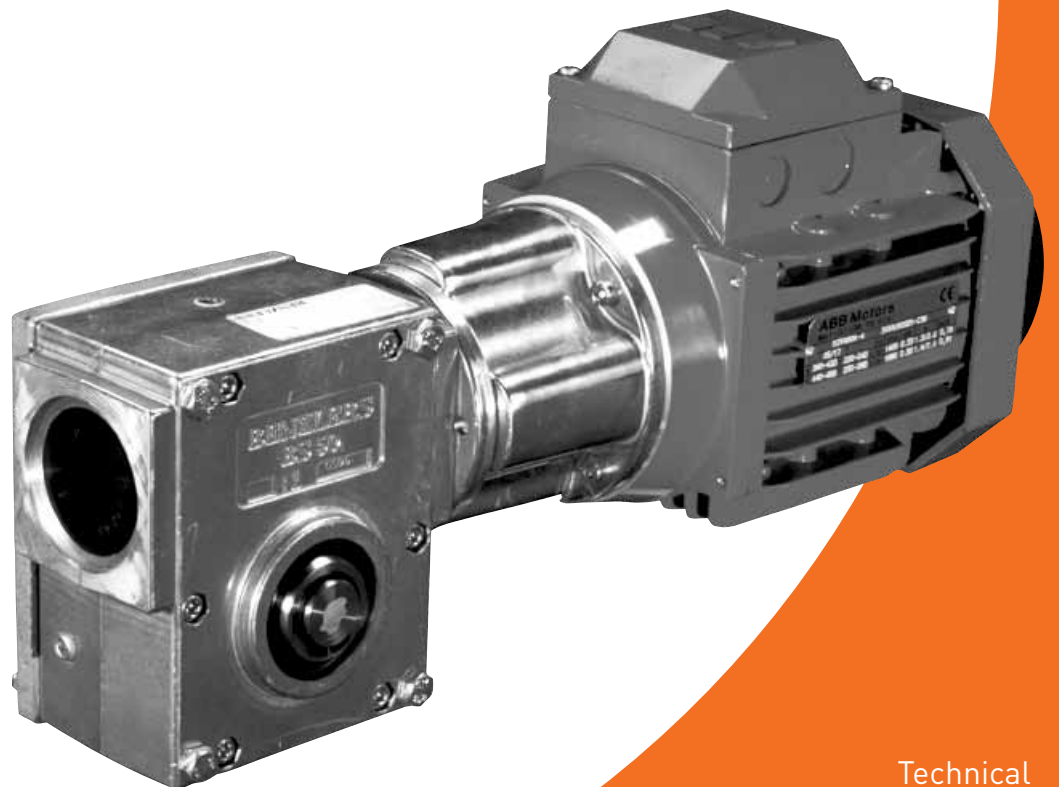


benzlers

with you at every turn

Series BS Compact Worm Gear

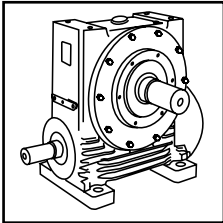


Technical
Up to - 4kW / 315 Nm

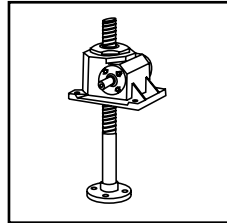
Worm Gearbox
CBS-2.00GB1211

PRODUCTS IN THE RANGE

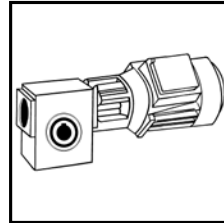
Serving an entire spectrum of mechanical drive applications from food, energy, mining and metal; to automotive, aerospace and marine propulsion, we are here to make a positive difference to the supply of drive solutions.



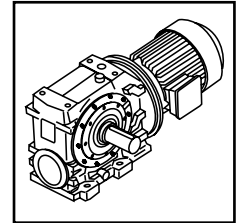
Series A
Worm Gear units
and geared motors
in single & double
reduction types



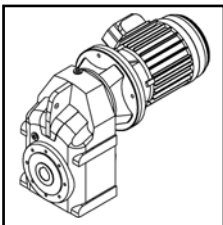
Series BD
Screwjack worm
gear unit



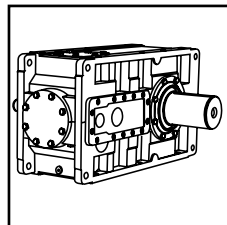
Series BS
Worm gear unit



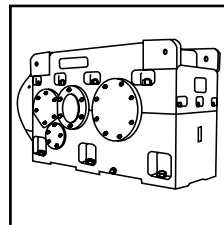
Series C
Right angle drive
helical worm geared
motors & reducers



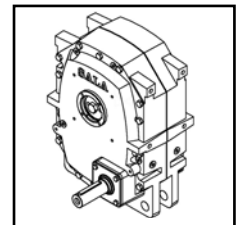
Series F
Parallel angle helical
bevel helical geared
motors & reducers



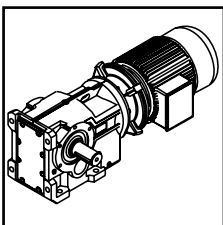
Series G
Helical parallel shaft
& bevel helical right
angle drive gear
units



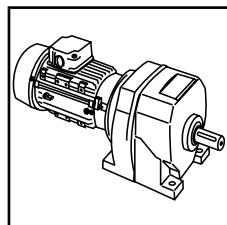
Series H
Large helical parallel
shaft & bevel helical
right angle drive units



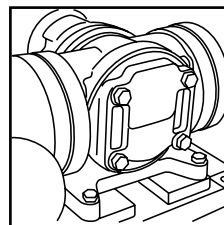
Series J
Shaft mounted
helical speed
reducers



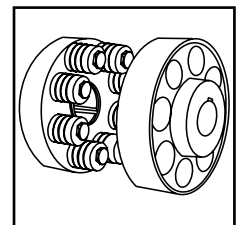
Series K
Right angle helical
bevel helical geared
motors & reducers



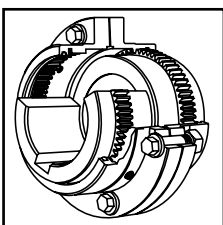
Series M
In-line helical geared
motors & reducers



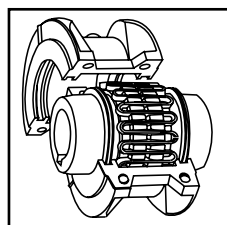
Roloid Gear Pump
Lubrication and fluid
transportation pump



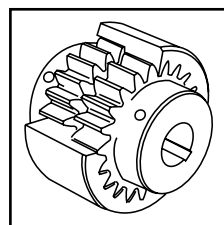
**Series X
Cone Ring**
Pin and bush
elastomer coupling



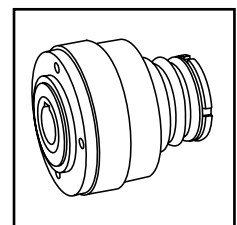
**Series X
Gear**
Torsionally rigid,
high torque coupling



**Series X
Grid**
Double flexing steel
grid coupling



**Series X
Nylon**
Gear coupling with
nylon sleeve



**Series X
Torque Limiter**
Overload protection
device



We offer a wide range of repair services and many years experience of repairing demanding and highly critical transmissions in numerous industries.

We can create custom engineered transmission solutions of any size and configuration.

ATEX

Compliance Assured



Total compliance with the ATEX Directive safeguarding the use of industrial equipment in potentially explosive atmospheres is assured for users of our geared products.

Certification is available for standard gearboxes and geared motors with badging displaying the ATEX zone, name and location of the manufacturer, designation of series or type, serial number, year of manufacture, Ex symbol and equipment group/category.

ATEX directive 94/9/EC (also known as ATEX 95 or ATEX 100A) enforced in all EC member states. Compliance is compulsory for designers, manufacturers or suppliers of electrical and non-electrical equipment for use in potentially explosive atmospheres created by the presence of flammable gases, vapours, mists or dusts.

Ex compliant standard gearboxes can be supplied against Groups 2 or 3 for surface industries in designated hazardous location Zones 1 and 2 for gases, vapours and mists; and in Zones 21 and 22 for dusts.

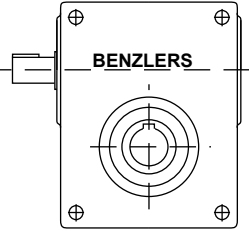
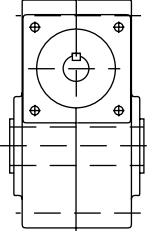
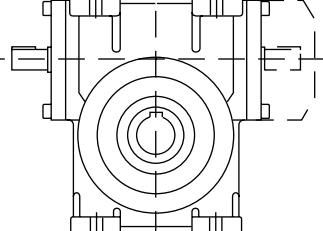
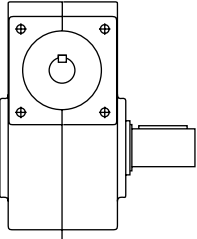
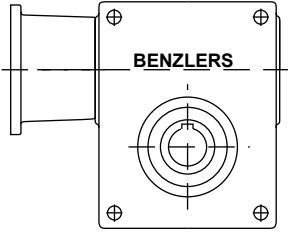
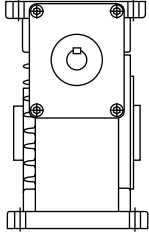
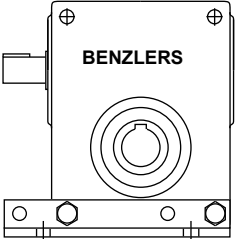
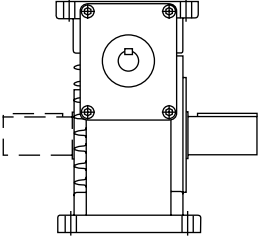
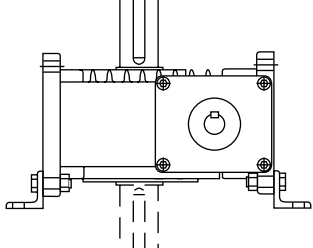
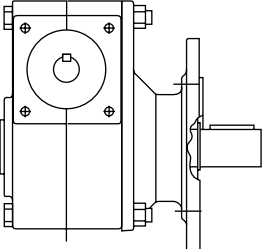
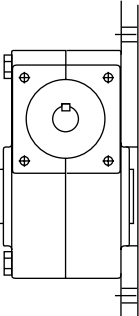
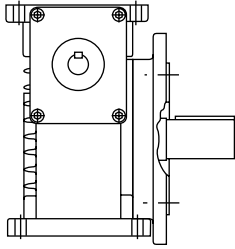
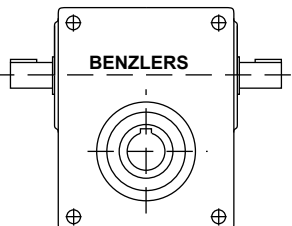
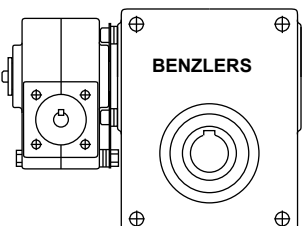
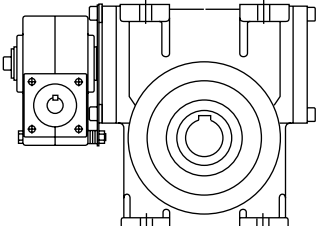
SERIES BS

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SERIES BS

THE PROGRAMME

| | | |
|--|--|--|
| <p>BS 40-71</p>  <p>Single input shaft</p> | <p>BS 40-71</p>  <p>Hollow shaft</p> | <p>BS 40-71</p>  <p>Single input shaft</p> |
| <p>BS 40-71</p>  <p>Output shaft</p> | <p>BS 40-71</p>  <p>Motoflange</p> | <p>BS 40-71</p>  <p>Hollow shaft</p> |
| <p>BS 40-71</p>  <p>Feet</p> | <p>BS 40-71</p>  <p>Feet</p> | <p>BS 40-71</p>  <p>Horizontal</p> |
| <p>BS 40-71</p>  <p>Output flange</p> | <p>BS 40-71</p>  <p>Bolt the gear to a wall or foundation without feet or flange</p> | <p>BS 40-71</p>  <p>Output flange</p> |
| <p>BS 40-71</p>  <p>Double input shaft</p> | <p>BS 40-71</p>  <p>Double worm gear</p> | <p>BS 40-71</p>  <p>Double worm gear</p> |

TECHNICAL INFORMATION

Benzler worm gears BS 40-71 have a symmetrical gear-housing manufactured in aluminium. BS 88 and 112 have a gearhousing of cast-iron.

The worm wheel is made of centrifugal cast tinbronze and the worm screw is case-hardened and ground.

All motor connections are according to IEC-standard and for BS 40-112 with elastic coupling. This means the following advantages:

- The worm screw is mounted with two separate bearings and are not connected with the motor bearings. This means longer lifetime and a smoother drive..
- Soft start and stop with elastic coupling for size 40-112.
- No oil leakage in to the motor.
- Possibility to change motor without dismounting the gear..
- Any type of motor with IEC-flange can be used..

The worm geared motor is available for mounting on a base, flange or torque arm and can be installed in any position.

The gear can be combined with Benzlers' remaining range of helical and worm gears to provide very low output speeds. All data given in this catalogue applies to ABB standard motors and Benzlers brake motors.

Motorflanges

The motorflanges up to IEC-size 112 are made of aluminium and are available in B5 and B14, larger motorflanges are made of cast-iron and available in B5. A finished bore shaft coupling is always delivered together with the motorflange.

Feet

The feet can be mounted without modification.

Output shaft

Single or double output shaft can be mounted into the hollow shaft. The output shafts are locked into position with keys and retaining rings. BS 88-112 has as standard execution, a single output shaft or a hollow shaft.

Output flange

An output flange can easily be mounted on to the gear. The BS 40-71 gear casing can also be mounted onto a wall or foundation and bolted through the 4 bolt holes in the gear casing.

Torque arm bracket

The hollow shaft gearboxes can be supplied with torque arm bracket and torque arm.

Fan

BS 88/112 have fan as an option.

Painting

BS40-71 is normally delivered without painting. BS 40-71 can be delivered according to environmental classification M2-M3, see page 58-59.

BS88-112 is normally delivered with standardpaint, which is an alkyd paint in Benzler blue colour (RAL5015).

SELECTION OF GEARS AND GEARMOTORS

Power and torque ratings for gears on page 40-47 apply to service factor 1.0. Service factor for geared motors can be found after the output speeds. Service factor 1.0 is valid for continuous operation 8 hours/day without shocks and with 10-200 starts per hour. The inertia of the driven machine is less than 20% of the electric motor. Occasional shock loads may not exceed 1.8 times the gear rating at service factor 1.0.

Definition of sizes

- Determine the demand power or torque, P_e or T_{2b} ratio (i) or output speed (n_2).
- Based on type of load/driven machine, operating hours/day and number of starts/hour, select service factor f_b (page 6-7).
- Calculate $T_2 \geq T_{2b} \times f_b$.
- Choose gear on page 40-47 according to following: $T_2 \geq T_{2b} \times f_b$ at required ratio (i) or speed (n_2).
Note the efficiency.
For example BS40 ratio 6,67:1, code A
 $\eta = 86\%$ at $n_1 = 1430$ rpm.
- Calculate $P_1 = P_e \times f_b \times \frac{1}{\eta}$
Choose a size larger motor $P_m \geq P_1$
For example $P_1 \geq 0,42$ kW choose 0,55 kW.
- Choose a worm gear motor on pages 12-24.
For example BS40A with a motor size 80A4.
- Check that occasional shock loads do not exceed 1.8 times the gear rating at service factor 1.0.
 $T_{2max} \geq T_2 \times 1,8$
- Check that the thrust and overhung loads are not exceeded.
- Check that maximum input speeds and thermal ratings are not exceeded.

10. For conditions other than above described, for instance extreme environments, high inertia systems or other, please contact our application engineers

Formulas:

$$T_{2b} = \frac{P_e \times 9550}{n_2} \quad (\text{Nm})$$

$$T_2 \geq T_{2b} \times f_b \quad (\text{Nm})$$

$$P_1 = P_e \times f_b \times \frac{1}{\eta} \quad (\text{kW})$$

$$P_m \geq P_1 \quad (\text{kW})$$

$$T_{2max} \geq T_2 \times 1,8 \quad (\text{Nm})$$

$$J_{e, red} = J_e \times \left(\frac{n_2}{n_1}\right)^2 \quad (\text{kgm}^2)$$

$$T_2 = \text{Output torque rating, Nm page 12-24, 40-47}$$

$$T_{2b} = \text{Demand torque, Nm}$$

$$T_{2max} = \text{Occasional maximum torque, Nm}$$

$$P_1 = \text{Demand input power, kW}$$

$$P_e = \text{Demand power driven machine, kW}$$

$$P_m = \text{Motor power}$$

$$n_1 = \text{Input speed, rpm}$$

$$n_2 = \text{Output speed, rpm}$$

$$f_b = \text{Service factor}$$

$$\eta = \text{Efficiency of the gear}$$

$$J_{e, red} = \text{Reduced inertia, kgm}^2$$

$$J_e = \text{Inertia driven machine, kgm}^2$$

$$J_m = \text{Inertia motor, kgm}^2$$

| Load classification | Description | Moment of inertia | Example |
|---------------------|---|-------------------|---|
| I | $J_{e, red} \leq 0.2 \times J_m$ Machines with uniform load and no shocks | | Uniform loaded conveyors and elevators. Centrifugal pumps and fans. Agitators and mixers for liquids and semiliquids without solid particles. |
| I a | $J_{e, red} \leq J_m$ Machines with small shocks and small variations in load | | Larger conveyors. Reciprocating pumps with 3 or more cylinders. Agitators and mixers for media with high viscosity and/or solid particles. |
| II | $J_{e, red} \leq 3 \times J_m$ Machines with moderate shocks and variable load | | Larger conveyors. Reciprocating pumps with 3 or more cylinders. Agitators and mixers for media with high viscosity and/or solid particles |
| III | $J_{e, red} \leq 10 \times J_m$ Machines with very heavy shocks and large masses to be accelerated | | Heavy agitators and mixers. Reciprocating pumps with 1 or 2 cylinders. Crushers, mills and presses. Vibrators and shakers |

SELECTION OF GEARS AND GEARMOTORS

Service factors

Table 1. Service factor f_b

| Daily operations in hours | 4 hours | | | 8 hours | | | 16 hours | | | 24 hours | | |
|---------------------------|---------|--------|------|---------|--------|------|----------|--------|------|----------|--------|------|
| Starts per hour | <10 | 10-200 | >200 | <10 | 10-200 | >200 | <10 | 10-200 | >200 | <10 | 10-200 | >200 |
| Load classification | | | | | | | | | | | | |
| I | 0.8 | 0.9 | 1.0 | 0.9 | 1.0 | 1.1 | 1.1 | 1.2 | 1.3 | 1.3 | 1.4 | 1.5 |
| Ia | 1.1 | 1.2 | 1.3 | 1.1 | 1.3 | 1.5 | 1.3 | 1.5 | 1.6 | 1.4 | 1.6 | 1.8 |
| II | 1.3 | 1.4 | 1.6 | 1.3 | 1.6 | 1.8 | 1.4 | 1.7 | 1.9 | 1.5 | 1.8 | 2.0 |
| III | 1.5 | 1.6 | 1.8 | 1.6 | 1.8 | 2.0 | 1.7 | 1.9 | 2.1 | 1.8 | 2.0 | 2.2 |

Table 2. Ambient temperature factor f_t

For other ambient temperatures then 20° C, always multiply the thermal rating with the following factors.

| °C Celsius | -40 | -30 | -20 | -10 | +/- 0 | 10 | 20 | 30 | 40 | 50 |
|------------|------|------|------|------|-------|------|------|------|------|------|
| f_t | 1.80 | 1.67 | 1.53 | 1.40 | 1.27 | 1.13 | 1.00 | 0.87 | 0.73 | 0.60 |

Table 3. Fan factor f_f

If the gearbox has no fan and the motor is not directly flanged to the gearbox, multiply the thermal rating with the following factors.

| Input speed n1 (rpm) | 10 | 100 | 300 | 750 | 1000 | 1500 | 3000 |
|----------------------|----|------|------|------|------|------|------|
| f_f | 1 | 0.95 | 0.74 | 0.63 | 0.65 | 0.69 | 0.77 |

Control Points

The forces allowed on the gear shafts are determined by bearing life and strength on gear shafts and housing. Radial forces at no thrust loads. In the power ratings page 12-24 max. allowed radial force on output shaft is given for each output speed. The value is only valid if the force is applied at the centre of the output shaft. If the force is applied at another position the allowed radial force is given by the following:

Radial Forces

Bearing life: $F_{r,x} = \frac{a}{(f+x)} F_{r2}$

Strength on shaft: $F_{r,x} = \frac{c}{x} F_{r2}$

Strength on gear housing: $F_{r,x} = \frac{d}{(g+x)} F_{r2max}$

$F_{r,x}$ = Max. radial force (N)

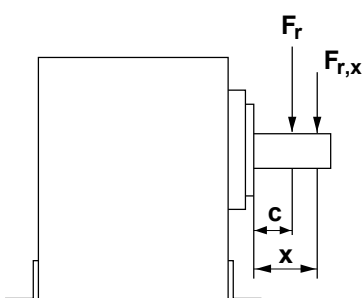
F_{r2} = Radial force acc to power ratings (N).

F_{r2max} = Upper limit, for radial force. Can not be exceeded (N)

a, d, f, g = Internal measures (mm)

x = Distance to radial force (mm)

c = Half shaft length (mm)



| Type/Size | a | c | d | f | g | F_{r2max} (N) |
|-----------|-------|----|-------|-------|-------|-----------------|
| 40 | 90.5 | 18 | 101.5 | 72.5 | 83.5 | 2 000 |
| 50 | 96.5 | 21 | 110.0 | 75.5 | 89.0 | 2 700 |
| 63 | 107.0 | 29 | 122.0 | 78.0 | 93.0 | 4 000 |
| 71 | 127.5 | 29 | 142.5 | 98.5 | 113.5 | 5 000 |
| 88 | 152.5 | 41 | 181.0 | 111.5 | 140.0 | 10 000 |
| 112 | 175.0 | 41 | 210.5 | 134.0 | 169.5 | 15 000 |

SELECTION OF GEARS AND GEARMOTORS

Overhung load

If a sprocket, gear wheel or pulley is mounted on a shaft, a load check must be made. The overhung load in middle of the shaft may not exceed values shown in tables below. For calculation of minimum permissible diameter the following formula should be used.

$$D_{\min} = \frac{2000 \times T_{2b} \times f_e \times f_b}{F_{r2}} \text{ mm}$$

T_{2b} = Torque required (Nm)

$$T_{2b} = \frac{P_e \times 9\,550}{n_2} \text{ Nm}$$

P_e = Power kW

n_2 = Output speed (rpm)

F_{r2} = Permissible overhung load (N)

f_b = Service factor (tables page 7)

f_e = 1.10 for sprockets

= 1.30 for gearwheels

= 1.50 for pulleys

D_{\min} = Minimum permissible diameter (mm)

Max overhung load in the middle of input shaft (N)

| Gear | Ratio | | | | | | | | | | | | | |
|-------|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | Fr1 | A | B | C | D | E | F | Fx | G | H | I | J | K | L |
| BS 40 | 180 | 135 | 100 | 95 | 80 | 70 | - | 50 | 45 | 45 | 40 | 30 | - | - |
| 50 | 215 | 190 | 155 | 115 | 100 | 80 | 70 | 65 | 55 | 55 | 40 | - | - | - |
| 63 | 385 | 305 | 255 | 210 | 165 | 155 | 125 | 115 | 100 | 100 | 75 | 45 | - | - |
| 71 | 400 | 350 | 285 | 240 | 180 | 150 | - | 115 | 100 | 100 | 60 | 45 | - | - |
| 88 | 925 | 635 | 470 | 405 | 335 | 305 | - | 235 | 200 | 200 | 190 | 145 | 100 | 65 |
| 112 | 1375 | 930 | 740 | 580 | 505 | 425 | - | 340 | 295 | 295 | 255 | 160 | 125 | 105 |

Max thrust load on output shaft (N)

| Gear | Ratio | | | | | | | | | | | | | |
|------|-------|-------|-------|-------|-------|-------|------|-------|-------|------|-------|-------|-------|-------|
| | A | B | C | D | E | F | Fx | G | H | I | J | K | L | M |
| 40 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | - | 2000 | 2000 | 2000 | 2000 | 2000 | - | - |
| 50 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | - | - | - |
| 63 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | 3500 | - | - |
| 71 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | - | 4500 | 4500 | 4500 | 4500 | 4500 | - | - |
| 88 | 7800 | 10000 | 10000 | 10000 | 10000 | 10000 | - | 10000 | 10000 | - | 10000 | 10000 | 10000 | 10000 |
| 112 | 10400 | 14700 | 15000 | 15000 | 15000 | 15000 | - | 15000 | 15000 | - | 15000 | 15000 | 15000 | 15000 |

Reversing

Dynamic self locking means that a force applied on the output shaft of the gear can not continue to drive the gear when the motor has been stopped.

Dynamic self locking is only possible at very high ratios and low output speeds. None of the worm gears produced by BENZLERS is dynamic totally self locking.

Static self locking means that a force applied on the output shaft of the gear can not start a movement.

When driving loads with high inertia care must be taken to achieve a braking time long enough to prevent overload on the gear.

When a worm gear is used in an application with short braking time a worm gear that is "dynamically reversible" is normally the best selection.

Information regarding lead angle for BENZLERS worm gears are given on the following page.

Reversing as a function of the lead angle

| γ | |
|-----------------------|--|
| $\geq 25^\circ$ | Total reversing |
| $12^\circ - 25^\circ$ | Statically reversible |
| $8^\circ - 12^\circ$ | Variable static self locking Quick return in case of vibrations Dynamically reversible |
| $5^\circ - 8^\circ$ | Statically self locking Return in case of vibrations Scant dynamic reversing |
| $3^\circ - 5^\circ$ | Statically self locking Slow movement return in case of vibrations. Low dynamic reversing |
| $1^\circ - 3^\circ$ | Statically self locking No return Low dynamic reversing |

SELECTION OF GEARS AND GEARMOTORS

Benzlers Worm gear BS, Wormwheel and Wormscrew data

i = Ratio

z = Starts of worm shaft

η_s = Starting efficiency

γ = Lead angle

m = Module

η = Running efficiency $n_1=1430$ rpm

| | i | γ | z | m | η_s | η |
|----------|--------|----------|---|------|----------|--------|
| BS 40 | 6.67 A | 15.52 | 3 | 2.5 | 60 | 86 |
| | 10 B | 16.70 | 3 | 2 | 62 | 85 |
| | 15 C | 11.31 | 2 | 2 | 53 | 79 |
| | 20 D | 8.53 | 1 | 3 | 47 | 75 |
| | 24 E | 7.13 | 1 | 2.5 | 43 | 71 |
| | 30 F | 5.71 | 1 | 2 | 37 | 67 |
| | 40 G | 4.02 | 1 | 1.45 | 30 | 59 |
| | 48 H | 3.58 | 1 | 1.25 | 27 | 56 |
| | 60 I | 2.86 | 1 | 1 | 23 | 49 |
| | 70 J | 3.03 | 1 | 0.9 | 24 | 44 |
| | 84 K | 2.53 | 1 | 0.75 | 21 | 36 |
| BS 50 | 8 A | 17.82 | 3 | 3 | 63 | 88 |
| | 10.5 B | 15.07 | 2 | 3.5 | 60 | 87 |
| | 14 C | 12.19 | 2 | 2.7 | 55 | 84 |
| | 21 D | 7.67 | 1 | 3.5 | 44 | 77 |
| | 24 E | 7.07 | 1 | 3 | 39 | 74 |
| | 32 F | 5.71 | 1 | 2.4 | 37 | 71 |
| | 37 FX | 4.40 | 1 | 2 | 32 | 66 |
| | 42 G | 4.29 | 1 | 1.8 | 31 | 65 |
| | 54 H | 3.34 | 1 | 1.4 | 26 | 59 |
| | 64 I | 2.99 | 1 | 1.2 | 24 | 55 |
| | 80 J | 2.86 | 1 | 1 | 23 | 49 |
| BS 63 | 7.75 A | 18.43 | 4 | 3 | 64 | 90 |
| | 11 B | 17.82 | 3 | 3 | 63 | 88 |
| | 14 C | 15.07 | 2 | 3.5 | 60 | 87 |
| | 18 D | 10.20 | 2 | 2.7 | 51 | 83 |
| | 24.5 E | 9.93 | 2 | 2.1 | 50 | 81 |
| | 29 F | 7.67 | 1 | 3.5 | 44 | 77 |
| | 37 FX | 4.47 | 1 | 2.5 | 32 | 70 |
| | 43 G | 5.71 | 1 | 2.4 | 37 | 71 |
| | 51 H | 4.76 | 1 | 2 | 33 | 67 |
| | 57 I | 4.29 | 1 | 1.8 | 31 | 65 |
| | 73 J | 3.34 | 1 | 1.4 | 26 | 59 |
| | 104 K | 2.60 | 1 | 1 | 22 | 46 |

| | i | γ | z | m | η_s | η |
|----------|-----------|----------|-------|------|----------|--------|
| BS 71 | 7.5 A | 18.29 | 4 | 3.5 | 64 | 92 |
| | 9.33 B | 19.98 | 3 | 4 | 65 | 91 |
| | 12 C | 14.04 | 3 | 3 | 58 | 88 |
| | 16 D | 12.34 | 2 | 3.5 | 55 | 87 |
| | 21 E | 10.20 | 2 | 2.7 | 51 | 84 |
| | 28 F | 6.91 | 1 | 4 | 42 | 79 |
| | 37 G | 6.12 | 1 | 3 | 39 | 76 |
| | 48 H | 4.73 | 1 | 2.4 | 33 | 71 |
| | 63 I | 3.55 | 1 | 1.8 | 27 | 65 |
| | 82 J | 2.86 | 1 | 1.4 | 23 | 58 |
| | 100 K | 2.99 | 1 | 1.2 | 24 | 54 |
| BS 88 | 7.25 A | 21.80 | 4 | 4.5 | 67 | 94 |
| | 11.75 B | 18.43 | 4 | 3 | 64 | 91 |
| | 15.67 C | 14.04 | 3 | 3 | 58 | 89 |
| | 19.50 D | 9.93 | 2 | 3.5 | 50 | 87 |
| | 23.50 E | 9.46 | 2 | 3 | 49 | 85 |
| | 29 F | 5.71 | 1 | 4.5 | 38 | 80 |
| | 39 G | 5.00 | 1 | 3.5 | 34 | 77 |
| | 47 H | 4.76 | 1 | 3 | 33 | 75 |
| | 58 J | 4.47 | 1 | 2.5 | 32 | 72 |
| | 71 K | 3.37 | 1 | 2 | 26 | 67 |
| | 82 L | 3.55 | 1 | 1.8 | 27 | 66 |
| | 106 M | 2.86 | 1 | 1.4 | 23 | 57 |
| | BS 112 | 7 A | 22.48 | 4 | 6 | 68 |
| 11.5 B | | 20.85 | 4 | 4 | 66 | 93 |
| 15.3 C | | 15.95 | 3 | 4 | 61 | 91 |
| 19.5 D | | 11.31 | 2 | 4.5 | 54 | 88 |
| 23 E | | 10.78 | 2 | 4 | 52 | 88 |
| 28 F | | 5.91 | 1 | 6 | 39 | 83 |
| 39 G | | 5.71 | 1 | 4.5 | 38 | 80 |
| 46 H | | 5.44 | 1 | 4 | 36 | 79 |
| 63 J | | 4.76 | 1 | 3 | 33 | 75 |
| 76 K | | 4.21 | 1 | 2.5 | 31 | 71 |
| 95 L | | 3.37 | 1 | 2 | 26 | 66 |
| 108 M | | 2.95 | 1 | 1.75 | 24 | 61 |

Efficiency

The efficiency of the gear has to be considered when a worm gear or a worm geared motor is chosen. For intermittent duties it is necessary to increase the motor power to be able to compensate for the low efficiency during start.

Also consider that the highest efficiency is reached after run-in period and under continuous duty.

All values given in the catalogue are only valid for a gear after running-in period under continuous duty with service factor 1.

If the gear is driven from the output shaft the back driving efficiency is calculated as follows:

$$\eta^{-} = 2 - \frac{1}{\eta}$$

| n1, max | 40 | 50 | 63 | 71 | 88 | 112i<60:1 | 112i>60:1 |
|---------|------|------|------|------|------|-----------|-----------|
| rpm | 6000 | 5500 | 5000 | 4500 | 4000 | 3000 | 3500 |

QUESTIONNAIRE

To specify a drive precisely certain data are essential. The most important questions are listed in the table below. If you do not have the required data available in this form, we advise you to use a technical handbook or other suitable documentation. Should you have any question, please do not hesitate to contact us, Benzlers specialists will be pleased to assist you.

Load designation

Output power (kW): P_e at n_{max} at n_{min}

Output speed (RPM): $n_{e_{max}}$ $n_{e_{min}}$

Output torque (Nm): T_e at n_{max} at n_{min}

Overhung load (N): F_{r2e} at output shaft at input shaft

Axial thrust load (N): F_{a2e} at output shaft at input shaft

(away + / towards -)

Moment of inertia (kgm^2): at output shaft at input shaft

Unit type and mounting position (see page 11)

Motor
Enclosure IP

Operating voltage motor (V) brake (V) frequency (Hz)

Brake torque (Nm)

Ambient factors
Ambient temperature ($^{\circ}C$)

Load cycle / Duty cycle S / % ED

Starting frequency (1/h)

Gears and geared motors are described by a code consisting of 10 positions. Positions that aren't used are left empty. Additional information is written clearly.

Example of such information is:

Output speed, Motor power
Connecting voltage for motor and brake (if used)
Type of motor at specific request
All nonstandard executions that are not described in this catalogue.

