

CMG

transmission



Cycloid 600 speed reducers

Compact high efficiency cycloidal speed reducers



“Solutions, not just products.”

Specialists in Electric Motors, Geared Motors & AC Drives

At CMG we offer customised packages to the most demanding industrial markets. Our success is built on a strong commitment to our customers’ needs and a willingness to find the best solution possible. We have been in business since 1948 so you can be confident our expertise and experience is second to none.

With over 500 staff around the globe, our branches extend across Australia, New Zealand, Asia Pacific, South Africa, Europe and the Middle East.

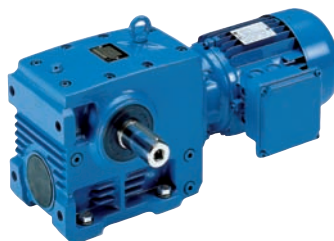
We have the capability to value-add our products through partnerships with leading international companies whose technical skills are equal to ours, including Gear Motors from NORD and AC Drives from VACON. In return we offer these companies superior technical support that complements their own R&D capabilities.

Our manufacturing facility in Melbourne, Australia, demonstrates our commitment to efficient automated manufacturing processes. This facility includes a NATA accredited laboratory which offers complete design and testing services.

“We specialise in an extensive range of Electric Motors, Geared Motors and AC Drives. Offering a “complete package” ensures our customers get the most efficient, cost effective solution possible.”



➤ Electric Motors



➤ Geared Motors



➤ AC Drives

CMG Cycloid 600 series, compact high efficiency cycloidal speed reducers, 0.37 to 22kW, up to 3890Nm

This is the CMG short form catalogue for the CMG range of Cycloid 600 compact high efficiency cycloidal speed reducers.

Cycloid 600 series reducers

CMG Cycloid 600 reducers in this catalogue are solid shaft. Gearcases are precision machined in one process.

The cycloidal discs are made from high quality bearing steel, and are precision machined to ultra fine tolerances to provide a smooth rolling action.

Bearings are adequately selected and proportioned assuring maximum life. For size 610 to 612 the cycloidal discs and bearings operate in a grease packed system. For sizes 613 to 618 the cycloidal discs and bearings operate in an oil bath. The tolerances between shaft and bores as well as keys and keyways are selected to ensure proper fit.

This catalogue details CMG's range of Standard foot, flange and face mount Cycloid 600 series reducers. Special mountings are available on request.

HGA motor - MEPS2 compliant (Eff 1)

The CMG enhanced performance HGA range of motors are recognized for their inherent suitability for all geared motor applications. Motors are designed in accordance with MEPS AS/NZS 1359.5.2004 for minimum efficiency motors, equivalent to European Eff 1.

Standard motors are 3 phase, 415 volt, 50 Hz. Motors are manufactured with 'F' class insulation, with windings designed to limit the temperature rise to 80K. The HGA motor has an all cast iron construction, and provides a protection rating of IP55 for both motor and terminal box.

Motors in this catalogue have the same performance and dimensions as standard HGA B5 or B14 flange mount motors but are provided with a reduced output shaft to suit the gearbox input. Models listed are 4 pole (1500 r/pm) with other motor speeds available upon request.

Service factors

Where the required service factor is not known it can be calculated using the following table.

| Hours per day | Uniform | Moderate | Heavy |
|---------------|---------|----------|-------|
| 0-3 hours | 0.80 | 1.00 | 1.35 |
| 4-10 hours | 1.00 | 1.20 | 1.50 |
| 11-24 hours | 1.20 | 1.35 | 1.60 |

Principle of operation

The cycloidal design has three major components:

- 1) Input shaft assembly (high speed) with eccentric cam, roller bearings and seals
- 2) Cycloidal discs
- 3) Output shaft assembly (slow speed) with support bearings and seals.

Torque transmitted to the high speed shaft rotates the eccentric cam and roller bearing assembly, and rolls the cycloidal discs around the internal circumference of the stationary ring gear housing.

The teeth of the cycloidal discs contact the pins of the stationary ring gear, producing a reverse rotation at a reduced speed. Each rotation of the high speed shaft advances the cycloidal discs a distance of one tooth pitch in the opposite direction.

The reduced rotation of the cycloidal discs is transmitted to the output shaft assembly by means of drive pins and rollers, that are projected through holes located around the bore of the cycloidal discs.

Product code specification

When placing an order the product code should be specified. The product code of the Cycloid 600 is composed in accordance with the following example:

| | | | | | | | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| T | R | C | 6 | 1 | 3 | 0 | 2 | 1 | 1 | 1 | R | S |
| 1-3 | | | 4-6 | | | 7-9 | | | 10-11 | | 12 | 13 |

Positions 1 to 3

TRC = CMG Cycloid 600 cycloidal speed reducer

Positions 4 to 6

Gearbox model

611, 612, 613, 614, 615, 616, 617 or 618

Positions 7 to 9

Gearbox ratio

Padded to 3 digits

Positions 10 and 11

Gearbox motor input

00 = Reducer

For geared motor units standard motor frame sizes apply:

07 = 71 **80** = 80 **09** = 90 **10** = 100
11 = 112 **13** = 132 **16** = 160 **18** = 180

Position 12

Input shaft

R = Reduced motor shaft input

X = IEC hollow input

C = IEC solid input

Position 13

Mounting arrangement

S = Standard foot mount

V = V Type output flange

F = F Type output flange

Product advantages

By replacing more conventional helical, worm and spur gear units throughout the world, the Cycloid 600 series high-efficiency speed reducer has proven itself in a wide variety of applications.

High efficiency

The superior cycloidal design over conventional gear tooth design, with all torque transmitting parts operating in compression, allows for many teeth to share the load. Cycloidal teeth transmit torque by rolling from one element to another. There is no sliding friction as in conventional gear reducers. This design eliminates sliding friction and creates a vibration-free operation. High efficiencies are reached in excess of 90% in single stage reduction units and 80% plus in double stage reduction units. CMG Cycloid 600 series speed reducers can make your individual applications more productive and efficient.

Overload protection

The Cycloid 600 cycloidal tooth design maximizes 67% tooth contact. The load sharing capabilities eliminates gears teeth being sheared off and provides an overload protection of 500% (gearbox only).

Warranty

Exceptionally versatile engineering and manufacturing capabilities enable us to offer Cycloid 600 speed reducers for virtually any industrial application. Every Cycloid 600 speed reducer comes with 12 months warranty as standard. Proper selection and correct maintenance will provide the end-user with unequalled service life for many years.

Extensive range

CMG provides a range of speed reducers in combinations of sizes, ratios, input powers, mountings and configurations. High reduction ratios 6:1 through 119:1 per single stage, through 7569:1 double and almost up to 1,000,000:1 triple reductions. Input kilowatt from 0.18 to over 150kW, output torque exceeds 60,000Nm

A wide variety of horizontal and vertical mounts with various IEC input adaptors for maximum ease of installation are available. Cycloid housings are manufactured from ductile iron for ultimate durability. The power transmitting internals are manufactured from bearing steel 52100 series, through hardened and tempered to Rockwell Rc. 59-62.

These manufacturing features have produced a very compact reducer compared to conventional helical reducers for similar applications. Since we can now provide a smaller compact reducer, with high efficiency, this allows us to use a smaller size motor to provide the same output torque rating as previously required. We have this compact motor designed for integral coupling with the Cycloid 600 series.

General information

Shaft rotation

For single and triple reduction units, the low speed shaft turns in the opposite direction to the high speed shaft. For double reduction drives, the low speed and high speed shafts turn in the same direction.

Note: On all Cycloid 600 series speed reducers, the high speed and low speed shafts have the same common axis.

Motor input speeds (nominal)

1500 r/min (4 pole)
1000 r/min (6 pole)
750 r/min (8 pole)

Note: For non-standard input speed, please contact your CMG representative to confirm torque ratings.

Shaft connections

Proper mounting of sleeves, gears, pulleys, chain sprockets, belt and couplings is essential for trouble free operation. All shaft connections must be mounted as close as possible to the cycloidal housing, but never touching. Overhung loads should be located as close to the bearing as possible. If shaft connections are mounted at the end of the shaft, the overhung load may cause excessive loading on the bearings and possible shaft deflection. Radial loads have been designed at the midpoint of the slow speed shaft. If this is not possible, please contact your CMG representative to confirm proper selection. Proper alignment procedures for all shaft connections are imperative for trouble free operation.

Permissible torsional forces such as thrust and radial loads applied to the low speed shaft must be calculated to confirm their allowable limits for each selection.

Gearbox selection data

| Type | □ | r/min | Nm | SF | Ratio | Product Code |
|---|---|--|-----|------|-------|---------------|
| 0.37 kW MOTOR SGA71B-4 B14 1345 r/min 1 Amps CODE M34000377SGAGT□ | | | | | | |
| 611 | 1 | 17 | 209 | 2.33 | 87 | TRC611087071• |
| | | 21 | 170 | 2.45 | 71 | TRC611071071• |
| 610 | 0 | 17 | 29 | 1.22 | 87 | TRC610087071• |
| | | 21 | 170 | 1.22 | 71 | TRC610071071• |
| | | 25 | 142 | 1.50 | 59 | TRC610059071• |
| | | 29 | 122 | 1.68 | 51 | TRC610051071• |
| | | 35 | 103 | 2.32 | 43 | TRC610043071• |
| | | 43 | 84 | 2.55 | 35 | TRC610035071• |
| 0.55 kW MOTOR SGA80A-4 B14 1390 r/min 1.4 Amps CODE M34000557SGAGT□ | | | | | | |
| 613 | 3 | 17 | 292 | 2.62 | 87 | TRC613087080• |
| | | 21 | 236 | 3.25 | 71 | TRC613071080• |
| 611 | 1 | 17 | 292 | 1.67 | 87 | TRC611087080• |
| | | 21 | 236 | 1.77 | 71 | TRC611071080• |
| | | 25 | 198 | 2.45 | 59 | TRC611059080• |
| | | 29 | 171 | 2.97 | 51 | TRC611051080• |
| | | 35 | 142 | 3.50 | 43 | TRC611043080• |
| | | 43 | 115 | <4 | 35 | TRC611035080• |
| 610 | 0 | 35 | 142 | 1.69 | 43 | TRC610043080• |
| | | 43 | 115 | 1.86 | 35 | TRC610035080• |
| | | 52 | 95 | 2.53 | 29 | TRC610029080• |
| | | 60 | 83 | 2.61 | 25 | TRC610025080• |
| | | 71 | 70 | 3.64 | 21 | TRC610021080• |
| | | 88 | 56 | 3.82 | 17 | TRC610017080• |
| | | 100 | 50 | <4 | 15 | TRC610015080• |
| | | 115 | 43 | <4 | 13 | TRC610013080• |
| | | 136 | 36 | <4 | 11 | TRC610011080• |
| | | 188 | 26 | <4 | 8 | TRC610008080• |
| | | 250 | 20 | 3.99 | 6 | TRC610006080• |
| | | 0.75 kW MOTOR HGA80B-4 B14 1410 r/min 1.85 Amps CODE M34000757HGAGT□ | | | | |
| 613 | 3 | 17 | 392 | 1.95 | 87 | TRC613087080• |
| | | 21 | 320 | 2.40 | 71 | TRC613071080• |
| 611 | 1 | 17 | 392 | 1.24 | 87 | TRC611087080• |
| | | 21 | 320 | 1.31 | 71 | TRC611071080• |
| | | 25 | 266 | 1.83 | 59 | TRC611059080• |
| | | 29 | 230 | 2.21 | 51 | TRC611051080• |
| | | 35 | 194 | 2.56 | 43 | TRC611043080• |
| | | 43 | 158 | 3.23 | 35 | TRC611035080• |
| 610 | 0 | 35 | 194 | 1.24 | 43 | TRC610043080• |
| | | 43 | 158 | 1.36 | 35 | TRC610035080• |
| | | 52 | 130 | 1.84 | 29 | TRC610029080• |
| | | 60 | 113 | 1.92 | 25 | TRC610025080• |
| | | 71 | 94 | 2.69 | 21 | TRC610021080• |
| | | 88 | 76 | 2.79 | 17 | TRC610017080• |
| | | 100 | 67 | 3.65 | 15 | TRC610015080• |
| | | 115 | 58 | 3.54 | 13 | TRC610013080• |
| | | 136 | 49 | 3.62 | 11 | TRC610011080• |
| | | 188 | 36 | 3.63 | 8 | TRC610008080• |
| | | 250 | 27 | 2.95 | 6 | TRC610006080• |

| Type | □ | r/min | Nm | SF | Ratio | Product Code | | |
|--|-----|--|------|------|-------|---------------|----|---------------|
| 1.5 kW MOTOR HGA90L-4 B14 1430 r/min 3.4 Amps CODE M34001507HGAGT□ | | | | | | | | |
| 616 | 6 | 17 | 783 | 2.23 | 87 | TRC616087090• | | |
| | | 21 | 639 | 2.73 | 71 | TRC616071090• | | |
| 614 | 3 | 17 | 783 | 1.30 | 87 | TRC614087090• | | |
| | | 25 | 531 | 1.87 | 59 | TRC614059090• | | |
| 613 | 3 | 21 | 639 | 1.20 | 71 | TRC613071090• | | |
| | | 25 | 531 | 1.43 | 59 | TRC613059090• | | |
| | | 29 | 459 | 1.67 | 51 | TRC613051090• | | |
| | | 35 | 687 | 1.97 | 43 | TRC613043090• | | |
| | | 43 | 315 | 2.43 | 35 | TRC613035090• | | |
| | | 611 | 1 | 29 | 459 | 1.11 | 51 | TRC611051090• |
| 35 | 387 | | | 1.28 | 43 | TRC611043090• | | |
| 43 | 315 | | | 1.61 | 35 | TRC611035090• | | |
| 52 | 261 | | | 1.90 | 29 | TRC611029090• | | |
| 60 | 225 | | | 2.13 | 25 | TRC611025090• | | |
| 71 | 189 | | | 2.69 | 21 | TRC611021090• | | |
| 88 | 153 | | | 3.12 | 17 | TRC611017090• | | |
| 610 | 0 | | | 71 | 189 | 1.35 | 21 | TRC610021090• |
| | | | | 88 | 153 | 1.39 | 17 | TRC610017090• |
| | | | | 100 | 135 | 1.83 | 15 | TRC610015090• |
| | | | | 115 | 117 | 1.77 | 13 | TRC610013090• |
| | | | | 136 | 99 | 1.81 | 11 | TRC610011090• |
| | | 188 | 72 | 1.81 | 8 | TRC610008090• | | |
| | | 250 | 54 | 1.47 | 6 | TRC610006090• | | |
| | | 2.2 kW MOTOR HGA100LA-4 B14 1455 r/min 4.7 Amps CODE M34002207HGAGT□ | | | | | | |
| 617 | 7 | 17 | 1150 | 2.20 | 87 | TRC617087100• | | |
| 616 | 6 | 17 | 1150 | 1.52 | 87 | TRC616087100• | | |
| | | 21 | 937 | 1.86 | 71 | TRC616071100• | | |
| | | 25 | 779 | 2.25 | 59 | TRC616059100• | | |
| | | 29 | 673 | 2.59 | 51 | TRC616051100• | | |
| 615 | 3 | 21 | 937 | 1.00 | 71 | TRC615071100• | | |
| | | 25 | 779 | 1.28 | 59 | TRC615059100• | | |
| | | 29 | 673 | 1.51 | 51 | TRC615051100• | | |
| | | 35 | 568 | 1.75 | 43 | TRC615043100• | | |
| | | 613 | 3 | 29 | 673 | 1.14 | 51 | TRC613051100• |
| 35 | 568 | | | 1.34 | 43 | TRC613043100• | | |
| 43 | 462 | | | 1.65 | 35 | TRC613035100• | | |
| 52 | 383 | | | 2.00 | 29 | TRC613029100• | | |
| 60 | 330 | | | 2.31 | 25 | TRC613025100• | | |
| 611 | 1 | | | 43 | 462 | 1.10 | 35 | TRC611035100• |
| | | 52 | 383 | 1.30 | 29 | TRC611029100• | | |
| | | 60 | 330 | 1.45 | 25 | TRC611025100• | | |
| | | 71 | 277 | 1.83 | 21 | TRC611021100• | | |
| | | 88 | 224 | 2.13 | 17 | TRC611017100• | | |
| | | 100 | 198 | 2.20 | 15 | TRC611015100• | | |
| | | 115 | 172 | 2.22 | 13 | TRC611013100• | | |
| | | 136 | 145 | 2.29 | 11 | TRC611011100• | | |
| | | 188 | 106 | 2.28 | 8 | TRC611008100• | | |
| | | 250 | 79 | 2.25 | 6 | TRC611006100• | | |
| | | 610 | 0 | 100 | 198 | 1.24 | 15 | TRC610015100• |
| | | | | 115 | 172 | 1.21 | 13 | TRC610013100• |
| 136 | 145 | | | 1.24 | 11 | TRC610011100• | | |
| 188 | 106 | | | 1.24 | 8 | TRC610008100• | | |
| 250 | 79 | | | 1.00 | 6 | TRC610006100• | | |

