | 730 | 730 | 730 | 15 | 12 | 2000 | 4000 | 2000 |
| | **8.74** | 1250 | 1070 | 950 | 860 | 840 | 720 | 15 | 12 | 2000 | 4000 | 2400 |
| | **11.8** | 860 | 730 | 650 | 650 | 650 | 630 | 12.2 | 12 | 2000 | 4000 | 2400 |
| | **14.8** | 700 | 600 | 550 | 550 | 550 | 510 | 8.3 | 12 | 2000 | 4000 | 2400 |
| | **18.5** | 460 | 390 | 370 | 370 | 370 | 370 | 4.5 | 12 | 2000 | 4000 | 2400 |
| **R3** | **24.8** | 760 | 730 | 730 | 730 | 730 | 730 | 6.2 | 12 | 2000 | 4000 | 2000 |
| | **30.4** | 1250 | 1070 | 950 | 860 | 840 | 720 | 6.6 | 12 | 2000 | 4000 | 2400 |
| | **37.3** | 1250 | 1070 | 950 | 860 | 840 | 720 | 5.5 | 12 | 2000 | 4000 | 2400 |
| | **41.2** | 860 | 730 | 650 | 650 | 650 | 630 | 3.6 | 12 | 2000 | 4000 | 2400 |
| | **50.4** | 1250 | 1070 | 950 | 860 | 840 | 720 | 4.3 | 12 | 2000 | 4000 | 2400 |
| | **62.9** | 1250 | 1070 | 950 | 860 | 840 | 720 | 3.5 | 12 | 2000 | 4000 | 2400 |
| | **68.2** | 860 | 730 | 650 | 650 | 650 | 630 | 2.4 | 12 | 2000 | 4000 | 2400 |
| | **78.7** | 1250 | 1070 | 950 | 860 | 840 | 720 | 2.9 | 12 | 2000 | 4000 | 2400 |
| | **85.2** | 860 | 730 | 650 | 650 | 650 | 630 | 2 | 12 | 2000 | 4000 | 2400 |
| | **106** | 860 | 730 | 650 | 650 | 650 | 630 | 1.7 | 12 | 2000 | 4000 | 2400 |
| | **133** | 700 | 600 | 550 | 550 | 550 | 510 | 1.2 | 12 | 2000 | 4000 | 2400 |
| **R4** | **106** | 1250 | 1070 | 950 | 860 | 840 | 720 | 2.2 | 10 | 2000 | 4000 | 2400 |
| | **130** | 1250 | 1070 | 950 | 860 | 840 | 720 | 1.8 | 10 | 2000 | 4000 | 2400 |
| | **143** | 860 | 730 | 650 | 650 | 650 | 630 | 1.4 | 10 | 2000 | 4000 | 2400 |
| | **159** | 1250 | 1070 | 950 | 860 | 840 | 720 | 1.5 | 10 | 2000 | 4000 | 2400 |
| | **175** | 1250 | 1070 | 950 | 860 | 840 | 720 | 1.3 | 10 | 2000 | 4000 | 2400 |
| | **215** | 1250 | 1070 | 950 | 860 | 840 | 720 | 1.1 | 10 | 2000 | 4000 | 2400 |
| | **237** | 860 | 730 | 650 | 650 | 650 | 630 | 0.86 | 10 | 2000 | 4000 | 2400 |
| | **268** | 1250 | 1070 | 950 | 860 | 840 | 720 | 0.88 | 10 | 2000 | 4000 | 2400 |
| | **291** | 1250 | 1070 | 950 | 860 | 840 | 720 | 0.81 | 10 | 2000 | 4000 | 2400 |
| | **363** | 1250 | 1070 | 950 | 860 | 840 | 720 | 0.65 | 10 | 2000 | 4000 | 2400 |
| | **394** | 860 | 730 | 650 | 650 | 650 | 630 | 0.52 | 10 | 2000 | 4000 | 2400 |
| | **453** | 1250 | 1070 | 950 | 860 | 840 | 720 | 0.52 | 10 | 2000 | 4000 | 2400 |
| | **491** | 860 | 730 | 650 | 650 | 650 | 630 | 0.41 | 10 | 2000 | 4000 | 2400 |
| | **613** | 860 | 730 | 650 | 650 | 650 | 630 | 0.33 | 10 | 2000 | 4000 | 2400 |
| | **766** | 860 | 730 | 650 | 650 | 650 | 630 | 0.27 | 10 | 2000 | 4000 | 2400 |

| 301 R | Page 227 | 2060 Nm |
|---|---|---|

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1\,MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **R2** | **7.13** | 1490 | 1430 | 1430 | 1430 | 1430 | 1300 | 15 | 12 | 2000 | 4000 | 3200 |
| | **8.74** | 2060 | 2060 | 1890 | 1730 | 1580 | 1280 | 15 | 12 | 2000 | 4000 | 3200 |
| | **11.8** | 1720 | 1460 | 1300 | 1300 | 1300 | 1240 | 15 | 12 | 2000 | 4000 | 3200 |
| | **14.8** | 1150 | 1150 | 1150 | 1150 | 1150 | 940 | 15 | 12 | 2000 | 4000 | 3200 |
| | **18.5** | 920 | 780 | 740 | 740 | 740 | 740 | 8 | 12 | 2000 | 4000 | 3200 |
| **R3** | **24.8** | 1490 | 1430 | 1430 | 1430 | 1430 | 1300 | 12.4 | 12 | 2000 | 4000 | 3400 |
| | **30.4** | 2460 | 2140 | 1900 | 1730 | 1580 | 1280 | 13.1 | 12 | 2000 | 4000 | 3400 |
| | **37.3** | 2460 | 2140 | 1900 | 1730 | 1580 | 1280 | 10.8 | 12 | 2000 | 4000 | 3400 |
| | **41.2** | 1720 | 1460 | 1300 | 1300 | 1300 | 1240 | 7.3 | 12 | 2000 | 4000 | 3400 |
| | **50.4** | 2460 | 2140 | 1900 | 1730 | 1580 | 1280 | 8.4 | 12 | 2000 | 4000 | 3400 |
| | **62.9** | 2000 | 2000 | 1830 | 1730 | 1580 | 1280 | 7 | 12 | 2000 | 4000 | 3400 |
| | **68.2** | 1720 | 1460 | 1300 | 1300 | 1300 | 1240 | 4.8 | 12 | 2000 | 4000 | 3400 |
| | **78.7** | 1600 | 1600 | 1600 | 1600 | 1530 | 1280 | 5.8 | 12 | 2000 | 4000 | 3400 |
| | **85.2** | 1720 | 1460 | 1300 | 1300 | 1300 | 1240 | 4 | 12 | 2000 | 4000 | 3400 |
| | **106** | 1720 | 1460 | 1300 | 1300 | 1300 | 1240 | 3.3 | 12 | 2000 | 4000 | 3400 |
| | **133** | 1150 | 1150 | 1150 | 1150 | 1150 | 940 | 2 | 12 | 2000 | 4000 | 3400 |
| **R4** | **106** | 2460 | 2140 | 1900 | 1730 | 1580 | 1280 | 4.5 | 10 | 2000 | 4000 | 3400 |
| | **130** | 2460 | 2140 | 1900 | 1730 | 1580 | 1280 | 3.6 | 10 | 2000 | 4000 | 3400 |
| | **143** | 1720 | 1460 | 1300 | 1300 | 1300 | 1240 | 2.7 | 10 | 2000 | 4000 | 3400 |
| | **159** | 2460 | 2140 | 1900 | 1730 | 1580 | 1280 | 3 | 10 | 2000 | 4000 | 3400 |
| **R4** | **175** | 2460 | 2140 | 1900 | 1730 | 1580 | 1280 | 2.7 | 10 | 2000 | 4000 | 3400 |
| | **215** | 2460 | 2140 | 1900 | 1730 | 1580 | 1280 | 2.2 | 10 | 2000 | 4000 | 3400 |
| | **237** | 1720 | 1460 | 1300 | 1300 | 1300 | 1240 | 1.7 | 10 | 2000 | 4000 | 3400 |
| | **268** | 2460 | 2140 | 1900 | 1730 | 1580 | 1280 | 1.8 | 10 | 2000 | 4000 | 3400 |
| | **291** | 2460 | 2140 | 1900 | 1730 | 1580 | 1280 | 1.6 | 10 | 2000 | 4000 | 3400 |
| | **363** | 2460 | 2140 | 1900 | 1730 | 1580 | 1280 | 1.3 | 10 | 2000 | 4000 | 3400 |
| | **394** | 1720 | 1460 | 1300 | 1300 | 1300 | 1240 | 1 | 10 | 2000 | 4000 | 3400 |
| | **453** | 2000 | 2000 | 1830 | 1730 | 1580 | 1280 | 1 | 10 | 2000 | 4000 | 3400 |
| | **491** | 1720 | 1460 | 1300 | 1300 | 1300 | 1240 | 0.82 | 10 | 2000 | 4000 | 3400 |
| | **613** | 1720 | 1460 | 1300 | 1300 | 1300 | 1240 | 0.66 | 10 | 2000 | 4000 | 3400 |
| | **766** | 1720 | 1460 | 1300 | 1300 | 1300 | 1240 | 0.52 | 10 | 2000 | 4000 | 3400 |

| 303 R | Page 233 | 2060 Nm |
|---|---|---|

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1\,MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **R2** | **9.23** | 2410 | 2310 | 2310 | 2310 | 2310 | 1940 | 35 | 18 | 1800 | 3800 | 5200 |
| | **10.9** | 2970 | 2810 | 2810 | 2650 | 2570 | 2090 | 35 | 18 | 1800 | 3800 | 5200 |
| | **13.7** | 2850 | 2520 | 2230 | 2200 | 2140 | 2030 | 32 | 18 | 1800 | 3800 | 5200 |
| | **15.9** | 2440 | 2080 | 1840 | 1820 | 1820 | 1820 | 23 | 18 | 1800 | 3800 | 5200 |
| | **19.2** | 2000 | 1750 | 1650 | 1650 | 1650 | 1500 | 17.2 | 18 | 1800 | 3800 | 5200 |
| | **24.8** | 1050 | 900 | 860 | 860 | 860 | 860 | 7 | 18 | 1800 | 3800 | 5200 |
| **R3** | **25.7** | 2410 | 2310 | 2310 | 2310 | 2130 | 1730 | 15 | 14 | 2000 | 4000 | 5200 |
| | **31.5** | 2410 | 2310 | 2310 | 2310 | 2100 | 1700 | 15 | 14 | 2000 | 4000 | 5200 |
| | **37.1** | 2970 | 2810 | 2810 | 2650 | 2350 | 1910 | 15 | 14 | 2000 | 4000 | 5200 |
| | **42.6** | 2410 | 2210 | 2210 | 2210 | 2030 | 1650 | 11.6 | 14 | 2000 | 4000 | 5200 |
| | **46.6** | 2850 | 2520 | 2230 | 2200 | 2140 | 2030 | 11.2 | 14 | 2000 | 4000 | 5200 |
| | **50.3** | 2770 | 2700 | 2650 | 2620 | 2280 | 1850 | 12.2 | 14 | 2000 | 4000 | 5200 |
| | **54.2** | 2440 | 2080 | 1840 | 1820 | 1820 | 1820 | 8.1 | 14 | 2000 | 4000 | 5200 |
| | **63.1** | 2850 | 2520 | 2230 | 2200 | 2140 | 2030 | 8.7 | 14 | 2000 | 4000 | 5200 |
| | **73.3** | 2440 | 2080 | 1840 | 1820 | 1820 | 1820 | 6.2 | 14 | 2000 | 4000 | 5200 |
| | **78.7** | 2850 | 2450 | 2230 | 2200 | 2140 | 2030 | 7.1 | 14 | 2000 | 4000 | 5200 |
| | **91.5** | 2440 | 2080 | 1840 | 1820 | 1820 | 1820 | 5.2 | 14 | 2000 | 4000 | 5200 |
| | **114** | 2300 | 2080 | 1840 | 1820 | 1820 | 1820 | 4.3 | 14 | 2000 | 4000 | 5200 |
| **R4** | **129** | 2970 | 2810 | 2810 | 2650 | 2390 | 1940 | 5.1 | 12 | 20000 | 4000 | 5200 |
| | **148** | 2410 | 2310 | 2310 | 2310 | 2130 | 1730 | 3.6 | 12 | 2000 | 4000 | 5200 |
| | **158** | 2970 | 2810 | 2810 | 2650 | 2350 | 1910 | 4.3 | 12 | 2000 | 4000 | 5200 |
| | **185** | 2410 | 2310 | 2310 | 2310 | 2130 | 1730 | 2.9 | 12 | 2000 | 4000 | 5200 |
| | **214** | 2970 | 2810 | 2810 | 2650 | 2350 | 1910 | 3.2 | 12 | 2000 | 4000 | 5200 |
| | **231** | 2440 | 2080 | 1840 | 1820 | 1820 | 1820 | 2.4 | 12 | 2000 | 4000 | 5200 |
| | **255** | 2440 | 2080 | 1840 | 1820 | 1820 | 1820 | 2.1 | 12 | 2000 | 4000 | 5200 |
| | **290** | 2770 | 2700 | 2650 | 2620 | 2280 | 1850 | 2.2 | 12 | 2000 | 4000 | 5200 |
| | **313** | 2440 | 2080 | 1840 | 1820 | 1820 | 1820 | 1.7 | 12 | 2000 | 4000 | 5200 |
| | **336** | 2850 | 2520 | 2230 | 2200 | 2140 | 2030 | 2 | 12 | 2000 | 4000 | 5200 |
| | **364** | 2850 | 2520 | 2230 | 2200 | 2140 | 2030 | 1.9 | 12 | 2000 | 4000 | 5200 |
| | **390** | 2440 | 2080 | 1840 | 1820 | 1820 | 1820 | 1.4 | 12 | 2000 | 4000 | 5200 |
| | **452** | 2250 | 2250 | 2250 | 2250 | 1830 | 1800 | 1.2 | 12 | 2000 | 4000 | 5200 |
| | **528** | 2440 | 2080 | 1840 | 1820 | 1820 | 1820 | 1 | 12 | 2000 | 4000 | 5200 |
| | **567** | 2850 | 2450 | 2230 | 2200 | 2140 | 2030 | 1.2 | 12 | 2000 | 4000 | 5200 |
| | **659** | 2440 | 2080 | 1840 | 1820 | 1820 | 1820 | 0.83 | 12 | 2000 | 4000 | 5200 |
| | **797** | 2000 | 1750 | 1650 | 1650 | 1650 | 1500 | 0.59 | 12 | 2000 | 4000 | 5200 |
| | **824** | 2440 | 2080 | 1840 | 1820 | 1820 | 1820 | 0.66 | 12 | 2000 | 4000 | 5200 |

| 305 R | Page 241 | 5600 Nm |
|---|---|---|

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1\,MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **R2** | **9.23** | 4650 | 4050 | 4000 | 3870 | 2390 | 1940 | 35 | 18 | 1800 | 3800 | 7700 |
| | **10.9** | 5300 | 4720 | 4720 | 4350 | 2680 | 2180 | 35 | 18 | 1800 | 3800 | 7700 |
| | **13.7** | 5600 | 5040 | 4470 | 4280 | 3150 | 2560 | 35 | 18 | 1800 | 3800 | 7700 |
| | **15.9** | 4690 | 4000 | 3600 | 3600 | 3500 | 2840 | 35 | 18 | 1800 | 3800 | 7700 |
| | **19.2** | 3800 | 3300 | 3100 | 3100 | 3000 | 2790 | 32 | 18 | 1800 | 3800 | 7700 |
| **R3** | **25.7** | 4680 | 4490 | 4490 | 4490 | 3800 | 3090 | 15 | 14 | 2000 | 4000 | 8800 |
| | **31.5** | 4700 | 4490 | 4490 | 4490 | 3750 | 3040 | 15 | 14 | 2000 | 4000 | 8800 |
| | **37.1** | 5800 | 5500 | 5480 | 5300 | 4210 | 3420 | 15 | 14 | 2000 | 4000 | 8800 |
| | **42.6** | 4700 | 4450 | 4430 | 4430 | 3630 | 2950 | 15 | 14 | 2000 | 4000 | 8800 |
| | **46.6** | 5600 | 5040 | 4470 | 4400 | 4280 | 3490 | 15 | 14 | 2000 | 4000 | 8800 |
| | **50.3** | 5530 | 5350 | 5300 | 5230 | 4070 | 3310 | 15 | 14 | 2000 | 4000 | 8800 |
| | **54.2** | 4690 | 4000 | 3600 | 3600 | 3550 | 3460 | 15 | 14 | 2000 | 4000 | 8800 |
| | **63.1** | 5600 | 5040 | 4470 | 4400 | 4280 | 3490 | 15 | 14 | 2000 | 4000 | 8800 |
| | **73.3** | 4690 | 4000 | 3600 | 3600 | 3550 | 3460 | 12.3 | 14 | 2000 | 4000 | 8800 |
| | **78.7** | 5600 | 4900 | 4470 | 4400 | 4280 | 3490 | 14.3 | 14 | 2000 | 4000 | 8800 |
| | **91.5** | 4690 | 4000 | 3600 | 3600 | 3550 | 3460 | 10.2 | 14 | 2000 | 4000 | 8800 |
| | **114** | 4430 | 4000 | 3600 | 3600 | 3500 | 3460 | 8.6 | 14 | 2000 | 4000 | 8800 |
| **R4** | **129** | 5800 | 5480 | 5480 | 5300 | 4270 | 3470 | 10.3 | 12 | 2000 | 4000 | 8800 |
| | **148** | 4700 | 4490 | 4490 | 4490 | 3800 | 3090 | 7.4 | 12 | 2000 | 4000 | 8800 |
| | **158** | 5800 | 5500 | 5480 | 5300 | 4210 | 3420 | 8.6 | 12 | 2000 | 4000 | 8800 |
| **R4** | **185** | 4700 | 4490 | 4490 | 4490 | 3800 | 3090 | 6 | 12 | 2000 | 4000 | 8800 |
| | **214** | 5800 | 5500 | 5480 | 5300 | 4210 | 3420 | 6.4 | 12 | 2000 | 4000 | 8800 |
| | **231** | 4690 | 4000 | 3600 | 3600 | 3550 | 3460 | 4.7 | 12 | 2000 | 4000 | 8800 |
| | **255** | 4690 | 4000 | 3600 | 3600 | 3550 | 3460 | 4.3 | 12 | 2000 | 4000 | 8800 |
| | **290** | 5530 | 5400 | 5300 | 5230 | 4070 | 3310 | 4.5 | 12 | 2000 | 4000 | 8800 |
| | **313** | 4690 | 4000 | 3600 | 3600 | 3550 | 3460 | 3.5 | 12 | 2000 | 4000 | 8800 |
| | **336** | 5600 | 5040 | 4470 | 4400 | 4280 | 3490 | 3.9 | 12 | 2000 | 4000 | 8800 |
| | **364** | 5600 | 5040 | 4470 | 4400 | 4280 | 3490 | 3.6 | 12 | 2000 | 4000 | 8800 |
| | **390** | 4690 | 4000 | 3600 | 3600 | 3550 | 3460 | 2.8 | 12 | 2000 | 4000 | 8800 |
| | **452** | 4750 | 4750 | 4750 | 4750 | 3660 | 3210 | 2.5 | 12 | 2000 | 4000 | 8800 |
| | **528** | 4690 | 4000 | 3600 | 3600 | 3550 | 3460 | 2.1 | 12 | 2000 | 4000 | 8800 |
| | **567** | 5600 | 4900 | 4470 | 4400 | 4280 | 3490 | 2.3 | 12 | 2000 | 4000 | 8800 |
| | **659** | 4690 | 4000 | 3600 | 3600 | 3550 | 3460 | 1.7 | 12 | 2000 | 4000 | 8800 |
| | **797** | 3800 | 3300 | 3100 | 3100 | 3000 | 2790 | 1.1 | 12 | 2000 | 4000 | 8800 |
| | **824** | 4690 | 4000 | 3600 | 3600 | 3550 | 3460 | 1.3 | 12 | 2000 | 4000 | 8800 |

| 306 R | Page 249 | 7300 Nm |
|---|---|---|

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1\,MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **R2** | **9.23** | 4650 | 4050 | 4000 | 3870 | 2390 | 1940 | 35 | 18 | 1800 | 3800 | 12000 |
| | **10.9** | 5300 | 4720 | 4720 | 4350 | 2680 | 2180 | 35 | 18 | 1800 | 3800 | 12000 |
| | **13.7** | 6500 | 5920 | 5920 | 5100 | 3150 | 2560 | 35 | 18 | 1800 | 3800 | 12000 |
| | **15.9** | 7300 | 6890 | 6530 | 5670 | 3500 | 2840 | 35 | 18 | 1800 | 3800 | 12000 |
| | **19.2** | 7000 | 5900 | 5500 | 5400 | 3990 | 3240 | 35 | 18 | 1800 | 3800 | 12000 |
| **R3** | **33.2** | 8020 | 8020 | 8020 | 8020 | 5680 | 4620 | 35 | 14 | 2000 | 4000 | 14900 |
| | **39.2** | 9770 | 9340 | 9340 | 9300 | 6110 | 4960 | 35 | 14 | 2000 | 4000 | 14900 |
| | **46.3** | 10420 | 9850 | 9850 | 9600 | 6860 | 5570 | 35 | 14 | 2000 | 4000 | 14900 |
| | **58.1** | 9560 | 9100 | 9100 | 9100 | 6680 | 5430 | 35 | 14 | 2000 | 4000 | 14900 |
| | **67.5** | 7890 | 7590 | 7590 | 7590 | 6620 | 5380 | 25 | 14 | 2000 | 4000 | 14900 |
| | **72.9** | 10080 | 9350 | 8300 | 7950 | 6810 | 5530 | 27 | 14 | 2000 | 4000 | 14900 |
| | **84.7** | 9540 | 9350 | 8300 | 7950 | 6810 | 5530 | 23 | 14 | 2000 | 4000 | 14900 |
| | **98.5** | 8630 | 7370 | 6530 | 6500 | 6460 | 5480 | 17.7 | 14 | 2000 | 4000 | 14900 |
| | **119** | 8500 | 7370 | 6530 | 6500 | 6460 | 5480 | 15.2 | 14 | 2000 | 4000 | 14900 |
| | **144** | 7000 | 5900 | 5500 | 5500 | 5040 | 5040 | 10.7 | 14 | 2000 | 4000 | 14900 |
| **R4** | **158** | 10420 | 9850 | 9850 | 9600 | 6860 | 5570 | 14.9 | 12 | 2000 | 4000 | 14900 |
| | **168** | 8320 | 7700 | 7700 | 7530 | 5950 | 4830 | 11.3 | 12 | 2000 | 4000 | 14900 |
| | **181** | 9450 | 9450 | 9450 | 9450 | 6970 | 5660 | 11.6 | 12 | 2000 | 4000 | 14900 |
| | **214** | 10420 | 9850 | 9850 | 9600 | 6860 | 5570 | 11.1 | 12 | 2000 | 4000 | 14900 |
| | **230** | 7890 | 7590 | 7590 | 7590 | 6620 | 5380 | 7.7 | 12 | 2000 | 4000 | 14900 |
| | **249** | 10080 | 9350 | 8300 | 7950 | 6810 | 5530 | 9 | 12 | 2000 | 4000 | 14900 |
| | **289** | 9540 | 9350 | 8300 | 7950 | 6810 | 5530 | 7.6 | 12 | 2000 | 4000 | 14900 |
| | **312** | 7890 | 7590 | 7590 | 7590 | 6620 | 5380 | 5.7 | 12 | 2000 | 4000 | 14900 |
| | **389** | 8500 | 7590 | 7590 | 7590 | 6620 | 5380 | 5.2 | 12 | 2000 | 4000 | 14900 |
| | **420** | 10080 | 9350 | 8300 | 7950 | 6810 | 5530 | 5.4 | 12 | 2000 | 4000 | 14900 |
| | **455** | 8630 | 7370 | 6530 | 6500 | 6460 | 5480 | 4.4 | 12 | 2000 | 4000 | 14900 |
| | **488** | 9540 | 9350 | 8300 | 7950 | 6810 | 5530 | 4.5 | 12 | 2000 | 4000 | 14900 |
| | **550** | 8500 | 7370 | 6530 | 6500 | 6460 | 5480 | 3.7 | 12 | 2000 | 4000 | 14900 |
| | **590** | 9500 | 8500 | 7800 | 7800 | 6810 | 5530 | 3.8 | 12 | 2000 | 4000 | 14900 |
| | **665** | 7000 | 5900 | 5500 | 5500 | 5040 | 5040 | 2.5 | 12 | 2000 | 4000 | 14900 |
| | **830** | 7000 | 5900 | 5500 | 5500 | 5040 | 5040 | 2 | 12 | 2000 | 4000 | 14900 |

## 307 R | Page 257 | 14000 Nm

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1\,MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **R2** | **13** | 9000 | 8500 | 8270 | 7960 | 6570 | 5340 | 85 | 35 | 1800 | 3800 | 18600 |
| | **15.5** | 11400 | 10690 | 9630 | 9520 | 7440 | 6040 | 85 | 35 | 1800 | 3800 | 21000 |
| | **19.8** | 14000 | 12700 | 11300 | 10790 | 8850 | 7190 | 85 | 35 | 1800 | 3800 | 21000 |
| | **23.5** | 11000 | 9600 | 8700 | 8700 | 8240 | 7490 | 74 | 35 | 1800 | 3800 | 21000 |
| **R3** | **31.6** | 9000 | 9000 | 9000 | 8300 | 5490 | 4460 | 35 | 22 | 2000 | 4000 | 18600 |
| | **37.7** | 15680 | 14890 | 12400 | 10070 | 6210 | 5050 | 35 | 22 | 2000 | 4000 | 21000 |
| | **44.6** | 15680 | 14890 | 13930 | 11310 | 6980 | 5670 | 35 | 22 | 2000 | 4000 | 21000 |
| | **55.9** | 15680 | 14890 | 14890 | 13260 | 8180 | 6650 | 35 | 22 | 2000 | 4000 | 21000 |
| | **65** | 14670 | 14010 | 14010 | 13510 | 9090 | 7380 | 35 | 22 | 2000 | 4000 | 21000 |
| | **71.8** | 14840 | 12700 | 11300 | 10790 | 9340 | 7590 | 35 | 22 | 2000 | 4000 | 21000 |
| | **78.6** | 12300 | 12300 | 12300 | 12300 | 9560 | 7770 | 35 | 22 | 2000 | 4000 | 21000 |
| | **83.4** | 14840 | 12700 | 11300 | 10790 | 9340 | 7590 | 33 | 22 | 2000 | 4000 | 21000 |
| | **99** | 11000 | 9600 | 8700 | 8700 | 8240 | 7490 | 23 | 22 | 2000 | 4000 | 21000 |
| | **120** | 11000 | 9600 | 8700 | 8700 | 8240 | 7490 | 19.9 | 22 | 2000 | 4000 | 21000 |
| **R4** | **152** | 15680 | 14890 | 14890 | 13510 | 9560 | 7770 | 15 | 15 | 2000 | 4000 | 21000 |
| | **165** | 14840 | 12700 | 11300 | 10790 | 9340 | 7590 | 15 | 15 | 2000 | 4000 | 21000 |
| | **191** | 15680 | 14890 | 14890 | 13510 | 9560 | 7770 | 15 | 15 | 2000 | 4000 | 21000 |
| | **206** | 15680 | 14890 | 14890 | 13510 | 9560 | 7770 | 15 | 15 | 2000 | 4000 | 21000 |
| | **232** | 14840 | 12700 | 11300 | 10790 | 9340 | 7590 | 14.3 | 15 | 2000 | 4000 | 21000 |
| | **258** | 15680 | 14890 | 14890 | 13510 | 9560 | 7770 | 13.8 | 15 | 2000 | 4000 | 21000 |
| | **284** | 14840 | 12700 | 11300 | 10790 | 9340 | 7590 | 11.6 | 15 | 2000 | 4000 | 21000 |
| | **300** | 15000 | 14010 | 14010 | 13510 | 9560 | 7770 | 11.8 | 15 | 2000 | 4000 | 21000 |
| | **331** | 14840 | 12700 | 11300 | 10790 | 9340 | 7590 | 10 | 15 | 2000 | 4000 | 21000 |
| | **363** | 12300 | 12300 | 12300 | 12300 | 9560 | 7770 | 8 | 15 | 2000 | 4000 | 21000 |
| | **413** | 14840 | 12700 | 11300 | 10790 | 9340 | 7590 | 8 | 15 | 2000 | 4000 | 21000 |
| | **453** | 15000 | 13800 | 12900 | 12500 | 9560 | 7770 | 7.8 | 15 | 2000 | 4000 | 21000 |
| | **490** | 11000 | 9600 | 8700 | 8700 | 8240 | 7490 | 5.3 | 15 | 2000 | 4000 | 21000 |
| | **581** | 14330 | 12710 | 11300 | 10790 | 9340 | 7590 | 5.7 | 15 | 2000 | 4000 | 21000 |
| | **690** | 11000 | 9600 | 8700 | 8700 | 8240 | 7490 | 3.8 | 15 | 2000 | 4000 | 21000 |

## 309 R | Page 265 | 16460 Nm

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1\,MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **R2** | **13** | 9800 | 9120 | 8270 | 7960 | 6570 | 5340 | 85 | 35 | 1800 | 3800 | 27400 |
| | **15.5** | 11400 | 10690 | 9630 | 9520 | 7440 | 6040 | 85 | 35 | 1800 | 3800 | 27400 |

## 309 R | Page 265 | 16460 Nm

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1\,MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **R2** | **19.8** | 14000 | 13270 | 12270 | 12270 | 8850 | 7190 | 85 | 35 | 1800 | 3800 | 27400 |
| | **23.5** | 16460 | 14070 | 12500 | 12370 | 9980 | 8110 | 85 | 35 | 1800 | 3800 | 27400 |
| **R3** | **31.6** | 12800 | 12310 | 10960 | 8900 | 5490 | 4460 | 35 | 22 | 2000 | 4000 | 27900 |
| | **37.7** | 15830 | 15260 | 12400 | 10070 | 6210 | 5050 | 35 | 22 | 2000 | 4000 | 29000 |
| | **44.6** | 18670 | 17150 | 13930 | 11310 | 6980 | 5670 | 35 | 22 | 2000 | 4000 | 29000 |
| | **55.9** | 18510 | 17140 | 16330 | 13260 | 8180 | 6650 | 35 | 22 | 2000 | 4000 | 29000 |
| | **65** | 14670 | 14300 | 14300 | 14010 | 9090 | 7380 | 35 | 22 | 2000 | 4000 | 29000 |
| | **71.8** | 21980 | 19060 | 16940 | 15790 | 9740 | 7910 | 35 | 22 | 2000 | 4000 | 29000 |
| | **83.4** | 18300 | 18100 | 16940 | 16190 | 10830 | 8790 | 35 | 22 | 2000 | 4000 | 29000 |
| | **99** | 17000 | 14400 | 13000 | 13000 | 12210 | 9910 | 35 | 22 | 2000 | 4000 | 29000 |
| | **120** | 17000 | 14400 | 13000 | 13000 | 12370 | 10280 | 30 | 22 | 2000 | 4000 | 29000 |
| **R4** | **152** | 21620 | 21260 | 21260 | 18580 | 11460 | 9310 | 15 | 15 | 2000 | 4000 | 29000 |
| | **165** | 21980 | 19060 | 16940 | 16190 | 12810 | 10410 | 15 | 15 | 2000 | 4000 | 29000 |
| | **191** | 18510 | 17500 | 17500 | 17140 | 11160 | 9070 | 15 | 15 | 2000 | 4000 | 29000 |
| | **206** | 21620 | 21260 | 21260 | 18580 | 11460 | 9310 | 15 | 15 | 2000 | 4000 | 29000 |
| | **232** | 18300 | 18100 | 16940 | 16190 | 12810 | 10410 | 15 | 15 | 2000 | 4000 | 29000 |
| | **258** | 18510 | 17500 | 17500 | 17140 | 11160 | 9070 | 15 | 15 | 2000 | 4000 | 29000 |
| | **284** | 18300 | 18100 | 16940 | 16190 | 12810 | 10410 | 15 | 15 | 2000 | 4000 | 29000 |
| | **331** | 21980 | 19060 | 16940 | 16190 | 12810 | 10410 | 15 | 15 | 2000 | 4000 | 29000 |
| | **374** | 14670 | 14300 | 14300 | 14010 | 11060 | 8990 | 9.2 | 15 | 2000 | 4000 | 29000 |
| **R4** | **413** | 21980 | 19060 | 16940 | 16190 | 12810 | 10410 | 12 | 15 | 2000 | 4000 | 29000 |
| | **457** | 17000 | 14400 | 13000 | 13000 | 12370 | 10280 | 8.8 | 15 | 2000 | 4000 | 29000 |
| | **490** | 17000 | 14400 | 13000 | 13000 | 12370 | 10280 | 8.2 | 15 | 2000 | 4000 | 29000 |
| | **581** | 15800 | 15800 | 15800 | 15000 | 12810 | 10410 | 6.4 | 15 | 2000 | 4000 | 29000 |
| | **690** | 17000 | 14400 | 13000 | 13000 | 12370 | 10280 | 5.8 | 15 | 2000 | 4000 | 29000 |

## 310 R | Page 273 | 34120 Nm

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1\,MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **R2** | **12** | 28200 | 27800 | 25000 | 21590 | 13320 | 10820 | 130 | 55 | 1500 | 2500 | 47600 |
| | **15.4** | 30600 | 26240 | 23350 | 21100 | 13020 | 10570 | 130 | 55 | 1500 | 2500 | 47600 |
| | **18.3** | 26000 | 21200 | 18420 | 18230 | 12860 | 10440 | 130 | 55 | 1500 | 2500 | 47600 |
| | **16.6** | 34120 | 32340 | 26580 | 21590 | 13320 | 10820 | 130 | 55 | 1500 | 2500 | 47600 |
| | **21.3** | 30600 | 26240 | 23350 | 21100 | 13020 | 10570 | 130 | 55 | 1500 | 2500 | 47600 |
| | **25.3** | 26000 | 21200 | 18420 | 18230 | 12860 | 10440 | 119 | 55 | 1500 | 2500 | 47600 |

## 310 R | Page 273 | 34120 Nm

| | i | Mn2[NM] | | | | | | P1 | PT | n 1 | n1 MAX | M2 max |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | n2.h | n2.h | n2.h | n2.h | n2.h | n2.h | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min-1] | [min-1] | [NM] |
| R3 | 37.7 | 15830 | 15260 | 12400 | 10070 | 6210 | 5050 | 35 | 22 | 1800 | 3800 | 47600 |
| | 44.6 | 18670 | 17150 | 13930 | 11310 | 6980 | 5670 | 35 | 22 | 1800 | 3800 | 47600 |
| | 55.9 | 23410 | 20100 | 16320 | 13260 | 8180 | 6650 | 35 | 22 | 1800 | 3800 | 47600 |
| | 65 | 27110 | 22330 | 18140 | 14730 | 9090 | 7380 | 35 | 22 | 1800 | 3800 | 47600 |
| | 71.8 | 29990 | 23930 | 19440 | 15790 | 9740 | 7910 | 35 | 22 | 1800 | 3800 | 47600 |
| | 78.6 | 21800 | 21100 | 20150 | 16840 | 10390 | 8440 | 35 | 22 | 1800 | 3800 | 47600 |
| | 83.4 | 30600 | 26240 | 21600 | 17550 | 10830 | 8790 | 35 | 22 | 1800 | 3800 | 47600 |
| | 99 | 26000 | 21200 | 18420 | 18230 | 12210 | 9910 | 35 | 22 | 1800 | 3800 | 47600 |
| | 120 | 26000 | 21200 | 18420 | 18230 | 12860 | 10440 | 35 | 22 | 1800 | 3800 | 47600 |
| R4 | 136 | 34120 | 32340 | 26580 | 21590 | 13320 | 10820 | 35 | 15 | 2000 | 4000 | 47600 |
| | 160 | 34120 | 32340 | 26580 | 21590 | 13320 | 10820 | 35 | 15 | 2000 | 4000 | 47600 |
| | 189 | 34120 | 32340 | 26580 | 21590 | 13320 | 10820 | 35 | 15 | 2000 | 4000 | 47600 |
| | 206 | 30600 | 26240 | 23350 | 21100 | 13020 | 10570 | 34 | 15 | 2000 | 4000 | 47600 |
| | 234 | 34120 | 32340 | 26580 | 21590 | 13320 | 10820 | 25 | 15 | 2000 | 4000 | 47600 |
| | 258 | 30600 | 26240 | 23350 | 21100 | 13020 | 10570 | 27 | 15 | 2000 | 4000 | 47600 |
| | 283 | 34120 | 32340 | 26580 | 21590 | 13320 | 10820 | 19.1 | 15 | 2000 | 4000 | 47600 |
| | 305 | 30600 | 26240 | 23350 | 21100 | 13020 | 10570 | 23 | 15 | 2000 | 4000 | 47600 |
| | 334 | 34120 | 32340 | 26580 | 21590 | 13320 | 10820 | 19.1 | 15 | 2000 | 4000 | 47600 |
| | 363 | 30600 | 26240 | 23350 | 21100 | 13020 | 10570 | 19.1 | 15 | 2000 | 4000 | 47600 |
| | 419 | 34120 | 31930 | 26580 | 21590 | 13320 | 10820 | 16.9 | 15 | 2000 | 4000 | 47600 |
| | 454 | 26000 | 21200 | 18420 | 18230 | 12860 | 10440 | 13.5 | 15 | 2000 | 4000 | 47600 |
| | 517 | 30600 | 26240 | 23350 | 21100 | 13020 | 10570 | 13.5 | 15 | 2000 | 4000 | 47600 |
| | 590 | 21800 | 21800 | 21800 | 20150 | 13320 | 10820 | 8.7 | 15 | 2000 | 4000 | 47600 |
| | 639 | 26000 | 21200 | 18420 | 18230 | 12860 | 10440 | 9.6 | 15 | 2000 | 4000 | 47600 |
| | 757 | 28000 | 25880 | 23350 | 21100 | 13020 | 10570 | 8.8 | 15 | 2000 | 4000 | 47600 |
| | 898 | 26000 | 21200 | 18420 | 18230 | 12860 | 10440 | 6.8 | 15 | 2000 | 4000 | 47600 |

## 311 R | Page 281 | 48330 Nm

| | i | Mn2[NM] | | | | | | P1 | PT | n 1 | n1 MAX | M2 max |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | n2.h | n2.h | n2.h | n2.h | n2.h | n2.h | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min-1] | [min-1] | [NM] |
| R2 | 12 | 28200 | 27800 | 25000 | 24910 | 15900 | 12700 | 150 | 75 | 1500 | 2500 | 58300 |
| | 15.4 | 35600 | 33600 | 31960 | 30600 | 18800 | 15300 | 150 | 75 | 1500 | 2500 | 58300 |
| | 18.3 | 34000 | 29500 | 27000 | 27000 | 18600 | 15100 | 150 | 75 | 1500 | 2500 | 58300 |
| | 16.6 | 48330 | 42150 | 34220 | 27800 | 17150 | 13940 | 150 | 90 | 1500 | 2500 | 58300 |
| | 21.3 | 45210 | 39560 | 35220 | 30380 | 18740 | 15230 | 150 | 90 | 1500 | 2500 | 58300 |
| | 25.3 | 34000 | 29500 | 27000 | 26000 | 18510 | 15040 | 150 | 90 | 1500 | 2500 | 58300 |

## 311 R | Page 281 | 48330 Nm

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1\,MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **R3** | **53** | 32500 | 32430 | 32440 | 27690 | 17090 | 13880 | 85 | 40 | 2000 | 4000 | 58300 |
| | **63.2** | 40540 | 38880 | 38290 | 31100 | 19190 | 15590 | 85 | 40 | 2000 | 4000 | 58300 |
| | **68** | 41900 | 39560 | 35220 | 30380 | 18740 | 15230 | 85 | 40 | 2000 | 4000 | 58300 |
| | **81.1** | 46930 | 43390 | 38290 | 31100 | 19190 | 15590 | 85 | 40 | 2000 | 4000 | 58300 |
| | **96.3** | 35200 | 34500 | 34500 | 31100 | 19190 | 15590 | 83 | 40 | 2000 | 4000 | 58300 |
| | **104** | 45210 | 39560 | 35220 | 32000 | 19700 | 16000 | 85 | 40 | 2000 | 4000 | 58300 |
| | **124** | 43000 | 39560 | 35220 | 32000 | 19700 | 16000 | 75 | 40 | 2000 | 4000 | 58300 |
| | **147** | 34000 | 29500 | 27000 | 27000 | 18600 | 15100 | 51 | 40 | 2000 | 4000 | 58300 |
| **R4** | **154** | 48330 | 39700 | 32240 | 26190 | 16160 | 13130 | 35 | 22 | 2000 | 4000 | 58300 |
| | **182** | 48330 | 44590 | 36210 | 29420 | 18150 | 14740 | 35 | 22 | 2000 | 4000 | 58300 |
| | **198** | 46930 | 43390 | 38290 | 31100 | 19190 | 15590 | 35 | 22 | 2000 | 4000 | 58300 |
| | **229** | 48330 | 45840 | 38290 | 31100 | 19190 | 15590 | 35 | 22 | 2000 | 4000 | 58300 |
| | **266** | 48330 | 45840 | 38290 | 31100 | 19190 | 15590 | 35 | 22 | 2000 | 4000 | 58300 |
| | **294** | 46930 | 43390 | 38290 | 31100 | 19190 | 15590 | 35 | 22 | 2000 | 4000 | 58300 |
| | **322** | 48330 | 45840 | 38290 | 31100 | 19190 | 15590 | 33 | 22 | 2000 | 4000 | 58300 |
| | **341** | 46930 | 43390 | 38290 | 31100 | 19190 | 15590 | 31 | 22 | 2000 | 4000 | 58300 |
| | **413** | 46930 | 43390 | 38290 | 31100 | 19190 | 15590 | 25 | 22 | 2000 | 4000 | 58300 |
| | **438** | 45210 | 39560 | 35220 | 32000 | 19700 | 16000 | 23 | 22 | 2000 | 4000 | 58300 |
| | **490** | 35200 | 34500 | 34500 | 31100 | 19190 | 15590 | 17 | 22 | 2000 | 4000 | 58300 |
| | **520** | 43000 | 39560 | 35220 | 32000 | 19700 | 16000 | 19.6 | 22 | 2000 | 4000 | 58300 |
| | **629** | 43000 | 39560 | 35220 | 32000 | 19700 | 16000 | 16.2 | 22 | 2000 | 4000 | 58300 |
| | **746** | 34000 | 29500 | 27000 | 27000 | 18600 | 15100 | 10.8 | 22 | 2000 | 4000 | 58300 |

## 313 R | Page 289 | 579700 Nm

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1\,MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **R2** | **12.2** | 28500 | 28100 | 25300 | 25130 | 16100 | 12900 | 150 | 75 | 1500 | 2500 | 86300 |
| | **15.9** | 36700 | 35600 | 32870 | 31400 | 18900 | 15500 | 150 | 75 | 1500 | 2500 | 86300 |
| | **19.1** | 44100 | 41000 | 37800 | 36000 | 22100 | 17700 | 150 | 75 | 1500 | 2500 | 86300 |
| | **16.8** | 53340 | 42520 | 34530 | 28050 | 17310 | 14060 | 150 | 90 | 1500 | 2500 | 105000 |
| | **22** | 57970 | 49730 | 41580 | 33760 | 20830 | 16920 | 150 | 90 | 1500 | 2500 | 105000 |
| | **26.4** | 49000 | 41000 | 33100 | 31730 | 23730 | 19270 | 150 | 90 | 1500 | 2500 | 105000 |

## 313 R | Page 289 | 579700 Nm

| | i | Mn2[NM] | | | | | | P1 | PT | n 1 | n1 MAX | M2 max |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | n2.h | n2.h | n2.h | n2.h | n2.h | n2.h | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min-1] | [min-1] | [NM] |
| R3 | 53.7 | 35120 | 32860 | 32860 | 27940 | 17240 | 14000 | 85 | 40 | 1800 | 3800 | 105000 |
| | 64 | 40990 | 39380 | 38920 | 31620 | 19510 | 15850 | 85 | 40 | 1800 | 3800 | 105000 |
| | 69.9 | 44280 | 43120 | 41410 | 33630 | 20750 | 16860 | 85 | 40 | 1800 | 3800 | 105000 |
| | 82.2 | 51000 | 50890 | 46350 | 37650 | 23230 | 18870 | 85 | 40 | 1800 | 3800 | 105000 |
| | 97.5 | 52430 | 50280 | 50280 | 42440 | 26190 | 21270 | 85 | 40 | 1800 | 3800 | 105000 |
| | 107 | 57970 | 49730 | 44600 | 42590 | 27200 | 22090 | 85 | 40 | 1800 | 3800 | 105000 |
| | 127 | 57970 | 49730 | 45000 | 42590 | 27200 | 22090 | 85 | 40 | 1800 | 3800 | 105000 |
| | 153 | 49000 | 42400 | 39000 | 39000 | 27700 | 22500 | 65 | 40 | 1800 | 3800 | 105000 |
| R4 | 185 | 55410 | 44980 | 36540 | 29680 | 18310 | 14870 | 35 | 22 | 2000 | 4000 | 105000 |
| | 201 | 55410 | 47690 | 38730 | 31460 | 19410 | 15770 | 35 | 22 | 2000 | 4000 | 105000 |
| | 237 | 55410 | 52510 | 43510 | 35340 | 21810 | 17710 | 35 | 22 | 2000 | 4000 | 105000 |
| | 281 | 53000 | 50280 | 49050 | 39840 | 24580 | 19970 | 35 | 22 | 2000 | 4000 | 105000 |
| | 309 | 57970 | 49730 | 44290 | 42550 | 26250 | 21320 | 35 | 22 | 2000 | 4000 | 105000 |
| | 346 | 55410 | 55000 | 52510 | 45210 | 27900 | 22660 | 35 | 22 | 2000 | 4000 | 105000 |
| | 387 | 57970 | 49730 | 45000 | 42590 | 27200 | 22090 | 34 | 22 | 2000 | 4000 | 105000 |
| | 450 | 57970 | 49730 | 45000 | 45000 | 27800 | 22600 | 29 | 22 | 2000 | 4000 | 105000 |
| | 496 | 53000 | 52000 | 52200 | 45210 | 27900 | 22660 | 25 | 22 | 2000 | 4000 | 105000 |
| | 535 | 57970 | 49730 | 45000 | 45000 | 27800 | 22600 | 24 | 22 | 2000 | 4000 | 105000 |
| | 647 | 57970 | 49730 | 45000 | 45000 | 27800 | 22600 | 20 | 22 | 2000 | 4000 | 105000 |
| | 778 | 49000 | 42400 | 39000 | 39000 | 27700 | 22500 | 14.9 | 22 | 2000 | 4000 | 105000 |

## 315 R | Page 297 | 105000 Nm

| | i | Mn2[NM] | | | | | | P1 | PT | n 1 | n1 MAX | M2 max |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | n2.h | n2.h | n2.h | n2.h | n2.h | n2.h | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min-1] | [min-1] | [NM] |
| R3 | 51.1 | 102300 | 97690 | 82600 | 66510 | 41040 | 33350 | 150 | 75 | 1500 | 2500 | 135000 |
| | 65.5 | 105000 | 100000 | 97000 | 80800 | 48500 | 38400 | 150 | 75 | 1500 | 2500 | 135000 |
| | 77.8 | 105000 | 100000 | 97000 | 78000 | 48800 | 39400 | 150 | 75 | 1500 | 2500 | 135000 |
| | 82.3 | 99000 | 87000 | 81830 | 78000 | 48800 | 39700 | 150 | 75 | 1500 | 2500 | 135000 |
| | 97.6 | 99000 | 87000 | 81830 | 78000 | 48800 | 39700 | 150 | 75 | 1500 | 2500 | 135000 |
| | 113 | 83490 | 71770 | 65000 | 65000 | 41000 | 33300 | 118 | 75 | 1500 | 2500 | 135000 |
| | 70.7 | 103970 | 97680 | 84730 | 68820 | 42460 | 34490 | 150 | 90 | 1500 | 2500 | 135000 |
| | 90.7 | 105000 | 97680 | 84730 | 68820 | 42460 | 34490 | 150 | 90 | 1500 | 2500 | 135000 |
| | 108 | 105000 | 100000 | 84730 | 68820 | 42460 | 34490 | 150 | 90 | 1500 | 2500 | 135000 |
| | 114 | 99000 | 87000 | 81830 | 70000 | 44100 | 36300 | 146 | 90 | 1500 | 2500 | 135000 |
| | 135 | 99000 | 87000 | 81830 | 78000 | 48800 | 39700 | 125 | 90 | 1500 | 2500 | 135000 |
| | 157 | 83490 | 71770 | 65000 | 65000 | 41000 | 33300 | 88 | 90 | 1500 | 2500 | 135000 |

## 315 R | Page 297 | 105000 Nm

| | i | Mn2[NM] | | | | | | P1 | PT | n 1 | n1 MAX | M2 max |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | n2.h | n2.h | n2.h | n2.h | n2.h | n2.h | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min-1] | [min-1] | [NM] |
| R4 | 225 | 103970 | 97680 | 84730 | 68820 | 42460 | 34490 | 90 | 40 | 1800 | 3800 | 135000 |
| | 269 | 105000 | 99000 | 84730 | 68820 | 42460 | 34490 | 83 | 40 | 1800 | 3800 | 135000 |
| | 345 | 105000 | 100000 | 95000 | 78000 | 47900 | 38900 | 65 | 40 | 1800 | 3800 | 135000 |
| | 409 | 105000 | 100000 | 97000 | 79000 | 48700 | 39600 | 55 | 40 | 1800 | 3800 | 135000 |
| | 525 | 105000 | 100000 | 97000 | 83000 | 51000 | 41700 | 43 | 40 | 1800 | 3800 | 135000 |
| | 623 | 105000 | 100000 | 97000 | 78000 | 48400 | 39300 | 36 | 40 | 1800 | 3800 | 135000 |
| | 659 | 99000 | 87000 | 81830 | 78000 | 48800 | 39700 | 32 | 40 | 1800 | 3800 | 135000 |
| | 782 | 99000 | 87000 | 81830 | 78000 | 48800 | 39700 | 27 | 40 | 1800 | 3800 | 135000 |
| | 909 | 83490 | 71770 | 65000 | 65000 | 41000 | 33300 | 18.7 | 40 | 1800 | 3800 | 135000 |

## 316 R | Page 305 | 138820 Nm

| | i | Mn2[NM] | | | | | | P1 | PT | n 1 | n1 MAX | M2 max |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | n2.h | n2.h | n2.h | n2.h | n2.h | n2.h | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min-1] | [min-1] | [NM] |
| R3 | 51.1 | 108000 | 101000 | 87200 | 70300 | 42300 | 33900 | 150 | 75 | 1500 | 2500 | 192000 |
| | 65.5 | 134000 | 126000 | 104000 | 82600 | 50000 | 40200 | 150 | 75 | 1500 | 2500 | 192000 |
| | 77.8 | 124000 | 115000 | 98650 | 80130 | 49440 | 40500 | 150 | 75 | 1500 | 2500 | 192000 |
| | 70.7 | 138810 | 112590 | 91410 | 74250 | 45820 | 37220 | 150 | 90 | 1500 | 2500 | 192000 |
| | 90.7 | 138820 | 122980 | 99890 | 81130 | 50060 | 40660 | 150 | 90 | 1500 | 2500 | 192000 |
| | 108 | 124000 | 108000 | 98650 | 80130 | 49440 | 40160 | 150 | 90 | 1500 | 2500 | 192000 |
| R4 | 225 | 138810 | 126000 | 103000 | 83700 | 51600 | 42000 | 85 | 45 | 1800 | 3800 | 192000 |
| | 269 | 138820 | 126000 | 103000 | 83700 | 51600 | 42000 | 85 | 45 | 1800 | 3800 | 192000 |
| | 289 | 138820 | 126000 | 107000 | 85300 | 53300 | 42700 | 85 | 45 | 1800 | 3800 | 192000 |
| | 345 | 138820 | 126000 | 103000 | 83700 | 51600 | 42000 | 83 | 45 | 1800 | 3800 | 192000 |
| | 409 | 138820 | 125920 | 103000 | 83700 | 51600 | 42000 | 69 | 45 | 1800 | 3800 | 192000 |
| | 443 | 138820 | 126000 | 107000 | 85300 | 53300 | 42700 | 65 | 45 | 1800 | 3800 | 192000 |
| | 525 | 138820 | 122980 | 103000 | 83700 | 51600 | 42000 | 54 | 45 | 1800 | 3800 | 192000 |
| | 623 | 124000 | 115000 | 98650 | 80130 | 49440 | 40500 | 42 | 45 | 1800 | 3800 | 192000 |

## 317 R | Page 311 | 187860 Nm

| | i | Mn2[NM] | | | | | | P1 | PT | n 1 | n1 MAX | M2 max |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | n2.h | n2.h | n2.h | n2.h | n2.h | n2.h | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min-1] | [min-1] | [NM] |
| R3 | 49.8 | 108300 | 99090 | 80420 | 65330 | 40310 | 32760 | 150 | 90 | 1500 | 2500 | 393000 |
| | 64.9 | 134800 | 119290 | 96820 | 78650 | 48530 | 39440 | 150 | 90 | 1500 | 2500 | 393000 |
| | 78.1 | 151300 | 138800 | 115100 | 92600 | 55260 | 45000 | 150 | 90 | 1500 | 2500 | 393000 |

## 317 R | Page 311 | 187860 Nm

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1\,MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **R3** | **83.3** | 165870 | 148000 | 120000 | 96000 | 58700 | 46960 | 150 | 90 | 1500 | 2500 | 393000 |
| | **100** | 170000 | 161770 | 134800 | 109200 | 65810 | 53480 | 150 | 90 | 1500 | 2500 | 393000 |
| | **119** | 156150 | 134380 | 119950 | 118760 | 74300 | 60290 | 150 | 90 | 1500 | 2500 | 393000 |
| | **68.9** | 145590 | 110540 | 89790 | 72940 | 45010 | 36570 | 150 | 100 | 1500 | 2500 | 393000 |
| | **89.8** | 175270 | 133080 | 108100 | 87810 | 54180 | 44020 | 150 | 100 | 1500 | 2500 | 393000 |
| | **108** | 137600 | 127510 | 123140 | 99980 | 61690 | 50120 | 150 | 100 | 1500 | 2500 | 393000 |
| | **115** | 187860 | 158560 | 128730 | 104560 | 64520 | 52420 | 150 | 100 | 1500 | 2500 | 393000 |
| | **139** | 167000 | 163960 | 146640 | 119060 | 73470 | 59690 | 150 | 100 | 1500 | 2500 | 393000 |
| | **165** | 156150 | 134380 | 119950 | 118760 | 79850 | 64860 | 141 | 100 | 1500 | 2500 | 393000 |
| **R4** | **220** | 136030 | 110120 | 89450 | 72650 | 44830 | 36410 | 90 | 50 | 1800 | 3800 | 393000 |
| | **262** | 163270 | 124610 | 101220 | 82210 | 50730 | 41200 | 90 | 50 | 1800 | 3800 | 393000 |
| | **336** | 195330 | 148390 | 120530 | 97900 | 60410 | 49060 | 90 | 50 | 1800 | 3800 | 393000 |
| | **399** | 207070 | 167280 | 135880 | 110370 | 68100 | 55310 | 90 | 50 | 1800 | 3800 | 393000 |
| | **438** | 184310 | 171620 | 141110 | 114620 | 70720 | 57440 | 87 | 50 | 1800 | 3800 | 393000 |
| | **520** | 184310 | 171620 | 141110 | 114620 | 70720 | 57440 | 73 | 50 | 1800 | 3800 | 393000 |
| | **626** | 155000 | 155000 | 144000 | 117000 | 72000 | 59000 | 53 | 50 | 1800 | 3800 | 393000 |
| | **677** | 170000 | 163960 | 154050 | 131030 | 80850 | 65670 | 53 | 50 | 1800 | 3800 | 393000 |
| | **803** | 170000 | 163960 | 154050 | 131030 | 80850 | 65670 | 45 | 50 | 1800 | 3800 | 393000 |
| | **953** | 156150 | 134380 | 119950 | 118760 | 79850 | 64860 | 32 | 50 | 1800 | 3800 | 393000 |

## 318 R | Page 317 | 280580 Nm

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1\,MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **R4** | **225** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 150 | 90 | 1500 | 2500 | 500000 |
| | **288** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 150 | 90 | 1500 | 2500 | 500000 |
| | **342** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 130 | 90 | 1500 | 2500 | 500000 |
| | **362** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 123 | 90 | 1500 | 2500 | 500000 |
| | **430** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 103 | 90 | 1500 | 2500 | 500000 |
| | **499** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 87 | 90 | 1500 | 2500 | 500000 |
| | **311** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 143 | 110 | 1500 | 2500 | 500000 |
| **R4** | **399** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 111 | 110 | 1500 | 2500 | 500000 |
| | **474** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 94 | 110 | 1500 | 2500 | 500000 |
| | **501** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 89 | 110 | 1500 | 2500 | 500000 |
| | **595** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 75 | 110 | 1500 | 2500 | 500000 |
| | **691** | 280580 | 262990 | 218310 | 177320 | 109410 | 88870 | 63 | 110 | 1500 | 2500 | 500000 |

## 319 R | Page 323 | 403720 Nm

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1\,MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **R4** | **249** | 390680 | 296370 | 240760 | 195590 | 120710 | 98100 | 150 | 95 | 1500 | 2500 | 680000 |
| | **320** | 403720 | 345000 | 283900 | 226500 | 136700 | 112800 | 150 | 95 | 1500 | 2500 | 680000 |
| | **379** | 403720 | 348000 | 284000 | 231000 | 142000 | 116000 | 150 | 95 | 1500 | 2500 | 680000 |
| | **401** | 389910 | 348000 | 286000 | 233000 | 144000 | 117000 | 150 | 95 | 1500 | 2500 | 680000 |
| | **475** | 367580 | 317580 | 270690 | 248000 | 153000 | 124000 | 127 | 95 | 1500 | 2500 | 680000 |
| | **563** | 367580 | 317580 | 270690 | 248000 | 153000 | 124000 | 107 | 95 | 1500 | 2500 | 680000 |
| | **655** | 359690 | 317560 | 267610 | 220000 | 136000 | 110000 | 92 | 95 | 1500 | 2500 | 680000 |
| | **345** | 403720 | 306690 | 249110 | 202340 | 124850 | 101410 | 150 | 115 | 1500 | 2500 | 680000 |
| | **442** | 403720 | 306690 | 249110 | 202340 | 124850 | 101410 | 140 | 115 | 1500 | 2500 | 680000 |
| | **525** | 403720 | 306690 | 249110 | 202340 | 124850 | 101410 | 118 | 115 | 1500 | 2500 | 680000 |
| | **555** | 389910 | 313000 | 257800 | 208700 | 128900 | 105600 | 112 | 115 | 1500 | 2500 | 680000 |
| | **657** | 367580 | 317580 | 270690 | 232200 | 145100 | 119000 | 92 | 115 | 1500 | 2500 | 680000 |
| | **780** | 367580 | 317580 | 270690 | 248000 | 153000 | 124000 | 77 | 115 | 1500 | 2500 | 680000 |
| | **906** | 359690 | 317560 | 267610 | 220000 | 136000 | 110000 | 67 | 115 | 1500 | 2500 | 680000 |

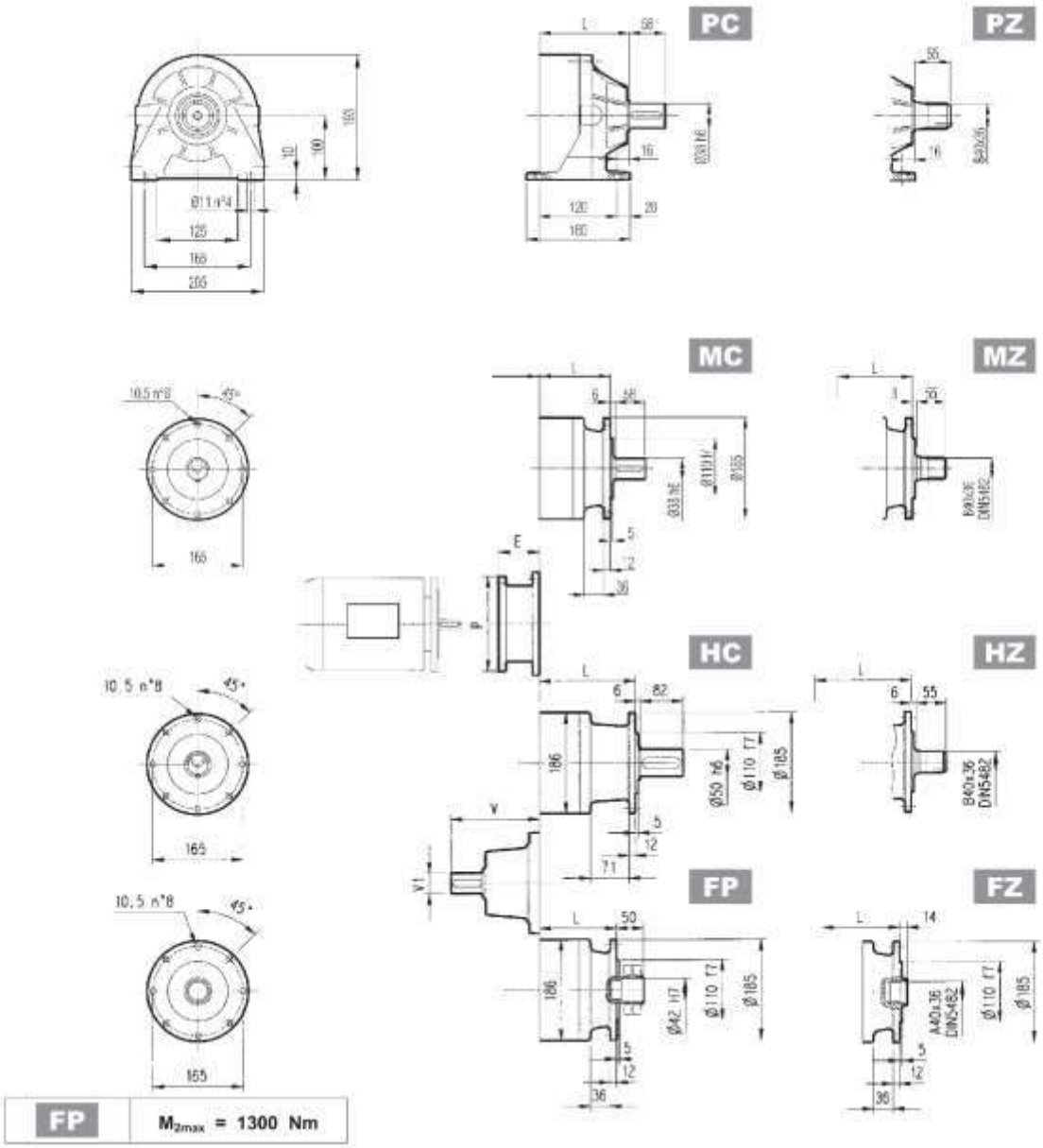
## 321 R | Page 329 | 655200 Nm

| | i | Mn2[NM] | | | | | | $P_1$ | $P_T$ | $n_1$ | $n_{1\,MAX}$ | $M_{2\,max}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | $n_2.h$ | | | | | |
| | 1: | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 | [KW] | [KW] | [min$^{-1}$] | [min$^{-1}$] | [NM] |
| **R4** | **221** | 374000 | 281300 | 226400 | 181800 | 111130 | 90320 | 150 | 105 | 1500 | 2500 | 934000 |
| | **288** | 447500 | 340100 | 268500 | 216800 | 133790 | 108740 | 150 | 105 | 1500 | 2500 | 934000 |
| | **347** | 506300 | 377100 | 307000 | 247800 | 152340 | 123900 | 150 | 105 | 1500 | 2500 | 934000 |
| | **370** | 528500 | 402100 | 317800 | 264200 | 159330 | 129500 | 150 | 105 | 1500 | 2500 | 934000 |
| | **446** | 587310 | 445420 | 366500 | 293970 | 181430 | 147460 | 150 | 105 | 1500 | 2500 | 934000 |
| | **529** | 536350 | 503040 | 410200 | 331430 | 204550 | 166260 | 150 | 105 | 1500 | 2500 | 934000 |
| | **306** | 401340 | 304660 | 247480 | 201030 | 124050 | 100790 | 150 | 125 | 1500 | 2500 | 934000 |
| | **399** | 483180 | 366770 | 297930 | 242020 | 149350 | 121350 | 150 | 125 | 1500 | 2500 | 934000 |
| | **481** | 550170 | 417600 | 339230 | 275560 | 170050 | 138170 | 132 | 125 | 1500 | 2500 | 934000 |
| | **512** | 575410 | 436760 | 354790 | 288200 | 177850 | 144510 | 125 | 125 | 1500 | 2500 | 934000 |
| | **617** | 655200 | 497290 | 403960 | 328150 | 202500 | 164540 | 120 | 125 | 1500 | 2500 | 934000 |
| | **732** | 536360 | 517290 | 420170 | 341290 | 210580 | 171050 | 113 | 125 | 1500 | 2500 | 934000 |

## DIMENSIONS

## اندازه ها

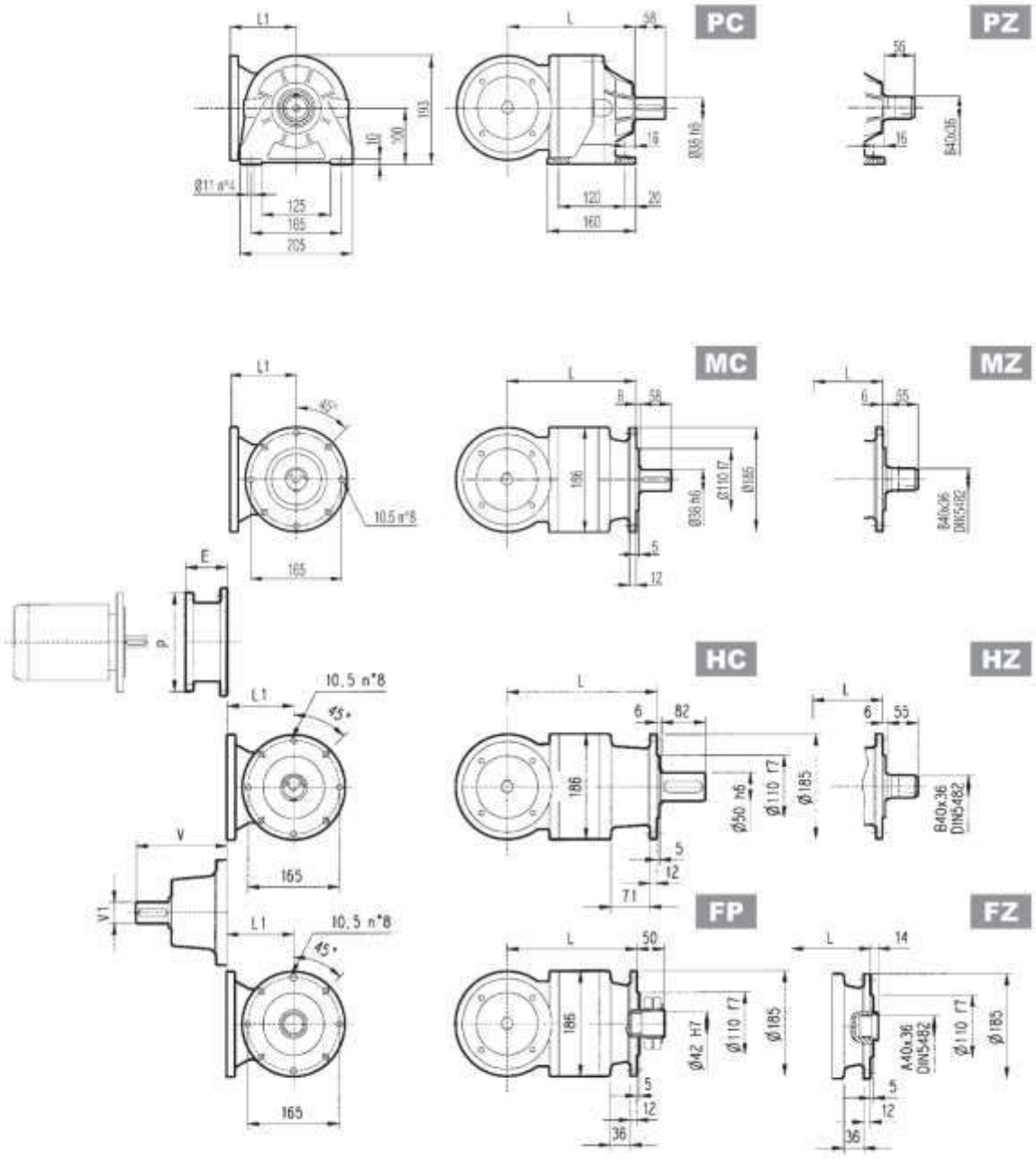
### 300 L




| | L | | | | Wight (kg) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MC - MZ | PC - PZ | HC - HZ | FP - FZ | MC - MZ | PC - PZ | HC - HZ | FP - FZ | V | $V_1$ | W(kg) | V | $V_1$ | W(kg) |
| **300 L1** | 80 | 86 | 115 | 75 | 18 | 23 | 20 | 16 | 137.5 | 24 | 6 | 158 | 38 | 7 |
| **300 L2** | 133 | 139 | 168 | 133 | 22 | 27 | 24 | 20 | 137.5 | 24 | 6 | 158 | 38 | 7 |
| **300 L3** | 186 | 192 | 221 | 186 | 26 | 31 | 28 | 24 | 137.5 | 24 | 6 | 158 | 38 | 7 |
| **300 L4** | 239 | 245 | 274 | 239 | 30 | 38 | 32 | 28 | 137.5 | 24 | 6 | 158 | 38 | 7 |

| | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P |
| **300 L1** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 |
| **300 L2** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 |
| **300 L3** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 |
| **300 L4** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 |

## 300R

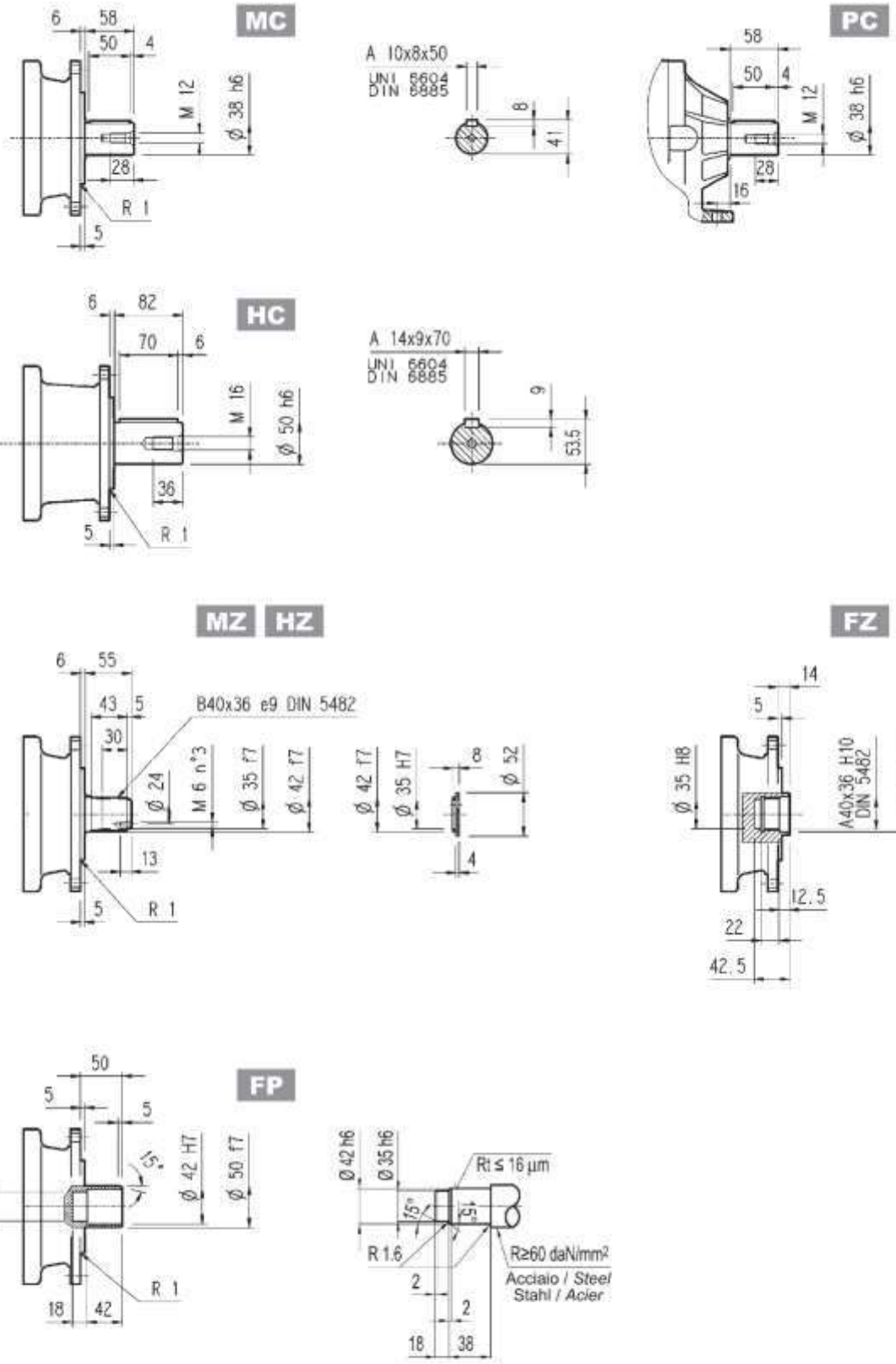



**FP** $M_{2max}$ = 1300 Nm

| | L | | | | L1 | Wight (kg) | | | | V | V1 | (kg) | V | V1 | (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MC - MZ | PC - PZ | HC - HZ | FP - FZ | | MC - MZ | PC - PZ | HC - HZ | FP - FZ | | | | | | |
| **300 R2** | 172 | 178 | 207 | 172 | 122 | 32 | 37 | 34 | 30 | 137.5 | 24 | 6 | 158 | 38 | 7 |
| **300 R3** | 225 | 231 | 260 | 225 | 122 | 36 | 41 | 38 | 34 | 137.5 | 24 | 6 | 158 | 38 | 7 |
| **300 R4** | 278 | 284 | 313 | 278 | 122 | 40 | 45 | 42 | 38 | 137.5 | 24 | 6 | 158 | 38 | 7 |

| | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P |
| **300 R2** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 |
| **300 R3** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 |
| **300 R4** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 |

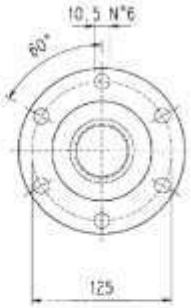
## 300L-300R

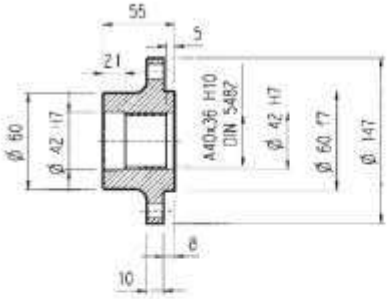



| FP | $M_{2max}$ = 1300 Nm |
|---|---|

## 300L-300R

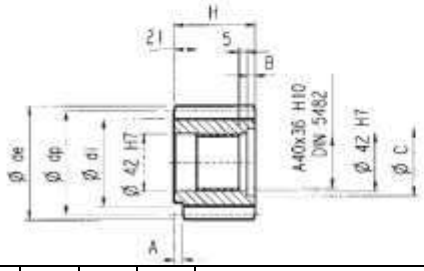
### Flange — WOA




Material: Steel C40

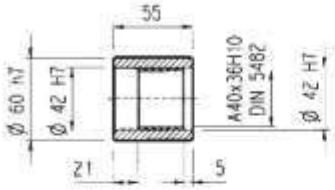
### Pinions — P...




