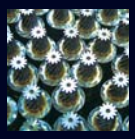






VARVEL®

MOTION CONTROL SINCE 1955

technology made in Italy

GB

RS•RT

* VS made in China

Technology Made in Italy

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

RS & RT

WORM GEAR BOXES

VARVEL®
MOTION CONTROL SINCE 1955

Gearboxes Series RS & RT

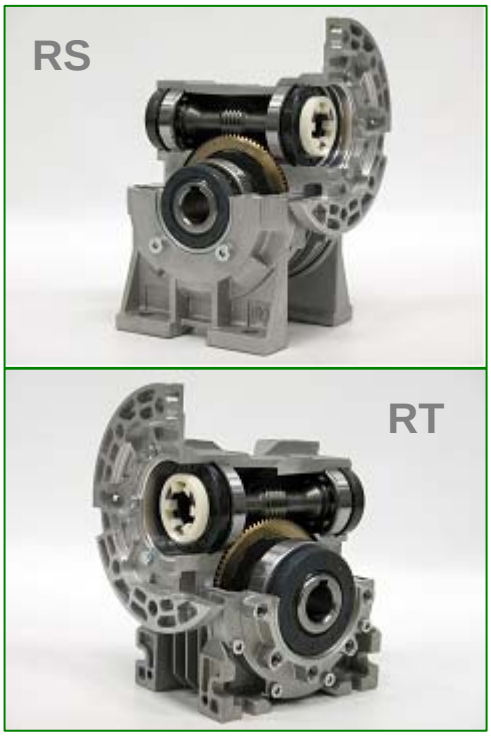
Product description

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

Wormshafts
ZI profile,
Hardened and ground.
Alloy steel.

Wormwheels
Bronze alloy cast
onto a cast iron hub.

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



Input
IEC and NEMA
motor adapters and
Universal Elastic Coupling

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

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

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

Single worm gear boxes RS and RT

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

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

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

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

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

Helical worm gear boxes RA and TA

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

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

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

Output shafts AS and AD

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

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

Torque arms BR/BRV and BT/BTV

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

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

Torque limiters TLI and TLE

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

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

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

Travel limiters SL

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

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

Directive ATEX

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

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

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

Ex II 2 GD ck IP66 T_{max}=135 °C

Gearboxes Series RS & RT

Product description

	GENERAL SPECIFICATIONS
Range	Sizes: 9 RS + 7 RT 55 reduction ratios 3020 Nm max. output torque
Sizing	According to BS721. 15,000 hrs average lifetime with service factor SF1
Housing, Covers	Pressure die cast aluminium till size 85 and cast iron from size 110.
Coupling G input	Pressure die cast aluminium for sizes 3, 5, 6 and alloyed steel from size 8
Toothed parts	Worms of steel and tooth profile ZI and ZK ground. Wheels of bronze on Cast Iron hub.
Shafts & Keys	Alloyed steel 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
Protection Grade	Gearbox body IP66 Motor adapters and connection flanges IP20; to increase on demand