Gearbox selection data

| Type | □ | r/min | Nm | SF | Ratio | Product Code |
|---|---|-------|------|------|-------|---------------|
| 3 kW | | | | | | |
| MOTOR HGA100LB-4 B14 1455 r/min 6.2 Amps | | | | | | |
| CODE M34003007HGAGT□ | | | | | | |
| 617 | 7 | 17 | 1584 | 1.59 | 87 | TRC617087100• |
| | | 21 | 1282 | 2.00 | 71 | TRC617071100• |
| 616 | 6 | 17 | 1584 | 1.10 | 87 | TRC616087100• |
| | | 21 | 1282 | 1.36 | 71 | TRC616071100• |
| | | 25 | 1077 | 1.63 | 59 | TRC616059100• |
| | | 29 | 928 | 1.88 | 51 | TRC616051100• |
| | | 35 | 769 | 2.27 | 43 | TRC616043100• |
| 615 | 3 | 29 | 928 | 1.09 | 51 | TRC615051100• |
| | | 35 | 769 | 1.30 | 43 | TRC615043100• |
| | | 43 | 626 | 1.62 | 35 | TRC615035100• |
| | | 52 | 518 | 1.96 | 29 | TRC615029100• |
| 613 | 3 | 35 | 769 | 1.00 | 43 | TRC613043100• |
| | | 43 | 626 | 1.21 | 35 | TRC613035100• |
| | | 52 | 517 | 1.48 | 29 | TRC613029100• |
| | | 60 | 448 | 1.70 | 25 | TRC613025100• |
| | | 71 | 379 | 2.01 | 21 | TRC613021100• |
| 611 | 1 | 60 | 449 | 1.06 | 25 | TRC611025100• |
| | | 71 | 379 | 1.33 | 21 | TRC611021100• |
| | | 88 | 306 | 1.56 | 17 | TRC611017100• |
| | | 100 | 269 | 1.62 | 15 | TRC611015100• |
| | | 115 | 234 | 1.63 | 13 | TRC611013100• |
| | | 136 | 198 | 1.68 | 11 | TRC611011100• |
| | | 188 | 143 | 1.69 | 8 | TRC611008100• |
| | | 250 | 108 | 1.65 | 6 | TRC611006100• |
| 4 kW | | | | | | |
| MOTOR HGA112M-4 B5 1455 r/min 8.2 Amps | | | | | | |
| CODE M34004005HGAGT□ | | | | | | |
| 618 | 8 | 17 | 1930 | 2.03 | 87 | TRC618087112• |
| 617 | 7 | 17 | 1930 | 1.31 | 87 | TRC617087112• |
| | | 21 | 1580 | 1.62 | 71 | TRC617071112• |
| | | 25 | 1311 | 1.97 | 59 | TRC617059112• |
| | | 29 | 1130 | 2.25 | 51 | TRC617051112• |
| 616 | 6 | 21 | 1580 | 1.10 | 71 | TRC616071112• |
| | | 25 | 1311 | 1.34 | 59 | TRC616059112• |
| | | 29 | 1130 | 1.54 | 51 | TRC616051112• |
| | | 35 | 955 | 1.83 | 43 | TRC616043112• |
| | | 43 | 777 | 2.34 | 35 | TRC616035112• |
| | | 52 | 644 | 2.62 | 29 | TRC616029112• |
| 615 | 3 | 35 | 955 | 1.04 | 43 | TRC615043112• |
| | | 43 | 777 | 1.31 | 35 | TRC615035112• |
| | | 52 | 644 | 1.58 | 29 | TRC615029112• |

| Type | □ | r/min | Nm | SF | Ratio | Product Code |
|--|---|-------|------|------|-------|---------------|
| 614 | 3 | 52 | 644 | 1.31 | 29 | TRC614029112• |
| | | 60 | 555 | 1.58 | 25 | TRC614025112• |
| 613 | 3 | 43 | 777 | 1.00 | 35 | TRC613035112• |
| | | 52 | 644 | 1.19 | 29 | TRC613029112• |
| | | 60 | 555 | 1.37 | 25 | TRC613025112• |
| | | 71 | 466 | 1.64 | 21 | TRC613021112• |
| | | 88 | 377 | 1.90 | 17 | TRC613017112• |
| | | 100 | 333 | 2.06 | 15 | TRC613015112• |
| | | 115 | 289 | 2.49 | 13 | TRC613013112• |
| | | 136 | 244 | 2.62 | 11 | TRC613011112• |
| | | 188 | 178 | 2.70 | 8 | TRC613008112• |
| | | 250 | 133 | 2.69 | 6 | TRC613006112• |
| 611 | 1 | 71 | 466 | 1.09 | 21 | TRC611021112• |
| | | 88 | 377 | 1.26 | 17 | TRC611017112• |
| | | 100 | 333 | 1.31 | 15 | TRC611015112• |
| | | 115 | 289 | 1.32 | 13 | TRC611013112• |
| | | 136 | 244 | 1.36 | 11 | TRC611011112• |
| | | 188 | 178 | 1.36 | 8 | TRC611008112• |
| | | 250 | 133 | 1.34 | 6 | TRC611006112• |
| 5.5 kW | | | | | | |
| MOTOR HGA132S-4 B5 1460 r/min 10.6 Amps | | | | | | |
| CODE M34005505HGAGT□ | | | | | | |
| 618 | 8 | 17 | 2870 | 1.34 | 87 | TRC618087132• |
| | | 21 | 2340 | 1.34 | 71 | TRC618071132• |
| | | 25 | 1950 | 1.79 | 59 | TRC618059132• |
| | | 29 | 1680 | 2.07 | 51 | TRC618051132• |
| 617 | 7 | 21 | 2340 | 1.09 | 71 | TRC617071132• |
| | | 25 | 1950 | 1.32 | 59 | TRC617059132• |
| | | 29 | 1680 | 1.52 | 51 | TRC617051132• |
| | | 35 | 1420 | 1.69 | 43 | TRC617043132• |
| | | 43 | 1160 | 2.27 | 35 | TRC617035132• |
| 616 | 6 | 29 | 1680 | 1.04 | 51 | TRC616051132• |
| | | 35 | 1420 | 1.23 | 43 | TRC616043132• |
| | | 43 | 1160 | 1.57 | 35 | TRC616035132• |
| | | 52 | 957 | 1.76 | 29 | TRC616029132• |
| | | 60 | 825 | 2.11 | 25 | TRC616025132• |
| | | 71 | 693 | 2.40 | 21 | TRC616021132• |
| 614 | 3 | 60 | 825 | 1.06 | 25 | TRC614025132• |
| | | 71 | 693 | 1.22 | 21 | TRC614021132• |
| | | 88 | 561 | 1.65 | 17 | TRC614017132• |
| | | 115 | 495 | 1.66 | 13 | TRC614013132• |
| 613 | 3 | 71 | 693 | 1.10 | 21 | TRC613021132• |
| | | 88 | 561 | 1.28 | 17 | TRC613017132• |
| | | 115 | 495 | 1.39 | 13 | TRC613013132• |
| | | 136 | 363 | 1.76 | 11 | TRC613011132• |
| | | 188 | 264 | 1.82 | 8 | TRC613008132• |
| | | 250 | 198 | 1.81 | 6 | TRC613006132• |
| 612 | 3 | 188 | 264 | 1.24 | 8 | TRC612008132• |
| | | 250 | 198 | 1.20 | 6 | TRC612006132• |

Gearbox selection data

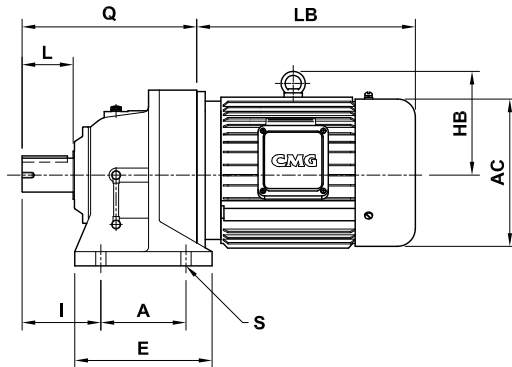
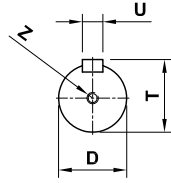
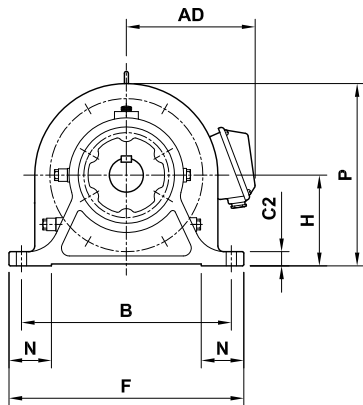
| Type | □ | r/min | Nm | SF | Ratio | Product Code | | |
|---------------|---|-------|------|---------------|-------|---------------|----|---------------|
| 7.5 kW | MOTOR HGA132M-4 B5 1455 r/min 14.3 Amps CODE M34007505HGAGT□ | | | | | | | |
| 618 | 8 | 21 | 3200 | 1.00 | 71 | TRC618071132• | | |
| | | 25 | 2660 | 1.31 | 59 | TRC618059132• | | |
| | | 29 | 2300 | 1.52 | 51 | TRC618051132• | | |
| | | 35 | 1940 | 2.00 | 43 | TRC618043132• | | |
| 617 | 7 | 29 | 2300 | 1.11 | 51 | TRC617051132• | | |
| | | 35 | 1940 | 1.24 | 43 | TRC617043132• | | |
| | | 43 | 1580 | 1.67 | 35 | TRC617035132• | | |
| | | 52 | 1310 | 1.91 | 29 | TRC617029132• | | |
| | | 60 | 1130 | 2.07 | 25 | TRC617025132• | | |
| 616 | 6 | 43 | 1580 | 1.15 | 35 | TRC616035132• | | |
| | | 52 | 1310 | 1.29 | 29 | TRC616029132• | | |
| | | 60 | 1130 | 1.55 | 25 | TRC616025132• | | |
| | | 71 | 945 | 1.76 | 21 | TRC616021132• | | |
| | | 88 | 765 | 2.00 | 17 | TRC616017132• | | |
| | | 100 | 675 | 1.97 | 15 | TRC616015132• | | |
| | | 100 | 675 | 1.32 | 15 | TRC616015132• | | |
| | | 115 | 585 | 2.27 | 13 | TRC616013132• | | |
| | | 115 | 585 | 1.37 | 13 | TRC616013132• | | |
| | | 136 | 495 | 2.41 | 11 | TRC616011132• | | |
| 615 | 3 | 136 | 495 | 1.73 | 11 | TRC615011132• | | |
| | | 188 | 360 | 2.37 | 8 | TRC615008132• | | |
| | | 188 | 360 | 1.73 | 8 | TRC615008132• | | |
| | | 250 | 270 | 1.95 | 6 | TRC615006132• | | |
| | | 250 | 270 | 1.73 | 6 | TRC615006132• | | |
| 614 | 3 | 88 | 765 | 1.21 | 17 | TRC614017132• | | |
| 613 | 3 | 100 | 675 | 1.02 | 15 | TRC613015132• | | |
| | | 115 | 585 | 1.23 | 13 | TRC613013132• | | |
| | | 136 | 495 | 1.31 | 11 | TRC613011132• | | |
| | | 188 | 360 | 1.33 | 8 | TRC613008132• | | |
| | | 250 | 270 | 1.33 | 6 | TRC613006132• | | |
| 11 kW | MOTOR HGA160M-4 B5 1470 r/min 20.7 Amps CODE M34011005HGAGT□ | | | | | | | |
| 618 | 8 | 29 | 3370 | 1.04 | 51 | TRC618051160• | | |
| | | 35 | 2840 | 1.36 | 43 | TRC618043160• | | |
| | | 43 | 2310 | 1.68 | 35 | TRC618035160• | | |
| | | 52 | 1910 | 1.67 | 29 | TRC618029160• | | |
| | | 60 | 1650 | 2.07 | 25 | TRC618025160• | | |
| 617 | 7 | 43 | 2310 | 1.14 | 35 | TRC617035160• | | |
| | | 52 | 1910 | 1.30 | 29 | TRC617029160• | | |
| | | 60 | 1650 | 1.41 | 25 | TRC617025160• | | |
| | | 71 | 1390 | 1.68 | 21 | TRC617021160• | | |
| | | 88 | 1120 | 1.75 | 17 | TRC617017160• | | |
| | | 100 | 990 | 2.08 | 15 | TRC617015160• | | |
| | | 115 | 858 | 2.43 | 13 | TRC617013160• | | |
| 250 | 396 | 1.94 | 6 | TRC617006160• | | | | |
| 616 | 6 | 60 | 1650 | 1.05 | 25 | TRC616025160• | | |
| | | 71 | 1390 | 1.20 | 21 | TRC616021160• | | |
| | | 88 | 1120 | 1.36 | 17 | TRC616017160• | | |
| | | 100 | 990 | 1.36 | 15 | TRC616015160• | | |
| | | 115 | 858 | 1.54 | 13 | TRC616013160• | | |
| | | 136 | 726 | 1.64 | 11 | TRC616011160• | | |
| | | 188 | 528 | 1.62 | 8 | TRC616008160• | | |
| | | 250 | 396 | 1.33 | 6 | TRC616006160• | | |
| | | 615 | 3 | 136 | 726 | 1.18 | 11 | TRC615011160• |
| | | | | 188 | 528 | 1.18 | 8 | TRC615008160• |
| 250 | 396 | | | 1.18 | 6 | TRC615006160• | | |