Example on ordering text: (explanations, see page 11):

Gear

| | | | | | |
|----------|----------|----------|-------------|----------|----------|
| 1 | 2 | 3 | 4 | 5 | 6 |
| BS | 40 | A | 2,0H, M=115 | - | 4 |
| | | 214 rpm | | 0,37 kW | |

Motor

| | | | |
|-------------------------|----------|----------|-----------|
| 7 | 8 | 9 | 10 |
| 80A4 | - | 180 | B5 |
| 220-240/380-420V, 50 Hz | | | |

Additional information:

SERIES BS

MOUNTING POSITIONS

1 Gear type

BS (Worm gear and worm geared motor)

2 Gear size

Standard sizes 40, 50, 63, 71, 88, 112, 50/40, 63/40, 71/40, 88/50, 112/63

Other combinations and sizes can be achieved. Check with Benzlers.

3 Ratio code

A, B, C...FA, FB, FC (2 letters for double wormgears).

4 Mounting position

See picture *For execution - code 2 and 3 state flange size, for example M=115, see page 55.

5 Gear Accessories

VM = distance ring for different position of terminal box
 EB = brake on gear
 KEB = coupling/brake unit (specify type and voltage)
 F = fan on gear (only BS88 and BS112)
 DP = double input shaft

6 Input design

2 = free high speed shaft (no motor or flange for motor)
 3 = prepared for motor (specify flange and shaft diametres or IEC-standard size)
 4 = with motor

7 Motor

Acc. to IEC (71A, 71B)

8 Accessories for the motor

B = Brake
 TB = Thermostat protection
 Th = Thermistor protection
 FS = Fitted with forced cooling
 TG = Tachogenerator
 PG = Encoder

9 Terminal box position

Positions acc picture

10 Motorflange

B14 = Small flange
 B5 = Large flange

Motor flange B5

Position of terminal box

Motor sizes

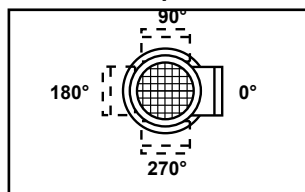
| | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gear | | | | | | | | | |
| BS 40 | 45* | 45* | 45* | 45* | | | | | |
| 50 | | 0 | 0 | 0 | | | | | |
| 63 | | 0 | 0 | 0 | | | | | |
| 71 | | | 45+ | 45+ | 45+ | 45+ | | | |
| 88 | | | 45 | 45 | 45 | 45 | 90 | | |
| 112(i<60) | | | | | 45 | 45 | 90 | 45 | |
| 112(i>60) | | | | 45 | 45 | 45 | 90 | | |

Mounting Positions

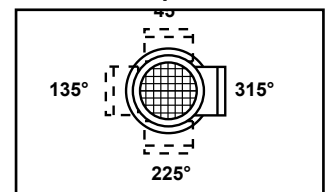
| | | | | |
|---|-------------|-------------|--------------|-----|
| Hollow shaft gear Execution - code 0 | U | O | H-A | H-B |
| Feet and output shaft Execution - code 1 | OV | OH | OD | |
| Only output shaft Execution - code 8 | UV | UH | UD | |
| Only feet Execution - code 9 | VV Endast | VH Endast | VD Endast | |
| Code 9 only for BS40-71 | BS 40-71 | BS 40-71 | BS 40-71 | |
| | HU-A | HN-A | HD-A | |
| | HU-B | HN-B | HD-B | |
| Output flange and shaft Execution - code 2* State M | BS 40-71 OH | BS 40-71 OV | BS 88-112 OH | |
| Output flange and hollow shaft Execution - code 3* State M | BS 40-71 OH | BS 40-71 OV | BS 88-112 OH | |
| Double gears (prestep gear is shown on picture) | P1 | P2 | P3 | |
| | P4 | P5 | P6 | |
| Execution - code 4 | P7 | P8 | | |
| Gear with hollow shaft, torque arm and connection Execution - code 5 | O | V | | |

Position of terminal box

Standard position 0



Standard position 45



Motor flange B14

Position of terminal box

Motor sizes

| | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gear | | | | | | | | | |
| 40 | 45* | 45* | 45* | 45* | | | | | |
| 50 | | 45* | 45* | 45* | | | | | |
| 63 | | 45* | 45* | 45* | 45 | | | | |
| 71 | | | 0+ | 0+ | 0+ | 0+ | | | |
| 88 | | | 0 | 0 | 0 | 0 | | | |
| 112 | | | | 0 | 0 | 0 | | | |

* = Can be changed to 0 with distance ring, VM

+ = Distance ring to be mounted on gear

SERIES BS

WORM GEARED MOTORS

0.12 kW

| Output speed n_2 rpm | Ratio i | Service factor f_{bp} | Output torque T_2 Nm | Permissible overhung load Fr_2 kN | Size | Weight kg | Dim. page |
|------------------------------|--------------|----------------------------|------------------------------|---|----------------|--------------|-----------|
| 0.69 | 1960.00 FJ | 0.76 | 524 | 5.0 | BS 71/40 63A-4 | 19 | 36 - 39 |
| 0.81 | 1680.00 FI | 0.86 | 463 | 5.0 | | | |
| 1.01 | 1344.00 FH | 0.99 | 403 | 5.0 | | | |
| 1.21 | 1120.00 FG | 1.13 | 354 | 5.0 | | | |
| 1.62 | 840.00 FF | 1.34 | 299 | 5.0 | | | |
| 2.02 | 672.00 FE | 1.57 | 255 | 5.0 | | | |
| 2.43 | 560.00 FD | 1.77 | 226 | 5.0 | | | |
| 3.24 | 420.00 FC | 2.2 | 182 | 5.0 | | | |
| 4.86 | 280.00 FB | 3 | 133 | 5.0 | | | |
| 2.34 | 580.00 FD | 0.76 | 234 | 4.0 | BS 63/40 63A-4 | 16 | 36 - 39 |
| 3.13 | 435.00 FC | 0.96 | 189 | 4.0 | | | |
| 4.69 | 290.00 FB | 1.33 | 138 | 4.0 | | | |
| 7.03 | 193.43 FA | 1.96 | 95 | 4.0 | | | |
| 2.83 | 480.00 ED | 1.3 | 113 | 2.7 | BS 50/40 63A-4 | 14 | 36 - 39 |
| 3.78 | 360.00 EC | 0.99 | 146 | 2.7 | | | |
| 5.67 | 240.00 EB | 1.33 | 108 | 2.7 | | | |
| 8.50 | 160.00 EA | 1.93 | 75 | 2.7 | | | |
| 6.44 | 104.00 K | 1.47 | 73 | 4.0 | BS 63 71 B-8 | 15 | 28 - 35 |
| 9.18 | 73.00 J | 3.1 | 58 | 4.0 | | | |
| 11.75 | 57.00 I | 3.91 | 49 | 4.0 | | | |
| 8.94 | 104.00 K | 2.09 | 50 | 4.0 | BS 63 71-6 | 13 | 28 - 35 |
| 8.38 | 80.00 J | 1.24 | 62 | 2.7 | BS 50 71B-8 | 13 | 28 - 35 |
| 10.47 | 64.00 I | 1.99 | 51 | 2.7 | | | |
| 11.63 | 80.00 J | 1.94 | 39 | 2.7 | BS 50 71-6 | 11 | 28 - 35 |
| 14.53 | 64.00 I | 3.03 | 33 | 2.7 | | | |
| 17.22 | 54.00 H | 3.73 | 29 | 2.7 | | | |
| 7.98 | 84.00 K | 0.75 | 48 | 2.0 | BS 40 71B-8 | 11 | 28 - 35 |
| 9.57 | 70.00 J | 0.87 | 54 | 2.0 | | | |
| 11.17 | 60.00 I | 1.2 | 46 | 2.0 | | | |
| 11.07 | 84.00 K | 0.83 | 42 | 2.0 | BS 40 71-6 | 9 | 28 - 35 |
| 13.29 | 70.00 J | 1.22 | 38 | 2.0 | | | |
| 15.50 | 60.00 I | 1.66 | 32 | 2.0 | | | |
| 16.19 | 84.00 K | 1.6 | 21 | 2.0 | BS 40 63A-4 | 9 | 28 - 35 |
| 19.43 | 70.00 J | 2.36 | 19 | 2.0 | | | |
| 22.67 | 60.00 I | 3.21 | 16 | 2.0 | | | |
| 28.33 | 48.00 H | 4.15 | 14 | 2.0 | | | |
| 34.00 | 40.00 G | 4.84 | 12 | 2.0 | | | |
| 45.33 | 30.00 F | 5.97 | 10 | 2.0 | | | |
| 56.67 | 24.00 E | 7.07 | 8 | 2.0 | | | |
| 68.00 | 20.00 D | 8.18 | 7 | 2.0 | | | |
| 90.67 | 15.00 C | 10.53 | 6 | 2.0 | | | |
| 136.00 | 10.00 B | 14.84 | 4 | 2.0 | | | |
| 203.90 | 6.67 A | 19.52 | 3 | 1.7 | | | |

SERIES BS

WORM GEARED MOTORS

0.18 kW

| Output speed n ₂ rpm | Ratio i | Service factor f _{bp} | Output torque T ₂ Nm | Permissible overhung load Fr ₂ kN | Size | Weight kg | Dim. page | | | |
|---------------------------------------|------------|-----------------------------------|---------------------------------------|--|----------------|--------------|-----------|-------------|---|---------|
| 1.22 | 1120 FG | 0.76 | 529 | 5.0 | BS 71/40 63B-4 | 19 | 36 - 39 | | | |
| 1.63 | 840 FF | 0.89 | 448 | 5.0 | | | | | | |
| 2.04 | 672 FE | 1.04 | 383 | 5.0 | | | | | | |
| 2.45 | 560 FD | 1.18 | 339 | 5.0 | | | | | | |
| 3.26 | 420 FC | 1.46 | 274 | 5.0 | | | | | | |
| 4.89 | 280 FB | 1.98 | 202 | 5.0 | | | | | | |
| 7.34 | 186.76 FA | 2.91 | 137 | 5.0 | | | | | | |
| 4.72 | 290 FB | 0.88 | 209 | 4.0 | BS 63/40 63B-4 | 16 | 36 - 39 | | | |
| 7.08 | 193.43 FA | 1.29 | 144 | 4.0 | | | | | | |
| 5.71 | 240 EB | 0.89 | 163 | 2.7 | BS 50/40 63B-4 | 14 | 36 - 39 | | | |
| 8.56 | 160 EA | 1.27 | 114 | 2.7 | | | | | | |
| 6.60 | 106 M | 2.35 | 123 | 10.0 | BS 88 80A-8 | 51 | 28 - 35 | | | |
| 7.00 | 100 K | 1.4 | 118 | 5.0 | BS 71 80A-8 | 21 | 28 - 35 | | | |
| 8.54 | 82 J | 2.15 | 100 | 5.0 | | | | | | |
| 11.11 | 63 I | 3.71 | 83 | 5.0 | | | | | | |
| 6.73 | 104 K | 0.92 | 117 | 4.0 | BS 63 80A-8 | 18 | 28 - 35 | | | |
| 9.59 | 73 J | 1.94 | 92 | 4.0 | | | | | | |
| 8.85 | 104 K | 1.19 | 88 | 4.0 | BS 63 71A-6 | 14 | 28 - 35 | | | |
| 12.60 | 73 J | 2.5 | 69 | 4.0 | | | | | | |
| 16.14 | 57 I | 3.3 | 58 | 4.0 | | | | | | |
| 8.75 | 80 J | 0.8 | 96 | 2.7 | BS 50 80A-8 | 16 | 28 - 35 | | | |
| 10.94 | 64 I | 1.28 | 80 | 2.7 | | | | | | |
| 12.96 | 54 H | 1.67 | 72 | 2.7 | | | | | | |
| 11.50 | 80 J | 1.1 | 68 | 2.7 | BS 50 71A-6 | 12 | 28 - 35 | | | |
| 14.38 | 64 I | 1.72 | 58 | 2.7 | | | | | | |
| 17.04 | 54 H | 2.12 | 51 | 2.7 | | | | | | |
| 21.90 | 42 G | 2.53 | 43 | 2.7 | | | | | | |
| 24.86 | 37 Fx | 2.76 | 38 | 2.7 | | | | | | |
| 11.67 | 60 I | 0.78 | 72 | 2.0 | | | | | | |
| 15.33 | 60 I | 0.99 | 54 | 2.0 | BS 40 80A-8 | 14 | 28 - 35 | | | |
| 19.17 | 48 H | 1.37 | 48 | 2.0 | | | | | | |
| 16.31 | 84 K | 0.81 | 41 | 2.0 | BS 40 63B-4 | 9 | 28 - 35 | | | |
| 19.57 | 70 J | 1.19 | 37 | 2.0 | | | | | | |
| 22.83 | 60 I | 1.62 | 32 | 2.0 | | | | | | |
| 28.54 | 48 H | 2.09 | 28 | 2.0 | | | | | | |
| 34.25 | 40 G | 2.44 | 24 | 2.0 | | | | | | |
| 45.67 | 30 F | 3.01 | 20 | 2.0 | | | | | | |
| 57.08 | 24 E | 3.56 | 16 | 2.0 | | | | | | |
| 68.50 | 20 D | 4.12 | 14 | 2.0 | | | | | | |
| 91.33 | 15 C | 5.31 | 11 | 2.0 | | | | | | |
| 137.00 | 10 B | 7.48 | 8 | 2.0 | | | | | | |
| 205.40 | 6.67 A | 9.84 | 5 | 1.7 | | | | | | |
| 184.00 | 15 C | 31.13 | 1 | 1.9 | | | | BS 40 63K-2 | 9 | 28 - 35 |
| 276.00 | 10 B | 44.16 | 1 | 1.6 | | | | | | |
| 413.79 | 6.67 A | 56.96 | 1 | 1.3 | | | | | | |

SERIES BS

WORM GEARED MOTORS

0.25 kW

| Output speed n_2 rpm | Ratio i | Service factor f_{bp} | Output torque T_2 Nm | Permissible overhung load Fr_2 kN | Size | Weight kg | Dim. page | | | |
|------------------------------|--------------|----------------------------|------------------------------|---|------------------|--------------|-----------|-----------------|----|---------|
| 0.48 | 2912 FK | 0.93 | 1433 | 15.0 | BS 112/63 71 A-4 | 71 | 36-39 | | | |
| 0.68 | 2044 FJ | 1.19 | 1178 | 15.0 | | | | | | |
| 0.88 | 1596 FI | 1.40 | 1000 | 15.0 | | | | | | |
| 0.98 | 1428 FH | 1.49 | 942 | 15.0 | | | | | | |
| 1.16 | 1204 FG | 1.64 | 853 | 15.0 | | | | | | |
| 1.35 | 1036 FFx | 1.91 | 733 | 15.0 | | | | | | |
| 1.72 | 812 FF | 2.18 | 641 | 15.0 | | | | | | |
| 2.04 | 686 FE | 2.43 | 575 | 15.0 | | | | | | |
| 2.78 | 504 FD | 3.14 | 445 | 15.0 | | | | | | |
| 3.57 | 392 FC | 3.72 | 377 | 15.0 | | | | | | |
| 0.75 | 1856 FI | 0.82 | 976 | 10.0 | | | | BS 88/50 71 A-4 | 52 | 36 - 39 |
| 0.89 | 1566 FH | 0.91 | 876 | 10.0 | | | | | | |
| 1.15 | 1218 FG | 1.05 | 763 | 10.0 | | | | | | |
| 1.30 | 1073 FFx | 1.13 | 707 | 10.0 | | | | | | |
| 1.51 | 928 FF | 1.24 | 643 | 10.0 | | | | | | |
| 2.01 | 696 FE | 1.55 | 516 | 10.0 | | | | | | |
| 2.30 | 609 FD | 1.66 | 481 | 10.0 | | | | | | |
| 3.45 | 406 FC | 2.22 | 360 | 10.0 | | | | | | |
| 4.60 | 304.5 FB | 2.77 | 289 | 10.0 | | | | | | |
| 6.03 | 232 FA | 3.48 | 230 | 10.0 | | | | | | |
| 2.08 | 672 FE | 0.77 | 522 | 5.0 | BS 71/40 71 A-4 | 20 | 36 - 39 | | | |
| 2.50 | 560 FD | 0.86 | 463 | 5.0 | | | | | | |
| 3.33 | 420 FC | 1.07 | 374 | 5.0 | | | | | | |
| 5.00 | 280 FB | 1.45 | 276 | 5.0 | | | | | | |
| 7.50 | 186.76 FA | 2.11 | 190 | 5.0 | | | | | | |
| 7.24 | 193.43 FA | 0.94 | 198 | 4.0 | BS 63/40 71A-4 | 17 | 36 - 39 | | | |
| 8.75 | 160.08 EA | 0.92 | 156 | 2.7 | BS 50/40 71A-4 | 15 | 36-39 | | | |
| 8.85 | 104 K | 0.79 | 132 | 4.0 | BS 63 71 B-6 | 15 | 28-35 | | | |
| 12.60 | 73 J | 1.67 | 104 | 4.0 | BS 63 B-6 | 15 | 28-35 | | | |
| 16.14 | 57 I | 2.21 | 87 | 4.0 | | | | | | |
| 18.04 | 51 H | 2.29 | 80 | 4.0 | | | | | | |
| 21.40 | 43 G | 2.32 | 72 | 4.0 | | | | | | |
| 13.46 | 104 K | 1.30 | 77 | 4.0 | | | | | | |
| 19.18 | 73 J | 2.69 | 60 | 4.0 | BS 63 71A-4 | 14 | 28 - 35 | | | |
| 24.56 | 57 I | 3.18 | 50 | 4.0 | | | | | | |
| 27.45 | 51 H | 3.46 | 46 | 4.0 | | | | | | |
| 14.38 | 64 I | 1.15 | 87 | 2.7 | | | | | | |
| 17.04 | 54 H | 1.42 | 77 | 2.7 | BS 50 71B 6 | 13 | 28 - 35 | | | |
| 17.50 | 80 J | 1.07 | 66 | 2.7 | BS 50 71A-4 | 12 | 28 - 35 | | | |
| 21.88 | 64 I | 1.70 | 55 | 2.7 | | | | | | |
| 25.93 | 54 H | 1.86 | 48 | 2.7 | | | | | | |
| 33.33 | 42 G | 2.23 | 40 | 2.7 | | | | | | |
| 37.84 | 37 Fx | 2.45 | 36 | 2.7 | | | | | | |
| 43.75 | 32 F | 2.75 | 33 | 2.7 | | | | | | |
| 19.17 | 48 H | 0.94 | 70 | 2.0 | | | | BS 40 71B 6 | 11 | 28 - 35 |
| 23.00 | 40 G | 1.12 | 61 | 2.0 | | | | | | |
| 20.00 | 70 J | 0.77 | 57 | 2.0 | BS 40 71A-4 | 10 | 28 - 35 | | | |
| 23.33 | 60 I | 1.04 | 50 | 2.0 | | | | | | |
| 29.17 | 48 H | 1.35 | 43 | 2.0 | | | | | | |
| 35.00 | 40 G | 1.57 | 37 | 2.0 | | | | | | |
| 46.67 | 30 F | 1.94 | 30 | 2.0 | | | | | | |
| 58.33 | 24 E | 2.30 | 25 | 2.0 | | | | | | |
| 70.00 | 20 D | 2.66 | 22 | 2.0 | | | | | | |
| 93.33 | 15 C | 3.43 | 17 | 2.0 | | | | | | |
| 140.00 | 10 B | 4.83 | 12 | 2.0 | | | | | | |
| 209.90 | 6.67 A | 6.35 | 8 | 1.7 | | | | | | |
| 183.33 | 15 C | 9.36 | 5 | 1.9 | | | | BS 40 63B-2 | 9 | 28 - 35 |
| 275.00 | 10 B | 13.28 | 3 | 1.6 | | | | | | |
| 412.29 | 6.67 A | 17.13 | 2 | 1.3 | | | | | | |

SERIES BS

WORM GEARED MOTORS

0.37 kW

| Output speed n ₂ rpm | Ratio i | Service factor f _{bp} | Output torque T ₂ Nm | Permissible overhung load Fr ₂ kN | Size | Weight kg | Dim. page | | | |
|---------------------------------------|------------|-----------------------------------|---------------------------------------|--|-----------------|--------------|-----------|-----------------|------|-------|
| 0.68 | 2044 FJ | 0.80 | 1747 | 15.0 | BS 112/63 71B-4 | 72 | 36-39 | | | |
| 0.88 | 1596 FI | 0.94 | 1483 | 15.0 | | | | | | |
| 0.98 | 1428 FH | 1.00 | 1398 | 15.0 | | | | | | |
| 1.16 | 1204 FG | 1.10 | 1267 | 15.0 | | | | | | |
| 1.35 | 1036 FFx | 1.29 | 1089 | 15.0 | | | | | | |
| 1.72 | 812 FF | 1.47 | 954 | 15.0 | | | | | | |
| 2.04 | 686 FE | 1.64 | 856 | 15.0 | | | | | | |
| 2.78 | 504 FD | 2.11 | 664 | 15.0 | | | | | | |
| 2.78 | 504 FD | 2.11 | 664 | 15.0 | | | | BS 112/63 71B-4 | 72 | 36-39 |
| 3.57 | 392 FC | 2.49 | 563 | 15.0 | | | | | | |
| 4.55 | 308 FB | 3.08 | 455 | 15.0 | | | | | | |
| 1.30 | 1073 FFx | 0.76 | 1050 | 10.0 | BS 88/50 71B-4 | 53 | 36-39 | | | |
| 1.51 | 928 FF | 0.84 | 954 | 10.0 | | | | | | |
| 2.01 | 696 FE | 1.04 | 766 | 10.0 | | | | | | |
| 2.30 | 609 FD | 1.12 | 716 | 10.0 | | | | | | |
| 3.45 | 406 FC | 1.49 | 536 | 10.0 | | | | | | |
| 4.60 | 304.5 FB | 1.86 | 431 | 10.0 | | | | | | |
| 6.03 | 232 FA | 2.33 | 344 | 10.0 | | | | | | |
| 5.00 | 280 FB | 0.97 | 411 | 5.0 | | | | BS 71/40 71B-4 | 21 | 36-39 |
| 7.50 | 186.76 FA | 1.41 | 284 | 5.0 | | | | | | |
| 6.48 | 108 M | 1.92 | 294 | 15.0 | BS 112 90S-8 | 71 | 28-35 | | | |
| 7.37 | 95 L | 2.53 | 271 | 15.0 | | | | | | |
| 6.60 | 106 M | 1.00 | 288 | 10.0 | BS 88 90S-8 | 54.0 | 28-35 | | | |
| 8.54 | 82 L | 1.74 | 241 | 10.0 | | | | | | |
| 9.86 | 71 K | 2.38 | 212 | 10.0 | | | | | | |
| 8.68 | 106 M | 1.30 | 216 | 10.0 | BS 88 80A-6 | 50 | 28-35 | | | |
| 11.22 | 82 L | 2.27 | 180 | 10.0 | | | | | | |
| 12.96 | 71 K | 3.15 | 156 | 10.0 | | | | | | |
| 8.54 | 82 J | 0.95 | 228 | 5.0 | BS 71 90S-8 | 24 | 28-35 | | | |
| 9.20 | 100 K | 0.78 | 207 | 5.0 | BS 71 80A-6 | 20 | 28-35 | | | |
| 11.22 | 82 J | 1.22 | 172 | 5.0 | | | | | | |
| 14.60 | 63 I | 1.97 | 143 | 5.0 | | | | | | |
| 19.17 | 48 H | 2.37 | 118 | 5.0 | | | | | | |
| 9.59 | 73 J | 0.85 | 210 | 4.0 | | | | BS 63 90S-8 | 21 | 28-35 |
| 12.60 | 73 J | 1.07 | 163 | 4.0 | BS 63 80A-6 | 17 | 28-35 | | | |
| 16.14 | 57 I | 1.41 | 137 | 4.0 | | | | | | |
| 18.04 | 51 H | 1.46 | 126 | 4.0 | | | | | | |
| 13.46 | 104 K | 0.77 | 130 | 4.0 | BS 63 71B-4 | 15 | 28-35 | | | |
| 19.18 | 73 J | 1.60 | 101 | 4.0 | | | | | | |
| 24.56 | 57 I | 1.88 | 85 | 4.0 | | | | | | |
| 27.45 | 51 H | 2.05 | 78 | 4.0 | | | | | | |
| 32.56 | 43 G | 2.34 | 68 | 4.0 | | | | | | |
| 37.84 | 37 Fx | 2.56 | 57 | 4.0 | | | | | | |
| 48.28 | 29 F | 3.18 | 49 | 4.0 | | | | | | |
| 12.96 | 54 H | 0.76 | 159 | 2.7 | | | | BS 50 90S-8 | 19 | 28-35 |
| 17.04 | 54 H | 0.90 | 121 | 2.7 | | | | BS 50 80A-6 | 15.0 | 28-35 |
| 21.88 | 64 I | 1.04 | 89 | 2.7 | | | | BS 50 71B-4 | 13 | 28-35 |
| 25.93 | 54 H | 1.14 | 79 | 2.7 | | | | | | |
| 33.33 | 42 G | 1.37 | 66 | 2.7 | | | | | | |
| 37.84 | 37 Fx | 1.50 | 59 | 2.7 | | | | | | |
| 43.75 | 32 F | 1.68 | 53 | 2.7 | | | | | | |
| 58.33 | 24 E | 2.07 | 41 | 2.7 | | | | | | |
| 66.67 | 21 D | 2.33 | 37 | 2.7 | | | | | | |
| 100.00 | 14 C | 3.34 | 26 | 2.7 | | | | | | |

SERIES BS

WORM GEARED MOTORS

0.55 kW

| Output speed n ₂ rpm | Ratio i | Service factor f _{bp} | Output torque T ₂ Nm | Permissible overhung load Fr ₂ kN | Size | Weight kg | Dim. page |
|---------------------------------------|-------------|-----------------------------------|---------------------------------------|--|-----------------|--------------|-----------|
| 1.36 | 1036.00 FFx | 0.87 | 1612 | 15.0 | BS 112/63 80A-4 | 74 | 36-39 |
| 1.74 | 812.00 FF | 0.99 | 1412 | 15.0 | | | |
| 2.06 | 686.00 FE | 1.10 | 1268 | 15.0 | | | |
| 2.80 | 504.00 FD | 1.42 | 985 | 15.0 | | | |
| 3.60 | 392.00 FC | 1.67 | 836 | 15.0 | | | |
| 4.58 | 308.00 FB | 2.07 | 677 | 15.0 | | | |
| 6.50 | 217.00 FA | 2.73 | 514 | 15.0 | | | |
| 2.32 | 609.00 FD | 0.75 | 1060 | 10.0 | BS 88/50 80A-4 | 55 | 36-39 |
| 3.47 | 406.00 FC | 1.01 | 795 | 10.0 | | | |
| 4.63 | 304.50 FB | 1.25 | 639 | 10.0 | | | |
| 6.08 | 232.00 FA | 1.57 | 511 | 10.0 | | | |
| 7.55 | 186.76 FA | 0.94 | 424 | 5.0 | BS 71/40 80A-4 | 23 | 36-39 |
| 6.48 | 108.00 M | 1.22 | 461 | 15.0 | BS 112 90L-8 | 74 | 28-35 |
| 7.37 | 95.00 L | 1.61 | 425 | 15.0 | | | |
| 9.21 | 76.00 K | 2.35 | 366 | 15.0 | | | |
| 8.54 | 82.00 L | 1.13 | 372 | 10.0 | BS 88 90L-8 | 57 | 28-35 |
| 9.86 | 71.00 K | 1.54 | 327 | 10.0 | | | |
| 8.68 | 106.00 M | 0.82 | 341 | 10.0 | BS 88 80B-6 | 51 | 28-35 |
| 11.22 | 82.00 L | 1.44 | 285 | 10.0 | | | |
| 12.96 | 71.00 K | 2.00 | 246 | 10.0 | | | |
| 15.86 | 58.00 J | 2.59 | 216 | 10.0 | | | |
| 13.30 | 106.00 M | 1.22 | 221 | 10.0 | BS 88 80A-4 | 50 | 28-35 |
| 17.20 | 82.00 L | 2.12 | 184 | 10.0 | | | |
| 19.86 | 71.00K | 2.74 | 159 | 10.0 | | | |
| 24.31 | 58.00 J | 3.51 | 139 | 10.0 | | | |
| 11.11 | 63.00 I | 1.07 | 290 | 5.0 | BS 71 90L-8 | 27 | 28-35 |
| 11.22 | 82.00 J | 0.78 | 269 | 5.0 | BS 71 80B-6 | 21 | 28-35 |
| 14.60 | 63.00 I | 1.26 | 223 | 5.0 | | | |
| 19.17 | 48.00 H | 1.52 | 185 | 5.0 | | | |
| 17.20 | 82.00 J | 1.14 | 177 | 5.0 | BS 71 80A 4 | 20 | 28-35 |
| 22.38 | 63.00 I | 1.60 | 146 | 5.0 | | | |
| 29.38 | 48.00 H | 1.97 | 119 | 5.0 | | | |
| 38.11 | 37.00 G | 2.47 | 96 | 5.0 | | | |
| 50.36 | 28.00 F | 2.97 | 76 | 5.0 | | | |
| 67.14 | 21.00 E | 3.87 | 59 | 4.6 | | | |
| 16.14 | 57.00 I | 0.91 | 212 | 4.0 | | | |
| 18.04 | 51.00 H | 0.94 | 195 | 4.0 | | | |
| 21.40 | 43.00 G | 0.96 | 173 | 4.0 | | | |
| 19.32 | 73.00 J | 1.00 | 162 | 4.0 | BS 63 80A-4 | 17 | 28-35 |
| 24.74 | 57.00 I | 1.18 | 136 | 4.0 | | | |
| 27.65 | 51.00 H | 1.28 | 125 | 4.0 | | | |
| 32.79 | 43.00 G | 1.46 | 109 | 4.0 | | | |
| 38.11 | 37.00 Fx | 1.60 | 92 | 4.0 | | | |
| 48.62 | 29.00 F | 1.99 | 78 | 4.0 | | | |
| 57.55 | 24.50 E | 2.33 | 69 | 4.0 | | | |
| 78.33 | 18.00 D | 2.92 | 51 | 3.9 | | | |

SERIES BS

WORM GEARED MOTORS

0.55 kW

| Output speed n ₂ rpm | Ratio i | Service factor f _{bp} | Output torque T ₂ Nm | Permissible overhung load Fr ₂ kN | Size | Weight kg | Dim. page |
|---------------------------------------|------------|-----------------------------------|---------------------------------------|--|-------------|--------------|-----------|
| 33.57 | 42 G | 0.87 | 103 | 2.7 | BS 50 80A-4 | 15 | 28-35 |
| 38.11 | 37 Fx | 0.96 | 92 | 2.7 | | | |
| 44.06 | 32 F | 1.07 | 84 | 2.7 | | | |
| 58.75 | 24 E | 1.32 | 65 | 2.7 | | | |
| 67.14 | 21 D | 1.49 | 59 | 2.7 | | | |
| 100.71 | 14 C | 2.13 | 41 | 2.7 | | | |
| 134.29 | 10.5 B | 2.74 | 32 | 2.7 | | | |
| 176.25 | 8 A | 3.40 | 24 | 2.4 | | | |
| 201.43 | 14 C | 3.82 | 17 | 2.5 | | | |
| 58.75 | 24 E | 0.90 | 65 | 2.0 | BS 50 71B-2 | 13 | 28-35 |
| 70.50 | 20 D | 1.04 | 56 | 2.0 | BS 40 80A-4 | 13 | 28-35 |
| 94.00 | 15 C | 1.34 | 43 | 2.0 | | | |
| 141.00 | 10 B | 1.89 | 30 | 2.0 | | | |
| 211.39 | 6.67 A | 2.48 | 20 | 1.7 | | | |
| 188.00 | 15 C | 2.40 | 18 | 1.9 | BS 40 71B-2 | 11 | 28-35 |
| 282.00 | 10 B | 3.41 | 13 | 1.6 | | | |
| 422.79 | 6.67 A | 4.40 | 8 | 1.3 | | | |

0.75 kW

| | | | | | | | |
|-------|----------|------|------|------|-----------------|----|-------|
| 2.06 | 686 FE | 0.81 | 1733 | 15.0 | BS 112/63 80B-4 | 75 | 36-39 |
| 2.80 | 504 FD | 1.04 | 1347 | 15.0 | | | |
| 3.60 | 392 FC | 1.22 | 1144 | 15.0 | | | |
| 4.58 | 308 FB | 1.51 | 928 | 15.0 | | | |
| 6.50 | 217 FA | 1.99 | 705 | 15.0 | | | |
| 4.63 | 304.5 FB | 0.92 | 874 | 10.0 | BS 88/50 80B-4 | 56 | 36-39 |
| 6.08 | 232 FA | 1.14 | 699 | 10.0 | | | |
| 6.48 | 108 M | 0.87 | 647 | 15.0 | BS 112 100LA 8 | 80 | 28-35 |
| 7.37 | 95 L | 1.15 | 596 | 15.0 | | | |
| 9.21 | 76 K | 1.67 | 513 | 15.0 | | | |
| 8.52 | 108 M | 1.10 | 497 | 15.0 | BS 112 90S-6 | 71 | 28-35 |
| 9.68 | 95 L | 1.46 | 457 | 15.0 | | | |
| 12.11 | 76 K | 2.19 | 393 | 15.0 | | | |
| 14.60 | 63 J | 2.96 | 339 | 15.0 | | | |
| 8.54 | 82 L | 0.81 | 518 | 10.0 | BS 88 100LA-8 | 62 | 28-35 |
| 9.86 | 71 K | 1.11 | 455 | 10.0 | | | |
| 11.22 | 82 L | 1.02 | 400 | 10.0 | BS 88 90S-6 | 54 | 28-35 |
| 12.96 | 71 K | 1.42 | 347 | 10.0 | | | |
| 15.66 | 58 J | 1.84 | 304 | 10.0 | | | |
| 13.30 | 106 M | 0.85 | 318 | 10.0 | BS 88 80B-4 | 51 | 28-35 |
| 17.20 | 82 L | 1.48 | 264 | 10.0 | | | |
| 19.86 | 71 K | 1.91 | 229 | 10.0 | | | |
| 24.31 | 58 J | 2.44 | 200 | 10.0 | | | |
| 30.00 | 47 H | 3.06 | 166 | 10.0 | | | |
| 36.15 | 39 G | 3.76 | 140 | 10.0 | | | |
| 14.58 | 48 H | 0.91 | 339 | 5.0 | | | |
| 19.17 | 48 H | 1.09 | 259 | 5.0 | BS 71 90S-6 | 24 | 28-35 |
| 17.20 | 82 J | 0.80 | 251 | 5.0 | BS 71 80B-4 | 21 | 28-35 |
| 22.38 | 63 I | 1.13 | 207 | 5.0 | | | |
| 29.38 | 48 H | 1.38 | 169 | 5.0 | | | |
| 38.11 | 37 G | 1.74 | 137 | 5.0 | | | |
| 50.36 | 28 F | 2.09 | 108 | 5.0 | | | |
| 67.14 | 21 E | 2.72 | 85 | 4.6 | | | |
| 88.13 | 16 D | 3.40 | 66 | 4.0 | | | |

