# WG20

## Geared Motors up to 1550 Nm

Technical Catalogue

# WEG Group - Transforming energy into solutions.

WEG is a leading global manufacturer and solutions provider of drive technology, energy production and distribution, and automation systems and switchgear construction.
Founded in Brazil in 1961 by three entrepreneurs, WEG has grown to become one of the most important global manufacturers of electric motors. WEG has more than 30,000 employees around the world. The annual turnover of around 3 billion euro reflects its increasing success. The company's global presence is supported by branches in 29 countries, production facilities, and a network of authorised dealers on all five continents.

# Your **requirements** - our **expertise**

As one of the leading global manufacturers and solutions providers of drive technology, WEG's aim was to expand its extensive range of products by gear units produced in its own facilities. Perfect coordination of products throughout the drive train has put WEG in a position to offer customers even more superior and efficient solutions.

Under the leadership of Watt Drive, the challenge was to develop a program which not only meets the current demands of the market, but also satisfied WEG's high quality requirements. The Group's own centre of excellence for geared motors in Austria, part of the WEG Group since 2011, can draw on more than 40 years of experience in development, production and sales of gear units and geared motors.

In order to satisfy the requirements of state-of-the-art geared motors the following market requirements were taken into account during the development phase:

### Standard mounting dimensions

For users, the aim was to make the new range of geared motors as easy and effortless to use as possible. To ensure installation in an existing system or production line worked effortlessly without incurring unnecessary costs for conversions, the developers decided to adapt the mounting dimensions of the new gear units to products already established on the market. The objective: worldwide, easy and cost-effective interchangeability.

### Torque transmission

The gear units needed to be compact, efficient, robust and reliable. In order to achieve this goal a transmission had to be designed which allows large ratio ranges in a two-stage model while being able to integrate easily into the new design gear housing.

### Efficiency

Energy efficiency has always been of paramount importance to WEG. The aim here was to live up to this demand when designing the new WG20 geared motors. This requires the perfect interaction of sophisticated technology and exclusive use of high quality components.

### Worldwide use

To meet the requirements of global mechanical and plant engineering, it was vital that the new geared motors can be used worldwide, whilst maintaining a high level of flexibility for applications.

## The solution is **WG20**.


# Easy **product selection**

The “cat4CAD®” product configuration tool makes it easy to interactively select products. Comprehensive wizards, user-friendly navigation and many other extra features allow quick configuration of the required drive.

**Advantages**

- Extensive product library
- Fast configuration of motors and geared motors
- Creation of project files with comprehensive technical documentation
- Easy modification of generated product data by means of the project file
- Quick request times

**Features**

- The entire menu is available in many languages.
- To-scale 2D/3D drawings and PDF and DXF dimension sheet drawings of the previously selected drive.
- The 2D/3D data can be exported for use in standard CAD programs.
- Comprehensive technical data sheets of the configured gear unit and motor at the click of a button.
- The project file allows complete management of previously selected drives on one screen. At the click of a button one can save or print this project file, create PDF and DXF dimension drawings, and send enquiries directly to our sales team.

**Online version available at www.cat4cad.com**

**Offline version for download at www.wattdrive.com**

# **WG20** - Geared motors up to 1550 Nm

WG20 is the first geared motor range to be completely developed in-house at WEG. The first stage comprises helical, parallel shaft and helical bevel gear units with torques between 50 and 1550 Nm. Already the two-stage units excel with their large ratio range, as well as being exceptionally efficient thanks to the sophisticated design. The light aluminium housings of the gear units up to 600 Nm and the robust cast iron housings from 800 Nm provide a highly versatile and reliable product, with a wide range of possible applications.

WG20‘s final stage of extension will feature geared motors up to 18,000 Nm.

## Helical geared motors C

Nominal torque: 50 - 1550 Nm

Power range: 0.12 - 22 kW

Ratio range: 2.44 - 375.71

## Parallel shaft geared motors F

Nominal torque: 130 - 1500 Nm

Power range: 0.12 - 15 kW

Ratio range: 3.85 - 487.67

## Helical bevel geared motors K

Nominal torque: 110 - 1550 Nm

Power range: 0.12 - 15 kW

Ratio range: 3.82 - 277.79

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## Disclaimer

This catalogue contains information (descriptions and characteristics), which do not always apply as described in case of actual use. Data can also change due to product development. Characteristics are only binding if explicitly agreed to in the contract. Delivery opportunities and technical modifications subject to change without notice.

# Drive calculation

## 1. Drive power

The required total power is divided into static and dynamic components. The static power is the component at constant speed (friction and lifting force). The dynamic component is the power for accelerating and decelerating of masses.
The selected rated motor power ($P_N$) must be bigger than the required static drive power. The required total power can be bigger than the rated motor power but it must be smaller than the maximum motor power.

| | Formula | Unit |
|---|---|---|
| Output speed of the gear unit | $n_2 = \frac{v \cdot 30}{\pi \cdot r}$ | [$min^{-1}$] |

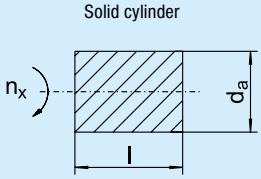
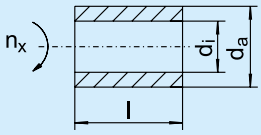
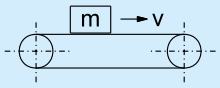
| Static drive power | | |
|---|---|---|
| Linear movement<br>Horizontal movement<br>(conveyor, travel drive) | $P_{stat} = \frac{m \cdot g \cdot \mu \cdot v}{1000 \cdot \eta}$ | [kW] |
| Inclined movement<br>(inclined conveyor, travel drive with inclination) | $P_{stat} = \frac{m \cdot g \cdot v \cdot (\sin\alpha + \mu \cdot \cos\alpha)}{1000 \cdot \eta}$ | [kW] |
| Vertical movement<br>(lifting drive, hoist, bucket elevator) | $P_{stat} = \frac{m \cdot g \cdot v}{1000 \cdot \eta}$ | [kW] |
| Static output torque | $M_{2stat} = \frac{P_{stat} \cdot 9550}{n_2}$ | [Nm] |

| Dynamic drive power (acceleration/deceleration power) | | |
|---|---|---|
| Horizontal movement | $P_{dyn,A,(B)} = \frac{m \cdot v^2}{1000 \cdot t_{A,(B)} \cdot \eta)}$ | [kW] |
| Rotary motion | $P_{dyn,A,(B)} = \frac{\Sigma J_{red.} \cdot n_1^2}{9{,}12 \cdot 10^4 \cdot t_{A,(B)} \cdot \eta}$ | [kW] |
| Starting resp. braking time | $t_{A,(B)} = \frac{\Sigma J_{red.} \cdot n_1}{9{,}55 \cdot (M_{A,(B)} \pm M_L)}$ | [s] |
| Minimum starting time against slipping | $t_{Amin} = \frac{v}{\mu_0 \cdot g}$ | [s] |
| Load torque of motor | $M_L = \frac{M_{2stat}}{i}$ | [Nm] |
| Starting power | $P_A = P_{dyn,A} + P_{stat}$ | [kW] |
| Braking power | $P_B = P_{dyn,B} \pm P_{stat}$ | [kW] |
| Starting / braking torque | $M_{2,A,(B)} = \frac{P_{A,(B)} \cdot 9550}{n_2}$ | [Nm] |

+$M_L$ for braking when the load acts braking (e.g. lifts when going up)
-$M_L$ for starting or for braking when the load acts accelerative (e.g. lifts when going down)

## Mass moments of inertia - reduction of external mass moments of inertia

All accelerated masses must be related to the motor shaft. The ratios must be squared for the calculation.

| | | |
|---|---|---|
| Reduced mass moment of inertia | $J_{ex.red.} = \frac{J_{ex}}{i^2}$ | [kgm²] |
| Solid cylinder   | $J_{ex.red.} = 98{,}2 \cdot \rho \cdot l \cdot d_a^{\,4} \cdot (\frac{n_x}{n_1})^2$ | [kgm²] |
| Hollow cylinder   | $J_{ex.red.} = 98{,}2 \cdot \rho \cdot l \cdot (d_a^{\,4} - d_i^{\,4}) \cdot (\frac{n_x}{n_1})^2$ | [kgm²] |
| Linear movement   | $J_{ex.red.} = 91{,}2 \cdot m \cdot (\frac{v}{n_1})^2$ | [kgm²] |

### Approximate values for friction coefficients:

Rolling friction:
- $\mu_r = 0.005 - 0.02$ steel/steel
- $\mu_r = 0.02 - 0.06$ plastic/steel
- $\mu_r = 0.06 - 0.2$ rubber/steel

Static friction:
- $\mu_0 = 0.15$ steel/steel

Friction coefficient for conveyors:
- $\mu_r = 0.13$ 10 m conveyor length
- $\mu_r = 0.08$ 25 m conveyor length
- $\mu_r = 0.06$ 50 m conveyor length
- $\mu_r = 0.05$ 100 m conveyor length

| Designation | Unit | Description |
|---|---|---|
| $d_a$ | [m] | Outside diameter |
| $d_i$ | [m] | Inside diameter |
| $f_B$ | | Service factor |
| $F_I$ | | Inertial factor |
| g | [m/s²] | Acceleration due to gravity |
| i | | Gear ratio |
| $J_{ex.red.}$ | [kgm²] | All external mass moments of inertia corrected to motor input |
| $J_{ex}$ | [kgm²] | All extern mass moments of inertia |
| $J_{mot}$ | [kgm²] | Mass moment of inertia of the motor |
| $\Sigma J_{red.}$ | [kgm²] | Sum of all $J_{red}$ values |
| l | [m] | Length |
| m | [kg] | Mass |
| $M_{2,A}$ | [Nm] | Output torque of gear unit for starting |
| $M_{2,B}$ | [Nm] | Output torque of gear unit for braking |
| $M_{2Nenn}$ | [Nm] | Permissible output torque |
| $M_{2stat}$ | [Nm] | Static output torque |
| $M_A$ | [Nm] | Starting torque of the motor (see motor electric data sheets from page 211) |
| $M_B$ | [Nm] | Brake torque |

| Designation | Unit | Description |
|---|---|---|
| $M_L$ | [Nm] | Load torque of motor |
| $n_1$ | [min⁻¹] | Input speed (motor speed) |
| $n_2$ | [min⁻¹] | Output speed (gear unit) |
| $n_x$ | [min⁻¹] | Speed of calculated components |
| $P_A$ | [kW] | Power of gear unit at start |
| $P_B$ | [kW] | Power of gear unit at stop |
| $P_{stat}$ | [kW] | Static power |
| $P_{dyn,A}$ | [kW] | Dynamic acceleration power |
| $P_{dyn,B}$ | [kW] | Dynamic deceleration power |
| r | [m] | Sprocket / roller radius |
| $t_{Amin}$ | [s] | Minimum starting time with risk of slip |
| $t_A$ | [s] | Starting time |
| $t_B$ | [s] | Braking time |
| v | [m/s] | Linear velocity |
| $\alpha$ | [°] | Angle of inclination |
| $\eta$ | | Efficiency of the gear unit, system |
| $\mu$ | | Coefficient of friction |
| $\mu_0$ | | Coefficient of static friction |
| $\mu_r$ | | Coefficient of rolling friction |
| $\rho$ | [kg/dm³] | Density (steel=7.85 kg/dm³) |

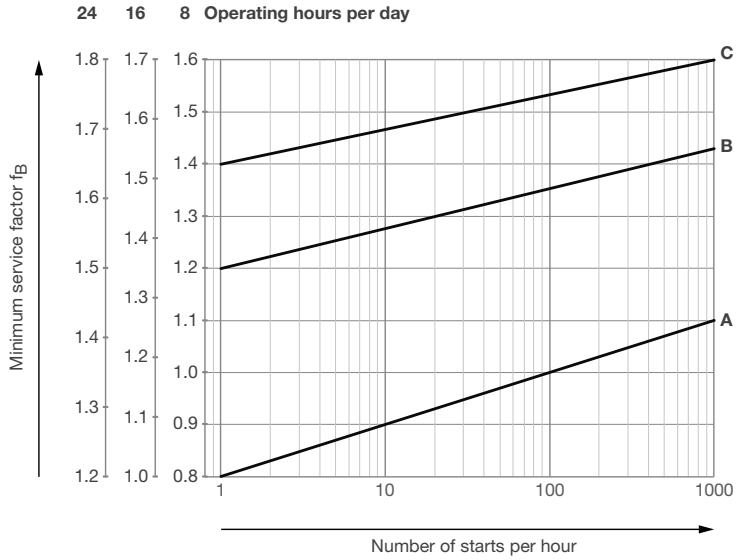
## 2. Load types

| Load type A | Load type B | Load type C |
|---|---|---|
| Uniform load,<br>small masses to be accelerated,<br>no shocks | Non-uniform load,<br>medium masses to be accelerated,<br>medium shocks | Extremely rough conditions,<br>high masses to be accelerated,<br>heavy shocks and alternating load |
| Examples:<br>Continuous conveyor for bulk goods, light conveyors, blowers, centrifugal pumps, light elevators, screw conveyors, fluid agitators | Examples:<br>Bucket conveyors, rotary furnaces, printing and dyeing machines, conveyor drums, centrifugal pumps and semi-fluid good agitators, wood working machines, elevators, screw conveyors, concrete mixers | Examples:<br>Ramming machines, calenders, duty rolling mills, presses, heavy mixer, stone crushers, shredders, heavy winches and lifts |

## 3. Service factor

The gear unit required can be selected from the following tables showing the power, torque and output speed options. All our gear units are adequately dimensioned for long-life industrial applications and are designed for continuous loading under uniform operating conditions with small masses to be accelerated. Operating times of 8-10 hours a day are considered standard. No drive can be built to withstand all possible conditions, therefore the load conditions at the site have to be determined accurately and the proper load type identified. After determining the daily operating hours, selecting the type and establishing the number of starts (c/h), see the following diagram to find out the necessary service factor $f_B$. The inertial factor $F_I$ assists in evaluating and attributing the masses to be accelerated. The service factor given in the tables indicates the reserve load in the rated torque for the specific gear unit.

In the tables you can usually choose between two types of gear units with the same or similar speeds, but different service factors. When you select the correct gear unit, the $f_B$ from the diagram below should always be less than or equal to the available $f_B$ (from the selection tables) for the chosen type. For short time operation, you can sometimes select a maller gear unit, while for peak operation, a large number of starts or 24-hour continuous operation, a larger type is necessary. The output speed figures shown in the selection tables have been rounded up or rounded off. They may however vary due to the motor size and are valid for nominal load. Deviations of +/- 3 % are permissible.




| | Formula | Unit |
|---|---|---|
| Service factor | $f_B = \frac{M_{2Nenn}}{M_{2stat}}$ | |
| Inertial factor | $F_I = \frac{\Sigma J_{ex.red} + J_{mot}}{J_{mot}}$ | [$min^{-1}$] |

**Modes of operation DIN EN 60034-1 see page 205.**

*Legend see page 9.*

# Thermal power limit

The thermal power limit $P_t$ must always be taken into account when designing a drive. It represents the maximum input power which can be transmitted by the gear unit at the given ambient temperature in a continuous operation mode (S1).

The technical data of the geared motors shown in the selection tables apply to an ambient temperature of +20 °C. Thermal power limits for other temperatures can be seen in the table below.

Parameters to be considered:

- Higher / lower temperatures
- Vertical mounting positions (M2 or M4)
- Higher speed (> 1500 rpm) due to e.g. use of frequency inverter
- Small ratios
- Little mounting space

For such conditions we recommend consulting WEG. The geared motors can be adapted according to customer requirements by using e.g. lubricant expansion, optimised oil quantities, synthetic oils or Viton seal rings.

| Gear size | Ambient temperature | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | -20 °C | -10 °C | 0 °C | +10 °C | +20 °C | +30 °C | +40 °C | +50 °C | +60 °C |
| C002 | 2.0 | 1.7 | 1.5 | 1.2 | 1.0 | 0.8 | 0.6 | 0.4 | 0.3 |
| C012 | 4.2 | 3.7 | 3.1 | 2.6 | 2.1 | 1.7 | 1.3 | 0.9 | 0.6 |
| C032 | 8.9 | 7.7 | 6.6 | 5.5 | 4.5 | 3.5 | 2.7 | 1.9 | 1.2 |
| C033 | 5.4 | 4.7 | 4.0 | 3.3 | 2.7 | 2.1 | 1.6 | 1.2 | 0.7 |
| C052 | 17.0 | 14.7 | 12.5 | 10.4 | 8.5 | 6.8 | 5.1 | 3.6 | 2.3 |
| C053 | 10.3 | 8.9 | 7.5 | 6.3 | 5.2 | 4.1 | 3.1 | 2.2 | 1.4 |
| C062 | 23.5 | 20.3 | 17.2 | 14.4 | 11.8 | 9.3 | 7.1 | 5.0 | 3.1 |
| C063 | 14.2 | 12.2 | 10.4 | 8.7 | 7.1 | 5.6 | 4.3 | 3.0 | 1.9 |
| C072 | 30.5 | 26.3 | 22.4 | 18.7 | 15.3 | 12.1 | 9.2 | 6.5 | 4.1 |
| C073 | 18.4 | 15.9 | 13.5 | 11.3 | 9.2 | 7.3 | 5.6 | 3.9 | 2.5 |
| C082 | 52.8 | 45.5 | 38.7 | 32.4 | 26.5 | 21.0 | 15.9 | 11.3 | 7.1 |
| C083 | 31.9 | 27.5 | 23.4 | 19.6 | 16.0 | 12.7 | 9.6 | 6.8 | 4.3 |
| F022 | 7.3 | 6.3 | 5.4 | 4.5 | 3.7 | 2.9 | 2.2 | 1.6 | 1.0 |
| F032 | 11.3 | 9.7 | 8.3 | 6.9 | 5.7 | 4.5 | 3.4 | 2.4 | 1.5 |
| F042 | 17.8 | 15.4 | 13.1 | 10.9 | 8.9 | 7.1 | 5.4 | 3.8 | 2.4 |
| F043 | 10.8 | 9.3 | 7.9 | 6.6 | 5.4 | 4.3 | 3.2 | 2.3 | 1.4 |
| F052 | 24.4 | 21.0 | 17.9 | 14.9 | 12.2 | 9.7 | 7.3 | 5.2 | 3.3 |
| F053 | 14.7 | 12.7 | 10.8 | 9.0 | 7.4 | 5.8 | 4.4 | 3.1 | 2.0 |
| F062 | 30.7 | 26.5 | 22.6 | 18.9 | 15.4 | 12.2 | 9.3 | 6.6 | 4.1 |
| F063 | 18.6 | 16.0 | 13.6 | 11.4 | 9.3 | 7.4 | 5.6 | 4.0 | 2.5 |
| F072 | 50.8 | 43.9 | 37.3 | 31.2 | 25.5 | 20.2 | 15.3 | 10.9 | 6.8 |
| F073 | 30.7 | 26.5 | 22.5 | 18.8 | 15.4 | 12.2 | 9.2 | 6.6 | 4.1 |
| K022 | 8.6 | 7.4 | 6.3 | 5.3 | 4.3 | 3.4 | 2.6 | 1.8 | 1.2 |
| K033 | 8.6 | 7.4 | 6.3 | 5.3 | 4.3 | 3.4 | 2.6 | 1.8 | 1.2 |
| K043 | 14.0 | 12.1 | 10.3 | 8.6 | 7.0 | 5.6 | 4.2 | 3.0 | 1.9 |
| K053 | 18.4 | 15.9 | 13.5 | 11.3 | 9.2 | 7.3 | 5.6 | 3.9 | 2.5 |
| K063 | 20.8 | 17.9 | 15.2 | 12.7 | 10.4 | 8.2 | 6.3 | 4.4 | 2.8 |
| K073 | 33.4 | 28.8 | 24.5 | 20.5 | 16.7 | 13.3 | 10.1 | 7.1 | 4.5 |

*Thermal power limit $P_t$ [kW]*

## Table of lubricants

| Recommended ambient temperatures | -10 °C ... +60 °C | -20 °C ... +80 °C | -25 °C ... +60 °C | -40 °C ... +20 °C | -20 °C ... +40 °C |
|---|---|---|---|---|---|
| DIN (ISO) | CLP (mineral oil) [1] | CLP PG (polyglycol oil) | CLP PG (polyglycol oil) | CLP-HC (polyalphaolefin oil) [2] | food grade |
| ISO VG | 220 | 460 | 220 | 220 | 220 |
| ARAL | Degol BG 220 | Degol GS 460 | Degol GS 220 | Degol PAS 220 | - |
| BP | Energol GR-XP 220 | Enersyn SG-XP 460 | Enersyn SG-XP 220 | Enersyn HTX 220 | - |
| Castrol | Alpha SP 220 | Alphasyn PG 460 | Alphasyn PG 220 | Alphasyn HTX 220 | Optileb GT 220 |
| Klüber | Klüberoil GEM 1-220 N | Klübersynth GH 6-460 | Klübersynth GH 6-220 | Klübersynth GEM 4-220 N | Klüberoil 4UH1 220 N |
| Mobil | Mobilgear 600 XP 220 | Glygoyle 460 | Glygoyle 220 | SHC 630 | SHC Cibus 220 |
| Shell | Omala S2 G 220 | Omala S4 WE 460 | Omala S4 WE 220 | Omala S4 GX 220 | - |
| Addinol | Gear Oil 220 F | Poly Gear PG 460 | Poly Gear PG 220 | Eco Gear 220 S | Ecoleb 220 FG |

*1) standard lubricant acc. to DIN 51517 part 3 - CLP ISO VG 220*
*2) note critical starting behaviour at low temperatures*

## Painting

Standard colour geared motors: RAL 7011 (RAL 9005, RAL 5009 and RAL 9007 without additional costs)

In addition to the standard high-grade polyurethane-based surface finish other special finishes for applications that are subject to specific environmental conditions are offered. Paintwork is basically categorised according to the composition of the applied surface finish. We use two-component varnishes based on the bonding agents polyurethane and epoxy resin. The standard program contains 6 painting systems categorised from LA0 to LC5. Special colours are possible.

| Painting system | Application | Layering | NDFT Nominal dry film thickness | Temperature range | Corrosion category DIN EN ISO 12944-5 |
|---|---|---|---|---|---|
| not painted | | | | | |
| LA0 | Primer | Dip primer<br>Base coat (2 pack PUR) | | -40 °C - +120 °C | |
| **LC1 (Standard)** | **Indoor installation, neutral atmosphere** | **Dip primer<br>Varnish (2 pack PUR)** | **60 µm** | **-40 °C - +120 °C** | **C1** |
| LC2 | Protected outdoor installation, neutral atmosphere | Dip primer<br>Base coat (2 pack PUR)<br>Varnish | 140 µm | -40 °C - +120 °C | C2 |
| LC3 | Outdoor installation, industrial atmosphere | Dip primer<br>Base coat (2 pack PUR)<br>Intermediate base coat (2 pack PUR)<br>Varnish (2 pack PUR) | 200 µm | -40 °C - +120 °C | C3 |
| LC4 | Outdoor installation, aggressive atmosphere | Dip primer<br>Base coat (2 pack PUR)<br>Intermediate base coat (2 pack PUR)<br>Varnish (2 pack PUR) | 260 µm | -40 °C - +120 °C | C4 |
| LC5 | Coast or offshore, very aggressive atmosphere, under water | Base coat (2 pack Epoxy)<br>Intermediate base coat (2 pack Epoxy)<br>Varnish (2 pack PUR) | 320 µm | -40 °C - +120 °C | C5-I/C5-M |

# Degrees of protection

Degree of protection according to DIN EN 60034-5.
The designation to indicate the degrees of protection consists of the characteristic letters IP followed by two numerals.
**Code figure 1:** degree of protection against contact with live or moving parts and against ingress of solid foreign objects
**Code figure 2:** degree of protection against harm for ingress of water

**Degree of protection:**
Modular system motor: IP55 (standard) to IP67
Brake: IP55 (standard) to IP66
Gear unit: IP65 (standard) to IP68

| Code figure 1 | |
|---|---|
| | **Description** |
| 0 | No protection |
| 1 | Protected against solid foreign objects of 50 mm diameter and larger: the probe (50 mm ball) may not fully penetrate. |
| 2 | Protected against solid foreign objects of 12.5 mm diameter and larger: the probe (ball 12.5 mm) shall not fully penetrate. |
| 3 | Protected against solid foreign objects of 2.5 mm diameter: the probe (ball 2.5 mm) must not penetrate at all. |
| 4 | Protected against solid foreign objects of 1 mm and larger: the probe (1 mm ball) must not penetrate at all. |
| 5 | Dust protected: ingress of dust is not totally prevented, but dust shall not penetrate in a quantity that the operation of the device is affected or to impair safety. |
| 6 | Dustproof: no ingress of dust at underpressure of 20 mbar in the housing |

| Code figure 2 | |
|---|---|
| | **Description** |
| 0 | No protection |
| 1 | Protected against dripping water: vertically falling drops may not have any harmful effects. |
| 2 | Protected against dripping water when the housing is inclined up to 15 °: vertically falling drops may not have any harmful effects when the housing is inclined up to 15 ° from the vertical. |
| 3 | Protected against water spray: water sprayed at an angle up to 60 ° on both sides of the vertical may not have any harmful effects. |
| 4 | Protected against splash water: water splashed against the housing from any direction may not have any harmful effects. |
| 5 | Protected against water jets: water that is from any direction in jets against the housing may not have any harmful effects. |
| 6 | Protected against strong water jets: water that is from any direction in powerful jets against the housing may not have any harmful effects. |
| 7 | Protected against the effects of temporary immersion in water: water must not enter in quantities causing harmful effects, if the housing is under standardised conditions of pressure and time temporarily submerged in water. |
| 8 | Protected against the effects of continuous immersion in water: water must not enter in quantities causing harmful effects when the enclosure is permanently submerged in water under conditions to be agreed between manufacturer and user. The conditions must be more stringent than for index. |

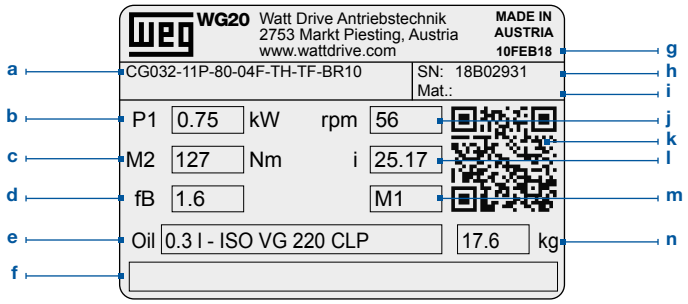
# Helical geared motors C

# Technical Data

| Size | | C00 | C01 | C03 | C05 | C06 | C07 | C08 |
|---|---|---|---|---|---|---|---|---|
| Power | | 0.12 - 0.75 kW | 0.12 - 1.5 kW | 0.12 - 3 kW | 0.12 - 7.5 kW | 0.12 - 9.2 kW | 0.12 - 15 kW | 0.18 - 22 kW |
| Torque | | 50 Nm | 85 Nm | 200 Nm | 400 Nm | 600 Nm | 820 Nm | 1550 Nm |
| Ratio | | 2.44 - 47.44 | 3.09 - 66.5 | 3.34 - 286.32 | 3.83 - 328.43 | 3.73 - 375.71 | 5.30 - 351.33 | 5.12 - 368.94 |
| Number of stages | | 2 | 2 | 2 / 3 | 2 / 3 | 2 / 3 | 2 / 3 | 2 /3 |
| Housing material | | aluminium | | | | | cast iron | |
| Solid shaft | Type | with key acc. to DIN 6885.1 and threaded bore acc. to DIN 332 sheet 2 | | | | | | |
| | Tolerance | < Ø 55: k6 / ≥ Ø 55: m6 | | | | | | |
| | Material | standard: C45E (1.1191) / stainless steel on request | | | | | | |
| Flanges | Tolerance | centring ≤ 230: j6 / > 230: h6 acc. to DIN EN 50347 | | | | | | |
| | Material | cast iron | | | | | | |
| Gear wheels | Type | honed | | | | | | |
| | Material | 16MnCr5 (1.7131) case hardened – minimum 58HRC | | | | | | |
| Shaft seals | Type | type AS acc. to DIN 3760 | | | | | | |
| | Material | standard NBR / special FKM | | | | | | |
| Bearing | | standard / reinforced | | | | | | |
| Lubricants | Type | standard CLP 220 / special CLP HC 220 | | | | | | |
| | Quantity | depending on mounting position | | | | | | |
| Axle height | | acc. to DIN 747: ≤ 50: -0.4; > 50 to ≤ 250: -0.5; > 250: -1<br>for foot-mounted geard motors, the motor may extend below the mounting surface | | | | | | |

# General information

## 1. Nameplate




| | | | |
|---|---|---|---|
| a | Type code | h | Serial number |
| b | Motor power | i | Material number |
| c | Output torque | j | Output speed |
| d | Service factor | k | QR-Code linked online to additional information |
| e | Type and quantity of lubricant | l | Total gear ratio |
| f | Space for additional information | m | Mounting position |
| g | Production date | n | Weight |

## 2. Type code

CG083-11P-90S/L-04F ...

1 2 3 4 5 6 7 8 9

| | | |
|---|---|---|
| 1 | Type: | C = Helical gear unit |
| 2 | Design: | A = Foot mounted and B5 flange execution with output shaft<br>C = B14 flange execution with output shaft<br>F = Flange execution with output shaft<br>G = Foot mounted with output shaft<br>W = Foot mounted and B14 flange execution with output shaft |
| 3 | Size: | 00<br>01<br>03<br>05<br>06<br>07<br>08 |
| 4 | Number of stages: | 2 = 2 gear stages<br>3 = 3 gear stages |
| 5 | Motor type: | 11N = Integral motor aluminium IE1<br>11P = Integral motor aluminium IE3<br>22P = Integral motor cast iron IE3 |
| 6 | Motor frame size: | 63<br>71<br>80<br>90S/L<br>100L<br>L100L<br>112M<br>132S<br>132M<br>L132M<br>160M<br>160L<br>180M<br>180L |
| 7 | Number of poles: | 04 = 4 poles<br>06 = 6 poles |
| 8 | Power indicator: | D<br>E<br>F<br>G |
| 9 | Motor modules: | see from page 225 |

## 3. Range

| Size | C00 | C01 | C03 | C05 | C06 | C07 | C08 |
|---|---|---|---|---|---|---|---|
| Housing material | Aluminium | | | | | Cast iron | |

## 4. Design

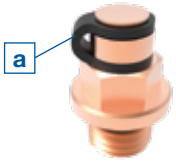





| | |
|---|---|
| **A** | Foot mounted and B5 flange execution with output shaft |
| **C** | B14 flange execution with output shaft |
| **F** | Flange execution with output shaft |
| **G** | Foot mounted with output shaft |
| **W** | Foot mounted and B14 flange execution with output shaft |

## 5. Venting the gear unit

The helical gear unit sizes C00 to C06 are neither equipped with a venting nor an oil drain screw. They are supplied with lifetime-lubrication.
By default, the helical gear units C07 and C08 are equipped with venting screws with a safety strap for transportation (see illustration). The rubber strap (a) of the venting screw must be removed entirely before the initial startup. The venting screw is placed accordingly to the mounting position (see chapter Mounting positions, page 22).




## 6. Overhung and axial loads

The overhung loads ($F_{rN}$) indicated in the respective selection tables apply to gear units with the force acting on the shaft center (x=l/2). The permissible overhung loads listed are based on the least favourable loading direction and calculated for standard shafts and standard bearings. Other load directions and action can be calculated with equations Q1 and Q2. If transmission elements are placed on the output shaft, an appropriate factor ($f_z$) has to be taken into consideration when determining the overhung load.

| Gear wheels | Sprockets | | V-belts | Flat belts |
|---|---|---|---|---|
|  |  | |  |  |
| $f_z$=1.1 (z≤17) | $f_z$=1.2 (z≤13) | $f_z$=1.1 (z>13) | $f_z$=1.8 | $f_z$=2.5 |

Use the following equations Q1 and Q2 to calculate the permissible radial loads on the output shaft. Q3 is to calculate the real existing shaft loads for your application. The results are to be compared by using the equation Q4.

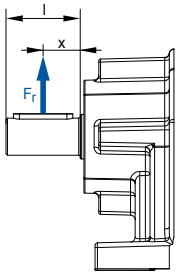
| | |
|---|---|
| **Q1** | $F_{zL} = F_{rN} \cdot a_1$ |
| **Q2** | $F_{zW} = F_W \cdot a_2$ |
| **Q3** | $F_{Qvorh} = \frac{2 \cdot M_2}{d_0} \cdot f_z$ |
| **Q4** | $F_{Qvorh} \leq F_{zL}$ |
| | $F_{Qvorh} \leq F_{zW}$ |

| Variable | Unit | Description |
|---|---|---|
| $a_1$ | | Load action factor - output shaft bearing from table 1 |
| $a_2$ | | Load action factor - output shaft from table 1 |
| $d_0$ | [m] | Effective diameter of the transmission element |
| $M_2$ | [Nm] | Geared motor output torque (from selection tables) or required calculated output torque |
| $F_{zL}$ | [N] | Permissible overhung load for output shaft bearings |
| $F_{zW}$ | [N] | Permissible overhung load for output shaft |
| $F_{rN}$ | [N] | Permissible overhung load from selection tables |
| $F_W$ | [N] | Permissible overhung load - Output shaft x=l/2 from table 2 |
| $F_{Qvorh}$ | [N] | Existing overhung load at gear shaft |
| $f_z$ | | Factor for transmission element |
| $M_{max}$ | [Nm] | Highest possible output torque for coupling operation (table 2) |

Always use both equations Q1 and Q2 for your calculations.

| x / l | | | | | | |
|---|---|---|---|---|---|---|
| 0 | 0.25 | 0.5 | 0.75 | 1 | 1.5 | 2 |
| $a_1 \rightarrow$ Equation Q1 | | | | | | |
| 1.39 | 1.18 | 1.00 | 0.85 | 0.73 | 0.52 | 0.38 |
| $a_2 \rightarrow$ Equation Q2 | | | | | | |
| 2.00 | 2.00 | 1.00 | 0.55 | 0.38 | 0.23 | 0.17 |

*Table 1: Load action factors $a_1$, $a_2$*




Intermediate values can be interpolated linearly. Combined load ($F_r \neq 0$; $F_a = 0$) on request.

| | $M_{max}$ at $F_r = 0$ | Output torque $M_2$ [Nm] | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 50 | 100 | 200 | 300 | 400 | 600 | 820 | 1550 | 3000 | 4500 | 8000 | 13000 | 18000 |
| | | $F_W$ [kN] at x/l = 0.5 → Equation Q2 | | | | | | | | | | | | |
| Ø 20x40 | 120 | 3.3 | 2.3 | | | | | | | | | | | |
| Ø 25x50 | 230 | 5.8 | 5.5 | 4.0 | | | | | | | | | | |
| Ø 30x60 | 390 | | 7.5 | 6.8 | 5.5 | 2.6 | | | | | | | | |
| Ø 35x70 | 620 | | | 11.0 | 10.0 | 9.4 | 6.2 | | | | | | | |
| Ø 40x80 | 900 | | | | 13.0 | 13.0 | 11.0 | 8.5 | | | | | | |
| Ø 50x100 | 1730 | | | | | 24.0 | 24.0 | 23.0 | 18.0 | | | | | |
| Ø 60x120 | 2880 | | | | | | | 31.0 | 29.0 | 16.0 | | | | |
| Ø 70x140 | 4510 | | | | | | | | 44.0 | 39.0 | 29.0 | | | |
| Ø 90x170 | 9000 | | | | | | | | | 71.0 | 68.0 | 53.0 | | |
| Ø 110x210 | 16000 | | | | | | | | | | 105.0 | 100.0 | 84.0 | |
| Ø 120x210 | 20600 | | | | | | | | | | | 127.0 | 115.0 | 95.0 |

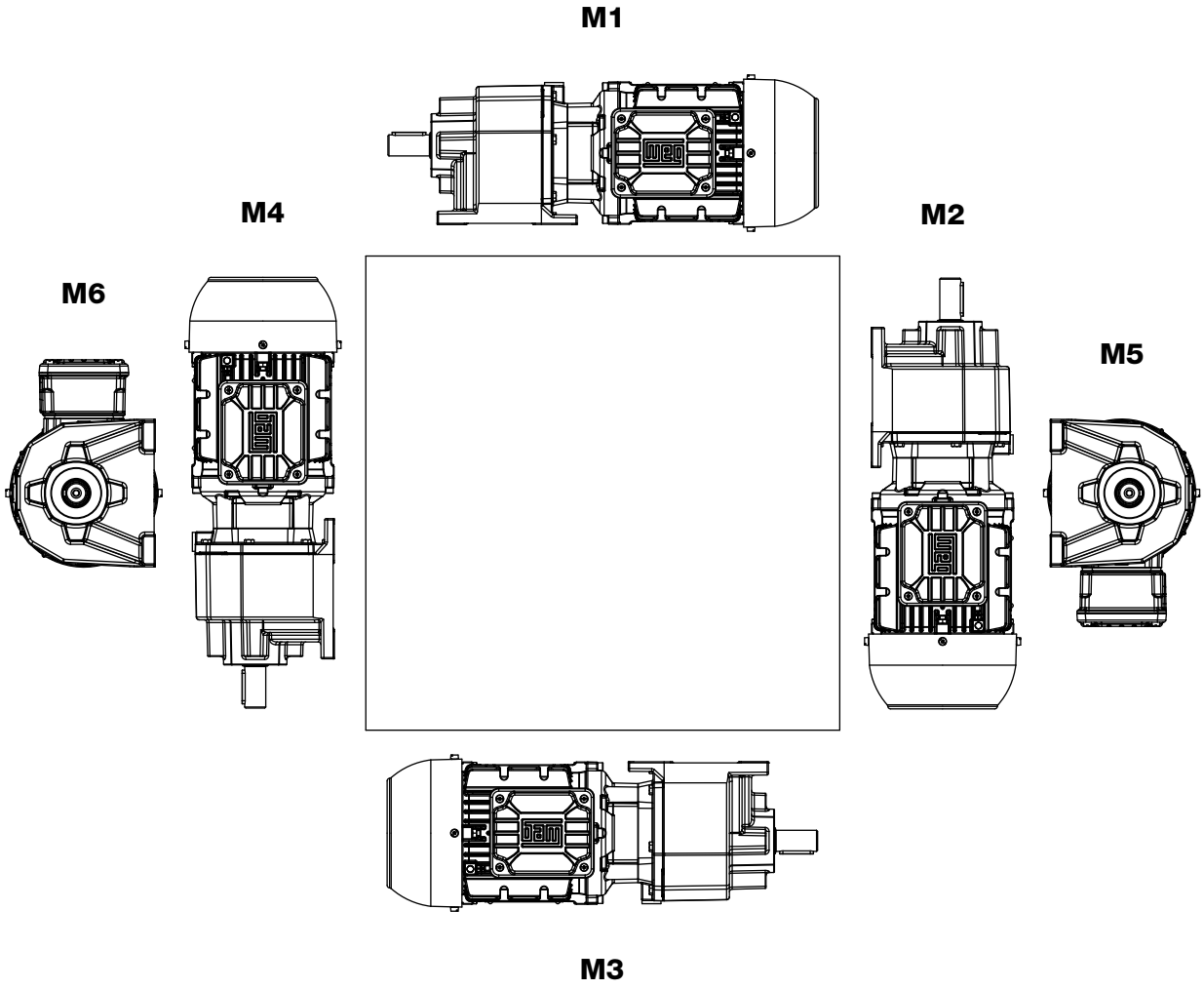
*Table 2: Permissible overhung load - output shaft x = l/2*

In cases where there is no overhung load, the permissible axial load (push or pull) may be determined by taking 50 % of the permissible overhung loads indicated in the selection tables of the respective type of gear. If there are axial loads or radial and axial components acting on the drive which are extraordinarily high, we recommend to contact the manufacturer.

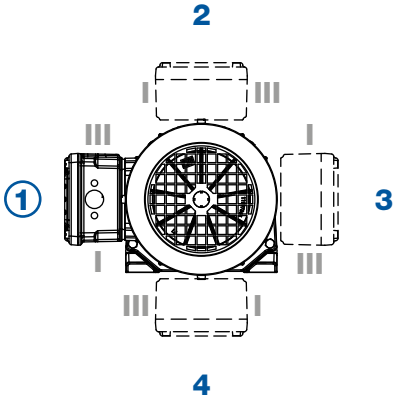
## 7. Mounting positions, Position of the terminal box and Cable entry

### Mounting positions foot type - Sizes C00 to C06

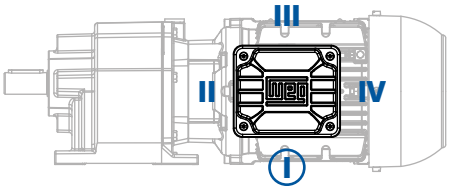
Gear units C00 to C06 are not ventilated and supplied with lifetime lubrication.




**Position of the terminal box**
Standard: Position 1

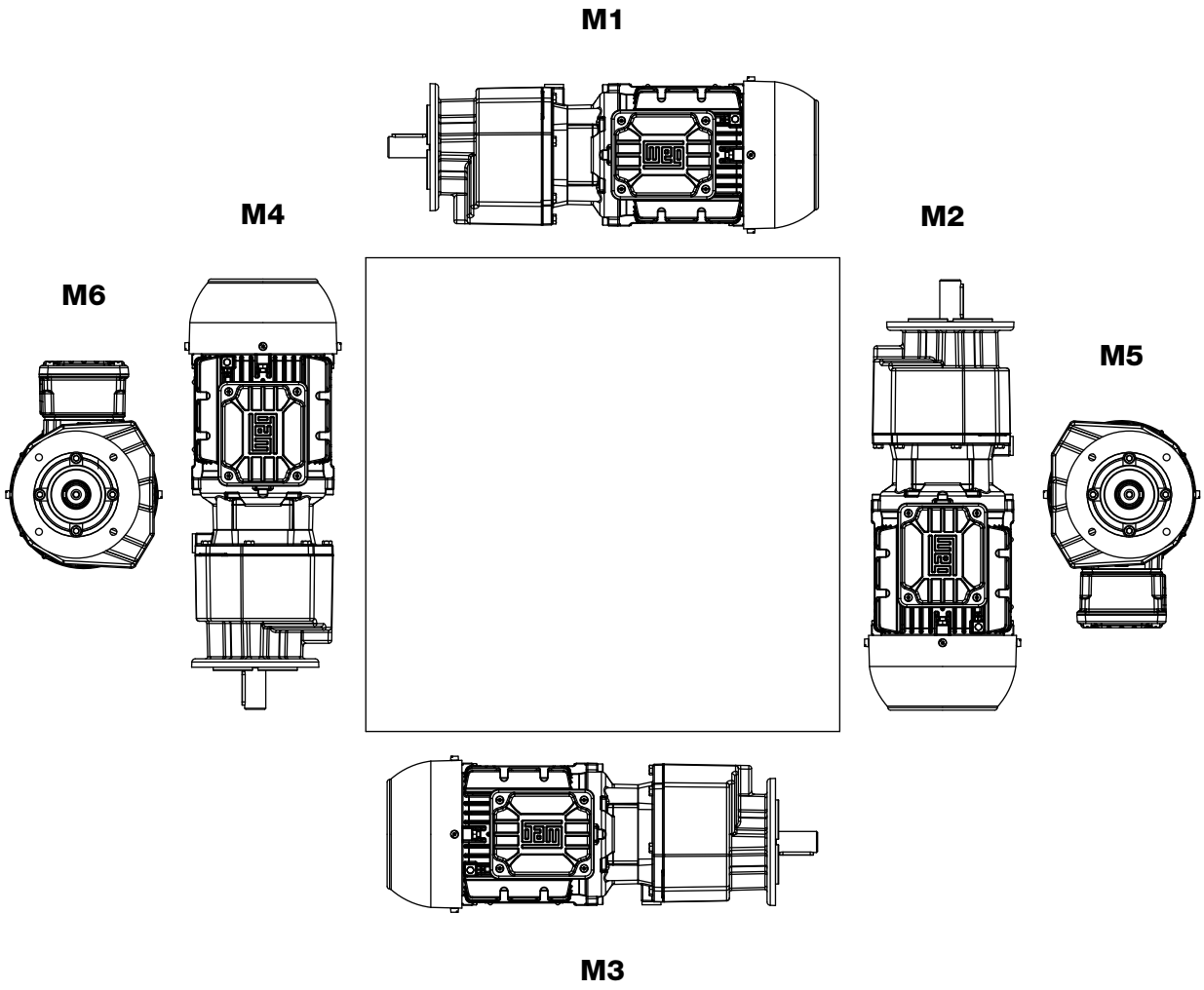



**Cable entry**
Standard: Position I



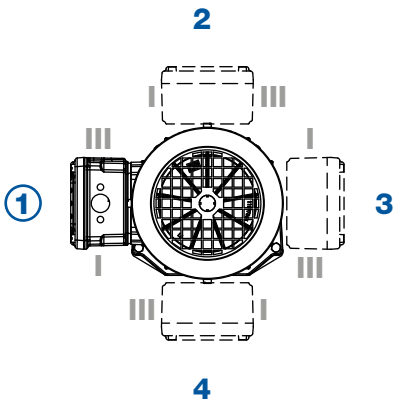
### Mounting positions flange type - Sizes C00 to C06

Gear units C00 to C06 are not ventilated and supplied with lifetime lubrication.



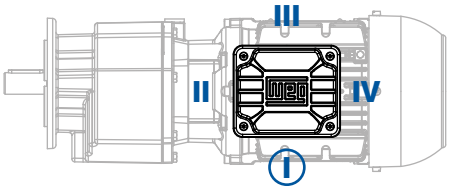

### Position of the terminal box

Standard: Position 1




### Cable entry

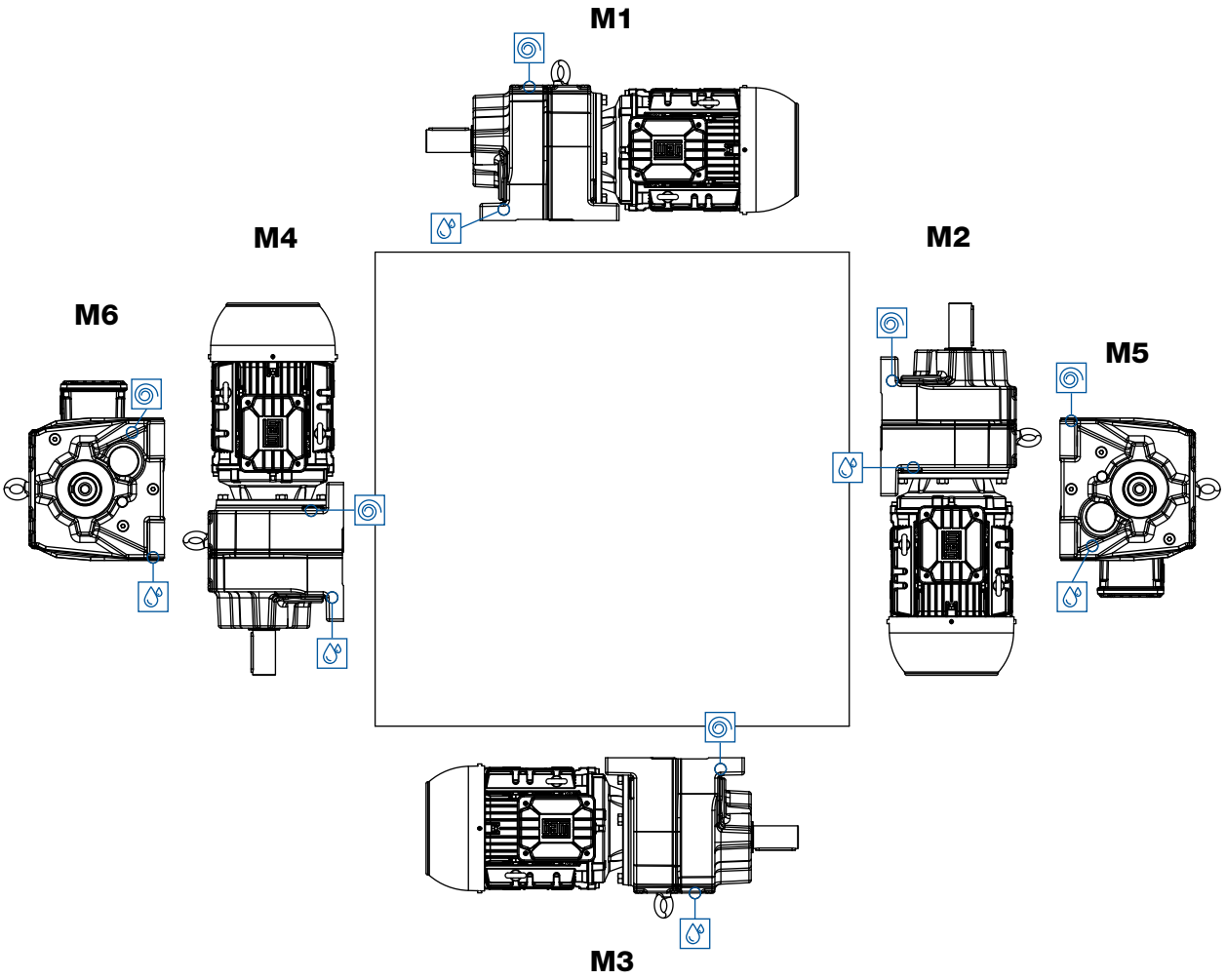
Standard: Position I



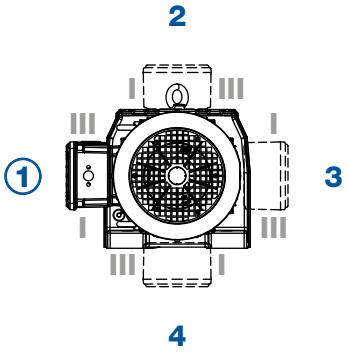
## Mounting positions foot type - Sizes C07 to C08

Position of the venting screw

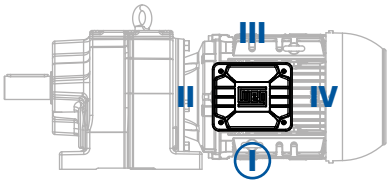
Position of the oil drain screw




**Position of the terminal box**
Standard: Position 1



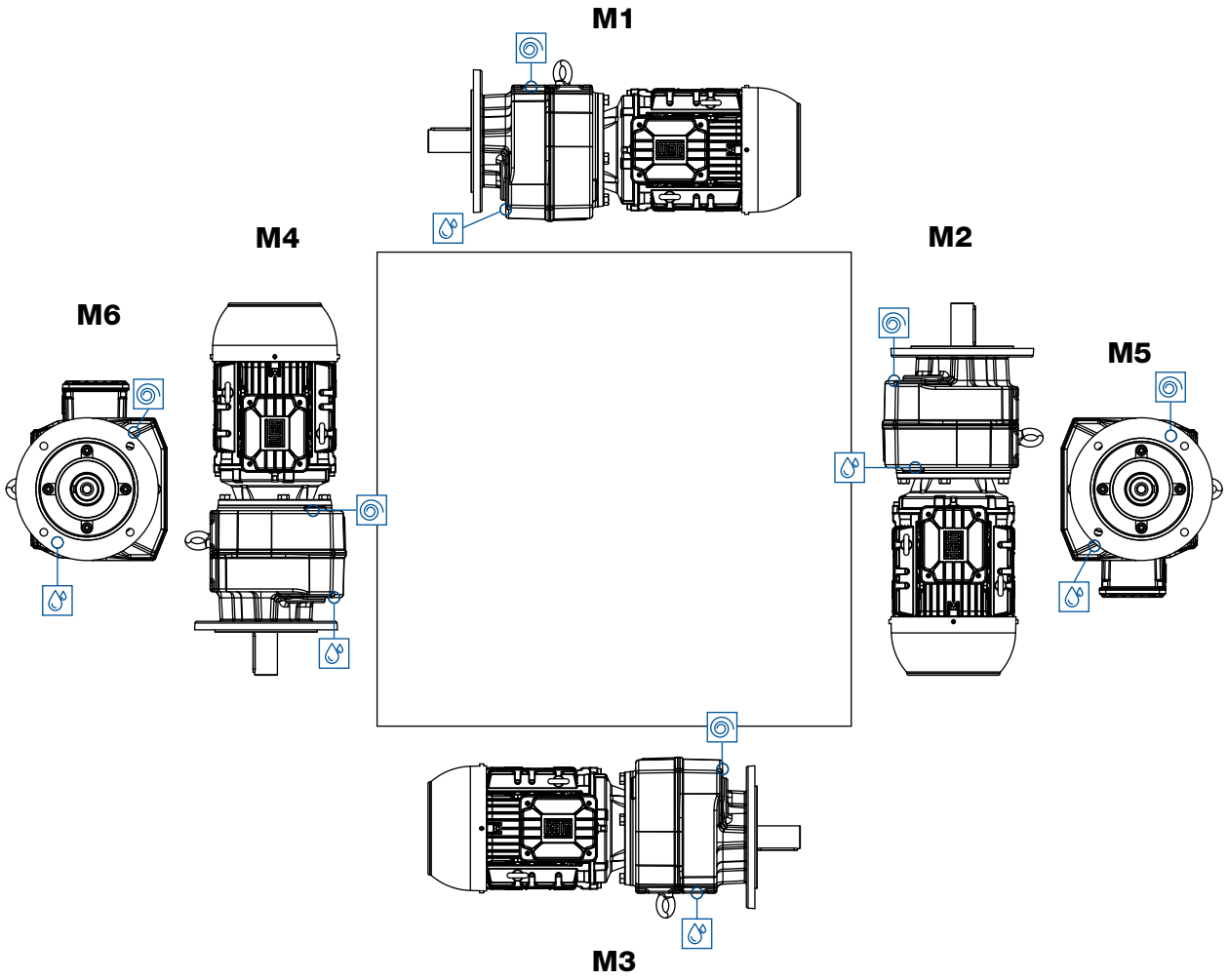

**Cable entry**
Standard: Position I



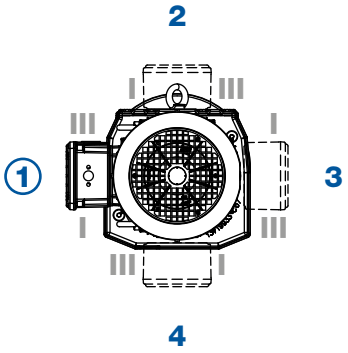
## Mounting positions flange type - Sizes C07 to C08

Position of the venting screw

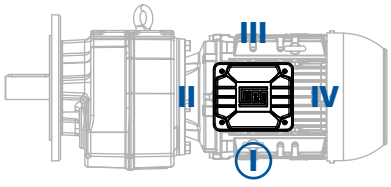
Position of the oil drain screw




**Position of the terminal box**
Standard: Position 1




**Cable entry**
Standard: Position I



# Selection tables - Geared motors

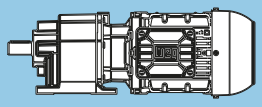
The technical data of the geared motors shown in the selection tables apply to an ambient temperature of +20 °C.

The selection tables are calculated with following motor data:

| Power (IEC frame size) | Motor series (IE class) |
|---|---|
| up to 0.55 kW (63 - 80) | 11N (IE1) - aluminium |
| 0.75 - 9.2 kW (80 - 132) | 11P (IE3) - aluminium |
| 11 - 22 kW (160 - 180) | 22P (IE3) - cast iron |

C

## Structure of the selection tables

| 1 | | | | | | | | 2 |
|---|---|---|---|---|---|---|---|---|
| $P_N$ = 0.12 kW | | | | | | | | IE1 |
| 50 Hz<br>0.12 kW<br>$n_{50}$<br>min$^{-1}$<br>3 | 60 Hz<br>0.14 kW *)<br>$n_{60}$<br>min$^{-1}$<br>4 | $M_2$<br>Nm<br>5 | $f_B$<br>6 | i<br>7 | at 50 Hz<br>$F_{rN}$<br>kN<br>8 |  <br>9 | m<br>kg<br>10 | Dimension sheet see page<br>11 |

1 Rated power of the motor

2 Given values are based on the respective efficiency class

3 Output speed at 50 Hz

4 Output speed at 60 Hz

5 Output torque

6 Service factor

7 Total ratio

8 Permissible radial load at midpoint of the output shaft extension (standard bearing) at axial load=0

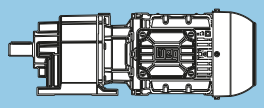
9 Geared motor type

10 Weight

11 Dimension sheet see page

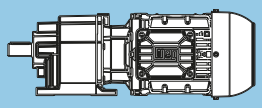
*) Increased rated power at 60 Hz can only be reached together with increased voltage within the wide range (for details see page 208).

| Increased rated power |
|---|
| 1.2 x $P_N$ |

| $P_N$ = 0.12 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>0.12 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>0.14 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **2.5** | 3.0 | 452 | 1.85 | 351.33 | 12.6 | **CG073-11N-63-06F**<br>**CF073-11N-63-06F** | 37<br>41 | 80 |
| **2.8** | 3.4 | 412 | 2.00 | 319.60 | 12.9 | | | |
| **3.2** | 3.8 | 359 | 2.30 | 278.44 | 13.2 | | | |
| **3.5** | 4.2 | 326 | 2.55 | 253.30 | 13.3 | | | |
| **4.1** | 4.9 | 278 | 2.95 | 216.20 | 13.5 | | | |
| **3.9** | 4.7 | 293 | 2.85 | 351.33 | 13.5 | **CG073-11N-63-04E**<br>**CF073-11N-63-04E** | 36<br>40 | 80 |
| **2.4** | 2.9 | 484 | 1.25 | 375.71 | 8.3 | **CG063-11N-63-06F**<br>**CF063-11N-63-06F** | 20<br>25 | 78 |
| **2.6** | 3.1 | 444 | 1.40 | 344.51 | 8.9 | | | |
| **2.9** | 3.5 | 396 | 1.55 | 307.24 | 9.4 | | | |
| **3.2** | 3.8 | 363 | 1.70 | 281.73 | 9.7 | | | |
| **3.7** | 4.4 | 312 | 1.95 | 242.60 | 10.1 | | | |
| **4.0** | 4.8 | 286 | 2.10 | 222.46 | 10.3 | | | |
| **4.7** | 5.6 | 242 | 2.50 | 188.11 | 10.6 | | | |
| **5.2** | 6.2 | 222 | 2.75 | 172.49 | 10.7 | | | |
| **3.7** | 4.4 | 313 | 1.95 | 375.71 | 10.1 | **CG063-11N-63-04E**<br>**CF063-11N-63-04E** | 20<br>25 | 78 |
| **4.0** | 4.8 | 287 | 2.10 | 344.51 | 10.3 | | | |
| **4.5** | 5.4 | 256 | 2.35 | 307.24 | 10.5 | | | |
| **4.9** | 5.9 | 235 | 2.60 | 281.73 | 10.6 | | | |
| **5.7** | 6.8 | 202 | 3.00 | 242.60 | 10.8 | | | |
| **2.7** | 3.2 | 423 | 0.95 | 328.43 | ** | **CG053-11N-63-06F**<br>**CF053-11N-63-06F** | 16<br>21 | 76 |
| **3.0** | 3.6 | 385 | 1.05 | 298.57 | 3.3 | | | |
| **3.3** | 4.0 | 345 | 1.20 | 267.93 | 4.5 | | | |
| **3.7** | 4.4 | 314 | 1.30 | 243.57 | 5.2 | | | |
| **4.2** | 5.0 | 275 | 1.50 | 213.71 | 5.9 | | | |
| **4.6** | 5.5 | 250 | 1.60 | 194.29 | 6.2 | | | |
| **5.4** | 6.5 | 213 | 1.90 | 165.45 | 6.7 | | | |
| **5.9** | 7.1 | 194 | 2.10 | 150.41 | 6.9 | | | |
| **6.7** | 8.0 | 171 | 2.35 | 132.97 | 7.1 | | | |
| **7.4** | 8.9 | 156 | 2.60 | 120.88 | 7.2 | | | |
| **4.2** | 5.0 | 274 | 1.50 | 328.43 | 5.9 | **CG053-11N-63-04E**<br>**CF053-11N-63-04E** | 15<br>20 | 76 |
| **4.6** | 5.5 | 249 | 1.65 | 298.57 | 6.3 | | | |
| **5.1** | 6.1 | 223 | 1.80 | 267.93 | 6.6 | | | |
| **5.6** | 6.7 | 203 | 2.00 | 243.57 | 6.8 | | | |
| **6.4** | 7.7 | 178 | 2.25 | 213.71 | 7.0 | | | |
| **7.1** | 8.5 | 162 | 2.50 | 194.29 | 7.1 | | | |
| **8.3** | 10 | 138 | 2.95 | 165.45 | 7.3 | | | |
| **4.4** | 5.3 | 261 | 0.80 | 202.55 | ** | **CG033-11N-63-06F**<br>**CF033-11N-63-06F** | 11<br>13 | 74 |
| **4.9** | 5.9 | 233 | 0.90 | 180.83 | ** | | | |
| **5.4** | 6.5 | 212 | 0.95 | 164.23 | ** | | | |
| **6.2** | 7.4 | 184 | 1.10 | 142.47 | 4.4 | | | |
| **6.9** | 8.3 | 167 | 1.25 | 129.39 | 4.7 | | | |
| **8.1** | 9.7 | 141 | 1.45 | 109.79 | 5.1 | | | |
| **8.9** | 11 | 128 | 1.60 | 99.71 | 5.2 | | | |
| **10** | 12 | 111 | 1.85 | 85.78 | 5.4 | | | |
| **11** | 13 | 100 | 2.00 | 77.90 | 5.5 | | | |
| **14** | 17 | 83 | 2.45 | 64.05 | 5.6 | | | |
| **15** | 18 | 75 | 2.70 | 58.17 | 5.7 | | | |
| **4.8** | 5.8 | 239 | 0.85 | 286.32 | ** | **CG033-11N-63-04E**<br>**CF033-11N-63-04E** | 11<br>13 | 74 |
| **5.3** | 6.4 | 217 | 0.95 | 260.03 | ** | | | |
| **6.2** | 7.4 | 186 | 1.10 | 223.03 | 4.3 | | | |
| **6.8** | 8.2 | 169 | 1.20 | 202.55 | 4.6 | | | |
| **7.6** | 9.1 | 151 | 1.35 | 180.83 | 4.9 | | | |
| **8.4** | 10 | 137 | 1.50 | 164.23 | 5.1 | | | |
| **9.7** | 12 | 119 | 1.70 | 142.47 | 5.3 | | | |
| **11** | 13 | 108 | 1.90 | 129.39 | 5.4 | | | |
| **13** | 16 | 92 | 2.20 | 109.79 | 5.6 | | | |
| **14** | 17 | 83 | 2.45 | 99.71 | 5.6 | | | |
| **16** | 19 | 72 | 2.80 | 85.78 | 5.7 | | | |

*Legend see page 25*

*** ... on request*

| $P_N$ = 0.12 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 0.12 kW $n_{50}$ min$^{-1}$ | 60 Hz 0.14 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **13** | 16 | 86 | 1.00 | 66.50 | 2.7 | **CG012-11N-63-06F**<br>**CF012-11N-63-06F** | 8.6<br>9.9 | 72 |
| **15** | 18 | 77 | 1.15 | 59.59 | 2.9 | | | |
| **17** | 20 | 67 | 1.30 | 51.80 | 3.1 | | | |
| **19** | 23 | 60 | 1.45 | 46.42 | 3.2 | | | |
| **21** | 25 | 54 | 1.60 | 42.00 | 3.3 | | | |
| **24** | 29 | 49 | 1.80 | 37.64 | 3.3 | | | |
| **27** | 32 | 43 | 2.00 | 33.09 | 3.4 | | | |
| **30** | 36 | 38 | 2.25 | 29.65 | 3.4 | | | |
| **35** | 42 | 33 | 2.60 | 25.50 | 3.5 | | | |
| **36** | 43 | 32 | 1.30 | 25.05 | 3.5 | | | |
| **39** | 47 | 29 | 2.90 | 22.85 | 3.5 | | | |
| **46** | 55 | 25 | 2.65 | 19.51 | 3.5 | | | |
| **21** | 25 | 55 | 1.55 | 66.50 | 3.3 | **CG012-11N-63-04E**<br>**CF012-11N-63-04E** | 7.9<br>9.2 | 72 |
| **23** | 28 | 50 | 1.75 | 59.59 | 3.3 | | | |
| **27** | 32 | 43 | 2.00 | 51.80 | 3.4 | | | |
| **30** | 36 | 39 | 2.20 | 46.42 | 3.4 | | | |
| **33** | 40 | 35 | 2.45 | 42.00 | 3.5 | | | |
| **37** | 44 | 31 | 2.75 | 37.64 | 3.5 | | | |
| **55** | 66 | 21 | 2.00 | 25.05 | 3.6 | | | |
| **19** | 23 | 61 | 0.85 | 47.44 | ** | **CG002-11N-63-06F**<br>**CF002-11N-63-06F** | 7.5<br>8.8 | 70 |
| **21** | 25 | 55 | 0.95 | 42.34 | ** | | | |
| **24** | 29 | 47 | 1.10 | 36.85 | 2.9 | | | |
| **27** | 32 | 42 | 1.20 | 32.89 | 2.9 | | | |
| **30** | 36 | 38 | 1.35 | 29.33 | 3.0 | | | |
| **34** | 41 | 34 | 1.50 | 26.18 | 3.0 | | | |
| **39** | 47 | 30 | 1.70 | 23.00 | 3.0 | | | |
| **43** | 52 | 26 | 1.90 | 20.53 | 3.0 | | | |
| **51** | 61 | 22 | 2.25 | 17.29 | 3.0 | | | |
| **53** | 64 | 22 | 1.45 | 16.86 | 2.6 | | | |
| **58** | 70 | 20 | 2.55 | 15.43 | 2.9 | | | |
| **66** | 79 | 17 | 2.90 | 13.54 | 2.9 | | | |
| **68** | 82 | 17 | 2.55 | 13.10 | 2.6 | | | |
| **29** | 35 | 40 | 1.30 | 47.44 | 3.0 | **CG002-11N-63-04E**<br>**CF002-11N-63-04E** | 6.8<br>8.1 | 70 |
| **32** | 38 | 35 | 1.45 | 42.34 | 3.0 | | | |
| **37** | 44 | 31 | 1.65 | 36.85 | 3.0 | | | |
| **42** | 50 | 27 | 1.85 | 32.89 | 3.0 | | | |
| **47** | 56 | 24 | 2.05 | 29.33 | 3.0 | | | |
| **53** | 64 | 22 | 2.30 | 26.18 | 2.9 | | | |
| **60** | 72 | 19 | 2.65 | 23.00 | 2.9 | | | |
| **67** | 80 | 17 | 2.95 | 20.53 | 2.8 | | | |
| **80** | 96 | 14 | 3.50 | 17.29 | 2.8 | | | |
| **82** | 98 | 14 | 2.20 | 16.86 | 2.6 | | | |
| **89** | 107 | 13 | 3.90 | 15.43 | 2.7 | | | |
| **102** | 122 | 11 | 4.45 | 13.54 | 2.7 | | | |
| **105** | 126 | 11 | 3.95 | 13.10 | 2.5 | | | |
| **114** | 137 | 10 | 5.00 | 12.08 | 2.6 | | | |
| **132** | 158 | 9 | 5.20 | 10.42 | 2.4 | | | |
| **138** | 166 | 8 | 6.05 | 9.97 | 2.5 | | | |
| **155** | 186 | 7 | 6.80 | 8.90 | 2.4 | | | |
| **168** | 202 | 7 | 6.50 | 8.17 | 2.3 | | | |
| **200** | 240 | 6 | 8.80 | 6.88 | 2.3 | | | |
| **224** | 269 | 5 | 7.85 | 6.14 | 2.2 | | | |
| **224** | 269 | 5 | 9.85 | 6.14 | 2.2 | | | |
| **286** | 343 | 4 | 9.25 | 4.81 | 2.0 | | | |
| **388** | 466 | 3 | 11.35 | 3.54 | 1.9 | | | |

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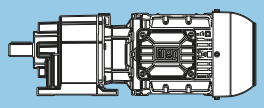
| $P_N$ = 0.18 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>0.18 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>0.22 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **2.4** | 2.9 | 709 | 2.20 | 368.94 | 23.3 | **CG083-11N-71-06E**<br>**CF083-11N-71-06E** | 63<br>67 | 82 |
| **3.1** | 3.7 | 547 | 2.85 | 284.84 | 23.8 | | | |
| **2.5** | 3.0 | 675 | 1.25 | 351.33 | 10.6 | **CG073-11N-71-06E**<br>**CF073-11N-71-06E** | 39<br>43 | 80 |
| **2.8** | 3.4 | 614 | 1.35 | 319.60 | 11.3 | | | |
| **3.2** | 3.8 | 535 | 1.55 | 278.44 | 12.0 | | | |
| **3.5** | 4.2 | 487 | 1.70 | 253.30 | 12.4 | | | |
| **4.1** | 4.9 | 415 | 2.00 | 216.20 | 12.8 | | | |
| **4.6** | 5.5 | 378 | 2.20 | 196.68 | 13.1 | | | |
| **5.0** | 6.0 | 341 | 2.45 | 177.39 | 13.3 | | | |
| **5.5** | 6.6 | 310 | 2.65 | 161.38 | 13.4 | | | |
| **3.9** | 4.7 | 441 | 1.90 | 351.33 | 12.7 | **CG073-11N-63-04F**<br>**CF073-11N-63-04F** | 37<br>41 | 80 |
| **4.3** | 5.2 | 401 | 2.05 | 319.60 | 12.9 | | | |
| **4.9** | 5.9 | 349 | 2.35 | 278.44 | 13.2 | | | |
| **5.4** | 6.5 | 318 | 2.60 | 253.30 | 13.4 | | | |
| **2.4** | 2.9 | 722 | 0.85 | 375.71 | ** | **CG063-11N-71-06E**<br>**CF063-11N-71-06E** | 23<br>28 | 78 |
| **2.6** | 3.1 | 662 | 0.95 | 344.51 | ** | | | |
| **2.9** | 3.5 | 590 | 1.05 | 307.24 | 6.5 | | | |
| **3.2** | 3.8 | 541 | 1.15 | 281.73 | 7.4 | | | |
| **3.7** | 4.4 | 466 | 1.30 | 242.60 | 8.6 | | | |
| **4.0** | 4.8 | 427 | 1.45 | 222.46 | 9.1 | | | |
| **4.8** | 5.8 | 361 | 1.70 | 188.11 | 9.7 | | | |
| **5.2** | 6.2 | 331 | 1.85 | 172.49 | 10.0 | | | |
| **5.8** | 7.0 | 296 | 2.05 | 153.96 | 10.3 | | | |
| **6.3** | 7.6 | 271 | 2.25 | 141.17 | 10.4 | | | |
| **7.6** | 9.1 | 228 | 2.65 | 118.51 | 10.7 | | | |
| **8.2** | 9.8 | 209 | 2.90 | 108.67 | 10.8 | | | |
| **3.6** | 4.3 | 471 | 1.30 | 375.71 | 8.5 | **CG063-11N-63-04F**<br>**CF063-11N-63-04F** | 21<br>26 | 78 |
| **4.0** | 4.8 | 432 | 1.40 | 344.51 | 9.0 | | | |
| **4.5** | 5.4 | 386 | 1.60 | 307.24 | 9.5 | | | |
| **4.9** | 5.9 | 354 | 1.70 | 281.73 | 9.8 | | | |
| **5.6** | 6.7 | 304 | 2.00 | 242.60 | 10.2 | | | |
| **6.2** | 7.4 | 279 | 2.15 | 222.46 | 10.4 | | | |
| **7.3** | 8.8 | 236 | 2.55 | 188.11 | 10.6 | | | |
| **7.9** | 9.5 | 216 | 2.80 | 172.49 | 10.7 | | | |
| **3.3** | 4.0 | 515 | 0.80 | 267.93 | ** | **CG053-11N-71-06E**<br>**CF053-11N-71-06E** | 18<br>23 | 76 |
| **3.7** | 4.4 | 468 | 0.90 | 243.57 | ** | | | |
| **4.2** | 5.0 | 411 | 1.00 | 213.71 | 2.0 | | | |
| **4.6** | 5.5 | 373 | 1.10 | 194.29 | 3.7 | | | |
| **5.4** | 6.5 | 318 | 1.30 | 165.45 | 5.1 | | | |
| **6.0** | 7.2 | 289 | 1.40 | 150.41 | 5.7 | | | |
| **6.7** | 8.0 | 255 | 1.60 | 132.97 | 6.2 | | | |
| **7.4** | 8.9 | 232 | 1.75 | 120.88 | 6.5 | | | |
| **8.8** | 11 | 195 | 2.10 | 101.55 | 6.9 | | | |
| **9.7** | 12 | 177 | 2.30 | 92.32 | 7.0 | | | |
| **12** | 14 | 149 | 2.70 | 77.79 | 7.2 | | | |
| **13** | 16 | 136 | 2.95 | 70.71 | 7.3 | | | |
| **4.2** | 5.0 | 412 | 1.00 | 328.43 | 1.8 | **CG053-11N-63-04F**<br>**CF053-11N-63-04F** | 16<br>21 | 76 |
| **4.6** | 5.5 | 375 | 1.10 | 298.57 | 3.6 | | | |
| **5.1** | 6.1 | 336 | 1.20 | 267.93 | 4.7 | | | |
| **5.6** | 6.7 | 306 | 1.35 | 243.57 | 5.4 | | | |
| **6.4** | 7.7 | 268 | 1.50 | 213.71 | 6.0 | | | |
| **7.1** | 8.5 | 244 | 1.65 | 194.29 | 6.3 | | | |
| **8.3** | 10 | 208 | 1.95 | 165.45 | 6.7 | | | |
| **9.1** | 11 | 189 | 2.15 | 150.41 | 6.9 | | | |
| **10** | 12 | 167 | 2.40 | 132.97 | 7.1 | | | |
| **11** | 13 | 152 | 2.65 | 120.88 | 7.2 | | | |
| **15** | 18 | 113 | 2.25 | 58.85 | 7.4 | **CG052-11N-71-06E**<br>**CF052-11N-71-06E** | 17<br>22 | 76 |
| **17** | 20 | 103 | 2.25 | 53.50 | 7.5 | | | |
| **25** | 30 | 69 | 2.25 | 35.67 | 7.6 | | | |

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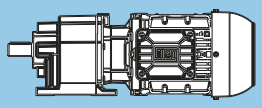
| $P_N$ = 0.18 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 0.18 kW $n_{50}$ min$^{-1}$ | 60 Hz 0.22 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **6.9** | 8.3 | 249 | 0.85 | 129.39 | ** | **CG033-11N-71-06E**<br>**CF033-11N-71-06E** | 14<br>16 | 74 |
| **8.2** | 9.8 | 211 | 0.95 | 109.79 | ** | | | |
| **9.0** | 11 | 192 | 1.05 | 99.71 | 4.2 | | | |
| **10** | 12 | 165 | 1.25 | 85.78 | 4.7 | | | |
| **11** | 13 | 150 | 1.35 | 77.90 | 4.9 | | | |
| **14** | 17 | 123 | 1.65 | 64.05 | 5.3 | | | |
| **15** | 18 | 112 | 1.80 | 58.17 | 5.4 | | | |
| **19** | 23 | 93 | 2.20 | 48.22 | 5.6 | | | |
| **20** | 24 | 84 | 2.40 | 43.79 | 5.6 | | | |
| **25** | 30 | 68 | 2.95 | 35.38 | 5.7 | | | |
| **6.8** | 8.2 | 254 | 0.80 | 202.55 | ** | **CG033-11N-63-04F**<br>**CF033-11N-63-04F** | 12<br>14 | 74 |
| **7.6** | 9.1 | 227 | 0.90 | 180.83 | ** | | | |
| **8.3** | 10 | 206 | 1.00 | 164.23 | 3.9 | | | |
| **9.6** | 12 | 179 | 1.15 | 142.47 | 4.5 | | | |
| **11** | 13 | 162 | 1.25 | 129.39 | 4.7 | | | |
| **12** | 14 | 138 | 1.50 | 109.79 | 5.1 | | | |
| **14** | 17 | 125 | 1.60 | 99.71 | 5.3 | | | |
| **16** | 19 | 108 | 1.90 | 85.78 | 5.4 | | | |
| **18** | 22 | 98 | 2.05 | 77.90 | 5.5 | | | |
| **21** | 25 | 80 | 2.50 | 64.05 | 5.7 | | | |
| **24** | 29 | 73 | 2.75 | 58.17 | 5.7 | | | |
| **21** | 25 | 82 | 2.25 | 42.88 | 5.6 | **CG032-11N-71-06E**<br>**CF032-11N-71-06E** | 13<br>15 | 74 |
| **23** | 28 | 75 | 2.25 | 38.95 | 5.7 | | | |
| **26** | 31 | 67 | 3.00 | 34.88 | 5.7 | | | |
| **37** | 44 | 46 | 2.25 | 24.03 | 5.8 | | | |
| **17** | 20 | 100 | 0.90 | 51.80 | ** | **CG012-11N-71-06E**<br>**CF012-11N-71-06E** | 11<br>12 | 72 |
| **19** | 23 | 89 | 1.00 | 46.42 | 2.6 | | | |
| **21** | 25 | 81 | 1.10 | 42.00 | 2.8 | | | |
| **24** | 29 | 72 | 1.20 | 37.64 | 3.0 | | | |
| **27** | 32 | 64 | 1.35 | 33.09 | 3.2 | | | |
| **30** | 36 | 57 | 1.50 | 29.65 | 3.2 | | | |
| **35** | 42 | 49 | 1.75 | 25.50 | 3.3 | | | |
| **36** | 43 | 48 | 0.90 | 25.05 | ** | | | |
| **39** | 47 | 44 | 1.95 | 22.85 | 3.4 | | | |
| **45** | 54 | 38 | 2.25 | 19.92 | 3.4 | | | |
| **46** | 55 | 38 | 1.80 | 19.51 | 3.4 | | | |
| **50** | 60 | 34 | 2.50 | 17.85 | 3.5 | | | |
| **57** | 68 | 30 | 2.20 | 15.82 | 3.5 | | | |
| **60** | 72 | 29 | 3.00 | 14.88 | 3.5 | | | |
| **72** | 86 | 24 | 2.80 | 12.46 | 3.5 | | | |
| **21** | 25 | 83 | 1.05 | 66.50 | 2.8 | **CG012-11N-63-04F**<br>**CF012-11N-63-04F** | 9,1<br>10 | 72 |
| **23** | 28 | 75 | 1.15 | 59.59 | 3.0 | | | |
| **26** | 31 | 65 | 1.35 | 51.80 | 3.1 | | | |
| **30** | 36 | 58 | 1.50 | 46.42 | 3.2 | | | |
| **33** | 40 | 53 | 1.65 | 42.00 | 3.3 | | | |
| **36** | 43 | 47 | 1.85 | 37.64 | 3.4 | | | |
| **41** | 49 | 42 | 2.05 | 33.09 | 3.4 | | | |
| **46** | 55 | 37 | 2.30 | 29.65 | 3.5 | | | |
| **54** | 65 | 32 | 2.70 | 25.50 | 3.5 | | | |
| **55** | 66 | 31 | 1.35 | 25.05 | 3.5 | | | |
| **60** | 72 | 29 | 3.00 | 22.85 | 3.5 | | | |
| **70** | 84 | 25 | 2.70 | 19.51 | 3.5 | | | |

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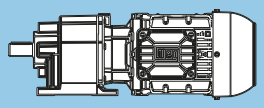
| $P_N$ = 0.18 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>0.18 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>0.22 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **27** | 32 | 63 | 0.80 | 32.89 | ** | **CG002-11N-71-06E**<br>**CF002-11N-71-06E** | 10<br>11 | 70 |
| **31** | 37 | 56 | 0.90 | 29.33 | ** | | | |
| **34** | 41 | 50 | 1.00 | 26.18 | 2.1 | | | |
| **39** | 47 | 44 | 1.15 | 23.00 | 2.3 | | | |
| **44** | 53 | 39 | 1.30 | 20.53 | 2.3 | | | |
| **52** | 62 | 33 | 1.55 | 17.29 | 2.4 | | | |
| **53** | 64 | 32 | 1.00 | 16.86 | 2.0 | | | |
| **58** | 70 | 30 | 1.70 | 15.43 | 2.4 | | | |
| **66** | 79 | 26 | 1.95 | 13.54 | 2.4 | | | |
| **68** | 82 | 25 | 1.75 | 13.10 | 2.1 | | | |
| **74** | 89 | 23 | 2.20 | 12.08 | 2.4 | | | |
| **86** | 103 | 20 | 2.25 | 10.42 | 2.2 | | | |
| **90** | 108 | 19 | 2.65 | 9.97 | 2.4 | | | |
| **101** | 121 | 17 | 2.95 | 8.90 | 2.4 | | | |
| **109** | 131 | 16 | 2.85 | 8.17 | 2.2 | | | |
| **29** | 35 | 60 | 0.85 | 47.44 | ** | **CG002-11N-63-04F**<br>**CF002-11N-63-04F** | 8<br>9.3 | 70 |
| **32** | 38 | 53 | 0.95 | 42.34 | ** | | | |
| **37** | 44 | 46 | 1.10 | 36.85 | 2.2 | | | |
| **42** | 50 | 41 | 1.25 | 32.89 | 2.3 | | | |
| **47** | 56 | 37 | 1.40 | 29.33 | 2.4 | | | |
| **52** | 62 | 33 | 1.55 | 26.18 | 2.4 | | | |
| **60** | 72 | 29 | 1.75 | 23.00 | 2.4 | | | |
| **67** | 80 | 26 | 1.95 | 20.53 | 2.4 | | | |
| **79** | 95 | 22 | 2.35 | 17.29 | 2.4 | | | |
| **81** | 97 | 21 | 1.50 | 16.86 | 2.2 | | | |
| **89** | 107 | 19 | 2.60 | 15.43 | 2.4 | | | |
| **101** | 121 | 17 | 2.95 | 13.54 | 2.4 | | | |
| **105** | 126 | 16 | 2.65 | 13.10 | 2.2 | | | |
| **113** | 136 | 15 | 3.30 | 12.08 | 2.3 | | | |
| **131** | 157 | 13 | 3.45 | 10.42 | 2.1 | | | |
| **137** | 164 | 13 | 4.00 | 9.97 | 2.3 | | | |
| **154** | 185 | 11 | 4.50 | 8.90 | 2.2 | | | |
| **168** | 202 | 10 | 4.30 | 8.17 | 2.1 | | | |
| **199** | 239 | 9 | 5.85 | 6.88 | 2.2 | | | |
| **223** | 268 | 8 | 5.20 | 6.14 | 2.0 | | | |
| **223** | 268 | 8 | 6.50 | 6.14 | 2.1 | | | |
| **285** | 342 | 6 | 6.20 | 4.81 | 1.9 | | | |
| **387** | 464 | 4 | 7.75 | 3.54 | 1.8 | | | |

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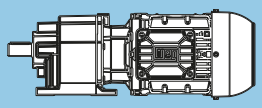
| $P_N$ = 0.25 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 0.25 kW $n_{50}$ min$^{-1}$ | 60 Hz 0.30 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **2.4** | 2.9 | 979 | 1.60 | 368.94 | 22.1 | **CG083-11N-71-06F**<br>**CF083-11N-71-06F** | 65<br>69 | 82 |
| **3.2** | 3.8 | 756 | 2.10 | 284.84 | 23.1 | | | |
| **3.8** | 4.6 | 634 | 2.45 | 238.89 | 23.5 | | | |
| **3.7** | 4.4 | 643 | 2.45 | 368.94 | 23.5 | **CG083-11N-71-04E**<br>**CF083-11N-71-04E** | 62<br>66 | 82 |
| **2.6** | 3.1 | 932 | 0.90 | 351.33 | ** | **CG073-11N-71-06F**<br>**CF073-11N-71-06F** | 41<br>45 | 80 |
| **2.8** | 3.4 | 848 | 1.00 | 319.60 | 8.0 | | | |
| **3.2** | 3.8 | 739 | 1.15 | 278.44 | 9.8 | | | |
| **3.6** | 4.3 | 672 | 1.25 | 253.30 | 10.6 | | | |
| **4.2** | 5.0 | 574 | 1.45 | 216.20 | 11.7 | | | |
| **4.6** | 5.5 | 522 | 1.60 | 196.68 | 12.1 | | | |
| **5.1** | 6.1 | 471 | 1.75 | 177.39 | 12.5 | | | |
| **5.6** | 6.7 | 428 | 1.95 | 161.38 | 12.8 | | | |
| **6.6** | 7.9 | 364 | 2.30 | 137.38 | 13.1 | | | |
| **7.2** | 8.6 | 332 | 2.50 | 124.97 | 13.3 | | | |
| **8.6** | 10 | 277 | 3.00 | 104.50 | 13.5 | | | |
| **3.9** | 4.7 | 612 | 1.35 | 351.33 | 11.3 | **CG073-11N-71-04E**<br>**CF073-11N-71-04E** | 38<br>42 | 80 |
| **4.3** | 5.2 | 557 | 1.50 | 319.60 | 11.8 | | | |
| **4.9** | 5.9 | 485 | 1.70 | 278.44 | 12.4 | | | |
| **5.4** | 6.5 | 441 | 1.90 | 253.30 | 12.7 | | | |
| **6.3** | 7.6 | 377 | 2.20 | 216.20 | 13.1 | | | |
| **7.0** | 8.4 | 343 | 2.40 | 196.68 | 13.2 | | | |
| **7.7** | 9.2 | 309 | 2.70 | 177.39 | 13.4 | | | |
| **8.5** | 10 | 281 | 2.95 | 161.38 | 13.5 | | | |
| **3.2** | 3.8 | 747 | 0.85 | 281.73 | ** | **CG063-11N-71-06F**<br>**CF063-11N-71-06F** | 24<br>29 | 78 |
| **3.7** | 4.4 | 644 | 0.95 | 242.60 | ** | | | |
| **4.0** | 4.8 | 590 | 1.05 | 222.46 | 6.5 | | | |
| **4.8** | 5.8 | 499 | 1.25 | 188.11 | 8.1 | | | |
| **5.2** | 6.2 | 458 | 1.35 | 172.49 | 8.7 | | | |
| **5.8** | 7.0 | 408 | 1.50 | 153.96 | 9.3 | | | |
| **6.4** | 7.7 | 375 | 1.65 | 141.17 | 9.6 | | | |
| **7.6** | 9.1 | 314 | 1.95 | 118.51 | 10.1 | | | |
| **8.3** | 10 | 288 | 2.10 | 108.67 | 10.3 | | | |
| **10** | 12 | 238 | 2.55 | 89.54 | 10.6 | | | |
| **11** | 13 | 218 | 2.80 | 82.10 | 10.7 | | | |
| **3.6** | 4.3 | 655 | 0.95 | 375.71 | ** | **CG063-11N-71-04E**<br>**CF063-11N-71-04E** | 21<br>26 | 78 |
| **4.0** | 4.8 | 600 | 1.00 | 344.51 | 6.2 | | | |
| **4.5** | 5.4 | 535 | 1.15 | 307.24 | 7.5 | | | |
| **4.9** | 5.9 | 491 | 1.25 | 281.73 | 8.2 | | | |
| **5.6** | 6.7 | 423 | 1.45 | 242.60 | 9.1 | | | |
| **6.2** | 7.4 | 388 | 1.55 | 222.46 | 9.5 | | | |
| **7.3** | 8.8 | 328 | 1.85 | 188.11 | 10.0 | | | |
| **7.9** | 9.5 | 301 | 2.00 | 172.49 | 10.2 | | | |
| **8.9** | 11 | 268 | 2.25 | 153.96 | 10.4 | | | |
| **9.7** | 12 | 246 | 2.45 | 141.17 | 10.6 | | | |
| **12** | 14 | 207 | 2.95 | 118.51 | 10.8 | | | |
| **15** | 18 | 159 | 2.65 | 60.00 | 11.0 | **CG062-11N-71-06F**<br>**CF062-11N-71-06F** | 24<br>29 | 78 |
| **16** | 19 | 146 | 2.65 | 55.02 | 11.0 | | | |
| **27** | 32 | 89 | 2.65 | 33.43 | 11.2 | | | |
| **4.6** | 5.5 | 515 | 0.80 | 194.29 | ** | **CG053-11N-71-06F**<br>**CF053-11N-71-06F** | 20<br>25 | 76 |
| **5.4** | 6.5 | 439 | 0.95 | 165.45 | ** | | | |
| **6.0** | 7.2 | 399 | 1.05 | 150.41 | 2.6 | | | |
| **6.8** | 8.2 | 353 | 1.15 | 132.97 | 4.3 | | | |
| **7.4** | 8.9 | 321 | 1.25 | 120.88 | 5.1 | | | |
| **8.9** | 11 | 269 | 1.50 | 101.55 | 6.0 | | | |
| **9.7** | 12 | 245 | 1.65 | 92.32 | 6.3 | | | |
| **12** | 14 | 206 | 1.95 | 77.79 | 6.7 | | | |
| **13** | 16 | 188 | 2.15 | 70.71 | 6.9 | | | |
| **15** | 18 | 164 | 2.45 | 61.63 | 7.1 | | | |
| **16** | 19 | 149 | 2.70 | 56.02 | 7.2 | | | |

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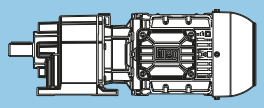
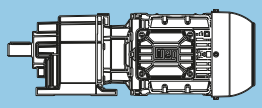
| $P_N$ = 0.25 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>0.25 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>0.30 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **4.6** | 5.5 | 520 | 0.80 | 298.57 | ** | | | |
| **5.1** | 6.1 | 467 | 0.90 | 267.93 | ** | | | |
| **5.6** | 6.7 | 425 | 0.95 | 243.57 | ** | | | |
| **6.4** | 7.7 | 372 | 1.10 | 213.71 | 3.7 | | | |
| **7.1** | 8.5 | 339 | 1.20 | 194.29 | 4.7 | | | |
| **8.3** | 10 | 288 | 1.40 | 165.45 | 5.7 | **CG053-11N-71-04E**<br>**CF053-11N-71-04E** | 17<br>22 | 76 |
| **9.1** | 11 | 262 | 1.55 | 150.41 | 6.1 | | | |
| **10** | 12 | 232 | 1.75 | 132.97 | 6.5 | | | |
| **11** | 13 | 211 | 1.90 | 120.88 | 6.7 | | | |
| **13** | 16 | 177 | 2.30 | 101.55 | 7.0 | | | |
| **15** | 18 | 161 | 2.50 | 92.32 | 7.1 | | | |
| **18** | 22 | 136 | 2.95 | 77.79 | 7.3 | | | |
| **15** | 18 | 156 | 1.65 | 58.85 | 7.2 | | | |
| **17** | 20 | 142 | 1.60 | 53.50 | 7.3 | | | |
| **19** | 23 | 128 | 2.65 | 48.13 | 7.4 | **CG052-11N-71-06F**<br>**CF052-11N-71-06F** | 19<br>24 | 76 |
| **21** | 25 | 116 | 2.65 | 43.75 | 7.4 | | | |
| **25** | 30 | 95 | 1.60 | 35.67 | 7.5 | | | |
| **31** | 37 | 77 | 2.65 | 29.17 | 7.6 | | | |
| **23** | 28 | 103 | 2.45 | 58.85 | 7.5 | | | |
| **26** | 31 | 93 | 2.45 | 53.50 | 7.5 | **CG052-11N-71-04E**<br>**CF052-11N-71-04E** | 16<br>21 | 76 |
| **38** | 46 | 62 | 2.45 | 35.67 | 7.6 | | | |
| **9.0** | 11 | 265 | 0.80 | 99.71 | ** | | | |
| **10** | 12 | 228 | 0.90 | 85.78 | ** | | | |
| **12** | 14 | 207 | 1.00 | 77.90 | 3.8 | | | |
| **14** | 17 | 170 | 1.20 | 64.05 | 4.6 | | | |
| **15** | 18 | 154 | 1.30 | 58.17 | 4.9 | **CG033-11N-71-06F**<br>**CF033-11N-71-06F** | 15<br>17 | 74 |
| **19** | 23 | 128 | 1.60 | 48.22 | 5.2 | | | |
| **21** | 25 | 116 | 1.75 | 43.79 | 5.4 | | | |
| **25** | 30 | 94 | 2.15 | 35.38 | 5.6 | | | |
| **28** | 34 | 85 | 2.35 | 32.13 | 5.6 | | | |
| **9.6** | 12 | 248 | 0.85 | 142.47 | ** | | | |
| **11** | 13 | 226 | 0.90 | 129.39 | ** | | | |
| **12** | 14 | 191 | 1.05 | 109.79 | 4.2 | | | |
| **14** | 17 | 174 | 1.20 | 99.71 | 4.6 | | | |
| **16** | 19 | 150 | 1.35 | 85.78 | 4.9 | **CG033-11N-71-04E**<br>**CF033-11N-71-04E** | 12<br>14 | 74 |
| **18** | 22 | 136 | 1.50 | 77.90 | 5.1 | | | |
| **21** | 25 | 112 | 1.80 | 64.05 | 5.4 | | | |
| **24** | 29 | 101 | 2.00 | 58.17 | 5.5 | | | |
| **28** | 34 | 84 | 2.40 | 48.22 | 5.6 | | | |
| **31** | 37 | 76 | 2.65 | 43.79 | 5.7 | | | |
| **21** | 25 | 114 | 1.65 | 42.88 | 5.4 | | | |
| **23** | 28 | 103 | 1.65 | 38.95 | 5.5 | | | |
| **26** | 31 | 93 | 2.20 | 34.88 | 5.6 | | | |
| **28** | 34 | 84 | 2.40 | 31.67 | 5.6 | **CG032-11N-71-06F**<br>**CF032-11N-71-06F** | 15<br>17 | 74 |
| **32** | 38 | 74 | 2.75 | 27.71 | 5.7 | | | |
| **36** | 43 | 67 | 3.00 | 25.17 | 5.7 | | | |
| **37** | 44 | 64 | 1.65 | 24.03 | 5.8 | | | |
| **46** | 55 | 52 | 2.50 | 19.54 | 5.7 | | | |
| **32** | 38 | 75 | 2.50 | 42.88 | 5.7 | | | |
| **35** | 42 | 68 | 2.50 | 38.95 | 5.7 | **CG032-11N-71-04E**<br>**CF032-11N-71-04E** | 12<br>14 | 74 |
| **57** | 68 | 42 | 2.50 | 24.03 | 5.3 | | | |
| **21** | 25 | 111 | 0.80 | 42.00 | ** | | | |
| **24** | 29 | 100 | 0.90 | 37.64 | ** | | | |
| **27** | 32 | 88 | 1.00 | 33.09 | 2.7 | | | |
| **30** | 36 | 79 | 1.10 | 29.65 | 2.9 | | | |
| **35** | 42 | 68 | 1.30 | 25.50 | 3.1 | | | |
| **39** | 47 | 61 | 1.45 | 22.85 | 3.2 | | | |
| **45** | 54 | 53 | 1.65 | 19.92 | 3.3 | | | |
| **46** | 55 | 52 | 1.30 | 19.51 | 3.3 | **CG012-11N-71-06F**<br>**CF012-11N-71-06F** | 12<br>13 | 72 |
| **50** | 60 | 47 | 1.80 | 17.85 | 3.4 | | | |
| **57** | 68 | 42 | 1.60 | 15.82 | 3.4 | | | |
| **61** | 73 | 40 | 2.20 | 14.88 | 3.4 | | | |
| **68** | 82 | 35 | 2.45 | 13.33 | 3.5 | | | |
| **72** | 86 | 33 | 2.00 | 12.46 | 3.5 | | | |
| **80** | 96 | 30 | 2.90 | 11.20 | 3.4 | | | |
| **94** | 113 | 26 | 2.60 | 9.60 | 3.2 | | | |

| $P_N$ = 0.25 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 0.25 kW $n_{50}$ min$^{-1}$ | 60 Hz 0.30 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **23** | 28 | 104 | 0.85 | 59.59 | ** | **CG012-11N-71-04E**<br>**CF012-11N-71-04E** | 9.4<br>11 | 72 |
| **26** | 31 | 90 | 0.95 | 51.80 | ** | | | |
| **30** | 36 | 81 | 1.10 | 46.42 | 2.8 | | | |
| **33** | 40 | 73 | 1.20 | 42.00 | 3.0 | | | |
| **36** | 43 | 66 | 1.30 | 37.64 | 3.1 | | | |
| **41** | 49 | 58 | 1.50 | 33.09 | 3.2 | | | |
| **46** | 55 | 52 | 1.65 | 29.65 | 3.3 | | | |
| **54** | 65 | 44 | 1.95 | 25.50 | 3.4 | | | |
| **55** | 66 | 44 | 0.95 | 25.05 | ** | | | |
| **60** | 72 | 40 | 2.15 | 22.85 | 3.4 | | | |
| **69** | 83 | 35 | 2.45 | 19.92 | 3.5 | | | |
| **70** | 84 | 34 | 1.95 | 19.51 | 3.5 | | | |
| **77** | 92 | 31 | 2.75 | 17.85 | 3.4 | | | |
| **87** | 104 | 28 | 2.40 | 15.82 | 3.3 | | | |
| **39** | 47 | 61 | 0.85 | 23.00 | ** | **CG002-11N-71-06F**<br>**CF002-11N-71-06F** | 11<br>12 | 70 |
| **44** | 53 | 55 | 0.95 | 20.53 | ** | | | |
| **52** | 62 | 46 | 1.10 | 17.29 | 1.8 | | | |
| **58** | 70 | 41 | 1.25 | 15.43 | 1.8 | | | |
| **66** | 79 | 36 | 1.40 | 13.54 | 2.0 | | | |
| **69** | 83 | 35 | 1.25 | 13.10 | 1.5 | | | |
| **74** | 89 | 32 | 1.60 | 12.08 | 2.0 | | | |
| **86** | 103 | 28 | 1.65 | 10.42 | 1.7 | | | |
| **90** | 108 | 26 | 1.90 | 9.97 | 2.1 | | | |
| **101** | 121 | 24 | 2.15 | 8.90 | 2.0 | | | |
| **110** | 132 | 22 | 2.05 | 8.17 | 1.8 | | | |
| **131** | 157 | 18 | 2.75 | 6.88 | 2.1 | | | |
| **147** | 176 | 16 | 2.50 | 6.14 | 1.8 | | | |
| **187** | 224 | 13 | 2.90 | 4.81 | 1.8 | | | |
| **37** | 44 | 64 | 0.80 | 36.85 | ** | **CG002-11N-71-04E**<br>**CF002-11N-71-04E** | 8.3<br>9.6 | 70 |
| **42** | 50 | 57 | 0.90 | 32.89 | ** | | | |
| **47** | 56 | 51 | 1.00 | 29.33 | 1.7 | | | |
| **52** | 62 | 46 | 1.10 | 26.18 | 1.7 | | | |
| **60** | 72 | 40 | 1.25 | 23.00 | 1.9 | | | |
| **67** | 80 | 36 | 1.40 | 20.53 | 1.9 | | | |
| **79** | 95 | 30 | 1.70 | 17.29 | 2.0 | | | |
| **81** | 97 | 29 | 1.10 | 16.86 | 1.6 | | | |
| **89** | 107 | 27 | 1.90 | 15.43 | 2.0 | | | |
| **101** | 121 | 24 | 2.15 | 13.54 | 2.1 | | | |
| **105** | 126 | 23 | 1.90 | 13.10 | 1.8 | | | |
| **113** | 136 | 21 | 2.40 | 12.08 | 2.1 | | | |
| **131** | 157 | 18 | 2.50 | 10.42 | 1.8 | | | |
| **137** | 164 | 17 | 2.90 | 9.97 | 2.1 | | | |
| **154** | 185 | 16 | 3.25 | 8.90 | 2.0 | | | |
| **168** | 202 | 14 | 3.10 | 8.17 | 1.8 | | | |
| **199** | 239 | 12 | 4.20 | 6.88 | 2.0 | | | |
| **223** | 268 | 11 | 3.75 | 6.14 | 1.8 | | | |
| **223** | 268 | 11 | 4.70 | 6.14 | 1.9 | | | |
| **285** | 342 | 8 | 4.45 | 4.81 | 1.8 | | | |
| **387** | 464 | 6 | 5.50 | 3.54 | 1.7 | | | |



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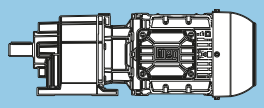
| $P_N$ = 0.37 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>0.37 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>0.44 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **2.5** | 3.0 | 1417 | 1.10 | 368.94 | 19.0 | **CG083-11N-80-06E**<br>**CF083-11N-80-06E** | 64<br>68 | 82 |
| **3.2** | 3.8 | 1094 | 1.45 | 284.84 | 21.4 | | | |
| **3.9** | 4.7 | 918 | 1.70 | 238.89 | 22.4 | | | |
| **4.9** | 5.9 | 720 | 2.20 | 187.48 | 23.2 | | | |
| **6.4** | 7.7 | 556 | 2.80 | 144.69 | 23.8 | | | |
| **3.6** | 4.3 | 988 | 1.60 | 368.94 | 22.0 | **CG083-11N-71-04F**<br>**CF083-11N-71-04F** | 62<br>66 | 82 |
| **4.6** | 5.5 | 763 | 2.05 | 284.84 | 23.1 | | | |
| **5.5** | 6.6 | 640 | 2.45 | 238.89 | 23.5 | | | |
| **3.3** | 4.0 | 1069 | 0.80 | 278.44 | ** | **CG073-11N-80-06E**<br>**CF073-11N-80-06E** | 40<br>44 | 80 |
| **3.6** | 4.3 | 973 | 0.85 | 253.30 | ** | | | |
| **4.3** | 5.2 | 830 | 1.00 | 216.20 | 8.3 | | | |
| **4.7** | 5.6 | 755 | 1.10 | 196.68 | 9.5 | | | |
| **5.2** | 6.2 | 681 | 1.25 | 177.39 | 10.5 | | | |
| **5.7** | 6.8 | 620 | 1.35 | 161.38 | 11.2 | | | |
| **6.7** | 8.0 | 528 | 1.60 | 137.38 | 12.1 | | | |
| **7.4** | 8.9 | 480 | 1.75 | 124.97 | 12.4 | | | |
| **8.8** | 11 | 401 | 2.05 | 104.50 | 12.9 | | | |
| **9.7** | 12 | 365 | 2.25 | 95.06 | 13.1 | | | |
| **11** | 13 | 331 | 2.50 | 86.17 | 13.3 | | | |
| **12** | 14 | 301 | 2.75 | 78.39 | 13.4 | | | |
| **3.8** | 4.6 | 941 | 0.90 | 351.33 | ** | **CG073-11N-71-04F**<br>**CF073-11N-71-04F** | 38<br>42 | 80 |
| **4.1** | 4.9 | 856 | 1.00 | 319.60 | 7.8 | | | |
| **4.7** | 5.6 | 745 | 1.15 | 278.44 | 9.7 | | | |
| **5.2** | 6.2 | 678 | 1.25 | 253.30 | 10.6 | | | |
| **6.1** | 7.3 | 579 | 1.45 | 216.20 | 11.6 | | | |
| **6.7** | 8.0 | 527 | 1.60 | 196.68 | 12.1 | | | |
| **7.4** | 8.9 | 475 | 1.75 | 177.39 | 12.5 | | | |
| **8.2** | 9.8 | 432 | 1.90 | 161.38 | 12.7 | | | |
| **9.6** | 12 | 368 | 2.25 | 137.38 | 13.1 | | | |
| **11** | 13 | 335 | 2.50 | 124.97 | 13.3 | | | |
| **13** | 16 | 280 | 2.95 | 104.50 | 13.5 | | | |
| **4.9** | 5.9 | 723 | 0.85 | 188.11 | ** | **CG063-11N-80-06E**<br>**CF063-11N-80-06E** | 24<br>29 | 78 |
| **5.3** | 6.4 | 663 | 0.95 | 172.49 | ** | | | |
| **6.0** | 7.2 | 591 | 1.05 | 153.96 | 6.4 | | | |
| **6.5** | 7.8 | 542 | 1.15 | 141.17 | 7.4 | | | |
| **7.8** | 9.4 | 455 | 1.35 | 118.51 | 8.7 | | | |
| **8.5** | 10 | 417 | 1.45 | 108.67 | 9.2 | | | |
| **10** | 12 | 344 | 1.75 | 89.54 | 9.9 | | | |
| **11** | 13 | 315 | 1.95 | 82.10 | 10.1 | | | |
| **13** | 16 | 281 | 2.15 | 73.28 | 10.4 | | | |
| **14** | 17 | 258 | 2.35 | 67.19 | 10.5 | | | |
| **15** | 18 | 228 | 2.65 | 59.42 | 10.7 | | | |
| **17** | 20 | 209 | 2.90 | 54.49 | 10.8 | | | |
| **4.7** | 5.6 | 754 | 0.80 | 281.73 | ** | **CG063-11N-71-04F**<br>**CF063-11N-71-04F** | 22<br>27 | 78 |
| **5.4** | 6.5 | 649 | 0.95 | 242.60 | ** | | | |
| **5.9** | 7.1 | 596 | 1.05 | 222.46 | 6.3 | | | |
| **7.0** | 8.4 | 504 | 1.20 | 188.11 | 8.1 | | | |
| **7.7** | 9.2 | 462 | 1.30 | 172.49 | 8.6 | | | |
| **8.6** | 10 | 412 | 1.50 | 153.96 | 9.2 | | | |
| **9.4** | 11 | 378 | 1.60 | 141.17 | 9.6 | | | |
| **11** | 13 | 317 | 1.90 | 118.51 | 10.1 | | | |
| **12** | 14 | 291 | 2.10 | 108.67 | 10.3 | | | |
| **15** | 18 | 240 | 2.55 | 89.54 | 10.6 | | | |
| **16** | 19 | 220 | 2.75 | 82.10 | 10.7 | | | |
| **15** | 18 | 230 | 1.85 | 60.00 | 10.7 | **CG062-11N-80-06E**<br>**CF062-11N-80-06E** | 23<br>28 | 78 |
| **17** | 20 | 211 | 1.85 | 55.02 | 10.8 | | | |
| **28** | 34 | 128 | 1.85 | 33.43 | 11.1 | | | |
| **22** | 26 | 161 | 2.65 | 60.00 | 11.0 | **CG062-11N-71-04F**<br>**CF062-11N-71-04F** | 22<br>27 | 78 |
| **24** | 29 | 147 | 2.65 | 55.02 | 11.0 | | | |
| **39** | 47 | 90 | 2.65 | 33.43 | 11.2 | | | |

*Legend see page 25*

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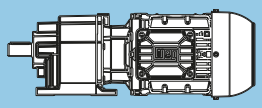
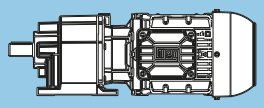
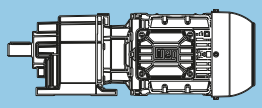
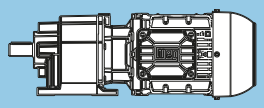
| $P_N$ = 0.37 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 0.37 kW $n_{50}$ min$^{-1}$ | 60 Hz 0.44 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **6.9** | 8.3 | 511 | 0.80 | 132.97 | ** | **CG053-11N-80-06E**<br>**CF053-11N-80-06E** | 19<br>24 | 76 |
| **7.6** | 9.1 | 464 | 0.90 | 120.88 | ** | | | |
| **9.1** | 11 | 390 | 1.05 | 101.55 | 3.0 | | | |
| **10** | 12 | 355 | 1.15 | 92.32 | 4.2 | | | |
| **12** | 14 | 299 | 1.35 | 77.79 | 5.5 | | | |
| **13** | 16 | 272 | 1.50 | 70.71 | 5.9 | | | |
| **15** | 18 | 237 | 1.70 | 61.63 | 6.4 | | | |
| **16** | 19 | 215 | 1.90 | 56.02 | 6.7 | | | |
| **19** | 23 | 189 | 2.15 | 49.20 | 6.9 | | | |
| **21** | 25 | 172 | 2.35 | 44.73 | 7.1 | | | |
| **6.8** | 8.2 | 520 | 0.80 | 194.29 | ** | **CG053-11N-71-04F**<br>**CF053-11N-71-04F** | 17<br>22 | 76 |
| **8.0** | 9.6 | 443 | 0.95 | 165.45 | ** | | | |
| **8.8** | 11 | 403 | 1.00 | 150.41 | 2.4 | | | |
| **9.9** | 12 | 356 | 1.15 | 132.97 | 4.2 | | | |
| **11** | 13 | 324 | 1.25 | 120.88 | 5.0 | | | |
| **13** | 16 | 272 | 1.50 | 101.55 | 5.9 | | | |
| **14** | 17 | 247 | 1.65 | 92.32 | 6.3 | | | |
| **17** | 20 | 208 | 1.95 | 77.79 | 6.7 | | | |
| **19** | 23 | 189 | 2.15 | 70.71 | 6.9 | | | |
| **21** | 25 | 165 | 2.45 | 61.63 | 7.1 | | | |
| **24** | 29 | 150 | 2.70 | 56.02 | 7.2 | | | |
| **16** | 19 | 226 | 1.15 | 58.85 | 6.5 | **CG052-11N-80-06E**<br>**CF052-11N-80-06E** | 18<br>23 | 76 |
| **17** | 20 | 206 | 1.15 | 53.50 | 6.8 | | | |
| **19** | 23 | 185 | 1.85 | 48.13 | 6.9 | | | |
| **21** | 25 | 168 | 1.85 | 43.75 | 7.1 | | | |
| **24** | 29 | 146 | 2.75 | 38.00 | 7.2 | | | |
| **26** | 31 | 137 | 1.15 | 35.67 | 7.3 | | | |
| **32** | 38 | 112 | 1.85 | 29.17 | 7.4 | | | |
| **22** | 26 | 158 | 1.60 | 58.85 | 7.2 | **CG052-11N-71-04F**<br>**CF052-11N-71-04F** | 16<br>21 | 76 |
| **25** | 30 | 143 | 1.60 | 53.50 | 7.3 | | | |
| **27** | 32 | 129 | 2.65 | 48.13 | 7.4 | | | |
| **30** | 36 | 117 | 2.65 | 43.75 | 7.4 | | | |
| **37** | 44 | 96 | 1.60 | 35.67 | 7.5 | | | |
| **45** | 54 | 78 | 2.65 | 29.17 | 7.6 | | | |
| **14** | 17 | 246 | 0.85 | 64.05 | ** | **CG033-11N-80-06E**<br>**CF033-11N-80-06E** | 15<br>17 | 74 |
| **16** | 19 | 223 | 0.90 | 58.17 | ** | | | |
| **19** | 23 | 185 | 1.10 | 48.22 | 4.3 | | | |
| **21** | 25 | 168 | 1.20 | 43.79 | 4.7 | | | |
| **26** | 31 | 136 | 1.50 | 35.38 | 5.1 | | | |
| **29** | 35 | 123 | 1.65 | 32.13 | 5.3 | | | |
| **15** | 18 | 230 | 0.90 | 85.78 | ** | **CG033-11N-71-04F**<br>**CF033-11N-71-04F** | 13<br>15 | 74 |
| **17** | 20 | 209 | 1.00 | 77.90 | 3.8 | | | |
| **21** | 25 | 171 | 1.20 | 64.05 | 4.6 | | | |
| **23** | 28 | 156 | 1.30 | 58.17 | 4.9 | | | |
| **27** | 32 | 129 | 1.55 | 48.22 | 5.2 | | | |
| **30** | 36 | 117 | 1.75 | 43.79 | 5.3 | | | |
| **37** | 44 | 95 | 2.15 | 35.38 | 5.6 | | | |
| **41** | 49 | 86 | 2.35 | 32.13 | 5.6 | | | |
| **21** | 25 | 165 | 1.15 | 42.88 | 4.7 | **CG032-11N-80-06E**<br>**CF032-11N-80-06E** | 14<br>16 | 74 |
| **24** | 29 | 150 | 1.15 | 38.95 | 4.9 | | | |
| **26** | 31 | 134 | 1.50 | 34.88 | 5.2 | | | |
| **29** | 35 | 122 | 1.65 | 31.67 | 5.3 | | | |
| **33** | 40 | 106 | 1.90 | 27.71 | 5.5 | | | |
| **37** | 44 | 97 | 2.10 | 25.17 | 5.5 | | | |
| **38** | 46 | 92 | 1.15 | 24.03 | 5.6 | | | |
| **43** | 52 | 82 | 2.45 | 21.40 | 5.6 | | | |
| **47** | 56 | 75 | 1.75 | 19.54 | 5.5 | | | |
| **47** | 56 | 75 | 2.70 | 19.44 | 5.5 | | | |
| **59** | 71 | 60 | 2.20 | 15.53 | 5.2 | | | |
| **77** | 92 | 46 | 2.85 | 11.99 | 4.8 | | | |
| **31** | 37 | 115 | 1.65 | 42.88 | 5.4 | **CG032-11N-71-04F**<br>**CF032-11N-71-04F** | 12<br>14 | 74 |
| **34** | 41 | 104 | 1.65 | 38.95 | 5.5 | | | |
| **38** | 46 | 93 | 2.15 | 34.88 | 5.6 | | | |
| **42** | 50 | 85 | 2.40 | 31.67 | 5.6 | | | |
| **48** | 58 | 74 | 2.70 | 27.71 | 5.5 | | | |
| **52** | 62 | 67 | 3.00 | 25.17 | 5.4 | | | |
| **55** | 66 | 64 | 1.65 | 24.03 | 5.3 | | | |
| **68** | 82 | 52 | 2.45 | 19.54 | 5.0 | | | |

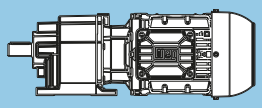
| $P_N$ = 0.37 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>0.37 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>0.44 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **36** | 43 | 98 | 0.90 | 25.50 | ** | **CG012-11N-80-06E**<br>**CF012-11N-80-06E** | 12<br>13 | 72 |
| **40** | 48 | 88 | 1.00 | 22.85 | 2.7 | | | |
| **46** | 55 | 77 | 1.15 | 19.92 | 2.9 | | | |
| **47** | 56 | 75 | 0.90 | 19.51 | ** | | | |
| **52** | 62 | 69 | 1.25 | 17.85 | 3.1 | | | |
| **58** | 70 | 61 | 1.10 | 15.82 | 3.2 | | | |
| **62** | 74 | 57 | 1.50 | 14.88 | 3.2 | | | |
| **69** | 83 | 51 | 1.70 | 13.33 | 3.3 | | | |
| **74** | 89 | 48 | 1.40 | 12.46 | 3.3 | | | |
| **82** | 98 | 43 | 2.00 | 11.20 | 3.3 | | | |
| **92** | 110 | 39 | 2.25 | 10.04 | 3.2 | | | |
| **96** | 115 | 37 | 1.80 | 9.60 | 3.1 | | | |
| **112** | 134 | 32 | 2.70 | 8.22 | 3.0 | | | |
| **123** | 148 | 29 | 2.30 | 7.50 | 2.9 | | | |
| **31** | 37 | 112 | 0.80 | 42.00 | ** | **CG012-11N-71-04F**<br>**CF012-11N-71-04F** | 10<br>11 | 72 |
| **35** | 42 | 101 | 0.85 | 37.64 | ** | | | |
| **40** | 48 | 89 | 1.00 | 33.09 | 2.7 | | | |
| **45** | 54 | 79 | 1.10 | 29.65 | 2.9 | | | |
| **52** | 62 | 68 | 1.25 | 25.50 | 3.1 | | | |
| **58** | 70 | 61 | 1.40 | 22.85 | 3.2 | | | |
| **66** | 79 | 53 | 1.60 | 19.92 | 3.3 | | | |
| **68** | 82 | 52 | 1.30 | 19.51 | 3.3 | | | |
| **74** | 89 | 48 | 1.80 | 17.85 | 3.4 | | | |
| **83** | 100 | 42 | 1.60 | 15.82 | 3.2 | | | |
| **89** | 107 | 40 | 2.15 | 14.88 | 3.2 | | | |
| **99** | 119 | 36 | 2.40 | 13.33 | 3.1 | | | |
| **106** | 127 | 33 | 2.00 | 12.46 | 3.0 | | | |
| **118** | 142 | 30 | 2.85 | 11.20 | 3.0 | | | |
| **137** | 164 | 26 | 2.60 | 9.60 | 2.8 | | | |
| **53** | 64 | 66 | 0.80 | 17.29 | ** | **CG002-11N-80-06E**<br>**CF002-11N-80-06E** | 11<br>12 | 72 |
| **60** | 72 | 59 | 0.85 | 15.43 | ** | | | |
| **68** | 82 | 52 | 1.00 | 13.54 | 1.1 | | | |
| **70** | 84 | 50 | 0.90 | 13.10 | ** | | | |
| **76** | 91 | 46 | 1.10 | 12.08 | 1.2 | | | |
| **88** | 106 | 40 | 1.15 | 10.42 | 0.9 | | | |
| **92** | 110 | 38 | 1.35 | 9.97 | 1.4 | | | |
| **103** | 124 | 34 | 1.50 | 8.90 | 1.5 | | | |
| **113** | 136 | 31 | 1.45 | 8.17 | 1.2 | | | |
| **134** | 161 | 26 | 1.90 | 6.88 | 1.6 | | | |
| **150** | 180 | 24 | 1.70 | 6.14 | 1.4 | | | |
| **150** | 180 | 24 | 2.15 | 6.14 | 1.6 | | | |
| **191** | 229 | 19 | 2.00 | 4.81 | 1.5 | | | |
| **260** | 312 | 14 | 2.50 | 3.54 | 1.5 | | | |
| **57** | 68 | 62 | 0.85 | 23.00 | ** | **CG002-11N-71-04F**<br>**CF002-11N-71-04F** | 9.0<br>10 | 70 |
| **64** | 77 | 55 | 0.95 | 20.53 | ** | | | |
| **76** | 91 | 46 | 1.10 | 17.29 | 1.3 | | | |
| **86** | 103 | 41 | 1.25 | 15.43 | 1.3 | | | |
| **98** | 118 | 36 | 1.40 | 13.54 | 1.5 | | | |
| **101** | 121 | 35 | 1.25 | 13.10 | 1.0 | | | |
| **109** | 131 | 32 | 1.55 | 12.08 | 1.5 | | | |
| **127** | 152 | 28 | 1.65 | 10.42 | 1.3 | | | |
| **132** | 158 | 27 | 1.90 | 9.97 | 1.6 | | | |
| **148** | 178 | 24 | 2.15 | 8.90 | 1.7 | | | |
| **161** | 193 | 22 | 2.05 | 8.17 | 1.4 | | | |
| **192** | 230 | 18 | 2.75 | 6.88 | 1.7 | | | |
| **215** | 258 | 16 | 3.05 | 6.14 | 1.7 | | | |
| **215** | 258 | 16 | 2.45 | 6.14 | 1.5 | | | |
| **274** | 329 | 13 | 2.90 | 4.81 | 1.5 | | | |
| **373** | 448 | 10 | 3.60 | 3.54 | 1.5 | | | |

