# evox PLATFORM

Product Catalogue

Bonfiglioli

*We engineer dreams*

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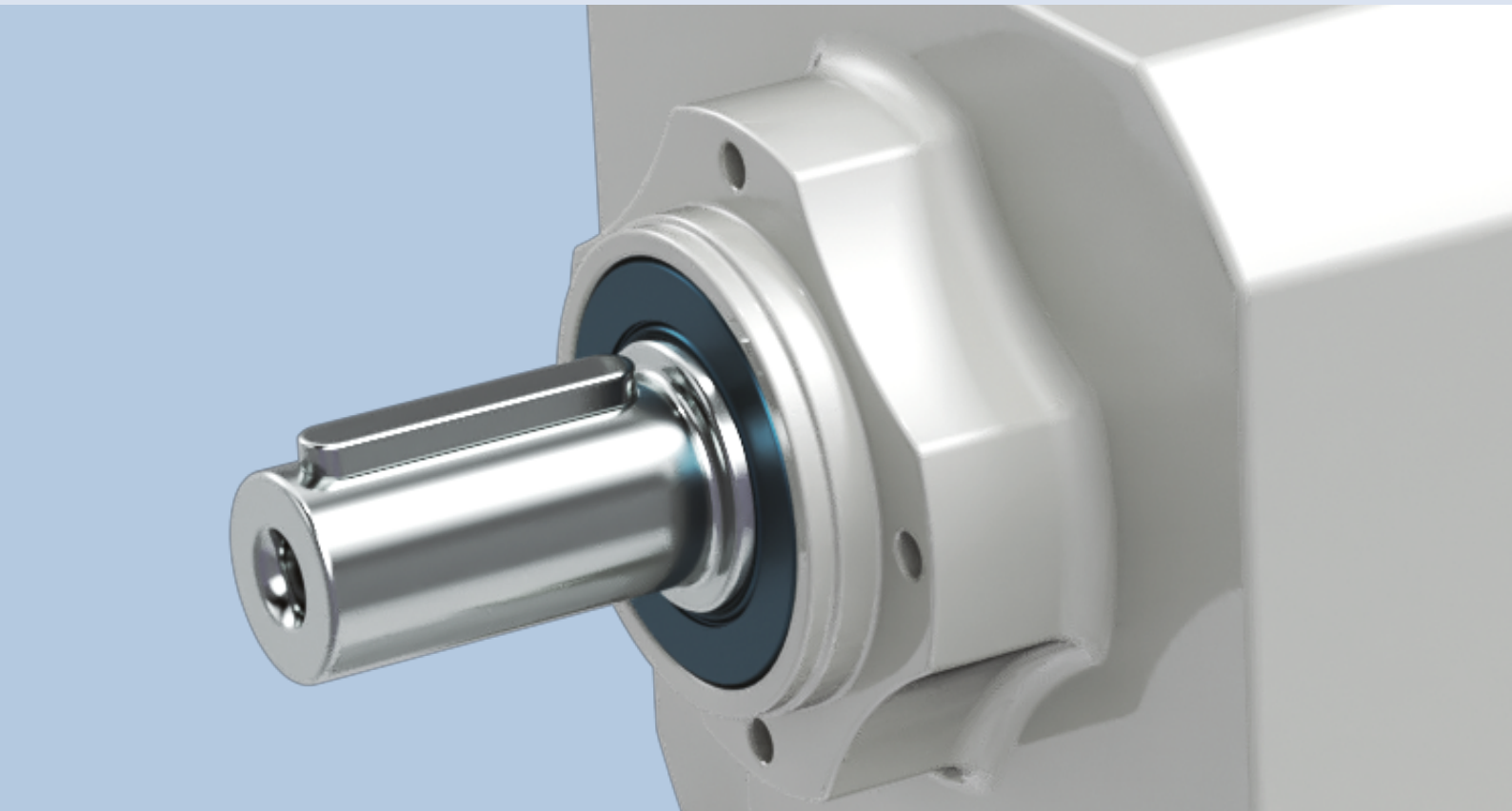
# CONFIGURATION GUIDELINES



# ENVIRONMENTAL CONDITIONS

## Ambient temperature

The ambient temperature influences the gear unit and motor performance.
Please take into account the following guidelines for a correct product configuration:

- **Oil Seals:** please refer to the oil seal options in the catalogue section relating to gear unit options and select the correct alternative according to product operating conditions.
- **Lubricant:** if the operating temperature is outside the indicated range for the standard lubricant, please select SO to order the gear unit without oil and then refer to the Lubricant table to select the correct oil for the application operating temperature range.
- **Gear unit housing and component resistance:** if the operating temperature is below -25°C, or above 50°C, please contact Bonfiglioli's Technical Service. From -25°C to -10°C, please start the gearmotor with partial loads.
- **Motor:** in case of special humidity and ambient temperature resistance requirements, please see the motor tropicalisation option.

*To allow a proper heat dissipation, make sure the product is installed with adequate air circulation, away from temperature-sensitive components.*

**For altitude < 3000m and ambient temperature <50°C, these Gear Units thermal power is not a possible cause of fault. Should the product be operated under different conditions, please contact Bonfiglioli's Technical Service.**

Rating values are calculated for standard environmental conditions (40°C; altitude<1000m a.s.l) as specified in CEI EN 60034-1.

Motors can be used within the temperature range of -15°C and +40°C as standard. For temperature higher than 40°C the rated power output should be adjusted by factors given in the table below.

| Ambient temperature (°C) | 40 | 45 | 50 |
|---|---|---|---|
| $k_{ft}$ coefficient | 100% | 95% | 90% |

Permitted power = $Pn_1 \cdot k_{ft} \cdot f_m$

For $f_m$ refer to the Duty Cycle options

# ENVIRONMENTAL CONDITIONS

## Altitude

The installation altitude influences the gear unit and motor performance. For motor temperature derating data, see the **e-motor Configuration Guidelines & Setup** Catalogue Section.
If the application altitude is above 1500 m and the gear unit is factory filled with oil, place the product with the oil drain plug at the top and open it to balance out the internal pressure and the external atmosphere, then close the oil plug. Make sure that no object or substance falls into the gear unit, as it could damage its internal components during its operating lifetime.
If, during its lifetime, the gear unit operates with a difference of altitude higher than 1000 m, **contact Bonfiglioli's Technical Service** to find the correct solution, based on the required performance, the seals equipped and the mounting position needed.

## Noise Level

Gear unit noise levels have been tested according to UNI ISO 3746. The noise of the gear unit is always lower than the motor's, which is compliant with the CEI EN 60034-9 standard.

## Corrosion Protection

The gear unit and motors can be configured with several devices to enhance their protection against corrosion, see EVOX Painting Options against corrosion protection and FO option to add stainless steel components to your product.

## Storage

See the Product Storage Guidelines on the EVOX user manual at www.bonfiglioli.com for a thorough description of every environment and treatment conditions (for less and more than 6 storage months).
Observe the following instructions to correctly store the products:

a) Do not store outdoors, in areas exposed to the weather or with excessive humidity.

b) always place wooden boards or other materials between the products and the floor.

The gear units should have no direct contact with the floor.

c) In case of long-term storage, all machined surfaces such as flanges, shafts and couplings must be coated with a suitable rust inhibiting product (Mobilarma 248 or equivalent).
In addition, the gear units must be placed with the filler plug at the top and filled up with oil.

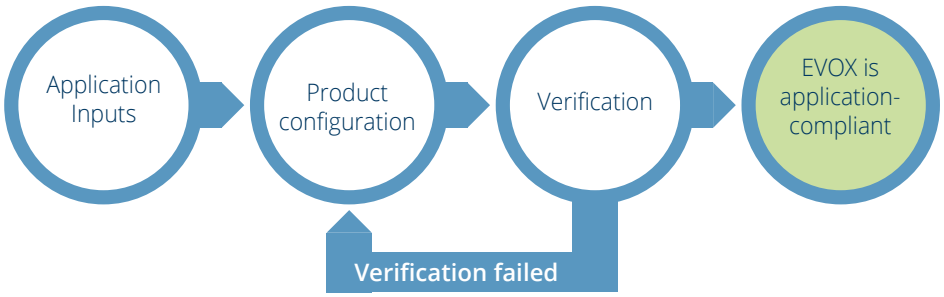
Before putting the units into operation, top-up with the appropriate quantity and type of oil (refer to the User's manual available at www.bonfiglioli.com).

## Gear Unit Efficiency

For Helical In-Line gear units, consider as a general order of magnitude $0{,}98^{Nst}$ [Nst = stage number], for an efficient calculation.

# PRODUCT SELECTION GUIDELINES

In order to correctly choose the product that fits your needs, please refer to the Application Input parameters listed below. Choose the configuration in the performance table, then verify your EVOX with the Verification parameters.




## APPLICATION INPUTS

Some fundamental data are necessary to assist the correct selection of a gear unit or gearmotor. The table below briefly sums up this information.

To simplify selection, fill in the table and send a copy to Bonfiglioli Technical Service, which will select the most suitable gear unit for your application.

| | Type of application | |
|---|---|---|
| $P_{r2}$ | Output power at $n_2$ | .....kW |
| $M_{r2}$ | Output torque at $n_2$ | .....Nm |
| $n_2$ | Output speed | .....rpm |
| $n_1$ | Input speed | .....rpm |
| $R_{c2}$ | Radial load on output shaft | .....N |
| $x_2$ | Load application distance (*) | .....mm |
| | Load orientation at input | .....  |
| | Output shaft rotation direction (CW-CCW) (**) | ..... |
| $R_{c1}$ | Radial load on input shaft | .....N |
| $x_1$ | Load application distance (*) | .....mm |
| | Load orientation at input | .....  |
| | Input shaft rotation direction (CW-CCW) (**) | ..... |

| | | |
|---|---|---|
| $A_{c2}$ | Axial load on output shaft (+/–) (***) | .....N |
| $A_{c1}$ | Axial load on input shaft (+/–) (***) | .....N |
| $J_c$ | Moment of inertia of the load | .....Kgm$^2$ |
| $t_a$ | Ambient temperature | .....C° |
| | Altitude above sea level | .....m |
| | Duty type to IEC norms | S...../.....% |
| $Z_r$ | Startup frequency | .....1/h |
| | Motor voltage | .....V |
| | Brake voltage | .....V |
| | Frequency | .....Hz |
| $M_b$ | Brake torque | .....Nm |
| | Motor protection degree | IP..... |
| | Insulation class | ..... |

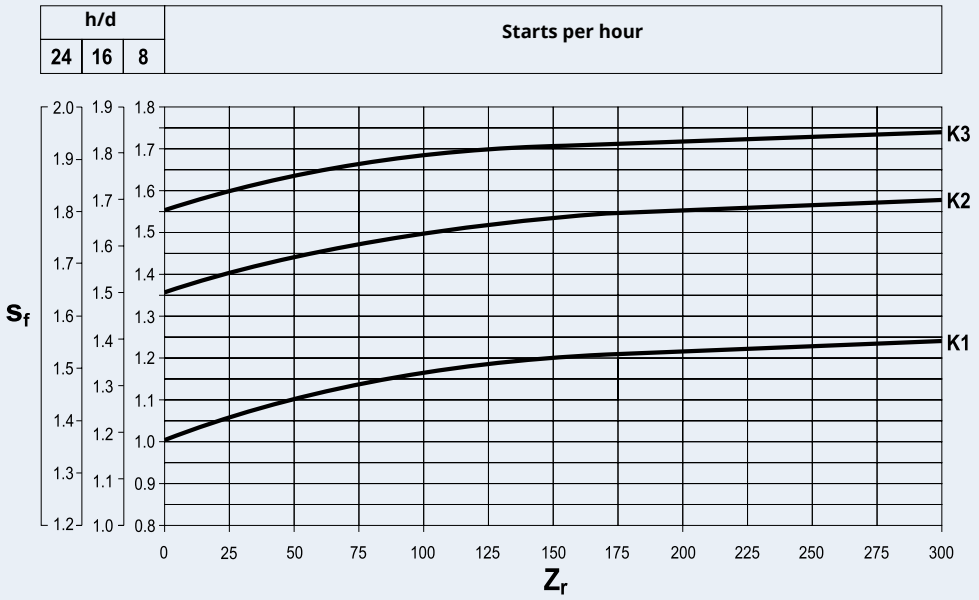
(*) Distance x1-2 refers to the distance between the point of force application and the shaft shoulder (if not indicated, the force acting at half the shaft extension will be considered).

(**) CW = clockwise; CCW = counter-clockwise

(***) + = push; – = pull

## Application Service Factor

The Suggested Service Factor [$S_f$] is the ratio between the Nominal Table Torque [$M_{r2}$] and the Calculated Torque [$M_{c2}$] needed by your Application.




The [$S_f$] calculation depends on 3 factors in the previous diagram:

- **Start-up frequency** [$Z_r$]: this parameter **describes the gear unit start-ups per hour**
- **Daily work hours**: this parameter selects the y axis where you can check your Suggested Service Factor [$S_f$]
- **Mass acceleration factor** [**k..**]: this parameter describes the shock loads of your application on the Gear Unit and drives the fs curve selection

| | | |
|---|---|---|
| **K1**: Uniform Load | **K ≤ 0.25** | When $K = \frac{J_c}{J_m}$ |
| **K2**: Moderate shock load | **0.25 < K ≤ 3** | |
| **K3**: Heavy shock load | **3 < K ≤ 10** | |
| **K4**: Contact Bonfiglioli's Technical Service | **K > 10** | |

$J_c$ = Driven masses moment of inertia reduced to the motor shaft

$J_c = J_a\left(\frac{1}{i^2}\right)$

$J_a$ = Driven masses moment of inertia reduced to the gear unit output shaft

**i** = Gear Ratio

$J_m$ = EVOX e-motor moment of inertia reduced to the motor shaft

# PRODUCT SELECTION GUIDELINES

## GEAR UNIT SELECTION

### Gear Unit Configuration

a) Determine Suggested Service Factor [$S_f$] according to type of duty (factor K), number of starts per hour [$Z_r$] and hours of operation.

b) From values of torque [$M_{r2}$], speed [$n_2$] and dynamic efficiency [$\nu_d$] the required input power can be calculated from the equation:

$$P_{r1} = \frac{M_{r2} \cdot n_2}{9550 \cdot \eta_d} \text{ [kW]}$$

Value of [$\eta_d$] for the captioned gear unit can be sorted out from Gear Unit Efficiency paragraph.

c) Consult the gearmotor selection tables and refer to the appropriate rated power [$P_n$]:

$$P_n \geq P_{r1}$$

At the end consider a Gear Unit configuration within a Service Factor **S** that match or exceeds the Suggested Service Factor [$S_f$].

$$S = \frac{M_{n2}}{M_2} = \frac{P_{n1}}{P_1}$$

Unless otherwise specified, power [$P_n$] of motors indicated in the catalogue refers to continuous duty S1. For motors used in conditions other than S1, the type of duty required by reference to CEI 2-3/IEC 34-1 Standards must be mentioned.

For duties from S2 to S9 extra power output can be obtained with respect to continuous duty, see the "e-motor Configuration Guidelines & Setup" catalogue section.

Accordingly the following condition must be satisfied:

$$P_n \geq \frac{P_{r1}}{f_m}$$

The adjusting factor [$f_m$] can be obtained from table below.

## Intermittence ratio

$$I = \frac{t_f}{t_f + t_r} \cdot 100$$

$t_f$ = operating time under constant load

$t_r$ = rest time

| | Duration | | | | | | |
|---|---|---|---|---|---|---|---|
| | S2 | | | S3* | | | S4 - S9 |
| | of the duty cycle [min] | | | Cycle duration factor [I] | | | Please contact us |
| | **10** | **30** | **60** | **25%** | **40%** | **70%** | |
| $f_m$ | 1.35 | 1.15 | 1.05 | 1.25 | 1.15 | 1.1 | |

* Cycle duration, in any event, must be 10 minutes or less. If it is longer, please contact Bonfiglioli's Technical Service

Next, refer to the appropriate [$P_n$] section within the gearmotor selection charts and locate the unit that features the desired output speed [$n_2$], or closest to, along with a Service Factor **S** that meets or exceeds the Suggested Service Factor [$S_f$].

The Service Factor is so defined:

$$S = \frac{M_{n2}}{M_2} = \frac{P_{n1}}{P_1}$$

## Selection of speed reducer and gear unit with IEC motor adapter

a) Determine Suggested Service Factor [$S_f$].

b) Assuming the required output torque for the application [$M_{r2}$] is known, the calculation torque can be then defined as:

$$M_{c2} = M_{r2} \cdot S_f$$

c) The gear ratio is calculated according to requested output speed [$n_2$] and drive speed [$n_1$]:

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

Once values for [$M_{c2}$] and [**i**] are known consult the rating charts under the appropriate input speed [$n_1$] and locate the gear unit that features the gear ratio closest to [**i**] and at same time offers a rated torque value [$M_{n2}$] so that:

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

If a IEC motor must be fitted on the gear unit, check the geometrical compatibility with the gear unit in Gear units performance tables.

# PRODUCT SELECTION GUIDELINES

## VERIFICATION

After the selection of the speed reducer, or gearmotor, is complete it is recommended that the following verifications are conducted:

### Thermal capacity

For altitude < 3000m and ambient temperature <50°C, these Gear Units thermal power is not a possible cause of fault. Should the product be operated under different conditions, please contact Bonfiglioli's Technical Service.

*To allow a proper heat dissipation, make sure the product is installed with adequate air circulation, away from temperature-sensitive components.*

### Load Conditions on Gear Unit Shafts

Please shown in the Catalog Performances Table.

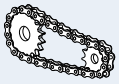
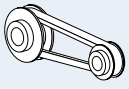
### External Load Calculation on Gear Unit Shafts

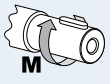
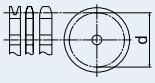
External transmission could generate loads on the Gear Unit shafts.

The guidelines below are used to calculate the radial load.

This is a very simplified method to get the order of magnitude of the radial loads on the Gear Unit shafts. We recommend you follow more detailed considerations on your application to select the correct EVOX Gear Unit.

$$R_c = \frac{2000 \cdot M_a \cdot K_r}{d}$$

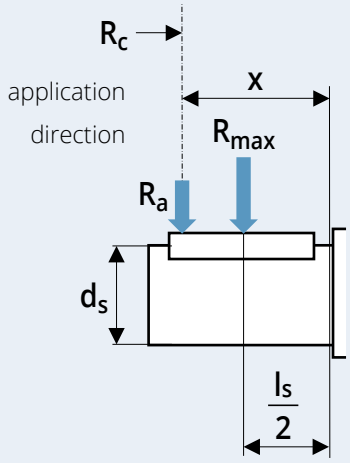
| | |
|---|---|
| $K_r = 1$ |  |
| $K_r = 1.25$ |  |
| $K_r = 1.5 - 2.0$ |  |

| | |
|---|---|
| $M_a$ [Nm] |   |
| d [mm] |   |

## Position of the radial component on the gear unit shafts

**Radial loads in performance tables are considered as applied in the middle of the shaft.**

To compare the radial component of the force applied on the output shaft [$R_c$] with the value [$R_{max}$] specified in the performance tables, shift the line of action of [Rc] using the following formula so as to keep the stress on bearings unchanged.




$$R_a = R_{max} \frac{l_1}{l_2 + x}$$

The following formula needs to be verified:

$$R_a > R_c$$

Check values [$l_1$] and [$l_2$] in the following tables:

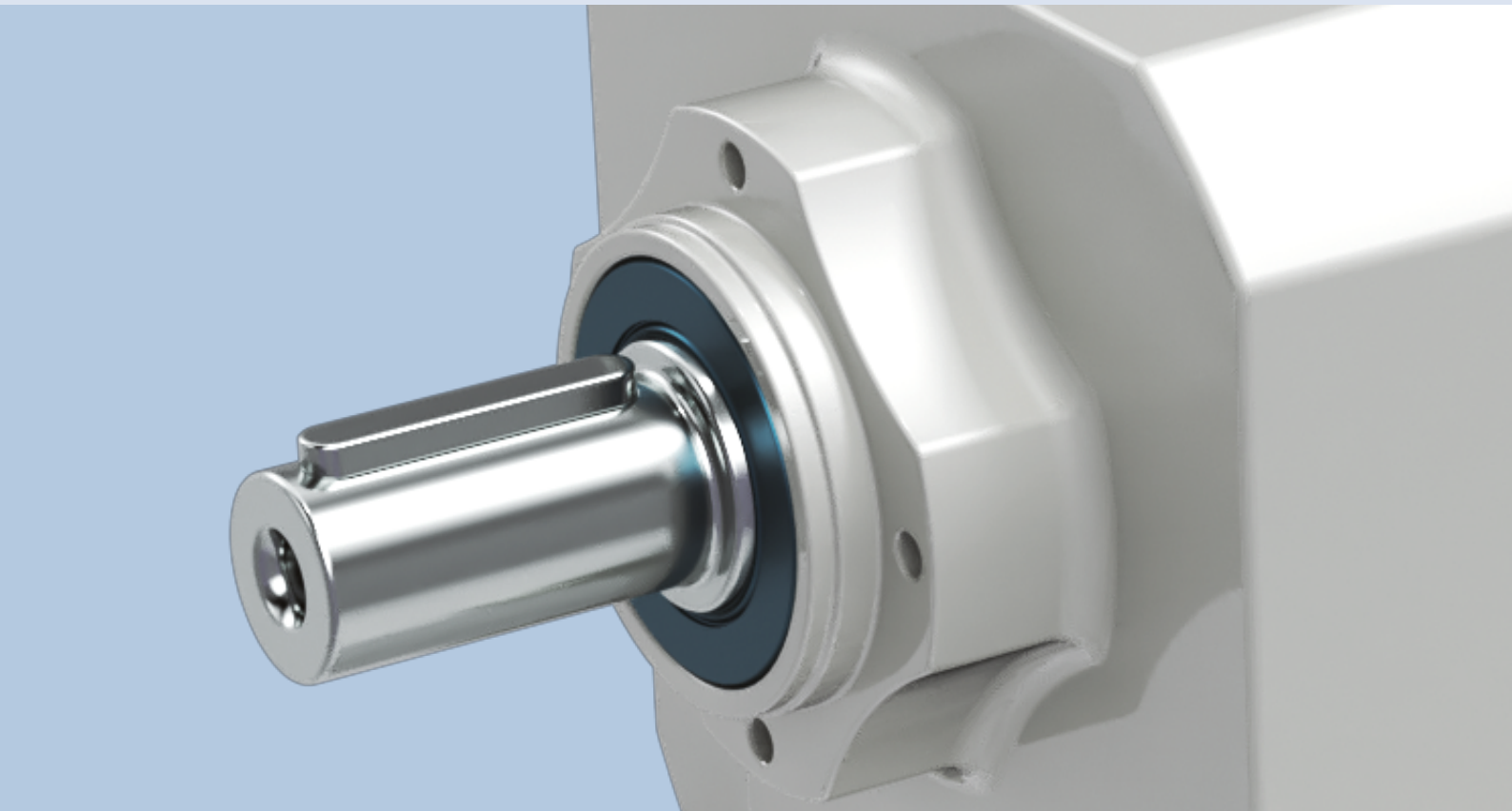
| Coaxial Gear Unit Output Shaft | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Size | l1 | l2 | ds | ls | l1 | l2 | ds | ls |
| | [mm] | | | | [in] | | | |
| 07 | 87 | 67 | 20 | 40 | 3.425 | 2.638 | 3/4 | 1-9/16 |
| 17 | 97.75 | 77.75 | 20 | 40 | 3.848 | 3.061 | 3/4 | 1-9/16 |
| 37 | 118 | 93 | 25 | 50 | 4.646 | 3.661 | 1 | 2 |
| 47 | 130.2 | 100.2 | 30 | 60 | 5.126 | 3.945 | 1-1/4 | 2-3/8 |

| Solid input shaft | | | | |
|---|---|---|---|---|
| Size | l1 | l2 | ds | ls |
| | [mm] | | | |
| HS1 | 97 | 77 | 16 | 40 |
| HS2 | 81 | 61 | 19 | 40 |
| HS3 | 117.5 | 92.5 | 24 | 50 |
| | [in] | | | |
| NHS1 | 3.819 | 3.032 | 5/8 | 1-9/16 |
| NHS2 | 3.189 | 2.402 | 3/4 | 1-9/16 |
| NHS3 | 4.626 | 3.642 | 7/8 | 2 |

## Axial Load on Shafts

If the force on the output shaft has both radial and axial components, contact Bonfiglioli's Technical Service and check if your solution is suitable.

# COAXIAL GEARMOTOR & GEAR UNIT EVOX

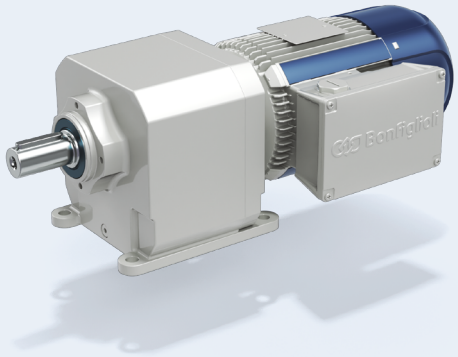


# PRODUCT OVERVIEW

**EVOX** is Bonfiglioli's new gearmotor platform; the EVOX family starts with the new **CP**.

**EVOX CP** is a Helical In-Line product designed with a smooth housing and a performance/value focus.

The interface, aligned with the market standards, allows adapting EVOX CP to most existing industrial machines without the need for specific machining. Thanks to the wide range of versions/options and motors available in **Bonfiglioli's portfolio**, this new product can meet a wide range of application needs.



| Features | Benefits |
|---|---|
| Overall dimensions in line with market standards | Fully interchangeable with market standards |
| Smooth surface | Easy-clean shape |
| Every mounting position available with the standard Product | Lower codes in stock |
| High torque density for in-line technology | High roughness and performances |
| Reinforced radial/axial bearing option | Product ready for decentralized transmission |
| Feet & flange output & long speed ratios | Product ready for pumps & compressors |

| EVOX CP sizes | Nominal torque | Gear ratio range | Max radial loads | Maximum compact gearmotor power | |
|---|---|---|---|---|---|
| | [Nm] | | [N][1] | [kW] | [hp] |
| 07 | 55 | 2.8-81.2 | 1470 | 0.37 | 0.5 |
| 17 | 100 | 2.4-85.9 | 2460 | 0.75 | 1 |
| 37 | 200 | 2.3-133 | 4110 | 1.5 | 2 |
| 47 | 335 | 2.4-172 | 5240 | 4 | 5.5 |
| 57 | 500 | | | | |
| 67 | 650 | | | | |

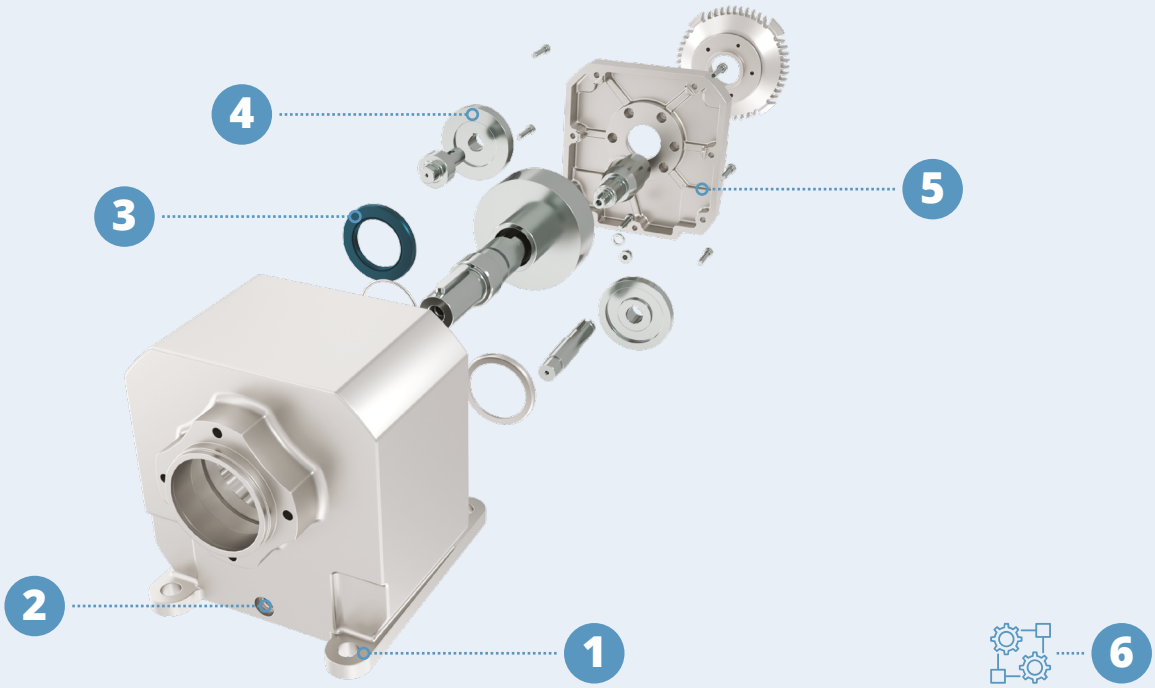
*(1) Max performances @ 1400 rpm in input, Nominal output torque and radial load, applied in the middle of the o. shaft.*

*This value could change with the gear ratio*

# PRODUCT OVERVIEW

## TECHNICAL FEATURES

Gear Unit – Coaxial CP




### 1 Overall dimensions in line with market standards

### 2 Every mounting position possible with one product

With its unique oil level, this gear unit can be fitted on any position.

### 3 Reliability focus for every standard component

Using more reliable components improves the reliability of the whole product.

### 4 Efficiency and low noise gears set

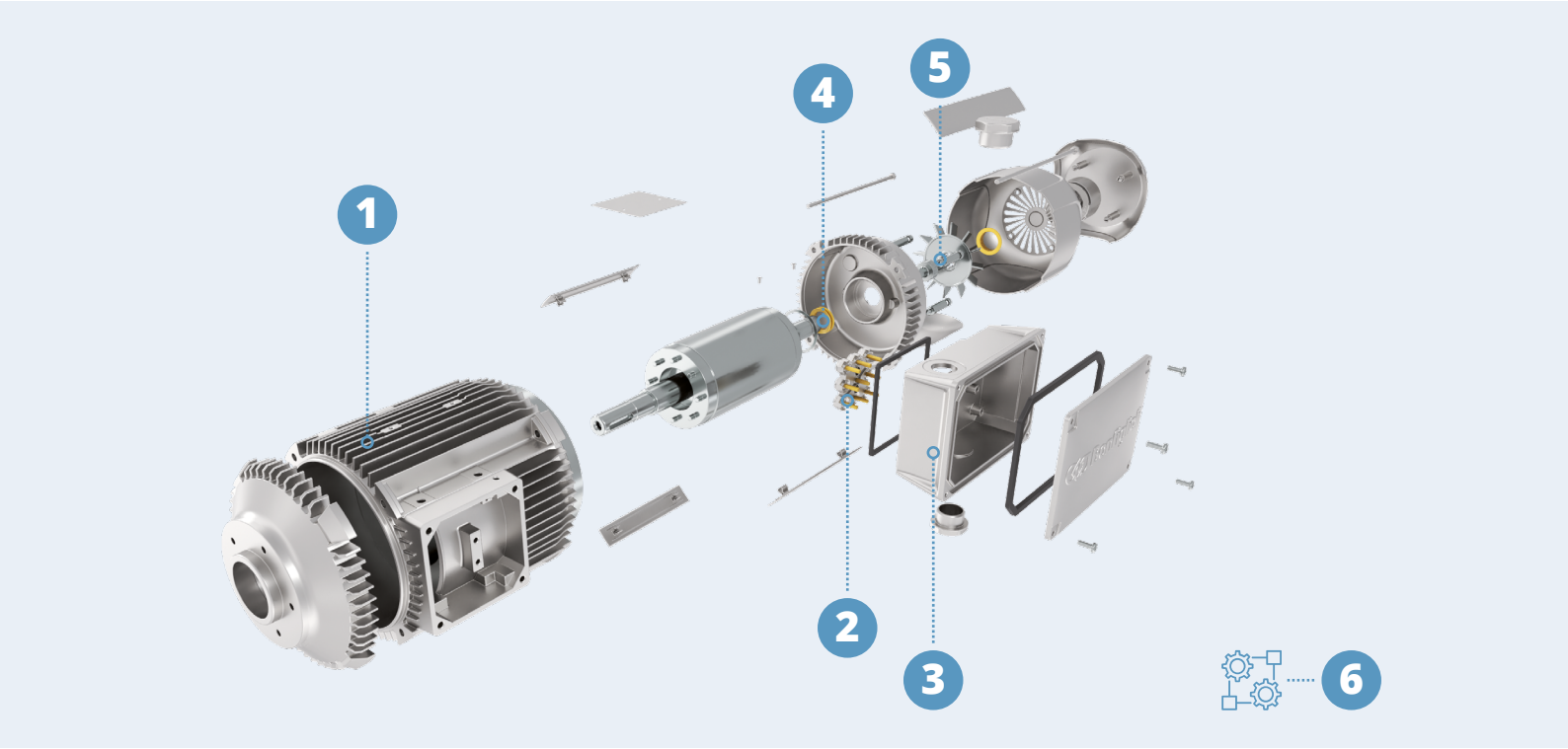
These highly effective gears reduce oil heating, preventing its leakage through the seals.

### 5 Product flexibility/modularity

Easy assembly with simple equipment.

### 6 Great set of versions and options

## Electric Motor – MXN/MNN




### 1 Uncompromised IE3/NEMA Premium Efficiency

This motor is compliant with the most severe regulations in the world in terms of efficiency.

### 2 One motor for EU, USA, India & Australia

With its particular 9-PIN terminal box, you could get the right voltage for most markets.

### 3 Reliability focus for every standard component

Using more reliable components improves the reliability of the whole product.

### 4 Rotating terminal box

With this feature, you could rotate the terminal box in every position you need.

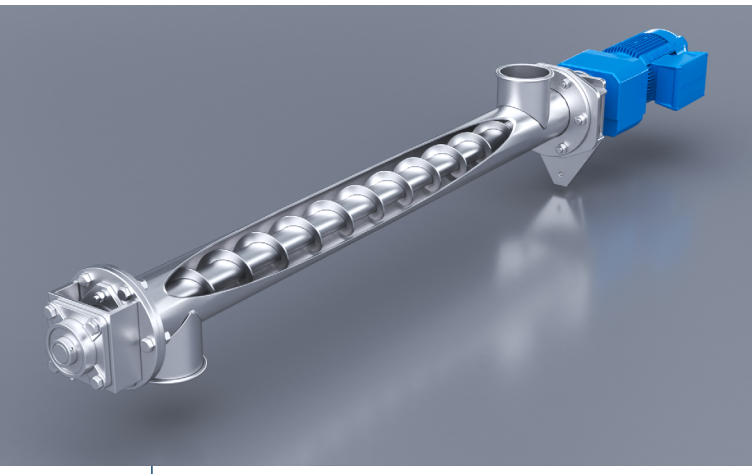
### 5 Modular brakes and encoders

### 6 Wide range of versions and options

# PRODUCT OVERVIEW

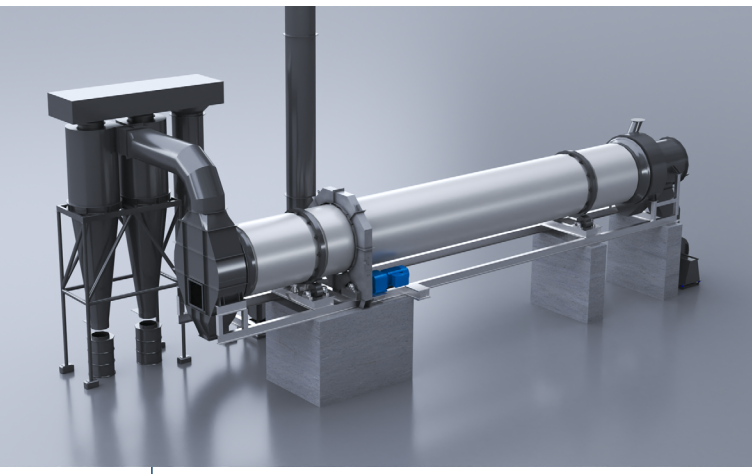
## TARGET APPLICATIONS

- **Product fully interchangeable with market standard**
- **IE3/NEMA Premium uncompromised efficiency** making it technically ready for premium efficiency applications worldwide.



**Options for high radial and axial loads** making this product suitable for screw conveyors and/ or decentralized transmissions.

**Compact design** making it compatible even with severe application constraints.



**Market Best-in-Class in terms of Torque** making the product with the highest torque density of its category.


AUTOMATIC GATES & BARRIERS


RECYCLING


TEXTILE


FOOD & BEVERAGE


PACKAGING


HEATING, VENTILATION & AIR CONDITIONING

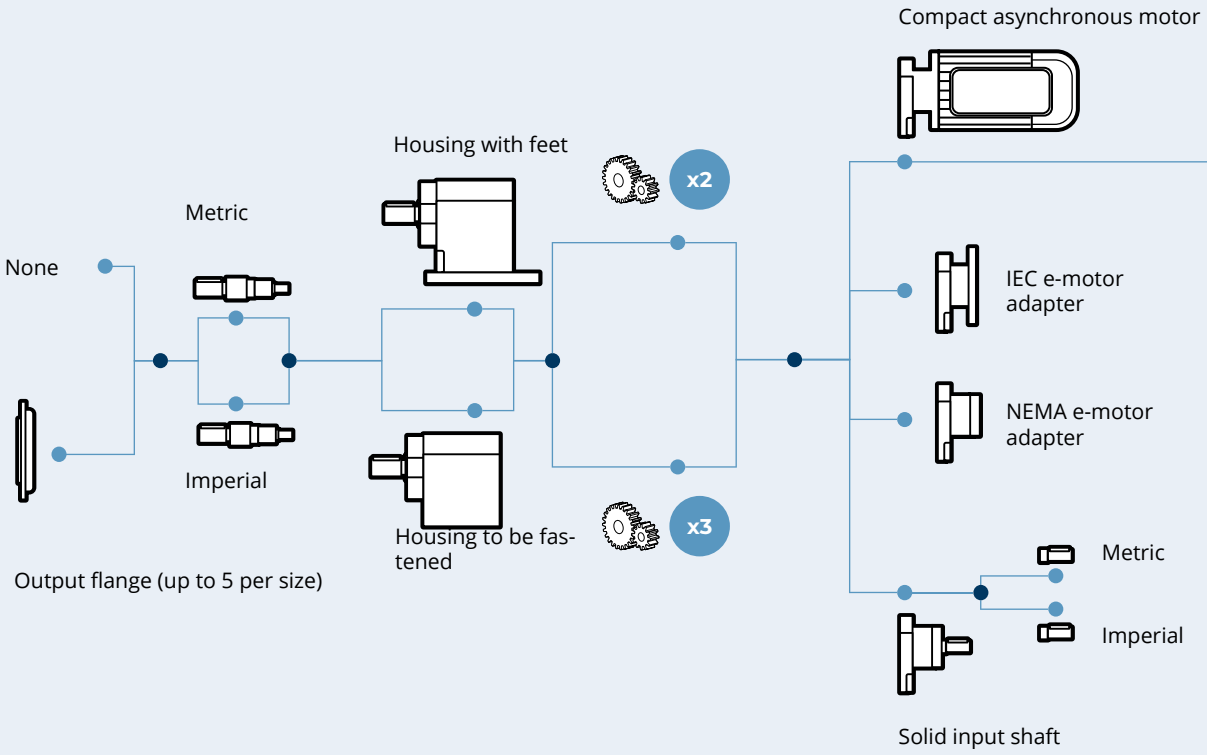

MATERIAL HANDLING

# PRODUCT OVERVIEW

## MODULARITY

### Gear Unit – Coaxial CP

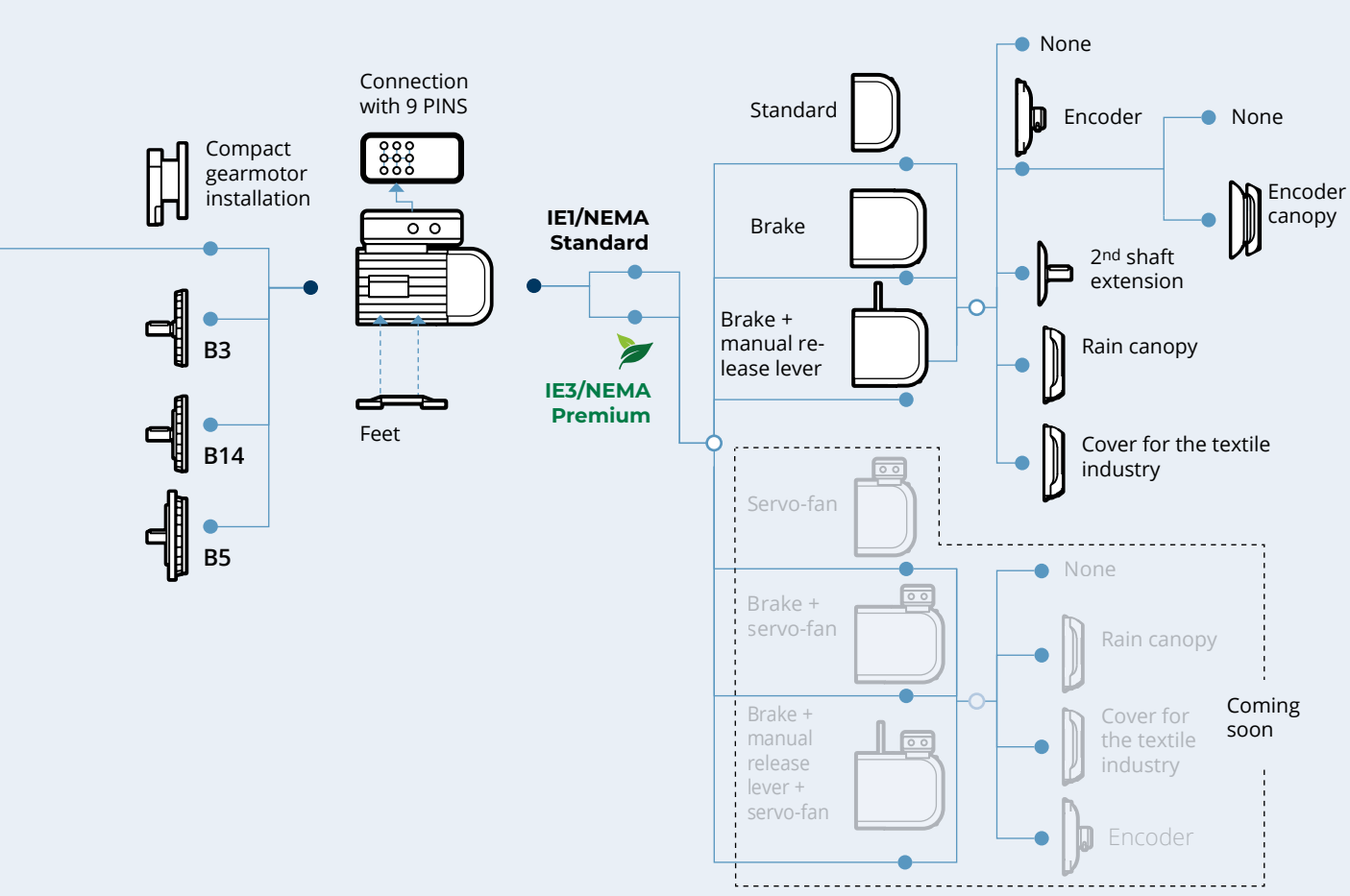
These gear unit solutions can meet **all** basic **MKT needs**.
**Soon to be followed by several other products.**




Feet and Flange config available

## Electric Motor – MXN/MNN

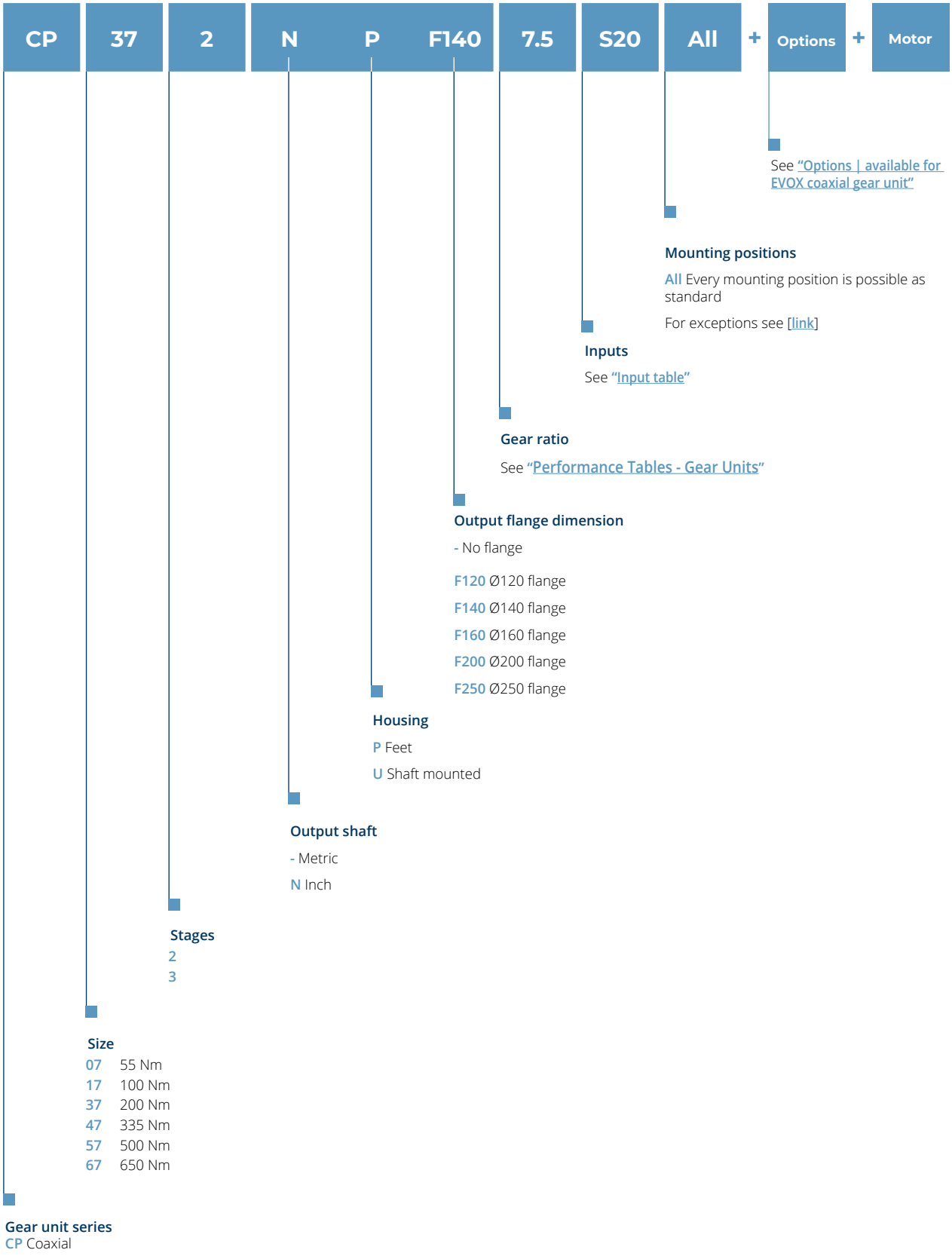
**Lots of e-motor versions** available to perfectly **match** your **application needs.**




DC brake are available.