SERIES BS

WORM GEARED MOTORS

0.75 kW

| Output speed n ₂ rpm | Ratio i | Service factor f _{bp} | Output torque T ₂ Nm | Permissible overhung load Fr ₂ kN | Size | Weight kg | Dim. page |
|---------------------------------------|------------|-----------------------------------|---------------------------------------|--|-------------|--------------|-----------|
| 24.74 | 57 I | 0.83 | 193 | 4.0 | BS 63 80B-4 | 18 | 28-35 |
| 27.65 | 51 H | 0.90 | 177 | 4.0 | | | |
| 32.79 | 43 G | 1.03 | 155 | 4.0 | | | |
| 38.11 | 37 Fx | 1.13 | 130 | 4.0 | | | |
| 48.62 | 29 F | 1.40 | 111 | 4.0 | | | |
| 57.55 | 24.5 E | 1.64 | 97 | 4.0 | | | |
| 78.33 | 18 D | 2.06 | 72 | 3.9 | | | |
| 100.71 | 14 C | 2.64 | 58 | 3.4 | | | |
| 128.18 | 11 B | 3.22 | 46 | 3.0 | | | |
| 158.33 | 18 D | 3.59 | 31 | 3.1 | | | |
| 44.06 | 32 F | 0.76 | 118 | 2.7 | BS 50 80B-4 | 16 | 28-35 |
| 58.75 | 24 E | 0.94 | 91 | 2.7 | | | |
| 67.14 | 21 D | 1.06 | 82 | 2.7 | | | |
| 100.71 | 14 C | 1.51 | 58 | 2.7 | | | |
| 134.29 | 10.5 B | 1.95 | 45 | 2.7 | | | |
| 176.25 | 8 A | 2.41 | 34 | 2.4 | | | |
| 203.57 | 14 C | 2.58 | 26 | 2.5 | | | |
| 271.43 | 10.5 B | 3.31 | 20 | 2.2 | BS 50 80A-2 | 15 | 28-35 |
| 94.00 | 15 C | 0.95 | 61 | 2.0 | BS 40 80B-4 | 14 | 28-35 |
| 141.00 | 10 B | 1.34 | 43 | 2.0 | | | |
| 211.39 | 6.67 A | 1.76 | 28 | 1.7 | | | |
| 190.00 | 15 C | 1.62 | 27 | 1.9 | BS 40 80A-2 | 13 | 28-35 |
| 285.00 | 10 B | 2.30 | 19 | 1.6 | | | |
| 427.29 | 6.67 A | 2.97 | 12 | 1.3 | | | |

1.1 kW

| | | | | | | | | | | |
|--------|---------|------|------|------|-----------------|----|-------|-------------|----|-------|
| 3.60 | 392 FC | 0.83 | 1683 | 15.0 | BS 112/63 90S-4 | 78 | 36-39 | | | |
| 4.58 | 308 FB | 1.03 | 1366 | 15.0 | | | | | | |
| 6.50 | 217 FA | 1.35 | 1039 | 15.0 | | | | | | |
| 7.37 | 95 L | 0.76 | 895 | 15.0 | BS 112 100LB-8 | 83 | 28-35 | | | |
| 9.21 | 76 K | 1.11 | 770 | 15.0 | | | | | | |
| 9.68 | 95 L | 0.96 | 692 | 15.0 | BS 112 90L-6 | 74 | 28-35 | | | |
| 12.11 | 76 K | 1.45 | 594 | 15.0 | | | | | | |
| 14.60 | 63 J | 1.96 | 513 | 15.0 | BS 112 90L-6 | 74 | 28-35 | | | |
| 13.06 | 108 M | 1.06 | 495 | 15.0 | BS 112 90S-4 | 71 | 28-35 | | | |
| 14.84 | 95 L | 1.40 | 454 | 15.0 | | | | | | |
| 18.55 | 76 K | 2.17 | 383 | 15.0 | | | | | | |
| 22.38 | 63 J | 2.65 | 330 | 15.0 | | | | | | |
| 12.96 | 71 K | 0.94 | 522 | 10.0 | | | | | | |
| 15.86 | 58 J | 1.22 | 458 | 10.0 | | | | | | |
| 17.20 | 82 L | 0.97 | 404 | 10.0 | | | | | | |
| 19.86 | 71 K | 1.25 | 350 | 10.0 | BS 88 90S-4 | 54 | 28-35 | | | |
| 24.31 | 58 J | 1.60 | 306 | 10.0 | | | | | | |
| 30.00 | 47 H | 2.00 | 254 | 10.0 | | | | | | |
| 36.15 | 39 G | 2.46 | 213 | 10.0 | | | | | | |
| 48.62 | 29 F | 3.18 | 165 | 9.7 | | | | | | |
| 60.00 | 23.5 E | 3.39 | 141 | 9.0 | BS 71 90S 4 | 24 | 28-35 | | | |
| 29.38 | 48 H | 0.91 | 257 | 5.0 | | | | | | |
| 38.11 | 37 G | 1.14 | 208 | 5.0 | | | | | | |
| 50.36 | 28 F | 1.38 | 163 | 5.0 | | | | | | |
| 67.14 | 21 E | 1.79 | 128 | 4.6 | | | | | | |
| 88.13 | 16 D | 2.24 | 100 | 4.0 | | | | | | |
| 117.50 | 12 C | 2.84 | 76 | 3.5 | | | | | | |
| 151.13 | 9.33 B | 3.62 | 60 | 3.0 | | | | | | |
| 48.62 | 29 F | 0.92 | 169 | 4.0 | | | | BS 63 90S-4 | 21 | 28-35 |
| 57.55 | 24.5 E | 1.08 | 148 | 4.0 | | | | | | |
| 78.33 | 18 D | 1.35 | 110 | 3.9 | | | | | | |
| 100.71 | 14 C | 1.74 | 88 | 3.4 | | | | | | |
| 128.18 | 11 B | 2.12 | 70 | 3.0 | | | | | | |
| 181.94 | 7.75 A | 2.68 | 50 | 2.6 | | | | | | |
| 158.33 | 18 D | 2.22 | 50 | 3.1 | BS 63 80B-2 | 18 | 28-35 | | | |
| 203.57 | 14 C | 2.86 | 40 | 2.7 | | | | | | |
| 259.09 | 11.00 B | 3.51 | 32 | 2.4 | | | | | | |

SERIES BS

WORM GEARED MOTORS

| 1.1 kW | Output speed n ₂ rpm | Ratio i | Service factor f _{bp} | Output torque T ₂ Nm | Permissible overhung load Fr ₂ kN | Size | Weight kg | Dim. page |
|--------|--|---|--|--|--|-------------------|--------------|-----------|
| | | 100.71 134.29 176.25 | 14 C 10.5 B 8 A | 1.00 1.29 1.60 | 88 67 52 | 2.7 2.7 2.4 | BS 50 90S-4 | 19 |
| | 203.57 271.43 356.25 | 14 C 10.5 B 8 A | 1.63 2.09 2.59 | 41 31 24 | 2.5 2.2 1.9 | BS 50 80B-2 | 16 | 28-35 |
| | 285.00 427.29 | 10 B 6.67 A | 1.45 1.87 | 30 20 | 1.6 1.3 | BS 40 80B-2 | 14 | 28-35 |
| 1.5 kW | 4.61 6.54 | 308 FB 217 FA | 0.76 0.99 | 1853 1411 | 15.0 15.0 | BS 112/63 90L 4 | 81 | 36-39 |
| | 9.08 | 76 K | 0.79 | 1080 | 15.0 | BS 112 112M-8 | 91 | 28-35 |
| | 12.37 14.92 | 76 K 63 J | 1.07 1.44 | 807 697 | 15.0 15.0 | BS 112 100L-6 | 83 | 28-35 |
| | 13.15 14.95 18.68 22.54 30.87 36.41 | 108 M 95 L 76 K 63 J 46 H 39 G | 0.76 1.00 1.55 1.89 2.78 3.19 | 692 635 536 462 350 300 | 15.0 15.0 15.0 15.0 15.0 15.0 | BS 112 90L-4 | 74 | 28-35 |
| | 16.21 | 58 J | 0.90 | 620 | 10.0 | BS 88 100L-6 | 65 | 28-35 |
| | 20.00 24.48 30.21 36.41 48.97 60.43 72.82 90.62 | 71 K 58 J 47 H 39 G 29 F 23.5 E 19.5 D 15.67 C | 0.90 1.15 1.44 1.77 2.30 2.44 3.01 3.56 | 485 424 352 296 228 196 165 135 | 10.0 10.0 10.0 10.0 9.7 9.0 8.2 7.4 | BS 88 90L-4 | 57 | 28-35 |
| | 50.71 67.62 88.75 118.33 152.20 189.33 | 28 F 21 E 16 D 12 C 9.33 B 7.5 A | 1.00 1.30 1.62 2.05 2.62 2.97 | 225 177 138 105 83 68 | 5.0 4.6 4.0 3.5 3.0 2.7 | BS 71 90L-4 | 27 | 28-35 |
| | 238.33 | 12 C | 3.25 | 49 | 2.9 | BS 71 90S-2 | 24 | 28-35 |
| | 57.96 78.89 101.43 129.09 183.23 | 24.5 E 18 D 14 C 11 B 7.75 A | 0.78 0.98 1.26 1.54 1.94 | 204 152 122 97 69 | 4.0 3.9 3.4 3.0 2.6 | BS 63 90L-4 | 24 | 28-35 |
| | 158.89 204.29 260.00 369.03 | 18 D 14 C 11 B 7.75 A | 1.55 2.00 2.46 3.11 | 71 57 46 32 | 3.1 2.7 2.4 2.1 | BS 63 90S-2 | 21 | 28-35 |
| | 135.24 177.50 | 10.5 B 8 A | 0.94 1.16 | 93 71 | 2.7 2.4 | BS 50 90L-4 | 22 | 28-35 |
| | 204.29 272.38 357.50 | 14 C 10.5 B 8 A | 1.15 1.48 1.83 | 57 44 34 | 2.5 2.2 1.9 | BS 50 90S-2 | 19 | 28-35 |

SERIES BS

WORM GEARED MOTORS

| 2.2 Kw | Output speed n ₂ rpm | Ratio i | Service factor f _{bp} | Output torque T ₂ Nm | Permissible overhung load Fr ₂ kN | Size | Weight kg | Dim. page | | | |
|--------|---------------------------------------|------------|-----------------------------------|---------------------------------------|--|----------------|---------------|-----------|---------------|----|-------|
| | | 14.76 | 63 J | 0.96 | 1048 | 15.0 | BS 112 112M-6 | 91 | 28-35 | | |
| | 18.82 | 76 K | 1.04 | 802 | 15.0 | BS 112 100LA-4 | 81 | 28-35 | | | |
| | 22.70 | 63 J | 1.26 | 691 | 15.0 | | | | | | |
| | 31.09 | 46 H | 1.86 | 524 | 15.0 | | | | | | |
| | 36.67 | 39 G | 2.13 | 450 | 15.0 | | | | | | |
| | 51.07 | 28 F | 2.70 | 331 | 15.0 | | | | | | |
| | 62.17 | 23 E | 3.23 | 288 | 13.6 | | | | | | |
| | 30.43 | 47 H | 0.97 | 523 | 10.0 | | | | BS 88 100LA-4 | 63 | 28-35 |
| | 36.67 | 39 G | 1.19 | 440 | 10.0 | | | | | | |
| | 49.31 | 29 F | 1.54 | 339 | 9.7 | | | | | | |
| | 60.85 | 23.5 E | 1.64 | 291 | 9.0 | | | | | | |
| | 73.33 | 19.5 D | 2.03 | 245 | 8.2 | | | | | | |
| | 91.26 | 15.67 C | 2.39 | 201 | 7.4 | | | | | | |
| | 121.70 | 11.75 B | 3.18 | 154 | 6.3 | | | | | | |
| | 89.38 | 16 D | 1.10 | 204 | 4.0 | BS 71 100LA-4 | 32 | 28-35 | | | |
| | 119.17 | 12 C | 1.39 | 155 | 3.5 | | | | | | |
| | 153.27 | 9.33 B | 1.77 | 123 | 3.0 | | | | | | |
| | 190.67 | 7.5 A | 2.01 | 100 | 2.7 | | | | | | |
| | 239.17 | 12 C | 2.13 | 75 | 2.9 | BS 71 90L-2 | 27 | 28-35 | | | |
| | 307.61 | 9.33 B | 2.74 | 60 | 2.4 | | | | | | |
| | 382.67 | 7.5 A | 3.15 | 48 | 2.2 | | | | | | |
| | 102.14 | 14 C | 0.85 | 181 | 3.4 | BS 63 100LA-4 | 29 | 28-35 | | | |
| | 130.00 | 11 B | 1.04 | 144 | 3.0 | | | | | | |
| | 184.52 | 7.75 A | 1.31 | 102 | 2.6 | | | | | | |
| | 205.00 | 14 C | 1.31 | 88 | 2.7 | BS 63 90L-2 | 24 | 28-35 | | | |
| | 260.91 | 11 B | 1.61 | 70 | 2.4 | | | | | | |
| | 370.32 | 7.75 A | 2.04 | 50 | 2.1 | | | | | | |
| | 358.75 | 8 A | 1.21 | 51 | 1.9 | BS 50 90L-2 | 22 | 28-35 | | | |
| 3 kW | 22.70 | 63 J | 0.91 | 957 | 15.0 | BS 112 100LB-4 | 84 | 28-35 | | | |
| | 31.09 | 46 H | 1.34 | 726 | 15.0 | | | | | | |
| 36.67 | 39 G | 1.54 | 623 | 15.0 | | | | | | | |
| 51.07 | 28 F | 1.95 | 458 | 15.0 | | | | | | | |
| 62.17 | 23 E | 2.33 | 398 | 13.6 | | | | | | | |
| 73.33 | 19.5 D | 2.70 | 338 | 12.8 | | | | | | | |
| 93.46 | 15.3 C | 3.42 | 274 | 11.0 | | | | | | | |
| | 60.85 | 23.5 E | 1.19 | 402 | 9.0 | BS 88 100LB-4 | 66 | 28-35 | | | |
| | 73.33 | 19.5 D | 1.47 | 337 | 8.2 | | | | | | |
| | 91.26 | 15.67 C | 1.74 | 277 | 7.4 | | | | | | |
| | 121.70 | 11.75 B | 2.31 | 212 | 6.3 | | | | | | |
| | 197.24 | 7.25 A | 3.35 | 134 | 5.0 | | | | | | |
| | 245.96 | 11.75 B | 3.58 | 103 | 5.1 | | | | | | |
| | 153.27 | 9.33 B | 1.29 | 170 | 3.0 | | | | BS 88 100L-2 | 63 | 28-35 |
| | 190.67 | 7.5 A | 1.46 | 138 | 2.7 | | | | | | |
| | 240.83 | 12 C | 1.54 | 104 | 2.9 | BS 71 100L-2 | 32 | 28-35 | | | |
| | 309.75 | 9.33 B | 1.97 | 83 | 2.4 | | | | | | |
| | 385.33 | 7.5 A | 2.27 | 66 | 2.2 | | | | | | |
| | 184.52 | 7.75 A | 0.95 | 141 | 2.6 | BS 63 100LB-4 | 32 | 28-35 | | | |
| | 262.73 | 11 B | 1.16 | 96 | 2.4 | BS 63 100L-2 | 29 | 28-35 | | | |
| | 372.90 | 7.75 A | 1.47 | 69 | 2.1 | | | | | | |
| | 30.98 | 46 H | 0.99 | 981 | 15.0 | BS 112 112M-4 | 91 | 28-35 | | | |
| | 36.54 | 39 G | 1.14 | 842 | 15.0 | | | | | | |
| | 50.89 | 28 F | 1.44 | 619 | 15.0 | | | | | | |
| | 61.96 | 23 E | 1.72 | 538 | 13.6 | | | | | | |
| | 73.08 | 19.5 D | 2.00 | 456 | 12.8 | | | | | | |
| | 93.14 | 15.3 C | 2.53 | 370 | 11.0 | | | | | | |
| | 123.91 | 11.5 B | 3.17 | 281 | 9.5 | | | | | | |
| | 73.08 | 19.5 D | 1.09 | 455 | 8.2 | | | | BS 88 112M-4 | 73 | 28-35 |
| | 90.94 | 15.67 C | 1.29 | 374 | 7.4 | | | | | | |
| | 121.28 | 11.75 B | 1.71 | 286 | 6.3 | | | | | | |
| | 196.55 | 7.25 A | 2.49 | 180 | 5.0 | | | | | | |

SERIES BS

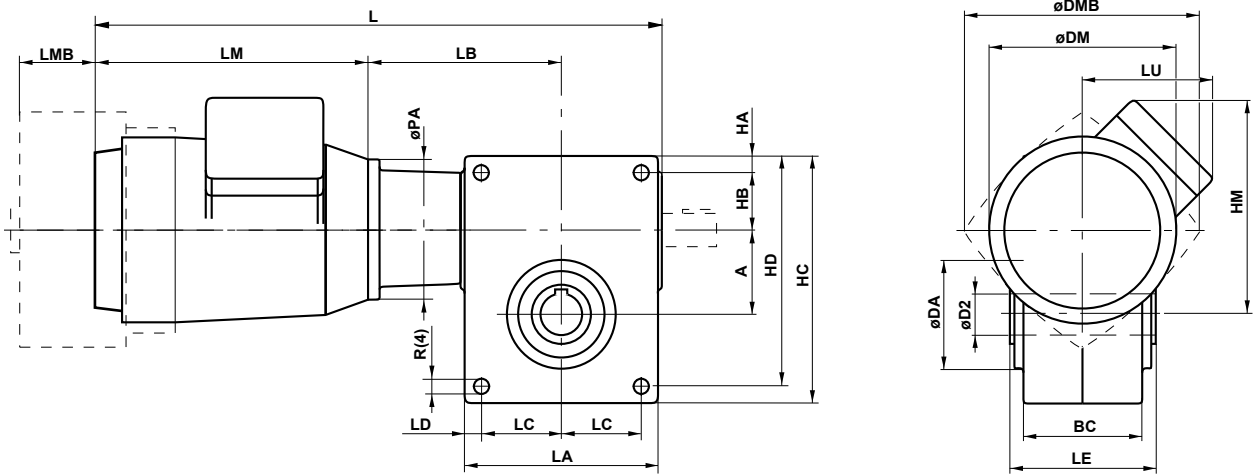
WORM GEARED MOTORS

| 3 kW | Output speed n ₂ rpm | Ratio i | Service factor f _{bp} | Output torque T ₂ Nm | Permissible overhung load Fr ₂ kN | Size | Weight kg | Dim. page |
|------------------|---------------------------------------|-----------------|-----------------------------------|---------------------------------------|--|----------------|--------------|-----------|
| | | 241.70 | 11.75 B | 2.59 | 142 | 5.1 | BS 88 112M-2 | 72 |
| | 304.39 378.67 | 9.33 B 7.5 A | 1.43 1.65 | 114 92 | 2.4 2.2 | BS 71 112M-2 | 41 | 28-35 |
| 4 kW | 30.98 | 46 H | 0.99 | 981 | 15.0 | BS 112 112M-4 | 91 | 28-35 |
| | 36.54 | 39 G | 1.14 | 842 | 15.0 | | | |
| | 50.89 | 28 F | 1.44 | 619 | 15.0 | | | |
| | 61.96 | 23 E | 1.72 | 538 | 13.6 | | | |
| | 73.08 | 19.5 D | 2.00 | 456 | 12.8 | | | |
| | 93.14 | 15.3 C | 2.53 | 370 | 11.0 | | | |
| | 123.91 | 11.5 B | 3.17 | 281 | 9.5 | | | |
| | 73.08 | 19.5 D | 1.09 | 455 | 8.2 | BS 88 112M-4 | 73 | 28-35 |
| | 90.94 | 15.67 C | 1.29 | 374 | 7.4 | | | |
| | 121.28 | 11.75 B | 1.71 | 286 | 6.3 | | | |
| 196.55 | 7.25 A | 2.49 | 180 | 5.0 | | | | |
| 241.70 | 11.75 B | 2.59 | 142 | 5.1 | BS 88 112M-2 | 72 | 28-35 | |
| 304.39 378.67 | 9.33 B 7.5 A | 1.43 1.65 | 114 92 | 2.4 2.2 | BS 71 112M-2 | 41 | 28-35 | |
| 5.5 kW | 50.89 | 28 F | 1.04 | 858 | 15.0 | BS 112 132S-4 | 107 | 28-35 |
| | 61.96 | 23 E | 1.24 | 746 | 13.6 | | | |
| | 73.08 | 19.5 D | 1.44 | 633 | 12.8 | | | |
| | 93.14 | 15.3 C | 1.82 | 513 | 11.0 | | | |
| | 123.91 | 11.5 B | 2.29 | 390 | 9.5 | | | |
| | 203.57 | 7 A | 3.36 | 240 | 7.6 | | | |
| | 249.13 | 11.5 B | 3.72 | 190 | 7.5 | BS 112 132SA-2 | 109 | 28-35 |
| | 121.28 | 11.75 B | 1.24 | 396 | 6.3 | BS 88 132S-4 | 90 | 28-35 |
| | 196.55 | 7.25 A | 1.80 | 250 | 5.0 | | | |
| | 243.83 | 11.75 B | 1.87 | 197 | 5.1 | BS 88 132SA-2 | 92 | 28-35 |
| 395.17 | 7.25 A | 2.92 | 123 | 4.0 | | | | |
| 7.5 kW | 62.17 | 23 E | 0.91 | 1020 | 13.6 | BS 112 132M-4 | 117 | 28-35 |
| | 73.33 | 19.5 D | 1.05 | 865 | 12.8 | | | |
| | 93.46 | 15.3 C | 1.33 | 701 | 11.0 | | | |
| | 124.35 | 11.5 B | 1.67 | 533 | 9.5 | | | |
| | 204.29 | 7 A | 2.46 | 328 | 7.6 | | | |
| | 249.57 | 11.5 B | 2.70 | 263 | 7.5 | BS 112 132SB-2 | 109 | 28-35 |
| | 410.00 | 7 A | 3.75 | 162 | 6.2 | | | |
| | 197.24 | 7.25 A | 1.32 | 341 | 5.0 | BS 88 132M-4 | 100 | 28-35 |
| 244.26 | 11.75 B | 1.36 | 271 | 5.1 | BS 88 132SB-2 | 92 | 28-35 | |
| 7.5 kW | 73.33 | 19.5 D | 0.88 | 1041 | 12.8 | BS 112 132MD-4 | 129 | 28-35 |
| | 93.46 | 15.3 C | 1.11 | 844 | 11.0 | | | |
| | 124.35 | 11.5 B | 1.39 | 641 | 9.5 | | | |
| | 204.29 | 7 A | 2.04 | 394 | 7.6 | | | |
| | 256.96 | 11.5 B | 2.30 | 308 | 7.5 | BS 112 132ME-2 | 132 | 28-35 |
| | 422.14 | 7 A | 3.20 | 190 | 6.2 | | | |
| | 251.49 | 11.75 B | 1.16 | 317 | 5.1 | BS 88 132ME-2 | 115 | 28-35 |
| 407.59 | 7.25 A | 1.81 | 198 | 4.0 | | | | |

SERIES BS

DIMENSIONS

Worm geared motors BS40-112 Shaftmounted



BS 40-71

Mounting position O, hollow shaft

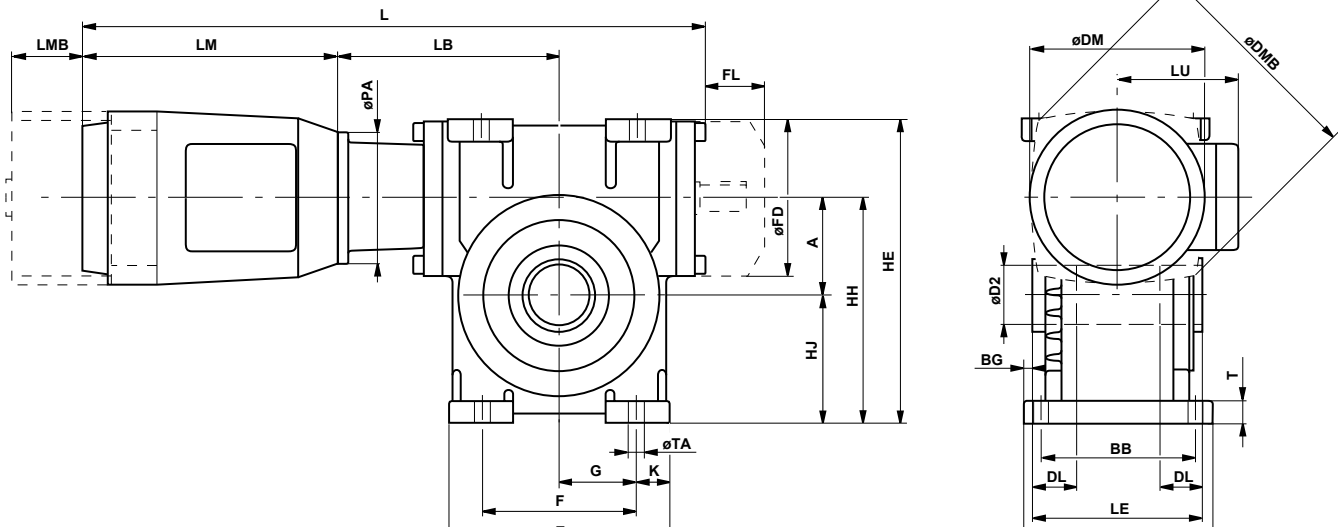
Position of terminal box, see page 11

Shaft tolerance, see page 57

| BS | Motor-size | Motor dimensions | | | | Gear unit dimensions | | | | | | | | | | | | |
|-----|-------------|------------------|-------|-------|-------|----------------------|-------|-----|----|----|-----|-----|-----|-----|-----|------|------|----|
| | | B14 | | B5 | | A | BC | øDA | HA | HB | HC | HD | HE | HH | HJ | LA | LC | øR |
| | | L | LB | L | LB | | | | | | | | | | | | | |
| 40 | 63 | 355 | 112 | 355 | 112 | | | | | | | | | | | | | |
| | 71 | 388 | 118 | 388 | 118 | | | | | | | | | | | | | |
| | 80 | 420 | 128 | 420 | 128 | 40 | 73 | 58 | 10 | 36 | 140 | 130 | | | 100 | 40 | 8.3 | |
| | 90 S | 443 | 138 | 443 | 138 | | | | | | | | | | | | | |
| | 90 L | 468 | 138 | 468 | 138 | | | | | | | | | | | | | |
| 50 | 71 | 421 | 140 | 421 | 140 | | | | | | | | | | | | | |
| | 80 | 453 | 150 | 463 | 160 | | | | | | | | | | | | | |
| | 90 S | 476 | 160 | 476 | 160 | 50 | 78 | 68 | 10 | 38 | 155 | 145 | | | 124 | 52 | 8.3 | |
| | 90 L | 501 | 160 | 501 | 160 | | | | | | | | | | | | | |
| 63 | 71 | 443 | 151 | 443 | 151 | | | | | | | | | | | | | |
| | 80 | 475 | 161 | 485 | 171 | | | | | | | | | | | | | |
| | 90 S | 498 | 171 | 498 | 171 | 63 | 82 | 80 | 10 | 43 | 183 | 173 | | | 146 | 63 | 10.3 | |
| | 90 L | 523 | 171 | 523 | 171 | | | | | | | | | | | | | |
| | 100 | 561.5 | 181.5 | 561.5 | 181.5 | | | | | | | | | | | | | |
| 71 | 80 | 495 | 177 | 505 | 187 | | | | | | | | | | | | | |
| | 90 S | 518 | 187 | 518 | 187 | | | | | | | | | | | | | |
| | 90L | 543 | 187 | 543 | 187 | 71 | 101.4 | 92 | 14 | 49 | 209 | 195 | | | 165 | 68.5 | 12.3 | |
| | 100 | 581.5 | 197.5 | 581.5 | 197.5 | | | | | | | | | | | | | |
| | 112 | 595.5 | 197.5 | 595.5 | 197.5 | | | | | | | | | | | | | |
| 88 | 80 (i>55) | 577 | 213 | 587 | 223 | | | | | | | | | | | | | |
| | 90 S | 600 | 223 | 600 | 223 | | | | | | | | | | | | | |
| | 90 L | 625 | 223 | 625 | 223 | 88 | | | | | | | 275 | 203 | 115 | | | |
| | 100 | 664 | 233.5 | 664 | 233.5 | | | | | | | | | | | | | |
| | 112 | 678 | 233.5 | 678 | 233.5 | | | | | | | | | | | | | |
| | 132 (i<55) | | | 779 | 266 | | | | | | | | | | | | | |
| 112 | 90 S (i>60) | 642 | 244 | 642 | 244 | | | | | | | | | | | | | |
| | 90 L (i>60) | 667 | 244 | 667 | 244 | | | | | | | | | | | | | |
| | 100 (i>60) | 705 | 254.5 | 705 | 254.5 | | | | | | | | | | | | | |
| | 100 | 718 | 267 | 718 | 267 | 112 | | | | | | | 340 | 252 | 140 | | | |
| | 112 (i>60) | 720 | 254.5 | 720 | 254.5 | | | | | | | | | | | | | |
| | 112 | 732 | 267 | 732 | 267 | | | | | | | | | | | | | |
| | 132 | | | 821 | 287 | | | | | | | | | | | | | |
| | 160 | | | 956 | 317 | | | | | | | | | | | | | |

SERIES BS

DIMENSIONS



BS 88-112

Mounting position O, hollow shaft

Position of terminal box, see page 11

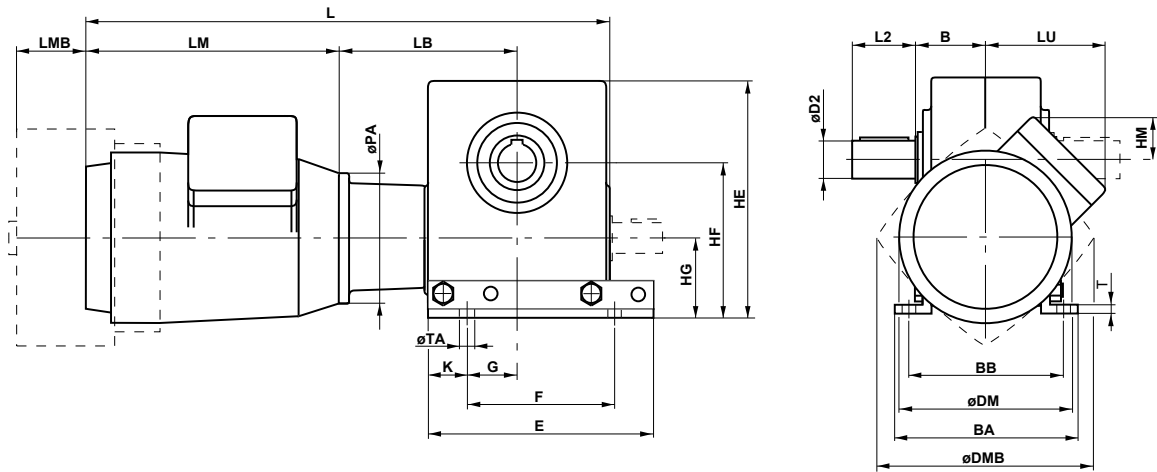
Shaft tolerance, see page 57

| | | | | | | | | | | Shaft-dimensions | | Fan | | Motor dimensions | | | | With brake motor | | | | |
|-----|-----|----|-----|-----|------|------|----|-----|-----|------------------|----|-----|----|------------------|-----|-----|-----|------------------|-------|-----|-----|----|
| BA | BB | BG | E | F | G | K | T | øTA | øD2 | LE | DL | FD | FL | DM | HM | LM | LU | PA-B14 | PA-B5 | DMB | LMB | |
| | | | | | | | | | | | | | | 120 | 125 | 183 | 92 | 90 | 140 | | | |
| | | | | | | | | | | | | | | 140 | 140 | 210 | 102 | 105 | 160 | 185 | 73 | |
| | | | | | | | | 20 | 92 | | | | | 158 | 152 | 232 | 113 | 120 | 200 | 201 | 72 | |
| | | | | | | | | | | | | | | 178 | 161 | 245 | 122 | 140 | 200 | 220 | 75 | |
| | | | | | | | | | | | | | | 178 | 161 | 270 | 122 | 140 | 200 | 220 | 75 | |
| | | | | | | | | | | | | | | 140 | 150 | 210 | 102 | 105 | 160 | 185 | 73 | |
| | | | | | | | | | | | | | | 25 | 98 | 158 | 162 | 232 | 113 | 120 | 201 | 72 |
| | | | | | | | | | | | | | | 178 | 172 | 245 | 122 | 140 | 200 | 220 | 75 | |
| | | | | | | | | | | | | | | 178 | 172 | 270 | 122 | 140 | 200 | 220 | 75 | |
| | | | | | | | | | | | | | | 140 | 163 | 210 | 102 | 105 | 160 | 185 | 73 | |
| | | | | | | | | | | | | | | 158 | 175 | 232 | 113 | 120 | 200 | 201 | 72 | |
| | | | | | | | | | | | | | | 30 | 101 | 178 | 184 | 245 | 122 | 140 | 220 | 75 |
| | | | | | | | | | | | | | | 178 | 184 | 270 | 122 | 140 | 200 | 220 | 75 | |
| | | | | | | | | | | | | | | 178 | 184 | 298 | 136 | 160 | 250 | 255 | 106 | |
| | | | | | | | | | | | | | | 158 | 183 | 232 | 113 | 120 | 200 | 201 | 72 | |
| | | | | | | | | | | | | | | 178 | 192 | 245 | 122 | 140 | 200 | 220 | 75 | |
| | | | | | | | | | | | | | | 35 | 122 | 178 | 192 | 270 | 122 | 140 | 220 | 75 |
| | | | | | | | | | | | | | | 198 | 212 | 298 | 136 | 160 | 250 | 255 | 106 | |
| | | | | | | | | | | | | | | 221 | 231 | 312 | 155 | 160 | 250 | 278 | 109 | |
| | | | | | | | | | | | | | | 158 | 200 | 232 | 113 | 120 | 200 | 201 | 72 | |
| | | | | | | | | | | | | | | 178 | 209 | 245 | 122 | 140 | 200 | 220 | 75 | |
| 170 | 140 | 8 | 200 | 140 | 70 | 30 | 20 | 14 | 45 | 154 | 45 | 140 | 55 | 178 | 209 | 270 | 122 | 140 | 200 | 220 | 75 | |
| | | | | | | | | | | | | | | 198 | 229 | 298 | 136 | 160 | 250 | 255 | 106 | |
| | | | | | | | | | | | | | | 221 | 248 | 312 | 155 | 160 | 250 | 278 | 109 | |
| | | | | | | | | | | | | | | 248 | 255 | 381 | 165 | 300 | 317 | 135 | | |
| | | | | | | | | | | | | | | 178 | 233 | 245 | 122 | 140 | 200 | 220 | 75 | |
| | | | | | | | | | | | | | | 178 | 233 | 270 | 122 | 140 | 200 | 220 | 75 | |
| | | | | | | | | | | | | | | 198 | 253 | 298 | 136 | 160 | 250 | 255 | 106 | |
| 210 | 175 | 18 | 250 | 175 | 87.5 | 37.5 | 23 | 18 | 55 | 174 | 50 | 140 | 55 | 198 | 253 | 298 | 136 | 160 | 250 | 255 | 106 | |
| | | | | | | | | | | | | | | 221 | 272 | 312 | 155 | 160 | 250 | 278 | 109 | |
| | | | | | | | | | | | | | | 221 | 272 | 312 | 155 | 160 | 250 | 278 | 109 | |
| | | | | | | | | | | | | | | 248 | 279 | 381 | 165 | 300 | 317 | 135 | | |
| | | | | | | | | | | | | | | 310 | 332 | 486 | 210 | 350 | 375 | 170 | | |