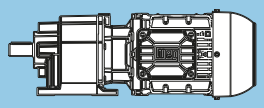
*Legend see page 25*

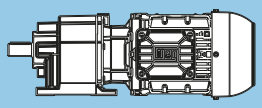
*** ... on request*

| $P_N$ = 0.55 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 0.55 kW $n_{50}$ min$^{-1}$ | 60 Hz 0.66 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **3.3** | 4.0 | 1609 | 1.00 | 284.84 | 17.1 | | | |
| **3.9** | 4.7 | 1349 | 1.15 | 238.89 | 19.6 | | | |
| **5.0** | 6.0 | 1059 | 1.50 | 187.48 | 21.6 | **CG083-11N-80-06F** | 64 | 82 |
| **6.4** | 7.7 | 817 | 1.90 | 144.69 | 22.8 | **CF083-11N-80-06F** | 68 | |
| **7.8** | 9.4 | 676 | 2.30 | 119.68 | 23.4 | | | |
| **9.1** | 11 | 575 | 2.70 | 101.80 | 23.7 | | | |
| **3.8** | 4.6 | 1370 | 1.15 | 368.94 | 19.4 | | | |
| **5.0** | 6.0 | 1057 | 1.50 | 284.84 | 21.6 | | | |
| **5.9** | 7.1 | 887 | 1.75 | 238.89 | 22.5 | **CG083-11N-80-04E** | 64 | 82 |
| **7.5** | 9.0 | 696 | 2.25 | 187.48 | 23.3 | **CF083-11N-80-04E** | 68 | |
| **9.8** | 12 | 537 | 2.90 | 144.69 | 23.8 | | | |
| **5.2** | 6.2 | 1002 | 0.85 | 177.39 | ** | | | |
| **5.8** | 7.0 | 911 | 0.90 | 161.38 | ** | | | |
| **6.8** | 8.2 | 776 | 1.10 | 137.38 | 9.2 | | | |
| **7.4** | 8.9 | 706 | 1.20 | 124.97 | 10.2 | | | |
| **8.9** | 11 | 590 | 1.40 | 104.50 | 11.5 | | | |
| **9.8** | 12 | 537 | 1.55 | 95.06 | 12.0 | | | |
| **11** | 13 | 487 | 1.70 | 86.17 | 12.4 | **CG073-11N-80-06F** | 40 | 80 |
| **12** | 14 | 443 | 1.90 | 78.39 | 12.7 | **CF073-11N-80-06F** | 44 | |
| **13** | 16 | 399 | 2.10 | 70.68 | 12.9 | | | |
| **14** | 17 | 363 | 2.30 | 64.30 | 13.1 | | | |
| **15** | 18 | 339 | 2.45 | 60.06 | 13.3 | | | |
| **17** | 20 | 309 | 2.70 | 54.63 | 13.4 | | | |
| **19** | 23 | 279 | 2.95 | 49.38 | 13.5 | | | |
| **5.1** | 6.1 | 1034 | 0.80 | 278.44 | ** | | | |
| **5.6** | 6.7 | 940 | 0.90 | 253.30 | ** | | | |
| **6.5** | 7.8 | 803 | 1.05 | 216.20 | 8.8 | | | |
| **7.2** | 8.6 | 730 | 1.15 | 196.68 | 9.9 | | | |
| **8.0** | 9.6 | 659 | 1.25 | 177.39 | 10.8 | | | |
| **8.8** | 11 | 599 | 1.40 | 161.38 | 11.4 | **CG073-11N-80-04E** | 40 | 80 |
| **10** | 12 | 510 | 1.65 | 137.38 | 12.2 | **CF073-11N-80-04E** | 44 | |
| **11** | 13 | 464 | 1.80 | 124.97 | 12.5 | | | |
| **14** | 17 | 388 | 2.15 | 104.50 | 13.0 | | | |
| **15** | 18 | 353 | 2.35 | 95.06 | 13.2 | | | |
| **16** | 19 | 320 | 2.60 | 86.17 | 13.3 | | | |
| **18** | 22 | 291 | 2.85 | 78.39 | 13.5 | | | |
| **6.6** | 7.9 | 797 | 0.80 | 141.17 | ** | | | |
| **7.8** | 9.4 | 669 | 0.90 | 118.51 | ** | | | |
| **8.6** | 10 | 614 | 1.00 | 108.67 | 5.9 | | | |
| **10** | 12 | 506 | 1.20 | 89.54 | 8.0 | | | |
| **11** | 13 | 464 | 1.30 | 82.10 | 8.6 | | | |
| **13** | 16 | 414 | 1.45 | 73.28 | 9.2 | **CG063-11N-80-06F** | 24 | 78 |
| **14** | 17 | 380 | 1.60 | 67.19 | 9.6 | **CF063-11N-80-06F** | 29 | |
| **16** | 19 | 336 | 1.80 | 59.42 | 10.0 | | | |
| **17** | 20 | 308 | 1.95 | 54.49 | 10.2 | | | |
| **19** | 23 | 281 | 2.15 | 49.74 | 10.4 | | | |
| **20** | 24 | 258 | 2.35 | 45.61 | 10.5 | | | |
| **7.5** | 9.0 | 698 | 0.90 | 188.11 | ** | | | |
| **8.2** | 9.8 | 640 | 0.95 | 172.49 | ** | | | |
| **9.2** | 11 | 572 | 1.05 | 153.96 | 6.9 | | | |
| **10** | 12 | 524 | 1.15 | 141.17 | 7.7 | | | |
| **12** | 14 | 440 | 1.40 | 118.51 | 8.9 | | | |
| **13** | 16 | 403 | 1.50 | 108.67 | 9.3 | **CG063-11N-80-04E** | 23 | 78 |
| **16** | 19 | 332 | 1.85 | 89.54 | 10.0 | **CF063-11N-80-04E** | 28 | |
| **17** | 20 | 305 | 2.00 | 82.10 | 10.2 | | | |
| **19** | 23 | 272 | 2.25 | 73.28 | 10.4 | | | |
| **21** | 25 | 249 | 2.45 | 67.19 | 10.6 | | | |
| **24** | 29 | 221 | 2.75 | 59.42 | 10.7 | | | |
| **26** | 31 | 202 | 3.00 | 54.49 | 10.8 | | | |
| **16** | 19 | 339 | 1.25 | 60.00 | 9.9 | | | |
| **17** | 20 | 311 | 1.25 | 55.02 | 10.1 | | | |
| **20** | 24 | 269 | 2.25 | 47.55 | 10.4 | **CG062-11N-80-06F** | 24 | 78 |
| **21** | 25 | 246 | 2.30 | 43.60 | 10.6 | **CF062-11N-80-06F** | 29 | |
| **25** | 30 | 209 | 2.90 | 36.92 | 10.8 | | | |
| **28** | 34 | 189 | 1.25 | 33.43 | 10.9 | | | |
| **35** | 42 | 150 | 2.30 | 26.49 | 11.0 | | | |

| $P_N$ = 0.55 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>0.55 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>0.66 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **24** | 29 | 223 | 1.90 | 60.00 | 10.7 | **CG062-11N-80-04E**<br>**CF062-11N-80-04E** | 23<br>28 | 78 |
| **26** | 31 | 204 | 1.90 | 55.02 | 10.8 | | | |
| **42** | 50 | 124 | 1.90 | 33.43 | 11.1 | | | |
| **10** | 12 | 521 | 0.80 | 92.32 | ** | **CG053-11N-80-06F**<br>**CF053-11N-80-06F** | 19<br>24 | 76 |
| **12** | 14 | 439 | 0.95 | 77.79 | ** | | | |
| **13** | 16 | 399 | 1.05 | 70.71 | 2.6 | | | |
| **15** | 18 | 348 | 1.15 | 61.63 | 4.4 | | | |
| **17** | 20 | 316 | 1.30 | 56.02 | 5.1 | | | |
| **19** | 23 | 278 | 1.45 | 49.20 | 5.8 | | | |
| **21** | 25 | 253 | 1.60 | 44.73 | 6.2 | | | |
| **11** | 13 | 494 | 0.85 | 132.97 | ** | **CG053-11N-80-04E**<br>**CF053-11N-80-04E** | 19<br>24 | 76 |
| **12** | 14 | 449 | 0.90 | 120.88 | ** | | | |
| **14** | 17 | 377 | 1.10 | 101.55 | 3.5 | | | |
| **15** | 18 | 343 | 1.20 | 92.32 | 4.6 | | | |
| **18** | 22 | 289 | 1.40 | 77.79 | 5.7 | | | |
| **20** | 24 | 263 | 1.55 | 70.71 | 6.1 | | | |
| **23** | 28 | 229 | 1.75 | 61.63 | 6.5 | | | |
| **25** | 30 | 208 | 1.95 | 56.02 | 6.7 | | | |
| **29** | 35 | 183 | 2.20 | 49.20 | 7.0 | | | |
| **32** | 38 | 166 | 2.45 | 44.73 | 7.1 | | | |
| **16** | 19 | 332 | 0.80 | 58.85 | ** | **CG052-11N-80-06F**<br>**CF052-11N-80-06F** | 18<br>23 | 76 |
| **17** | 20 | 302 | 0.80 | 53.50 | ** | | | |
| **19** | 23 | 272 | 1.25 | 48.13 | 5.9 | | | |
| **21** | 25 | 247 | 1.25 | 43.75 | 6.3 | | | |
| **24** | 29 | 215 | 1.90 | 38.00 | 6.7 | | | |
| **27** | 32 | 195 | 2.10 | 34.55 | 6.9 | | | |
| **32** | 38 | 165 | 1.25 | 29.17 | 7.1 | | | |
| **32** | 38 | 166 | 2.45 | 29.46 | 7.1 | | | |
| **35** | 42 | 151 | 2.65 | 26.79 | 7.2 | | | |
| **39** | 47 | 136 | 2.95 | 24.12 | 7.3 | | | |
| **40** | 48 | 130 | 2.10 | 23.03 | 7.3 | | | |
| **52** | 62 | 101 | 2.65 | 17.86 | 7.5 | | | |
| **24** | 29 | 219 | 1.15 | 58.85 | 6.6 | **CG052-11N-80-04E**<br>**CF052-11N-80-04E** | 18<br>23 | 76 |
| **26** | 31 | 199 | 1.15 | 53.50 | 6.8 | | | |
| **29** | 35 | 179 | 1.90 | 48.13 | 7.0 | | | |
| **32** | 38 | 162 | 1.90 | 43.75 | 7.1 | | | |
| **37** | 44 | 141 | 2.85 | 38.00 | 7.3 | | | |
| **40** | 48 | 132 | 1.15 | 35.67 | 7.3 | | | |
| **49** | 59 | 108 | 1.90 | 29.17 | 7.5 | | | |
| **21** | 25 | 247 | 0.85 | 43.79 | ** | **CG033-11N-80-06F**<br>**CF033-11N-80-06F** | 15<br>17 | 74 |
| **26** | 31 | 200 | 1.05 | 35.38 | 4.0 | | | |
| **29** | 35 | 182 | 1.15 | 32.13 | 4.4 | | | |
| **22** | 26 | 238 | 0.85 | 64.05 | ** | **CG033-11N-80-04E**<br>**CF033-11N-80-04E** | 14<br>16 | 74 |
| **24** | 29 | 216 | 0.95 | 58.17 | ** | | | |
| **29** | 35 | 179 | 1.15 | 48.22 | 4.5 | | | |
| **32** | 38 | 163 | 1.25 | 43.79 | 4.7 | | | |
| **40** | 48 | 131 | 1.55 | 35.38 | 5.2 | | | |
| **44** | 53 | 119 | 1.70 | 32.13 | 5.3 | | | |
| **22** | 26 | 242 | 0.80 | 42.88 | ** | **CG032-11N-80-06F**<br>**CF032-11N-80-06F** | 14<br>16 | 74 |
| **24** | 29 | 220 | 0.80 | 38.95 | ** | | | |
| **27** | 32 | 197 | 1.05 | 34.88 | 4.1 | | | |
| **29** | 35 | 179 | 1.15 | 31.67 | 4.5 | | | |
| **34** | 41 | 157 | 1.30 | 27.71 | 4.8 | | | |
| **37** | 44 | 142 | 1.45 | 25.17 | 5.1 | | | |
| **39** | 47 | 136 | 0.80 | 24.03 | ** | | | |
| **43** | 52 | 121 | 1.70 | 21.40 | 5.3 | | | |
| **48** | 58 | 110 | 1.85 | 19.44 | 5.3 | | | |
| **48** | 58 | 110 | 1.20 | 19.54 | 5.2 | | | |
| **54** | 65 | 97 | 2.10 | 17.09 | 5.2 | | | |
| **60** | 72 | 88 | 1.50 | 15.53 | 4.9 | | | |
| **60** | 72 | 88 | 2.30 | 15.52 | 5.0 | | | |
| **72** | 86 | 73 | 2.75 | 12.92 | 4.8 | | | |
| **78** | 94 | 68 | 1.95 | 11.99 | 4.6 | | | |
| **97** | 116 | 54 | 2.45 | 9.57 | 4.3 | | | |

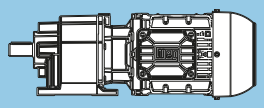
| $P_N$ = 0.55 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>0.55 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>0.66 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **33** | 40 | 159 | 1.20 | 42.88 | 4.8 | | | |
| **36** | 43 | 145 | 1.20 | 38.95 | 5.0 | | | |
| **41** | 49 | 130 | 1.55 | 34.88 | 5.2 | | | |
| **45** | 54 | 118 | 1.75 | 31.67 | 5.3 | | | |
| **51** | 61 | 103 | 1.95 | 27.71 | 5.2 | | | |
| **56** | 67 | 93 | 2.15 | 25.17 | 5.1 | **CG032-11N-80-04E**<br>**CF032-11N-80-04E** | 14<br>16 | 74 |
| **59** | 71 | 89 | 1.20 | 24.03 | 5.0 | | | |
| **66** | 79 | 80 | 2.55 | 21.40 | 4.9 | | | |
| **72** | 86 | 73 | 1.80 | 19.54 | 4.7 | | | |
| **73** | 88 | 72 | 2.80 | 19.44 | 4.7 | | | |
| **91** | 109 | 58 | 2.30 | 15.53 | 4.4 | | | |
| **118** | 142 | 45 | 2.95 | 11.99 | 4.1 | | | |
| **47** | 56 | 113 | 0.80 | 19.92 | ** | | | |
| **52** | 62 | 101 | 0.85 | 17.85 | ** | | | |
| **63** | 76 | 84 | 1.05 | 14.88 | 2.8 | | | |
| **70** | 84 | 75 | 1.15 | 13.33 | 3.0 | | | |
| **75** | 90 | 70 | 0.95 | 12.46 | ** | | | |
| **83** | 100 | 63 | 1.35 | 11.20 | 3.2 | | | |
| **93** | 112 | 57 | 1.50 | 10.04 | 3.1 | **CG012-11N-80-06F**<br>**CF012-11N-80-06F** | 12<br>13 | 72 |
| **97** | 116 | 54 | 1.25 | 9.60 | 3.0 | | | |
| **113** | 136 | 46 | 1.85 | 8.22 | 2.9 | | | |
| **124** | 149 | 42 | 1.60 | 7.50 | 2.8 | | | |
| **126** | 151 | 42 | 2.05 | 7.36 | 2.8 | | | |
| **166** | 199 | 32 | 2.10 | 5.60 | 2.6 | | | |
| **220** | 264 | 24 | 2.80 | 4.22 | 2.4 | | | |
| **48** | 58 | 110 | 0.80 | 29.65 | ** | | | |
| **55** | 66 | 95 | 0.90 | 25.50 | ** | | | |
| **62** | 74 | 85 | 1.05 | 22.85 | 2.8 | | | |
| **71** | 85 | 74 | 1.15 | 19.92 | 3.0 | | | |
| **73** | 88 | 72 | 0.95 | 19.51 | ** | | | |
| **79** | 95 | 66 | 1.30 | 17.85 | 3.1 | | | |
| **89** | 107 | 59 | 1.15 | 15.82 | 2.9 | | | |
| **95** | 114 | 55 | 1.55 | 14.88 | 3.1 | **CG012-11N-80-04E**<br>**CF012-11N-80-04E** | 12<br>13 | 72 |
| **106** | 127 | 50 | 1.75 | 13.33 | 3.0 | | | |
| **114** | 137 | 46 | 1.45 | 12.46 | 2.9 | | | |
| **126** | 151 | 42 | 2.05 | 11.20 | 2.8 | | | |
| **141** | 169 | 37 | 2.30 | 10.04 | 2.7 | | | |
| **147** | 176 | 36 | 1.90 | 9.60 | 2.7 | | | |
| **172** | 206 | 31 | 2.80 | 8.22 | 2.6 | | | |
| **189** | 227 | 28 | 2.40 | 7.50 | 2.5 | | | |
| **89** | 107 | 59 | 0.80 | 10.42 | ** | | | |
| **93** | 112 | 56 | 0.90 | 9.97 | ** | | | |
| **105** | 126 | 50 | 1.00 | 8.90 | 0.7 | | | |
| **114** | 137 | 46 | 1.00 | 8.17 | 0.2 | | | |
| **135** | 162 | 39 | 1.30 | 6.88 | 1.0 | **CG002-11N-80-06F**<br>**CF002-11N-80-06F** | 11<br>12 | 70 |
| **151** | 181 | 35 | 1.20 | 6.14 | 0.7 | | | |
| **152** | 182 | 35 | 1.45 | 6.14 | 1.1 | | | |
| **193** | 232 | 27 | 1.40 | 4.81 | 0.9 | | | |
| **263** | 316 | 20 | 1.70 | 3.54 | 1.1 | | | |
| **381** | 457 | 14 | 2.20 | 2.44 | 1.2 | | | |
| **82** | 98 | 64 | 0.80 | 17.29 | ** | | | |
| **92** | 110 | 57 | 0.90 | 15.43 | ** | | | |
| **105** | 126 | 50 | 1.00 | 13.54 | 0.7 | | | |
| **108** | 130 | 49 | 0.90 | 13.10 | ** | | | |
| **117** | 140 | 45 | 1.15 | 12.08 | 0.8 | | | |
| **136** | 163 | 39 | 1.20 | 10.42 | 0.5 | | | |
| **142** | 170 | 37 | 1.40 | 9.97 | 1.1 | **CG002-11N-80-04E**<br>**CF002-11N-80-04E** | 11<br>12 | 70 |
| **159** | 191 | 33 | 1.55 | 8.90 | 1.1 | | | |
| **173** | 208 | 30 | 1.50 | 8.17 | 0.8 | | | |
| **206** | 247 | 26 | 2.00 | 6.88 | 1.3 | | | |
| **230** | 276 | 23 | 1.80 | 6.14 | 1.0 | | | |
| **231** | 277 | 23 | 2.20 | 6.14 | 1.3 | | | |
| **294** | 353 | 18 | 2.10 | 4.81 | 1.1 | | | |
| **399** | 479 | 13 | 2.60 | 3.54 | 1.2 | | | |

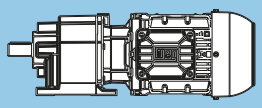
| $P_N$ = 0.75 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>0.75 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>0.90 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **3.9** | 4.7 | 1820 | 0.90 | 238.89 | ** | | | |
| **5.0** | 6.0 | 1429 | 1.10 | 187.48 | 18.9 | | | |
| **6.5** | 7.8 | 1103 | 1.45 | 144.69 | 21.4 | | | |
| **7.9** | 9.5 | 912 | 1.70 | 119.68 | 22.4 | **CG083-11P-90S/L-06E**<br>**CF083-11P-90S/L-06E** | 75<br>79 | 82 |
| **9.2** | 11 | 776 | 2.00 | 101.80 | 23.0 | | | |
| **11** | 13 | 672 | 2.35 | 88.23 | 23.4 | | | |
| **13** | 16 | 568 | 2.75 | 74.50 | 23.7 | | | |
| **3.8** | 4.6 | 1861 | 0.85 | 368.94 | ** | | | |
| **5.0** | 6.0 | 1437 | 1.10 | 284.84 | 18.9 | | | |
| **5.9** | 7.1 | 1205 | 1.30 | 238.89 | 20.7 | **CG083-11P-80-04F**<br>**CF083-11P-80-04F** | 66<br>70 | 82 |
| **7.6** | 9.1 | 946 | 1.65 | 187.48 | 22.2 | | | |
| **9.8** | 12 | 730 | 2.15 | 144.69 | 23.2 | | | |
| **12** | 14 | 604 | 2.60 | 119.68 | 23.6 | | | |
| **6.8** | 8.2 | 1047 | 0.80 | 137.38 | ** | | | |
| **7.5** | 9.0 | 952 | 0.90 | 124.97 | ** | | | |
| **9.0** | 11 | 796 | 1.05 | 104.50 | 8.9 | | | |
| **9.9** | 12 | 724 | 1.15 | 95.06 | 10.0 | | | |
| **11** | 13 | 657 | 1.25 | 86.17 | 10.8 | | | |
| **12** | 14 | 597 | 1.40 | 78.39 | 11.4 | | | |
| **13** | 16 | 539 | 1.55 | 70.68 | 12.0 | **CG073-11P-90S/L-06E**<br>**CF073-11P-90S/L-06E** | 51<br>55 | 80 |
| **15** | 18 | 490 | 1.70 | 64.30 | 12.4 | | | |
| **16** | 19 | 458 | 1.80 | 60.06 | 12.6 | | | |
| **17** | 20 | 416 | 2.00 | 54.63 | 12.8 | | | |
| **19** | 23 | 376 | 2.20 | 49.38 | 13.1 | | | |
| **21** | 25 | 342 | 2.35 | 44.92 | 13.2 | | | |
| **24** | 29 | 298 | 2.60 | 39.17 | 13.4 | | | |
| **26** | 31 | 272 | 2.70 | 35.63 | 13.5 | | | |
| **6.6** | 7.9 | 1091 | 0.80 | 216.20 | ** | | | |
| **7.2** | 8.6 | 992 | 0.85 | 196.68 | ** | | | |
| **8.0** | 9.6 | 895 | 0.95 | 177.39 | ** | | | |
| **8.8** | 11 | 814 | 1.05 | 161.38 | 8.6 | | | |
| **10** | 12 | 693 | 1.20 | 137.38 | 10.4 | | | |
| **11** | 13 | 630 | 1.35 | 124.97 | 11.1 | | | |
| **14** | 17 | 527 | 1.60 | 104.50 | 12.1 | **CG073-11P-80-04F**<br>**CF073-11P-80-04F** | 42<br>46 | 80 |
| **15** | 18 | 480 | 1.75 | 95.06 | 12.4 | | | |
| **16** | 19 | 435 | 1.90 | 86.17 | 12.7 | | | |
| **18** | 22 | 395 | 2.10 | 78.39 | 13.0 | | | |
| **20** | 24 | 357 | 2.35 | 70.68 | 13.2 | | | |
| **22** | 26 | 324 | 2.55 | 64.30 | 13.3 | | | |
| **24** | 29 | 303 | 2.75 | 60.06 | 13.4 | | | |
| **26** | 31 | 276 | 3.00 | 54.63 | 13.5 | | | |
| **24** | 29 | 297 | 2.80 | 38.92 | 13.4 | **CG072-11P-90S/L-06E**<br>**CF072-11P-90S/L-06E** | 50<br>54 | 80 |
| **10** | 12 | 682 | 0.90 | 89.54 | ** | | | |
| **11** | 13 | 626 | 1.00 | 82.10 | 5.6 | | | |
| **13** | 16 | 558 | 1.10 | 73.28 | 7.1 | | | |
| **14** | 17 | 512 | 1.20 | 67.19 | 7.9 | **CG063-11P-90S/L-06E**<br>**CF063-11P-90S/L-06E** | 34<br>39 | 78 |
| **16** | 19 | 453 | 1.35 | 59.42 | 8.8 | | | |
| **17** | 20 | 415 | 1.45 | 54.49 | 9.2 | | | |
| **19** | 23 | 379 | 1.60 | 49.74 | 9.6 | | | |
| **21** | 25 | 348 | 1.75 | 45.61 | 9.9 | | | |
| **9.2** | 11 | 777 | 0.80 | 153.96 | ** | | | |
| **10** | 12 | 712 | 0.85 | 141.17 | ** | | | |
| **12** | 14 | 598 | 1.05 | 118.51 | 6.3 | | | |
| **13** | 16 | 548 | 1.10 | 108.67 | 7.3 | | | |
| **16** | 19 | 452 | 1.35 | 89.54 | 8.8 | | | |
| **17** | 20 | 414 | 1.45 | 82.10 | 9.2 | **CG063-11P-80-04F**<br>**CF063-11P-80-04F** | 25<br>30 | 78 |
| **19** | 23 | 370 | 1.65 | 73.28 | 9.7 | | | |
| **21** | 25 | 339 | 1.80 | 67.19 | 9.9 | | | |
| **24** | 29 | 300 | 2.05 | 59.42 | 10.2 | | | |
| **26** | 31 | 275 | 2.20 | 54.49 | 10.4 | | | |
| **29** | 35 | 251 | 2.40 | 49.74 | 10.5 | | | |
| **31** | 37 | 230 | 2.65 | 45.61 | 10.7 | | | |

| $P_N$ = 0.75 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 0.75 kW $n_{50}$ min$^{-1}$ | 60 Hz 0.90 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **16** | 19 | 457 | 0.95 | 60.00 | ** | **CG062-11P-90S/L-06E**<br>**CF062-11P-90S/L-06E** | 34<br>39 | 78 |
| **17** | 20 | 419 | 0.95 | 55.02 | ** | | | |
| **20** | 24 | 362 | 1.70 | 47.55 | 9.7 | | | |
| **22** | 26 | 332 | 1.70 | 43.60 | 10.0 | | | |
| **25** | 30 | 281 | 2.15 | 36.92 | 10.4 | | | |
| **28** | 34 | 258 | 2.35 | 33.86 | 10.5 | | | |
| **28** | 34 | 255 | 0.95 | 33.43 | ** | | | |
| **31** | 37 | 231 | 2.60 | 30.30 | 10.7 | | | |
| **34** | 41 | 212 | 2.85 | 27.78 | 10.8 | | | |
| **35** | 42 | 202 | 1.70 | 26.49 | 10.8 | | | |
| **46** | 55 | 157 | 2.45 | 20.57 | 11.0 | | | |
| **56** | 67 | 129 | 2.95 | 16.88 | 10.7 | | | |
| **24** | 29 | 303 | 1.40 | 60.00 | 10.2 | **CG062-11P-80-04F**<br>**CF062-11P-80-04F** | 25<br>30 | 78 |
| **26** | 31 | 278 | 1.40 | 55.02 | 10.4 | | | |
| **30** | 36 | 240 | 2.55 | 47.55 | 10.6 | | | |
| **33** | 40 | 220 | 2.60 | 43.60 | 10.7 | | | |
| **42** | 50 | 169 | 1.40 | 33.43 | 10.9 | | | |
| **54** | 65 | 134 | 2.60 | 26.49 | 10.8 | | | |
| **15** | 18 | 470 | 0.90 | 61.63 | ** | **CG053-11P-90S/L-06E**<br>**CF053-11P-90S/L-06E** | 30<br>35 | 76 |
| **17** | 20 | 427 | 0.95 | 56.02 | ** | | | |
| **19** | 23 | 375 | 1.10 | 49.20 | 3.6 | | | |
| **21** | 25 | 341 | 1.20 | 44.73 | 4.6 | | | |
| **14** | 17 | 512 | 0.80 | 101.55 | ** | **CG053-11P-80-04F**<br>**CF053-11P-80-04F** | 21<br>26 | 76 |
| **15** | 18 | 466 | 0.90 | 92.32 | ** | | | |
| **18** | 22 | 392 | 1.05 | 77.79 | 2.9 | | | |
| **20** | 24 | 357 | 1.15 | 70.71 | 4.2 | | | |
| **23** | 28 | 311 | 1.30 | 61.63 | 5.3 | | | |
| **25** | 30 | 283 | 1.45 | 56.02 | 5.8 | | | |
| **29** | 35 | 248 | 1.65 | 49.20 | 6.3 | | | |
| **32** | 38 | 226 | 1.80 | 44.73 | 6.5 | | | |
| **20** | 24 | 367 | 0.95 | 48.13 | ** | **CG052-11P-90S/L-06E**<br>**CF052-11P-90S/L-06E** | 29<br>34 | 76 |
| **21** | 25 | 333 | 0.95 | 43.75 | ** | | | |
| **25** | 30 | 290 | 1.40 | 38.00 | 5.6 | | | |
| **27** | 32 | 263 | 1.55 | 34.55 | 6.1 | | | |
| **32** | 38 | 222 | 0.95 | 29.17 | ** | | | |
| **32** | 38 | 225 | 1.80 | 29.46 | 6.5 | | | |
| **35** | 42 | 204 | 2.00 | 26.79 | 6.8 | | | |
| **39** | 47 | 184 | 2.20 | 24.12 | 7.0 | | | |
| **41** | 49 | 176 | 1.55 | 23.03 | 7.0 | | | |
| **43** | 52 | 167 | 2.40 | 21.92 | 7.1 | | | |
| **51** | 61 | 141 | 2.85 | 18.56 | 7.3 | | | |
| **53** | 64 | 136 | 2.00 | 17.86 | 7.3 | | | |
| **64** | 77 | 111 | 2.40 | 14.62 | 7.4 | | | |
| **24** | 29 | 297 | 0.85 | 58.85 | ** | **CG052-11P-80-04F**<br>**CF052-11P-80-04F** | 20<br>25 | 76 |
| **27** | 32 | 270 | 0.85 | 53.50 | ** | | | |
| **30** | 36 | 243 | 1.40 | 48.13 | 6.3 | | | |
| **32** | 38 | 221 | 1.40 | 43.75 | 6.6 | | | |
| **37** | 44 | 192 | 2.10 | 38.00 | 6.9 | | | |
| **40** | 48 | 180 | 0.85 | 35.67 | ** | | | |
| **41** | 49 | 174 | 2.30 | 34.55 | 7.0 | | | |
| **48** | 58 | 149 | 2.70 | 29.46 | 7.2 | | | |
| **49** | 59 | 147 | 1.40 | 29.17 | 7.2 | | | |
| **53** | 64 | 135 | 3.00 | 26.79 | 7.3 | | | |
| **62** | 74 | 116 | 2.30 | 23.03 | 7.4 | | | |
| **80** | 96 | 90 | 3.00 | 17.86 | 7.5 | | | |
| **29** | 35 | 243 | 0.85 | 48.22 | ** | **CG033-11P-80-04F**<br>**CF033-11P-80-04F** | 16<br>18 | 74 |
| **32** | 38 | 221 | 0.95 | 43.79 | ** | | | |
| **40** | 48 | 179 | 1.15 | 35.38 | 4.5 | | | |
| **44** | 53 | 162 | 1.25 | 32.13 | 4.8 | | | |

*Legend see page 25*

*** ... on request*

| $P_N$ = 0.75 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>0.75 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>0.90 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **27** | 32 | 266 | 0.80 | 34.88 | ** | **CG032-11P-90S/L-06E**<br>**CF032-11P-90S/L-06E** | 25<br>27 | 74 |
| **30** | 36 | 241 | 0.85 | 31.67 | ** | | | |
| **34** | 41 | 211 | 0.95 | 27.71 | ** | | | |
| **37** | 44 | 192 | 1.05 | 25.17 | 4.2 | | | |
| **44** | 53 | 163 | 1.25 | 21.40 | 4.7 | | | |
| **48** | 58 | 148 | 1.40 | 19.44 | 5.0 | | | |
| **48** | 58 | 149 | 0.90 | 19.54 | ** | | | |
| **55** | 66 | 130 | 1.55 | 17.09 | 4.9 | | | |
| **61** | 73 | 118 | 1.10 | 15.53 | 4.7 | | | |
| **61** | 73 | 118 | 1.70 | 15.52 | 4.8 | | | |
| **73** | 88 | 98 | 2.05 | 12.92 | 4.6 | | | |
| **78** | 94 | 91 | 1.45 | 11.99 | 4.5 | | | |
| **80** | 96 | 89 | 2.25 | 11.73 | 4.5 | | | |
| **96** | 115 | 75 | 2.70 | 9.82 | 4.3 | | | |
| **98** | 118 | 73 | 1.80 | 9.57 | 4.2 | | | |
| **105** | 126 | 68 | 2.95 | 8.92 | 4.2 | | | |
| **130** | 156 | 55 | 2.40 | 7.24 | 3.9 | | | |
| **33** | 40 | 216 | 0.90 | 42.88 | ** | **CG032-11P-80-04F**<br>**CF032-11P-80-04F** | 16<br>18 | 74 |
| **36** | 43 | 196 | 0.90 | 38.95 | ** | | | |
| **41** | 49 | 176 | 1.15 | 34.88 | 4.5 | | | |
| **45** | 54 | 160 | 1.30 | 31.67 | 4.8 | | | |
| **51** | 61 | 140 | 1.45 | 27.71 | 5.0 | | | |
| **56** | 67 | 127 | 1.60 | 25.17 | 4.9 | | | |
| **59** | 71 | 121 | 0.85 | 24.03 | ** | | | |
| **66** | 79 | 108 | 1.90 | 21.40 | 4.7 | | | |
| **73** | 88 | 99 | 1.30 | 19.54 | 4.5 | | | |
| **73** | 88 | 98 | 2.05 | 19.44 | 4.6 | | | |
| **83** | 100 | 86 | 2.35 | 17.09 | 4.4 | | | |
| **91** | 109 | 78 | 1.70 | 15.53 | 4.3 | | | |
| **91** | 109 | 78 | 2.60 | 15.52 | 4.3 | | | |
| **118** | 142 | 61 | 2.15 | 11.99 | 4.0 | | | |
| **148** | 178 | 48 | 2.70 | 9.57 | 3.8 | | | |
| **63** | 76 | 113 | 0.80 | 14.88 | ** | **CG012-11P-90S/L-06E**<br>**CF012-11P-90S/L-06E** | 22<br>23 | 72 |
| **71** | 85 | 102 | 0.85 | 13.33 | ** | | | |
| **84** | 101 | 85 | 1.00 | 11.20 | 2.3 | | | |
| **94** | 113 | 77 | 1.15 | 10.04 | 2.4 | | | |
| **98** | 118 | 73 | 0.95 | 9.60 | ** | | | |
| **114** | 137 | 63 | 1.40 | 8.22 | 2.8 | | | |
| **125** | 150 | 57 | 1.20 | 7.50 | 2.3 | | | |
| **128** | 154 | 56 | 1.55 | 7.36 | 2.7 | | | |
| **168** | 202 | 43 | 1.55 | 5.60 | 2.5 | | | |
| **223** | 268 | 32 | 2.10 | 4.22 | 2.3 | | | |
| **304** | 365 | 24 | 2.80 | 3.09 | 2.1 | | | |
| **71** | 85 | 101 | 0.85 | 19.92 | ** | **CG012-11P-80-04F**<br>**CF012-11P-80-04F** | 13<br>14 | 72 |
| **80** | 96 | 90 | 0.95 | 17.85 | ** | | | |
| **90** | 108 | 80 | 0.85 | 15.82 | ** | | | |
| **95** | 114 | 75 | 1.15 | 14.88 | 2.5 | | | |
| **107** | 128 | 67 | 1.30 | 13.33 | 2.6 | | | |
| **114** | 137 | 63 | 1.05 | 12.46 | 2.2 | | | |
| **127** | 152 | 57 | 1.55 | 11.20 | 2.7 | | | |
| **141** | 169 | 51 | 1.70 | 10.04 | 2.7 | | | |
| **148** | 178 | 48 | 1.40 | 9.60 | 2.5 | | | |
| **173** | 208 | 41 | 2.10 | 8.22 | 2.5 | | | |
| **189** | 227 | 38 | 1.75 | 7.50 | 2.4 | | | |
| **193** | 232 | 37 | 2.30 | 7.36 | 2.4 | | | |
| **253** | 304 | 28 | 2.35 | 5.60 | 2.2 | | | |
| **118** | 142 | 61 | 0.85 | 12.08 | ** | **CG002-11P-80-04F**<br>**CF002-11P-80-04F** | 12<br>13 | 70 |
| **136** | 163 | 53 | 0.90 | 10.42 | ** | | | |
| **142** | 170 | 50 | 1.00 | 9.97 | 0.4 | | | |
| **160** | 192 | 45 | 1.15 | 8.90 | 0.5 | | | |
| **174** | 209 | 41 | 1.10 | 8.17 | 0.1 | | | |
| **207** | 248 | 35 | 1.45 | 6.88 | 0.8 | | | |
| **231** | 277 | 31 | 1.30 | 6.14 | 0.5 | | | |
| **231** | 277 | 31 | 1.65 | 6.14 | 0.9 | | | |
| **295** | 354 | 24 | 1.55 | 4.81 | 0.7 | | | |
| **401** | 481 | 18 | 1.90 | 3.54 | 0.9 | | | |

| $P_N$ = 1.1 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>1.1 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>1.3 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **5.1** | 6.1 | 2057 | 0.80 | 284.84 | ** | **CG083-11P-90S/L-04E**<br>**CF083-11P-90S/L-04E** | 72<br>76 | 82 |
| **6.1** | 7.3 | 1725 | 0.90 | 238.89 | ** | | | |
| **7.8** | 9.4 | 1354 | 1.15 | 187.48 | 19.6 | | | |
| **10** | 12 | 1045 | 1.50 | 144.69 | 21.7 | | | |
| **12** | 14 | 864 | 1.80 | 119.68 | 22.6 | | | |
| **14** | 17 | 735 | 2.15 | 101.80 | 23.2 | | | |
| **16** | 19 | 637 | 2.45 | 88.23 | 23.5 | | | |
| **20** | 24 | 538 | 2.90 | 74.50 | 23.8 | | | |
| **6.5** | 7.8 | 1608 | 1.00 | 144.69 | 17.1 | **CG083-11P-100L-06D**<br>**CF083-11P-100L-06D** | 83<br>87 | 82 |
| **7.9** | 9.5 | 1330 | 1.20 | 119.68 | 19.8 | | | |
| **9.3** | 11 | 1132 | 1.40 | 101.80 | 21.2 | | | |
| **11** | 13 | 981 | 1.60 | 88.23 | 22.1 | | | |
| **13** | 16 | 828 | 1.90 | 74.50 | 22.8 | | | |
| **15** | 18 | 682 | 2.30 | 61.37 | 23.4 | | | |
| **17** | 20 | 602 | 2.55 | 54.18 | 23.6 | **CG082-11P-100L-06D**<br>**CF082-11P-100L-06D** | 82<br>86 | 82 |
| **11** | 13 | 992 | 0.85 | 137.38 | ** | **CG073-11P-90S/L-04E**<br>**CF073-11P-90S/L-04E** | 48<br>52 | 80 |
| **12** | 14 | 902 | 0.95 | 124.97 | ** | | | |
| **14** | 17 | 755 | 1.10 | 104.50 | 9.6 | | | |
| **15** | 18 | 686 | 1.20 | 95.06 | 10.5 | | | |
| **17** | 20 | 622 | 1.35 | 86.17 | 11.2 | | | |
| **19** | 23 | 566 | 1.45 | 78.39 | 11.7 | | | |
| **21** | 25 | 510 | 1.65 | 70.68 | 12.2 | | | |
| **23** | 28 | 464 | 1.80 | 64.30 | 12.5 | | | |
| **24** | 29 | 434 | 1.90 | 60.06 | 12.7 | | | |
| **27** | 32 | 394 | 2.10 | 54.63 | 13.0 | | | |
| **29** | 35 | 357 | 2.35 | 49.38 | 13.2 | | | |
| **32** | 38 | 324 | 2.45 | 44.92 | 13.3 | | | |
| **37** | 44 | 283 | 2.75 | 39.17 | 13.5 | | | |
| **41** | 49 | 257 | 2.85 | 35.63 | 13.6 | | | |
| **9.9** | 12 | 1057 | 0.80 | 95.06 | ** | **CG073-11P-100L-06D**<br>**CF073-11P-100L-06D** | 59<br>63 | 80 |
| **11** | 13 | 958 | 0.90 | 86.17 | ** | | | |
| **12** | 14 | 871 | 0.95 | 78.39 | ** | | | |
| **13** | 16 | 786 | 1.05 | 70.68 | 9.1 | | | |
| **15** | 18 | 715 | 1.15 | 64.30 | 10.1 | | | |
| **16** | 19 | 668 | 1.25 | 60.06 | 10.7 | | | |
| **17** | 20 | 607 | 1.40 | 54.63 | 11.3 | | | |
| **19** | 23 | 549 | 1.50 | 49.38 | 11.9 | | | |
| **21** | 25 | 499 | 1.60 | 44.92 | 12.3 | | | |
| **24** | 29 | 435 | 1.80 | 39.17 | 12.7 | | | |
| **27** | 32 | 396 | 1.85 | 35.63 | 13.0 | | | |
| **37** | 44 | 281 | 2.95 | 38.92 | 13.5 | **CG072-11P-90S/L-04E**<br>**CF072-11P-90S/L-04E** | 47<br>51 | 80 |
| **24** | 29 | 433 | 1.90 | 38.92 | 12.7 | **CG072-11P-100L-06D**<br>**CF072-11P-100L-06D** | 58<br>62 | 80 |
| **27** | 32 | 394 | 2.10 | 35.41 | 13.0 | | | |
| **31** | 37 | 340 | 2.45 | 30.55 | 13.3 | | | |
| **34** | 41 | 309 | 2.70 | 27.79 | 13.4 | | | |
| **13** | 16 | 785 | 0.80 | 108.67 | ** | **CG063-11P-90S/L-04E**<br>**CF063-11P-90S/L-04E** | 32<br>37 | 78 |
| **16** | 19 | 647 | 0.95 | 89.54 | ** | | | |
| **18** | 22 | 593 | 1.05 | 82.10 | 6.4 | | | |
| **20** | 24 | 529 | 1.15 | 73.28 | 7.6 | | | |
| **22** | 26 | 485 | 1.25 | 67.19 | 8.3 | | | |
| **24** | 29 | 429 | 1.40 | 59.42 | 9.0 | | | |
| **27** | 32 | 393 | 1.55 | 54.49 | 9.4 | | | |
| **29** | 35 | 359 | 1.70 | 49.74 | 9.8 | | | |
| **32** | 38 | 329 | 1.85 | 45.61 | 10.0 | | | |
| **14** | 17 | 747 | 0.85 | 67.19 | ** | **CG063-11P-100L-06D**<br>**CF063-11P-100L-06D** | 43<br>48 | 78 |
| **16** | 19 | 661 | 0.95 | 59.42 | ** | | | |
| **17** | 20 | 606 | 1.00 | 54.49 | 6.1 | | | |
| **19** | 23 | 553 | 1.10 | 49.74 | 7.2 | | | |
| **21** | 25 | 507 | 1.20 | 45.61 | 8.0 | | | |

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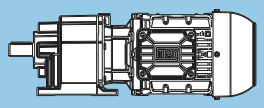
| $P_N$ = 1.1 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>1.1 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>1.3 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **24** | 29 | 433 | 1.00 | 60.00 | 9.0 | **CG062-11P-90S/L-04E**<br>**CF062-11P-90S/L-04E** | 31<br>36 | 78 |
| **26** | 31 | 397 | 1.00 | 55.02 | 9.4 | | | |
| **31** | 37 | 343 | 1.75 | 47.55 | 9.9 | | | |
| **33** | 40 | 315 | 1.80 | 43.60 | 10.1 | | | |
| **39** | 47 | 267 | 2.30 | 36.92 | 10.4 | | | |
| **43** | 52 | 244 | 2.50 | 33.86 | 10.6 | | | |
| **44** | 53 | 241 | 1.00 | 33.43 | 10.6 | | | |
| **48** | 58 | 219 | 2.75 | 30.30 | 10.7 | | | |
| **52** | 62 | 201 | 3.00 | 27.78 | 10.8 | | | |
| **55** | 66 | 191 | 1.80 | 26.49 | 10.6 | | | |
| **71** | 85 | 149 | 2.55 | 20.57 | 9.8 | | | |
| **20** | 24 | 529 | 1.15 | 47.55 | 7.7 | **CG062-11P-100L-06D**<br>**CF062-11P-100L-06D** | 42<br>47 | 78 |
| **22** | 26 | 485 | 1.20 | 43.60 | 8.3 | | | |
| **26** | 31 | 411 | 1.50 | 36.92 | 9.2 | | | |
| **28** | 34 | 376 | 1.60 | 33.86 | 9.6 | | | |
| **31** | 37 | 337 | 1.80 | 30.30 | 9.9 | | | |
| **34** | 41 | 309 | 1.95 | 27.78 | 10.2 | | | |
| **36** | 43 | 295 | 1.20 | 26.49 | 10.3 | | | |
| **40** | 48 | 261 | 2.35 | 23.46 | 10.5 | | | |
| **44** | 53 | 239 | 2.55 | 21.51 | 10.6 | | | |
| **46** | 55 | 229 | 1.65 | 20.57 | 10.7 | | | |
| **56** | 67 | 188 | 2.05 | 16.88 | 10.5 | | | |
| **72** | 86 | 145 | 2.60 | 13.07 | 9.8 | | | |
| **21** | 25 | 511 | 0.80 | 70.71 | ** | **CG053-11P-90S/L-04E**<br>**CF053-11P-90S/L-04E** | 27<br>32 | 76 |
| **24** | 29 | 445 | 0.90 | 61.63 | ** | | | |
| **26** | 31 | 405 | 1.00 | 56.02 | 2.3 | | | |
| **30** | 36 | 355 | 1.15 | 49.20 | 4.2 | | | |
| **33** | 40 | 323 | 1.25 | 44.73 | 5.0 | | | |
| **30** | 36 | 348 | 1.00 | 48.13 | 4.4 | **CG052-11P-90S/L-04E**<br>**CF052-11P-90S/L-04E** | 26<br>31 | 76 |
| **33** | 40 | 316 | 1.00 | 43.75 | 5.2 | | | |
| **38** | 46 | 274 | 1.50 | 38.00 | 5.9 | | | |
| **42** | 50 | 249 | 1.65 | 34.55 | 6.2 | | | |
| **49** | 59 | 213 | 1.90 | 29.46 | 6.7 | | | |
| **50** | 60 | 211 | 1.00 | 29.17 | 6.7 | | | |
| **54** | 65 | 193 | 2.10 | 26.79 | 6.9 | | | |
| **60** | 72 | 174 | 2.30 | 24.12 | 7.0 | | | |
| **63** | 76 | 166 | 1.65 | 23.03 | 7.1 | | | |
| **66** | 79 | 158 | 2.55 | 21.92 | 7.2 | | | |
| **78** | 94 | 134 | 3.00 | 18.56 | 7.3 | | | |
| **81** | 97 | 129 | 2.10 | 17.86 | 7.3 | | | |
| **100** | 120 | 106 | 2.55 | 14.62 | 6.9 | | | |
| **25** | 30 | 422 | 0.95 | 38.00 | ** | **CG052-11P-100L-06D**<br>**CF052-11P-100L-06D** | 37<br>42 | 76 |
| **27** | 32 | 384 | 1.05 | 34.55 | 3.3 | | | |
| **32** | 38 | 328 | 1.25 | 29.46 | 4.9 | | | |
| **35** | 42 | 298 | 1.35 | 26.79 | 5.5 | | | |
| **39** | 47 | 268 | 1.50 | 24.12 | 6.0 | | | |
| **41** | 49 | 256 | 1.05 | 23.03 | 6.2 | | | |
| **43** | 52 | 244 | 1.65 | 21.92 | 6.3 | | | |
| **51** | 61 | 206 | 1.95 | 18.56 | 6.7 | | | |
| **53** | 64 | 199 | 1.35 | 17.86 | 6.8 | | | |
| **56** | 67 | 188 | 2.15 | 16.88 | 6.9 | | | |
| **65** | 78 | 163 | 1.65 | 14.62 | 7.1 | | | |
| **67** | 80 | 156 | 2.60 | 14.03 | 7.2 | | | |
| **74** | 89 | 142 | 2.85 | 12.75 | 7.3 | | | |
| **84** | 101 | 125 | 2.15 | 11.25 | 7.2 | | | |
| **111** | 133 | 95 | 2.85 | 8.50 | 6.7 | | | |

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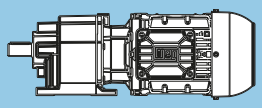
| $P_N$ = 1.1 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>1.1 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>1.3 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **42** | 50 | 252 | 0.80 | 34.88 | ** | **CG032-11P-90S/L-04E**<br>**CF032-11P-90S/L-04E** | 22<br>24 | 74 |
| **46** | 55 | 229 | 0.90 | 31.67 | ** | | | |
| **53** | 64 | 200 | 1.00 | 27.71 | 4.0 | | | |
| **58** | 70 | 182 | 1.15 | 25.17 | 4.4 | | | |
| **68** | 82 | 155 | 1.30 | 21.40 | 4.4 | | | |
| **74** | 89 | 141 | 0.95 | 19.54 | ** | | | |
| **75** | 90 | 140 | 1.45 | 19.44 | 4.3 | | | |
| **85** | 102 | 123 | 1.65 | 17.09 | 4.2 | | | |
| **94** | 113 | 112 | 1.20 | 15.53 | 4.0 | | | |
| **94** | 113 | 112 | 1.80 | 15.52 | 4.1 | | | |
| **113** | 136 | 93 | 2.15 | 12.92 | 3.9 | | | |
| **121** | 145 | 87 | 1.55 | 11.99 | 3.8 | | | |
| **124** | 149 | 85 | 2.40 | 11.73 | 3.8 | | | |
| **148** | 178 | 71 | 2.85 | 9.82 | 3.7 | | | |
| **152** | 182 | 69 | 1.90 | 9.57 | 3.6 | | | |
| **201** | 241 | 52 | 2.50 | 7.24 | 3.3 | | | |
| **44** | 53 | 238 | 0.85 | 21.40 | ** | **CG032-11P-100L-06D**<br>**CF032-11P-100L-06D** | 33<br>35 | 74 |
| **49** | 59 | 216 | 0.95 | 19.44 | ** | | | |
| **55** | 66 | 190 | 1.10 | 17.09 | 4.2 | | | |
| **61** | 73 | 173 | 1.20 | 15.52 | 4.5 | | | |
| **61** | 73 | 173 | 0.80 | 15.53 | ** | | | |
| **73** | 88 | 144 | 1.40 | 12.92 | 4.3 | | | |
| **79** | 95 | 133 | 1.00 | 11.99 | 4.2 | | | |
| **81** | 97 | 130 | 1.55 | 11.73 | 4.2 | | | |
| **96** | 115 | 109 | 1.85 | 9.82 | 4.1 | | | |
| **99** | 119 | 106 | 1.25 | 9.57 | 4.0 | | | |
| **106** | 127 | 99 | 2.00 | 8.92 | 4.0 | | | |
| **124** | 149 | 85 | 2.30 | 7.64 | 3.8 | | | |
| **131** | 157 | 80 | 1.65 | 7.24 | 3.7 | | | |
| **136** | 163 | 77 | 2.50 | 6.94 | 3.7 | | | |
| **159** | 191 | 66 | 2.85 | 5.96 | 3.6 | | | |
| **172** | 206 | 61 | 2.15 | 5.50 | 3.5 | | | |
| **221** | 265 | 48 | 2.70 | 4.28 | 3.3 | | | |
| **98** | 118 | 107 | 0.80 | 14.88 | ** | **CG012-11P-90S/L-04E**<br>**CF012-11P-90S/L-04E** | 20<br>21 | 72 |
| **109** | 131 | 96 | 0.90 | 13.33 | ** | | | |
| **130** | 156 | 81 | 1.10 | 11.20 | 1.6 | | | |
| **145** | 174 | 73 | 1.20 | 10.04 | 1.8 | | | |
| **152** | 182 | 69 | 1.00 | 9.60 | 1.3 | | | |
| **177** | 212 | 59 | 1.45 | 8.22 | 2.1 | | | |
| **194** | 233 | 54 | 1.25 | 7.50 | 1.7 | | | |
| **198** | 238 | 53 | 1.60 | 7.36 | 2.2 | | | |
| **260** | 312 | 40 | 1.65 | 5.60 | 2.1 | | | |
| **345** | 414 | 31 | 2.20 | 4.22 | 2.0 | | | |
| **470** | 564 | 22 | 3.00 | 3.09 | 1.8 | | | |



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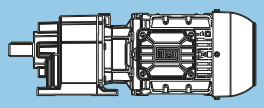
*** ... on request*

| $P_N$ = 1.5 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 1.5 kW $n_{50}$ min$^{-1}$ | 60 Hz 1.8 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **7.7** | 9.2 | 1852 | 0.85 | 187.48 | ** | **CG083-11P-90S/L-04F**<br>**CF083-11P-90S/L-04F** | 76<br>80 | 82 |
| **10** | 12 | 1429 | 1.10 | 144.69 | 18.9 | | | |
| **12** | 14 | 1182 | 1.35 | 119.68 | 20.9 | | | |
| **14** | 17 | 1006 | 1.55 | 101.80 | 21.9 | | | |
| **16** | 19 | 872 | 1.80 | 88.23 | 22.6 | | | |
| **19** | 23 | 736 | 2.15 | 74.50 | 23.2 | | | |
| **24** | 29 | 606 | 2.60 | 61.37 | 23.6 | | | |
| **27** | 32 | 535 | 2.90 | 54.18 | 23.5 | **CG082-11P-90S/L-04F**<br>**CF082-11P-90S/L-04F** | 75<br>79 | 82 |
| **14** | 17 | 1032 | 0.80 | 104.50 | ** | **CG073-11P-90S/L-04F**<br>**CF073-11P-90S/L-04F** | 52<br>56 | 80 |
| **15** | 18 | 939 | 0.90 | 95.06 | ** | | | |
| **17** | 20 | 851 | 1.00 | 86.17 | 7.9 | | | |
| **18** | 22 | 774 | 1.10 | 78.39 | 9.3 | | | |
| **21** | 25 | 698 | 1.20 | 70.68 | 10.3 | | | |
| **23** | 28 | 635 | 1.30 | 64.30 | 11.1 | | | |
| **24** | 29 | 593 | 1.40 | 60.06 | 11.5 | | | |
| **27** | 32 | 540 | 1.55 | 54.63 | 12.0 | | | |
| **29** | 35 | 488 | 1.70 | 49.38 | 12.4 | | | |
| **32** | 38 | 444 | 1.80 | 44.92 | 12.7 | | | |
| **37** | 44 | 387 | 2.00 | 39.17 | 13.0 | | | |
| **41** | 49 | 352 | 2.10 | 35.63 | 13.2 | | | |
| **37** | 44 | 385 | 2.15 | 38.92 | 13.0 | **CG072-11P-90S/L-04F**<br>**CF072-11P-90S/L-04F** | 51<br>55 | 80 |
| **41** | 49 | 350 | 2.35 | 35.41 | 13.2 | | | |
| **47** | 56 | 302 | 2.75 | 30.55 | 13.4 | | | |
| **52** | 62 | 275 | 3.00 | 27.79 | 13.5 | | | |
| **20** | 24 | 724 | 0.85 | 73.28 | ** | **CG063-11P-90S/L-04F**<br>**CF063-11P-90S/L-04F** | 35<br>40 | 78 |
| **22** | 26 | 664 | 0.95 | 67.19 | ** | | | |
| **24** | 29 | 587 | 1.05 | 59.42 | 6.5 | | | |
| **27** | 32 | 538 | 1.15 | 54.49 | 7.5 | | | |
| **29** | 35 | 491 | 1.25 | 49.74 | 8.2 | | | |
| **32** | 38 | 451 | 1.35 | 45.61 | 8.8 | | | |
| **30** | 36 | 470 | 1.30 | 47.55 | 8.5 | **CG062-11P-90S/L-04F**<br>**CF062-11P-90S/L-04F** | 35<br>40 | 78 |
| **33** | 40 | 431 | 1.35 | 43.60 | 9.0 | | | |
| **39** | 47 | 365 | 1.65 | 36.92 | 9.7 | | | |
| **43** | 52 | 335 | 1.80 | 33.86 | 10.0 | | | |
| **48** | 58 | 299 | 2.05 | 30.30 | 10.2 | | | |
| **52** | 62 | 274 | 2.20 | 27.78 | 10.4 | | | |
| **55** | 66 | 262 | 1.35 | 26.49 | 10.3 | | | |
| **62** | 74 | 232 | 2.60 | 23.46 | 10.0 | | | |
| **67** | 80 | 213 | 2.85 | 21.51 | 9.8 | | | |
| **70** | 84 | 203 | 1.90 | 20.57 | 9.6 | | | |
| **86** | 103 | 167 | 2.30 | 16.88 | 9.1 | | | |
| **111** | 133 | 129 | 2.95 | 13.07 | 8.4 | | | |
| **29** | 35 | 486 | 0.85 | 49.20 | ** | **CG053-11P-90S/L-04F**<br>**CF053-11P-90S/L-04F** | 31<br>36 | 76 |
| **32** | 38 | 442 | 0.95 | 44.73 | ** | | | |
| **38** | 46 | 375 | 1.10 | 38.00 | 3.6 | **CG052-11P-90S/L-04F**<br>**CF052-11P-90S/L-04F** | 30<br>35 | 76 |
| **42** | 50 | 341 | 1.20 | 34.55 | 4.6 | | | |
| **49** | 59 | 291 | 1.40 | 29.46 | 5.6 | | | |
| **54** | 65 | 265 | 1.55 | 26.79 | 6.0 | | | |
| **60** | 72 | 238 | 1.70 | 24.12 | 6.4 | | | |
| **63** | 76 | 228 | 1.20 | 23.03 | 6.5 | | | |
| **66** | 79 | 217 | 1.85 | 21.92 | 6.6 | | | |
| **78** | 94 | 183 | 2.20 | 18.56 | 7.0 | | | |
| **81** | 97 | 176 | 1.55 | 17.86 | 7.0 | | | |
| **86** | 103 | 167 | 2.40 | 16.88 | 7.0 | | | |
| **99** | 119 | 144 | 1.85 | 14.62 | 6.7 | | | |
| **103** | 124 | 139 | 2.90 | 14.03 | 6.7 | | | |
| **129** | 155 | 111 | 2.45 | 11.25 | 6.3 | | | |

*Legend see page 25*

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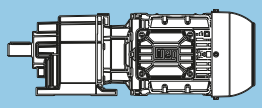
| $P_N$ = 1.5 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| **50 Hz** **1.5 kW** $n_{50}$ min$^{-1}$ | **60 Hz** **1.8 kW** $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | **i** | at 50 Hz $F_{rN}$ kN |  | **m** kg | **Dimension sheet see page** |
| **58** | 70 | 249 | 0.85 | 25.17 | ** | | | |
| **68** | 82 | 212 | 0.95 | 21.40 | ** | | | |
| **75** | 90 | 192 | 1.05 | 19.44 | 4.0 | | | |
| **85** | 102 | 169 | 1.20 | 17.09 | 3.9 | | | |
| **93** | 112 | 153 | 1.35 | 15.52 | 3.9 | | | |
| **93** | 112 | 153 | 0.85 | 15.53 | ** | | | |
| **112** | 134 | 128 | 1.60 | 12.92 | 3.7 | | | |
| **121** | 145 | 119 | 1.10 | 11.99 | 3.6 | **CG032-11P-90S/L-04F** | 26 | 74 |
| **124** | 149 | 116 | 1.75 | 11.73 | 3.6 | **CF032-11P-90S/L-04F** | 28 | |
| **148** | 178 | 97 | 2.10 | 9.82 | 3.5 | | | |
| **151** | 181 | 95 | 1.40 | 9.57 | 3.4 | | | |
| **163** | 196 | 88 | 2.25 | 8.92 | 3.4 | | | |
| **190** | 228 | 76 | 2.60 | 7.64 | 3.3 | | | |
| **200** | 240 | 72 | 1.85 | 7.24 | 3.2 | | | |
| **209** | 251 | 69 | 2.80 | 6.94 | 3.2 | | | |
| **264** | 317 | 54 | 2.40 | 5.50 | 3.0 | | | |
| **129** | 155 | 111 | 0.80 | 11.20 | ** | | | |
| **144** | 173 | 99 | 0.90 | 10.04 | ** | | | |
| **176** | 211 | 81 | 1.05 | 8.22 | 1.1 | | | |
| **193** | 232 | 74 | 0.90 | 7.50 | ** | **CG012-11P-90S/L-04F** | 23 | 72 |
| **197** | 236 | 73 | 1.20 | 7.36 | 1.3 | **CF012-11P-90S/L-04F** | 24 | |
| **259** | 311 | 55 | 1.20 | 5.60 | 1.2 | | | |
| **344** | 413 | 42 | 1.60 | 4.22 | 1.6 | | | |
| **469** | 563 | 31 | 2.20 | 3.09 | 1.8 | | | |

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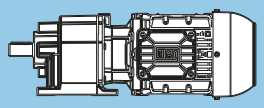
| $P_N$ = 2.2 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>2.2 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>2.6 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **12** | 14 | 1752 | 0.90 | 119.68 | ** | | | |
| **14** | 17 | 1490 | 1.05 | 101.80 | 18.4 | | | |
| **16** | 19 | 1292 | 1.20 | 88.23 | 19.5 | **CG083-11P-100L-04E** | 86 | 82 |
| **19** | 23 | 1091 | 1.45 | 74.50 | 20.1 | **CF083-11P-100L-04E** | 90 | |
| **20** | 24 | 1052 | 1.50 | 71.84 | 20.0 | | | |
| **23** | 28 | 899 | 1.75 | 61.37 | 20.5 | | | |
| **26** | 31 | 793 | 2.00 | 54.18 | 20.5 | | | |
| **33** | 40 | 628 | 2.50 | 42.88 | 20.3 | **CG082-11P-100L-04E** | 85 | 82 |
| **38** | 46 | 548 | 2.85 | 37.44 | 20.0 | **CF082-11P-100L-04E** | 89 | |
| **46** | 55 | 457 | 2.45 | 31.23 | 19.0 | | | |
| **20** | 24 | 1035 | 0.80 | 70.68 | ** | | | |
| **22** | 26 | 941 | 0.90 | 64.30 | ** | | | |
| **24** | 29 | 879 | 0.95 | 60.06 | ** | | | |
| **26** | 31 | 800 | 1.05 | 54.63 | 8.8 | | | |
| **29** | 35 | 723 | 1.15 | 49.38 | 10.0 | **CG073-11P-100L-04E** | 62 | 80 |
| **30** | 36 | 697 | 1.20 | 47.62 | 10.3 | **CF073-11P-100L-04E** | 66 | |
| **32** | 38 | 658 | 1.25 | 44.92 | 10.8 | | | |
| **33** | 40 | 634 | 1.25 | 43.32 | 11.1 | | | |
| **37** | 44 | 573 | 1.35 | 39.17 | 11.7 | | | |
| **40** | 48 | 522 | 1.40 | 35.63 | 12.1 | | | |
| **37** | 44 | 570 | 1.45 | 38.92 | 11.7 | | | |
| **41** | 49 | 518 | 1.60 | 35.41 | 12.1 | | | |
| **47** | 56 | 447 | 1.85 | 30.55 | 12.6 | | | |
| **52** | 62 | 407 | 2.05 | 27.79 | 12.9 | | | |
| **61** | 73 | 345 | 2.40 | 23.58 | 13.2 | **CG072-11P-100L-04E** | 61 | 80 |
| **67** | 80 | 314 | 2.65 | 21.45 | 13.4 | **CF072-11P-100L-04E** | 65 | |
| **70** | 84 | 302 | 2.30 | 20.65 | 13.4 | | | |
| **74** | 89 | 286 | 2.85 | 19.50 | 13.5 | | | |
| **89** | 107 | 237 | 2.90 | 16.20 | 13.7 | | | |
| **26** | 31 | 798 | 0.80 | 54.49 | ** | | | |
| **29** | 35 | 728 | 0.85 | 49.74 | ** | | | |
| **31** | 37 | 668 | 0.90 | 45.61 | ** | **CG063-11P-100L-04E** | 46 | 78 |
| **37** | 44 | 569 | 1.10 | 38.88 | 6.9 | **CF063-11P-100L-04E** | 51 | |
| **40** | 48 | 522 | 1.15 | 35.65 | 7.8 | | | |
| **47** | 56 | 444 | 1.40 | 30.30 | 8.9 | | | |
| **52** | 62 | 407 | 1.50 | 27.78 | 9.3 | | | |
| **61** | 73 | 344 | 1.75 | 23.46 | 9.7 | | | |
| **67** | 80 | 315 | 1.95 | 21.51 | 9.5 | | | |
| **80** | 96 | 261 | 2.30 | 17.85 | 9.1 | **CG062-11P-100L-04E** | 45 | 78 |
| **85** | 102 | 247 | 1.55 | 16.88 | 8.8 | **CF062-11P-100L-04E** | 50 | |
| **88** | 106 | 240 | 2.55 | 16.36 | 8.8 | | | |
| **98** | 118 | 216 | 2.80 | 14.72 | 8.6 | | | |
| **110** | 132 | 191 | 2.00 | 13.07 | 8.2 | | | |
| **144** | 173 | 146 | 2.60 | 9.94 | 7.6 | | | |
| **60** | 72 | 353 | 1.15 | 24.12 | 4.3 | | | |
| **65** | 78 | 321 | 1.25 | 21.92 | 5.0 | | | |
| **77** | 92 | 272 | 1.50 | 18.56 | 5.9 | | | |
| **85** | 102 | 247 | 1.65 | 16.88 | 6.3 | | | |
| **98** | 118 | 214 | 1.25 | 14.62 | 6.4 | | | |
| **102** | 122 | 205 | 1.95 | 14.03 | 6.5 | | | |
| **113** | 136 | 187 | 2.15 | 12.75 | 6.3 | **CG052-11P-100L-04E** | 40 | 76 |
| **125** | 150 | 168 | 2.40 | 11.48 | 6.1 | **CF052-11P-100L-04E** | 45 | |
| **128** | 154 | 165 | 1.65 | 11.25 | 6.0 | | | |
| **138** | 166 | 153 | 2.65 | 10.43 | 6.0 | | | |
| **154** | 185 | 136 | 2.85 | 9.31 | 5.8 | | | |
| **169** | 203 | 124 | 2.15 | 8.50 | 5.6 | | | |
| **170** | 204 | 124 | 2.95 | 8.46 | 5.6 | | | |
| **206** | 247 | 102 | 2.65 | 6.96 | 5.3 | | | |

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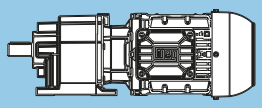
| $P_N$ = 2.2 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| **50 Hz** **2.2 kW** $n_{50}$ min$^{-1}$ | **60 Hz** **2.6 kW** $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | **i** | at 50 Hz $F_{rN}$ kN |  | **m** kg | **Dimension sheet see page** |
| **84** | 101 | 250 | 0.80 | 17.09 | ** | | | |
| **92** | 110 | 227 | 0.90 | 15.52 | ** | | | |
| **111** | 133 | 189 | 1.10 | 12.92 | 3.4 | | | |
| **122** | 146 | 172 | 1.20 | 11.73 | 3.3 | | | |
| **146** | 175 | 144 | 1.40 | 9.82 | 3.3 | | | |
| **150** | 180 | 140 | 0.95 | 9.57 | ** | | | |
| **161** | 193 | 131 | 1.55 | 8.92 | 3.2 | | | |
| **188** | 226 | 112 | 1.75 | 7.64 | 3.1 | **CG032-11P-100L-04E** **CF032-11P-100L-04E** | 36 38 | 74 |
| **198** | 238 | 106 | 1.25 | 7.24 | 3.0 | | | |
| **207** | 248 | 102 | 1.90 | 6.94 | 3.0 | | | |
| **241** | 289 | 87 | 2.15 | 5.96 | 3.0 | | | |
| **261** | 313 | 81 | 1.65 | 5.50 | 2.9 | | | |
| **265** | 318 | 79 | 2.35 | 5.41 | 2.9 | | | |
| **335** | 402 | 63 | 2.05 | 4.28 | 2.7 | | | |
| **430** | 516 | 49 | 2.45 | 3.34 | 2.5 | | | |



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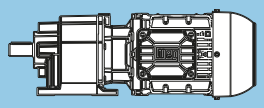
*** ... on request*

| $P_N$ = 3.0 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>3.0 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>3.6 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **14** | 17 | 2025 | 0.80 | 101.80 | ** | **CG083-11P-L100L-04F**<br>**CF083-11P-L100L-04F** | 95<br>99 | 82 |
| **16** | 19 | 1755 | 0.90 | 88.23 | ** | | | |
| **19** | 23 | 1482 | 1.05 | 74.50 | 15.0 | | | |
| **20** | 24 | 1429 | 1.10 | 71.84 | 15.1 | | | |
| **23** | 28 | 1221 | 1.30 | 61.37 | 16.3 | | | |
| **27** | 32 | 1078 | 1.45 | 54.18 | 16.5 | **CG082-11P-L100L-04F**<br>**CF082-11P-L100L-04F** | 94<br>98 | 82 |
| **34** | 41 | 853 | 1.85 | 42.88 | 17.1 | | | |
| **38** | 46 | 745 | 2.10 | 37.44 | 17.5 | | | |
| **44** | 53 | 658 | 2.40 | 33.09 | 17.3 | | | |
| **46** | 55 | 621 | 1.80 | 31.23 | 16.6 | | | |
| **51** | 61 | 557 | 2.80 | 27.98 | 17.4 | | | |
| **58** | 70 | 492 | 2.65 | 24.72 | 16.6 | | | |
| **26** | 31 | 1087 | 0.80 | 54.63 | ** | **CG073-11P-L100L-04F**<br>**CF073-11P-L100L-04F** | 71<br>75 | 80 |
| **29** | 35 | 982 | 0.85 | 49.38 | ** | | | |
| **30** | 36 | 947 | 0.90 | 47.62 | ** | | | |
| **32** | 38 | 894 | 0.90 | 44.92 | ** | | | |
| **33** | 40 | 862 | 0.95 | 43.32 | ** | | | |
| **37** | 44 | 779 | 1.00 | 39.17 | 9.2 | | | |
| **40** | 48 | 709 | 1.05 | 35.63 | 10.2 | | | |
| **37** | 44 | 774 | 1.10 | 38.92 | 9.3 | **CG072-11P-L100L-04F**<br>**CF072-11P-L100L-04F** | 70<br>74 | 80 |
| **41** | 49 | 705 | 1.20 | 35.41 | 10.2 | | | |
| **47** | 56 | 608 | 1.35 | 30.55 | 11.3 | | | |
| **52** | 62 | 553 | 1.50 | 27.79 | 11.8 | | | |
| **61** | 73 | 469 | 1.75 | 23.58 | 12.5 | | | |
| **67** | 80 | 427 | 1.95 | 21.45 | 12.8 | | | |
| **70** | 84 | 411 | 1.70 | 20.65 | 12.9 | | | |
| **74** | 89 | 388 | 2.10 | 19.50 | 13.0 | | | |
| **81** | 97 | 353 | 2.30 | 17.74 | 13.2 | | | |
| **87** | 104 | 330 | 2.35 | 16.59 | 13.3 | | | |
| **89** | 107 | 322 | 2.15 | 16.20 | 13.3 | | | |
| **95** | 114 | 300 | 2.55 | 15.09 | 13.4 | | | |
| **100** | 120 | 286 | 2.60 | 14.38 | 13.5 | | | |
| **110** | 132 | 260 | 2.80 | 13.08 | 13.3 | | | |
| **115** | 138 | 249 | 2.70 | 12.51 | 13.1 | | | |
| **119** | 143 | 242 | 2.90 | 12.14 | 12.9 | | | |
| **123** | 148 | 233 | 2.95 | 11.71 | 12.8 | | | |
| **37** | 44 | 774 | 0.80 | 38.88 | ** | **CG063-11P-L100L-04F**<br>**CF063-11P-L100L-04F** | 54<br>59 | 78 |
| **40** | 48 | 709 | 0.85 | 35.65 | ** | | | |
| **48** | 58 | 603 | 1.00 | 30.30 | 6.2 | **CG062-11P-L100L-04F**<br>**CF062-11P-L100L-04F** | 54<br>59 | 78 |
| **52** | 62 | 553 | 1.10 | 27.78 | 7.2 | | | |
| **61** | 73 | 467 | 1.30 | 23.46 | 8.6 | | | |
| **67** | 80 | 428 | 1.45 | 21.51 | 9.1 | | | |
| **81** | 97 | 355 | 1.70 | 17.85 | 8.7 | | | |
| **85** | 102 | 336 | 1.15 | 16.88 | 8.5 | | | |
| **88** | 106 | 326 | 1.85 | 16.36 | 8.5 | | | |
| **98** | 118 | 293 | 2.05 | 14.72 | 8.3 | | | |
| **107** | 128 | 269 | 2.25 | 13.49 | 8.1 | | | |
| **110** | 132 | 260 | 1.45 | 13.07 | 8.0 | | | |
| **119** | 143 | 240 | 2.50 | 12.07 | 7.9 | | | |
| **130** | 156 | 220 | 2.75 | 11.07 | 7.7 | | | |
| **140** | 168 | 204 | 2.95 | 10.26 | 7.6 | | | |
| **145** | 174 | 198 | 1.95 | 9.94 | 7.4 | | | |
| **176** | 211 | 163 | 2.35 | 8.20 | 7.0 | | | |
| **214** | 257 | 134 | 2.85 | 6.73 | 6.7 | | | |

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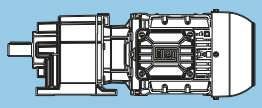
*** ... on request*

| $P_N$ = 3.0 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| **50 Hz** **3.0 kW** $n_{50}$ min$^{-1}$ | **60 Hz** **3.6 kW** $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | **i** | at 50 Hz $F_{rN}$ kN |  | **m** kg | **Dimension sheet see page** |
| **60** | 72 | 480 | 0.85 | 24.12 | ** | | | |
| **66** | 79 | 436 | 0.95 | 21.92 | ** | | | |
| **78** | 94 | 369 | 1.10 | 18.56 | 3.8 | | | |
| **85** | 102 | 336 | 1.20 | 16.88 | 4.7 | | | |
| **99** | 119 | 291 | 0.95 | 14.62 | ** | | | |
| **103** | 124 | 279 | 1.45 | 14.03 | 5.8 | | | |
| **113** | 136 | 254 | 1.60 | 12.75 | 6.0 | | | |
| **125** | 150 | 228 | 1.80 | 11.48 | 5.9 | | | |
| **128** | 154 | 224 | 1.20 | 11.25 | 5.8 | | | |
| **138** | 166 | 208 | 1.95 | 10.43 | 5.7 | | | |
| **155** | 186 | 185 | 2.10 | 9.31 | 5.6 | | | |
| **169** | 203 | 169 | 1.60 | 8.50 | 5.4 | **CG052-11P-L100L-04F** | 49 | 76 |
| **170** | 204 | 168 | 2.20 | 8.46 | 5.5 | **CF052-11P-L100L-04F** | 54 | |
| **185** | 222 | 155 | 2.25 | 7.79 | 5.4 | | | |
| **203** | 244 | 141 | 2.35 | 7.08 | 5.2 | | | |
| **207** | 248 | 138 | 1.95 | 6.96 | 5.1 | | | |
| **228** | 274 | 126 | 2.45 | 6.31 | 5.1 | | | |
| **236** | 283 | 121 | 2.50 | 6.09 | 5.0 | | | |
| **251** | 301 | 114 | 2.55 | 5.74 | 4.9 | | | |
| **255** | 306 | 112 | 2.35 | 5.64 | 4.9 | | | |
| **260** | 312 | 110 | 2.60 | 5.54 | 4.9 | | | |
| **305** | 366 | 94 | 2.45 | 4.72 | 4.7 | | | |
| **376** | 451 | 76 | 2.65 | 3.83 | 4.4 | | | |
| **390** | 468 | 73 | 2.70 | 3.69 | 4.3 | | | |
| **111** | 133 | 257 | 0.80 | 12.92 | ** | | | |
| **123** | 148 | 233 | 0.90 | 11.73 | ** | | | |
| **147** | 176 | 195 | 1.05 | 9.82 | 2.9 | | | |
| **162** | 194 | 177 | 1.15 | 8.92 | 2.9 | | | |
| **189** | 227 | 152 | 1.30 | 7.64 | 2.9 | | | |
| **199** | 239 | 144 | 0.95 | 7.24 | ** | **CG032-11P-L100L-04F** | 45 | 74 |
| **208** | 250 | 138 | 1.40 | 6.94 | 2.8 | **CF032-11P-L100L-04F** | 47 | |
| **242** | 290 | 119 | 1.60 | 5.96 | 2.8 | | | |
| **262** | 314 | 109 | 1.20 | 5.50 | 2.7 | | | |
| **266** | 319 | 108 | 1.75 | 5.41 | 2.7 | | | |
| **337** | 404 | 85 | 1.50 | 4.28 | 2.5 | | | |
| **431** | 517 | 67 | 1.80 | 3.34 | 2.4 | | | |



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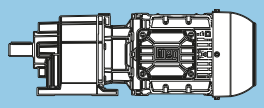
| $P_N$ = 4.0 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>4.0 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>4.8 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **19** | 23 | 1963 | 0.80 | 74.50 | ** | **CG083-11P-112M-04E**<br>**CF083-11P-112M-04E** | 95<br>99 | 82 |
| **20** | 24 | 1893 | 0.85 | 71.84 | ** | | | |
| **24** | 29 | 1617 | 1.00 | 61.37 | 10.7 | | | |
| **27** | 32 | 1427 | 1.10 | 54.18 | 12.0 | **CG082-11P-112M-04E**<br>**CF082-11P-112M-04E** | 94<br>98 | 82 |
| **34** | 41 | 1130 | 1.40 | 42.88 | 13.6 | | | |
| **39** | 47 | 986 | 1.60 | 37.44 | 14.2 | | | |
| **44** | 53 | 872 | 1.80 | 33.09 | 14.6 | | | |
| **46** | 55 | 823 | 1.40 | 31.23 | 13.8 | | | |
| **52** | 62 | 737 | 2.15 | 27.98 | 14.9 | | | |
| **59** | 71 | 651 | 2.00 | 24.72 | 14.2 | | | |
| **60** | 72 | 634 | 2.35 | 24.05 | 15.1 | | | |
| **67** | 80 | 569 | 2.35 | 21.58 | 14.4 | | | |
| **69** | 83 | 553 | 2.60 | 21.00 | 15.1 | | | |
| **76** | 91 | 503 | 2.60 | 19.08 | 14.4 | | | |
| **81** | 97 | 474 | 2.90 | 17.99 | 15.0 | | | |
| **84** | 101 | 457 | 2.95 | 17.35 | 14.9 | | | |
| **41** | 49 | 939 | 0.80 | 35.63 | ** | **CG073-11P-112M-04E**<br>**CF073-11P-112M-04E** | 71<br>75 | 80 |
| **37** | 44 | 1025 | 0.80 | 38.92 | ** | **CG072-11P-112M-04E**<br>**CF072-11P-112M-04E** | 70<br>74 | 80 |
| **41** | 49 | 933 | 0.90 | 35.41 | ** | | | |
| **47** | 56 | 805 | 1.05 | 30.55 | 8.8 | | | |
| **52** | 62 | 732 | 1.15 | 27.79 | 9.9 | | | |
| **62** | 74 | 621 | 1.35 | 23.58 | 11.2 | | | |
| **68** | 82 | 565 | 1.50 | 21.45 | 11.7 | | | |
| **70** | 84 | 544 | 1.30 | 20.65 | 11.2 | | | |
| **74** | 89 | 514 | 1.60 | 19.50 | 12.2 | | | |
| **82** | 98 | 467 | 1.75 | 17.74 | 12.2 | | | |
| **87** | 104 | 437 | 1.80 | 16.59 | 12.4 | | | |
| **89** | 107 | 427 | 1.65 | 16.20 | 11.6 | | | |
| **96** | 115 | 398 | 1.90 | 15.09 | 12.3 | | | |
| **101** | 121 | 379 | 1.95 | 14.38 | 12.3 | | | |
| **111** | 133 | 345 | 2.10 | 13.08 | 12.2 | | | |
| **116** | 139 | 329 | 2.05 | 12.51 | 11.7 | | | |
| **119** | 143 | 320 | 2.20 | 12.14 | 12.3 | | | |
| **124** | 149 | 308 | 2.25 | 11.71 | 12.2 | | | |
| **131** | 157 | 291 | 2.35 | 11.04 | 12.1 | | | |
| **136** | 163 | 281 | 2.40 | 10.65 | 12.1 | | | |
| **140** | 168 | 273 | 2.30 | 10.34 | 11.6 | | | |
| **145** | 174 | 263 | 2.50 | 10.00 | 12.0 | | | |
| **159** | 191 | 240 | 2.70 | 9.10 | 11.8 | | | |
| **165** | 198 | 232 | 2.60 | 8.80 | 11.4 | | | |
| **190** | 228 | 201 | 2.85 | 7.63 | 11.1 | | | |

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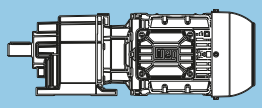
| $P_N$ = 4.0 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>4.0 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>4.8 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **48** | 58 | 798 | 0.80 | 30.30 | ** | | | |
| **52** | 62 | 732 | 0.85 | 27.78 | ** | | | |
| **62** | 74 | 618 | 1.00 | 23.46 | 5.8 | | | |
| **67** | 80 | 567 | 1.10 | 21.51 | 7.0 | | | |
| **81** | 97 | 470 | 1.30 | 17.85 | 8.3 | | | |
| **86** | 103 | 445 | 0.85 | 16.88 | ** | | | |
| **89** | 107 | 431 | 1.40 | 16.36 | 8.1 | | | |
| **99** | 119 | 388 | 1.55 | 14.72 | 7.9 | | | |
| **107** | 128 | 356 | 1.70 | 13.49 | 7.8 | | | |
| **111** | 133 | 344 | 1.10 | 13.07 | 7.6 | | | |
| **120** | 144 | 318 | 1.90 | 12.07 | 7.6 | | | |
| **131** | 157 | 292 | 2.10 | 11.07 | 7.4 | | | |
| **141** | 169 | 270 | 2.25 | 10.26 | 7.3 | | | |
| **146** | 175 | 262 | 1.45 | 9.94 | 7.2 | **CG062-11P-112M-04E**<br>**CF062-11P-112M-04E** | 54<br>59 | 78 |
| **154** | 185 | 248 | 2.40 | 9.40 | 7.1 | | | |
| **172** | 206 | 222 | 2.50 | 8.43 | 7.0 | | | |
| **177** | 212 | 216 | 1.75 | 8.20 | 6.8 | | | |
| **178** | 214 | 214 | 2.50 | 8.13 | 6.9 | | | |
| **188** | 226 | 204 | 2.55 | 7.73 | 6.8 | | | |
| **194** | 233 | 196 | 2.60 | 7.46 | 6.7 | | | |
| **216** | 259 | 177 | 2.15 | 6.73 | 6.5 | | | |
| **217** | 260 | 176 | 2.70 | 6.69 | 6.5 | | | |
| **236** | 283 | 162 | 2.75 | 6.13 | 6.4 | | | |
| **254** | 305 | 151 | 2.50 | 5.71 | 6.2 | | | |
| **309** | 371 | 124 | 2.65 | 4.70 | 5.9 | | | |
| **320** | 384 | 119 | 2.70 | 4.53 | 5.8 | | | |
| **389** | 467 | 98 | 2.85 | 3.73 | 5.5 | | | |
| **78** | 94 | 489 | 0.85 | 18.56 | ** | | | |
| **86** | 103 | 445 | 0.90 | 16.88 | ** | | | |
| **103** | 124 | 370 | 1.10 | 14.03 | 3.8 | | | |
| **114** | 137 | 336 | 1.20 | 12.75 | 4.7 | | | |
| **126** | 151 | 302 | 1.35 | 11.48 | 5.4 | | | |
| **129** | 155 | 296 | 0.95 | 11.25 | ** | | | |
| **139** | 167 | 275 | 1.50 | 10.43 | 5.4 | | | |
| **156** | 187 | 245 | 1.60 | 9.31 | 5.3 | | | |
| **171** | 205 | 223 | 1.65 | 8.46 | 5.2 | | | |
| **171** | 205 | 224 | 1.20 | 8.50 | 5.1 | | | |
| **186** | 223 | 205 | 1.70 | 7.79 | 5.1 | **CG052-11P-112M-04E**<br>**CF052-11P-112M-04E** | 49<br>54 | 76 |
| **205** | 246 | 187 | 1.80 | 7.08 | 5.0 | | | |
| **208** | 250 | 183 | 1.50 | 6.96 | 4.9 | | | |
| **230** | 276 | 166 | 1.85 | 6.31 | 4.9 | | | |
| **238** | 286 | 160 | 1.90 | 6.09 | 4.8 | | | |
| **253** | 304 | 151 | 1.95 | 5.74 | 4.8 | | | |
| **257** | 308 | 149 | 1.75 | 5.64 | 4.7 | | | |
| **262** | 314 | 146 | 1.95 | 5.54 | 4.7 | | | |
| **307** | 368 | 124 | 1.85 | 4.72 | 4.5 | | | |
| **379** | 455 | 101 | 2.00 | 3.83 | 4.3 | | | |
| **393** | 472 | 97 | 2.05 | 3.69 | 4.2 | | | |

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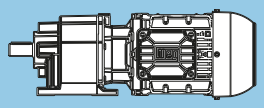
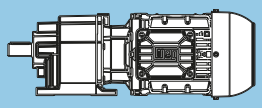
| $P_N$ = 5.5 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 5.5 kW $n_{50}$ min$^{-1}$ | 60 Hz 6.6 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **27** | 32 | 1942 | 0.80 | 54.18 | ** | **CG082-11P-132S-04E**<br>**CF082-11P-132S-04E** | 114<br>118 | 82 |
| **34** | 41 | 1537 | 1.05 | 42.88 | 8.3 | | | |
| **39** | 47 | 1342 | 1.20 | 37.44 | 9.6 | | | |
| **44** | 53 | 1186 | 1.35 | 33.09 | 10.5 | | | |
| **47** | 56 | 1120 | 1.00 | 31.23 | 9.4 | | | |
| **52** | 62 | 1003 | 1.55 | 27.98 | 11.5 | | | |
| **59** | 71 | 886 | 1.50 | 24.72 | 10.8 | | | |
| **61** | 73 | 862 | 1.75 | 24.05 | 12.0 | | | |
| **68** | 82 | 774 | 1.75 | 21.58 | 11.3 | | | |
| **70** | 84 | 753 | 1.90 | 21.00 | 12.4 | | | |
| **77** | 92 | 684 | 1.95 | 19.08 | 11.7 | | | |
| **81** | 97 | 645 | 2.10 | 17.99 | 12.7 | | | |
| **84** | 101 | 622 | 2.20 | 17.35 | 12.8 | | | |
| **91** | 109 | 578 | 2.25 | 16.13 | 12.1 | | | |
| **96** | 115 | 549 | 2.35 | 15.31 | 12.8 | | | |
| **106** | 127 | 497 | 2.50 | 13.87 | 12.2 | | | |
| **114** | 137 | 461 | 2.65 | 12.84 | 12.9 | | | |
| **121** | 145 | 434 | 2.75 | 12.10 | 12.3 | | | |
| **135** | 162 | 388 | 3.00 | 10.82 | 12.8 | | | |
| **53** | 64 | 996 | 0.85 | 27.79 | ** | **CG072-11P-132S-04E**<br>**CF072-11P-132S-04E** | 90<br>94 | 80 |
| **62** | 74 | 845 | 1.00 | 23.58 | 8.0 | | | |
| **68** | 82 | 769 | 1.10 | 21.45 | 8.8 | | | |
| **71** | 85 | 740 | 0.95 | 20.65 | ** | | | |
| **75** | 90 | 699 | 1.20 | 19.50 | 9.4 | | | |
| **83** | 100 | 636 | 1.25 | 17.74 | 9.5 | | | |
| **88** | 106 | 595 | 1.30 | 16.59 | 9.9 | | | |
| **90** | 108 | 581 | 1.20 | 16.20 | 9.0 | | | |
| **97** | 116 | 541 | 1.40 | 15.09 | 10.0 | | | |
| **102** | 122 | 515 | 1.45 | 14.38 | 10.2 | | | |
| **112** | 134 | 469 | 1.55 | 13.08 | 10.3 | | | |
| **117** | 140 | 448 | 1.50 | 12.51 | 9.6 | | | |
| **121** | 145 | 435 | 1.60 | 12.14 | 10.4 | | | |
| **125** | 150 | 420 | 1.65 | 11.71 | 10.5 | | | |
| **133** | 160 | 396 | 1.75 | 11.04 | 10.4 | | | |
| **138** | 166 | 382 | 1.80 | 10.65 | 10.4 | | | |
| **142** | 170 | 371 | 1.70 | 10.34 | 9.9 | | | |
| **147** | 176 | 359 | 1.85 | 10.00 | 10.5 | | | |
| **161** | 193 | 326 | 1.95 | 9.10 | 10.5 | | | |
| **167** | 200 | 315 | 1.90 | 8.80 | 10.0 | | | |
| **192** | 230 | 273 | 2.10 | 7.63 | 10.0 | | | |
| **228** | 274 | 231 | 2.35 | 6.44 | 9.9 | | | |
| **236** | 283 | 223 | 2.40 | 6.21 | 9.9 | | | |
| **276** | 331 | 190 | 2.70 | 5.30 | 9.7 | | | |
| **68** | 82 | 771 | 0.80 | 21.51 | ** | **CG062-11P-132S-04E**<br>**CF062-11P-132S-04E** | 74<br>79 | 78 |
| **82** | 98 | 640 | 0.95 | 17.85 | ** | | | |
| **90** | 108 | 587 | 1.05 | 16.36 | 6.5 | | | |
| **100** | 120 | 528 | 1.15 | 14.72 | 7.4 | | | |
| **109** | 131 | 484 | 1.25 | 13.49 | 7.3 | | | |
| **112** | 134 | 469 | 0.85 | 13.07 | ** | | | |
| **121** | 145 | 433 | 1.40 | 12.07 | 7.2 | | | |
| **132** | 158 | 397 | 1.55 | 11.07 | 7.1 | | | |
| **143** | 172 | 368 | 1.65 | 10.26 | 6.9 | | | |
| **147** | 176 | 357 | 1.10 | 9.94 | 6.8 | | | |
| **156** | 187 | 337 | 1.75 | 9.40 | 6.8 | | | |
| **174** | 209 | 302 | 1.85 | 8.43 | 6.7 | | | |
| **179** | 215 | 294 | 1.30 | 8.20 | 6.5 | | | |
| **180** | 216 | 292 | 1.85 | 8.13 | 6.6 | | | |
| **189** | 227 | 277 | 1.90 | 7.73 | 6.5 | | | |
| **196** | 235 | 267 | 1.90 | 7.46 | 6.5 | | | |
| **218** | 262 | 241 | 1.60 | 6.73 | 6.2 | | | |
| **219** | 263 | 240 | 2.00 | 6.69 | 6.3 | | | |
| **239** | 287 | 220 | 2.05 | 6.13 | 6.2 | | | |
| **256** | 307 | 205 | 1.85 | 5.71 | 6.0 | | | |
| **312** | 374 | 169 | 1.95 | 4.70 | 5.7 | | | |
| **323** | 388 | 162 | 2.00 | 4.53 | 5.6 | | | |
| **393** | 472 | 134 | 2.10 | 3.73 | 5.4 | | | |

| $P_N$ = 5.5 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| **50 Hz** **5.5 kW** $n_{50}$ min$^{-1}$ | **60 Hz** **6.6 kW** $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | **i** | at 50 Hz $F_{rN}$ kN |  | **m** kg | **Dimension sheet see page** |
| **104** | 125 | 503 | 0.80 | 14.03 | ** | | | |
| **115** | 138 | 457 | 0.90 | 12.75 | ** | | | |
| **128** | 154 | 412 | 1.00 | 11.48 | 1.9 | | | |
| **140** | 168 | 374 | 1.10 | 10.43 | 3.6 | | | |
| **157** | 188 | 334 | 1.20 | 9.31 | 4.8 | | | |
| **172** | 206 | 305 | 0.90 | 8.50 | ** | | | |
| **173** | 208 | 303 | 1.25 | 8.46 | 4.8 | | | |
| **188** | 226 | 279 | 1.25 | 7.79 | 4.8 | | | |
| **207** | 248 | 254 | 1.30 | 7.08 | 4.7 | **CG052-11P-132S-04E** | 69 | 76 |
| **211** | 253 | 249 | 1.10 | 6.96 | 4.6 | **CF052-11P-132S-04E** | 74 | |
| **232** | 278 | 226 | 1.40 | 6.31 | 4.6 | | | |
| **241** | 289 | 218 | 1.40 | 6.09 | 4.6 | | | |
| **255** | 306 | 206 | 1.45 | 5.74 | 4.5 | | | |
| **260** | 312 | 202 | 1.30 | 5.64 | 4.4 | | | |
| **265** | 318 | 199 | 1.45 | 5.54 | 4.5 | | | |
| **310** | 372 | 169 | 1.40 | 4.72 | 4.3 | | | |
| **383** | 460 | 137 | 1.50 | 3.83 | 4.1 | | | |
| **397** | 476 | 132 | 1.50 | 3.69 | 4.0 | | | |



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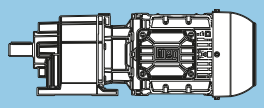
| $P_N$ = 7.5 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>7.5 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>9.0 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **39** | 47 | 1831 | 0.85 | 37.44 | ** | **CG082-11P-L132M-04F**<br>**CF082-11P-L132M-04F** | 123<br>127 | 82 |
| **44** | 53 | 1618 | 1.00 | 33.09 | 4.9 | | | |
| **52** | 62 | 1368 | 1.15 | 27.98 | 6.8 | | | |
| **59** | 71 | 1209 | 1.10 | 24.72 | 6.3 | | | |
| **61** | 73 | 1176 | 1.30 | 24.05 | 8.0 | | | |
| **68** | 82 | 1055 | 1.25 | 21.58 | 7.3 | | | |
| **70** | 84 | 1027 | 1.40 | 21.00 | 8.9 | | | |
| **77** | 92 | 933 | 1.45 | 19.08 | 8.2 | | | |
| **81** | 97 | 880 | 1.55 | 17.99 | 9.7 | | | |
| **84** | 101 | 848 | 1.60 | 17.35 | 9.9 | | | |
| **91** | 109 | 789 | 1.65 | 16.13 | 9.1 | | | |
| **96** | 115 | 749 | 1.75 | 15.31 | 10.3 | | | |
| **106** | 127 | 678 | 1.85 | 13.87 | 9.6 | | | |
| **114** | 137 | 628 | 1.95 | 12.84 | 10.7 | | | |
| **121** | 145 | 592 | 2.00 | 12.10 | 10.0 | | | |
| **135** | 162 | 529 | 2.20 | 10.82 | 10.9 | | | |
| **141** | 169 | 507 | 2.25 | 10.37 | 10.3 | | | |
| **147** | 176 | 489 | 2.30 | 10.00 | 10.3 | | | |
| **166** | 199 | 432 | 2.45 | 8.83 | 10.5 | | | |
| **198** | 238 | 362 | 2.80 | 7.40 | 10.5 | | | |
| **68** | 82 | 1049 | 0.80 | 21.45 | ** | **CG072-11P-L132M-04F**<br>**CF072-11P-L132M-04F** | 99<br>103 | 80 |
| **75** | 90 | 953 | 0.85 | 19.50 | ** | | | |
| **83** | 100 | 867 | 0.95 | 17.74 | ** | | | |
| **88** | 106 | 811 | 0.95 | 16.59 | ** | | | |
| **90** | 108 | 792 | 0.90 | 16.20 | ** | | | |
| **97** | 116 | 738 | 1.05 | 15.09 | 7.0 | | | |
| **102** | 122 | 703 | 1.05 | 14.38 | 7.4 | | | |
| **112** | 134 | 639 | 1.15 | 13.08 | 7.7 | | | |
| **117** | 140 | 611 | 1.10 | 12.51 | 6.9 | | | |
| **121** | 145 | 594 | 1.20 | 12.14 | 8.0 | | | |
| **125** | 150 | 572 | 1.20 | 11.71 | 8.2 | | | |
| **133** | 160 | 540 | 1.30 | 11.04 | 8.2 | | | |
| **138** | 166 | 521 | 1.30 | 10.65 | 8.3 | | | |
| **142** | 170 | 506 | 1.25 | 10.34 | 7.6 | | | |
| **147** | 176 | 489 | 1.35 | 10.00 | 8.5 | | | |
| **161** | 193 | 445 | 1.45 | 9.10 | 8.7 | | | |
| **167** | 200 | 430 | 1.40 | 8.80 | 8.0 | | | |
| **192** | 230 | 373 | 1.55 | 7.63 | 8.3 | | | |
| **228** | 274 | 315 | 1.75 | 6.44 | 8.5 | | | |
| **236** | 283 | 304 | 1.80 | 6.21 | 8.5 | | | |
| **276** | 331 | 259 | 2.00 | 5.30 | 8.5 | | | |
| **100** | 120 | 720 | 0.85 | 14.72 | ** | **CG062-11P-L132M-04F**<br>**CF062-11P-L132M-04F** | 83<br>88 | 78 |
| **109** | 131 | 660 | 0.95 | 13.49 | ** | | | |
| **121** | 145 | 590 | 1.05 | 12.07 | 6.5 | | | |
| **132** | 158 | 541 | 1.15 | 11.07 | 6.6 | | | |
| **143** | 172 | 501 | 1.20 | 10.26 | 6.5 | | | |
| **147** | 176 | 486 | 0.80 | 9.94 | ** | | | |
| **156** | 187 | 460 | 1.30 | 9.40 | 6.4 | | | |
| **174** | 209 | 412 | 1.35 | 8.43 | 6.3 | | | |
| **179** | 215 | 401 | 0.95 | 8.20 | ** | | | |
| **180** | 216 | 398 | 1.35 | 8.13 | 6.2 | | | |
| **189** | 227 | 378 | 1.40 | 7.73 | 6.2 | | | |
| **196** | 235 | 365 | 1.40 | 7.46 | 6.1 | | | |
| **218** | 262 | 329 | 1.15 | 6.73 | 5.9 | | | |
| **219** | 263 | 327 | 1.45 | 6.69 | 6.0 | | | |
| **239** | 287 | 300 | 1.50 | 6.13 | 5.9 | | | |
| **256** | 307 | 279 | 1.35 | 5.71 | 5.7 | | | |
| **312** | 374 | 230 | 1.45 | 4.70 | 5.5 | | | |
| **323** | 388 | 222 | 1.45 | 4.53 | 5.4 | | | |
| **393** | 472 | 182 | 1.55 | 3.73 | 5.2 | | | |

*Legend see page 25*

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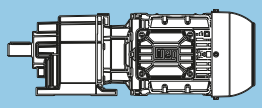
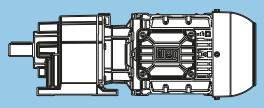
| $P_N$ = 7.5 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| **50 Hz** **7.5 kW** $n_{50}$ min$^{-1}$ | **60 Hz** **9.0 kW** $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | **i** | at 50 Hz $F_{rN}$ kN |  | **m** kg | **Dimension sheet see page** |
| **140** | 168 | 510 | 0.80 | 10.43 | ** | | | |
| **157** | 188 | 455 | 0.85 | 9.31 | ** | | | |
| **173** | 208 | 414 | 0.90 | 8.46 | ** | | | |
| **188** | 226 | 381 | 0.95 | 7.79 | ** | | | |
| **207** | 248 | 346 | 0.95 | 7.08 | ** | | | |
| **211** | 253 | 340 | 0.80 | 6.96 | ** | | | |
| **232** | 278 | 309 | 1.00 | 6.31 | 4.3 | **CG052-11P-L132M-04F** | 78 | 76 |
| **241** | 289 | 298 | 1.05 | 6.09 | 4.2 | **CF052-11P-L132M-04F** | 83 | |
| **255** | 306 | 281 | 1.05 | 5.74 | 4.2 | | | |
| **260** | 312 | 276 | 0.95 | 5.64 | ** | | | |
| **265** | 318 | 271 | 1.05 | 5.54 | 4.2 | | | |
| **310** | 372 | 231 | 1.00 | 4.72 | 4.0 | | | |
| **383** | 460 | 187 | 1.10 | 3.83 | 3.8 | | | |
| **397** | 476 | 180 | 1.10 | 3.69 | 3.8 | | | |



*Legend see page 25*

*** ... on request*

| $P_N$ = 9.2 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>9.2 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>11 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **44** | 53 | 1991 | 0.80 | 33.09 | ** | **CG082-11P-L132M-04G**<br>**CF082-11P-L132M-04G** | 132<br>136 | 82 |
| **52** | 62 | 1684 | 0.95 | 27.98 | ** | | | |
| **59** | 71 | 1488 | 0.90 | 24.72 | ** | | | |
| **61** | 73 | 1447 | 1.05 | 24.05 | 4.5 | | | |
| **68** | 82 | 1299 | 1.05 | 21.58 | 3.9 | | | |
| **70** | 84 | 1264 | 1.15 | 21.00 | 5.8 | | | |
| **77** | 92 | 1148 | 1.15 | 19.08 | 5.1 | | | |
| **81** | 97 | 1083 | 1.25 | 17.99 | 7.1 | | | |
| **84** | 101 | 1044 | 1.30 | 17.35 | 7.3 | | | |
| **91** | 109 | 971 | 1.35 | 16.13 | 6.5 | | | |
| **95** | 114 | 921 | 1.40 | 15.31 | 8.1 | | | |
| **105** | 126 | 834 | 1.50 | 13.87 | 7.5 | | | |
| **114** | 137 | 773 | 1.60 | 12.84 | 8.8 | | | |
| **121** | 145 | 728 | 1.65 | 12.10 | 8.1 | | | |
| **135** | 162 | 651 | 1.80 | 10.82 | 9.4 | | | |
| **141** | 169 | 624 | 1.80 | 10.37 | 8.7 | | | |
| **146** | 175 | 602 | 1.85 | 10.00 | 8.8 | | | |
| **165** | 198 | 531 | 2.00 | 8.83 | 9.1 | | | |
| **197** | 236 | 446 | 2.25 | 7.40 | 9.3 | | | |
| **234** | 281 | 376 | 2.55 | 6.24 | 9.5 | | | |
| **88** | 106 | 998 | 0.80 | 16.59 | ** | **CG072-11P-L132M-04G**<br>**CF072-11P-L132M-04G** | 108<br>112 | 80 |
| **97** | 116 | 908 | 0.85 | 15.09 | ** | | | |
| **102** | 122 | 865 | 0.85 | 14.38 | ** | | | |
| **112** | 134 | 787 | 0.95 | 13.08 | ** | | | |
| **117** | 140 | 753 | 0.90 | 12.51 | ** | | | |
| **120** | 144 | 731 | 0.95 | 12.14 | ** | | | |
| **125** | 150 | 704 | 1.00 | 11.71 | 6.2 | | | |
| **132** | 158 | 665 | 1.05 | 11.04 | 6.3 | | | |
| **137** | 164 | 641 | 1.05 | 10.65 | 6.5 | | | |
| **141** | 169 | 623 | 1.05 | 10.34 | 5.6 | | | |
| **146** | 175 | 602 | 1.10 | 10.00 | 6.9 | | | |
| **160** | 192 | 547 | 1.20 | 9.10 | 7.1 | | | |
| **166** | 199 | 530 | 1.15 | 8.80 | 6.4 | | | |
| **191** | 229 | 459 | 1.25 | 7.63 | 6.9 | | | |
| **227** | 272 | 388 | 1.40 | 6.44 | 7.2 | | | |
| **235** | 282 | 374 | 1.45 | 6.21 | 7.3 | | | |
| **275** | 330 | 319 | 1.60 | 5.30 | 7.5 | | | |
| **121** | 145 | 726 | 0.85 | 12.07 | ** | **CG062-11P-L132M-04G**<br>**CF062-11P-L132M-04G** | 92<br>97 | 78 |
| **132** | 158 | 666 | 0.95 | 11.07 | ** | | | |
| **142** | 170 | 617 | 1.00 | 10.26 | 5.8 | | | |
| **155** | 186 | 566 | 1.05 | 9.40 | 6.0 | | | |
| **173** | 208 | 508 | 1.10 | 8.43 | 6.0 | | | |
| **178** | 214 | 493 | 0.80 | 8.20 | ** | | | |
| **180** | 216 | 489 | 1.10 | 8.13 | 5.9 | | | |
| **189** | 227 | 465 | 1.15 | 7.73 | 5.9 | | | |
| **196** | 235 | 449 | 1.15 | 7.46 | 5.8 | | | |
| **217** | 260 | 405 | 0.95 | 6.73 | ** | | | |
| **218** | 262 | 403 | 1.20 | 6.69 | 5.8 | | | |
| **238** | 286 | 369 | 1.25 | 6.13 | 5.6 | | | |
| **256** | 307 | 344 | 1.10 | 5.71 | 5.5 | | | |
| **311** | 373 | 283 | 1.15 | 4.70 | 5.3 | | | |
| **322** | 386 | 273 | 1.20 | 4.53 | 5.2 | | | |
| **392** | 470 | 224 | 1.25 | 3.73 | 5.0 | | | |

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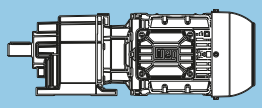
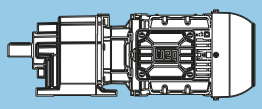
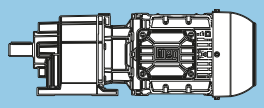
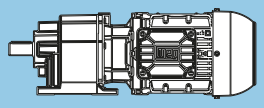
| $P_N$ = 11 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>11 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>13 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **70** | 84 | 1501 | 0.95 | 21.00 | ** | | | |
| **82** | 98 | 1286 | 1.10 | 17.99 | 4.4 | | | |
| **96** | 115 | 1094 | 1.20 | 15.31 | 5.8 | | | |
| **114** | 137 | 918 | 1.35 | 12.84 | 7.0 | | | |
| **121** | 145 | 865 | 1.40 | 12.10 | 6.1 | | | |
| **136** | 163 | 773 | 1.50 | 10.82 | 7.7 | **CG082-22P-160M-04E**<br>**CF082-22P-160M-04E** | 181<br>185 | 82 |
| **142** | 170 | 741 | 1.55 | 10.37 | 6.9 | | | |
| **166** | 199 | 634 | 1.75 | 8.87 | 8.4 | | | |
| **167** | 200 | 631 | 1.70 | 8.83 | 7.6 | | | |
| **199** | 239 | 529 | 1.90 | 7.40 | 8.1 | | | |
| **236** | 283 | 446 | 2.15 | 6.24 | 8.4 | | | |
| **287** | 344 | 366 | 2.45 | 5.12 | 8.6 | | | |
| **112** | 134 | 935 | 0.80 | 13.08 | ** | | | |
| **121** | 145 | 868 | 0.80 | 12.14 | ** | | | |
| **133** | 160 | 789 | 0.90 | 11.04 | ** | | | |
| **147** | 176 | 715 | 0.95 | 10.00 | ** | **CG072-22P-160M-04E**<br>**CF072-22P-160M-04E** | 157<br>161 | 80 |
| **162** | 194 | 650 | 1.00 | 9.10 | 5.5 | | | |
| **193** | 232 | 545 | 1.05 | 7.63 | 5.4 | | | |
| **228** | 274 | 460 | 1.20 | 6.44 | 6.0 | | | |
| **277** | 332 | 379 | 1.35 | 5.30 | 6.5 | | | |

| $P_N$ = 15 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>15 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>18 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **81** | 97 | 1759 | 0.80 | 17.99 | ** | | | |
| **96** | 115 | 1497 | 0.90 | 15.31 | ** | | | |
| **114** | 137 | 1256 | 1.00 | 12.84 | 2.6 | | | |
| **121** | 145 | 1184 | 1.00 | 12.10 | 1.6 | | | |
| **135** | 162 | 1058 | 1.10 | 10.82 | 4.1 | **CG082-22P-160L-04F**<br>**CF082-22P-160L-04F** | 196<br>200 | 82 |
| **141** | 169 | 1014 | 1.15 | 10.37 | 3.1 | | | |
| **165** | 198 | 868 | 1.30 | 8.87 | 5.4 | | | |
| **166** | 199 | 863 | 1.25 | 8.83 | 4.3 | | | |
| **198** | 238 | 724 | 1.40 | 7.40 | 5.4 | | | |
| **235** | 282 | 610 | 1.55 | 6.24 | 6.1 | | | |
| **286** | 343 | 500 | 1.80 | 5.12 | 6.7 | | | |
| **192** | 230 | 746 | 0.80 | 7.63 | ** | **CG072-22P-160L-04F**<br>**CF072-22P-160L-04F** | 172<br>176 | 80 |
| **228** | 274 | 630 | 0.90 | 6.44 | ** | | | |
| **276** | 331 | 519 | 1.00 | 5.30 | 4.2 | | | |

*Legend see page 25*

*** ... on request*

| $P_N$ = 18.5 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>18.5 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>22 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **114** | 137 | 1544 | 0.80 | 12.84 | ** | | | |
| **136** | 163 | 1301 | 0.90 | 10.82 | ** | | | |
| **142** | 170 | 1246 | 0.90 | 10.37 | ** | | | |
| **166** | 199 | 1067 | 1.05 | 8.87 | 2.8 | **CG082-22P-180M-04E**<br>**CF082-22P-180M-04E** | 229<br>233 | 82 |
| **167** | 200 | 1061 | 1.00 | 8.83 | 1.5 | | | |
| **199** | 239 | 890 | 1.15 | 7.40 | 3.0 | | | |
| **236** | 283 | 750 | 1.30 | 6.24 | 4.1 | | | |
| **287** | 344 | 615 | 1.45 | 5.12 | 5.1 | | | |

| $P_N$ = 22 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>22 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>26 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **142** | 170 | 1482 | 0.80 | 10.37 | ** | | | |
| **166** | 199 | 1268 | 0.90 | 8.87 | ** | | | |
| **167** | 200 | 1262 | 0.85 | 8.83 | ** | **CG082-22P-180L-04F**<br>**CF082-22P-180L-04F** | 246<br>250 | 82 |
| **199** | 239 | 1058 | 0.95 | 7.40 | ** | | | |
| **236** | 283 | 892 | 1.10 | 6.24 | 2.1 | | | |
| **287** | 344 | 731 | 1.25 | 5.12 | 3.4 | | | |

*Legend see page 25*

*** ... on request*

## Structure of the selection tables

| 1 | | 2 | 3 | 4 | 5 | 6 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Type | | $i_{ges.}$ | $M_{2nenn}$ [Nm] | $n_2$ [min$^{-1}$] | $i_{exakt}$ | IEC motor frame size | | | | | | | | |
| | | | | | | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 |
| C002 | | 47.44 | 50 | 30 | 759/16 | | | | | | | | | |
| 2 stages | 7 | 42.34 | 50 | 33 | 1863/44 | | | | | | | | | |
| | | 36.85 | 50 | 38 | 737/20 | | | | | | | | | |
| | | 32.89 | 50 | 43 | 1809/55 | | | | | | | | | |
| $n_1$=1400 min$^{-1}$ | 8 | 29.33 | 50 | 48 | 88/3 | | | | | | | | | |
| | | 26.18 | 50 | 53 | 288/11 | | | | | | | | | |
| | | 23.00 | 50 | 61 | 23/1 | | | | | | | | | |
| Maximum torque 50 Nm | 9 | 20.53 | 50 | 68 | 2484/121 | | | | | | | | | |
| | | 17.29 | 50 | 81 | 121/7 | | | | | | | | | |

1 Type of gear unit

2 Total ratio

3 Permissible output torque at S1 operation ($f_B$ = 1.0)

4 Output speed (gear unit) at $n_1$ = 1400 min$^{-1}$

5 Exact mathematical ratio

6 Possible motor frame sizes

7 Number of gear stages

8 Motor speed

9 Maximum torque

| Type | $i_{ges.}$ | $M_{2nenn}$ [Nm] | $n_2$ [min$^{-1}$] | $i_{exakt}$ | IEC motor frame size | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 |
| **C002** | 47.44 | 50 | 30 | 759/16 | ■ | ■ | | | | | | | |
| | 42.34 | 50 | 33 | 1863/44 | ■ | ■ | | | | | | | |
| | 36.85 | 50 | 38 | 737/20 | ■ | ■ | ■ | | | | | | |
| | 32.89 | 50 | 43 | 1809/55 | ■ | ■ | ■ | | | | | | |
| | 29.33 | 50 | 48 | 88/3 | ■ | ■ | ■ | | | | | | |
| | 26.18 | 50 | 53 | 288/11 | ■ | ■ | ■ | | | | | | |
| | 23.00 | 50 | 61 | 23/1 | ■ | ■ | ■ | | | | | | |
| | 20.53 | 50 | 68 | 2484/121 | ■ | ■ | ■ | | | | | | |
| | 17.29 | 50 | 81 | 121/7 | ■ | ■ | ■ | | | | | | |
| 2 stages | 16.86 | 31 | 83 | 2967/176 | ■ | ■ | | | | | | | |
| | 15.43 | 50 | 91 | 108/7 | ■ | ■ | ■ | | | | | | |
| | 13.54 | 50 | 103 | 176/13 | ■ | ■ | ■ | | | | | | |
| $n_1$=1400 min$^{-1}$ | 13.10 | 43 | 107 | 2881/220 | ■ | ■ | ■ | | | | | | |
| | 12.08 | 50 | 116 | 1728/143 | ■ | ■ | ■ | | | | | | |
| Maximum torque | 10.42 | 45 | 134 | 344/33 | ■ | ■ | ■ | | | | | | |
| 50 Nm | 9.97 | 50 | 140 | 319/32 | ■ | ■ | ■ | | | | | | |
| | 8.90 | 50 | 157 | 783/88 | ■ | ■ | ■ | | | | | | |
| | 8.17 | 44 | 171 | 989/121 | ■ | ■ | ■ | | | | | | |
| | 6.88 | 50 | 204 | 55/8 | ■ | ■ | ■ | | | | | | |
| | 6.14 | 40 | 228 | 43/7 | ■ | ■ | ■ | | | | | | |
| | 6.14 | 50 | 228 | 135/22 | ■ | ■ | ■ | | | | | | |
| | 4.81 | 37 | 291 | 688/143 | ■ | ■ | ■ | | | | | | |
| | 3.54 | 34 | 395 | 1247/352 | ■ | ■ | ■ | | | | | | |
| | 2.44 | 30 | 573 | 215/88 | ■ | ■ | ■ | | | | | | |
| **C012** | 66.50 | 85 | 21 | 133/2 | ■ | ■ | | | | | | | |
| | 59.59 | 85 | 23 | 1311/22 | ■ | ■ | | | | | | | |
| | 51.80 | 85 | 27 | 259/5 | ■ | ■ | ■ | ■ | | | | | |
| | 46.42 | 85 | 30 | 2553/55 | ■ | ■ | ■ | ■ | | | | | |
| | 42.00 | 85 | 33 | 42/1 | ■ | ■ | ■ | ■ | | | | | |
| | 37.64 | 85 | 37 | 414/11 | ■ | ■ | ■ | ■ | | | | | |
| | 33.09 | 85 | 42 | 364/11 | ■ | ■ | ■ | ■ | | | | | |
| | 29.65 | 85 | 47 | 3588/121 | ■ | ■ | ■ | ■ | | | | | |
| | 25.50 | 85 | 55 | 51/2 | ■ | ■ | ■ | ■ | | | | | |
| | 25.05 | 41 | 56 | 551/22 | ■ | ■ | | | | | | | |
| | 22.85 | 85 | 61 | 3519/154 | ■ | ■ | ■ | ■ | | | | | |
| 2 stages | 19.92 | 85 | 70 | 259/13 | ■ | ■ | ■ | ■ | | | | | |
| | 19.51 | 66 | 72 | 1073/55 | ■ | ■ | ■ | ■ | | | | | |
| $n_1$=1400 min$^{-1}$ | 17.85 | 85 | 78 | 2553/143 | ■ | ■ | ■ | ■ | | | | | |
| | 15.82 | 66 | 89 | 174/11 | ■ | ■ | ■ | ■ | | | | | |
| | 14.88 | 85 | 94 | 119/8 | ■ | ■ | ■ | ■ | | | | | |
| Maximum torque | 13.33 | 85 | 105 | 1173/88 | ■ | ■ | ■ | ■ | | | | | |
| 85 Nm | 12.46 | 66 | 112 | 1508/121 | ■ | ■ | ■ | ■ | | | | | |
| | 11.20 | 85 | 125 | 56/5 | ■ | ■ | ■ | ■ | | | | | |
| | 10.04 | 85 | 139 | 552/55 | ■ | ■ | ■ | ■ | | | | | |
| | 9.60 | 66 | 146 | 1479/154 | ■ | ■ | ■ | ■ | | | | | |
| | 8.22 | 85 | 170 | 189/23 | ■ | ■ | ■ | ■ | | | | | |
| | 7.50 | 66 | 187 | 1073/143 | ■ | ■ | ■ | ■ | | | | | |
| | 7.36 | 85 | 190 | 81/11 | ■ | ■ | ■ | ■ | | | | | |
| | 5.60 | 66 | 250 | 493/88 | ■ | ■ | ■ | ■ | | | | | |
| | 4.22 | 66 | 332 | 232/55 | ■ | ■ | ■ | ■ | | | | | |
| | 3.09 | 66 | 452 | 783/253 | ■ | ■ | ■ | ■ | | | | | |

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| Type | $i_{ges.}$ | $M_{2nenn}$ | $n_2$ | $i_{exakt}$ | IEC motor frame size | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | [Nm] | [min$^{-1}$] | | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 |
| **C032** | 42.88 | 184 | 33 | 2573/60 | ■ | ■ | ■ | ■ | | | | | |
| | 38.95 | 168 | 36 | 5063/130 | ■ | ■ | ■ | ■ | | | | | |
| | 34.88 | 200 | 40 | 279/8 | ■ | ■ | ■ | ■ | | | | | |
| | 31.67 | 200 | 44 | 1647/52 | ■ | ■ | ■ | ■ | | | | | |
| | 27.71 | 200 | 51 | 1829/66 | ■ | ■ | ■ | ■ | | | | | |
| | 25.17 | 200 | 56 | 3599/143 | ■ | ■ | ■ | ■ | | | | | |
| | 24.03 | 103 | 58 | 913/38 | ■ | ■ | ■ | ■ | | | | | |
| | 21.40 | 200 | 65 | 899/42 | ■ | ■ | ■ | ■ | | | | | |
| | 19.54 | 128 | 72 | 1485/76 | ■ | ■ | ■ | ■ | | | | | |
| | 19.44 | 200 | 72 | 1769/91 | ■ | ■ | ■ | ■ | | | | | |
| | 17.09 | 200 | 82 | 1333/78 | ■ | ■ | ■ | ■ | ■ | | | | |
| 2 stages | 15.53 | 130 | 90 | 295/19 | ■ | ■ | ■ | ■ | | | | | |
| | 15.52 | 200 | 90 | 2623/169 | ■ | ■ | ■ | ■ | ■ | | | | |
| $n_1$=1400 min$^{-1}$ | 12.92 | 200 | 108 | 155/12 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 11.99 | 130 | 117 | 1595/133 | ■ | ■ | ■ | ■ | | | | | |
| | 11.73 | 200 | 119 | 305/26 | ■ | ■ | ■ | ■ | ■ | | | | |
| Maximum torque | 9.82 | 200 | 143 | 589/60 | ■ | ■ | ■ | ■ | ■ | | | | |
| 200 Nm | 9.57 | 130 | 146 | 2365/247 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 8.92 | 198 | 157 | 1159/130 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 7.64 | 194 | 183 | 527/69 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 7.24 | 130 | 193 | 275/38 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 6.94 | 191 | 202 | 2074/299 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 5.96 | 187 | 235 | 155/26 | | | ■ | ■ | ■ | | | | |
| | 5.50 | 130 | 255 | 11/2 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 5.41 | 185 | 259 | 915/169 | | | ■ | ■ | ■ | | | | |
| | 4.28 | 127 | 327 | 1870/437 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 3.34 | 118 | 419 | 825/247 | | | ■ | ■ | ■ | | | | |
| **C033** | 286.32 | 200 | 4.9 | 20615/72 | ■ | ■ | | | | | | | |
| | 260.03 | 200 | 5.4 | 40565/156 | ■ | ■ | | | | | | | |
| | 223.03 | 200 | 6.3 | 8029/36 | ■ | ■ | ■ | | | | | | |
| | 202.55 | 200 | 6.9 | 15799/78 | ■ | ■ | ■ | | | | | | |
| | 180.83 | 200 | 7.7 | 1085/6 | ■ | ■ | ■ | | | | | | |
| | 164.23 | 200 | 8.5 | 2135/13 | ■ | ■ | ■ | | | | | | |
| 3 stages | 142.47 | 200 | 9.8 | 14105/99 | ■ | ■ | ■ | | | | | | |
| | 129.39 | 200 | 11 | 4270/33 | ■ | ■ | ■ | | | | | | |
| | 109.79 | 200 | 13 | 2635/24 | ■ | ■ | ■ | | | | | | |
| $n_1$=1400 min$^{-1}$ | 99.71 | 200 | 14 | 5185/52 | ■ | ■ | ■ | | | | | | |
| | 85.78 | 200 | 16 | 40145/468 | ■ | ■ | ■ | | | | | | |
| | 77.90 | 200 | 18 | 78995/1014 | ■ | ■ | ■ | | | | | | |
| Maximum torque | 64.05 | 200 | 22 | 18445/288 | ■ | ■ | ■ | | | | | | |
| 200 Nm | 58.17 | 200 | 24 | 36295/624 | ■ | ■ | ■ | | | | | | |
| | 48.22 | 200 | 29 | 434/9 | ■ | ■ | ■ | | | | | | |
| | 43.79 | 200 | 32 | 1708/39 | ■ | ■ | ■ | | | | | | |
| | 35.38 | 200 | 40 | 3255/92 | ■ | ■ | ■ | | | | | | |
| | 32.13 | 200 | 44 | 19215/598 | ■ | ■ | ■ | | | | | | |

*Legend see page 61*

| Type | $i_{ges.}$ | $M_{2nenn}$ [Nm] | $n_2$ [min$^{-1}$] | $i_{exakt}$ | IEC motor frame size | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 |
| **C052** | 58.85 | 250 | 24 | 1177/20 | ■ | ■ | ■ | ■ | | | | | |
| | 53.50 | 227 | 26 | 107/2 | ■ | ■ | ■ | ■ | | | | | |
| | 48.13 | 337 | 29 | 385/8 | ■ | ■ | ■ | ■ | | | | | |
| | 43.75 | 307 | 32 | 175/4 | ■ | ■ | ■ | ■ | | | | | |
| | 38.00 | 400 | 37 | 38/1 | ■ | ■ | ■ | ■ | | | | | |
| | 35.67 | 151 | 39 | 107/3 | ■ | ■ | ■ | ■ | | | | | |
| | 34.55 | 400 | 41 | 380/11 | ■ | ■ | ■ | ■ | | | | | |
| | 29.46 | 400 | 48 | 825/28 | ■ | ■ | ■ | ■ | | | | | |
| | 29.17 | 204 | 48 | 175/6 | ■ | ■ | ■ | ■ | | | | | |
| | 26.79 | 400 | 52 | 375/14 | ■ | ■ | ■ | ■ | | | | | |
| | 24.12 | 400 | 58 | 627/26 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 23.03 | 267 | 61 | 760/33 | ■ | ■ | ■ | ■ | | | | | |
| | 21.92 | 400 | 64 | 285/13 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 18.56 | 400 | 75 | 297/16 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 17.86 | 267 | 78 | 125/7 | ■ | ■ | ■ | ■ | | | | | |
| 2 stages | 16.88 | 400 | 83 | 135/8 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 14.62 | 267 | 96 | 190/13 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 14.03 | 400 | 100 | 561/40 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| $n_1$=1400 min$^{-1}$ | 12.75 | 400 | 110 | 51/4 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 11.48 | 400 | 122 | 264/23 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 11.25 | 267 | 124 | 45/4 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| Maximum torque | 10.43 | 400 | 134 | 240/23 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| 400 Nm | 9.31 | 386 | 150 | 121/13 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 8.50 | 267 | 165 | 17/2 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 8.46 | 365 | 165 | 110/13 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 7.79 | 347 | 180 | 187/24 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 7.08 | 328 | 198 | 85/12 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 6.96 | 267 | 201 | 160/23 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 6.31 | 306 | 222 | 341/54 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 6.09 | 299 | 230 | 341/56 | | | | | ■ | ■ | ■ | | |
| | 5.74 | 289 | 244 | 155/27 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 5.64 | 259 | 248 | 220/39 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 5.54 | 283 | 253 | 155/28 | | | | | ■ | ■ | ■ | | |
| | 4.72 | 230 | 296 | 85/18 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 3.83 | 200 | 366 | 310/81 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 3.69 | 195 | 379 | 155/42 | | | | | ■ | ■ | ■ | | |
| **C053** | 328.43 | 400 | 4.3 | 2299/7 | ■ | ■ | ■ | ■ | | | | | |
| | 298.57 | 400 | 4.7 | 2090/7 | ■ | ■ | ■ | ■ | | | | | |
| | 267.93 | 400 | 5.2 | 3751/14 | ■ | ■ | ■ | ■ | | | | | |
| | 243.57 | 400 | 5.7 | 1705/7 | ■ | ■ | ■ | ■ | | | | | |
| | 213.71 | 400 | 6.6 | 1496/7 | ■ | ■ | ■ | ■ | | | | | |
| | 194.29 | 400 | 7.2 | 1360/7 | ■ | ■ | ■ | ■ | | | | | |
| 3 stages | 165.45 | 400 | 8.5 | 8107/49 | ■ | ■ | ■ | ■ | | | | | |
| | 150.41 | 400 | 9.3 | 7370/49 | ■ | ■ | ■ | ■ | | | | | |
| | 132.97 | 400 | 11 | 12100/91 | ■ | ■ | ■ | ■ | | | | | |
| $n_1$=1400 min$^{-1}$ | 120.88 | 400 | 12 | 11000/91 | ■ | ■ | ■ | ■ | | | | | |
| | 101.55 | 400 | 14 | 5687/56 | ■ | ■ | ■ | ■ | | | | | |
| Maximum torque | 92.32 | 400 | 15 | 2585/28 | ■ | ■ | ■ | ■ | | | | | |
| 400 Nm | 77.79 | 400 | 18 | 1089/14 | ■ | ■ | ■ | ■ | | | | | |
| | 70.71 | 400 | 20 | 495/7 | ■ | ■ | ■ | ■ | | | | | |
| | 61.63 | 400 | 23 | 9922/161 | ■ | ■ | ■ | ■ | | | | | |
| | 56.02 | 400 | 25 | 9020/161 | ■ | ■ | ■ | ■ | | | | | |
| | 49.20 | 400 | 28 | 4477/91 | | | ■ | ■ | | | | | |
| | 44.73 | 400 | 31 | 4070/91 | | | ■ | ■ | | | | | |