| Type | □ | r/min | Nm | SF | Ratio | Product Code |
|----------------|---|-------|------|---------------|-------|---------------|
| 15 kW | MOTOR HGA160L-4 B5 1465 r/min 27.6 Amps CODE M34015005HGAGT□ | | | | | |
| 618 | 8 | 35 | 3870 | 1.00 | 43 | TRC618043160• |
| | | 43 | 3150 | 1.23 | 35 | TRC618035160• |
| | | 52 | 2610 | 1.23 | 29 | TRC618029160• |
| | | 60 | 2250 | 1.52 | 25 | TRC618025160• |
| | | 71 | 1890 | 1.79 | 21 | TRC618021160• |
| | | 100 | 1350 | 2.02 | 15 | TRC618015160• |
| | | 115 | 1170 | 2.21 | 13 | TRC618013160• |
| 136 | 990 | 2.15 | 11 | TRC618011160• | | |
| 617 | 7 | 60 | 2250 | 1.03 | 25 | TRC617025160• |
| | | 71 | 1890 | 1.23 | 21 | TRC617021160• |
| | | 88 | 1530 | 1.29 | 17 | TRC617017160• |
| | | 100 | 1350 | 1.53 | 15 | TRC617015160• |
| | | 115 | 1170 | 1.78 | 13 | TRC617013160• |
| 136 | 990 | 1.80 | 11 | TRC617011160• | | |
| 616 | 6 | 88 | 1530 | 1.00 | 17 | TRC616017160• |
| | | 100 | 1350 | 1.00 | 15 | TRC616015160• |
| | | 115 | 1170 | 1.13 | 13 | TRC616013160• |
| | | 136 | 990 | 1.21 | 11 | TRC616011160• |
| 188 | 720 | 1.19 | 8 | TRC616008160• | | |
| 615 | 3 | 250 | 540 | 1.43 | 6 | TRC615006160• |
| 18.5 kW | MOTOR HGA180M-4 B5 1465 r/min 32.8 Amps CODE M34018505HGAGT□ | | | | | |
| 618 | 8 | 43 | 3890 | 1.00 | 35 | TRC618035180• |
| | | 52 | 3220 | 1.00 | 29 | TRC618029180• |
| | | 60 | 2780 | 1.23 | 25 | TRC618025180• |
| | | 71 | 2330 | 1.45 | 21 | TRC618021180• |
| | | 88 | 1890 | 1.62 | 17 | TRC618017180• |
| | | 100 | 1670 | 1.64 | 15 | TRC618015180• |
| | | 115 | 1440 | 1.79 | 13 | TRC618013180• |
| 136 | 1220 | 1.74 | 11 | TRC618011180• | | |
| 617 | 7 | 71 | 2330 | 1.00 | 21 | TRC617021180• |
| | | 88 | 1890 | 1.04 | 17 | TRC617017180• |
| | | 100 | 1670 | 1.24 | 15 | TRC617015180• |
| | | 115 | 1440 | 1.44 | 13 | TRC617013180• |
| | | 136 | 1220 | 1.46 | 11 | TRC617011180• |
| | | 250 | 666 | 1.16 | 6 | TRC617006180• |
| 22 kW | MOTOR HGA180L-4 B5 1470 r/min 38 Amps CODE M34022005HGAGT□ | | | | | |
| 618 | 8 | 60 | 3300 | 1.04 | 25 | TRC618025180• |
| | | 71 | 2770 | 1.22 | 21 | TRC618021180• |
| | | 88 | 2240 | 1.36 | 17 | TRC618017180• |
| | | 100 | 1980 | 1.38 | 15 | TRC618015180• |
| | | 115 | 1720 | 1.50 | 13 | TRC618013180• |
| 136 | 1450 | 1.47 | 11 | TRC618011180• | | |
| 617 | 7 | 100 | 1980 | 1.04 | 15 | TRC617015180• |
| | | 115 | 1720 | 1.21 | 13 | TRC617013180• |
| | | 136 | 1450 | 1.23 | 11 | TRC617011180• |

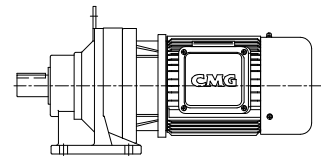
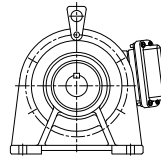
Dimensions

600HM Foot mount gear motors

Sizes 613-618



Sizes 610-612



| Model | Reducer dimensions | | | | | | | | | | | | | | | | Reducer weight [kg] |
|-------|--------------------|-----|----|------|-----|-----|-----|-----|-----|----|-----|-----|------|------|----|----------|-----------------------|
| | A | B | C2 | D | E | F | H | I | L | N | P | Q | S | T | U | Z | |
| 610 | 90 | 150 | 12 | 28h6 | 139 | 184 | 100 | 60 | 35 | 40 | 175 | 156 | 4x11 | 31.0 | 8 | - | 13 |
| 611 | 115 | 190 | 15 | 38h6 | 159 | 234 | 120 | 82 | 55 | 55 | 222 | 186 | 4x14 | 41.0 | 10 | - | 24 |
| 612 | 115 | 190 | 15 | 38h6 | 159 | 234 | 140 | 82 | 55 | 60 | 242 | 186 | 4x14 | 41.0 | 10 | - | 25 |
| 613 | 145 | 290 | 22 | 50h6 | 199 | 334 | 150 | 100 | 70 | 65 | 265 | 240 | 4x18 | 53.5 | 14 | M10 x 18 | 43 |
| 614 | 145 | 290 | 22 | 50h6 | 199 | 334 | 150 | 120 | 90 | 65 | 265 | 260 | 4x18 | 53.5 | 14 | M10 x 18 | 44 |
| 615 | 145 | 290 | 22 | 50h6 | 199 | 334 | 160 | 120 | 90 | 70 | 275 | 260 | 4x18 | 53.5 | 14 | M10 x 18 | 46 |
| 616 | 150 | 370 | 25 | 60h6 | 242 | 414 | 160 | 139 | 90 | 75 | 310 | 308 | 4x18 | 64.0 | 18 | M10 x 18 | 85 |
| 617 | 275 | 380 | 30 | 70h6 | 339 | 434 | 200 | 125 | 90 | 80 | 370 | 252 | 4x22 | 74.5 | 20 | M12 x 24 | 125 |
| 618 | 320 | 420 | 30 | 80h6 | 384 | 474 | 220 | 145 | 110 | 85 | 405 | 389 | 4x22 | 85.0 | 22 | M12 x 24 | 162 |

| Motor rated power [kW] | Motor dimensions | | AC | AD | HB | LB | Motor weight [kg] |
|--------------------------|------------------|-------|-----|-----|-----|-----|---------------------|
| | Frame | Range | | | | | |
| 0.37 | 71B | SGA | 138 | 126 | - | 219 | 11 |
| 0.55 | 80A | SGA | 165 | 145 | 90 | 245 | 17 |
| 0.75 | 80B | HGA | 172 | 151 | 100 | 260 | 22 |
| 1.5 | 90L | HGA | 185 | 156 | 115 | 305 | 29 |
| 2.2 | 100LA | HGA | 210 | 175 | 150 | 350 | 36 |
| 3 | 100LB | HGA | 210 | 175 | 150 | 350 | 40 |
| 4 | 112M | HGA | 260 | 185 | 153 | 400 | 52 |
| 5.5 | 132S | HGA | 298 | 227 | 200 | 410 | 71 |
| 7.5 | 132M | HGA | 298 | 227 | 200 | 450 | 84 |
| 11 | 160M | HGA | 325 | 325 | 215 | 490 | 127 |
| 15 | 160L | HGA | 325 | 325 | 215 | 535 | 148 |
| 18.5 | 180M | HGA | 360 | 270 | 230 | 560 | 186 |
| 22 | 180L | HGA | 360 | 270 | 230 | 600 | 194 |

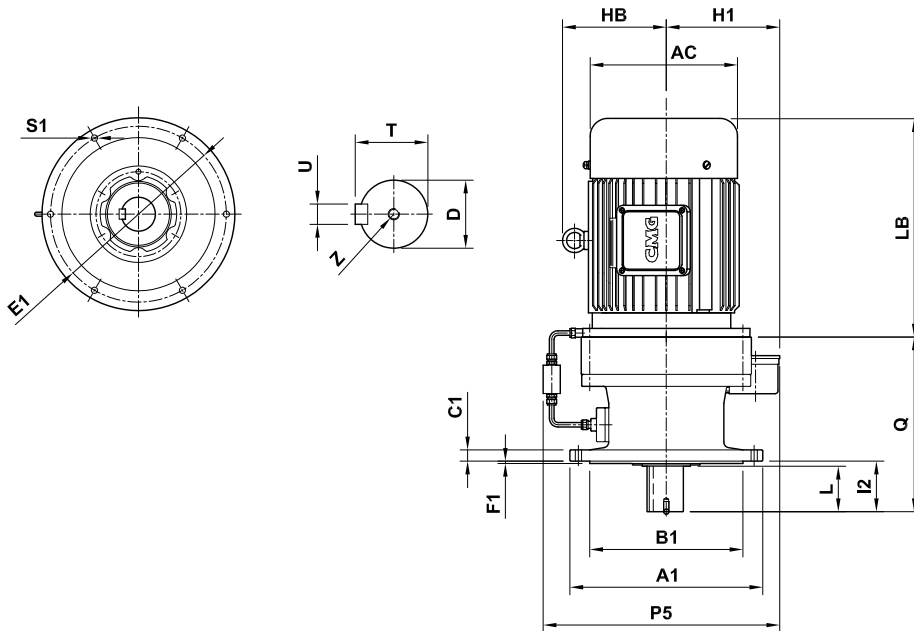
Motor-Reducer selection cross-reference

| Motor rated power [kW] | Model | | | | | | | |
|--------------------------|-------|-----|-----|-----|-----|-----|-----|---------|
| | 610 | 611 | 612 | 613 | 614 | 615 | 616 | 617 618 |
| 0.37 | • | • | | | | | | |
| 0.55 | • | • | • | | | | | |
| 0.75 | • | • | • | | | | | |
| 1.5 | • | • | • | • | | • | | |
| 2.2 | • | • | • | | | • | • | • |
| 3 | | • | • | | | • | • | • |
| 4 | | • | • | • | • | • | • | • |
| 5.5 | | | • | • | • | • | • | • |
| 7.5 | | | • | • | • | • | • | • |
| 11 | | | | | | • | • | • |
| 15 | | | | | | • | • | • |
| 19 | | | | | | | | • |
| 22 | | | | | | | | • |

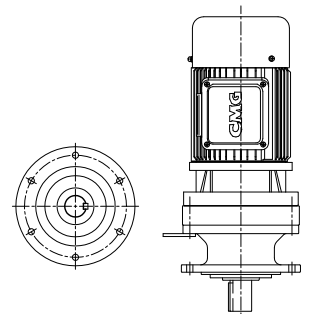
Dimensions

600VM Flange mount gear motors

Sizes 613-618



Sizes 610-612



| Model | Reducer dimensions | | | | | | | | | | | | | | Reducer weight [kg] | |
|-------|--------------------|-------|----|------|-----|----|-----|-----|-----|-----|-----|-------|------|----|-----------------------|-----|
| | A1 | B1 | C1 | D | E1 | F1 | H1 | I2 | L | P5 | Q | S1 | T | U | | Z |
| 610 | 160 | 110f8 | 9 | 28h6 | 134 | 3 | - | 48 | 35 | - | 156 | 4xØ11 | 31.0 | 8 | - | 12 |
| 611 | 210 | 140f8 | 13 | 38h6 | 180 | 4 | - | 69 | 55 | - | 186 | 6xØ11 | 41.0 | 10 | - | 24 |
| 612 | 210 | 140f8 | 13 | 38h6 | 180 | 4 | - | 69 | 55 | - | 186 | 6xØ11 | 41.0 | 10 | - | 24 |
| 613 | 260 | 200f8 | 15 | 50h6 | 230 | 4 | 209 | 76 | 61 | 361 | 240 | 6xØ11 | 53.5 | 10 | M10 x 18 | 43 |
| 614 | 260 | 200f8 | 15 | 50h6 | 230 | 4 | 209 | 96 | 81 | 361 | 260 | 6xØ11 | 53.5 | 14 | M10 x 18 | 43 |
| 615 | 260 | 200f8 | 15 | 50h6 | 230 | 4 | 206 | 96 | 81 | 358 | 260 | 6xØ11 | 53.5 | 14 | M10 x 18 | 43 |
| 616 | 340 | 270f8 | 20 | 60h6 | 310 | 4 | 200 | 89 | 80 | 417 | 308 | 6xØ11 | 64.0 | 18 | M10 x 18 | 80 |
| 617 | 400 | 316f8 | 22 | 70h6 | 360 | 5 | 225 | 94 | 84 | 447 | 352 | 8xØ14 | 74.5 | 20 | M12 x 24 | 125 |
| 618 | 430 | 345f8 | 22 | 80h6 | 390 | 5 | 240 | 110 | 100 | 477 | 389 | 8xØ18 | 85.0 | 22 | M12 x 24 | 150 |

| Motor rated power [kW] | Frame | Range | Motor dimensions | | | Motor weight [kg] |
|--------------------------|-------|-------|------------------|-----|-----|---------------------|
| | | | AC | HB | LB | |
| 0.37 | 71B | SGA | 138 | - | 219 | 11 |
| 0.55 | 80A | SGA | 165 | 90 | 245 | 17 |
| 0.75 | 80B | HGA | 172 | 100 | 260 | 22 |
| 1.50 | 90L | HGA | 185 | 115 | 305 | 29 |
| 2.20 | 100LA | HGA | 210 | 150 | 350 | 36 |
| 3.00 | 100LB | HGA | 210 | 150 | 350 | 40 |
| 4.00 | 112M | HGA | 260 | 153 | 400 | 52 |
| 5.50 | 132S | HGA | 298 | 200 | 410 | 71 |
| 7.50 | 132M | HGA | 298 | 200 | 450 | 84 |
| 11.00 | 160M | HGA | 325 | 215 | 490 | 127 |
| 15.00 | 160L | HGA | 325 | 215 | 535 | 148 |
| 18.50 | 180M | HGA | 360 | 230 | 560 | 186 |
| 22.00 | 180L | HGA | 360 | 230 | 600 | 194 |

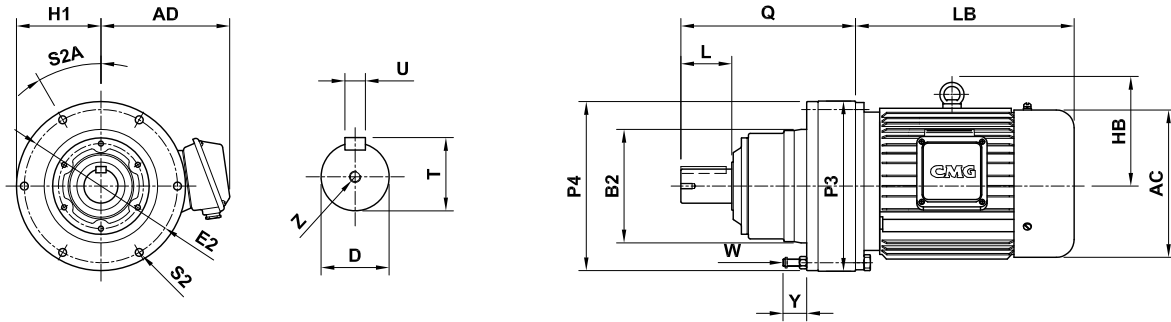
Motor-Reducer selection cross-reference

| Motor rated power [kW] | Model | | | | | | | | |
|--------------------------|-------|-----|-----|-----|-----|-----|-----|-----|-----|
| | 610 | 611 | 612 | 613 | 614 | 615 | 616 | 617 | 618 |
| 0.37 | • | • | | | | | | | |
| 0.55 | • | • | • | | | | | | |
| 0.75 | • | • | • | | | | | | |
| 1.5 | • | • | • | • | | | • | | |
| 2.2 | • | • | • | • | | • | • | • | |
| 3 | | • | • | • | | • | • | • | |
| 4 | | • | • | • | • | • | • | • | • |
| 5.5 | | | • | • | • | | • | • | • |
| 7.5 | | | • | • | • | • | • | • | • |
| 11 | | | | | | • | • | • | • |
| 15 | | | | | | • | • | • | • |
| 19 | | | | | | | | • | • |
| 22 | | | | | | | | • | • |