$\alpha = 20°$

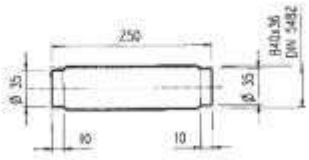
| | m | z | x | dp | di | de | H | A | B | C | Material |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **PBE** | 5 | 14 | 0.51 | 63 | 56 | 75.5 | 55 | — | — | — | Steel 39NiCrMo3 hardened and tempered |
| **PCE** | 5 | 14 | 0.5 | 70 | 63 | 84.8 | 65 | — | 10 | 53 | |
| **PDC** | 6 | 12 | 0.25 | 72 | 61 | 84.8 | 59 | 14 | 4 | 54 | |
| **PDE** | 6 | 14 | 0.5 | 84 | 73 | 99.6 | 65 | — | 10 | 54 | |

### Sleeve coupling — MOA



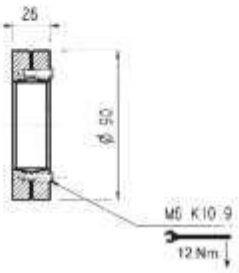

Material: Steel 16CrNi4

### Splined bars — BOA

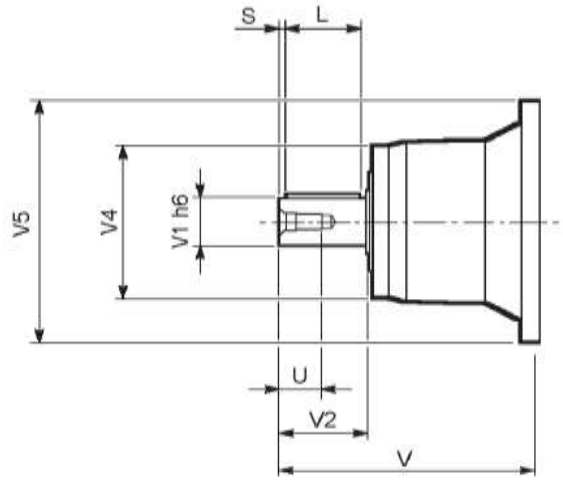


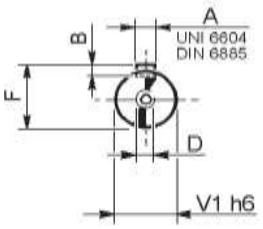

Material: Case hardening steel 18NiCrMo5
UNI 5331 must be case hardened 50-55 HRC

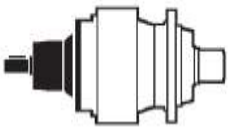
### Shrink disc — GOA



## 300L-300R



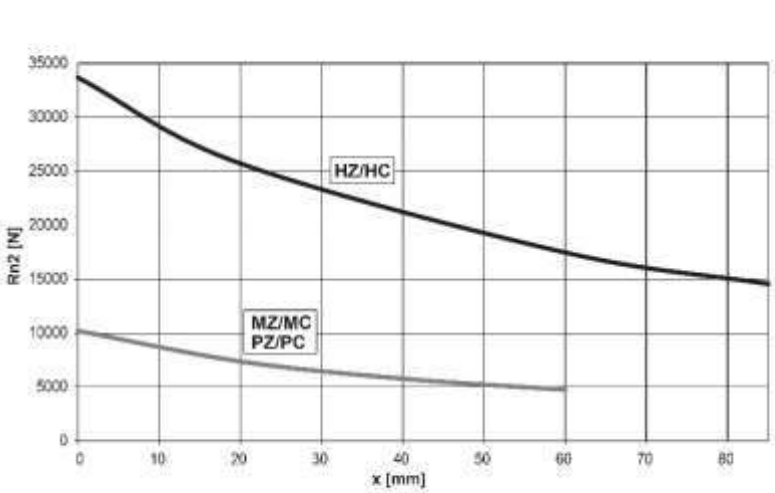
| | input | V | V1 | V2 | V4 | V5 | A | B | F | L | S | D | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **300 L1** | **V01A** | 137.5 | 24 | 36 | 120 | 186 | 8 | 7 | 27 | 30 | 3 | M8 | 19 |
| | **V01B** | 158 | 38 | 58 | 120 | 186 | 10 | 8 | 41 | 50 | 4 | M12 | 28 |
| **300 L2** | **V01A** | 137.5 | 24 | 36 | 120 | 186 | 8 | 7 | 27 | 30 | 3 | M8 | 19 |
| | **V01B** | 158 | 38 | 58 | 120 | 186 | 10 | 8 | 41 | 50 | 4 | M12 | 28 |
| **300 L3** | **V01A** | 137.5 | 24 | 36 | 120 | 186 | 8 | 7 | 27 | 30 | 3 | M8 | 19 |
| | **V01B** | 158 | 38 | 58 | 120 | 186 | 10 | 8 | 41 | 50 | 4 | M12 | 28 |
| **300 L4** | **V01A** | 137.5 | 24 | 36 | 120 | 186 | 8 | 7 | 27 | 30 | 3 | M8 | 19 |
| | **V01B** | 158 | 38 | 58 | 120 | 186 | 10 | 8 | 41 | 50 | 4 | M12 | 28 |
| **300 R2-R3-R4** | **V01A** | 137.5 | 24 | 36 | 120 | 186 | 8 | 7 | 27 | 30 | 3 | M8 | 19 |
| | **V01B** | 158 | 38 | 58 | 120 | 186 | 10 | 8 | 41 | 50 | 4 | M12 | 28 |

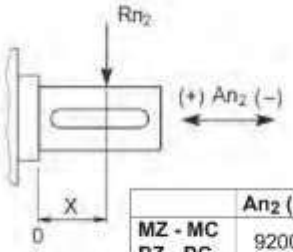


| | | C | D1 | D2 | D3 | D4 | D5 | D6 | L1 | L2 | L3 | L4 | L5 | L6 | S | S1 | Input |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **300L1** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | 11 | 4 | — | 9 | 18 | 53 | 18 | 45° | 45° | A |
| **300L2** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | 11 | 4 | — | 9 | 18 | 106 | 18 | 45° | 45° | A |
| **300L3** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | 11 | 4 | — | 9 | 18 | 159 | 18 | 45° | 45° | A |
| **300L4** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | 11 | 4 | — | 9 | 18 | 212 | 18 | 45° | 45° | A |
| **300R2-R3-R4** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | 11 | 4 | — | 9 | 18 | 37 | 18 | 45° | 45° | A |

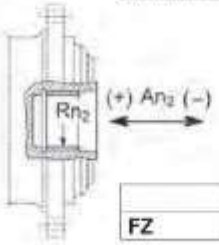
Permissible radial and axial loads on output shaft with $Fh_2$: $n_2$. h = 100,000

بارهای شعاعی و محوری مجاز بر روی شافت خروجی با
Fh2: n2. h = 100,000




| | An2 (+) | An2 (-) |
|---|---|---|
| MZ - MC<br>PZ - PC | 9200 | 6900 |
| HZ - HC | 20000 | 20000 |

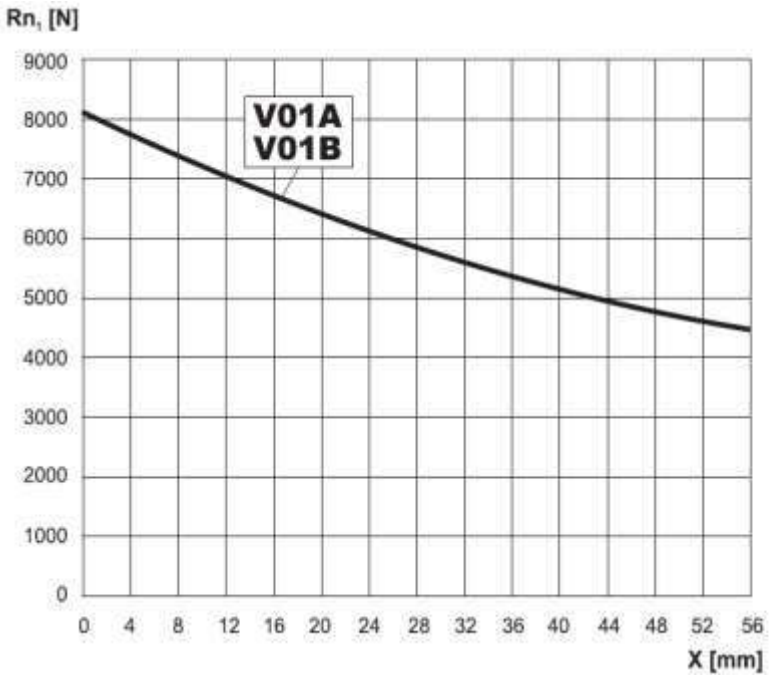


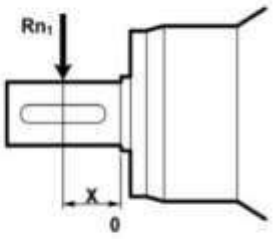

| | Rn2 | An2 (+/-) |
|---|---|---|
| FZ | 3713 | 3713 |

| Load correction factor $fh_2$ on shafts<br>فاکتور اصلاح بار $fh_2$ بر روی شافت | $Fh_2 = n_2$. h | | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 |
|---|---|---|---|---|---|---|---|---|
| | $fh_2$ | FZ | 2.15 | 1.59 | 1.26 | 1.00 | 1.00 | 0.46 |
| | | MZ - MC - PC - PZ | 2.15 | 1.59 | 1.26 | 1.00 | 0.58 | 0.46 |
| | | HZ - HC | 1.27 | 1.27 | 1.26 | 1.00 | 0.62 | 0.50 |

Permissible radial loads on input shaft with Fh1: n1. h = 250000

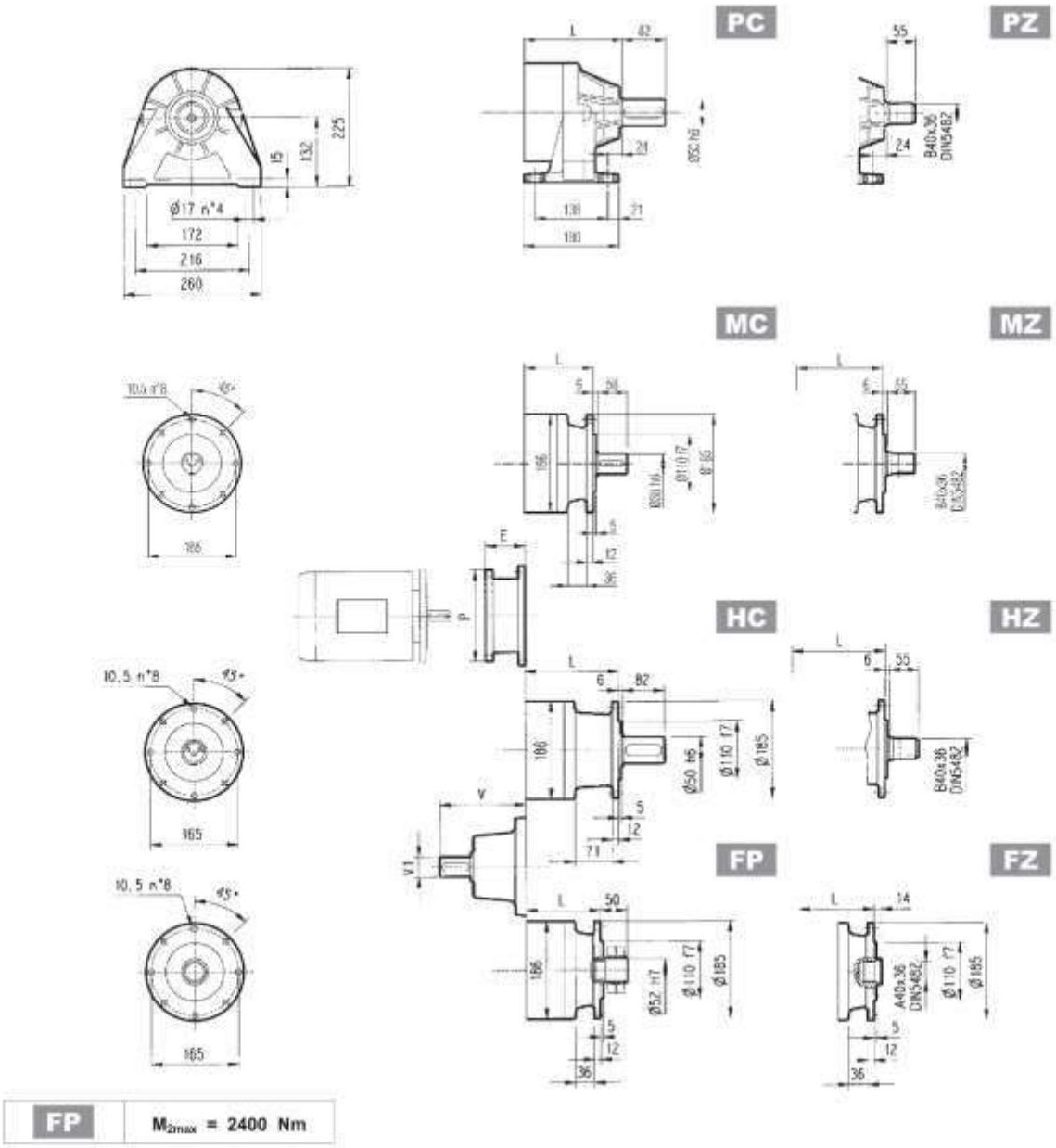
بارهای شعاعی مجاز بر روی شفت ورودی با
Fh1: n1. h = 250000




| Load correction factor fh1 on shafts<br>فاکتور اصلاح بار fh1 بر روی شافت | Fh1 = n1. h | 250000 | 500000 | 1000000 | 2000000 | 5000000 | 10000000 |
|---|---|---|---|---|---|---|---|
| | fh1 | 1 | 0.79 | 0.63 | 0.5 | 0.37 | 0.29 |

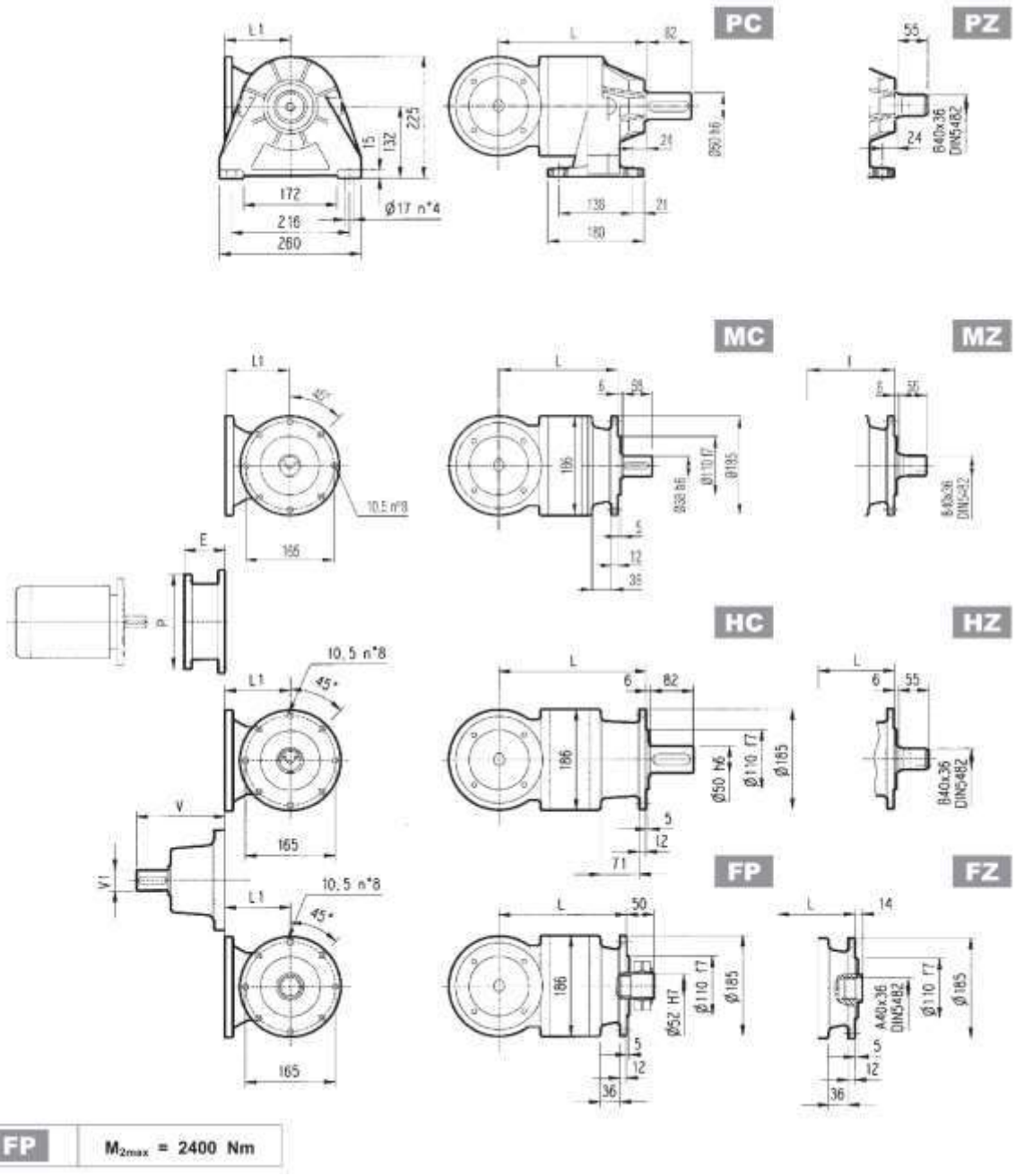
## 301 L




| | L | | | | Wight (kg) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MC - MZ | PC - PZ | HC - HZ | FP - FZ | MC - MZ | PC - PZ | HC - HZ | FP - FZ | V | $V_1$ | W(kg) | V | $V_1$ | W(kg) |
| **301 L1** | 92 | 132 | 126 | 92 | 21 | 26 | 23 | 19 | 137.5 | 24 | 6 | 158 | 38 | 7 |
| **301 L2** | 145 | 185 | 176 | 145 | 25 | 30 | 27 | 23 | 137.5 | 24 | 6 | 158 | 38 | 7 |
| **301 L3** | 198 | 238 | 232 | 198 | 29 | 34 | 31 | 27 | 137.5 | 24 | 6 | 158 | 38 | 7 |
| **301 L4** | 251 | 291 | 285 | 251 | 33 | 38 | 35 | 31 | 137.5 | 24 | 6 | 158 | 38 | 7 |

| | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P |
| **301 L1** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 102 | 250 | 114 | 300 |
| **301 L2** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 102 | 250 | 114 | 300 |
| **301 L3** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 102 | 250 | 114 | 300 |
| **301 L4** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 102 | 250 | 114 | 300 |

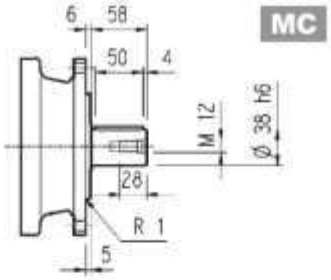
## 301 R

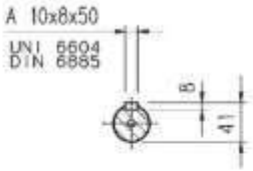


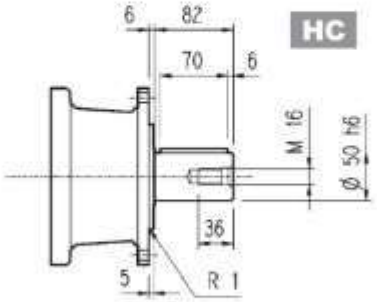

| | L | | | | R1 | Wight (kg) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MC - MZ | PC - PZ | HC - HZ | FP - FZ | | MC - MZ | PC - PZ | HC - HZ | FP - FZ | V | V1 | (kg) | V | V1 | (kg) |
| **301 R2** | 184 | 225 | 219 | 184 | 122 | 35 | 42 | 37 | 33 | 137.5 | 24 | 6 | 158 | 38 | 7 |
| **301 R3** | 237 | 278 | 272 | 237 | 122 | 39 | 46 | 41 | 37 | 137.5 | 24 | 6 | 158 | 38 | 7 |
| **301 R4** | 290 | 331 | 325 | 290 | 122 | 43 | 50 | 45 | 41 | 137.5 | 24 | 6 | 158 | 38 | 7 |

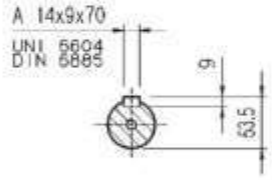
| | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P |
| **301 R2** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 |
| **301 R3** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 |
| **301 R4** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 |

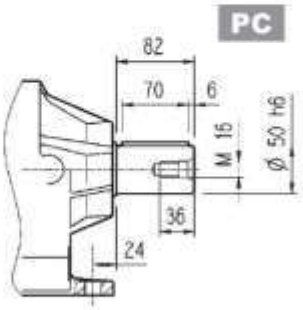
## 301L-301R

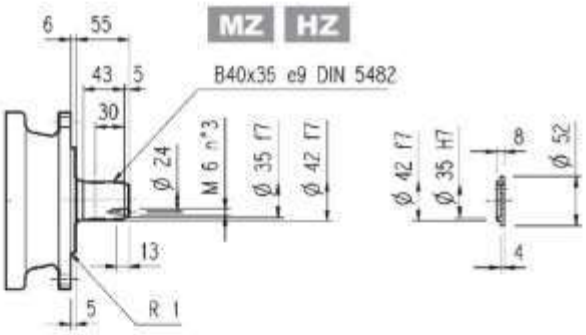


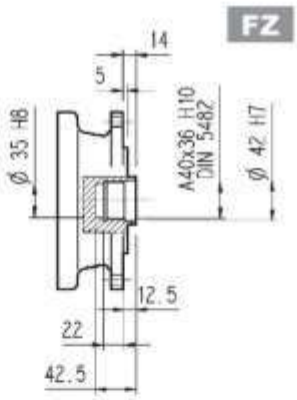



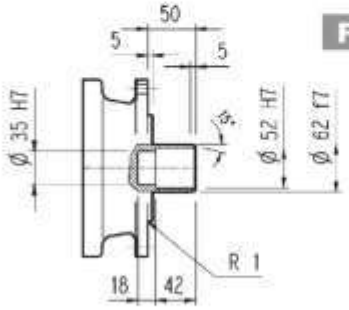



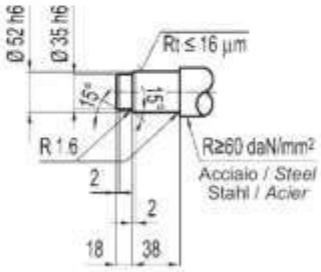









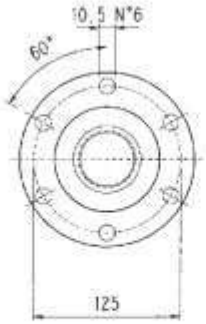



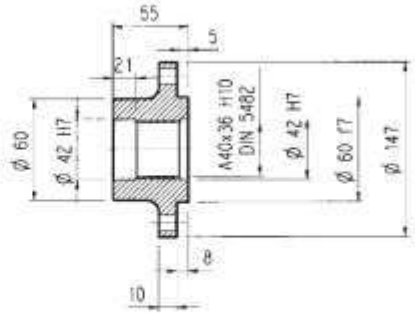

| FP | $M_{2max}$ = 2400 Nm |
|---|---|

## 301L-301R

### Flange

**WOA**

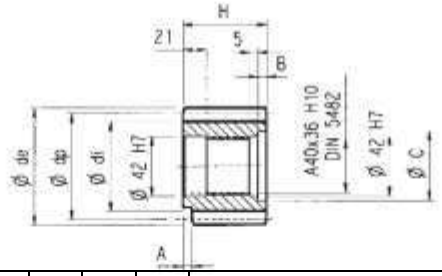



Material: Steel C40

### Pinions

**P...**

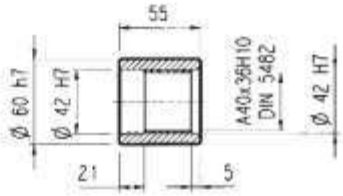



$\alpha = 20°$

| m | z | x | dp | di | de | H | A | B | C | | Material |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PBE | 5 | 14 | 0.5 | 63 | 56 | 75.5 | 55 | — | — | — | Steel 39NiCrMo3 hardened and tempered |
| PCE | 5 | 14 | 0.5 | 70 | 63 | 84.8 | 65 | — | 10 | 53 | |
| PDC | 6 | 12 | 0.3 | 72 | 61 | 84.8 | 59 | 14 | 4 | 54 | |
| PDE | 6 | 14 | 0.5 | 84 | 73 | 99.6 | 65 | — | 10 | 54 | |

### Sleeve coupling

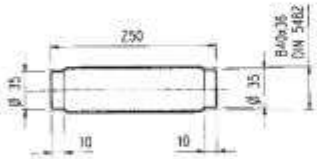
**MOA**




Material: Steel 16CrNi4

### Splined bars

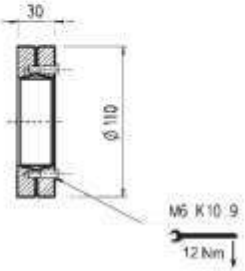
**BOA**



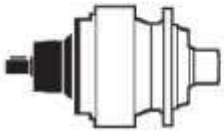

Material: Case hardening steel 18NiCrMo5
UNI 5331 must be case hardened 50-55 HRC

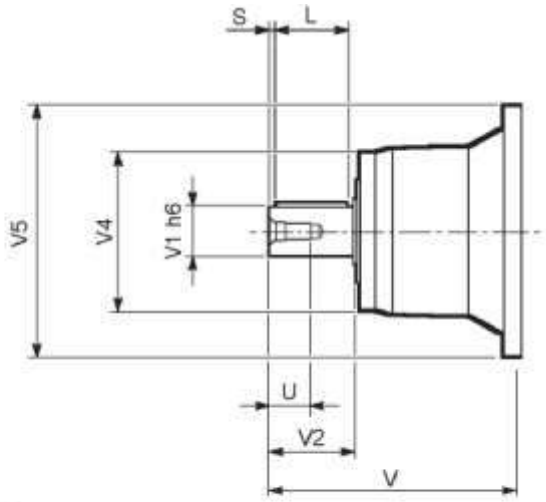
### Shrink disc

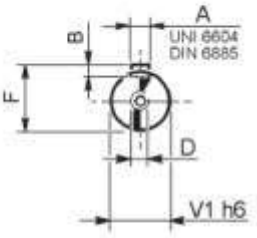
**GOA**



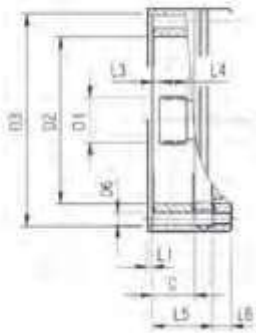
## 301L-301R

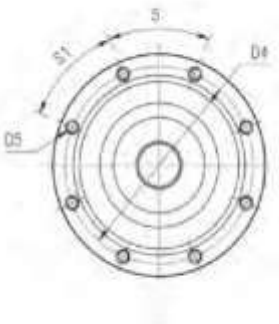





| | input | V | V1 | V2 | V4 | V5 | A | B | F | L | S | D | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **301 L1** | **V01A** | 137.5 | 24 | 36 | 120 | 186 | 8 | 7 | 27 | 30 | 3 | M8 | 19 |
| | **V01B** | 158 | 38 | 58 | 120 | 186 | 10 | 8 | 41 | 50 | 4 | M12 | 28 |
| **301 L2** | **V01A** | 137.5 | 24 | 36 | 120 | 186 | 8 | 7 | 27 | 30 | 3 | M8 | 19 |
| | **V01B** | 158 | 38 | 58 | 120 | 186 | 10 | 8 | 41 | 50 | 4 | M12 | 28 |
| **301 L3** | **V01A** | 137.5 | 24 | 36 | 120 | 186 | 8 | 7 | 27 | 30 | 3 | M8 | 19 |
| | **V01B** | 158 | 38 | 58 | 120 | 186 | 10 | 8 | 41 | 50 | 4 | M12 | 28 |
| **301 L4** | **V01A** | 137.5 | 24 | 36 | 120 | 186 | 8 | 7 | 27 | 30 | 3 | M8 | 19 |
| | **V01B** | 158 | 38 | 58 | 120 | 186 | 10 | 8 | 41 | 50 | 4 | M12 | 28 |
| **301 R2-R3-R4** | **V01A** | 137.5 | 24 | 36 | 120 | 186 | 8 | 7 | 27 | 30 | 3 | M8 | 19 |
| | **V01B** | 158 | 38 | 58 | 120 | 186 | 10 | 8 | 41 | 50 | 4 | M12 | 28 |

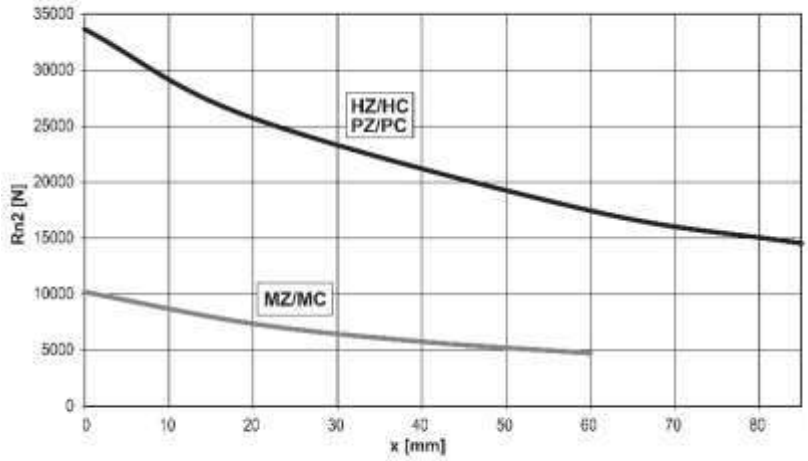


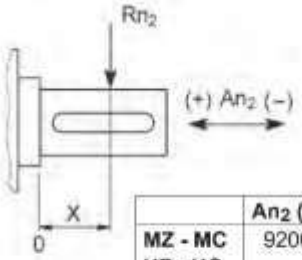




| | | C | D1 | D2 | D3 | D4 | D5 | D6 | L1 | L2 | L3 | L4 | L5 | L6 | S | S1 | Input |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **301L1** | V9AA | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | 11 | 4 | — | 9 | 18 | 53 | 18 | 45° | 45° | A |
| **301L2** | V9AA | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | 11 | 4 | — | 9 | 18 | 106 | 18 | 45° | 45° | A |
| **301L3** | V9AA | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | 11 | 4 | — | 9 | 18 | 159 | 18 | 45° | 45° | A |
| **301L4** | V9AA | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | 11 | 4 | — | 9 | 18 | 212 | 18 | 45° | 45° | A |
| **301R2-R3-R4** | V9AA | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | 11 | 4 | — | 9 | 18 | 37 | 18 | 45° | 45° | A |

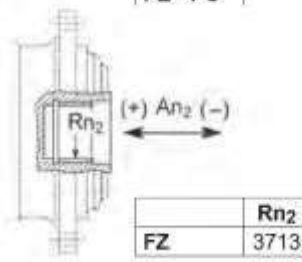
Permissible radial and axial loads on output shaft with $Fh_2$: $n_2$. h = 100,000

بارهای شعاعی و محوری مجاز بر روی شافت خروجی با Fh2: n2. h = 100,000




| | An2 (+) | An2 (-) |
|---|---|---|
| MZ - MC | 9200 | 6900 |
| HZ - HC<br>PZ - PC | 20000 | 20000 |

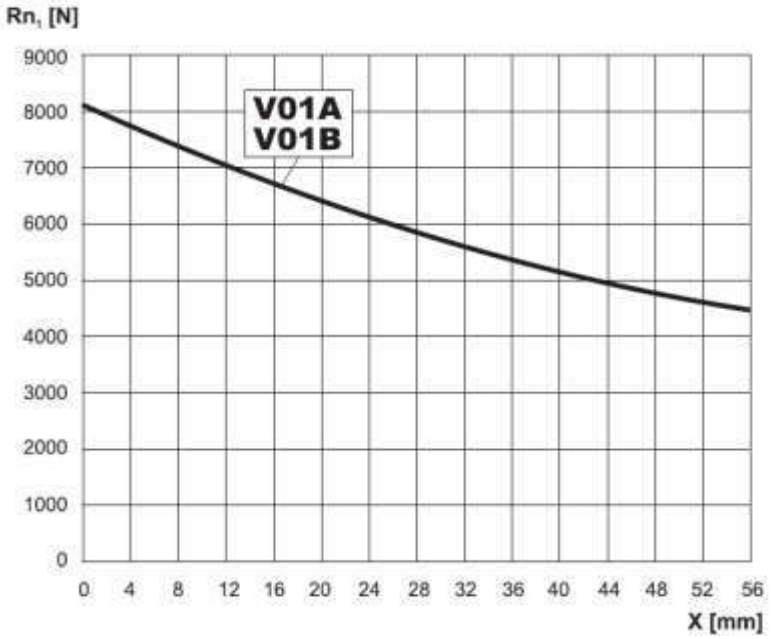


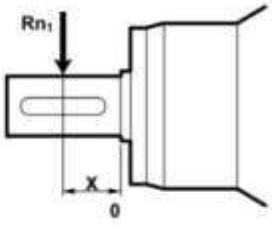

| | Rn2 | An2 (+/-) |
|---|---|---|
| FZ | 3713 | 3713 |

| Load correction factor $fh_2$ on shafts<br>فاکتور اصلاح بار $fh_2$ بر روی شافت | $Fh_2 = n_2$. h | | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 |
|---|---|---|---|---|---|---|---|---|
| | | FZ | 2.15 | 1.59 | 1.26 | 1.00 | 0.58 | 0.46 |
| | $fh_2$ | MZ - MC | 2.15 | 1.59 | 1.26 | 1.00 | 0.58 | 0.46 |
| | | HZ - HC - PC - PZ | 1.27 | 1.27 | 1.26 | 1.00 | 0.62 | 0.50 |

Permissible radial loads on input shaft with Fh1: n1. h = 250000

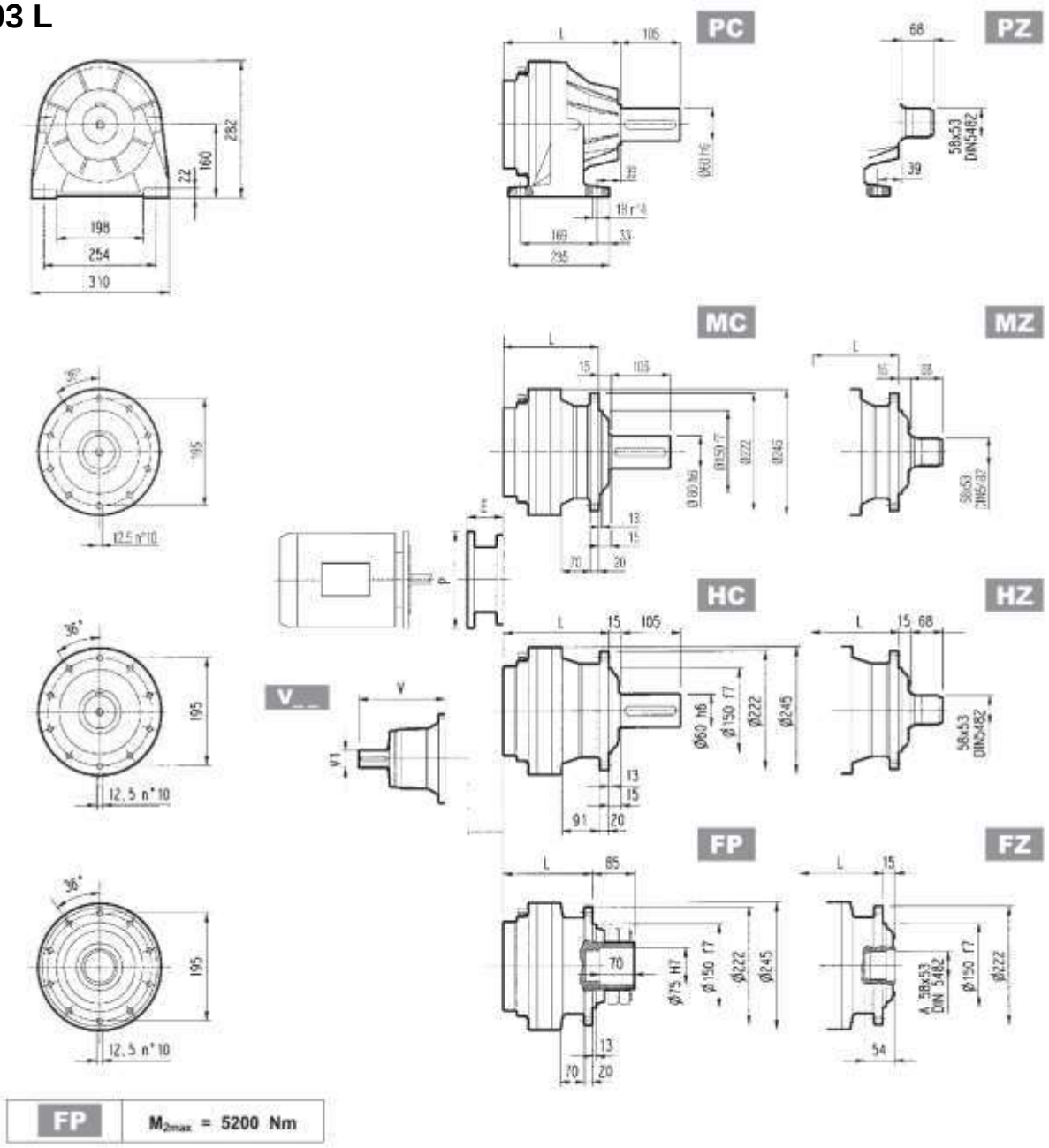
بارهای شعاعی مجاز بر روی شفت ورودی با Fh1: n1. h = 250000




| Load correction factor $fh_1$ on shafts<br>فاکتور اصلاح بار $fh_1$ بر روی شافت | $Fh_1 = n1$. h | 250000 | 500000 | 1000000 | 2000000 | 5000000 | 10000000 |
|---|---|---|---|---|---|---|---|
| | $fh_1$ | 1 | 0.79 | 0.63 | 0.5 | 0.37 | 0.29 |

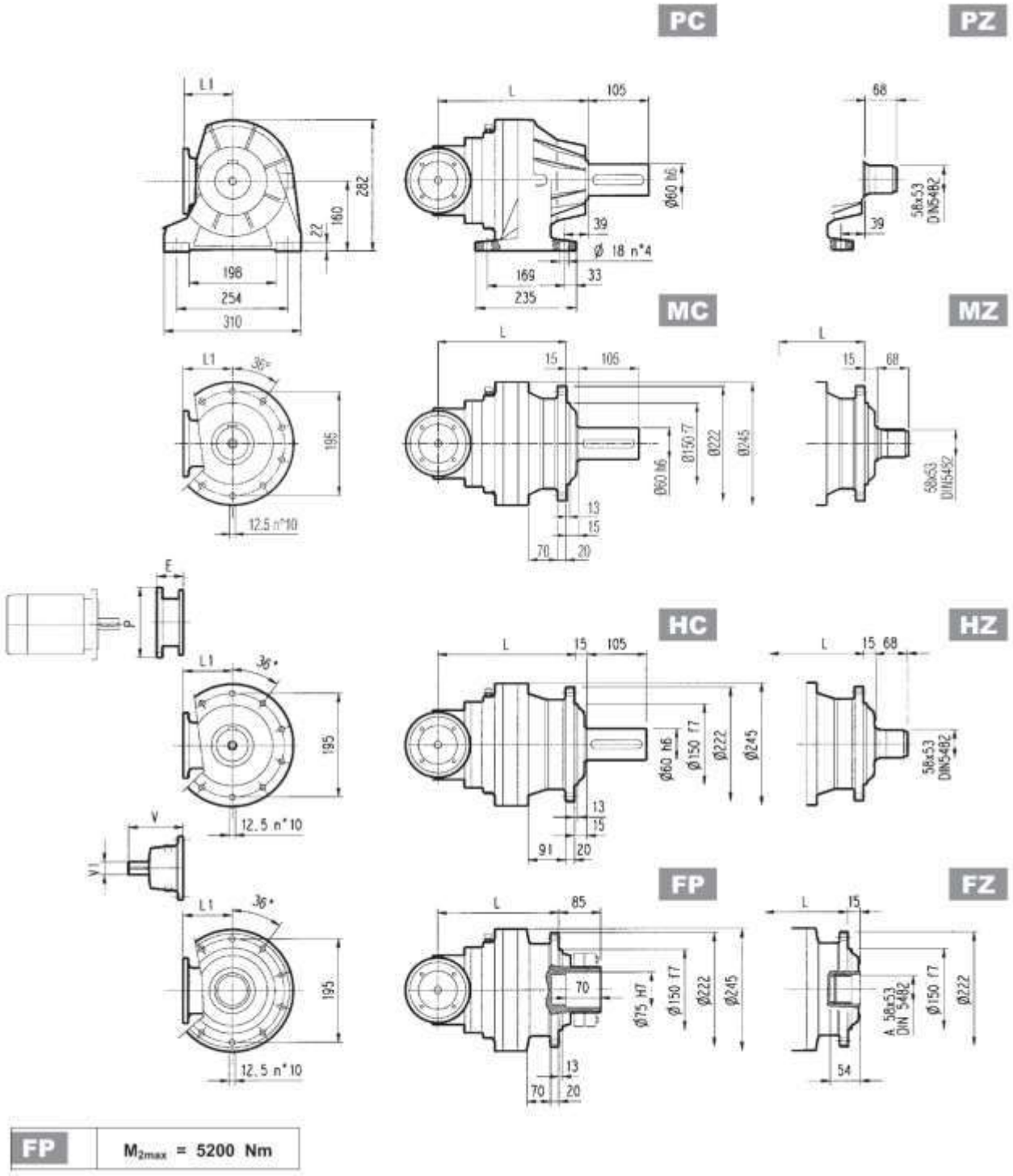
# 303 L




| | L | | | | Wight (kg) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MC - MZ | PC - PZ | HC - HZ | FP - FZ | MC - MZ | PC - PZ | HC - HZ | FP - FZ | V | $V_1$ | W(kg) | V | $V_1$ | W(kg) |
| **303 L1** | 125 | 165 | 150 | 125 | 31 | 40 | 35 | 31 | 239 | 48 | 15 | - | - | - |
| **303 L2** | 178 | 218 | 203 | 178 | 35 | 44 | 39 | 35 | 137.5 | 24 | 6 | 158 | 38 | 7 |
| **303 L3** | 231 | 271 | 254 | 231 | 39 | 48 | 43 | 39 | 137.5 | 24 | 6 | 158 | 38 | 7 |
| **303 L4** | 284 | 324 | 309 | 284 | 43 | 52 | 47 | 43 | 137.5 | 24 | 6 | 158 | 38 | 7 |

| | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | | P160 | | P180 | | P200 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P |
| **303 L1** | - | - | - | - | - | - | - | - | - | - | 114 | 300 | 114 | 350 | 144 | 350 | 174 | 400 |
| **303 L2** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 114 | 350 | - | - | - | - |
| **303 L3** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 114 | 350 | - | - | | |
| **303 L4** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 114 | 350 | - | - | | |

## 303R

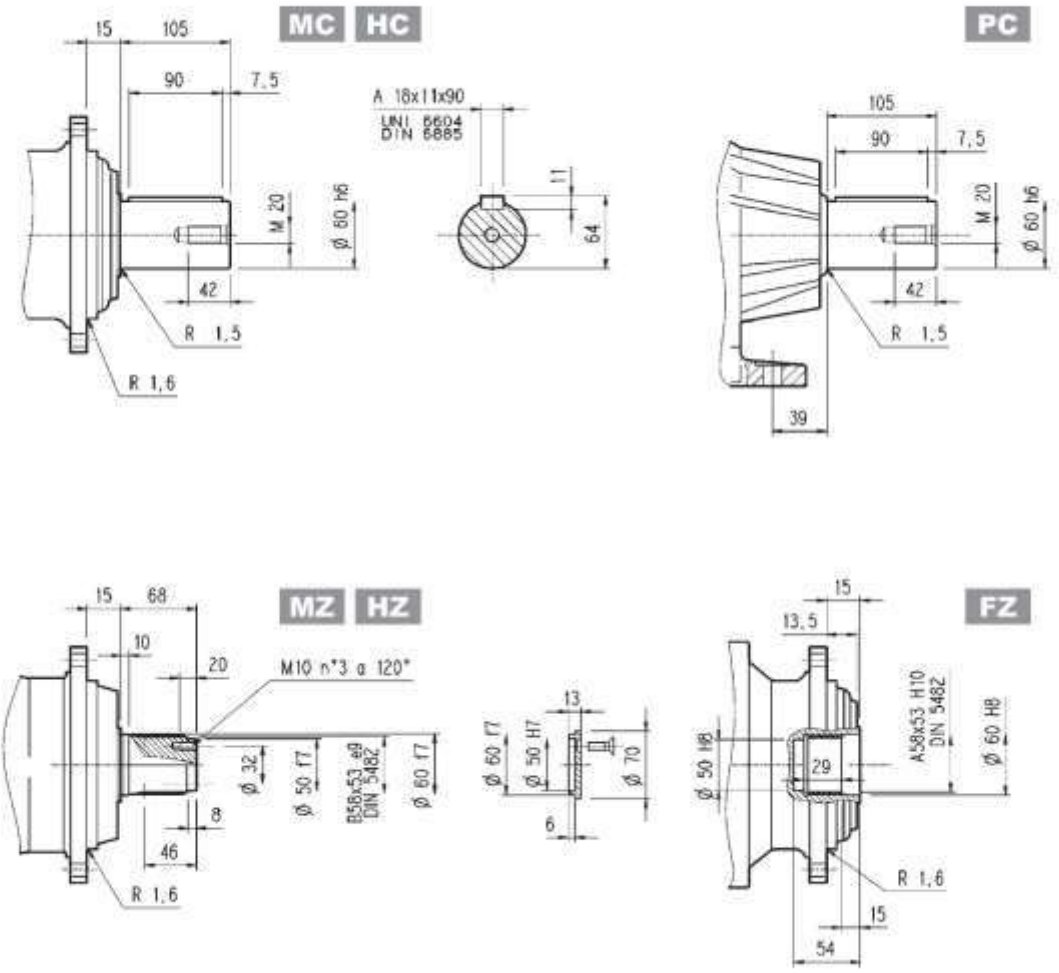



**FP** $M_{2max}$ = 5200 Nm

| | L | | | | R1 | Wight (kg) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MC - MZ | PC - PZ | HC - HZ | FP - FZ | | MC - MZ | PC - PZ | HC - HZ | FP - FZ | V | V1 | (kg) | V | V1 | (kg) |
| **303 R2** | 217 | 256 | 242 | 217 | 140 | 51 | 60 | 55 | 51 | 137.5 | 24 | 6 | 158 | 38 | 7 |
| **303 R3** | 270 | 310 | 295 | 270 | 122 | 49 | 58 | 53 | 49 | 137.5 | 24 | 6 | 158 | 38 | 7 |
| **303 R4** | 323 | 363 | 348 | 323 | 122 | 53 | 62 | 57 | 53 | 137.5 | 24 | 6 | 158 | 38 | 7 |

| | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P |
| **303 R2** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 |
| **303 R3** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 |
| **303 R4** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 |

## 303 L-303 R

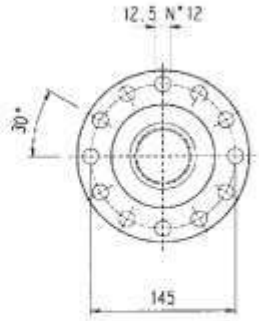


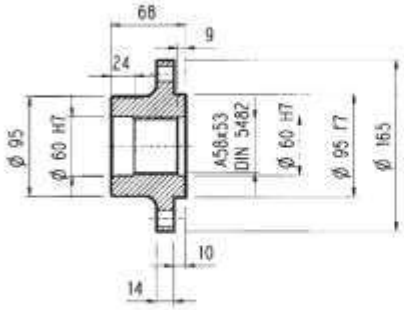

| FP | $M_{2max}$ = 5200 Nm |
|---|---|

## 303L-303R

## Flange

**WOA**

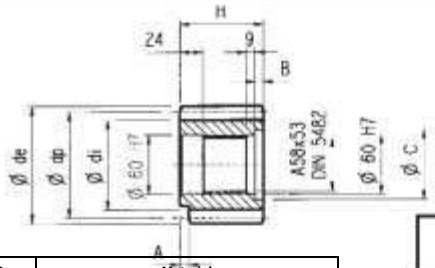



Material: Steel C40

## Pinions

**P...**

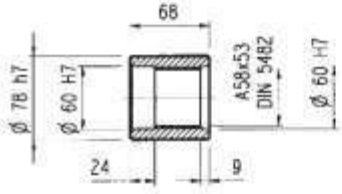



$\alpha = 20°$

| | m | z | x | dp | di | de | H | A | B | C | Material |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PCL1 | 5 | 19 | — | 95 | 82 | 104 | 77 | 12 | 9 | 72 | Steel 39NiCrMo3 hardened and tempered |
| PCL2 | 5 | 19 | — | 95 | 82 | 104 | 68 | — | — | — | |
| PCM | 5 | 20 | — | 100 | 87.5 | 110 | 68 | 18 | — | — | Steel 18NiCrMo5 case hardened |
| PCP | 5 | 22 | — | 110 | 97.5 | 120 | 68 | 18 | — | — | |
| PDE | 6 | 14 | 0.5 | 84 | 75 | 99.6 | 68 | — | — | — | Steel 39NiCrMo3 hardened and tempered |
| PDI | 6 | 18 | 0.5 | 108 | 99 | 123.6 | 68 | — | — | — | |
| PDM | 6 | 20 | 0.83 | 120 | 115 | 140 | 68 | — | — | — | |
| PFD | 8 | 13 | 0.68 | 104 | 95 | 127.6 | 68 | — | — | — | Steel 18NiCrMo5 case hardened |
| PFE1 | 8 | 14 | — | 112 | 92 | 126 | 68 | — | — | — | |
| PFE2 | 8 | 14 | — | 112 | 92 | 126 | 80 | — | 12 | 72 | |
| PFF | 8 | 15 | — | 120 | 100 | 136 | 68 | — | — | — | Steel 39NiCrMo3 hardened and tempered |
| PFP | 8 | 22 | — | 176 | 156 | 190 | 77 | 12 | 10 | 71 | |
| PHG | 10 | 16 | 0.5 | 160 | 145 | 188 | 75 | — | 7 | 72 | |

## Sleeve coupling

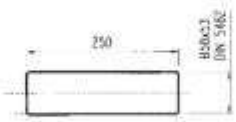
**MOA**




Material: Steel 16CrNi4

## Splined bars

**BOA**

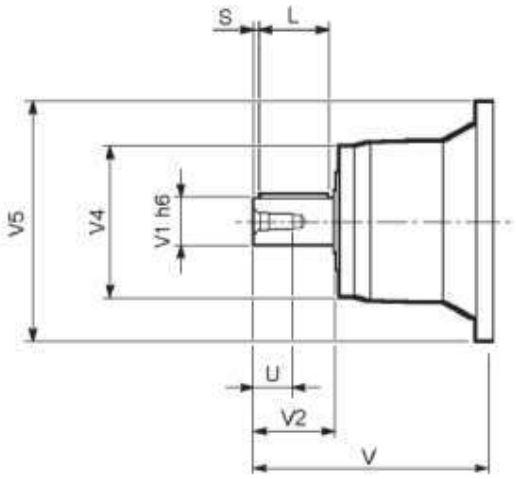


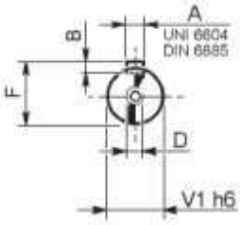

Material: Case hardening steel 18NiCrMo5
UNI 5331 must be case hardened 50-55 HRC

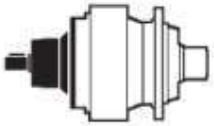
## Shrink disc

**GOA**

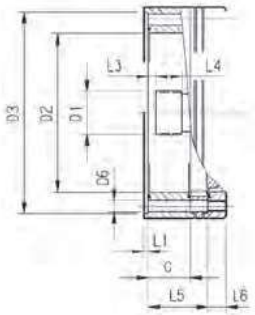
## 303L-303R

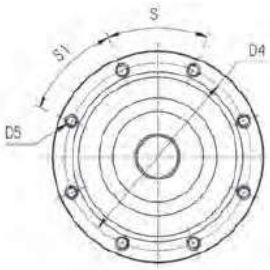


| | input | V | V1 | V2 | V4 | V5 | A | B | F | L | S | D | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **303 L1** | **V05B** | 239 | 48 | 82 | 155 | 245 | 14 | 9 | 51.5 | 70 | 6 | M16 | 36 |
| **303 L2** | **V01A** | 137.5 | 24 | 36 | 120 | 186 | 8 | 7 | 27 | 30 | 3 | M8 | 19 |
| | **V01B** | 158 | 38 | 58 | 120 | 186 | 10 | 8 | 41 | 50 | 4 | M12 | 28 |
| **303 L3** | **V01A** | 137.5 | 24 | 36 | 120 | 186 | 8 | 7 | 27 | 30 | 3 | M8 | 19 |
| | **V01B** | 158 | 38 | 58 | 120 | 186 | 10 | 8 | 41 | 50 | 4 | M12 | 28 |
| **303 L4** | **V01A** | 137.5 | 24 | 36 | 120 | 186 | 8 | 7 | 27 | 30 | 3 | M8 | 19 |
| | **V01B** | 158 | 38 | 58 | 120 | 186 | 10 | 8 | 41 | 50 | 4 | M12 | 28 |
| **303 R2-R3-R4** | **V01A** | 137.5 | 24 | 36 | 120 | 186 | 8 | 7 | 27 | 30 | 3 | M8 | 19 |
| | **V01B** | 158 | 38 | 58 | 120 | 186 | 10 | 8 | 41 | 50 | 4 | M12 | 28 |

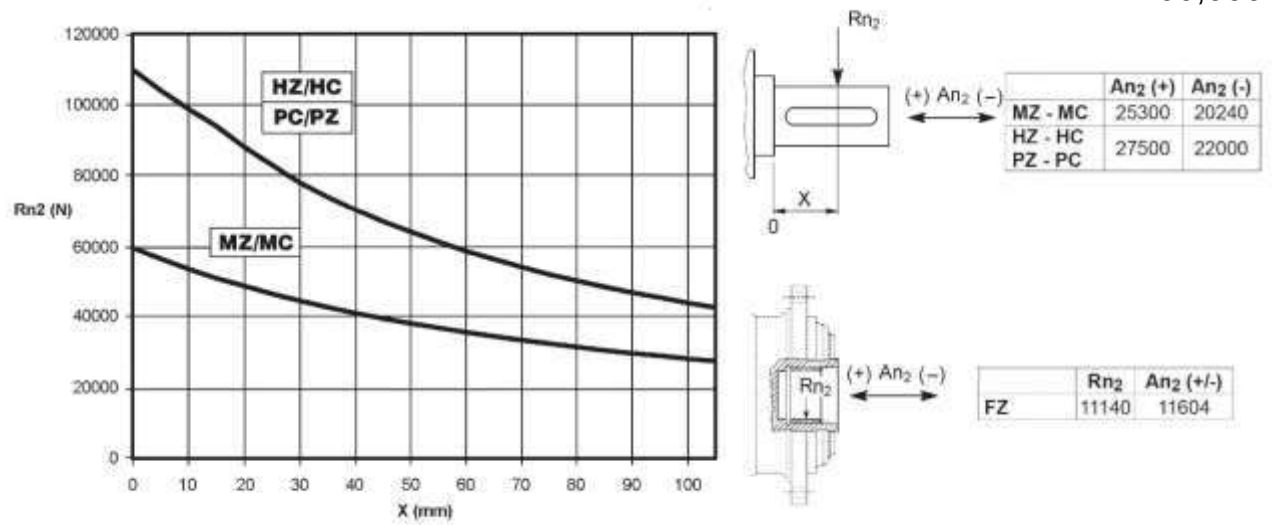



| | | C | D1 | D2 | D3 | D4 | D5 | D6 | L1 | L2 | L3 | L4 | L5 | L6 | S | S1 | Input |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **303L1** | V9AA | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | 11 | 4 | — | 9 | 18 | — | 18 | 45° | 45° | A |
| **303L2** | V9AA | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | 11 | 4 | — | 9 | 18 | 53 | 18 | 45° | 45° | A |
| **303L3** | V9AA | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | 11 | 4 | — | 9 | 18 | 106 | 18 | 45° | 45° | A |
| **303L4** | V9AA | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | 11 | 4 | — | 9 | 18 | 159 | 18 | 45° | 45° | A |
| **303R2-R3-R4** | V9AA | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | 11 | 4 | — | 9 | 18 | 37 | 18 | 45° | 45° | A |

Permissible radial and axial loads on output shaft with $Fh_2$: $n_2$. h = 100,000

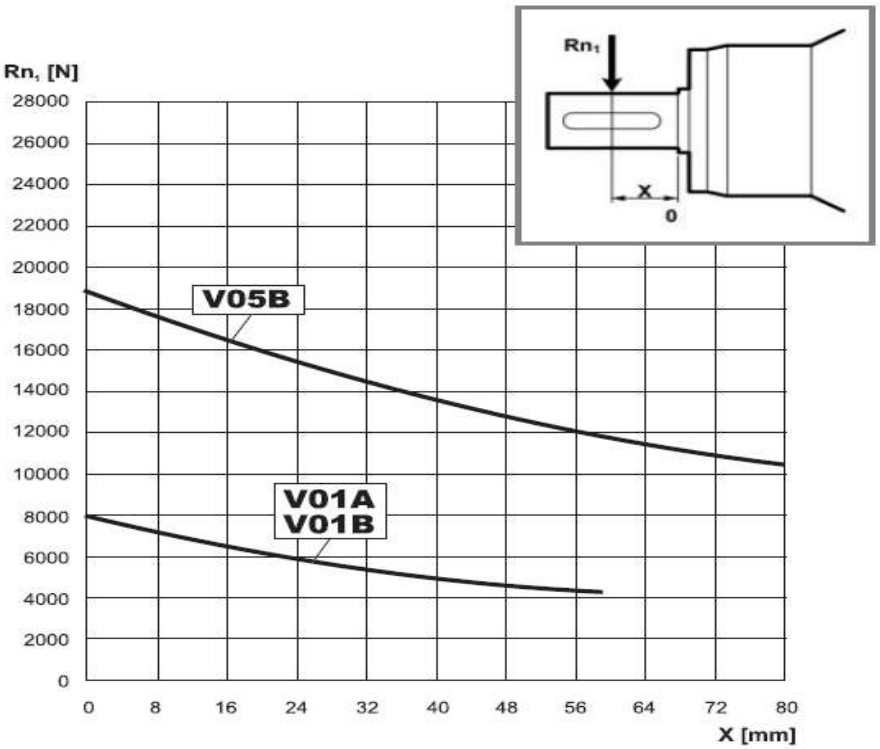
بارهای شعاعی و محوری مجاز بر روی شافت خروجی با
Fh2: n2. h = 100,000




| FLoad correction factor fh2 on shafts<br>بر روی شافت fh2 فاکتور اصلاح بار | Fh2 = n2. h | | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 |
|---|---|---|---|---|---|---|---|---|
| | fh2 | FZ | 2.15 | 1.59 | 1.26 | 1.00 | 0.58 | 0.46 |
| | | MZ - MC - FZ | 2.15 | 1.59 | 1.26 | 1.00 | 0.58 | 0.46 |
| | | HZ - HC - PC - PZ | 1.48 | 1.48 | 1.23 | 1.00 | 0.62 | 0.50 |

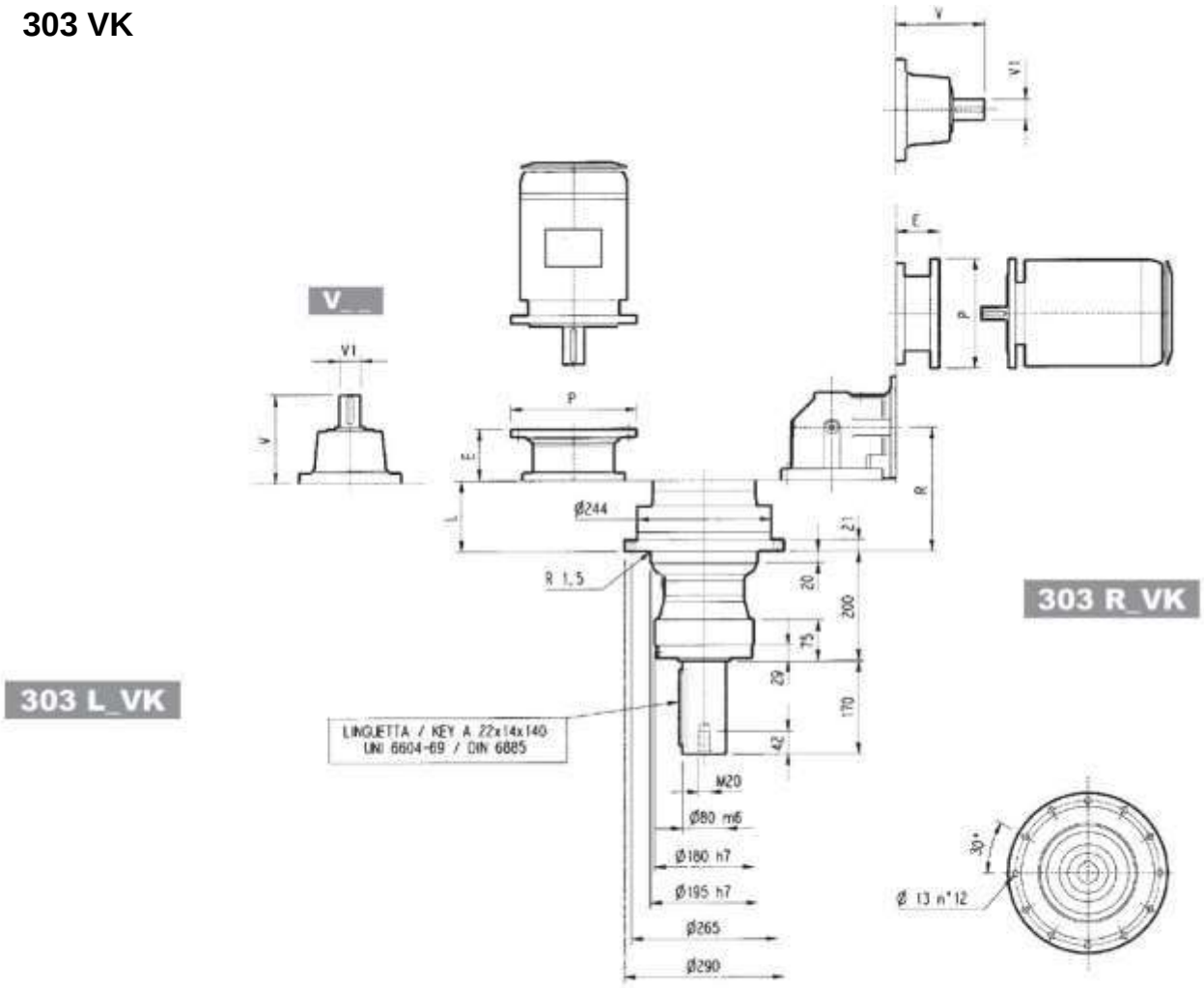
Permissible radial loads on input shaft with Fh1: n1. h = 250000

بارهای شعاعی مجاز بر روی شفت ورودی با
Fh1: n1. h = 250000




| Load correction factor $fh_1$ on shafts<br>فاکتور اصلاح بار $fh_1$ بر روی شافت | $Fh_1$ = n1. h | 250000 | 500000 | 1000000 | 2000000 | 5000000 | 10000000 |
|---|---|---|---|---|---|---|---|
| | $fh_1$ | 1 | 0.79 | 0.63 | 0.5 | 0.37 | 0.29 |

## 303 VK




| | L | Kg | V | V1 | Kg | V | V1 | Kg | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | | P160 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | E | P | E | P | E | P | E | P | E | P | E | P | E | P |
| **303L1** | 51 | 65 | 239 | 48 | 15 | - | - | - | - | - | - | - | - | - | - | - | - | - | 114 | 300 | 144 | 350 |
| **303L2** | 104 | 70 | 137.5 | 24 | 6 | 158 | 38 | 7 | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 144 | 350 |
| **303L3** | 157 | 73 | 137.5 | 24 | 6 | 158 | 38 | 7 | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 144 | 350 |
| **303L4** | 210 | 77 | 137.5 | 24 | 6 | 158 | 38 | 7 | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 144 | 350 |

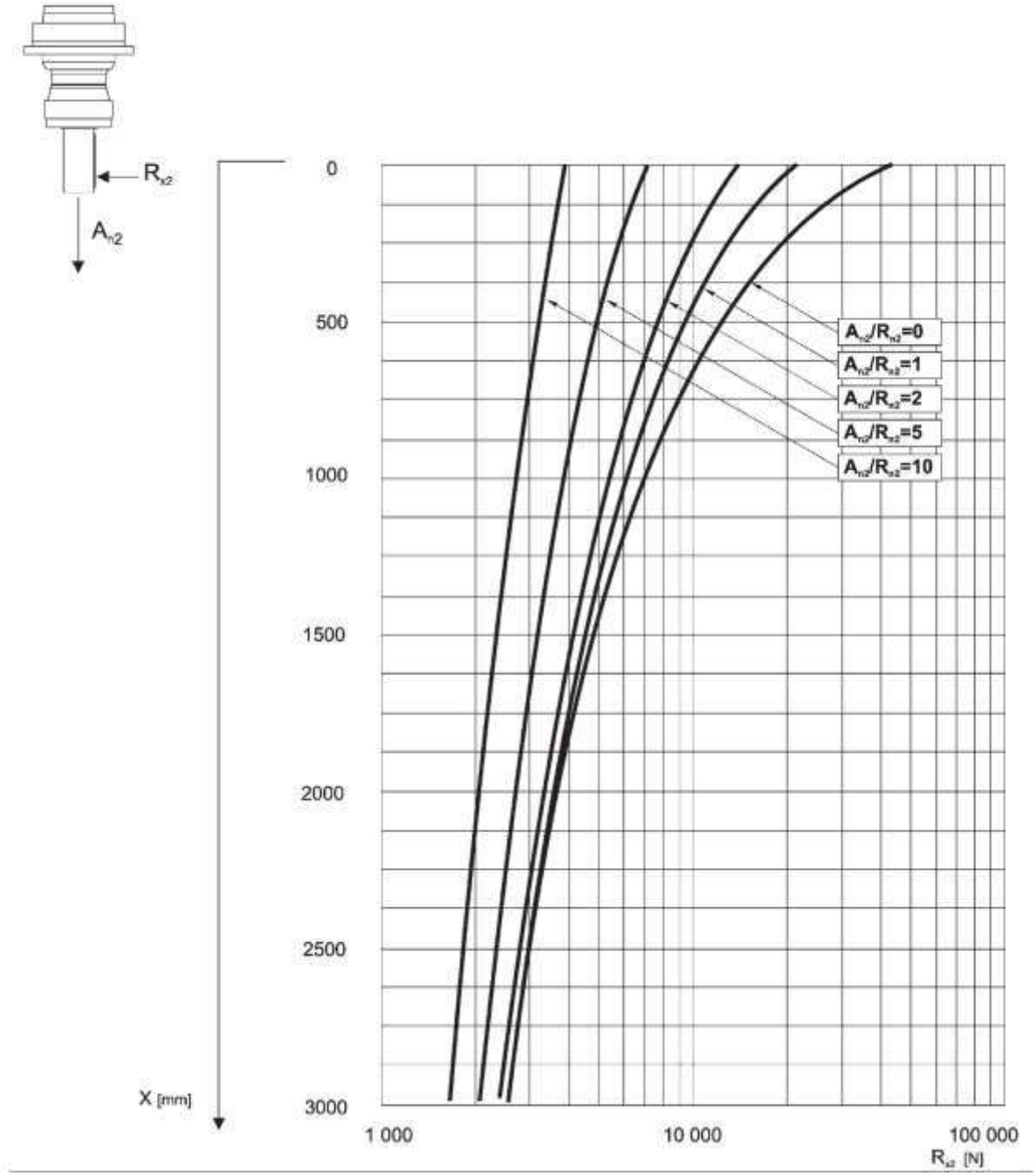
| | R | R1 | Kg | V | V1 | Kg | V | V1 | Kg | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | E | P | E | P | E | P | E | P | E | P | E | P |
| **303R1** | 143 | 140 | 85 | 137.5 | 24 | 6 | 158 | 38 | 7 | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 |
| **303R2** | 196 | 122 | 83 | 137.5 | 24 | 6 | 158 | 38 | 7 | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 |
| **303R3** | 249 | 122 | 87 | 137.5 | 24 | 6 | 158 | 38 | 7 | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 |

نمودار زیر امکان محاسبه بار اضافی مجاز Rx2 را بر روی شافت خروجی گیربکس ، با نیروی شعاعی اعمال شده در فاصله x از شافت.