# DESIGNATION

## Gear Unit – Coaxial CP



## Electric Motor – MXN/MNN

| MXN | 20MB | 4 | WD1 | IP55 | CLF | C | N | IC0 | MFC | + | Brake | + | Options |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Asynchronous Compact E-motor series**

MXN IE3/NEMA Premium

MNN IE1/NEMA Standard

**Size**

See "Asynchronous E-Motor Performance Table"

**Poles**

4

**Winding**

See "Winding - Voltage/Frequency correspondences table"

**IP protection level**

IP55 (Standard) - Dust and water jet protection

IP56 - Dust and powerful jet protection

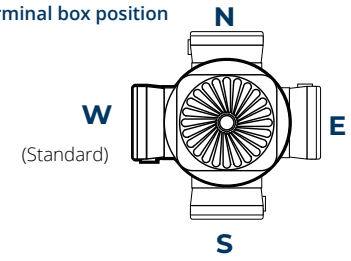
**Insulation class**

CLF

CLH

Motor Versions – Integrated motors (MXN, MNN)

**Terminal box position**




(Standard)

**Cable entry position**

Terminal box size S:

IC0 (Standard) Power cable entry at 90° and 270° to the axis

IC1 Power cable entry at 0° and 180° to the axis

Terminal box size L:

IC0 (Standard) Power cable entry and separate supply cable entry at 90° and 270° + brake cable entry at 180°

IC1 Power cable entry and brake cable entry at 180° relative to the axis + separate supply cable entry at 90°

IC2 Power cable entry and brake cable entry at 180° relative to the axis + separate supply cable entry at 270°

**Cable entry position**

MFC Metal fan cover

See "Brake | EVOX Electric Motor"

See "Option | EVOX Electric Motor Side"

# DESIGNATION

## VERSIONS

### Gear Unit – Coaxial CP

### Input table

| Input type | Sizes | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| IEC motor adapter | P56 | P63 | P71 | P80 | P90 | P100 | P112 | P132 | |
| Compact motor adapters | - | S05 | S10 | S20 | S25 | S30 | S35 | Coming soon | |
| Solid Shaft | | HS1/NHS1 | | HS2/NHS2 | | HS3/NHS3 | | | |
| NEMA motor adapter | | | N56 | N143 | N145 | N182 | N184 | N213 | N215 |
| **CP07** | | | | | | | | | |
| **CP17** | | X | | | | | | | |
| **CP37** | | X | | X | | | | | |
| **CP47** | | | | X | | X | | | |
| **CP57** | Coming soon | | | | | | | | |
| **CP67** | | | | | | | | | |

IEC and NEMA input coupling available

X Solid input shaft coupling available

### Output flange table

| | Sizes | | | | |
|---|---|---|---|---|---|
| | F120 | F140 | F160 | F200 | F250 |
| **CP07** | X | | | | |
| **CP17** | X | X | X | | |
| **CP37** | X | X | X | X | X |
| **CP47** | | X | X | X | X |
| **CP57** | Coming soon | | | | |
| **CP67** | | | | | |

Output flange compatible

X PF feet and flange version availability

# MOUNTING POSITIONS

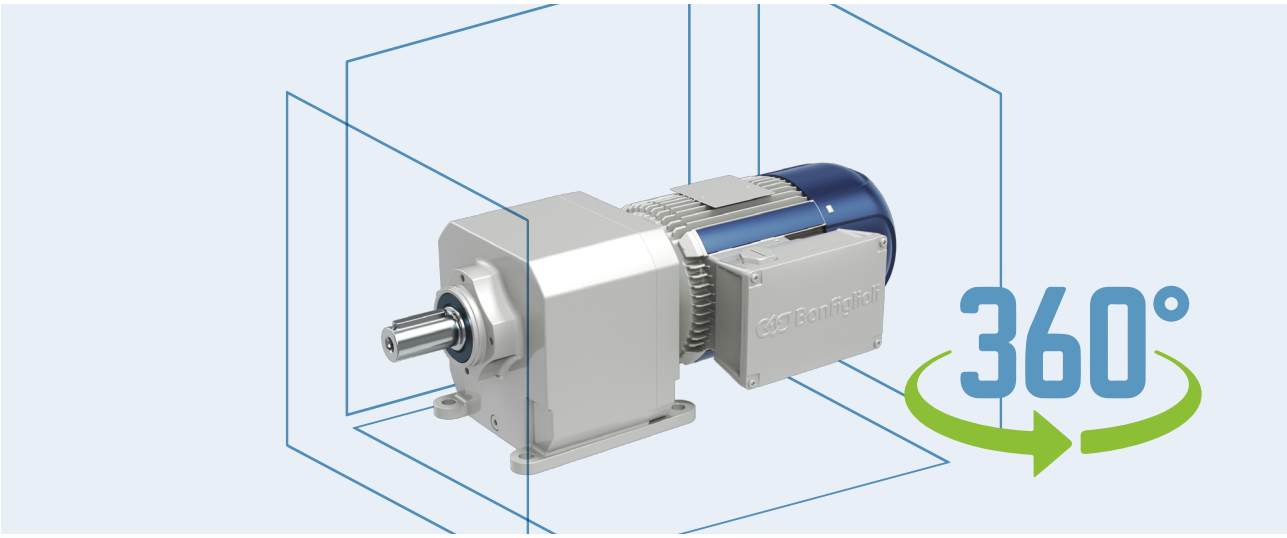
## Gear Unit – Coaxial CP

### Every mounting position possible with one code

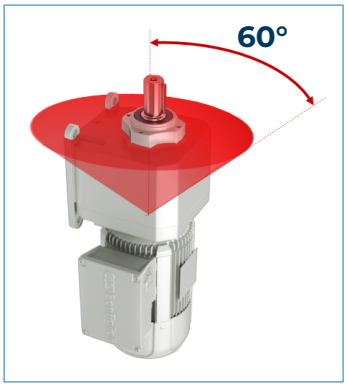
Thanks to the enhanced performances and the reliability of components, this gear unit can be mounted in every possible position as standard.

EVOX CP is supplied with a long-life oil fill and a single level for every possible mounting position. By selecting the SO option, the gear unit is shipped by Bonfiglioli without oil and can be filled by the customer, using a special plug.

**This feature can increase the flexibility of your design and allow you to install this product in any possible position.**




### Mounting position limitations




Reinforced output bearings option [OHA - OHR]

If you need EVOX CP with both:

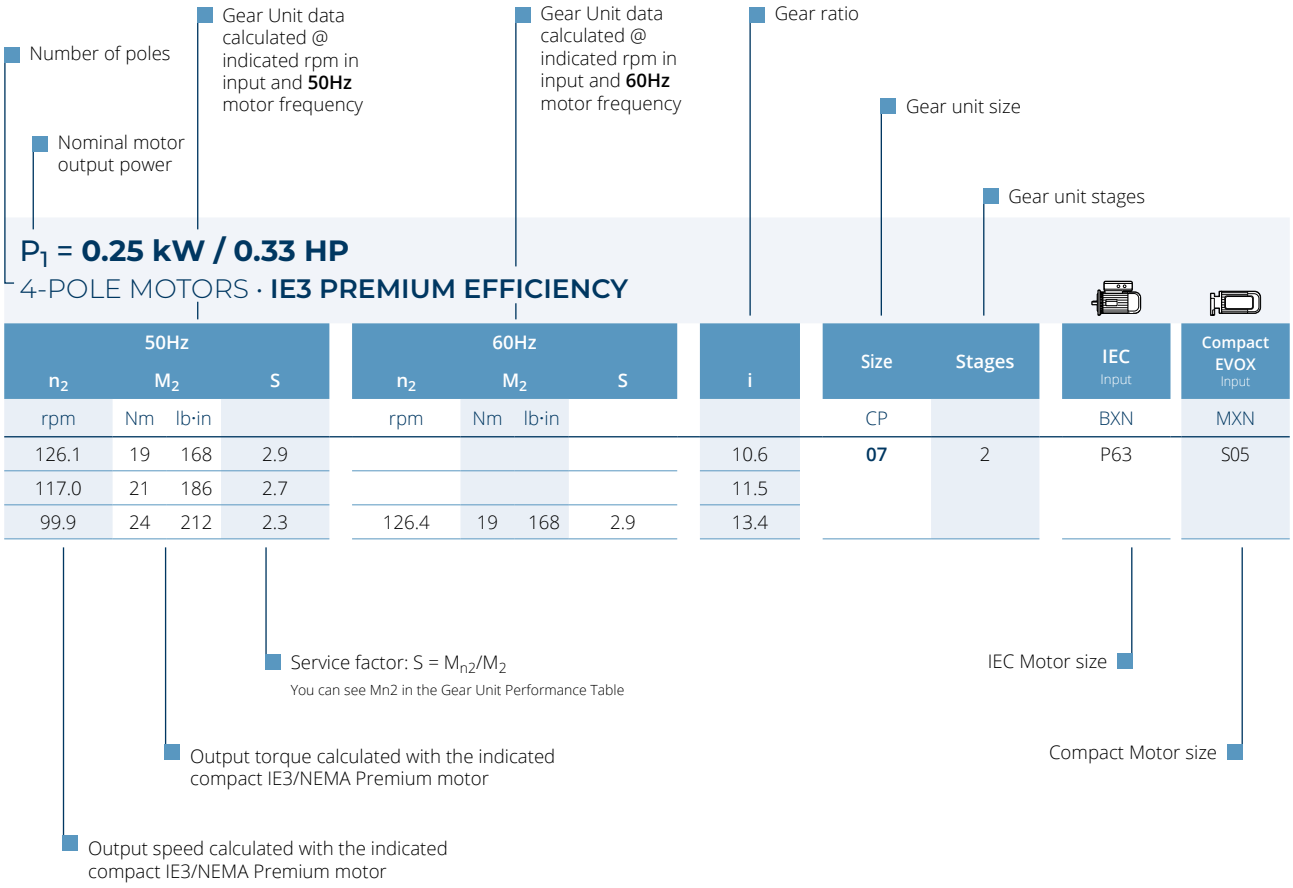
- OHR or OHA

- vertical position with the output shaft up, or a position within 60° of it, facing any direction, contact Bonfiglioli's Technical Service and check whether the standard oil level is correct for your application or if a customised solution is required.

# PERFORMANCE

## EVOX COAXIAL GEARMOTOR

### Tables introduction




Performance data are calculated at a temperature of 25°C, and altitude < 1000m.

The table shows the combinations that provide a service factor between 0.9 and 3.

Refer to the Configuration Guidelines & Setup section, before configuring the motor, to select the correct power.

## $P_1$ = **0.12 kW / 0.16 HP**

4-POLE MOTORS · **IE3 PREMIUM EFFICIENCY**

| 50Hz | | | | 60Hz | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $n_2$ | $M_2$ | | S | $n_2$ | $M_2$ | | S | i | Size | Stages | IEC Input | Compact EVOX Input |
| rpm | Nm | lb·in | | rpm | Nm | lb·in | | | CP | | BXN | MXN |
| 62.5 | 18 | 159 | 3.0 | | | | | 22.5 | 07 | 3 | 63MA | 05MA |
| 54.1 | 21 | 186 | 2.6 | | | | | 26.0 | | | | |
| 50.1 | 23 | 204 | 2.4 | 61.4 | 19 | 168 | 2.9 | 28.1 | | | | |
| 42.8 | 27 | 239 | 2.1 | 52.5 | 22 | 195 | 2.5 | 32.9 | | | | |
| 36.1 | 32 | 283 | 1.7 | 44.3 | 26 | 230 | 2.1 | 38.9 | | | | |
| 32.8 | 35 | 310 | 1.6 | 40.2 | 28 | 248 | 1.9 | 42.9 | | | | |
| 30.5 | 38 | 336 | 1.5 | 37.4 | 31 | 274 | 1.8 | 46.1 | | | | |
| 28.4 | 40 | 354 | 1.4 | 34.8 | 33 | 292 | 1.7 | 49.6 | | | | |
| 26.3 | 44 | 389 | 1.3 | 32.3 | 36 | 319 | 1.5 | 53.4 | | | | |
| 22.5 | 51 | 451 | 1.1 | 27.5 | 42 | 372 | 1.3 | 62.6 | | | | |
| 19.0 | 60 | 531 | 0.9 | 23.2 | 49 | 434 | 1.1 | 74.2 | | | | |
| | | | | 21.2 | 54 | 478 | 1.0 | 81.2 | | | | |
| 33.7 | 34 | 301 | 2.9 | | | | | 41.8 | 17 | 3 | 63MA | 05MA |
| 28.9 | 40 | 354 | 2.5 | | | | | 48.7 | | | | |
| 26.8 | 43 | 381 | 2.3 | 32.9 | 35 | 310 | 2.9 | 52.4 | | | | |
| 24.9 | 46 | 407 | 2.2 | 30.5 | 38 | 336 | 2.7 | 56.6 | | | | |
| 21.3 | 54 | 478 | 1.9 | 26.0 | 44 | 389 | 2.3 | 66.2 | | | | |
| 17.9 | 64 | 566 | 1.6 | 22.0 | 52 | 460 | 1.9 | 78.4 | | | | |
| 16.4 | 70 | 620 | 1.4 | 20.1 | 57 | 504 | 1.8 | 85.9 | | | | |
| 16.8 | 68 | 602 | 2.9 | | | | | 83.6 | 37 | 3 | 63MA | 05MA |
| 15.7 | 73 | 646 | 2.7 | | | | | 89.7 | | | | |
| 13.5 | 85 | 752 | 2.4 | 16.6 | 69 | 611 | 2.9 | 104.0 | | | | |
| 11.5 | 99 | 876 | 2.0 | 14.1 | 81 | 717 | 2.5 | 122.1 | | | | |
| 10.6 | 108 | 956 | 1.8 | 12.9 | 89 | 788 | 2.3 | 133.2 | | | | |
| 8.9 | 129 | 1142 | 2.6 | | | | | 158.0 | 47 | 3 | 63MA | 05MA |
| 8.2 | 140 | 1239 | 2.4 | 10.0 | 114 | 1009 | 2.9 | 171.9 | | | | |

# PERFORMANCE

## EVOX COAXIAL GEARMOTOR

### Performance Table

**$P_1$ = 0.18 kW / 0.25 HP**

4-POLE MOTORS · **IE3 PREMIUM EFFICIENCY**

| 50Hz | | | | 60Hz | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $n_2$ | $M_2$ | | S | $n_2$ | $M_2$ | | S | i | Size | Stages | IEC Input | Compact EVOX Input |
| rpm | Nm | lb·in | | rpm | Nm | lb·in | | | CP | | BXN | MXN |
| 86.4 | 20 | 177 | 2.8 | | | | | 15.9 | **07** | 2 | 63MB | 05MB |
| 78.9 | 22 | 195 | 2.5 | | | | | 17.4 | | | | |
| 65.5 | 26 | 230 | 2.1 | 82.0 | 21 | 186 | 2.6 | 21.0 | **07** | 3 | 63MB | 05MB |
| 61.0 | 28 | 248 | 2.0 | 76.4 | 23 | 204 | 2.4 | 22.5 | | | | |
| 52.8 | 33 | 292 | 1.7 | 66.1 | 26 | 230 | 2.1 | 26.0 | | | | |
| 48.9 | 35 | 310 | 1.6 | 61.3 | 28 | 248 | 2.0 | 28.1 | | | | |
| 41.8 | 41 | 363 | 1.3 | 52.3 | 33 | 292 | 1.7 | 32.9 | | | | |
| 35.3 | 49 | 434 | 1.1 | 44.2 | 39 | 345 | 1.4 | 38.9 | | | | |
| 32.0 | 54 | 478 | 1.0 | 40.1 | 43 | 381 | 1.3 | 42.9 | | | | |
| 29.8 | 58 | 513 | 1.0 | 37.3 | 46 | 407 | 1.2 | 46.1 | | | | |
| | | | | 34.7 | 50 | 443 | 1.1 | 49.6 | | | | |
| | | | | 32.2 | 53 | 469 | 1.0 | 53.4 | | | | |
| 50.4 | 34 | 301 | 2.9 | | | | | 27.2 | **17** | 3 | 63MB | 05MB |
| 43.9 | 39 | 345 | 2.6 | | | | | 31.2 | | | | |
| 38.1 | 45 | 398 | 2.2 | 47.7 | 36 | 319 | 2.8 | 36.0 | | | | |
| 35.4 | 49 | 434 | 2.1 | 44.3 | 39 | 345 | 2.6 | 38.8 | | | | |
| 32.8 | 52 | 460 | 1.9 | 41.1 | 42 | 372 | 2.4 | 41.8 | | | | |
| 28.2 | 61 | 540 | 1.6 | 35.3 | 49 | 434 | 2.1 | 48.7 | | | | |
| 26.2 | 66 | 584 | 1.5 | 32.8 | 52 | 460 | 1.9 | 52.4 | | | | |
| 24.3 | 71 | 628 | 1.4 | 30.4 | 57 | 504 | 1.8 | 56.6 | | | | |
| 20.7 | 83 | 735 | 1.2 | 26.0 | 66 | 584 | 1.5 | 66.2 | | | | |
| 17.5 | 98 | 867 | 1.0 | 21.9 | 78 | 690 | 1.3 | 78.4 | | | | |
| 16.0 | 108 | 956 | 0.9 | 20.0 | 86 | 761 | 1.2 | 85.9 | | | | |
| 25.6 | 67 | 593 | 3.0 | | | | | 53.6 | **37** | 3 | 63MB | 05MB |
| 23.6 | 73 | 646 | 2.7 | | | | | 58.2 | | | | |
| 22.7 | 76 | 673 | 2.6 | | | | | 60.4 | | | | |
| 20.1 | 86 | 761 | 2.3 | 25.1 | 68 | 602 | 2.9 | 68.5 | | | | |
| 18.8 | 91 | 805 | 2.2 | 23.5 | 73 | 646 | 2.7 | 73.0 | | | | |
| 16.4 | 105 | 929 | 1.9 | 20.6 | 84 | 743 | 2.4 | 83.6 | | | | |
| 15.3 | 112 | 991 | 1.8 | 19.2 | 90 | 797 | 2.2 | 89.7 | | | | |
| 13.2 | 130 | 1151 | 1.5 | 16.5 | 104 | 920 | 1.9 | 104.0 | | | | |
| 11.2 | 153 | 1354 | 1.3 | 14.1 | 122 | 1080 | 1.6 | 122.1 | | | | |
| 10.3 | 167 | 1478 | 1.2 | 12.9 | 133 | 1177 | 1.5 | 133.2 | | | | |
| 15.2 | 113 | 1000 | 3.0 | | | | | 90.4 | **47** | 3 | 63MB | 05MB |
| 14.3 | 120 | 1062 | 2.8 | | | | | 96.1 | | | | |
| 12.6 | 137 | 1213 | 2.4 | | | | | 109.4 | | | | |
| 11.7 | 147 | 1301 | 2.3 | 14.7 | 117 | 1036 | 2.9 | 117.1 | | | | |
| 10.2 | 169 | 1496 | 2.0 | 12.7 | 135 | 1195 | 2.5 | 135.1 | | | | |
| 8.7 | 198 | 1752 | 1.7 | 10.9 | 158 | 1398 | 2.1 | 158.0 | | | | |
| 8.0 | 215 | 1903 | 1.6 | 10.0 | 172 | 1522 | 1.9 | 171.9 | | | | |

## $P_1$ = **0.25 kW / 0.33 HP**

4-POLE MOTORS · **IE3 PREMIUM EFFICIENCY**

| 50Hz | | | | 60Hz | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $n_2$ | $M_2$ | | S | $n_2$ | $M_2$ | | S | i | Size | Stages | IEC Input | Compact EVOX Input |
| rpm | Nm | lb·in | | rpm | Nm | lb·in | | | CP | | BXN | MXN |
| 121.2 | 20 | 177 | 2.8 | | | | | 11.4 | **07** | 2 | 71MA | 10MA |
| 103.5 | 23 | 204 | 2.4 | 127.2 | 19 | 168 | 2.9 | 13.4 | | | | |
| 87.3 | 27 | 239 | 2.0 | 107.4 | 22 | 195 | 2.5 | 15.9 | | | | |
| 79.8 | 30 | 266 | 1.8 | 98.1 | 24 | 212 | 2.3 | 17.4 | | | | |
| 66.2 | 36 | 319 | 1.5 | 81.3 | 29 | 257 | 1.9 | 21.0 | **07** | 3 | 71MA | 10MA |
| 61.7 | 39 | 345 | 1.4 | 75.8 | 31 | 274 | 1.7 | 22.5 | | | | |
| 53.3 | 45 | 398 | 1.2 | 65.6 | 36 | 319 | 1.5 | 26.0 | | | | |
| 49.5 | 48 | 425 | 1.1 | 60.8 | 39 | 345 | 1.4 | 28.1 | | | | |
| 42.2 | 57 | 504 | 1.0 | 51.9 | 46 | 407 | 1.2 | 32.9 | | | | |
| | | | | 43.8 | 54 | 478 | 1.0 | 38.9 | | | | |
| | | | | 39.8 | 60 | 531 | 0.9 | 42.9 | | | | |
| 70.4 | 34 | 301 | 2.9 | | | | | 19.7 | **17** | 2 | 71MA | 10MA |
| 60.0 | 40 | 354 | 2.5 | | | | | 23.2 | | | | |
| 55.0 | 43 | 381 | 2.3 | 67.6 | 35 | 310 | 2.8 | 25.2 | | | | |
| 51.0 | 47 | 416 | 2.1 | 62.6 | 38 | 336 | 2.6 | 27.2 | **17** | 3 | 71MA | 10MA |
| 44.4 | 54 | 478 | 1.9 | 54.6 | 44 | 389 | 2.3 | 31.2 | | | | |
| 38.5 | 62 | 549 | 1.6 | 47.3 | 50 | 443 | 2.0 | 36,0 | | | | |
| 35.8 | 67 | 593 | 1.5 | 44.0 | 54 | 478 | 1.8 | 38.8 | | | | |
| 33.2 | 72 | 637 | 1.4 | 40.8 | 59 | 522 | 1.7 | 41.8 | | | | |
| 28.5 | 84 | 743 | 1.2 | 35.0 | 68 | 602 | 1.5 | 48.7 | | | | |
| 26.5 | 90 | 797 | 1.1 | 32.5 | 73 | 646 | 1.4 | 52.4 | | | | |
| 24.5 | 97 | 859 | 1.0 | 30.2 | 79 | 699 | 1.3 | 56.6 | | | | |
| | | | | 25.8 | 93 | 823 | 1.1 | 66.2 | | | | |
| | | | | 21.7 | 110 | 974 | 0.9 | 78.4 | | | | |
| 33.9 | 70 | 620 | 2.8 | | | | | 40.9 | **37** | 3 | 71MA | 10MA |
| 29.7 | 80 | 708 | 2.5 | | | | | 46.8 | | | | |
| 27.6 | 86 | 761 | 2.3 | 34.0 | 70 | 620 | 2.8 | 50.2 | | | | |
| 25.9 | 92 | 814 | 2.2 | 31.8 | 75 | 664 | 2.7 | 53.6 | | | | |
| 23.8 | 100 | 885 | 2.0 | 29.3 | 81 | 717 | 2.5 | 58.2 | | | | |
| 23.0 | 104 | 920 | 1.9 | 28.2 | 85 | 752 | 2.4 | 60.4 | | | | |
| 20.3 | 118 | 1044 | 1.7 | 24.9 | 96 | 850 | 2.1 | 68.5 | | | | |
| 19.0 | 126 | 1115 | 1.6 | 23.4 | 102 | 903 | 2.0 | 73.0 | | | | |
| 16.6 | 144 | 1275 | 1.4 | 20.4 | 117 | 1036 | 1.7 | 83.6 | | | | |
| 15.5 | 154 | 1363 | 1.3 | 19.0 | 125 | 1106 | 1.6 | 89.7 | | | | |
| 13.3 | 179 | 1584 | 1.1 | 16.4 | 146 | 1292 | 1.4 | 104.0 | | | | |
| 11.4 | 210 | 1859 | 1.0 | 14.0 | 171 | 1513 | 1.2 | 122.1 | | | | |
| | | | | 12.8 | 186 | 1646 | 1.1 | 133.2 | | | | |
| 19.4 | 123 | 1089 | 2.7 | | | | | 71.6 | **47** | 3 | 71MA | 10MA |
| 17.3 | 138 | 1221 | 2.4 | 21.3 | 112 | 991 | 3.0 | 80.2 | | | | |
| 15.4 | 155 | 1372 | 2.2 | 18.9 | 126 | 1115 | 2.6 | 90.4 | | | | |
| 14.4 | 165 | 1460 | 2.0 | 17.7 | 135 | 1195 | 2.5 | 96.1 | | | | |
| 12.7 | 188 | 1664 | 1.8 | 15.6 | 153 | 1354 | 2.2 | 109.4 | | | | |
| 11.9 | 201 | 1779 | 1.7 | 14.6 | 164 | 1452 | 2.0 | 117.1 | | | | |
| 10.3 | 232 | 2053 | 1.4 | 12.6 | 189 | 1673 | 1.8 | 135.1 | | | | |
| 8.8 | 272 | 2407 | 1.2 | 10.8 | 221 | 1956 | 1.5 | 158.0 | | | | |
| 8.1 | 296 | 2620 | 1.1 | 9.9 | 241 | 2133 | 1.4 | 171.9 | | | | |

# PERFORMANCE

## EVOX COAXIAL GEARMOTOR

### Performance Table

**$P_1$ = 0.37 kW / 0.50 HP**

4-POLE MOTORS · **IE3 PREMIUM EFFICIENCY**

| 50 Hz | | | | 60 Hz | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $n_2$ | $M_2$ | | S | $n_2$ | $M_2$ | | S | i | Size | Stages | IEC Input | Compact EVOX Input |
| rpm | Nm | lb·in | | rpm | Nm | lb·in | | | CP | | BXN | MXN |
| 206.7 | 17 | 150 | 2.9 | | | | | 6.9 | **07** | 2 | 71MB | 10MB |
| 188.9 | 19 | 168 | 2.7 | | | | | 7.5 | | | | |
| 177.6 | 20 | 177 | 2.8 | | | | | 8.0 | | | | |
| 154.5 | 23 | 204 | 2.4 | 188.4 | 19 | 168 | 2.9 | 9.2 | | | | |
| 143.8 | 25 | 221 | 2.2 | 175.4 | 20 | 177 | 2.7 | 9.9 | | | | |
| 133.6 | 26 | 230 | 2.1 | 163.0 | 22 | 195 | 2.5 | 10.6 | | | | |
| 123.9 | 29 | 257 | 1.9 | 151.1 | 23 | 204 | 2.4 | 11.4 | | | | |
| 105.8 | 33 | 292 | 1.6 | 129.1 | 27 | 239 | 2.0 | 13.4 | | | | |
| 89.3 | 40 | 354 | 1.4 | 108.9 | 32 | 283 | 1.7 | 15.9 | | | | |
| 81.6 | 43 | 381 | 1.3 | 99.5 | 36 | 319 | 1.5 | 17.4 | | | | |
| 67.7 | 52 | 460 | 1.1 | 82.5 | 43 | 381 | 1.3 | 21.0 | **07** | 3 | 71MB | 10MB |
| 63.1 | 56 | 496 | 1.0 | 76.9 | 46 | 407 | 1.2 | 22.5 | | | | |
| | | | | 66.5 | 53 | 469 | 1.0 | 26.0 | | | | |
| | | | | 61.7 | 57 | 504 | 1.0 | 28.1 | | | | |
| 102.5 | 34 | 301 | 2.9 | | | | | 13.8 | **17** | 2 | 71MB | 10MB |
| 89.6 | 39 | 345 | 2.5 | | | | | 15.8 | | | | |
| 83.5 | 42 | 372 | 2.4 | 101.9 | 35 | 310 | 2.9 | 17.0 | | | | |
| 72.0 | 49 | 434 | 2.0 | 87.8 | 40 | 354 | 2.5 | 19.7 | | | | |
| 61.3 | 58 | 513 | 1.7 | 74.8 | 47 | 416 | 2.1 | 23.2 | | | | |
| 56.2 | 63 | 558 | 1.6 | 68.6 | 51 | 451 | 1.9 | 25.2 | | | | |
| 52.1 | 68 | 602 | 1.5 | 63.5 | 56 | 496 | 1.8 | 27.2 | **17** | 3 | 71MB | 10MB |
| 45.4 | 78 | 690 | 1.3 | 55.4 | 64 | 566 | 1.6 | 31.2 | | | | |
| 39.4 | 90 | 797 | 1.1 | 48.0 | 74 | 655 | 1.4 | 36.0 | | | | |
| 36.6 | 97 | 859 | 1.0 | 44.6 | 79 | 699 | 1.3 | 38.8 | | | | |
| 33.9 | 104 | 920 | 1.0 | 41.4 | 85 | 752 | 1.2 | 41.8 | | | | |
| | | | | 35.5 | 99 | 876 | 1.0 | 48.7 | | | | |
| | | | | 33.0 | 107 | 947 | 0.9 | 52.4 | | | | |
| 47.3 | 75 | 664 | 2.7 | | | | | 30.0 | **37** | 3 | 71MB | 10MB |
| 41.9 | 84 | 743 | 2.4 | 51.2 | 69 | 611 | 2.9 | 33.8 | | | | |
| 37.0 | 95 | 841 | 2.1 | 45.1 | 78 | 690 | 2.6 | 38.3 | | | | |
| 34.7 | 102 | 903 | 2.0 | 42.3 | 84 | 743 | 2.4 | 40.9 | | | | |
| 30.3 | 117 | 1036 | 1.7 | 37.0 | 96 | 850 | 2.1 | 46.8 | | | | |
| 28.3 | 125 | 1106 | 1.6 | 34.5 | 102 | 903 | 2.0 | 50.2 | | | | |
| 26.5 | 133 | 1177 | 1.5 | 32.3 | 109 | 965 | 1.8 | 53.6 | | | | |
| 24.4 | 145 | 1283 | 1.4 | 29.7 | 119 | 1053 | 1.7 | 58.2 | | | | |
| 23.5 | 150 | 1328 | 1.3 | 28.6 | 123 | 1089 | 1.6 | 60.4 | | | | |
| 20.7 | 170 | 1505 | 1.2 | 25.3 | 140 | 1239 | 1.4 | 68.5 | | | | |
| 19.4 | 182 | 1611 | 1.1 | 23.7 | 149 | 1319 | 1.3 | 73.0 | | | | |
| 17.0 | 208 | 1841 | 1.0 | 20.7 | 171 | 1513 | 1.2 | 83.6 | | | | |
| | | | | 19.3 | 183 | 1620 | 1.1 | 89.7 | | | | |
| | | | | 16.6 | 212 | 1876 | 0.9 | 104.0 | | | | |

## $P_1$ = **0.37 kW / 0.50 HP**

### 4-POLE MOTORS · **IE3 PREMIUM EFFICIENCY**

| 50 Hz | | | | 60 Hz | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $n_2$ | $M_2$ | | S | $n_2$ | $M_2$ | | S | i | Size | Stages | IEC Input | Compact EVOX Input |
| rpm | Nm | lb·in | | rpm | Nm | lb·in | | | CP | | BXN | MXN |
| 33.7 | 105 | 929 | 3.0 | | | | | 42.1 | **47** | 3 | 71MB | 10MB |
| 29.6 | 119 | 1053 | 2.8 | | | | | 47.9 | | | | |
| 27.7 | 128 | 1133 | 2.6 | | | | | 51.3 | | | | |
| 25.6 | 138 | 1221 | 2.2 | 31.2 | 113 | 1000 | 2.7 | 55.4 | | | | |
| 23.4 | 151 | 1336 | 2.2 | 28.5 | 124 | 1097 | 2.7 | 60.8 | | | | |
| 19.8 | 178 | 1575 | 1.9 | 24.2 | 146 | 1292 | 2.3 | 71.6 | | | | |
| 17.7 | 200 | 1770 | 1.7 | 21.6 | 164 | 1452 | 2.0 | 80.2 | | | | |
| 15.7 | 225 | 1991 | 1.5 | 19.2 | 184 | 1629 | 1.8 | 90.4 | | | | |
| 14.8 | 239 | 2115 | 1.4 | 18.0 | 196 | 1735 | 1.7 | 96.1 | | | | |
| 13.0 | 272 | 2407 | 1.2 | 15.8 | 223 | 1974 | 1.5 | 109.4 | | | | |
| 12.1 | 291 | 2576 | 1.1 | 14.8 | 239 | 2115 | 1.4 | 117.1 | | | | |
| 10.5 | 336 | 2974 | 1.0 | 12.8 | 276 | 2443 | 1.2 | 135.1 | | | | |
| | | | | 11.0 | 323 | 2859 | 1.0 | 158.0 | | | | |
| | | | | 10.1 | 351 | 3107 | 1.0 | 171.9 | | | | |

## $P_1$ = **0.55 kW / 0.75 HP**

### 4-POLE MOTORS · **IE3 PREMIUM EFFICIENCY**

| 50 Hz | | | | 60 Hz | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $n_2$ | $M_2$ | | S | $n_2$ | $M_2$ | | S | i | Size | Stages | IEC Input | Compact EVOX Input |
| rpm | Nm | lb·in | | rpm | Nm | lb·in | | | CP | | BXN | MXN |
| 191.7 | 27 | 239 | 2.9 | | | | | 7.6 | **17** | 2 | 80MA | 20MA |
| 169.6 | 31 | 274 | 2.9 | | | | | 8.5 | | | | |
| 142.6 | 37 | 327 | 2.6 | | | | | 10.2 | | | | |
| 126.4 | 42 | 372 | 2.4 | 153.3 | 34 | 301 | 2.9 | 11.4 | | | | |
| 111.5 | 47 | 416 | 2.1 | 135.2 | 39 | 345 | 2.6 | 13.0 | | | | |
| 104.6 | 50 | 443 | 2.0 | 126.8 | 41 | 363 | 2.4 | 13.8 | | | | |
| 91.4 | 57 | 504 | 1.7 | 110.8 | 47 | 416 | 2.1 | 15.8 | | | | |
| 85.2 | 62 | 549 | 1.6 | 103.3 | 51 | 451 | 2.0 | 17.0 | | | | |
| 53.1 | 99 | 876 | 1.0 | 64.4 | 82 | 726 | 1.2 | 27.2 | **17** | 3 | 80MA | 20MA |
| | | | | 56.2 | 94 | 832 | 1.1 | 31.2 | | | | |
| | | | | 48.7 | 108 | 956 | 0.9 | 36.0 | | | | |
| 75.1 | 70 | 620 | 2.9 | | | | | 19.3 | **37** | 2 | 80MA | 20MA |
| 48.2 | 109 | 965 | 1.8 | 58.5 | 90 | 797 | 2.2 | 30.0 | **37** | 3 | 80MA | 20MA |
| 42.8 | 123 | 1089 | 1.6 | 51.9 | 101 | 894 | 2.0 | 33.8 | | | | |
| 37.7 | 139 | 1230 | 1.4 | 45.8 | 115 | 1018 | 1.7 | 38.3 | | | | |
| 35.4 | 148 | 1310 | 1.3 | 42.9 | 122 | 1080 | 1.6 | 40.9 | | | | |
| 30.9 | 170 | 1505 | 1.2 | 37.5 | 140 | 1239 | 1.4 | 46.8 | | | | |
| 28.8 | 182 | 1611 | 1.1 | 35.0 | 150 | 1328 | 1.3 | 50.2 | | | | |
| 27.0 | 194 | 1717 | 1.0 | 32.8 | 160 | 1416 | 1.2 | 53.6 | | | | |

# PERFORMANCE

## EVOX COAXIAL GEARMOTOR

### Performance Table

### $P_1$ = **0.55 kW / 0.75 HP**

4-POLE MOTORS · **IE3 PREMIUM EFFICIENCY**

| 50 Hz | | | | 60 Hz | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $n_2$ | $M_2$ | | S | $n_2$ | $M_2$ | | S | i | Size | Stages | IEC Input | Compact EVOX Input |
| rpm | Nm | lb·in | | rpm | Nm | lb·in | | | CP | | BXN | MXN |
| 23.9 | 219 | 1938 | 0.9 | 29.0 | 181 | 1602 | 1.1 | 60.4 | **37** | 3 | 80MA | 20MA |
| | | | | 25.6 | 205 | 1814 | 1.0 | 68.5 | | | | |
| | | | | 24.0 | 219 | 1938 | 0.9 | 73.0 | | | | |
| 54.3 | 97 | 859 | 3.0 | | | | | 26.6 | **47** | 3 | 80MA | 20MA |
| 46.1 | 114 | 1009 | 2.7 | | | | | 31.4 | | | | |
| 41.2 | 128 | 1133 | 2.4 | 49.9 | 105 | 929 | 2.8 | 35.2 | | | | |
| 36.5 | 144 | 1275 | 2.2 | 44.3 | 119 | 1053 | 2.6 | 39.6 | | | | |
| 34.3 | 153 | 1354 | 2.0 | 41.7 | 126 | 1115 | 2.5 | 42.1 | | | | |
| 30.2 | 174 | 1540 | 1.9 | 36.6 | 143 | 1266 | 2.3 | 47.9 | | | | |
| 28.2 | 186 | 1646 | 1.8 | 34.2 | 154 | 1363 | 2.2 | 51.3 | | | | |
| 26.1 | 201 | 1779 | 1.5 | 31.7 | 166 | 1469 | 1.9 | 55.4 | | | | |
| 23.8 | 221 | 1956 | 1.5 | 28.9 | 182 | 1611 | 1.8 | 60.8 | | | | |
| 20.2 | 260 | 2301 | 1.3 | 24.5 | 214 | 1894 | 1.6 | 71.6 | | | | |
| 18.0 | 291 | 2576 | 1.2 | 21.9 | 240 | 2124 | 1.4 | 80.2 | | | | |
| 16.0 | 328 | 2903 | 1.0 | 19.4 | 270 | 2390 | 1.2 | 90.4 | | | | |
| 15.1 | 349 | 3089 | 1.0 | 18.3 | 288 | 2549 | 1.2 | 96.1 | | | | |
| | | | | 16.0 | 327 | 2894 | 1.0 | 109.4 | | | | |
| | | | | 15.0 | 350 | 3098 | 1.0 | 117.1 | | | | |

### $P_1$ = **0.75 kW / 1.0 HP**

4-POLE MOTORS · **IE3 PREMIUM EFFICIENCY**

| 50 Hz | | | | 60 Hz | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $n_2$ | $M_2$ | | S | $n_2$ | $M_2$ | | S | i | Size | Stages | IEC Input | Compact EVOX Input |
| rpm | Nm | lb·in | | rpm | Nm | lb·in | | | CP | | BXN | MXN |
| 321.7 | 22 | 195 | 2.9 | | | | | 4.5 | **17** | 2 | 80MB | 20MB |
| 285.1 | 25 | 221 | 2.8 | | | | | 5.1 | | | | |
| 251.9 | 28 | 248 | 2.6 | | | | | 5.8 | | | | |
| 235.9 | 30 | 266 | 2.5 | 285.7 | 25 | 221 | 3.0 | 6.2 | | | | |
| 206.1 | 35 | 310 | 2.3 | 249.6 | 29 | 257 | 2.8 | 7.0 | | | | |
| 192.2 | 37 | 327 | 2.1 | 232.7 | 31 | 274 | 2.6 | 7.6 | | | | |
| 170.1 | 42 | 372 | 2.1 | 206.0 | 35 | 310 | 2.6 | 8.5 | | | | |
| 143.0 | 50 | 443 | 1.9 | 173.1 | 41 | 363 | 2.3 | 10.2 | | | | |
| 126.7 | 57 | 504 | 1.8 | 153.4 | 47 | 416 | 2.1 | 11.4 | | | | |
| 111.8 | 64 | 566 | 1.6 | 135.4 | 53 | 469 | 1.9 | 13.0 | | | | |
| 104.8 | 68 | 602 | 1.5 | 127.0 | 56 | 496 | 1.8 | 13.8 | | | | |
| 91.6 | 78 | 690 | 1.3 | 110.9 | 65 | 575 | 1.5 | 15.8 | | | | |
| 85.4 | 84 | 743 | 1.2 | 103.4 | 69 | 611 | 1.4 | 17.0 | | | | |

## $P_1$ = **0.75 kW / 1.0 HP**

4-POLE MOTORS · **IE3 PREMIUM EFFICIENCY**

| 50 Hz | | | | 60 Hz | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $n_2$ | $M_2$ | | S | $n_2$ | $M_2$ | | S | i | Size | Stages | IEC Input | Compact EVOX Input |
| rpm | Nm | lb·in | | rpm | Nm | lb·in | | | CP | | BXN | MXN |
| | | | | 64.5 | 111 | 982 | 0.9 | 27.2 | **17** | 3 | 80MB | 20MB |
| 123.2 | 58 | 513 | 3.0 | | | | | 11.8 | **37** | 2 | 80MB | 20MB |
| 109.9 | 65 | 575 | 2.8 | | | | | 13.2 | | | | |
| 91.7 | 78 | 690 | 2.5 | 111.1 | 64 | 566 | 3.0 | 15.8 | | | | |
| 80.6 | 89 | 788 | 2.3 | 97.6 | 73 | 646 | 2.7 | 18.0 | | | | |
| 75.3 | 95 | 841 | 2.1 | 91.2 | 79 | 699 | 2.5 | 19.3 | | | | |
| 48.4 | 148 | 1310 | 1.4 | 58.6 | 122 | 1080 | 1.6 | 30.0 | **37** | 3 | 80MB | 20MB |
| 42.9 | 167 | 1478 | 1.2 | 51.9 | 138 | 1221 | 1.4 | 33.8 | | | | |
| 37.8 | 189 | 1673 | 1.1 | 45.8 | 156 | 1381 | 1.3 | 38.3 | | | | |
| 35.5 | 202 | 1788 | 1.0 | 42.9 | 167 | 1478 | 1.2 | 40.9 | | | | |
| | | | | 37.5 | 191 | 1690 | 1.0 | 46.8 | | | | |
| | | | | 35.0 | 205 | 1814 | 1.0 | 50.2 | | | | |
| | | | | 32.8 | 218 | 1929 | 0.9 | 53.6 | | | | |
| 68.2 | 105 | 929 | 3.0 | | | | | 21.3 | **47** | 2 | 80MB | 20MB |
| 63.9 | 112 | 991 | 2.8 | | | | | 22.7 | | | | |
| 59.7 | 120 | 1062 | 2.3 | 72.3 | 99 | 876 | 2.7 | 24.3 | **47** | 3 | 80MB | 20MB |
| 54.5 | 131 | 1159 | 2.2 | 66.0 | 109 | 965 | 2.5 | 26.6 | | | | |
| 46.3 | 155 | 1372 | 2.0 | 56.0 | 128 | 1133 | 2.2 | 31.4 | | | | |
| 41.3 | 174 | 1540 | 1.8 | 50.0 | 143 | 1266 | 2.1 | 35.2 | | | | |
| 36.6 | 195 | 1726 | 1.6 | 44.4 | 161 | 1425 | 1.9 | 39.6 | | | | |
| 34.4 | 208 | 1841 | 1.5 | 41.7 | 172 | 1522 | 1.8 | 42.1 | | | | |
| 30.3 | 237 | 2098 | 1.4 | 36.6 | 195 | 1726 | 1.7 | 47.9 | | | | |
| 28.3 | 253 | 2239 | 1.3 | 34.2 | 209 | 1850 | 1.6 | 51.3 | | | | |
| 26.2 | 274 | 2425 | 1.1 | 31.7 | 226 | 2000 | 1.4 | 55.4 | | | | |
| 23.9 | 300 | 2655 | 1.1 | 28.9 | 248 | 2195 | 1.4 | 60.8 | | | | |
| 20.3 | 353 | 3124 | 0.9 | 24.5 | 292 | 2584 | 1.1 | 71.6 | | | | |
| | | | | 21.9 | 327 | 2894 | 1.0 | 80.2 | | | | |
| | | | | 19.4 | 368 | 3257 | 0.9 | 90.4 | | | | |