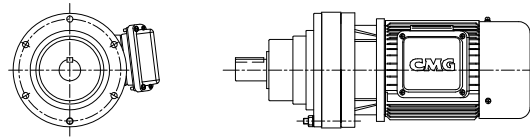
Dimensions

600FM Face mount gear motors

Sizes 613-618



Sizes 610-612



| Model | Reducer dimensions | | | | | | | | | | | | | | | Reducer Weight [kg] |
|-------|--------------------|----|-----|-----|-----|-----|-----|-----|--------|-------|------|----|-----|----|----------|-----------------------|
| | B2 | D | E2 | H1 | L | P3 | P4 | Q | S2 | S2A | T | U | W | Y | Z | |
| 610 | 105g6 | 28 | 134 | - | 35 | 150 | 150 | 150 | 8 x 9 | 22.5° | 31.0 | 8 | M8 | 28 | - | 10 |
| 611 | 115g6 | 32 | 146 | - | 45 | 162 | 162 | 162 | 8 x 9 | 22.5° | 35.0 | 10 | M8 | 26 | - | 11 |
| 612 | 140g6 | 38 | 180 | - | 55 | 204 | 200 | 200 | 6 x 11 | 60° | 41.0 | 10 | M10 | 33 | - | 20 |
| 613 | 165g6 | 50 | 205 | 208 | 70 | 230 | 266 | 178 | 6 x 11 | 60° | 53.5 | 14 | M10 | 31 | M10 x 18 | 36 |
| 614 | 165g6 | 50 | 205 | 208 | 90 | 230 | 266 | 198 | 6 x 11 | 60° | 53.5 | 14 | M10 | 31 | M10 x 18 | 37 |
| 615 | 165g6 | 50 | 205 | 208 | 90 | 230 | 266 | 198 | 6 x 11 | 60° | 53.5 | 14 | M10 | 31 | M10 x 18 | 37 |
| 616 | 200g6 | 60 | 270 | 228 | 90 | 318 | 296 | 222 | 6 x 14 | 30° | 64.0 | 18 | M12 | 35 | M10 x 18 | 66 |
| 617 | 250g6 | 70 | 300 | 243 | 90 | 362 | 330 | 262 | 8 x 14 | 22.5° | 74.5 | 20 | M12 | 41 | M12 x 24 | 96 |
| 618 | 280g6 | 80 | 330 | 258 | 110 | 390 | 360 | 299 | 8 x 14 | 22.5° | 85.0 | 22 | M12 | 38 | M12 x 24 | 131 |

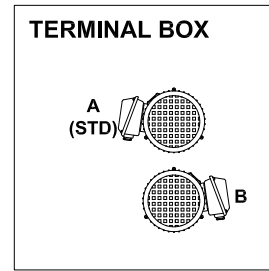
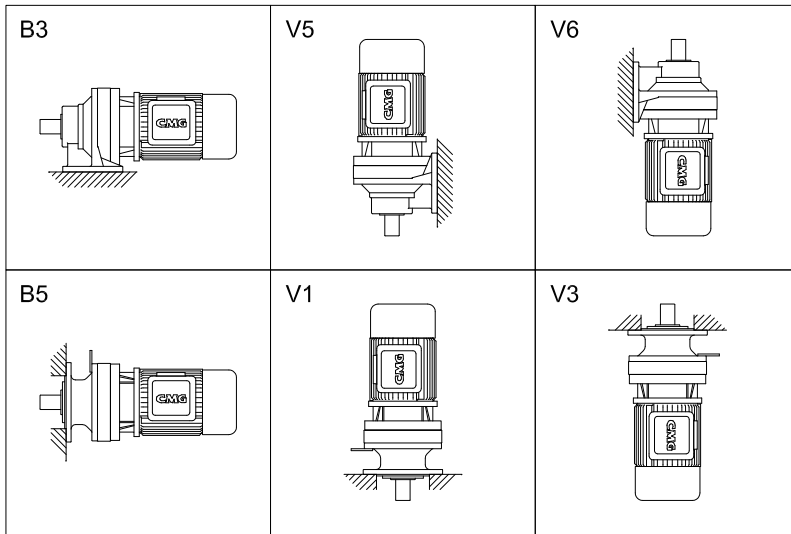
| Motor rated power [kW] | Motor dimensions | | AC | AD | HB | LB | Motor weight [kg] |
|--------------------------|------------------|-------|-----|-----|-----|-----|---------------------|
| | Frame | Range | | | | | |
| 0.37 | 71B | SGA | 138 | 126 | - | 219 | 11 |
| 0.55 | 80A | SGA | 165 | 145 | 90 | 245 | 17 |
| 0.75 | 80B | HGA | 172 | 151 | 100 | 260 | 22 |
| 1.5 | 90L | HGA | 185 | 156 | 115 | 305 | 29 |
| 2.2 | 100LA | HGA | 210 | 175 | 150 | 350 | 36 |
| 3 | 100LB | HGA | 210 | 175 | 150 | 350 | 40 |
| 4 | 112M | HGA | 260 | 185 | 153 | 400 | 52 |
| 5.5 | 132S | HGA | 298 | 227 | 200 | 410 | 71 |
| 7.5 | 132M | HGA | 298 | 227 | 200 | 450 | 84 |
| 11 | 160M | HGA | 325 | 325 | 215 | 490 | 127 |
| 15 | 160L | HGA | 325 | 325 | 215 | 535 | 148 |
| 18.5 | 180M | HGA | 360 | 270 | 230 | 560 | 186 |
| 22 | 180L | HGA | 360 | 270 | 230 | 600 | 194 |

Motor-Reducer selection cross-reference

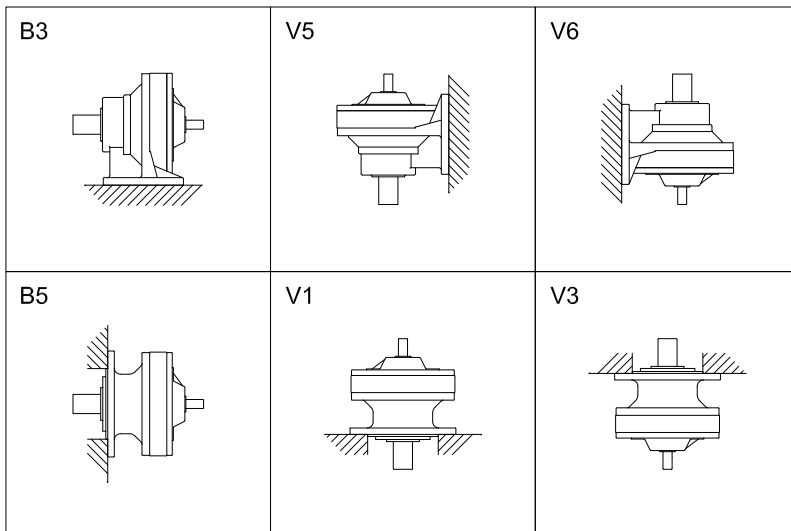
| Motor rated power [kW] | Model | | | | | | | | | |
|--------------------------|-------|-----|-----|-----|-----|-----|-----|-----|-----|--|
| | 610 | 611 | 612 | 613 | 614 | 615 | 616 | 617 | 618 | |
| 0.37 | • | • | | | | | | | | |
| 0.55 | • | • | • | | | | | | | |
| 0.75 | • | • | • | | | | | | | |
| 1.5 | • | • | • | • | | • | | | | |
| 2.2 | • | • | • | | | • | • | • | | |
| 3 | | • | • | • | • | • | • | • | | |
| 4 | | • | • | • | • | • | • | • | • | |
| 5.5 | | | • | • | • | • | • | • | • | |
| 7.5 | | | • | • | • | • | • | • | • | |
| 11 | | | | | | • | • | • | • | |
| 15 | | | | | | • | • | • | • | |
| 19 | | | | | | | | • | • | |
| 22 | | | | | | | | • | • | |

Mounting positions

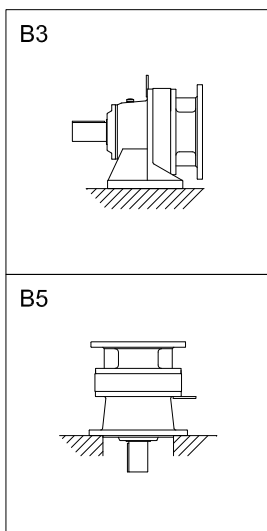
Gear motors



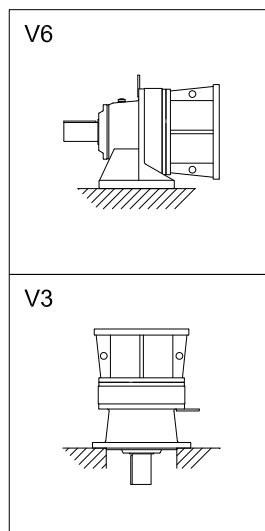
Reducers



IEC Hollow adaptor



IEC Solid adaptor



Reducer selection process

Follow the steps below when selecting a reducer. Two examples are given to provide a better understanding. Consult CMG for further assistance with selecting the right reducer, or understanding the selection process. Service Factor tables can all be found on the next page.

Model selection

| Value | Step | Example 1 | Example 2 |
|-------|---|------------|------------|
| | (a) Reducer Input Speed [r/min] | 1,200 | 600 r/min |
| | (b) Reducer Output Speed [r/min] | 28 | 20 r/min |
| | (c) Reducer ratio = (a) / (b) | 43:1 | 30:1 |
| | (d) Load type (Uniform, Moderate, Heavy) | Moderate | Moderate |
| | (e) Running cycle [hours/day] | 10 hrs/day | 24 hrs/day |
| | (f) Service factor. Use (d) and (e) on Table A. | 1.2 | 1.35 |
| | (g) Maximum driven torque [Nm] | 3,100 Nm | 2,000 Nm |
| | (h) Maximum reducer torque = (f) x (g) [Nm] | 3,720 Nm | 2,700 Nm |
| | (i) Reducer model In the Reducer selection tables (p14-16) 1. Use (c) to first select the nearest reducer ratio block. 2. Then use (a) to chose the nearest row. 3. Scan across the row to the column with the next highest torque above (h). 4. Scan up the column to identify which reducer model. | 618 | 617 |

Overhung load check

When a gear, sprocket or other form of pulley is coupled to the reducer output shaft it is very important to make sure the applied overhung load is less than the maximum allowable load. Confirm the calculated overhung load on the output shaft is less than the maximum permissible overhung load with the following steps:

| Value | Step | Example 2 |
|-------|--|-----------|
| | (j) Reducer maximum overhung load. Use (b) and (i) in Table B to identify. | 26,281 |
| | (k) Coupling factor. Select according to coupling type from Table C. | 1 |
| | (l) Shock factor. Select according to shock type from Table D. | 1.2 |
| | (m) Total shaft load factor = (k) x (l) | 1.2 |
| | (n) Maximum permissible overhung load = (j) / (m) | 21,900 |
| | (o) Pulley/Sprocket Pitch Circle Radius (PCR) | 0.15 |
| | (p) Calculated overhung load = (h) / (o) | 18,000 |
| | (q) If (p) ≤ (n) then the reducer size (i) is still suitable. | OK |

Example 1: Background

Driven machine: Mixer, moderate load, direct coupled, output shaft vertical down, V-flange mounting

Operation time: 10 hrs/day

Input speed: 1,200 r/min

Output speed: 28 r/min

Transmitted torque: Torque on the slow speed shaft (output) of the reducer is 3100 Nm.

Example 2: Background

Driven machine: Chain conveyor, moderate load (variable feed), horizontal foot mounted, sprocket fitted to output shaft is pitch circle radius $R = 0.15$ m, Radial load position: center of slow speed shaft, light shock load.

Operation time: 24 hrs/day

Input speed: 600 r/min,

Output speed: 20 r/min

Transmitted torque: Torque on the slow speed shaft (output) of the reducer is 2000 Nm.

Service factor tables

Table A: Service factor

| Hours per day | Uniform | Moderate | Heavy |
|---------------|---------|----------|-------|
| 0-3 hours | 0.80 | 1.00 | 1.35 |
| 4-10 hours | 1.00 | 1.20 | 1.50 |
| 11-24 hours | 1.20 | 1.35 | 1.60 |

Table B: Reducer maximum overhung load

| Output speed [r/min] | Unit size | | | | | | | | |
|---------------------------|-----------|-------|-------|--------|--------|--------|--------|--------|--------|
| | 610 | 611 | 612 | 613 | 614 | 615 | 616 | 617 | 618 |
| <2 | 5,393 | 8,629 | 9,806 | 13,386 | 14,709 | 15,690 | 20,103 | 28,439 | 39,226 |
| 3 | 5,393 | 8,629 | 9,806 | 13,386 | 14,709 | 15,690 | 20,103 | 28,439 | 43,149 |
| 4 | 5,393 | 8,629 | 9,806 | 13,386 | 14,709 | 15,690 | 20,103 | 28,439 | 39,226 |
| 5 | 5,393 | 8,629 | 9,806 | 13,386 | 14,709 | 15,690 | 20,103 | 28,439 | 39,226 |
| 6 | 5,393 | 8,629 | 9,806 | 13,386 | 14,709 | 15,690 | 20,103 | 28,439 | 39,226 |
| 8 | 5,393 | 8,629 | 9,806 | 13,386 | 14,709 | 15,690 | 20,103 | 28,439 | 39,226 |
| 10 | 5,393 | 8,629 | 9,806 | 13,386 | 14,709 | 15,690 | 20,103 | 28,439 | 38,245 |
| 15 | 5,393 | 8,629 | 9,806 | 13,386 | 14,709 | 15,690 | 20,103 | 28,439 | 37,265 |
| 20 | 5,393 | 8,629 | 9,806 | 13,337 | 14,709 | 15,690 | 19,613 | 26,281 | 35,205 |
| 25 | 5,393 | 8,629 | 9,806 | 12,699 | 14,709 | 15,690 | 19,613 | 24,418 | 32,656 |
| 30 | 5,393 | 8,629 | 9,806 | 11,964 | 14,709 | 15,690 | 19,446 | 22,947 | 30,792 |
| 35 | 5,393 | 8,629 | 9,806 | 11,227 | 14,317 | 15,690 | 18,436 | 21,770 | 29,272 |
| 40 | 5,393 | 8,629 | 9,365 | 10,885 | 13,778 | 15,386 | 17,701 | 20,790 | 27,889 |
| 50 | 5,393 | 8,629 | 8,718 | 10,100 | 12,895 | 15,023 | 16,475 | 19,319 | 25,889 |
| 60 | 5,393 | 8,188 | 8,188 | 9,463 | 12,179 | 14,249 | 14,494 | 18,191 | 24,418 |
| 80 | 5,393 | 7,354 | 7,453 | 8,629 | 11,189 | 13,042 | 14,043 | 16,524 | 22,064 |
| 100 | 5,393 | 7,354 | 6,913 | 8,021 | 10,395 | 12,170 | 13,072 | 15,347 | 20,593 |
| 125 | 5,099 | 6,413 | 6,423 | 7,433 | 9,757 | 11,395 | 12,062 | 14,219 | 19,073 |
| 150 | 4,805 | 6,031 | 6,031 | 7,011 | 9,218 | 10,787 | 11,424 | 13,386 | 17,946 |
| 200 | 4,344 | 5,462 | 5,491 | 6,344 | 8,453 | 9,904 | 10,296 | 12,179 | 16,328 |
| 250 | 4,069 | 5,060 | 5,089 | 5,893 | 7,943 | 9,218 | 9,561 | 11,297 | |
| 300 | 3,824 | 4,775 | 4,775 | 5,570 | 7,502 | 8,727 | 9,022 | 10,600 | |