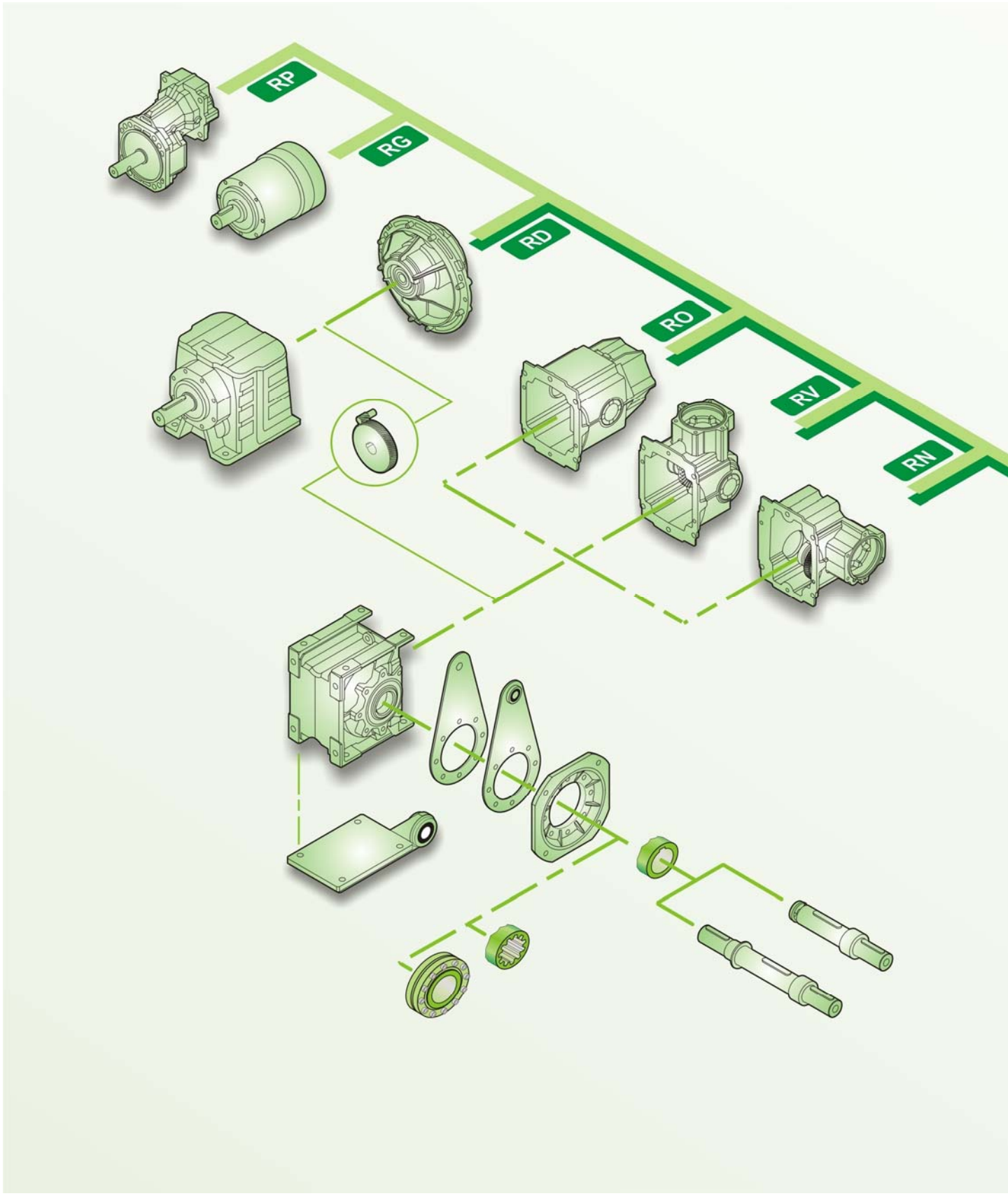
Gearboxes Series RS & RT

Symbols

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

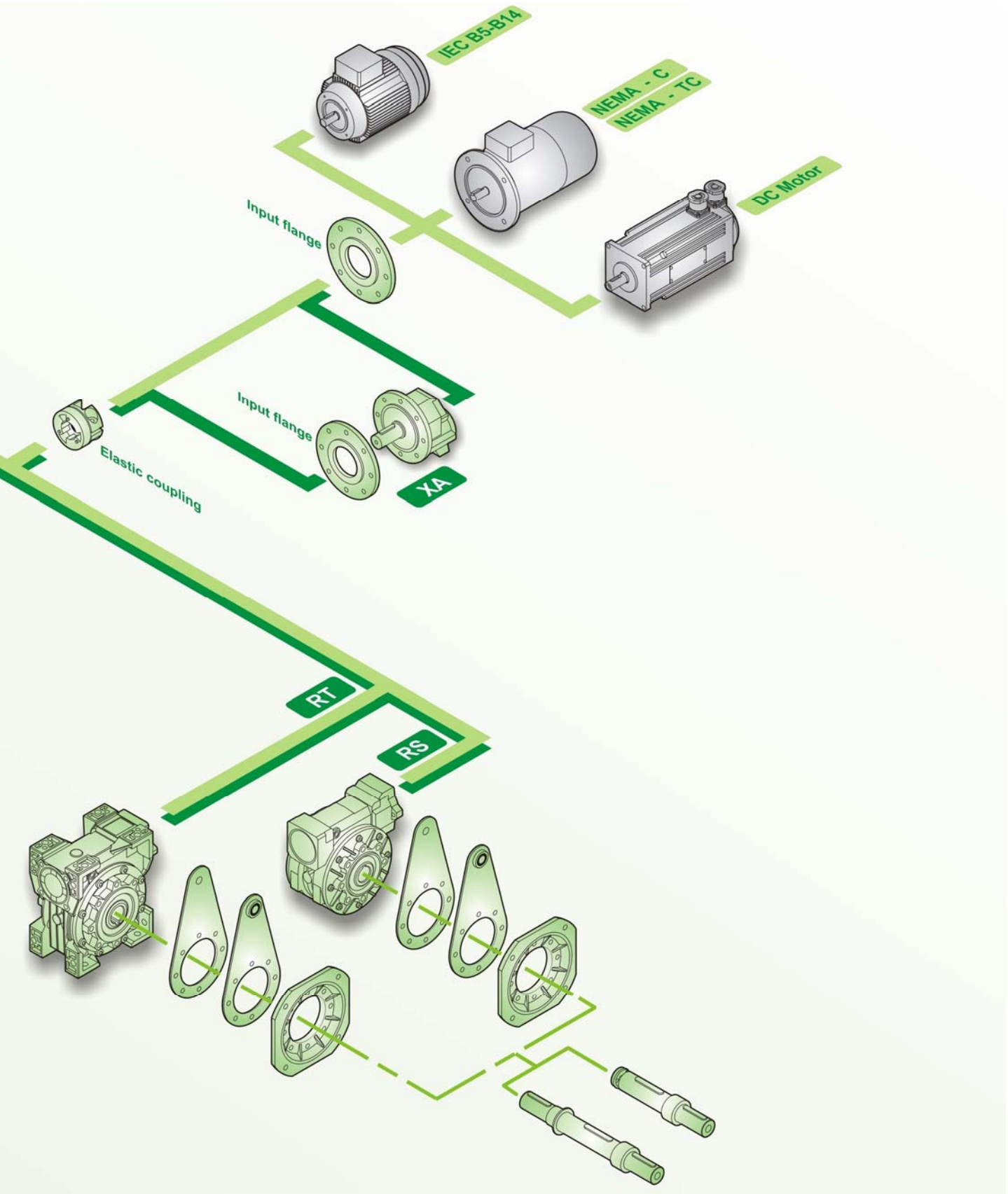
Gearboxes Series RS & RT

Modular system



Gearboxes Series RS & RT

Modular system



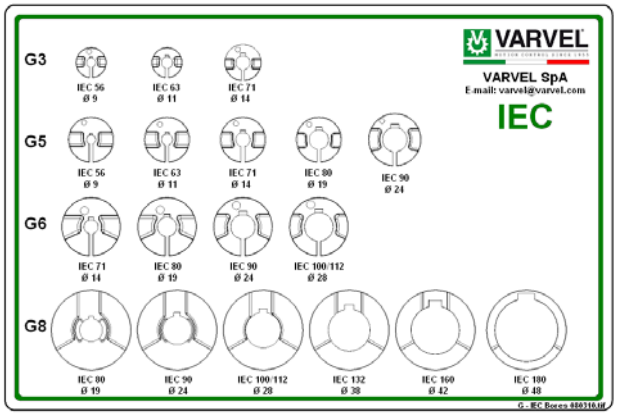
Gearboxes Series RS & RT

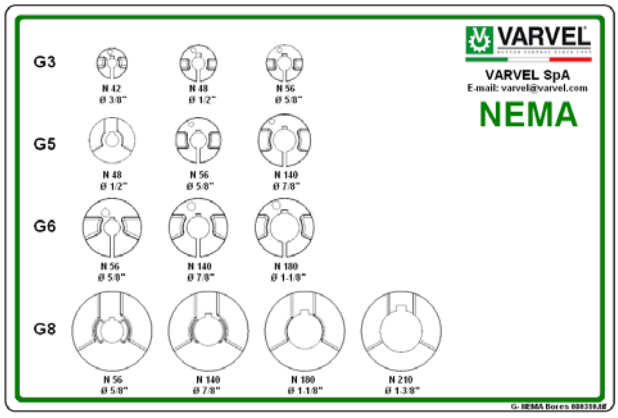
Elastic coupling “G” description

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

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

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



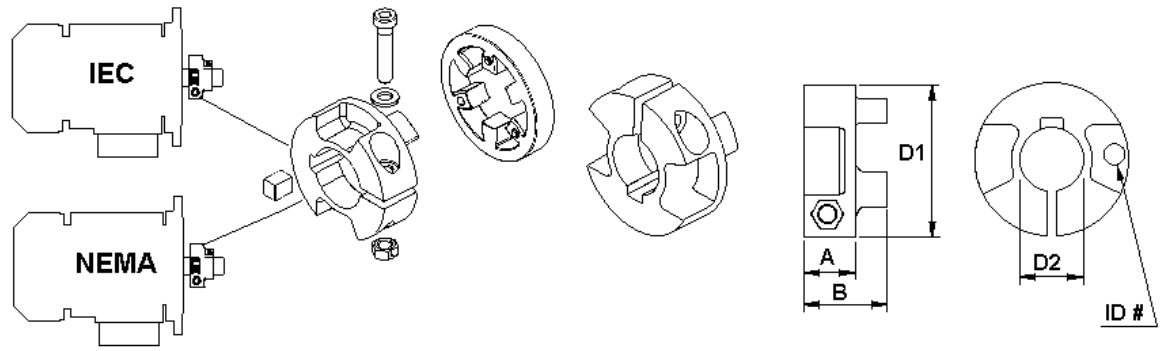


Advantages:
- One gearbox only for each reduction ratio
- Greater flexibility
- Increased stock rotation
- Fretting corrosion elimination between key and keyway
- Zero backlash in gearbox/motor connection
- Allowed angular misalignment 1° max
- Torsional rigidity
- High vibration damping

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

Gearboxes Series RS & RT

Elastic coupling “G” selection



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

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

Gearboxes Series RS & RT

IEC - Flanges and Elastic coupling selection

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

- Key/Keyway motor fitting

Gearboxes Series RS & RT

Flanges and Elastic coupling selection - NEMA

RS - RT	Flange Type	NEMA	Kit Part No.	Elastic coupling	
				Type	Kit Part No.
RS-RT 28	FM 28	42 C 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	K531.207.N048 K531.207.N056 K531.207.N056	G3 ø 3/8 G3 ø 1/2 G3 ø 5/8	KG3.N048 KG3.N056 KG3.N140
RS-RT 50	FM 50	56 C	K532.227.N056	G5 ø 5/8	KG5.N056
RS-RT 60	FM 60	56 C 140 TC	K539.207.N056 K539.207.N056	G6 ø 5/8 G6 ø 7/8	KG6.N056 KG6.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	K534.207.N056 K534.207.N056 K534.207.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 1-1/8”	- - - - - - - - - - - -
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

Gearboxes Series RS & RT

Designation

GEARBOX DESIGNATION

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

OPS = Standard options pages 42-50

B5, B14 = Electric motor form

Electric motor frame

Reduction ratio

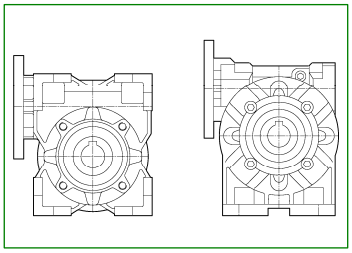
Mounting form

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

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

Gearbox type

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



MOTOR DESIGNATION

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

Terminal box position

Cl. F (std) = Insulation class

IP55 (std) = Protection class

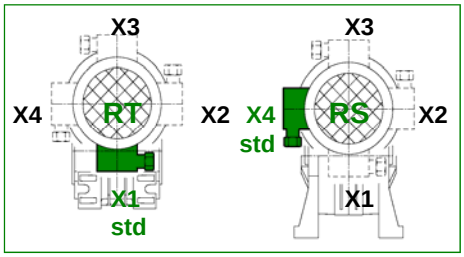
Voltage / Frequency

B5 o B14 = Mounting

IEC motor frame and number of poles

Motor power

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



OPTIONS OPP

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

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

VARSIZE by VARVEL

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

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

VARSIZE® selection programme, available from our site

www.varvel.com

allows easy sizing selection from the Varvel product range.

2D/3D Drawings

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

Guided selection

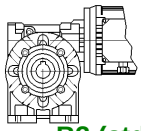
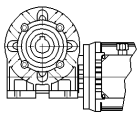
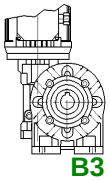
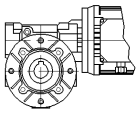
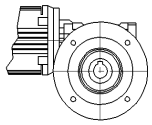
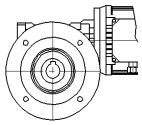
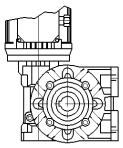
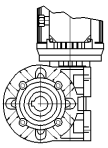
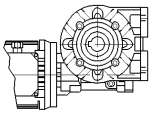
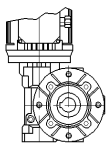
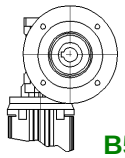
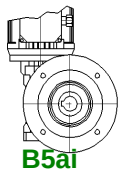
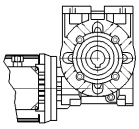
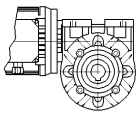
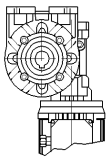
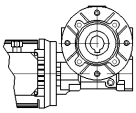
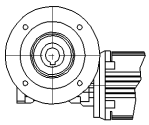
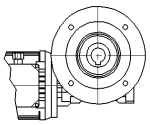
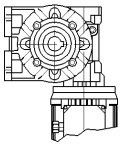
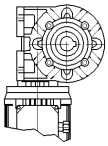
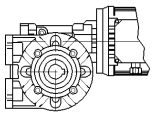
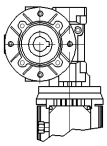
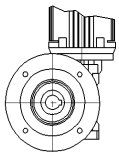
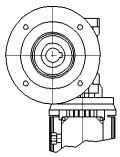
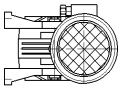
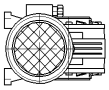
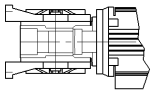
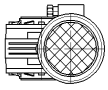
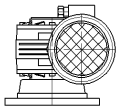
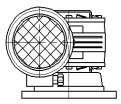
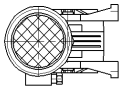
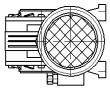
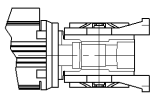
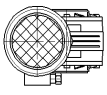
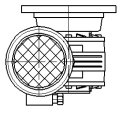
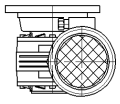
This service returns a list of applicable product configurations upon a given sequence of application parameters (power, output torque, rpm, service factor etc.); a PDF data sheet featuring performance data and dimensional drawings is generated for each configuration, as well as the 3D model and 2D drawings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