SERIES BS

DIMENSIONS

Worm geared motors BS40-112 Footmounted



BS 40-71

Mounting position OV, OH, OD

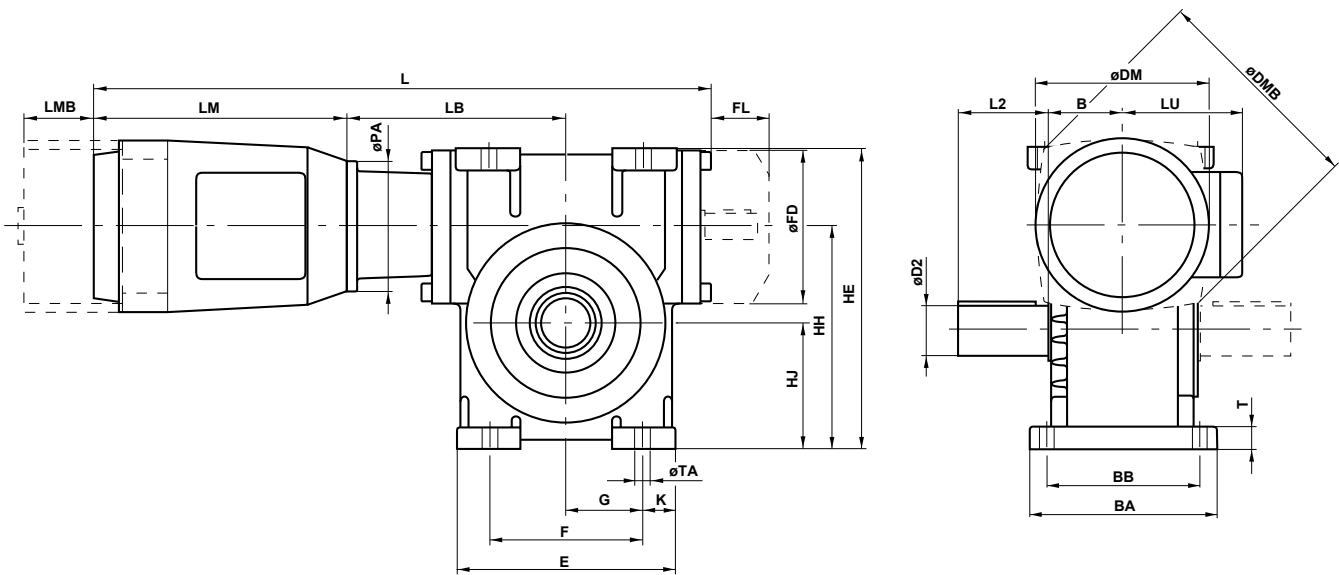
Position of terminal box, see page 11

Shaft tolerance, see page 57

| BS | Motor-size | B14 Motor dimensions | | | | Gear unit dimensions | | | | | | | | | | | | |
|-----|-------------|----------------------|-------|-------|-------|----------------------|-------|-------|------|-----|-----|-----|-----|------|------|----|------|--|
| | | L | LB | L | LB | B | HE | HH | HJ | BA | BB | E | F | G | K | T | TA | |
| 40 | 63 | 355 | 112 | 355 | 112 | | | | | | | | | | | | | |
| | 71 | 388 | 118 | 388 | 118 | | | | | | | | | | | | | |
| | 80 | 420 | 128 | 420 | 128 | 47 | 152 | 106 | 66 | 133 | 108 | 140 | 80 | 20 | 30 | 5 | 8.5 | |
| | 90 S | 443 | 138 | 443 | 138 | | | | | | | | | | | | | |
| | 90 L | 468 | 138 | 468 | 138 | | | | | | | | | | | | | |
| 50 | 71 | 421 | 140 | 421 | 140 | | | | | | | | | | | | | |
| | 80 | 453 | 150 | 463 | 160 | | | | | | | | | | | | | |
| | 90 S | 476 | 160 | 476 | 160 | 50 | 167 | 119 | 69 | 138 | 113 | 155 | 104 | 36.5 | 25.5 | 5 | 8.5 | |
| | 90 L | 501 | 160 | 501 | 160 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| 63 | 71 | 443 | 151 | 443 | 151 | | | | | | | | | | | | | |
| | 80 | 475 | 161 | 485 | 171 | | | | | | | | | | | | | |
| | 90 S | 498 | 171 | 498 | 171 | 52 | 195 | 142 | 79 | 146 | 121 | 183 | 126 | 44.5 | 28.5 | 7 | 10.5 | |
| | 90 L | 523 | 171 | 523 | 171 | | | | | | | | | | | | | |
| | 100 | 561.5 | 181.5 | 561.5 | 181.5 | | | | | | | | | | | | | |
| 71 | 80 | 495 | 177 | 505 | 187 | | | | | | | | | | | | | |
| | 90 S | 518 | 187 | 518 | 187 | | | | | | | | | | | | | |
| | 90L | 543 | 187 | 543 | 187 | 62.5 | 216.5 | 153.5 | 82.5 | 170 | 144 | 209 | 137 | 46.5 | 36 | 8 | 12.5 | |
| | 100 | 581.5 | 197.5 | 581.5 | 197.5 | | | | | | | | | | | | | |
| | 112 | 595.5 | 197.5 | 595.5 | 197.5 | | | | | | | | | | | | | |
| 88 | 80 (i>55) | 577 | 213 | 587 | 223 | | | | | | | | | | | | | |
| | 90 S | 600 | 223 | 600 | 223 | | | | | | | | | | | | | |
| | 90 L | 625 | 223 | 625 | 223 | 70 | 275 | 203 | 115 | 170 | 140 | 140 | 200 | 70 | 30 | 20 | 14 | |
| | 100 | 664 | 233.5 | 664 | 233.5 | | | | | | | | | | | | | |
| | 112 | 678 | 233.5 | 678 | 233.5 | | | | | | | | | | | | | |
| | 132 (i<55) | | | 779 | 266 | | | | | | | | | | | | | |
| 112 | 90 S (i>60) | 642 | 244 | 642 | 244 | | | | | | | | | | | | | |
| | 90 L (i>60) | 667 | 244 | 667 | 244 | | | | | | | | | | | | | |
| | 100 (i>60) | 705 | 254.5 | 705 | 254.5 | | | | | | | | | | | | | |
| | 100 | 718 | 267 | 718 | 267 | 82 | 340 | 252 | 140 | 210 | 175 | 175 | 250 | 87.5 | 37.5 | 23 | 18 | |
| | 112 (i>60) | 720 | 254.5 | 720 | 254.5 | | | | | | | | | | | | | |
| | 112 | 732 | 267 | 732 | 267 | | | | | | | | | | | | | |
| | 132 | | | 821 | 287 | | | | | | | | | | | | | |
| | 160 | | | 956 | 317 | | | | | | | | | | | | | |

SERIES BS

DIMENSIONS



BS 88-112

Mounting position OV, OH, OD

Position of terminal box, see page 11

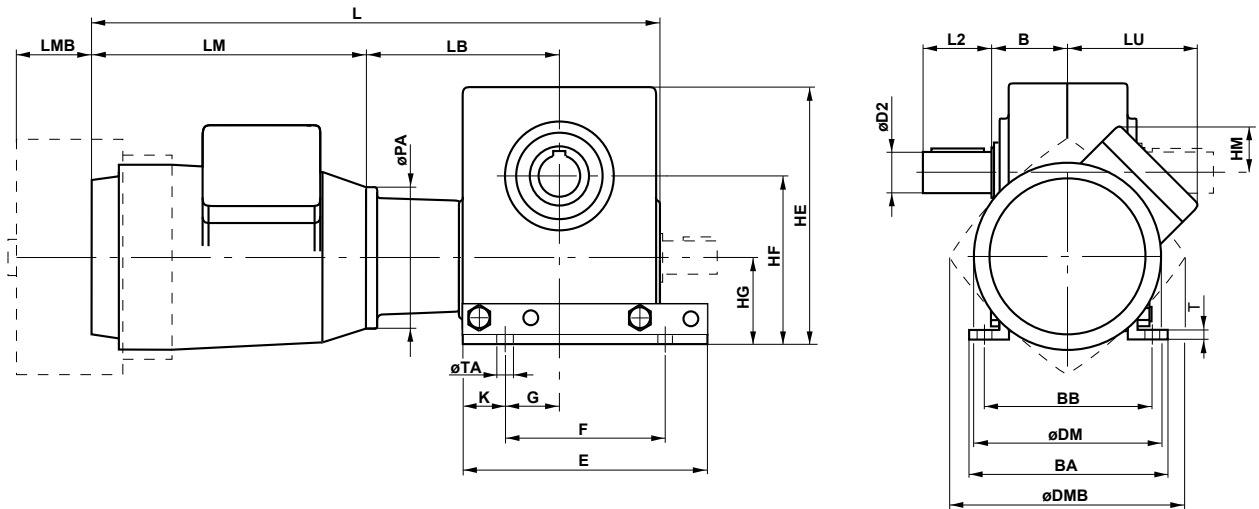
Shaft tolerance, see page 57

| Shaft-dimensions D2 | Fan | | Motor dimensions | | | | With brake motor | | | | |
|------------------------|-----|-----|------------------|-----|-----|-----|------------------|--------|-------|-----|-----|
| | L2 | FD | FL | DM | HM | LM | LU | PA-B14 | PA-B5 | DMB | LMB |
| 20 | 36 | | | 120 | 125 | 183 | 85 | 90 | 140 | | |
| | | | | 140 | 140 | 210 | 100 | 105 | 160 | 185 | 73 |
| | | | | 158 | 152 | 232 | 112 | 120 | 200 | 201 | 72 |
| | | | | 178 | 161 | 245 | 121 | 140 | 200 | 220 | 75 |
| 25 | 42 | | | 178 | 161 | 270 | 121 | 140 | 200 | 220 | 75 |
| | | | | 140 | 135 | 210 | 100 | 105 | 160 | 185 | 73 |
| | | | | 158 | 150 | 232 | 112 | 120 | 200 | 201 | 72 |
| | | | | 178 | 171 | 245 | 121 | 140 | 200 | 220 | 75 |
| 30 | 58 | | | 178 | 171 | 270 | 121 | 140 | 200 | 220 | 75 |
| | | | | 140 | 163 | 210 | 100 | 105 | 160 | 185 | 73 |
| | | | | 158 | 175 | 232 | 112 | 120 | 200 | 201 | 72 |
| | | | | 178 | 184 | 245 | 121 | 140 | 200 | 220 | 75 |
| 35 | 58 | | | 178 | 184 | 270 | 121 | 140 | 200 | 220 | 75 |
| | | | | 140 | 204 | 298 | 141 | 160 | 250 | 255 | 106 |
| | | | | 158 | 183 | 232 | 112 | 120 | 200 | 201 | 72 |
| | | | | 178 | 192 | 245 | 121 | 140 | 200 | 220 | 75 |
| 45 | 82 | 140 | 55 | 178 | 192 | 270 | 121 | 140 | 200 | 220 | 75 |
| | | | | 140 | 212 | 298 | 141 | 160 | 250 | 255 | 106 |
| | | | | 158 | 231 | 312 | 160 | 160 | 250 | 278 | 109 |
| | | | | 178 | 231 | 312 | 160 | 160 | 250 | 278 | 109 |
| 55 | 82 | 140 | 55 | 158 | | 232 | 112 | 120 | 200 | 201 | 72 |
| | | | | 178 | | 245 | 121 | 140 | 200 | 220 | 75 |
| | | | | 178 | | 270 | 121 | 140 | 200 | 220 | 75 |
| | | | | 198 | | 298 | 136 | 160 | 250 | 255 | 106 |
| 55 | 82 | 140 | 55 | 198 | | 312 | 156 | 160 | 250 | 278 | 109 |
| | | | | 221 | | 312 | 156 | 160 | 250 | 278 | 109 |
| | | | | 221 | | 312 | 156 | 160 | 250 | 278 | 109 |
| | | | | 248 | | 381 | 167 | 300 | 317 | 135 | |
| 55 | 82 | 140 | 55 | 248 | | 486 | 210 | 350 | 375 | 170 | |
| | | | | 310 | | 486 | 210 | 350 | 375 | 170 | |
| | | | | 178 | | 245 | 121 | 140 | 200 | 220 | 75 |
| | | | | 178 | | 270 | 121 | 140 | 200 | 220 | 75 |

SERIES BS

DIMENSIONS

Worm geared motors BS40-112 Footmounted



BS 40-71

Mounting position UV, UH, UD

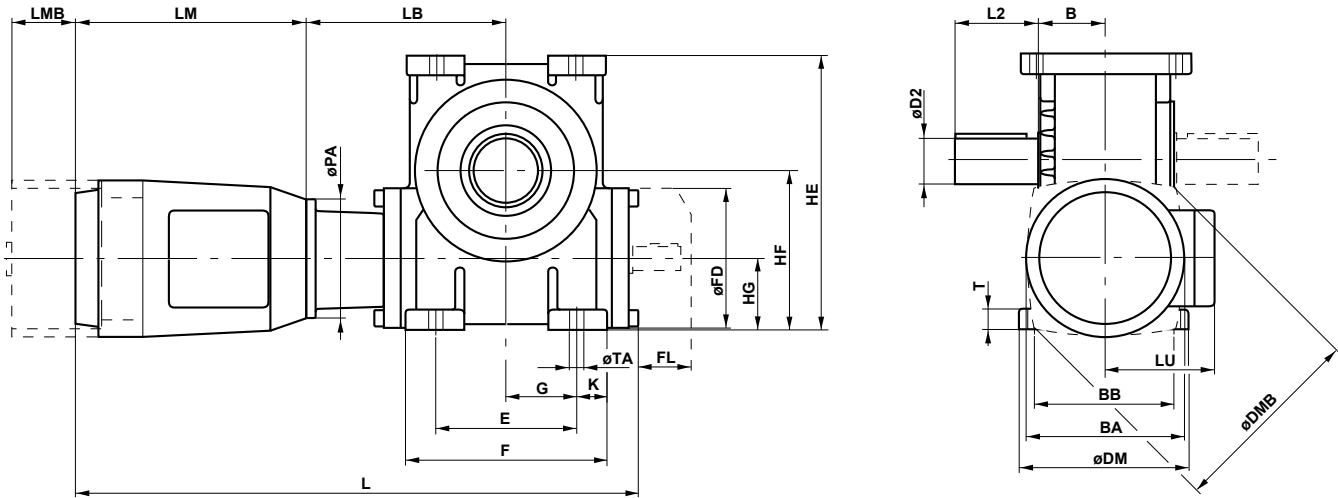
Position of terminal box, see page 11

Shaft tolerance, see page 57

| BS | Motor-size | Motor dimensions | | | | Gear unit dimensions | | | | | | | | | | | |
|------|-------------|------------------|-------|-------|-------|----------------------|-------|-------|------|-------|-------|-----|-----|------|------|----|------|
| | | B14 | | B5 | | B | HE | HF | HG | BA | BB | E | F | G | K | T | TA |
| | | L | LB | L | LB | | | | | | | | | | | | |
| 40 | 63 | 355 | 112 | 355 | 112 | | | | | | | | | | | | |
| | 71 | 388 | 117 | 388 | 118 | | | | | | | | | | | | |
| | 80 | 420 | 128 | 420 | 128 | 47 | 152 | 98 | 58 | 133 | 108 | 140 | 80 | 20 | 30 | 5 | 8.5 |
| | 90 S | 443 | 138 | 443 | 138 | | | | | | | | | | | | |
| | 90 L | 468 | 138 | 468 | 138 | | | | | | | | | | | | |
| 50 | 71 | 421 | 140 | 421 | 140 | | | | | | | | | | | | |
| | 80 | 453 | 150 | 463 | 160 | | | | | | | | | | | | |
| | 90 S | 476 | 160 | 476 | 160 | 50 | 167 | 110 | 60 | 138 | 113 | 155 | 104 | 36.5 | 25.5 | 5 | 8.5 |
| | 90 L | 501 | 160 | 501 | 160 | | | | | | | | | | | | |
| | 63 | 71 | 443 | 151 | 443 | 151 | | | | | | | | | | | |
| 80 | | 475 | 161 | 485 | 171 | | | | | | | | | | | | |
| 90 S | | 498 | 171 | 498 | 171 | 52 | 195 | 128 | 65 | 146 | 121 | 183 | 126 | 44.5 | 28.5 | 7 | 10.5 |
| 90 L | | 523 | 171 | 523 | 171 | | | | | | | | | | | | |
| 100 | | 561.5 | 181.5 | 561.5 | 181.5 | | | | | | | | | | | | |
| 71 | 80 | 495 | 177 | 505 | 187 | | | | | | | | | | | | |
| | 90 S | 518 | 187 | 518 | 187 | | | | | | | | | | | | |
| | 90L | 543 | 187 | 543 | 187 | 62.5 | 216.5 | 141.5 | 70.5 | 169.4 | 143.4 | 209 | 137 | 46.5 | 36 | 8 | 12.5 |
| | 100 | 581.5 | 197.5 | 581.5 | 197.5 | | | | | | | | | | | | |
| | 112 | 595.5 | 197.5 | 595.5 | 197.5 | | | | | | | | | | | | |
| 88 | 80 (i>55) | 577 | 213 | 587 | 223 | | | | | | | | | | | | |
| | 90 S | 600 | 223 | 600 | 223 | | | | | | | | | | | | |
| | 90 L | 625 | 223 | 625 | 223 | 70 | 275 | 160 | 72 | 170 | 140 | 140 | 200 | 70 | 30 | 20 | 14 |
| | 100 | 664 | 233.5 | 664 | 233.5 | | | | | | | | | | | | |
| | 112 | 678 | 233.5 | 678 | 233.5 | | | | | | | | | | | | |
| | 132 (i<55) | | | 779 | 266 | | | | | | | | | | | | |
| 112 | 90 S (i>60) | 642 | 244 | 642 | 244 | | | | | | | | | | | | |
| | 90 L (i>60) | 667 | 244 | 667 | 244 | | | | | | | | | | | | |
| | 100 (i>60) | 705 | 254.5 | 705 | 254.5 | | | | | | | | | | | | |
| | 100 | 718 | 267 | 718 | 267 | 82 | 340 | 200 | 88 | 210 | 175 | 175 | 250 | 87.5 | 37.5 | 23 | 18 |
| | 112 (i>60) | 720 | 254.5 | 720 | 254.5 | | | | | | | | | | | | |
| | 112 | 732 | 267 | 732 | 267 | | | | | | | | | | | | |
| | 132 | | | 821 | 287 | | | | | | | | | | | | |
| | 160 | | | 956 | 317 | | | | | | | | | | | | |

SERIES BS

DIMENSIONS



BS 88-112

Mounting position UV, UH, UD

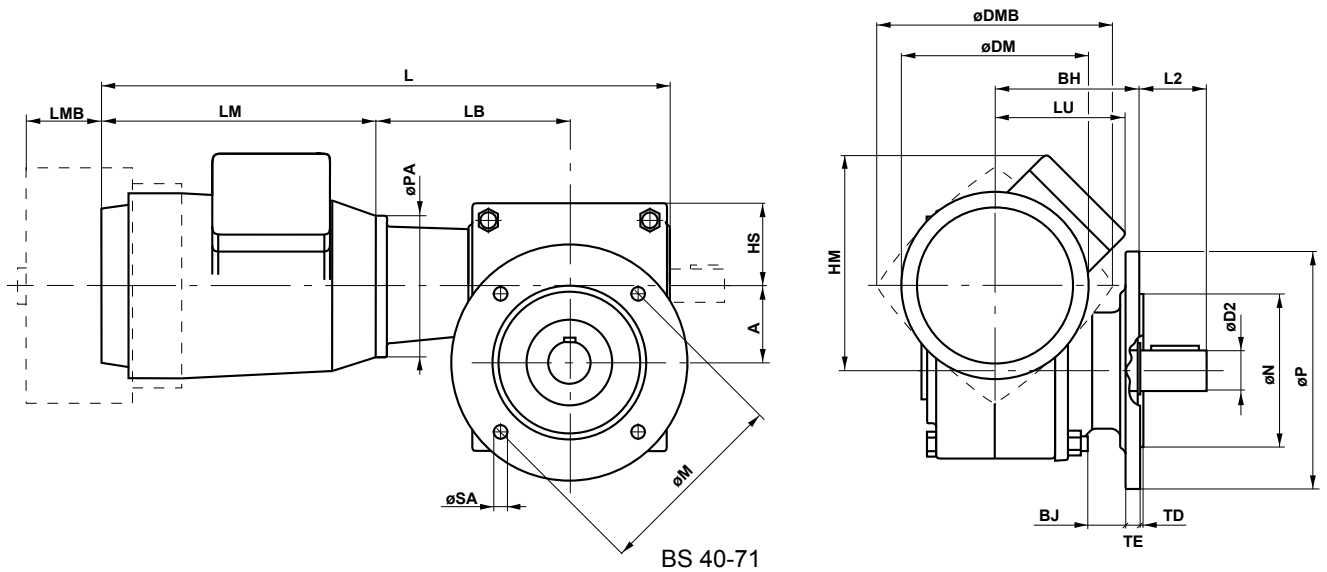
Position of terminal box, see page 11
Shaft tolerance, see page 57

| Shaft- dimensions | Fan | | Motor dimensions | | | | | | | With brake motor | | |
|----------------------|-----|-----|---------------------|----|-----|----|-----|-----|--------|---------------------|-----|-----|
| | D2 | L2 | FD | FL | DM | HM | LM | LU | PA-B14 | PA-B5 | DMB | LMB |
| 20 | 36 | | | | 120 | 45 | 183 | 85 | 90 | 140 | | |
| | | | | | 140 | 60 | 210 | 100 | 105 | 160 | 185 | 73 |
| | | | | | 158 | 72 | 232 | 112 | 120 | 200 | 201 | 72 |
| | | | | | 178 | 81 | 245 | 121 | 140 | 200 | 220 | 75 |
| 25 | 42 | | | | 140 | 50 | 210 | 100 | 105 | 160 | 185 | 73 |
| | | | | | 158 | 62 | 232 | 112 | 120 | 200 | 201 | 72 |
| | | | | | 178 | 71 | 245 | 121 | 140 | 200 | 220 | 75 |
| | | | | | 178 | 71 | 270 | 121 | 140 | 200 | 220 | 75 |
| 30 | 58 | | | | 140 | 37 | 210 | 100 | 105 | 160 | 185 | 73 |
| | | | | | 158 | 49 | 232 | 112 | 120 | 200 | 201 | 72 |
| | | | | | 178 | 58 | 245 | 121 | 140 | 200 | 220 | 75 |
| | | | | | 178 | 58 | 270 | 121 | 140 | 200 | 220 | 75 |
| | | | | | 198 | 78 | 298 | 141 | 160 | 250 | 255 | 106 |
| 35 | 58 | | | | 158 | 41 | 232 | 112 | 120 | 200 | 201 | 72 |
| | | | | | 178 | 50 | 245 | 121 | 140 | 200 | 220 | 75 |
| | | | | | 178 | 50 | 270 | 121 | 140 | 200 | 220 | 75 |
| | | | | | 198 | 70 | 298 | 141 | 160 | 250 | 255 | 106 |
| | | | | | 221 | 89 | 312 | 160 | 160 | 250 | 278 | 109 |
| 45 | 82 | 140 | 55 | | 158 | | 232 | 112 | 120 | 200 | 201 | 72 |
| | | | | | 178 | | 245 | 121 | 140 | 200 | 220 | 75 |
| | | | | | 178 | | 270 | 121 | 140 | 200 | 220 | 75 |
| | | | | | 198 | | 298 | 136 | 160 | 250 | 255 | 106 |
| | | | | | 221 | | 312 | 156 | 160 | 250 | 278 | 109 |
| 55 | 82 | 140 | 55 | | 248 | | 381 | 167 | 160 | 300 | 317 | 135 |
| | | | | | 178 | | 245 | 121 | 140 | 200 | 220 | 75 |
| | | | | | 178 | | 270 | 121 | 140 | 200 | 220 | 75 |
| | | | | | 198 | | 298 | 136 | 160 | 250 | 255 | 106 |
| | | | | | 198 | | 298 | 136 | 160 | 250 | 255 | 106 |
| 55 | 82 | 140 | 55 | | 221 | | 312 | 156 | 160 | 250 | 278 | 109 |
| | | | | | 221 | | 312 | 156 | 160 | 250 | 278 | 109 |
| | | | | | 248 | | 381 | 167 | 160 | 300 | 317 | 135 |
| | | | | | 248 | | 381 | 167 | 160 | 300 | 317 | 135 |
| | | | | | 310 | | 486 | 210 | 160 | 350 | 375 | 170 |

SERIES BS

DIMENSIONS

Worm geared motors BS40-112 Flangemounted



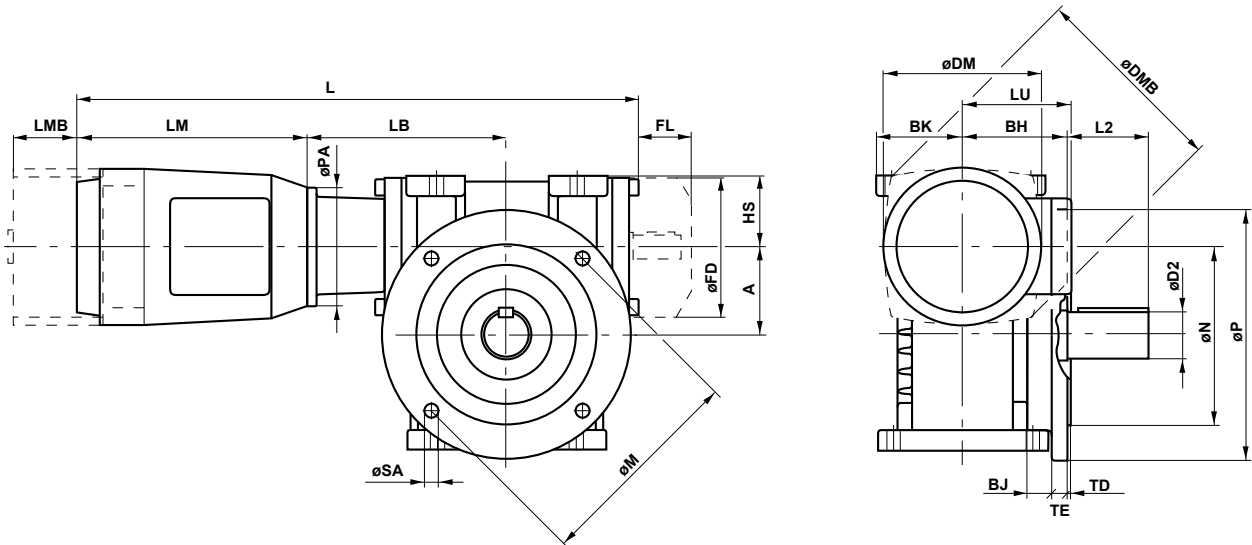
Mounting position OH

Position of terminal box, see page 11
Shaft tolerance, see page 57

| BS | Motor-size | Motor dimensions | | | | Gear unit dimensions | | | | | | | | | | |
|-----|-------------|------------------|-------|-------|-------|----------------------|----|----|-------|-------|-------|-----------|----|-----|-------|--|
| | | B14 | | B5 | | A | HS | BJ | M | N | P | ϕSA | TE | TD | BH | |
| | | L | LB | L | LB | | | | | | | | | | | |
| 40 | 63 | 355 | 112 | 355 | 112 | | | | | | | | | | | |
| | 71 | 388 | 117 | 388 | 118 | | | | 100 | 80 | 118 | | | | | |
| | 80 | 420 | 128 | 420 | 128 | 40 | 46 | 28 | 1151) | 951 | 1401) | 9 | 10 | 3 | 91.5 | |
| | 90 S | 443 | 138 | 443 | 138 | | | | 130 | 110 | 160 | | | | | |
| | 90 L | 463 | 138 | 468 | 138 | | | | 165 | 130 | 200 | | | | | |
| 50 | 71 | 421 | 140 | 421 | 140 | | | | 100 | 80 | 118 | | | | | |
| | 80 | 453 | 150 | 463 | 160 | | | | 115 | 95 | 140 | | | | | |
| | 90 S | 476 | 160 | 476 | 160 | 50 | 48 | 28 | 1301) | 1101) | 1601) | 9 | 10 | 3.5 | 99 | |
| | 90 L | 501 | 160 | 501 | 160 | | | | 165 | 130 | 200 | | | | | |
| 63 | 71 | 443 | 151 | 443 | 151 | | | | | | | | | | | |
| | 80 | 475 | 161 | 485 | 171 | | | | 130 | 110 | 160 | | | | | |
| | 90 S | 498 | 171 | 498 | 171 | 63 | 53 | 35 | 1651) | 1301) | 2001) | 11 | 12 | 3.5 | 106 | |
| | 90 L | 523 | 171 | 523 | 171 | | | | | | | | | | | |
| | 100 | 561.5 | 181.5 | 561.5 | 181.5 | | | | | | | | | | | |
| 71 | 80 | 495 | 177 | 505 | 187 | | | | | | | | | | | |
| | 90 S | 518 | 187 | 518 | 187 | | | | | | | | | | | |
| | 90L | 543 | 187 | 543 | 187 | 71 | 63 | 32 | 165 | 130 | 200 | 11 | 12 | 3.5 | 122.4 | |
| | 100 | 581.5 | 197.5 | 581.5 | 197.5 | | | | | | | | | | | |
| | 112 | 595.5 | 197.5 | 595.5 | 197.5 | | | | | | | | | | | |
| 88 | 80 (i>55) | 577 | 213 | 587 | 223 | | | | | | | | | | | |
| | 90 S | 600 | 223 | 600 | 223 | | | | | | | | | | | |
| | 90 L | 625 | 223 | 625 | 223 | 88 | 72 | 24 | 215 | 180 | 250 | 14 | 15 | 4 | 105 | |
| | 100 | 664 | 233.5 | 664 | 233.5 | | | | | | | | | | | |
| | 112 | 678 | 233.5 | 678 | 233.5 | | | | | | | | | | | |
| | 132 (i<55) | | | 779 | 266 | | | | | | | | | | | |
| 112 | 90 S (i>60) | 642 | 244 | 642 | 244 | | | | | | | | | | | |
| | 90 L (i>60) | 667 | 244 | 667 | 244 | | | | | | | | | | | |
| | 100 (i>60) | 705 | 254.5 | 705 | 254.5 | | | | | | | | | | | |
| | 100 | 718 | 267 | 718 | 267 | 112 | 88 | 32 | 265 | 230 | 300 | 14 | 15 | 4 | 125 | |
| | 112 (i>60) | 720 | 254.5 | 720 | 254.5 | | | | | | | | | | | |
| | 112 | 732 | 267 | 732 | 267 | | | | | | | | | | | |
| | 132 | | | 821 | 287 | | | | | | | | | | | |
| | 160 | | | 956 | 317 | | | | | | | | | | | |