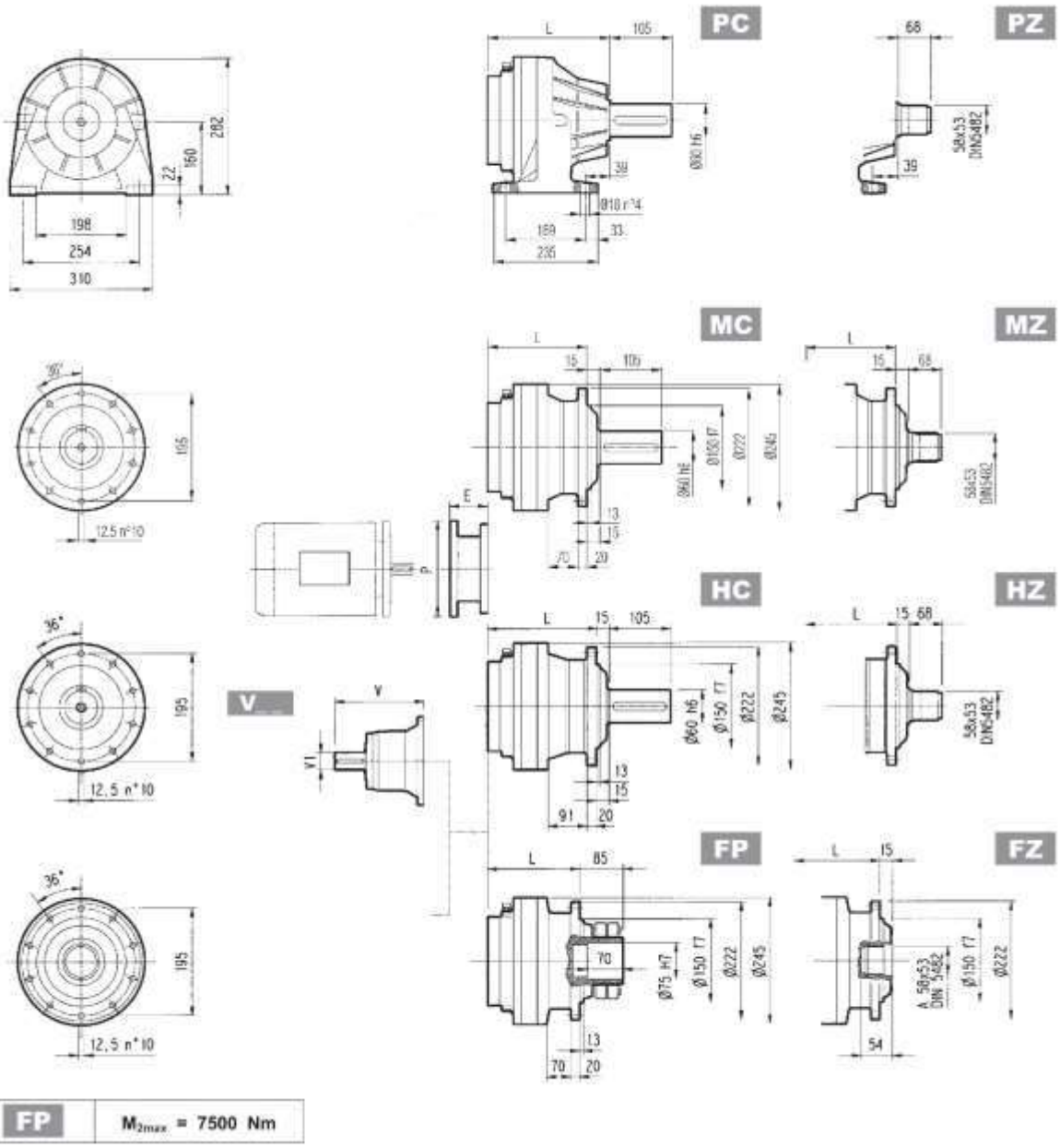
منحنی ها به مقدار مربوط به رابطه بار مجاز An2 به بار شعاعی Rn2 مربوط می شوند

n2 = 10 دقیقه در ۱ و ۱۰۰۰۰ ساعت طول عمر نظری.

The diagram below allows the calculation of permitted overhung load Rx2 on the output shaft of gearbox, with radial force applying at a distance x from shaft shoulder. The curves are relevant to value resulting from the relationship of trust load An2 to radial load Rn2, based on n2 = 10 min-1 and 10000 hrs. theoretical lifetime.



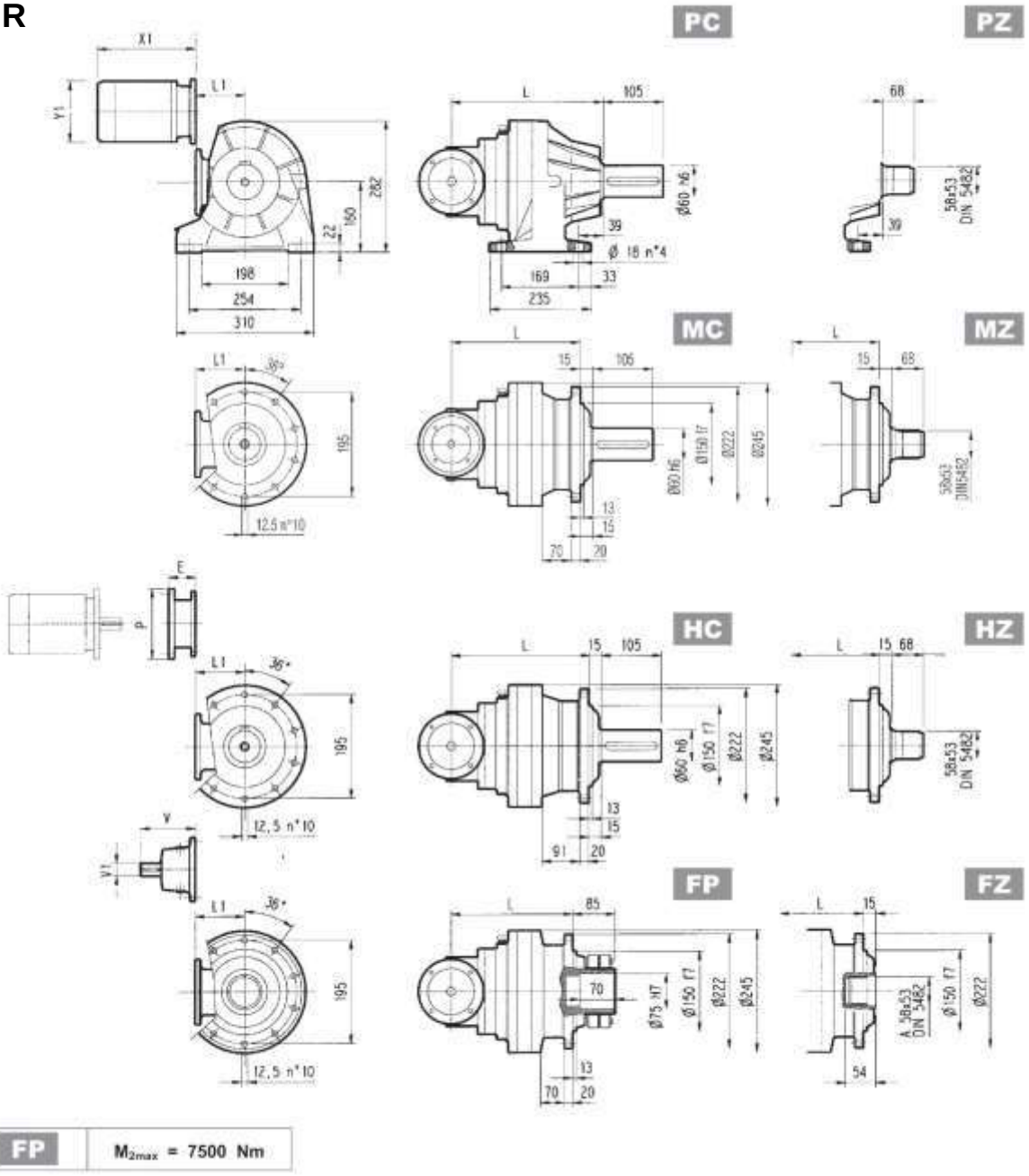
# 305 L




| | L | | | | Wight (kg) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MC - MZ | PC - PZ | HC - HZ | FP - FZ | MC - MZ | PC - PZ | HC - HZ | FP - FZ | V | $V_1$ | W(kg) | V | $V_1$ | W(kg) |
| **305 L1** | 143 | 183 | 168 | 143 | 36 | 45 | 40 | 36 | 239 | 48 | 15 | 239 | 48 | 15 |
| **305 L2** | 208 | 248 | 233 | 208 | 43 | 52 | 47 | 43 | 137.5 | 24 | 6 | 137.5 | 24 | 6 |
| **305 L3** | 261 | 301 | 286 | 261 | 47 | 56 | 51 | 47 | 137.5 | 24 | 6 | 137.5 | 24 | 6 |
| **305 L4** | 314 | 354 | 339 | 314 | 51 | 60 | 55 | 51 | 137.5 | 24 | 6 | 137.5 | 24 | 6 |

| | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | | P160 | | P180 | | P200 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P |
| **305 L1** | - | - | - | - | - | - | - | - | - | - | 114 | 300 | 114 | 350 | 144 | 350 | 174 | 400 |
| **305 L2** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 114 | 350 | - | - | - | - |
| **305 L3** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 114 | 350 | - | - | | |
| **305 L4** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 114 | 350 | - | - | | |

# 305 R

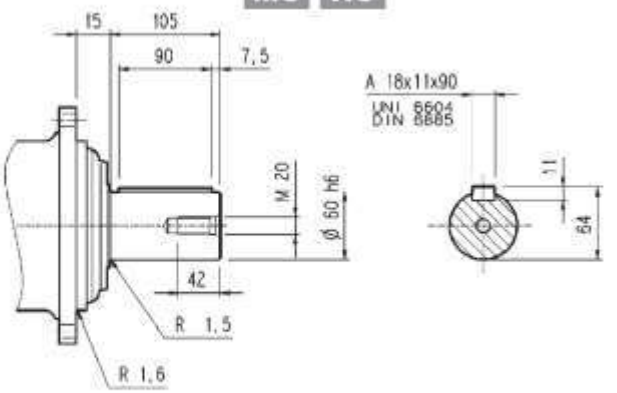



| | L | | | | L1 | Wight (kg) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MC - MZ | PC - PZ | HC - HZ | FP - FZ | | MC - MZ | PC - PZ | HC - HZ | FP - FZ | V | V1 | (kg) | V | V1 | (kg) |
| **305 R2** | 235 | 375 | 260 | 235 | 140 | 56 | 65 | 60 | 56 | 137.5 | 24 | 6 | 158 | 38 | 7 |
| **305 R3** | 300 | 340 | 325 | 300 | 122 | 57 | 66 | 61 | 57 | 137.5 | 24 | 6 | 158 | 38 | 7 |
| **305 R4** | 353 | 393 | 378 | 353 | 122 | 61 | 70 | 65 | 61 | 137.5 | 24 | 6 | 158 | 38 | 7 |

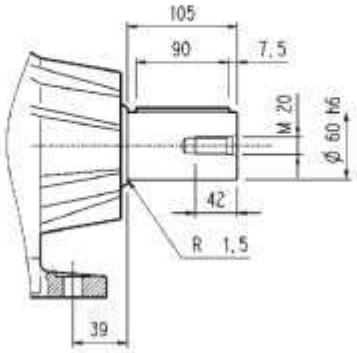
| | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P |
| **305 R2** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 |
| **305 R3** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 |
| **305 R4** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 |

## 305 L - 305 R

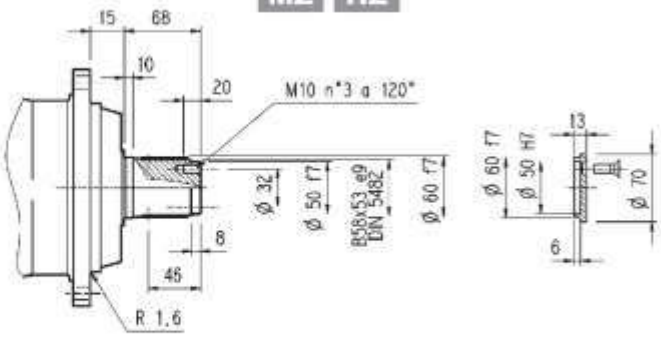
MC HC



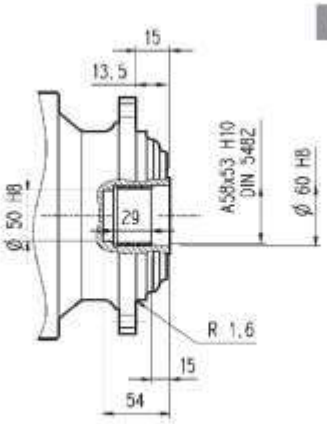

PC



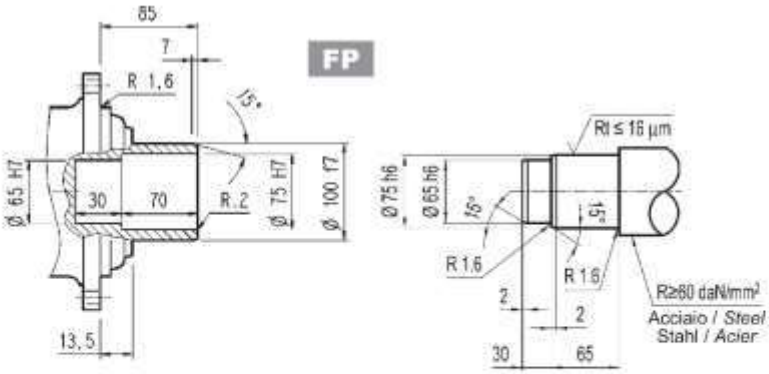

MZ HZ




FZ




FP

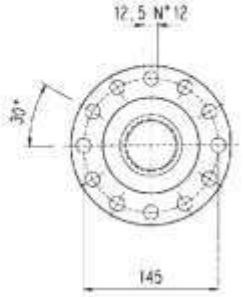


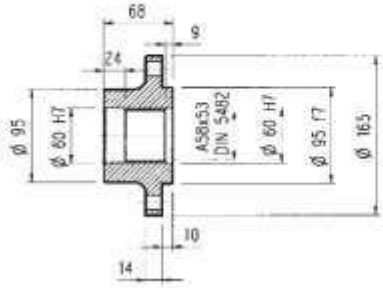

| FP | $M_{2max}$ = 7500 Nm |
|---|---|

# 305 L - 305 R

## Flange

**WOA**

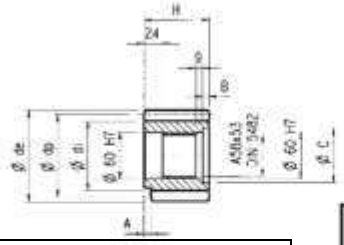



Material: Steel C40

## Pinions

**P...**

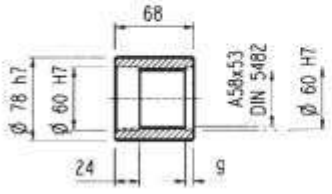



$\alpha = 20°$

| | m | z | x | dp | di | de | H | A | B | C | Material |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PCL1 | 5 | 19 | — | 95 | 82 | 104 | 77 | 12 | 9 | 72 | Steel 39NiCrMo3 hardened and tempered |
| PCL2 | 5 | 19 | — | 95 | 82 | 104 | 68 | — | — | — | |
| PCM | 5 | 20 | — | 100 | 87.5 | 110 | 68 | 18 | — | — | Steel 18NiCrMo5 case hardened |
| PCP | 5 | 22 | — | 110 | 97.5 | 120 | 68 | 18 | — | — | |
| PDE | 6 | 14 | 0.5 | 84 | 75 | 99.6 | 68 | — | — | — | Steel 39NiCrMo3 hardened and tempered |
| PDI | 6 | 18 | 0.5 | 108 | 99 | 123.6 | 68 | — | — | — | |
| PDM | 6 | 20 | 0.83 | 120 | 115 | 140 | 68 | — | — | — | |
| PFD | 8 | 13 | 0.68 | 104 | 95 | 127.6 | 68 | — | — | — | Steel 18NiCrMo5 case hardened |
| PFE1 | 8 | 14 | — | 112 | 92 | 126 | 68 | — | — | — | |
| PFE2 | 8 | 14 | — | 112 | 92 | 126 | 80 | — | 12 | 72 | |
| PFF | 8 | 15 | — | 120 | 100 | 136 | 68 | — | — | — | Steel 39NiCrMo3 hardened and tempered |
| PFP | 8 | 22 | — | 176 | 156 | 190 | 77 | 12 | 10 | 71 | |
| PHG | 10 | 16 | 0.5 | 160 | 145 | 188 | 75 | — | 7 | 72 | |

## Sleeve coupling

**MOA**




Material: Steel 16CrNi4

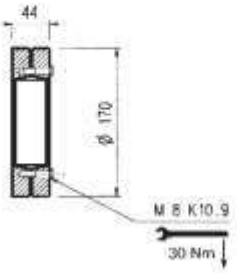
## Splined bars

**BOA**

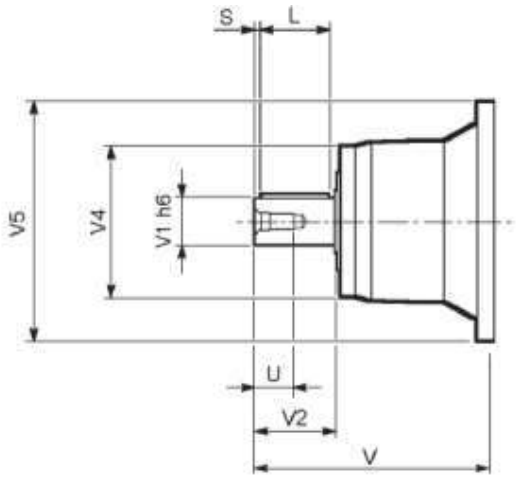

Material: Case hardening steel 18NiCrMo5
UNI 5331 must be case hardened 50-55 HRC

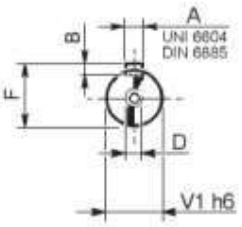
## Shrink disc

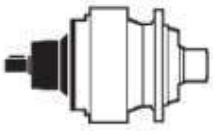
**GOA**



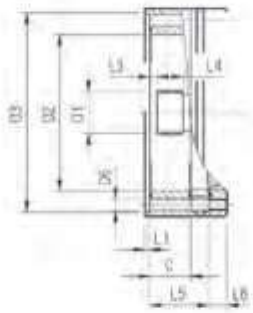
## 305 L - 305 R



| | input | V | V1 | V2 | V4 | V5 | A | B | F | L | S | D | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **305 L1** | **V05B** | 239 | 48 | 82 | 155 | 245 | 14 | 9 | 51.5 | 70 | 6 | M16 | 36 |
| **305 L2** | **V01A** | 137.5 | 24 | 36 | 120 | 186 | 8 | 7 | 27 | 30 | 3 | M8 | 19 |
| | **V01B** | 158 | 38 | 58 | 120 | 186 | 10 | 8 | 41 | 50 | 4 | M12 | 28 |
| **305 L3** | **V01A** | 137.5 | 24 | 36 | 120 | 186 | 8 | 7 | 27 | 30 | 3 | M8 | 19 |
| | **V01B** | 158 | 38 | 58 | 120 | 186 | 10 | 8 | 41 | 50 | 4 | M12 | 28 |
| **305 L4** | **V01A** | 137.5 | 24 | 36 | 120 | 186 | 8 | 7 | 27 | 30 | 3 | M8 | 19 |
| | **V01B** | 158 | 38 | 58 | 120 | 186 | 10 | 8 | 41 | 50 | 4 | M12 | 28 |
| **305 R2-R3-R4** | **V01A** | 137.5 | 24 | 36 | 120 | 186 | 8 | 7 | 27 | 30 | 3 | M8 | 19 |
| | **V01B** | 158 | 38 | 58 | 120 | 186 | 10 | 8 | 41 | 50 | 4 | M12 | 28 |

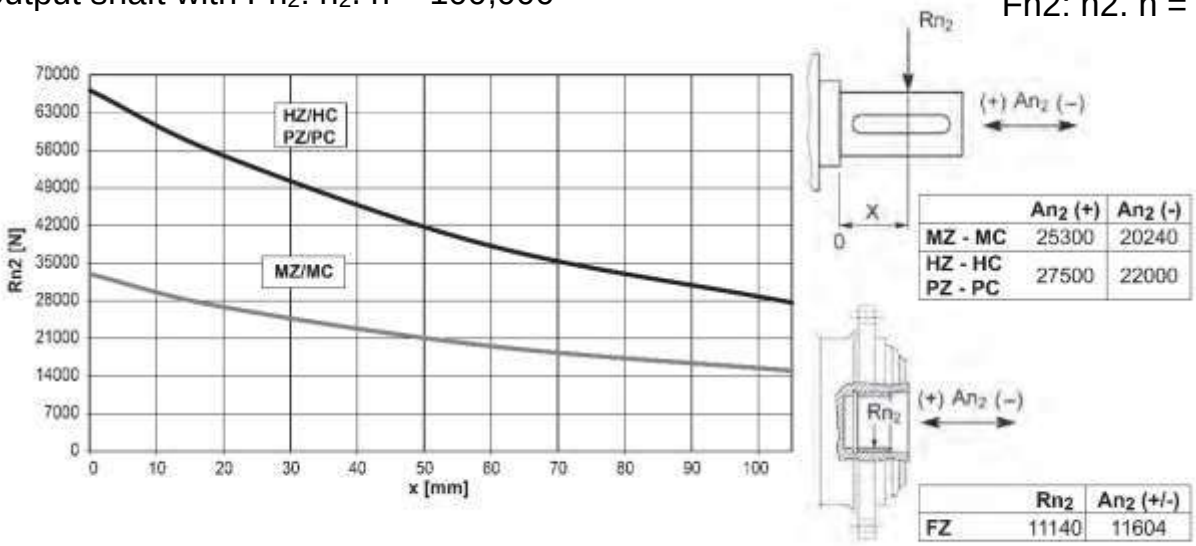




| | | C | D1 | D2 | D3 | D4 | D5 | D6 | L1 | L2 | L3 | L4 | L5 | L6 | S | S1 | Input |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **305L1** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | 11 | 4 | — | 9 | 18 | — | 18 | 45° | 45° | A |
| **305L2** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | 11 | 4 | — | 9 | 18 | 65 | 18 | 45° | 45° | A |
| **305L3** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | 11 | 4 | — | 9 | 18 | 118 | 18 | 45° | 45° | A |
| **305L4** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | 11 | 4 | — | 9 | 18 | 171 | 18 | 45° | 45° | A |
| **305R2-R3-R4** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | 11 | 4 | — | 9 | 18 | 37 | 18 | 45° | 45° | A |

Permissible radial and axial loads on output shaft with $Fh_2$: $n_2$. h = 100,000

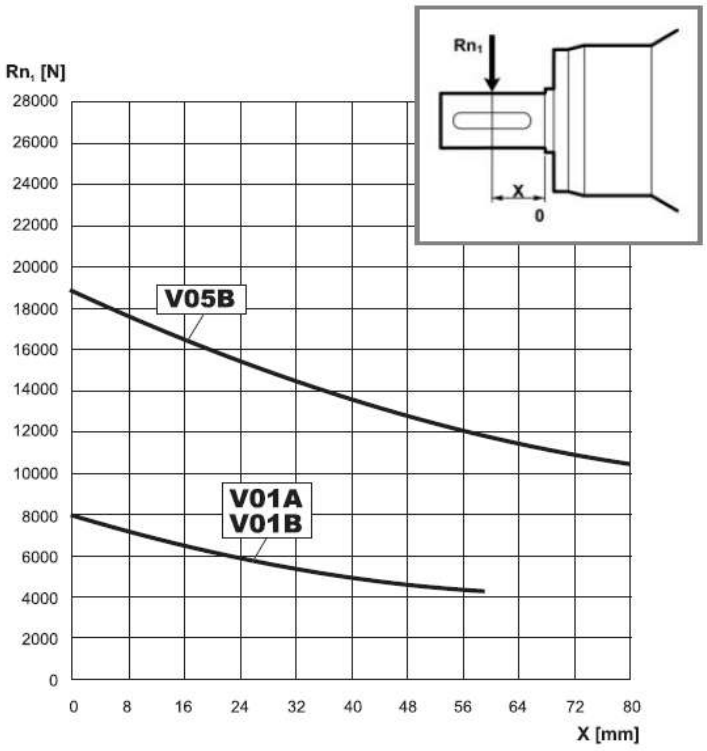
بارهای شعاعی و محوری مجاز بر روی شافت خروجی با
Fh2: n2. h = 100,000




| Load correction factor $fh_2$ on shafts<br>فاکتور اصلاح بار $fh_2$ بر روی شافت | $Fh_2 = n_2$. h | | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 |
|---|---|---|---|---|---|---|---|---|
| | $fh_2$ | FZ | 2.15 | 1.59 | 1.26 | 1.00 | 0.58 | 0.46 |
| | | MZ - MC - FZ | 2.15 | 1.59 | 1.26 | 1.00 | 0.58 | 0.46 |
| | | HZ - HC - PC - PZ | 1.18 | 1.48 | 1.23 | 1.00 | 0.62 | 0.50 |

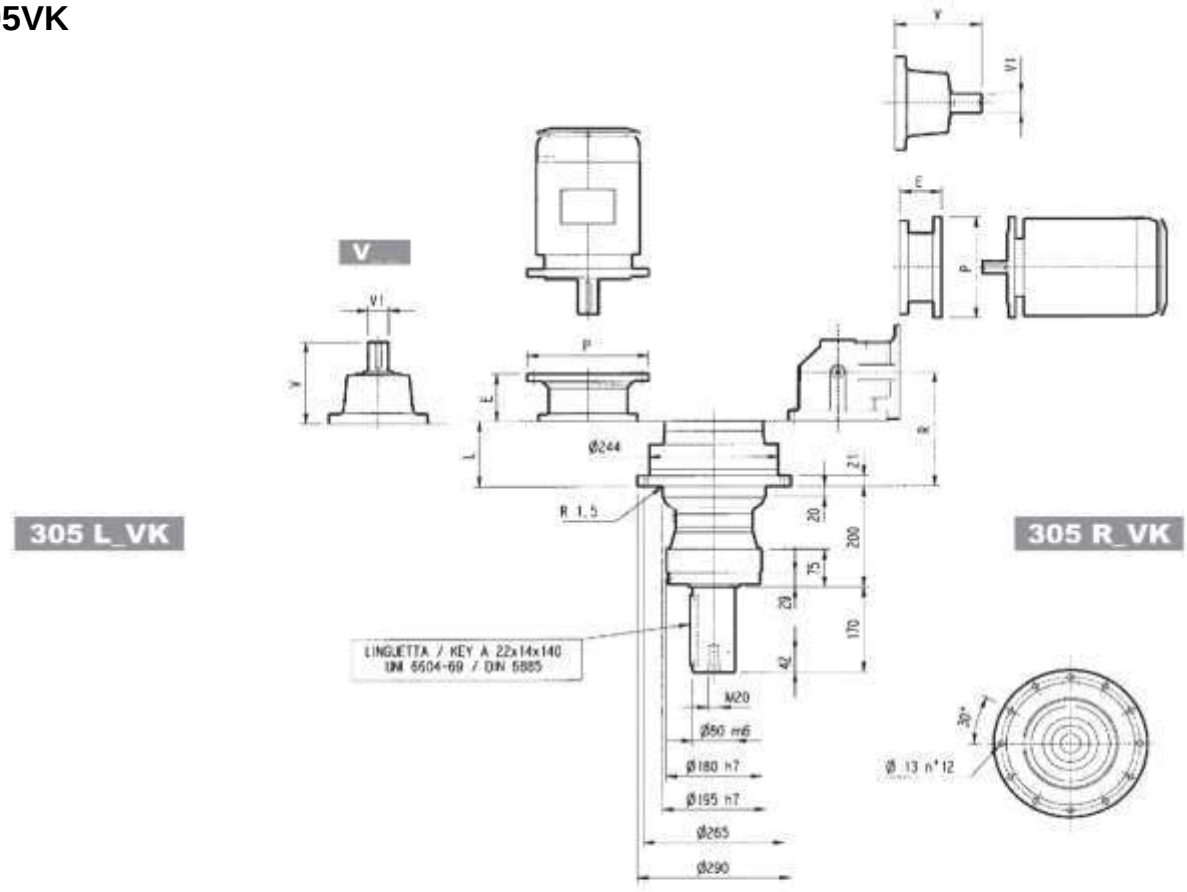
Permissible radial loads on input shaft with Fh1: n1. h = 250000

بارهای شعاعی مجاز بر روی شفت ورودی با
Fh1: n1. h = 250000




| Load correction factor $fh_1$ on shafts<br>فاکتور اصلاح بار $fh_1$ بر روی شافت | $Fh_1 = n1$. h | 250000 | 500000 | 1000000 | 2000000 | 5000000 | 10000000 |
|---|---|---|---|---|---|---|---|
| | $fh_1$ | 1 | 0.79 | 0.63 | 0.5 | 0.37 | 0.29 |

## 305VK




| | L | kg | V | V1 | kg | V | V1 | kg | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | | P160 | | P180 | | P200 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P |
| **305L1** | 69 | 70 | 239 | 48 | 15 | — | — | — | — | — | — | — | — | — | — | — | — | — | 114 | 300 | 144 | 350 | 144 | 350 | 174 | 400 |
| **305L2** | 134 | 77 | 138 | 24 | 6 | 158 | 38 | 7 | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 144 | 350 | — | — | — | — |
| **305L3** | 187 | 81 | 138 | 24 | 6 | 158 | 38 | 7 | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 144 | 350 | — | — | — | — |
| **305L4** | 240 | 85 | 138 | 24 | 6 | 158 | 38 | 7 | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 144 | 350 | — | — | — | — |

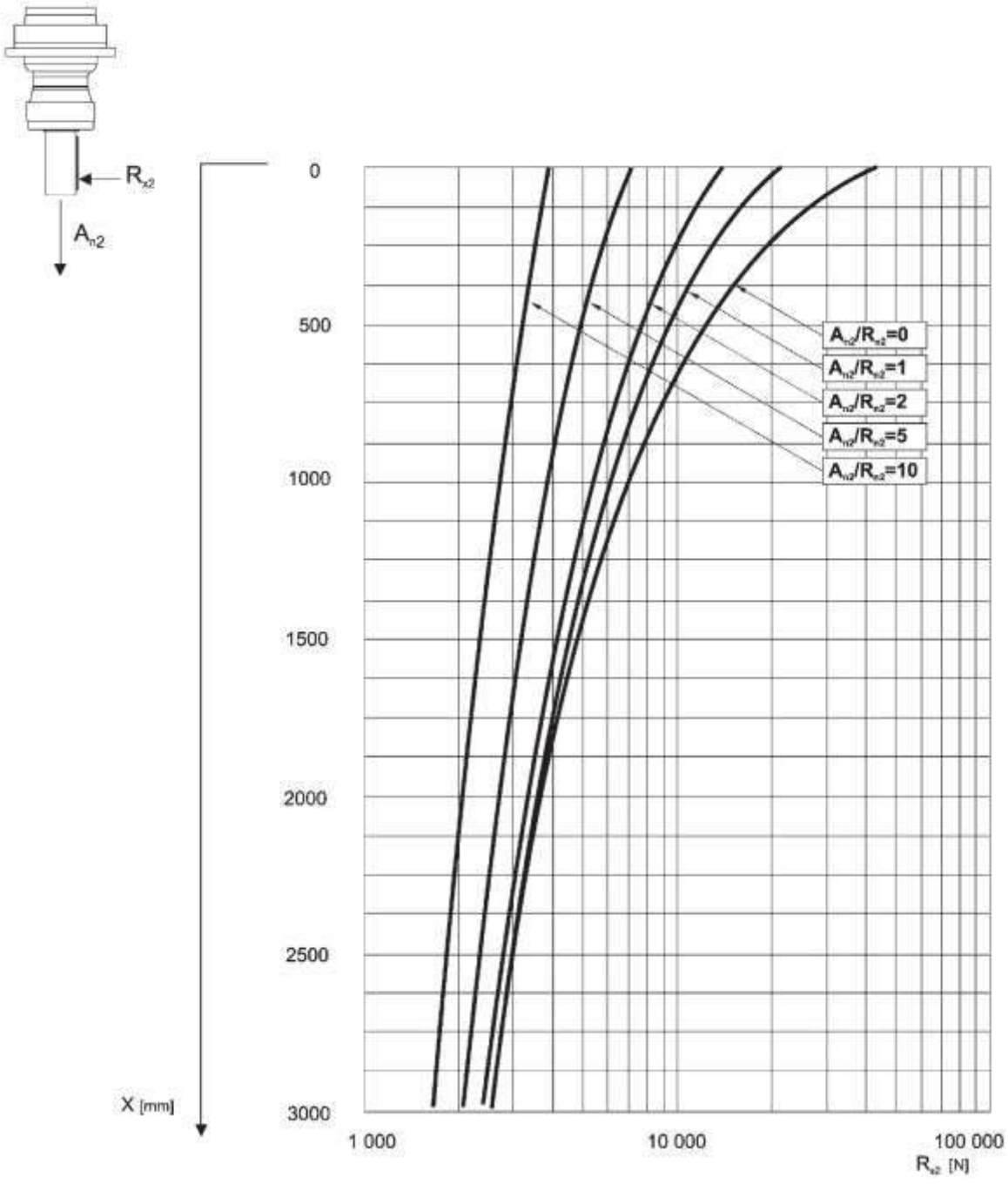
| | R | R1 | kg | V | V1 | kg | V | V1 | kg | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | E | P | E | P | E | P | E | P | E | P | E | P |
| **305R1** | 161 | 140 | 90 | 137.5 | 24 | 6 | 158 | 38 | 7 | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 |
| **305R2** | 226 | 122 | 92 | 137.5 | 24 | 6 | 158 | 38 | 7 | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 |
| **305R3** | 279 | 122 | 95 | 137.5 | 24 | 6 | 158 | 38 | 7 | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 |

نمودار زیر امکان محاسبه بار اضافی مجاز Rx2 را بر روی شافت خروجی گیربکس ، با نیروی شعاعی اعمال شده در فاصله x از شافت.

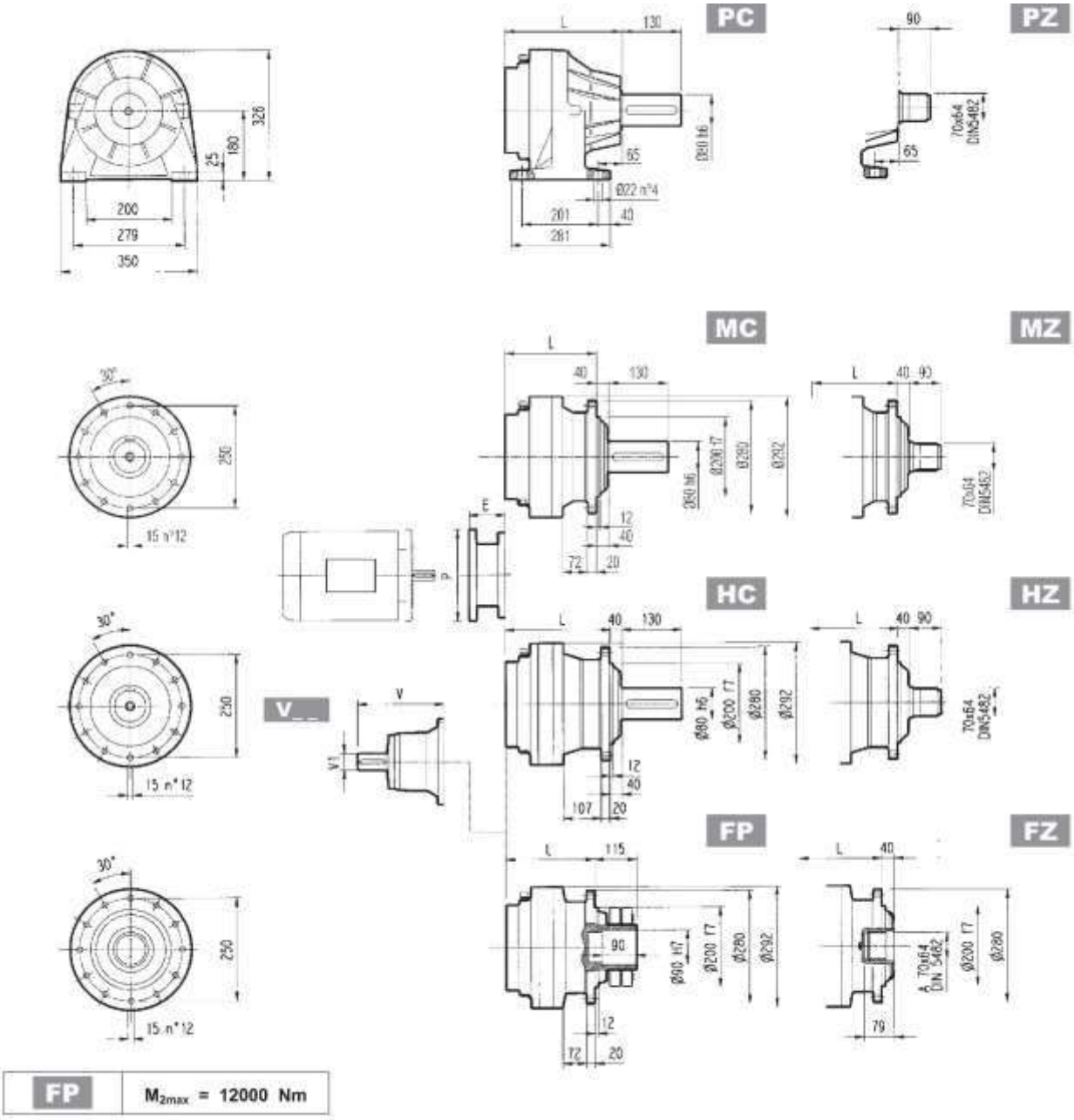
منحنی ها به مقدار مربوط به رابطه بار مجاز An2 به بار شعاعی Rn2 مربوط می شوند

n2 = 10 دقیقه در ۱ و ۱۰۰۰۰ ساعت طول عمر نظری.

The diagram below allows the calculation of permitted overhung load Rx2 on the output shaft of gearbox, with radial force applying at a distance x from shaft shoulder. The curves are relevant to value resulting from the relationship of trust load An2 to radial load Rn2, based on n2 = 10 min-1 and 10000 hrs. theoretical lifetime.



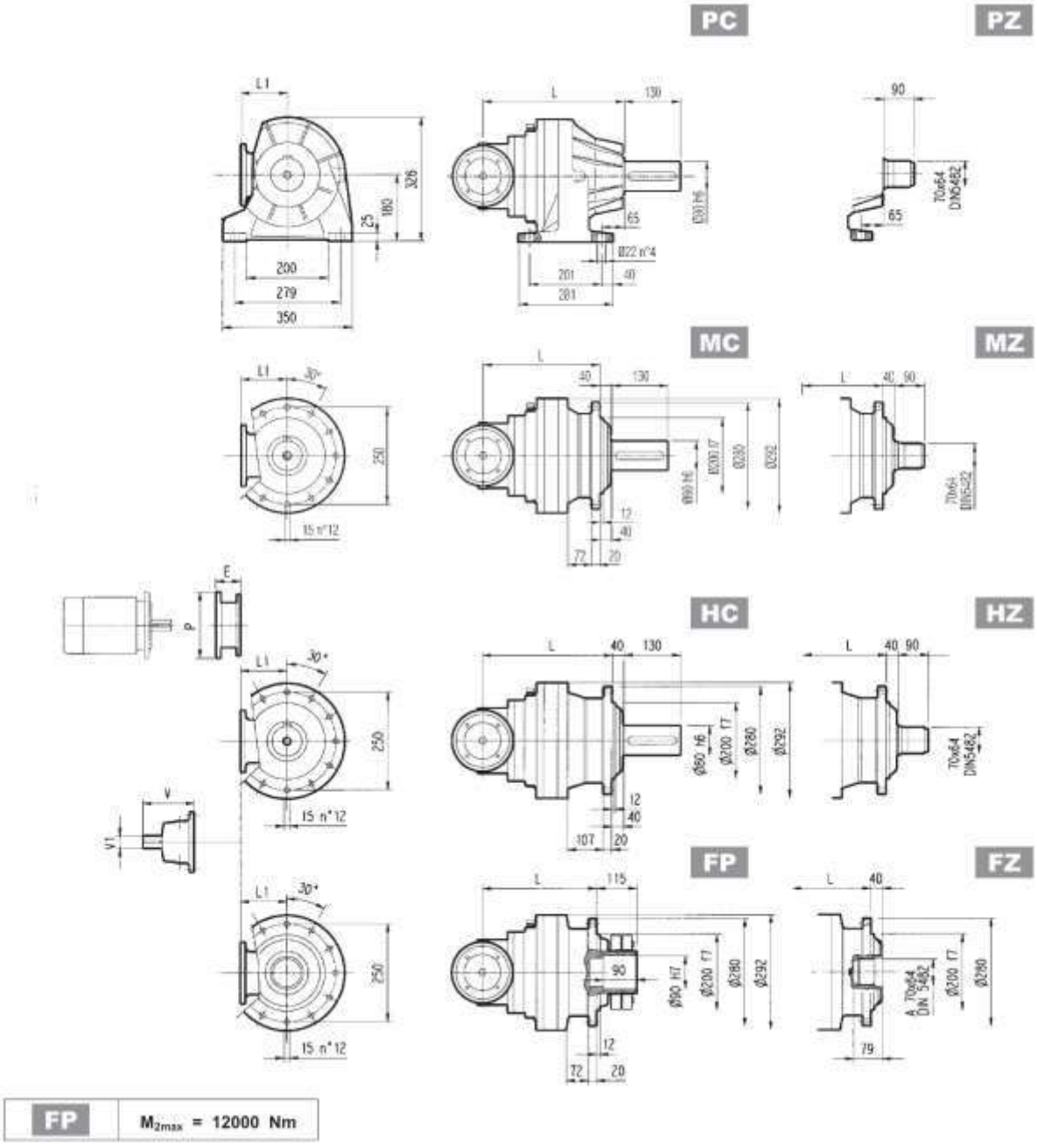
## 306 L




| | L | | | | Wight (kg) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MC - MZ | PC - PZ | HC - HZ | FP - FZ | MC - MZ | PC - PZ | HC - HZ | FP - FZ | V | $V_1$ | W(kg) | V | $V_1$ | W(kg) |
| **306 L1** | 160 | 235 | 195 | 160 | 65 | 85 | 70 | 65 | 307 | 60 | 23 | - | - | - |
| **306 L2** | 225 | 300 | 260 | 225 | 74 | 95 | 79 | 74 | 239 | 48 | 15 | - | - | - |
| **306 L3** | 278 | 353 | 313 | 278 | 78 | 98 | 83 | 78 | 137.5 | 24 | 6 | 158 | 38 | 7 |
| **306 L4** | 331 | 406 | 366 | 331 | 82 | 103 | 87 | 82 | 137.5 | 24 | 6 | 158 | 38 | 7 |

| | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | | P160 | | P180 | | P200 | | P225 | | P250 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P |
| **306 L1** | - | - | - | - | - | - | - | - | - | - | - | - | 114 | 350 | 153 | 350 | 183 | 400 | 212 | 450 | 193 | 550 |
| **306 L2** | - | - | - | - | - | - | - | - | - | - | 114 | 300 | 114 | 350 | 114 | 350 | 174 | 400 | - | - | - | - |
| **306 L3** | 106 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 114 | 350 | - | - | - | - | - | - | - | - |
| 306 L4 | 106 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 114 | 350 | - | - | - | - | - | - | - | - |

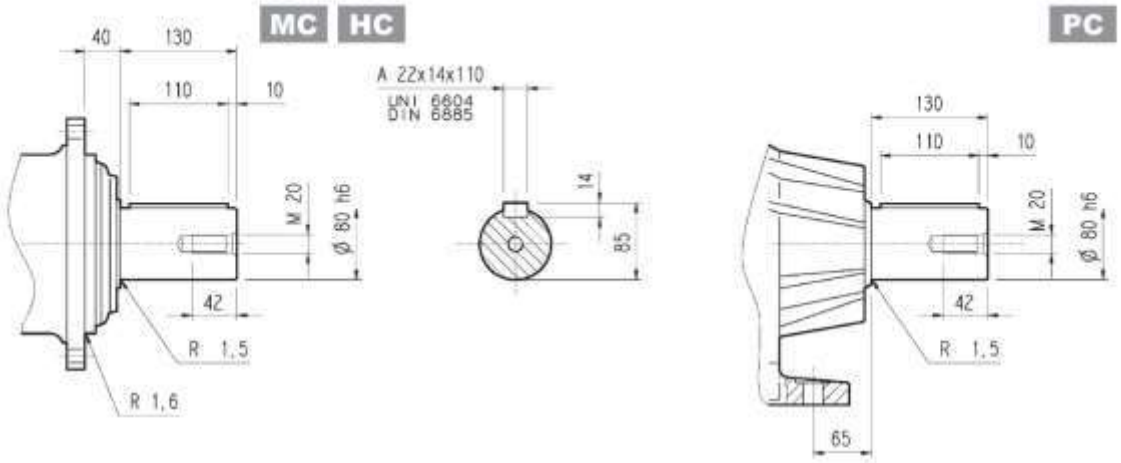
## 306 R

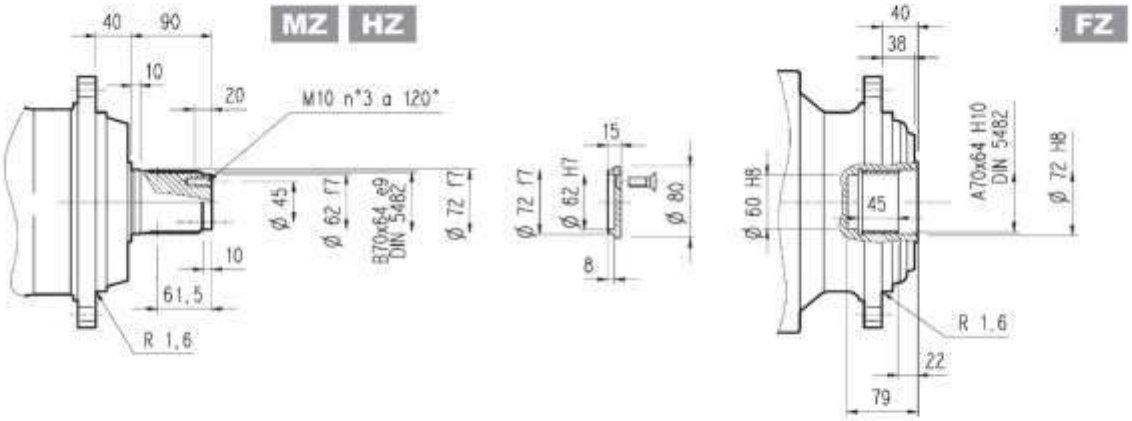


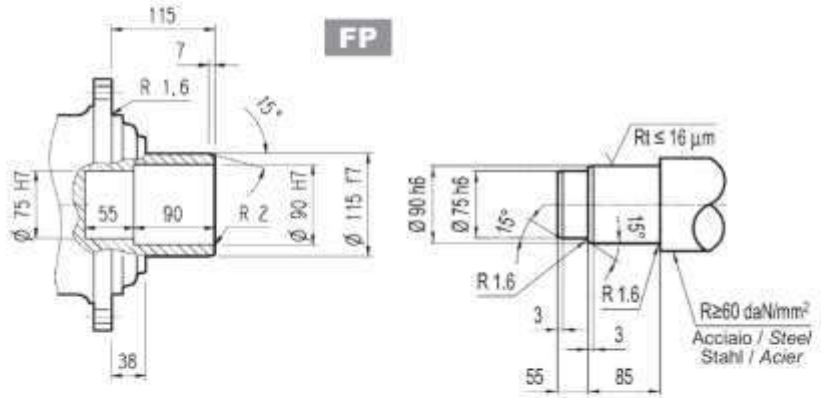

| | L | | | | L1 | Wight (kg) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MC - MZ | PC - PZ | HC - HZ | FP - FZ | | MC - MZ | PC - PZ | HC - HZ | FP - FZ | V | V1 | (kg) | V | V1 | (kg) |
| **306 R2** | 297 | 372 | 332 | 297 | 140 | 89 | 105 | 94 | 89 | 137.5 | 24 | 6 | 158 | 38 | 7 |
| **306 R3** | 317 | 392 | 352 | 317 | 140 | 85 | 100 | 90 | 85 | 137.5 | 24 | 6 | 158 | 38 | 7 |
| **306 R4** | 370 | 445 | 405 | 370 | 122 | 79 | 95 | 84 | 79 | 137.5 | 24 | 6 | 158 | 38 | 7 |

| | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | | P160 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P | E | P |
| **306 R2** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 114 | 350 |
| **306 R3** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 114 | 350 |
| **306 R4** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 114 | 350 |

## 306 L - 306 R



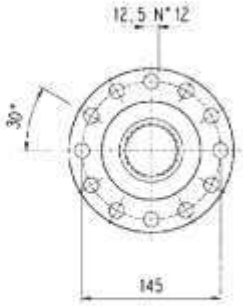



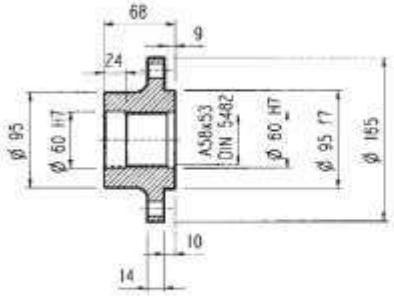

| FP | $M_{2max}$ = 12000 Nm |
|---|---|

## 306L-306R

## Flange

**WOA**

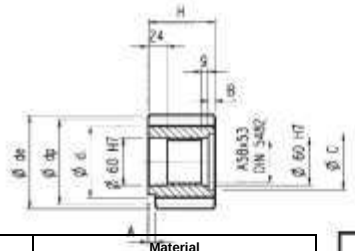



Material: Steel C40

## Pinions

**P...**

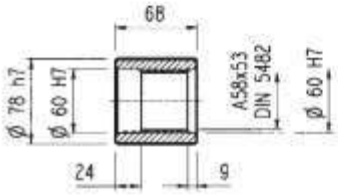



| | m | z | x | dp | di | de | H | A | B | C | Material |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PFF1 | 8 | 15 | — | 120 | 100 | 134 | 90 | — | — | — | Steel 39NiCrMo3 hardened and tempered |
| PFF2 | 8 | 15 | 0.5 | 120 | 108 | 141 | 90 | — | — | — | |
| PHB | 10 | 11 | 0.5 | 110 | 95 | 136 | 90 | 10 | — | — | Steel 39NiCrMo3 hardened and tempered |
| PHC1 | 10 | 12 | 0.45 | 120 | 104 | 145 | 90 | — | — | — | |
| PHC2 | 10 | 12 | 0.32 | 120 | 100 | 144.2 | 90 | — | — | — | |
| PHC3 | 10 | 12 | 0.35 | 120 | 101 | 144 | 90 | — | — | — | |
| PHD1 | 10 | 13 | 0.95 | 130 | 124 | 165 | 90 | — | — | — | |
| PHD2 | 10 | 13 | 0.5 | 130 | 115 | 159 | 90 | — | — | — | |
| PHE1 | 10 | 14 | — | 140 | 115 | 160 | 90 | — | — | — | |
| PHE2 | 10 | 14 | 0.5 | 140 | 125 | 166 | 90 | — | — | — | Steel 18NiCrMo5 case hardened |
| PHF | 10 | 15 | — | 150 | 127 | 167 | 90 | 24 | — | — | Steel 39NiCrMo3 hardened and tempered |
| PHH | 10 | 17 | 0.48 | 170 | 154 | 197.5 | 90 | 10 | — | — | |
| PHM | 10 | 20 | — | 200 | 175 | 220 | 90 | 10 | — | — | Steel 18NiCrMo5 case hardened |

$\alpha = 20°$

## Sleeve coupling

**MOA**




Material: Steel 16CrNi4

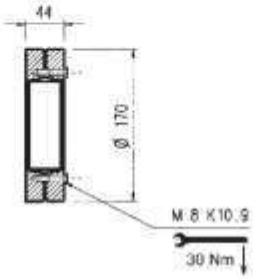
## Splined bars

**BOA**

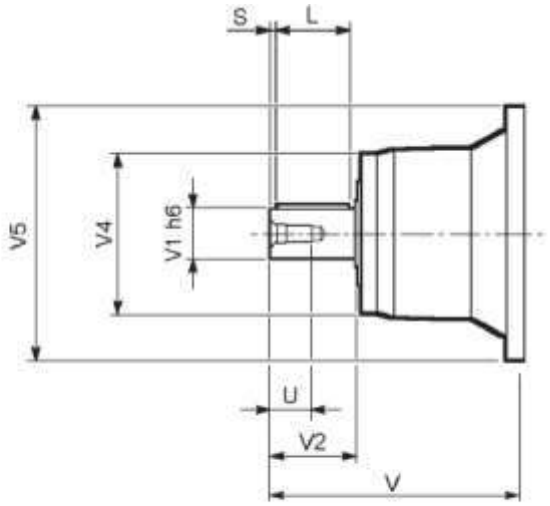

Material: Case hardening steel 18NiCrMo5
UNI 5331 must be case hardened 50-55 HRC

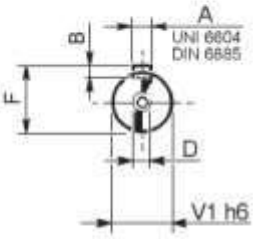
## Shrink disc

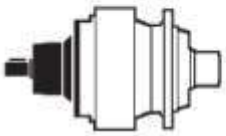
**GOA**



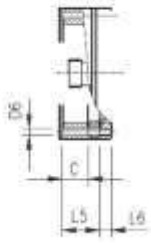
## 306L-306R

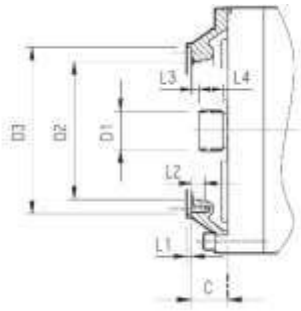


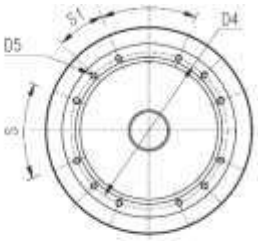



| | input | V | V1 | V2 | V4 | V5 | A | B | F | L | S | D | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **306 L1** | **V06B** | 307 | 60 | 105 | 155 | 292 | 18 | 11 | 64 | 90 | 7.5 | M16 | 36 |
| **306 L2** | **V05B** | 239 | 48 | 82 | 155 | 245 | 14 | 9 | 51.5 | 70 | 6 | M16 | 36 |
| **306 L3** | **V01A** | 137.5 | 24 | 36 | 120 | 186 | 8 | 7 | 27 | 30 | 3 | M8 | 19 |
| | **V01B** | 158 | 38 | 58 | 120 | 186 | 10 | 8 | 41 | 50 | 4 | M12 | 28 |
| **306 L4** | **V01A** | 137.5 | 24 | 36 | 120 | 186 | 8 | 7 | 27 | 30 | 3 | M8 | 19 |
| | **V01B** | 158 | 38 | 58 | 120 | 186 | 10 | 8 | 41 | 50 | 4 | M12 | 28 |
| **306 R2-R3-R4** | **V01A** | 137.5 | 24 | 36 | 120 | 186 | 8 | 7 | 27 | 30 | 3 | M8 | 19 |
| | **V01B** | 158 | 38 | 58 | 120 | 186 | 10 | 8 | 41 | 50 | 4 | M12 | 28 |



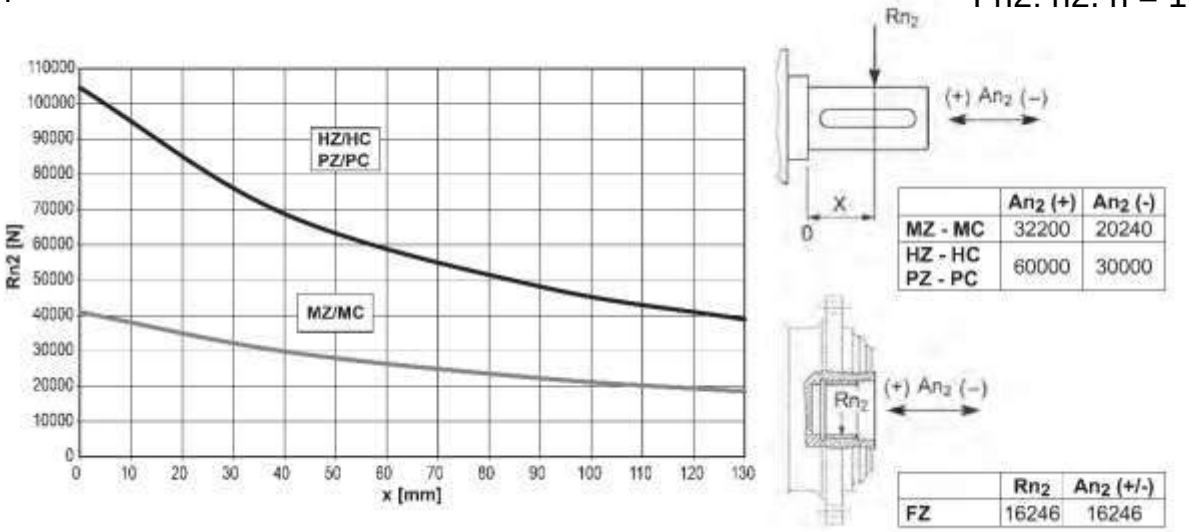




| | | C | D1 | D2 | D3 | D4 | D5 | D6 | L1 | L2 | L3 | L4 | L5 | L6 | S | S1 | Input |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **306L1** | **V9AB** | 45 | 58x53DIN5482 | 195 | 236H7 | 222 | M10n°12 | — | 4 | 18 | 11 | 22 | — | — | 45° | 22.5° | B |
| **306L2** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | — | 4 | 18 | 9 | 18 | — | — | 45° | 45° | A |
| **306L3** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | 11 | 4 | — | 9 | 18 | 53 | 18 | 45° | 45° | A |
| **306L4** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | 11 | 4 | — | 9 | 18 | 106 | 18 | 45° | 45° | A |
| **306R2-R3-R4** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | 11 | 4 | — | 9 | 18 | 37 | 18 | 45° | 45° | A |

Permissible radial and axial loads on output shaft with $Fh_2$: $n_2$. h = 100,000

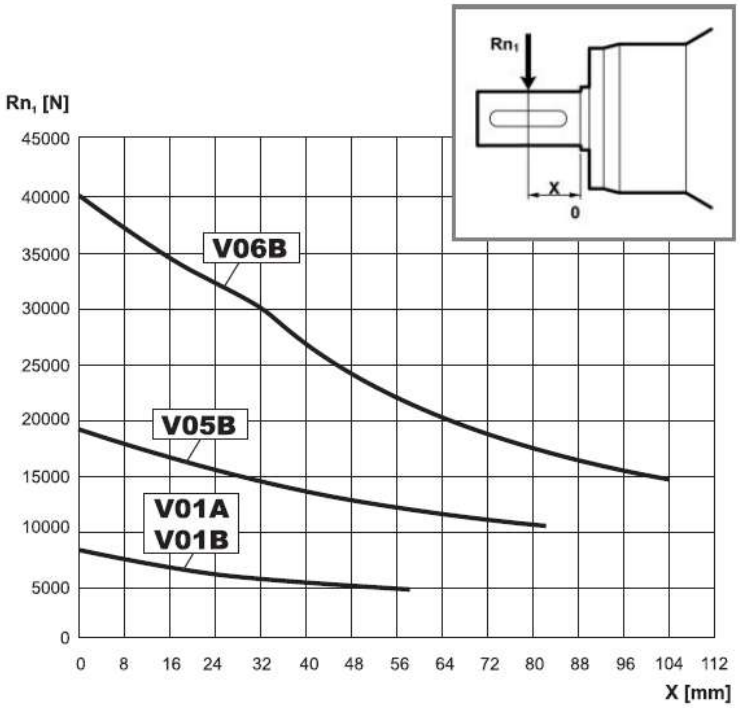
بارهای شعاعی و محوری مجاز بر روی شافت خروجی با Fh2: n2. h = 100,000




| Load correction factor $fh_2$ on shafts<br>فاکتور اصلاح بار $fh_2$ بر روی شافت | $Fh_2 = n_2$. h | | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 |
|---|---|---|---|---|---|---|---|---|
| | $fh_2$ | FZ | 2.15 | 1.59 | 1.26 | 1.00 | 0.58 | 0.46 |
| | | MZ - MC - FZ | 2.15 | 1.59 | 1.26 | 1.00 | 0.58 | 0.46 |
| | | HZ - HC - PC - PZ | 1.34 | 1.34 | 1.23 | 1.00 | 0.62 | 0.50 |

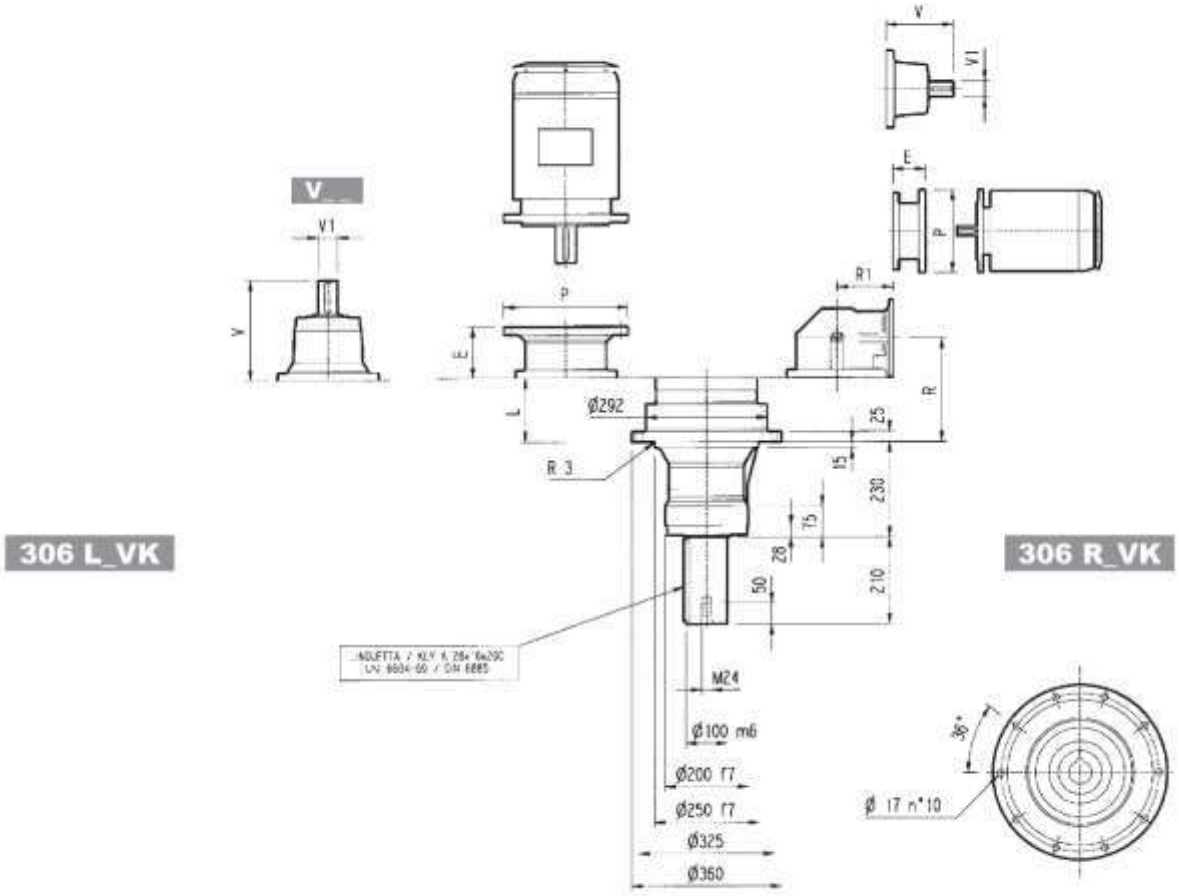
Permissible radial loads on input shaft with Fh1: n1. h = 250000

بارهای شعاعی مجاز بر روی شفت ورودی با Fh1: n1. h = 250000




| Load correction factor $fh_1$ on shafts<br>فاکتور اصلاح بار $fh_1$ بر روی شافت | $Fh_1 = n1$. h | 250000 | 500000 | 1000000 | 2000000 | 5000000 | 10000000 |
|---|---|---|---|---|---|---|---|
| | $fh_1$ | 1 | 0.79 | 0.63 | 0.5 | 0.37 | 0.29 |

# 306VK




| | L | Kg | V | V1 | Kg | V | V1 | Kg | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | | P160 | | P180 | | P200 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P |
| **306L1** | 75 | 110 | 307 | 60 | 23 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 144 | 350 | 153 | 350 | 183 | 400 |
| **306L2** | 140 | 120 | 239 | 48 | 15 | — | — | — | — | — | — | — | — | — | — | — | — | — | 114 | 300 | 144 | 350 | 144 | 350 | 174 | 400 |
| **306L3** | 193 | 125 | 138 | 24 | 6 | 158 | 38 | 7 | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 144 | 350 | — | — | — | — |
| **306L4** | 246 | 130 | 138 | 24 | 6 | 158 | 38 | 7 | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 144 | 350 | — | — | — | — |

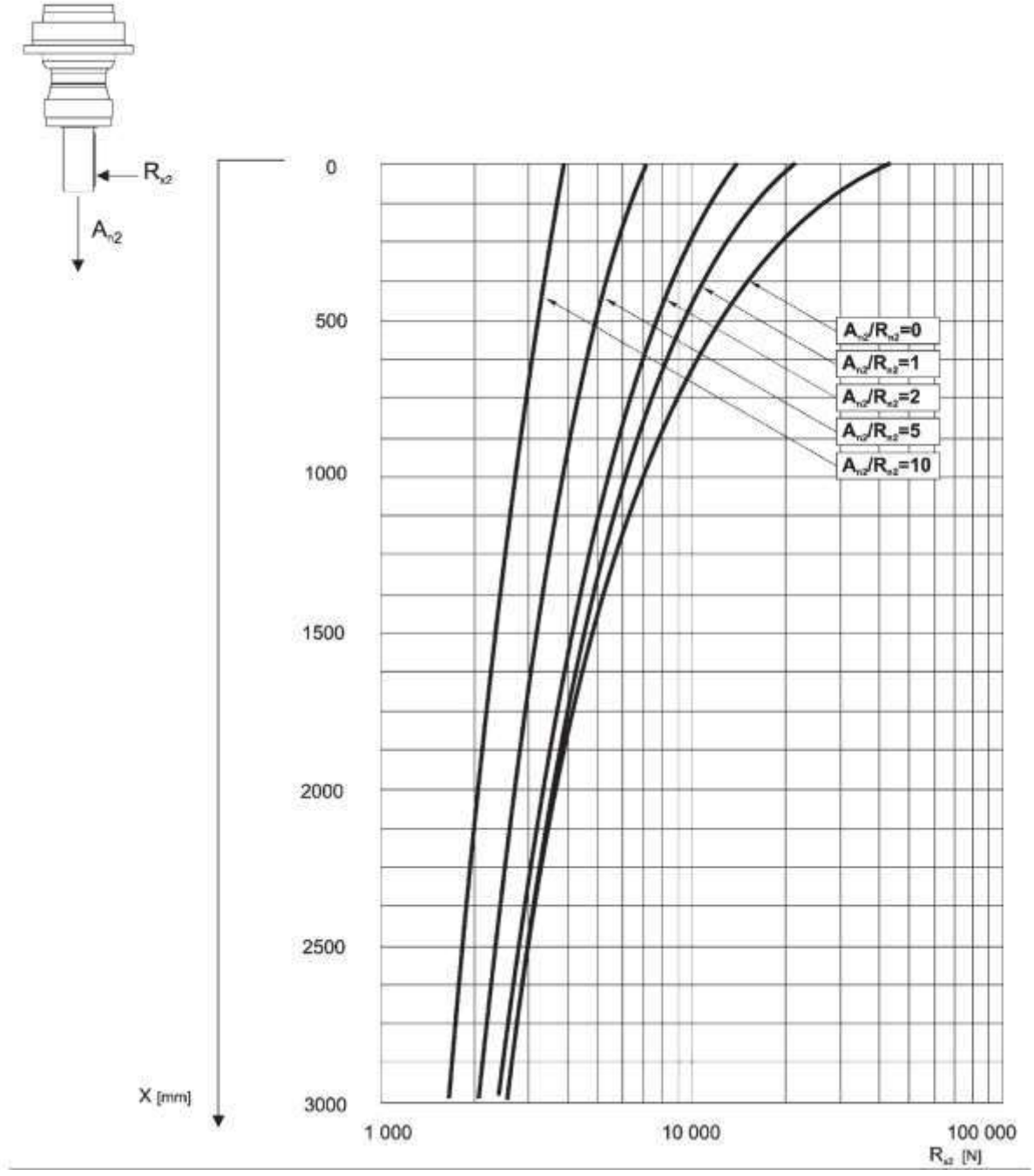
| | R | R1 | Kg | V | V1 | Kg | V | V1 | Kg | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | | P160 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | E | P | E | P | E | P | E | P | E | P | E | P | E | P |
| **306R2** | 212 | 140 | 90 | 138 | 24 | 6 | 158 | 38 | 7 | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 144 | 350 |
| **306R3** | 232 | 140 | 92 | 138 | 24 | 6 | 158 | 38 | 7 | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 144 | 350 |
| **306R4** | 285 | 122 | 95 | 138 | 24 | 6 | 158 | 38 | 7 | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 144 | 350 |

نمودار زیر امکان محاسبه بار اضافی مجاز Rx2 را بر روی شافت خروجی گیربکس ، با نیروی شعاعی اعمال شده در فاصله x از شافت.

