

VARVEL®
MOTION CONTROL SINCE 1955



technology made in Italy



RS/RT

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.

Technology Made in Italy



Technologie Made in Italy

Depuis 1955 Varvel projette et réalise réducteur et variateur mécaniques dédiés à la petite et moyenne industrie. Partner fiable dans la production et la vente d'organes de transmission grâce à un très bon niveau de service, Varvel offre également des solutions personnalisées tout en respectant les valeurs de l'entreprise socialement responsable. Modularité et flexibilité guide la conception des produits Varvel en réalisant des kits communs pour toutes les familles de réducteurs, favorisant ainsi l'activité des distributeurs et revendeurs qui peuvent réaliser en quelques minutes le produit sur demande du client.

Tecnología Made in Italy

Desde 1955 Varvel proyecta y fabrica reductores y variadores de velocidad para aplicaciones de pequeña y mediana potencia. Socio fiable para la producción y venta de órganos de transmisión gracias a un elevado nivel de servicio, ofrece también soluciones personalizadas actuando con el respeto a los valores de la empresa socialmente responsable. Modularidad y flexibilidad guían el diseño de los productos Varvel mediante la realización de kits comunes a toda la familia de reductores, facilitando así la gestión de los distribuidores y revendedores que pueden configurar en pocos minutos el producto solicitado por cada cliente.


Worm Gears

RS - RT



Worm Gears RS-RT

PRODUCT DESCRIPTION

| | | |
|--|---|--|
| <p>Wormshafts ZI profile, hardened and ground Alloy steel</p> | <p>Housings of aluminium die cast or cast iron (sizes 110 up)</p> | <p>Input NEMA and IEC motor adapters and Universal Elastic Coupling</p> |
| <p>Wormwheels Bronze Alloy Cast onto a Cast Iron Hub</p> |  | <p>Oil seals Nitrile Butadiene Rubber - NBR as standard; Viton and Silicon on request</p> |
| <p>Bearings Ball or roller types Tapered roller bearings for heavy duty operation</p> | <p>Modular attachments Helical one stage gearbox, Output flange, Torque Arm & Torque Limiter</p> | <p>Output Hollow bore as standard; Single or Double solid shaft on request</p> |

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Worm Gears RS-RT

PRODUCT DESCRIPTION

Single worm gear - RS & RT

RS and RT worm gearboxes are specifically designed for universal mounting:

- Sizes: RS (9) / RT (7)
- Reduction ratios (55)
- Max. output torque (27,400 in-lbs)

Aluminium die cast housings and covers up to size 85 and cast iron from size 110.

Torque values of selection tables are output torque values for the specific size; motor powers are always referred to 1800 RPM.

Input Viton oil seals, fitted on demand, allow trouble-free operation with 2-pole standard AC motors and DC motors. Gearboxes are delivered filled with synthetic long-life oil (Grade ISO VG 320) as standard, ambient temperature +4 /+131 °F (-20/+55 °C), quantities as recommended at page 18 and valid for all mounting positions.

No vent plugs design and factory lubrication-for-life.

Selection table data are intended for service factor SF1.0, i.e. 8-10 running hours per day, uniform load, 15,000 working hours, less than 6 start/stops per hour and room temperature ranging from 60 to 95 °F (15 to 35 °C).

Helical worm gear - RA & TA

RA and TA gearboxes are made of an independent single stage helical gearbox FXA fitted to a standard FRS or FRT gearbox, allowing greater output torques and higher efficiency than the FRS and FRT gearbox with equivalent ratio.

Both gearboxes are independently lubricated with synthetic long-life oil.

Double worm gear - RS & RT

RS/RS and RT/RT gearboxes are made of two standard gearboxes RS or RT and offer a full selection of high reduction ratios to get even lower output speeds.

Both gearboxes are independently lubricated with synthetic long-life oil.

Output shaft - AS & AD

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

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

Torque arm - BR & BRV - BT & BTV

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

The torque arm, standard BR (RS) and BT (RT), or BRV (RS) and BTV (RT) with Vulkollan vibration-damping bush, is made of extra thick plate and white galvanized.

Torque limiter - TLE & TLI

The torque limiter and safeguard device - TLI series built-in inside the gearbox and TLE series fitted into the hollow output shaft of a regular gearbox - 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 pre-set torque down to zero.

Shaft rotation restarts automatically as soon as torque value is lower than the pre-set value.

Dimensions

All dimensions and units of measurement are referred to imperial system, metric in green color where applicable.

Worm Gears RS-RT

PRODUCT DESCRIPTION



| | GENERAL SPECIFICATIONS |
|------------------|--|
| Range | Sizes: 9 RS + 7 RT 55 reduction ratios 27,400 in-lbs max. output torque |
| Sizing | According to BS721 15,000 hrs average lifetime with service factor SF1 |
| Housing, Covers | Pressure die cast aluminium AISI12Cu2Fe till size 85 and cast iron from size 110. |
| Coupling G input | Pressure die cast aluminium AISI12Cu2Fe for sizes 3, 5, 6 and alloyed steel from size 8 |
| Toothed parts | Worms of steel 20MnCr5 CH and tooth profile ZI and ZK ground. Wheels of bronze CuSn12 on Cast Iron hub |
| Shafts & Keys | Steel C43 Shafts h6 - Bores E8 Keys according to DIN6885 B1 |
| Bearings | Ball- or roller-types according to sizes and technical requirements |
| Oil seals | Type NBR - Nitrile Butadiene Rubber with additional anti-dust lip according to DIN 3760 |
| Lubricant | Synthetic long-life oil Grade ISO VG 320 |

Worm Gears RS-RT

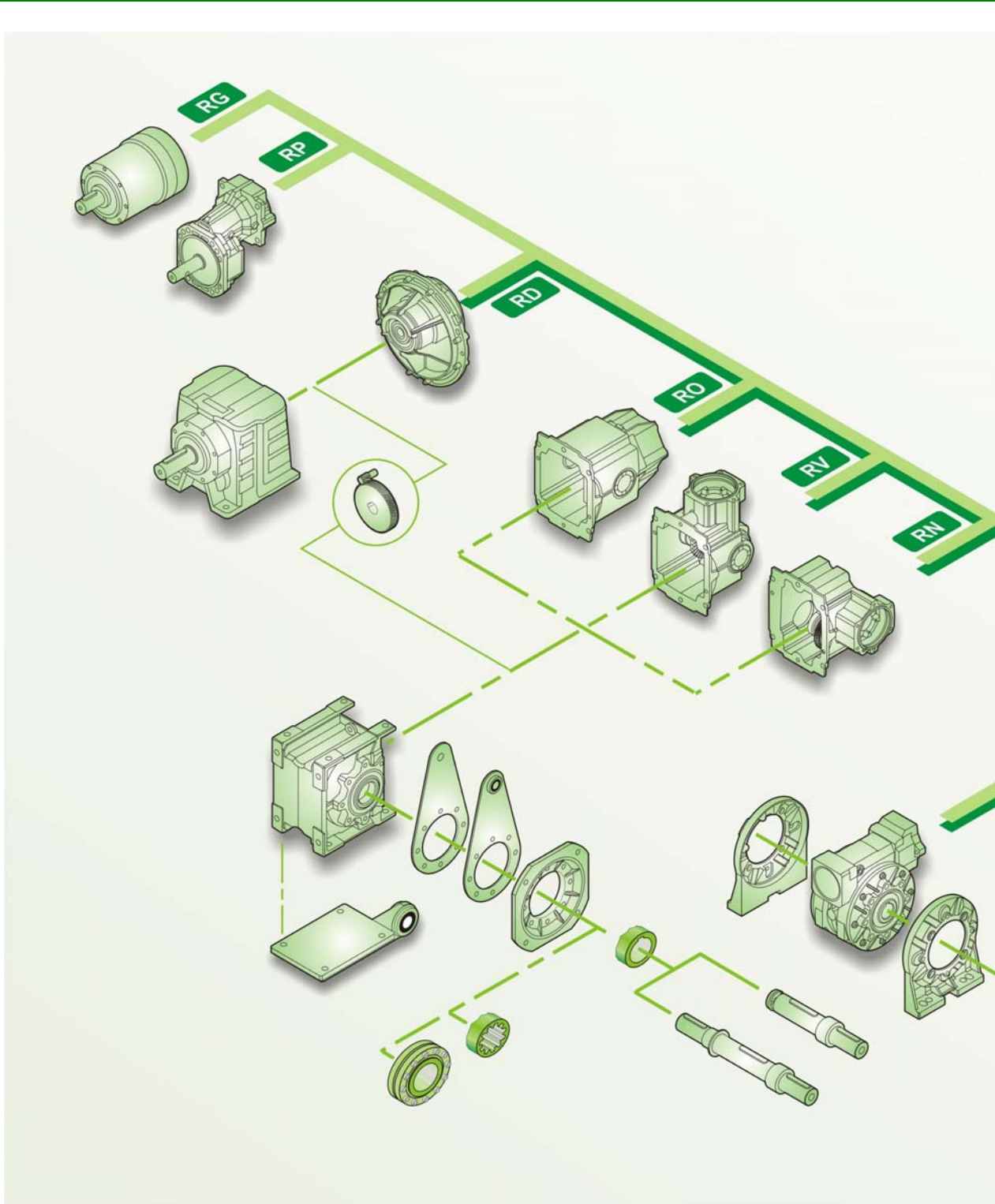
SYMBOLS - CONVERSION FACTORS

| | | |
|---------------------|--|--------------------------------------|
| F_r [lb] | Application radial load | |
| F_{r1} [lb] | Catalogue radial load (input) | |
| F_{r2} [lb] | Catalogue radial load (output) | |
| FS | Service factor | $FS = \frac{M_2}{M_{(app)}}$ |
| i | Reduction ratio (real) | |
| Lub [qt] | Lubricant | |
| M_2 [in-lb] | Gearbox output torque (k = motor pole #: 2, 4, 6, 8) | $M_2 = 9 * k * P_1 * \eta * i$ |
| $M_{(app)}$ [in-lb] | Application torque | |
| n_1 [RPM] | Input speed | |
| n_2 [RPM] | Output speed | |
| P_1 [HP] | Motor power (k = motor pole #: 2, 4, 6, 8) | $P_1 = \frac{M_2}{9 * k * \eta * i}$ |
| $P_{(kg)}$ [lb] | Weight | |
| η | Efficiency | |

| Imperial | CONVERSIONS | Metric |
|---|-------------------------|---|
| 1 lb = 4.45 N 1 lb = 0.454 kg 1 oz = 0.028 kg | Mass & Force | 1 N = 0.225 lb 1 kg = 2.205 lb 1 kg = 35.27 oz |
| HP (60Hz) = kW (50Hz) × 1.341 × 1.2 HP (50 Hz) = kW (50 Hz) × 1.341 HP = in-lb × RPM : (113,350 × eff.) | Power | kW (50 Hz) = HP (60 Hz) × 0.745 × 0.833 kW (50 Hz) = HP (50 Hz) × 0.745 kW = Nm × RPM : (9550 × eff.) |
| 1 in-lb = 0.113 Nm 1 ft-lb = 1.355 Nm ft-lb = 108 × k × HP × eff. × ratio in-lb = 9 × k × HP × eff. × ratio = 8000 × k × HP × eff. × o/p speed (where k = motor pole #, i.e. 2, 4, 6, 8) | Torque | 1 Nm = 8.851 in-lb 1 Nm = 0.738 ft-lb Nm = 9550 × kW × eff. : RPM |
| 1 qt (US) = 0.946 litre | Volume | 1 litre = 1.057 qt (US) |

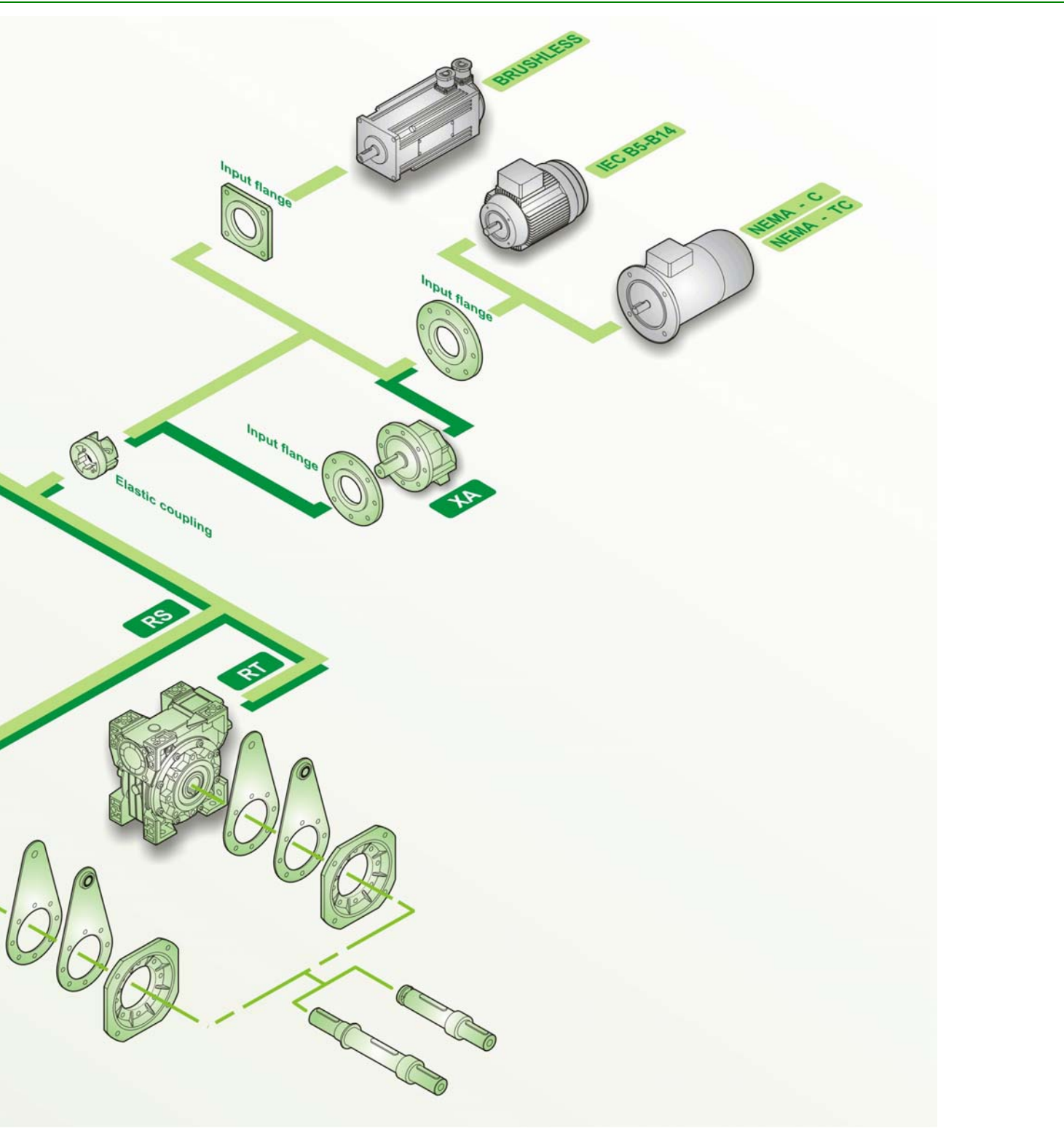
Worm Gears RS-RT

MODULAR SYSTEM



Worm Gears RS-RT

MODULAR SYSTEM



Worm Gears RS-RT

ELASTIC COUPLING "G"

Reducer half-coupling

- Material: steel alloy 20MnCr5
- Input shaft built-in
- Two bearing set
- Unchanged casing dimensions

Spider

- External tooth connection
- Material: Thermoplastic Elastomer
- Elastollan[®] TPU - Polyurethane
- Hytrel[®] TPE - Polyester
- Hardness
 - TPU 98 Shore A
 - TPE 72 Shore D
- Temperature
 - TPU -4 / +167 °F (-20/+75 °C)
 - TPE -22 / +212 °F (-30/+100 °C)

Motor half-coupling

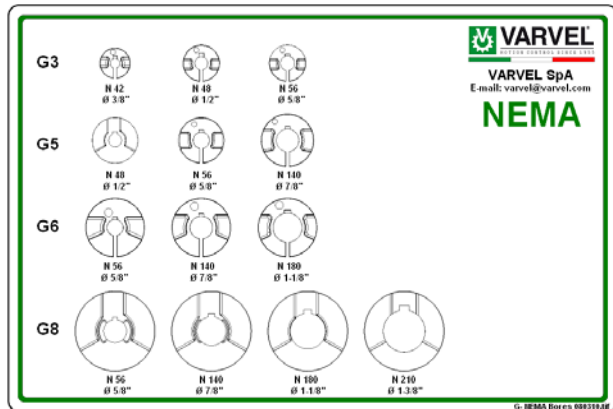
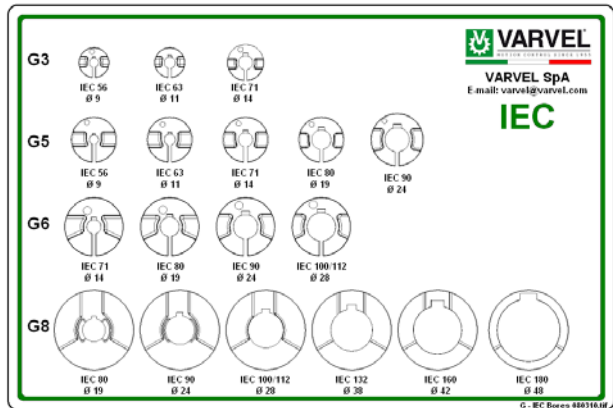
- Material:
 - Aluminium die cast (G3, G5, G6)
 - Alloy steel 36SMnPb14 (GS8)
 - Alloy steel C43 on demand (GS3, GS5, GS6)
- Dynamic balancing
- Fitting:
 - Clamp (G3, G5, G6)
 - Key (GS3, GS5, GS6, GS8)
- Bores:
 - NEMA C / TC
 - IEC 72 / N42948

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
- High torsional rigidity
- High vibration damping

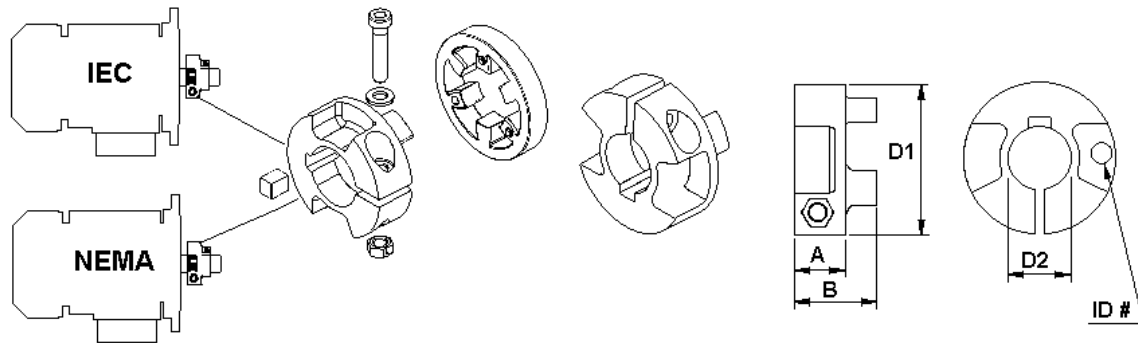
Input flanges:

- Material:
 - Aluminium up to IEC112 and NEMA 180TC
 - Cast iron from IEC 132 and NEMA 210TC



Worm Gears RS-RT

ELASTIC COUPLING "G" SELECTION



| Coupling Size | IEC NEMA | Kit Code | RS - RT | Mt [Nm] | Mt1 [Nm] | Mt2 [Nm] | A [mm] | B [mm] | D1 [mm] | D2 [mm/inch] | ID# |
|---------------|-------------|-----------|-----------|------------|-------------|-------------|-----------|-----------|------------|-----------------|-------|
| G3 | IEC | KG3.009 | 28-40 | 4.5 - 6 | 15 | 8 - 10 | 11 | 19 | 30 | 9 | 309 |
| | | KG3.011 | 28-40 | 4.5 - 6 | 15 | 8 - 10 | | | 30 | 11 | 311 |
| | | KG3.014 | 40 | 7 - 8.5 | 28 | 18 - 22 | | | 36 | 14 | 314 |
| | NEMA | KG3.N42 | 28-40 | 4.5 - 6 | 16 | 8 - 10 | | | 30 | 3/8" | 3N42 |
| | | KG3.N48 | 28-40 | 4.5 - 6 | 18 | 10 - 12 | | | 36 | 1/2" | 3N48 |
| | | KG3.N56 | 40 | 7 - 8.5 | 30 | 20 - 24 | | | 36 | 5/8" | 3N56 |
| G5 | IEC | KG5.011 | 50-60 | 8.9 - 10 | 15 | 8 - 10 | 14.5 | 23 | 45 | 11 | 311 |
| | | KG5.014 | 50-60 | | 30 | 12 - 17 | | | 45 | 14 | 314 |
| | | KG5.019 | 50-60 | | 40 | 20 - 25 | | | 45 | 19 | 319 |
| | | KG5.024 | 60 | | 70 | 30 - 40 | | | 52 | 24 | 324 |
| | NEMA | KG5.N56 | 50-60 | | 45 | 30 - 35 | | | 45 | 5/8" | 5N56 |
| | | KG5.N140 | 60 | | 60 | 40 - 45 | | | 52 | 7/8" | 5N140 |
| G6 | IEC | KG6.014 | 70 | 15.3 - 18 | 60 | 30 - 40 | 19.5 | 31.5 | 58 | 14 | 614 |
| | | KG6.019 | 70-85-110 | | 90 | 50 - 65 | | | | 19 | 619 |
| | | KG6.024 | 70-85-110 | | 130 | 85 - 100 | | | | 24 | 624 |
| | | KG6.028 | 70-85-110 | | 180 | 100 - 120 | | | | 28 | 628 |
| | NEMA | KG6.N56 | 70-85-110 | | 50 | --- | | | | 5/8" | 6N56 |
| | | KG6.N140 | 70-85-110 | | 85 | --- | | | | 7/8" | 6N140 |
| | KG6.N180 | 70-85-110 | 200 | --- | 1-1/8" | 6N180 | | | | | |