*Legend see page 61*

| Type | $i_{ges.}$ | $M_{2nenn}$ [Nm] | $n_2$ [min$^{-1}$] | $i_{exakt}$ | IEC motor frame size | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 |
| **C062** | 60.00 | 420 | 23 | 60/1 | ■ | ■ | ■ | ■ | | | | | |
| | 55.02 | 385 | 25 | 3081/56 | ■ | ■ | ■ | ■ | | | | | |
| | 47.55 | 600 | 29 | 6800/143 | ■ | ■ | ■ | ■ | | | | | |
| | 43.60 | 563 | 32 | 6715/154 | ■ | ■ | ■ | ■ | | | | | |
| | 36.92 | 600 | 38 | 480/13 | ■ | ■ | ■ | ■ | | | | | |
| | 33.86 | 600 | 41 | 237/7 | ■ | ■ | ■ | ■ | | | | | |
| | 33.43 | 234 | 42 | 234/7 | ■ | ■ | ■ | ■ | | | | | |
| | 30.30 | 600 | 46 | 5120/169 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 27.78 | 600 | 50 | 2528/91 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 26.49 | 342 | 53 | 2040/77 | ■ | ■ | ■ | ■ | | | | | |
| | 23.46 | 600 | 60 | 305/13 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 21.51 | 600 | 65 | 4819/224 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 20.57 | 377 | 68 | 144/7 | ■ | ■ | ■ | ■ | | | | | |
| | 17.85 | 600 | 78 | 232/13 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 16.88 | 377 | 83 | 1536/91 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| 2 stages | 16.36 | 600 | 86 | 2291/140 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 14.72 | 600 | 95 | 4400/299 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 13.49 | 600 | 104 | 4345/322 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| $n_1$=1400 min$^{-1}$ | 13.07 | 377 | 107 | 183/14 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 12.07 | 600 | 116 | 2040/169 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 11.07 | 600 | 126 | 4029/364 | | | ■ | ■ | ■ | ■ | ■ | | |
| Maximum torque 600 Nm | 10.26 | 600 | 137 | 400/39 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 9.94 | 377 | 141 | 348/35 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 9.40 | 589 | 149 | 395/42 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 8.43 | 547 | 166 | 2960/351 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 8.20 | 377 | 171 | 1320/161 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 8.13 | 534 | 172 | 740/91 | | | | | ■ | ■ | ■ | | |
| | 7.73 | 517 | 181 | 2923/378 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 7.46 | 504 | 188 | 2923/392 | | | | | ■ | ■ | ■ | | |
| | 6.73 | 377 | 208 | 612/91 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 6.69 | 469 | 209 | 2000/299 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 6.13 | 443 | 228 | 1975/322 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 5.71 | 371 | 245 | 40/7 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 4.70 | 325 | 298 | 296/63 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 4.53 | 318 | 309 | 222/49 | | | | | ■ | ■ | ■ | | |
| | 3.73 | 279 | 376 | 600/161 | | | ■ | ■ | ■ | ■ | ■ | | |
| **C063** | 375.71 | 600 | 3.7 | 83032/221 | ■ | ■ | ■ | ■ | | | | | |
| | 344.51 | 600 | 4.1 | 819941/2380 | ■ | ■ | ■ | ■ | | | | | |
| | 307.24 | 600 | 4.6 | 67900/221 | ■ | ■ | ■ | ■ | | | | | |
| | 281.73 | 600 | 5 | 38315/136 | ■ | ■ | ■ | ■ | | | | | |
| | 242.60 | 600 | 5.8 | 589760/2431 | ■ | ■ | ■ | ■ | | | | | |
| | 222.46 | 600 | 6.3 | 291194/1309 | ■ | ■ | ■ | ■ | | | | | |
| | 188.11 | 600 | 7.4 | 291000/1547 | ■ | ■ | ■ | ■ | | | | | |
| | 172.49 | 600 | 8.1 | 574725/3332 | ■ | ■ | ■ | ■ | | | | | |
| 3 stages | 153.96 | 600 | 9.1 | 442320/2873 | ■ | ■ | ■ | ■ | | | | | |
| | 141.17 | 600 | 9.9 | 436791/3094 | ■ | ■ | ■ | ■ | | | | | |
| | 118.51 | 600 | 12 | 26190/221 | ■ | ■ | ■ | ■ | | | | | |
| $n_1$=1400 min$^{-1}$ | 108.67 | 600 | 13 | 206901/1904 | ■ | ■ | ■ | ■ | | | | | |
| | 89.54 | 600 | 16 | 1164/13 | ■ | ■ | ■ | ■ | | | | | |
| Maximum torque 600 Nm | 82.10 | 600 | 17 | 22989/280 | ■ | ■ | ■ | ■ | | | | | |
| | 73.28 | 600 | 19 | 372480/5083 | ■ | ■ | ■ | ■ | | | | | |
| | 67.19 | 600 | 21 | 183912/2737 | ■ | ■ | ■ | ■ | | | | | |
| | 59.42 | 600 | 24 | 170720/2873 | | | ■ | ■ | ■ | ■ | | | |
| | 54.49 | 600 | 26 | 84293/1547 | | | ■ | ■ | ■ | ■ | | | |
| | 49.74 | 600 | 28 | 1940/39 | | | ■ | ■ | ■ | ■ | | | |
| | 45.61 | 600 | 31 | 7663/168 | | | ■ | ■ | ■ | ■ | | | |
| | 40.32 | 600 | 35 | 240560/5967 | | | ■ | ■ | ■ | ■ | | | |
| | 36.97 | 600 | 38 | 237553/6426 | | | ■ | ■ | ■ | ■ | | | |

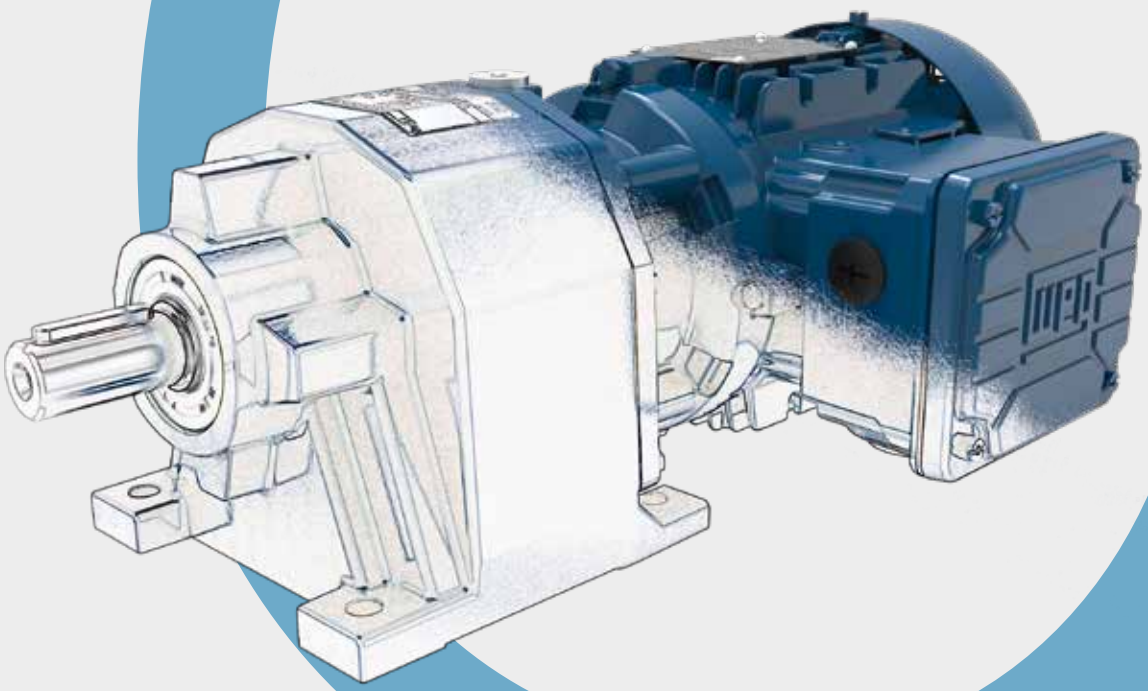
*Legend see page 61*

| Type | $i_{ges.}$ | $M_{2nenn}$ [Nm] | $n_2$ [min$^{-1}$] | $i_{exakt}$ | IEC motor frame size | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 |
| **C072** | 38.92 | 820 | 36 | 506/13 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 35.41 | 820 | 40 | 5984/169 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 30.55 | 820 | 46 | 1955/64 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 27.79 | 820 | 50 | 1445/52 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 23.58 | 820 | 59 | 943/40 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 21.45 | 820 | 65 | 1394/65 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 20.65 | 686 | 68 | 1342/65 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 19.50 | 809 | 72 | 39/2 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 17.74 | 795 | 79 | 408/23 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 16.59 | 767 | 84 | 1725/104 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 16.20 | 686 | 86 | 1037/64 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| 2 stages | 15.09 | 753 | 93 | 2550/169 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 14.38 | 731 | 97 | 115/8 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| $n_1$=1400 min$^{-1}$ | 13.08 | 718 | 107 | 170/13 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| | 12.51 | 662 | 112 | 2501/200 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 12.14 | 691 | 115 | 437/36 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| Maximum torque | 11.71 | 683 | 120 | 1311/112 | | | | | ■ | ■ | ■ | | |
| 820 Nm | 11.04 | 679 | 127 | 1292/117 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| | 10.65 | 671 | 131 | 969/91 | | | | | ■ | ■ | ■ | | |
| | 10.34 | 624 | 135 | 2379/230 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 10.00 | 648 | 140 | 10/1 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| | 9.10 | 636 | 154 | 2720/299 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| | 8.80 | 594 | 159 | 915/104 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 7.63 | 568 | 184 | 61/8 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| | 6.44 | 539 | 217 | 1159/180 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| | 6.21 | 533 | 225 | 3477/560 | | | | | ■ | ■ | ■ | | |
| | 5.30 | 508 | 264 | 122/23 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| **C073** | 351.33 | 820 | 4 | 14053/40 | ■ | ■ | ■ | ■ | | | | | |
| | 319.60 | 820 | 4.4 | 1598/5 | ■ | ■ | ■ | ■ | | | | | |
| | 278.44 | 820 | 5 | 18377/66 | ■ | ■ | ■ | ■ | | | | | |
| | 253.30 | 820 | 5.5 | 108664/429 | ■ | ■ | ■ | ■ | | | | | |
| | 216.20 | 820 | 6.5 | 1081/5 | ■ | ■ | ■ | ■ | | | | | |
| | 196.68 | 820 | 7.1 | 12784/65 | ■ | ■ | ■ | ■ | | | | | |
| | 177.39 | 820 | 7.9 | 34592/195 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 161.38 | 820 | 8.7 | 409088/2535 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 137.38 | 820 | 10 | 65941/480 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| 3 stages | 124.97 | 820 | 11 | 48739/390 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 104.50 | 820 | 13 | 31349/300 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 95.06 | 820 | 15 | 92684/975 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| $n_1$=1400 min$^{-1}$ | 86.17 | 820 | 16 | 517/6 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 78.39 | 820 | 18 | 70312/897 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| Maximum torque | 70.68 | 820 | 20 | 18377/260 | | | ■ | ■ | ■ | ■ | ■ | | |
| 820 Nm | 64.30 | 820 | 22 | 54332/845 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 60.06 | 820 | 23 | 1081/18 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 54.63 | 820 | 26 | 6392/117 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 49.38 | 820 | 28 | 39997/810 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 47.62 | 819 | 29 | 39997/840 | | | | | ■ | ■ | ■ | | |
| | 44.92 | 794 | 31 | 236504/5265 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 43.32 | 782 | 32 | 59126/1365 | | | | | ■ | ■ | ■ | | |
| | 39.17 | 765 | 36 | 235/6 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 35.63 | 726 | 39 | 31960/897 | | | ■ | ■ | ■ | ■ | ■ | | |

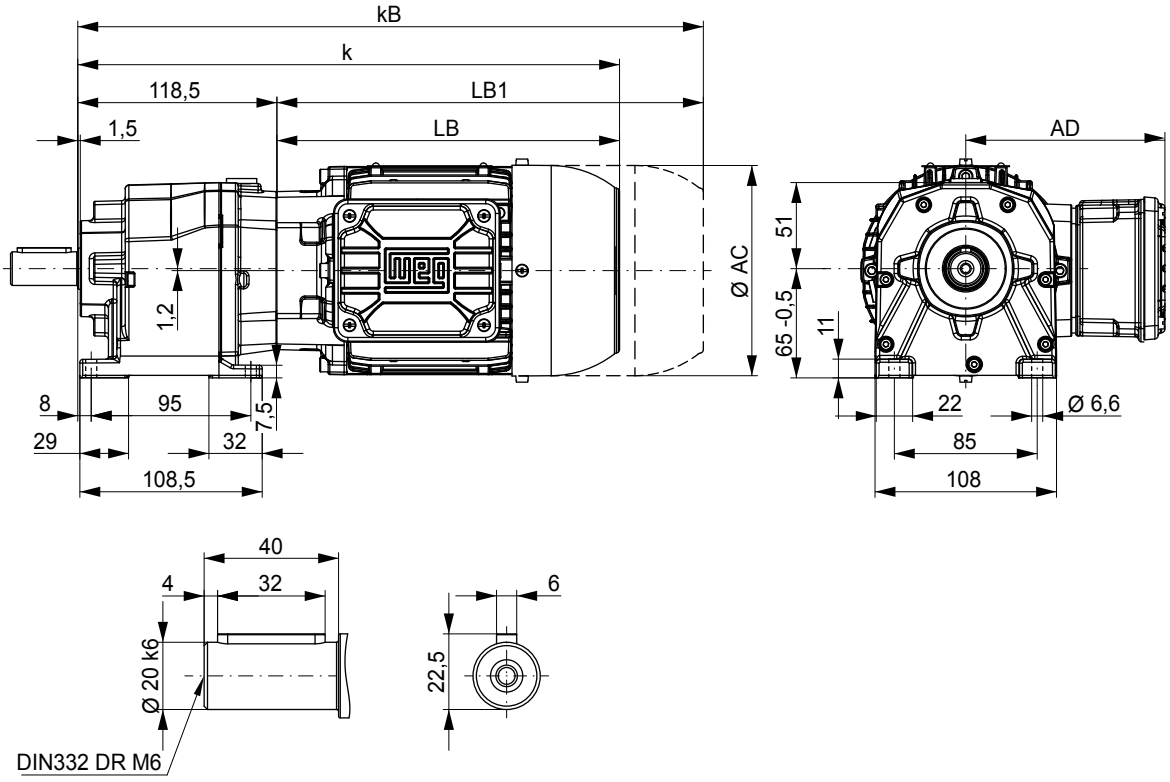
*Legend see page 61*

| Type | $i_{ges.}$ | $M_{2nenn}$ | $n_2$ | $i_{exakt}$ | IEC motor frame size | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | [Nm] | [min$^{-1}$] | | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 |
| **C082** | 54.18 | 1550 | 26 | 4930/91 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 42.88 | 1550 | 33 | 9605/224 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 37.44 | 1550 | 37 | 3145/84 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 33.09 | 1550 | 42 | 1853/56 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 31.23 | 1117 | 45 | 406/13 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 27.98 | 1549 | 50 | 4505/161 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 24.72 | 1288 | 57 | 791/32 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 24.05 | 1479 | 58 | 8755/364 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 21.58 | 1316 | 65 | 259/12 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 21.00 | 1418 | 67 | 7055/336 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| 2 stages | 19.08 | 1306 | 73 | 763/40 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 17.99 | 1353 | 78 | 3400/189 | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | 17.35 | 1338 | 81 | 850/49 | | | | | ■ | ■ | ■ | | |
| $n_1$=1400 min$^{-1}$ | 16.13 | 1298 | 87 | 371/23 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 15.31 | 1288 | 91 | 2465/161 | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | 13.87 | 1233 | 101 | 721/52 | | | ■ | ■ | ■ | ■ | ■ | | |
| Maximum torque 1550 Nm | 12.84 | 1220 | 109 | 4675/364 | | | | | ■ | ■ | ■ | ■ | ■ |
| | 12.10 | 1177 | 116 | 581/48 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| | 10.82 | 1158 | 129 | 3485/322 | | | | | ■ | ■ | ■ | ■ | ■ |
| | 10.37 | 1117 | 135 | 280/27 | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | 10.00 | 1103 | 140 | 10/1 | | | | | ■ | ■ | ■ | | |
| | 8.87 | 1090 | 158 | 1615/182 | | | | | | | | ■ | ■ |
| | 8.83 | 1057 | 159 | 203/23 | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | 7.40 | 996 | 189 | 385/52 | | | | | ■ | ■ | ■ | ■ | ■ |
| | 6.24 | 939 | 224 | 287/46 | | | | | ■ | ■ | ■ | ■ | ■ |
| | 5.12 | 878 | 274 | 133/26 | | | | | | | | ■ | ■ |
| **C083** | 368.94 | 1550 | 3.8 | 909075/2464 | ■ | ■ | ■ | ■ | | | | | |
| | 284.84 | 1550 | 4.9 | 893265/3136 | ■ | ■ | ■ | ■ | | | | | |
| | 238.89 | 1550 | 5.9 | 86955/364 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| 3 stages | 187.48 | 1550 | 7.5 | 671925/3584 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 144.69 | 1550 | 9.7 | 64821/448 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 119.68 | 1550 | 12 | 308295/2576 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| $n_1$=1400 min$^{-1}$ | 101.80 | 1550 | 14 | 592875/5824 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 88.23 | 1550 | 16 | 39525/448 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 74.50 | 1550 | 19 | 50065/672 | | | ■ | ■ | ■ | ■ | ■ | | |
| Maximum torque 1550 Nm | 71.84 | 1550 | 19 | 450585/6272 | | | | | ■ | ■ | ■ | | |
| | 61.37 | 1550 | 23 | 39525/644 | | | ■ | ■ | ■ | ■ | ■ | | |

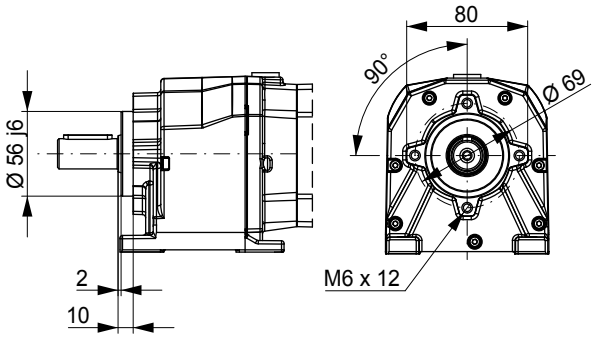
*Legend see page 61*



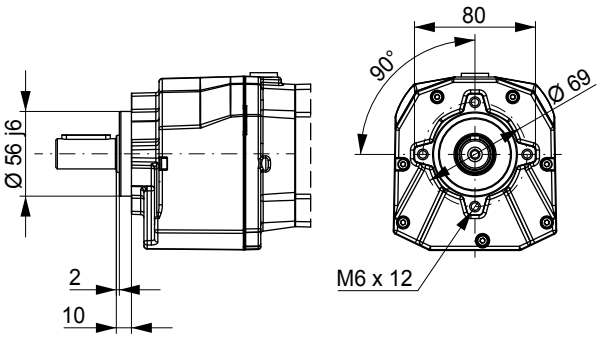
## CG00 - Foot mounted




## CW00 - Foot mounted with B14 flange execution + centring and threaded hole



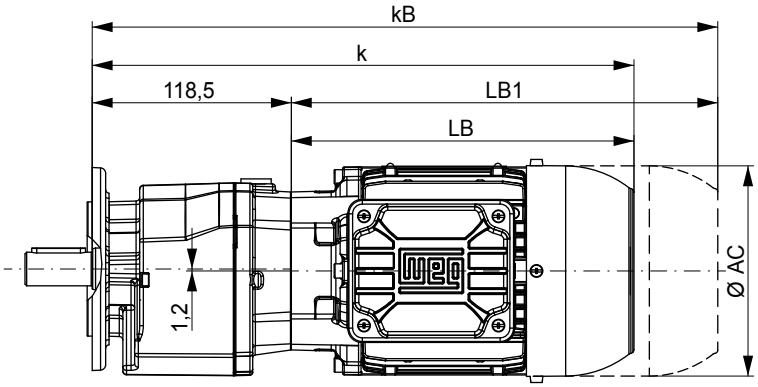

## CC00 - B14 flange execution + centring and threaded hole

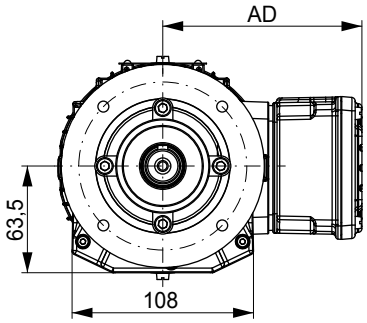



| Motor fr. / Dimension | 63 | 71 | 80 |
|---|---|---|---|
| AC | 126 | 141 | 159 |
| AD | 128 | 136 | 145 |
| k | 323 | 357 | 365 |
| kB | 367 | 406 | 423 |
| LB | 204 | 238 | 246 |
| LB1 | 248 | 287 | 304 |

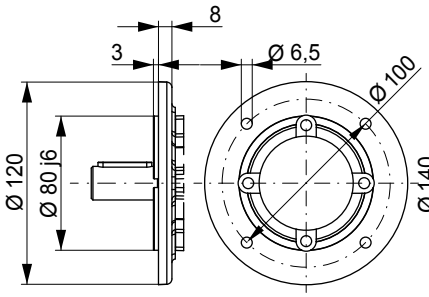
*Motor dimension sheets see page 220*
*Description of motor lengths LB and LB1 see page 224*

## CF00 - Flange execution

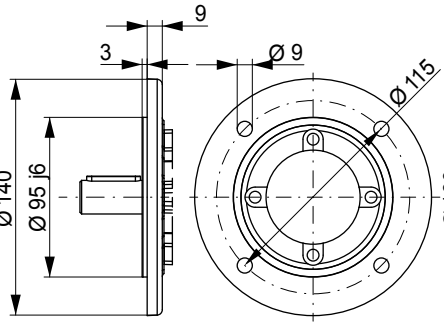


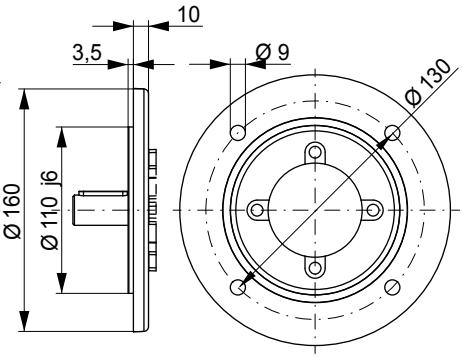

### Flange Ø 120




### Flange Ø 140

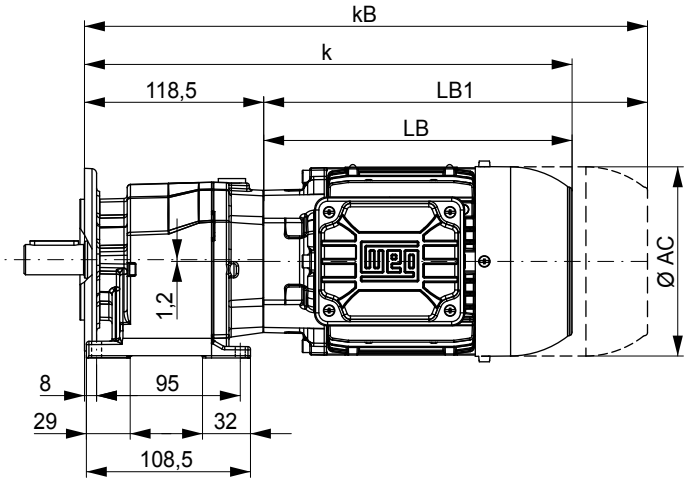


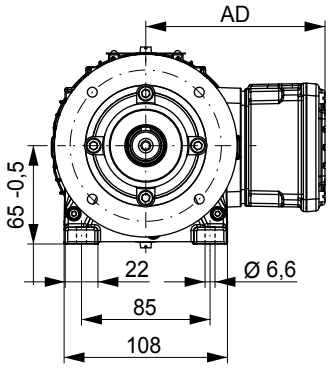

### Flange Ø 160




## CA00 - Foot mounted and B5 flange execution

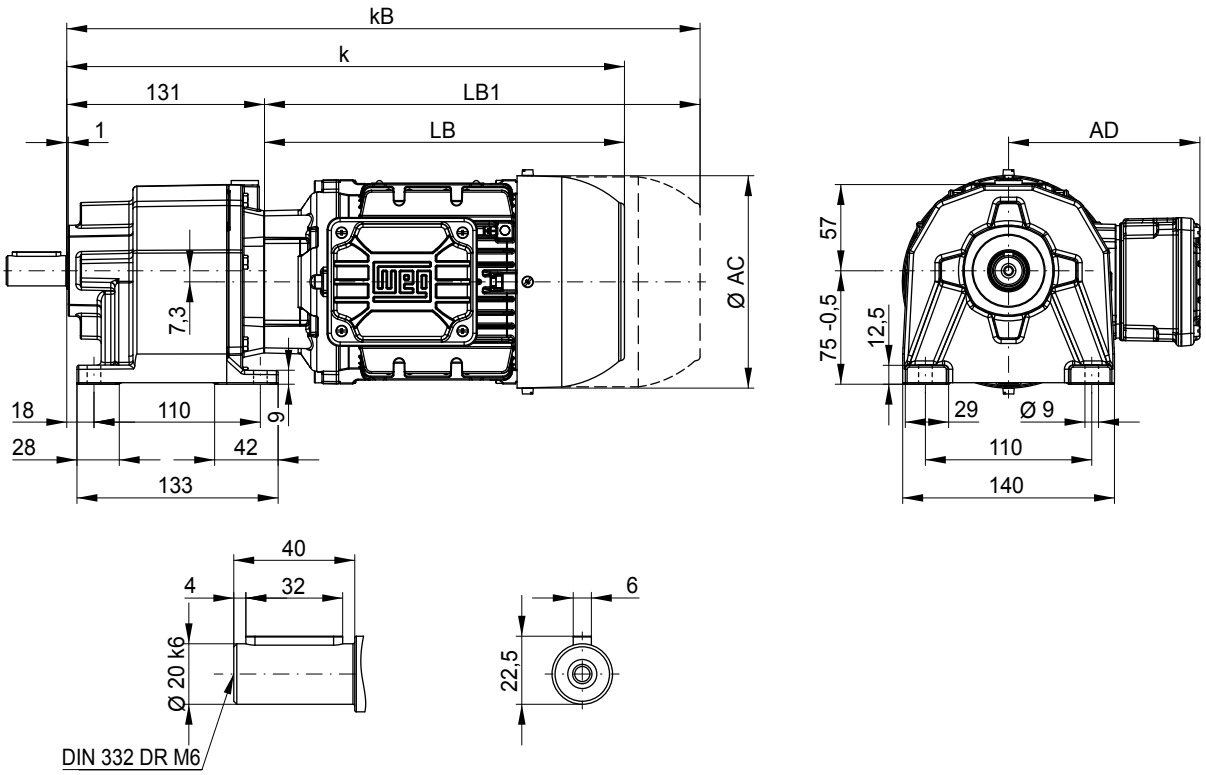
mountable flange sizes on the housing: Ø 120



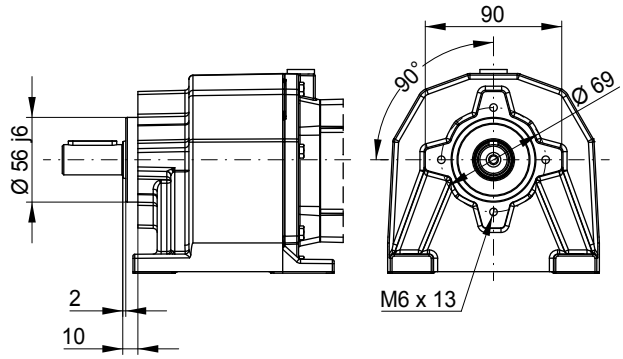




*Dimensions in mm.*

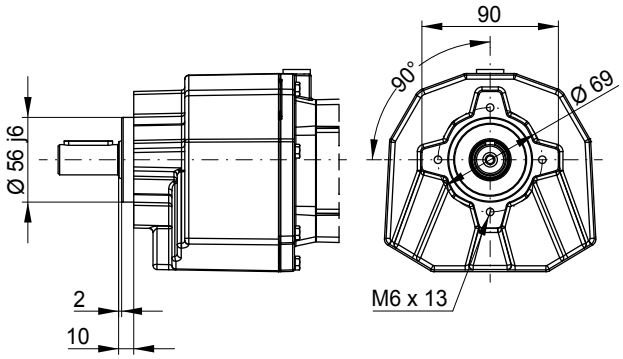
## CG01 - Foot mounted




## CW01 - Foot mounted with B14 flange execution + centring and threaded hole



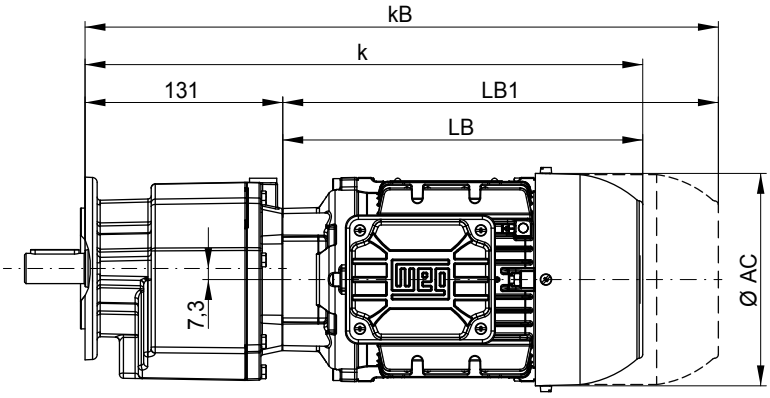

## CC01 - B14 flange execution + centring and threaded hole

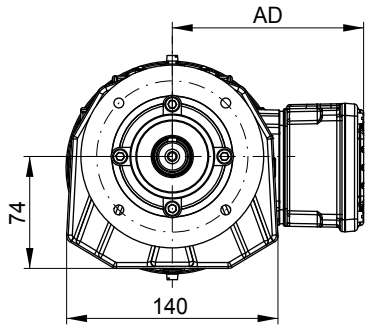



| Dimension \ Motor fr. | 63 | 71 | 80 | 90S/L |
|---|---|---|---|---|
| AC | 126 | 141 | 159 | 178 |
| AD | 128 | 136 | 145 | 155 |
| k | 335 | 369 | 377 | 419 |
| kB | 379 | 418 | 435 | 492 |
| LB | 204 | 238 | 246 | 288 |
| LB1 | 248 | 287 | 304 | 361 |

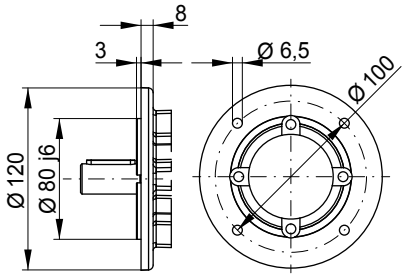
*Motor dimension sheets see page 220*
*Description of motor lengths LB and LB1 see page 224*

## CF01 - Flange execution

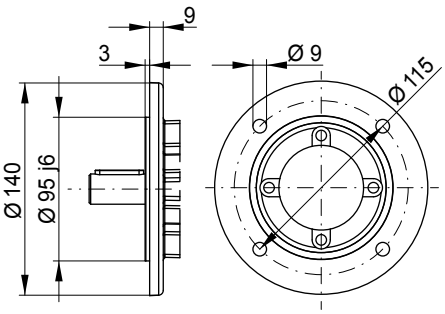


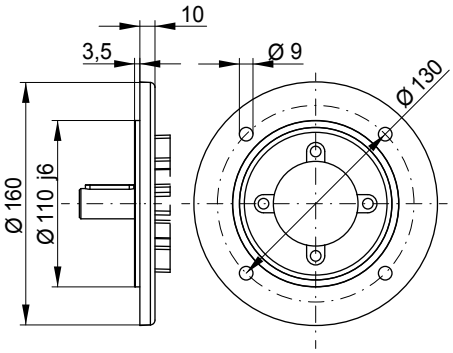

### Flange Ø 120




### Flange Ø 140

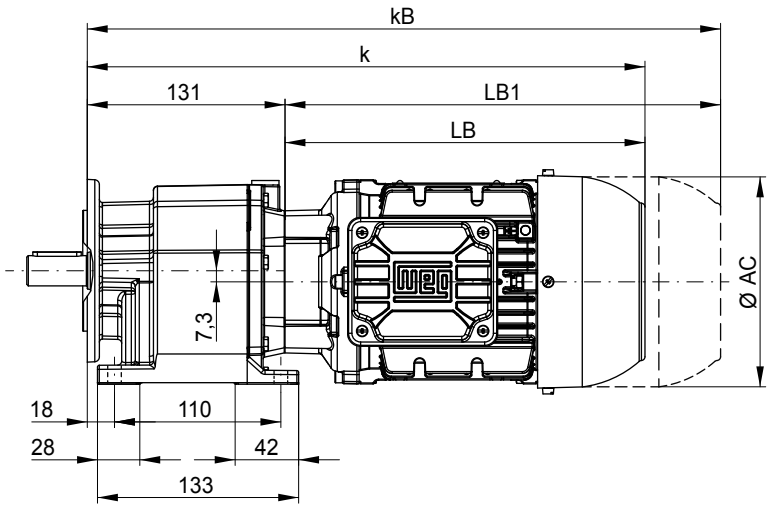


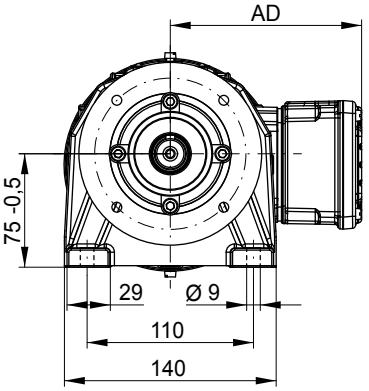

### Flange Ø 160




## CA01 - Foot mounted and B5 flange execution

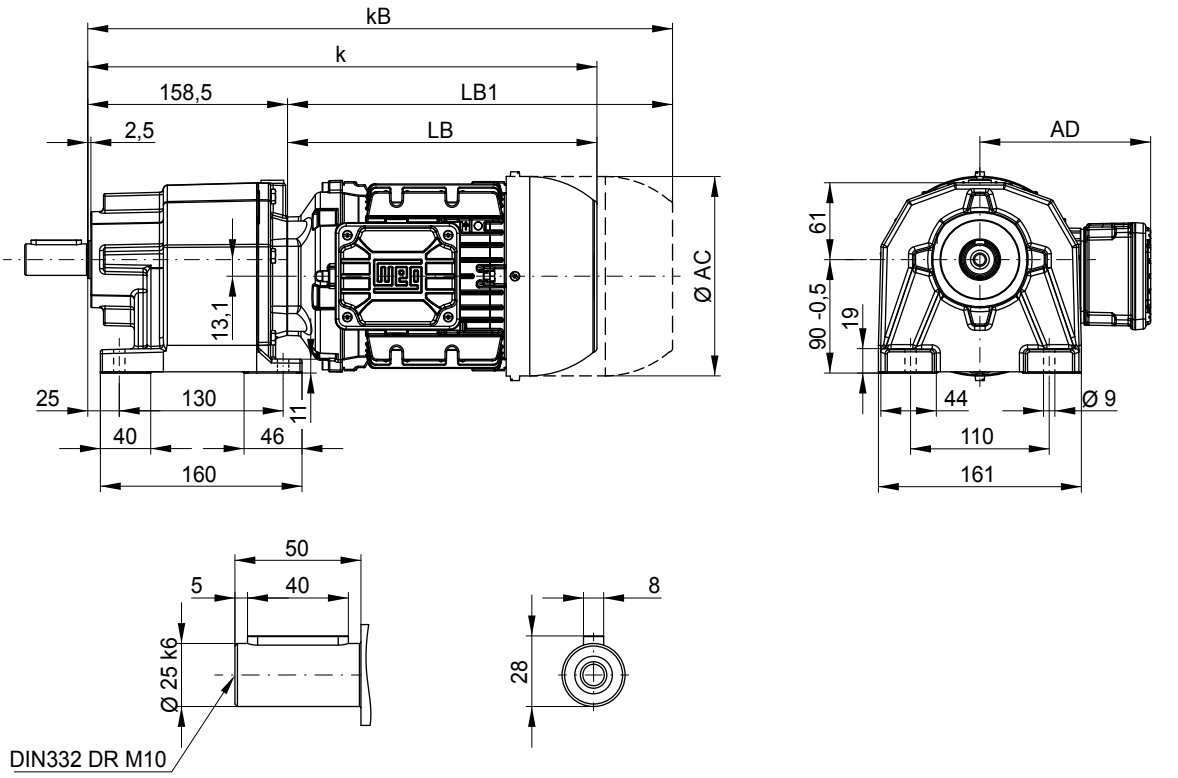
mountable flange sizes on the housing: Ø 120 and Ø 140



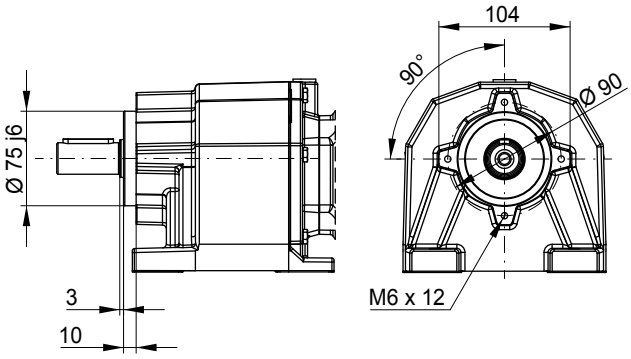




*Dimensions in mm.*

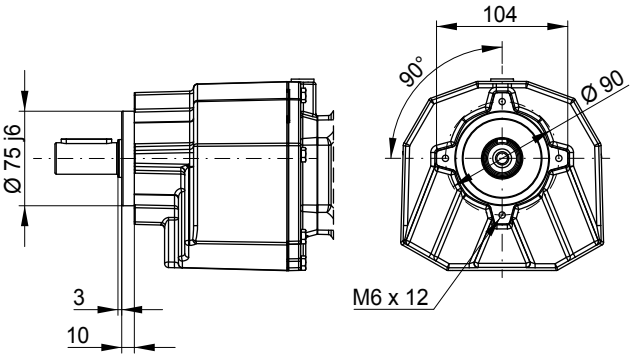
## CG03 - Foot mounted




## CW03 - Foot mounted with B14 flange execution + centring and threaded hole




## CC03 - B14 flange execution + centring and threaded hole

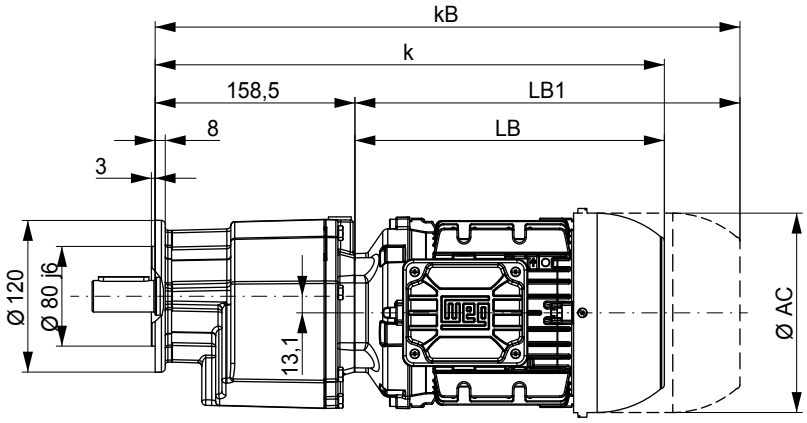


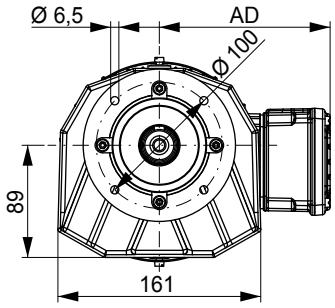

| Motor fr. / Dimension | 63 | 71 | 80 | 90S/L | 100L | L100L |
|---|---|---|---|---|---|---|
| AC | 126 | 141 | 159 | 178 | 199 | 199 |
| AD | 128 | 136 | 145 | 155 | 165 | 165 |
| k | 363 | 397 | 405 | 447 | 497 | 535 |
| kB | 407 | 446 | 463 | 520 | 581 | 619 |
| LB | 204 | 238 | 246 | 288 | 338 | 376 |
| LB1 | 248 | 287 | 304 | 361 | 422 | 460 |

*Motor dimension sheets see page 220*
*Description of motor lengths LB and LB1 see page 224*

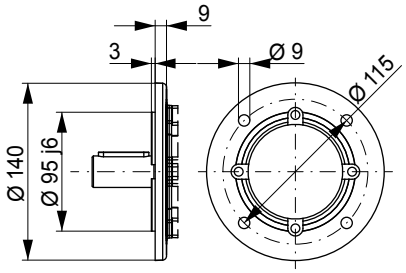
## CF03 - Flange execution

### Flange Ø 120

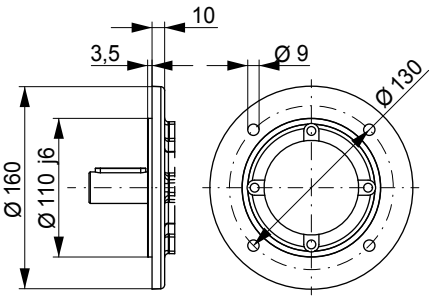


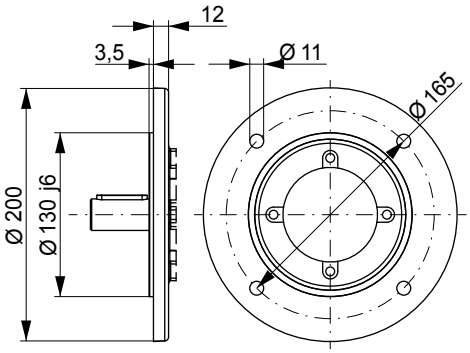

### Flange Ø 140




### Flange Ø 160

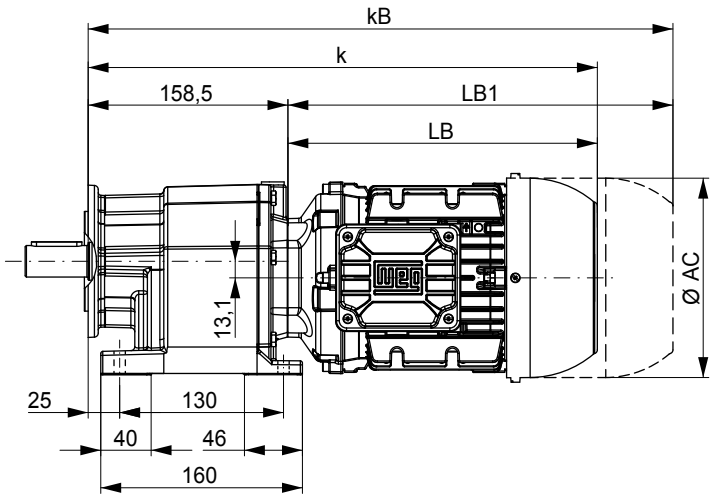


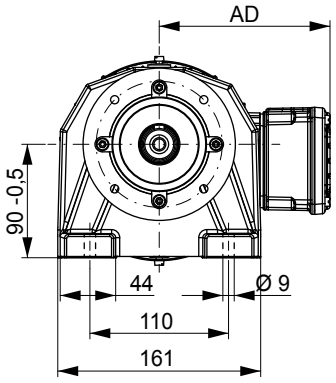

### Flange Ø 200




## CA03 - Foot mounted and B5 flange execution

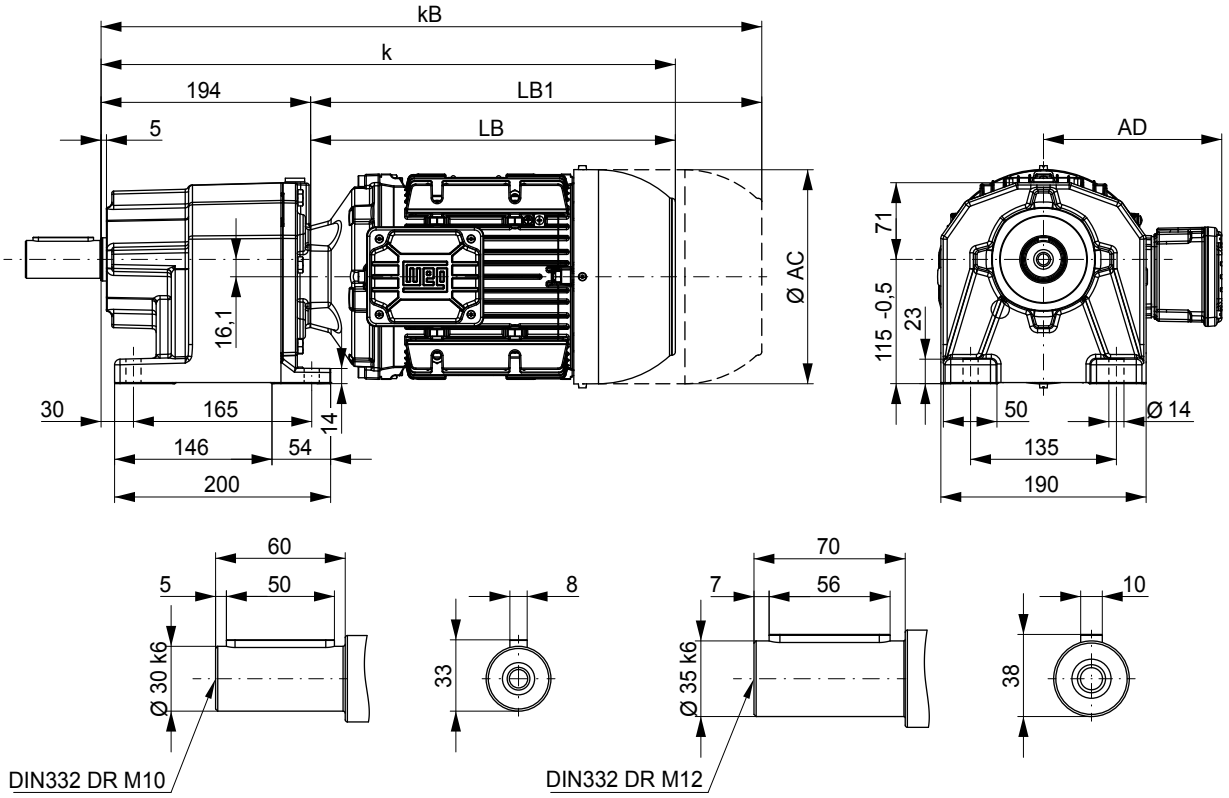
mountable flange sizes on the housing: Ø 120, Ø 140 and Ø 160



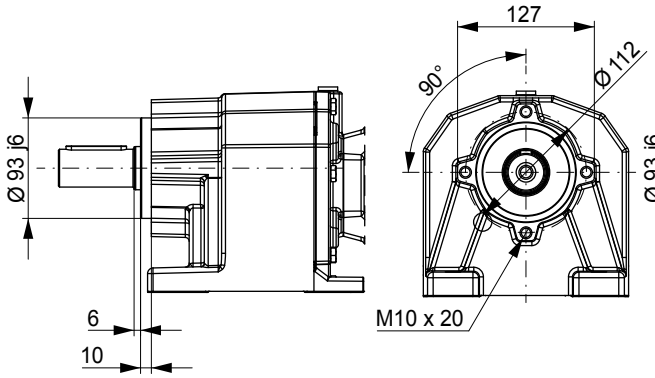




*Dimensions in mm.*

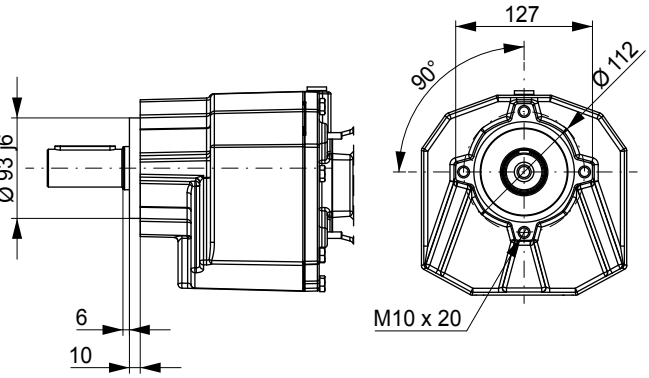
## CG05 - Foot mounted




## CW05 - Foot mounted with B14 flange execution + centring and threaded hole



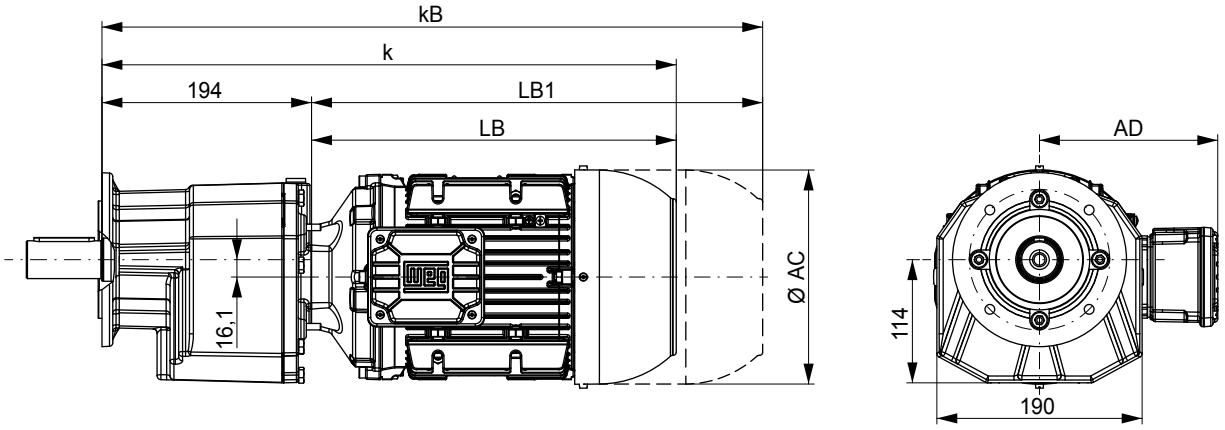

## CC05 - B14 flange execution + centring and threaded hole



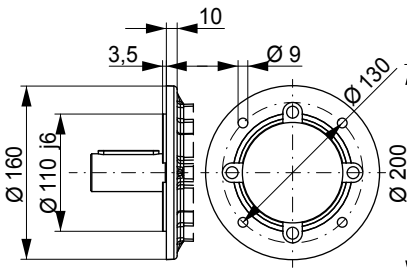

| Dimension \ Motor fr. | 63 | 71 | 80 | 90S/L | 100L | L100L | 112M | 132S,M | L132M |
|---|---|---|---|---|---|---|---|---|---|
| AC | 126 | 141 | 159 | 178 | 199 | 199 | 221 | 261 | 261 |
| AD | 128 | 136 | 145 | 155 | 165 | 165 | 185 | 205 | 205 |
| k | 398 | 432 | 440 | 482 | 532 | 570 | 542 | 607 | 645 |
| kB | 442 | 481 | 498 | 555 | 616 | 654 | 629 | 725 | 763 |
| LB | 204 | 238 | 246 | 288 | 338 | 376 | 348 | 413 | 451 |
| LB1 | 248 | 287 | 304 | 361 | 422 | 460 | 435 | 531 | 569 |

*Motor dimension sheets see page 220*
*Description of motor lengths LB and LB1 see page 224*

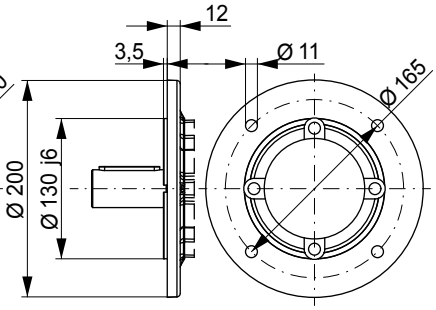
## CF05 - Flange execution



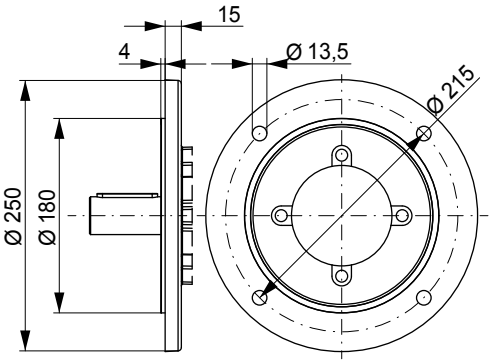

### Flange Ø 160




### Flange Ø 200

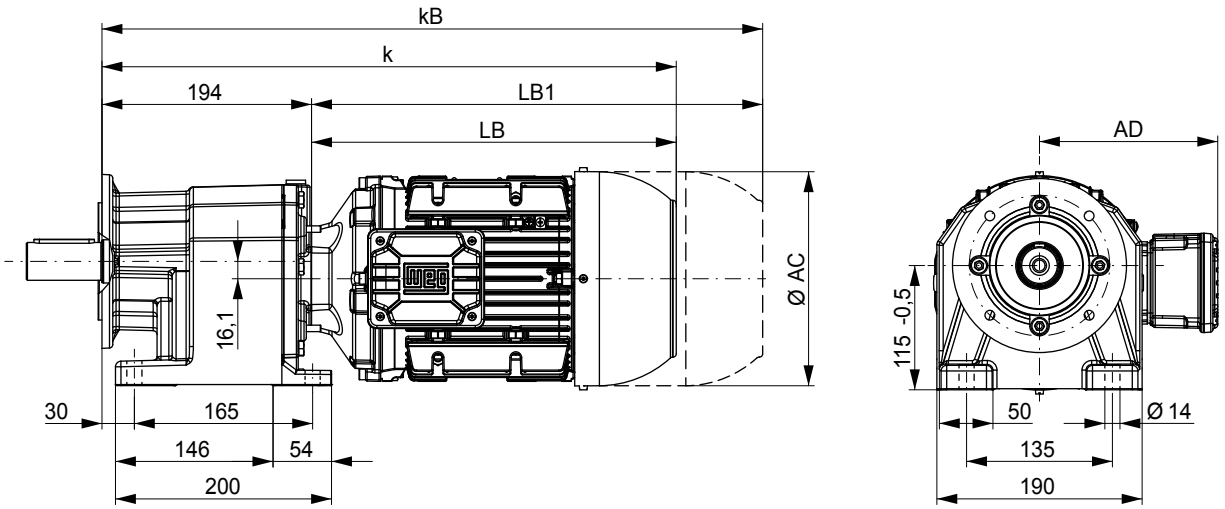



### Flange Ø 250



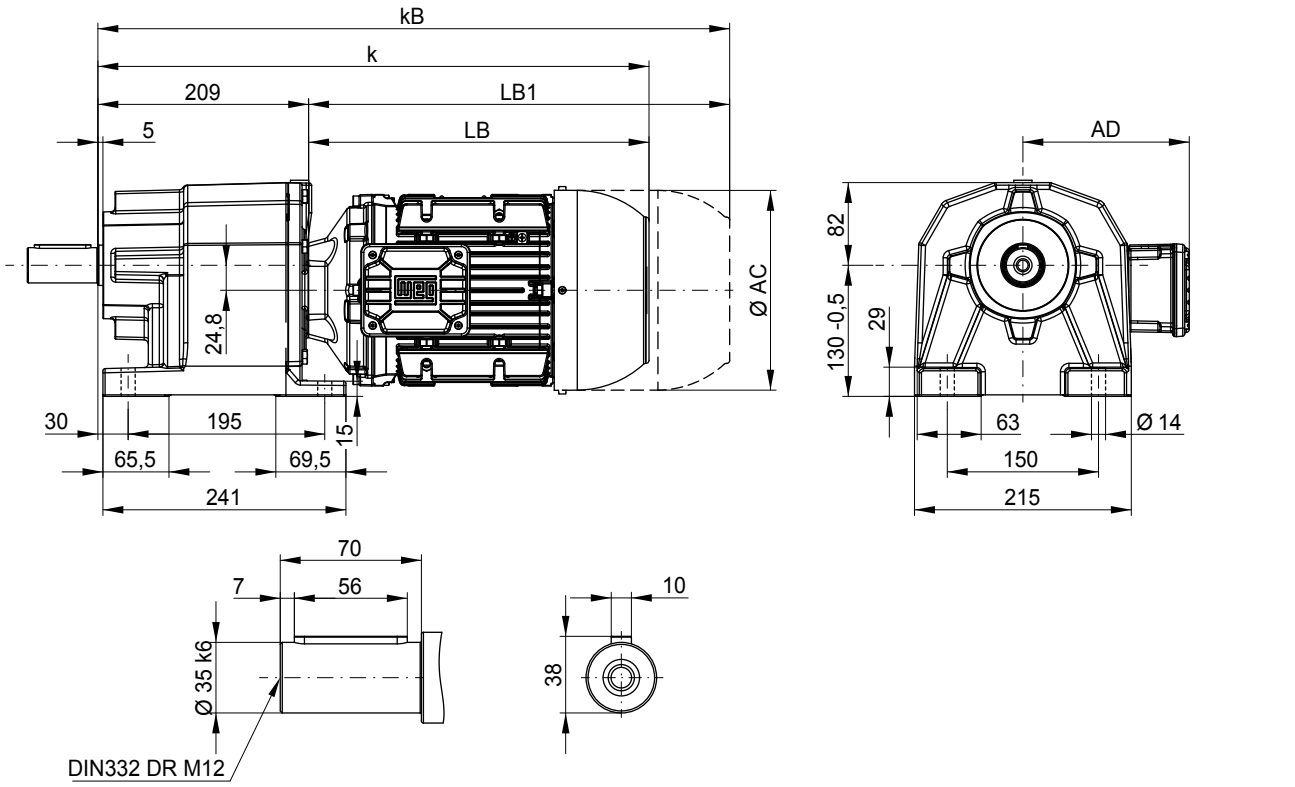

## CA05 - Foot mounted and B5 flange execution

mountable flange sizes on the housing: Ø 160 and Ø 200

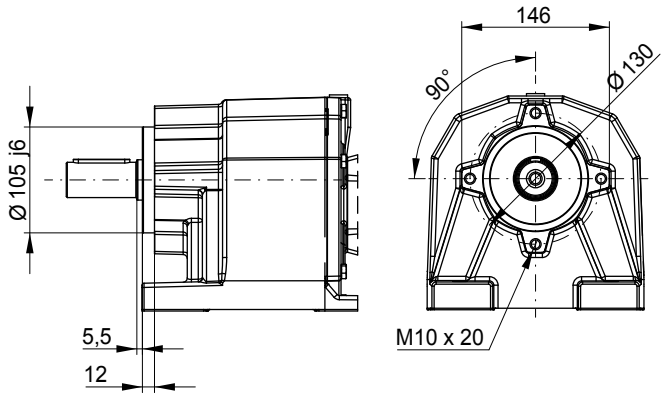



*Dimensions in mm.*

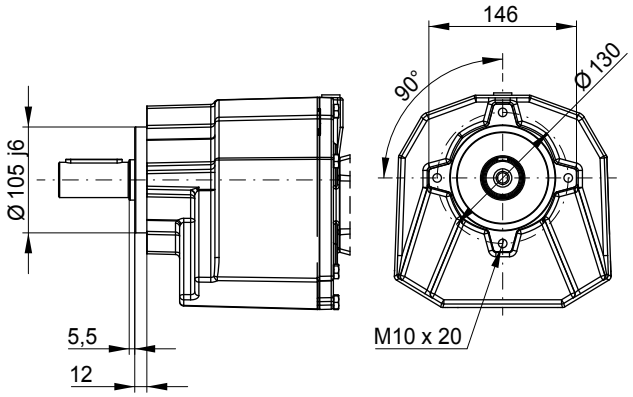
## CG06 - Foot mounted




## CW06 - Foot mounted with B14 flange execution + centring and threaded hole



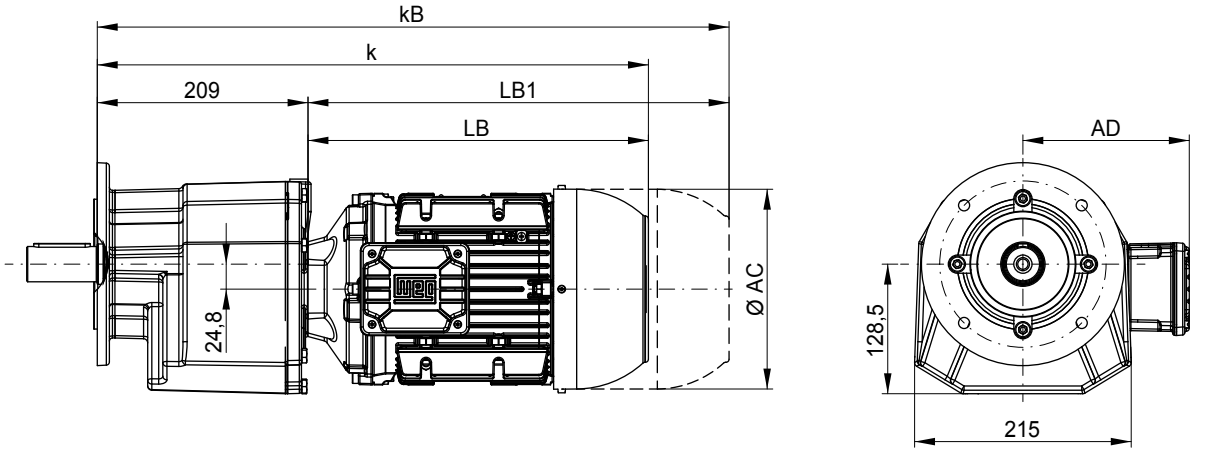

## CC06 - B14 flange execution + centring and threaded hole



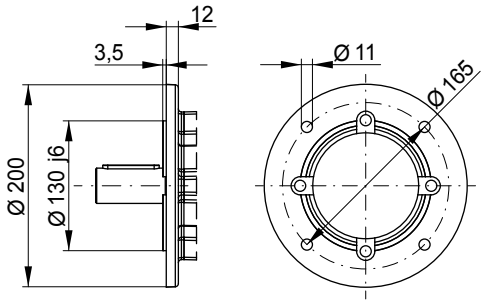

| Dimension \ Motor fr. | 63 | 71 | 80 | 90S/L | 100L | L100L | 112M | 132S,M | L132M |
|---|---|---|---|---|---|---|---|---|---|
| AC | 126 | 141 | 159 | 178 | 199 | 199 | 221 | 261 | 261 |
| AD | 128 | 136 | 145 | 155 | 165 | 165 | 185 | 205 | 205 |
| k | 413 | 447 | 455 | 497 | 547 | 585 | 557 | 622 | 660 |
| kB | 457 | 496 | 513 | 570 | 631 | 669 | 644 | 740 | 778 |
| LB | 204 | 238 | 246 | 288 | 338 | 376 | 348 | 413 | 451 |
| LB1 | 248 | 287 | 304 | 361 | 422 | 460 | 435 | 531 | 569 |

*Motor dimension sheets see page 220*
*Description of motor lengths LB and LB1 see page 224*

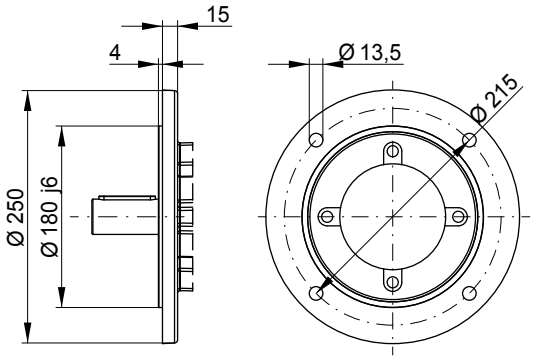
### CF06 - Flange execution




### Flange Ø 200

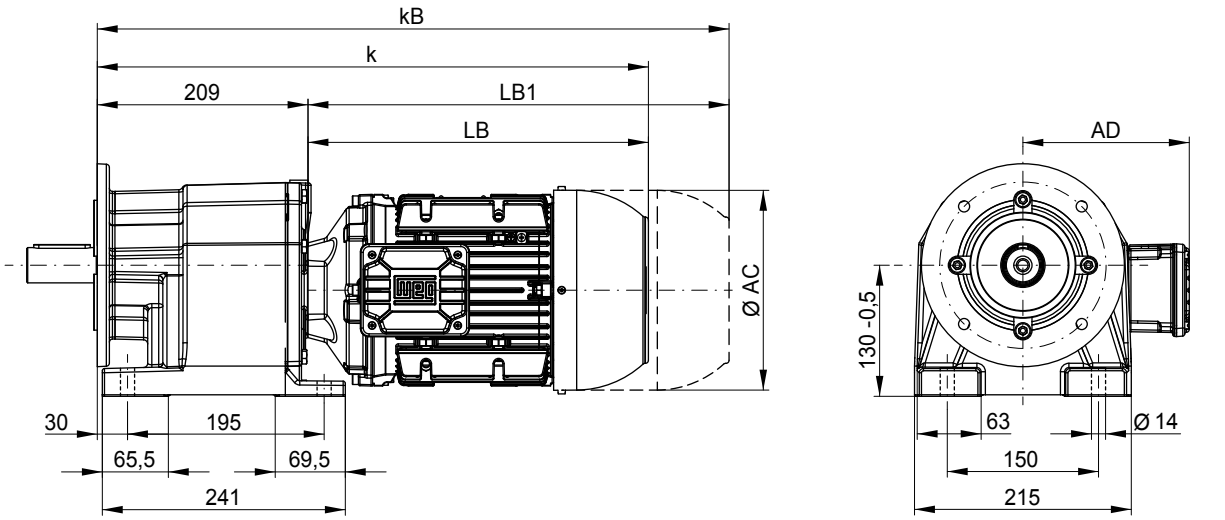



### Flange Ø 250



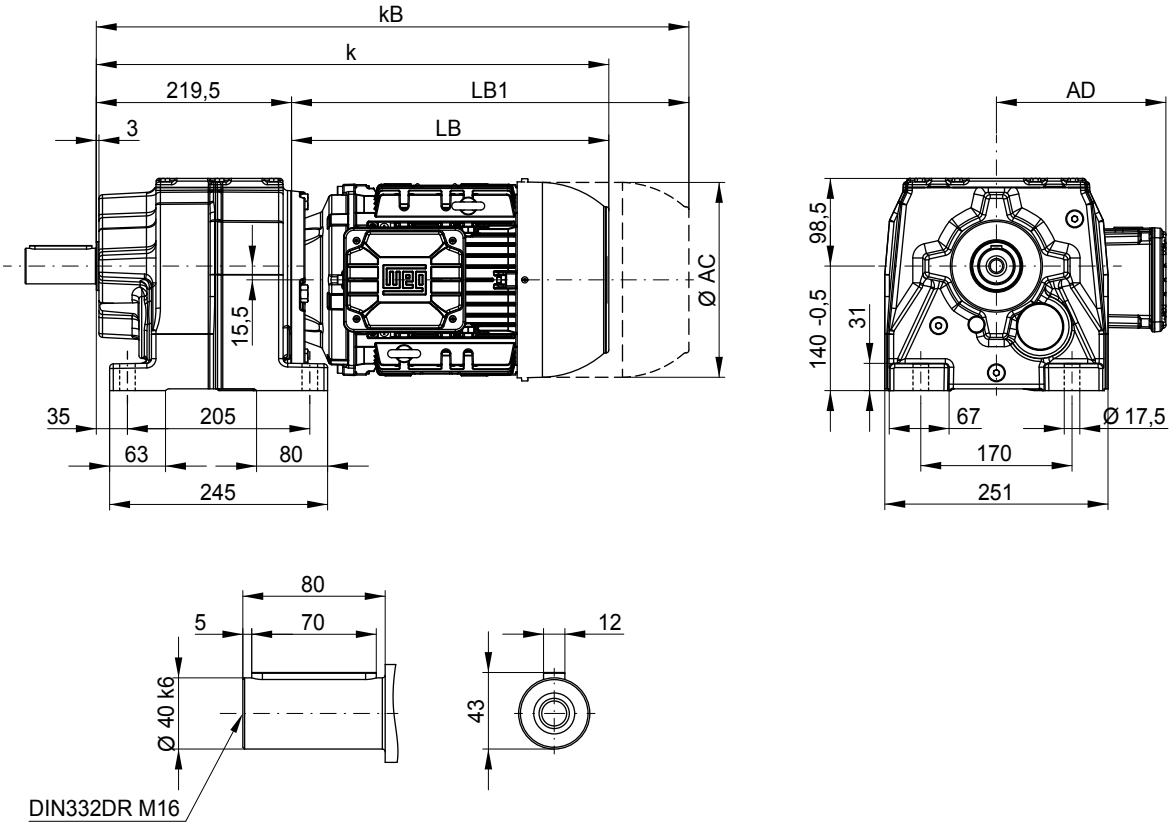

### CA06 - Foot mounted and B5 flange execution

mountable flange sizes on the housing: Ø 200

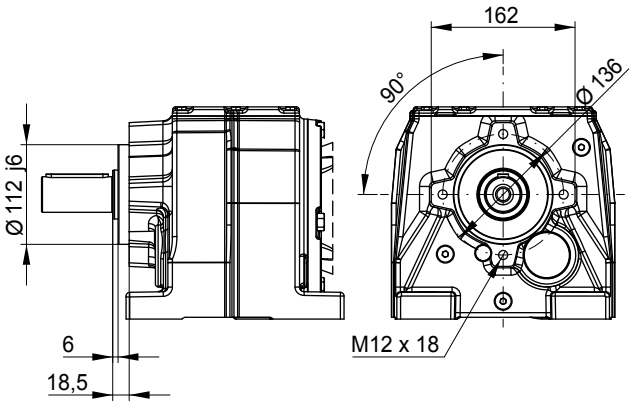



*Dimensions in mm.*

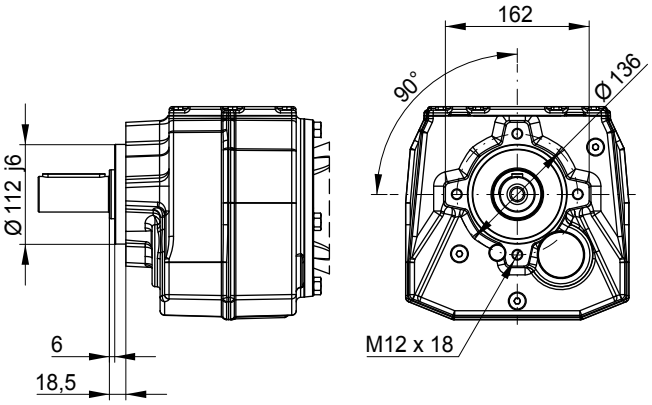
## CG07 - Foot mounted




## CW07 - Foot mounted with B14 flange execution + centring and threaded hole



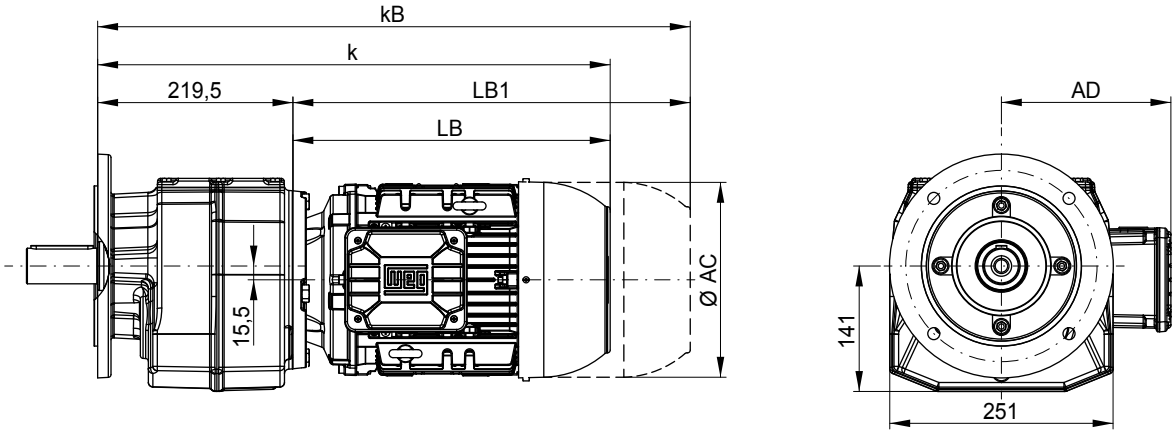

## CC07 - B14 flange execution + centring and threaded hole



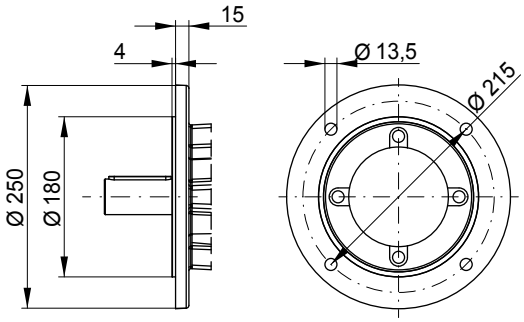

| Motor fr. / Dimension | 63 | 71 | 80 | 90S/L | 100L | L100L | 112M | 132S,M | L132M | 160M | 160L |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AC | 126 | 141 | 159 | 178 | 199 | 199 | 221 | 261 | 261 | 318 | 318 |
| AD | 128 | 136 | 145 | 155 | 165 | 165 | 185 | 205 | 205 | 266 | 266 |
| k | 424 | 458 | 466 | 508 | 558 | 596 | 568 | 633 | 671 | 765 | 809 |
| kB | 468 | 507 | 524 | 581 | 642 | 680 | 655 | 751 | 789 | 889 | 933 |
| LB | 204 | 238 | 246 | 288 | 338 | 376 | 348 | 413 | 451 | 545 | 589 |
| LB1 | 248 | 287 | 304 | 361 | 422 | 460 | 435 | 531 | 569 | 669 | 713 |

*Motor dimension sheets see page 220*
*Description of motor lengths LB and LB1 see page 224*

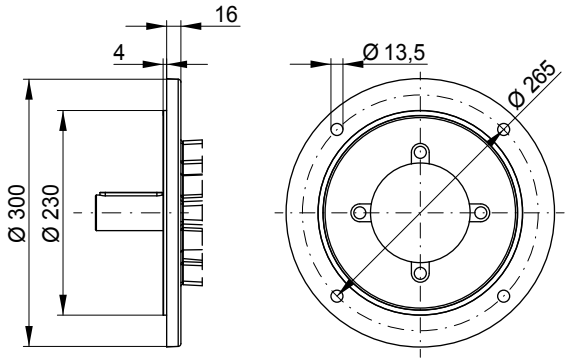
## CF07 - Flange execution




### Flange Ø 250

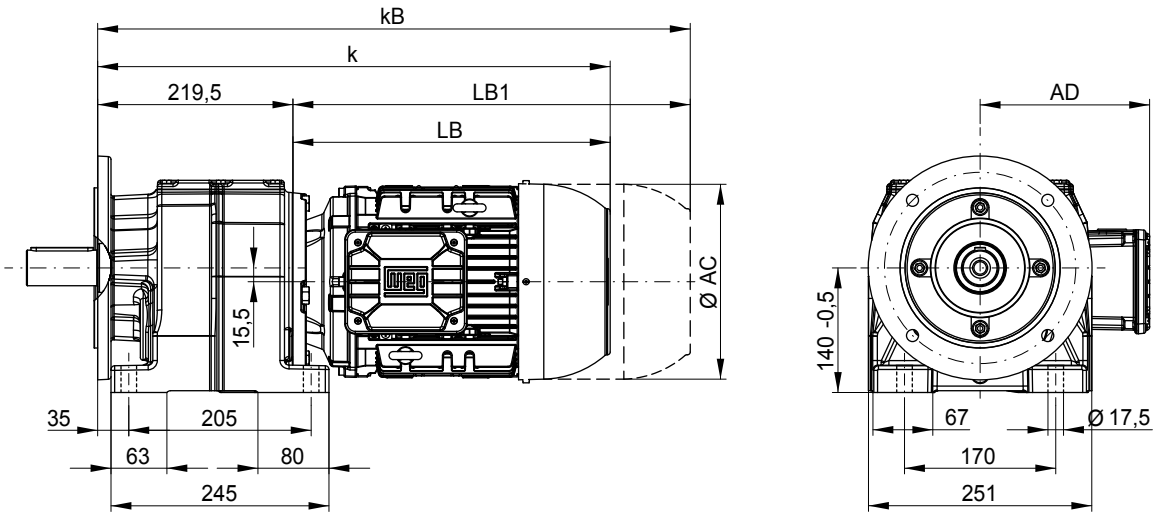



### Flange Ø 300



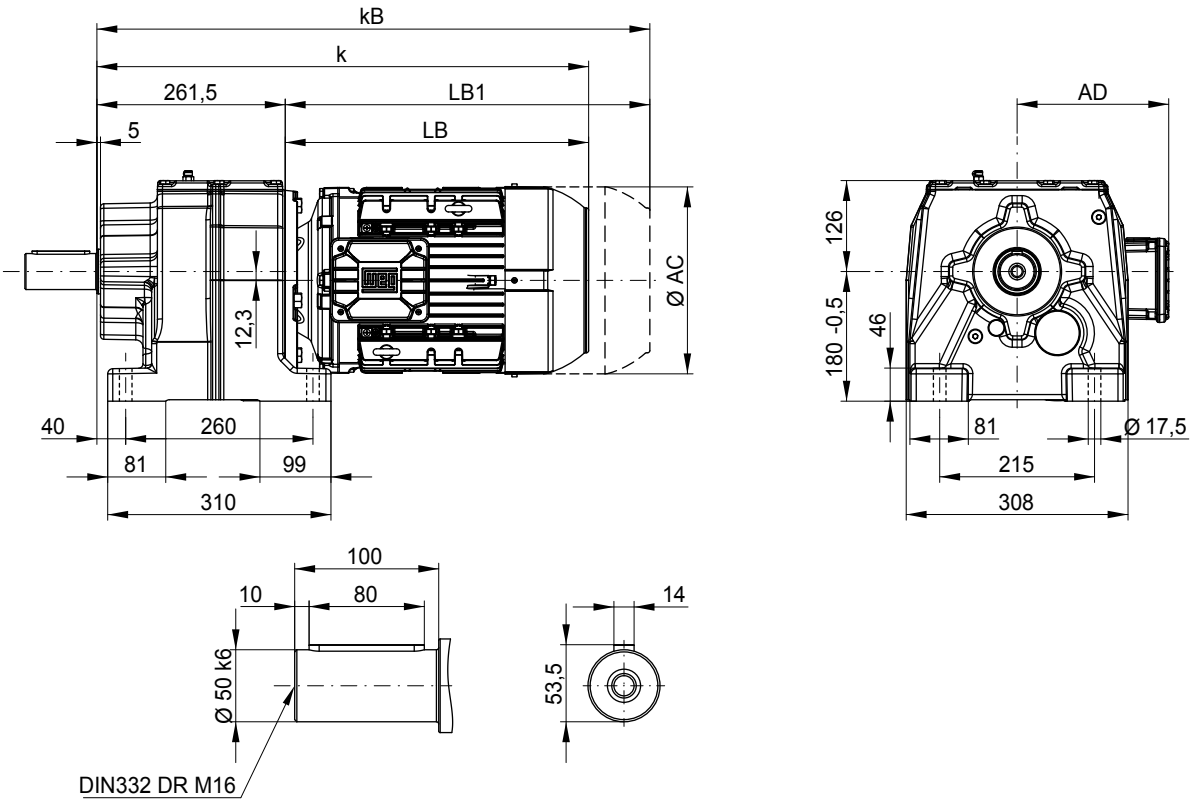

## CA07 - Foot mounted and B5 flange execution

mountable flange sizes on the housing: Ø 250

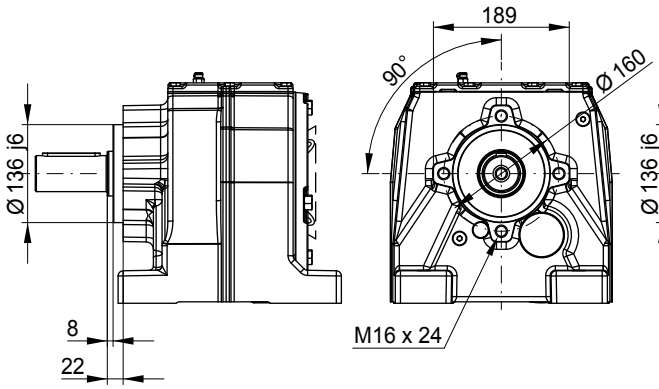



*Dimensions in mm.*

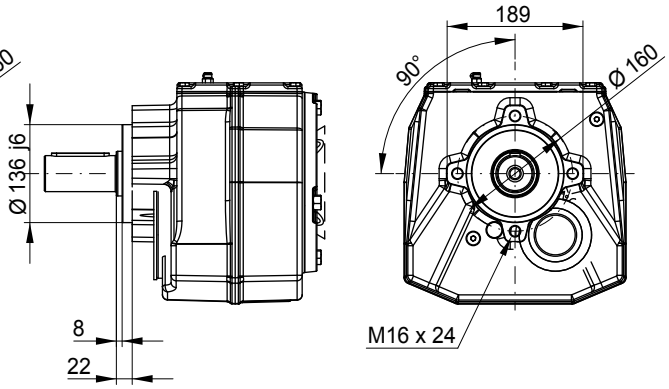
## CG08 - Foot mounted




## CW08 - Foot mounted with B14 flange execution + centring and threaded hole



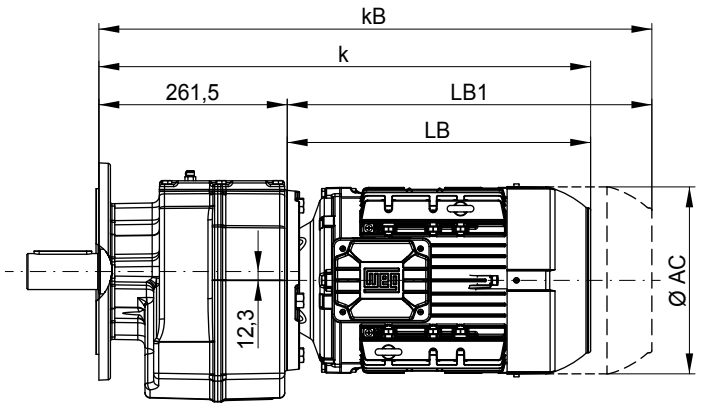

## CC08 - B14 flange execution + centring and threaded hole

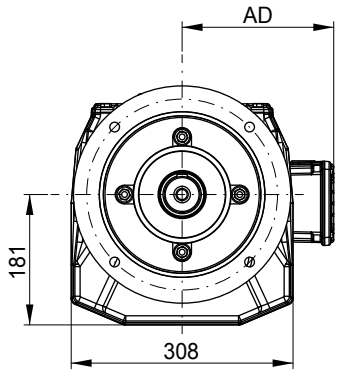



| Motor fr. / Dimension | 63 | 71 | 80 | 90S/L | 100L | L100L | 112M | 132S,M | L132M | 160M | 160L | 180M | 180L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AC | 126 | 141 | 159 | 178 | 199 | 199 | 221 | 261 | 261 | 318 | 318 | 347 | 347 |
| AD | 128 | 136 | 145 | 155 | 165 | 165 | 185 | 205 | 205 | 266 | 266 | 281 | 281 |
| k | 466 | 500 | 508 | 550 | 600 | 638 | 610 | 675 | 713 | 802 | 846 | 870 | 908 |
| kB | 510 | 549 | 566 | 623 | 684 | 722 | 697 | 793 | 831 | 926 | 970 | 988 | 1026 |
| LB | 204 | 238 | 246 | 288 | 338 | 376 | 348 | 413 | 451 | 540 | 584 | 608 | 646 |
| LB1 | 248 | 287 | 304 | 361 | 422 | 460 | 435 | 531 | 569 | 664 | 708 | 726 | 764 |

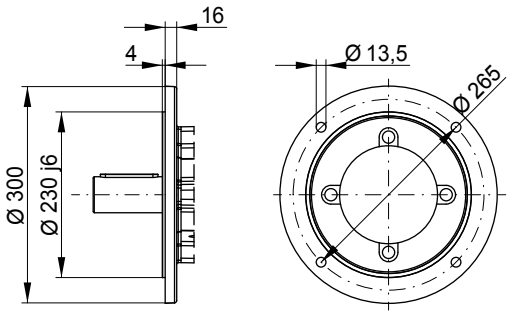
*Motor dimension sheets see page 220*
*Description of motor lengths LB and LB1 see page 224*

## CF08 - Flange execution

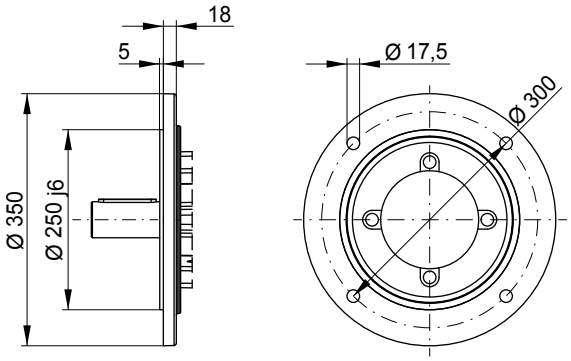



### Flange Ø 300

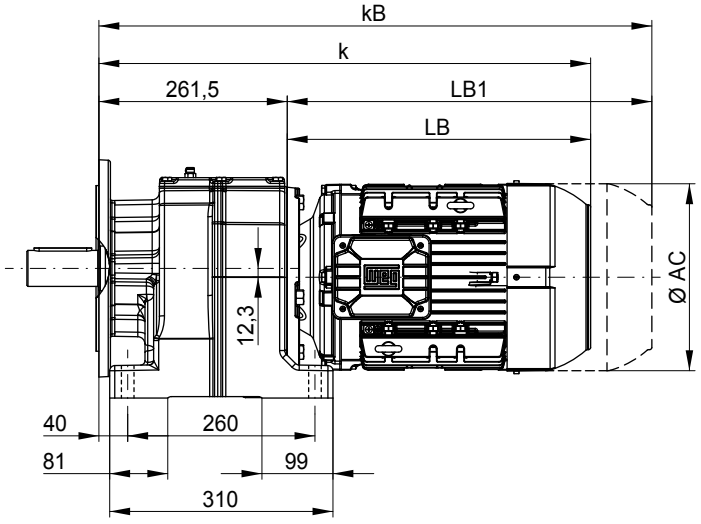


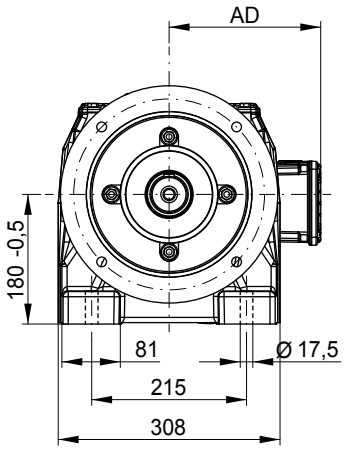

### Flange Ø 350



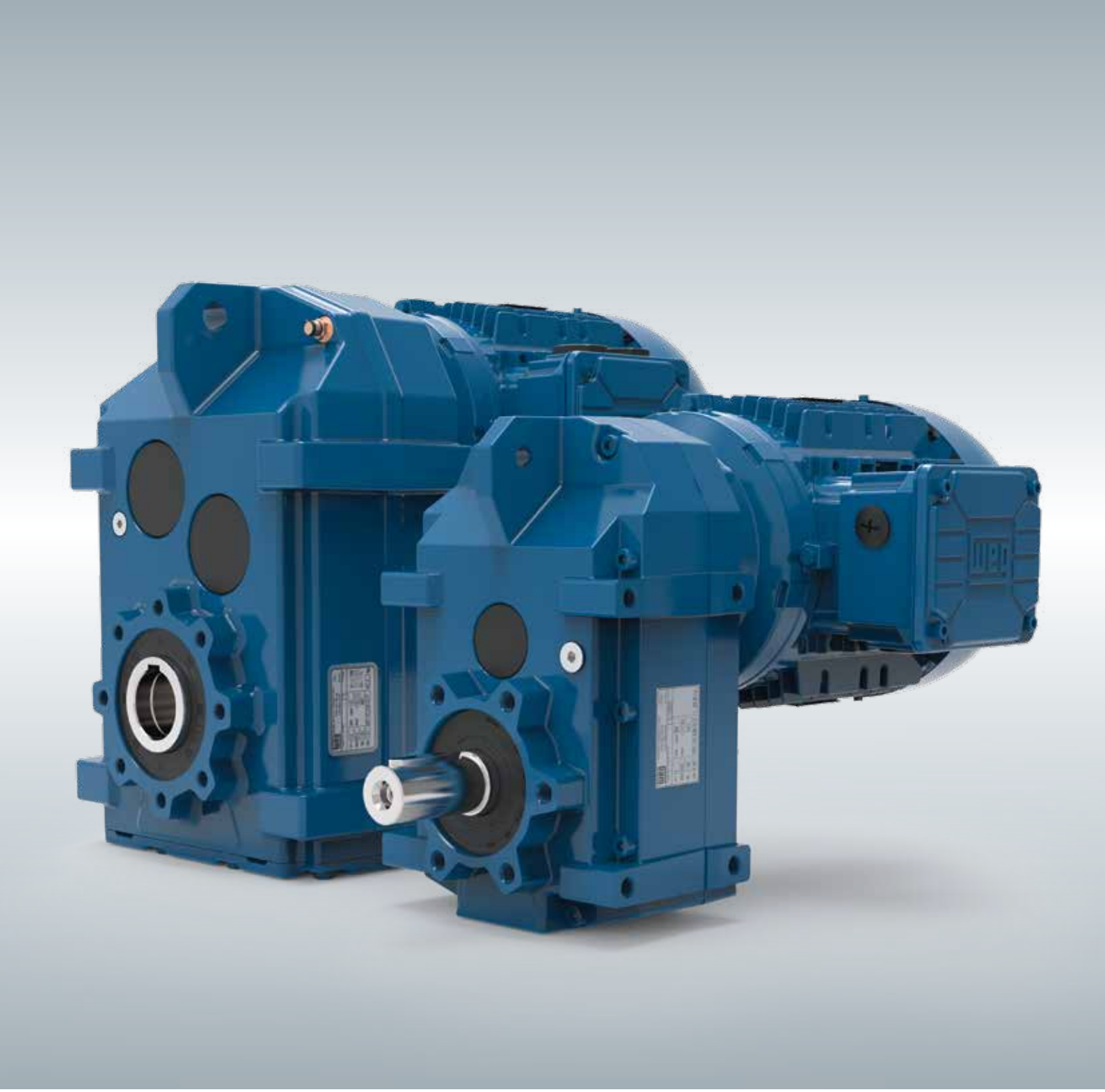

## CA08 - Foot mounted and B5 flange execution

mountable flange sizes on the housing: Ø 300




*Dimensions in mm.*



# Parallel shaft geared motors F

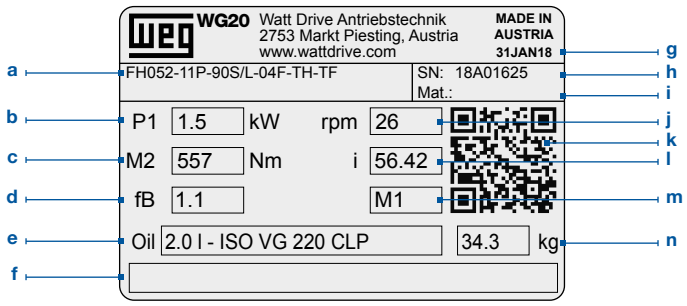
# Technical Data

| Size | | F02 | F03 | F04 | F05 | F06 | F07 |
|---|---|---|---|---|---|---|---|
| Power | | 0.12 - 1.5 kW | 0.12 - 3 kW | 0.12 - 3 kW | 0.12 - 9.2 kW | 0.12 - 15 kW | 0.12 - 15 kW |
| Torque | | 130 Nm | 220 Nm | 400 Nm | 600 Nm | 820 Nm | 1500 Nm |
| Ratio | | 3.93 - 97.85 | 3.85 - 70.17 | 4.42 - 422.98 | 5.17 - 487.67 | 4.41 - 412.64 | 4.29 - 305.42 |
| Number of stages | | 2 | 2 | 2 / 3 | 2 / 3 | 2 / 3 | 2 / 3 |
| Housing material | | aluminium | | | | cast iron | |
| Solid shaft | Type | with key acc. to DIN 6885.1 and threaded bore acc. to DIN 332 sheet 2 | | | | | |
| | Tolerance | < Ø 55: k6 / ≥ Ø 55: m6 | | | | | |
| | Material | standard: C45E (1.1191) / stainless steel on request | | | | | |
| Hollow shaft | Type | with key acc. to DIN 6885.1 | | | | | |
| | Tolerance | H7 | | | | | |
| | Material | standard: C45E (1.1191) / stainless steel on request | | | | | |
| Flanges | Tolerance | centring ≤ 230: j6 / > 230: h6 acc. to DIN EN 50347 | | | | | |
| | Material | cast iron | | | | | |
| Gear wheels | Type | honed | | | | | |
| | Material | 16MnCr5 (1.7131) case hardened – minimum 58HRC | | | | | |
| Shaft seals | Type | type AS acc. to DIN 3760 | | | | | |
| | Material | standard NBR / special FKM | | | | | |
| Bearing | | standard / reinforced | | | | | |
| Lubricants | Type | standard CLP 220 / special CLP HC 220 | | | | | |
| | Quantity | depending on mounting position | | | | | |
| Axle height | | acc. to DIN 747: ≤ 50: -0.4; > 50 to ≤ 250: -0.5; > 250: -1 | | | | | |

F

# General information

## 1. Nameplate




| | | | |
|---|---|---|---|
| a | Type code | h | Serial number |
| b | Motor power | i | Material number |
| c | Output torque | j | Output speed |
| d | Service factor | k | QR-Code linked online to additional information |
| e | Type and quantity of lubricant | l | Total gear ratio |
| f | Space for additional information | m | Mounting position |
| g | Production date | n | Weight |

## 2. Type code

FH073-11P-90S/L-04F ...

1 2 3 4 5 6 7 8 9

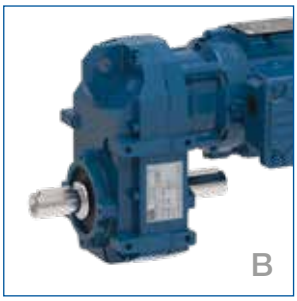
| | | |
|---|---|---|
| 1 | Type: | F = Parallel shaft gear unit |
| 2 | Design: | B = Output shaft on both sides<br>D = Hollow shaft with shrink disc<br>F = B5 flange execution with output shaft<br>H = Hollow shaft<br>O = B5 flange execution with hollow shaft<br>P = B5 flange execution with hollow shaft and shrink disc<br>S = Output shaft<br>T = Hollow shaft with rubber buffer<br>U = Hollow shaft with shrink disc and rubber buffer |
| 3 | Size: | 02<br>03<br>04<br>05<br>06<br>07 |
| 4 | Number of stages: | 2 = 2 gear stages<br>3 = 3 gear stages |
| 5 | Motor type: | 11N = Integral motor aluminium IE1<br>11P = Integral motor aluminium IE3<br>22P = Integral motor cast iron IE3 |
| 6 | Motor frame size: | 63<br>71<br>80<br>90S/L<br>100L<br>L100L<br>112M<br>132S<br>132M<br>L132M<br>160M<br>160L |
| 7 | Number of poles: | 04 = 4 poles<br>06 = 6 poles |
| 8 | Power indicator: | D<br>E<br>F<br>G |
| 9 | Motor modules: | see from page 225 |

F

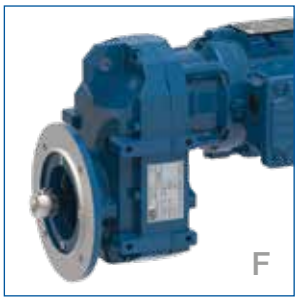
## 3. Range

| Size | F02 | F03 | F04 | F05 | F06 | F07 |
|---|---|---|---|---|---|---|
| Housing material | Aluminium | | | | Cast iron | |

## 4. Design











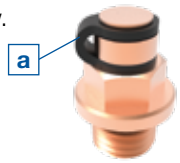



| | |
|---|---|
| B | Output shaft on both sides |
| D | Hollow shaft with shrink disc |
| F | B5 flange execution with output shaft |
| H | Hollow shaft |
| O | B5 flange execution with hollow shaft |

| | |
|---|---|
| P | B5 flange execution with hollow shaft and shrink disc |
| S | Output shaft |
| T | Hollow shaft with rubber buffer |
| U | Hollow shaft with shrink disc and rubber buffer |

## 5. Venting the gear unit

The parallel shaft gear unit sizes F02 to F05 are neither equipped with a venting nor an oil drain screw. They are supplied with lifetime-lubrication.
By default, the parallel shaft gear units F06 and F07 are equipped with venting screws with a safety strap for transportation (see illustration). The rubber strap (a) of the venting screw must be removed entirely before the initial startup. The venting screw is placed accordingly to the mounting position (see chapter Mounting positions, page 91)




## 6. Overhung and axial loads

The overhung loads ($F_{rN}$) indicated in the respective selection tables apply to gear units with the force acting on the shaft center (x=l/2). The permissible overhung loads listed are based on the least favourable loading direction and calculated for standard shafts and standard bearings. Other load directions and action can be calculated with equations Q1 and Q2. If transmission elements are placed on the output shaft, an appropriate factor ($f_z$) has to be taken into consideration when determining the overhung load.

| Gear wheels | Sprockets | | V-belts | Flat belts |
|---|---|---|---|---|
|  |  | |  |  |
| $f_z$=1.1 (z≤17) | $f_z$=1.2 (z≤13) | $f_z$=1.1 (z>13) | $f_z$=1.8 | $f_z$=2.5 |

Use the following equations Q1 and Q2 to calculate the permissible radial loads on the output shaft. Q3 is to calculate the real existing shaft loads for your application. The results are to be compared by using the equation Q4.

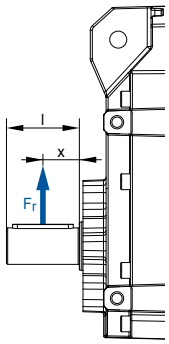
| | |
|---|---|
| **Q1** | $F_{zL} = F_{rN} \cdot a_1$ |
| **Q2** | $F_{zW} = F_W \cdot a_2$ |
| **Q3** | $F_{Qvorh} = \frac{2 \cdot M_2}{d_0} \cdot f_z$ |
| **Q4** | $F_{Qvorh} \leq F_{zL}$ |
| | $F_{Qvorh} \leq F_{zW}$ |

| Variable | Unit | Description |
|---|---|---|
| $a_1$ | | Load action factor - output shaft bearing from table 1 |
| $a_2$ | | Load action factor - output shaft from table 1 |
| $d_0$ | [m] | Effective diameter of the transmission element |
| $M_2$ | [Nm] | Geared motor output torque (from selection tables) or required calculated output torque |
| $F_{zL}$ | [N] | Permissible overhung load for output shaft bearings |
| $F_{zW}$ | [N] | Permissible overhung load for output shaft |
| $F_{rN}$ | [N] | Permissible overhung load from selection tables |
| $F_W$ | [N] | Permissible overhung load - Output shaft x=l/2 from table 2 |
| $F_{Qvorh}$ | [N] | Existing overhung load at gear shaft |
| $f_z$ | | Factor for transmission element |
| $M_{max}$ | [Nm] | Highest possible output torque for coupling operation (table 2) |

Always use both equations Q1 and Q2 for your calculations.

| x / l | | | | | | |
|---|---|---|---|---|---|---|
| 0 | 0.25 | 0.5 | 0.75 | 1 | 1.5 | 2 |
| $a_1 \rightarrow$ Equation Q1 | | | | | | |
| 1.39 | 1.18 | 1.00 | 0.85 | 0.73 | 0.52 | 0.38 |
| $a_2 \rightarrow$ Equation Q2 | | | | | | |
| 2.00 | 2.00 | 1.00 | 0.55 | 0.38 | 0.23 | 0.17 |

*Table 1: Load action factors $a_1$, $a_2$*




Intermediate values can be interpolated linearly. Combined load ($F_r \neq 0$; $F_a = 0$) on request.

| | $M_{max}$ at $F_r = 0$ | Output torque $M_2$ [Nm] | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 50 | 100 | 200 | 300 | 400 | 600 | 820 | 1550 | 3000 | 4500 | 8000 | 13000 | 18000 |
| | | $F_W$ [kN] at x/l = 0.5 → Equation Q2 | | | | | | | | | | | | |
| Ø 20x40 | 120 | 3.3 | 2.3 | | | | | | | | | | | |
| Ø 25x50 | 230 | 5.8 | 5.5 | 4.0 | | | | | | | | | | |
| Ø 30x60 | 390 | | 7.5 | 6.8 | 5.5 | 2.6 | | | | | | | | |
| Ø 35x70 | 620 | | | 11.0 | 10.0 | 9.4 | 6.2 | | | | | | | |
| Ø 40x80 | 900 | | | | 13.0 | 13.0 | 11.0 | 8.5 | | | | | | |
| Ø 50x100 | 1730 | | | | | 24.0 | 24.0 | 23.0 | 18.0 | | | | | |
| Ø 60x120 | 2880 | | | | | | | 31.0 | 29.0 | 16.0 | | | | |
| Ø 70x140 | 4510 | | | | | | | | 44.0 | 39.0 | 29.0 | | | |
| Ø 90x170 | 9000 | | | | | | | | | 71.0 | 68.0 | 53.0 | | |
| Ø 110x210 | 16000 | | | | | | | | | | 105.0 | 100.0 | 84.0 | |
| Ø 120x210 | 20600 | | | | | | | | | | | 127.0 | 115.0 | 95.0 |

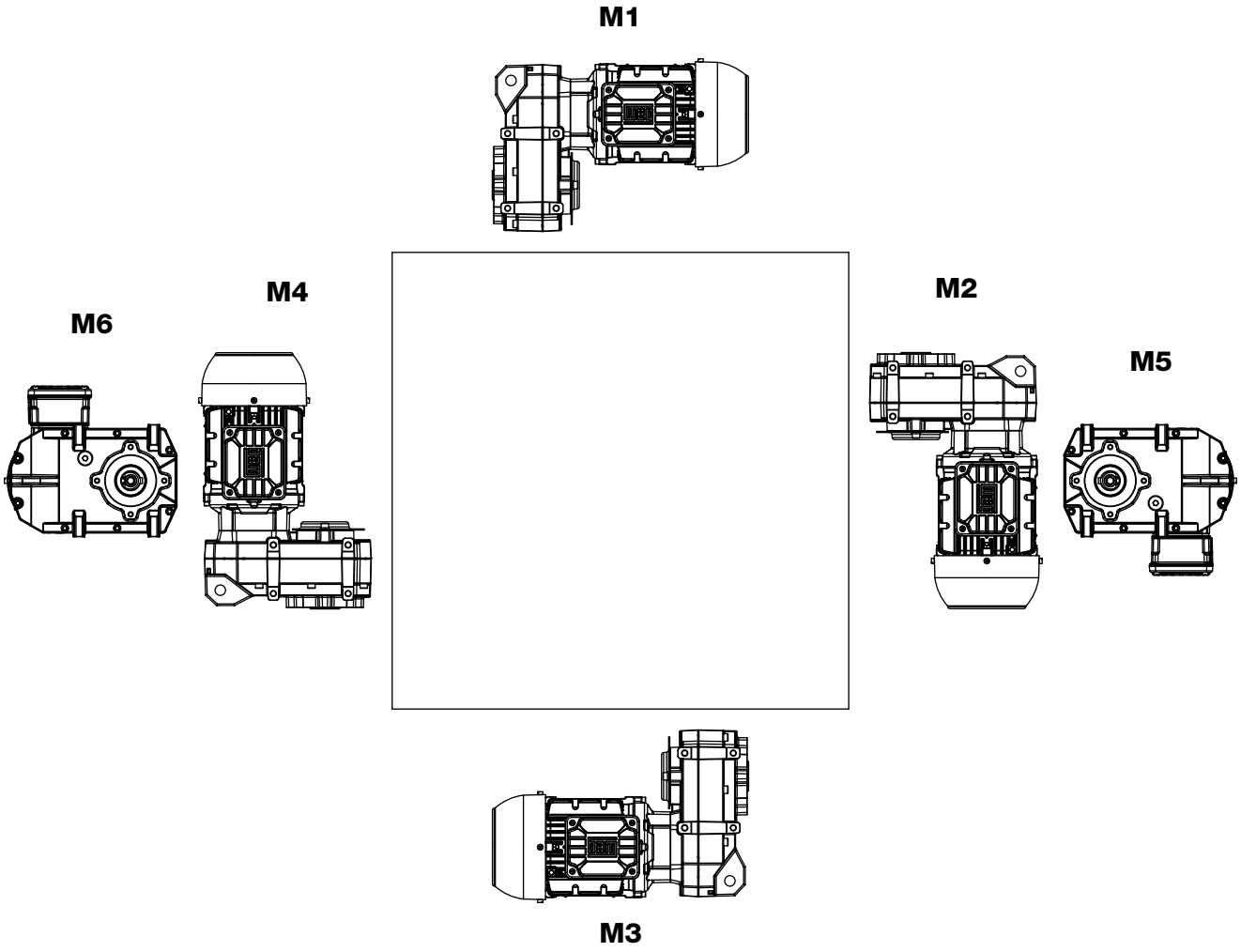
*Table 2: Permissible overhung load - output shaft x = l/2*

In cases where there is no overhung load, the permissible axial load (push or pull) may be determined by taking 50 % of the permissible overhung loads indicated in the selection tables of the respective type of gear. If there are axial loads or radial and axial components acting on the drive which are extraordinarily high, we recommend to contact the manufacturer.

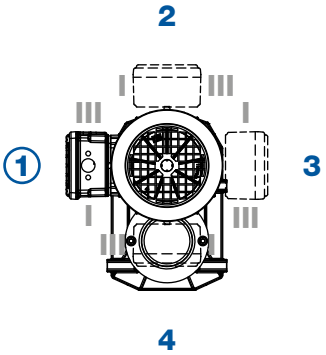
## 7. Mounting positions, Position of the terminal box and Cable entry

### Mounting positions - Sizes F02 to F05

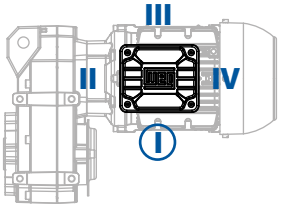
Gear units F02 to F05 are not ventilated and supplied with lifetime lubrication.



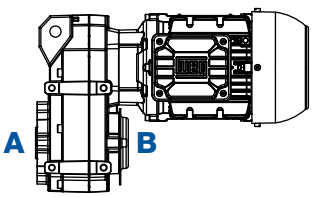

**Position of the terminal box**
Standard: Position 1




**Cable entry**
Standard: Position I



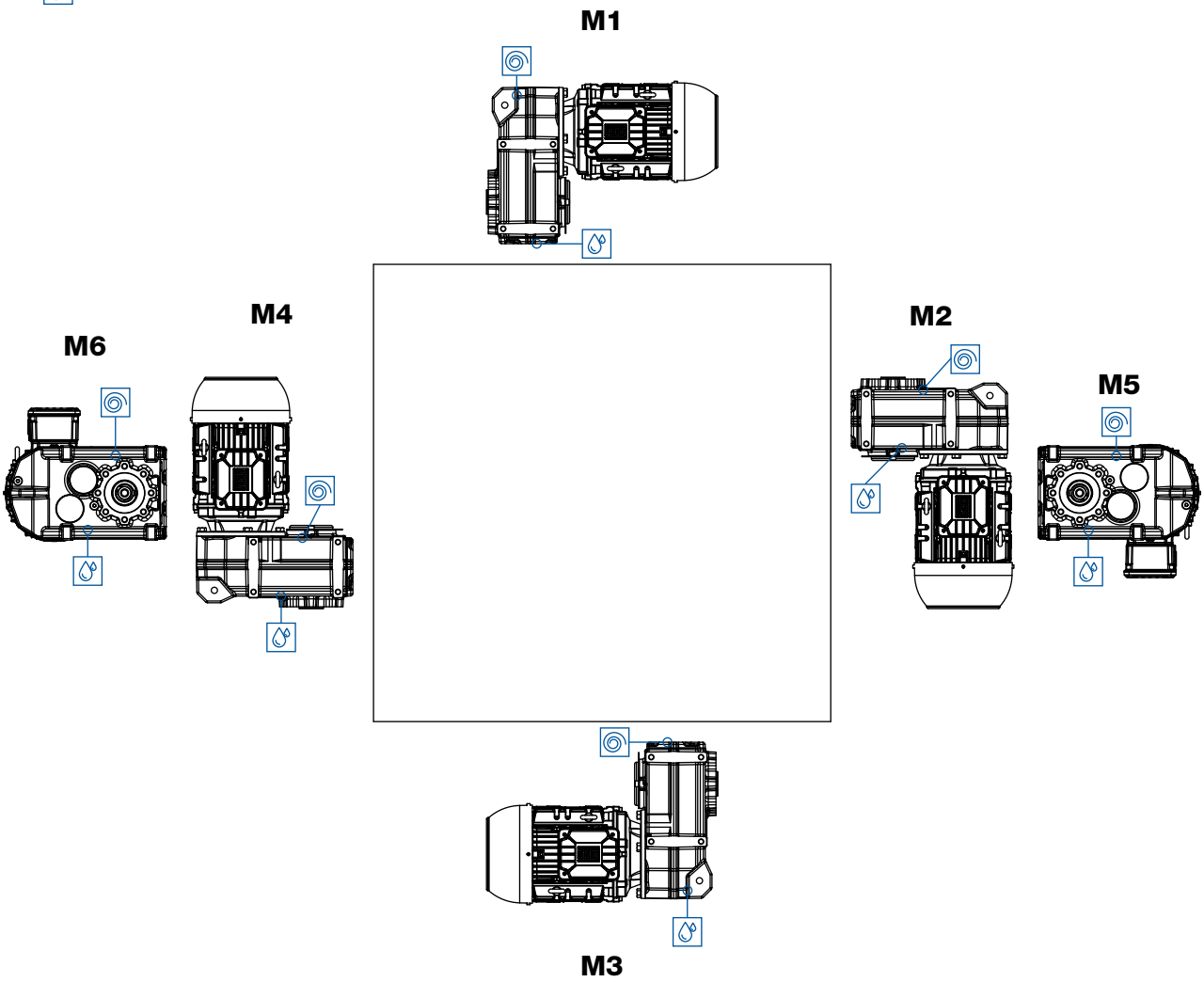

**Side indication**



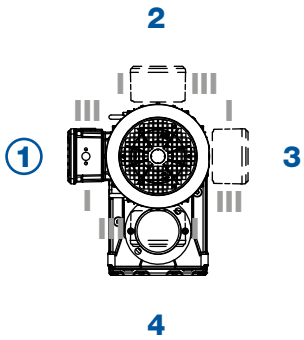
## Mounting positions - Sizes F06 to F07

Position of the venting screw

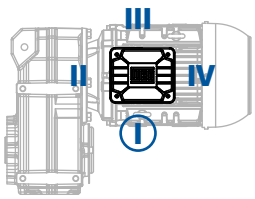
Position of the oil drain screw



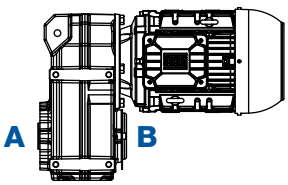

**Position of the terminal box**
Standard: Position 1




**Cable entry**
Standard: Position I




**Side indication**



# Selection tables - Geared motors

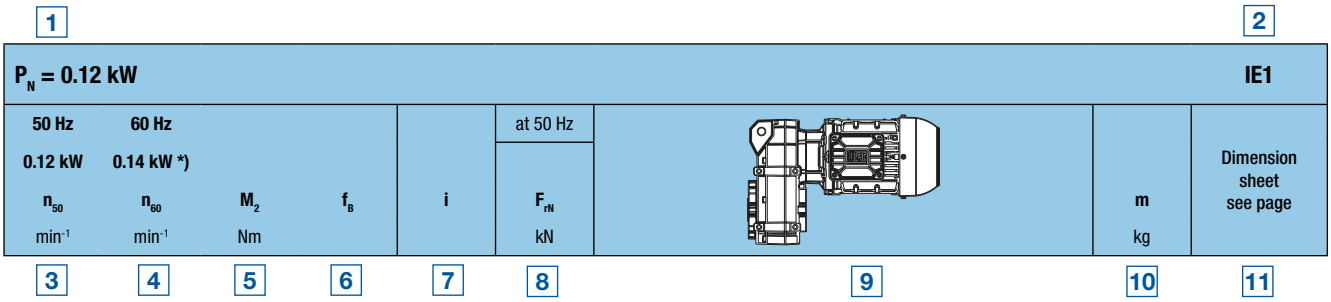
The technical data of the geared motors shown in the selection tables apply to an ambient temperature of +20 °C.

