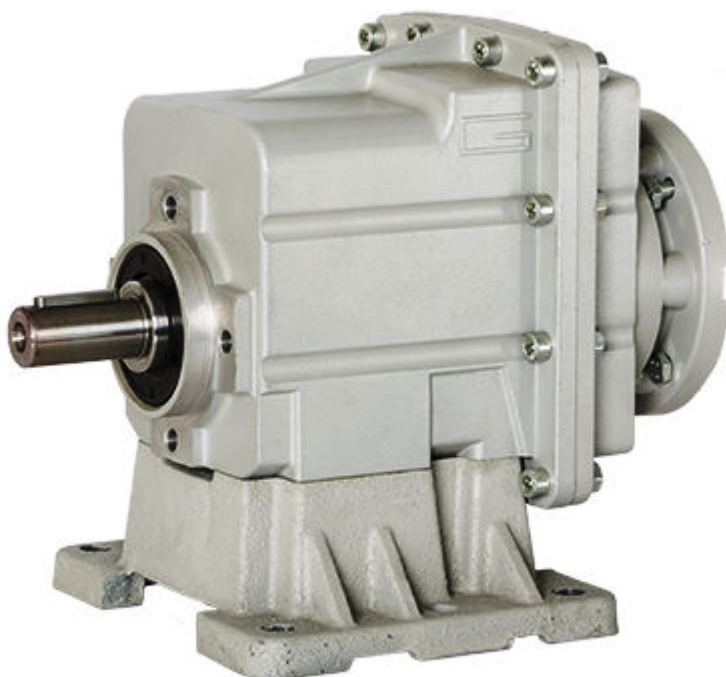




*Helical gears reducers*

# ***HGX Series***

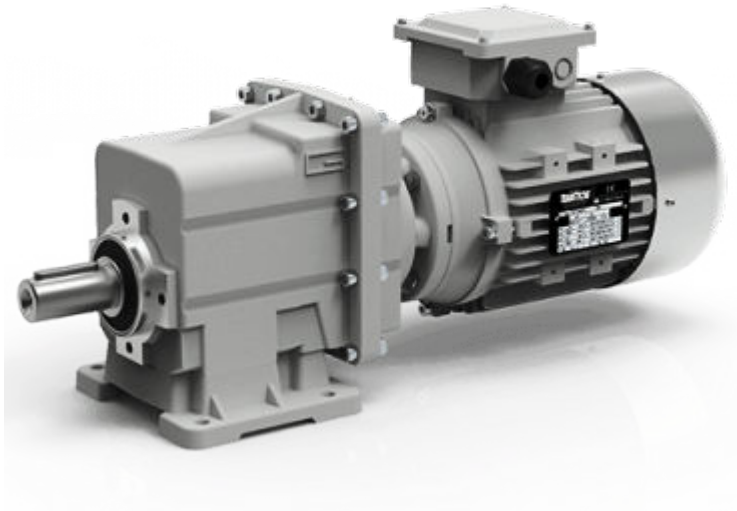
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Powerful, efficient and flexible...

Technical catalogue



# Quality management and certificates



VYBO Electric is a modern High-tech energy saving company that pays high attention to quality, environment, safety and precision and efficiency of work and energy in production. Therefore, it holds a lot of certificates and quality control systems. **Our priority is quality control.**

## Basic certificates include:

### ISO9001

The primary task of the ISO 9001 standard is to focus on system management and quality management in the organization. The satisfaction of the customer and the fulfillment of his requirements, which are specified in contracts, orders, or technical drawings, are in the first place. The quality management system is linked to all processes in the company. The standard focuses on the management of human and financial resources, on the stability of infrastructure, including buildings, transport, hardware, software and other communication or information technologies. An important part is also the planning of production and services, the management of the purchasing process, but also the management of non-conforming products.



### ISO14001

The main priority of the ISO 14001 standard is to identify and understand the environmental aspects and activities that are related to the entire infrastructure of the company and, based on this, to regulate the environmental impact on the environment.

In its scope, the ISO 14001 standard creates the conditions for determining environmental goals and plans, the fulfillment of which is examined at regular intervals by top management and also by an independent body during internal audits.

This standard is intended for all organizations and companies that consider environmental protection as their primary goal.

The benefit of the standard for society is mainly:

- control over the environmental impact on the environment
- control over produced emissions and waste
- saving material and energy
- prevention of accidents
- compliance of the company's activities with legal requirements
- zero fines for environmental behavior
- creation of a good reputation and prestige of the company



## The ISO 45001

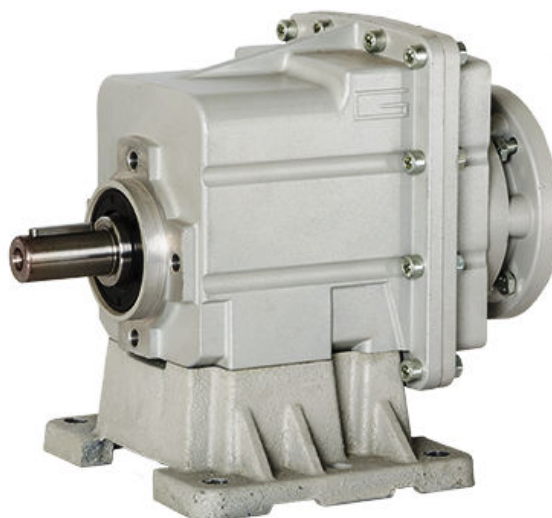
Specification (formerly known as OHSAS 18001) is an internationally recognized standard that declares compliance with the principles of a safe enterprise, managing risks at work and protecting the health of workers during work. It does not only concern danger and accidents, but also emphasizes other aspects such as the good condition and mental well-being of the employee.

The certificate is held in Slovakia as STN ISO 45001:2019 and is under the title Management systems of safety and health protection at work. Requirements with guidance for use. It replaces the STN OHSAS 18001 standard.



## ISO50001

Energy management systems Energy efficiency help organizations save money, save energy resources and also help to prevent climate change. ISO 50001 encourages organizations in all sectors to use energy more efficiently through the development of an energy management system. The international standard ISO 50001: 2011 specifies the requirements for building, maintaining and improving the energy system. It aims to enable organizations to implement a systematic approach that will help achieve lasting improvements in energy efficiency, energy use and consumption.



# Summarize



HGX series helical gear units is a new generation mechanic-electrical integrated product, which designed basing on the modular system. It can be connected respectively with motors such as normal motor, brake motor, frequency conversion motor, servo motor, IEC motor and so on. It can be mounted discretionary six orientation in solid space. This kind of product is widely used in drive fields such as textile, foodstuff, beverage, chemical industry, automatic arm ladder, automatic storage equipment, metallurgy, tobacco, environment protection, logistics and so on.

## Product characteristics

- Modularity;
- High efficiency;
- Low noise;
- Space effective, refined design;
- Universal mounting;
- Aluminium housing, light weight;
- Gears in carbonize hard, durable;
- Multistructure, can be combined in many forms to meet needs of all kinds of transmission conditions.

HGX series helical gear units has more than 4 types. Power 0,12-4 kW; Ratio: 3.66-54; Torque max 120-500Nm. It can be connected (foot, max 120-500 Nm. It can be connected (foot, flange) discretionary and use multi-mounting positions according to customer's requirements.

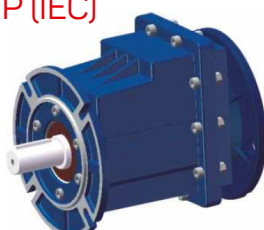
## TYPES

### HGX..P (IEC)



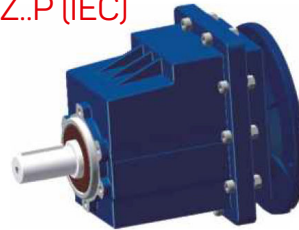
Foot-mounted helical gear unit

### HGXF...P (IEC)



Flange-mounted helical gear unit

### HGXZ..P (IEC)



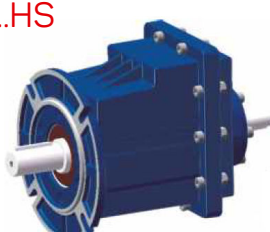
B14 Flange-mounted helical gear unit

### HGX..HS



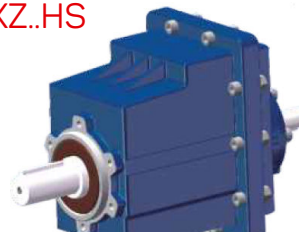
Shaft input foot-mounted helical gear unit

### HGXF..HS



Shaft input flange-mounted helical gear unit

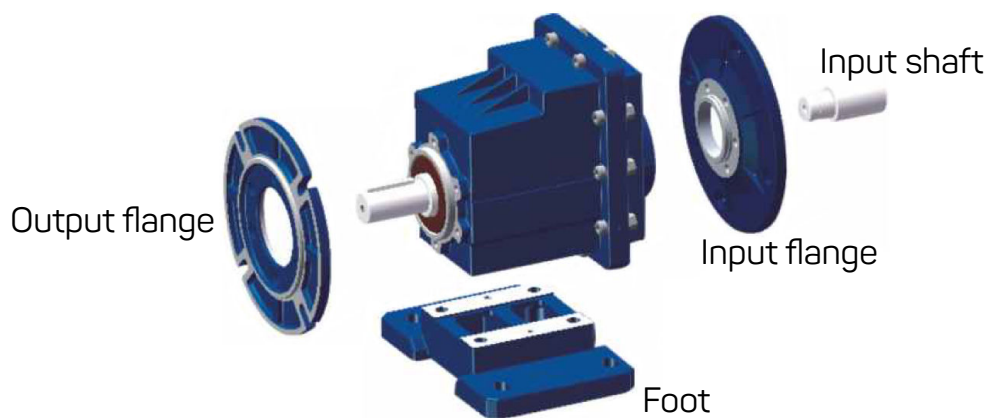
### HGXZ..HS



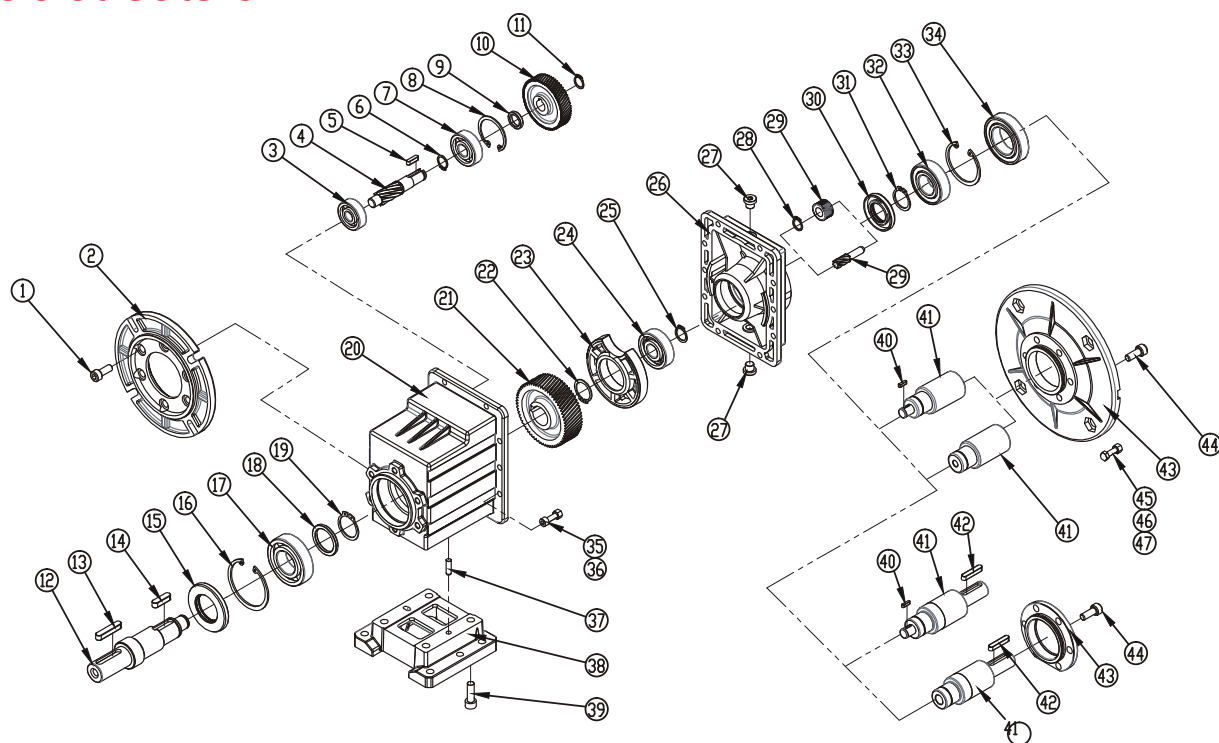
Shaft input B14 flange-mounted helical gear unit



# Structure form



## Basic structure



|                         |                  |                  |                          |                          |
|-------------------------|------------------|------------------|--------------------------|--------------------------|
| 1 Socket head cap screw | 11 Shaft circlip | 21 Gear          | 31 Shaft circlip         | 41 Input shaft           |
| 2 Output flange         | 12 Output shaft  | 22 Shaft circlip | 32 Bearing               | 42 Key                   |
| 3 Bearing               | 13 Key           | 23 Support seat  | 33 Hole circlip          | 43 Input flange          |
| 4 Pinion shaft          | 14 Key           | 24 Bearing       | 34 Bearing               | 44 Socket head cap screw |
| 5 Key                   | 15 Oil seal      | 25 Shaft circlip | 35 Socket head cap screw | 45 Hex head bolt         |
| 6 Retaining ring        | 16 Hole circlip  | 26 Input cover   | 36 Hex nut               | 46 Washe                 |
| 7 Bearing               | 17 Bearing       | 27 Oil plug      | 37 Cylindrical pin       | 47 Hex nut               |
| 8 Hole circlip          | 18 Washer        | 28 Shaft circlip | 38 Foot                  |                          |
| 9 Spacer ring           | 19 Shaft circlip | 29 Pinion        | 39 Socket head cap screw |                          |
| 10 Gear                 | 20 Gear box      | 30 Oil seal      | 40 Key                   |                          |





**VYBO**  
*INDUSTRIAL  
GEARS*

The logo for Vybo Electric is a diamond-shaped emblem. Inside the diamond, the word "Vybo" is written in a bold, black, sans-serif font. A red triangle is positioned between the "y" and "b". Below "Vybo", the word "Electric" is written in a black, italicized, sans-serif font, followed by a red lightning bolt icon. The entire logo is set against a white background with a black border.

# Relevant parameters

## Rotation speed n

n1 - Gear units input speed

n2 - Gear units output speed

If driven by the external gearing, 1400 r/min or lower rotation speed is suggested so as to optimize the working conditions and prolong the service life. Higher input rotation speed is permitted, but in this situation, the rated torque M2 will be reduced.

## Transmission ratio i

$$i = \frac{n1}{n2}$$

Usually transmission ratio is decimal fraction with 2 radix point tagged in selection tables.

## Torque M

$$M2 = \frac{9550 \cdot P1 \cdot \eta}{n2} \text{ [Nm]}$$

$$M2n \geq M2 \cdot K \text{ [Nm]}$$

M2 - Output torque

M2n - Rated output torque

P1 - Input power

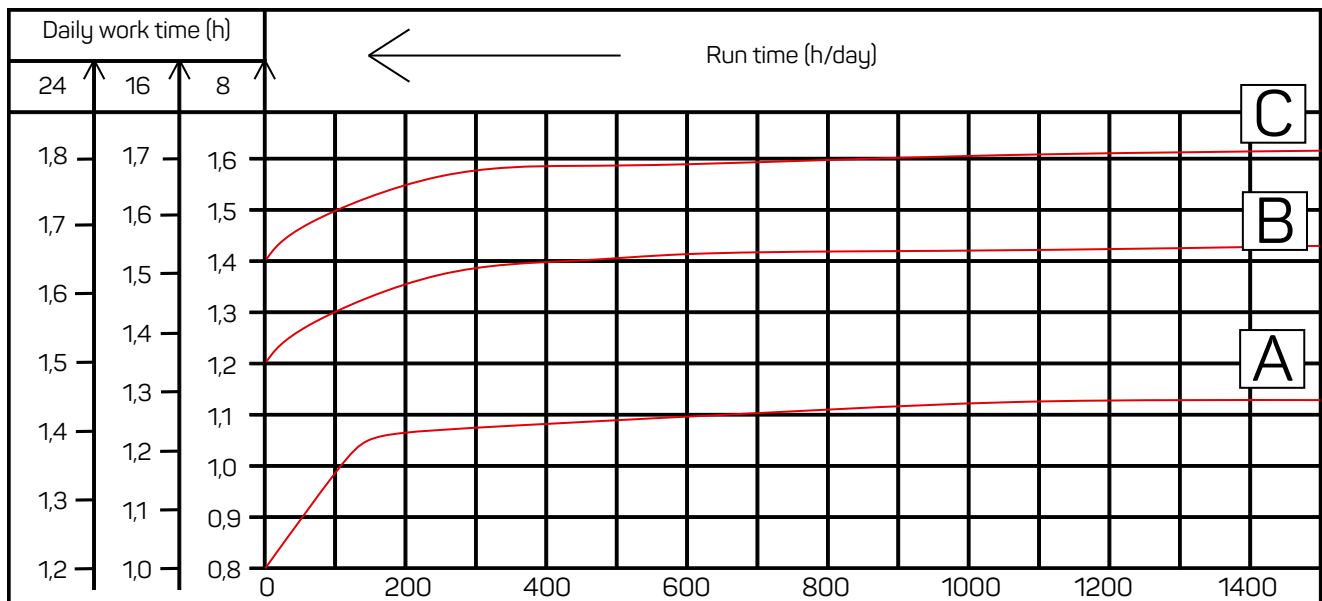
$\eta$  - Transmission efficiency

K - Service factor

# Relevant parameters

## Service Factor K

The effect of the driven machine on the gear unit is taken into account to a sufficient level of accuracy using the service factor K. The service factor is determined according to the daily operating time and the starting frequency Z. Three load classifications are considered depending on the mass acceleration factor. You can read off the service factor applicable to your application in following figure. The service factor selected using this diagram must be less than or equal to the service factor as given in the performance parameter table.