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

Worm Gears RS-RT

NEMA FLANGES & ELASTIC COUPLINGS

| RS - RT | Flange Size | NEMA | Flange Kit Code | Coupling | |
|-----------|-------------|------------------------------------|--|--|----------------------------------|
| | | | | Type | Kit Code |
| RS-RT 28 | FM 28 | 42 C 48 C | K530.207.N048 K530.207.N048 | G3 ø 3/8" G3 ø 1/2" | KG3.N042 KG3.N048 |
| RS-RT 40 | FM 40 | 42 C 48 C 56 C | K531.227.N048 K531.227.N048 K531.227.N056 | G3 ø 3/8" G3 ø 1/2" G3 ø 5/8" | KG3.N042 KG3.N048 KG3.N056 |
| RS-RT 50 | FM 50 | 56 C | K532.227.N056 | G5 ø 5/8" | KG5.N056 |
| RS-RT 60 | FM 60 | 56 C 140 TC | K539.227.N056 K539.227.N056 | G5 ø 5/8" G5 ø 7/8" | KG5.N056 KG5.N140 |
| RS-RT 70 | FM 70 | 56 C 140 TC 180 TC | K533.227.N056 K533.227.N056 K533.227.N180 | G6 ø 5/8" G6 ø 7/8" G6 ø 1-1/8" | KG6.N056 KG6.N140 KG6.N180 |
| RS-RT 85 | FM 85 | 56 C 140 TC 180 TC | K534.227.N056 K534.227.N056 K534.227.N180 | G6 ø 5/8" G6 ø 7/8" G6 ø 1-1/8" | KG6.N056 KG6.N140 KG6.N180 |
| RS-RT 110 | FM 110 | 56 C 140 TC 180 TC | K535.227.N056 K535.227.N056 K535.227.N180 | G6 ø 5/8" G6 ø 7/8" G6 ø 1-1/8" | KG6.N056 KG6.N140 KG6.N180 |
| RS 130 | FM 130 | 56 C 140 TC 180 TC | K536.227.N056 K536.227.N056 K536.227.N180 | # ø 5/8" # ø 7/8" # ø 1-1/8" | --- --- --- |
| RS 150 | FM 130 | 56 C 140 TC 180 TC 210 TC | K537.227.N056 K537.227.N056 K537.227.N180 K537.227.N180 | # ø 5/8" # ø 7/8" # ø 1-1/8" # ø 1-3/8" | --- --- --- --- |
| XA 63 | FM 40 | * IEC56 * IEC63 | K531.206.120 K531.206.140 | # ø9 mm # ø11 mm | --- --- |
| XA 71 | FM 50 | * IEC71 | K532.206.160 | # ø14 mm | --- |
| XA 80 | FM 70 | * IEC80 * IEC90 | K533.206.200 K533.206.200 | # ø19 mm # ø24 mm | --- --- |
| XA 100 | FM 85 | 56 C 140 TC 180 TC | K334.227.N056 K334.227.N056 K334.227.N180 | G6 ø 5/8" G6 ø 7/8" G6 ø 1-1/8" | KG6.N056 KG6.N140 KG6.N180 |

- Key/keyway motor fitting

* - IEC input only

Worm Gears RS-RT

IEC FLANGES & ELASTIC COUPLINGS

| RS - RT - XA | Fange | IEC | Kit Code | | Coupling | |
|--------------|--------|-----------------------------------|--------------|--------------|----------|----------|
| | | | Flange B5 | Flange B14 | Type | Kit Code |
| RS-RT 28 | FM 28 | IEC56 IEC63 | K530.206.120 | K530.206.080 | G3 ø9 | KG3.009 |
| | | | K530.206.140 | K530.206.090 | G3 ø11 | KG3.011 |
| RS-RT 40 | FM 40 | IEC56 IEC63 IEC71 | K531.206.120 | K531.206.080 | G3 ø9 | KG3.009 |
| | | | K531.206.140 | K531.206.090 | G3 ø11 | KG3.011 |
| | | | K531.206.160 | K531.206.105 | G3 ø14 | KG3.014 |
| RS-RT 50 | FM 50 | IEC63 IEC71 IEC80 | K532.206.140 | K532.206.090 | G5 ø11 | KG5.011 |
| | | | K532.206.160 | K532.206.105 | G5 ø14 | KG5.014 |
| | | | K532.206.200 | K532.206.120 | G5 ø19 | KG5.019 |
| RS-RT 60 | FM 60 | IEC71 IEC80 IEC90 | K539.206.160 | K539.206.105 | G5 ø14 | KG5.014 |
| | | | K539.206.200 | K539.206.120 | G5 ø19 | KG5.019 |
| | | | K539.206.200 | K539.206.140 | G5 ø24 | KG5.024 |
| RS-RT 70 | FM 70 | IEC71 IEC80 IEC90 IEC100 | K533.206.160 | K533.206.105 | G6 ø14 | KG6.014 |
| | | | K533.206.200 | K533.206.120 | G6 ø19 | KG6.019 |
| | | | K533.206.200 | K533.206.140 | G6 ø24 | KG6.024 |
| | | | K533.206.250 | K533.206.160 | G6 ø28 | KG6.028 |
| RS-RT 85 | FM 85 | IEC80 IEC90 IEC100/112 | K534.206.200 | K534.206.120 | G6 ø19 | KG6.019 |
| | | | K534.206.200 | K534.206.140 | G6 ø24 | KG6.024 |
| | | | K534.206.250 | K534.206.160 | G6 ø28 | KG6.028 |
| RS-RT 110 | FM 110 | IEC90 IEC100/112 IEC132 | K535.206.200 | --- | G6 ø24 | KG6.024 |
| | | | K535.206.250 | K535.206.160 | G6 ø28 | KG6.028 |
| | | | K535.206.300 | K535.206.200 | # ø38 | --- |
| RS 130 | FM 130 | IEC100/112 IEC 132 | K536.206.250 | --- | # ø28 | --- |
| | | | K537.206.300 | K536.206.200 | # ø38 | --- |
| RS 150 | FM 150 | IEC100/112 IEC 132 IEC 160 | K536.206.250 | K536.206.200 | # ø28 | --- |
| | | | K537.206.300 | K536.206.250 | # ø38 | --- |
| | | | K537.206.350 | --- | # ø42 | --- |
| XA 63 | FM 40 | IEC56 IEC63 | K531.206.120 | K531.206.080 | # ø9 | --- |
| | | | K531.206.140 | K531.206.090 | # ø11 | --- |
| XA 71 | FM 50 | IEC71 | K532.206.160 | K532.206.105 | # ø14 | --- |
| XA 80 | FM 70 | IEC80 IEC90 | K533.206.200 | K533.206.120 | # ø19 | --- |
| | | | K533.206.200 | K533.206.140 | # ø24 | --- |
| XA 100 | FM 85 | IEC80 IEC90 IEC100/112 | K534.206.200 | K534.206.120 | G6 ø19 | KG6.019 |
| | | | K534.206.200 | K534.206.140 | G6 ø24 | KG6.024 |
| | | | K534.206.250 | K534.206.160 | G6 ø28 | KG6.028 |

- Key/keyway motor fitting

Worm Gears RS-RT

ELECTRONIC CATALOGUE - 3D-MODELS - 2D-DRAWINGS



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 a friendly sizing of 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.



Worm Gears RS-RT

Example: FRT50/B3 1/20 N56 AC1.0

ORDER DESIGNATION

| | | | | | | | | | | |
|---------------------------------|---|-------------|--|-----------|---------------------------|---|------------|----------------------|-------------------------|---------|
| F | RT | 50 | /B3 | 20 | N56 | AC | 1.0 | | | |
| | TYPE RT - Universal Mount RS - Original Mount TA - Helical/worm Mount | | MOUNTING POSITION RS - Pages 15 - 16 RT - Page 17 | | | OUTPUT SHAFT AC - Hollow AS - Solid Male | | | | |
| INPUT TYPE | | SIZE | | | REDUCTION RATIO 1: | | | MOTOR ADAPTER | SHAFT DIMENSIONS | |
| | | A) | B) | C) | A) | B) | C) | NEMA | Size | Dia. in |
| M - Motorized Unit | | 28 | 63/40 | 28/28 | 5 | 32 | 300 | N42 | RS/RT 28 | 0.625" |
| F - Motor Flange | | 40 | 63/50 | 28/40 | 7 | 44 | 420 | N48 | RS/RT 40 | 0.75" |
| S - Without Motor Flange | | 50 | 63/60 | 28/50 | 10 | 63 | 560 | N56 | RS/RT 50 | 1.0" |
| nil - Solid input | | 60 | ... | ... | 15 | ... | ... | N140 | RS/RT 60 | 1.125" |
| | | 70 | 100/130 | 60/130 | 20 | 504 | 8000 | N180 | RS/RT 70 | 1.25" |
| | | 85 | 100/150 | 70/150 | 28 | 630 | 10000 | | RS/RT 85 | 1.375" |
| | | 110 | | | 40 | | | | RS/RT110 | 1.625" |
| | | 130 | | | 56 | | | | RS 130 | 1.75" |
| | | 150 | | | 70 | | | | RS 150 | 2.0" |
| | | | | | 80 | | | | | |
| | | | | | 100 | | | | | |

A) - Single worm gearboxes
B) - Helical/worm gearboxes (full list of available sizes and reduction ratios at pages 14 to 16)
C) - Double worm gearboxes (full list of available sizes and reduction ratios at page 17)

OPTIONS

- AS/AD** - Single / double sided solid output shaft
- BR/BRV** - Plain / Vulkollan-bush torque arm
- CS** - Not standard output bearings
- F** - Additional output flange
- GRM** - Reduced end play
- LNS** - Not standard lubrication
- TLE/TLI** - Internal / external torque limiter
- VB** - NDE (not drive end) worm shaft extension

Unless otherwise requested, the fitting side of output flanges and optional items is as standard the right side of the gearbox when seen from input.

Worm Gears RS-RT

INPUT ARRANGEMENTS

| FRS/FRT | 28 | 40 | 50 | 60 | 70 | 85 | 110 | 130 | 150 |
|---|-----------|-----------|-----------|------------|-----|-----|-----|---------|---------|
| NEMA42 | G3 | G3 | --- | --- | --- | --- | --- | --- | --- |
| NEMA48 | --- | G3 | --- | --- | --- | --- | --- | --- | --- |
| NEMA56 | --- | G3 | G5 | G5 | G6 | G6 | G6 | --- | --- |
| NEMA140 | --- | --- | --- | G5 | G6 | G6 | G6 | (GS6) | (GS8) |
| NEMA180 | --- | --- | --- | --- | G6 | G6 | G6 | (GS6) | (GS8) |
| NEMA210 | --- | --- | --- | --- | --- | --- | --- | --- | (GS8) |
| IEC56 | G3 | G3 | --- | --- | --- | --- | --- | --- | --- |
| IEC63 | G3 | G3 | G5 | --- | --- | --- | --- | --- | --- |
| IEC71 | --- | G3 | G5 | G5 | G6 | --- | --- | --- | --- |
| IEC80 | --- | --- | G5 | G5 | G6 | G6 | --- | --- | --- |
| IEC90 | --- | --- | --- | G5 | G6 | G6 | G6 | --- | --- |
| IEC100 | --- | --- | --- | --- | G6 | G6 | G6 | ■ (GS6) | ■ (GS8) |
| IEC112 | --- | --- | --- | --- | --- | G6 | G6 | ■ (GS6) | ■ (GS8) |
| IEC132 | --- | --- | --- | --- | --- | --- | ■ | ■ (GS6) | ■ (GS8) |
| IEC160 | --- | --- | --- | --- | --- | --- | --- | --- | ■ (GS8) |
| FXA | 63 | 71 | 80 | 100 | | | | | |
| IEC56 | ■ | --- | --- | --- | | | | | |
| IEC63 | ■ | --- | --- | --- | | | | | |
| IEC71 | --- | ■ | --- | --- | | | | | |
| IEC80 | --- | --- | ■ | G6 | | | | | |
| IEC90 | --- | --- | ■ | G6 | | | | | |
| IEC100 | --- | --- | --- | G6 | | | | | |
| IEC112 | --- | --- | --- | G6 | | | | | |
| NEMA56 | --- | --- | --- | G6 | | | | | |
| NEMA140 | --- | --- | --- | G6 | | | | | |
| NEMA180 | --- | --- | --- | G6 | | | | | |
| G 3, 5, 6 - Aluminium die cast elastic coupling with inch and metric bores (GS 6, 8) - Steel elastic coupling in progress ■ - Metric key/keyway fitting | | | | | | | | | |

Series 'RS'

Worm Gears RS-RT

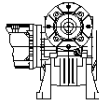
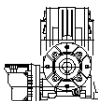
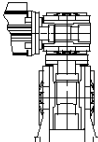
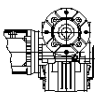
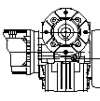
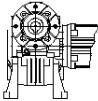
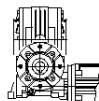
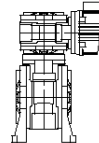

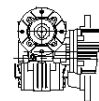
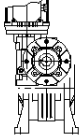
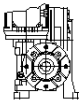
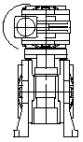

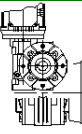

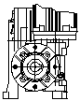
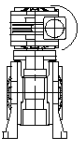
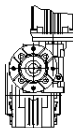
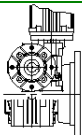
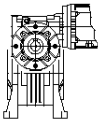

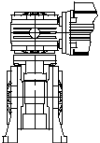
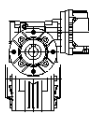
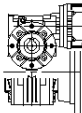
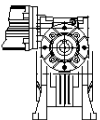

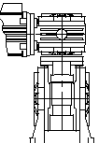
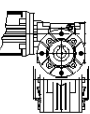
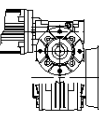
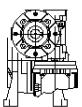
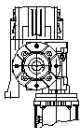
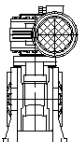
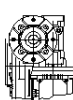

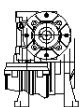
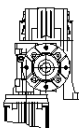
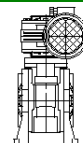
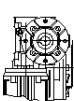

MOUNTING POSITIONS

| One-Stage Worm Output Configuration (RS , RA , RS / RS) | | | | | |
|---|--------------|--------------|--------------|--------------------------|----------|
| 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 |
| Bevel/Worm Input Configuration (RA) | 10 (std) | 11 | 12 | 13 | |

Worm Gears RS-RT

Series 'RS'

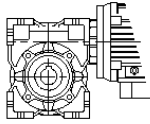
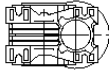
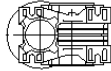
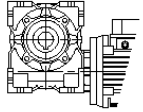
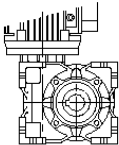
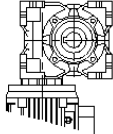
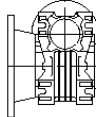
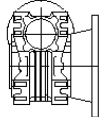
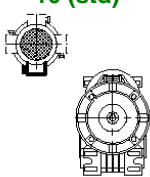
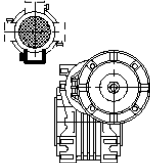
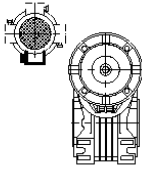
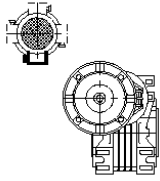
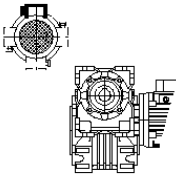
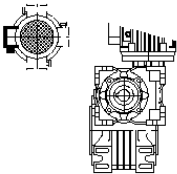
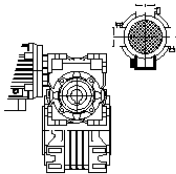
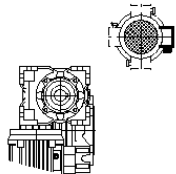
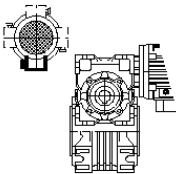
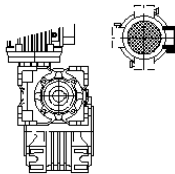
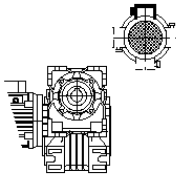
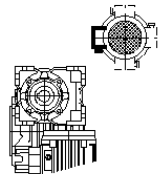
MOUNTING POSITIONS

| Two-Stage Worm Input Configuration (RS / RS) | | | | | |
|--|---|---|---|---|---|
| | S (SA) | I (IA) | D (DA) | PC (PA, PB) | FL (FA, FB) |
| 11 |  |  |  |  |  |
| 12 |  |  |  |  |  |
| 13 |  |  |  |  |  |
| 14 |  |  |  |  |  |
| 15 |  |  |  |  |  |
| 16 |  |  |  |  |  |
| 17 |  |  |  |  |  |
| 18 |  |  |  |  |  |

Series 'RT'

Worm Gears RS-RT

MOUNTING POSITIONS

| | | | | |
|---|--|--|---|--|
| One-Stage Worm Output Configuration (RT, TA, RT / RT) | <p>B3 (std)</p>  |  <p>B6</p> |  <p>B7</p> |  <p>B8</p> |
| |  <p>V5</p> |  <p>V6</p> |  <p>F (std)</p> |  <p>Fi</p> |
| Bevel/Worm Input Configuration (TA) | <p>10 (std)</p>  |  <p>11</p> |  <p>12</p> |  <p>13</p> |
| Two-Stage Worm Input Configuration (RT / RT) | <p>20 (std)</p>  |  <p>21</p> |  <p>22</p> |  <p>23</p> |
| |  <p>24</p> |  <p>25</p> |  <p>26</p> |  <p>27</p> |

Worm Gears RS-RT

SERVICE FACTORS – WEIGHTS & LUBRICANTS – INPUT LOADS

| SERVICE FACTORS | F ₁ | a | b | c | F ₂ | d | F ₁ = Load & time factor F ₂ = Running factor a = Uniform load b = Variable load c = Shock load d = Start/stops per hour |
|-----------------|----------------|-----|-----|-----|----------------|-----|---|
| | 3 - 4 h | 0.8 | 1.0 | 1.5 | 6 | 1.0 | |
| | 8 - 10 h | 1.0 | 1.2 | 1.8 | 60 | 1.2 | |
| | 10 - 24 h | 1.4 | 1.6 | 2.0 | 120 | 1.4 | |

FS = F₁ x F₂

WEIGHTS [lb] & LUBRICANTS [US quarts / litres l]

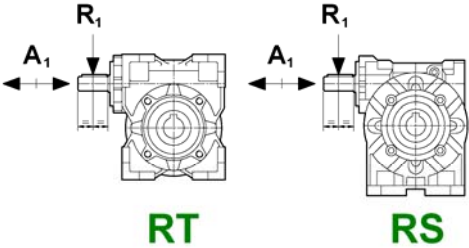
| RS - RT | lb | US qt | l | RA - TA | lb | US qt | l | RS / RS RT / RT | lb |
|---------|--------|-------|------|-----------|--------|-----------|-----------|-----------------|--------|
| 28 | 2.43 | 0.03 | 0.03 | 63 / 40 | 8.82 | 0.04/0.08 | 0.04/0.08 | 28 / 28 | 5.51 |
| 40 | 5.51 | 0.08 | 0.08 | 63 / 50 | 11.68 | 0.04/0.14 | 0.04/0.13 | 28 / 40 | 8.60 |
| 50 | 8.38 | 0.14 | 0.13 | 63 / 60 | 17.64 | 0.04/0.21 | 0.04/0.20 | 28 / 50 | 11.46 |
| 60 | 14.33 | 0.21 | 0.20 | 71 / 50 | 14.55 | 0.06/0.14 | 0.06/0.13 | 28 / 60 | 17.42 |
| 70 | 19.84 | 0.37 | 0.35 | 71 / 60 | 20.50 | 0.06/0.21 | 0.06/0.20 | 40 / 70 | 26.46 |
| 85 | 29.76 | 0.63 | 0.60 | 71 / 70 | 26.01 | 0.06/0.37 | 0.06/0.35 | 40 / 85 | 36.38 |
| 110 | 85.98 | 1.59 | 1.50 | 71 / 85 | 35.93 | 0.06/0.63 | 0.06/0.60 | 50 / 110 | 99.21 |
| * 130 | 110.23 | 2.91 | 2.75 | 80 / 60 | 23.15 | 0.11/0.21 | 0.10/0.20 | *60 / 130 | 125.66 |
| * 150 | 176.37 | 4.65 | 4.40 | 80 / 70 | 28.66 | 0.11/0.37 | 0.10/0.35 | *70 / 150 | 198.41 |
| | | | | 80 / 85 | 38.58 | 0.11/0.63 | 0.10/0.60 | | |
| | | | | 80 / 110 | 94.80 | 0.11/1.59 | 0.10/1.50 | | |
| | | | | 100 / 110 | 101.41 | 0.21/1.59 | 0.20/1.50 | | |
| | | | | *100/130 | 141.09 | 0.21/2.91 | 0.20/2.75 | | |
| | | | | *100/150 | 207.23 | 0.21/4.65 | 0.20/4.40 | | |

(*) - RS sizes only

RS/RS & RT/RT two-stage worm gearbox lubricant: add up lubricant quantity of single-stage gearboxes

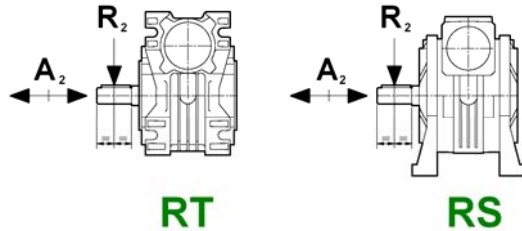
INPUT OVERHUNG LOADS (OHL) R₁ [lb]

$$A_1 = 0.2 \times R_1$$

| RPM | 3300 | 1800 | 1100 | 900 | 600 | 350 | |
|-----------|------|------|------|-----|-----|-----|--|
| RS-RT 28 | 11 | 15 | 17 | 19 | 22 | 26 |  |
| RS-RT 40 | 24 | 32 | 35 | 37 | 39 | 43 | |
| RS-RT 50 | 32 | 43 | 48 | 54 | 61 | 65 | |
| RS-RT 60 | 50 | 65 | 71 | 76 | 80 | 87 | |
| RS-RT 70 | 56 | 76 | 87 | 95 | 102 | 108 | |
| RS-RT 85 | 74 | 97 | 112 | 125 | 134 | 151 | |
| RS-RT 110 | 123 | 162 | 173 | 184 | 199 | 216 | |
| RS 130 | 151 | 216 | 227 | 238 | 249 | 260 | |
| RS 150 | 195 | 260 | 270 | 281 | 303 | 324 | |

Worm Gears RS-RT

EXTERNAL LOADS



OUTPUT OVERHUNG LOADS (OHL) R_2 [lb]
WITH STANDARD BEARINGS
 $A_2 = 0.2 \times R_2$

| RPM | 336 | 240 | 168 | 112 | 84 | 60 | 42 | 35 | 30 | 24 | 22 | 17 | Brg No. |
|----------|-----|------|------|------|------|------|------|------|------|------|------|------|---------|
| RS-RT28 | --- | 97 | 108 | 119 | 130 | 134 | 151 | 162 | 173 | 195 | 205 | 216 | 16005 |
| RS-RT40 | 216 | 216 | 238 | 260 | 292 | 324 | 346 | 368 | 389 | 411 | 433 | 497 | 16006 |
| RS-RT50 | 314 | 270 | 314 | 368 | 411 | 433 | 497 | 519 | 562 | 606 | 627 | 692 | 16008 |
| RS-RT60 | 487 | 519 | 541 | 627 | 714 | 779 | 843 | 930 | 995 | 1081 | 1146 | 1211 | ① |
| RS-RT70 | 562 | 584 | 627 | 779 | 843 | 908 | 973 | 1125 | 1189 | 1276 | 1363 | 1449 | ② |
| RS-RT85 | 714 | 714 | 800 | 952 | 1016 | 1168 | 1189 | 1363 | 1427 | 1536 | 1622 | 1795 | ③ |
| RS-RT110 | --- | 843 | 898 | 1125 | 1168 | 1276 | 1233 | 1622 | 1687 | 1730 | 1903 | 2119 | ④ |
| RS130 | --- | 1081 | 1265 | 1330 | 1406 | 1427 | 1687 | 1903 | 2055 | 2098 | 2271 | 2487 | 6015 |
| RS150 | --- | 1406 | 1665 | 1795 | 1903 | 1946 | 2379 | 2595 | 2703 | 2812 | 3028 | 3244 | 6216 |