Table C: Coupling factor, Cf

| Type of coupling | Cf |
|------------------|-----|
| Chain | 1 |
| Gears | 1.2 |
| V - belt | 1.5 |
| Flat belt | 2.5 |

Table D: Shock factor, Fs

| Degree of shock | Fs |
|-----------------|------------|
| No shock | 1 |
| Light shock | 1 to 1.2 |
| Severe shock | 1.4 to 1.6 |

Reducer selection tables

| | | Model | | | | | | | | | | | | | | | | | |
|------------------------|-------------------------|-------------------------|-----------------------|-------------------------|-----------------------|-------------------------|-----------------------|-------------------------|-----------------------|-------------------------|-----------------------|-------------------------|-----------------------|-------------------------|-----------------------|-------------------------|-----------------------|-------------------------|-----------------------|
| | | 610 | | 611 | | 612 | | 613 | | 614 | | 615 | | 616 | | 617 | | 618 | |
| Input speed [r/min] | Output speed [r/min] | Max Input Power [kW] | Output Torque [Nm] | Max Input Power [kW] | Output Torque [Nm] | Max Input Power [kW] | Output Torque [Nm] | Max Input Power [kW] | Output Torque [Nm] | Max Input Power [kW] | Output Torque [Nm] | Max Input Power [kW] | Output Torque [Nm] | Max Input Power [kW] | Output Torque [Nm] | Max Input Power [kW] | Output Torque [Nm] | Max Input Power [kW] | Output Torque [Nm] |
| Ratio 6:1 | | | | | | | | | | | | | | | | | | | |
| 1800 | 300 | 2.26 | 67 | 4.88 | 144 | 6.78 | 197 | 9.97 | 294 | | | 13.0 | 383 | 14.6 | 430 | 22.5 | 662 | | |
| 1500 | 250 | 2.21 | 78 | 4.96 | 175 | 6.62 | 234 | 9.97 | 353 | | | 13.0 | 459 | 14.6 | 516 | 21.4 | 757 | | |
| 1200 | 200 | 1.86 | 82 | 4.25 | 188 | 5.85 | 259 | 8.64 | 382 | | | 11.2 | 496 | 12.5 | 552 | 18.4 | 809 | | |
| 1000 | 167 | 1.73 | 92 | 3.78 | 201 | 5.13 | 272 | 7.59 | 403 | | | 9.97 | 529 | 11.0 | 583 | 16.1 | 855 | | |
| 900 | 150 | 1.69 | 100 | 3.50 | 207 | 4.73 | 279 | 6.98 | 412 | | | 9.22 | 544 | 10.2 | 602 | 15.0 | 882 | | |
| 750 | 125 | 1.52 | 109 | 3.09 | 219 | 4.04 | 286 | 6.19 | 438 | | | 8.25 | 584 | 9.00 | 635 | 13.2 | 932 | | |
| 600 | 100 | 1.33 | 118 | 2.69 | 238 | 3.30 | 292 | 5.32 | 470 | | | 6.73 | 596 | 7.70 | 679 | 11.3 | 1000 | | |
| Ratio 8:1 | | | | | | | | | | | | | | | | | | | |
| 1800 | 225 | 2.76 | 109 | 5.01 | 197 | 6.78 | 267 | 10.0 | 394 | | | 12.9 | 509 | 17.9 | 704 | | | | |
| 1500 | 188 | 2.72 | 128 | 5.02 | 237 | 6.83 | 322 | 10.0 | 472 | | | 13.0 | 614 | 17.8 | 840 | | | | |
| 1200 | 150 | 2.32 | 137 | 4.30 | 254 | 5.83 | 344 | 8.65 | 511 | | | 10.9 | 638 | 16.9 | 1000 | | | | |
| 1000 | 125 | 2.08 | 147 | 3.76 | 267 | 5.12 | 363 | 7.66 | 542 | | | 9.79 | 693 | 15.1 | 1068 | | | | |
| 900 | 113 | 1.91 | 150 | 3.52 | 277 | 4.81 | 378 | 7.01 | 552 | | | 9.08 | 714 | 13.9 | 1098 | | | | |
| 750 | 94 | 1.71 | 162 | 3.10 | 293 | 4.22 | 398 | 6.35 | 600 | | | 8.00 | 755 | 12.4 | 1176 | | | | |
| 600 | 75 | 1.45 | 172 | 2.64 | 312 | 3.39 | 400 | 5.40 | 637 | | | 6.81 | 804 | 10.5 | 1245 | | | | |
| Ratio 11:1 | | | | | | | | | | | | | | | | | | | |
| 1800 | 164 | 2.70 | 146 | 4.98 | 270 | 4.96 | 269 | 9.77 | 528 | 9.93 | 537 | 12.9 | 698 | 17.8 | 965 | 26.8 | 1450 | 32.4 | 1754 |
| 1500 | 136 | 2.72 | 176 | 5.03 | 326 | 5.07 | 329 | 9.69 | 629 | 9.84 | 639 | 13.0 | 842 | 18.1 | 1176 | 27.0 | 1754 | 32.0 | 2097 |
| 1200 | 109 | 2.32 | 188 | 4.26 | 346 | 4.34 | 352 | 8.40 | 681 | 8.50 | 690 | 11.1 | 903 | 17.2 | 1392 | 22.6 | 1833 | 33.0 | 2675 |
| 1000 | 91 | 2.05 | 200 | 3.76 | 367 | 3.78 | 368 | 7.37 | 717 | 7.50 | 730 | 9.70 | 945 | 14.9 | 1450 | 19.5 | 1901 | 29.2 | 2842 |
| 900 | 82 | 1.88 | 204 | 3.57 | 386 | 3.59 | 388 | 6.82 | 738 | 7.02 | 760 | 8.90 | 962 | 13.5 | 1460 | 18.5 | 1999 | 27.4 | 2960 |
| 750 | 68 | 1.57 | 204 | 3.13 | 407 | 3.16 | 411 | 5.78 | 751 | 6.15 | 798 | 7.70 | 1000 | 11.2 | 1460 | 16.2 | 2097 | 23.7 | 3077 |
| 600 | 55 | 1.26 | 205 | 2.69 | 437 | 2.72 | 441 | 4.64 | 753 | 5.31 | 861 | 6.16 | 1000 | 9.06 | 1470 | 13.9 | 2254 | 20.2 | 3283 |
| Ratio 13:1 | | | | | | | | | | | | | | | | | | | |
| 1800 | 138 | 2.64 | 169 | 4.98 | 311 | 5.00 | 319 | 9.25 | 591 | 9.74 | 622 | 10.2 | 649 | 17.0 | 1088 | 26.8 | 1715 | 33.0 | 2107 |
| 1500 | 115 | 2.66 | 204 | 4.88 | 374 | 5.00 | 383 | 9.21 | 707 | 9.72 | 746 | 10.3 | 790 | 17.0 | 1303 | 26.7 | 2048 | 33.1 | 2538 |
| 1200 | 92 | 2.13 | 204 | 4.19 | 402 | 4.30 | 413 | 7.84 | 752 | 8.29 | 795 | 8.72 | 836 | 14.6 | 1401 | 22.6 | 2166 | 31.6 | 3028 |
| 1000 | 77 | 1.77 | 204 | 3.67 | 422 | 3.82 | 439 | 6.54 | 753 | 7.38 | 850 | 7.66 | 881 | 12.9 | 1490 | 20.4 | 2342 | 27.9 | 3214 |
| 900 | 69 | 1.59 | 204 | 3.37 | 431 | 3.54 | 453 | 5.90 | 755 | 6.94 | 887 | 7.06 | 903 | 11.9 | 1519 | 18.8 | 2401 | 26.0 | 3322 |
| 750 | 58 | 1.33 | 204 | 3.00 | 452 | 3.06 | 469 | 4.92 | 755 | 6.02 | 924 | 6.16 | 946 | 10.5 | 1617 | 16.6 | 2548 | 22.9 | 3508 |
| 600 | 46 | 1.07 | 206 | 2.56 | 492 | 2.58 | 495 | 3.94 | 755 | 5.11 | 980 | 5.26 | 1009 | 9.05 | 1735 | 14.2 | 2724 | 32.0 | 3744 |
| Ratio 15:1 | | | | | | | | | | | | | | | | | | | |
| 1800 | 120 | 2.72 | 201 | 4.82 | 356 | 4.94 | 365 | 7.60 | 561 | 9.16 | 675 | 9.87 | 728 | 15.0 | 1107 | 22.8 | 1686 | 30.0 | 2215 |
| 1500 | 100 | 2.74 | 242 | 4.84 | 428 | 4.95 | 438 | 7.64 | 676 | 9.14 | 809 | 9.91 | 877 | 15.0 | 1323 | 22.9 | 2029 | 30.3 | 2675 |
| 1200 | 80 | 2.30 | 255 | 4.16 | 460 | 4.26 | 471 | 6.56 | 726 | 7.86 | 869 | 8.52 | 943 | 12.8 | 1411 | 19.6 | 2166 | 23.7 | 2911 |
| 1000 | 67 | 1.92 | 255 | 3.66 | 486 | 3.76 | 499 | 5.68 | 755 | 6.93 | 919 | 7.53 | 1000 | 11.2 | 1490 | 17.3 | 2048 | 22.8 | 2293 |
| 900 | 60 | 1.73 | 255 | 3.39 | 500 | 3.39 | 500 | 5.12 | 755 | 6.49 | 957 | 6.84 | 1009 | 10.4 | 1539 | 16.0 | 2156 | 21.3 | 2362 |
| 750 | 50 | 1.44 | 255 | 2.82 | 500 | 2.82 | 500 | 4.26 | 755 | 5.70 | 1009 | 5.70 | 1009 | 9.30 | 1646 | 14.1 | 2499 | 18.7 | 3312 |
| 600 | 40 | 1.15 | 255 | 2.26 | 500 | 2.26 | 500 | 3.41 | 755 | 4.56 | 1009 | 4.56 | 1009 | 7.84 | 1735 | 12.1 | 2675 | 16.0 | 3548 |