The selection tables are calculated with following motor data:

| Power (IEC frame size) | Motor series (IE class) |
|---|---|
| up to 0.55 kW (63 - 80) | 11N (IE1) - aluminium |
| 0.75 - 9.2 kW (80 - 132) | 11P (IE3) - aluminium |
| 11 - 15 kW (160) | 22P (IE3) - cast iron |



## Structure of the selection tables




1 Rated power of the motor

2 Given values are based on the respective efficiency class

3 Output speed at 50 Hz

4 Output speed at 60 Hz

5 Output torque

6 Service factor

7 Total ratio

8 Permissible radial load at midpoint of the output shaft extension (standard bearing) at axial load=0

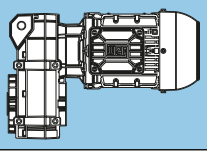
9 Geared motor type

10 Weight

11 Dimension sheet see page

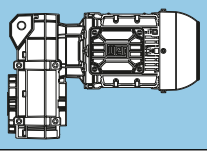
*) Increased rated power at 60 Hz can only be reached together with increased voltage within the wide range (for details see page 208).

| Increased rated power |
|---|
| 1.2 x $P_N$ |

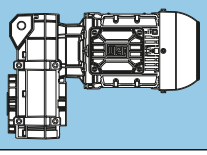
| $P_N$ = 0.12 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>0.12 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>0.14 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **2.2** | 2.6 | 531 | 1.55 | 412.64 | 12.5 | **FH063-11N-63-06F**<br>**FO063-11N-63-06F** | 36 | 140 |
| **2.4** | 2.9 | 487 | 1.70 | 378.37 | 12.8 | | | |
| **2.6** | 3.1 | 435 | 1.90 | 337.44 | 13.0 | | | |
| **2.9** | 3.5 | 398 | 2.10 | 309.42 | 13.2 | | | |
| **3.3** | 4.0 | 343 | 2.40 | 266.44 | 13.4 | | | |
| **3.6** | 4.3 | 315 | 2.65 | 244.32 | 13.5 | | | |
| **3.3** | 4.0 | 344 | 2.40 | 412.64 | 13.4 | **FH063-11N-63-04E**<br>**FO063-11N-63-04E** | 35 | 140 |
| **3.6** | 4.3 | 315 | 2.60 | 378.37 | 13.5 | | | |
| **4.1** | 4.9 | 281 | 2.95 | 337.44 | 13.6 | | | |
| **1.8** | 2.2 | 628 | 1.00 | 487.67 | ** | **FH053-11N-63-06F**<br>**FO053-11N-63-06F** | 20 | 138 |
| **2.0** | 2.4 | 574 | 1.05 | 445.56 | 3.9 | | | |
| **2.3** | 2.8 | 489 | 1.25 | 379.87 | 6.1 | | | |
| **2.6** | 3.1 | 447 | 1.35 | 347.07 | 6.8 | | | |
| **2.9** | 3.5 | 397 | 1.55 | 308.00 | 7.5 | | | |
| **3.2** | 3.8 | 362 | 1.65 | 281.41 | 7.9 | | | |
| **3.7** | 4.4 | 313 | 1.95 | 242.67 | 8.4 | | | |
| **4.0** | 4.8 | 286 | 2.10 | 221.71 | 8.7 | | | |
| **4.8** | 5.8 | 241 | 2.50 | 187.00 | 9.0 | | | |
| **5.2** | 6.2 | 220 | 2.75 | 170.85 | 9.1 | | | |
| **2.8** | 3.4 | 406 | 1.50 | 487.67 | 7.4 | **FH053-11N-63-04E**<br>**FO053-11N-63-04E** | 19 | 138 |
| **3.1** | 3.7 | 371 | 1.65 | 445.56 | 7.8 | | | |
| **3.6** | 4.3 | 317 | 1.90 | 379.87 | 8.4 | | | |
| **4.0** | 4.8 | 289 | 2.10 | 347.07 | 8.6 | | | |
| **4.5** | 5.4 | 257 | 2.35 | 308.00 | 8.9 | | | |
| **4.9** | 5.9 | 235 | 2.55 | 281.41 | 9.0 | | | |
| **5.7** | 6.8 | 202 | 3.00 | 242.67 | 9.2 | | | |
| **2.3** | 2.8 | 497 | 0.85 | 385.85 | ** | **FH043-11N-63-06F**<br>**FO043-11N-63-06F** | 14 | 136 |
| **2.7** | 3.2 | 424 | 0.95 | 329.48 | ** | | | |
| **3.0** | 3.6 | 387 | 1.05 | 300.55 | ** | | | |
| **3.3** | 4.0 | 344 | 1.20 | 267.14 | 3.2 | | | |
| **3.7** | 4.4 | 314 | 1.30 | 243.69 | 4.1 | | | |
| **4.2** | 5.0 | 271 | 1.50 | 210.48 | 5.0 | | | |
| **4.6** | 5.5 | 247 | 1.65 | 192.00 | 5.4 | | | |
| **5.5** | 6.6 | 209 | 1.95 | 162.19 | 5.9 | | | |
| **6.0** | 7.2 | 191 | 2.10 | 147.96 | 6.1 | | | |
| **7.0** | 8.4 | 163 | 2.50 | 126.72 | 6.4 | | | |
| **7.7** | 9.2 | 149 | 2.70 | 115.60 | 6.5 | | | |
| **3.3** | 4.0 | 353 | 1.15 | 422.98 | 2.9 | **FH043-11N-63-04E**<br>**FO043-11N-63-04E** | 13 | 136 |
| **3.6** | 4.3 | 322 | 1.25 | 385.85 | 3.9 | | | |
| **4.2** | 5.0 | 275 | 1.50 | 329.48 | 5.0 | | | |
| **4.6** | 5.5 | 251 | 1.60 | 300.55 | 5.4 | | | |
| **5.1** | 6.1 | 223 | 1.80 | 267.14 | 5.7 | | | |
| **5.6** | 6.7 | 203 | 2.00 | 243.69 | 6.0 | | | |
| **6.5** | 7.8 | 175 | 2.30 | 210.48 | 6.3 | | | |
| **7.2** | 8.6 | 160 | 2.50 | 192.00 | 6.4 | | | |
| **8.5** | 10 | 135 | 3.00 | 162.19 | 6.6 | | | |
| **13** | 16 | 90 | 2.45 | 70.17 | 4.8 | **FH032-11N-63-06F**<br>**FO032-11N-63-06F** | 12 | 134 |
| **14** | 17 | 82 | 2.70 | 63.63 | 4.8 | | | |
| **16** | 19 | 74 | 3.00 | 57.07 | 4.9 | | | |
| **9.1** | 11 | 126 | 1.05 | 97.85 | 4.5 | **FH022-11N-63-06F**<br>**FO022-11N-63-06F** | 9.9 | 132 |
| **10** | 12 | 113 | 1.15 | 88.09 | 4.6 | | | |
| **12** | 14 | 98 | 1.35 | 76.22 | 4.8 | | | |
| **13** | 16 | 88 | 1.50 | 68.62 | 4.9 | | | |
| **14** | 17 | 80 | 1.65 | 61.80 | 5.0 | | | |
| **16** | 19 | 72 | 1.85 | 55.64 | 5.0 | | | |
| **18** | 22 | 63 | 2.10 | 48.69 | 5.1 | | | |
| **20** | 24 | 56 | 2.35 | 43.83 | 5.1 | | | |
| **24** | 29 | 48 | 2.70 | 37.52 | 5.2 | | | |
| **26** | 31 | 44 | 3.00 | 33.78 | 5.2 | | | |
| **28** | 34 | 41 | 1.30 | 31.79 | 5.2 | | | |
| **36** | 43 | 32 | 2.65 | 24.76 | 5.2 | | | |

*Legend see page 93*

*** ... on request*

| $P_N$ = 0.12 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| **50 Hz 0.12 kW** $n_{50}$ min$^{-1}$ | **60 Hz 0.14 kW** $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | **i** | at 50 Hz $F_{rN}$ kN |  | **m** kg | **Dimension sheet see page** |
| **14** | 17 | 82 | 1.60 | 97.85 | 4.9 | | | |
| **16** | 19 | 73 | 1.80 | 88.09 | 5.0 | | | |
| **18** | 22 | 64 | 2.05 | 76.22 | 5.1 | | | |
| **20** | 24 | 57 | 2.30 | 68.62 | 5.1 | | | |
| **22** | 26 | 52 | 2.55 | 61.80 | 5.1 | | | |
| **25** | 30 | 46 | 2.85 | 55.64 | 5.2 | | | |
| **28** | 34 | 41 | 3.25 | 48.69 | 5.2 | | | |
| **31** | 37 | 37 | 3.60 | 43.83 | 5.2 | | | |
| **37** | 44 | 31 | 4.20 | 37.52 | 5.2 | | | |
| **41** | 49 | 28 | 4.65 | 33.78 | 5.2 | | | |
| **43** | 52 | 27 | 2.00 | 31.79 | 5.2 | | | |
| **47** | 56 | 24 | 5.35 | 29.32 | 5.2 | | | |
| **52** | 62 | 22 | 5.95 | 26.39 | 5.2 | | | |
| **56** | 67 | 21 | 4.10 | 24.76 | 5.2 | **FH022-11N-63-04E FO022-11N-63-04E** | 9.2 | 132 |
| **63** | 76 | 18 | 7.15 | 21.89 | 5.2 | | | |
| **68** | 82 | 17 | 5.05 | 20.08 | 5.2 | | | |
| **70** | 84 | 16 | 7.95 | 19.70 | 5.2 | | | |
| **83** | 100 | 14 | 9.50 | 16.48 | 5.2 | | | |
| **87** | 104 | 13 | 6.40 | 15.82 | 5.1 | | | |
| **93** | 112 | 12 | 10.50 | 14.84 | 5.0 | | | |
| **113** | 136 | 10 | 8.25 | 12.19 | 4.7 | | | |
| **114** | 137 | 10 | 12.90 | 12.09 | 4.7 | | | |
| **126** | 151 | 9 | 14.30 | 10.89 | 4.5 | | | |
| **144** | 173 | 8 | 10.65 | 9.52 | 4.3 | | | |
| **193** | 232 | 6 | 14.25 | 7.11 | 3.9 | | | |
| **257** | 308 | 5 | 18.70 | 5.35 | 3.6 | | | |
| **350** | 420 | 3 | 21.85 | 3.93 | 3.2 | | | |

*Legend see page 93*

| $P_N$ = 0.18 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>0.18 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>0.22 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **2.3** | 2.8 | 740 | 2.05 | 385.37 | 18.8 | **FH073-11N-71-06E**<br>**FO073-11N-71-06E** | 61 | 142 |
| **2.9** | 3.5 | 587 | 2.60 | 305.42 | 19.4 | | | |
| **2.2** | 2.6 | 793 | 1.05 | 412.64 | 10.3 | **FH063-11N-71-06E**<br>**FO063-11N-71-06E** | 38 | 140 |
| **2.4** | 2.9 | 727 | 1.15 | 378.37 | 11.0 | | | |
| **2.7** | 3.2 | 648 | 1.30 | 337.44 | 11.7 | | | |
| **2.9** | 3.5 | 594 | 1.40 | 309.42 | 12.1 | | | |
| **3.4** | 4.1 | 512 | 1.65 | 266.44 | 12.6 | | | |
| **3.7** | 4.4 | 469 | 1.75 | 244.32 | 12.9 | | | |
| **4.3** | 5.2 | 397 | 2.10 | 206.59 | 13.2 | | | |
| **4.7** | 5.6 | 364 | 2.30 | 189.44 | 13.4 | | | |
| **5.3** | 6.4 | 325 | 2.55 | 169.09 | 13.5 | | | |
| **5.8** | 7.0 | 298 | 2.80 | 155.05 | 13.6 | | | |
| **3.3** | 4.0 | 518 | 1.60 | 412.64 | 12.6 | **FH063-11N-63-04F**<br>**FO063-11N-63-04F** | 36 | 140 |
| **3.6** | 4.3 | 475 | 1.75 | 378.37 | 12.8 | | | |
| **4.1** | 4.9 | 423 | 1.95 | 337.44 | 13.1 | | | |
| **4.4** | 5.3 | 388 | 2.15 | 309.42 | 13.3 | | | |
| **5.1** | 6.1 | 334 | 2.50 | 266.44 | 13.5 | | | |
| **5.6** | 6.7 | 307 | 2.70 | 244.32 | 13.6 | | | |
| **2.4** | 2.9 | 730 | 0.85 | 379.87 | ** | **FH053-11N-71-06E**<br>**FO053-11N-71-06E** | 22 | 138 |
| **2.6** | 3.1 | 667 | 0.90 | 347.07 | ** | | | |
| **2.9** | 3.5 | 592 | 1.05 | 308.00 | 3.1 | | | |
| **3.2** | 3.8 | 541 | 1.15 | 281.41 | 4.9 | | | |
| **3.7** | 4.4 | 466 | 1.30 | 242.67 | 6.5 | | | |
| **4.0** | 4.8 | 426 | 1.45 | 221.71 | 7.1 | | | |
| **4.8** | 5.8 | 359 | 1.70 | 187.00 | 8.0 | | | |
| **5.2** | 6.2 | 328 | 1.85 | 170.85 | 8.3 | | | |
| **6.1** | 7.3 | 281 | 2.15 | 146.10 | 8.7 | | | |
| **6.7** | 8.0 | 256 | 2.35 | 133.49 | 8.9 | | | |
| **8.2** | 9.8 | 210 | 2.90 | 109.08 | 9.2 | | | |
| **2.8** | 3.4 | 612 | 1.00 | 487.67 | ** | **FH053-11N-63-04F**<br>**FO053-11N-63-04F** | 20 | 138 |
| **3.1** | 3.7 | 559 | 1.10 | 445.56 | 4.4 | | | |
| **3.6** | 4.3 | 477 | 1.30 | 379.87 | 6.3 | | | |
| **3.9** | 4.7 | 436 | 1.40 | 347.07 | 7.0 | | | |
| **4.4** | 5.3 | 387 | 1.60 | 308.00 | 7.7 | | | |
| **4.9** | 5.9 | 353 | 1.70 | 281.41 | 8.0 | | | |
| **5.6** | 6.7 | 305 | 2.00 | 242.67 | 8.5 | | | |
| **6.2** | 7.4 | 278 | 2.15 | 221.71 | 8.7 | | | |
| **7.3** | 8.8 | 235 | 2.60 | 187.00 | 9.0 | | | |
| **8.0** | 9.6 | 214 | 2.80 | 170.85 | 9.2 | | | |
| **10** | 12 | 168 | 2.25 | 87.38 | 9.4 | **FH052-11N-71-06E**<br>**FO052-11N-71-06E** | 22 | 138 |
| **11** | 13 | 153 | 2.25 | 79.84 | 9.4 | | | |
| **19** | 23 | 93 | 2.25 | 48.15 | 9.6 | | | |
| **3.4** | 4.1 | 513 | 0.80 | 267.14 | ** | **FH043-11N-71-06E**<br>**FO043-11N-71-06E** | 16 | 136 |
| **3.7** | 4.4 | 468 | 0.90 | 243.69 | ** | | | |
| **4.3** | 5.2 | 404 | 1.00 | 210.48 | ** | | | |
| **4.7** | 5.6 | 369 | 1.10 | 192.00 | 2.1 | | | |
| **5.5** | 6.6 | 312 | 1.30 | 162.19 | 4.2 | | | |
| **6.0** | 7.2 | 284 | 1.45 | 147.96 | 4.8 | | | |
| **7.1** | 8.5 | 243 | 1.65 | 126.72 | 5.5 | | | |
| **7.7** | 9.2 | 222 | 1.85 | 115.60 | 5.8 | | | |
| **9.5** | 11 | 182 | 2.25 | 94.61 | 6.2 | | | |
| **10** | 12 | 166 | 2.45 | 86.31 | 6.4 | | | |
| **13** | 16 | 137 | 2.95 | 71.24 | 6.6 | | | |



*Legend see page 93*

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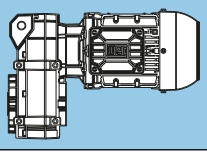
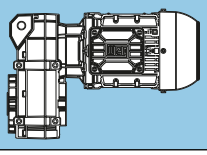
| $P_N$ = 0.18 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 0.18 kW $n_{50}$ min$^{-1}$ | 60 Hz 0.22 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **3.2** | 3.8 | 531 | 0.80 | 422.98 | ** | | | |
| **3.6** | 4.3 | 484 | 0.85 | 385.85 | ** | | | |
| **4.2** | 5.0 | 413 | 1.00 | 329.48 | ** | | | |
| **4.6** | 5.5 | 377 | 1.10 | 300.55 | 1.6 | | | |
| **5.1** | 6.1 | 335 | 1.20 | 267.14 | 3.5 | | | |
| **5.6** | 6.7 | 306 | 1.35 | 243.69 | 4.3 | **FH043-11N-63-04F FO043-11N-63-04F** | 14 | 136 |
| **6.5** | 7.8 | 264 | 1.55 | 210.48 | 5.1 | | | |
| **7.1** | 8.5 | 241 | 1.70 | 192.00 | 5.5 | | | |
| **8.4** | 10 | 204 | 2.00 | 162.19 | 6.0 | | | |
| **9.3** | 11 | 186 | 2.20 | 147.96 | 6.2 | | | |
| **11** | 13 | 159 | 2.55 | 126.72 | 6.4 | | | |
| **12** | 14 | 145 | 2.80 | 115.60 | 6.5 | | | |
| **12** | 14 | 146 | 2.25 | 75.79 | 6.5 | **FH042-11N-71-06E FO042-11N-71-06E** | 16 | 136 |
| **13** | 16 | 133 | 2.25 | 69.14 | 6.6 | | | |
| **22** | 26 | 79 | 2.25 | 41.20 | 6.9 | | | |
| **13** | 16 | 135 | 1.65 | 70.17 | 4.2 | **FH032-11N-71-06E FO032-11N-71-06E** | 15 | 134 |
| **14** | 17 | 122 | 1.85 | 63.63 | 4.4 | | | |
| **16** | 19 | 110 | 2.05 | 57.07 | 4.6 | | | |
| **17** | 20 | 99 | 2.25 | 51.75 | 4.7 | | | |
| **20** | 24 | 87 | 2.55 | 45.35 | 4.8 | | | |
| **22** | 26 | 79 | 2.80 | 41.12 | 4.9 | | | |
| **32** | 38 | 53 | 2.25 | 27.67 | 5.0 | | | |
| **20** | 24 | 88 | 2.50 | 70.17 | 4.8 | **FH032-11N-63-04F FO032-11N-63-04F** | 13 | 134 |
| **22** | 26 | 80 | 2.80 | 63.63 | 4.8 | | | |
| **10** | 12 | 169 | 0.80 | 88.09 | ** | **FH022-11N-71-06E FO022-11N-71-06E** | 12 | 132 |
| **12** | 14 | 146 | 0.90 | 76.22 | ** | | | |
| **13** | 16 | 132 | 1.00 | 68.62 | ** | | | |
| **14** | 17 | 119 | 1.10 | 61.80 | 4.6 | | | |
| **16** | 19 | 107 | 1.25 | 55.64 | 4.7 | | | |
| **18** | 22 | 94 | 1.40 | 48.69 | 4.8 | | | |
| **20** | 24 | 84 | 1.55 | 43.83 | 4.9 | | | |
| **24** | 29 | 72 | 1.85 | 37.52 | 5.0 | | | |
| **26** | 31 | 65 | 2.05 | 33.78 | 5.1 | | | |
| **28** | 34 | 61 | 0.90 | 31.79 | ** | | | |
| **31** | 37 | 56 | 2.35 | 29.32 | 5.1 | | | |
| **34** | 41 | 51 | 2.60 | 26.39 | 5.1 | | | |
| **36** | 43 | 48 | 1.80 | 24.76 | 5.2 | | | |
| **45** | 54 | 39 | 2.20 | 20.08 | 5.2 | | | |
| **57** | 68 | 30 | 2.80 | 15.82 | 5.2 | | | |
| **14** | 17 | 123 | 1.10 | 97.85 | 4.5 | **FH022-11N-63-04F FO022-11N-63-04F** | 10 | 132 |
| **16** | 19 | 111 | 1.20 | 88.09 | 4.7 | | | |
| **18** | 22 | 96 | 1.40 | 76.22 | 4.8 | | | |
| **20** | 24 | 86 | 1.55 | 68.62 | 4.9 | | | |
| **22** | 26 | 78 | 1.70 | 61.80 | 5.0 | | | |
| **25** | 30 | 70 | 1.90 | 55.64 | 5.0 | | | |
| **28** | 34 | 61 | 2.15 | 48.69 | 5.1 | | | |
| **31** | 37 | 55 | 2.40 | 43.83 | 5.1 | | | |
| **37** | 44 | 47 | 2.80 | 37.52 | 5.2 | | | |
| **41** | 49 | 42 | 3.10 | 33.78 | 5.2 | | | |
| **43** | 52 | 40 | 1.35 | 31.79 | 5.2 | | | |
| **47** | 56 | 37 | 3.55 | 29.32 | 5.2 | | | |
| **52** | 62 | 33 | 3.95 | 26.39 | 5.2 | | | |
| **55** | 66 | 31 | 2.75 | 24.76 | 5.2 | | | |
| **63** | 76 | 28 | 4.75 | 21.89 | 5.2 | | | |
| **68** | 82 | 25 | 3.35 | 20.08 | 5.2 | | | |
| **70** | 84 | 25 | 5.30 | 19.70 | 5.2 | | | |
| **83** | 100 | 21 | 6.30 | 16.48 | 5.2 | | | |
| **87** | 104 | 20 | 4.25 | 15.82 | 5.2 | | | |
| **92** | 110 | 19 | 7.00 | 14.84 | 5.1 | | | |
| **112** | 134 | 15 | 5.50 | 12.19 | 4.8 | | | |
| **113** | 136 | 15 | 8.60 | 12.09 | 4.8 | | | |
| **126** | 151 | 14 | 9.50 | 10.89 | 4.6 | | | |
| **144** | 173 | 12 | 7.10 | 9.52 | 4.4 | | | |
| **193** | 232 | 9 | 9.45 | 7.11 | 3.9 | | | |
| **256** | 307 | 7 | 12.55 | 5.35 | 3.6 | | | |
| **349** | 419 | 5 | 14.70 | 3.93 | 3.2 | | | |

| $P_N$ = 0.25 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 0.25 kW $n_{50}$ min$^{-1}$ | 60 Hz 0.30 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **2.3** | 2.8 | 1022 | 1.50 | 385.37 | 17.2 | **FH073-11N-71-06F FO073-11N-71-06F** | 63 | 142 |
| **2.9** | 3.5 | 810 | 1.90 | 305.42 | 18.5 | | | |
| **3.8** | 4.6 | 629 | 2.40 | 237.15 | 19.3 | | | |
| **4.6** | 5.5 | 516 | 2.95 | 194.58 | 19.7 | | | |
| **3.6** | 4.3 | 672 | 2.25 | 385.37 | 19.1 | **FH073-11N-71-04E FO073-11N-71-04E** | 60 | 142 |
| **4.5** | 5.4 | 532 | 2.85 | 305.42 | 19.6 | | | |
| **2.4** | 2.9 | 1004 | 0.85 | 378.37 | ** | **FH063-11N-71-06F FO063-11N-71-06F** | 40 | 140 |
| **2.7** | 3.2 | 895 | 0.95 | 337.44 | ** | | | |
| **2.9** | 3.5 | 821 | 1.00 | 309.42 | ** | | | |
| **3.4** | 4.1 | 707 | 1.20 | 266.44 | 11.2 | | | |
| **3.7** | 4.4 | 648 | 1.30 | 244.32 | 11.7 | | | |
| **4.4** | 5.3 | 548 | 1.50 | 206.59 | 12.4 | | | |
| **4.8** | 5.8 | 503 | 1.65 | 189.44 | 12.7 | | | |
| **5.3** | 6.4 | 449 | 1.85 | 169.09 | 13.0 | | | |
| **5.8** | 7.0 | 411 | 2.00 | 155.05 | 13.2 | | | |
| **6.9** | 8.3 | 345 | 2.40 | 130.15 | 13.4 | | | |
| **7.5** | 9.0 | 317 | 2.60 | 119.35 | 13.5 | | | |
| **3.3** | 4.0 | 719 | 1.15 | 412.64 | 11.0 | **FH063-11N-71-04E FO063-11N-71-04E** | 37 | 140 |
| **3.6** | 4.3 | 659 | 1.25 | 378.37 | 11.6 | | | |
| **4.1** | 4.9 | 588 | 1.40 | 337.44 | 12.1 | | | |
| **4.4** | 5.3 | 539 | 1.55 | 309.42 | 12.5 | | | |
| **5.1** | 6.1 | 464 | 1.80 | 266.44 | 12.9 | | | |
| **5.6** | 6.7 | 426 | 1.95 | 244.32 | 13.1 | | | |
| **6.6** | 7.9 | 360 | 2.30 | 206.59 | 13.4 | | | |
| **7.2** | 8.6 | 330 | 2.50 | 189.44 | 13.5 | | | |
| **8.1** | 9.7 | 295 | 2.80 | 169.09 | 13.6 | | | |
| **3.2** | 3.8 | 747 | 0.80 | 281.41 | ** | **FH053-11N-71-06F FO053-11N-71-06F** | 23 | 138 |
| **3.7** | 4.4 | 644 | 0.95 | 242.67 | ** | | | |
| **4.1** | 4.9 | 588 | 1.05 | 221.71 | 3.3 | | | |
| **4.8** | 5.8 | 496 | 1.25 | 187.00 | 5.9 | | | |
| **5.3** | 6.4 | 453 | 1.35 | 170.85 | 6.7 | | | |
| **6.2** | 7.4 | 388 | 1.55 | 146.10 | 7.6 | | | |
| **6.7** | 8.0 | 354 | 1.70 | 133.49 | 8.0 | | | |
| **8.3** | 10 | 289 | 2.10 | 109.08 | 8.6 | | | |
| **9.0** | 11 | 264 | 2.30 | 99.66 | 8.8 | | | |
| **11** | 13 | 218 | 2.80 | 82.13 | 9.1 | | | |
| **12** | 14 | 199 | 3.00 | 75.04 | 9.2 | | | |
| **3.1** | 3.7 | 777 | 0.80 | 445.56 | ** | **FH053-11N-71-04E FO053-11N-71-04E** | 20 | 138 |
| **3.6** | 4.3 | 662 | 0.95 | 379.87 | ** | | | |
| **3.9** | 4.7 | 605 | 1.00 | 347.07 | ** | | | |
| **4.4** | 5.3 | 537 | 1.15 | 308.00 | 5.0 | | | |
| **4.9** | 5.9 | 490 | 1.25 | 281.41 | 6.0 | | | |
| **5.6** | 6.7 | 423 | 1.45 | 242.67 | 7.2 | | | |
| **6.2** | 7.4 | 386 | 1.55 | 221.71 | 7.7 | | | |
| **7.3** | 8.8 | 326 | 1.85 | 187.00 | 8.3 | | | |
| **8.0** | 9.6 | 298 | 2.05 | 170.85 | 8.6 | | | |
| **9.4** | 11 | 255 | 2.40 | 146.10 | 8.9 | | | |
| **10** | 12 | 233 | 2.60 | 133.49 | 9.0 | | | |
| **10** | 12 | 232 | 1.65 | 87.38 | 9.0 | **FH052-11N-71-06F FO052-11N-71-06F** | 23 | 138 |
| **11** | 13 | 212 | 1.65 | 79.84 | 9.2 | | | |
| **13** | 16 | 190 | 2.65 | 71.46 | 9.3 | | | |
| **14** | 17 | 173 | 2.65 | 65.29 | 9.4 | | | |
| **19** | 23 | 128 | 1.60 | 48.15 | 9.5 | | | |
| **23** | 28 | 105 | 2.65 | 39.38 | 9.6 | | | |
| **16** | 19 | 152 | 2.45 | 87.38 | 9.5 | **FH052-11N-71-04E FO052-11N-71-04E** | 20 | 138 |
| **17** | 20 | 139 | 2.45 | 79.84 | 9.5 | | | |
| **28** | 34 | 84 | 2.45 | 48.15 | 9.7 | | | |

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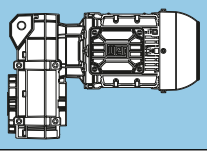
| $P_N$ = 0.25 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 0.25 kW $n_{50}$ min$^{-1}$ | 60 Hz 0.30 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **4.7** | 5.6 | 509 | 0.80 | 192.00 | ** | **FH043-11N-71-06F FO043-11N-71-06F** | 18 | 136 |
| **5.5** | 6.6 | 430 | 0.95 | 162.19 | ** | | | |
| **6.1** | 7.3 | 393 | 1.05 | 147.96 | ** | | | |
| **7.1** | 8.5 | 336 | 1.20 | 126.72 | 3.5 | | | |
| **7.8** | 9.4 | 307 | 1.35 | 115.60 | 4.3 | | | |
| **9.5** | 11 | 251 | 1.60 | 94.61 | 5.4 | | | |
| **10** | 12 | 229 | 1.75 | 86.31 | 5.7 | | | |
| **13** | 16 | 189 | 2.15 | 71.24 | 6.1 | | | |
| **14** | 17 | 172 | 2.35 | 64.98 | 6.3 | | | |
| **17** | 20 | 139 | 2.90 | 52.27 | 6.6 | | | |
| **4.6** | 5.5 | 524 | 0.80 | 300.55 | ** | **FH043-11N-71-04E FO043-11N-71-04E** | 15 | 136 |
| **5.1** | 6.1 | 466 | 0.90 | 267.14 | ** | | | |
| **5.6** | 6.7 | 425 | 0.95 | 243.69 | ** | | | |
| **6.5** | 7.8 | 367 | 1.10 | 210.48 | 2.2 | | | |
| **7.1** | 8.5 | 335 | 1.20 | 192.00 | 3.5 | | | |
| **8.4** | 10 | 283 | 1.45 | 162.19 | 4.8 | | | |
| **9.3** | 11 | 258 | 1.60 | 147.96 | 5.2 | | | |
| **11** | 13 | 221 | 1.85 | 126.72 | 5.8 | | | |
| **12** | 14 | 202 | 2.00 | 115.60 | 6.0 | | | |
| **14** | 17 | 165 | 2.45 | 94.61 | 6.4 | | | |
| **16** | 19 | 150 | 2.70 | 86.31 | 6.5 | | | |
| **12** | 14 | 201 | 1.65 | 75.79 | 6.0 | **FH042-11N-71-06F FO042-11N-71-06F** | 17 | 136 |
| **13** | 16 | 183 | 1.60 | 69.14 | 6.2 | | | |
| **15** | 18 | 164 | 2.45 | 61.98 | 6.4 | | | |
| **16** | 19 | 150 | 2.65 | 56.54 | 6.5 | | | |
| **22** | 26 | 109 | 1.65 | 41.20 | 6.7 | | | |
| **27** | 32 | 89 | 2.65 | 33.69 | 6.8 | | | |
| **18** | 22 | 132 | 2.45 | 75.79 | 6.6 | **FH042-11N-71-04E FO042-11N-71-04E** | 15 | 136 |
| **20** | 24 | 121 | 2.45 | 69.14 | 6.7 | | | |
| **33** | 40 | 72 | 2.45 | 41.20 | 6.9 | | | |
| **13** | 16 | 186 | 1.20 | 70.17 | 3.2 | **FH032-11N-71-06F FO032-11N-71-06F** | 16 | 134 |
| **14** | 17 | 169 | 1.35 | 63.63 | 3.6 | | | |
| **16** | 19 | 151 | 1.50 | 57.07 | 3.9 | | | |
| **17** | 20 | 137 | 1.65 | 51.75 | 4.2 | | | |
| **20** | 24 | 120 | 1.85 | 45.35 | 4.4 | | | |
| **22** | 26 | 109 | 2.05 | 41.12 | 4.6 | | | |
| **26** | 31 | 93 | 2.40 | 35.03 | 4.7 | | | |
| **28** | 34 | 84 | 2.65 | 31.76 | 4.8 | | | |
| **32** | 38 | 74 | 3.00 | 27.97 | 4.9 | | | |
| **33** | 40 | 73 | 1.65 | 27.67 | 4.9 | | | |
| **40** | 48 | 60 | 2.50 | 22.50 | 5.0 | | | |
| **20** | 24 | 122 | 1.80 | 70.17 | 4.4 | **FH032-11N-71-04E FO032-11N-71-04E** | 13 | 134 |
| **22** | 26 | 111 | 2.00 | 63.63 | 4.5 | | | |
| **24** | 29 | 100 | 2.25 | 57.07 | 4.7 | | | |
| **26** | 31 | 90 | 2.45 | 51.75 | 4.8 | | | |
| **30** | 36 | 79 | 2.80 | 45.35 | 4.9 | | | |
| **50** | 60 | 48 | 2.50 | 27.67 | 5.0 | | | |
| **15** | 18 | 164 | 0.80 | 61.80 | ** | **FH022-11N-71-06F FO022-11N-71-06F** | 14 | 132 |
| **16** | 19 | 148 | 0.90 | 55.64 | ** | | | |
| **18** | 22 | 129 | 1.05 | 48.69 | 4.4 | | | |
| **21** | 25 | 116 | 1.15 | 43.83 | 4.6 | | | |
| **24** | 29 | 100 | 1.35 | 37.52 | 4.8 | | | |
| **27** | 32 | 90 | 1.50 | 33.78 | 4.9 | | | |
| **31** | 37 | 78 | 1.70 | 29.32 | 5.0 | | | |
| **34** | 41 | 70 | 1.90 | 26.39 | 5.0 | | | |
| **36** | 43 | 66 | 1.30 | 24.76 | 5.1 | | | |
| **41** | 49 | 58 | 2.25 | 21.89 | 5.1 | | | |
| **45** | 54 | 53 | 1.60 | 20.08 | 5.1 | | | |
| **46** | 55 | 52 | 2.50 | 19.70 | 5.1 | | | |
| **55** | 66 | 44 | 3.00 | 16.48 | 5.2 | | | |
| **57** | 68 | 42 | 2.00 | 15.82 | 5.2 | | | |
| **74** | 89 | 32 | 2.65 | 12.19 | 5.2 | | | |

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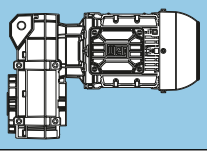
*** ... on request*

| $P_N$ = 0.25 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 0.25 kW $n_{50}$ min$^{-1}$ | 60 Hz 0.30 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **14** | 17 | 171 | 0.80 | 97.85 | ** | **FH022-11N-71-04E**<br>**FO022-11N-71-04E** | 11 | 132 |
| **16** | 19 | 154 | 0.85 | 88.09 | ** | | | |
| **18** | 22 | 133 | 1.00 | 76.22 | ** | | | |
| **20** | 24 | 120 | 1.10 | 68.62 | 4.6 | | | |
| **22** | 26 | 108 | 1.25 | 61.80 | 4.7 | | | |
| **25** | 30 | 97 | 1.35 | 55.64 | 4.8 | | | |
| **28** | 34 | 85 | 1.55 | 48.69 | 4.9 | | | |
| **31** | 37 | 76 | 1.75 | 43.83 | 5.0 | | | |
| **37** | 44 | 65 | 2.00 | 37.52 | 5.1 | | | |
| **41** | 49 | 59 | 2.25 | 33.78 | 5.1 | | | |
| **43** | 52 | 55 | 1.00 | 31.79 | ** | | | |
| **47** | 56 | 51 | 2.55 | 29.32 | 5.1 | | | |
| **52** | 62 | 46 | 2.85 | 26.39 | 5.2 | | | |
| **55** | 66 | 43 | 1.95 | 24.76 | 5.2 | | | |
| **63** | 76 | 38 | 3.45 | 21.89 | 5.2 | | | |
| **68** | 82 | 35 | 2.40 | 20.08 | 5.2 | | | |
| **70** | 84 | 34 | 3.80 | 19.70 | 5.2 | | | |
| **83** | 100 | 29 | 4.55 | 16.48 | 5.2 | | | |
| **87** | 104 | 28 | 3.05 | 15.82 | 5.2 | | | |
| **92** | 110 | 26 | 5.05 | 14.84 | 5.1 | | | |
| **112** | 134 | 21 | 4.00 | 12.19 | 4.8 | | | |
| **113** | 136 | 21 | 6.20 | 12.09 | 4.8 | | | |
| **126** | 151 | 19 | 6.85 | 10.89 | 4.6 | | | |
| **144** | 173 | 17 | 5.10 | 9.52 | 4.4 | | | |
| **193** | 232 | 12 | 6.80 | 7.11 | 4.0 | | | |
| **256** | 307 | 9 | 9.05 | 5.35 | 3.6 | | | |
| **349** | 419 | 7 | 10.60 | 3.93 | 3.2 | | | |



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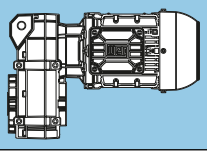
*** ... on request*

| $P_N$ = 0.37 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 0.37 kW $n_{50}$ min$^{-1}$ | 60 Hz 0.44 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **2.4** | 2.9 | 1480 | 1.05 | 385.37 | 12.6 | **FH073-11N-80-06E FO073-11N-80-06E** | 62 | 142 |
| **3.0** | 3.6 | 1173 | 1.30 | 305.42 | 16.0 | | | |
| **3.9** | 4.7 | 911 | 1.65 | 237.15 | 17.9 | | | |
| **4.7** | 5.6 | 747 | 2.05 | 194.58 | 18.8 | | | |
| **6.1** | 7.3 | 579 | 2.60 | 150.69 | 19.5 | | | |
| **3.4** | 4.1 | 1032 | 1.50 | 385.37 | 17.1 | **FH073-11N-71-04F FO073-11N-71-04F** | 60 | 142 |
| **4.3** | 5.2 | 818 | 1.85 | 305.42 | 18.4 | | | |
| **5.6** | 6.7 | 635 | 2.40 | 237.15 | 19.3 | | | |
| **6.8** | 8.2 | 521 | 2.90 | 194.58 | 19.7 | | | |
| **3.5** | 4.2 | 1023 | 0.85 | 266.44 | ** | **FH063-11N-80-06E FO063-11N-80-06E** | 39 | 140 |
| **3.8** | 4.6 | 938 | 0.90 | 244.32 | ** | | | |
| **4.5** | 5.4 | 794 | 1.05 | 206.59 | 10.3 | | | |
| **4.9** | 5.9 | 728 | 1.15 | 189.44 | 11.0 | | | |
| **5.4** | 6.5 | 649 | 1.30 | 169.09 | 11.7 | | | |
| **5.9** | 7.1 | 596 | 1.40 | 155.05 | 12.1 | | | |
| **7.1** | 8.5 | 500 | 1.65 | 130.15 | 12.7 | | | |
| **7.7** | 9.2 | 458 | 1.80 | 119.35 | 12.9 | | | |
| **9.4** | 11 | 378 | 2.20 | 98.34 | 13.3 | | | |
| **10** | 12 | 346 | 2.40 | 90.17 | 13.4 | | | |
| **11** | 13 | 309 | 2.70 | 80.48 | 13.6 | | | |
| **12** | 14 | 283 | 2.90 | 73.80 | 13.6 | | | |
| **3.5** | 4.2 | 1013 | 0.85 | 378.37 | ** | **FH063-11N-71-04F FO063-11N-71-04F** | 37 | 140 |
| **3.9** | 4.7 | 903 | 0.95 | 337.44 | ** | | | |
| **4.3** | 5.2 | 828 | 1.00 | 309.42 | ** | | | |
| **5.0** | 6.0 | 713 | 1.15 | 266.44 | 11.1 | | | |
| **5.4** | 6.5 | 654 | 1.30 | 244.32 | 11.6 | | | |
| **6.4** | 7.7 | 553 | 1.50 | 206.59 | 12.4 | | | |
| **7.0** | 8.4 | 507 | 1.65 | 189.44 | 12.7 | | | |
| **7.8** | 9.4 | 453 | 1.85 | 169.09 | 13.0 | | | |
| **8.5** | 10 | 415 | 2.00 | 155.05 | 13.1 | | | |
| **10** | 12 | 348 | 2.40 | 130.15 | 13.4 | | | |
| **11** | 13 | 320 | 2.60 | 119.35 | 13.5 | | | |
| **4.9** | 5.9 | 718 | 0.85 | 187.00 | ** | **FH053-11N-80-06E FO053-11N-80-06E** | 23 | 138 |
| **5.4** | 6.5 | 656 | 0.95 | 170.85 | ** | | | |
| **6.3** | 7.6 | 561 | 1.10 | 146.10 | 4.3 | | | |
| **6.9** | 8.3 | 513 | 1.20 | 133.49 | 5.6 | | | |
| **8.4** | 10 | 419 | 1.45 | 109.08 | 7.2 | | | |
| **9.2** | 11 | 383 | 1.60 | 99.66 | 7.7 | | | |
| **11** | 13 | 316 | 1.95 | 82.13 | 8.4 | | | |
| **12** | 14 | 288 | 2.10 | 75.04 | 8.6 | | | |
| **15** | 18 | 231 | 2.60 | 60.26 | 9.1 | | | |
| **17** | 20 | 212 | 2.85 | 55.06 | 9.2 | | | |
| **4.7** | 5.6 | 753 | 0.80 | 281.41 | ** | **FH053-11N-71-04F FO053-11N-71-04F** | 21 | 138 |
| **5.4** | 6.5 | 650 | 0.95 | 242.67 | ** | | | |
| **6.0** | 7.2 | 594 | 1.05 | 221.71 | 3.1 | | | |
| **7.1** | 8.5 | 501 | 1.20 | 187.00 | 5.8 | | | |
| **7.7** | 9.2 | 457 | 1.35 | 170.85 | 6.6 | | | |
| **9.0** | 11 | 391 | 1.55 | 146.10 | 7.6 | | | |
| **9.9** | 12 | 357 | 1.70 | 133.49 | 8.0 | | | |
| **12** | 14 | 292 | 2.10 | 109.08 | 8.6 | | | |
| **13** | 16 | 267 | 2.25 | 99.66 | 8.8 | | | |
| **16** | 19 | 220 | 2.75 | 82.13 | 9.1 | | | |
| **18** | 22 | 201 | 3.00 | 75.04 | 9.2 | | | |
| **11** | 13 | 336 | 1.15 | 87.38 | 8.2 | **FH052-11N-80-06E FO052-11N-80-06E** | 23 | 138 |
| **12** | 14 | 307 | 1.15 | 79.84 | 8.5 | | | |
| **13** | 16 | 275 | 1.85 | 71.46 | 8.8 | | | |
| **14** | 17 | 251 | 1.85 | 65.29 | 8.9 | | | |
| **16** | 19 | 217 | 2.80 | 56.42 | 9.1 | | | |
| **19** | 23 | 185 | 1.15 | 48.15 | 9.3 | | | |
| **23** | 28 | 151 | 1.85 | 39.38 | 9.5 | | | |

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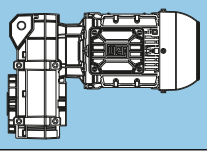
| $P_N$ = 0.37 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>0.37 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>0.44 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **15** | 18 | 234 | 1.60 | 87.38 | 9.0 | **FH052-11N-71-04F**<br>**FO052-11N-71-04F** | 21 | 138 |
| **17** | 20 | 214 | 1.60 | 79.84 | 9.2 | | | |
| **18** | 22 | 191 | 2.65 | 71.46 | 9.3 | | | |
| **20** | 24 | 175 | 2.65 | 65.29 | 9.4 | | | |
| **27** | 32 | 129 | 1.60 | 48.15 | 9.5 | | | |
| **34** | 41 | 105 | 2.65 | 39.38 | 9.6 | | | |
| **7.3** | 8.8 | 487 | 0.85 | 126.72 | ** | **FH043-11N-80-06E**<br>**FO043-11N-80-06E** | 17 | 136 |
| **8.0** | 9.6 | 444 | 0.95 | 115.60 | ** | | | |
| **9.7** | 12 | 363 | 1.15 | 94.61 | 2.4 | | | |
| **11** | 13 | 332 | 1.25 | 86.31 | 3.6 | | | |
| **13** | 16 | 274 | 1.50 | 71.24 | 5.0 | | | |
| **14** | 17 | 250 | 1.65 | 64.98 | 5.4 | | | |
| **18** | 22 | 201 | 2.00 | 52.27 | 6.0 | | | |
| **19** | 23 | 183 | 2.20 | 47.68 | 6.2 | | | |
| **6.9** | 8.3 | 514 | 0.80 | 192.00 | ** | **FH043-11N-71-04F**<br>**FO043-11N-71-04F** | 15 | 136 |
| **8.1** | 9.7 | 434 | 0.95 | 162.19 | ** | | | |
| **8.9** | 11 | 396 | 1.05 | 147.96 | ** | | | |
| **10** | 12 | 339 | 1.20 | 126.72 | 3.4 | | | |
| **11** | 13 | 309 | 1.30 | 115.60 | 4.2 | | | |
| **14** | 17 | 253 | 1.60 | 94.61 | 5.3 | | | |
| **15** | 18 | 231 | 1.75 | 86.31 | 5.6 | | | |
| **19** | 23 | 191 | 2.10 | 71.24 | 6.1 | | | |
| **20** | 24 | 174 | 2.30 | 64.98 | 6.3 | | | |
| **25** | 30 | 140 | 2.90 | 52.27 | 6.6 | | | |
| **12** | 14 | 291 | 1.15 | 75.79 | 4.6 | **FH042-11N-80-06E**<br>**FO042-11N-80-06E** | 17 | 136 |
| **13** | 16 | 266 | 1.15 | 69.14 | 5.1 | | | |
| **15** | 18 | 238 | 1.70 | 61.98 | 5.5 | | | |
| **16** | 19 | 217 | 1.85 | 56.54 | 5.8 | | | |
| **19** | 23 | 188 | 2.15 | 48.94 | 6.1 | | | |
| **21** | 25 | 172 | 2.35 | 44.64 | 6.3 | | | |
| **22** | 26 | 158 | 1.15 | 41.20 | 6.4 | | | |
| **24** | 29 | 146 | 2.75 | 37.95 | 6.5 | | | |
| **27** | 32 | 129 | 1.85 | 33.69 | 6.6 | | | |
| **17** | 20 | 203 | 1.60 | 75.79 | 6.0 | **FH042-11N-71-04F**<br>**FO042-11N-71-04F** | 15 | 136 |
| **19** | 23 | 185 | 1.60 | 69.14 | 6.2 | | | |
| **21** | 25 | 166 | 2.45 | 61.98 | 6.4 | | | |
| **23** | 28 | 151 | 2.65 | 56.54 | 6.5 | | | |
| **32** | 38 | 110 | 1.60 | 41.20 | 6.7 | | | |
| **39** | 47 | 90 | 2.65 | 33.69 | 6.8 | | | |
| **13** | 16 | 270 | 0.85 | 70.17 | ** | **FH032-11N-80-06E**<br>**FO032-11N-80-06E** | 16 | 134 |
| **14** | 17 | 244 | 0.95 | 63.63 | ** | | | |
| **16** | 19 | 219 | 1.05 | 57.07 | 1.9 | | | |
| **18** | 22 | 199 | 1.15 | 51.75 | 2.8 | | | |
| **20** | 24 | 174 | 1.30 | 45.35 | 3.5 | | | |
| **22** | 26 | 158 | 1.40 | 41.12 | 3.8 | | | |
| **26** | 31 | 135 | 1.65 | 35.03 | 4.2 | | | |
| **29** | 35 | 122 | 1.85 | 31.76 | 4.4 | | | |
| **33** | 40 | 107 | 2.05 | 27.97 | 4.6 | | | |
| **33** | 40 | 106 | 1.15 | 27.67 | 4.6 | | | |
| **36** | 43 | 97 | 2.30 | 25.36 | 4.7 | | | |
| **41** | 49 | 86 | 1.75 | 22.50 | 4.8 | | | |
| **44** | 53 | 81 | 2.75 | 21.14 | 4.8 | | | |
| **48** | 58 | 74 | 3.00 | 19.17 | 4.9 | | | |
| **51** | 61 | 69 | 2.20 | 17.88 | 4.9 | | | |
| **67** | 80 | 53 | 2.85 | 13.81 | 5.0 | | | |

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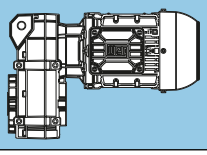
| $P_N$ = 0.37 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 0.37 kW $n_{50}$ min$^{-1}$ | 60 Hz 0.44 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **19** | 23 | 188 | 1.20 | 70.17 | 3.1 | **FH032-11N-71-04F FO032-11N-71-04F** | 14 | 134 |
| **21** | 25 | 170 | 1.30 | 63.63 | 3.6 | | | |
| **23** | 28 | 153 | 1.45 | 57.07 | 3.9 | | | |
| **26** | 31 | 139 | 1.60 | 51.75 | 4.2 | | | |
| **29** | 35 | 121 | 1.85 | 45.35 | 4.4 | | | |
| **32** | 38 | 110 | 2.00 | 41.12 | 4.6 | | | |
| **38** | 46 | 94 | 2.35 | 35.03 | 4.7 | | | |
| **42** | 50 | 85 | 2.60 | 31.76 | 4.8 | | | |
| **47** | 56 | 75 | 2.95 | 27.97 | 4.9 | | | |
| **48** | 58 | 74 | 1.65 | 27.67 | 4.9 | | | |
| **59** | 71 | 60 | 2.45 | 22.50 | 5.0 | | | |
| **21** | 25 | 168 | 0.80 | 43.83 | ** | **FH022-11N-80-06E FO022-11N-80-06E** | 13 | 132 |
| **25** | 30 | 144 | 0.95 | 37.52 | ** | | | |
| **27** | 32 | 130 | 1.05 | 33.78 | 4.4 | | | |
| **31** | 37 | 113 | 1.20 | 29.32 | 4.6 | | | |
| **35** | 42 | 101 | 1.30 | 26.39 | 4.8 | | | |
| **37** | 44 | 95 | 0.90 | 24.76 | ** | | | |
| **42** | 50 | 84 | 1.55 | 21.89 | 4.9 | | | |
| **46** | 55 | 77 | 1.10 | 20.08 | 5.0 | | | |
| **47** | 56 | 76 | 1.75 | 19.70 | 5.0 | | | |
| **56** | 67 | 63 | 2.10 | 16.48 | 5.1 | | | |
| **58** | 70 | 61 | 1.40 | 15.82 | 5.1 | | | |
| **62** | 74 | 57 | 2.30 | 14.84 | 5.1 | | | |
| **75** | 90 | 47 | 1.80 | 12.19 | 5.2 | | | |
| **76** | 91 | 46 | 2.85 | 12.09 | 5.2 | | | |
| **97** | 116 | 37 | 2.30 | 9.52 | 5.1 | | | |
| **21** | 25 | 165 | 0.80 | 61.80 | ** | **FH022-11N-71-04F FO022-11N-71-04F** | 11 | 132 |
| **24** | 29 | 149 | 0.90 | 55.64 | ** | | | |
| **27** | 32 | 130 | 1.00 | 48.69 | ** | | | |
| **30** | 36 | 117 | 1.15 | 43.83 | 4.6 | | | |
| **35** | 42 | 100 | 1.30 | 37.52 | 4.8 | | | |
| **39** | 47 | 90 | 1.45 | 33.78 | 4.9 | | | |
| **45** | 54 | 79 | 1.70 | 29.32 | 5.0 | | | |
| **50** | 60 | 71 | 1.85 | 26.39 | 5.0 | | | |
| **53** | 64 | 66 | 1.30 | 24.76 | 5.1 | | | |
| **60** | 72 | 59 | 2.25 | 21.89 | 5.1 | | | |
| **66** | 79 | 54 | 1.60 | 20.08 | 5.1 | | | |
| **67** | 80 | 53 | 2.50 | 19.70 | 5.1 | | | |
| **80** | 96 | 44 | 2.95 | 16.48 | 5.2 | | | |
| **83** | 100 | 42 | 2.00 | 15.82 | 5.2 | | | |
| **89** | 107 | 40 | 3.30 | 14.84 | 5.2 | | | |
| **108** | 130 | 33 | 2.60 | 12.19 | 4.9 | | | |
| **109** | 131 | 32 | 4.05 | 12.09 | 4.9 | | | |
| **121** | 145 | 29 | 4.50 | 10.89 | 4.7 | | | |
| **139** | 167 | 26 | 3.30 | 9.52 | 4.5 | | | |
| **186** | 223 | 19 | 4.45 | 7.11 | 4.1 | | | |
| **247** | 296 | 14 | 5.90 | 5.35 | 3.7 | | | |
| **336** | 403 | 11 | 6.90 | 3.93 | 3.3 | | | |



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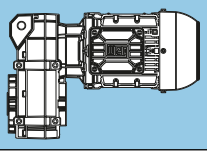
| $P_N$ = 0.55 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>0.55 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>0.66 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **3.0** | 3.6 | 1725 | 0.90 | 305.42 | ** | **FH073-11N-80-06F**<br>**FO073-11N-80-06F** | 62 | 142 |
| **3.9** | 4.7 | 1339 | 1.15 | 237.15 | 14.3 | | | |
| **4.8** | 5.8 | 1099 | 1.40 | 194.58 | 16.6 | | | |
| **6.2** | 7.4 | 851 | 1.80 | 150.69 | 18.2 | | | |
| **8.1** | 9.7 | 647 | 2.35 | 114.62 | 19.2 | | | |
| **9.8** | 12 | 534 | 2.85 | 94.52 | 19.6 | | | |
| **3.7** | 4.4 | 1431 | 1.05 | 385.37 | 13.2 | **FH073-11N-80-04E**<br>**FO073-11N-80-04E** | 62 | 142 |
| **4.6** | 5.5 | 1134 | 1.35 | 305.42 | 16.3 | | | |
| **6.0** | 7.2 | 880 | 1.75 | 237.15 | 18.1 | | | |
| **7.3** | 8.8 | 722 | 2.10 | 194.58 | 18.9 | | | |
| **9.4** | 11 | 559 | 2.70 | 150.69 | 19.5 | | | |
| **4.9** | 5.9 | 1070 | 0.80 | 189.44 | ** | **FH063-11N-80-06F**<br>**FO063-11N-80-06F** | 39 | 140 |
| **5.5** | 6.6 | 955 | 0.90 | 169.09 | ** | | | |
| **6.0** | 7.2 | 876 | 0.95 | 155.05 | ** | | | |
| **7.1** | 8.5 | 735 | 1.15 | 130.15 | 10.9 | | | |
| **7.8** | 9.4 | 674 | 1.25 | 119.35 | 11.4 | | | |
| **9.5** | 11 | 555 | 1.50 | 98.34 | 12.3 | | | |
| **10** | 12 | 509 | 1.65 | 90.17 | 12.6 | | | |
| **12** | 14 | 455 | 1.85 | 80.48 | 12.9 | | | |
| **13** | 16 | 417 | 2.00 | 73.80 | 13.1 | | | |
| **14** | 17 | 369 | 2.25 | 65.26 | 13.3 | | | |
| **16** | 19 | 338 | 2.45 | 59.84 | 13.5 | | | |
| **17** | 20 | 309 | 2.70 | 54.63 | 13.6 | | | |
| **19** | 23 | 283 | 2.90 | 50.10 | 13.6 | | | |
| **5.3** | 6.4 | 989 | 0.85 | 266.44 | ** | **FH063-11N-80-04E**<br>**FO063-11N-80-04E** | 39 | 140 |
| **5.8** | 7.0 | 907 | 0.95 | 244.32 | ** | | | |
| **6.8** | 8.2 | 767 | 1.10 | 206.59 | 10.6 | | | |
| **7.5** | 9.0 | 703 | 1.20 | 189.44 | 11.2 | | | |
| **8.4** | 10 | 628 | 1.35 | 169.09 | 11.8 | | | |
| **9.1** | 11 | 576 | 1.45 | 155.05 | 12.2 | | | |
| **11** | 13 | 483 | 1.70 | 130.15 | 12.8 | | | |
| **12** | 14 | 443 | 1.90 | 119.35 | 13.0 | | | |
| **14** | 17 | 365 | 2.25 | 98.34 | 13.4 | | | |
| **16** | 19 | 335 | 2.45 | 90.17 | 13.5 | | | |
| **18** | 22 | 299 | 2.75 | 80.48 | 13.6 | | | |
| **19** | 23 | 274 | 3.00 | 73.80 | 13.7 | | | |
| **19** | 23 | 281 | 2.95 | 49.67 | 13.6 | **FH062-11N-80-06F**<br>**FO062-11N-80-06F** | 38 | 140 |
| **7.0** | 8.4 | 754 | 0.80 | 133.49 | ** | **FH053-11N-80-06F**<br>**FO053-11N-80-06F** | 23 | 138 |
| **8.5** | 10 | 616 | 1.00 | 109.08 | ** | | | |
| **9.3** | 11 | 563 | 1.10 | 99.66 | 4.2 | | | |
| **11** | 13 | 464 | 1.30 | 82.13 | 6.5 | | | |
| **12** | 14 | 424 | 1.45 | 75.04 | 7.2 | | | |
| **15** | 18 | 340 | 1.80 | 60.26 | 8.2 | | | |
| **17** | 20 | 311 | 1.95 | 55.06 | 8.5 | | | |
| **7.6** | 9.1 | 694 | 0.90 | 187.00 | ** | **FH053-11N-80-04E**<br>**FO053-11N-80-04E** | 23 | 138 |
| **8.3** | 10 | 634 | 0.95 | 170.85 | ** | | | |
| **9.7** | 12 | 542 | 1.15 | 146.10 | 4.8 | | | |
| **11** | 13 | 496 | 1.25 | 133.49 | 5.9 | | | |
| **13** | 16 | 405 | 1.50 | 109.08 | 7.4 | | | |
| **14** | 17 | 370 | 1.65 | 99.66 | 7.9 | | | |
| **17** | 20 | 305 | 2.00 | 82.13 | 8.5 | | | |
| **19** | 23 | 279 | 2.15 | 75.04 | 8.7 | | | |
| **23** | 28 | 224 | 2.70 | 60.26 | 9.1 | | | |
| **26** | 31 | 204 | 2.95 | 55.06 | 9.2 | | | |

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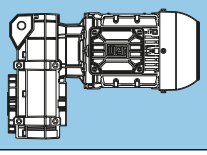
| $P_N$ = 0.55 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 0.55 kW $n_{50}$ min$^{-1}$ | 60 Hz 0.66 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **11** | 13 | 494 | 0.80 | 87.38 | ** | **FH052-11N-80-06F**<br>**FO052-11N-80-06F** | 23 | 138 |
| **12** | 14 | 451 | 0.80 | 79.84 | ** | | | |
| **13** | 16 | 404 | 1.25 | 71.46 | 7.4 | | | |
| **14** | 17 | 369 | 1.25 | 65.29 | 7.9 | | | |
| **16** | 19 | 319 | 1.90 | 56.42 | 8.4 | | | |
| **18** | 22 | 291 | 2.10 | 51.55 | 8.6 | | | |
| **19** | 23 | 272 | 0.80 | 48.15 | ** | | | |
| **21** | 25 | 247 | 2.45 | 43.75 | 9.0 | | | |
| **23** | 28 | 226 | 2.65 | 39.97 | 9.1 | | | |
| **24** | 29 | 222 | 1.25 | 39.38 | 9.1 | | | |
| **26** | 31 | 202 | 3.00 | 35.81 | 9.2 | | | |
| **30** | 36 | 176 | 2.10 | 31.09 | 9.4 | | | |
| **39** | 47 | 136 | 2.65 | 24.11 | 9.5 | | | |
| **16** | 19 | 324 | 1.15 | 87.38 | 8.3 | **FH052-11N-80-04E**<br>**FO052-11N-80-04E** | 23 | 138 |
| **18** | 22 | 296 | 1.15 | 79.84 | 8.6 | | | |
| **20** | 24 | 265 | 1.90 | 71.46 | 8.8 | | | |
| **22** | 26 | 242 | 1.90 | 65.29 | 9.0 | | | |
| **25** | 30 | 209 | 2.90 | 56.42 | 9.2 | | | |
| **29** | 35 | 179 | 1.15 | 48.15 | 9.3 | | | |
| **36** | 43 | 146 | 1.90 | 39.38 | 9.5 | | | |
| **11** | 13 | 488 | 0.85 | 86.31 | ** | **FH043-11N-80-06F**<br>**FO043-11N-80-06F** | 17 | 136 |
| **13** | 16 | 402 | 1.00 | 71.24 | ** | | | |
| **14** | 17 | 367 | 1.10 | 64.98 | 2.2 | | | |
| **18** | 22 | 295 | 1.40 | 52.27 | 4.5 | | | |
| **20** | 24 | 269 | 1.50 | 47.68 | 5.0 | | | |
| **11** | 13 | 470 | 0.90 | 126.72 | ** | **FH043-11N-80-04E**<br>**FO043-11N-80-04E** | 17 | 136 |
| **12** | 14 | 429 | 0.95 | 115.60 | ** | | | |
| **15** | 18 | 351 | 1.15 | 94.61 | 2.9 | | | |
| **16** | 19 | 320 | 1.25 | 86.31 | 3.9 | | | |
| **20** | 24 | 264 | 1.55 | 71.24 | 5.1 | | | |
| **22** | 26 | 241 | 1.70 | 64.98 | 5.5 | | | |
| **27** | 32 | 194 | 2.10 | 52.27 | 6.1 | | | |
| **30** | 36 | 177 | 2.30 | 47.68 | 6.3 | | | |
| **12** | 14 | 428 | 0.80 | 75.79 | ** | **FH042-11N-80-06F**<br>**FO042-11N-80-06F** | 17 | 136 |
| **13** | 16 | 391 | 0.80 | 69.14 | ** | | | |
| **15** | 18 | 350 | 1.15 | 61.98 | 3.0 | | | |
| **16** | 19 | 319 | 1.25 | 56.54 | 4.0 | | | |
| **19** | 23 | 276 | 1.45 | 48.94 | 4.9 | | | |
| **21** | 25 | 252 | 1.60 | 44.64 | 5.3 | | | |
| **23** | 28 | 233 | 0.80 | 41.20 | ** | | | |
| **25** | 30 | 214 | 1.90 | 37.95 | 5.9 | | | |
| **27** | 32 | 196 | 2.05 | 34.62 | 6.1 | | | |
| **28** | 34 | 190 | 1.25 | 33.69 | 6.1 | | | |
| **30** | 36 | 175 | 2.30 | 31.06 | 6.3 | | | |
| **33** | 40 | 160 | 2.50 | 28.33 | 6.4 | | | |
| **35** | 42 | 150 | 2.10 | 26.60 | 6.5 | | | |
| **39** | 47 | 135 | 3.00 | 23.91 | 6.6 | | | |
| **45** | 54 | 117 | 2.65 | 20.63 | 6.7 | | | |
| **19** | 23 | 281 | 1.15 | 75.79 | 4.8 | **FH042-11N-80-04E**<br>**FO042-11N-80-04E** | 17 | 136 |
| **20** | 24 | 257 | 1.15 | 69.14 | 5.3 | | | |
| **23** | 28 | 230 | 1.75 | 61.98 | 5.7 | | | |
| **25** | 30 | 210 | 1.90 | 56.54 | 5.9 | | | |
| **29** | 35 | 182 | 2.25 | 48.94 | 6.2 | | | |
| **32** | 38 | 166 | 2.45 | 44.64 | 6.4 | | | |
| **34** | 41 | 153 | 1.15 | 41.20 | 6.5 | | | |
| **37** | 44 | 141 | 2.85 | 37.95 | 6.5 | | | |
| **42** | 50 | 125 | 1.90 | 33.69 | 6.7 | | | |



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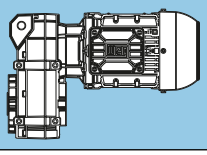
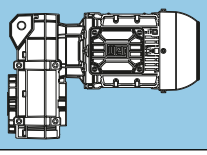
| $P_N$ = 0.55 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 0.55 kW $n_{50}$ min$^{-1}$ | 60 Hz 0.66 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **18** | 22 | 292 | 0.80 | 51.75 | ** | **FH032-11N-80-06F FO032-11N-80-06F** | 16 | 134 |
| **21** | 25 | 256 | 0.90 | 45.35 | ** | | | |
| **23** | 28 | 232 | 0.95 | 41.12 | ** | | | |
| **27** | 32 | 198 | 1.15 | 35.03 | 2.8 | | | |
| **29** | 35 | 179 | 1.25 | 31.76 | 3.3 | | | |
| **33** | 40 | 158 | 1.40 | 27.97 | 3.8 | | | |
| **34** | 41 | 156 | 0.80 | 27.67 | ** | | | |
| **37** | 44 | 143 | 1.55 | 25.36 | 4.1 | | | |
| **41** | 49 | 127 | 1.20 | 22.50 | 4.3 | | | |
| **44** | 53 | 119 | 1.85 | 21.14 | 4.4 | | | |
| **49** | 59 | 108 | 2.05 | 19.17 | 4.6 | | | |
| **52** | 62 | 101 | 1.50 | 17.88 | 4.7 | | | |
| **58** | 70 | 91 | 2.45 | 16.06 | 4.8 | | | |
| **64** | 77 | 82 | 2.65 | 14.57 | 4.8 | | | |
| **67** | 80 | 78 | 1.95 | 13.81 | 4.9 | | | |
| **74** | 89 | 71 | 2.90 | 12.50 | 4.9 | | | |
| **84** | 101 | 62 | 2.45 | 11.03 | 5.0 | | | |
| **20** | 24 | 261 | 0.85 | 70.17 | ** | **FH032-11N-80-04E FO032-11N-80-04E** | 15 | 134 |
| **22** | 26 | 236 | 0.95 | 63.63 | ** | | | |
| **25** | 30 | 212 | 1.05 | 57.07 | 2.3 | | | |
| **27** | 32 | 192 | 1.15 | 51.75 | 3.0 | | | |
| **31** | 37 | 168 | 1.35 | 45.35 | 3.6 | | | |
| **34** | 41 | 153 | 1.45 | 41.12 | 3.9 | | | |
| **40** | 48 | 130 | 1.70 | 35.03 | 4.3 | | | |
| **45** | 54 | 118 | 1.90 | 31.76 | 4.5 | | | |
| **51** | 61 | 104 | 2.15 | 27.97 | 4.6 | | | |
| **51** | 61 | 103 | 1.20 | 27.67 | 4.6 | | | |
| **56** | 67 | 94 | 2.35 | 25.36 | 4.7 | | | |
| **63** | 76 | 84 | 1.80 | 22.50 | 4.8 | | | |
| **67** | 80 | 79 | 2.85 | 21.14 | 4.9 | | | |
| **79** | 95 | 66 | 2.30 | 17.88 | 4.9 | | | |
| **102** | 122 | 51 | 2.95 | 13.81 | 5.0 | | | |
| **32** | 38 | 166 | 0.80 | 29.32 | ** | **FH022-11N-80-06F FO022-11N-80-06F** | 13 | 132 |
| **35** | 42 | 149 | 0.90 | 26.39 | ** | | | |
| **42** | 50 | 124 | 1.10 | 21.89 | 4.5 | | | |
| **47** | 56 | 111 | 1.20 | 19.70 | 4.7 | | | |
| **56** | 67 | 93 | 1.40 | 16.48 | 4.8 | | | |
| **59** | 71 | 89 | 0.95 | 15.82 | ** | | | |
| **63** | 76 | 84 | 1.60 | 14.84 | 4.9 | | | |
| **76** | 91 | 69 | 1.25 | 12.19 | 5.0 | | | |
| **77** | 92 | 68 | 1.95 | 12.09 | 5.0 | | | |
| **85** | 102 | 62 | 2.15 | 10.89 | 5.1 | | | |
| **98** | 118 | 54 | 1.60 | 9.52 | 5.1 | | | |
| **131** | 157 | 40 | 2.10 | 7.11 | 4.7 | | | |
| **174** | 209 | 30 | 2.80 | 5.35 | 4.2 | | | |
| **32** | 38 | 163 | 0.80 | 43.83 | ** | **FH022-11N-80-04E FO022-11N-80-04E** | 13 | 132 |
| **38** | 46 | 139 | 0.95 | 37.52 | ** | | | |
| **42** | 50 | 125 | 1.05 | 33.78 | 4.5 | | | |
| **48** | 58 | 109 | 1.20 | 29.32 | 4.7 | | | |
| **54** | 65 | 98 | 1.35 | 26.39 | 4.8 | | | |
| **57** | 68 | 92 | 0.95 | 24.76 | ** | | | |
| **65** | 78 | 81 | 1.65 | 21.89 | 5.0 | | | |
| **70** | 84 | 75 | 1.15 | 20.08 | 5.0 | | | |
| **72** | 86 | 73 | 1.80 | 19.70 | 5.0 | | | |
| **86** | 103 | 61 | 2.15 | 16.48 | 5.1 | | | |
| **89** | 107 | 59 | 1.45 | 15.82 | 5.1 | | | |
| **95** | 114 | 55 | 2.40 | 14.84 | 5.1 | | | |
| **116** | 139 | 45 | 1.90 | 12.19 | 4.9 | | | |
| **117** | 140 | 45 | 2.90 | 12.09 | 4.9 | | | |
| **130** | 156 | 40 | 3.25 | 10.89 | 4.7 | | | |
| **149** | 179 | 35 | 2.40 | 9.52 | 4.5 | | | |
| **199** | 239 | 26 | 3.20 | 7.11 | 4.0 | | | |
| **264** | 317 | 20 | 4.25 | 5.35 | 3.6 | | | |
| **360** | 432 | 15 | 4.95 | 3.93 | 3.2 | | | |

| $P_N$ = 0.75 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 0.75 kW $n_{50}$ min$^{-1}$ | 60 Hz 0.90 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **4.0** | 4.8 | 1807 | 0.85 | 237.15 | ** | **FH073-11P-90S/L-06E**<br>**FO073-11P-90S/L-06E** | 73 | 142 |
| **4.8** | 5.8 | 1483 | 1.05 | 194.58 | 12.5 | | | |
| **6.2** | 7.4 | 1148 | 1.35 | 150.69 | 16.2 | | | |
| **8.2** | 9.8 | 873 | 1.75 | 114.62 | 18.1 | | | |
| **9.9** | 12 | 720 | 2.10 | 94.52 | 18.9 | | | |
| **12** | 14 | 591 | 2.55 | 77.53 | 19.4 | | | |
| **14** | 17 | 502 | 3.00 | 65.88 | 19.7 | | | |
| **3.7** | 4.4 | 1944 | 0.80 | 385.37 | ** | **FH073-11P-80-04F**<br>**FO073-11P-80-04F** | 64 | 142 |
| **4.6** | 5.5 | 1541 | 1.00 | 305.42 | ** | | | |
| **6.0** | 7.2 | 1196 | 1.30 | 237.15 | 15.8 | | | |
| **7.3** | 8.8 | 982 | 1.55 | 194.58 | 17.4 | | | |
| **9.4** | 11 | 760 | 2.00 | 150.69 | 18.7 | | | |
| **12** | 14 | 578 | 2.60 | 114.62 | 19.5 | | | |
| **7.2** | 8.6 | 992 | 0.85 | 130.15 | ** | **FH063-11P-90S/L-06E**<br>**FO063-11P-90S/L-06E** | 50 | 140 |
| **7.9** | 9.5 | 909 | 0.95 | 119.35 | ** | | | |
| **9.6** | 12 | 749 | 1.10 | 98.34 | 10.7 | | | |
| **10** | 12 | 687 | 1.20 | 90.17 | 11.3 | | | |
| **12** | 14 | 613 | 1.35 | 80.48 | 11.9 | | | |
| **13** | 16 | 562 | 1.50 | 73.80 | 12.3 | | | |
| **14** | 17 | 497 | 1.65 | 65.26 | 12.7 | | | |
| **16** | 19 | 456 | 1.80 | 59.84 | 12.9 | | | |
| **17** | 20 | 416 | 2.00 | 54.63 | 13.1 | | | |
| **19** | 23 | 382 | 2.15 | 50.10 | 13.3 | | | |
| **6.9** | 8.3 | 1042 | 0.80 | 206.59 | ** | **FH063-11P-80-04F**<br>**FO063-11P-80-04F** | 41 | 140 |
| **7.5** | 9.0 | 956 | 0.90 | 189.44 | ** | | | |
| **8.4** | 10 | 853 | 1.00 | 169.09 | ** | | | |
| **9.2** | 11 | 782 | 1.05 | 155.05 | 10.4 | | | |
| **11** | 13 | 657 | 1.25 | 130.15 | 11.6 | | | |
| **12** | 14 | 602 | 1.40 | 119.35 | 12.0 | | | |
| **14** | 17 | 496 | 1.70 | 98.34 | 12.7 | | | |
| **16** | 19 | 455 | 1.85 | 90.17 | 12.9 | | | |
| **18** | 22 | 406 | 2.05 | 80.48 | 13.2 | | | |
| **19** | 23 | 372 | 2.25 | 73.80 | 13.3 | | | |
| **22** | 26 | 329 | 2.50 | 65.26 | 13.5 | | | |
| **24** | 29 | 302 | 2.75 | 59.84 | 13.6 | | | |
| **26** | 31 | 276 | 3.00 | 54.63 | 13.7 | | | |
| **19** | 23 | 379 | 2.20 | 49.67 | 13.3 | **FH062-11P-90S/L-06E**<br>**FO062-11P-90S/L-06E** | 49 | 140 |
| **21** | 25 | 347 | 2.40 | 45.55 | 13.4 | | | |
| **23** | 28 | 317 | 2.60 | 41.66 | 13.5 | | | |
| **25** | 30 | 291 | 2.85 | 38.20 | 13.6 | | | |
| **46** | 55 | 156 | 2.75 | 20.49 | 13.9 | | | |
| **9.4** | 11 | 759 | 0.80 | 99.66 | ** | **FH053-11P-90S/L-06E**<br>**FO053-11P-90S/L-06E** | 33 | 138 |
| **11** | 13 | 626 | 1.00 | 82.13 | ** | | | |
| **13** | 16 | 572 | 1.05 | 75.04 | 3.9 | | | |
| **16** | 19 | 459 | 1.35 | 60.26 | 6.6 | | | |
| **17** | 20 | 420 | 1.45 | 55.06 | 7.2 | | | |
| **9.7** | 12 | 737 | 0.85 | 146.10 | ** | **FH053-11P-80-04F**<br>**FO053-11P-80-04F** | 24 | 138 |
| **11** | 13 | 673 | 0.90 | 133.49 | ** | | | |
| **13** | 16 | 550 | 1.10 | 109.08 | 4.6 | | | |
| **14** | 17 | 503 | 1.20 | 99.66 | 5.8 | | | |
| **17** | 20 | 414 | 1.45 | 82.13 | 7.3 | | | |
| **19** | 23 | 379 | 1.60 | 75.04 | 7.8 | | | |
| **24** | 29 | 304 | 2.00 | 60.26 | 8.5 | | | |
| **26** | 31 | 278 | 2.15 | 55.06 | 8.7 | | | |

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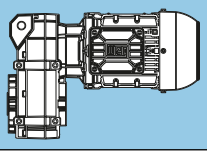
| $P_N$ = 0.75 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 0.75 kW $n_{50}$ min$^{-1}$ | 60 Hz 0.90 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **13** | 16 | 545 | 0.95 | 71.46 | ** | **FH052-11P-90S/L-06E**<br>**FO052-11P-90S/L-06E** | 33 | 138 |
| **14** | 17 | 498 | 0.95 | 65.29 | ** | | | |
| **17** | 20 | 430 | 1.40 | 56.42 | 7.1 | | | |
| **18** | 22 | 393 | 1.55 | 51.55 | 7.6 | | | |
| **21** | 25 | 333 | 1.80 | 43.75 | 8.2 | | | |
| **24** | 29 | 300 | 0.95 | 39.38 | ** | | | |
| **24** | 29 | 305 | 2.00 | 39.97 | 8.5 | | | |
| **26** | 31 | 273 | 2.20 | 35.81 | 8.8 | | | |
| **29** | 35 | 249 | 2.40 | 32.72 | 8.9 | | | |
| **30** | 36 | 237 | 1.55 | 31.09 | 9.0 | | | |
| **34** | 41 | 210 | 2.90 | 27.56 | 9.2 | | | |
| **39** | 47 | 184 | 2.00 | 24.11 | 9.3 | | | |
| **48** | 58 | 150 | 2.40 | 19.73 | 9.5 | | | |
| **16** | 19 | 441 | 0.85 | 87.38 | ** | **FH052-11P-80-04F**<br>**FO052-11P-80-04F** | 24 | 138 |
| **18** | 22 | 403 | 0.85 | 79.84 | ** | | | |
| **20** | 24 | 360 | 1.40 | 71.46 | 8.0 | | | |
| **22** | 26 | 329 | 1.40 | 65.29 | 8.3 | | | |
| **25** | 30 | 285 | 2.15 | 56.42 | 8.7 | | | |
| **28** | 34 | 260 | 2.30 | 51.55 | 8.9 | | | |
| **29** | 35 | 243 | 0.85 | 48.15 | ** | | | |
| **32** | 38 | 221 | 2.75 | 43.75 | 9.1 | | | |
| **36** | 43 | 202 | 3.00 | 39.97 | 9.2 | | | |
| **36** | 43 | 199 | 1.40 | 39.38 | 9.2 | | | |
| **46** | 55 | 157 | 2.30 | 31.09 | 9.4 | | | |
| **59** | 71 | 122 | 3.00 | 24.11 | 9.6 | | | |
| **14** | 17 | 495 | 0.85 | 64.98 | ** | **FH043-11P-90S/L-06E**<br>**FO043-11P-90S/L-06E** | 28 | 136 |
| **18** | 22 | 398 | 1.05 | 52.27 | ** | | | |
| **20** | 24 | 363 | 1.15 | 47.68 | 2.4 | | | |
| **15** | 18 | 477 | 0.85 | 94.61 | ** | **FH043-11P-80-04F**<br>**FO043-11P-80-04F** | 19 | 136 |
| **16** | 19 | 435 | 0.95 | 86.31 | ** | | | |
| **20** | 24 | 359 | 1.15 | 71.24 | 2.6 | | | |
| **22** | 26 | 328 | 1.25 | 64.98 | 3.7 | | | |
| **27** | 32 | 264 | 1.55 | 52.27 | 5.1 | | | |
| **30** | 36 | 241 | 1.70 | 47.68 | 5.5 | | | |
| **15** | 18 | 472 | 0.85 | 61.98 | ** | **FH042-11P-90S/L-06E**<br>**FO042-11P-90S/L-06E** | 28 | 136 |
| **17** | 20 | 431 | 0.95 | 56.54 | ** | | | |
| **19** | 23 | 373 | 1.10 | 48.94 | 1.9 | | | |
| **21** | 25 | 340 | 1.20 | 44.64 | 3.3 | | | |
| **25** | 30 | 289 | 1.40 | 37.95 | 4.7 | | | |
| **27** | 32 | 264 | 1.55 | 34.62 | 5.1 | | | |
| **28** | 34 | 257 | 0.95 | 33.69 | ** | | | |
| **30** | 36 | 237 | 1.70 | 31.06 | 5.6 | | | |
| **33** | 40 | 216 | 1.90 | 28.33 | 5.8 | | | |
| **35** | 42 | 203 | 1.55 | 26.60 | 6.0 | | | |
| **39** | 47 | 182 | 2.20 | 23.91 | 6.2 | | | |
| **43** | 52 | 166 | 2.45 | 21.81 | 6.4 | | | |
| **46** | 55 | 157 | 2.00 | 20.63 | 6.4 | | | |
| **52** | 62 | 138 | 2.95 | 18.06 | 6.6 | | | |
| **56** | 67 | 129 | 2.40 | 16.88 | 6.6 | | | |
| **19** | 23 | 382 | 0.85 | 75.79 | ** | **FH042-11P-80-04F**<br>**FO042-11P-80-04F** | 19 | 136 |
| **21** | 25 | 349 | 0.85 | 69.14 | ** | | | |
| **23** | 28 | 313 | 1.30 | 61.98 | 4.1 | | | |
| **25** | 30 | 285 | 1.40 | 56.54 | 4.7 | | | |
| **29** | 35 | 247 | 1.65 | 48.94 | 5.4 | | | |
| **32** | 38 | 225 | 1.80 | 44.64 | 5.7 | | | |
| **34** | 41 | 208 | 0.85 | 41.20 | ** | | | |
| **37** | 44 | 191 | 2.10 | 37.95 | 6.1 | | | |
| **41** | 49 | 175 | 2.30 | 34.62 | 6.3 | | | |
| **42** | 50 | 170 | 1.40 | 33.69 | 6.3 | | | |
| **46** | 55 | 157 | 2.60 | 31.06 | 6.4 | | | |
| **50** | 60 | 143 | 2.80 | 28.33 | 6.5 | | | |
| **53** | 64 | 134 | 2.30 | 26.60 | 6.6 | | | |
| **69** | 83 | 104 | 3.00 | 20.63 | 6.8 | | | |

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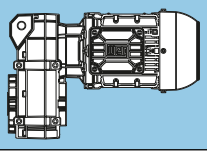
| $P_N$ = 0.75 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 0.75 kW $n_{50}$ min$^{-1}$ | 60 Hz 0.90 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **27** | 32 | 267 | 0.85 | 35.03 | ** | **FH032-11P-90S/L-06E**<br>**FO032-11P-90S/L-06E** | 26 | 134 |
| **30** | 36 | 242 | 0.95 | 31.76 | ** | | | |
| **34** | 41 | 213 | 1.05 | 27.97 | 2.2 | | | |
| **37** | 44 | 193 | 1.15 | 25.36 | 3.0 | | | |
| **42** | 50 | 171 | 0.90 | 22.50 | ** | | | |
| **44** | 53 | 161 | 1.40 | 21.14 | 3.8 | | | |
| **49** | 59 | 146 | 1.55 | 19.17 | 4.0 | | | |
| **53** | 64 | 136 | 1.15 | 17.88 | 4.2 | | | |
| **59** | 71 | 122 | 1.80 | 16.06 | 4.4 | | | |
| **65** | 78 | 111 | 1.95 | 14.57 | 4.5 | | | |
| **68** | 82 | 105 | 1.45 | 13.81 | 4.6 | | | |
| **75** | 90 | 95 | 2.15 | 12.50 | 4.7 | | | |
| **83** | 100 | 86 | 2.30 | 11.33 | 4.8 | | | |
| **85** | 102 | 84 | 1.80 | 11.03 | 4.8 | | | |
| **96** | 115 | 74 | 2.55 | 9.76 | 4.9 | | | |
| **106** | 127 | 67 | 2.70 | 8.85 | 4.9 | | | |
| **113** | 136 | 64 | 2.40 | 8.33 | 5.0 | | | |
| **148** | 178 | 48 | 2.95 | 6.33 | 5.0 | | | |
| **25** | 30 | 288 | 0.80 | 57.07 | ** | **FH032-11P-80-04F**<br>**FO032-11P-80-04F** | 17 | 134 |
| **27** | 32 | 261 | 0.85 | 51.75 | ** | | | |
| **31** | 37 | 229 | 1.00 | 45.35 | ** | | | |
| **35** | 42 | 207 | 1.10 | 41.12 | 2.5 | | | |
| **41** | 49 | 177 | 1.25 | 35.03 | 3.4 | | | |
| **45** | 54 | 160 | 1.40 | 31.76 | 3.8 | | | |
| **51** | 61 | 141 | 1.60 | 27.97 | 4.1 | | | |
| **51** | 61 | 140 | 0.90 | 27.67 | ** | | | |
| **56** | 67 | 128 | 1.75 | 25.36 | 4.3 | | | |
| **63** | 76 | 114 | 1.30 | 22.50 | 4.5 | | | |
| **67** | 80 | 107 | 2.10 | 21.14 | 4.6 | | | |
| **74** | 89 | 97 | 2.30 | 19.17 | 4.7 | | | |
| **79** | 95 | 90 | 1.70 | 17.88 | 4.8 | | | |
| **88** | 106 | 81 | 2.75 | 16.06 | 4.8 | | | |
| **97** | 116 | 74 | 2.95 | 14.57 | 4.9 | | | |
| **103** | 124 | 70 | 2.20 | 13.81 | 4.9 | | | |
| **129** | 155 | 56 | 2.70 | 11.03 | 5.0 | | | |
| **43** | 52 | 167 | 0.80 | 21.89 | ** | **FH022-11P-90S/L-06E**<br>**FO022-11P-90S/L-06E** | 24 | 132 |
| **48** | 58 | 150 | 0.90 | 19.70 | ** | | | |
| **57** | 68 | 126 | 1.05 | 16.48 | 4.5 | | | |
| **63** | 76 | 113 | 1.20 | 14.84 | 4.6 | | | |
| **77** | 92 | 93 | 0.95 | 12.19 | ** | | | |
| **78** | 94 | 92 | 1.45 | 12.09 | 4.9 | | | |
| **86** | 103 | 83 | 1.60 | 10.89 | 4.9 | | | |
| **99** | 119 | 73 | 1.20 | 9.52 | 5.0 | | | |
| **132** | 158 | 54 | 1.55 | 7.11 | 4.8 | | | |
| **176** | 211 | 41 | 2.10 | 5.35 | 4.3 | | | |
| **239** | 287 | 30 | 2.45 | 3.93 | 3.8 | | | |
| **42** | 50 | 170 | 0.80 | 33.78 | ** | **FH022-11P-80-04F**<br>**FO022-11P-80-04F** | 15 | 132 |
| **48** | 58 | 148 | 0.90 | 29.32 | ** | | | |
| **54** | 65 | 133 | 1.00 | 26.39 | ** | | | |
| **65** | 78 | 110 | 1.20 | 21.89 | 4.7 | | | |
| **71** | 85 | 101 | 0.85 | 20.08 | ** | | | |
| **72** | 86 | 99 | 1.35 | 19.70 | 4.8 | | | |
| **86** | 103 | 83 | 1.60 | 16.48 | 4.9 | | | |
| **90** | 108 | 80 | 1.10 | 15.82 | 5.0 | | | |
| **96** | 115 | 75 | 1.75 | 14.84 | 5.0 | | | |
| **116** | 139 | 62 | 1.40 | 12.19 | 5.0 | | | |
| **117** | 140 | 61 | 2.15 | 12.09 | 5.0 | | | |
| **130** | 156 | 55 | 2.40 | 10.89 | 4.8 | | | |
| **149** | 179 | 48 | 1.75 | 9.52 | 4.5 | | | |
| **200** | 240 | 36 | 2.35 | 7.11 | 4.1 | | | |
| **265** | 318 | 27 | 3.15 | 5.35 | 3.7 | | | |
| **361** | 433 | 20 | 3.65 | 3.93 | 3.3 | | | |

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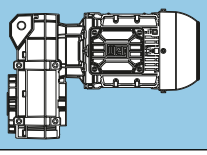
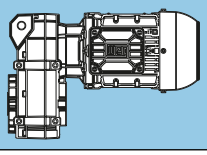
| $P_N$ = 1.1 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>1.1 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>1.3 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **6.1** | 7.3 | 1712 | 0.90 | 237.15 | ** | **FH073-11P-90S/L-04E**<br>**FO073-11P-90S/L-04E** | 70 | 142 |
| **7.5** | 9.0 | 1405 | 1.10 | 194.58 | 13.6 | | | |
| **9.7** | 12 | 1088 | 1.40 | 150.69 | 16.7 | | | |
| **13** | 16 | 828 | 1.85 | 114.62 | 18.4 | | | |
| **15** | 18 | 682 | 2.20 | 94.52 | 19.1 | | | |
| **19** | 23 | 560 | 2.70 | 77.53 | 19.5 | | | |
| **6.3** | 7.6 | 1675 | 0.90 | 150.69 | ** | **FH073-11P-100L-06D**<br>**FO073-11P-100L-06D** | 81 | 142 |
| **8.2** | 9.8 | 1274 | 1.20 | 114.62 | 15.0 | | | |
| **10** | 12 | 1051 | 1.45 | 94.52 | 17.0 | | | |
| **12** | 14 | 862 | 1.75 | 77.53 | 18.2 | | | |
| **14** | 17 | 732 | 2.05 | 65.88 | 18.8 | | | |
| **17** | 20 | 602 | 2.50 | 54.16 | 19.4 | | | |
| **21** | 25 | 501 | 3.00 | 45.02 | 19.7 | **FH072-11P-100L-06D**<br>**FO072-11P-100L-06D** | 80 | 142 |
| **11** | 13 | 940 | 0.90 | 130.15 | ** | **FH063-11P-90S/L-04E**<br>**FO063-11P-90S/L-04E** | 47 | 140 |
| **12** | 14 | 862 | 1.00 | 119.35 | ** | | | |
| **15** | 18 | 710 | 1.20 | 98.34 | 11.1 | | | |
| **16** | 19 | 651 | 1.30 | 90.17 | 11.6 | | | |
| **18** | 22 | 581 | 1.45 | 80.48 | 12.2 | | | |
| **20** | 24 | 533 | 1.55 | 73.80 | 12.5 | | | |
| **22** | 26 | 471 | 1.75 | 65.26 | 12.9 | | | |
| **24** | 29 | 432 | 1.90 | 59.84 | 13.1 | | | |
| **27** | 32 | 394 | 2.10 | 54.63 | 13.2 | | | |
| **29** | 35 | 362 | 2.30 | 50.10 | 13.4 | | | |
| **9.6** | 12 | 1093 | 0.80 | 98.34 | ** | **FH063-11P-100L-06D**<br>**FO063-11P-100L-06D** | 58 | 140 |
| **10** | 12 | 1002 | 0.85 | 90.17 | ** | | | |
| **12** | 14 | 895 | 0.95 | 80.48 | ** | | | |
| **13** | 16 | 820 | 1.00 | 73.80 | ** | | | |
| **14** | 17 | 726 | 1.15 | 65.26 | 11.0 | | | |
| **16** | 19 | 665 | 1.25 | 59.84 | 11.5 | | | |
| **17** | 20 | 607 | 1.40 | 54.63 | 12.0 | | | |
| **19** | 23 | 557 | 1.50 | 50.10 | 12.3 | | | |
| **29** | 35 | 359 | 2.30 | 49.67 | 13.4 | **FH062-11P-90S/L-04E**<br>**FO062-11P-90S/L-04E** | 46 | 140 |
| **32** | 38 | 329 | 2.50 | 45.55 | 13.5 | | | |
| **35** | 42 | 301 | 2.75 | 41.66 | 13.6 | | | |
| **38** | 46 | 276 | 3.00 | 38.20 | 13.7 | | | |
| **71** | 85 | 148 | 2.90 | 20.49 | 14.0 | | | |
| **19** | 23 | 552 | 1.50 | 49.67 | 12.4 | **FH062-11P-100L-06D**<br>**FO062-11P-100L-06D** | 57 | 140 |
| **21** | 25 | 506 | 1.65 | 45.55 | 12.7 | | | |
| **23** | 28 | 463 | 1.80 | 41.66 | 12.9 | | | |
| **25** | 30 | 425 | 1.95 | 38.20 | 13.1 | | | |
| **29** | 35 | 363 | 2.30 | 32.69 | 13.4 | | | |
| **32** | 38 | 333 | 2.50 | 29.98 | 13.5 | | | |
| **37** | 44 | 281 | 2.95 | 25.23 | 13.6 | | | |
| **46** | 55 | 228 | 1.90 | 20.49 | 13.8 | | | |
| **55** | 66 | 191 | 3.00 | 17.18 | 13.9 | | | |
| **13** | 16 | 788 | 0.80 | 109.08 | ** | **FH053-11P-90S/L-04E**<br>**FO053-11P-90S/L-04E** | 31 | 138 |
| **15** | 18 | 720 | 0.85 | 99.66 | ** | | | |
| **18** | 22 | 593 | 1.05 | 82.13 | 3.1 | | | |
| **19** | 23 | 542 | 1.15 | 75.04 | 4.9 | | | |
| **24** | 29 | 435 | 1.40 | 60.26 | 7.0 | | | |
| **26** | 31 | 398 | 1.55 | 55.06 | 7.5 | | | |
| **20** | 24 | 516 | 1.00 | 71.46 | ** | **FH052-11P-90S/L-04E**<br>**FO052-11P-90S/L-04E** | 31 | 138 |
| **22** | 26 | 471 | 1.00 | 65.29 | ** | | | |
| **26** | 31 | 407 | 1.50 | 56.42 | 7.4 | | | |
| **28** | 34 | 372 | 1.65 | 51.55 | 7.8 | | | |
| **33** | 40 | 316 | 1.90 | 43.75 | 8.4 | | | |
| **36** | 43 | 289 | 2.10 | 39.97 | 8.6 | | | |
| **37** | 44 | 284 | 1.00 | 39.38 | ** | | | |
| **41** | 49 | 259 | 2.35 | 35.81 | 8.9 | | | |
| **44** | 53 | 236 | 2.55 | 32.72 | 9.0 | | | |
| **47** | 56 | 225 | 1.65 | 31.09 | 9.1 | | | |
| **60** | 72 | 174 | 2.10 | 24.11 | 9.4 | | | |
| **74** | 89 | 143 | 2.55 | 19.73 | 9.5 | | | |

| $P_N$ = 1.1 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 1.1 kW $n_{50}$ min$^{-1}$ | 60 Hz 1.3 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **17** | 20 | 627 | 1.00 | 56.42 | ** | **FH052-11P-100L-06D FO052-11P-100L-06D** | 42 | 138 |
| **18** | 22 | 573 | 1.05 | 51.55 | 3.9 | | | |
| **22** | 26 | 486 | 1.25 | 43.75 | 6.1 | | | |
| **24** | 29 | 444 | 1.35 | 39.97 | 6.9 | | | |
| **26** | 31 | 398 | 1.55 | 35.81 | 7.5 | | | |
| **29** | 35 | 364 | 1.65 | 32.72 | 7.9 | | | |
| **30** | 36 | 346 | 1.05 | 31.09 | 8.1 | | | |
| **34** | 41 | 306 | 2.00 | 27.56 | 8.5 | | | |
| **38** | 46 | 280 | 2.15 | 25.18 | 8.7 | | | |
| **39** | 47 | 268 | 1.35 | 24.11 | 8.8 | | | |
| **45** | 54 | 232 | 2.60 | 20.83 | 9.1 | | | |
| **48** | 58 | 219 | 1.65 | 19.73 | 9.1 | | | |
| **50** | 60 | 212 | 2.85 | 19.03 | 9.2 | | | |
| **62** | 74 | 169 | 2.15 | 15.19 | 9.4 | | | |
| **82** | 98 | 128 | 2.85 | 11.48 | 9.5 | | | |
| **20** | 24 | 514 | 0.80 | 71.24 | ** | **FH043-11P-90S/L-04E FO043-11P-90S/L-04E** | 25 | 136 |
| **22** | 26 | 469 | 0.90 | 64.98 | ** | | | |
| **28** | 34 | 377 | 1.10 | 52.27 | 1.5 | | | |
| **31** | 37 | 344 | 1.20 | 47.68 | 3.2 | | | |
| **20** | 24 | 530 | 0.80 | 47.68 | ** | **FH043-11P-100L-06D FO043-11P-100L-06D** | 36 | 136 |
| **23** | 28 | 448 | 0.90 | 61.98 | ** | **FH042-11P-90S/L-04E FO042-11P-90S/L-04E** | 25 | 136 |
| **26** | 31 | 408 | 1.00 | 56.54 | ** | | | |
| **30** | 36 | 353 | 1.15 | 48.94 | 2.9 | | | |
| **33** | 40 | 322 | 1.25 | 44.64 | 3.9 | | | |
| **38** | 46 | 274 | 1.50 | 37.95 | 5.0 | | | |
| **42** | 50 | 250 | 1.65 | 34.62 | 5.4 | | | |
| **43** | 52 | 243 | 1.00 | 33.69 | ** | | | |
| **47** | 56 | 224 | 1.80 | 31.06 | 5.7 | | | |
| **51** | 61 | 205 | 2.00 | 28.33 | 6.0 | | | |
| **55** | 66 | 192 | 1.65 | 26.60 | 6.1 | | | |
| **61** | 73 | 173 | 2.35 | 23.91 | 6.3 | | | |
| **67** | 80 | 158 | 2.55 | 21.81 | 6.4 | | | |
| **71** | 85 | 149 | 2.10 | 20.63 | 6.5 | | | |
| **86** | 103 | 122 | 2.55 | 16.88 | 6.7 | | | |
| **21** | 25 | 496 | 0.85 | 44.64 | ** | **FH042-11P-100L-06D FO042-11P-100L-06D** | 36 | 136 |
| **25** | 30 | 422 | 0.95 | 37.95 | ** | | | |
| **27** | 32 | 385 | 1.05 | 34.62 | 0.7 | | | |
| **30** | 36 | 345 | 1.20 | 31.06 | 3.2 | | | |
| **33** | 40 | 315 | 1.30 | 28.33 | 4.1 | | | |
| **36** | 43 | 296 | 1.05 | 26.60 | 4.5 | | | |
| **40** | 48 | 266 | 1.55 | 23.91 | 5.1 | | | |
| **43** | 52 | 242 | 1.70 | 21.81 | 5.5 | | | |
| **46** | 55 | 229 | 1.35 | 20.63 | 5.7 | | | |
| **52** | 62 | 201 | 2.00 | 18.06 | 6.0 | | | |
| **56** | 67 | 188 | 1.65 | 16.88 | 6.1 | | | |
| **57** | 68 | 183 | 2.20 | 16.48 | 6.2 | | | |
| **64** | 77 | 164 | 2.45 | 14.78 | 6.4 | | | |
| **70** | 84 | 150 | 2.70 | 13.48 | 6.5 | | | |
| **73** | 88 | 144 | 2.15 | 12.99 | 6.5 | | | |
| **96** | 115 | 109 | 2.85 | 9.82 | 6.7 | | | |



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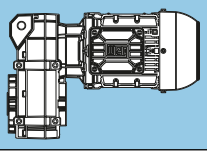
| $P_N$ = 1.1 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 1.1 kW $n_{50}$ min$^{-1}$ | 60 Hz 1.3 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **42** | 50 | 253 | 0.90 | 35.03 | ** | **FH032-11P-90S/L-04E**<br>**FO032-11P-90S/L-04E** | 24 | 134 |
| **46** | 55 | 229 | 1.00 | 31.76 | ** | | | |
| **52** | 62 | 202 | 1.10 | 27.97 | 2.7 | | | |
| **57** | 68 | 183 | 1.25 | 25.36 | 3.2 | | | |
| **65** | 78 | 162 | 0.95 | 22.50 | ** | | | |
| **69** | 83 | 153 | 1.45 | 21.14 | 3.9 | | | |
| **76** | 91 | 138 | 1.60 | 19.17 | 4.2 | | | |
| **81** | 97 | 129 | 1.20 | 17.88 | 4.3 | | | |
| **91** | 109 | 116 | 1.90 | 16.06 | 4.5 | | | |
| **100** | 120 | 105 | 2.05 | 14.57 | 4.6 | | | |
| **105** | 126 | 100 | 1.55 | 13.81 | 4.7 | | | |
| **116** | 139 | 90 | 2.30 | 12.50 | 4.8 | | | |
| **128** | 154 | 82 | 2.45 | 11.33 | 4.8 | | | |
| **132** | 158 | 80 | 1.90 | 11.03 | 4.8 | | | |
| **149** | 179 | 70 | 2.70 | 9.76 | 4.9 | | | |
| **164** | 197 | 64 | 2.85 | 8.85 | 5.0 | | | |
| **175** | 210 | 60 | 2.50 | 8.33 | 5.0 | | | |
| **37** | 44 | 282 | 0.80 | 25.36 | ** | **FH032-11P-100L-06D**<br>**FO032-11P-100L-06D** | 35 | 134 |
| **45** | 54 | 235 | 0.95 | 21.14 | ** | | | |
| **49** | 59 | 213 | 1.05 | 19.17 | 2.2 | | | |
| **53** | 64 | 199 | 0.80 | 17.88 | ** | | | |
| **59** | 71 | 179 | 1.25 | 16.06 | 3.4 | | | |
| **65** | 78 | 162 | 1.35 | 14.57 | 3.7 | | | |
| **68** | 82 | 154 | 1.00 | 13.81 | ** | | | |
| **76** | 91 | 139 | 1.50 | 12.50 | 4.2 | | | |
| **83** | 100 | 126 | 1.60 | 11.33 | 4.4 | | | |
| **86** | 103 | 123 | 1.25 | 11.03 | 4.4 | | | |
| **97** | 116 | 108 | 1.75 | 9.76 | 4.6 | | | |
| **107** | 128 | 98 | 1.85 | 8.85 | 4.7 | | | |
| **113** | 136 | 93 | 1.65 | 8.33 | 4.7 | | | |
| **149** | 179 | 70 | 2.05 | 6.33 | 4.9 | | | |
| **192** | 230 | 55 | 2.25 | 4.93 | 5.0 | | | |
| **246** | 295 | 43 | 2.50 | 3.85 | 4.9 | | | |
| **66** | 79 | 158 | 0.85 | 21.89 | ** | **FH022-11P-90S/L-04E**<br>**FO022-11P-90S/L-04E** | 21 | 132 |
| **74** | 89 | 142 | 0.95 | 19.70 | ** | | | |
| **88** | 106 | 119 | 1.10 | 16.48 | 4.6 | | | |
| **98** | 118 | 107 | 1.25 | 14.84 | 4.7 | | | |
| **119** | 143 | 88 | 1.00 | 12.19 | ** | | | |
| **120** | 144 | 87 | 1.50 | 12.09 | 4.9 | | | |
| **134** | 161 | 79 | 1.70 | 10.89 | 4.9 | | | |
| **153** | 184 | 69 | 1.25 | 9.52 | 4.6 | | | |
| **205** | 246 | 51 | 1.65 | 7.11 | 4.1 | | | |
| **272** | 326 | 39 | 2.20 | 5.35 | 3.7 | | | |
| **370** | 444 | 28 | 2.55 | 3.93 | 3.3 | | | |



*Legend see page 93*

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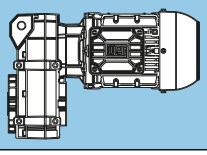
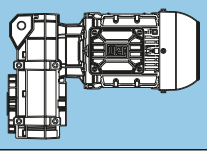
| $P_N$ = 1.5 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>1.5 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>1.8 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **7.5** | 9.0 | 1922 | 0.80 | 194.58 | ** | **FH073-11P-90S/L-04F**<br>**FO073-11P-90S/L-04F** | 74 | 142 |
| **9.6** | 12 | 1489 | 1.05 | 150.69 | 12.5 | | | |
| **13** | 16 | 1132 | 1.35 | 114.62 | 16.3 | | | |
| **15** | 18 | 934 | 1.65 | 94.52 | 17.8 | | | |
| **19** | 23 | 766 | 2.00 | 77.53 | 18.7 | | | |
| **22** | 26 | 651 | 2.35 | 65.88 | 19.2 | | | |
| **27** | 32 | 535 | 2.85 | 54.16 | 19.6 | | | |
| **15** | 18 | 972 | 0.85 | 98.34 | ** | **FH063-11P-90S/L-04F**<br>**FO063-11P-90S/L-04F** | 51 | 140 |
| **16** | 19 | 891 | 0.95 | 90.17 | ** | | | |
| **18** | 22 | 795 | 1.05 | 80.48 | 10.2 | | | |
| **20** | 24 | 729 | 1.15 | 73.80 | 10.9 | | | |
| **22** | 26 | 645 | 1.30 | 65.26 | 11.7 | | | |
| **24** | 29 | 591 | 1.40 | 59.84 | 12.1 | | | |
| **27** | 32 | 540 | 1.55 | 54.63 | 12.5 | | | |
| **29** | 35 | 495 | 1.70 | 50.10 | 12.7 | | | |
| **29** | 35 | 491 | 1.70 | 49.67 | 12.7 | **FH062-11P-90S/L-04F**<br>**FO062-11P-90S/L-04F** | 50 | 140 |
| **32** | 38 | 450 | 1.85 | 45.55 | 13.0 | | | |
| **35** | 42 | 412 | 2.00 | 41.66 | 13.2 | | | |
| **38** | 46 | 377 | 2.20 | 38.20 | 13.3 | | | |
| **44** | 53 | 323 | 2.55 | 32.69 | 13.5 | | | |
| **48** | 58 | 296 | 2.80 | 29.98 | 13.6 | | | |
| **71** | 85 | 202 | 2.10 | 20.49 | 13.8 | | | |
| **19** | 23 | 741 | 0.85 | 75.04 | ** | **FH053-11P-90S/L-04F**<br>**FO053-11P-90S/L-04F** | 34 | 138 |
| **24** | 29 | 595 | 1.05 | 60.26 | 3.0 | | | |
| **26** | 31 | 544 | 1.10 | 55.06 | 4.8 | | | |
| **26** | 31 | 557 | 1.10 | 56.42 | 4.4 | **FH052-11P-90S/L-04F**<br>**FO052-11P-90S/L-04F** | 34 | 138 |
| **28** | 34 | 509 | 1.20 | 51.55 | 5.7 | | | |
| **33** | 40 | 432 | 1.40 | 43.75 | 7.0 | | | |
| **36** | 43 | 395 | 1.55 | 39.97 | 7.6 | | | |
| **40** | 48 | 354 | 1.70 | 35.81 | 8.0 | | | |
| **44** | 53 | 323 | 1.85 | 32.72 | 8.3 | | | |
| **47** | 56 | 307 | 1.20 | 31.09 | 8.5 | | | |
| **53** | 64 | 272 | 2.25 | 27.56 | 8.8 | | | |
| **58** | 70 | 249 | 2.40 | 25.18 | 8.9 | | | |
| **60** | 72 | 238 | 1.55 | 24.11 | 9.0 | | | |
| **70** | 84 | 206 | 2.95 | 20.83 | 9.2 | | | |
| **73** | 88 | 195 | 1.85 | 19.73 | 9.3 | | | |
| **95** | 114 | 150 | 2.40 | 15.19 | 9.5 | | | |
| **28** | 34 | 516 | 0.80 | 52.27 | ** | **FH043-11P-90S/L-04F**<br>**FO043-11P-90S/L-04F** | 29 | 136 |
| **30** | 36 | 471 | 0.85 | 47.68 | ** | | | |
| **30** | 36 | 484 | 0.85 | 48.94 | ** | **FH042-11P-90S/L-04F**<br>**FO042-11P-90S/L-04F** | 29 | 136 |
| **32** | 38 | 441 | 0.95 | 44.64 | ** | | | |
| **38** | 46 | 375 | 1.10 | 37.95 | 1.7 | | | |
| **42** | 50 | 342 | 1.20 | 34.62 | 3.3 | | | |
| **47** | 56 | 307 | 1.35 | 31.06 | 4.3 | | | |
| **51** | 61 | 280 | 1.45 | 28.33 | 4.9 | | | |
| **55** | 66 | 263 | 1.20 | 26.60 | 5.2 | | | |
| **61** | 73 | 236 | 1.70 | 23.91 | 5.6 | | | |
| **66** | 79 | 215 | 1.90 | 21.81 | 5.8 | | | |
| **70** | 84 | 204 | 1.55 | 20.63 | 6.0 | | | |
| **80** | 96 | 178 | 2.25 | 18.06 | 6.2 | | | |
| **86** | 103 | 167 | 1.85 | 16.88 | 6.3 | | | |
| **88** | 106 | 163 | 2.50 | 16.48 | 6.4 | | | |
| **98** | 118 | 146 | 2.75 | 14.78 | 6.5 | | | |
| **112** | 134 | 128 | 2.40 | 12.99 | 6.6 | | | |



*Legend see page 93*

*** ... on request*

| $P_N$ = 1.5 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 1.5 kW $n_{50}$ min$^{-1}$ | 60 Hz 1.8 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **52** | 62 | 276 | 0.80 | 27.97 | ** | **FH032-11P-90S/L-04F**<br>**FO032-11P-90S/L-04F** | 27 | 134 |
| **57** | 68 | 251 | 0.90 | 25.36 | ** | | | |
| **69** | 83 | 209 | 1.10 | 21.14 | 2.4 | | | |
| **76** | 91 | 189 | 1.20 | 19.17 | 3.1 | | | |
| **81** | 97 | 177 | 0.85 | 17.88 | ** | | | |
| **90** | 108 | 159 | 1.40 | 16.06 | 3.8 | | | |
| **100** | 120 | 144 | 1.50 | 14.57 | 4.1 | | | |
| **105** | 126 | 136 | 1.10 | 13.81 | 4.2 | | | |
| **116** | 139 | 124 | 1.65 | 12.50 | 4.4 | | | |
| **128** | 154 | 112 | 1.80 | 11.33 | 4.5 | | | |
| **132** | 158 | 109 | 1.40 | 11.03 | 4.6 | | | |
| **149** | 179 | 96 | 1.95 | 9.76 | 4.7 | | | |
| **164** | 197 | 87 | 2.10 | 8.85 | 4.8 | | | |
| **174** | 209 | 82 | 1.85 | 8.33 | 4.8 | | | |
| **229** | 275 | 63 | 2.30 | 6.33 | 5.0 | | | |
| **294** | 353 | 49 | 2.55 | 4.93 | 4.7 | | | |
| **377** | 452 | 38 | 2.85 | 3.85 | 4.3 | | | |
| **88** | 106 | 163 | 0.80 | 16.48 | ** | **FH022-11P-90S/L-04F**<br>**FO022-11P-90S/L-04F** | 25 | 132 |
| **98** | 118 | 147 | 0.90 | 14.84 | ** | | | |
| **120** | 144 | 120 | 1.10 | 12.09 | 4.6 | | | |
| **133** | 160 | 108 | 1.25 | 10.89 | 4.7 | | | |
| **152** | 182 | 94 | 0.90 | 9.52 | ** | | | |
| **204** | 245 | 70 | 1.20 | 7.11 | 4.3 | | | |
| **271** | 325 | 53 | 1.60 | 5.35 | 3.8 | | | |
| **369** | 443 | 39 | 1.90 | 3.93 | 3.4 | | | |



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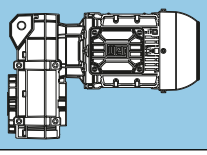
*** ... on request*

| $P_N$ = 2.2 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 2.2 kW $n_{50}$ min$^{-1}$ | 60 Hz 2.6 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **13** | 16 | 1678 | 0.90 | 114.62 | ** | **FH073-11P-100L-04E**<br>**FO073-11P-100L-04E** | 84 | 142 |
| **15** | 18 | 1384 | 1.10 | 94.52 | 13.8 | | | |
| **19** | 23 | 1135 | 1.35 | 77.53 | 16.3 | | | |
| **22** | 26 | 965 | 1.60 | 65.88 | 17.6 | | | |
| **26** | 31 | 793 | 1.90 | 54.16 | 18.6 | | | |
| **27** | 32 | 765 | 2.00 | 52.23 | 18.7 | | | |
| **33** | 40 | 629 | 2.40 | 42.96 | 19.3 | | | |
| **32** | 38 | 659 | 2.30 | 45.02 | 19.2 | **FH072-11P-100L-04E**<br>**FO072-11P-100L-04E** | 83 | 142 |
| **37** | 44 | 576 | 2.65 | 39.31 | 19.5 | | | |
| **41** | 49 | 509 | 2.95 | 34.74 | 19.7 | | | |
| **22** | 26 | 956 | 0.90 | 65.26 | ** | **FH063-11P-100L-04E**<br>**FO063-11P-100L-04E** | 61 | 140 |
| **24** | 29 | 876 | 0.95 | 59.84 | ** | | | |
| **26** | 31 | 800 | 1.05 | 54.63 | 10.2 | | | |
| **29** | 35 | 734 | 1.15 | 50.10 | 10.9 | | | |
| **34** | 41 | 625 | 1.35 | 42.70 | 11.8 | | | |
| **37** | 44 | 573 | 1.45 | 39.15 | 12.2 | | | |
| **34** | 41 | 610 | 1.35 | 41.66 | 12.0 | **FH062-11P-100L-04E**<br>**FO062-11P-100L-04E** | 60 | 140 |
| **38** | 46 | 559 | 1.50 | 38.20 | 12.3 | | | |
| **44** | 53 | 479 | 1.75 | 32.69 | 12.8 | | | |
| **48** | 58 | 439 | 1.90 | 29.98 | 13.0 | | | |
| **57** | 68 | 369 | 2.25 | 25.23 | 13.3 | | | |
| **62** | 74 | 339 | 2.45 | 23.14 | 13.5 | | | |
| **69** | 83 | 306 | 2.70 | 20.87 | 13.6 | | | |
| **75** | 90 | 280 | 2.95 | 19.14 | 13.6 | | | |
| **84** | 101 | 252 | 2.30 | 17.18 | 13.7 | | | |
| **106** | 127 | 197 | 2.90 | 13.49 | 13.9 | | | |
| **40** | 48 | 524 | 1.15 | 35.81 | 5.3 | **FH052-11P-100L-04E**<br>**FO052-11P-100L-04E** | 45 | 138 |
| **44** | 53 | 479 | 1.25 | 32.72 | 6.3 | | | |
| **52** | 62 | 404 | 1.50 | 27.56 | 7.4 | | | |
| **57** | 68 | 369 | 1.65 | 25.18 | 7.9 | | | |
| **69** | 83 | 305 | 2.00 | 20.83 | 8.5 | | | |
| **73** | 88 | 289 | 1.25 | 19.73 | 8.6 | | | |
| **75** | 90 | 279 | 2.15 | 19.03 | 8.7 | | | |
| **84** | 101 | 250 | 2.45 | 17.04 | 8.9 | | | |
| **92** | 110 | 228 | 2.65 | 15.57 | 9.1 | | | |
| **94** | 113 | 222 | 1.65 | 15.19 | 9.1 | | | |
| **104** | 125 | 202 | 3.00 | 13.82 | 9.2 | | | |
| **125** | 150 | 168 | 2.15 | 11.48 | 9.4 | | | |
| **153** | 184 | 138 | 2.65 | 9.39 | 9.5 | | | |
| **46** | 55 | 455 | 0.90 | 31.06 | ** | **FH042-11P-100L-04E**<br>**FO042-11P-100L-04E** | 39 | 136 |
| **51** | 61 | 415 | 1.00 | 28.33 | ** | | | |
| **60** | 72 | 350 | 1.15 | 23.91 | 3.0 | | | |
| **66** | 79 | 319 | 1.30 | 21.81 | 4.0 | | | |
| **79** | 95 | 265 | 1.55 | 18.06 | 5.1 | | | |
| **85** | 102 | 247 | 1.25 | 16.88 | 5.4 | | | |
| **87** | 104 | 241 | 1.70 | 16.48 | 5.5 | | | |
| **97** | 116 | 216 | 1.85 | 14.78 | 5.8 | | | |
| **106** | 127 | 197 | 2.05 | 13.48 | 6.0 | | | |
| **110** | 132 | 190 | 1.65 | 12.99 | 6.1 | | | |
| **120** | 144 | 176 | 2.30 | 11.99 | 6.3 | | | |
| **131** | 157 | 160 | 2.50 | 10.93 | 6.4 | | | |
| **143** | 172 | 147 | 2.60 | 10.03 | 6.5 | | | |
| **146** | 175 | 144 | 2.15 | 9.82 | 6.5 | | | |
| **157** | 188 | 134 | 2.70 | 9.15 | 6.6 | | | |
| **176** | 211 | 119 | 2.90 | 8.13 | 6.7 | | | |
| **179** | 215 | 118 | 2.65 | 8.03 | 6.7 | | | |
| **183** | 220 | 115 | 2.95 | 7.84 | 6.7 | | | |
| **193** | 232 | 109 | 3.00 | 7.42 | 6.7 | | | |
| **220** | 264 | 95 | 2.85 | 6.52 | 6.8 | | | |

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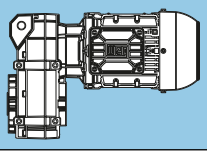
| $P_N$ = 2.2 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| **50 Hz** **2.2 kW** $n_{50}$ min$^{-1}$ | **60 Hz** **2.6 kW** $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | **i** | at 50 Hz $F_{rN}$ kN |  | **m** kg | **Dimension sheet see page** |
| **75** | 90 | 281 | 0.80 | 19.17 | ** | **FH032-11P-100L-04E** **FO032-11P-100L-04E** | 38 | 134 |
| **89** | 107 | 235 | 0.95 | 16.06 | ** | | | |
| **99** | 119 | 213 | 1.05 | 14.57 | 2.2 | | | |
| **115** | 138 | 183 | 1.15 | 12.50 | 3.2 | | | |
| **127** | 152 | 166 | 1.20 | 11.33 | 3.7 | | | |
| **130** | 156 | 161 | 0.95 | 11.03 | ** | | | |
| **147** | 176 | 143 | 1.35 | 9.76 | 4.1 | | | |
| **162** | 194 | 130 | 1.40 | 8.85 | 4.3 | | | |
| **172** | 206 | 122 | 1.25 | 8.33 | 4.4 | | | |
| **227** | 272 | 93 | 1.55 | 6.33 | 4.7 | | | |
| **291** | 349 | 72 | 1.75 | 4.93 | 4.8 | | | |
| **373** | 448 | 56 | 1.95 | 3.85 | 4.4 | | | |

F

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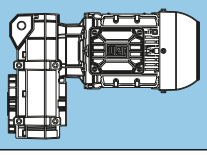
*** ... on request*

| $P_N$ = 3.0 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 3.0 kW $n_{50}$ min$^{-1}$ | 60 Hz 3.6 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **15** | 18 | 1881 | 0.80 | 94.52 | ** | **FH073-11P-L100L-04F**<br>**FO073-11P-L100L-04F** | 93 | 142 |
| **19** | 23 | 1543 | 1.00 | 77.53 | ** | | | |
| **22** | 26 | 1311 | 1.15 | 65.88 | 14.6 | | | |
| **27** | 32 | 1078 | 1.40 | 54.16 | 16.8 | | | |
| **28** | 34 | 1039 | 1.45 | 52.23 | 17.0 | | | |
| **34** | 41 | 855 | 1.80 | 42.96 | 18.2 | | | |
| **32** | 38 | 896 | 1.70 | 45.02 | 18.0 | **FH072-11P-L100L-04F**<br>**FO072-11P-L100L-04F** | 92 | 142 |
| **37** | 44 | 782 | 1.95 | 39.31 | 18.6 | | | |
| **41** | 49 | 691 | 2.20 | 34.74 | 19.0 | | | |
| **49** | 59 | 585 | 2.60 | 29.38 | 19.5 | | | |
| **57** | 68 | 503 | 3.00 | 25.25 | 19.7 | | | |
| **70** | 84 | 412 | 2.65 | 20.72 | 20.0 | | | |
| **26** | 31 | 1087 | 0.80 | 54.63 | ** | **FH063-11P-L100L-04F**<br>**FO063-11P-L100L-04F** | 70 | 140 |
| **29** | 35 | 997 | 0.85 | 50.10 | ** | | | |
| **34** | 41 | 850 | 1.00 | 42.70 | ** | | | |
| **37** | 44 | 779 | 1.10 | 39.15 | 10.4 | | | |
| **35** | 42 | 829 | 1.00 | 41.66 | ** | **FH062-11P-L100L-04F**<br>**FO062-11P-L100L-04F** | 69 | 140 |
| **38** | 46 | 760 | 1.10 | 38.20 | 10.6 | | | |
| **44** | 53 | 650 | 1.30 | 32.69 | 11.6 | | | |
| **48** | 58 | 596 | 1.40 | 29.98 | 12.1 | | | |
| **57** | 68 | 502 | 1.65 | 25.23 | 12.7 | | | |
| **62** | 74 | 460 | 1.80 | 23.14 | 12.9 | | | |
| **69** | 83 | 415 | 2.00 | 20.87 | 13.1 | | | |
| **75** | 90 | 381 | 2.20 | 19.14 | 13.3 | | | |
| **81** | 97 | 353 | 2.35 | 17.75 | 13.4 | | | |
| **84** | 101 | 342 | 1.70 | 17.18 | 13.4 | | | |
| **88** | 106 | 324 | 2.55 | 16.28 | 13.5 | | | |
| **94** | 113 | 306 | 2.70 | 15.38 | 13.6 | | | |
| **102** | 122 | 281 | 2.95 | 14.11 | 13.6 | | | |
| **107** | 128 | 268 | 2.15 | 13.49 | 13.7 | | | |
| **138** | 166 | 207 | 2.80 | 10.41 | 13.8 | | | |
| **40** | 48 | 712 | 0.85 | 35.81 | ** | **FH052-11P-L100L-04F**<br>**FO052-11P-L100L-04F** | 53 | 138 |
| **44** | 53 | 651 | 0.95 | 32.72 | ** | | | |
| **52** | 62 | 548 | 1.10 | 27.56 | 4.7 | | | |
| **57** | 68 | 501 | 1.20 | 25.18 | 5.8 | | | |
| **69** | 83 | 414 | 1.45 | 20.83 | 7.3 | | | |
| **73** | 88 | 393 | 0.95 | 19.73 | ** | | | |
| **76** | 91 | 379 | 1.60 | 19.03 | 7.8 | | | |
| **84** | 101 | 339 | 1.80 | 17.04 | 8.2 | | | |
| **92** | 110 | 310 | 1.95 | 15.57 | 8.5 | | | |
| **95** | 114 | 302 | 1.20 | 15.19 | 8.5 | | | |
| **104** | 125 | 275 | 2.20 | 13.82 | 8.8 | | | |
| **114** | 137 | 251 | 2.40 | 12.63 | 8.9 | | | |
| **124** | 149 | 230 | 2.65 | 11.57 | 9.1 | | | |
| **125** | 150 | 228 | 1.60 | 11.48 | 9.1 | | | |
| **136** | 163 | 210 | 2.80 | 10.57 | 9.2 | | | |
| **153** | 184 | 187 | 1.95 | 9.39 | 9.3 | | | |
| **189** | 227 | 152 | 2.40 | 7.62 | 9.5 | | | |
| **226** | 271 | 127 | 2.85 | 6.38 | 9.4 | | | |

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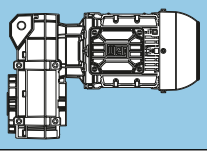
*** ... on request*

| $P_N$ = 3.0 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>3.0 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>3.6 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **60** | 72 | 476 | 0.85 | 23.91 | ** | **FH042-11P-L100L-04F**<br>**FO042-11P-L100L-04F** | 47 | 136 |
| **66** | 79 | 434 | 0.95 | 21.81 | ** | | | |
| **80** | 96 | 359 | 1.15 | 18.06 | 2.6 | | | |
| **85** | 102 | 336 | 0.95 | 16.88 | ** | | | |
| **87** | 104 | 328 | 1.25 | 16.48 | 3.7 | | | |
| **97** | 116 | 294 | 1.40 | 14.78 | 4.6 | | | |
| **107** | 128 | 268 | 1.50 | 13.48 | 5.1 | | | |
| **111** | 133 | 259 | 1.20 | 12.99 | 5.2 | | | |
| **120** | 144 | 239 | 1.70 | 11.99 | 5.5 | | | |
| **132** | 158 | 218 | 1.85 | 10.93 | 5.8 | | | |
| **144** | 173 | 200 | 1.90 | 10.03 | 6.0 | | | |
| **147** | 176 | 195 | 1.60 | 9.82 | 6.1 | | | |
| **157** | 188 | 182 | 2.00 | 9.15 | 6.2 | | | |
| **177** | 212 | 162 | 2.15 | 8.13 | 6.4 | | | |
| **179** | 215 | 160 | 1.95 | 8.03 | 6.4 | | | |
| **184** | 221 | 156 | 2.15 | 7.84 | 6.4 | | | |
| **194** | 233 | 148 | 2.25 | 7.42 | 6.5 | | | |
| **201** | 241 | 142 | 2.25 | 7.15 | 6.5 | | | |
| **221** | 265 | 130 | 2.10 | 6.52 | 6.6 | | | |
| **264** | 317 | 109 | 2.25 | 5.45 | 6.8 | | | |
| **326** | 391 | 88 | 2.45 | 4.42 | 6.6 | | | |
| **338** | 406 | 85 | 2.45 | 4.26 | 6.6 | | | |
| **115** | 138 | 249 | 0.85 | 12.50 | ** | **FH032-11P-L100L-04F**<br>**FO032-11P-L100L-04F** | 46 | 134 |
| **127** | 152 | 226 | 0.90 | 11.33 | ** | | | |
| **148** | 178 | 194 | 1.00 | 9.76 | ** | | | |
| **163** | 196 | 176 | 1.05 | 8.85 | 3.4 | | | |
| **173** | 208 | 166 | 0.95 | 8.33 | ** | | | |
| **227** | 272 | 126 | 1.15 | 6.33 | 4.4 | | | |
| **292** | 350 | 98 | 1.30 | 4.93 | 4.7 | | | |
| **374** | 449 | 77 | 1.40 | 3.85 | 4.5 | | | |

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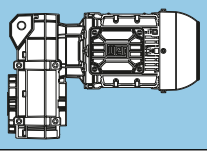
| $P_N$ = 4.0 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>4.0 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>4.8 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **22** | 26 | 1736 | 0.90 | 65.88 | ** | | | |
| **27** | 32 | 1427 | 1.10 | 54.16 | 13.3 | **FH073-11P-112M-04E**<br>**FO073-11P-112M-04E** | 93 | 142 |
| **28** | 34 | 1376 | 1.10 | 52.23 | 13.9 | | | |
| **34** | 41 | 1132 | 1.35 | 42.96 | 16.3 | | | |
| **32** | 38 | 1186 | 1.30 | 45.02 | 15.9 | | | |
| **37** | 44 | 1036 | 1.45 | 39.31 | 17.1 | | | |
| **42** | 50 | 915 | 1.65 | 34.74 | 17.9 | | | |
| **49** | 59 | 774 | 1.95 | 29.38 | 18.6 | | | |
| **57** | 68 | 665 | 2.30 | 25.25 | 19.1 | **FH072-11P-112M-04E**<br>**FO072-11P-112M-04E** | 92 | 142 |
| **66** | 79 | 581 | 2.60 | 22.05 | 19.5 | | | |
| **70** | 84 | 546 | 2.00 | 20.72 | 19.6 | | | |
| **80** | 96 | 477 | 2.35 | 18.09 | 19.8 | | | |
| **91** | 109 | 421 | 2.60 | 15.99 | 19.9 | | | |
| **91** | 109 | 421 | 2.6 | 15.99 | 19.2 | | | |
| **37** | 44 | 1031 | 0.80 | 39.15 | ** | **FH063-11P-112M-04E**<br>**FO063-11P-112M-04E** | 70 | 140 |
| **38** | 46 | 1006 | 0.85 | 38.20 | ** | | | |
| **44** | 53 | 861 | 1.00 | 32.69 | ** | | | |
| **48** | 58 | 790 | 1.05 | 29.98 | 10.3 | | | |
| **57** | 68 | 665 | 1.25 | 25.23 | 11.5 | | | |
| **63** | 76 | 610 | 1.35 | 23.14 | 12.0 | | | |
| **69** | 83 | 550 | 1.50 | 20.87 | 12.4 | | | |
| **76** | 91 | 504 | 1.65 | 19.14 | 12.7 | | | |
| **82** | 98 | 468 | 1.80 | 17.75 | 12.9 | | | |
| **84** | 101 | 453 | 1.30 | 17.18 | 12.9 | | | |
| **89** | 107 | 429 | 1.95 | 16.28 | 13.1 | **FH062-11P-112M-04E**<br>**FO062-11P-112M-04E** | 69 | 140 |
| **94** | 113 | 405 | 2.05 | 15.38 | 13.2 | | | |
| **103** | 124 | 372 | 2.25 | 14.11 | 13.3 | | | |
| **108** | 130 | 355 | 1.65 | 13.49 | 13.4 | | | |
| **112** | 134 | 342 | 2.40 | 12.99 | 13.4 | | | |
| **116** | 139 | 330 | 2.50 | 12.53 | 13.5 | | | |
| **122** | 146 | 314 | 2.65 | 11.91 | 13.5 | | | |
| **126** | 151 | 303 | 2.75 | 11.49 | 13.6 | | | |
| **135** | 162 | 282 | 2.95 | 10.70 | 13.6 | | | |
| **139** | 167 | 274 | 2.10 | 10.41 | 13.7 | | | |
| **168** | 202 | 227 | 2.55 | 8.61 | 13.8 | | | |
| **198** | 238 | 193 | 3.00 | 7.32 | 13.9 | | | |
| **53** | 64 | 726 | 0.85 | 27.56 | ** | | | |
| **58** | 70 | 663 | 0.90 | 25.18 | ** | | | |
| **70** | 84 | 549 | 1.10 | 20.83 | 4.7 | | | |
| **76** | 91 | 501 | 1.20 | 19.03 | 5.8 | | | |
| **85** | 102 | 449 | 1.35 | 17.04 | 6.8 | | | |
| **93** | 112 | 410 | 1.50 | 15.57 | 7.4 | | | |
| **95** | 114 | 400 | 0.90 | 15.19 | ** | | | |
| **105** | 126 | 364 | 1.65 | 13.82 | 7.9 | | | |
| **115** | 138 | 333 | 1.80 | 12.63 | 8.2 | | | |
| **125** | 150 | 305 | 2.00 | 11.57 | 8.5 | **FH052-11P-112M-04E**<br>**FO052-11P-112M-04E** | 54 | 138 |
| **126** | 151 | 302 | 1.20 | 11.48 | 8.5 | | | |
| **137** | 164 | 279 | 2.10 | 10.57 | 8.7 | | | |
| **154** | 185 | 247 | 1.50 | 9.39 | 8.9 | | | |
| **155** | 186 | 247 | 2.30 | 9.38 | 9.0 | | | |
| **160** | 192 | 238 | 2.35 | 9.04 | 9.0 | | | |
| **169** | 203 | 226 | 2.45 | 8.57 | 9.1 | | | |
| **176** | 211 | 218 | 2.50 | 8.26 | 9.1 | | | |
| **190** | 228 | 201 | 1.80 | 7.62 | 9.2 | | | |
| **227** | 272 | 168 | 2.15 | 6.38 | 9.4 | | | |
| **281** | 337 | 136 | 2.65 | 5.17 | 8.8 | | | |
| **291** | 349 | 131 | 2.75 | 4.98 | 8.7 | | | |



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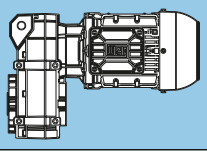
| $P_N$ = 5.5 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>5.5 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>6.6 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **27** | 32 | 1942 | 0.80 | 54.16 | ** | **FH073-11P-132S-04E**<br>**FO073-11P-132S-04E** | 113 | 142 |
| **28** | 34 | 1873 | 0.85 | 52.23 | ** | | | |
| **34** | 41 | 1540 | 1.00 | 42.96 | ** | | | |
| **33** | **40** | **1614** | **0.95** | **45.02** | ** | **FH072-11P-132S-04E**<br>**FO072-11P-132S-04E** | 112 | 142 |
| **37** | **44** | **1410** | **1.10** | **39.31** | **13.5** | | | |
| **42** | **50** | **1246** | **1.25** | **34.74** | **15.3** | | | |
| **50** | **60** | **1053** | **1.45** | **29.38** | **16.9** | | | |
| **58** | **70** | **906** | **1.70** | **25.25** | **17.9** | | | |
| **66** | **79** | **791** | **1.90** | **22.05** | **18.6** | | | |
| **71** | **85** | **743** | **1.50** | **20.72** | **18.8** | | | |
| **78** | **94** | **677** | **2.25** | **18.89** | **19.1** | | | |
| **80** | **96** | **653** | **2.30** | **18.21** | **19.2** | | | |
| **81** | **97** | **649** | **1.75** | **18.09** | **19.2** | | | |
| **91** | **109** | **576** | **2.65** | **16.08** | **19.5** | | | |
| **92** | **110** | **573** | **1.95** | **15.99** | **19.5** | | | |
| **108** | **130** | **485** | **2.30** | **13.52** | **19.8** | | | |
| **126** | **151** | **417** | **2.65** | **11.62** | **20.0** | | | |
| **49** | 59 | 1075 | 0.80 | 29.98 | ** | **FH062-11P-132S-04E**<br>**FO062-11P-132S-04E** | 89 | 140 |
| **58** | 70 | 905 | 0.95 | 25.23 | ** | | | |
| **63** | 76 | 830 | 1.00 | 23.14 | ** | | | |
| **70** | 84 | 748 | 1.10 | 20.87 | 10.7 | | | |
| **77** | 92 | 686 | 1.20 | 19.14 | 11.3 | | | |
| **83** | 100 | 636 | 1.30 | 17.75 | 11.8 | | | |
| **85** | 102 | 616 | 0.95 | 17.18 | ** | | | |
| **90** | 108 | 584 | 1.45 | 16.28 | 12.2 | | | |
| **95** | 114 | 552 | 1.50 | 15.38 | 12.4 | | | |
| **104** | 125 | 506 | 1.65 | 14.11 | 12.7 | | | |
| **109** | 131 | 484 | 1.20 | 13.49 | 12.8 | | | |
| **113** | 136 | 466 | 1.80 | 12.99 | 12.9 | | | |
| **117** | 140 | 449 | 1.85 | 12.53 | 13.0 | | | |
| **123** | 148 | 427 | 1.95 | 11.91 | 13.1 | | | |
| **128** | 154 | 412 | 2.00 | 11.49 | 13.1 | | | |
| **137** | 164 | 384 | 2.15 | 10.70 | 13.3 | | | |
| **141** | 169 | 373 | 1.55 | 10.41 | 13.3 | | | |
| **149** | 179 | 352 | 2.35 | 9.81 | 13.4 | | | |
| **170** | 204 | 309 | 1.90 | 8.61 | 13.6 | | | |
| **200** | 240 | 263 | 2.20 | 7.32 | 13.7 | | | |
| **231** | 277 | 228 | 2.55 | 6.35 | 13.8 | | | |
| **273** | 328 | 192 | 3.00 | 5.36 | 13.9 | | | |
| **70** | 84 | 747 | 0.85 | 20.83 | ** | **FH052-11P-132S-04E**<br>**FO052-11P-132S-04E** | 74 | 138 |
| **77** | 92 | 682 | 0.90 | 19.03 | ** | | | |
| **86** | 103 | 611 | 1.00 | 17.04 | ** | | | |
| **94** | 113 | 558 | 1.10 | 15.57 | 4.4 | | | |
| **106** | 127 | 496 | 1.25 | 13.82 | 5.9 | | | |
| **116** | 139 | 453 | 1.35 | 12.63 | 6.7 | | | |
| **127** | 152 | 415 | 1.45 | 11.57 | 7.3 | | | |
| **128** | 154 | 411 | 0.90 | 11.48 | ** | | | |
| **139** | 167 | 379 | 1.55 | 10.57 | 7.7 | | | |
| **156** | 187 | 336 | 1.70 | 9.38 | 8.2 | | | |
| **156** | 187 | 337 | 1.10 | 9.39 | 8.2 | | | |
| **162** | 194 | 324 | 1.75 | 9.04 | 8.3 | | | |
| **171** | 205 | 307 | 1.80 | 8.57 | 8.5 | | | |
| **177** | 212 | 296 | 1.85 | 8.26 | 8.6 | | | |
| **192** | 230 | 273 | 1.35 | 7.62 | 8.8 | | | |
| **230** | 276 | 229 | 1.60 | 6.38 | 9.1 | | | |
| **284** | 341 | 185 | 1.95 | 5.17 | 9.1 | | | |
| **294** | 353 | 179 | 2.05 | 4.98 | 8.9 | | | |