# PERFORMANCE

## EVOX COAXIAL GEARMOTOR

### Performance Table

**$P_1$ = 1.1 kW / 1.50 HP**

4-POLE MOTORS · **IE3 PREMIUM EFFICIENCY**

| 50 Hz | | | | 60 Hz | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $n_2$ | $M_2$ | | S | $n_2$ | $M_2$ | | S | i | Size | Stages | IEC Input | Compact EVOX Input |
| rpm | Nm | lb·in | | rpm | Nm | lb·in | | | CP | | BXN | MXN |
| 339.1 | 31 | 274 | 2.8 | | | | | 4.3 | **37** | 2 | 90S | 25S |
| 225.2 | 47 | 416 | 2.8 | | | | | 6.4 | | | | |
| 184.9 | 57 | 504 | 2.4 | 224.0 | 47 | 416 | 2.7 | 7.8 | | | | |
| 144.8 | 73 | 646 | 2.2 | 175.4 | 60 | 531 | 2.7 | 10.0 | | | | |
| 122.9 | 85 | 752 | 2.0 | 148.9 | 71 | 628 | 2.5 | 11.8 | | | | |
| 109.7 | 96 | 850 | 1.9 | 132.9 | 79 | 699 | 2.3 | 13.2 | | | | |
| 91.5 | 115 | 1018 | 1.7 | 110.9 | 95 | 841 | 2.0 | 15.8 | | | | |
| 80.4 | 131 | 1159 | 1.5 | 97.4 | 108 | 956 | 1.9 | 18.0 | | | | |
| 75.2 | 140 | 1239 | 1.4 | 91.1 | 115 | 1018 | 1.7 | 19.3 | | | | |
| 48.3 | 218 | 1929 | 0.9 | 58.5 | 180 | 1593 | 1.1 | 30.0 | **37** | 3 | 90S | 25S |
| | | | | 51.8 | 203 | 1797 | 1.0 | 33.8 | | | | |
| 181.9 | 58 | 513 | 2.9 | | | | | 8.0 | **47** | 2 | 90S | 25S |
| 119.2 | 88 | 779 | 2.8 | | | | | 12.2 | | | | |
| 102.1 | 103 | 912 | 2.6 | | | | | 14.2 | | | | |
| 91.6 | 115 | 1018 | 2.4 | 111.0 | 95 | 841 | 2.9 | 15.8 | | | | |
| 81.8 | 128 | 1133 | 2.3 | 99.1 | 106 | 938 | 2.7 | 17.7 | | | | |
| 77.1 | 136 | 1204 | 2.2 | 93.4 | 112 | 991 | 2.6 | 18.8 | | | | |
| 68.1 | 154 | 1363 | 2.0 | 82.5 | 127 | 1124 | 2.4 | 21.3 | | | | |
| 63.8 | 165 | 1460 | 1.9 | 77.2 | 136 | 1204 | 2.3 | 22.7 | | | | |
| 59.6 | 176 | 1558 | 1.6 | 72.2 | 145 | 1283 | 1.8 | 24.3 | **47** | 3 | 90S | 25S |
| 54.4 | 193 | 1708 | 1.5 | 65.9 | 159 | 1407 | 1.7 | 26.6 | | | | |
| 46.2 | 228 | 2018 | 1.4 | 55.9 | 188 | 1664 | 1.5 | 31.4 | | | | |
| 41.2 | 255 | 2257 | 1.2 | 49.9 | 211 | 1868 | 1.4 | 35.2 | | | | |
| 36.6 | 287 | 2540 | 1.1 | 44.3 | 237 | 2098 | 1.3 | 39.6 | | | | |
| 34.4 | 306 | 2708 | 1.0 | 41.6 | 252 | 2230 | 1.2 | 42.1 | | | | |
| 30.2 | 348 | 3080 | 0.9 | 36.6 | 287 | 2540 | 1.1 | 47.9 | | | | |
| 28.2 | 372 | 3292 | 0.9 | 34.2 | 307 | 2717 | 1.1 | 51.3 | | | | |
| | | | | 31.6 | 332 | 2938 | 0.9 | 55.4 | | | | |
| | | | | 28.9 | 364 | 3222 | 0.9 | 60.8 | | | | |

## $P_1$ = **1.5 kW / 2.00 HP**

4-POLE MOTORS · **IE3 PREMIUM EFFICIENCY**

| 50 Hz | | | | 60 Hz | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $n_2$ | $M_2$ | | S | $n_2$ | $M_2$ | | S | i | Size | Stages | IEC Input | Compact EVOX Input |
| rpm | Nm | lb·in | | rpm | Nm | lb·in | | | CP | | BXN | MXN |
| 640.4 | 22 | 195 | 3.0 | | | | | 2.2 | **37** | 2 | 90L | 25L |
| 533.7 | 27 | 239 | 2.7 | | | | | 2.7 | | | | |
| 453.1 | 32 | 283 | 2.5 | 550.3 | 26 | 230 | 2.8 | 3.2 | | | | |
| 423.8 | 34 | 301 | 3.0 | | | | | 3.4 | | | | |
| 354.9 | 40 | 354 | 2.7 | | | | | 4.1 | | | | |
| 337.5 | 42 | 372 | 2.0 | 409.8 | 35 | 310 | 2.3 | 4.3 | | | | |
| 301.5 | 48 | 425 | 2.5 | 366.1 | 39 | 345 | 2.8 | 4.8 | | | | |
| 268.8 | 53 | 469 | 2.3 | 326.5 | 44 | 389 | 2.6 | 5.4 | | | | |
| 224.1 | 64 | 566 | 2.0 | 272.2 | 53 | 469 | 2.3 | 6.4 | | | | |
| 184.0 | 78 | 690 | 1.7 | 223.5 | 64 | 566 | 2.0 | 7.8 | | | | |
| 144.1 | 99 | 876 | 1.6 | 175.0 | 82 | 726 | 2.0 | 10.0 | | | | |
| 122.3 | 117 | 1036 | 1.5 | 148.6 | 96 | 850 | 1.8 | 11.8 | | | | |
| 109.2 | 131 | 1159 | 1.4 | 132.6 | 108 | 956 | 1.7 | 13.2 | | | | |
| 91.1 | 157 | 1390 | 1.2 | 110.6 | 129 | 1142 | 1.5 | 15.8 | | | | |
| 80.1 | 179 | 1584 | 1.1 | 97.2 | 147 | 1301 | 1.4 | 18.0 | | | | |
| 74.8 | 191 | 1690 | 1.0 | 90.9 | 158 | 1398 | 1.3 | 19.3 | | | | |
| 480.3 | 30 | 266 | 2.8 | | | | | 3.0 | **47** | 2 | 90L | 25L |
| 432.7 | 33 | 292 | 2.7 | | | | | 3.3 | | | | |
| 292.9 | 49 | 434 | 2.8 | | | | | 4.9 | | | | |
| 263.4 | 54 | 478 | 2.7 | | | | | 5.5 | | | | |
| 225.9 | 63 | 558 | 2.5 | 274.3 | 52 | 460 | 2.8 | 6.4 | | | | |
| 202.7 | 71 | 628 | 2.3 | 246.1 | 58 | 513 | 2.6 | 7.1 | | | | |
| 181.0 | 79 | 699 | 2.1 | 219.8 | 65 | 575 | 2.4 | 8.0 | | | | |
| 167.8 | 85 | 752 | 2.5 | | | | | 8.6 | | | | |
| 148.9 | 96 | 850 | 2.3 | 180.8 | 79 | 699 | 2.8 | 9.7 | | | | |
| 131.7 | 109 | 965 | 2.3 | 160.0 | 90 | 797 | 2.7 | 10.9 | | | | |
| 118.6 | 121 | 1071 | 2.1 | 144.0 | 99 | 876 | 2.5 | 12.2 | | | | |
| 101.6 | 141 | 1248 | 1.9 | 123.4 | 116 | 1027 | 2.3 | 14.2 | | | | |
| 91.2 | 157 | 1390 | 1.8 | 110.8 | 129 | 1142 | 2.1 | 15.8 | | | | |
| 81.4 | 176 | 1558 | 1.6 | 98.9 | 145 | 1283 | 2.0 | 17.7 | | | | |
| 76.7 | 187 | 1655 | 1.6 | 93.2 | 154 | 1363 | 1.9 | 18.8 | | | | |
| 67.7 | 211 | 1868 | 1.5 | 82.3 | 174 | 1540 | 1.8 | 21.3 | | | | |
| 63.5 | 226 | 2000 | 1.4 | 77.1 | 186 | 1646 | 1.7 | 22.7 | | | | |
| 59.3 | 241 | 2133 | 1.2 | 72.0 | 199 | 1761 | 1.3 | 24.3 | **47** | 3 | 90L | 25L |
| 54.1 | 265 | 2345 | 1.1 | 65.7 | 218 | 1929 | 1.2 | 26.6 | | | | |
| 45.9 | 312 | 2761 | 1.0 | 55.8 | 257 | 2275 | 1.1 | 31.4 | | | | |
| | | | | 49.8 | 288 | 2549 | 1.0 | 35.2 | | | | |
| | | | | 44.2 | 324 | 2868 | 1.0 | 39.6 | | | | |

# PERFORMANCE

## EVOX COAXIAL GEARMOTOR

### Performance Table

**$P_1$ = 2.2 kW / 3.00 HP**

4-POLE MOTORS · **IE3 PREMIUM EFFICIENCY**

| 50 Hz | | | | 60 Hz | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $n_2$ | $M_2$ | | S | $n_2$ | $M_2$ | | S | i | Size | Stages | IEC Input | Compact EVOX Input |
| rpm | Nm | lb·in | | rpm | Nm | lb·in | | | CP | | BXN | MXN |
| 617.8 | 34 | 301 | 2.9 | | | | | 2.4 | **47** | 2 | 100LA | 30LA |
| 486.0 | 43 | 381 | 2.7 | | | | | 3.0 | | | | |
| 437.8 | 48 | 425 | 2.8 | | | | | 3.3 | | | | |
| 377.7 | 56 | 496 | 2.7 | | | | | 3.9 | | | | |
| 335.2 | 63 | 558 | 2.6 | | | | | 4.3 | | | | |
| 296.3 | 71 | 628 | 2.4 | 358.7 | 59 | 522 | 2.9 | 4.9 | | | | |
| 266.5 | 79 | 699 | 2.3 | 322.7 | 65 | 575 | 2.8 | 5.5 | | | | |
| 228.5 | 92 | 814 | 2.1 | 276.6 | 76 | 673 | 2.5 | 6.4 | | | | |
| 205.1 | 102 | 903 | 2.0 | 248.2 | 85 | 752 | 2.4 | 7.1 | | | | |
| 183.2 | 115 | 1018 | 1.8 | 221.7 | 95 | 841 | 2.2 | 8.0 | | | | |
| 169.7 | 124 | 1097 | 1.7 | 205.5 | 102 | 903 | 2.1 | 8.6 | | | | |
| 150.6 | 139 | 1230 | 1.6 | 182.3 | 115 | 1018 | 2.0 | 9.7 | | | | |
| 133.3 | 158 | 1398 | 1.6 | 161.3 | 130 | 1151 | 1.9 | 10.9 | | | | |
| 120.0 | 175 | 1549 | 1.4 | 145.3 | 145 | 1283 | 1.7 | 12.2 | | | | |
| 102.8 | 204 | 1806 | 1.3 | 124.5 | 169 | 1496 | 1.6 | 14.2 | | | | |
| 92.3 | 228 | 2018 | 1.2 | 111.7 | 188 | 1664 | 1.5 | 15.8 | | | | |
| 82.4 | 255 | 2257 | 1.1 | 99.7 | 211 | 1868 | 1.4 | 17.7 | | | | |
| | | | | 72.7 | 289 | 2558 | 0.9 | 24.3 | **47** | 3 | 100LA | 30LA |

## $P_1$ = **3.0 kW / 4.0 HP**

4-POLE MOTORS · **IE3 PREMIUM EFFICIENCY**

| 50 Hz | | | | 60 Hz | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $n_2$ | $M_2$ | | S | $n_2$ | $M_2$ | | S | i | Size | Stages | IEC Input | Compact EVOX Input |
| rpm | Nm | lb·in | | rpm | Nm | lb·in | | | CP | | BXN | MXN |
| 615.3 | 47 | 416 | 2.1 | 746.2 | 38 | 336 | 2.4 | 2.4 | **47** | 2 | 100LB | 30LB |
| 484.0 | 59 | 522 | 1.9 | 587.0 | 49 | 434 | 2.3 | 3.0 | | | | |
| 436.0 | 66 | 584 | 2.1 | 528.8 | 54 | 478 | 2.3 | 3.3 | | | | |
| 376.2 | 76 | 673 | 2.0 | 456.2 | 63 | 558 | 2.4 | 3.9 | | | | |
| 333.8 | 86 | 761 | 1.9 | 404.8 | 71 | 628 | 2.3 | 4.3 | | | | |
| 295.1 | 97 | 859 | 1.8 | 357.9 | 80 | 708 | 2.1 | 4.9 | | | | |
| 265.4 | 108 | 956 | 1.7 | 321.9 | 89 | 788 | 2.0 | 5.5 | | | | |
| 227.6 | 126 | 1115 | 1.5 | 276.0 | 104 | 920 | 1.8 | 6.4 | | | | |
| 204.2 | 140 | 1239 | 1.4 | 247.7 | 116 | 1027 | 1.7 | 7.1 | | | | |
| 182.4 | 157 | 1390 | 1.3 | 221.2 | 129 | 1142 | 1.6 | 8.0 | | | | |
| 169.0 | 169 | 1496 | 1.3 | 205.0 | 140 | 1239 | 1.5 | 8.6 | | | | |
| 150.0 | 191 | 1690 | 1.2 | 181.9 | 157 | 1390 | 1.4 | 9.7 | | | | |
| 132.7 | 216 | 1912 | 1.1 | 161.0 | 178 | 1575 | 1.4 | 10.9 | | | | |
| 119.5 | 240 | 2124 | 1.0 | 144.9 | 198 | 1752 | 1.3 | 12.2 | | | | |
| 102.4 | 280 | 2478 | 0.9 | 124.2 | 231 | 2045 | 1.1 | 14.2 | | | | |
| | | | | 111.5 | 257 | 2275 | 1.1 | 15.8 | | | | |
| | | | | 99.5 | 288 | 2549 | 1.0 | 17.7 | | | | |

# PERFORMANCE

## EVOX COAXIAL GEARMOTOR

### Performance Table

**$P_1$ = 4.0 kW / 5.5 HP**

4-POLE MOTORS · **IE3 PREMIUM EFFICIENCY**

| 50 Hz | | | | 60 Hz | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $n_2$ | $M_2$ | | S | $n_2$ | $M_2$ | | S | i | Size | Stages | IEC Input | Compact EVOX Input |
| rpm | Nm | lb·in | | rpm | Nm | lb·in | | | CP | | BXN | MXN |
| 615.7 | 62 | 549 | 1.6 | 746.6 | 47 | 416 | 2.0 | 2.4 | **47** | 2 | 112M | 35M |
| 484.3 | 79 | 699 | 1.5 | 587.3 | 60 | 531 | 1.8 | 3.0 | | | | |
| 436.3 | 88 | 779 | 1.5 | 529.1 | 67 | 593 | 1.9 | 3.3 | | | | |
| 376.4 | 101 | 894 | 1.5 | 456.5 | 77 | 682 | 1.9 | 3.9 | | | | |
| 334.0 | 114 | 1009 | 1.4 | 405.1 | 87 | 770 | 1.8 | 4.3 | | | | |
| 295.3 | 129 | 1142 | 1.3 | 358.1 | 99 | 876 | 1.7 | 4.9 | | | | |
| 265.6 | 144 | 1275 | 1.3 | 322.1 | 110 | 974 | 1.6 | 5.5 | | | | |
| 227.7 | 168 | 1487 | 1.1 | 276.2 | 128 | 1133 | 1.5 | 6.4 | | | | |
| 204.4 | 187 | 1655 | 1.1 | 247.8 | 143 | 1266 | 1.4 | 7.1 | | | | |
| 182.5 | 209 | 1850 | 1.0 | 221.4 | 160 | 1416 | 1.3 | 8.0 | | | | |
| 169.2 | 226 | 2000 | 1.0 | 205.1 | 172 | 1522 | 1.2 | 8.6 | | | | |
| | | | | 182.0 | 194 | 1717 | 1.2 | 9.7 | | | | |
| | | | | 161.1 | 219 | 1938 | 1.1 | 10.9 | | | | |
| | | | | 145.0 | 244 | 2160 | 1.0 | 12.2 | | | | |
| | | | | 124.3 | 284 | 2514 | 0.9 | 14.2 | | | | |

## $P_1$ = **0.12 kW / 0.16 HP**

### 4-POLE MOTORS · **IE1 STANDARD EFFICIENCY**

| 50 Hz | | | | 60 Hz | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $n_2$ | $M_2$ | | S | $n_2$ | $M_2$ | | S | i | Size | Stages | IEC Input | Compact EVOX Input |
| rpm | Nm | lb·in | | rpm | Nm | lb·in | | | CP | | | MNN |
| 64.9 | 19 | 168 | 2.9 | | | | | 21.0 | **07** | 3 | | 05MA |
| 60.5 | 20 | 177 | 2.7 | | | | | 22.5 | | | | |
| 52.3 | 23 | 204 | 2.3 | | | | | 26.0 | | | | |
| 48.5 | 25 | 221 | 2.2 | 60.0 | 19 | 168 | 2.9 | 28.1 | | | | |
| 41.5 | 30 | 266 | 1.9 | 51.2 | 22 | 195 | 2.5 | 32.9 | | | | |
| 35.0 | 35 | 310 | 1.6 | 43.3 | 26 | 230 | 2.1 | 38.9 | | | | |
| 31.8 | 39 | 345 | 1.4 | 39.3 | 29 | 257 | 1.9 | 42.9 | | | | |
| 29.6 | 41 | 363 | 1.3 | 36.6 | 31 | 274 | 1.8 | 46.1 | | | | |
| 27.5 | 45 | 398 | 1.2 | 34.0 | 34 | 301 | 1.6 | 49.6 | | | | |
| 25.5 | 48 | 425 | 1.1 | 31.5 | 36 | 319 | 1.5 | 53.4 | | | | |
| 21.8 | 56 | 496 | 1.0 | 26.9 | 43 | 381 | 1.3 | 62.6 | | | | |
| | | | | 22.7 | 50 | 443 | 1.1 | 74.2 | | | | |
| | | | | 20.7 | 55 | 487 | 1.0 | 81.2 | | | | |
| 35.1 | 35 | 310 | 2.9 | | | | | 38.8 | **17** | 3 | | 05MA |
| 32.6 | 38 | 336 | 2.7 | | | | | 41.8 | | | | |
| 27.9 | 44 | 389 | 2.3 | | | | | 48.7 | | | | |
| 26.0 | 47 | 416 | 2.1 | 32.1 | 36 | 319 | 2.8 | 52.4 | | | | |
| 24.1 | 51 | 451 | 2.0 | 29.8 | 38 | 336 | 2.6 | 56.6 | | | | |
| 20.6 | 60 | 531 | 1.7 | 25.4 | 45 | 398 | 2.2 | 66.2 | | | | |
| 17.4 | 71 | 628 | 1.4 | 21.5 | 53 | 469 | 1.9 | 78.4 | | | | |
| 15.9 | 77 | 682 | 1.3 | 19.6 | 58 | 513 | 1.7 | 85.9 | | | | |
| 16.3 | 75 | 664 | 2.7 | | | | | 83.6 | **37** | 3 | | 05MA |
| 15.2 | 81 | 717 | 2.5 | | | | | 89.7 | | | | |
| 13.1 | 94 | 832 | 2.1 | 16.2 | 71 | 628 | 2.8 | 104.0 | | | | |
| 11.2 | 110 | 974 | 1.8 | 13.8 | 83 | 735 | 2.4 | 122.1 | | | | |
| 10.2 | 120 | 1062 | 1.7 | 12.6 | 91 | 805 | 2.2 | 133.2 | | | | |
| 10.1 | 122 | 1080 | 2.8 | | | | | 135.1 | **47** | 3 | | 05MA |
| 8.6 | 142 | 1257 | 2.4 | | | | | 158.0 | | | | |
| 7.9 | 155 | 1372 | 2.2 | 9.8 | 117 | 1036 | 2.9 | 171.9 | | | | |

# PERFORMANCE

## EVOX COAXIAL GEARMOTOR

### Performance Table

**$P_1$ = 0.18 kW / 0.25 HP**

4-POLE MOTORS · **IE1 STANDARD EFFICIENCY**

| 50 Hz | | | | 60 Hz | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $n_2$ | $M_2$ | | S | $n_2$ | $M_2$ | | S | i | Size | Stages | IEC Input | Compact EVOX Input |
| rpm | Nm | lb·in | | rpm | Nm | lb·in | | | CP | | | MNN |
| 79.0 | 21 | 186 | 2.7 | | | | | 15.9 | **07** | 2 | | 05MB |
| 72.2 | 23 | 204 | 2.4 | | | | | 17.4 | | | | |
| 59.9 | 27 | 239 | 2.0 | 79.0 | 22 | 195 | 2.5 | 21.0 | **07** | 3 | | 05MB |
| 55.8 | 29 | 257 | 1.9 | 73.7 | 23 | 204 | 2.4 | 22.5 | | | | |
| 48.3 | 34 | 301 | 1.6 | 63.7 | 27 | 239 | 2.0 | 26.0 | | | | |
| 44.8 | 36 | 319 | 1.5 | 59.1 | 29 | 257 | 1.9 | 28.1 | | | | |
| 38.2 | 43 | 381 | 1.3 | 50.5 | 34 | 301 | 1.6 | 32.9 | | | | |
| 32.3 | 51 | 451 | 1.1 | 42.6 | 40 | 354 | 1.4 | 38.9 | | | | |
| 29.3 | 56 | 496 | 1.0 | 38.7 | 44 | 389 | 1.2 | 42.9 | | | | |
| 27.3 | 60 | 531 | 0.9 | 36.0 | 48 | 425 | 1.2 | 46.1 | | | | |
| | | | | 33.4 | 51 | 451 | 1.1 | 49.6 | | | | |
| | | | | 31.0 | 55 | 487 | 1.0 | 53.4 | | | | |
| 46.1 | 35 | 310 | 2.8 | | | | | 27.2 | **17** | 3 | | 05MB |
| 40.2 | 41 | 363 | 2.5 | | | | | 31.2 | | | | |
| 34.9 | 47 | 416 | 2.1 | 46.0 | 37 | 327 | 2.7 | 36.0 | | | | |
| 32.4 | 50 | 443 | 2.0 | 42.8 | 40 | 354 | 2.5 | 38.8 | | | | |
| 30.0 | 54 | 478 | 1.8 | 39.7 | 43 | 381 | 2.3 | 41.8 | | | | |
| 25.8 | 63 | 558 | 1.6 | 34.0 | 51 | 451 | 2.0 | 48.7 | | | | |
| 24.0 | 68 | 602 | 1.5 | 31.6 | 54 | 478 | 1.8 | 52.4 | | | | |
| 22.2 | 74 | 655 | 1.4 | 29.3 | 59 | 522 | 1.7 | 56.6 | | | | |
| 19.0 | 86 | 761 | 1.2 | 25.0 | 69 | 611 | 1.5 | 66.2 | | | | |
| 16.0 | 102 | 903 | 1.0 | 21.1 | 81 | 717 | 1.2 | 78.4 | | | | |
| | | | | 19.3 | 89 | 788 | 1.1 | 85.9 | | | | |
| 23.4 | 70 | 620 | 2.9 | | | | | 53.6 | **37** | 3 | | 05MB |
| 21.6 | 76 | 673 | 2.6 | | | | | 58.2 | | | | |
| 20.8 | 79 | 699 | 2.5 | | | | | 60.4 | | | | |
| 18.3 | 89 | 788 | 2.2 | 24.2 | 71 | 628 | 2.8 | 68.5 | | | | |
| 17.2 | 95 | 841 | 2.1 | 22.7 | 76 | 673 | 2.6 | 73.0 | | | | |
| 15.0 | 109 | 965 | 1.8 | 19.8 | 87 | 770 | 2.3 | 83.6 | | | | |
| 14.0 | 117 | 1036 | 1.7 | 18.5 | 93 | 823 | 2.2 | 89.7 | | | | |
| 12.1 | 135 | 1195 | 1.5 | 15.9 | 108 | 956 | 1.9 | 104.0 | | | | |
| 10.3 | 159 | 1407 | 1.3 | 13.6 | 127 | 1124 | 1.6 | 122.1 | | | | |
| 9.4 | 173 | 1531 | 1.2 | 12.5 | 138 | 1221 | 1.4 | 133.2 | | | | |
| 13.9 | 117 | 1036 | 2.9 | | | | | 90.4 | **47** | 3 | | 05MB |
| 13.1 | 125 | 1106 | 2.7 | | | | | 96.1 | | | | |
| 11.5 | 142 | 1257 | 2.4 | 15.2 | 113 | 1000 | 3.0 | 109.4 | | | | |
| 10.7 | 152 | 1345 | 2.2 | 14.2 | 121 | 1071 | 2.8 | 117.1 | | | | |
| 9.3 | 176 | 1558 | 1.9 | 12.3 | 140 | 1239 | 2.4 | 135.1 | | | | |
| 7.9 | 205 | 1814 | 1.6 | 10.5 | 164 | 1452 | 2.0 | 158.0 | | | | |
| 7.3 | 223 | 1974 | 1.5 | 9.6 | 178 | 1575 | 1.9 | 171.9 | | | | |

## $P_1$ = **0.25 kW / 0.33 HP**

4-POLE MOTORS · **IE1 STANDARD EFFICIENCY**

| 50 Hz | | | | 60 Hz | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $n_2$ | $M_2$ | | S | $n_2$ | $M_2$ | | S | i | Size | Stages | IEC Input | Compact EVOX Input |
| rpm | Nm | lb·in | | rpm | Nm | lb·in | | | CP | | | MNN |
| 124.0 | 19 | 168 | 2.9 | | | | | 10.6 | **07** | 2 | | 05MC |
| 115.0 | 21 | 186 | 2.6 | | | | | 11.4 | | | | |
| 98.2 | 24 | 212 | 2.3 | 124.7 | 19 | 168 | 2.9 | 13.4 | | | | |
| 82.9 | 29 | 257 | 1.9 | 105.2 | 23 | 204 | 2.4 | 15.9 | | | | |
| 75.7 | 32 | 283 | 1.7 | 96.1 | 25 | 221 | 2.2 | 17.4 | | | | |
| 62.8 | 38 | 336 | 1.4 | 79.7 | 30 | 266 | 1.8 | 21.0 | **07** | 3 | | 05MC |
| 58.5 | 41 | 363 | 1.3 | 74.3 | 32 | 283 | 1.7 | 22.5 | | | | |
| 50.6 | 47 | 416 | 1.2 | 64.2 | 37 | 327 | 1.5 | 26.0 | | | | |
| 46.9 | 51 | 451 | 1.1 | 59.6 | 40 | 354 | 1.4 | 28.1 | | | | |
| 40.1 | 60 | 531 | 0.9 | 50.9 | 47 | 416 | 1.2 | 32.9 | | | | |
| | | | | 42.9 | 56 | 496 | 1.0 | 38.9 | | | | |
| 66.8 | 36 | 319 | 2.8 | | | | | 19.7 | **17** | 2 | | 05MC |
| 56.9 | 42 | 372 | 2.4 | | | | | 23.2 | | | | |
| 52.2 | 46 | 407 | 2.2 | 66.3 | 36 | 319 | 2.8 | 25.2 | | | | |
| 48.3 | 49 | 434 | 2.0 | 61.4 | 39 | 345 | 2.6 | 27.2 | **17** | 3 | | 05MC |
| 42.1 | 57 | 504 | 1.8 | 53.5 | 45 | 398 | 2.2 | 31.2 | | | | |
| 36.6 | 65 | 575 | 1.5 | 46.4 | 51 | 451 | 1.9 | 36.0 | | | | |
| 34.0 | 70 | 620 | 1.4 | 43.1 | 55 | 487 | 1.8 | 38.8 | | | | |
| 31.5 | 76 | 673 | 1.3 | 40.0 | 60 | 531 | 1.7 | 41.8 | | | | |
| 27.0 | 88 | 779 | 1.1 | 34.3 | 70 | 620 | 1.4 | 48.7 | | | | |
| 25.1 | 95 | 841 | 1.1 | 31.9 | 75 | 664 | 1.3 | 52.4 | | | | |
| 23.3 | 103 | 912 | 1.0 | 29.6 | 81 | 717 | 1.2 | 56.6 | | | | |
| | | | | 25.3 | 95 | 841 | 1.1 | 66.2 | | | | |
| 34.4 | 69 | 611 | 2.9 | | | | | 38.3 | **37** | 3 | | 05MC |
| 32.2 | 74 | 655 | 2.7 | | | | | 40.9 | | | | |
| 28.1 | 85 | 752 | 2.4 | 35.7 | 67 | 593 | 3.0 | 46.8 | | | | |
| 26.2 | 91 | 805 | 2.2 | 33.3 | 72 | 637 | 2.8 | 50.2 | | | | |
| 24.6 | 97 | 859 | 2.1 | 31.2 | 76 | 673 | 2.6 | 53.6 | | | | |
| 22.6 | 106 | 938 | 1.9 | 28.7 | 83 | 735 | 2.4 | 58.2 | | | | |
| 21.8 | 110 | 974 | 1.8 | 27.7 | 86 | 761 | 2.3 | 60.4 | | | | |
| 19.2 | 124 | 1097 | 1.6 | 24.4 | 98 | 867 | 2.0 | 68.5 | | | | |
| 18.0 | 132 | 1168 | 1.5 | 22.9 | 104 | 920 | 1.9 | 73.0 | | | | |
| 15.8 | 151 | 1336 | 1.3 | 20.0 | 119 | 1053 | 1.7 | 83.6 | | | | |
| 14.7 | 163 | 1443 | 1.2 | 18.6 | 128 | 1133 | 1.6 | 89.7 | | | | |
| 12.7 | 189 | 1673 | 1.1 | 16.1 | 148 | 1310 | 1.3 | 104.0 | | | | |
| 10.8 | 221 | 1956 | 0.9 | 13.7 | 174 | 1540 | 1.1 | 122.1 | | | | |
| | | | | 12.6 | 190 | 1682 | 1.1 | 133.2 | | | | |
| 18.4 | 130 | 1151 | 2.6 | | | | | 71.6 | **47** | 3 | | 05MC |
| 16.4 | 145 | 1283 | 2.3 | 20.8 | 115 | 1018 | 2.9 | 80.2 | | | | |
| 14.6 | 164 | 1452 | 2.0 | 18.5 | 129 | 1142 | 2.6 | 90.4 | | | | |

# PERFORMANCE

## EVOX COAXIAL GEARMOTOR

### Performance Table

**$P_1$ = 0.25 kW / 0.33 HP**

4-POLE MOTORS · **IE1 STANDARD EFFICIENCY**

| 50 Hz | | | | 60 Hz | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $n_2$ | $M_2$ | | S | $n_2$ | $M_2$ | | S | i | Size | Stages | IEC Input | Compact EVOX Input |
| rpm | Nm | lb·in | | rpm | Nm | lb·in | | | CP | | | MNN |
| 13.7 | 174 | 1540 | 1.9 | 17.4 | 137 | 1213 | 2.4 | 96.1 | **47** | 3 | | 05MC |
| 12.0 | 198 | 1752 | 1.7 | 15.3 | 156 | 1381 | 2.1 | 109.4 | | | | |
| 11.3 | 212 | 1876 | 1.6 | 14.3 | 167 | 1478 | 2.0 | 117.1 | | | | |
| 9.7 | 245 | 2168 | 1.4 | 12.4 | 193 | 1708 | 1.7 | 135.1 | | | | |
| 8.3 | 286 | 2531 | 1.2 | 10.6 | 226 | 2000 | 1.5 | 158.0 | | | | |
| 7.7 | 312 | 2761 | 1.1 | 9.7 | 245 | 2168 | 1.4 | 171.9 | | | | |
| 129.4 | 18 | 159 | 3.0 | | | | | 10.6 | **07** | 2 | | 10MA |
| 120.0 | 20 | 177 | 2.8 | | | | | 11.4 | | | | |
| 102.5 | 23 | 204 | 2.4 | 126.5 | 19 | 168 | 2.9 | 13.4 | | | | |
| 86.5 | 28 | 248 | 2.0 | 106.7 | 22 | 195 | 2.5 | 15.9 | | | | |
| 79.0 | 30 | 266 | 1.8 | 97.5 | 24 | 212 | 2.2 | 17.4 | | | | |
| 65.6 | 36 | 319 | 1.5 | 80.9 | 30 | 266 | 1.9 | 21.0 | **07** | 3 | | 10MA |
| 61.1 | 39 | 345 | 1.4 | 75.4 | 32 | 283 | 1.7 | 22.5 | | | | |
| 52.8 | 45 | 398 | 1.2 | 65.2 | 37 | 327 | 1.5 | 26.0 | | | | |
| 49.0 | 49 | 434 | 1.1 | 60.4 | 40 | 354 | 1.4 | 28.1 | | | | |
| 41.8 | 57 | 504 | 1.0 | 51.6 | 46 | 407 | 1.2 | 32.9 | | | | |
| | | | | 43.6 | 55 | 487 | 1.0 | 38.9 | | | | |
| | | | | 39.6 | 60 | 531 | 0.9 | 42.9 | | | | |
| 69.8 | 34 | 301 | 2.9 | | | | | 19.7 | **17** | 2 | | 10MA |
| 59.4 | 40 | 354 | 2.5 | | | | | 23.2 | | | | |
| 54.5 | 44 | 389 | 2.3 | 67.2 | 36 | 319 | 2.8 | 25.2 | | | | |
| 50.5 | 47 | 416 | 2.1 | 62.3 | 38 | 336 | 2.6 | 27.2 | **17** | 3 | | 10MA |
| 44.0 | 54 | 478 | 1.8 | 54.3 | 44 | 389 | 2.3 | 31.2 | | | | |
| 38.2 | 63 | 558 | 1.6 | 47.1 | 51 | 451 | 2.0 | 36.0 | | | | |
| 35.5 | 67 | 593 | 1.5 | 43.7 | 55 | 487 | 1.8 | 38.8 | | | | |
| 32.9 | 73 | 646 | 1.4 | 40.6 | 59 | 522 | 1.7 | 41.8 | | | | |
| 28.2 | 85 | 752 | 1.2 | 34.8 | 69 | 611 | 1.5 | 48.7 | | | | |
| 26.2 | 91 | 805 | 1.1 | 32.3 | 74 | 655 | 1.4 | 52.4 | | | | |
| 24.3 | 98 | 867 | 1.0 | 30.0 | 80 | 708 | 1.3 | 56.6 | | | | |
| | | | | 25.6 | 93 | 823 | 1.1 | 66.2 | | | | |
| | | | | 21.6 | 110 | 974 | 0.9 | 78.4 | | | | |
| 35.9 | 67 | 593 | 3.0 | | | | | 38.3 | **37** | 3 | | 10MA |
| 33.6 | 71 | 628 | 2.8 | | | | | 40.9 | | | | |
| 29.4 | 81 | 717 | 2.5 | | | | | 46.8 | | | | |
| 27.4 | 87 | 770 | 2.3 | 33.8 | 71 | 628 | 2.8 | 50.2 | | | | |
| 25.7 | 93 | 823 | 2.2 | 31.7 | 75 | 664 | 2.7 | 53.6 | | | | |
| 23.6 | 101 | 894 | 2.0 | 29.1 | 82 | 726 | 2.4 | 58.2 | | | | |
| 22.8 | 105 | 929 | 1.9 | 28.1 | 85 | 752 | 2.4 | 60.4 | | | | |
| 20.1 | 119 | 1053 | 1.7 | 24.8 | 96 | 850 | 2.1 | 68.5 | | | | |
| 18.8 | 127 | 1124 | 1.6 | 23.2 | 103 | 912 | 1.9 | 73.0 | | | | |

## $P_1$ = **0.25 kW / 0.33 HP**

### 4-POLE MOTORS · **IE1 STANDARD EFFICIENCY**

| 50 Hz | | | | 60 Hz | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $n_2$ | $M_2$ | | S | $n_2$ | $M_2$ | | S | i | Size | Stages | IEC Input | Compact EVOX Input |
| rpm | Nm | lb·in | | rpm | Nm | lb·in | | | CP | | | MNN |
| 16.5 | 145 | 1283 | 1.4 | 20.3 | 118 | 1044 | 1.7 | 83.6 | **37** | 3 | | 10MA |
| 15.3 | 156 | 1381 | 1.3 | 18.9 | 126 | 1115 | 1.6 | 89.7 | | | | |
| 13.2 | 181 | 1602 | 1.1 | 16.3 | 146 | 1292 | 1.4 | 104.0 | | | | |
| 11.3 | 212 | 1876 | 0.9 | 13.9 | 172 | 1522 | 1.2 | 122.1 | | | | |
| | | | | 12.7 | 187 | 1655 | 1.1 | 133.2 | | | | |
| 19.2 | 124 | 1097 | 2.7 | | | | | 71.6 | **47** | 3 | | 10MA |
| 17.1 | 139 | 1230 | 2.4 | 21.1 | 113 | 1000 | 3.0 | 80.2 | | | | |
| 15.2 | 157 | 1390 | 2.1 | 18.8 | 127 | 1124 | 2.6 | 90.4 | | | | |
| 14.3 | 167 | 1478 | 2.0 | 17.6 | 135 | 1195 | 2.5 | 96.1 | | | | |
| 12.6 | 190 | 1682 | 1.8 | 15.5 | 154 | 1363 | 2.2 | 109.4 | | | | |
| 11.7 | 203 | 1797 | 1.6 | 14.5 | 165 | 1460 | 2.0 | 117.1 | | | | |
| 10.2 | 235 | 2080 | 1.4 | 12.6 | 190 | 1682 | 1.8 | 135.1 | | | | |
| 8.7 | 274 | 2425 | 1.2 | 10.7 | 222 | 1965 | 1.5 | 158.0 | | | | |
| 8.0 | 298 | 2638 | 1.1 | 9.9 | 242 | 2142 | 1.4 | 171.9 | | | | |

## $P_1$ = **0.37 kW / 0.50 HP**

### 4-POLE MOTORS · **IE1 STANDARD EFFICIENCY**

| 50 Hz | | | | 60 Hz | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $n_2$ | $M_2$ | | S | $n_2$ | $M_2$ | | S | i | Size | Stages | IEC Input | Compact EVOX Input |
| rpm | Nm | lb·in | | rpm | Nm | lb·in | | | CP | | | MNN |
| 199.3 | 18 | 159 | 2.8 | | | | | 6.9 | **07** | 2 | | 10MB |
| 182.1 | 19 | 168 | 2.6 | | | | | 7.5 | | | | |
| 171.2 | 21 | 186 | 2.7 | | | | | 8.0 | | | | |
| 148.9 | 24 | 212 | 2.3 | 184.4 | 19 | 168 | 2.9 | 9.2 | | | | |
| 138.6 | 25 | 221 | 2.2 | 171.6 | 21 | 186 | 2.7 | 9.9 | | | | |
| 128.8 | 27 | 239 | 2.0 | 159.5 | 22 | 195 | 2.5 | 10.6 | | | | |
| 119.4 | 30 | 266 | 1.9 | 147.9 | 24 | 212 | 2.3 | 11.4 | | | | |
| 102.0 | 35 | 310 | 1.6 | 126.3 | 28 | 248 | 2.0 | 13.4 | | | | |
| 86.1 | 41 | 363 | 1.3 | 106.6 | 33 | 292 | 1.7 | 15.9 | | | | |
| 78.6 | 45 | 398 | 1.2 | 97.4 | 36 | 319 | 1.5 | 17.4 | | | | |
| 65.2 | 54 | 478 | 1.0 | 80.8 | 44 | 389 | 1.3 | 21.0 | **07** | 3 | | 10MB |
| 60.8 | 58 | 513 | 0.9 | 75.3 | 47 | 416 | 1.2 | 22.5 | | | | |
| | | | | 65.1 | 54 | 478 | 1.0 | 26.0 | | | | |
| | | | | 60.4 | 59 | 522 | 0.9 | 28.1 | | | | |
| 105.4 | 34 | 301 | 3.0 | | | | | 13.0 | **17** | 2 | | 10MB |
| 98.8 | 36 | 319 | 2.8 | | | | | 13.8 | | | | |
| 86.4 | 41 | 363 | 2.4 | | | | | 15.8 | | | | |
| 80.5 | 44 | 389 | 2.3 | 99.7 | 35 | 310 | 2.8 | 17.0 | | | | |

# PERFORMANCE

## EVOX COAXIAL GEARMOTOR

### Performance Table

**$P_1$ = 0.37 kW / 0.50 HP**

4-POLE MOTORS · **IE1 STANDARD EFFICIENCY**

| 50 Hz | | | | 60 Hz | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $n_2$ | $M_2$ | | S | $n_2$ | $M_2$ | | S | i | Size | Stages | IEC Input | Compact EVOX Input |
| rpm | Nm | lb·in | | rpm | Nm | lb·in | | | CP | | | MNN |
| 69.4 | 51 | 451 | 2.0 | 85.9 | 41 | 363 | 2.4 | 19.7 | **17** | 2 | | 10MB |
| 59.1 | 60 | 531 | 1.7 | 73.2 | 48 | 425 | 2.1 | 23.2 | | | | |
| 54.2 | 65 | 575 | 1.5 | 67.1 | 53 | 469 | 1.9 | 25.2 | | | | |
| 50.2 | 70 | 620 | 1.4 | 62.2 | 57 | 504 | 1.8 | 27.2 | **17** | 3 | | 10MB |
| 43.8 | 81 | 717 | 1.2 | 54.2 | 65 | 575 | 1.5 | 31.2 | | | | |
| 38.0 | 93 | 823 | 1.1 | 47.0 | 75 | 664 | 1.3 | 36.0 | | | | |
| 35.3 | 100 | 885 | 1.0 | 43.7 | 81 | 717 | 1.2 | 38.8 | | | | |
| 32.7 | 108 | 956 | 0.9 | 40.5 | 87 | 770 | 1.1 | 41.8 | | | | |
| | | | | 34.8 | 102 | 903 | 1.0 | 48.7 | | | | |
| | | | | 32.3 | 109 | 965 | 0.9 | 52.4 | | | | |
| 52.6 | 67 | 593 | 3.0 | | | | | 26.0 | **37** | 2 | | 10MB |
| 45.6 | 77 | 682 | 2.6 | | | | | 30.0 | **37** | 3 | | 10MB |
| 40.4 | 87 | 770 | 2.3 | 50.1 | 71 | 628 | 2.8 | 33.8 | | | | |
| 35.7 | 99 | 876 | 2.0 | 44.2 | 80 | 708 | 2.5 | 38.3 | | | | |
| 33.4 | 106 | 938 | 1.9 | 41.4 | 85 | 752 | 2.3 | 40.9 | | | | |
| 29.2 | 121 | 1071 | 1.7 | 36.2 | 98 | 867 | 2.0 | 46.8 | | | | |
| 27.2 | 130 | 1151 | 1.5 | 33.7 | 105 | 929 | 1.9 | 50.2 | | | | |
| 25.5 | 138 | 1221 | 1.4 | 31.6 | 112 | 991 | 1.8 | 53.6 | | | | |
| 23.5 | 150 | 1328 | 1.3 | 29.1 | 121 | 1071 | 1.6 | 58.2 | | | | |
| 22.6 | 156 | 1381 | 1.3 | 28.0 | 126 | 1115 | 1.6 | 60.4 | | | | |
| 20.0 | 177 | 1567 | 1.1 | 24.7 | 143 | 1266 | 1.4 | 68.5 | | | | |
| 18.7 | 189 | 1673 | 1.1 | 23.2 | 152 | 1345 | 1.3 | 73.0 | | | | |
| 16.4 | 216 | 1912 | 0.9 | 20.3 | 174 | 1540 | 1.1 | 83.6 | | | | |
| | | | | 18.9 | 187 | 1655 | 1.1 | 89.7 | | | | |
| | | | | 16.3 | 217 | 1921 | 0.9 | 104.0 | | | | |
| 32.5 | 109 | 965 | 2.8 | | | | | 42.1 | **47** | 3 | | 10MB |
| 28.5 | 124 | 1097 | 2.7 | | | | | 47.9 | | | | |
| 26.7 | 132 | 1168 | 2.5 | | | | | 51.3 | | | | |
| 24.7 | 143 | 1266 | 2.2 | 30.6 | 116 | 1027 | 2.7 | 55.4 | | | | |
| 22.5 | 157 | 1390 | 2.1 | 27.9 | 127 | 1124 | 2.6 | 60.8 | | | | |
| 19.1 | 185 | 1637 | 1.8 | 23.7 | 149 | 1319 | 2.2 | 71.6 | | | | |
| 17.1 | 207 | 1832 | 1.6 | 21.1 | 167 | 1478 | 2.0 | 80.2 | | | | |
| 15.1 | 233 | 2062 | 1.4 | 18.7 | 188 | 1664 | 1.8 | 90.4 | | | | |
| 14.2 | 248 | 2195 | 1.3 | 17.6 | 201 | 1779 | 1.7 | 96.1 | | | | |
| 12.5 | 283 | 2505 | 1.2 | 15.5 | 228 | 2018 | 1.5 | 109.4 | | | | |
| 11.7 | 302 | 2673 | 1.1 | 14.5 | 244 | 2160 | 1.4 | 117.1 | | | | |
| 10.1 | 349 | 3089 | 1.0 | 12.5 | 282 | 2496 | 1.2 | 135.1 | | | | |
| | | | | 10.7 | 330 | 2921 | 1.0 | 158.0 | | | | |
| | | | | 9.9 | 359 | 3177 | 0.9 | 171.9 | | | | |