Starting up frequency z (1/h)

starting frequency z: the cycles include all starting and braking procedures as well as change overs from low to high speed.

Load classifications

A Uniformshock load, permitted mass acceleration factor  $\leq 0,2$

B Moderate shock load, permitted mass acceleration factor  $\leq 0,3$

C Heavy shock load, permitted mass acceleration factor  $\leq 10$

Load classifications see the addendum.

Mass acceleration factor

The mass acceleration factor is calculated as follows:  $f_a = \frac{J_c}{J_m}$

$f_a$ : Mass acceleration factor

$J_c$ : All external mass moments of inertia [kgm<sup>2</sup>]

$J_m$ : Mss moment of inertia on the motor end [kgm<sup>2</sup>]

# Relevant parameters

## Radial loads $F_r$

While determining the resulting radial loads, the type of transmission elements, mounted on the shaft end must be considered. Various transmission elements are corresponding with following transmission element factors  $f_z$ :

| Transmission element    | Transmission element factor $F_z$ | Comments                       |
|-------------------------|-----------------------------------|--------------------------------|
| Gears                   | 1,00                              | $\geq 17$ teeth                |
|                         | 1,15                              | $< 17$ teeth                   |
| Chain sprockets         | 1,00                              | $\geq 20$ teeth                |
|                         | 1,25                              | $< 20$ teeth                   |
|                         | 1,40                              | $< 13$ teeth                   |
| Narrow V - belt pulleys | 1,75                              | Influence of the tensile force |
| Flat belt pulleys       | 2,50                              | Influence of the tensile force |
| Toothed belt pulleys    | 2,50                              | Influence of the tensile force |

The overhung load exerted on the motor or gear shaft is then calculated as follows:

$$F_r = \frac{M \times 2000 \times f_z}{(b + x)} \text{ [N]}$$

$F_r$ : Resulting radial load [N]

$M$ : Torque on the shaft [N]

$d$ : Mean diameter of the mounted transmission element in [mm]

$f_z$ : Transmission element factor

The overhung loads exerted on the motor or gear shaft is then calculated as follows:

$$F_x L \leq \frac{M \times 2000 \times f_z}{(b + x)} \text{ [N]}$$

$F_r$ : Permitted overhung load ( $x=L/2$ ) for foot-mounted gear units according to the selection tables in [N]  $a, b$  gear unit constant for overhung load conversion [mm]

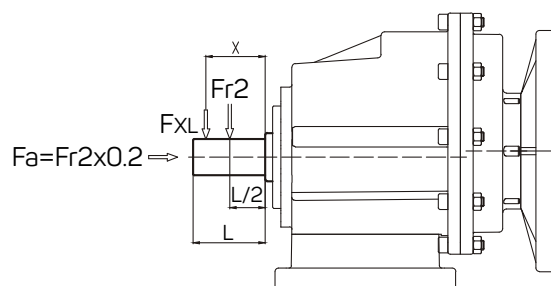
## Relevant parameters

Distance from the shaft shoulder to the force application point in [mm]

The values of a, b, Fr2 are given in the following tables:

|   | HGX01 | HGX02 | HGX03 | HGX04 |
|---|-------|-------|-------|-------|
| a | 103   | 116,5 | 130   | 147   |
| b | 83    | 91,5  | 100   | 112   |

Fr2, Fa / Output shafts radial loads & axial loads Fr2, Fa



| n2[min-1] |       | 10   | 40   | 60   | 80   | 100  | 120  | 150  | 180  | 250  | 400  |
|-----------|-------|------|------|------|------|------|------|------|------|------|------|
| Fr2[N]    | HGX01 | 2500 | 2500 | 2180 | 1980 | 1840 | 1630 | 1400 | 1320 | 1080 | 920  |
|           | HGX02 | 5000 | 5000 | 4370 | 3970 | 3680 | 3470 | 2710 | 2550 | 2150 | 1840 |
|           | HGX03 | 6500 | 6500 | 5550 | 5040 | 4510 | 3800 | 3530 | 3320 | 2800 | 2390 |
|           | HGX04 | 8000 | 8000 | 6590 | 5990 | 5230 | 4570 | 4240 | 3900 | 3350 | 2860 |

## Selection tables comments



Combination with the IEC in the header row is possible

Combination with the IEC in the header row is not possible

P1n Rated power driving motor [kW];

n2 Output speed [r/min];

M2n Rated output torque [Nm];

M2 max Permissible output torque [Nm];

i Gear unit ratio;

k Service factor;



Gear unit type;



Motor type

# Selection examples

## Gear units

Example: The required torque on driven machine is 400Nm, works for 6 hours per day, uniform shock load, start-up frequency is 400 times per hour,  $\Phi$  200mm output flange-mounted,  $n_2=30$ r/min see tables,  $K=1.05$

$$M_{2n} \geq M_2 \times K = 400 \times 1,05 = 420 \text{ [Nm]}$$

$$i = \frac{n_1}{n_2} = \frac{1400}{30} = 46,67$$

Choose type:  
HGXF04 II - P90B5 - 44.18

## Gear motor

Example: The required power on driven machine 1kW, works for 8 hours per day, moderate shock load, start-up continuously, M6 foot-mounted,  $n_2=95$ r/min, see tables,  $K=1,35$

$$i = \frac{n_1}{n_2} = \frac{1400}{95} = 14,74$$

$$P_{1n} \geq P_1 \times K = P_2/n \times K = 1/0,96 \times 1,35 = 1,41 \text{ [kW]}$$

Choose type:  
HGXF02 - P90B5 - 14,81 - 1.5 -4 - M6

# Ratio and IEC motor adapters



**HGX...01...P (IEC)**

120 N.M

| i     | 63B5 | 71B5<br>71B14 | 80B5<br>80B14 | 90B5<br>90B14 |
|-------|------|---------------|---------------|---------------|
| 53,33 |      |               |               |               |
| 45,89 |      |               |               |               |
| 40,10 |      |               |               |               |
| 35,47 |      |               |               |               |
| 28,50 |      |               |               |               |
| 23,56 |      |               |               |               |
| 19,83 |      |               |               |               |
| 17,86 |      |               |               |               |
| 14,62 |      |               |               |               |
| 13,80 |      |               |               |               |
| 11,90 |      |               |               |               |
| 9,81  |      |               |               |               |
| 9,17  |      |               |               |               |
| 7,72  |      |               |               |               |
| 5,69  |      |               |               |               |
| 4,63  |      |               |               |               |
| 3,82  |      |               |               |               |

**HGX...02...P (IEC)**

200 N.M

| i     | 63B5 | 71B5<br>71B14 | 80B5<br>80B14 | 90B5<br>90B14 |
|-------|------|---------------|---------------|---------------|
| 54,00 |      |               |               |               |
| 46,46 |      |               |               |               |
| 40,60 |      |               |               |               |
| 35,91 |      |               |               |               |
| 28,88 |      |               |               |               |
| 23,85 |      |               |               |               |
| 20,08 |      |               |               |               |
| 17,10 |      |               |               |               |
| 14,81 |      |               |               |               |
| 13,21 |      |               |               |               |
| 12,05 |      |               |               |               |
| 9,93  |      |               |               |               |
| 8,78  |      |               |               |               |
| 7,39  |      |               |               |               |
| 5,45  |      |               |               |               |
| 4,43  |      |               |               |               |
| 3,66  |      |               |               |               |

**HGX...03...P (IEC)**

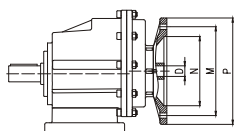
300 N.M

| i     | 71B5 | 80B5<br>80B14 | 90B5<br>90B14 | 100B5<br>100B14 | 112B5<br>112B14 |
|-------|------|---------------|---------------|-----------------|-----------------|
| 58,09 |      |               |               |                 |                 |
| 50,02 |      |               |               |                 |                 |
| 43,75 |      |               |               |                 |                 |
| 38,73 |      |               |               |                 |                 |
| 34,62 |      |               |               |                 |                 |
| 28,30 |      |               |               |                 |                 |
| 21,78 |      |               |               |                 |                 |
| 17,33 |      |               |               |                 |                 |
| 15,06 |      |               |               |                 |                 |
| 12,37 |      |               |               |                 |                 |
| 10,28 |      |               |               |                 |                 |
| 7,93  |      |               |               |                 |                 |
| 6,31  |      |               |               |                 |                 |
| 5,48  |      |               |               |                 |                 |
| 4,50  |      |               |               |                 |                 |
| 3,74  |      |               |               |                 |                 |

**HGX...04...P (IEC)**

500 N.M

| i     | 80B5<br>80B14 | 90B5<br>90B14 | 100B5<br>100B14 | 112B5<br>112B14 |
|-------|---------------|---------------|-----------------|-----------------|
| 58,09 |               |               |                 |                 |
| 50,02 |               |               |                 |                 |
| 43,75 |               |               |                 |                 |
| 38,73 |               |               |                 |                 |
| 34,62 |               |               |                 |                 |
| 28,30 |               |               |                 |                 |
| 21,78 |               |               |                 |                 |
| 17,33 |               |               |                 |                 |
| 15,06 |               |               |                 |                 |
| 12,37 |               |               |                 |                 |
| 10,28 |               |               |                 |                 |
| 7,93  |               |               |                 |                 |
| 6,31  |               |               |                 |                 |
| 5,48  |               |               |                 |                 |
| 4,50  |               |               |                 |                 |
| 3,74  |               |               |                 |                 |



| IEC             | 63B5 | 71B5 | 71B14 | 80B5 | 80B14 | 90B5 | 90B14 | 100B5 | 100B14 | 112B5 | 112B14 |
|-----------------|------|------|-------|------|-------|------|-------|-------|--------|-------|--------|
| D <sub>as</sub> | 11   | 14   |       | 19   |       | 24   |       | 28    |        | 28    |        |
| P               | 140  | 160  | 105   | 200  | 140   | 200  | 140   | 250   | 160    | 250   | 160    |
| M               | 115  | 130  | 85    | 165  | 115   | 165  | 115   | 215   | 130    | 215   | 130    |
| N               | 95   | 110  | 70    | 130  | 95    | 130  | 95    | 180   | 110    | 180   | 110    |



# Gear unit selection tables



## Performance parameter of HGX..P (IEC)

| P <sub>1n</sub><br>kW | n <sub>2</sub><br>r/min | M <sub>2n</sub><br>Nm | i     | k    |        |  |  |
|-----------------------|-------------------------|-----------------------|-------|------|--------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 0,12                  | 26,3                    | 42                    | 53,33 | 2,9  | HGX01  | 63B5                                                                                | 6314                                                                                |
|                       | 30,5                    | 36                    | 45,89 | 3,3  | HGXF01 | 63B5                                                                                | 6314                                                                                |
|                       | 34,9                    | 32                    | 40,10 | 3,8  | HGXZ01 | 63B5                                                                                | 6314                                                                                |
|                       | 39,5                    | 28                    | 35,47 | 4,3  |        |                                                                                     |                                                                                     |
|                       | 49,1                    | 22                    | 28,50 | 5,4  |        |                                                                                     |                                                                                     |
|                       | 59,4                    | 18,5                  | 23,56 | 6,5  |        |                                                                                     |                                                                                     |
|                       | 70,6                    | 15,6                  | 19,83 | 7,7  |        |                                                                                     |                                                                                     |
|                       | 78,4                    | 14,0                  | 17,86 | 7,1  |        |                                                                                     |                                                                                     |
|                       | 95,8                    | 11,5                  | 14,62 | 10,4 |        |                                                                                     |                                                                                     |
|                       | 101                     | 10,8                  | 13,80 | 9,2  |        |                                                                                     |                                                                                     |
|                       | 118                     | 9,4                   | 11,90 | 12,8 |        |                                                                                     |                                                                                     |
|                       | 143                     | 7,7                   | 9,81  | 13,0 |        |                                                                                     |                                                                                     |
|                       | 153                     | 7,2                   | 9,17  | 11,1 |        |                                                                                     |                                                                                     |
|                       | 181                     | 6,1                   | 7,72  | 13,2 |        |                                                                                     |                                                                                     |
|                       | 246                     | 4,5                   | 5,69  | 13,4 |        |                                                                                     |                                                                                     |
|                       | 302                     | 3,6                   | 4,63  | 16,5 |        |                                                                                     |                                                                                     |
|                       | 366                     | 3,0                   | 3,82  | 20,0 |        |                                                                                     |                                                                                     |
| 0,18                  | 16,9                    | 98                    | 53,33 | 1,2  | HGX01  | 71B5                                                                                | 7116                                                                                |
|                       | 19,6                    | 84                    | 45,89 | 1,4  | HGXF01 | 71B5                                                                                | 7116                                                                                |
|                       | 22,4                    | 74                    | 40,10 | 1,6  | HGXZ01 | 71B5                                                                                | 7116                                                                                |
|                       | 25,4                    | 65                    | 35,47 | 1,8  |        |                                                                                     |                                                                                     |
|                       | 31,6                    | 52                    | 28,50 | 2,3  |        |                                                                                     |                                                                                     |
|                       | 26,3                    | 63                    | 53,33 | 1,9  | HGX01  | 63B5                                                                                | 6324                                                                                |
|                       | 30,5                    | 54                    | 45,89 | 2,2  | HGXF01 | 63B5                                                                                | 6324                                                                                |
|                       | 34,9                    | 47                    | 40,10 | 2,5  | HGXZ01 | 63B5                                                                                | 6324                                                                                |
|                       | 39,5                    | 42                    | 35,47 | 2,9  |        |                                                                                     |                                                                                     |
|                       | 49,1                    | 34                    | 28,50 | 3,6  |        |                                                                                     |                                                                                     |
|                       | 59,4                    | 28                    | 23,56 | 4,3  |        |                                                                                     |                                                                                     |
|                       | 70,6                    | 23                    | 19,83 | 5,1  |        |                                                                                     |                                                                                     |
|                       | 78,4                    | 21                    | 17,86 | 4,8  |        |                                                                                     |                                                                                     |
|                       | 95,8                    | 17,2                  | 14,62 | 7,0  |        |                                                                                     |                                                                                     |
|                       | 101                     | 16,3                  | 13,80 | 6,1  |        |                                                                                     |                                                                                     |
|                       | 118                     | 14,0                  | 11,90 | 8,6  |        |                                                                                     |                                                                                     |
|                       | 143                     | 11,6                  | 9,81  | 8,6  |        |                                                                                     |                                                                                     |
|                       | 153                     | 10,8                  | 9,17  | 7,4  |        |                                                                                     |                                                                                     |
|                       | 181                     | 9,1                   | 7,72  | 8,8  |        |                                                                                     |                                                                                     |
|                       | 246                     | 6,7                   | 5,69  | 8,9  |        |                                                                                     |                                                                                     |
|                       | 302                     | 5,5                   | 4,63  | 11,0 |        |                                                                                     |                                                                                     |
|                       | 366                     | 4,5                   | 3,82  | 13,3 |        |                                                                                     |                                                                                     |
|                       | 16,7                    | 99                    | 54,00 | 2,0  | HGX02  | 71B5                                                                                | 7116                                                                                |
|                       | 19,4                    | 85                    | 46,46 | 2,3  | HGXF02 | 71B5                                                                                | 7116                                                                                |
|                       | 22,2                    | 74                    | 40,60 | 2,7  | HGXZ02 | 71B5                                                                                | 7116                                                                                |
|                       | 25,1                    | 66                    | 35,91 | 3,0  |        |                                                                                     |                                                                                     |
|                       | 31,2                    | 53                    | 28,88 | 3,8  |        |                                                                                     |                                                                                     |
|                       | 25,9                    | 64                    | 54,00 | 3,1  | HGX02  | 63B5                                                                                | 6324                                                                                |
|                       | 30,1                    | 55                    | 46,46 | 3,7  | HGXF02 | 63B5                                                                                | 6324                                                                                |
|                       | 34,5                    | 48                    | 40,46 | 4,2  | HGXZ02 | 63B5                                                                                | 6324                                                                                |