Reducer selection tables

| | | Model | | | | | | | | | | | | | | | | | |
|------------------------|-------------------------|-------------------------|-----------------------|-------------------------|-----------------------|-------------------------|-----------------------|-------------------------|-----------------------|-------------------------|-----------------------|-------------------------|-----------------------|-------------------------|-----------------------|-------------------------|-----------------------|-------------------------|-----------------------|
| | | 610 | | 611 | | 612 | | 613 | | 614 | | 615 | | 616 | | 617 | | 618 | |
| Input speed [r/min] | Output speed [r/min] | Max Input Power [kW] | Output Torque [Nm] | Max Input Power [kW] | Output Torque [Nm] | Max Input Power [kW] | Output Torque [Nm] | Max Input Power [kW] | Output Torque [Nm] | Max Input Power [kW] | Output Torque [Nm] | Max Input Power [kW] | Output Torque [Nm] | Max Input Power [kW] | Output Torque [Nm] | Max Input Power [kW] | Output Torque [Nm] | Max Input Power [kW] | Output Torque [Nm] |
| Ratio 17:1 | | | | | | | | | | | | | | | | | | | |
| 1800 | 106 | 2.05 | 172 | 4.60 | 384 | 4.97 | 416 | 7.06 | 590 | 9.03 | 755 | 9.04 | 756 | 14.9 | 1245 | 19.3 | 1617 | 29.8 | 2489 |
| 1500 | 88 | 2.09 | 210 | 4.68 | 469 | 4.98 | 500 | 7.04 | 707 | 9.06 | 908 | 9.07 | 909 | 15.0 | 1509 | 19.3 | 1940 | 30.0 | 3009 |
| 1200 | 71 | 1.79 | 224 | 3.99 | 500 | 3.99 | 500 | 6.00 | 753 | 7.82 | 980 | 7.82 | 980 | 12.8 | 1607 | 16.6 | 2078 | 25.5 | 3195 |
| 1000 | 59 | 1.58 | 237 | 3.32 | 500 | 3.32 | 500 | 5.02 | 755 | 6.71 | 1009 | 6.71 | 1009 | 11.4 | 1715 | 14.6 | 2205 | 22.6 | 3401 |
| 900 | 53 | 1.48 | 248 | 2.99 | 500 | 2.99 | 500 | 4.51 | 755 | 6.04 | 1009 | 6.04 | 1009 | 10.6 | 1764 | 13.5 | 2264 | 20.9 | 3499 |
| 750 | 44 | 1.27 | 255 | 2.49 | 500 | 2.49 | 500 | 3.76 | 755 | 5.03 | 1009 | 5.03 | 1009 | 8.94 | 1793 | 12.0 | 2401 | 18.5 | 2724 |
| 600 | 35 | 1.02 | 255 | 1.99 | 51 | 1.99 | 51 | 3.01 | 755 | 4.02 | 103 | 4.02 | 103 | 7.15 | 183 | 10.3 | 264 | 15.8 | 405 |
| Ratio 21:1 | | | | | | | | | | | | | | | | | | | |
| 1800 | 86 | 2.01 | 208 | 4.00 | 414 | 4.00 | 414 | 6.02 | 621 | 6.65 | 687 | 7.04 | 727 | 13.3 | 1372 | 18.4 | 1901 | 26.9 | 2773 |
| 1500 | 71 | 2.02 | 250 | 4.03 | 500 | 4.03 | 500 | 6.05 | 750 | 6.70 | 830 | 7.08 | 877 | 13.2 | 1637 | 18.5 | 2293 | 26.9 | 3332 |
| 1200 | 57 | 1.64 | 255 | 3.23 | 500 | 3.23 | 500 | 4.87 | 755 | 5.73 | 888 | 6.06 | 938 | 11.4 | 1764 | 15.9 | 2460 | 23.1 | 3577 |
| 1000 | 48 | 1.73 | 255 | 2.69 | 500 | 2.69 | 500 | 4.06 | 755 | 5.06 | 941 | 5.33 | 990 | 9.65 | 1793 | 13.9 | 2587 | 20.4 | 3793 |
| 900 | 43 | 1.23 | 255 | 2.42 | 500 | 2.42 | 500 | 3.65 | 755 | 4.70 | 970 | 4.89 | 1009 | 8.68 | 1793 | 13.0 | 2685 | 19.0 | 3920 |
| 750 | 36 | 1.03 | 255 | 2.02 | 500 | 2.02 | 500 | 3.04 | 755 | 4.07 | 1009 | 4.07 | 1009 | 7.24 | 2724 | 11.0 | 4018 | 16.2 | 5576 |
| 600 | 29 | 0.82 | 255 | 1.61 | 500 | 1.61 | 500 | 2.44 | 755 | 3.26 | 1009 | 3.26 | 1009 | 5.79 | 1793 | 8.80 | 2724 | 13.0 | 4018 |
| Ratio 25:1 | | | | | | | | | | | | | | | | | | | |
| 1800 | 72 | 1.47 | 180 | 3.19 | 392 | 3.34 | 411 | 5.08 | 624 | 5.82 | 715 | 6.94 | 853 | 11.6 | 1431 | 15.6 | 1921 | 22.8 | 2803 |
| 1500 | 60 | 1.44 | 213 | 3.20 | 472 | 3.35 | 494 | 5.08 | 750 | 5.84 | 861 | 6.71 | 990 | 11.6 | 1715 | 15.5 | 2293 | 22.8 | 3371 |
| 1200 | 48 | 1.24 | 229 | 2.71 | 500 | 2.71 | 500 | 4.09 | 755 | 5.00 | 921 | 5.48 | 1009 | 9.73 | 1793 | 13.3 | 2450 | 19.5 | 3597 |
| 1000 | 40 | 1.08 | 240 | 2.26 | 500 | 2.26 | 500 | 3.41 | 755 | 4.43 | 980 | 4.56 | 1009 | 8.11 | 1793 | 11.7 | 2597 | 17.2 | 3802 |
| 900 | 36 | 1.02 | 250 | 2.03 | 500 | 2.03 | 500 | 3.07 | 755 | 4.11 | 1009 | 4.11 | 1009 | 7.30 | 1793 | 10.9 | 2685 | 16.1 | 3959 |
| 750 | 30 | 0.86 | 255 | 1.69 | 500 | 1.69 | 500 | 2.56 | 755 | 3.42 | 1009 | 3.42 | 1009 | 6.08 | 1793 | 9.24 | 2724 | 13.6 | 4018 |
| 600 | 24 | 0.69 | 255 | 1.36 | 500 | 1.36 | 500 | 2.05 | 755 | 2.74 | 1009 | 2.74 | 1009 | 4.86 | 1793 | 9.39 | 2724 | 10.9 | 4018 |
| Ratio 29:1 | | | | | | | | | | | | | | | | | | | |
| 1800 | 62 | 1.38 | 197 | 2.84 | 405 | 2.84 | 406 | 4.41 | 628 | 4.84 | 691 | 5.88 | 839 | 9.69 | 1312 | 14.3 | 2038 | 18.3 | 2607 |
| 1500 | 52 | 1.38 | 236 | 2.85 | 487 | 2.86 | 490 | 4.41 | 755 | 4.85 | 830 | 5.84 | 1000 | 9.68 | 1656 | 14.3 | 2450 | 18.4 | 3156 |
| 1200 | 41 | 1.17 | 250 | 2.34 | 500 | 2.33 | 499 | 3.53 | 755 | 4.20 | 899 | 4.72 | 1009 | 8.34 | 1784 | 12.2 | 2617 | 15.9 | 3410 |
| 1000 | 34 | 1.00 | 254 | 1.95 | 500 | 1.95 | 500 | 2.94 | 755 | 3.63 | 931 | 3.93 | 1009 | 6.99 | 1793 | 10.6 | 2724 | 13.9 | 3567 |
| 900 | 31 | 0.89 | 255 | 1.75 | 500 | 1.75 | 500 | 2.65 | 755 | 3.40 | 1009 | 3.54 | 1793 | 6.29 | 2724 | 9.55 | 3920 | 12.9 | 3910 |
| 750 | 26 | 0.74 | 255 | 1.46 | 500 | 1.46 | 500 | 2.20 | 755 | 2.95 | 1009 | 2.95 | 1793 | 5.24 | 2724 | 7.96 | 4018 | 11.4 | 3881 |
| 600 | 21 | 0.60 | 255 | 1.17 | 500 | 1.17 | 500 | 1.76 | 755 | 2.36 | 1009 | 2.36 | 1009 | 4.19 | 1793 | 6.37 | 2724 | 9.39 | 4018 |
| Ratio 35:1 | | | | | | | | | | | | | | | | | | | |
| 1800 | 51 | 1.03 | 177 | 2.40 | 413 | 2.40 | 413 | 3.62 | 622 | 4.61 | 794 | 4.84 | 832 | 8.60 | 1480 | 12.4 | 2127 | 18.4 | 3165 |
| 1500 | 43 | 1.02 | 211 | 2.42 | 499 | 2.42 | 499 | 3.64 | 752 | 4.63 | 956 | 4.84 | 1000 | 8.64 | 1784 | 12.5 | 2577 | 18.5 | 3812 |
| 1200 | 34 | 0.87 | 240 | 1.94 | 500 | 1.94 | 500 | 2.92 | 753 | 3.91 | 1009 | 3.91 | 1009 | 6.95 | 1793 | 10.5 | 2715 | 15.5 | 4008 |
| 1000 | 29 | 0.78 | 251 | 1.61 | 500 | 1.61 | 500 | 2.44 | 755 | 3.26 | 1009 | 3.26 | 1009 | 5.79 | 1793 | 8.80 | 2724 | 13.0 | 4018 |
| 900 | 26 | 0.62 | 255 | 1.21 | 500 | 1.21 | 500 | 1.83 | 755 | 2.44 | 1009 | 2.44 | 1009 | 4.34 | 1793 | 6.60 | 2724 | 9.73 | 4018 |
| 750 | 21 | 0.62 | 255 | 1.21 | 500 | 1.21 | 500 | 7.83 | 755 | 2.44 | 1009 | 2.44 | 1009 | 4.34 | 1793 | 6.60 | 2724 | 9.73 | 4018 |
| 600 | 17 | 0.49 | 255 | 0.97 | 500 | 0.97 | 500 | 1.46 | 755 | 1.96 | 1009 | 1.96 | 1009 | 3.47 | 1793 | 5.28 | 2724 | 7.78 | 4018 |

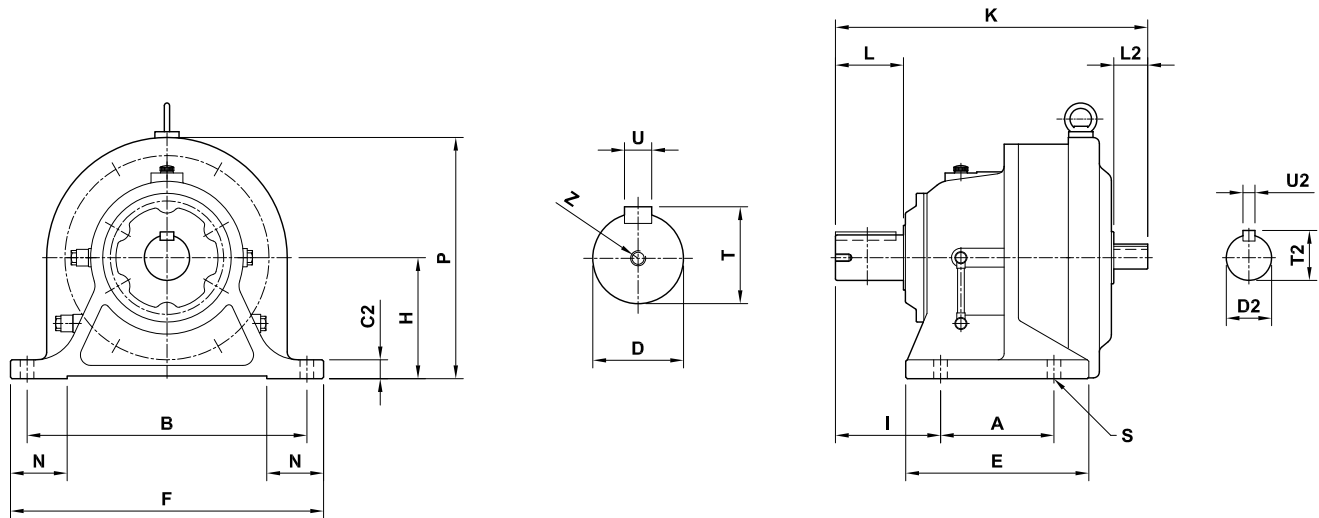
Reducer selection tables

| | | Model | | | | | | | | | | | | | | | | | |
|------------------------|-------------------------|-------------------------|-----------------------|-------------------------|-----------------------|-------------------------|-----------------------|-------------------------|-----------------------|-------------------------|-----------------------|-------------------------|-----------------------|-------------------------|-----------------------|-------------------------|-----------------------|-------------------------|-----------------------|
| | | 610 | | 611 | | 612 | | 613 | | 614 | | 615 | | 616 | | 617 | | 618 | |
| Input speed [r/min] | Output speed [r/min] | Max Input Power [kW] | Output Torque [Nm] | Max Input Power [kW] | Output Torque [Nm] | Max Input Power [kW] | Output Torque [Nm] | Max Input Power [kW] | Output Torque [Nm] | Max Input Power [kW] | Output Torque [Nm] | Max Input Power [kW] | Output Torque [Nm] | Max Input Power [kW] | Output Torque [Nm] | Max Input Power [kW] | Output Torque [Nm] | Max Input Power [kW] | Output Torque [Nm] |
| Ratio 43:1 | | | | | | | | | | | | | | | | | | | |
| 1800 | 42 | 0.93 | 196 | 0.92 | 406 | 1.96 | 415 | 2.96 | 626 | 3.15 | 666 | 3.85 | 813 | 6.72 | 1421 | 9.27 | 2010 | 14.8 | 3136 |
| 1500 | 35 | 0.93 | 236 | 1.92 | 487 | 1.97 | 499 | 2.96 | 750 | 3.16 | 803 | 3.86 | 980 | 6.76 | 1715 | 9.31 | 2362 | 15.0 | 3793 |
| 1200 | 28 | 0.80 | 253 | 1.58 | 500 | 1.58 | 500 | 2.38 | 755 | 2.71 | 860 | 3.18 | 1009 | 5.66 | 1793 | 8.04 | 2548 | 12.7 | 4018 |
| 1000 | 23 | 0.67 | 251 | 1.31 | 500 | 1.31 | 500 | 1.98 | 755 | 2.39 | 1009 | 2.65 | 1009 | 4.71 | 1793 | 7.16 | 2724 | 10.6 | 4018 |
| 900 | 21 | 0.60 | 255 | 1.18 | 500 | 1.18 | 500 | 1.78 | 936 | 2.21 | 1009 | 2.39 | 1793 | 4.24 | 2724 | 6.44 | 4018 | 9.50 | 6076 |
| 750 | 17 | 0.50 | 255 | 0.98 | 500 | 0.98 | 500 | 1.49 | 755 | 1.99 | 1009 | 1.99 | 1009 | 3.53 | 1793 | 5.37 | 2724 | 7.92 | 4018 |
| 600 | 14 | 0.40 | 127 | 0.79 | 255 | 1.19 | 500 | 1.59 | 500 | 1.59 | 500 | 2.83 | 754 | 4.30 | 1009 | 6.34 | 1793 | 10.8 | 2724 |
| Ratio 51:1 | | | | | | | | | | | | | | | | | | | |
| 1800 | 35 | 0.66 | 167 | 1.87 | 469 | 1.87 | 469 | 2.52 | 632 | 2.94 | 737 | 3.40 | 853 | 5.67 | 1421 | 8.32 | 2087 | 11.4 | 2852 |
| 1500 | 29 | 0.67 | 201 | 1.66 | 499 | 1.66 | 499 | 2.50 | 752 | 2.97 | 894 | 3.32 | 1000 | 5.70 | 1715 | 8.34 | 2508 | 11.4 | 3430 |
| 1200 | 24 | 0.57 | 215 | 1.33 | 500 | 1.33 | 500 | 2.00 | 754 | 2.53 | 951 | 2.66 | 1000 | 4.72 | 1774 | 7.11 | 2675 | 9.69 | 3646 |
| 1000 | 20 | 0.50 | 226 | 1.11 | 500 | 1.11 | 500 | 1.67 | 755 | 2.21 | 1000 | 2.24 | 1009 | 3.95 | 1784 | 6.04 | 2724 | 8.90 | 4018 |
| 900 | 18 | 0.48 | 239 | 1.00 | 500 | 1.00 | 500 | 1.50 | 755 | 2.01 | 1009 | 2.01 | 1009 | 3.58 | 1793 | 5.43 | 2724 | 8.01 | 4018 |
| 750 | 15 | 0.48 | 250 | 0.83 | 500 | 0.83 | 500 | 1.25 | 755 | 1.68 | 1009 | 1.68 | 1009 | 2.98 | 1793 | 4.53 | 2724 | 6.68 | 4018 |
| 600 | 12 | 0.34 | 255 | 0.66 | 500 | 0.66 | 500 | 1.00 | 755 | 1.34 | 1009 | 1.34 | 1009 | 2.38 | 1793 | 3.62 | 2724 | 5.34 | 4018 |
| Ratio 59:1 | | | | | | | | | | | | | | | | | | | |
| 1800 | 31 | 0.61 | 176 | 1.38 | 400 | 1.38 | 402 | 2.16 | 627 | 2.84 | 823 | 2.90 | 841 | 4.90 | 1421 | 7.23 | 2097 | 9.73 | 2822 |
| 1500 | 25 | 0.60 | 211 | 1.37 | 477 | 1.38 | 479 | 2.15 | 749 | 2.80 | 976 | 2.82 | 980 | 4.96 | 1725 | 7.29 | 2538 | 9.85 | 3430 |
| 1200 | 20 | 0.52 | 228 | 1.14 | 498 | 1.15 | 499 | 1.73 | 753 | 2.25 | 980 | 2.25 | 980 | 4.10 | 1784 | 6.08 | 2646 | 8.11 | 3528 |
| 1000 | 17 | 0.45 | 237 | 0.96 | 500 | 0.96 | 500 | 1.44 | 754 | 1.93 | 1009 | 1.93 | 1009 | 3.43 | 1793 | 5.22 | 2724 | 7.08 | 3695 |
| 900 | 15 | 0.43 | 249 | 0.86 | 500 | 0.86 | 500 | 1.30 | 755 | 1.74 | 1009 | 1.74 | 1009 | 3.09 | 1793 | 4.70 | 2724 | 6.40 | 3714 |
| 750 | 13 | 0.37 | 255 | 0.72 | 500 | 0.72 | 500 | 1.08 | 755 | 1.45 | 1009 | 1.45 | 1009 | 2.58 | 1793 | 3.91 | 2724 | 5.67 | 3949 |
| 600 | 10 | 0.29 | 255 | 0.57 | 500 | 0.57 | 500 | 0.87 | 755 | 1.16 | 1009 | 1.16 | 1009 | 2.06 | 1793 | 3.13 | 2724 | 4.62 | 4018 |
| Ratio 71:1 | | | | | | | | | | | | | | | | | | | |
| 1800 | 25 | 0.49 | 172 | 0.98 | 341 | 1.01 | 352 | 1.82 | 634 | 2.10 | 735 | 2.17 | 757 | 4.10 | 1431 | 6.01 | 2097 | 7.33 | 2558 |
| 1500 | 21 | 0.49 | 207 | 0.98 | 410 | 1.02 | 427 | 1.80 | 753 | 2.11 | 884 | 2.17 | 910 | 4.09 | 1754 | 6.01 | 2519 | 7.35 | 3077 |
| 1200 | 17 | 0.42 | 222 | 0.84 | 441 | 0.87 | 456 | 1.44 | 755 | 1.81 | 949 | 1.87 | 977 | 3.42 | 1793 | 5.16 | 2724 | 6.27 | 3283 |
| 1000 | 14 | 0.37 | 235 | 0.72 | 456 | 0.76 | 480 | 1.20 | 755 | 1.58 | 990 | 1.59 | 1000 | 2.85 | 1793 | 4.34 | 2724 | 5.54 | 3479 |
| 900 | 13 | 0.34 | 241 | 0.68 | 471 | 0.72 | 500 | 1.08 | 755 | 1.44 | 1009 | 1.44 | 1009 | 2.57 | 1793 | 3.90 | 2724 | 5.15 | 3597 |
| 750 | 11 | 0.30 | 255 | 0.59 | 496 | 0.60 | 500 | 0.90 | 755 | 1.20 | 1009 | 1.20 | 1009 | 2.14 | 1793 | 3.25 | 2724 | 4.55 | 3812 |
| 600 | 8.5 | 0.24 | 255 | 0.48 | 500 | 0.48 | 500 | 0.72 | 755 | 0.96 | 1009 | 0.96 | 1009 | 1.71 | 1793 | 2.60 | 2724 | 3.84 | 4018 |
| Ratio 87:1 | | | | | | | | | | | | | | | | | | | |
| 1800 | 21 | 0.49 | 211 | 0.93 | 397 | 0.93 | 400 | 1.47 | 627 | 1.96 | 838 | 1.99 | 852 | 3.34 | 1431 | 4.83 | 2068 | 7.35 | 3146 |
| 1500 | 17 | 0.49 | 254 | 0.93 | 478 | 0.94 | 480 | 1.46 | 750 | 1.95 | 1000 | 1.97 | 1009 | 3.34 | 1715 | 4.83 | 2479 | 7.35 | 3773 |
| 1200 | 14 | 0.40 | 255 | 0.78 | 500 | 0.78 | 500 | 1.18 | 755 | 1.57 | 1009 | 1.57 | 1009 | 2.80 | 1793 | 4.14 | 2656 | 6.26 | 4018 |
| 1000 | 11 | 0.33 | 255 | 0.65 | 500 | 0.65 | 500 | 0.98 | 755 | 1.31 | 1009 | 1.31 | 1009 | 2.33 | 1793 | 3.54 | 2724 | 5.22 | 4018 |
| 900 | 10 | 0.30 | 255 | 0.58 | 500 | 0.58 | 755 | 0.88 | 1009 | 1.18 | 1009 | 1.18 | 1793 | 2.10 | 2724 | 3.18 | 4018 | 4.70 | 7056 |
| 750 | 8.6 | 0.20 | 255 | 0.49 | 500 | 0.49 | 755 | 0.74 | 1009 | 0.98 | 1793 | 0.98 | 2724 | 1.75 | 4018 | 2.65 | 7154 | 3.91 | 7154 |
| 600 | 6.9 | 0.20 | 255 | 0.39 | 500 | 0.39 | 500 | 0.59 | 755 | 0.79 | 1009 | 1.04 | 1009 | 2.12 | 1793 | 3.13 | 2724 | 5.58 | 4018 |

