

# E series



**Coaxial gear reducers and gearmotors**



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# 1

# Rossi for You



## Innovation

Rossi offers a wide range of **solutions for an evolving industry**, flexible and innovative gearboxes and gearmotors for customer tailored solutions to maximize performance and minimize the total cost of ownership.



## High quality, 3 years warranty

Our drive is to innovate and boost operations by manufacturing performing, precise, reliable and high-quality products all over the world. We are always one step forward in offering and developing solutions that can satisfy an unlimited number of application needs, even in the most demanding conditions.



## Reliability

We are a reliable company with the right flexibility and know-how to respond to worldwide market requests, in all application fields, without leaving aside our commitment for the environment and value on human safety, to protect everyone's future.



## Tools and processes

We continue to invest in new tools and processes, so our highly skilled specialist team in different fields are supporting you to find the best solution suitable for your demands, always by your side on every step of the project.



## After-sale service

Highly trained mechanics and support teams can ensure a fast and efficient after-sale service providing support worldwide.



## Digital support

Alongside our 24/7 **Rossi for You** support portal you have a suite of digital support tools enabling real time access to your order tracking, invoices, spare part tables download and contact to our service.

**70**  
YEARS

## Experience

Shaped by more than 60 years of history Rossi meets your unique needs whether you need a standard design or a customized solution.



# Global presence local service



## Local support

Sales, customer service,  
technical support, spare parts




## 17 branches\*





## Worldwide distribution network\*

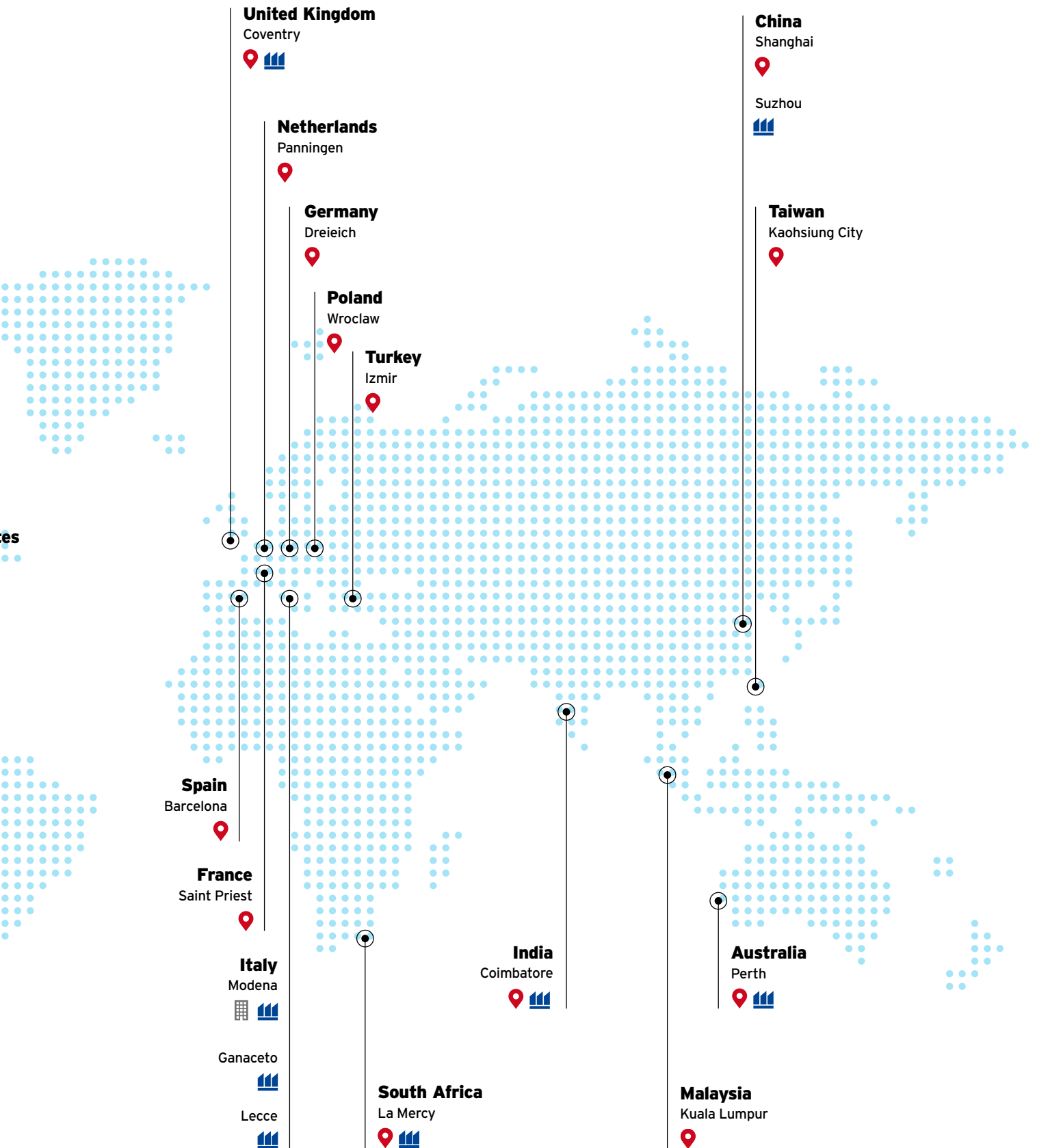


\*All contacts available on [www.rossi.com](http://www.rossi.com)