# Gear unit selection tables

## Performance parameter of HGX..P (IEC)



| P <sub>1n</sub><br>kW | n <sub>2</sub><br>r/min | M <sub>2n</sub><br>Nm | i     | k    |  |  |      |
|-----------------------|-------------------------|-----------------------|-------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|
| 0,25                  | 16,9                    | 136                   | 53,33 | 0,88 | HGX01                                                                               | 71B5/B14                                                                            | 7126 |
|                       | 19,6                    | 117                   | 45,89 | 1,0  | HGXF01                                                                              | 71B5/B14                                                                            | 7126 |
|                       | 22,4                    | 102                   | 40,10 | 1,2  | HGXZ01                                                                              | 71B5/B14                                                                            | 7126 |
|                       | 25,4                    | 90                    | 35,47 | 1,3  |                                                                                     |                                                                                     |      |
|                       | 31,6                    | 73                    | 28,50 | 1,7  |                                                                                     |                                                                                     |      |
|                       | 26,3                    | 87                    | 53,33 | 1,4  | HGX01                                                                               | 71B5/B14                                                                            | 7114 |
|                       | 30,5                    | 75                    | 45,89 | 1,6  | HGXF01                                                                              | 71B5/B14                                                                            | 7114 |
|                       | 34,9                    | 66                    | 40,10 | 1,8  | HGXZ01                                                                              | 71B5/B14                                                                            | 7114 |
|                       | 39,5                    | 58                    | 35,47 | 2,1  |                                                                                     |                                                                                     |      |
|                       | 49,1                    | 47                    | 28,50 | 2,6  |                                                                                     |                                                                                     |      |
|                       | 59,4                    | 39                    | 23,56 | 3,1  |                                                                                     |                                                                                     |      |
|                       | 70,6                    | 32                    | 19,83 | 3,7  |                                                                                     |                                                                                     |      |
|                       | 78,4                    | 29                    | 17,86 | 3,4  |                                                                                     |                                                                                     |      |
|                       | 95,8                    | 24                    | 14,62 | 5,0  |                                                                                     |                                                                                     |      |
|                       | 101                     | 23                    | 13,80 | 4,4  |                                                                                     |                                                                                     |      |
|                       | 118                     | 19,5                  | 11,90 | 6,2  |                                                                                     |                                                                                     |      |
|                       | 143                     | 16,1                  | 9,81  | 6,2  |                                                                                     |                                                                                     |      |
|                       | 153                     | 15,0                  | 9,17  | 5,3  |                                                                                     |                                                                                     |      |
|                       | 181                     | 12,6                  | 7,72  | 6,3  |                                                                                     |                                                                                     |      |
|                       | 246                     | 9,3                   | 5,69  | 6,4  |                                                                                     |                                                                                     |      |
|                       | 302                     | 7,6                   | 4,63  | 7,9  |                                                                                     |                                                                                     |      |
|                       | 366                     | 6,3                   | 3,82  | 9,6  |                                                                                     |                                                                                     |      |
|                       | 16,7                    | 138                   | 54,00 | 1,5  | HGX02                                                                               | 71B5/B14                                                                            | 7126 |
|                       | 19,4                    | 118                   | 46,46 | 1,7  | HGXF02                                                                              | 71B5/B14                                                                            | 7126 |
|                       | 22,2                    | 103                   | 40,60 | 1,9  | HGXZ02                                                                              | 71B5/B14                                                                            | 7126 |
|                       | 25,1                    | 91                    | 35,91 | 2,2  |                                                                                     |                                                                                     |      |
|                       | 31,2                    | 74                    | 28,88 | 2,7  |                                                                                     |                                                                                     |      |
|                       | 25,9                    | 88                    | 54,00 | 2,3  | HGX02                                                                               | 71B5/B14                                                                            | 7114 |
|                       | 30,1                    | 76                    | 46,46 | 2,6  | HGXF02                                                                              | 71B5/B14                                                                            | 7114 |
|                       | 34,5                    | 66                    | 40,60 | 3,0  | HGXZ02                                                                              | 71B5/B14                                                                            | 7114 |
|                       | 39,0                    | 59                    | 35,91 | 3,4  |                                                                                     |                                                                                     |      |
|                       | 48,5                    | 47                    | 28,88 | 4,2  |                                                                                     |                                                                                     |      |
| 0,37                  | 22,4                    | 151                   | 40,10 | 0,79 | HGX01                                                                               | 80B5/B14                                                                            | 8016 |
|                       | 25,4                    | 134                   | 35,47 | 0,90 | HGXF01                                                                              | 80B5/B14                                                                            | 8016 |
|                       | 31,6                    | 107                   | 28,50 | 1,1  | HGXZ01                                                                              | 80B5/B14                                                                            | 8016 |
|                       | 38,2                    | 89                    | 23,56 | 1,4  |                                                                                     |                                                                                     |      |
|                       | 26,3                    | 129                   | 53,33 | 0,93 | HGX01                                                                               | 71B5/B14                                                                            | 7124 |
|                       | 30,5                    | 111                   | 45,89 | 1,1  | HGXF01                                                                              | 71B5/B14                                                                            | 7124 |
|                       | 34,9                    | 97                    | 40,10 | 1,2  | HGXZ01                                                                              | 71B5/B14                                                                            | 7124 |
|                       | 39,5                    | 86                    | 35,47 | 1,4  |                                                                                     |                                                                                     |      |
|                       | 49,1                    | 69                    | 28,50 | 1,7  |                                                                                     |                                                                                     |      |
|                       | 59,4                    | 57                    | 23,56 | 2,1  |                                                                                     |                                                                                     |      |
|                       | 70,6                    | 48                    | 19,83 | 2,5  |                                                                                     |                                                                                     |      |
|                       | 78,4                    | 43                    | 17,86 | 2,3  |                                                                                     |                                                                                     |      |
|                       | 95,8                    | 35                    | 14,62 | 3,4  |                                                                                     |                                                                                     |      |
|                       | 101                     | 33                    | 13,80 | 3,0  |                                                                                     |                                                                                     |      |
|                       | 118                     | 29                    | 11,90 | 4,2  |                                                                                     |                                                                                     |      |
|                       | 143                     | 24                    | 9,81  | 4,2  |                                                                                     |                                                                                     |      |
|                       | 153                     | 22                    | 9,17  | 3,6  |                                                                                     |                                                                                     |      |
|                       | 181                     | 19                    | 7,72  | 4,3  |                                                                                     |                                                                                     |      |
|                       | 246                     | 14                    | 5,69  | 4,4  |                                                                                     |                                                                                     |      |
|                       | 302                     | 11                    | 4,63  | 5,3  |                                                                                     |                                                                                     |      |
|                       | 366                     | 9                     | 3,82  | 6,5  |                                                                                     |                                                                                     |      |



# Gear unit selection tables

## Performance parameter of HGX..P (IEC)



| P <sub>in</sub><br>kW | n <sub>2</sub><br>r/min | M <sub>2n</sub><br>Nm | i     | k    |        |  |  |
|-----------------------|-------------------------|-----------------------|-------|------|--------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 0,37                  | 16,7                    | 204                   | 54,00 | 1,0  | HGX02  | 80B5/B14                                                                            | 8016                                                                                |
|                       | 19,4                    | 175                   | 46,46 | 1,1  | HGXF02 | 80B5/B14                                                                            | 8016                                                                                |
|                       | 22,2                    | 153                   | 40,60 | 1,3  | HGXZ02 | 80B5/B14                                                                            | 8016                                                                                |
|                       | 25,1                    | 135                   | 35,91 | 1,5  |        |                                                                                     |                                                                                     |
|                       | 31,2                    | 109                   | 28,88 | 1,8  |        |                                                                                     |                                                                                     |
|                       | 25,9                    | 131                   | 54,00 | 1,5  | HGX02  | 71B5/B14                                                                            | 7124                                                                                |
|                       | 30,1                    | 113                   | 46,46 | 1,8  | HGXF02 | 71B5/B14                                                                            | 7124                                                                                |
|                       | 34,5                    | 98                    | 40,60 | 2,0  | HGXZ02 | 71B5/B14                                                                            | 7124                                                                                |
|                       | 39,0                    | 87                    | 35,91 | 2,3  |        |                                                                                     |                                                                                     |
|                       | 48,5                    | 70                    | 28,88 | 2,9  |        |                                                                                     |                                                                                     |
|                       | 58,7                    | 58                    | 23,85 | 3,5  |        |                                                                                     |                                                                                     |
|                       | 81,9                    | 41                    | 17,10 | 3,9  |        |                                                                                     |                                                                                     |
|                       | 24,1                    | 141                   | 58,09 | 2,1  | HGX03  | 71B5                                                                                | 7124                                                                                |
|                       | 28,0                    | 121                   | 50,02 | 2,5  | HGXF03 | 71B5                                                                                | 7124                                                                                |
|                       | 32,0                    | 106                   | 43,75 | 2,8  | HGXZ03 | 71B5                                                                                | 7124                                                                                |
|                       | 36,1                    | 94                    | 38,73 | 3,2  |        |                                                                                     |                                                                                     |
|                       | 40,4                    | 84                    | 34,62 | 3,6  |        |                                                                                     |                                                                                     |
|                       | 15,5                    | 219                   | 58,09 | 1,4  | HGX03  | 80B5/B14                                                                            | 8016                                                                                |
|                       | 18,0                    | 189                   | 50,02 | 1,6  | HGXF03 | 80B5/B14                                                                            | 8016                                                                                |
|                       | 20,5                    | 165                   | 43,75 | 1,8  | HGXZ03 | 80B5/B14                                                                            | 8016                                                                                |
|                       | 23,2                    | 146                   | 38,73 | 2,1  |        |                                                                                     |                                                                                     |
|                       | 26,0                    | 130                   | 34,62 | 2,3  |        |                                                                                     |                                                                                     |
|                       | 31,8                    | 107                   | 28,30 | 2,8  |        |                                                                                     |                                                                                     |
|                       | 41,3                    | 82                    | 21,78 | 3,4  |        |                                                                                     |                                                                                     |
| 0,55                  | 31,6                    | 160                   | 28,50 | 0,75 | HGX01  | 80B5/B14                                                                            | 8026                                                                                |
|                       | 38,2                    | 132                   | 23,56 | 0,91 | HGXF01 | 80B5/B14                                                                            | 8026                                                                                |
|                       | 45,4                    | 111                   | 19,83 | 1,1  | HGXZ01 | 80B5/B14                                                                            | 8026                                                                                |
|                       | 34,9                    | 144                   | 40,10 | 0,8  | HGX01  | 80B5/B14                                                                            | 8014                                                                                |
|                       | 39,5                    | 128                   | 35,47 | 0,9  | HGXF01 | 80B5/B14                                                                            | 8014                                                                                |
|                       | 49,1                    | 103                   | 28,50 | 1,2  | HGXZ01 | 80B5/B14                                                                            | 8014                                                                                |
|                       | 59,4                    | 85                    | 23,56 | 1,4  |        |                                                                                     |                                                                                     |
|                       | 70,6                    | 71                    | 19,83 | 1,7  |        |                                                                                     |                                                                                     |
|                       | 78,4                    | 64                    | 17,86 | 1,6  |        |                                                                                     |                                                                                     |
|                       | 95,8                    | 53                    | 14,62 | 2,3  |        |                                                                                     |                                                                                     |
|                       | 101                     | 50                    | 13,80 | 2,0  |        |                                                                                     |                                                                                     |
|                       | 118                     | 43                    | 11,90 | 2,8  |        |                                                                                     |                                                                                     |
|                       | 143                     | 35                    | 9,81  | 2,8  |        |                                                                                     |                                                                                     |
|                       | 153                     | 33                    | 9,17  | 2,4  |        |                                                                                     |                                                                                     |
|                       | 181                     | 28                    | 7,72  | 2,9  |        |                                                                                     |                                                                                     |
|                       | 246                     | 20                    | 5,69  | 2,9  |        |                                                                                     |                                                                                     |
|                       | 302                     | 17                    | 4,63  | 3,6  |        |                                                                                     |                                                                                     |
|                       | 366                     | 14                    | 3,82  | 4,4  |        |                                                                                     |                                                                                     |
|                       | 19,4                    | 260                   | 46,46 | 0,77 | HGX02  | 80B5/B14                                                                            | 8026                                                                                |
|                       | 22,2                    | 227                   | 40,60 | 0,88 | HGXF02 | 80B5/B14                                                                            | 8026                                                                                |
|                       | 25,1                    | 201                   | 35,91 | 1,0  | HGXZ02 | 80B5/B14                                                                            | 8026                                                                                |
|                       | 31,2                    | 162                   | 28,88 | 1,2  |        |                                                                                     |                                                                                     |
|                       | 37,7                    | 134                   | 23,85 | 1,5  |        |                                                                                     |                                                                                     |
|                       | 25,9                    | 194                   | 54,00 | 1,0  | HGX02  | 80B5/B14                                                                            | 8014                                                                                |
|                       | 30,1                    | 167                   | 46,46 | 1,2  | HGXF02 | 80B5/B14                                                                            | 8014                                                                                |
|                       | 34,5                    | 146                   | 40,60 | 1,4  | HGXZ02 | 80B5/B14                                                                            | 8014                                                                                |
|                       | 39,0                    | 129                   | 35,91 | 1,5  |        |                                                                                     |                                                                                     |
|                       | 48,5                    | 104                   | 28,88 | 1,9  |        |                                                                                     |                                                                                     |
|                       | 58,7                    | 86                    | 23,85 | 2,3  |        |                                                                                     |                                                                                     |



# Gear unit selection tables

## Performance parameter of HGX..P (IEC)



| P <sub>1n</sub><br>kW | n <sub>2</sub><br>r/min | M <sub>2n</sub><br>Nm | i     | k    |        |          |      |
|-----------------------|-------------------------|-----------------------|-------|------|--------|----------|------|
| 0,55                  | 69,7                    | 72                    | 20,08 | 2,8  | HGX02  | 80B5/B14 | 8014 |
|                       | 81,9                    | 62                    | 17,10 | 2,6  | HGXF02 | 80B5/B14 | 8014 |
|                       | 94,5                    | 53                    | 14,81 | 3,7  | HGXZ02 | 80B5/B14 | 8014 |
|                       | 15,5                    | 325                   | 58,09 | 0,92 | HGX03  | 80B5/B14 | 8026 |
|                       | 18,0                    | 280                   | 50,02 | 1,1  | HGXF03 | 80B5/B14 | 8026 |
|                       | 20,6                    | 245                   | 43,75 | 1,2  | HGXZ03 | 80B5/B14 | 8026 |
|                       | 23,2                    | 217                   | 38,73 | 1,4  |        |          |      |
|                       | 26,0                    | 194                   | 34,62 | 1,5  |        |          |      |
|                       | 31,8                    | 159                   | 28,30 | 1,9  |        |          |      |
|                       | 41,3                    | 122                   | 21,78 | 2,3  |        |          |      |
|                       | 24,1                    | 209                   | 58,09 | 1,4  | HGX03  | 80B5/B14 | 8014 |
|                       | 28,0                    | 180                   | 50,02 | 1,7  | HGXF03 | 80B5/B14 | 8014 |
|                       | 32,0                    | 158                   | 43,75 | 1,9  | HGXZ03 | 80B5/B14 | 8014 |
|                       | 36,1                    | 139                   | 38,73 | 2,2  |        |          |      |
|                       | 40,4                    | 125                   | 34,62 | 2,4  |        |          |      |
|                       | 49,5                    | 102                   | 28,30 | 2,9  |        |          |      |
|                       | 64,3                    | 78                    | 21,78 | 3,6  |        |          |      |
| 0,75                  | 49,1                    | 140                   | 28,50 | 0,86 | HGX01  | 80B5/B14 | 8024 |
|                       | 59,4                    | 116                   | 23,56 | 1,0  | HGXF01 | 80B5/B14 | 8024 |
|                       | 70,6                    | 97                    | 19,83 | 1,2  | HGXZ01 | 80B5/B14 | 8024 |
|                       | 78,4                    | 88                    | 17,86 | 1,1  |        |          |      |
|                       | 95,8                    | 72                    | 14,62 | 1,7  |        |          |      |
|                       | 101                     | 68                    | 13,80 | 1,5  |        |          |      |
|                       | 118                     | 58                    | 11,90 | 2,1  |        |          |      |
|                       | 143                     | 48                    | 9,81  | 2,1  |        |          |      |
|                       | 153                     | 45                    | 9,17  | 1,8  |        |          |      |
|                       | 181                     | 38                    | 7,72  | 2,1  |        |          |      |
|                       | 246                     | 28                    | 5,69  | 2,1  |        |          |      |
|                       | 302                     | 23                    | 4,63  | 2,6  |        |          |      |
|                       | 366                     | 19                    | 3,82  | 3,2  |        |          |      |
|                       | 31,2                    | 221                   | 28,88 | 0,91 | HGX02  | 90B5/B14 | 90S6 |
|                       | 37,7                    | 182                   | 23,85 | 1,1  | HGXF02 | 90B5/B14 | 90S6 |
|                       | 44,8                    | 153                   | 20,08 | 1,3  | HGXZ02 | 90B5/B14 | 90S6 |
|                       | 30,1                    | 228                   | 46,46 | 0,88 | HGX02  | 80B5/B14 | 8024 |
|                       | 43,5                    | 199                   | 40,60 | 1,0  | HGXF02 | 80B5/B14 | 8024 |
|                       | 39,0                    | 176                   | 35,91 | 1,1  | HGXZ02 | 80B5/B14 | 8024 |
|                       | 48,5                    | 142                   | 28,88 | 1,4  |        |          |      |
|                       | 58,7                    | 117                   | 23,85 | 1,7  |        |          |      |
|                       | 69,7                    | 99                    | 20,08 | 2,0  |        |          |      |
|                       | 81,9                    | 84                    | 17,10 | 1,9  |        |          |      |
|                       | 94,5                    | 73                    | 14,81 | 2,7  |        |          |      |
|                       | 106                     | 65                    | 13,21 | 2,5  |        |          |      |
|                       | 116,2                   | 59                    | 12,05 | 3,4  |        |          |      |
|                       | 141                     | 49                    | 9,93  | 3,3  |        |          |      |
|                       | 159                     | 43                    | 8,78  | 2,8  |        |          |      |
|                       | 189                     | 36                    | 7,39  | 3,3  |        |          |      |
|                       | 257                     | 27                    | 5,45  | 3,7  |        |          |      |
|                       | 97,0                    | 71                    | 28,88 | 2,8  | HGX02  | 80B5/B14 | 8012 |
|                       | 117,4                   | 59                    | 23,85 | 3,4  | HGXF02 | 80B5/B14 | 8012 |
|                       | 139,4                   | 49                    | 20,08 | 4,1  | HGXZ02 | 80B5/B14 | 8012 |
|                       | 163,7                   | 42                    | 17,10 | 3,8  |        |          |      |