① - RS: 6008 / RT: 6208

② - RS: 6009 / RT: 6209

③ - RS: 6010 / RT: 6210

④ - RS: 6012 / RT: 6212

OUTPUT OVERHUNG LOADS (OHL) R_2 [lb]
WITH HEAVY DUTY BEARINGS
 $A_2 = 0.2 \times R_2$

| RPM | 336 | 240 | 168 | 112 | 84 | 60 | 42 | 35 | 30 | 24 | 22 | 17 | Brg No. |
|----------|-----|------|------|------|------|------|------|------|------|------|------|------|---------|
| RS-RT28 | --- | 141 | 162 | 177 | 195 | 201 | 227 | 242 | 260 | 281 | 281 | 281 | 6005 |
| RS-RT40 | 303 | 324 | 335 | 357 | 411 | 454 | 487 | 519 | 541 | 562 | 562 | 562 | 32006 |
| RS-RT50 | 433 | 378 | 433 | 519 | 562 | 649 | 735 | 779 | 843 | 908 | 908 | 908 | 32008 |
| RS-RT60 | 627 | 649 | 692 | 800 | 908 | 1038 | 1103 | 1233 | 1319 | 1427 | 1427 | 1427 | 30208 |
| RS-RT70 | 725 | 714 | 800 | 973 | 1116 | 1211 | 1319 | 1492 | 1579 | 1709 | 1709 | 1709 | ⑤ |
| RS-RT85 | 887 | 908 | 995 | 1189 | 1363 | 1557 | 1579 | 1817 | 1882 | 2033 | 2033 | 2033 | ⑥ |
| RS-RT110 | --- | 1081 | 1168 | 1449 | 1622 | 1730 | 2011 | 2271 | 2401 | 2401 | 2401 | 2401 | ⑦ |
| RS130 | --- | 1514 | 1709 | 1860 | 2098 | 2141 | 2530 | 2790 | 3071 | 3136 | 3136 | 3136 | 32015 |
| RS150 | --- | 1946 | 2336 | 2509 | 2855 | 2920 | 3568 | 3893 | 4044 | 4217 | 4217 | 4217 | 30216 |

⑤ - RS:32009 / RT: 30209

⑥ - RS: 32010 / RT: 30210

⑦ - RS:32012 / RT: 30212

Worm Gears RS-RT

3600 RPM input

RATINGS

2 poles - SF 1.0

| 3600 RPM | Ratio | 5 | 7 | 10 | 15 | 20 | 28 | 40 | 49 | 56 | 70 | 80 | 100 |
|---------------------|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|
| | output RPM | 720 | 514 | 360 | 240 | 180 | 129 | 90 | 73 | 64 | 51 | 45 | 36 |
| RS - RT 28 1.10" | HP | --- | 1.06 | 0.82 | 0.59 | 0.42 | 0.39 | 0.27 | 0.22 | 0.20 | 0.15 | 0.13 | 0.07 |
| | in-lb | --- | 115 | 124 | 124 | 115 | 133 | 124 | 115 | 106 | 97 | 89 | 62 |
| | eff. | --- | 0.86 | 0.83 | 0.79 | 0.77 | 0.69 | 0.64 | 0.61 | 0.54 | 0.49 | 0.49 | 0.46 |
| RS - RT 40 1.57" | HP | 3.52 | 2.51 | 2.01 | 1.37 | 0.94 | 0.82 | 0.60 | 0.50 | 0.44 | 0.35 | 0.32 | 0.25 |
| | in-lb | 283 | 274 | 301 | 301 | 266 | 301 | 283 | 274 | 266 | 257 | 248 | 230 |
| | 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 |
| RS - RT 50 1.97" | HP | 1.49 | 1.46 | 1.42 | 1.36 | 1.31 | 1.21 | 1.11 | 1.04 | 1.01 | 0.96 | 0.91 | 0.85 |
| | in-lb | 513 | 549 | 522 | 540 | 460 | 584 | 522 | 496 | 469 | 407 | 434 | 354 |
| | eff. | 0.9 | 0.88 | 0.86 | 0.82 | 0.8 | 0.75 | 0.69 | 0.66 | 0.64 | 0.58 | 0.58 | 0.52 |
| RS - RT 60 2.36" | HP | 9.72 | 7.38 | 5.87 | 4.36 | 3.18 | 2.68 | 1.84 | 1.21 | 1.22 | 1.01 | 0.87 | 0.57 |
| | in-lb | 797 | 823 | 920 | 974 | 956 | 1027 | 929 | 752 | 814 | 814 | 752 | 602 |
| | eff. | 0.9 | 0.88 | 0.87 | 0.84 | 0.82 | 0.76 | 0.73 | 0.71 | 0.66 | 0.64 | 0.6 | 0.58 |
| RS - RT 70 2.76" | HP | 13.58 | 9.55 | 7.21 | 5.36 | 4.02 | 3.69 | 2.51 | 2.01 | 1.68 | 1.34 | 1.16 | 0.91 |
| | in-lb | 1115 | 1080 | 1151 | 1230 | 1204 | 1425 | 1372 | 1257 | 1151 | 1062 | 1018 | 947 |
| | 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 |
| RS - RT 85 3.35" | HP | 21.79 | 16.09 | 12.57 | 8.88 | 7.21 | 5.20 | 4.02 | 3.35 | 2.85 | 2.18 | 1.84 | 1.56 |
| | in-lb | 1788 | 1814 | 1991 | 2071 | 2097 | 2080 | 2213 | 2142 | 2027 | 1859 | 1770 | 1682 |
| | 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 |
| RS - RT 110 4.33 | HP | --- | 29.33 | 24.81 | 17.94 | 14.42 | 11.73 | 8.38 | 7.54 | 6.03 | 5.20 | 5.03 | 3.52 |
| | in-lb | --- | 3319 | 3938 | 4160 | 4337 | 4691 | 4602 | 4823 | 4337 | 4646 | 4779 | 3983 |
| | eff. | --- | 0.9 | 0.88 | 0.86 | 0.84 | 0.79 | 0.76 | 0.73 | 0.71 | 0.7 | 0.67 | 0.62 |
| RS 130 5.12 | HP | --- | 44.09 | 36.21 | 26.48 | 20.45 | 15.76 | 12.91 | 10.06 | 8.88 | 6.54 | 5.53 | 4.02 |
| | in-lb | --- | 5000 | 5797 | 6239 | 6328 | 6328 | 7213 | 6549 | 6903 | 5930 | 5487 | 4956 |
| | eff. | --- | 0.9 | 0.89 | 0.87 | 0.86 | 0.8 | 0.78 | 0.74 | 0.77 | 0.72 | 0.68 | 0.68 |
| RS 150 5.91 | HP | --- | 62.02 | 49.62 | 38.22 | 28.66 | 22.80 | 17.94 | 14.25 | 11.06 | 9.22 | 8.21 | 6.03 |
| | in-lb | --- | 7036 | 7965 | 8983 | 8894 | 9425 | 10355 | 9647 | 8585 | 8408 | 8098 | 7478 |
| | eff. | --- | 0.9 | 0.89 | 0.87 | 0.86 | 0.82 | 0.8 | 0.77 | 0.77 | 0.72 | 0.68 | 0.68 |

1800 RPM input

Worm Gears RS-RT

4 poles - SF 1.0

RATINGS

| 1800 RPM | Ratio | 5 | 7 | 10 | 15 | 20 | 28 | 40 | 49 | 56 | 70 | 80 | 100 |
|----------------------|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| | output RPM | 360 | 257 | 180 | 120 | 90 | 64 | 45 | 37 | 32 | 26 | 23 | 18 |
| RS - RT 28 1.10" | HP | --- | 0.75 | 0.55 | 0.39 | 0.27 | 0.27 | 0.17 | 0.15 | 0.13 | 0.10 | 0.08 | 0.05 |
| | in-lb | --- | 159 | 159 | 159 | 142 | 177 | 150 | 150 | 133 | 106 | 106 | 71 |
| | eff. | --- | 0.84 | 0.81 | 0.77 | 0.74 | 0.66 | 0.62 | 0.57 | 0.51 | 0.45 | 0.45 | 0.43 |
| RS - RT 40 1.57" | HP | 1.87 | 1.84 | 1.36 | 0.92 | 0.64 | 0.62 | 0.42 | 0.35 | 0.30 | 0.23 | 0.20 | 0.15 |
| | in-lb | 398 | 398 | 407 | 389 | 345 | 425 | 372 | 363 | 336 | 319 | 283 | 257 |
| | 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 |
| RS - RT 50 1.97" | HP | 4.53 | 3.02 | 2.18 | 1.56 | 1.06 | 1.06 | 0.69 | 0.62 | 0.52 | 0.42 | 0.34 | 0.22 |
| | in-lb | 717 | 664 | 664 | 655 | 575 | 752 | 637 | 673 | 628 | 558 | 513 | 381 |
| | 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 |
| RS - RT 60 2.36" | HP | 6.87 | 4.69 | 3.86 | 2.68 | 2.01 | 1.68 | 1.26 | 1.04 | 0.91 | 0.77 | 0.62 | 0.42 |
| | in-lb | 1106 | 1000 | 1177 | 1151 | 1080 | 1230 | 1195 | 1133 | 1089 | 1080 | 938 | 735 |
| | 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 |
| RS - RT 70 2.76" | HP | 9.55 | 6.71 | 5.20 | 3.69 | 3.02 | 2.51 | 2.01 | 1.41 | 1.24 | 0.97 | 0.84 | 0.62 |
| | in-lb | 1558 | 1469 | 1593 | 1664 | 1717 | 1912 | 2106 | 1673 | 1593 | 1443 | 1363 | 1151 |
| | 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 |
| RS - RT 85 3.35" | HP | 15.25 | 10.39 | 7.71 | 5.70 | 4.86 | 3.69 | 2.68 | 2.35 | 2.01 | 1.61 | 1.44 | 0.92 |
| | in-lb | 2469 | 2292 | 2372 | 2558 | 2850 | 2823 | 2876 | 2797 | 2699 | 2567 | 2478 | 1859 |
| | 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 |
| RS - RT 110 4.33" | HP | --- | 20.95 | 15.09 | 10.90 | 9.55 | 7.38 | 5.87 | 4.53 | 3.69 | 3.35 | 2.51 | 1.84 |
| | in-lb | --- | 4646 | 4708 | 4956 | 5726 | 5682 | 6115 | 5584 | 5266 | 5620 | 4646 | 4151 |
| | eff. | --- | 0.88 | 0.87 | 0.84 | 0.83 | 0.76 | 0.73 | 0.71 | 0.70 | 0.67 | 0.66 | 0.61 |
| RS 130 5.12" | HP | --- | 31.85 | 25.14 | 18.44 | 14.25 | 12.57 | 9.22 | 6.54 | 6.20 | 4.53 | 4.02 | 3.02 |
| | in-lb | --- | 7142 | 7877 | 8496 | 8629 | 9735 | 10089 | 8408 | 8894 | 7655 | 7169 | 6638 |
| | eff. | --- | 0.89 | 0.87 | 0.85 | 0.84 | 0.77 | 0.76 | 0.72 | 0.71 | 0.67 | 0.63 | 0.61 |
| RS 150 5.91" | HP | --- | 41.74 | 35.20 | 26.82 | 20.95 | 15.92 | 13.41 | 9.89 | 8.55 | 6.37 | 5.53 | 4.36 |
| | in-lb | --- | 9381 | 11151 | 12479 | 12656 | 12700 | 14868 | 12744 | 12567 | 10886 | 10355 | 9912 |
| | eff. | --- | 0.89 | 0.88 | 0.86 | 0.84 | 0.79 | 0.77 | 0.73 | 0.73 | 0.68 | 0.65 | 0.63 |

Worm Gears RS-RT

1200 RPM input

RATINGS

6 poles - SF 1.0

| 1200 RPM | Ratio | 5 | 7 | 10 | 15 | 20 | 28 | 40 | 49 | 56 | 70 | 80 | 100 |
|----------------------|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | output RPM | 240 | 171 | 120 | 80 | 60 | 43 | 30 | 24 | 21 | 17 | 15 | 12 |
| RS - RT 28 1.10" | HP | --- | 0.60 | 0.40 | 0.30 | 0.22 | 0.20 | 0.13 | 0.12 | 0.10 | 0.07 | 0.05 | 0.03 |
| | in-lb | --- | 195 | 177 | 186 | 168 | 195 | 177 | 168 | 142 | 115 | 97 | 71 |
| | eff. | --- | 0.82 | 0.78 | 0.72 | 0.7 | 0.61 | 0.56 | 0.52 | 0.45 | 0.43 | 0.4 | 0.37 |
| RS - RT 40 1.57" | HP | 2.01 | 1.41 | 1.07 | 0.74 | 0.50 | 0.47 | 0.32 | 0.27 | 0.23 | 0.20 | 0.17 | 0.13 |
| | in-lb | 478 | 460 | 478 | 460 | 398 | 460 | 407 | 381 | 363 | 354 | 345 | 319 |
| | eff. | 0.86 | 0.83 | 0.8 | 0.74 | 0.7 | 0.63 | 0.56 | 0.52 | 0.49 | 0.46 | 0.44 | 0.42 |
| RS - RT 50 1.97" | HP | 3.52 | 2.51 | 1.84 | 1.26 | 0.87 | 0.85 | 0.59 | 0.47 | 0.42 | 0.32 | 0.28 | 0.20 |
| | in-lb | 850 | 841 | 841 | 805 | 699 | 876 | 752 | 717 | 708 | 593 | 593 | 487 |
| | eff. | 0.86 | 0.85 | 0.81 | 0.76 | 0.72 | 0.65 | 0.58 | 0.56 | 0.54 | 0.47 | 0.46 | 0.42 |
| RS - RT 60 2.36" | HP | 5.36 | 4.02 | 3.18 | 2.35 | 1.68 | 1.46 | 0.94 | 0.72 | 0.67 | 0.54 | 0.47 | 0.32 |
| | in-lb | 1328 | 1328 | 1443 | 1469 | 1425 | 1549 | 1345 | 1195 | 1151 | 1106 | 1018 | 832 |
| | eff. | 0.87 | 0.85 | 0.83 | 0.75 | 0.76 | 0.68 | 0.64 | 0.61 | 0.55 | 0.53 | 0.48 | 0.47 |
| RS - RT 70 2.76" | HP | 7.54 | 5.36 | 4.02 | 2.85 | 2.18 | 2.01 | 1.46 | 1.07 | 0.89 | 0.70 | 0.64 | 0.50 |
| | in-lb | 1876 | 1788 | 1867 | 1929 | 1832 | 2142 | 2124 | 1814 | 1655 | 1505 | 1416 | 1301 |
| | eff. | 0.88 | 0.86 | 0.83 | 0.79 | 0.77 | 0.7 | 0.654 | 0.62 | 0.59 | 0.54 | 0.5 | 0.46 |
| RS - RT 85 3.35" | HP | 12.07 | 8.38 | 6.54 | 5.03 | 3.52 | 3.02 | 2.51 | 1.68 | 1.39 | 1.22 | 1.07 | 0.85 |
| | in-lb | 2991 | 2832 | 3098 | 3345 | 3142 | 3301 | 3629 | 3098 | 2938 | 2655 | 2567 | 2301 |
| | eff. | 0.88 | 0.86 | 0.84 | 0.8 | 0.78 | 0.71 | 0.66 | 0.672 | 0.671 | 0.55 | 0.53 | 0.48 |
| RS - RT 110 4.33" | HP | --- | 16.43 | 13.41 | 9.55 | 7.38 | 6.20 | 4.53 | 3.86 | 3.18 | 2.85 | 2.51 | 1.58 |
| | in-lb | --- | 5620 | 6372 | 6593 | 6593 | 7036 | 6903 | 6903 | 6107 | 6770 | 6328 | 4425 |
| | eff. | --- | 0.87 | 0.85 | 0.82 | 0.79 | 0.73 | 0.68 | 0.64 | 0.62 | 0.59 | 0.57 | 0.5 |
| RS 130 5.12" | HP | --- | 24.98 | 19.61 | 14.08 | 10.90 | 8.55 | 6.87 | 5.20 | 4.69 | 3.52 | 3.02 | 2.18 |
| | in-lb | --- | 8629 | 9470 | 9868 | 9868 | 10133 | 10753 | 9691 | 10133 | 8496 | 7877 | 7124 |
| | eff. | --- | 0.88 | 0.86 | 0.83 | 0.81 | 0.75 | 0.7 | 0.67 | 0.68 | 0.63 | 0.58 | 0.57 |
| RS 150 5.91" | HP | --- | 34.87 | 26.65 | 20.45 | 15.59 | 12.24 | 9.39 | 7.54 | 5.53 | 4.86 | 4.19 | 3.35 |
| | in-lb | --- | 12036 | 13010 | 14470 | 14381 | 14691 | 15399 | 14160 | 12125 | 12302 | 11417 | 10886 |
| | eff. | --- | 0.88 | 0.87 | 0.84 | 0.82 | 0.77 | 0.73 | 0.69 | 0.69 | 0.64 | 0.61 | 0.58 |

900 RPM input

Worm Gears RS-RT

8 poles - SF 1.0

RATINGS

| 900 RPM | Ratio | 5 | 7 | 10 | 15 | 20 | 28 | 40 | 49 | 56 | 70 | 80 | 100 |
|----------------------|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | output RPM | 180 | 129 | 90 | 60 | 45 | 32 | 23 | 18 | 16 | 13 | 11 | 9 |
| RS - RT 28 1.10" | HP | --- | 0.49 | 0.35 | 0.23 | 0.17 | 0.17 | 0.10 | 0.08 | 0.07 | 0.05 | 0.03 | 0.02 |
| | in-lb | --- | 204 | 204 | 195 | 186 | 212 | 186 | 177 | 150 | 115 | 97 | 71 |
| | eff. | --- | 0.81 | 0.77 | 0.71 | 0.69 | 0.6 | 0.55 | 0.51 | 0.44 | 0.4 | 0.39 | 0.36 |
| RS - RT 40 1.57" | HP | 1.68 | 1.24 | 0.91 | 0.65 | 0.44 | 0.40 | 0.28 | 0.23 | 0.20 | 0.17 | 0.15 | 0.12 |
| | in-lb | 522 | 513 | 513 | 513 | 434 | 487 | 434 | 407 | 398 | 381 | 363 | 336 |
| | eff. | 0.85 | 0.82 | 0.79 | 0.73 | 0.68 | 0.59 | 0.53 | 0.5 | 0.48 | 0.44 | 0.42 | 0.39 |
| RS - RT 50 1.97" | HP | 3.02 | 2.35 | 1.54 | 1.09 | 0.74 | 0.72 | 0.49 | 0.40 | 0.35 | 0.27 | 0.25 | 0.20 |
| | in-lb | 938 | 974 | 885 | 876 | 761 | 938 | 805 | 770 | 735 | 620 | 637 | 549 |
| | eff. | 0.86 | 0.83 | 0.8 | 0.75 | 0.71 | 0.64 | 0.57 | 0.542 | 0.52 | 0.45 | 0.44 | 0.39 |
| RS - RT 60 2.36" | HP | 4.69 | 3.35 | 2.68 | 1.84 | 1.46 | 1.22 | 0.82 | 0.59 | 0.57 | 0.44 | 0.40 | 0.28 |
| | in-lb | 1460 | 1451 | 1566 | 1575 | 1549 | 1655 | 1460 | 1239 | 1230 | 1133 | 1062 | 885 |
| | 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 |
| RS - RT 70 2.76" | HP | 6.54 | 4.53 | 3.52 | 2.35 | 1.84 | 1.68 | 1.19 | 0.92 | 0.77 | 0.60 | 0.54 | 0.40 |
| | in-lb | 2071 | 1912 | 2062 | 2044 | 1991 | 2266 | 2168 | 1947 | 1743 | 1558 | 1478 | 1328 |
| | eff. | 0.87 | 0.85 | 0.82 | 0.78 | 0.75 | 0.68 | 0.63 | 0.6 | 0.56 | 0.51 | 0.48 | 0.45 |
| RS - RT 85 3.35" | HP | 10.39 | 7.71 | 5.87 | 4.19 | 3.18 | 2.51 | 2.01 | 1.56 | 1.31 | 0.99 | 0.94 | 0.74 |
| | in-lb | 3292 | 3275 | 3540 | 3611 | 3434 | 3540 | 3717 | 3354 | 3124 | 2744 | 2699 | 2434 |
| | eff. | 0.87 | 0.85 | 0.83 | 0.79 | 0.76 | 0.69 | 0.65 | 0.61 | 0.59 | 0.55 | 0.5 | 0.46 |
| RS - RT 110 4.33" | HP | --- | 14.25 | 11.40 | 8.21 | 6.54 | 5.53 | 3.86 | 3.35 | 2.85 | 2.51 | 2.01 | 1.32 |
| | in-lb | --- | 6195 | 6903 | 7036 | 7213 | 7877 | 7257 | 7434 | 6815 | 7213 | 6372 | 4558 |
| | eff. | --- | 0.86 | 0.84 | 0.8 | 0.77 | 0.71 | 0.66 | 0.62 | 0.6 | 0.57 | 0.55 | 0.48 |
| RS 130 5.12" | HP | --- | 21.46 | 17.27 | 12.40 | 9.39 | 7.38 | 6.03 | 4.53 | 4.02 | 3.02 | 2.68 | 1.84 |
| | in-lb | --- | 9381 | 10620 | 10886 | 10753 | 10620 | 11682 | 10487 | 10753 | 9116 | 8452 | 7567 |
| | eff. | --- | 0.87 | 0.85 | 0.81 | 0.8 | 0.72 | 0.68 | 0.65 | 0.66 | 0.61 | 0.56 | 0.55 |
| RS 150 5.91" | HP | --- | 30.17 | 22.96 | 17.77 | 13.58 | 10.39 | 8.21 | 6.37 | 5.03 | 4.36 | 3.86 | 2.85 |
| | in-lb | --- | 13054 | 14249 | 15974 | 15753 | 15842 | 16727 | 15134 | 13585 | 13275 | 12611 | 11284 |
| | eff. | --- | 0.87 | 0.86 | 0.83 | 0.81 | 0.75 | 0.71 | 0.68 | 0.67 | 0.61 | 0.58 | 0.56 |