Gearboxes Series RS & RT

Standard mounting positions

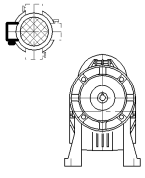
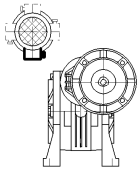
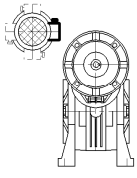
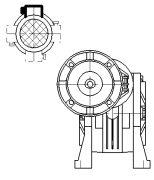
RS , RA , RS/RS

Output

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

RA

Input

10 (std)	11	12	13		
					

RS / RS

Output

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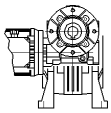
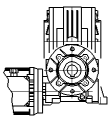
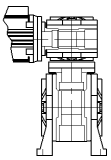
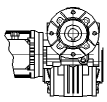
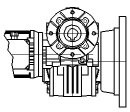
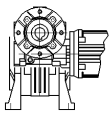
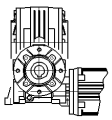
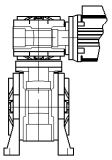
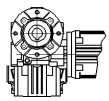
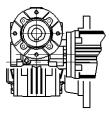
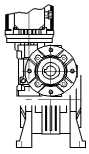
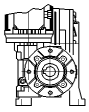
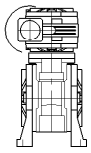
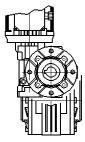
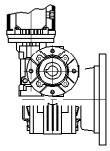
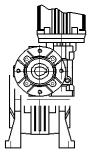
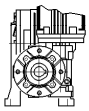
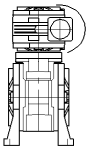
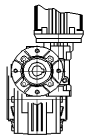
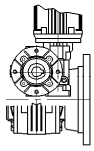
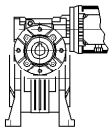
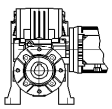
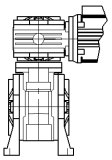
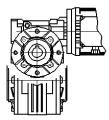
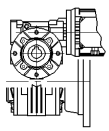
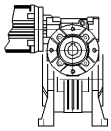
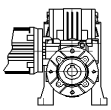
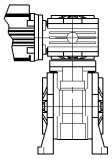
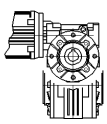
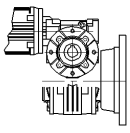
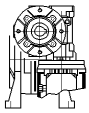
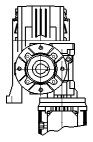
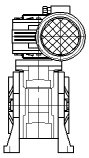
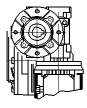
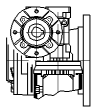
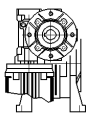
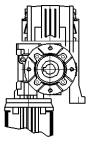
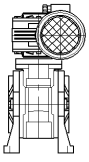
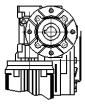
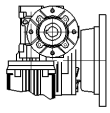
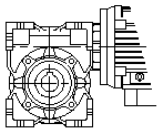
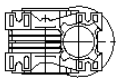
11					
12					
13					
14					
15					
16					
17					
18					

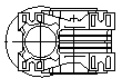
Gearboxes Series RS & RT

Standard mounting positions

RT
TA
RT/RT
Output


B3 (std)


B6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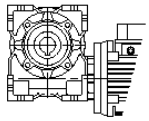
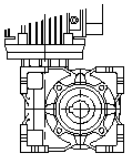
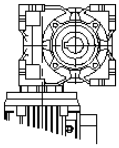
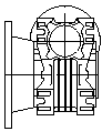
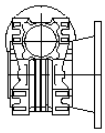

B8

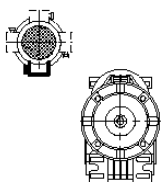

V5

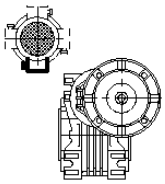

V6


F (std)


Fi

TA
Input


10 (std)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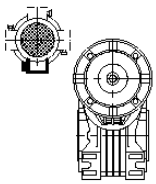
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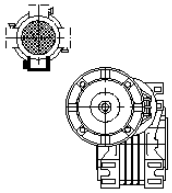
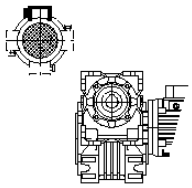
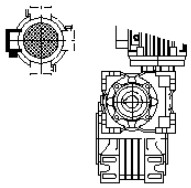

13

RT/RT
Input


20 (std)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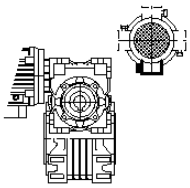
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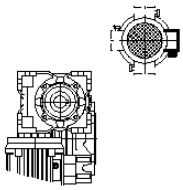
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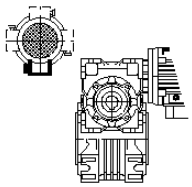
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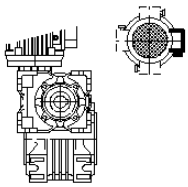
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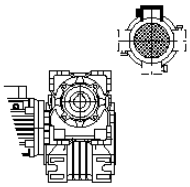
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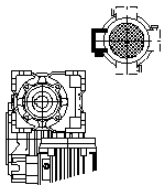

27

SERVICE FACTORS

FS = FS_1 × FS_2

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

FS_2	
Starts/stops per hour	SF_2
6	1.0
60	1.2
120	1.4

WEIGHTS AND LUBRI-CANTS

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

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

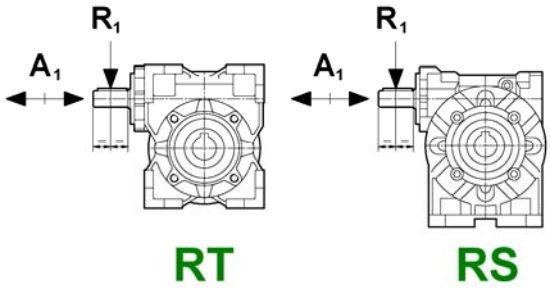
RS / RS RT / RT	kg	litres l_1 / l_2
28 / 28	2.5	0.03/0.03
28 / 40	3.9	0.03/0.08
28 / 50	5.2	0.03/0.13
28 / 60	7.9	0.03/0.25
40 / 70	12.0	0.08/0.35
40 / 85	16.5	0.08/0.60
50 / 110	45.0	0.13/1.50
*60/130	57.0	0.25/2.75
*70/150	90.0	0.35/4.40

* RS only

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

Gearboxes Series RS & RT

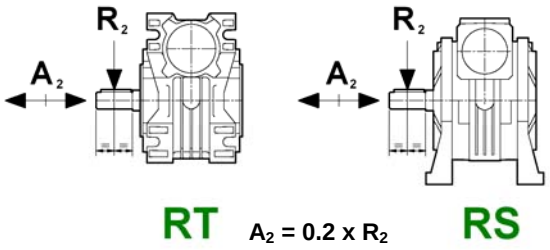
Input loads



Input radial loads R_1 [daN]

$A_1 = 0,2 \times R_1$

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



Output radial loads R_2 [daN] with standard bearings

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

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

Output radial loads R_2 [daN] with heavy duty bearings

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

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

Gearboxes Series RS & RT

FRS - FRT

Motor frames

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

* RS only

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

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

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

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

Gearboxes Series RS & RT

2800 min^{-1}

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

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

* RS only

1400 min^{-1}

Gearboxes Series RS & RT

Single worm gear boxes RS - RT — Selection table

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

* RS only

Gearboxes Series RS & RT

900 min^{-1}

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

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

* RS only

700 min^{-1}

Gearboxes Series RS & RT

Single worm gear boxes RS - RT — Selection table

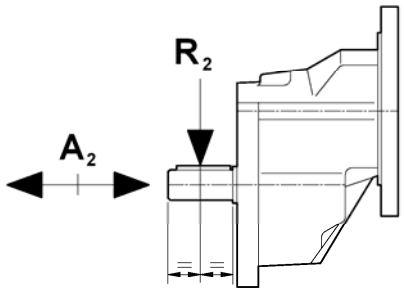
RS RT	i =	5	7	10	15	20	28	40	49	56	70	80	100
	min^{-1}	140	100	70	47	35	25	18	15	13	10	8.7	7
28	kW	- - -	0,29	0,21	0,14	0,10	0,10	0,06	0,05	0,04	0,03	0,02	0,01
	Nm	- - -	23	23	22	21	24	21	20	17	13	11	8
	eff.	- - -	0.81	0.77	0.71	0.69	0.60	0.55	0.51	0.44	0.40	0.39	0.36
40	kW	1.00	0,74	0,54	0,39	0,26	0,24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