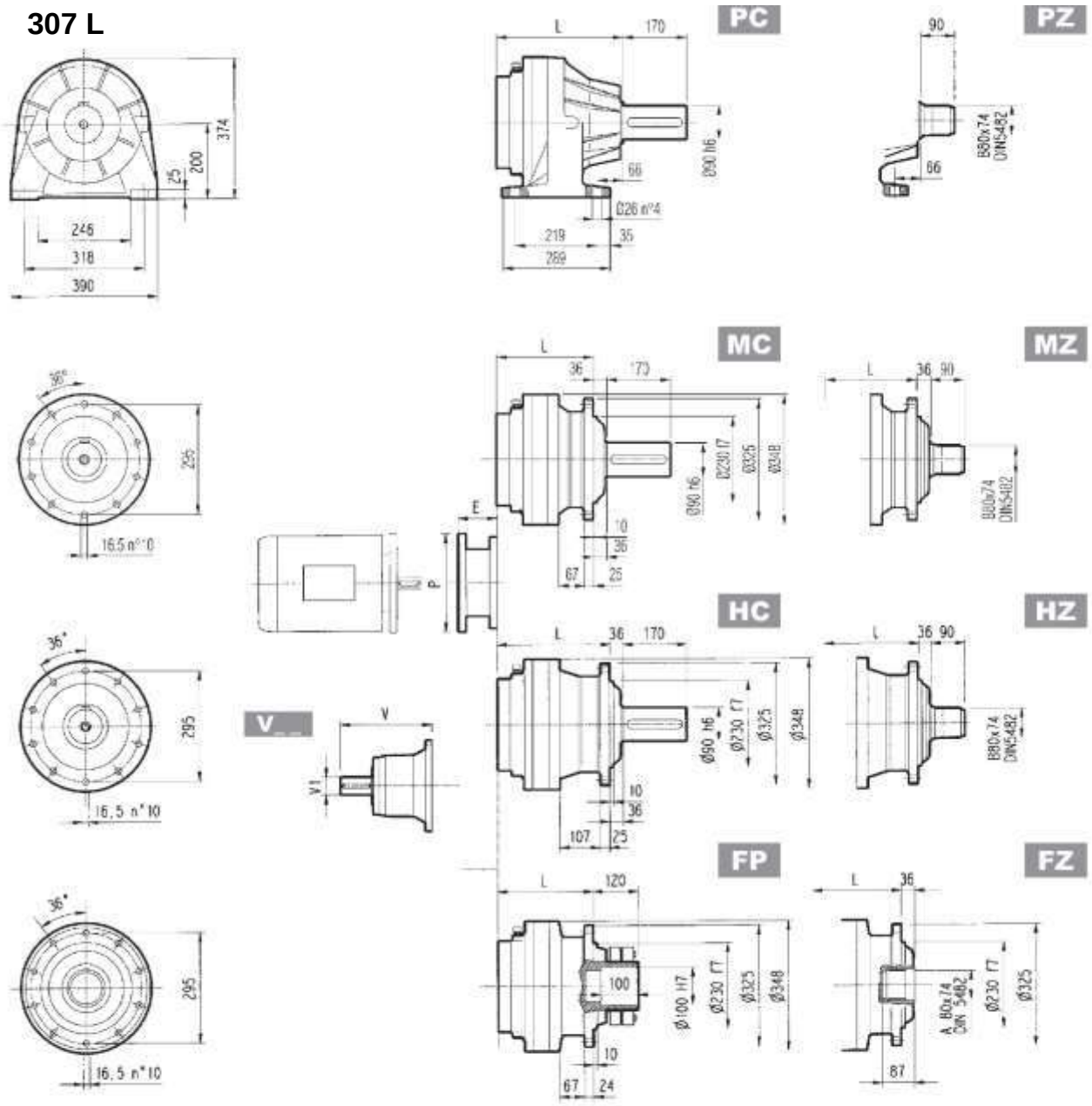
منحنی ها به مقدار مربوط به رابطه بار مجاز An2 به بار شعاعی Rn2 مربوط می شوند

n2 = 10 دقیقه در ۱ و ۱۰۰۰۰ ساعت طول عمر نظری.

The diagram below allows the calculation of permitted overhung load Rx2 on the output shaft of gearbox, with radial force applying at a distance x from shaft shoulder. The curves are relevant to value resulting from the relationship of trust load An2 to radial load Rn2, based on n2 = 10 min-1 and 10000 hrs. theoretical lifetime.



## 307 L

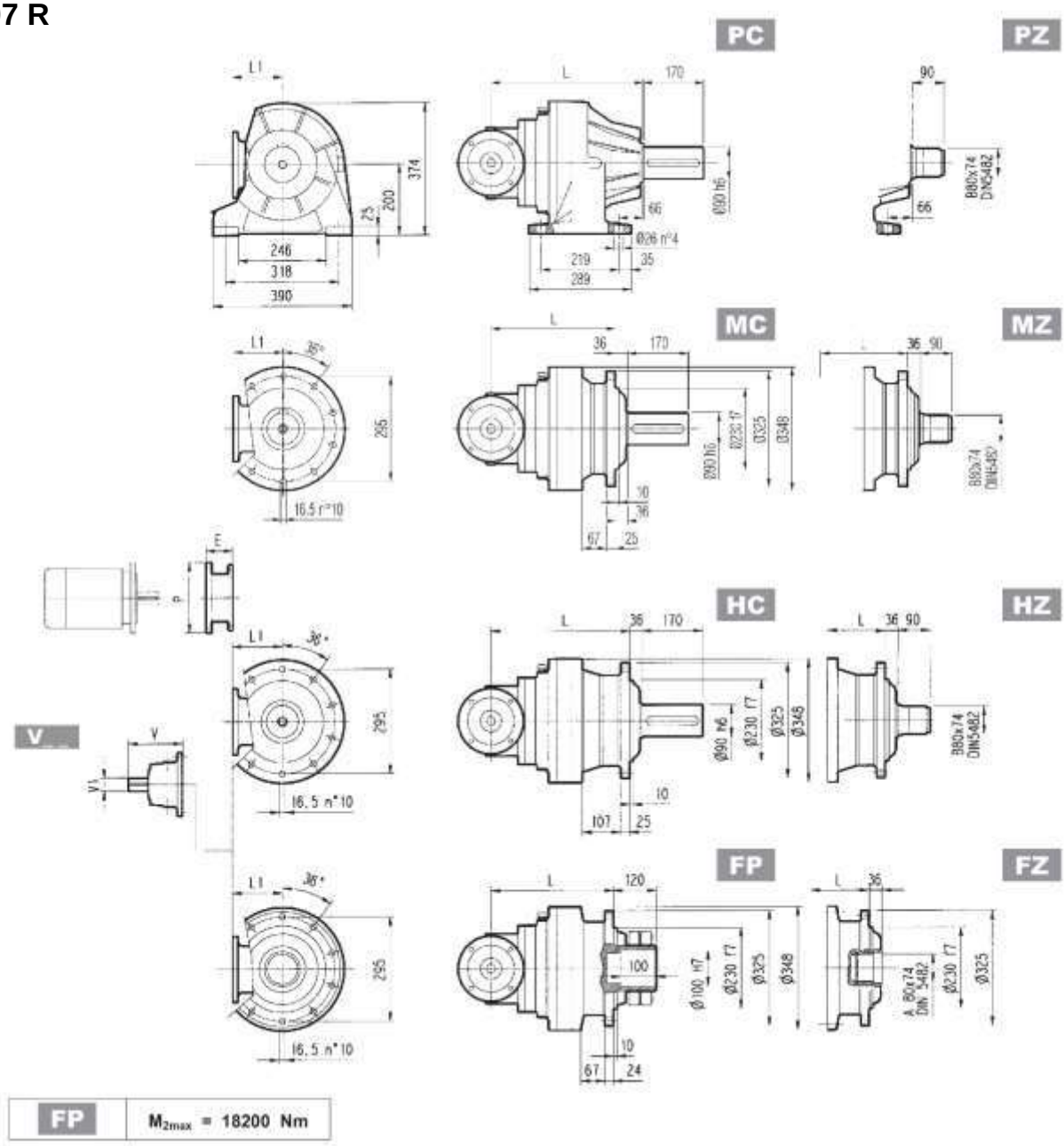



**FP** $M_{2max}$ = 18200 Nm

| | L | | | Wight (kg) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PC - PZ | HC - HZ | FP-FZ | PC - PZ | HC - HZ | FZ | V | $V_1$ | W(kg) | V | $V_1$ | W(kg) |
| **307 L1** | 246 | 210 | 165 | 120 | 105 | 85 | 315 | 80 | 35 | 315 | 80 | 28 |
| **307 L2** | 335 | 299 | 254 | 132 | 117 | 97 | 239 | 48 | 15 | 239 | 48 | - |
| **307 L3** | 400 | 364 | 319 | 139 | 124 | 104 | 137.5 | 24 | 6 | 137.5 | 24 | 7 |
| **307 L4** | 453 | 417 | 372 | 143 | 128 | 108 | 137.5 | 24 | 6 | 137.5 | 24 | 7 |

| | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | | P160 | | P180 | | P200 | | P225 | | P250 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P |
| **307 L1** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 195 | 350 | 186 | 400 | 216 | 450 | 215 | 550 |
| **307 L2** | - | - | - | - | - | - | - | - | - | - | 114 | 300 | 204 | 350 | 114 | 350 | 174 | 400 | - | - | - | - |
| **307 L3** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 183 | 350 | - | - | - | - | - | - | - | - |
| **307 L4** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 183 | 350 | - | - | - | - | - | - | - | - |

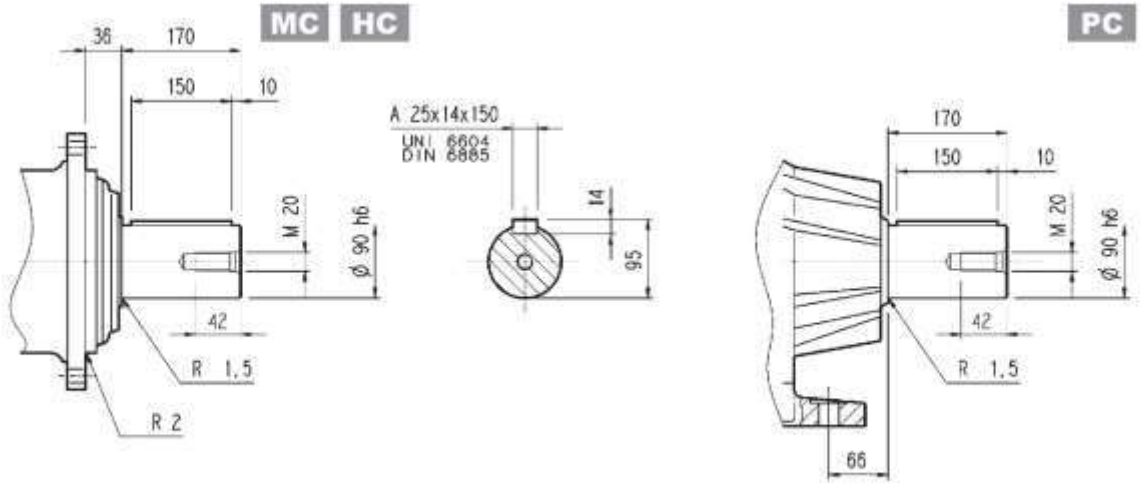
## 307 R

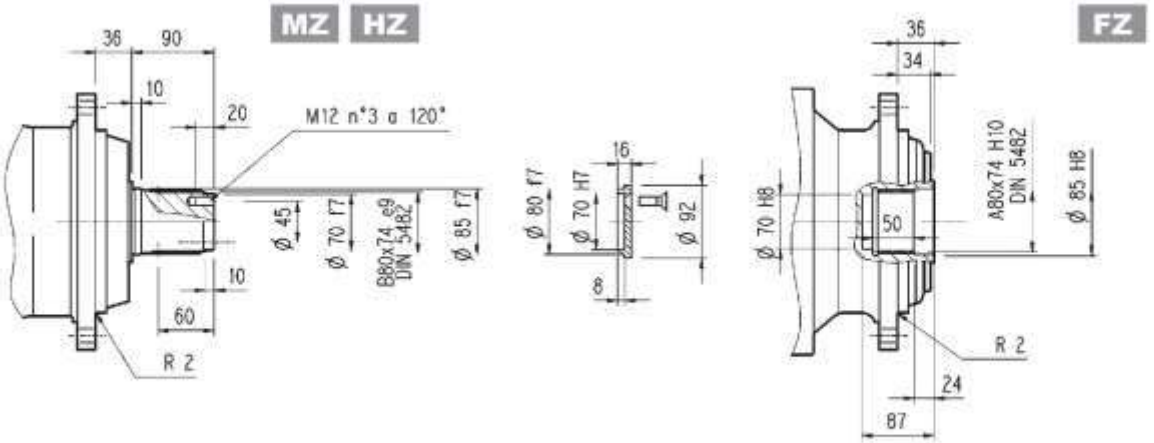


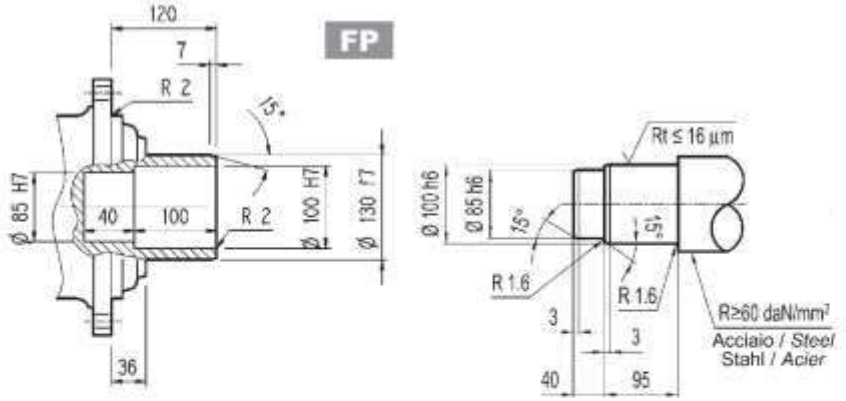

| | L | | | L1 | Wight (kg) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PC - PZ | HC - HZ | FP-FZ | | PC - PZ | HC - HZ | FZ | V | V1 | (kg) | V | V1 | (kg) |
| **307 R2** | 365 | 329 | 284 | 225 | 170 | 155 | 135 | 239 | 48 | 15 | - | - | - |
| **307 R3** | 427 | 391 | 346 | 140 | 152 | 137 | 117 | 137.5 | 24 | 6 | 158 | 38 | 7 |
| **307 R4** | 492 | 456 | 411 | 122 | 153 | 138 | 118 | 137.5 | 24 | 6 | 158 | 38 | 7 |

| | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | | P160 | | P180 | | P200 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P |
| **307 R2** | - | - | - | - | - | - | - | - | - | - | 114 | 300 | 114 | 350 | 114 | 350 | 174 | 400 |
| **307 R3** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 114 | 350 | - | - | - | - |
| **307 R4** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 114 | 350 | - | - | - | - |

## 307 L - 307 R



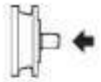



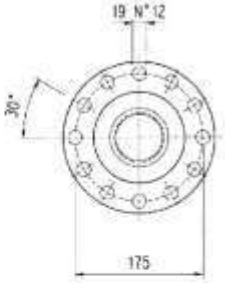

| FP | $M_{2max}$ = 18200 Nm |
|---|---|

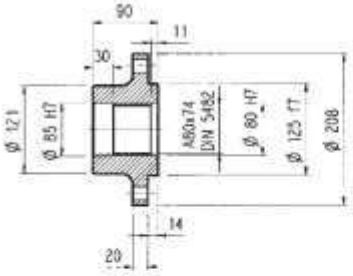
## 307L-307R

## Flange

**WOA**



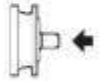


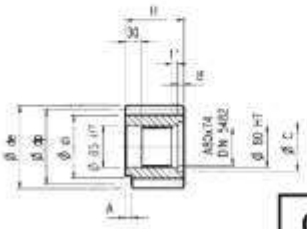




Material: Steel C40

## Pinions

**P...**



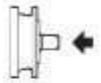


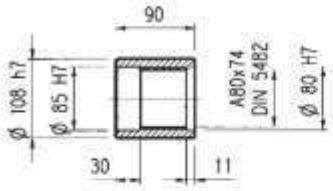

$\alpha = 20°$

| m | z | x | dp | di | de | H | A | B | C | | Material |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PFG | 8 | 16 | 0.5 | 128 | 117 | 150 | 90 | — | — | — | Steel 39NiCrMo3 hardened and tempered |
| PHC | 10 | 12 | 0.45 | 120 | 104 | 145 | 90 | — | — | — | |
| PHE | 10 | 14 | 0.32 | 140 | 121 | 165 | 116 | 13 | 26 | 95 | |
| PHF | 10 | 15 | 0.15 | 150 | 130 | 172 | 107 | 20 | 17 | 100 | |
| PHG | 10 | 16 | 0.5 | 160 | 145 | 186 | 90 | — | — | — | Steel 18NiCrMo5 case hardened |
| PHH1 | 10 | 17 | — | 170 | 145 | 189 | 90 | — | — | — | |
| PHH2 | 10 | 17 | 0.5 | 170 | 154 | 198 | 90 | — | — | — | |
| PLD | 12 | 13 | 0.5 | 156 | 138 | 192 | 102 | — | 12 | 95 | Steel 39NiCrMo3 hardened and tempered |
| PLE | 12 | 14 | 0.5 | 168 | 150 | 199 | 90 | — | — | — | |
| PLI | 12 | 18 | 0.5 | 216 | 198 | 250 | 107 | 7 | 17 | 95 | |
| PLT | 12 | 26 | — | 312 | 282 | 336 | 90 | 10 | — | — | Steel 18NiCrMo5 case hardened |

## Sleeve coupling

**MOA**

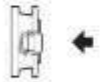


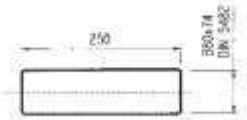



Material: Steel 16CrNi4

## Splined bars

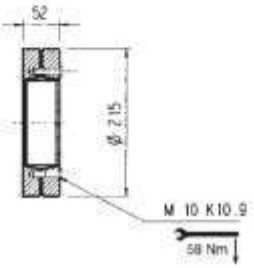
**BOA**





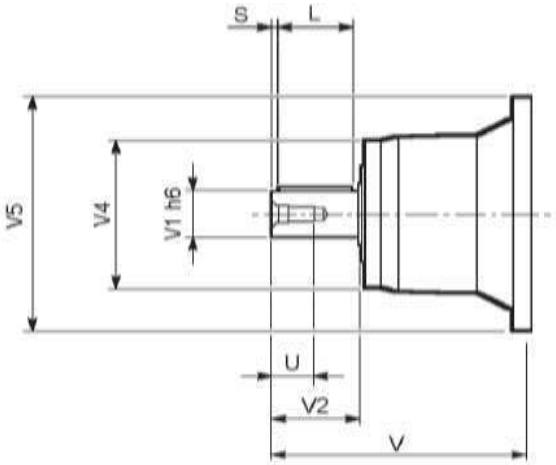

## Shrink disc

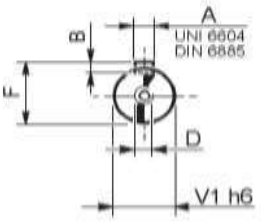
**GOA**

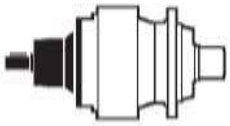



Material: Case hardening steel 18NiCrMo5
UNI 5331 must be case hardened 50-55 HRC

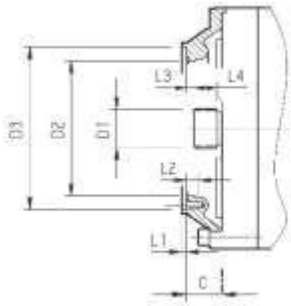
## 307 L-307 R

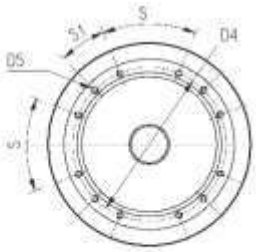


| | input | V | V1 | V2 | V4 | V5 | A | B | F | L | S | D | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **307 L1** | **V07B** | 315 | 80 | 130 | 200 | 345 | 22 | 14 | 85 | 110 | 10 | M16 | 36 |
| | **V07A** | 313 | 60 | 105 | 155 | 345 | 18 | 11 | 64 | 90 | 7.5 | M16 | 36 |
| **307 L2** | **V05B** | 239 | 48 | 82 | 155 | 245 | 14 | 9 | 51.5 | 70 | 6 | M16 | 36 |
| **307 L3** | **V01A** | 137.5 | 24 | 36 | 120 | 186 | 8 | 7 | 27 | 30 | 3 | M8 | 19 |
| | **V01B** | 158 | 38 | 58 | 120 | 186 | 10 | 8 | 41 | 50 | 4 | M12 | 28 |
| **307 L4** | **V01A** | 137.5 | 24 | 36 | 120 | 186 | 8 | 7 | 27 | 30 | 3 | M8 | 19 |
| | **V01B** | 158 | 38 | 58 | 120 | 186 | 10 | 8 | 41 | 50 | 4 | M12 | 28 |
| **307 R2** | **V05B** | 239 | 48 | 82 | 155 | 245 | 14 | 9 | 51.5 | 70 | 6 | M16 | 36 |
| **307 R3-R4** | **V01A** | 137.5 | 24 | 36 | 120 | 186 | 8 | 7 | 27 | 30 | 3 | M8 | 19 |
| | **V01B** | 158 | 38 | 58 | 120 | 186 | 10 | 8 | 41 | 50 | 4 | M12 | 28 |

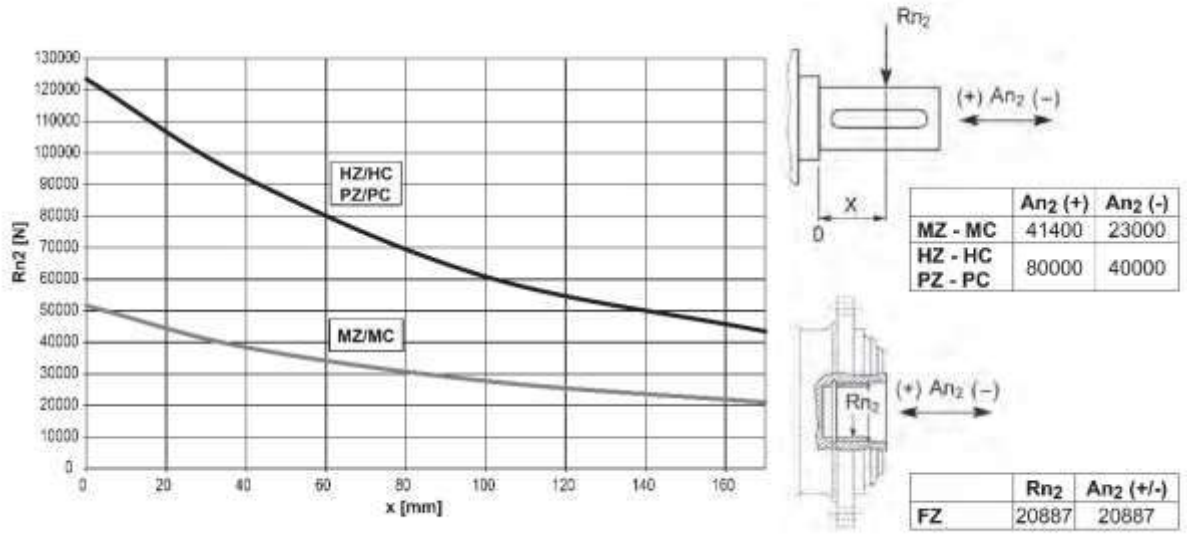




| | | C | D1 | D2 | D3 | D4 | D5 | D6 | L1 | L2 | L3 | L4 | L5 | L6 | S | S1 | Input |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **307L1** | **V9AB** | 51 | 58x53DIN5482 | 195 | 236H7 | 222 | M10n°12 | — | 4 | 18 | 11 | 22 | — | — | 45° | 22.5° | B |
| **307L2** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°12 | — | 4 | 18 | 9 | 18 | — | — | 45° | 45° | A |
| **307L3** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°12 | 11 | 4 | — | 9 | 18 | 65 | 18 | 45° | 45° | A |
| **307L4** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°12 | 11 | 4 | — | 9 | 18 | 118 | 18 | 45° | 45° | A |
| **307R2** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°12 | 11 | 4 | 18 | 9 | 18 | — | — | 45° | 45° | A |
| **307R3-R4** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°12 | 11 | 4 | — | 9 | 18 | 37 | 18 | 45° | 45° | A |

Permissible radial and axial loads on output shaft with $Fh_2$: $n_2$. h = 100,000

بارهای شعاعی و محوری مجاز بر روی شافت خروجی با Fh2: n2. h = 100,000



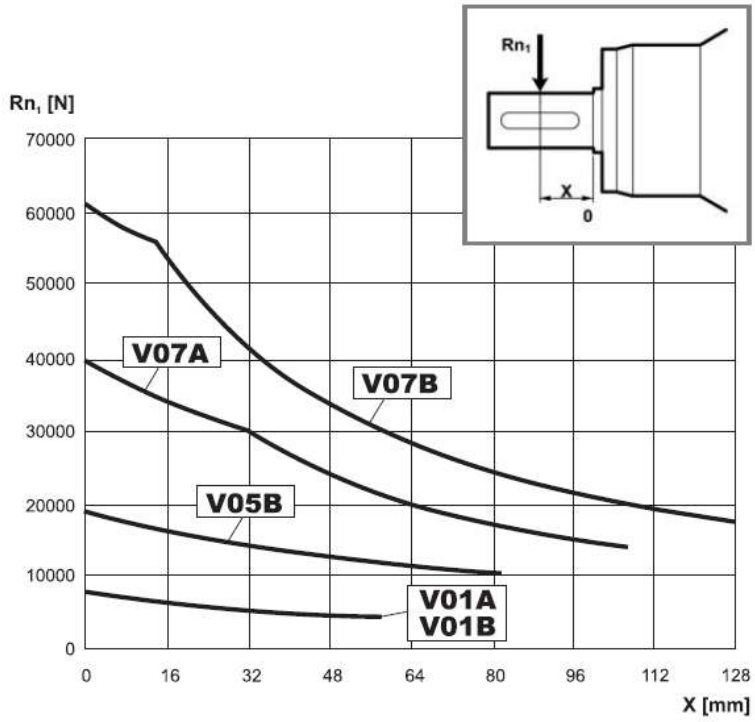

| | An2 (+) | An2 (-) |
|---|---|---|
| MZ - MC | 41400 | 23000 |
| HZ - HC<br>PZ - PC | 80000 | 40000 |

| | Rn2 | An2 (+/-) |
|---|---|---|
| FZ | 20887 | 20887 |

| Load correction factor $fh_2$ on shafts<br>فاکتور اصلاح بار $fh_2$ بر روی شافت | $Fh_2 = n_2$. h | | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 |
|---|---|---|---|---|---|---|---|---|
| | $fh_2$ | FZ | 2.15 | 1.59 | 1.26 | 1.00 | 0.58 | 0.46 |
| | | MZ - MC | 2.15 | 1.59 | 1.26 | 1.00 | 0.58 | 0.46 |
| | | HZ - HC - PC - PZ | 1.49 | 1.49 | 1.23 | 1.00 | 0.62 | 0. 50 |

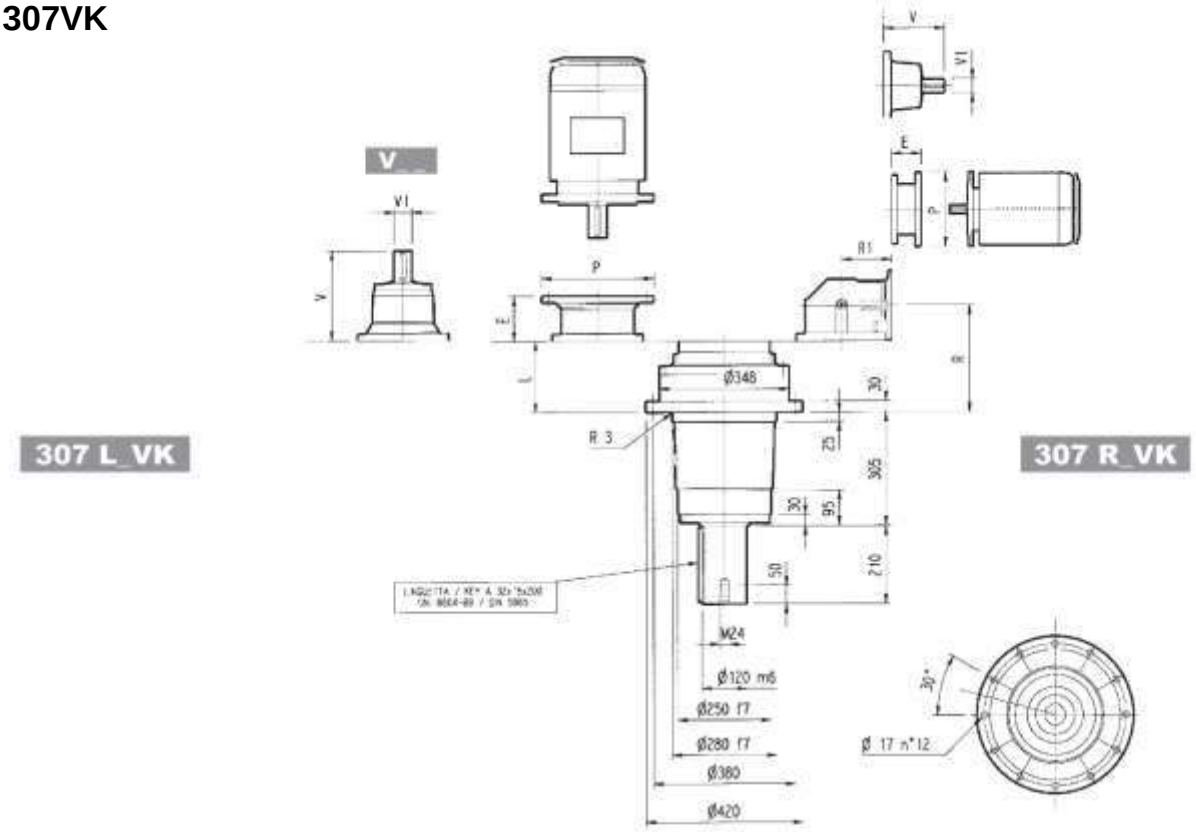
Permissible radial loads on input shaft with Fh1: n1. h = 250000

بارهای شعاعی مجاز بر روی شفت ورودی با Fh1: n1. h = 250000




| Load correction factor $fh_1$ on shafts<br>فاکتور اصلاح بار $fh_1$ بر روی شافت | $Fh_1 = n1.\ h$ | 250000 | 500000 | 1000000 | 2000000 | 5000000 | 10000000 |
|---|---|---|---|---|---|---|---|
| | $fh_1$ | 1 | 0.79 | 0.63 | 0.5 | 0.37 | 0.29 |

## 307VK




| | L | Kg | V | V1 | Kg | V1 | V | Kg | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | | P160 | | P180 | | P200 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P |
| **307L1** | 80 | 145 | 315 | 80 | 35 | 313 | 60 | 28 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 195 | 350 | 186 | 400 |
| **307L2** | 169 | 160 | 239 | 48 | 15 | — | — | — | — | — | — | — | — | — | — | — | — | — | 114 | 300 | 144 | 350 | 144 | 350 | 174 | 400 |
| **307L3** | 234 | 170 | 138 | 24 | 6 | 158 | 38 | 7 | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 144 | 350 | — | — | — | — |

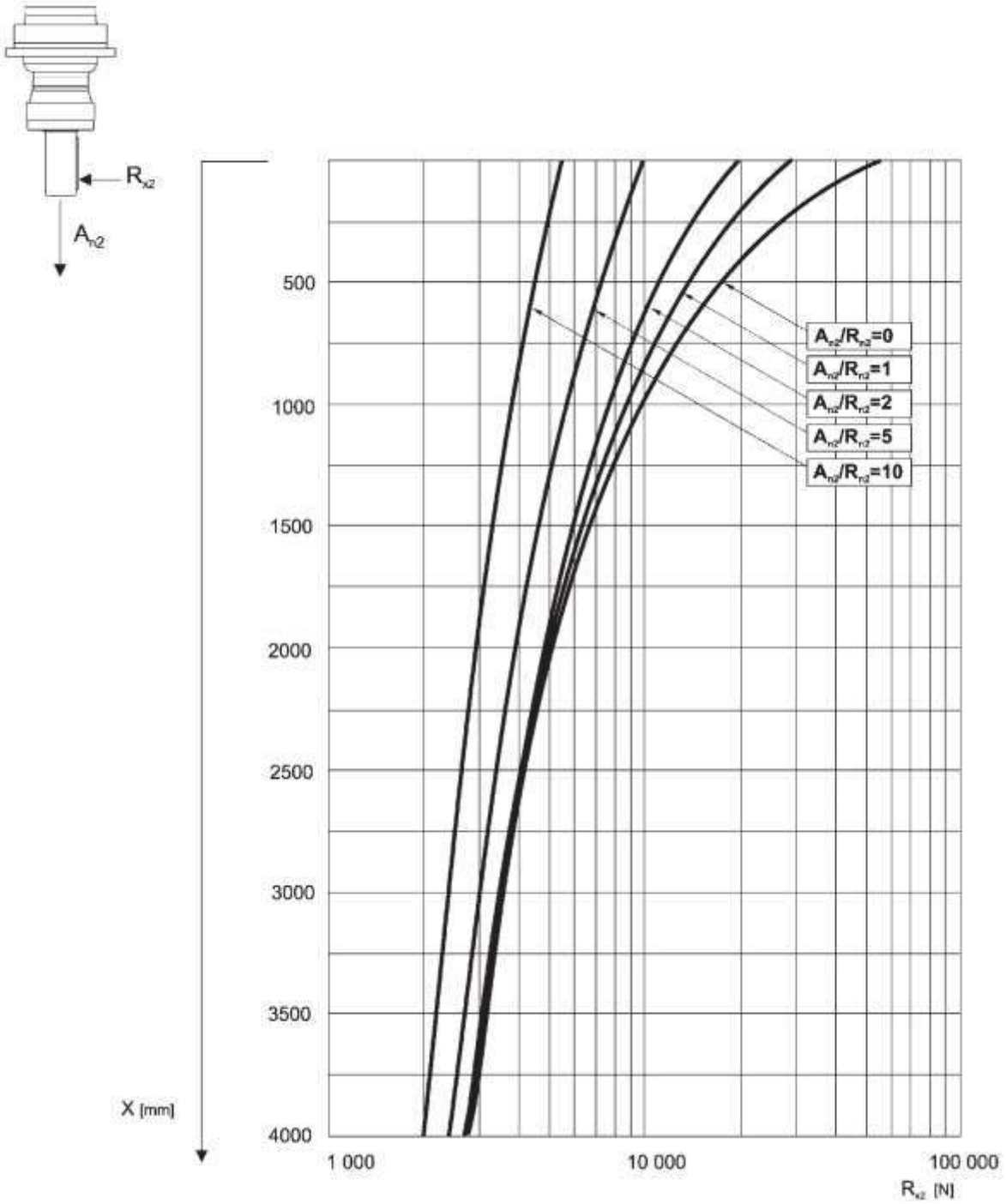
| | R | R1 | Kg | V | V1 | Kg | V | V1 | Kg | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | | P160 | | P180 | | P200 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P |
| **307R2** | 199 | 225 | 180 | 239 | 48 | 15 | — | — | — | — | — | — | — | — | — | — | — | — | — | 114 | 300 | 144 | 350 | 144 | 350 | 174 | 400 |
| **307R3** | 261 | 140 | 170 | 137.5 | 24 | 6 | 158 | 38 | 7 | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 144 | 350 | — | — | — | — |
| **307R4** | 326 | 122 | 175 | 137.5 | 24 | 6 | 158 | 38 | 7 | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 144 | 350 | — | — | — | — |

نمودار زیر امکان محاسبه بار اضافی مجاز Rx2 را بر روی شافت خروجی گیربکس ، با نیروی شعاعی اعمال شده در فاصله x از شافت.

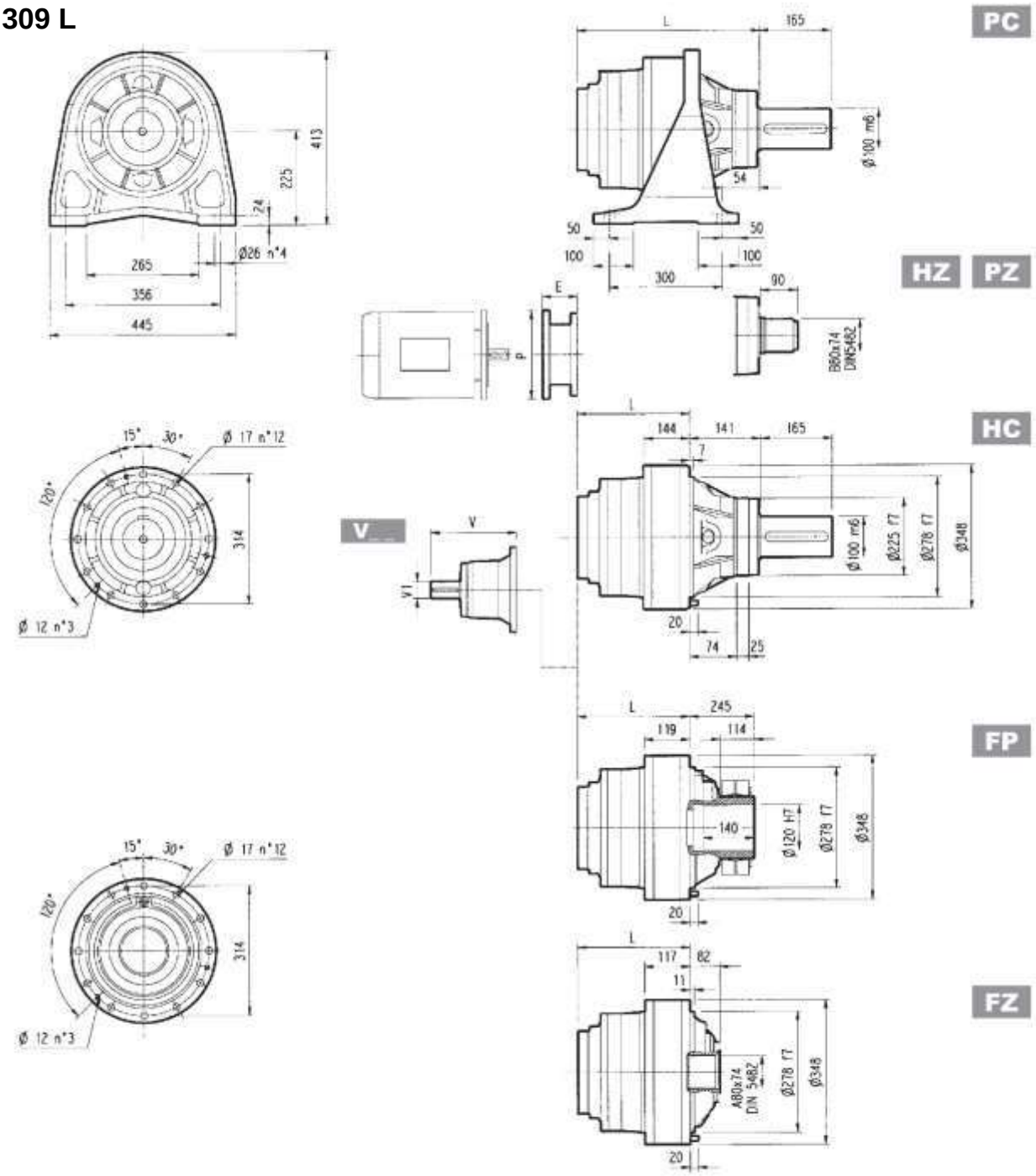
منحنی ها به مقدار مربوط به رابطه بار مجاز An2 به بار شعاعی Rn2 مربوط می شوند

n2 = 10 دقیقه در ۱ و ۱۰۰۰۰ ساعت طول عمر نظری.

The diagram below allows the calculation of permitted overhung load Rx2 on the output shaft of gearbox, with radial force applying at a distance x from shaft shoulder. The curves are relevant to value resulting from the relationship of trust load An2 to radial load Rn2, based on n2 = 10 min-1 and 10000 hrs. theoretical lifetime.



## 309 L

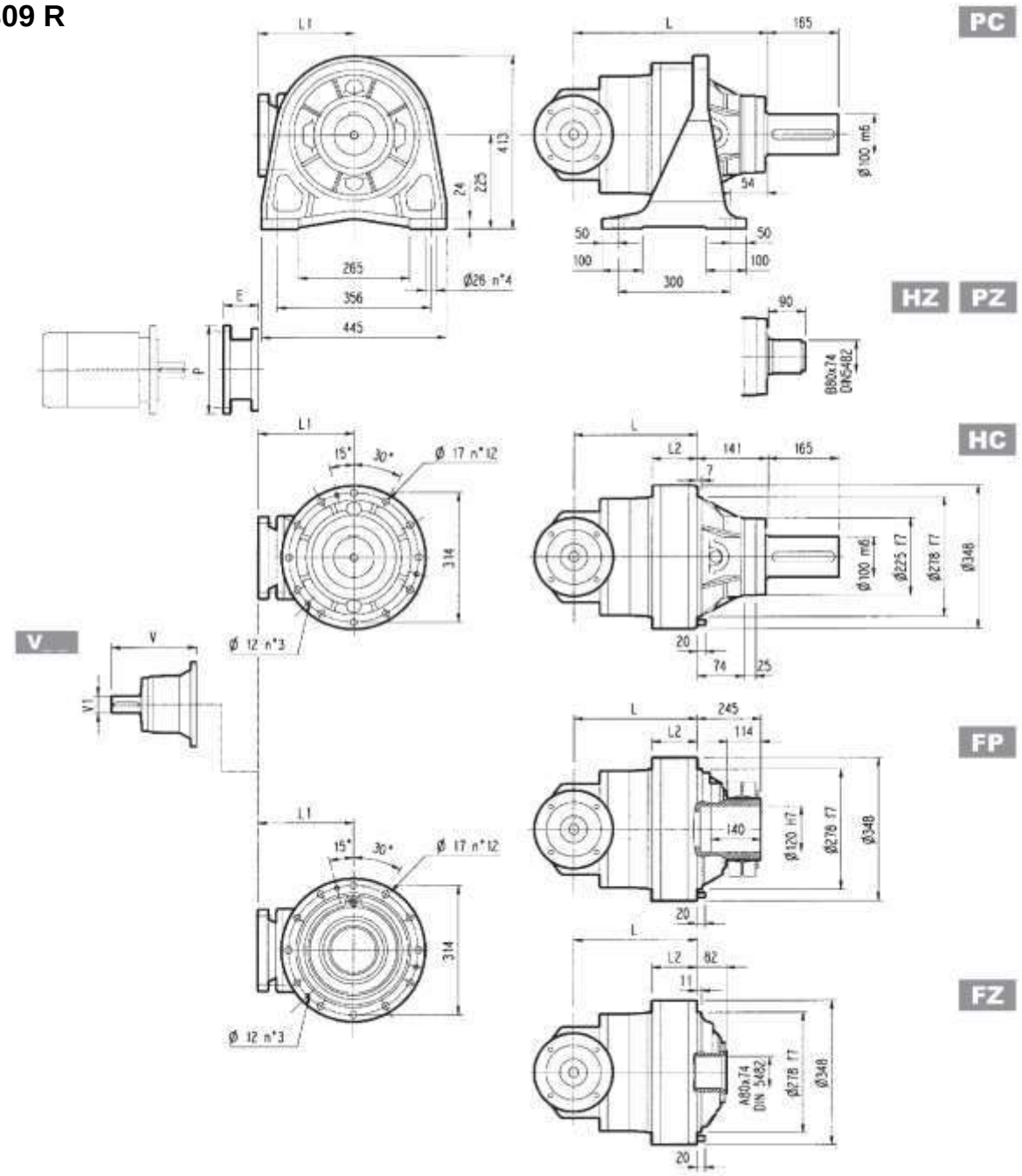



**FP** $M_{2max}$ = 29000 Nm

| | L | | | Wight (kg) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PC - PZ | HC - HZ | FP-FZ | PC - PZ | HC - HZ | FP - FZ | V | $V_1$ | W(kg) | V | $V_1$ | W(kg) |
| **309 L1** | 267 | 126 | 99 | 130 | 115 | 100 | 315 | 80 | 35 | 313 | 60 | 28 |
| **309 L2** | 356 | 215 | 188 | 142 | 127 | 112 | 239 | 48 | 15 | - | - | - |
| **309 L3** | 421 | 280 | 253 | 149 | 134 | 119 | 137.5 | 24 | 6 | 158 | 38 | 7 |
| **309 L4** | 474 | 333 | 306 | 153 | 138 | 123 | 137.5 | 24 | 6 | 158 | 38 | 7 |

| | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | | P160 | | P180 | | P200 | | P225 | | P250 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P |
| **309 L1** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 195 | 350 | 186 | 400 | 216 | 450 | 216 | 550 |
| **309 L2** | - | - | - | - | - | - | - | - | - | - | 114 | 300 | 114 | 350 | 144 | 350 | 174 | 400 | - | - | - | - |
| **309 L3** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 114 | 350 | - | - | - | - | - | - | - | - |
| **309 L4** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 114 | 350 | - | - | - | - | - | - | - | - |

## 309 R

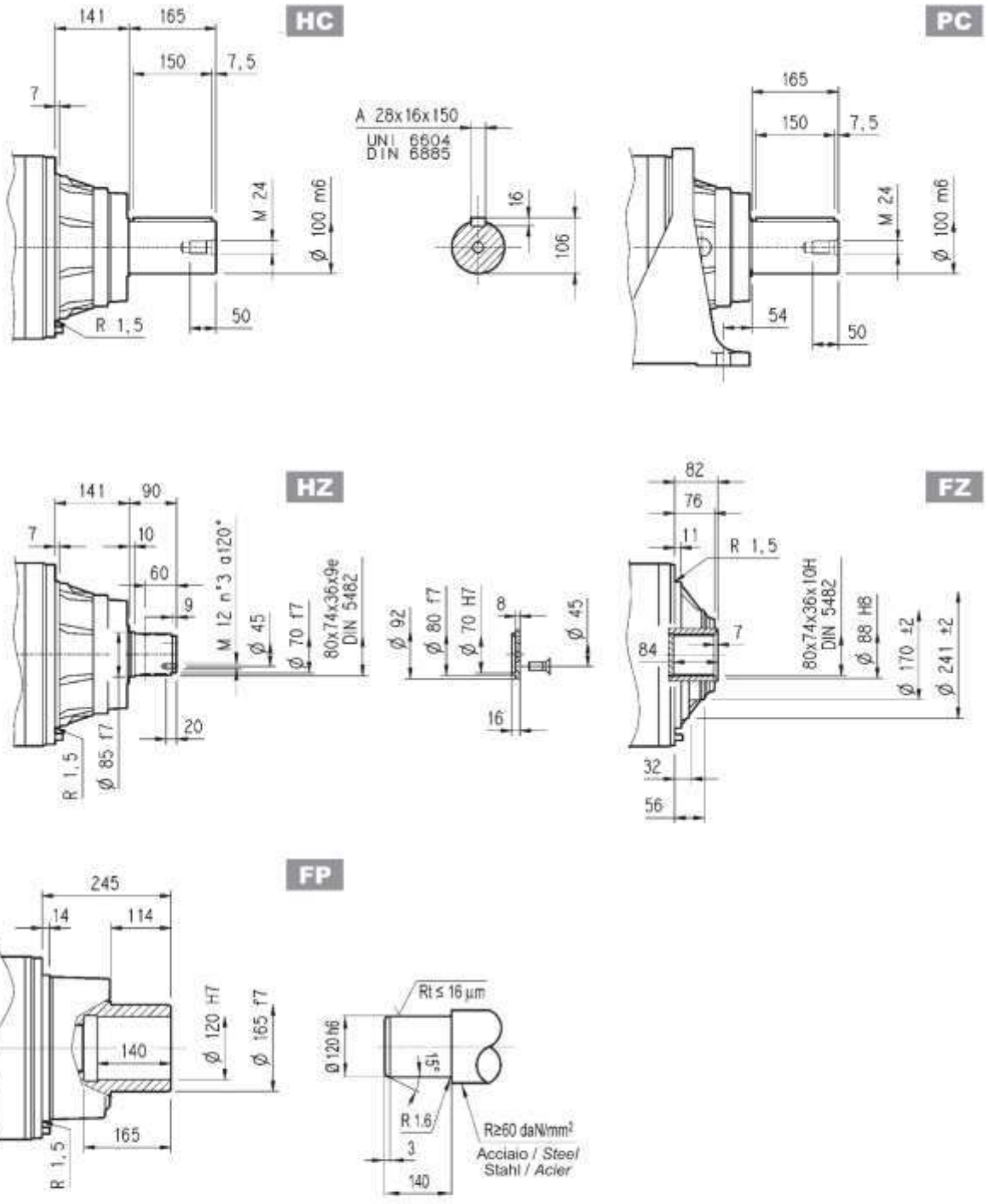



**FP** $M_{2max}$ = 29000 Nm

| | L | | | | L1 | L2 | | | Wight (kg) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PC - PZ | HC - HZ | FZ | FP | | HC-HZ | FZ | FP | PC - PZ | HC - HZ | FZ | V | V1 | (kg) | V | V1 | (kg) |
| **309 R2** | 386 | 245 | 218 | 220 | 225 | 168 | 141 | 143 | 180 | 165 | 145 | 239 | 48 | 15 | - | - | - |
| **309 R3** | 448 | 309 | 280 | 282 | 140 | 144 | 117 | 119 | 162 | 147 | 127 | 137.5 | 24 | 6 | 158 | 38 | 7 |
| **309 R4** | 513 | 372 | 345 | 347 | 122 | 144 | 117 | 119 | 163 | 148 | 128 | 137.5 | 24 | 6 | 158 | 38 | 7 |

| | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | | P160 | | P180 | | P200 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P |
| **309 R2** | - | - | - | - | - | - | - | - | - | - | 114 | 300 | 114 | 350 | 114 | 350 | 174 | 400 |
| **309 R3** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 114 | 350 | - | - | - | - |
| **309 R4** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 114 | 350 | - | - | - | - |

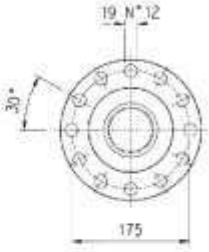
## 309 L - 309 R

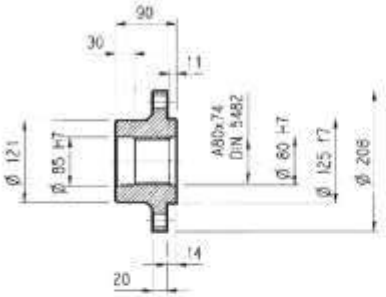



| FP | $M_{2max}$ = 29000 Nm |
|---|---|

## 309L-309R
## Flange

**WOA**

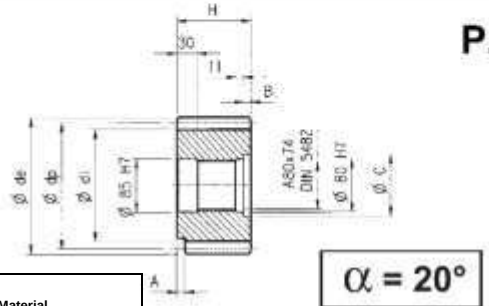



Material: Steel C40

## Pinions

**P...**

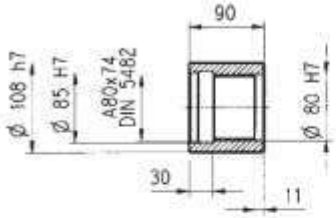



$\alpha = 20°$

| m | z | x | dp | di | de | H | A | B | C | | Material |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PFG | 8 | 16 | 0.5 | 128 | 117 | 150 | 90 | — | — | — | Steel 39NiCrMo3 hardened and tempered |
| PHC | 10 | 12 | 0.45 | 120 | 104 | 145 | 90 | — | — | — | |
| PHE | 10 | 14 | 0.32 | 140 | 121 | 165 | 116 | 13 | 26 | 95 | |
| PHF | 10 | 15 | 0.15 | 150 | 130 | 172 | 107 | 20 | 17 | 100 | |
| PHG | 10 | 16 | 0.5 | 160 | 145 | 186 | 90 | — | — | — | Steel 18NiCrMo5 case hardened |
| PHH1 | 10 | 17 | — | 170 | 145 | 189 | 90 | — | — | — | |
| PHH2 | 10 | 17 | 0.5 | 170 | 154 | 198 | 90 | — | — | — | |
| PLD | 12 | 13 | 0.5 | 156 | 138 | 192 | 102 | — | 12 | 95 | Steel 39NiCrMo3 hardened and tempered |
| PLE | 12 | 14 | 0.5 | 168 | 150 | 199 | 90 | — | — | — | |
| PLI | 12 | 18 | 0.5 | 216 | 198 | 250 | 107 | 7 | 17 | 95 | |
| PLT | 12 | 26 | — | 312 | 282 | 336 | 90 | 10 | — | — | Steel 18NiCrMo5 case hardened |

## Sleeve coupling

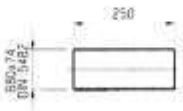
**MOA**




Material: Steel 16CrNi4

## Splined bars

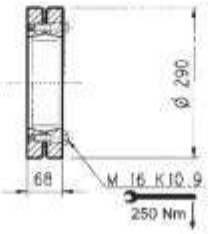
**BOA**



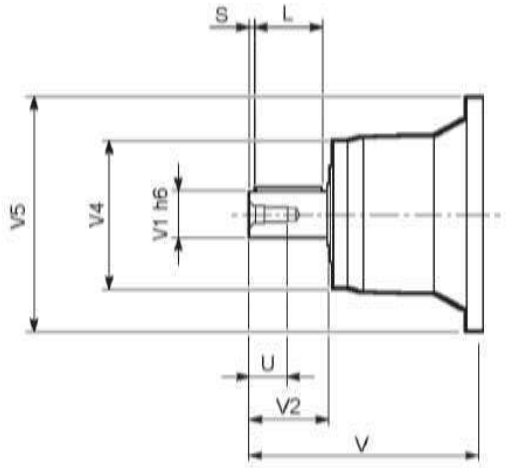

Material: Case hardening steel 18NiCrMo5
UNI 5331 must be case hardened 50-55 HRC

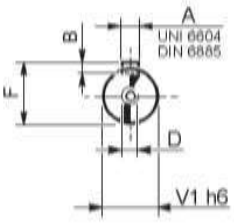
## Shrink disc

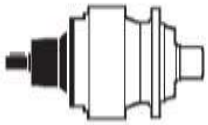
**GOA**



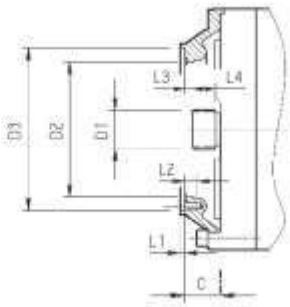
# 309L-309R

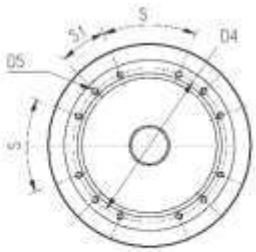


| | input | V | V1 | V2 | V4 | V5 | A | B | F | L | S | D | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **309 L1** | **V07B** | 315 | 80 | 130 | 200 | 345 | 22 | 14 | 85 | 110 | 10 | M16 | 36 |
| | **V07A** | 313 | 60 | 105 | 155 | 345 | 18 | 11 | 64 | 90 | 7.5 | M16 | 36 |
| **309 L2** | **V05B** | 239 | 48 | 82 | 155 | 245 | 14 | 9 | 51.5 | 70 | 6 | M16 | 36 |
| **309 L3** | **V01A** | 137.5 | 24 | 36 | 120 | 186 | 8 | 7 | 27 | 30 | 3 | M8 | 19 |
| | **V01B** | 158 | 38 | 58 | 120 | 186 | 10 | 8 | 41 | 50 | 4 | M12 | 28 |
| **309 L4** | **V01A** | 137.5 | 24 | 36 | 120 | 186 | 8 | 7 | 27 | 30 | 3 | M8 | 19 |
| | **V01B** | 158 | 38 | 58 | 120 | 186 | 10 | 8 | 41 | 50 | 4 | M12 | 28 |
| **309 R2** | **V05B** | 239 | 48 | 82 | 155 | 245 | 14 | 9 | 51.5 | 70 | 6 | M16 | 36 |
| **309 R3-R4** | **V01A** | 137.5 | 24 | 36 | 120 | 186 | 8 | 7 | 27 | 30 | 3 | M8 | 19 |
| | **V01B** | 158 | 38 | 58 | 120 | 186 | 10 | 8 | 41 | 50 | 4 | M12 | 28 |

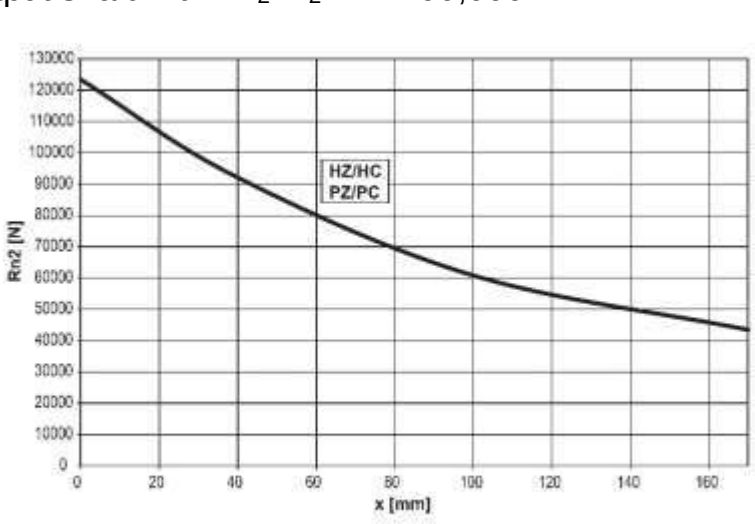



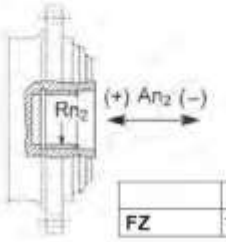

| | | C | D1 | D2 | D3 | D4 | D5 | D6 | L1 | L2 | L3 | L4 | L5 | L6 | S | S1 | Input |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **309L1** | **V9AB** | 51 | 58x53DIN5482 | 195 | 236H7 | 222 | M10n°12 | — | 4 | 18 | 11 | 22 | — | — | 45° | 22.5° | B |
| **309L2** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°12 | — | 4 | 18 | 9 | 18 | — | — | 45° | 45° | A |
| **309L3** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°12 | 11 | 4 | — | 9 | 18 | 65 | 18 | 45° | 45° | A |
| **309L4** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°12 | 11 | 4 | — | 9 | 18 | 118 | 18 | 45° | 45° | A |
| **309R2** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°12 | 11 | 4 | 18 | 9 | 18 | — | — | 45° | 45° | A |
| **309R3-R4** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°12 | 11 | 4 | — | 9 | 18 | 37 | 18 | 45° | 45° | A |

