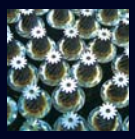
DRIVE SYSTEMS



VARVEL®
MOTION CONTROL SINCE 1955

technology made in Italy

GB

RS•RT

* VS made in China

# Technology Made in Italy

Since 1955 Varvel has been making speed reducers and variators for light industry applications. Reliable partner in power transmission equipment offers also customized solutions always according to a socially responsible company values. Modularity and flexibility lead Varvel products by a unique kit form, common to all gearbox series. This feature allows distributors an easier job to set up required products in few minutes.

# RS & RT

WORM GEAR BOXES

VARVEL®
MOTION CONTROL SINCE 1955

# Gearboxes Series RS & RT

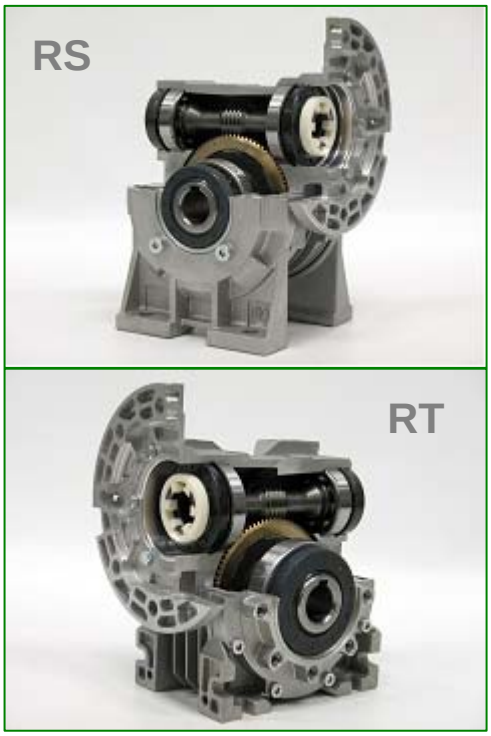
## Product description

**Multipurpose mounting**
Aluminium die cast
and Cast iron (from size 110 up)

**Wormshafts**
ZI profile,
Hardened and ground.
Alloy steel.

**Wormwheels**
Bronze alloy cast
onto a cast iron hub.

**Bearings**
Ball or roller types.
Tapered roller bearings
For heavy duty operation.




**Input**
IEC and NEMA
motor adapters and
Universal Elastic Coupling

**Oil seals**
Nitrile Butadiene Rubber - NBR
as standard;
Viton and Silicone on request.

**Output**
Hollow bore as standard;
Single or Double solid shaft
on request.

**Modular attachments**
Helical one stage gearbox,
Output Flange, Torque Arm and Torque Limiter.

### Single worm gear boxes RS and RT

The worm gearboxes, RS and RT series, specifically designed for universal mounting, are manufactured with die cast housings and covers in aluminium up to the size 85 and cast iron from the size 110.

Torques listed in selection tables are output torque values for the specific size, and motor powers are always referred to 1440 rpm.

Input Viton oil seals, fitted on request, allow trouble-free operation with 2-pole standard ac motors or 3000 rpm dc motors and Silicone oil seals for low temperatures.

Gearboxes are delivered filled with synthetic long-life oil (without plugs), in quantities as recommended on page 17, and valid for all mounting positions.

Selection table data are intended for service factor SF1.0 i.e. 8-10 running hours per day, uniform load, less than 6 start/ stops per hour, and room temperature ranging from 15 to 35 °C .

### Helical worm gear boxes RA and TA

The gearboxes, RA and TA series, made up of an independent single stage helical gearbox FXA fitted to a standard FRS or FTR gearbox, allow greater output torques and higher efficiency than the FRS and FRT gearbox with equivalent ratios.

**Two stage worm gear boxes RS/RS and RT/RT**

The gearboxes, RS/RS and RT/RT series, are made up of two gearboxes RS or RT and offer a full selection of high reduction ratios to obtain lower output speeds.

**Output shafts AS and AD**

All gearboxes are manufactured with hollow output shaft as standard. Optionally, a single AS or double AD solid output shaft - made of steel C43 - can be supplied.

An ASC safety shield for the opposite side of a single output shaft AS, is available on demand.

**Torque arms BR/BRV and BT/BTV**

Standard gearboxes are normally supplied with covers on each side for attaching a torque arm when gearboxes have to operate as shaft mounted units.

The torque arm, standard or with Vulkollan vibration-damping, is made of extra thick plate and white galvanized

**Torque limiters TLI and TLE**

The torque limiter and safeguard device - TLI built-in inside the gearbox and TLE fitted outside - allows easy torque adjustments, full gearbox safeguard against unexpected overload conditions, simple hand release, and manual operation in case of power supply failure.

The factory preset slipping torque can be adjusted from the maximum preset torque down to zero. Shaft rotation restarts automatically as soon as torque value is lower than the preset value.

Oil quantity of torque limiter TLI are listed at page 42 and 50.

**Travel limiters SL**

The SL travel limiter device stops - by means of built-in limit switches - the gear-box after a given operation time.

Standard thread allows approx. 40 turns of the output shaft. Limit switch travel is adjustable and operation time varies upon the used reduction ratio from min. 12 to max. 170 seconds .

**Directive ATEX**

The gearboxes VARVEL-ATEX, delivered on demand, are designed and manufactured according to Directive 94/9/CE “ATEX” and therefore, they are qualified for installation in potentially explosive atmospheres:

- Zones of Group II,
- Category 2 (or 3),
- Explosion hazard with gas presence (Zone 1 or 2),
- Explosion hazard with combustible dust presence (Zone 21 or 22).

The units VARVEL-ATEX are identified by the additional marking :

**Ex II 2 GD ck IP66 $T_{max}$=135 °C**

# Gearboxes Series RS & RT

## Product description

| | GENERAL SPECIFICATIONS |
|---|---|
| Range | Sizes: 9 RS + 7 RT<br>55 reduction ratios<br>3020 Nm max. output torque |
| Sizing | According to BS721.<br>15,000 hrs average lifetime<br>with service factor SF1 |
| Housing, Covers | Pressure die cast aluminium till size 85<br>and cast iron from size 110. |
| Coupling G input | Pressure die cast aluminium for sizes 3, 5, 6<br>and alloyed steel from size 8 |
| Toothed parts | Worms of steel and<br>tooth profile ZI and ZK ground.<br>Wheels of bronze on Cast Iron hub. |
| Shafts & Keys | Alloyed steel<br>Shafts h6 - Bores E8<br>Keys according to DIN6885 B1 |
| Bearings | Ball- or roller-types<br>according to sizes and technical requirements |
| Oil seals | Type NBR - Nitrile Butadiene Rubber<br>with additional anti-dust lip<br>according to DIN 3760 |
| Lubricant | Synthetic long-life oil<br>Grade ISO VG 320 |
| Protection Grade | Gearbox body IP66<br>Motor adapters and connection flanges IP20; to increase on demand |

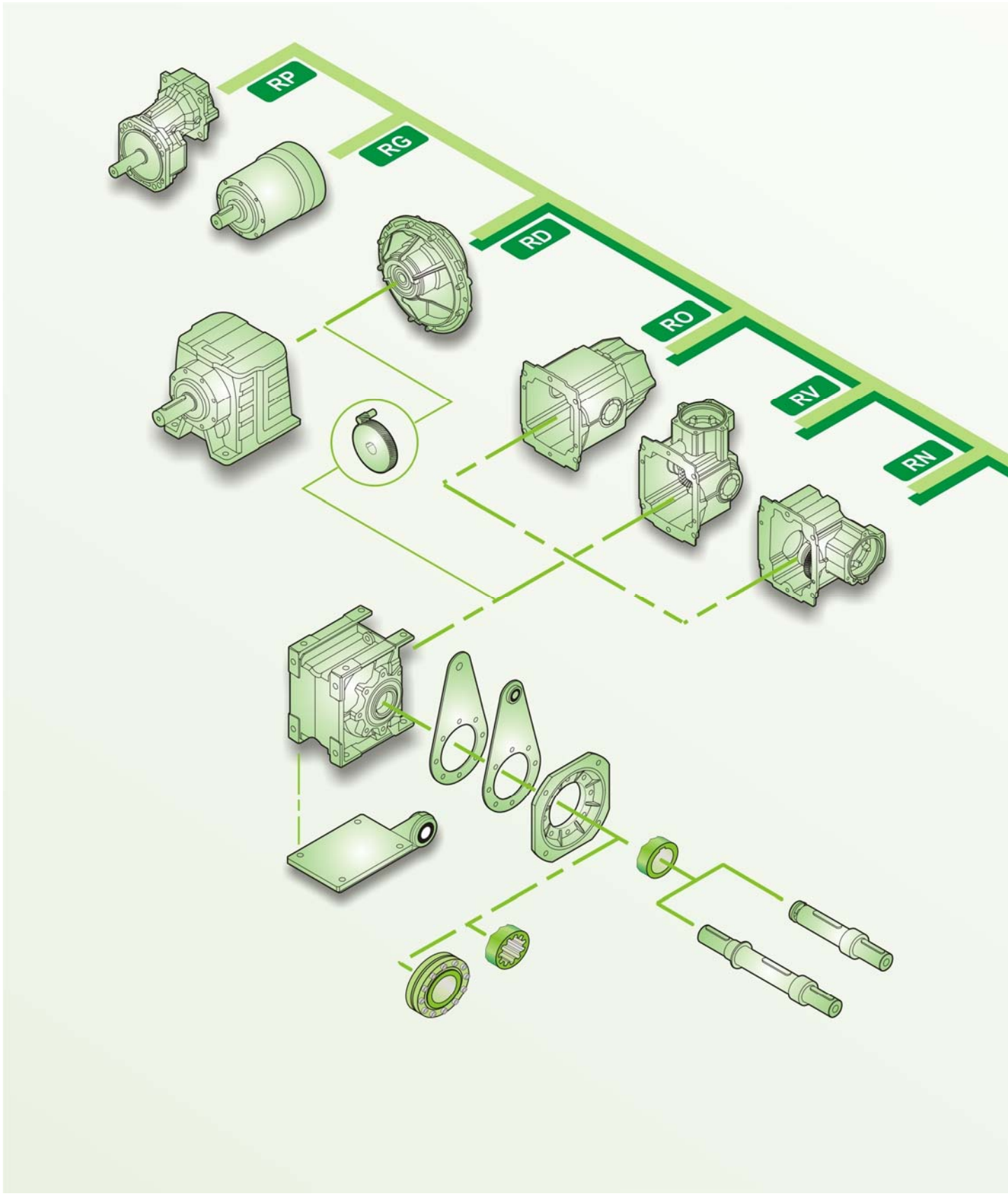
# Gearboxes Series RS & RT

## Symbols

| | | |
|---|---|---|
| $F_r$ [N] | Application radial load | |
| $F_{r1}$ [N] | Catalogue radial load (input) | |
| $F_{r2}$ [N] | Catalogue radial load (output) | |
| FS | Service factor | $FS = \frac{M2}{M(app)}$ |
| i | Reduction ratio (real) | |
| Lub [l] | Lubricant (litres) | |
| $M_2$ [Nm] | Gearbox output torque | |
| $M_{(app)}$ [Nm] | Application torque | |
| $n_1$ [$min^{-1}$] | Input speed | |
| $n_2$ [$min^{-1}$] | Output speed | |
| $P_1$ [kW] | Motor power | $P1 = \frac{M2 * n2}{9550 * \eta}$ |
| $P_{(kg)}$ [kg] | Weigh | |
| η | Efficiency | |

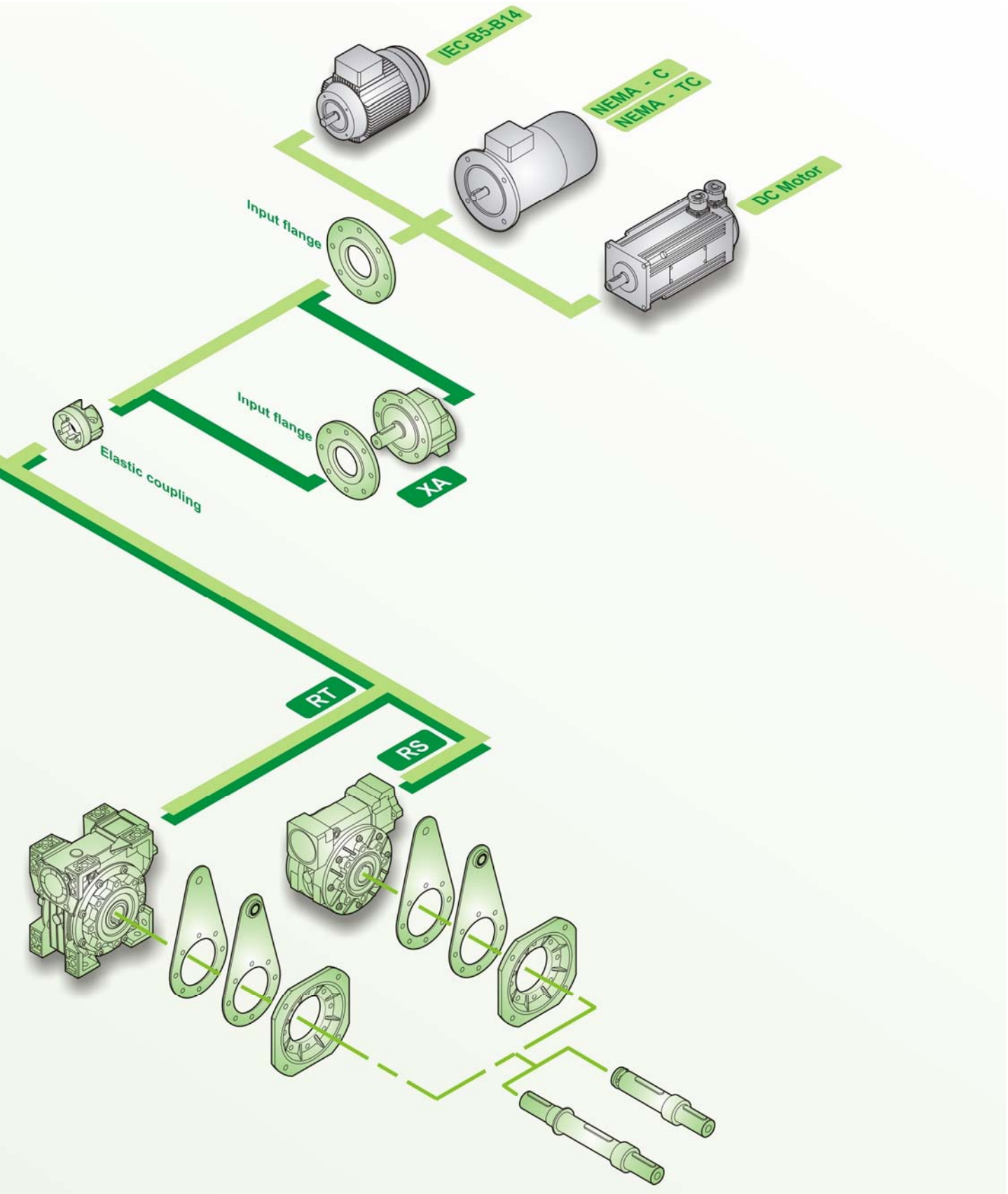
# Gearboxes Series RS & RT

## Modular system



# Gearboxes Series RS & RT

## Modular system



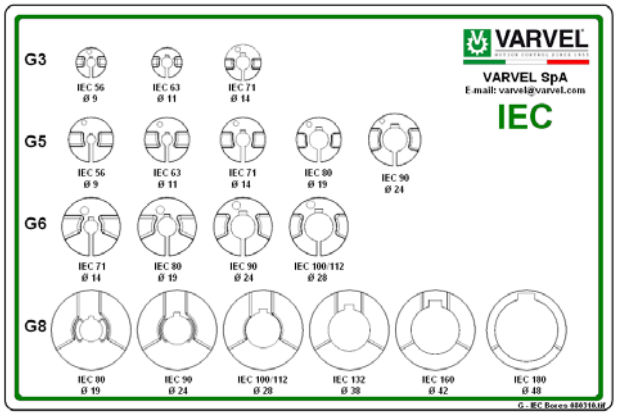
# Gearboxes Series RS & RT

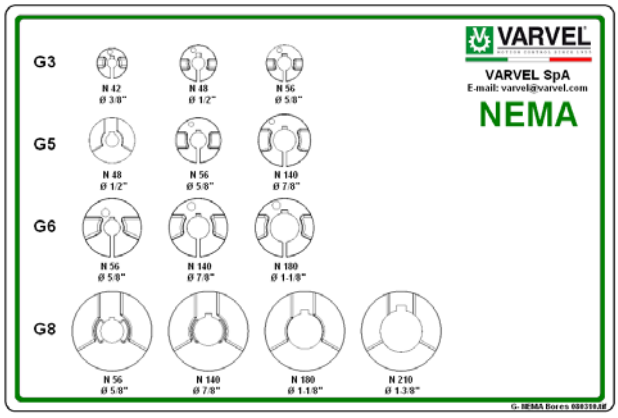
## Elastic coupling “G” description

**Reducer half-coupling**
- Material: steel 20MnCr5
- Input shaft built-in
- Two bearing set
- Unchanged casing dimensions

**Spider**
- External tooth connection
- Material: Thermoplastic Elastomer
  - Hytrel® TPE - Polyester
- Hardness
  - TPE 72 Shore D
- Temperature
  - TPE -30/+100°C (-22 / +212°F)

**Motor half-coupling**
- Material:
  - Aluminium die cast (G3, G5, G6)
  - Steel 36SMnPb14 (GS8)
  - Steel C43 on demand (GS3, GS5, GS6)
- Dynamic balancing
- Fitting:
  - Clamp (G3, G5, G6)
  - Key (GS3, GS5, GS6, GS8)
- Bores:
  - IEC 72 / N42948
  - NEMA C y TC



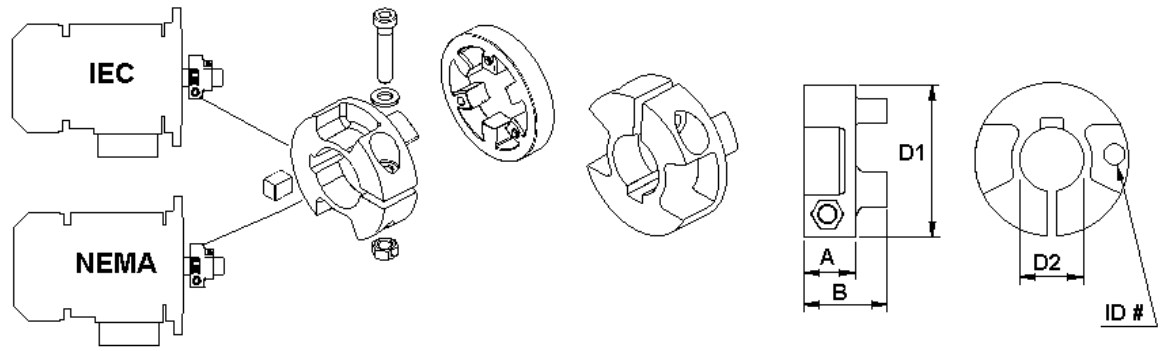




**Advantages:**
- One gearbox only for each reduction ratio
- Greater flexibility
- Increased stock rotation
- Fretting corrosion elimination between key and keyway
- Zero backlash in gearbox/motor connection
- Allowed angular misalignment 1° max
- Torsional rigidity
- High vibration damping

**Input flanges:**
- Material:
  - Aluminium up to IEC112 and NEMA TC180
  - Cast iron from IEC 132 and NEMA TC200

# Gearboxes Series RS & RT

## Elastic coupling “G” selection




| Type | IEC NEMA | Kit Part No. | RS - RT | Mt [Nm] | Mt1 [Nm] | Mt2 [Nm] | A [mm] | B [mm | D1 [mm | D2 [mm/inch] | ID# |
|---|---|---|---|---|---|---|---|---|---|---|---|
| G3 | IEC | KG3.009<br>KG3.011<br>KG3.014 | 28-40<br>28-40<br>40 | 4.5 - 6<br>4.5 - 6<br>7 - 8.5 | 15<br>15<br>28 | 8 - 10<br>8 - 10<br>18 - 22 | 11 | 19 | 30<br>30<br>36 | 9<br>11<br>14 | 309<br>311<br>314 |
| | NEMA | KG3.N42<br>KG3.N48<br>KG3.N56 | 28-40<br>40<br>40 | 4.5 - 6<br>4.5 - 6<br>7 - 8.5 | 16<br>18<br>30 | 8 - 10<br>10 - 12<br>20 - 24 | | | 30<br>36<br>36 | 3/8"<br>1/2"<br>5/8" | 3N42<br>3N48<br>3N56 |
| G5 | IEC | KG5.011<br>KG5.014<br>KG5.019<br>KG5.024 | 50-60<br>50-60<br>50-60<br>60 | 8.9 - 10 | 15<br>30<br>40<br>70 | 8 - 10<br>12 - 17<br>20 - 25<br>30 - 40 | 14.5 | 23 | 45<br>45<br>45<br>52 | 11<br>14<br>19<br>24 | 511<br>514<br>519<br>524 |
| | NEMA | KG5.N56<br>KG5.N140 | 50-60<br>60 | | 45<br>60 | 30 - 35<br>40 - 45 | | | 45<br>52 | 5/8"<br>7/8" | 5N56<br>5N140 |
| G6 | IEC | KG6.014<br>KG6.019<br>KG6.024<br>KG6.028 | 70<br>70-85-110<br>70-85-110<br>70-85-110 | 15.3 - 18 | 60<br>90<br>130<br>180 | 30 – 40<br>50 – 65<br>85 - 100<br>100 - 120 | 19.5 | 31.5 | 58 | 14<br>19<br>24<br>28 | 614<br>619<br>624<br>628 |
| | NEMA | KG6.N56<br>KG6.N140<br>KG6.N180 | 70-85-110<br>70-85-110<br>70-85-110 | | 50<br>85<br>200 | - - -<br>- - -<br>- - - | | | | 5/8"<br>7/8"<br>1-1/8" | 6N56<br>6N140<br>6N180 |

Mt - Screw locking torque
Mt1 - Transmissible torque with key
Mt2 - Transmissible torque without key

# Gearboxes Series RS & RT

## IEC - Flanges and Elastic coupling selection

| RS - RT | Flange Type | IEC | Kit Part No. | | Elastic coupling | |
|---|---|---|---|---|---|---|
| | | | Flange B5 | Flange B14 | Type | Kit Part No. |
| RS-RT 28 | FM 28 | IEC56<br>IEC63 | K530.206.120<br>K530.206.140 | K530.206.080<br>K530.206.090 | G3 ø9<br>G3 ø11 | KG3.009<br>KG3.011 |
| RS-RT 40 | FM 40 | IEC56<br>IEC63<br>IEC71 | K531.206.120<br>K531.206.140<br>K531.206.160 | K531.206.080<br>K531.206.090<br>K531.206.105 | G3 ø9<br>G3 ø11<br>G3 ø14 | KG3.009<br>KG3.011<br>KG3.014 |
| RS-RT 50 | FM 50 | IEC63<br>IEC71<br>IEC80 | K532.206.140<br>K532.206.160<br>K532.206.200 | K532.206.090<br>K532.206.105<br>K532.206.120 | G5 ø11<br>G5 ø14<br>G5 ø19 | KG5.011<br>KG5.014<br>KG5.019 |
| RS-RT 60 | FM 60 | IEC71<br>IEC80<br>IEC90 | K539.206.160<br>K539.206.200<br>K539.206.200 | K539.206.105<br>K539.206.120<br>K539.206.140 | G5 ø14<br>G5 ø19<br>G5 ø24 | KG5.014<br>KG5.019<br>KG5.024 |
| RS-RT 70 | FM 70 | IEC71<br>IEC80<br>IEC90<br>IEC100 | K533.206.160<br>K533.206.200<br>K533.206.200<br>K533.206.250 | K533.206.105<br>K533.206.120<br>K533.206.140<br>K533.206.160 | G6 ø14<br>G6 ø19<br>G6 ø24<br>G6 ø28 | KG6.014<br>KG6.019<br>KG6.024<br>KG6.028 |
| RS-RT 85 | FM 85 | IEC80<br>IEC90<br>IEC100/112 | K534.206.200<br>K534.206.200<br>K534.206.250 | K534.206.120<br>K534.206.140<br>K534.206.160 | G6 ø19<br>G6 ø24<br>G6 ø28 | KG6.019<br>KG6.024<br>KG6.028 |
| RS-RT 110 | FM 110 | IEC90<br>IEC100/112<br>IEC132 | K535.206.200<br>K535.206.250<br>K535.206.300 | - - -<br>K535.206.160<br>K535.206.200 | G6 ø24<br>G6 ø28<br># ø38 | KG6.024<br>KG6.028<br>- - - |
| RS 130 | FM 130 | IEC100/112<br>IEC 132 | K536.206.250<br>K537.206.300 | - - -<br>K536.206.200 | # ø28<br># ø38 | - - -<br>- - - |
| RS 150 | FM 150 | IEC100/112<br>IEC 132<br>IEC 160 | K536.206.250<br>K537.206.300<br>K537.206.350 | K536.206.200<br>K536.206.250<br>- - - | # ø28<br># ø38<br># ø42 | - - -<br>- - -<br>- - - |
| XA 63 | FM 40 | IEC56<br>IEC63 | K531.206.120<br>K531.206.140 | K531.206.080<br>K531.206.090 | # ø9<br># ø11 | - - -<br>- - - |
| XA 71 | FM 50 | IEC71 | K532.206.160 | K532.206.105 | # ø14 | - - - |
| XA 80 | FM 70 | IEC80<br>IEC90 | K533.206.200<br>K533.206.200 | K533.206.120<br>K533.206.140 | # ø19<br># ø24 | - - -<br>- - - |
| XA 100 | FM 85 | IEC80<br>IEC90<br>IEC100/112 | K534.206.200<br>K534.206.200<br>K534.206.250 | K534.206.120<br>K534.206.140<br>K534.206.160 | G6 ø19<br>G6 ø24<br>G6 ø28 | KG6.019<br>KG6.024<br>KG6.028 |

# - Key/Keyway motor fitting

# Gearboxes Series RS & RT

## Flanges and Elastic coupling selection - NEMA

| RS - RT | Flange Type | NEMA | Kit Part No. | Elastic coupling | |
|---|---|---|---|---|---|
| | | | | Type | Kit Part No. |
| RS-RT 28 | FM 28 | 42 C<br>48 C | K530.207.N048<br>K530.207.N048 | G3 ø 3/8”<br>G3 ø 1/2” | KG3.N042<br>KG3.N048 |
| RS-RT 40 | FM 40 | 42 C<br>48 C<br>56 C | K531.207.N048<br>K531.207.N056<br>K531.207.N056 | G3 ø 3/8<br>G3 ø 1/2<br>G3 ø 5/8 | KG3.N048<br>KG3.N056<br>KG3.N140 |
| RS-RT 50 | FM 50 | 56 C | K532.227.N056 | G5 ø 5/8 | KG5.N056 |
| RS-RT 60 | FM 60 | 56 C<br>140 TC | K539.207.N056<br>K539.207.N056 | G6 ø 5/8<br>G6 ø 7/8 | KG6.N056<br>KG6.N140 |
| RS-RT 70 | FM 70 | 56 C<br>140 TC<br>180 TC | K533.227.N056<br>K533.227.N056<br>K533.227.N180 | G6 ø 5/8”<br>G6 ø 7/8”<br>G6 ø 1-1/8” | KG6.N056<br>KG6.N140<br>KG6.N180 |
| RS-RT 85 | FM 85 | 56 C<br>140 TC<br>180 TC | K534.207.N056<br>K534.207.N056<br>K534.207.N180 | G6 ø 5/8<br>G6 ø 7/8<br>G6 ø 1-1/8 | KG6.N056<br>KG6.N140<br>KG6.N180 |
| RS-RT 110 | FM 110 | 56 C<br>140 TC<br>180 TC | K535.227.N056<br>K535.227.N056<br>K535.227.N180 | G6 ø 5/8”<br>G6 ø 7/8”<br>G6 ø 1-1/8” | KG6.N056<br>KG6.N140<br>KG6.N180 |
| RS 130 | FM 130 | 56 C<br>140 TC<br>180 TC | K536.227.N056<br>K536.227.N056<br>K536.227.N180 | # ø 5/8”<br># ø 7/8”<br># ø 1-1/8” | - - -<br>- - -<br>- - - |
| RS 150 | FM 130 | 56 C<br>140 TC<br>180 TC<br>210 TC | K537.227.N056<br>K537.227.N056<br>K537.227.N180<br>K537.227.N180 | # ø 5/8”<br># ø 7/8”<br># ø 1-1/8”<br># ø 1-1/8” | - - -<br>- - -<br>- - -<br>- - - |
| XA 63 | FM 40 | * IEC56<br>* IEC63 | K531.206.120<br>K531.206.140 | # ø9 mm<br># ø11 mm | - - -<br>- - - |
| XA 71 | FM 50 | * IEC71 | K532.206.160 | # ø14 mm | - - - |
| XA 80 | FM 70 | * IEC80<br>* IEC90 | K533.206.200<br>K533.206.200 | # ø19 mm<br># ø24 mm | - - -<br>- - - |
| XA 100 | FM 85 | 56 C<br>140 TC<br>180 TC | K334.227.N056<br>K334.227.N056<br>K334.227.N180 | G6 ø 5/8”<br>G6 ø 7/8”<br>G6 ø 1-1/8” | KG6.N056<br>KG6.N140<br>KG6.N180 |

\# - Key/keyway motor fitting
* - IEC input only

# Gearboxes Series RS & RT

## Designation

### GEARBOX DESIGNATION

| F | SR | [../] | 40 | B3 | 28 | IEC71 | B14 | (OPS, OPP) |
|---|---|---|---|---|---|---|---|---|

OPS = Standard options pages 42-50

B5, B14 = Electric motor form

Electric motor frame

Reduction ratio

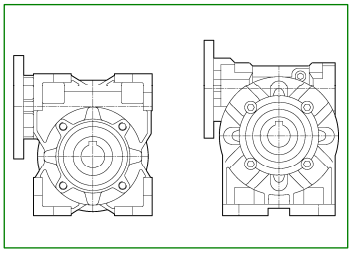
Mounting form

Gearbox size
- RS (28, 40, 50, 60, 70, 85, 110, 130, 150)
- RT (28, 40, 50, 60, 70, 85, 110)

Helical stage size RA (63/, 71/, 80/, 100/)
Two stage wormbox: 1st gearbox size RS - RT (28/, 40/, 50/, 60/, 70/)

Gearbox type

M = Geared motor
F = IEC input flange
S = Without IEC input flange
… = None - Free input shaft



### MOTOR DESIGNATION

| MT | 0,37 kW | 71b4 | B14 | 230/400/50 | IP55 | F | X1 |
|---|---|---|---|---|---|---|---|

Terminal box position

Cl. F (std) = Insulation class

IP55 (std) = Protection class

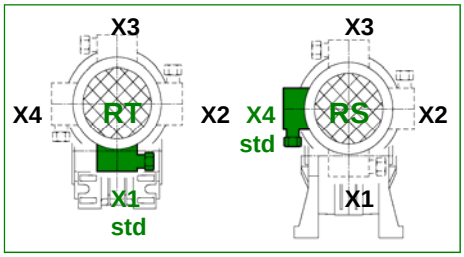
Voltage / Frequency

B5 o B14 = Mounting

IEC motor frame and number of poles

Motor power

MT = Three-phase motor
MM = Single-phase motor
MA = Brake motor




### OPTIONS OPP

Standard fitting side, unless otherwise requested, is the gearbox right side when seen from the input side.