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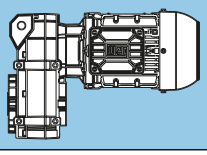
| $P_N$ = 7.5 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>7.5 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>9.0 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **37** | 44 | 1922 | 0.80 | 39.31 | ** | **FH072-11P-L132M-04F**<br>**FO072-11P-L132M-04F** | 121 | 142 |
| **42** | 50 | 1699 | 0.90 | 34.74 | ** | | | |
| **50** | 60 | 1436 | 1.05 | 29.38 | 13.2 | | | |
| **58** | 70 | 1235 | 1.25 | 25.25 | 15.4 | | | |
| **66** | 79 | 1078 | 1.40 | 22.05 | 16.8 | | | |
| **71** | 85 | 1013 | 1.10 | 20.72 | 17.2 | | | |
| **78** | 94 | 924 | 1.65 | 18.89 | 17.8 | | | |
| **80** | 96 | 891 | 1.70 | 18.21 | 18.0 | | | |
| **81** | 97 | 884 | 1.25 | 18.09 | 18.1 | | | |
| **91** | 109 | 786 | 1.95 | 16.08 | 18.6 | | | |
| **92** | 110 | 782 | 1.40 | 15.99 | 18.6 | | | |
| **108** | 130 | 661 | 1.70 | 13.52 | 19.2 | | | |
| **109** | 131 | 659 | 2.30 | 13.49 | 19.2 | | | |
| **126** | 151 | 568 | 1.95 | 11.62 | 19.5 | | | |
| **129** | 155 | 556 | 2.70 | 11.36 | 19.6 | | | |
| **144** | 173 | 496 | 2.25 | 10.14 | 19.7 | | | |
| **169** | 203 | 425 | 2.65 | 8.69 | 19.9 | | | |
| **175** | 210 | 410 | 2.50 | 8.38 | 20.0 | | | |
| **70** | 84 | 1020 | 0.85 | 20.87 | ** | **FH062-11P-L132M-04F**<br>**FO062-11P-L132M-04F** | 98 | 140 |
| **77** | 92 | 936 | 0.90 | 19.14 | ** | | | |
| **83** | 100 | 868 | 0.95 | 17.75 | ** | | | |
| **90** | 108 | 796 | 1.05 | 16.28 | 10.2 | | | |
| **95** | 114 | 752 | 1.10 | 15.38 | 10.7 | | | |
| **104** | 125 | 690 | 1.20 | 14.11 | 11.3 | | | |
| **109** | 131 | 659 | 0.90 | 13.49 | ** | | | |
| **113** | 136 | 635 | 1.30 | 12.99 | 11.8 | | | |
| **117** | 140 | 613 | 1.35 | 12.53 | 11.9 | | | |
| **123** | 148 | 582 | 1.45 | 11.91 | 12.2 | | | |
| **128** | 154 | 562 | 1.50 | 11.49 | 12.3 | | | |
| **137** | 164 | 523 | 1.60 | 10.70 | 12.6 | | | |
| **141** | 169 | 509 | 1.15 | 10.41 | 12.6 | | | |
| **149** | 179 | 480 | 1.75 | 9.81 | 12.8 | | | |
| **170** | 204 | 421 | 1.40 | 8.61 | 13.1 | | | |
| **200** | 240 | 358 | 1.60 | 7.32 | 13.4 | | | |
| **231** | 277 | 310 | 1.85 | 6.35 | 13.6 | | | |
| **273** | 328 | 262 | 2.20 | 5.36 | 13.7 | | | |
| **283** | 340 | 253 | 2.30 | 5.17 | 13.7 | | | |
| **332** | 398 | 216 | 2.65 | 4.41 | 13.8 | | | |
| **94** | 113 | 761 | 0.80 | 15.57 | ** | **FH052-11P-L132M-04F**<br>**FO052-11P-L132M-04F** | 83 | 138 |
| **106** | 127 | 676 | 0.90 | 13.82 | ** | | | |
| **116** | 139 | 617 | 1.00 | 12.63 | ** | | | |
| **127** | 152 | 566 | 1.10 | 11.57 | 4.1 | | | |
| **139** | 167 | 517 | 1.15 | 10.57 | 5.5 | | | |
| **156** | 187 | 458 | 1.25 | 9.38 | 6.6 | | | |
| **156** | 187 | 459 | 0.80 | 9.39 | ** | | | |
| **162** | 194 | 442 | 1.30 | 9.04 | 6.9 | | | |
| **171** | 205 | 419 | 1.35 | 8.57 | 7.2 | | | |
| **177** | 212 | 404 | 1.35 | 8.26 | 7.4 | | | |
| **192** | 230 | 372 | 1.00 | 7.62 | ** | | | |
| **230** | 276 | 312 | 1.20 | 6.38 | 8.4 | | | |
| **284** | 341 | 253 | 1.45 | 5.17 | 8.9 | | | |
| **294** | 353 | 244 | 1.50 | 4.98 | 9.0 | | | |

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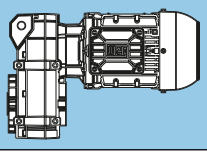
| $P_N$ = 9.2 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>9.2 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>11 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **50** | 60 | 1768 | 0.85 | 29.38 | ** | **FH072-11P-L132M-04G**<br>**FO072-11P-L132M-04G** | 130 | 142 |
| **58** | 70 | 1520 | 1.00 | 25.25 | ** | | | |
| **66** | 79 | 1327 | 1.15 | 22.05 | 14.5 | | | |
| **70** | 84 | 1247 | 0.90 | 20.72 | ** | | | |
| **77** | 92 | 1137 | 1.35 | 18.89 | 16.3 | | | |
| **80** | 96 | 1096 | 1.40 | 18.21 | 16.6 | | | |
| **81** | 97 | 1089 | 1.05 | 18.09 | 16.7 | | | |
| **91** | 109 | 967 | 1.60 | 16.08 | 17.5 | | | |
| **91** | 109 | 962 | 1.15 | 15.99 | 17.6 | | | |
| **108** | 130 | 812 | 1.85 | 13.49 | 18.5 | | | |
| **108** | 130 | 814 | 1.40 | 13.52 | 18.4 | | | |
| **126** | 151 | 699 | 1.60 | 11.62 | 19.0 | | | |
| **128** | 154 | 684 | 2.20 | 11.36 | 19.1 | | | |
| **144** | 173 | 611 | 1.85 | 10.14 | 19.4 | | | |
| **168** | 202 | 523 | 2.15 | 8.69 | 19.7 | | | |
| **174** | 209 | 504 | 2.00 | 8.38 | 19.7 | | | |
| **197** | 236 | 445 | 2.55 | 7.40 | 19.9 | | | |
| **235** | 282 | 373 | 3.00 | 6.21 | 20.1 | | | |
| **82** | 98 | 1068 | 0.80 | 17.75 | ** | **FH062-11P-L132M-04G**<br>**FO062-11P-L132M-04G** | 107 | 140 |
| **90** | 108 | 980 | 0.85 | 16.28 | ** | | | |
| **95** | 114 | 926 | 0.90 | 15.38 | ** | | | |
| **103** | 124 | 849 | 1.00 | 14.11 | ** | | | |
| **112** | 134 | 782 | 1.05 | 12.99 | 10.4 | | | |
| **117** | 140 | 754 | 1.10 | 12.53 | 10.7 | | | |
| **123** | 148 | 717 | 1.15 | 11.91 | 11.1 | | | |
| **127** | 152 | 691 | 1.20 | 11.49 | 11.3 | | | |
| **136** | 163 | 644 | 1.30 | 10.70 | 11.7 | | | |
| **140** | 168 | 626 | 0.95 | 10.41 | ** | | | |
| **149** | 179 | 591 | 1.40 | 9.81 | 12.1 | | | |
| **170** | 204 | 518 | 1.15 | 8.61 | 12.6 | | | |
| **199** | 239 | 441 | 1.30 | 7.32 | 13.0 | | | |
| **230** | 276 | 382 | 1.50 | 6.35 | 13.3 | | | |
| **272** | 326 | 323 | 1.80 | 5.36 | 13.5 | | | |
| **283** | 340 | 311 | 1.85 | 5.17 | 13.6 | | | |
| **331** | 397 | 266 | 2.15 | 4.41 | 13.7 | | | |
| **116** | 139 | 760 | 0.80 | 12.63 | ** | **FH052-11P-L132M-04G**<br>**FO052-11P-L132M-04G** | 92 | 138 |
| **126** | 151 | 696 | 0.90 | 11.57 | ** | | | |
| **138** | 166 | 636 | 0.95 | 10.57 | ** | | | |
| **156** | 187 | 564 | 1.00 | 9.38 | ** | | | |
| **161** | 193 | 544 | 1.05 | 9.04 | 4.8 | | | |
| **170** | 204 | 516 | 1.10 | 8.57 | 5.5 | | | |
| **177** | 212 | 497 | 1.10 | 8.26 | 5.9 | | | |
| **192** | 230 | 458 | 0.80 | 7.62 | ** | | | |
| **229** | 275 | 384 | 0.95 | 6.38 | ** | | | |
| **283** | 340 | 311 | 1.20 | 5.17 | 8.5 | | | |
| **293** | 352 | 300 | 1.25 | 4.98 | 8.6 | | | |

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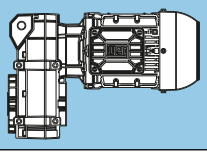
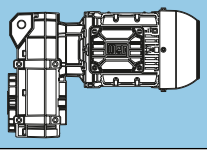
** ... on request

| $P_N$ = 11 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| **50 Hz** **11 kW** $n_{50}$ min$^{-1}$ | **60 Hz** **13 kW** $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | **i** | at 50 Hz $F_{rN}$ kN |  | **m** kg | Dimension sheet see page |
| **67** | 80 | 1576 | 1.00 | 22.05 | ** | **FH072-22P-160M-04E** **FO072-22P-160M-04E** | 179 | 142 |
| **78** | 94 | 1350 | 1.15 | 18.89 | 14.2 | | | |
| **91** | 109 | 1149 | 1.35 | 16.08 | 16.2 | | | |
| **109** | 131 | 964 | 1.60 | 13.49 | 17.6 | | | |
| **129** | 155 | 812 | 1.85 | 11.36 | 18.5 | | | |
| **145** | 174 | 725 | 1.55 | 10.14 | 18.9 | | | |
| **158** | 190 | 666 | 2.30 | 9.32 | 19.1 | | | |
| **169** | 203 | 621 | 1.80 | 8.69 | 19.3 | | | |
| **199** | 239 | 529 | 2.15 | 7.40 | 19.6 | | | |
| **237** | 284 | 443 | 2.55 | 6.21 | 19.9 | | | |
| **281** | 337 | 374 | 3.00 | 5.23 | 19.2 | | | |
| **104** | 125 | 1008 | 0.85 | 14.11 | ** | **FH062-22P-160M-04E** **FO062-22P-160M-04E** | 156 | 140 |
| **113** | 136 | 928 | 0.90 | 12.99 | ** | | | |
| **123** | 148 | 851 | 1.00 | 11.91 | ** | | | |
| **137** | 164 | 765 | 1.10 | 10.70 | 10.6 | | | |
| **150** | 180 | 701 | 1.20 | 9.81 | 11.2 | | | |
| **232** | 278 | 454 | 1.30 | 6.35 | 12.9 | | | |
| **274** | 329 | 383 | 1.50 | 5.36 | 13.3 | | | |
| **333** | 400 | 316 | 1.85 | 4.41 | 13.5 | | | |

| $P_N$ = 15 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| **50 Hz** **15 kW** $n_{50}$ min$^{-1}$ | **60 Hz** **18 kW** $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | **i** | at 50 Hz $F_{rN}$ kN |  | **m** kg | Dimension sheet see page |
| **78** | 94 | 1847 | 0.85 | 18.89 | ** | **FH072-22P-160L-04F** **FO072-22P-160L-04F** | 194 | 142 |
| **91** | 109 | 1572 | 1.00 | 16.08 | ** | | | |
| **109** | 131 | 1319 | 1.15 | 13.49 | 14.6 | | | |
| **129** | 155 | 1111 | 1.35 | 11.36 | 16.5 | | | |
| **144** | 173 | 992 | 1.15 | 10.14 | 17.4 | | | |
| **157** | 188 | 911 | 1.65 | 9.32 | 17.9 | | | |
| **169** | 203 | 850 | 1.35 | 8.69 | 18.2 | | | |
| **198** | 238 | 723 | 1.55 | 7.40 | 18.9 | | | |
| **236** | 283 | 607 | 1.85 | 6.21 | 19.4 | | | |
| **280** | 336 | 511 | 2.20 | 5.23 | 19.7 | | | |
| **342** | 410 | 419 | 2.60 | 4.29 | 18.4 | | | |
| **137** | 164 | 1047 | 0.80 | 10.70 | ** | **FH062-22P-160L-04F** **FO062-22P-160L-04F** | 171 | 140 |
| **149** | 179 | 960 | 0.90 | 9.81 | ** | | | |
| **231** | 277 | 621 | 0.95 | 6.35 | ** | | | |
| **273** | 328 | 524 | 1.10 | 5.36 | 12.5 | | | |
| **332** | 398 | 432 | 1.35 | 4.41 | 13.1 | | | |

*Legend see page 93*

*** ... on request*

## Structure of the selection tables

| 1 | | 2 | 3 | 4 | 5 | 6 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Type | | $i_{ges.}$ | $M_{2nenn}$ [Nm] | $n_2$ [$min^{-1}$] | $i_{exakt}$ | IEC motor frame size | | | | | | | | |
| | | | | | | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 |
| **F022** | | 97.85 | 130 | 14 | 1957/20 | | | | | | | | | |
| 2 stages | 7 | 88.09 | 130 | 16 | 969/11 | | | | | | | | | |
| | | 76.22 | 130 | 18 | 3811/50 | | | | | | | | | |
| | | 68.62 | 130 | 20 | 3774/55 | | | | | | | | | |
| $n_1$=1400 $min^{-1}$ | 8 | 61.80 | 130 | 23 | 309/5 | | | | | | | | | |
| | | 55.64 | 130 | 25 | 612/11 | | | | | | | | | |
| | | 48.69 | 130 | 29 | 2678/55 | | | | | | | | | |
| Maximum torque 130 Nm | 9 | 43.83 | 130 | 32 | 5304/121 | | | | | | | | | |
| | | 37.52 | 130 | 37 | 5253/140 | | | | | | | | | |

1 Type of gear unit

2 Total ratio

3 Permissible output torque at S1 operation ($f_B$ = 1.0)

4 Output speed (gear unit) at $n_1$ = 1400 $min^{-1}$

5 Exact mathematical ratio

6 Possible motor frame sizes

7 Number of gear stages

8 Motor speed

9 Maximum torque

F

| Type | $i_{ges.}$ | $M_{2nenn}$ [Nm] | $n_2$ [min$^{-1}$] | $i_{exakt}$ | IEC motor frame size | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 |
| **F022** | 97.85 | 130 | 14 | 1957/20 | ■ | ■ | | | | | | | |
| | 88.09 | 130 | 16 | 969/11 | ■ | ■ | | | | | | | |
| | 76.22 | 130 | 18 | 3811/50 | ■ | ■ | ■ | ■ | | | | | |
| | 68.62 | 130 | 20 | 3774/55 | ■ | ■ | ■ | ■ | | | | | |
| | 61.80 | 130 | 23 | 309/5 | ■ | ■ | ■ | ■ | | | | | |
| | 55.64 | 130 | 25 | 612/11 | ■ | ■ | ■ | ■ | | | | | |
| | 48.69 | 130 | 29 | 2678/55 | ■ | ■ | ■ | ■ | | | | | |
| | 43.83 | 130 | 32 | 5304/121 | ■ | ■ | ■ | ■ | | | | | |
| | 37.52 | 130 | 37 | 5253/140 | ■ | ■ | ■ | ■ | | | | | |
| | 33.78 | 130 | 41 | 2601/77 | ■ | ■ | ■ | ■ | | | | | |
| | 31.79 | 53 | 44 | 1653/52 | ■ | ■ | | | | | | | |
| | 29.32 | 130 | 48 | 3811/130 | ■ | ■ | ■ | ■ | | | | | |
| | 26.39 | 130 | 53 | 3774/143 | ■ | ■ | ■ | ■ | | | | | |
| | 24.76 | 84 | 57 | 3219/130 | ■ | ■ | ■ | ■ | | | | | |
| | 21.89 | 130 | 64 | 1751/80 | ■ | ■ | ■ | ■ | | | | | |
| | 20.08 | 84 | 70 | 261/13 | ■ | ■ | ■ | ■ | | | | | |
| | 19.70 | 130 | 71 | 867/44 | ■ | ■ | ■ | ■ | | | | | |
| | 16.48 | 130 | 85 | 412/25 | ■ | ■ | ■ | ■ | | | | | |
| | 15.82 | 84 | 89 | 174/11 | ■ | ■ | ■ | ■ | | | | | |
| | 14.84 | 130 | 94 | 816/55 | ■ | ■ | ■ | ■ | | | | | |
| | 12.19 | 84 | 115 | 4437/364 | ■ | ■ | ■ | ■ | | | | | |
| | 12.09 | 130 | 116 | 2781/230 | ■ | ■ | ■ | ■ | | | | | |
| | 10.89 | 130 | 129 | 2754/253 | ■ | ■ | ■ | ■ | | | | | |
| | 9.52 | 84 | 147 | 3219/338 | ■ | ■ | ■ | ■ | | | | | |
| | 7.11 | 84 | 197 | 1479/208 | ■ | ■ | ■ | ■ | | | | | |
| | 5.35 | 84 | 261 | 348/65 | ■ | ■ | ■ | ■ | | | | | |
| | 3.93 | 72 | 356 | 2349/598 | ■ | ■ | ■ | ■ | | | | | |
| **F032** | 70.17 | 220 | 20 | 7719/110 | ■ | ■ | ■ | ■ | | | | | |
| | 63.63 | 220 | 22 | 1909/30 | ■ | ■ | ■ | ■ | | | | | |
| | 57.07 | 220 | 25 | 2511/44 | ■ | ■ | ■ | ■ | | | | | |
| | 51.75 | 220 | 27 | 207/4 | ■ | ■ | ■ | ■ | | | | | |
| | 45.35 | 220 | 31 | 5487/121 | ■ | ■ | ■ | ■ | | | | | |
| | 41.12 | 220 | 34 | 1357/33 | ■ | ■ | ■ | ■ | | | | | |
| | 35.03 | 220 | 40 | 2697/77 | ■ | ■ | ■ | ■ | | | | | |
| | 31.76 | 220 | 44 | 667/21 | ■ | ■ | ■ | ■ | | | | | |
| | 27.97 | 220 | 50 | 3999/143 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 27.67 | 119 | 51 | 83/3 | ■ | ■ | ■ | ■ | | | | | |
| | 25.36 | 220 | 55 | 989/39 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 22.50 | 147 | 62 | 45/2 | ■ | ■ | ■ | ■ | | | | | |
| | 21.14 | 220 | 66 | 465/22 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 19.17 | 220 | 73 | 115/6 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 17.88 | 150 | 78 | 590/33 | ■ | ■ | ■ | ■ | | | | | |
| | 16.06 | 220 | 87 | 1767/110 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 14.57 | 214 | 96 | 437/30 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 13.81 | 150 | 101 | 290/21 | ■ | ■ | ■ | ■ | | | | | |
| | 12.50 | 203 | 112 | 3162/253 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 11.33 | 197 | 124 | 34/3 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 11.03 | 150 | 127 | 430/39 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 9.76 | 187 | 144 | 1395/143 | | | ■ | ■ | ■ | | | | |
| | 8.85 | 181 | 158 | 115/13 | | | ■ | ■ | ■ | | | | |
| | 8.33 | 150 | 168 | 25/3 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 6.33 | 141 | 221 | 19/3 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 4.93 | 123 | 284 | 340/69 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 3.85 | 107 | 364 | 50/13 | | | ■ | ■ | ■ | | | | |

2 stages

$n_1$=1400 min$^{-1}$

Maximum torque
130 Nm

2 stages

$n_1$=1400 min$^{-1}$

Maximum torque
220 Nm

F

*Legend see page 125*

| Type | $i_{ges.}$ | $M_{2nenn}$ [Nm] | $n_2$ [min$^{-1}$] | $i_{exakt}$ | IEC motor frame size | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 |
| **F042** | 75.79 | 322 | 18 | 1819/24 | ■ | ■ | ■ | ■ | | | | | |
| | 69.14 | 293 | 20 | 4494/65 | ■ | ■ | ■ | ■ | | | | | |
| | 61.98 | 400 | 23 | 2975/48 | ■ | ■ | ■ | ■ | | | | | |
| | 56.54 | 396 | 25 | 735/13 | ■ | ■ | ■ | ■ | | | | | |
| | 48.94 | 400 | 29 | 1615/33 | ■ | ■ | ■ | ■ | | | | | |
| | 44.64 | 400 | 31 | 6384/143 | ■ | ■ | ■ | ■ | | | | | |
| | 41.20 | 175 | 34 | 8239/200 | ■ | ■ | ■ | ■ | | | | | |
| | 37.95 | 400 | 37 | 2125/56 | ■ | ■ | ■ | ■ | | | | | |
| | 34.62 | 400 | 40 | 450/13 | ■ | ■ | ■ | ■ | | | | | |
| | 33.69 | 236 | 42 | 539/16 | ■ | ■ | ■ | ■ | | | | | |
| | 31.06 | 400 | 45 | 1615/52 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 28.33 | 400 | 49 | 4788/169 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 26.60 | 308 | 53 | 133/5 | ■ | ■ | ■ | ■ | | | | | |
| | 23.91 | 400 | 59 | 765/32 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 21.81 | 400 | 64 | 567/26 | ■ | ■ | ■ | ■ | ■ | | | | |
| 2 stages | 20.63 | 308 | 68 | 165/8 | ■ | ■ | ■ | ■ | | | | | |
| | 18.06 | 400 | 78 | 289/16 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 16.88 | 308 | 83 | 4389/260 | ■ | ■ | ■ | ■ | ■ | | | | |
| $n_1$=1400 min$^{-1}$ | 16.48 | 400 | 85 | 1071/65 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 14.78 | 400 | 95 | 340/23 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 13.48 | 400 | 104 | 4032/299 | ■ | ■ | ■ | ■ | ■ | | | | |
| Maximum torque 400 Nm | 12.99 | 308 | 108 | 2079/160 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 11.99 | 400 | 117 | 935/78 | | | ■ | ■ | ■ | | | | |
| | 10.93 | 394 | 128 | 1848/169 | | | ■ | ■ | ■ | | | | |
| | 10.03 | 378 | 140 | 1445/144 | | | ■ | ■ | ■ | | | | |
| | 9.82 | 308 | 143 | 3927/400 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 9.15 | 361 | 153 | 119/13 | | | ■ | ■ | ■ | | | | |
| | 8.13 | 340 | 172 | 2635/324 | | | ■ | ■ | ■ | | | | |
| | 8.03 | 308 | 174 | 924/115 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 7.84 | 334 | 179 | 2635/336 | | | | | ■ | | | | |
| | 7.42 | 325 | 189 | 868/117 | | | ■ | ■ | ■ | | | | |
| | 7.15 | 319 | 196 | 93/13 | | | | | ■ | | | | |
| | 6.52 | 271 | 215 | 847/130 | | | ■ | ■ | ■ | | | | |
| | 5.45 | 242 | 257 | 1309/240 | | | ■ | ■ | ■ | | | | |
| | 4.42 | 212 | 317 | 2387/540 | | | ■ | ■ | ■ | | | | |
| | 4.26 | 207 | 328 | 341/80 | | | | | ■ | | | | |
| **F043** | 422.98 | 400 | 3.3 | 17765/42 | ■ | ■ | | | | | | | |
| | 385.85 | 400 | 3.6 | 5016/13 | ■ | ■ | | | | | | | |
| | 329.48 | 400 | 4.2 | 6919/21 | ■ | ■ | ■ | ■ | | | | | |
| | 300.55 | 400 | 4.7 | 19536/65 | ■ | ■ | ■ | ■ | | | | | |
| | 267.14 | 400 | 5.2 | 1870/7 | ■ | ■ | ■ | ■ | | | | | |
| | 243.69 | 400 | 5.7 | 3168/13 | ■ | ■ | ■ | ■ | | | | | |
| 3 stages | 210.48 | 400 | 6.7 | 4420/21 | ■ | ■ | ■ | ■ | | | | | |
| | 192.00 | 400 | 7.3 | 192/1 | ■ | ■ | ■ | ■ | | | | | |
| | 162.19 | 400 | 8.6 | 15895/98 | ■ | ■ | ■ | ■ | | | | | |
| $n_1$=1400 min$^{-1}$ | 147.96 | 400 | 9.5 | 13464/91 | ■ | ■ | ■ | ■ | | | | | |
| | 126.72 | 400 | 11 | 34595/273 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 115.60 | 400 | 12 | 19536/169 | ■ | ■ | ■ | ■ | ■ | | | | |
| Maximum torque 400 Nm | 94.61 | 400 | 15 | 15895/168 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 86.31 | 400 | 16 | 1122/13 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 71.24 | 400 | 20 | 1496/21 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 64.98 | 400 | 22 | 4224/65 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 52.27 | 400 | 27 | 8415/161 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 47.68 | 400 | 29 | 14256/299 | ■ | ■ | ■ | ■ | ■ | | | | |

*Legend see page 125*

| Type | $i_{ges.}$ | $M_{2nenn}$ [Nm] | $n_2$ [min$^{-1}$] | $i_{exakt}$ | IEC motor frame size | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 |
| **F052** | 87.38 | 371 | 16 | 5243/60 | ■ | ■ | ■ | ■ | | | | | |
| | 79.84 | 339 | 18 | 10379/130 | ■ | ■ | ■ | ■ | | | | | |
| | 71.46 | 501 | 20 | 1715/24 | ■ | ■ | ■ | ■ | | | | | |
| | 65.29 | 457 | 21 | 3395/52 | ■ | ■ | ■ | ■ | | | | | |
| | 56.42 | 600 | 25 | 1862/33 | ■ | ■ | ■ | ■ | | | | | |
| | 51.55 | 597 | 27 | 7372/143 | ■ | ■ | ■ | ■ | | | | | |
| | 48.15 | 204 | 29 | 963/20 | ■ | ■ | ■ | ■ | | | | | |
| | 43.75 | 600 | 32 | 175/4 | ■ | ■ | ■ | ■ | | | | | |
| | 39.97 | 597 | 35 | 7275/182 | ■ | ■ | ■ | ■ | | | | | |
| | 39.38 | 276 | 36 | 315/8 | ■ | ■ | ■ | ■ | | | | | |
| | 35.81 | 600 | 39 | 931/26 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 32.72 | 597 | 43 | 5529/169 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 31.09 | 360 | 45 | 342/11 | ■ | ■ | ■ | ■ | | | | | |
| | 27.56 | 600 | 51 | 441/16 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 25.18 | 597 | 56 | 2619/104 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| 2 stages | 24.11 | 360 | 58 | 675/28 | ■ | ■ | ■ | ■ | | | | | |
| | 20.83 | 600 | 67 | 833/40 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 19.73 | 360 | 71 | 513/26 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| $n_1$=1400 min$^{-1}$ | 19.03 | 597 | 74 | 4947/260 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 17.04 | 600 | 82 | 392/23 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 15.57 | 597 | 90 | 4656/299 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| Maximum torque 600 Nm | 15.19 | 360 | 92 | 243/16 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 13.82 | 600 | 101 | 539/39 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 12.63 | 597 | 111 | 2134/169 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 11.57 | 600 | 121 | 833/72 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 11.48 | 360 | 122 | 459/40 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 10.57 | 584 | 132 | 1649/156 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 9.39 | 360 | 149 | 216/23 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 9.38 | 564 | 149 | 1519/162 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 9.04 | 558 | 155 | 217/24 | | | | | ■ | ■ | ■ | | |
| | 8.57 | 549 | 163 | 3007/351 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 8.26 | 543 | 169 | 3007/364 | | | | | ■ | ■ | ■ | | |
| | 7.62 | 360 | 184 | 99/13 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 6.38 | 360 | 220 | 51/8 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 5.17 | 360 | 271 | 31/6 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 4.98 | 360 | 281 | 279/56 | | | | | ■ | ■ | ■ | | |
| **F053** | 487.67 | 600 | 2.9 | 1463/3 | ■ | ■ | | | | | | | |
| | 445.56 | 597 | 3.1 | 40546/91 | ■ | ■ | | | | | | | |
| | 379.87 | 600 | 3.7 | 5698/15 | ■ | ■ | ■ | ■ | | | | | |
| | 347.07 | 597 | 4 | 157916/455 | ■ | ■ | ■ | ■ | | | | | |
| | 308.00 | 600 | 4.5 | 308/1 | ■ | ■ | ■ | ■ | | | | | |
| | 281.41 | 597 | 5 | 25608/91 | ■ | ■ | ■ | ■ | | | | | |
| 3 stages | 242.67 | 600 | 5.8 | 728/3 | ■ | ■ | ■ | ■ | | | | | |
| | 221.71 | 597 | 6.3 | 1552/7 | ■ | ■ | ■ | ■ | | | | | |
| | 187.00 | 600 | 7.5 | 187/1 | ■ | ■ | ■ | ■ | | | | | |
| $n_1$=1400 min$^{-1}$ | 170.85 | 597 | 8.2 | 108834/637 | ■ | ■ | ■ | ■ | | | | | |
| | 146.10 | 600 | 9.6 | 5698/39 | ■ | ■ | ■ | ■ | | | | | |
| Maximum torque 600 Nm | 133.49 | 597 | 10 | 157916/1183 | ■ | ■ | ■ | ■ | | | | | |
| | 109.08 | 600 | 13 | 1309/12 | ■ | ■ | ■ | ■ | | | | | |
| | 99.66 | 597 | 14 | 18139/182 | ■ | ■ | ■ | ■ | | | | | |
| | 82.13 | 600 | 17 | 1232/15 | ■ | ■ | ■ | ■ | | | | | |
| | 75.04 | 597 | 19 | 34144/455 | ■ | ■ | ■ | ■ | | | | | |
| | 60.26 | 600 | 23 | 1386/23 | ■ | ■ | ■ | ■ | | | | | |
| | 55.06 | 597 | 25 | 115236/2093 | ■ | ■ | ■ | ■ | | | | | |

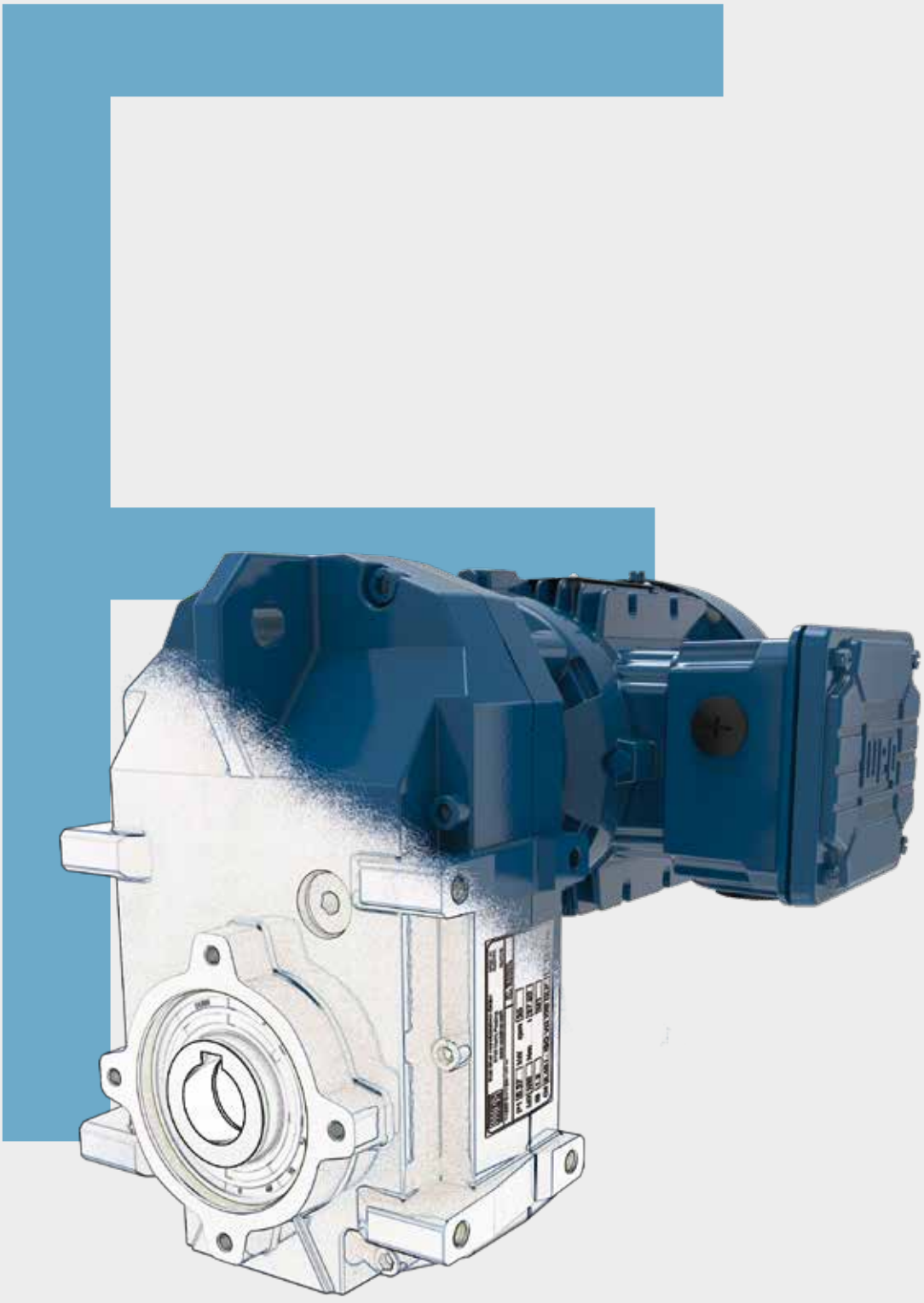
*Legend see page 125*

| Type | $i_{ges.}$ | $M_{2nenn}$ [Nm] | $n_2$ [min$^{-1}$] | $i_{exakt}$ | IEC motor frame size | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 |
| **F062** | 49.67 | 820 | 28 | 4520/91 | ■ | ■ | ■ | ■ | | | | | |
| | 45.55 | 820 | 31 | 8927/196 | ■ | ■ | ■ | ■ | | | | | |
| | 41.66 | 820 | 34 | 7040/169 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 38.20 | 820 | 37 | 3476/91 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 32.69 | 820 | 43 | 425/13 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 29.98 | 820 | 47 | 6715/224 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 25.23 | 820 | 55 | 328/13 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 23.14 | 820 | 61 | 3239/140 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 20.87 | 820 | 67 | 480/23 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 20.49 | 422 | 68 | 3729/182 | ■ | ■ | ■ | ■ | | | | | |
| | 19.14 | 820 | 73 | 3081/161 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 17.75 | 820 | 79 | 3000/169 | | | ■ | ■ | ■ | ■ | ■ | | |
| 2 stages | 17.18 | 571 | 81 | 2904/169 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 16.28 | 820 | 86 | 5925/364 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 15.38 | 820 | 91 | 200/13 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| $n_1$=1400 min$^{-1}$ | 14.11 | 820 | 99 | 395/28 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| | 13.49 | 571 | 104 | 2805/208 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 12.99 | 820 | 108 | 1520/117 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| Maximum torque 820 Nm | 12.53 | 820 | 112 | 1140/91 | | | | | ■ | ■ | ■ | | |
| | 11.91 | 820 | 118 | 1501/126 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| | 11.49 | 820 | 122 | 4503/392 | | | | | ■ | ■ | ■ | | |
| | 10.70 | 820 | 131 | 3200/299 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| | 10.41 | 571 | 135 | 1353/130 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 9.81 | 820 | 143 | 1580/161 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| | 8.61 | 571 | 163 | 198/23 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 7.32 | 571 | 191 | 2475/338 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 6.35 | 571 | 221 | 165/26 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| | 5.36 | 571 | 261 | 209/39 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| | 5.17 | 571 | 271 | 1881/364 | | | | | ■ | ■ | ■ | | |
| | 4.41 | 571 | 317 | 1320/299 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| **F063** | 412.64 | 820 | 3.4 | 80464/195 | ■ | ■ | ■ | ■ | | | | | |
| | 378.37 | 820 | 3.7 | 397291/1050 | ■ | ■ | ■ | ■ | | | | | |
| | 337.44 | 820 | 4.1 | 13160/39 | ■ | ■ | ■ | ■ | | | | | |
| | 309.42 | 820 | 4.5 | 3713/12 | ■ | ■ | ■ | ■ | | | | | |
| | 266.44 | 820 | 5.3 | 114304/429 | ■ | ■ | ■ | ■ | | | | | |
| | 244.32 | 820 | 5.7 | 282188/1155 | ■ | ■ | ■ | ■ | | | | | |
| | 206.59 | 820 | 6.8 | 18800/91 | ■ | ■ | ■ | ■ | | | | | |
| | 189.44 | 820 | 7.4 | 18565/98 | ■ | ■ | ■ | ■ | | | | | |
| 3 stages | 169.09 | 820 | 8.3 | 28576/169 | ■ | ■ | ■ | ■ | | | | | |
| | 155.05 | 820 | 9 | 70547/455 | ■ | ■ | ■ | ■ | | | | | |
| | 130.15 | 820 | 11 | 1692/13 | ■ | ■ | ■ | ■ | | | | | |
| $n_1$=1400 min$^{-1}$ | 119.35 | 820 | 12 | 33417/280 | ■ | ■ | ■ | ■ | | | | | |
| | 98.34 | 820 | 14 | 6392/65 | ■ | ■ | ■ | ■ | | | | | |
| Maximum torque 820 Nm | 90.17 | 820 | 16 | 63121/700 | ■ | ■ | ■ | ■ | | | | | |
| | 80.48 | 820 | 17 | 24064/299 | ■ | ■ | ■ | ■ | | | | | |
| | 73.80 | 820 | 19 | 59408/805 | ■ | ■ | ■ | ■ | | | | | |
| | 65.26 | 820 | 21 | 33088/507 | | | ■ | ■ | ■ | ■ | | | |
| | 59.84 | 820 | 23 | 81686/1365 | | | ■ | ■ | ■ | ■ | | | |
| | 54.63 | 820 | 26 | 6392/117 | | | ■ | ■ | ■ | ■ | | | |
| | 50.10 | 820 | 28 | 63121/1260 | | | ■ | ■ | ■ | ■ | | | |
| | 44.28 | 820 | 32 | 46624/1053 | | | ■ | ■ | ■ | ■ | | | |
| | 40.60 | 820 | 34 | 115103/2835 | | | ■ | ■ | ■ | ■ | | | |

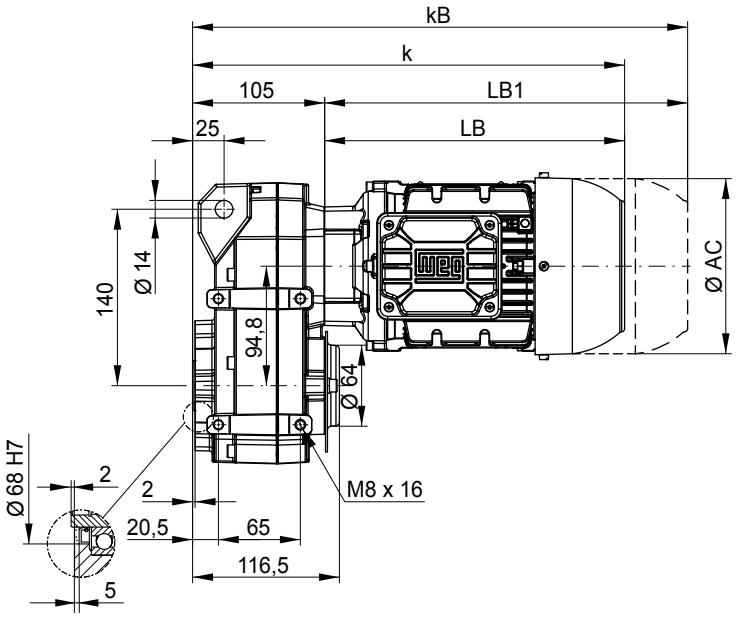
*Legend see page 125*

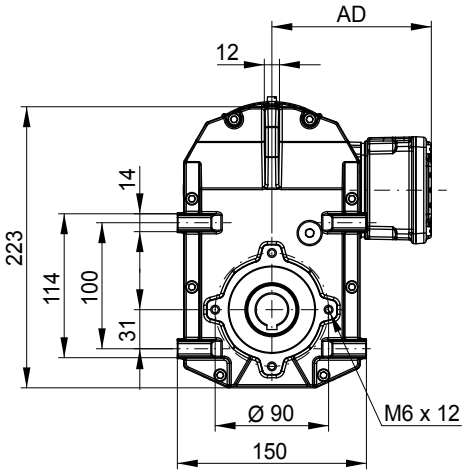
| Type | $i_{ges.}$ | $M_{2nenn}$ [Nm] | $n_2$ [min$^{-1}$] | $i_{exakt}$ | IEC motor frame size | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 |
| **F072** | 45.02 | 1500 | 31 | 5763/128 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 39.31 | 1500 | 36 | 629/16 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 34.74 | 1500 | 40 | 5559/160 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 29.38 | 1500 | 48 | 2703/92 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 25.25 | 1500 | 55 | 5253/208 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 22.05 | 1500 | 64 | 1411/64 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| | 20.72 | 1079 | 68 | 1243/60 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 18.89 | 1500 | 74 | 170/9 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| | 18.21 | 1500 | 77 | 255/14 | | | | | ■ | ■ | ■ | | |
| 2 stages | 18.09 | 1103 | 77 | 814/45 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 16.08 | 1500 | 87 | 1479/92 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| | 15.99 | 1094 | 88 | 1199/75 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| $n_1$=1400 min$^{-1}$ | 13.52 | 1103 | 104 | 4664/345 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 13.49 | 1500 | 104 | 2805/208 | | | | | ■ | ■ | ■ | ■ | |
| Maximum torque | 11.62 | 1085 | 120 | 2266/195 | | | ■ | ■ | ■ | ■ | ■ | | |
| 1500 Nm | 11.36 | 1500 | 123 | 2091/184 | | | | | ■ | ■ | ■ | ■ | |
| | 10.14 | 1115 | 138 | 913/90 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| | 9.32 | 1500 | 150 | 969/104 | | | | | | | | ■ | |
| | 8.69 | 1115 | 161 | 704/81 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| | 8.38 | 1006 | 167 | 176/21 | | | | | ■ | ■ | ■ | | |
| | 7.40 | 1115 | 189 | 2552/345 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| | 6.21 | 1115 | 226 | 242/39 | | | | | ■ | ■ | ■ | ■ | |
| | 5.23 | 1115 | 268 | 1804/345 | | | | | ■ | ■ | ■ | ■ | |
| | 4.29 | 1081 | 327 | 836/195 | | | | | | | | ■ | |
| **F073** | 385.37 | 1500 | 3.6 | 61659/160 | ■ | ■ | ■ | ■ | | | | | |
| | 305.42 | 1500 | 4.6 | 26877/88 | ■ | ■ | ■ | ■ | | | | | |
| | 237.15 | 1500 | 5.9 | 4743/20 | ■ | ■ | ■ | ■ | | | | | |
| 3 stages | 194.58 | 1500 | 7.2 | 12648/65 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 150.69 | 1500 | 9.3 | 96441/640 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 114.62 | 1500 | 12 | 45849/400 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| $n_1$=1400 min$^{-1}$ | 94.52 | 1500 | 15 | 17391/184 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 77.53 | 1500 | 18 | 80631/1040 | | | ■ | ■ | ■ | ■ | ■ | | |
| Maximum torque | 65.88 | 1500 | 21 | 527/8 | | | ■ | ■ | ■ | ■ | ■ | | |
| 1500 Nm | 54.16 | 1500 | 26 | 19499/360 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 52.23 | 1500 | 27 | 58497/1120 | | | | | ■ | ■ | ■ | | |
| | 42.96 | 1500 | 33 | 7905/184 | | | ■ | ■ | ■ | ■ | ■ | | |

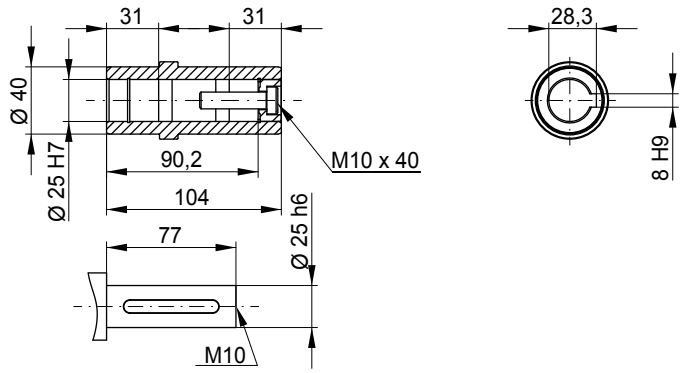
*Legend see page 125*



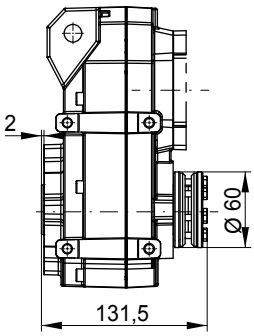
## FH02 - Hollow shaft



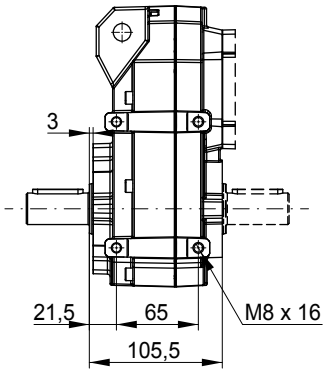



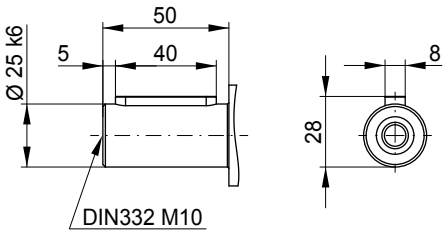



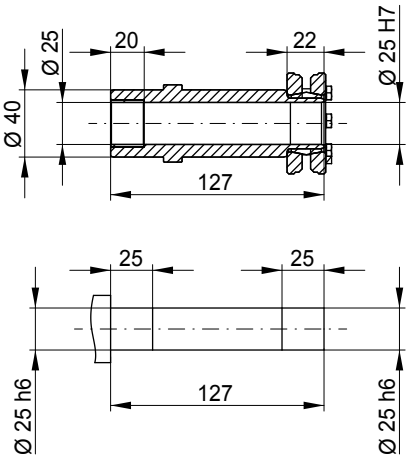

## FD02 - Shrink disc *




## FS02 - Output shaft
## FB02 - Output shaft on both sides



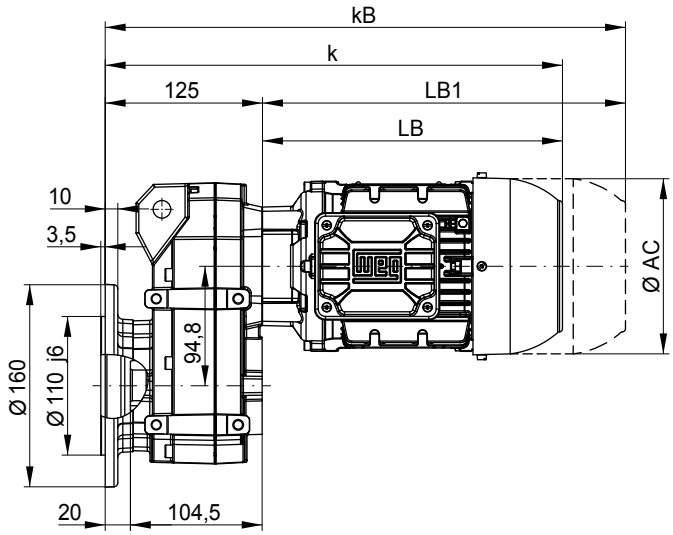



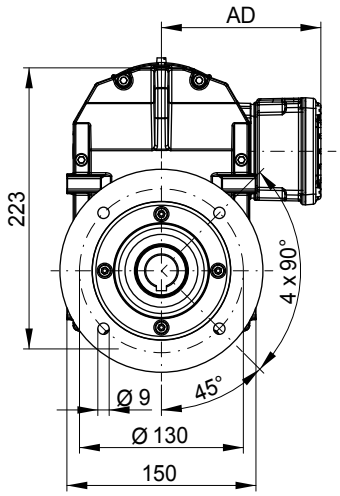




| Dimension \ Motor fr. | 63 | 71 | 80 | 90S/L |
|---|---|---|---|---|
| AC | 126 | 141 | 159 | 178 |
| AD | 128 | 136 | 145 | 155 |
| k | 309 | 343 | 351 | 393 |
| kB | 353 | 392 | 409 | 466 |
| LB | 204 | 238 | 246 | 288 |
| LB1 | 248 | 287 | 304 | 361 |

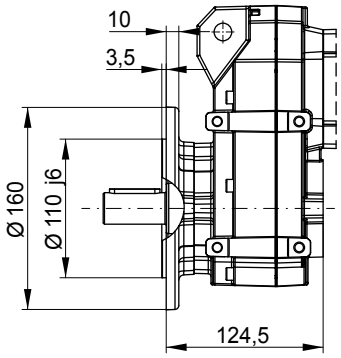
*Motor dimension sheets see page 220. Description of motor lengths LB and LB1 see page 224.*

## FO02 - B5 flange execution with hollow shaft

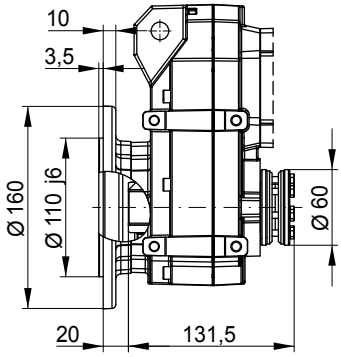


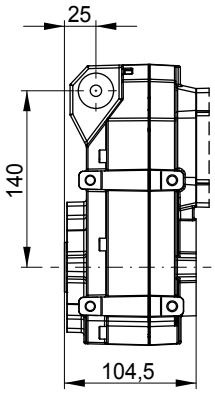

## FF02 - B5 flange execution with output shaft



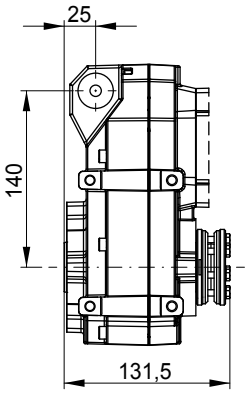

## FP02 - B5 flange execution with hollow shaft and shrink disc *

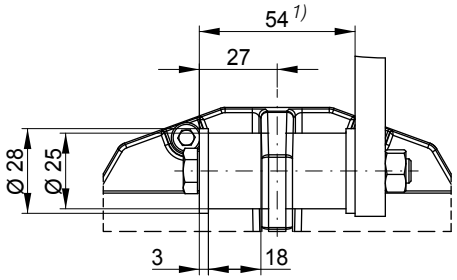



## FT02 - Hollow shaft with rubber buffer




## FU02 - Hollow shaft with shrink disc * and rubber buffer



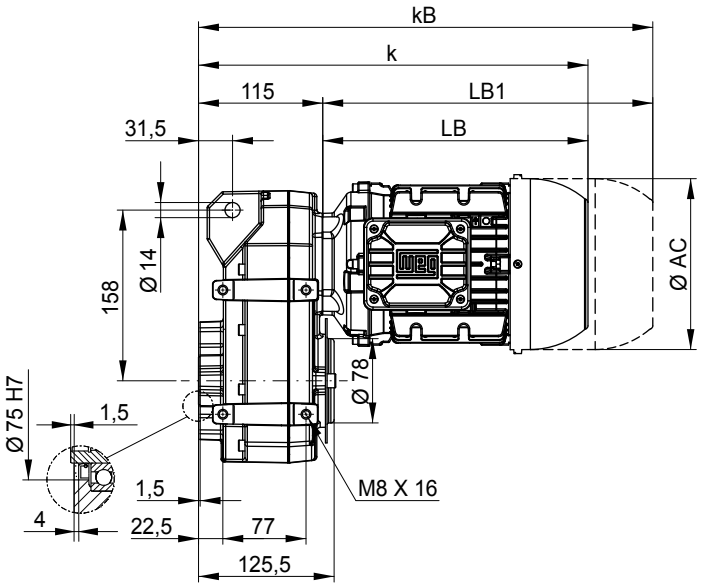



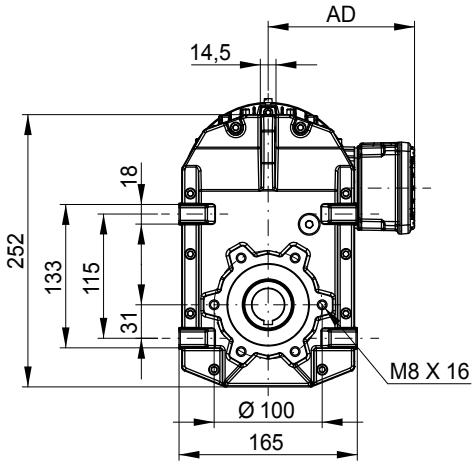

*Dimensions in mm.*

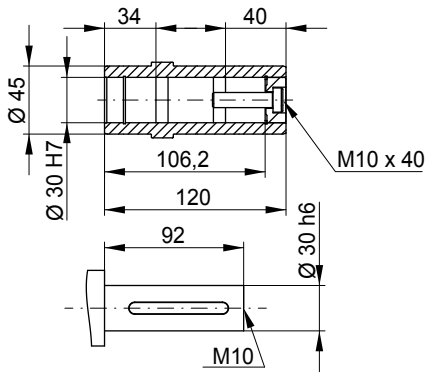
** Shrink disc only in combination with motor frame sizes 63 and 71*
*Protection cap for shrink disc never possible*

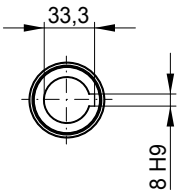
*1) Preloaded state*

## FH03 - Hollow shaft

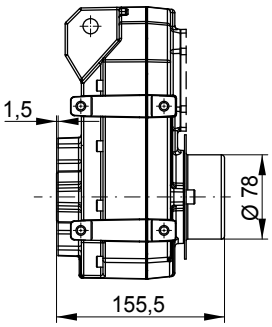


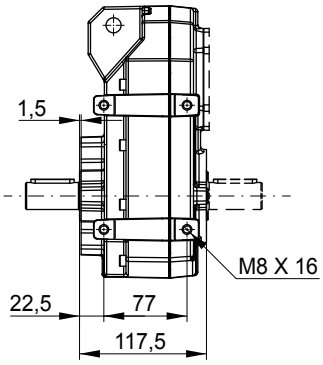



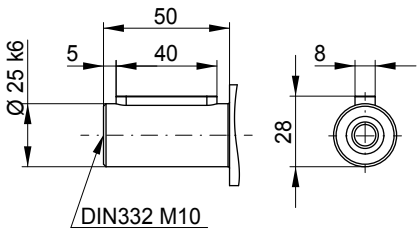



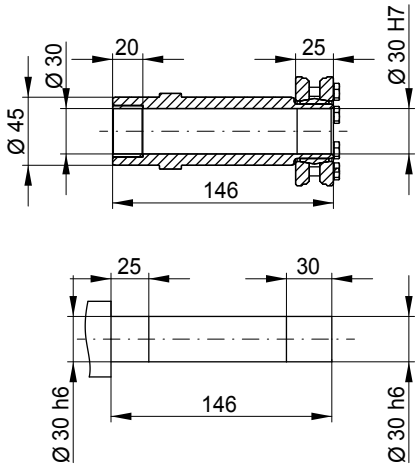

## FD03 - Shrink disc *




## FS03 - Output shaft
## FB03 - Output shaft on both sides



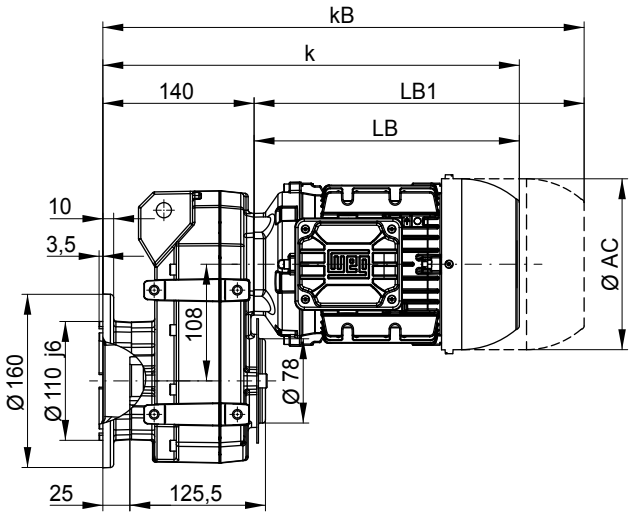



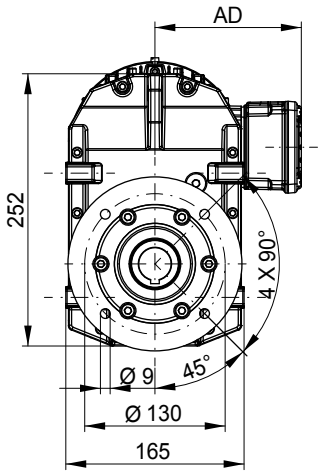




| Motor fr. / Dimension | 63 | 71 | 80 | 90S/L | 100L | L100L |
|---|---|---|---|---|---|---|
| AC | 126 | 141 | 159 | 178 | 199 | 199 |
| AD | 128 | 136 | 145 | 155 | 165 | 165 |
| k | 319 | 353 | 361 | 403 | 453 | 491 |
| kB | 363 | 402 | 419 | 476 | 537 | 575 |
| LB | 204 | 238 | 246 | 288 | 338 | 376 |
| LB1 | 248 | 287 | 304 | 361 | 422 | 460 |

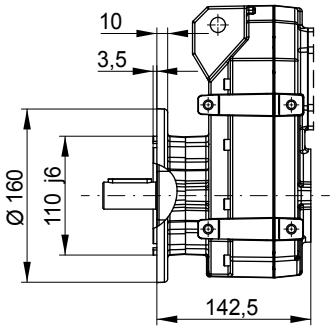
*Motor dimension sheets see page 220. Description of motor lengths LB and LB1 see page 224.*

## FO03 - B5 flange execution with hollow shaft

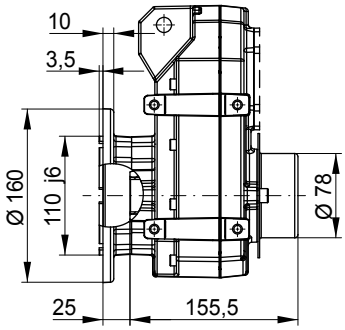


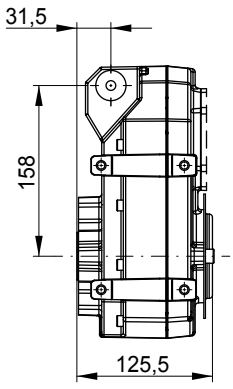

## FF03 - B5 flange execution with output shaft



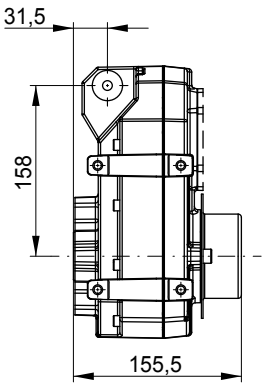

## FP03 - B5 flange execution with hollow shaft and shrink disc *

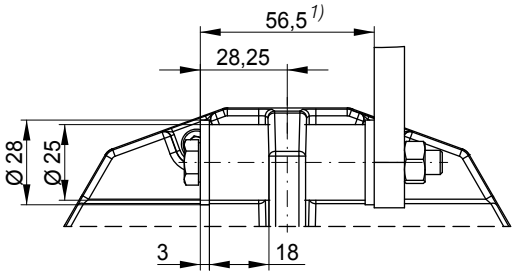



## FT03 - Hollow shaft with rubber buffer




## FU03 - Hollow shaft with shrink disc * and rubber buffer



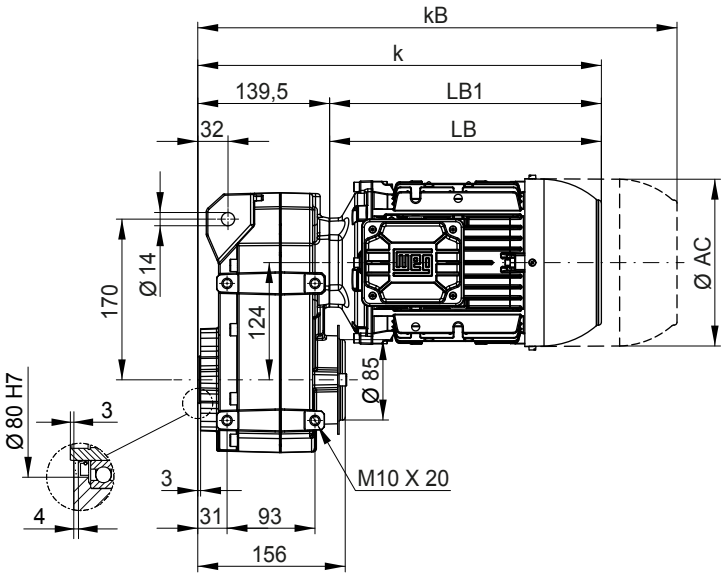



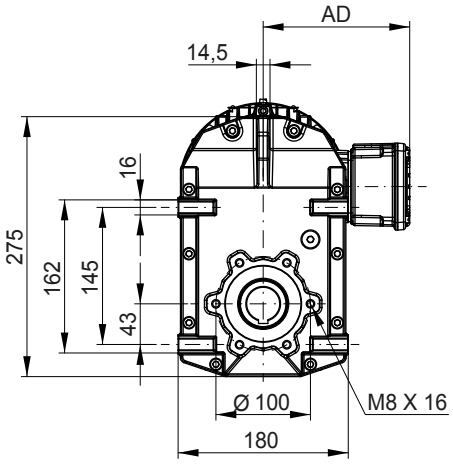

*Dimensions in mm.*

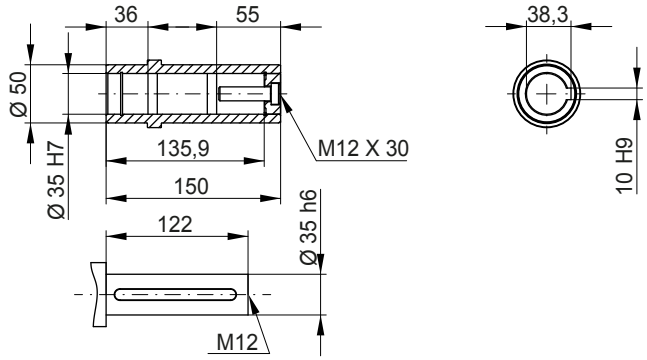
** Shrink disc only in combination with motor frame sizes 63 and 71*

*1) Preloaded state*

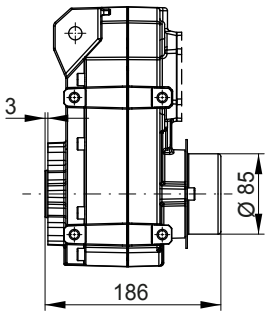
## FH04 - Hollow shaft



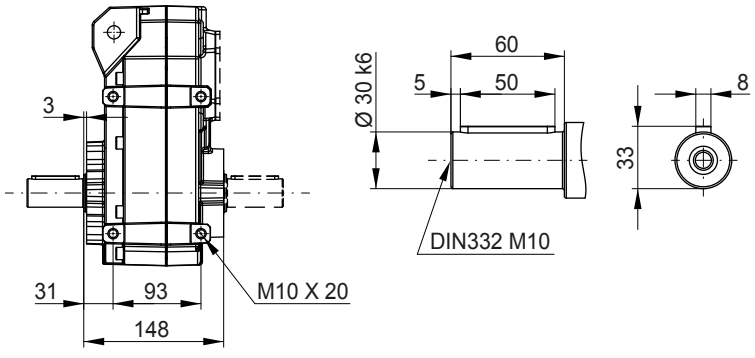



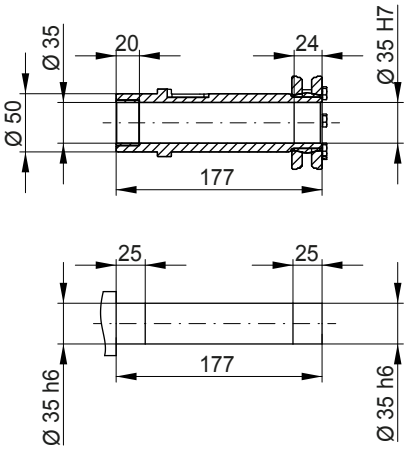




## FD04 - Shrink disc *




## FS04 - Output shaft
## FB04 - Output shaft on both sides

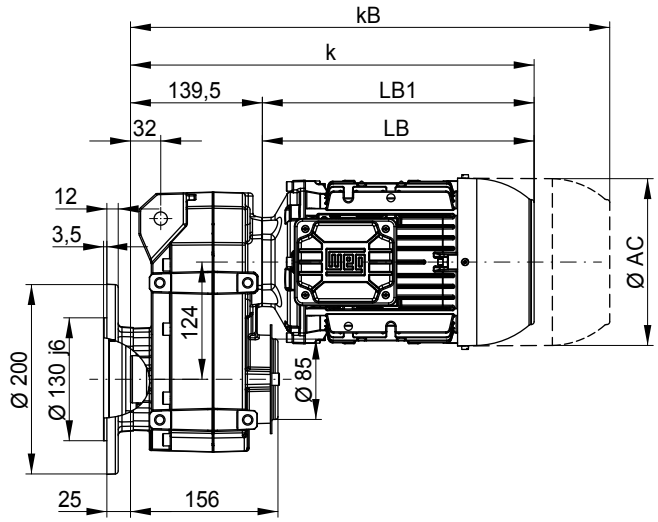


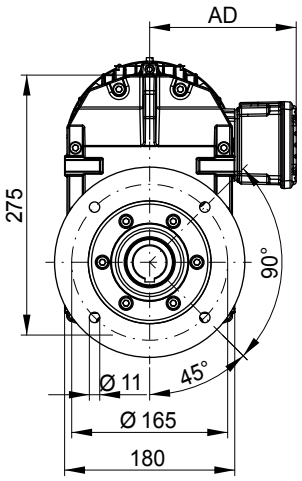




| Motor fr. / Dimension | 63 | 71 | 80 | 90S/L | 100L | L100L |
|---|---|---|---|---|---|---|
| AC | 126 | 141 | 159 | 178 | 199 | 199 |
| AD | 128 | 136 | 145 | 155 | 165 | 165 |
| k | 344 | 378 | 386 | 428 | 478 | 516 |
| kB | 388 | 427 | 444 | 501 | 562 | 600 |
| LB | 204 | 238 | 246 | 288 | 338 | 376 |
| LB1 | 248 | 287 | 304 | 361 | 422 | 460 |

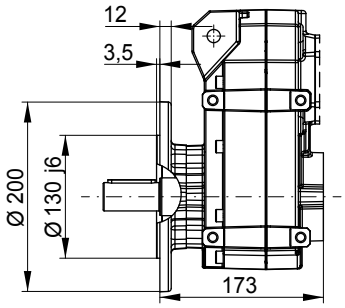
*Motor dimension sheets see page 220. Description of motor lengths LB and LB1 see page 224.*

## FO04 - B5 flange execution with hollow shaft

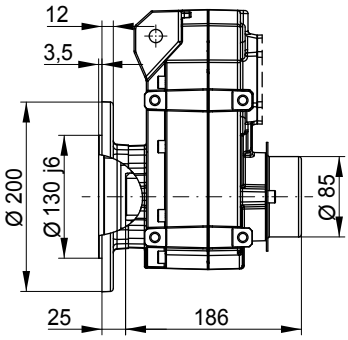


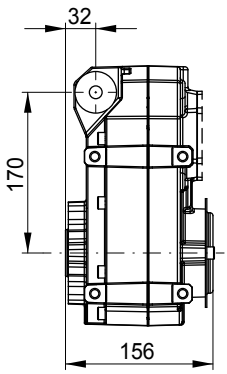

## FF04 - B5 flange execution with output shaft



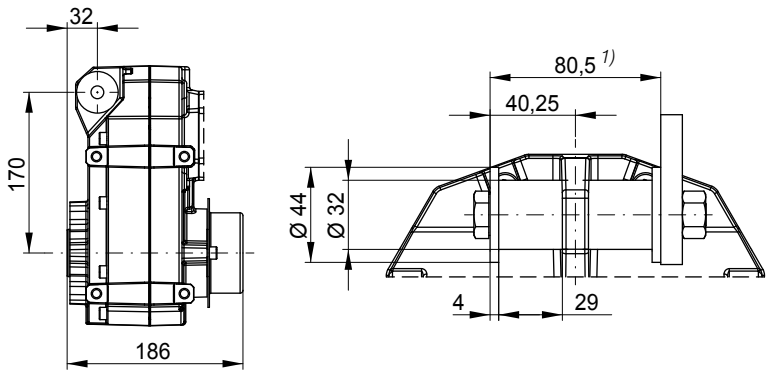

## FP04 - B5 flange execution with hollow shaft and shrink disc *




## FT04 - Hollow shaft with rubber buffer




## FU04 - Hollow shaft with shrink disc * and rubber buffer

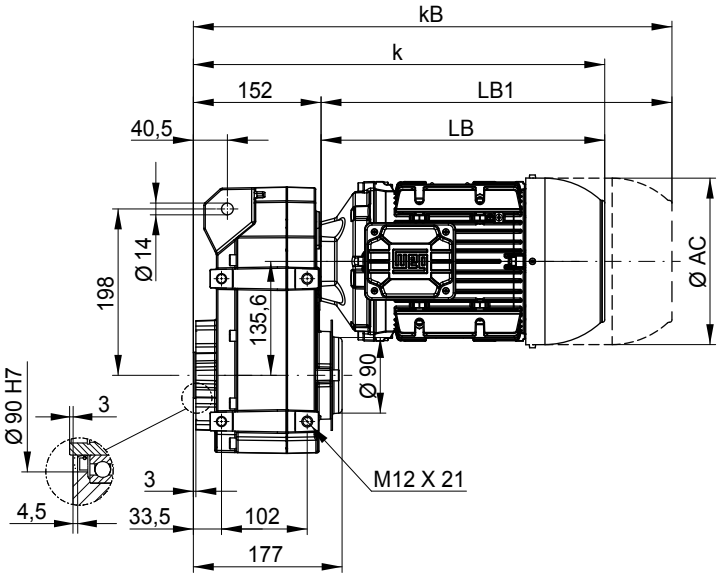


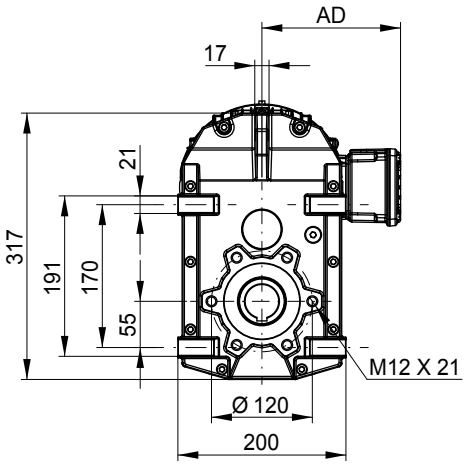

*Dimensions in mm.*

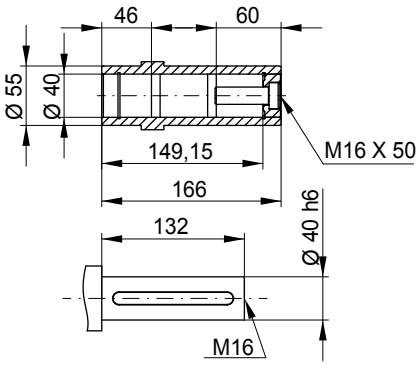
** Shrink disc only in combination with motor frame sizes 63, 71 and 80*

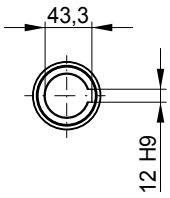
*1) Preloaded state*

## FH05 - Hollow shaft

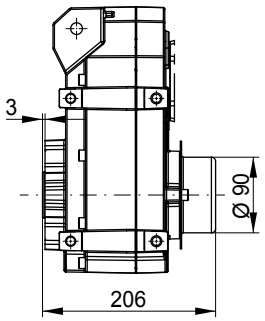


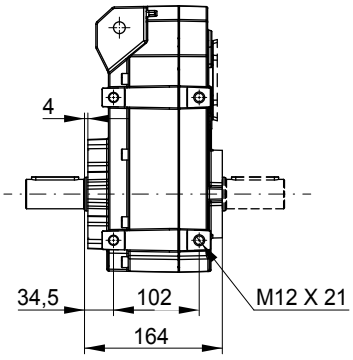



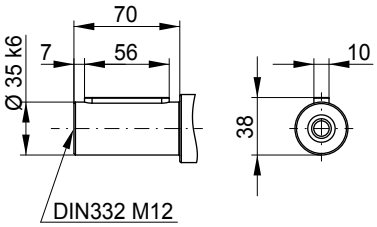



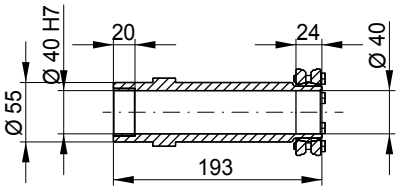

## FD05 - Shrink disc *

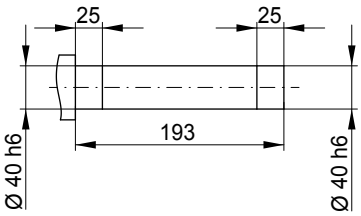



## FS05 - Output shaft
## FB05 - Output shaft on both sides



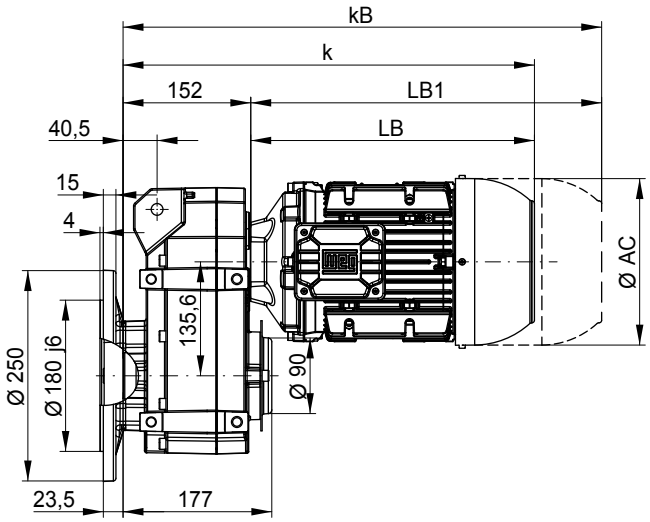



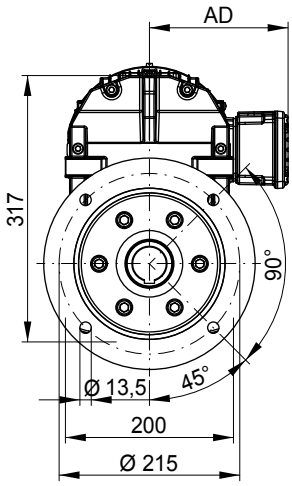




| Dimension \ Motor fr. | 63 | 71 | 80 | 90S/L | 100L | L100L | 112M | 132S,M | L132M |
|---|---|---|---|---|---|---|---|---|---|
| AC | 126 | 141 | 159 | 178 | 199 | 199 | 221 | 261 | 261 |
| AD | 128 | 136 | 145 | 155 | 165 | 165 | 185 | 205 | 205 |
| k | 356 | 390 | 398 | 440 | 490 | 528 | 500 | 565 | 603 |
| kB | 400 | 439 | 456 | 513 | 574 | 612 | 587 | 683 | 721 |
| LB | 204 | 238 | 246 | 288 | 338 | 376 | 348 | 413 | 451 |
| LB1 | 248 | 287 | 304 | 361 | 422 | 460 | 435 | 531 | 569 |

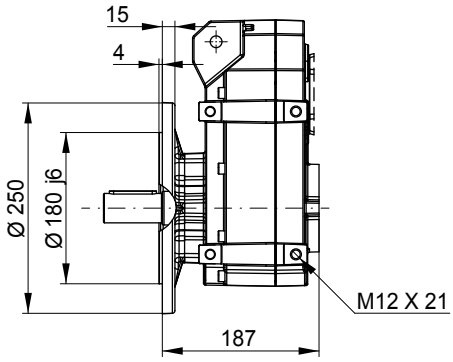
*Motor dimension sheets see page 220. Description of motor lengths LB and LB1 see page 224.*

## FO05 - B5 flange execution with hollow shaft

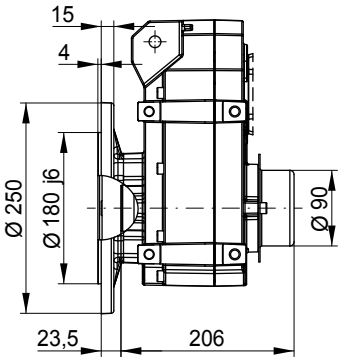


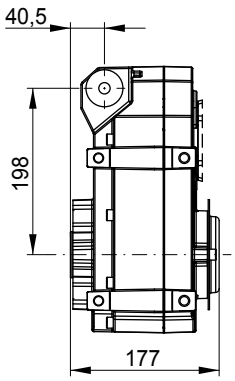

## FF05 - B5 flange execution with output shaft



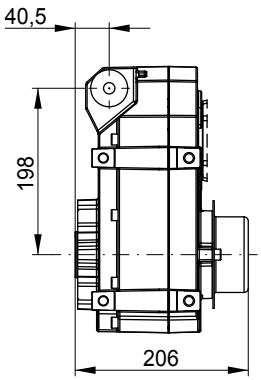

## FP05 - B5 flange execution with hollow shaft and shrink disc *

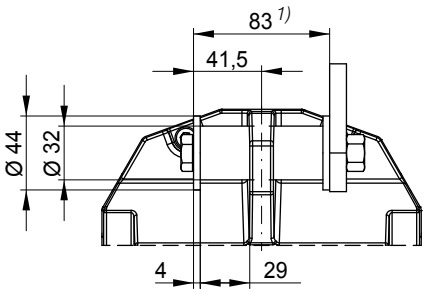



## FT05 - Hollow shaft with rubber buffer




## FU05 - Hollow shaft with shrink disc * and rubber buffer



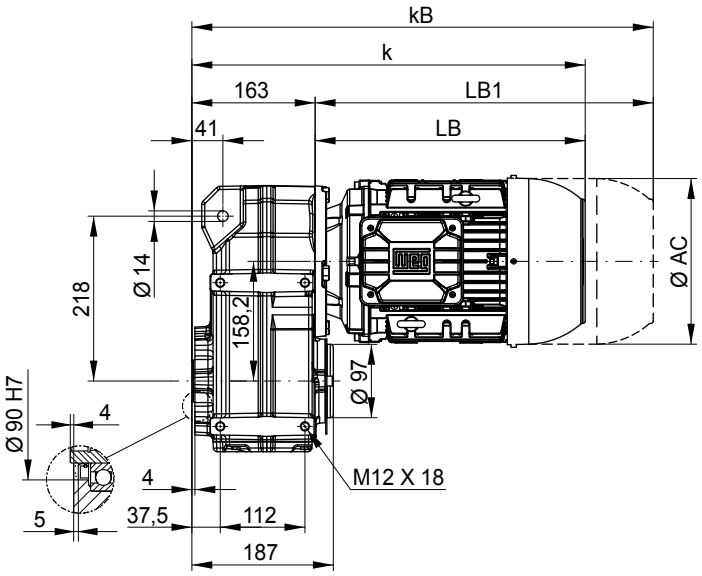



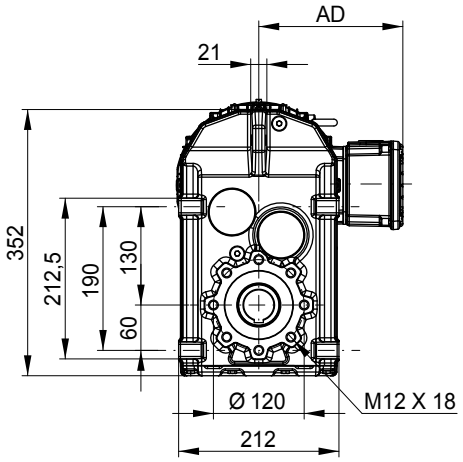

*Dimensions in mm.*

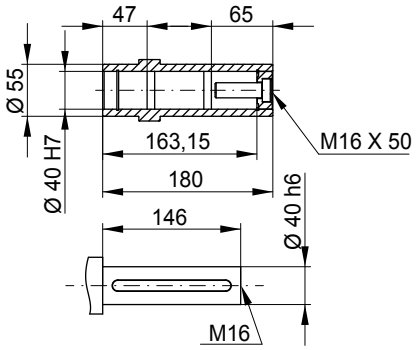
** Shrink disc only in combination with motor frame sizes 63, 71, 80 and 90*

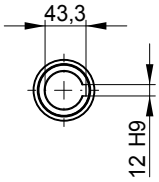
*1) Preloaded state*

## FH06 - Hollow shaft

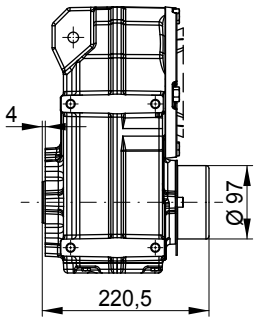


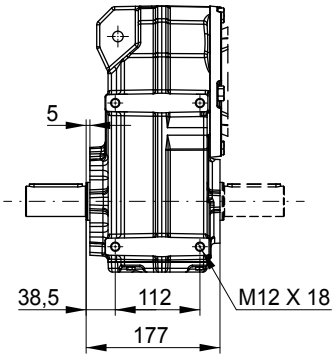



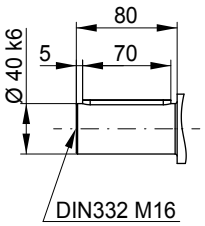



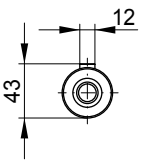

## FD06 - Shrink disc *

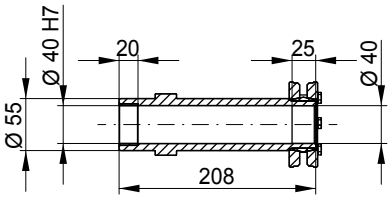


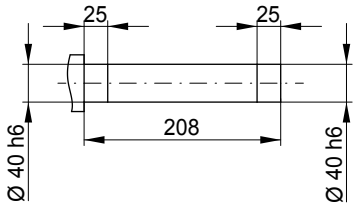

## FS06 - Output shaft
## FB06 - Output shaft on both sides



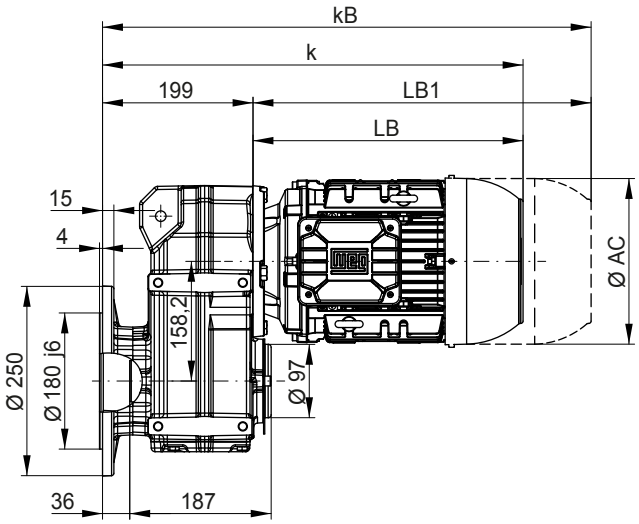



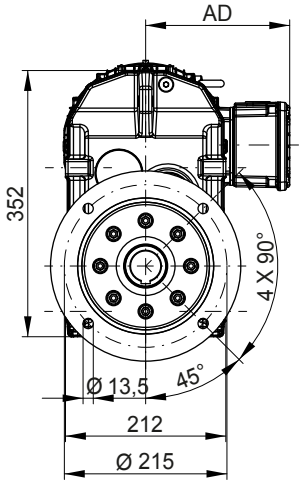




| Motor fr. / Dimension | 63 | 71 | 80 | 90S/L | 100L | L100L | 112M | 132S,M | L132M | 160M | 160L |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AC | 126 | 141 | 159 | 178 | 199 | 199 | 221 | 261 | 261 | 318 | 318 |
| AD | 128 | 136 | 145 | 155 | 165 | 165 | 185 | 205 | 205 | 266 | 266 |
| k | 367 | 401 | 409 | 451 | 501 | 539 | 511 | 576 | 614 | 708 | 752 |
| kB | 411 | 450 | 467 | 524 | 585 | 623 | 598 | 694 | 732 | 832 | 876 |
| LB | 204 | 238 | 246 | 288 | 338 | 376 | 348 | 413 | 451 | 545 | 589 |
| LB1 | 248 | 287 | 304 | 361 | 422 | 460 | 435 | 531 | 569 | 669 | 713 |

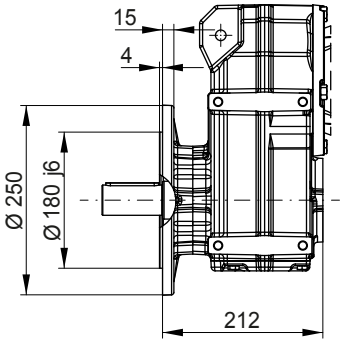
*Motor dimension sheets see page 220. Description of motor lengths LB and LB1 see page 224.*

## FO06 - B5 flange execution with hollow shaft

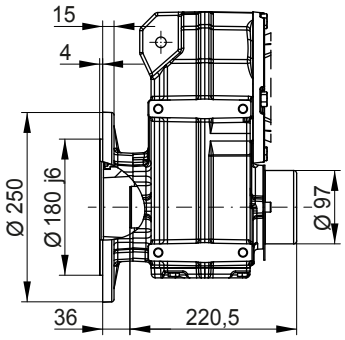


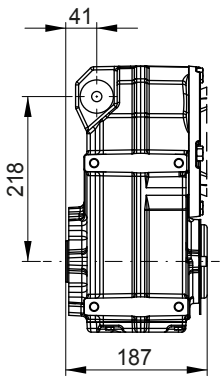

## FF06 - B5 flange execution with output shaft



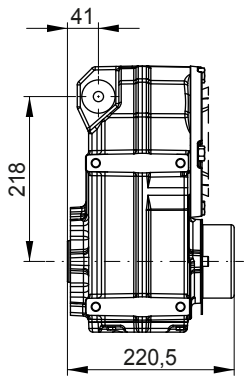

## FP06 - B5 flange execution with hollow shaft and shrink disc *

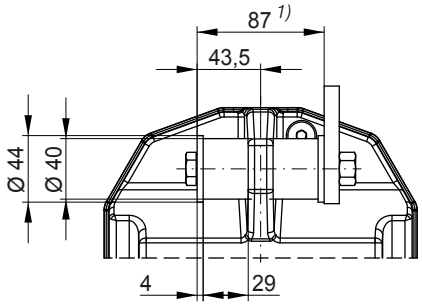



## FT06 - Hollow shaft with rubber buffer




## FU06 - Hollow shaft with shrink disc * and rubber buffer



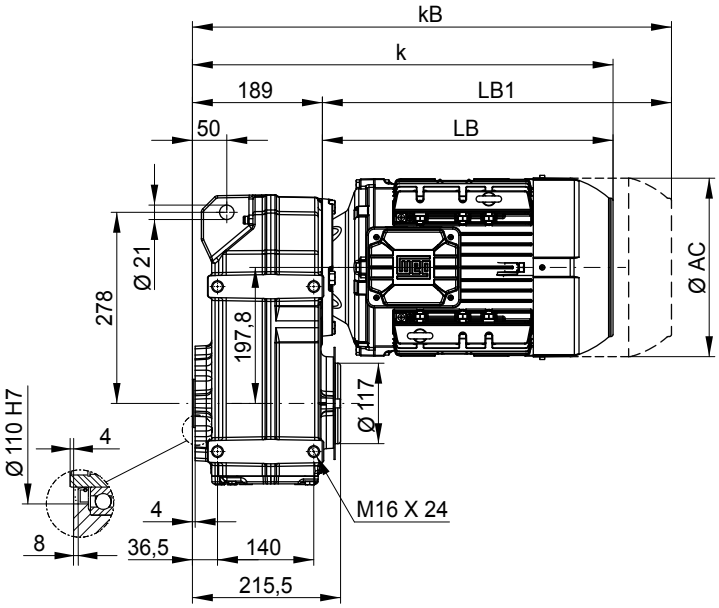



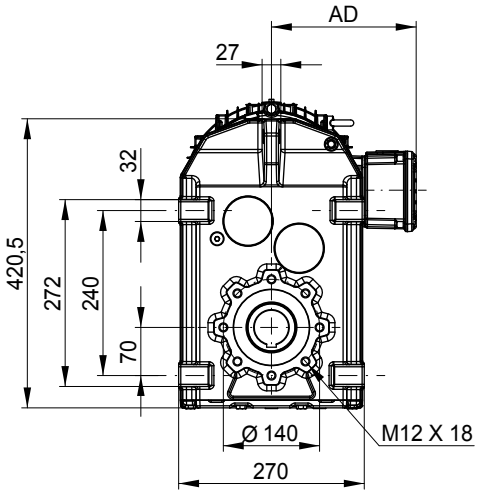

*Dimensions in mm.*

** Shrink disc only in combination with motor frame sizes 63, 71, 80, 90, 100 and 112*

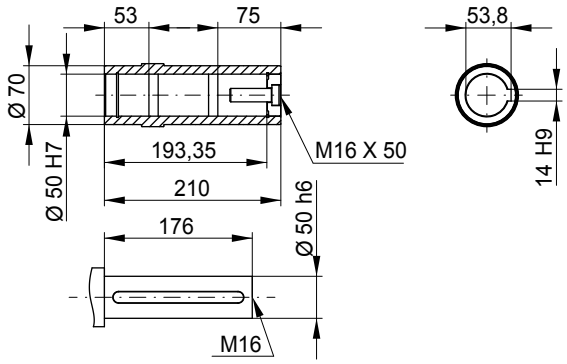
*1) Preloaded state*

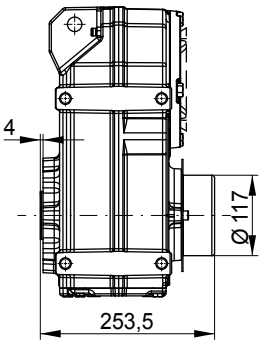
## FH07 - Hollow shaft



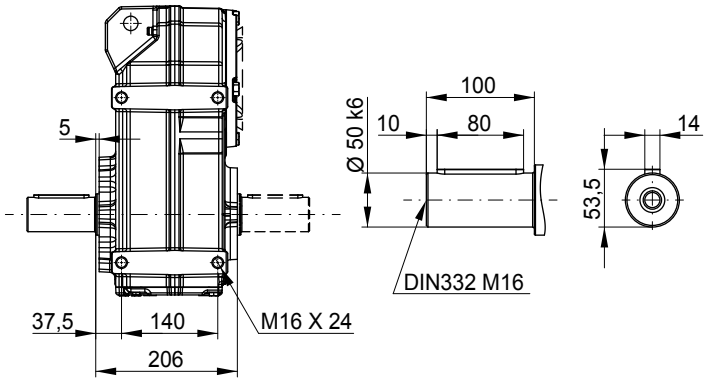



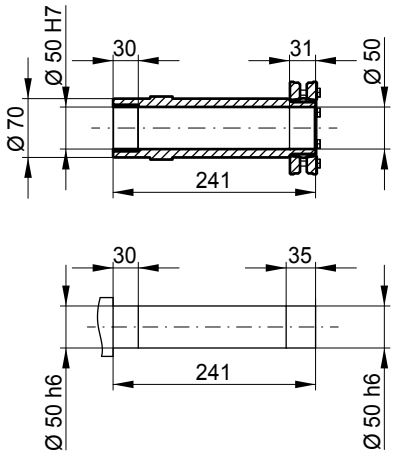

## FD07 - Shrink disc *




## FS07 - Output shaft
## FB07 - Output shaft on both sides

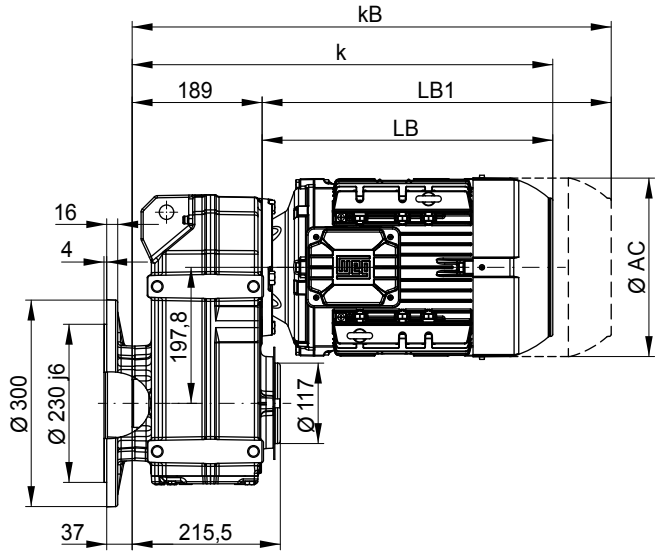


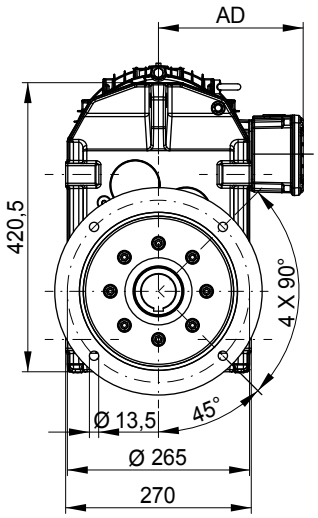




| Motor fr. / Dimensions | 63 | 71 | 80 | 90S/L | 100L | L100L | 112M | 132S,M | L132M | 160M | 160L |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AC | 126 | 141 | 159 | 178 | 199 | 199 | 221 | 261 | 261 | 318 | 318 |
| AD | 128 | 136 | 145 | 155 | 165 | 165 | 185 | 205 | 205 | 266 | 266 |
| k | 393 | 427 | 435 | 477 | 527 | 565 | 537 | 602 | 640 | 734 | 778 |
| kB | 437 | 476 | 493 | 550 | 611 | 649 | 624 | 720 | 758 | 858 | 902 |
| LB | 204 | 238 | 246 | 288 | 338 | 376 | 348 | 413 | 451 | 545 | 589 |
| LB1 | 248 | 287 | 304 | 361 | 422 | 460 | 435 | 531 | 569 | 669 | 713 |

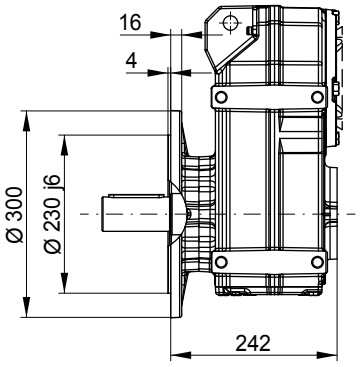
*Motor dimension sheets see page 220. Description of motor lengths LB and LB1 see page 224.*

## FO07 - B5 flange execution with hollow shaft

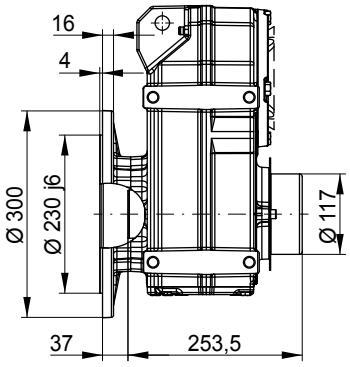


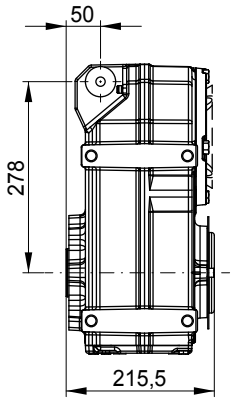

## FF07 - B5 flange execution with output shaft



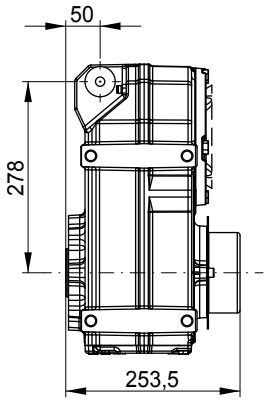

## FP07 - B5 flange execution with hollow shaft and shrink disc *

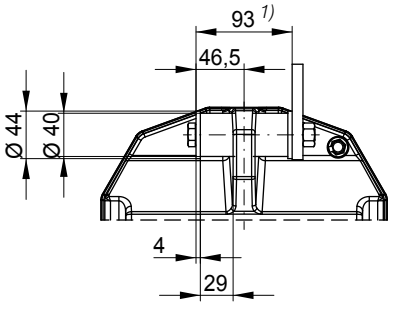



## FT07 - Hollow shaft with rubber buffer




## FU07 - Hollow shaft with shrink disc * and rubber buffer

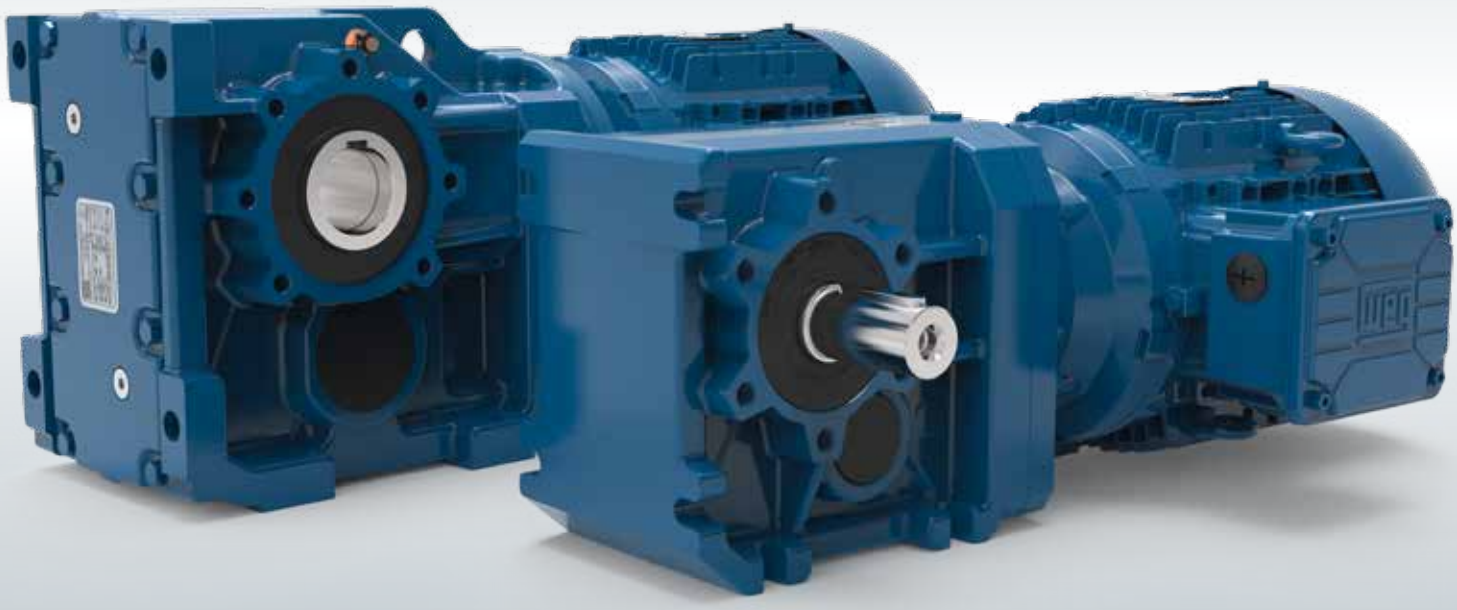



*Dimensions in mm.*

** Shrink disc and protection cap possible with all mountable motors.*

*1) Preloaded state*



# Helical bevel geared motors K

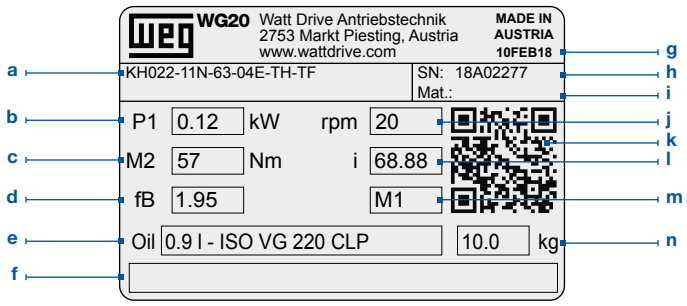
# Technical data

| Size | | K02 | K03 | K04 | K05 | K06 | K07 |
|---|---|---|---|---|---|---|---|
| Power | | 0.12 - 1.5 kW | 0.12 - 3 kW | 0.12 - 4 kW | 0.12 - 9.2 kW | 0.18 - 9.2 kW | 0.25 - 15 kW |
| Torque | | 110 Nm | 200 Nm | 400 Nm | 600 Nm | 820 Nm | 1550 Nm |
| Ratio | | 3.82 - 68.88 | 4.17 - 217.88 | 5.05 - 277.79 | 4.27 - 245.7 | 4.94 - 198 | 7.91 - 256.14 |
| Number of stages | | 2 | 3 | 3 | 3 | 3 | 3 |
| Housing material | | aluminium | | | | cast iron | |
| Solid shaft | Type | with key acc. to DIN 6885.1 and threaded bore acc. to DIN 332 sheet 2 | | | | | |
| | Tolerance | < Ø 55: k6 / ≥ Ø 55: m6 | | | | | |
| | Material | standard: C45E (1.1191) / stainless steel on request | | | | | |
| Hollow shaft | Type | with key acc. to DIN 6885.1 | | | | | |
| | Tolerance | H7 | | | | | |
| | Material | standard: C45E (1.1191) / stainless steel on request | | | | | |
| Flanges | Tolerance | centring ≤ 230: j6 / > 230: h6 acc. to DIN EN 50347 | | | | | |
| | Material | cast iron | | | | | |
| Gear wheels | Type | honed | | | | | |
| | Material | 16MnCr5 (1.7131) case hardened – minimum 58HRC | | | | | |
| Shaft seals | Type | type AS acc. to DIN 3760 | | | | | |
| | Material | standard NBR / special FKM | | | | | |
| Bearing | | standard / reinforced | | | | | |
| Lubricants | Type | standard CLP 220 / special CLP HC 220 | | | | | |
| | Quantity | depending on mounting position | | | | | |
| Axle height | | acc. to DIN 747: ≤ 50: -0.4; > 50 bis ≤ 250: -0.5; > 250: -1<br>for foot-mounted geard motors, the motor may extend below the mounting surface | | | | | |

K

# General information

## 1. Nameplate




| | | | |
|---|---|---|---|
| a | Type code | h | Serial number |
| b | Motor power | i | Material number |
| c | Output torque | j | Output speed |
| d | Service factor | k | QR-Code linked online to additional information |
| e | Type and quantity of lubricant | l | Total gear ratio |
| f | Space for additional information | m | Mounting position |
| g | Production date | n | Weight |

## 2. Type code

KH073-11P-90S/L-04F ...

1 2 3 4 5 6 7 8 9

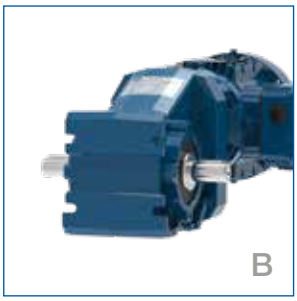
| | | |
|---|---|---|
| 1 | Type: | K = Helical bevel gear unit |
| 2 | Design: | B = Output shaft on both sides<br>D = Hollow shaft with shrink disc<br>F = B5 flange type with output shaft<br>H = Hollow shaft<br>O = B5 flange type with hollow shaft<br>P = B5 flange type with hollow shaft and shrink disc<br>S = Output shaft<br>T = Hollow shaft with torque arm<br>U = Hollow shaft with shrink disc and torque arm |
| 3 | Size: | 02<br>03<br>04<br>05<br>06<br>07 |
| 4 | Number of stages: | 2 = 2 gear stages<br>3 = 3 gear stages |
| 5 | Motor type: | 11N = Integral motor aluminium IE1<br>11P = Integral motor aluminium IE3<br>22P = Integral motor cast iron IE3 |
| 6 | Motor frame size: | 63<br>71<br>80<br>90S/L<br>100L<br>L100L<br>112M<br>132S<br>132M<br>L132M<br>160M<br>160L |
| 7 | Number of poles: | 04 = 4 poles<br>06 = 6 poles |
| 8 | Power indicator: | D<br>E<br>F<br>G |
| 9 | Motor modules: | see from page 225 |

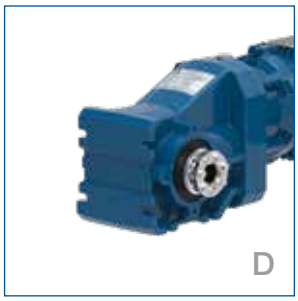
K

## 3. Range

| Size | K02 | K03 | K04 | K05 | K06 | K07 |
|---|---|---|---|---|---|---|
| Housing material | Aluminium | | | | Cast iron | |

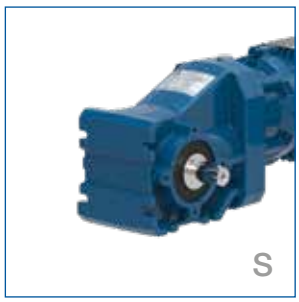
## 4. Design







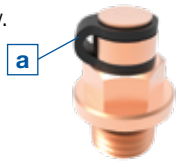



| | |
|---|---|
| B | Output shaft on both sides |
| D | Hollow shaft with shrink disc |
| F | B5 flange type with output shaft |
| H | Hollow shaft |
| O | B5 flange type with hollow shaft |

| | |
|---|---|
| P | B5 flange type with hollow shaft and shrink disc |
| S | Output shaft |
| T | Hollow shaft with torque arm |
| U | Hollow shaft with shrink disc and torque arm |

## 5. Venting the gear unit

The helical bevel gear unit sizes K02 to K05 are neither equipped with a venting nor an oil drain screw. They are supplied with lifetime-lubrication.
By default, the helical bevel gear units K06 and K07 are equipped with venting screws with a safety strap for transportation (see illustration). The rubber strap (a) of the venting screw must be removed entirely before the initial startup. The venting screw is placed accordingly to the mounting position (see chapter Mounting positions, page 151)




## 6. Overhung and axial loads

The overhung loads ($F_{rN}$) indicated in the respective selection tables apply to gear units with the force acting on the shaft center (x=l/2). The permissible overhung loads listed are based on the least favourable loading direction and calculated for standard shafts and standard bearings. Other load directions and action can be calculated with equations Q1 and Q2. If transmission elements are placed on the output shaft, an appropriate factor ($f_z$) has to be taken into consideration when determining the overhung load.

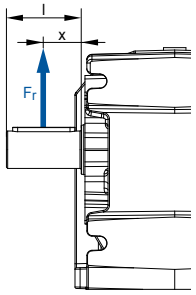
| Gear wheels | Sprockets | | V-belts | Flat belts |
|---|---|---|---|---|
|  |  | |  |  |
| $f_z$=1.1 (z≤17) | $f_z$=1.2 (z≤13) | $f_z$=1.1 (z>13) | $f_z$=1.8 | $f_z$=2.5 |

Use the following equations Q1 and Q2 to calculate the permissible radial loads on the output shaft. Q3 is to calculate the real existing shaft loads for your application. The results are to be compared by using the equation Q4.

| | |
|---|---|
| **Q1** | $F_{zL} = F_{rN} \cdot a_1$ |
| **Q2** | $F_{zW} = F_W \cdot a_2$ |
| **Q3** | $F_{Qvorh} = \frac{2 \cdot M_2}{d_0} \cdot f_z$ |
| **Q4** | $F_{Qvorh} \leq F_{zL}$ |
| | $F_{Qvorh} \leq F_{zW}$ |

| Variable | Unit | Description |
|---|---|---|
| $a_1$ | | Load action factor - output shaft bearing from table 1 |
| $a_2$ | | Load action factor - output shaft from table 1 |
| $d_0$ | [m] | Effective diameter of the transmission element |
| $M_2$ | [Nm] | Geared motor output torque (from selection tables) or required calculated output torque |
| $F_{zL}$ | [N] | Permissible overhung load for output shaft bearings |
| $F_{zW}$ | [N] | Permissible overhung load for output shaft |
| $F_{rN}$ | [N] | Permissible overhung load from selection tables |
| $F_W$ | [N] | Permissible overhung load - Output shaft x=l/2 from table 2 |
| $F_{Qvorh}$ | [N] | Existing overhung load at gear shaft |
| $f_z$ | | Factor for transmission element |
| $M_{max}$ | [Nm] | Highest possible output torque for coupling operation (table 2) |

Always use both equations Q1 and Q2 for your calculations.




| x / l | | | | | | |
|---|---|---|---|---|---|---|
| 0 | 0.25 | 0.5 | 0.75 | 1 | 1.5 | 2 |
| $a_1$ → Equation Q1 | | | | | | |
| 1.39 | 1.18 | 1.00 | 0.85 | 0.73 | 0.52 | 0.38 |
| $a_2$ → Equation Q2 | | | | | | |
| 2.00 | 2.00 | 1.00 | 0.55 | 0.38 | 0.23 | 0.17 |

*Table 1: Load action factors $a_1$, $a_2$*

Intermediate values can be interpolated linearly. Combined load ($F_r \neq 0$; $F_a = 0$) on request.

| | $M_{max}$ at $F_r = 0$ | Output torque $M_2$ [Nm] | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 50 | 100 | 200 | 300 | 400 | 600 | 820 | 1550 | 3000 | 4500 | 8000 | 13000 | 18000 |
| | | $F_w$ [kN] at x/l = 0.5 → Equation Q2 | | | | | | | | | | | | |
| Ø 20x40 | 120 | 3.3 | 2.3 | | | | | | | | | | | |
| Ø 25x50 | 230 | 5.8 | 5.5 | 4.0 | | | | | | | | | | |
| Ø 30x60 | 390 | | 7.5 | 6.8 | 5.5 | 2.6 | | | | | | | | |
| Ø 35x70 | 620 | | | 11.0 | 10.0 | 9.4 | 6.2 | | | | | | | |
| Ø 40x80 | 900 | | | | 13.0 | 13.0 | 11.0 | 8.5 | | | | | | |
| Ø 50x100 | 1730 | | | | | 24.0 | 24.0 | 23.0 | 18.0 | | | | | |
| Ø 60x120 | 2880 | | | | | | | 31.0 | 29.0 | 16.0 | | | | |
| Ø 70x140 | 4510 | | | | | | | | 44.0 | 39.0 | 29.0 | | | |
| Ø 90x170 | 9000 | | | | | | | | | 71.0 | 68.0 | 53.0 | | |
| Ø 110x210 | 16000 | | | | | | | | | | 105.0 | 100.0 | 84.0 | |
| Ø 120x210 | 20600 | | | | | | | | | | | 127.0 | 115.0 | 95.0 |

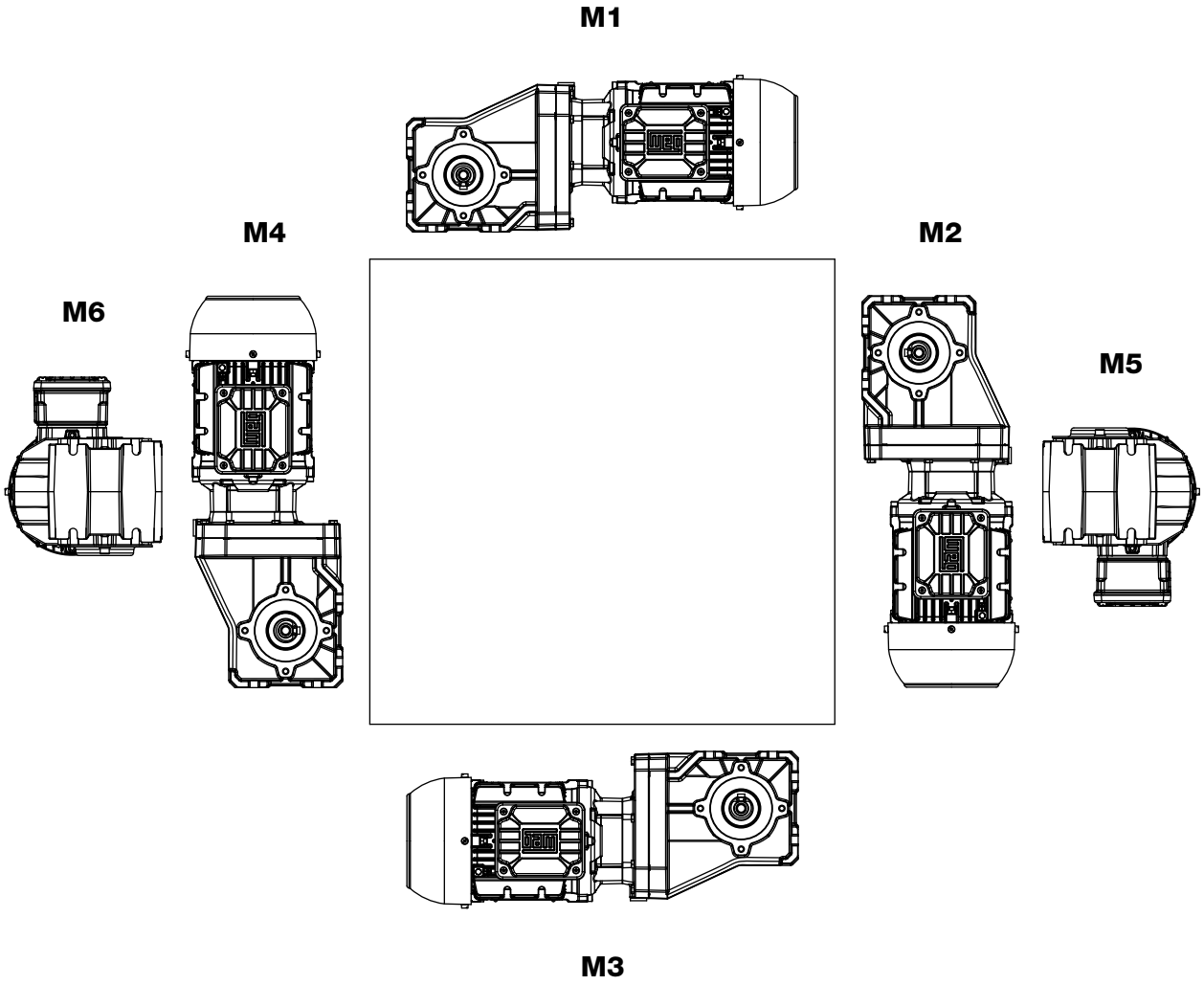
*Table 2: Permissible overhung load - output shaft x = l/2*

In cases where there is no overhung load, the permissible axial load (push or pull) may be determined by taking 50 % of the permissible overhung loads indicated in the selection tables of the respective type of gear. If there are axial loads or radial and axial components acting on the drive which are extraordinarily high, we recommend to contact the manufacturer.

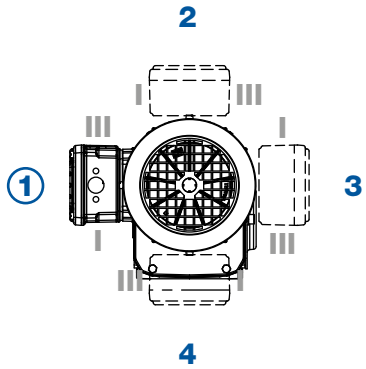
## 7. Mounting positions, Position of the terminal box and Cable entry

### Mounting positions - Sizes K02 to K05

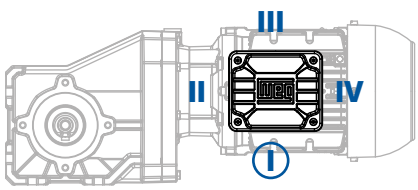
Gear units K02 to K05 are not ventilated and supplied with lifetime lubrication.



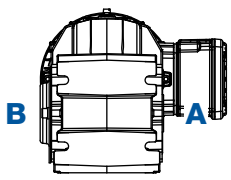

**Position of the terminal box**
Standard: Position 1




**Cable entry**
Standard: Position I



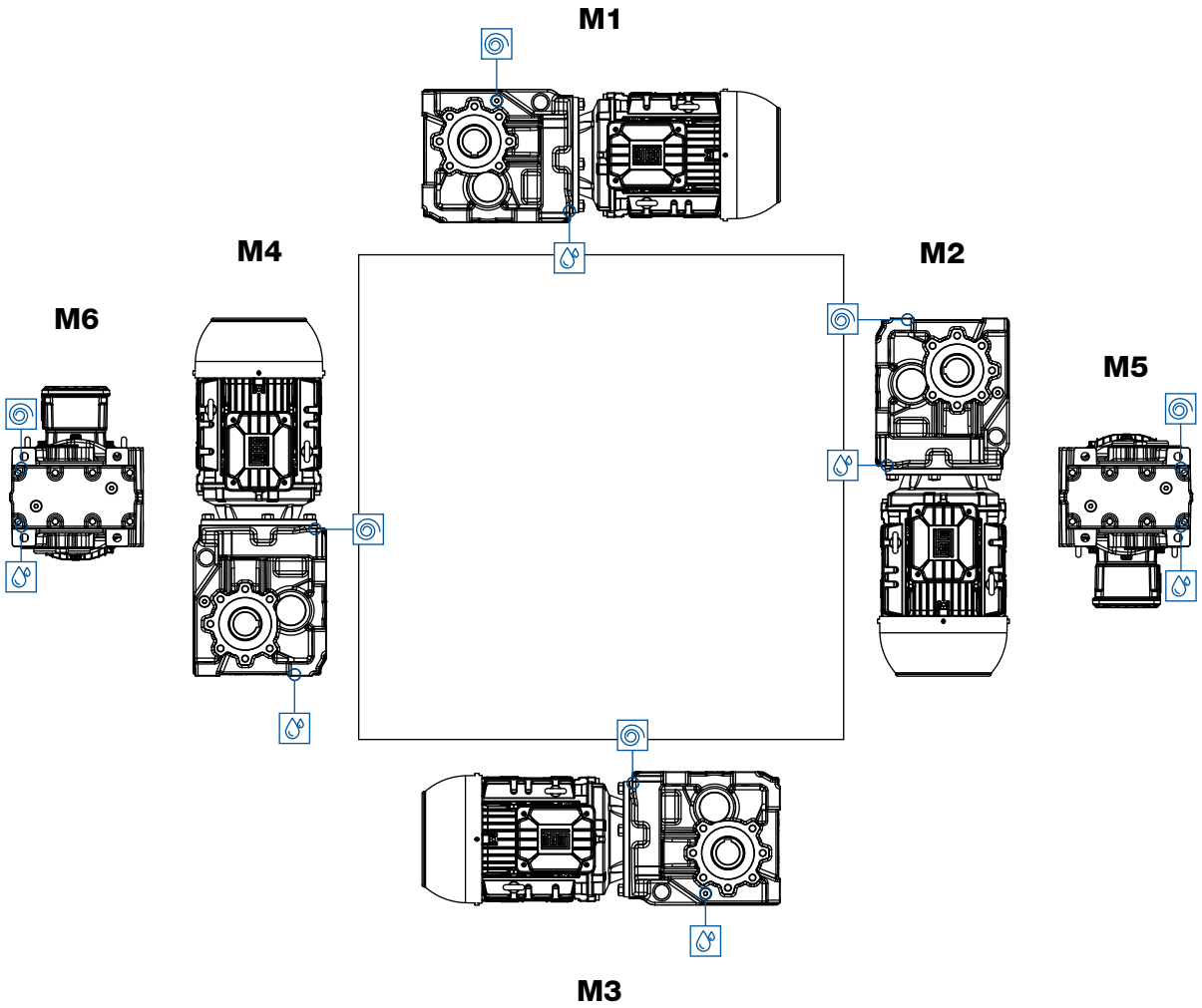

**Side indication**



## Mounting positions - Sizes K06 to K07

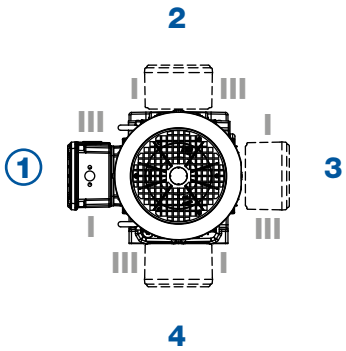
Position of the venting screw

Position of the oil drain screw



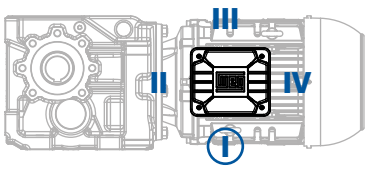

### Position of the terminal box

Standard: Position 1

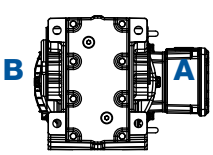



### Cable entry

Standard: Position I




### Side indication



# Selection tables - Geared motors

The technical data of the geared motors shown in the selection tables apply to an ambient temperature of +20 °C.