Permissible radial and axial loads on output shaft with $Fh_2$: $n_2$. h = 100,000

بارهای شعاعی و محوری مجاز بر روی شافت خروجی با Fh2: n2. h = 100,000




| | An2 (+) | An2 (-) |
|---|---|---|
| HZ - HC<br>PZ - PC | 80000 | 40000 |

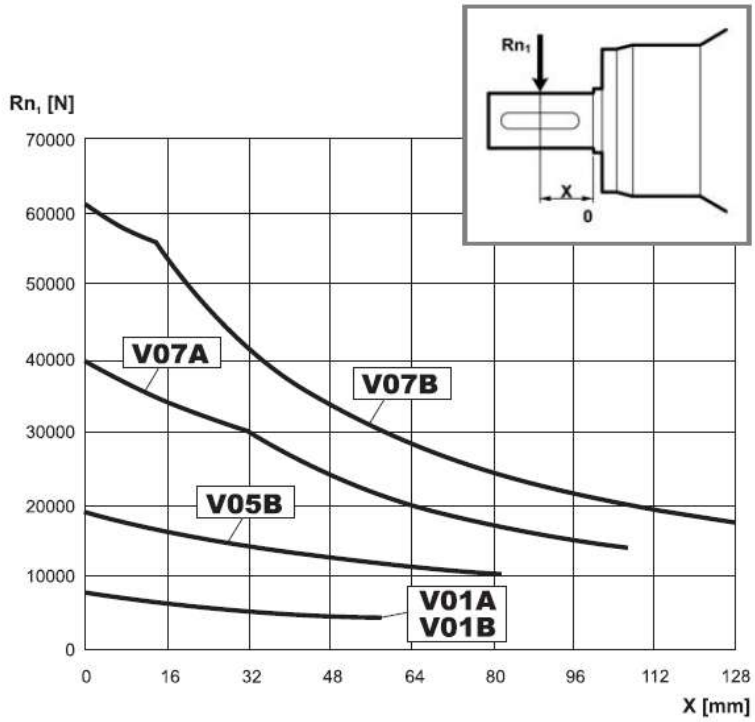



| | Rn2 | An2 (+/-) |
|---|---|---|
| FZ | 16710 | 17174 |

| Load correction factor $fh_2$ on shafts<br>فاکتور اصلاح بار $fh_2$ بر روی شافت | $Fh_2 = n_2$. h | | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 |
|---|---|---|---|---|---|---|---|---|
| | $fh_2$ | FZ | 2.15 | 1.74 | 1.26 | 1.00 | 0.58 | 0.46 |
| | | HZ - HC - PC - PZ | 1.49 | 1.49 | 1.23 | 1.00 | 0.62 | 0.50 |

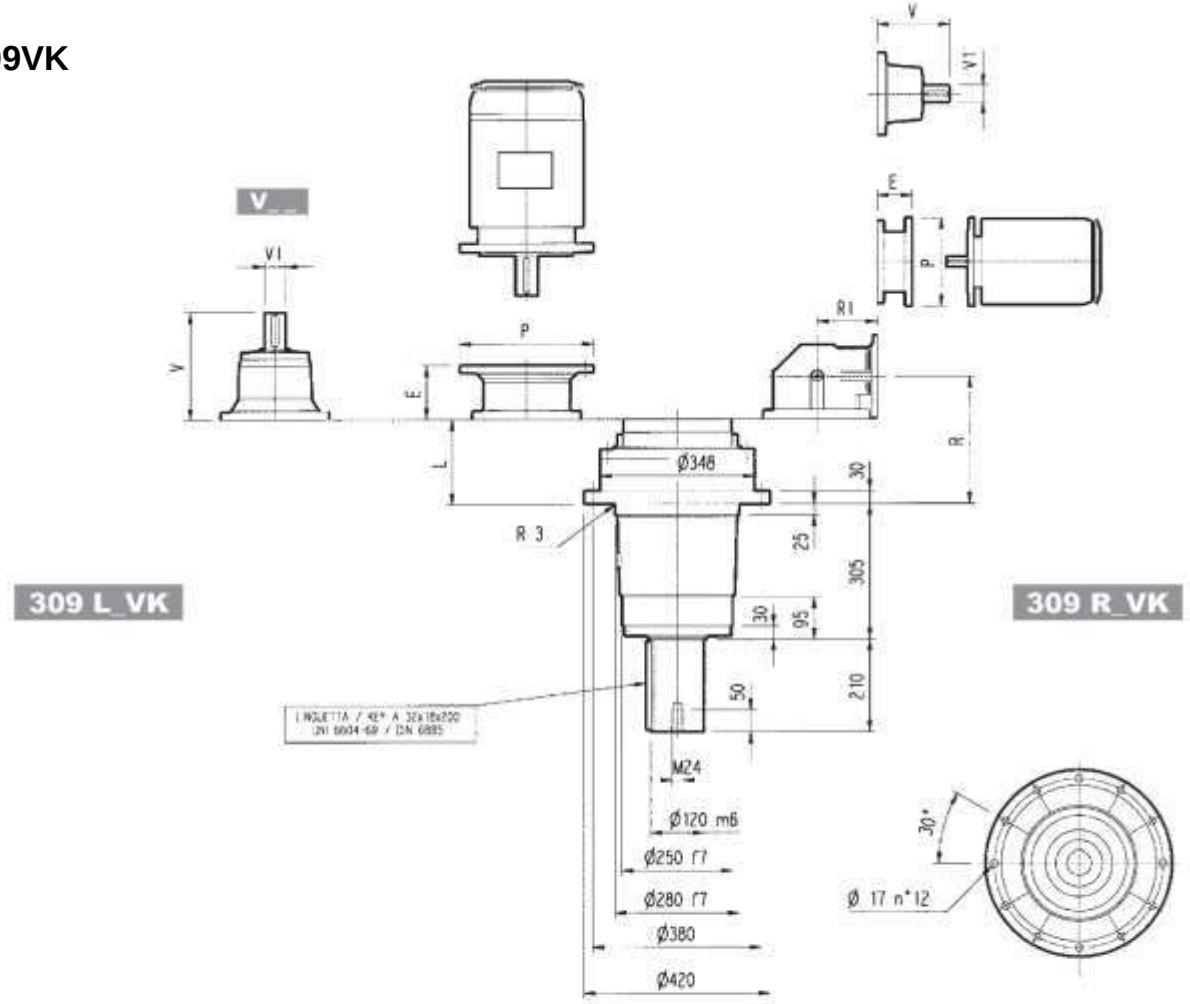
Permissible radial loads on input shaft with Fh1: n1. h = 250000

بارهای شعاعی مجاز بر روی شفت ورودی با Fh1: n1. h = 250000




| Load correction factor $fh_1$ on shafts<br>فاکتور اصلاح بار $fh_1$ بر روی شافت | $Fh_1 = n1$. h | 250000 | 500000 | 1000000 | 2000000 | 5000000 | 10000000 |
|---|---|---|---|---|---|---|---|
| | $fh_1$ | 1 | 0.79 | 0.63 | 0.5 | 0.37 | 0.29 |

## 309VK




| | L | Kg | V | V1 | Kg | V | V1 | Kg |
|---|---|---|---|---|---|---|---|---|
| **309L1** | 102 | 165 | 315 | 80 | 35 | 313 | 60 | 28 |
| **309L2** | 191 | 180 | 239 | 48 | 15 | — | — | — |
| **309L3** | 256 | 190 | 138 | 24 | 6 | 158 | 38 | 7 |
| **309L4** | 309 | 195 | 138 | 24 | 6 | 158 | 38 | 7 |

| | R | R1 | Kg | V | V1 | kg | V | V1 | kg |
|---|---|---|---|---|---|---|---|---|---|
| **309R2** | 221 | 225 | 200 | 239 | 48 | 15 | — | — | — |
| **309R3** | 283 | 140 | 190 | 138 | 24 | 6 | 158 | 38 | 7 |
| **309R4** | 348 | 122 | 195 | 138 | 24 | 6 | 158 | 38 | 7 |

| | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | | P160 | | P180 | | P200 | | P225 | | P250 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P |
| **309L1** | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 195 | 350 | 186 | 400 | 216 | 450 | 216 | 450 |
| **309L2** | — | — | — | — | — | — | — | — | — | — | 114 | 300 | 144 | 350 | 144 | 350 | 174 | 400 | — | — | — | — |
| **309L3** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 144 | 350 | — | — | — | — | — | — | — | — |
| **309L4** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 144 | 350 | — | — | — | — | — | — | — | — |

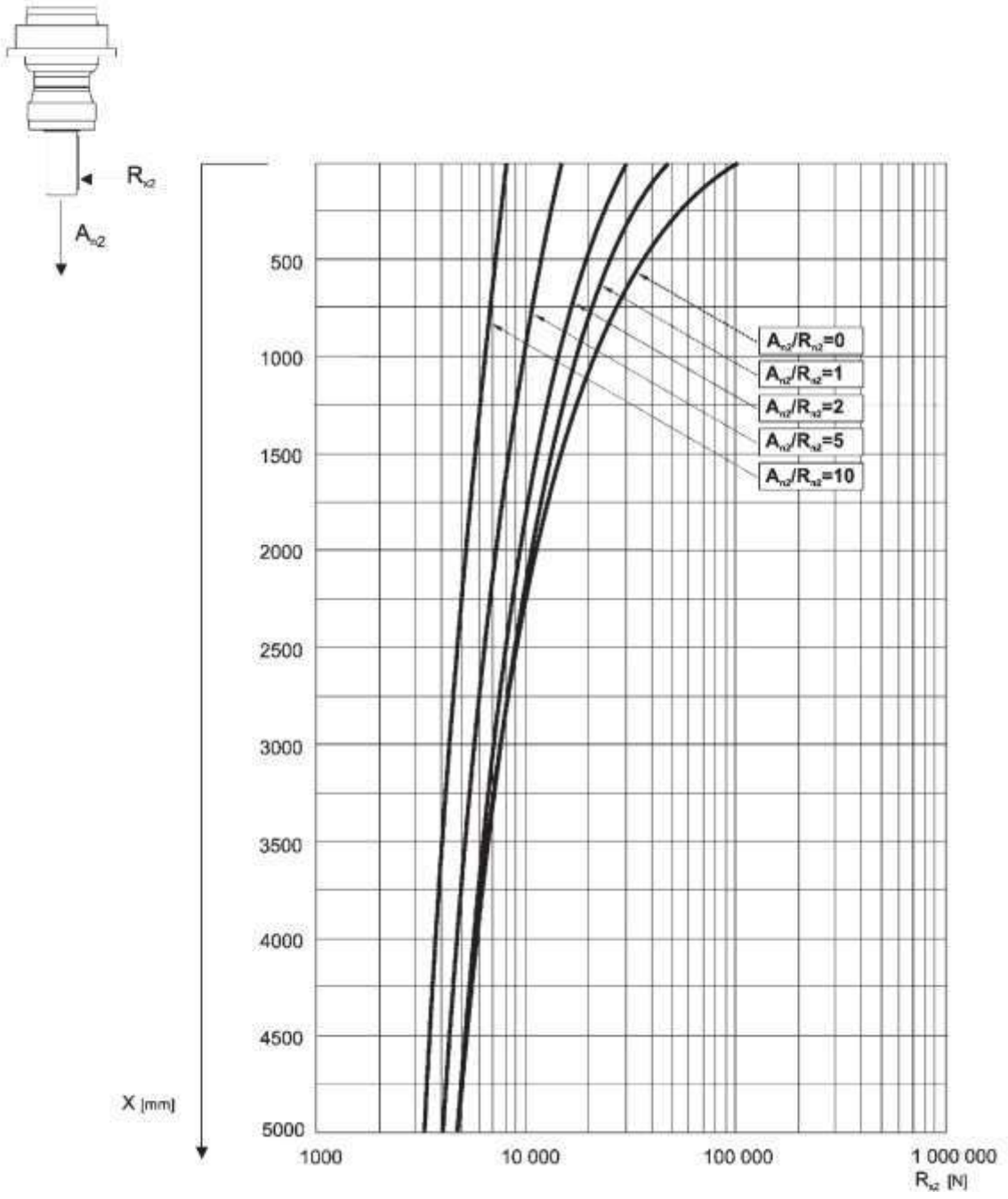
| | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | | P160 | | P180 | | P200 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P |
| **309R2** | — | — | — | — | — | — | — | — | — | — | 114 | 300 | 144 | 350 | 144 | 350 | 174 | 400 |
| **309R3** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 144 | 350 | — | — | — | — |
| **309R4** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 144 | 350 | — | — | — | — |

نمودار زیر امکان محاسبه بار اضافی مجاز Rx2 را بر روی شافت خروجی گیربکس ، با نیروی شعاعی اعمال شده در فاصله x از شافت.

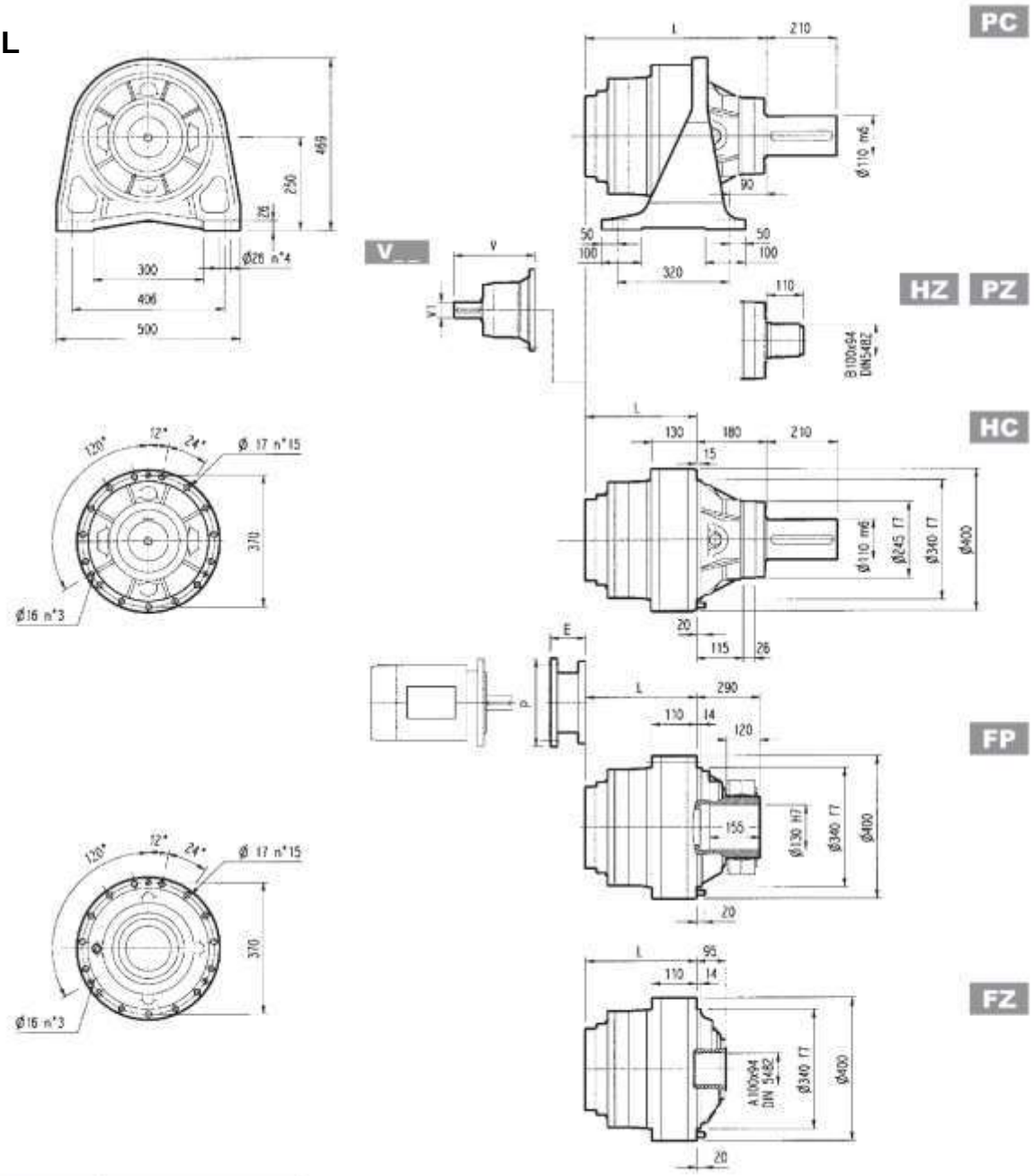
منحنی ها به مقدار مربوط به رابطه بار مجاز An2 به بار شعاعی Rn2 مربوط می شوند

n2 = 10 دقیقه در ۱ و ۱۰۰۰۰ ساعت طول عمر نظری.

The diagram below allows the calculation of permitted overhung load Rx2 on the output shaft of gearbox, with radial force applying at a distance x from shaft shoulder. The curves are relevant to value resulting from the relationship of trust load An2 to radial load Rn2, based on n2 = 10 min-1 and 10000 hrs. theoretical lifetime.



## 310L

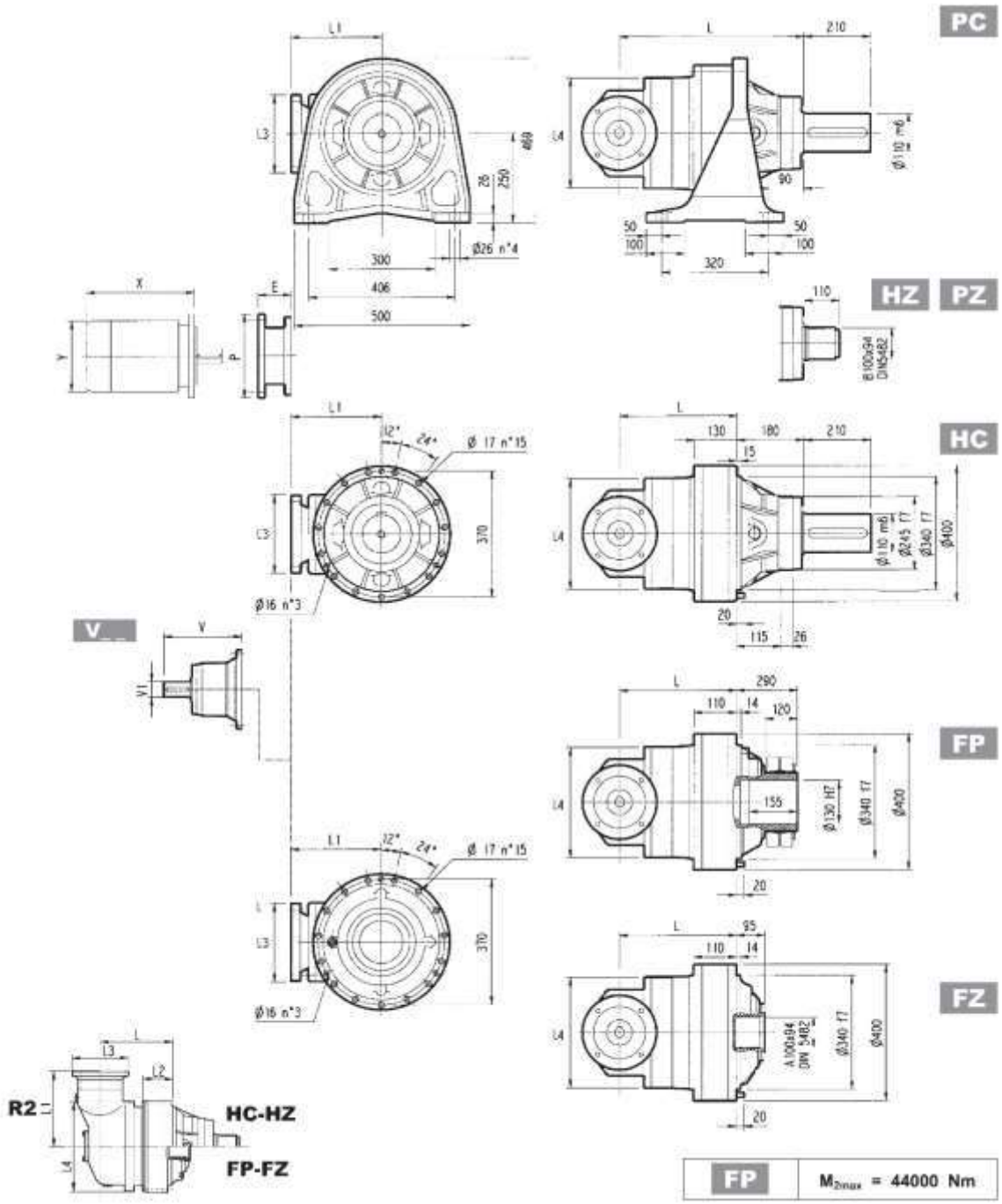



FP | $M_{2max}$ = 44000 Nm

| | L | | | Wight (kg) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PC - PZ | HC - HZ | FP-FZ | PC - PZ | HC - HZ | FZ | FP | V | $V_1$ | W(kg) | V | $V_1$ | W(kg) |
| **310 L1** | 288 | 108 | 99 | 155 | 135 | 110 | 115 | 337 | 80 | 50 | - | - | - |
| **310 L2** | 424 | 244 | 224 | 185 | 165 | 140 | 154 | 307 | 60 | 23 | - | - | - |
| **310 L3** | 489 | 309 | 289 | 194 | 174 | 149 | 154 | 239 | 48 | 15 | - | - | - |
| **310 L4** | 542 | 362 | 324 | 198 | 175 | 153 | 158 | 137.5 | 24 | 6 | 158 | 38 | 7 |

| | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | | P160 | | P180 | | P200 | | P225 | | P250 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P |
| **310L1** | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 271 | 400 | 301 | 450 | 281 | 550 |
| **310L2** | — | — | — | — | — | — | — | — | — | — | — | — | 152 | 350 | 153 | 350 | 183 | 400 | 212 | 450 | 193 | 550 |
| **310L3** | — | — | — | — | — | — | — | — | — | — | 114 | 300 | 144 | 350 | 144 | 350 | 174 | 400 | — | — | — | — |
| **310L4** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 144 | 350 | — | — | — | — | — | — | — | — |

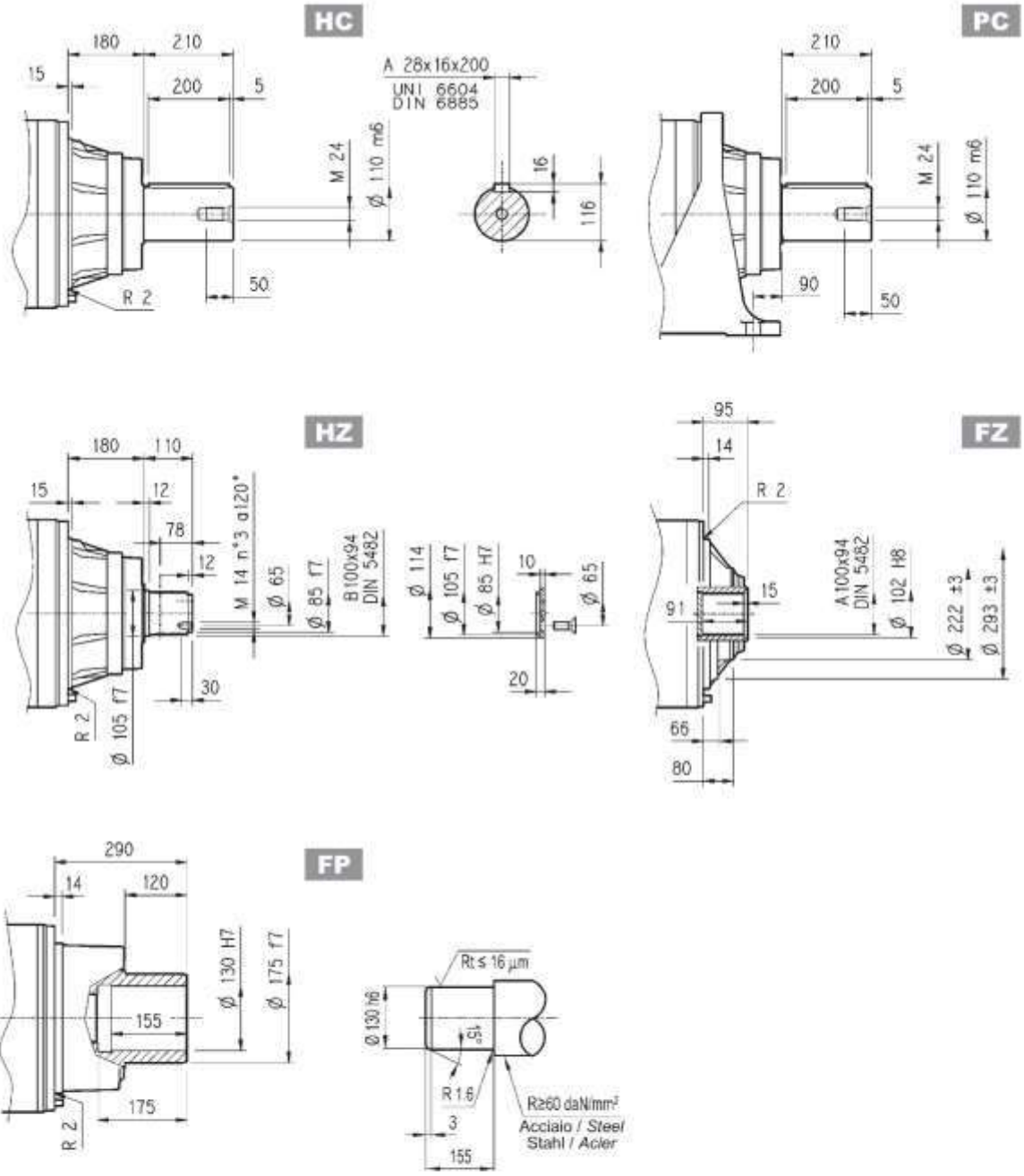
## 310R




| | L | | | | L1 | L3 | L4 | WEHGHT | | | | V | V1 | KG | V | V1 | KG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PC-PZ | HC-HZ | FZ | FP | | | | PC-PZ | HC-HZ | FZ | FP | | | | | | |
| **310R2(B)** | 495 | 315 | 295 | 295 | 345 | 292 | 400 | 280 | 260 | 240 | 250 | 307 | 60 | 23 | - | - | - |
| **310R2(c)** | 513 | 333 | 313 | 313 | 390 | 292 | 480 | 300 | 280 | 260 | 270 | 307 | 60 | 23 | - | - | - |
| **310R3** | 561 | 381 | 361 | 361 | 140 | 186 | 244 | 209 | 189 | 164 | 169 | 137.5 | 24 | 6 | 158 | 38 | 7 |
| **310R4** | 581 | 401 | 381 | 381 | 140 | 186 | 244 | 214 | 194 | 169 | 174 | 137.5 | 24 | 6 | 158 | 38 | 7 |

| | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | | P160 | | P180 | | P200 | | P225 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P |
| **310R2(B)** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 152 | 350 | 182 | 400 | 212 | 450 |
| **310R2(c)** | - | - | - | - | - | - | - | - | - | - | 114 | 300 | 152 | 350 | 152 | 350 | 182 | 400 | 212 | 450 |
| **310R3** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 144 | 350 | - | - | - | - | - | - |
| **310R4** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 144 | 350 | - | - | - | - | - | - |

## 310L-310R

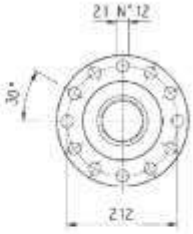


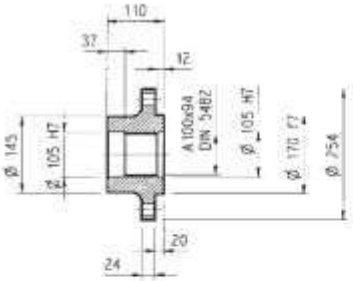

| FP | $M_{2max}$ = 44000 Nm |
|---|---|

## 310 L-310 R

### Flange

**WOA**

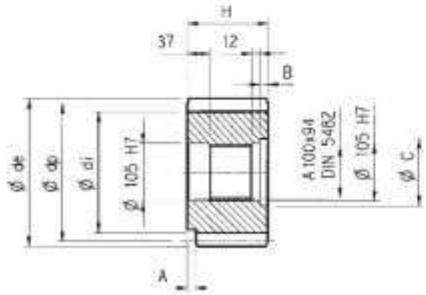



Material: Steel C40

### Pinions

**P...**

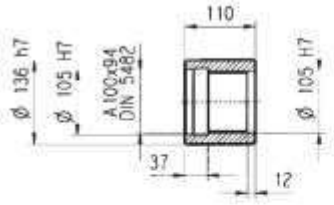



$\alpha = 20°$

| | m | z | x | dp | di | de | H | A | B | C | Material |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PLQ | 12 | 23 | — | 276 | 246 | 300 | 110 | — | — | — | Steel 18NiCrMo5 case hardened |
| PPD | 16 | 13 | 0.5 | 208 | 184 | 252.5 | 145 | — | 35 | 116 | Steel 39NiCrMo3 hardened and tempered |
| PPF | 16 | 15 | 0.45 | 240 | 215 | 280 | 125 | — | 15 | 120 | |

### Sleeve coupling

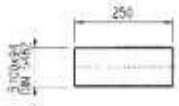
**MOA**




Material: Steel 16CrNi4

### Splined bars

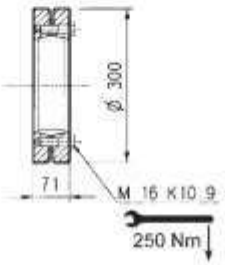
**BOA**



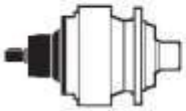

Material: Case hardening steel 18NiCrMo5
UNI 5331 must be case hardened 50-55 HRC

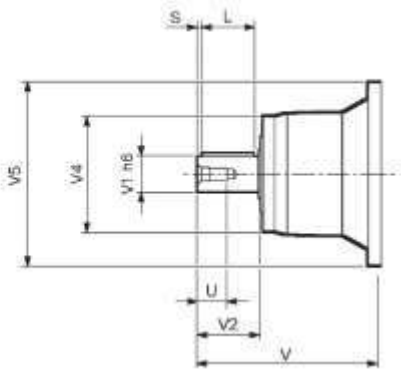
### Shrink disc

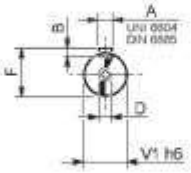
**GOA**



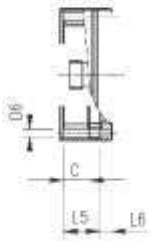
## 310L-310R

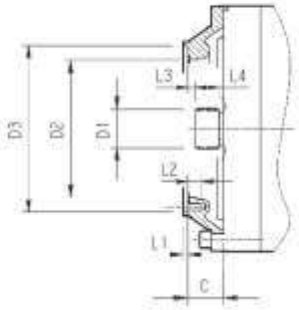


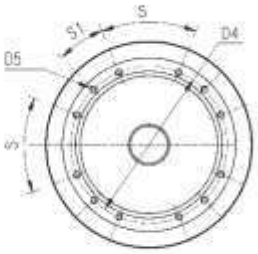



| | input | V | V1 | V2 | V4 | V5 | A | B | F | L | S | D | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **310 L1** | **V10B** | 377 | 80 | 130 | 200 | 400 | 22 | 14 | 85 | 110 | 10 | M16 | 36 |
| **310L2** | **V06B** | 307 | 60 | 105 | 155 | 292 | 18 | 11 | 64 | 90 | 7.5 | M16 | 36 |
| **310 L3** | **V05B** | 239 | 48 | 82 | 155 | 245 | 14 | 9 | 52 | 70 | 6 | M16 | 36 |
| **310 L4** | **V01A** | 137.5 | 24 | 36 | 120 | 186 | 8 | 7 | 27 | 30 | 3 | M8 | 19 |
| | **V01B** | 158 | 38 | 58 | 120 | 186 | 10 | 8 | 41 | 50 | 4 | M12 | 28 |
| **310 R2(B)(C)** | **V06B** | 307 | 60 | 105 | 155 | 292 | 18 | 11 | 64 | 90 | 7.5 | M16 | 36 |
| **310 R3-R4** | **V01A** | 137.5 | 24 | 36 | 120 | 186 | 8 | 7 | 27 | 30 | 3 | M8 | 19 |
| | **V01B** | 158 | 38 | 58 | 120 | 186 | 10 | 8 | 41 | 50 | 4 | M12 | 28 |



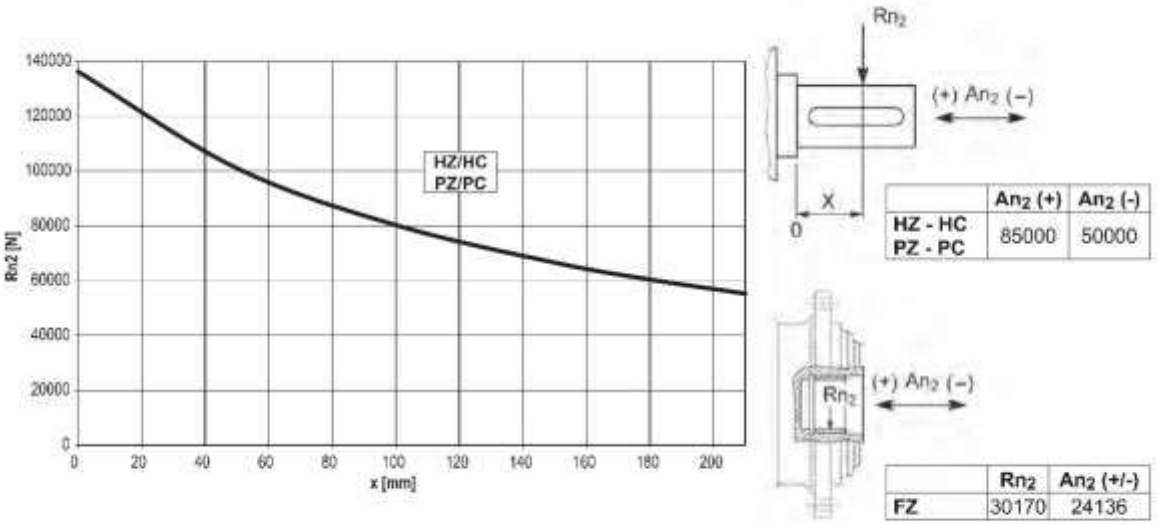




| | | C | D1 | D2 | D3 | D4 | D5 | D6 | L1 | L2 | L3 | L4 | L5 | L6 | S | S1 | Input |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **310L1** | **V9AC** | 88 | 70x64DIN5482 | 200 | 282H7 | 266 | M12n°12 | — | 4 | 22 | 11 | 32 | — | — | 45° | 45° | C |
| **310L2** | **V9AB** | 45 | 58x53DIN5482 | 195 | 236H7 | 222 | M10n°12 | — | 4 | 18 | 11 | 22 | — | — | 45° | 22.5° | B |
| **310L3** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | — | 4 | 18 | 9 | 18 | — | — | 45° | 45° | A |
| **310L4** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | 11 | 4 | — | 9 | 18 | 53 | 18 | 45° | 45° | A |
| **310R2(B)(C)** | **V9AA** | 45 | 58x53DIN5482 | 195 | 236H7 | 222 | M10n°12 | — | 4 | 18 | 11 | 22 | — | — | 45° | 22.5° | B |
| **310R3-R4** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | 11 | 4 | — | 9 | 18 | 37 | 18 | 45° | 45° | A |

Permissible radial and axial loads on output shaft with $Fh_2$: $n_2$. h = 10,,000

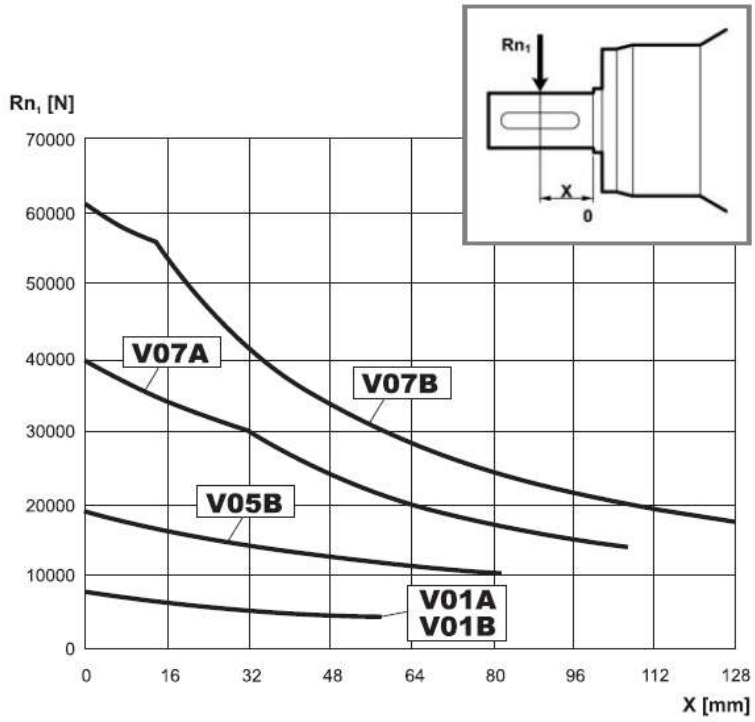
بارهای شعاعی و محوری مجاز بر روی شافت خروجی با Fh2: n2. h = 100,000،




| Load correction factor $fh_2$ on shafts<br>فاکتور اصلاح بار $fh_2$ بر روی شافت | $Fh_2 = n_2$. h | | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 |
|---|---|---|---|---|---|---|---|---|
| | $fh_2$ | FZ | 2.15 | 1.59 | 1.26 | 1.00 | 0.58 | 0.46 |
| | | HZ - HC - PC - PZ | 1.27 | 1.27 | 1.23 | 1.00 | 0.62 | 0.50 |

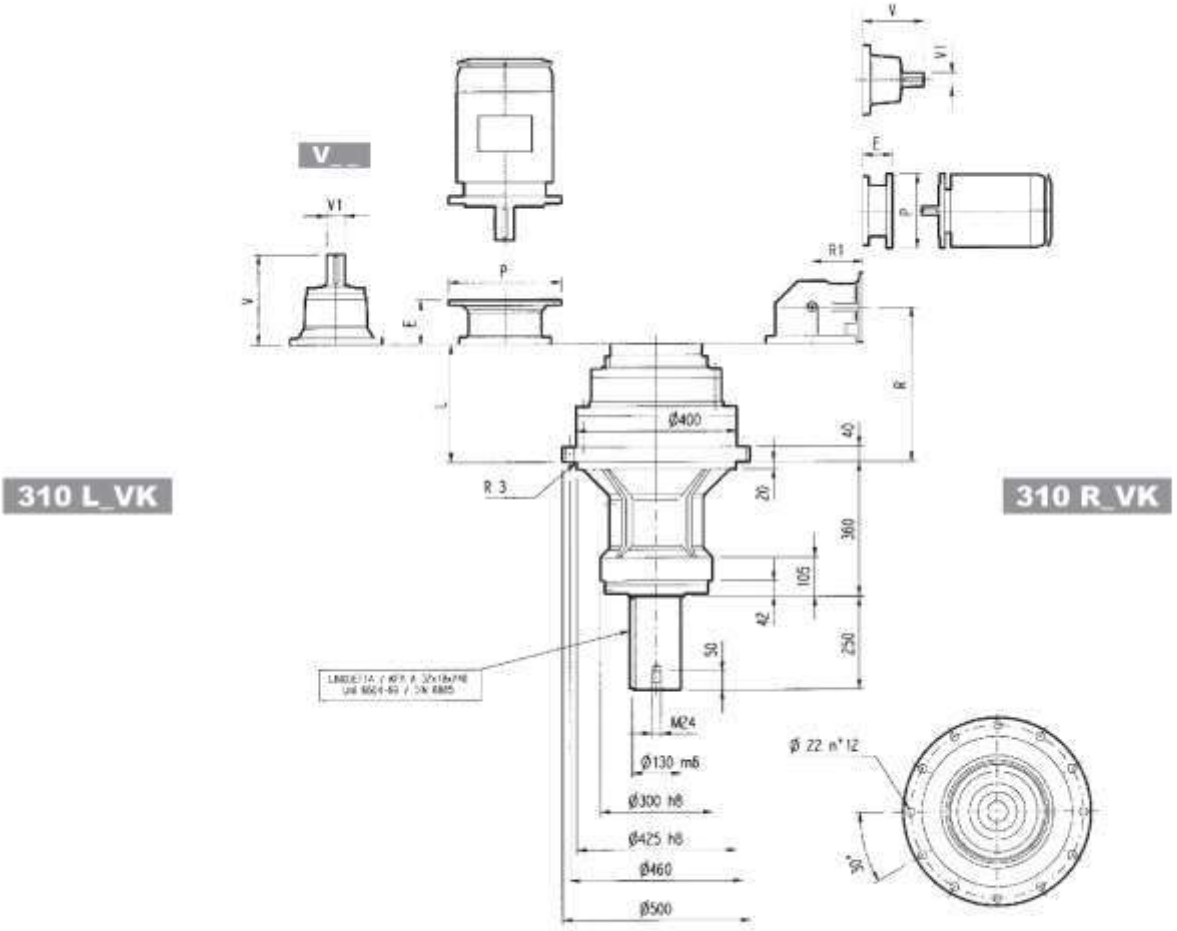
Permissible radial loads on input shaft with Fh1: n1. h = 250000

بارهای شعاعی مجاز بر روی شفت ورودی با Fh1: n1. h = 250000




| Load correction factor $fh_1$ on shafts<br>فاکتور اصلاح بار $fh_1$ بر روی شافت | $Fh_1 = n1$. h | 250000 | 500000 | 1000000 | 2000000 | 5000000 | 10000000 |
|---|---|---|---|---|---|---|---|
| | $fh_1$ | 1 | 0.79 | 0.63 | 0.5 | 0.37 | 0.29 |

## 310VK




| | L | Kg | V | V1 | Kg | V | V1 | Kg |
|---|---|---|---|---|---|---|---|---|
| **310L1** | 107 | 200 | 377 | 80 | 50 | — | — | — |
| **310L2** | 243 | 230 | 307 | 60 | 23 | — | — | — |
| **310L3** | 308 | 240 | 239 | 48 | 15 | — | — | — |
| **310L4** | 361 | 245 | 137.5 | 24 | 6 | 158 | 38 | 7 |

| | R | R1 | Kg | V | V1 | Kg | V | V1 | Kg |
|---|---|---|---|---|---|---|---|---|---|
| **310R2(B)** | 315 | 345 | 320 | 307 | 60 | 23 | — | — | — |
| **310R2(C)** | 333 | 390 | 340 | 307 | 60 | 23 | — | — | — |
| **310R3** | 380 | 140 | 250 | 138 | 24 | 6 | 158 | 38 | 7 |
| **310R4** | 400 | 140 | 260 | 138 | 24 | 6 | 158 | 38 | 7 |

| | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | | P160 | | P180 | | P200 | | P225 | | P250 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P |
| **310L1** | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 271 | 400 | 301 | 450 | 281 | 550 |
| **310L2** | — | — | — | — | — | — | — | — | — | — | — | — | 152 | 350 | 153 | 350 | 183 | 400 | 212 | 450 | 193 | 550 |
| **310L3** | — | — | — | — | — | — | — | — | — | — | 114 | 300 | 144 | 350 | 144 | 350 | 174 | 400 | — | — | — | — |
| **310L4** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 144 | 350 | — | — | — | — | — | — | — | — |

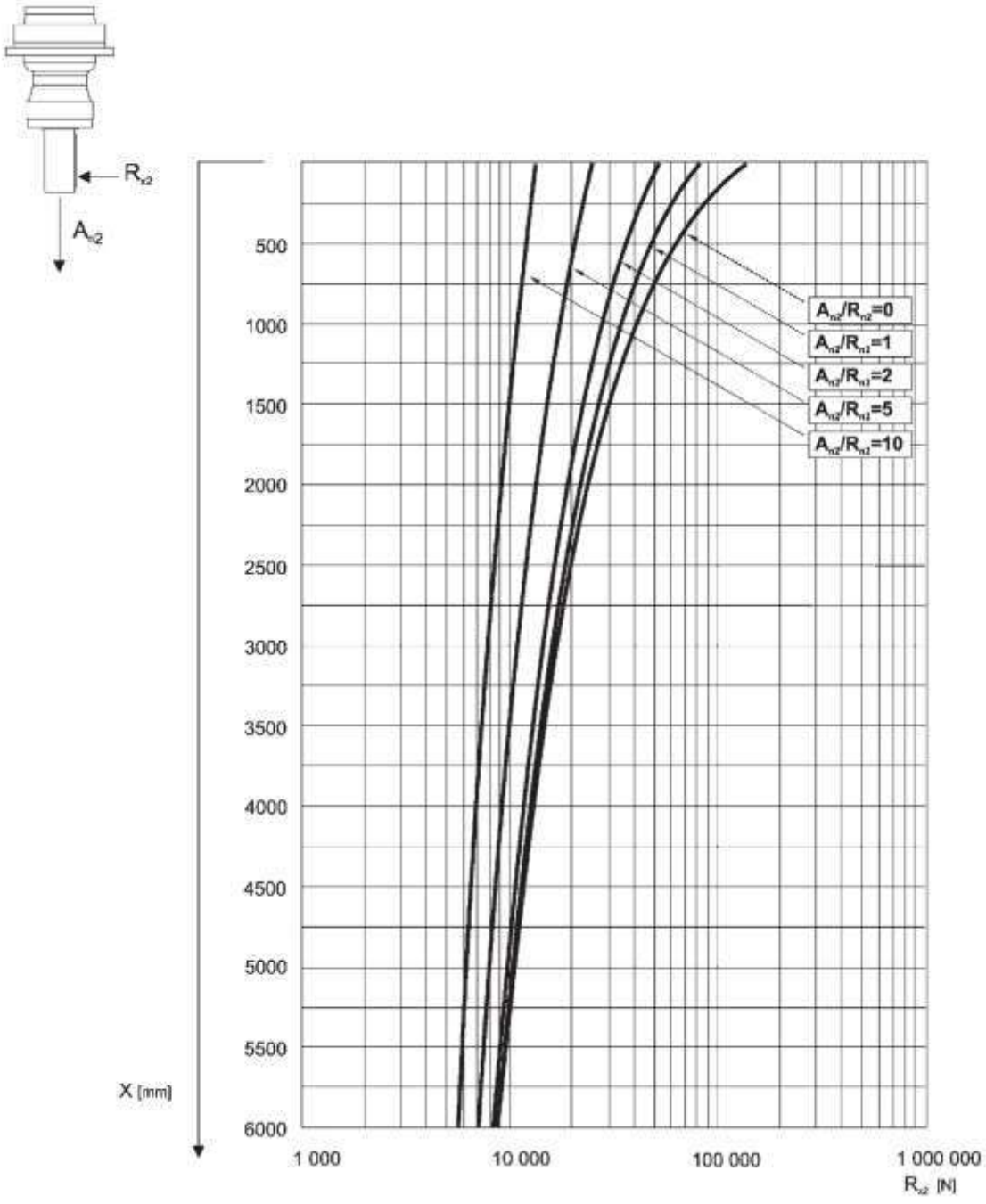
| | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | | P160 | | P180 | | P200 | | P225 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P |
| **310R2(B)** | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 152 | 350 | 182 | 400 | 212 | 450 |
| **310R2(C)** | — | — | — | — | — | — | — | — | — | — | 114 | 300 | 152 | 350 | 152 | 350 | 182 | 400 | 212 | 450 |
| **310R3** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 144 | 350 | — | — | — | — | — | — |
| **310R4** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 144 | 350 | — | — | — | — | — | — |

نمودار زیر امکان محاسبه بار اضافی مجاز Rx2 را بر روی شافت خروجی گیربکس ، با نیروی شعاعی اعمال شده در فاصله x از شافت.

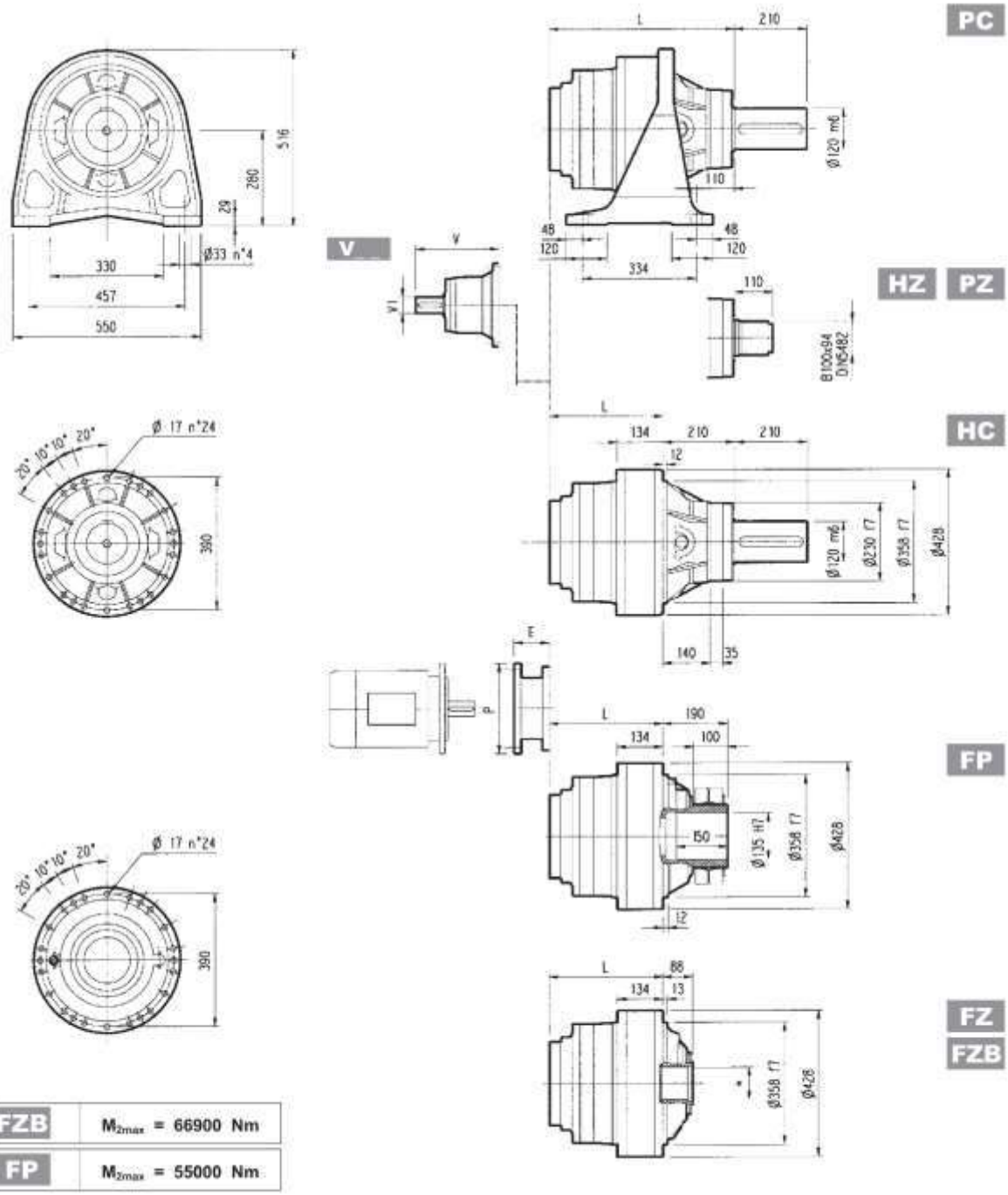
منحنی ها به مقدار مربوط به رابطه بار مجاز An2 به بار شعاعی Rn2 مربوط می شوند

n2 = 10 دقیقه در ۱ و ۱۰۰۰۰ ساعت طول عمر نظری.

The diagram below allows the calculation of permitted overhung load Rx2 on the output shaft of gearbox, with radial force applying at a distance x from shaft shoulder. The curves are relevant to value resulting from the relationship of trust load An2 to radial load Rn2, based on n2 = 10 min-1 and 10000 hrs. theoretical lifetime.



## 311L

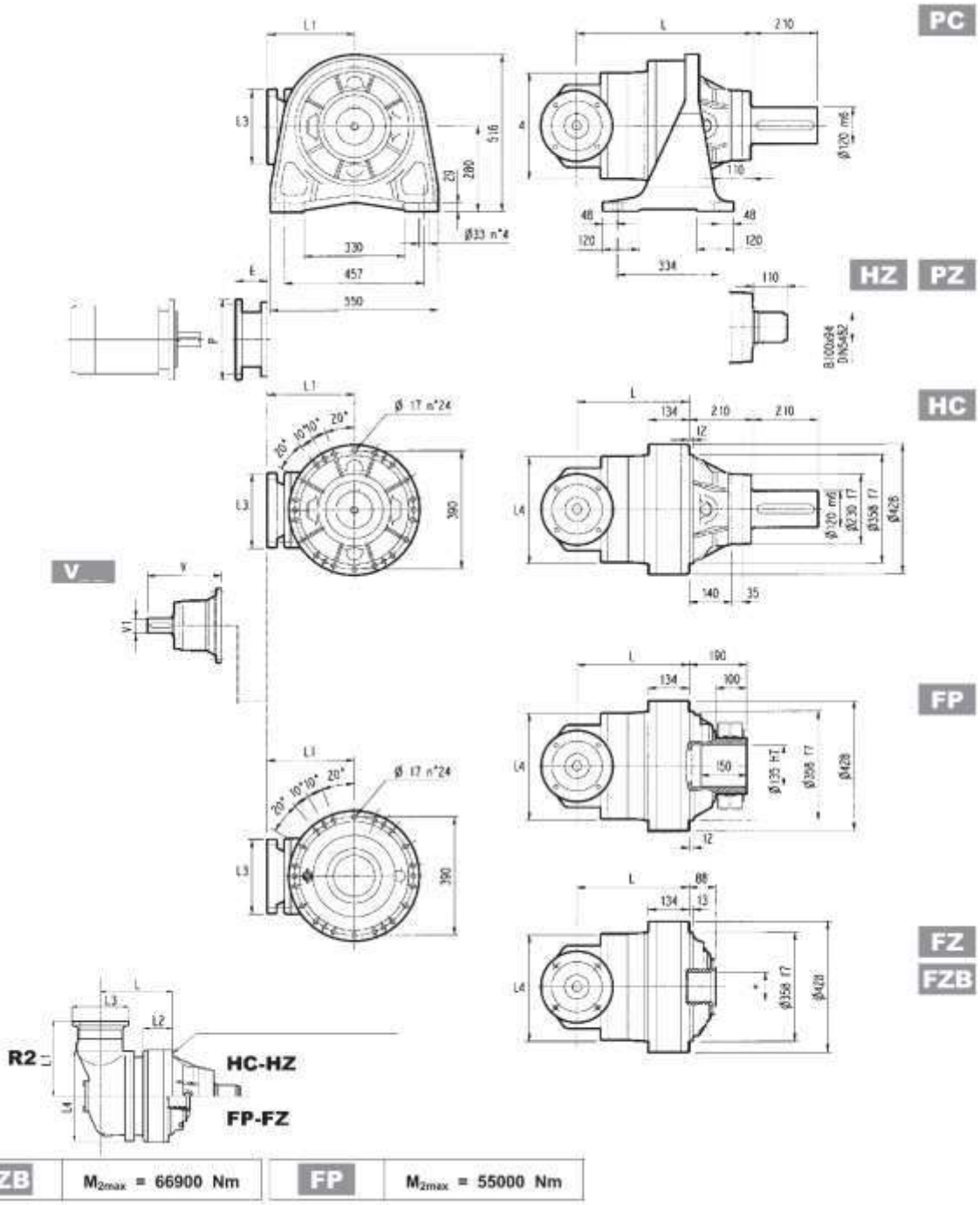



| | |
|---|---|
| FZB | $M_{2max}$ = 66900 Nm |
| FP | $M_{2max}$ = 55000 Nm |

| | L | | | | Wight (kg) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PC - PZ | HC - HZ | FZ-FZP | FP | PC - PZ | HC - HZ | FZ-FZP | FP | V | V1 | W(kg) | V | V1 | W(kg) | |
| **311 L1** | 325 | 115 | 115 | 115 | 250 | 180 | 160 | 170 | 348 | 80 | 55 | - | - | - | |
| **311 L2** | 458 | 248 | 248 | 248 | 295 | 225 | 205 | 215 | 315 | 80 | 35 | 313 | 60 | 28 | |
| **311 L3** | 547 | 337 | 337 | 337 | 307 | 237 | 217 | 227 | 239 | 48 | 15 | - | - | - | |
| **311 L4** | 612 | 402 | 402 | 402 | 314 | 244 | 224 | 234 | 137.5 | 24 | 6 | 158 | 38 | 7 | |

| | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | | P160 | | P180 | | P200 | | P225 | | P250 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P |
| **311L1** | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 267 | 400 | 297 | 450 | 297 | 550 |
| **311L2** | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 195 | 350 | 186 | 400 | 216 | 450 | 216 | 550 |
| **311L3** | — | — | — | — | — | — | — | — | — | — | 114 | 300 | 144 | 350 | 144 | 350 | 174 | 400 | — | — | — | — |
| **311L4** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 144 | 350 | — | — | — | — | — | — | — | — |

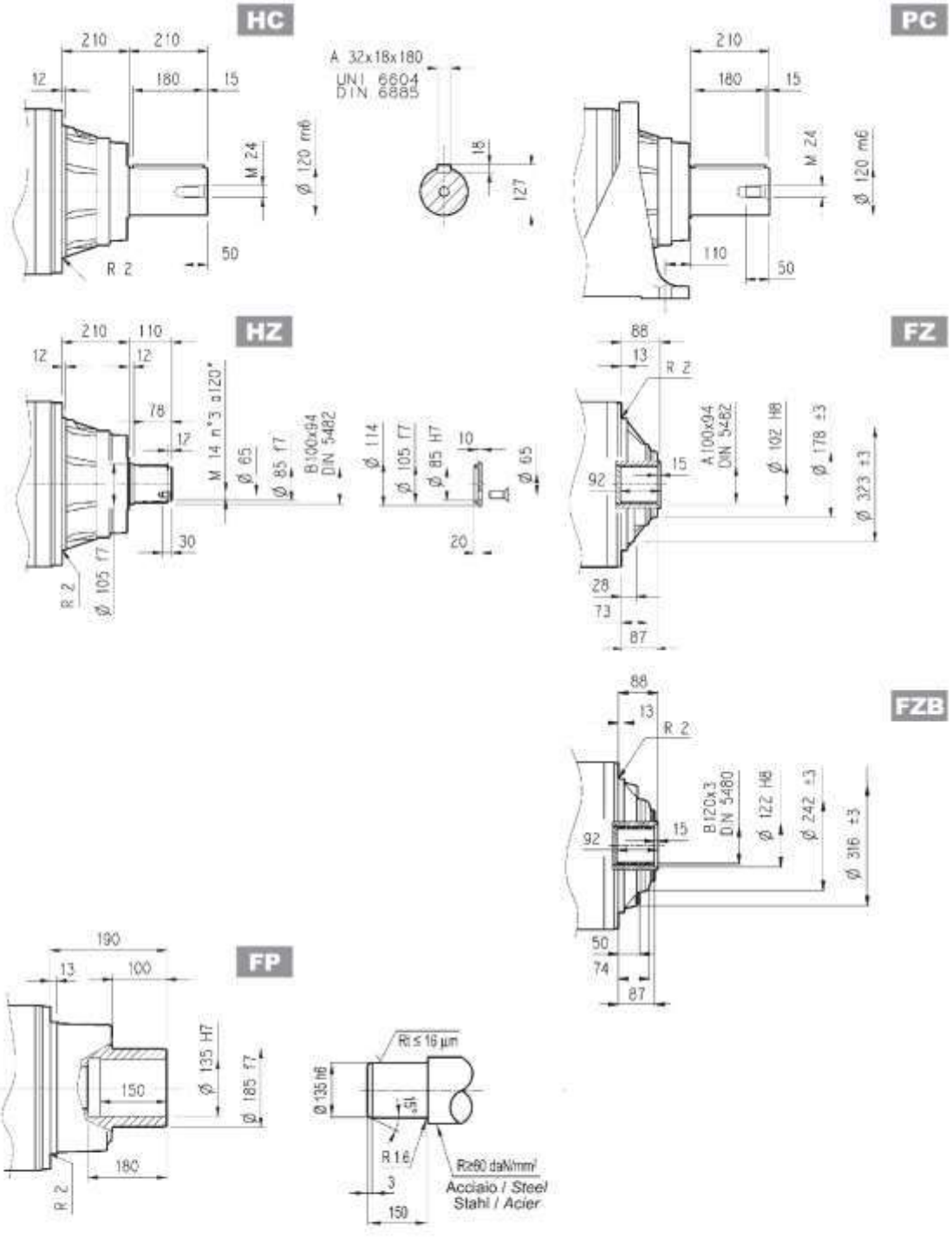
## 311R




| | R | | | | R1 | R2 | R4 | W(Kg) | | | | V | V1 | KG | V | V1 | KG | Input |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PC-PZ | HC-HZ | FZ-FZP | FP | | | | PC-PZ | HC-HZ | FZ-FZP | FP | | | | | | | |
| **311R2(B)** | 550 | 340 | 340 | 340 | 345 | 292 | 400 | 380 | 310 | 290 | 300 | 307 | 60 | 23 | — | — | — | B |
| **311R2(C)** | 550 | 340 | 340 | 340 | 390 | 292 | 480 | 390 | 320 | 300 | 310 | 307 | 60 | 23 | — | — | — | B |
| **311R3** | 577 | 367 | 367 | 367 | 225 | 245 | 375 | 345 | 275 | 255 | 265 | 239 | 48 | 15 | — | — | — | A |
| **311R4** | 639 | 429 | 429 | 429 | 140 | 186 | 244 | 327 | 257 | 237 | 247 | 137.5 | 24 | 6 | 158 | 38 | 7 | A |

| | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | | P160 | | P180 | | P200 | | P225 | | P250 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P |
| **311R2(B)** | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 267 | 400 | 297 | 450 | 297 | 550 |
| **311R2(C)** | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 195 | 350 | 186 | 400 | 216 | 450 | 216 | 550 |
| **311R3** | — | — | — | — | — | — | — | — | — | — | 114 | 300 | 144 | 350 | 144 | 350 | 174 | 400 | — | — | — | — |
| **311R4** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 144 | 350 | — | — | — | — | — | — | — | — |

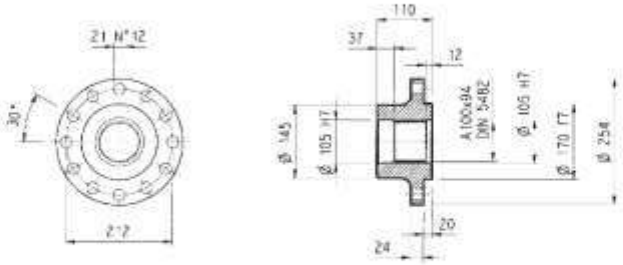
## 311L-311R




| | |
|---|---|
| FZB | $M_{2max}$ = 66900 Nm |
| FP | $M_{2max}$ = 55000 Nm |

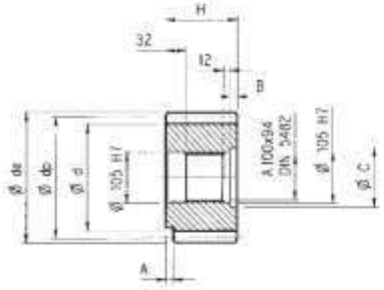
## 311L-311R

### Flange — WOA




Material: Steel C40

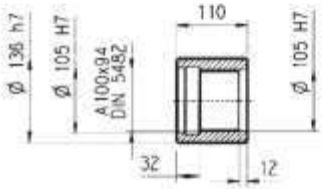
### Pinions — P...