SERIES BS

DIMENSIONS



BS 88-112

Mounting position OH

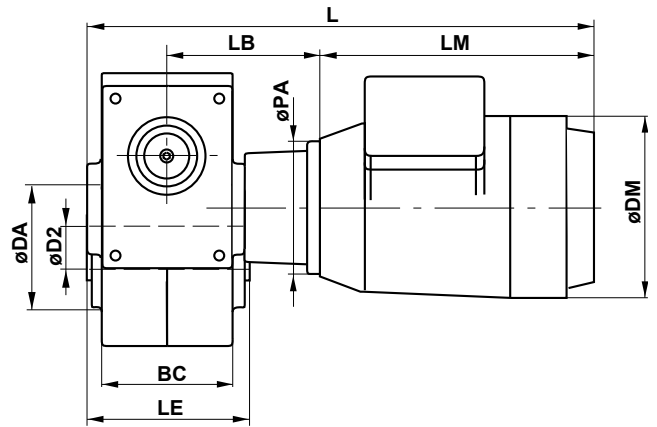
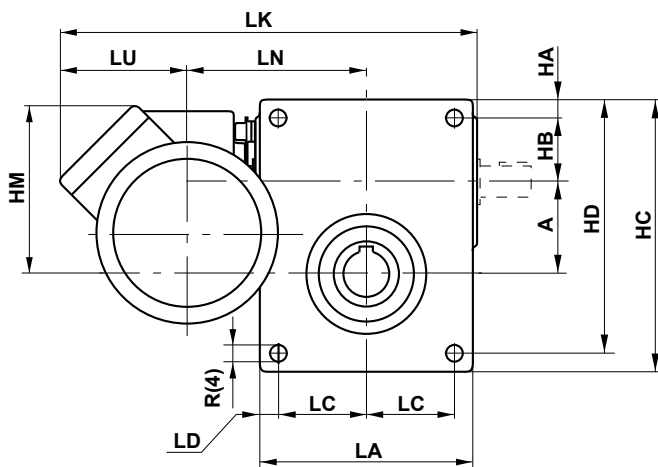
Position of terminal box, see page 11
Shaft tolerance, see page 57

| Shaft- dimensions | Fan | | Motor | | | | | With | | brake motor | | |
|----------------------|-----|-----|-------|----|-----|-----|-----|------|--------|-------------|-----|-----|
| | D2 | L2 | FD | FL | DM | HM | LM | LU | PA-B14 | PA-B5 | DMB | LMB |
| 20 | 36 | | | | 120 | 125 | 183 | 85 | 90 | 140 | | |
| | | | | | 140 | 140 | 210 | 100 | 105 | 160 | 185 | 73 |
| | | | | | 158 | 152 | 232 | 112 | 120 | 200 | 201 | 72 |
| | | | | | 178 | 161 | 245 | 121 | 140 | 200 | 220 | 75 |
| | | | | | 178 | 161 | 270 | 121 | 140 | 200 | 220 | 75 |
| 25 | 42 | | | | 140 | 150 | 210 | 100 | 105 | 160 | 185 | 73 |
| | | | | | 158 | 162 | 232 | 112 | 120 | 200 | 201 | 72 |
| | | | | | 178 | 171 | 245 | 121 | 140 | 200 | 220 | 75 |
| | | | | | 178 | 171 | 270 | 121 | 140 | 200 | 220 | 75 |
| 30 | 58 | | | | 140 | 163 | 210 | 100 | 105 | 160 | 185 | 73 |
| | | | | | 158 | 175 | 232 | 112 | 120 | 200 | 201 | 72 |
| | | | | | 178 | 184 | 245 | 121 | 140 | 200 | 220 | 75 |
| | | | | | 178 | 184 | 270 | 121 | 140 | 200 | 220 | 75 |
| | | | | | 198 | 204 | 298 | 141 | 160 | 250 | 255 | 106 |
| 35 | 58 | | | | 158 | 183 | 232 | 112 | 120 | 200 | 201 | 72 |
| | | | | | 178 | 192 | 245 | 121 | 140 | 200 | 220 | 75 |
| | | | | | 178 | 192 | 270 | 121 | 140 | 200 | 220 | 75 |
| | | | | | 198 | 212 | 298 | 141 | 160 | 250 | 255 | 106 |
| | | | | | 221 | 231 | 312 | 160 | 160 | 250 | 278 | 109 |
| 45 | 82 | 140 | 55 | | 158 | | 232 | 112 | 120 | 200 | 201 | 72 |
| | | | | | 178 | | 245 | 121 | 140 | 200 | 220 | 75 |
| | | | | | 178 | | 270 | 121 | 140 | 200 | 220 | 75 |
| | | | | | 198 | | 298 | 136 | 160 | 250 | 255 | 106 |
| | | | | | 221 | | 312 | 156 | 160 | 250 | 278 | 109 |
| | | | | | 248 | | 381 | 167 | | 300 | 317 | 135 |
| 55 | 82 | 140 | 55 | | 178 | | 245 | 121 | 140 | 200 | 220 | 75 |
| | | | | | 178 | | 270 | 121 | 140 | 200 | 220 | 75 |
| | | | | | 198 | | 298 | 136 | 160 | 250 | 255 | 106 |
| | | | | | 198 | | 298 | 136 | 160 | 250 | 255 | 106 |
| | | | | | 221 | | 312 | 156 | 160 | 250 | 278 | 109 |
| | | | | | 221 | | 312 | 156 | 160 | 250 | 278 | 109 |
| | | | | | 248 | | 381 | 167 | | 300 | 317 | 135 |
| | | | | | 310 | | 486 | 210 | | 300 | 375 | 170 |

SERIES BS

DIMENSIONS

Worm geared motors BS 50/40 - BS112/63 Shaftmounted



BS 50/40 - 71/40

Mounting position OV - P7

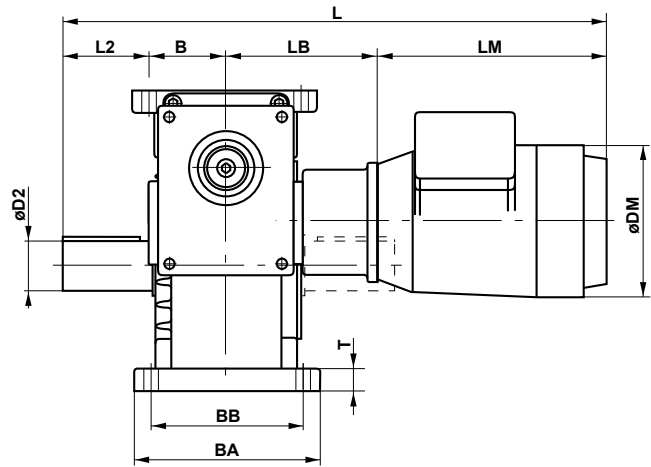
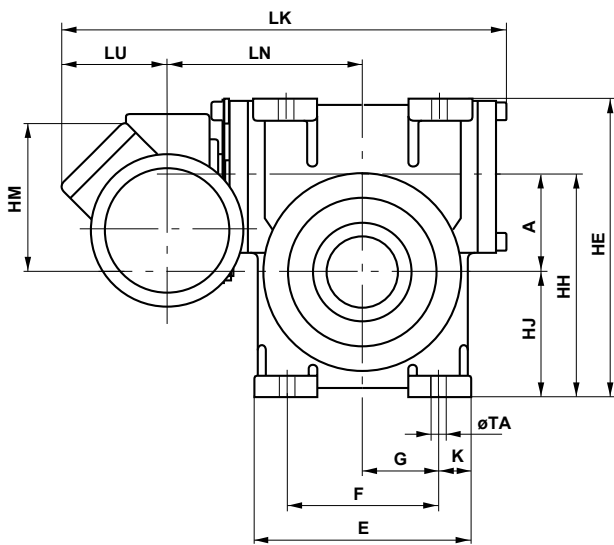
Mounting position O, U -P7

Position of terminal box, see page 11
Shaft tolerance, see page 57

| BS | Motor-size | Motor dimensions | | | | | | Gear unit dimensions | | | | | | | | | | | | | |
|--------|------------|------------------|--------|-------|-----|-------|-------|----------------------|-------|----|----|----|-----|-----|-----|-----|-----|-----|------|-----|------|
| | | L | B14 LK | LB | L | B5 LK | LB | A | BC | DA | HA | HB | HC | HD | HE | HH | HJ | LA | LC | LN | R |
| 50/40 | 63 | 355 | 280 | 112 | 355 | 280 | 112 | | | | | | | | | | | | | | |
| | 71 | 387 | 295 | 118 | 388 | 295 | 118 | 50 | 78 | 68 | 10 | 38 | 155 | 145 | | | | 124 | 52 | 124 | 8.3 |
| | 80 | 420 | 307 | 128 | 420 | 307 | 128 | | | | | | | | | | | | | | |
| 63/40 | 63 | 355 | 302 | 112 | 355 | 302 | 112 | | | | | | | | | | | | | | |
| | 71 | 387 | 317 | 118 | 388 | 317 | 118 | 63 | 82 | 80 | 10 | 43 | 183 | 173 | | | | 146 | 63 | 135 | 8.3 |
| | 80 | 420 | 329 | 128 | 420 | 329 | 128 | | | | | | | | | | | | | | |
| 71/40 | 63 | 355 | 310 | 112 | 355 | 310 | 112 | | | | | | | | | | | | | | |
| | 71 | 387 | 325 | 118 | 388 | 325 | 118 | 71 | 101.4 | 92 | 14 | 49 | 209 | 195 | | | | 165 | 68.5 | 139 | 10.3 |
| | 80 | 420 | 337 | 128 | 420 | 337 | 128 | | | | | | | | | | | | | | |
| 88/50 | 71 | 435 | 412 | 140 | 435 | 412 | 140 | | | | | | | | | | | | | | |
| | 80 | 467 | 424 | 150 | 477 | 424 | 160 | 88 | | | | | | | 275 | 203 | 115 | | | 180 | 12.3 |
| | 90 S | 490 | 433 | 160 | 490 | 433 | 160 | | | | | | | | | | | | | | |
| | 90 L | 515 | 433 | 160 | 515 | 433 | 160 | | | | | | | | | | | | | | |
| 112/63 | 71 | 466 | 453 | 151 | 466 | 453 | 151 | | | | | | | | | | | | | | |
| | 80 | 498 | 465 | 161 | 508 | 465 | 171 | 112 | | | | | | | 340 | 252 | 140 | | | 200 | |
| | 90 S | 521 | 474 | 171 | 521 | 474 | 171 | | | | | | | | | | | | | | |
| | 90 L | 546 | 474 | 171 | 546 | 474 | 171 | | | | | | | | | | | | | | |
| | 100 | 585 | 494 | 181.5 | 585 | 494 | 181.5 | | | | | | | | | | | | | | |

SERIES BS

DIMENSIONS



BS 88/50 - 112/63

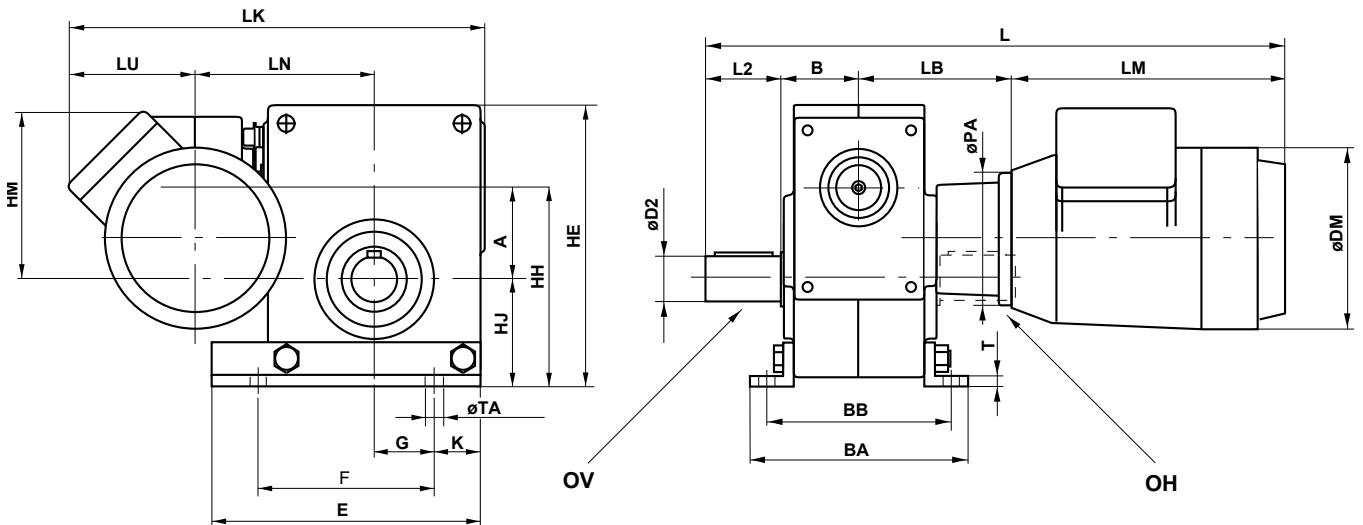
Position of terminal box, see page 11
 Shaft tolerance, see page 57

| BA | BB | E | F | G | K | T | TA | Shaft-dimensions | | Motor-dimensions | | LM | LU | PA |
|-----|-----|-----|-----|------|------|----|------|------------------|----|------------------|-----|-----|-----|-----|
| | | | | | | | | D2 | L2 | DM | HM | | | |
| 138 | 113 | 155 | 104 | 36.5 | 25.5 | 4 | 8.5 | 25 | 42 | 120 | 95 | 183 | 85 | 90 |
| | | | | | | | | | | 140 | 110 | 210 | 100 | 105 |
| | | | | | | | | | | 158 | 122 | 232 | 112 | 120 |
| 146 | 121 | 183 | 126 | 44.5 | 28.5 | 5 | 11 | 30 | 58 | 120 | 108 | 183 | 85 | 90 |
| | | | | | | | | | | 140 | 123 | 210 | 100 | 105 |
| | | | | | | | | | | 158 | 135 | 232 | 112 | 120 |
| 170 | 144 | 209 | 137 | 46.5 | 36 | 6 | 12.5 | 35 | 58 | 120 | 116 | 183 | 85 | 90 |
| | | | | | | | | | | 140 | 131 | 210 | 100 | 105 |
| | | | | | | | | | | 158 | 143 | 232 | 112 | 120 |
| 170 | 140 | 200 | 140 | 70 | 30 | 20 | 14 | 45 | 82 | 140 | 138 | 210 | 100 | 105 |
| | | | | | | | | | | 158 | 150 | 232 | 112 | 120 |
| | | | | | | | | | | 178 | 159 | 245 | 121 | 140 |
| | | | | | | | | | | 178 | 159 | 270 | 121 | 140 |
| 210 | 175 | 250 | 175 | 87.5 | 37.5 | 23 | 18 | 55 | 82 | 140 | 149 | 210 | 100 | 105 |
| | | | | | | | | | | 158 | 161 | 232 | 112 | 120 |
| | | | | | | | | | | 178 | 170 | 245 | 121 | 140 |
| | | | | | | | | | | 178 | 170 | 270 | 121 | 140 |
| | | | | | | | | | | 198 | 190 | 298 | 141 | 160 |

SERIES BS

DIMENSIONS

Worm geared motors BS50/40 - BS 112/63 Footmounted



Mounting position OV, OH, OO - P7

BS 50/40 - 71/40

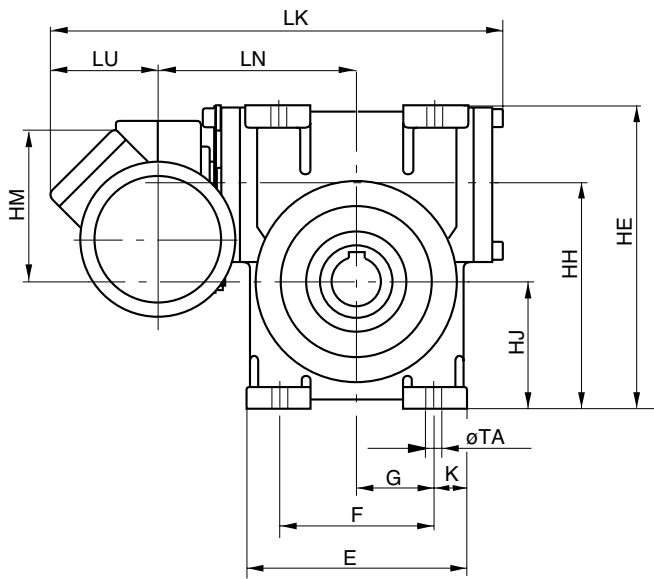
Mounting position OV - P7

Position of terminal box, see page 11
Shaft tolerance, see page 57

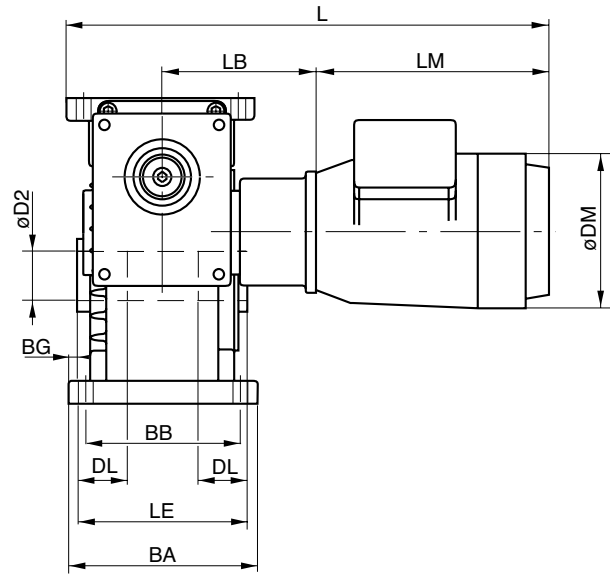
| BS | Motor-size | Motor dimensions | | | Gear unit dimensions | | | | | | | | |
|--------|------------|------------------|--------|-------|----------------------|-------|-------|-----|------|-------|-------|------|-----|
| | | L | B14 LK | LB | L | B5 LK | LB | A | B | HE | HH | HJ | LN |
| 50/40 | 63 | 387 | 280 | 112 | 387 | 280 | 112 | | | | | | |
| | 71 | 420 | 295 | 118 | 420 | 295 | 118 | 50 | 50 | 167 | 119 | 69 | 124 |
| | 80 | 452 | 307 | 128 | 452 | 307 | 128 | | | | | | |
| 63/40 | 63 | 405 | 302 | 112 | 405 | 302 | 112 | | | | | | |
| | 71 | 438 | 317 | 118 | 438 | 317 | 118 | 63 | 52 | 195 | 142 | 79 | 135 |
| | 80 | 470 | 329 | 128 | 470 | 329 | 128 | | | | | | |
| 71/40 | 63 | 415.5 | 310 | 112 | 415.5 | 310 | 112 | | | | | | |
| | 71 | 448.5 | 325 | 118 | 448.5 | 325 | 118 | 71 | 62.5 | 216.5 | 153.5 | 82.5 | 139 |
| | 80 | 480.5 | 337 | 128 | 480.5 | 337 | 128 | | | | | | |
| 88/50 | 71 | 502 | 412 | 140 | 502 | 412 | 140 | | | | | | |
| | 80 | 536 | 424 | 150 | 536 | 424 | 160 | 88 | 70 | 275 | 203 | 115 | 180 |
| 90 S | 557 | 433 | 160 | 557 | 433 | 160 | | | | | | | |
| | 90 L | 582 | 433 | 160 | 582 | 433 | 160 | | | | | | |
| 112/63 | 71 | 525 | 453 | 151 | 525 | 453 | 151 | | | | | | |
| | 80 | 557 | 465 | 161 | 557 | 465 | 171 | 112 | 82 | 340 | 252 | 140 | 200 |
| 90 S | 580 | 474 | 171 | 580 | 474 | 171 | | | | | | | |
| | 90 L | 605 | 474 | 171 | 605 | 474 | 171 | | | | | | |
| | 100 | 643.5 | 494 | 181.5 | 643.5 | 494 | 181.5 | | | | | | |

SERIES BS

DIMENSIONS



BS 88/50 - 112/63



Mounting position OV - P7

Position of terminal box, see page 11
 Shaft tolerance, see page 57

| BA | BB | BG | E | F | G | K | T | TA | Shaft-dimensions | | | Motor-dimensions | | | | |
|-----|-----|-----|-----|-----|------|------|----|----|------------------|-----|----|------------------|-----|-----|-----|-----|
| | | | | | | | | | D2 | LE | DL | DM | HM | LM | LU | PA |
| 170 | 140 | 8 | 200 | 140 | 70 | 30 | 20 | 14 | 45 | 154 | 45 | 120 | 95 | 183 | 85 | 90 |
| | | | | | | | | | | | | 140 | 110 | 210 | 100 | 105 |
| | | | | | | | | | | | | 158 | 122 | 232 | 112 | 120 |
| | | | | | | | | | | | | 120 | 108 | 183 | 85 | 90 |
| | | | | | | | | | | | | 140 | 123 | 210 | 100 | 105 |
| | | | | | | | | | | | | 158 | 135 | 232 | 112 | 120 |
| | | | | | | | | | | | | 120 | 116 | 183 | 85 | 90 |
| | | | | | | | | | | | | 140 | 131 | 210 | 100 | 105 |
| | | | | | | | | | | | | 158 | 143 | 232 | 112 | 120 |
| 210 | 175 | 18 | 250 | 175 | 87.5 | 37.5 | 23 | 18 | 55 | 174 | 50 | 140 | 138 | 210 | 100 | 105 |
| | | | | | | | | | | | | 158 | 150 | 232 | 112 | 120 |
| | | | | | | | | | | | | 178 | 159 | 245 | 121 | 140 |
| | | | | | | | | | | | | 178 | 159 | 270 | 121 | 140 |
| | | | | | | | | | | | | 140 | 149 | 210 | 100 | 105 |
| | | | | | | | | | | | | 158 | 161 | 232 | 112 | 120 |
| 178 | 170 | 245 | 121 | 140 | | | | | | | | | | | | |
| 178 | 170 | 270 | 121 | 140 | | | | | | | | | | | | |
| 198 | 190 | 298 | 141 | 160 | | | | | | | | | | | | |

SERIES BS

BS 40 POWER RATINGS

| Ratio and code i | Input speed n1 rpm | Output speed n2 rpm | Input power P1 kW | Output torque T2 Nm | Efficiency η % | Thermal rating 1) | | Overhung load Fr2 N |
|---------------------|--------------------------|---------------------------|-------------------------|---------------------------|---------------------------|-------------------|-------------------|---------------------------|
| | | | | | | Shaft-mount kW | Shaft-mount kW | |
| 6.67 (20/3) A | 2860 | 429 | 1.9 | 37 | 85 | .89 | 1.2 | 1300 |
| | 1430 | 214 | 1.3 | 50 | 86 | 1.1 | 1.3 | 1700 |
| | 930 | 139 | .99 | 59 | 87 | .84 | 1.0 | 1900 |
| | 730 | 109 | .87 | 66 | 86 | .73 | .92 | 2000 |
| 10 (20/2) B | 2860 | 286 | 1.5 | 43 | 83 | .86 | 1.1 | 1600 |
| | 1430 | 143 | 1.0 | 57 | 85 | 1.0 | 1.2 | 2000 |
| | 930 | 93 | .78 | 69 | 85 | .79 | .99 | 2000 |
| | 730 | 73 | .68 | 76 | 85 | .69 | .86 | 2000 |
| 15 (30/2) C | 2860 | 191 | 1.1 | 44 | 78 | .65 | .87 | 1900 |
| | 1430 | 95 | .73 | 58 | 79 | .75 | .92 | 2000 |
| | 930 | 62 | .56 | 70 | 80 | .58 | .73 | 2000 |
| | 730 | 49 | .50 | 77 | 79 | .51 | .64 | 2000 |
| 20 (20/1) D | 2860 | 143 | .91 | 44 | 72 | .53 | .70 | 2000 |
| | 1430 | 72 | .58 | 58 | 75 | .60 | .73 | 2000 |
| | 930 | 46 | .45 | 70 | 75 | .47 | .58 | 2000 |
| | 730 | 36 | .40 | 78 | 74 | .41 | .52 | 2000 |
| 24 (24/1) | 2860 | 119 | .80 | 44 | 69 | .47 | .62 | 2000 |
| | 1430 | 60 | .51 | 58 | 71 | .53 | .65 | 2000 |
| | 930 | 39 | .39 | 70 | 72 | .41 | .51 | 2000 |
| | 730 | 30 | .35 | 78 | 71 | .36 | .45 | 2000 |
| 30 (30/1) F | 2860 | 95 | .69 | 44 | 64 | .41 | .53 | 2000 |
| | 1430 | 48 | .44 | 59 | 67 | .45 | .54 | 2000 |
| | 930 | 31 | .34 | 70 | 67 | .35 | .44 | 2000 |
| | 730 | 24 | .30 | 78 | 66 | .31 | .39 | 2000 |
| 40 (40/1) G | 2860 | 72 | .57 | 43 | 56 | .34 | .44 | 2000 |
| | 1430 | 36 | .37 | 58 | 59 | .36 | .44 | 2000 |
| | 930 | 23 | .28 | 69 | 60 | .28 | .35 | 2000 |
| | 730 | 18 | .25 | 76 | 58 | .25 | .31 | 2000 |
| 48 (48/1) H | 2860 | 60 | .52 | 44 | 52 | .32 | .41 | 2000 |
| | 1430 | 30 | .32 | 58 | 56 | .33 | .40 | 2000 |
| | 930 | 19 | .24 | 66 | 56 | .26 | .33 | 2000 |
| | 730 | 15 | .21 | 71 | 55 | .23 | .29 | 2000 |
| 60 (60/1) I | 2860 | 48 | .45 | 42 | 46 | .29 | .37 | 2000 |
| | 1430 | 24 | .26 | 52 | 49 | .29 | .35 | 2000 |
| | 930 | 16 | .18 | 54 | 49 | .23 | .29 | 2000 |
| | 730 | 12 | .15 | 56 | 47 | .21 | .26 | 2000 |
| 70 (70/1) J | 2860 | 41 | .39 | 40 | 43 | .29 | .36 | 2000 |
| | 1430 | 20 | .21 | 44 | 44 | .29 | .35 | 2000 |
| | 930 | 13 | .14 | 46 | 46 | .23 | .28 | 2000 |
| | 730 | 10 | .11 | 47 | 44 | .20 | .25 | 2000 |
| 84 (84/1) K | 2860 | 34 | .32 | 31 | 34 | .27 | .33 | 2000 |
| | 1430 | 17 | .16 | 33 | 36 | .27 | .32 | 2000 |
| | 930 | 11 | .10 | 35 | 38 | .21 | .26 | 2000 |
| | 730 | 8.7 | .09 | 36 | 37 | .19 | .23 | 2000 |

1) Gearbox with fan or motor motor with fan, flange mounted on the gearbox.

SERIES BS

BS 50 POWER RATINGS

| Ratio and code i | Input speed n1 rpm | Output speed n2 rpm | Input power P1 kW | Output torque T2 Nm | Efficiency η % | Thermal rating 1) | | Overhung load Fr2 N |
|---------------------|--------------------------|---------------------------|-------------------------|---------------------------|----------------------|-------------------|-------------------|---------------------------|
| | | | | | | Shaft-mount kW | Shaft-mount kW | |
| 8 (24/3) A | 2860 | 358 | 2.6 | 62 | 88 | 1.7 | 2.2 | 1900 |
| | 1430 | 179 | 1.7 | 83 | 88 | 1.7 | 2.1 | 2400 |
| | 930 | 116 | 1.4 | 99 | 88 | 1.3 | 1.6 | 2700 |
| | 730 | 91 | 1.2 | 110 | 88 | 1.1 | 1.4 | 2700 |
| 10.5 (21/2) B | 2860 | 272 | 2.1 | 65 | 86 | 1.4 | 1.8 | 2200 |
| | 1430 | 136 | 1.4 | 87 | 87 | 1.4 | 1.7 | 2700 |
| | 930 | 89 | 1.1 | 103 | 85 | 1.1 | 1.4 | 2700 |
| | 730 | 70 | .97 | 114 | 85 | .94 | 1.2 | 2700 |
| 14 (28/2) C | 2860 | 204 | 1.7 | 66 | 82 | 1.2 | 1.5 | 2500 |
| | 1430 | 102 | 1.1 | 88 | 84 | 1.2 | 1.5 | 2700 |
| | 930 | 66 | .88 | 105 | 83 | .91 | 1.1 | 2700 |
| | 730 | 52 | .77 | 117 | 83 | .78 | .97 | 2700 |
| 21 (21/1) D | 2860 | 136 | 1.2 | 66 | 76 | .86 | 1.1 | 2700 |
| | 1430 | 68 | .80 | 87 | 77 | .84 | 1.0 | 2700 |
| | 930 | 44 | .63 | 104 | 76 | .64 | .80 | 2700 |
| | 730 | 35 | .56 | 116 | 75 | .56 | .69 | 2700 |
| 24 (24/1) E | 2860 | 119 | 1.1 | 63 | 73 | .74 | .93 | 2700 |
| | 1430 | 60 | .71 | 85 | 74 | .72 | .87 | 2700 |
| | 930 | 39 | .57 | 102 | 72 | .55 | .69 | 2700 |
| | 730 | 30 | .49 | 112 | 72 | .48 | .60 | 2700 |
| 32 (32/1) F | 2860 | 89 | .92 | 68 | 69 | .69 | .86 | 2700 |
| | 1430 | 45 | .59 | 90 | 71 | .65 | .79 | 2700 |
| | 930 | 29 | .47 | 108 | 69 | .50 | .62 | 2700 |
| | 730 | 23 | .41 | 120 | 69 | .43 | .54 | 2700 |
| 37 (37/1) Fx | 2860 | 77 | .82 | 66 | 65 | .59 | .73 | 2700 |
| | 1430 | 39 | .53 | 88 | 66 | .56 | .67 | 2700 |
| | 930 | 25 | .43 | 106 | 64 | .43 | .53 | 2700 |
| | 730 | 20 | .37 | 116 | 64 | .37 | .47 | 2700 |
| 42 (42/1) G | 2860 | 68 | .76 | 68 | 63 | .57 | .70 | 2700 |
| | 1430 | 34 | .49 | 90 | 65 | .54 | .65 | 2700 |
| | 930 | 22 | .40 | 109 | 63 | .42 | .51 | 2700 |
| | 730 | 17 | .34 | 120 | 63 | .36 | .45 | 2700 |
| 54 (54/1) H | 2860 | 53 | .66 | 68 | 57 | .49 | .61 | 2700 |
| | 1430 | 26 | .42 | 90 | 59 | .46 | .55 | 2700 |
| | 930 | 17 | .34 | 109 | 57 | .35 | .43 | 2700 |
| | 730 | 14 | .30 | 120 | 57 | .31 | .38 | 2700 |
| 64 (64/1) I | 2860 | 45 | .60 | 69 | 53 | .46 | .56 | 2700 |
| | 1430 | 22 | .39 | 93 | 55 | .42 | .51 | 2700 |
| | 930 | 15 | .28 | 100 | 53 | .33 | .40 | 2700 |
| | 730 | 11 | .23 | 102 | 53 | .29 | .36 | 2700 |
| 80 (80/1) J | 2860 | 36 | .50 | 66 | 49 | .44 | .53 | 2700 |
| | 1430 | 18 | .27 | 71 | 49 | .40 | .47 | 2700 |
| | 930 | 12 | .19 | 75 | 47 | .31 | .38 | 2700 |

1) Gearbox with fan or motor motor with fan, flange mounted on the gearbox.

SERIES BS

BS 63 POWER RATINGS

| Ratio and code i | Input speed n1 rpm | Output speed n2 rpm | Input power P1 kW | Output torque T2 Nm | Efficiency η % | Thermal rating 1) | | Overhung load Fr2 N |
|---------------------|--------------------------|---------------------------|-------------------------|---------------------------|---------------------------|-------------------|-------------------|---------------------------|
| | | | | | | Shaft-mount kW | Shaft-mount kW | |
| 7.75 (31/4) A | 2860 | 369 | 4.3 | 101 | 91 | 2.8 | 3.5 | 2100 |
| | 1430 | 185 | 2.9 | 134 | 90 | 2.6 | 3.2 | 2600 |
| | 930 | 120 | 2.3 | 162 | 90 | 2.0 | 2.4 | 2900 |
| | 730 | 94 | 2.0 | 178 | 89 | 1.7 | 2.1 | 3200 |
| 11 (33/3) B | 2860 | 260 | 3.4 | 112 | 89 | 2.6 | 3.2 | 2400 |
| | 1430 | 130 | 2.3 | 149 | 88 | 2.3 | 2.8 | 3000 |
| | 930 | 85 | 1.8 | 178 | 88 | 1.7 | 2.1 | 3400 |
| | 730 | 66 | 1.6 | 197 | 88 | 1.5 | 1.8 | 3700 |
| 14 (28/2) C | 2860 | 204 | 2.8 | 115 | 87 | 2.2 | 2.7 | 2700 |
| | 1430 | 102 | 1.9 | 154 | 87 | 2.0 | 2.4 | 3400 |
| | 930 | 66 | 1.3 | 160 | 86 | 1.5 | 1.8 | 4000 |
| | 730 | 52 | 1.0 | 160 | 85 | 1.2 | 1.6 | 4000 |
| 18 (36/2) D | 2860 | 159 | 2.2 | 111 | 82 | 1.7 | 2.1 | 3100 |
| | 1430 | 79 | 1.5 | 149 | 83 | 1.5 | 1.8 | 3900 |
| | 930 | 52 | 1.2 | 178 | 83 | 1.1 | 1.4 | 4000 |
| | 730 | 41 | 1.0 | 196 | 81 | .97 | 1.2 | 4000 |
| 24.5 (49/2) E | 2860 | 117 | 1.8 | 119 | 80 | 1.5 | 1.9 | 3500 |
| | 1430 | 58 | 1.2 | 160 | 81 | 1.4 | 1.6 | 4000 |
| | 930 | 38 | .81 | 162 | 79 | 1.0 | 1.3 | 4000 |
| | 730 | 30 | .64 | 162 | 79 | .87 | 1.1 | 4000 |
| 29 (29/1) F | 2860 | 99 | 1.6 | 117 | 77 | 1.3 | 1.6 | 3800 |
| | 1430 | 49 | 1.0 | 156 | 77 | 1.1 | 1.4 | 4000 |
| | 930 | 32 | .82 | 188 | 77 | .86 | 1.1 | 4000 |
| | 730 | 25 | .67 | 192 | 75 | .74 | .92 | 4000 |
| 37 (37/1) Fx | 2860 | 77 | 1.3 | 109 | 69 | .92 | 1.1 | 4000 |
| | 1430 | 39 | .85 | 147 | 70 | .81 | .97 | 4000 |
| | 930 | 25 | .67 | 175 | 68 | .62 | .77 | 4000 |
| | 730 | 20 | .60 | 194 | 67 | .54 | .67 | 4000 |
| 43 (43/1) G | 2860 | 67 | 1.2 | 121 | 70 | 1.0 | 1.2 | 4000 |
| | 1430 | 33 | .78 | 160 | 71 | .89 | 1.1 | 4000 |
| | 930 | 22 | .53 | 166 | 70 | .67 | .82 | 4000 |
| | 730 | 17 | .43 | 165 | 68 | .57 | .71 | 4000 |
| 51 (51/1) H | 2860 | 56 | 1.1 | 121 | 67 | .89 | 1.1 | 4000 |
| | 1430 | 28 | .69 | 160 | 67 | .78 | .93 | 4000 |
| | 930 | 18 | .53 | 184 | 66 | .59 | .73 | 4000 |
| | 730 | 14 | .42 | 183 | 65 | .51 | .63 | 4000 |
| 57 (57/1) I | 2860 | 50 | .98 | 121 | 64 | .83 | 1.0 | 4000 |
| | 1430 | 25 | .64 | 160 | 65 | .73 | .87 | 4000 |
| | 930 | 16 | .51 | 193 | 64 | .55 | .68 | 4000 |
| | 730 | 13 | .41 | 193 | 62 | .47 | .59 | 4000 |
| 73 (73/1) J | 2860 | 39 | .85 | 121 | 58 | .72 | .87 | 4000 |
| | 1430 | 20 | .56 | 162 | 59 | .61 | .74 | 4000 |
| | 930 | 13 | .40 | 174 | 58 | .47 | .57 | 4000 |
| | 730 | 10 | .33 | 179 | 56 | .41 | .51 | 4000 |
| 104 (104/1) K | 2860 | 28 | .56 | 92 | 47 | .61 | .73 | 4000 |
| | 1430 | 14 | .31 | 100 | 46 | .52 | .62 | 4000 |
| | 930 | 8.9 | .21 | 105 | 47 | .40 | .49 | 4000 |
| | 730 | 7 | .17 | 107 | 45 | .35 | .43 | 4000 |

1) Gearbox with fan or motor motor with fan, flange mounted on the gearbox.