# Gear unit selection tables



## Performance parameter of HGX..P (IEC)

| $P_{in}$<br>kW | $n_2$<br>r/min | $M_{2n}$<br>Nm | i     | k    |  |  |
|----------------|----------------|----------------|-------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 0,75           | 23,2           | 296            | 38,73 | 1,0  | HGX03                                                                               | 90B5/B14 90S6                                                                       |
|                | 26,0           | 264            | 34,62 | 1,1  | HGXF03                                                                              | 90B5/B14 90S6                                                                       |
|                | 31,8           | 216            | 28,3  | 1,4  | HGXZ03                                                                              | 90B5/B14 90S6                                                                       |
|                | 41,3           | 166            | 21,78 | 1,7  |                                                                                     |                                                                                     |
|                | 51,9           | 132            | 17,33 | 2,1  |                                                                                     |                                                                                     |
|                | 59,8           | 115            | 15,06 | 2,3  |                                                                                     |                                                                                     |
|                | 24,1           | 285            | 58,09 | 1,1  | HGX03                                                                               | 80B5/B14 8024                                                                       |
|                | 28,0           | 246            | 50,02 | 1,2  | HGXF03                                                                              | 80B5/B14 8024                                                                       |
|                | 32,0           | 215            | 43,75 | 1,4  | HGXZ03                                                                              | 80B5/B14 8024                                                                       |
|                | 36,1           | 190            | 38,73 | 1,6  |                                                                                     |                                                                                     |
|                | 40,4           | 170            | 34,62 | 1,8  |                                                                                     |                                                                                     |
|                | 49,5           | 139            | 28,30 | 2,2  |                                                                                     |                                                                                     |
|                | 64,3           | 107            | 21,78 | 2,6  |                                                                                     |                                                                                     |
|                | 80,8           | 85             | 17,33 | 3,3  |                                                                                     |                                                                                     |
|                | 93,0           | 74             | 15,06 | 3,5  |                                                                                     |                                                                                     |
|                | 15,5           | 444            | 58,09 | 1,1  | HGX04                                                                               | 90B5/B14 90S6                                                                       |
|                | 18,0           | 382            | 50,02 | 1,3  | HGXF04                                                                              | 90B5/B14 90S6                                                                       |
|                | 20,6           | 334            | 43,75 | 1,5  | HGXZ04                                                                              | 90B5/B14 90S6                                                                       |
|                | 23,3           | 296            | 38,73 | 1,7  |                                                                                     |                                                                                     |
|                | 26,0           | 264            | 34,62 | 1,9  |                                                                                     |                                                                                     |
|                | 31,8           | 216            | 28,30 | 2,3  |                                                                                     |                                                                                     |
|                | 41,3           | 166            | 21,78 | 2,9  |                                                                                     |                                                                                     |
|                | 51,9           | 132            | 17,33 | 3,6  |                                                                                     |                                                                                     |
|                | 24,1           | 285            | 58,09 | 1,8  | HGX04                                                                               | 80B5/B14 8024                                                                       |
|                | 28,0           | 246            | 50,02 | 2,0  | HGXF04                                                                              | 80B5/B14 8024                                                                       |
|                | 32,0           | 215            | 43,75 | 2,3  | HGXZ04                                                                              | 80B5/B14 8024                                                                       |
|                | 36,1           | 190            | 38,73 | 2,6  |                                                                                     |                                                                                     |
|                | 40,4           | 170            | 34,62 | 2,9  |                                                                                     |                                                                                     |
|                | 49,5           | 139            | 28,30 | 3,6  |                                                                                     |                                                                                     |
|                | 64,3           | 107            | 21,78 | 4,5  |                                                                                     |                                                                                     |
| 1,1            | 70,6           | 143            | 19,83 | 0,84 | HGX01                                                                               | 90B5/B14 90S4                                                                       |
|                | 78,4           | 129            | 17,86 | 0,78 | HGXF01                                                                              | 90B5/B14 90S4                                                                       |
|                | 95,8           | 105            | 14,62 | 1,1  | HGXZ01                                                                              | 90B5/B14 90S4                                                                       |
|                | 101            | 99             | 13,80 | 1,0  |                                                                                     |                                                                                     |
|                | 118            | 86             | 11,90 | 1,4  |                                                                                     |                                                                                     |
|                | 143            | 71             | 9,87  | 1,4  |                                                                                     |                                                                                     |
|                | 153            | 66             | 9,17  | 1,2  |                                                                                     |                                                                                     |
|                | 181            | 56             | 7,72  | 1,4  |                                                                                     |                                                                                     |
|                | 246            | 41             | 5,69  | 1,5  |                                                                                     |                                                                                     |
|                | 302            | 33             | 4,63  | 1,8  |                                                                                     |                                                                                     |
|                | 366            | 28             | 3,82  | 2,2  |                                                                                     |                                                                                     |
|                | 285            | 35             | 9,81  | 2,8  | HGX01                                                                               | 80B5/B14 8022                                                                       |
|                | 305            | 33             | 9,17  | 2,4  | HGXF01                                                                              | 80B5/B14 8022                                                                       |
|                | 363            | 28             | 7,72  | 2,9  | HGXZ01                                                                              | 80B5/B14 8022                                                                       |
|                | 492            | 20             | 5,69  | 2,9  |                                                                                     |                                                                                     |
|                | 605            | 17             | 4,63  | 3,6  |                                                                                     |                                                                                     |
|                | 733            | 14             | 3,82  | 4,4  |                                                                                     |                                                                                     |
|                | 39,0           | 259            | 35,91 | 0,77 | HGX02                                                                               | 90B5/B14 90S4                                                                       |
|                | 48,5           | 208            | 28,88 | 1,0  | HGXF02                                                                              | 90B5/B14 90S4                                                                       |
|                | 58,7           | 172            | 23,85 | 1,2  | HGXZ02                                                                              | 90B5/B14 90S4                                                                       |
|                | 69,7           | 145            | 20,08 | 1,4  |                                                                                     |                                                                                     |
|                | 81,9           | 123            | 17,10 | 1,3  |                                                                                     |                                                                                     |



# Gear unit selection tables



## Performance parameter of HGX..P (IEC)

| P <sub>1n</sub><br>kW | n <sub>2</sub><br>r/min | M <sub>2n</sub><br>Nm | i     | k    |  |  |      |
|-----------------------|-------------------------|-----------------------|-------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|
| 1,1                   | 94,5                    | 107                   | 14,81 | 1,9  | HGX02                                                                               | 90B5/B14                                                                            | 90S4 |
|                       | 106                     | 95                    | 13,21 | 1,7  | HGXF02                                                                              | 90B5/B14                                                                            | 90S4 |
|                       | 116                     | 87                    | 12,05 | 2,3  | HGXZ02                                                                              | 90B5/B14                                                                            | 90S4 |
|                       | 141                     | 72                    | 9,93  | 2,2  |                                                                                     |                                                                                     |      |
|                       | 159                     | 63                    | 8,78  | 1,9  |                                                                                     |                                                                                     |      |
|                       | 189                     | 53                    | 7,39  | 2,3  |                                                                                     |                                                                                     |      |
|                       | 257                     | 39                    | 5,45  | 2,5  |                                                                                     |                                                                                     |      |
|                       | 316                     | 32                    | 4,43  | 3,1  |                                                                                     |                                                                                     |      |
|                       | 383                     | 26                    | 3,66  | 3,8  |                                                                                     |                                                                                     |      |
|                       | 32,0                    | 315                   | 43,75 | 0,95 | HGX03                                                                               | 90B5/B14                                                                            | 90S4 |
|                       | 36,1                    | 279                   | 38,73 | 1,1  | HGXF03                                                                              | 90B5/B14                                                                            | 90S4 |
|                       | 40,4                    | 249                   | 34,62 | 1,2  | HGXZ03                                                                              | 90B5/B14                                                                            | 90S4 |
|                       | 49,5                    | 204                   | 28,30 | 1,5  |                                                                                     |                                                                                     |      |
|                       | 64,3                    | 157                   | 21,78 | 1,8  |                                                                                     |                                                                                     |      |
|                       | 80,8                    | 125                   | 17,33 | 2,2  |                                                                                     |                                                                                     |      |
|                       | 93,0                    | 108                   | 15,06 | 2,4  |                                                                                     |                                                                                     |      |
|                       | 113                     | 89                    | 12,37 | 2,9  |                                                                                     |                                                                                     |      |
|                       | 136                     | 74                    | 10,28 | 3,2  |                                                                                     |                                                                                     |      |
|                       | 177                     | 57                    | 7,93  | 3,2  |                                                                                     |                                                                                     |      |
|                       | 222                     | 45                    | 6,31  | 4,0  |                                                                                     |                                                                                     |      |
|                       | 255                     | 39                    | 5,48  | 3,8  |                                                                                     |                                                                                     |      |
|                       | 48,2                    | 209                   | 58,09 | 1,4  | HGX03                                                                               | 80B5/B14                                                                            | 80S2 |
|                       | 56,0                    | 180                   | 50,02 | 1,7  | HGXF03                                                                              | 80B5/B14                                                                            | 80S2 |
|                       | 64,0                    | 158                   | 43,75 | 1,9  | HGXZ03                                                                              | 80B5/B14                                                                            | 80S2 |
|                       | 72,3                    | 139                   | 38,73 | 2,2  |                                                                                     |                                                                                     |      |
|                       | 80,9                    | 125                   | 34,62 | 2,4  |                                                                                     |                                                                                     |      |
|                       | 99,0                    | 102                   | 28,30 | 2,9  |                                                                                     |                                                                                     |      |
|                       | 129                     | 78                    | 21,78 | 3,6  |                                                                                     |                                                                                     |      |
|                       | 24,1                    | 418                   | 58,09 | 1,2  | HGX04                                                                               | 90B5/B14                                                                            | 90S4 |
|                       | 28,0                    | 360                   | 50,02 | 1,4  | HGXF04                                                                              | 90B5/B14                                                                            | 90S4 |
|                       | 32,0                    | 315                   | 43,75 | 1,6  | HGXZ04                                                                              | 90B5/B14                                                                            | 90S4 |
|                       | 36,1                    | 279                   | 38,73 | 1,8  |                                                                                     |                                                                                     |      |
|                       | 40,4                    | 249                   | 34,62 | 2,0  |                                                                                     |                                                                                     |      |
|                       | 49,5                    | 204                   | 28,30 | 2,5  |                                                                                     |                                                                                     |      |
|                       | 64,3                    | 157                   | 21,78 | 3,1  |                                                                                     |                                                                                     |      |
|                       | 80,8                    | 125                   | 17,33 | 3,8  |                                                                                     |                                                                                     |      |
|                       | 93,0                    | 108                   | 15,06 | 4,2  |                                                                                     |                                                                                     |      |
| 1,5                   | 118                     | 117                   | 11,90 | 1,0  | HGX01                                                                               | 90B5/B14                                                                            | 90L4 |
|                       | 143                     | 96                    | 9,81  | 1,0  | HGXF01                                                                              | 90B5/B14                                                                            | 90L4 |
|                       | 153                     | 90                    | 9,17  | 0,9  | HGXZ01                                                                              | 90B5/B14                                                                            | 90L4 |
|                       | 181                     | 76                    | 7,72  | 1,12 |                                                                                     |                                                                                     |      |
|                       | 246                     | 56                    | 5,69  | 1,1  |                                                                                     |                                                                                     |      |
|                       | 302                     | 45                    | 4,63  | 1,3  |                                                                                     |                                                                                     |      |
|                       | 366                     | 38                    | 3,82  | 1,6  |                                                                                     |                                                                                     |      |
|                       | 305                     | 45                    | 9,17  | 1,8  | HGX01                                                                               | 90B5/B14                                                                            | 90S2 |
|                       | 363                     | 38                    | 7,72  | 2,1  | HGXF01                                                                              | 90B5/B14                                                                            | 90S2 |
|                       | 492                     | 28                    | 5,69  | 2,1  | HGXZ01                                                                              | 90B5/B14                                                                            | 90S2 |
|                       | 605                     | 23                    | 4,63  | 2,6  |                                                                                     |                                                                                     |      |
|                       | 733                     | 19                    | 3,82  | 3,2  |                                                                                     |                                                                                     |      |



# Gear unit selection tables



## Performance parameter of HGX..P (IEC)

| $P_{in}$<br>kW | $n_2$<br>r/min | $M_{2n}$<br>Nm | i     | k    |  |  |
|----------------|----------------|----------------|-------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 1,5            | 58,7           | 234            | 23,85 | 0,85 | HGX02                                                                               | 90B5/B14 90L4                                                                       |
|                | 69,7           | 197            | 20,08 | 1,0  | HGXF02                                                                              | 90B5/B14 90L4                                                                       |
|                | 81,9           | 168            | 17,10 | 1,0  | HGXZ02                                                                              | 90B5/B14 90L4                                                                       |
|                | 94,5           | 145            | 14,81 | 1,4  |                                                                                     |                                                                                     |
|                | 106            | 130            | 13,21 | 1,2  |                                                                                     |                                                                                     |
|                | 116            | 118            | 12,05 | 1,7  |                                                                                     |                                                                                     |
|                | 141            | 98             | 9,93  | 1,6  |                                                                                     |                                                                                     |
|                | 159            | 86             | 8,78  | 1,4  |                                                                                     |                                                                                     |
|                | 189            | 73             | 7,39  | 1,7  |                                                                                     |                                                                                     |
|                | 257            | 54             | 5,45  | 1,9  |                                                                                     |                                                                                     |
|                | 316            | 44             | 4,43  | 2,3  |                                                                                     |                                                                                     |
|                | 383            | 36             | 3,66  | 2,8  |                                                                                     |                                                                                     |
|                | 212            | 65             | 13,21 | 2,5  | HGX02                                                                               | 90B5/B14 90S2                                                                       |
|                | 232            | 59             | 12,05 | 3,4  | HGXF02                                                                              | 90B5/B14 90S2                                                                       |
|                | 282            | 49             | 9,93  | 3,3  | HGXZ02                                                                              | 90B5/B14 90S2                                                                       |
|                | 319            | 43             | 8,78  | 2,8  |                                                                                     |                                                                                     |
|                | 379            | 36             | 7,39  | 3,3  |                                                                                     |                                                                                     |
|                | 514            | 27             | 5,45  | 3,7  |                                                                                     |                                                                                     |
|                | 40,4           | 340            | 34,62 | 0,88 | HGX03                                                                               | 90B5/B14 90L4                                                                       |
|                | 49,5           | 278            | 28,3  | 1,1  | HGXF03                                                                              | 90B5/B14 90L4                                                                       |
|                | 64,3           | 214            | 21,78 | 1,3  | HGXZ03                                                                              | 90B5/B14 90L4                                                                       |
|                | 80,8           | 170            | 17,33 | 1,6  |                                                                                     |                                                                                     |
|                | 93,0           | 148            | 15,06 | 1,8  |                                                                                     |                                                                                     |
|                | 113            | 122            | 12,37 | 2,1  |                                                                                     |                                                                                     |
|                | 136            | 101            | 10,28 | 2,4  |                                                                                     |                                                                                     |
|                | 177            | 78             | 7,93  | 2,3  |                                                                                     |                                                                                     |
|                | 222            | 62             | 6,31  | 2,9  |                                                                                     |                                                                                     |
|                | 255            | 54             | 5,48  | 2,8  |                                                                                     |                                                                                     |
|                | 311            | 44             | 4,50  | 3,4  |                                                                                     |                                                                                     |
|                | 374            | 37             | 3,74  | 4,1  |                                                                                     |                                                                                     |
|                | 48,2           | 285            | 58,09 | 1,1  | HGX03                                                                               | 90B5/B14 90S2                                                                       |
|                | 56,0           | 246            | 50,02 | 1,2  | HGXF03                                                                              | 90B5/B14 90S2                                                                       |
|                | 64,0           | 215            | 43,75 | 1,4  | HGXZ03                                                                              | 90B5/B14 90S2                                                                       |
|                | 72,3           | 190            | 38,73 | 1,6  |                                                                                     |                                                                                     |
|                | 80,9           | 170            | 34,62 | 1,8  |                                                                                     |                                                                                     |
|                | 99,0           | 139            | 28,30 | 2,2  |                                                                                     |                                                                                     |
|                | 129            | 107            | 21,78 | 2,6  |                                                                                     |                                                                                     |
|                | 162            | 85             | 17,33 | 3,3  |                                                                                     |                                                                                     |
|                | 186            | 74             | 15,06 | 3,5  |                                                                                     |                                                                                     |
|                | 26,0           | 529            | 34,62 | 0,95 | HGX04                                                                               | 100B5/B14 100L6                                                                     |
|                | 31,8           | 432            | 28,30 | 1,2  | HGXF04                                                                              | 100B5/B14 100L6                                                                     |
|                | 41,3           | 333            | 21,78 | 1,4  | HGXZ04                                                                              | 100B5/B14 100L6                                                                     |
|                | 51,9           | 265            | 17,33 | 1,8  |                                                                                     |                                                                                     |
|                | 59,8           | 230            | 15,06 | 2,0  |                                                                                     |                                                                                     |
|                | 24,1           | 571            | 58,09 | 0,88 | HGX04                                                                               | 90B5/B14 90L4                                                                       |
|                | 28,0           | 491            | 50,02 | 1,0  | HGXF04                                                                              | 90B5/B14 90L4                                                                       |
|                | 32,0           | 430            | 43,75 | 1,2  | HGXZ04                                                                              | 90B5/B14 90L4                                                                       |
|                | 36,1           | 380            | 38,73 | 1,3  |                                                                                     |                                                                                     |
|                | 40,4           | 340            | 34,62 | 1,5  |                                                                                     |                                                                                     |
|                | 49,5           | 278            | 28,30 | 1,8  |                                                                                     |                                                                                     |
|                | 64,3           | 214            | 21,78 | 2,2  |                                                                                     |                                                                                     |
|                | 80,8           | 170            | 17,33 | 2,8  |                                                                                     |                                                                                     |
|                | 93,0           | 148            | 15,06 | 3,1  |                                                                                     |                                                                                     |
|                | 113            | 122            | 12,37 | 3,8  |                                                                                     |                                                                                     |
|                | 136            | 101            | 10,28 | 4,4  |                                                                                     |                                                                                     |
|                | 177            | 78             | 7,93  | 3,3  |                                                                                     |                                                                                     |
|                | 222            | 62             | 6,31  | 4,2  |                                                                                     |                                                                                     |
|                | 255            | 54             | 5,48  | 4,3  |                                                                                     |                                                                                     |