* RS only

Gearboxes Series RS & RT

1400 min^{-1}

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



A2 = 0.2 x R2

Dimensions: page 52

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

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

Gearboxes Series RS & RT

1400 min^{-1}

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

1400 min^{-1}

Gearboxes Series RS & RT

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

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

Gearboxes Series RS & RT

1400 min^{-1}

Selection table — **Geared motors**

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

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

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

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

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

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

1400 min^{-1}

Gearboxes Series RS & RT

Geared motors — **Selection table**

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

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

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

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

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

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

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

Gearboxes Series RS & RT

1400 min^{-1}

Selection table — **Geared motors**

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

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

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

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

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

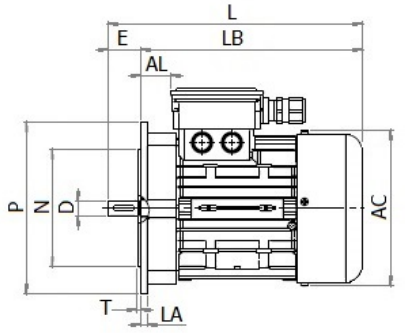
5.5 kW	min^{-1}	i =	Nm	SF	kg
MRS-MRT 110	200	7	231	2.3	79
MRS-MRT 110	140	10	326	1.6	79
MRS-MRT 110	93	15	473	1.2	79
MRS-MRT 110	70	20	623	1.0	79
MRS 130	50	28	809	1.4	93
MRS 130	35	40	1141	1.0	93
MRS 150	29	49	1342	1.1	123
MRS 150	25	56	1534	0.9	123

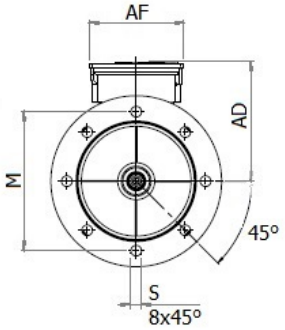
7.5 kW	min^{-1}	i =	Nm	SF	kg
MRS-MRT 110	200	7	315	1.7	88
MRS-MRT 110	140	10	445	1.2	88
MRS-MRT 110	93	15	645	0.9	88
MRS 130	93	15	652	1.5	102
MRS 130	70	20	860	1.1	102
MRS 130	50	28	1103	1.0	102
MRS 150	35	40	1576	1.1	132

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

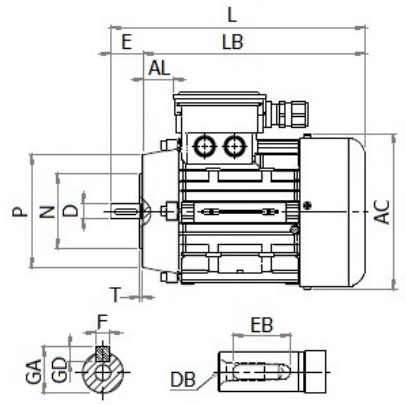
15 kW	min^{-1}	i =	Nm	SF	kg
MRS 150	200	7	637	1.7	158
MRS 150	140	10	900	1.4	158
MRS 150	93	15	1320	1.1	158

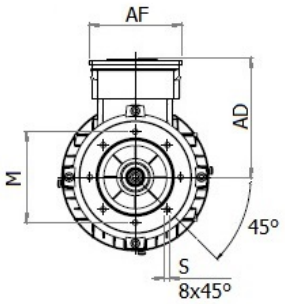
B5





B14





Tolerances

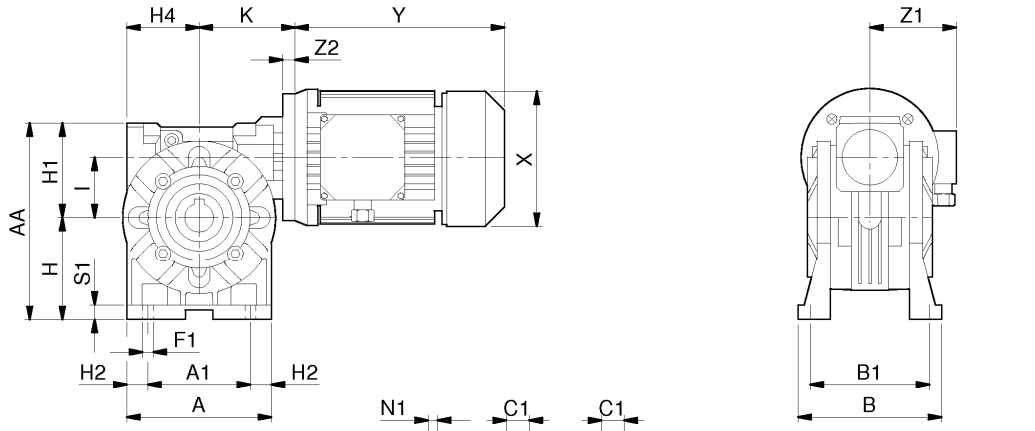
D	≤ 28 mm	j6
	38 ÷ 50 mm	k6
N	≤ 230 mm	j6
	> 230 mm	h6

DIN 748-7160-7161-42948

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

- Not binding dimensions and weights

Gearboxes Series RS & RT



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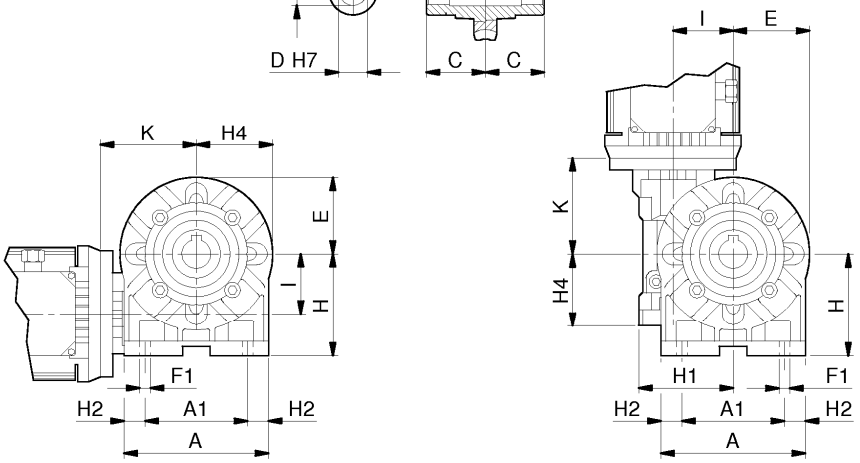

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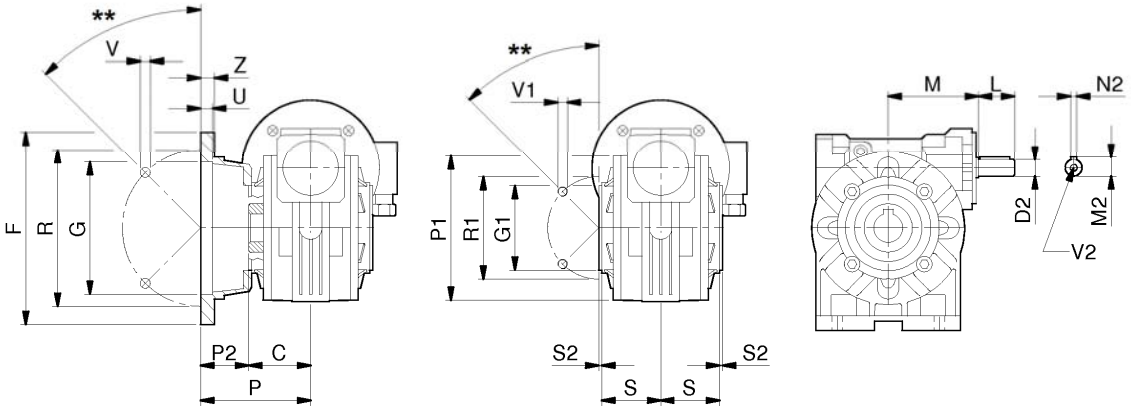