Helical Worm Gears RA-TA

Helical Attachment 3.5:1

RATINGS

1800 RPM input - SF=1.0

| XA | Ratio | 3.5 | 6.3 | 8 | |
|-------|---------------------|-------|-------|-------|--|
| | RPM | 514 | 286 | 225 | |
| XA63 | HP | 0.84 | 0.39 | 0.30 | <p style="text-align: center;">Helical Single-Stage Attachment XA</p> |
| | in-lb | 106 | 89 | 80 | |
| | R ₂ [lb] | 8435 | 9732 | 9732 | |
| XA71 | HP | 1.84 | 0.87 | 0.62 | |
| | in-lb | 230 | 195 | 177 | |
| | R ₂ [lb] | 10597 | 12111 | 12111 | |
| XA80 | HP | 5.20 | 2.51 | 1.84 | |
| | in-lb | 602 | 575 | 531 | |
| | R ₂ [lb] | 13193 | 15139 | 15139 | |
| XA100 | HP | 14.58 | 6.71 | 3.69 | |
| | in-lb | 2080 | 1443 | 1204 | |
| | R ₂ [lb] | 44979 | 31198 | 26030 | |

$$A_2 = 0.2 \times R_2$$

Helical/worm gearbox

| Ratio ₁ 3.5:1 | Tot.ratio | 18 | 25 | 35 | 53 | 70 | 98 | 140 | 172 | 196 | 245 | 280 | 350 |
|-----------------------------|--------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | Ratio ₂ | 5 | 7 | 10 | 15 | 20 | 28 | 40 | 49 | 56 | 70 | 80 | 100 |
| | RPM | 100 | 72 | 51 | 34 | 26 | 18 | 13 | 10 | 9 | 7 | 6 | 5 |
| 63/40 | HP | 0.94 | 0.92 | 0.67 | 0.47 | 0.34 | 0.32 | 0.22 | 0.18 | 0.17 | 0.10 | 0.08 | 0.05 |
| | in-lb | 0.37 | 637 | 637 | 620 | 531 | 620 | 566 | 513 | 496 | 372 | 310 | 221 |
| | eff. | 0.80 | 0.78 | 0.75 | 0.7 | 0.63 | 0.56 | 0.5 | 0.46 | 0.44 | 0.41 | 0.4 | 0.35 |
| 63/50 71/50 | HP | 1.37 | 1.71 | 1.17 | 0.84 | 0.55 | 0.54 | 0.35 | 0.34 | 0.27 | 0.18 | 0.15 | 0.10 |
| | in-lb | 1270 | 1195 | 1124 | 1106 | 929 | 1106 | 929 | 1018 | 885 | 708 | 620 | 443 |
| | eff. | 0.81 | 0.79 | 0.76 | 0.7 | 0.66 | 0.59 | 0.52 | 0.5 | 0.46 | 0.42 | 0.4 | 0.35 |
| 63/60 71/60 80/60 | HP | 2.70 | 2.56 | 1.98 | 1.39 | 0.96 | 0.89 | 0.55 | 0.45 | 0.39 | 0.32 | 0.25 | 0.17 |
| | in-lb | 1940 | 1814 | 1920 | 1903 | 1699 | 1920 | 1566 | 1505 | 1345 | 1283 | 974 | 752 |
| | eff. | 0.82 | 0.8 | 0.77 | 0.72 | 0.7 | 0.61 | 0.57 | 0.54 | 0.49 | 0.45 | 0.38 | 0.36 |
| 71/70 80/70 | HP | 3.57 | 3.29 | 2.48 | 1.81 | 1.29 | 1.21 | 0.84 | 0.72 | 0.60 | 0.50 | 0.44 | 0.32 |
| | in-lb | 2500 | 2345 | 2434 | 2522 | 2301 | 2744 | 2390 | 2390 | 2080 | 1991 | 1770 | 1593 |
| | eff. | 0.83 | 0.81 | 0.78 | 0.74 | 0.71 | 0.64 | 0.57 | 0.54 | 0.49 | 0.45 | 0.41 | 0.39 |
| 71/85 80/85 | HP | 5.5 | 5.26 | 4.01 | 2.97 | 2.30 | 1.86 | 1.34 | 1.09 | 0.97 | 0.82 | 0.67 | 0.44 |
| | in-lb | 3900 | 3806 | 3983 | 4204 | 4160 | 4204 | 3938 | 3717 | 3629 | 3452 | 3009 | 2213 |
| | eff. | 0.84 | 0.82 | 0.79 | 0.75 | 0.72 | 0.64 | 0.58 | 0.55 | 0.53 | 0.48 | 0.44 | 0.4 |
| 80/110 100/110 | HP | --- | 10.09 | 7.76 | 6.00 | 4.38 | 3.65 | 2.68 | 2.13 | 1.88 | 1.44 | 1.44 | 0.91 |
| | in-lb | --- | 7390 | 7921 | 8408 | 8054 | 8496 | 8408 | 7523 | 7257 | 6638 | 6549 | 4779 |
| | eff. | --- | 0.83 | 0.81 | 0.74 | 0.73 | 0.66 | 0.62 | 0.57 | 0.55 | 0.52 | 0.45 | 0.42 |
| 100/130 | HP | --- | 11.73 | 11.40 | 9.22 | 6.37 | 5.20 | 3.86 | 2.85 | 2.51 | 2.18 | 1.84 | 1.34 |
| | in-lb | --- | 8629 | 11682 | 13231 | 11948 | 12656 | 12213 | 11505 | 11063 | 10620 | 9558 | 7788 |
| | eff. | --- | 0.83 | 0.81 | 0.77 | 0.75 | 0.67 | 0.63 | 0.64 | 0.62 | 0.6 | 0.5 | 0.48 |
| 100/150 | HP | --- | 13.24 | 13.07 | 12.57 | 9.55 | 7.54 | 5.53 | 4.53 | 4.02 | 3.02 | 2.68 | 1.68 |
| | in-lb | --- | 11415 | 13585 | 18497 | 18231 | 18851 | 18143 | 18054 | 17921 | 15045 | 12912 | 10620 |
| | eff. | --- | 0.84 | 0.82 | 0.79 | 0.76 | 0.69 | 0.66 | 0.64 | 0.62 | 0.6 | 0.52 | 0.5 |

Helical Attachment 6.3:1

Helical Worm Gears RA-TA

1800 RPM input - SF=1.0

RATINGS

| Ratio ₁ 6.3:1 | Total ratio | 32 | 44 | 63 | 95 | 126 | 176 | 252 | 309 | 353 | 441 | 504 | 630 |
|-----------------------------|--------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | Ratio ₂ | 5 | 7 | 10 | 15 | 20 | 28 | 40 | 49 | 56 | 70 | 80 | 100 |
| | RPM | 56 | 41 | 29 | 19 | 14 | 10 | 7 | 6 | 5 | 4 | 4 | 3 |
| 63/40 | HP | 0.60 | 0.59 | 0.42 | 0,28 | 0,20 | 0,18 | 0,13 | 0,10 | 0,10 | 0,08 | 0,07 | 0,05 |
| | in-lb | 699 | 699 | 690 | 655 | 558 | 611 | 558 | 504 | 487 | 469 | 451 | 407 |
| | eff. | 0.78 | 0.76 | 0.72 | 0,67 | 0,6 | 0,52 | 0,45 | 0,43 | 0,39 | 0,35 | 0,34 | 0,31 |
| 63/50 71/50 | HP | 1.09 | 1,04 | 0,70 | 0,50 | 0,34 | 0,34 | 0,23 | 0,18 | 0,17 | 0,15 | 0,12 | 0,08 |
| | in-lb | 1320 | 1283 | 1177 | 1151 | 1000 | 1221 | 1018 | 956 | 885 | 814 | 788 | 637 |
| | eff. | 0.80 | 0,78 | 0,74 | 0,67 | 0,63 | 0,55 | 0,48 | 0,45 | 0,42 | 0,36 | 0,36 | 0,31 |
| 63/60 71/60 80/60 | HP | 1.63 | 1,54 | 1,24 | 0,87 | 0,67 | 0,59 | 0,39 | 0,27 | 0,27 | 0,18 | 0,17 | 0,13 |
| | in-lb | 1980 | 1929 | 2097 | 2080 | 2036 | 2106 | 1859 | 1416 | 1549 | 1248 | 1151 | 1080 |
| | eff. | 0.81 | 0,79 | 0,75 | 0,7 | 0,67 | 0,57 | 0,53 | 0,49 | 0,45 | 0,42 | 0,37 | 0,35 |
| 71/70 80/70 | HP | 2.08 | 2,01 | 1,59 | 1,14 | 0,84 | 0,74 | 0,54 | 0,44 | 0,39 | 0,30 | 0,28 | 0,20 |
| | in-lb | 2600 | 2558 | 2744 | 2744 | 2584 | 2832 | 2292 | 2407 | 2248 | 1956 | 1859 | 1682 |
| | eff. | 0.82 | 0,8 | 0,76 | 0,71 | 0,68 | 0,6 | 0,54 | 0,5 | 0,46 | 0,42 | 0,37 | 0,36 |
| 71/85 80/85 | HP | 3.48 | 3,35 | 2,68 | 1,84 | 1,41 | 1,16 | 0,89 | 0,72 | 0,62 | 0,47 | 0,44 | 0,37 |
| | in-lb | 4400 | 4337 | 4655 | 4567 | 4381 | 4434 | 4425 | 4124 | 3974 | 3460 | 3363 | 3053 |
| | eff. | 0.82 | 0,8 | 0,77 | 0,72 | 0,69 | 0,6 | 0,55 | 0,51 | 0,5 | 0,46 | 0,42 | 0,36 |
| 80/110 100/110 | HP | --- | 7,21 | 5,36 | 4,02 | 3,02 | 2,68 | 1,84 | 1,68 | 1,34 | 1,11 | 0,85 | 0,54 |
| | in-lb | --- | 9116 | 9735 | 10178 | 9735 | 10355 | 9824 | 9735 | 8806 | 8408 | 6903 | 4868 |
| | eff. | --- | 0,81 | 0,79 | 0,74 | 0,71 | 0,63 | 0,57 | 0,53 | 0,52 | 0,48 | 0,45 | 0,39 |
| 100/130 | HP | --- | 10,74 | 8,28 | 6,24 | 4,54 | 3,97 | 2,77 | 2,46 | 2,10 | 1,71 | 1,37 | 0,79 |
| | in-lb | --- | 14160 | 15045 | 15930 | 15045 | 15930 | 15045 | 15045 | 14160 | 14160 | 11505 | 7965 |
| | eff. | --- | 0,83 | 0,8 | 0,75 | 0,73 | 0,63 | 0,6 | 0,55 | 0,53 | 0,52 | 0,46 | 0,45 |
| 100/150 | HP | --- | 14,10 | 11,08 | 8,45 | 6,32 | 5,06 | 3,87 | 3,05 | 2,36 | 2,08 | 1,83 | 1,41 |
| | in-lb | --- | 18585 | 20355 | 22125 | 21240 | 21240 | 22125 | 20355 | 17700 | 15930 | 15930 | 15045 |
| | eff. | --- | 0,83 | 0,81 | 0,77 | 0,74 | 0,66 | 0,63 | 0,6 | 0,59 | 0,81 | 0,48 | 0,47 |

Helical Worm Gears RA-TA

Helical Attachment 8:1

RATINGS

1800 RPM input - SF=1.0

| Ratio ₁ 8:1 | Total ratio | 40 | 56 | 80 | 120 | 160 | 224 | 320 | 392 | 448 | 560 | 640 | 800 |
|---------------------------|--------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | Ratio ₂ | 5 | 7 | 10 | 15 | 20 | 28 | 40 | 49 | 56 | 70 | 80 | 100 |
| | RPM | 45 | 32 | 23 | 15 | 11 | 8.0 | 6.6 | 4.6 | 4.0 | 3.2 | 2.8 | 2.2 |
| 63/40 | HP | 0.55 | 0.54 | 0.39 | 0.27 | 0.18 | 0.18 | 0.13 | 0.10 | 0.08 | 0.05 | 0.05 | 0.03 |
| | in-lb | 823 | 823 | 788 | 743 | 637 | 752 | 664 | 611 | 522 | 398 | 336 | 239 |
| | eff. | 0.71 | 0.75 | 0.72 | 0.65 | 0.59 | 0.5 | 0.44 | 0.41 | 0.38 | 0.36 | 0.34 | 0.31 |
| 63/50 71/50 | HP | 1.05 | 0.97 | 0.69 | 0.47 | 0.34 | 0.30 | 0.22 | 0.17 | 0.15 | 0.10 | 0.08 | 0.05 |
| | in-lb | 1620 | 1505 | 1460 | 1363 | 1151 | 1328 | 1151 | 1062 | 1018 | 761 | 646 | 469 |
| | eff. | 0.79 | 0.77 | 0.73 | 0.67 | 0.61 | 0.55 | 0.47 | 0.45 | 0.41 | 0.36 | 0.37 | 0.31 |
| 63/60 71/60 80/60 | HP | 1.6 | 1.46 | 1.14 | 0.82 | 0.57 | 0.52 | 0.35 | 0.27 | 0.25 | 0.17 | 0.13 | 0.08 |
| | in-lb | 2480 | 2301 | 2478 | 2434 | 2124 | 2390 | 2080 | 1947 | 1770 | 1372 | 1106 | 814 |
| | eff. | 0.80 | 0.78 | 0.75 | 0.69 | 0.65 | 0.57 | 0.51 | 0.5 | 0.43 | 0.41 | 0.37 | 0.35 |
| 71/70 80/70 | HP | 2.31 | 2.11 | 1.47 | 1.06 | 0.74 | 0.80 | 0.50 | 0.40 | 0.34 | 0.27 | 0.20 | 0.08 |
| | in-lb | 3560 | 3363 | 3230 | 3186 | 2876 | 3894 | 2832 | 2832 | 2434 | 2168 | 1770 | 1283 |
| | eff. | 0.81 | 0.79 | 0.76 | 0.7 | 0.67 | 0.6 | 0.53 | 0.5 | 0.45 | 0.41 | 0.38 | 0.35 |
| 71/85 80/85 | HP | 3.2 | 2.95 | 2.38 | 1.79 | 1.42 | 1.09 | 0.80 | 0.67 | 0.55 | 0.44 | 0.34 | 0.22 |
| | in-lb | 5050 | 4691 | 5266 | 5487 | 5487 | 5310 | 4956 | 4868 | 4514 | 3983 | 3186 | 2301 |
| | eff. | 0.81 | 0.79 | 0.77 | 0.71 | 0.67 | 0.6 | 0.54 | 0.52 | 0.5 | 0.45 | 0.41 | 0.37 |
| 80/110 100/110 | HP | --- | 5.73 | 4.61 | 3.30 | 2.55 | 2.16 | 1.63 | 1.22 | 1.07 | 0.87 | 0.72 | 0.45 |
| | in-lb | --- | 9248 | 10355 | 10443 | 10266 | 10620 | 10443 | 9027 | 8673 | 8142 | 7523 | 4868 |
| | eff. | --- | 0.8 | 0.78 | 0.73 | 0.7 | 0.61 | 0.56 | 0.52 | 0.5 | 0.46 | 0.45 | 0.38 |
| 100/130 | HP | --- | 5.53 | 5.03 | 5.36 | 3.86 | 3.02 | 2.01 | 1.84 | 1.51 | 1.17 | 1.17 | 0.84 |
| | in-lb | --- | 8850 | 10974 | 16284 | 15620 | 15576 | 15045 | 14691 | 14160 | 12700 | 11771 | 10266 |
| | eff. | --- | 0.8 | 0.78 | 0.73 | 0.72 | 0.62 | 0.58 | 0.56 | 0.54 | 0.51 | 0.45 | 0.43 |
| 100/150 | HP | --- | 6.20 | 5.70 | 6.03 | 5.70 | 4.53 | 3.35 | 2.85 | 2.35 | 1.84 | 1.68 | 1.34 |
| | in-lb | --- | 10001 | 12611 | 19028 | 22833 | 23674 | 25311 | 22568 | 22037 | 18674 | 17435 | 16417 |
| | eff. | --- | 0.81 | 0.79 | 0.75 | 0.72 | 0.63 | 0.61 | 0.56 | 0.57 | 0.49 | 0.46 | 0.45 |

Double Worm Gears RS-RT

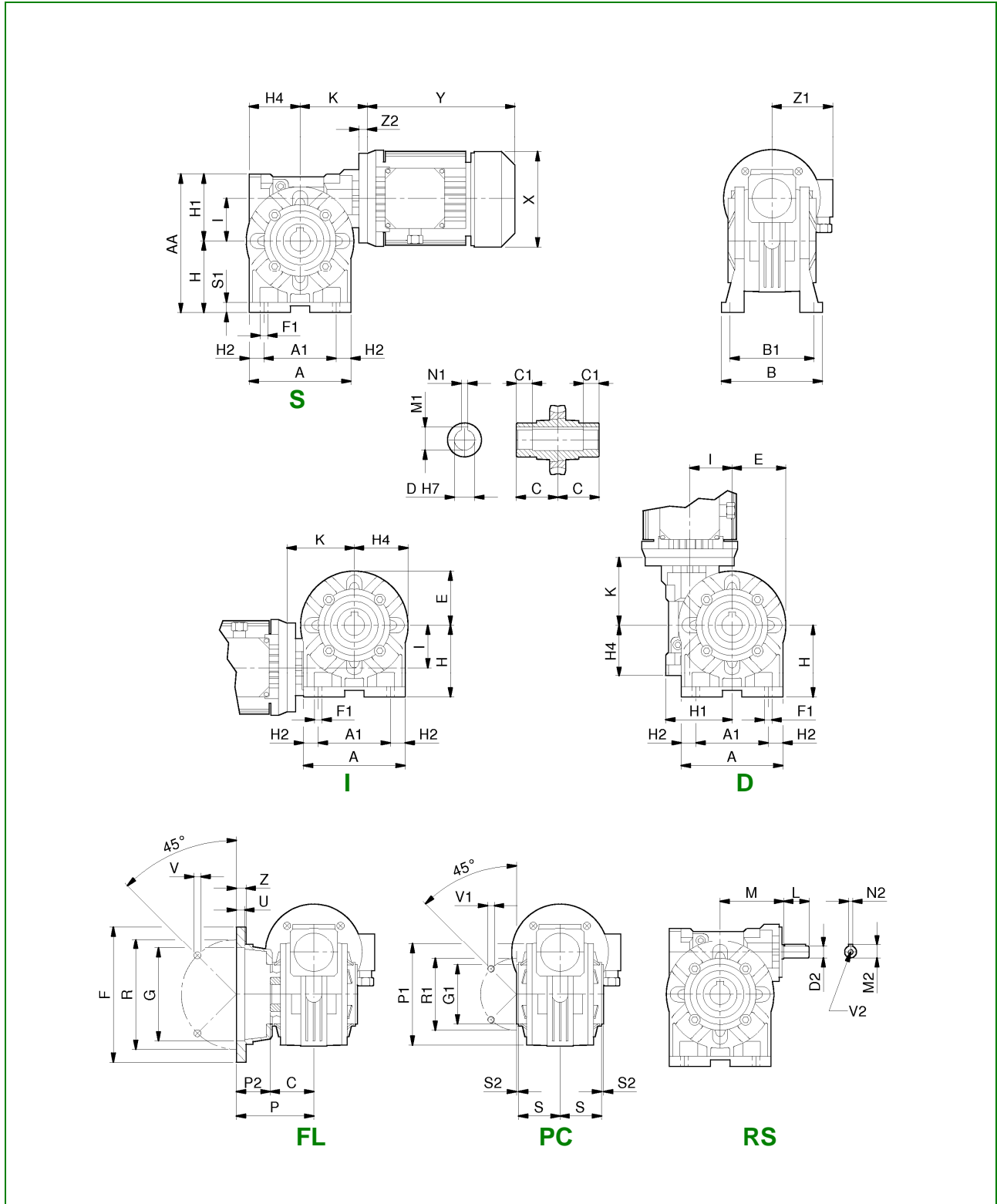
1800 RPM input - SF=1.0

RATINGS

| | Ratio ₁ | 10 | 15 | 20 | 28 | 40 | 56 | 56 | 70 | 100 | 100 | 100 | 100 |
|---------------------|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | Ratio ₂ | 28 | 28 | 28 | 28 | 28 | 28 | 40 | 40 | 40 | 56 | 80 | 100 |
| | Total R | 280 | 420 | 560 | 784 | 1120 | 1568 | 2240 | 2800 | 4000 | 5600 | 8000 | 10000 |
| | RPM | 6.4 | 4,3 | 3,2 | 2,3 | 1,6 | 1,2 | 0,80 | 0,64 | 0,45 | 0,32 | 0,23 | 0,18 |
| RS - RT 28 / 28 | HP | 0.055 | 0.05 | 0.04 | 0.04 | 0.03 | 0.02 | 0.02 | 0.01 | 0.01 | 0.005 | 0.003 | 0.002 |
| | in-lb | 300 | 310 | 319 | 319 | 319 | 310 | 266 | 266 | 266 | 142 | 106 | 97 |
| | eff. | 0.40 | 0.38 | 0.37 | 0.32 | 0.3 | 0.25 | 0.21 | 0.20 | 0.18 | 0.14 | 0.12 | 0.13 |
| RS - RT 28 / 40 | HP | 0.14 | 0.13 | 0.10 | 0.08 | 0.06 | 0.05 | 0.04 | 0.04 | 0.02 | 0.02 | 0.008 | 0.005 |
| | in-lb | 740 | 752 | 752 | 708 | 708 | 708 | 646 | 673 | 620 | 549 | 363 | 221 |
| | eff. | 0.42 | 0.39 | 0.37 | 0.33 | 0.31 | 0.25 | 0.21 | 0.18 | 0.18 | 0.15 | 0.14 | 0.12 |
| RS - RT 28 / 50 | HP | 0.24 | 0.22 | 0.18 | 0.15 | 0.12 | 0.10 | 0.06 | 0.06 | 0.05 | 0.03 | 0.02 | 0.01 |
| | in-lb | 1300 | 1328 | 1328 | 1416 | 1549 | 1416 | 1106 | 1159 | 1301 | 1106 | 690 | 434 |
| | eff. | 0.42 | 0.39 | 0.37 | 0.33 | 0.31 | 0.25 | 0.22 | 0.19 | 0.19 | 0.16 | 0.14 | 0.12 |
| RS - RT 28 / 60 | HP | 0.36 | 0.33 | 0.26 | 0.22 | 0.15 | 0.15 | 0.11 | 0.09 | 0.05 | 0.05 | 0.03 | 0.02 |
| | in-lb | 2050 | 2124 | 2124 | 2168 | 2036 | 2301 | 2168 | 1920 | 1451 | 1726 | 1133 | 805 |
| | eff. | 0.45 | 0.42 | 0.4 | 0.35 | 0.33 | 0.27 | 0.23 | 0.21 | 0.2 | 0.16 | 0.14 | 0.13 |
| RS - RT 40 / 70 | HP | 0.55 | 0.50 | 0.42 | 0.33 | 0.26 | 0.20 | 0.14 | 0.12 | 0.10 | 0.07 | 0.04 | 0.03 |
| | in-lb | 3100 | 3363 | 3540 | 3540 | 3496 | 3363 | 3275 | 3053 | 3186 | 2841 | 1779 | 1363 |
| | eff. | 0.46 | 0.44 | 0.42 | 0.38 | 0.33 | 0.3 | 0.27 | 0.25 | 0.22 | 0.2 | 0.15 | 0.14 |
| RS - RT 40 / 85 | HP | 0.8 | 0.75 | 0.62 | 0.46 | 0.38 | 0.30 | 0.23 | 0.20 | 0.15 | 0.12 | 0.07 | 0.04 |
| | in-lb | 5100 | 5266 | 5531 | 5177 | 5531 | 5399 | 5443 | 5266 | 5000 | 4868 | 3301 | 2336 |
| | eff. | 0.49 | 0.46 | 0.44 | 0.4 | 0.35 | 0.32 | 0.28 | 0.26 | 0.23 | 0.2 | 0.17 | 0.15 |
| RS - RT 50 / 110 | HP | 1.6 | 1.45 | 1.27 | 0.97 | 0.76 | 0.64 | 0.49 | 0.39 | 0.27 | 0.21 | 0.14 | 0.09 |
| | in-lb | 10200 | 10532 | 11505 | 11505 | 11328 | 11948 | 11859 | 10709 | 9470 | 8673 | 7169 | 4956 |
| | eff. | 0.50 | 0.48 | 0.45 | 0.42 | 0.37 | 0.33 | 0.3 | 0.27 | 0.24 | 0.2 | 0.18 | 0.16 |
| RS 60 / 130 | HP | 2.7 | 2.51 | 1.84 | 1.26 | 0.92 | 0.92 | 0.62 | 0.42 | 0.42 | 0.42 | 0.42 | 0.42 |
| | in-lb | 17100 | 17833 | 17081 | 14780 | 13541 | 17833 | 16196 | 12479 | 15665 | 16373 | 12567 | 10841 |
| | eff. | 0.53 | 0.5 | 0.46 | 0.43 | 0.4 | 0.35 | 0.33 | 0.3 | 0.27 | 0.25 | 0.21 | 0.2 |
| RS 70 / 150 | kW | 3.3 | 3.02 | 2.51 | 1.84 | 1.26 | 1.26 | 0.92 | 0.62 | 0.62 | 0.42 | 0.42 | 0.42 |
| | in-lb | 27400 | 22745 | 25046 | 22745 | 21771 | 25223 | 26727 | 20576 | 25444 | 23630 | 18895 | 17656 |
| | eff. | 0.55 | 0.52 | 0.5 | 0.46 | 0.43 | 0.39 | 0.36 | 0.33 | 0.31 | 0.27 | 0.23 | 0.22 |