The selection tables are calculated with following motor data:

| Power (IEC frame size) | Motor series (IE class) |
|---|---|
| up to 0.55 kW (63 - 80) | 11N (IE1) - aluminium |
| 0.75 - 9.2 kW (80 - 132) | 11P (IE3) - aluminium |
| 11 - 15 kW (160) | 22P (IE3) - cast iron |

## Structure of the selection tables

| 1 | | | | | | | | 2 |
|---|---|---|---|---|---|---|---|---|
| $P_N$ = 0.12 kW | | | | | | | | IE1 |
| 50 Hz<br>0.12 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>0.14 kW *)<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN | | m<br>kg | Dimension sheet see page |
| 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |

1 Rated power of the motor

2 Given values are based on the respective efficiency class

3 Output speed at 50 Hz

4 Output speed at 60 Hz

5 Output torque

6 Service factor

7 Total ratio

8 Permissible radial load at midpoint of the output shaft extension (standard bearing) at axial load=0

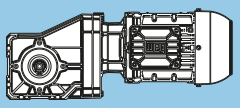
9 Geared motor type

10 Weight

11 Dimension sheet see page

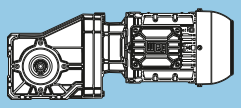
*) Increased rated power at 60 Hz can only be reached together with increased voltage within the wide range (for details see page 208).

| Increased rated power |
|---|
| 1.2 x $P_N$ |

| $P_N$ = 0.12 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>0.12 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>0.14 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **3.6** | 4.3 | 316 | 1.90 | 245.70 | 8.4 | **KH053-11N-63-06F**<br>**KO053-11N-63-06F** | 20 | 190 |
| **4.6** | 5.5 | 251 | 2.40 | 194.73 | 8.9 | | | |
| **5.6** | 6.7 | 205 | 2.95 | 245.70 | 9.2 | **KH053-11N-63-04E**<br>**KO053-11N-63-04E** | 19 | 190 |
| **3.2** | 3.8 | 358 | 1.15 | 277.79 | 2.7 | **KH043-11N-63-06F**<br>**KO043-11N-63-06F** | 16 | 188 |
| **3.9** | 4.7 | 293 | 1.40 | 227.16 | 4.6 | | | |
| **5.0** | 6.0 | 231 | 1.75 | 179.37 | 5.6 | | | |
| **6.4** | 7.7 | 179 | 2.25 | 139.08 | 6.2 | | | |
| **7.8** | 9.4 | 147 | 2.75 | 113.83 | 6.5 | | | |
| **4.9** | 5.9 | 232 | 1.75 | 277.79 | 5.6 | **KH043-11N-63-04E**<br>**KO043-11N-63-04E** | 16 | 188 |
| **6.1** | 7.3 | 189 | 2.15 | 227.16 | 6.1 | | | |
| **7.7** | 9.2 | 150 | 2.70 | 179.37 | 6.5 | | | |
| **5.0** | 6.0 | 228 | 0.90 | 177.19 | ** | **KH033-11N-63-06F**<br>**KO033-11N-63-06F** | 13 | 186 |
| **6.3** | 7.6 | 181 | 1.15 | 140.80 | 3.3 | | | |
| **8.2** | 9.8 | 140 | 1.45 | 108.75 | 4.1 | | | |
| **10** | 12 | 112 | 1.80 | 86.83 | 4.5 | | | |
| **12** | 14 | 93 | 2.20 | 71.93 | 4.7 | | | |
| **14** | 17 | 85 | 2.40 | 65.63 | 4.8 | | | |
| **15** | 18 | 75 | 2.70 | 58.50 | 4.9 | | | |
| **6.3** | 7.6 | 182 | 1.15 | 217.88 | 3.3 | **KH033-11N-63-04E**<br>**KO033-11N-63-04E** | 12 | 186 |
| **7.8** | 9.4 | 148 | 1.40 | 177.19 | 4.0 | | | |
| **9.8** | 12 | 117 | 1.75 | 140.80 | 4.5 | | | |
| **13** | 16 | 91 | 2.25 | 108.75 | 4.8 | | | |
| **16** | 19 | 72 | 2.80 | 86.83 | 4.9 | | | |
| **13** | 16 | 89 | 1.25 | 68.88 | 4.9 | **KH022-11N-63-06F**<br>**KO022-11N-63-06F** | 11 | 184 |
| **14** | 17 | 80 | 1.30 | 61.75 | 5.0 | | | |
| **17** | 20 | 69 | 1.60 | 53.65 | 5.1 | | | |
| **19** | 23 | 62 | 1.80 | 48.10 | 5.1 | | | |
| **20** | 24 | 56 | 2.00 | 43.50 | 5.2 | | | |
| **23** | 28 | 50 | 2.20 | 39.00 | 5.2 | | | |
| **26** | 31 | 44 | 2.50 | 34.27 | 5.2 | | | |
| **29** | 35 | 40 | 2.80 | 30.73 | 5.2 | | | |
| **29** | 35 | 40 | 1.30 | 30.88 | 5.2 | | | |
| **37** | 44 | 31 | 2.65 | 24.05 | 5.3 | | | |
| **20** | 24 | 57 | 1.95 | 68.88 | 5.2 | **KH022-11N-63-04E**<br>**KO022-11N-63-04E** | 10 | 184 |
| **22** | 26 | 52 | 2.00 | 61.75 | 5.2 | | | |
| **26** | 31 | 45 | 2.50 | 53.65 | 5.2 | | | |
| **29** | 35 | 40 | 2.75 | 48.10 | 5.2 | | | |
| **32** | 38 | 36 | 3.05 | 43.50 | 5.2 | | | |
| **35** | 42 | 33 | 3.40 | 39.00 | 5.3 | | | |
| **40** | 48 | 29 | 3.85 | 34.27 | 5.3 | | | |
| **45** | 54 | 26 | 4.30 | 30.73 | 5.3 | | | |
| **45** | 54 | 26 | 2.00 | 30.88 | 5.3 | | | |
| **52** | 62 | 22 | 5.00 | 26.41 | 5.3 | | | |
| **57** | 68 | 20 | 4.05 | 24.05 | 5.3 | | | |
| **58** | 70 | 20 | 5.60 | 23.68 | 5.3 | | | |
| **67** | 80 | 17 | 6.40 | 20.63 | 5.3 | | | |
| **71** | 85 | 16 | 5.00 | 19.50 | 5.3 | | | |
| **74** | 89 | 15 | 6.95 | 18.50 | 5.3 | | | |
| **89** | 107 | 13 | 6.35 | 15.36 | 5.3 | | | |
| **89** | 107 | 13 | 7.90 | 15.41 | 5.3 | | | |
| **100** | 120 | 12 | 8.45 | 13.81 | 5.3 | | | |
| **116** | 139 | 10 | 8.20 | 11.84 | 5.1 | | | |
| **119** | 143 | 10 | 9.50 | 11.60 | 5.1 | | | |
| **132** | 158 | 9 | 10.25 | 10.40 | 4.9 | | | |
| **149** | 179 | 8 | 10.55 | 9.25 | 4.7 | | | |
| **162** | 194 | 7 | 11.70 | 8.51 | 4.6 | | | |
| **180** | 216 | 6 | 12.50 | 7.63 | 4.4 | | | |
| **199** | 239 | 6 | 14.00 | 6.91 | 4.2 | | | |
| **264** | 317 | 4 | 18.85 | 5.20 | 3.9 | | | |
| **360** | 432 | 3 | 24.10 | 3.82 | 3.5 | | | |

*Legend see page 153*

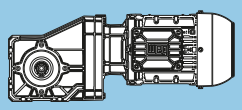
*** ...on request*

| $P_N$ = 0.18 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 0.18 kW $n_{50}$ min$^{-1}$ | 60 Hz 0.22 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **4.5** | 5.4 | 380 | 2.20 | 198.00 | 10.8 | **KH063-11N-71-06E**<br>**KO063-11N-71-06E** | 35 | 192 |
| **5.7** | 6.8 | 301 | 2.75 | 156.92 | 11.2 | | | |
| **3.6** | 4.3 | 472 | 1.30 | 245.70 | 6.4 | **KH053-11N-71-06E**<br>**KO053-11N-71-06E** | 22 | 190 |
| **4.6** | 5.5 | 374 | 1.65 | 194.73 | 7.8 | | | |
| **5.9** | 7.1 | 290 | 2.10 | 151.20 | 8.6 | | | |
| **7.2** | 8.6 | 238 | 2.55 | 124.06 | 9.0 | | | |
| **5.6** | 6.7 | 308 | 1.95 | 245.70 | 8.5 | **KH053-11N-63-04F**<br>**KO053-11N-63-04F** | 20 | 190 |
| **7.0** | 8.4 | 244 | 2.50 | 194.73 | 9.0 | | | |
| **3.9** | 4.7 | 436 | 0.95 | 227.16 | ** | **KH043-11N-71-06E**<br>**KO043-11N-71-06E** | 19 | 188 |
| **5.0** | 6.0 | 345 | 1.20 | 179.37 | 3.2 | | | |
| **6.4** | 7.7 | 267 | 1.50 | 139.08 | 5.1 | | | |
| **7.9** | 9.5 | 219 | 1.85 | 113.83 | 5.8 | | | |
| **10** | 12 | 171 | 2.25 | 89.17 | 6.3 | | | |
| **10** | 12 | 168 | 2.40 | 87.62 | 6.3 | | | |
| **12** | 14 | 140 | 2.90 | 72.92 | 6.6 | | | |
| **19** | 23 | 90 | 2.25 | 47.07 | 6.8 | | | |
| **4.9** | 5.9 | 349 | 1.15 | 277.79 | 3.0 | **KH043-11N-63-04F**<br>**KO043-11N-63-04F** | 17 | 188 |
| **6.0** | 7.2 | 285 | 1.45 | 227.16 | 4.8 | | | |
| **7.6** | 9.1 | 225 | 1.80 | 179.37 | 5.7 | | | |
| **9.9** | 12 | 175 | 2.30 | 139.08 | 6.3 | | | |
| **12** | 14 | 143 | 2.85 | 113.83 | 6.5 | | | |
| **8.2** | 9.8 | 209 | 1.00 | 108.75 | ** | **KH033-11N-71-06E**<br>**KO033-11N-71-06E** | 15 | 186 |
| **10** | 12 | 167 | 1.20 | 86.83 | 3.6 | | | |
| **12** | 14 | 138 | 1.45 | 71.93 | 4.2 | | | |
| **14** | 17 | 126 | 1.60 | 65.63 | 4.4 | | | |
| **15** | 18 | 112 | 1.80 | 58.50 | 4.5 | | | |
| **18** | 22 | 96 | 2.10 | 49.88 | 4.7 | | | |
| **19** | 23 | 89 | 2.25 | 46.48 | 4.8 | | | |
| **23** | 28 | 75 | 2.70 | 38.80 | 4.9 | | | |
| **25** | 30 | 69 | 2.90 | 35.90 | 4.9 | | | |
| **30** | 36 | 58 | 2.25 | 29.97 | 5.0 | | | |
| **7.7** | 9.2 | 222 | 0.90 | 177.19 | ** | **KH033-11N-63-04F**<br>**KO033-11N-63-04F** | 13 | 186 |
| **9.7** | 12 | 177 | 1.15 | 140.80 | 3.4 | | | |
| **13** | 16 | 137 | 1.50 | 108.75 | 4.2 | | | |
| **16** | 19 | 109 | 1.85 | 86.83 | 4.6 | | | |
| **19** | 23 | 90 | 2.25 | 71.93 | 4.8 | | | |
| **21** | 25 | 82 | 2.45 | 65.63 | 4.8 | | | |
| **23** | 28 | 73 | 2.75 | 58.50 | 4.9 | | | |
| **13** | 16 | 132 | 0.85 | 68.88 | ** | **KH022-11N-71-06E**<br>**KO022-11N-71-06E** | 13 | 184 |
| **14** | 17 | 119 | 0.90 | 61.75 | ** | | | |
| **17** | 20 | 103 | 1.10 | 53.65 | 4.8 | | | |
| **19** | 23 | 92 | 1.20 | 48.10 | 4.9 | | | |
| **21** | 25 | 84 | 1.35 | 43.50 | 5.0 | | | |
| **23** | 28 | 75 | 1.50 | 39.00 | 5.0 | | | |
| **26** | 31 | 66 | 1.70 | 34.27 | 5.1 | | | |
| **29** | 35 | 59 | 1.90 | 30.73 | 5.1 | | | |
| **29** | 35 | 59 | 0.90 | 30.88 | ** | | | |
| **34** | 41 | 51 | 2.20 | 26.41 | 5.2 | | | |
| **37** | 44 | 46 | 1.80 | 24.05 | 5.2 | | | |
| **38** | 46 | 46 | 2.45 | 23.68 | 5.2 | | | |
| **43** | 52 | 40 | 2.80 | 20.63 | 5.2 | | | |
| **46** | 55 | 38 | 2.20 | 19.50 | 5.2 | | | |
| **58** | 70 | 30 | 2.75 | 15.36 | 5.3 | | | |



*Legend see page 153*

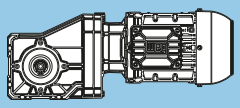
*** ... on request*

| $P_N$ = 0.18 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>0.18 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>0.22 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **20** | 24 | 86 | 1.30 | 68.88 | 5.0 | | | |
| **22** | 26 | 78 | 1.35 | 61.75 | 5.0 | | | |
| **26** | 31 | 67 | 1.65 | 53.65 | 5.1 | | | |
| **28** | 34 | 60 | 1.85 | 48.10 | 5.1 | | | |
| **31** | 37 | 55 | 2.05 | 43.50 | 5.2 | | | |
| **35** | 42 | 49 | 2.25 | 39.00 | 5.2 | | | |
| **40** | 48 | 43 | 2.60 | 34.27 | 5.2 | | | |
| **44** | 53 | 39 | 1.35 | 30.88 | 5.2 | | | |
| **45** | 54 | 39 | 2.85 | 30.73 | 5.2 | | | |
| **52** | 62 | 33 | 3.35 | 26.41 | 5.3 | | | |
| **57** | 68 | 30 | 2.70 | 24.05 | 5.3 | | | |
| **58** | 70 | 30 | 3.75 | 23.68 | 5.3 | | | |
| **66** | 79 | 26 | 4.25 | 20.63 | 5.3 | | | |
| **70** | 84 | 25 | 3.35 | 19.50 | 5.3 | **KH022-11N-63-04F**<br>**KO022-11N-63-04F** | 11 | 184 |
| **74** | 89 | 23 | 4.65 | 18.50 | 5.3 | | | |
| **89** | 107 | 19 | 4.20 | 15.36 | 5.3 | | | |
| **89** | 107 | 19 | 5.25 | 15.41 | 5.3 | | | |
| **99** | 119 | 17 | 5.65 | 13.81 | 5.3 | | | |
| **116** | 139 | 15 | 5.45 | 11.84 | 5.1 | | | |
| **118** | 142 | 15 | 6.35 | 11.60 | 5.1 | | | |
| **132** | 158 | 13 | 6.85 | 10.40 | 4.9 | | | |
| **148** | 178 | 12 | 7.00 | 9.25 | 4.7 | | | |
| **161** | 193 | 11 | 7.80 | 8.51 | 4.6 | | | |
| **180** | 216 | 10 | 8.35 | 7.63 | 4.4 | | | |
| **198** | 238 | 9 | 9.35 | 6.91 | 4.3 | | | |
| **263** | 316 | 7 | 12.50 | 5.20 | 3.9 | | | |
| **359** | 431 | 5 | 16.05 | 3.82 | 3.5 | | | |



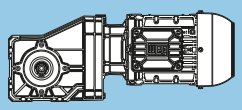
*Legend see page 153*

*** ... on request*

| $P_N$ = 0.25 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 0.25 kW $n_{50}$ min$^{-1}$ | 60 Hz 0.30 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **3.5** | 4.2 | 680 | 2.30 | 256.14 | 19.1 | **KH073-11N-71-06F KO073-11N-71-06F** | 57 | 194 |
| **4.6** | 5.5 | 525 | 3.00 | 197.75 | 19.7 | | | |
| **4.5** | 5.4 | 525 | 1.60 | 198.00 | 12.5 | **KH063-11N-71-06F KO063-11N-71-06F** | 37 | 192 |
| **5.7** | 6.8 | 416 | 2.00 | 156.92 | 13.1 | | | |
| **7.4** | 8.9 | 323 | 2.55 | 121.85 | 13.5 | | | |
| **11** | 13 | 216 | 2.65 | 81.53 | 13.8 | | | |
| **20** | 24 | 118 | 2.65 | 44.35 | 14.0 | | | |
| **6.9** | 8.3 | 345 | 2.40 | 198.00 | 13.4 | **KH063-11N-71-04E KO063-11N-71-04E** | 34 | 192 |
| **8.7** | 10 | 274 | 3.00 | 156.92 | 13.7 | | | |
| **3.7** | 4.4 | 652 | 0.95 | 245.70 | ** | **KH053-11N-71-06F KO053-11N-71-06F** | 23 | 190 |
| **4.6** | 5.5 | 517 | 1.20 | 194.73 | 5.5 | | | |
| **6.0** | 7.2 | 401 | 1.50 | 151.20 | 7.5 | | | |
| **7.3** | 8.8 | 329 | 1.85 | 124.06 | 8.3 | | | |
| **9.4** | 11 | 255 | 2.40 | 96.08 | 8.9 | | | |
| **11** | 13 | 214 | 2.65 | 80.46 | 9.2 | | | |
| **23** | 28 | 102 | 2.65 | 38.32 | 9.6 | | | |
| **5.6** | 6.7 | 428 | 1.45 | 245.70 | 7.1 | **KH053-11N-71-04E KO053-11N-71-04E** | 21 | 190 |
| **7.0** | 8.4 | 339 | 1.80 | 194.73 | 8.2 | | | |
| **9.1** | 11 | 264 | 2.30 | 151.20 | 8.8 | | | |
| **11** | 13 | 216 | 2.80 | 124.06 | 9.1 | | | |
| **5.0** | 6.0 | 476 | 0.85 | 179.37 | ** | **KH043-11N-71-06F KO043-11N-71-06F** | 20 | 188 |
| **6.5** | 7.8 | 369 | 1.10 | 139.08 | 2.1 | | | |
| **7.9** | 9.5 | 302 | 1.35 | 113.83 | 4.4 | | | |
| **10** | 12 | 232 | 1.75 | 87.62 | 5.6 | | | |
| **10** | 12 | 237 | 1.60 | 89.17 | 5.6 | | | |
| **12** | 14 | 193 | 2.10 | 72.92 | 6.1 | | | |
| **14** | 17 | 176 | 2.30 | 66.20 | 6.3 | | | |
| **16** | 19 | 153 | 2.65 | 57.58 | 6.5 | | | |
| **17** | 20 | 144 | 2.80 | 54.18 | 6.5 | | | |
| **19** | 23 | 125 | 1.65 | 47.07 | 6.7 | | | |
| **23** | 28 | 102 | 2.65 | 38.49 | 6.8 | | | |
| **4.9** | 5.9 | 484 | 0.85 | 277.79 | ** | **KH043-11N-71-04E KO043-11N-71-04E** | 17 | 188 |
| **6.0** | 7.2 | 396 | 1.05 | 227.16 | ** | | | |
| **7.6** | 9.1 | 313 | 1.30 | 179.37 | 4.1 | | | |
| **9.9** | 12 | 242 | 1.70 | 139.08 | 5.5 | | | |
| **12** | 14 | 198 | 2.05 | 113.83 | 6.0 | | | |
| **15** | 18 | 155 | 2.45 | 89.17 | 6.4 | | | |
| **16** | 19 | 153 | 2.65 | 87.62 | 6.5 | | | |
| **29** | 35 | 82 | 2.45 | 47.07 | 6.9 | | | |
| **10** | 12 | 230 | 0.90 | 86.83 | ** | **KH033-11N-71-06F KO033-11N-71-06F** | 16 | 186 |
| **13** | 16 | 191 | 1.05 | 71.93 | 3.0 | | | |
| **14** | 17 | 174 | 1.15 | 65.63 | 3.5 | | | |
| **15** | 18 | 155 | 1.30 | 58.50 | 3.9 | | | |
| **18** | 22 | 132 | 1.55 | 49.88 | 4.3 | | | |
| **19** | 23 | 123 | 1.65 | 46.48 | 4.4 | | | |
| **23** | 28 | 103 | 1.95 | 38.80 | 4.6 | | | |
| **25** | 30 | 95 | 2.15 | 35.90 | 4.7 | | | |
| **30** | 36 | 80 | 1.65 | 29.97 | 4.8 | | | |
| **31** | 37 | 76 | 2.65 | 28.67 | 4.9 | | | |
| **37** | 44 | 65 | 2.50 | 24.38 | 5.0 | | | |
| **9.7** | 12 | 245 | 0.85 | 140.80 | ** | **KH033-11N-71-04E KO033-11N-71-04E** | 13 | 186 |
| **13** | 16 | 190 | 1.10 | 108.75 | 3.1 | | | |
| **16** | 19 | 151 | 1.35 | 86.83 | 3.9 | | | |
| **19** | 23 | 125 | 1.60 | 71.93 | 4.4 | | | |
| **21** | 25 | 114 | 1.75 | 65.63 | 4.5 | | | |
| **23** | 28 | 102 | 2.00 | 58.50 | 4.6 | | | |
| **27** | 32 | 87 | 2.35 | 49.88 | 4.8 | | | |
| **29** | 35 | 81 | 2.50 | 46.48 | 4.8 | | | |
| **35** | 42 | 68 | 3.00 | 38.80 | 4.9 | | | |
| **46** | 55 | 52 | 2.50 | 29.97 | 5.0 | | | |

*Legend see page 153*

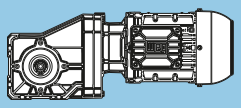
*** ... on request*

| $P_N$ = 0.25 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 0.25 kW $n_{50}$ min$^{-1}$ | 60 Hz 0.30 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **17** | 20 | 142 | 0.80 | 53.65 | ** | **KH022-11N-71-06F**<br>**KO022-11N-71-06F** | 14 | 184 |
| **19** | 23 | 128 | 0.90 | 48.10 | ** | | | |
| **21** | 25 | 115 | 1.00 | 43.50 | ** | | | |
| **23** | 28 | 104 | 1.10 | 39.00 | 4.8 | | | |
| **26** | 31 | 91 | 1.25 | 34.27 | 4.9 | | | |
| **29** | 35 | 82 | 1.35 | 30.73 | 5.0 | | | |
| **34** | 41 | 70 | 1.60 | 26.41 | 5.1 | | | |
| **37** | 44 | 64 | 1.30 | 24.05 | 5.1 | | | |
| **38** | 46 | 63 | 1.80 | 23.68 | 5.1 | | | |
| **44** | 53 | 55 | 2.05 | 20.63 | 5.2 | | | |
| **46** | 55 | 52 | 1.60 | 19.50 | 5.2 | | | |
| **49** | 59 | 49 | 2.20 | 18.50 | 5.2 | | | |
| **58** | 70 | 41 | 2.50 | 15.41 | 5.2 | | | |
| **59** | 71 | 41 | 2.00 | 15.36 | 5.2 | | | |
| **65** | 78 | 37 | 2.70 | 13.81 | 5.2 | | | |
| **76** | 91 | 31 | 2.60 | 11.84 | 5.3 | | | |
| **78** | 94 | 31 | 3.00 | 11.60 | 5.3 | | | |
| **20** | 24 | 120 | 0.95 | 68.88 | ** | **KH022-11N-71-04E**<br>**KO022-11N-71-04E** | 12 | 184 |
| **22** | 26 | 108 | 0.95 | 61.75 | ** | | | |
| **26** | 31 | 94 | 1.20 | 53.65 | 4.9 | | | |
| **28** | 34 | 84 | 1.35 | 48.10 | 5.0 | | | |
| **31** | 37 | 76 | 1.50 | 43.50 | 5.0 | | | |
| **35** | 42 | 68 | 1.65 | 39.00 | 5.1 | | | |
| **40** | 48 | 60 | 1.85 | 34.27 | 5.1 | | | |
| **44** | 53 | 54 | 0.95 | 30.88 | ** | | | |
| **45** | 54 | 54 | 2.10 | 30.73 | 5.2 | | | |
| **52** | 62 | 46 | 2.40 | 26.41 | 5.2 | | | |
| **57** | 68 | 42 | 1.95 | 24.05 | 5.2 | | | |
| **58** | 70 | 41 | 2.70 | 23.68 | 5.2 | | | |
| **66** | 79 | 36 | 3.10 | 20.63 | 5.2 | | | |
| **70** | 84 | 34 | 2.40 | 19.50 | 5.3 | | | |
| **74** | 89 | 32 | 3.35 | 18.50 | 5.3 | | | |
| **89** | 107 | 27 | 3.05 | 15.36 | 5.3 | | | |
| **89** | 107 | 27 | 3.80 | 15.41 | 5.3 | | | |
| **99** | 119 | 24 | 4.05 | 13.81 | 5.3 | | | |
| **116** | 139 | 21 | 3.95 | 11.84 | 5.1 | | | |
| **118** | 142 | 20 | 4.60 | 11.60 | 5.1 | | | |
| **132** | 158 | 18 | 4.95 | 10.40 | 4.9 | | | |
| **148** | 178 | 16 | 5.05 | 9.25 | 4.7 | | | |
| **161** | 193 | 15 | 5.65 | 8.51 | 4.6 | | | |
| **180** | 216 | 13 | 6.05 | 7.63 | 4.4 | | | |
| **198** | 238 | 12 | 6.75 | 6.91 | 4.3 | | | |
| **263** | 316 | 9 | 8.95 | 5.20 | 3.9 | | | |
| **359** | 431 | 7 | 11.70 | 3.82 | 3.5 | | | |



*Legend see page 153*

*** ... on request*

| $P_N$ = 0.37 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 0.37 kW $n_{50}$ min$^{-1}$ | 60 Hz 0.44 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **3.6** | 4.3 | 984 | 1.60 | 256.14 | 17.4 | **KH073-11N-80-06E KO073-11N-80-06E** | 56 | 194 |
| **4.7** | 5.6 | 760 | 2.05 | 197.75 | 18.7 | | | |
| **5.5** | 6.6 | 637 | 2.45 | 165.85 | 19.3 | | | |
| **5.2** | 6.2 | 686 | 2.30 | 256.14 | 19.1 | **KH073-11N-71-04F KO073-11N-71-04F** | 54 | 194 |
| **6.7** | 8.0 | 529 | 2.95 | 197.75 | 19.6 | | | |
| **4.6** | 5.5 | 761 | 1.10 | 198.00 | 10.6 | **KH063-11N-80-06E KO063-11N-80-06E** | 36 | 192 |
| **5.9** | 7.1 | 603 | 1.40 | 156.92 | 12.0 | | | |
| **7.6** | 9.1 | 468 | 1.80 | 121.85 | 12.9 | | | |
| **9.2** | 11 | 384 | 2.15 | 99.98 | 13.3 | | | |
| **11** | 13 | 313 | 1.85 | 81.53 | 13.5 | | | |
| **12** | 14 | 297 | 2.80 | 77.42 | 13.6 | | | |
| **21** | 25 | 170 | 1.85 | 44.35 | 13.9 | | | |
| **6.7** | 8.0 | 530 | 1.55 | 198.00 | 12.5 | **KH063-11N-71-04F KO063-11N-71-04F** | 34 | 192 |
| **8.4** | 10 | 420 | 2.00 | 156.92 | 13.1 | | | |
| **11** | 13 | 326 | 2.55 | 121.85 | 13.5 | | | |
| **16** | 19 | 218 | 2.65 | 81.53 | 13.8 | | | |
| **30** | 36 | 119 | 2.65 | 44.35 | 14.0 | | | |
| **4.7** | 5.6 | 748 | 0.85 | 194.73 | ** | **KH053-11N-80-06E KO053-11N-80-06E** | 23 | 190 |
| **6.1** | 7.3 | 581 | 1.05 | 151.20 | 3.6 | | | |
| **7.4** | 8.9 | 477 | 1.30 | 124.06 | 6.3 | | | |
| **9.6** | 12 | 369 | 1.65 | 96.08 | 7.9 | | | |
| **11** | 13 | 309 | 1.85 | 80.46 | 8.5 | | | |
| **13** | 16 | 281 | 2.15 | 73.08 | 8.7 | | | |
| **14** | 17 | 245 | 2.45 | 63.77 | 9.0 | | | |
| **15** | 18 | 231 | 2.60 | 60.26 | 9.1 | | | |
| **24** | 29 | 147 | 1.85 | 38.32 | 9.5 | | | |
| **5.4** | 6.5 | 658 | 0.95 | 245.70 | ** | **KH053-11N-71-04F KO053-11N-71-04F** | 21 | 190 |
| **6.8** | 8.2 | 521 | 1.20 | 194.73 | 5.4 | | | |
| **8.7** | 10 | 405 | 1.50 | 151.20 | 7.4 | | | |
| **11** | 13 | 332 | 1.85 | 124.06 | 8.3 | | | |
| **14** | 17 | 257 | 2.35 | 96.08 | 8.9 | | | |
| **16** | 19 | 215 | 2.65 | 80.46 | 9.1 | | | |
| **34** | 41 | 103 | 2.65 | 38.32 | 9.6 | | | |
| **8.1** | 9.7 | 437 | 0.95 | 113.83 | ** | **KH043-11N-80-06E KO043-11N-80-06E** | 20 | 190 |
| **10** | 12 | 343 | 1.15 | 89.17 | 3.3 | | | |
| **10** | 12 | 337 | 1.20 | 87.62 | 3.5 | | | |
| **13** | 16 | 280 | 1.45 | 72.92 | 4.8 | | | |
| **14** | 17 | 254 | 1.60 | 66.20 | 5.3 | | | |
| **16** | 19 | 221 | 1.85 | 57.58 | 5.8 | | | |
| **17** | 20 | 208 | 1.95 | 54.18 | 5.9 | | | |
| **20** | 24 | 181 | 1.15 | 47.07 | 6.2 | | | |
| **21** | 25 | 172 | 2.35 | 44.64 | 6.3 | | | |
| **21** | 25 | 169 | 2.40 | 43.93 | 6.3 | | | |
| **24** | 29 | 148 | 1.85 | 38.49 | 6.5 | | | |
| **25** | 30 | 140 | 2.90 | 36.54 | 6.6 | | | |
| **25** | 30 | 141 | 2.85 | 36.78 | 6.5 | | | |
| **30** | 36 | 117 | 2.40 | 30.39 | 6.7 | | | |
| **39** | 47 | 91 | 2.90 | 23.57 | 6.8 | | | |
| **7.4** | 8.9 | 480 | 0.85 | 179.37 | ** | **KH043-11N-71-04F KO043-11N-71-04F** | 18 | 188 |
| **9.5** | 11 | 372 | 1.10 | 139.08 | 1.9 | | | |
| **12** | 14 | 305 | 1.35 | 113.83 | 4.3 | | | |
| **15** | 18 | 235 | 1.75 | 87.62 | 5.6 | | | |
| **15** | 18 | 239 | 1.60 | 89.17 | 5.5 | | | |
| **18** | 22 | 195 | 2.05 | 72.92 | 6.1 | | | |
| **20** | 24 | 177 | 2.30 | 66.20 | 6.3 | | | |
| **23** | 28 | 154 | 2.60 | 57.58 | 6.5 | | | |
| **24** | 29 | 145 | 2.80 | 54.18 | 6.5 | | | |
| **28** | 34 | 126 | 1.60 | 47.07 | 6.6 | | | |
| **34** | 41 | 103 | 2.65 | 38.49 | 6.8 | | | |

*Legend see page 153*

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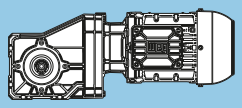
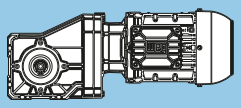
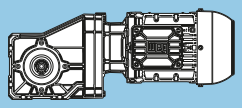
| $P_N$ = 0.37 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>0.37 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>0.44 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **14** | 17 | 252 | 0.80 | 65.63 | ** | **KH033-11N-80-06E**<br>**KO033-11N-80-06E** | 16 | 186 |
| **16** | 19 | 225 | 0.90 | 58.50 | ** | | | |
| **18** | 22 | 192 | 1.05 | 49.88 | 3.0 | | | |
| **20** | 24 | 179 | 1.15 | 46.48 | 3.4 | | | |
| **24** | 29 | 149 | 1.35 | 38.80 | 4.0 | | | |
| **26** | 31 | 138 | 1.50 | 35.90 | 4.2 | | | |
| **30** | 36 | 116 | 1.75 | 30.29 | 4.5 | | | |
| **31** | 37 | 115 | 1.15 | 29.97 | 4.5 | | | |
| **32** | 38 | 110 | 1.85 | 28.67 | 4.6 | | | |
| **38** | 46 | 94 | 1.75 | 24.38 | 4.7 | | | |
| **42** | 50 | 83 | 2.45 | 21.67 | 4.8 | | | |
| **47** | 56 | 74 | 2.20 | 19.37 | 4.9 | | | |
| **61** | 73 | 58 | 2.85 | 14.96 | 5.0 | | | |
| **15** | 18 | 232 | 0.90 | 86.83 | ** | **KH033-11N-71-04F**<br>**KO033-11N-71-04F** | 14 | 186 |
| **18** | 22 | 193 | 1.05 | 71.93 | 3.0 | | | |
| **20** | 24 | 176 | 1.15 | 65.63 | 3.4 | | | |
| **23** | 28 | 157 | 1.30 | 58.50 | 3.8 | | | |
| **26** | 31 | 134 | 1.50 | 49.88 | 4.2 | | | |
| **28** | 34 | 124 | 1.65 | 46.48 | 4.4 | | | |
| **34** | 41 | 104 | 1.95 | 38.80 | 4.6 | | | |
| **37** | 44 | 96 | 2.10 | 35.90 | 4.7 | | | |
| **44** | 53 | 80 | 1.65 | 29.97 | 4.8 | | | |
| **46** | 55 | 77 | 2.65 | 28.67 | 4.9 | | | |
| **54** | 65 | 65 | 2.50 | 24.38 | 4.9 | | | |
| **27** | 32 | 132 | 0.85 | 34.27 | ** | **KH022-11N-80-06E**<br>**KO022-11N-80-06E** | 14 | 184 |
| **30** | 36 | 118 | 0.95 | 30.73 | ** | | | |
| **35** | 42 | 101 | 1.10 | 26.41 | 4.8 | | | |
| **38** | 46 | 92 | 0.90 | 24.05 | ** | | | |
| **39** | 47 | 91 | 1.25 | 23.68 | 4.9 | | | |
| **45** | 54 | 79 | 1.40 | 20.63 | 5.0 | | | |
| **47** | 56 | 75 | 1.10 | 19.50 | 5.0 | | | |
| **50** | 60 | 71 | 1.55 | 18.50 | 5.1 | | | |
| **60** | 72 | 59 | 1.40 | 15.36 | 5.1 | | | |
| **60** | 72 | 59 | 1.75 | 15.41 | 5.1 | | | |
| **67** | 80 | 53 | 1.85 | 13.81 | 5.2 | | | |
| **78** | 94 | 46 | 1.80 | 11.84 | 5.2 | | | |
| **79** | 95 | 45 | 2.10 | 11.60 | 5.2 | | | |
| **88** | 106 | 40 | 2.25 | 10.40 | 5.2 | | | |
| **99** | 119 | 36 | 2.30 | 9.25 | 5.2 | | | |
| **108** | 130 | 33 | 2.55 | 8.51 | 5.3 | | | |
| **121** | 145 | 29 | 2.75 | 7.63 | 5.1 | | | |
| **25** | 30 | 144 | 0.80 | 53.65 | ** | **KH022-11N-71-04F**<br>**KO022-11N-71-04F** | 12 | 184 |
| **27** | 32 | 129 | 0.90 | 48.10 | ** | | | |
| **30** | 36 | 116 | 0.95 | 43.50 | ** | | | |
| **34** | 41 | 104 | 1.10 | 39.00 | 4.8 | | | |
| **39** | 47 | 92 | 1.20 | 34.27 | 4.9 | | | |
| **43** | 52 | 82 | 1.35 | 30.73 | 5.0 | | | |
| **50** | 60 | 71 | 1.60 | 26.41 | 5.1 | | | |
| **55** | 66 | 64 | 1.30 | 24.05 | 5.1 | | | |
| **56** | 67 | 63 | 1.75 | 23.68 | 5.1 | | | |
| **64** | 77 | 55 | 2.00 | 20.63 | 5.2 | | | |
| **68** | 82 | 52 | 1.60 | 19.50 | 5.2 | | | |
| **71** | 85 | 50 | 2.20 | 18.50 | 5.2 | | | |
| **86** | 103 | 41 | 2.50 | 15.41 | 5.2 | | | |
| **86** | 103 | 41 | 2.00 | 15.36 | 5.2 | | | |
| **96** | 115 | 37 | 2.65 | 13.81 | 5.2 | | | |
| **111** | 133 | 32 | 2.60 | 11.84 | 5.3 | | | |
| **114** | 137 | 31 | 3.00 | 11.60 | 5.2 | | | |
| **127** | 152 | 28 | 3.25 | 10.40 | 5.0 | | | |
| **143** | 172 | 25 | 3.30 | 9.25 | 4.8 | | | |
| **155** | 186 | 23 | 3.65 | 8.51 | 4.7 | | | |
| **173** | 208 | 20 | 3.95 | 7.63 | 4.5 | | | |
| **191** | 229 | 19 | 4.40 | 6.91 | 4.4 | | | |
| **254** | 305 | 14 | 5.85 | 5.20 | 4.0 | | | |
| **346** | 415 | 10 | 7.55 | 3.82 | 3.6 | | | |

| $P_N$ = 0.55 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 0.55 kW $n_{50}$ min$^{-1}$ | 60 Hz 0.66 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **3.6** | 4.3 | 1447 | 1.10 | 256.14 | 13.0 | **KH073-11N-80-06F KO073-11N-80-06F** | 56 | 194 |
| **4.7** | 5.6 | 1117 | 1.40 | 197.75 | 16.4 | | | |
| **5.6** | 6.7 | 937 | 1.70 | 165.85 | 17.7 | | | |
| **7.1** | 8.5 | 735 | 2.15 | 130.16 | 18.8 | | | |
| **9.3** | 11 | 564 | 2.30 | 99.87 | 19.5 | | | |
| **9.3** | 11 | 567 | 2.75 | 100.45 | 19.5 | | | |
| **20** | 24 | 269 | 2.30 | 47.56 | 20.3 | | | |
| **5.5** | 6.6 | 951 | 1.65 | 256.14 | 17.6 | **KH073-11N-80-04E KO073-11N-80-04E** | 56 | 194 |
| **7.2** | 8.6 | 734 | 2.15 | 197.75 | 18.8 | | | |
| **8.5** | 10 | 616 | 2.55 | 165.85 | 19.3 | | | |
| **5.9** | 7.1 | 886 | 0.95 | 156.92 | ** | **KH063-11N-80-06F KO063-11N-80-06F** | 36 | 192 |
| **7.6** | 9.1 | 688 | 1.20 | 121.85 | 11.3 | | | |
| **9.3** | 11 | 565 | 1.50 | 99.98 | 12.3 | | | |
| **11** | 13 | 461 | 1.25 | 81.53 | 12.9 | | | |
| **12** | 14 | 437 | 1.90 | 77.42 | 13.0 | | | |
| **14** | 17 | 365 | 2.25 | 64.62 | 13.4 | | | |
| **16** | 19 | 333 | 2.50 | 58.89 | 13.5 | | | |
| **19** | 23 | 283 | 2.90 | 50.17 | 13.6 | | | |
| **19** | 23 | 274 | 3.00 | 48.56 | 13.7 | | | |
| **21** | 25 | 251 | 1.25 | 44.35 | 13.7 | | | |
| **26** | 31 | 199 | 2.30 | 35.15 | 13.9 | | | |
| **7.1** | 8.5 | 735 | 1.15 | 198.00 | 10.9 | **KH063-11N-80-04E KO063-11N-80-04E** | 36 | 192 |
| **9.0** | 11 | 583 | 1.45 | 156.92 | 12.2 | | | |
| **12** | 14 | 452 | 1.85 | 121.85 | 13.0 | | | |
| **14** | 17 | 371 | 2.25 | 99.98 | 13.3 | | | |
| **17** | 20 | 303 | 1.90 | 81.53 | 13.6 | | | |
| **18** | 22 | 287 | 2.90 | 77.42 | 13.6 | | | |
| **32** | 38 | 165 | 1.90 | 44.35 | 13.9 | | | |
| **7.5** | 9.0 | 701 | 0.90 | 124.06 | ** | **KH053-11N-80-06F KO053-11N-80-06F** | 23 | 190 |
| **9.7** | 12 | 543 | 1.15 | 96.08 | 4.8 | | | |
| **12** | 14 | 454 | 1.25 | 80.46 | 6.7 | | | |
| **13** | 16 | 413 | 1.50 | 73.08 | 7.3 | | | |
| **15** | 18 | 340 | 1.80 | 60.26 | 8.2 | | | |
| **15** | 18 | 360 | 1.70 | 63.77 | 8.0 | | | |
| **19** | 23 | 279 | 2.15 | 49.43 | 8.7 | | | |
| **19** | 23 | 280 | 2.15 | 49.52 | 8.7 | | | |
| **22** | 26 | 237 | 2.55 | 42.00 | 9.0 | | | |
| **23** | 28 | 230 | 2.65 | 40.63 | 9.1 | | | |
| **24** | 29 | 216 | 1.25 | 38.32 | 9.1 | | | |
| **31** | 37 | 172 | 2.30 | 30.37 | 9.4 | | | |
| **7.3** | 8.8 | 723 | 0.85 | 194.73 | ** | **KH053-11N-80-04E KO053-11N-80-04E** | 23 | 190 |
| **9.4** | 11 | 561 | 1.10 | 151.20 | 4.3 | | | |
| **11** | 13 | 461 | 1.35 | 124.06 | 6.6 | | | |
| **15** | 18 | 357 | 1.70 | 96.08 | 8.0 | | | |
| **18** | 22 | 299 | 1.90 | 80.46 | 8.6 | | | |
| **19** | 23 | 271 | 2.25 | 73.08 | 8.8 | | | |
| **22** | 26 | 237 | 2.55 | 63.77 | 9.0 | | | |
| **23** | 28 | 224 | 2.70 | 60.26 | 9.1 | | | |
| **37** | 44 | 142 | 1.90 | 38.32 | 9.5 | | | |



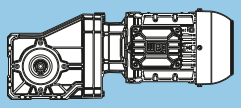
*Legend see page 153*

*** ... on request*

| $P_N$ = 0.55 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>0.55 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>0.66 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **10** | 12 | 504 | 0.80 | 89.17 | ** | **KH043-11N-80-06F**<br>**KO043-11N-80-06F** | 20 | 188 |
| **11** | 13 | 495 | 0.85 | 87.62 | ** | | | |
| **13** | 16 | 412 | 1.00 | 72.92 | ** | | | |
| **14** | 17 | 374 | 1.10 | 66.20 | 1.8 | | | |
| **16** | 19 | 325 | 1.25 | 57.58 | 3.8 | | | |
| **17** | 20 | 306 | 1.35 | 54.18 | 4.3 | | | |
| **20** | 24 | 266 | 0.80 | 47.07 | ** | | | |
| **21** | 25 | 252 | 1.60 | 44.64 | 5.3 | | | |
| **21** | 25 | 248 | 1.65 | 43.93 | 5.4 | | | |
| **24** | 29 | 217 | 1.25 | 38.49 | 5.8 | | | |
| **25** | 30 | 206 | 1.95 | 36.54 | 5.9 | | | |
| **25** | 30 | 208 | 1.95 | 36.78 | 5.9 | | | |
| **31** | 37 | 172 | 1.65 | 30.39 | 6.3 | | | |
| **31** | 37 | 168 | 2.40 | 29.81 | 6.3 | | | |
| **33** | 40 | 159 | 2.55 | 28.13 | 6.4 | | | |
| **39** | 47 | 133 | 2.00 | 23.57 | 6.6 | | | |
| **48** | 58 | 109 | 2.30 | 19.29 | 6.7 | | | |
| **63** | 76 | 84 | 2.75 | 14.85 | 6.9 | | | |
| **10** | 12 | 516 | 0.80 | 139.08 | ** | **KH043-11N-80-04E**<br>**KO043-11N-80-04E** | 19 | 188 |
| **12** | 14 | 423 | 0.95 | 113.83 | ** | | | |
| **16** | 19 | 331 | 1.15 | 89.17 | 3.6 | | | |
| **16** | 19 | 325 | 1.25 | 87.62 | 3.8 | | | |
| **19** | 23 | 271 | 1.50 | 72.92 | 5.0 | | | |
| **21** | 25 | 246 | 1.65 | 66.20 | 5.4 | | | |
| **25** | 30 | 214 | 1.90 | 57.58 | 5.9 | | | |
| **26** | 31 | 201 | 2.00 | 54.18 | 6.0 | | | |
| **30** | 36 | 175 | 1.15 | 47.07 | 6.3 | | | |
| **32** | 38 | 166 | 2.45 | 44.64 | 6.4 | | | |
| **32** | 38 | 163 | 2.50 | 43.93 | 6.4 | | | |
| **37** | 44 | 143 | 1.90 | 38.49 | 6.5 | | | |
| **38** | 46 | 137 | 2.95 | 36.78 | 6.6 | | | |
| **39** | 47 | 136 | 2.95 | 36.54 | 6.6 | | | |
| **47** | 56 | 113 | 2.50 | 30.39 | 6.7 | | | |
| **60** | 72 | 88 | 3.00 | 23.57 | 6.9 | | | |
| **20** | 24 | 263 | 0.80 | 46.48 | ** | **KH033-11N-80-06F**<br>**KO033-11N-80-06F** | 16 | 186 |
| **24** | 29 | 219 | 0.95 | 38.80 | ** | | | |
| **26** | 31 | 203 | 1.00 | 35.90 | ** | | | |
| **31** | 37 | 169 | 0.80 | 29.97 | ** | | | |
| **31** | 37 | 171 | 1.20 | 30.29 | 3.5 | | | |
| **32** | 38 | 162 | 1.25 | 28.67 | 3.7 | | | |
| **38** | 46 | 138 | 1.20 | 24.38 | 4.2 | | | |
| **43** | 52 | 122 | 1.65 | 21.67 | 4.4 | | | |
| **48** | 58 | 109 | 1.50 | 19.37 | 4.6 | | | |
| **56** | 67 | 93 | 2.20 | 16.47 | 4.7 | | | |
| **62** | 74 | 85 | 1.95 | 14.96 | 4.8 | | | |
| **73** | 88 | 72 | 2.70 | 12.81 | 4.9 | | | |
| **78** | 94 | 68 | 2.45 | 11.94 | 4.9 | | | |
| **22** | 26 | 244 | 0.85 | 65.63 | ** | **KH033-11N-80-04E**<br>**KO033-11N-80-04E** | 16 | 186 |
| **24** | 29 | 217 | 0.95 | 58.50 | ** | | | |
| **28** | 34 | 185 | 1.10 | 49.88 | 3.2 | | | |
| **30** | 36 | 173 | 1.20 | 46.48 | 3.5 | | | |
| **36** | 43 | 144 | 1.40 | 38.80 | 4.1 | | | |
| **39** | 47 | 133 | 1.55 | 35.90 | 4.2 | | | |
| **47** | 56 | 112 | 1.80 | 30.29 | 4.5 | | | |
| **47** | 56 | 111 | 1.20 | 29.97 | 4.5 | | | |
| **49** | 59 | 106 | 1.90 | 28.67 | 4.6 | | | |
| **58** | 70 | 91 | 1.80 | 24.38 | 4.8 | | | |
| **65** | 78 | 80 | 2.50 | 21.67 | 4.8 | | | |
| **73** | 88 | 72 | 2.30 | 19.37 | 4.9 | | | |
| **95** | 114 | 56 | 2.95 | 14.96 | 5.0 | | | |

*Legend see page 153*

*** ... on request*

| $P_N$ = 0.55 kW | | | | | | | | IE1 |
|---|---|---|---|---|---|---|---|---|
| **50 Hz** **0.55 kW** $n_{50}$ min$^{-1}$ | **60 Hz** **0.66 kW** $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | **i** | at 50 Hz $F_{rN}$ kN |  | **m** kg | **Dimension sheet see page** |
| **39** | 47 | 134 | 0.85 | 23.68 | ** | **KH022-11N-80-06F** **KO022-11N-80-06F** | 14 | 184 |
| **45** | 54 | 117 | 0.95 | 20.63 | ** | | | |
| **50** | 60 | 105 | 1.05 | 18.50 | 4.8 | | | |
| **60** | 72 | 87 | 1.20 | 15.41 | 5.0 | | | |
| **61** | 73 | 87 | 0.95 | 15.36 | ** | | | |
| **67** | 80 | 78 | 1.25 | 13.81 | 5.0 | | | |
| **79** | 95 | 67 | 1.25 | 11.84 | 5.1 | | | |
| **80** | 96 | 66 | 1.45 | 11.60 | 5.1 | | | |
| **89** | 107 | 59 | 1.55 | 10.40 | 5.1 | | | |
| **101** | 121 | 52 | 1.60 | 9.25 | 5.2 | | | |
| **109** | 131 | 48 | 1.75 | 8.51 | 5.2 | | | |
| **122** | 146 | 43 | 1.90 | 7.63 | 5.2 | | | |
| **135** | 162 | 39 | 2.10 | 6.91 | 5.0 | | | |
| **179** | 215 | 29 | 2.80 | 5.20 | 4.5 | | | |
| **36** | 43 | 145 | 0.80 | 39.00 | ** | **KH022-11N-80-04E** **KO022-11N-80-04E** | 14 | 184 |
| **41** | 49 | 127 | 0.90 | 34.27 | ** | | | |
| **46** | 55 | 114 | 1.00 | 30.73 | ** | | | |
| **54** | 65 | 98 | 1.15 | 26.41 | 4.9 | | | |
| **59** | 71 | 89 | 0.95 | 24.05 | ** | | | |
| **60** | 72 | 88 | 1.30 | 23.68 | 4.9 | | | |
| **69** | 83 | 77 | 1.45 | 20.63 | 5.0 | | | |
| **73** | 88 | 72 | 1.15 | 19.50 | 5.1 | | | |
| **76** | 91 | 69 | 1.60 | 18.50 | 5.1 | | | |
| **92** | 110 | 57 | 1.45 | 15.36 | 5.2 | | | |
| **92** | 110 | 57 | 1.80 | 15.41 | 5.2 | | | |
| **102** | 122 | 51 | 1.90 | 13.81 | 5.2 | | | |
| **120** | 144 | 44 | 1.85 | 11.84 | 5.2 | | | |
| **122** | 146 | 43 | 2.15 | 11.60 | 5.2 | | | |
| **136** | 163 | 39 | 2.35 | 10.40 | 5.0 | | | |
| **153** | 184 | 34 | 2.40 | 9.25 | 4.8 | | | |
| **166** | 199 | 32 | 2.65 | 8.51 | 4.6 | | | |
| **185** | 222 | 28 | 2.85 | 7.63 | 4.4 | | | |
| **205** | 246 | 26 | 3.20 | 6.91 | 4.3 | | | |
| **272** | 326 | 19 | 4.20 | 5.20 | 3.9 | | | |
| **371** | 445 | 14 | 5.45 | 3.82 | 3.5 | | | |



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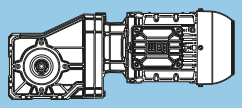
*** ... on request*

| $P_N$ = 0.75 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 0.75 kW $n_{50}$ min$^{-1}$ | 60 Hz 0.90 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **3.7** | 4.4 | 1952 | 0.80 | 256.14 | ** | **KH073-11P-90S/L-06E**<br>**KO073-11P-90S/L-06E** | 67 | 194 |
| **4.8** | 5.8 | 1507 | 1.05 | 197.75 | 12.2 | | | |
| **5.7** | 6.8 | 1264 | 1.25 | 165.85 | 15.1 | | | |
| **7.2** | 8.6 | 992 | 1.60 | 130.16 | 17.4 | | | |
| **9.4** | 11 | 761 | 1.70 | 99.87 | 18.7 | | | |
| **9.4** | 11 | 765 | 2.05 | 100.45 | 18.7 | | | |
| **11** | 13 | 633 | 2.45 | 83.09 | 19.3 | | | |
| **12** | 14 | 588 | 2.65 | 77.11 | 19.4 | | | |
| **13** | 16 | 539 | 2.90 | 70.67 | 19.6 | | | |
| **20** | 24 | 362 | 1.70 | 47.56 | 20.1 | | | |
| **26** | 31 | 280 | 2.75 | 36.72 | 20.2 | | | |
| **5.5** | 6.6 | 1292 | 1.20 | 256.14 | 14.8 | **KH073-11P-80-04F**<br>**KO073-11P-80-04F** | 58 | 194 |
| **7.2** | 8.6 | 998 | 1.60 | 197.75 | 17.3 | | | |
| **8.6** | 10 | 837 | 1.90 | 165.85 | 18.3 | | | |
| **11** | 13 | 657 | 2.40 | 130.16 | 19.2 | | | |
| **14** | 17 | 504 | 2.60 | 99.87 | 19.7 | | | |
| **30** | 36 | 240 | 2.60 | 47.56 | 20.3 | | | |
| **7.7** | 9.2 | 928 | 0.90 | 121.85 | ** | **KH063-11P-90S/L-06E**<br>**KO063-11P-90S/L-06E** | 47 | 192 |
| **9.4** | 11 | 762 | 1.10 | 99.98 | 10.6 | | | |
| **12** | 14 | 621 | 0.95 | 81.53 | ** | | | |
| **12** | 14 | 590 | 1.40 | 77.42 | 12.1 | | | |
| **15** | 18 | 492 | 1.70 | 64.62 | 12.7 | | | |
| **16** | 19 | 449 | 1.85 | 58.89 | 13.0 | | | |
| **19** | 23 | 370 | 2.25 | 48.56 | 13.3 | | | |
| **19** | 23 | 382 | 2.15 | 50.17 | 13.3 | | | |
| **21** | 25 | 338 | 0.95 | 44.35 | ** | | | |
| **23** | 28 | 314 | 2.65 | 41.17 | 13.5 | | | |
| **24** | 29 | 304 | 2.75 | 39.83 | 13.6 | | | |
| **27** | 32 | 268 | 1.70 | 35.15 | 13.7 | | | |
| **34** | 41 | 208 | 2.45 | 27.29 | 13.8 | | | |
| **42** | 50 | 171 | 2.95 | 22.40 | 13.9 | | | |
| **7.2** | 8.6 | 999 | 0.85 | 198.00 | ** | **KH063-11P-80-04F**<br>**KO063-11P-80-04F** | 38 | 192 |
| **9.0** | 11 | 792 | 1.05 | 156.92 | 10.3 | | | |
| **12** | 14 | 615 | 1.35 | 121.85 | 11.9 | | | |
| **14** | 17 | 504 | 1.65 | 99.98 | 12.7 | | | |
| **17** | 20 | 411 | 1.40 | 81.53 | 13.2 | | | |
| **18** | 22 | 391 | 2.10 | 77.42 | 13.2 | | | |
| **22** | 26 | 326 | 2.55 | 64.62 | 13.5 | | | |
| **24** | 29 | 297 | 2.80 | 58.89 | 13.6 | | | |
| **32** | 38 | 224 | 1.40 | 44.35 | 13.8 | | | |
| **40** | 48 | 177 | 2.60 | 35.15 | 13.9 | | | |
| **9.8** | 12 | 732 | 0.85 | 96.08 | ** | **KH053-11P-90S/L-06E**<br>**KO053-11P-90S/L-06E** | 34 | 190 |
| **12** | 14 | 613 | 0.95 | 80.46 | ** | | | |
| **13** | 16 | 557 | 1.10 | 73.08 | 4.4 | | | |
| **15** | 18 | 486 | 1.25 | 63.77 | 6.1 | | | |
| **16** | 19 | 459 | 1.35 | 60.26 | 6.6 | | | |
| **19** | 23 | 377 | 1.60 | 49.43 | 7.8 | | | |
| **19** | 23 | 377 | 1.60 | 49.52 | 7.8 | | | |
| **22** | 26 | 320 | 1.90 | 42.00 | 8.4 | | | |
| **23** | 28 | 310 | 1.95 | 40.63 | 8.5 | | | |
| **25** | 30 | 292 | 0.95 | 38.32 | ** | | | |
| **27** | 32 | 263 | 2.30 | 34.53 | 8.8 | | | |
| **30** | 36 | 240 | 2.55 | 31.46 | 9.0 | | | |
| **31** | 37 | 231 | 1.70 | 30.37 | 9.1 | | | |
| **34** | 41 | 209 | 2.90 | 27.39 | 9.2 | | | |
| **40** | 48 | 180 | 2.45 | 23.58 | 9.3 | | | |
| **49** | 59 | 147 | 2.95 | 19.35 | 9.5 | | | |



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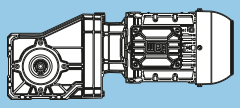
| $P_N$ = 0.75 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 0.75 kW $n_{50}$ min$^{-1}$ | 60 Hz 0.90 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **9.4** | 11 | 763 | 0.80 | 151.20 | ** | **KH053-11P-80-04F**<br>**KO053-11P-80-04F** | 25 | 190 |
| **11** | 13 | 626 | 1.00 | 124.06 | ** | | | |
| **15** | 18 | 485 | 1.25 | 96.08 | 6.2 | | | |
| **18** | 22 | 406 | 1.40 | 80.46 | 7.4 | | | |
| **19** | 23 | 369 | 1.65 | 73.08 | 7.9 | | | |
| **22** | 26 | 322 | 1.90 | 63.77 | 8.4 | | | |
| **24** | 29 | 304 | 2.00 | 60.26 | 8.5 | | | |
| **29** | 35 | 249 | 2.45 | 49.43 | 8.9 | | | |
| **29** | 35 | 250 | 2.45 | 49.52 | 8.9 | | | |
| **34** | 41 | 212 | 2.85 | 42.00 | 9.2 | | | |
| **35** | 42 | 205 | 2.95 | 40.63 | 9.2 | | | |
| **37** | 44 | 193 | 1.40 | 38.32 | 9.3 | | | |
| **47** | 56 | 153 | 2.60 | 30.37 | 9.4 | | | |
| **14** | 17 | 504 | 0.80 | 66.20 | ** | **KH043-11P-90S/L-06E**<br>**KO043-11P-90S/L-06E** | 30 | 188 |
| **16** | 19 | 439 | 0.95 | 57.58 | ** | | | |
| **17** | 20 | 413 | 1.00 | 54.18 | ** | | | |
| **21** | 25 | 340 | 1.20 | 44.64 | 3.3 | | | |
| **21** | 25 | 335 | 1.20 | 43.93 | 3.5 | | | |
| **24** | 29 | 293 | 0.95 | 38.49 | ** | | | |
| **26** | 31 | 280 | 1.45 | 36.78 | 4.8 | | | |
| **26** | 31 | 278 | 1.45 | 36.54 | 4.9 | | | |
| **31** | 37 | 232 | 1.25 | 30.39 | 5.6 | | | |
| **32** | 38 | 227 | 1.80 | 29.81 | 5.7 | | | |
| **33** | 40 | 214 | 1.90 | 28.13 | 5.9 | | | |
| **40** | 48 | 180 | 1.50 | 23.57 | 6.2 | | | |
| **44** | 53 | 162 | 2.35 | 21.25 | 6.4 | | | |
| **49** | 59 | 147 | 1.70 | 19.29 | 6.5 | | | |
| **54** | 65 | 133 | 2.70 | 17.39 | 6.6 | | | |
| **63** | 76 | 113 | 2.05 | 14.85 | 6.7 | | | |
| **84** | 101 | 86 | 2.50 | 11.22 | 6.9 | | | |
| **102** | 122 | 70 | 2.90 | 9.18 | 6.9 | | | |
| **16** | 19 | 442 | 0.95 | 87.62 | ** | **KH043-11P-80-04F**<br>**KO043-11P-80-04F** | 21 | 188 |
| **16** | 19 | 450 | 0.85 | 89.17 | ** | | | |
| **19** | 23 | 368 | 1.10 | 72.92 | 2.2 | | | |
| **21** | 25 | 334 | 1.20 | 66.20 | 3.5 | | | |
| **25** | 30 | 290 | 1.40 | 57.58 | 4.6 | | | |
| **26** | 31 | 273 | 1.50 | 54.18 | 5.0 | | | |
| **30** | 36 | 237 | 0.85 | 47.07 | ** | | | |
| **32** | 38 | 225 | 1.80 | 44.64 | 5.7 | | | |
| **32** | 38 | 222 | 1.85 | 43.93 | 5.8 | | | |
| **37** | 44 | 194 | 1.40 | 38.49 | 6.1 | | | |
| **39** | 47 | 184 | 2.20 | 36.54 | 6.2 | | | |
| **39** | 47 | 186 | 2.20 | 36.78 | 6.2 | | | |
| **47** | 56 | 153 | 1.85 | 30.39 | 6.5 | | | |
| **48** | 58 | 150 | 2.70 | 29.81 | 6.5 | | | |
| **50** | 60 | 142 | 2.85 | 28.13 | 6.5 | | | |
| **60** | 72 | 119 | 2.20 | 23.57 | 6.7 | | | |
| **74** | 89 | 97 | 2.55 | 19.29 | 6.8 | | | |
| **31** | 37 | 231 | 0.90 | 30.29 | ** | **KH033-11P-90S/L-06E**<br>**KO033-11P-90S/L-06E** | 26 | 186 |
| **33** | 40 | 218 | 0.95 | 28.67 | ** | | | |
| **39** | 47 | 186 | 0.90 | 24.38 | ** | | | |
| **43** | 52 | 165 | 1.25 | 21.67 | 3.7 | | | |
| **49** | 59 | 148 | 1.15 | 19.37 | 4.0 | | | |
| **57** | 68 | 126 | 1.60 | 16.47 | 4.4 | | | |
| **63** | 76 | 114 | 1.45 | 14.96 | 4.5 | | | |
| **73** | 88 | 98 | 2.00 | 12.81 | 4.7 | | | |
| **79** | 95 | 91 | 1.80 | 11.94 | 4.7 | | | |
| **94** | 113 | 76 | 2.35 | 10.00 | 4.9 | | | |
| **104** | 125 | 69 | 2.40 | 9.03 | 4.9 | | | |
| **137** | 164 | 52 | 2.85 | 6.86 | 5.0 | | | |



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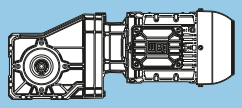
| $P_N$ = 0.75 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>0.75 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>0.90 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **28** | 34 | 252 | 0.80 | 49.88 | ** | **KH033-11P-80-04F**<br>**KO033-11P-80-04F** | 17 | 186 |
| **31** | 37 | 235 | 0.90 | 46.48 | ** | | | |
| **37** | 44 | 196 | 1.05 | 38.80 | 2.9 | | | |
| **40** | 48 | 181 | 1.15 | 35.90 | 3.3 | | | |
| **47** | 56 | 151 | 0.90 | 29.97 | ** | | | |
| **47** | 56 | 153 | 1.35 | 30.29 | 3.9 | | | |
| **50** | 60 | 145 | 1.40 | 28.67 | 4.1 | | | |
| **58** | 70 | 123 | 1.35 | 24.38 | 4.4 | | | |
| **66** | 79 | 109 | 1.85 | 21.67 | 4.6 | | | |
| **73** | 88 | 98 | 1.70 | 19.37 | 4.7 | | | |
| **86** | 103 | 83 | 2.45 | 16.47 | 4.8 | | | |
| **95** | 114 | 76 | 2.20 | 14.96 | 4.9 | | | |
| **111** | 133 | 65 | 3.00 | 12.81 | 5.0 | | | |
| **119** | 143 | 60 | 2.75 | 11.94 | 5.0 | | | |
| **51** | 61 | 141 | 0.80 | 18.50 | ** | **KH022-11P-90S/L-06E**<br>**KO022-11P-90S/L-06E** | 25 | 184 |
| **61** | 73 | 117 | 0.90 | 15.41 | ** | | | |
| **68** | 82 | 105 | 0.95 | 13.81 | ** | | | |
| **79** | 95 | 90 | 0.90 | 11.84 | ** | | | |
| **81** | 97 | 88 | 1.05 | 11.60 | 4.9 | | | |
| **90** | 108 | 79 | 1.15 | 10.40 | 5.0 | | | |
| **102** | 122 | 71 | 1.15 | 9.25 | 5.1 | | | |
| **110** | 132 | 65 | 1.30 | 8.51 | 5.1 | | | |
| **123** | 148 | 58 | 1.40 | 7.63 | 5.2 | | | |
| **136** | 163 | 53 | 1.55 | 6.91 | 5.0 | | | |
| **181** | 217 | 40 | 2.05 | 5.20 | 4.5 | | | |
| **246** | 295 | 29 | 2.65 | 3.82 | 4.1 | | | |
| **54** | 65 | 133 | 0.85 | 26.41 | ** | **KH022-11P-80-04F**<br>**KO022-11P-80-04F** | 16 | 184 |
| **60** | 72 | 119 | 0.95 | 23.68 | ** | | | |
| **69** | 83 | 104 | 1.10 | 20.63 | 4.8 | | | |
| **73** | 88 | 98 | 0.85 | 19.50 | ** | | | |
| **77** | 92 | 93 | 1.15 | 18.50 | 4.9 | | | |
| **92** | 110 | 78 | 1.05 | 15.36 | 5.0 | | | |
| **92** | 110 | 78 | 1.30 | 15.41 | 5.0 | | | |
| **103** | 124 | 70 | 1.40 | 13.81 | 5.1 | | | |
| **120** | 144 | 60 | 1.40 | 11.84 | 5.1 | | | |
| **122** | 146 | 59 | 1.60 | 11.60 | 5.1 | | | |
| **137** | 164 | 53 | 1.70 | 10.40 | 5.0 | | | |
| **154** | 185 | 47 | 1.75 | 9.25 | 4.8 | | | |
| **167** | 200 | 43 | 1.95 | 8.51 | 4.7 | | | |
| **186** | 223 | 39 | 2.10 | 7.63 | 4.5 | | | |
| **206** | 247 | 35 | 2.35 | 6.91 | 4.3 | | | |
| **273** | 328 | 26 | 3.10 | 5.20 | 3.9 | | | |
| **372** | 446 | 19 | 4.05 | 3.82 | 3.5 | | | |



*Legend see page 153*

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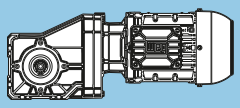
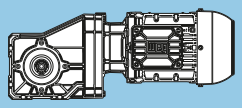
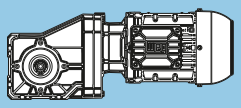
| $P_N$ = 1.1 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>1.1 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>1.3 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **5.7** | 6.8 | 1849 | 0.85 | 256.14 | ** | **KH073-11P-90S/L-04E**<br>**KO073-11P-90S/L-04E** | 64 | 194 |
| **7.4** | 8.9 | 1428 | 1.10 | 197.75 | 13.3 | | | |
| **8.8** | 11 | 1197 | 1.30 | 165.85 | 15.8 | | | |
| **11** | 13 | 940 | 1.65 | 130.16 | 17.7 | | | |
| **14** | 17 | 725 | 2.15 | 100.45 | 18.9 | | | |
| **15** | 18 | 721 | 1.80 | 99.87 | 18.9 | | | |
| **18** | 22 | 600 | 2.60 | 83.09 | 19.4 | | | |
| **19** | 23 | 557 | 2.80 | 77.11 | 19.5 | | | |
| **31** | 37 | 343 | 1.80 | 47.56 | 20.1 | | | |
| **40** | 48 | 265 | 2.90 | 36.72 | 20.3 | | | |
| **5.7** | 6.8 | 1844 | 0.85 | 165.85 | ** | **KH073-11P-100L-06D**<br>**KO073-11P-100L-06D** | 75 | 194 |
| **7.3** | 8.8 | 1447 | 1.10 | 130.16 | 13.0 | | | |
| **9.4** | 11 | 1117 | 1.40 | 100.45 | 16.4 | | | |
| **9.5** | 11 | 1110 | 1.20 | 99.87 | 16.5 | | | |
| **11** | 13 | 924 | 1.70 | 83.09 | 17.8 | | | |
| **12** | 14 | 857 | 1.85 | 77.11 | 18.2 | | | |
| **13** | 16 | 786 | 2.00 | 70.67 | 18.6 | | | |
| **15** | 18 | 681 | 2.30 | 61.25 | 19.1 | | | |
| **15** | 18 | 719 | 2.20 | 64.67 | 18.9 | | | |
| **18** | 22 | 575 | 2.70 | 51.72 | 19.5 | | | |
| **19** | 23 | 564 | 2.75 | 50.75 | 19.5 | | | |
| **20** | 24 | 529 | 1.20 | 47.56 | 19.6 | | | |
| **26** | 31 | 408 | 1.90 | 36.72 | 20.0 | | | |
| **31** | 37 | 342 | 2.70 | 30.79 | 20.1 | | | |
| **12** | 14 | 880 | 0.95 | 121.85 | ** | **KH063-11P-90S/L-04E**<br>**KO063-11P-90S/L-04E** | 44 | 192 |
| **15** | 18 | 722 | 1.15 | 99.98 | 11.0 | | | |
| **18** | 22 | 589 | 1.00 | 81.53 | ** | | | |
| **19** | 23 | 559 | 1.50 | 77.42 | 12.3 | | | |
| **23** | 28 | 467 | 1.80 | 64.62 | 12.9 | | | |
| **25** | 30 | 425 | 1.95 | 58.89 | 13.1 | | | |
| **29** | 35 | 362 | 2.30 | 50.17 | 13.4 | | | |
| **30** | 36 | 351 | 2.35 | 48.56 | 13.4 | | | |
| **33** | 40 | 320 | 1.00 | 44.35 | ** | | | |
| **35** | 42 | 297 | 2.80 | 41.17 | 13.6 | | | |
| **37** | 44 | 288 | 2.90 | 39.83 | 13.6 | | | |
| **41** | 49 | 254 | 1.80 | 35.15 | 13.7 | | | |
| **53** | 64 | 197 | 2.55 | 27.29 | 13.9 | | | |
| **12** | 14 | 861 | 1.00 | 77.42 | ** | **KH063-11P-100L-06D**<br>**KO063-11P-100L-06D** | 55 | 192 |
| **15** | 18 | 718 | 1.15 | 64.62 | 11.0 | | | |
| **16** | 19 | 655 | 1.30 | 58.89 | 11.6 | | | |
| **19** | 23 | 558 | 1.50 | 50.17 | 12.3 | | | |
| **19** | 23 | 540 | 1.55 | 48.56 | 12.4 | | | |
| **23** | 28 | 458 | 1.80 | 41.17 | 12.9 | | | |
| **24** | 29 | 443 | 1.90 | 39.83 | 13.0 | | | |
| **27** | 32 | 391 | 1.20 | 35.15 | 13.2 | | | |
| **28** | 34 | 376 | 2.20 | 33.85 | 13.3 | | | |
| **30** | 36 | 354 | 2.35 | 31.88 | 13.4 | | | |
| **34** | 41 | 309 | 2.55 | 27.83 | 13.6 | | | |
| **35** | 42 | 303 | 1.65 | 27.29 | 13.6 | | | |
| **42** | 50 | 249 | 2.05 | 22.40 | 13.7 | | | |
| **43** | 52 | 245 | 3.00 | 22.07 | 13.7 | | | |
| **54** | 65 | 193 | 2.60 | 17.34 | 13.9 | | | |
| **15** | 18 | 694 | 0.90 | 96.08 | ** | **KH053-11P-90S/L-04E**<br>**KO053-11P-90S/L-04E** | 31 | 190 |
| **18** | 22 | 581 | 1.00 | 80.46 | ** | | | |
| **20** | 24 | 528 | 1.15 | 73.08 | 5.2 | | | |
| **23** | 28 | 460 | 1.35 | 63.77 | 6.6 | | | |
| **24** | 29 | 435 | 1.40 | 60.26 | 7.0 | | | |
| **29** | 35 | 357 | 1.70 | 49.43 | 8.0 | | | |
| **29** | 35 | 358 | 1.70 | 49.52 | 8.0 | | | |
| **35** | 42 | 303 | 2.00 | 42.00 | 8.5 | | | |
| **36** | 43 | 293 | 2.05 | 40.63 | 8.6 | | | |
| **38** | 46 | 277 | 1.00 | 38.32 | ** | | | |
| **42** | 50 | 249 | 2.45 | 34.53 | 8.9 | | | |
| **46** | 55 | 227 | 2.65 | 31.46 | 9.1 | | | |
| **48** | 58 | 219 | 1.80 | 30.37 | 9.1 | | | |
| **62** | 74 | 170 | 2.55 | 23.58 | 9.4 | | | |

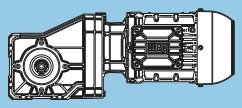
| $P_N$ = 1.1 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>1.1 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>1.3 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **15** | 18 | 709 | 0.85 | 63.77 | ** | **KH053-11P-100L-06D**<br>**KO053-11P-100L-06D** | 42 | 190 |
| **16** | 19 | 670 | 0.90 | 60.26 | ** | | | |
| **19** | 23 | 550 | 1.10 | 49.43 | 4.6 | | | |
| **19** | 23 | 550 | 1.10 | 49.52 | 4.6 | | | |
| **23** | 28 | 467 | 1.30 | 42.00 | 6.5 | | | |
| **23** | 28 | 452 | 1.35 | 40.63 | 6.7 | | | |
| **27** | 32 | 384 | 1.60 | 34.53 | 7.7 | | | |
| **30** | 36 | 350 | 1.75 | 31.46 | 8.1 | | | |
| **31** | 37 | 338 | 1.20 | 30.37 | 8.2 | | | |
| **35** | 42 | 305 | 2.00 | 27.39 | 8.5 | | | |
| **39** | 47 | 266 | 2.30 | 23.93 | 8.8 | | | |
| **40** | 48 | 262 | 1.65 | 23.58 | 8.8 | | | |
| **48** | 58 | 219 | 2.75 | 19.73 | 9.1 | | | |
| **49** | 59 | 215 | 2.05 | 19.35 | 9.1 | | | |
| **63** | 76 | 167 | 2.60 | 14.98 | 9.4 | | | |
| **20** | 24 | 527 | 0.80 | 72.92 | ** | **KH043-11P-90S/L-04E**<br>**KO043-11P-90S/L-04E** | 28 | 188 |
| **22** | 26 | 478 | 0.85 | 66.20 | ** | | | |
| **25** | 30 | 416 | 1.00 | 57.58 | ** | | | |
| **27** | 32 | 391 | 1.05 | 54.18 | ** | | | |
| **33** | 40 | 317 | 1.30 | 43.93 | 4.0 | | | |
| **33** | 40 | 322 | 1.25 | 44.64 | 3.9 | | | |
| **38** | 46 | 278 | 1.00 | 38.49 | ** | | | |
| **40** | 48 | 264 | 1.55 | 36.54 | 5.1 | | | |
| **40** | 48 | 266 | 1.55 | 36.78 | 5.1 | | | |
| **48** | 58 | 219 | 1.30 | 30.39 | 5.8 | | | |
| **49** | 59 | 215 | 1.90 | 29.81 | 5.8 | | | |
| **52** | 62 | 203 | 2.00 | 28.13 | 6.0 | | | |
| **62** | 74 | 170 | 1.55 | 23.57 | 6.3 | | | |
| **68** | 82 | 153 | 2.45 | 21.25 | 6.5 | | | |
| **75** | 90 | 139 | 1.80 | 19.29 | 6.6 | | | |
| **84** | 101 | 126 | 2.85 | 17.39 | 6.7 | | | |
| **98** | 118 | 107 | 2.15 | 14.85 | 6.8 | | | |
| **130** | 156 | 81 | 2.65 | 11.22 | 6.9 | | | |
| **21** | 25 | 496 | 0.85 | 44.64 | ** | **KH043-11P-100L-06D**<br>**KO043-11P-100L-06D** | 38 | 188 |
| **22** | 26 | 488 | 0.85 | 43.93 | ** | | | |
| **26** | 31 | 409 | 1.00 | 36.78 | ** | | | |
| **26** | 31 | 406 | 1.00 | 36.54 | ** | | | |
| **31** | 37 | 338 | 0.85 | 30.39 | ** | | | |
| **32** | 38 | 331 | 1.25 | 29.81 | 3.6 | | | |
| **34** | 41 | 313 | 1.30 | 28.13 | 4.1 | | | |
| **40** | 48 | 262 | 1.00 | 23.57 | ** | | | |
| **44** | 53 | 236 | 1.60 | 21.25 | 5.6 | | | |
| **49** | 59 | 214 | 1.20 | 19.29 | 5.9 | | | |
| **54** | 65 | 193 | 1.85 | 17.39 | 6.1 | | | |
| **64** | 77 | 165 | 1.40 | 14.85 | 6.4 | | | |
| **67** | 80 | 157 | 2.15 | 14.10 | 6.4 | | | |
| **80** | 96 | 131 | 2.40 | 11.81 | 6.6 | | | |
| **84** | 101 | 125 | 1.75 | 11.22 | 6.7 | | | |
| **99** | 119 | 106 | 2.80 | 9.57 | 6.8 | | | |
| **103** | 124 | 102 | 2.00 | 9.18 | 6.8 | | | |
| **127** | 152 | 83 | 2.30 | 7.44 | 6.9 | | | |
| **152** | 182 | 69 | 2.65 | 6.23 | 6.9 | | | |
| **41** | 49 | 259 | 0.80 | 35.90 | ** | **KH033-11P-90S/L-04E**<br>**KO033-11P-90S/L-04E** | 24 | 186 |
| **48** | 58 | 219 | 0.95 | 30.29 | ** | | | |
| **51** | 61 | 207 | 1.00 | 28.67 | ** | | | |
| **60** | 72 | 176 | 0.95 | 24.38 | ** | | | |
| **67** | 80 | 156 | 1.30 | 21.67 | 3.9 | | | |
| **75** | 90 | 140 | 1.20 | 19.37 | 4.1 | | | |
| **88** | 106 | 119 | 1.70 | 16.47 | 4.4 | | | |
| **97** | 116 | 108 | 1.55 | 14.96 | 4.6 | | | |
| **114** | 137 | 93 | 2.10 | 12.81 | 4.7 | | | |
| **122** | 146 | 86 | 1.90 | 11.94 | 4.8 | | | |
| **146** | 175 | 72 | 2.50 | 10.00 | 4.9 | | | |
| **161** | 193 | 65 | 2.50 | 9.03 | 4.9 | | | |

| $P_N$ = 1.1 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>1.1 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>1.3 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **44** | 53 | 241 | 0.85 | 21.67 | ** | **KH033-11P-100L-06D**<br>**KO033-11P-100L-06D** | 35 | 186 |
| **49** | 59 | 215 | 0.80 | 19.37 | ** | | | |
| **57** | 68 | 183 | 1.10 | 16.47 | 3.2 | | | |
| **63** | 76 | 166 | 1.00 | 14.96 | ** | | | |
| **74** | 89 | 142 | 1.35 | 12.81 | 4.1 | | | |
| **79** | 95 | 133 | 1.25 | 11.94 | 4.3 | | | |
| **95** | 114 | 111 | 1.65 | 10.00 | 4.5 | | | |
| **105** | 126 | 100 | 1.65 | 9.03 | 4.7 | | | |
| **138** | 166 | 76 | 2.00 | 6.86 | 4.9 | | | |
| **177** | 212 | 59 | 2.35 | 5.34 | 5.0 | | | |
| **227** | 272 | 46 | 2.75 | 4.17 | 5.0 | | | |
| **79** | 95 | 134 | 0.85 | 18.50 | ** | **KH022-11P-90S/L-04E**<br>**KO022-11P-90S/L-04E** | 22 | 184 |
| **94** | 113 | 111 | 0.95 | 15.41 | ** | | | |
| **105** | 126 | 100 | 1.00 | 13.81 | ** | | | |
| **123** | 148 | 86 | 0.95 | 11.84 | ** | | | |
| **125** | 150 | 84 | 1.10 | 11.60 | 5.0 | | | |
| **140** | 168 | 75 | 1.20 | 10.40 | 5.0 | | | |
| **157** | 188 | 67 | 1.25 | 9.25 | 4.9 | | | |
| **171** | 205 | 61 | 1.40 | 8.51 | 4.7 | | | |
| **191** | 229 | 55 | 1.50 | 7.63 | 4.5 | | | |
| **211** | 253 | 50 | 1.65 | 6.91 | 4.4 | | | |
| **280** | 336 | 38 | 2.20 | 5.20 | 3.9 | | | |
| **381** | 457 | 28 | 2.80 | 3.82 | 3.5 | | | |



*Legend see page 153*

*** ... on request*

| $P_N$ = 1.5 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 1.5 kW $n_{50}$ min$^{-1}$ | 60 Hz 1.8 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **7.3** | 8.8 | 1954 | 0.80 | 197.75 | ** | **KH073-11P-90S/L-04F**<br>**KO073-11P-90S/L-04F** | 68 | 194 |
| **8.7** | 10 | 1638 | 0.95 | 165.85 | ** | | | |
| **11** | 13 | 1286 | 1.25 | 130.16 | 14.9 | | | |
| **14** | 17 | 992 | 1.60 | 100.45 | 17.4 | | | |
| **15** | 18 | 987 | 1.35 | 99.87 | 17.4 | | | |
| **17** | 20 | 821 | 1.90 | 83.09 | 18.4 | | | |
| **19** | 23 | 762 | 2.05 | 77.11 | 18.7 | | | |
| **21** | 25 | 698 | 2.25 | 70.67 | 19.0 | | | |
| **22** | 26 | 639 | 2.45 | 64.67 | 19.2 | | | |
| **24** | 29 | 605 | 2.60 | 61.25 | 19.4 | | | |
| **30** | 36 | 470 | 1.35 | 47.56 | 19.8 | | | |
| **39** | 47 | 363 | 2.10 | 36.72 | 20.1 | | | |
| **47** | 56 | 304 | 3.00 | 30.79 | 20.2 | | | |
| **15** | 18 | 988 | 0.85 | 99.98 | ** | **KH063-11P-90S/L-04F**<br>**KO063-11P-90S/L-04F** | 48 | 192 |
| **19** | 23 | 765 | 1.10 | 77.42 | 10.6 | | | |
| **22** | 26 | 638 | 1.30 | 64.62 | 11.7 | | | |
| **25** | 30 | 582 | 1.45 | 58.89 | 12.2 | | | |
| **29** | 35 | 496 | 1.70 | 50.17 | 12.7 | | | |
| **30** | 36 | 480 | 1.75 | 48.56 | 12.8 | | | |
| **35** | 42 | 407 | 2.05 | 41.17 | 13.2 | | | |
| **36** | 43 | 394 | 2.10 | 39.83 | 13.2 | | | |
| **41** | 49 | 347 | 1.35 | 35.15 | 13.4 | | | |
| **43** | 52 | 334 | 2.50 | 33.85 | 13.5 | | | |
| **45** | 54 | 315 | 2.65 | 31.88 | 13.5 | | | |
| **52** | 62 | 275 | 2.85 | 27.83 | 13.7 | | | |
| **53** | 64 | 270 | 1.90 | 27.29 | 13.7 | | | |
| **65** | 78 | 221 | 2.30 | 22.40 | 13.8 | | | |
| **84** | 101 | 171 | 2.95 | 17.34 | 13.9 | | | |
| **20** | 24 | 722 | 0.85 | 73.08 | ** | **KH053-11P-90S/L-04F**<br>**KO053-11P-90S/L-04F** | 35 | 190 |
| **23** | 28 | 630 | 1.00 | 63.77 | ** | | | |
| **24** | 29 | 595 | 1.05 | 60.26 | 3.0 | | | |
| **29** | 35 | 488 | 1.25 | 49.43 | 6.1 | | | |
| **29** | 35 | 489 | 1.25 | 49.52 | 6.1 | | | |
| **35** | 42 | 415 | 1.45 | 42.00 | 7.3 | | | |
| **36** | 43 | 401 | 1.50 | 40.63 | 7.5 | | | |
| **42** | 50 | 341 | 1.80 | 34.53 | 8.2 | | | |
| **46** | 55 | 311 | 1.95 | 31.46 | 8.5 | | | |
| **48** | 58 | 300 | 1.35 | 30.37 | 8.5 | | | |
| **53** | 64 | 271 | 2.25 | 27.39 | 8.8 | | | |
| **61** | 73 | 233 | 1.90 | 23.58 | 9.0 | | | |
| **61** | 73 | 236 | 2.55 | 23.93 | 9.0 | | | |
| **75** | 90 | 191 | 2.30 | 19.35 | 9.3 | | | |
| **97** | 116 | 148 | 2.95 | 14.98 | 9.5 | | | |
| **32** | 38 | 441 | 0.95 | 44.64 | ** | **KH043-11P-90S/L-04F**<br>**KO043-11P-90S/L-04F** | 31 | 188 |
| **33** | 40 | 434 | 0.95 | 43.93 | ** | | | |
| **39** | 47 | 363 | 1.15 | 36.78 | 2.4 | | | |
| **40** | 48 | 361 | 1.15 | 36.54 | 2.5 | | | |
| **48** | 58 | 300 | 0.95 | 30.39 | ** | | | |
| **49** | 59 | 295 | 1.40 | 29.81 | 4.6 | | | |
| **52** | 62 | 278 | 1.45 | 28.13 | 4.9 | | | |
| **62** | 74 | 233 | 1.15 | 23.57 | 5.6 | | | |
| **68** | 82 | 210 | 1.80 | 21.25 | 5.9 | | | |
| **75** | 90 | 191 | 1.30 | 19.29 | 6.1 | | | |
| **83** | 100 | 172 | 2.10 | 17.39 | 6.3 | | | |
| **98** | 118 | 147 | 1.60 | 14.85 | 6.5 | | | |
| **103** | 124 | 139 | 2.40 | 14.10 | 6.6 | | | |
| **123** | 148 | 117 | 2.70 | 11.81 | 6.7 | | | |
| **129** | 155 | 111 | 1.95 | 11.22 | 6.7 | | | |
| **158** | 190 | 91 | 2.25 | 9.18 | 6.8 | | | |
| **195** | 234 | 74 | 2.60 | 7.44 | 6.9 | | | |
| **233** | 280 | 62 | 2.95 | 6.23 | 6.9 | | | |

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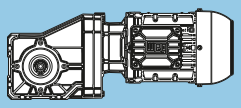
| $P_N$ = 1.5 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| **50 Hz** **1.5 kW** $n_{50}$ min$^{-1}$ | **60 Hz** **1.8 kW** $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | **i** | at 50 Hz $F_{rN}$ kN |  | **m** kg | **Dimension sheet see page** |
| **67** | 80 | 214 | 0.95 | 21.67 | ** | **KH033-11P-90S/L-04F** **KO033-11P-90S/L-04F** | 27 | 186 |
| **75** | 90 | 191 | 0.90 | 19.37 | ** | | | |
| **88** | 106 | 163 | 1.25 | 16.47 | 3.7 | | | |
| **97** | 116 | 148 | 1.15 | 14.96 | 4.0 | | | |
| **113** | 136 | 127 | 1.55 | 12.81 | 4.3 | | | |
| **121** | 145 | 118 | 1.40 | 11.94 | 4.5 | | | |
| **145** | 174 | 99 | 1.85 | 10.00 | 4.7 | | | |
| **161** | 193 | 89 | 1.85 | 9.03 | 4.8 | | | |
| **211** | 253 | 68 | 2.20 | 6.86 | 4.9 | | | |
| **272** | 326 | 53 | 2.60 | 5.34 | 5.0 | | | |
| **125** | 150 | 115 | 0.85 | 11.60 | ** | **KH022-11P-90S/L-04F** **KO022-11P-90S/L-04F** | 26 | 184 |
| **139** | 167 | 103 | 0.90 | 10.40 | ** | | | |
| **157** | 188 | 91 | 0.90 | 9.25 | ** | | | |
| **170** | 204 | 84 | 1.00 | 8.51 | ** | | | |
| **190** | 228 | 75 | 1.10 | 7.63 | 4.6 | | | |
| **210** | 252 | 68 | 1.20 | 6.91 | 4.4 | | | |
| **279** | 335 | 51 | 1.60 | 5.20 | 4.0 | | | |
| **380** | 456 | 38 | 2.05 | 3.82 | 3.6 | | | |

K

*Legend see page 153*

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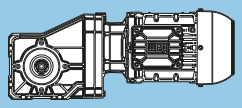
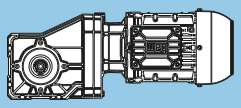
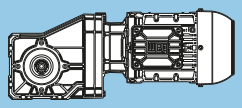
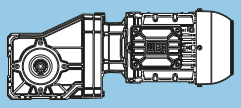
| $P_N$ = 2.2 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz 2.2 kW $n_{50}$ min$^{-1}$ | 60 Hz 2.6 kW $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | i | at 50 Hz $F_{rN}$ kN |  | m kg | Dimension sheet see page |
| **11** | 13 | 1906 | 0.85 | 130.16 | ** | **KH073-11P-100L-04E KO073-11P-100L-04E** | 78 | 194 |
| **14** | 17 | 1471 | 1.10 | 100.45 | 12.7 | | | |
| **17** | 20 | 1217 | 1.30 | 83.09 | 15.6 | | | |
| **20** | 24 | 1035 | 1.50 | 70.67 | 17.1 | | | |
| **22** | 26 | 947 | 1.65 | 64.67 | 17.7 | | | |
| **23** | 28 | 897 | 1.75 | 61.25 | 18.0 | | | |
| **28** | 34 | 743 | 2.10 | 50.75 | 18.8 | | | |
| **28** | 34 | 757 | 2.05 | 51.72 | 18.7 | | | |
| **29** | 35 | 730 | 2.15 | 49.88 | 18.9 | | | |
| **34** | 41 | 624 | 2.50 | 42.61 | 19.3 | | | |
| **37** | 44 | 573 | 2.75 | 39.17 | 19.5 | | | |
| **47** | 56 | 451 | 2.05 | 30.79 | 19.9 | | | |
| **59** | 71 | 354 | 2.60 | 24.17 | 20.1 | | | |
| **24** | 29 | 862 | 1.00 | 58.89 | ** | **KH063-11P-100L-04E KO063-11P-100L-04E** | 58 | 192 |
| **30** | 36 | 711 | 1.20 | 48.56 | 11.1 | | | |
| **35** | 42 | 603 | 1.40 | 41.17 | 12.0 | | | |
| **36** | 43 | 583 | 1.45 | 39.83 | 12.2 | | | |
| **42** | 50 | 496 | 1.70 | 33.85 | 12.7 | | | |
| **45** | 54 | 467 | 1.80 | 31.88 | 12.9 | | | |
| **52** | 62 | 407 | 1.95 | 27.83 | 13.2 | | | |
| **53** | 64 | 393 | 2.00 | 26.84 | 13.2 | | | |
| **59** | 71 | 355 | 2.35 | 24.25 | 13.4 | | | |
| **64** | 77 | 328 | 1.55 | 22.40 | 13.5 | | | |
| **65** | 78 | 323 | 2.30 | 22.07 | 13.5 | | | |
| **72** | 86 | 293 | 2.75 | 20.00 | 13.6 | | | |
| **83** | 100 | 254 | 2.00 | 17.34 | 13.7 | | | |
| **109** | 131 | 193 | 2.60 | 13.19 | 13.9 | | | |
| **29** | 35 | 724 | 0.85 | 49.43 | ** | **KH053-11P-100L-04E KO053-11P-100L-04E** | 45 | 190 |
| **34** | 41 | 615 | 1.00 | 42.00 | ** | | | |
| **35** | 42 | 595 | 1.05 | 40.63 | 3.0 | | | |
| **42** | 50 | 506 | 1.20 | 34.53 | 5.7 | | | |
| **43** | 52 | 488 | 1.25 | 33.30 | 6.1 | | | |
| **46** | 55 | 461 | 1.35 | 31.46 | 6.6 | | | |
| **52** | 62 | 401 | 1.50 | 27.39 | 7.5 | | | |
| **60** | 72 | 350 | 1.75 | 23.93 | 8.1 | | | |
| **73** | 88 | 289 | 2.10 | 19.73 | 8.6 | | | |
| **74** | 89 | 283 | 1.55 | 19.35 | 8.7 | | | |
| **89** | 107 | 237 | 2.55 | 16.19 | 9.0 | | | |
| **96** | 115 | 219 | 2.00 | 14.98 | 9.1 | | | |
| **104** | 125 | 201 | 3.00 | 13.75 | 9.2 | | | |
| **126** | 151 | 167 | 2.60 | 11.40 | 9.4 | | | |
| **48** | 58 | 436 | 0.95 | 29.81 | ** | **KH043-11P-100L-04E KO043-11P-100L-04E** | 41 | 188 |
| **50** | 60 | 421 | 1.00 | 28.74 | ** | | | |
| **51** | 61 | 412 | 1.00 | 28.13 | ** | | | |
| **68** | 82 | 311 | 1.25 | 21.25 | 4.2 | | | |
| **74** | 89 | 282 | 0.90 | 19.29 | ** | | | |
| **83** | 100 | 255 | 1.40 | 17.39 | 5.3 | | | |
| **97** | 116 | 217 | 1.10 | 14.85 | 5.8 | | | |
| **102** | 122 | 207 | 1.65 | 14.10 | 5.9 | | | |
| **122** | 146 | 173 | 1.85 | 11.81 | 6.3 | | | |
| **128** | 154 | 164 | 1.30 | 11.22 | 6.4 | | | |
| **150** | 180 | 140 | 2.15 | 9.57 | 6.6 | | | |
| **156** | 187 | 134 | 1.55 | 9.18 | 6.6 | | | |
| **156** | 187 | 135 | 2.20 | 9.23 | 6.6 | | | |
| **193** | 232 | 109 | 1.75 | 7.44 | 6.7 | | | |
| **230** | 276 | 91 | 2.00 | 6.23 | 6.8 | | | |
| **284** | 341 | 74 | 2.35 | 5.05 | 6.9 | | | |
| **295** | 354 | 71 | 2.40 | 4.87 | 6.8 | | | |
| **87** | 104 | 241 | 0.85 | 16.47 | ** | **KH033-11P-100L-04E KO033-11P-100L-04E** | 38 | 186 |
| **112** | 134 | 188 | 1.05 | 12.81 | 3.1 | | | |
| **120** | 144 | 175 | 0.95 | 11.94 | ** | | | |
| **144** | 173 | 146 | 1.25 | 10.00 | 4.0 | | | |
| **159** | 191 | 132 | 1.25 | 9.03 | 4.3 | | | |
| **209** | 251 | 101 | 1.50 | 6.86 | 4.7 | | | |
| **269** | 323 | 78 | 1.80 | 5.34 | 4.9 | | | |
| **344** | 413 | 61 | 2.10 | 4.17 | 4.7 | | | |

| $P_N$ = 3.0 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>3.0 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>3.6 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **14** | 17 | 1999 | 0.80 | 100.45 | ** | **KH073-11P-L100L-04F**<br>**KO073-11P-L100L-04F** | 87 | 194 |
| **17** | 20 | 1653 | 0.95 | 83.09 | ** | | | |
| **20** | 24 | 1406 | 1.15 | 70.67 | 13.6 | | | |
| **22** | 26 | 1287 | 1.25 | 64.67 | 14.9 | | | |
| **24** | 29 | 1219 | 1.30 | 61.25 | 15.6 | | | |
| **28** | 34 | 1029 | 1.55 | 51.72 | 17.1 | | | |
| **28** | 34 | 1010 | 1.55 | 50.75 | 17.3 | | | |
| **29** | 35 | 992 | 1.60 | 49.88 | 17.4 | | | |
| **34** | 41 | 848 | 1.85 | 42.61 | 18.3 | | | |
| **37** | 44 | 779 | 2.00 | 39.17 | 18.6 | | | |
| **44** | 53 | 645 | 2.45 | 32.40 | 19.2 | | | |
| **47** | 56 | 613 | 1.50 | 30.79 | 19.3 | | | |
| **52** | 62 | 548 | 2.85 | 27.56 | 19.6 | | | |
| **60** | 72 | 481 | 1.90 | 24.17 | 19.8 | | | |
| **77** | 92 | 371 | 2.50 | 18.65 | 20.1 | | | |
| **93** | 112 | 307 | 3.00 | 15.43 | 20.2 | | | |
| **30** | 36 | 966 | 0.85 | 48.56 | ** | **KH063-11P-L100L-04F**<br>**KO063-11P-L100L-04F** | 67 | 192 |
| **35** | 42 | 819 | 1.05 | 41.17 | 10.0 | | | |
| **36** | 43 | 793 | 1.05 | 39.83 | 10.3 | | | |
| **43** | 52 | 673 | 1.25 | 33.85 | 11.5 | | | |
| **45** | 54 | 634 | 1.30 | 31.88 | 11.8 | | | |
| **52** | 62 | 554 | 1.45 | 27.83 | 12.4 | | | |
| **54** | 65 | 534 | 1.45 | 26.84 | 12.5 | | | |
| **59** | 71 | 483 | 1.70 | 24.25 | 12.8 | | | |
| **64** | 77 | 446 | 1.15 | 22.40 | 13.0 | | | |
| **65** | 78 | 439 | 1.70 | 22.07 | 13.0 | | | |
| **72** | 86 | 398 | 2.05 | 20.00 | 13.2 | | | |
| **83** | 100 | 345 | 1.45 | 17.34 | 13.4 | | | |
| **88** | 106 | 326 | 2.35 | 16.40 | 13.5 | | | |
| **103** | 124 | 277 | 2.65 | 13.94 | 13.7 | | | |
| **109** | 131 | 263 | 1.95 | 13.19 | 13.7 | | | |
| **126** | 151 | 228 | 3.00 | 11.46 | 13.8 | | | |
| **132** | 158 | 216 | 2.35 | 10.88 | 13.8 | | | |
| **161** | 193 | 178 | 2.85 | 8.92 | 13.9 | | | |
| **42** | 50 | 687 | 0.90 | 34.53 | ** | **KH053-11P-L100L-04F**<br>**KO053-11P-L100L-04F** | 53 | 190 |
| **43** | 52 | 663 | 0.95 | 33.30 | ** | | | |
| **46** | 55 | 626 | 1.00 | 31.46 | ** | | | |
| **53** | 64 | 545 | 1.15 | 27.39 | 4.8 | | | |
| **60** | 72 | 476 | 1.30 | 23.93 | 6.3 | | | |
| **73** | 88 | 393 | 1.55 | 19.73 | 7.6 | | | |
| **74** | 89 | 385 | 1.15 | 19.35 | 7.7 | | | |
| **89** | 107 | 322 | 1.90 | 16.19 | 8.4 | | | |
| **96** | 115 | 298 | 1.45 | 14.98 | 8.6 | | | |
| **105** | 126 | 274 | 2.20 | 13.75 | 8.8 | | | |
| **126** | 151 | 227 | 1.95 | 11.40 | 9.1 | | | |
| **127** | 152 | 225 | 2.60 | 11.31 | 9.1 | | | |
| **132** | 158 | 217 | 2.65 | 10.91 | 9.1 | | | |
| **153** | 184 | 187 | 2.35 | 9.40 | 9.3 | | | |
| **187** | 224 | 153 | 2.85 | 7.71 | 9.4 | | | |
| **68** | 82 | 423 | 0.90 | 21.25 | ** | **KH043-11P-L100L-04F**<br>**KO043-11P-L100L-04F** | 50 | 188 |
| **83** | 100 | 346 | 1.05 | 17.39 | 3.1 | | | |
| **97** | 116 | 295 | 0.80 | 14.85 | ** | | | |
| **102** | 122 | 281 | 1.20 | 14.10 | 4.8 | | | |
| **122** | 146 | 235 | 1.35 | 11.81 | 5.6 | | | |
| **128** | 154 | 223 | 1.00 | 11.22 | ** | | | |
| **151** | 181 | 190 | 1.55 | 9.57 | 6.1 | | | |
| **156** | 187 | 184 | 1.60 | 9.23 | 6.2 | | | |
| **157** | 188 | 183 | 1.15 | 9.18 | 6.2 | | | |
| **193** | 232 | 148 | 1.30 | 7.44 | 6.5 | | | |
| **231** | 277 | 124 | 1.50 | 6.23 | 6.7 | | | |
| **285** | 342 | 101 | 1.75 | 5.05 | 6.8 | | | |
| **296** | 355 | 97 | 1.75 | 4.87 | 6.8 | | | |
| **112** | 134 | 255 | 0.80 | 12.81 | ** | **KH033-11P-L100L-04F**<br>**KO033-11P-L100L-04F** | 46 | 186 |
| **144** | 173 | 199 | 0.90 | 10.00 | ** | | | |
| **160** | 192 | 180 | 0.95 | 9.03 | ** | | | |
| **210** | 252 | 137 | 1.10 | 6.86 | 4.2 | | | |
| **270** | 324 | 106 | 1.30 | 5.34 | 4.6 | | | |
| **346** | 415 | 83 | 1.55 | 4.17 | 4.8 | | | |

| $P_N$ = 4.0 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>4.0 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>4.8 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **21** | 25 | 1862 | 0.85 | 70.67 | ** | **KH073-11P-112M-04E**<br>**KO073-11P-112M-04E** | 87 | 194 |
| **22** | 26 | 1704 | 0.95 | 64.67 | ** | | | |
| **24** | 29 | 1614 | 1.00 | 61.25 | ** | | | |
| **28** | 34 | 1363 | 1.15 | 51.72 | 14.1 | | | |
| **29** | 35 | 1337 | 1.20 | 50.75 | 14.4 | | | |
| **29** | 35 | 1314 | 1.20 | 49.88 | 14.6 | | | |
| **34** | 41 | 1123 | 1.40 | 42.61 | 16.4 | | | |
| **37** | 44 | 1032 | 1.55 | 39.17 | 17.1 | | | |
| **45** | 54 | 854 | 1.85 | 32.40 | 18.2 | | | |
| **47** | 56 | 811 | 1.15 | 30.79 | 18.5 | | | |
| **53** | 64 | 726 | 2.15 | 27.56 | 18.9 | | | |
| **60** | 72 | 637 | 1.45 | 24.17 | 19.3 | | | |
| **61** | 73 | 629 | 2.50 | 23.88 | 19.3 | | | |
| **72** | 86 | 531 | 2.95 | 20.17 | 19.6 | | | |
| **78** | 94 | 491 | 1.90 | 18.65 | 19.8 | | | |
| **94** | 113 | 406 | 2.25 | 15.43 | 20.0 | | | |
| **111** | 133 | 346 | 2.65 | 13.12 | 20.1 | | | |
| **35** | 42 | 1085 | 0.80 | 41.17 | ** | **KH063-11P-112M-04E**<br>**KO063-11P-112M-04E** | 67 | 192 |
| **36** | 43 | 1049 | 0.80 | 39.83 | ** | | | |
| **43** | 52 | 892 | 0.95 | 33.85 | ** | | | |
| **45** | 54 | 840 | 1.00 | 31.88 | ** | | | |
| **52** | 62 | 733 | 1.10 | 27.83 | 10.9 | | | |
| **54** | 65 | 707 | 1.10 | 26.84 | 11.2 | | | |
| **60** | 72 | 639 | 1.30 | 24.25 | 11.7 | | | |
| **65** | 78 | 590 | 0.85 | 22.40 | ** | | | |
| **66** | 79 | 582 | 1.30 | 22.07 | 12.2 | | | |
| **73** | 88 | 527 | 1.55 | 20.00 | 12.5 | | | |
| **84** | 101 | 457 | 1.10 | 17.34 | 12.9 | | | |
| **88** | 106 | 432 | 1.80 | 16.40 | 13.1 | | | |
| **104** | 125 | 367 | 2.00 | 13.94 | 13.3 | | | |
| **110** | 132 | 348 | 1.45 | 13.19 | 13.4 | | | |
| **127** | 152 | 302 | 2.30 | 11.46 | 13.6 | | | |
| **131** | 157 | 291 | 2.35 | 11.05 | 13.6 | | | |
| **133** | 160 | 287 | 1.75 | 10.88 | 13.6 | | | |
| **160** | 192 | 240 | 2.70 | 9.09 | 13.8 | | | |
| **163** | 196 | 235 | 2.15 | 8.92 | 13.8 | | | |
| **191** | 229 | 200 | 2.55 | 7.58 | 13.9 | | | |
| **53** | 64 | 722 | 0.85 | 27.39 | ** | **KH053-11P-112M-04E**<br>**KO053-11P-112M-04E** | 54 | 190 |
| **61** | 73 | 631 | 1.00 | 23.93 | ** | | | |
| **73** | 88 | 520 | 1.20 | 19.73 | 5.4 | | | |
| **75** | 90 | 510 | 0.85 | 19.35 | ** | | | |
| **90** | 108 | 427 | 1.45 | 16.19 | 7.1 | | | |
| **97** | 116 | 395 | 1.10 | 14.98 | 7.6 | | | |
| **105** | 126 | 362 | 1.70 | 13.75 | 7.9 | | | |
| **127** | 152 | 300 | 1.45 | 11.40 | 8.5 | | | |
| **128** | 154 | 298 | 1.95 | 11.31 | 8.6 | | | |
| **133** | 160 | 287 | 2.00 | 10.91 | 8.7 | | | |
| **154** | 185 | 248 | 1.75 | 9.40 | 8.9 | | | |
| **162** | 194 | 236 | 2.30 | 8.97 | 9.0 | | | |
| **188** | 226 | 203 | 2.15 | 7.71 | 9.2 | | | |
| **221** | 265 | 173 | 2.55 | 6.55 | 9.4 | | | |
| **269** | 323 | 142 | 2.90 | 5.39 | 9.2 | | | |
| **279** | 335 | 137 | 2.95 | 5.19 | 9.0 | | | |
| **83** | 100 | 458 | 0.80 | 17.39 | ** | **KH043-11P-112M-04E**<br>**KO043-11P-112M-04E** | 50 | 188 |
| **103** | 124 | 372 | 0.90 | 14.10 | ** | | | |
| **123** | 148 | 311 | 1.05 | 11.81 | 4.2 | | | |
| **152** | 182 | 252 | 1.20 | 9.57 | 5.3 | | | |
| **157** | 188 | 243 | 1.25 | 9.23 | 5.5 | | | |
| **158** | 190 | 242 | 0.85 | 9.18 | ** | | | |
| **195** | 234 | 196 | 1.00 | 7.44 | ** | | | |
| **233** | 280 | 164 | 1.15 | 6.23 | 6.4 | | | |
| **287** | 344 | 133 | 1.30 | 5.05 | 6.6 | | | |
| **298** | 358 | 128 | 1.35 | 4.87 | 6.6 | | | |

*Legend see page 153*

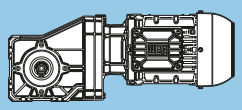
*** ... on request*

| $P_N$ = 5.5 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>5.5 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>6.6 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **28** | 34 | 1854 | 0.85 | 51.72 | ** | **KH073-11P-132S-04E**<br>**KO073-11P-132S-04E** | 107 | 194 |
| **29** | 35 | 1788 | 0.90 | 49.88 | ** | | | |
| **29** | 35 | 1820 | 0.90 | 50.75 | ** | | | |
| **34** | 41 | 1528 | 1.05 | 42.61 | 11.9 | | | |
| **37** | 44 | 1404 | 1.15 | 39.17 | 13.6 | | | |
| **45** | 54 | 1162 | 1.35 | 32.40 | 16.1 | | | |
| **48** | 58 | 1104 | 0.85 | 30.79 | ** | | | |
| **53** | 64 | 988 | 1.60 | 27.56 | 17.4 | | | |
| **61** | 73 | 867 | 1.10 | 24.17 | 18.2 | | | |
| **61** | 73 | 856 | 1.85 | 23.88 | 18.2 | | | |
| **73** | 88 | 723 | 2.15 | 20.17 | 18.9 | | | |
| **75** | 90 | 697 | 2.25 | 19.45 | 19.0 | | | |
| **79** | 95 | 669 | 1.40 | 18.65 | 19.1 | | | |
| **88** | 106 | 596 | 2.65 | 16.61 | 19.4 | | | |
| **95** | 114 | 553 | 1.65 | 15.43 | 19.6 | | | |
| **112** | 134 | 471 | 1.95 | 13.12 | 19.8 | | | |
| **129** | 155 | 408 | 2.25 | 11.37 | 20.0 | | | |
| **153** | 184 | 344 | 2.65 | 9.60 | 20.1 | | | |
| **158** | 190 | 332 | 2.75 | 9.26 | 20.1 | | | |
| **53** | 64 | 998 | 0.80 | 27.83 | ** | **KH063-11P-132S-04E**<br>**KO063-11P-132S-04E** | 87 | 194 |
| **55** | 66 | 962 | 0.85 | 26.84 | ** | | | |
| **60** | 72 | 869 | 0.95 | 24.25 | ** | | | |
| **66** | 79 | 791 | 0.95 | 22.07 | ** | | | |
| **73** | 88 | 717 | 1.15 | 20.00 | 11.1 | | | |
| **84** | 101 | 622 | 0.85 | 17.34 | ** | | | |
| **89** | 107 | 588 | 1.30 | 16.40 | 12.1 | | | |
| **105** | 126 | 500 | 1.45 | 13.94 | 12.7 | | | |
| **111** | 133 | 473 | 1.10 | 13.19 | 12.8 | | | |
| **128** | 154 | 411 | 1.70 | 11.46 | 13.2 | | | |
| **133** | 160 | 396 | 1.70 | 11.05 | 13.2 | | | |
| **135** | 162 | 390 | 1.30 | 10.88 | 13.2 | | | |
| **161** | 193 | 326 | 1.95 | 9.09 | 13.5 | | | |
| **164** | 197 | 320 | 1.60 | 8.92 | 13.5 | | | |
| **193** | 232 | 272 | 1.85 | 7.58 | 13.7 | | | |
| **235** | 282 | 224 | 2.25 | 6.23 | 13.8 | | | |
| **244** | 293 | 216 | 2.30 | 6.01 | 13.8 | | | |
| **296** | 355 | 177 | 2.65 | 4.94 | 13.9 | | | |
| **74** | 89 | 708 | 0.85 | 19.73 | ** | **KH053-11P-132S-04E**<br>**KO053-11P-132S-04E** | 74 | 190 |
| **90** | 108 | 580 | 1.05 | 16.19 | 3.6 | | | |
| **98** | 118 | 537 | 0.85 | 14.98 | ** | | | |
| **107** | 128 | 493 | 1.25 | 13.75 | 6.0 | | | |
| **129** | 155 | 409 | 1.10 | 11.40 | 7.4 | | | |
| **130** | 156 | 406 | 1.45 | 11.31 | 7.4 | | | |
| **134** | 161 | 391 | 1.50 | 10.91 | 7.6 | | | |
| **156** | 187 | 337 | 1.30 | 9.40 | 8.2 | | | |
| **163** | 196 | 322 | 1.70 | 8.97 | 8.4 | | | |
| **190** | 228 | 276 | 1.60 | 7.71 | 8.7 | | | |
| **224** | 269 | 235 | 1.85 | 6.55 | 9.0 | | | |
| **272** | 326 | 193 | 2.15 | 5.39 | 9.3 | | | |
| **282** | 338 | 186 | 2.20 | 5.19 | 9.3 | | | |
| **343** | 412 | 153 | 2.50 | 4.27 | 8.6 | | | |



*Legend see page 153*

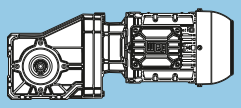
*** ... on request*

| $P_N$ = 7.5 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| 50 Hz<br>7.5 kW<br>$n_{50}$<br>min$^{-1}$ | 60 Hz<br>9.0 kW<br>$n_{60}$<br>min$^{-1}$ | $M_2$<br>Nm | $f_B$ | i | at 50 Hz<br>$F_{rN}$<br>kN |  | m<br>kg | Dimension sheet see page |
| **37** | 44 | 1915 | 0.85 | 39.17 | ** | **KH073-11P-L132M-04F**<br>**KO073-11P-L132M-04F** | 116 | 194 |
| **45** | 54 | 1584 | 1.00 | 32.40 | ** | | | |
| **53** | 64 | 1347 | 1.20 | 27.56 | 14.2 | | | |
| **61** | 73 | 1182 | 0.80 | 24.17 | ** | | | |
| **61** | 73 | 1168 | 1.35 | 23.88 | 16.0 | | | |
| **73** | 88 | 986 | 1.60 | 20.17 | 17.4 | | | |
| **75** | 90 | 951 | 1.65 | 19.45 | 17.6 | | | |
| **79** | 95 | 912 | 1.00 | 18.65 | ** | | | |
| **88** | 106 | 812 | 1.95 | 16.61 | 18.5 | | | |
| **95** | 114 | 754 | 1.25 | 15.43 | 18.7 | | | |
| **112** | 134 | 642 | 1.45 | 13.12 | 19.2 | | | |
| **129** | 155 | 556 | 1.65 | 11.37 | 19.6 | | | |
| **153** | 184 | 470 | 1.95 | 9.60 | 19.8 | | | |
| **158** | 190 | 453 | 2.05 | 9.26 | 19.9 | | | |
| **185** | 222 | 387 | 2.40 | 7.91 | 20.0 | | | |
| **73** | 88 | 978 | 0.85 | 20.00 | ** | **KH063-11P-L132M-04F**<br>**KO063-11P-L132M-04F** | 96 | 192 |
| **89** | 107 | 802 | 0.95 | 16.40 | ** | | | |
| **105** | 126 | 681 | 1.10 | 13.94 | 11.4 | | | |
| **111** | 133 | 645 | 0.80 | 13.19 | ** | | | |
| **128** | 154 | 560 | 1.25 | 11.46 | 12.3 | | | |
| **133** | 160 | 540 | 1.25 | 11.05 | 12.4 | | | |
| **135** | 162 | 532 | 0.95 | 10.88 | ** | | | |
| **161** | 193 | 444 | 1.45 | 9.09 | 13.0 | | | |
| **164** | 197 | 436 | 1.15 | 8.92 | 13.0 | | | |
| **193** | 232 | 371 | 1.35 | 7.58 | 13.3 | | | |
| **235** | 282 | 305 | 1.65 | 6.23 | 13.6 | | | |
| **244** | 293 | 294 | 1.70 | 6.01 | 13.6 | | | |
| **296** | 355 | 242 | 1.95 | 4.94 | 13.8 | | | |
| **90** | 108 | 791 | 0.80 | 16.19 | ** | **KH053-11P-L132M-04F**<br>**KO053-11P-L132M-04F** | 83 | 190 |
| **107** | 128 | 673 | 0.90 | 13.75 | ** | | | |
| **129** | 155 | 557 | 0.80 | 11.40 | ** | | | |
| **130** | 156 | 553 | 1.05 | 11.31 | 4.5 | | | |
| **134** | 161 | 533 | 1.10 | 10.91 | 5.1 | | | |
| **156** | 187 | 459 | 0.95 | 9.40 | ** | | | |
| **163** | 196 | 439 | 1.25 | 8.97 | 6.9 | | | |
| **190** | 228 | 377 | 1.15 | 7.71 | 7.8 | | | |
| **224** | 269 | 320 | 1.35 | 6.55 | 8.4 | | | |
| **272** | 326 | 263 | 1.55 | 5.39 | 8.8 | | | |
| **282** | 338 | 254 | 1.60 | 5.19 | 8.9 | | | |
| **343** | 412 | 209 | 1.85 | 4.27 | 9.0 | | | |



*Legend see page 153*

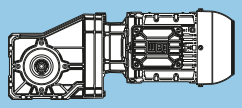
*** ... on request*

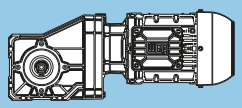
| $P_N$ = 9.2 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| **50 Hz** **9.2 kW** $n_{50}$ min$^{-1}$ | **60 Hz** **11 kW** $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | **i** | at 50 Hz $F_{rN}$ kN |  | **m** kg | **Dimension sheet see page** |
| **45** | 54 | 1950 | 0.80 | 32.40 | ** | **KH073-11P-L132M-04G KO073-11P-L132M-04G** | 125 | 194 |
| **53** | 64 | 1658 | 0.95 | 27.56 | ** | | | |
| **61** | 73 | 1437 | 1.10 | 23.88 | 13.2 | | | |
| **72** | 86 | 1214 | 1.30 | 20.17 | 15.6 | | | |
| **75** | 90 | 1170 | 1.35 | 19.45 | 16.0 | | | |
| **78** | 94 | 1122 | 0.85 | 18.65 | ** | | | |
| **88** | 106 | 1000 | 1.60 | 16.61 | 17.3 | | | |
| **95** | 114 | 928 | 1.00 | 15.43 | ** | | | |
| **111** | 133 | 790 | 1.20 | 13.12 | 18.6 | | | |
| **128** | 154 | 684 | 1.35 | 11.37 | 19.1 | | | |
| **152** | 182 | 578 | 1.60 | 9.60 | 19.5 | | | |
| **158** | 190 | 557 | 1.65 | 9.26 | 19.5 | | | |
| **185** | 222 | 476 | 1.95 | 7.91 | 19.8 | | | |
| **89** | 107 | 987 | 0.80 | 16.40 | ** | **KH063-11P-L132M-04G KO063-11P-L132M-04G** | 105 | 192 |
| **105** | 126 | 839 | 0.90 | 13.94 | ** | | | |
| **127** | 152 | 690 | 1.00 | 11.46 | ** | | | |
| **132** | 158 | 665 | 1.05 | 11.05 | 11.5 | | | |
| **134** | 161 | 655 | 0.80 | 10.88 | ** | | | |
| **161** | 193 | 547 | 1.20 | 9.09 | 12.4 | | | |
| **164** | 197 | 537 | 0.95 | 8.92 | ** | | | |
| **193** | 232 | 456 | 1.10 | 7.58 | 12.9 | | | |
| **234** | 281 | 375 | 1.35 | 6.23 | 13.3 | | | |
| **243** | 292 | 362 | 1.40 | 6.01 | 13.4 | | | |
| **295** | 354 | 298 | 1.60 | 4.94 | 13.6 | | | |
| **129** | 155 | 681 | 0.85 | 11.31 | ** | **KH053-11P-L132M-04G KO053-11P-L132M-04G** | 92 | 190 |
| **134** | 161 | 656 | 0.90 | 10.91 | ** | | | |
| **155** | 186 | 566 | 0.80 | 9.40 | ** | | | |
| **163** | 196 | 540 | 1.00 | 8.97 | ** | | | |
| **189** | 227 | 464 | 0.95 | 7.71 | ** | | | |
| **223** | 268 | 394 | 1.10 | 6.55 | 7.6 | | | |
| **271** | 325 | 324 | 1.30 | 5.39 | 8.3 | | | |
| **281** | 337 | 313 | 1.30 | 5.19 | 8.4 | | | |
| **342** | 410 | 257 | 1.50 | 4.27 | 8.9 | | | |



*Legend see page 153*

*** ... on request*

| $P_N$ = 11 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| **50 Hz** **11 kW** $n_{50}$ min$^{-1}$ | **60 Hz** **13 kW** $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | **i** | at 50 Hz $F_{rN}$ kN |  | **m** kg | **Dimension sheet see page** |
| **62** | 74 | 1707 | 0.95 | 23.88 | ** | **KH073-22P-160M-04E** **KO073-22P-160M-04E** | 174 | 194 |
| **73** | 88 | 1441 | 1.10 | 20.17 | 13.1 | | | |
| **88** | 106 | 1187 | 1.35 | 16.61 | 15.8 | | | |
| **129** | 155 | 813 | 1.15 | 11.37 | 18.4 | | | |
| **153** | 184 | 686 | 1.35 | 9.60 | 19.1 | | | |
| **186** | 223 | 565 | 1.65 | 7.91 | 19.5 | | | |

| $P_N$ = 15 kW | | | | | | | | IE3 |
|---|---|---|---|---|---|---|---|---|
| **50 Hz** **15 kW** $n_{50}$ min$^{-1}$ | **60 Hz** **18 kW** $n_{60}$ min$^{-1}$ | $M_2$ Nm | $f_B$ | **i** | at 50 Hz $F_{rN}$ kN |  | **m** kg | **Dimension sheet see page** |
| **73** | 88 | 1972 | 0.80 | 20.17 | ** | **KH073-22P-160L-04F** **KO073-22P-160L-04F** | 189 | 194 |
| **88** | 106 | 1625 | 1.00 | 16.61 | ** | | | |
| **129** | 155 | 1112 | 0.85 | 11.37 | ** | | | |
| **153** | 184 | 939 | 1.00 | 9.60 | ** | | | |
| **185** | 222 | 774 | 1.20 | 7.91 | 18.6 | | | |



*Legend see page 153*

*** ... on request*

## Structure of the selection tables

| 1 | 2 | 3 | 4 | 5 | 6 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Type | $i_{ges.}$ | $M_{2nenn}$ | $n_2$ | $i_{exakt}$ | IEC motor frame size | | | | | | | | |
| | | [Nm] | [$min^{-1}$] | | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 |
| **K022** | 68.88 | 110 | 20 | 551/8 | | | | | | | | | |
| 2 stages 7 | 61.75 | 102 | 23 | 247/4 | | | | | | | | | |
| | 53.65 | 110 | 26 | 1073/20 | | | | | | | | | |
| | 48.10 | 110 | 29 | 481/10 | | | | | | | | | |
| $n_1$=1400 $min^{-1}$ 8 | 43.50 | 110 | 32 | 87/2 | | | | | | | | | |
| | 39.00 | 110 | 36 | 39/1 | | | | | | | | | |
| | 34.27 | 110 | 41 | 377/11 | | | | | | | | | |
| Maximum torque 110 Nm 9 | 30.88 | 51 | 45 | 247/8 | | | | | | | | | |
| | 30.73 | 110 | 46 | 338/11 | | | | | | | | | |