FL PC RS

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

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

D* - Bore on demand

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

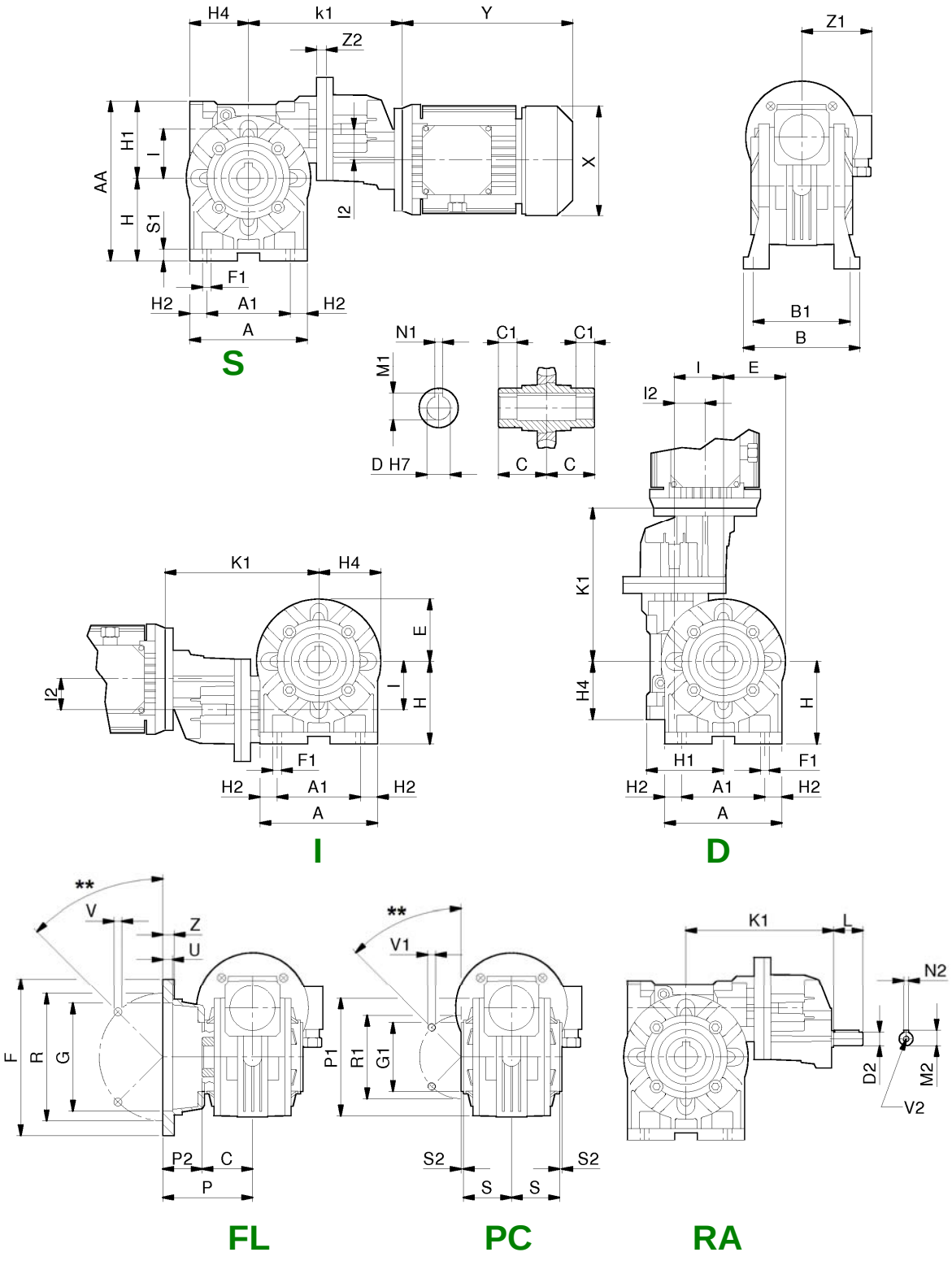
(*) - IEC71-B14 (**FRS50**) - IEC71-B14 (**FRS60**) - IEC 80-B14 (**FRS70**) - IEC 90-B14 (**FRS85**)

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

Motor dimensions: see page 33

Not binding dimensions

Gearboxes Series RS & RT



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

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

D* - Bore on demand

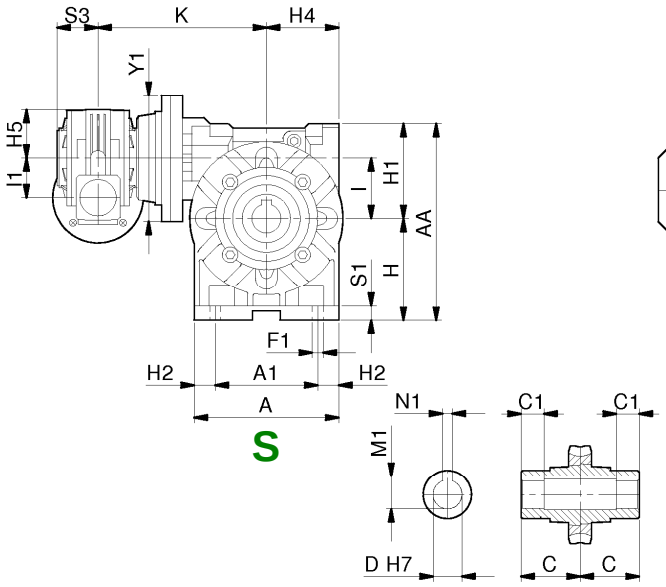
** - 90° for RS28 - 45° for the other sizes

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

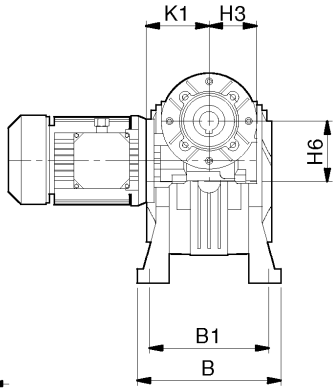
Motors dimensions : see page 33

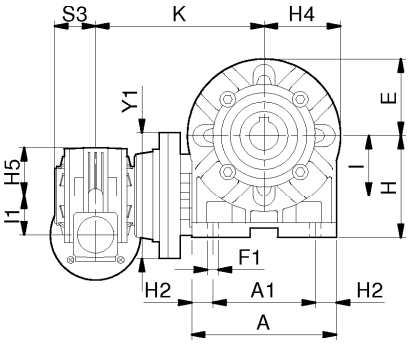
Not binding dimensions

Gearboxes Series RS & RT



S





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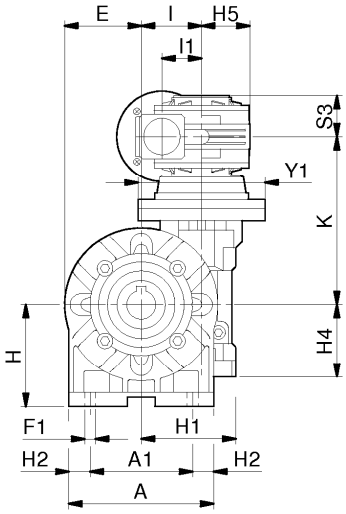
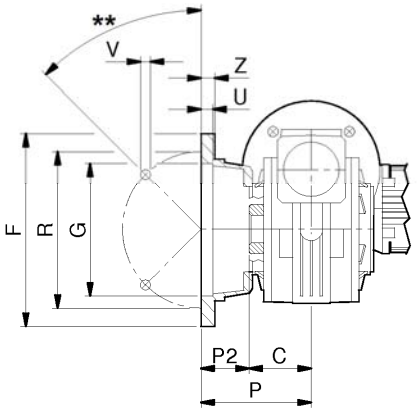
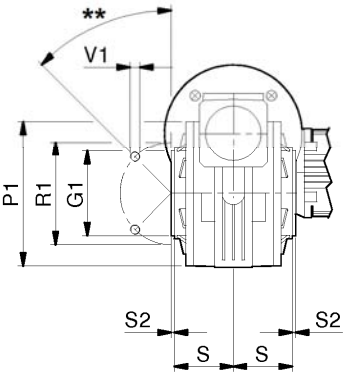


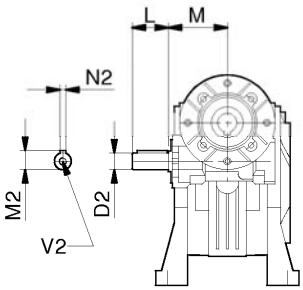
D



FL



PC



RS/RS

Gearboxes Series RS & RT

Two stage worm gear boxes RS/RS — Dimensions

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

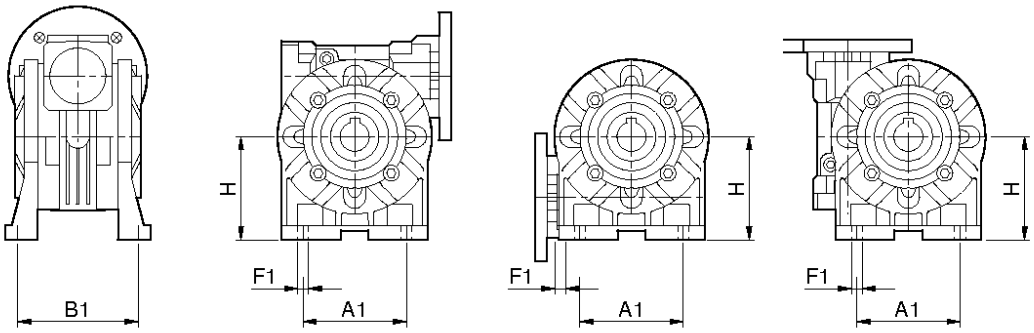
\# - 137 - Bolted feet - 142 - Integral feet

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

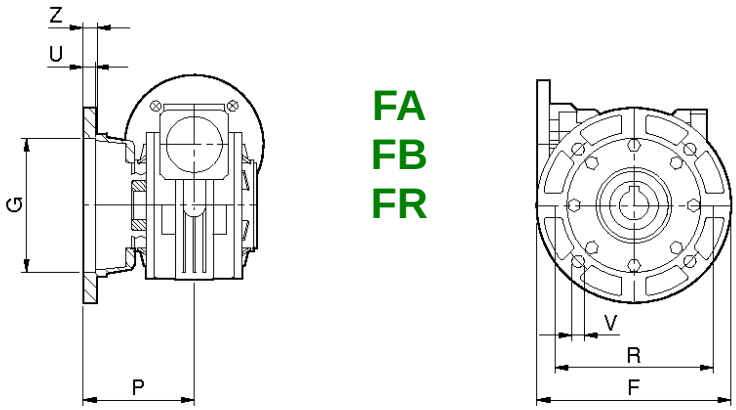
(*) - IEC71-B14 (FRS50) - IEC71-B14 (FRS60) - IEC 80-B14 (FRS70) D* - Bore on demand