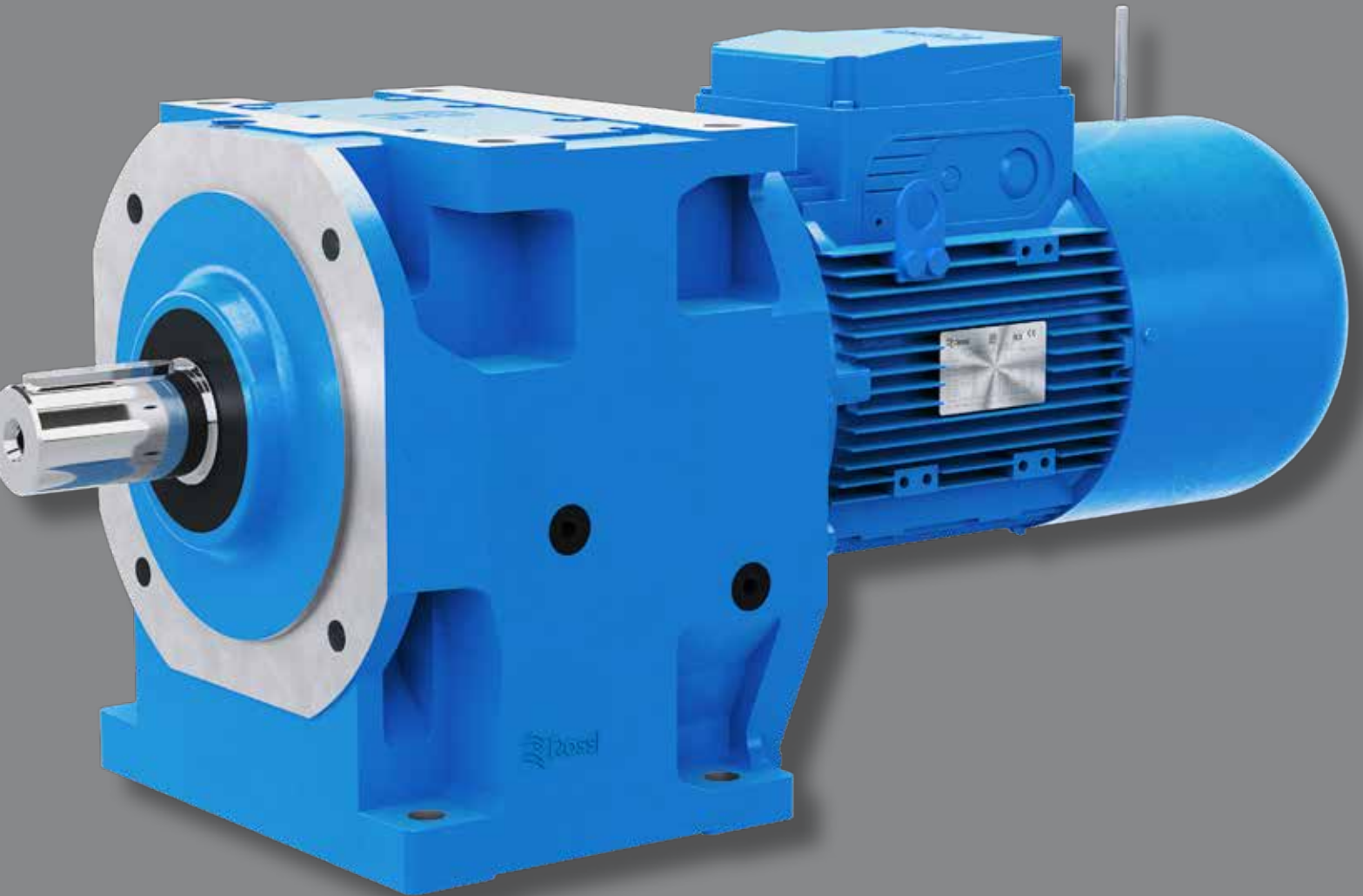
 Main offices

 Affiliated companies

 Production facilities/Assembly plants



# Features, benefits and range





### Maximum performance

We drive the heaviest applications worldwide



### Sustainability

We care about environment



### Modular system

For cost-effective and high quality solutions



### Innovation

We are constantly thinking forward, solutions for an evolving industry



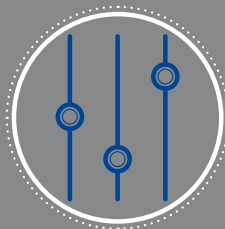
### Digitalization

**Rossi for You** is always at your disposal for any info



### Know-how

We support you through interdisciplinary know-how



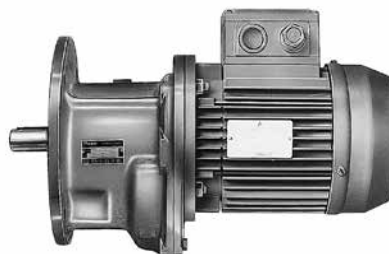
### Customization

Cost-effective solutions starting from standard products

## Coaxial gear reducers and gearmotors



**2I, 3I 32 ... 41\***  
with 2, 3 cylindrical  
gear pairsi



**2I, 3I 50 ... 180**  
with 2, 3 cylindrical  
gear pairs



## Combined gear reducer and gearmotor units



**MR 3I + R 2I, 3I**



**MR 3I + MR 2I, 3I**

\* gearmotors only

## Symbols and units of measure

All dimensions in the catalog are expressed in mm except where otherwise stated

Symbol	Description	Unit
$f$	frequency	Hz
$F$	force	lb
$F_r, F_a$	radial (overhung) loads, axial (thrust) loads	lb
$f_s$	service factor	–
$f_t$	thermal factor	–
$G$	weight (weight force)	lb
$i$	transmission ratio	–
$i_n$	nominal transmission ratio	–
$L_c$	total duration of load cycle	h
$L_{WA}$	sound power level	dB(A)
$m$	mass	lb
$M_b$	bending moment	lb in
$n$	angular speed	rpm
$n_1$	gear reducer input speed (high speed)	rpm
$n_2$	gear reducer output speed (low speed)	rpm
$n_{2eq}$	load cycle equivalent speed	rpm
$n_{N2}$	gear reducer nominal output speed	rpm
$n_a$	gear reducer output speed during load cycle interval $i$	rpm
$P$	power	hp
$P_1$	gear reducer input power (high speed shaft), motor power	hp
$P_2$	gear reducer output power (low speed shaft)	hp
$P_{N2}$	gear reducer nominal output power (low speed shaft)	hp
$P_t$	thermal power	hp
$P_{Nt}$	gear reducer nominal thermal power	hp
$P_{th}$	gear reducer equivalent thermal power	hp
$T$	torque	lb in