ACø - Not standard hollow shaft ø… mm
CS - Not standard output bearings
FL/F - Additional output flange FL/F
GRM - Reduced end play
LNS - Not standard lubrication
VB - NDE worm shaft extension

VARSIZE by VARVEL

Modularity and flexibility have been leading the design of Varvel products since 2000. The gearbox-kit concept was carried out allowing anyone to assemble the unit in a few minutes with standard tooling.

This feature provides the highest flexibility to Varvel's distributors and resellers who - thanks to a limited kit selection - are able to immediately configure the required product.

VARSIZE® selection programme, available from our site

www.varvel.com

allows easy sizing selection from the Varvel product range.

### 2D/3D Drawings

A guided selection allows 2D/3D models to be downloaded for the most popular CAD systems.

### Guided selection

This service returns a list of applicable product configurations upon a given sequence of application parameters (power, output torque, rpm, service factor etc.); a PDF data sheet featuring performance data and dimensional drawings is generated for each configuration, as well as the 3D model and 2D drawings .

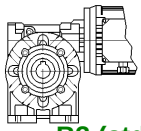
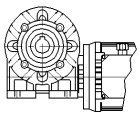
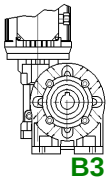
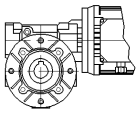
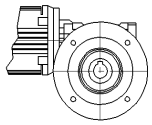
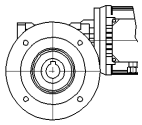
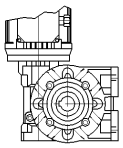
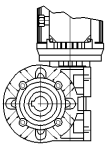
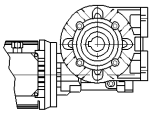
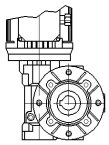
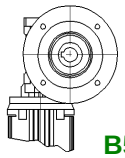
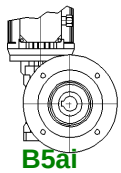
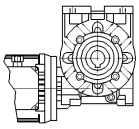
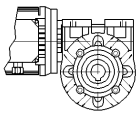
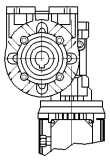
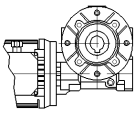
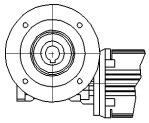
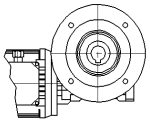
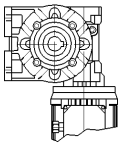
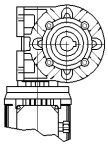
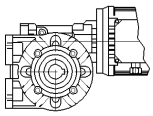
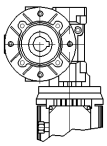
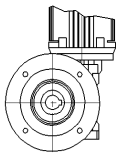
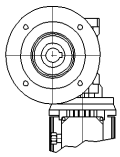
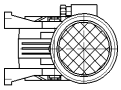
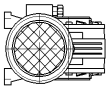
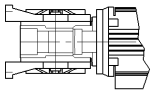
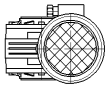
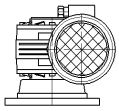
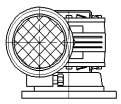
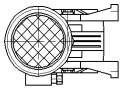
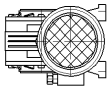
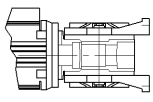
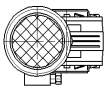
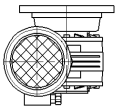
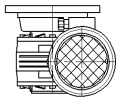
# Gearboxes Series RS & RT



## Standard mounting positions

### RS , RA , RS/RS

Output

| S - SA | I - IA | D - DA | PC - PC | FL - FA - FB - PA - PB | |
|---|---|---|---|---|---|
|  B3 (std) |  B3 (std) |  B3 (std) |  B5 (std) |  B5 (std) |  B5i |
|  V5 |  V5 |  V5 |  B5 |  B5a |  B5ai |
|  B8 |  B8 |  B8 |  B5 |  B5b |  B5bi |
|  V6 |  V6 |  V6 |  B5 |  B5c |  B5ci |
|  B6 |  B6 |  B6 |  V1 |  V1 |  V1i |
|  B7 |  B7 |  B7 |  V3 |  V3 |  V3i |

### RA

Input

| 10 (std) | 11 | 12 | 13 | | |
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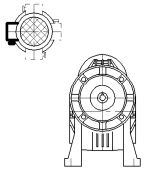
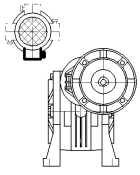
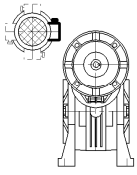
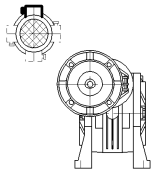
|  |  |  |  | | |

## RS / RS

Output

| | S - SA | I - IA | D - DA | PC - PA - PB | FL - FA - FB |
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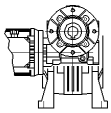
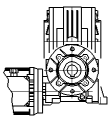
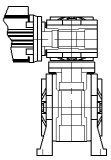
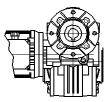
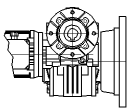
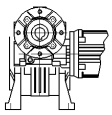
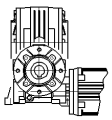
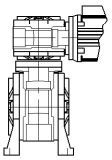
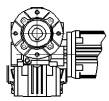
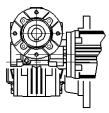
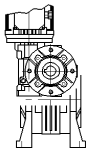
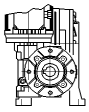
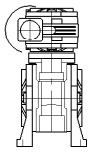
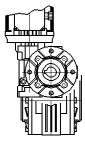
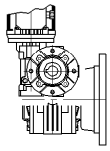
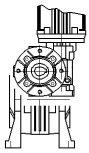
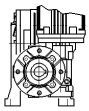
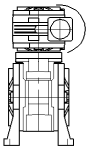
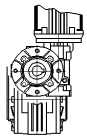
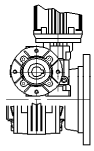
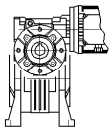
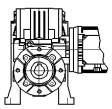
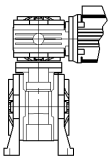
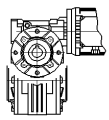
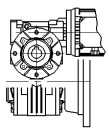
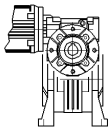
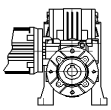
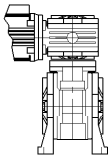
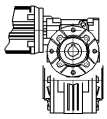
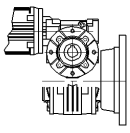
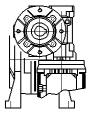
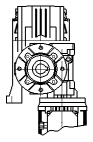
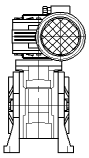
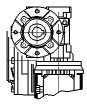
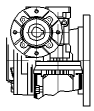
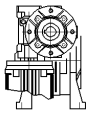
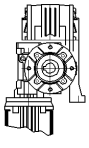
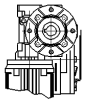
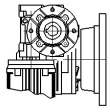
| 11 |  |  |  |  |  |
| 12 |  |  |  |  |  |
| 13 |  |  |  |  |  |
| 14 |  |  |  |  |  |
| 15 |  |  |  |  |  |
| 16 |  |  |  |  |  |
| 17 |  |  |  |  |  |
| 18 |  |  | |  |  |

# Gearboxes Series RS & RT



## Standard mounting positions

| | | | | |
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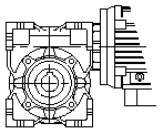
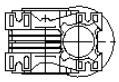
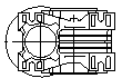
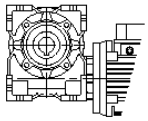
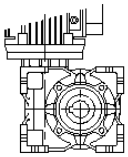
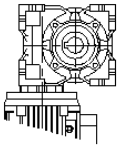
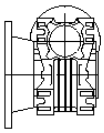
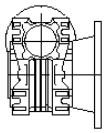
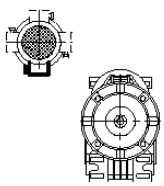
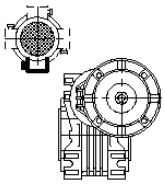
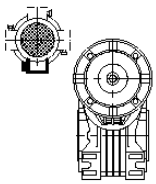
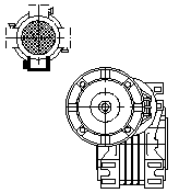
| **RT**<br>**TA**<br>**RT/RT**<br>Output |  B3 (std) |  B6 |  B7 |  B8 |
| |  V5 |  V6 |  F (std) |  Fi |

| | | | | |
|---|---|---|---|---|
| **TA**<br>Input |  10 (std) |  11 |  12 |  13 |

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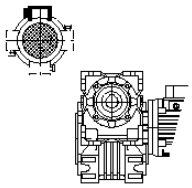
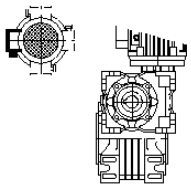
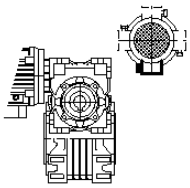
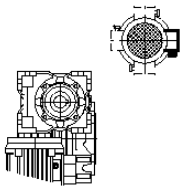
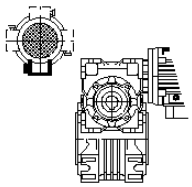
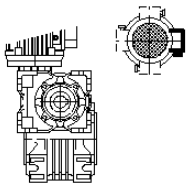
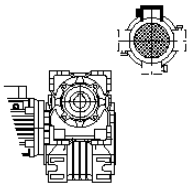
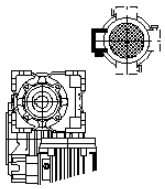
|---|---|---|---|---|
| **RT/RT**<br>Input |  20 (std) |  21 |  22 |  23 |
| |  24 |  25 |  26 |  27 |

## SERVICE FACTORS

**FS = $FS_1$ × $FS_2$**

| $FS_1$ | | | |
|---|---|---|---|
| **Load** | uniform | variable | shock |
| 3 - 4 hrs | 0.8 | 1.0 | 1.5 |
| 8 - 10 hrs | 1.0 | 1.2 | 1.8 |
| 10 - 24 hrs | 1.4 | 1.6 | 2.0 |

| $FS_2$ | |
|---|---|
| **Starts/stops per hour** | $SF_2$ |
| 6 | 1.0 |
| 60 | 1.2 |
| 120 | 1.4 |

## WEIGHTS AND LUBRI-CANTS

| **RS - RT** | kg | litres |
|---|---|---|
| 28 | 1.1 | 0.03 |
| 40 | 2.5 | 0.08 |
| 50 | 3.8 | 0.13 |
| 60 | 6.5 | 0.25 |
| 70 | 9.0 | 0.35 |
| 85 | 13.5 | 0.60 |
| 110 | 39.0 | 1.50 |
| *130 | 50.0 | 2.75 |
| *150 | 80.0 | 4.40 |

| **RA - RT** | kg | litres $l_1$ / $l_2$ |
|---|---|---|
| 63 / 40 | 4.0 | 0.04/0.08 |
| 63 / 50 | 5.3 | 0.04/0.13 |
| 63 / 60 | 8.0 | 0.04/0.25 |
| 71 / 50 | 6.6 | 0.06/0.13 |
| 71 / 60 | 9.3 | 0.06/0.25 |
| 71 / 70 | 11.8 | 0.06/0.35 |
| 71 / 85 | 16.3 | 0.06/0.60 |
| 80 / 60 | 10.5 | 0.10/0.25 |
| 80 / 70 | 13.0 | 0.10/0.35 |
| 80 / 85 | 17.5 | 0.10/0.60 |
| 80 / 110 | 43.0 | 0.10/1.50 |
| 100/110 | 46.0 | 0.20/1.50 |
| *100/130 | 64.0 | 0.20/2.75 |
| *100/150 | 94.0 | 0.20/4.40 |

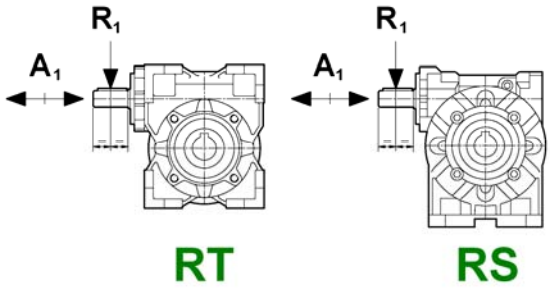
| **RS / RS RT / RT** | kg | litres $l_1$ / $l_2$ |
|---|---|---|
| 28 / 28 | 2.5 | 0.03/0.03 |
| 28 / 40 | 3.9 | 0.03/0.08 |
| 28 / 50 | 5.2 | 0.03/0.13 |
| 28 / 60 | 7.9 | 0.03/0.25 |
| 40 / 70 | 12.0 | 0.08/0.35 |
| 40 / 85 | 16.5 | 0.08/0.60 |
| 50 / 110 | 45.0 | 0.13/1.50 |
| *60/130 | 57.0 | 0.25/2.75 |
| *70/150 | 90.0 | 0.35/4.40 |

* RS only

| **XA** | kg | litres |
|---|---|---|
| 63 | 1.5 | 0.04 |
| 71 | 2.2 | 0.06 |
| 80 | 3.0 | 0.10 |
| 100 | 7.0 | 0.20 |

# Gearboxes Series RS & RT

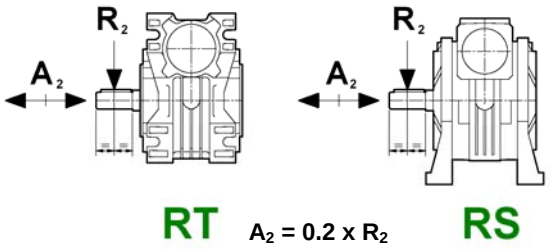
## Input loads




### Input radial loads $R_1$ [daN]

$A_1 = 0,2 \times R_1$

| $min^{-1}$ | 2800 | 1400 | 900 | 700 | 500 | 300 |
|---|---|---|---|---|---|---|
| RS-RT 28 | 5 | 7 | 8 | 9 | 10 | 12 |
| RS-RT 40 | 11 | 15 | 16 | 17 | 18 | 20 |
| RS-RT 50 | 15 | 20 | 22 | 25 | 28 | 30 |
| RS-RT 60 | 23 | 30 | 33 | 35 | 37 | 40 |
| RS-RT 70 | 26 | 35 | 40 | 44 | 47 | 50 |
| RS-RT 85 | 34 | 45 | 52 | 58 | 62 | 70 |
| RS-RT 110 | 57 | 75 | 80 | 85 | 92 | 100 |
| RS130 | 70 | 100 | 105 | 110 | 115 | 120 |
| RS150 | 90 | 120 | 125 | 130 | 140 | 150 |




## Output radial loads $R_2$ [daN] with standard bearings

| min$^{-1}$ | 280 | 200 | 140 | 93 | 70 | 50 | 35 | 29 | 25 | 20 | 18 | 14 | Brg No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RS-RT 28 | - - - | 45 | 50 | 55 | 60 | 62 | 70 | 75 | 80 | 90 | 95 | 100 | 16005 |
| RS-RT 40 | 100 | 100 | 110 | 120 | 135 | 150 | 160 | 170 | 180 | 190 | 200 | 230 | 16006 |
| RS-RT 50 | 145 | 125 | 145 | 170 | 190 | 200 | 230 | 240 | 260 | 280 | 290 | 320 | 16008 |
| RS-RT 60 | 225 | 240 | 250 | 290 | 330 | 360 | 390 | 430 | 320 | 500 | 420 | 560 | ① |
| RS-RT 70 | 260 | 270 | 290 | 360 | 390 | 420 | 450 | 520 | 550 | 590 | 630 | 670 | ② |
| RS-RT 85 | 330 | 330 | 370 | 440 | 470 | 540 | 550 | 630 | 660 | 710 | 750 | 830 | ③ |
| RS-RT 110 | - - - | 390 | 415 | 520 | 540 | 590 | 570 | 750 | 780 | 800 | 880 | 980 | ④ |
| RS 130 | - - - | 500 | 565 | 615 | 650 | 660 | 780 | 880 | 950 | 970 | 1050 | 1150 | 6015 |
| RS 150 | - - - | 650 | 770 | 830 | 880 | 900 | 1100 | 1200 | 1250 | 1300 | 1400 | 1500 | 6216 |

① - RS: 6008 / RT: 6208 ③ - RS: 6010 / RT: 6210 ② - RS: 6009 / RT: 6209 ④ - RS: 6012 / RT: 6212

## Output radial loads $R_2$ [daN] with heavy duty bearings

| min$^{-1}$ | 280 | 200 | 140 | 93 | 70 | 50 | 35 | 29 | 25 | 20 | 18 | 14 | Brg No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RS-RT 28 | - - - | 65 | 75 | 82 | 90 | 93 | 105 | 112 | 120 | 130 | 130 | 130 | 6005 |
| RS-RT 40 | 140 | 150 | 155 | 165 | 190 | 210 | 225 | 240 | 250 | 260 | 260 | 260 | 32006 |
| RS-RT 50 | 200 | 175 | 200 | 240 | 260 | 300 | 340 | 360 | 390 | 420 | 420 | 420 | 32008 |
| RS-RT 60 | 290 | 300 | 320 | 370 | 420 | 480 | 510 | 570 | 610 | 660 | 660 | 660 | 30208 |
| RS-RT 70 | 335 | 330 | 370 | 450 | 516 | 560 | 610 | 690 | 730 | 790 | 790 | 790 | ⑤ |
| RS-RT 85 | 410 | 420 | 460 | 550 | 630 | 720 | 730 | 840 | 870 | 940 | 940 | 940 | ⑥ |
| RS-RT 110 | - - - | 500 | 540 | 670 | 750 | 800 | 930 | 1050 | 1110 | 1110 | 1110 | 1110 | ⑦ |
| RS 130 | - - - | 700 | 790 | 860 | 970 | 990 | 1170 | 1290 | 1420 | 1450 | 1450 | 1450 | 32015 |
| RS 150 | - - - | 900 | 1080 | 1160 | 1320 | 1350 | 1650 | 1800 | 1870 | 1950 | 1950 | 1950 | 30216 |

⑤ - RS: 32009 / RT: 30209 ⑥ - RS: 32010 / RT: 30210 ⑦ - RS:32012 / RT: 30212

# Gearboxes Series RS & RT



## Motor frames

| FRS FRT | min$^{-1}$ / IEC | i = 5 | i7 | 10 | 15 | 20 | 28 | 40 | 49 | 56 | 70 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 280 | 200 | 140 | 93 | 70 | 50 | 35 | 29 | 25 | 20 | 18 | 14 |
| **28** | 56 | - - - | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ |
| | 63 | - - - | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙ | ⊙ | ⊙ | ⊙ |
| **40** | 56 | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ |
| | 63 | ⊙ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ |
| | 71 | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙ | ⊙ | ⊙ | ⊙ |
| **50** | 63 | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙○ | ⊙○ | ⊙○ |
| | 71 | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ |
| | 80 | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙ | ⊙ | ⊙ | ⊙ |
| **60** | 71 | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ |
| | 80 | ⊙ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ |
| | 90 | ⊙ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ |
| **70** | 71 | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ |
| | 80 | ⊙ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ |
| | 90 | ⊙ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙ | ⊙ | ⊙ | ⊙ |
| | 100 | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ |
| **85** | 80 | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ |
| | 90 | ⊙ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ |
| | 100/112 | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ |
| **110** | 90 | - - - | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ |
| | 100/112 | - - - | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ | ⊙○ |
| | 132 | - - - | ○ | ○ | ○ | ○ | - - - | - - - | - - - | - - - | - - - | - - - | - - - |
| ***130** | 100/112 | - - - | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | 132 | - - - | ○ | ○ | ○ | ○ | ○ | ○ | - - - | - - - | - - - | - - - | - - - |
| ***150** | 100/112 | - - - | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | 132 | - - - | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | - - - | - - - |
| | 160 | - - - | ○ | ○ | ○ | ○ | ○ | ○ | ○ | - - - | - - - | - - - | - - - |

* RS only

⊙ - B5 & B14 (Elastic coupling G)
⊙ - B5 (Elastic coupling G)
○ - B5 & B14 (IEC Bore)
○ - B5 (IEC Bore)

| FRA FTA | IEC * | i = 7 ** | 10 ** | 15 ** | 20 ** | 28 ** | 40 ** | 49 ** | 56 ** | 70 ** | 80 ** | 100 ** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 63/40 | 56 B5&B14 | ① | ① | ① | ① | ① | ① | ① | ① | ① | ① | ① |
| 63/50 | | ① | ① | ① | ① | ① | ① | ① | ① | ① | ① | ① |
| 63/60 | | - - - | - - - | - - - | - - - | ① | ① | ① | ① | ① | ① | ① |
| 63/40 | 63 B5&B14 | ① | ① | ① | ① | ① | ① | ① | ① | ① | ① | ① |
| 63/50 | | ① | ① | ① | ① | ① | ① | ① | ① | ① | ① | ① |
| 63/60 | | - - - | - - - | - - - | - - - | ① | ① | ① | ① | ① | ① | ① |
| 71/50 | 71 B5&B14 | ② | ② | ② | ② | ② | ② | ② | - - - | - - - | - - - | - - - |
| 71/60 | | ② | ② | ② | ② | ② | ② | ② | ② | ② | ② | ② |
| 71/70 | | ② | ② | ② | ② | ② | ② | ② | ② | ② | ② | ② |
| 71/85 | | - - - | - - - | - - - | - - - | - - - | ② | ② | ② | ② | ② | ② |
| 80/60 | 80 B5&B14 | ③ | ③ | ③ | ③ | ③ | - - - | - - - | - - - | - - - | - - - | - - - |
| 80/70 | | ③ | ③ | ③ | ③ | ③ | ③ | ③ | - - - | - - - | - - - | - - - |
| 80/85 | | ③ | ③ | ③ | ③ | ③ | ③ | ③ | ③ | ③ | ③ | ③ |
| 80/110 | | ④ | ④ | ④ | ④ | ③ | ③ | ③ | ③ | ③ | ③ | ③ |
| 80/60 | 90 B5&B14 | ③ | ③ | ③ | ③ | ③ | - - - | - - - | - - - | - - - | - - - | - - - |
| 80/70 | | ③ | ③ | ③ | ③ | ③ | ③ | ③ | - - - | - - - | - - - | - - - |
| 80/85 | | ③ | ③ | ③ | ③ | ③ | ③ | ③ | ③ | ③ | ③ | ③ |
| 80/110 | | ④ | ④ | ④ | ④ | ③ | ③ | ③ | ③ | ③ | ③ | ③ |
| 100/110 | | ④ | ④ | ④ | ④ | ③ | ③ | ③ | ③ | ③ | ③ | ③ |
| 100/130 *** | 90 B5 | ⑤ | ⑤ | ⑤ | ⑤ | ⑤ | ⑤ | ⑤ | ⑤ | ⑤ | ⑤ | ⑤ |
| | 100 B5 | ⑤ | ⑤ | ⑤ | ⑤ | ⑤ | ⑤ | ⑤ | ⑤ | ⑤ | ⑤ | ⑤ |
| 100/150 *** | 90 B5 | ⑥ | ⑥ | ⑥ | ⑤ | ⑤ | ⑤ | ⑤ | ⑤ | ⑤ | ⑤ | ⑤ |
| | 100 B5 | ⑥ | ⑥ | ⑥ | ⑤ | ⑤ | ⑤ | ⑤ | ⑤ | ⑤ | ⑤ | ⑤ |

* - Helical stage input
** - Helical stage output & FRS/FRT input
*** - FRA only

① - ø105 x14
② - ø120 x 19
③ - ø140 x 24
④ - ø140 x 28
⑤ - ø200 × 28
⑥ - ø200 × 28 (Wormshaft bore ø38 mm + Adapter ø38/ø28)