## $P_1$ = **0.55 kW / 0.75 HP**

4-POLE MOTORS · **IE1 STANDARD EFFICIENCY**

| 50 Hz | | | | 60 Hz | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $n_2$ | $M_2$ | | S | $n_2$ | $M_2$ | | S | i | Size | Stages | IEC Input | Compact EVOX Input |
| rpm | Nm | lb·in | | rpm | Nm | lb·in | | | CP | | | MNN |
| 422.0 | 12 | 106 | 3.0 | | | | | 3.2 | **07** | 2 | | 10MC |
| 394.2 | 13 | 115 | 3.0 | | | | | 3.4 | | | | |
| 342.8 | 15 | 133 | 2.6 | | | | | 4.0 | | | | |
| 296.4 | 18 | 159 | 2.5 | | | | | 4.6 | | | | |
| 274.9 | 19 | 168 | 2.4 | 341.4 | 15 | 133 | 2.9 | 5.0 | | | | |
| 234.8 | 22 | 195 | 2.2 | 291.6 | 18 | 159 | 2.8 | 5.8 | | | | |
| 198.1 | 27 | 239 | 1.9 | 246.1 | 21 | 186 | 2.3 | 6.9 | | | | |
| 181.0 | 29 | 257 | 1.8 | 224.8 | 23 | 204 | 2.2 | 7.5 | | | | |
| 170.2 | 31 | 274 | 1.8 | 211.4 | 25 | 221 | 2.2 | 8.0 | | | | |
| 148.1 | 35 | 310 | 1.6 | 183.9 | 29 | 257 | 1.9 | 9.2 | | | | |
| 137.8 | 38 | 336 | 1.4 | 171.1 | 31 | 274 | 1.8 | 9.9 | | | | |
| 128.0 | 41 | 363 | 1.3 | 159.0 | 33 | 292 | 1.7 | 10.6 | | | | |
| 118.7 | 44 | 389 | 1.2 | 147.5 | 36 | 319 | 1.5 | 11.4 | | | | |
| 101.4 | 52 | 460 | 1.1 | 125.9 | 42 | 372 | 1.3 | 13.4 | | | | |
| | | | | 106.3 | 49 | 434 | 1.1 | 15.9 | | | | |
| | | | | 97.1 | 54 | 478 | 1.0 | 17.4 | | | | |
| 193.2 | 27 | 239 | 2.9 | | | | | 7.0 | **17** | 2 | | 10MC |
| 180.1 | 29 | 257 | 2.7 | | | | | 7.6 | | | | |
| 159.4 | 33 | 292 | 2.7 | | | | | 8.5 | | | | |
| 134.0 | 39 | 345 | 2.4 | 166.4 | 32 | 283 | 3.0 | 10.2 | | | | |
| 118.8 | 44 | 389 | 2.3 | 147.5 | 36 | 319 | 2.8 | 11.4 | | | | |
| 104.8 | 50 | 443 | 2.0 | 130.1 | 40 | 354 | 2.5 | 13.0 | | | | |
| 98.3 | 53 | 469 | 1.9 | 122.0 | 43 | 381 | 2.3 | 13.8 | | | | |
| 85.9 | 61 | 540 | 1.6 | 106.6 | 49 | 434 | 2.0 | 15.8 | | | | |
| 80.0 | 66 | 584 | 1.5 | 99.4 | 53 | 469 | 1.9 | 17.0 | | | | |
| 69.0 | 76 | 673 | 1.3 | 85.7 | 61 | 540 | 1.6 | 19.7 | | | | |
| 58.7 | 89 | 788 | 1.1 | 73.0 | 72 | 637 | 1.4 | 23.2 | | | | |
| 53.9 | 97 | 859 | 1.0 | 66.9 | 78 | 690 | 1.3 | 25.2 | | | | |
| 49.9 | 105 | 929 | 1.0 | 62.0 | 85 | 752 | 1.2 | 27.2 | **17** | 3 | | 10MC |
| | | | | 54.0 | 97 | 859 | 1.0 | 31.2 | | | | |
| 173.7 | 30 | 266 | 2.8 | | | | | 7.8 | **37** | 2 | | 10MC |
| 150.6 | 35 | 310 | 2.6 | 187.0 | 28 | 248 | 3.0 | 9.0 | | | | |
| 128.8 | 41 | 363 | 2.3 | 159.9 | 33 | 292 | 2.6 | 10.6 | | | | |
| 75.6 | 70 | 620 | 2.9 | | | | | 18.0 | | | | |
| 70.6 | 74 | 655 | 2.7 | | | | | 19.3 | | | | |
| 61.2 | 86 | 761 | 2.3 | 75.9 | 69 | 611 | 2.9 | 22.2 | | | | |
| 52.3 | 100 | 885 | 2.0 | 65.0 | 81 | 717 | 2.5 | 26.0 | | | | |
| 45.3 | 116 | 1027 | 1.7 | 56.3 | 93 | 823 | 2.1 | 30.0 | **37** | 3 | | 10MC |
| 40.2 | 131 | 1159 | 1.5 | 49.9 | 105 | 929 | 1.9 | 33.8 | | | | |
| 35.5 | 148 | 1310 | 1.4 | 44.1 | 119 | 1053 | 1.7 | 38.3 | | | | |

# PERFORMANCE

## EVOX COAXIAL GEARMOTOR

### Performance Table

**$P_1$ = 0.55 kW / 0.75 HP**

4-POLE MOTORS · **IE1 STANDARD EFFICIENCY**

| 50 Hz | | | | 60 Hz | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $n_2$ | $M_2$ | | S | $n_2$ | $M_2$ | | S | i | Size | Stages | IEC Input | Compact EVOX Input |
| rpm | Nm | lb·in | | rpm | Nm | lb·in | | | CP | | | MNN |
| 33.2 | 158 | 1398 | 1.3 | 41.3 | 127 | 1124 | 1.6 | 40.9 | **37** | 3 | | 10MC |
| 29.1 | 181 | 1602 | 1.1 | 36.1 | 146 | 1292 | 1.4 | 46.8 | | | | |
| 27.1 | 194 | 1717 | 1.0 | 33.6 | 156 | 1381 | 1.3 | 50.2 | | | | |
| 25.4 | 207 | 1832 | 1.0 | 31.5 | 167 | 1478 | 1.2 | 53.6 | | | | |
| | | | | 29.0 | 181 | 1602 | 1.1 | 58.2 | | | | |
| | | | | 27.9 | 188 | 1664 | 1.1 | 60.4 | | | | |
| | | | | 24.7 | 213 | 1885 | 0.9 | 68.5 | | | | |
| 63.9 | 82 | 726 | 3.0 | | | | | 21.3 | **47** | 2 | | 10MC |
| 59.9 | 88 | 779 | 2.8 | | | | | 22.7 | | | | |
| 52.1 | 101 | 894 | 2.5 | 64.7 | 81 | 717 | 3.0 | 26.1 | | | | |
| 44.8 | 117 | 1036 | 2.3 | 55.6 | 94 | 832 | 2.6 | 30.4 | | | | |
| 41.2 | 127 | 1124 | 2.1 | 51.2 | 103 | 912 | 2.5 | 33.0 | | | | |
| 56.0 | 94 | 832 | 3.0 | | | | | 24.3 | **47** | 3 | | 10MC |
| 51.1 | 103 | 912 | 2.8 | | | | | 26.6 | | | | |
| 43.4 | 121 | 1071 | 2.6 | 53.8 | 98 | 867 | 2.9 | 31.4 | | | | |
| 38.7 | 136 | 1204 | 2.3 | 48.0 | 109 | 965 | 2.7 | 35.2 | | | | |
| 34.3 | 153 | 1354 | 2.0 | 42.7 | 123 | 1089 | 2.5 | 39.6 | | | | |
| 32.3 | 163 | 1443 | 1.9 | 40.1 | 131 | 1159 | 2.4 | 42.1 | | | | |
| 28.4 | 185 | 1637 | 1.8 | 35.2 | 149 | 1319 | 2.2 | 47.9 | | | | |
| 26.5 | 198 | 1752 | 1.7 | 32.9 | 160 | 1416 | 2.1 | 51.3 | | | | |
| 24.5 | 214 | 1894 | 1.4 | 30.5 | 172 | 1522 | 1.8 | 55.4 | | | | |
| 22.4 | 235 | 2080 | 1.4 | 27.8 | 189 | 1673 | 1.8 | 60.8 | | | | |
| 19.0 | 276 | 2443 | 1.2 | 23.6 | 223 | 1974 | 1.5 | 71.6 | | | | |
| 17.0 | 310 | 2744 | 1.1 | 21.1 | 249 | 2204 | 1.3 | 80.2 | | | | |
| 15.1 | 349 | 3089 | 1.0 | 18.7 | 281 | 2487 | 1.2 | 90.4 | | | | |
| 14.1 | 371 | 3284 | 0.9 | 17.6 | 299 | 2646 | 1.1 | 96.1 | | | | |
| | | | | 15.4 | 340 | 3009 | 1.0 | 109.4 | | | | |
| | | | | 14.4 | 364 | 3222 | 0.9 | 117.1 | | | | |

# PERFORMANCE

## EVOX COAXIAL GEAR UNIT

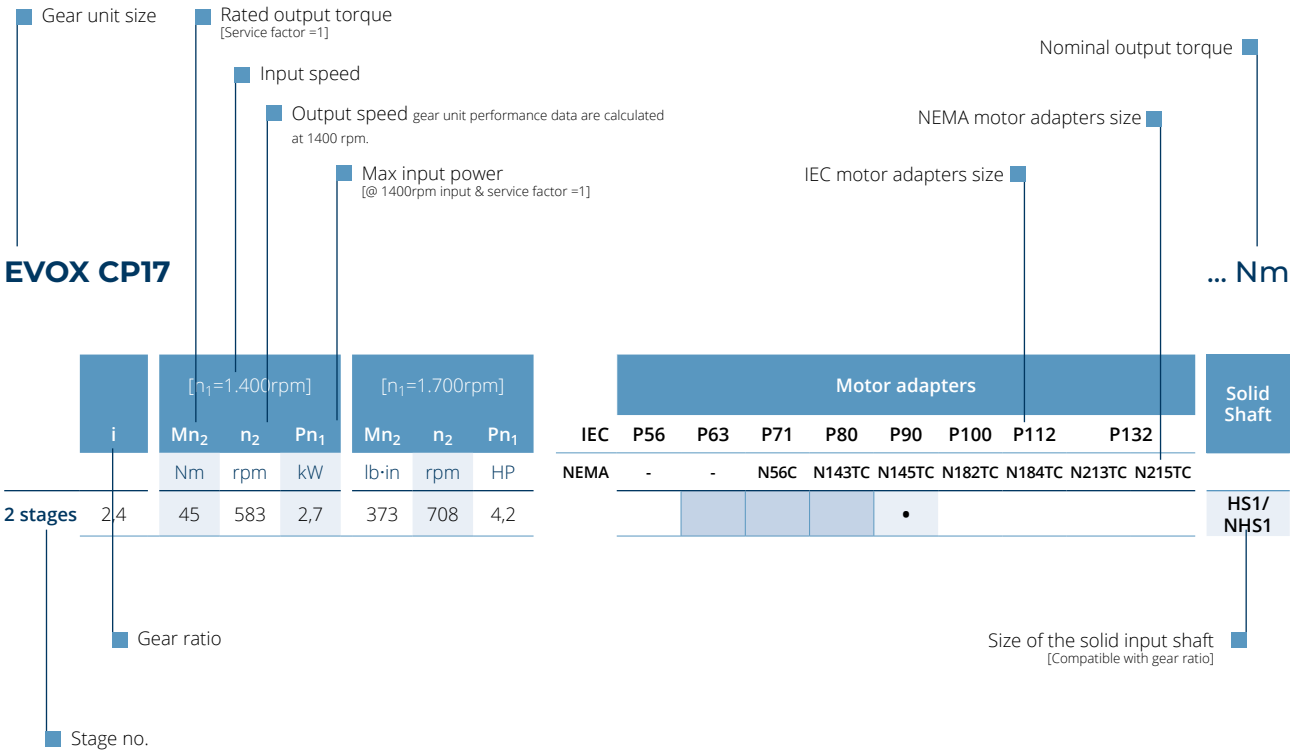
### Tables introduction

The following tables show geometrically possible combinations between gear ratios and inputs for each gear unit size.

For each of these combinations, a possible service factor has been calculated using the maximum motor power that can be coupled in Bonfiglioli's asynchronous electric motors portfolio (considering different poles and efficiency levels).

In the table, combinations with a service factor below 0.9 are highlighted with a lighter colour. Here you should pay attention to the power of the electric motor coupled with the gear unit, because it shouldn't exceed the "Maximum input power" shown.

The left table section shows the inputs that are geometrically compatible with each gear ratio by IEC, NEMA and solid input shaft. For further information on the input interface, see the Dimension section of this document.




Adapter can be coupled

Adapter can be coupled [Input power should not exceed the "Max input power"]

• Adapter can be coupled in NEMA version only. [Input power should not exceed the "Max Input power"]

Adapter cannot be coupled

Please, configure N140TC, to have the N143TC or N145TC input flange; or configure N180TC, if you want the N182TC or N184TC; or select N210TC, to have the N213TC or N215TC

# PERFORMANCE

## EVOX COAXIAL GEAR UNIT

### Performance Table

### EVOX CP07

55 Nm

| | i | [$n_1$=1,400rpm] $Mn_2$ | $n_2$ | $Pn_1$ | [$n_1$=1,700rpm] $Mn_2$ | $n_2$ | $Pn_1$ |
|---|---|---|---|---|---|---|---|
| | | Nm | rpm | kW | lb·in | rpm | HP |
| **2 stages** | 2.8 | 35 | 497 | 1.8 | 290 | 603 | 2.8 |
| | 3.2 | 37 | 434 | 1.7 | 307 | 527 | 2.6 |
| | 3.5 | 40 | 406 | 1.7 | 332 | 493 | 2.6 |
| | 4.0 | 40 | 353 | 1.5 | 332 | 428 | 2.3 |
| | 4.6 | 45 | 305 | 1.4 | 373 | 371 | 2.2 |
| | 4.9 | 45 | 283 | 1.3 | 373 | 344 | 2.0 |
| | 5.8 | 50 | 242 | 1.3 | 415 | 293 | 1.9 |
| | 6.9 | 50 | 204 | 1.1 | 415 | 248 | 1.6 |
| | 7.5 | 51 | 186 | 1.0 | 423 | 226 | 1.5 |
| | 8.0 | 55 | 175 | 1.0 | 487 | 213 | 1.6 |
| | 9.2 | 55 | 152 | 0.9 | 487 | 185 | 1.4 |
| | 9.9 | 55 | 142 | 0.8 | 487 | 172 | 1.3 |
| | 10.6 | 55 | 132 | 0.8 | 487 | 160 | 1.2 |
| | 11.5 | 55 | 122 | 0.7 | 487 | 148 | 1.1 |
| | 13.4 | 55 | 104 | 0.6 | 487 | 127 | 1.0 |
| | 15.9 | 55 | 88 | 0.5 | 487 | 107 | 0.8 |
| | 17.4 | 55 | 80 | 0.5 | 487 | 98 | 0.8 |
| **3 stages** | 21.0 | 55 | 67 | 0.4 | 487 | 81 | 0.6 |
| | 22.5 | 55 | 62 | 0.4 | 487 | 76 | 0.6 |
| | 26.0 | 55 | 54 | 0.3 | 487 | 65 | 0.5 |
| | 28.1 | 55 | 50 | 0.3 | 487 | 61 | 0.5 |
| | 32.9 | 55 | 43 | 0.2 | 487 | 52 | 0.4 |
| | 38.9 | 55 | 36 | 0.2 | 487 | 44 | 0.3 |
| | 42.9 | 55 | 33 | 0.2 | 487 | 40 | 0.3 |
| | 46.1 | 55 | 30 | 0.2 | 487 | 37 | 0.3 |
| | 49.6 | 55 | 28 | 0.2 | 487 | 34 | 0.3 |
| | 53.5 | 55 | 26 | 0.2 | 487 | 32 | 0.2 |
| | 62.6 | 55 | 22 | 0.1 | 487 | 27 | 0.2 |
| | 74.2 | 55 | 19 | 0.1 | 487 | 23 | 0.2 |
| | 81.2 | 55 | 17 | 0.1 | 487 | 21 | 0.2 |

| Motor adapters | | | | | | | | | Solid Shaft |
|---|---|---|---|---|---|---|---|---|---|
| IEC | P56 | P63 | P71 | P80 | P90 | P100 | P112 | P132 | |
| NEMA | - | - | N56C | N143TC | N145TC | N182TC | N184TC | N213TC N215TC | |

Adapter can be coupled

Adapter can be coupled [Input power should not exceed the "Max input power"]

• Adapter can be coupled in NEMA version only. [Input power should not exceed the "Max Input power"]

— Adapter cannot be coupled

Please, configure N140TC, to have the N143TC or N145TC input flange; or configure N180TC, if you want the N182TC or N184TC; or select N210TC, to have the N213TC or N215TC

## EVOX CP17

100 Nm

| | i | [$n_1$=1,400rpm] $Mn_2$ | $n_2$ | $Pn_1$ | [$n_1$=1,700rpm] $Mn_2$ | $n_2$ | $Pn_1$ | IEC | Motor adapters P56 | P63 | P71 | P80 | P90 | P100 | P112 | P132 | Solid Shaft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Nm | rpm | kW | lb·in | rpm | HP | NEMA | - | - | N56C | N143TC | N145TC | N182TC | N184TC | N213TC N215TC | |
| 2 stages | 2.4 | 45 | 583 | 2.7 | 373 | 708 | 4.2 | | | | | | • | | | | HS1/ NHS1 |
| | 2.9 | 50 | 483 | 2.5 | 415 | 586 | 3.9 | | | | | | • | | | | |
| | 3.3 | 55 | 428 | 2.5 | 456 | 520 | 3.8 | | | | | | • | | | | |
| | 3.8 | 60 | 369 | 2.3 | 498 | 449 | 3.5 | | | | | | • | | | | |
| | 4.5 | 65 | 310 | 2.1 | 539 | 377 | 3.2 | | | | | | • | | | | |
| | 5.1 | 70 | 275 | 2.0 | 581 | 334 | 3.1 | | | | | | • | | | | |
| | 5.8 | 75 | 243 | 1.9 | 622 | 295 | 2.9 | | | | | | • | | | | |
| | 6.2 | 75 | 228 | 1.8 | 622 | 276 | 2.7 | | | | | | • | | | | |
| | 7.0 | 80 | 199 | 1.7 | 664 | 241 | 2.5 | | | | | | • | | | | |
| | 7.6 | 80 | 185 | 1.6 | 664 | 225 | 2.4 | | | | | | • | | | | |
| | 8.5 | 90 | 164 | 1.5 | 747 | 199 | 2.4 | | | | | | • | | | | |
| | 10.2 | 95 | 138 | 1.4 | 788 | 167 | 2.1 | | | | | | • | | | | |
| | 11.5 | 100 | 122 | 1.3 | 885 | 148 | 2.1 | | | | | | • | | | | |
| | 13.0 | 100 | 108 | 1.1 | 885 | 131 | 1.8 | | | | | | • | | | | |
| | 13.8 | 100 | 101 | 1.1 | 885 | 123 | 1.7 | | | | | | • | | | | |
| | 15.8 | 100 | 88 | 0.9 | 885 | 107 | 1.5 | | | | | | • | | | | |
| | 17.0 | 100 | 82 | 0.9 | 885 | 100 | 1.4 | | | | | | • | | | | |
| | 19.7 | 100 | 71 | 0.7 | 885 | 86 | 1.2 | | | | | | | | | | |
| | 23.2 | 100 | 60 | 0.6 | 885 | 73 | 1.0 | | | | | | | | | | |
| | 25.2 | 100 | 55 | 0.6 | 885 | 67 | 0.9 | | | | | | | | | | |
| 3 stages | 27.2 | 100 | 51 | 0.5 | 885 | 62 | 0.9 | | | | | | | | | | |
| | 31.3 | 100 | 45 | 0.5 | 885 | 54 | 0.8 | | | | | | | | | | |
| | 36.0 | 100 | 39 | 0.4 | 885 | 47 | 0.7 | | | | | | | | | | |
| | 38.8 | 100 | 36 | 0.4 | 885 | 44 | 0.6 | | | | | | | | | | |
| | 41.8 | 100 | 33 | 0.4 | 885 | 41 | 0.6 | | | | | | | | | | |
| | 48.7 | 100 | 29 | 0.3 | 885 | 35 | 0.5 | | | | | | | | | | |
| | 52.4 | 100 | 27 | 0.3 | 885 | 32 | 0.5 | | | | | | | | | | |
| | 56.6 | 100 | 25 | 0.3 | 885 | 30 | 0.4 | | | | | | | | | | |
| | 66.2 | 100 | 21 | 0.2 | 885 | 26 | 0.4 | | | | | | | | | | |
| | 78.5 | 100 | 18 | 0.2 | 885 | 22 | 0.3 | | | | | | | | | | |
| | 85.9 | 100 | 16 | 0.2 | 885 | 20 | 0.3 | | | | | | | | | | |

Adapter can be coupled

Adapter can be coupled [Input power should not exceed the "Max input power"]

• Adapter can be coupled in NEMA version only. [Input power should not exceed the "Max Input power"]

Adapter cannot be coupled

Please, configure N140TC, to have the N143TC or N145TC input flange; or configure N180TC, if you want the N182TC or N184TC; or select N210TC, to have the N213TC or N215TC

# PERFORMANCE

## EVOX COAXIAL GEAR UNIT

### Performance Table

### EVOX CP37

200 Nm

| | i | [$n_1$=1,400rpm] $Mn_2$ | $n_2$ | $Pn_1$ | [$n_1$=1,700rpm] $Mn_2$ | $n_2$ | $Pn_1$ | Motor adapters IEC | P56 | P63 | P71 | P80 | P90 | P100 | P112 | P132 | Solid Shaft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Nm | rpm | kW | lb·in | rpm | HP | NEMA | - | - | N56C | N143TC | N145TC | N182TC | N184TC | N213TC N215TC | |
| 2 stages | 2.3 | 73 | 622 | 4.8 | 606 | 756 | 7.3 | | | | | | | | | | HS2/NHS2 |
| | 2.7 | 84 | 519 | 4.6 | 697 | 630 | 7.0 | | | | | | | | | | |
| | 3.2 | 94 | 440 | 4.3 | 780 | 535 | 6.6 | | | | | | | | | | |
| | 3.4 | 103 | 412 | 4.4 | 854 | 500 | 6.8 | | | | | | | | | | |
| | 4.1 | 113 | 345 | 4.1 | 937 | 419 | 6.2 | | | | | | | | | | |
| | 4.3 | 110 | 328 | 3.8 | 913 | 398 | 5.8 | | | | | | | | | | |
| | 4.8 | 121 | 293 | 3.7 | 1004 | 356 | 5.7 | | | | | | | | | | |
| | 5.4 | 127 | 261 | 3.5 | 1054 | 317 | 5.3 | | | | | | | | | | |
| | 6.4 | 137 | 218 | 3.1 | 1137 | 264 | 4.8 | | | | | | | | | | |
| | 7.8 | 148 | 179 | 2.8 | 1228 | 217 | 4.2 | | | | | | | | | | |
| | 9.0 | 156 | 155 | 2.5 | 1294 | 188 | 3.9 | | | | | | | | | | |
| | 10.0 | 163 | 140 | 2.4 | 1352 | 170 | 3.6 | | | | | | | | | | |
| | 10.6 | 166 | 133 | 2.3 | 1377 | 161 | 3.5 | | | | | | | | | | |
| | 11.8 | 174 | 119 | 2.2 | 1444 | 144 | 3.3 | | | | | | | | | | |
| | 13.2 | 181 | 106 | 2.0 | 1502 | 129 | 3.1 | | | | | | | | | | |
| | 15.8 | 194 | 88 | 1.8 | 1609 | 107 | 2.7 | | | | | | | | | | |
| | 18.0 | 200 | 78 | 1.6 | 1770 | 94 | 2.7 | | | | | | | | | | |
| | 19.3 | 200 | 73 | 1.5 | 1770 | 88 | 2.5 | | | | | | | | | | |
| | 22.2 | 200 | 63 | 1.3 | 1770 | 76 | 2.1 | | | | | | | | | | |
| | 26.0 | 200 | 54 | 1.1 | 1770 | 65 | 1.8 | | | | | | | | | | |
| 3 stages | 30.0 | 200 | 47 | 1.0 | 1770 | 57 | 1.6 | | | | | | | | | | |
| | 33.8 | 200 | 41 | 0.9 | 1770 | 50 | 1.4 | | | | | | | | | | |
| | 38.3 | 200 | 37 | 0.8 | 1770 | 44 | 1.2 | | | | | | | | | | |
| | 40.9 | 200 | 34 | 0.7 | 1770 | 42 | 1.2 | | | | | | | | | | |
| | 46.8 | 200 | 30 | 0.6 | 1770 | 36 | 1.0 | | | | | | | | | | |
| | 50.2 | 200 | 28 | 0.6 | 1770 | 34 | 1.0 | | | | | | | | | | HS1/NHS1 |
| | 53.6 | 200 | 26 | 0.5 | 1770 | 32 | 0.9 | | | | | | | | | | |
| | 58.2 | 200 | 24 | 0.5 | 1770 | 29 | 0.8 | | | | | | | | | | |
| | 60.4 | 200 | 23 | 0.5 | 1770 | 28 | 0.8 | | | | | | | | | | |
| | 68.5 | 200 | 20 | 0.4 | 1770 | 25 | 0.7 | | | | | | | | | | |
| | 73.1 | 200 | 19 | 0.4 | 1770 | 23 | 0.7 | | | | | | | | | | |
| | 83.6 | 200 | 17 | 0.4 | 1770 | 20 | 0.6 | | | | | | | | | | |
| | 89.7 | 200 | 16 | 0.3 | 1770 | 19 | 0.5 | | | | | | | | | | |
| | 104.0 | 200 | 13 | 0.3 | 1770 | 16 | 0.5 | | | | | | | | | | |
| | 122.1 | 200 | 11 | 0.2 | 1770 | 14 | 0.4 | | | | | | | | | | |
| | 133.2 | 200 | 11 | 0.2 | 1770 | 13 | 0.4 | | | | | | | | | | |

Adapter can be coupled

Adapter can be coupled [Input power should not exceed the "Max input power"]

• Adapter can be coupled in NEMA version only. [Input power should not exceed the "Max Input power"]

— Adapter cannot be coupled

Please, configure N140TC, to have the N143TC or N145TC input flange; or configure N180TC, if you want the N182TC or N184TC; or select N210TC, to have the N213TC or N215TC

## EVOX CP47

335 Nm

| | i | [$n_1$=1,400rpm] $Mn_2$ | $n_2$ | $Pn_1$ | [$n_1$=1,700rpm] $Mn_2$ | $n_2$ | $Pn_1$ | IEC | Motor adapters P56 | P63 | P71 | P80 | P90 | P100 | P112 | P132 | Solid Shaft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Nm | rpm | kW | lb·in | rpm | HP | NEMA | - | - | N56C | N143TC | N145TC | N182TC | N184TC | N213TC N215TC | |
| 2 stages | 2.4 | 100 | 593 | 6.2 | 830 | 720 | 9.5 | | | ■ | ■ | ■ | ■ | ■ | ■ | | HS3/NHS3 |
| | 3.0 | 115 | 467 | 5.6 | 954 | 567 | 8.6 | | | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 3.3 | 145 | 420 | 6.4 | 1203 | 511 | 9.7 | | | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 3.9 | 152 | 363 | 5.8 | 1261 | 440 | 8.8 | | | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 4.4 | 160 | 322 | 5.4 | 1327 | 391 | 8.2 | | | ■ | ■ | ■ | ■ | ■ | ■ | | HS2/NHS2 |
| | 4.9 | 170 | 285 | 5.1 | 1410 | 346 | 7.7 | | | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 5.5 | 180 | 256 | 4.8 | 1493 | 311 | 7.4 | | | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 6.4 | 190 | 219 | 4.4 | 1576 | 266 | 6.7 | | | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 7.1 | 200 | 197 | 4.1 | 1659 | 239 | 6.3 | | | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 8.0 | 210 | 176 | 3.9 | 1742 | 214 | 5.9 | | | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 8.6 | 215 | 163 | 3.7 | 1784 | 198 | 5.6 | | | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 9.7 | 225 | 145 | 3.4 | 1867 | 176 | 5.2 | | | ■ | ■ | ■ | ■ | □ | □ | | |
| | 10.9 | 245 | 128 | 3.3 | 2033 | 155 | 5.0 | | | ■ | ■ | ■ | ■ | □ | □ | | |
| | 12.2 | 250 | 115 | 3.0 | 2074 | 140 | 4.6 | | | ■ | ■ | ■ | ■ | □ | □ | | |
| | 14.2 | 265 | 99 | 2.7 | 2198 | 120 | 4.2 | | | ■ | ■ | ■ | ■ | □ | □ | | |
| | 15.8 | 278 | 89 | 2.6 | 2306 | 108 | 3.9 | | | ■ | ■ | ■ | ■ | □ | □ | | |
| | 17.7 | 290 | 79 | 2.4 | 2406 | 96 | 3.7 | | | ■ | ■ | ■ | ■ | □ | □ | | |
| | 18.8 | 297 | 75 | 2.3 | 2464 | 91 | 3.5 | | | ■ | ■ | ■ | ■ | | | | |
| | 21.3 | 310 | 66 | 2.1 | 2744 | 80 | 3.5 | | | ■ | ■ | ■ | ■ | | | | |
| | 22.7 | 315 | 62 | 2.0 | 2788 | 75 | 3.3 | | | ■ | ■ | ■ | ■ | | | | |
| | 26.1 | 335 | 54 | 1.9 | 2965 | 65 | 3.1 | | | ■ | ■ | | | | | | |
| | 30.4 | 335 | 46 | 1.6 | 2965 | 56 | 2.6 | | | ■ | ■ | | | | | | |
| | 33.0 | 335 | 42 | 1.5 | 2965 | 52 | 2.4 | | | ■ | ■ | | | | | | |
| 3 stages | 24.3 | 280 | 58 | 1.7 | 2323 | 70 | 2.6 | | | ■ | ■ | ■ | ■ | □ | □ | | |
| | 26.6 | 290 | 53 | 1.6 | 2406 | 64 | 2.4 | | | ■ | ■ | ■ | ■ | □ | □ | | |
| | 31.4 | 310 | 45 | 1.4 | 2572 | 54 | 2.2 | | | ■ | ■ | ■ | ■ | □ | □ | | |
| | 35.2 | 310 | 40 | 1.3 | 2572 | 48 | 2.0 | | | ■ | ■ | ■ | □ | □ | □ | | |
| | 39.6 | 310 | 35 | 1.1 | 2572 | 43 | 1.8 | | | ■ | ■ | ■ | □ | □ | □ | | |
| | 42.1 | 310 | 33 | 1.1 | 2572 | 40 | 1.6 | | | ■ | ■ | ■ | □ | | | | |
| | 47.9 | 330 | 29 | 1.0 | 2921 | 35 | 1.6 | | | ■ | ■ | ■ | □ | | | | |
| | 51.3 | 335 | 27 | 1.0 | 2965 | 33 | 1.6 | | | ■ | ■ | ■ | □ | | | | |
| | 55.4 | 310 | 25 | 0.8 | 2744 | 31 | 1.3 | | | ■ | ■ | ■ | □ | □ | □ | | |
| | 60.8 | 335 | 23 | 0.8 | 2965 | 28 | 1.3 | | | ■ | ■ | ■ | □ | □ | □ | | |
| | 71.6 | 335 | 20 | 0.7 | 2965 | 24 | 1.1 | | | ■ | ■ | ■ | □ | □ | □ | | |
| | 80.2 | 335 | 17 | 0.6 | 2965 | 21 | 1.0 | | | ■ | ■ | □ | □ | □ | □ | | |
| | 90.4 | 335 | 15 | 0.5 | 2965 | 19 | 0.9 | | | ■ | ■ | □ | □ | □ | □ | | |
| | 96.1 | 335 | 15 | 0.5 | 2965 | 18 | 0.8 | | | ■ | ■ | □ | □ | | | | |
| | 109.4 | 335 | 13 | 0.4 | 2965 | 16 | 0.7 | | | ■ | □ | □ | □ | | | | |
| | 117.1 | 335 | 12 | 0.4 | 2965 | 15 | 0.7 | | | ■ | □ | □ | □ | | | | |
| | 135.1 | 335 | 10 | 0.4 | 2965 | 13 | 0.6 | | | ■ | □ | | | | | | |
| | 158.0 | 335 | 9 | 0.3 | 2965 | 11 | 0.5 | | | ■ | □ | | | | | | |
| | 171.9 | 335 | 8 | 0.3 | 2965 | 10 | 0.5 | | | ■ | □ | | | | | | |

■ Adapter can be coupled

□ Adapter can be coupled [Input power should not exceed the "Max input power"]

• Adapter can be coupled in NEMA version only. [Input power should not exceed the "Max Input power"]

— Adapter cannot be coupled

Please, configure N140TC, to have the N143TC or N145TC input flange; or configure N180TC, if you want the N182TC or N184TC; or select N210TC, to have the N213TC or N215TC

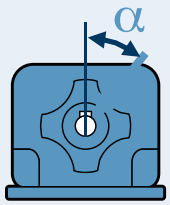
# PERFORMANCE

## EVOX COAXIAL OUTPUT RADIAL AND AXIAL LOADS

### Tables introduction

Max radial loads are calculated with:

- $M_{n2}$ torque applied on output shaft
- most unfavourable gear unit rotating direction [CW or CCW]
- the applied radial force with the most unfavourable **α** angle, among all gear ratios
- radial load applied in the middle of the output shaft




The permitted radial loads can increase considerably when the parameters listed above vary. contact Bonfiglioli's Technical Service if your application requires radial loads greater than the values indicated in the tables, because they could be available with a standard gear unit or with a simple option

Axial load values are not dependent on the service factor or output speed, but are referred to pure axial forces applied with inward direction in the gear unit direction. If the force on the output shaft has both radial and axial components or the direction of the force is outgoing from the gear unit, contact Bonfiglioli's Technical Service.

• contact Bonfiglioli's Technical Service

S Service Factor [$M_{n2}/M_2$]

$M_{n2}$ Nominal Output Torque

$M_2$ Gear Unit Output Torque

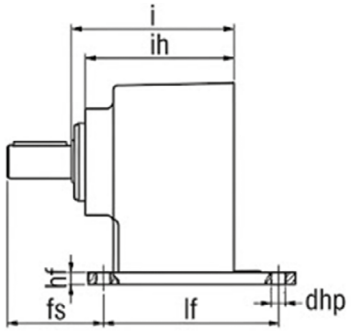
$N_2$ Gear Unit Output Speed

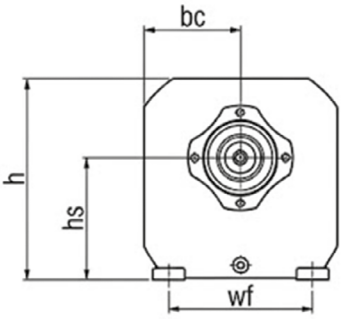
| | | Maximum load with standard output bearings | | | | | Maximum load with output reinforced bearings | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | $n_2$ | Radial | | | | Axial | Radial [OHR] | | | | Axial [OHA] |
| | | 0.9 ≤ S < 1.25 | 1.25 ≤ S < 1.4 | 1.4 ≤ S < 2 | 2 ≤ S < 3 | | 0.9 ≤ S < 1.25 | 1.25 ≤ S < 1.4 | 1.4 ≤ S < 2 | 2 ≤ S < 3 | |
| | [rpm] | N | | | | N | N | | | | N |
| **CP07** | $n_2 < 50$ | 1,470 | 1,570 | 1,840 | 2,030 | | 1,640 | 1,750 | 2,040 | 2,490 | |
| | $50 \le n_2 < 150$ | 1,350 | 1,460 | 1,600 | 1,700 | | 1,500 | 1,620 | 1,910 | 2,190 | |
| | $150 \le n_2 < 300$ | • | 870 | 1,130 | 1,310 | 2370 | 840 | 970 | 1,260 | 1,700 | |
| | $300 \le n_2 < 500$ | • | • | 660 | 1,000 | | • | 450 | 740 | 1,190 | |
| | $n_2 \ge 500$ | • | • | • | 840 | | • | • | • | 940 | |
| **CP17** | $n_2 < 50$ | 2,460 | 2,660 | 3,100 | 3,470 | | 3,460 | 3,500 | 3,580 | 3,730 | |
| | $50 \le n_2 < 150$ | 1,850 | 2,050 | 2,470 | 2,870 | | 3,080 | 3,120 | 3,210 | 3,350 | |
| | $150 \le n_2 < 300$ | 940 | 1,140 | 1,580 | 2,220 | 3,270 | 2,340 | 2,380 | 2,470 | 2,610 | |
| | $300 \le n_2 < 500$ | • | • | 860 | 1,540 | | 1,750 | 1,790 | 1,880 | 2,020 | |
| | $n_2 \ge 500$ | • | • | • | 1,190 | | 1,460 | 1,500 | 1,590 | 1,730 | |
| **CP37** | $n_2 < 50$ | 4,110 | 4,440 | 5,130 | 5,430 | | 6,580 | 6,650 | 6,810 | 7,110 | |
| | $50 \le n_2 < 150$ | 3,110 | 3,460 | 4,080 | 4,330 | | 4,580 | 4,650 | 4,810 | 5,070 | |
| | $150 \le n_2 < 300$ | 1,530 | 1,880 | 2,670 | 3,340 | 5,600 | 3,440 | 3,510 | 3,670 | 3,930 | 15,000 |
| | $300 \le n_2 < 500$ | • | • | 1,410 | 2,560 | | 2,530 | 2,610 | 2,770 | 3,020 | |
| | $n_2 \ge 500$ | • | • | • | 2,040 | | 2,090 | 2,160 | 2,330 | 2,580 | |
| **CP47** | $n_2 < 50$ | 5,240 | 5,570 | 6,300 | 7,450 | | 8,420 | 8,490 | 8,650 | 8,890 | |
| | $50 \le n_2 < 150$ | 3,460 | 3,820 | 4,630 | 5,830 | | 6,300 | 6,380 | 6,550 | 6,810 | |
| | $150 \le n_2 < 300$ | 1,780 | 2,140 | 2,950 | 4,210 | 7,650 | 4,800 | 4,880 | 5,050 | 5,310 | 20,000 |
| | $300 \le n_2 < 500$ | • | • | 1,610 | 2,890 | | 3,610 | 3,680 | 3,850 | 4,110 | |
| | $n_2 \ge 500$ | • | • | • | 2,230 | | 3,030 | 3,100 | 3,270 | 3,530 | |

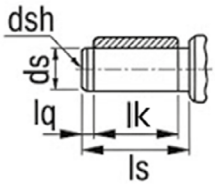
# SIZES

## EVOX COAXIAL GEARMOTOR

**P**

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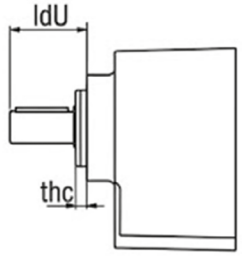
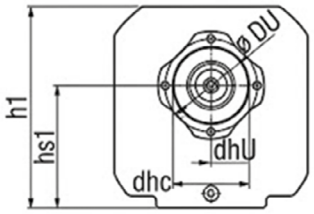
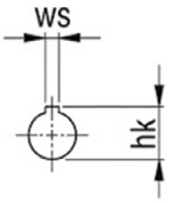
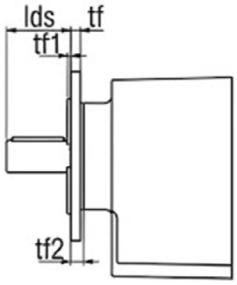


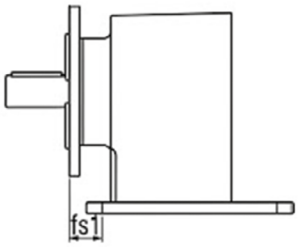



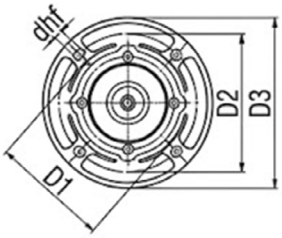




**F**




**PF**




| | lf | wf | dhp | Recommended screw | hf | hs | h | ih | i | bc | h1 | hs1 | DU | dhU | dhc | lds | thc | tf | tf1 | tf2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CP07** | 95 | 85 | 6.5 | M6 | 6 | 65 | 107 | 79 | 84.5 | 51.5 | 106.5 | 64.5 | 60 | M6 | 50 f7 | 40 | 4 | (*) | 3.5 | 5 |
| **CP17** | 110 | 110 | 9 | M8 | 11 | 75 | 134 | 99 | 109 | 70 | 133.5 | 74.5 | 87 | M8 | 70 f7 | 40 | 5.5 | 9.5 | 3.5 | 10.5 |
| **CP37** | 130 | 110 | 9 | M8 | 11 | 90 | 145 | 117.5 | 130 | 75 | 144.5 | 89.5 | 87 | M8 | 70 f7 | 50 | 6 | 9.5 | 3.5 | 13.5 |
| **CP47** | 165 | 135 | 13.5 | M12 | 11 | 115 | 189 | 140 | 153 | 91 | 188.5 | 114.5 | 87 | M8 | 72 f7 | 60 | 6.5 | 9.5 | 3.5 | 13.5 |

| | D1 | D2 | D3 | dhf | (*) tf CP07 |
|---|---|---|---|---|---|
| **F120** | 80 f7 | 100 | 120 | 6,6 | 4,5 |
| **F140** | 95 f7 | 115 | 140 | 9 | 9 |
| **F160** | 110 f7 | 130 | 160 | 9 | 9 |
| **F200** | 130 f7 | 165 | 200 | 10,5 | - |
| **F250** | 180 f7 | 215 | 250 | 13 | - |

Metric [Standard output shaft version]

| | ds | ls | lk | ldU | hk | ws | fs | fs1 |
|---|---|---|---|---|---|---|---|---|
| **CP07** | 20 h6 | 40 | 32 | 45 | 22.5 | 6 h9 | 48 | 8 |
| **CP17** | 20 h6 | 40 | 32 | 50.5 | 22.5 | 6 h9 | 58 | 18 |
| **CP37** | 25 h6 | 50 | 40 | 63.5 | 33 | 8 h9 | 75 | 25 |
| **CP47** | 30 h6 | 60 | 50 | 73.5 | 33 | 8 h9 | 90 | 30 |

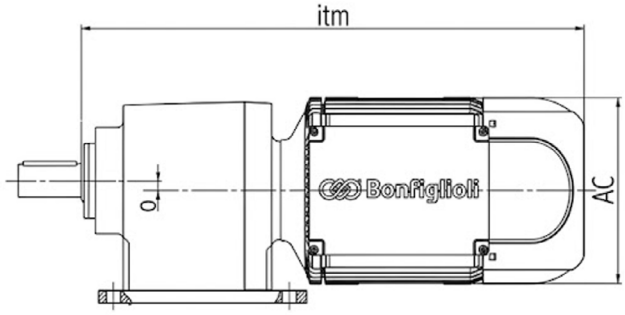
Imperial [N-output shaft version] - Dimensions expressed in inches

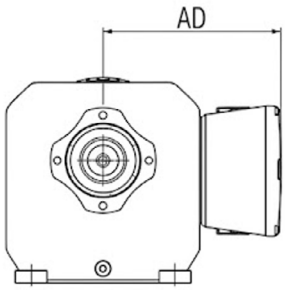
| ds | ls | lk | ldU | hk | ws | fs | fs1 |
|---|---|---|---|---|---|---|---|
| 3/4 +0,0000 -0,0006 | 1-9/16 | - | 1-25/32 | 27/32 | 3/16 +0,0000 -0,0014 | 1.890 | 0.315 |
| 3/4 +0,0000 -0,0006 | 1-9/16 | - | 1-31/32 | 27/32 | 3/16 +0,0000 -0,0014 | 2.283 | 0.709 |
| 1 +0,0000 -0,0006 | 2 | - | 2-1/2 | 1-3/32 | 1/4 +0,0000 -0,0014 | 2.953 | 0.984 |
| 1-1/4 +0,0000 -0,0006 | 2-3/8 | - | 2-29/32 | 1-3/8 | 1/4 +0,0000 -0,0014 | 3.543 | 1.181 |

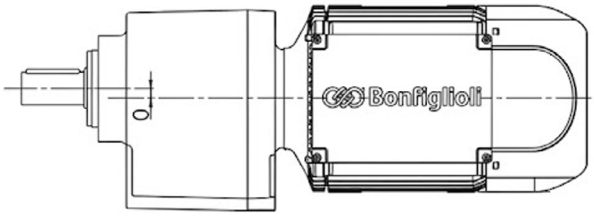
If not otherwise specified, dimensions are expressed in mm

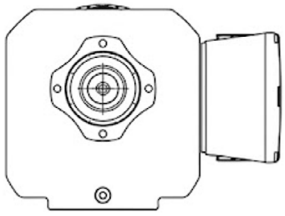
# SIZES

## EVOX COAXIAL GEARMOTOR



### MXN - [Compact IE3/NEMA Premium] & MNN - [Compact IE1/NEMA Standard]

Standard gearmotor with plastic sheet fan cover

| itm | | | | |
|---|---|---|---|---|
| | Motor size (kW) | | | |
| Gearbox size | **05MA** (0.12)<br>**05MB** (0.18)<br>**05MC** (0.25) | **10MA** (0.25)<br>**10MB** (0.37)<br>**10MC** (0.55) | **20MA** (0.55)<br>**20MB** (0.75) | **25S** (1.1)<br>**25L** (1.5) |
| **CP07** | 377 | 381 | - | - |
| **CP17** | 389 | 393 | 438 | - |
| **CP37** | 407 | 411 | 456 | 461 |
| **CP47** | 430 | 434 | 479 | 484 |

Standard gearmotor with metal sheet fan cover - MFC

| itm | | | | | |
|---|---|---|---|---|---|
| Motor size (kW) | | | | | |
| **05MA** (0.12)<br>**05MB** (0.18)<br>**05MC** (0.25) | **10MA** (0.25)<br>**10MB** (0.37)<br>**10MC** (0.55) | **20MA** (0.55)<br>**20MB** (0.75) | **25S** (1.1)<br>**25L** (1.5) | **30LA** (2.2)<br>**30LB** (3.0) | **35M** (4.0) |
| 355 | 362 | - | - | - | - |
| 367 | 374 | 422 | - | - | - |
| 385 | 392 | 440 | 435 | - | - |
| 408 | 415 | 463 | 458 | 566 | 572 |

| Compact e-motor size | AC | AD «L» | AD «S» |
|---|---|---|---|
| **05** | 112 | 136 | 123 |
| **10** | 138 | 138 | 124 |
| **20** | 158 | 148 | 133 |
| **25** | 177 | 170 | 144 |
| **30** | 195 | 179 | 153 |
| **35** | 220 | 191 | 164 |