Symbol	Description	Unit
$T_2$	gear reducer output torque (low speed shaft), derived from input power and speed	lb in
$T_{2eq}$	load cycle equivalent torque	lb in
$T_{N2}$	gear reducer nominal output torque (low speed shaft)	lb in
$T_a$	gear reducer output torque (low speed shaft), during load cycle interval $i$	lb in
$T_s$	screw tightening torque	N m
$T_{start}$	motor starting torque	lb in
$T_{brake}$	motor braking torque	lb in
$T_{ambient}$	ambient temperature	°F
$T_{oil}$	oil temperature	°F
$t$	time	s
$t_a$	starting time	s
$t_b$	braking time	s
$U$	voltage	V
$W$	work, energy	10 <sup>6</sup> lb in
$WK$	moment of inertia	lb ft <sup>2</sup>
$WK_1^2$	moment of inertia (of mass) of the motor referred to high speed shaft	lb ft <sup>2</sup>
$WK_2^2$	moment of inertia (of mass) of the gear reducer referred to high speed shaft	lb ft <sup>2</sup>
$WK_R^2$	external (gear reducer, coupling, driven machine) moment of inertia (of mass) referred to high speed shaft	lb ft <sup>2</sup>
$Z$	starting frequency	starts/h
$z_0$	no load starting frequency	starts/h
	angular acceleration	rad/s <sup>2</sup>
	efficiency	–
	plane angle	rad
$\alpha_1$	revolution of motor shaft during acceleration	rad
$\beta_1$	revolution of motor shaft during deceleration	rad
	angular velocity	rad/s

### Additional indexes (subscripts) and other symbols

Index	Description
N	nominal
1	relating to high speed shaft (input)
2	relating to low speed shaft (input)
max	maximum
min	minimum
eq	equivalent

Index	Description
th	thermal
c	cycle
–	from ... to
≈	approximately equal to
	greater than or equal to
	less than or equal to

### Unit conversion table

Description	Imperial units		International System of Units (SI), Technical System (metric)		
<b>Length, Distance</b>	1 inch	[in]	= 0.0254		
	1 foot	[ft]	= 0.3048	meter	[m]
<b>Mass</b>	1 pound	[lb]	= 0.4536		
	1 ounce	[oz]	= 0.0283	kilogram	[kg]
<b>Volume</b>	1 US liquid gallon	[gal]	= 3.7854	liter	[l]
<b>Temperature</b>	1 Fahrenheit degree	[°F]	= 1.8 · °C + 32	Celsius degree	[°C]
<b>Force</b>	1 pound-force	[lbf]	= 4.4482	newton	[N]
			= 0.4536	kilogram force	[kgf]
<b>Power</b>	1 horse power	[hp]	= 0.7457	kilowatt	[kW]
<b>Torque, Work</b>	1 pound-force inch	[lbf <sub>f</sub> in]	= 0.1130	newton meter, joule	[N m], [J]
			= 0.0115	kilogram-force meter	[kg <sub>f</sub> m]
	1 pound-force foot	[lbf <sub>f</sub> ft]	= 1.3560	newton meter, joule	[N m], [J]
			= 0.1383	kilogram-force meter	[kg <sub>f</sub> m]
<b>Pressure</b>	1 pound-force per square inch (psi)	[lbf <sub>f</sub> /in <sup>2</sup> ]	= 0.0689	bar	[bar]
<b>Moment of inertia</b>	1 WK <sup>2</sup>	[lb <sub>f</sub> ft <sup>2</sup> ]	= 0.0421	kilogram square-meter	[kg m <sup>2</sup> ]

**Universal mounting** (patented; lower feet, upper feet, B5 flange with low speed shaft end shifted forward) excluding sizes 32 ... 41.

**Closer intermediate size steps** (for size pairs, standard and strengthened, only one housing and many components in common, changing only the ones allowing higher performances of greater size; improved modular construction) **offering sizes closer to every application need and maintaining nearly the same component number for maximum economy of solution; same mounting dimensions for the size pairs**

**Rigid and precise single-piece cast iron housing** (excluding sizes 32 ... 41)

**Generously proportioned bearings of low speed shaft** (bearings and shaft) **in order to withstand high loads** on shaft end

**Possibility of mounting large size motors**

**Manufacturing and product management flexibility**

**High manufacturing quality standard**

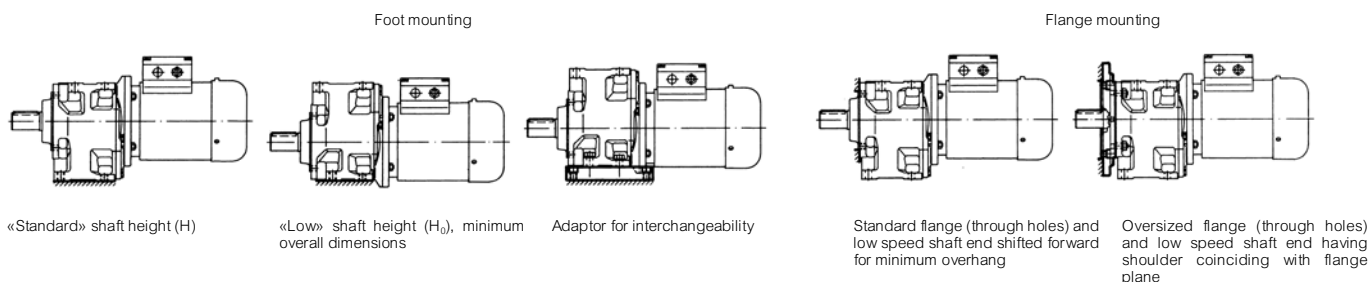
**Minimum maintenance requirements**

**Standard motor to IEC**

**High, reliable and tested performances**

**Pinion of final reduction with three bearings** (excluding sizes 32 ... 41) **in order to ensure best meshing conditions** (no overhang wheel; maximum rigidity and overloading capacity, maximum reduction of noise level)

This range of gear reducers and gearmotors combines and exalts the traditional qualities of coaxial gear reducers – **compactness, economy** –, with the ones deriving from modern design, manufacturing and operating criteria – **strength and suitability also for heaviest applications, universality and ease of application, wide range of sizes, service** – the advantages typically associated with high quality gear reducers produced in large series.