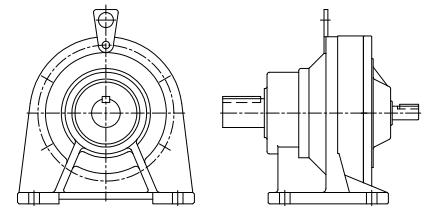
Dimensions

600H Foot mount reducers

Sizes 613-618



Sizes 610-612

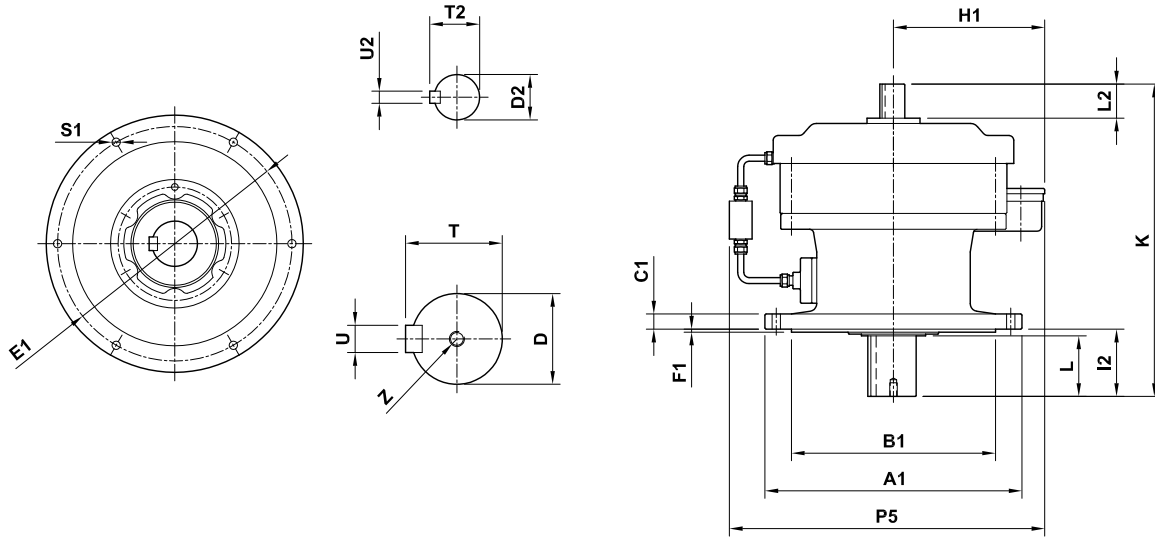


| Model | Reducer dimensions | | | | | | | | | | | | | | | | | | | Reducer weight [kg] | |
|-------|--------------------|-----|----|------|------|-----|-----|-----|-----|-----|-----|----|----|-----|------|------|------|----|----|-----------------------|-----|
| | A | B | C2 | D | D2 | E | F | H | I | K | L | L2 | N | P | S | T | T2 | U | U2 | | Z |
| 610 | 90 | 150 | 12 | 28h6 | 15h6 | 139 | 184 | 100 | 60 | 208 | 35 | 25 | 40 | 175 | 4x11 | 31 | 29.5 | 8 | 5 | - | 13 |
| 611 | 115 | 190 | 15 | 38h6 | 18h6 | 159 | 234 | 120 | 82 | 259 | 55 | 35 | 55 | 222 | 4x14 | 41 | 40.5 | 10 | 6 | - | 24 |
| 612 | 115 | 190 | 15 | 38h6 | 18h6 | 159 | 234 | 140 | 82 | 259 | 55 | 35 | 60 | 242 | 4x14 | 41 | 40.5 | 10 | 6 | - | 25 |
| 613 | 145 | 290 | 22 | 50h6 | 22h6 | 199 | 334 | 150 | 100 | 321 | 70 | 40 | 65 | 265 | 4x18 | 53.5 | 52.5 | 14 | 6 | M10 x 18 | 43 |
| 614 | 145 | 290 | 22 | 50h6 | 22h6 | 199 | 334 | 150 | 120 | 341 | 90 | 40 | 65 | 265 | 4x18 | 53.5 | 52.5 | 14 | 6 | M10 x 18 | 44 |
| 615 | 145 | 290 | 22 | 50h6 | 22h6 | 199 | 334 | 160 | 120 | 341 | 90 | 40 | 70 | 275 | 4x18 | 53.5 | 52.5 | 14 | 6 | M10 x 18 | 46 |
| 616 | 150 | 370 | 25 | 60h6 | 30h6 | 242 | 414 | 160 | 139 | 413 | 90 | 45 | 75 | 310 | 4x18 | 64 | 63 | 18 | 8 | M10 x 18 | 85 |
| 617 | 275 | 380 | 30 | 70h6 | 35h6 | 339 | 434 | 200 | 125 | 477 | 90 | 55 | 80 | 370 | 4x22 | 74.5 | 73 | 20 | 10 | M12 x 24 | 125 |
| 618 | 320 | 420 | 30 | 80h6 | 40h6 | 384 | 474 | 220 | 145 | 527 | 110 | 65 | 85 | 405 | 4x22 | 85 | 83 | 22 | 12 | M12 x 24 | 162 |

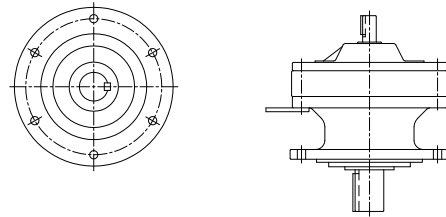
Dimensions

600V Flange mount reducers

Sizes 613-618



Sizes 610-612

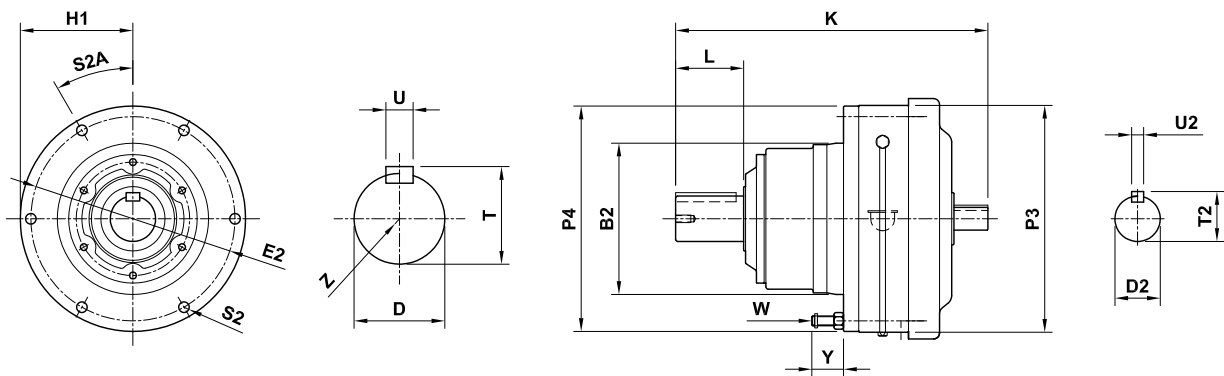


| Model | Reducer dimensions | | | | | | | | | | | | | | | | | | | Reducer weight [kg] |
|-------|--------------------|-------|----|------|------|-----|----|-----|-----|-----|-----|----|-----|-------|------|------|----|----|----------|-----------------------|
| | A1 | B1 | C1 | D | D2 | E1 | F1 | H1 | K | I2 | L | L2 | P5 | S1 | T | T2 | U | U2 | Z | |
| 610 | 160 | 110f8 | 9 | 28h6 | 15h6 | 134 | 3 | - | 208 | 48 | 35 | 25 | - | 4xØ11 | 31.0 | 17.0 | 8 | 5 | - | 12 |
| 611 | 210 | 140f8 | 13 | 38h6 | 18h6 | 180 | 4 | - | 259 | 69 | 55 | 35 | - | 6xØ11 | 41.0 | 20.5 | 10 | 6 | - | 24 |
| 612 | 210 | 140f8 | 13 | 38h6 | 18h6 | 180 | 4 | - | 259 | 69 | 55 | 35 | - | 6xØ11 | 41.0 | 20.5 | 10 | 6 | - | 24 |
| 613 | 260 | 200f8 | 15 | 50h6 | 22h6 | 230 | 4 | 209 | 321 | 76 | 61 | 40 | 361 | 6xØ11 | 53.5 | 24.5 | 10 | 6 | M10 x 18 | 43 |
| 614 | 260 | 200f8 | 15 | 50h6 | 22h6 | 230 | 4 | 209 | 341 | 96 | 81 | 40 | 361 | 6xØ11 | 53.5 | 24.5 | 14 | 6 | M10 x 18 | 43 |
| 615 | 260 | 200f8 | 15 | 50h6 | 22h6 | 230 | 4 | 206 | 341 | 96 | 81 | 40 | 358 | 6xØ11 | 53.5 | 24.5 | 14 | 6 | M10 x 18 | 43 |
| 616 | 340 | 270f8 | 20 | 60h6 | 30h6 | 310 | 4 | 200 | 413 | 89 | 80 | 45 | 417 | 6xØ11 | 64.0 | 33.0 | 18 | 8 | M10 x 18 | 80 |
| 617 | 400 | 316f8 | 22 | 70h6 | 35h6 | 360 | 5 | 225 | 477 | 94 | 84 | 55 | 447 | 8xØ14 | 74.5 | 38.0 | 20 | 10 | M12 x 24 | 125 |
| 618 | 430 | 345f8 | 22 | 80h6 | 40h6 | 390 | 5 | 240 | 527 | 110 | 100 | 65 | 477 | 8xØ18 | 85.0 | 43.0 | 22 | 12 | M12 x 24 | 150 |

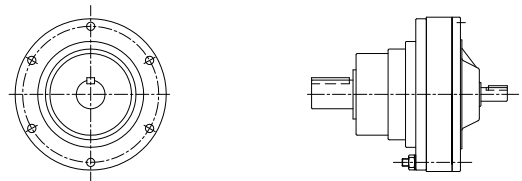
Dimensions

600F Face mount reducers

Sizes 613-618



Sizes 610-612

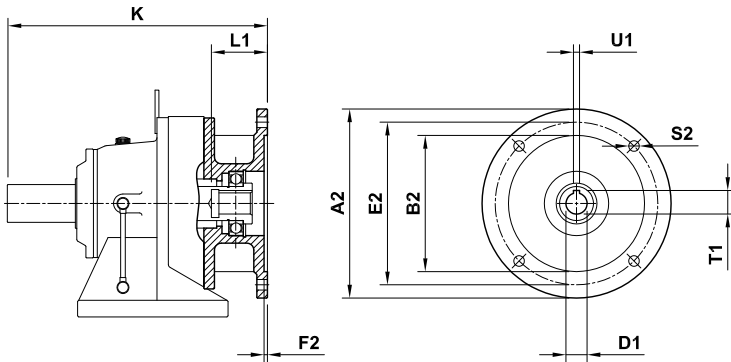


| Model | Reducer dimensions | | | | | | | | | | | | | | | | | | | Reducer Weight [kg] |
|-------|--------------------|----|----|-----|-----|-----|-----|-----|-----|--------|-------|------|------|----|----|-----|----|----------|-----|-----------------------|
| | B2 | D | D2 | E2 | H1 | K | L | P3 | P4 | S2 | S2A | T | T2 | U | U2 | W | Y | Z | | |
| 610 | 105g6 | 28 | 15 | 134 | - | 208 | 35 | 150 | 150 | 8 x 9 | 22.5° | 31.0 | 17.0 | 8 | 5 | M8 | 28 | - | 10 | |
| 611 | 115g6 | 32 | 15 | 146 | - | 218 | 45 | 162 | 162 | 8 x 9 | 22.5° | 35.0 | 17.0 | 10 | 10 | M8 | 26 | - | 11 | |
| 612 | 140g6 | 38 | 18 | 180 | - | 259 | 55 | 204 | 200 | 6 x 11 | 60° | 41.0 | 20.5 | 10 | 10 | M10 | 33 | - | 20 | |
| 613 | 165g6 | 50 | 22 | 205 | 208 | 321 | 70 | 230 | 266 | 6 x 11 | 60° | 53.5 | 24.5 | 14 | 14 | M10 | 31 | M10 x 18 | 36 | |
| 614 | 165g6 | 50 | 22 | 205 | 208 | 341 | 90 | 230 | 266 | 6 x 11 | 60° | 53.5 | 24.5 | 14 | 14 | M10 | 31 | M10 x 18 | 37 | |
| 615 | 165g6 | 50 | 22 | 205 | 208 | 341 | 90 | 230 | 266 | 6 x 11 | 60° | 53.5 | 24.5 | 14 | 14 | M10 | 31 | M10 x 18 | 37 | |
| 616 | 200g6 | 60 | 30 | 270 | 228 | 413 | 90 | 318 | 296 | 6 x 14 | 30° | 64.0 | 33.0 | 18 | 18 | M12 | 35 | M10 x 18 | 66 | |
| 617 | 250g6 | 70 | 35 | 300 | 243 | 477 | 90 | 362 | 330 | 8 x 14 | 22.5° | 74.5 | 38.0 | 20 | 20 | M12 | 41 | M12 x 24 | 96 | |
| 618 | 280g6 | 80 | 40 | 330 | 258 | 527 | 110 | 390 | 360 | 8 x 14 | 22.5° | 85.0 | 43.0 | 22 | 22 | M12 | 38 | M12 x 24 | 131 | |