Worm Gears RS

DIMENSIONS



Worm Gears RS

DIMENSIONS

| RS | 28 (1.10) | 40 (1.57) | 50 (1.97) | 60 (2.36) | 70 (2.76) | 85 (3.35) | 110 (4.33) | 130 (5.12) | 150 (5.91) |
|---------------------------|------------------|------------------|-------------------|-------------------|-------------------|--------------------|--------------------|--------------------|--------------------|
| A | 2.76 | 3.94 | 4.72 | 5.43 | 6.22 | 7.60 | 9.84 | 11.26 | 13.23 |
| A ₁ | 2.05 | 2.76 | 3.35 | 3.74 | 4.72 | 5.51 | 7.87 | 9.25 | 10.24 |
| AA | 3.90 | 5.43 | 6.42 | 7.56 | 8.70 | 9.92 | 13.11 | 15.75 | 17.87 |
| B | 3.07 | 4.02 | 4.69 | 5.35 | # | 6.61 | 7.87 | 9.06 | 9.84 |
| B ₁ | 2.60 | 3.31 | 3.90 | 4.37 | 4.57 | 5.51 | 6.38 | 7.48 | 8.27 |
| C | 1.18 | 1.61 | 1.93 | 2.36 | 2.36 | 2.40 | 3.05 | 3.54 | 4.13 |
| D _(H7) | 0.625 | 0.75 | 1.0 | 1.125 | 1.25 | 1.375 | 1.625 | 1.75 | 2.0 |
| D_(H7) | 14 | 19 | 24 | 25 | 28 | 32 | 42 | 48 | 55 |
| D₂ (h6) | 9 | 11 | 14 | 19 | 19 | 24 | 28 | 38 | 42 |
| E | 1.34 | 1.97 | 2.40 | 2.76 | 3.15 | 3.86 | 4.92 | 5.63 | 6.61 |
| F | 2.76 | 5.51 | 6.30 | 7.09 | 7.87 | 7.87 | 9.84 | 11.81 | 13.78 |
| F ₁ | 0.22 | 0.28 | 0.35 | 0.43 | 0.43 | 0.51 | 0.55 | 0.59 | 0.75 |
| G _(H8) | 1.57 | 3.74 | 4.33 | 4.53 | 5.12 | 5.12 | 7.09 | 9.06 | 9.84 |
| G _{1 (f8)} | 1.65 | 2.36 | 2.76 | 2.76 | 3.15 | 4.33 | 5.12 | 7.09 | 7.09 |
| H | 2.05 | 2.80 | 3.35 | 3.94 | 4.53 | 5.31 | 6.77 | 7.87 | 9.06 |
| H ₁ | 1.85 | 2.64 | 3.07 | 3.62 | 4.17 | 4.61 | 6.34 | 7.87 | 8.82 |
| H ₂ | 0.35 | 0.59 | 0.69 | 0.85 | 0.75 | 1.04 | 0.98 | 1.00 | 1.50 |
| H ₄ | 1.57 | 1.97 | 2.36 | 2.83 | 3.39 | 4.06 | 5.47 | 6.26 | 7.20 |
| I | 1.10 | 1.57 | 1.97 | 2.36 | 2.76 | 3.35 | 4.33 | 5.12 | 5.91 |
| K | 2.60 | 3.27 | 3.82 | 4.06 | 4.96 | 6.30 | 5.94 | 6.50 | 7.52 |
| L | 0.79 | 0.91 | 1.18 | 1.57 | 1.57 | 1.97 | 2.36 | 3.15 | 3.94 |
| M | 1.97 | 2.56 | 2.95 | 3.43 | 4.33 | 4.86 | 5.75 | 6.54 | 7.68 |
| M ₁ | 0.71 | 0.84 | 1.12 | 1.25 | 1.37 | 1.52 | 1.80 | 1.93 | 2.27 |
| M ₂ | 0.40 | 0.49 | 0.63 | 0.89 | 0.89 | 1.06 | 1.22 | 1.61 | 1.77 |
| N ₁ | 0.19 | 0.19 | 0.25 | 0.25 | 0.251 | 0.31 | 0.38 | 0.38 | 0.5 |
| N ₂ | 0.12 | 0.16 | 0.20 | 0.24 | 0.24 | 0.31 | 0.31 | 0.39 | 0.47 |
| P | 1.93 | 3.23 | 3.60 | 4.57 | 4.37 | 3.94 | 5.91 | 5.91 | 6.30 |
| P ₁ | 2.64 | 3.70 | 3.94 | 4.02 | 4.65 | 5.91 | 7.87 | 9.21 | 9.84 |
| P ₂ | 0.75 | 1.61 | 1.67 | 2.20 | 2.01 | 1.54 | 2.85 | 2.36 | 2.17 |
| R | 2.20 | 4.53 | 5.12 | 5.91 | 6.50 | 6.50 | 8.46 | 10.43 | 11.81 |
| R ₁ | 2.20 | 3.27 | 3.35 | 3.35 | 3.94 | 5.12 | 6.50 | 8.46 | 8.46 |
| S | 1.26 | 1.50 | 1.93 | 2.26 | 2.24 | 2.22 | 2.93 | 3.43 | 4.02 |
| S ₁ | 0.24 | 0.35 | 0.47 | 0.47 | 0.55 | 0.59 | 0.67 | 0.75 | 0.79 |
| S ₂ | - 0.12 | 0.08 | 0.10 | 0.10 | 0.12 | 0.12 | 0.10 | 0.20 | 0.20 |
| U | 0.16 | 0.24 | 0.39 | 0.39 | 0.47 | 0.24 | 0.20 | 0.20 | 0.24 |
| V | 0.26 (4x) | 0.35 (4x) | 0.35 (4x) | 0.43 (4x) | 0.51 (4x) | 0.51 (4x) | 0.59 (8x) | 0.59 (8x) | 0.75 (8x) |
| V₁ | M6x6 (4x) | M6x9 (4x) | M8x12 (4x) | M8x15 (8x) | M8x18 (8x) | M10x20 (8x) | M12x21 (8x) | M12x24 (8x) | M14x30 (8x) |
| V₂ | M4x10 | M4x10 | M6x15 | M8x20 | M8x20 | M8x20 | M8x20 | M10x22 | M12x25 |
| Z | 0.24 | 0.39 | 0.39 | 0.43 | 0.55 | 0.55 | 0.63 | 0.71 | 0.79 |

- # - 5.39 - Bolted feet

- 5.51 - Integral feet

- V₁ - 90° for RS28

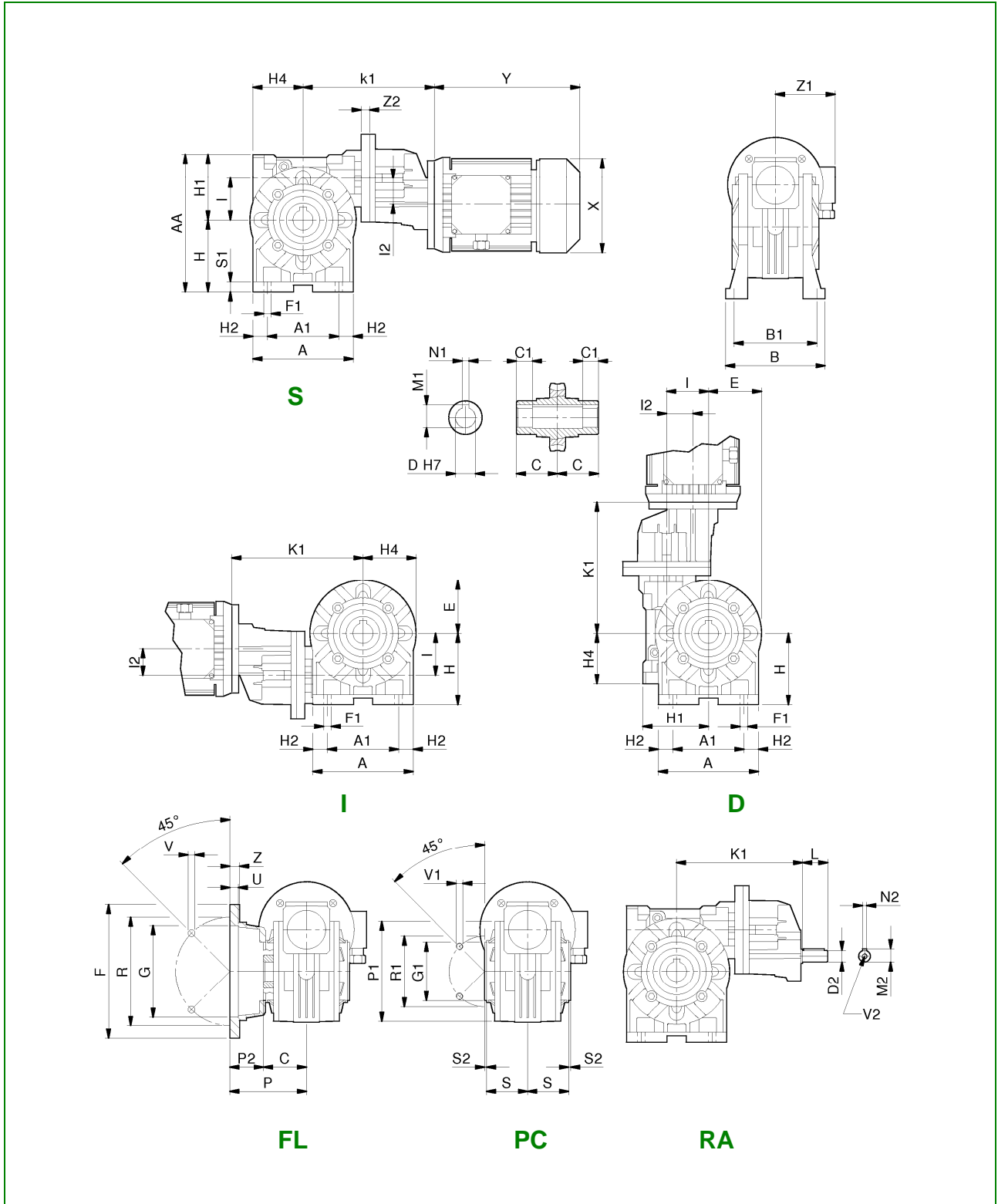
- Motor dimensions according to manufacturer's production

- Not binding dimensions

- Dimensions are inch / **mm**

Helical Worm Gears RA

DIMENSIONS



Helical Worm Gears RA

DIMENSIONS

| RA | 63 / | | | 71 / | | | | 80 / | | | | 100 / | | |
|---------------------------|---------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-----------------------|----------------------|----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | 40 (1.57) | 50 (1.97) | 60 (2.36) | 50 (1.97) | 60 (2.36) | 70 (2.76) | 85 (3.35) | 60 (2.36) | 70 (2.76) | 85 (3.35) | 110 (4.33) | 110 (4.33) | 130 (5.12) | 150 (5.91) |
| A | 3.94 | 4.72 | 5.43 | 4.72 | 5.43 | 6.22 | 7.60 | 5.43 | 6.22 | 7.60 | 9.84 | 9.84 | 11.26 | 13.23 |
| A ₁ | 2.76 | 3.35 | 3.74 | 3.35 | 3.74 | 4.72 | 5.51 | 3.74 | 4.72 | 5.51 | 7.87 | 7.87 | 9.25 | 10.24 |
| AA | 5.43 | 6.42 | 7.56 | 6.42 | 7.56 | 8.70 | 9.92 | 7.56 | 8.70 | 9.92 | 13.11 | 13.11 | 15.75 | 17.87 |
| B | 4.02 | 4.69 | 5.35 | 4.69 | 5.35 | # | 6.61 | 5.35 | # | 6.61 | 7.87 | 7.87 | 9.06 | 9.84 |
| B ₁ | 3.31 | 3.90 | 4.37 | 3.90 | 4.37 | 4.57 | 5.51 | 4.37 | 4.57 | 5.51 | 6.38 | 6.38 | 7.48 | 8.27 |
| C | 1.61 | 1.93 | 2.36 | 1.93 | 2.36 | 2.36 | 2.40 | 2.36 | 2.36 | 2.40 | 3.05 | 3.05 | 3.54 | 4.13 |
| D _(H7) | 0.75 | 1.0 | 1.125 | 1.0 | 1.125 | 1.25 | 1.375 | 1.125 | 1.25 | 1.375 | 1.625 | 1.625 | 1.75 | 2.0 |
| D_(H7) | 19 | 24 | 25 | 24 | 25 | 28 | 32 | 25 | 28 | 32 | 42 | 42 | 48 | 55 |
| D₂ (h6) | 11 | 11 | 11 | 14 | 14 | 14 | 14 | 19 | 19 | 19 | 19 | 24 | 24 | 24 |
| E | 1.97 | 2.40 | 2.76 | 2.40 | 2.76 | 3.15 | 3.86 | 2.76 | 3.15 | 3.86 | 4.92 | 4.92 | 5.63 | 6.61 |
| F | 5.51 | 6.30 | 7.09 | 6.30 | 7.09 | 7.87 | 7.87 | 7.09 | 7.87 | 7.87 | 9.84 | 9.84 | 11.81 | 13.78 |
| F ₁ | 0.28 | 0.35 | 0.43 | 0.35 | 0.43 | 0.43 | 0.51 | 0.43 | 0.43 | 0.51 | 0.55 | 0.55 | 0.59 | 0.75 |
| G _(H8) | 3.74 | 4.33 | 4.53 | 4.33 | 4.53 | 5.12 | 5.12 | 4.53 | 5.12 | 5.12 | 7.09 | 7.09 | 9.06 | 9.84 |
| G ₁ (f8) | 2.36 | 2.76 | 2.76 | 2.76 | 2.76 | 3.15 | 4.33 | 2.76 | 3.15 | 4.33 | 5.12 | 5.12 | 7.09 | 7.09 |
| H | 2.80 | 3.35 | 3.94 | 3.35 | 3.94 | 4.53 | 5.31 | 3.94 | 4.53 | 5.31 | 6.77 | 6.77 | 7.87 | 9.06 |
| H ₁ | 2.64 | 3.07 | 3.62 | 3.07 | 3.62 | 4.17 | 4.61 | 3.62 | 4.17 | 4.61 | 6.34 | 6.34 | 7.87 | 8.82 |
| H ₂ | 0.59 | 0.69 | 0.85 | 0.69 | 0.85 | 0.75 | 1.04 | 0.85 | 0.75 | 1.04 | 0.98 | 0.98 | 1.00 | 1.50 |
| H ₄ | 1.97 | 2.36 | 2.83 | 2.36 | 2.83 | 3.39 | 4.06 | 2.83 | 3.39 | 4.06 | 5.47 | 5.47 | 6.26 | 7.44 |
| I | 1.57 | 1.97 | 2.36 | 1.97 | 2.36 | 2.76 | 3.35 | 2.36 | 2.76 | 3.35 | 4.33 | 4.33 | 5.12 | 5.91 |
| I ₂ | 1.26 | 1.26 | 1.26 | 1.57 | 1.57 | 1.57 | 1.57 | 1.97 | 1.97 | 1.97 | 1.97 | 2.48 | 2.48 | 2.48 |
| K ₁ | 6.04 | 6.73 | 6.97 | 6.81 | 7.20 | 8.23 | 8.82 | 8.15 | 9.15 | 9.86 | 10.41 | 12.91 | 13.46 | 14.49 |
| L | 0.91 | 0.91 | 0.91 | 1.18 | 1.18 | 1.18 | 1.18 | 1.57 | 1.57 | 1.57 | 1.57 | 1.97 | 1.97 | 1.97 |
| M ₁ | 0.84 | 1.12 | 1.25 | 1.12 | 1.25 | 1.37 | 1.52 | 1.25 | 1.37 | 1.52 | 1.80 | 1.80 | 1.93 | 2.27 |
| M ₂ | 0.49 | 0.49 | 0.49 | 0.63 | 0.63 | 0.63 | 0.63 | 0.89 | 0.89 | 0.89 | 0.89 | 1.06 | 1.06 | 1.06 |
| N ₁ | 0.19 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.31 | 0.25 | 0.25 | 0.31 | 0.38 | 0.37 | 0.38 | 0.50 |
| N ₂ | 0.16 | 0.16 | 0.16 | 0.20 | 0.20 | 0.20 | 0.20 | 0.24 | 0.24 | 0.24 | 0.24 | 0.31 | 0.31 | 0.31 |
| P | 3.23 | 3.60 | 4.57 | 3.60 | 4.57 | 4.37 | 3.94 | 4.57 | 4.37 | 3.94 | 5.91 | 5.91 | 5.91 | 6.30 |
| P ₁ | 3.70 | 3.94 | 4.02 | 3.94 | 4.02 | 4.65 | 5.91 | 4.02 | 4.65 | 5.91 | 7.87 | 7.87 | 9.21 | 9.84 |
| P ₂ | 1.61 | 1.67 | 2.20 | 1.67 | 2.20 | 2.01 | 1.54 | 2.20 | 2.01 | 1.54 | 2.85 | 2.85 | 2.36 | 2.17 |
| R | 4.53 | 5.12 | 5.91 | 5.12 | 5.91 | 6.50 | 6.50 | 5.91 | 6.50 | 6.50 | 8.46 | 8.46 | 10.43 | 11.81 |
| R ₁ | 3.27 | 3.35 | 3.35 | 3.35 | 3.35 | 3.94 | 5.12 | 3.35 | 3.94 | 5.12 | 6.50 | 6.50 | 8.46 | 8.46 |
| S | 1.50 | 1.93 | 2.26 | 1.93 | 2.26 | 2.24 | 2.22 | 2.26 | 2.24 | 2.22 | 2.93 | 2.93 | 3.43 | 4.02 |
| S ₁ | 0.35 | 0.47 | 0.47 | 0.47 | 0.47 | 0.55 | 0.59 | 0.47 | 0.55 | 0.59 | 0.67 | 0.67 | 0.75 | 0.79 |
| S ₂ | 0.08 | 0.10 | 0.10 | 0.10 | 0.10 | 0.12 | 0.12 | 0.10 | 0.12 | 0.12 | 0.10 | 0.10 | 0.20 | 0.20 |
| U | 0.24 | 0.39 | 0.39 | 0.39 | 0.39 | 0.47 | 0.24 | 0.39 | 0.47 | 0.24 | 0.20 | 0.20 | 0.20 | 0.24 |
| V | 0.35 (4) | 0.35 (4) | 0.43 (4) | 0.35 (4) | 0.43 (4) | 0.51 (4) | 0.51 (4) | 0.43 (4) | 0.51 (4) | 0.51 (4) | 0.59 (8) | 0.59 (8) | 0.59 (8) | 0.75 (8) |
| V₁ | M6x9 (4x) | M8x12 (4x) | M8x15 (8x) | M8x12 (4x) | M8x15 (8x) | M8x18 (8x) | M10x20 (8x) | M8x15 (8x) | M8x18 (8x) | M10x20 (8x) | M12x21 (8x) | M12x21 (8x) | M12x24 (8x) | M14x30 (8x) |
| V₂ | M4x10 | M4x10 | M4x10 | M6x15 | M6x15 | M6x15 | M6x15 | M8x20 | M8x20 | M8x20 | M8x20 | M8x20 | M8x20 | M8x20 |
| Y ₁ | 4.13 | 4.13 | 4.13 | 4.72 | 4.72 | 4.72 | 4.72 | 5.51 | 5.51 | 5.51 | 5.51 | 5.51 | 7.87 | 7.87 |
| Z | 0.39 | 0.39 | 0.43 | 0.39 | 0.43 | 0.55 | 0.55 | 0.43 | 0.55 | 0.55 | 0.63 | 0.63 | 0.71 | 0.79 |