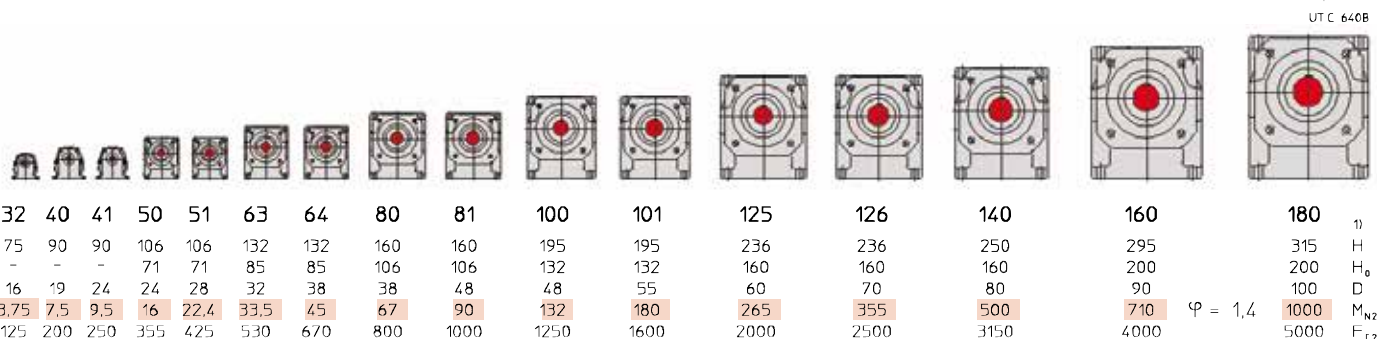


## a - Gear reducer

### Structural features

Main specifications are:

- **universal mounting (patented)** with lower and upper feet and B5 flange **integral** with housing (excluding sizes 32 ... 41 whose mounting is either with feet or with flange always integral with housing);
- **low speed shaft end** shifted forward (excluding size 40) compared to flange plane, for **smaller overhang** having same position of external radial load;
- modern conception according to Rossi **new modular system** (improved modular construction both for component parts and assembled product); to withstand **high loads on high and low speed shaft ends**;



1)  $H_0$  shaft height [in]  
 $D$  low speed shaft end [in]  
 $M_{N2}$  nominal torque [lb in]  
 $F_{r2}$  radial load [lb]s

- maximum compactness and reduced overall dimensions – and equal for 2l and 3l – especially in longitudinal direction; coaxial low and high speed shafts excluding sizes 140 ... 180 for which they are slightly misaligned (see ch. 3.2 and 3.8);
- **single-piece** cast iron **housing** 200 UNI ISO 185 (excluding sizes 32 ... 41) with **stiffening ribs** and high lubricant capacity;
- gear reducer overall sized so as to accept particularly powerful motors, to permit the transmission of **high** nominal and maximum **torques** and support **high loads on low and high speed shaft ends**;
- cylindrical roller or ball bearings on intermediate shafts duly sized for every condition;
- bearings of **low speed shaft** generously proportioned in order to withstand high loads on low speed shaft end (which is also proportioned for the same purpose);

Cuscinetto Bearing	Grandezza - Size															
	32	40	41	50	51	63	64	80	81	100	101	125	126	140	160	180
lato esterno external side	6203	6204	6205	6206	6206	6207	6208	6308	NJ210EC	6310	NJ212EC	30214	32016	32018	32021	32024
lato interno internal side	6201	6004	6203	6204	6204E	6205E	6206E	6306	NJ207EC	6308	NJ210EC	30212	32014	32016	32018	32021

- pinion of final reduction with **three bearings** (excluding sizes 32 ... 41) in order to ensure best meshing conditions (no overhang wheel, maximum rigidity and **overloading capacity**, maximum **reduction of noise level**);
- gear reducers: input face having machined flange and holes (excluding sizes 32 and 40);
- gearmotors: **standard motor to IEC** with pinion directly mounted onto shaft end;
- shaft end with parallel key and tapped butt-end hole;
- standard dimensions and compliance with standards;
- grease or oil-bath lubrication; with synthetic grease for sizes 32 ... 41 or synthetic oil sizes 50 ... 81 all supplied **filled with lubricant** for lubrication **«for life»** and with a plug (sizes 32 ... 64) or two plugs (sizes 80 and 81); with synthetic or mineral oil (ch. 4) with filler plug with **valve**, drain and level plug (sizes 100 ... 180); sealed;
- **paint external** coating in epoxy powder paint (sizes 32 ... 41) or water based dual compound acrylic-polyurethane resin basis enamel (sizes 50 ... 180) resistant to atmospheric and aggressive agents (corrosivity category C3 ISO 12944-2); suitable for further coats only with dual-compound products after degreasing and sanding; color blue RAL 5010 DIN 1843, other colors and/or painting cycles on request); **internal** protection with epoxy powder paint (sizes 32 ... 41) suitable to resist to synthetic oils or with synthetic paint (sizes 50 ... 180) suitable to resist polyalphaolefines based synthetic or mineral oils.
- possibility of obtaining combined gear reducer and gearmotor units providing high transmission ratios;
- non-standard designs: see ch. 5.

## Train of gears:

- 2, 3 cylindrical gear pairs (5, 6 in combined units);
- 7 sizes with final reduction centre distance to R 10 series (32 ... 125, with 6 size pairs: standard and strengthened); 3 sizes with final reduction centre distance to R 20 series (140 ... 180) for a total of **16 sizes**;
- nominal transmission ratios to R 10 series (6,3 ... 6 300) for gear reducers;
- output speeds close to standard number R 20 series (0,45 ... 710 rpm) for gearmotors;
- casehardened and hardened gear pairs in 16 CrNi4 or 20 MnCr5 steel depending on size and 18 NiCrMo5 steel, according to UNI 7846-78;
- helical toothed gear pairs with **ground** profile;
- gears load capacity calculated for tooth breakage and pitting.

## Specific standards:

- nominal transmission ratios and main dimensions according to UNI 2016 standard numbers (DIN 323-74, NF X 01.001, BS 2045-65, ISO 3-73);
- tooth profiles to UNI 6587-69 (DIN 867-86, NF E 23.011, BS 436.2-70, ISO 53-74);
- shaft heights to UNI 2946-68 (DIN 747-76, NF E 01.051, BS 5186-75, ISO 496-73);
- fixing flanges B14 and B5 taken from UNEL 13501-69 (DIN 42948-65, IEC 72.2);
- medium series fixing holes to UNI 1728-83 (DIN 69-71, NF E 27.040, BS 4186-67, ISO/R 273);
- cylindrical shaft ends (long or short) to UNI ISO 775-88 (DIN 748, NF E 22.05.051, BS 4506-70, ISO/R775) with tapped butt-end hole to UNI 9321 (DIN 332 Bl. 2-70, NF E 22.056) excluding d-D diameter ratio;
- parallel keys to UNI 6604-69 (DIN 6885 Bl. 1-68, NF E 27.656 and 22.175, BS 4235.1-72, ISO/R/773-69) except for specific cases of motor-to-gear reducer coupling where key height is reduced;
- mounting positions taken from CEI 2-14 (DIN EN 60034-7, IEC 34.7);
- load capacity verified according to UNI 8862, DIN 3990, AFNOR E 23-015, ISO 6336 for running time  $\geq$  **12 500 h**.