Motors dimensions: see page 33 Not binding dimensions

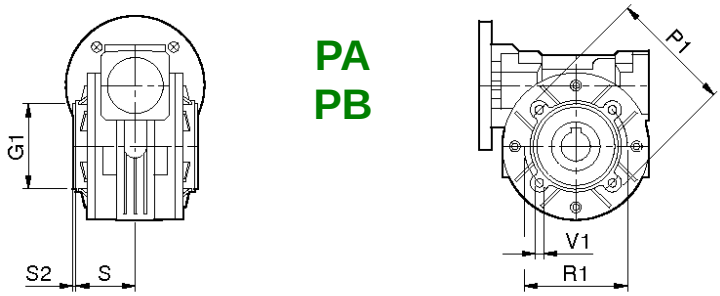
Gearboxes Series RS & RT



S **IA** **DA**



FA
FB
FR



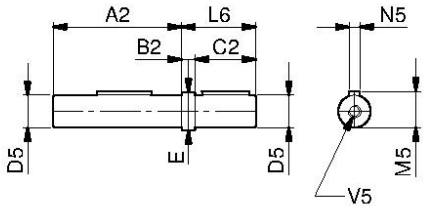
PA
PB

RS	28	40	50	60	70	85	110	130	150
SA - IA - DA									
A_1	- - -	52	63	- - -	- - -	140	- - -	- - -	- - -
B_1	- - -	81	98.5	- - -	- - -	146	- - -	- - -	- - -
F_1	- - -	8.5	9	- - -	- - -	11	- - -	- - -	- - -
H	- - -	72	82	- - -	- - -	142	- - -	- - -	- - -
FA									
F	80	114	125	165	165	- - -	- - -	- - -	- - -
G (H8)	50	60	70	110	115	- - -	- - -	- - -	- - -
P	50.5	69	93	90	116	- - -	- - -	- - -	- - -
R	68	87	90	130	150	- - -	- - -	- - -	- - -
U	3.5	5	5	10	4.5	- - -	- - -	- - -	- - -
V	6.5 (4)	9 (4)	11 (4)	10.5 (4)	11 (4)	- - -	- - -	- - -	- - -
Z	7	8	10	15	10	- - -	- - -	- - -	- - -
FB									
F	- - -	120	- - -	180	- - -	210	270	- - -	- - -
G (H8)	- - -	80	- - -	115	- - -	152	170	- - -	- - -
P	- - -	62	- - -	86	- - -	119.5	131.5	- - -	- - -
R	- - -	100	- - -	150	- - -	176	230	- - -	- - -
U	- - -	4	- - -	3.5	- - -	5	5	- - -	- - -
V	- - -	9 (4)	- - -	11 (4)	- - -	11 (4)	13 (4)	- - -	- - -
Z	- - -	9	- - -	12	- - -	14	18	- - -	- - -
FR									
F	- - -	- - -	- - -	- - -	160	- - -	- - -	- - -	- - -
G (h8)	- - -	- - -	- - -	- - -	110	- - -	- - -	- - -	- - -
P	- - -	- - -	- - -	- - -	84.5	- - -	- - -	- - -	- - -
R	- - -	- - -	- - -	- - -	130	- - -	- - -	- - -	- - -
U	- - -	- - -	- - -	- - -	4.5	- - -	- - -	- - -	- - -
V	- - -	- - -	- - -	- - -	11 (4)	- - -	- - -	- - -	- - -
Z	- - -	- - -	- - -	- - -	14	- - -	- - -	- - -	- - -
PA									
G_1 (h8)	- - -	50	68	75	90	- - -	- - -	- - -	- - -
P_1	- - -	95	110	104	125	- - -	- - -	- - -	- - -
R_1	- - -	65	94	90	110	- - -	- - -	- - -	- - -
S	- - -	38	49	47.5	55	- - -	- - -	- - -	- - -
S_2	- - -	2	2.5	5.5	3	- - -	- - -	- - -	- - -
V_1	- - -	M6x8 (4)	M6x12.5(4)	M8x14 (4)	M8x14 (4)	- - -	- - -	- - -	- - -
PB									
G_1 (H8)	- - -	- - -	60	- - -	70	- - -	- - -	- - -	- - -
P_1	- - -	- - -	110	- - -	116	- - -	- - -	- - -	- - -
R_1	- - -	- - -	75	- - -	85	- - -	- - -	- - -	- - -
S	- - -	- - -	49	- - -	67	- - -	- - -	- - -	- - -
S_2	- - -	- - -	2.5	- - -	4	- - -	- - -	- - -	- - -
V_1	- - -	- - -	M6x12.5(4)	- - -	M8x14 (4)	- - -	- - -	- - -	- - -

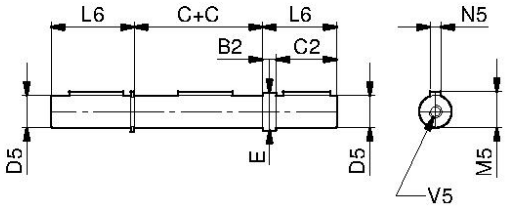
Not binding dimensions

Gearboxes Series RS & RT

AS

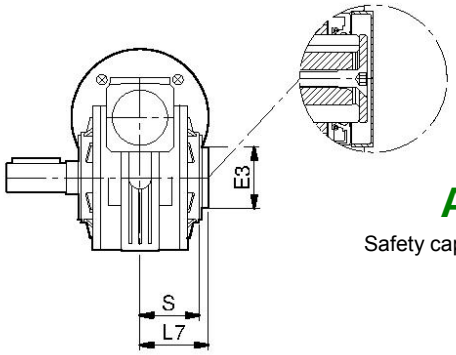


AD

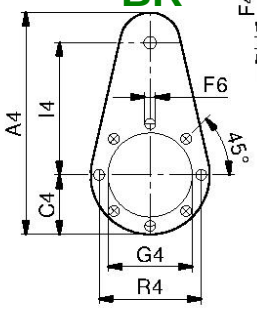


ASC

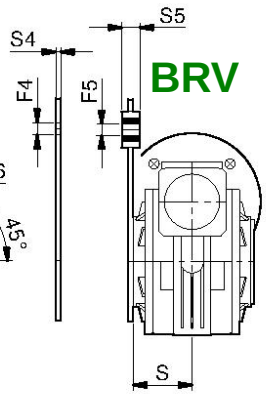
Safety cap for AS



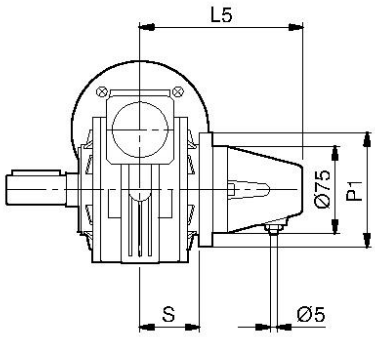
BR



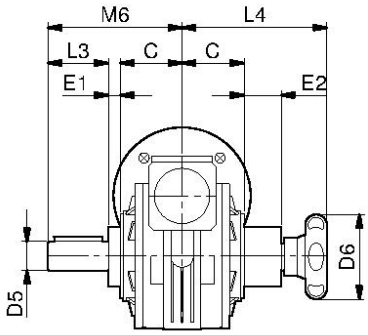
BRV



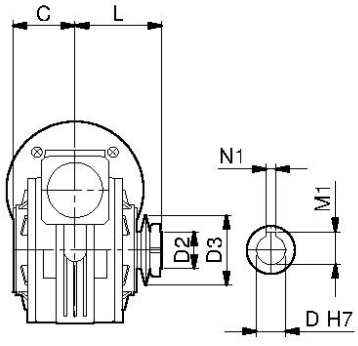
SL



TLE



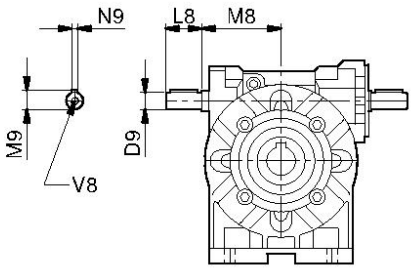
TLI



TLI Oil quantity

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

VB

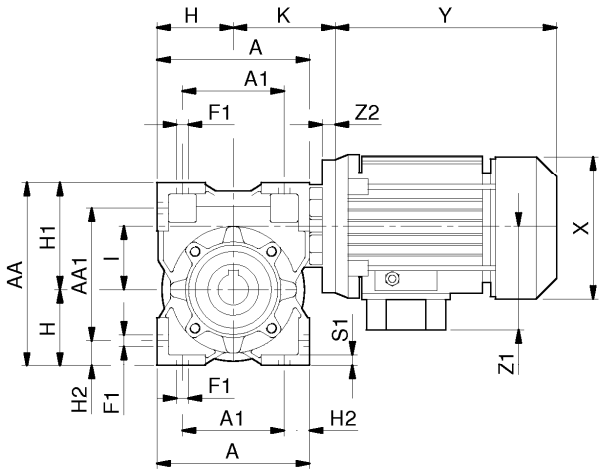


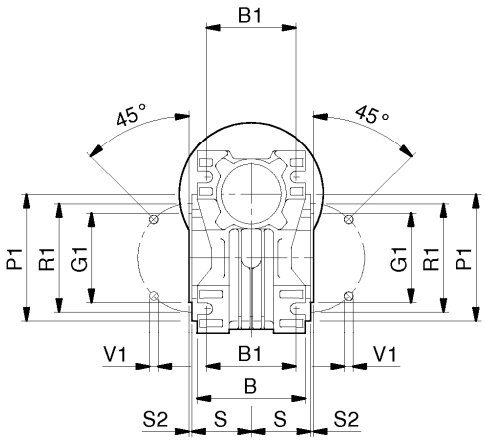
RS		28	40	50	60	70	85	110	130	150
AS & AD	A_2	58	80	95	117	117	119	153	177	207
	B_2	1	10	10	10	10	10	10	20	20
	C	30	41	49	60	60	61	77.5	90	105
	C_2	30	40	45	50	60	70	100	110	110
	$D_{5\ (g6)}$	14	19 (18)	24 (25)	25	28	32 (35)	42	48	55
	E	14	22	28	30	34	38	50	58	63
	L_6	31	50	55	60	70	80	106	130	130
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