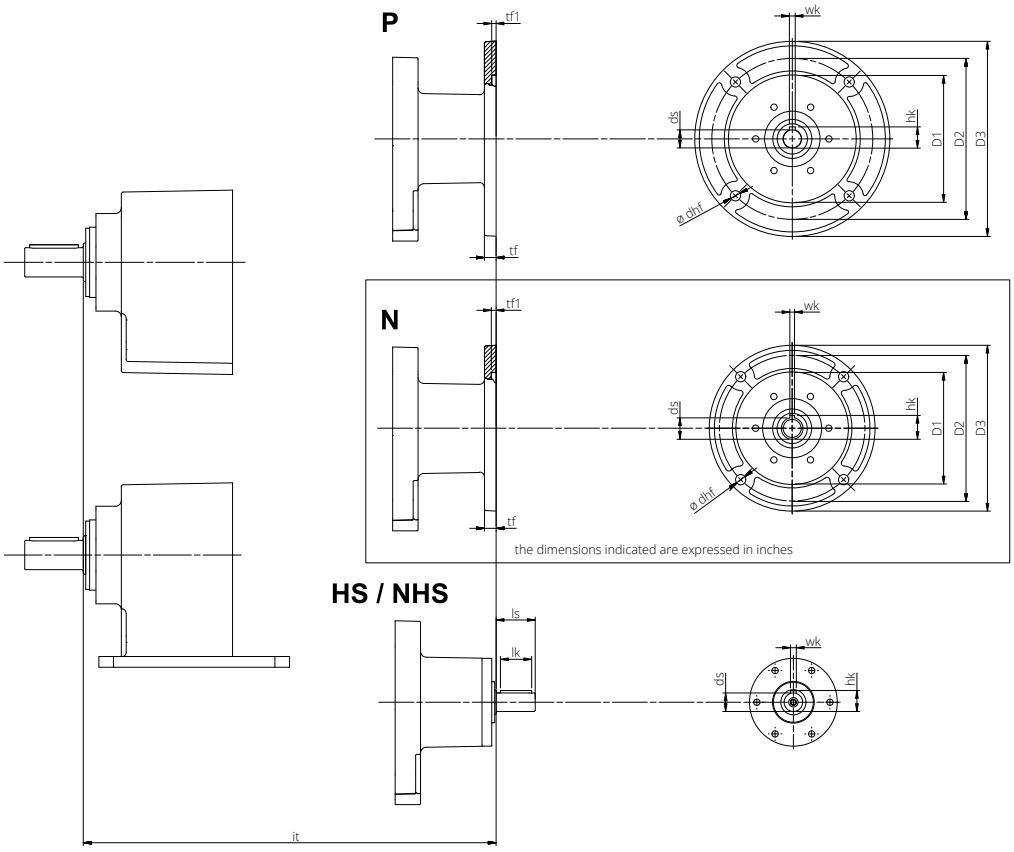
"S" refers to the terminal box size S while "L" refers to the terminal box size L.

| Gearbox size | o |
|---|---|
| **CP07** | 0 |
| **CP17** | 0 |
| **CP37** | 6.4 |
| **CP47** | 9.5 |

If not otherwise specified, dimensions are expressed in mm

For motor brake and options dimension see EVOX Electric Motor and Brake Dimension

# EVOX COAXIAL GEAR UNIT




## IEC Standard Flanges

| | D3 | D2 | tf | dhf | D1 | tf1 | ds | hk | wk |
|---|---|---|---|---|---|---|---|---|---|
| Metric dimensions | | | | | | | | | |
| **P56** | 120 | | | | | | | | |
| **P63** | 140 | 115 | 10 | 9 | 95 f7 | 4 | 11 E7 | 12.8 | 4 H9 |
| **P71** | 160 | 130 | 10 | 9 | 110 f7 | 4 | 14 E7 | 16.3 | 5 H9 |
| **P80** | 200 | 165 | 12 | 10.5 | 130 f7 | 4.5 | 19 E7 | 21.8 | 6 H9 |
| **P90** | 200 | 165 | 12 | 10.5 | 130 f7 | 4.5 | 24 E7 | 27.3 | 8 H9 |
| **P100** | 250 | 215 | 15 | 13 | 180 f7 | 4.5 | 28 E7 | 31.3 | 8 H9 |
| **P112** | 250 | 215 | 15 | 13 | 180 f7 | 4.5 | 28 E7 | 31.3 | 8 H9 |

| it | CP07 | CP17 | CP37 | CP47 |
|---|---|---|---|---|
| | | | | |
| | 186 | 198 | 215 | 239 |
| | 186 | 198 | 215 | 239 |
| | - | 218 | 235 | 259 |
| | - | - | 235 | 259 |
| | - | - | - | 284 |
| | - | - | - | 284 |

## NEMA Standard Flanges - Dimensions expressed in inches

| | D3 | D2 | tf | dhf | D1 | tf1 | ds | hk | wk |
|---|---|---|---|---|---|---|---|---|---|
| Inch dimensions | | | | | | | | | |
| **N56** | 6-1/2 | 5-7/8 | 0.472 | 0.413 | 4-1/2 +0.0020 -0.0011 | 0.197 | 5/8 +0.0014 -0.0006 | 0.710 | 3/16 +0.0012 -0.0000 |
| **N143** | 6-1/2 | 5-7/8 | 0.472 | 0.413 | 4-1/2 +0.0020 -0.0011 | 0.197 | 7/8 +0.0014 -0.0006 | 0.964 | 3/16 +0.0012 -0.0000 |
| **N145** | 6-1/2 | 5-7/8 | 0.472 | 0.413 | 4-1/2 +0.0020 -0.0011 | 0.197 | 7/8 +0.0014 -0.0006 | 0.964 | 3/16 +0.0012 -0.0000 |
| **N182** | 8,996 | 7-1/4 | 0.827 | 0.551 | 8-1/2 +0.0020 -0.0012 | 0.197 | 1-1/8 +0.0014 -0.0006 | 1.241 | 1/4 +0.0014 -0.0000 |
| **N184** | 8,996 | 7-1/4 | 0.827 | 0.551 | 8-1/2 +0.0020 -0.0012 | 0.197 | 1-1/8 +0.0014 -0.0006 | 1.241 | 1/4 +0.0014 -0.0000 |

| it | CP07 | CP17 | CP37 | CP47 |
|---|---|---|---|---|
| | | | | |
| | 7.362 | 7.835 | 8.504 | 9.449 |
| | - | 7.874 | 8.543 | 9.488 |
| | - | - | 8.543 | 9.488 |
| | - | - | 10.787 | 11.220 |
| | - | - | 10.787 | 11.220 |

## Solid input shaft

| | ds | ls | hk | wk | lk |
|---|---|---|---|---|---|
| Metric dimensions | | | | | |
| **HS1** | 16 h6 | 40 | 18 | 5 h9 | 32 |
| **HS2** | 19 h6 | 40 | 21.5 | 6 h9 | 32 |
| **HS3** | 24 h6 | 50 | 27 | 8 h9 | 40 |
| Inch dimensions | | | | | |
| **NHS1** | 5/8 +0.0000 -0.0004 | 1.575 | 23/32 | 3/16 +0.000 -0.001 | 1.26 |
| **NHS2** | 3/4 +0.0000 -0.0005 | 1.575 | 27/32 | 3/16 +0.000 -0.001 | 1.26 |
| **NHS3** | 7/8 +0.0000 -0.0098 | 2 | 31/32 | 3/16 +0.000 -0.001 | 1.575 |

| it | CP07 | CP17 | CP37 | CP47 |
|---|---|---|---|---|
| | | | | |
| | - | 196 | 215 | - |
| | - | - | 235 | 260 |
| | - | - | - | 284 |
| | | | | |
| | - | 7.717 | 8.445 | - |
| | - | - | 9.154 | 10.236 |
| | - | - | - | 11.181 |

If not otherwise specified, dimensions are expressed in mm

# OPTIONS | AVAILABLE FOR EVOX COAXIAL GEAR UNIT

## Option Designation - CP

CP gear unit + SO PV DL AR EX OHR IHB RB FO

**Stainless steel components**
- (Standard)
FO Stainless steel output shaft and gear unit components

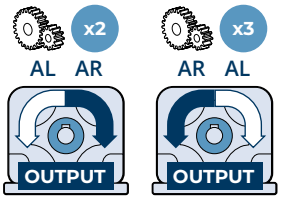
**Reduced backlash**
- (Standard backlash)
RB[2] Reduced backlash

**Input reinforced bearings – Only for HS../NHS.. inputs**
- (Standard bearing)
IHB Input reinforced bearings

**Output reinforced bearings**
- (Standard bearing)
OHR[1] Enhanced radial load capacity
OHA[1] Enhanced axial load capacity

**Ex - explosion-proof gear unit**
- (Standard) No ATEX
EX ATEX 2014/34 EU - 2D/2G T4 (135 °C) EN80079-36 and EN80079-37

**Gear unit backstop – Only for HS../NHS.. inputs**
(for gearmotor backstops see the Motor option list | Async. motor)
- (Standard) No backstop
AR Right-free rotation backstop
AL Left-free-rotation backstop




**Output lip seals**
- (Standard) single lip seal
DL Double lip seal (PV DL & PN DL options available)

**Oil seals**
- (Standard) NBR output and Viton input seals
PV Viton input & output seals
PN NBR output & input seals

**Lubricant**
- (Standard) Fill with long life synthetic oil

| | |
|---|---|
| LU Synthetic Oil PAO ISO VG 150 | LN Mineral Oil ISO VG 150 |
| LY Synthetic Oil PAO ISO VG 220 | LZ Mineral Oil ISO VG 220 |
| LV Synthetic Oil PAO ISO VG 320 | LI Mineral Oil ISO VG 320 |
| LW Synthetic Oil PAO ISO VG 460 | LJ Mineral Oil ISO VG 460 |
| LH Synthetic Oil PAG ISO VG 150 | LA Food grade Oil H1 ISO VG 150 |
| LS Synthetic Oil PAG ISO VG 220 | LB Food grade Oil H1 ISO VG 220 |
| LK Synthetic Oil PAG ISO VG 460 | LC Food grade Oil H1 ISO VG 320 |
| LD Food grade Oil H1 ISO VG 460 | SO Without oil fil |

(1) Indicated performances may vary in different gear unit sizes and gear ratios.

(2) This value is strongly dependent on the gear size and ratio

To find the best configuration for your application, take a look at the catalogue or contact us


**Certificates**

- (Standard) Without certificate

**AC** Gear unit compliance certificate

**CC** Inspection certificate

**Surface protection**

- (Standard) C2 protection

**C3**

**C4**

For C5 according to UNI EN ISO 12944-2, please contact our Technical Customer Support for further details

**Painting**

- (Standard)

**RAL7042** Traffic Grey A

**RAL5010** Gentian Blue

**RAL9005** Jet Black

**RAL9006** White aluminium

**RAL9010** Pure White

**RAL7035** Light Grey

**RAL7001** Silver Grey

**RAL7037** Dusty Grey

**RAL5015** Sky Blue

**RAL5024** Pastel blue

(1) Those options are available for Gear Units, Gearmotors, Gear brake motors, Stand alone motors and Stand alone Brake motors

BACK TO OPTION LIST

# OPTIONS | AVAILABLE FOR EVOX COAXIAL GEAR UNIT

## OPTION DETAIL

### Lubricant

EVOX CP gear units are supplied **lubricated for life** with Shel Omala S4 WE320 (PAG) synthetic oil.
It is recommended to carry out monthly oil level checks if the gear unit works at intermittent duty.
If the gear unit works at continuous duty, more frequent checks are recommended.
In both cases, top up if lubricant level is low.
**The following additional variants are available:**

### Synthetic oil variants

| | | | |
|---|---|---|---|
| **LU** | **Synthetic Oil PAO ISO VG 150** | **LH** | **Synthetic Oil PAG ISO VG 150** |
| **LY** | **Synthetic Oil PAO ISO VG 220** | **LS** | **Synthetic Oil PAG ISO VG 220** |
| **LV** | **Synthetic Oil PAO ISO VG 320** | **LK** | **Synthetic Oil PAG ISO VG 460** |
| **LW** | **Synthetic Oil PAO ISO VG 460** | | |

### Mineral oil variants

| | | | |
|---|---|---|---|
| **LI** | **Mineral Oil ISO VG 320** | **LN** | **Mineral Oil ISO VG 150** |
| **LJ** | **Mineral Oil ISO VG 460** | **LZ** | **Mineral Oil ISO VG 220** |

Mineral oil can be used in gearmotors with service factor S ≥ 1.3

### Edible oil variants

| | | | |
|---|---|---|---|
| **LA** | **Food grade Oil H1 ISO VG 150** | **LC** | **Food Grade Oil H1 ISO VG 320** |
| **LB** | **Food Grade Oil H1 ISO VG 220** | **LD** | **Food Grade Oil H1 ISO VG 460** |

When configuring LA, LB, LC and LD variants, the gear unit will be filled with oils compatible with the area of incidental contact with products and packaging materials from the food, cosmetics, pharmaceutical and feed industries. These lubricants are NSF H1 approved, FDA 21 CFR § 178.3570 compliant and ISO 21469 certified.
For the use of these oils, further risk analysis (e.g. HACCP) is recommended to validate the technical solution.

### Oil-free variant

**SO** **Without oil fill**

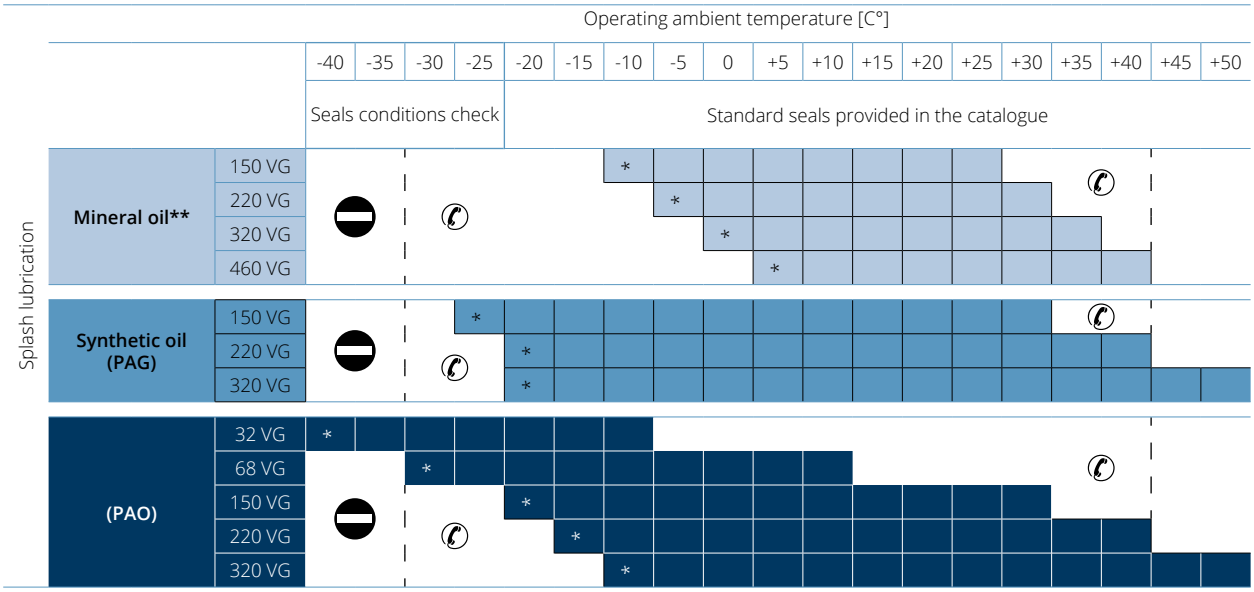
When configuring SO option, gear units are supplied without lubricant.

BACK TO OPTION LIST

The oil quantity for each gear unit size is:

| Size | Volume (L) |
|---|---|
| 07 | 0,35 |
| 17 | 0,7 |
| 37 | 1,1 |
| 47 | 1,8 |

The gear unit can be filled with different oils, according to the application needs.
Refer to the following table to identify correct viscosity according to the operating temperature of the gear unit.




Recommended operating limits.

Allowed operating limits. ✆

Forbidden operating limits.

✆ If needed, and in the event of impulse loads, contact Bonfiglioli's Technical Service.

* For temperatures that are too low, the density of the oil is high enough that there is a risk of damaging the gearbox and the motor. Therefore, it is highly recommended to provide an adequate starting ramp

** Mineral oil can be used in gearmotors with service factor S ≥ 1.3

**ATTENTION**

- **Bonfiglioli's factory filled gear units should not be operated outside the temperature range indicated in this catalogue.**
- **Bonfiglioli shall not be liable for use of lubricants outside the suggested temperature range or mixtures of different lubricant types or manufacturers.**
- **Oils with the same viscosity and different brands may have different characteristics in terms of operating temperature ranges. The table above provides a general indication; it is therefore recommended to carefully check the technical specifications of the oil before topping up and using EVOX gear units.**
- **If filling is to be carried out, do not mix synthetic and mineral oils and/or different brands.**
- **Do not let the oil temperature drop below the pour point -39°C or rise above 100°C, also in storage conditions.**
- **Always refer to the User's Manual available at www.bonfiglioli.com for further indications concerning any periodic oil check and replacement.**

# OPTIONS | AVAILABLE FOR EVOX COAXIAL GEAR UNIT

## OPTION LIST DEEP DIVE

### Oil seals

Gear Units are supplied as standard with a Viton Seal in input and a single lip NBR Seal in output.

**Suggested versions:**

| Ambient temperature<br>Type of recommended seal | Below -25°C<br>**CTS** | From -25°C to 0°C<br>**PN** | From 0°C to 35°C<br>**Standard** | From 35°C to 50°C<br>**PV** | Over 50°C<br>**CTS** |
|---|---|---|---|---|---|

*CTS = contact Bonfiglioli's Technical Service*

**PV**

#### Viton input and output seals

With this option active, Gear Units are supplied with Viton seals both in input and output.

**PN**

#### NBR output & input seals

With this option active, Gear Units are supplied with NBR seals both in input and output.

### Output lip seals

Gear Units are supplied as standard with a single output lip seal.

**DL**

#### Double lip seal

With this option active, Gear Units are supplied with a double lip NBR seal in output.

**Select with this option also "PV", if you want the double lip Viton seals in output.**

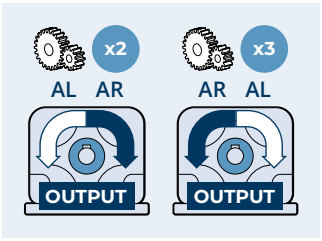
### Gear unit backstop – Only for HS../NHS.. inputs

Gear units can be supplied with a backstop in case of HS input. For gearmotor backstops, see the Motor Option List. Be mindful that the Clockwise [CW] and Counter-clockwise [CCW] rotation option of the output shaft depends on the gear unit stage number.

**AR/AL**

#### Free right/left rotation backstop

- **AR:** free right rotation
- **AL**: free left rotation



## Output reinforced bearings

Gear units are supplied with strong and reliable ball bearings as standard; however, if your application requires higher performance, you can choose reinforced bearings in output with the following options.

**OHR**

### Enhanced radial load capacity

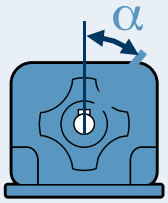
With those bearings, the radial loads at the gear unit output would be increased. This is the right solution for a decentralized (belt and pulley) or a chain-pinion transmission. The values listed in the following table are the rated ones and may vary based on output speed and service factor. Refer to the Performance Table with Output Radial Load, to choose the right bearing for your application.

| | | CP07 | CP17 | CP37 | CP47 | CP57 | CP67 |
|---|---|---|---|---|---|---|---|
| Maximum allowed pure radial loads [N] | **Standard version** | 1470 | 2460 | 4110 | 5240 | Coming soon | |
| | **OHR option** | 1640 | 3460 | 6580 | 8420 | | |

Parameters are calculated with the following criteria:

- [$M_{n2}$] torque applied on output shaft
- most unfavourable gear unit rotating direction [CW or CCW]
- the applied radial force with the most unfavourable α angle, among all gear ratios
- radial load applied in the middle of the output shaft

The permitted radial loads can increase considerably when the parameters listed above vary. contact Bonfiglioli's Technical Service if your application requires radial loads greater than the values indicated in the tables, because they could be available with a standard gear unit or with a simple option




**OHA**

### Enhanced axial load capacity

With those bearings, the axial loads at the gear unit output would be increased. This is the right solution for axial pumps or screw conveyors. Maximum axial load values are listed below:

| | | CP07 | CP17 | CP37 | CP47 | CP57 | CP67 |
|---|---|---|---|---|---|---|---|
| Maximum allowed pure axial loads [N] | **Standard version** | 2370 | 3270 | 5600 | 7650 | Coming soon | |
| | **OHA option** | | | 15000 | 20000 | | |

*CTS = contact Bonfiglioli's Technical Service*

These values do not depend on Service factor or output speed but are referred to pure axial forces in the Gear Unit direction. If output shaft has both radial and axial forces or the direction of the force is outgoing from the gear unit, contact Bonfiglioli's Technical Service

# OPTIONS | AVAILABLE FOR EVOX COAXIAL GEAR UNIT

## OPTION LIST DEEP DIVE

### Input reinforced bearings – Only for HS../NHS.. inputs

Gear units are supplied with strong and reliable ball bearings as standard; however, if your application has different requirements, we can supply:

**IHB**

#### Input reinforced bearings

With those bearing, the radial loads capacity in input of the gear unit could be enhanced. This is the right solution for a decentralized (belt and pulley) or a chain-pinion transmission.
To select the most suitable solution, contact Bonfiglioli's Technical Service

### Reduced backlash

**RB**

#### Reduced backlash

With this option active, Gear Units are supplied with a reduced angular backlash compared to the standard version.

| Size | Standard backlash [arcmin] | | Reduced backlash [arcmin] | |
|---|---|---|---|---|
| | 2 stages | 3 stages | 2 stages | 3 stages |
| 0.7 | 11-18 | 20-25 | 7-12 | 10-16 |
| 17 | 11-18 | 20-25 | 7-12 | 10-16 |
| 37 | 11-18 | 20-25 | 7-12 | 10-16 |
| 47 | 11-18 | 20-25 | 7-12 | 10-16 |
| 57 | Coming soon | | | |
| 67 | | | | |

*CTS = contact Bonfiglioli's Technical Service*

### Stainless steel gear unit components

**FO**

#### Stainless steel output shaft and gear unit components

To increase the life and reliability of the gear unit in wet or aggressive environments, this option includes the following stainless steel components:
- Output shaft
- Output flange fixing screws
- Solid input shaft for HS configurations
- Gear unit nameplate
- Oil filler cap
- Housing locking screws for CP07
- Housing locking screws for CP17-47 in steel with zinc flake coating

BACK TO OPTION LIST

## Painting option

**RAL5010**

### RAL painting

Gear units with optional protection to class C3 or C4 are available in the colours listed in the following table.

| Painting | Colour | RAL number |
|---|---|---|
| RAL7042 * | Traffic Grey A | 7042 |
| RAL5010 | Gentian Blue | 5010 |
| RAL9005 | Jet Black | 9005 |
| RAL9006 | White Aluminium | 9006 |
| RAL9010 | Pure White | 9010 |
| RAL7035 | Light Grey | 7035 |
| RAL7001 | Silver Grey | 7001 |
| RAL7037 | Dusty Grey | 7037 |
| RAL5015 | Sky Blue | 5015 |
| RAL5024 | Pastel blue | 5024 |

** gear units are supplied in this standard colour if no other colour is specified.*

NOTE: "**Paint**" options can only be specified in conjunction with "**Surface protection**" options.

**C3**

### Surface protection class

When no specific protection class is requested, the surface of the gear units is by default at least equivalent to class C2 (UNI EN ISO 12944-2). For a higher degree of protection, the gear units can be supplied with a class **C3** and **C4** painting.

| Surface protection | Typical environments | Maximum surface temperature | Corrosion class according to UNI EN ISO 12944-2 |
|---|---|---|---|
| **C3** | Urban and industrial environments with up to 100% relative humidity (average air pollution) | 120 °C | C3 |
| **C4** | Industrial areas, coastal areas, chemical plants, with up to 100% relative humidity (high air pollution) | 120 °C | C4 |

gear units with optional protection class **C3** or **C4** are available in a choice of colours.

Gear units can also be supplied with surface protection class **C5** according to UNI EN ISO 12944-2.

contact Bonfiglioli's Technical Service for further details.

## Certificates

**ACM**

### Motor certificate of compliance

The document certifies the compliance of the product with the purchase order and the construction in conformity with the applicable procedures of Bonfiglioli's Quality System.

**CC**

### Inspection certificate

The document entails checking the order compliance, visual inspection of external conditions and instrumental testing of the electrical characteristics in unloaded conditions. Inspected units are sampled within the shipping batch and marked individually.

# OPTIONS | AVAILABLE FOR EVOX COAXIAL GEAR UNIT

## OPTION LIST DEEP DIVE

### Explosion Proof Gear Unit

EX

### ATEX 2014/34/EU - 2D/2G T4 (135 °C)

With this option active, the gear unit can be installed in Ex 1 and 21 areas (categories 2G and 2D).

The temperature class is T4 (max 135°C).

To comply with this particular environment, Gear Units are equipped with:

- Service plugs for periodic lubricant level checks
- Factory-charged with lubricant (synthetic oil)
- Fluoro elastomer seal rings as standard
- Nameplate indication of the product category and type of protection
- Components that can operate above the max temperature indicated as a limit in the regulation
- Temperature indicator supplied with each unit

The unique oil level allows you to fit EVOX CP in any of the positions with a single product code, as the standard version.

Moreover, the oil quantity is the same as in the standard version, please see the **oil fill table** for further information.

For the choice of an "EX" Gear Unit, the Mn2 (nominal torque) is the same as indicated in the Gear Unit Performance Table, except for the following configurations with HS version:

| | i | [$n_1$=1,400rpm] $Mn_2$ | $n_2$ | $Pn_1$ | Solid Shaft |
|---|---|---|---|---|---|
| **CP17** | | Nm | rpm | kW | |
| **2 Stages** | 2.4 | 42 | 583 | 2.6 | **HS1** |
| | 2.9 | 45 | 483 | 2.3 | |
| | 3.3 | 47 | 428 | 2.1 | |
| **CP37** | | | | | |
| **2 Stages** | 2.3 | 67 | 622 | 4.4 | **HS2** |
| | 2.7 | 73 | 519 | 4.0 | |
| | 3.2 | 78 | 440 | 3.6 | |
| | 3.4 | 100 | 412 | 4.3 | |
| | 4.1 | 110 | 325 | 3.7 | |
| | 4.3 | 86 | 328 | 3.0 | |
| | 4.8 | 117 | 293 | 3.6 | |
| | 5.4 | 122 | 261 | 3.3 | |
| | 6.4 | 129 | 218 | 2.9 | |
| | 7.8 | 136 | 179 | 2.5 | |
| **CP47** | | | | | |
| **2 Stages** | 2.4 | 76 | 593 | 4.7 | **HS2** |
| | 3.0 | 84 | 467 | 4.1 | |
| | 3.3 | 90 | 420 | 4.0 | |
| | 3.9 | 124 | 363 | 4.7 | |
| | 4.4 | 131 | 322 | 4.4 | |
| | 4.9 | 137 | 285 | 4.1 | |
| | 5.5 | 148 | 256 | 4.0 | |
| | 6.4 | 156 | 219 | 3.6 | |
| | 7.1 | 161 | 197 | 3.3 | |
| | 8.0 | 166 | 176 | 3.1 | |

For further information refer to the user manual at www.bonfiglioli.com for compliant maintenance procedures.

## Explosive atmosphere

An explosive atmosphere, for the purposes of Directive 2014/34/EU, is defined as a mixture:

a. of flammable substances, in the form of gases, vapours, mists or dusts;

b. with air;

c. under atmospheric conditions;

d. in which, after ignition, combustion spreads to the entire unburned mixture (sometimes, mainly with dust, the combustion does not consume the whole quantity of combustible material).

For further information refer to the user manual at www.bonfiglioli.com for compliant maintenance procedures.

An atmosphere that could become explosive due to local and/or operational conditions is called a potentially explosive atmosphere.

## European harmonized Atex standards

Directive 2014/34/EU stipulates the minimum safety requirements for products intended for use in explosion risk areas within the member countries of the European Union.

The directive also assigns such equipment to categories, which are defined by the directive itself.

The following table describes the zones into which the user of a plant, in which an explosive atmosphere may occur,is required to divide the equipment application areas.

| Zones | | Frequency of formation of a potentially explosive atmosphere | Hazard Types |
|---|---|---|---|
| Gaseous atmosphere G | Dusty atmosphere D | | |
| **0** | **20** | Present continuously or for long periods | Permanent |
| **1** | **21** | Likely to occur occasionally under normal operating conditions | Potential |
| **2** | **22** | It is not likely to occur in normal operations, but if it does, it will only persist for short periods | Minimum |

BONFIGLIOLI RIDUTTORI gear units selected in this catalogue are suitable for installation in zones 1, 21, highlighted in light grey in the above diagram, and are also suitable for installation in areas with a lower level of protection (areas 2 and 22).

As from 20 April 2016 the ATEX directive 2014/34/EU come into force throughout the entire European Union, and replace existing conflicting national and European laws on explosive atmospheres and the previous directive 94/9/EC.

It should be emphasised that, for the first time, the directives also govern mechanical, hydraulic and pneumatic equipment, and not only electrical equipment as has been the case so far.

With regard to the Machinery Directive 2006/42/EC it should be noted that directive 2014/34/EU is a set of extremely specific requirements dedicated to the dangers deriving from potentially explosive atmospheres, whereas the Machinery Directive contains only very general explosion safety requirements (Annex I).

Consequently, as regards protection against explosion in potentially explosive atmospheres, Directive 2014/34/EU takes precedence over the Machinery Directive.

The requirements of the Machinery Directive apply to all other risks regarding machinery.

# OPTIONS | EVOX COAXIAL GEAR UNIT

## MORE ON OPTIONS LIST

### Levels of protection for the various categories of equipment

The various categories of equipment must be able to operate in conformity with he Manufacturer's operational specifications, at certain defined levels of protection.

The availability of BONFIGLIOLI RIDUTTORI products is highlighted in grey.

| Level of protection | Category | | Protection type | Operating conditions |
|---|---|---|---|---|
| | Group I | Group II | | |
| Very high | M1 | | Two independent protection or safety devices that can operate even at the occurrence of two independent faults. | The equipment remains powered and functional even in the presence of an explosive atmosphere. |
| Very high | | 1 | Two independent protection or safety devices that can operate even at the occurrence of two independent faults. | The equipment remains powered and operational in areas 0, 1, 2 (G) and/or areas 20, 21, 22 (D). |
| High | M2 | | Protection suitable for normal operation and severe conditions. | The power supply to the equipment is interrupted in the presence of a potentially explosive atmosphere. |
| High | | 2 | Protection suitable for normal operation and frequent failures or equipment where malfunctioning is normal. | The equipment remains powered and operational in areas 1, 2 (G) and/or areas 21, 22 (D). |
| Normal | 2 | 3 | Protection suitable for normal operation. | The pieces of equipment remain powered and operational in areas 2 (G) and/or areas 22 (D). |

### Group definition

**Group I** Applies to equipment intended for use underground work in mines and their surface installations, exposed to the risk of firedamp and/or combustible dust being released.

**Group II** Applies to equipment intended for use in other environments in which explosive atmospheres are likely to occur.

BONFIGLIOLI RIDUTTORI products may not therefore be installed in mines, classified in Group I and in Group II, category 1.

To summarise, the classification of equipment in to groups, categories and zones is illustrated in the table below, where by the availability of BONFIGLIOLI RIDUTTORI products is highlighted in grey.

| | Group I | | Group II | | | | | |
|---|---|---|---|---|---|---|---|---|
| Group | Mining, firedamp | | Other potentially explosive areas (gas, dust) | | | | | |
| Category | M1 | M2 | 1 | | 2 | | 3 | |
| Atmosphere | | | Gas | Dust | Gas | Dust | Gas | Dust |
| Areas | | | 0 | 20 | 1 | 21 | 2 | 22 |
| Gear unit protection type | | | | | Ex h Gb | Ex h Db | Ex h Gc | Ex h Dc |

The products described here in conform to the minimum safety requirements of European Directive 2014/34/EU, which is part of the directives known as ATEX (ATmosphères EXplosibles).

BACK TO
OPTION LIST

## Certificate of conformity

The Certificate of conformity, is the document certifying conformity of the product to Directive 2014/34/EU.

The validity of the Declaration is bound to observance of the instructions given in the User, Installation and Service Manual for safe use of the product throughout its service life. Users can download it at www.bonfiglioli.com.

The instructions regarding ambient conditions are of particular importance inasmuch as failure to observe them during operation of the product renders the certificate null and void.

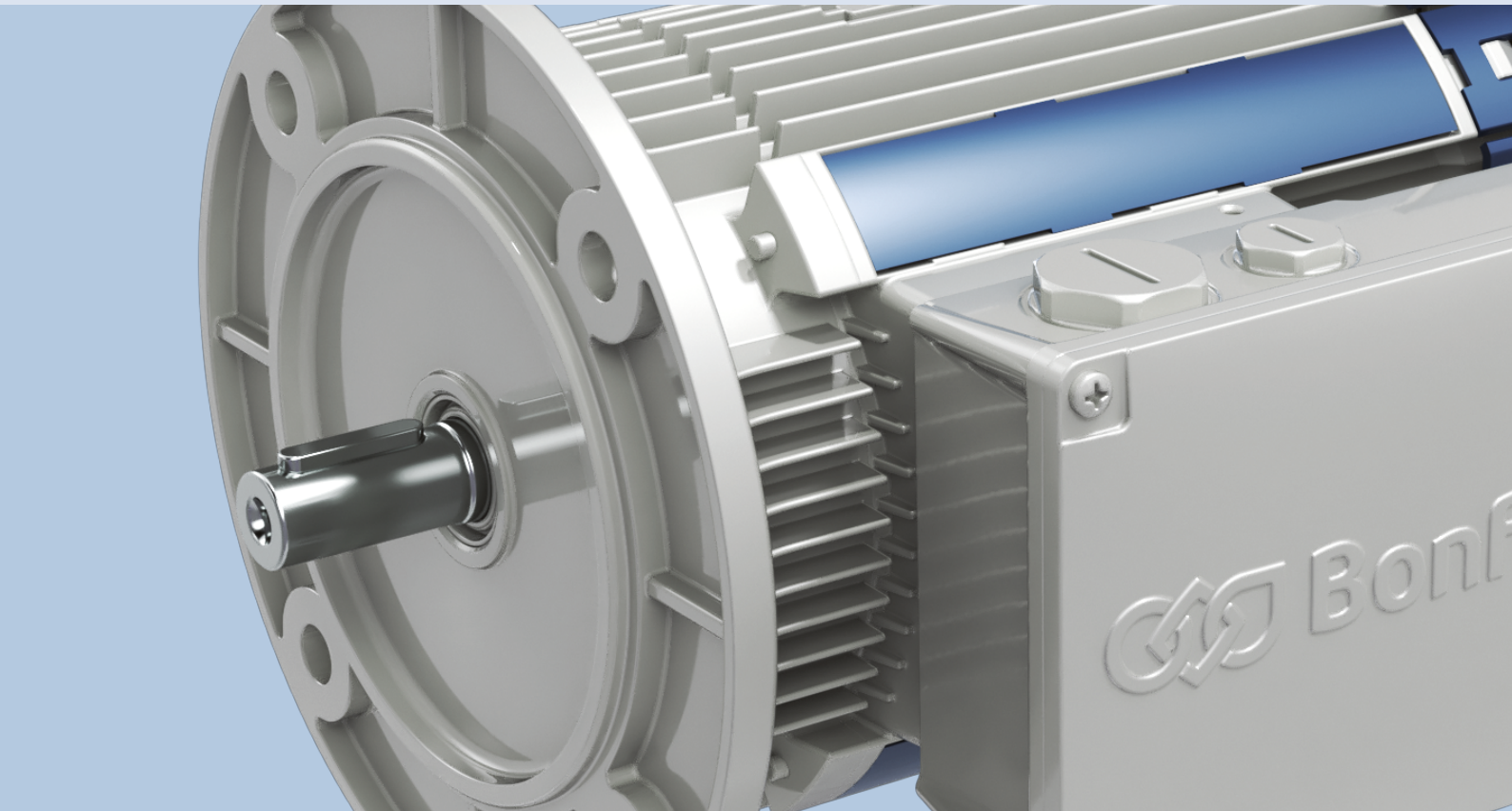
In case of doubt regarding the validity of the certificate of conformity, contact the BONFIGLIOLI RIDUTTORI technical department.

## Compatibility with other options

The following options cannot be selected in combination with the ATEX variant:

- Output shafts N in inches
- Compact inputs (S05...S35)
- Solid inputs in inches (NHS1...NHS3)
- NEMA inputs (N56...N215)
- Lubrication option (SO, LA...LY)
- Option on PN seals
- AR, AL backstop options
- Reinforced output bearing options (OHR, OHA)
- FO option
- C3-C4 painting options (any RAL colour)

# ELECTRIC MOTOR EVOX

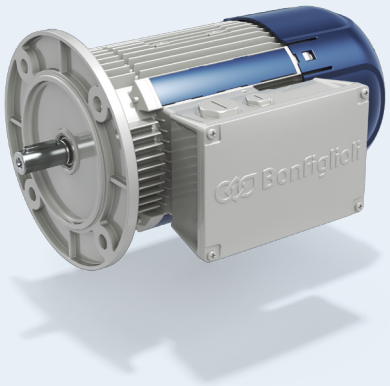


# PRODUCT OVERVIEW

## BONFIGLIOLI PORTFOLIO

EVOX BXN, MXN and MNN are asynchronous low voltage (<1000V) e-motors and brake motors, developed in the sign of modularity, efficiency and reliability.

The aim of this product is to be compliant with your needs, both in standalone version and in a compact coupling with Bonfiglioli Gear Units.

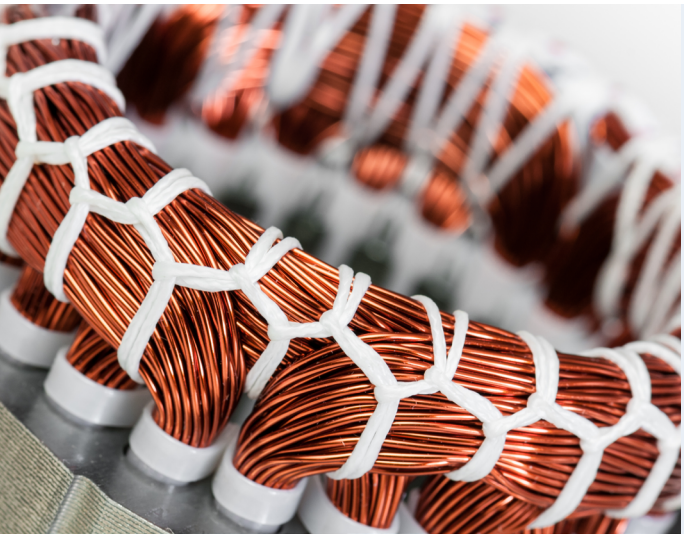



| | Compact | | IEC | |
|---|---|---|---|---|
| Efficiency | IE1/NEMA Standard | IE3/NEMA Premium | IE3/NEMA Premium | |
| Series | MNN | MXN | BXN | Power [kW] |
| Poles | 4 | 4 | 4 | |
| | 05MA | 05MA | 63MA | 0.12 |
| | 05MB | 05MB | 63MB | 0.18 |
| | 05MC | - | - | 0.25 |
| | 10MA | 10MA | 71MA | 0.25 |
| | 10MB | 10MB | 71MB | 0.37 |
| | 10MC | 20MA | 80MA | 0.55 |
| | | 20MB | 80MB | 0.75 |
| | | 25S | 90S | 1.1 |
| | | 25L | 90L | 1.5 |
| | | 30LA | 100LA | 2.2 |
| | | 30LB | 100LB | 3 |
| | | 35M | 112M | 4 |
| | | 40S | 132S | 5.5 |
| | | 40M | 132M | 7.5 |

# PRODUCT OVERVIEW

## BONFIGLIOLI PORTFOLIO

### The Motor and Inverter in Bonfiglioli History



In the 1990s, Bonfiglioli integrated its gear unit design within the product portfolio and the know-how of an important local company, and started designing its own electric motors to create robust and efficient gearmotors.

In recent years Bonfiglioli has integrated its offer with servomotors and reluctance motors. In 2001, with the acquisition of Vectron, it began to design and manufacture inverters, thus becoming a **Solution Provider**.

**1980s**

**Acquisition of the portfolio and know-how** of an important electric motor company

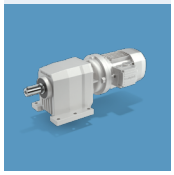
**1990s**

Bonfiglioli starts designing **its own e-motors**

**1995**

**Compact motors.**

Launch of the ACFS and W series



**2001**

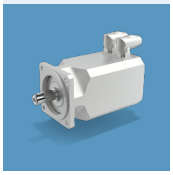
Vectron acquisition.

Bonfiglioli starts developing **its own inverters**

**2012**

**BMD servomotors development**

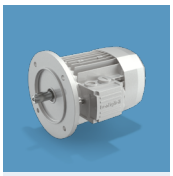
Bonfiglioli starts designing its servomotors



**2017**

**BSR Reluctance Motors**

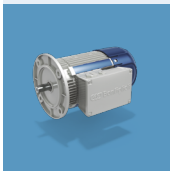
Bonfiglioli starts designing products with reluctance technology



**2020**

**EVOX Platform**

Redesigned e-motor logic



## E-motor Offer

Bonfiglioli offers a great set of opportunities to match your application requirements around the world: you just need to choose your solution.

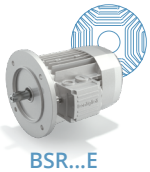
evox

### Gear unit

**IEC adapter**

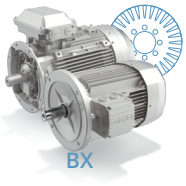
**Compact adapter**

**IE4** NEMA Efficiency Super Premium


BSR...E

**IE3** NEMA Premium Efficiency


BXN


BX


BSR...O


MXN

**IE2** NEMA High Efficiency


BE


BSR...O

**IE1** NEMA Standard Efficiency


BN


MNN

### Complete your solution


S2U, S2U IP66


Agile


Active Cube


ANG


AxiaVert

**Inverters**


AEC

**Regenerative Inverters**


DGM


DGM Modular

**Decentralized inverters**


Induction technology


Reluctance technology

# PRODUCT OVERVIEW

## STANDARDS & DIRECTIVES

### European standard

### Standards

EVOX platform motors are manufactured according to the following standards:

| EN | IEC | Standard description |
|---|---|---|
| EN 60034-1 | IEC 60034-1 | Rating and performance |
| EN 60034-2-1 | IEC 60034-2-1 | Standard methods for determining losses and efficiency from tests |
| EN IEC 60034-5 | IEC 60034-5 | Degrees of protection provided by the integral design of rotating electrical machines (IP code) - Classification |
| EN 60034-6 | IEC 60034-6 | Methods of cooling (IC Code) |
| EN IEC 60034-7 | IEC 60034-7 | Classification of types of construction, mounting arrangements and terminal box position (IM Code) |
| EN 60034-8 | IEC 60034-8 | Terminal markings and direction of rotation |
| EN 60034-9 | IEC 60034-9 | Noise limits |
| EN 60034-11 | IEC 60034-11 | Thermal protection |
| EN 60034-12 | IEC 60034-12 | Starting performance of single-speed three-phase cage induction motors |
| EN IEC 60034-14 | IEC 60034-14 | Mechanical vibration of certain machines with shaft heights 56 mm and higher - Measurement, evaluation and limits of vibration severity |
| EN 60034-30-1 | IEC 60034-30-1 | Efficiency classes of line operated AC motors (IE code) |
| EN IEC 63000 | IEC 63000 | Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances |

### Main directives

BXN, MXN and MNN motors meet the requirements of Directives 2014/35/EU (LVD - Low Voltage Directive), the 2014/30/EU (EMC - Electromagnetic Compatibility Directive), the 2009/125/EC (ERP - Energy Related Products Directive) and 2011/65/EU (RoHS – Restriction of Hazardous Substances) and their nameplates bear the CE mark.

As for the EMC Directive, construction is in accordance with standards EN 61000-6-2 (Generic standards - Immunity for industrial environments), EN 61000-6-4 (Generic standards - Emission standard for industrial environments).

This product should not be mixed with general household waste.

Disposal has to be carried out in conformity with Directive 2012/19/EU, where established, and in accordance to national regulations. They should be disposed of in accordance with any other legislation in force through the country.

### Ventilation

Motors are externally ventilated (IC 411) according to EN 60034-6 and are equipped with a plastic cooling fan working in both directions.

Motors must be installed allowing access for maintenance purposes on motor and brake, if supplied. For other cooling devices, please see the options section in this catalogue.

## Noise
Noise levels, measured using EN ISO 1680, within the maximum levels specified in standard EN 60034-9.

## Vibration balancing
Rotor shaft is balanced with half key fitted, and falls within vibration class N, as standard EN 60034-14.

**The responsibility for final product safety and compliance with applicable directives rests with the manufacturer or the assembler who incorporate the motors as component parts.**

## Other international requirements

BXN, MXN and MNN motors can be sold in the most important markets worldwide such as Europe, UK, USA, Canada, China, Brazil, India, Russia, Australia and New Zealand.

**UKCA conformity**
BXN, MXN and MNN motors comply with the directives applicable in the United Kingdom, and carry the nameplate with the UKCA logo (United Kingdom Conformity Assessed mark).

**EAC conformity**
All Bonfiglioli motors comply with the EAC (EurAsian Conformity) regulations of the Eurasian Economic Customs Union of Russia, Kazakhstan and Belarus.

**GEMS and EECA conformity**
BXN, MXN and MNN motors meet the requirements of the Australia Greenhouse and Energy Minimum Standards (GEMS) regulator and the New Zealand Energy Efficiency and Conservation Authority (EECA).

**UL conformity**
BXN, MXN and MNN motors comply with the requirements for the American and Canadian markets and carry the nameplate with UL logo.

**INMETRO conformity**
BXN and MXN motors with WD3 or WD4/WD10 winding comply with the INMETRO requirements for the Brazilian market, and come with an additional label.

**BIS conformity**
BXN and MXN motors with active BIS option* comply with Bureau of Indian Standard requirements for the Indian market, and include the nameplate with ISI logo.

**CCC/CEL conformity***
BXN and MXN motors with CN option* active, comply with the requirements for the Chinese market and include, where applicable, the nameplate with CCC logo and/or the CEL label.

*The motor must be configured with the global motor option (CN).