## Sound levels $L_{WA}$ and $\bar{L}_{pA}$ [dB(A)]

Standard production sound power level  $L_{WA}$  [dB(A)]<sup>1)</sup> and mean sound pressure level  $\bar{L}_{pA}$  [dB(A)]<sup>2)</sup> for gearmotors assuming nominal load, and input speed  $n_i = 1\ 400^{3)}$  rpm<sup>-1</sup>. Tolerance +3 dB(A).

If required, gear reducers can be supplied with reduced sound levels (normally 3 dB(A) below tabulated values); consult us.

Values in table are valid also for gear reducers.

In case of gearmotor with 4 poles 60 Hz motor (motor supplied by Rossi) add 1 dB(A) to the values in table.

Size and train of gears	Gearmotors with 4 poles motor																				
	63		71		80		90		100 112		132		160 180 M		180 L 200		225 250		280		
	$L_{WA}$	$\bar{L}_{pA}$	$L_{WA}$	$\bar{L}_{pA}$	$L_{WA}$	$\bar{L}_{pA}$	$L_{WA}$	$\bar{L}_{pA}$	$L_{WA}$	$\bar{L}_{pA}$	$L_{WA}$	$\bar{L}_{pA}$	$L_{WA}$	$\bar{L}_{pA}$	$L_{WA}$	$\bar{L}_{pA}$	$L_{WA}$	$\bar{L}_{pA}$	$L_{WA}$	$\bar{L}_{pA}$	
32, 40, 41	2I	63	54	65	56	68	59	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	3I	62	53	64	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50, 51	2I	—	—	66	57	69	60	71	62	—	—	—	—	—	—	—	—	—	—	—	—
	3I	62	53	65	56	68	59	—	—	—	—	—	—	—	—	—	—	—	—	—	—
63, 64	2I	—	—	—	—	69	60	73	64	75	66	—	—	—	—	—	—	—	—	—	—
	3I	—	—	66	57	68	59	71	62	—	—	—	—	—	—	—	—	—	—	—	—
80, 81	2I	—	—	—	—	—	—	73	64	77	68	78	69	—	—	—	—	—	—	—	—
	3I	—	—	69	60	72	63	75	66	—	—	—	—	—	—	—	—	—	—	—	—
100, 101	2I	—	—	—	—	—	—	77	68	80	71	81	72	—	—	—	—	—	—	—	—
	3I	—	—	—	—	73	64	76	67	78	69	—	—	—	—	—	—	—	—	—	—
125, 126, 140	2I	—	—	—	—	—	—	—	—	81	72	83	74	85	76	87	78	—	—	—	—
	3I	—	—	—	—	—	—	77	68	80	71	81	72	—	—	—	—	—	—	—	—
160, 180	2I	—	—	—	—	—	—	—	—	—	—	83	74	86	77	88	79	90	81	—	—
	3I	—	—	—	—	—	—	—	—	81	72	82	73	84	75	86	77	—	—	—	—

1) To ISO 8579-1.

2) Mean value of measurement at 3.28 ft (1 m) from external profile of gear reducer standing in free field on a reflecting surface.

3) For  $n_i$  710 + 1 800 rpm, modify tabulated values thus:  $n_i = 710$  rpm, -3 dB(A);  $n_i = 900$  rpm, -2 dB(A);  $n_i = 1\ 120$  rpm, -1 dB(A);  $n_i = 1\ 800$  rpm, +2 dB(A).

## b - Electric motor

Gearmotor dimensions and masses of present catalog (see ch. 3.6 and 3.8) refer to HB and HBZ motors (cat. TX).

### Main structural features (HB motor and HBZ brake motor)

- motor **standardized to IEC**;
- asynchronous three-phase, totally-enclosed, externally ventilated, with cage rotor;
- single polarity, frequency 50 Hz, voltage  $\Delta$  230 V Y 400 V (size  $\leq$  132),  $\Delta$  400 V (size  $\geq$  160);
- **IP 55** protection, **insulation class F**, temperature rise class **B**;
- rated power delivered on continuous duty S1 (excluding some cases of motor sizes with power not according to standard; see specific documentation) and referred to nominal voltage and frequency; maximum ambient temperature 104 °F (40 °C) and altitude 3 280 ft (1 000 m);
- capacity to withstand one or more overloads up to 1,6 times the nominal load for a maximum total period of 2 min per single hour;
- starting torque with direct on-line start at least 1,6 times the nominal one (it is usually higher);
- mounting position B5 and derivatives as shown in the following table;
- **suitable for inverter duty** (generous electromagnetic sizing, low-loss electrical stamping, phase separators, etc.)
- designs available for every application need: flywheel, independent cooling fan, independent cooling fan and encoder, etc.

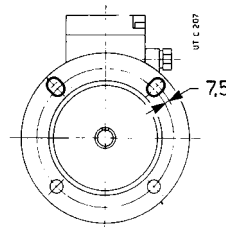
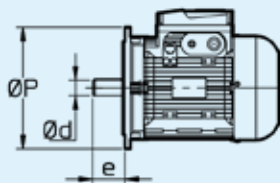
## Constructive features of HBZ brake motor

- particularly strong construction to withstand braking stresses; **maximum reduction of noise level**;
- spring-loaded d.c. electromagnetic brake; feeding from the terminal box; brake can also be independently fed directly from the line;
- braking torque **proportioned** to motor torque (usually  $T_f \approx 2 T_N$ ) and adjustable by adding or removing spring pairs;
- possibility of high frequency of starting;
- quick and rapid stop;
- hand lever for manual release with automatic return (on request for size  $\leq 160S$ ); removable lever rod.