1 Type of gear unit

2 Total ratio

3 Permissible output torque at S1 operation ($f_B$ = 1.0)

4 Output speed (gear unit) at $n_1$ = 1400 $min^{-1}$

5 Exact mathematical ratio

6 Possible motor frame sizes

7 Number of gear stages

8 Motor speed

9 Maximum torque

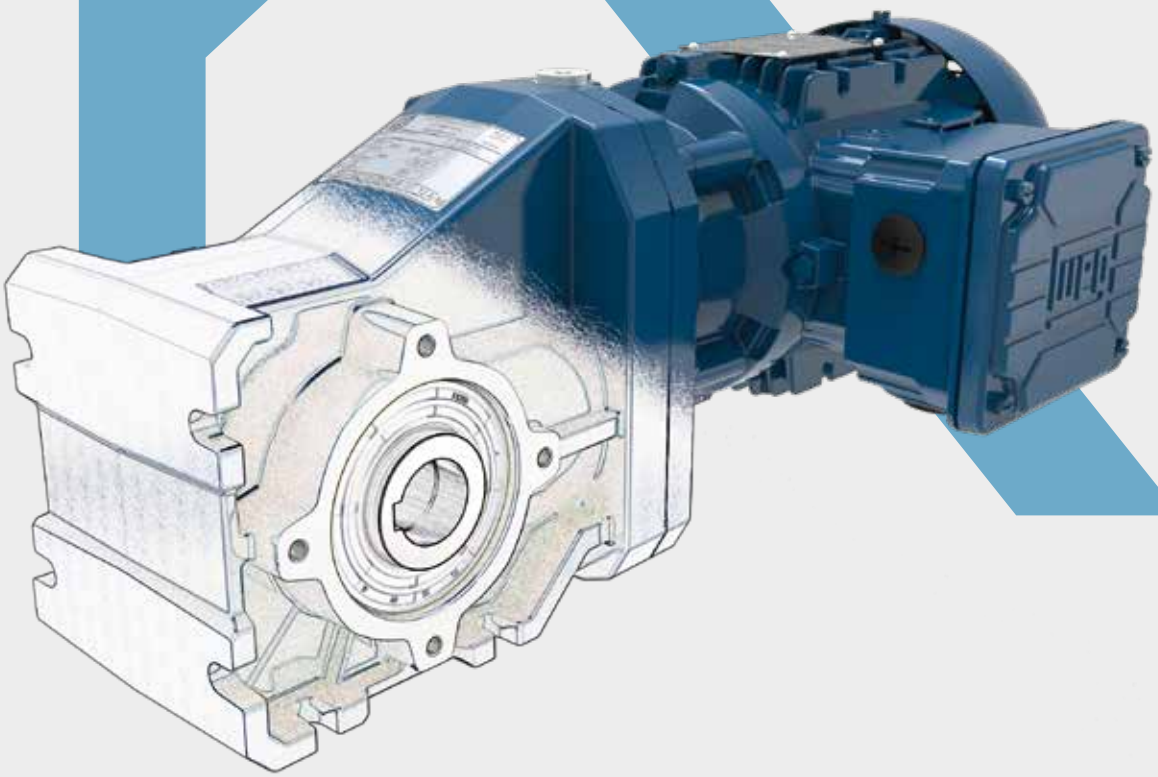
K

| Type | $i_{ges.}$ | $M_{2nenn}$ [Nm] | $n_2$ [min$^{-1}$] | $i_{exakt}$ | IEC motor frame size | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 |
| **K022** | 68.88 | 110 | 20 | 551/8 | ■ | ■ | | | | | | | |
| | 61.75 | 102 | 23 | 247/4 | ■ | ■ | | | | | | | |
| | 53.65 | 110 | 26 | 1073/20 | ■ | ■ | ■ | ■ | | | | | |
| | 48.10 | 110 | 29 | 481/10 | ■ | ■ | ■ | ■ | | | | | |
| | 43.50 | 110 | 32 | 87/2 | ■ | ■ | ■ | ■ | | | | | |
| | 39.00 | 110 | 36 | 39/1 | ■ | ■ | ■ | ■ | | | | | |
| | 34.27 | 110 | 41 | 377/11 | ■ | ■ | ■ | ■ | | | | | |
| | 30.88 | 51 | 45 | 247/8 | ■ | ■ | | | | | | | |
| | 30.73 | 110 | 46 | 338/11 | ■ | ■ | ■ | ■ | | | | | |
| | 26.41 | 110 | 53 | 1479/56 | ■ | ■ | ■ | ■ | | | | | |
| | 24.05 | 81 | 58 | 481/20 | ■ | ■ | ■ | ■ | | | | | |
| 2 stages | 23.68 | 110 | 59 | 663/28 | ■ | ■ | ■ | ■ | | | | | |
| | 20.63 | 110 | 68 | 1073/52 | ■ | ■ | ■ | ■ | | | | | |
| $n_1$=1400 min$^{-1}$ | 19.50 | 81 | 72 | 39/2 | ■ | ■ | ■ | ■ | | | | | |
| | 18.50 | 107 | 76 | 37/2 | ■ | ■ | ■ | ■ | | | | | |
| | 15.41 | 101 | 91 | 493/32 | ■ | ■ | ■ | ■ | | | | | |
| Maximum torque | 15.36 | 81 | 91 | 169/11 | ■ | ■ | ■ | ■ | | | | | |
| 110 Nm | 13.81 | 97 | 101 | 221/16 | ■ | ■ | ■ | ■ | | | | | |
| | 11.84 | 81 | 118 | 663/56 | ■ | ■ | ■ | ■ | | | | | |
| | 11.60 | 92 | 121 | 58/5 | ■ | ■ | ■ | ■ | | | | | |
| | 10.40 | 89 | 135 | 52/5 | ■ | ■ | ■ | ■ | | | | | |
| | 9.25 | 81 | 151 | 37/4 | ■ | ■ | ■ | ■ | | | | | |
| | 8.51 | 83 | 164 | 783/92 | ■ | ■ | ■ | ■ | | | | | |
| | 7.63 | 80 | 183 | 351/46 | ■ | ■ | ■ | ■ | | | | | |
| | 6.91 | 81 | 203 | 221/32 | ■ | ■ | ■ | ■ | | | | | |
| | 5.20 | 81 | 269 | 26/5 | ■ | ■ | ■ | ■ | | | | | |
| | 3.82 | 77 | 367 | 351/92 | ■ | ■ | ■ | ■ | | | | | |
| **K033** | 217.88 | 200 | 6.4 | 1743/8 | ■ | ■ | ■ | ■ | | | | | |
| | 177.19 | 200 | 7.9 | 2835/16 | ■ | ■ | ■ | ■ | | | | | |
| | 140.80 | 200 | 9.9 | 6195/44 | ■ | ■ | ■ | ■ | | | | | |
| | 108.75 | 200 | 13 | 435/4 | ■ | ■ | ■ | ■ | | | | | |
| | 86.83 | 200 | 16 | 4515/52 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 71.93 | 200 | 19 | 1079/15 | ■ | ■ | ■ | ■ | | | | | |
| | 65.63 | 200 | 21 | 525/8 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 58.50 | 200 | 24 | 117/2 | ■ | ■ | ■ | ■ | | | | | |
| | 49.88 | 200 | 28 | 399/8 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 46.48 | 200 | 30 | 1534/33 | ■ | ■ | ■ | ■ | | | | | |
| | 38.80 | 200 | 36 | 1785/46 | ■ | ■ | ■ | ■ | ■ | | | | |
| 3 stages | 35.90 | 200 | 39 | 754/21 | ■ | ■ | ■ | ■ | | | | | |
| | 30.29 | 200 | 46 | 1575/52 | | | ■ | ■ | ■ | | | | |
| $n_1$=1400 min$^{-1}$ | 29.97 | 129 | 47 | 1079/36 | ■ | ■ | ■ | ■ | | | | | |
| | 28.67 | 200 | 49 | 86/3 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 24.38 | 160 | 57 | 195/8 | ■ | ■ | ■ | ■ | | | | | |
| Maximum torque | 21.67 | 200 | 65 | 65/3 | ■ | ■ | ■ | ■ | ■ | | | | |
| 200 Nm | 19.37 | 163 | 72 | 3835/198 | ■ | ■ | ■ | ■ | | | | | |
| | 16.47 | 200 | 85 | 247/15 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 14.96 | 163 | 94 | 1885/126 | ■ | ■ | ■ | ■ | | | | | |
| | 12.81 | 192 | 109 | 884/69 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 11.94 | 163 | 117 | 215/18 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 10.00 | 178 | 140 | 10/1 | | | ■ | ■ | ■ | | | | |
| | 9.03 | 163 | 155 | 325/36 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 6.86 | 149 | 204 | 247/36 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 5.34 | 137 | 262 | 1105/207 | ■ | ■ | ■ | ■ | ■ | | | | |
| | 4.17 | 126 | 336 | 25/6 | | | ■ | ■ | ■ | | | | |

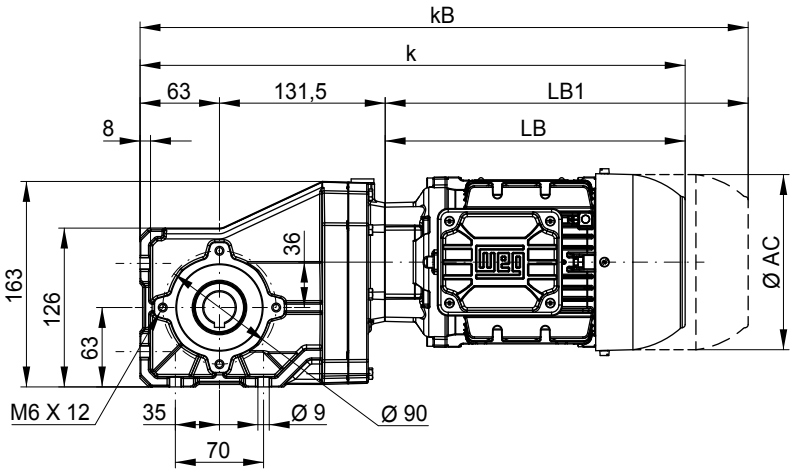
*Legend see page 179*

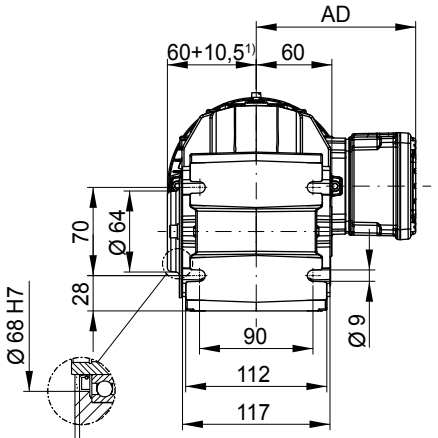
| Type | $i_{ges.}$ | $M_{2nenn}$ [Nm] | $n_2$ [min$^{-1}$] | $i_{exakt}$ | IEC motor frame size | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 |
| **K043** | 277.79 | 400 | 5 | 14445/52 | ■ | ■ | ■ | ■ | | | | | |
| | 227.16 | 400 | 6.2 | 23625/104 | ■ | ■ | ■ | ■ | | | | | |
| | 179.37 | 400 | 7.8 | 25650/143 | ■ | ■ | ■ | ■ | | | | | |
| | 139.08 | 400 | 10 | 50625/364 | ■ | ■ | ■ | ■ | | | | | |
| | 113.83 | 400 | 12 | 38475/338 | ■ | ■ | ■ | ■ | ■ | ■ | | | |
| | 89.17 | 378 | 16 | 535/6 | ■ | ■ | ■ | ■ | | | | | |
| | 87.62 | 400 | 16 | 18225/208 | ■ | ■ | ■ | ■ | ■ | ■ | | | |
| | 72.92 | 400 | 19 | 875/12 | ■ | ■ | ■ | ■ | | | | | |
| | 66.20 | 400 | 21 | 6885/104 | ■ | ■ | ■ | ■ | ■ | ■ | | | |
| | 57.58 | 400 | 24 | 1900/33 | ■ | ■ | ■ | ■ | | | | | |
| | 54.18 | 400 | 26 | 16200/299 | ■ | ■ | ■ | ■ | ■ | ■ | | | |
| | 47.07 | 200 | 30 | 93197/1980 | ■ | ■ | ■ | ■ | | | | | |
| | 44.64 | 400 | 31 | 625/14 | ■ | ■ | ■ | ■ | | | | | |
| | 43.93 | 400 | 32 | 7425/169 | | | ■ | ■ | ■ | ■ | | | |
| | 38.49 | 270 | 36 | 30485/792 | ■ | ■ | ■ | ■ | | | | | |
| 3 stages | 36.78 | 400 | 38 | 3825/104 | | | ■ | ■ | ■ | ■ | | | |
| | 36.54 | 400 | 38 | 475/13 | ■ | ■ | ■ | ■ | ■ | ■ | | | |
| | 30.39 | 280 | 46 | 33098/1089 | ■ | ■ | ■ | ■ | | | | | |
| $n_1$=1400 min$^{-1}$ | 29.81 | 400 | 47 | 775/26 | | | ■ | ■ | ■ | ■ | | | |
| | 28.74 | 400 | 49 | 20925/728 | | | | | ■ | ■ | | | |
| Maximum torque | 28.13 | 400 | 50 | 225/8 | ■ | ■ | ■ | ■ | ■ | ■ | | | |
| 400 Nm | 23.57 | 261 | 59 | 21775/924 | ■ | ■ | ■ | ■ | | | | | |
| | 21.25 | 375 | 66 | 85/4 | ■ | ■ | ■ | ■ | ■ | ■ | | | |
| | 19.29 | 247 | 73 | 1273/66 | ■ | ■ | ■ | ■ | ■ | ■ | | | |
| | 17.39 | 353 | 81 | 400/23 | ■ | ■ | ■ | ■ | ■ | ■ | | | |
| | 14.85 | 230 | 94 | 2613/176 | ■ | ■ | ■ | ■ | ■ | ■ | | | |
| | 14.10 | 331 | 99 | 550/39 | | | ■ | ■ | ■ | ■ | | | |
| | 11.81 | 314 | 119 | 425/36 | | | ■ | ■ | ■ | ■ | | | |
| | 11.22 | 213 | 125 | 14807/1320 | ■ | ■ | ■ | ■ | ■ | ■ | | | |
| | 9.57 | 295 | 146 | 775/81 | | | ■ | ■ | ■ | ■ | | | |
| | 9.23 | 292 | 152 | 775/84 | | | | | ■ | ■ | | | |
| | 9.18 | 202 | 152 | 6968/759 | ■ | ■ | ■ | ■ | ■ | ■ | | | |
| | 7.44 | 190 | 188 | 67/9 | | | ■ | ■ | ■ | ■ | | | |
| | 6.23 | 181 | 225 | 14807/2376 | | | ■ | ■ | ■ | ■ | | | |
| | 5.05 | 171 | 277 | 27001/5346 | | | ■ | ■ | ■ | ■ | | | |
| | 4.87 | 169 | 287 | 27001/5544 | | | | | ■ | ■ | | | |
| **K053** | 245.70 | 600 | 5.7 | 2457/10 | ■ | ■ | ■ | ■ | | | | | |
| | 194.73 | 600 | 7.2 | 2142/11 | ■ | ■ | ■ | ■ | | | | | |
| | 151.20 | 600 | 9.3 | 756/5 | ■ | ■ | ■ | ■ | | | | | |
| | 124.06 | 600 | 11 | 8064/65 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 96.08 | 600 | 15 | 3843/40 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 80.46 | 564 | 17 | 7644/95 | ■ | ■ | ■ | ■ | | | | | |
| | 73.08 | 600 | 19 | 1827/25 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 63.77 | 600 | 22 | 13328/209 | ■ | ■ | ■ | ■ | | | | | |
| | 60.26 | 600 | 23 | 1386/23 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 49.52 | 600 | 28 | 4704/95 | ■ | ■ | ■ | ■ | | | | | |
| | 49.43 | 600 | 28 | 3213/65 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 42.00 | 600 | 33 | 42/1 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 40.63 | 600 | 34 | 50176/1235 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 38.32 | 268 | 37 | 728/19 | ■ | ■ | ■ | ■ | | | | | |
| | 34.53 | 600 | 41 | 518/15 | | | ■ | ■ | ■ | ■ | ■ | | |
| 3 stages | 33.30 | 600 | 42 | 333/10 | | | | | ■ | ■ | ■ | | |
| | 31.46 | 600 | 44 | 2989/95 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 30.37 | 392 | 46 | 19040/627 | ■ | ■ | ■ | ■ | | | | | |
| $n_1$=1400 min$^{-1}$ | 27.39 | 600 | 51 | 630/23 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 23.93 | 600 | 58 | 11368/475 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| Maximum torque | 23.58 | 432 | 59 | 448/19 | ■ | ■ | ■ | ■ | | | | | |
| 600 Nm | 19.73 | 600 | 71 | 8624/437 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 19.35 | 432 | 72 | 14336/741 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 16.19 | 600 | 86 | 19992/1235 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 14.98 | 432 | 93 | 854/57 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 13.75 | 600 | 102 | 784/57 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 11.40 | 432 | 123 | 3248/285 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 11.31 | 576 | 124 | 29008/2565 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 10.91 | 569 | 128 | 1036/95 | | | | | ■ | ■ | ■ | | |
| | 9.40 | 432 | 149 | 12320/1311 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 8.97 | 537 | 156 | 3920/437 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 7.71 | 432 | 182 | 1904/247 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 6.55 | 432 | 214 | 1120/171 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 5.39 | 407 | 260 | 8288/1539 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 5.19 | 403 | 270 | 296/57 | | | | | ■ | ■ | ■ | | |
| | 4.27 | 380 | 328 | 5600/1311 | | | ■ | ■ | ■ | ■ | ■ | | |

| Type | $i_{ges.}$ | $M_{2nenn}$ [Nm] | $n_2$ [min$^{-1}$] | $i_{exakt}$ | IEC motor frame size | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 |
| **K063** | 198.00 | 820 | 7.1 | 198/1 | ■ | ■ | ■ | ■ | | | | | |
| | 156.92 | 820 | 8.9 | 2040/13 | ■ | ■ | ■ | ■ | | | | | |
| | 121.85 | 820 | 11 | 1584/13 | ■ | ■ | ■ | ■ | | | | | |
| | 99.98 | 820 | 14 | 16896/169 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 81.53 | 571 | 17 | 1386/17 | ■ | ■ | ■ | ■ | | | | | |
| | 77.42 | 820 | 18 | 2013/26 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 64.62 | 820 | 22 | 840/13 | ■ | ■ | ■ | ■ | | | | | |
| | 58.89 | 820 | 24 | 3828/65 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 50.17 | 820 | 28 | 11088/221 | ■ | ■ | ■ | ■ | | | | | |
| | 48.56 | 820 | 29 | 14520/299 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 44.35 | 311 | 32 | 754/17 | ■ | ■ | ■ | ■ | | | | | |
| | 41.17 | 820 | 34 | 118272/2873 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 39.83 | 820 | 35 | 6732/169 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 35.15 | 454 | 40 | 1160/33 | ■ | ■ | ■ | ■ | | | | | |
| | 33.85 | 820 | 41 | 440/13 | | | ■ | ■ | ■ | ■ | ■ | | |
| 3 stages | 31.88 | 820 | 44 | 14091/442 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 27.83 | 782 | 50 | 3256/117 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 27.29 | 500 | 51 | 464/17 | ■ | ■ | ■ | ■ | | | | | |
| $n_1$=1400 min$^{-1}$ | 26.84 | 773 | 52 | 2442/91 | | | | | ■ | ■ | ■ | | |
| | 24.25 | 820 | 58 | 26796/1105 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 22.40 | 500 | 63 | 14848/663 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| Maximum torque 820 Nm | 22.07 | 730 | 63 | 6600/299 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 20.00 | 803 | 70 | 101640/5083 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 17.34 | 500 | 81 | 1769/102 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 16.40 | 757 | 85 | 2772/169 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 13.94 | 722 | 100 | 3080/221 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 13.19 | 500 | 106 | 3364/255 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 11.46 | 681 | 122 | 22792/1989 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 11.05 | 673 | 127 | 2442/221 | | | | | ■ | ■ | ■ | | |
| | 10.88 | 500 | 129 | 12760/1173 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 9.09 | 635 | 154 | 46200/5083 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 8.92 | 500 | 157 | 116/13 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 7.58 | 500 | 185 | 1160/153 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 6.23 | 500 | 225 | 8584/1377 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 6.01 | 495 | 233 | 2146/357 | | | | | ■ | ■ | ■ | | |
| | 4.94 | 467 | 283 | 5800/1173 | | | ■ | ■ | ■ | ■ | ■ | | |
| **K073** | 256.14 | 1550 | 5.5 | 5635/22 | ■ | ■ | ■ | ■ | | | | | |
| | 197.75 | 1550 | 7.1 | 791/4 | ■ | ■ | ■ | ■ | | | | | |
| | 165.85 | 1550 | 8.4 | 2156/13 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 130.16 | 1550 | 11 | 4165/32 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 100.45 | 1550 | 14 | 2009/20 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 99.87 | 1288 | 14 | 18676/187 | ■ | ■ | ■ | ■ | | | | | |
| | 83.09 | 1550 | 17 | 1911/23 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 77.11 | 1550 | 18 | 6554/85 | ■ | ■ | ■ | ■ | | | | | |
| | 70.67 | 1550 | 20 | 3675/52 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 64.67 | 1550 | 22 | 71456/1105 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 61.25 | 1550 | 23 | 245/4 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| | 51.72 | 1550 | 27 | 931/18 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| | 50.75 | 1550 | 28 | 203/4 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 49.88 | 1550 | 28 | 399/8 | | | | | ■ | ■ | ■ | | |
| 3 stages | 47.56 | 613 | 29 | 26680/561 | ■ | ■ | ■ | ■ | | | | | |
| | 42.61 | 1550 | 33 | 980/23 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| $n_1$=1400 min$^{-1}$ | 39.17 | 1550 | 36 | 16646/425 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 36.72 | 757 | 38 | 13108/357 | ■ | ■ | ■ | ■ | | | | | |
| | 32.40 | 1550 | 43 | 63336/1955 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| Maximum torque 1550 Nm | 30.79 | 910 | 45 | 20416/663 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 27.56 | 1550 | 51 | 6090/221 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 24.17 | 910 | 58 | 145/6 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 23.88 | 1550 | 59 | 406/17 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| | 20.17 | 1550 | 69 | 15428/765 | | | | | ■ | ■ | ■ | ■ | |
| | 19.45 | 1550 | 72 | 1653/85 | | | | | ■ | ■ | ■ | | |
| | 18.65 | 910 | 75 | 4756/255 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 16.61 | 1550 | 84 | 6496/391 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| | 15.43 | 910 | 91 | 6032/391 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 13.12 | 910 | 107 | 2900/221 | | | ■ | ■ | ■ | ■ | ■ | | |
| | 11.37 | 910 | 123 | 580/51 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| | 9.60 | 910 | 146 | 4408/459 | | | ■ | ■ | ■ | ■ | ■ | ■ | |
| | 9.26 | 910 | 151 | 1102/119 | | | | | ■ | ■ | ■ | | |
| | 7.91 | 910 | 177 | 9280/1173 | | | ■ | ■ | ■ | ■ | ■ | ■ | |



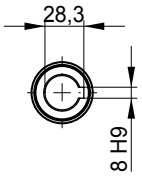
## KH02 - Hollow shaft

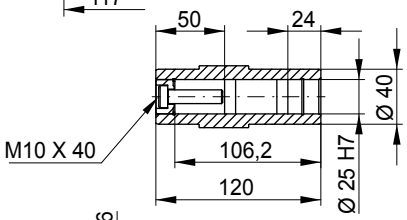


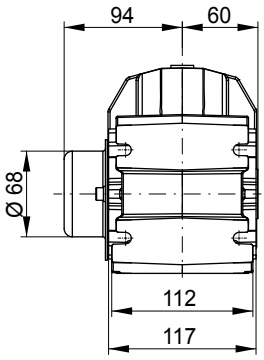



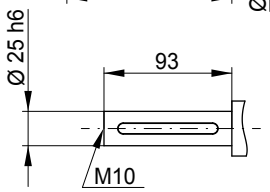

¹⁾ *incl. hollow shaft protection cap*

## KD02 - Shrink disc

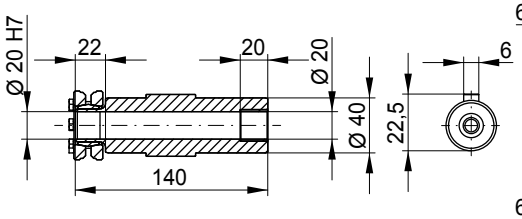


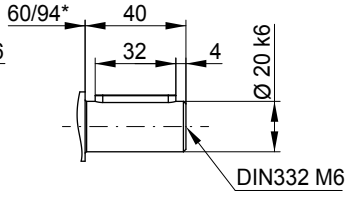



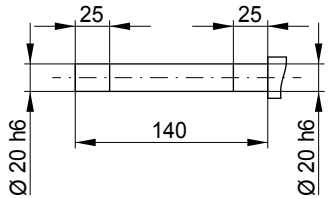

## KS02 - Output shaft
## KB02 - Output shaft on both sides

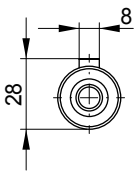


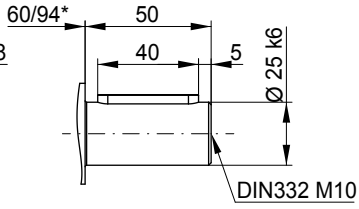


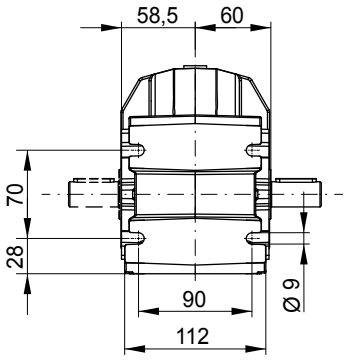




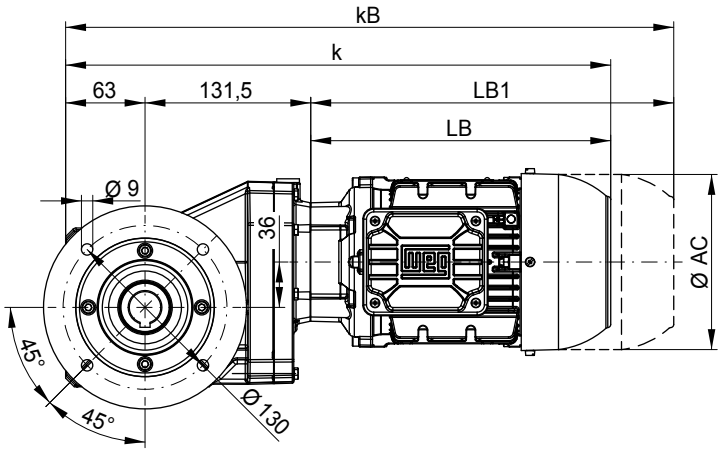



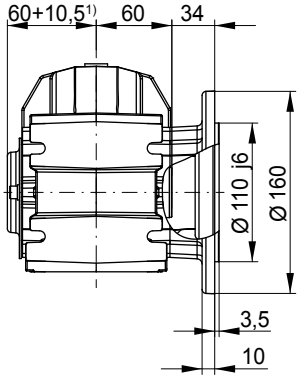

| Motor fr. / Dimension | 63 | 71 | 80 | 90S/L |
|---|---|---|---|---|
| AC | 126 | 141 | 159 | 178 |
| AD | 128 | 136 | 145 | 155 |
| k | 399 | 433 | 441 | 483 |
| kB | 443 | 482 | 499 | 556 |
| LB | 204 | 238 | 246 | 288 |
| LB1 | 248 | 287 | 304 | 361 |

*Motor dimension sheets see page 220. Description of motor lengths LB and LB1 see page 224.*

**Designs KS(KB)/KF*

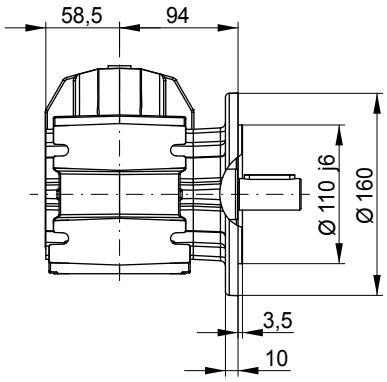
## KO02 - B5 flange execution with hollow shaft



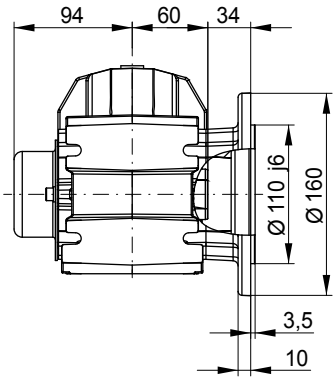




¹⁾ *incl. hollow shaft protection cap*

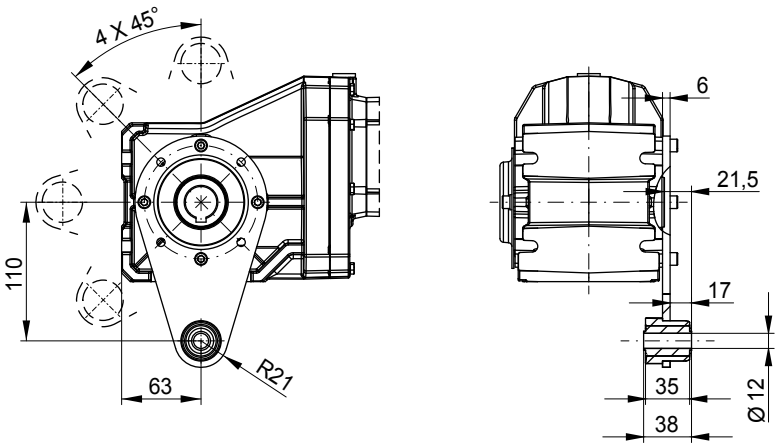
## KF02 - B5 flange execution with output shaft



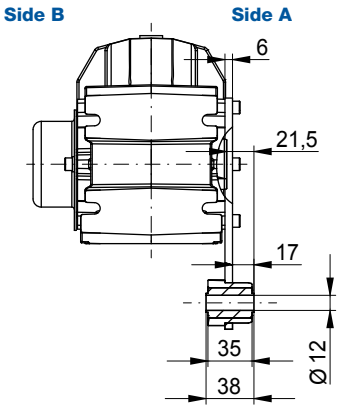

## KP02 - B5 flange execution with hollow shaft and shrink disc




## KT02 - Hollow shaft with torque arm **



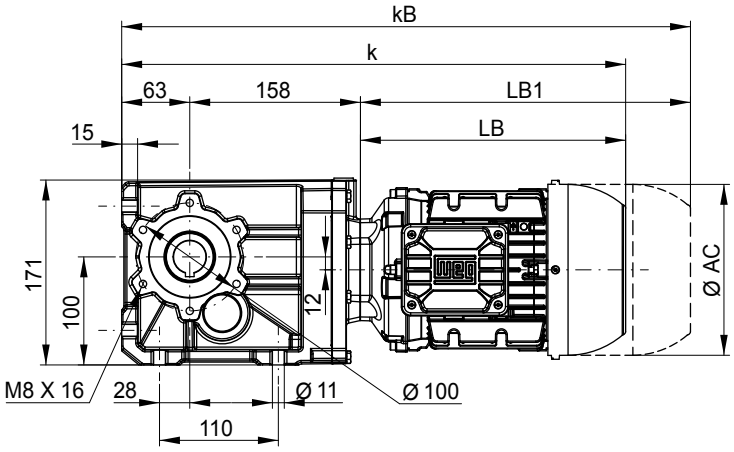

## KU02 - Hollow shaft with shrink disc and torque arm **

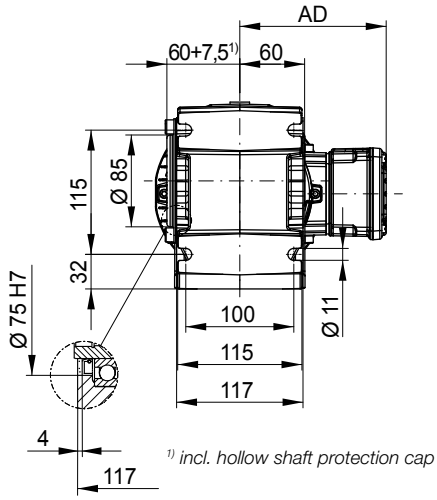



*Dimensions in mm.*

*** Torque arm may be mounted on side A or side B.*

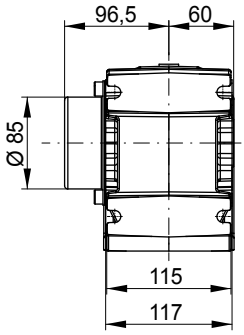
## KH03 - Hollow shaft

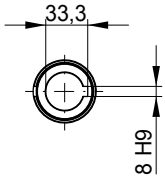


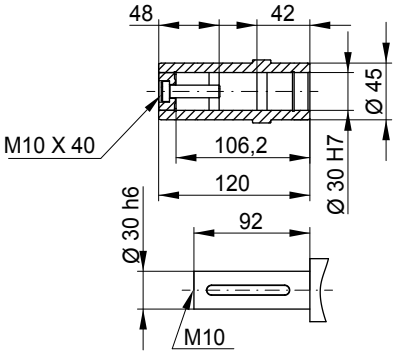




¹⁾ *incl. hollow shaft protection cap*

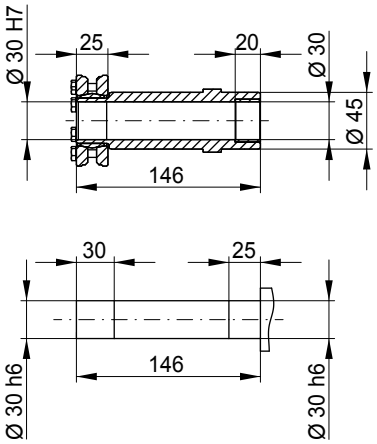
## KD03 - Shrink disc

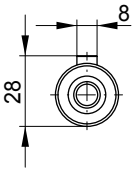


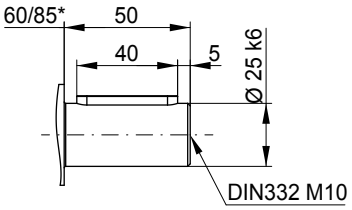



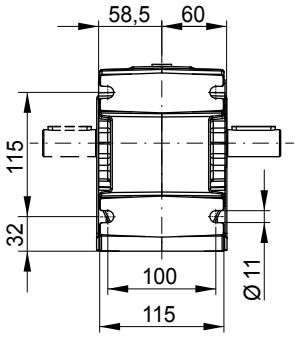




## KS03 - Output shaft
## KB03 - Output shaft on both sides



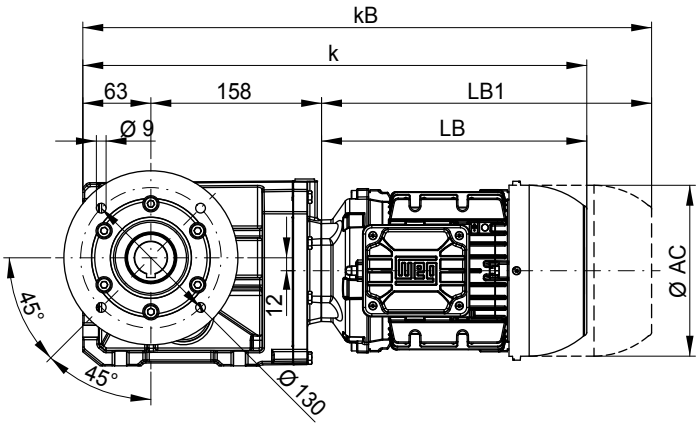



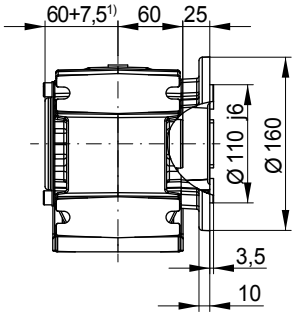

| Motor fr. / Dimension | 63 | 71 | 80 | 90S/L | 100L | L100L |
|---|---|---|---|---|---|---|
| AC | 126 | 141 | 159 | 178 | 199 | 199 |
| AD | 128 | 136 | 145 | 155 | 165 | 165 |
| k | 425 | 459 | 467 | 509 | 559 | 597 |
| kB | 469 | 508 | 525 | 582 | 643 | 681 |
| LB | 204 | 238 | 246 | 288 | 338 | 376 |
| LB1 | 248 | 287 | 304 | 361 | 422 | 460 |

*Motor dimension sheets see page 220. Description of motor lengths LB and LB1 see page 224.*

**Designs KS(KB)/KF*

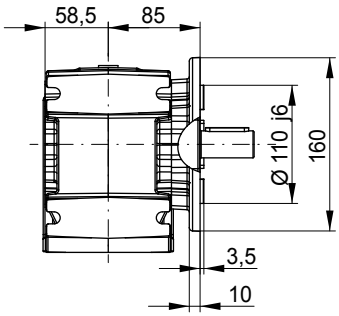
## KO03 - B5 flange execution with hollow shaft



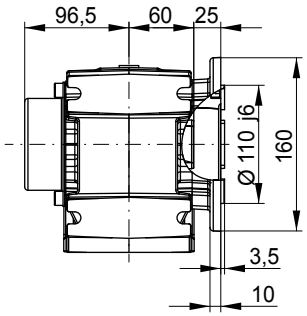




[1)] *incl. hollow shaft protection cap*

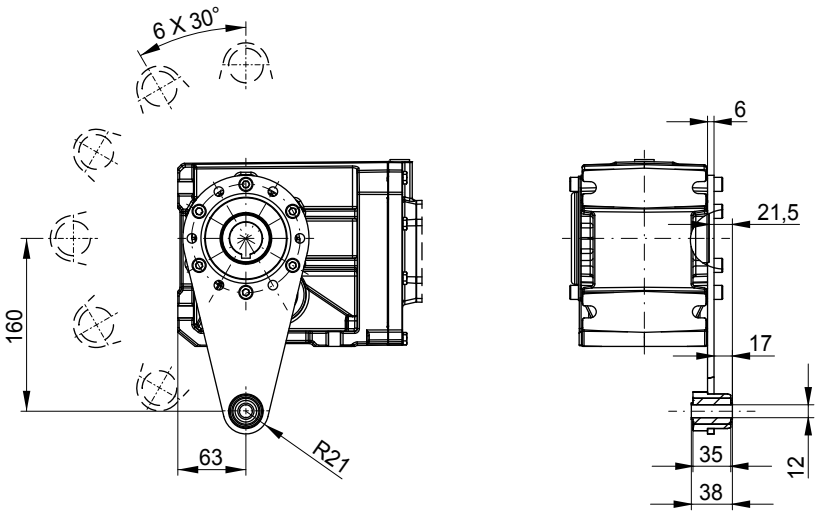
## KF03 - B5 flange execution with output shaft



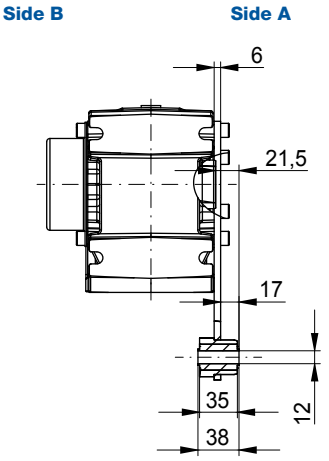

## KP03 - B5 flange execution with hollow shaft and shrink disc




## KT03 - Hollow shaft with torque arm **



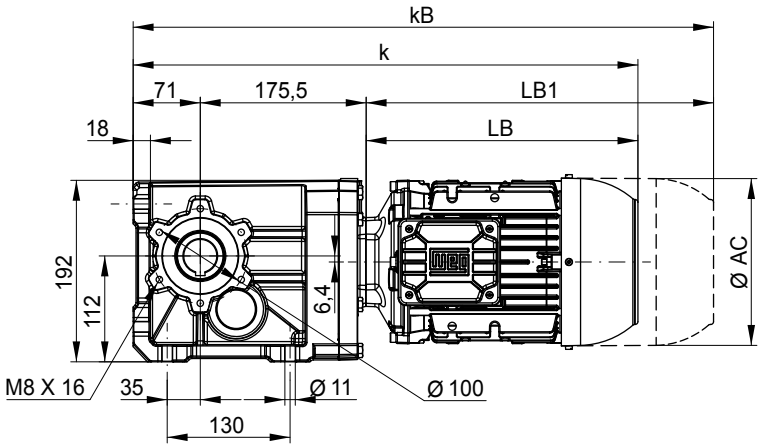

## KU03 - Hollow shaft with shrink disc and torque arm **

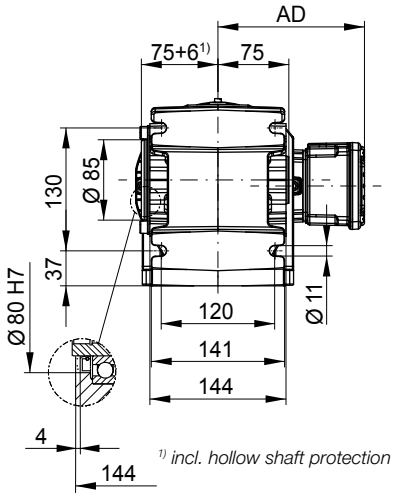



*Dimensions in mm.*

*** Torque arm may be mounted on side A or side B.*

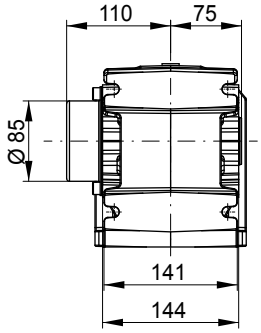
## KH04 - Hollow shaft

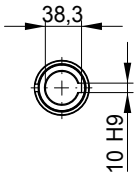


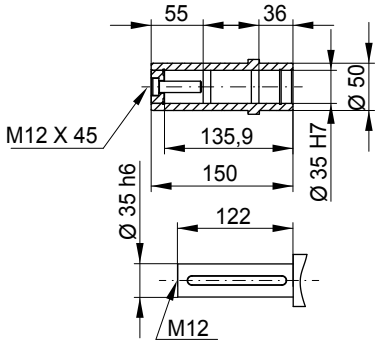




¹⁾ *incl. hollow shaft protection cap*

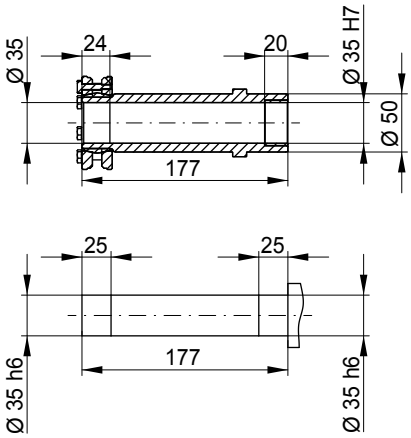
## KD04 - Shrink disc

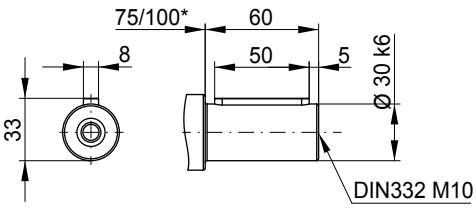


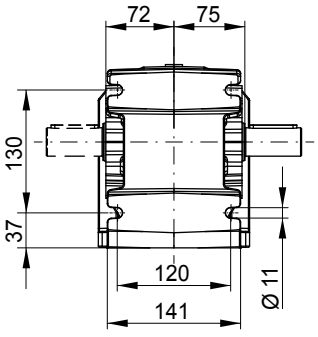




## KS04 - Output shaft
## KB04 - Output shaft on both sides



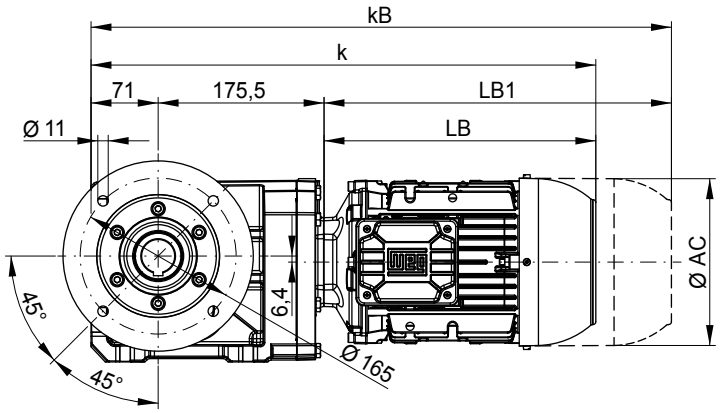



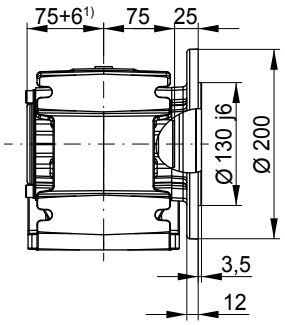

| Motor fr. / Dimension | 63 | 71 | 80 | 90S/L | 100L | L100L | 112M |
|---|---|---|---|---|---|---|---|
| AC | 126 | 141 | 159 | 178 | 199 | 199 | 221 |
| AD | 128 | 136 | 145 | 155 | 165 | 165 | 185 |
| k | 451 | 485 | 493 | 535 | 585 | 623 | 595 |
| kB | 495 | 534 | 551 | 608 | 669 | 707 | 682 |
| LB | 204 | 238 | 246 | 288 | 338 | 376 | 348 |
| LB1 | 248 | 287 | 304 | 361 | 422 | 460 | 435 |

*Motor dimension sheets see page 220. Description of motor lengths LB and LB1 see page 224.*

**Designs KS(KB)/KF*

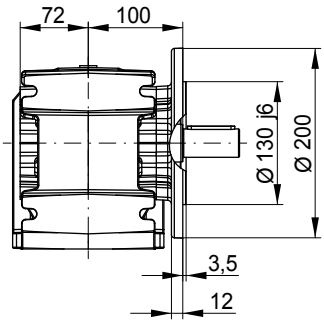
## KO04 - B5 flange execution with hollow shaft



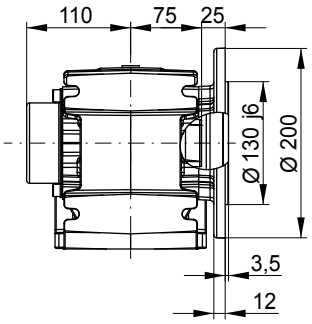




¹⁾ *incl. hollow shaft protection cap*

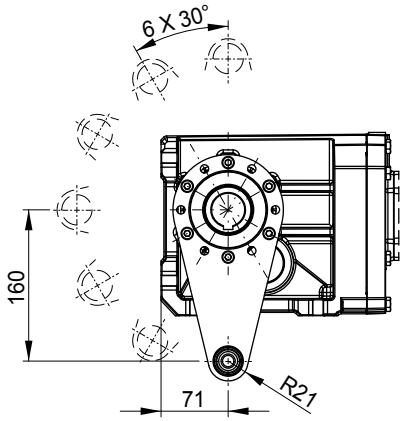
## KF04 - B5 flange execution with output shaft



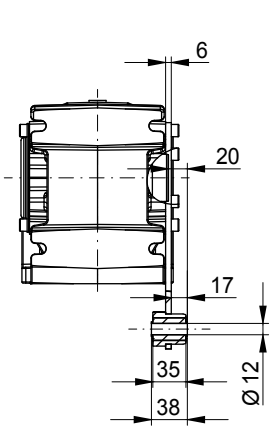

## KP04 - B5 flange execution with hollow shaft and shrink disc

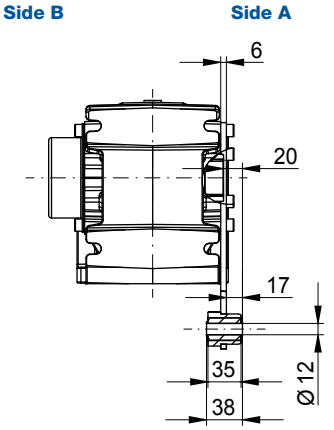



## KT04 - Hollow shaft with torque arm **




## KU04 - Hollow shaft with shrink disc and torque arm **

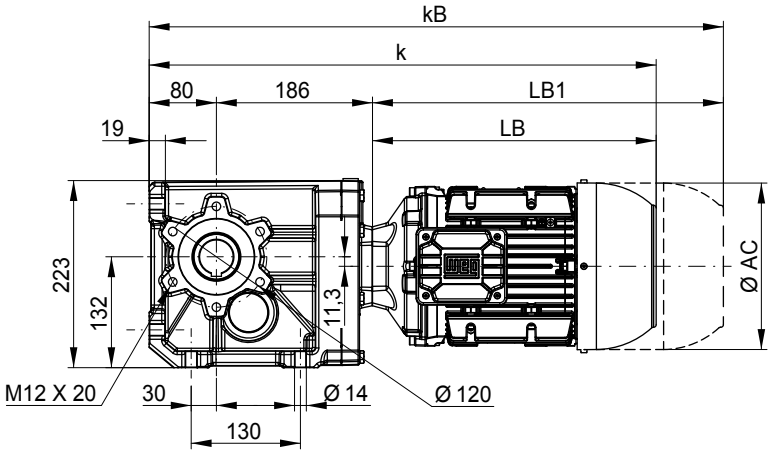


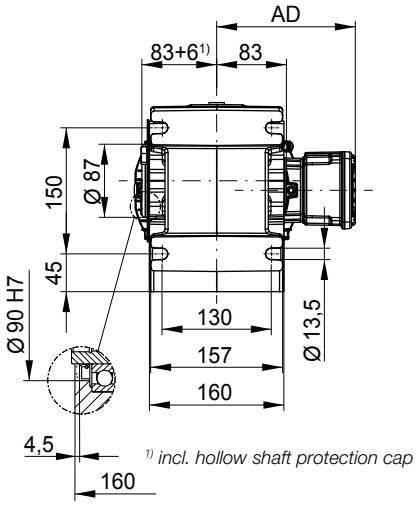




*Dimensions in mm.*

*** Torque arm may be mounted on side A or side B.*

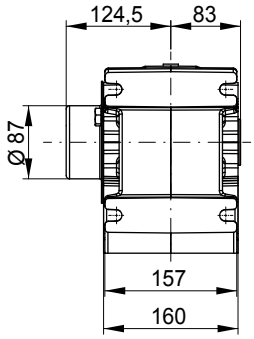
## KH05 - Hollow shaft

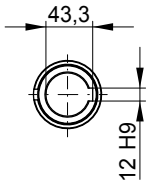


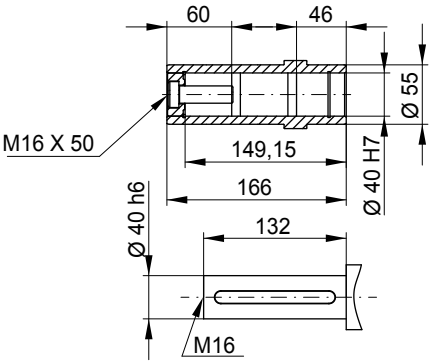




¹⁾ *incl. hollow shaft protection cap*

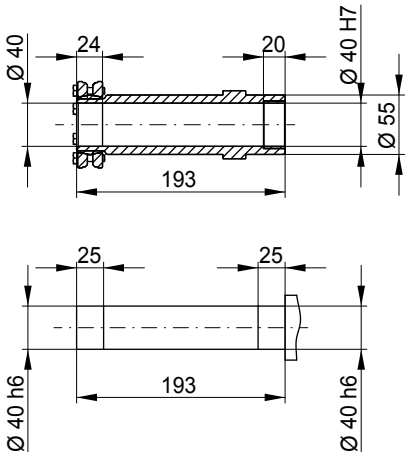
## KD05 - Shrink disc

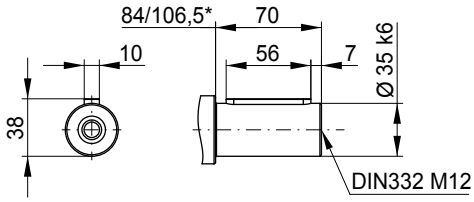


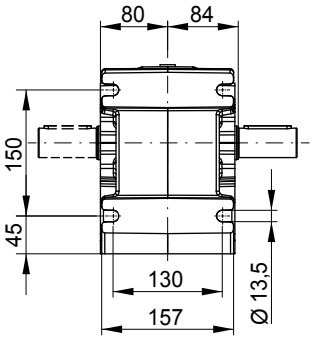




## KS05 - Output shaft
## KB05 - Output shaft on both sides



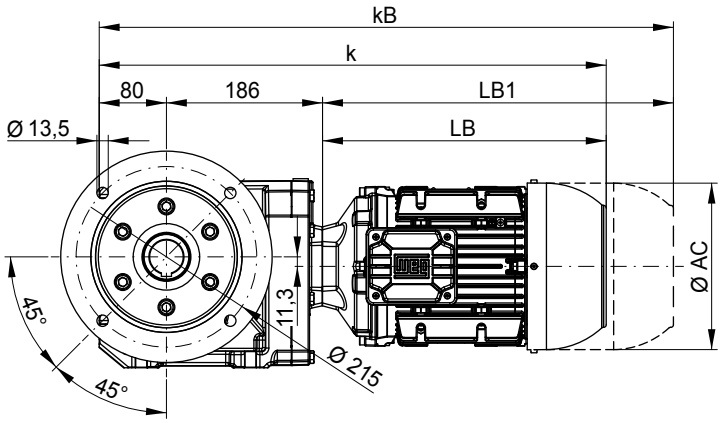



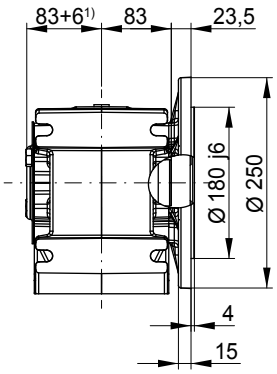

| Dimension \ Motor fr. | 63 | 71 | 80 | 90S/L | 100L | L100L | 112M | 132S,M | L132M |
|---|---|---|---|---|---|---|---|---|---|
| AC | 126 | 141 | 159 | 178 | 199 | 199 | 221 | 261 | 261 |
| AD | 128 | 136 | 145 | 155 | 165 | 165 | 185 | 205 | 205 |
| k | 470 | 504 | 512 | 554 | 604 | 642 | 614 | 679 | 717 |
| kB | 514 | 553 | 570 | 627 | 688 | 726 | 701 | 797 | 835 |
| LB | 204 | 238 | 246 | 288 | 338 | 376 | 348 | 413 | 451 |
| LB1 | 248 | 287 | 304 | 361 | 422 | 460 | 435 | 531 | 569 |

*Motor dimension sheets see page 220. Description of motor lengths LB and LB1 see page 224.*

**Design KS(KB)/KF*

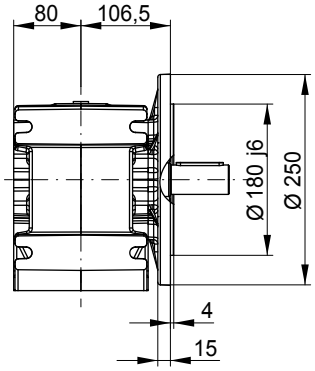
## KO05 - B5 flange execution with hollow shaft



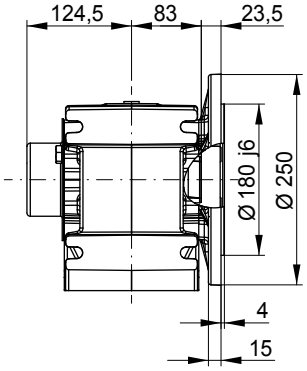




[1)] *incl. hollow shaft protection cap*

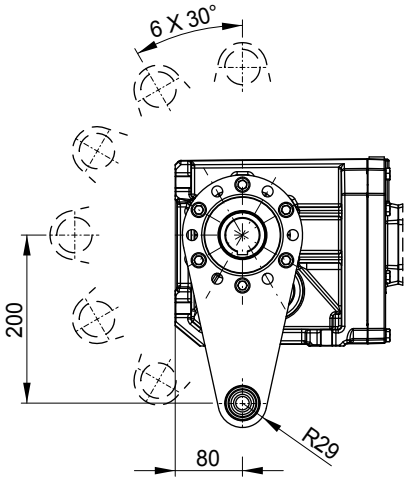
## KF05 - B5 flange execution with output shaft

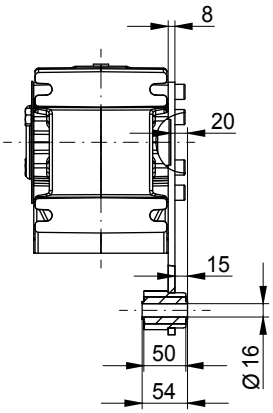



## KP05 - B5 flange execution with hollow shaft and shrink disc

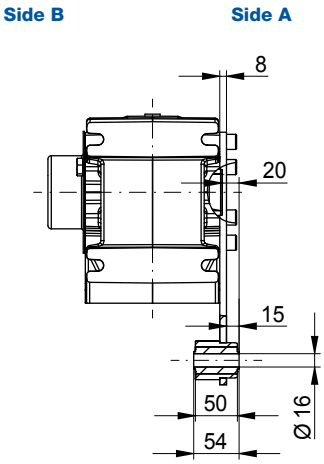



## KT05 - Hollow shaft with torque arm **



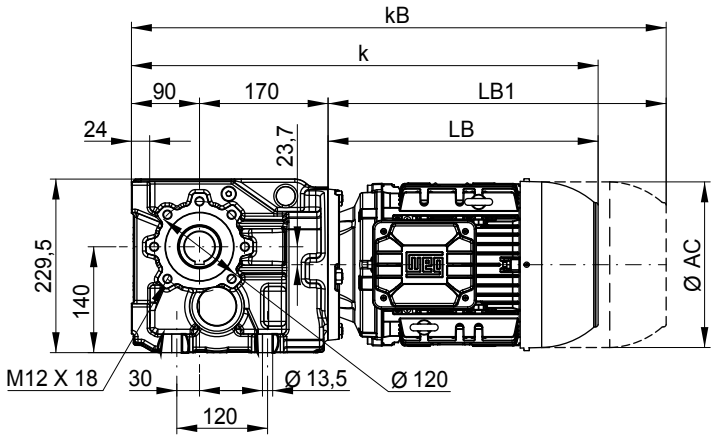

## KU05 - Hollow shaft with shrink disc and torque arm **

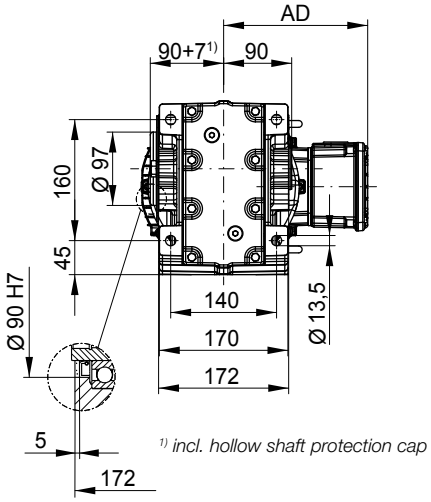



*Dimensions in mm.*

*** Torque arm may be mounted on side A or side B.*

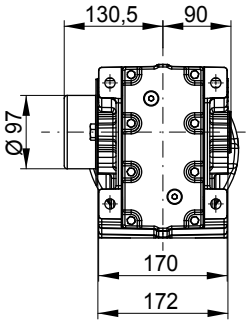
## KH06 - Hollow shaft

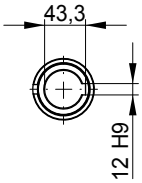


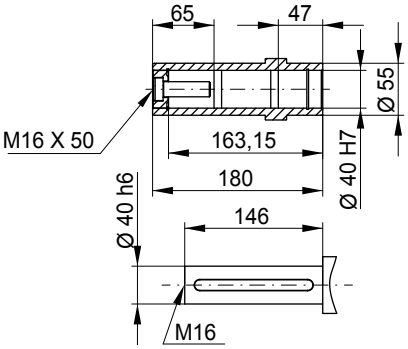




¹⁾ *incl. hollow shaft protection cap*

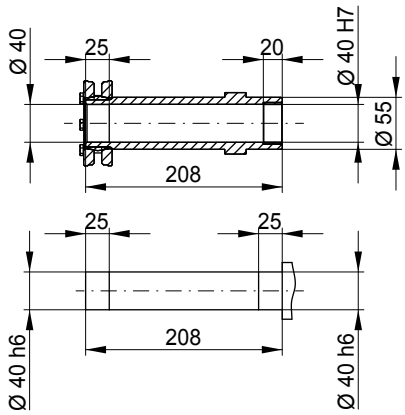
## KD06 - Shrink disc

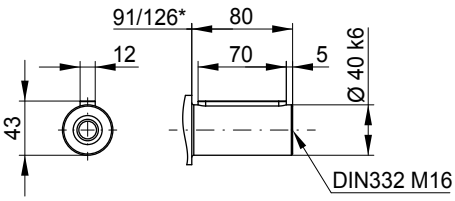


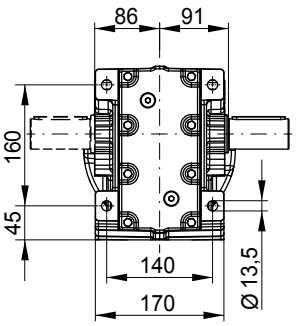




## KS06 - Output shaft
## KB06 - Output shaft on both sides



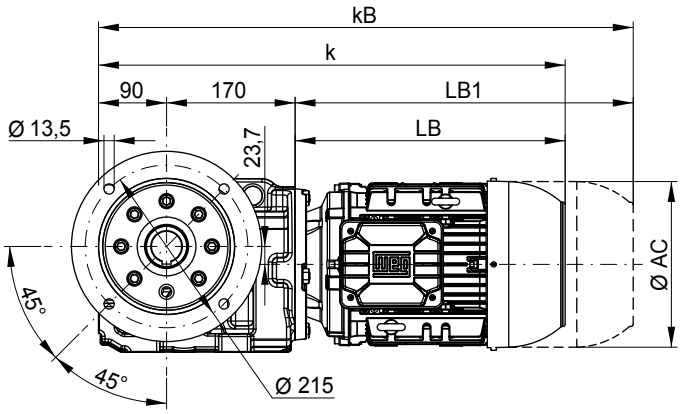



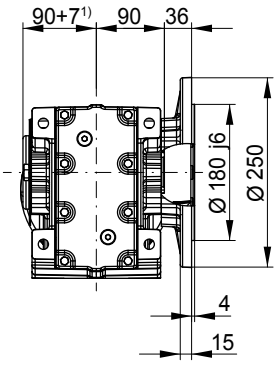

| Motor fr. / Dimension | 63 | 71 | 80 | 90S/L | 100L | L100L | 112M | 132S,M | L132M |
|---|---|---|---|---|---|---|---|---|---|
| AC | 126 | 141 | 159 | 178 | 199 | 199 | 221 | 261 | 261 |
| AD | 128 | 136 | 145 | 155 | 165 | 165 | 185 | 205 | 205 |
| k | 464 | 498 | 506 | 548 | 598 | 636 | 608 | 673 | 711 |
| kB | 508 | 547 | 564 | 621 | 682 | 720 | 695 | 791 | 829 |
| LB | 204 | 238 | 246 | 288 | 338 | 376 | 348 | 413 | 451 |
| LB1 | 248 | 287 | 304 | 361 | 422 | 460 | 435 | 531 | 569 |

*Motor dimension sheets see page 220. Description of motor lengths LB and LB1 see page 224.*

**Designs KS(KB)/KF*

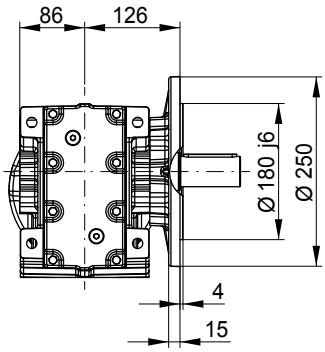
## KO06 - B5 flange execution with hollow shaft



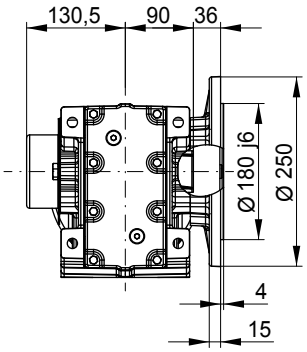




*[1)] incl. hollow shaft protection cap*

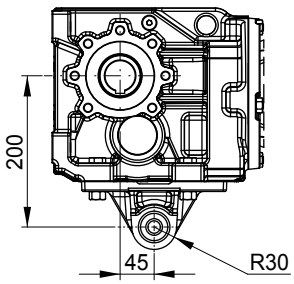
## KF06 - B5 flange execution with output shaft

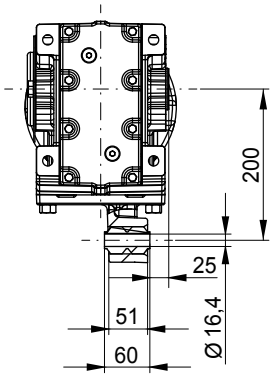



## KP06 - B5 flange execution with hollow shaft and shrink disc

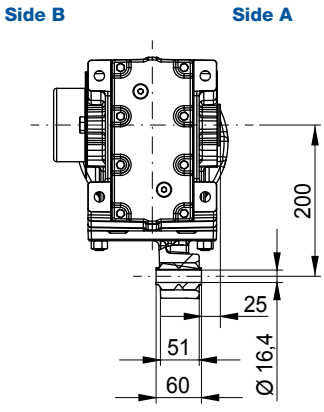



## KT06 - Hollow shaft with torque arm **



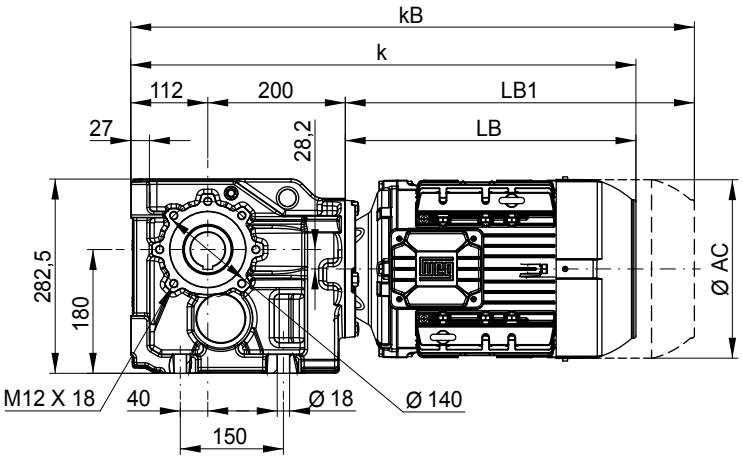

## KU06 - Hollow shaft with shrink disc and torque arm **

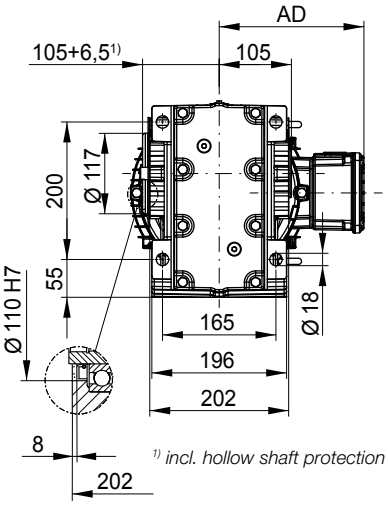



*Dimensions in mm.*

*** Torque arm may be mounted on side A or side B.*

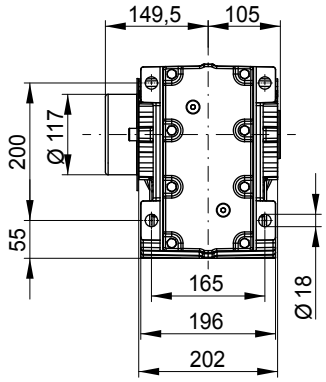
## KH07 - Hollow shaft

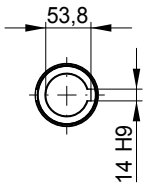


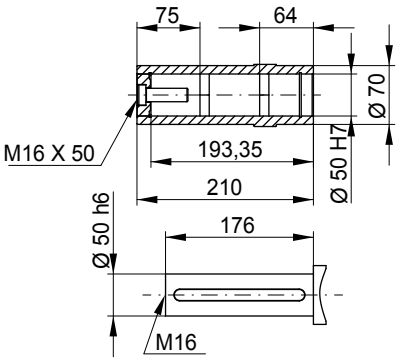




¹⁾ *incl. hollow shaft protection cap*

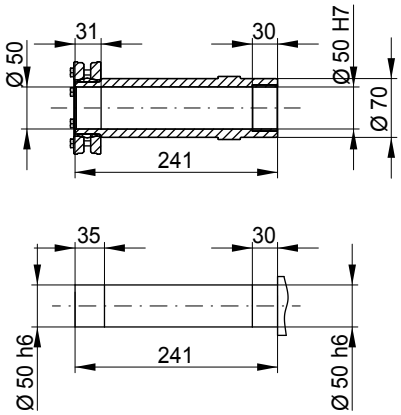
## KD07 - Shrink disc

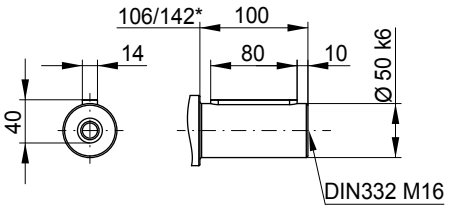


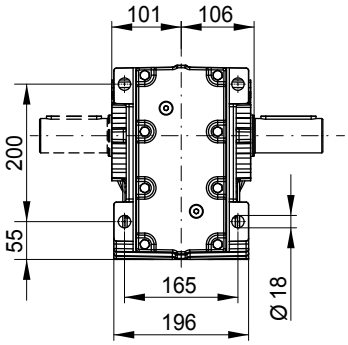




## KS07 - Output shaft
## KB07 - Output shaft on both sides



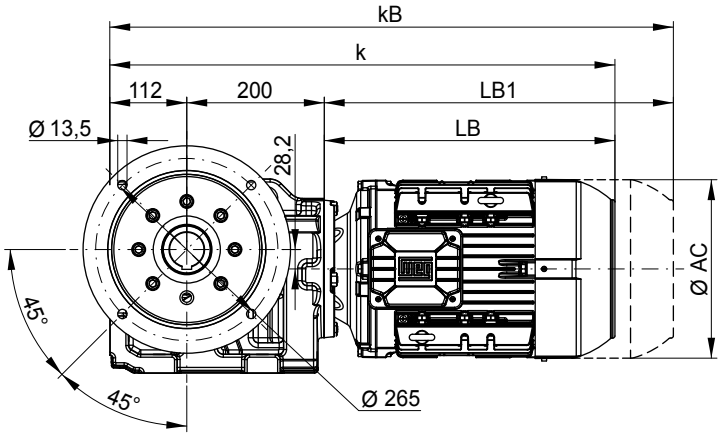



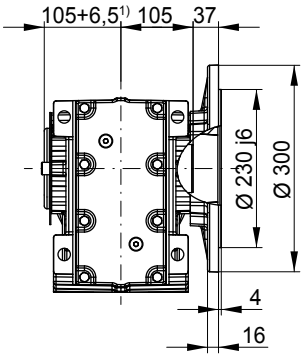

| Motor fr. / Dimension | 63 | 71 | 80 | 90S/L | 100L | L100L | 112M | 132S,M | L132M | 160M | 160L |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AC | 126 | 141 | 159 | 178 | 199 | 199 | 221 | 261 | 261 | 318 | 318 |
| AD | 128 | 136 | 145 | 155 | 165 | 165 | 185 | 205 | 205 | 266 | 266 |
| k | 516 | 550 | 558 | 600 | 650 | 688 | 660 | 725 | 763 | 857 | 901 |
| kB | 560 | 599 | 616 | 673 | 734 | 772 | 747 | 843 | 881 | 981 | 1025 |
| LB | 204 | 238 | 246 | 288 | 338 | 376 | 348 | 413 | 451 | 545 | 589 |
| LB1 | 248 | 287 | 304 | 361 | 422 | 460 | 435 | 531 | 569 | 669 | 713 |

*Motor dimension sheets see page 220. Description of motor lengths LB and LB1 see page 224.*

**Designs KS(KB)/KF*

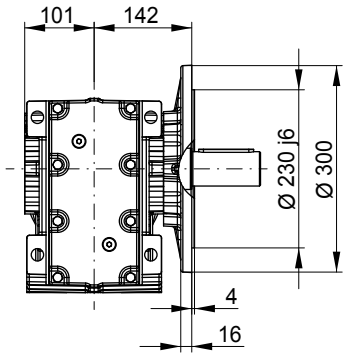
## KO07 - B5 flange execution with hollow shaft



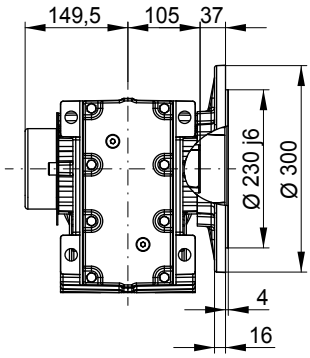




*[1)] incl. hollow shaft protection cap*

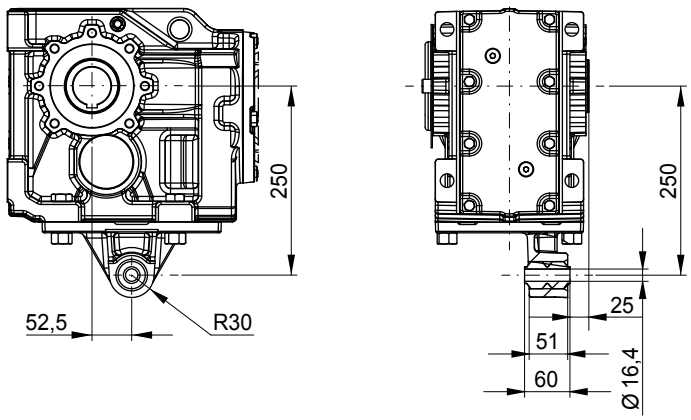
## KF07 - B5 flange execution with output shaft



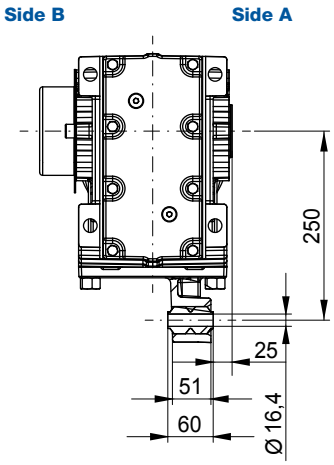

## KP07 - B5 flange execution with hollow shaft and shrink disc




## KT07 - Hollow shaft with torque arm **




## KU07 - Hollow shaft with shrink disc and torque arm **




*Dimensions in mm.*

*** Torque arm may be mounted on side A or side B.*

# Modular System Motor

Terminal box designs
page 226

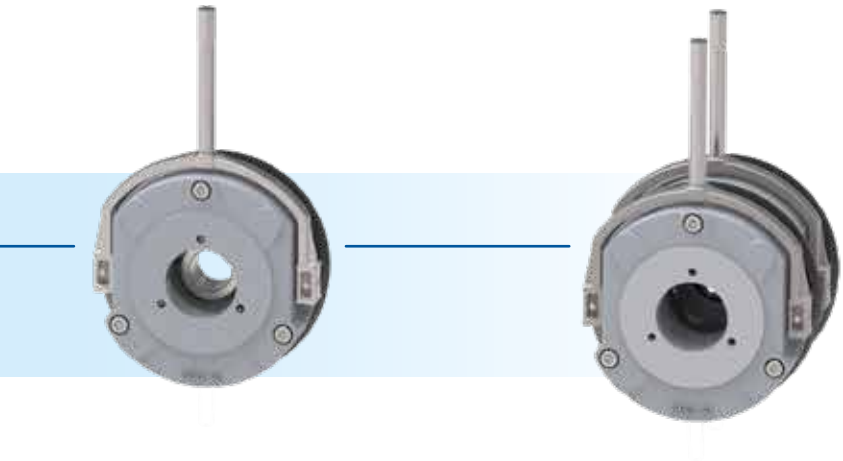
Brake systems
and back stops
page 229

Encoder systems
page 240

Ventilation systems
page 243

Motor type 11
with aluminium housing
(frame sizes 63 - 132)

Motor type 22
with cast iron housing
(frame sizes 160 - 180)





## The modular motor system

Our motor system is an optimised and modularly designed kit. It includes harmonised modules like brakes, encoders, forced ventilation and connecting systems which are combined to the customer's requirements.
The significant advantage of this concept offers fast and reliable delivery times, not only to our local customers but also internationally, because WEG's competent sales network and assembling centres guarantee the availability of components worldwide.

Detailed description of the motor modules see from page 225.

# The modular system motor

Due to special windings and clever connecting systems it's possible to use the same motor all over the world. Just a change of connection (4 possible options) and the motor can do its job reliably in Europe, USA or Far East, from 110 V to 690 V, 50 Hz and 60 Hz.

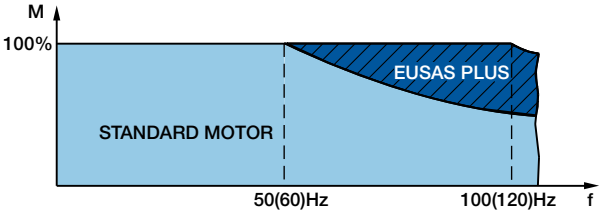
**The modular system motor is available in two energy efficiency classes:**
IE1: Series 11N, IEC frame sizes 63 to 80 (up to 0.55 kW)
IE3: Series 11P (aluminium), IEC sizes 80 to 132 (0.75 - 9.2 kW) and series 22P (cast iron), IEC sizes 160 and 180 (11-22 kW)
Motors in energy efficiency class IE4 on request

**Advantages**

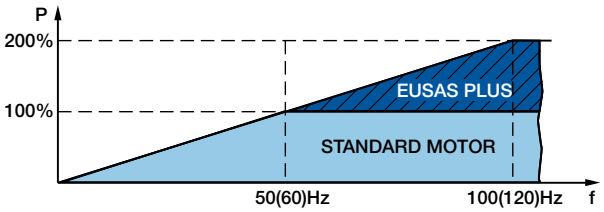
- Wide voltage range
- Switchable to all usual voltages worldwide:
  110-480 V - 50/60 Hz up to and including frame size 100
  190-690 V - 50/60 Hz for frame sizes 112 to 180
- Frequency inverter operation 100/120 Hz
- Ambient temperature -20 to +40 °C
- Nameplate with 50/60 Hz data
- Flexible adjustment of the terminal box
- Reinforced bearings (integral motor)
- Shaft system for immediate assembling of motor modules, like encoders, brakes, back stop, etc.
- Degree of protection IP55
- Thermal protection with bimetal switch and PTC thermistor
- Thermal class F
- System motor, prepared for flexible assembling of motor modules
- Certified for worldwide distribution: CE, CSA, UL, EAC

M

**The ideal motor for frequency inverter operation**
Switchable to 100/120 Hz. Simply switch over and use the double output.
The excellent combination of the modular system motor and variable speed drives by WEG (type CFW for various applications and decentralised motor drive MW500) enables drive systems with wide speed range.




*Rated torque up to double rated speed*




*Two times rated power at double rated speed*

*WG20 geared motor with decentralised motor drive MW500*

# Type code

11P-L100L-04F-TH-SH-K1-KB-MIP-BR..-SG-FL-SD

1 2 3 2 4 5 6 7 8 9 10 11 12 13 14

| | | |
|---|---|---|
| 1 | Motor series: | 11N = Aluminium motor in energy efficiency class IE1, frame sizes 63 - 80 (up to 0.55 kW)<br>11P = Aluminium motor in energy efficiency class IE3, frame sizes 80 - 132 (0.75 - 9.2 kW)<br>22P = Cast iron motor in energy efficiency class IE3, frame sizes 160 - 180 (11 - 22 kW) |
| 2 | Stator length: | L.<br>.S<br>.S/L<br>.M<br>.L |
| 3 | IEC frame size: | 63<br>71<br>80<br>90<br>100<br>112<br>132<br>160<br>180 |
| 4 | Number of poles: | 04 = 4 poles<br>06 = 6 poles |
| 5 | Power indicator: | D<br>E<br>F<br>G |
| 6 | Temperature control: | see page 225 |
| 7 | Anti-condensation heating: | see page 225 |
| 8 | Climatic protection: | see page 226 |
| 9 | Drain: | see page 226 |
| 10 | Terminal box designs: | see page 226 |
| 11 | Brake systems, back stop: | see page 229 |
| 12 | Encoder systems: | see page 240 |
| 13 | Ventilation systems: | see page 243 |
| 14 | Additional modules: | see page 245 |

# Options

## 1. Basic execution

| Description | Key | Page | IEC frame size | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 |
| Switchable voltage (4 connections) | - | 208 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Temperature controller for switch off | TH | 225 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | □ | □ |
| PTC thermistor protection for switch off | TF | 225 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Thermal class F (up to +155 °C) | - | 207 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Fixed bearing NDE | - | - | ■ | ■ | ■ | ■ | ■ | ■ | ■ | - | - |
| Fixed bearing DE | - | - | - | - | - | - | - | - | - | ■ | ■ |
| Degree of protection IP55 | - | 13 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Certifications (CE, EAC, UL, CSA) | - | - | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |

## 2. Electrical options

| Description | Key | Page | IEC frame size | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 |
| Special voltage SPECI-Volt | - | 208 | □ | □ | □ | □ | □ | □ | □ | □ | □ |
| Temperature controller for warning and switch off | 2TH | 225 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| PTC thermistor protection for warning and switch off | 2TF | 225 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Temperature sensor KTY | KTY | 225 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Temperature sensor Pt100 | - | - | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Anti-condensation heating 230 V | SH | 225 | - | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Thermal class H (up to +180 °C) | - | - | □ | □ | □ | □ | □ | □ | □ | □ | □ |

## 3. Mechanical options

| Description | Key | Page | IEC frame size | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 |
| Degree of protection IP56 | - | 13 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Degree of protection IP65 | - | 13 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Degree of protection IP66 | - | 13 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Degree of protection IP67 | - | 13 | □ | □ | □ | □ | □ | □ | □ | □ | □ |
| Humidity protection K1 | K1 | 226 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Corrosion protection K2 | K2 | 226 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Drain | KB | 226 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Multipin box | MIP | 226 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Multi-plug-connect systems | MIG.. | 227 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Non-ventilated without NDE shaft end | U | 244 | □ | □ | □ | □ | □ | □ | □ | □ | □ |
| Non-ventilated with NDE shaft end | UW | 244 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Different position of the terminal box | - | - | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Relubrication | - | - | - | - | - | - | - | - | - | □ | □ |

■ Standard
■ Optional
□ Special execution (on request)
- Not available

## 4. Options - motor modules

| Description | Key | Page | IEC frame size | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 |
| Spring loaded brake - IP55, 24 V | BR.. | 233 | | | | | | | | | |
| Spring loaded brake - IP55, 102 V | BR.. | 233 | | | | | | | | | |
| Spring loaded brake - IP55, 195 V | BR.. | 233 | | | | | | | | | |
| Double spring loaded brake in low noise execution | BBRHGD.. | 234 | - | | | | | | | | |
| Totally closed spring loaded brake - IP66 | BRGH.. | 235 | - | | | | | | | | |
| Manual release for brake | (BR)H.. | 233 | 1) | | | | | | | | |
| Locking device for manual release | (BR)HA.. | 233 | 1) | | | | | | | | |
| Corrosion protection IP55 for brake | (BR)R.. | 233 | | | | | | | | | |
| Dust protection IP65 for brake | (BR)S.. | 233 | 1) | | | | | | | | |
| Corrosion and dust protection IP65 for brake | (BR)SR.. | 233 | 1) | | | | | | | | |
| Brake in low noise execution | (BR)GD.. | 233 | 1) | | | | | | | | |
| Micro switch | (BR)M | 233 | 1) | | | | | | | | |
| Anti-condensation heating for brakes | - | 235 | - | - | | | | | | | |
| Fast excitation rectifier | - | 237 | | | | | | | | | |
| Back stop KKM | KKM | 239 | | | | | - | - | - | - | - |
| Back stop RSM | RSM | 239 | - | - | - | - | | | | | |
| Encoder outside the fan cover | I. | 240 | | | | | | | | | |
| Encoder inside the fan cover | S. | 240 | - | | | | | | | | |
| Encoder (1024 pulses, HTL/TTL, IP66) | .G | 240 | | | | | | | | | |
| Mating plug for encoder without cable | - | - | | | | | | | | | |
| Mating plug for encoder with cable | - | - | | | | | | | | | |
| SINCOS encoder | .C | 240 | | | | | | | | | |
| Resolver | .R | 241 | | | | | | | | | |
| SSI multiturn encoder | .S | 241 | | | | | | | | | |
| Heavy Duty encoder | .V | 241 | - | - | - | | | | | | |
| Special encoder | .A | 241 | | | | | | | | | |
| Forced ventilation (TEFV) | FL | 243 | | | | | | | | | |
| Fly wheel fan | ZL | 244 | - | | | | | | | - | - |
| Hand wheel | HR | 245 | - | | | | | | | | |
| Protection cap | SD | 245 | | | | | | | | | |
| Protection cap for encoders | ID | 245 | - | - | - | | | | | | |
| Second shaft end - module shaft | ZWM | 246 | - | | | | | | | | |
| Second shaft end - solid shaft | ZWV | 246 | | | | | | | | | |

*1) not possible with 2 Nm brake*

Standard
Optional
Special execution (on request)
- Not available

M

## 5. Additional options

| Description | Key | Page | IEC frame size | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 |
| Special nameplate (aluminium) | - | - | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Second nameplate (not fixed, aluminium or stainless steel) | - | - | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Metal fan | ZM | 244 | - | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Vibration severity grade "B" (reduced) according to DIN IEC 60034-14 | - | 208 | □ | □ | □ | □ | □ | □ | □ | □ | □ |
| Wide range grease (-40 °C to +175 °C) | - | - | □ | □ | □ | □ | □ | □ | □ | □ | □ |

■ Standard
□ Special execution (on request)
■ Optional
- Not available

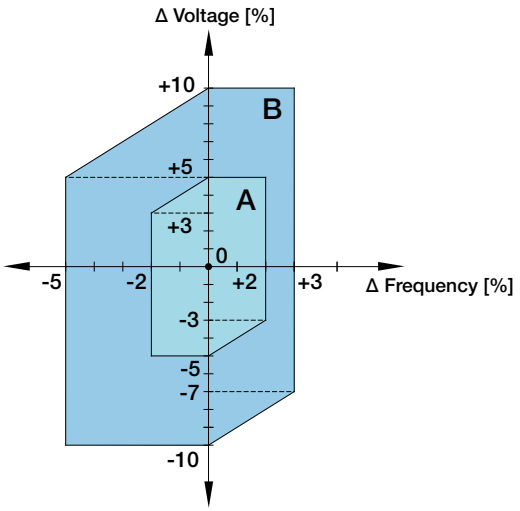
# General information

| Frame size | | 63 | 71 | 80 | 90S/L | (L)100L | 112M | (L)132M,S | 160M,L | 180M,L |
|---|---|---|---|---|---|---|---|---|---|---|
| **Mechanical features** | | | | | | | | | | |
| Mounting form | | B14R | | | | | | | B5R | |
| Housing material | | aluminium EN AC-46100 | | | | | | | cast iron EN GJL-200 | |
| Degree of protection | | IP55 | | | | | | | | |
| Grounding | | simple grounding - one inside the terminal box | | | | | | | | |
| Cooling method | | fan - IC411 (TEFC) | | | | | | | | |
| Fan material | | polypropylen | | | | | | | | |
| Fan cover material | | sheet steel | | | | | | | | |
| Endshields material | | aluminium EN AC-46100 * | | | | | | | cast iron EN GJL-200 | |
| Drain | | rubber drain plug | | | | | | | | |
| Bearings | Locking | without bearing cap with circlip - NDE | | | | | | | without bearing cap with circlip - DE | |
| | DE | 6203 ZZ | 6204 ZZ | 6205 ZZ | 6305 ZZ | 6207 ZZ | 6307 ZZ | 6309 ZZ | 6309 ZZ-C3 | 6312 ZZ-C3 |
| | NDE | 6201 ZZ | 6203 ZZ | 6203 ZZ | 6205 ZZ | 6206 ZZ | 6206 ZZ | 6308 ZZ | 6209 ZZ-C3 | 6211 ZZ-C3 |
| Shaft seal | Type | radial shaft seal | | | | | | | | |
| | DE | 17x30x7 | 20x30x7 | 25x40x7 | 25x40x7 | 35x52x7 | 35x52x7 | 45x60x8 | 45x60x8 | 60x90x10 |
| | NDE | 12x22x7 | 17x28x5 | 17x28x5 | 25x35x7 | 30x40x4 | 30x40x4 | 40x56x8 | 45x62x7 | 55x70x8 |
| | Material | NBR | | | | | | | | |
| Lubrication | Type of grease | Mobil Polyrex EM | | | | | | | | |
| | Grease fitting | without grease fitting | | | | | | | | |
| Terminal block | | 9 poles | | | | | | | | |
| Terminal box material | | aluminium EN AC 47000 | | | | | | | cast iron EN GJL-200 | |
| Cable entry | Main | 2 x M25x1.5 | | | | | 2 x M32x1.5 | | 2 x M40x1.5 | |
| | Accessory | 2 x M16x1.5 | | | | | | | | |
| | Plug | threaded plug for transport and storage; cable gland optional | | | | | | | | |
| Shaft material | | 1.0511/1.1191 – C40/C45E – AISI 1040/45 | | | | | | | | |
| Direction of rotation | | both directions | | | | | | | | |
| Vibration | | class A | | | | | | | | |
| Nameplate material | | stainless steel 1.4301 (AISI 304) | | | | | | | | |
| Flange | | FC-120 | | | | | FC-160 | | FR-200 FR-250 | FR-250 |
| **Electrical features** | | | | | | | | | | |
| Power [kW] 4 poles | | 0.12 - 0.18 | 0.25 - 0.37 | 0.55 - 0.75 | 1.1 - 1.5 | 2.2 - 3.0 | 4.0 | 5.5 - 9.2 | 11.0 - 15.0 | 18.5 - 22 |
| Power [kW] 6 poles | | 0.12 | 0.18 - 0.25 | 0.37 - 0.55 | 0.75 | 1.1 - 1.5 | 2.2 | 3.0 - 5.5 | - | - |
| Design | | N | | | | | | | | |
| Voltage / Frequency | | 220-240 / 380-420 V (50Hz) // 220-277 / 380-480 V (60Hz) | | | | | 380-420 / 660-690 V (50Hz) // 380-480 / 660V (60Hz) | | | |
| Winding | Impregnation | dip | | | | | | | | |
| | Insulation class | F (DT 80K) | | | | | | | | |

** Except frame sizes L100L and L132M: endshield (NDE) made from cast iron EN GJL-200*

## 1. Voltage and frequency fluctuations

According to DIN EN 60034-1, a distinction is made between range A and range B (outside A) for voltage and frequency fluctuations. Range A and range B describe the permissible range in which frequency and voltage levels are permitted to deviate from the relevant measurement point (see illustration). The coordinate mean point “0” identifies the measurement point for the frequency and voltage in each case. The motor must be able to issue the rated torque in both ranges A and B.




*Ranges A and B according to DIN EN 60034-1*

### Range A

In continuous operation in range A, the characteristics are permitted to vary from the rated operation, and the heating at the limits of range A can be around 10 K higher.

### Range B

The deviations from the characteristics are permitted to be greater than in range A, the heating levels can be higher than at the measurement point. Duration and frequency of operation in range B should be limited. Corrective measures, e.g. power reduction, should be provided. If a machine has multiple rated voltages or a rated voltage range, the permissible voltage and frequency fluctuations apply for each individual value of the rated voltage.

## 2. Modes of operation

Duty type according to DIN EN 60034-1 and VDE 0530-1.
The duty type is designated by the abbreviations S1 to S10. For the duty types S4, S5 and S7 the duty cycles/hour (c/h) and the factor of inertia $F_I$ should also be stated at the bottom.
The factor of inertia $F_I$ is the ratio of the total load moment of inertia (referred to the motor shaft) and the motor moment of inertia, to the motor moment of inertia, i.e.

$$F_I = \frac{\Sigma J_{ex.red} + J_{mot}}{J_{mot}}$$

| | Definition | Example |
|---|---|---|
| S1 | Continuous running duty with constant load | S1 |
| S2 | Short-time duty with constant load<br>Duration of operation under rated conditions (recommended values: 10, 30, 60 or 90 min) | S2<br>10 min |
| S3 | Intermittent periodic duty. Motor temperature not affected by starting operation<br>Cyclic duration factor (recommended values: 15, 25, 40 or 60 %):<br>Cycle duration (10 min unless otherwise stated) | S3<br>25 %<br>60 min |
| S4 | Intermittent periodic duty. Motor temperature affected by starting operation<br>Cyclic duration factor (recommended values: 15, 25, 40 or 60 %):<br>Indication of the duty cycles per hour and of the factor of inertia $F_I$ | S4<br>40 %<br>200, $F_I$=2 |
| S5 | Intermittent periodic duty. Motor temperature affected by starting operation and electric braking<br>Cyclic duration factor (recommended values: 15, 25, 40 or 60 %):<br>Indication of the duty cycles per hour and of the factor of inertia $F_I$ | S5<br>15 %<br>300, $F_I$=1 |
| S6 | Continuous operation periodic duty.<br>Cyclic duration factor (recommended values: 15, 25, 40 or 60 %):<br>Cycle duration (10 min unless otherwise stated) | S6<br>25 %<br>60 min |
| S7 | Continuous operation with starting and electric braking<br>Indication of the duty cycles per hour and of the factor of inertia $F_I$ | S7<br>200, $F_I$=1 |
| S8 | Continuous operation with related load/speed changes (Sequence of similar cycles)<br>Speeds during the duty cycle<br>Periods for which these speeds are maintained during the duty cycle<br>Indication of the factor of inertia $F_I$ | S8<br>3000$^{min-1}$, 10 min<br>1500$^{min-1}$, 15 min<br>$F_I$=1,5 |
| S9 | Continuous operation duty with unrelated load/speed changes | S9 |
| S10 | Duty with discrete constant loads and speed | S10<br>$F_I$=0,6 |

*Legend see page 236.*

## 3. Rated power according to VDE 0530-1

The listed rated power of the motor corresponds to the output power according to VDE 0530-1 for continuous operation S1, frequency 50/60 Hz, max. ambient temperature +40 °C, max. altitude 1000 m above sea level.
According to this standard at rated values (voltage and frequency) the motors may be overloaded for two minutes by 1.5 times the rated current, without damage of the winding.
The motors are calculated by rated values according to thermal class B, but produced in class F and by operation with rated values fit for higher loads:

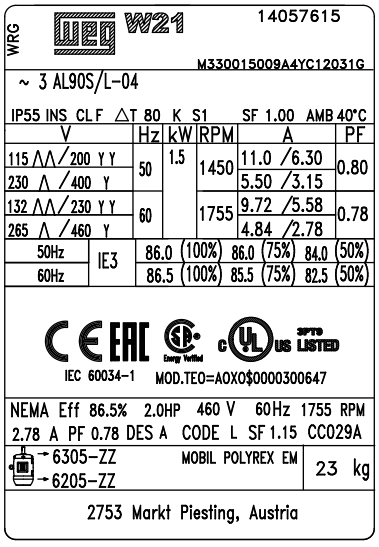
a. At rated power and rated voltage the ambient temperature may be increased from +40 °C to +60 °C.

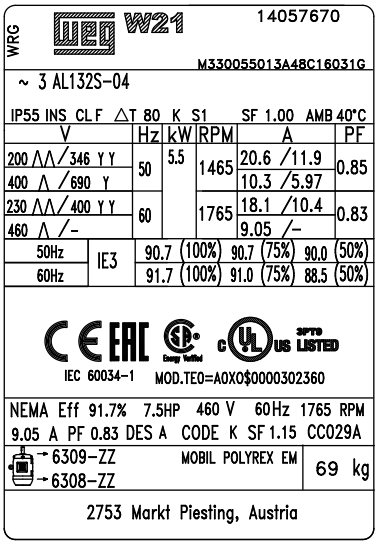
b. Provided that ambient temperature does not exceed +40 °C, the normal capacity in continuous operation can be increased by appr. 10 %.

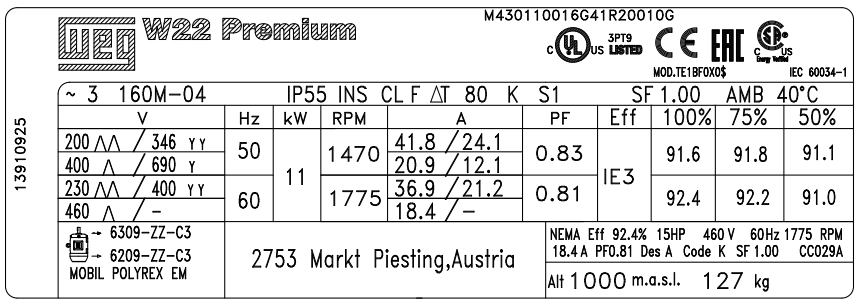
All technical data stated applies to rated frequency of 50 Hz and supply voltage of 400 V rated voltage at rated power.If the load changes, the stated values will deviate to higher or lower.

## 4. Nameplate

The stainless steel plate is fixed on the frame and bears data for 50 Hz and 60 Hz. The information on the nameplate contains all relevant specifications of the product (see examples for motor frame sizes 90, 132 and 160).




## 5. Torque

The motors are fitted with squirrel-cage rotors suitable for direct online starting. The values of starting torque and break-down torque, expressed as a multiple of the rated torque, are given in the performance data. A deviation in the voltage from rated value changes the torques as an approximate function of the square of the voltages.

## 6. Efficiency class

Standard IEC 60034-30 defines uniform efficiency classes, valid for 2, 4, 6 and 8 pole asynchronous motors (50/60 Hz) with output powers of 0.12 kW to 1,000 kW. This standard divides 3-phase induction motors with cage rotor in efficiency classes IE1=standard efficiency, IE2=high efficiency and IE3=premium efficiency. Our motors are labelled with efficiency class and factor on the nameplate.

## 7. Motor protection

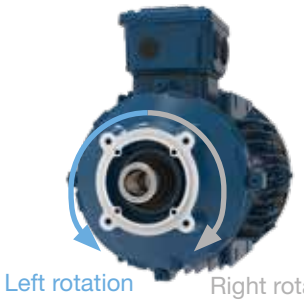
The correct selection of protective equipment determines essen-tially the operation reliability and service life of motors. Current dependent protection and thermal protective devices are available. Fuses do not protect the motor against over-loads, they only protect the supply cables or switchboards against short circuits.

## 8. Overload protection (protection relay)

It is recommended to use starters with thermal overload pro-tection. The overloads should be adjusted to the rated current shown on the nameplate. Thermal protective devices (thermistors in windings) see page 225.

## 9. Speed and rotation direction

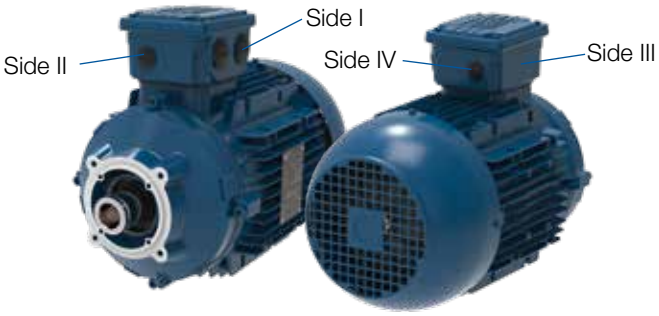
The rated speed is valid for the rated dates (voltage, frequency). The synchronous speed depends on the line frequency.
The motors are able for operation in both directions. By connection of U1, V1, W1 to L1, L2, L3 the rotation will be to the right if you look at the shaft from the driveside. Left direction can be easily made by changing of two wires.




*Rotation direction*

## 10. Cable entry

For all frames, the terminal box can be rotated in 90° increments. Terminal boxes are not delivered with cable glands in standard. Motors are supplied with plastic threaded plugs in the cable entries to maintain the degree of protection during transport and storage. In order to guarantee the degree of protection, cable entries must comply with at least the same degree of protection indicated on the motor nameplate.




*Side designation for cable entries*

## 11. Cooling

The motors are totally enclosed fan cooled (TEFC) by means of external surface ventilation (IC411), as per IEC 60034-6). Maximum ambient temperature +40 °C. mum ambient temperature +40 °C. Please check the minimum distance “Y” (see dimension sheets from page 220) between cover and wall by mounting the motor.

- **Integral fans (TEFC, IC411)**

Particular attention has been dedicated to the shape in order to reduce noise and improve the efficiency of the motor. Radial construction has been selected to allow rotation in both directions.

- **Fan cover**

In treated steel plate, properly profiled to improve efficiency and reduce the noise produced by the fan.

- **Forced ventilation (TEFV, IC416) see also page 243**

For special operating conditions, e.g. increased permissible number of operations per hour or variable speed operation, the motors of IEC sizes 63 to 180 can be supplied with forced ventilation by means of a separately fitted fan motor.

## 12. Insulation

The motors in this catalogue comply with the requirements of thermal class F. All windings are impregnated with var-nish with a high mechanical strength. The maximum temperature of the insulation is, according to ther-mal class F, at +155 °C. The motors are utilised at rated values according to thermal class B (+130 °C). Copper wire insulation and the impregnation varnish have a temperature index class F and therefore there is a large margin of safety in addition to high overload capacity.
Motors from frame size 160 are equipped with the WISE® insulation system of the new W22 motor range by WEG.

## 13. Noise levels

Noise measurements were taken in accordance with standard IEC 60034-9 (see table to the right).

| Frame size | Noise level - dB(A), Distance: 1 meter | | | |
|---|---|---|---|---|
| | 50 Hz | | 60 Hz | |
| | 4p | 6p | 4p | 6p |
| 63 | 44 | 43 | 48 | 47 |
| 71 | 43 | 43 | 47 | 47 |
| 80 | 44 | 43 | 48 | 47 |
| 90 | 49 | 45 | 51 | 49 |
| 100 | 53 | 44 | 54 | 53 |
| 112 | 56 | 52 | 56 | 52 |
| 132 | 56 | 53 | 58 | 55 |
| 160 | 61 | 56 | 64 | 59 |
| 180 | 61 | 56 | 64 | 59 |

## 14. Balancing of rotors

Motors comply with vibration strength level "A" according to standard IEC 60034-14. On request, motors may also be balanced according to level "B".

## 15. Shaft ends

Shaft ends of motors in frame sizes 63 up to 132 are equipped with a conical bore and do not have a key, while the frame sizes 160 and 180 have a shaft with closed end keyway. On the non-driven side, modular motors have a system shaft to mount motor modules, such as brakes, encoders, back stops, etc.

## 16. Voltage, current and frequency

In standard execution the motors are delivered with following rated voltages: see Chapter 17 Electrical connection (basic connection).

### Special voltages

Motors for special voltages and/or frequencies are available on request.

### Speed and connection

Tolerance of the motor speed according to IEC 60034. Terminal board connection see page 209.

### Connection

- **Direct connection**

The starting torque in direct connection amounts to 160 to 330 % of the rated torque, depending on power and number of poles. The starting current is about 2.5 to 8 times of the rated current.

- **Star-delta starting**

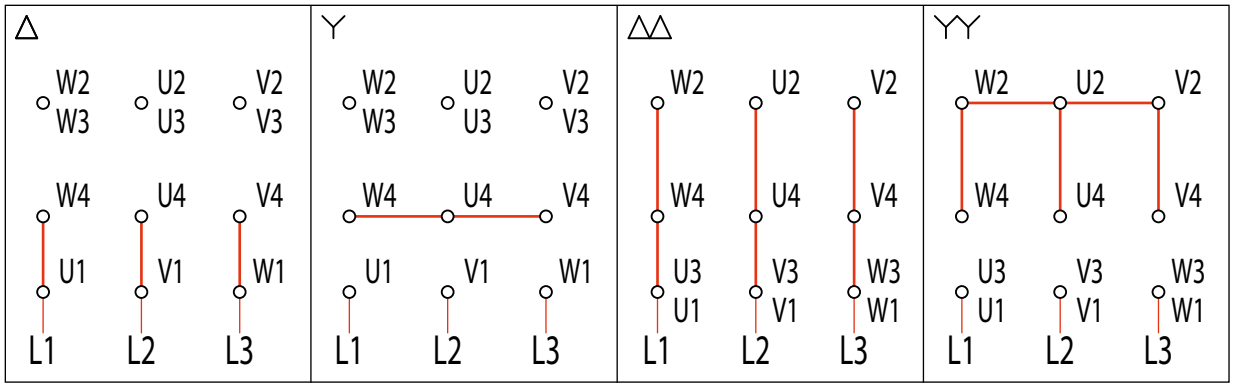
The star-delta (Y-D) starting is an easy way to reduce the starting current and starting torque. Motors can be started with this starting method whenever the supply voltage corresponds to the rated voltage of the motors in delta connections. Up from frame size 112 the standard modular motors are supplied with windings designed for this starting method (e.g. 400 V D / 690 V Y). A Y-D-starting is only possible with delta service connection (this shall be considered when selecting a motor!), as the motor is first Y-connected and is changed over to D-connection after the run-up phase. At Y-D-starting, the starting currents and torques will be reduced to about 1/3 of the values produced in case of direct-online starting. Attention should be paid to the fact that a current impulse is produced when changing over to D-connection.

## 17. Electrical connection

| Rated voltages for motor series 11N, 11P (IEC frame sizes 63 to 100) | | | | | |
|---|---|---|---|---|---|
| Possible connection | | Rated power $P_N$ | Increased rated power 1,2 x $P_N$ | Frequency inverter operation | |
|  | Delta | 220 - **230** - 240 V at 50 Hz<br>220 - **265** - 277 V at 60 Hz | -<br>254 - 265 - 277 V at 60 Hz |  | 400 V, 87 Hz |
|  | Delta - Delta | 110 - **115** - 120 V at 50 Hz<br>110 - **132** - 138 V at 60 Hz | -<br>127 - 132 - 138 V at 60 Hz |  | 230 V, 100 Hz |
|  | Star<br>(basic connection) | 380 - **400** - 420 V at 50 Hz<br>380 - **460** - 480 V at 60 Hz | -<br>440 - 460 - 480 V at 60 Hz |  | 400 V, 100 Hz |
|  | Star - Star | 190 - **200** - 210 V at 50 Hz<br>190 - **230** - 240 V at 60 Hz | -<br>220 - 230 - 240 V at 60 Hz |  | 460 V, 120 Hz |

| Rated voltages for motor series 11P and 22P (IEC frame sizes 112 to 180) | | | | | |
|---|---|---|---|---|---|
| Possible connection | | Rated power $P_N$ | Increased rated power 1,2 x $P_N$ | Frequency inverter operation | |
|  | Delta<br>(basic connection) | 380 - **400** - 420 V at 50 Hz<br>380 - **460** - 480 V at 60 Hz | -<br>440 - 460 - 480 V at 60 Hz |  | 400 V, 100 Hz |
|  | Delta - Delta | 190 - **200** - 210 V at 50 Hz<br>190 - **230** - 240 V at 60 Hz | -<br>220 - 230 - 240 V at 60 Hz | | |
|  | Star | 660 - **690** - (730) V at 50 Hz<br>660 - **(796)** - (830) V at 60 Hz | -<br>(760) - (796) V at 60 Hz |  | 460 V, 120 Hz |
|  | Star - Star | 330 - **346** - 365 V at 50 Hz<br>330 - **400** - 415 V at 60 Hz | -<br>380 - 400 - 415 V at 60 Hz | | |

**Terminal board connection**




## 18. Variable speed drive application

The stator windings of the motors are wound with class F insulation (class H optional) and are suitable for either DOL starting or - regarding the limits shown in the tabel below - via a variable speed drive.

| Rated voltage | | | | |
|---|---|---|---|---|
| 220-240/380-415 V (50 Hz)<br>400-460 V (60 Hz) | | | | |
| Motor rated voltage | Voltage spikes | dV/dt * | Rise time * | Time between pulses |
| | At motor terminals (phase-phase) | At motor terminals (phase-phase) | | |
| $V_{rated}$ < 460 V | ≤ 1600 V | ≤ 5200 V/µs | ≥ 0.1 µs | ≥ 6 µs |
| 460 V ≤ $V_{rated}$ < 575 V | ≤ 2000 V | ≤ 6500 V/µs | | |
| 575 V ≤ $V_{rated}$ ≤ 1000 V | ≤ 2400 V | ≤ 7800 V/µs | | |

** dV/dt and rise time definition according to NEMA MG1 - part 30*

**Notes:**

- In order to protect the motor insulation system, the maximum recommended switching frequency is 5 kHz.
- If one or more of the above conditions is not attended, a filter (load reactor or dV/dt filter) must be installed in the output of the VSD.
- General purpose motors with rated voltage greater than 575 V, which at the time of purchase did not have any indication of operation with VSD, are able to withstand the electrical limits set in the table above for rated voltage up to 575 V. If such conditions are not fully satisfied, output filters must be used.
- General purpose motors of the dual voltage type, for example 400/690 V or 380/660 V, which at the time of purchase did not have any indication of operation with VSD, are able to be driven by a VSD in the higher voltage only if the limits set in the table above for rated voltage up to 460 V are fully attended in the application. Otherwise, a load reactor or a dV/dt filter must be installed in the VSD output.