$\alpha = 20°$

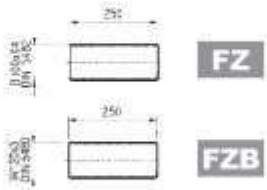
| | m | z | x | dp | di | de | H | A | B | C | Material |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PLQ | 12 | 23 | — | 276 | 246 | 300 | 110 | — | — | — | Steel 18NiCrMo5 case hardened |
| PPD | 16 | 13 | 0.5 | 208 | 184 | 253 | 145 | — | 35 | 116 | Steel 39NiCrMo3 hardened and tempered |
| PPF | 16 | 15 | 0.45 | 240 | 215 | 280 | 125 | — | 15 | 120 | |

### Sleeve coupling — MOA



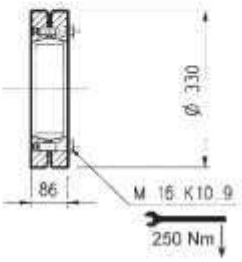

Material: Steel 16CrNi4

### Splined bars — BOA



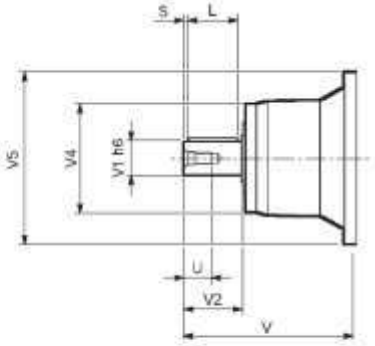

Material: Case hardening steel 18NiCrMo5
UNI 5331 must be case hardened 50-55 HRC

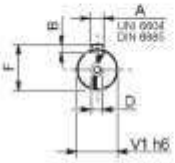
### Shrink disc — GOA

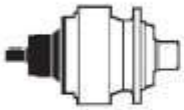


## 311L-311R

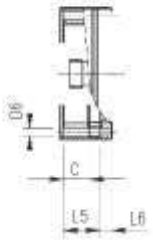
V__

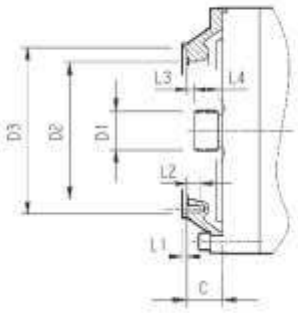


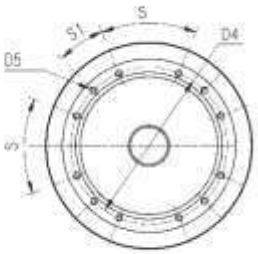



| | input | V | V1 | V2 | V4 | V5 | A | B | F | L | S | D | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **311 L1** | **V11B** | 348 | 80 | 130 | 200 | 400 | 22 | 14 | 85 | 110 | 10 | M16 | 36 |
| **311L2** | **V07B** | 315 | 80 | 130 | 200 | 345 | 22 | 14 | 85 | 110 | 10 | M16 | 36 |
| | **V07A** | 313 | 60 | 105 | 155 | 345 | 18 | 11 | 64 | 90 | 7.5 | M16 | 36 |
| **311 L3** | **V05B** | 239 | 48 | 82 | 155 | 245 | 14 | 9 | 52 | 70 | 6 | M16 | 36 |
| **311 L4** | **V01A** | 137.5 | 24 | 36 | 120 | 186 | 8 | 7 | 27 | 30 | 3 | M8 | 19 |
| | **V01B** | 158 | 38 | 58 | 120 | 186 | 10 | 8 | 41 | 50 | 4 | M12 | 28 |
| **311 R2(B)(C)** | **V06B** | 307 | 60 | 105 | 155 | 292 | 18 | 11 | 64 | 90 | 7.5 | M16 | 36 |
| **311 R3** | **V05B** | 239 | 48 | 82 | 155 | 245 | 14 | 9 | 52 | 70 | 6 | M16 | 36 |
| **311 R4** | **V01A** | 137.5 | 24 | 36 | 120 | 186 | 8 | 7 | 24 | 30 | 3 | M8 | 19 |
| | **V01A** | 158 | 38 | 58 | 120 | 186 | 10 | 8 | 41 | 50 | 4 | M12 | 28 |



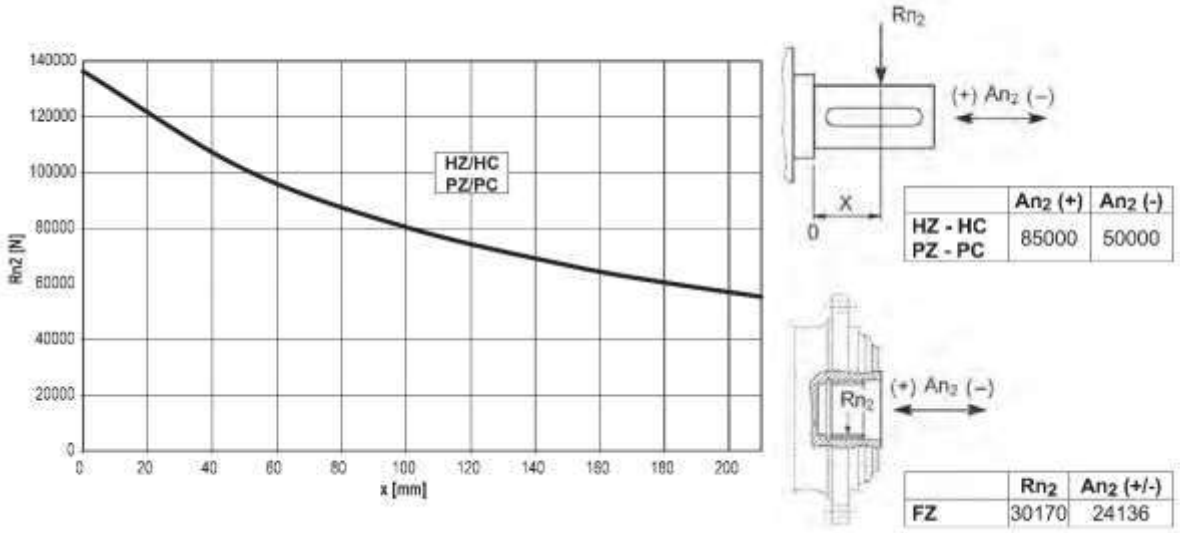




| | | C | D1 | D2 | D3 | D4 | D5 | D6 | L1 | L2 | L3 | L4 | L5 | L6 | S | S1 | Input |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **311L1** | **V9AD** | 81 | 80x74DIN5482 | 270 | 335H7 | 314 | M16n°8 | — | 5 | 30 | 8.5 | 40 | — | — | 60° | 30° | D |
| **311L2** | **V9AB** | 51 | 58x53DIN5482 | 195 | 236H7 | 222 | M10n°12 | — | 4 | 18 | 11 | 22 | — | — | 45° | 22.5° | B |
| **311L3** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | — | 4 | 18 | 9 | 18 | — | — | 45° | 45° | A |
| **311L4** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | 11 | 4 | — | 9 | 18 | 65 | 18 | 45° | 45° | A |
| **311R3** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | 11 | 4 | 18 | 9 | 18 | — | — | 45° | 45° | A |
| **311R2(B)(C)** | **V9AB** | 45 | 58x53DIN5482 | 195 | 236H7 | 222 | M10n°12 | — | 4 | 18 | 11 | 22 | — | — | 45° | 22.5° | B |
| **311R4** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°12 | 11 | 4 | — | 9 | 18 | 37 | 18 | 45° | 45° | A |

Permissible radial and axial loads on output shaft with $Fh_2$: $n_2$. h = 100,000

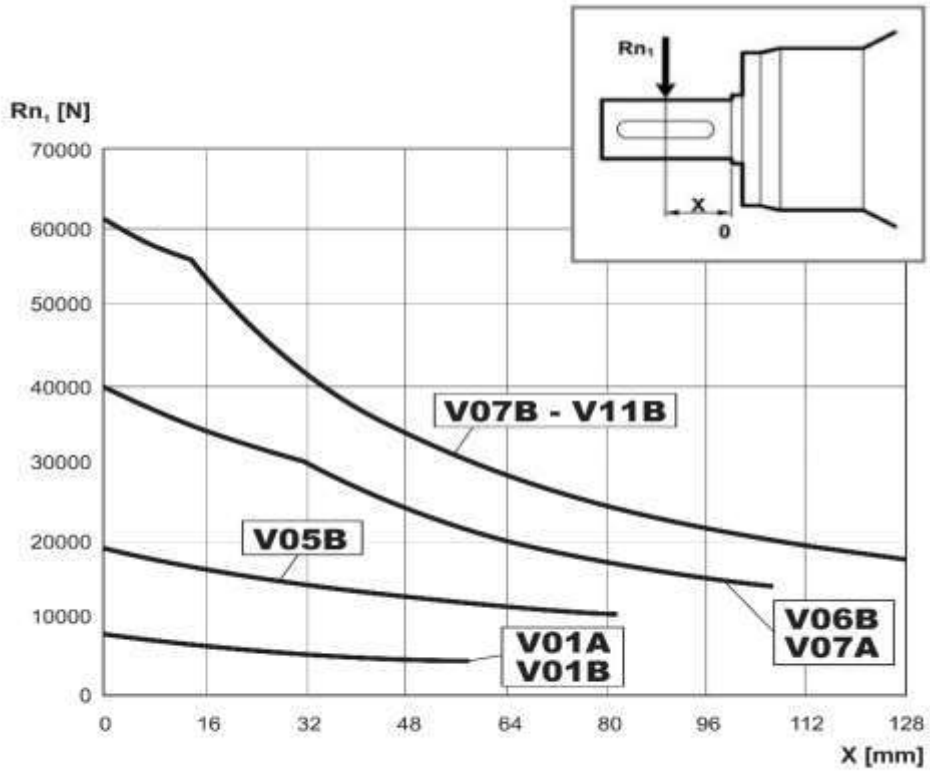
بارهای شعاعی و محوری مجاز بر روی شافت خروجی با Fh2: n2. h = 100,000،




| Load correction factor $fh_2$ on shafts<br>فاکتور اصلاح بار $fh_2$ بر روی شافت | $Fh_2 = n_2. h$ | | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 |
|---|---|---|---|---|---|---|---|---|
| | $fh_2$ | FZ | 2.15 | 1.59 | 1.26 | 1.00 | 0.58 | 0.46 |
| | | HC - PC | 1.93 | 1.27 | 1.23 | 1.00 | 0.62 | 0.50 |
| | | HZ - PZ | 1.24 | 1.00 | 1.00 | 1.00 | 0.62 | 0.50 |

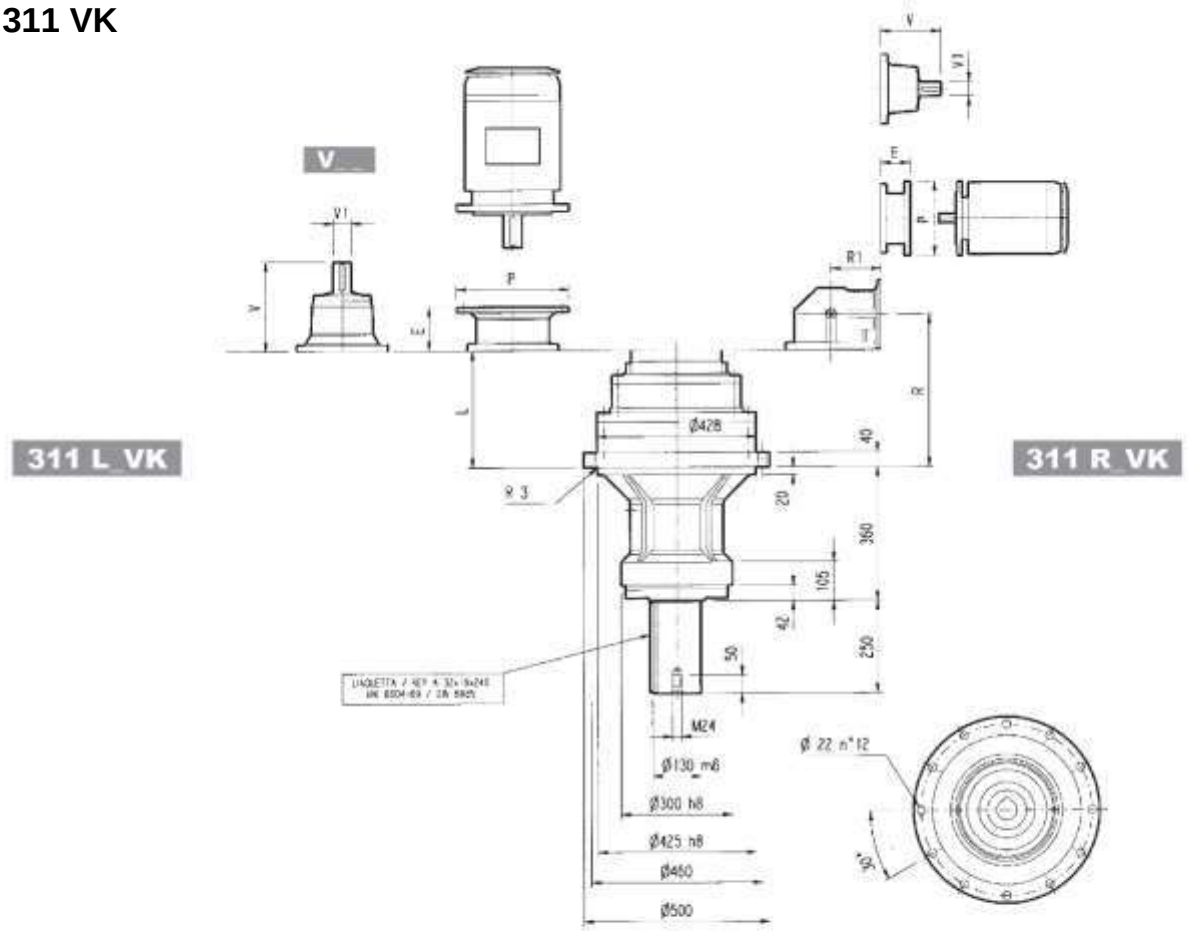
Permissible radial loads on input shaft with Fh1: n1. h = 250000

بارهای شعاعی مجاز بر روی شفت ورودی با Fh1: n1. h = 250000




| Load correction factor $fh_1$ on shafts<br>فاکتور اصلاح بار $fh_1$بر روی شافت | $Fh_1 = n1. h$ | 250000 | 500000 | 1000000 | 2000000 | 5000000 | 10000000 |
|---|---|---|---|---|---|---|---|
| | $fh_1$ | 1 | 0.79 | 0.63 | 0.5 | 0.37 | 0.29 |

# 311 VK




| | L | Kg | V | V1 | Kg | V | V1 | Kg |
|---|---|---|---|---|---|---|---|---|
| **311L1** | 129 | 295 | 348 | 80 | 55 | — | — | — |
| **311L2** | 262 | 340 | 315 | 60 | 35 | 313 | 60 | 28 |
| **311L3** | 351 | 350 | 239 | 48 | 15 | — | — | — |
| **311L4** | 416 | 360 | 137.5 | 24 | 6 | 158 | 38 | 7 |

| | R | R1 | Kg | V | V1 | Kg | V | V1 | Kg |
|---|---|---|---|---|---|---|---|---|---|
| **311R2(B)** | 354 | 345 | 420 | 307 | 60 | 23 | — | — | — |
| **311R2(C)** | 354 | 390 | 430 | 307 | 60 | 23 | — | — | — |
| **311R3** | 381 | 225 | 358 | 239 | 48 | 15 | — | — | — |
| **311R4** | 443 | 140 | 360 | 137.5 | 24 | 6 | 158 | 38 | 7 |

| | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | | P160 | | P180 | | P200 | | P225 | | P250 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P |
| **311L2** | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 195 | 350 | 186 | 400 | 216 | 450 | 216 | 550 |
| **311L3** | — | — | — | — | — | — | — | — | — | — | 114 | 300 | 144 | 350 | 144 | 350 | 174 | 400 | — | — | — | — |
| **311L4** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 144 | 350 | — | — | — | — | — | — | — | — |

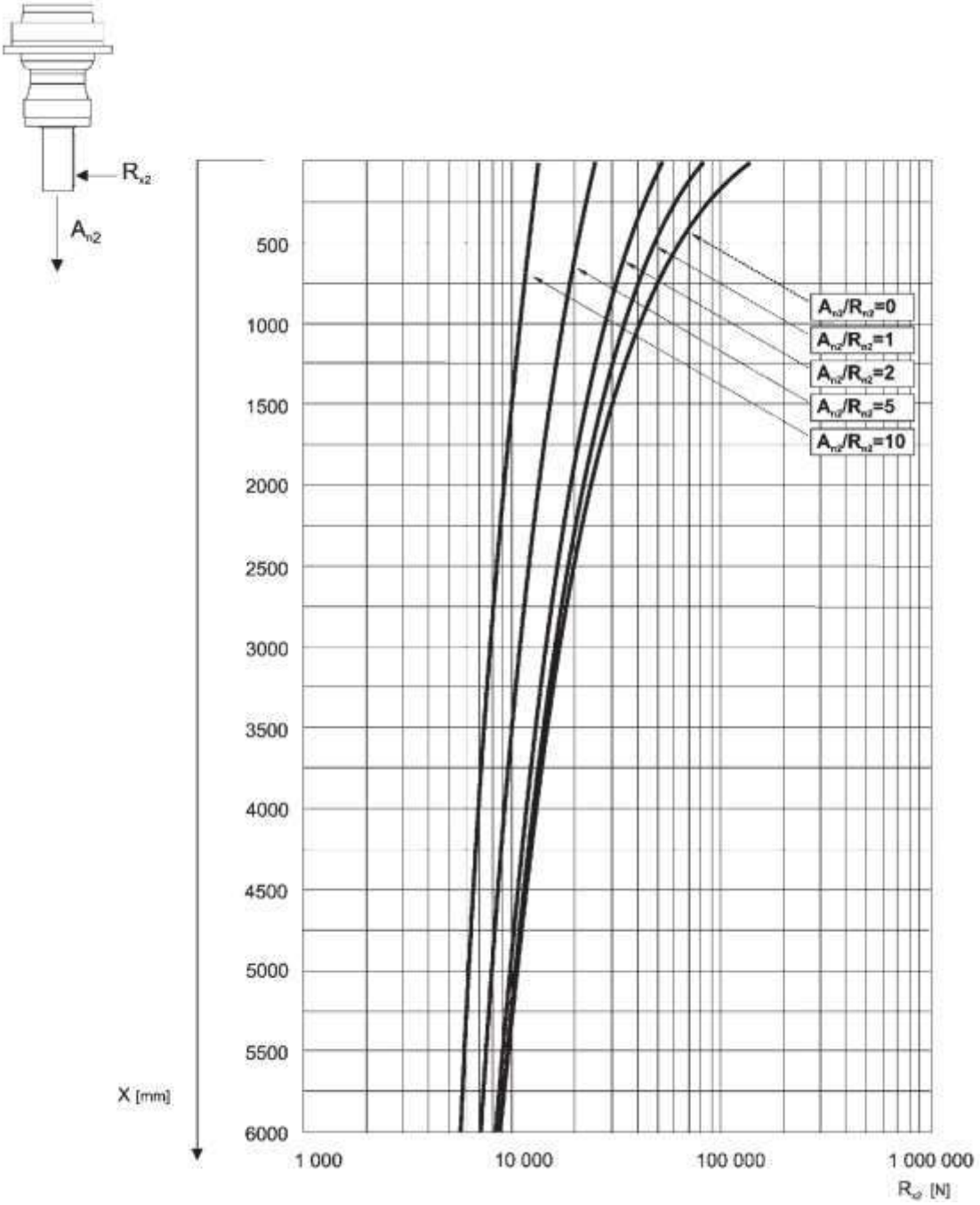
| | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | | P160 | | P180 | | P200 | | P225 | | P250 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P |
| **311R2(B)** | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 152 | 350 | 182 | 400 | 212 | 450 | 193 | 550 |
| **311R2(C)** | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 152 | 350 | 182 | 400 | 212 | 450 | 193 | 550 |
| **311R3** | — | — | — | — | — | — | — | — | — | — | 114 | 300 | 144 | 350 | 144 | 350 | 174 | 400 | — | — | — | — |
| **311R4** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 144 | 350 | — | — | — | — | — | — | — | — |

نمودار زیر امکان محاسبه بار اضافی مجاز Rx2 را بر روی شافت خروجی گیربکس ، با نیروی شعاعی اعمال شده در فاصله x از شافت.

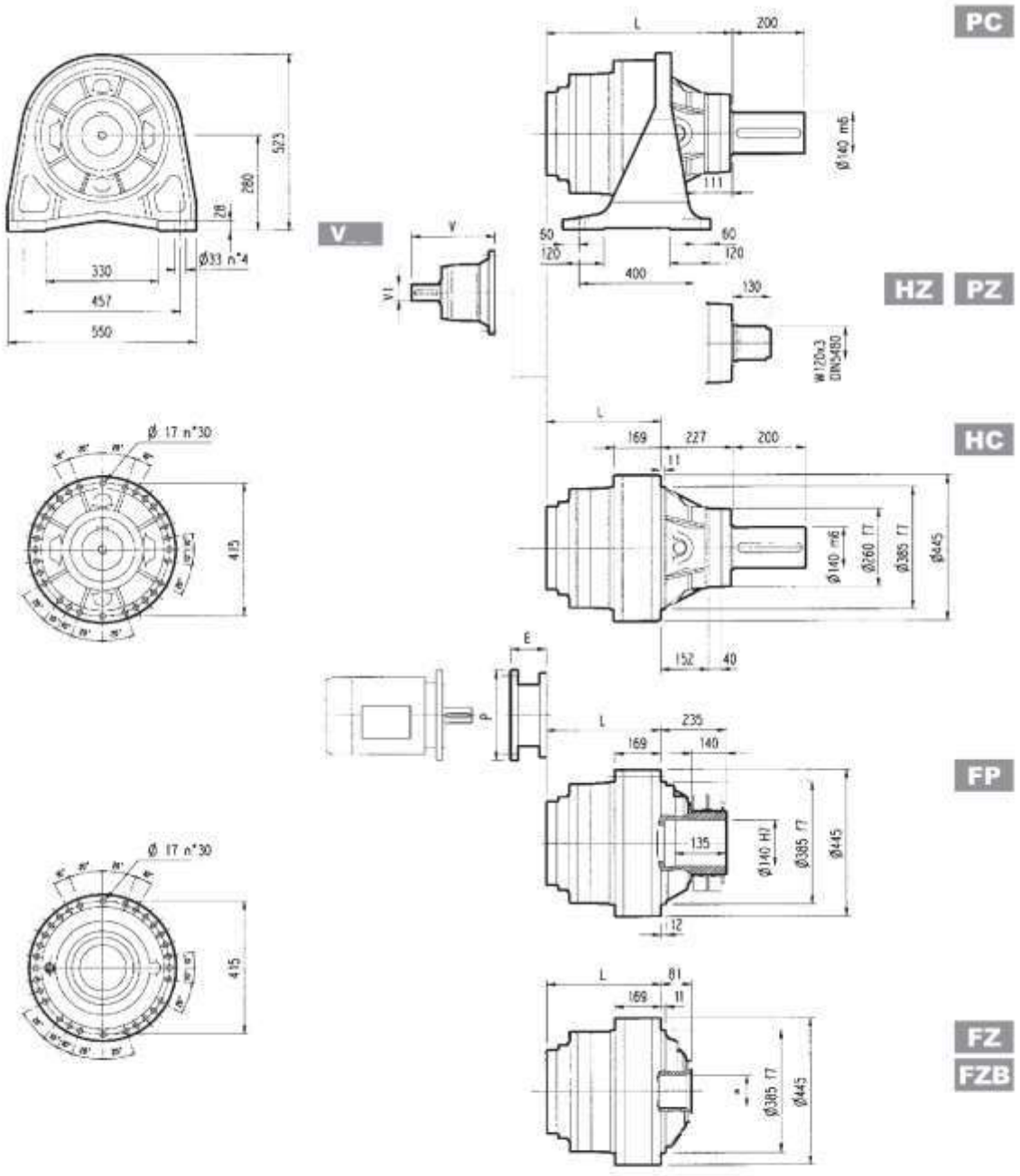
منحنی ها به مقدار مربوط به رابطه بار مجاز An2 به بار شعاعی Rn2 مربوط می شوند

n2 = 10 دقیقه در ۱ و ۱۰۰۰۰ ساعت طول عمر نظری.

The diagram below allows the calculation of permitted overhung load Rx2 on the output shaft of gearbox, with radial force applying at a distance x from shaft shoulder. The curves are relevant to value resulting from the relationship of trust load An2 to radial load Rn2, based on n2 = 10 min-1 and 10000 hrs. theoretical lifetime.



## 313 L

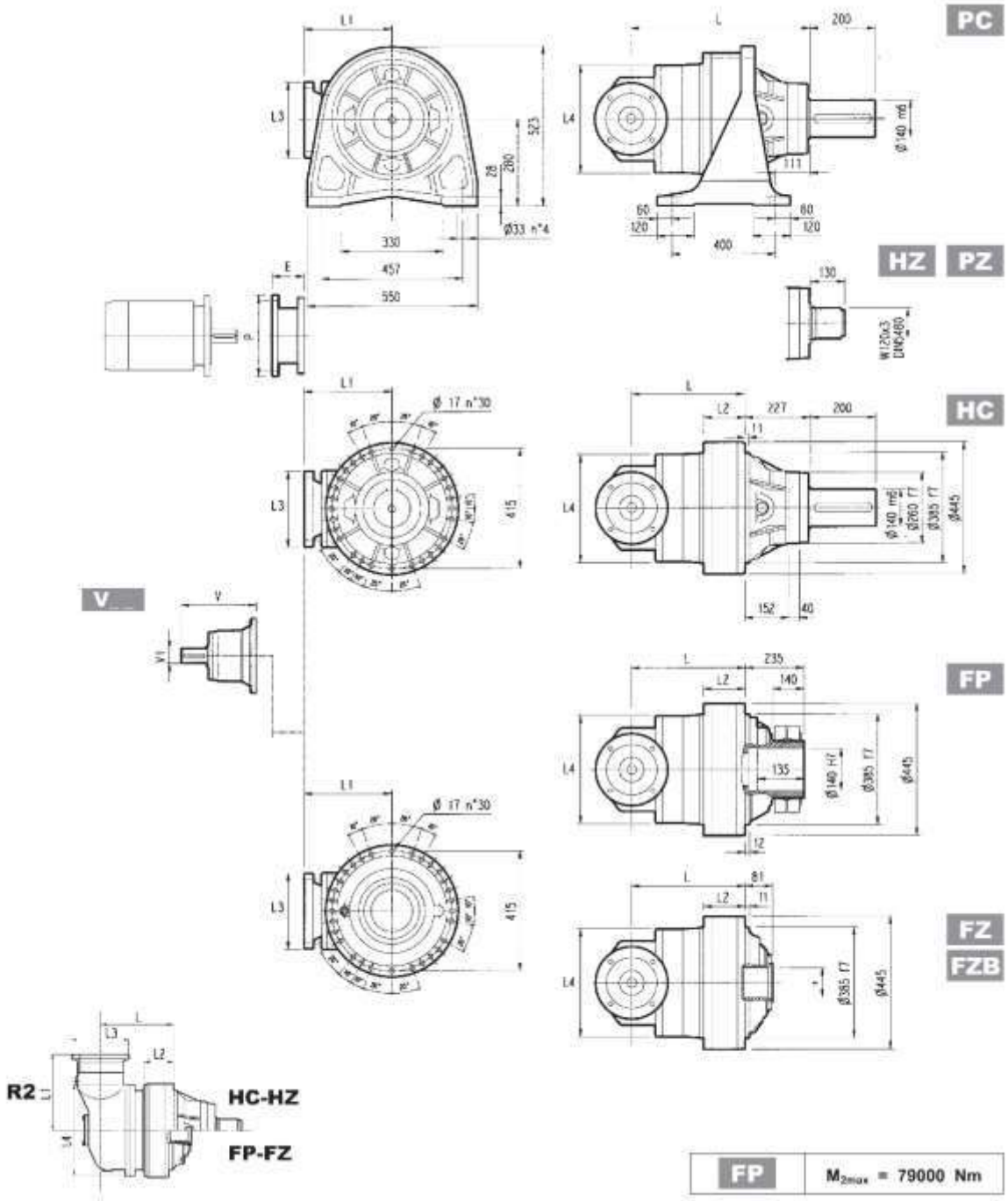



FP | $M_{2max}$ = 79000 Nm

| | L | | | | Wight (kg) | | | | V | $V_1$ | W(kg) | V | $V_1$ | W(kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PC - PZ | HC - HZ | FZ-FZP-FP | FP | PC - PZ | HC - HZ | FZ-FZP | FP | | | | | | |
| **313 L1** | 381 | 154 | 154 | 154 | 320 | 230 | 230 | 200 | 343 | 80 | 55 | - | - | - |
| **313 L2** | 531 | 304 | 304 | 304 | 380 | 290 | 290 | 280 | 315 | 80 | 35 | 313 | 60 | 28 |
| **313 L3** | 620 | 393 | 393 | 393 | 392 | 302 | 302 | 299 | 239 | 48 | 15 | - | - | - |
| **313L4** | 685 | 458 | 458 | 458 | 399 | 309 | 309 | 299 | 137.5 | 24 | 6 | 158 | 38 | 7 |

| | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | | P160 | | P180 | | P200 | | P225 | | P250 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P |
| **313L1** | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 267 | 400 | 297 | 450 | 297 | 550 |
| **313L2** | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 195 | 350 | 186 | 400 | 216 | 450 | 216 | 550 |
| **313L3** | — | — | — | — | — | — | — | — | — | — | 114 | 300 | 144 | 350 | 144 | 350 | 174 | 400 | — | — | — | — |
| **313L4** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 144 | 350 | — | — | — | — | — | — | — | — |

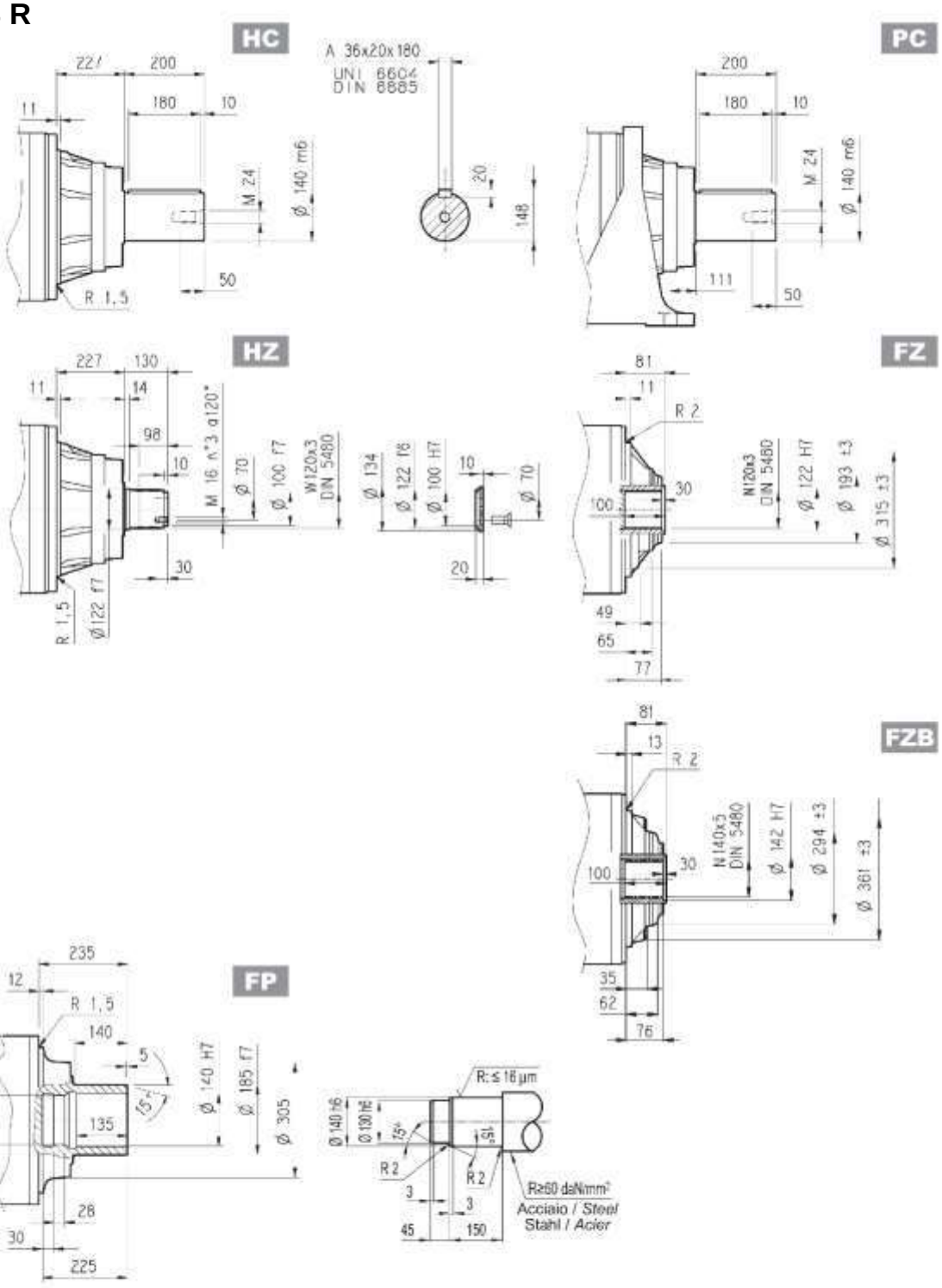
## 313 R




| | R | | | | R1 | R2 | R4 | W(Kg) | | | | V | V1 | KG | V | V1 | KG | Input |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PC-PZ | HC-HZ | FZ-FZP | FP | | | | PC-PZ | HC-HZ | FZ-FZP | FP | | | | | | | |
| **311R2(B)** | 550 | 340 | 340 | 340 | 345 | 292 | 400 | 380 | 310 | 290 | 300 | 307 | 60 | 23 | — | — | — | B |
| **311R2(C)** | 550 | 340 | 340 | 340 | 390 | 292 | 480 | 390 | 320 | 300 | 310 | 307 | 60 | 23 | — | — | — | B |
| **311R3** | 577 | 367 | 367 | 367 | 225 | 245 | 375 | 345 | 275 | 255 | 265 | 239 | 48 | 15 | — | — | — | A |
| **311R4** | 639 | 429 | 429 | 429 | 140 | 186 | 244 | 327 | 257 | 237 | 247 | 137.5 | 24 | 6 | 158 | 38 | 7 | A |

| | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | | P160 | | P180 | | P200 | | P225 | | P250 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P |
| **313R2(B)** | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 152 | 350 | 182 | 400 | 212 | 450 | 193 | 550 |
| **313R2(C)** | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 152 | 350 | 182 | 400 | 212 | 450 | 193 | 550 |
| **313R3** | — | — | — | — | — | — | — | — | — | — | 114 | 300 | 144 | 350 | 144 | 350 | 174 | 400 | — | — | — | — |
| **313R4** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 144 | 350 | — | — | — | — | — | — | — | — |

## 313 L - 313 R

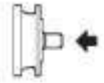


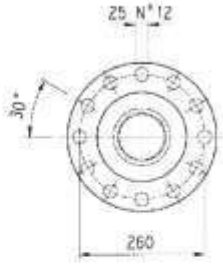

| FP | $M_{2max}$ = 79000 Nm |
|---|---|

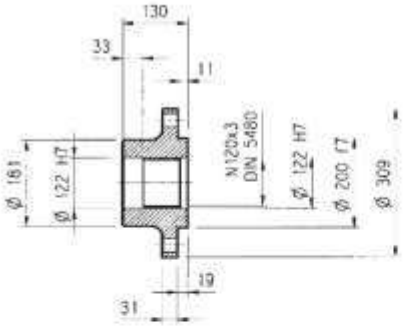
## 313 L-313 R

## Flange

**WOA**



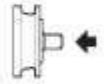


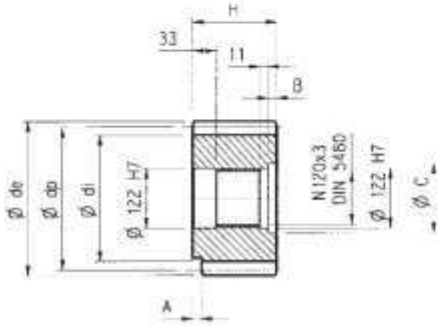




Material: Steel C40

## Pinions

**P...**



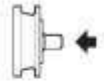


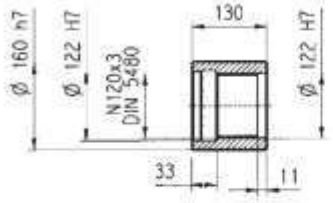

$\alpha = 20°$

| m | z | x | dp | di | de | H | A | B | C | | Material |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PPH | 16 | 17 | 0.5 | 272 | 247 | 315 | 135 | — | 5 | 136 | Steel 39NiCrMo3 hardened and tempered |
| PRI | 18 | 18 | 0.333 | 324 | 294 | 365 | 140 | — | 10 | 140 | |

## Sleeve coupling

**MOA**

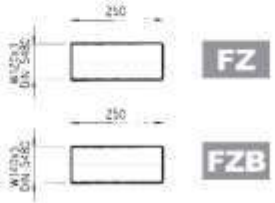





Material: Steel 16CrNi4

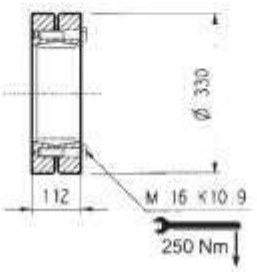
## Splined bars

**BOA**




## Shrink disc

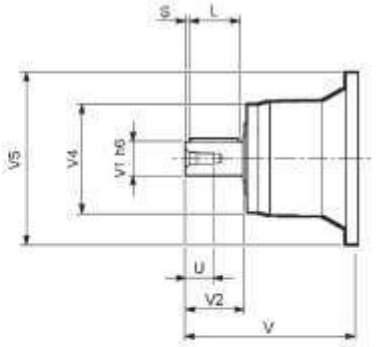
**GOA**

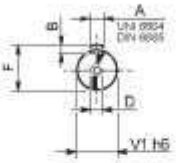


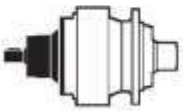

Material: Case hardening steel 18NiCrMo5
UNI 5331 must be case hardened 50-55 HRC

## 313 L–313 R

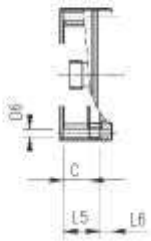
V__

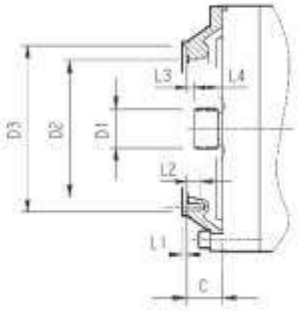


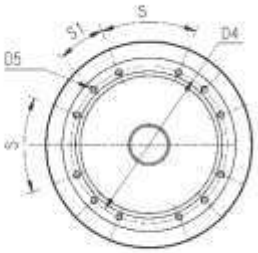



| | input | V | V1 | V2 | V4 | V5 | A | B | F | L | S | D | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **313 L1** | **V11B** | 343 | 80 | 130 | 200 | 445 | 22 | 14 | 85 | 110 | 10 | M16 | 36 |
| **313L2** | **V07B** | 315 | 80 | 130 | 200 | 345 | 22 | 14 | 85 | 110 | 10 | M16 | 36 |
| | **V07A** | 313 | 60 | 105 | 155 | 345 | 18 | 11 | 64 | 90 | 7.5 | M16 | 36 |
| **313 L3** | **V05B** | 239 | 48 | 82 | 155 | 245 | 14 | 9 | 52 | 70 | 6 | M16 | 36 |
| **313 L4** | **V01A** | 137.5 | 24 | 36 | 120 | 186 | 8 | 7 | 27 | 30 | 3 | M8 | 19 |
| | **V01B** | 158 | 38 | 58 | 120 | 186 | 10 | 8 | 41 | 50 | 4 | M12 | 28 |
| **313 R2(B)(C)** | **V06B** | 307 | 60 | 105 | 155 | 292 | 18 | 11 | 64 | 90 | 7.5 | M16 | 36 |
| **313 R3** | **V05B** | 239 | 48 | 82 | 155 | 245 | 14 | 9 | 52 | 70 | 6 | M16 | 36 |
| **313 R4** | **V01A** | 137.5 | 24 | 36 | 120 | 186 | 8 | 7 | 24 | 30 | 3 | M8 | 19 |
| | **V01A** | 158 | 38 | 58 | 120 | 186 | 10 | 8 | 41 | 50 | 4 | M12 | 28 |



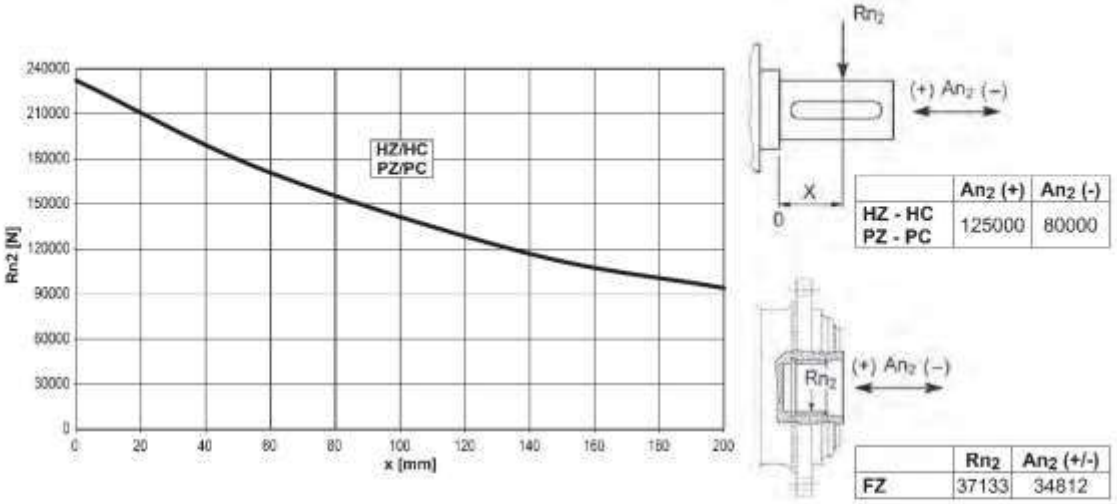




| | | C | D1 | D2 | D3 | D4 | D5 | D6 | L1 | L2 | L3 | L4 | L5 | L6 | S | S1 | Input |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **313L1** | V9AD | 75 | 80x74DIN5482 | 270 | 335H7 | 314 | M16n°8 | — | 5 | 30 | 8.5 | 40 | — | — | 60° | 30° | D |
| **313L2** | V9AB | 51 | 58x53DIN5482 | 195 | 236H7 | 222 | M10n°12 | — | 4 | 18 | 11 | 22 | — | — | 45° | 22.5° | B |
| **313L3** | V9AA | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | — | 4 | 18 | 9 | 18 | — | — | 45° | 45° | A |
| **313L4** | V9AA | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | 11 | 4 | — | 9 | 18 | 65 | 18 | 45° | 45° | A |
| **313R3** | V9AA | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | 11 | 4 | 18 | 9 | 18 | — | — | 45° | 45° | A |
| **313R2(B)(C)** | V9AB | 45 | 58x53DIN5482 | 195 | 236H7 | 222 | M10n°12 | — | 4 | 18 | 11 | 22 | — | — | 45° | 22.5° | B |
| **313R4** | V9AA | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°12 | 11 | 4 | — | 9 | 18 | 37 | 18 | 45° | 45° | A |

Permissible radial and axial loads on output shaft with $Fh_2$: $n_2$. h = 100,000

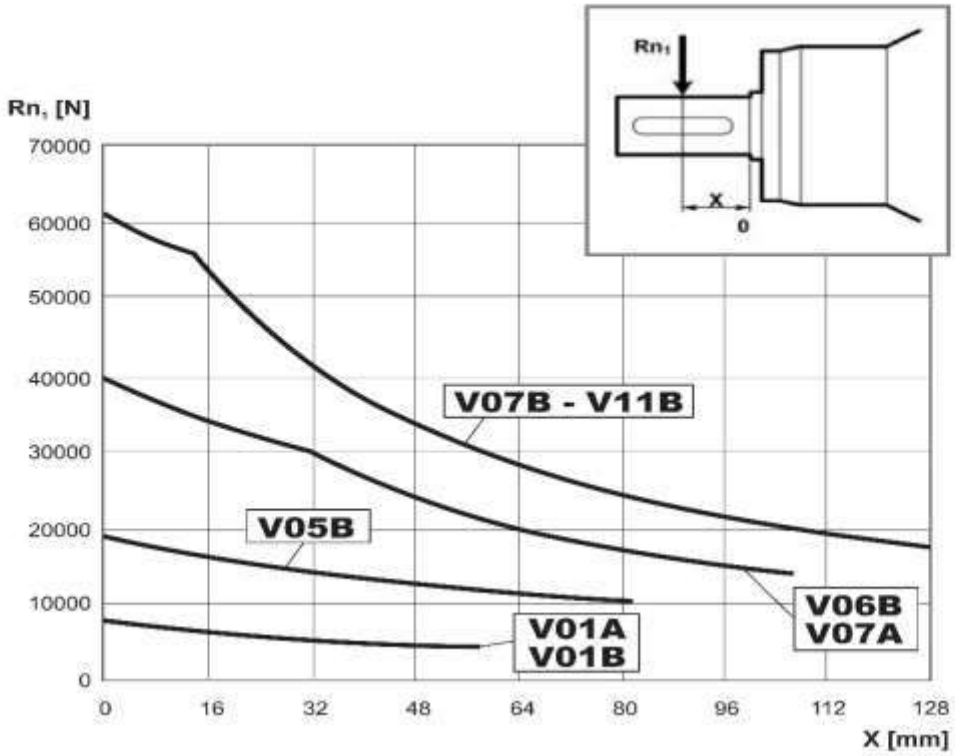
بارهای شعاعی و محوری مجاز بر روی شافت خروجی با Fh2: n2. h = 100000،




| Load correction factor $fh_2$ on shafts<br>فاکتور اصلاح بار $fh_2$ بر روی شافت | $Fh_2 = n_2$. h | | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 |
|---|---|---|---|---|---|---|---|---|
| | $fh_2$ | FZ | 2.15 | 1.59 | 1.26 | 1.00 | 0.58 | 0.46 |
| | | HC - PC HZ - PZ | 1.32 | 1.20 | 1.20 | 1.00 | 0.62 | 0.50 |

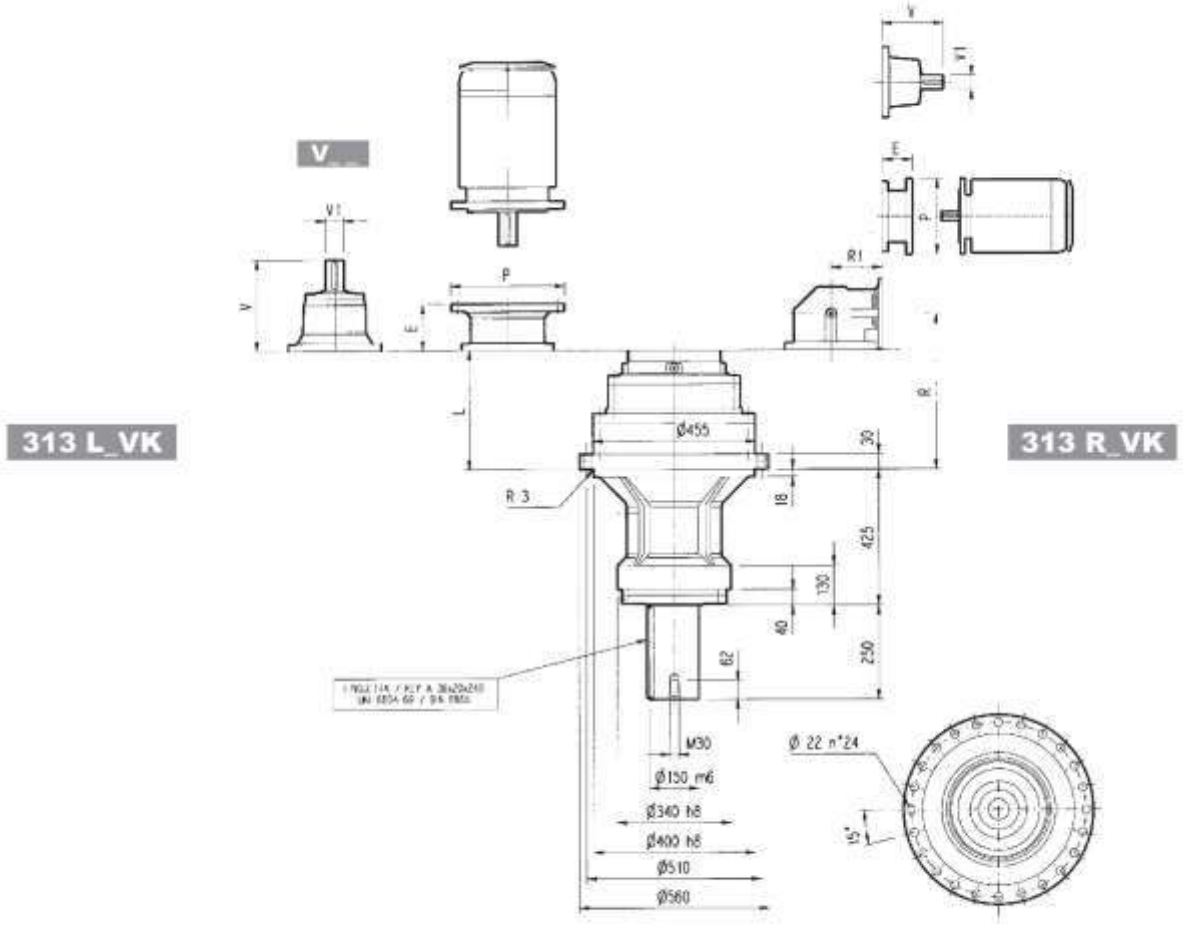
Permissible radial loads on input shaft with Fh1: n1. h = 250000

بارهای شعاعی مجاز بر روی شفت ورودی با Fh1: n1. h = 250000




| Load correction factor $fh_1$ on shafts<br>فاکتور اصلاح بار $fh_1$ بر روی شافت | $Fh_1 = n1$. h | 250000 | 500000 | 1000000 | 2000000 | 5000000 | 10000000 |
|---|---|---|---|---|---|---|---|
| | $fh_1$ | 1 | 0.79 | 0.63 | 0.5 | 0.37 | 0.29 |

# 313VK




| | L | Kg | V | V1 | Kg | V | V1 | Kg |
|---|---|---|---|---|---|---|---|---|
| **313L1** | 158 | 380 | 343 | 80 | 55 | — | — | — |
| **313L2** | 308 | 440 | 315 | 80 | 35 | 313 | 60 | 28 |
| **313L3** | 397 | 450 | 239 | 48 | 15 | — | — | — |
| **313L4** | 462 | 460 | 138 | 24 | 6 | 158 | 38 | 7 |

| | R | R1 | Kg | V | V1 | Kg | V | V1 | Kg |
|---|---|---|---|---|---|---|---|---|---|
| **313R2(B)** | 388 | 345 | 510 | 307 | 60 | 23 | — | — | |
| **313R2(C)** | 388 | 390 | 520 | 307 | 60 | 23 | — | — | |
| **313R3** | 427 | 225 | 490 | 239 | 48 | 15 | — | — | — |
| **313R4** | 489 | 140 | 470 | 137.5 | 24 | 6 | 158 | 38 | 7 |

| | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | | P160 | | P180 | | P200 | | P225 | | P250 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P |
| **313L2** | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 195 | 350 | 186 | 400 | 216 | 450 | 216 | 550 |
| **313L3** | — | — | — | — | — | — | — | — | — | — | 114 | 300 | 144 | 350 | 144 | 350 | 174 | 400 | — | — | — | — |
| **313L4** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 144 | 350 | — | — | — | — | — | — | — | — |

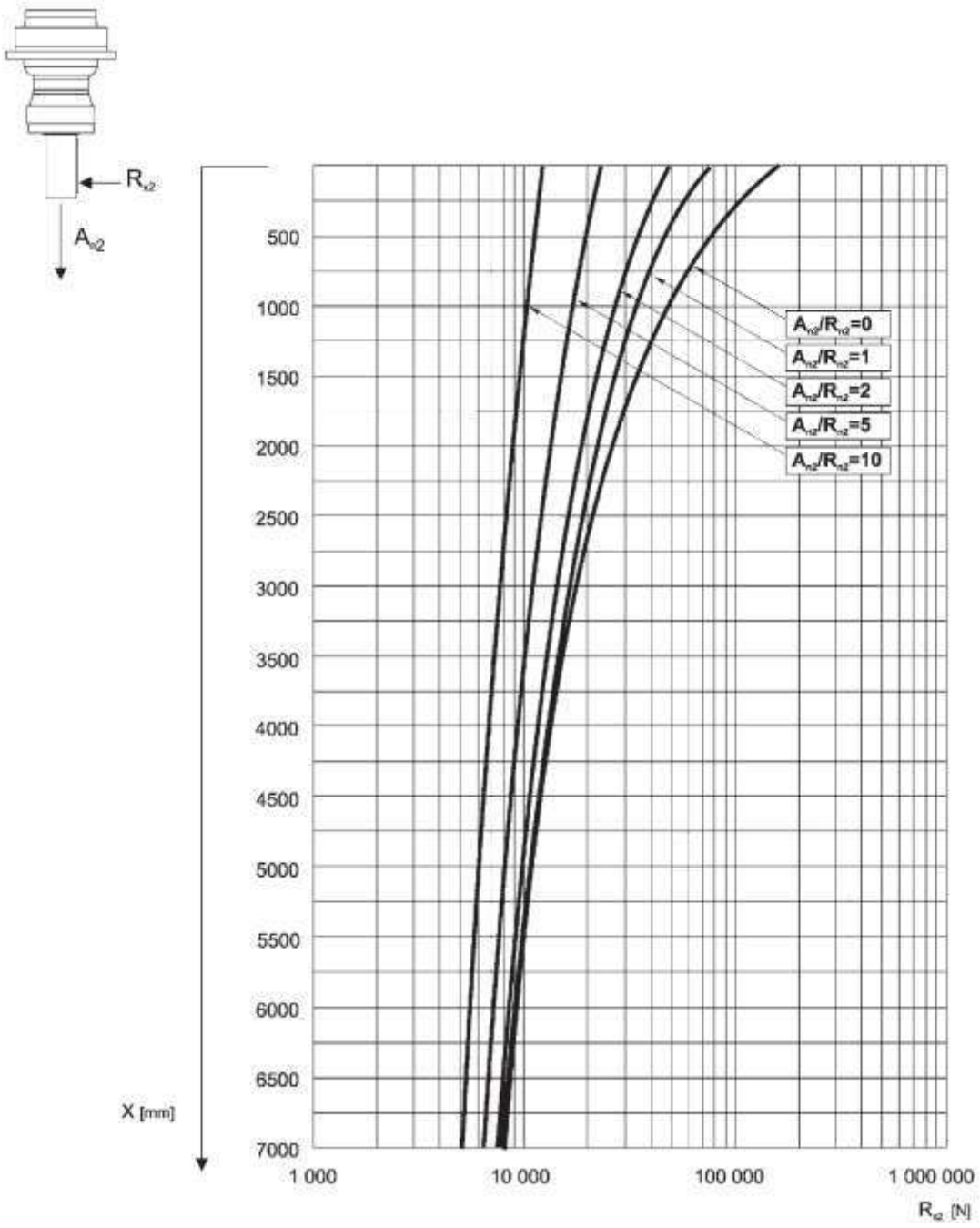
| | P71 | | P80 | | P90 | | P100 | | P112 | | P132 | | P160 | | P180 | | P200 | | P225 | | P250 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P | E | P |
| **313R2(B)** | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 152 | 350 | 182 | 400 | 212 | 450 | 193 | 550 |
| **313R2(C)** | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 152 | 350 | 182 | 400 | 212 | 450 | 193 | 550 |
| **313R3** | — | — | — | — | — | — | — | — | — | — | 114 | 300 | 144 | 350 | 144 | 350 | 174 | 400 | — | — | — | — |
| **313R4** | 65 | 160 | 84 | 200 | 84 | 200 | 94 | 250 | 94 | 250 | 114 | 300 | 144 | 350 | — | — | — | — | — | — | — | — |

The diagram below allows the calculation of permitted overhung load Rx2 on the output shaft of gearbox, with radial force applying at a distance x from shaft shoulder. The curves are relevant to value resulting from the relationship of trust load An2 to radial load Rn2, based on n2 = 10 min-1 and 10000 hrs. theoretical lifetime.

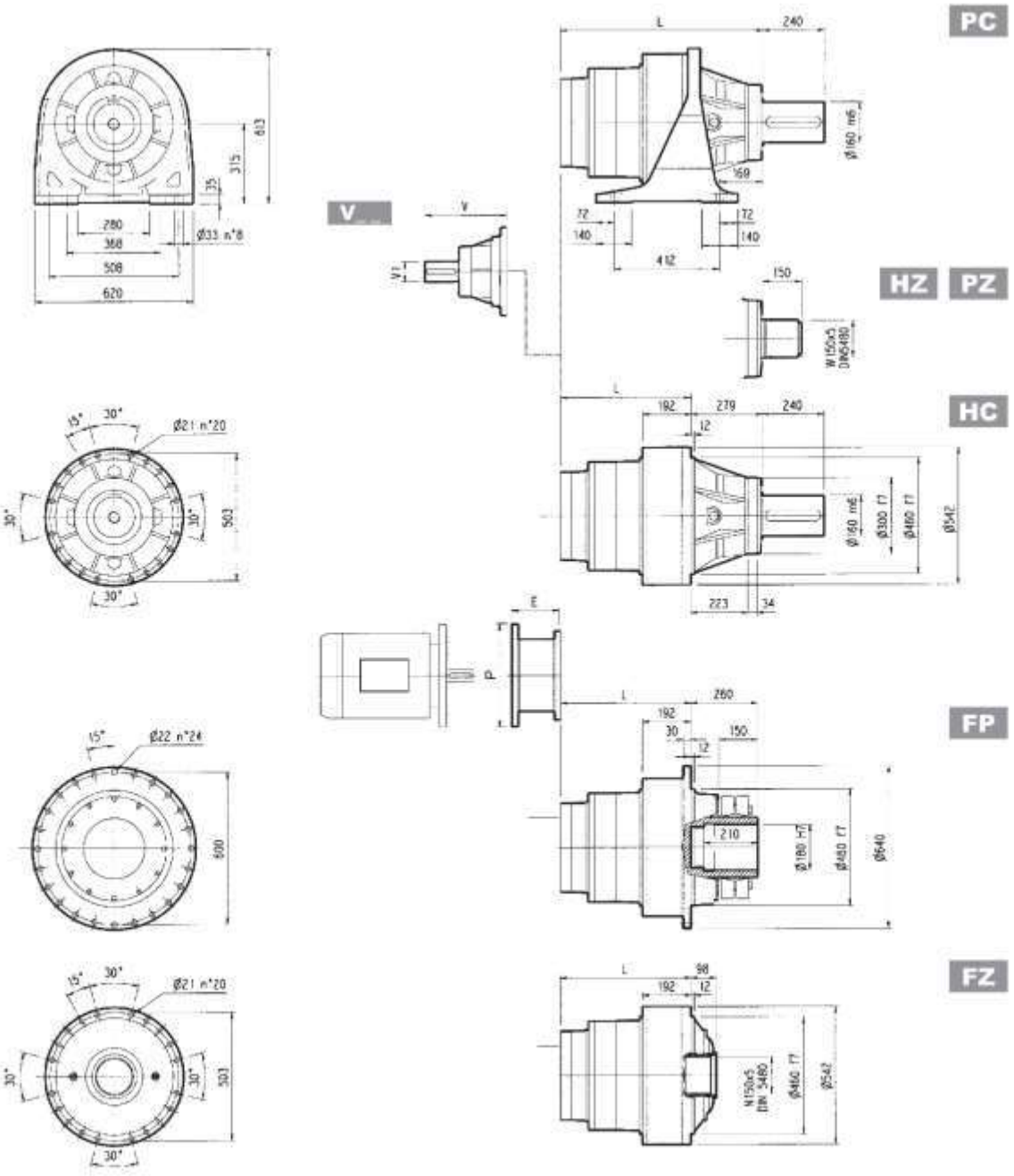
نمودار زیر امکان محاسبه بار اضافی مجاز Rx2 را بر روی شافت خروجی گیربکس ، با نیروی شعاعی اعمال شده در فاصله x از شافت.

منحنی ها به مقدار مربوط به رابطه بار مجاز An2 به بار شعاعی Rn2 مربوط می شوند

دقیقه در ۱ و ۱۰۰۰۰ ساعت طول عمر نظری. n2 = 10



## 315 L

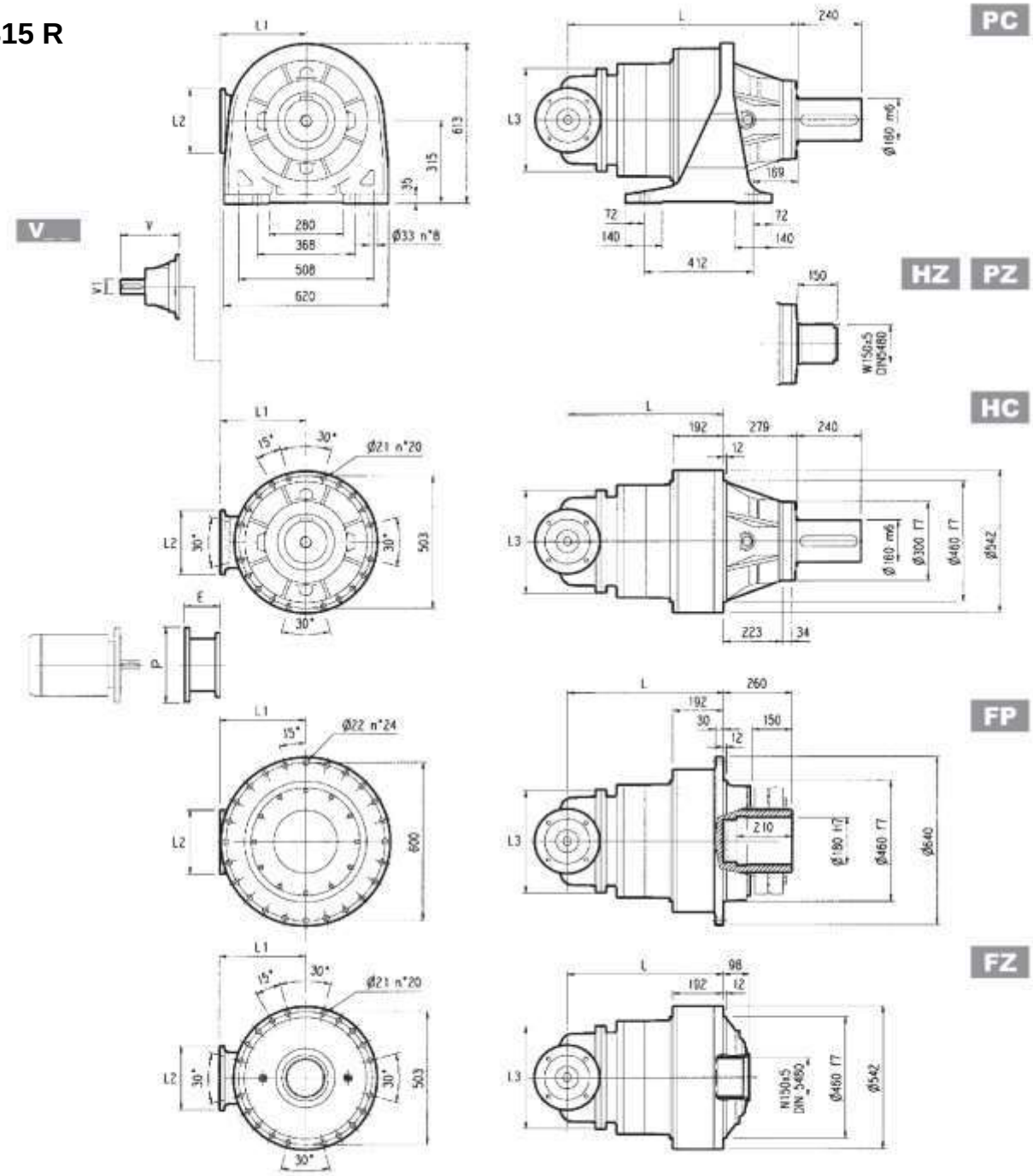



FP $M_{2max}$ = 135000 Nm

| | L | | | | Wight (kg) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PC - PZ | HC - HZ | FZ-FZP | FP | PC - PZ | HC - HZ | FZ-FZP | FP | V | V1 | W(kg) | V | V1 | W(kg) |
| **315 L1** | 453 | 174 | 174 | 174 | 500 | 370 | 280 | 330 | 556 | 120 | 125 | - | - | - |
| **315 L2** | 665 | 386 | 386 | 386 | 585 | 455 | 365 | 415 | 348 | 80 | 55 | - | - | - |
| **315 L3** | 798 | 519 | 519 | 519 | 630 | 500 | 410 | 460 | 315 | 80 | 35 | 313 | 60 | 28 |
| **315L4** | 887 | 608 | 608 | 608 | 642 | 512 | 422 | 472 | 239 | 48 | 15 | - | - | - |

| | P132 | | P160 | | P180 | | P200 | | P225 | | P250 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P |
| **315L2** | — | — | — | — | — | — | 267 | 400 | 297 | 450 | 297 | 550 |
| **315L3** | — | — | — | — | 195 | 350 | 186 | 400 | 216 | 450 | 215 | 550 |
| **315L4** | 114 | 300 | 144 | 350 | 144 | 350 | 174 | 400 | — | — | — | — |

## 315 R



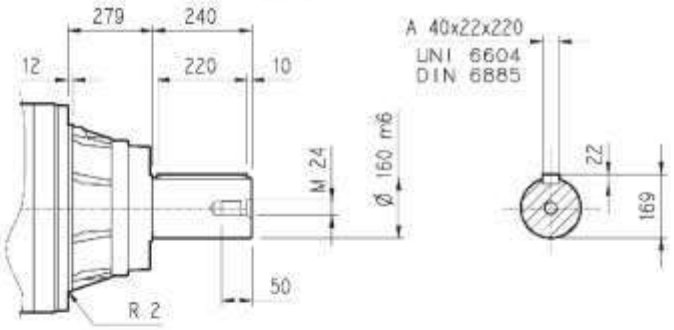

**FP** $M_{2max}$ = 135000 Nm

| | R | | | | R1 | R2 | R4 | W(Kg) | | | | V | V1 | KG | V | V1 | KG | Input |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PC-PZ | HC-HZ | FZ-FZP | FP | | | | PC-PZ | HC-HZ | FZ-FZP | FP | | | | | | | |
| **315R2(B)** | 890 | 611 | 611 | 340 | 345 | 292 | 400 | 720 | 590 | 500 | 550 | 307 | 60 | 23 | — | — | — | B |
| **315R2(C)** | 890 | 611 | 611 | 340 | 390 | 292 | 480 | 730 | 600 | 510 | 560 | 307 | 60 | 23 | — | — | — | B |
| **315R3** | 917 | 638 | 638 | 367 | 225 | 245 | 345 | 680 | 550 | 460 | 510 | 239 | 48 | 15 | — | — | — | A |

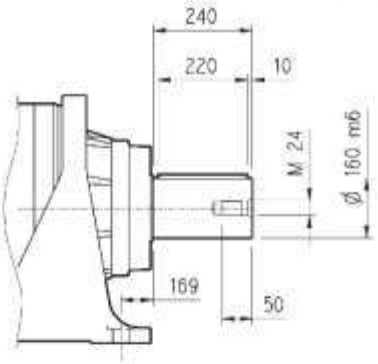
| | P132 | | P160 | | P180 | | P200 | | P225 | | P250 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P |
| **315L2** | — | — | — | — | 152 | 350 | 182 | 400 | 212 | 450 | 193 | 550 |
| **315L3** | — | — | — | — | 152 | 350 | 182 | 400 | 212 | 450 | 193 | 550 |
| **315L4** | 114 | 300 | 144 | 350 | 144 | 350 | 174 | 400 | — | — | — | — |

## 315L-315R

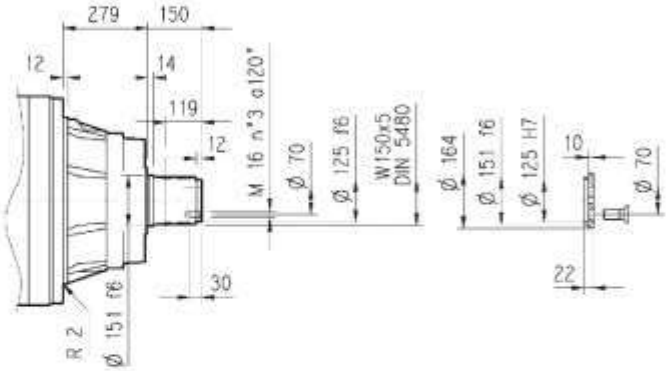
HC



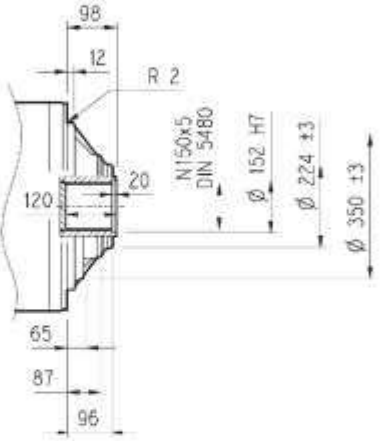

PC



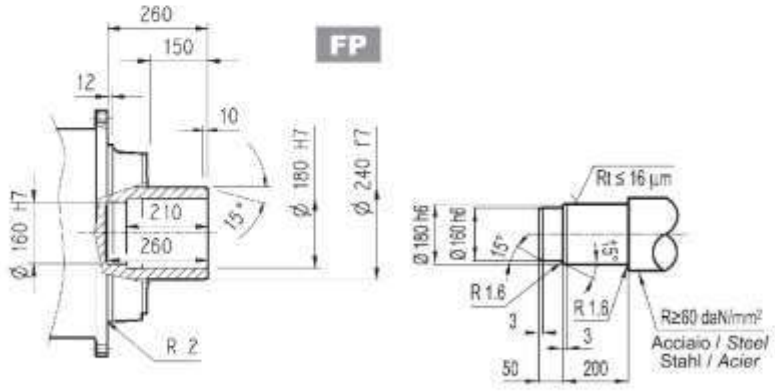

HZ




FZ




FP

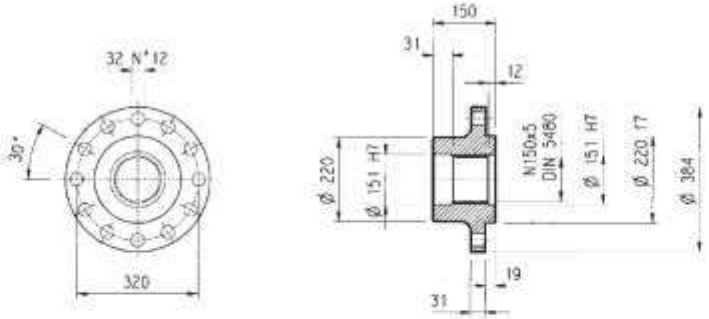



| FP | $M_{2max}$ = 135000 Nm |
|---|---|

## 315L-315R

### Flange

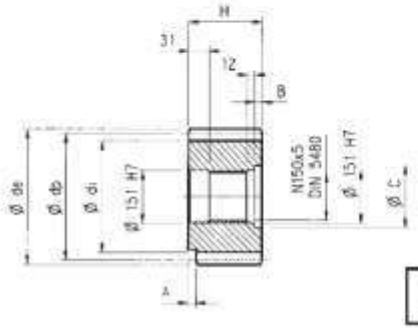
**WOA**




Material: Steel C40

### Pinions

**P...**

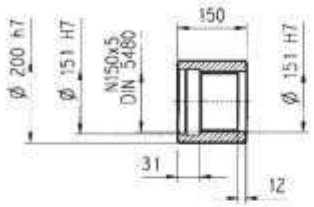



$\alpha = 20°$

| | m | z | x | dp | di | de | H | A | B | C | Material |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PRG1 | 18 | 16 | 1 | 288 | 261 | 342 | 160 | — | 10 | 166 | Steel 18NiCrMo5 case hardened |
| PRG2 | 18 | 16 | 1 | 288 | 271 | 339 | 150 | 30 | — | — | Steel 39NiCrMo3 hardened and tempered |

### Sleeve coupling

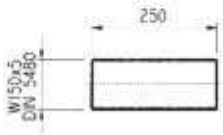
**MOA**




Material: Steel 16CrNi4

### Splined bars

**BOA**



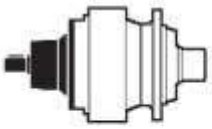

Material: Case hardening steel 18NiCrMo5
UNI 5331 must be case hardened 50-55 HRC