# Gear unit selection tables

## Performance parameter of HGX..P (IEC)



| P <sub>1n</sub><br>kW | n <sub>2</sub><br>r/min | M <sub>2n</sub><br>Nm | i     | k    |  |  |         |
|-----------------------|-------------------------|-----------------------|-------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------|
| 2,2                   | 64,3                    | 314                   | 21,78 | 0,89 | HGX03                                                                               | 100B5/B14                                                                           | 100L1-4 |
|                       | 80,8                    | 250                   | 17,33 | 1,1  | HGXF03                                                                              | 100B5/B14                                                                           | 100L1-4 |
|                       | 93,0                    | 217                   | 15,06 | 1,2  | HGXZ03                                                                              | 100B5/B14                                                                           | 100L1-4 |
|                       | 113                     | 178                   | 12,37 | 1,5  |                                                                                     |                                                                                     |         |
|                       | 136                     | 148                   | 10,28 | 1,6  |                                                                                     |                                                                                     |         |
|                       | 177                     | 114                   | 7,93  | 1,6  |                                                                                     |                                                                                     |         |
|                       | 222                     | 91                    | 6,31  | 2,0  |                                                                                     |                                                                                     |         |
|                       | 155                     | 79                    | 5,48  | 1,9  |                                                                                     |                                                                                     |         |
|                       | 311                     | 65                    | 4,50  | 2,3  |                                                                                     |                                                                                     |         |
|                       | 374                     | 54                    | 3,74  | 2,8  |                                                                                     |                                                                                     |         |
|                       | 186                     | 108                   | 15,06 | 2,4  | HGX03                                                                               | 90B5/B14                                                                            | 90L2    |
|                       | 226                     | 89                    | 12,37 | 2,9  | HGXF03                                                                              | 90B5/B14                                                                            | 90L2    |
|                       | 272                     | 74                    | 10,28 | 3,2  | HGXZ03                                                                              | 90B5/B14                                                                            | 90L2    |
|                       | 353                     | 57                    | 7,93  | 3,2  |                                                                                     |                                                                                     |         |
|                       | 444                     | 45                    | 6,31  | 4,0  |                                                                                     |                                                                                     |         |
|                       | 511                     | 39                    | 5,48  | 3,8  |                                                                                     |                                                                                     |         |
|                       | 41,3                    | 488                   | 21,78 | 1,0  | HGX04                                                                               | 112B5/B14                                                                           | 112M6   |
|                       | 51,9                    | 388                   | 17,33 | 1,2  | HGXF04                                                                              | 112B5/B14                                                                           | 112M6   |
|                       | 59,8                    | 338                   | 15,06 | 1,4  | HGXZ04                                                                              | 112B5/B14                                                                           | 112M6   |
|                       | 72,8                    | 277                   | 12,37 | 1,7  |                                                                                     |                                                                                     |         |
|                       | 40,4                    | 499                   | 34,62 | 1,0  | HGX04                                                                               | 100B5/B14                                                                           | 100L1-4 |
|                       | 49,5                    | 408                   | 28,30 | 1,2  | HGXF04                                                                              | 100B5/B14                                                                           | 100L1-4 |
|                       | 64,3                    | 314                   | 21,78 | 1,5  | HGXZ04                                                                              | 100B5/B14                                                                           | 100L1-4 |
|                       | 80,8                    | 250                   | 17,33 | 1,9  |                                                                                     |                                                                                     |         |
|                       | 93,0                    | 217                   | 15,06 | 2,1  |                                                                                     |                                                                                     |         |
|                       | 113                     | 178                   | 12,37 | 2,6  |                                                                                     |                                                                                     |         |
|                       | 136                     | 148                   | 10,28 | 3,0  |                                                                                     |                                                                                     |         |
|                       | 177                     | 114                   | 7,93  | 2,3  |                                                                                     |                                                                                     |         |
|                       | 222                     | 91                    | 6,31  | 2,9  |                                                                                     |                                                                                     |         |
|                       | 255                     | 79                    | 5,48  | 2,9  |                                                                                     |                                                                                     |         |
|                       | 311                     | 65                    | 4,50  | 3,5  |                                                                                     |                                                                                     |         |
|                       | 374                     | 54                    | 3,74  | 3,7  |                                                                                     |                                                                                     |         |
| 3                     | 93,0                    | 296                   | 15,06 | 0,88 | HGX03                                                                               | 100B5/B14                                                                           | 100L2-4 |
|                       | 113                     | 243                   | 12,37 | 1,1  | HGXF03                                                                              | 100B5/B14                                                                           | 100L2-4 |
|                       | 136                     | 202                   | 10,28 | 1,2  | HGXZ03                                                                              | 100B5/B14                                                                           | 100L2-4 |
|                       | 177                     | 156                   | 7,93  | 1,2  |                                                                                     |                                                                                     |         |
|                       | 222                     | 124                   | 6,31  | 1,5  |                                                                                     |                                                                                     |         |
|                       | 255                     | 108                   | 5,48  | 1,4  |                                                                                     |                                                                                     |         |
|                       | 311                     | 88                    | 4,50  | 1,7  |                                                                                     |                                                                                     |         |
|                       | 374                     | 73                    | 3,74  | 2,0  |                                                                                     |                                                                                     |         |
|                       | 49,5                    | 556                   | 28,30 | 0,90 |                                                                                     |                                                                                     |         |
|                       | 64,3                    | 428                   | 21,78 | 1,1  | HGX04                                                                               | 100B5/B14                                                                           | 100L2-4 |
|                       | 80,8                    | 340                   | 17,33 | 1,4  | HGXF04                                                                              | 100B5/B14                                                                           | 100L2-4 |
|                       | 93,0                    | 296                   | 15,06 | 1,6  | HGXZ04                                                                              | 100B5/B14                                                                           | 100L2-4 |
|                       | 113                     | 243                   | 12,37 | 1,9  |                                                                                     |                                                                                     |         |
|                       | 136                     | 202                   | 10,28 | 2,2  |                                                                                     |                                                                                     |         |
|                       | 177                     | 156                   | 7,93  | 1,7  |                                                                                     |                                                                                     |         |



# Gear unit selection tables



## Performance parameter of HGX..P (IEC)

| P <sub>1n</sub><br>kW | n <sub>2</sub><br>r/min | M <sub>2n</sub><br>Nm | i     | k    |  |  |         |
|-----------------------|-------------------------|-----------------------|-------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------|
| 3                     | 222                     | 124                   | 6,31  | 2,1  | HGX04                                                                               | 100B5/B14                                                                           | 100L2-4 |
|                       | 255                     | 108                   | 5,48  | 2,1  | HGXF04                                                                              | 100B5/B14                                                                           | 100L2-4 |
|                       | 311                     | 88                    | 4,50  | 2,6  | HGXZ04                                                                              | 100B5/B14                                                                           | 100L2-4 |
|                       | 374                     | 73                    | 3,74  | 2,7  |                                                                                     |                                                                                     |         |
|                       | 186                     | 148                   | 15,06 | 3,1  | HGX04                                                                               | 100B5/B14                                                                           | 100L-2  |
|                       | 226                     | 122                   | 12,37 | 3,8  | HGXF04                                                                              | 100B5/B14                                                                           | 100L-2  |
|                       | 272                     | 101                   | 10,28 | 4,4  | HGXZ04                                                                              | 100B5/B14                                                                           | 100L-2  |
|                       | 353                     | 78                    | 7,93  | 3,3  |                                                                                     |                                                                                     |         |
|                       | 444                     | 62                    | 6,31  | 4,2  |                                                                                     |                                                                                     |         |
|                       | 136                     | 269                   | 10,28 | 0,89 | HGX03                                                                               | 112B5/B14                                                                           | 112M4   |
|                       | 177                     | 208                   | 7,93  | 0,87 | HGXF03                                                                              | 112B5/B14                                                                           | 112M4   |
|                       | 222                     | 165                   | 6,31  | 1,1  | HGXZ03                                                                              | 112B5/B14                                                                           | 112M4   |
|                       | 255                     | 144                   | 5,48  | 1,0  |                                                                                     |                                                                                     |         |
|                       | 311                     | 118                   | 4,50  | 1,3  |                                                                                     |                                                                                     |         |
|                       | 374                     | 98                    | 3,74  | 1,5  |                                                                                     |                                                                                     |         |
| 4                     | 80,8                    | 454                   | 17,33 | 1,1  | HGX04                                                                               | 112B5/B14                                                                           | 112M4   |
|                       | 93,0                    | 394                   | 15,06 | 1,2  | HGXF04                                                                              | 112B5/B14                                                                           | 112M4   |
|                       | 113                     | 324                   | 12,37 | 1,4  | HGXZ04                                                                              | 112B5/B14                                                                           | 112M4   |
|                       | 136                     | 269                   | 10,28 | 1,6  |                                                                                     |                                                                                     |         |
|                       | 177                     | 208                   | 7,93  | 1,3  |                                                                                     |                                                                                     |         |
|                       | 222                     | 165                   | 6,31  | 1,6  |                                                                                     |                                                                                     |         |
|                       | 255                     | 144                   | 5,48  | 1,6  |                                                                                     |                                                                                     |         |
|                       | 311                     | 118                   | 4,50  | 2,0  |                                                                                     |                                                                                     |         |
|                       | 374                     | 98                    | 3,74  | 2,0  |                                                                                     |                                                                                     |         |
|                       | 186                     | 197                   | 15,06 | 2,3  | HGX04                                                                               | 112B5/B14                                                                           | 112M2   |
|                       | 226                     | 162                   | 12,37 | 2,8  | HGXF04                                                                              | 112B5/B14                                                                           | 112M2   |
|                       | 272                     | 135                   | 10,28 | 3,3  | HGXZ04                                                                              | 112B5/B14                                                                           | 112M2   |
|                       | 353                     | 104                   | 7,93  | 2,5  |                                                                                     |                                                                                     |         |
|                       | 444                     | 83                    | 6,31  | 3,1  |                                                                                     |                                                                                     |         |
|                       | 511                     | 72                    | 5,48  | 3,2  |                                                                                     |                                                                                     |         |
|                       | 622                     | 59                    | 4,50  | 3,9  |                                                                                     |                                                                                     |         |
|                       | 749                     | 49                    | 3,74  | 4,1  |                                                                                     |                                                                                     |         |



# Gear unit selection tables

## Performance parameter



| M <sub>2n</sub><br>Nm | n <sub>1</sub><br>r/min | i     | P <sub>1n</sub><br>kW | n <sub>2</sub><br>r/min |  |
|-----------------------|-------------------------|-------|-----------------------|-------------------------|-------------------------------------------------------------------------------------|
| 120                   | 1400                    | 53,33 | 0,34                  | 26,3                    | HGX01-HS                                                                            |
| 120                   | 1400                    | 45,89 | 0,40                  | 30,5                    | HGXF01-HS                                                                           |
| 120                   | 1400                    | 40,01 | 0,46                  | 34,9                    | HGXZ01-HS                                                                           |
| 120                   | 1400                    | 35,47 | 0,52                  | 39,5                    |                                                                                     |
| 120                   | 1400                    | 28,50 | 0,64                  | 49,1                    |                                                                                     |
| 120                   | 1400                    | 23,56 | 0,78                  | 59,4                    |                                                                                     |
| 120                   | 1400                    | 19,83 | 0,92                  | 70,6                    |                                                                                     |
| 100                   | 1400                    | 17,86 | 0,86                  | 78,4                    |                                                                                     |
| 120                   | 1400                    | 14,62 | 1,25                  | 95,7                    |                                                                                     |
| 100                   | 1400                    | 13,80 | 1,10                  | 101                     |                                                                                     |
| 120                   | 1400                    | 11,90 | 1,54                  | 118                     |                                                                                     |
| 100                   | 1400                    | 9,81  | 1,56                  | 143                     |                                                                                     |
| 80                    | 1400                    | 9,17  | 1,34                  | 153                     |                                                                                     |
| 80                    | 1400                    | 7,72  | 1,58                  | 181                     |                                                                                     |
| 60                    | 1400                    | 5,69  | 1,61                  | 246                     |                                                                                     |
| 60                    | 1400                    | 4,63  | 1,98                  | 302                     |                                                                                     |
| 60                    | 1400                    | 3,82  | 2,40                  | 367                     |                                                                                     |
| 200                   | 1400                    | 54,00 | 0,57                  | 25,9                    | HGX02-HS                                                                            |
| 200                   | 1400                    | 46,46 | 0,66                  | 30,1                    | HGXF02-HS                                                                           |
| 200                   | 1400                    | 40,60 | 0,75                  | 34,5                    | HGXZ02-HS                                                                           |
| 200                   | 1400                    | 35,91 | 0,85                  | 39,0                    |                                                                                     |
| 200                   | 1400                    | 28,88 | 1,06                  | 48,5                    |                                                                                     |
| 200                   | 1400                    | 23,85 | 1,28                  | 58,7                    |                                                                                     |
| 200                   | 1400                    | 20,08 | 1,52                  | 69,7                    |                                                                                     |
| 160                   | 1400                    | 17,10 | 1,43                  | 81,9                    |                                                                                     |
| 200                   | 1400                    | 14,81 | 2,06                  | 94,6                    |                                                                                     |
| 160                   | 1400                    | 13,21 | 1,85                  | 106                     |                                                                                     |
| 200                   | 1400                    | 12,05 | 2,53                  | 116                     |                                                                                     |
| 160                   | 1400                    | 9,93  | 2,46                  | 141                     |                                                                                     |
| 120                   | 1400                    | 8,78  | 2,08                  | 159                     |                                                                                     |
| 120                   | 1400                    | 7,39  | 2,49                  | 190                     |                                                                                     |
| 100                   | 1400                    | 5,45  | 2,80                  | 257                     |                                                                                     |
| 100                   | 1400                    | 4,43  | 3,45                  | 316                     |                                                                                     |
| 100                   | 1400                    | 3,66  | 4,18                  | 383                     |                                                                                     |



# Gear unit selection tables



## Performance parameter

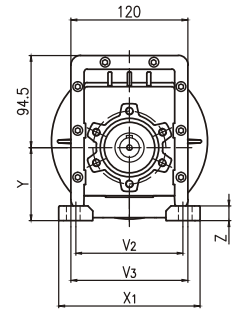
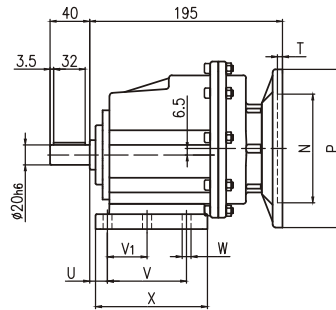
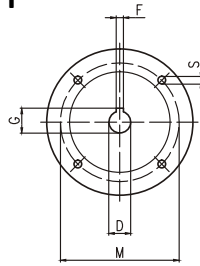
| $M_{2n}$<br>Nm | $n_1$<br>r/min | $i$   | $P_{1n}$<br>kW | $n_2$<br>r/min |  |
|----------------|----------------|-------|----------------|----------------|-------------------------------------------------------------------------------------|
| 300            | 24,1           | 58,09 | 0,79           | 1400           | HGX03-HS                                                                            |
| 300            | 28,0           | 50,02 | 0,92           | 1400           | HGXF03-HS                                                                           |
| 300            | 32,0           | 43,75 | 1,05           | 1400           | HGXZ03-HS                                                                           |
| 300            | 36,1           | 38,73 | 1,18           | 1400           |                                                                                     |
| 300            | 40,4           | 34,62 | 1,32           | 1400           |                                                                                     |
| 300            | 49,5           | 28,30 | 1,62           | 1400           |                                                                                     |
| 280            | 64,3           | 21,78 | 1,96           | 1400           |                                                                                     |
| 280            | 80,8           | 17,33 | 2,47           | 1400           |                                                                                     |
| 260            | 93,0           | 16,06 | 2,64           | 1400           |                                                                                     |
| 260            | 113            | 12,37 | 3,21           | 1400           |                                                                                     |
| 240            | 136            | 10,28 | 3,57           | 1400           |                                                                                     |
| 180            | 177            | 7,93  | 3,47           | 1400           |                                                                                     |
| 180            | 222            | 6,31  | 4,36           | 1400           |                                                                                     |
| 150            | 255            | 5,48  | 4,18           | 1400           |                                                                                     |
| 150            | 311            | 4,50  | 5,09           | 1400           |                                                                                     |
| 150            | 374            | 3,74  | 6,12           | 1400           |                                                                                     |
| 500            | 24,1           | 58,09 | 1,31           | 1400           | HGX04-HS                                                                            |
| 500            | 28,0           | 50,02 | 1,53           | 1400           | HGXF04-HS                                                                           |
| 500            | 32,0           | 43,75 | 1,75           | 1400           | HGXZ04-HS                                                                           |
| 500            | 36,1           | 38,73 | 1,97           | 1400           |                                                                                     |
| 500            | 40,4           | 34,62 | 2,21           | 1400           |                                                                                     |
| 500            | 49,5           | 28,30 | 2,70           | 1400           |                                                                                     |
| 480            | 64,3           | 21,78 | 3,37           | 1400           |                                                                                     |
| 480            | 80,8           | 17,33 | 4,23           | 1400           |                                                                                     |
| 460            | 93,0           | 16,06 | 4,66           | 1400           |                                                                                     |
| 460            | 113            | 12,37 | 5,68           | 1400           |                                                                                     |
| 440            | 136            | 10,28 | 6,54           | 1400           |                                                                                     |
| 260            | 177            | 7,93  | 5,01           | 1400           |                                                                                     |
| 260            | 222            | 6,31  | 6,29           | 1400           |                                                                                     |
| 230            | 255            | 5,48  | 6,41           | 1400           |                                                                                     |
| 230            | 311            | 4,50  | 7,80           | 1400           |                                                                                     |
| 200            | 374            | 3,74  | 8,17           | 1400           |                                                                                     |