* = Undersized key

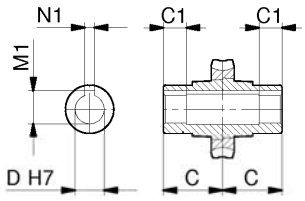
- D_5 (..) = Diameter on demand

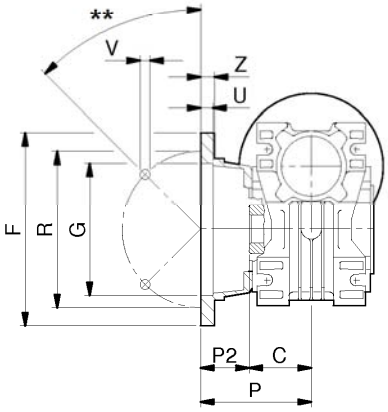
Gearboxes Series RS & RT



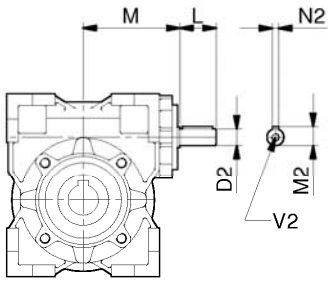


B3





F, [FV], {FL}



RT

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

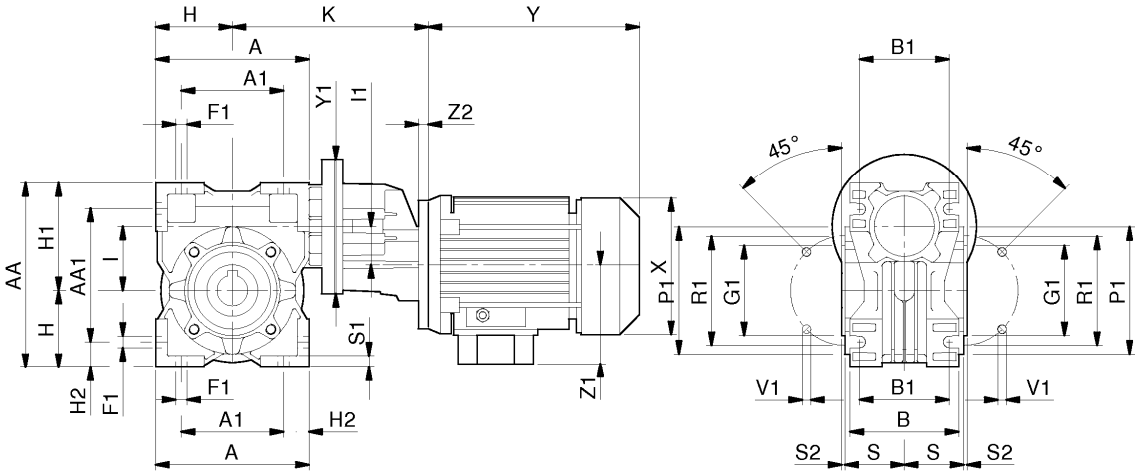
D* - Bore on demand

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

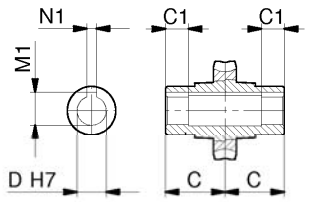
(*) - IEC71-B14 (**FRS50**) - IEC71-B14 (**FRS60**) - IEC 80-B14 (**FRS70**) - IEC 90-B14 (**FRS85**) - IEC100/112-B14 (**FRS110**)

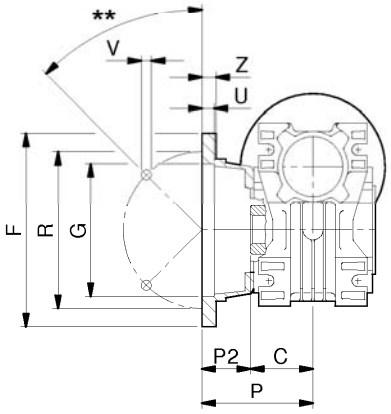
Motor dimensions: see page 33

Not binding dimensions

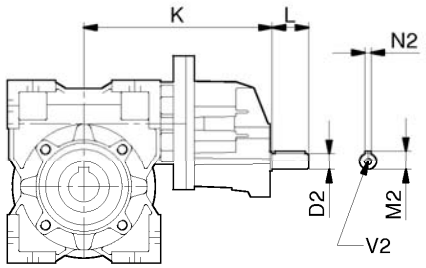

H
K
Y
A
A1
F1
Y1
I1
Z2
B1
45°
45°
AA
H1
H
AA1
I
S1
X
P1
R1
G1
G1
R1
P1
F1
H2
F1
A1
H2
A
Z1
V1
B1
V1
B
S2
S
S
S2

B3


N1
C1
C1
M1
D H7
C
C


**
V
Z
U
F
R
G
P2
C
P

F, [FV], {FL}


K
L
N2
D2
M2
V2

TA

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

D* - Bore on demand

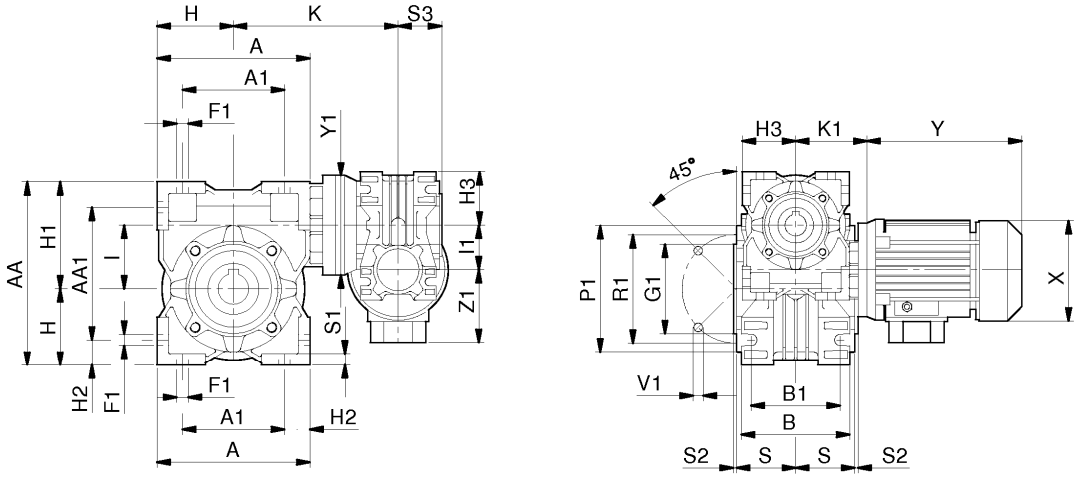
** - 90° for RT28 - 45° for the other sizes

(*) - IEC71-B14 (FTA 71/….)