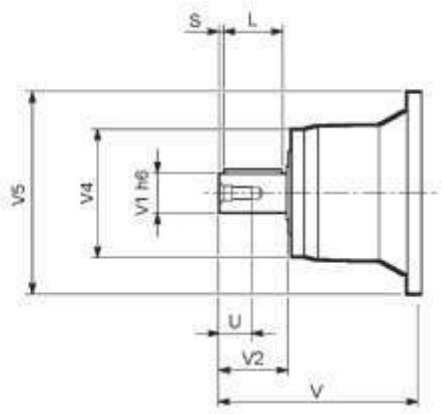
### Shrink disc

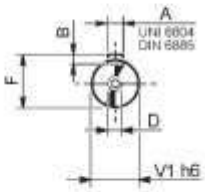
**GOA**

## 315L-315R

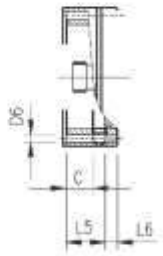
V_ _

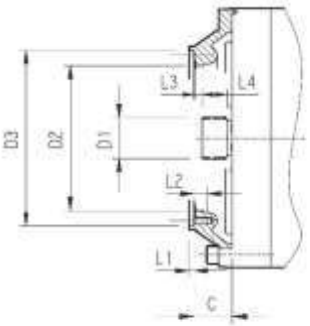


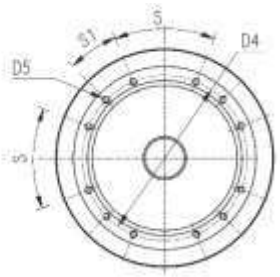



| | input | V | V1 | V2 | V4 | V5 | A | B | F | L | S | D | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **315L1** | **V15B** | 556 | 120 | 210 | 230 | 542 | 32 | 18 | 127 | 180 | 15 | M24 | 50 |
| **315L2** | **V11B** | 348 | 80 | 130 | 428 | 345 | 22 | 14 | 85 | 110 | 10 | M16 | 36 |
| **315 L3** | **V07B** | 315 | 80 | 130 | 200 | 345 | 22 | 14 | 85 | 110 | 10 | M16 | 36 |
| | **V07A** | 313 | 60 | 105 | 155 | 345 | 22 | 14 | 85 | 110 | 10 | M16 | 36 |
| **315 L4** | **V05B** | 239 | 48 | 82 | 155 | 245 | 14 | 9 | 51.5 | 70 | 6 | M16 | 36 |
| **315 R3(B)(C)** | **V06B** | 307 | 60 | 105 | 155 | 292 | 18 | 11 | 64 | 90 | 7.5 | M16 | 36 |
| **315 R4** | **V05B** | 239 | 48 | 82 | 155 | 245 | 14 | 9 | 51.5 | 70 | 6 | M16 | 36 |



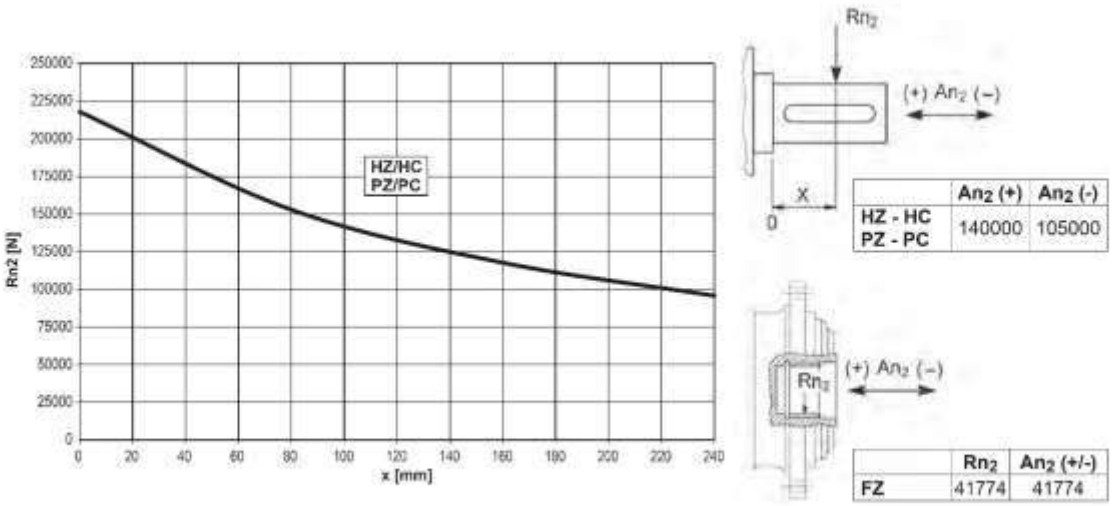




| | | C | D1 | D2 | D3 | D4 | D5 | D6 | L1 | L2 | L3 | L4 | L5 | L6 | S | S1 | Input |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **315L1** | **V9AE** | 116 | 100x94DIN5482 | 340 | 412H7 | 390 | M16n°18 | — | 7 | 30 | 8 | 55 | — | — | 20° | 20° | E |
| **315L2** | **V9AD** | 81 | 80x74DIN5482 | 270 | 335H7 | 314 | M16n°8 | — | 5 | 30 | 8.5 | 40 | — | — | 60° | 30° | D |
| **315L3** | **V9AB** | 51 | 58x53DIN5482 | 195 | 236H7 | 222 | M10n°12 | — | 4 | 18 | 11 | 22 | — | — | 45° | 22.5° | B |
| **315L4** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | — | 4 | 18 | 9 | 18 | — | — | 45° | 45° | A |
| **315R4** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | 11 | 4 | 18 | 9 | 18 | — | — | 45° | 45° | A |
| **315R3(B)(C)** | **V9AB** | 45 | 58x53DIN5482 | 195 | 236H7 | 222 | M10n°12 | — | 4 | 18 | 11 | 22 | — | — | 45° | 22.5° | B |

Permissible radial and axial loads on output shaft with $Fh_2$: $n_2$. h = 100,000

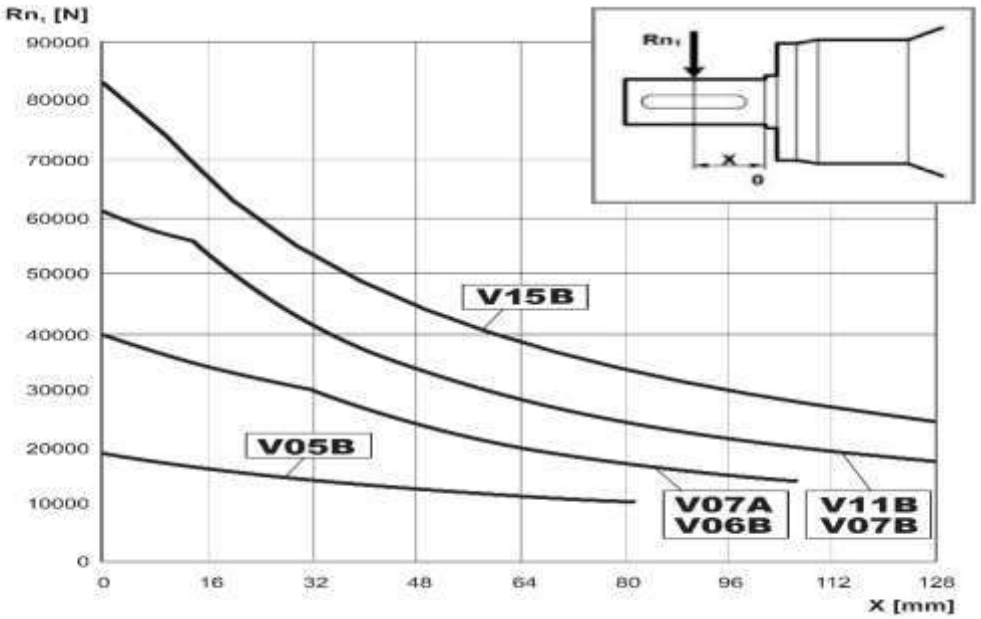
بارهای شعاعی و محوری مجاز بر روی شافت خروجی با Fh2: n2. h = 100000،




| Load correction factor $fh_2$ on shafts<br>فاکتور اصلاح بار $fh_2$ بر روی شافت | $Fh_2 = n_2. h$ | | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 |
|---|---|---|---|---|---|---|---|---|
| | $fh_2$ | FZ | 2.15 | 1.59 | 1.26 | 1.00 | 0.58 | 0.46 |
| | | HC - PC HZ - PZ | 2.00 | 1.52 | 1.23 | 1.00 | 0.62 | 0.50 |

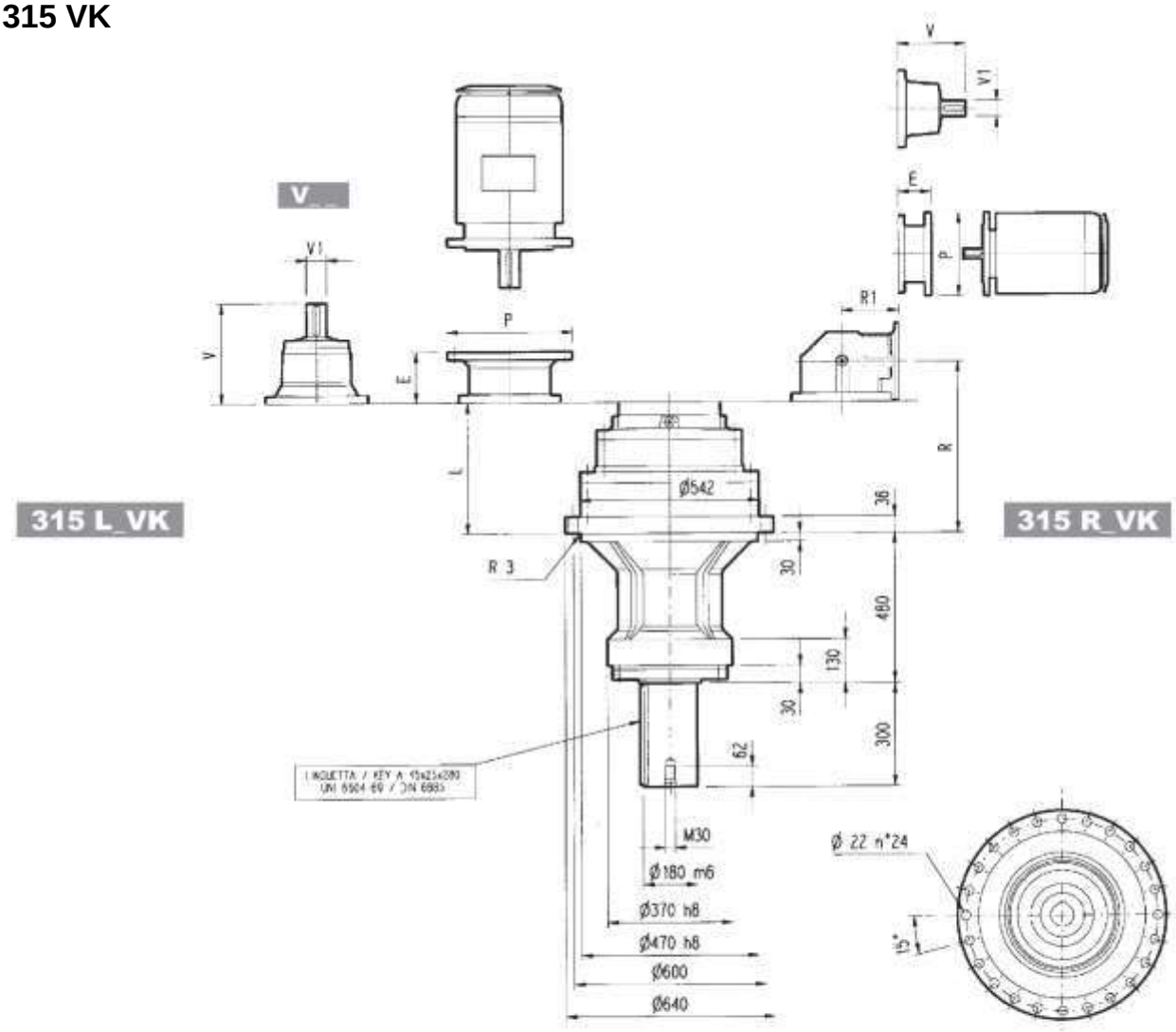
Permissible radial loads on input shaft with Fh1: n1. h = 250000

بارهای شعاعی مجاز بر روی شفت ورودی با Fh1: n1. h = 250000




| Load correction factor $fh_1$ on shafts<br>فاکتور اصلاح بار $fh_1$ بر روی شافت | $Fh_1 = n1. h$ | 250000 | 500000 | 1000000 | 2000000 | 5000000 | 10000000 |
|---|---|---|---|---|---|---|---|
| | $fh_1$ | 1 | 0.79 | 0.63 | 0.5 | 0.37 | 0.29 |

## 315 VK




| | L | kg | V1 | V | kg | V | V1 | Kg | P132 | | P160 | | P180 | | P200 | | P225 | | P250 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | E | P | E | P | E | P | E | P | E | P | E | P |
| **315L2** | 386 | 650 | 348 | 80 | 55 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| **315L3** | 519 | 700 | 315 | 80 | 35 | 313 | 60 | 28 | — | — | — | — | 195 | 350 | 186 | 400 | 216 | 450 | 215 | 550 |
| **315L4** | 608 | 710 | 239 | 48 | 15 | — | — | — | 114 | 300 | 144 | 350 | 144 | 350 | 174 | 400 | — | — | — | — |

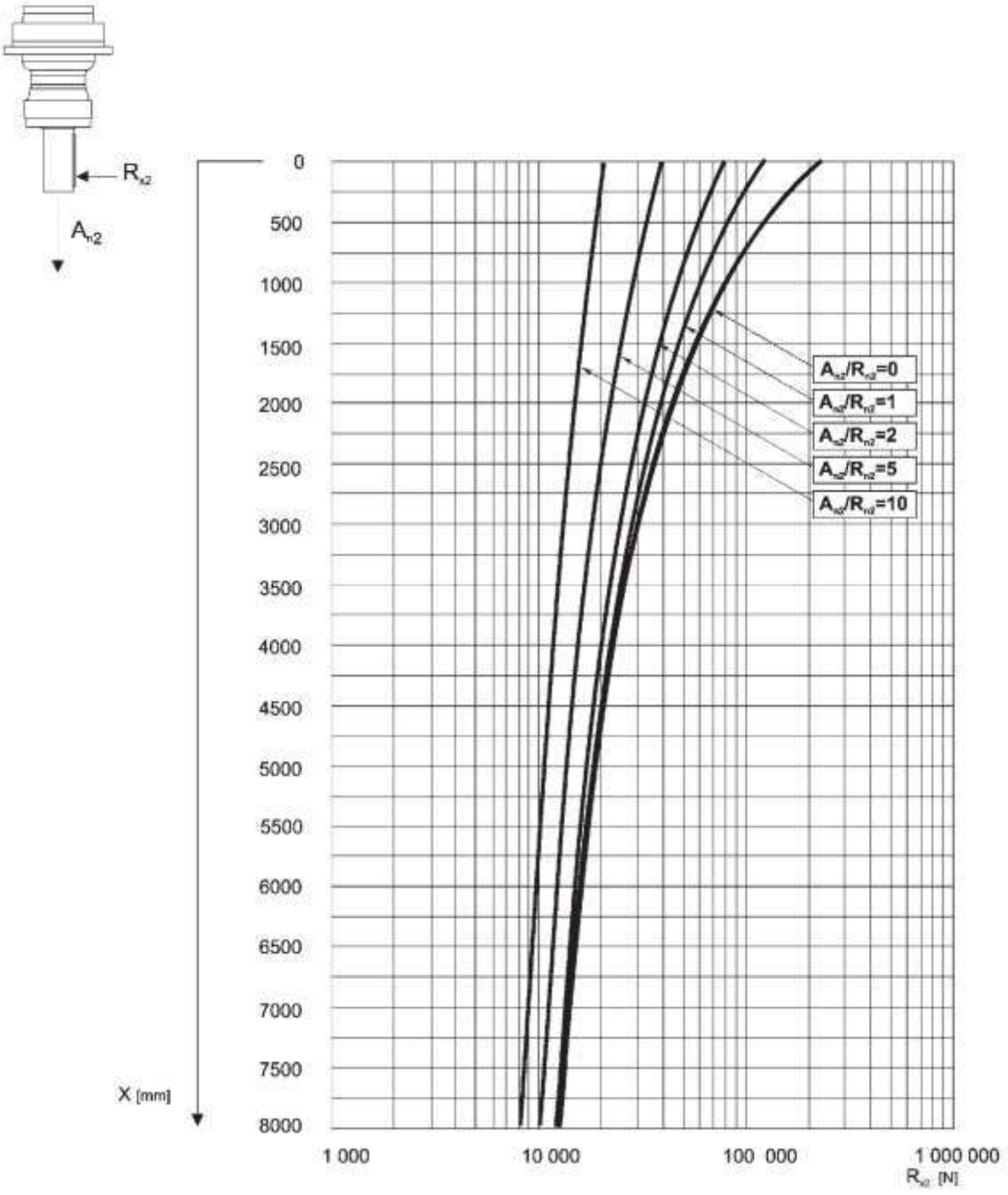
| | R | R1 | Kg | V | V1 | Kg | V | V1 | Kg | P132 | | P160 | | P180 | | P200 | | P225 | | P250 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | E | P | E | P | E | P | E | P | E | P | E | P |
| **315R3(B)** | 611 | 345 | 720 | 307 | 60 | 23 | — | — | — | — | — | — | — | 152 | 350 | 182 | 400 | 212 | 450 | 193 | 550 |
| **315R3(C)** | 611 | 390 | 730 | 307 | 60 | 23 | — | — | — | — | — | — | — | 152 | 350 | 182 | 400 | 212 | 450 | 193 | 550 |
| **315R4** | 638 | 225 | 690 | 239 | 48 | 15 | — | — | — | 114 | 300 | 144 | 350 | 144 | 350 | 174 | 400 | — | — | — | — |

نمودار زیر امکان محاسبه بار اضافی مجاز Rx2 را بر روی شافت خروجی گیربکس ، با نیروی شعاعی اعمال شده در فاصله x از شافت.

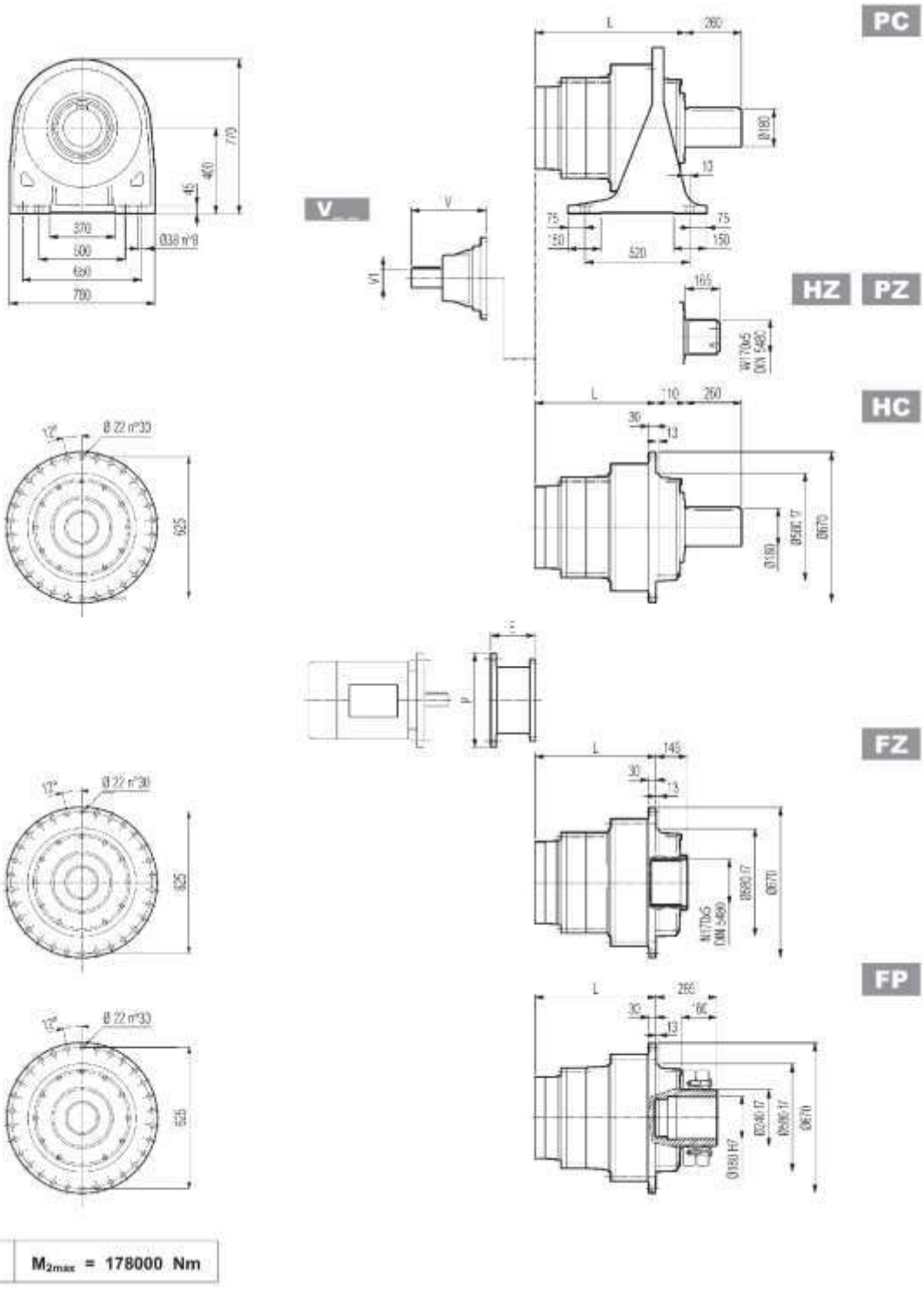
منحنی ها به مقدار مربوط به رابطه بار مجاز An2 به بار شعاعی Rn2 مربوط می شوند

n2 = 10 دقیقه در ۱ و ۱۰۰۰۰ ساعت طول عمر نظری.

The diagram below allows the calculation of permitted overhung load Rx2 on the output shaft of gearbox, with radial force applying at a distance x from shaft shoulder. The curves are relevant to value resulting from the relationship of trust load An2 to radial load Rn2, based on n2 = 10 min-1 and 10000 hrs. theoretical lifetime.



## 316L

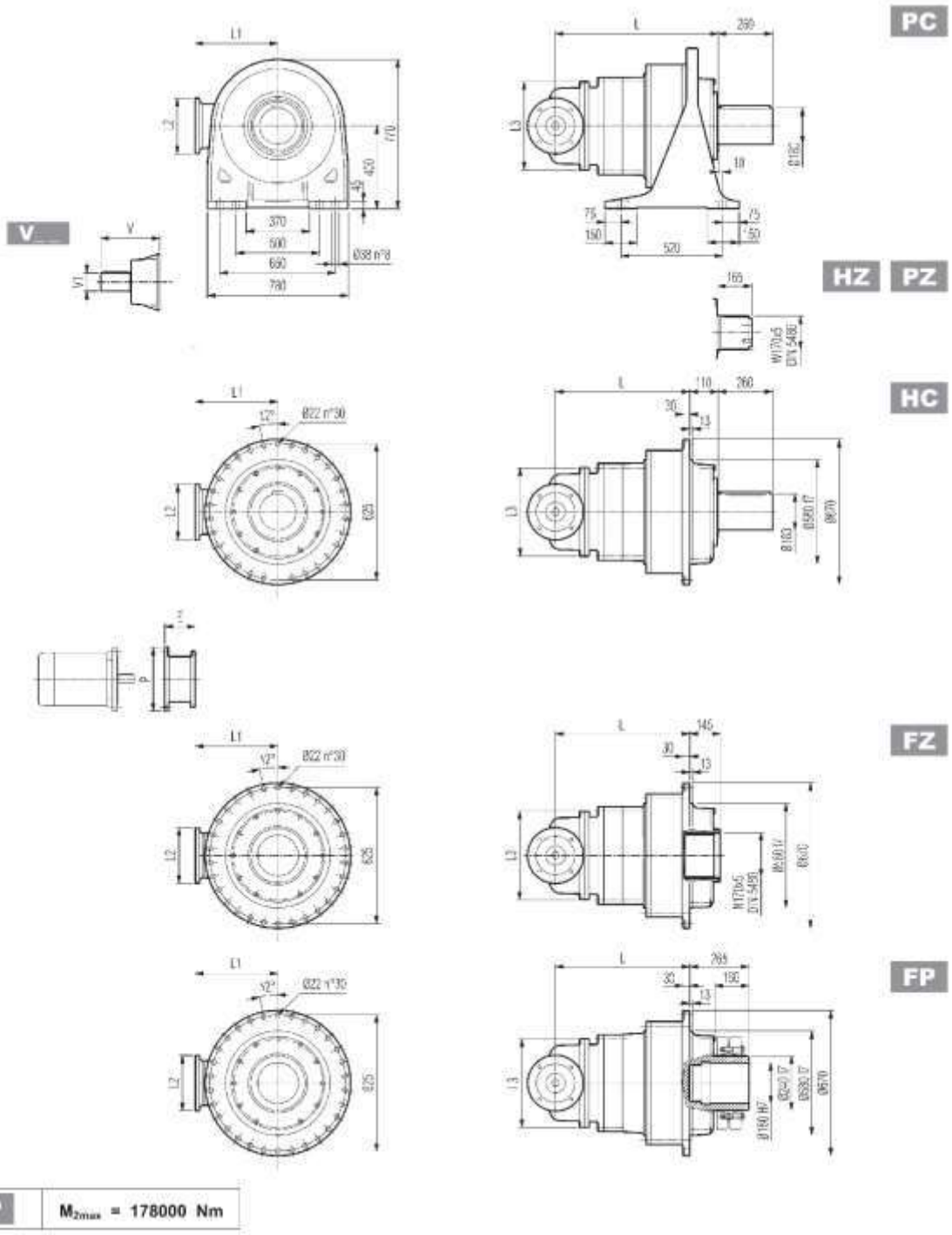



FP $M_{2max}$ = 178000 Nm

| | L | | | | Wight (kg) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PC - PZ | HC - HZ | FZ-FZP | FP | PC - PZ | HC - HZ | FZ-FZP | FP | V | $V_1$ | W(kg) | V | $V_1$ | W(kg) |
| **316 L1** | 289 | 179 | 179 | 179 | 700 | 500 | 430 | 450 | - | - | - | - | - | - |
| **316 L2** | 541 | 431 | 431 | 431 | 790 | 590 | 520 | 540 | 348 | 80 | 55 | - | - | - |
| **316L3** | 674 | 564 | 564 | 564 | 840 | 640 | 570 | 590 | 315 | 80 | 35 | 313 | 60 | 28 |
| **316L4** | 763 | 653 | 653 | 653 | 860 | 660 | 590 | 610 | 239 | 48 | 15 | - | - | - |

| | P132 | | P160 | | P180 | | P200 | | P225 | | P250 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P |
| **316L2** | — | — | — | — | — | — | 267 | 400 | 297 | 450 | 297 | 550 |
| **316L3** | — | — | — | — | 195 | 350 | 186 | 400 | 216 | 450 | 215 | 550 |
| **316L4** | 114 | 300 | 144 | 350 | 144 | 350 | 174 | 400 | — | — | — | — |

## 316 R

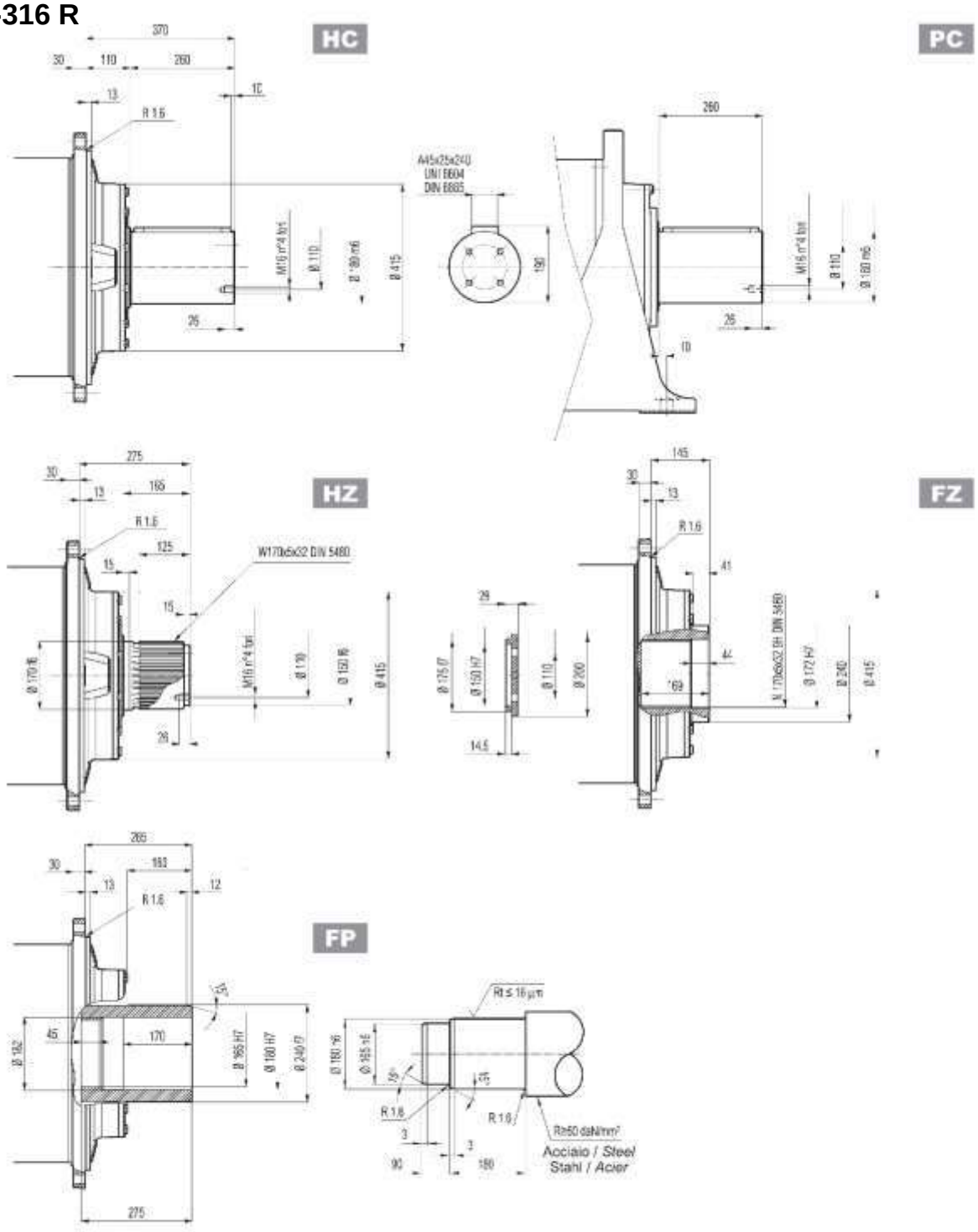



FP $M_{2max}$ = 178000 Nm

| | R | | | | R1 | R2 | R4 | W(Kg) | | | | V | V1 | KG | V | V1 | KG | Input |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PC-PZ | HC-HZ | FZ-FZP | FP | | | | PC-PZ | HC-HZ | FZ-FZP | FP | | | | | | | |
| **316R3(B)** | 766 | 565 | 656 | 656 | 345 | 292 | 400 | 910 | 710 | 640 | 660 | 307 | 60 | 23 | — | — | — | B |
| **316R3(C)** | 766 | 565 | 656 | 656 | 390 | 292 | 480 | 920 | 720 | 650 | 570 | 307 | 60 | 23 | — | — | — | B |
| **316R4** | 793 | 638 | 683 | 683 | 225 | 245 | 345 | 890 | 690 | 620 | 640 | 239 | 48 | 15 | — | — | — | A |

| | P132 | | P160 | | P180 | | P200 | | P225 | | P250 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P |
| **316R3(B)** | — | — | — | — | 152 | 350 | 182 | 400 | 212 | 450 | 193 | 550 |
| **316R3(C)** | — | — | — | — | 152 | 350 | 182 | 400 | 212 | 450 | 193 | 550 |
| **316R4** | 114 | 300 | 144 | 350 | 144 | 350 | 174 | 400 | — | — | — | — |

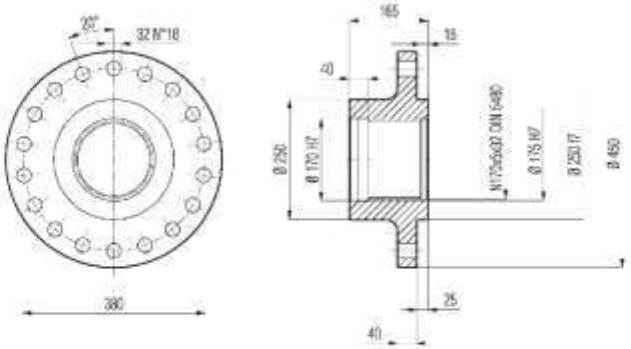
## 316 L-316 R




| FP | $M_{2max}$ = 178000 Nm |
|---|---|

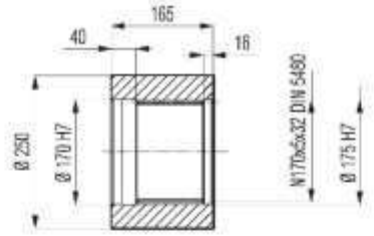
**316L-316R**

## Flange — WOA



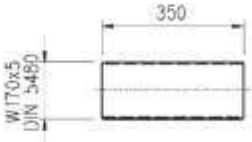

Material:Steel C40

## Sleeve coupling — MOA



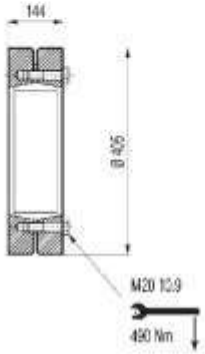

Material: Steel C40

## Splined bars — BOA

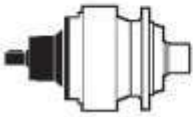


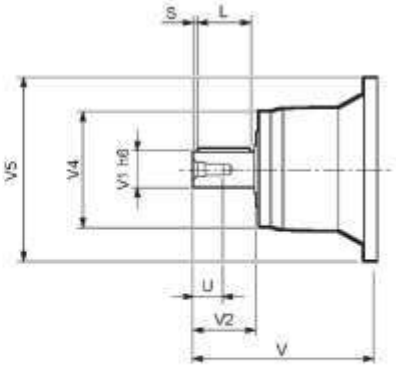

Material: Case hardening steel 18NiCrMo5 UNI 5331 must be case hardened 50-55 HRC

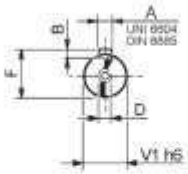
## Shrink disc — GOA



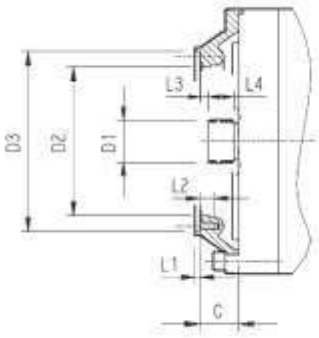
## 316L-316R

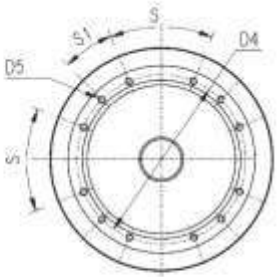






| | input | V | V1 | V2 | V4 | V5 | A | B | F | L | S | D | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **316L2** | **V11B** | 348 | 80 | 130 | 428 | 345 | 22 | 14 | 85 | 110 | 10 | M16 | 36 |
| **316 L3** | **V07B** | 315 | 80 | 130 | 200 | 345 | 22 | 14 | 85 | 110 | 10 | M16 | 36 |
| | **V07A** | 313 | 60 | 105 | 155 | 345 | 22 | 14 | 85 | 110 | 10 | M16 | 36 |
| **316 L4** | **V05B** | 239 | 48 | 82 | 155 | 245 | 14 | 9 | 51.5 | 70 | 6 | M16 | 36 |
| **316 R3(B)(C)** | **V06B** | 307 | 60 | 105 | 155 | 292 | 18 | 11 | 64 | 90 | 7.5 | M16 | 36 |
| **316 R4** | **V05B** | 239 | 48 | 82 | 155 | 245 | 14 | 9 | 51.5 | 70 | 6 | M16 | 36 |

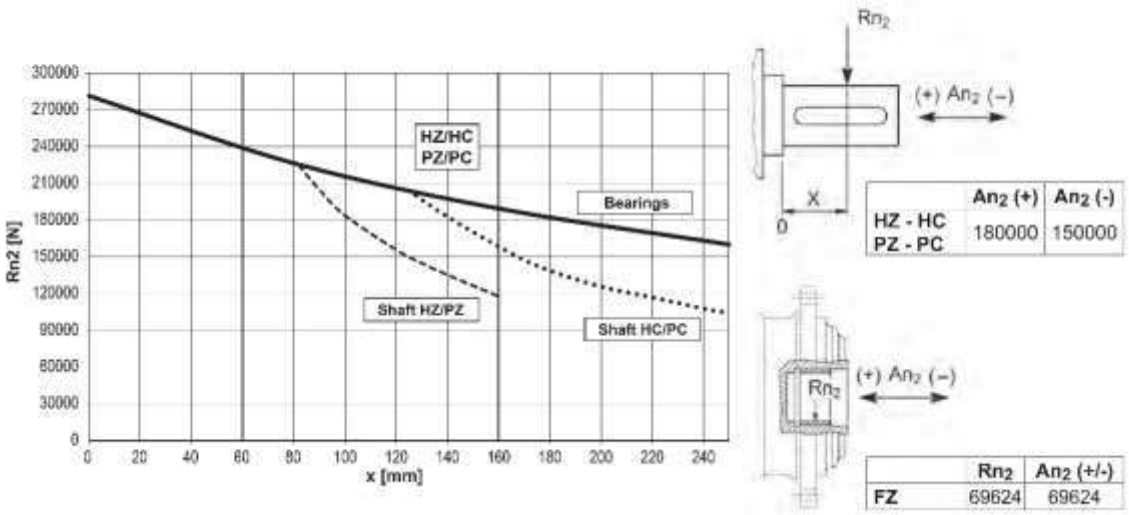




| | | C | D1 | D2 | D3 | D4 | D5 | D6 | L1 | L2 | L3 | L4 | L5 | L6 | S | S1 | Input |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **316L1** | **V9AE** | 116 | 100x94DIN5482 | 340 | 412H7 | 390 | M16n°18 | — | 7 | 30 | 8 | 55 | — | — | 20° | 20° | E |
| **316L2** | **V9AD** | 81 | 80x74DIN5482 | 270 | 335H7 | 314 | M16n°8 | — | 5 | 30 | 8.5 | 40 | — | — | 60° | 30° | D |
| **316L3** | **V9AB** | 51 | 58x53DIN5482 | 195 | 236H7 | 222 | M10n°12 | — | 4 | 18 | 11 | 22 | — | — | 45° | 22.5° | B |
| **316L4** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | — | 4 | 18 | 9 | 18 | — | — | 45° | 45° | A |
| **316R3(B)(C)** | **V9AB** | 45 | 58x53DIN5482 | 195 | 236H7 | 222 | M10n°12 | — | 4 | 18 | 11 | 22 | — | — | 45° | 22.5° | B |
| **316R4** | **V9AA** | 37 | 40x36DIN5482 | 140 | 178H7 | 165 | M10n°8 | 11 | 4 | 18 | 9 | 18 | — | — | 45° | 45° | A |

Permissible radial and axial loads on output shaft with $Fh_2$: $n_2$. h = 100,000

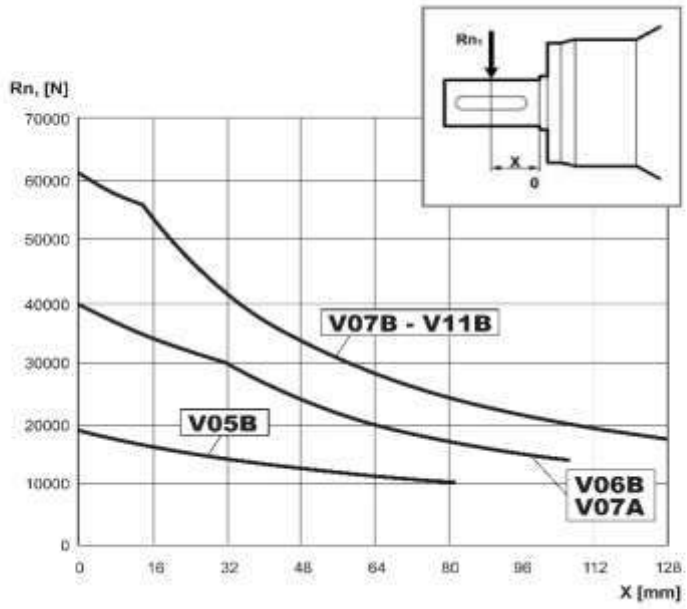
بارهای شعاعی و محوری مجاز بر روی شافت خروجی با Fh2: n2. h = 100000،




| Load correction factor $fh_2$ on shafts<br>فاکتور اصلاح بار $fh_2$ بر روی شافت | $Fh_2 = n_2. h$ | | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 |
|---|---|---|---|---|---|---|---|---|
| | $fh_2$ | FZ | 2.15 | 1.59 | 1.26 | 1.00 | 0.58 | 0.46 |
| | | HC - PC | 1.16 | 1.00 | 1.00 | 1.00 | 0.62 | 0.50 |
| | | HZ - PZ | 1.19 | 1.02 | 1.02 | 1.00 | 0.62 | 0.50 |

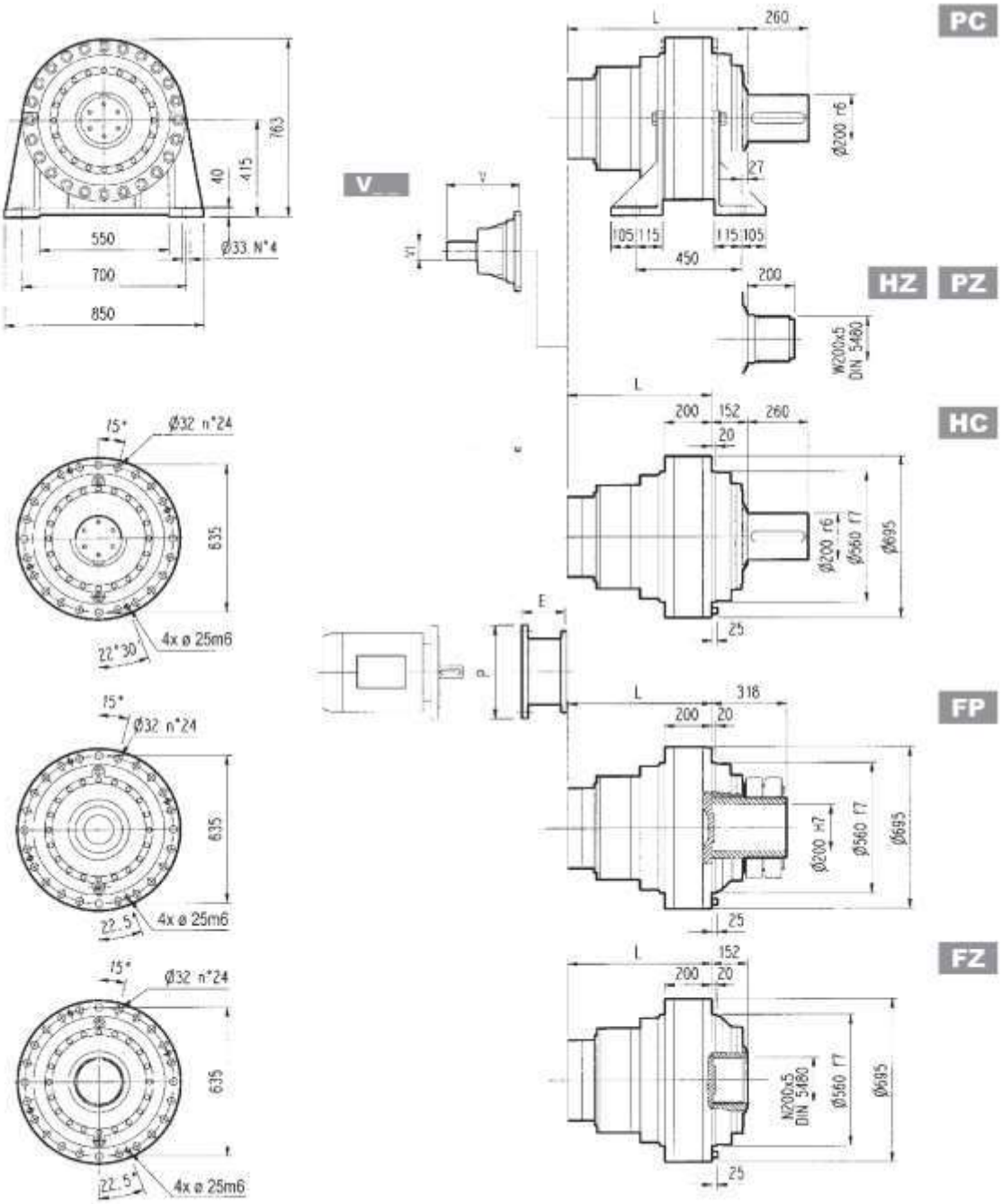
Permissible radial loads on input shaft with Fh1: n1. h = 250000

بارهای شعاعی مجاز بر روی شفت ورودی با Fh1: n1. h = 250000




| Load correction factor $fh_1$ on shafts<br>فاکتور اصلاح بار $fh_1$ بر روی شافت | $Fh_1 = n1. h$ | 250000 | 500000 | 1000000 | 2000000 | 5000000 | 10000000 |
|---|---|---|---|---|---|---|---|
| | $fh_1$ | 1 | 0.79 | 0.63 | 0.5 | 0.37 | 0.29 |

## 317 L

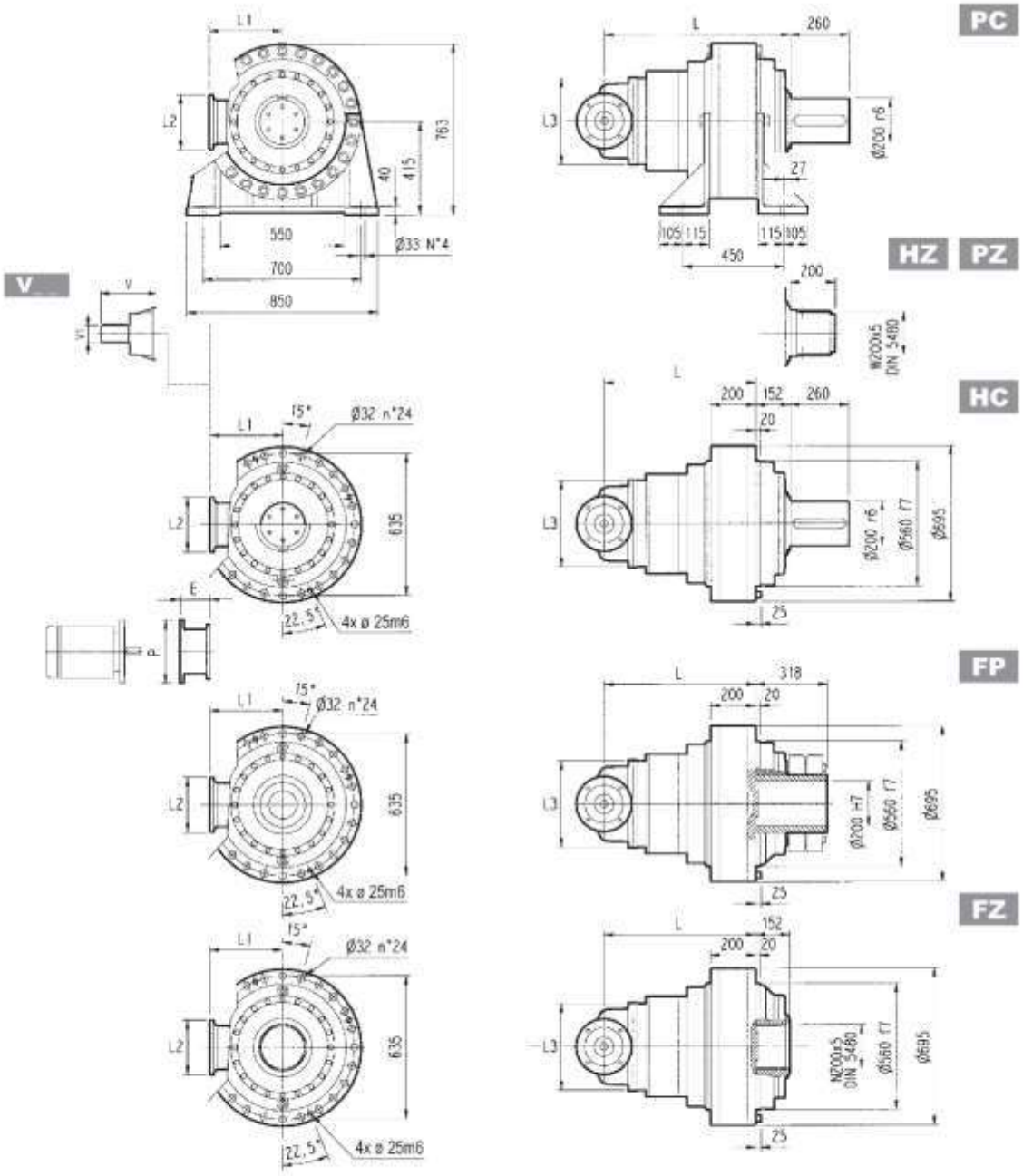



**FP** $M_{2max}$ = 242000 Nm

| | L | | | | Wight (kg) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PC - PZ | HC - HZ | FZ-FZP | FP | PC - PZ | HC - HZ | FZ-FZP | FP | V | $V_1$ | W(kg) | V | $V_1$ | W(kg) |
| **317 L1** | 315 | 163 | 163 | 163 | 950 | 800 | 750 | 800 | 348 | 80 | 55 | - | - | - |
| **317 L2** | 624 | 472 | 472 | 472 | 1080 | 930 | 880 | 930 | | | | | | |
| **317 L3** | 774 | 564 | 564 | 564 | 1140 | 990 | 940 | 990 | 315 | 80 | 35 | 313 | 60 | 28 |
| **317 L4** | 862 | 653 | 653 | 653 | 1152 | 1000 | 552 | 1000 | 239 | 48 | 15 | - | - | - |

| | P132 | | P160 | | P180 | | P200 | | P225 | | P250 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P |
| **317 L3** | — | — | — | — | 196 | 350 | 186 | 400 | 216 | 450 | 216 | 550 |
| **317 L4** | 114 | 300 | 144 | 350 | 144 | 350 | 174 | 400 | — | — | — | — |

## 317 R

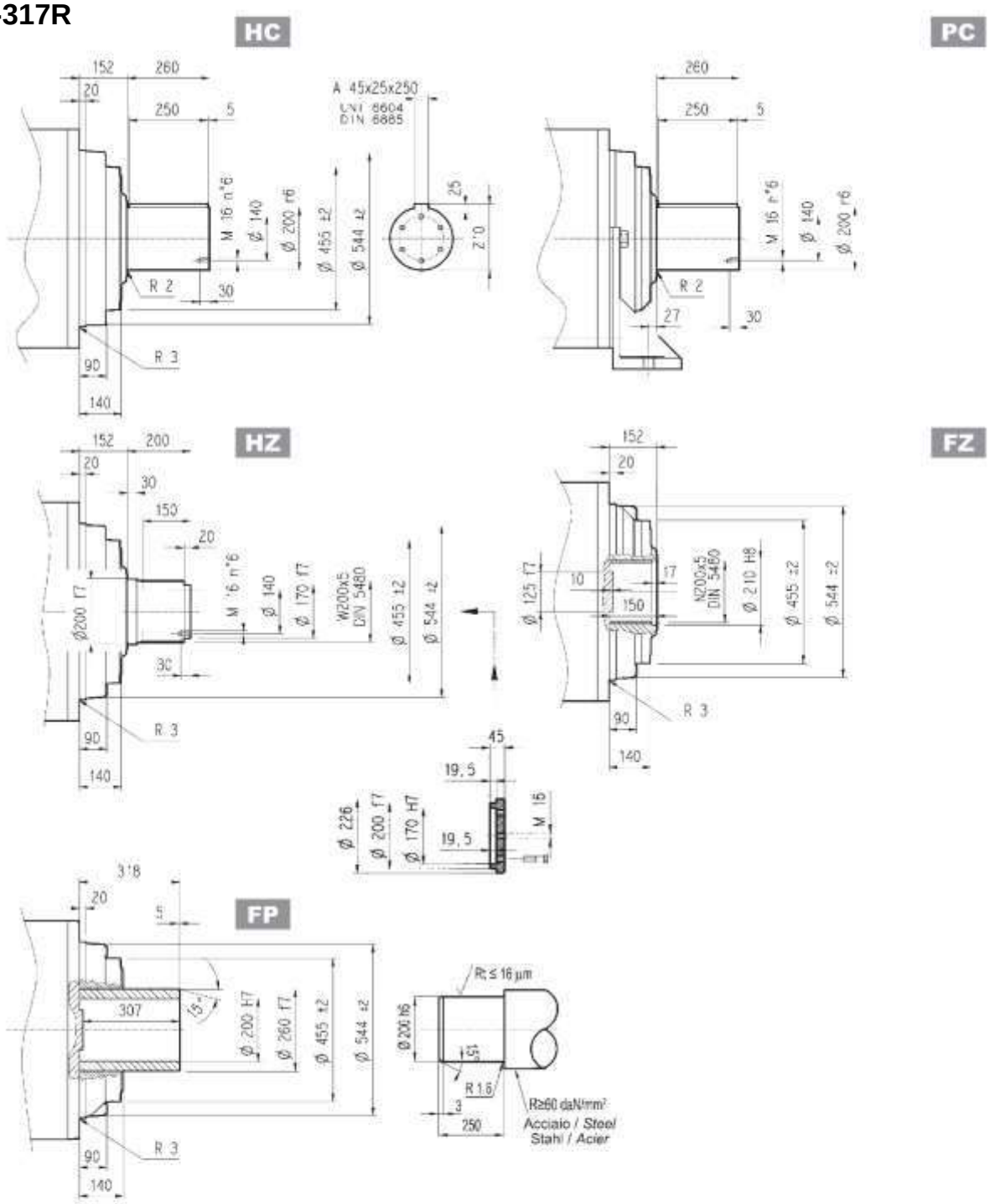



FP $M_{2max}$ = 242000 Nm

| | R | | | | R1 | R2 | R4 | W(Kg) | | | | V | V1 | KG | V | V1 | KG | Input |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PC-PZ | HC-HZ | FZ-FZP | FP | | | | PC-PZ | HC-HZ | FZ-FZP | FP | | | | | | | |
| **317R3(B)** | 853 | 701 | 701 | 701 | 345 | 292 | 400 | 1210 | 1060 | 1010 | 1060 | 307 | 60 | 23 | — | — | — | B |
| **317R3(C)** | 853 | 701 | 701 | 701 | 390 | 292 | 480 | 1220 | 1070 | 1020 | 1070 | 307 | 60 | 23 | — | — | — | B |
| **317R4** | 892 | 740 | 740 | 740 | 225 | 245 | 345 | 1190 | 1040 | 990 | 1040 | 239 | 48 | 15 | — | — | — | A |

| | P132 | | P160 | | P180 | | P200 | | P225 | | P250 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P |
| **317R3(B)** | — | — | — | — | 152 | 350 | 182 | 400 | 212 | 450 | 193 | 550 |
| **317R3(C)** | — | — | — | — | 152 | 350 | 182 | 400 | 212 | 450 | 193 | 550 |
| **317R4** | 114 | 300 | 144 | 350 | 144 | 350 | 174 | 400 | — | — | — | — |

## 317L-317R

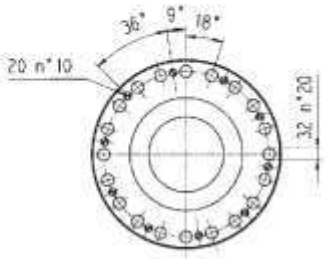


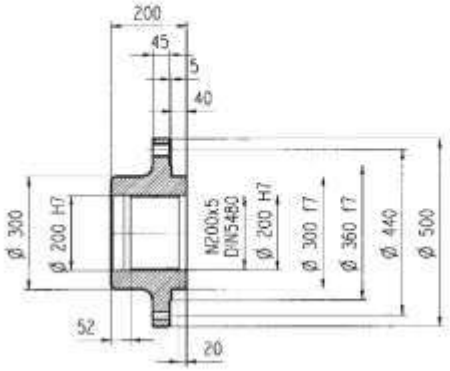

| FP | $M_{2max}$ = 242000 Nm |
|---|---|

## 317L-317R

### Flange

**WOA**




Material: Steel C40

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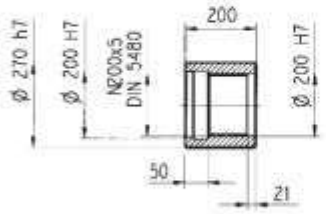
### Sleeve coupling

**MOA**




Material: Steel 16CrNi4

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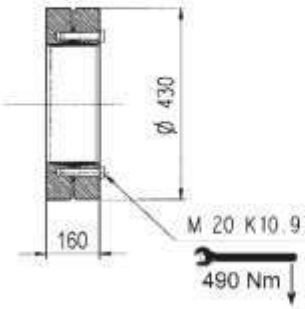
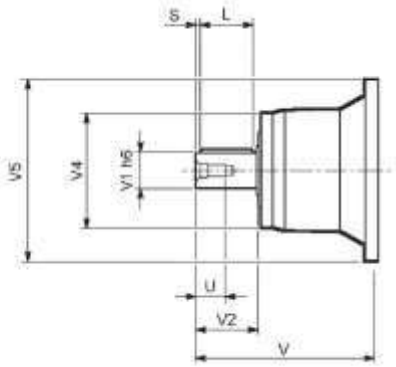
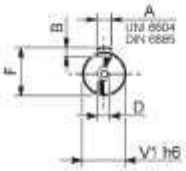
### Shrink disc

**GOA**

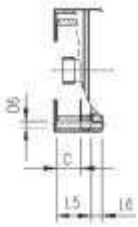


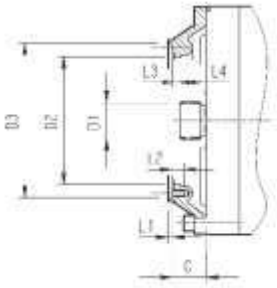
## 317L-317R

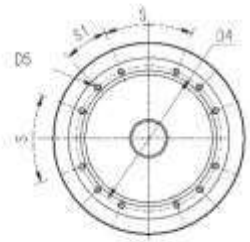



| | input | V | V1 | V2 | V4 | V5 | A | B | F | L | S | D | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **317L2** | **V11B** | 343 | 80 | 130 | 200 | 445 | 22 | 14 | 85 | 110 | 10 | M16 | 36 |
| **317 L3** | **V07B** | 315 | 80 | 130 | 200 | 345 | 22 | 14 | 85 | 110 | 10 | M16 | 36 |
| | **V07A** | 313 | 60 | 105 | 155 | 345 | 22 | 14 | 85 | 110 | 10 | M16 | 36 |
| **317 L4** | **V05B** | 239 | 48 | 82 | 155 | 245 | 14 | 9 | 51.5 | 70 | 6 | M16 | 36 |
| **317 R3(B)(C)** | **V06B** | 307 | 60 | 105 | 155 | 292 | 18 | 11 | 64 | 90 | 7.5 | M16 | 40 |
| **317 R4** | **V05B** | 239 | 48 | 82 | 155 | 245 | 14 | 9 | 51.5 | 70 | 6 | M16 | 36 |



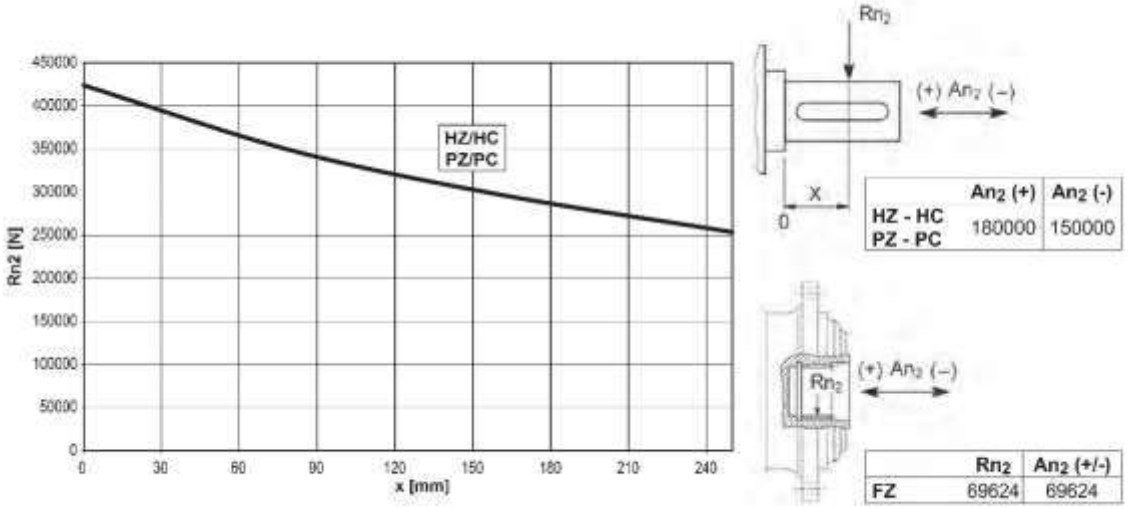




| | | C | D1 | D2 | D3 | D4 | D5 | D6 | L1 | L2 | L3 | L4 | L5 | L6 | S | S1 | Input |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **317L1** | **V9AF** | 181 | 120x3 DIN5480 | 365 | 390g7 | 415 | M16n°18 | — | 4 | 30 | 3 | 65 | — | — | 20° | 20° | F |
| **317L2** | **V9AD** | 75 | 80x74 DIN5482 | 270 | 335H7 | 314 | M16n°8 | — | 5 | 30 | 9.5 | 40 | — | — | 60° | 30° | D |
| **317L3** | **V9AB** | 51 | 58x53 DIN5482 | 195 | 236H7 | 222 | M10n°12 | — | 4 | 18 | 11 | 22 | — | — | 45° | 22.5° | B |
| **317L4** | **V9AA** | 37 | 40x36 DIN5482 | 140 | 178H7 | 165 | M10n°8 | — | 4 | 18 | 9 | 18 | — | — | 45° | 45° | A |
| **317R4** | **V9AA** | 37 | 40*36 DIN5482 | 140 | 178H7 | 165 | M10n°8 | 11 | 4 | 18 | 9 | 18 | — | — | 45° | 45° | A |
| **317R3(B)(C)** | **V9AB** | 45 | 58x53 DIN5482 | 195 | 236H7 | 222 | M10n°12 | — | 4 | 18 | 11 | 22 | — | — | 45° | 22.5° | A |

Permissible radial and axial loads on output shaft with $Fh_2$: $n_2$. h = 100,000

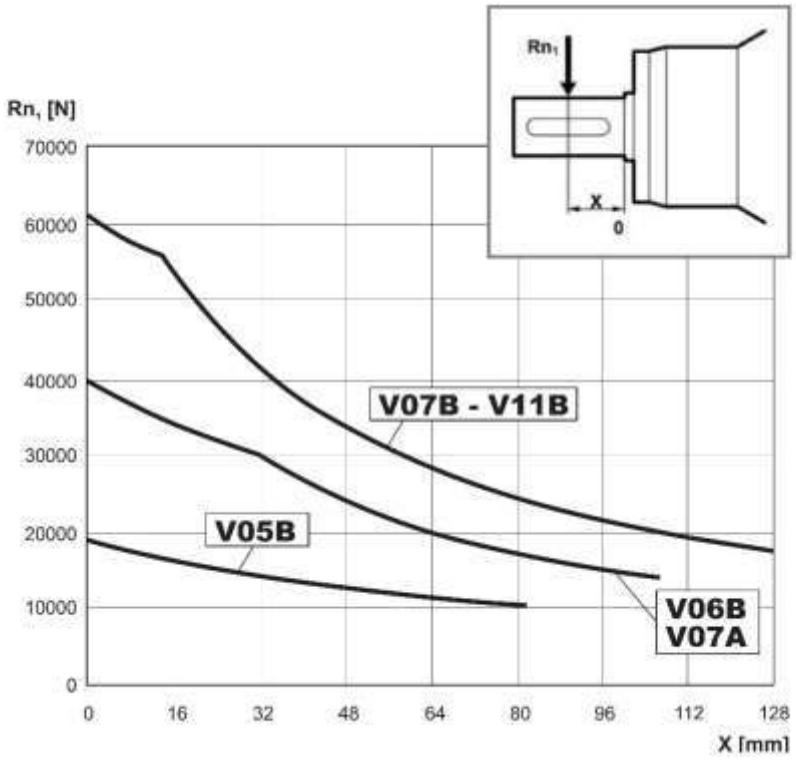
بارهای شعاعی و محوری مجاز بر روی شافت خروجی با Fh2: n2. h = 100000،




| Load correction factor $fh_2$ on shafts<br>فاکتور اصلاح بار $fh_2$ بر روی شافت | $Fh_2 = n_2. h$ | | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 |
|---|---|---|---|---|---|---|---|---|
| | $fh_2$ | FZ | 2.15 | 1.59 | 1.26 | 1.00 | 0.58 | 0.46 |
| | | HZ - HC PZ - PC | 1.50 | 1.50 | 1.23 | 1.00 | 0.62 | 0.50 |

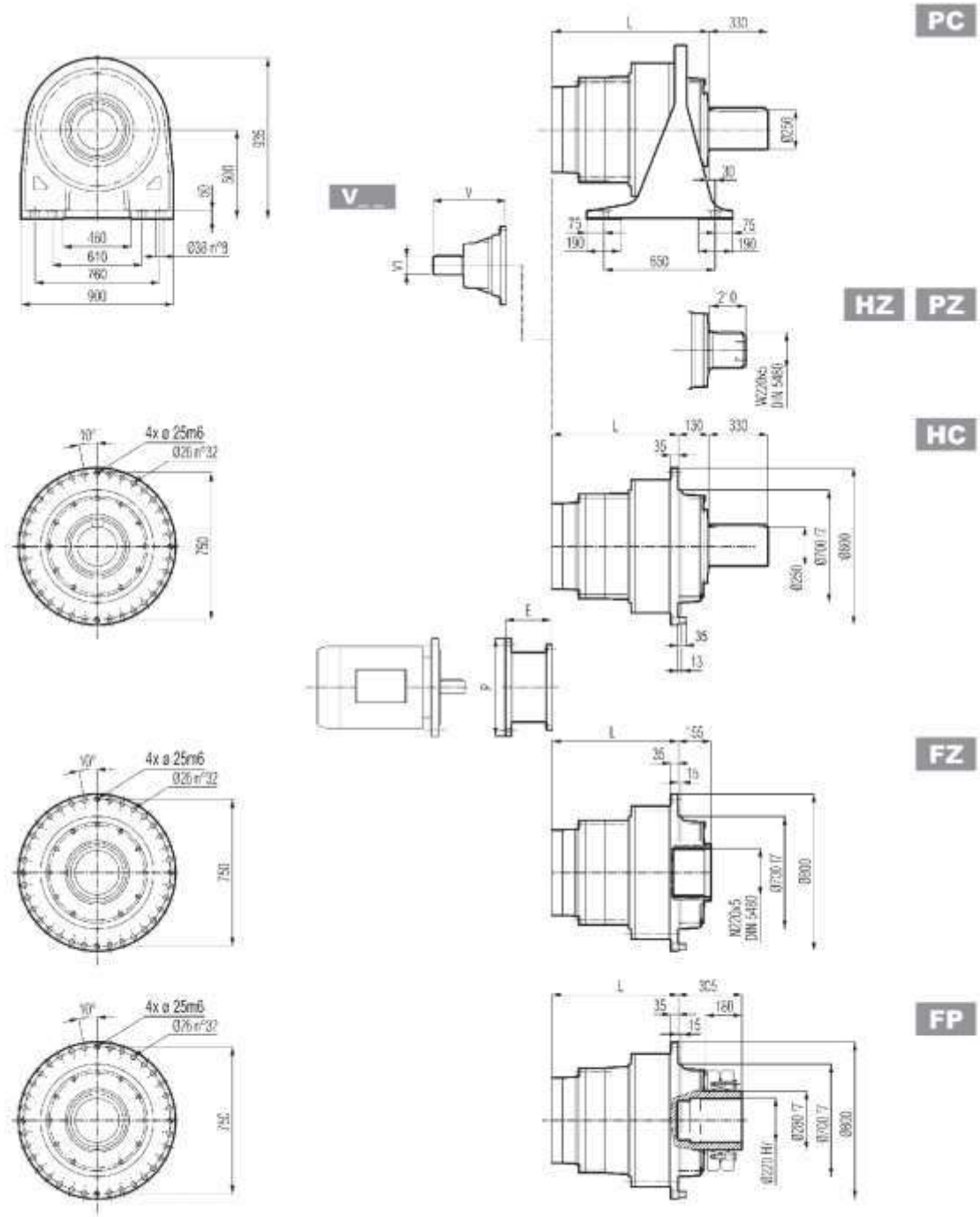
Permissible radial loads on input shaft with Fh1: n1. h = 250000