Dimensions

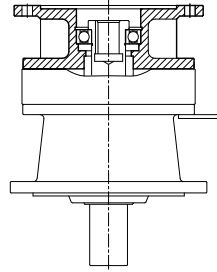
600X Type IEC Adaptor

600H reducers



| Motor Frame | A2 | B2 | D1 | E2 | F2 | L1 | S2 | T1 | U1 |
|-------------|-----|-----|----|-----|-----|-----|----|------|----|
| 71 | 160 | 110 | 14 | 130 | 4.5 | 30 | 9 | 16.3 | 5 |
| 80 | 200 | 130 | 19 | 165 | 4.5 | 40 | 11 | 21.8 | 6 |
| 90 | 200 | 130 | 24 | 165 | 4.5 | 50 | 11 | 27.3 | 8 |
| 100 | 250 | 180 | 28 | 215 | 5.0 | 60 | 14 | 31.3 | 8 |
| 112 | 250 | 180 | 28 | 215 | 5.0 | 60 | 14 | 31.3 | 8 |
| 132 | 250 | 230 | 38 | 265 | 5.0 | 80 | 14 | 41.3 | 10 |
| 160 | 350 | 250 | 42 | 300 | 6.0 | 110 | 18 | 45.3 | 12 |

600V reducers

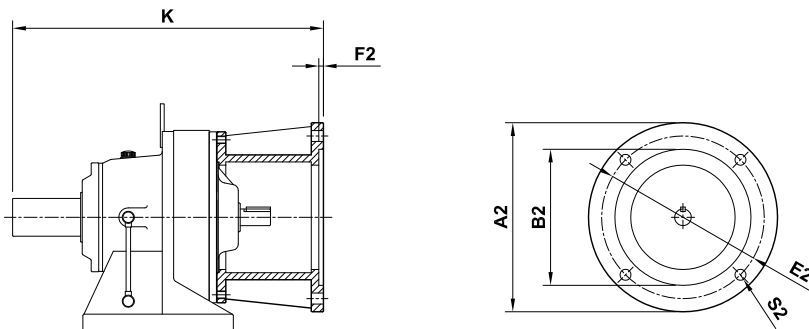


K dimension

| Motor Frame | Model | | | | | | | | | |
|-------------|-------|-----|-----|-----|-----|-----|-----|-----|-----|--|
| | 610 | 611 | 612 | 613 | 614 | 615 | 616 | 617 | 618 | |
| 71 | 202 | 240 | 240 | | | | | | | |
| 80 | 208 | 245 | 245 | 294 | | | | | | |
| 90 | 221 | 255 | 255 | 308 | 328 | 328 | 376 | | | |
| 100 | 270 | 272 | 272 | 324 | 344 | 344 | 392 | 436 | | |
| 112 | | 272 | 272 | 324 | 344 | 344 | 392 | 436 | 473 | |
| 132 | | | 292 | 350 | 370 | 370 | 418 | 462 | 500 | |
| 160 | | | | | | 410 | 353 | 497 | 534 | |
| 180 | | | | | | | | 560 | 610 | |

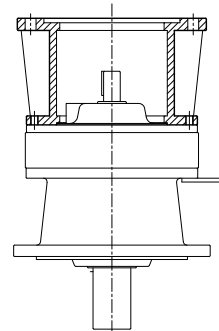
600C type coupling adaptor

600H reducers



| Motor frame | A2 | B2 | E2 | F2 | S2 |
|-------------|-----|-----|-----|----|----|
| 71 | 160 | 110 | 130 | 5 | 10 |
| 80 | 200 | 130 | 165 | 5 | 12 |
| 90 | 200 | 130 | 165 | 5 | 12 |
| 100 | 250 | 180 | 215 | 6 | 12 |
| 112 | 250 | 180 | 215 | 6 | 12 |
| 132 | 300 | 230 | 265 | 6 | 15 |
| 160 | 350 | 250 | 300 | 7 | 19 |
| 180 | 400 | 300 | 350 | 7 | 19 |

600V reducers



K dimension

| Motor frame | Model | | | | | | | | | |
|-------------|-------|-----|-----|-----|-----|-----|-----|-----|-----|--|
| | 610 | 611 | 612 | 613 | 614 | 615 | 616 | 617 | 618 | |
| 71 | 256 | 286 | 286 | | | | | | | |
| 80 | 251 | 281 | 281 | 335 | | | | | | |
| 90 | 269 | 312 | 312 | 374 | 373 | 373 | 466 | | | |
| 100 | 292 | 322 | 322 | 376 | 396 | 396 | 444 | 488 | | |
| 112 | | 322 | 322 | 376 | 396 | 396 | 444 | 488 | 525 | |
| 132 | | | 374 | 428 | 448 | 448 | 496 | 540 | 577 | |
| 160 | | | | | | 478 | 526 | 570 | 607 | |

Lubrication and maintenance

Sizes 610 to 612

Size 610 to 612 Cycloid 600 units are factory packed and ready for operation. These units are filled with specially designated long life grease to ensure maintenance free operation. Replenishment after every 20,000 hours is recommended for longer service life.

Recommended grease type is Shell Alvania Grease RA or equivalent which has an ambient operating temperature range of -15 to + 50 °C.

Grease weights

| Reducer model | Weight [g] | |
|---------------|---------------------------|---------------------------|
| | Speed reduction mechanism | Slow speed shaft bearings |
| 610 | 96.39 | 113.40 |
| 611 | 246.65 | 144.59 |
| 612 | 246.65 | 144.59 |

Sizes 613 to 618

Oil change interval

Under all conditions every Cycloid 600 unit needs an initial oil change after 500 hours of operation. The subsequent oil change interval will depend on the operating conditions described in the table below:

| Operating condition | Oil change interval |
|---|---------------------|
| Less than 10 hours / day operation | Every 6 months |
| 10 - 24 hours / day operation | Every 2500 hours |
| Heavy operation conditions - such as high ambient temperature & high humidities | Every 1-3 months |

Oil volumes

| Reducer model | Lubricant type | | Volume [l] | |
|---------------|---------------------|-------------------|---------------------|-------------------|
| | Horizontal mounting | Vertical mounting | Horizontal mounting | Vertical mounting |
| 613 | Oil - Bath | Oil - Bath | 0.76 | 1.14 |
| 614 | Oil - Bath | Oil - Bath | 0.76 | 1.14 |
| 615 | Oil - Bath | Oil - Bath | 0.76 | 1.14 |
| 616 | Oil - Bath | Forced* | 1.52 | 1.14 |
| 617 | Oil - Bath | Forced* | 1.89 | 1.89 |
| 618 | Oil - Bath | Forced* | 2.27 | 1.89 |

* Must have forced lube via Internal plunger lubrication pump.

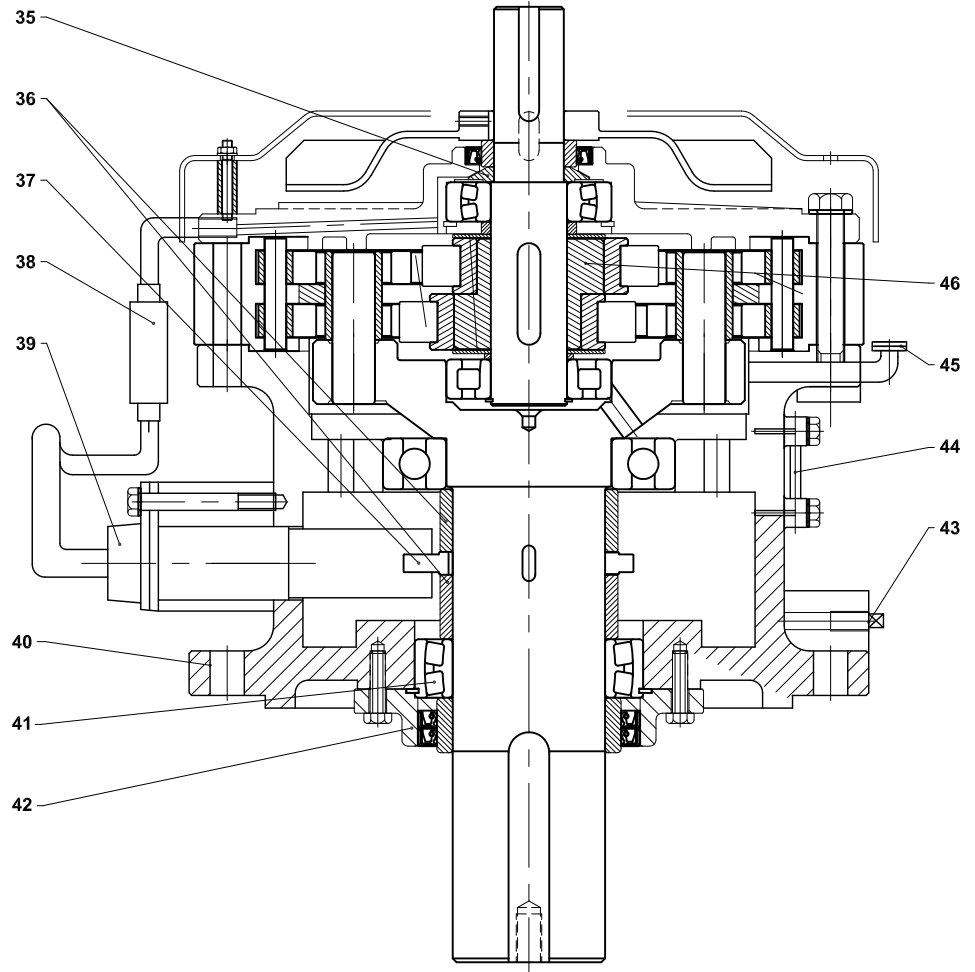
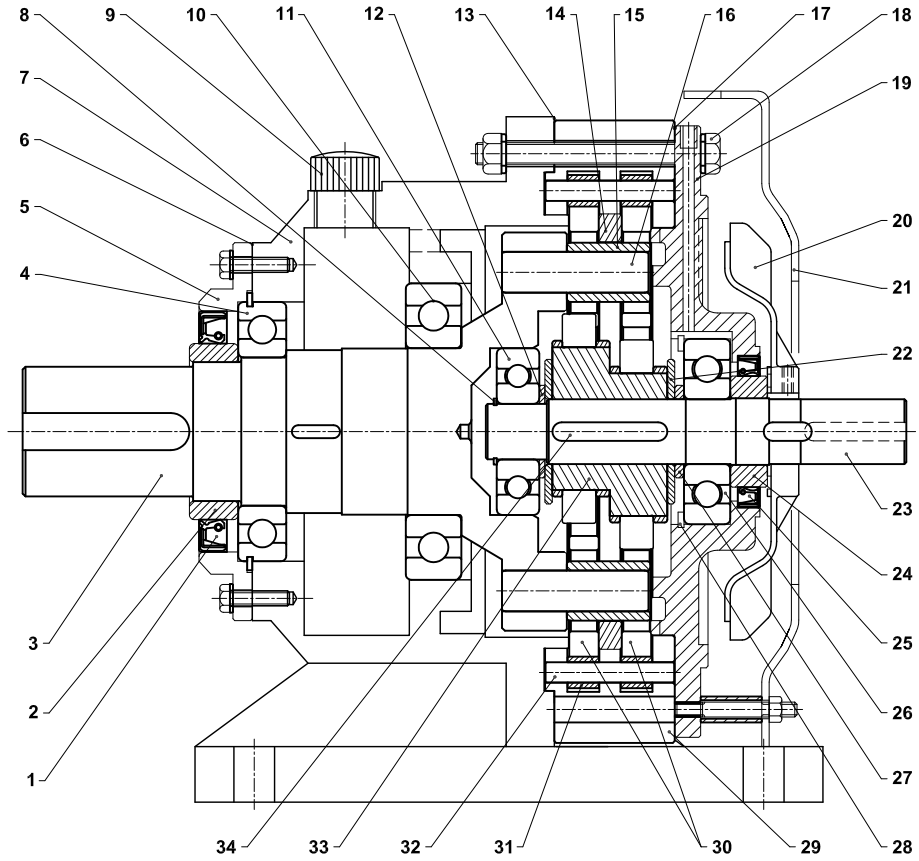
Recommended oil grades

Use only quality brand oils. Inferior quality oils will reduce the life of your reducer.

| Ambient operating temperature range [°C] | Recommended oil grade |
|--|-----------------------|
| -15 to + 5 | ISO VG 68 |
| 0 to + 35 | ISO VG 100-150 |
| + 30 to + 50 | ISO VG 200-460 |

Parts lists

| Item | Description |
|------|------------------------------|
| 1 | Oil seal |
| 2 | Collar (low speed shaft) |
| 3 | Slow speed shaft |
| 4 | Bearing A (low speed shaft) |
| 5 | Slow speed end cap |
| 6 | Gasket A* |
| 7 | Horizontal casing |
| 8 | Retaining ring |
| 9 | Oil filter plug |
| 10 | Bearing B (low speed shaft) |
| 11 | Bearing A (high speed shaft) |
| 12 | Spacer |
| 13 | Gasket B* |
| 14 | Spacer ring |
| 15 | Slow speed shaft roller |
| 16 | Slow speed shaft pin |
| 17 | Gasket C* |
| 18 | Bolt for ring gear housing |
| 19 | High speed end shield |
| 20 | Cooling fan |
| 21 | Fan cover |
| 22 | Spacer |
| 23 | High speed shaft |
| 24 | Collar (high speed shaft) |
| 25 | Oil seal |
| 26 | Bearing B (high speed shaft) |
| 27 | Circlip |
| 28 | Retaining ring |
| 29 | Ring gear housing |
| 30 | Cycloid disc |
| 31 | Ring gear roller |
| 32 | Ring gear pin |
| 33 | Eccentric assembly |
| 34 | Key |
| 35 | Oil slinger |
| 36 | Spacer |
| 37 | Cam |
| 38 | Oil sight glass |
| 39 | Plunger pump |
| 40 | Flanged casing |
| 41 | Angular contact bearing |
| 42 | Slow speed end cap |
| 43 | Plug (oil drain) |
| 44 | Oil level gauge |
| 45 | Oil filter plug |
| 46 | Eccentric assembly |



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