# Electrical basic data

### Notes for electrical basic data

The technical data according to selection tables (starting current, torques, power factor, etc.) are valid for the rated values, that means for the rated voltage and rated frequency.
If the motors are running on higher or lower voltage within the wide range voltage, the stator winding will be utilised according to thermal class F. In these cases a power increase in accordance to a. and b. on page 206 is not possible.
The design of the wide range winding permits supply voltage deviations in the indicated wide range voltage of ± 5 % without reduction of the power.

| | | | 1 | 2 | 3 | | | | | 4 | 5 | 6 | | | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Series | IEC frame size | Type | $P_N$ [kW] | $n_N$ [min$^{-1}$] | $I_N$ at 115 V [A] | $I_N$ at 200 V [A] | $I_N$ at 230 V [A] | $I_N$ at 400 V [A] | $I_N$ at 690 V [A] | $\frac{I_A}{I_N}$ | IE class | $\eta$ 4/4 [%] | $\eta$ 3/4 [%] | $\eta$ 1/2 [%] | cosφ | $M_N$ [Nm] | $\frac{M_A}{M_N}$ | $\frac{M_K}{M_N}$ | $J_{mot}$ [kgm$^2$] | m [kg] |

| | | | | | | | | | | | | | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Frequency inverter operation | | | | | Brake | | |
| Type | $P_N$ | at 380 V | | | at 420 V | | | 400 V / 87 Hz | | | 400 V / 100 Hz | | | | |
| | | $I_N$ | $\frac{M_A}{M_N}$ | $\frac{M_K}{M_N}$ | $I_N$ | $\frac{M_A}{M_N}$ | $\frac{M_K}{M_N}$ | $P_N$ | $n_N$ | $I_N$ | $P_N$ | $n_N$ | $I_N$ | $M_B$ | $J_B$ | m |
| | [kW] | [A] | | | [A] | | | [kW] | [min$^{-1}$] | [A] | [kW] | [min$^{-1}$] | [A] | [Nm] | x10$^{-3}$ [kgm$^2$] | [kg] |

1 $P_N$ = Rated power

2 $n_N$ = Rated speed

3 $I_N$ = Rated current

4 $I_A/I_N$ = Ratio of starting current to rated current

5 IE class = Efficiency class

6 $\eta$ 4/4 (3/4, 1/2) = Efficiency at rated power

7 cosφ = Power factor

8 $M_N$ = Rated torque

9 $M_A/M_N$ = Ratio of starting torque to rated torque

10 $M_K/M_N$ = Ratio of sweeping torque to rated torque

11 $J_{mot}$ = Motor moment of inertia

12 m = Weight of the motor

13 $M_B$ = Braking torque

14 $J_B$ = Brake moment of inertia

15 m = Weight of the motor brake

## 4 poles, 1500 min$^{-1}$, 50 Hz

| Series | IEC frame size | Type | $P_N$ [kW] | $n_N$ [min$^{-1}$] | $I_N$ at 115 V [A] | $I_N$ at 200 V [A] | $I_N$ at 230 V [A] | $I_N$ at 400 V [A] | $I_N$ at 690 V [A] | $\frac{I_A}{I_N}$ | IE class | $\eta$ 4/4 [%] | $\eta$ 3/4 [%] | $\eta$ 1/2 [%] | cos$\varphi$ | $M_N$ [Nm] | $\frac{M_A}{M_N}$ | $\frac{M_K}{M_N}$ | $J_{mot}$ [kgm$^2$] | m [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11N | 63 | 11N-63-04E | 0.12 | 1375 | 1.5 | 0.84 | 0.73 | 0.42 | - | 3.5 | IE1 | 57.0 | 54.0 | 45.0 | 0.72 | 0.83 | 2.0 | 2.2 | 0.00034 | 4.2 |
| | | 11N-63-04F | 0.18 | 1360 | 2.1 | 1.2 | 1.1 | 0.61 | - | 3.4 | IE1 | 58.0 | 54.0 | 46.0 | 0.74 | 1.3 | 2.0 | 2.2 | 0.00039 | 5.4 |
| | 71 | 11N-71-04E | 0.25 | 1310 | 2.8 | 1.6 | 1.4 | 0.81 | - | 3.5 | IE1 | 59.0 | 55.0 | 50.0 | 0.76 | 1.8 | 1.9 | 2.1 | 0.00039 | 5.7 |
| | | 11N-71-04F | 0.37 | 1320 | 3.9 | 2.3 | 2.0 | 1.1 | - | 3.7 | IE1 | 62.0 | 60.0 | 55.0 | 0.76 | 2.7 | 2.0 | 2.0 | 0.00056 | 6.4 |
| | 80 | 11N-80-04E | 0.55 | 1410 | 4.9 | 2.8 | 2.5 | 1.4 | - | 4.7 | IE1 | 68.0 | 66.3 | 58.5 | 0.82 | 3.7 | 2.1 | 2.2 | 0.0019 | 7.9 |
| 11P | 80 | 11P-80-04F | 0.75 | 1420 | 5.6 | 3.2 | 2.8 | 1.6 | - | 6.7 | IE3 | 82.5 | 82.0 | 80.0 | 0.81 | 5.1 | 3.0 | 3.3 | 0.0032 | 9.7 |
| | 90 | 11P-90S/L-04E | 1.1 | 1455 | 8.1 | 4.7 | 4.1 | 2.3 | - | 7.6 | IE3 | 84.8 | 84.5 | 83.0 | 0.80 | 7.3 | 2.5 | 3.3 | 0.0055 | 16.2 |
| | | 11P-90S/L-04F | 1.5 | 1450 | 11.0 | 6.3 | 5.5 | 3.2 | - | 7.4 | IE3 | 86.0 | 86.0 | 84.0 | 0.80 | 9.9 | 2.6 | 3.4 | 0.0066 | 19.7 |
| | 100 | 11P-100L-04E | 2.2 | 1435 | 15.9 | 9.1 | 7.9 | 4.6 | - | 7.4 | IE3 | 87.0 | 87.0 | 86.5 | 0.80 | 14.6 | 3.2 | 3.5 | 0.0090 | 30 |
| | | 11P-L100L-04F | 3.0 | 1440 | 21 | 12.3 | 10.7 | 6.2 | - | 7.8 | IE3 | 88.0 | 88.0 | 87.0 | 0.80 | 19.9 | 3.5 | 3.7 | 0.0120 | 39 |
| | 112 | 11P-112M-04E | 4.0 | 1450 | - | 16.0 | - | 8.0 | 4.6 | 7.0 | IE3 | 89.1 | 89.1 | 88.7 | 0.81 | 27 | 2.3 | 3.1 | 0.0182 | 39 |
| | 132 | 11P-132S-04E | 5.5 | 1465 | - | 21 | - | 10.3 | 5.9 | 8.5 | IE3 | 90.7 | 90.7 | 90.0 | 0.85 | 36 | 2.4 | 3.4 | 0.0528 | 59 |
| | | 11P-L132M-04F | 7.5 | 1465 | - | 28 | - | 13.9 | 8.0 | 8.5 | IE3 | 91.5 | 91.5 | 91.0 | 0.85 | 49 | 2.5 | 3.4 | 0.0642 | 68 |
| | | 11P-L132M-04G | 9.2 | 1460 | - | 35 | - | 17.4 | 10.1 | 8.5 | IE3 | 91.0 | 91.0 | 90.1 | 0.84 | 60 | 2.5 | 3.3 | 0.0730 | 77 |
| 22P | 160 | 22P-160M-04E | 11.0 | 1470 | - | 42 | - | 21 | 12.1 | 7.5 | IE3 | 91.6 | 91.8 | 91.1 | 0.83 | 72 | 2.8 | 3.2 | 0.119 | 126 |
| | | 22P-160L-04F | 15.0 | 1465 | - | 56 | - | 28 | 16.1 | 7.2 | IE3 | 92.3 | 92.5 | 92.2 | 0.84 | 98 | 2.8 | 3.1 | 0.153 | 141 |
| | 180 | 22P-180M-04E | 18.5 | 1470 | - | 70 | - | 35 | 20 | 7.4 | IE3 | 92.8 | 92.8 | 92.2 | 0.82 | 121 | 3.0 | 3.2 | 0.174 | 174 |
| | | 22P-180L-04F | 22 | 1470 | - | 82 | - | 41 | 24 | 7.3 | IE3 | 93.2 | 93.0 | 92.3 | 0.83 | 143 | 3.4 | 3.4 | 0.210 | 191 |



*Legend see page 211*

## 4 poles, 1500 min$^{-1}$, 50 Hz

| Type | $P_N$ | at 380 V | | | at 420 V | | | Frequency inverter operation | | | | | | Brake | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 400 V / 87 Hz | | | 400 V / 100 Hz | | | | | |
| | | $I_N$ | $\frac{M_A}{M_N}$ | $\frac{M_K}{M_N}$ | $I_N$ | $\frac{M_A}{M_N}$ | $\frac{M_K}{M_N}$ | $P_N$ | $n_N$ | $I_N$ | $P_N$ | $n_N$ | $I_N$ | $M_B$ | $J_B$ | m |
| | [kW] | [A] | | | [A] | | | [kW] | [min$^{-1}$] | [A] | [kW] | [min$^{-1}$] | [A] | [Nm] | x10$^{-3}$ [kgm$^2$] | [kg] |
| 11N-63-04E | 0.12 | 0.42 | 1.8 | 2.0 | 0.46 | 2.2 | 2.3 | 0.21 | 2393 | 0.77 | 0.24 | 2750 | 0.89 | 2<br>5 | 0.015<br>0.015 | 1.1<br>1.1 |
| 11N-63-04F | 0.18 | 0.60 | 1.8 | 1.9 | 0.66 | 2.2 | 2.3 | 0.31 | 2366 | 1.1 | 0.36 | 2720 | 1.3 | | | |
| 11N-71-04E | 0.25 | 0.85 | 1.7 | 1.8 | 0.90 | 2.0 | 2.0 | 0.44 | 2279 | 1.5 | 0.50 | 2620 | 1.7 | 5<br>2 | 0.015<br>0.015 | 1.1<br>1.1 |
| 11N-71-04F | 0.37 | 1.2 | 1.8 | 1.8 | 1.3 | 2.3 | 2.3 | 0.64 | 2297 | 2.1 | 0.74 | 2640 | 2.4 | | | |
| 11N-80-04E | 0.55 | 1.4 | 1.8 | 2.0 | 1.4 | 2.3 | 2.4 | 0.96 | 2453 | 2.6 | 1.1 | 2820 | 3.0 | 10<br>5 | 0.045<br>0.015 | 1.9<br>1.1 |
| 11P-80-04F | 0.75 | 1.7 | 2.7 | 2.9 | 1.6 | 3.3 | 3.6 | 1.3 | 2471 | 3.0 | 1.5 | 2840 | 3.4 | | | |
| 11P-90S/L-04E | 1.1 | 2.4 | 2.2 | 2.9 | 2.3 | 2.7 | 3.6 | 1.9 | 2532 | 4.3 | 2.2 | 2910 | 4.9 | 20<br>10 | 0.173<br>0.045 | 3.1<br>1.9 |
| 11P-90S/L-04F | 1.5 | 3.2 | 2.3 | 3.0 | 3.2 | 2.8 | 3.7 | 2.6 | 2523 | 5.8 | 3.0 | 2900 | 6.6 | | | |
| 11P-100L-04E | 2.2 | 4.7 | 2.8 | 3.0 | 4.5 | 3.5 | 3.8 | 3.8 | 2497 | 8.3 | 4.4 | 2870 | 9.6 | 40<br>20 | 0.45<br>0.173 | 4.6<br>3.1 |
| 11P-L100L-04F | 3.0 | 6.3 | 3.1 | 3.3 | 6.1 | 3.8 | 4.0 | 5.2 | 2506 | 11.2 | 6.0 | 2880 | 12.9 | | | |
| 11P-112M-04E | 4.0 | 8.0 | 2.0 | 2.7 | 8.0 | 2.6 | 3.4 | - | - | - | 8.0 | 2900 | 16.8 | 60<br>40 | 0.86<br>0.45 | 6.3<br>4.6 |
| 11P-132S-04E | 5.5 | 10.6 | 2.1 | 3.0 | 10.2 | 2.6 | 3.7 | - | - | - | 11.0 | 2930 | 22 | 100<br>60 | 1.22<br>0.86 | 10.0<br>6.3 |
| 11P-L132M-04F | 7.5 | 14.4 | 2.2 | 3.0 | 13.5 | 2.8 | 3.7 | - | - | - | 15.0 | 2930 | 29 | | | |
| 11P-L132M-04G | 9.2 | 18.3 | 2.2 | 2.9 | 17.5 | 2.7 | 3.6 | - | - | - | 18.4 | 2920 | 36 | | | |
| 22P-160M-04E | 11.0 | 22 | 2.3 | 2.8 | 21 | 2.9 | 3.6 | - | - | - | 22 | 2940 | 44 | 150<br>100 | 2.85<br>6.65 | 14.7<br>10.0 |
| 22P-160L-04F | 15.0 | 29 | 2.2 | 2.6 | 28 | 2.8 | 3.4 | - | - | - | 30 | 2930 | 59 | | | |
| 22P-180M-04E | 18.5 | 36 | 2.5 | 2.8 | 35 | 3.2 | 3.5 | - | - | - | 37 | 2940 | 74 | 250<br>150 | 6.65<br>2.85 | 21.5<br>14.7 |
| 22P-180L-04F | 22 | 43 | 3.7 | 2.9 | 41 | 3.4 | 3.7 | - | - | - | 44 | 2940 | 86 | | | |

*Legend see page 211*

## 4 poles, 1800 min$^{-1}$, 60 Hz

| Series | IEC frame size | Type | $P_N$ [kW] | $n_N$ [min$^{-1}$] | $I_N$ at 132 V [A] | $I_N$ at 230 V [A] | $I_N$ at 400 V [A] | $I_N$ at 265 V [A] | $I_N$ at 460 V [A] | $\frac{I_A}{I_N}$ | IE class | $\eta$ 4/4 [%] | $\eta$ 3/4 [%] | $\eta$ 1/2 [%] | cos$\varphi$ | $M_N$ [Nm] | $\frac{M_A}{M_N}$ | $\frac{M_K}{M_N}$ | $J_{mot}$ [kgm$^2$] | m [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11N | 63 | 11N-63-04E | 0.12 | 1695 | 1.4 | 0.79 | 0.46 | 0.68 | 0.40 | 3.6 | IE1 | 58.6 | 54.2 | 45.8 | 0.65 | 0.68 | 2.5 | 2.7 | 0.00034 | 4.2 |
| | | 11N-63-04F | 0.18 | 1690 | 2.0 | 1.1 | 0.66 | 0.99 | 0.57 | 3.6 | IE1 | 59.8 | 55.7 | 47.5 | 0.66 | 1.0 | 2.6 | 2.7 | 0.00039 | 5.4 |
| | 71 | 11N-71-04E | 0.25 | 1650 | 2.9 | 1.7 | 0.95 | 1.4 | 0.83 | 3.7 | IE1 | 55.8 | 53.6 | 47.3 | 0.68 | 1.5 | 2.1 | 2.2 | 0.00039 | 5.7 |
| | | 11N-71-04F | 0.37 | 1665 | 3.8 | 2.2 | 1.3 | 1.9 | 1.1 | 3.9 | IE1 | 64.4 | 61.8 | 55.6 | 0.66 | 2.1 | 2.7 | 2.7 | 0.00056 | 6.4 |
| | 80 | 11N-80-04E | 0.55 | 1720 | 4.6 | 2.6 | 1.5 | 2.3 | 1.3 | 5.0 | IE1 | 68.9 | 66.2 | 60.7 | 0.76 | 3.1 | 2.5 | 2.8 | 0.0019 | 7.9 |
| 11P | 80 | 11P-80-04F | 0.75 | 1720 | 5.0 | 2.9 | 1.7 | 2.5 | 1.4 | 7.4 | IE3 | 84.0 | 80.0 | 78.5 | 0.79 | 4.2 | 3.7 | 4.2 | 0.0032 | 9.7 |
| | 90 | 11P-90S/L-04E | 1.1 | 1760 | 7.1 | 4.1 | 2.4 | 3.6 | 2.1 | 8.5 | IE3 | 86.5 | 84.0 | 80.0 | 0.78 | 6.0 | 2.9 | 3.9 | 0.0055 | 16.2 |
| | | 11P-90S/L-04F | 1.5 | 1755 | 9.7 | 5.6 | 3.2 | 4.8 | 2.8 | 8.3 | IE3 | 86.5 | 85.5 | 82.5 | 0.78 | 8.2 | 3.0 | 4.0 | 0.0066 | 19.7 |
| | 100 | 11P-100L-04E | 2.2 | 1745 | 13.7 | 7.9 | 4.6 | 6.9 | 4.0 | 8.3 | IE3 | 89.5 | 87.5 | 85.0 | 0.78 | 12.1 | 4.1 | 4.4 | 0.0090 | 30 |
| | | 11P-L100L-04F | 3.0 | 1740 | 18.5 | 10.7 | 6.2 | 9.2 | 5.3 | 8.6 | IE3 | 89.5 | 86.5 | 84.0 | 0.79 | 16.5 | 4.6 | 4.8 | 0.0120 | 39 |
| | 112 | 11P-112M-04E | 4.0 | 1755 | - | 14.2 | 8.2 | - | 7.1 | 8.0 | IE3 | 89.5 | 89.5 | 87.5 | 0.79 | 22 | 2.5 | 3.5 | 0.0182 | 39 |
| | 132 | 11P-132S-04E | 5.5 | 1765 | - | 18.1 | 10.5 | - | 9.1 | 8.9 | IE3 | 91.7 | 91.0 | 88.5 | 0.83 | 30 | 2.6 | 4.3 | 0.0528 | 59 |
| | | 11P-L132M-04F | 7.5 | 1770 | - | 24 | 14.1 | - | 12.2 | 9.0 | IE3 | 91.7 | 91.0 | 90.2 | 0.84 | 41 | 2.7 | 4.3 | 0.0642 | 68 |
| | | 11P-L132M-04G | 9.2 | 1765 | - | 31 | 17.7 | - | 15.4 | 9.0 | IE3 | 91.7 | 91.5 | 90.4 | 0.82 | 49 | 2.6 | 3.8 | 0.0730 | 77 |
| 22P | 160 | 22P-160M-04E | 11.0 | 1775 | - | 37 | 21 | - | 18.4 | 8.2 | IE3 | 92.4 | 92.2 | 91.0 | 0.81 | 59 | 3.0 | 3.7 | 0.1190 | 126 |
| | | 22P-160L-04F | 15.0 | 1775 | - | 49 | 28 | - | 25 | 7.6 | IE3 | 93.0 | 92.9 | 92.0 | 0.82 | 81 | 2.9 | 3.5 | 0.1530 | 141 |
| | 180 | 22P-180M-04E | 18.5 | 1775 | - | 61 | 35 | - | 31 | 7.7 | IE3 | 93.6 | 93.0 | 92.0 | 0.81 | 100 | 3.1 | 3.6 | 0.1740 | 174 |
| | | 22P-180L-04F | 22 | 1775 | - | 72 | 41 | - | 36 | 8.5 | IE3 | 93.6 | 93.2 | 92.1 | 0.82 | 119 | 3.5 | 3.8 | 0.2100 | 191 |

M

*Legend see page 211*

## 4 poles, 1800 min$^{-1}$, 60 Hz

| Type | $P_N$ | at 380 V | | | at 420 V | | | at 440 V | | | at 480 V | | | Frequency inverter operation | | | | | | Brake | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | 460 V / 105 Hz | | | 460 V / 120 Hz | | | $M_B$ | $J_B$ | m |
| | [kW] | $I_N$ [A] | $\frac{M_A}{M_N}$ | $\frac{M_K}{M_N}$ | $I_N$ [A] | $\frac{M_A}{M_N}$ | $\frac{M_K}{M_N}$ | $I_N$ [A] | $\frac{M_A}{M_N}$ | $\frac{M_K}{M_N}$ | $I_N$ [A] | $\frac{M_A}{M_N}$ | $\frac{M_K}{M_N}$ | $P_N$ [kW] | $n_N$ [min$^{-1}$] | $I_N$ [A] | $P_N$ [kW] | $n_N$ [min$^{-1}$] | $I_N$ [A] | [Nm] | x10$^{-3}$ [kgm$^2$] | [kg] |
| 11N-63-04E | 0.12 | 0.46 | 2.3 | 2.5 | 0.49 | 2.8 | 2.8 | 0.39 | 2.3 | 2.5 | 0.42 | 2.7 | 3.0 | 0.21 | 2966 | 0.72 | 0.24 | 3390 | 0.83 | 2<br>5 | 0.015<br>0.015 | 1.1<br>1.1 |
| 11N-63-04F | 0.18 | 0.65 | 2.3 | 2.3 | 0.72 | 2.9 | 2.8 | 0.56 | 2.3 | 2.3 | 0.61 | 2.8 | 3.0 | 0.32 | 2958 | 1.0 | 0.36 | 3380 | 1.2 | | | |
| 11N-71-04E | 0.25 | 1.0 | 1.9 | 1.9 | 1.1 | 2.2 | 2.1 | 0.87 | 1.9 | 1.9 | 0.89 | 2.2 | 2.4 | 0.44 | 2888 | 1.5 | 0.50 | 3300 | 1.7 | 5<br>2 | 0.015<br>0.015 | 1.1<br>1.1 |
| 11N-71-04F | 0.37 | 1.3 | 2.4 | 2.4 | 1.4 | 3.1 | 3.1 | 1.1 | 2.4 | 2.4 | 1.2 | 2.9 | 2.9 | 0.65 | 2914 | 2.0 | 0.74 | 3330 | 2.3 | | | |
| 11N-80-04E | 0.55 | 1.5 | 2.1 | 2.5 | 1.5 | 2.7 | 3.1 | 1.3 | 2.1 | 2.5 | 1.4 | 2.7 | 3.1 | 0.96 | 3010 | 2.4 | 1.1 | 3440 | 2.8 | 10<br>5 | 0.045<br>0.015 | 1.9<br>1.1 |
| 11P-80-04F | 0.75 | 1.7 | 3.3 | 3.7 | 1.6 | 4.1 | 4.6 | 1.5 | 3.3 | 3.7 | 1.4 | 4.0 | 4.6 | 1.3 | 3010 | 2.6 | 1.5 | 3440 | 3.0 | | | |
| 11P-90S/L-04E | 1.1 | 2.4 | 2.6 | 3.4 | 2.4 | 3.1 | 4.3 | 2.1 | 2.6 | 3.4 | 2.1 | 3.2 | 4.4 | 1.9 | 3080 | 3.7 | 2.2 | 3520 | 4.3 | 20<br>10 | 0.173<br>0.045 | 3.1<br>1.9 |
| 11P-90S/L-04F | 1.5 | 3.3 | 2.7 | 3.5 | 3.2 | 3.2 | 4.4 | 2.8 | 2.7 | 3.5 | 2.8 | 3.4 | 4.5 | 2.6 | 3071 | 5.1 | 3.0 | 3510 | 5.9 | | | |
| 11P-100L-04E | 2.2 | 4.7 | 3.6 | 3.8 | 4.5 | 4.5 | 4.8 | 4.0 | 3.7 | 4.0 | 3.9 | 4.0 | 4.5 | 3.9 | 3054 | 7.2 | 4.4 | 3490 | 8.3 | 40<br>20 | 0.45<br>0.173 | 4.6<br>3.1 |
| 11P-L100L-04F | 3.0 | 6.3 | 4.1 | 4.3 | 6.1 | 5.0 | 5.2 | 5.4 | 4.2 | 4.4 | 5.3 | 4.5 | 4.8 | 5.3 | 3045 | 9.7 | 6.0 | 3480 | 11.2 | | | |
| 11P-112M-04E | 4.0 | 8.2 | 2.2 | 3.0 | 8.2 | 2.8 | 3.8 | 7.1 | 2.2 | 3.0 | 6.9 | 2.9 | 3.9 | - | - | - | 8.0 | 3510 | 14.9 | 60<br>40 | 0.86<br>0.45 | 6.3<br>4.6 |
| 11P-132S-04E | 5.5 | 10.8 | 2.3 | 3.8 | 10.4 | 2.8 | 4.7 | 9.3 | 2.3 | 3.8 | 9.0 | 2.9 | 4.4 | - | - | - | 11.0 | 3530 | 19.0 | 100<br>60 | 1.22<br>0.86 | 10.0<br>6.3 |
| 11P-L132M-04F | 7.5 | 14.6 | 2.4 | 3.8 | 13.7 | 3.0 | 4.7 | 12.6 | 2.4 | 3.8 | 11.9 | 3.1 | 4.3 | - | - | - | 15.0 | 3540 | 26 | | | |
| 11P-L132M-04G | 9.2 | 17.8 | 1.7 | 2.5 | 16.3 | 2.1 | 3.1 | 15.8 | 2.3 | 3.3 | 15.4 | 2.8 | 4.2 | - | - | - | 18.4 | 3530 | 32 | | | |
| 22P-160M-04E | 11.0 | 22 | 2.5 | 3.2 | 21 | 3.1 | 4.2 | 19.0 | 2.5 | 3.2 | 18.1 | 3.3 | 4.0 | - | - | - | 22 | 3550 | 39 | 150<br>100 | 2.85<br>6.65 | 14.7<br>10.0 |
| 22P-160L-04F | 15.0 | 30 | 2.3 | 2.9 | 28 | 2.9 | 3.8 | 26 | 2.3 | 2.9 | 25 | 3.2 | 3.9 | - | - | - | 30 | 3550 | 52 | | | |
| 22P-180M-04E | 18.5 | 36 | 2.6 | 3.2 | 35 | 3.3 | 3.9 | 31 | 2.6 | 3.2 | 31 | 4.0 | 4.1 | - | - | - | 37 | 3550 | 64 | 250<br>150 | 6.65<br>2.85 | 21.5<br>14.7 |
| 22P-180L-04F | 22 | 43 | 2.8 | 3.2 | 42 | 3.5 | 4.1 | 37 | 2.8 | 3.2 | 36 | 4.2 | 4.4 | - | - | - | 44 | 3550 | 76 | | | |

*Legend see page 211*

## 6 poles, 1000 min$^{-1}$, 50 Hz

| Series | IEC frame size | Type | $P_N$ [kW] | $n_N$ [min$^{-1}$] | $I_N$ at 115 V [A] | $I_N$ at 200 V [A] | $I_N$ at 230 V [A] | $I_N$ at 400 V [A] | $I_N$ at 690 V [A] | $\frac{I_A}{I_N}$ | IE class | $\eta$ 4/4 [%] | $\eta$ 3/4 [%] | $\eta$ 1/2 [%] | cos$\varphi$ | $M_N$ [Nm] | $\frac{M_A}{M_N}$ | $\frac{M_K}{M_N}$ | $J_{mot}$ [kgm$^2$] | m [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11N | 63 | 11N-63-06F | 0.12 | 855 | 1.9 | 1.1 | 0.93 | 0.54 | - | 2.6 | IE1 | 45.5 | 46.7 | 40.7 | 0.71 | 1.3 | 1.7 | 1.6 | 0.00051 | 4.9 |
| | 71 | 11N-71-06E | 0.18 | 905 | 2.6 | 1.5 | 1.3 | 0.74 | - | 3.3 | IE1 | 57.0 | 54.0 | 46.0 | 0.62 | 1.9 | 2.0 | 2.2 | 0.00077 | 7.4 |
| | | 11N-71-06F | 0.25 | 900 | 3.4 | 2.0 | 1.7 | 0.99 | - | 3.5 | IE1 | 64.0 | 60.5 | 53.0 | 0.57 | 2.7 | 2.2 | 2.2 | 0.00093 | 8.6 |
| | 80 | 11N-80-06E | 0.37 | 905 | 3.9 | 2.3 | 2.0 | 1.1 | - | 3.6 | IE1 | 63.0 | 60.0 | 55.0 | 0.75 | 3.9 | 1.7 | 1.7 | 0.00190 | 8.2 |
| | | 11N-80-06F | 0.55 | 930 | 5.2 | 3.0 | 2.6 | 1.5 | - | 4.0 | IE1 | 65.0 | 63.0 | 57.0 | 0.76 | 5.7 | 1.8 | 1.8 | 0.00304 | 8.4 |
| 11P | 90 | 11P-90S/L-06E | 0.75 | 940 | 6.7 | 3.9 | 3.4 | 1.9 | - | 5.2 | IE3 | 79.0 | 79.0 | 76.5 | 0.71 | 7.8 | 2.5 | 2.8 | 0.00658 | 18.7 |
| | 100 | 11P-100L-06D | 1.1 | 945 | 9.4 | 5.4 | 4.7 | 2.7 | - | 4.9 | IE3 | 81.0 | 81.0 | 80.5 | 0.73 | 11.4 | 2.0 | 2.4 | 0.01097 | 27 |
| | | 11P-100L-06E | 1.5 | 950 | 12.9 | 7.4 | 6.4 | 3.7 | - | 5.5 | IE3 | 82.5 | 82.5 | 81.5 | 0.71 | 15.2 | 2.3 | 2.8 | 0.01426 | 31 |
| | 112 | 11P-112M-06E | 2.2 | 950 | - | 10.4 | - | 5.2 | 3.0 | 6.0 | IE3 | 84.5 | 84.5 | 83.0 | 0.72 | 22 | 2.5 | 2.6 | 0.02567 | 37 |
| | 132 | 11P-132S-06E | 3.0 | 970 | - | 13.5 | - | 6.7 | 3.9 | 6.0 | IE3 | 88.0 | 88.0 | 86.5 | 0.73 | 30 | 1.9 | 2.5 | 0.05661 | 51 |
| | | 11P-132M-06F | 4.0 | 960 | - | 18.0 | - | 9.0 | 5.2 | 6.5 | IE3 | 86.8 | 86.8 | 86.0 | 0.74 | 40 | 2.2 | 2.5 | 0.05661 | 64 |
| | | 11P-L132M-06G | 5.5 | 965 | - | 25 | - | 12.5 | 7.2 | 7.0 | IE3 | 88.0 | 87.0 | 86.0 | 0.72 | 55 | 2.5 | 2.8 | 0.07550 | 70 |

M

*Legend see page 211*

## 6 poles, 1000 min$^{-1}$, 50 Hz

| Type | $P_N$ | at 380 V | | | at 420 V | | | Frequency inverter operation | | | | | | Brake | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 400 V / 87 Hz | | | 400 V / 100 Hz | | | | | |
| | | $I_N$ | $\frac{M_A}{M_N}$ | $\frac{M_K}{M_N}$ | $I_N$ | $\frac{M_A}{M_N}$ | $\frac{M_K}{M_N}$ | $P_N$ | $n_N$ | $I_N$ | $P_N$ | $n_N$ | $I_N$ | $M_B$ | $J_B$ | m |
| | [kW] | [A] | | | [A] | | | [kW] | [min$^{-1}$] | [A] | [kW] | [min$^{-1}$] | [A] | [Nm] | x10$^{-3}$ [kgm$^2$] | [kg] |
| 11N-63-06F | 0.12 | 0.50 | 1.5 | 1.4 | 0.58 | 1.8 | 1.8 | 0.21 | 1488 | 0.98 | 0.24 | 1710 | 1.1 | 2<br>5 | 0.015<br>0.015 | 1.1<br>1.1 |
| 11N-71-06E | 0.18 | 0.73 | 1.8 | 2.0 | 0.75 | 2.2 | 2.4 | 0.31 | 1575 | 1.3 | 0.36 | 1810 | 1.5 | 5<br>2 | 0.015<br>0.015 | 1.1<br>1.1 |
| 11N-71-06F | 0.25 | 0.95 | 2.0 | 2.0 | 1.0 | 2.4 | 2.4 | 0.44 | 1566 | 1.8 | 0.50 | 1800 | 2.1 | | | |
| 11N-80-06E | 0.37 | 1.1 | 1.5 | 1.5 | 1.2 | 1.9 | 1.8 | 0.64 | 1575 | 2.1 | 0.74 | 1810 | 2.4 | 10<br>5 | 0.045<br>0.015 | 1.9<br>1.1 |
| 11N-80-06F | 0.55 | 1.6 | 1.5 | 2.0 | 1.7 | 2.0 | 2.0 | 0.96 | 1618 | 2.7 | 1.1 | 1860 | 3.1 | | | |
| 11P-90S/L-06E | 0.75 | 2.0 | 2.1 | 2.4 | 1.9 | 2.8 | 3.0 | 1.3 | 1636 | 3.5 | 1.5 | 1880 | 4.1 | 20<br>10 | 0.173<br>0.045 | 3.1<br>1.9 |
| 11P-100L-06D | 1.1 | 2.8 | 1.7 | 2.1 | 2.7 | 2.2 | 2.6 | 1.9 | 1644 | 4.9 | 2.2 | 1890 | 5.7 | 40<br>20 | 0.45<br>0.173 | 4.6<br>3.1 |
| 11P-100L-06E | 1.5 | 3.7 | 2.0 | 2.4 | 3.7 | 2.5 | 3.0 | 2.6 | 1653 | 6.8 | 3.0 | 1900 | 7.8 | | | |
| 11P-112M-06E | 2.2 | 5.3 | 2.1 | 2.2 | 5.2 | 2.8 | 2.9 | - | - | - | 4.4 | 1900 | 11.0 | 60<br>40 | 0.86<br>0.45 | 6.3<br>4.6 |
| 11P-132S-06E | 3.0 | 6.8 | 1.7 | 2.2 | 6.7 | 2.3 | 2.8 | - | - | - | 6.0 | 1940 | 14.2 | 100<br>60 | 1.22<br>0.86 | 10.0<br>6.3 |
| 11P-132M-06F | 4.0 | 9.2 | 1.9 | 2.1 | 9.0 | 2.4 | 2.8 | - | - | - | 8.0 | 1920 | 18.9 | | | |
| 11P-L132M-06G | 5.5 | 12.7 | 2.2 | 2.4 | 12.6 | 2.8 | 3.2 | - | - | - | 11.0 | 1930 | 26 | | | |

*Legend see page 211*

## 6 poles, 1200 min$^{-1}$, 60 Hz

| Series | IEC frame size | Type | $P_N$ [kW] | $n_N$ [min$^{-1}$] | $I_N$ at 132 V [A] | $I_N$ at 230 V [A] | $I_N$ at 400 V [A] | $I_N$ at 265 V [A] | $I_N$ at 460 V [A] | $\frac{I_A}{I_N}$ | IE class | $\eta$ 4/4 [%] | $\eta$ 3/4 [%] | $\eta$ 1/2 [%] | cos$\varphi$ | $M_N$ [Nm] | $\frac{M_A}{M_N}$ | $\frac{M_K}{M_N}$ | $J_{mot}$ [kgm$^2$] | m [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11N | 63 | 11N-63-06F | 0.12 | 1070 | 1.6 | 0.94 | 0.55 | 0.82 | 0.47 | 2.9 | IE1 | 50.7 | 50.1 | 44.3 | 0.63 | 1.1 | 2.0 | 2.0 | 0.00051 | 4.9 |
| | 71 | 11N-71-06E | 0.18 | 1115 | 2.4 | 1.4 | 0.79 | 1.2 | 0.69 | 3.6 | IE1 | 55.8 | 51.8 | 45.4 | 0.59 | 1.5 | 2.4 | 2.6 | 0.00077 | 7.4 |
| | | 11N-71-06F | 0.25 | 1110 | 3.2 | 1.9 | 1.1 | 1.6 | 0.94 | 3.7 | IE1 | 63.2 | 59.3 | 52.1 | 0.53 | 2.1 | 2.6 | 2.6 | 0.00093 | 8.6 |
| | 80 | 11N-80-06E | 0.37 | 1115 | 3.7 | 2.1 | 1.2 | 1.9 | 1.1 | 3.7 | IE1 | 63.1 | 59.9 | 53.1 | 0.69 | 3.2 | 2.2 | 2.2 | 0.00190 | 8.2 |
| | | 11N-80-06F | 0.55 | 1140 | 5.3 | 3.0 | 1.8 | 2.6 | 1.5 | 4.3 | IE1 | 65.0 | 62.4 | 56.2 | 0.70 | 4.6 | 2.0 | 2.0 | 0.00304 | 8.4 |
| 11P | 90 | 11P-90S/L-06E | 0.75 | 1145 | 5.8 | 3.4 | 1.9 | 2.9 | 1.7 | 6.2 | IE3 | 82.5 | 80.0 | 77.0 | 0.69 | 6.3 | 2.9 | 3.4 | 0.00658 | 18.7 |
| | 100 | 11P-100L-06D | 1.1 | 1150 | 8.1 | 4.7 | 2.7 | 4.1 | 2.3 | 5.7 | IE1 | 84.0 | 83.0 | 82.5 | 0.70 | 9.1 | 2.1 | 2.8 | 0.01097 | 27 |
| | | 11P-100L-06E | 1.5 | 1155 | 10.9 | 6.3 | 3.6 | 5.4 | 3.1 | 6.3 | IE2 | 86.5 | 85.5 | 82.5 | 0.69 | 12.4 | 2.5 | 3.2 | 0.01426 | 31 |
| | 112 | 11P-112M-06E | 2.2 | 1165 | - | 8.9 | 5.1 | - | 4.4 | 6.9 | IE2 | 87.5 | 85.5 | 82.5 | 0.71 | 18.2 | 2.7 | 3.4 | 0.02567 | 37 |
| | 132 | 11P-132S-06E | 3.0 | 1170 | - | 12.0 | 6.9 | - | 6.0 | 6.3 | IE3 | 89.5 | 88.5 | 85.5 | 0.70 | 25 | 1.8 | 2.9 | 0.05661 | 51 |
| | | 11P-132M-06F | 4.0 | 1165 | - | 15.8 | 9.1 | - | 7.9 | 6.6 | IE3 | 89.5 | 88.5 | 85.5 | 0.71 | 33 | 1.9 | 3.0 | 0.05661 | 64 |
| | | 11P-L132M-06G | 5.5 | 1170 | - | 22 | 12.5 | - | 10.8 | 7.4 | IE3 | 91.0 | 88.5 | 85.5 | 0.70 | 45 | 2.4 | 3.5 | 0.07550 | 70 |

M

*Legend see page 211*

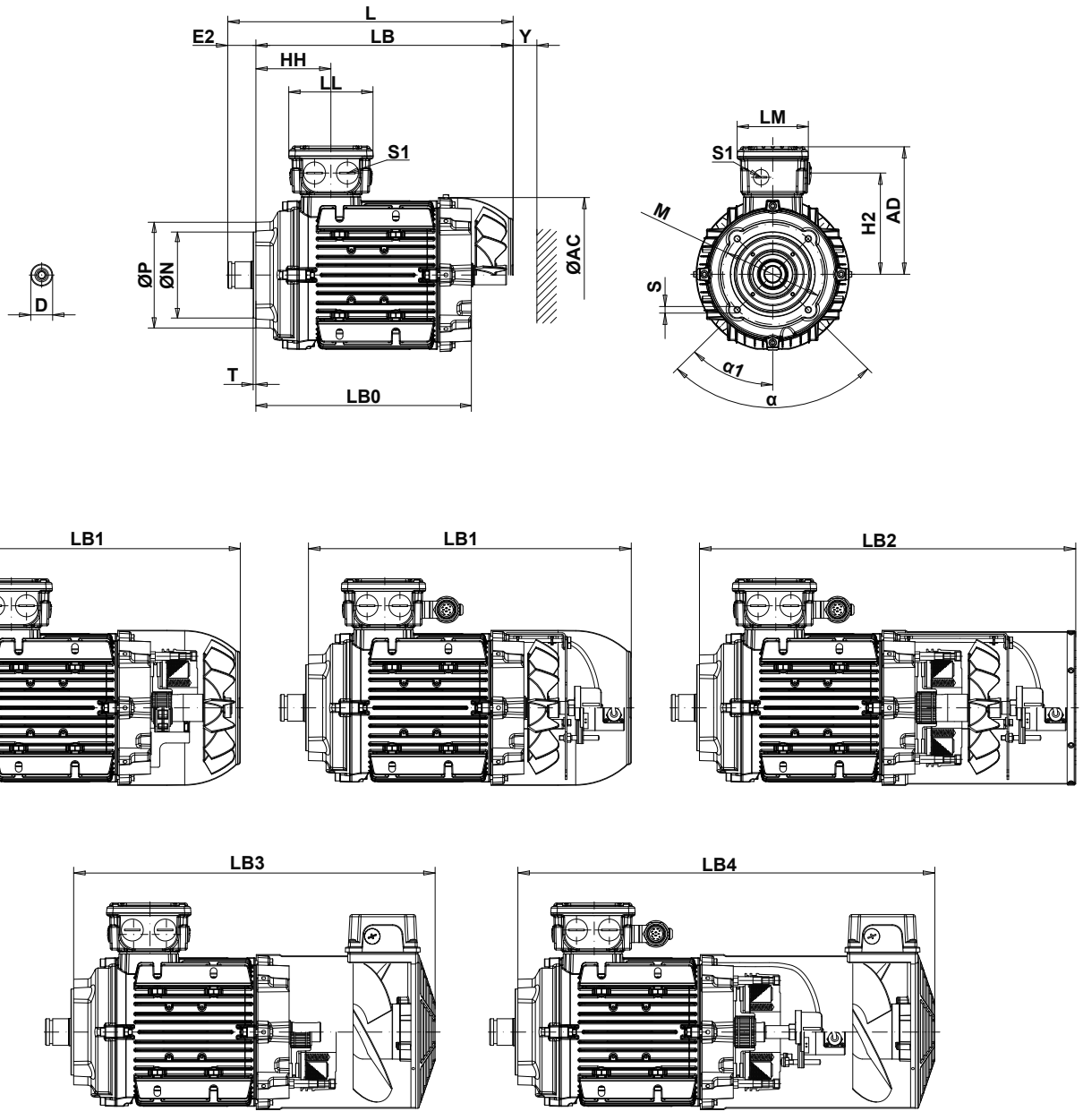
## 6 poles, 1200 min$^{-1}$, 60 Hz

| Type | $P_N$ | at 380 V | | | at 420 V | | | at 440 V | | | at 480 V | | | Frequency inverter operation | | | | | | Brake | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | 460 V / 105 Hz | | | 460 V / 120 Hz | | | $M_B$ | $J_B$ | m |
| | [kW] | $I_N$ [A] | $\frac{M_A}{M_N}$ | $\frac{M_K}{M_N}$ | $I_N$ [A] | $\frac{M_A}{M_N}$ | $\frac{M_K}{M_N}$ | $I_N$ [A] | $\frac{M_A}{M_N}$ | $\frac{M_K}{M_N}$ | $I_N$ [A] | $\frac{M_A}{M_N}$ | $\frac{M_K}{M_N}$ | $P_N$ [kW] | $n_N$ [min$^{-1}$] | $I_N$ [A] | $P_N$ [kW] | $n_N$ [min$^{-1}$] | $I_N$ [A] | [Nm] | x10$^{-3}$ [kgm$^2$] | [kg] |
| 11N-63-06F | 0.12 | 0.50 | 1.8 | 1.8 | 0.6 | 2.1 | 2.3 | 0.44 | 1.8 | 1.8 | 0.51 | 2.3 | 2.3 | 0.21 | 1873 | 0.86 | 0.24 | 2140 | 0.99 | 2<br>5 | 0.015<br>0.015 | 1.1<br>1.1 |
| 11N-71-06E | 0.18 | 0.80 | 2.2 | 2.4 | 0.8 | 2.6 | 2.8 | 0.68 | 2.2 | 2.4 | 0.72 | 2.6 | 2.8 | 0.32 | 1951 | 1.3 | 0.36 | 2230 | 1.4 | 5<br>2 | 0.015<br>0.015 | 1.1<br>1.1 |
| 11N-71-06F | 0.25 | 1.0 | 2.4 | 2.4 | 1.1 | 2.8 | 2.8 | 0.90 | 2.4 | 2.4 | 1.0 | 2.8 | 2.8 | 0.44 | 1943 | 1.7 | 0.50 | 2220 | 2.0 | | | |
| 11N-80-06E | 0.37 | 1.2 | 1.9 | 1.9 | 1.3 | 2.5 | 2.3 | 1.0 | 1.9 | 1.9 | 1.1 | 2.4 | 2.4 | 0.65 | 1951 | 2.0 | 0.74 | 2230 | 2.3 | 10<br>5 | 0.045<br>0.015 | 1.9<br>1.1 |
| 11N-80-06F | 0.55 | 1.9 | 1.7 | 2.2 | 2.0 | 2.2 | 2.2 | 1.6 | 1.7 | 2.2 | 1.6 | 2.3 | 2.3 | 0.96 | 1995 | 2.8 | 1.1 | 2280 | 3.2 | | | |
| 11P-90S/L-06E | 0.75 | 2.0 | 2.4 | 2.9 | 1.9 | 3.2 | 3.6 | 1.7 | 2.4 | 2.9 | 1.7 | 3.2 | 3.8 | 1.3 | 2004 | 3.1 | 1.5 | 2290 | 3.5 | 20<br>10 | 0.173<br>0.045 | 3.1<br>1.9 |
| 11P-100L-06D | 1.1 | 2.8 | 1.8 | 2.5 | 2.7 | 2.3 | 3.0 | 2.4 | 1.8 | 2.5 | 2.4 | 2.5 | 3.1 | 1.9 | 2013 | 4.3 | 2.2 | 2300 | 4.4 | 40<br>20 | 0.45<br>0.173 | 4.6<br>3.1 |
| 11P-100L-06E | 1.5 | 3.7 | 2.2 | 2.7 | 3.6 | 2.7 | 3.4 | 3.2 | 2.2 | 2.7 | 3.3 | 2.8 | 3.6 | 2.6 | 2021 | 5.7 | 3.0 | 2310 | 6.0 | | | |
| 11P-112M-06E | 2.2 | 5.2 | 2.3 | 2.9 | 5.1 | 3.0 | 3.8 | 4.5 | 2.3 | 2.9 | 4.6 | 3.1 | 3.5 | - | - | - | 4.4 | 2330 | 9.3 | 60<br>40 | 0.86<br>0.45 | 6.3<br>4.6 |
| 11P-132S-06E | 3.0 | 7.0 | 1.6 | 2.6 | 6.9 | 2.2 | 3.2 | 6.1 | 1.6 | 2.6 | 6.0 | 2.3 | 3.1 | - | - | - | 6.0 | 2340 | 12.6 | | | |
| 11P-132M-06F | 4.0 | 9.3 | 1.6 | 2.5 | 9.2 | 2.1 | 3.4 | 8.1 | 1.6 | 2.5 | 7.9 | 2.5 | 3.1 | - | - | - | 8.0 | 2330 | 16.6 | 100<br>60 | 1.22<br>0.86 | 10.0<br>6.3 |
| 11P-L132M-06G | 5.5 | 12.7 | 2.1 | 3.0 | 12.6 | 2.7 | 4.0 | 10.9 | 2.1 | 3.0 | 11.3 | 3.0 | 3.7 | - | - | - | 11.0 | 2340 | 23 | | | |

*Legend see page 211*

# Dimension sheets

## Integral motor frame sizes 63 - 132




Description of the dimensions L, LB, LB0,... see page 224

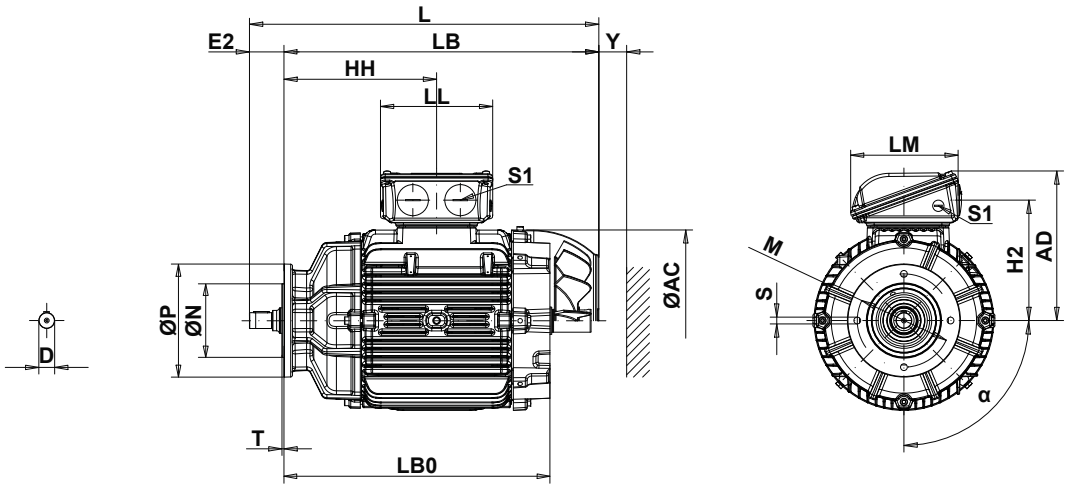
| Tolerances | | |
|---|---|---|
| Dimension name | ISO tolerance DIN EN ISO 286-2 | |
| D | ≤ Ø 30 mm | j6 |
| | > Ø 30 mm to Ø 50 mm | k6 |
| | > Ø 50 mm | m6 |
| N | ≤ Ø 250 mm | j6 |
| | > Ø 250 mm | h6 |

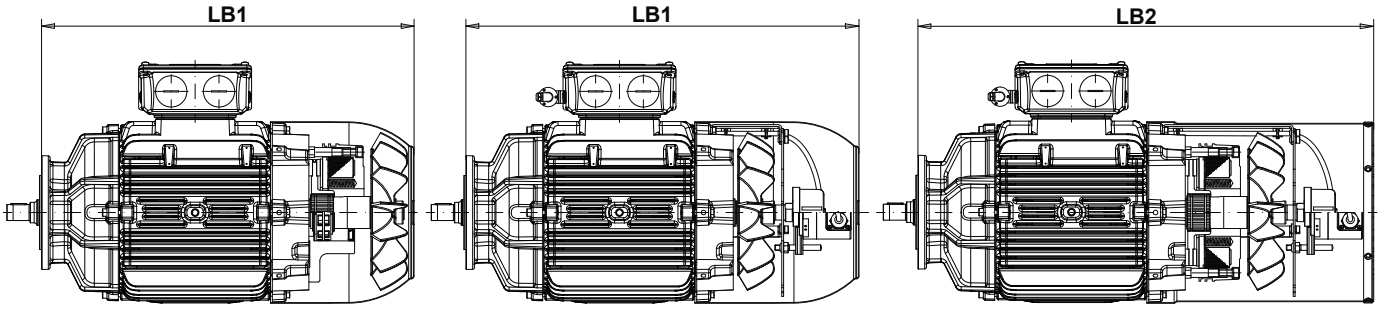
| Dimension tolerances | | |
|---|---|---|
| Dimension name | Dimensions | Permissible deviation |
| M | up to 200 mm | ± 0.25 mm |
| | more than 200 up to 500 mm | ± 0.5 mm |
| | ore than 500 mm | ± 1.0 mm |

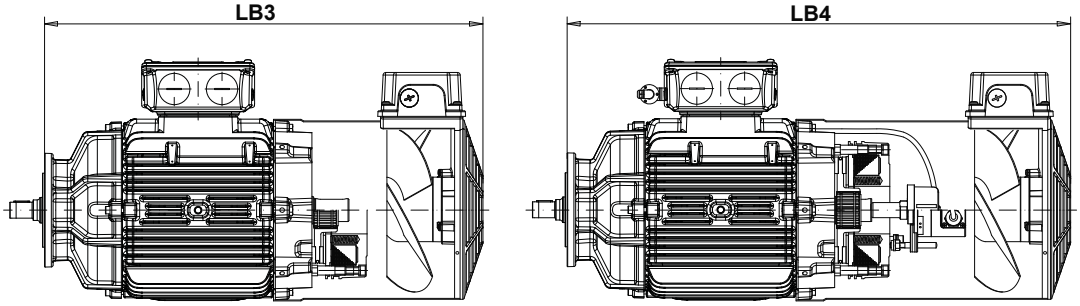
*Dimensions in mm. Motor dimensions are typical values. Subject to change.*

| IEC frame size | 63 | 71 | 80 | 90 | 100 | L100 | 112 | 132 | L132 |
|---|---|---|---|---|---|---|---|---|---|
| AC | 126 | 141 | 159 | 178 | 199 | 199 | 221 | 261 | 261 |
| AD | 128 | 136 | 145 | 155 | 165 | 165 | 185 | 205 | 205 |
| D | 16 | 19 | 24 | 24 | 34 | 34 | 34 | 42 | 42 |
| E2 | 26 | 26 | 26 | 26 | 26 | 26 | 36 | 36 | 36 |
| HH | 90 | 99 | 95 | 96 | 109 | 109 | 130 | 123 | 123 |
| H2 | 89 | 97 | 106 | 116 | 126 | 126 | 141 | 161 | 161 |
| LL | 108 | 108 | 108 | 108 | 108 | 108 | 137 | 137 | 137 |
| LM | 92 | 92 | 92 | 92 | 92 | 92 | 117 | 117 | 117 |
| M | 130 | 130 | 130 | 130 | 165 | 165 | 165 | 215 | 215 |
| N | 110 | 110 | 110 | 110 | 130 | 130 | 130 | 180 | 180 |
| P | 160 | 160 | 160 | 160 | 200 | 200 | 200 | 250 | 250 |
| S | 10 | 10 | 10 | 10 | 12 | 12 | 12 | 15 | 15 |
| S1 | 2 x M25 x 1.5 + 2 x M16 x 1.5 | | | | | | 2 x M32 x 1.5 + 2 x M16 x 1.5 | | |
| T | 3 | 3 | 3 | 3 | 3 | 3 | 3.5 | 3.5 | 3.5 |
| Y | 25 | 26 | 30 | 33 | 36 | 36 | 41 | 50 | 50 |
| $\alpha$ | 4 x 90° | 4 x 90° | 4 x 90° | 4 x 90° | 4 x 90° | 4 x 90° | 4 x 90° | 4 x 90° | 4 x 90° |
| $\alpha_1$ | 45° | 45° | 45° | 45° | 45° | 45° | 45° | 45° | 45° |
| L | 230 | 264 | 272 | 314 | 364 | 402 | 384 | 449 | 487 |
| LB | 204 | 238 | 246 | 288 | 338 | 376 | 348 | 413 | 451 |
| LB0 | 173 | 196 | 205 | 242 | 285 | 323 | 290 | 359 | 397 |
| LB1 | 248 | 287 | 304 | 361 | 422 | 460 | 435 | 531 | 569 |
| LB2 | - | 358 | 381 | 437 | 500 | 538 | 511 | 614 | 652 |
| LB3 | 322 | 347 | 365 | 422 | 476 | 514 | 493 | 598 | 636 |
| LB4 | 392 | 417 | 435 | 485 | 532 | 570 | 549 | 650 | 688 |

## Integral motor frame sizes 160 and 180




Description of the dimensions L, LB, LB0,... see page 224

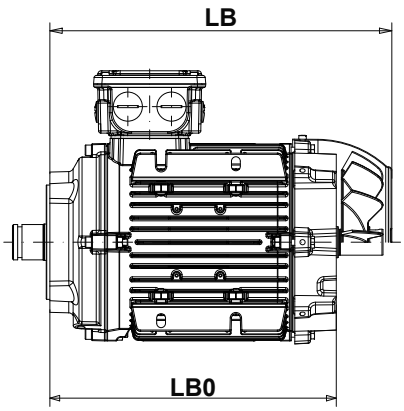
| Tolerances | | |
|---|---|---|
| Dimension name | ISO tolerance DIN EN ISO 286-2 | |
| D | ≥ Ø 28 mm | n6 |
| N | ≤ Ø 250 mm | j6 |
| | > Ø 250 mm | h6 |

| Dimension tolerances | | |
|---|---|---|
| Dimension name | Dimensions | Permissible deviation |
| M | up to 200 mm | ± 0.25 mm |
| | more than 200 up to 500 mm | ± 0.5 mm |
| | more than 500 mm | ± 1.0 mm |

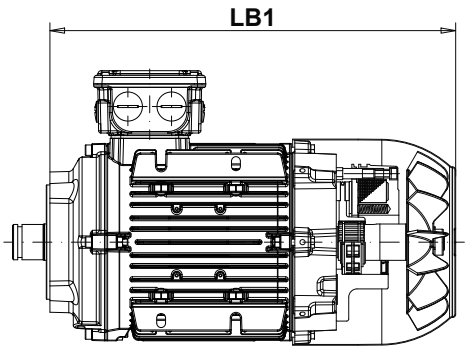
*Dimensions in mm. Motor dimensions are typical values. Subject to change.*

| IEC frame size | 160M | | 160L | | 180M | 180L |
|---|---|---|---|---|---|---|
| Flange | FR-200 | FR-250 | FR-200 | FR-250 | FR-250 | FR-250 |
| AC | 318 | 318 | 318 | 318 | 347 | 347 |
| AD | 266 | 266 | 266 | 266 | 281 | 281 |
| D | 28 | 28 | 28 | 28 | 32 | 32 |
| E2 | 61 | 66 | 61 | 66 | 66 | 66 |
| HH | 270 | 265 | 270 | 265 | 303 | 303 |
| H2 | 213 | 213 | 213 | 213 | 228 | 228 |
| LL | 199 | 199 | 199 | 199 | 199 | 199 |
| LM | 190 | 190 | 190 | 190 | 190 | 190 |
| M | 165 | 215 | 165 | 215 | 215 | 215 |
| N | 130 | 180 | 130 | 180 | 180 | 180 |
| P | 200 | 250 | 200 | 250 | 250 | 250 |
| S | 12 | 15 | 12 | 15 | 15 | 15 |
| S1 | 2 x M40 x 1.5 + 2 x M16 x 1.5 | | | | | |
| T | 3.5 | 4 | 3.5 | 4 | 4 | 4 |
| Y | 65 | 65 | 65 | 65 | 68 | 68 |
| $\alpha$ | 4 x 90° | 4 x 90° | 4 x 90° | 4 x 90° | 4 x 90° | 4 x 90° |
| L | 606 | 606 | 650 | 650 | 633 | 671 |
| LB | 545 | 540 | 589 | 584 | 608 | 646 |
| LB0 | 480 | 475 | 524 | 519 | 531 | 569 |
| LB1 | 669 | 664 | 713 | 708 | 726 | 764 |
| LB2 | 747 | 742 | 791 | 786 | 839 | 877 |
| LB3 | 757 | 752 | 801 | 796 | 828 | 866 |
| LB4 | 823 | 818 | 867 | 862 | 893 | 931 |

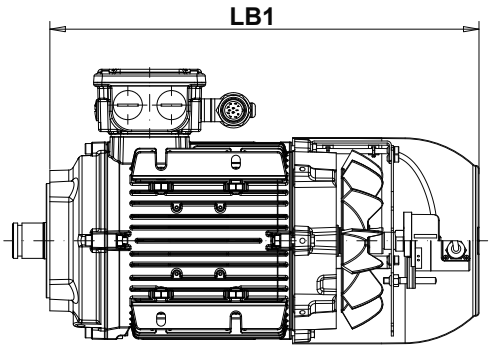
## Length description motor modules



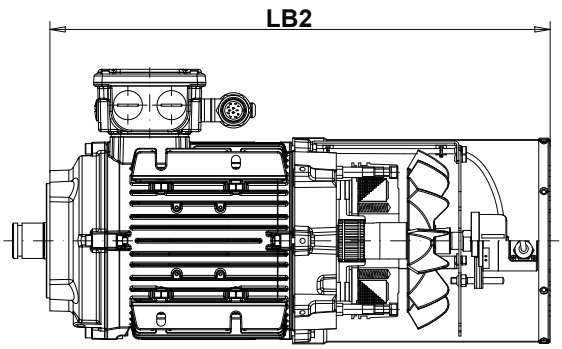

**LB** Self ventilated
**LB0** Non-ventilated



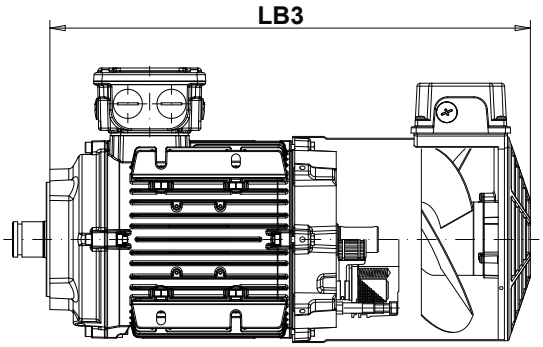

**LB1** Self ventilated with brake or back stop type RSM



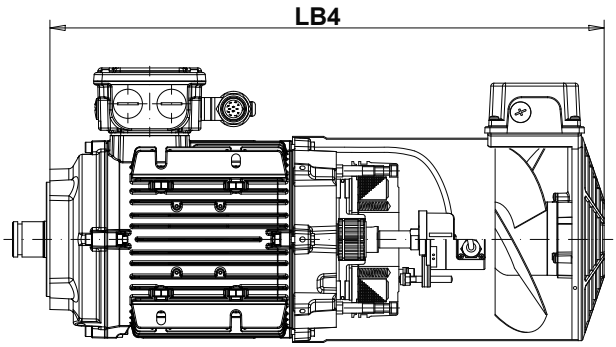

**LB1** Self ventilated with standard encoder, SSI multiturn encoder or resolver




**LB2** Self ventilated with brake and standard encoder, SSI multiturn encoder or resolver




**LB3** Forced ventilation with or without brake




**LB4** Forced ventilation with/without brake and standard encoder, SSI multiturn encoder or resolver

# Motor modules

## Temperature control

| | |
|---|---|
| **TH** | Bimetal switch for switch off |
| **2TH** | Bimetal switch for warning and switch off |
| **TF** | PTC thermistor for switch off |
| **2TF** | PTC thermistor for warning and switch off |
| **KTY** | Temperature sensor |

In the standard version, the motors are designed with motor protection in the motor winding. In order to protect the winding of a three-phase induction motor against thermal overloads, resulting for example from overloading and operation with only two phases, one of the following devices can be provided:

### TH - Bimetal switch „NC contact“

The contact is normally closed (NC); the disc opens when the winding's temperature reaches limits dangerous for the insulation system. When a limit temperature is reached, these bimetal switches (NC contacts) can deactivate an auxiliary circuit. The circuit can only be reclosed following a considerable fall in temperature. When the motor current rises quickly (e.g. with a locked rotor), these switches are not suitable due to their large thermal time constants.

### TF - PTC thermistor

The most comprehensive protection against thermal overloading caused in starting against heavy masses, heavy alternating load and high frequency starting resp. brake operation or high ambient temperatures of the motor is provided by PTC thermistors installed in the motor winding.
The sensors are temperature sensitive resistors (PTC) which change value almost instantaneously at their response temperature. The switch off level corresponds to the thermal class of the insulation. This characteristic is used in combination with tripping devices (on request) to monitor the temperature of the motor. For warning purposes additional bimetal switches or PTC thermistors with lower switch off temperature can be fitted. These correspond to the key **2TH** and **2TF**.

### KTY - Temperature sensor

This sensor is a semiconductor that changes its resistance depending on temperature in accordance with a defined characteristic. The evaluation is made by an extra tripping device (on request). The temperature sensor is embedded in the winding head of the motor in the same manner as a PTC thermistor. Evaluation is performed, for example, in the frequency inverter.

## Anti-condensation heating

| | |
|---|---|
| **SH** | Anti-condensation heating |

Windings of motors, which are operating at conditions of extreme temperature changes or extreme climatic conditions, are endangered of condensation water. The built in anti-condensation heating warms up the motor windings after switching off and prevents the motor inside from condensation water.

**During motor operation the anti-condensation heating must not be switched on. The limit temperature of the winding (+155 °C in thermal class F) must not be exceeded! Temperature control is advisable!**

The anti-condensation heating must be supplied with a separate voltage.
Supply voltage: 230 V (1~)
Voltage range for IEC frame sizes: 71 to 180: 220 - 240 V, 50/60 Hz

| IEC frame size | Heating performance [W] |
|---|---|
| 71 | 13 |
| 80 | 25 |
| 90 | |
| 100 | |
| 112 | 50 |
| 132 | |
| 160 | 75 |
| 180 | |

## Climatic protection

| | |
|---|---|
| **K1** | Humidity protection |
| **K2** | Corrosion protection |

The following standardised climatic protection executions are available for motors exposed to extreme climatic conditions:

**K1 - Humidity protection**
Humid warm climate or humid variable climate with max. relative air humidity of 92 %, also for areas on the seaside

**K2 - Corrosion protection**
Relative air humidity of more than 92 % (extreme formation of condensation water), furthermore against chemically aggressive gases and vapours of increased concentration

## Drain

| | |
|---|---|
| **KB** | Drain |

In cases of increased air humidity, periodic duty, installation in the open air or when subject to extreme climatic conditions, the motors are endangered by the formation of condensation. The endshields have holes for drainage of water that may condense inside the frame. These holes are supplied with rubber drain plugs, which leave the factory in closed position and must be opened periodically to allow the exit of condensed water.

**To determine the correct position of the hole the exact mounting position of the motor must be defined.**

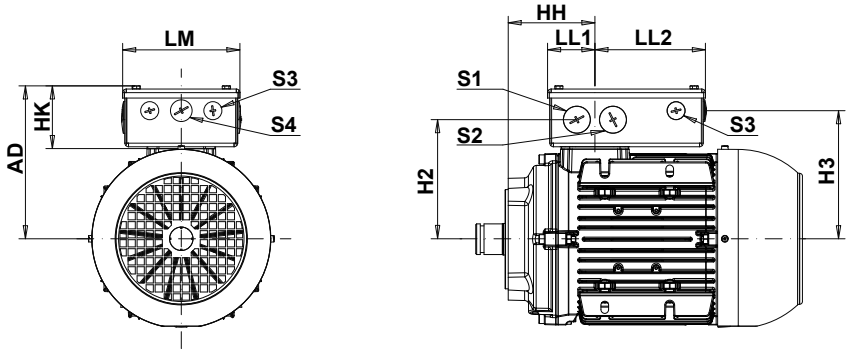
M

## Terminal box designs

| | |
|---|---|
| **MIP** | Multipin box |
| **MIG..** | MIG - connect systems |

**MIP - Multipin box**
IEC frame sizes: 63 to 180

This extended terminal box was designed to permit additional options, such as brakes, incremental encoders, thermal elements, anti-condensation heating and the like, to be connected in an orderly fashion in the box.
The terminal box can be equipped with up to 22 sockets, including a brake rectifier. The terminal used are two-wire terminals fitted with cage clamp connectors. These are suitable for single-wire, multi-wire and fine-wire lines with diameters up to 4 mm².



| IEC frame size | | MIP box | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AD | HH | HK | H2 | H3 | LM | LL1 | LL2 | S1 | S2 | S3 | S4 |
| 63 | | 132 | 90 | 69 | 95 | 99 | 130 | 52 | 122 | 2xM25 | 2xM25 | 4xM16 | 1xM20 |
| 71 | | 140 | 99 | 69 | 103 | 107 | 130 | 52 | 122 | 2xM25 | 2xM25 | 4xM16 | 1xM20 |
| 80 | | 149 | 95 | 69 | 112 | 116 | 130 | 52 | 122 | 2xM25 | 2xM25 | 4xM16 | 1xM20 |
| 90 | | 159 | 96 | 69 | 122 | 126 | 130 | 52 | 122 | 2xM25 | 2xM25 | 4xM16 | 1xM20 |
| 100 | | 169 | 109 | 69 | 132 | 136 | 130 | 52 | 122 | 2xM25 | 2xM25 | 4xM16 | 1xM20 |
| 112 | | 182 | 130 | 70 | 144 | 154 | 140 | 68 | 138 | 2xM32 | 2xM32 | 4xM16 | 1xM25 |
| 132 | | 202 | 123 | 70 | 164 | 174 | 140 | 68 | 138 | 2xM32 | 2xM32 | 4xM16 | 1xM25 |
| 160 | FR-200 | 269 | 270 | 104 | 211 | 220 | 205 | 105 | 171 | 2xM50 | 2xM40 | 4xM16 | 1xM25 |
| | FR-250 | | 265 | | | | | | | | | | |
| 180 | | 284 | 303 | 104 | 231 | 240 | 205 | 105 | 171 | 2xM50 | 2xM40 | 4xM16 | 1xM25 |

*Dimensions in mm*

## MIG - connect system

Models: MIG10B, MIG16, MIG40, MIG10-FL
IEC frame sizes: 63 to 180

The MIG (Multiplug) - connect system is a standardised distributed connection system. It is used for the integration of power and control cabling into a single motor connector. The plug is assembled in-house and replaces the terminal box.

**Most important advantages:**

- Quick installation and service at site
- Avoiding wiring faults
- Motor replacement without electrical manipulation

For motor frame sizes 63 to 180 three MIG types of different power ratings are used. For each MIG model mating connectors are available.

**MIG10B:**
With 18 PINs and ground this most compact plug enables connection to motors up to a rated current of 10 A with voltages up to 400/690 V and protection degrees up to IP67. Beside the power wires a variety of auxiliary wires can be connected as well.

**MIG16:**
This MIG for mid-sized motors supports a maximum current of 16 A at 500 V with 10 PINs in total. In case a wider variety of auxiliary PINs is necessary a mixed holding can be offered (6 PINs -16 A; 12 PINs - auxiliary).

**MIG40:**
To achieve all contacts to be connected with one plug a mixed holding of PINs has to be used in this case. 6 PINs for 40 A at 400/690 V together with 12 PINs auxiliary guarantees full contactability.

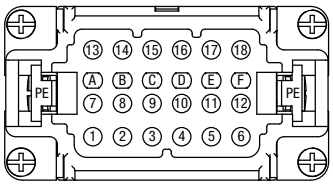
**MIG10-FL:**
On demand this MIG can replace the normal forced ventilation connection. Thereby this motor module has all advantages of a MIG - connect plug system. The plug is equipped with 3 PINs and grounding and can be mounted on every forced ventilation size.

*MIG40 execution*

## MIG - connect system overview table

| IEC frame size | | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 |
|---|---|---|---|---|---|---|---|---|---|---|
| 400 V, 50 Hz | 4p | 10B | 10B | 10B | 10B | 10B | 16 | 16 | 40 | 40 |
| | 6p | 10B | 10B | 10B | 10B | 10B | 16 | 16 | 40 | 40 |
| 230 V, 50 Hz | 4p | 10B | 10B | 10B | 10B | 16 | - | - | - | - |
| | 6p | 10B | 10B | 10B | 10B | 16 | - | - | - | - |
| 400 V, 100 Hz | 4p | 10B | 10B | 10B | 10B | 16 | 40 | 40 | - | - |
| | 6p | 10B | 10B | 10B | 10B | 10B | 16 | 40 | - | - |
| 460 V, 60 Hz | 4p | 10B | 10B | 10B | 10B | 10B | 16 | 16 | 40 | 40 |
| | 6p | 10B | 10B | 10B | 10B | 10B | 16 | 16 | 40 | 40 |
| 460 V, 120 Hz | 4p | 10B | 10B | 10B | 10B | 16 | 16 | 40 | - | - |
| | 6p | 10B | 10B | 10B | 10B | 10B | 16 | 40 | - | - |

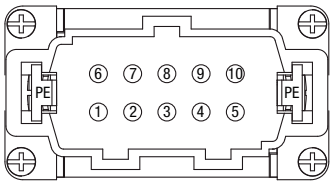
## PIN assignment MIG10B




| PIN | Assignment |
|---|---|
| PE | Grounding terminal |
| 1 | Winding connection U1 |
| 2 | Winding connection V1 |
| 3 | Winding connection W1 |
| 4* | Bimetal release 1 TH1 |
| 5 | Brake heating tape |
| 6 | Anti-condensation heating |
| 7 | Winding connection W4 |
| 8 | Winding connection U4 |
| 9 | Winding connection V4 |
| 10* | Bimetal release 1 TH1 |
| 11 | Brake heating tape |
| 12 | Anti-condensation heating |

| PIN | Assignment |
|---|---|
| 13 | Brake |
| 14 | Brake |
| 15 | Brake microswitch |
| 16 | Brake microswitch |
| 17* | Bimetal release 2 TH2 |
| 18* | Bimetal release 2 TH2 |
| *alternatively | |
| 4 | PTC thermistor 1 TF1 |
| 10 | PTC thermistor 1 TF1 |
| 17 | PTC thermistor 2 TF2 |
| 17 | Resistance thermometer KTY1 |
| 18 | PTC thermistor 2 TF2 |
| 18 | Resistance thermometer KTY 1 |

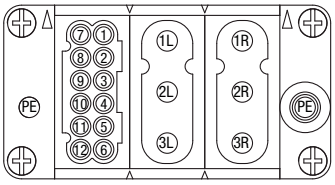
## PIN assignment MIG16




| PIN | Assignment |
|---|---|
| PE | Grounding terminal |
| 1 | Winding connection U1 |
| 2 | Winding connection V1 |
| 3 | Winding connection W1 |
| 4* | Brake |
| 5* | Brake |
| 6 | Winding connection W4 |
| 7 | Winding connection U4 |

| PIN | Assignment |
|---|---|
| 8 | Winding connection V4 |
| 9* | Temperature sensor 1 |
| 10* | Temperature sensor 1 |
| *alternatively | |
| 9 | Anti-condensation heating |
| 10 | Anti-condensation heating |
| 4 | Temperature sensor 2 |
| 5 | Temperature sensor 2 |

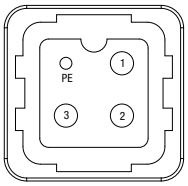
## PIN assignment MIG40




| PIN | Assignment |
|---|---|
| PE | Grounding terminal |
| 1R | Winding connection U1 |
| 2R | Winding connection V1 |
| 3R | Winding connection W1 |
| 1L | Winding connection W4 |
| 2L | Winding connection U4 |
| 3L | Winding connection V4 |
| 1 | Brake |
| 2 | Temperature sensor 1 |
| 3 | Temperature sensor 2 |

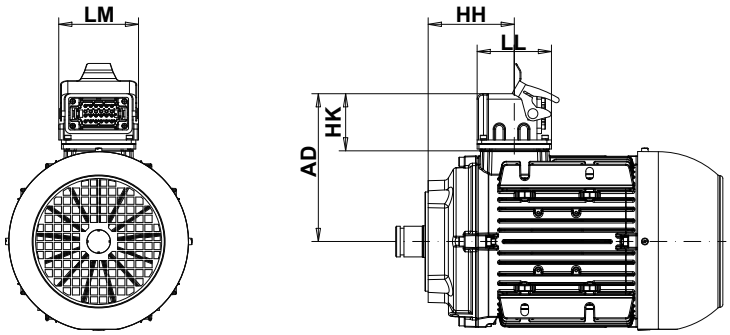
| PIN | Assignment |
|---|---|
| 4 | Temperature sensor 3 |
| 5 | Anti-condensation heating |
| 6 | |
| 7 | Brake |
| 8 | Temperature sensor 1 |
| 9 | Temperature sensor 2 |
| 10 | Temperature sensor 3 |
| 11 | Anti-condensation heating |
| 12 | |
| | |

## PIN assignment MIG10-FL




| PIN | Assignment |
|---|---|
| PE | Grounding terminal |
| 1 | Power connection L1 |
| 2 | Power connection L2 |
| 3 | Power connection L3 |

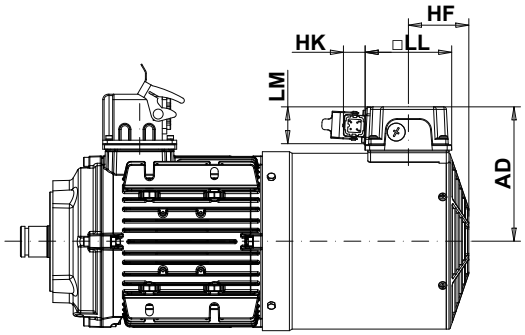
### Dimension sheet MIG10B, MIG16, MIG40




| IEC frame size | | MIG - connect system | | | | | |
|---|---|---|---|---|---|---|---|
| | | MIG Type | AD | HH | HK | LL | LM |
| 63 | | 10B | 124 | 90 | 61 | 82 | 86 |
| 71 | | 10B | 132 | 99 | 61 | 82 | 86 |
| 80 | | 10B | 141 | 95 | 61 | 82 | 86 |
| 90 | | 10B | 151 | 96 | 61 | 82 | 86 |
| 100 | | 10B / 16 | 161 | 109 | 61 | 82 | 86 |
| 112 | | 16 / 40 | 173 | 130 | 61 | 82 | 86 |
| 132 | | 16 / 40 | 193 | 123 | 61 | 82 | 86 |
| 160 | FR-200 | 40 | 226 | 270 | 61 | 82 | 86 |
| | FR-250 | | | 265 | | | |
| 180 | | 40 | 241 | 303 | 61 | 82 | 86 |

*Dimensions in mm*

### Dimension sheet MIG10-FL




| IEC frame size | MIG10-FL | | | | |
|---|---|---|---|---|---|
| | AD | HF | HK | □LL | LM |
| 63 | 115 | 60 | 28 | 95 | 32 |
| 71 | 123 | 60 | 28 | 95 | 32 |
| 80 | 132 | 60 | 28 | 95 | 32 |
| 90 | 142 | 70 | 28 | 95 | 32 |
| 100 | 151 | 70 | 28 | 95 | 32 |
| 112 | 163 | 70 | 28 | 95 | 32 |
| 132 | 183 | 52,5 | 28 | 95 | 32 |
| 160 | 210 | 52,5 | 28 | 95 | 32 |
| 180 | 210 | 80 | 28 | 95 | 32 |

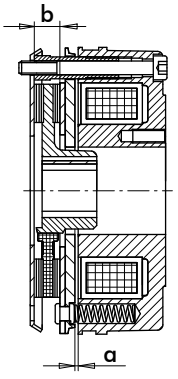
*Dimensions in mm*

M

## Brake system and Back stop

| | |
|---|---|
| **BR..** | Spring loaded brake |
| **BBRHGD..** | Double spring loaded brake |
| **BRGH..** | Totally closed spring loaded brake (Heavy Duty) |
| **KKM** | Back stop (frame sizes 63 to 90) |
| **RSM** | Back stop (frame sizes 100 to 180) |

The mounted spring loaded brake is a single-disc brake with two friction surfaces. It is released electromagnetically and brakes by spring pressure, when the brake is de-energised. The DC-brake coil is supplied from a rectifier which is located in the motor terminal box and will be delivered as standard for AC-side connection.




a air gap
b brake lining thickness

### Product information

- Voltages: 24 V DC and 195 V DC (102 V DC special execution)
- All bare parts corrosion protected
- Short switching times
- Large reserve for abrasion
- Designed for 100 % duty cycle and max. admissible temperature limit of +145 °C
- Degree of protection IP55 (standard)

On motors with brake-endshield on the non-driven side subsequent installation of brakes is possible (brake-motor-set available).

### Function and adjustment (see illustration below)

When the brake is de-energised, the springs are pressing the armature disc (9) against the brake disc (7) and the friction plate (5). The motor shaft (3) is braked via the brake disc (7) and the gear hub (6). When the brake is energised, a magnetic field is built up and the armature disc (9) is pulled against the magnetic case with the coil (10). When the motor is running, the brake disc (7) can rotate freely from the brake surfaces. In the case of power failure, the brake functions automatically by spring force. A manual release (11) is optionally available (subsequent assembling is also possible).

### Braking torque adjustment

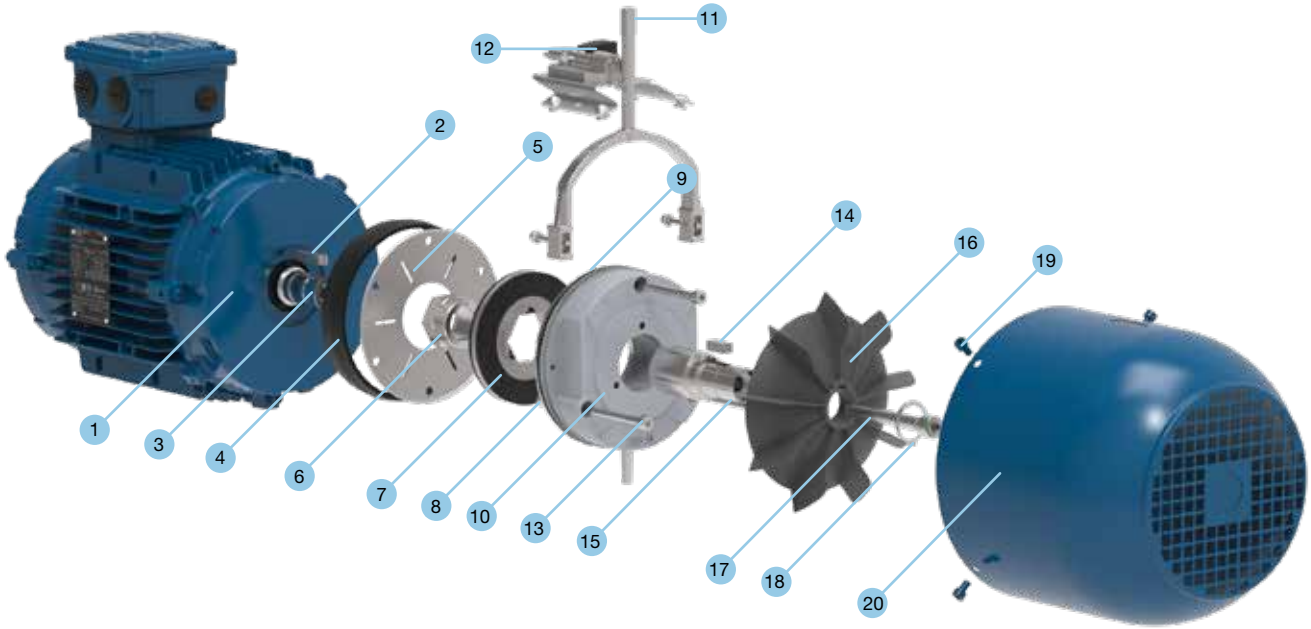
At delivering, the brakes and the brake motors are adjusted to the brake torque $M_B$. Brake torque reduction is done by removing of springs. Reduced brake torque see page 231.

### Maintenance

Due to abrasion of the friction linings (7) the air gap between magnetic case (10) and armature disc (9) expands. It is necessary to check and readjust the air gap "a" in certain intervals or replace the brake disc (7).

### Readjustment of the air gap

First of all the three fixing screws (13) must be loosened half a turn. Now the sleeve screws (8) can be screwed into the magnetic case (10) by turning counter-clockwise. By turning the three fixing screws (13) clockwise, the magnetic case (10) can be moved in direction to the armature disc (9), as long as the nominal air gap $a_{normal}$ (see table on page 232) is obtained. Now the three sleeve screws (8) will be unscrewed clockwise from the magnetic case (10) and the fixing screws (13) will be fixed. Please check the air gap "a" with a feeler gauge, if it is symmetrical and adjust it if necessary.




1 Brake endshield
2 Key
3 Motor shaft
4 Dust protection ring
5 Friction plate
6 Gear hub
7 Brake disc with friction linings
8 Sleeve screws
9 Armature disc
10 Magnetic case
11 Manual release lever (optional)
12 Locking device
13 Socket cap screw
14 Key
15 Brake shaft extension
16 Fan
17 Socket cap screw
18 Retaining ring
19 Fan cover screws
20 Fan cover (brake execution)

*Exploded view: Brake with manual release and locking device, frame size 100*

## Brake selection

As shown in the following selection table, it is possible to supply brake motors with different brake torques to correspond to the most possible applications. It is also possible to achieve an optimal adaption, by means of the mode of connection of the brake. If exact values about the application are available, we recommend to calculate the braking torque according to the following formulas on page 236, otherwise the proportion between motor rated torque ($M_N$) and braking torque ($M_B$) can be taken as an indication for the dimensioning of the brake and check, if the safety factor is sufficient.
For normal applications we recommend sizing the brake 1.5 - 2 times the motor rated torque ($M_N$), for special applications (lifting gears, switching operation, etc.) 2 - 3 times the motor torque and as holding brake approx. 1 time the rated torque.

- **Execution A - working brake**

$M_B$ approx. 1.5 - 2 times $M_N$, or applications with medium masses to be accelerated and medium number of starts

- **Execution B - holding brake**

$M_B$ approx. 1 time $M_N$ for drives with small masses to be accelerated and number of starts resp. for keeping the drive stopped

### Brake selection table

| IEC frame size | BR.. Standard brake | | BBRHGD.. Double brake | | BRGH.. Totally closed brake | |
|---|---|---|---|---|---|---|
| | Standard Execution A $M_B$ | Execution B $M_B$ | Standard Execution A $M_B$ | Execution B $M_B$ | Standard Execution A $M_B$ | Execution B $M_B$ |
| 63 | 2 Nm | 5 Nm | - | - | - | - |
| 71 | 5 Nm | 2 Nm | 2 x 6 Nm | - | 5 Nm | - |
| 80 | 10 Nm | 5 Nm | 2 x 12,5 Nm | 2 x 6 Nm | 10 Nm | 5 Nm |
| 90 | 20 Nm | 10 Nm | 2 x 25 Nm | 2 x 12,5 Nm | 20 Nm | 10 Nm |
| 100 | 40 Nm | 20 Nm | 2 x 50 Nm | 2 x 25 Nm | 40 Nm | 20 Nm |
| 112 | 60 Nm | 40 Nm | 2 x 75 Nm | 2 x 50 Nm | 60 Nm | 40 Nm |
| 132 | 100 Nm | 60 Nm | 2 x 125 Nm | 2 x 75 Nm | 100 Nm | 60 Nm |
| 160 | 150 Nm | 100 Nm | 2 x 187 Nm | 2 x 125 Nm | 150 Nm | 100 Nm |
| 180 | 250 Nm | 150 Nm | 2 x 300 Nm | 2 x 187 Nm | 250 Nm | 150 Nm |

| Brake torque reduction | | | | | | |
|---|---|---|---|---|---|---|
| Standard brake (BR..) and Totally closed brake "heavy duty" (BRGH..) | | | | Double brake (BBRHGD..) | | |
| Standard 7 springs | 5 springs | 4 springs | 3 springs | Standard 7 springs | 5 springs | 4 springs |
| 5 Nm | 3,5 Nm | 3 Nm | 2 Nm | 2 x 6 Nm | 2 x 4 Nm | 2 x 3.5 Nm |
| 10 Nm | 7 Nm | 6 Nm | 4 Nm | 2 x 12.5 Nm | 2 x 8.5 Nm | 2 x 7 Nm |
| 20 Nm | 14 Nm | 12 Nm | 8 Nm | 2 x 25 Nm | 2 x 17.5 Nm | 2 x 14 Nm |
| 40 Nm | 28 Nm | 23 Nm | 17 Nm | 2 x 50 Nm | 2 x 35 Nm | 2 x 28 Nm |
| 60 Nm | 43 Nm | 34 Nm | 26 Nm | 2 x 75 Nm | 2 x 52 Nm | 2 x 42 Nm |
| 100 Nm | 70 Nm | 57 Nm | 42 Nm | 2 x 125 Nm | 2 x 89 Nm | 2 x 70 Nm |
| 150 Nm | 105 Nm | 85 Nm | 65 Nm | 2 x 187 Nm | 2 x 132 Nm | 2 x 107 Nm |
| Standard 8 springs | 6 springs | 4 springs | | Standard 8 springs | 6 springs | 4 springs |
| 250 Nm | 187 Nm | 125 Nm | | 2 x 300 Nm | 2 x 225 Nm | 2 x 150 Nm |
| 400 Nm | 300 Nm | 200 Nm | | 2 x 500 Nm | 2 x 375 Nm | 2 x 250 Nm |
| 1000 Nm | 500 Nm | - | | - | - | - |

| Spring loaded brake: electrical characteristics | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $U_{2nenn}$= | $U_2$= | Brake size | | 2 | 5 | 10 | 20 | 40 | 60 | 100 | 150 | 250 |
| [V] | [V] | $M_B$ | [Nm] | 2 | 5 | 10 | 20 | 40 | 60 | 100 | 150 | 250 |
| 195 | 162-236 | Coil current | [A] | 0.13 | 0.13 | 0.18 | 0.2 | 0.26 | 0.32 | 0.42 | 0.5 | 0.65 |
| | | Power | [W] | 26 | 26 | 36 | 38 | 50 | 63 | 82 | 99 | 127 |
| | | Resistance | [Ω] | 1475 | 1475 | 1070 | 990 | 754 | 600 | 464 | 385 | 300 |
| 24 | 19-28 | Coil current | [A] | 1.14 | 1.14 | 1.44 | 1.7 | 2.1 | 2.7 | 3.3 | 4 | 5.2 |
| | | Power | [W] | 27 | 27 | 34 | 41 | 50 | 65 | 80 | 96 | 125 |
| | | Resistance | [Ω] | 21 | 21 | 16.7 | 14 | 11.6 | 8.9 | 7.2 | 6 | 4.6 |
| 102 [1] | 85-133 | Coil current | [A] | 0.3 | 0.3 | 0.38 | 0.45 | 0.53 | 0.6 | 0.85 | 0.94 | 1.23 |
| | | Power | [W] | 31 | 31 | 38 | 46 | 54 | 60 | 87 | 95 | 125 |
| | | Resistance | [Ω] | 340 | 340 | 271 | 228 | 192 | 174 | 120 | 109 | 83 |

*standard brake*

*[1] special execution (on demand)*

| Spring loaded brake: mechanical characteristics | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Brake size | | 2 | 5 | 10 | 20 | 40 | 60 | 100 | 150 | 250 |
| $M_B$ | [Nm] | 2 | 5 | 10 | 20 | 40 | 60 | 100 | 150 | 250 |
| $P_{20}$ | [W] | 26 | 26 | 36 | 38 | 50 | 63 | 82 | 100 | 127 |
| $J_B$ | [kgm²x10$^{-3}$] | 0.015 | 0.015 | 0.045 | 0.172 | 0.45 | 0.86 | 1.22 | 2.85 | 6.65 |
| $P_R$ | [J/s] | 80 | 80 | 100 | 130 | 160 | 200 | 250 | 300 | 350 |
| $W_{Rmax}$ | [Jx10³] | 3 | 3 | 6 | 12 | 25 | 35 | 50 | 75 | 105 |
| $W_{RN}$ | [Jx10$^7$] | 5 | 5 | 12 | 20 | 35 | 60 | 125 | 200 | 340 |
| $a_{normal}$ | [mm] | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.5 |
| $a_{max}$ | [mm] | 0.6 | 0.6 | 0.7 | 0.8 | 0.9 | 1 | 1.1 | 1.1 | 1.2 |
| $b_{min}$ | [mm] | 4.5 | 4.5 | 5.5 | 7.5 | 9.5 | 11.5 | 12.5 | 14.5 | 16.5 |
| m | [kg] | 1.1 | 1.1 | 1.9 | 3.1 | 4.6 | 6.3 | 10 | 14.7 | 21.5 |
| $t_2$= | [ms] | 35 | 35 | 45 | 60 | 80 | 120 | 160 | 200 | 220 |
| $t_1$≈ | [ms] | 70 | 70 | 95 | 140 | 175 | 210 | 280 | 350 | 500 |
| $t_1$= | [ms] | 30 | 30 | 45 | 60 | 75 | 90 | 120 | 150 | 180 |
| Fits on IEC motor frame size | | 63, 71 | 63, 71, 80 | 80, 90 | 90, 100 | 100, 112 | 112, 132 | 132, 160 | 160, 180 | 180, 200 |

| | Designation | Unit |
|---|---|---|
| Rated torque of spring loaded brake | $M_B$ | [Nm] |
| Brake coil power consumption | $P_{20}$ | [W] |
| Brake moment of inertia | $J_B$ | [kgm²] |
| Frisction performance | $P_R$ | [J/s] |
| Friction per switch cycle | $W_{Rmax}$ | [J] |
| Friction until readjustment | $W_{RN}$ | [J] |
| Air gap | a | [mm] |

| | Designation | Unit |
|---|---|---|
| Minimum brake rotor thickness | b | [mm] |
| Mass of moved machine parts | m | [kg] |
| Engaging time | $t_1$ | [ms] |
| Release time of brake | $t_2$ | [ms] |
| Output voltage DC rectifier | $U_2$= | [V] |
| For DC switching | = | - |
| For AC switching | ≈ | - |

### BR.. - Spring loaded brake

Degree of protection IP55. The braking torque is adjustable with reduction of the springs (see page 231).

**BR..** Spring loaded brake without additional options

**Possible options:**

**BRH..** With manual release
**BRHA..** With manual release and locking device
**BRR..** With corrosion protection IP55
**BRS..** With dust protection IP65
**BRSR..** With dust and corrosion protection IP65
**BRGD..** Low noise execution

**Ordering examples:**

| | |
|---|---|
| **BR5** | Brake 5 Nm |
| **BRHASRGD40** | Brake 40 Nm with manual release, locking device, dust and corrosion protection and low noise execution |

**BRM - Micro switch**

When brake release monitoring is necessary, a micro switch (5) can be fitted to indicate brake release. This signal can be used to start the electric motor. When air gap “a” (see page 229) is at its maximum and the armature is no longer attracted to the magnet body the motor will not start and air gap “a” must be adjusted.
The installation of the micro switch is possible for brakes > 5 Nm.

**BRH.. - Manual release**

The installation of the manual release is possible for brakes > 5 Nm. The manual release (1) is necessary for manually releasing the brake in cases of power failure. Brakes will be supplied with manual releases fitted by factory. The adjustment of the manual release may not be changed, not even when air gap “a” (see page 229) is readjusted, as safety can be adversely affected.

**BRHA.. - Manual release with locking device**

In case of service the manual release can be fastened with a locking device. Take care that in rated condition the brake is released (see illustration on page 234). The 0° position of the manual release with locking device is **only possible** with motor frame sizes 100, 160 and 180.

**BRR.. - Corrosion protection**

Protection class IP55. Consists of painted brake endshield and friction plate (3), which is made of non-corrosive material.

**BRS.. - Dust protection**

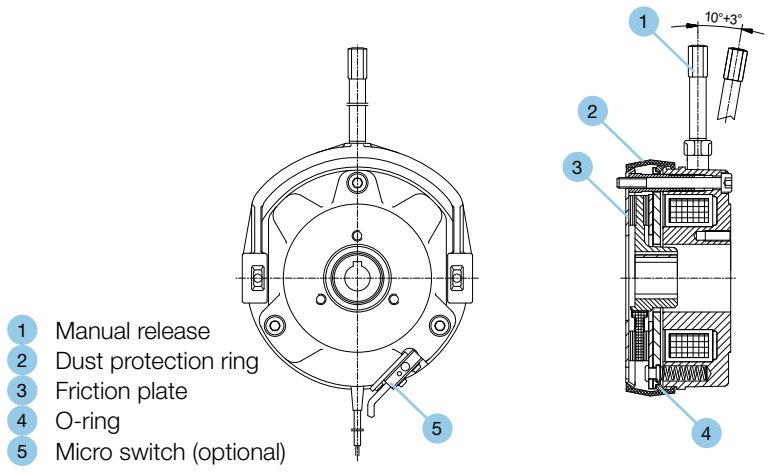
Protection class IP65. Consists of friction plate (3), which is made of non-corrosive material, dust protection ring (2) and shaft seal.

**BRSR.. - Corrosion and dust protection**

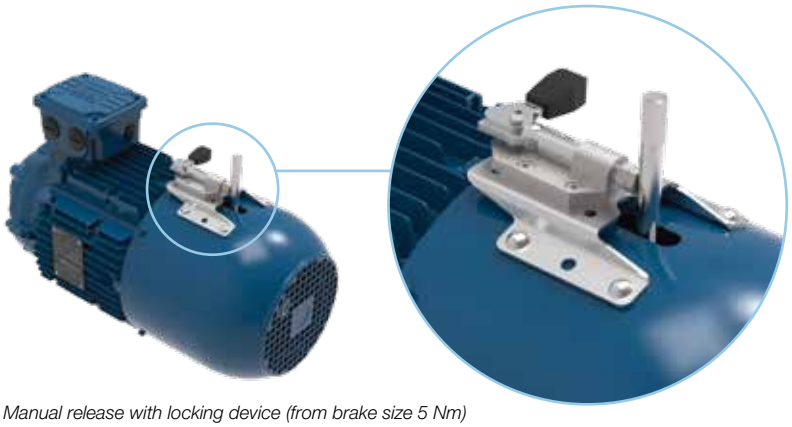
Protection class IP65. Consists of painted brake endshield, friction plate (3), which is made of a non-corrosive material, dust protection ring (2) and shaft seal.

**BRGD.. - Low noise execution**

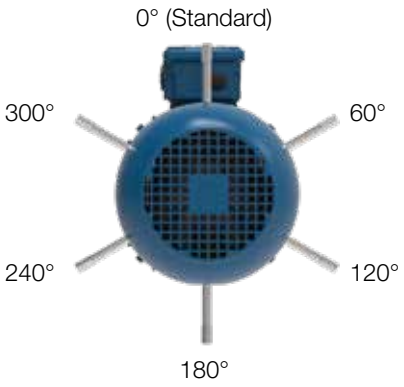
To reduce the switching noises of the spring loaded brake, the o-ring (4) can be inserted between armature plate and brake body.




1 Manual release
2 Dust protection ring
3 Friction plate
4 O-ring
5 Micro switch (optional)



*Manual release with locking device (from brake size 5 Nm)*




*Possible positions of the manual release at the view of the motor fan cover. (The 0 ° position of the manual release with locking device is only possible with motor frame sizes 100, 160 and 180.)*

### BBRHGD.. - Double spring loaded brake

Double brakes (from motor frame size 71) are two specially designed low noise brakes working independently of each other meeting high demands on safety.
As option a micro switch (5) is monitoring the function of the brakes. The brakes are executed per default in low noise execution and with manual release. Braking torque is adjustable with reduction of the springs (see page 231).

**BBRHGD..** Double brake in low noise execution with manual release (standard)

**Possible options:**
**BBRHSGD..** With dust protection IP65
**BBRGD..** Without manual release

**Ordering examples:**

**BBRHGD6** Double brake 2 x 6 Nm in low noise execution with manual release

**BBRHSGD187** Double brake 2 x 187 Nm in low noise exec. with man. release and dust protection

### BBRM - Micro switch

When brake release monitoring is necessary, a micro switch (5) can be fitted to indicate brake release. This signal can be used to start the electric motor. When air gap “a” (see page 229) is at its maximum and the armature is no longer attracted to the magnet body the motor will not start and air gap “a” must be re-adjusted.

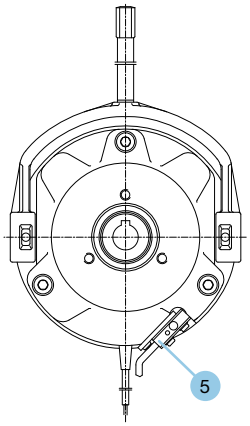
### BBRHSGD.. - Dust protection

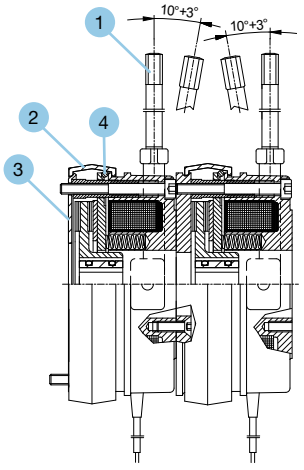
Protection class IP65. Consists of friction plate (3), which is made of non-corrosive material, dust protection ring (2) and shaft seal.

### BBRHGD.. - Manual release

The manual release (1) for manually releasing of the brake in cases of power failure. Brakes will be supplied in standard with manual release fitted by factory. The adjustment of the manual release may not be changed, not even when air gap “a” (see page 229) is readjusted, as security can be adversely affected.

Possible positions of the manual release see on page 234.




1 Manual release
2 Dust protection ring
3 Friction plate
4 O-ring
5 Micro switch (optional)

## BRGH - Totally closed spring loaded brake „heavy duty“

The fully capsulated brake design with dust and waterproof cable glands is in accordance with protection degree IP66. On ventilated motor executions IC411 the shaft passage is sealed by sealrings. The brake is executed with manual release in standard. On the brake disc a lining for high loads is fitted. Brake selection table see page 231.

| | |
|---|---|
| **BRGH..** | Totally closed spring loaded brake with manual release |
| **Possible options:** | |
| **BRGHA..** | With manual release and locking device |
| **BRG..** | Without manual release |

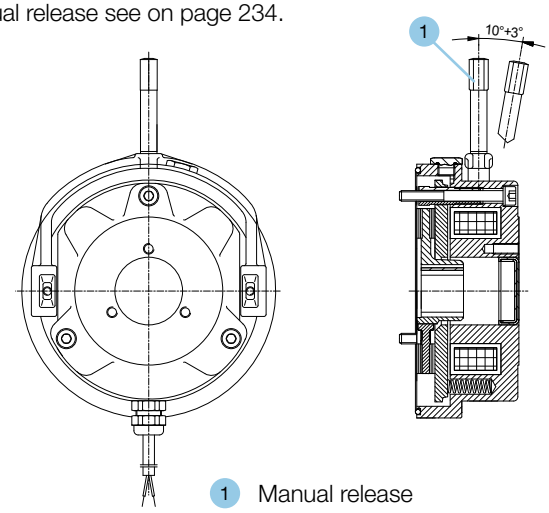
**Ordering examples:**

| | |
|---|---|
| **BRGH10** | Brake 10 Nm with manual release |
| **BRGHA150** | Brake 150 Nm with manual release and locking device |

### BRGH.. - Manual release

The manual release (1) is necessary for manually releasing the brake in cases of power failure. Brakes will be supplied in standard with manual release fitted by factory.
The adjustment of the manual release may not be changed, not even when air gap “a” (see page 229) is readjusted, as safety can be adversely affected.

Possible positions of the manual release see on page 234.




1 Manual release

## Anti-condensation heating for brakes

When operating at conditions of extreme temperature changes or extreme climatic conditions, the windings are endangered of condensation water. The built in anti-condensation heater warms up the magnet windings after switching off and prevents the brakes inside from condensation water.
The anti-condensation heating must be supplied with a separate voltage.
Supply voltage 230 V (1~)
Voltage range: 220 - 230 V, 50/60 Hz

| Brake size [Nm] | Performance [W] |
|---|---|
| 10 | 16 |
| 20 | 29 |
| 40 | 33 |
| 60 | 35 |
| 100 | 48 |
| 150 | 53 |
| 250 | 70 |

## Calculation of the brake torque

If the mass moment of inertia, the rotation speed and the permissible braking time of the machine are known, the torque of the spring loaded brake can be calculated.

| | Formula | Unit |
|---|---|---|
| Load moment (static load) | $M_L = F \cdot r$ | [Nm] |
| Braking torque (dynamic load)<br>There is a pure dynamic load if fly-wheels, rolls, etc.<br>have to be slowed down and when the static load is very insignificant. | $M_a = 1{,}046 \cdot 10^2 \cdot J_{zus} \cdot \frac{n}{t - t_1}$<br>$M_{aerf} = M_a \cdot K \leq M_B$ | [Nm] |
| Braking torque (dynamic and static load)<br>n most applications there is also dynamic load in addition to static load. | $M_{aerf} = (M_a \pm M_L) \cdot K$<br>$M_{aerf} = (1{,}046 \cdot 10^2 \cdot J_{zus} \cdot \frac{n}{t_B} \pm M_L) \cdot K$<br>$M_{aerf} \leq M_B$ | [Nm] |
| Estimated determination of braking torque | $M_{aerf} = 9{,}55 \cdot 10^3 \cdot \frac{P}{n} \cdot K$<br>$M_{aerf} \leq M_B$ | [Nm] |
| Deceleration time | $t = t_B + t_1$ | [ms] |
| Acceleration time | $t_A = \frac{J_{ges} \cdot n_1}{9{,}55 \cdot (M_A \pm M_L)} + t_2$<br>$J_{ges} = J_E + J_{zus}$ | [s]<br>[kgm²] |
| Braking time | $t_B = \frac{J_{ges} \cdot n_1}{9{,}55 \cdot (M_A \pm M_L)}$<br>$J_{ges} = J_E + J_{zus}$ | [s]<br>[kgm²] |
| The conversion of several mass moments of inertia with different rotation speeds in a mass moment of inertia reduced to the motor shaft | $J_{zus} = \frac{J_2 \cdot n_2^2 + J_3 \cdot n_3^2 \ldots}{n_1^2}$ | [kgm²] |
| Conversion of straight-line moved machine parts into a corresponding J on the motor shaft | $J = 91{,}2 \cdot m \cdot \frac{v^2}{n_1^2}$ | [kgm²] |
| Friction per switch cycle | $W_R = \frac{J_{zus} \cdot n^2}{182{,}5} \cdot \frac{M_B}{M_B \pm M_L}$<br>$W_R < W_{Rmax}$ | [J] |
| Friction performance | $P_R = W_R \cdot S$<br>$P_R < P_{Rmax}$ | [J/s] |

| Designation | Unit | Description |
|---|---|---|
| $M_L$ | [Nm] | Load moment<br>Sign + : when the load moment acts decelerating (lifts when going up)<br>Sign - : when the load moment acts accelerating (lifts when going down) |
| $M_{aerf}$ | [Nm] | Necessary braking torque |
| $M_a$ | [Nm] | Braking torque |
| $M_A$ | [Nm] | Starting torque of motor |
| $M_B$ | [Nm] | Rated torque of spring loaded brake |
| K | - | Safety factor<br>according to the operating conditions (1...3) |
| F | [N] | Force |
| $F_I$ | - | Factor of inertia |
| r | [m] | Lever arm |
| m | [kg] | Mass of moved machine parts |
| J, $J_1$, $J_2$ | [kgm²] | Mass moment of inertia |
| $J_E$ | [kgm²] | Proper mass moment of inertia |
| $J_{ges}$ | [kgm²] | Total mass moment of inertia |
| $J_{mot}$ | [kgm²] | Mass moment of inertia of the motor |

| Designation | Unit | Description |
|---|---|---|
| $J_{zus}$ | [kgm²] | Additional mass moment of inertia |
| K | - | Safety factor K ≥ 2 |
| P | [kW] | Power |
| $P_R$ | [J/s] | Friction performance |
| $P_{Rmax}$ | [J/s] | Maximum friction performance |
| n | [$min^{-1}$] | Rotation speed |
| $n_1$ | [$min^{-1}$] | Rotation speed of motor |
| $n_2$, $n_3$ | [$min^{-1}$] | Rotation speeds |
| t | [ms] | Deceleration time |
| $t_A$ | [s] | Acceleration time |
| $t_B$ | [s] | Braking time |
| $t_1$ | [ms] | Engaging time |
| $t_2$ | [ms] | Release time of brake |
| v | [m/s] | Speed |
| $W_R$ | [J] | Friction work per switch cycle |
| $W_{Rmax}$ | [J] | Permissible friction per switch cycle |
| S | [$s^{-1}$] | Number of switch cycle per second |

## Rectifier

### Power supply

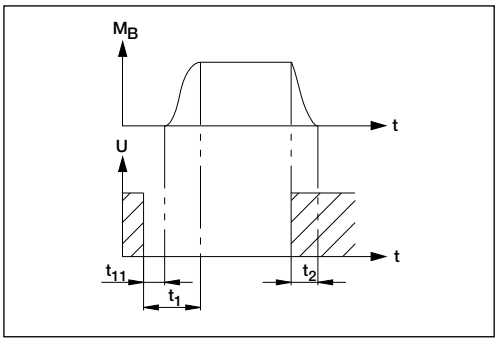
The DC-brake coil is normally supplied by a half wave rectifier incorporated in the motor terminal box and is also available for coil voltages 162-236 V DC, 85-133 V DC or 24 V DC (24 V with block terminal for external power supply!) Corresponding rectifiers and coil voltages are optionally available for all special voltages. The rectifiers are equipped with varistors to protect them against over-voltages.
At number of starts more than 1/s, please contact us for rectifier loading capacity.

### Switching modes

By default brake motors will be delivered with connected rectifier for AC-side switching. For DC-side switching the bridge between terminals 5 and 6 must be removed and a switching contact must be connected. Start-up of motor only with connecting brake.

- **AC-side switching** *is executed before the rectifier on AC-side. Here the magnetic field is de-energised slowly, the brake interrupts softly with delay. (Release time $t_1$≈)*

- **DC-side switching** *is executed between rectifier and coil. Thereby an extremely low degree of overrunning is achieved. For all gear units, which require exact braking, especially for lifting gears, a DC-side switching of the brake is absolutely required. (Release time $t_1$=)*




| | Designation | Unit |
|---|---|---|
| Braking torque | $M_B$ | [Nm] |
| Voltage | U | [V DC] |
| Engaging time | $t_1$ | [ms] |
| Response delay (time from switching power off until braking torque increases) | $t_{11}$ | [ms] |
| Release time (time from switching power on until braking torque begins to decrease) | $t_2$ | [ms] |

### Rectifier selection

- *Half-wave and bridge rectifier*

The half wave rectifier which halves the supply voltage is the most cost effective. The bridge rectifier produces 90 % DC voltage from the AC supply voltage. Both rectifiers are available for switching on AC or DC side. Varistors in the input and output protect the rectifiers against surge voltages.

Half-wave rectifier: $U_{2=} = 0{,}45 \times U_{1\sim}$ $I_{max} = 1$ A

Bridge rectifier: $U_{2=} = 0{,}9 \times U_{1\sim}$ $I_{max} = 2$ A

- *Fast excitation rectifier*

For motor frame sizes 63-132 this rectifier can't be installed in the standard terminal box.
The high-speed rectifier uses special connections to make different direct voltages available on the terminals. This means that the following brake operating modes can be selected:

1. Rapid response: Brake voltage level equal to the holding voltage of the fast excitation rectifier: The ventilation time of the brake is reduced.
2. Power reduction: Brake voltage level equal to overexcitation voltage of the fast excitation rectifier: reduced performance losses in the brake coil, engage time of the brake is reduced.

Max. connection voltage: $U_1\sim = 500$ V AC
Max. permissible connections: 600 connections/h
Max. permissible switching capacity: 210 W

| Rectifier type | System | $U_N$ [V] | $I_N$ [A] |
|---|---|---|---|
| FBGR-E500/220-GS | Half-wave rectifier | 500 | 1 |
| FBGR-B400/345-GS | Bridge rectifier | 400 | 2 |
| FBGR-S500/220-GS480 | Fast excitiation rectifier | 500 | 2 |

| | | | |
|---|---|---|---|
| Overexcitation phase (voltage) | T = 0 - 500 ms (± 200 ms) | $U_{2=} = 0.9 \times U_{1\sim}$ | $I_N = 4$ A |
| Holding phase (voltage) | T > 500 ms | $U_{2=} = 0.45 \times U_{1\sim}$ | $I_N = 2$ A |

## Connection examples

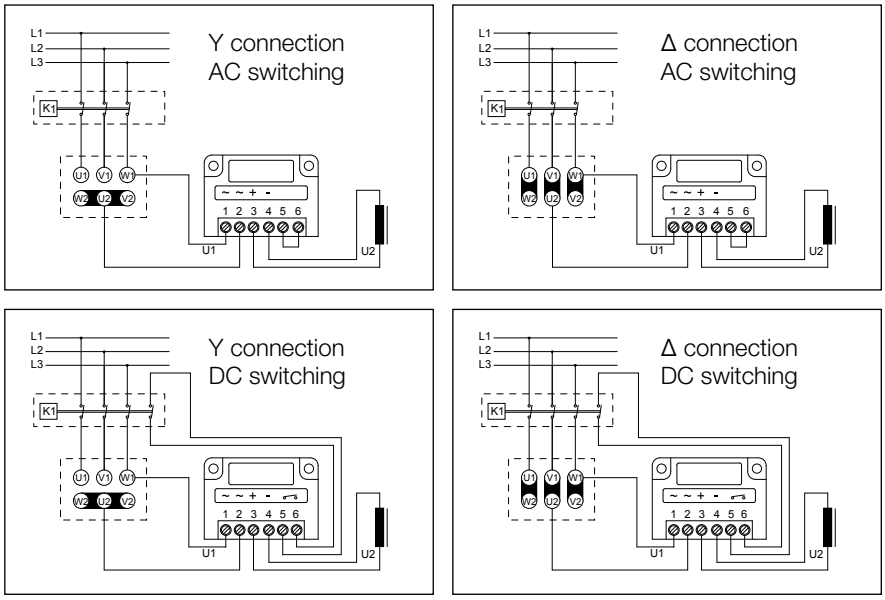
| 3~ $U_N$ [V] | Connection | $U_1$~ [V] | Rectifier type | Designation $U_1$~ | $U_2$= [V] | Brake coil voltage [V] |
|---|---|---|---|---|---|---|
| 380-420-480 | Δ | 380-420-480 | FBGR-E500/220-GS | 480 V~ | 169-187-214 | 195 (162-236) |
| 380-420-480 | Y | 380-400-480 | FBGR-E500/220-GS | 480 V~ | 169-187-214 | 195 (162-236) |
| 660-690-725 | Y | 380-400-420 | FBGR-E500/220-GS | 480 V~ | 169-187-214 | 195 (162-236) |
| 220-240 | Δ | 220-240 | FBGR-B400/345-GS | 230 V~ | 195-214 | 195 (162-236) |
| 330-365-415 | YY | 190-210-240 | FBGR-B400/345-GS | 230 V~ | 169-187-214 | 195 (162-236) |
| 190-210-240 | ΔΔ | 190-210-240 | FBGR-B400/345-GS | 230 V~ | 169-187-214 | 195 (162-236) |
| 500 | Δ | 500 | FBGR-E500/220-GS | 480 V~ | 223 | 195 (162-236) |
| 380-420-480 | Y | 220-240-280 | FBGR-E500/220-GS | 480 V~ | 98-107-125 | 102 (85-133) 1) |
| 220-240-280 | Δ | 220-240-280 | FBGR-E500/220-GS | 480 V~ | 98-107-125 | 102 (85-133) 1) |
| 330-365-415 | YY | 190-210-240 | FBGR-E500/220-GS | 480 V~ | 85-94-107 | 102 (85-133) 1) |
| 190-210-240 | ΔΔ | 190-210-240 | FBGR-E500/220-GS | 480 V~ | 85-94-107 | 102 (85-133) 1) |
| 500 | Y | 290 | FBGR-E500/220-GS | 480 V~ | 129 | 102 (85-133) 1) |

*standard brake*

*1) special execution*

| | Designation | Unit |
|---|---|---|
| Maximum rated output current DC rectifier | $I_N$ | [A] |
| 3~ rated motor voltage | 3~ $U_N$ | [V] |
| Maximum rated input voltage AC rectifier | $U_N$ | [V] |
| Supply voltage AC rectifier | $U_1$~ | [V] |
| Output voltage DC rectifier | $U_2$= | [V] |

## Switching diagram for braking motor (star-delta connection)




## Back stop

Installing a back stop guarantees that the motor
a. can start only in one direction
b. can't be turned in wrong direction from counteract torques

| | |
|---|---|
| **KKM** | Back stop (IEC frame size 63 to 90) |
| **RSM** | Back stop (IEC frame size 100 to 180) |

The applied free wheels of the clamping bodies are mounted on the motor endshield (NDE) in such a manner, that the standard motor dimension LB up to motor size 90 will not be lengthened. From motor size 100 the motor dimension LB1 is valid.
The back stop has been largely dimensioned and corresponds approx. to the motor starting torque ($M_A$) to prevent a damage in case of short-time-starting against the back stop at switchings made by error. Nevertheless, the free direction of rotation must be determined first, especially at big motor powers and we recommend for the first starting the star connection and only then the delta connection at correct rotation.

**Fields of application:**

- Drives for elevators and inclined lifts
- Pumps and fans with backpressure ratchet
- Gearmotors for conveyors with non-reverse characteristic

**KKM - Back stop (ball bearing free-wheelings)**

The elements have bearing characteristics and are used instead of the bearing on the fan side. The outer dimensions are identical to the deep-groove ball bearings.

- *Function*

Rolling elements and spring loaded clamping bodies are built in between inner and outer ring. The rolling elements and ratchet elements are fixed in a plastic cage. Torque transmitting is made by tight fits on the inner and outer ring.
The elements are grease prelubricated. They are maintenance-free for 10,000 to 20,000 hours under normal working conditions.

- *Mounting*

The KKM back stop will be mounted instead of the bearing on the non-driven side.

**RSM - Back stop (with centrifugal mechanism)**

Because the mounted back stops have no bearing properties, they are mounted directly near the non-drive bearing. Above the lifting speed the centrifugal elements are working contactless and so they are maintenance free under normal conditions.

- *Mounting*

The centrifugal elements are mounted directly near the non-driven side bearing between bearing and fan under the fan cover. The inner ring of the back stop is connected with the shaft with a key DIN 6885-1.

- *Direction of rotation*

The direction of rotation has to be given with the ordering.

- *Back stop direction*

Back stop direction at a view on output shaft right or left.
By turning the entire back stop system by 180°, the back stop direction can be reversed (applies only for RSM!).

back stop direction left

back stop direction right

**Back stop overview**

| IEC frame size | Back stop type | Torque [Nm] | Motor length dimension (see page 220) |
|---|---|---|---|
| 63 | KKM | 7,4 | LB |
| 71 | KKM | 13,5 | LB |
| 80 | KKM | 40 | LB |
| 90 | KKM | 68 | LB |
| 100 | RSM | 150 | LB1 |
| 112 | RSM | 150 | LB1 |
| 132 | RSM | 390 | LB1 |
| 160 | RSM | 580 | LB1 |
| 180 | RSM | 580 | LB1 |

## Encoder systems

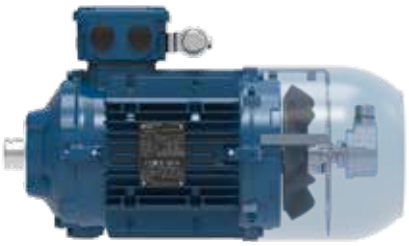
| | |
|---|---|
| **I.** | Encoder outside the fan cover (IEC frame sizes 63 to 180) |
| **S.** | Encoder inside the fan cover (IEC frame sizes 71 to 180) |

**Possible versions:**

| **Encoder outside the fan cover** | | **Encoder inside the fan cover** | |
|---|---|---|---|
| **IG** | Standard encoder | **SG** | Standard encoder |
| **IC** | SINCOS encoder | **SC** | SINCOS encoder |
| **IR** | Resolver | **SR** | Resolver |
| **IS** | SSI multiturn encoder | **SS** | SSI multiturn encoder |
| **IV** | Heavy Duty encoder | **SV** | Heavy Duty encoder |
| **IA** | Special encoder | **SA** | Special encoder |

*Encoder outside the fan cover*

*Standard position connector (M23)*



*Encoder inside the fan cover*

M

### Modular design

We are using encoders with hollow shaft (ø 12 mm) open at one end. The modular motor shafts are fit to attach an encoder set. The mounting of encoders therefore is easy and immediately possible. Add-on kits are easy to retrofit.

### Mounting of encoders

The encoders are equipped with an integral bearing and connected directly on the non-driven motor shaft side. During angular acceleration of the shaft the stator coupling must absorb only the torque resulting from friction in the bearing.

### IG, SG - Standard encoder

Type: Kübler Sendix 5020
Pulses per revolution: 1024
Output signal: HTL or TTL
Voltage supply: 10-30 V at HTL, 5 V at TTL
Degree of protection: IP66
IG standard: with PIN connector (M23) on the encoder
SG standard: with PIN connector (M23) on the terminal box (mating connector not included in delivery)

Other numbers of pulses per revolution on request.

### IC, SC - SINCOS encoder

Pulses per revolution: 1024
Output signal: Sinus 1VSS
Voltage supply: 10-30 V or 5 V
IC standard: with PIN connector (M23) on the encoder
SC standard: with PIN connector (M23) on the terminal box (mating connector not included in delivery)

Other numbers of pulses per revolution on request.

Encoders in standard mechanical designs can also be implemented as electric SINCOS versions. In this case, signals A and B are available on the output as sinusoidal voltage signals with a signal level of 1 VSS or one 0 pulse once per rotation. These can be used in many different ways in the downstream electronics. Via interpolation of the two signals shifted by 90°, very high resolutions are achieved and can therefore also be used with very slow movements for speed control.

### IR, SR - Resolver

Degree of protection: IP54 (IP66 on request)
IR standard: with 0.6 m cable (open one way, 6 strands)
SR standard: with 0.6 m cable (open one way, 6 strands)

Resolvers are primarily 2-pole, electromagnetic measuring transducers for converting the angle position of a rotor into an electrical value. Resolvers are wear-free and robust, as the most important elements for acquiring the information consist only of iron core and copper coils. Contamination therefore plays a lesser role.
The configuration consists of 2 stator coils positioned at an offset of 90° (S1/S3 and S2/S4) and a rotating rotor coil (R1/R2). In this process, the rotor coil supply is inductive, in other words, brushless.
The R1/R2 rotor coil is excited using a sinusoidal alternating voltage. The amplitudes of the voltages induced in stator coils S1/S3 and S2/S4 depend on the rotor angle.

Input voltage: $E_{(R1/R2)} = E \times \sin(\omega t)$

Output: $E_{(S1/S3)} = T_r \times E_{(R1/R2)} \times \cos(\varphi)$
$E_{(S2/S4)} = T_r \times E_{(R1/R2)} \times \sin(\varphi)$

Standard input voltage: $E_{(R1/R2)} = 7$ V
Standard transformation ratio: $T_r = 0.5$

### IS, SS - SSI multi turn encoder

Digits per revolution: 8192 at 4096 possible rotations
Output signal: TTL
Voltage supply: 5 V
Degree of protection: IP66
SS standard execution: with PIN connector on the terminal box

The SSI multiturn absolute encoder signalises a single exactly defined position to the drive frequency controller. Maximum permissable number of motor revolutions can be 4096. The resolution is 8192 steps per revolution. The serial communication is corresponding to the specification of the SSI-protocol. SSI means Synchronous Serial Interface.

The permissible cable length is 100 m at least if EMC-compatible wiring is guaranteed.

### IV, SV - Heavy Duty encoder

Possible for IEC frame sizes 90 to 180
Pulses per revolution: 1024
Output signal: HTL or TTL
Voltage supply: 10 - 30 V at HTL, 5 V at TTL
Degree of protection: IP65
Optional insulation inserts available to protect against shaft currents.

The Heavy Duty encoder boasts a high degree of ruggedness in a very compact design. Its special construction makes it perfect for all applications in very harsh environments.

### IA, SA - Special encoder

The mounting of special encoders is possible on request.

**Type of signal**

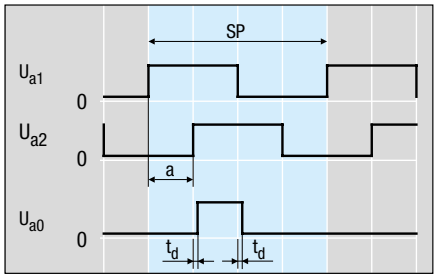
- **HTL-/TTL - output signal**

  Encoders with HTL/TTL square-wave output signals incorporate a circuit that digitises scanning signals, providing two 90° (el.) phase-shifted HTL-/TTL square-wave pulse trains $U_{a1}$ and $U_{a2}$ and a reference pulse $U_{a0}$, which is gated with the incremental signals $U_{a1}$ and $U_{a2}$. The integrated electronics also generate the inverse signals of all square-wave pulse trains. The distance between two successive edges of the combined pulse trains $U_{a1}$ and $U_{a2}$ is one measuring step. HTL/TTL square-wave signals can be transmitted to the subsequent electronics (without inverting: max. cable length 100 m; with inverting: 250 m), provided that the specified 5 V ± 5 % supply voltage is maintained at the encoder. Extended cable length is possible with fiber-optic cable.

- **1VPP - output signals**

  The sinusoidal incremental signals $U_{a1}$ and $U_{a2}$ are phase-shifted by 90° and have signal levels of approximately 1VPP. The signal peaks from the reference mark signal have a usable component of approximately 0.5 V.
  Signal interpolation and digitalisation can be performed by electronics, which output TTL-compatible signals.

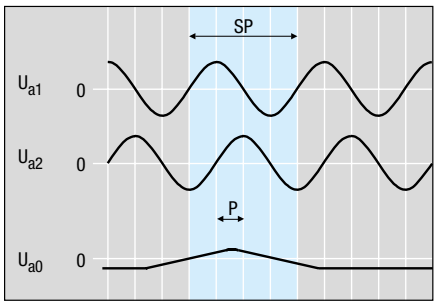
Voltage signals can be transmitted to the subsequent electronics unit over cables as long as 50 m, provided that the specified 5 V ± 5 % supply voltage is maintained at the encoder. Encoders that produce voltage signals have sensor line connections for detection of the supply voltage at the encoder; corresponding control systems in the subsequent electronics can then maintain the voltage tolerance.




*HTL/TTL*

**HTL signal levels**
$U_H \geq 2.1$ V at $I_H = 20$ mA
$U_L \leq 2.8$ V at $I_L = 20$ mA
with power supply +24 V, without cable

**TTL signal levels**
$U_H \geq 2.5$ V at $I_H = 20$ mA
$U_L \leq 0.5$ V at $I_L = 20$ mA




*1VSS*

| | Designation |
|---|---|
| Encoder signals | $U_{a1}$ , $U_{a2}$ |
| Reference pulse | $U_{a0}$ |
| Signal level HIGH | $U_H$ |
| Signal level LOW | $U_L$ |
| Edge separation | a |
| Phase shift | P |
| Current at signal level HIGH | $I_H$ |
| Current at signal level LOW | $I_L$ |
| Signal period | SP |
| Delay time | $t_d$ |

M

## Ventilation systems

| | |
|---|---|
| **FL** | Forced ventilation |
| **ZL** | Fly wheel fan |
| **ZM** | Metal fan |
| **U** | Non-ventilated without NDE shaft end |
| **UW** | Non-ventilated with NDE shaft end |

### FL - Forced ventilation (TEFV, IC416)

IEC frame sizes: 63 to 180

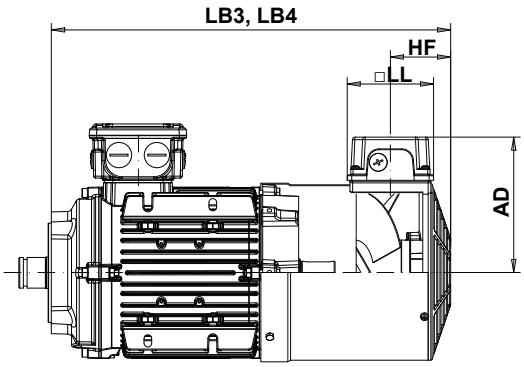
At applications with high starting frequencies, startings against heavy masses, heavy alternating load and operations with frequency inverters, self ventilation of the motor sometimes will not be sufficient and forced ventilation is necessary.
At frequencies under 30 Hz forced ventilation is recommended in order not to thermally overstrain the motor.

**Forced ventilation currents**

| IEC frame size | Phases Connection | Capacitor | 50 Hz | | | | | | 60 Hz | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Voltage range | Current | Power | Speed | Air current capacity | Noise level | Voltage range | Current | Power | Speed | Air current capacity | Noise level |
| | | µF | V | A[1)] | W[1)] | [min$^{-1}$] | m$^3$/h | db(A) | V | A[1)] | W[1)] | [min$^{-1}$] | m$^3$/h | dB(A) |
| 63 | 3~Y | - | 346-525 | 0.07 | 28 | 2875 | 54 | 47 | 380-575 | 0.06 | 28 | 3430 | 69 | 55 |
| | 3~Δ | - | 200-303 | 0.12 | 28 | | | | 220-332 | 0.10 | 28 | | | |
| | 1~⊥Δ | 1.5 | 230-277 | 0.11 | 27 | | | | 230-277 | 0.12 | 32 | | | |
| 71 | 3~Y | - | 346-525 | 0.06 | 31 | 2875 | 78 | 51 | 380-575 | 0.06 | 29 | 3345 | 98 | 57 |
| | 3~Δ | - | 200-303 | 0.11 | 31 | | | | 220-332 | 0.10 | 29 | | | |
| | 1~⊥Δ | 1.5 | 230-277 | 0.10 | 27 | | | | 230-277 | 0.12 | 33 | | | |
| 80 | 3~Y | - | 346-525 | 0.06 | 31 | 2730 | 127 | 55 | 380-575 | 0.06 | 34 | 3180 | 148 | 59 |
| | 3~Δ | - | 200-303 | 0.11 | 31 | | | | 220-332 | 0.10 | 34 | | | |
| | 1~⊥Δ | 1.5 | 230-277 | 0.11 | 29 | | | | 230-277 | 0.14 | 37 | | | |
| 90 | 3~Y | - | 346-525 | 0.22 | 91 | 2890 | 200 | 58 | 380-575 | 0.19 | 77 | 3460 | 240 | 66 |
| | 3~Δ | - | 200-303 | 0.38 | 91 | | | | 220-332 | 0.33 | 77 | | | |
| | 1~⊥Δ | 3.0 | 220-277 | 0.29 | 65 | | | | 220-277 | 0.25 | 65 | | | |
| 100 | 3~Y | - | 346-525 | 0.22 | 91 | 2850 | 260 | 59 | 380-575 | 0.18 | 87 | 3380 | 310 | 70 |
| | 3~Δ | - | 200-303 | 0.37 | 91 | | | | 220-332 | 0.31 | 87 | | | |
| | 1~⊥Δ | 3.0 | 220-277 | 0.28 | 66 | | | | 220-277 | 0.30 | 75 | | | |
| 112 | 3~Y | - | 346-525 | 0.20 | 97 | 2800 | 337 | 61 | 380-575 | 0.8 | 103 | 3305 | 411 | 70 |
| | 3~Δ | - | 200-303 | 0.35 | 97 | | | | 220-332 | 0.31 | 103 | | | |
| | 1~⊥Δ | 3.0 | 220-277 | 0.28 | 71 | | | | 220-277 | 0.37 | 94 | | | |
| 132 | 3~Y | - | 346-525 | 0.37 | 160 | 2800 | 532 | 69 | 380-575 | 0.52 | 180 | 3330 | 633 | 75 |
| | 3~Δ | - | 200-303 | 0.64 | 160 | | | | 220-332 | 0.55 | 180 | | | |
| | 1~⊥Δ | 6.0 | 230-277 | 0.52 | 125 | | | | 230-277 | 0.61 | 163 | | | |
| 160 | 3~Y | - | 346-525 | 0.74 | 314 | 2780 | 935 | 74 | 380-575 | 0.62 | 391 | 3250 | 1068 | 77 |
| | 3~Δ | - | 200-303 | 1.28 | 314 | | | | 220-332 | 1.08 | 391 | | | |
| | 1~⊥Δ | 12 | 230-277 | 1.05 | 246 | | | | 230-277 | 1.52 | 390 | - | - | - |
| 180 | 3~Y | - | 346-525 | 0.74 | 314 | 2780 | 1145 | 75 | 380-575 | 0.62 | 391 | 3250 | 1270 | 80 |
| | 3~Δ | - | 200-303 | 1.28 | 314 | | | | 220-332 | 1.08 | 391 | | | |
| | 1~⊥Δ | 12 | 230-277 | 1.05 | 246 | | | | 230-277 | 1.52 | 390 | - | - | - |

*1) maximum permissible values*

M




| IEC frame size | AD | HF | □LL |
|---|---|---|---|
| 63 | 115 | 60 | 95 |
| 71 | 123 | 60 | 95 |
| 80 | 132 | 60 | 95 |
| 90 | 142 | 70 | 95 |
| 100 | 151 | 70 | 95 |
| 112 | 163 | 70 | 95 |
| 132 | 183 | 52,5 | 95 |
| 160 | 210 | 52,5 | 95 |
| 180 | 210 | 80 | 95 |

*Dimensions in mm.*
*Dimensions LB3 and LB4 see drawings from page 220*

### ZL - Fly wheel fan

IEC frame sizes: 71 to 132 (special execution)

Fly wheel fans increase the inertial moment of the standard motors by a multiple and help to decrease the start up time of the motors. Motors with fly wheel fan often are used at crane drives or machine-systems where a soft start up is required. Available for motor sizes 71 to 132 on request, exchangeable without modification with standard fan, pay attention to the reduced starting frequency! Braking by reversal and driving up against a buffer stop is not permissible.

Motor without brake: $J_{ges} = J_{mot} + J_{ZL}$
Brake motor: $J_{ges} = J_{mot} + J_{ZL} + J_B$

| | Designation | Unit |
|---|---|---|
| Total mass moment of inertia | $J_{ges}$ | [kgm²] |
| Mass moment of motor | $J_{mot}$ | [kgm²] |
| Mass moment of brake | $J_B$ | [kgm²] |
| Mass moment of fly wheel fan | $J_{ZL}$ | [kgm²] |
| Weight of fly wheel fan | m | [kg] |

| IEC frame size | $J_{ZL}$ [kgm²] x $10^{-3}$ | m [kg] |
|---|---|---|
| 71 | 2 | 1.3 |
| 80 | 2 | 1.3 |
| 90 | 3 | 1.6 |
| 100 | 10 | 3.3 |
| 112 | 10 | 3.3 |
| 132 | 14 | 3.8 |

### ZM - Metal fan

Possible from frame size 71 as option

For ambient temperatures which are lesser than or greater than the operation temperatures of the standard plastic fan wheels, the ventilation can be provided via metal fan wheels. These can be manufactured from aluminium, steel plate or cast iron. Using a metal fan can be appropriate in the event of difficult climatic conditions.

### U - Non-ventilated without NDE shaft end (TENV)

IEC frame size: 63 to 180

In this version, there is no fan or fan cover. The NDE is completely enclosed. A cover plate is used as the sealing component. This prevents dirt, water, etc. from entering the motor.

### UW - Non-ventilated with NDE shaft end (TENV)

IEC frame size: 63 to 180

This design is realised by omitting the fan. The standard fan cover is used as contact protection for the remaining NDE rotating shaft. Motors of these designs are intended for use in systems where fans or fan covers integrated into the motor are not appropriate due to the environmental conditions, for design reasons or at the customer's request. The motors are therefore designed without integrated fans or fan covers.

In the non-ventilated version, the resulting reduction in nominal motor output must be observed!

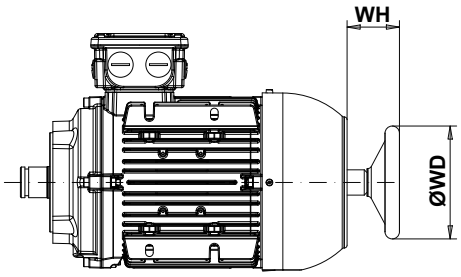
## Additional modules

| | |
|---|---|
| **HR** | Hand wheel |
| **SD** | Protection cap |
| **ID** | Protection cap for encoders |
| **ZWM** | Second shaft end - module shaft |
| **ZWV** | Second shaft end - solid shaft |

### HR - Hand wheel

IEC frame sizes: 71 to 180

By using a second shaft end it is possible to fit a hand wheel.



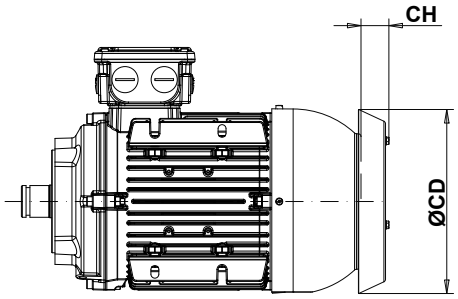

| IEC frame size | ØWD | WH |
|---|---|---|
| 71 | 125 | 51 |
| 80 | 125 | 51 |
| 90 | 125 | 51 |
| 100 | 125 | 51 |
| 112 | 125 | 51 |
| 132 | 200 | 60 |
| 160 | 200 | 60 |
| 180 | 200 | 60 |

*Dimensions in mm.*

### SD - Protection cap

IEC frame sizes: 63 to 180

When installed vertically with the shaft downward, e.g. IM V1, the air intake opening can be protected against water and foreign substance by means of a protective cap.



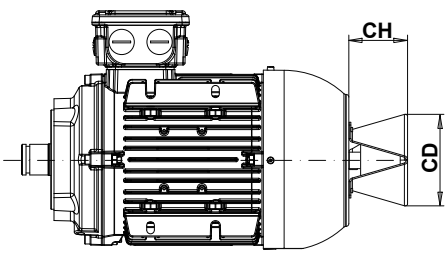

| IEC frame size | ØCD | CH |
|---|---|---|
| 63 | 124 | 20 |
| 71 | 139 | 20 |
| 80 | 157 | 20 |
| 90 | 176 | 20 |
| 100 | 197 | 32 |
| 112 | 219 | 35 |
| 132 | 254 | 35 |
| 160 | 266 | 52 |
| 180 | 310 | 57 |

*Dimensions in mm.*

### ID - Protection cap for encoders

IEC frame sizes: 90 to 180

If mounted outside the fan cover, the encoder may be protected against foreign matter and other external influence by a separate protection cap.




| Protection cap for | CD | CH |
|---|---|---|
| IG<br>standard encoder | 74 | 116 |
| IV<br>Heavy Duty<br>encoder | 115 | 183 |

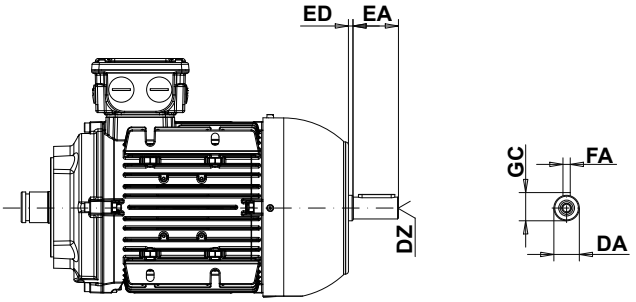
*Dimensions in mm.*

## ZW. - Second shaft end

Motors with or without brake can be supplied with a second free shaft end.

**ZWM: Module shaft**
IEC frame sizes: 71 to 180. This shaft end can be used to transfer half the rated output of the motor.

**ZWV: Solid shaft**
IEC frame sizes: 63 to 180. Available on request.




| IEC frame size | DA | DZ [2] | EA | ED | FA | GC |
|---|---|---|---|---|---|---|
| 63 [1] | 11 | M4 | 23 | - | 4 | 12.5 |
| 71 | 14 | M5 | 30 | 5 | 5 | 16 |
| 80 | 14 | M5 | 30 | 5 | 5 | 16 |
| 90 | 19 | M6 | 40 | 5 | 6 | 21.5 |
| 100 | 24 | M8 | 50 | 5 | 8 | 27 |
| 112 | 24 | M8 | 50 | 5 | 8 | 27 |
| 132 | 28 | M10 | 60 | 5 | 8 | 31 |
| 160 | 38 | M12 | 80 | 5 | 10 | 41 |
| 180 | 38 | M12 | 80 | 5 | 10 | 41 |

| Tolerances | | |
|---|---|---|
| Dimension name | ISO tolerance DIN EN ISO 286-2 | |
| DA | ≤ Ø 30 mm | j6 |
| | > Ø 30 mm up to Ø 50 mm | k6 |

*Dimensions in mm. [1] ZWV only [2] centre hole with thread according to DIN 332-1*

M

# Standards

The motors comply with the competent standards and specifications, especially with the following:

| Title | IEC | DIN / EN / VDE |
|---|---|---|
| Rotating electrical machines<br>Rating and performance | IEC 60034-1<br>IEC 60085 | DIN EN 60034-1 |
| Standard methods for determining losses and efficiency from tests<br>(excluding machines for traction vehicles) | IEC 60034-2-1 | DIN EN 60034-2-1 |
| Degrees of protection provided by integral design of rotating electrical machines (IP Code) | IEC 60034-5 | DIN EN 60034-5 |
| Methods of cooling (IC Code) | IEC 60034-6 | DIN EN 60034-6 |
| Classification of types of construction, mounting arrangements and terminal box position (IM Code) | IEC 60034-7 | DIN EN 60034-7 |
| Terminal markings and direction of rotation | IEC 60034-8 | DIN EN 60034-8 |
| Noise limits | IEC 60034-9 | DIN EN 60034-9 |
| Starting performance of single-speed three-phase cage induction motors | IEC 60034-12 | DIN EN 60034-12 |
| Mechanical vibration of certain machines with shaft heights 56 mm and higher -<br>measurement, evaluation and limits of vibration severity | IEC 60034-14 | DIN EN 60034-14 |
| Dimensions and output series for rotating electrical machines | IEC 60072-1 | DIN EN 50347 |
| Thermal protection | IEC 60034-11 | DIN EN 60034-11 |
| CENELEC standard voltages | IEC 60038 | DIN EN 60038 |

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