# PRODUCT OVERVIEW

## POWER OUTPUT DEPENDING ON THE AMBIENT TEMPERATURE

Standard motors are class F and can work with an ambient temperature from -15°C to 40°C.
There is a reduction in power output with ambient temperature above 40°C.

| Ambient temperature [°C] | 40 | 45 | 50 | 55 | 60 |
|---|---|---|---|---|---|
| **$P / P_N$** | 1,00 | 0,97 | 0,94 | 0,90 | 0,86 |

## POWER OUTPUT DEPENDING ON THE ALTITUDE

Performance given in the catalogue is valid at an altitude lower than 1000 metres above sea level.
There is a reduction in power output at altitude above 1000 above sea level.

| Altitude a.s.l. [m] | 0 - 1000 | 1500 | 2000 | 2500 | 3000 | 3500 | 4000 |
|---|---|---|---|---|---|---|---|
| **$P / P_N$** | 1,00 | 0,97 | 0,92 | 0,88 | 0,84 | 0,80 | 0,76 |

## TERMINAL BOX

EVOX motors have 9 studs as standard. A ground terminal is also supplied for earthing of the equipment.
Wiring instructions are provided either in the box and in the user manual.
Terminals number and type are shown in the following table:

| Adapter | | No. Of terminals | Terminal threads |
|---|---|---|---|
| IEC | Compact | | |
| **BXN 63 ... BXN 112** | **MXN 05 ... MXN 35**<br>**MNN 05 .... MNN 20** | 9 | M4 |
| **BXN 132** | **MXN 40** | | |

## CABLE ENTRY

The holes used to bring cables to the terminal boxes use metric threads in accordance with standard EN 50262 as indicated in the following table:

| Adapter | | Terminal Box - Small "S" | | Terminal Box - Large "L" | | |
|---|---|---|---|---|---|---|
| IEC | Compact | Cable gland and dimensions | Position | Cable gland and dimensions | Position | Maximum cable diameter allowed [mm] |
| **BXN 63 ... BXN 112** | **MXN 05 ... MXN 35**<br>**MNN 05 ... MNN 10** | 2 x M25 x 1.5 | 1 + 1 hole on each side | 2 x M25 x 1.5 | 1 + 1 hole on each side | 17 |
| | | 2 x M16 x 1.5 | | 2 x M16 x 1.5 | | 10 |
| | | - | - | 1 x M16 x 1.5 | 1 hole in the back | 10 |
| **BXN 132** | **MXN 40** | - | - | 2 x M32 x 1.5 | 1 + 1 hole on each side | 21 |
| | | - | - | 2 x M16 x 1.5 | | 10 |
| | | - | - | 1 x M16 x 1.5 | 1 hole in the back | 10 |

# BEARINGS

Life lubricated preloaded radial ball bearings are used on our motors. The bearings types are shown in the following table:

| IEC adapter | DE | NDE | |
|---|---|---|---|
| | | Without brake | With brake |
| **BXN 63** | 6201 2Z C3 | 6201 2Z C3 | 6201 2Z C3 |
| **BXN 71** | 6202 2Z C3 | 6202 2Z C3 | 6202 2Z C3 |
| **BXN 80** | 6204 2Z C3 | 6204 2Z C3 | 6204 2Z C3 |
| **BXN 90** | 6205 2Z C3 | 6205 2Z C3 | 6205 2Z C3 |
| **BXN 100** | 6206 2Z C3 | 6206 2Z C3 | 6206 2Z C3 |
| **BXN 112** | 6306 2Z C3 | 6306 2Z C3 | 6306 2Z C3 |
| **BXN 132** | 6308 2Z C3 | 6308 2Z C3 | 6308 2Z C3 |

| Compact adapter | DE | NDE | |
|---|---|---|---|
| | | Without brake | With brake |
| **MXN 05** | 6301 2Z C3 | 6201 2Z C3 | 6201 2Z C3 |
| **MXN 10** | 6302 2Z C3 | 6202 2Z C3 | 6202 2Z C3 |
| **MXN 20** | 6304 2Z C3 | 6204 2Z C3 | 6204 2Z C3 |
| **MXN 25** | 6205 2Z C3 | 6205 2Z C3 | 6205 2Z C3 |
| **MXN 30** | 6206 2Z C3 | 6206 2Z C3 | 6206 2Z C3 |
| **MXN 35** | 6306 2Z C3 | 6306 2Z C3 | 6306 2Z C3 |
| **MXN 40** | 6308 2Z C3 | 6308 2Z C3 | 6308 2Z C3 |

Calculated endurance lifetime L10h, as per ISO 281, in unloaded condition, exceeds 40000 hrs.

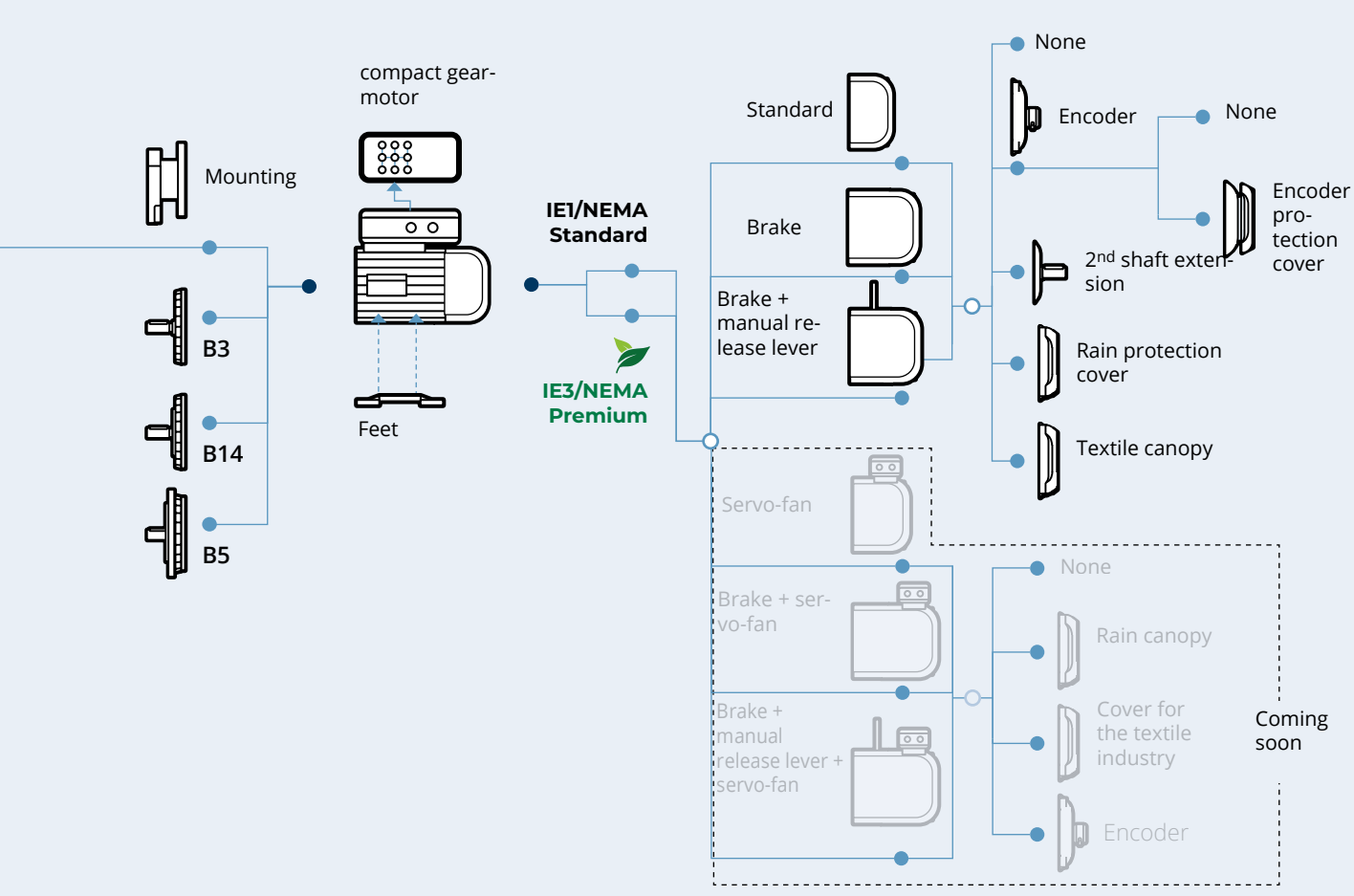
**DE** = drive end

**NDE** = non drive end

# PRODUCT OVERVIEW

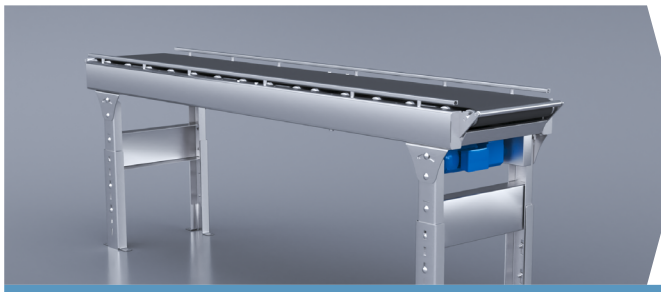
## PRODUCT MODULARITY

**Lots of e-motor versions** available to perfectly **match** your **application needs.**




DC brake are available.

## Suitable applications



### Smart Conveyor

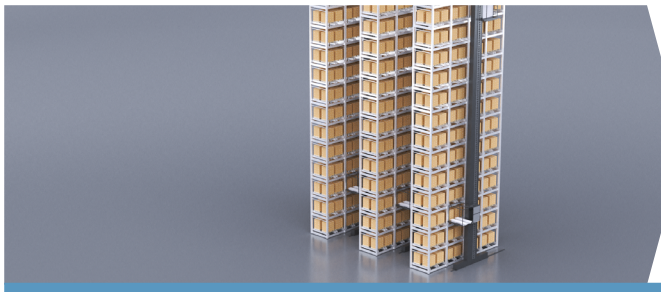


| Features | Benefits |
|---|---|
| Advanced and accurate sensorless vector control providing high starting torque at low speed | Reducing current consumption at starting phase |
| Built-in PLC functions | Smart Conveyor programming without PLC |
| Standby mode | Energy saving |
| Integrated monitoring tool | Inverter failure prevention and diagnostics analysis |

### Wrapping Machine



| Features | Benefits |
|---|---|
| Sensorless accurate control or closed-loop advanced vectorial control | Wrapping Machine progressive start and stop |
| PI control with advanced derivative control | Optimized film tension control |
| Configurable position and speed control via parameters | Variable lifting speed and up/down controls |
| Built-in PLC functions | Wrap cycle adjustment |
| Possible sync between several drives | Machine can operate without any PLC |

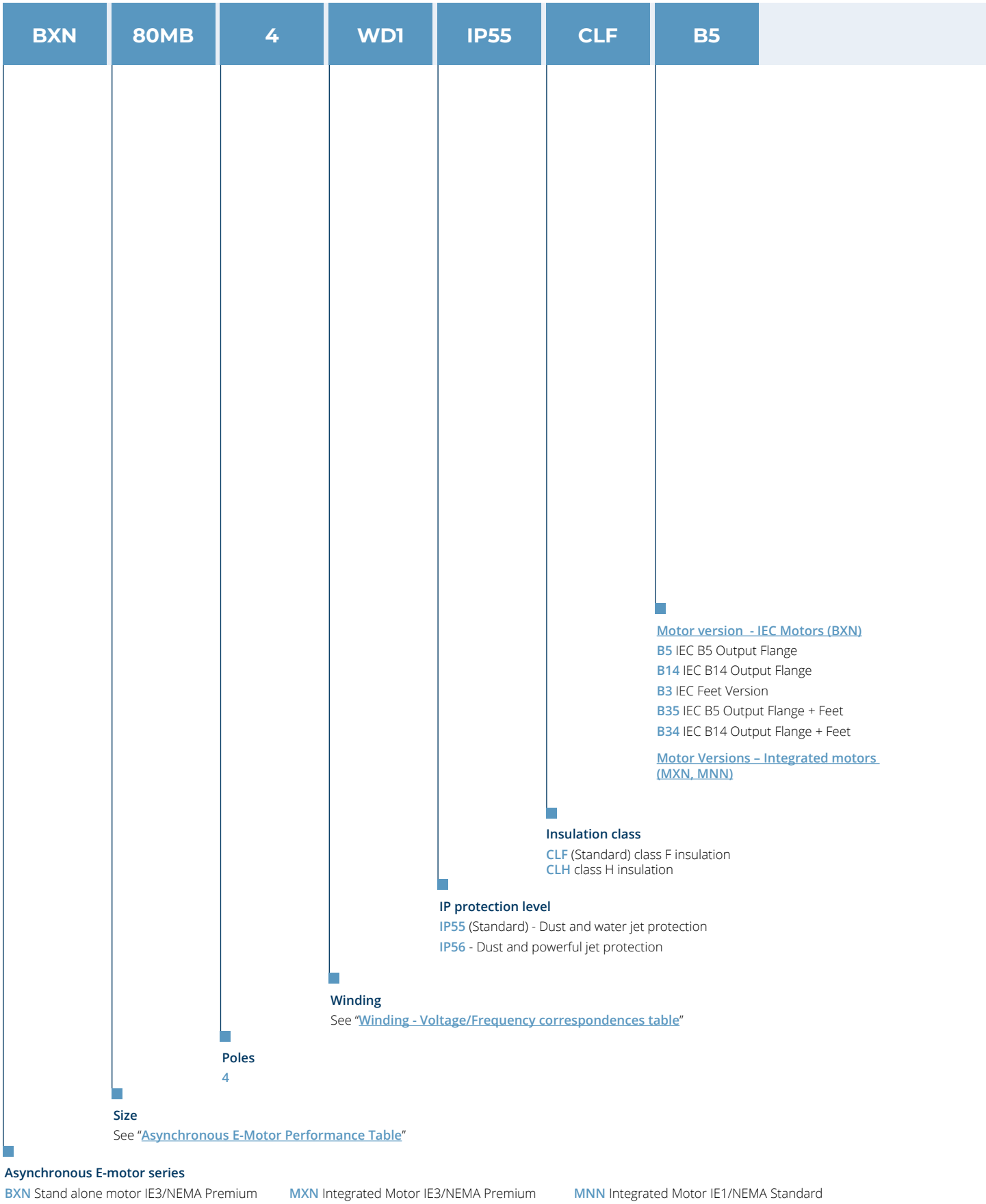


### Vertical automatic storage



| Features | Benefits |
|---|---|
| SBC (Safety Brake Control) | Minimized application risks |
| Sensor-connected ready | Scheduled maintenance-ready |
| See Bonfiglioli BMC  To be connected to Motion Controller (CSP mode) | · Machine complete integration<br>· Single supplier |
| All EVOX encoders are compatible with AxiaVert | Flexible application |
| iOS & Desktop user-friendly application and Bluetooth/Wi-Fi inverter connection | · Plug & Play solution<br>· Easy troubleshooting |

# DESIGNATION



| N | S | IC0 | MFC | + | Brake | + | Options |
|---|---|---|---|---|---|---|---|

See "Option | EVOX Electric Motor Side"

See "EVOX Asynchronous E-Motor Brake"

**Fan cover material**

MFC Metal fan cover

**Cable entry position**

**Terminal box size S:**

IC0 (Standard) Power cable entry at 90° and 270° to the axis

IC1 Power cable entry at 0° and 180° to the axis

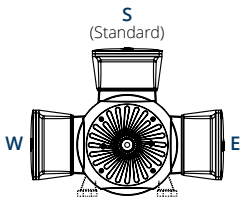
**Terminal box size L:**

IC0 (Standard) Power cable entry and separate supply cable entry at 90° and 270° + brake cable entry at 180°

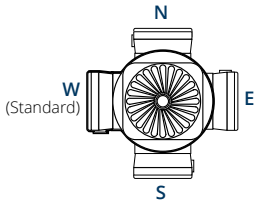
IC1 Power cable entry and brake cable entry at 180° relative to the axis + separate supply cable entry at 90°

IC2 Power cable entry and brake cable entry at 180° relative to the axis + separate supply cable entry at 270°

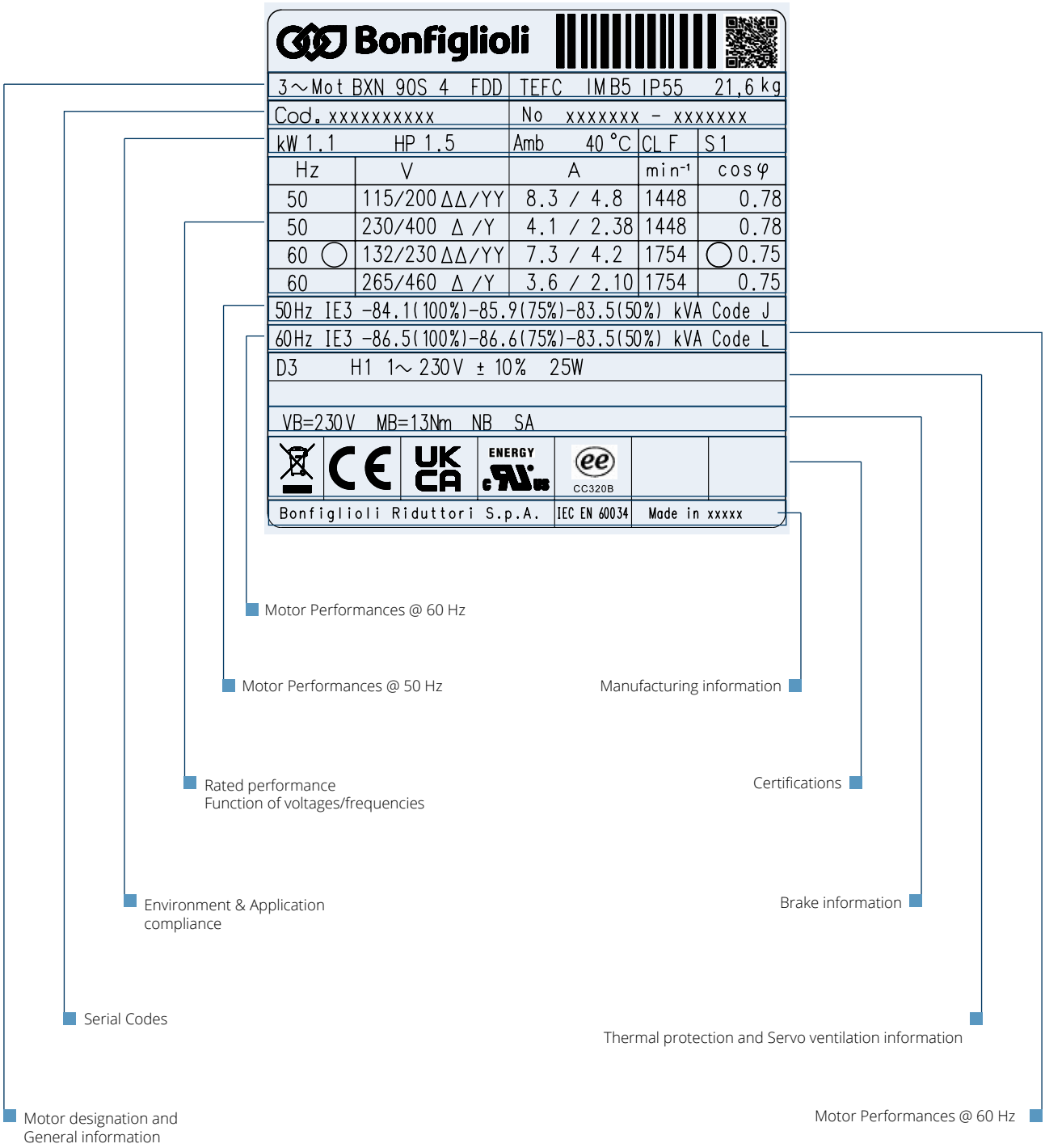
**Terminal Box orientation vs Feet - Only for B3, B34, B35 versions**




**Terminal Box Position - Only for Gearmotors**



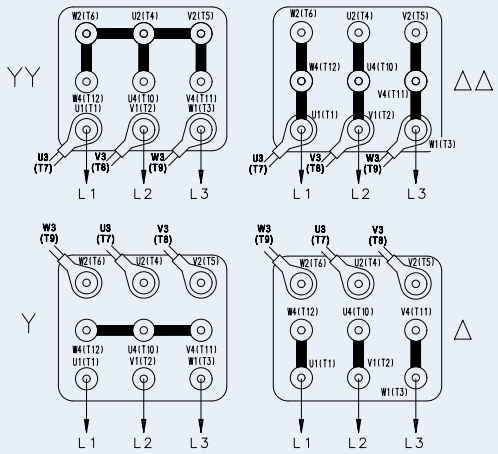
# NAMEPLATE DESIGNATION



# WINDING

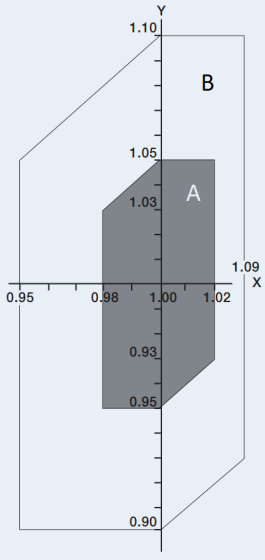
## Terminal box 9 PIN arrangement

Rotation is possible in both directions. If terminals U1, V1, and W1 are connected to line phases L1, L2 and L3, clockwise rotation (from drive end) is obtained. For counter clockwise rotation, switch two phases.




All EVOX motors are designed according to standard 60034-1, which states that a motor must be able to operate continuously in zone A within ± 5% of rated voltage and ± 2% of rated frequency, guaranteeing rated torque. Operation is also guaranteed in Zone B within a range of ± 10% of rated voltage and over a range of + 3 / -5% of frequency, but the machine may have performance deviations or overtemperatures exceeding those at rated voltage within the ± 5% range.

According to the standard, prolonged operation at the limits of zone B at ± 10% is not recommended.
For out-of-tolerance operation, temperature may exceed the limit provided in the relevant insulation class by 10 K.



# WINDING

| | Market standard 6 PIN motors (4 variants on configurator) | EVOX 9 PIN motors (2 variants on configurator) | EVOX Winding name |
|---|---|---|---|
| **I.E.** | 230/400V - 50Hz<br>115/200V - 50Hz<br>230/460V - 60Hz<br>132/265 - 60Hz | 115/200/230/400V-50Hz<br>132/230/265/460V-60Hz | **WD1** |

## Product selector Winding - Voltage/Frequency correspondences

### IEC 63-80 or compact 05-20

| Winding | Motor supply {V} ΔΔ | YY | Δ | Y | Frequency [Hz] |
|---|---|---|---|---|---|
| WD1 | 115 | 200 | 230 | 400 | **50** |
| | 132 | 230 | 265 | 460 | **60** |
| — | | | | | |
| WD3 | 110 | 190 | 220 | 380 | **50** |
| | 127 | 220 | 255 | 440 | **60** |
| WD4 | 95 | 165 | 190 | 330 | **50** |
| | 110 | 190 | 220 | 380 | **60** |
| WD5 | 120 | 208 | 240 | 415 | **50** |
| | 140 | 240 | 280 | 480 | **60** |
| — | | | | | |
| WD7 | 147 | 255 | 290 | 500 | **50** |
| | 165 | 290 | 330 | 575 | **60** |

### IEC 90-112 or compact 25-35

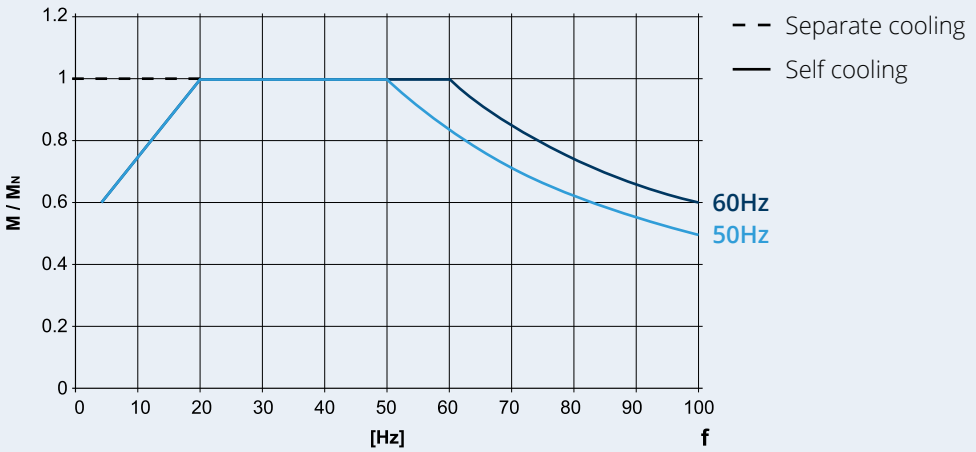
| Winding | Motor supply {V} ΔΔ | YY | Δ | Y | Frequency [Hz] |
|---|---|---|---|---|---|
| WD1 | 115 | 200 | 230 | 400 | **50** |
| | 132 | 230 | 265 | 460 | **60** |
| WD2 | 200 | 346 | 400 | 690 | **50** |
| | 230 | 400 | 460 | — | **60** |
| WD3 | 110 | 190 | 220 | 380 | **50** |
| | 127 | 220 | 255 | 440 | **60** |
| WD4 | 95 | 165 | 190 | 330 | **50** |
| | 110 | 190 | 220 | 380 | **60** |
| WD5 | 120 | 208 | 240 | 415 | **50** |
| | 140 | 240 | 280 | 480 | **60** |
| WD6 | 208 | 360 | 415 | 720 | **50** |
| | 240 | 415 | 480 | — | **60** |
| WD7 | 147 | 255 | 290 | 500 | **50** |
| | 165 | 290 | 330 | 575 | **60** |

### Higher than IEC 132 or compact 40

| Winding | Motor supply {V} ΔΔ | YY | Δ | Y | Frequency [Hz] |
|---|---|---|---|---|---|
| WD8 | 230 | 400 | 460 | — | **50** |
| | 265 | 460 | 530 | — | **60** |
| WD2 | 200 | 346 | 400 | 690 | **50** |
| | 230 | 400 | 460 | — | **60** |
| WD9 | 220 | 380 | 440 | — | **50** |
| | 255 | 440 | 510 | — | **60** |
| WD10 | 190 | 330 | 380 | 660 | **50** |
| | 220 | 380 | 440 | — | **60** |
| WD11 | 240 | 415 | 480 | — | **50** |
| | 280 | 480 | 550 | — | **60** |
| WD6 | 208 | 360 | 415 | 720 | **50** |
| | 240 | 415 | 480 | — | **60** |
| WD12 | 290 | 500 | 575 | — | **50** |
| | 330 | 575 | — | — | **60** |

# OPERATION WITH INVERTER POWER SUPPLY

Bonfiglioli electric motors can be used with PWM inverter power supply, and rated voltage at converter input up to 500 V. Typical torque/speed characteristics in S1 duty for motor with base frequency $f_b$ = 50 Hz are given in the table below. For operating frequencies below approx. 30 Hz, due to the ventilation reduction, the torque of standard self-ventilated motors (IC411) must be properly derated or, alternatively, they must be equipped with independent servo-fan. For frequencies above the basic frequency, when the maximum inverter output voltage has been reached, the motor operates in a constant power operating range, with torque at the shaft that decreases approx. with the ratio ($f/f_b$). As the maximum torque of the motor decreases approx. with $(f/f_b)^2$, the permissible overload margin must be progressively reduced.




For operation above the rated frequency, the mechanical limit speed of the motors is given in the following table:

| | n [min$^{-1}$] 4p |
|---|---|
| **BXN 63 - BXN 132 MXN 05 - MXN 40** | 4000 |

At speeds above the rated speed, the motors have more mechanical vibration and ventilation noise; for these applications, a grade B rotor balance is recommended.

The electromagnetic brake, if any, must always be powered separately from the motor power supply.

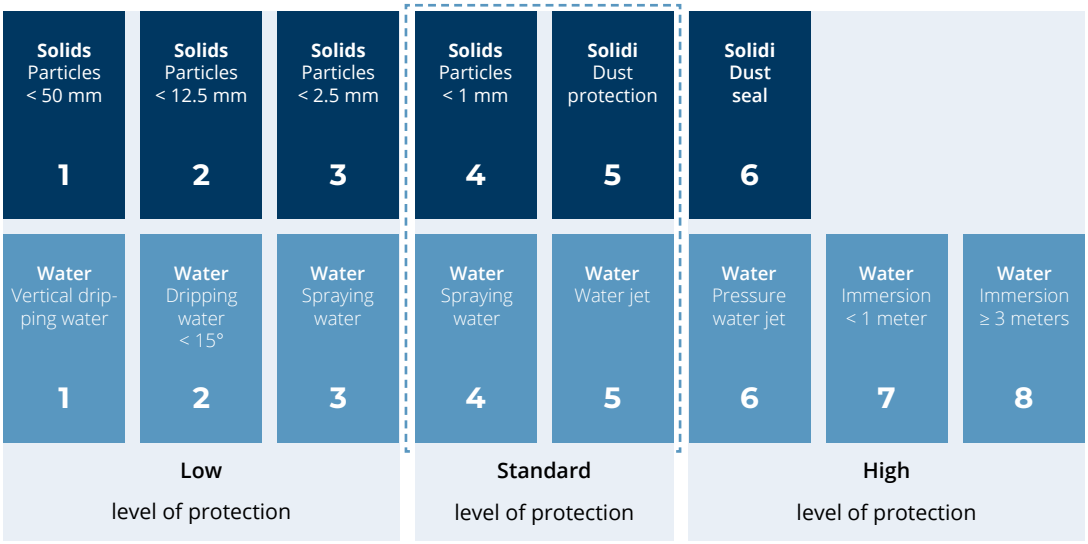
# PROTECTION CLASS

IPxx

## Index of protection

The IP – index of protection – shows the protection rate of the device from any external agents. It is composed of IP and 2 numbers, which show:

- the first digit describes the degree of protection rate against solid objects, dust, the solid particles and bodies.
- the second digit describes the degree of protection offered against liquids.




Both EVOX standard and brake motors feature an IP55 rating by default, making them suitable for installation in dusty and humid environments

IP examples:

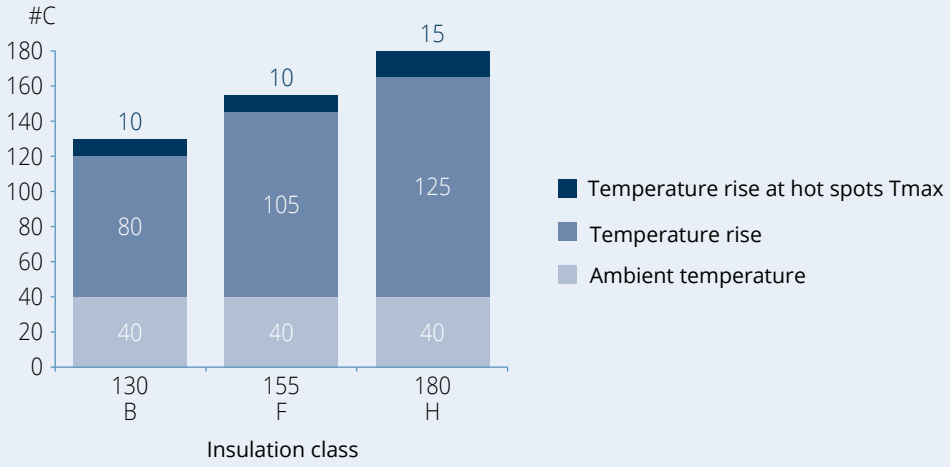
IP55: · Protection against dust deposits · Protection against water jets from any direction

IP56: · Protection against dust deposits · Protection against powerful water jets from any direction

# INSULATION CLASS

NEMA motor insulation classes describes the ability of motor insulation in the windings to handle heat (Ref. IEC 60085 and IEC 60034-1). There are four insulation classes in use namely: A, B, F, and H. All four classes identify the allowable temperature rise from an ambient temperature of 40° C (104° F). Classes B and F are the most common in many applications.

Temperature rise (T) and maximum temperatures at hot spots (Tmax) for insulation classes (IEC 60034-1).




CL F

## Class F insulation

Bonfiglioli electric motors have been designed as standard with a class F insulation system (enamelled wire, insulators, impregnation resins). In standard motors, stator winding overtemperature normally remains below the 80 K limit corresponding to class B overtemperature. Class F allows temperature increases of 105 K (measured by the resistance variation method) and maximum temperatures of 155°C in motor hot spots.

A careful selection of insulating components makes the motors compatible with tropical climates and normal vibration. For applications involving the presence of aggressive chemicals or high humidity, contact Bonfiglioli Engineering for assistance with product selection.

CL H

## Class H insulation

This option can be selected to achieve class H insulation level.
Class H allows temperature increases of 125 K (measured with the resistance variation method) and maximum temperatures at motor hot positions of 180°C.

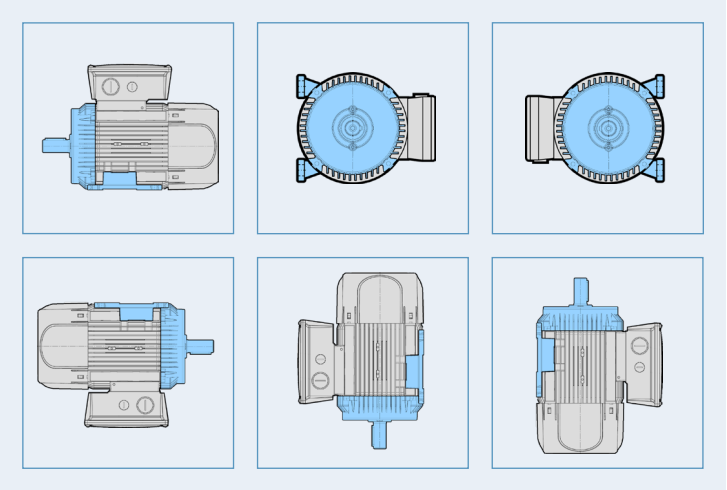
# PROTECTION CLASS

## VERSIONS

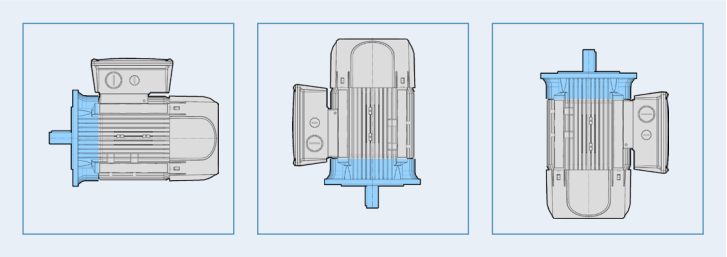
### Motor Versions – IEC motors (BXN)

BXN motors are available in the design versions as indicated in the table below as per Standards EN 60034-7. Motor reporting on nameplate the standard mounting position can be mounted in the position illustrated in the following table:

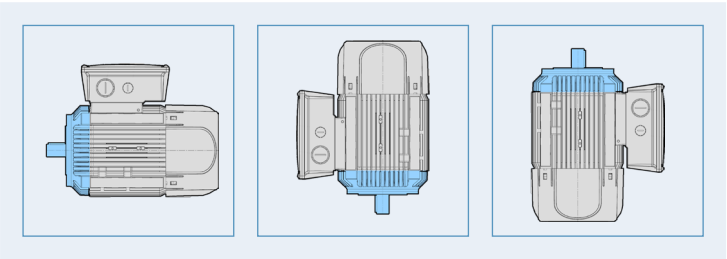
**B3**



**B5**



**B14**



B3 mounting can be combined with B5 or B14 thus becoming B35 in the first case and B34 in the second one.

For outdoor applications where the motor is mounted with the output shaft facing downwards, the selection of rain protection cover (RC) option is recommended.

In this case, specify this request during the ordering phase, because it is not present in standard motor versions.

### Motor Versions – Integrated motors (MXN, MNN)

In case a compact motor of the EVOX platform (MXN and MNN) is configured as a stand-alone product, please refer to the following list:

| Motor series | Motor size | CP gear unit size | Coupling |
|---|---|---|---|
| MXN/MNN | **05MA – 25L** | ≤ 47 | C |
| | | > 47 | L |
| | **30LA – 40M** | ≥ 47 | C |

# CABLE ENTRY POSITION

This option allows the direction of cable entry into the terminal box to be selected.
In specific configurations, it enables the use of the optimised terminal box (size S) for IEC frame sizes 63, 71, 80, 90, 100 and 112, and for compact sizes 05, 10, 20, 25, 30 and 35.
If this option is not defined in the configurator, the standard terminal box design (size L) will remain unchanged.

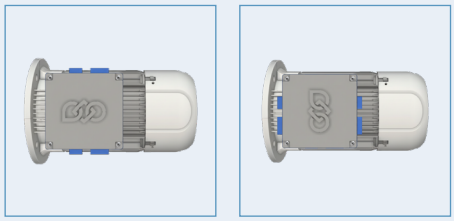
## Terminal box type

The following table shows the relationship between the "Cable entry position" option, the presence of a brake, and the motor size.

| Cable entry position | | [IC0] , [IC1] , [IC2] | |
|---|---|---|---|
| IEC motor size | Compact motor size | Without brake | With brake |
| 63-71-80 | 05-10-20 | S | L |
| 90-100-112 | 25-30-35 | S | L |
| 132 | 40 | L | L |

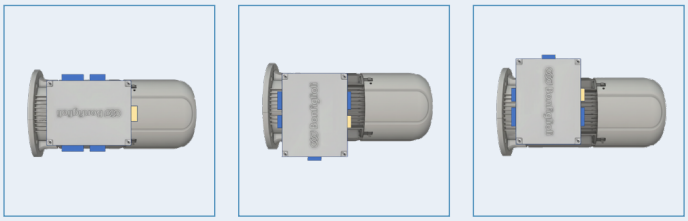
To illustrate the logic behind the new product variants, the following examples show how the product designation changes according to the terminal box size and the available cable entry options.

**Size S**
Cable entry option = **[IC0], [IC1]**



[IC0] [IC1]

**Size L**
Cable entry option = **[IC0], [IC1], [IC2]**



[IC0] [IC1] [IC2]

## Fan cover material

Specifies the motor fan cover material. It is essential to ensure durability and compliance across various sectors.

MFC

## Metal fan cover

Specifies the motor metal sheet fan cover material, offering a heavy-duty metallic alternative to the standard plastic version to meet specific industrial requirements.
It is essential to ensure durability and compliance in demanding sectors such as metalworking (impact and spark resistance), the food industry (metal particles detection on conveyors), cold environment, etc..
Starting from motor with brake size 90 ahead, the metal fan cover is provided as standard, while for smaller sizes it is mandatory when specific options like encoders, RAL painting and double shaft are selected.

| IEC motor size | Compact motor size | Fan cover material | | | |
|---|---|---|---|---|---|
| | | Without brake | | With brake | |
| | | standard | option | standard | option |
| 63 | 05 | Plastic | Metal | Plastic | Metal |
| 71 | 10 | Plastic | Metal | Plastic | Metal |
| 80 | 20 | Plastic | Metal | Plastic | Metal |
| 90 | 25 | Plastic | Metal | Metal | - |
| 100 | 30 | Metal | - | Metal | - |
| 112 | 35 | Metal | - | Metal | - |
| 132 | 40 | Metal | - | Metal | - |

# PERFORMANCE

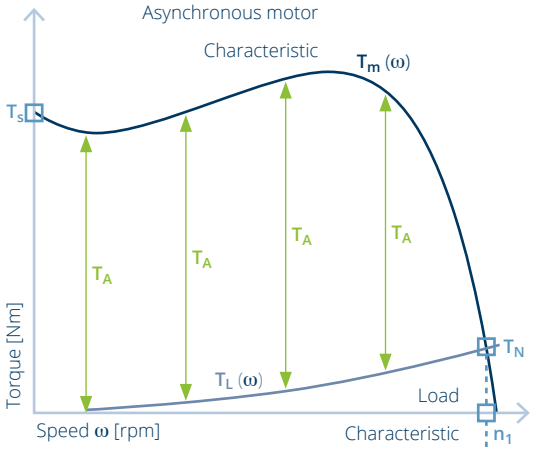
## EVOX ELECTRIC MOTOR

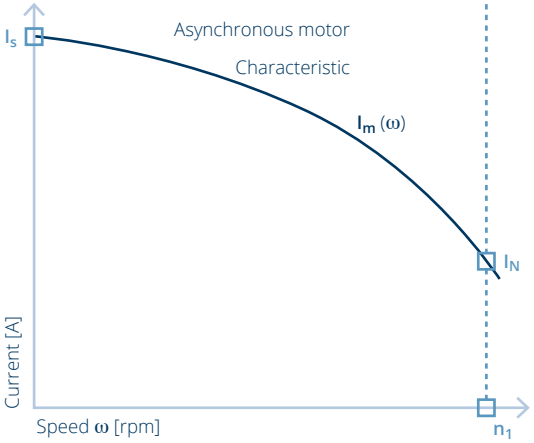
### Tables introduction

| Motor designation | | Output power | | Output speed $n_1$ | Inertia | η | | | Torque | | Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IEC | Compact | $P_{n1}$ | | | J x10$^{-4}$ | 50% | 75% | 100% | $T_N$ | $T_S/T_N$ | $T_A/T_N$ | IEC B5 |
| | | [kW] | [HP] | [rpm] | [kgm$^2$] | [%] | [%] | [%] | | [Nm] | | [kg] |
| **BXN 63MA 4** | **MXN 05MA 4** | 0.12 | 0.16 | 1,407 | 1.82 | 52.5 | 60.3 | 64.8 | 0.8 | 2.9 | 1.7 | 4.6 |
| **BXN 63MB 4** | **MXN 05MB 4** | 0.18 | 0.25 | 1,373 | 2.92 | 63.3 | 68.8 | 69.9 | 1.3 | 3.1 | 1.8 | 5.7 |

Rated Voltage $V_N$ - Different winding executions

| Motor designation | | 380 V | | | | 400 V | | | | 415 V | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Current | | KVA | | Current | | KVA | | Current | | KVA |
| IEC | Compact | cosφ | IN | $I_S/I_N$ | Code | cosφ | IN | $I_S/I_N$ | Code | cosφ | IN | $I_S/I_N$ | Code |
| | | | [A] | | | | [A] | | | | [A] | | |
| **BXN 63MA 4** | **MXN 05MA 4** | 0.61 | 0.48 | 3.4 | H | 0.58 | 0.47 | 3.4 | H | 0.57 | 0.46 | 3.4 | H |
| **BXN 63MB 4** | **MXN 05MB 4** | 0.61 | 0.65 | 3.5 | G | 0.61 | 0.61 | 3.5 | G | 0.62 | 0.59 | 3.5 | G |



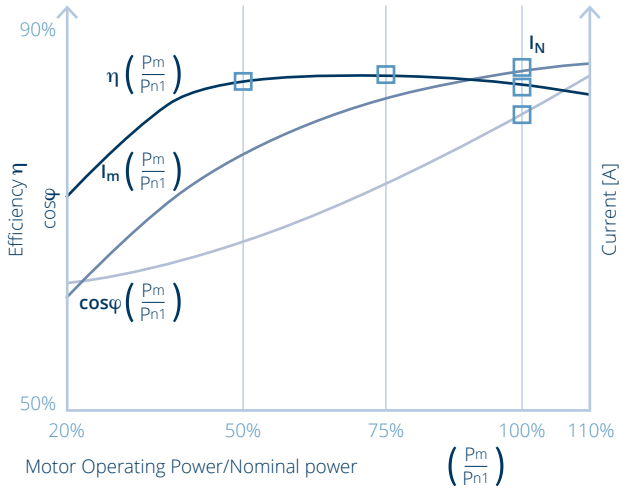

#### $T_A$= Acceleration torque

The $T_A$ indicated in this catalogue is calculated with a finite element method because it is dependent from the Load Characteristic and the time.

$$T_a(t) = T_m(t) - T_L(t) = J\frac{\delta\omega}{\delta t}$$

*(J is the motor + load inertia, both reduced at the output motor shaft)*

$T_A$ in this catalogue is calculated without a Load Characteristics and with only the EVOX motor inertia.




Please, refer to Configuration Guidelines & Setup section before the motor configuration, in order to select the correct Power.

## Tolerances

As per CEI EN 60034-1 standards, the tolerances below apply to the following quantities.

| Tolerance rule | Tolerance parameter |
|---|---|
| -0.15 (1 - $\eta$) P≤50kW | $\eta$ |
| -(1 - cos$\varphi$)/6 min 0.02 max 0.07 | cos$\varphi$ |
| ±20%* | Slip |
| +20% | Is |
| -15% +25% | Ts |
| -10% | Max torque |

(*) ≤30% for motors with Pn < 1kw

## Coefficient code for locked-rotor KVA - Nameplate marking

KVA coefficient is a good solution to compare the inrush of different manufactures' motors than % inrush current. The reason being that if a motor has a high full load current, the % inrush will be lower than a motor with the same inrush current but a lower full load current.

| Letter designation | KVA per horsepower* | Letter designation | KVA per horsepower* |
|---|---|---|---|
| A | 0 - 3.15 | L | 9.0 - 10.0 |
| B | 3.15 - 3.55 | M | 10.0 - 11.2 |
| C | 3.55 - 4.0 | N | 11.2 - 12.5 |
| D | 4.0 - 4.5 | P | 12.5 - 14.0 |
| E | 4.5 - 5.0 | R | 14.0 - 16.0 |
| F | 5.0 - 5.6 | S | 16.0 - 18.0 |
| G | 5.6 - 6.3 | T | 18.0 - 20.0 |
| H | 6.3 - 7.1 | U | 20.0 - 22.4 |
| J | 7.1 - 8.0 | V | 22.4 and up |
| K | 8.0 - 9.0 | | |

(*) the KVAs defined as horsepower range include the lower figure up to, but not including, the higher figure.