SERIES BS

BS 71 POWER RATINGS

| Ratio and code i | Input speed n1 rpm | Output speed n2 rpm | Input power P1 kW | Output torque T2 Nm | Efficiency η % | Thermal rating 1) | | Overhung load Fr2 N |
|---------------------|--------------------------|---------------------------|-------------------------|---------------------------|---------------------------|-------------------|-------------------|---------------------------|
| | | | | | | Shaft-mount kW | Shaft-mount kW | |
| 7.5 (30/4) A | 2860 | 381 | 6.5 | 151 | 92 | 3.2 | 4.4 | 2200 |
| | 1430 | 191 | 4.3 | 201 | 92 | 3.6 | 3.8 | 2700 |
| | 930 | 124 | 3.4 | 242 | 91 | 2.4 | 2.9 | 3100 |
| | 730 | 97 | 3.0 | 267 | 91 | 2.0 | 2.5 | 3300 |
| 9.33 (28/3) B | 2860 | 307 | 5.7 | 163 | 91 | 3.4 | 4.2 | 2400 |
| | 1430 | 153 | 3.8 | 218 | 91 | 3.1 | 3.7 | 3000 |
| | 930 | 100 | 3.0 | 260 | 90 | 2.3 | 2.8 | 3400 |
| | 730 | 78 | 2.6 | 288 | 89 | 1.9 | 2.4 | 3600 |
| 12 (36/3) C | 2860 | 238 | 4.5 | 160 | 89 | 2.7 | 3.3 | 2900 |
| | 1430 | 119 | 3.0 | 215 | 88 | 2.4 | 2.9 | 3500 |
| | 930 | 78 | 2.3 | 255 | 88 | 1.8 | 2.2 | 4000 |
| | 730 | 61 | 2.0 | 282 | 87 | 1.5 | 1.9 | 4300 |
| 16 (32/2) D | 2860 | 179 | 3.6 | 169 | 87 | 2.3 | 2.8 | 3300 |
| | 1430 | 89 | 2.4 | 224 | 87 | 2.0 | 2.5 | 4000 |
| | 930 | 58 | 1.9 | 269 | 85 | 1.5 | 1.9 | 4600 |
| | 730 | 46 | 1.7 | 297 | 85 | 1.3 | 1.6 | 5000 |
| 21 (42/2) E | 2860 | 136 | 2.9 | 173 | 84 | 2.0 | 2.4 | 3700 |
| | 1430 | 68 | 1.9 | 230 | 84 | 1.7 | 2.0 | 4600 |
| | 930 | 44 | 1.5 | 276 | 83 | 1.3 | 1.6 | 5000 |
| | 730 | 35 | 1.4 | 305 | 82 | 1.1 | 1.4 | 5000 |
| 28 (28/1) F | 2860 | 102 | 2.2 | 168 | 80 | 1.5 | 1.8 | 4200 |
| | 1430 | 51 | 1.5 | 225 | 79 | 1.3 | 1.5 | 5000 |
| | 930 | 33 | 1.2 | 267 | 77 | .97 | 1.2 | 5000 |
| | 730 | 26 | 1.0 | 298 | 77 | .83 | 1.0 | 5000 |
| 37 (37/1) G | 2860 | 77 | 1.9 | 178 | 76 | 1.3 | 1.6 | 4700 |
| | 1430 | 39 | 1.3 | 238 | 76 | 1.1 | 1.3 | 5000 |
| | 930 | 25 | 1.0 | 283 | 74 | .84 | 1.0 | 5000 |
| | 730 | 20 | .89 | 315 | 73 | .72 | .89 | 5000 |
| 48 (48/1) H | 2860 | 60 | 1.5 | 175 | 71 | 1.1 | 1.3 | 5000 |
| | 1430 | 30 | 1.0 | 234 | 71 | .93 | 1.1 | 5000 |
| | 930 | 19 | .82 | 281 | 69 | .70 | .86 | 5000 |
| | 730 | 15 | .72 | 310 | 68 | .60 | .75 | 5000 |
| 63 (63/1) I | 2860 | 45 | 1.3 | 175 | 66 | .89 | 1.1 | 5000 |
| | 1430 | 23 | .85 | 234 | 65 | .76 | .91 | 5000 |
| | 930 | 15 | .69 | 281 | 63 | .58 | .71 | 5000 |
| | 730 | 12 | .61 | 310 | 61 | .51 | .63 | 5000 |
| 82 (82/1) J | 2860 | 35 | 1.1 | 178 | 60 | .77 | .92 | 5000 |
| | 1430 | 17 | .62 | 201 | 58 | .66 | .79 | 5000 |
| | 930 | 11 | .45 | 211 | 56 | .50 | .61 | 5000 |
| | 730 | 8.9 | .37 | 216 | 54 | .44 | .54 | 5000 |
| 100 (100/1) K | 2860 | 29 | .77 | 143 | 56 | .76 | .91 | 5000 |
| | 1430 | 14 | .42 | 154 | 54 | .64 | .77 | 5000 |
| | 930 | 9.3 | .30 | 162 | 49 | .49 | .60 | 5000 |
| | 730 | 7.3 | .25 | 166 | 43 | .43 | .53 | 5000 |

1) Gearbox with fan or motor motor with fan, flange mounted on the gearbox.

SERIES BS

BS 88 POWER RATINGS

| Ratio and code i | Input speed n1 rpm | Output speed n2 rpm | Input power P1 kW | Output torque T2 Nm | Efficiency η % | Thermal rating 1) | | Overhung load Fr2 N |
|----------------------|--------------------------|---------------------------|-------------------------|---------------------------|---------------------------|-------------------|-------------------|---------------------------|
| | | | | | | Shaft-mount kW | Shaft-mount kW | |
| 7.25 (29/4) A | 2860 | 394 | 15.6 | 358 | 94 | 9.3 | 11.3 | 4000 |
| | 1430 | 197 | 9.9 | 449 | 94 | 6.7 | 8.4 | 5000 |
| | 930 | 128 | 7.5 | 518 | 93 | 4.5 | 5.9 | 5800 |
| | 730 | 101 | 6.4 | 560 | 92 | 3.6 | 4.9 | 6300 |
| 11.75 (47/4) B | 2860 | 243 | 10.1 | 368 | 93 | 7.6 | 9.3 | 5100 |
| | 1430 | 122 | 6.8 | 490 | 91 | 5.4 | 6.8 | 6300 |
| | 930 | 79 | 5.1 | 564 | 90 | 3.6 | 4.8 | 7300 |
| | 730 | 62 | 4.4 | 611 | 90 | 2.9 | 4.0 | 7900 |
| 15.67 (47/3) C | 2860 | 183 | 7.7 | 364 | 90 | 6.1 | 7.4 | 6000 |
| | 1430 | 91 | 5.1 | 481 | 89 | 4.3 | 5.4 | 7400 |
| | 930 | 59 | 3.9 | 562 | 88 | 2.9 | 3.8 | 8500 |
| | 730 | 47 | 3.4 | 610 | 87 | 2.3 | 3.2 | 9200 |
| 19.5 (39/2) D | 2860 | 147 | 6.6 | 377 | 88 | 4.7 | 5.7 | 6600 |
| | 1430 | 73 | 4.4 | 496 | 87 | 3.3 | 4.2 | 8200 |
| | 930 | 48 | 3.4 | 578 | 85 | 2.3 | 3.0 | 9400 |
| | 730 | 37 | 2.9 | 627 | 84 | 1.8 | 2.5 | 10000 |
| 23.5 (47/2) E | 2860 | 122 | 5.4 | 367 | 86 | 4.4 | 5.3 | 7200 |
| | 1430 | 61 | 3.6 | 479 | 85 | 3.1 | 3.9 | 9000 |
| | 930 | 40 | 2.7 | 556 | 84 | 2.1 | 2.7 | 10000 |
| | 730 | 31 | 2.3 | 602 | 83 | 1.7 | 2.3 | 10000 |
| 29 (29/1) F | 2860 | 99 | 5.2 | 413 | 82 | 3.0 | 3.7 | 8800 |
| | 1430 | 49 | 3.3 | 524 | 80 | 2.2 | 2.7 | 10000 |
| | 930 | 32 | 2.6 | 604 | 78 | 1.5 | 2.0 | 10000 |
| | 730 | 25 | 2.2 | 654 | 77 | 1.2 | 1.7 | 10000 |
| 39 (39/1) G | 2860 | 73 | 3.9 | 406 | 79 | 2.7 | 3.2 | 9600 |
| | 1430 | 37 | 2.6 | 525 | 77 | 1.9 | 2.4 | 10000 |
| | 930 | 24 | 2.0 | 606 | 74 | 1.3 | 1.7 | 10000 |
| | 730 | 19 | 1.7 | 654 | 73 | 1.1 | 1.5 | 10000 |
| 47 (47/1) H | 2860 | 61 | 3.2 | 396 | 77 | 2.5 | 3.0 | 10000 |
| | 1430 | 30 | 2.1 | 508 | 75 | 1.8 | 2.2 | 10000 |
| | 930 | 20 | 1.7 | 585 | 73 | 1.2 | 1.6 | 10000 |
| | 730 | 16 | 1.4 | 630 | 72 | .99 | 1.3 | 10000 |
| 58 (58/1) J | 2860 | 49 | 2.7 | 383 | 74 | 2.3 | 2.8 | 10000 |
| | 1430 | 25 | 1.7 | 488 | 72 | 1.7 | 2.1 | 10000 |
| | 930 | 16 | 1.3 | 560 | 69 | 1.1 | 1.5 | 10000 |
| | 730 | 13 | 1.2 | 602 | 68 | .92 | 1.2 | 10000 |
| 71 (71/1) K | 2860 | 40 | 2.1 | 343 | 69 | 1.9 | 2.3 | 10000 |
| | 1430 | 20 | 1.4 | 437 | 67 | 1.4 | 1.7 | 10000 |
| | 930 | 13 | 1.1 | 492 | 64 | .95 | 1.2 | 10000 |
| | 730 | 10 | .86 | 505 | 63 | .78 | 1.0 | 10000 |
| 82 (82/1) L | 2860 | 35 | 1.8 | 341 | 68 | 1.9 | 2.3 | 10000 |
| | 1430 | 17 | 1.1 | 390 | 66 | 1.4 | 1.7 | 10000 |
| | 930 | 11 | .77 | 409 | 62 | .94 | 1.2 | 10000 |
| | 730 | 8.9 | .64 | 420 | 61 | .77 | 1.0 | 10000 |
| 106 (106/1) M | 2860 | 27 | 1.2 | 248 | 59 | 1.6 | 2.0 | 10000 |
| | 1430 | 13 | .66 | 269 | 57 | 1.2 | 1.5 | 10000 |
| | 930 | 8.8 | .47 | 281 | 55 | .81 | 1.1 | 10000 |
| | 730 | 6.9 | .39 | 289 | 54 | .67 | .90 | 10000 |

1) Gearbox with fan or motor motor with fan, flange mounted on the gearbox.

SERIES BS

BS 112 POWER RATINGS

| Ratio and code i | Input speed n1 rpm | Output speed n2 rpm | Input power P1 kW | Output torque T2 Nm | Efficiency η % | Thermal rating 1) | | Overhung load Fr2 N |
|---------------------|--------------------------|---------------------------|-------------------------|---------------------------|---------------------------|-------------------|-------------------|---------------------------|
| | | | | | | Shaft-mount kW | Shaft-mount kW | |
| 7 (28/4) A | 2860 | 409 | 27.3 | 607 | 95 | 20.0 | 24.1 | 6200 |
| | 1430 | 204 | 18.3 | 806 | 94 | 13.9 | 17.2 | 7600 |
| | 930 | 133 | 13.8 | 929 | 93 | 9.3 | 12.2 | 8900 |
| | 730 | 104 | 11.7 | 1006 | 93 | 7.4 | 10.0 | 9500 |
| 11.5 (46/4) B | 2860 | 249 | 19.7 | 709 | 93 | 17.5 | 21.0 | 7500 |
| | 1430 | 124 | 12.5 | 891 | 93 | 11.8 | 14.6 | 9500 |
| | 930 | 81 | 9.4 | 1026 | 92 | 7.8 | 10.2 | 10900 |
| | 730 | 63 | 8.1 | 1111 | 91 | 6.2 | 8.4 | 11800 |
| 15.3 (46/3) C | 2860 | 187 | 14.9 | 705 | 92 | 14.0 | 16.8 | 8900 |
| | 1430 | 93 | 10.0 | 936 | 91 | 9.4 | 11.6 | 11000 |
| | 930 | 61 | 7.6 | 1078 | 90 | 6.3 | 8.2 | 12700 |
| | 730 | 48 | 6.5 | 1167 | 90 | 5.0 | 6.7 | 13800 |
| 19.5 (39/2) D | 2860 | 147 | 11.8 | 691 | 89 | 10.6 | 12.7 | 10300 |
| | 1430 | 73 | 7.9 | 912 | 88 | 7.2 | 9.0 | 12800 |
| | 930 | 48 | 6.0 | 1064 | 87 | 4.8 | 6.3 | 14800 |
| | 730 | 37 | 5.2 | 1155 | 87 | 3.8 | 5.2 | 15000 |
| 23 (46/2) E | 2860 | 124 | 10.3 | 708 | 89 | 10.0 | 11.9 | 10900 |
| | 1430 | 62 | 6.8 | 928 | 88 | 6.7 | 8.3 | 13600 |
| | 930 | 40 | 5.3 | 1080 | 86 | 4.5 | 5.9 | 15000 |
| | 730 | 32 | 4.5 | 1171 | 85 | 3.6 | 4.8 | 15000 |
| 28 (28/1) F | 2860 | 102 | 8.6 | 679 | 84 | 6.5 | 7.7 | 12100 |
| | 1430 | 51 | 5.7 | 893 | 83 | 4.5 | 5.5 | 15000 |
| | 930 | 33 | 4.5 | 1041 | 80 | 3.1 | 4.0 | 15000 |
| | 730 | 26 | 3.9 | 1129 | 79 | 2.5 | 3.3 | 15000 |
| 39 (39/1) G | 2860 | 73 | 6.9 | 741 | 82 | 5.9 | 7.1 | 13700 |
| | 1430 | 37 | 4.6 | 960 | 80 | 4.1 | 5.0 | 15000 |
| | 930 | 24 | 3.5 | 1111 | 78 | 2.8 | 3.6 | 15000 |
| | 730 | 19 | 3.0 | 1200 | 77 | 2.2 | 3.0 | 15000 |
| 46 (46/1) H | 2860 | 62 | 6.1 | 755 | 81 | 5.6 | 6.7 | 14600 |
| | 1430 | 31 | 4.0 | 974 | 79 | 3.8 | 4.7 | 15000 |
| | 930 | 20 | 2.1 | 1124 | 77 | 2.6 | 3.4 | 15000 |
| | 730 | 16 | 1.8 | 1212 | 75 | 2.1 | 2.8 | 15000 |
| 63 (63/1) J | 2860 | 45 | 4.2 | 684 | 77 | 4.8 | 5.8 | 15000 |
| | 1430 | 23 | 2.7 | 874 | 75 | 3.3 | 4.1 | 15000 |
| | 930 | 15 | 3.1 | 1003 | 73 | 2.2 | 2.9 | 15000 |
| | 730 | 12 | 2.7 | 1065 | 71 | 1.8 | 2.4 | 15000 |
| 76 (76/1) K | 2860 | 38 | 3.5 | 654 | 73 | 4.4 | 5.2 | 15000 |
| | 1430 | 19 | 2.3 | 831 | 71 | 3.0 | 3.7 | 15000 |
| | 930 | 12 | 1.6 | 861 | 69 | 2.0 | 2.6 | 15000 |
| | 730 | 9.6 | 1.3 | 858 | 68 | 1.6 | 2.2 | 15000 |
| 95 (95/1) L | 2860 | 30 | 2.7 | 587 | 69 | 3.7 | 4.4 | 15000 |
| | 1430 | 15 | 1.5 | 636 | 66 | 2.5 | 3.1 | 15000 |
| | 930 | 9.8 | 1.1 | 667 | 63 | 1.7 | 2.2 | 15000 |
| | 730 | 7.7 | .89 | 684 | 62 | 1.4 | 1.9 | 15000 |
| 108 (108/1) M | 2860 | 26 | 2.1 | 484 | 64 | 3.4 | 4.0 | 15000 |
| | 1430 | 13 | 1.2 | 524 | 61 | 2.3 | 2.9 | 15000 |
| | 930 | 8.6 | .83 | 549 | 59 | 1.6 | 1.7 | 15000 |
| | 730 | 6.8 | .69 | 563 | 58 | 1.3 | 1.7 | 15000 |

1) Gearbox with fan or motor motor with fan, flange mounted on the gearbox.

SERIES BS

DOUBLE WORM GEARS

POWER RATINGS

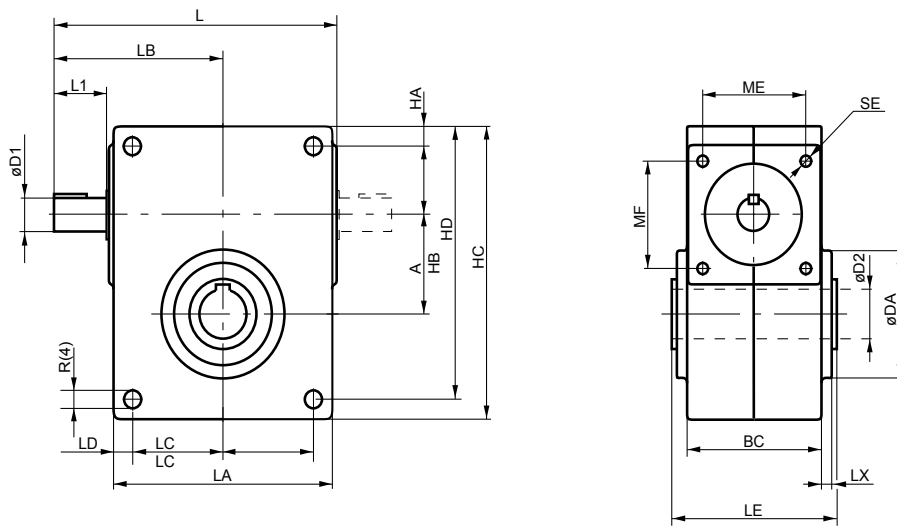
| Ratio and code | Input speed | Output speed | Input power | Output torque | Efficiency | Thermal rating 1) | | Overhung load |
|------------------|-------------|--------------|-------------|---------------|------------|-------------------|----------------|---------------|
| | | | | | | Shaft-mount kW | Shaft-mount kW | |
| Code i | n1 rpm | n2 rpm | P1 kW | T2 Nm | η % | | | Fr2 N |
| BS 50/40 | | | | | | | | |
| EA 160 | 1430 | 8.9 | .31 | 150 | 45 | .30 | .38 | 2700 |
| EB 240 | 1430 | 6 | .24 | 150 | 39 | .27 | .34 | 2700 |
| EC 360 | 1430 | 4 | .20 | 150 | 32 | .25 | .31 | 2700 |
| ED 480 | 1430 | 3 | .17 | 150 | 28 | .23 | .30 | 2700 |
| EE 576 | 1430 | 2.5 | .16 | 150 | 25 | .23 | .29 | 2700 |
| EF 720 | 1430 | 2 | .14 | 150 | 22 | .22 | .28 | 2700 |
| EG 960 | 1430 | 1.5 | .13 | 150 | 18 | .21 | .27 | 2700 |
| EH 1152 | 1430 | 1.2 | .12 | 150 | 16 | .21 | .27 | 2700 |
| EI 1440 | 1430 | 1 | .12 | 150 | 13 | .20 | .26 | 2700 |
| EJ 1680 | 1430 | 0.9 | .12 | 150 | 12 | .20 | .26 | 2700 |
| EK 2016 | 1430 | 0.7 | .11 | 150 | 10 | .20 | .26 | 2700 |
| BS 63/40 | | | | | | | | |
| FA 193 | 1430 | 7.4 | .40 | 250 | 48 | .44 | .56 | 4000 |
| FB 290 | 1430 | 4.9 | .31 | 250 | 42 | .40 | .51 | 4000 |
| FC 435 | 1430 | 3.3 | .25 | 250 | 34 | .36 | .46 | 4000 |
| FD 580 | 1430 | 2.5 | .23 | 250 | 29 | .35 | .44 | 4000 |
| FE 696 | 1430 | 2.1 | .21 | 250 | 26 | .33 | .42 | 4000 |
| FF 870 | 1430 | 1.6 | .18 | 250 | 23 | .32 | .41 | 4000 |
| FG 1160 | 1430 | 1.2 | .17 | 250 | 19 | .31 | .39 | 4000 |
| FH 1392 | 1430 | 1 | .16 | 250 | 16 | .30 | .39 | 4000 |
| FI 1740 | 1430 | 0.8 | .15 | 250 | 14 | .29 | .35 | 4000 |
| FJ 2030 | 1430 | 0.7 | .15 | 250 | 12 | .29 | .35 | 4000 |
| FK 2436 | 1430 | 0.6 | .14 | 250 | 11 | .27 | .32 | 4000 |
| BS 71/40 | | | | | | | | |
| FA 187 | 1430 | 7.7 | .58 | 400 | 55 | .50 | .63 | 5000 |
| FB 280 | 1430 | 5.1 | .43 | 400 | 50 | .44 | .56 | 5000 |
| FC 420 | 1430 | 3.4 | .33 | 400 | 42 | .40 | .51 | 5000 |
| FD 560 | 1430 | 2.6 | .28 | 400 | 38 | .38 | .48 | 5000 |
| FE 672 | 1430 | 2.1 | .26 | 400 | 34 | .37 | .47 | 5000 |
| FF 840 | 1430 | 1.7 | .23 | 400 | 31 | .35 | .45 | 5000 |
| FG 1120 | 1430 | 1.3 | .20 | 400 | 26 | .34 | .43 | 5000 |
| FH 1344 | 1430 | 1.1 | .18 | 400 | 24 | .33 | .40 | 5000 |
| FI 1680 | 1430 | 0.9 | .17 | 400 | 21 | .29 | .35 | 5000 |
| FJ 1960 | 1430 | 0.7 | .16 | 400 | 19 | .29 | .35 | 5000 |
| FK 2352 | 1430 | 0.6 | .15 | 400 | 17 | .27 | .32 | 5000 |
| BS 88/50 | | | | | | | | |
| FA 232 | 1430 | 6.2 | .92 | 800 | 56 | .61 | .89 | 10000 |
| FB 304 | 1430 | 4.7 | .75 | 800 | 52 | .57 | .82 | 10000 |
| FC 406 | 1430 | 3.5 | .62 | 800 | 47 | .53 | .77 | 10000 |
| FD 609 | 1430 | 2.3 | .47 | 800 | 41 | .48 | .69 | 10000 |
| FE 696 | 1430 | 2.1 | .45 | 800 | 38 | .47 | .68 | 10000 |
| FF 928 | 1430 | 1.5 | .37 | 800 | 34 | .44 | .64 | 10000 |
| FFX 1073 | 1430 | 1.3 | .35 | 800 | 32 | .43 | .63 | 10000 |
| FG 1218 | 1430 | 1.2 | .32 | 800 | 30 | .43 | .62 | 10000 |
| FH 1566 | 1430 | 0.9 | .29 | 800 | 26 | .42 | .55 | 10000 |
| FI 1856 | 1430 | 0.8 | .27 | 800 | 24 | .41 | .51 | 10000 |
| FJ 2320 | 1430 | 0.6 | .23 | 800 | 22 | .40 | .47 | 10000 |
| BS 112/63 | | | | | | | | |
| FA 217 | 1430 | 6.6 | 1.6 | 1400 | 61 | 1.2 | 1.7 | 15000 |
| FB 308 | 1430 | 4.6 | 1.2 | 1400 | 56 | 1.1 | 1.6 | 15000 |
| FC 392 | 1430 | 3.6 | 1.0 | 1400 | 53 | 1.0 | 1.5 | 15000 |
| FD 504 | 1430 | 2.8 | .86 | 1400 | 48 | .95 | 1.4 | 15000 |
| FE 686 | 1430 | 2.1 | .68 | 1400 | 44 | .89 | 1.3 | 15000 |
| FF 812 | 1430 | 1.8 | .62 | 1400 | 41 | .85 | 1.2 | 15000 |
| FFX 1036 | 1430 | 1.4 | .56 | 1400 | 36 | .81 | .97 | 15000 |
| FG 1204 | 1430 | 1.2 | .49 | 1400 | 35 | .79 | 1.1 | 15000 |
| FH 1428 | 1430 | 1.0 | .45 | 1400 | 32 | .77 | .93 | 15000 |
| FI 1596 | 1430 | 0.9 | .42 | 1400 | 30 | .73 | .87 | 15000 |
| FJ 2044 | 1430 | 0.7 | .37 | 1400 | 27 | .61 | .74 | 15000 |
| FK 2912 | 1430 | 0.5 | .31 | 1400 | 22 | .52 | .62 | 15000 |

1) Gearbox with fan or motor motor with fan, flange mounted on the gearbox.

SERIES BS

DIMENSIONS

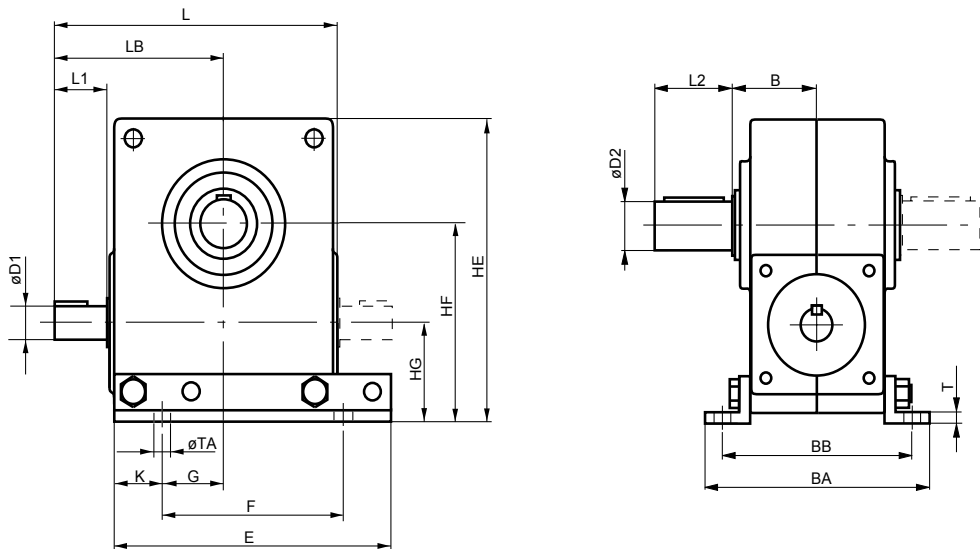
Standard execution BS40-71



Mounting position O, hollow shaft

| BS | A | BC | D1 | D2 | DA | HA | HB | HC | HD | L | L1 | LA | LB | LC | LD | LE | LX | ME | MF | øR | SE | Kgs |
|----|----|-------|----|----|----|----|----|-----|-----|-------|----|-----|-------|------|----|-----|-----|------|------|------|-------|-----|
| 40 | 40 | 73 | 14 | 20 | 58 | 10 | 36 | 140 | 130 | 146 | 25 | 100 | 86 | 40 | 10 | 92 | 8.5 | 46 | 46 | 8.1 | M8x12 | 3.0 |
| 50 | 50 | 78 | 19 | 25 | 68 | 10 | 38 | 155 | 145 | 179 | 35 | 124 | 108 | 52 | 10 | 98 | 8 | 56.6 | 56.6 | 8.3 | M8x12 | 4.8 |
| 63 | 63 | 82 | 19 | 30 | 80 | 10 | 43 | 183 | 173 | 200.5 | 35 | 146 | 118.5 | 63 | 10 | 101 | 7 | 56.6 | 56.6 | 10.3 | M8x12 | 6.5 |
| 71 | 71 | 101.4 | 24 | 35 | 92 | 14 | 49 | 209 | 195 | 214 | 40 | 165 | 128 | 68.5 | 14 | 122 | 7.3 | 76.4 | 76.4 | 12.5 | M8x14 | 9.6 |

Underdriven worm gear with feet and output shaft



Mounting position UV, UH, UD

Mounting position UV

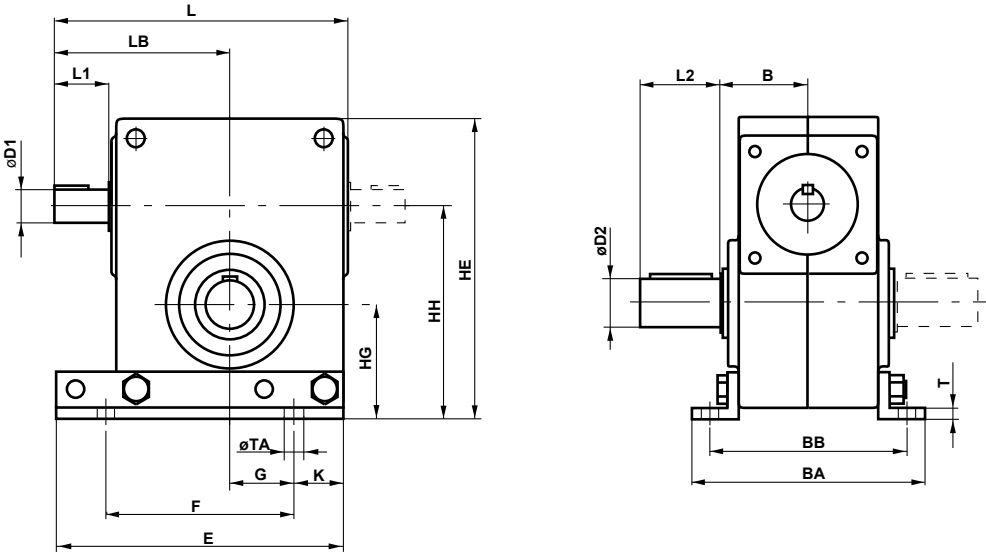
| BS | B | BA | BB | D1 | D2 | E | F | G | HE | HF | HG | K | L | L1 | L2 | LB | T | TA | Kgs |
|----|------|-------|-------|----|----|-----|-----|------|-------|-------|------|------|-------|----|----|-------|---|------|-----|
| 40 | 47 | 133 | 108 | 14 | 20 | 140 | 80 | 20 | 152 | 98 | 58 | 30 | 146 | 25 | 36 | 86 | 5 | 8.5 | 3.0 |
| 50 | 50 | 138 | 113 | 19 | 25 | 155 | 104 | 36.5 | 167 | 110 | 60 | 25.5 | 179 | 35 | 42 | 108 | 5 | 8.5 | 4.8 |
| 63 | 52 | 146 | 121 | 19 | 30 | 183 | 126 | 44.5 | 195 | 128 | 65 | 28.5 | 200.5 | 35 | 58 | 118.5 | 7 | 10.5 | 6.5 |
| 71 | 62.5 | 169.4 | 143.4 | 24 | 35 | 209 | 137 | 46.5 | 216.5 | 141.5 | 70.5 | 36 | 214 | 40 | 58 | 128 | 8 | 12.5 | 9.6 |