For other specifications and details see **specific documentation of cat. TX**

## Main coupling dimensions

Motor size	IEC 60072 (UNEL 13117-17, DIN 43677 Bl. 1.A-65) Motor mounting position														
	IM B5				B5R				B5A						
	$\varnothing d$	x	e	-	$\varnothing P$	$\varnothing d$	x	e	-	$\varnothing P$	$\varnothing d$	x	e	-	$\varnothing P$
<b>63</b>	11	x	23	-	140	–	–	–	–	–	14	x	30	-	140
<b>71</b>	14	x	30	-	160	11	x	23	-	140	19	x	40	-	160
<b>80</b>	19	x	40	-	200	14	x	30	-	160	–	–	–	–	–
<b>90</b>	24	x	50	-	200	19	x	40	-	200	–	–	–	–	–
<b>100, 112</b>	28	x	60	-	250	24	x	50	-	200	–	–	–	–	–
<b>132</b>	38	x	80	-	300	28	x	60	-	250	–	–	–	–	–
<b>160</b>	42	x	110	-	350	38	x	80	-	300	–	–	–	–	–
<b>180</b>	48	x	110	-	350	–	–	–	–	–	–	–	–	–	–
<b>200</b>	55	x	110	-	400	48	x	110	-	350	–	–	–	–	–
<b>225</b>	60	x	140	-	450	–	–	–	–	–	–	–	–	–	–
<b>250</b>	65	x	140	-	550	60	x	140	-	450	–	–	–	–	–
<b>280</b>	75	x	140	-	550	–	–	–	–	–	–	–	–	–	–



**ATTENTION:** Electric motor flange of gearmotors MR 3l 50, 51 with motor size 63 must have the two top holes slotted outwards as shown in the drawing.

## Short time duty (S2) and intermittent periodic duty (S3); duty cycles S4 ... S10

In case of a duty-requirement type S2 ... S10 the motor power can be increased as per the following table; starting torque keeps unchanged.

**Short time duty (S2).** — Running at constant load for a given period of time less than that necessary to reach normal running temperature, followed by a rest period long enough for motor's return to ambient temperature.

**Intermittent periodic duty (S3).** — Succession of identical work cycles consisting of a period of running at constant load and a rest period. Current peaks on starting are not to be of an order that will influence motor heat to any significant extent.

$$\text{Cyclic duration factor} = \frac{N}{N+R} \cdot 100\%$$

where:  $N$  being running time at constant load,  
 $R$  the rest period and  $N + R = 10$  min (if longer consult us)

Duty	Motor size <sup>1)</sup>	Motor size <sup>1)</sup>		
		63 ... 90	100 ... 132	160 ... 280
<b>S2</b> duration of running	<b>90 min</b>	1	1	1.06
	<b>60 min</b>	1	1.06	1.12
	<b>30 min</b>	1.12	1.18	1.25
	<b>10 min</b>	1.25	1.25	1.32
<b>S3</b> cyclic duration factor	<b>60%</b>	–	1.12	–
	<b>40%</b>	–	1.18	–
	<b>25%</b>	–	1.25	–
	<b>15%</b>	–	1.32	–
<b>S4 ... S10</b>		consult us		

1) For motor sizes 90LC 4, 112MC 4, 132MC 4, consult us.

## Frequency 60 Hz

**Normal** motors up to size 132 wound for 50 Hz can be fed at 60 Hz; in this case speed increases by 20%. If input-voltage corresponds to winding voltage, power keeps unchanged, providing that higher temperature rise values are acceptable, starting is not on full load and that the power requirement is not unduly demanding, whilst starting and maximum torques decrease by 17%. If input-voltage is 20% higher than winding voltage, power increases by 20% whilst starting and maximum torques keep unchanged.

For **brake** motors see **specific literature**.

From size 160 upwards motors — both standard and brake ones — should be wound for 60 Hz exploiting the 20% power increase as a matter of course.

## Power available with high ambient temperature or high altitude

When motor has to run at an ambient temperature higher than 104 °F (40 °C) or at altitude above sea level higher than 3 300 ft (1 000 m), it has to be derated according to the following tables:

Ambient temperature [°F]	<b>86</b>	<b>104</b>	<b>113</b>	<b>122</b>	<b>131</b>	<b>140</b>
$P/P_N$ [%]	106	100	96,5	93	90	86,5
Altitude l.a.s. [ft]	<b>3 300</b>	<b>4 900</b>	<b>6 600</b>	<b>8 200</b>	<b>9 800</b>	<b>13 100</b>
$P/P_N$ [%]	100	96	92	88	84	76

## Specific standards:

- nominal powers and dimensions to CENELEC HD 231 (IEC 72-1, DIN 42677, NF C51-120, BS 5000-10 and BS 4999-141) for mounting positions IM B5, IM B14 and derivatives;
- nominal performances and running specifications to CENELEC EN 60034-1 (IEC 34-1, CEI EN 60034-1, DIN VDE 0530-1, NF C51-111, BS 4999-101);
- protection to CENELEC EN 60034-5 (IEC 34-5, CEI 2-16, DIN EN 60034-5, NF C51-115, BS 4999-105);
- mounting positions to CENELEC EN 60034-7 (IEC 34-7, CEI EN 60034-7, DIN IEC 34-7, NF C51-117, BS EN 60034-7);
- sound levels to CENELEC 60034-9 (IEC 34.9, DIN 57530 pt. 9);
- balancing and vibration velocity (vibration under standard rating N) to CENELEC HD 53.14 S1 (IEC 34-14, ISO 2373 CEI 2-23, BS 4999-142); motors are balanced with half key inserted into shaft extension;
- cooling to CENELEC EN 60034-6 (CEI 2-7, IEC 34-6): standard type IC 411; type IC 416 for non-standard design with axial independent cooling fan.

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## Asynchronous three-phase motors, brake motors



**HE - HB**  
Asynchronous three-phase motor



**HEZ - HBZ**  
Asynchronous three-phase **brake motor**  
with **d.c. brake**



**HBF**  
Asynchronous three-phase **brake motor**  
with **a.c. brake**



**HBV**  
Asynchronous three-phase **brake motor**  
with **d.c. safety brake**

Advanced design motors sharing the **same stator windings**, the same **rotors**, the same  **housings**, the same  **flanges**, the same performance, and the majority of technical solutions with its twin brake motor series (**HEZ, HBZ, HBF, and HBV**).

The generous electromagnetic sizing allow to achieve **high efficiency values** complying **with different energy saving regulations**:

- Efficiency class **IE3 (ErP)** for HB and HE;
- Efficiency class **IE3 (ErP)** for HEZ and HBZ

The electric design (terminal block, name plate, etc.) has been studied to comply, as standard, also with **NEMA MG1-12** for the maximum application flexibility and facility.