- # - 5.39 - Bolted feet

- 5.51 - Integral feet

- V₁ - 90° for RS28

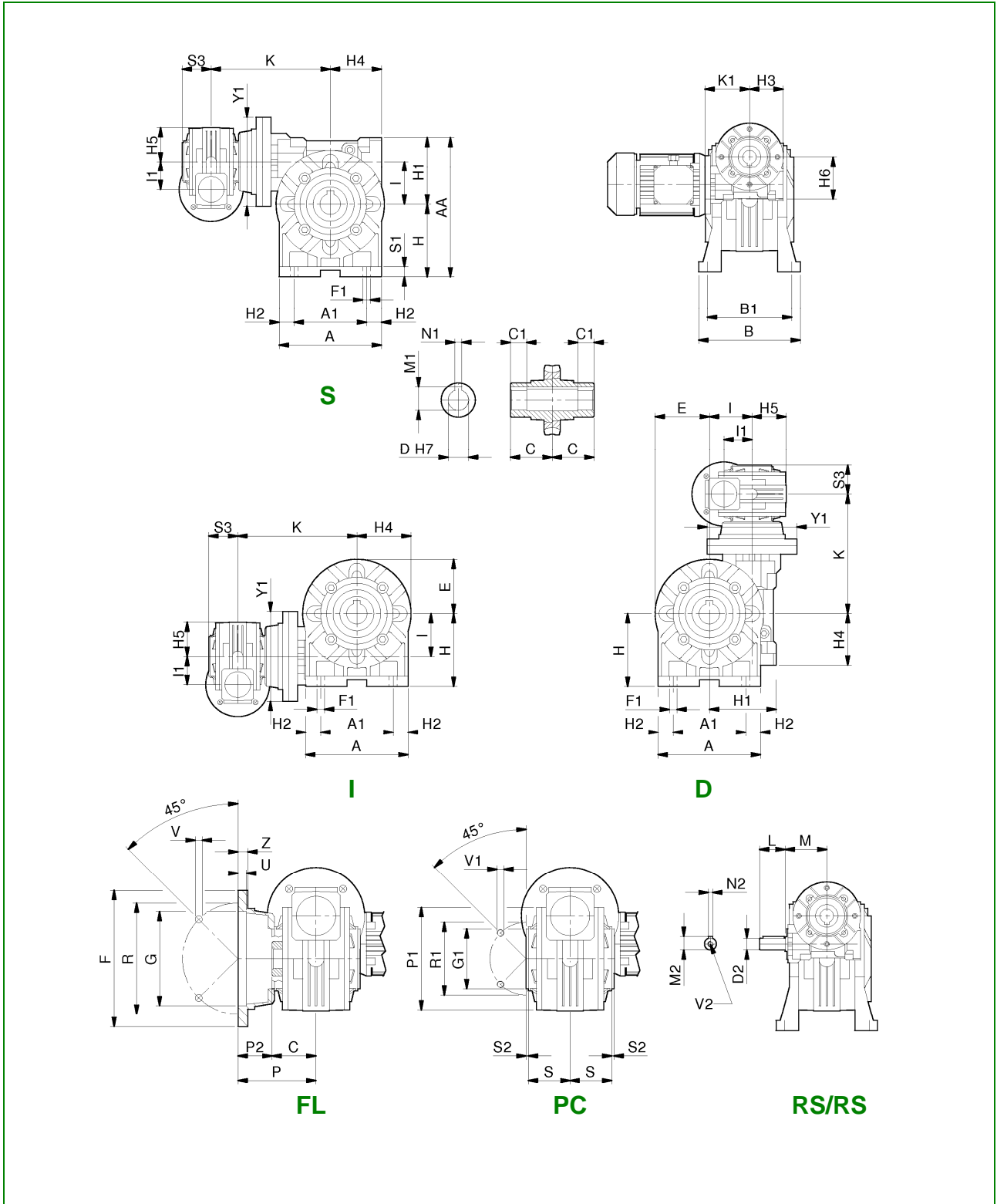
- Motor dimensions according to manufacturer's production

- Not binding dimensions

- Dimensions are inch / **mm**

Double Worm Gears RS

DIMENSIONS



Double Worm Gears RS

DIMENSIONS

| RS | 28 / | | | | 40 / | | 50 / | 60 / | 70 / |
|---------------------------|------------------|------------------|-------------------|-------------------|-------------------|--------------------|--------------------|--------------------|--------------------|
| | 28 | 40 | 50 | 60 | 70 | 85 | 110 | 130 | 150 |
| A | 2.76 | 3.94 | 4.72 | 5.43 | 6.22 | 7.60 | 9.84 | 11.26 | 13.23 |
| A ₁ | 2.05 | 2.76 | 3.35 | 3.74 | 4.72 | 5.51 | 7.87 | 9.25 | 10.24 |
| AA | 3.90 | 5.43 | 6.42 | 7.56 | 8.70 | 9.92 | 13.11 | 15.75 | 17.87 |
| B | 3.07 | 4.02 | 4.69 | 5.35 | # | 6.61 | 7.87 | 9.06 | 9.84 |
| B ₁ | 2.60 | 3.31 | 3.90 | 4.37 | 4.57 | 5.51 | 6.38 | 7.48 | 8.27 |
| C | 1.18 | 1.61 | 1.93 | 2.36 | 2.36 | 2.40 | 3.05 | 3.54 | 4.13 |
| D _(H7) | 0.625 | 0.75 | 1.0 | 1.125 | 1.25 | 1.375 | 1.625 | 1.75 | 2.0 |
| D_(H7) | 14 | 19 | 24 | 25 | 28 | 32 | 42 | 48 | 55 |
| D_{2 (h6)} | 9 | 9 | 9 | 9 | 11 | 11 | 14 | 19 | 19 |
| E | 1.34 | 1.97 | 2.40 | 2.76 | 3.15 | 3.86 | 4.92 | 5.63 | 6.61 |
| F | 2.76 | 5.51 | 6.30 | 7.09 | 7.87 | 7.87 | 9.84 | 11.81 | 13.78 |
| F ₁ | 0.22 | 0.28 | 0.35 | 0.43 | 0.43 | 0.51 | 0.55 | 0.59 | 0.75 |
| G _(H8) | 1.57 | 3.74 | 4.33 | 4.53 | 5.12 | 5.12 | 7.09 | 9.06 | 9.84 |
| G _{1 (f8)} | 1.65 | 2.36 | 2.76 | 2.76 | 3.15 | 4.33 | 5.12 | 7.09 | 7.09 |
| H | 2.05 | 2.80 | 3.35 | 3.94 | 4.53 | 5.31 | 6.77 | 7.87 | 9.06 |
| H ₁ | 1.85 | 2.64 | 3.07 | 3.62 | 4.17 | 4.61 | 6.34 | 7.87 | 8.82 |
| H ₂ | 0.35 | 0.59 | 0.69 | 0.85 | 0.75 | 1.04 | 0.98 | 1.00 | 1.50 |
| H ₃ | 1.57 | 1.57 | 1.57 | 1.57 | 1.97 | 1.97 | 2.36 | 2.83 | 3.39 |
| H ₄ | 1.57 | 1.97 | 2.36 | 2.83 | 3.39 | 4.06 | 5.47 | 6.26 | 7.44 |
| H ₅ | 1.34 | 1.34 | 1.34 | 1.34 | 1.97 | 1.97 | 2.40 | 2.76 | 3.15 |
| H ₆ | 1.85 | 1.85 | 1.85 | 1.85 | 2.64 | 2.64 | 3.07 | 3.62 | 4.17 |
| I | 1.10 | 1.57 | 1.97 | 2.36 | 2.76 | 3.35 | 4.33 | 5.12 | 5.91 |
| I ₂ | 1.10 | 1.10 | 1.10 | 1.10 | 1.57 | 1.57 | 1.97 | 2.36 | 2.76 |
| K | 3.92 | 4.57 | 5.45 | 5.75 | 7.17 | 7.83 | 9.69 | 9.69 | 11.81 |
| K ₁ | 2.26 | 2.26 | 2.26 | 2.26 | 2.78 | 2.78 | 3.27 | 3.66 | 4.61 |
| L | 0.79 | 0.79 | 0.79 | 0.79 | 0.91 | 0.91 | 1.18 | 1.57 | 1.57 |
| M | 1.97 | 1.97 | 1.97 | 1.97 | 2.56 | 2.56 | 2.95 | 3.43 | 4.33 |
| M ₁ | 0.71 | 0.84 | 1.12 | 1.25 | 1.37 | 1.52 | 1.80 | 1.93 | 2.27 |
| M ₂ | 0.40 | 0.40 | 0.40 | 0.40 | 0.49 | 0.49 | 0.63 | 0.89 | 0.89 |
| N ₁ | 0.19 | 0.19 | 0.25 | 0.25 | 0.25 | 0.31 | 0.38 | 0.38 | 0.50 |
| N ₂ | 0.12 | 0.12 | 0.12 | 0.12 | 0.16 | 0.16 | 0.20 | 0.24 | 0.24 |
| P | 1.93 | 3.23 | 3.60 | 4.57 | 4.37 | 3.94 | 5.91 | 5.91 | 6.30 |
| P ₁ | 2.64 | 3.70 | 3.94 | 4.02 | 4.65 | 5.91 | 7.87 | 9.21 | 9.84 |
| P ₂ | 0.75 | 1.61 | 1.67 | 2.20 | 2.01 | 1.54 | 2.85 | 2.36 | 2.17 |
| R | 2.20 | 4.53 | 5.12 | 5.91 | 6.50 | 6.50 | 8.46 | 10.43 | 11.81 |
| R ₁ | 2.20 | 3.27 | 3.35 | 3.35 | 3.94 | 5.12 | 6.50 | 8.46 | 8.46 |
| S | 1.26 | 1.50 | 1.93 | 2.26 | 2.24 | 2.22 | 2.93 | 3.43 | 4.02 |
| S ₁ | 0.24 | 0.35 | 0.47 | 0.47 | 0.55 | 0.59 | 0.67 | 0.75 | 0.79 |
| S ₂ | -0.12 | 0.08 | 0.10 | 0.10 | 0.12 | 0.12 | 0.10 | 0.20 | 0.20 |
| S ₃ | 1.18 | 1.18 | 1.18 | 1.18 | 1.61 | 1.61 | 1.93 | 2.36 | 2.36 |
| U | 0.16 | 0.24 | 0.39 | 0.39 | 0.47 | 0.24 | 0.20 | 0.20 | 0.24 |
| V | 0.24 (4x) | 0.35 (4x) | 0.35 (4x) | 0.43 (4x) | 0.51 (4x) | 0.51 (4x) | 0.59 (8x) | 0.59 (8x) | 0.75 (8x) |
| V₁ | M6x6 (4x) | M6x9 (4x) | M8x12 (4x) | M8x15 (8x) | M8x18 (8x) | M10x20 (8x) | M12x21 (8x) | M12x24 (8x) | M14x30 (8x) |
| V₂ | M4x10 | M4x10 | M4x10 | M4x10 | M4x10 | M4x10 | M6x15 | M8x20 | M8x20 |
| Y ₁ | 3.15 | 3.15 | 3.15 | 3.54 | 4.53 | 4.53 | 4.33 | 7.09 | 7.87 |
| Z | 0.24 | 0.39 | 0.39 | 0.43 | 0.55 | 0.55 | 0.63 | 0.71 | 0.79 |

- # - 5.39 - Bolted feet

- 5.51 - Integral feet

- V₁ - 90° for RS28

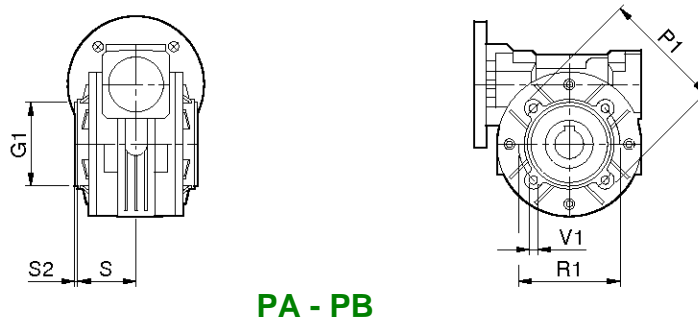
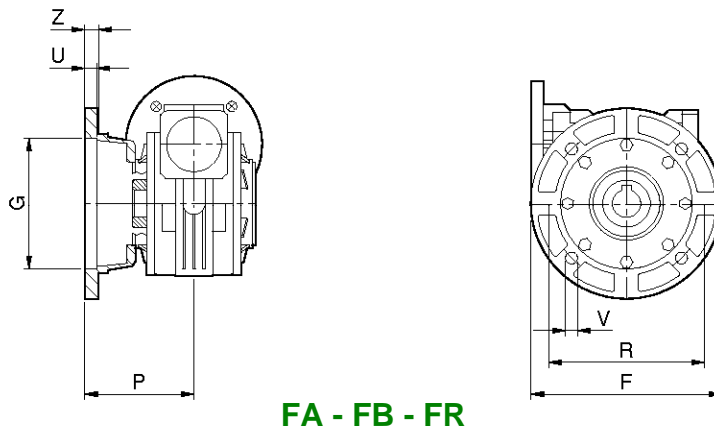
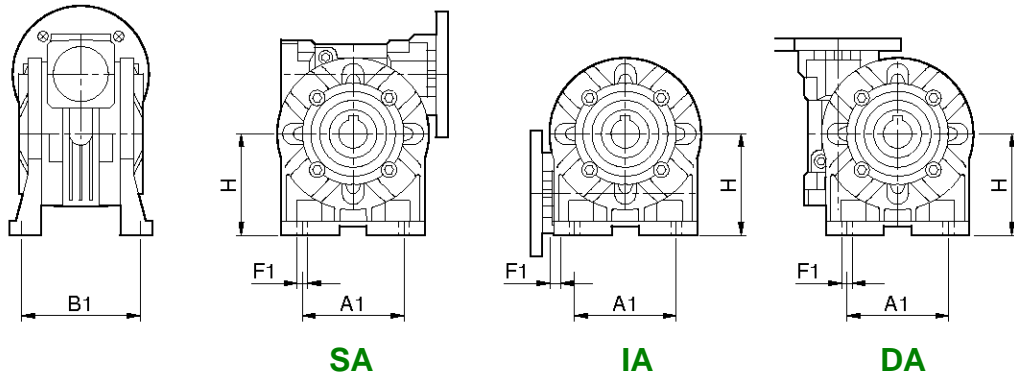
- Motor dimensions according to manufacturer's production

- Dimensions are inch / mm

Worm Gears RS

DIMENSIONS

ALTERNATIVE MOUNTINGS



Worm Gears RS

| ALTERNATIVE MOUNTINGS | DIMENSIONS | | | | | | | | |
|-----------------------|------------|--|--|--|--|--|--|--|--|
|-----------------------|------------|--|--|--|--|--|--|--|--|

| RS | 28 | 40 | 50 | 60 | 70 | 85 | 110 | 130 | 150 |
|---------------------|-----------|-----------|--------------|------------|------------|-----------|-----------|-----|-----|
| SA – IA - DA | | | | | | | | | |
| A ₁ | --- | 2.05 | 2.48 | --- | --- | 5.51 | --- | --- | --- |
| B ₁ | --- | 3.19 | 3.88 | --- | --- | 5.75 | --- | --- | --- |
| F ₁ | --- | 0.33 | 0.34 | --- | --- | 0.43 | --- | --- | --- |
| H | --- | 2.84 | 3.23 | --- | --- | 5.59 | --- | --- | --- |
| FA | | | | | | | | | |
| F | 3.15 | 4.13 | 4.92 | 6.50 | 6.50 | --- | --- | --- | --- |
| G _(H8) | 1.97 | 2.36 | 2.76 | 4.33 | 4.53 | --- | --- | --- | --- |
| P | 1.99 | 2.72 | 3.66 | 3.54 | 4.57 | --- | --- | --- | --- |
| R | 2.68 | 3.43 | 3.54 | 5.12 | 5.91 | --- | --- | --- | --- |
| U | 0.14 | 0.20 | 0.20 | 0.39 | 0.18 | --- | --- | --- | --- |
| V | 0.26 (4x) | 0.35 (4x) | 0.43 (4x) | 0.41 (4x) | 0.43 (4x) | --- | --- | --- | --- |
| Z | 0.28 | 0.31 | 0.39 | 0.59 | 0.39 | --- | --- | --- | --- |
| FB | | | | | | | | | |
| F | --- | 4.72 | --- | 7.09 | --- | 8.27 | 10.63 | --- | --- |
| G _(H8) | --- | 3.15 | --- | 4.53 | --- | 5.98 | 6.69 | --- | --- |
| P | --- | 2.44 | --- | 3.39 | --- | 4.70 | 5.18 | --- | --- |
| R | --- | 3.94 | --- | 5.91 | --- | 6.93 | 9.06 | --- | --- |
| U | --- | 0.16 | --- | 0.14 | --- | 0.20 | 0.20 | --- | --- |
| V | --- | 0.35 (4x) | --- | 0.43 (4x) | --- | 0.43 (4x) | 0.52 (4x) | --- | --- |
| Z | --- | 0.35 | --- | 0.47 | --- | 0.55 | 0.71 | --- | --- |
| FR | | | | | | | | | |
| F | --- | --- | --- | --- | 6.30 | --- | --- | --- | --- |
| G _(H8) | --- | --- | --- | --- | 4.33 | --- | --- | --- | --- |
| P | --- | --- | --- | --- | 3.33 | --- | --- | --- | --- |
| R | --- | --- | --- | --- | 5.12 | --- | --- | --- | --- |
| U | --- | --- | --- | --- | 0.18 | --- | --- | --- | --- |
| V | --- | --- | --- | --- | 0.43 (4x) | --- | --- | --- | --- |
| Z | --- | --- | --- | --- | 0.55 | --- | --- | --- | --- |
| PA | | | | | | | | | |
| G _{1 (h8)} | --- | 1.97 | 2.68 | 2.95 | 3.54 | --- | --- | --- | --- |
| P ₁ | --- | 3.74 | 4.33 | 4.09 | 4.92 | --- | --- | --- | --- |
| R ₁ | --- | 2.56 | 3.70 | 3.54 | 4.33 | --- | --- | --- | --- |
| S | --- | 1.50 | 1.93 | 1.87 | 2.17 | --- | --- | --- | --- |
| S ₂ | --- | 0.08 | 0.10 | 0.22 | 0.12 | --- | --- | --- | --- |
| V ₁ | --- | M6x8 (4x) | M6x12.5 (4x) | M8x14 (4x) | M8x14 (4x) | --- | --- | --- | --- |
| PB | | | | | | | | | |
| G _{1 (h8)} | --- | --- | 2.36 | --- | 2.76 | --- | --- | --- | --- |
| P ₁ | --- | --- | 4.33 | --- | 4.57 | --- | --- | --- | --- |
| R ₁ | --- | --- | 2.95 | --- | 3.35 | --- | --- | --- | --- |
| S | --- | --- | 1.93 | --- | 2.64 | --- | --- | --- | --- |
| S ₂ | --- | --- | 0.10 | --- | 0.16 | --- | --- | --- | --- |
| V ₁ | --- | --- | M6x12.5 (4x) | --- | M8x14 (4x) | --- | --- | --- | --- |

- Not binding dimensions - Dimensions are inch / mm

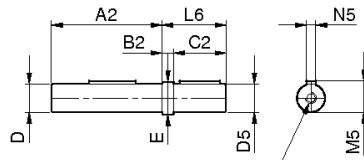
Worm Gears RS

DIMENSIONS

ACCESSORIES

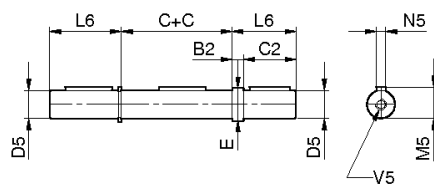
AS

Solid single output shaft



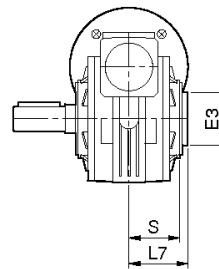
AD

Solid double output shaft



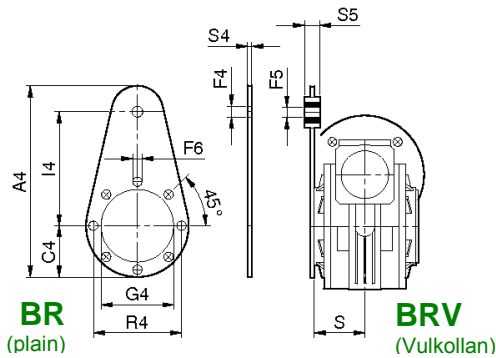
ASC

Safety cap for AS



BR

Torque arm

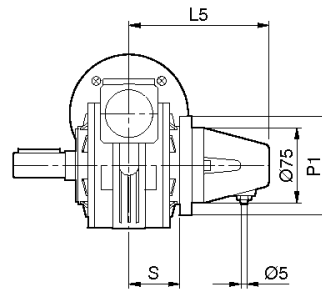


BR
(plain)

BRV
(Vulkollan)

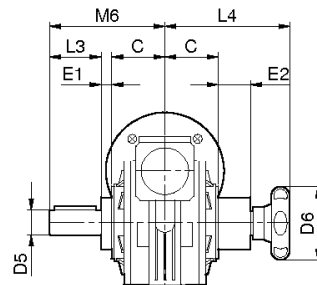
SL

Speed Limiter

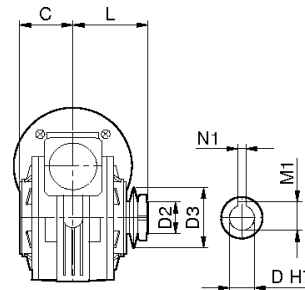


TL

Torque Limiter



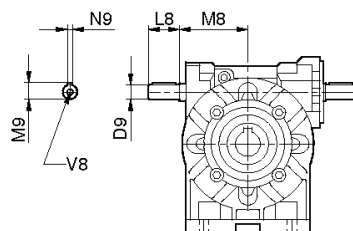
TLE (external)



TLI (internal)

VB

NDE wormshaft extension



TLI LUBRICATION

| Size | US qt | litres |
|------|-------|--------|
| 28 | 0.04 | 0.04 |
| 40 | 0.10 | 0.10 |
| 50 | 0.14 | 0.13 |
| 60 | 0.31 | 0.30 |
| 70 | 0.48 | 0.45 |
| 85 | 0.79 | 0.75 |
| 110 | 2.38 | 2.25 |