# Gearboxes Series RS & RT

## 2800 min$^{-1}$

**Selection table** — **Single worm gear boxes RS - RT**

| RS RT | i = | 5 | 7 | 10 | 15 | 20 | 28 | 40 | 49 | 56 | 70 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | min$^{-1}$ | 560 | 400 | 280 | 187 | 140 | 100 | 70 | 57 | 50 | 40 | 35 | 28 |
| 28 | kW | - - - | 0.63 | 0.49 | 0.35 | 0.25 | 0.23 | 0.16 | 0.13 | 0.12 | 0.09 | 0.08 | 0.04 |
| | Nm | - - - | 13 | 14 | 14 | 13 | 15 | 14 | 13 | 12 | 11 | 10 | 7 |
| | eff. | - - - | 0.86 | 0.83 | 0.79 | 0.77 | 0.69 | 0.64 | 0.61 | 0.54 | 0.49 | 0.49 | 0.46 |
| 40 | kW | 2.1 | 1,5 | 1,2 | 0,82 | 0,56 | 0,49 | 0,36 | 0,30 | 0,26 | 0,21 | 0,19 | 0,15 |
| | Nm | 32 | 31 | 34 | 34 | 30 | 34 | 32 | 31 | 30 | 29 | 28 | 26 |
| | eff. | 0.89 | 0,87 | 0,85 | 0,81 | 0,78 | 0,72 | 0,66 | 0,62 | 0,6 | 0,57 | 0,54 | 0,51 |
| 50 | kW | 3.8 | 3,0 | 2,0 | 1,5 | 0,95 | 0,92 | 0,63 | 0,51 | 0,43 | 0,33 | 0,31 | 0,23 |
| | Nm | 58 | 62 | 59 | 61 | 52 | 66 | 59 | 56 | 53 | 46 | 49 | 40 |
| | eff. | 0.90 | 0,88 | 0,86 | 0,82 | 0,8 | 0,75 | 0,69 | 0,66 | 0,64 | 0,58 | 0,58 | 0,52 |
| 60 | kW | 5.8 | 4,4 | 3,5 | 2,6 | 1,9 | 1,6 | 1,1 | 0,72 | 0,73 | 0,60 | 0,52 | 0,34 |
| | Nm | 90 | 93 | 104 | 110 | 108 | 116 | 105 | 85 | 92 | 92 | 85 | 68 |
| | eff. | 0.90 | 0,88 | 0,87 | 0,84 | 0,82 | 0,76 | 0,73 | 0,71 | 0,66 | 0,64 | 0,6 | 0,58 |
| 70 | kW | 8.1 | 5,7 | 4,3 | 3,2 | 2,4 | 2,2 | 1,5 | 1,2 | 1,0 | 0,80 | 0,69 | 0,54 |
| | Nm | 126 | 122 | 130 | 139 | 136 | 161 | 155 | 142 | 130 | 120 | 115 | 107 |
| | eff. | 0.91 | 0,89 | 0,88 | 0,85 | 0,83 | 0,78 | 0,74 | 0,7 | 0,68 | 0,63 | 0,61 | 0,58 |
| 85 | kW | 13.0 | 9,6 | 7,5 | 5,3 | 4,3 | 3,1 | 2,4 | 2,0 | 1,7 | 1,3 | 1,1 | 0,93 |
| | Nm | 202 | 205 | 225 | 234 | 237 | 235 | 250 | 242 | 229 | 210 | 200 | 190 |
| | eff. | 0.91 | 0,89 | 0,88 | 0,86 | 0,8 | 0,8 | 0,76 | 0,72 | 0,71 | 0,67 | 0,64 | 0,6 |
| 110 | kW | - - - | 17,5 | 14,8 | 10,7 | 8,6 | 7,0 | 5,0 | 4,5 | 3,6 | 3,1 | 3,0 | 2,1 |
| | Nm | - - - | 375 | 445 | 470 | 490 | 530 | 520 | 545 | 490 | 525 | 540 | 450 |
| | eff. | - - - | 0,9 | 0,88 | 0,86 | 0,84 | 0,79 | 0,76 | 0,73 | 0,71 | 0,7 | 0,67 | 0,62 |
| *130 | kW | - - - | 26.3 | 21.6 | 15.8 | 12.2 | 9.4 | 7.7 | 6.0 | 5.3 | 3.9 | 3.3 | 2.4 |
| | Nm | - - - | 565 | 655 | 705 | 715 | 715 | 815 | 740 | 780 | 670 | 620 | 560 |
| | eff. | - - - | 0.9 | 0.89 | 0.87 | 0.86 | 0.8 | 0.78 | 0.74 | 0.77 | 0.72 | 0.68 | 0.68 |
| *150 | kW | - - - | 37.0 | 29.6 | 22.8 | 17.1 | 13.6 | 10.7 | 8.5 | 6.6 | 5.5 | 4.9 | 3.6 |
| | Nm | - - - | 795 | 900 | 1015 | 1005 | 1065 | 1170 | 1090 | 970 | 950 | 9155 | 845 |
| | eff. | - - - | 0.9 | 0.89 | 0.87 | 0.86 | 0.82 | 0.8 | 0.77 | 0.77 | 0.72 | 0.68 | 068 |

* RS only

# 1400 min$^{-1}$

# Gearboxes Series RS & RT

## Single worm gear boxes RS - RT — Selection table

| RS RT | i = | 5 | 7 | 10 | 15 | 20 | 28 | 40 | 49 | 56 | 70 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | min$^{-1}$ | 280 | 200 | 140 | 93 | 70 | 50 | 35 | 29 | 25 | 20 | 18 | 14 |
| 28 | kW | - - - | 0,45 | 0,33 | 0,23 | 0,16 | 0,16 | 0,10 | 0,09 | 0,08 | 0,06 | 0,05 | 0,03 |
| | Nm | - - - | 18 | 18 | 18 | 16 | 20 | 17 | 17 | 15 | 12 | 12 | 8 |
| | eff. | - - - | 0.84 | 0.81 | 0.77 | 0.74 | 0.66 | 0.62 | 0.57 | 0.51 | 0.45 | 0.45 | 0.43 |
| 40 | kW | 1.5 | 1,1 | 0,81 | 0,55 | 0,38 | 0,37 | 0,25 | 0,21 | 0,18 | 0,14 | 0,12 | 0,09 |
| | Nm | 45 | 45 | 46 | 44 | 39 | 48 | 42 | 41 | 38 | 36 | 32 | 29 |
| | eff. | 0.87 | 0.85 | 0.83 | 0.78 | 0.75 | 0.68 | 0.61 | 0.58 | 0.56 | 0.52 | 0.50 | 0.46 |
| 50 | kW | 2.7 | 1,8 | 1,3 | 0,93 | 0,63 | 0,63 | 0,41 | 0,37 | 0,31 | 0,25 | 0,20 | 0,13 |
| | Nm | 81 | 75 | 75 | 74 | 65 | 85 | 72 | 76 | 71 | 63 | 58 | 43 |
| | eff. | 0.88 | 0.86 | 0.84 | 0.78 | 0.76 | 0.71 | 0.64 | 0.62 | 0.60 | 0.53 | 0.52 | 0.47 |
| 60 | kW | 4.1 | 2,8 | 2,3 | 1,6 | 1,2 | 1,0 | 0,75 | 0,62 | 0,54 | 0,46 | 0,37 | 0,25 |
| | Nm | 125 | 113 | 133 | 130 | 122 | 139 | 135 | 128 | 123 | 122 | 106 | 83 |
| | eff. | 0.89 | 0.86 | 0.84 | 0.81 | 0.77 | 0.71 | 0.66 | 0.62 | 0.60 | 0.55 | 0.53 | 0.49 |
| 70 | kW | 5.7 | 4,0 | 3,1 | 2,2 | 1,8 | 1,5 | 1,2 | 0,84 | 0,74 | 0,58 | 0,50 | 0,37 |
| | Nm | 176 | 166 | 180 | 188 | 194 | 216 | 238 | 189 | 180 | 163 | 154 | 130 |
| | eff. | 0.89 | 0.88 | 0.86 | 0.83 | 0.81 | 0.75 | 0.71 | 0.67 | 0.64 | 0.59 | 0.56 | 0.52 |
| 85 | kW | 9.1 | 6,2 | 4,6 | 3,4 | 2,9 | 2,2 | 2,0 | 1,4 | 1,2 | 0,96 | 0,86 | 0,55 |
| | Nm | 279 | 259 | 268 | 289 | 322 | 319 | 401 | 316 | 305 | 290 | 280 | 210 |
| | eff. | 0.90 | 0.88 | 0.86 | 0.83 | 0.82 | 0.76 | 0.72 | 0.67 | 0.68 | 0.63 | 0.60 | 0.56 |
| 110 | kW | - - - | 12,5 | 9,0 | 6,5 | 5,7 | 4,4 | 3,5 | 2,7 | 2,2 | 2,0 | 1,5 | 1,1 |
| | Nm | - - - | 525 | 532 | 560 | 647 | 642 | 691 | 631 | 595 | 635 | 525 | 469 |
| | eff. | - - - | 0.88 | 0.87 | 0.84 | 0.83 | 0.76 | 0.73 | 0.71 | 0.70 | 0.67 | 0.66 | 0.61 |
| *130 | kW | - - - | 19.0 | 15.0 | 11.0 | 8,5 | 7,5 | 5,5 | 3,9 | 3,7 | 2,7 | 2,4 | 1,8 |
| | Nm | - - - | 807 | 890 | 960 | 975 | 1100 | 1140 | 950 | 1005 | 865 | 810 | 750 |
| | eff. | - - - | 0.89 | 0.87 | 0.85 | 0.84 | 0.77 | 0.76 | 0.72 | 0.71 | 0.67 | 0.63 | 0.61 |
| *150 | kW | - - - | 24.9 | 21.0 | 16.0 | 12,5 | 9,5 | 8,0 | 5,9 | 5,1 | 3,8 | 3,3 | 2,6 |
| | Nm | - - - | 1060 | 1260 | 1410 | 1430 | 1435 | 1680 | 1440 | 1420 | 1230 | 1170 | 1120 |
| | eff. | - - - | 0.89 | 0.88 | 0.86 | 0.84 | 0.79 | 0.77 | 0.73 | 0.73 | 0.68 | 0.65 | 0.63 |

* RS only

# Gearboxes Series RS & RT

## 900 min$^{-1}$

**Selection table** — **Single worm gear boxes RS - RT**

| RS RT | i = | 5 | 7 | 10 | 15 | 20 | 28 | 40 | 49 | 56 | 70 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | min$^{-1}$ | 180 | 128 | 90 | 60 | 45 | 32 | 23 | 19 | 16 | 13 | 11 | 9 |
| 28 | kW | - - - | 0,36 | 0,24 | 0,18 | 0,13 | 0,12 | 0,08 | 0,07 | 0,06 | 0,04 | 0,03 | 0,02 |
| | Nm | - - - | 22 | 20 | 21 | 19 | 22 | 20 | 19 | 16 | 13 | 11 | 8 |
| | eff. | - - - | 0.82 | 0.78 | 0.72 | 0.70 | 0.61 | 0.56 | 0.52 | 0.45 | 0.43 | 0.40 | 0.37 |
| 40 | kW | 1.2 | 0,84 | 0,64 | 0,44 | 0,30 | 0,28 | 0,19 | 0,16 | 0,14 | 0,12 | 0,10 | 0,08 |
| | Nm | 54 | 52 | 54 | 52 | 45 | 52 | 46 | 43 | 41 | 40 | 39 | 36 |
| | eff. | 0.86 | 0.83 | 0.80 | 0.74 | 0.70 | 0.63 | 0.56 | 0.52 | 0.49 | 0.46 | 0.44 | 0.42 |
| 50 | kW | 2.1 | 1,5 | 1,1 | 0,75 | 0,52 | 0,51 | 0,35 | 0,28 | 0,25 | 0,19 | 0,17 | 0,12 |
| | Nm | 96 | 95 | 95 | 91 | 79 | 99 | 85 | 81 | 80 | 67 | 67 | 55 |
| | eff. | 0.86 | 0.85 | 0.81 | 0.76 | 0.72 | 0.65 | 0.58 | 056 | 0.54 | 0.47 | 0.46 | 042 |
| 60 | kW | 3.2 | 2,4 | 1,9 | 1,4 | 1,0 | 0,87 | 0,56 | 0,43 | 0,40 | 0,32 | 0,28 | 0,19 |
| | Nm | 150 | 150 | 163 | 166 | 161 | 175 | 152 | 135 | 130 | 125 | 115 | 94 |
| | eff. | 0.87 | 0.85 | 0.83 | 0.75 | 0.76 | 0.68 | 0.64 | 0.61 | 0.55 | 0.53 | 0.480 | 0.47 |
| 70 | kW | 4.5 | 3,2 | 2,4 | 1,7 | 1,3 | 1,2 | 0,87 | 0,64 | 0,53 | 0,42 | 0,38 | 0,30 |
| | Nm | 212 | 202 | 211 | 218 | 207 | 242 | 240 | 205 | 187 | 170 | 160 | 147 |
| | eff. | 0.88 | 0.86 | 0.83 | 0.79 | 0.77 | 0.70 | 0.654 | 0.62 | 0.59 | 0.54 | 0.50 | 0.46 |
| 85 | kW | 7.2 | 5,0 | 3,9 | 3,0 | 2,1 | 1,8 | 1,5 | 1,0 | 0,83 | 0,73 | 0,64 | 0,51 |
| | Nm | 338 | 320 | 350 | 378 | 355 | 373 | 410 | 350 | 332 | 300 | 290 | 260 |
| | eff. | 0.88 | 0.86 | 0.84 | 0.80 | 0.78 | 0.71 | 0.66 | 0.672 | 0.671 | 0.55 | 0.53 | 0.48 |
| 110 | kW | - - - | 9,8 | 8,0 | 5,7 | 4,4 | 3,7 | 2,7 | 2,3 | 1,9 | 1,7 | 1,5 | 0,94 |
| | Nm | - - - | 635 | 720 | 745 | 745 | 795 | 780 | 780 | 690 | 765 | 715 | 500 |
| | eff. | - - - | 0.87 | 0.85 | 0.82 | 0.79 | 0.73 | 0.68 | 0.64 | 0.62 | 0.59 | 0.57 | 0.50 |
| *130 | kW | - - - | 14,9 | 11,7 | 8,4 | 6,5 | 5,1 | 4,1 | 3,1 | 2,8 | 2,1 | 1,8 | 1,3 |
| | Nm | - - - | 975 | 1070 | 1115 | 1115 | 1145 | 1215 | 1095 | 1145 | 960 | 890 | 805 |
| | eff. | - - - | 0.88 | 0.86 | 0.83 | 0.81 | 0.75 | 0.70 | 0.67 | 0.68 | 0.63 | 0.58 | 0.57 |
| *150 | kW | - - - | 20,8 | 15,9 | 12,2 | 9,3 | 7,3 | 5,6 | 4,5 | 3,3 | 2,9 | 2,5 | 2,0 |
| | Nm | - - - | 1360 | 1470 | 1635 | 1625 | 1660 | 1740 | 1600 | 1370 | 1390 | 1290 | 1230 |
| | eff. | - - - | 0.88 | 0.87 | 0.84 | 0.82 | 0.77 | 0.73 | 0.69 | 0.69 | 0.64 | 0.61 | 0.58 |

* RS only

# 700 min$^{-1}$

# Gearboxes Series RS & RT

## Single worm gear boxes RS - RT — Selection table

| RS RT | i = | 5 | 7 | 10 | 15 | 20 | 28 | 40 | 49 | 56 | 70 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | min$^{-1}$ | 140 | 100 | 70 | 47 | 35 | 25 | 18 | 15 | 13 | 10 | 8.7 | 7 |
| 28 | kW | - - - | 0,29 | 0,21 | 0,14 | 0,10 | 0,10 | 0,06 | 0,05 | 0,04 | 0,03 | 0,02 | 0,01 |
| | Nm | - - - | 23 | 23 | 22 | 21 | 24 | 21 | 20 | 17 | 13 | 11 | 8 |
| | eff. | - - - | 0.81 | 0.77 | 0.71 | 0.69 | 0.60 | 0.55 | 0.51 | 0.44 | 0.40 | 0.39 | 0.36 |
| 40 | kW | 1.00 | 0,74 | 0,54 | 0,39 | 0,26 | 0,24 | 0,17 | 0,14 | 0,12 | 0,10 | 0,09 | 0,07 |
| | Nm | 59 | 58 | 58 | 58 | 49 | 55 | 49 | 46 | 45 | 43 | 41 | 38 |
| | eff. | 0.85 | 0.82 | 0.79 | 0.73 | 0.68 | 0.59 | 0.53 | 0.50 | 0.48 | 0.44 | 0.42 | 0.39 |
| 50 | kW | 1.8 | 1,4 | 0,92 | 0,65 | 0,44 | 0,43 | 0,29 | 0,24 | 0,21 | 0,16 | 0,15 | 0,12 |
| | Nm | 106 | 110 | 100 | 99 | 86 | 106 | 91 | 87 | 83 | 70 | 72 | 62 |
| | eff. | 0.86 | 0.83 | 0.80 | 0.75 | 0.71 | 0.64 | 0.57 | 0.542 | 0.52 | 0.45 | 0.44 | 0.39 |
| 60 | kW | 2.8 | 2,0 | 1,6 | 1,1 | 0,87 | 0,73 | 0,49 | 0,35 | 0,34 | 0,26 | 0,24 | 0,17 |
| | Nm | 165 | 164 | 177 | 178 | 175 | 187 | 165 | 140 | 139 | 128 | 120 | 100 |
| | eff. | 0.87 | 0.84 | 0.81 | 0.77 | 0.74 | 0.67 | 0.62 | 0.59 | 0.54 | 0.51 | 0.46 | 0.44 |
| 70 | kW | 3.9 | 2,7 | 2,1 | 1,4 | 1,1 | 1,0 | 0,71 | 0,55 | 0,46 | 0,36 | 0,32 | 0,24 |
| | Nm | 234 | 216 | 233 | 231 | 225 | 256 | 245 | 220 | 197 | 176 | 167 | 150 |
| | eff. | 0.87 | 0.85 | 0.82 | 0.78 | 0.75 | 0.68 | 0.63 | 0.60 | 0.56 | 0.51 | 0.48 | 0.45 |
| 85 | kW | 6.2 | 4,6 | 3,5 | 2,5 | 1,9 | 1,5 | 1,2 | 0,93 | 0,78 | 0,59 | 0,56 | 0,44 |
| | Nm | 372 | 370 | 400 | 408 | 388 | 400 | 420 | 379 | 353 | 310 | 305 | 275 |
| | eff. | 0.87 | 0.85 | 0.83 | 0.79 | 0.76 | 0.69 | 0.65 | 0.61 | 0.59 | 0.55 | 0.50 | 0.46 |
| 110 | kW | - - - | 8,5 | 6,8 | 4,9 | 3,9 | 3,3 | 2,3 | 2,0 | 1,7 | 1,5 | 1,2 | 0,79 |
| | Nm | - - - | 700 | 780 | 795 | 815 | 890 | 820 | 840 | 770 | 815 | 720 | 515 |
| | eff. | - - - | 0.86 | 0.84 | 0.80 | 0.77 | 0.71 | 0.66 | 0.62 | 0.60 | 0.57 | 0.55 | 0.48 |
| *130 | kW | - - - | 12,8 | 10,3 | 7,4 | 5,6 | 4,4 | 3,6 | 2,7 | 2,4 | 1,8 | 1,6 | 1,1 |
| | Nm | - - - | 1060 | 1200 | 1230 | 1215 | 1200 | 1320 | 1185 | 1215 | 1030 | 955 | 855 |
| | eff. | - - - | 0.87 | 0.85 | 0.81 | 0.80 | 0.72 | 0.68 | 0.65 | 0.66 | 0.61 | 0.56 | 0.55 |
| *150 | kW | - - - | 18,0 | 13,7 | 10,6 | 8,1 | 6,2 | 4,9 | 3,8 | 3,0 | 2,6 | 2,3 | 1,7 |
| | Nm | - - - | 1475 | 1610 | 1805 | 1780 | 1790 | 1890 | 1710 | 1535 | 1500 | 1425 | 1275 |
| | eff. | - - - | 0.87 | 0.86 | 0.83 | 0.81 | 0.75 | 0.71 | 0.68 | 0.67 | 0.61 | 0.58 | 0.56 |

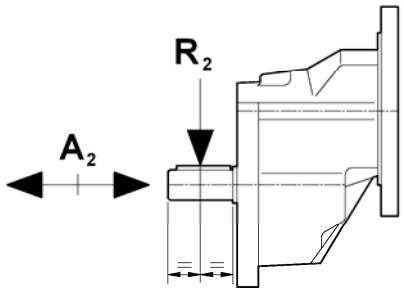
* RS only

# Gearboxes Series RS & RT

**1400 min$^{-1}$**



| | $i_1$ = | 3.5 | 6.3 | 8 |
|---|---|---|---|---|
| | min$^{-1}$ | 400 | 225 | 175 |
| XA63 | kW | 0.50 | 0.23 | 0.18 |
| | Nm | 12 | 10 | 9 |
| | $R_2$ [N] | 390 | 450 | 450 |
| XA71 | kW | 1.1 | 0.52 | 0.37 |
| | Nm | 26 | 22 | 20 |
| | $R_2$ [N] | 490 | 560 | 560 |
| XA80 | kW | 3.1 | 1.5 | 1.1 |
| | Nm | 68 | 65 | 60 |
| | $R_2$ [N] | 610 | 700 | 700 |
| XA100 | kW | 8.7 | 4.0 | 2.2 |
| | Nm | 235 | 163 | 136 |
| | $R_2$ [N] | 1500 | 2500 | 2500 |




**A2 = 0.2 x R2**

Dimensions: page 52

| **$i_1$ = 3.5** | $i = i_1 \times i_2$ | 25 | 35 | 53 | 70 | 98 | 140 | 172 | 196 | 245 | 280 | 350 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | min$^{-1}$ | 57 | 40 | 27 | 20 | 14 | 10 | 8 | 7 | 6 | 5 | 4 |
| | $i_2$ | 7 | 10 | 15 | 20 | 28 | 40 | 49 | 56 | 70 | 80 | 100 |
| 63/40 | kW | 0.55 | 0.40 | 0.28 | 0.20 | 0.19 | 0.13 | 0.11 | 0.10 | 0.06 | 0.05 | 0.03 |
| | Nm | 72 | 72 | 70 | 60 | 70 | 64 | 58 | 56 | 42 | 35 | 25 |
| | eff. | 0.78 | 0.75 | 0.70 | 0.63 | 0.56 | 0.50 | 0.46 | 0.44 | 0.41 | 0.40 | 0.35 |
| 63/50 | kW | 1.02 | 0.70 | 0.50 | 0.33 | 0.32 | 0.21 | 0.20 | 0.16 | 0.11 | 0.09 | 0.06 |
| 71/50 | Nm | 135 | 127 | 125 | 105 | 125 | 105 | 115 | 100 | 80 | 70 | 50 |
| | eff. | 0.79 | 0.76 | 0.70 | 0.66 | 0.59 | 0.52 | 0.50 | 0.46 | 0.42 | 0.40 | 0.35 |
| 63/60 | kW | 1.53 | 1.18 | 0.83 | 0.57 | 0.53 | 0.33 | 0.27 | 0.23 | 0.19 | 0.15 | 0.10 |
| 71/60 | Nm | 205 | 217 | 215 | 192 | 217 | 177 | 170 | 152 | 145 | 110 | 85 |
| 80/60 | eff. | 0.80 | 0.77 | 0.72 | 0.70 | 0.61 | 0.57 | 0.54 | 0.49 | 0.45 | 0.38 | 0.36 |
| 71/70 | kW | 1.96 | 1.48 | 1.08 | 0.77 | 0.72 | 0.50 | 0.43 | 0.36 | 0.30 | 0.26 | 0.19 |
| 80/70 | Nm | 265 | 275 | 285 | 260 | 310 | 270 | 270 | 235 | 225 | 200 | 180 |
| | eff. | 0.81 | 0.78 | 0.74 | 0.71 | 0.64 | 0.57 | 0.54 | 0.49 | 0.45 | 0.41 | 0.39 |
| 71/85 | kW | 3.14 | 2.39 | 1.77 | 1.37 | 1.11 | 0.80 | 0.65 | 0.58 | 0.49 | 0.40 | 0.26 |
| 80/85 | Nm | 430 | 450 | 475 | 470 | 475 | 445 | 420 | 410 | 390 | 340 | 250 |
| | eff. | 0.82 | 0.79 | 0.75 | 0.72 | 0.64 | 0.58 | 0.55 | 0.53 | 0.48 | 0.44 | 0.40 |
| 80/110 | kW | 6.02 | 4.63 | 3.58 | 2.61 | 2.18 | 1.60 | 1.27 | 1.12 | 0.86 | 0.86 | 0.54 |
| 100/110 | Nm | 835 | 895 | 950 | 910 | 960 | 950 | 850 | 820 | 750 | 740 | 540 |
| | eff. | 0.83 | 0.81 | 0.74 | 0.73 | 0.66 | 0.62 | 0.57 | 0.55 | 0.52 | 0.45 | 0.42 |
| RA | kW | 7.0 | 6.8 | 5.5 | 3.8 | 3.1 | 2.3 | 1.7 | 1.5 | 1.3 | 1.1 | 0.8 |
| 100/130 | Nm | 975 | 1320 | 1495 | 1350 | 1430 | 1380 | 1300 | 1250 | 1200 | 1080 | 880 |
| | eff. | 0.83 | 0.81 | 0.77 | 0.75 | 0.67 | 0.63 | 0.64 | 0.62 | 0.60 | 0.50 | 0.48 |
| RA | kW | 7.9 | 7.8 | 7.5 | 5.7 | 4.5 | 3.3 | 2.7 | 2.4 | 1.8 | 1.6 | 1.0 |
| 100/150 | Nm | 1115 | 1535 | 2090 | 2060 | 2130 | 2050 | 2040 | 2025 | 1700 | 1459 | 1200 |
| | eff. | 0.84 | 0.82 | 0.79 | 0.76 | 0.69 | 0.66 | 0.64 | 0.62 | 0.60 | 0.52 | 0.50 |

| $i_1$ = 6.3 | $i = i_1 \times i_2$ | 44 | 63 | 95 | 126 | 176 | 252 | 309 | 353 | 441 | 504 | 630 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | min$^{-1}$ | 32 | 22 | 15 | 11 | 8 | 5.5 | 4.6 | 4 | 3.2 | 2.8 | 2.2 |
| | $i_2$ | 7 | 10 | 15 | 20 | 28 | 40 | 49 | 56 | 70 | 80 | 100 |
| 63/40 | kW | 0.35 | 0.25 | 0.17 | 0.12 | 0.11 | 0.08 | 0.06 | 0.06 | 0.05 | 0.04 | 0.03 |
| | Nm | 79 | 78 | 74 | 63 | 69 | 63 | 57 | 55 | 53 | 51 | 46 |
| | eff. | 0.76 | 0.72 | 0.67 | 0.60 | 0.52 | 0.45 | 0.43 | 0.39 | 0.35 | 0.34 | 0.31 |
| 63/50 | kW | 0.62 | 0.42 | 0.30 | 0.20 | 0.20 | 0.14 | 0.11 | 0.10 | 0.09 | 0.07 | 0.05 |
| 71/50 | Nm | 145 | 133 | 130 | 113 | 138 | 115 | 108 | 100 | 92 | 89 | 72 |
| | eff. | 0.78 | 0.74 | 0.67 | 0.63 | 0.55 | 0.48 | 0.45 | 0.42 | 0.36 | 0.36 | 0.31 |
| 63/60 | kW | 0.92 | 0.74 | 0.52 | 0.40 | 0.35 | 0.23 | 0.16 | 0.16 | 0.11 | 0.10 | 0.08 |
| 71/60 | Nm | 218 | 237 | 235 | 230 | 238 | 210 | 160 | 175 | 141 | 130 | 122 |
| 80/60 | eff. | 0.79 | 0.75 | 0.70 | 0.67 | 0.57 | 0.53 | 0.49 | 0.45 | 0.42 | 0.37 | 0.35 |
| 71/70 | kW | 1.2 | 0.95 | 0.68 | 0.50 | 0.44 | 0.32 | 0.26 | 0.23 | 0.18 | 0.17 | 0.12 |
| 80/70 | Nm | 289 | 310 | 310 | 292 | 320 | 295 | 272 | 254 | 221 | 210 | 190 |
| | eff. | 0.80 | 0.76 | 0.71 | 0.68 | 0.60 | 0.54 | 0.50 | 0.46 | 0.42 | 0.37 | 0.36 |
| 71/85 | kW | 2.0 | 1.6 | 1.1 | 0.84 | 0.69 | 0.53 | 0.43 | 0.37 | 0.28 | 0.26 | 0.22 |
| 80/85 | Nm | 490 | 526 | 516 | 495 | 501 | 500 | 466 | 449 | 391 | 380 | 345 |
| | eff. | 0.80 | 0.77 | 0.72 | 0.69 | 0.60 | 0.55 | 0.51 | 0.50 | 0.46 | 0.42 | 0.36 |
| 80/110 | kW | 4.3 | 3.2 | 2.4 | 1.8 | 1.6 | 1.1 | 1.0 | 0.80 | 0.66 | 0.51 | 0.32 |
| 100/110 | Nm | 1030 | 1100 | 1150 | 1100 | 1170 | 1110 | 1100 | 995 | 950 | 780 | 550 |
| | eff. | 0.81 | 0.79 | 0.74 | 0.71 | 0.63 | 0.57 | 0.53 | 0.52 | 0.48 | 0.45 | 0.39 |
| RA | kW | 6.41 | 4.94 | 3.72 | 2.71 | 2.37 | 1.65 | 1.47 | 1.25 | 1.02 | 0.82 | 0.47 |
| 100/130 | Nm | 1600 | 1700 | 1800 | 1700 | 1800 | 1700 | 1700 | 1600 | 1600 | 1300 | 900 |
| | eff. | 0.83 | 0.80 | 0.75 | 0.73 | 0.63 | 0.60 | 0.55 | 0.53 | 0.52 | 0.46 | 0.45 |
| RA | kW | 8.41 | 6.61 | 5.04 | 3.77 | 3.02 | 2.31 | 1.82 | 1.41 | 1.24 | 1.09 | 0.84 |
| 100/150 | Nm | 2100 | 2300 | 2500 | 2400 | 2400 | 2500 | 2300 | 2000 | 1800 | 1800 | 1700 |
| | eff. | 0.83 | 0.81 | 0.77 | 0.74 | 0.66 | 0.63 | 0.60 | 0.59 | 0.81 | 0.48 | 0.47 |