Shaft tolerance, see page 57

SERIES BS

DIMENSIONS

Overdriven worm gear with feet and output shaft

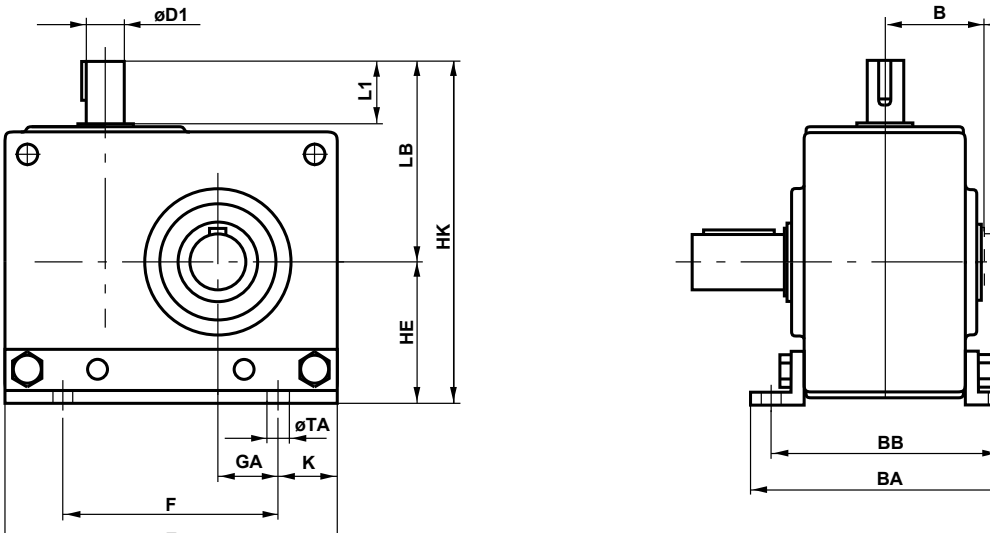


Mounting position OV, OH, OD

Mounting position OV

| BS | B | BA | BB | D1 | D2 | E | F | G | HE | HH | HG | K | L | L1 | L2 | LB | T | TA | Kgs |
|----|------|-------|-------|----|----|-----|-----|------|-------|-------|------|------|-------|----|----|-------|---|------|-----|
| 40 | 47 | 133 | 108 | 14 | 20 | 140 | 80 | 20 | 152 | 106 | 66 | 30 | 146 | 25 | 36 | 86 | 5 | 8.5 | 3.0 |
| 50 | 50 | 138 | 113 | 19 | 25 | 155 | 104 | 36.5 | 167 | 119 | 69 | 25.5 | 179 | 35 | 42 | 108 | 5 | 8.5 | 4.8 |
| 63 | 52 | 146 | 121 | 19 | 30 | 183 | 126 | 44.5 | 195 | 142 | 79 | 28.5 | 200.5 | 35 | 58 | 118.5 | 7 | 10.5 | 6.5 |
| 71 | 62.5 | 169.4 | 143.4 | 24 | 35 | 209 | 137 | 46.5 | 216.5 | 153.5 | 82.5 | 36 | 214 | 40 | 58 | 128 | 8 | 12.5 | 9.6 |

Worm gear with vertical worm screw, feet and output shaft



Mounting position VV, VH, VD

Mounting position VV

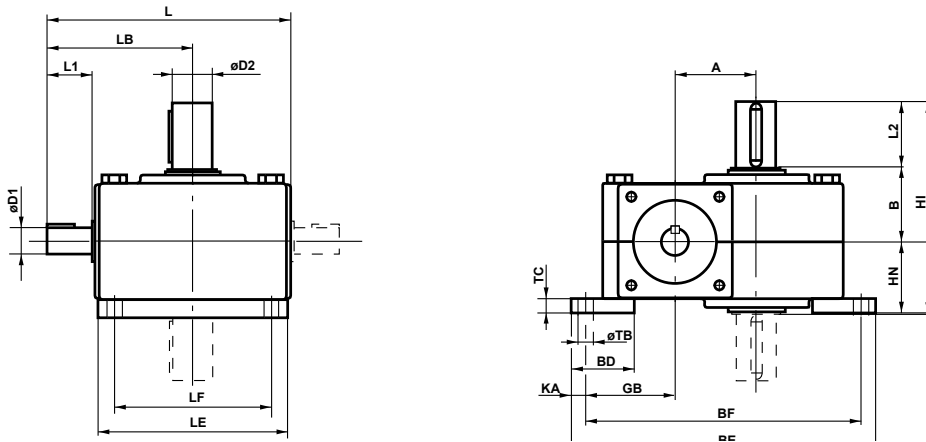
| BS | B | BA | BB | D1 | D2 | E | F | GA | HE | HK | K | L1 | L2 | LB | T | TA | Kgs |
|----|------|-------|-------|----|----|-----|-----|------|----|-------|------|----|----|-------|---|------|------|
| 40 | 47 | 133 | 108 | 14 | 20 | 140 | 80 | 24 | 62 | 148 | 30 | 25 | 36 | 86 | 5 | 8.5 | 3.9 |
| 50 | 50 | 138 | 113 | 19 | 25 | 155 | 104 | 31.5 | 74 | 182 | 25.5 | 35 | 42 | 108 | 5 | 8.5 | 6.1 |
| 63 | 52 | 146 | 121 | 19 | 30 | 183 | 126 | 38.5 | 85 | 203.5 | 28.5 | 35 | 58 | 118.5 | 7 | 10.5 | 8.3 |
| 71 | 62.5 | 169.4 | 143.4 | 24 | 35 | 209 | 137 | 39 | 90 | 218 | 36 | 40 | 58 | 128 | 8 | 12.5 | 12.0 |

Shaft tolerance, see page 57

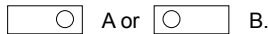
SERIES BS

DIMENSIONS

Worm gear with horizontal input shaft and feet



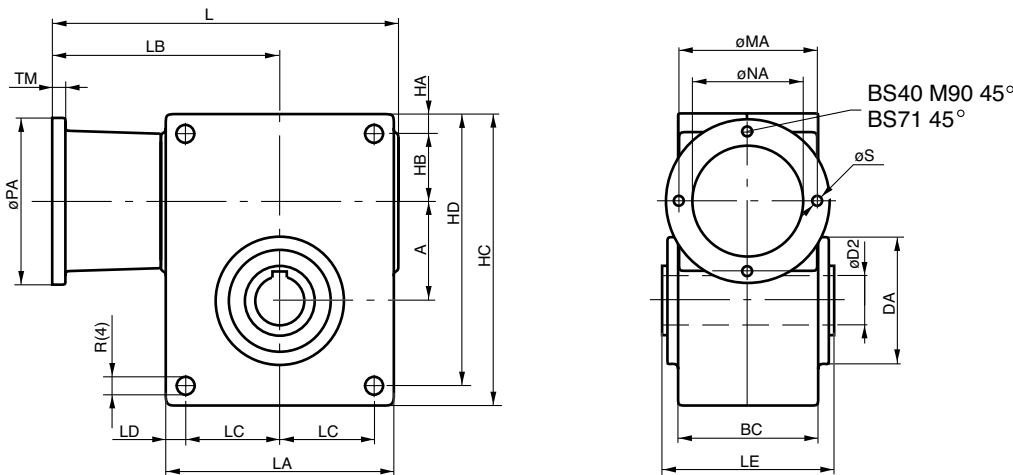
Mounting position HU, HN, HD. Also state position of input shaft



Mounting position HU-B

| BS | A | B | BD | BE | BF | D1 | D2 | GB | HI | HN | KA | L | L1 | L2 | LB | LE | LF | TB | TC | X | Kgs |
|----|----|------|----|-----|-----|----|----|----|-------|------|------|-------|----|----|-------|-----|-----|------|----|------|------|
| 40 | 40 | 47 | 40 | 181 | 162 | 14 | 20 | 57 | 131.5 | 48.5 | 9.5 | 146 | 25 | 36 | 86 | 100 | 80 | 9 | 12 | 49 | 4.1 |
| 50 | 50 | 50 | 40 | 196 | 177 | 19 | 25 | 59 | 143 | 51 | 9.5 | 179 | 35 | 42 | 108 | 124 | 104 | 9 | 12 | 52 | 6.4 |
| 63 | 63 | 52 | 45 | 233 | 213 | 19 | 30 | 68 | 163 | 53 | 10 | 200.5 | 35 | 58 | 118.5 | 146 | 126 | 11 | 12 | 54 | 8.7 |
| 71 | 71 | 62.5 | 55 | 266 | 241 | 24 | 35 | 79 | 186.5 | 66 | 12.5 | 214 | 40 | 58 | 128 | 165 | 137 | 12.5 | 15 | 64.5 | 12.7 |

Standard execution with motorflange



Mounting position O- or U-hollow shaft

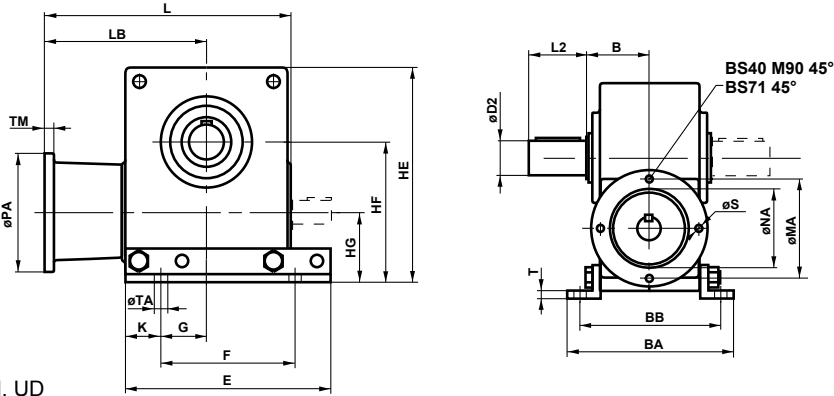
| Size Motor- Flange | size | type | A | BC | D2 | DA | HA | HB | HC | HD | L | LA | LB | LC | LD | LE | MA | NA | PA | øR | S | TM | Kgs |
|--------------------|---------|------|----|-------|----|----|----|----|-----|-----|-------|-----|-------|------|----|-----|-----|-----|-----|------|----|------|------|
| 40 | 63 | B14 | | | | | | | | 172 | | 112 | | | | 75 | 60 | 92 | | 6 | 8 | 3.6 | |
| | 71 | B14 | 40 | 73 | 20 | 58 | 10 | 36 | 140 | 130 | 178 | 100 | 118 | 40 | 10 | 92 | 85 | 70 | 102 | 8.3 | 7 | 9 | 3.6 |
| | 80 | B14 | | | | | | | | | 188 | | 128 | | | 100 | 80 | 118 | | 7 | 10 | 3.6 | |
| 50 | 90 | B14 | | | | | | | | | 198 | | 138 | | | 115 | 95 | 140 | | 9 | 12 | 3.6 | |
| | 71 | B14 | | | | | | | | | 211 | | 140 | | | 85 | 70 | 108 | | 7 | 10 | 5.5 | |
| | 80 | B14 | 50 | 78 | 25 | 68 | 10 | 38 | 155 | 145 | 221 | 124 | 150 | 52 | 10 | 98 | 100 | 80 | 118 | 8.3 | 7 | 10 | 5.7 |
| 63 | 90 | B14 | | | | | | | | | 231 | | 160 | | | 115 | 95 | 140 | | 9 | 12 | 5.9 | |
| | 71 | B14 | | | | | | | | | 233 | | 151 | | | 85 | 70 | 108 | | 7 | 10 | 7.2 | |
| | 80 | B14 | 63 | 82 | 30 | 80 | 10 | 43 | 183 | 173 | 243 | 146 | 161 | 63 | 10 | 101 | 100 | 80 | 118 | 10.3 | 7 | 10 | 7.4 |
| 71 | 90 | B14 | | | | | | | | | 253 | | 171 | | | 115 | 95 | 140 | | 9 | 12 | 7.6 | |
| | 100 | B14 | | | | | | | | | 263.5 | | 181.5 | | | 130 | 110 | 160 | | 9 | 12 | 7.8 | |
| | 80 | B14 | | | | | | | | | 263 | | 177 | | | 100 | 80 | 118 | | 7 | 10 | 10.6 | |
| 100/112 | 90 | B14 | 71 | 104.5 | 35 | 92 | 14 | 49 | 209 | 195 | 273 | 165 | 187 | 68.5 | 14 | 122 | 115 | 95 | 140 | 12.3 | 9 | 12 | 10.8 |
| | 100/112 | B14 | | | | | | | | | 283.5 | | 197.5 | | | 130 | 110 | 160 | | 9 | 12 | 11.0 | |

Shaft tolerance, see page 57

SERIES BS

DIMENSIONS

Underdriven worm gear with feet, output shaft and motorflange

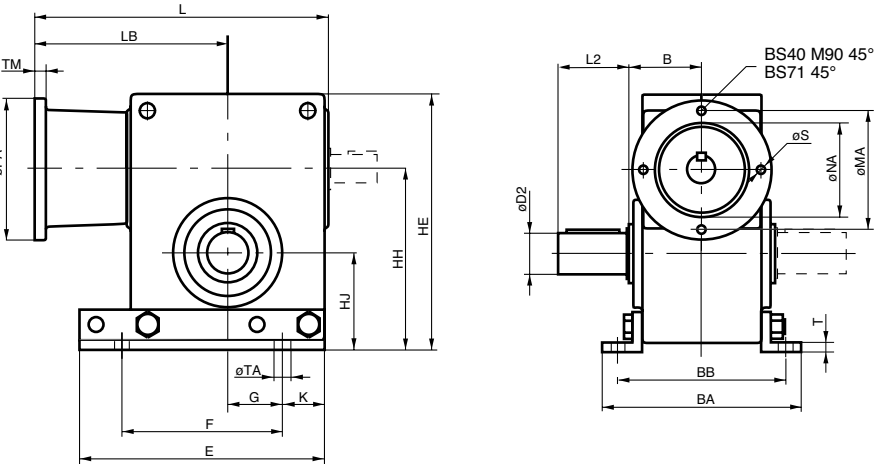


Mounting position UV, UH, UD

Mounting position UV

| Size | Motor- size | Flange type | B | BA | BB | D2 | E | F | G | HE | HF | HG | K | L | L2 | LB | MA | NA | PA | TA | TM | S | T |
|------|-------------|-------------|------|-------|-------|-----|-----|------|------|-----|-----|------|------|-------|-------|-----|-----|-----|-----|------|----|---|---|
| | 63 | B14 | | | | | | | | | | | | 172 | 112 | 75 | 60 | 92 | | 8 | | 6 | |
| 40 | B14 | 47 | 133 | 108 | 20 | 140 | 80 | 20 | 152 | 98 | 58 | 30 | 178 | 36 | 118 | 85 | 70 | 102 | 8.5 | 9 | 7 | 5 | |
| | B14 | 80 | | | | | | | | | | | | 188 | 128 | 100 | 80 | 118 | | 10 | 7 | | |
| | B14 | 90 | | | | | | | | | | | | 198 | 138 | 115 | 95 | 140 | | 10 | 9 | | |
| | B14 | 71 | | | | | | | | | | | | 211 | 140 | 85 | 70 | 108 | | 10 | 7 | | |
| 50 | B14 | 50 | 138 | 113 | 25 | 155 | 104 | 36.5 | 167 | 110 | 60 | 25.5 | 221 | 42 | 150 | 100 | 80 | 118 | 8.5 | 10 | 7 | 5 | |
| | B14 | 90 | | | | | | | | | | | | 231 | 160 | 115 | 95 | 140 | | 12 | 9 | | |
| | B14 | 71 | | | | | | | | | | | | 233 | 151 | 85 | 70 | 108 | | 10 | 7 | | |
| 63 | 80 | B14 | 52 | 146 | 121 | 30 | 183 | 126 | 44.5 | 195 | 128 | 65 | 28.5 | 243 | 58 | 161 | 100 | 80 | 118 | 10.5 | 10 | 7 | 7 |
| | 90 | B14 | | | | | | | | | | | | 253 | 171 | 115 | 95 | 140 | | 12 | 9 | | |
| | 100 | B14 | | | | | | | | | | | | 263.5 | 181.5 | 130 | 110 | 160 | | 12 | 9 | | |
| | 80 | B14 | | | | | | | | | | | | 263 | 177 | 100 | 80 | 118 | | 10 | 7 | | |
| 71 | 90 | B14 | 62.5 | 169.4 | 143.4 | 35 | 209 | 137 | 46.5 | 217 | 142 | 71 | 36 | 273 | 58 | 187 | 115 | 95 | 140 | 12.5 | 12 | 9 | 8 |
| | 100/112 | B14 | | | | | | | | | | | | 283.5 | 197.5 | 130 | 110 | 160 | | 12 | 9 | | |

Overdriven worm gear with feet, output shaft and motorflange



Mounting position OV

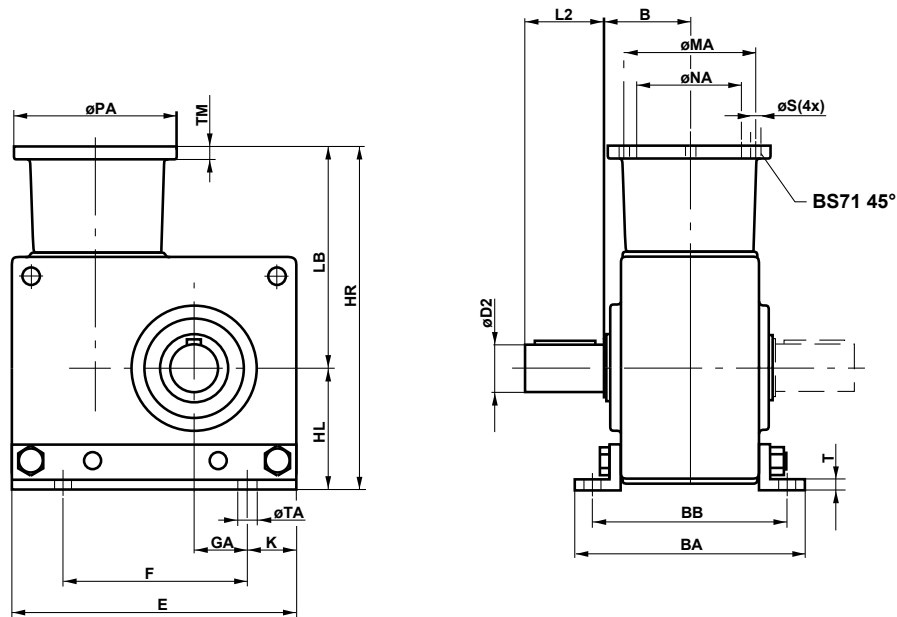
| Size | Motor- size | Flange type | B | BA | BB | D2 | E | F | G | HE | HH | HJ | K | L | L2 | LB | MA | NA | PA | S | T | TA | TM | |
|------|-------------|-------------|-----|------|-------|-------|-----|------|------|------|-------|-------|------|-------|-------|-----|-----|-----|-----|-----|-----|------|-------|---|
| | 63 | B14 | | | | | | | | | | | | 172 | 112 | 75 | 60 | 92 | 6 | | | | 8 | |
| 40 | 71 | B14 | 47 | 133 | 108 | 20 | 140 | 80 | 20 | 152 | 106 | 66 | 30 | 178 | 36 | 118 | 85 | 70 | 102 | 7 | 5 | 8.5 | 9 | |
| | 80 | B14 | | | | | | | | | | | | 188 | 128 | 100 | 80 | 118 | 7 | | | 10 | | |
| | 90 | B14 | | | | | | | | | | | | 198 | 138 | 115 | 95 | 140 | 9 | | | 10 | | |
| | 71 | B14 | | | | | | | | | | | | 211 | 140 | 85 | 70 | 108 | 7 | | | 10 | | |
| 50 | B14 | 50 | 138 | 113 | 25 | 155 | 104 | 36.5 | 167 | 110 | 60 | 25.5 | 221 | 42 | 150 | 100 | 80 | 118 | 7 | 5 | 8.5 | 10 | | |
| | B14 | 90 | | | | | | | | | | | | 231 | 160 | 115 | 95 | 140 | 9 | | | 12 | | |
| | B14 | 71 | | | | | | | | | | | | 233 | 151 | 85 | 70 | 108 | 7 | | | 10 | | |
| 63 | 80 | B14 | 52 | 146 | 121 | 30 | 183 | 126 | 44.5 | 195 | 142 | 79 | 28.5 | 243 | 58 | 161 | 100 | 80 | 118 | 7 | 5 | 10.5 | 12 | |
| | 90 | B14 | | | | | | | | | | | | 253 | 171 | 115 | 95 | 140 | 9 | | | 12 | | |
| | 100 | B14 | | | | | | | | | | | | 263.5 | 181.5 | 130 | 110 | 160 | 9 | | | 12 | | |
| | 80 | B14 | | | | | | | | | | | | 263 | 177 | 100 | 80 | 118 | 7 | | | 12 | | |
| 10 | 71 | 90 | B14 | 62.5 | 169.4 | 143.4 | 35 | 209 | 137 | 46.5 | 216.5 | 153.5 | 82.5 | 36 | 273 | 58 | 187 | 115 | 95 | 140 | 9 | 8 | 12.52 | 1 |

Shaft tolerance, see page 57

SERIES BS

DIMENSIONS

Worm gear with vertical worm screw, feet, output shaft and motorflange



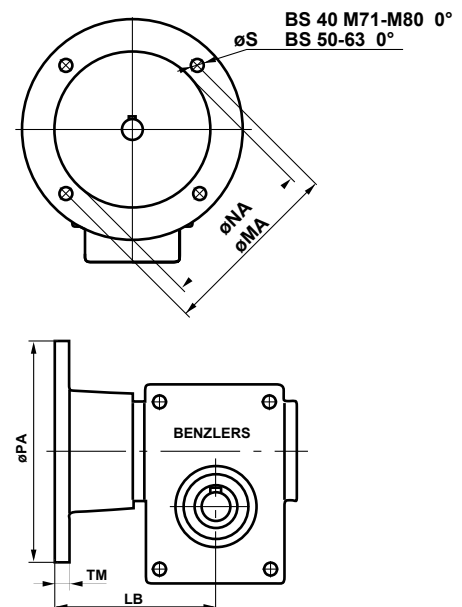
Mounting position VV, VH, VD

Mounting position VV

| Size | Motor-size | Flange type | B | BA | BB | D2 | E | F | GA | HR | HL | K | L2 | LB | MA | NA | PA | S | T | TA | TM | Vikt |
|---------|------------|-------------|------|-------|-------|----|-----|-----|------|-------|----|------|-----|-------|-----|-----|-----|---|------|------|-----|------|
| 40 | 63 | B14 | | | | | | | | 174 | | | | 112 | 75 | 60 | 92 | 6 | | 8 | 4.5 | |
| | 71 | B14 | 47 | 133 | 108 | 20 | 140 | 80 | 24 | 180 | 62 | 30 | 36 | 118 | 85 | 70 | 102 | 7 | 5 | 8.5 | 9 | 4.5 |
| | 80 | B14 | | | | | | | | 190 | | | | 128 | 100 | 80 | 118 | 7 | | | 10 | 4.5 |
| | 90 | B14 | | | | | | | | 200 | | | | 138 | 115 | 95 | 140 | 9 | | | 10 | 4.5 |
| | 71 | B14 | | | | | | | | 214 | | | | 140 | 85 | 70 | 108 | 7 | | | 10 | 6.8 |
| 50 | 80 | B14 | 50 | 138 | 113 | 25 | 155 | 104 | 31.5 | 224 | 74 | 25.5 | 42 | 150 | 100 | 80 | 118 | 7 | 5 | 8.5 | 10 | |
| | 90 | B14 | | | | | | | 234 | | | | 160 | 115 | 95 | 140 | 9 | | | 12 | 7.2 | |
| 7.0 | 71 | B14 | | | | | | | 236 | | | | 151 | 85 | 70 | 108 | | | | | 10 | 9.0 |
| | 80 | B14 | 52 | 146 | 121 | 30 | 183 | 126 | 38.5 | 246 | 85 | 28.5 | 58 | 161 | 100 | 80 | 118 | 7 | 10.5 | 10 | 9.2 | |
| 63 | 90 | B14 | | | | | | | | 256 | | | | 171 | 115 | 95 | 140 | 9 | 7 | | 12 | 9.4 |
| | 100 | B14 | | | | | | | | 266.5 | | | | 181.5 | 130 | 110 | 160 | 9 | | | 12 | 9.6 |
| 71 | 80 | B14 | | | | | | | | 267 | | | | 177 | 100 | 80 | 118 | 7 | | | 10 | 13.0 |
| | 90 | B14 | 62.5 | 169.4 | 143.4 | 35 | 209 | 137 | 39 | 277 | 90 | 36 | 58 | 187 | 115 | 95 | 140 | 9 | 8 | 12.5 | 12 | 8 |
| 100/112 | B14 | | | | | | | | | 287.5 | | | | 197.5 | 130 | 110 | 160 | 9 | | | 12 | 13.4 |

Motorflange type B5

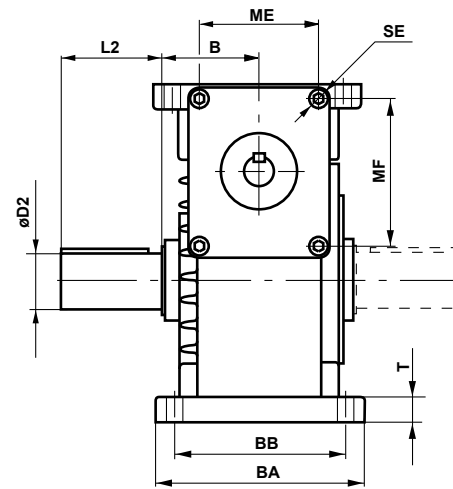
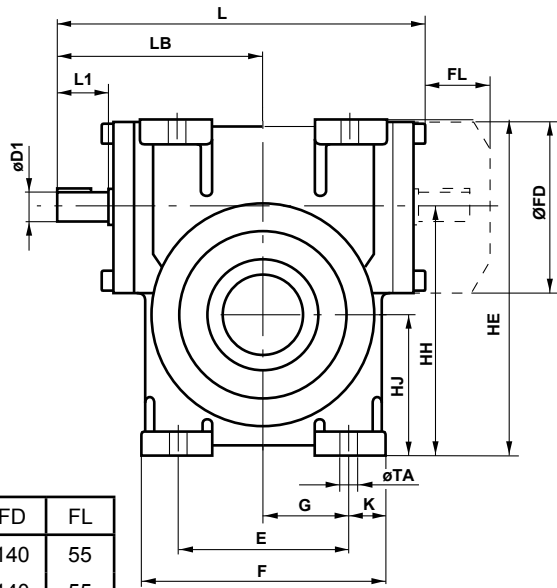
| Size | Motor size | LB | MA | NA | PA | S | TM |
|-------|------------|-------|-----|-----|-----|------|----|
| BS 40 | 63 | 112 | 115 | 95 | 140 | 9 | 9 |
| | 71 | 118 | 130 | 110 | 160 | 9 | 9 |
| | 80 | 128 | 165 | 130 | 200 | 11.5 | 10 |
| | 90 | 138 | 165 | 130 | 200 | 11.5 | 10 |
| BS 50 | 71 | 140 | 130 | 110 | 160 | 9 | 10 |
| | 80 | 160 | 165 | 130 | 200 | 11.5 | 12 |
| | 90 | 160 | 165 | 130 | 200 | 11.5 | 12 |
| BS 63 | 71 | 151 | 130 | 110 | 160 | 9 | 10 |
| | 80 | 171 | 165 | 130 | 200 | 11.5 | 12 |
| | 90 | 171 | 165 | 130 | 200 | 11.5 | 12 |
| | 100 | 181.5 | 215 | 180 | 250 | 14 | 12 |
| BS 71 | 80 | 187 | 165 | 130 | 200 | 11.5 | 12 |
| | 90 | 187 | 165 | 130 | 200 | 11.5 | 12 |
| | 100/112 | 197.5 | 215 | 180 | 250 | 14 | 12 |



SERIES BS

DIMENSIONS

BS 88-112 Worm gear with feet and output shaft



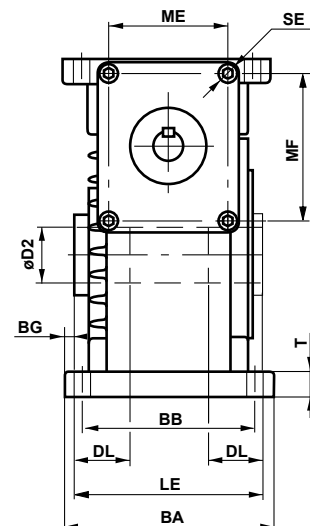
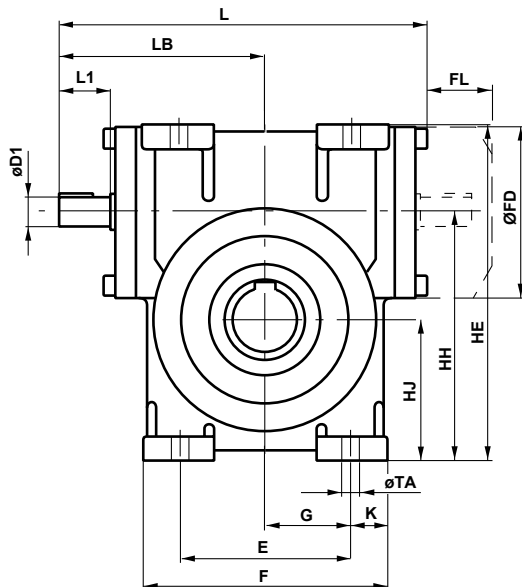
| Size | FD | FL |
|--------|-----|----|
| BS 88 | 140 | 55 |
| BS 112 | 140 | 55 |

Mounting position OV, OH, OD

Mounting position OV

| Size | Ratio | BB | BA | B | E | K | F | G | D2 | D1 | L2 | L1 | HH | T | HJ | HE | L | LB | TA | SE | ME | MF | Kgs |
|--------|-------|-----|-----|----|-----|------|-----|------|----|----|----|----|-----|----|-----|-----|-----|-----|----|--------|----|-----|-----|
| BS 88 | <55 | 140 | 170 | 70 | 140 | 30 | 200 | 70 | 45 | 28 | 82 | 42 | 203 | 20 | 115 | 275 | 300 | 168 | 14 | M10x18 | 95 | 120 | 40 |
| BS 88 | >55 | 140 | 170 | 70 | 140 | 30 | 200 | 70 | 45 | 24 | 82 | 42 | 203 | 20 | 115 | 275 | 300 | 168 | 14 | M10x18 | 95 | 120 | 40 |
| BS 112 | <60 | 175 | 210 | 82 | 175 | 37.5 | 250 | 87.5 | 55 | 35 | 82 | 58 | 252 | 23 | 140 | 340 | 355 | 202 | 18 | M10x20 | 95 | 120 | 57 |
| BS 112 | >60 | 175 | 210 | 82 | 175 | 37.5 | 250 | 87.5 | 55 | 28 | 82 | 42 | 252 | 23 | 140 | 340 | 339 | 186 | 18 | M10x20 | 95 | 120 | 57 |

BS 88-112 Worm gear with hollow shaft



Mounting position O-hollow shaft

Mounting position O-hollow shaft

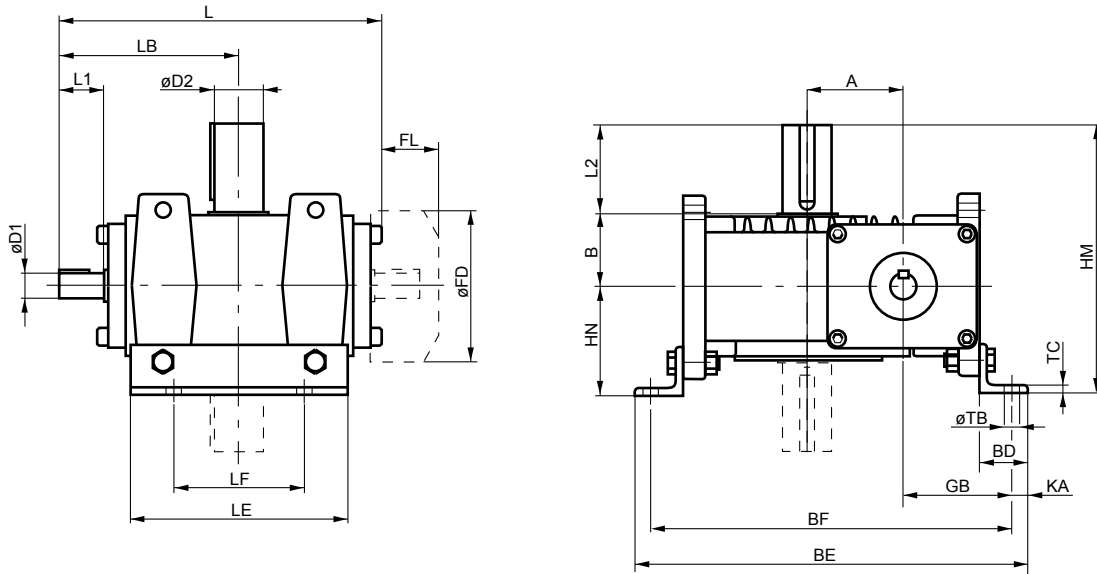
| Size | Ratio | BB | BA | BG | D2 | D1 | DL | E | F | G | HH | HJ | HE | K | L | L1 | LB | LE | T | TA | SE | ME | MF | Kgs |
|--------|-------|-----|-----|----|----|----|----|-----|-----|------|-----|-----|-----|------|-----|----|-----|-----|----|----|--------|----|-----|-----|
| BS 88 | <55 | 140 | 170 | 8 | 45 | 28 | 45 | 140 | 200 | 70 | 203 | 115 | 275 | 30 | 300 | 42 | 168 | 154 | 20 | 14 | M10x18 | 95 | 120 | 39 |
| BS 88 | >55 | 140 | 170 | 8 | 45 | 24 | 45 | 140 | 200 | 70 | 203 | 115 | 275 | 30 | 300 | 42 | 168 | 154 | 20 | 14 | M10x18 | 95 | 120 | 39 |
| BS 112 | <60 | 175 | 210 | 18 | 55 | 35 | 50 | 175 | 250 | 87.5 | 252 | 140 | 340 | 37.5 | 355 | 58 | 202 | 174 | 23 | 18 | M10x20 | 95 | 120 | 56 |
| BS 112 | >60 | 175 | 210 | 18 | 55 | 28 | 50 | 175 | 250 | 87.5 | 252 | 140 | 340 | 37.5 | 339 | 42 | 186 | 174 | 23 | 18 | M10x20 | 95 | 120 | 56 |

Shaft tolerance, see page 57

SERIES BS

DIMENSIONS

Worm gear BS88-112 with horizontal input shaft and feet



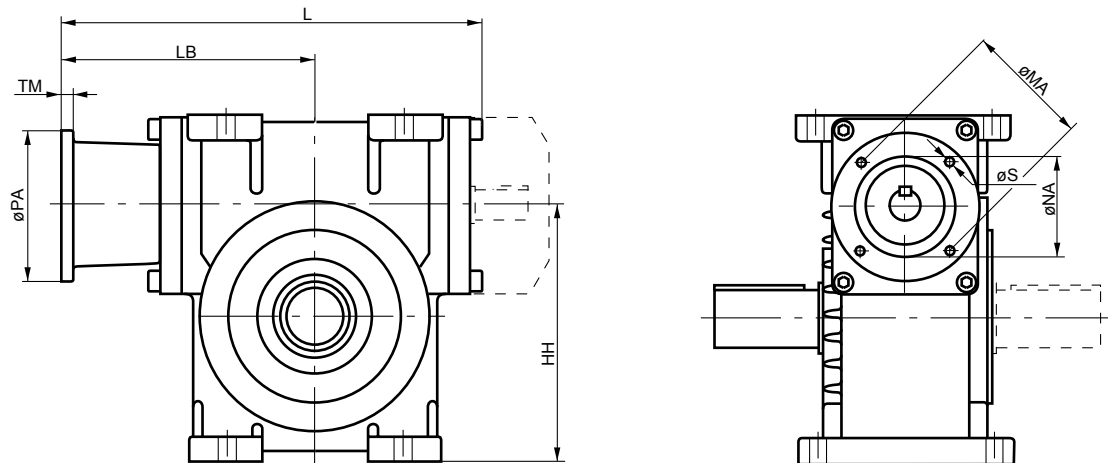
Mounting position HU, HN, HD. Also state position of input shaft

A or B.