Worm Gears RS

| | |
|--------------------|-------------------|
| ACCESSORIES | DIMENSIONS |
|--------------------|-------------------|

| RS | 28 | 40 | 50 | 60 | 70 | 85 | 110 | 130 | 150 |
|------------------------------------|--------------|----------------|----------------|--------------|----------------|----------------|--------------|---------------|---------------|
| AS & AD A ₂ | 2.28 | 3.16 | 3.74 | 4.61 | 4.61 | 4.69 | 6.02 | 6.97 | 8.15 |
| B ₂ | 0.08 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.79 | 0.79 |
| C | 1.18 | 1.61 | 1.93 | 2.36 | 2.36 | 2.40 | 3.05 | 3.54 | 4.13 |
| C ₂ | 1.375 | 1.57 | 1.97 | 2.36 | 2.36 | 2.76 | 3.15 | 3.54 | 3.94 |
| D _{5 (g6)} | 0.625 | 0.75 | 1.0 | 1.125 | 1.25 | 1.375 | 1.625 | 1.75 | 2.0 |
| D_{5 (g6)} | 14 | 19 (18) | 24 (25) | 25 | 28 (30) | 32 (35) | 42 | 48 | 55 |
| E | 0.82 | 0.98 | 1.25 | 1.37 | 1.49 | 1.69 | 1.95 | 2.28 | 2.48 |
| L ₆ | 1.42 | 1.97 | 2.37 | 2.76 | 2.76 | 3.15 | 3.54 | 4.33 | 4.33 |
| M ₅ | 0..70 | 0.83 | 1.10 | 1.23 | 1.36 | 1.51 | 1.79 | 1.91 | 2.21 |
| N ₅ x N ₅ | 3/16 | 3/16 | 1/4 | 1/4 | 1/4 | 5/16 | 3/8 | 3/8 | 1/2 |
| V ₅ | 1/4"-20 | 1/4"-20 | 3/8"-16 | 3/8"-16 | 1/2"-13 | 1/2"-13 | 5/8"-11 | 5/8"-11 | 3/4"-10 |
| ASC E ₃ | 1.65 | 2.17 | 2.44 | 2.44 | 2.83 | 3.54 | 4.72 | --- | --- |
| L ₇ | 1.42 | 1.91 | 2.19 | 2.70 | 2.64 | 3.03 | 3.35 | --- | --- |
| S | 1.08 | 1.52 | 1.83 | 2.24 | 2.24 | 2.64 | 2.91 | --- | --- |
| BR & BRV A ₄ | 5.26 | 6.50 | 7.28 | 9.06 | 9.45 | 12.32 | 15.28 | 18.31 | 20.67 |
| C ₄ | 1.32 | 1.97 | 2.36 | 1.97 | 2.36 | 2.95 | 3.94 | 4.72 | 4.92 |
| F ₄ | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.81 | 0.81 | 1.02 | 1.02 |
| F ₅ | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.79 | 0.79 | 0.98 | 0.98 |
| F ₆ | 0.28 | 0.28 | 0.35 | 0.35 | 0.35 | 0.43 | 0.51 | 0.51 | 0.59 |
| G ₄ | 1.65 | 2.36 | 2.76 | 2.76 | 3.15 | 4.33 | 5.12 | 7.09 | 7.09 |
| I ₄ | 3.15 | 3.54 | 3.94 | 5.91 | 5.91 | 7.87 | 9.84 | 11.81 | 13.78 |
| R ₄ | 2.20 | 3.27 | 3.35 | 3.35 | 3.94 | 5.12 | 6.50 | 8.46 | 8.46 |
| S ₄ | 0.16 | 0.16 | 0.16 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 |
| S ₅ | 0.59 | 0.59 | 0.59 | 0.79 | 0.79 | 0.98 | 0.98 | 1.18 | 1.18 |
| SL L ₅ | 3.82 | 4.49 | 5.08 | 5.39 | 5.24 | 5.24 | 5.94 | --- | --- |
| P ₁ | 2.64 | 3.94 | 4.33 | 4.02 | 4.72 | 5.91 | 7.87 | --- | --- |
| S | 1.26 | 1.50 | 1.93 | 2.26 | 2.24 | 2.22 | 2.93 | --- | --- |
| TLE D ₆ | 2.05 | 2.76 | 2.76 | 2.76 | 3.15 | 3.94 | 3.94 | --- | --- |
| E ₁ | 0.39 | 0.47 | 0.47 | 0.59 | 0.55 | 0.75 | 0.94 | --- | --- |
| E ₂ | 1.10 | 1.46 | 1.22 | 1.57 | 1.81 | 2.24 | 2.80 | --- | --- |
| L ₃ | 1.18 | 1.57 | 1.97 | 1.97 | 2.36 | 2.76 | 3.15 | --- | --- |
| L ₄ | 3.70 | 4.57 | 4.65 | 5.04 | 5.75 | 6.61 | 7.91 | --- | --- |
| M ₆ | 2.76 | 3.66 | 4.37 | 4.92 | 5.28 | 5.91 | 7.13 | --- | --- |
| TLI D | 14 | 18 | 24 | 25 | 28 | 32 | 42 | --- | --- |
| D ₂ | 1.57 | 2.20 | 2.80 | 2.80 | 3.15 | 3.54 | 4.92 | --- | --- |
| D ₃ | 0.56 x 0.79 | 0.77 x 0.81 | 0.97 x 1.10 | 1.00 x 1.02 | 1.12 x 0.87 | 1.28 x 1.06 | 1.67 x 1.52 | --- | --- |
| L | 1.77 | 2.42 | 3.03 | 3.41 | 3.50 | 3.70 | 4.43 | --- | --- |
| M ₁ | 0.61* | 0.86 | 1.07 | 1.07* | 1.23 | 1.39 | 1.78 | --- | --- |
| N ₁ | 0.20 | 0.24 | 0.31 | 0.31 | 0.31 | 0.39 | 0.47 | --- | --- |
| VB D₉ | 9 | 11 | 14 | 19 | 19 | 24 | 28 | 38 | 42 |
| L ₈ | 0.79 | 0.91 | 1.18 | 1.57 | 1.57 | 1.97 | 2.36 | 3.15 | 3.94 |
| M ₈ | 1.69 | 2.17 | 2.56 | 3.03 | 3.31 | 4.19 | 5.71 | 6.54 | 7.68 |
| M ₉ | 0.40 | 0.49 | 0.63 | 0.89 | 0.89 | 1.06 | 1.22 | 1.61 | 1.77 |
| N ₉ | 0.12 | 0.16 | 0.20 | 0.24 | 0.24 | 0.31 | 0.31 | 1.50 | 1.65 |
| V₈ | M4x10 | M4x10 | M6x15 | M8x20 | M8x20 | M8x20 | M8x20 | M10x22 | M12x25 |

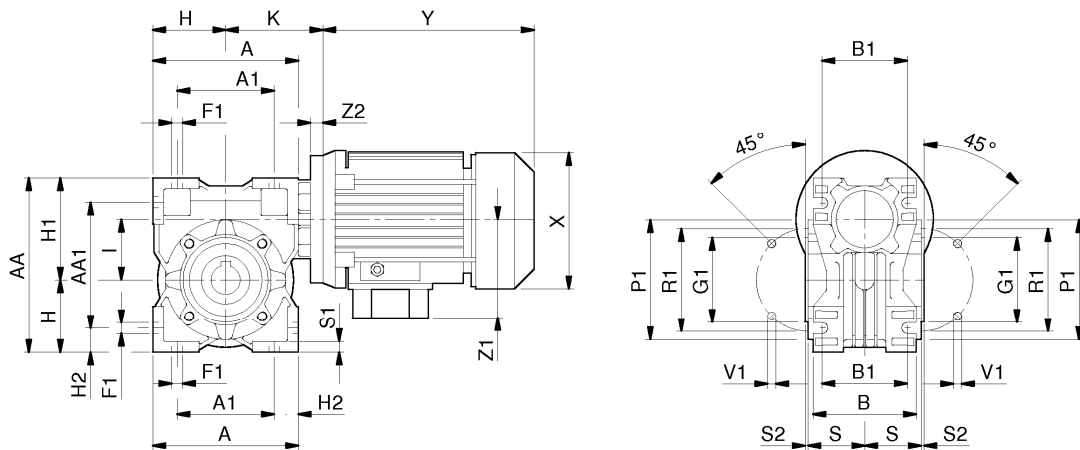
- D_{5 (,,)} = Diameter on demand

* = Undersized key

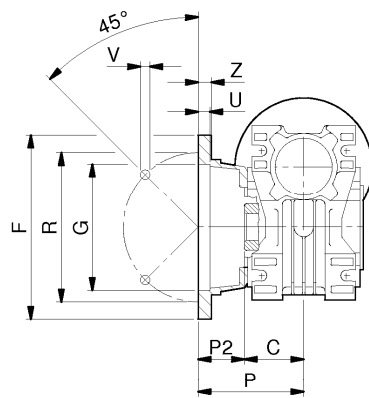
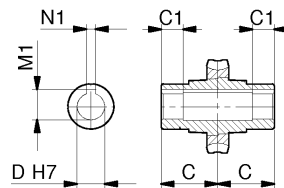
- Dimensions are inch / mm

Worm Gears RT

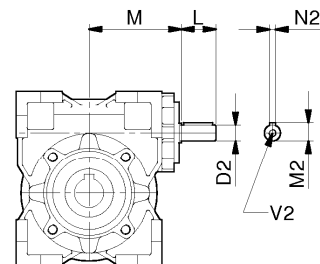
DIMENSIONS



B3



F



RT

Worm Gears RT

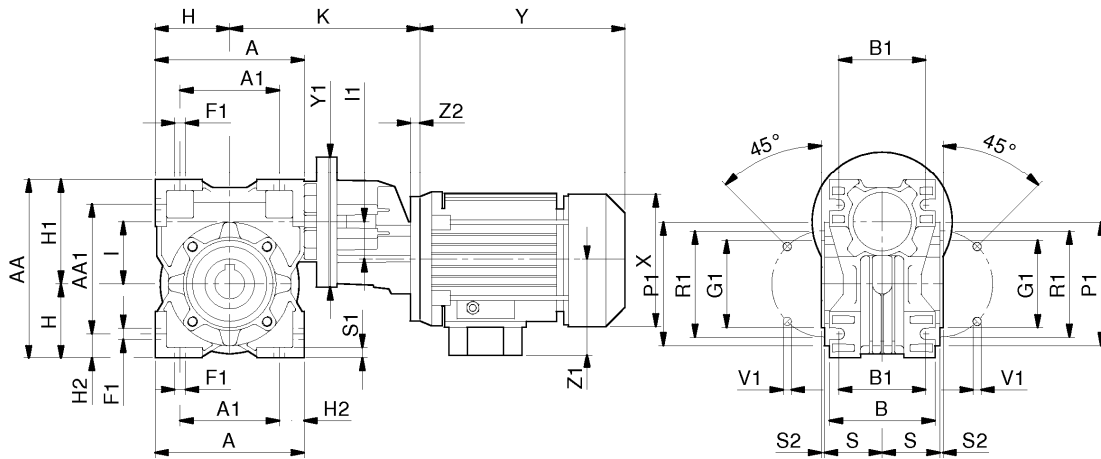
DIMENSIONS

| RT | 28 | 40 | 50 | 60 | 70 | 85 | 110 |
|---------------------------|-------------------|--------------------|-------------------|-------------------|-------------------|--------------------|--------------------|
| A | 3.15 | 3.94 | 4.72 | 5.67 | 6.77 | 8.11 | 10.04 |
| A ₁ | 2.13 | 2.76 | 3.15 | 3.94 | 4.72 | 5.51 | 6.69 |
| AA | 3.82 | 4.78 | 5.67 | 6.85 | 8.07 | 9.37 | 11.61 |
| AA ₁ | 2.80 | 3.60 | 4.09 | 5.12 | 6.02 | 6.77 | 8.27 |
| B | 2.09 | 2.80 | 3.35 | 3.94 | 4.41 | 5.12 | 5.67 |
| B ₁ | 1.73 | 2.36 | 2.76 | 3.35 | 3.54 | 3.94 | 4.53 |
| C | 1.18 | 1.61 | 1.93 | 2.36 | 2.36 | 2.40 | 3.05 |
| D _(H7) | 0.625 | 0.75 | 1.0 | 1.125 | 1.25 | 1.375 | 1.625 |
| D_(H7) | 14 | 19 | 24 | 25 | 28 | 32 | 42 |
| D₂ (h6) | 8 | 11 | 14 | 19 | 19 | 24 | 28 |
| F | 3.15 | 4.33 | 4.92 | 7.09 | 7.87 | 8.27 | 10.63 |
| F ₁ | 0.28 | 0.28 | 0.35 | 0.35 | 0.43 | 0.51 | 0.59 |
| G _(H8) | 1.97 | 2.36 | 2.76 | 4.53 | 5.12 | 5.98 | 6.69 |
| G ₁ (h8) | 2.17 | 2.36 | 2.76 | 3.15 | 3.74 | 4.33 | 5.12 |
| H | 1.57 | 1.97 | 2.36 | 2.83 | 3.39 | 4.06 | 5.02 |
| H ₁ | 2.24 | 2.81 | 3.31 | 4.02 | 4.69 | 5.31 | 6.59 |
| H ₂ | 0.51 | 0.59 | 0.79 | 0.87 | 1.02 | 1.30 | 1.67 |
| I | 1.10 | 1.57 | 1.97 | 2.36 | 2.76 | 3.35 | 4.33 |
| K | 2.60 | 3.27 | 3.82 | 4.06 | 4.96 | 6.30 | 5.94 |
| L | 0.79 | 0.91 | 1.18 | 1.57 | 1.57 | 1.97 | 2.36 |
| M | 1.97 | 2.56 | 2.95 | 3.43 | 4.33 | 4.86 | 5.75 |
| M ₁ | 0.71 | 0.84 | 1.12 | 1.25 | 1.37 | 1.52 | 1.80 |
| M ₂ | 0.40 | 0.49 | 0.63 | 0.89 | 0.89 | 1.06 | 1.22 |
| N ₁ | 0.19 | 0.19 | 0.25 | 0.25 | 0.25 | 0.31 | 0.38 |
| N ₂ | 0.12 | 0.16 | 0.20 | 0.24 | 0.24 | 0.31 | 0.31 |
| P | 2.09 | 2.72 | 3.66 | 3.39 | 4.37 | 4.37 | 5.16 |
| P ₁ | 2.95 | 3.39 | 3.94 | 4.33 | 5.12 | 6.30 | 7.87 |
| P ₂ | 0.91 | 1.10 | 1.73 | 0.98 | 2.01 | 1.97 | 2.11 |
| R | 2.68 | 3.43 | 3.54 | 5.93 | 6.50 | 6.89 | 9.06 |
| R ₁ | 2.56 | 2.95 | 3.35 | 3.74 | 4.53 | 5.12 | 6.50 |
| S | 1.08 | 1.52 | 1.83 | 2.24 | 2.24 | 2.64 | 2.91 |
| S ₁ | 0.24 | 0.28 | 0.31 | 0.39 | 0.43 | 0.55 | 0.51 |
| S ₂ | 0.10 | 0.10 | 0.12 | 0.12 | 0.12 | 0.12 | 0.14 |
| U | 0.39 | 0.16 | 0.20 | 0.26 | 0.47 | 0.24 | 0.20 |
| V | 0.28 | 0.35 | 0.43 | 0.43 | 0.51 | 0.51 | 0.55 |
| V₁ | M6x10 (4x) | M6x8.5 (4x) | M8x10 (4x) | M8x16 (8x) | M8x16 (8x) | M10x18 (8x) | M10x21 (8x) |
| V₂ | M4x10 | M4x10 | M6x15 | M8x20 | M8x20 | M8x20 | M8x20 |
| Z | 0.28 | 0.23 | 0.39 | 0.39 | 0.55 | 0.63 | 0.71 |
| Z ₂ | 0.51 | 0.51 | 0.52 - 0.73 | 0.55 - 0.59 | 0.61 - 0.69 | 0.61 - 0.73 | 0.71-0.79 |

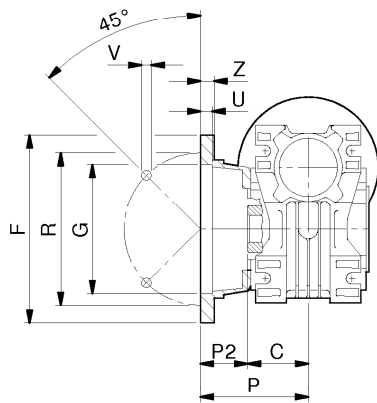
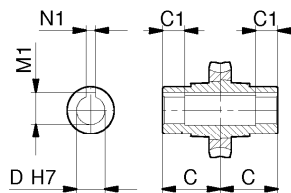
- V₁ - 90° for RT28
 - Not binding dimensions
 - Dimensions are inch / **mm**

Helical Worm Gears TA

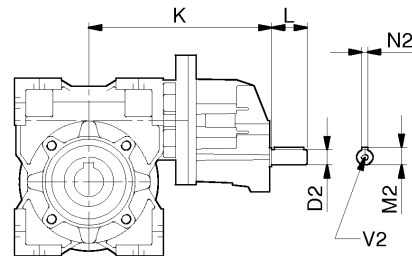
DIMENSIONS



B3



F



RT

Helical Worm Gears TA

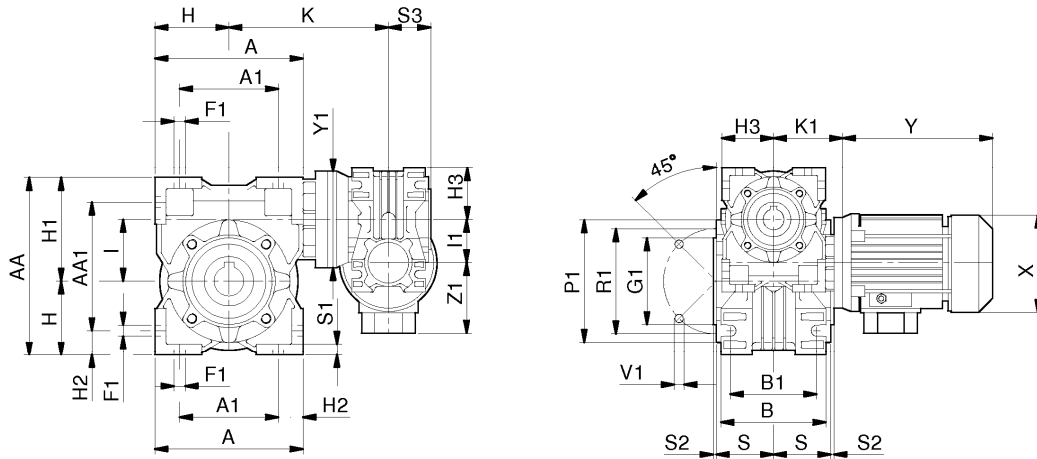
DIMENSIONS

| TA | 63 | | | 71 | | | | 80 | | | | 100 |
|--------------------|-----------------|------------------|------------------|------------------|------------------|------------------|-------------------|------------------|------------------|-------------------|-------------------|-------------------|
| | 40 | 50 | 60 | 50 | 60 | 70 | 85 | 60 | 70 | 85 | 110 | 110 |
| A | 3.94 | 4.72 | 5.67 | 4.72 | 5.67 | 6.77 | 8.11 | 5.67 | 6.77 | 8.11 | 10.04 | 10.04 |
| A ₁ | 2.76 | 3.15 | 3.94 | 3.15 | 3.94 | 4.72 | 5.51 | 3.94 | 4.72 | 5.51 | 6.69 | 6.69 |
| AA | 4.78 | 5.67 | 6.85 | 5.67 | 6.85 | 8.07 | 9.37 | 6.85 | 8.07 | 9.37 | 11.61 | 11.61 |
| AA ₁ | 3.60 | 4.09 | 5.12 | 4.09 | 5.12 | 6.02 | 6.77 | 5.12 | 6.02 | 6.77 | 8.27 | 8.27 |
| B | 2.80 | 3.35 | 3.94 | 3.35 | 3.94 | 4.41 | 5.12 | 3.94 | 4.41 | 5.12 | 5.67 | 5.67 |
| B ₁ | 2.36 | 2.76 | 3.35 | 2.76 | 3.35 | 3.54 | 3.94 | 3.35 | 3.54 | 3.94 | 4.53 | 4.53 |
| C | 1.61 | 1.93 | 2.36 | 1.93 | 2.36 | 2.36 | 2.40 | 2.36 | 2.36 | 2.40 | 3.05 | 3.05 |
| D _(H7) | 0.625 | 1.0 | 1.125 | 1.0 | 1.125 | 1.25 | 1.375 | 1.125 | 1.25 | 1.375 | 1.625 | 1.625 |
| D _(H7) | 19 | 24 | 25 | 24 | 25 | 28 | 32 | 25 | 28 | 32 | 42 | 42 |
| D ₂ | 11 | 11 | 11 | 14 | 14 | 14 | 14 | 19 | 19 | 19 | 19 | 24 |
| F | 4.33 | 4.92 | 7.09 | 4.92 | 7.09 | 7.87 | 8.27 | 7.09 | 7.87 | 8.27 | 10.63 | 10.63 |
| F ₁ | 0.28 | 0.35 | 0.35 | 0.35 | 0.35 | 0.43 | 0.51 | 0.35 | 0.43 | 0.51 | 0.59 | 0.59 |
| G _(H8) | 2.36 | 2.76 | 4.53 | 2.76 | 4.53 | 5.12 | 5.98 | 4.53 | 5.12 | 5.98 | 6.69 | 6.69 |
| G _{1(h8)} | 2.36 | 2.76 | 3.15 | 2.76 | 3.15 | 3.74 | 4.33 | 3.15 | 3.74 | 4.33 | 5.12 | 5.12 |
| H | 1.97 | 2.36 | 2.83 | 2.36 | 2.83 | 3.39 | 4.06 | 2.83 | 3.39 | 4.06 | 5.02 | 5.02 |
| H ₁ | 2.81 | 3.31 | 4.02 | 3.31 | 4.02 | 4.69 | 5.31 | 4.02 | 4.69 | 5.31 | 6.59 | 6.59 |
| H ₂ | 0.59 | 0.79 | 0.87 | 0.79 | 0.87 | 1.02 | 1.30 | 0.87 | 1.02 | 1.30 | 1.67 | 1.67 |
| I | 1.57 | 1.97 | 2.36 | 1.97 | 2.36 | 2.76 | 3.35 | 2.36 | 2.76 | 3.35 | 4.33 | 4.33 |
| I ₁ | 1.26 | 1.26 | 1.26 | 1.57 | 1.57 | 1.57 | 1.57 | 1.97 | 1.97 | 1.97 | 1.97 | 1.97 |
| K | 6.04 | 6.73 | 6.97 | 6.81 | 7.20 | 8.23 | 8.82 | 8.15 | 9.15 | 9.86 | 10.41 | 12.91 |
| L | 0.91 | 0.91 | 0.91 | 1.18 | 1.18 | 1.18 | 1.18 | 1.57 | 1.57 | 1.57 | 1.57 | 1.97 |
| M ₁ | 0.71 | 1.12 | 1.25 | 1.12 | 1.25 | 1.37 | 1.52 | 1.25 | 1.37 | 1.52 | 1.80 | 1.80 |
| M ₂ | 0.49 | 0.49 | 0.49 | 0.63 | 0.63 | 0.63 | 0.63 | 0.89 | 0.89 | 0.89 | 0.89 | 1.06 |
| N ₁ | 0.19 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.31 | 0.25 | 0.25 | 0.31 | 0.38 | 0.38 |
| N ₂ | 0.16 | 0.16 | 0.16 | 0.20 | 0.20 | 0.20 | 0.20 | 0.24 | 0.24 | 0.24 | 0.24 | 0.31 |
| P | 2.72 | 3.66 | 3.39 | 3.66 | 3.39 | 4.37 | 4.37 | 3.39 | 4.37 | 4.37 | 5.16 | 5.16 |
| P ₁ | 3.39 | 3.94 | 4.33 | 3.94 | 4.33 | 5.12 | 6.30 | 4.33 | 5.12 | 6.30 | 7.87 | 7.87 |
| P ₂ | 1.10 | 1.73 | 0.98 | 1.73 | 0.98 | 2.01 | 1.97 | 0.98 | 2.01 | 1.97 | 2.11 | 2.11 |
| R | 3.43 | 3.54 | 5.93 | 3.54 | 5.93 | 6.50 | 6.89 | 5.93 | 6.50 | 6.89 | 9.06 | 9.06 |
| R ₁ | 2.95 | 3.35 | 3.74 | 3.35 | 3.74 | 4.53 | 5.12 | 3.74 | 4.53 | 5.12 | 6.50 | 6.50 |
| S | 1.52 | 1.83 | 2.24 | 1.83 | 2.24 | 2.24 | 2.64 | 2.24 | 2.24 | 2.64 | 2.91 | 2.91 |
| S ₁ | 0.28 | 0.31 | 0.39 | 0.31 | 0.39 | 0.43 | 0.55 | 0.39 | 0.43 | 0.55 | 0.51 | 0.51 |
| S ₂ | 0.10 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.14 | 0.14 |
| U | 0.16 | 0.20 | 0.26 | 0.20 | 0.26 | 0.47 | 0.24 | 0.26 | 0.47 | 0.24 | 0.20 | 0.20 |
| V | 0.35 | 0.43 | 0.43 | 0.43 | 0.43 | 0.51 | 0.51 | 0.43 | 0.51 | 0.51 | 0.55 | 0.55 |
| V ₁ | M6x8 (4) | M8x10 (4) | M8x16 (8) | M8x10 (4) | M8x16 (8) | M8x16 (8) | M10x18 (8) | 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 | 4.13 | 4.13 | 4.13 | 4.72 | 4.72 | 4.72 | 4.72 | 5.51 | 5.51 | 5.51 | 5.51 | 5.51 |
| Z | 0.24 | 0.39 | 0.39 | 0.39 | 0.39 | 0.55 | 0.63 | 0.39 | 0.55 | 0.63 | 0.71 | 0.71 |
| Z ₂ | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 |