بارهای شعاعی مجاز بر روی شفت ورودی با Fh1: n1. h = 250000




| Load correction factor $fh_1$ on shafts<br>فاکتور اصلاح بار $fh_1$ بر روی شافت | $Fh_1 = n1. h$ | 250000 | 500000 | 1000000 | 2000000 | 5000000 | 10000000 |
|---|---|---|---|---|---|---|---|
| | $fh_1$ | 1 | 0.79 | 0.63 | 0.5 | 0.37 | 0.29 |

## 318L

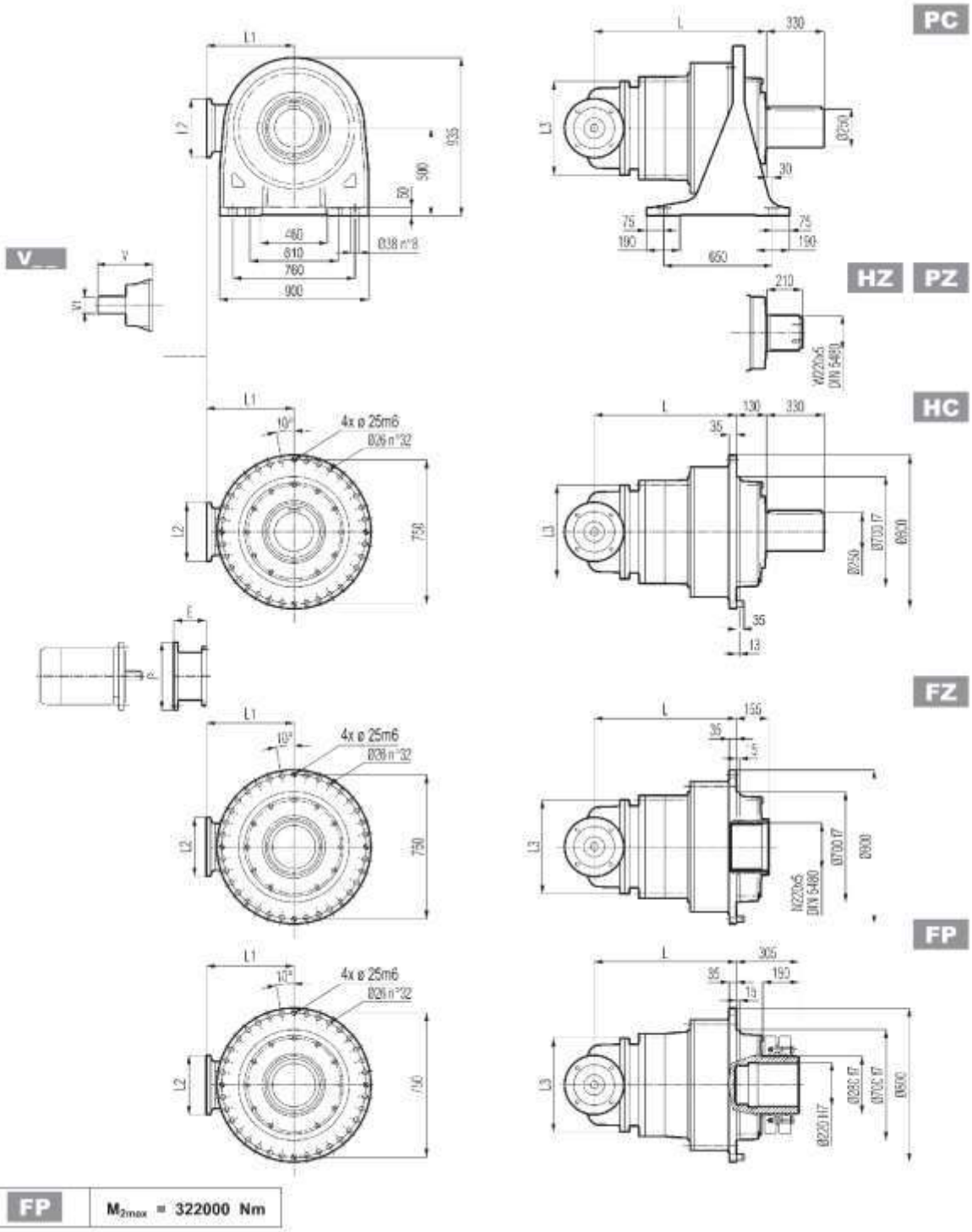



FP $M_{2max}$ = 322000 Nm

| | L | | | | Wight (kg) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PC - PZ | HC - HZ | FZ-FZP | FP | PC - PZ | HC - HZ | FZ-FZP | FP | V | $V_1$ | W(kg) | V | $V_1$ | W(kg) |
| **318 L1** | 332 | 202 | 202 | 202 | 1250 | 950 | 830 | 800 | - | - | - | - | - | - |
| **318 L2** | 677 | 547 | 547 | 547 | 1500 | 1200 | 1050 | 1080 | 556 | 120 | 125 | - | - | - |
| **318L3** | 889 | 759 | 752 | 752 | 1600 | 1300 | 1150 | 1180 | 348 | 80 | 55 | - | - | - |
| **318L4** | 1022 | 892 | 892 | 892 | 1650 | 1350 | 1200 | 1230 | 315 | 80 | 35 | 313 | 60 | 28 |

| | P180 | | P200 | | P225 | | P250 | |
|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P |
| **318L3** | - | - | 267 | 400 | 297 | 450 | 297 | 550 |
| **318L4** | 195 | 350 | 186 | 400 | 216 | 450 | 215 | 550 |

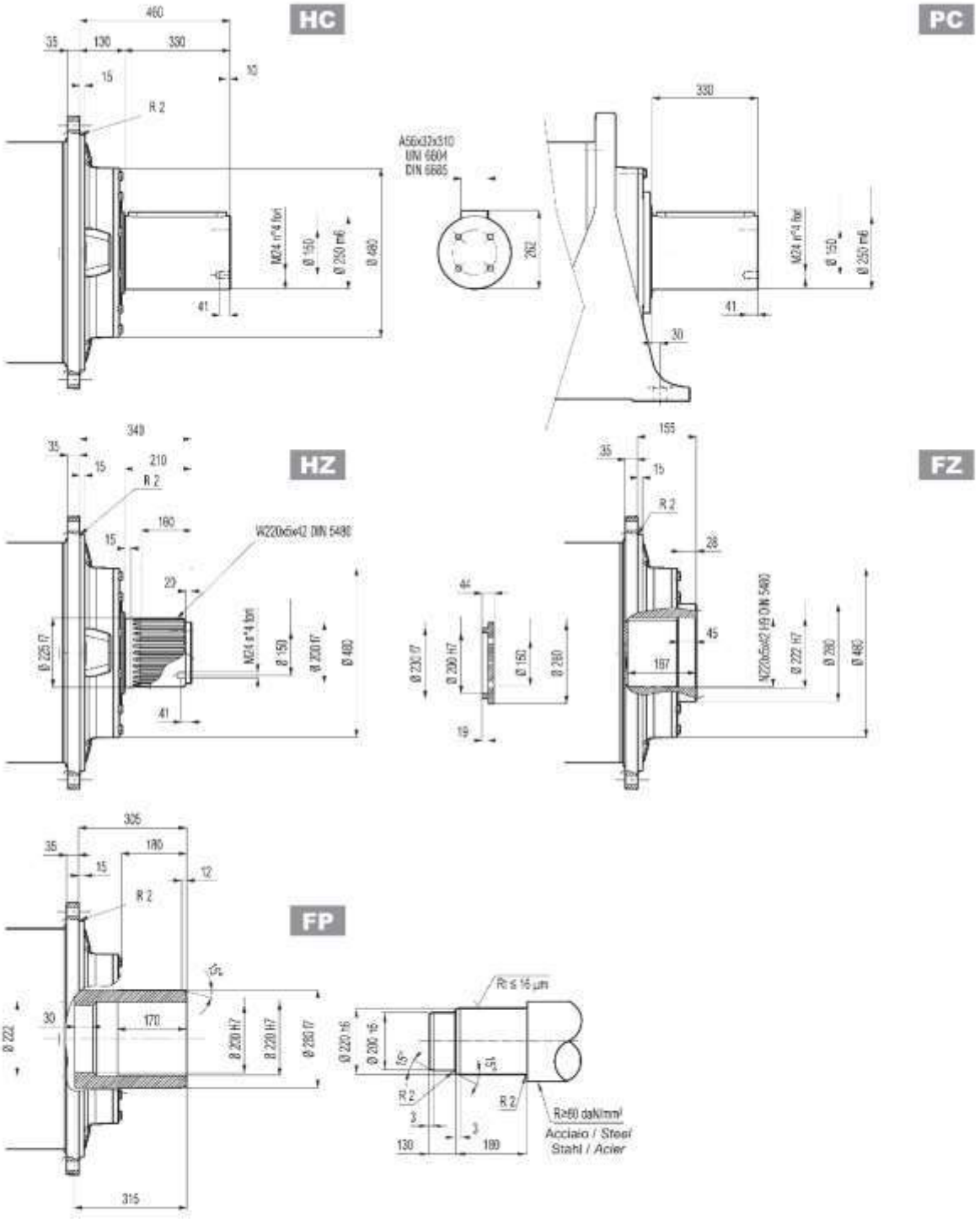
## 318R




| | R | | | | R1 | R2 | R4 | W(Kg) | | | | V | V1 | KG | V | V1 | KG | Input |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PC-PZ | HC-HZ | FZ-FZP | FP | | | | PC-PZ | HC-HZ | FZ-FZP | FP | | | | | | | |
| **318R4(B)** | 1115 | 985 | 985 | 985 | 345 | 292 | 400 | 1720 | 1420 | 1270 | 1300 | 307 | 60 | 23 | — | — | — | B |
| **318R4(C)** | 1115 | 985 | 985 | 985 | 390 | 292 | 480 | 1730 | 1430 | 1280 | 1310 | 307 | 60 | 23 | — | — | — | B |

| | P132 | | P160 | | P180 | | P200 | | P225 | | P250 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P |
| **318R4(B)** | — | — | — | — | 152 | 350 | 182 | 400 | 212 | 450 | 193 | 550 |
| **318R4(C)** | — | — | — | — | 152 | 350 | 182 | 400 | 212 | 450 | 193 | 550 |

## 318L-318R

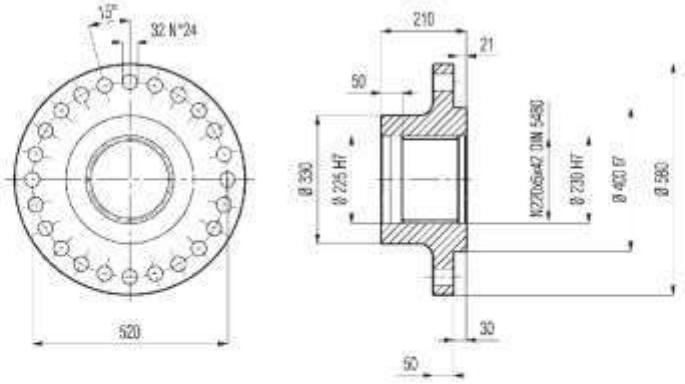



| FP | $M_{2max}$ = 322000 Nm |
|---|---|

## 318 L-318 R

### Flange

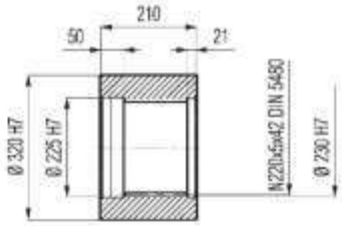
**WOA**




Material: Steel C40

### Sleeve coupling

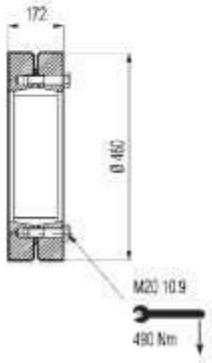
**MOA**



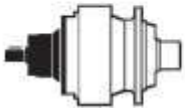

Material: Steel C40

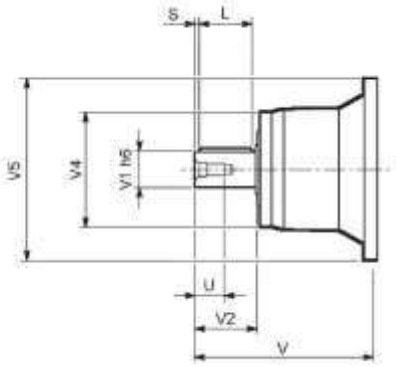
### Shrink disc

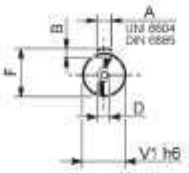
**GOA**



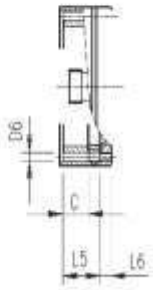
## 318L-318R

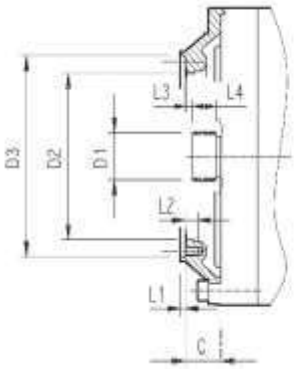


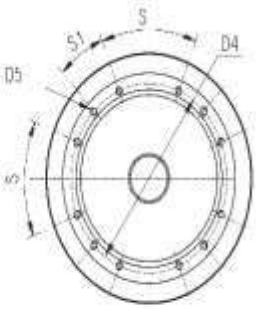



| | input | V | V1 | V2 | V4 | V5 | A | B | F | L | S | D | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **318L2** | **V15B** | 556 | 120 | 210 | 230 | 542 | 32 | 18 | 127 | 180 | 15 | M24 | 50 |
| **318 L3** | **V11B** | 348 | 80 | 130 | 200 | 428 | 22 | 14 | 85 | 110 | 10 | M16 | 36 |
| **318 L4** | **V07B** | 315 | 80 | 130 | 200 | 345 | 22 | 14 | 85 | 110 | 10 | M16 | 36 |
| | **V07A** | 313 | 60 | 105 | 155 | 345 | 18 | 11 | 64 | 90 | 7.5 | M16 | 36 |
| **318 R4(B)(C)** | **V06B** | 307 | 60 | 105 | 155 | 292 | 18 | 11 | 64 | 90 | 7.5 | M16 | 36 |



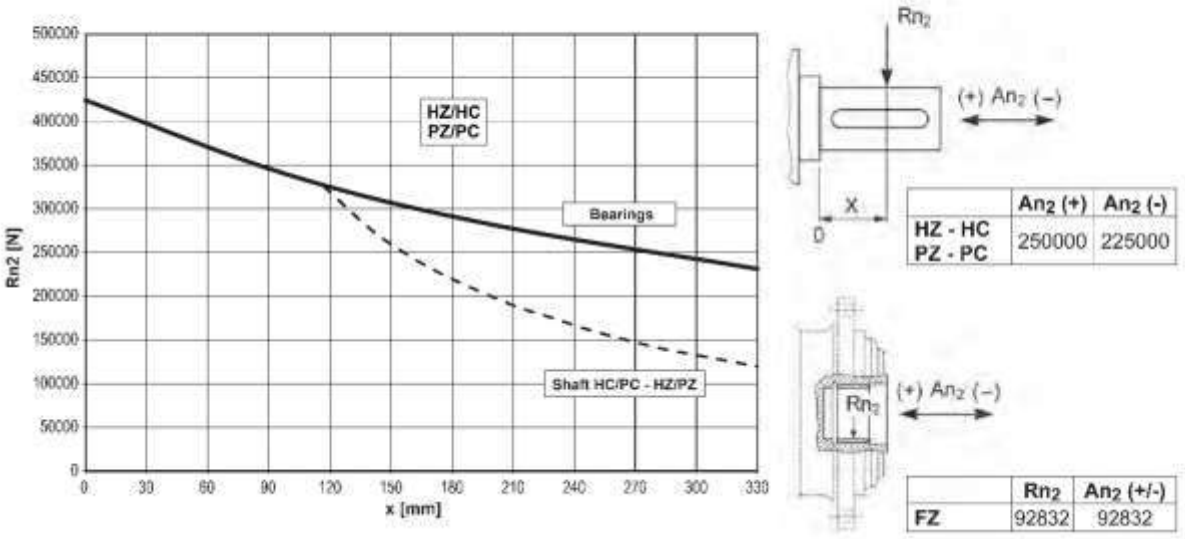




| | | C | D1 | D2 | D3 | D4 | D5 | D6 | L1 | L2 | L3 | L4 | L5 | L6 | S | S1 | Input |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **318L2** | **V9AE** | 116 | 100x94 DIN5482 | 340 | 412H7 | 390 | M16n°18 | — | 7 | 30 | 8 | 55 | — | — | 20° | 20° | E |
| **318L3** | **V9AD** | 81 | 80*74 DIN5482 | 270 | 335H7 | 314 | M10n°8 | — | 5 | 30 | 8.5 | 40 | — | — | 60° | 30° | D |
| **318L4** | **V9AB** | 51 | 58x53 DIN5482 | 195 | 236H7 | 222 | M10n°12 | — | 4 | 18 | 9 | 22 | — | — | 45° | 22.5° | A |
| **318R3(B)(C)** | **V9AB** | 45 | 58x53 DIN5482 | 195 | 236H7 | 222 | M10n°10 | — | 4 | 18 | 9 | 22 | — | — | 45° | 22.5° | B |

Permissible radial and axial loads on output shaft with $Fh_2$: $n_2$. h = 100,000

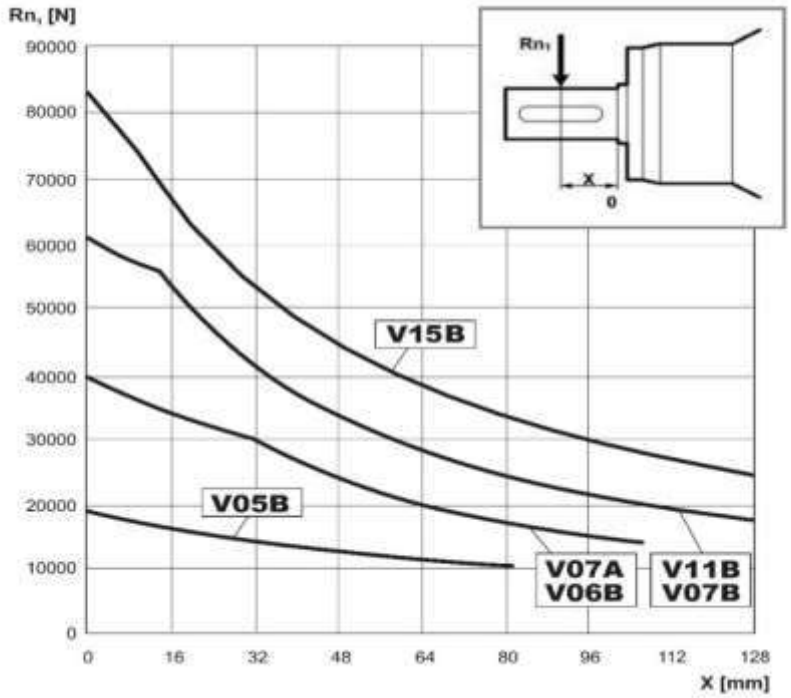
بارهای شعاعی و محوری مجاز بر روی شافت خروجی با Fh2: n2. h = 100000،




| Load correction factor $fh_2$ on shafts<br>فاکتور اصلاح بار $fh_2$ بر روی شافت | $Fh_2 = n_2. h$ | | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 |
|---|---|---|---|---|---|---|---|---|
| | $fh_2$ | FZ | 2.15 | 1.59 | 1.26 | 1.00 | 0.58 | 0.46 |
| | | HC - PC | 1.96 | 1.52 | 1.23 | 1.00 | 0.62 | 0.50 |
| | | HZ-PZ | 1.15 | 1.00 | 1.00 | 1.00 | 0.62 | 0.50 |

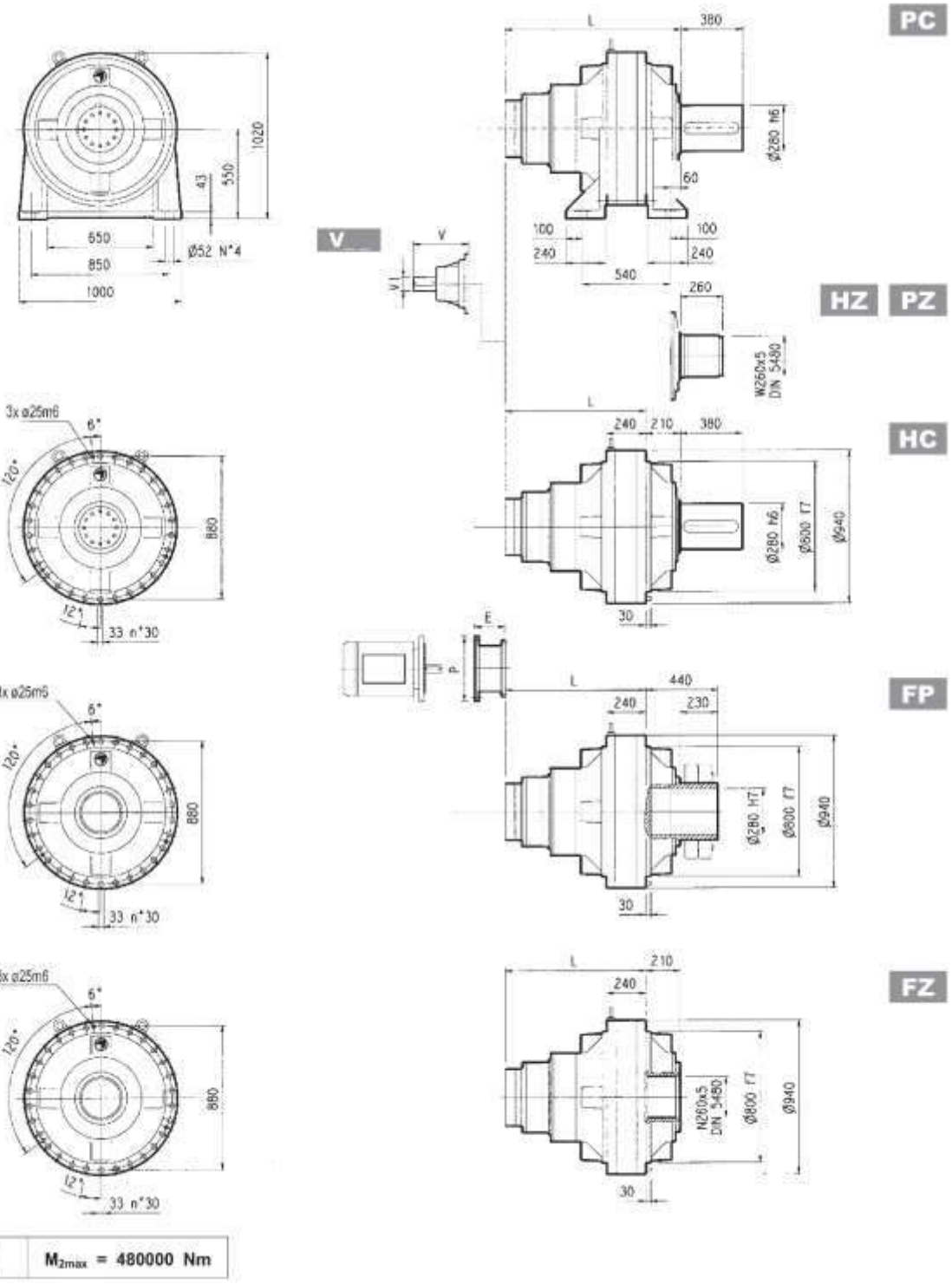
Permissible radial loads on input shaft with Fh1: n1. h = 250000

بارهای شعاعی مجاز بر روی شفت ورودی با Fh1: n1. h = 250000




| Load correction factor $fh_1$ on shafts<br>فاکتور اصلاح بار $fh_1$ بر روی شافت | $Fh_1 = n1. h$ | 250000 | 500000 | 1000000 | 2000000 | 5000000 | 10000000 |
|---|---|---|---|---|---|---|---|
| | $fh_1$ | 1 | 0.79 | 0.63 | 0.5 | 0.37 | 0.29 |

## 319 L

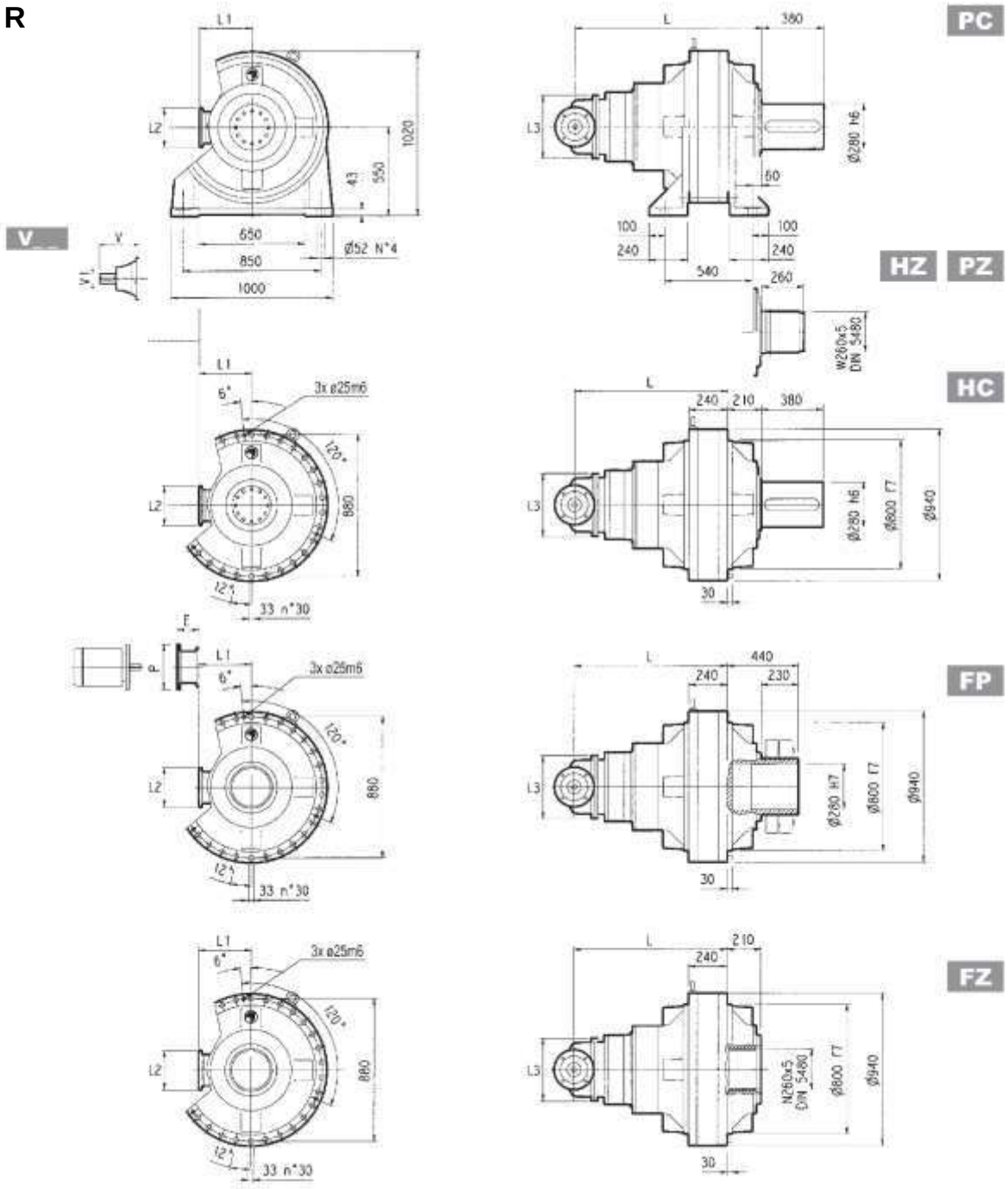



FP $M_{2max}$ = 480000 Nm

| | L | | | | Wight (kg) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PC - PZ | HC - HZ | FZ-FZP | FP | PC - PZ | HC - HZ | FZ-FZP | FP | V | $V_1$ | W(kg) | V | $V_1$ | W(kg) |
| **319 L1** | 395 | 185 | 185 | 185 | 2100 | 1800 | 1700 | 1700 | - | - | - | - | - | - |
| **319 L2** | 778 | 568 | 568 | 568 | 2350 | 2050 | 1950 | 1950 | 556 | 120 | 125 | - | - | - |
| **319 L3** | 990 | 780 | 780 | 780 | 2435 | 2135 | 2035 | 2035 | 348 | 80 | 55 | - | - | - |
| **319 L4** | 1123 | 913 | 913 | 913 | 2480 | 2180 | 2080 | 2080 | 315 | 80 | 35 | 313 | 60 | 28 |

| | P180 | | P200 | | P225 | | P250 | |
|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P |
| **319L3** | - | - | 267 | 400 | 297 | 450 | 297 | 550 |
| **319L4** | 195 | 350 | 186 | 400 | 216 | 450 | 215 | 550 |

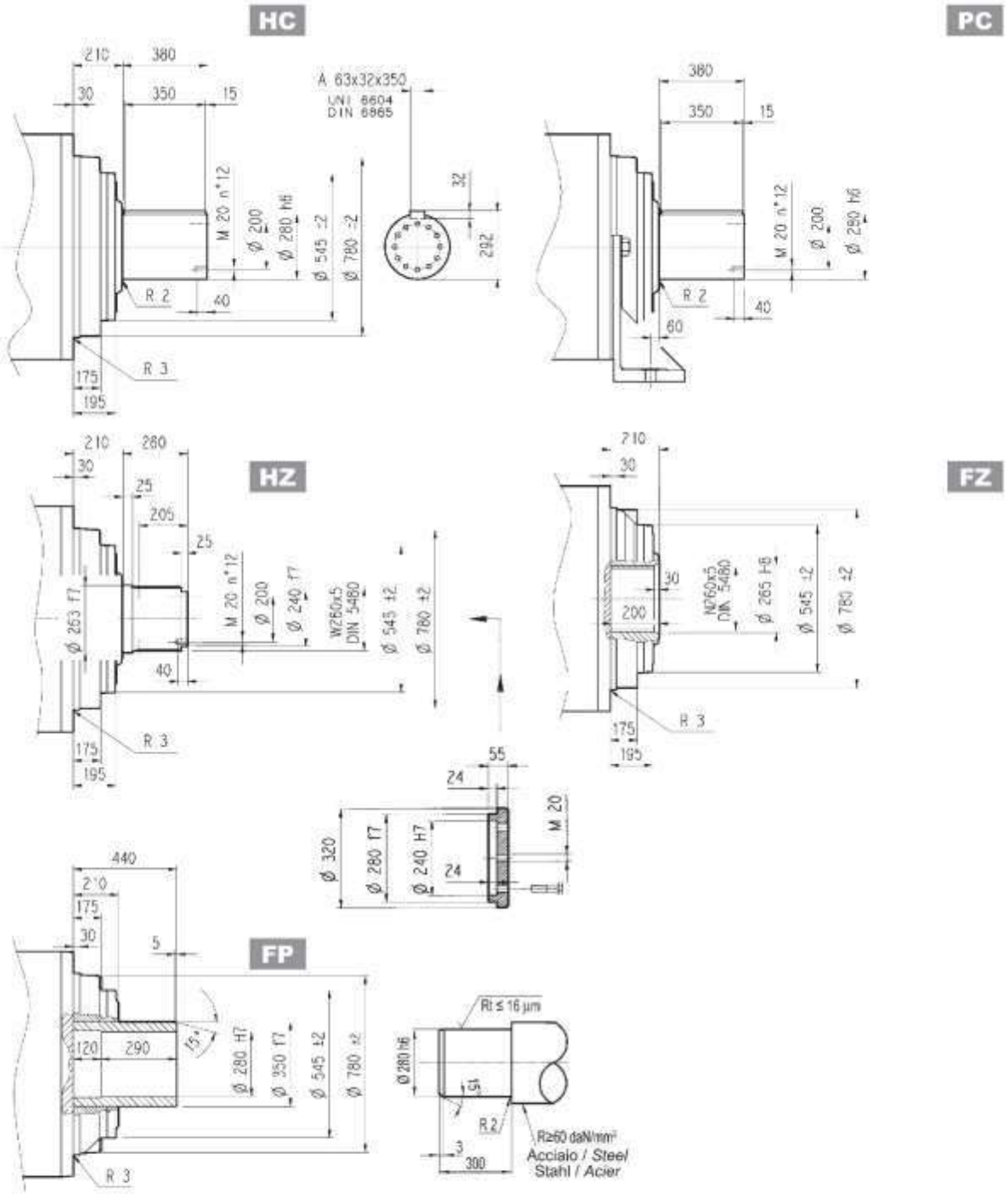
## 319 R




| | R | | | | R1 | R2 | R4 | W(Kg) | | | | V | V1 | KG | V | V1 | KG | Input |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PC-PZ | HC-HZ | FZ-FZP | FP | | | | PC-PZ | HC-HZ | FZ-FZP | FP | | | | | | | |
| **319R4(B)** | 1215 | 1005 | 1005 | 1005 | 345 | 292 | 400 | 2560 | 2260 | 2160 | 2160 | 307 | 60 | 23 | — | — | — | B |
| **319R4(C)** | 1215 | 1005 | 1005 | 1005 | 390 | 292 | 480 | 2580 | 2280 | 2180 | 2180 | 307 | 60 | 23 | — | — | — | B |

| | P132 | | P160 | | P180 | | P200 | | P225 | | P250 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P |
| **319R4(B)** | — | — | — | — | 152 | 350 | 182 | 400 | 212 | 450 | 193 | 550 |
| **319R4(C)** | — | — | — | — | 152 | 350 | 182 | 400 | 212 | 450 | 193 | 550 |

## 319L-319R

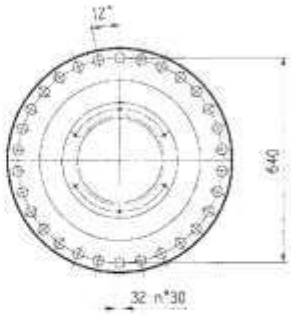


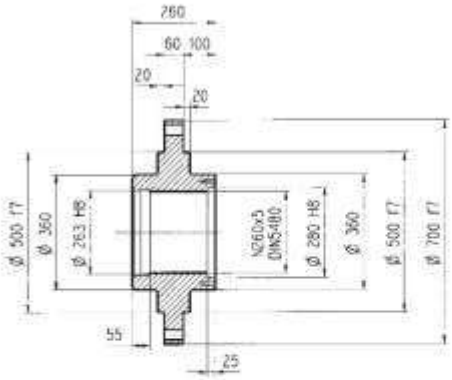

| FP | $M_{2max}$ = 480000 Nm |
|---|---|

**319L-319R**

## Flange

**WOA**

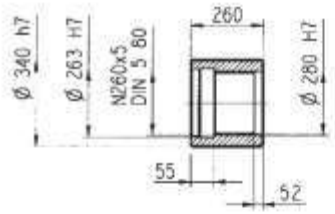



Material: Steel C40

## Sleeve coupling

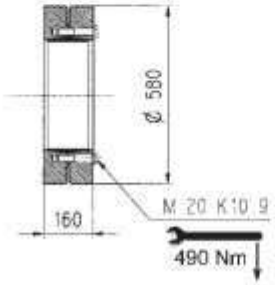
**MOA**




Material: Steel 16CrNi4

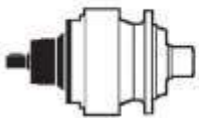
## Shrink disc

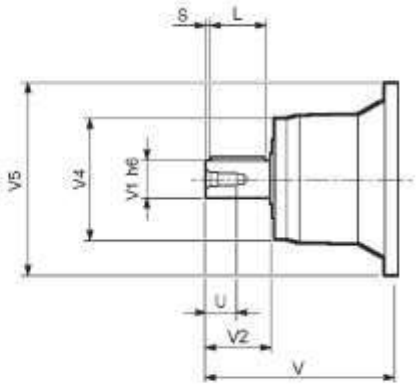
**G0A**

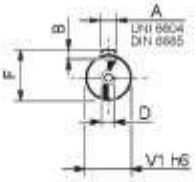


## 319 L-319 R

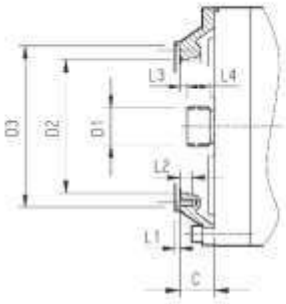
V__

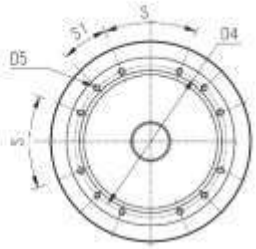





| | input | V | V1 | V2 | V4 | V5 | A | B | F | L | S | D | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **319L2** | **V15B** | 556 | 120 | 210 | 230 | 542 | 32 | 18 | 127 | 180 | 15 | M24 | 36 |
| **319 L3** | **V11B** | 348 | 80 | 130 | 200 | 428 | 22 | 14 | 85 | 110 | 10 | M16 | 36 |
| **319 L4** | **V07B** | 315 | 80 | 130 | 200 | 345 | 22 | 14 | 85 | 110 | 10 | M16 | 36 |
| | **V07A** | 313 | 60 | 105 | 155 | 345 | 18 | 11 | 64 | 90 | 7.5 | M16 | 36 |
| **319 R4(B)(C)** | **V06B** | 307 | 60 | 105 | 155 | 292 | 18 | 11 | 64 | 90 | 7.5 | M16 | 36 |

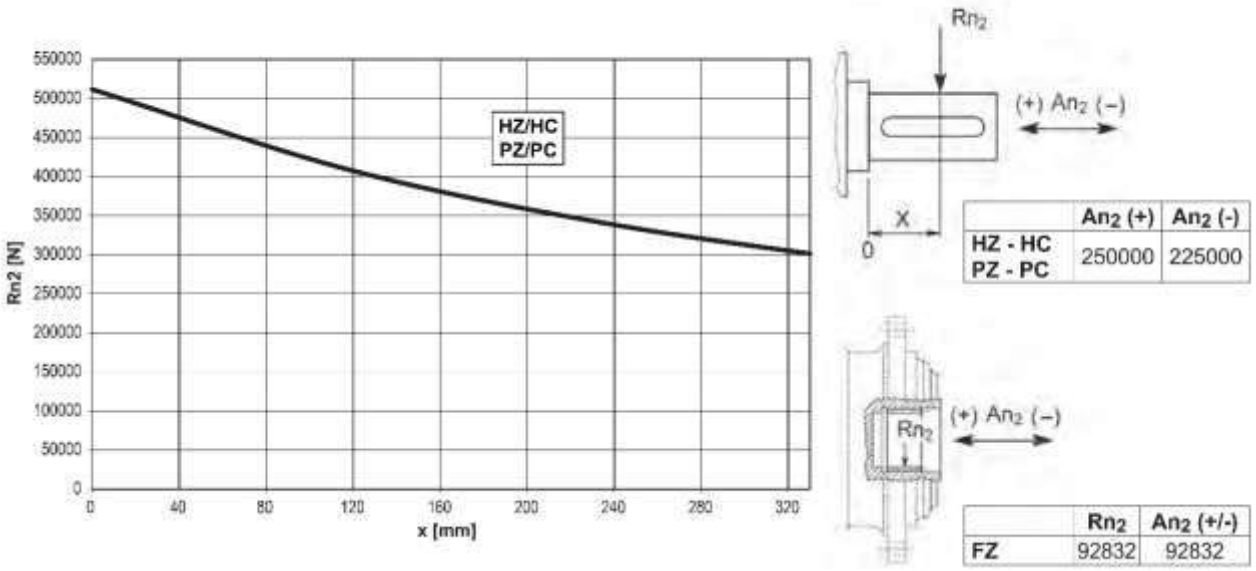




| | | C | D1 | D2 | D3 | D4 | D5 | D6 | L1 | L2 | L3 | L4 | L5 | L6 | S | S1 | Input |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **319L1** | **V9AG** | 245 | 150x5*28 DIN5480 | 444 | 474g7 | 503 | M20n°20 | 20 | 5 | 40 | 20 | 82 | — | — | 30° | 15° | G |
| **319L2** | **V9AE** | 116 | 100*94 DIN5482 | 340 | 412H7 | 390 | M16n°18 | — | 7 | 30 | 8 | 55 | — | — | 20° | 20° | E |
| **319L3** | **V9AD** | 81 | 80*74 DIN5482 | 270 | 335H7 | 314 | M16n°8 | — | 5 | 30 | 8.5 | 40 | — | — | 60° | 30° | D |
| **319L4** | **V9AB** | 51 | 58*53 DIN5482 | 195 | 236H7 | 222 | M10n°12 | — | 4 | 18 | 11 | 22 | — | — | 45° | 22.5° | B |
| **319R4** | **V9AA** | 37 | 40*36 DIN5482 | 140 | 178H7 | 165 | M12n°8 | 11 | 4 | 18 | 9 | 18 | — | — | 45° | 45° | A |
| **319R3(B)(C)** | **V9AB** | 45 | 58x53 DIN5482 | 195 | 236H7 | 222 | M10n°12 | — | 4 | 18 | 11 | 22 | — | — | 45° | 22.5° | B |

Permissible radial and axial loads on output shaft with $Fh_2$: $n_2$. h = 100,000

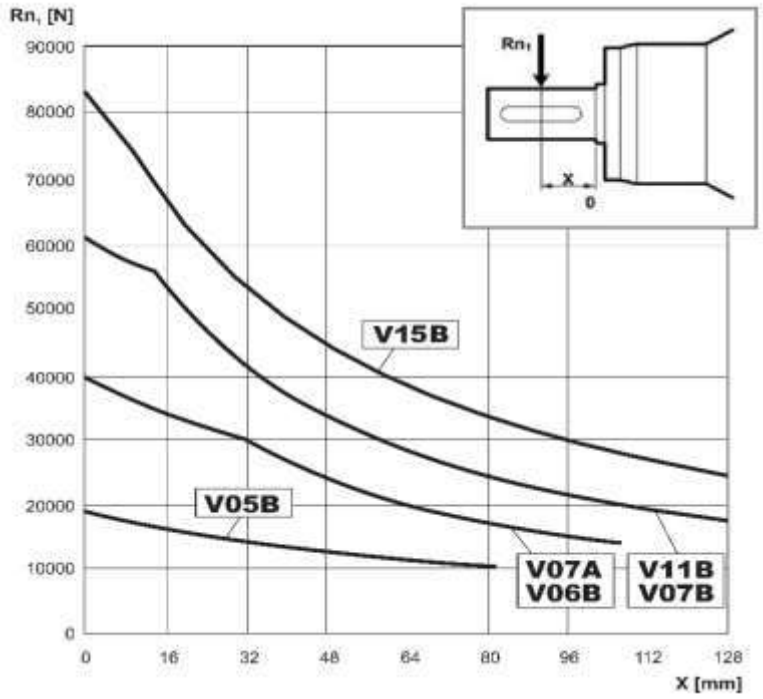
بارهای شعاعی و محوری مجاز بر روی شافت خروجی با Fh2: n2. h = 100000،




| Load correction factor $fh_2$ on shafts<br>فاکتور اصلاح بار $fh_2$ بر روی شافت | $Fh_2 = n_2$. h | | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 |
|---|---|---|---|---|---|---|---|---|
| | $fh_2$ | FZ | 2.15 | 1.59 | 1.26 | 1.00 | 0.58 | 0.46 |
| | | HC - PC HZ-PZ | 1.75 | 1.52 | 1.23 | 1.00 | 0.62 | 0.50 |

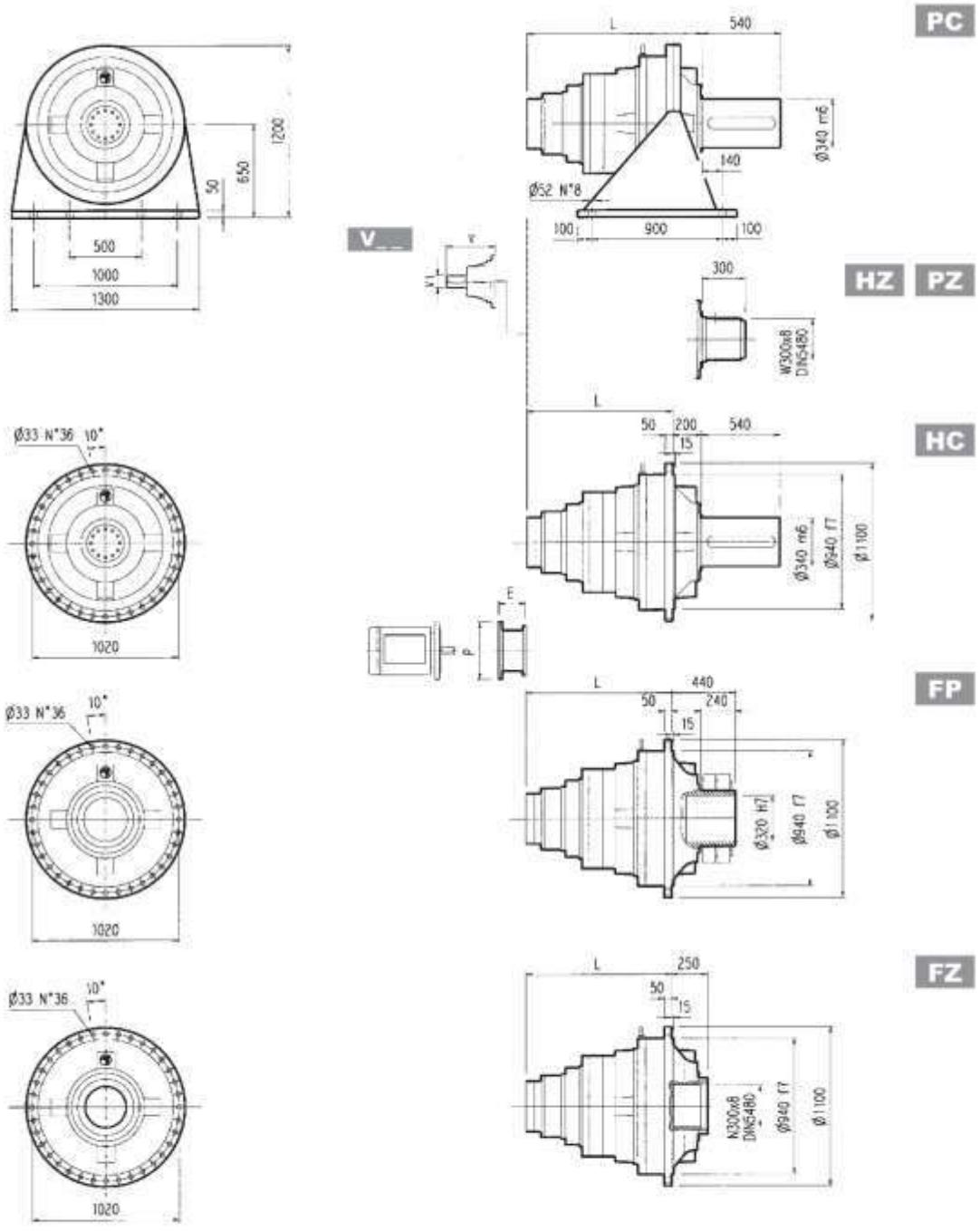
Permissible radial loads on input shaft with Fh1: n1. h = 250000

بارهای شعاعی مجاز بر روی شفت ورودی با Fh1: n1. h = 250000




| Load correction factor $fh_1$ on shafts<br>فاکتور اصلاح بار $fh_1$ بر روی شافت | $Fh_1 = n1$. h | 250000 | 500000 | 1000000 | 2000000 | 5000000 | 10000000 |
|---|---|---|---|---|---|---|---|
| | $fh_1$ | 1 | 0.79 | 0.63 | 0.5 | 0.37 | 0.29 |

## 321 L

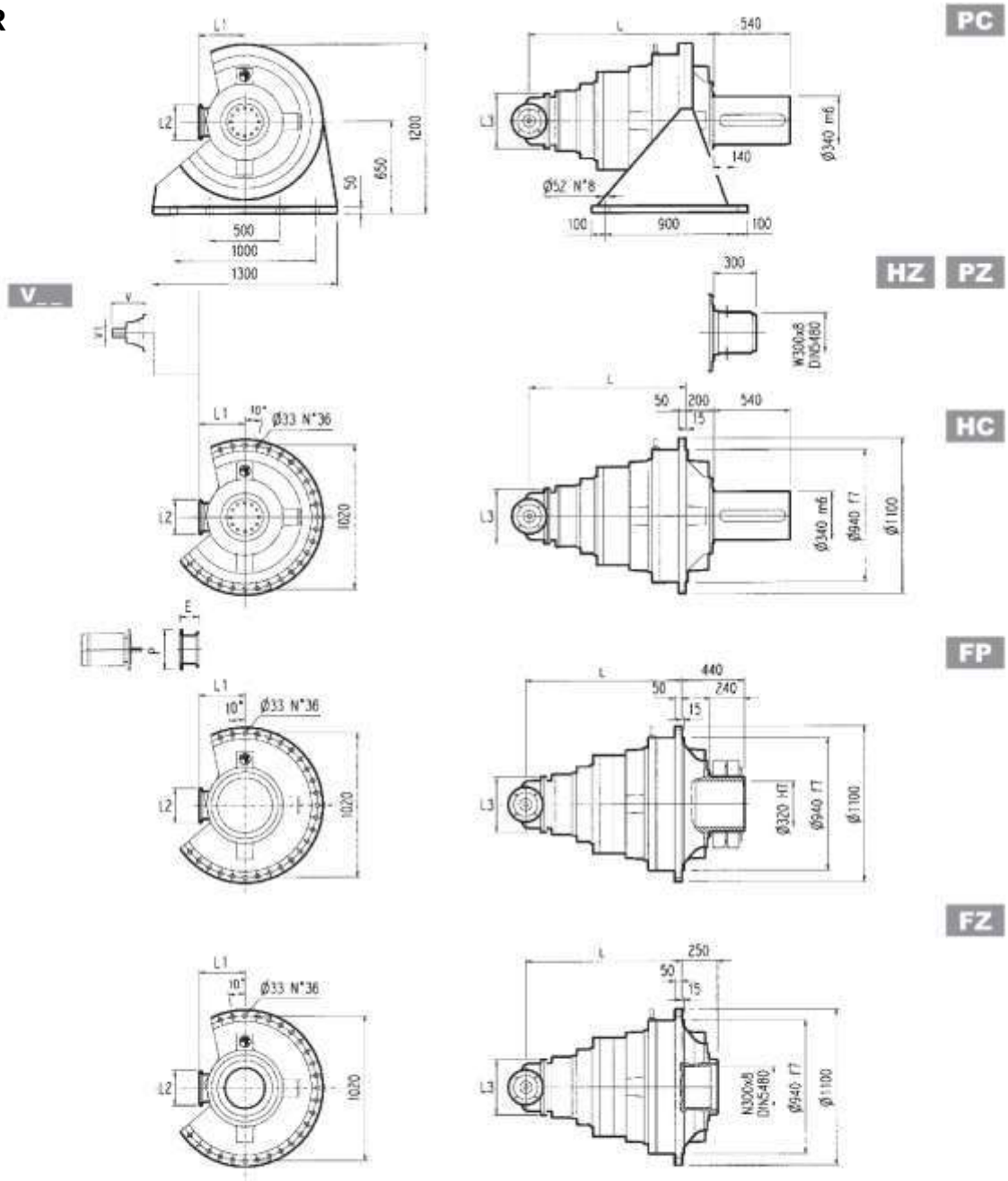



**FP** $M_{2max}$ = 720000 Nm

| | L | | | | Wight (kg) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PC - PZ | HC - HZ | FZ-FZP | FP | PC - PZ | HC - HZ | FZ-FZP | FP | V | V1 | W(kg) | V | V1 | W(kg) |
| **321 L2** | 795 | 595 | 595 | 595 | 3000 | 2700 | 2600 | 2600 | - | - | - | - | - | - |
| **321L3** | 1104 | 904 | 904 | 904 | 3120 | 2820 | 2720 | 2720 | 343 | 80 | 55 | - | - | - |
| **321 L4** | 1253 | 1053 | 1053 | 1053 | 3180 | 2880 | 2780 | 2780 | 315 | 80 | 35 | 313 | 60 | 28 |

| | P180 | | P200 | | P225 | | P250 | |
|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P |
| **321L4** | 195 | 350 | 186 | 400 | 216 | 450 | 215 | 550 |

## 321R



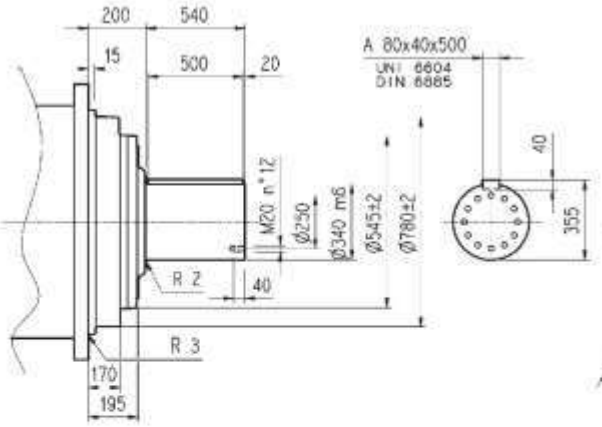

FP $M_{2max}$ = 720000 Nm

| | R | | | | R1 | R2 | R4 | W(Kg) | | | | V | V1 | KG | V | V1 | KG | Input |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PC-PZ | HC-HZ | FZ-FZP | FP | | | | PC-PZ | HC-HZ | FZ-FZP | FP | | | | | | | |
| **321R4(B)** | 1334 | 1134 | 1134 | 1134 | 345 | 292 | 400 | 3250 | 2950 | 2850 | 2850 | 307 | 60 | 23 | — | — | — | B |
| **321R4(C)** | 1334 | 1134 | 1134 | 1134 | 390 | 292 | 480 | 3260 | 2960 | 2860 | 2860 | 307 | 60 | 23 | — | — | — | B |

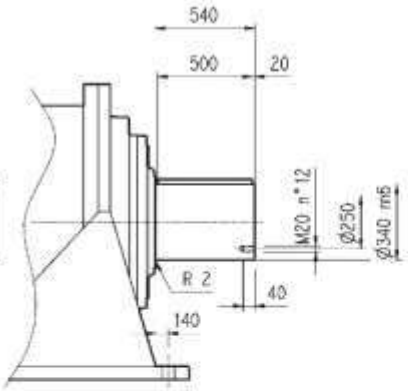
| | P132 | | P160 | | P180 | | P200 | | P225 | | P250 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | P | E | P | E | P | E | P | E | P | E | P |
| **321R4(B)** | — | — | — | — | 152 | 350 | 182 | 400 | 212 | 450 | 193 | 550 |
| **321R4(C)** | — | — | — | — | 152 | 350 | 182 | 400 | 212 | 450 | 193 | 550 |

## 321L-321R

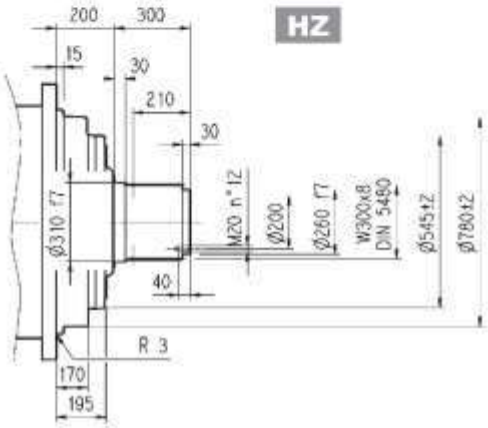
HC



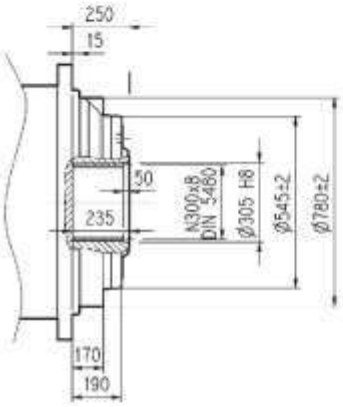

PC



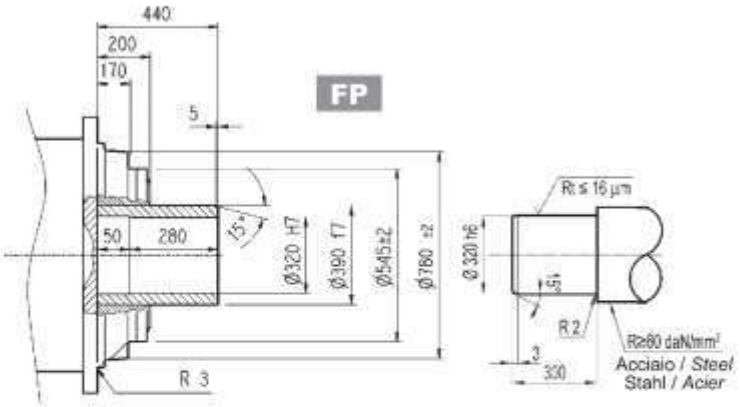

HZ




FZ




FP

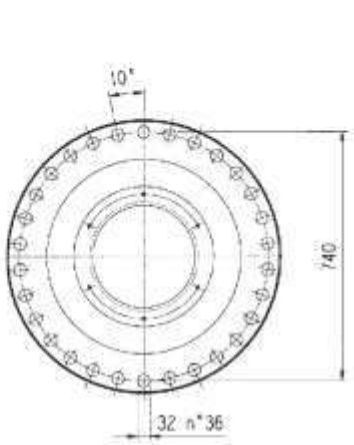


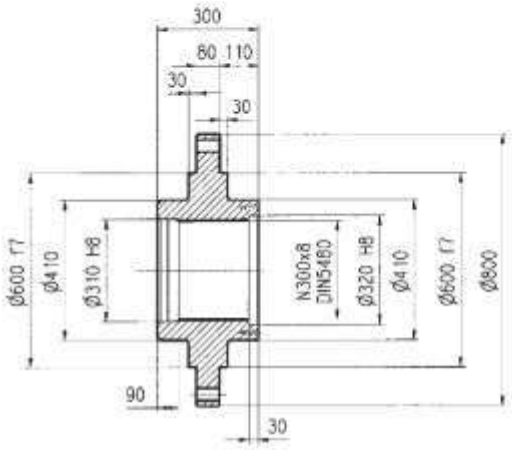

| FP | $M_{2max}$ = 720000 Nm |
|---|---|

**321L-321R**

## Flange

**WOA**

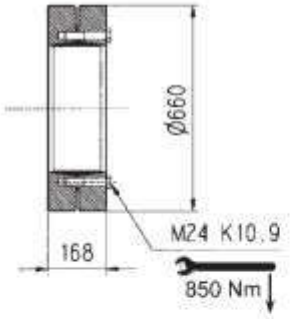


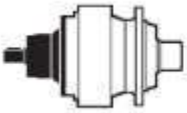

Material: Steel C40

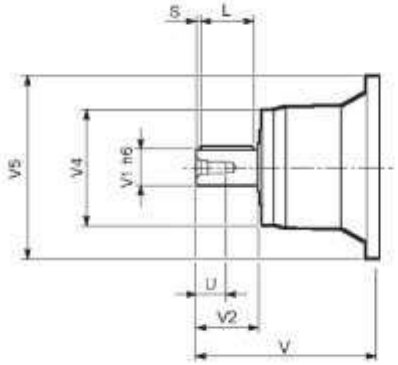
## Shrink disc

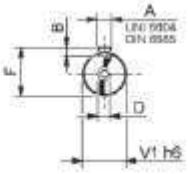
**GOA**



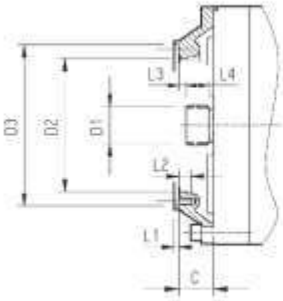
## 321L-321R

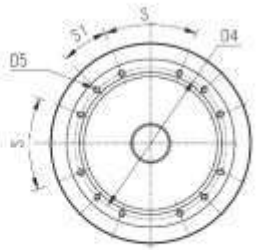





| | input | V | V1 | V2 | V4 | V5 | A | B | F | L | S | D | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **321 L3** | **V11B** | 343 | 80 | 130 | 200 | 428 | 22 | 14 | 85 | 110 | 10 | M16 | 36 |
| **321 L4** | **V07B** | 315 | 80 | 130 | 200 | 345 | 22 | 14 | 85 | 110 | 10 | M16 | 36 |
| | **V07A** | 313 | 60 | 105 | 155 | 345 | 18 | 11 | 64 | 90 | 7.5 | M16 | 36 |
| **321 R4(B)(C)** | **V06B** | 307 | 60 | 105 | 155 | 292 | 18 | 11 | 64 | 90 | 7.5 | M16 | 36 |

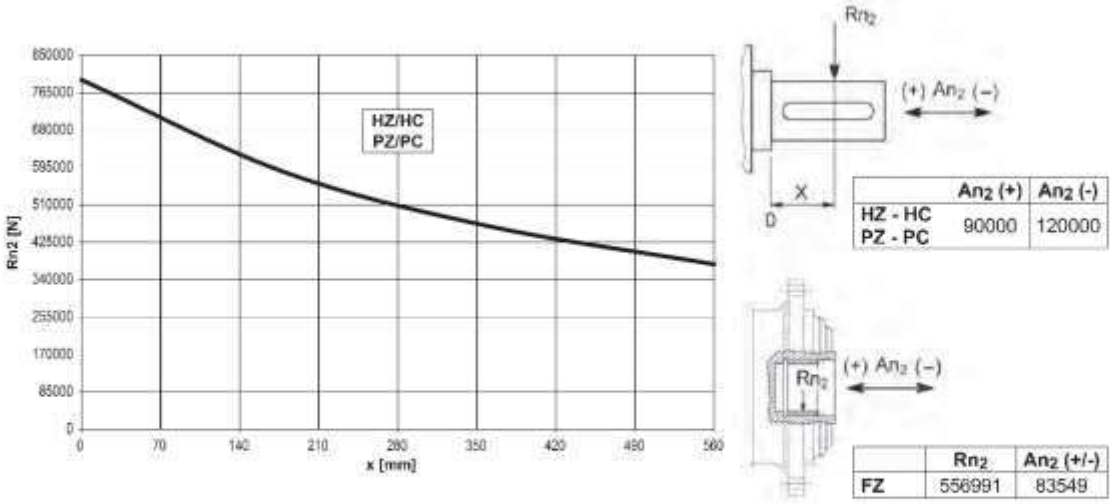




| | | C | D1 | D2 | D3 | D4 | D5 | D6 | L1 | L2 | L3 | L4 | L5 | L6 | S | S1 | Input |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **321L2** | **V9AF** | 181 | 120*3 DIN5480 | 365 | 390f7 | 415 | M16n°18 | — | 4 | 30 | 3 | 65 | — | — | 20° | 20° | F |
| **321L3** | **V9AD** | 75 | 80*74 DIN5482 | 270 | 335H7 | 314 | M16n°8 | — | 5 | 30 | 9.5 | 40 | — | — | 60° | 30° | D |
| **321L4** | **V9AB** | 51 | 58*53 DIN5482 | 195 | 236H7 | 222 | M10n°12 | — | 4 | 18 | 11 | 22 | — | — | 45° | 22.5° | B |
| **321R4(B)(C)** | **V9AB** | 45 | 58x53 DIN5482 | 195 | 236H7 | 222 | M10n°12 | — | 4 | 18 | 11 | 22 | — | — | 45° | 22.5° | B |

Permissible radial and axial loads on output shaft with $Fh_2$: $n_2$. h = 100,000

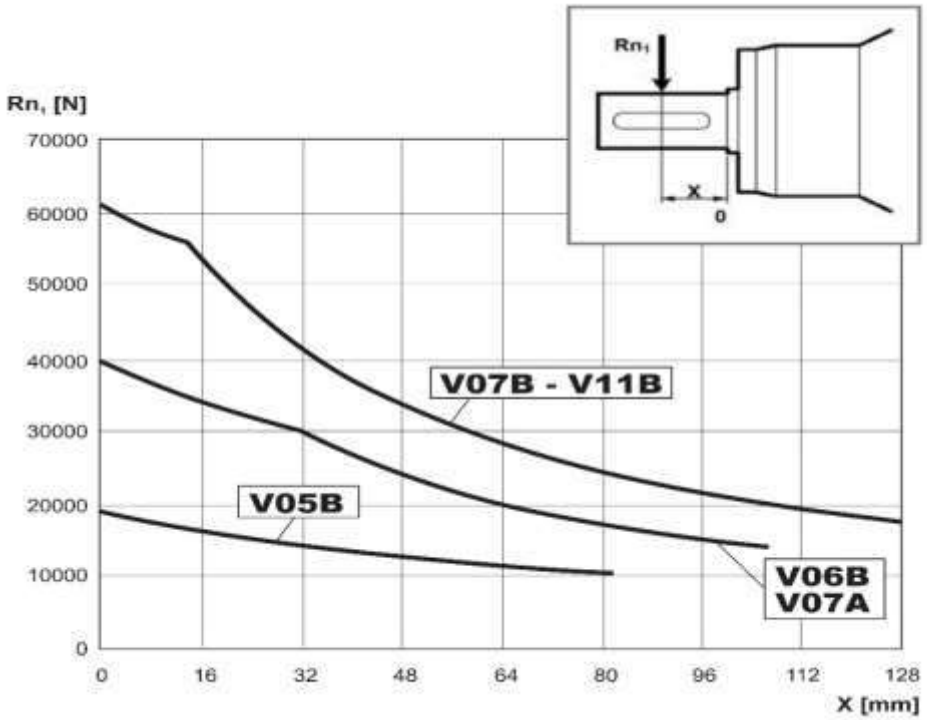
بارهای شعاعی و محوری مجاز بر روی شافت خروجی با Fh2: n2. h = 100000،




| Load correction factor $fh_2$ on shafts<br>فاکتور اصلاح بار $fh_2$ بر روی شافت | $Fh_2 = n_2. h$ | | 10000 | 25000 | 50000 | 100000 | 500000 | 1000000 |
|---|---|---|---|---|---|---|---|---|
| | $fh_2$ | FZ | 2.15 | 1.59 | 1.26 | 1.00 | 0.58 | 0.46 |
| | | HC - PC HZ-PZ | 1.54 | 1.35 | 1.23 | 1.00 | 0.62 | 0.50 |

Permissible radial loads on input shaft with Fh1: n1. h = 250000

بارهای شعاعی مجاز بر روی شفت ورودی با Fh1: n1. h = 250000




| Load correction factor $fh_1$ on shafts<br>فاکتور اصلاح بار $fh_1$ بر روی شافت | $Fh_1 = n1. h$ | 250000 | 500000 | 1000000 | 2000000 | 5000000 | 10000000 |
|---|---|---|---|---|---|---|---|
| | $fh_1$ | 1 | 0.79 | 0.63 | 0.5 | 0.37 | 0.29 |

شرکت توکا طرح صفاهان

تولید کننده انواع الکتروگیربکس های کتابی ، خورشیدی، هلیکال

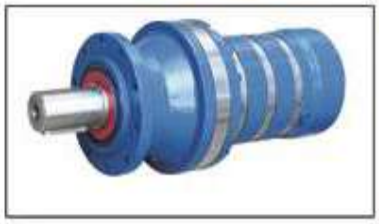
طراحی تخصصی انواع کوپلینگ ها وگیربکس های صنعتی

تعمیر و اورهال تخصصی انواع گیربکس های صنعتی

مشاوره و ساخت انواع گیربکس براساس سفارش

فروش انواع الکتروگیربکس های صنعتی، خورشیدی، هلیکال، حلزونی

SUN GEARBOX / SK&SH GEARBOX / HELICAL GEARBOX



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