# Gearboxes Series RS & RT

**1400 min$^{-1}$**



| $i_1 = 8$ | $i = i_1 \times i_2$ $min^{-1}$ | 56<br>25 | 80<br>18 | 120<br>12 | 160<br>9 | 224<br>6 | 320<br>4 | 392<br>3.5 | 448<br>3 | 560<br>2.5 | 640<br>2.2 | 800<br>1.75 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $i_2$ | 7 | 10 | 15 | 20 | 28 | 40 | 49 | 56 | 70 | 80 | 100 |
| 63/40 | kW | 0.32 | 0.23 | 0.16 | 0.11 | 0.11 | 0.08 | 0.06 | 0.05 | 0.03 | 0.03 | 0.02 |
| | Nm | 93 | 89 | 84 | 72 | 85 | 75 | 69 | 59 | 45 | 38 | 27 |
| | eff. | 0.75 | 0.72 | 0.65 | 0.59 | 0.50 | 0.44 | 0.41 | 0.38 | 0.36 | 0.34 | 0.31 |
| 63/50 | kW | 0.58 | 0.41 | 0.28 | 0.20 | 0.18 | 0.13 | 0.10 | 0.09 | 0.06 | 0.05 | 0.03 |
| 71/50 | Nm | 170 | 165 | 154 | 130 | 150 | 130 | 120 | 115 | 86 | 73 | 53 |
| | eff. | 0.77 | 0.73 | 0.67 | 0.61 | 0.55 | 0.47 | 0.45 | 0.41 | 0.36 | 0.37 | 0.31 |
| 63/60 | kW | 0.87 | 0.68 | 0.49 | 0.34 | 0.31 | 0.21 | 0.16 | 0.15 | 0.10 | 0.08 | 0.05 |
| 71/60 | Nm | 260 | 280 | 275 | 240 | 270 | 235 | 220 | 200 | 155 | 125 | 92 |
| 80/60 | eff. | 0.78 | 0.75 | 0.69 | 0.65 | 0.57 | 0.51 | 0.50 | 0.43 | 0.41 | 0.37 | 0.35 |
| 71/70 | kW | 1.26 | 0.88 | 0.63 | 0.44 | 0.48 | 0.28 | 0.24 | 0.20 | 0.16 | 0.12 | 0.05 |
| 80/70 | Nm | 380 | 365 | 360 | 325 | 440 | 320 | 320 | 275 | 245 | 200 | 145 |
| | eff. | 0.79 | 0.76 | 0.70 | 0.67 | 0.60 | 0.53 | 0.50 | 0.45 | 0.41 | 0.38 | 0.35 |
| 71/85 | kW | 1.76 | 1.42 | 1.07 | 0.85 | 0.65 | 0.48 | 0.40 | 0.33 | 0.26 | 0.20 | 0.13 |
| 80/85 | Nm | 530 | 595 | 620 | 620 | 600 | 560 | 550 | 510 | 450 | 360 | 260 |
| | eff. | 0.79 | 0.77 | 0.71 | 0.67 | 0.60 | 0.54 | 0.52 | 0.50 | 0.45 | 0.41 | 0.37 |
| 80/110 | kW | 3.42 | 2.75 | 1.97 | 1.52 | 1.29 | 0.97 | 0.73 | 0.64 | 0.52 | 0.43 | 0.27 |
| 100/110 | Nm | 1045 | 1170 | 1180 | 1160 | 1200 | 1180 | 1020 | 980 | 920 | 850 | 550 |
| | eff. | 0.80 | 0.78 | 0.73 | 0.70 | 0.61 | 0.56 | 0.52 | 0.50 | 0.46 | 0.45 | 0.38 |
| RA | kW | 3.3 | 3.0 | 3.2 | 2.3 | 1.8 | 1.2 | 1.1 | 0.9 | 0.7 | 0.7 | 0.5 |
| 100/ 130 | Nm | 1000 | 1240 | 1840 | 1765 | 1760 | 1700 | 1660 | 1600 | 1435 | 1330 | 1160 |
| | eff. | 0.80 | 0.78 | 0.73 | 0.72 | 0.62 | 0.58 | 0.56 | 0.54 | 0.51 | 0.45 | 0.43 |
| RA | kW | 3.7 | 3.4 | 3.6 | 3.4 | 2.7 | 2.0 | 1.7 | 1.4 | 1.1 | 1.0 | 0.8 |
| 100/ 150 | Nm | 1130 | 1425 | 2150 | 2580 | 2675 | 2860 | 2550 | 2490 | 2110 | 1970 | 1855 |
| | eff. | 0.81 | 0.79 | 0.75 | 0.72 | 0.63 | 0.61 | 0.56 | 0.57 | 0.49 | 0.46 | 0.45 |

# 1400 min$^{-1}$

# Gearboxes Series RS & RT

## Two stage worm gear boxes RS/RS - RT/RT — Selection table

| RS/RS RT/RT | $i = i_1 \times i_2$ | 420 | 560 | 784 | 1120 | 1568 | 2240 | 2800 | 4000 | 5600 | 8000 | 10000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $min^{-1}$ | 3.3 | 2.5 | 1.8 | 1.25 | 0.9 | 0.6 | 0.5 | 0.35 | 0.25 | 0.17 | 0.14 |
| | $i_1$ = | 15 | 20 | 28 | 40 | 56 | 56 | 70 | 100 | 100 | 100 | 100 |
| | $i_2$ = | 28 | 28 | 28 | 28 | 28 | 40 | 40 | 40 | 56 | 80 | 100 |
| 28/28 | W | 32 | 25 | 21 | 16 | 13 | 9 | 8 | 6 | 3 | 1.8 | 1.3 |
| | Nm | 35 | 36 | 36 | 36 | 35 | 30 | 30 | 30 | 16 | 12 | 11 |
| | eff. | 0.38 | 0.37 | 0.32 | 0.30 | 0.25 | 0.21 | 0.20 | 0.18 | 0.14 | 0.12 | 0.13 |
| 28/40 | W | 75 | 60 | 46 | 34 | 30 | 22 | 22 | 14 | 11 | 5 | 3 |
| | Nm | 85 | 85 | 80 | 80 | 80 | 73 | 76 | 70 | 62 | 41 | 25 |
| | eff. | 0.39 | 0.37 | 0.33 | 0.31 | 0.25 | 0.21 | 0.18 | 0.18 | 0.15 | 0.14 | 0.12 |
| 28/50 | W | 133 | 106 | 91 | 74 | 60 | 36 | 36 | 28 | 20 | 10 | 6 |
| | Nm | 150 | 150 | 160 | 175 | 160 | 125 | 131 | 147 | 125 | 78 | 49 |
| | eff. | 0.39 | 0.37 | 0.33 | 0.31 | 0.25 | 0.22 | 0.19 | 0.19 | 0.16 | 0.14 | 0.12 |
| 28/60 | W | 197 | 157 | 132 | 91 | 91 | 67 | 54 | 30 | 32 | 16 | 10 |
| | Nm | 240 | 240 | 245 | 230 | 260 | 245 | 217 | 164 | 195 | 128 | 91 |
| | eff. | 0.42 | 0.40 | 0.35 | 0.33 | 0.27 | 0.23 | 0.21 | 0.20 | 0.16 | 0.14 | 0.13 |
| 40/70 | W | 298 | 249 | 198 | 157 | 119 | 86 | 72 | 60 | 42 | 24 | 16 |
| | Nm | 380 | 400 | 400 | 395 | 380 | 370 | 345 | 360 | 321 | 201 | 154 |
| | eff. | 0.44 | 0.42 | 0.38 | 0.33 | 0.30 | 0.27 | 0.25 | 0.22 | 0.20 | 0.15 | 0.14 |
| 40/85 | W | 447 | 372 | 276 | 224 | 180 | 138 | 120 | 90 | 72 | 39 | 26 |
| | Nm | 595 | 625 | 585 | 625 | 610 | 615 | 595 | 565 | 550 | 373 | 264 |
| | eff. | 0.46 | 0.44 | 0.40 | 0.35 | 0.32 | 0.28 | 0.26 | 0.23 | 0.20 | 0.17 | 0.15 |
| 50/110 | W | 865 | 756 | 579 | 453 | 382 | 292 | 235 | 163 | 128 | 82 | 51 |
| | Nm | 1190 | 1300 | 1300 | 1280 | 1350 | 1340 | 1210 | 1070 | 980 | 810 | 560 |
| | eff. | 0.48 | 0.45 | 0.42 | 0.37 | 0.33 | 0.30 | 0.27 | 0.24 | 0.20 | 0.18 | 0.16 |
| RS/RS 60/130 | kW | 1.5 | 1.1 | 0.75 | 0.55 | 0.55 | 0.37 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| | Nm | 2015 | 1930 | 1670 | 1530 | 2015 | 1830 | 1410 | 1770 | 1850 | 1420 | 1225 |
| | eff. | 0.50 | 0.46 | 0.43 | 0.40 | 0.35 | 0.33 | 0.30 | 0.27 | 0.25 | 0.21 | 0.20 |
| RS/RS 70/150 | kW | 1.8 | 1.5 | 1.1 | 0.75 | 0.75 | 0.55 | 0.37 | 0.37 | 0.25 | 0.25 | 0.25 |
| | Nm | 2570 | 2830 | 2570 | 2460 | 2850 | 3020 | 2325 | 2875 | 2670 | 2135 | 1995 |
| | eff. | 0.52 | 0.50 | 0.46 | 0.43 | 0.39 | 0.36 | 0.33 | 0.31 | 0.27 | 0.23 | 0.22 |

# Gearboxes Series RS & RT

## 1400 min$^{-1}$

**Selection table** — **Geared motors**

| 0.06 kW | min$^{-1}$ | i = | Nm | SF | kg |
|---|---|---|---|---|---|
| MRS-MRT 28 | 200 | 7 | 2.4 | >3 | 3.6 |
| MRS-MRT 28 | 140 | 10 | 3.3 | >3 | 3.6 |
| MRS-MRT 28 | 93 | 15 | 4.7 | >3 | 3.6 |
| MRS-MRT 28 | 70 | 20 | 6.1 | 2.6 | 3.6 |
| MRS-MRT 28 | 50 | 28 | 7.6 | 2.6 | 3.6 |
| MRS-MRT 28 | 35 | 40 | 10 | 1.7 | 3.6 |
| MRA-MTA 63/40 | 32 | 44 | 14 | >3 | 6.5 |
| MRS-MRT 28 | 29 | 49 | 11 | 1.5 | 3.6 |
| MRS-MRT 28 | 25 | 56 | 12 | 1.3 | 3.6 |
| MRA-MTA 63/40 | 22 | 63 | 19 | >3 | 6.5 |
| MRS-MRT 28 | 20 | 70 | 13 | 0.9 | 3.6 |
| MRS-MRT 40 | 18 | 80 | 16 | 2.0 | 5.0 |
| MRA-MTA 63/40 | 15 | 95 | 26 | 2.8 | 6.5 |
| MRS-MRT 40 | 14 | 100 | 19 | 1.5 | 5.0 |
| MRA-MTA 63/40 | 11 | 126 | 31 | 2.0 | 6.5 |
| MRS-MRT 28/28 | 9.3 | 150 | 31 | 1.1 | 5.0 |
| MRA-MTA 63/40 | 8.0 | 176 | 37 | 1.8 | 6.5 |
| MRS-MRT 28/28 | 7.0 | 200 | 30 | 0.8 | 5.0 |
| MRA-MTA 63/40 | 5.5 | 252 | 46 | 1.4 | 6.5 |
| MRS-MRT 28/28 | 5.0 | 280 | 35 | 0.8 | 5.0 |
| MRA-MTA 63/40 | 4.6 | 309 | 54 | 1.0 | 6.5 |
| MRA-MTA 63/40 | 4.0 | 353 | 56 | 1.0 | 6.5 |
| MRS-MRT 28/40 | 3.3 | 420 | 67 | 1.3 | 6.4 |
| MRA-MTA 63/50 | 3.2 | 441 | 65 | 1.4 | 7.8 |
| MRA-MTA 63/50 | 2.8 | 504 | 74 | 1.2 | 7.8 |
| MRS-MRT 28/40 | 2.5 | 560 | 85 | 1.0 | 6.4 |
| MRA-MTA 63/50 | 2.2 | 630 | 80 | 0.9 | 7.8 |
| MRS-MRT 28/50 | 1.8 | 784 | 106 | 1.5 | 7.7 |
| MRS-MRT 28/50 | 1.3 | 1120 | 142 | 1.2 | 7.7 |
| MRS-MRT 28/50 | 0.9 | 1568 | 160 | 1.0 | 7.7 |
| MRS-MRT 28/60 | 0.6 | 2240 | 211 | 1.2 | 10 |
| MRS-MRT 28/60 | 0.5 | 2800 | 241 | 0.9 | 10 |
| MRS-MRT 40/70 | 0.4 | 4000 | 360 | 1.0 | 15 |
| MRS-MRT 40/70 | 0.3 | 5600 | 458 | 0.7 | 15 |
| MRS-MRT 40/85 | 0.2 | 8000 | 557 | 0.7 | 19 |
| MRS-MRT 40/110 | 0.1 | 10000 | 614 | 0.4 | 19 |

| 0.09 kW | min$^{-1}$ | i = | Nm | SF | kg |
|---|---|---|---|---|---|
| MRS-MRT 28 | 200 | 7 | 3.6 | >3 | 3.7 |
| MRS-MRT 28 | 140 | 10 | 5.0 | >3 | 3.7 |
| MRS-MRT 28 | 93 | 15 | 7.1 | 2.5 | 3.7 |
| MRS-MRT 28 | 70 | 20 | 9.1 | 1.8 | 3.7 |
| MRS-MRT 28 | 50 | 28 | 11 | 1.8 | 3.7 |
| MRS-MRT 28 | 35 | 40 | 15 | 1.1 | 3.7 |
| MRA-MTA 63/40 | 32 | 44 | 21 | >3 | 6.6 |
| MRS-MRT 28 | 29 | 49 | 17 | 1.0 | 3.7 |
| MRS-MRT 40 | 25 | 56 | 20 | 2.1 | 5.1 |
| MRA-MTA 63/40 | 22 | 63 | 28 | 2.8 | 6.6 |
| MRS-MRT 40 | 20 | 70 | 22 | 1.6 | 5.1 |
| MRS-MRT 40 | 18 | 80 | 25 | 1.3 | 5.1 |
| MRA-MTA 63/40 | 15 | 95 | 39 | 1.9 | 6.6 |
| MRS-MRT 40 | 14 | 100 | 28 | 1.0 | 5.1 |
| MRA-MTA 63/40 | 11 | 126 | 46 | 1.4 | 6.6 |
| MRS-MRT 28/40 | 9.3 | 150 | 48 | 1.3 | 6.5 |
| MRA-MTA 63/40 | 8.0 | 176 | 56 | 1.2 | 6.6 |
| MRS-MRT 28/40 | 7.0 | 200 | 60 | 1.3 | 6.5 |
| MRA-MTA 63/40 | 5.5 | 252 | 70 | 0.9 | 6.6 |
| MRS-MRT 28/40 | 5.0 | 280 | 70 | 1.0 | 6.5 |
| MRA-MTA 63/50 | 4.6 | 309 | 86 | 1.3 | 7.9 |
| MRA-MTA 63/50 | 4.0 | 353 | 91 | 1.1 | 7.9 |
| MRS-MRT 28/50 | 3.3 | 420 | 101 | 1.5 | 7.8 |
| MRA-MTA 63/50 | 3.2 | 441 | 97 | 0.9 | 7.9 |
| MRS-MRT 28/50 | 2.5 | 560 | 127 | 1.2 | 7.8 |
| MRS-MRT 28/50 | 1.8 | 784 | 159 | 1.0 | 7.8 |
| MRS-MRT 28/50 | 1.3 | 1120 | 213 | 0.8 | 7.8 |
| MRS-MRT 28/60 | 0.9 | 1568 | 260 | 1.0 | 11 |
| MRS-MRT 40/70 | 0.6 | 2240 | 371 | 1.0 | 15 |
| MRS-MRT 40/85 | 0.5 | 2800 | 447 | 1.3 | 19 |

| 0.09 kW | min$^{-1}$ | i = | Nm | SF | kg |
|---|---|---|---|---|---|
| MRS-MRT 40/85 | 0.4 | 4000 | 565 | 1.0 | 19 |
| MRS-MRT 40/85 | 0.3 | 5600 | 688 | 0.8 | 19 |

| 0.12 kW | min$^{-1}$ | i = | Nm | SF | kg |
|---|---|---|---|---|---|
| MRS-MRT 28 | 200 | 7 | 4.8 | >3 | 4.8 |
| MRS-MRT 28 | 140 | 10 | 6.6 | 2.7 | 4.8 |
| MRS-MRT 28 | 93 | 15 | 9.5 | 1.9 | 4.8 |
| MRS-MRT 28 | 70 | 20 | 12 | 1.3 | 4.8 |
| MRS-MRT 28 | 50 | 28 | 15 | 1.3 | 4.8 |
| MRS-MRT 40 | 35 | 40 | 20 | 2.1 | 6.2 |
| MRA-MTA 63/40 | 32 | 44 | 27 | 2.9 | 7.7 |
| MRS-MRT 40 | 29 | 49 | 23 | 1.8 | 6.2 |
| MRS-MRT 40 | 25 | 56 | 26 | 1.5 | 6.2 |
| MRA-MTA 63/40 | 22 | 63 | 37 | 2.1 | 7.7 |
| MRS-MRT 40 | 20 | 70 | 30 | 1.2 | 6.2 |
| MRS-MRT 40 | 18 | 80 | 33 | 1.0 | 6.2 |
| MRA-MTA 63/40 | 15 | 95 | 52 | 1.4 | 7.7 |
| MRS-MRT 50 | 14 | 100 | 38 | 1.1 | 7.5 |
| MRA-MTA 63/40 | 11 | 126 | 62 | 1.0 | 7.7 |
| MRS-MRT 28/40 | 9.3 | 150 | 64 | 1.4 | 7.6 |
| MRA-MTA 63/40 | 8.0 | 176 | 75 | 0.9 | 7.7 |
| MRS-MRT 28/40 | 7.0 | 200 | 77 | 1.0 | 7.6 |
| MRA-MTA 63/50 | 5.5 | 252 | 99 | 1.2 | 9.0 |
| MRS-MRT 28/40 | 5.0 | 280 | 94 | 0.8 | 7.6 |
| MRA-MTA 63/50 | 4.6 | 309 | 114 | 0.9 | 9.0 |
| MRS-MRT 28/50 | 3.3 | 420 | 134 | 1.2 | 8.9 |
| MRS-MRT 28/50 | 2.5 | 560 | 170 | 0.9 | 8.9 |
| MRS-MRT 28/60 | 1.8 | 784 | 225 | 1.1 | 12 |
| MRS-MRT 28/60 | 1.3 | 1120 | 303 | 0.8 | 12 |
| MRS-MRT 40/70 | 0.9 | 1568 | 385 | 1.0 | 16 |
| MRS-MRT 40/85 | 0.6 | 2240 | 513 | 1.2 | 20 |
| MRS-MRT 40/85 | 0.5 | 2800 | 596 | 1.0 | 20 |
| MRS-MRT 40/85 | 0.4 | 4000 | 753 | 0.8 | 20 |

| 0.18 kW | min$^{-1}$ | i = | Nm | SF | kg |
|---|---|---|---|---|---|
| MRS-MRT 28 | 200 | 7 | 7.2 | 2.5 | 5.4 |
| MRS-MRT 28 | 140 | 10 | 9.9 | 1.8 | 5.4 |
| MRS-MRT 28 | 93 | 15 | 14 | 1.3 | 5.4 |
| MRS-MRT 40 | 70 | 20 | 18 | 2.1 | 6.8 |
| MRS-MRT 40 | 50 | 28 | 23 | 2.1 | 6.8 |
| MRS-MRT 40 | 35 | 40 | 30 | 1.4 | 6.8 |
| MRA-MTA 63/40 | 32 | 44 | 41 | 1.9 | 8.3 |
| MRS-MRT 40 | 29 | 49 | 35 | 1.2 | 6.8 |
| MRS-MRT 40 | 25 | 56 | 39 | 1.0 | 6.8 |
| MRA-MTA 63/40 | 22 | 63 | 56 | 1.4 | 8.3 |
| MRS-MRT 50 | 20 | 70 | 46 | 1.4 | 8.1 |
| MRS-MRT 50 | 18 | 80 | 51 | 1.1 | 8.1 |
| MRA-MTA 63/40 | 15 | 95 | 78 | 0.9 | 8.3 |
| MRA-MTA 63/50 | 11 | 126 | 97 | 1.2 | 9.6 |
| MRS-MRT 28/50 | 9.3 | 150 | 93 | 1.6 | 9.5 |
| MRA-MTA 63/50 | 8.0 | 176 | 119 | 1.2 | 9.6 |
| MRS-MRT 28/50 | 7.0 | 200 | 120 | 1.1 | 9.5 |
| MRS-MRT 28/50 | 5.0 | 280 | 141 | 1.1 | 9.5 |
| MRS-MRT 28/60 | 3.3 | 420 | 217 | 1.1 | 12 |
| MRS-MRT 40/70 | 2.5 | 560 | 289 | 1.4 | 16 |
| MRS-MRT 40/70 | 1.8 | 784 | 366 | 1.1 | 16 |
| MRS-MRT 40/85 | 1.3 | 1120 | 481 | 1.3 | 21 |
| MRS-MRT 40/85 | 0.9 | 1568 | 616 | 1.0 | 21 |
| MRS-MRT 40/85 | 0.6 | 2240 | 770 | 0.8 | 21 |

| 0.25 kW | min$^{-1}$ | i = | Nm | SF | kg |
|---|---|---|---|---|---|
| MRS-MRT 40 | 280 | 5 | 7.5 | >3 | 8.3 |
| MRS-MRT 40 | 200 | 7 | 10 | >3 | 8.3 |
| MRS-MRT 40 | 140 | 10 | 14 | >3 | 8.3 |
| MRS-MRT 40 | 93 | 15 | 20 | 2.2 | 8.3 |
| MRS-MRT 40 | 70 | 20 | 26 | 1.5 | 8.3 |
| MRS-MRT 40 | 50 | 28 | 32 | 1.5 | 8.3 |
| MRS-MRT 40 | 35 | 40 | 42 | 1.0 | 8.3 |

| 0.25 kW | min-1 | i = | Nm | SF | kg |
|---|---|---|---|---|---|
| MRA-MTA 71/50 | 32 | 44 | 59 | 2.5 | 12 |
| MRS-MRT 50 | 29 | 49 | 52 | 1.5 | 9.6 |
| MRS-MRT 50 | 25 | 56 | 57 | 1.3 | 9.6 |
| MRA-MTA 71/50 | 22 | 63 | 80 | 1.7 | 12 |
| MRS-MRT 50 | 20 | 70 | 63 | 1.0 | 9.6 |
| MRS-MRT 60 | 18 | 80 | 72 | 1.5 | 12 |
| MRA-MTA 71/50 | 95 | 95 | 109 | 1.2 | 12 |
| MRS-MRT 60 | 14 | 100 | 88 | 1.0 | 12 |
| MRA-MTA 71/60 | 11 | 126 | 144 | 1.6 | 15 |
| MRS-MRT 40/70 | 9.3 | 150 | 146 | 1.5 | 18 |
| MRA-MTA 71/60 | 8.0 | 176 | 171 | 1.4 | 15 |
| MRS-MRT 40/70 | 7.0 | 200 | 188 | 1.5 | 18 |
| MRA-MTA 71/70 | 5.5 | 252 | 232 | 1.3 | 18 |
| MRS-MRT 40/70 | 5.0 | 280 | 224 | 1.5 | 18 |
| MRA-MTA 71/70 | 4.6 | 309 | 263 | 1.0 | 18 |
| MRA-MTA 71/70 | 4.0 | 353 | 277 | 0.9 | 18 |
| MRS-MRT 40/70 | 3.3 | 420 | 315 | 1.2 | 18 |
| MRS-MRT 40/70 | 2.5 | 560 | 401 | 1.0 | 18 |
| MRS-MRT 40/85 | 1.8 | 784 | 535 | 1.1 | 22 |
| MRS-MRT 50/110 | 1.3 | 1120 | 707 | 1.8 | 46 |
| MRS-MRT 50/110 | 0.9 | 1568 | 882 | 1.5 | 46 |
| MRS-MRT 50/110 | 0.6 | 2240 | 1146 | 1.2 | 46 |
| MRS-MRT 50/110 | 0.5 | 2800 | 1289 | 0.9 | 46 |

| 0.37 kW | min-1 | i = | Nm | SF | kg |
|---|---|---|---|---|---|
| MRS-MRT 40 | 280 | 5 | 11 | >3 | 8.7 |
| MRS-MRT 40 | 200 | 7 | 15 | 3.0 | 8.7 |
| MRS-MRT 40 | 140 | 10 | 21 | 2.2 | 8.7 |
| MRS-MRT 40 | 93 | 15 | 30 | 1.5 | 8.7 |
| MRS-MRT 40 | 70 | 20 | 38 | 1.0 | 8.7 |
| MRS-MRT 40 | 50 | 28 | 48 | 1.0 | 8.7 |
| MRS-MRT 50 | 35 | 40 | 65 | 1.1 | 10 |
| MRA-MTA 71/50 | 32 | 44 | 87 | 1.7 | 13 |
| MRS-MRT 50 | 29 | 49 | 77 | 1.0 | 10 |
| MRS-MRT 60 | 25 | 56 | 85 | 1.5 | 13 |
| MRA-MTA 71/50 | 22 | 63 | 118 | 1.1 | 13 |
| MRS-MRT 60 | 20 | 70 | 97 | 1.3 | 13 |
| MRS-MRT 60 | 18 | 80 | 107 | 1.0 | 13 |
| MRA-MTA 71/60 | 15 | 95 | 168 | 1.4 | 16 |
| MRS-MRT 70 | 14 | 100 | 130 | 1.0 | 15 |
| MRA-MTA 71/60 | 11 | 126 | 213 | 1.1 | 15 |
| MRS-MRT 40/70 | 9.3 | 150 | 217 | 2.1 | 18 |
| MRA-MTA 71/60 | 8.0 | 176 | 253 | 0.9 | 15 |
| MRS-MRT 40/70 | 7.0 | 200 | 278 | 1.3 | 18 |
| MRA-MTA 71/70 | 5.5 | 252 | 343 | 0.9 | 18 |
| MRS-MRT 40/70 | 5.0 | 280 | 332 | 1.1 | 18 |
| MRS-MRT 40/85 | 3.3 | 420 | 488 | 1.2 | 23 |
| MRS-MRT 40/85 | 2.5 | 560 | 622 | 1.0 | 23 |
| MRS-MRT 50/110 | 1.3 | 1120 | 1046 | 1.2 | 47 |
| MRS-MRT 50/110 | 0.9 | 1568 | 1306 | 1.1 | 47 |

| 0.55 kW | min-1 | i = | Nm | SF | kg |
|---|---|---|---|---|---|
| MRS-MRT 40 | 280 | 5 | 16 | 2.8 | 10.7 |
| MRS-MRT 50 | 200 | 7 | 23 | >3 | 12 |
| MRS-MRT 50 | 140 | 10 | 32 | 2.4 | 12 |
| MRS-MRT 50 | 93 | 15 | 44 | 1.7 | 12 |
| MRS-MRT 50 | 70 | 20 | 57 | 1.1 | 12 |
| MRS-MRT 50 | 50 | 28 | 75 | 1.1 | 12 |
| MRS-MRT 60 | 35 | 40 | 99 | 1.4 | 15 |
| MRA-MTA 80/60 | 32 | 44 | 130 | 1.7 | 19 |
| MRS-MRT 60 | 29 | 49 | 114 | 1.1 | 15 |
| MRS-MRT 60 | 25 | 56 | 126 | 1.0 | 15 |
| MRA-MTA 80/60 | 22 | 63 | 177 | 1.2 | 19 |
| MRS-MRT 70 | 20 | 70 | 155 | 1.1 | 18 |
| MRS-MRT 70 | 18 | 80 | 168 | 1.0 | 18 |
| MRA-MTA 80/60 | 15 | 95 | 249 | 1.0 | 19 |
| MRS-MRT 85 | 14 | 100 | 210 | 1.0 | 22 |
| MRA-MTA 80/70 | 11 | 126 | 321 | 1.1 | 22 |