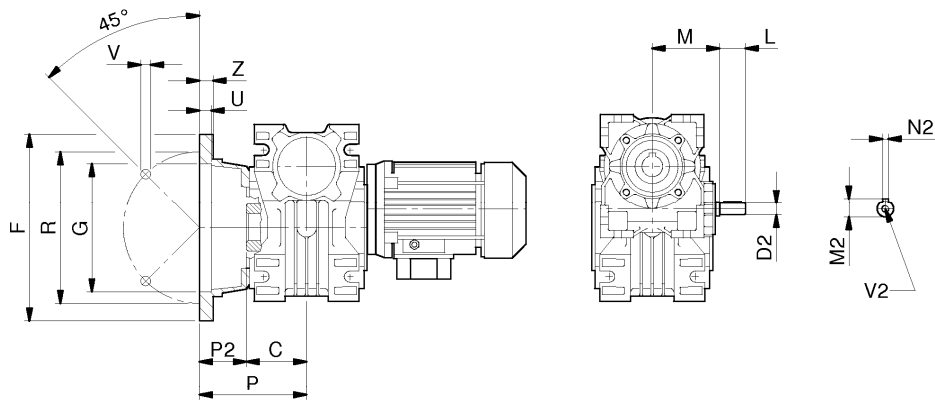
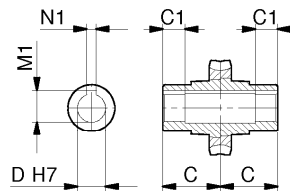
- V₁ - 90° for RT28
 - Not binding dimensions
 - Dimensions are inch / **mm**

Double Worm Gears RT

DIMENSIONS



B3



F

RT/RT

Double Worm Gears RT

DIMENSIONS

| RT/RT | 28 | | | | 40 | | 50 |
|---------------------------|-------------------|--------------------|-------------------|-------------------|-------------------|--------------------|--------------------|
| | 28 | 40 | 50 | 60 | 70 | 85 | 110 |
| A | 3.15 | 3.94 | 4.72 | 5.67 | 6.77 | 8.11 | 10.04 |
| A ₁ | 2.13 | 2.76 | 3.15 | 3.94 | 4.72 | 5.51 | 6.69 |
| AA | 3.82 | 4.78 | 5.67 | 6.85 | 8.07 | 9.37 | 11.61 |
| AA ₁ | 2.80 | 3.60 | 4.09 | 5.12 | 6.02 | 6.77 | 8.27 |
| B | 2.09 | 2.80 | 3.35 | 3.94 | 4.41 | 5.12 | 5.67 |
| B ₁ | 1.73 | 2.36 | 2.76 | 3.35 | 3.54 | 3.94 | 4.53 |
| C | 1.18 | 1.61 | 1.93 | 2.36 | 2.36 | 2.40 | 3.05 |
| D _(H7) | 0.625 | 0.75 | 1.0 | 1.125 | 1.25 | 1.375 | 1.625 |
| D_(H7) | 14 | 19 | 24 | 25 | 28 | 32 | 42 |
| D₂ (h6) | 9 | 9 | 9 | 9 | 11 | 11 | 14 |
| F | 3.15 | 4.33 | 4.92 | 7.09 | 7.87 | 8.27 | 10.63 |
| F ₁ | 0.28 | 0.28 | 0.35 | 0.35 | 0.43 | 0.51 | 0.59 |
| G _(H8) | 1.97 | 2.36 | 2.76 | 4.53 | 5.12 | 5.98 | 6.69 |
| G ₁ (h8) | 2.17 | 2.36 | 2.76 | 3.15 | 3.74 | 4.33 | 5.12 |
| H | 1.57 | 1.97 | 2.36 | 2.83 | 3.39 | 4.06 | 5.02 |
| H ₁ | 2.24 | 2.81 | 3.31 | 4.02 | 4.69 | 5.31 | 6.59 |
| H ₂ | 0.51 | 0.59 | 0.79 | 0.87 | 1.02 | 1.30 | 1.67 |
| H ₃ | 1.57 | 1.57 | 1.57 | 1.57 | 1.97 | 1.97 | 2.36 |
| I | 1.10 | 1.57 | 1.97 | 2.36 | 2.76 | 3.35 | 4.33 |
| I ₁ | 1.10 | 1.10 | 1.10 | 1.10 | 1.57 | 1.57 | 1.97 |
| K | 3.13 | 3.92 | 5.55 | 5.73 | 5.65 | 7.83 | 7.99 |
| K ₁ | 2.26 | 2.26 | 2.26 | 2.26 | 2.78 | 2.78 | 3.27 |
| L | 0.79 | 0.79 | 0.79 | 0.79 | 0.91 | 0.91 | 1.18 |
| M | 1.97 | 1.97 | 1.97 | 1.97 | 2.56 | 2.56 | 2.95 |
| M ₁ | 0.71 | 0.84 | 1.12 | 1.25 | 1.37 | 1.52 | 1.80 |
| M ₂ | 0.40 | 0.40 | 0.40 | 0.40 | 0.49 | 0.49 | 0.63 |
| N ₁ | 0.20 | 0.24 | 0.31 | 0.31 | 0.31 | 0.39 | 0.47 |
| N ₂ | 0.12 | 0.12 | 0.12 | 0.12 | 0.16 | 0.16 | 0.20 |
| P | 2.09 | 2.72 | 3.66 | 3.39 | 4.37 | 4.37 | 5.16 |
| P ₁ | 2.95 | 3.39 | 3.94 | 4.33 | 5.12 | 6.30 | 7.87 |
| P ₂ | 0.91 | 1.10 | 1.73 | 0.98 | 2.01 | 1.97 | 2.11 |
| R | 2.68 | 3.43 | 3.54 | 5.93 | 6.50 | 6.89 | 9.06 |
| R ₁ | 2.56 | 2.95 | 3.35 | 3.74 | 4.53 | 5.12 | 6.50 |
| S | 1.08 | 1.52 | 1.83 | 2.24 | 2.24 | 2.64 | 2.91 |
| S ₁ | 0.24 | 0.28 | 0.31 | 0.39 | 0.43 | 0.55 | 0.51 |
| S ₂ | 0.10 | 0.10 | 0.12 | 0.12 | 0.12 | 0.12 | 0.14 |
| S ₃ | 1.18 | 1.18 | 1.18 | 1.18 | 1.61 | 1.61 | 1.93 |
| U | 0.39 | 0.16 | 0.20 | 0.26 | 0.47 | 0.24 | 0.20 |
| V | 0.28 | 0.35 | 0.43 | 0.43 | 0.51 | 0.51 | 0.55 |
| V₁ | M6x10 (4x) | M6x8,5 (4x) | M8x10 (4x) | M8x16 (8x) | M8x16 (8x) | M10x18 (8x) | M10x21 (8x) |
| V₂ | M4x10 | M4x10 | M4x10 | M4x10 | M4x10 | M4x10 | M6x15 |
| Y ₁ | 3.15 | 3.54 | 3.54 | 3.54 | 4.72 | 4.72 | 4.72 |
| Z | 0.28 | 0.24 | 0.39 | 0.39 | 0.55 | 0.63 | 0.71 |

- V₁ - 90° for RT28

- Not binding dimensions

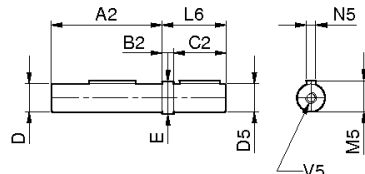
- Dimensions are inch / mm

Worm Gears RT

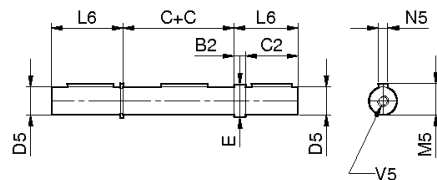
DIMENSIONS

ACCESSORIES

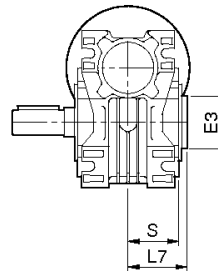
AS
Solid single
output shaft



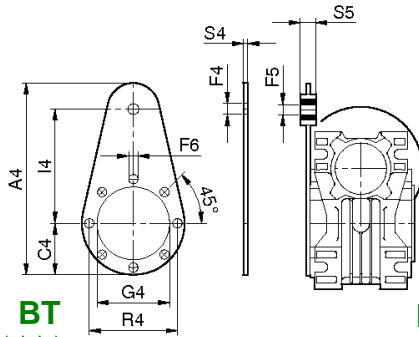
AD
Solid double
output shaft



ASC
Safety cap for AS



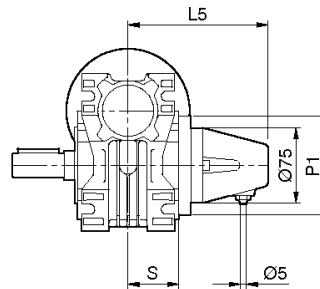
BT
Torque arm



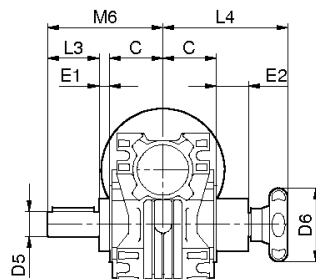
BT
(plain)

BTV
(Vulkollan)

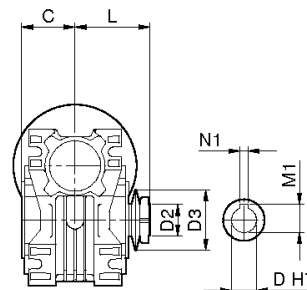
SL
Speed Limiter



TL
Torque Limiter

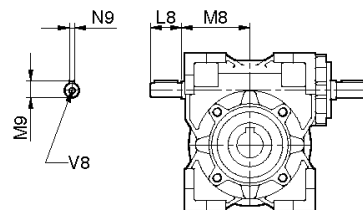


TLE (external)



TLI (internal)

VB
NDE wormshaft
extension



TLI **LUBRICATION**

| Size | US qt | litres |
|------|-------|--------|
| 28 | 0.04 | 0.04 |
| 40 | 0.10 | 0.10 |
| 50 | 0.14 | 0.13 |
| 60 | 0.31 | 0.30 |
| 70 | 0.48 | 0.45 |
| 85 | 0.79 | 0.75 |
| 110 | 2.38 | 2.25 |

Worm Gears RT

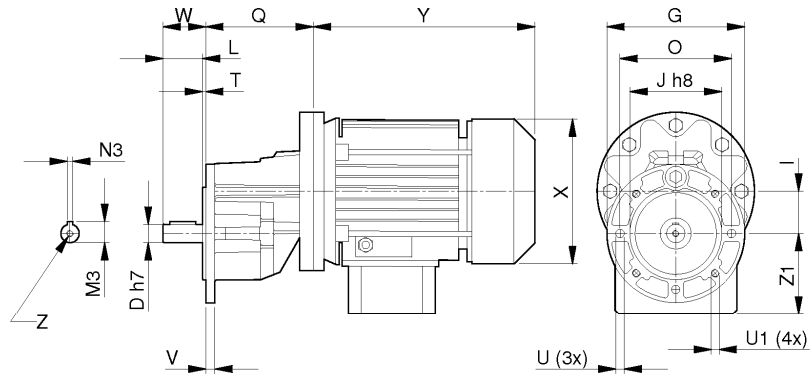
| ACCESSORIES | DIMENSIONS | | | | | | | |
|---------------------|---------------------------------|--------------|----------------|----------------|--------------|----------------|----------------|--------------|
| RT | 28 | 40 | 50 | 60 | 70 | 85 | 110 | |
| AS & AD | A ₂ | 2.28 | 3.16 | 3.74 | 4.61 | 4.61 | 4.69 | 6.02 |
| | B ₂ | 0.08 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 |
| | C | 1.18 | 1.61 | 1.93 | 2.36 | 2.36 | 2.40 | 3.05 |
| | C ₂ | 1.375 | 1.57 | 1.97 | 2.36 | 2.36 | 2.76 | 3.15 |
| | D _{5 (g6)} | 0.625 | 0.75 | 1.0 | 1.125 | 1.25 | 1.375 | 1.625 |
| | D_{5 (g6)} | 14 | 19 (18) | 24 (25) | 25 | 28 (30) | 32 (35) | 42 |
| | E | 0.82 | 0.98 | 1.25 | 1.37 | 1.49 | 1.69 | 1.95 |
| | L ₆ | 1.42 | 1.97 | 2.37 | 2.76 | 2.76 | 3.15 | 3.54 |
| | M ₅ | 0.70 | 0.83 | 1.10 | 1.23 | 1.36 | 1.51 | 1.79 |
| | N ₅ x N ₅ | 3/16 | 3/16 | 1/4 | 1/4 | 1/4 | 5/16 | 3/8 |
| V ₅ | 1/4"-20 | 1/4"-20 | 3/8"-16 | 3/8"-16 | 1/2"-13 | 1/2"-13 | 5/8"-11 | |
| ASC | E ₃ | 1.97 | 2.05 | 2.44 | 2.95 | 3.54 | 3.94 | 4.72 |
| | L ₇ | 1.42 | 1.91 | 2.19 | 2.70 | 2.64 | 3.03 | 3.35 |
| | S | 1.08 | 1.52 | 1.83 | 2.24 | 2.24 | 2.64 | 2.91 |
| BT & BTV | A ₄ | 5.43 | 6.61 | 7.28 | 9.25 | 11.61 | 12.32 | 15.28 |
| | C ₄ | 1.50 | 1.69 | 2.36 | 2.17 | 2.56 | 2.95 | 3.94 |
| | F ₄ | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.81 | 0.81 |
| | F ₅ | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.79 | 0.79 |
| | F ₆ | 0.28 | 0.28 | 0.35 | 0.35 | 0.35 | 0.47 | 0.51 |
| | G ₄ | 2.17 | 2.36 | 2.76 | 3.15 | 3.74 | 4.33 | 5.12 |
| | I ₄ | 3.15 | 3.94 | 3.94 | 5.91 | 7.87 | 7.87 | 9.84 |
| | R ₄ | 2.56 | 2.95 | 3.35 | 3.74 | 4.53 | 5.12 | 6.50 |
| | S ₄ | 0.16 | 0.16 | 0.16 | 0.24 | 0.24 | 0.24 | 0.24 |
| | S ₅ | 0.59 | 0.59 | 0.59 | 0.79 | 0.79 | 0.98 | 0.98 |
| SL | L ₅ | 3.78 | 4.45 | 4.84 | 5.24 | 5.24 | 5.47 | 5.91 |
| | P ₁ | 3.07 | 3.54 | 3.94 | 4.33 | 5.12 | 6.30 | 7.87 |
| | S | 1.08 | 1.52 | 1.83 | 2.24 | 2.24 | 2.64 | 2.91 |
| TLE | D ₆ | 2.05 | 2.76 | 2.76 | 2.76 | 3.15 | 3.94 | 3.94 |
| | E ₁ | 0.39 | 0.47 | 0.47 | 0.59 | 0.55 | 0.75 | 0.94 |
| | E ₂ | 1.10 | 1.46 | 1.22 | 1.57 | 1.81 | 2.24 | 2.80 |
| | L ₃ | 1.18 | 1.57 | 1.97 | 1.97 | 2.36 | 2.76 | 3.15 |
| | L ₄ | 3.70 | 4.57 | 4.65 | 5.04 | 5.75 | 6.61 | 7.91 |
| | M ₆ | 2.76 | 3.66 | 4.37 | 4.92 | 5.28 | 5.91 | 7.13 |
| TLI | D_(H7) | 14 | 18 | 24 | 25 | 28 | 32 | 42 |
| | D ₂ | 1.57 | 2.20 | 2.80 | 2.80 | 3.15 | 3.54 | 4.92 |
| | D ₃ | 0.56x0.79 | 0.77x0.81 | 0.96x1.10 | 1.00x1.02 | 1.12x0.87 | 1.28x1.06 | 1.67x1.52 |
| | L | 1.77 | 2.42 | 3.03 | 3.41 | 3.50 | 3.70 | 4.43 |
| | M ₁ | 0.61* | 0.86 | 1.07 | 1.07* | 1.23 | 1.39 | 1.78 |
| | N _{1 (H9)} | 0.20 | 0.24 | 0.31 | 0.31 | 0.31 | 0.39 | 0.47 |
| VB | D₉ | 9 | 11 | 14 | 19 | 19 | 24 | 28 |
| | L ₈ | 0.79 | 0.91 | 1.18 | 1.57 | 1.57 | 1.97 | 2.36 |
| | M ₈ | 1.69 | 2.17 | 2.56 | 3.03 | 3.31 | 4.19 | 5.71 |
| | M ₉ | 0.40 | 0.49 | 0.63 | 0.89 | 0.89 | 1.06 | 1.22 |
| | N ₉ | 0.12 | 0.16 | 0.20 | 0.24 | 0.24 | 0.31 | 0.31 |
| | V ₈ | M4x10 | M4x10 | M6x15 | M8x20 | M8x20 | M8x20 | M8x20 |
| | V ₈ | M4x10 | M4x10 | M6x15 | M8x20 | M8x20 | M8x20 | M8x20 |

- D_{5 (g6)} = Diameter on demand
 * = Undersized key
 - Dimensions are inch / mm

Worm Gears RS-RT

Helical Single-Stage Attachment - XA

DIMENSIONS AND WEIGHTS



| XA | D _{h7} [mm] | G [mm] | I | J _{h8} [mm] | L | O [mm] | Q | U | U1 | T | V | W | Z |
|-----|-------------------------|-----------|------|-------------------------|------|-----------|------|------|------|------|------|------|--------|
| 63 | 14 | 105 | 1.26 | 70 | 1.18 | 85 | 3.27 | 0.26 | M6 | 0.10 | 0.28 | 1.28 | M5x10 |
| 71 | 19 | 120 | 1.57 | 80 | 1.57 | 100 | 3.54 | 0.22 | M6 | 0.10 | 0.30 | 1.67 | M8x20 |
| 80 | 24 | 140 | 1.97 | 95 | 1.95 | 115 | 4.49 | 0.35 | M6 | 0.10 | 0.41 | 2.05 | M8x20 |
| 100 | 28 | 200 | 2.48 | 130 | 2.26 | 165 | 6.97 | 0.41 | 0.41 | 0.10 | 0.47 | 2.36 | M10x22 |

| XA | lb | US qt | litres |
|-----|-------|-------|--------|
| 63 | 2.23 | 0.04 | 0.04 |
| 71 | 4.28 | 0.06 | 0.06 |
| 80 | 6.36 | 0.11 | 0.10 |
| 100 | 15.25 | 0.21 | 0.20 |

Dimensions are inch / mm

Worm Gears RS-RT

BACK-DRIVING AND SELF-LOCKING

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 static self-locking drive when the lead angle (β) is lower than the friction angle (arc tangent of friction coefficient).

Tooth contact can be 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 lead angle smaller than 3 degrees is recommended for full self-locking condition, and a lead angle bigger than 10 degrees for full reversibility condition, according to the below table of relations between lead angles and self-locking.

Examples (lead angle full table overleaf):

- FRT50 1/7 $\beta =$ 23 degrees 52 minutes \rightarrow Full reversibility
- FRS60 1/20 $\beta =$ 11 degrees 18 minutes \rightarrow High reversibility
- FRT85 1/56 $\beta =$ 4 degrees 45 minutes \rightarrow Good reversibility / Poor static self-locking
- FRT40 1/56 $\beta =$ 3 degrees 25 minutes \rightarrow Poor reversibility / Good static self-locking
- FRT70 1/80 $\beta =$ 2 degrees 51 minutes \rightarrow Full static self-locking

| Lead angle | Static self-locking / Reversibility |
|-------------------------------|--|
| $\beta > 20^\circ$ | Full reversibility |
| $10^\circ < \beta < 20^\circ$ | High reversibility |
| $5^\circ < \beta < 10^\circ$ | Good reversibility Poor static self-locking |
| $3^\circ < \beta < 5^\circ$ | Poor reversibility Good static self-locking |
| $1^\circ < \beta < 3^\circ$ | Full static self-locking |

Worm Gears RS-RT

GEARING DATA - DIRECTION OF ROTATION

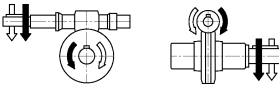
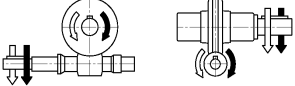
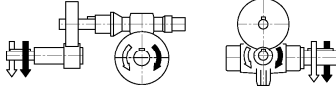
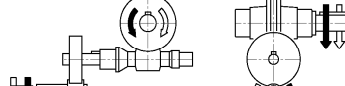
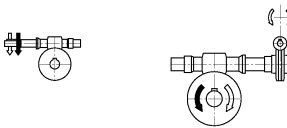

| | Ratio | 5 | 7 | 10 | 15 | 20 | 28 | 40 | 49 | 56 | 70 | 80 | 100 |
|----------------------------|---------|--------|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|
| RS/RT 28 | m_x | | 1,50 | 1,40 | 1,40 | 1,10 | 1,50 | 1,10 | 0,90 | 0,75 | 0,60 | 0,55 | 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' | 8°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°05' | 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 | Direction of Rotation | Wormshaft downwards |
|---|--|---|
|  | <p>RS RT</p> |  |
|  | <p>RA TA</p> |  |
|  | <p>RS / RS RT / RT</p> |  |

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 (Médecins sans Frontières) 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.



A socially responsible company



Une entreprise socialement responsable

Pour renforcer son investissement dans la société depuis 2004 Varvel a entrepris un programme de soutien constant auprès de 3 associations ONG: UNICEF (Fonds des Nations unies pour l'enfance), MSF (médecins sans frontière) et ANT (Association Italienne contre les tumeurs). Le respect et la tutelle de l'environnement font également partie des nos valeurs pour cela depuis 2001 Varvel ha obtenu la certification du système de management environnemental suivant la norme UNI EN ISO 14001.

Una empresa socialmente responsable

Para reforzar su compromiso con la sociedad, desde el 2004 Varvel ha iniciado un programa de ayuda continuada a 3 asociaciones sin ánimo de lucro.: UNICEF (Fondo de las Naciones Unidas para la Infancia), MSF (Médicos sin Fronteras) y ANT (Asociación contra el Cáncer). También el respeto y cuidado del ambiente forman parte de los valores Varvel y por ello desde el 2001 Varvel ha certificado el Sistema Ambiental según la normativa UNI EN ISO 14001.



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