Mounting position HU-A

| Size | Ratio | A | B | BD | BF | BE | D1 | D2 | L2 | L1 | FD | FL | GB | HM | HN | L | LB | LF | LE | KA | TB | TC | Kgs | Oil (lit) |
|------|-------|-----|----|----|-----|-----|----|----|----|----|-----|----|-----|-----|-----|-----|-----|-----|-----|----|----|----|-----|-----------|
| BS | <55 | 88 | 70 | 45 | 335 | 365 | 28 | 45 | 82 | 42 | 140 | 55 | 102 | 252 | 100 | 300 | 168 | 120 | 200 | 15 | 14 | 7 | 40 | 1.5 |
| 88 | >55 | 88 | 70 | 45 | 335 | 365 | 24 | 45 | 82 | 42 | 140 | 55 | 102 | 252 | 100 | 300 | 168 | 120 | 200 | 15 | 14 | 7 | 40 | 1.5 |
| BS | <60 | 112 | 82 | 60 | 420 | 460 | 35 | 55 | 82 | 58 | 140 | 55 | 128 | 289 | 125 | 355 | 202 | 135 | 250 | 20 | 18 | 10 | 57 | 1.6 |
| 112 | >60 | 112 | 82 | 60 | 420 | 460 | 28 | 55 | 82 | 42 | 140 | 55 | 128 | 289 | 125 | 339 | 186 | 135 | 250 | 20 | 18 | 10 | 57 | 1.6 |

BS 88-112 Motorflange



Mounting position OH, OV, OD

Mounting position OV

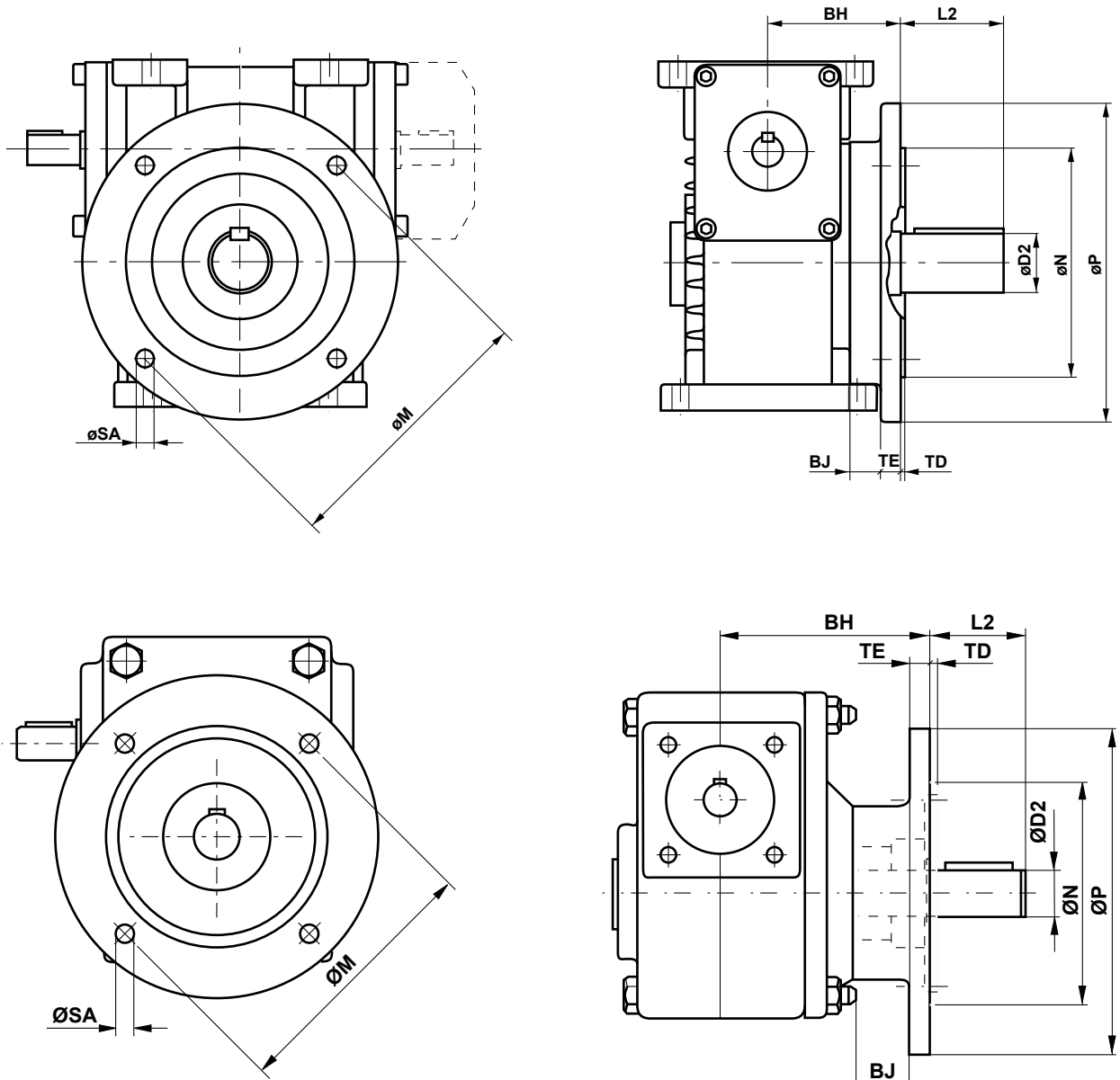
| Size | Motor size | B14 Flange | | | | | | | | B5 Flange | | | | | | | Vikt | |
|------|------------|------------|-----|-----|-------|-----|-------|-----|----|-----------|-----|-------|-----|-------|-----|------|------|----|
| | | HH | L | LB | MA | NA | PA | S | TM | L | LB | MA | NA | PA | S | TM | | |
| BS | i>55 | 80 | 203 | 345 | 213 | 100 | 80H7 | 118 | 7 | 10 | 355 | 223 | 165 | 130H7 | 200 | 11.5 | 12 | 41 |
| | | 90 | 203 | 355 | 233 | 115 | 95H7 | 140 | 9 | 12 | 355 | 223 | 165 | 130H7 | 200 | 11.5 | 12 | 41 |
| | 88 | 100/112 | 203 | 365 | 233.5 | 130 | 110H7 | 160 | 9 | 12 | 365 | 233.5 | 215 | 180H7 | 250 | 14 | 12 | 42 |
| | i<55 | 132 | 203 | | | | | | | | 398 | 266 | 265 | 230H7 | 300 | 14 | 13 | 50 |
| BS | i>60 | 90 | 252 | 397 | 244 | 115 | 95H7 | 140 | 9 | 12 | 397 | 244 | 165 | 130H7 | 200 | 11.5 | 12 | 58 |
| | i>60 | | 252 | 408 | 254.5 | 130 | 110H7 | 160 | 9 | 12 | 408 | 254.5 | 215 | 180H7 | 250 | 14 | 12 | 59 |
| | 112 | 100/112 | 252 | 420 | 267 | 130 | 110H7 | 160 | 9 | 12 | 420 | 267 | 215 | 180H7 | 250 | 14 | 12 | 61 |
| | | 132 | 252 | | | | | | | | 440 | 287 | 265 | 230H7 | 300 | 14 | 13 | 67 |

Shaft tolerance, see page 57

SERIES BS

DIMENSIONS

Execution with output flange and shaft BS40-112



1) Standard execution,
others on request

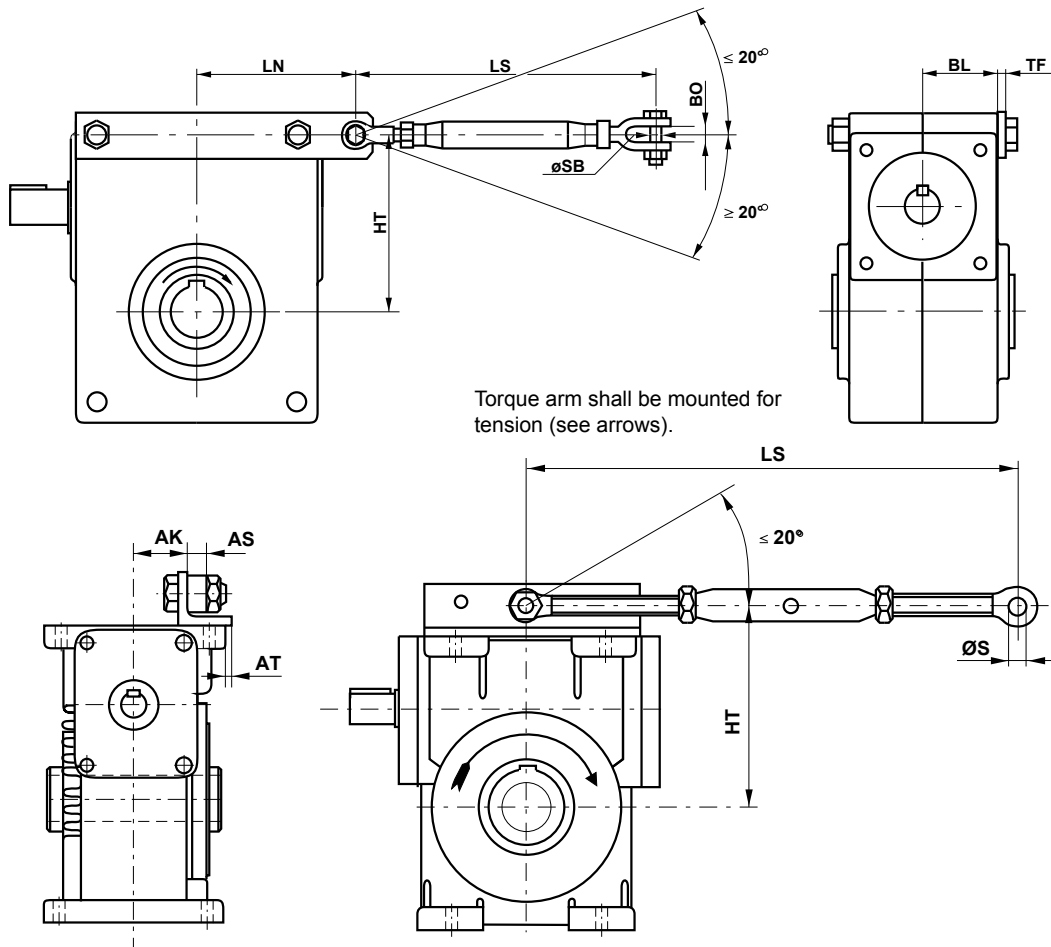
| Size | BH | D2 | L2 | BJ | M | N | P | SA | TE | TD | Vikt |
|--------|-------|----|----|----|------|--------|------|----|----|-----|------|
| BS 40 | 91.5 | 20 | 36 | 28 | 100 | 80h7 | 118 | 7 | 10 | 3 | 4.1 |
| | | | | | 1151 | 95h71 | 1401 | 9 | | | |
| | | | | | 130 | 110h7 | 160 | 9 | | | |
| | | | | | 165 | 130h7 | 200 | 11 | | | |
| BS 50 | 99 | 25 | 42 | 28 | 100 | 80h7 | 118 | 7 | 10 | 3.5 | 6.6 |
| | | | | | 115 | 95h7 | 140 | 9 | | | |
| | | | | | 1301 | 110h71 | 1601 | 9 | | | |
| | | | | | 165 | 130h7 | 200 | 11 | | | |
| BS 63 | 106 | 30 | 58 | 35 | 130 | 110h7 | 160 | 9 | 12 | 3.5 | 9.3 |
| | | | | | 1651 | 130h71 | 2001 | 11 | | | |
| | | | | | 165 | 130h7 | 200 | 11 | | | |
| BS 71 | 122.4 | 35 | 58 | 32 | 165 | 130h7 | 200 | 11 | 12 | 3.5 | 13.9 |
| BS 88 | 105 | 45 | 82 | 24 | 215 | 180j6 | 250 | 14 | 15 | 4 | 47 |
| BS 112 | 125 | 55 | 82 | 32 | 265 | 230j6 | 300 | 14 | 15 | 4 | 69 |

Shaft tolerance, see page 57

SERIES BS

DIMENSIONS

Execution with torque arm

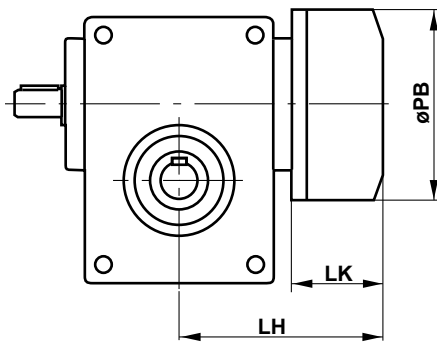


| Size | AK | AS | AT | BO | HT | BL | LN | LS min/max | S | SB | TF | Kgs |
|--------|----|----|----|----|-----|------|-------|---------------|----|------|----|------|
| BS 40 | - | - | - | 9 | 76 | 36.5 | 70 | 165/245 | - | 8 | 4 | 4.0 |
| BS 50 | - | - | - | 9 | 88 | 39 | 85 | 165/245 | . | 8 | 5 | 5.8 |
| BS 63 | - | - | - | 11 | 106 | 41 | 103 | 190/290 | - | 3/8" | 5 | 7.5 |
| BS 71 | - | - | - | 11 | 120 | 50.7 | 107.5 | 190/290 | - | 3/8" | 5 | 10.7 |
| BS 88 | 47 | 18 | - | - | 190 | - | - | 460/600 | 16 | - | - | 40.0 |
| BS 112 | 60 | 18 | 5 | - | 240 | - | - | 480/600 | 16 | - | - | 57 |

SERIES BS

DIMENSIONS

Execution with electromagnetic brake



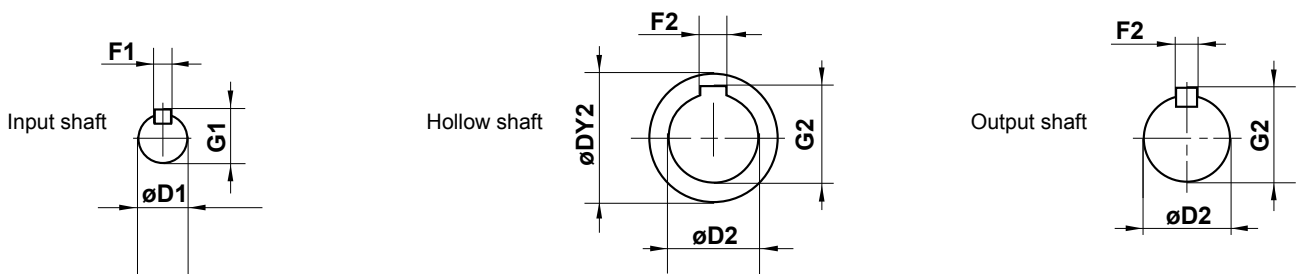
| Size | Brake size | Brake torque Nm | øPB | LH | LK | Vikt |
|-------|------------|-----------------|-----|-----|----|------|
| BS 40 | 02 | 3 | 85 | 115 | 55 | 4.6 |
| | 03 | 5.7 | 100 | 120 | 60 | 5.2 |
| | 04 | 12.6 | 116 | 126 | 66 | 6.3 |
| BS 50 | 03 | 6.4 | 100 | 131 | 60 | 7 |
| | 04 | 14.4 | 116 | 137 | 66 | 8.1 |
| | 05 | 24 | 137 | 146 | 75 | 10.4 |
| BS 63 | 03 | 6.4 | 100 | 142 | 60 | 8.7 |
| | 04 | 14.4 | 116 | 148 | 66 | 9.8 |
| | 05 | 24 | 137 | 157 | 75 | 12.1 |
| BS 71 | 04 | 16 | 116 | 160 | 74 | 12.3 |
| | 05 | 26 | 137 | 161 | 75 | 14.3 |

Shaft bushings

| Size | Hollow shaft mm | | | |
|--------|-----------------|---------|----|----|
| | Standard | Bushing | | |
| BS 88 | 45 | 40 | 35 | - |
| BS 112 | 55 | 50 | 45 | 40 |

Key and locking screws are supplied with each set of bushes.

Shaft dimensions and tolerances



| Size | Input shaft | | | Hollow shaft | | | Output shaft | | | | |
|--------|-------------|------|------|--------------|------|-------|--------------|------|------|------|------|
| | D1 | F1 | G1 | DY2 | D2 | F2 | G2 | D2 | F2 | G2 | |
| BS 40 | 14j6 | 5h9 | 16 | 37d9 | 20H7 | 6JS9 | 22.8 | 20j6 | 6h9 | 22.5 | |
| BS 50 | 19j6 | 6h9 | 21.5 | 40d9 | 25H7 | 8JS9 | 28.3 | 25j6 | 8h9 | 28.0 | |
| BS 63 | 19j6 | 6h9 | 21.5 | 45d9 | 30H7 | 8JS9 | 33.3 | 30j6 | 8h9 | 33.0 | |
| BS 71 | 24j6 | 8h9 | 27 | 50d9 | 35H7 | 10JS9 | 38.3 | 35j6 | 10h9 | 38.0 | |
| BS 88 | i<60 | 28j6 | Sh9 | 31 | 65d9 | 45H7 | 14D10 | 48.8 | 45k6 | 14h9 | 48.5 |
| BS 88 | i>60 | 24j6 | 8h9 | 27 | | | | | | | |
| BS 112 | i<60 | 35j6 | 10h9 | 38 | 80d9 | 55H7 | 16D10 | 59.3 | 55k6 | 16h9 | 59.0 |
| BS 112 | i>60 | 28j6 | 8h9 | 31 | | | | | | | |

Keyway acc. to SMS 2305

Maximum input speed n1

| | Size | | | | | | |
|-------------|------|------|------|------|------|-----------|-----------|
| | 40 | 50 | 63 | 71 | 88 | 112i<60:1 | 112i>60:1 |
| n1, max rpm | 6000 | 5500 | 5000 | 4500 | 4000 | 3000 | 3500 |

SERIES BS

WORM GEAR

WITH ENVIRONMENTAL CLASSIFICATION

With BS (size 40-71) classified acc to environmental class we are able to recommend the gears for installation in ambient conditions where normally only materials in stainless steel are accepted. The gears are classified acc to environ-mental class M2-M3, Swedish standard stBK-N4.



SERIES BS

WORM GEAR

WITH ENVIRONMENTAL CLASSIFICATION

Advantages:

- No corrosion
- Low weight (aluminium)
- High rating
- IEC-standard
- High surface finish
- Modern design
- No maintenance
- Easy handling
- Large number of motor alternatives

Product specification

- coated gear case, flanges and feet
- stainless steel bolts in gear housing
- stainless steel hollow shaft (SS 2346 alt. 2382)
- stainless steel output shaft
- surface for seal ring protected by stainless steel sleeve (SS 2333)
- Seal rings of viton
- ratings acc to catalogue
- high resistance against corrosion
- very hard and resistant against wear
- low tendency to be sticky
- hygienic

Application examples

- food industry
- paper and cellulose industry
- pharmaceutical industry
- chemical industry
- defence industry
- marine and mobile installations
- all outdoor installations

Type of coating

The coating is a recently developed surface coating method for aluminium.

The coating means that the material surface is, by a chemical process, converted into an aluminium oxide, which gives a very hard, ceramic, surface finish.

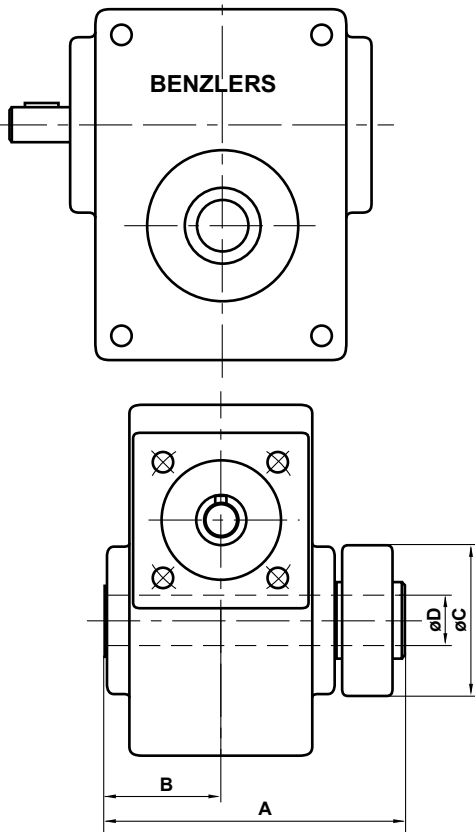
The oxide layer is then impregnated and coated with plastic. With heat treatment a very strong and resistant connection between oxide and plastic is created.

Unique coating qualities:

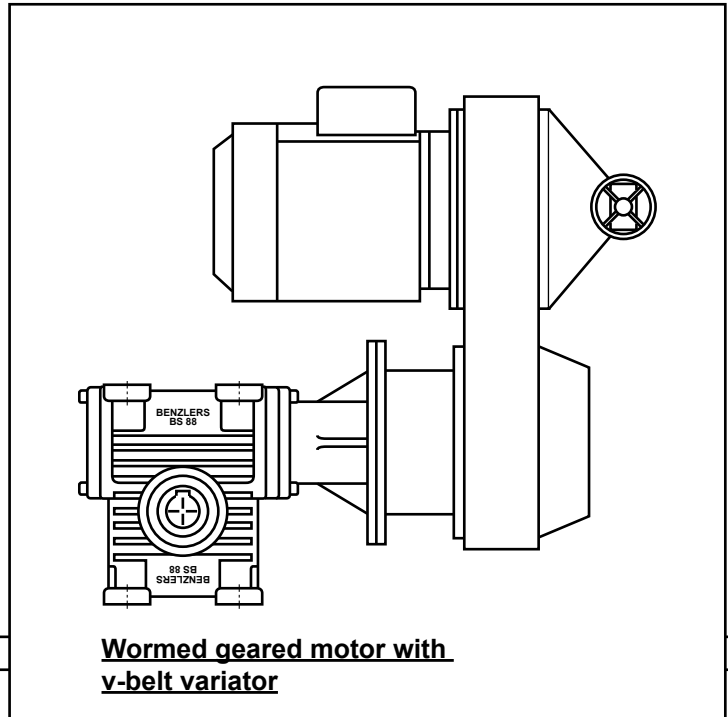
| Gear | | BS 40 | BS 50 | BS 63 | BS 71 |
|---------------------------------|-----|-------|-------|-------|-------|
| Catalogue rating, Nm | max | 78 | 120 | 197 | 315 |
| | min | 31 | 62 | 92 | 143 |
| Output speed, rpm | max | 429 | 358 | 369 | 381 |
| | min | 9 | 9 | 7 | 7 |
| Max static load, Nm | | 93 | 150 | 250 | 400 |
| Radial force on output shaft, N | | 2000 | 2700 | 4000 | 5000 |
| Thrust load on output shaft, N | | 2000 | 2500 | 3500 | 4500 |

APPLICATIONS

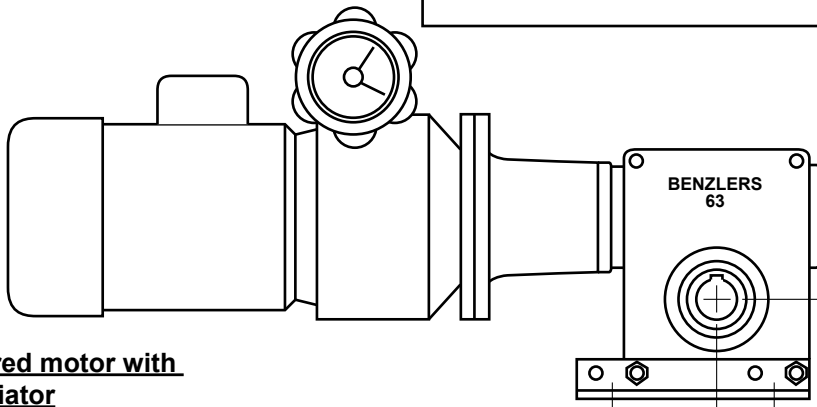
Worm gear with shrink fit



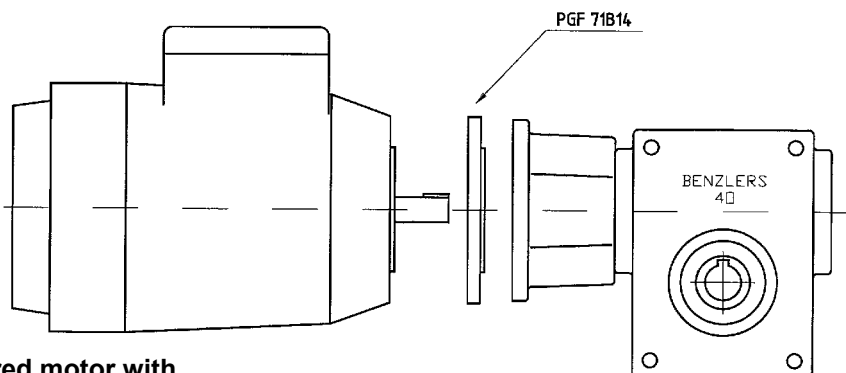
| Size | Shrink disc | A | B | øC | øD | Nm |
|-------|-------------|-----|------|----|----|-----|
| BS 40 | HSD 30-22 | 119 | 46 | 60 | 20 | 155 |
| BS 50 | HSD 36-22 | 128 | 49 | 72 | 25 | 350 |
| BS 63 | HSD 44-22 | 133 | 50.5 | 80 | 30 | 440 |
| BS 71 | HSD 44-22 | 154 | 61 | 80 | 35 | 770 |



Wormed geared motor with v-belt variator



Wormed geared motor with planetary variator



Wormed geared motor with planetary variator

General:

1. The gear should be placed on a flat and solid foundation.
2. Sprocket, pulley or coupling on shaft can not be mounted with force. This will damage the gear.
3. To avoid increasing load on shafts and bearings, the gear and the driven machine should be carefully aligned, even if an elastic coupling is used.
4. If sprockets are used on the output shaft the preferable direction of pull should be such that the gear housing will be pressed towards the foundation.
5. When situated outdoors or working under adverse conditions as heat, dust or damp, the gear must be provided with sufficient protection, but the cooling air circulation must not be unduly restricted.

Lubrication

Before delivery BS40-112 are filled with synthetic oil - Mobil SHC 634. This type of lubrication is extra suitable for worm gears.

Maintenance

1. Benzler worm gears are lubricated for life with synthetic oil/grease and are therefore maintenance free.
2. Check that there are no leakage.

Running in

1. The gear should be run under low load conditions during the first 10-30 hours. Then the load should gradually be increased to full load.
2. The length of the running-in period depends on the size of the gear and the actual working conditions.

Hollow shaft gears

1. The gear is normally mounted on a shaft with tolerance js6. The hollow shaft have tolerance H7.

Grease the shaft with Molykote BR2 or equivalent before the gear is mounted. The gear shall not be mounted with force.

The gear shall be locked against axial movement. Set screws in hollow shaft can be used for BS88 and 112.

At normal condition the oil/grease never needs to be changed.

Ambient temperature -30°C - +30°C.

3. The worm gears shall under no circumstances be entirely filled with oil or grease.

3. When increasing the load the temperature of the gear can exceed the ambient temperature by 60-70° C. Oil- and gear temperatures of 95-100° C are harmless and have no influence on the function of the gear. When the temperature exceeds 100° C special sealings must be used.

4. Gears which are not used for a long period should be run for short periods, approximately every third month.

Advantages:

To specify a drive precisely, certain data are essential. The most important questions are listed in the table below. If you do not have the required data available in this form, we advise you to use a technical handbook or other suitable documentation. Should you have any question, please do not hesitate to contact us, Benzlers specialists will be pleased to assist you.

Load designation

Output power (kW): P_e at n_{max} at n_{min}

Output speed (RPM): $n_{e_{max}}$ $n_{e_{min}}$

Output torque (Nm): T_e at n_{max} at n_{min}

Overhung load (N): F_{r2e} at output shaft at input shaft

Axial thrust load (N): F_{a2e} at output shaft at input shaft

(away + / towards -)

Moment of inertia (kgm^2): at output shaft at input shaft

Unit type and mounting position (see page 11)

Motor
Enclosure IP

Operating voltage motor (V) brake (V) frequency (Hz)

Brake torque (Nm)

Ambient factors
Ambient temperature ($^{\circ}C$)

Load cycle / Duty cycle S / % ED

Starting frequency (1/h)

Additional information:

IMPORTANT

Product Safety Information

General - The following information is important in ensuring safety. It must be brought to the attention of personnel involved in the selection of power transmission equipment, those responsible for the design of the machinery in which it is to be incorporated and those involved in its installation, use and maintenance.

Our equipment will operate safely provided it is selected, installed, used and maintained properly. As with any power transmission equipment proper precautions must be taken as indicated in the following paragraphs, to ensure safety.

Potential Hazards - these are not necessarily listed in any order of severity as the degree of danger varies in individual circumstances. It is important therefore that the list is studied in its entirety:-

- 1) Fire/Explosion
 - (a) Oil mists and vapour are generated within gear units. It is therefore dangerous to use naked lights in the proximity of gearbox openings, due to the risk of fire or explosion.
 - (b) In the event of fire or serious overheating (over 300 oC), certain materials (rubber, plastics, etc.) may decompose and produce fumes. Care should be taken to avoid exposure to the fumes, and the remains of burned or overheated plastic/rubber materials should be handled with rubber gloves.
- 2) Guards - Rotating shafts and couplings must be guarded to eliminate the possibility of physical contact or entanglement of clothing. It should be of rigid construction and firmly secured.
- 3) Noise - High speed gearboxes and gearbox driven machinery may produce noise levels which are damaging to the hearing with prolonged exposure. Ear defenders should be provided for personnel in these circumstances. Reference should be made to the Department of Employment Code of Practice for reducing exposure of employed persons to noise.
- 4) Lifting - Where provided (on larger units) only the lifting points or eyebolts must be used for lifting operations (see maintenance manual or general arrangement drawing for lifting point positions). Failure to use the lifting points provided may result in personal injury and/or damage to the product or surrounding equipment. Keep clear of raised equipment.
- 5) Lubricants and Lubrication
 - (a) Prolonged contact with lubricants can be detrimental to the skin. The manufacturer's instruction must be followed when handling lubricants.
 - (b) The lubrication status of the equipment must be checked before commissioning. Read and carry out all instructions on the lubricant plate and in the installation and maintenance literature. Heed all warning tags. Failure to do so could result in mechanical damage and in extreme cases risk of injury to personnel.
- 6) Electrical Equipment - Observe hazard warnings on electrical equipment and isolate power before working on the gearbox or associated equipment, in order to prevent the machinery being started.
- 7) Installation, Maintenance and Storage
 - (a) In the event that equipment is to be held in storage, for a period exceeding 6 months, prior to installation or commissioning, we must be consulted regarding special preservation requirements. Unless otherwise agreed, equipment must be stored in a building protected from extremes of temperature and humidity to prevent deterioration.
The rotating components (gears and shafts) must be turned a few revolutions once a month (to prevent bearings brinelling).
 - (b) External gearbox components may be supplied with preservative materials applied, in the form of a "waxed" tape overwrap or wax film preservative. Gloves should be worn when removing these materials. The former can be removed manually, the latter using white spirit as a solvent.
Preservatives applied to the internal parts of the gear units do not require removal prior to operation.
 - (c) Installation must be performed in accordance with the manufacturer's instructions and be undertaken by suitably qualified personnel.
 - (d) Before working on a gearbox or associated equipment, ensure that the load has been removed from the system to eliminate the possibility of any movement of the machinery and isolate power supply. Where necessary, provide mechanical means to ensure the machinery cannot move or rotate. Ensure removal of such devices after work is complete.
 - (e) Ensure the proper maintenance of gearboxes in operation. Use only the correct tools and our approved spare parts for repair and maintenance. Consult the Maintenance Manual before dismantling or performing maintenance work.
- 8) Hot Surfaces and Lubricants
 - (a) During operation, gear units may become sufficiently hot to cause skin burns. Care must be taken to avoid accidental contact.
 - (b) After extended running the lubricant in gear units and lubrication systems may reach temperatures sufficient to cause burns. Allow equipment to cool before servicing or performing adjustments.
- 9) Selection and Design
 - (a) Where gear units provide a backstop facility, ensure that back-up systems are provided if failure of the backstop device would endanger personnel or result in damage.
 - (b) The driving and driven equipment must be correctly selected to ensure that the complete machinery installation will perform satisfactorily, avoiding system critical speeds, system torsional vibration, etc.
 - (c) The equipment must not be operated in an environment or at speeds, powers, torques or with external loads beyond those for which it was designed.
 - (d) As improvements in design are being made continually the contents of this catalogue are not to be regarded as binding in detail, and drawings and capacities are subject to alterations without notice.

The above guidance is based on the current state of knowledge and our best assessment of the potential hazards in the operation of the gear units.

Any further information or clarification required may be obtained by contacting our Application Engineers.

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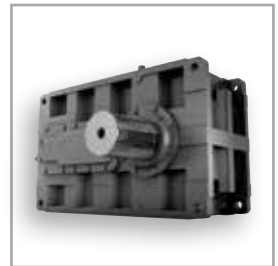
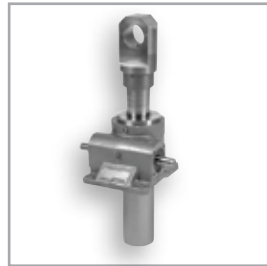
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