To determinate KVA per HP, use the following formula:

$$\frac{KVA}{P_{n1}\ [express\ in\ HP]} \quad where\ KVA = V_n\ \ I_S \frac{\sqrt{3}}{1000}$$

# PERFORMANCE

## EVOX ELECTRIC MOTOR

Performance Table – 50Hz

### IE3/NEMA Premium - 400 V - 50 Hz - 4 poles

| Motor designation | | Output power | | Output speed | Inertia | η | | | | Torque | | Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IEC | Compact | $P_{n1}$ | | $n_1$ | $J_m$ J x10-4 | 50% | 75% | 100% | $T_N$ | $T_S/T_N$ | $T_A/T_N$ | |
| | | [kW] | [HP] | [rpm] | [kgm²] | [%] | [%] | [%] | | [Nm] | | [kg] |
| BXN 63MA 4 | MXN 05MA 4 | 0.12 | 0.16 | 1,407 | 1.82 | 52.5 | 60.3 | 64.8 | 0.8 | 2.9 | 1.7 | 4.6 |
| BXN 63MB 4 | MXN 05MB 4 | 0.18 | 0.25 | 1,373 | 2.92 | 63.3 | 68.8 | 69.9 | 1.3 | 3.1 | 1.8 | 5.7 |
| BXN 71MA 4 | MXN 10MA 4 | 0.25 | 0.33 | 1,388 | 6.28 | 67.9 | 72.8 | 73.5 | 1.7 | 1.6 | 2.4 | 6.5 |
| BXN 71MB 4 | MXN 10MB 4 | 0.37 | 0.50 | 1,419 | 9.70 | 70.8 | 76.0 | 77.3 | 2.5 | 2.6 | 2.5 | 8.3 |
| BXN 80MA 4 | MXN 20MA 4 | 0.55 | 0.75 | 1,447 | 17.78 | 77.4 | 80.9 | 80.8 | 3.6 | 1.9 | 1.6 | 10.7 |
| BXN 80MB 4 | MXN 20MB 4 | 0.75 | 1.00 | 1,451 | 28.89 | 82.5 | 85.1 | 82.5 | 4.9 | 2.4 | 2.0 | 14.4 |
| BXN 90S 4 | MXN 25S 4 | 1.1 | 1.50 | 1,448 | 31.76 | 83.5 | 85.9 | 84.1 | 7.3 | 2.4 | 3.4 | 15.6 |
| BXN 90L 4 | MXN 25L 4 | 1.5 | 2.00 | 1,441 | 34.96 | 81.7 | 84.3 | 85.3 | 9.9 | 2.6 | 2.4 | 16.6 |
| BXN 100LA 4 | MXN 30LA 4 | 2.2 | 3.00 | 1,458 | 90.01 | 86.3 | 88.4 | 86.7 | 14.4 | 3.4 | 2.3 | 29.5 |
| BXN 100LB 4 | MXN 30LB 4 | 3.0 | 4.00 | 1,452 | 90.01 | 86.2 | 88.0 | 87.7 | 19.7 | 3.2 | 3.0 | 29.5 |
| BXN 112M 4 | MXN 35M 4 | 4.0 | 5.40 | 1,453 | 105.43 | 87.1 | 88.8 | 88.6 | 26.3 | 2.7 | 2.8 | 35.1 |
| BXN 132S 4 | MXN 40S 4 | 5.5 | 7.50 | 1,478 | 497.42 | 90.0 | 91.4 | 89.6 | 35.6 | 4.0 | 3.4 | 67.9 |
| BXN 132M 4 | MXN 40M 4 | 7.5 | 10.00 | 1,473 | 497.42 | 89.5 | 91.0 | 90.4 | 48.6 | 3.7 | 3.2 | 67.9 |

| Motor designation | | 380 V | | | | 400 V | | | | 415 V | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Current | | KVA | | Current | | KVA | | Current | | KVA |
| IEC | Compact | cosφ | IN | $I_S/I_N$ | Code | cosφ | IN | $I_S/I_N$ | Code | cosφ | IN | $I_S/I_N$ | Code |
| | | | [A] | | | | [A] | | | | [A] | | |
| BXN 63MA 4 | MXN 05MA 4 | 0.61 | 0.48 | 3.4 | H | 0.58 | 0.47 | 3.4 | H | 0.57 | 0.46 | 3.4 | H |
| BXN 63MB 4 | MXN 05MB 4 | 0.61 | 0.65 | 3.5 | G | 0.61 | 0.61 | 3.5 | G | 0.62 | 0.59 | 3.5 | G |
| BXN 71MA 4 | MXN 10MA 4 | 0.73 | 0.71 | 4.8 | H | 0.74 | 0.67 | 4.8 | H | 0.73 | 0.65 | 4.8 | H |
| BXN 71MB 4 | MXN 10MB 4 | 0.65 | 1.12 | 6.3 | L | 0.66 | 1.05 | 6.3 | L | 0.63 | 1.06 | 6.3 | L |
| BXN 80MA 4 | MXN 20MA 4 | 0.73 | 1.40 | 6.1 | J | 0.75 | 1.31 | 6.1 | J | 0.73 | 1.29 | 6.1 | J |
| BXN 80MB 4 | MXN 20MB 4 | 0.78 | 1.71 | 7.4 | K | 0.78 | 1.63 | 7.4 | K | 0.79 | 1.56 | 7.4 | K |
| BXN 90S 4 | MXN 25S 4 | 0.78 | 2.51 | 7.3 | J | 0.78 | 2.38 | 7.3 | J | 0.77 | 1.33 | 7.3 | J |
| BXN 90L 4 | MXN 25L 4 | 0.75 | 3.59 | 6.7 | J | 0.75 | 3.44 | 6.7 | J | 0.75 | 3.31 | 6.7 | J |
| BXN 100LA 4 | MXN 30LA 4 | 0.80 | 4.68 | 8.8 | L | 0.81 | 4.42 | 8.8 | L | 0.81 | 4.28 | 8.8 | L |
| BXN 100LB 4 | MXN 30LB 4 | 0.81 | 6.39 | 8.1 | K | 0.80 | 6.14 | 8.1 | K | 0.80 | 5.93 | 8.1 | K |
| BXN 112M 4 | MXN 35M 4 | 0.83 | 8.31 | 7.6 | J | 0.82 | 7.97 | 7.6 | J | 0.82 | 7.70 | 7.6 | J |
| BXN 132S 4 | MXN 40S 4 | 0.77 | 11.70 | 11.4 | N | 0.79 | 11.00 | 9.8 | L | 0.79 | 10.60 | 9.8 | L |
| BXN 132M 4 | MXN 40M 4 | 0.78 | 15.90 | 10.9 | N | 0.79 | 15.10 | 9.2 | L | 0.79 | 14.60 | 9.2 | L |

### IE1/NEMA Standard - 400 V - 50 Hz - 4 poles

| Motor designation | | Output power | | Output speed | Inertia | η | | | | Torque | | Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IEC | Compact | $P_{n1}$ | | $n_1$ | $J_m$ J x10-4 | 50% | 75% | 100% | $T_N$ | $T_S/T_N$ | $T_A/T_N$ | |
| | | [kW] | [HP] | [rpm] | [kgm²] | [%] | [%] | [%] | | [Nm] | | [kg] |
| | MNN 05MA 4 | 0.12 | 0.16 | 1,340 | 1.80 | 45.8 | 52.4 | 50.0 | 0.9 | 2.0 | 1.5 | 4.5 |
| | MNN 05MB 4 | 0.18 | 0.25 | 1,330 | 2.00 | 49.9 | 56.5 | 57.0 | 1.3 | 2.5 | 1.3 | 4.8 |
| | MNN 05MC 4 | 0.25 | 0.33 | 1,317 | 2.92 | 60.4 | 65.5 | 61.5 | 1.8 | 2.6 | 1.4 | 5.7 |
| | MNN 10MA 4 | 0.25 | 0.33 | 1,375 | 4.58 | 58.0 | 65.4 | 61.5 | 1.7 | 1.5 | 1.8 | 5.6 |
| | MNN 10MB 4 | 0.37 | 0.50 | 1,368 | 6.28 | 65.4 | 70.8 | 66.0 | 2.6 | 1.5 | 1.6 | 6.5 |
| | MNN 10MC 4 | 0.55 | 0.75 | 1,360 | 7.99 | 67.9 | 72.7 | 70.0 | 3.9 | 1.8 | 1.5 | 7.4 |

| Motor designation | | 380 V | | | | 400 V | | | | 415 V | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Current | | KVA | | Current | | KVA | | Current | | KVA |
| IEC | Compact | cosφ | IN | $I_S/I_N$ | Code | cosφ | IN | $I_S/I_N$ | Code | cosφ | IN | $I_S/I_N$ | Code |
| | | | [A] | | | | [A] | | | | [A] | | |
| | MNN 05MA 4 | 0.71 | 0.47 | 2.6 | F | 0.68 | 0.47 | 2.6 | F | 0.68 | 0.45 | 2.6 | F |
| | MNN 05MB 4 | 0.67 | 0.70 | 2.7 | F | 0.64 | 0.69 | 2.7 | F | 0.62 | 0.68 | 2.7 | F |
| | MNN 05MC 4 | 0.65 | 0.91 | 2.9 | F | 0.67 | 0.85 | 2.9 | F | 0.67 | 0.82 | 2.9 | F |
| | MNN 10MA 4 | 0.73 | 0.78 | 3.9 | G | 0.70 | 0.77 | 3.9 | G | 0.69 | 0.75 | 3.9 | G |
| | MNN 10MB 4 | 0.75 | 1.07 | 4.3 | G | 0.74 | 1.03 | 4.3 | G | 0.74 | 0.99 | 4.3 | G |
| | MNN 10MC 4 | 0.75 | 1.57 | 4.3 | G | 0.75 | 1.49 | 4.3 | G | 0.75 | 1.44 | 4.3 | G |

## Performance Table – 60Hz

### IE3/NEMA Premium - 460 V - 60 Hz - 4 poles

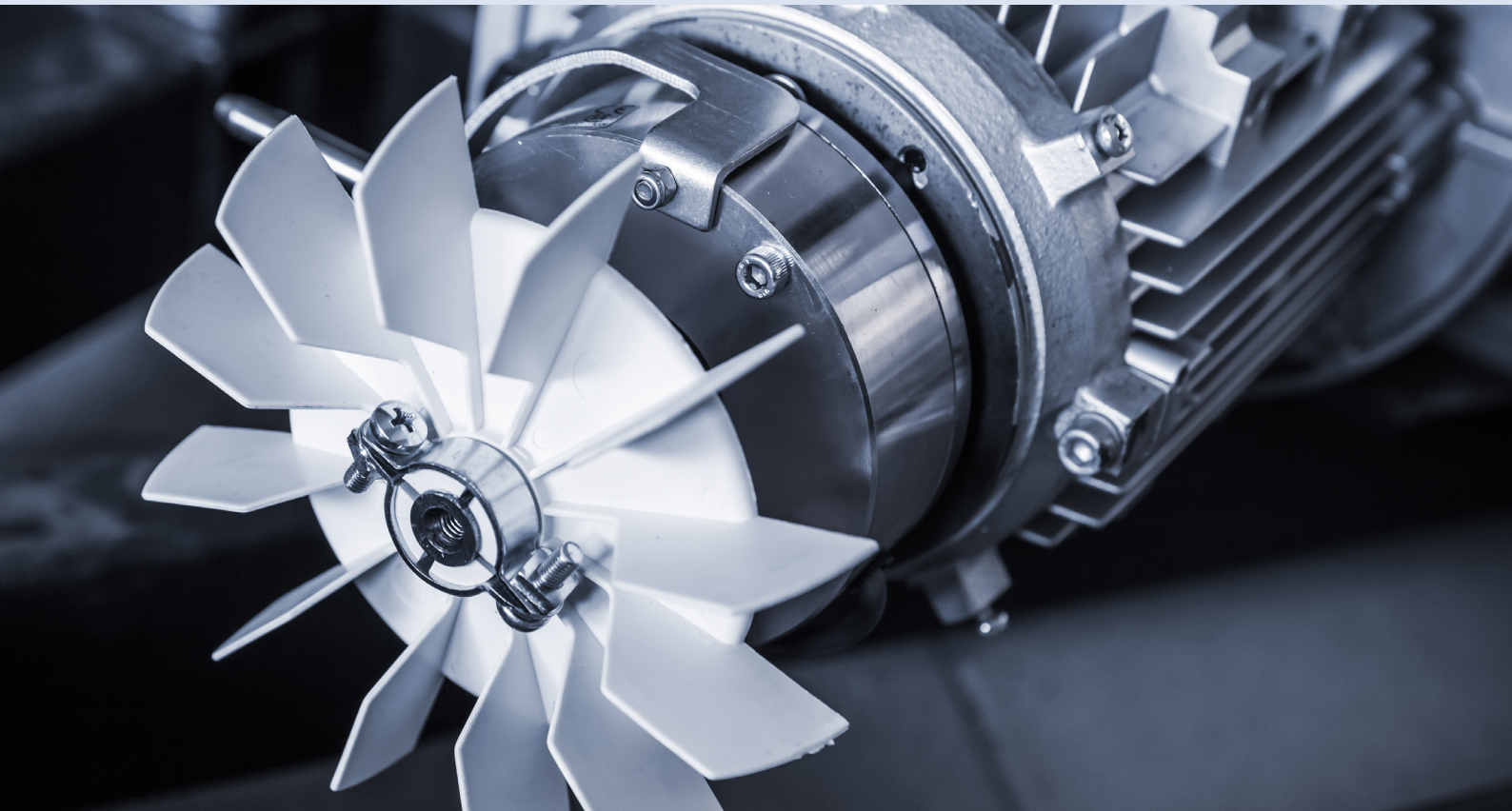
| Motor designation | | Output power | | Output speed | Inertia | η | | | Torque | | | Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IEC | Compact | $P_{n1}$ | | $n_1$ | $J_m$ J x10$^{-4}$ | 50% | 75% | 100% | $T_N$ | $T_S/T_N$ | $T_A/T_N$ | |
| | | [kW] | [HP] | [rpm] | [kgm$^2$] | [%] | [%] | [%] | | [Nm] | | [kg] |
| BXN 63MA 4 | MXN 05MA 4 | 0.12 | 0.16 | 1,724 | 1.82 | 54.2 | 62.2 | 66.0 | 0.7 | 3.8 | 2.7 | 4.6 |
| BXN 63MB 4 | MXN 05MB 4 | 0.18 | 0.25 | 1,719 | 2.92 | 65.0 | 71.1 | 69.5 | 1.0 | 3.9 | 3.0 | 5.7 |
| BXN 71MA 4 | MXN 10MA 4 | 0.25 | 0.33 | 1,706 | 6.28 | 68.5 | 74.1 | 73.4 | 1.4 | 1.8 | 2.1 | 6.5 |
| BXN 71MB 4 | MXN 10MB 4 | 0.37 | 0.50 | 1,731 | 9.70 | 70.7 | 76.6 | 78.2 | 2.0 | 3.1 | 4.4 | 8.3 |
| BXN 80MA 4 | MXN 20MA 4 | 0.55 | 0.75 | 1,755 | 17.76 | 77.7 | 82.1 | 81.1 | 3.0 | 2.2 | 2.2 | 10.7 |
| BXN 80MB 4 | MXN 20MB 4 | 0.75 | 1.00 | 1,757 | 28.85 | 82.3 | 85.8 | 85.5 | 4.1 | 2.7 | 3.0 | 14.4 |
| BXN 90S 4 | MXN 25S 4 | 1.1 | 1.50 | 1,754 | 31.76 | 83.5 | 86.6 | 86.5 | 6.0 | 2.7 | 2.9 | 15.6 |
| BXN 90L 4 | MXN 25L 4 | 1.5 | 2.00 | 1,750 | 35.11 | 83.4 | 86.5 | 86.5 | 8.2 | 2.8 | 2.4 | 16.6 |
| BXN 100LA 4 | MXN 30LA 4 | 2.2 | 3.00 | 1,765 | 90.01 | 87.1 | 89.6 | 89.5 | 11.9 | 3.8 | 2.8 | 29.5 |
| BXN 100LB 4 | MXN 30LB 4 | 3.0 | 4.00 | 1,761 | 90.01 | 87.1 | 89.5 | 89.5 | 16.3 | 3.6 | 4.4 | 29.5 |
| BXN 112M 4 | MXN 35M 4 | 3.7 | 5.00 | 1,762 | 105.43 | 86.6 | 89.2 | 89.5 | 20.1 | 3.1 | 3.3 | 35.1 |
| BXN 132S 4 | MXN 40S 4 | 5.5 | 7.50 | 1,779 | 497.42 | 89.0 | 91.1 | 91.7 | 29.5 | 5.0 | 4.0 | 67.9 |
| BXN 132M 4 | MXN 40M 4 | 7.5 | 10.00 | 1,777 | 497.42 | 89.1 | 91.1 | 91.7 | 40.3 | 4.5 | 3.8 | 67.9 |

| | | 380 V | | | | 460 V | | | | 575 V | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motor designation | | | Current | | KVA | | Current | | KVA | | Current | | KVA |
| IEC | Compact | cosφ | IN | $I_S/I_N$ | Code | cosφ | IN | $I_S/I_N$ | Code | cosφ | IN | $I_S/I_N$ | Code |
| | | | [A] | | | | [A] | | | | [A] | | |
| BXN 63MA 4 | MXN 05MA 4 | 0.52 | 0.53 | 4.1 | L | 0.52 | 0.44 | 4.1 | L | 0.51 | 0.35 | 4.1 | L |
| BXN 63MB 4 | MXN 05MB 4 | 0.56 | 0.67 | 4.7 | K | 0.55 | 0.56 | 4.7 | K | 0.51 | 0.48 | 4.7 | K |
| BXN 71MA 4 | MXN 10MA 4 | 0.70 | 0.72 | 6.0 | K | 0.70 | 0.59 | 6.0 | K | 0.71 | 0.47 | 6.0 | K |
| BXN 71MB 4 | MXN 10MB 4 | 0.60 | 1.19 | 7.7 | N | 0.61 | 0.96 | 7.7 | N | 0.60 | 0.79 | 7.7 | N |
| BXN 80MA 4 | MXN 20MA 4 | 0.71 | 1.41 | 7.3 | K | 0.72 | 1.15 | 7.3 | K | 0.75 | 0.88 | 7.3 | K |
| BXN 80MB 4 | MXN 20MB 4 | 0.77 | 1.71 | 8.8 | L | 0.76 | 1.43 | 8.8 | L | 0.75 | 1.16 | 8.8 | L |
| BXN 90S 4 | MXN 25S 4 | 0.77 | 1.33 | 7.3 | J | 0.75 | 2.10 | 8.5 | L | 0.75 | 2.10 | 8.5 | L |
| BXN 90L 4 | MXN 25L 4 | 0.75 | 3.50 | 8.3 | L | 0.74 | 2.92 | 8.3 | L | 0.74 | 2.34 | 8.3 | L |
| BXN 100LA 4 | MXN 30LA 4 | 0.79 | 4.72 | 10.5 | M | 0.79 | 3.89 | 10.5 | M | 0.78 | 3.14 | 10.5 | M |
| BXN 100LB 4 | MXN 30LB 4 | 0.79 | 6.46 | 9.8 | M | 0.78 | 5.37 | 9.8 | M | 0.77 | 4.34 | 9.8 | M |
| BXN 112M 4 | MXN 35M 4 | 0.79 | 7.96 | 9.3 | L | 0.78 | 6.59 | 9.3 | L | 0.78 | 5.30 | 9.3 | L |
| BXN 132S 4 | MXN 40S 4 | 0.77 | 11.70 | 11.4 | N | 0.77 | 9.72 | 11.4 | N | 0.77 | 7.78 | 11.4 | N |
| BXN 132M 4 | MXN 40M 4 | 0.78 | 15.90 | 10.9 | N | 0.78 | 13.20 | 10.9 | N | 0.78 | 10.60 | 10.9 | N |

### IE1/NEMA Standard - 460 V - 60 Hz - 4 poles

| Motor designation | | Output power | | Output speed | Inertia | η | | | Torque | | | Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IEC | Compact | $P_{n1}$ | | $n_1$ | $J_m$ J x10$^{-4}$ | 50% | 75% | 100% | $T_N$ | $T_S/T_N$ | $T_A/T_N$ | |
| | | [kW] | [HP] | [rpm] | [kgm$^2$] | [%] | [%] | [%] | | [Nm] | | [kg] |
| | MNN 05MA 4 | 0.12 | 0.16 | 1,687 | 1.8 | 48.1 | 55.2 | 62.0 | 0.7 | 2.7 | 2.2 | 4.5 |
| | MNN 05MB 4 | 0.18 | 0.25 | 1,669 | 2.0 | 52.0 | 59.2 | 66.0 | 1.0 | 3.4 | 1.9 | 4.8 |
| | MNN 05MC 4 | 0.25 | 0.33 | 1,672 | 2.9 | 63.1 | 68.9 | 68.0 | 1.4 | 3.6 | 2.1 | 5.7 |
| | MNN 10MA 4 | 0.25 | 0.33 | 1,696 | 4.6 | 59.6 | 67.0 | 68.0 | 1.4 | 1.8 | 2.8 | 5.6 |
| | MNN 10MB 4 | 0.37 | 0.50 | 1,694 | 6.3 | 66.8 | 72.6 | 70.0 | 2.1 | 1.8 | 2.6 | 6.5 |
| | MNN 10MC 4 | 0.55 | 0.75 | 1,689 | 8.0 | 70.5 | 75.4 | 74.0 | 3.1 | 2.2 | 2.4 | 7.4 |

| | | 380 V | | | | 460 V | | | | 575 V | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motor designation | | | Current | | KVA | | Current | | KVA | | Current | | KVA |
| IEC | Compact | cosφ | IN | $I_S/I_N$ | Code | cosφ | IN | $I_S/I_N$ | Code | cosφ | IN | $I_S/I_N$ | Code |
| | | | [A] | | | | [A] | | | | [A] | | |
| | MNN 05MA 4 | 0.60 | 0.52 | 3.4 | J | 0.59 | 0.43 | 3.4 | J | 0.59 | 0.35 | 3.4 | J |
| | MNN 05MB 4 | 0.54 | 0.81 | 3.5 | J | 0.56 | 0.65 | 3.5 | J | 0.56 | 0.52 | 3.5 | J |
| | MNN 05MC 4 | 0.58 | 0.92 | 3.9 | J | 0.59 | 0.76 | 3.9 | J | 0.60 | 0.60 | 3.9 | J |
| | MNN 10MA 4 | 0.65 | 0.84 | 4.8 | J | 0.66 | 0.68 | 4.8 | J | 0.66 | 0.55 | 4.8 | J |
| | MNN 10MB 4 | 0.70 | 1.09 | 5.4 | J | 0.69 | 0.91 | 5.4 | J | 0.69 | 0.73 | 5.4 | J |
| | MNN 10MC 4 | 0.70 | 1.58 | 5.6 | J | 0.69 | 1.31 | 5.6 | J | 0.67 | 1.08 | 5.6 | J |



# BRAKE | EVOX ELECTRIC MOTOR

## BRAKE OPTION LIST

| Motor | + | FDD | 15 | NR | SA | 400 | R | AA | MRM | + | Options |
|---|---|---|---|---|---|---|---|---|---|---|---|

**Brake type**

- (Standard) No brake

FDD DC brake

**Brake torque**

For FD brake see Performance Table – DC Brake

**AC/DC type rectifier**

NR Standard rectifier with mechanic fast turn off

SR Electronic rectifier with overexitation and fast turn off

**Separate brake supply**

SD Separate DC brake supply

SA Separate AC brake supply

**Brake supply**

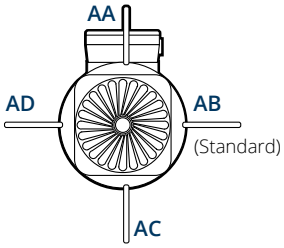
For FD brake see DC Brake Supply table

**Brake hand release lever**

- (Standard) No release lever

R Lever with a return spring

**Brake hand release lever position**




**Brake monitoring device**

- (Standard) Without microswitch

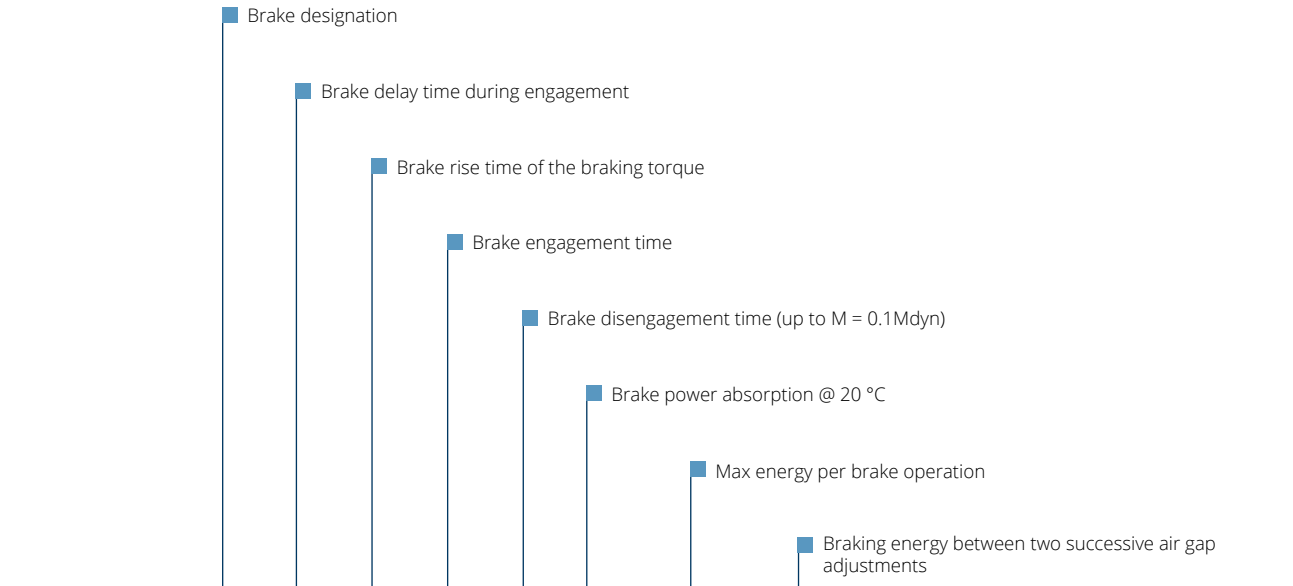
MRM Release monitoring microswitch

MWM Wear monitoring microswitch

# BRAKE | EVOX ELECTRIC MOTOR

## BRAKE PERFORMANCE

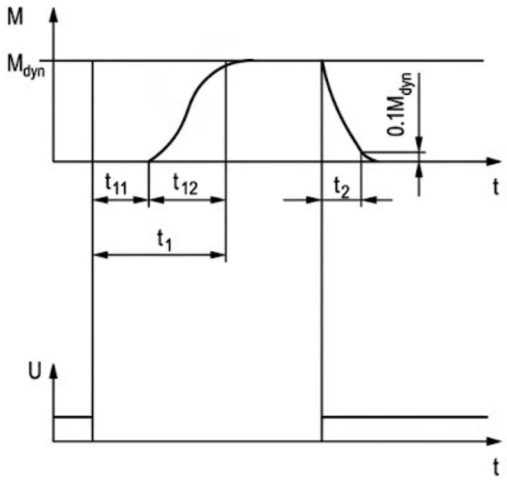
### Tables introduction




| Motor designation | | Brake | Operating / Switching times | | | | P | Wmax | | | W | Inertia | Weight | Tnom Brake | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IEC | Compact | ID | $t_{11}$ | $t_{12}$ | $t_1$ | $t_2$ | | 10 s/h | 100 s/h | 1000 s/h | | $Jx10^{-4}$ | IEC B5 | 1x Tmot | 1.5x Tmot | 2x Tmot | Max. |
| BXN | MXN | | ms | | | | W | KJ | | | MJ | [kgm²] | [kg] | Nm | | | |
| 63MA 4 | 05MA 4 | FDD06S | 84 | 196 | 280 | 45 | 20.0 | 3.0 | 1.6 | 0.2 | 34 | 2.4 | 6.3 | 1 | 1.3 | **1.6** | 3.3 |

[Values calculated for coils with a connection voltage of 205 V DC at rated air gap and 0.7x rated current IN, at 20 °C.]

### Operating/switching times of the spring-applied brakes




* Max brake torque tolerance ±25%

Available brake dynamic torque

Available brake static torque

**Value** Suggested torque (equivalent to 2xTmot)

## Performance Table – DC Brake

| Motor designation | | Brake | NR | | | | NR (with fast turn off enabled) | | | | SR (with fast turn off enabled) | | | | P | Wmax | | | W | Inertia Weight | | Tnom Brake | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IEC | Compact | ID | $t_{11}$ | $t_{12}$ | $t_1$ | $t_2$ | $t_{11}$ | $t_{12}$ | $t_1$ | $t_2$ | $t_{11}$ | $t_{12}$ | $t_1$ | $t_2$ | | 10 s/h | 100 s/h | 1000 s/h | | Jx10-4 | IEC B5 | 1x Tmot | 1.5x Tmot | 2x Tmot | Max. |
| BXN | MXN | | ms | | | | ms | | | | ms | | | | W | KJ | | | MJ | [kgm²] | [kg] | Nm | | | |
| 63MA 4 | 05MA 4 | FDD06S | 84 | 196 | 280 | 45 | 15 | 13 | 28 | 45 | 45 | 13 | 58 | 36 | 20.0 | 3.0 | 1.6 | 0.2 | 34 | 2.4 | 6.3 | 1 | 1.3 | **1.6** | 3.3 |
| 63MB 4 | 05MB 4 | FDD06S | 84 | 196 | 280 | 45 | 15 | 13 | 28 | 45 | 45 | 13 | 58 | 36 | 20.0 | 3.0 | 1.6 | 0.2 | 34 | 3.5 | 7.4 | 1.3 | 2 | **2.6** | 3.3 |
| 71MA 4 | 10MA 4 | FDD06 | 84 | 196 | 280 | 45 | 15 | 13 | 28 | 45 | 45 | 13 | 58 | 36 | 20.0 | 3.0 | 1.6 | 0.2 | 34 | 7.4 | 9.2 | 1.6 | 2.3 | **3.5** | 6 |
| 71MB 4 | 10MB 4 | FDD06 | 84 | 196 | 280 | 45 | 15 | 13 | 28 | 45 | 45 | 13 | 58 | 36 | 20.0 | 3.0 | 1.6 | 0.2 | 34 | 10.8 | 11 | 2.5 | 4 | **4.5** | 6 |
| 80MA 4 | 20MA 4 | FDD08 | 93 | 217 | 310 | 57 | 15 | 16 | 31 | 57 | 45 | 16 | 61 | 46 | 25.0 | 7.4 | 2.95 | 0.4 | 87 | 19.8 | 14.6 | 3.5 | 6 | **8** | 12 |
| 80MB 4 | 20MB 4 | FDD08 | 93 | 217 | 310 | 57 | 15 | 16 | 31 | 57 | 45 | 16 | 61 | 46 | 25.0 | 7.4 | 2.95 | 0.4 | 87 | 30.8 | 18.3 | 5 | 7 | **9** | 12 |
| 90S 4 | 25S 4 | FDD10 | 141 | 329 | 470 | 76 | 28 | 19 | 47 | 76 | 58 | 19 | 77 | 61 | 31.5 | 11.8 | 4.0 | 0.5 | 106 | 35.8 | 21.6 | 7 | 11 | **16** | 23 |
| 90L 4 | 25L 4 | FDD10 | 141 | 329 | 470 | 76 | 28 | 19 | 47 | 76 | 58 | 19 | 77 | 61 | 31.5 | 11.8 | 4.0 | 0.5 | 106 | 39.1 | 22.6 | 9 | 16 | **23** | |
| 100LA 4 | 30LA 4 | FDD12 | 159 | 371 | 530 | 115 | 28 | 25 | 53 | 115 | 58 | 25 | 83 | 92 | 40.0 | 22.8 | 6.2 | 0.7 | 212 | 94 | 36.5 | 14 | 23 | **32** | 46 |
| 100LB 4 | 30LB 4 | FDD12 | 159 | 371 | 530 | 115 | 28 | 25 | 53 | 115 | 58 | 25 | 83 | 92 | 40.0 | 22.8 | 6.2 | 0.7 | 212 | 94 | 36.5 | 18 | 32 | **46** | |
| 112M 4 | 35M 4 | FDD14 | 126 | 294 | 420 | 210 | 17 | 25 | 42 | 210 | 47 | 25 | 72 | 168 | 51.5 | 28.2 | 7.3 | 0.8 | 230 | 114.4 | 45.1 | 25 | 40 | **55** | 80 |
| 132S 4 | 40S 4 | FDD16 | 171 | 399 | 570 | 220 | 27 | 30 | 57 | 220 | 57 | 30 | 87 | 176 | 55.5 | 33.6 | 8.5 | 0.95 | 387 | 520.4 | 80.9 | 35 | 55 | **70** | 125 |
| 132M 4 | 40M 4 | FDD16 | 171 | 399 | 570 | 220 | 27 | 30 | 57 | 220 | 57 | 30 | 87 | 176 | 55.5 | 33.6 | 8.5 | 0.95 | 387 | 520.4 | 80.9 | 45 | 80 | **100** | 125 |

| Motor designation | | Brake | NR | | | | NR (with fast turn off enabled) | | | | SR (with fast turn off enabled) | | | | P | Wmax | | | W | Inertia Weight | | Tnom Brake | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IEC | Compact | ID | $t_{11}$ | $t_{12}$ | $t_1$ | $t_2$ | $t_{11}$ | $t_{12}$ | $t_1$ | $t_2$ | $t_{11}$ | $t_{12}$ | $t_1$ | $t_2$ | | 10 s/h | 100 s/h | 1000 s/h | | Jx10-4 | IEC B5 | 1x Tmot | 1.5x Tmot | 2x Tmot | Max. |
| BXN | MXN | | ms | | | | ms | | | | ms | | | | W | KJ | | | MJ | [kgm²] | [kg] | Nm | | | |
| - | 05MA 4 | FDD06S | 84 | 196 | 280 | 45 | 15 | 13 | 28 | 45 | 45 | 13 | 58 | 36 | 20 | 3.0 | 1.6 | 0.2 | 34 | 2.4 | 6.3 | 1 | 1.3 | **1.6** | 3.3 |
| - | 05MB 4 | FDD06S | 84 | 196 | 280 | 45 | 15 | 13 | 28 | 45 | 45 | 13 | 58 | 36 | 20 | 3.0 | 1.6 | 0.2 | 34 | 3.5 | 7.4 | 1.3 | 2 | **2.6** | 3.3 |
| - | 05MC 4 | FDD06 | 84 | 196 | 280 | 45 | 15 | 13 | 28 | 45 | 45 | 13 | 58 | 36 | 20 | 3.0 | 1.6 | 0.2 | 34 | 7.4 | 9.2 | 2 | 3 | **3.5** | 6 |
| - | 10MA 4 | FDD06 | 84 | 196 | 280 | 45 | 15 | 13 | 28 | 45 | 45 | 13 | 58 | 36 | 20 | 3.0 | 1.6 | 0.2 | 34 | 10.8 | 11 | 1.6 | 2.3 | **3.5** | 6 |
| - | 10MB 4 | FDD06 | 84 | 196 | 280 | 45 | 15 | 13 | 28 | 45 | 45 | 13 | 58 | 36 | 20 | 3.0 | 1.6 | 0.2 | 34 | 19.8 | 14.6 | 2.5 | 4 | **4.5** | 6 |
| - | 10MC 4 | FDD08 | 93 | 217 | 310 | 57 | 15 | 16 | 31 | 57 | 45 | 16 | 61 | 46 | 25 | 7.4 | 2.95 | 0.4 | 87 | 30.8 | 18.3 | 3.5 | 6 | **8** | 12 |

* Max brake torque tolerance ±25%

Available brake dynamic torque

Available brake static torque

**Value** Suggested torque (equivalent to 2xTmot)

# BRAKE | EVOX ELECTRIC MOTOR

## BRAKE OPTION LIST DEEP DIVE

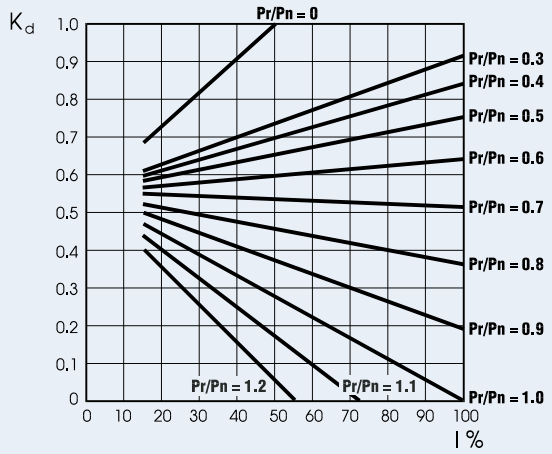
## Permissible starts per hour, Z

The rating charts of brakemotors lend the permitted number of starts $Z_0$, based on 50% intermittence and for unloaded operation. The catalogue value represents the maximum number of starts per hour for the motor without exceeding the rated temperature for the insulation class F. To give a practical example for an application characterized by inertia $J_c$, drawing power $P_r$ and requiring mean torque at start-up $M_L$ the actual number of starts per hour for the motor can be calculated approximately through the following equation:

$$Z = \frac{Z_0 \cdot K_c \cdot K_d}{K_J}$$

where:

| | |
|---|---|
| $K_J = \frac{J_m + J_c}{J_m}$ | inertia factor |
| $K_c = \frac{M_a - M_L}{M_a}$ | torque factor |
| $K_d =$ | load factor, see the following table |

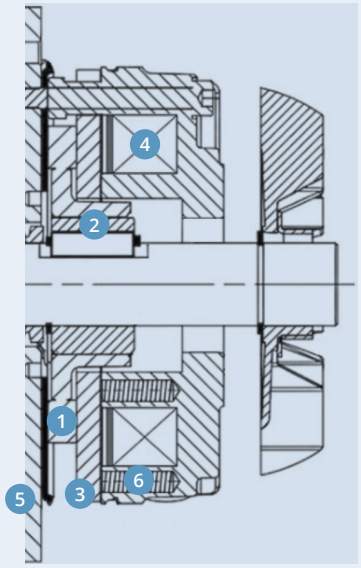



If actual starts per hour is within permitted value (Z) it may be worth checking that braking work is compatible with brake (thermal) capacity Wmax.

# Asynchronous brake motors

Standard electric motors can be equipped with a brake thus creating a self-braking unit. The brake helps in situation where it is necessary a quickly and safely stop of the machine.

All brakes are **designed for fail-safe operation:** the braking torque is applied by spring action whenever the power supply is interrupted, ensuring maximum safety.




Key:

1. Brake disc
2. Disc carrier
3. Pressure plate
4. Brake coil
5. Motor rear shield
6. Brake springs

In the event of a power failure, pressure springs push the armature plate against the brake disc.
The disc is trapped between the armature plate and the motor shield, effectively stopping shaft rotation.
When the coil is energized, a magnetic field, strong enough to overcome the spring force, attracts the armature plate.
This releases the brake disc, which is integral with the motor shaft, allowing it to rotate freely.

# Brake type selection

FDD series brakes are engineered for applications requiring high precision, low noise, and customizable response times, from smooth engagement to high-dynamic performance

| Cases | Motor power supply | Brake coil power supply | Brake power supply designation | Braking system |
|---|---|---|---|---|
| **1** | CA | Dedicated AC | SA | FDD + rectifier |
| **2** | | Dedicated DC | SD | FDD |

Direct connection is feasible by selecting an SA motor supply. Customers must manage the wiring and ensure motor/brake voltage compatibility

# BRAKE | EVOX ELECTRIC MOTOR

## BRAKE OPTION LIST DEEP DIVE

### Brake type

**FDD**

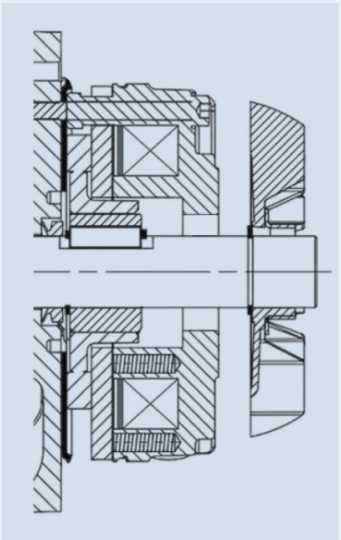
### High-performance DC brake type

EVOX motors are equipped with FDD series DC spring-applied electromagnetic brakes.
The brake assembly is bolted directly onto the motor rear shield for maximum compactness. A steel hub with an integrated anti-vibration device is shrunk onto the motor shaft, allowing the brake disc to slide axially with minimal noise and wear.

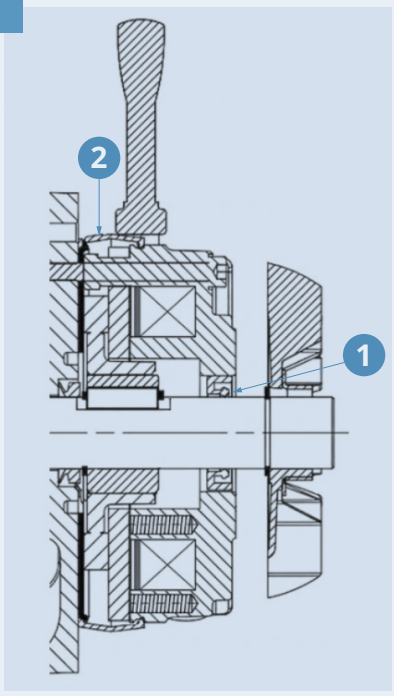
FDD brakes are engineered for high-performance operation, ensuring reliable torque and safe energy dissipation during both static holding and high-energy dynamic braking.
They ensure high dynamic response and low-noise operation, making them ideal for demanding industrial environments.
Operating characteristics can be optimized by selecting from the available NR or SR rectifier options and various wiring configurations to achieve the perfect balance between response time and energy efficiency.

**For applications involving lifting and/or high hourly energy dissipation,** contact Bonfiglioli's Technical Service

**IP55**



**IP56**




BXN, MXN and MNN brake motors comes with an IP55 protection degree as standard and it is possible to configure them with an IP56 as an option.
If IP56 is selected, the following construction variants will be applied:

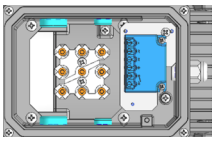
1. Oil seal at N.D.E. of motor shaft
2. Dust and waterproof rubber seal

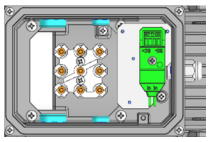
**For FDD technical specifications, refer to the** performance section

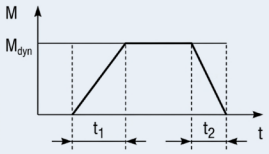
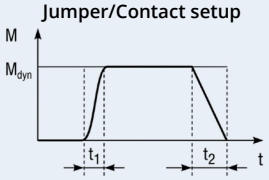
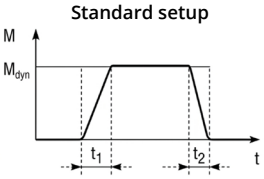
# OPTIONS | BRAKE

## AC/DC rectifier type

The FD brake coil can be directly fed with DC current or by an AC/DC connection through a rectifier. A rectifier is a circuit that converts the Alternating Current (AC) input power into the Direct Current (DC) output power required by the brake coil (VDC ~ 0.45 * VAC or VDC ~ 0.9 * VAC).
EVOX motors are available in versions NR and SR, as detailed below:





| Motor size | Brake size | Standard variant [NR] | Option variant [SR] |
|---|---|---|---|
| BXN 63 | FDD06S | Standard setup<br>  <br>Jumper/Contact setup<br>  | Standard setup<br>  |
| BXN 71 | FDD06 | | |
| BXN 80 | FDD08 | | |
| BXN 90 | FDD10 | | |
| BXN 100 | FDD12 | | |
| BXN 112 | FDD14 | | |
| BXN 132 | FDD16 | | |



Operating/switching times of the spring-applied brakes
$t_1$ Engagement time
$t_2$ Disengagement time (up to M = 0.1 $M_{dyn}$)
$M_{dyn}$ Braking torque at a constant speed of rotation

Schematic diagrams simplified for clarity to provide an insight into the brake's operating logic. For detailed technical data, please refer to the Brake Performance chapter.

**NR**

### Standard Rectifiers

The NR is the standard bridge/half-wave rectifier used to provide the correct DC voltage to the brake coil based on the available AC mains supply.

- Fast Switching: It features a dedicated terminal for an external contact to implement a DC-side interruption (fast turn-off). This is essential for reducing braking response times in lifting applications or emergency stops.
- Compliance: cURus certified for voltages up to 270V AC. For higher voltages, the URus certified version is available.

**SR**

### High-Performance Electronic Rectifier

The SR is an electronic overexcitation rectifier designed for high-dynamic applications. It optimizes brake performance through an intelligent current setup.

- Efficiency & Reliability: The electronic control optimizes the current setup (overexcitation), reducing thermal stress on the coil and allowing for high switching frequencies.
- Global Standard: Fully cURus certified across the entire supported voltage range, ensuring seamless global compliance.

# BRAKE | EVOX ELECTRIC MOTOR

## OPTIONS | BRAKE

### Brake hand release systems

Spring-applied brakes type FDD can be equipped with optional manual release devices. These are used to manually release the brake before servicing any machine or system components driven by the motor

Availability of the various release devices is indicated below:

| | R | RM |
|---|---|---|
| **BXN_FDD** | BXN 63 ... BXN 132 | BXN 63 ... BXN 132 |

**R**

#### Lever with return spring

With this options, the return spring brings the release lever back in the original position.

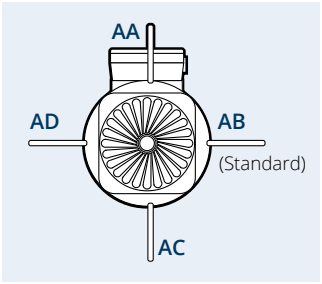
### Brake hand release lever position

**AA**

#### Release lever orientation

Unless otherwise specified, the release lever is located 90° away from the terminal box – identified by letters [AB] in the diagram on the right – in a clockwise direction on both R and RM options.

Alternative lever positions [AA], [AC] and [AD] are also possible when the corresponding option is specified.



# MORE ON BRAKE OPTIONS

## Separate brake supply

**SA**

### Brake AC separate power supply

The brake rectifier is powered through an independent AC line, separate from the motor power supply.

**FDD - NR/SR - SA:** The rated AC voltage for the rectifier must be specified (e.g., SA 400 V AC).

**SD**

### Brake DC separate power supply

The brake coil is directly powered with DC current. In this configuration, the rectifier is not present.

The rated coil voltage must be specified (e.g., SD 24 V DC).

## Brake supply

**230**

### FDD brake power supply

A rectifier installed inside the terminal box feeds the DC brake coil. Wiring between the rectifier and the brake coil is provided as factory standard.

The rectifier is typically supplied as a separate circuit to ensure compatibility with inverter-fed applications and different control logic. Connection to the motor terminal board (direct supply) can be performed by the user if required, provided the voltage levels are compatible.