# Outline dimension sheet

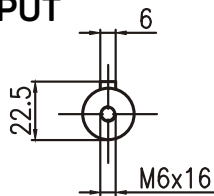
## HGX01..P(IEC)

### INPUT

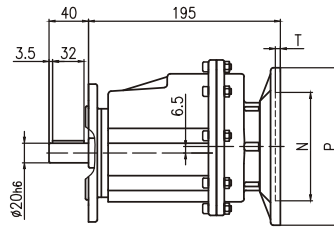
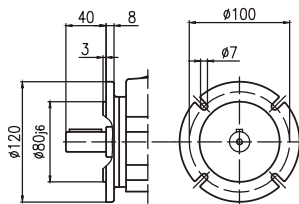


## HGXF01..P(IEC)

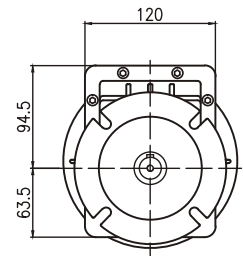
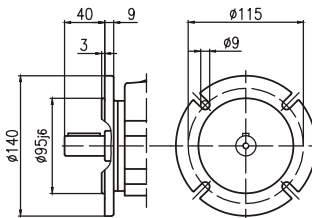
### OUTPUT



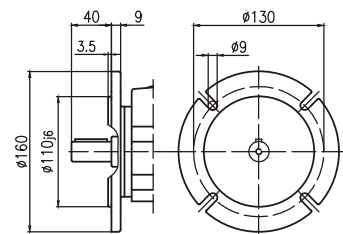
**I**  
**φ 120**



**II**  
**φ 140**

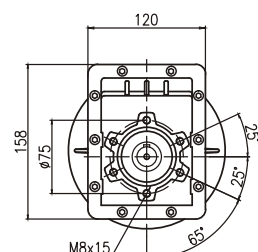
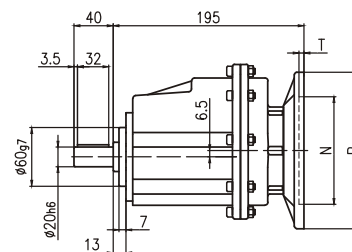


**III**  
**φ 160**



## HGXZ01..P(IEC)

| IEC   | D  | F | G  | P   | M   | N   | S  | T |
|-------|----|---|----|-----|-----|-----|----|---|
| 63B5  | 11 | 4 | 13 | 140 | 115 | 95  | 9  | 4 |
| 71B5  | 14 | 5 | 16 | 160 | 130 | 110 | 9  | 4 |
| 71B14 | 14 | 5 | 16 | 105 | 85  | 70  | 7  | 4 |
| 80B5  | 19 | 6 | 22 | 200 | 165 | 130 | 11 | 4 |
| 80B14 | 19 | 6 | 22 | 120 | 100 | 80  | 7  | 4 |
| 90B5  | 24 | 8 | 27 | 200 | 165 | 130 | 11 | 4 |
| 90B14 | 24 | 8 | 27 | 140 | 115 | 95  | 9  | 4 |

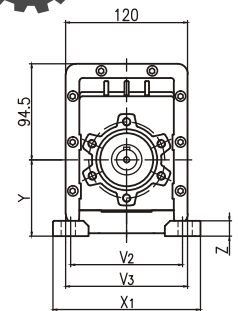
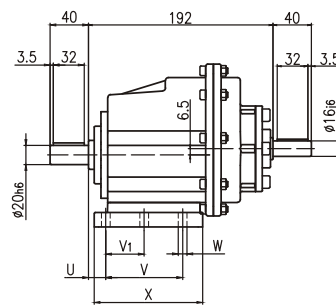
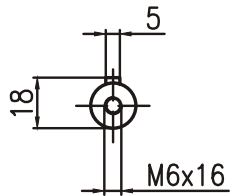


| foot code | U  | V   | V1 | V2  | V3  | W  | X   | X1  | Y  | Z  |
|-----------|----|-----|----|-----|-----|----|-----|-----|----|----|
| B01       | 18 | 87  | 50 | 110 | -   | 9  | 118 | 130 | 85 | 15 |
| M01       | 18 | 80  | -  | 110 | 120 | 9  | 113 | 145 | 75 | 15 |
| M02       | 25 | 95  | -  | 110 | 120 | 9  | 112 | 145 | 75 | 15 |
| B02       | 18 | 108 | 60 | -   | 130 | 11 | 136 | 155 | 95 | 17 |

# Outline dimension sheet

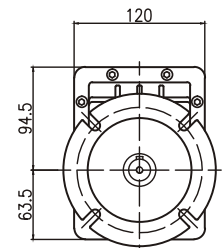
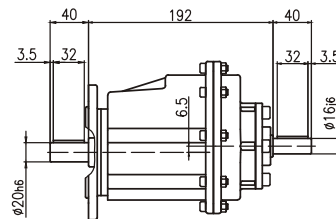
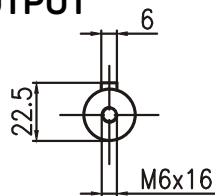
# HGX01..HS

## INPUT



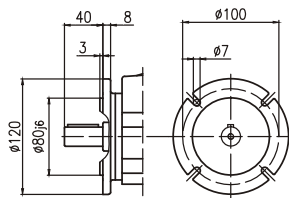
**HGXF01..HS**

## OUTPUT



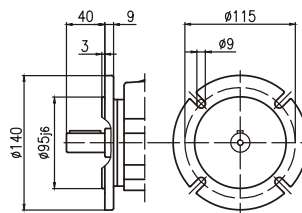
I

**φ 120**



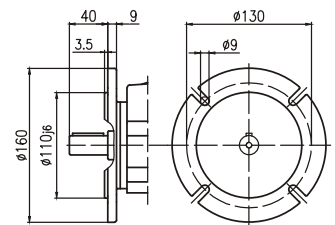
## II

**φ 140**



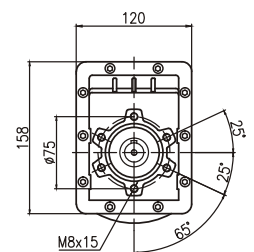
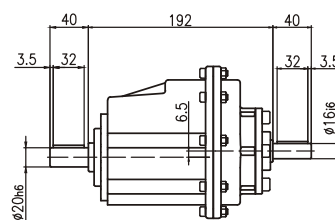
### III

**φ 160**



# HGXZ01..HS

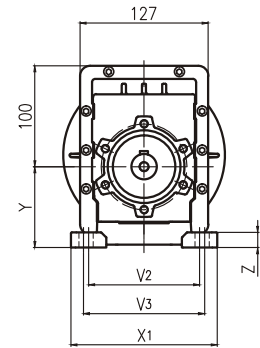
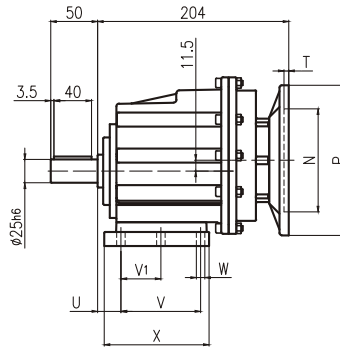
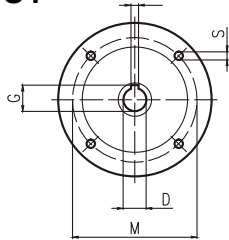
| foot code | U  | V   | V1 | V2  | V3  | W  | X   | X1  | Y  | Z  |
|-----------|----|-----|----|-----|-----|----|-----|-----|----|----|
| B01       | 18 | 87  | 50 | 110 | -   | 9  | 118 | 130 | 85 | 15 |
| M01       | 18 | 80  | -  | 110 | 120 | 9  | 113 | 145 | 75 | 15 |
| M02       | 25 | 95  | -  | 110 | 120 | 9  | 112 | 145 | 75 | 15 |
| B02       | 18 | 108 | 60 | -   | 130 | 11 | 136 | 155 | 95 | 17 |



# Outline dimension sheet

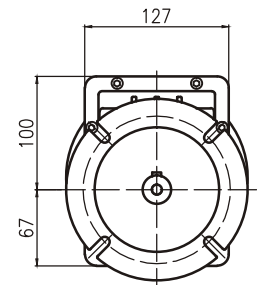
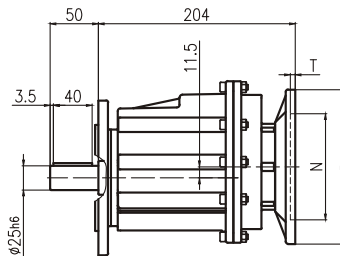
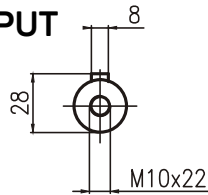
## HGX02..P(IEC)

### INPUT

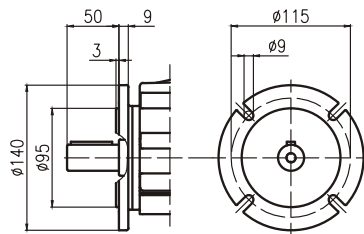


## HGXF02..P(IEC)

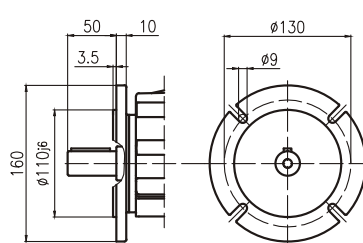
### OUTPUT



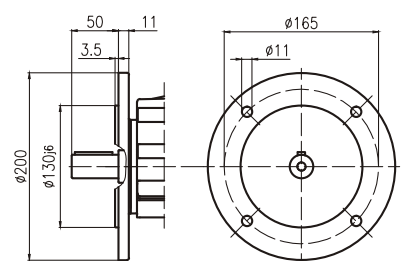
**I**  
**φ 140**



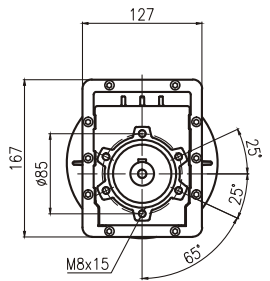
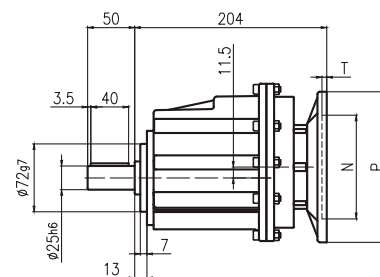
**II**  
**φ 160**



**III**  
**φ 200**



## HGXZ02..P(IEC)



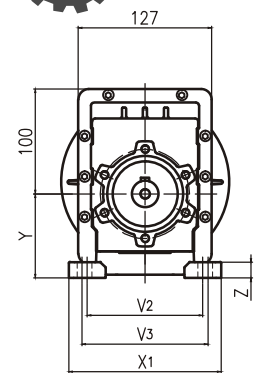
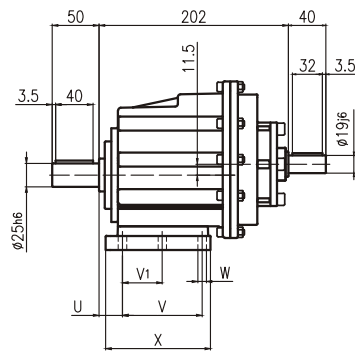
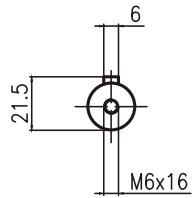
| IEC   | D  | F | G  | P   | M   | N   | S  | T |
|-------|----|---|----|-----|-----|-----|----|---|
| 63B5  | 11 | 4 | 13 | 140 | 115 | 95  | 9  | 4 |
| 71B5  | 14 | 5 | 16 | 160 | 130 | 110 | 9  | 4 |
| 71B14 | 14 | 5 | 16 | 105 | 85  | 70  | 7  | 4 |
| 80B5  | 19 | 6 | 22 | 200 | 165 | 130 | 11 | 4 |
| 80B14 | 19 | 6 | 22 | 120 | 100 | 80  | 7  | 4 |
| 90B5  | 24 | 8 | 27 | 200 | 165 | 130 | 11 | 4 |
| 90B14 | 24 | 8 | 27 | 140 | 115 | 95  | 9  | 4 |

| foot code | U  | V   | V1 | V2  | V3  | W  | X   | X1  | Y   | Z  |
|-----------|----|-----|----|-----|-----|----|-----|-----|-----|----|
| B02       | 18 | 108 | 60 | -   | 130 | 11 | 136 | 155 | 100 | 17 |
| M02       | 25 | 95  | -  | 110 | 120 | 9  | 112 | 145 | 80  | 15 |
| M01       | 18 | 80  | -  | 110 | 120 | 9  | 118 | 145 | 80  | 15 |
| B01       | 18 | 87  | 50 | 110 | -   | 9  | 118 | 130 | 90  | 15 |

# Outline dimension sheet

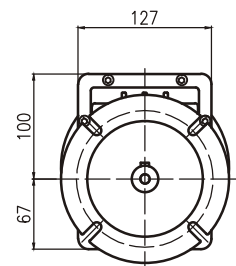
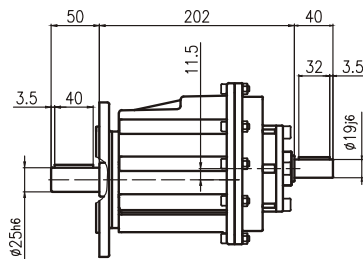
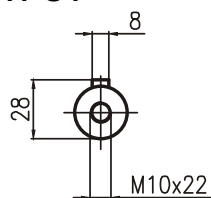
# HGX02..HS

## INPUT



# HGXF02..HS

## OUTPUT



# I

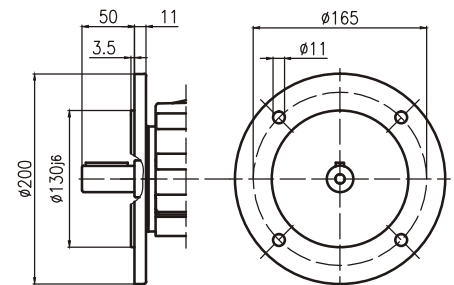
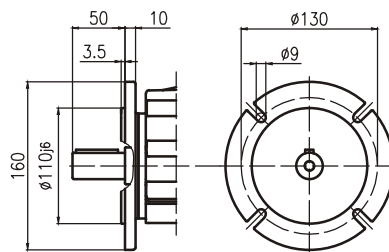
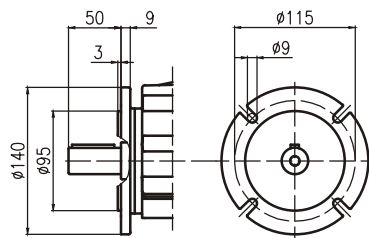
**φ 140**

## II

**φ 160**

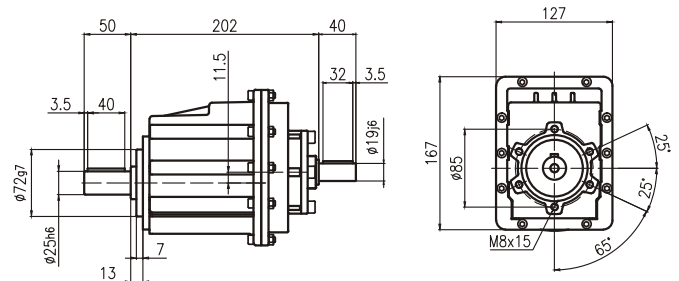
### III

**φ 200**



**HGXZ02..HS**

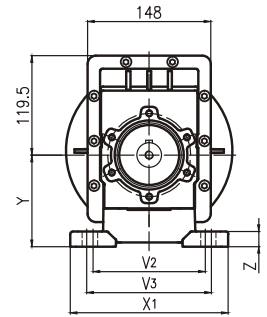
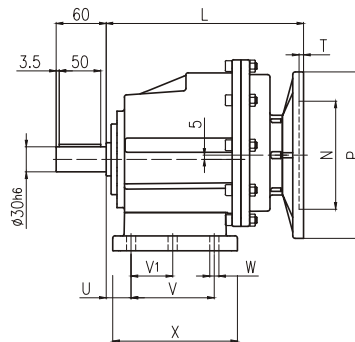
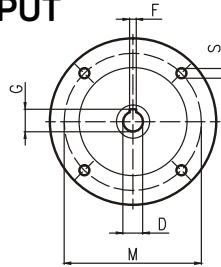
| foot code | U  | V   | V1 | V2  | V3  | W  | X   | X1  | Y   | Z  |
|-----------|----|-----|----|-----|-----|----|-----|-----|-----|----|
| B02       | 18 | 108 | 60 | -   | 130 | 11 | 136 | 155 | 100 | 17 |
| M02       | 25 | 95  | -  | 110 | 120 | 9  | 112 | 145 | 80  | 15 |
| M01       | 18 | 80  | -  | 110 | 120 | 9  | 118 | 145 | 80  | 15 |
| B01       | 18 | 87  | 50 | 110 | -   | 9  | 118 | 130 | 90  | 15 |