| 0.55 kW | min-1 | i = | Nm | SF | kg |
|---|---|---|---|---|---|
| MRA-MTA 80/85 | 8.0 | 176 | 396 | 1.3 | 26 |
| MRA-MTA 80/85 | 5.5 | 252 | 520 | 1.0 | 26 |
| MRA-MTA 80/110 | 4.6 | 309 | 614 | 1.8 | 49 |
| MRA-MTA 80/110 | 4.0 | 353 | 689 | 1.4 | 49 |
| MRS-MRT 50/110 | 3.3 | 420 | 756 | 1.1 | 49 |
| MRA-MTA 80/110 | 3.2 | 441 | 794 | 1.2 | 49 |
| MRA-MTA 80/110 | 2.8 | 504 | 851 | 0.9 | 49 |
| MRS-MRT 50/110 | 2.5 | 570 | 962 | 1.3 | 49 |
| MRS-MRT 50/110 | 1.8 | 784 | 1235 | 1.5 | 49 |

| 0.75 kW | min-1 | i = | Nm | SF | kg |
|---|---|---|---|---|---|
| MRS-MRT 50 | 280 | 5 | 23 | >3 | 14 |
| MRS-MRT 50 | 200 | 7 | 31 | 2.4 | 14 |
| MRS-MRT 50 | 140 | 10 | 43 | 1.7 | 14 |
| MRS-MRT 50 | 93 | 15 | 60 | 1.2 | 14 |
| MRS-MRT 60 | 70 | 20 | 79 | 1.5 | 17 |
| MRS-MRT 60 | 50 | 28 | 102 | 1.4 | 17 |
| MRS-MRT 60 | 35 | 40 | 135 | 1.0 | 17 |
| MRA-MTA 80/60 | 32 | 44 | 178 | 1.2 | 20 |
| MRS-MRT 70 | 29 | 49 | 168 | 1.1 | 19 |
| MRS-MRT 70 | 25 | 56 | 183 | 1.0 | 19 |
| MRA-MTA 80/60 | 22 | 63 | 242 | 1.0 | 20 |
| MRS-MRT 85 | 20 | 70 | 226 | 1.3 | 23 |
| MRS-MRT 85 | 18 | 80 | 246 | 1.1 | 23 |
| MRA-MTA 80/70 | 11 | 126 | 341 | 0.9 | 23 |
| MRA-MTA 80/85 | 8.0 | 176 | 540 | 0.9 | 27 |
| MRA-MTA 80/110 | 5.5 | 252 | 735 | 1.5 | 50 |
| MRA-MTA 80/110 | 4.6 | 309 | 838 | 1.3 | 50 |
| MRA-MTA 80/110 | 4.0 | 353 | 939 | 1.1 | 50 |
| MRS-MRT 50/110 | 3.3 | 420 | 1031 | 1.2 | 50 |
| MRA-MRT 80/110 | 3.2 | 441 | 1083 | 0.9 | 50 |
| MRS-MRT 50/110 | 2.5 | 570 | 1289 | 1.0 | 50 |

| 1.1 kW | min-1 | i = | Nm | SF | kg |
|---|---|---|---|---|---|
| MRS-MRT 60 | 280 | 5 | 34 | >3 | 19 |
| MRS-MRT 60 | 200 | 7 | 45 | 2.5 | 19 |
| MRS-MRT 60 | 140 | 10 | 63 | 2.1 | 19 |
| MRS-MRT 60 | 93 | 15 | 91 | 1.4 | 19 |
| MRS-MRT 60 | 70 | 20 | 116 | 1.1 | 19 |
| MRS-MRT 70 | 50 | 28 | 158 | 1.4 | 21 |
| MRS-MRT 70 | 35 | 40 | 213 | 1.1 | 21 |
| MRA-MTA 80/70 | 32 | 44 | 264 | 1.1 | 25 |
| MRS-MRT 85 | 29 | 49 | 24 | 1. | 26 |
| MRS-MRT 85 | 25 | 56 | 286 | 1.1 | 26 |
| MRA-MTA 80/85 | 22 | 63 | 364 | 1.4 | 30 |
| MRS-MRT 110 | 20 | 70 | 352 | 1.8 | 48 |
| MRS-MRT 110 | 18 | 80 | 396 | 1.3 | 48 |
| MRA-MTA 80/85 | 15 | 95 | 513 | 1.0 | 30 |
| MRS-MRT 110 | 14 | 100 | 458 | 1.0 | 48 |
| MRA-MTA 80/110 | 11 | 126 | 671 | 1.6 | 52 |
| MRA-MTA 80/110 | 8.0 | 176 | 832 | 1.4 | 52 |
| MRA-MRT 80/110 | 5.5 | 252 | 1078 | 1.0 | 52 |
| MRA-MTA 80/110 | 4.6 | 309 | 1229 | 0.9 | 52 |
| MRA 100/130 | 3.5 | 400 | 1681 | 1.0 | 76 |
| MRS-MRT 60/130 | 3.3 | 420 | 1576 | 1.3 | 69 |
| MRA 100/150 | 3.0 | 448 | 1916 | 1.3 | 106 |
| MRA 100/150 | 2.5 | 560 | 2059 | 1.0 | 106 |
| MRA 100/150 | 2.2 | 640 | 2209 | 0.9 | 106 |
| MRS-MRT 70/150 | 1.8 | 784 | 2706 | 0.9 | 102 |

| 1.5 kW | min-1 | i = | Nm | SF | kg |
|---|---|---|---|---|---|
| MRS-MRT 60 | 280 | 5 | 46 | 2.7 | 20 |
| MRS-MRT 60 | 200 | 7 | 62 | 1.8 | 20 |
| MRS-MRT 60 | 140 | 10 | 86 | 1.5 | 20 |
| MRS-MRT 60 | 93 | 15 | 124 | 1.0 | 20 |
| MRS-MRT 70 | 70 | 20 | 166 | 1.2 | 23 |
| MRS-MRT 70 | 50 | 28 | 215 | 1.0 | 23 |
| MRS-MRT 85 | 35 | 40 | 295 | 1.4 | 27 |

# Gearboxes Series RS & RT

## 1400 $min^{-1}$

**Selection table** — **Geared motors**

| 1.5 kW | $min^{-1}$ | i = | Nm | SF | kg |
|---|---|---|---|---|---|
| MRA-MTA 80/85 | 32 | 44 | 360 | 1.4 | 31 |
| MRS-MRT 85 | 29 | 49 | 336 | 0.9 | 27 |
| MRS-MRT 110 | 29 | 49 | 356 | 1.8 | 50 |
| MRS-MRT 110 | 25 | 56 | 401 | 1.5 | 50 |
| MRA-MTA 80/85 | 22 | 63 | 496 | 1.1 | 31 |
| MRS-MRT 110 | 20 | 70 | 480 | 1.3 | 50 |
| MRS-MRT 110 | 18 | 80 | 540 | 1.0 | 50 |
| MRA-MTA 80/110 | 15 | 95 | 719 | 1.6 | 54 |
| MRS 130 | 14 | 100 | 624 | 1.2 | 64 |
| MRA-MTA 80/110 | 11 | 126 | 915 | 1.2 | 54 |
| MRA-MTA 80/110 | 8.0 | 176 | 1135 | 1.0 | 54 |
| MRA 100/130 | 7.0 | 200 | 1269 | 1.0 | 78 |
| MRA 100/130 | 6.3 | 224 | 1421 | 1.2 | 78 |
| MRA 100/150 | 5.0 | 280 | 1490 | 1.1 | 108 |
| MRA 100/150 | 3.5 | 400 | 2292 | 1.1 | 108 |
| MRA 100/150 | 3.0 | 448 | 2613 | 1.0 | 108 |

| 2.2 kW | $min^{-1}$ | i = | Nm | SF | kg |
|---|---|---|---|---|---|
| MRS-MRT 70 | 280 | 5 | 92 | 1.9 | 28 |
| MRS-MRT 70 | 200 | 7 | 92 | 1.8 | 28 |
| MRS-MRT 70 | 140 | 10 | 129 | 1.4 | 28 |
| MRS-MRT 70 | 93 | 15 | 187 | 1.0 | 28 |
| MRS-MRT 85 | 70 | 20 | 246 | 1.3 | 33 |
| MRS-MRT 85 | 50 | 28 | 319 | 1.0 | 33 |
| MRS-MRT 110 | 35 | 40 | 438 | 1.6 | 55 |
| MRS-MRT 110 | 29 | 49 | 522 | 1.2 | 55 |
| MRS-MRT 110 | 25 | 56 | 588 | 1.0 | 55 |
| MRS-MRT 110 | 20 | 70 | 704 | 0.9 | 55 |
| MRS 130 | 18 | 80 | 756 | 1.1 | 69 |
| MRS 150 | 14 | 100 | 945 | 1.2 | 99 |
| MRA 100/130 | 14 | 98 | 985 | 1.5 | 83 |
| MRA 100/130 | 12 | 125 | 1369 | 1.3 | 83 |
| MRA 100/130 | 10 | 140 | 1324 | 1.0 | 83 |
| MRA 100/130 | 8.9 | 160 | 1729 | 1.0 | 83 |
| MRA 100/150 | 7.0 | 200 | 1861 | 1.1 | 113 |
| MRA 100/150 | 6.3 | 230 | 2175 | 1.2 | 113 |

| 3.0 kW | $min^{-1}$ | i = | Nm | SF | kg |
|---|---|---|---|---|---|
| MRS-MRT 70 | 280 | 5 | 91 | 1.9 | 30 |
| MRS-MRT 70 | 200 | 7 | 126 | 1.3 | 30 |
| MRS-MRT 70 | 140 | 10 | 176 | 1.0 | 30 |
| MRS-MRT 85 | 93 | 15 | 255 | 1.1 | 35 |
| MRS-MRT 85 | 70 | 20 | 336 | 1.0 | 35 |
| MRS-MRT 110 | 50 | 28 | 435 | 1.5 | 57 |
| MRS-MRT 110 | 35 | 40 | 598 | 1.2 | 57 |
| MRS-MRT 110 | 29 | 49 | 712 | 0.9 | 57 |
| MRS 130 | 29 | 49 | 722 | 1.3 | 71 |
| MRS 130 | 25 | 56 | 814 | 1.2 | 71 |
| MRS 150 | 20 | 70 | 974 | 1.3 | 101 |
| MRA 100/130 | 20 | 70 | 1074 | 1.3 | 85 |
| MRS 150 | 18 | 80 | 1064 | 1.1 | 101 |
| MRA 100/130 | 18 | 80 | 1277 | 1.0 | 85 |
| MRS 150 | 14 | 100 | 1289 | 0.9 | 101 |
| MRA 100/130 | 14 | 98 | 1344 | 1.1 | 85 |
| MRA 100/130 | 12 | 120 | 1793 | 1.0 | 85 |
| MRA 100/150 | 10 | 140 | 1891 | 1.1 | 101 |
| MRA 100/150 | 8.9 | 160 | 2357 | 1.1 | 101 |

| 4.0 kW | $min^{-1}$ | i = | Nm | SF | kg |
|---|---|---|---|---|---|
| MRS-MRT 85 | 280 | 5 | 122 | 2.3 | 43 |
| MRS-MRT 85 | 200 | 7 | 168 | 1.5 | 43 |
| MRS-MRT 85 | 140 | 10 | 235 | 1.1 | 43 |
| MRS-MRT 110 | 93 | 15 | 344 | 1.6 | 65 |
| MRS-MRT 110 | 70 | 20 | 453 | 1.4 | 65 |
| MRS-MRT 110 | 50 | 28 | 581 | 1.1 | 65 |
| MRS 130 | 35 | 40 | 829 | 1.4 | 79 |
| MRS 130 | 29 | 49 | 963 | 1.0 | 79 |
| MRS 130 | 25 | 56 | 1085 | 0.9 | 79 |

| 4.0 kW | $min^{-1}$ | i = | Nm | SF | kg |
|---|---|---|---|---|---|
| MRS 150 | 25 | 56 | 1115 | 1.3 | 130 |
| MRS 150 | 20 | 70 | 1299 | 0.9 | 130 |
| MRA 100/130 | 20 | 70 | 1433 | 0.9 | 93 |
| MRA 100/150 | 18 | 80 | 1724 | 0.9 | 123 |
| MRA 100/150 | 14 | 98 | 1845 | 1.2 | 123 |
| MRA 100/150 | 12 | 120 | 2456 | 0.9 | 123 |

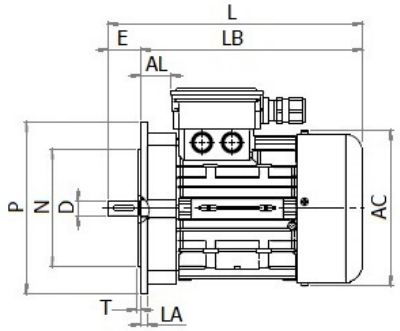
| 5.5 kW | $min^{-1}$ | i = | Nm | SF | kg |
|---|---|---|---|---|---|
| MRS-MRT 110 | 200 | 7 | 231 | 2.3 | 79 |
| MRS-MRT 110 | 140 | 10 | 326 | 1.6 | 79 |
| MRS-MRT 110 | 93 | 15 | 473 | 1.2 | 79 |
| MRS-MRT 110 | 70 | 20 | 623 | 1.0 | 79 |
| MRS 130 | 50 | 28 | 809 | 1.4 | 93 |
| MRS 130 | 35 | 40 | 1141 | 1.0 | 93 |
| MRS 150 | 29 | 49 | 1342 | 1.1 | 123 |
| MRS 150 | 25 | 56 | 1534 | 0.9 | 123 |

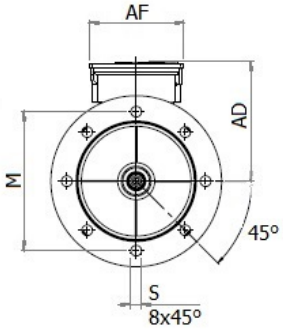
| 7.5 kW | $min^{-1}$ | i = | Nm | SF | kg |
|---|---|---|---|---|---|
| MRS-MRT 110 | 200 | 7 | 315 | 1.7 | 88 |
| MRS-MRT 110 | 140 | 10 | 445 | 1.2 | 88 |
| MRS-MRT 110 | 93 | 15 | 645 | 0.9 | 88 |
| MRS 130 | 93 | 15 | 652 | 1.5 | 102 |
| MRS 130 | 70 | 20 | 860 | 1.1 | 102 |
| MRS 130 | 50 | 28 | 1103 | 1.0 | 102 |
| MRS 150 | 35 | 40 | 1576 | 1.1 | 132 |

| 11 kW | $min^{-1}$ | i = | Nm | SF | kg |
|---|---|---|---|---|---|
| MRS 150 | 200 | 7 | 467 | 2.3 | 148 |
| MRS 150 | 140 | 10 | 660 | 1.9 | 148 |
| MRS 150 | 93 | 15 | 968 | 1.5 | 148 |
| MRS 150 | 70 | 20 | 1261 | 1.1 | 148 |
| MRS 150 | 50 | 28 | 1660 | 0.9 | 148 |

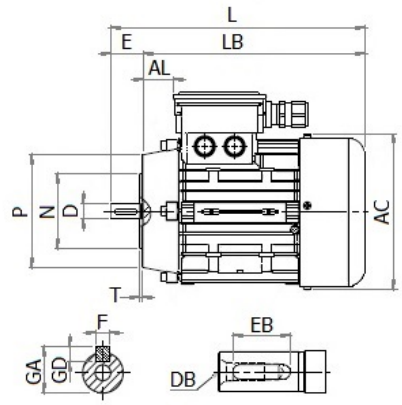
| 15 kW | $min^{-1}$ | i = | Nm | SF | kg |
|---|---|---|---|---|---|
| MRS 150 | 200 | 7 | 637 | 1.7 | 158 |
| MRS 150 | 140 | 10 | 900 | 1.4 | 158 |
| MRS 150 | 93 | 15 | 1320 | 1.1 | 158 |

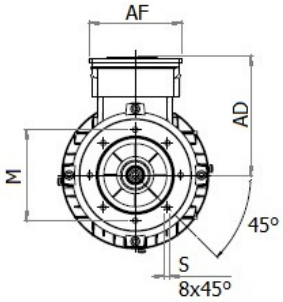
B5




B14




**Tolerances**

| | | |
|---|---|---|
| **D** | ≤ 28 mm | j6 |
| | 38 ÷ 50 mm | k6 |
| **N** | ≤ 230 mm | j6 |
| | > 230 mm | h6 |

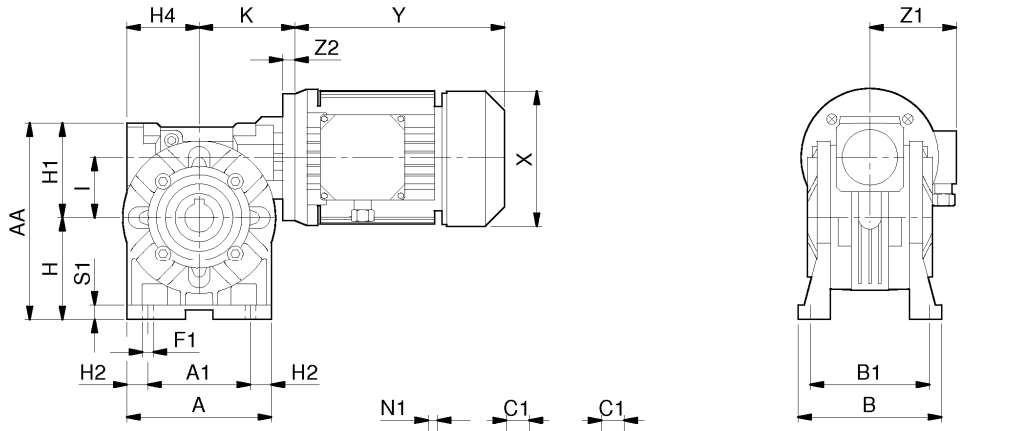
DIN 748-7160-7161-42948

| IEC MOTOR | 56 | | 63 | | 71 | | 80 | | 90 | | 100 / 112 | | 132 | | 160 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | a | b | a | b | a | b | a | b | S | L | La/Lb | Ma | Sa | Ma/Mb | M | L |
| D x E | 9 x 20 | | 11 x 23 | | 14 x 30 | | 19 x 40 | | 24 x 50 | | 28 x 60 | | 38 x 80 | | 42 x 110 | |
| AC | 115 | | 123 | | 147 | | 161 | | 181 | | 198 | 222 | 264 | | 315 | |
| AD | 112 | | 113 | | 125 | | 133 | | 138 | | 149 | 173 | 189 | | 220 | |
| AF | 93 | | 93 | | 93 | | 111 | | 111 | | 111 | 124 | 124 | | 165 | |
| AL | 13 | | 19 | | 24 | | 23 | | 28 | | 36 | 38 | 44 | | 113 | |
| DB | M3 | | M4 | | M5 | | M6 | | M8 | | M10 | | M12 | | M16 | |
| EB | 15 | | 15 | | 20 | | 30 | | 40 | | 50 | | 70 | | 90 | |
| F | 3 | | 4 | | 5 | | 6 | | 8 | | 8 | | 10 | | 12 | |
| GA | 10.2 | | 12.5 | | 16 | | 21.5 | | 27 | | 31 | | 41 | | 45 | |
| GD | 3 | | 4 | | 5 | | 6 | | 7 | | 7 | | 8 | | 8 | |
| L | 189 | | 210 | | 245 | | 279 | | 311 | 336 | 375 | 388 | 460 | 500 | 478 | 522 |
| LB | 169 | | 187 | | 215 | | 239 | | 261 | | 315 | 328 | 380 | 420 | 368 | 412 |
| B5 LA | 8 | | 10 | | 9.5 | | 10.5 | | 11 | | 15 | 11.5 | 15 | | 15 | |
| B5 M | 100 | | 115 | | 130 | | 165 | | 165 | | 215 | | 265 | | 300 | |
| B5 N | 80 | | 95 | | 110 | | 130 | | 130 | | 180 | | 230 | | 250 | |
| B5 P | 120 | | 140 | | 160 | | 200 | | 200 | | 250 | | 300 | | 350 | |
| B5 S | 7 | | 10 | | 10 | | 12 | | 12 | | 14.5 | | 14.5 | | 18.5 | |
| B5 T | 3 | | 3 | | 3 | | 3.5 | | 3.5 | | 4 | | 4 | | 5 | |
| B14 M | 65 | | 75 | | 85 | | 100 | | 115 | | 130 | | 165 | | 215 | |
| B14 N | 50 | | 60 | | 70 | | 80 | | 95 | | 110 | | 130 | | 180 | |
| B14 P | 80 | | 90 | | 105 | | 120 | | 140 | | 160 | | 200 | | 250 | |
| B14 S | M5 | | M5 | | M6 | | M6 | | M8 | | M8 | | M10 | | M12 | |
| B14 T | 2.5 | | 2.5 | | 3 | | 3 | | 3 | | 3.5 | | 4 | | 4 | |
| kW - 4p | - - - | 0.09 | 0.135 | 0.185 | 0.25 | 0.37 | 0.55 | 0.75 | 1.1 | 1.5 | 2.2<br>3 | 4 | 5.5 | 7.5<br>11 | 11 | 15 |
| kg - 4p | - - - | 4.1 | 4 | 4.6 | 6 | 6.6 | 8 | 9.7 | 12.4 | 14.5 | 18.5<br>21.4 | 28.4 | 42 | 52.5<br>56.5 | 90 | 100 |

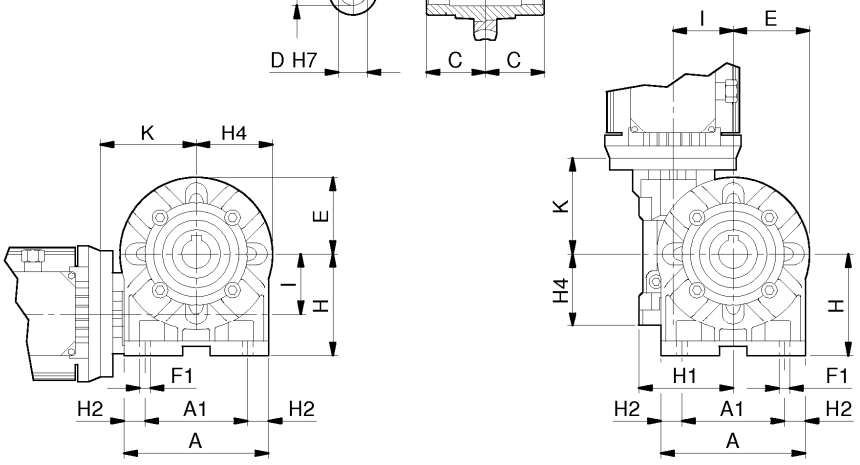
- Not binding dimensions and weights

# Gearboxes Series RS & RT

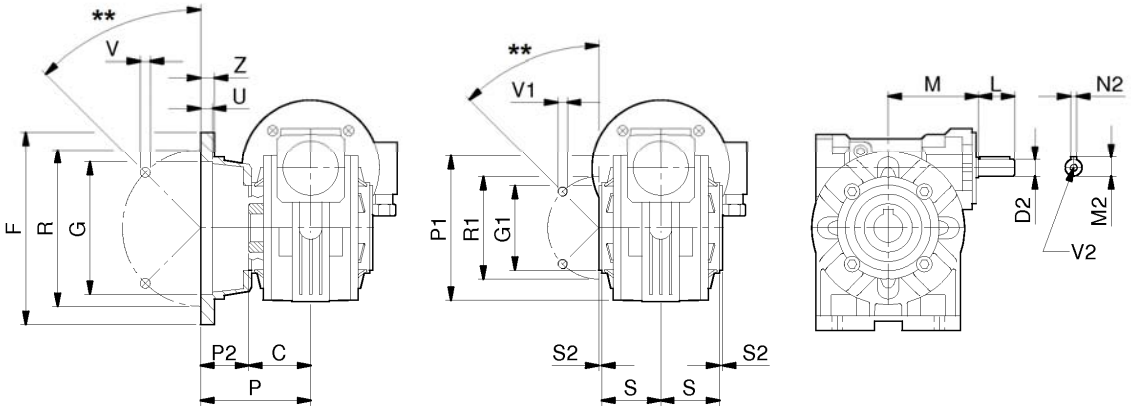





S




I D




FL PC RS

# Gearboxes Series RS & RT

## Single worm gear boxes RS — Dimensions

| RS | 28 | 40 | 50 | 60 | 70 | 85 | 110 | 130 | 150 |
|---|---|---|---|---|---|---|---|---|---|
| A | 70 | 100 | 120 | 138 | 158 | 193 | 250 | 286 | 336 |
| $A_1$ | 52 | 70 | 85 | 95 | 120 | 140 | 200 | 235 | 260 |
| AA | 99 | 138 | 163 | 192 | 221 | 252 | 342 | 400 | 454 |
| B | 78 | 102 | 119 | 136 | # | 168 | 200 | 230 | 250 |
| $B_1$ | 66 | 84 | 99 | 111 | 116 | 140 | 162 | 190 | 210 |
| C | 30 | 41 | 49 | 60 | 60 | 61 | 77,5 | 90 | 105 |
| $C_1$ | 26.5 | 26 | 30.5 | 39 | 37.5 | 38.5 | 52.5 | 85 | 100 |
| D (H7) | 14 | 19 | 24 | 25 | 28 | 32 | 42 | 48 | 55 |
| D* (H7) | - - - | 18 | 25 | - - - | 30 | 35 | - - - | - - - | - - - |
| $D_2$ (h6) | 9 | 11 | 14 | 19 | 19 | 24 | 28 | 38 | 42 |
| E | 34 | 50 | 61 | 70 | 80 | 98 | 125 | 143 | 168 |
| F | 70 | 140 | 160 | 180 | 200 | 200 | 250 | 300 | 350 |
| $F_1$ | 5,5 | 7 | 9 | 11 | 11 | 13 | 14 | 15 | 19 |
| G (H8) | 40 | 95 | 110 | 115 | 130 | 130 | 180 | 230 | 250 |
| $G_1$ (f8) | 42 | 60 | 70 | 70 | 80 | 110 | 130 | 180 | 180 |
| H | 52 | 71 | 85 | 100 | 115 | 135 | 172 | 200 | 230 |
| $H_1$ | 47 | 67 | 78 | 92 | 106 | 117 | 170 | 200 | 224 |
| $H_2$ | 9 | 15 | 17,5 | 21,5 | 19 | 26,5 | 25 | 25,5 | 38 |
| $H_4$ | 40 | 50 | 60 | 72 | 86 | 103 | 142 | 159 | 183 |
| I | 28 | 40 | 50 | 60 | 70 | 85 | 110 | 130 | 150 |
| K | 57.5 | 70.5 | 83-88* | 93-94* | 117-118* | 134-137* | 151-153* | 173 | 191-211* |
| L | 20 | 23 | 30 | 40 | 40 | 40 | 60 | 80 | 100 |
| M | 50 | 65 | 75 | 87 | 110 | 123,5 | 146 | 166 | 195 |
| $M_1$ | 16,3 | 21,8 | 27,3 | 28,3 | 31,3 | 35,3 | 45,3 | 51,8 | 59,3 |
| $M_2$ | 10,2 | 12,5 | 16 | 22,5 | 22,5 | 27 | 31 | 41 | 45 |
| $N_1$ | 5 | 6 | 8 | 8 | 8 | 10 | 12 | 14 | 16 |
| $N_2$ | 3 | 4 | 5 | 6 | 6 | 8 | 8 | 10 | 12 |
| P | 49 | 82 | 91,5 | 116 | 111 | 100 | 150 | 150 | 160 |
| $P_1$ | 67 | 94 | 100 | 102 | 118 | 150 | 200 | 234 | 250 |
| $P_2$ | 19 | 41 | 42,5 | 56 | 51 | 39 | 72,5 | 60 | 55 |
| R | 56 | 115 | 130 | 150 | 165 | 165 | 215 | 265 | 300 |
| $R_1$ | 56 | 83 | 85 | 85 | 100 | 130 | 165 | 215 | 215 |
| S | 32 | 38 | 49 | 57,5 | 57 | 56,5 | 74,5 | 87 | 102 |
| $S_1$ | 6 | 9 | 12 | 12 | 14 | 15 | 17 | 19 | 20 |
| $S_2$ | -3 | 2 | 2,5 | 2,5 | 3 | 3 | 2,5 | 5 | 5 |
| U | 4 | 6 | 10 | 10 | 12 | 6 | 5 | 5 | 6 |
| V | 6,5 (4) | 9 (4) | 9 (4) | 11 (4) | 13 (4) | 13 (4) | 15 (8) | 15 (8) | 19 (8) |
| $V_1$ | M6x6 (4) | M6x9 (4) | M8x12 (4) | M8x15 (8) | M8x18 (8) | M10x20 (8) | M12x21 (4) | M12x24 (4) | M14x30 (8) |
| $V_2$ | M4x10 | M4x10 | M6x15 | M8x20 | M8x20 | M8x20 | M8x20 | M10x22 | M12x25 |
| Z | 6 | 10 | 10 | 11 | 14 | 14 | 16 | 22 | 20 |