The strength and the precision of mechanical construction, the generous bearings and the wide range of non-standard designs available on catalog make this motor particularly suitable for coupling with gearmotors.

Thanks to its outstanding **low noise, progressivity** and **dynamic** characteristics, it is specifically suitable for **coupling with gearmotor minimizing the dynamic overloads** deriving from **starting and braking phases** (especially in case of motion reversals) and maintaining a **very good braking torque value**.

The excellent **operation progressivity** - when starting and braking - is assured by the brake anchor which is less quick in the impact (compared to a.c. HBF) and by the slight quickness of d.c. brakes.

Offering a comprehensive **range of accessories and non-standard designs** in order to satisfy all possible gearmotor application fields.

The **high reactivity** typical of **a.c. brake** and the **high braking capacity** make this brake motor **particularly suitable for heavy duties** requiring **quick brakings** and a **high number of operations** (e.g.: lifts with high frequency of starting, usually for size > 132, and/or for jog operations).

Vice versa, its very **high dynamic characteristics** (rapidity and frequency of starting) **are not advisable for the use in gearmotor coupling**, especially when these features are not strictly necessary for the application (avoiding useless overloads on the whole transmission).

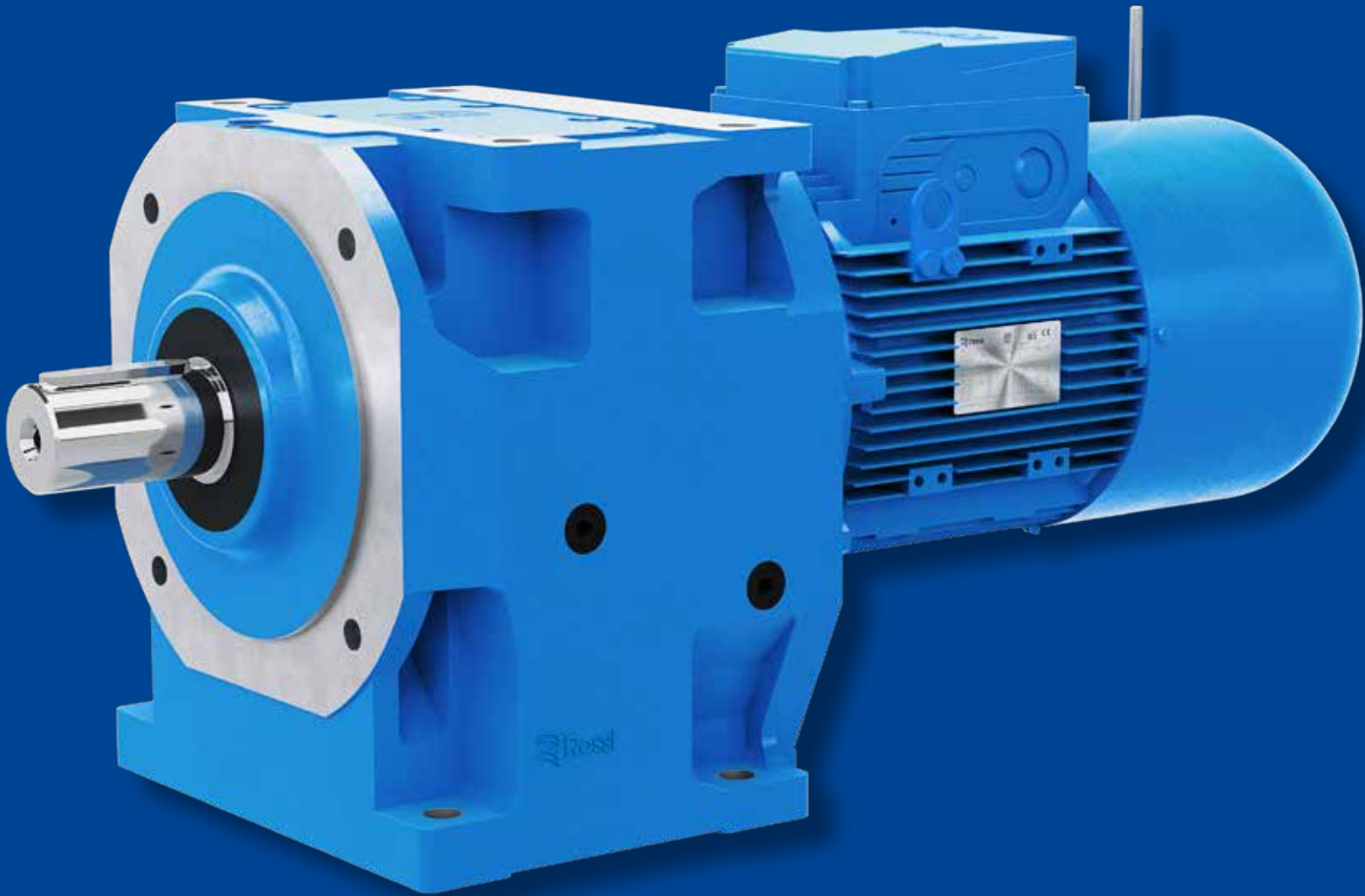
Comprehensive **range of accessories and non-standard designs** in order to satisfy all application needs of gearmotors (in particular for HBF: IP 56, IP 65, encoder, independent cooling fan, independent cooling fan and encoder, double extension shaft, etc.).

Featuring **maximum economy, very reduced overall dimensions and moderate braking torque**, it is suitable for the coupling with gearmotor and can be applied as brake for **safety or parking stops** (e.g. cutting machines) and for operations at deceleration ramp end **during the running with inverter**.

The standard cast iron fan supplies a flywheel effect increasing the very good progressivity of starting and braking (typical of d.c. brake) being particularly **suitable for «light»<sup>1)</sup> traverse movements**.

1) Mechanism group M4 (max 180 starts/h) and on-load running L1 (light) or L2 (moderate) to ISO 4301/1, F.E.M./II 1997.