# Outline dimension sheet

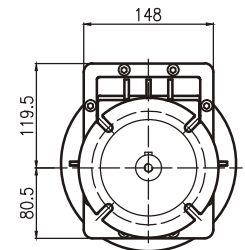
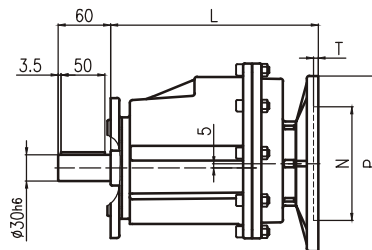
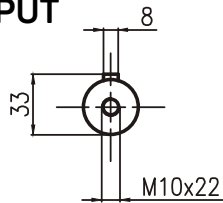
## HGX03..P(IEC)

### INPUT



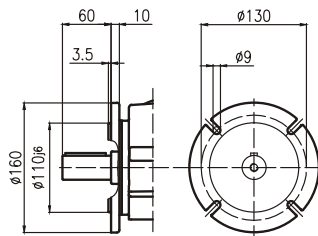
## HGXF03..P(IEC)

### OUTPUT



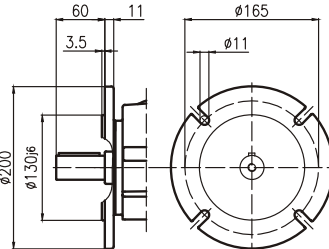
I

φ 160



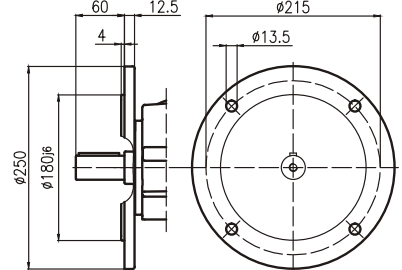
II

φ 200

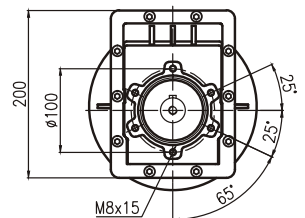
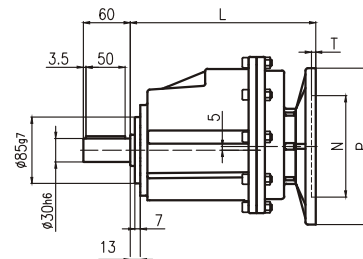


III

φ 250



## HGXZ03..P(IEC)



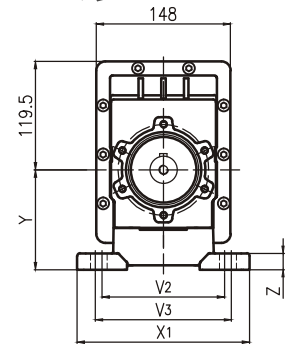
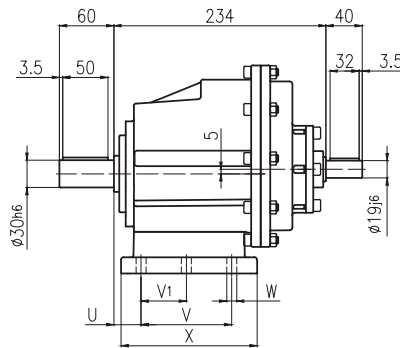
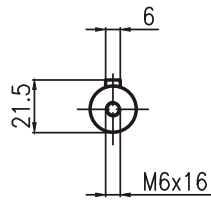
| IEC        | D  | F | G  | P   | M   | N   | S  | T | L   |
|------------|----|---|----|-----|-----|-----|----|---|-----|
| 71B5       | 14 | 5 | 16 | 160 | 130 | 110 | 9  | 4 | 220 |
| 80B5       | 19 | 6 | 22 | 200 | 165 | 130 | 11 | 4 | 220 |
| 80B14      | 19 | 6 | 22 | 120 | 100 | 80  | 7  | 4 | 220 |
| 90B5       | 24 | 8 | 27 | 200 | 165 | 130 | 11 | 4 | 220 |
| 90B14      | 24 | 8 | 27 | 140 | 115 | 95  | 9  | 4 | 220 |
| 100/112B5  | 28 | 8 | 31 | 250 | 215 | 180 | 14 | 5 | 238 |
| 100/112B14 | 28 | 8 | 31 | 160 | 130 | 110 | 9  | 5 | 238 |

| foot code | U  | V   | V1 | V2  | V3  | W  | X   | X1  | Y   | Z  |
|-----------|----|-----|----|-----|-----|----|-----|-----|-----|----|
| B03       | 18 | 130 | 70 | -   | 160 | 11 | 156 | 190 | 110 | 20 |
| M03       | 30 | 100 | -  | 135 | 150 | 11 | 150 | 190 | 110 | 18 |
| M04       | 32 | 110 | -  | 170 | 185 | 14 | 150 | 230 | 110 | 20 |
| B04       | 21 | 130 | -  | 170 | -   | 14 | 168 | 205 | 105 | 20 |

# Outline dimension sheet

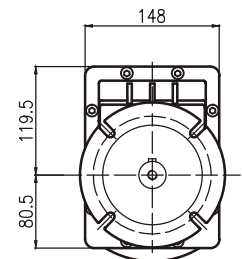
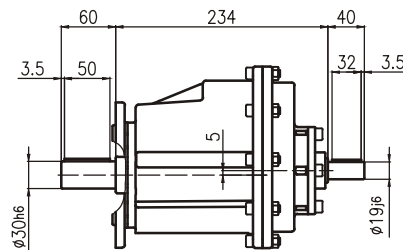
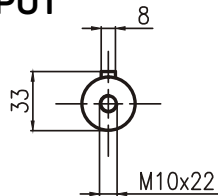
# HGX03..HS

## INPUT



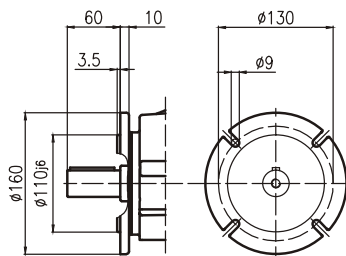
# HGXF03..HS

## OUTPUT



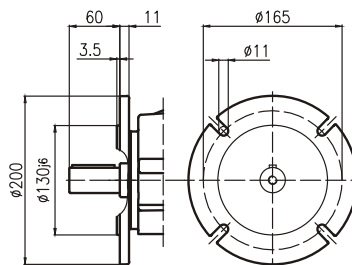
I

**φ 160**



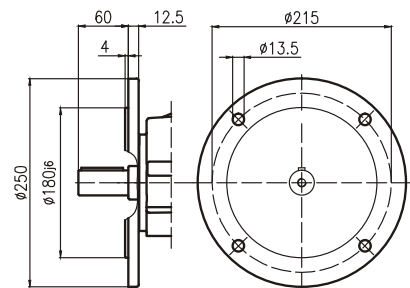
## II

**φ 200**



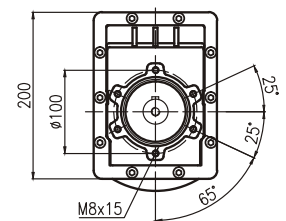
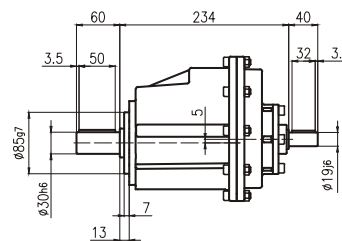
### III

**φ 250**



# HGXZ03..HS

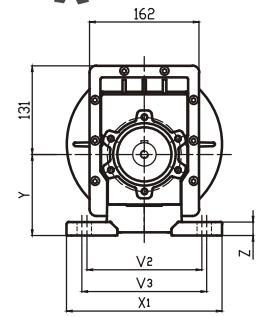
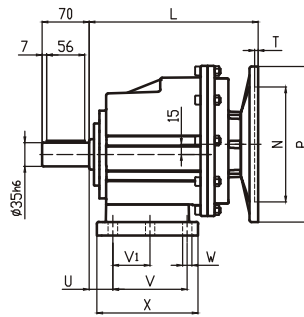
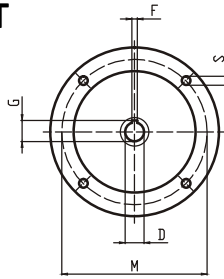
| foot<br>code | U  | V   | V1 | V2  | V3  | W  | X   | X1  | Y   | Z  |
|--------------|----|-----|----|-----|-----|----|-----|-----|-----|----|
| B03          | 18 | 130 | 70 | -   | 160 | 11 | 156 | 190 | 110 | 20 |
| M03          | 30 | 100 | -  | 135 | 150 | 11 | 150 | 190 | 110 | 18 |
| M04          | 32 | 110 | -  | 170 | 185 | 14 | 150 | 230 | 110 | 20 |
| B04          | 21 | 130 | -  | 170 | -   | 14 | 168 | 205 | 105 | 20 |



# Outline dimension sheet

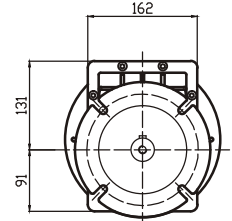
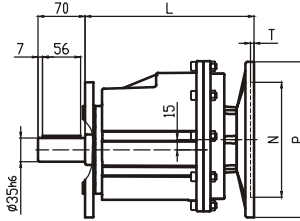
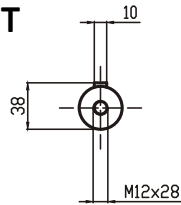
## HGX04..P(IEC)

### INPUT



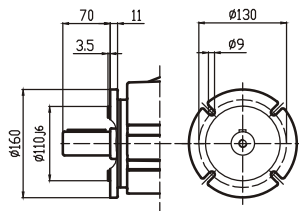
## HGXF04..P(IEC)

### OUTPUT



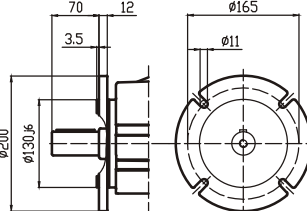
I

$\phi 160$



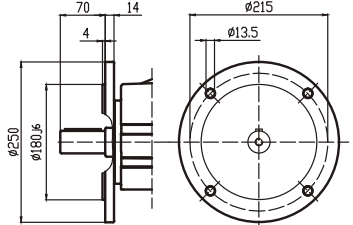
II

$\phi 200$

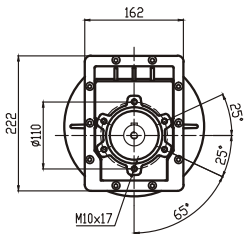
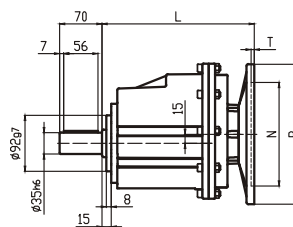


III

$\phi 250$



## HGXZ04..P(IEC)



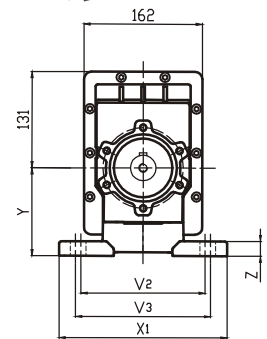
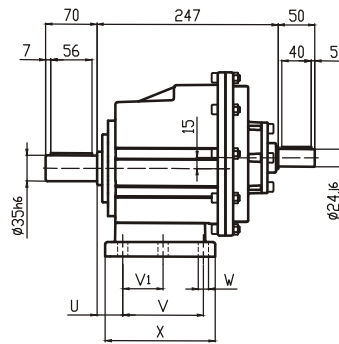
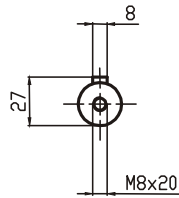
| IEC        | D  | F | G    | P   | M   | N   | S  | T | L   |
|------------|----|---|------|-----|-----|-----|----|---|-----|
| 80B5       | 19 | 6 | 21,8 | 200 | 165 | 130 | 11 | 4 | 233 |
| 80B14      | 19 | 6 | 21,8 | 120 | 100 | 80  | 7  | 4 | 233 |
| 90B5       | 24 | 8 | 27,3 | 200 | 165 | 130 | 11 | 4 | 233 |
| 90B14      | 24 | 8 | 27,3 | 140 | 115 | 95  | 9  | 4 | 233 |
| 100/112B5  | 28 | 8 | 31,3 | 250 | 215 | 180 | 14 | 5 | 250 |
| 100/112B14 | 28 | 8 | 31,3 | 160 | 130 | 110 | 9  | 5 | 250 |

| foot code | U    | V     | V1 | V2  | V3  | W  | X   | X1  | Y   | Z  |
|-----------|------|-------|----|-----|-----|----|-----|-----|-----|----|
| B04       | 23,5 | 130   | -  | 170 | -   | 14 | 168 | 205 | 115 | 20 |
| B05       | 19,5 | 149,5 | -  | 180 | -   | 14 | 185 | 215 | 130 | 20 |
| M04       | 35   | 110   | -  | 170 | 185 | 14 | 150 | 230 | 120 | 20 |
| M03       | 33   | 100   | -  | 135 | 150 | 11 | 150 | 190 | 120 | 18 |
| B03       | 21   | 130   | 70 | -   | 160 | 11 | 156 | 190 | 120 | 20 |

# Outline dimension sheet

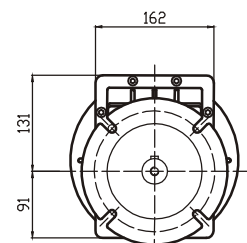
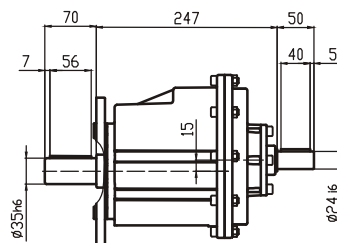
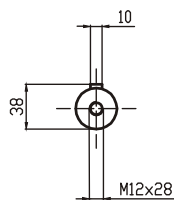
# HGX04..HS

## INPUT



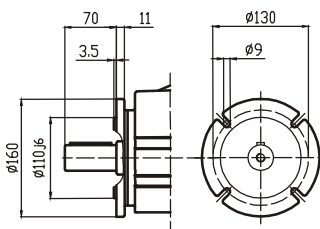
# HGXF04..HS

## OUTPUT



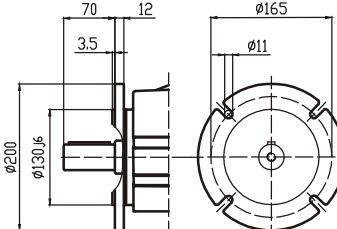
# I

**φ 160**



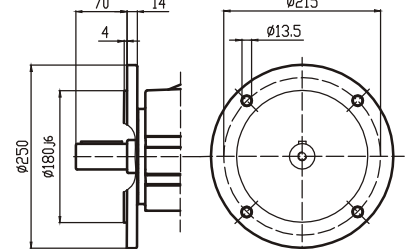
II

**φ 200**



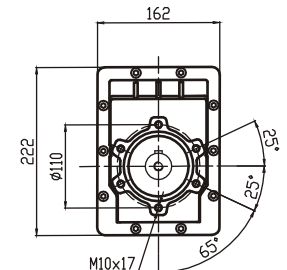
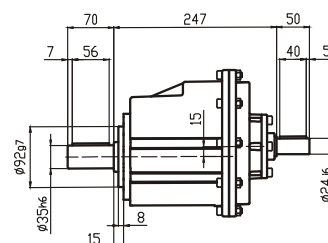
### III

**φ 250**



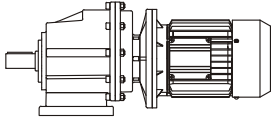
**HGXZ04..HS**

| foot<br>code | U    | V     | V1 | V2  | V3  | W  | X   | X1  | Y   | Z  |
|--------------|------|-------|----|-----|-----|----|-----|-----|-----|----|
| B04          | 23,5 | 130   | -  | 170 | -   | 14 | 168 | 205 | 115 | 20 |
| B05          | 19,5 | 149,5 | -  | 180 | -   | 14 | 185 | 215 | 130 | 20 |
| M04          | 35   | 110   | -  | 170 | 185 | 14 | 150 | 230 | 120 | 20 |
| M03          | 33   | 100   | -  | 135 | 150 | 11 | 150 | 190 | 120 | 18 |
| B03          | 21   | 130   | 70 | -   | 160 | 11 | 156 | 190 | 120 | 20 |

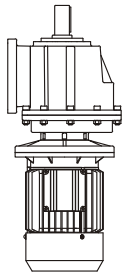


# Mounting positions and terminal box orientation

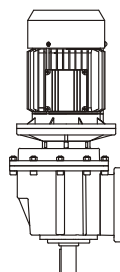
**HGX..M1**



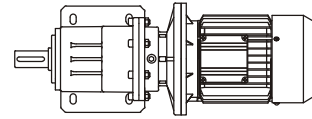
**M2**



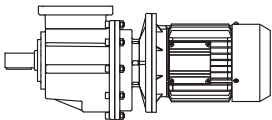
**M4**



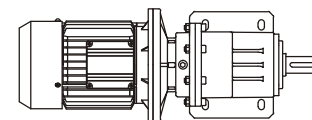
**M5**



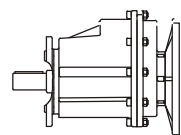
**M3**



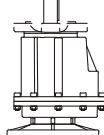
**M6**



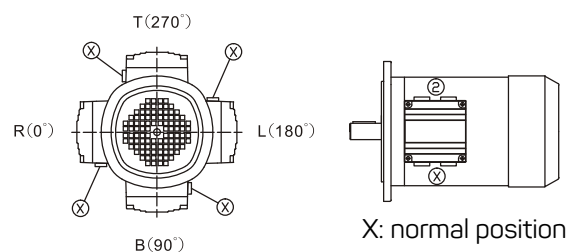
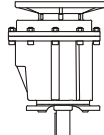
**HGXF..M1**



**M2**



**M4**



## Lubrication

### General information

Unless a special arrangement is made, VYBO Electric supplies the drives with a lubricant fill adapted for the specific gear unit and mounting position.