# - 137 - Bolted feet - 142 - Integral feet

D* - Bore on demand

$V_1$ - 90° for RS28 - 45° for the other sizes

(*) - IEC71-B14 (**FRS50**) - IEC71-B14 (**FRS60**) - IEC 80-B14 (**FRS70**) - IEC 90-B14 (**FRS85**)

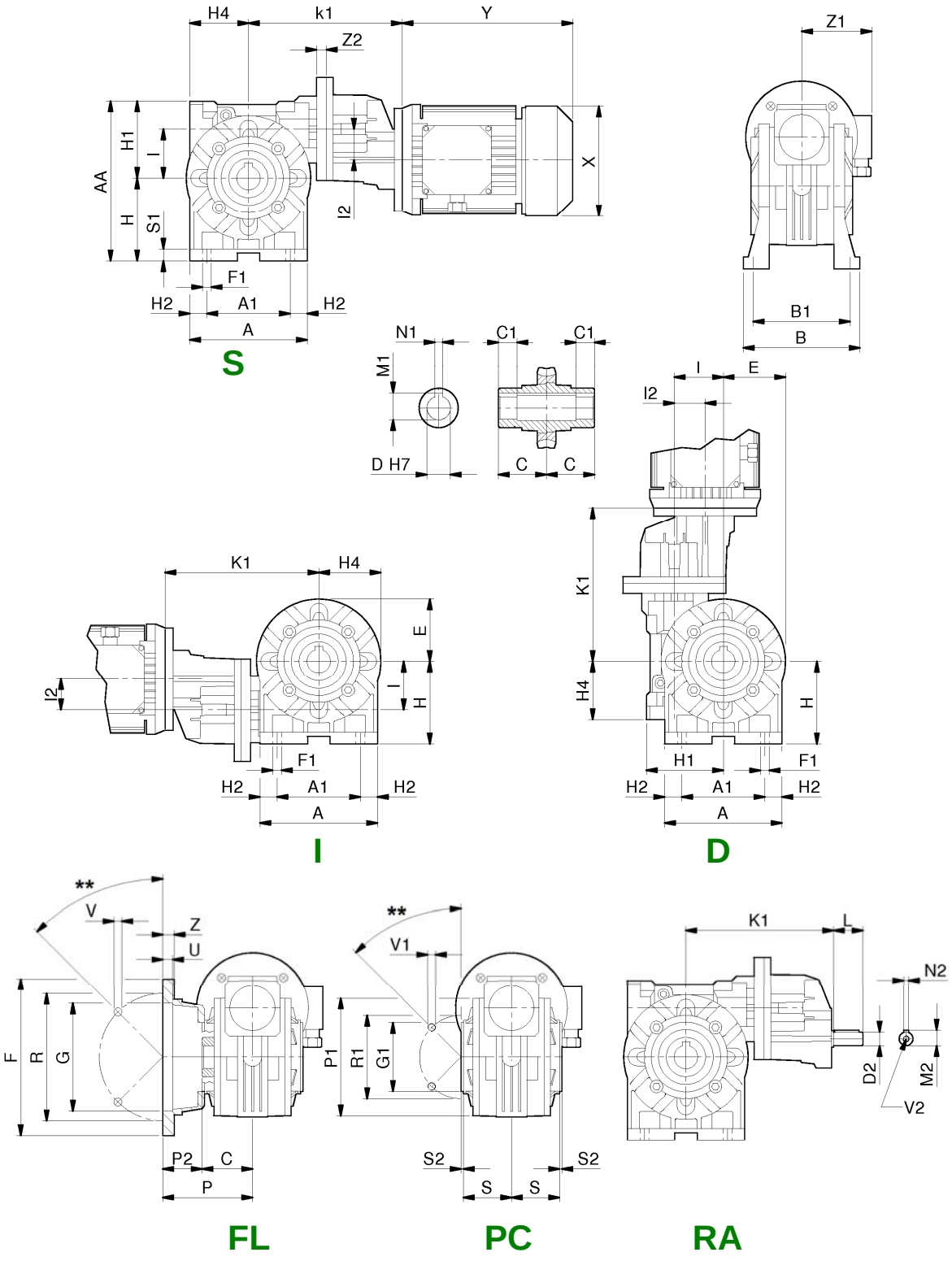
(*) - IEC100/112-B14 (**FRS110**) - IEC 100/112-B5 (**FRS130**) - IEC 160-B5 (**FRS150**)

Motor dimensions: see page 33

Not binding dimensions

# Gearboxes Series RS & RT





| RA | 63/40 | 63/50 | 63/60 | 71/50 | 71/60 | 71/70 | 71/85 | 80/60 | 80/70 | 80/85 | 80/110 | 100/110 | 100/130 | 100/150 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 100 | 120 | 138 | 120 | 138 | 158 | 193 | 138 | 158 | 193 | 250 | 250 | 286 | 336 |
| $A_1$ | 70 | 85 | 95 | 85 | 95 | 120 | 140 | 95 | 120 | 140 | 200 | 250 | 235 | 260 |
| AA | 138 | 163 | 192 | 163 | 192 | 221 | 252 | 192 | 221 | 252 | 342 | 200 | 400 | 454 |
| B | 102 | 119 | 136 | 119 | 136 | # | 168 | 136 | # | 168 | 200 | 333 | 230 | 250 |
| $B_1$ | 84 | 99 | 111 | 99 | 111 | 116 | 140 | 111 | 116 | 140 | 162 | 200 | 190 | 210 |
| C | 41 | 49 | 60 | 49 | 60 | 60 | 61 | 60 | 60 | 61 | 77,5 | 162 | 90 | 105 |
| $C_1$ | 26 | 30.5 | 39 | 30.5 | 39 | 37.5 | 38.5 | 39 | 37.5 | 38.5 | 52.5 | 52.5 | 85 | |
| D | 19 | 24 | 25 | 24 | 25 | 28 | 32 | 25 | 28 | 32 | 42 | 77,5 | 48 | 55 |
| D* | 18 | 25 | - - - | 25 | - - - | 30 | 35 | - - - | 30 | 35 | - - - | 42 | - - - | - - - |
| $D_2$ | 11 | 11 | 11 | 14 | 14 | 14 | 14 | 19 | 19 | 19 | 19 | - - - | 19 | 19 |
| E | 50 | 61 | 70 | 61 | 70 | 80 | 98 | 70 | 80 | 98 | 125 | 24 | 143 | 168 |
| F | 140 | 160 | 180 | 160 | 180 | 200 | 200 | 180 | 200 | 200 | 250 | 125 | 300 | 350 |
| $F_1$ | 7 | 9 | 11 | 9 | 11 | 11 | 13 | 11 | 11 | 13 | 14 | 250 | 15 | 19 |
| G | 95 | 110 | 115 | 110 | 115 | 130 | 130 | 115 | 130 | 130 | 180 | 14 | 230 | 250 |
| $G_1$ | 60 | 70 | 70 | 70 | 70 | 80 | 110 | 70 | 80 | 110 | 130 | 180 | 180 | 180 |
| H | 71 | 85 | 100 | 85 | 100 | 115 | 135 | 100 | 115 | 135 | 172 | 130 | 200 | 230 |
| $H_1$ | 67 | 78 | 92 | 78 | 92 | 106 | 117 | 92 | 106 | 117 | 170 | 172 | 200 | 224 |
| $H_2$ | 15 | 17,5 | 21,5 | 17,5 | 21,5 | 19 | 26,5 | 21,5 | 19 | 26,5 | 25 | 161 | 25,5 | 38 |
| $H_4$ | 50 | 60 | 72 | 60 | 72 | 86 | 103 | 72 | 86 | 103 | 142 | 25 | 159 | 189 |
| I | 40 | 50 | 60 | 50 | 60 | 70 | 85 | 60 | 70 | 85 | 110 | 139 | 130 | 150 |
| $I_1$ | 32 | 32 | 32 | 40 | 40 | 40 | 40 | 50 | 50 | 50 | 50 | 110 | 75 | 75 |
| K | 153, | 171 | 177 | 173 | 183 | 209 | 224 | 207 | 232, | 250, | 264, | 63 | 290 | 316 |
| | | | | 178* | 188* | 214* | 229* | | | | | 328 | 300* | 326* |
| L | 23 | 23 | 23 | 30 | 30 | 30 | 30 | 40 | 40 | 40 | 40 | 50 | 40 | 40 |
| $M_1$ | 21,8 | 27,3 | 28,3 | 27,3 | 28,3 | 31,3 | 35,3 | 28,3 | 31,3 | 35,3 | 45,3 | 45,3 | 51,8 | 59,3 |
| $M_2$ | 12,5 | 12,5 | 12,5 | 16 | 16 | 16 | 16 | 22,5 | 22,5 | 22,5 | 22,5 | 27 | 22,5 | 22,5 |
| $N_1$ | 6 | 8 | 8 | 8 | 8 | 8 | 10 | 8 | 8 | 10 | 12 | 12 | 14 | 16 |
| $N_2$ | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 8 | 6 | 6 |
| P | 82 | 91,5 | 116 | 91,5 | 116 | 111 | 100 | 116 | 111 | 100 | 150 | 150 | 150 | 160 |
| $P_1$ | 94 | 100 | 102 | 100 | 102 | 118 | 150 | 102 | 118 | 150 | 200 | 200 | 234 | 250 |
| $P_2$ | 41 | 42,5 | 56 | 42,5 | 56 | 51 | 39 | 56 | 51 | 39 | 72,5 | 72,5 | 60 | 55 |
| R | 115 | 130 | 150 | 130 | 150 | 165 | 165 | 150 | 165 | 165 | 215 | 215 | 265 | 300 |
| $R_1$ | 83 | 85 | 85 | 85 | 85 | 100 | 130 | 85 | 100 | 130 | 165 | 165 | 215 | 215 |
| S | 38 | 49 | 57,5 | 49 | 57,5 | 57 | 56,5 | 57,5 | 57 | 56,5 | 74,5 | 74,5 | 87 | 102 |
| $S_1$ | 9 | 12 | 12 | 12 | 12 | 14 | 15 | 12 | 14 | 15 | 17 | 17 | 19 | 20 |
| $S_2$ | 2 | 2,5 | 2,5 | 2,5 | 2,5 | 3 | 3 | 2,5 | 3 | 3 | 2,5 | 2,5 | 5 | 5 |
| U | 6 | 10 | 10 | 10 | 10 | 12 | 6 | 10 | 12 | 6 | 5 | 5 | 5 | 6 |
| V | 9 (4) | 9 (4) | 11 | 9 (4) | 11 | 13 | 13 | 11 | 13 | 13 | 15 | 15 | 15 | 19 |
| $V_1$ | M6x9 (4) | M8x12 (4) | M8x15 (8) | M8x12 (4) | M8x15 (8) | M8x18 (8) | M10x2 (8) | M8x15 (8) | M8x18 (8) | M10x2 (8) | M12x2 (8) | M12x2 (8) | M12x2 (8) | M14x3 (8) |
| $V_2$ | M4x10 | M4x10 | M4x10 | M6x15 | M6x15 | M6x15 | M6x15 | M8x20 | M8x20 | M8x20 | M8x20 | M8x20 | M8x20 | M8x20 |
| $Y_1$ | 105 | 105 | 105 | 120 | 120 | 120 | 120 | 140 | 140 | 140 | 140 | 140 | 200 | 200 |
| Z | 10 | 10 | 11 | 10 | 11 | 14 | 14 | 11 | 14 | 14 | 16 | 16 | 22 | 20 |

\# - 137 - Bolted feet - 142 - Integral feet

D* - Bore on demand

** - 90° for RS28 - 45° for the other sizes

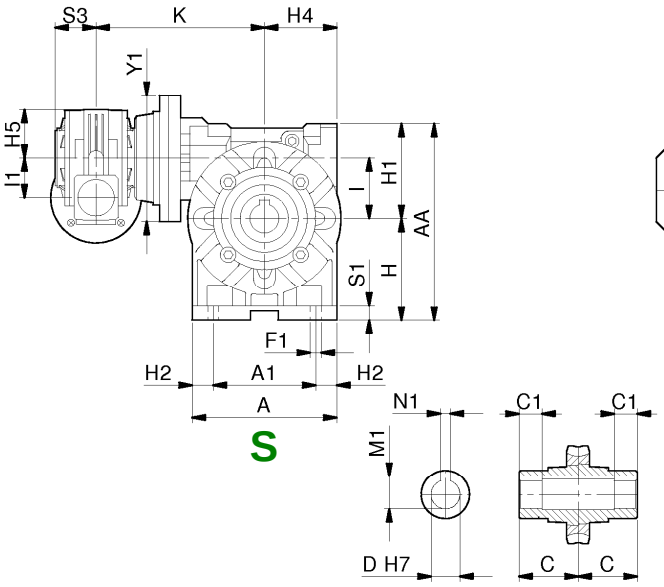
(*) - IEC71-B14 (FRA 71/….) - IEC100-B5 ( FRA130 ) - IEC100-B5 ( FRA150 )

Motors dimensions : see page 33

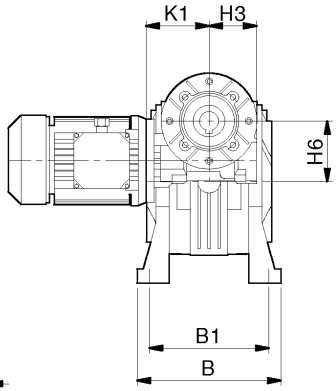
Not binding dimensions

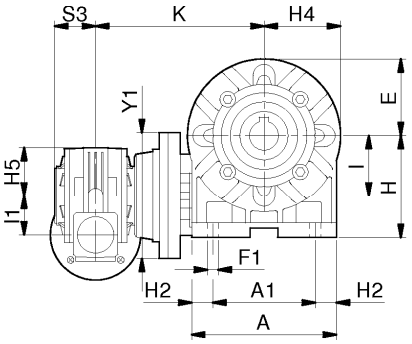
# Gearboxes Series RS & RT



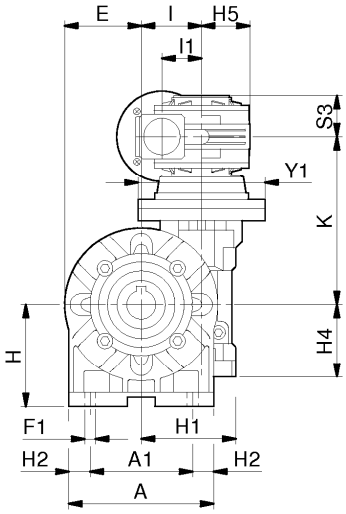



S

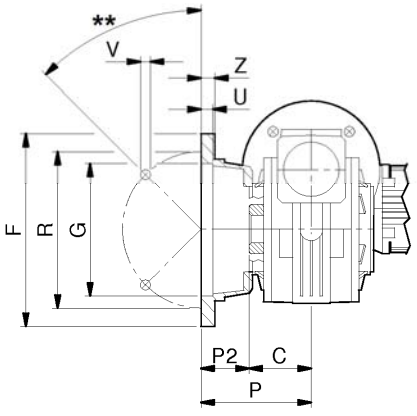


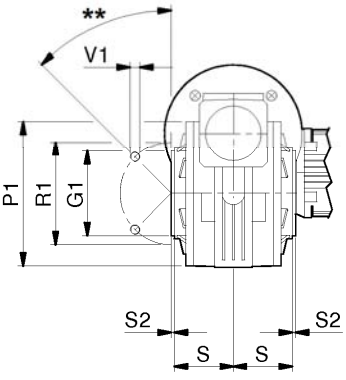

I



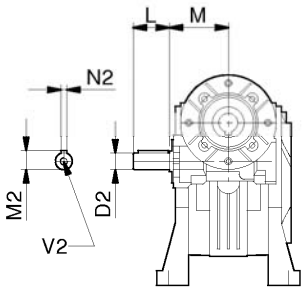

D




FL




PC




RS/RS

# Gearboxes Series RS & RT

## Two stage worm gear boxes RS/RS — Dimensions

| RS/RS | 28/28 | 28/40 | 28/50 | 28/60 | 40/70 | 40/85 | 50/110 | 60/130 | 70/150 |
|---|---|---|---|---|---|---|---|---|---|
| A | 70 | 100 | 120 | 138 | 158 | 193 | 250 | 286 | 336 |
| $A_1$ | 52 | 70 | 85 | 95 | 120 | 140 | 200 | 235 | 260 |
| AA | 99 | 138 | 163 | 192 | 221 | 252 | 342 | 400 | 454 |
| B | 78 | 102 | 119 | 136 | # | 168 | 200 | 230 | 250 |
| $B_1$ | 66 | 84 | 99 | 111 | 116 | 140 | 162 | 190 | 210 |
| C | 30 | 41 | 49 | 60 | 60 | 61 | 77,5 | 90 | 105 |
| $C_1$ | 26.5 | 26 | 30.5 | 39 | 37.5 | 38.5 | 52.5 | 85 | 100 |
| D (H7) | 14 | 19 | 24 | 25 | 28 | 32 | 42 | 48 | 55 |
| D* (H7) | - - - | 18 | 25 | - - - | 30 | 35 | - - - | - - - | - - - |
| $D_2$ (h6) | 9 | 9 | 9 | 9 | 11 | 11 | 14 | 38 | 42 |
| E | 34 | 50 | 61 | 70 | 80 | 98 | 125 | 143 | 168 |
| F | 70 | 140 | 160 | 180 | 200 | 200 | 250 | 300 | 350 |
| $F_1$ | 5,5 | 7 | 9 | 11 | 11 | 13 | 14 | 15 | 19 |
| G (H8) | 40 | 95 | 110 | 115 | 130 | 130 | 180 | 230 | 250 |
| $G_1$ (f8) | 42 | 60 | 70 | 70 | 80 | 110 | 130 | 180 | 180 |
| H | 52 | 71 | 85 | 100 | 115 | 135 | 172 | 200 | 230 |
| $H_1$ | 47 | 67 | 78 | 92 | 106 | 117 | 170 | 200 | 224 |
| $H_2$ | 9 | 15 | 17,5 | 21,5 | 19 | 26,5 | 25 | 25,5 | 38 |
| $H_3$ | 40 | 40 | 40 | 40 | 50 | 50 | 60 | 72 | 86 |
| $H_4$ | 40 | 50 | 60 | 72 | 86 | 103 | 142 | 159 | 189 |
| $H_5$ | 34 | 34 | 34 | 34 | 50 | 50 | 61 | 70 | 80 |
| $H_6$ | 47 | 47 | 47 | 47 | 67 | 67 | 78 | 92 | 106 |
| I | 28 | 40 | 50 | 60 | 70 | 85 | 110 | 130 | 150 |
| $I_2$ | 28 | 28 | 28 | 28 | 40 | 40 | 50 | 60 | 70 |
| K | 99,5 | 123 | 138,5 | 146 | 182 | 199 | 246 | 246 | 300 |
| $K_1$ | 57,5 | 57,5 | 57,5 | 57,5 | 70,5 | 70,5 | 83 - 88* | 93 - 94* | 117 - 118* |
| L | 20 | 20 | 20 | 20 | 23 | 23 | 30 | 40 | 40 |
| M | 50 | 50 | 50 | 50 | 65 | 65 | 75 | 87 | 110 |
| $M_1$ | 16,3 | 21,8 | 27,3 | 28,3 | 31,3 | 35,3 | 45,3 | 51,8 | 59,3 |
| $M_2$ | 10,2 | 10,2 | 10,2 | 10,2 | 12,5 | 12,5 | 16 | 22,5 | 22,5 |
| $N_1$ | 5 | 6 | 8 | 8 | 8 | 10 | 12 | 14 | 16 |
| $N_2$ | 3 | 3 | 3 | 3 | 4 | 4 | 5 | 6 | 6 |
| P | 49 | 82 | 91,5 | 116 | 111 | 100 | 150 | 150 | 160 |
| $P_1$ | 67 | 94 | 100 | 102 | 118 | 150 | 200 | 234 | 250 |
| $P_2$ | 19 | 41 | 42,5 | 56 | 51 | 39 | 72,5 | 60 | 55 |
| R | 56 | 115 | 130 | 150 | 165 | 165 | 215 | 265 | 300 |
| $R_1$ | 56 | 83 | 85 | 85 | 100 | 130 | 165 | 215 | 215 |
| S | 32 | 38 | 49 | 57,5 | 57 | 56,5 | 74,5 | 87 | 102 |
| $S_1$ | 6 | 9 | 12 | 12 | 14 | 15 | 17 | 19 | 20 |
| $S_2$ | -3 | 2 | 2,5 | 2,5 | 3 | 3 | 2,5 | 5 | 5 |
| $S_3$ | 30 | 30 | 30 | 30 | 41 | 41 | 49 | 60 | 60 |
| U | 4 | 6 | 10 | 10 | 12 | 6 | 5 | 5 | 6 |
| V | 6,5 (4) | 9 (4) | 9 (4) | 11 (4) | 13 (4) | 13 (4) | 15 (8) | 15 (8) | 19 (8) |
| $V_1$ | M6x6 (4) | M6x9 (4) | M8x12 (4) | M8x15 (8) | M8x18 (8) | M10x20 (8) | M12x21 (4) | M12x24 (4) | M14x30 (4) |
| $V_2$ | M4x10 | M4x10 | M4x10 | M4x10 | M4x10 | M4x10 | M6x15 | M8x20 | M8x20 |
| $Y_1$ | 80 | 80 | 80 | 90 | 115 | 115 | 110 | 180 | 200 |
| Z | 6 | 10 | 10 | 11 | 14 | 14 | 16 | 22 | 20 |

\# - 137 - Bolted feet - 142 - Integral feet

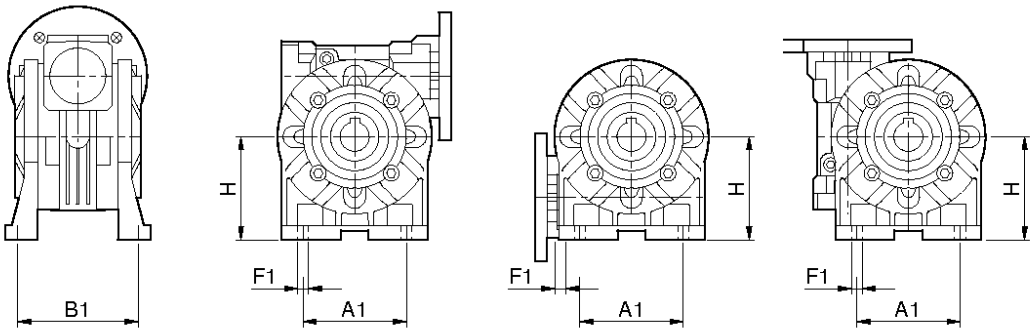
** - 90° for RS28 - 45° for the other sizes

(*) - IEC71-B14 (FRS50) - IEC71-B14 (FRS60) - IEC 80-B14 (FRS70) D* - Bore on demand

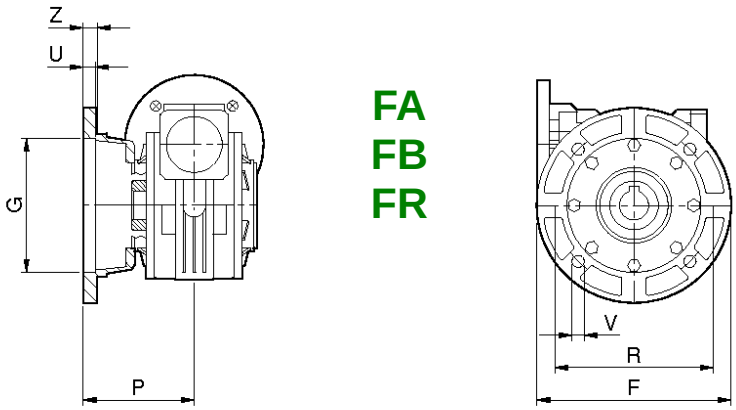
Motors dimensions: see page 33 Not binding dimensions

# Gearboxes Series RS & RT

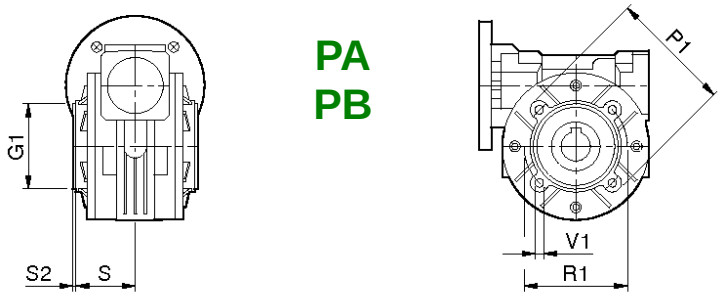





**S** **IA** **DA**




**FA**
**FB**
**FR**




**PA**
**PB**

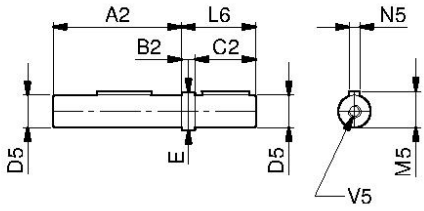
| RS | 28 | 40 | 50 | 60 | 70 | 85 | 110 | 130 | 150 |
|---|---|---|---|---|---|---|---|---|---|
| **SA - IA - DA** | | | | | | | | | |
| $A_1$ | - - - | 52 | 63 | - - - | - - - | 140 | - - - | - - - | - - - |
| $B_1$ | - - - | 81 | 98.5 | - - - | - - - | 146 | - - - | - - - | - - - |
| $F_1$ | - - - | 8.5 | 9 | - - - | - - - | 11 | - - - | - - - | - - - |
| H | - - - | 72 | 82 | - - - | - - - | 142 | - - - | - - - | - - - |
| **FA** | | | | | | | | | |
| F | 80 | 114 | 125 | 165 | 165 | - - - | - - - | - - - | - - - |
| $G_{(H8)}$ | 50 | 60 | 70 | 110 | 115 | - - - | - - - | - - - | - - - |
| P | 50.5 | 69 | 93 | 90 | 116 | - - - | - - - | - - - | - - - |
| R | 68 | 87 | 90 | 130 | 150 | - - - | - - - | - - - | - - - |
| U | 3.5 | 5 | 5 | 10 | 4.5 | - - - | - - - | - - - | - - - |
| V | 6.5 (4) | 9 (4) | 11 (4) | 10.5 (4) | 11 (4) | - - - | - - - | - - - | - - - |
| Z | 7 | 8 | 10 | 15 | 10 | - - - | - - - | - - - | - - - |
| **FB** | | | | | | | | | |
| F | - - - | 120 | - - - | 180 | - - - | 210 | 270 | - - - | - - - |
| $G_{(H8)}$ | - - - | 80 | - - - | 115 | - - - | 152 | 170 | - - - | - - - |
| P | - - - | 62 | - - - | 86 | - - - | 119.5 | 131.5 | - - - | - - - |
| R | - - - | 100 | - - - | 150 | - - - | 176 | 230 | - - - | - - - |
| U | - - - | 4 | - - - | 3.5 | - - - | 5 | 5 | - - - | - - - |
| V | - - - | 9 (4) | - - - | 11 (4) | - - - | 11 (4) | 13 (4) | - - - | - - - |
| Z | - - - | 9 | - - - | 12 | - - - | 14 | 18 | - - - | - - - |
| **FR** | | | | | | | | | |
| F | - - - | - - - | - - - | - - - | 160 | - - - | - - - | - - - | - - - |
| $G_{(h8)}$ | - - - | - - - | - - - | - - - | 110 | - - - | - - - | - - - | - - - |
| P | - - - | - - - | - - - | - - - | 84.5 | - - - | - - - | - - - | - - - |
| R | - - - | - - - | - - - | - - - | 130 | - - - | - - - | - - - | - - - |
| U | - - - | - - - | - - - | - - - | 4.5 | - - - | - - - | - - - | - - - |
| V | - - - | - - - | - - - | - - - | 11 (4) | - - - | - - - | - - - | - - - |
| Z | - - - | - - - | - - - | - - - | 14 | - - - | - - - | - - - | - - - |
| **PA** | | | | | | | | | |
| $G_{1\ (h8)}$ | - - - | 50 | 68 | 75 | 90 | - - - | - - - | - - - | - - - |
| $P_1$ | - - - | 95 | 110 | 104 | 125 | - - - | - - - | - - - | - - - |
| $R_1$ | - - - | 65 | 94 | 90 | 110 | - - - | - - - | - - - | - - - |
| S | - - - | 38 | 49 | 47.5 | 55 | - - - | - - - | - - - | - - - |
| $S_2$ | - - - | 2 | 2.5 | 5.5 | 3 | - - - | - - - | - - - | - - - |
| $V_1$ | - - - | M6x8 (4) | M6x12.5(4) | M8x14 (4) | M8x14 (4) | - - - | - - - | - - - | - - - |
| **PB** | | | | | | | | | |
| $G_{1\ (H8)}$ | - - - | - - - | 60 | - - - | 70 | - - - | - - - | - - - | - - - |
| $P_1$ | - - - | - - - | 110 | - - - | 116 | - - - | - - - | - - - | - - - |
| $R_1$ | - - - | - - - | 75 | - - - | 85 | - - - | - - - | - - - | - - - |
| S | - - - | - - - | 49 | - - - | 67 | - - - | - - - | - - - | - - - |
| $S_2$ | - - - | - - - | 2.5 | - - - | 4 | - - - | - - - | - - - | - - - |
| $V_1$ | - - - | - - - | M6x12.5(4) | - - - | M8x14 (4) | - - - | - - - | - - - | - - - |