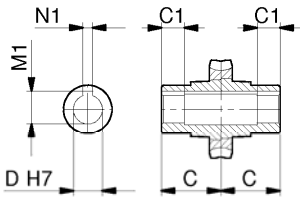
Motor dimensions: see page 33

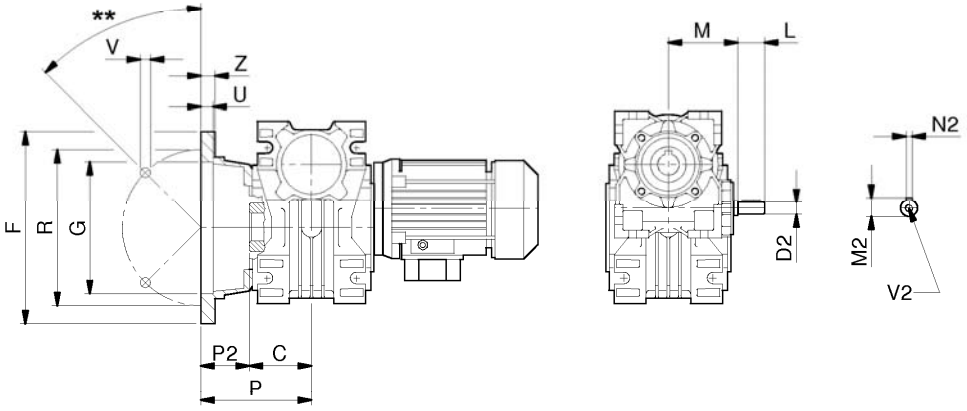
Not binding dimensions

Gearboxes Series RS & RT



B3





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

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

D* - Bore on demand

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

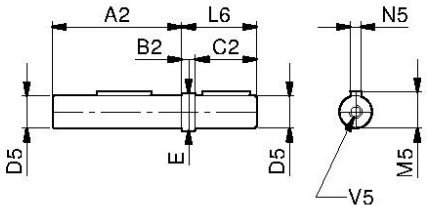
(*) - IEC71-B14 (FRS50)

Motor dimensions: see page 33

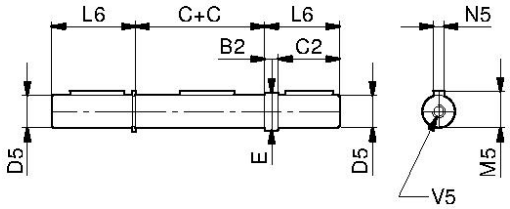
Not binding dimensions

Gearboxes Series RS & RT

AS

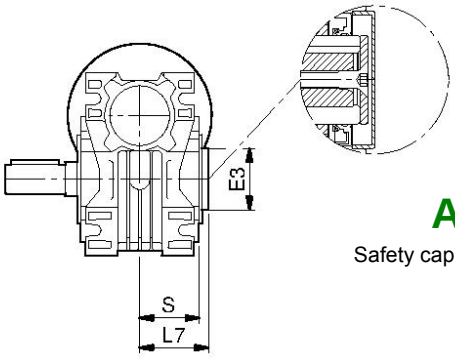


AD

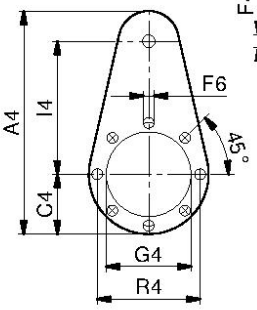


ASC

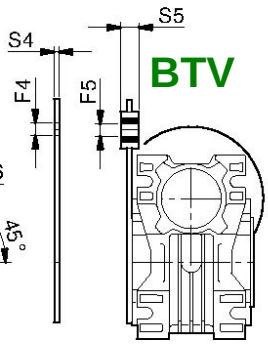
Safety cap for **AS**



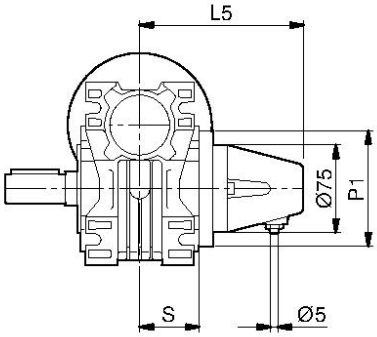
BT



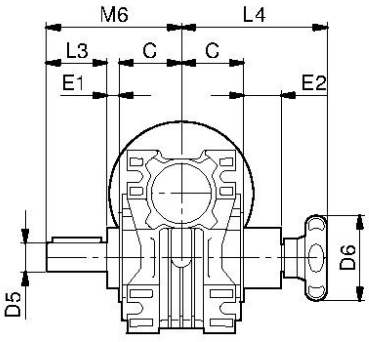
BTV



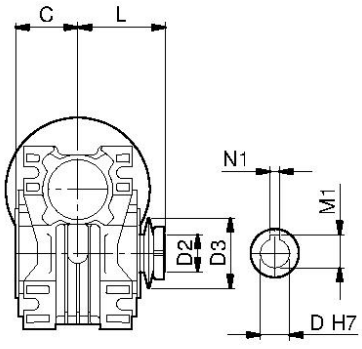
SL



TLE



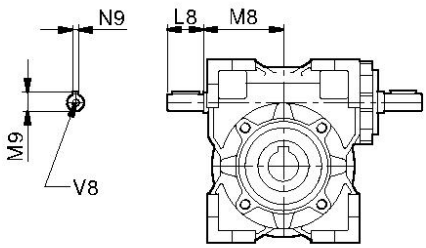
TLI



TLI Oil quantity

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

VB



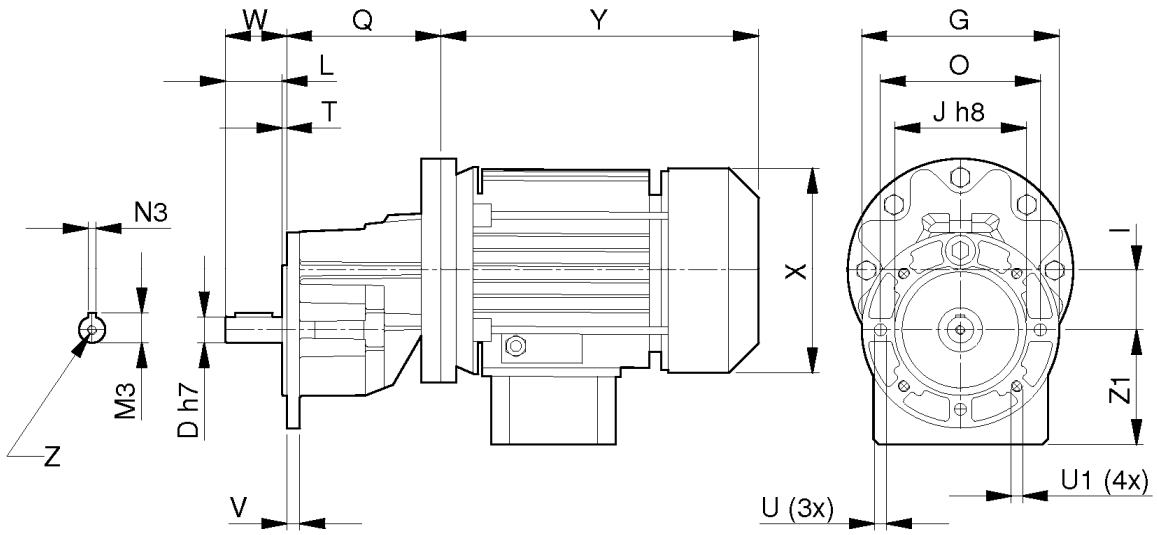
RT		28	40	50	60	70	85	110
AS & AD	A_2	58	80	95	117	117	119	153
	B_2	1	10	10	10	10	10	10
	C	30	41	49	60	60	61	77.5
	C_2	30	40	45	50	60	70	100
	$D_{5\ (g6)}$	14	19 (18)	24 (25)	25	28	32 (35)	42
	E	14	22	28	30	34	38	50
	L_6	31	50	55	60	70	80	110
	M_5	16	21.5	27	28	31	35	45
	$N_{5\ (h9)}$	5	6	8	8	8	10	12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

D_5 (..) = Diameter on demand

* = Undersized key

Not binding dimensions

Gearboxes Series RS & RT



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

X, Y, Z_1 - see page 33

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

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

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

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

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

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

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

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

Gearboxes Series RS & RT

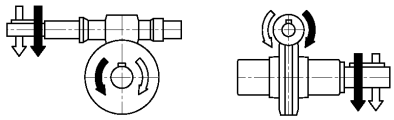
Gearing data

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

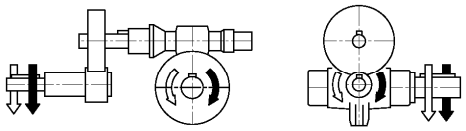
m_x = Axial module
z_1 = Number of starts
β = Lead angle (rh)
20° = Pressure angle

WORMSHAFT UPWARDS

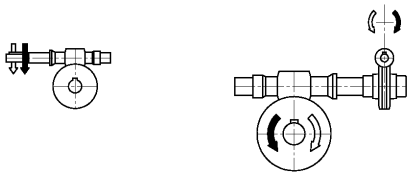
- **RS - RT**



- **RA - TA**

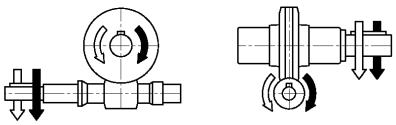


- **RS/RS**
- **RT/RT**

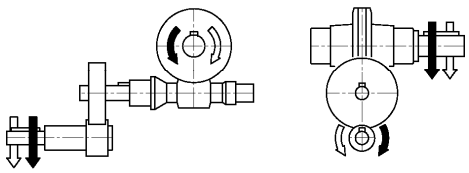


WORMSHAFT DOWNWARDS

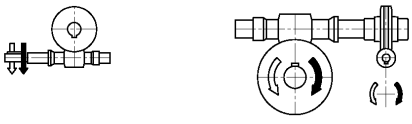
- **RS - RT**



- **RA - TA**



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



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

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

Installation

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

Running

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

Maintenance

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

Handling

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

Painting

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

Long-term storage

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

Product's Environmental Management

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

A socially responsible company

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

borderline


RN•RO•RV


RS•RT


RD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VARfarm
by VARVEL





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MOTION CONTROL SINCE 1955

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