The decisive factor is the mounting position (M1...M6, sec. mounting position and important order information) specified when ordering the drive. You must adapt the lubricant fill in case of any subsequent changes made to the mounting position (Lubricant fill quantities).

### Anti-friction bearing greases

The lubricant table on the following page shows the permitted lubricants for VYBO gear units. Please note the following to the lubricant table:

|                         | Ambient temperature | Manufacturer | Model                | Type of lubricating oil |
|-------------------------|---------------------|--------------|----------------------|-------------------------|
| Reducer rolling bearing | -20°C~+60°C         | Mobil        | Mobil EP 2           | Mineral oil             |
|                         | -20°C~+60°C         | Mobil        | Mobiltemp SHC100     | Synthetic oil           |
|                         | -20°C~+60°C         | Esso         | Unirex EQ3           | Mineral oil             |
| Motor rolling bearing   | -20°C~+60°C         | Shell        | Alvania RL3          | Mineral oil             |
|                         | -20°C~+60°C         | Shell        | Aero Shell Grease 16 | Synthetic oil           |

# Lubrication

The following grease quantities are required:

- for fast-running bearings (motor and gear unit input end): Fill cavities between the rolling elements one third full with grease.
- for slow-running bearings (in gear units and gear unit output end): Fill the cavities between the rolling elements two thirds full with grease.

| Ambient temperature (°C) | ISO viscosity class | SHELL             | MOBIL              | BP                   | Lubrication type |
|--------------------------|---------------------|-------------------|--------------------|----------------------|------------------|
| -10 ~ +40                | VG220               | Shell Omala 220   | Mobil gear 630     | BP Energol GX-XP 220 | Mineral oil      |
| -20 ~ +25                | VG150<br>VG100      | Shell Omala 100   | Mobil gear 627     | BP Energol GX-XP 100 |                  |
| -30 ~ +10                | VG110-46<br>VG32    | Shell Omala T32   | Mobil D. T. E. 13M |                      |                  |
| -40 ~ +20                | VG22<br>VG15        | Shell Omala T15   | Mobil D. T. E. 11M | BP Energol HLP-HM 15 |                  |
| -40 ~ +80                | VG220               | Shell Omala HD220 | Mobil SHC630       |                      | Synthetic oil    |
| -40 ~ +40                | VG150               |                   | Mobil SHC629       |                      |                  |
| -40 ~ +10                | VG32                |                   | Mobil SHC624       |                      |                  |

## Lubricant fill quantity

| Gear units | Fill quantity in liters |     |     |     |     |     |
|------------|-------------------------|-----|-----|-----|-----|-----|
|            | M1                      | M2  | M3  | M4  | M5  | M6  |
| HGX 01     | 0,4                     | 0,6 | 0,4 | 0,3 | 0,3 | 0,3 |
| HGX 02     | 0,5                     | 0,7 | 0,5 | 0,4 | 0,4 | 0,4 |
| HGX 03     | 0,8                     | 1,1 | 0,8 | 0,6 | 0,6 | 0,6 |
| HGX 04     | 1,2                     | 1,6 | 1,0 | 1,0 | 0,9 | 0,9 |

The fill quantity in the table is referenced, the exact value relating to the ratio. All HGX series helical gear units are filled with lubrication before delivery.

# Installation methods

## Preparation before the installation

- 1) Check if the data on the nameplates of the gearmotor matches the voltage supply system.
- 2) For standard gear unit, the ambient temperature must be in accordance with corresponding lubricant table.
- 3) The drive must not be assembled in conditions such as oil, gas, vapors, acids, radiation and so on.
- 4) Output shaft and flange surfaced must thoroughly cleaned to ensure they are free of anticorrosion agents, contamination or similar. Use a commercially available solvent. Do not let the solvent come into contact with sealing lip of the oil seals, or will damage the material.
- 5) The supporting structure must have the following characteristics: level, vibration damping and torsionally rigid.

## The installation of the gear units

- 1) Do not tighten the housing the housing legs and mounting flanges against one another and ensure that you comply with the permitted radial load an axial load.
- 2) Never drive belt pulleys, couplings, pinions, etc. onto the shaft end by hitting them with a hammer. This will damage the bearing housing and the shaft.
- 3) Prior to startup, check that if the oil level is as specified for the mounting position. If the oil checking and drain screw and the breather valves are free accessible.

| Problem                                                                                                                                                                | Possible cause                                                                                                                   | Remedy                                                                                                                                                                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unusual, regular running noise                                                                                                                                         | A: Meshing/grinding noise: Bearing damage.<br>B: Knocking noise: Irregularity in the gearing                                     | A: Check the oil, change bearings<br>B: Contact customer service                                                                                                                                      |
| Unusual, irregular running noise                                                                                                                                       | Foreign bodies in the oil                                                                                                        | · Check the oil<br>· Stop the drive, contact customer service                                                                                                                                         |
| Oil leaking 1)<br>· From the gear cover plate<br>· From the motor flange<br>· From the motor oil seal<br>· From the gear unit flange<br>· From the output end oil seal | A: Rubber seal on the gear cover plate leaking<br>B: Seal defective<br>C: Gear unit not vented                                   | A: Tighten the bolts on the gearcover plate and observe the gear unit. Oil still leaking: Contact customer service<br>B: Contact customer service<br>C: Vent the gear unit (see "Mounting positions") |
| Oil leaking from breaking valve                                                                                                                                        | A: Too much oil<br>B: Drive operated in incorrect mounting position<br>C: Frequent cold starts (oil foams) and/or high oil level | A: Correct the oil level (see Sec. "Inspection and Maintenance")<br>B: Mount the breather valve correctly (see Sec. "Mounting Positions") and correct the oil level (see "Lubricants")                |
| Output shaft does not turn although the motor is running or the input shaft is rotated                                                                                 | Connection between shaft and hub in gear unit interrupted                                                                        | Send in the gear unit / gearmotor for repair                                                                                                                                                          |

Short-term oil/grease leakage at the oil seal is possible in the run-in phase (24 hours running time).

# Charge characteristic chart

## Charge characteristic chart (for reference)

| Air blowers                    |   |
|--------------------------------|---|
| Air blower (axial or radial)   | A |
| Fan of cooling tower           | B |
| Induced draught fan            | B |
| Rotary piston type fan         | B |
| Turbo-fan                      | A |
| Construction machinery         |   |
| Concrete mixer                 | B |
| Hoist                          | B |
| Road building machinery        | B |
| Boring mill                    | B |
| Chemical machinery             |   |
| Mixer (liquid)                 | A |
| Mixer (half liquid)            | B |
| Centrifuge (heavy)             | B |
| Centrifuge (light)             | A |
| Cooling rolling drum           | B |
| Dry rolling drum               | B |
| Mixer                          | B |
| Compressor                     |   |
| Piston type compressor         | C |
| Turbo-compressor               | B |
| Transmission freighter         |   |
| Pan conveyer                   | B |
| Balance lifter                 | B |
| Trough conveyer                | B |
| Ribbon conveyer (large piece)  | C |
| Ribbon conveyer (small) piece) | B |
| Drum-type flour conveyer       | A |
| Chain conveyer                 | B |
| Ring type conveyer             | B |
| Lifter                         | B |
| Hoist                          | B |
| Crank-connecting conveyer      | B |
| Worm conveyer                  | B |
| Steel-band conveyer            | B |
| Chain reed-type conveyer       | B |
| Crab freighter                 | B |
| Hoist                          |   |
| Hoist gear assembly            | A |
| Bracket swing gear assembly    | B |
| Derrick gear assembly          | B |
| Steering gear assembly         | B |
| Moving gear assembly           | C |

| Land dredger                       |   |
|------------------------------------|---|
| Drum-type conveyer                 | C |
| Drum-type rotation wheel           | C |
| Dredger head                       | C |
| Powered crab                       | B |
| Pump                               | B |
| Pump turning gear assembly         | B |
| Moving gear assembly (apron wheel) | C |
| Moving gear assembly (track)       | B |
| Foodstuff processing machinery     |   |
| Placer or box filler               | A |
| Cane crusher                       | A |
| Cane cutter                        | B |
| Cane crasher                       | C |
| Mixer                              | B |
| Paste bucket                       | B |
| Packager                           | A |
| Beet slicer                        | B |
| Beet washing machine               | B |
| Motor and conversion equipments    |   |
| Frequency converter                | C |
| Motor                              | C |
| Welding motor                      | C |
| Washing machine                    |   |
| Rolling drum                       | B |
| Washing machine                    | B |
| Metal roller machine               |   |
| Steel cutter                       | C |
| Chain converter                    | B |
| Cold mill                          | C |
| Continuous casting equipments      | B |
| Cold bed                           | B |
| Cropper                            | C |
| Cross steering transmitter         | B |
| Druster                            | C |
| Heavy and medium steel mill        | C |
| Bar mill                           | C |

# Charge characteristic chart

## Charge characteristic chart (for reference)

| Bar transmission equipments                    |   |
|------------------------------------------------|---|
| Bar pusher                                     | B |
| Push bed                                       | B |
| Shears                                         | C |
| Lumber elevator platform                       | B |
| Roll adjusting equipments                      |   |
| Roller leveling machine                        | B |
| Mill rolling way (heavy)                       | C |
| Mill rolling way (light)                       | B |
| Sheet rolling mill                             | C |
| Trimming shears                                | B |
| Pipe welder                                    | C |
| Soldering machine (belt material and wire rod) | B |
| Wire drawbench                                 | B |
| Metal processing machine tools                 |   |
| Power shaft                                    | A |
| Forging machine                                | C |
| Drop hammer                                    | C |
| Machine tool and necessary                     | A |
| Machine tool and main driving equipment        | B |
| Metal facing machine                           | C |
| Plate-leveling machine tool                    | C |
| Backing-out punch                              | C |
| Press machine tool                             | C |
| Cutting machine                                | B |
| Sheet bending machine tool                     | B |
| Petroleum processing machinery                 |   |
| Pump of oil pipe line                          | B |
| Rotary drilling equipment                      | C |
| Papering machine                               |   |
| Glazing press                                  | C |
| Multilayer paper board machine                 | C |
| Drying cylinder                                | C |
| Glazing cylinder                               | C |
| Masher                                         | C |
| Mashing and breaking machine                   | C |
| Suction roll                                   | C |
| Wet paper roller machine                       | C |
| Water absorbing roller machine                 | C |
| Welon machine                                  | C |

| Pumps                                      |   |
|--------------------------------------------|---|
| Centrifugal pump (thin liquid)             | A |
| Centrifugal pump (half liquid)             | B |
| Displacement pump                          | C |
| Plunger pump                               | C |
| Force pump                                 | C |
| Plastic equipments                         |   |
| Glazing press                              | B |
| Ejecting press                             | B |
| Spiral extruding machine                   | B |
| Mixing machine                             | B |
| Rubber equipment                           |   |
| Glazing press                              | B |
| Ejecting press                             | C |
| Mixing stir machine                        | B |
| Kneading machine                           | B |
| Roller machine                             | C |
| Stone porcelain clay processing equipments |   |
| Ball crusher                               | B |
| Ejecting press and breaker                 | C |
| Breaker                                    | C |
| Brick press                                | C |
| Beating crusher                            | C |
| Converter                                  | C |
| Cylinder mill                              | C |
| Textile machinery                          |   |
| Feeding machine                            | B |
| Loom machine                               | B |
| Dyeing machine                             | B |
| Purified drum                              | B |
| Welon machine                              | B |
| Waster teratment equipments                |   |
| Air blast                                  | B |
| Screw pump                                 | B |
| Wood processing machine tool               |   |
| Barker                                     | C |
| Facing machine                             | B |
| Saw bench                                  | C |
| Wood processing machine tool               | A |



## Address

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052 01 Spišská Nová Ves  
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tel: +421 944 105 361  
e-mail: [mv@vyboelectric.eu](mailto:mv@vyboelectric.eu)

[www.vyboelectric.com](http://www.vyboelectric.com)



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BUREAU VERITAS  
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**VYBO Electric a.s.**  
Radlinského 18, 052 01 Spišská Nová Ves  
Slovak Republic

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## ISO 14001: 2015

Scope of certification

**MANUFACTURE AND SALE OF ELECTRIC MOTORS. SALES AND DEVELOPMENT OF VARIABLE FREQUENCY DRIVES.**

Original cycle start date: 18.05.2022

Expiry date of previous cycle: N/A

Certification Audit date: 31.03.2022

Certification cycle start date: 18.05.2022

Subject to the continued satisfactory operation of the organization's Management System, this certificate expires on: 17.05.2025

Certificate No. SK-U22 055E Version: 1 Issue date: 18.05.2022

Certification body address: 5<sup>th</sup> Floor, 86 Prescott Street, London E1 6HQ, United Kingdom  
Local office: Plynárenská 7/B, BRATISLAVA 821 09, Slovak Republic



Further clarifications regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organisation.  
To check this certificate validity please call: +421 2 5341 4165

Page 1 of 1



Bureau Veritas Certification

## Certificate

Awarded to

**VYBO Electric a.s.**  
Radlinského 18, 052 01 Spišská Nová Ves  
Slovak Republic

BUREAU VERITAS CERTIFICATION CZ s.r.o. certifies that the Management System of the above organisation has been assessed and found to be in accordance with the requirements of the management system standard detailed below

Standard

## ISO 45001:2018

Scope of supply

**MANUFACTURE AND SALE OF ELECTRIC MOTORS. SALES AND DEVELOPMENT OF VARIABLE FREQUENCY DRIVES.**

Original Approval Date: 18-05-2022

Expiry date of previous cycle: N/A

Certification Cycle Start Date: 18-05-2022

Certification Cycle End Date: 17-05-2025

Subject to the continued satisfactory operation of the organisation's Management System, this certificate is valid until: 17-05-2025

To check this certificate validity please call: +420 210 008 215

Further clarifications regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organisation.

Version 1 Issue Date: 18-05-2022

Certificate Number: CZF - 2200117

MANAGING OFFICE: BUREAU VERITAS CERTIFICATION CZ s.r.o., Obchodní 1, 110 00 Praha 4, Czech Republic

ISSUING OFFICE ADDRESS: BUREAU VERITAS CERTIFICATION CZ s.r.o., Obchodní 1, 143 02 Praha 4, Czech Republic

1/1



# CERTIFICATE

**TÜV SÜD Slovakia s.r.o.**  
Certification Body for Management Systems  
Accredited by SNAS  
Certificate on accreditation No. Q-011  
certifies that



**VYBO Electric a.s.**  
Radlinského 18  
SK – 052 01 Spišská Nová Ves  
IČO: 45 537 143

has established and applies  
a Quality Management System for

**Manufacture and sale of electric motors.  
Sales and development of variable frequency drives.**

An audit was performed, Report No. 2264/40/22/Q/AS/C  
Proof has been furnished that the requirements  
according to

## STN EN ISO 9001:2016

are fulfilled. The certificate is valid from 2022-04-14 until 2025-04-13

Certificate Registration No. Q 2264-1

Bratislava, 2022-04-14

*[Signature]*

**TÜV SÜD Slovakia s.r.o.**  
Certification Body for Management Systems  
Member of Group TÜV SÜD  
Jaskovce 6, 821 03 Bratislava

F-Q-019/08

Certificate SK22/3701

The management system of

**VYBO Electric a.s.**  
Radlinského 18  
052 01 Spišská Nová Ves, Slovakia

has been assessed and certified as meeting the requirements of

## EN ISO 50001:2018

For the following activities

**Production & sales of electric motors.  
Sales & development of variable frequency drives.**

Further clarifications regarding the scope of this certificate and the applicability of EN ISO 50001:2018 requirements may be obtained by consulting the organisation.

This certificate is valid from 7 April 2022 until 6 April 2025  
and remains valid subject to satisfactory surveillance audits.

Recertification audit due a minimum of 60 days  
before the expiration date.

Issue 1. Certified with SGS since 7 April 2022

Authorised by

Ing. Róbert Bodnár  
Director

SGS Slovakia spol. s r. o.  
Klyučská 14, 040 11 Košice, Slovakia  
t +421 55 783 61 11, f +421 55 783 61 20, www.sgs.com

Page 1 of 1

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