Not binding dimensions

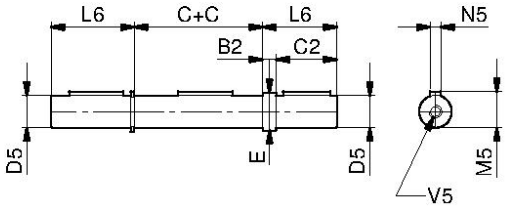
# Gearboxes Series RS & RT



## AS

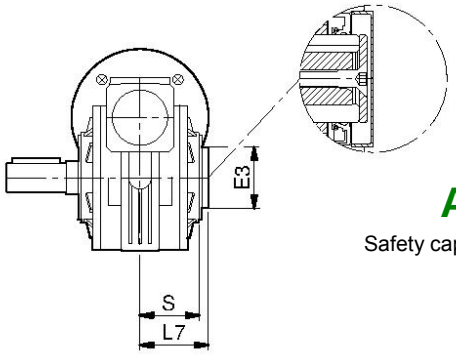



## AD

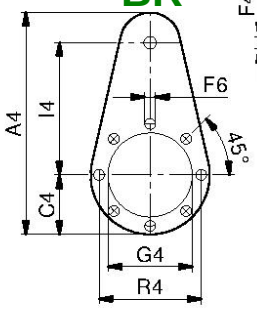



## ASC

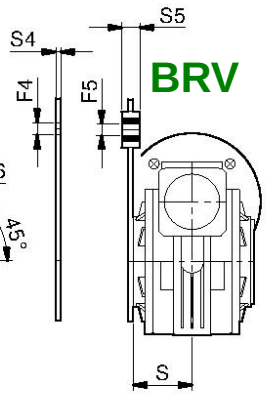
Safety cap for AS



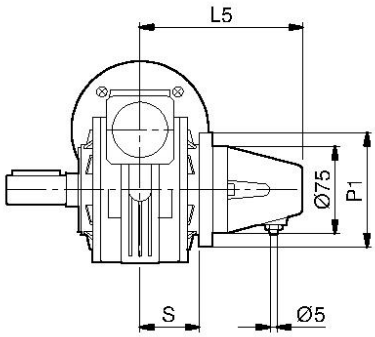

## BR



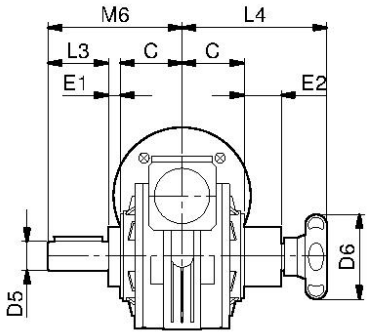

## BRV



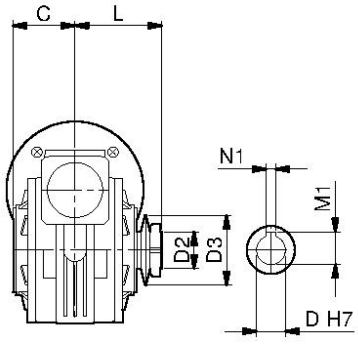

## SL




## TLE



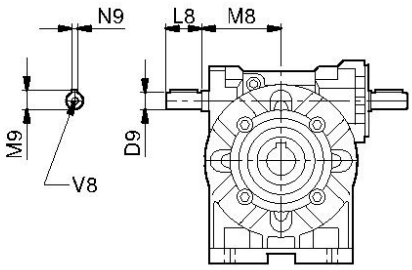

## TLI




**TLI Oil quantity**

| Type | Litres |
|---|---|
| 28 | 0.04 |
| 40 | 0.10 |
| 50 | 0.13 |
| 60 | 0.30 |
| 70 | 0.45 |
| 85 | 0.75 |
| 110 | 2.25 |

## VB



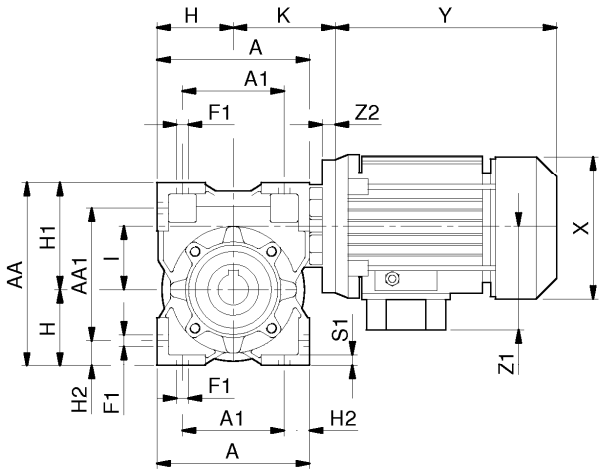
| RS | | 28 | 40 | 50 | 60 | 70 | 85 | 110 | 130 | 150 |
|---|---|---|---|---|---|---|---|---|---|---|
| AS & AD | $A_2$ | 58 | 80 | 95 | 117 | 117 | 119 | 153 | 177 | 207 |
| | $B_2$ | 1 | 10 | 10 | 10 | 10 | 10 | 10 | 20 | 20 |
| | C | 30 | 41 | 49 | 60 | 60 | 61 | 77.5 | 90 | 105 |
| | $C_2$ | 30 | 40 | 45 | 50 | 60 | 70 | 100 | 110 | 110 |
| | $D_{5\ (g6)}$ | 14 | 19 (18) | 24 (25) | 25 | 28 | 32 (35) | 42 | 48 | 55 |
| | E | 14 | 22 | 28 | 30 | 34 | 38 | 50 | 58 | 63 |
| | $L_6$ | 31 | 50 | 55 | 60 | 70 | 80 | 106 | 130 | 130 |
| | $M_5$ | 16 | 21.5 | 27 | 28 | 31 | 35 | 45 | 51.5 | 59 |
| | $N_{5\ (h9)}$ | 5 | 6 | 8 | 8 | 8 | 10 | 12 | 14 | 16 |
| | $V_5$ | M5x10 | M8x20 | M8x20 | M8x20 | M8x20 | M10x25 | M10x25 | --- | --- |
| ASC | $E_3$ | 42 | 55 | 62 | 62 | 72 | 90 | 120 | --- | --- |
| | $L_7$ | 36 | 48.5 | 55.5 | 68.5 | 67 | 77 | 85 | --- | --- |
| | S | 27.5 | 38.5 | 46.5 | 57 | 57 | 67 | 74 | --- | --- |
| BR BRV | $A_4$ | 138 | 168 | 185 | 235 | 295 | 313 | 388 | 465 | 525 |
| | $C_4$ | 38 | 43 | 60 | 55 | 65 | 75 | 100 | 120 | 125 |
| | $F_4$ | 10.5 | 10.5 | 10.5 | 10.5 | 10.5 | 20.5 | 20.5 | 26 | 26 |
| | $F_{5\ (0/+0.4)}$ | 10 | 10 | 10 | 10 | 10 | 20 | 20 | 25 | 25 |
| | $F_6$ | 7 | 7 | 9 | 9 | 9 | 12 | 13 | 13 | 15 |
| | $G_4$ | 55 | 60 | 70 | 80 | 95 | 110 | 130 | 180 | 180 |
| | $I_4$ | 80 | 90 | 100 | 150 | 150 | 200 | 250 | 300 | 350 |
| | $R_4$ | 65 | 75 | 85 | 95 | 115 | 130 | 165 | 215 | 215 |
| | $S_4$ | 4 | 4 | 4 | 6 | 6 | 6 | 6 | 6 | 6 |
| | $S_5$ | 15 | 15 | 15 | 20 | 20 | 25 | 25 | 30 | 30 |
| SL | $L_5$ | 100 | 110 | 120 | 130 | 130 | 140 | 155 | --- | --- |
| | $P_1$ | 77 | 88 | 100 | 110 | 132 | 160 | 200 | --- | --- |
| | S | 27.5 | 38.5 | 46.5 | 57 | 57 | 67 | 74 | --- | --- |
| TLE | $D_6$ | 52 | 70 | 70 | 70 | 80 | 100 | 100 | --- | --- |
| | $E_1$ | 10 | 12 | 12 | 15 | 14 | 19 | 24 | --- | --- |
| | $E_2$ | 28 | 37 | 31 | 40 | 46 | 57 | 71 | --- | --- |
| | $L_3$ | 30 | 40 | 50 | 50 | 60 | 70 | 80 | --- | --- |
| | $L_4$ | 94 | 116 | 118 | 128 | 146 | 168 | 201 | --- | --- |
| | $M_6$ | 70 | 93 | 111 | 125 | 134 | 150 | 181 | --- | --- |
| TLI | $D_{(H7)}$ | 14 | 19 | 24 | 25 | 28 | 32 | 42 | --- | --- |
| | $D_2$ | 40 | 56 | 71 | 71 | 80 | 90 | 125 | --- | --- |
| | $D_3$ | 14.2 x 20 | 19.5 x 20.5 | 24.5 x 28 | 25.5 x 26 | 28.5 x 22 | 32.5 x 27 | 42.5 x 38.5 | --- | --- |
| | L | 45 | 61.5 | 77 | 86.5 | 89 | 94 | 112.5 | --- | --- |
| | $M_1$ | 15.4* | 21.8 | 27.3 | 27.3* | 31.3 | 35.3 | 45.3 | --- | --- |
| | $N_{1\ (h9)}$ | 5 | 6 | 8 | 8 | 8 | 10 | 12 | --- | --- |
| VB | $D_9$ | 9 | 11 | 14 | 19 | 19 | 24 | 28 | --- | --- |
| | $L_8$ | 20 | 23 | 30 | 40 | 40 | 50 | 60 | --- | --- |
| | $M_8$ | 43 | 55 | 65 | 77 | 89 | 106.5 | 145 | --- | --- |
| | $M_9$ | 10.2 | 12.5 | 16 | 22.5 | 22.5 | 27 | 31 | --- | --- |
| | $N_{9\ (h9)}$ | 3 | 4 | 5 | 6 | 6 | 8 | 8 | --- | --- |
| | $V_8$ | M4x10 | M4x10 | M6x15 | M8x20 | M8x20 | M8x20 | M8x20 | --- | --- |

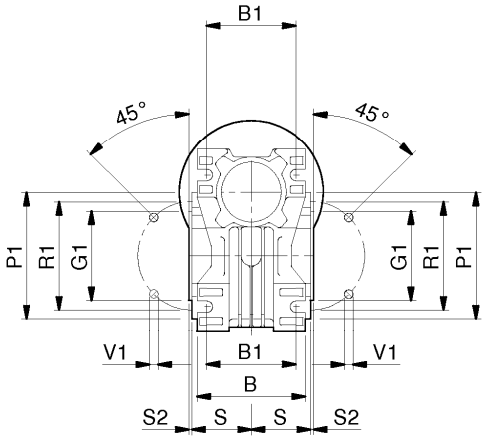
* = Undersized key

- $D_5$ (..) = Diameter on demand

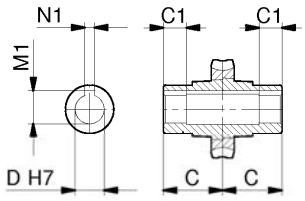
# Gearboxes Series RS & RT

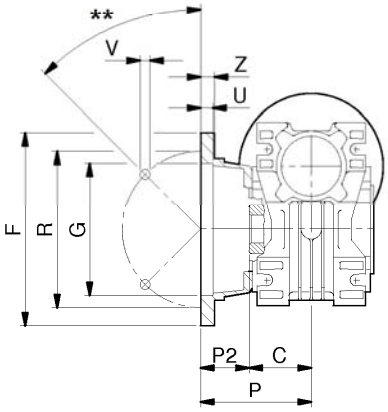




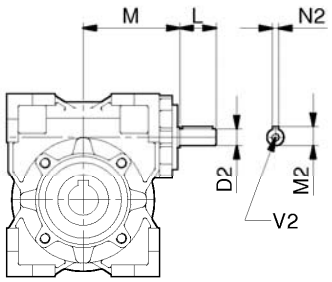




**B3**




**F, [FV], {FL}**




**RT**

# Gearboxes Series RS & RT

## Single worm gear boxes RT — Dimensions

| RT | 28 | 40 | 50 | 60 | 70 | 85 | 110 |
|---|---|---|---|---|---|---|---|
| A | 80 | 100 | 120 | 144 | 172 | 206 | 255 |
| $A_1$ | 54 | 70 | 80 | 100 | 120 | 140 | 170 |
| AA | 97 | 121,5 | 144 | 174 | 205 | 238 | 295 |
| $AA_1$ | 71 | 91,5 | 104 | 130 | 153 | 172 | 210 |
| B | 53 | 71 | 85 | 100 | 112 | 130 | 144 |
| $B_1$ | 44 | 60 | 70 | 85 | 90 | 100 | 115 |
| C | 14 | 41 | 49 | 60 | 60 | 61 | 77,5 |
| $C_1$ | 26.5 | 26 | 30.5 | 39 | 37.5 | 38.5 | 52.5 |
| D (H7) | 14 | 19 | 24 | 25 | 28 | 32 | 42 |
| D* (H7) | - - - | 18 | 25 | - - - | 30 | 35 | - - - |
| $D_2$ (h6) | 9 | 11 | 14 | 19 | 19 | 24 | 28 |
| F | 80 | 110 {110} | 125 [160] 125} | 180 {180} | 200 | 210 | 270 |
| $F_1$ | 7 | 7 | 9 | 9 | 11 | 13 | 15 |
| G (H8) | 50 | 60 {60} | 70 [110] {70} | 115 {115} | 130 | 152 | 170 |
| $G_1$ (h8) | 55 | 60 | 70 | 80 | 95 | 110 | 130 |
| H | 40 | 50 | 60 | 72 | 86 | 103 | 127,5 |
| $H_1$ | 57 | 71,5 | 84 | 102 | 119 | 135 | 167,5 |
| $H_2$ | 13 | 15 | 20 | 22 | 26 | 33 | 42,5 |
| I | 28 | 40 | 50 | 60 | 70 | 85 | 110 |
| K | 57.5 | 70.5 | 83-88* | 93-94* | 117-118* | 134-137* | 151-153* |
| L | 20 | 23 | 30 | 40 | 40 | 50 | 60 |
| M | 50 | 65 | 75 | 87 | 110 | 123,5 | 146 |
| $M_1$ | 16,3 | 21,8 | 27,3 | 28,3 | 31,3 | 35,3 | 45,3 |
| $M_2$ | 10,2 | 12,5 | 16 | 22,5 | 22,5 | 27 | 31 |
| $N_1$ | 5 | 6 | 8 | 8 | 8 | 10 | 12 |
| $N_2$ | 3 | 4 | 5 | 6 | 6 | 8 | 8 |
| P | 53 | 69 {99} | 93 [90,5] {123} | 86 {116} | 111 | 111 | 131 |
| $P_1$ | 75 | 86 | 100 | 110 | 130 | 160 | 200 |
| $P_2$ | 23 | 28 {58} | 44 [41,5] {74} | 25 {56} | 51 | 50 | 53,5 |
| R | 68 | 87 {87} | 90 [130] {90} | 150,5 {150,5} | 165 | 175 | 230 |
| $R_1$ | 65 | 75 | 85 | 95 | 115 | 130 | 165 |
| S | 27,5 | 38,5 | 46,5 | 57 | 57 | 67 | 74 |
| $S_1$ | 6 | 7 | 8 | 10 | 11 | 14 | 13 |
| $S_2$ | 2,5 | 2,5 | 3 | 3 | 3 | 3 | 3,5 |
| U | 10 | 4 {4} | 5 [11] {5} | 6,5 {6,5} | 12 | 6 | 5 |
| V | 7 | 9 {9} | 10,5 [9] {9} | 11 {11} | 13 | 13 | 14 |
| $V_1$ | M6x10 (4) | M6x8,5 (4) | M8x10 (4) | M8x16 (8) | M8x16 (8) | M10x18 (8) | M10x21 (8) |
| $V_2$ | M4x10 | M4x10 | M6x15 | M8x20 | M8x20 | M8x20 | M8x20 |
| Z | 7 | 6 {8} | 10 [13] {10} | 10 {10} | 14 | 16 | 18 |
| $Z_2$ | 13 | 13 | 13 - 18,5 | 14 - 15 | 15,5 - 17,5 | 15,5 - 18,5 | 18-20 |

D* - Bore on demand

** - 90° for RT28 - 45° for the other sizes

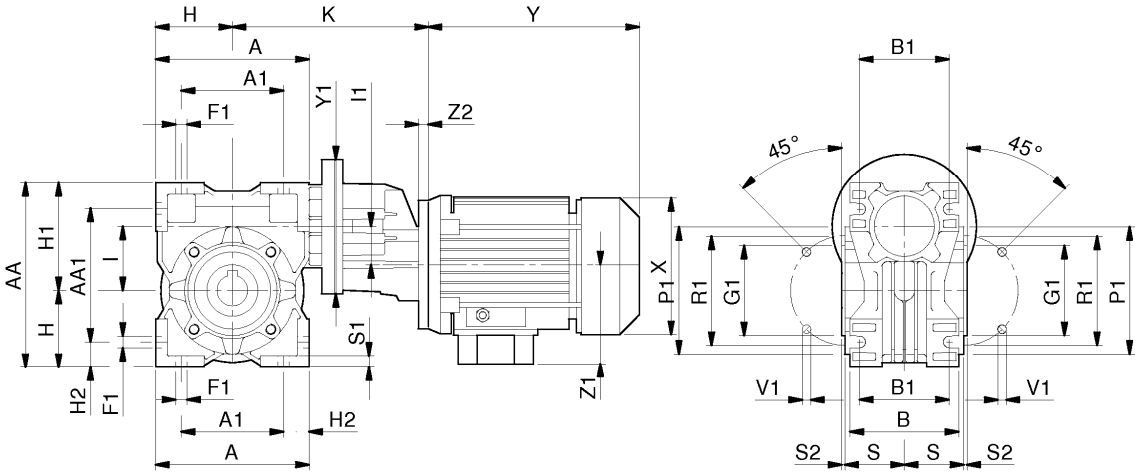
(*) - IEC71-B14 (**FRS50**) - IEC71-B14 (**FRS60**) - IEC 80-B14 (**FRS70**) - IEC 90-B14 (**FRS85**) - IEC100/112-B14 (**FRS110**)

Motor dimensions: see page 33

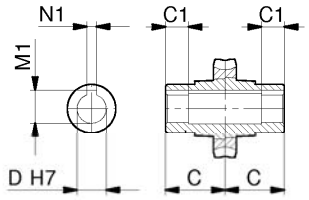
Not binding dimensions

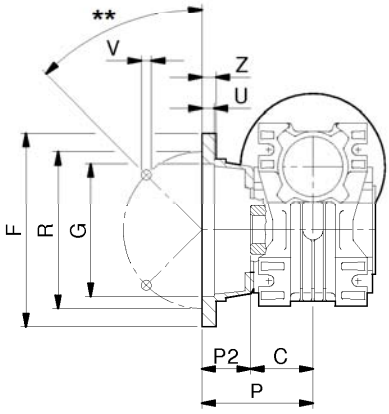
# Gearboxes Series RS & RT



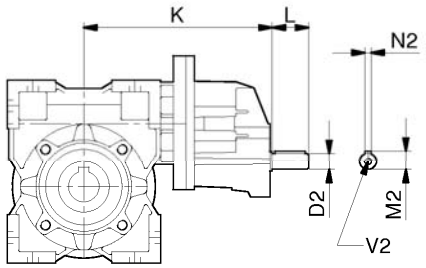



**B3**




**F, [FV], {FL}**




**TA**

| TA | 63/40 | 63/50 | 63/60 | 71/50 | 71/60 | 71/70 | 71/85 | 80/60 | 80/70 | 80/85 | 80/110 | 100/110 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 100 | 120 | 144 | 120 | 144 | 172 | 206 | 144 | 172 | 206 | 255 | 255 |
| $A_1$ | 70 | 80 | 100 | 80 | 100 | 120 | 140 | 100 | 120 | 140 | 170 | 170 |
| AA | 121,5 | 144 | 174 | 144 | 174 | 205 | 238 | 174 | 205 | 238 | 295 | 295 |
| $AA_1$ | 91,5 | 104 | 130 | 104 | 130 | 153 | 172 | 130 | 153 | 172 | 210 | 210 |
| B | 71 | 85 | 100 | 85 | 100 | 112 | 130 | 100 | 112 | 130 | 144 | 144 |
| $B_1$ | 60 | 70 | 85 | 70 | 85 | 90 | 100 | 85 | 90 | 100 | 115 | 115 |
| C | 41 | 49 | 60 | 49 | 60 | 60 | 61 | 60 | 60 | 61 | 77,5 | 77,5 |
| $C_1$ | 26 | 30.5 | 39 | 30.5 | 39 | 37.5 | 38.5 | 39 | 37.5 | 38.5 | 52.5 | 52.5 |
| D (H7) | 19 | 24 | 25 | 24 | 25 | 28 | 32 | 25 | 28 | 32 | 42 | 42 |
| D* | 18 | 25 | - - - | 25 | - - - | 30 | 35 | - - - | 30 | 35 | - - - | - - - |
| $D_4$ | 11 | 11 | 11 | 14 | 14 | 14 | 14 | 19 | 19 | 19 | 19 | 24 |
| F | 110 | 125 {125} | 180 | 125 {125} | 180 | 200 | 210 | 180 | 200 | 210 | 270 | 270 |
| $F_1$ | 7 | 9 | 9 | 9 | 9 | 11 | 13 | 9 | 11 | 13 | 15 | 15 |
| G (H8) | 60 {60} | 70 [110] {70} | 115 | 70 [110] {70} | 115 | 130 | 152 | 115 | 130 | 152 | 170 | 170 |
| $G_1$ | 60 | 70 | 80 | 70 | 80 | 95 | 110 | 80 | 95 | 110 | 130 | 130 |
| H | 50 | 60 | 72 | 60 | 72 | 86 | 103 | 72 | 86 | 103 | 127,5 | 127,5 |
| $H_1$ | 71,5 | 84 | 102 | 84 | 102 | 119 | 135 | 102 | 119 | 135 | 167,5 | 167,5 |
| $H_2$ | 15 | 20 | 22 | 20 | 22 | 26 | 33 | 22 | 26 | 33 | 42,5 | 42,5 |
| I | 40 | 50 | 60 | 50 | 60 | 70 | 85 | 60 | 70 | 85 | 110 | 110 |
| $I_1$ | 32 | 32 | 32 | 40 | 40 | 40 | 40 | 50 | 50 | 50 | 50 | 50 |
| K | 153,5 | 171 | 177 | 173- | 183 | 209- | 224 | 207 | 232,5 | 250,5 | 264,5 | 328 |
| L | 23 | 23 | 23 | 30 | 30 | 30 | 30 | 40 | 40 | 40 | 40 | 50 |
| $M_1$ | 21,8 | 27,3 | 28,3 | 27,3 | 28,3 | 31,3 | 35,3 | 28,3 | 31,3 | 35,3 | 45,3 | 45,3 |
| $M_2$ | 12,5 | 12,5 | 12,5 | 16 | 16 | 16 | 16 | 22,5 | 22,5 | 22,5 | 22,5 | 27 |
| $N_1$ | 6 | 8 | 8 | 8 | 8 | 8 | 10 | 8 | 8 | 10 | 12 | 12 |
| $N_4$ | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 8 |
| P | 69 {99} | 93 {123} | 86 {116} | 93 {123} | 86 {116} | 111 | 111 | 86 {116} | 111 | 111 | 131 | 131 |
| | - - - | | - - - | | - - - | - - - | - - - | - - - | - - - | - - - | - - - | - - - |
| $P_1$ | 86 | 100 | 110 | 100 | 110 | 130 | 160 | 110 | 130 | 160 | 200 | 200 |
| $P_2$ | 28 {58} | 44 {74} | 25 {56} | 44 {74} | 25 {56} | 51 | 50 | 25 {56} | 51 | 50 | 53,5 | 53,5 |
| | - - - | | - - - | | - - - | - - - | - - - | {56} | - - - | - - - | - - - | - - - |
| R | 87 | 90 {90} | 150,5 {150,5 | 90 [130] {90} | 150,5 {150,5 | 165 | 175 | 150,5 {150,5 | 165 | 175 | 230 | 230 |
| $R_1$ | 75 | 85 | 95 | 85 | 95 | 115 | 130 | 95 | 115 | 130 | 165 | 165 |
| S | 38,5 | 46,5 | 57 | 46,5 | 57 | 57 | 67 | 57 | 57 | 67 | 74 | 74 |
| $S_1$ | 7 | 8 | 10 | 8 | 10 | 11 | 14 | 10 | 11 | 14 | 13 | 13 |
| $S_2$ | 2,5 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3,5 | 3,5 |
| U | 4 {4} | 5 [11] {5} | 6,5 {6,5} | 5 [11] {5} | 6,5 {6,5} | 12 | 6 | 6,5 {6,5} | 12 | 6 | 5 | 5 |
| V | 9 {9} | 10,5 [9] | 11 | 10,5 [9] | 11 | 13 | 13 | 11 | 13 | 13 | 14 | 14 |
| $V_1$ | M6x8 (4) | M8x10 (4) | M8x16 (8) | M8x10 (4) | M8x16 (8) | M8x16 (8) | M10x18 | M8x16 (8) | M8x16 (8) | M10x18 (8) | M10x21 (8) | M10x21 (8) |
| $V_3$ | M4 x 10 | M4 x 10 | M4 x 10 | M6 x 15 | M6 x 15 | M6 x 15 | M6 x 15 | M8 x 20 | M8 x 20 | M8 x 20 | M8 x 20 | M8 x 20 |
| $Y_1$ | 105 | 105 | 105 | 120 | 120 | 120 | 120 | 140 | 140 | 140 | 140 | 140 |
| Z | 6 {8} | 10 [13] {10} | 10 {10} | 10 [13] {10} | 10 {10} | 14 | 16 | 10 {10} | 14 | 16 | 18 | 18 |
| $Z_2$ | 13 | 13 | 13 | 13 - 18,5 | 13 - 18,5 | 13 - 18,5 | 13 - 18,5 | 14 - 15 | 14 - 15 | 14 - 15 | 14 - 15 | 14 - 15 |

D* - Bore on demand

** - 90° for RT28 - 45° for the other sizes

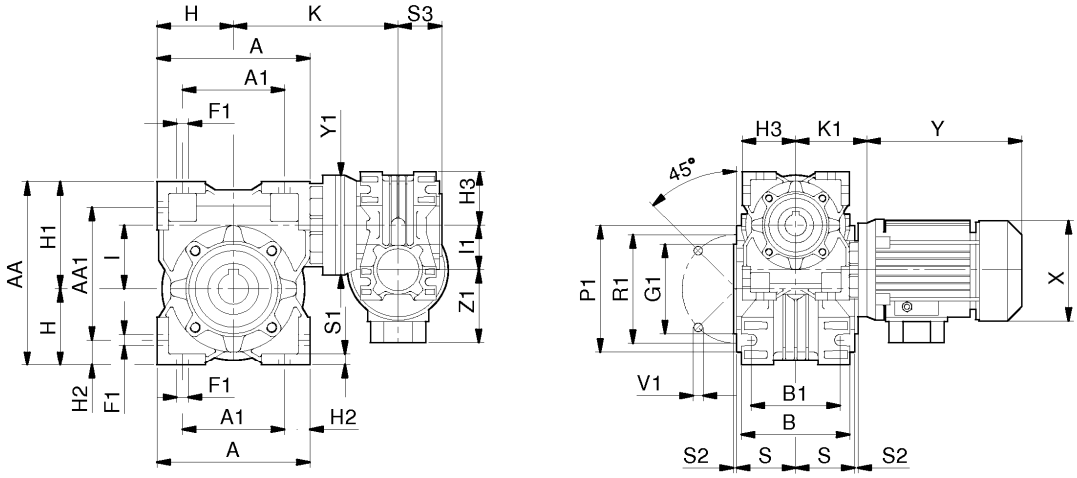
(*) - IEC71-B14 (FTA 71/….)