Brake power supply voltage is specified in the following table and is independent of the mains frequency:

### FDD-SD brake supply voltages

| Motor size | Motor supply | Braking system supply | Voltage (V CC) |
|---|---|---|---|
| **BXN 63 ... BXN 132**<br>**MXN 05 ... MXN 40** | More options depending on the chosen winding | The brake coil is directly powered with DC | 24 |
| | | | 48 |
| | | | 180 |
| | | | 205 |

Configurable for motors with 50HZ and 60HZ power supply

# BRAKE | EVOX ELECTRIC MOTOR

## MORE ON BRAKE OPTIONS

### FDD-SA brake supply voltages

| Motor size | Motor supply | Braking system supply | Voltage (V AC) |
|---|---|---|---|
| **BXN 63 ... BXN 132**<br>**MXN 05 ... MXN 40** | More options depending on the chosen winding and frequency | The brake rectifier is powered with a separate AC | 110 |
| | | | 115 |
| | | | 120 |
| | | | 127 |
| | | | 200 |
| | | | 208 |
| | | | 220 |
| | | | 230 |
| | | | 240 |
| | | | 330 |
| | | | 380 |
| | | | 400 |
| | | | 415 |
| | | | 440 |
| | | | 460 |
| | | | 480 |
| | | | 360-500 |

Configurable for motors with 50HZ and 60HZ power supply

## FDD brake connection

Whenever a separate brake power supply is required (e.g., for inverter operation), the connection to the rectifier must comply with the brake winding voltage stated on the motor nameplate.

Because of the highly inductive load, contacts used for brake control must belong to usage class AC-3 (for AC line interruption) or DC-13 (for DC line interruption) according to IEC 60947-4-1.

**Table (1)** – Brake coil with separate power supply and NR rectifier, a.c. line interruption.

**Table (2)** – Brake coil with separate power supply and NR rectifier, a.c. and d.c. lines interruption.

**Table (3)** – Brake coil with separate power supply and SR electronic rectifier, with integrated overexcitation and fast switching.

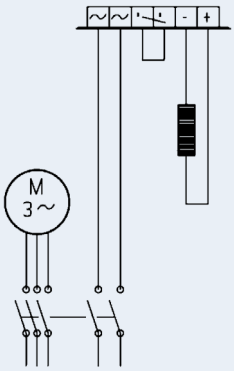



Table (1)
FDD | SA | NR

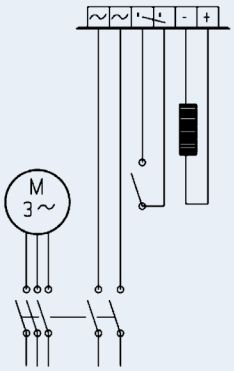



Table (2)
FDD | SA | NR

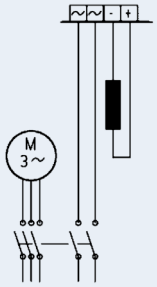



Table (3)
FDD | SA | SR

# OPTIONS | EVOX ELECTRIC MOTOR SIDE

## OPTION DESIGNATION - EVOX MOTORS




**Certifications**
- (Standard) CE, UKCA, UL
CN Global motor
BIS Indian market

**Duty Cycle**
- (Standard) S1 duty cycle. Continuous
S2-10MIN Duty Cycle S2. Duration: 10 min [black]
S2-30MIN Duty Cycle S2. Duration: 30 min
S2-60MIN Duty Cycle S2. Duration: 60 min
S3-25% Duty Cycle S3. Intermittance: 25%
S3-40% Duty Cycle S3. Intermittance: 40%
S3-70% Duty Cycle S3. Intermittance: 70%

**External protection**
- (Standard) No external protection
RC Rain protection cover
TC Textile canopy
EC Encoder protection cover

**Feedback units**
- (Standard) Without encoder
EN1 Incremental encoder, Vin=5V, line-driver output RS 421
EN2 Incremental encoder, Vin=10-30V, line-driver output RS 422
EN3 Incremental encoder, Vin=12-30V, push-pull output 12-30V
EN4 Encoder sin/cos, Vin=4,5-5,5V, output Sinus 0,5Vpp
EN5 Absolute encoder single-turn, HIPERFACE® interface, Vin=7-12V
EN6 Absolute encoder multi-turn, HIPERFACE® interface, Vin=7-12V

**Double shaft extension**
- (Standard) Without double shaft extension
PS With double shaft extension

**Rotor balancing grade B**
- (Standard) Without rotor balancing
RV With rotor balancing

**Tropicalization**
- (Standard) Without tropicalization
TP Tropicalization

**Anti-condensation heaters**
- (Standard) Without anti-condensation heaters
H1 Anti-condensation heaters supply voltage 230 V
NH1 Anti-condensation heaters supply voltage 115 V

**Thermal protection**
- (Standard) Without thermal protection
E3 Thermal sensors, triggers a signal at a specific temperature (CLF: 150° & CLH:180°)
D3 Thermal switch, switches off the motor at a specific temperature (CLF: 150° & CLH:180°)
PT1000 Resistance thermometer
E3+PT1000 Thermal sensor + thermometer
D3+PT1000 Thermal switch + thermometer


**Surface protection**

- (Standard) C2 protection

C3
C4

For C5 according to UNI EN ISO 12944-2, please contact our Technical Customer Support for further details

**Painting**

- (Standard) not painted
RAL7042 Traffic Grey A
RAL5010 Gentian Blue
RAL9005 Jet Black
RAL9006 White aluminium
RAL9010 Pure White
RAL7035 Light Grey
RAL7001 Silver Grey
RAL7037 Dusty Grey
RAL5015 Sky Blue
RAL5024 Pastel blue

**Certificates**

- (Standard) Without certificate
AC Gear unit compliance certificate
ACM Motor compliance certificate
CC Inspection certificate

(1) Those options are available for Gear Units, Gearmotors, Gear brake motors, Stand alone motors and Stand alone Brake motors

# OPTIONS | EVOX ELECTRIC MOTOR SIDE

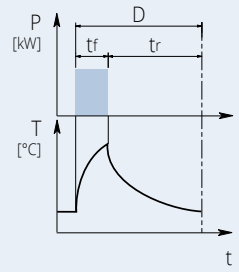
## OPTION DETAIL

### Duty Cycle

Unless specified, catalogue motor power refers to continuous duty S1. Any different condition has to be classified in the correct Duty Cycle, according with CEI EN 60034-1.

**S2-...MIN**

### S2 Duty Cycle (Limited duration duty)




This type of duty is characterized by operation at a constant load for a limited time [$\mathbf{t_f}$], which is shorter than the time required to reach thermal balance, followed by an idle period [$\mathbf{t_r}$] where the motor can return to the ambient temperature.

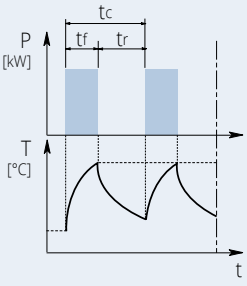
The duration of the duty cycle is: D=tf+tr

$t_f$ = operating time under constant load

$t_r$ = idle period

**S3-...%**

### S3 Duty Cycle (Periodical intermittent duty)




This type of duty is characterized by a sequence of identical operation cycles formed by a constant load operation and an idle period.

For this type of duty, the starting current does not significantly affect overtemperature.

$t_f$ = operating time under constant load

$t_r$ = idle period

$t_c$ = cycle time

$$I = \frac{tf}{tf + tr} \cdot 100$$

$t_f$ = operating time under constant load

$t_r$ = idle period

For a S2 & S3 duty cycle motor, the required motor power should be multiplied by the coefficient reported in the following table.

| | Service Duty | | | | | | |
|---|---|---|---|---|---|---|---|
| | S2 | | | S3 | | | S4 - S9 |
| | D (min) | | | Intermittance (I) | | | |
| | 10 | 30 | 60 | 25% | 40% | 70% | Contact us |
| $f_m$ | 1.35 | 1.15 | 1.05 | 1.25 | 1.15 | 1.1 | |

**If cycles from S2 to S9 are chosen, the motor nameplate will be marked with the cycle name, an increased power rating and electrical data to suit the type of duty.**

*For further details, please contact Bonfiglioli's Technical Service*

BACK TO OPTION LIST

## Thermal protection

In addition to the standard protection provided by the magneto-thermal device, motors can be supplied with built-in thermal probes to protect the winding against overheating caused by severe and demanding application or by an insufficient ventilation of the environment.

This additional protection is highly recommended on servo-ventilated motors (IC416).

**E3**

### Thermistors

These are semi-conductors having rapid resistance variation when they are close to the rated switch off temperature (150°C for CLF or 180° for CLH insulation class). Variations of the R=f(T) characteristic are specified under DIN 44081, IEC 34-11 Standards. Positive temperature coefficient thermistors are normally used (also known as PTC “cold conductor resistors”). Usually this kind of thermal protection is easy to be found on inverters.

Thermistors cannot control relays directly and must be connected to a suitable disconnect device. Thus protected, three PTCs connected in series are installed in the winding, the terminals of which are located on the auxiliary terminal-board.

**D3**

### Bimetallic thermostats

These types of protective devices house a bimetal disk. Bimetal switches operate on the principle of mechanical deformation as a result of long-term heating. Bimetal strips bent as a result of such heating have a spring action that results in sudden reversal of the curvature (concave to convex or vice-versa).

When the rated switch off temperature temperature (150°C for CLF or 180° for CLH insulation class) is reached, these temperature detectors (NC contacts) can deactivate an auxiliary circuit. The circuit can only be reclosed following a considerable fall in temperature. Three bimetallic thermostats connected in series are usually employed, with normally closed contacts. The terminals are located on an auxiliary terminal-board.

Bimetal switches are suitable protection devices in the case of slowly rising motor temperatures. When the motor current rises quickly (e.g. with a locked rotor), these switches are not suitable due to their large thermal time constants.

# OPTIONS | EVOX ELECTRIC MOTOR SIDE

## OPTION DETAIL

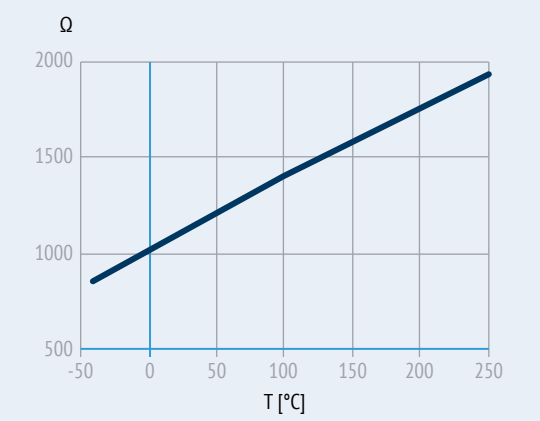
**PT1000**

### Resistance thermometer

The resistance thermometer has a chip for a temperature sensor, the resistance of which changes in relation to temperature according to a series of reproducible basic values. The changes in resistance are transferred as changes in current.

At 0 °C, the measurement resistances are adjusted to 1000 Ω for the Pt1000 and correspond to the accuracy class B (i.e. the relationship between resistance and temperature). The limit deviation is ±0.3 °C, and the admissible deviations are defined in EN 60751. The Pt1000 resistance thermometer will, in the future, gradually replace the KTY84-130 temperature sensors available today. The relationship between the temperature and the electrical resistance of conductors is utilized in the Pt1000 to measure the temperature, just like with the additional resistance thermometers described above. Pure metals undergo larger changes in resistance than alloys and have a relatively constant temperature coefficient.

| °C | Ω | °C | Ω |
|---|---|---|---|
| -40 | 843 | 110 | 1,423 |
| -30 | 882 | 120 | 1,461 |
| -20 | 922 | 130 | 1,498 |
| -10 | 961 | 140 | 1,536 |
| 0 | 1,000 | 150 | 1,573 |
| 10 | 1,039 | 160 | 1,611 |
| 20 | 1,078 | 170 | 1,648 |
| 30 | 1,117 | 180 | 1,685 |
| 40 | 1,155 | 190 | 1,722 |
| 50 | 1,194 | 200 | 1,759 |
| 60 | 1,232 | 210 | 1,795 |
| 70 | 1,271 | 220 | 1,832 |
| 80 | 1,309 | 230 | 1,868 |
| 90 | 1,347 | 240 | 1,905 |
| 100 | 1,385 | 250 | 1,941 |




For applications requiring both simplified winding temperature control via inverter and constant temperature monitoring, the following bundles, combining a thermal probe/bimetallic switch with a PT1000 thermometer, are available.

**E3+PT1000** **Thermal sensor + thermometer**

**D3+PT1000** **Thermal switch + thermometer**

## Feedback units

Motors can be combined with six different types of encoders in order to achieve feedback circuits. The installation requires an expansion module which depends on the type of the encoder selected.

Configurations with double-extended shaft (PS) and rain/fabric canopy (RC, TC) are not compatible with encoder installation.

EN1
EN2
EN3

### Incremental encoder

These encoders are speed sensors obtained with optic-electronic technology and can be utilized as speed transducers. They are composed by an electric circuit and an optic disk integral with the shaft. Usually, there are 2 main standards for incremental encoder outputs: Push-pull and Line driver. The first one is useful in case of long wirings, the second one for applications in high electromagnetic pollution environments.

EN4

### SIN/COS encoder

These encoders are both speed and position sensors obtained with optic-electronic technology and can be used as position and speed transducers at the same time. Usually employed for applications that require very high dynamic features.

EN5
EN6

### Absolute encoder

These encoders are position sensors obtained with optic-electronic technology and can be utilized as position transducers. Usually employed for applications that require high precision

| | | EN1 | EN2 | EN3 | EN4 | EN5 | EN6 |
|---|---|---|---|---|---|---|---|
| Encoder type | | Incremental | Incremental | Incremental | sin/cos | Absolute single turn | Absolute multi-turn |
| Output interface | | TTL/RS 442 | TTL/RS 442 | HTL push-pull | Sinus VPP 0.5 | HIPERFACE® | HIPERFACE® |
| Power supply voltage VIN | [V] | 4 ... 6 | 10 ... 30 | 12 ... 30 | 4.4 ... 5.5 | 7 ... 12 | 7 ... 12 |
| Output voltage | [V] | 5 | 5 | 12 ... 30 | - | - | - |
| Current in unloaded conditions | [mA] | 120 | 100 | 100 | 40 | 80 | 80 |
| Pulses per revolution | | 1024 | | | | | |
| Steps per revolution | | - | - | - | - | 15 bit | 15 bit |
| Revolutions | | - | - | - | - | - | 12 bit |
| Number of signals | | 6 (A, B, Z + inverted signals) | | | 6 (cos-, cos+, sin-, sin+, Z, Z̄) | - | - |
| Max. output frequency | [kHz] | 600 | | | | 200 | |
| Max. speed | [rpm] | 6,000 (9,000 rpm for 10s) | | | | | |
| Temperature range | [°C] | -30 ... +100 | | | | | |
| Protection class | | IP65 | | | | | |

The Bonfiglioli ACU and ANG inverter series can manage all 6 types of encoders mentioned above and can be easily selected through the product configurator platform.

# OPTIONS | EVOX ELECTRIC MOTOR SIDE

## OPTION DETAIL

### Anti-condensation heaters

**H1**

#### Anti-condensation heaters

Where an application involves high humidity or extreme temperature fluctuations, e.g. inactive motors in humid atmospheres or motors that are subject to widely fluctuating temperatures, motors may be equipped with an anti-condensate heater. A single-phase power supply is available in the auxiliary terminal board inside the main terminal box.

Values for the absorbed power are listed below:

| | H1<br>1~230V ± 10%<br>P[W] | NH1<br>1~115V ± 10%<br>P[W] |
|---|---|---|
| BXN 63 ... BXN 80 | 10 | 10 |
| BXN 90 ... BXN 132 | 25 | 25 |

Warning! Always cut off the anti-condensation heater power before operating the motor.

### Tropicalization

**TP**

#### Tropicalization

The TP option uses stators that are impregnated with highly hydrolysis-resistant resins. This allows the motors to be used in areas with increased air humidity and temperature, such as in tropical climate conditions.

The used wiring insulation materials and the impregnating resin protect the motor against termite-related damage

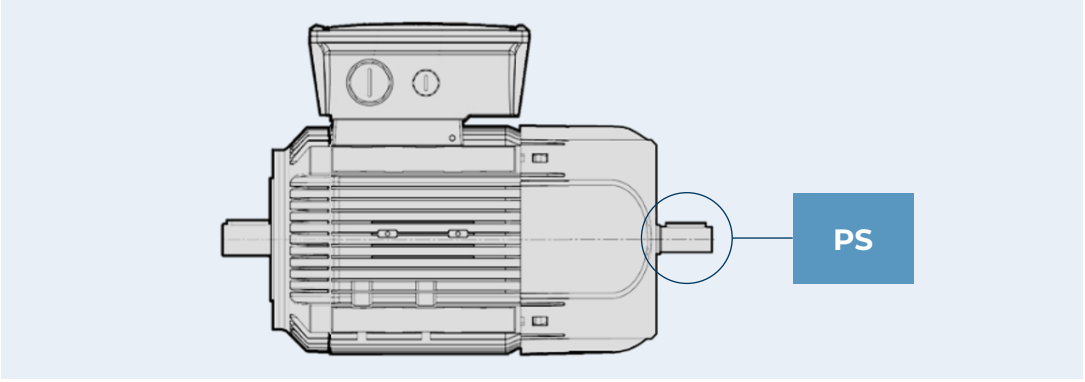
### Second shaft extension

**PS**

#### Second shaft extension

The PS option provides the motor for an additional shaft end. This second shaft end is designed with a conventional keyway and key in accordance with DIN 6885 Sheet 1 (ISO 773).

This option is not compatible with variants RC, TC, EC, U1, EN1, EN2, EN3, EN4, EN5, EN6. For shaft dimensions please see motor dimensions tables.



BACK TO OPTION LIST

## External protection

External protection canopies are used to prevent damages caused by external conditions, such as rain or cellulose particles to the electrical motor.

RC

### Rain canopy

The rain canopy protects the motor from dripping and avoids the penetration of solid bodies. It is recommended when motor is installed in a vertical position with the shaft downwards. Only in this position a perfect coverage from rain is granted. The guard extends the length of the motor or brake motor. Please check the dimensions table.

The drip cover is not compatible with variants PS, EN1, EN2, EN3, EN4, EN5, EN6.

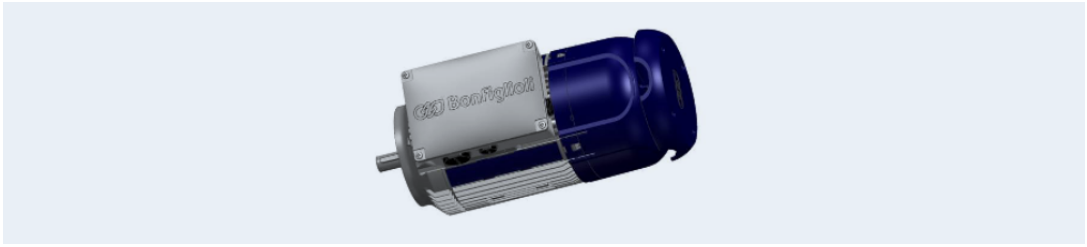
Note: available only in plastic material when combined with plastic fan cover

TC

### Textile canopy

Option TC is a cover variant for textile industry environments, where lint may obstruct the fan grid and prevent a regular flow of cooling air. The overall dimensions are the same as drip cover type RC.

This option with variants PS, EN1, EN2, EN3, EN4, EN5, EN6.

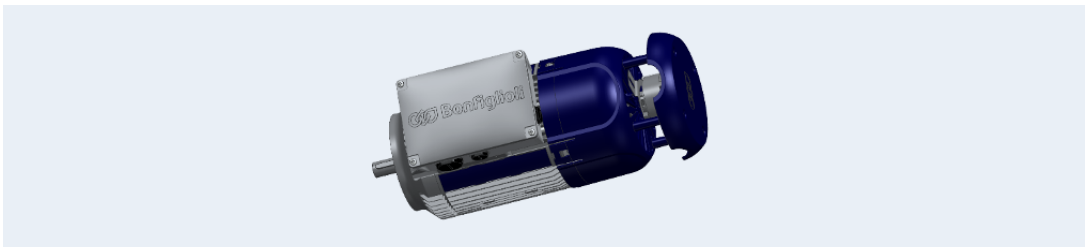


Note: available only in plastic material when combined with plastic fan cover

EC

### Encoder canopy

Option EC is a cover variant specifically made for our encoders. It protects them from impacts and may help in prolonging their productive life.



Note: available only in plastic material when combined with plastic fan cover

# OPTIONS | EVOX ELECTRIC MOTOR

## MORE ON OPTIONS LIST

### Certifications

**CN**

### Global motor

With the CN option, BXN and MXN motors can be sold in the most important markets worldwide such as Europe, UK, USA, Canada, China, Russia, Australia and New Zealand.
In detail, the motor will bear the CE, UKCA, UL, CCC and, where required, CEL labelling on the nameplate. The motors also comply with EAC and EECA requirements.

This option is available in the following winding/power combinations:

| Motor series | Size | Power | Service Duty | Winding |
|---|---|---|---|---|
| **BXN** | 63MA a 80MA | 0,12 a 0,55 kW | S1 | WD1 - WD3* |
| **MXN** | 05MA a 20MA | | | |
| **BXN** | 80MB a 112M | 0,75 a 4 kW | S1 | WD1 |
| **MXN** | 20MB a 35M | | | |
| **BXN** | 132S a 132M | 5,5 a 7,5 kW | S1 | WD2 |


* Brazilian certification is standard on the WD3 winding only, and additional INMETRO labelling is provided.

BACK TO OPTION LIST

BIS

## Indian market

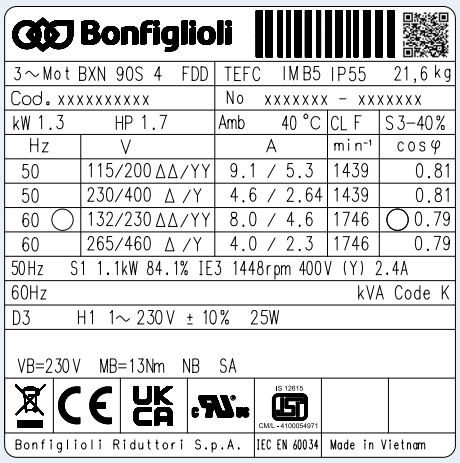
With the BIS option, BXN and MXN motors can be sold in the most important markets worldwide such as Europe, UK, USA, Canada, India, Russia, Australia and New Zealand.
In detail, the motor will bear the CE, UKCA, UL, ISI marks on the nameplate. The motors also comply with EAC and EECA requirements.

This option is available on the following windings:

| Motor series | Size | Power | Winding |
|---|---|---|---|
| **BXN** | 63MA a 112M | 0,12 a 4 kW | WD1 - WD2 - WD3 - WD5 - WD6 |
| **MXN** | 05MA a 35M | | |
| **BXN** | 132S a 132M | 5,5 a 7,5kW | WD8 - WD2 - WD11 - WD6 - WD9 |
| **MXN** | 40S a 40M | | |


Bonfiglioli

| 3~Mot BXN 90S 4 FDD | | TEFC IMB5 IP55 21,6 kg | | |
|---|---|---|---|---|
| Cod. xxxxxxxxxx | | No xxxxxxx - xxxxxxx | | |
| kW 1.1 | HP 1.5 | Amb 40 °C | CL F | S1 |
| Hz | V | A | min⁻¹ | cosφ |
| 50 | 115/200 ΔΔ/YY | 8.3 / 4.8 | 1448 | 0.78 |
| 50 | 230/400 Δ /Y | 4.1 / 2.38 | 1448 | 0.78 |
| 60 ◯ | 132/230 ΔΔ/YY | 7.3 / 4.2 | 1754 | ◯ 0.75 |
| 60 | 265/460 Δ /Y | 3.6 / 2.10 | 1754 | 0.75 |
| 50Hz IE3 -84.1(100%)-85.9(75%)-83.5(50%) kVA Code J | | | | |
| 60Hz IE3 -86.5(100%)-86.6(75%)-83.5(50%) kVA Code L | | | | |
| D3 H1 1~ 230 V ± 10% 25W | | | | |
| VB=230 V MB=13Nm NB SA | | | | |
| Bonfiglioli Riduttori S.p.A. | | IEC EN 60034 | | Made in Vietnam |


Bonfiglioli

| 3~Mot BXN 90S 4 FDD | | TEFC IMB5 IP55 21,6 kg | | |
|---|---|---|---|---|
| Cod. xxxxxxxxxx | | No xxxxxxx - xxxxxxx | | |
| kW 1.3 | HP 1.7 | Amb 40 °C | CL F | S3-40% |
| Hz | V | A | min⁻¹ | cosφ |
| 50 | 115/200 ΔΔ/YY | 9.1 / 5.3 | 1439 | 0.81 |
| 50 | 230/400 Δ /Y | 4.6 / 2.64 | 1439 | 0.81 |
| 60 ◯ | 132/230 ΔΔ/YY | 8.0 / 4.6 | 1746 | ◯ 0.79 |
| 60 | 265/460 Δ /Y | 4.0 / 2.3 | 1746 | 0.79 |
| 50Hz S1 1.1kW 84.1% IE3 1448rpm 400V (Y) 2.4A | | | | |
| 60Hz | | | | kVA Code K |
| D3 H1 1~ 230 V ± 10% 25W | | | | |
| VB=230 V MB=13Nm NB SA | | | | |
| Bonfiglioli Riduttori S.p.A. | | IEC EN 60034 | | Made in Vietnam |

## Certificates

ACM

## Motor certificate of compliance

The document certifies the compliance of the product with the purchase order and the construction in conformity with the applicable procedures of Bonfiglioli's Quality System.

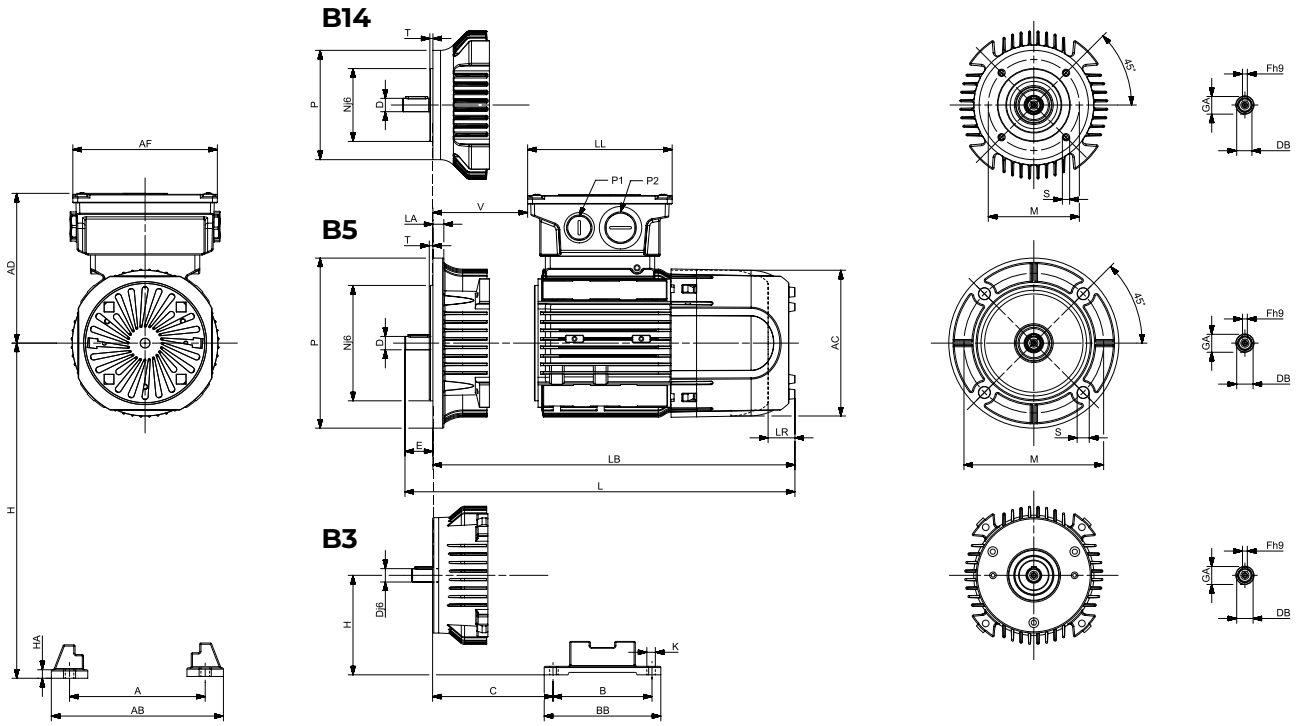
CC

## Inspection certificate

The document entails checking the order compliance, visual inspection of external conditions and instrumental testing of the electrical characteristics in unloaded conditions. Inspected units are sampled within the shipping batch and marked individually.

# SIZES

## EVOX ELECTRIC MOTOR - STANDARD WITHOUT BRAKE



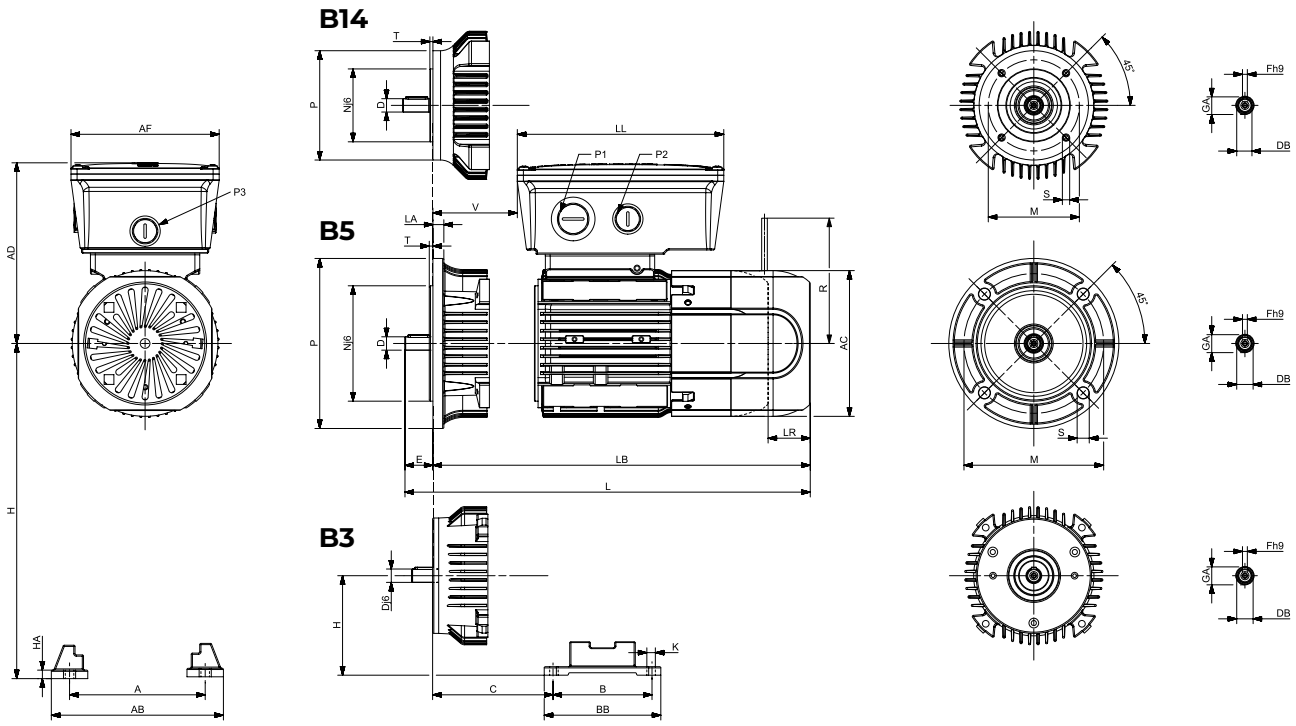

| Motor size | Output shaft | | | | | Motor overall dimensions | | | | | | | | | | Terminal box and cable entry | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | D | E | DB | GA | F | AC | L (sheet metal) | L (plastic) | LB (sheet metal) | LB (plastic) | LR | AD | AF | LL | V | P1 | P2 | Terminal box size |
| | [mm] | | | | | [mm] | | | | | | | | | | | | |
| **BXN63** | 11 | 23 | M4 | 12.5 | 4 | 122 | 259 | 281 | 236 | 258 | 22 | 122.3 | 119 | 119 | 38 | M25 | M16 | S |
| **BXN71** | 14 | 30 | M5 | 16 | 5 | 138 | 272 | 292 | 242 | 261.5 | 19.5 | 123.3 | 119 | 119 | 35 | M25 | M16 | S |
| **BXN80** | 19 | 40 | M6 | 21.5 | 6 | 158 | 329.7 | 346 | 289.7 | 306 | 16.3 | 132.8 | 119 | 119 | 41 | M25 | M16 | S |
| **BXN90** | 24 | 50 | M8 | 27 | 8 | 177 | 338.5 | 365 | 288.5 | 315 | 26.5 | 143.8 | 128 | 128 | 47 | M25 | M16 | S |
| **BXN100** | 28 | 60 | M10 | 31 | 8 | 192 | 418 | - | 358 | - | - | 152.3 | 128 | 128 | 46 | M25 | M16 | S |
| **BXN112** | 28 | 60 | M10 | 31 | 8 | 220 | 421.5 | - | 361.5 | - | - | 163.8 | 128 | 128 | 65.5 | M25 | M16 | S |
| **BXN132** | 38 | 80 | M12 | 41 | 10 | 255 | 533.4 | - | 453.4 | - | - | 213 | 147.2 | 192 | 63 | M32 | M16 | L |

"S" refers to the terminal box size S while "L" refers to the terminal box size L.

| Motor size | B5 Version | | | | | | B14 Version | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | N | P | S | T | LA | M | N | P | S | T |
| | [mm] | | | | | | [mm] | | | | |
| **BXN63** | 115 | 95 | 140 | 9.5 | 3 | 9 | 75 | 60 | 90 | M5 | 2.5 |
| **BXN71** | 130 | 110 | 160 | 9.5 | 3.5 | 9 | 85 | 70 | 105 | M6 | 2.5 |
| **BXN80** | 165 | 130 | 200 | 11.5 | 3.5 | 10 | 100 | 80 | 120 | M6 | 3 |
| **BXN90** | 165 | 130 | 200 | 11.5 | 3.5 | 10 | 115 | 95 | 140 | M8 | 3 |
| **BXN100** | 215 | 180 | 250 | 14 | 4 | 11 | 130 | 110 | 160 | M8 | 3.5 |
| **BXN112** | 215 | 180 | 250 | 14 | 4 | 11 | 130 | 110 | 160 | M8 | 3.5 |
| **BXN132** | 265 | 230 | 300 | 14 | 4 | 12 | 165 | 130 | 200 | M8 | 4 |

| Motor size | B3 Version | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | B | A | HA | BB | AB | K | C | H |
| | [mm] | | | | | | | |
| **BXN63** | 80 | 100 | 8 | 96 | 120 | 7 | 40 | 63 |
| **BXN71** | 90 | 112 | 8 | 112 | 135 | 7 | 45 | 71 |
| **BXN80** | 100 | 125 | 8 | 124 | 153 | 10 | 50 | 80 |
| **BXN90S** | 100 | 140 | 8 | 155 | 174 | 10 | 56 | 90 |
| **BXN90L** | 125 | 140 | 8 | 155 | 174 | 10 | 56 | 90 |
| **BXN100** | 140 | 160 | 10 | 175 | 202 | 12 | 63 | 100 |
| **BXN112** | 140 | 190 | 10 | 175 | 224 | 12 | 70 | 112 |
| **BXN132S** | 140 | 216 | 12 | 218 | 254 | 12 | 89 | 132 |
| **BXN132M** | 178 | 216 | 12 | 218 | 254 | 12 | 89 | 132 |

# EVOX ELECTRIC MOTOR - WITH BRAKE




| Motor size | Output shaft | | | | | Motor overall dimensions | | | | | | | | | | Terminal box and cable entry | | | | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | D | E | DB | GA | F | AC | L (sheet metal) | L (plastic) | LB (sheet metal) | LB (plastic) | LR | AD | AF | LL | V | P1 | P2 | P3 | Terminal box size | |
| | [mm] | | | | | [mm] | | | | | | | | | | | | | | |
| **BXN63** | 11 | 23 | M4 | 12.5 | 4 | 122 | 293.7 | 328 | 270.7 | 305 | 34.3 | 136 | 112 | 165 | 37 | M20 | M16 | M16 | L | 106 |
| **BXN71** | 14 | 30 | M5 | 16 | 5 | 138 | 316.1 | 351 | 286.1 | 321 | 34.9 | 138 | 112 | 165 | 34 | M25 | M16 | M16 | L | 106 |
| **BXN80** | 19 | 40 | M6 | 21.5 | 6 | 158 | 378.8 | 417 | 338.8 | 377 | 38.2 | 148 | 112 | 165 | 40 | M25 | M16 | M16 | L | 115 |
| **BXN90** | 24 | 50 | M8 | 27 | 8 | 177 | 388.5 | - | 338.5 | - | - | 170 | 122 | 170 | 43 | M25 | M16 | M16 | L | 131 |
| **BXN100** | 28 | 60 | M10 | 31 | 8 | 192 | 475 | - | 415 | - | - | 179 | 122 | 170 | 42 | M25 | M16 | M16 | L | 161 |
| **BXN112** | 28 | 60 | M10 | 31 | 8 | 220 | 489.5 | - | 429.5 | - | - | 191 | 122 | 170 | 62 | M25 | M16 | M16 | L | 193 |
| **BXN132** | 38 | 80 | M12 | 41 | 10 | 255 | 606.9 | - | 527.4 | - | - | 216 | 147.2 | 192 | 63 | M32 | M16 | M16 | L | 239 |

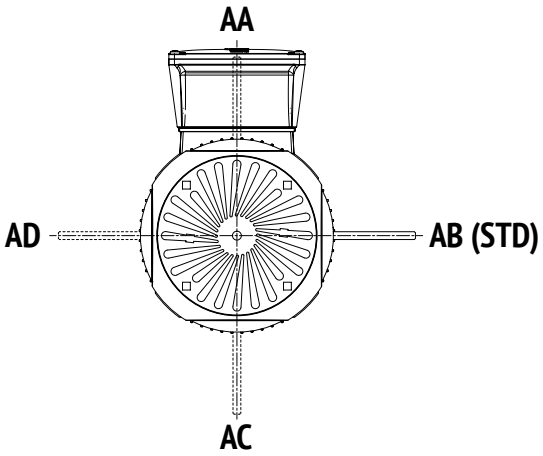
"S" refers to the terminal box size S while "L" refers to the terminal box size L.

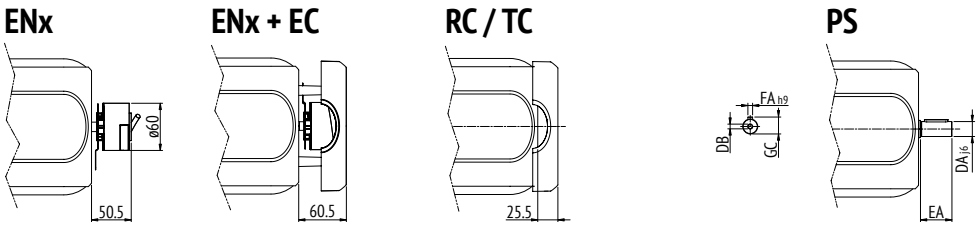
| Motor size | B5 Version | | | | | | B14 Version | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | N | P | S | T | LA | M | N | P | S | T |
| | [mm] | | | | | | [mm] | | | | |
| **BXN63** | 115 | 95 | 140 | 9.5 | 3 | 9 | 75 | 60 | 90 | M5 | 2.5 |
| **BXN71** | 130 | 110 | 160 | 9.5 | 3.5 | 9 | 85 | 70 | 105 | M6 | 2.5 |
| **BXN80** | 165 | 130 | 200 | 11.5 | 3.5 | 10 | 100 | 80 | 120 | M6 | 3 |
| **BXN90** | 165 | 130 | 200 | 11.5 | 3.5 | 10 | 115 | 95 | 140 | M8 | 3 |
| **BXN100** | 215 | 180 | 250 | 14 | 4 | 11 | 130 | 110 | 160 | M8 | 3.5 |
| **BXN112** | 215 | 180 | 250 | 14 | 4 | 11 | 130 | 110 | 160 | M8 | 3.5 |
| **BXN132** | 265 | 230 | 300 | 14 | 4 | 12 | 165 | 130 | 200 | M8 | 4 |

| Motor size | B3 Version | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | B | A | HA | BB | AB | K | C | H |
| | [mm] | | | | | | | |
| **BXN63** | 80 | 100 | 8 | 96 | 120 | 7 | 40 | 63 |
| **BXN71** | 90 | 112 | 8 | 112 | 135 | 7 | 45 | 71 |
| **BXN80** | 100 | 125 | 8 | 124 | 153 | 10 | 50 | 80 |
| **BXN90S** | 100 | 140 | 8 | 155 | 174 | 10 | 56 | 90 |
| **BXN90L** | 125 | 140 | 8 | 155 | 174 | 10 | 56 | 90 |
| **BXN100** | 140 | 160 | 10 | 175 | 202 | 12 | 63 | 100 |
| **BXN112** | 140 | 190 | 10 | 175 | 224 | 12 | 70 | 112 |
| **BXN132S** | 140 | 216 | 12 | 218 | 254 | 12 | 89 | 132 |
| **BXN132M** | 178 | 216 | 12 | 218 | 254 | 12 | 89 | 132 |

# SIZES

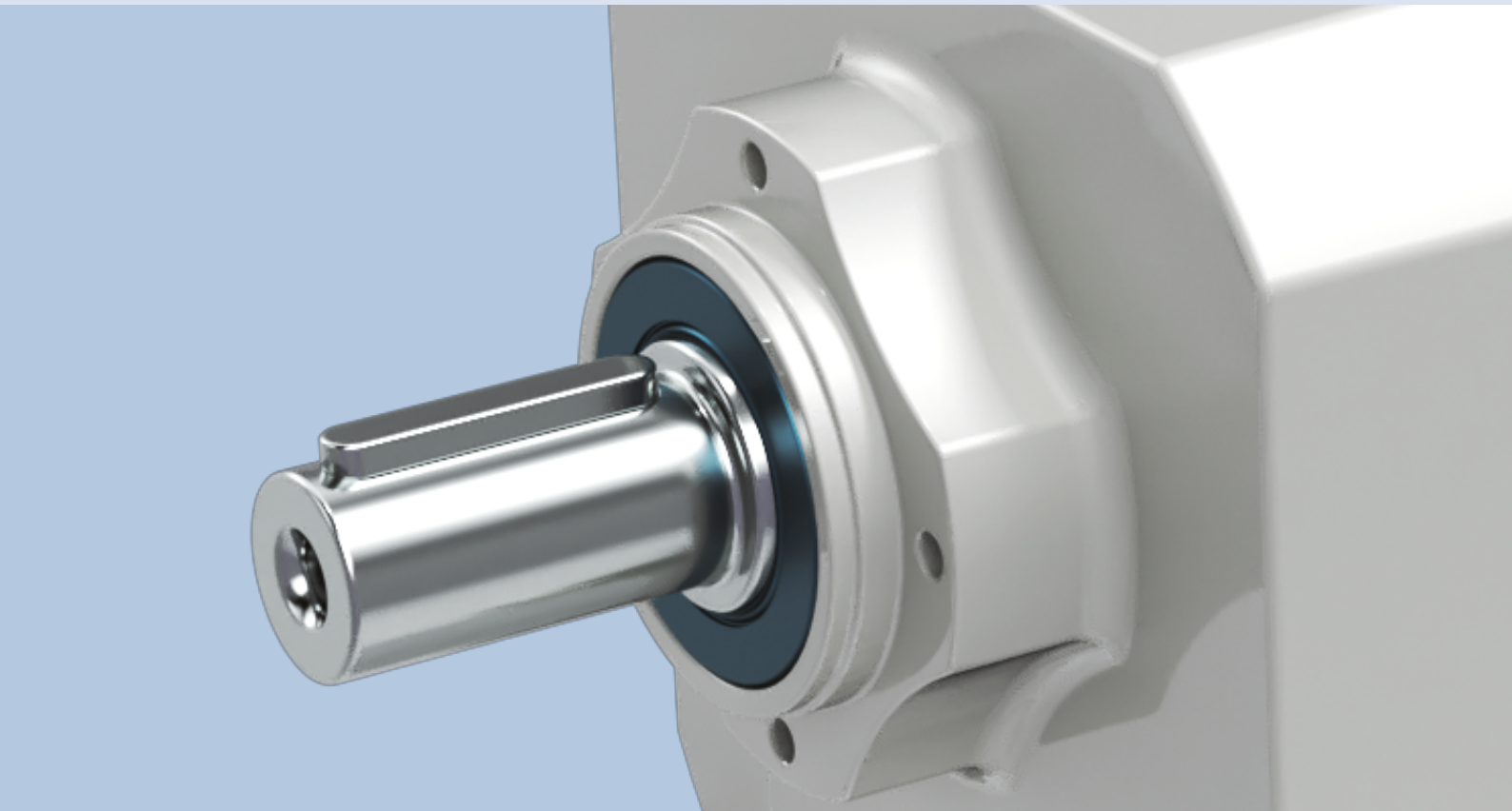
## BRAKE AND E-MOTOR OPTIONS




| Motor size | PS Motor shaft double end | | | | |
|---|---|---|---|---|---|
| | DA | EA | DB | GC | FA |
| | | | [mm] | | |
| **BXN63** | 9 | 20 | M3 | 10.2 | 3 |
| **BXN71** | 11 | 23 | M4 | 12.5 | 4 |
| **BXN80** | 14 | 30 | M5 | 16 | 5 |
| **BXN90** | 19 | 40 | M6 | 21.5 | 6 |
| **BXN100** | 24 | 50 | M8 | 27 | 8 |
| **BXN112** | 24 | 50 | M8 | 27 | 8 |
| **BXN132** | 28 | 60 | M10 | 31 | 8 |

# ORDER INFO



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COMMERCIAL SITES

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COUNTRIES

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DISTRIBUTORS

**~5,000**
PEOPLE

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