Motor dimensions: see page 33

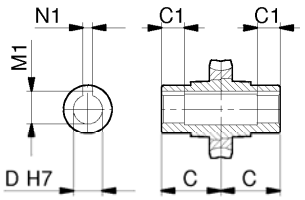
Not binding dimensions

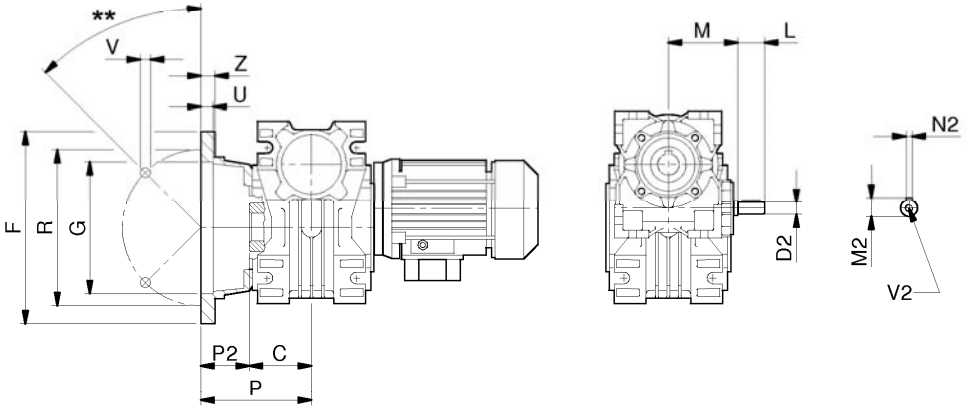
# Gearboxes Series RS & RT






**B3**




**F, [FV], {FL}** **RT/RT**

| RT/RT | 28/28 | 28/40 | 28/50 | 28/60 | 40/70 | 40/85 | 50/110 |
|---|---|---|---|---|---|---|---|
| A | 80 | 100 | 120 | 144 | 172 | 206 | 255 |
| $A_1$ | 54 | 70 | 80 | 100 | 120 | 140 | 170 |
| AA | 97 | 121,5 | 144 | 174 | 205 | 238 | 295 |
| $AA_1$ | 71 | 91,5 | 104 | 130 | 153 | 172 | 210 |
| B | 53 | 71 | 85 | 100 | 112 | 130 | 144 |
| $B_1$ | 44 | 60 | 70 | 85 | 90 | 100 | 115 |
| C | 30 | 41 | 49 | 60 | 60 | 61 | 77,5 |
| $C_1$ | 26.5 | 26 | 30.5 | 39 | 37.5 | 38.5 | 52.5 |
| D (H7) | 14 | 19 | 24 | 25 | 28 | 32 | 42 |
| D* (H7) | - - - | 18 | 25 | - - - | 30 | 35 | - - - |
| $D_2$ (h6) | 9 | 9 | 9 | 9 | 11 | 11 | 14 |
| F | 80 | 110 {110} | 125 [160] {125} | 180 {180} | 200 | 210 | 270 |
| $F_1$ | 7 | 7 | 9 | 9 | 11 | 13 | 15 |
| G (H8) | 50 | 60 {60} | 70 [110] {70} | 115 {115} | 130 | 152 | 170 |
| $G_1$ (h8) | 55 | 60 | 70 | 80 | 95 | 110 | 130 |
| H | 40 | 50 | 60 | 72 | 86 | 103 | 127,5 |
| $H_1$ | 57 | 71,5 | 84 | 102 | 119 | 135 | 167,5 |
| $H_2$ | 13 | 15 | 20 | 22 | 26 | 33 | 42,5 |
| $H_3$ | 40 | 40 | 40 | 40 | 50 | 50 | 60 |
| I | 28 | 40 | 50 | 60 | 70 | 85 | 110 |
| $I_1$ | 28 | 28 | 28 | 28 | 40 | 40 | 50 |
| K | 79,5 | 118,5 | 134 | 145,5 | 143,5 | 199 | 203 |
| $K_1$ | 57,5 | 57,5 | 57,5 | 57,5 | 70,5 | 70,5 | 83 - 88* |
| L | 20 | 20 | 20 | 20 | 23 | 23 | 30 |
| M | 50 | 50 | 50 | 50 | 65 | 65 | 75 |
| $M_1$ | 16,3 | 21,8 | 27,3 | 28,3 | 31,3 | 35,3 | 45,3 |
| $M_2$ | 10,2 | 10,2 | 10,2 | 10,2 | 12,5 | 12,5 | 16 |
| $N_1$ | 5 | 6 | 8 | 8 | 8 | 10 | 12 |
| $N_2$ | 3 | 3 | 3 | 3 | 4 | 4 | 5 |
| P | 53 | 69 {99} | 93 [90,5] {123} | 86 {116} | 111 | 111 | 131 |
| $P_1$ | 75 | 86 | 100 | 110 | 130 | 160 | 200 |
| $P_2$ | 23 | 28 {58} | 44 [41,5] {74} | 25 {56} | 51 | 50 | 53,5 |
| R | 68 | 87 {87} | 90 [130] {90} | 150,5 {150,5} | 165 | 175 | 230 |
| $R_1$ | 65 | 75 | 85 | 95 | 115 | 130 | 165 |
| S | 27,5 | 38,5 | 46,5 | 57 | 57 | 67 | 74 |
| $S_1$ | 6 | 7 | 8 | 10 | 11 | 14 | 13 |
| $S_2$ | 2,5 | 2,5 | 3 | 3 | 3 | 3 | 3,5 |
| $S_3$ | 30 | 30 | 30 | 30 | 41 | 41 | 49 |
| U | 10 | 4 {4} | 5 [11] {5} | 6,5 {6,5} | 12 | 6 | 5 |
| V | 7 | 9 {9} | 10,5 [9] {9} | 11 {11} | 13 | 13 | 14 |
| $V_1$ | M6x10 (4) | M6x8,5 (4) | M8x10 (4) | M8x16 (8) | M8x16 (8) | M10x18 (8) | M10x21 (8) |
| $V_2$ | M4x10 | M4x10 | M4x10 | M4x10 | M4x10 | M4x10 | M6x15 |
| $Y_1$ | 80 | 90 | 90 | 90 | 120 | 120 | 120 |
| Z | 7 | 6 {8} | 10 [13] {10} | 10 {10} | 14 | 16 | 18 |

D* - Bore on demand

** - 90° for RT28 - 45° for the other sizes

(*) - IEC71-B14 (FRS50)

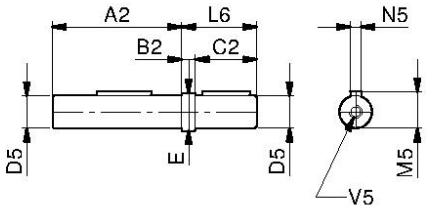
Motor dimensions: see page 33

Not binding dimensions

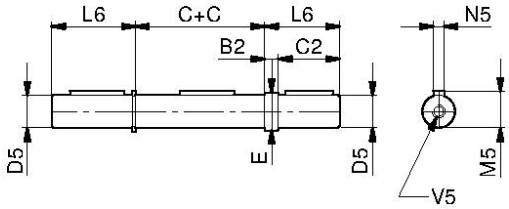
# Gearboxes Series RS & RT



## AS

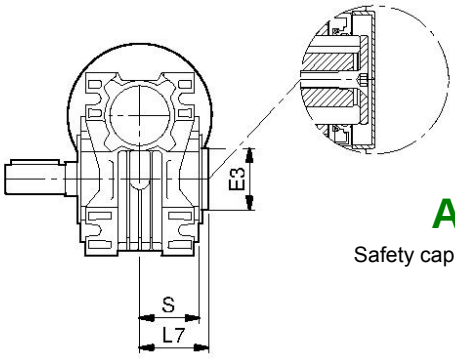



## AD

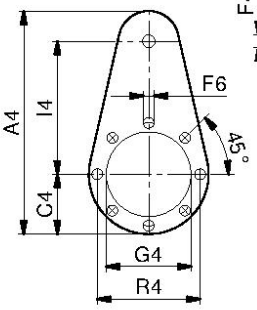



## ASC

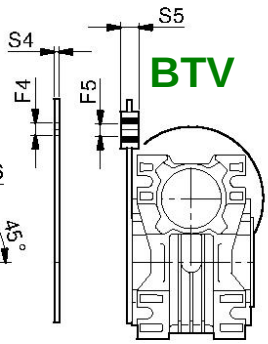
Safety cap for **AS**



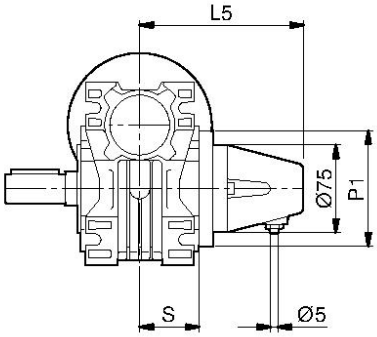

## BT



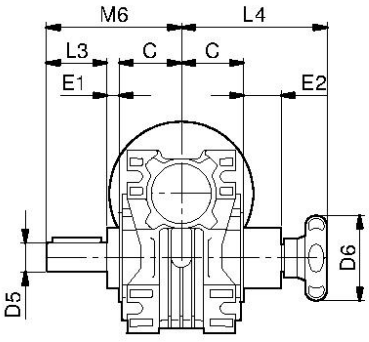

## BTV



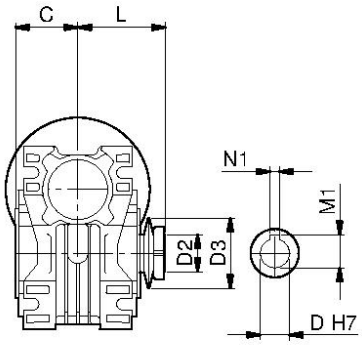

## SL




## TLE



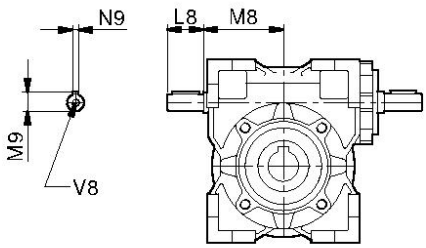

## TLI




**TLI Oil quantity**

| Type | Litres |
|---|---|
| 28 | 0.04 |
| 40 | 0.10 |
| 50 | 0.13 |
| 60 | 0.30 |
| 70 | 0.45 |
| 85 | 0.75 |
| 110 | 2.25 |

## VB



| RT | | 28 | 40 | 50 | 60 | 70 | 85 | 110 |
|---|---|---|---|---|---|---|---|---|
| AS & AD | $A_2$ | 58 | 80 | 95 | 117 | 117 | 119 | 153 |
| | $B_2$ | 1 | 10 | 10 | 10 | 10 | 10 | 10 |
| | C | 30 | 41 | 49 | 60 | 60 | 61 | 77.5 |
| | $C_2$ | 30 | 40 | 45 | 50 | 60 | 70 | 100 |
| | $D_{5\ (g6)}$ | 14 | 19 (18) | 24 (25) | 25 | 28 | 32 (35) | 42 |
| | E | 14 | 22 | 28 | 30 | 34 | 38 | 50 |
| | $L_6$ | 31 | 50 | 55 | 60 | 70 | 80 | 110 |
| | $M_5$ | 16 | 21.5 | 27 | 28 | 31 | 35 | 45 |
| | $N_{5\ (h9)}$ | 5 | 6 | 8 | 8 | 8 | 10 | 12 |
| | $V_5$ | M5x10 | M8x20 | M8x20 | M8x20 | M8x20 | M10x25 | M10x25 |
| ASC | $E_3$ | 50 | 52 | 62 | 75 | 90 | 100 | 120 |
| | $L_7$ | 36 | 48.5 | 55.5 | 68.5 | 67 | 77 | 85 |
| | S | 27.5 | 38.5 | 46.5 | 57 | 57 | 67 | 74 |
| BT & BTV | $A_4$ | 138 | 168 | 185 | 235 | 295 | 313 | 388 |
| | $C_4$ | 38 | 43 | 60 | 55 | 65 | 75 | 100 |
| | $F_4$ | 10.5 | 10.5 | 10.5 | 10.5 | 10.5 | 20.5 | 20.5 |
| | $F_{5\ (0/+0.4)}$ | 10 | 10 | 10 | 10 | 10 | 20 | 20 |
| | $F_6$ | 7 | 7 | 9 | 9 | 9 | 12 | 13 |
| | $G_4$ | 55 | 60 | 70 | 80 | 95 | 110 | 130 |
| | $I_4$ | 80 | 90 | 100 | 150 | 150 | 200 | 250 |
| | $R_4$ | 65 | 75 | 85 | 95 | 115 | 130 | 165 |
| | $S_4$ | 4 | 4 | 4 | 6 | 6 | 6 | 6 |
| | $S_5$ | 15 | 15 | 15 | 20 | 20 | 25 | 25 |
| SL | $L_5$ | 96 | 113 | 123 | 133 | 133 | 139 | 150 |
| | $P_1$ | 78 | 90 | 100 | 110 | 130 | 160 | 200 |
| | S | 27.5 | 38.5 | 46.5 | 57 | 57 | 67 | 74 |
| TLE | $D_6$ | 52 | 70 | 70 | 70 | 80 | 100 | 100 |
| | $E_1$ | 10 | 12 | 12 | 15 | 14 | 19 | 24 |
| | $E_2$ | 28 | 37 | 31 | 40 | 46 | 57 | 71 |
| | $L_3$ | 30 | 40 | 50 | 50 | 60 | 70 | 80 |
| | $L_4$ | 94 | 116 | 118 | 128 | 146 | 168 | 201 |
| | $M_6$ | 70 | 93 | 111 | 125 | 134 | 150 | 181 |
| TLI | $D_{(H7)}$ | 14 | 19 | 24 | 25 | 28 | 32 | 42 |
| | $D_2$ | 40 | 56 | 71 | 71 | 80 | 90 | 125 |
| | $D_3$ | 14.2 x 20 | 19.5 x 20.5 | 24.5 x 28 | 25.5 x 26 | 28.5 x 22 | 32.5 x 27 | 42.5 x 38.5 |
| | L | 45 | 61.5 | 77 | 86.5 | 89 | 94 | 109 |
| | $M_1$ | 15.4* | 21.8 | 27.3 | 27.3* | 31.3 | 35.3 | 45.3 |
| | $N_{1\ (h9)}$ | 5 | 6 | 8 | 8 | 8 | 10 | 12 |
| VB | $D_9$ | 9 | 11 | 14 | 19 | 19 | 24 | 28 |
| | $L_8$ | 20 | 23 | 30 | 40 | 40 | 50 | 60 |
| | $M_8$ | 43 | 55 | 65 | 77 | 89 | 106.5 | 145 |
| | $M_9$ | 10.2 | 12.5 | 16 | 22.5 | 22.5 | 27 | 31 |
| | $N_{9\ (h9)}$ | 3 | 4 | 5 | 6 | 6 | 8 | 8 |
| | $V_8$ | M4x10 | M4x10 | M6x15 | M8x20 | M8x20 | M8x20 | M8x20 |

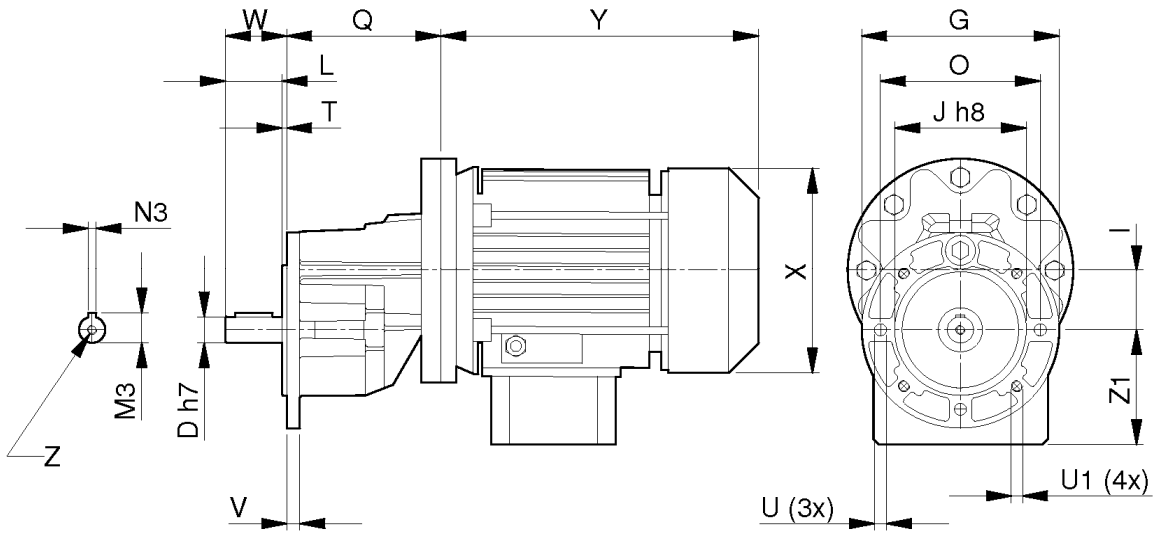
$D_5$ (..) = Diameter on demand

* = Undersized key

Not binding dimensions

# Gearboxes Series RS & RT

**Dimensions** — **One stage helical gear box XA**




| XA | $D_{h7}$ | G | I | $J_{h8}$ | L | $M_3$ | $N_{3\ h9}$ | O | Q | T | U | U1 | V | W | Z | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **63** | 14 | 105 | 32 | 70 | 30 | 16 | 5 | 85 | 83 | 2.5 | 6.5 | M6 | 7 | 32.5 | M5x10 | |
| **71** | 19 | 120 | 40 | 80 | 40 | 22.5 | 6 | 100 | 90 | 2.5 | 5.5 | M6 | 7.5 | 42.5 | M8x20 | |
| **80** | 24 | 140 | 50 | 95 | 49.5 | 27 | 8 | 115 | 114 | 2.5 | 9 | M8 | 10.5 | 52 | M8x20 | |
| **100** | 28 | 200 | 63 | 130 | 57,5 | 31 | 8 | 165 | 177 | 2,5 | 10.5 | 10,5 | 12 | 60 | M10 x 22 | |

X, Y, $Z_1$ - see page 33

| IEC | 56 | 63 | 71 | 80 | 90 S / L | 100 | 112 | |
|---|---|---|---|---|---|---|---|---|
| **H** | 108 | 110 | 121 | 138 | 149 | 160 | 160 | |
| **X** | 168 | 185 | 215 | 238 | 255 / 280 | 309 | 309 | |
| **Y** | 110 | 123 | 140 | 159 | 176 | 195 | 195 | |

When back-driving a worm gear set using the worm wheel as input, the efficiency is lower than forward-driving and, by varying the design data, back-drive efficiency can be reduced to zero obtaining a self-locking, or irreversible, gear set.

When back-driving the worm gear, internal friction tends to lock the mesh, and the bigger the applied torque is, the more mesh friction increases proportionally augmenting the lockage at the same time.

The most obvious example is during braking or slowing-down where the inertial load will try to back-drive the worm shaft.

A worm gear is intended as a self-locking unit when the lead angle is less than the friction angle (arc tangent of friction coefficient).

Tooth contact is dynamic even when the mesh velocity is zero, as vibrations in a non-rotating gear set can induce motion in the tooth contact.

To provide a safety factor, a 3° lead angle is recommended for full self-locking condi-tion, and 10° lead angle for poor self-lock-ing condition, according to the table of relations between lead angles and self-locking.

| **Lead angle** | **Static self-locking** |
|---|---|
| $\beta > 20°$ | Full back-driving |
| $10° < \beta < 20°$ | High back-driving |
| $5° < \beta < 10°$ | Good back-driving<br>Poor self-locking |
| $3° < \beta < 5°$ | Poor back-driving<br>Good self-locking |
| $1° < \beta < 3°$ | Full self-locking |

# Gearboxes Series RS & RT

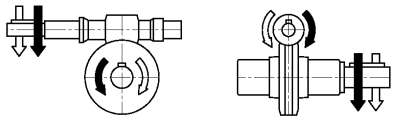
## Gearing data

| | i = | 5 | 7 | 10 | 15 | 20 | 28 | 40 | 49 | 56 | 70 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **RS/RT 28** | $m_x$ | | 1.50 | 1.40 | 1.40 | 1.10 | 1.50 | 1.10 | 0.90 | 0.75 | 0.60 | 0.55 | 0.45 |
| | β | - - - | 23°11' | 16°41' | 11°18' | 10°23' | 6°06' | 5°14' | 4°19' | 3°03' | 2°27' | 2°37' | 2°20' |
| | $z_1$ | | 4 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **RS/RT 40** | $m_x$ | 2,00 | 2.10 | 2.00 | 2.00 | 1.50 | 2.10 | 1.50 | 1.25 | 1.10 | 0.90 | 0.80 | 0.65 |
| | β | 30°57' | 21°36' | 16°41' | 11°18' | 8°31' | 5°39' | 4°17' | 3°48' | 3°25' | 3°01' | 2°51' | 2°38' |
| | $z_1$ | 6 | 4 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **RS/RT 50** | $m_x$ | 2,50 | 2.70 | 2.50 | 2.50 | 1.90 | 2.70 | 1.90 | 1.60 | 1.40 | 1.10 | 1.00 | 0.80 |
| | β | 30°57' | 23°52' | 16°41' | 11°18' | 5°59' | 6°19' | 4°31' | 4°14' | 3°42' | 2°44' | 2°51' | 2°17' |
| | $z_1$ | 6 | 4 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **RS/RT 60** | $m_x$ | 3,15 | 3.30 | 3.10 | 3.10 | 2.40 | 3.30 | 2.40 | 2.00 | 1.70 | 1.40 | 1.20 | 1.00 |
| | β | 36°32' | 25°33' | 19°0' | 12°55' | 11°18' | 6°49' | 5°42' | 5°11' | 3°55' | 3°38' | 2°51' | 2°51' |
| | $z_1$ | 6 | 4 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **RS/RT 70** | $m_x$ | 3,60 | 3.90 | 3.60 | 3.60 | 2.80 | 3.90 | 2.80 | 2.30 | 2.00 | 1.60 | 1.40 | 1.15 |
| | β | 34°01' | 26°51' | 18°38' | 12°40' | 11°18' | 7°12' | 5°42' | 4°48' | 4°05' | 3°16' | 2°51' | 2°38' |
| | $z_1$ | 6 | 4 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **RS/RT 85** | $m_x$ | 4,40 | 4.70 | 4.40 | 4.40 | 3.40 | 4.70 | 3.40 | 2.80 | 2.50 | 2.00 | 1.74 | 1.40 |
| | β | 34°47' | 26°05' | 19°09' | 13°02' | 11°18' | 6°58' | 5°52' | 4°52' | 4°45' | 3°48' | 3°14' | 2°40' |
| | $z_1$ | 6 | 4 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **RS/RT 110** | $m_x$ | | 6.10 | 5.80 | 5.80 | 4.40 | 6.10 | 4.40 | 3.60 | 3.20 | 2.60 | 2.30 | 1.80 |
| | β | - - - | 26°22' | 20°43' | 14°09' | 11°18' | 7°04' | 5°42' | 4°43' | 4°29' | 3°54' | 3°39' | 2°34' |
| | $z_1$ | | 4 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **RS 130** | $m_x$ | | 7.25 | 6.90 | 6.85 | 5.35 | 7.25 | 5.30 | 4.35 | 4.00 | 3.15 | 2.70 | 2.25 |
| | β | - - - | 26°57' | 21°20' | 14°06' | 13°5' | 7°14' | 6°18' | 5°18' | 6°20' | 4°33' | 3°30' | 3°40' |
| | $z_1$ | | 4 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **RS 150** | $m_x$ | | 8.25 | 8.00 | 8.15 | 6.20 | 8.45 | 6.25 | 5.10 | 4.60 | 3.60 | 3.15 | 2.60 |
| | β | - - - | 25°33' | 21°48' | 16°22' | 13°24' | 7°35' | 7°07' | 5°48' | 6°11' | 4°17' | 3°45' | 3°43' |
| | $z_1$ | | 4 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

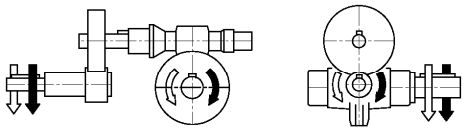
$m_x$ = Axial module
$z_1$ = Number of starts
β = Lead angle (rh)
20° = Pressure angle

## WORMSHAFT UPWARDS

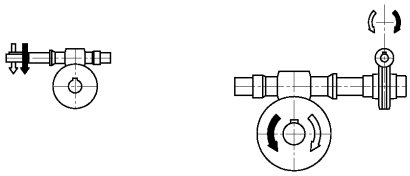
- **RS - RT**



- **RA - TA**

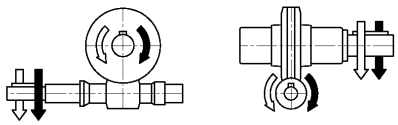


- **RS/RS**
- **RT/RT**

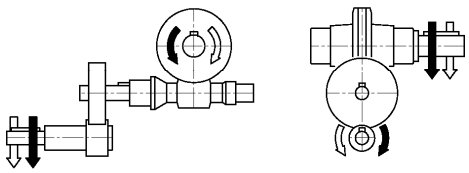


## WORMSHAFT DOWNWARDS

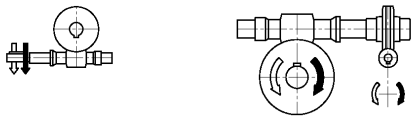
- **RS - RT**



- **RA - TA**



- **RS/RS**
- **RT/RT**



**Abstract of OPERATION AND MAINTENANCE INSTRUCTIONS**
(complete manual on **www.varvel.com**)

Variable speed and reduction gearboxes are not part of the field of application of the Machinery Directive, art.1(2), and they must not be put into service until the machinery into which they are to be incorporated, has been declared in conformity with the provision of art. 4(2), annex II(B) of Machinery Directives 98/37/CEE/22.6.98 and for Italy only, of DL 459/24.7.96.

**Installation**

Check if the unit to be installed, is properly selected to perform the required function and that its mounting position complies with the order.
The nameplate reports such information.
Check mounting stability to ensure the unit runs without vibrations or overloads.

**Running**

The unit may be connected for clockwise or counter-clockwise rotation.
The unit must be stopped as soon as defective running or unexpected noise occur, remove the faulty part or return the unit to the factory for checking.
If the faulty part is not replaced, other parts can also be affected, causing more severe damage and making the identification of initial cause more difficult.

**Maintenance**

Although the units are no-load run tested in the factory before despatch, it is recommended not to run them at maximum load for the first 20-30 running hours to allow the proper running in.
The gearboxes are delivered already filled with long-life synthetic oil and, in case of replacement or topping, do not mix with mineral lubricants.

**Handling**

When hoisting, use relevant housing locations or eyebolts if provided, or foot or flange holes.
Never hoist on any moving part.

**Painting**

Carefully protect oil seals, coupling faces and shafts when units are re-painted.

**Long-term storage**

For storage longer than three months, apply anti-oxidants onto shafts and machined surfaces, and protective grease on oil seal lips.

**Product's Environmental Management**

In conformity with Environmental Certification ISO 14001, we recommend the following to dispose of our products:
- scraped components of the units to be delivered to authorized centres for metal object collection;
- oils and lubricants drained from the units to be delivered to Exhausted Oil Unions;
- packages (pallets, carton boxes, paper, plastic, etc.) to lead into regeneration/recycling circuits as far as possible, by delivering separate waste classes to authorized companies.

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## A socially responsible company

To the scope of intensifying our commitment to society, Varvel since 2004 started an ongoing support programme with three non-profit institutions: UNICEF (United Nations Children's Fund), MSF (Médicins sans Frontères) and ANT (National Cancer Association). Environmental respect and protection are also part of Varvel's values and this is why Varvel certified in 2001 its Environmental System to standard UNI EN ISO 14001.

borderline

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