# Product overview



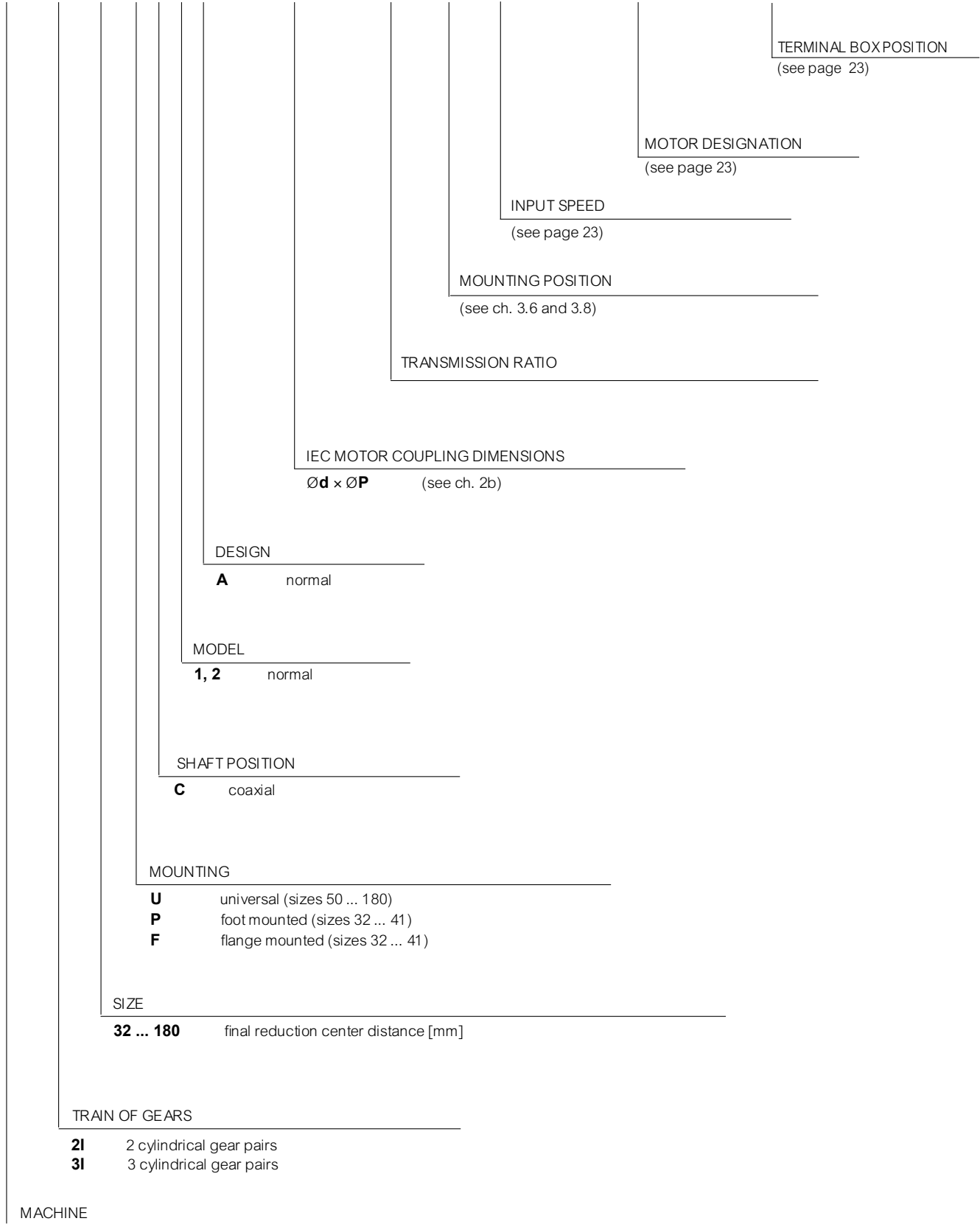


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## Designation code

**R** **2I** **50** **U** **C** **2** **A** - **29,3** **B3**  
**MR** **3I** **50** **U** **C** **2** **A** - **19 × 200** - **22,7** **V5** **HB3 80B4 230.400-50 B5** **TB3**



## Gear reducer mounting position

**Gear reducer and gearmotor mounting positions are described** in ch. 3.6, 3.8 (the mounting position designation refers to foot mounting only, even if gear reducers are for universal mounting, sizes 32 ... 41 excluded).

When having no particular needs, **prefer B3** (B3 or B5 for sizes 32 ... 41) **mounting position** for its technical and economic cost effectiveness (maximum simplification of lubrication system, lower oil splash, lower gear reducer heating, stock availability).

## Input speed

Complete the designation stating the input speed  $n_1$ , if  $> 1400$  rpm:

Example:

R 2I 50 UC2A / 29,3  $n_1 = 2000$  rpm

## Motor

When the gearmotor is supplied **equipped with a standard Rossi motor**, fill in the designation stating the motor designation (ref. cat. TX).

Example:

MR 3I 140 UC2A - 48 x 350 - 20,4

**HB3 180M 4 400-50 B5**

When **brake motor** is required, insert the letters **HBZ** (ref. cat. TX).

Example:

MR 3I 140 UC2A - 48 x 350 - 20,4

**HB3Z 180M 4 400-50 B5**

When the gearmotor is equipped **without motor**, omit the designation and add «without motor».

Esempio:

MR 3I 140 UC2A - 48x350 - 20,4

**without motor**

When motor is supplied by the **Buyer**<sup>1)</sup>, complete the designation by stating the description of «motor supplied by us».

1) The motor, supplied by the Buyer must be to IEC with mating surfaces machined under accuracy rating IEC 60072-1 and is to be sent carriage and expenses paid to our factory for fitting to the gear reducer.

Example:

MR 3I 140 UC2A - 48x350 - 20,4

**motore supplied by us**

## Motor terminal box position

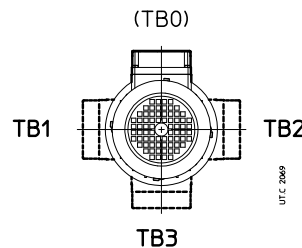
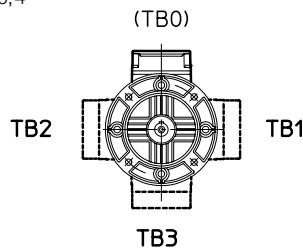
Complete the designation stating the motor terminal box position if differing from the standard one (TB0; scheme below); the cable input is Buyer's responsibility.

Example:

MR 3I 140 UC2A - 48x350 / 20,4

HB3 180M 4 400-50 B5 **TB3**

View from drive end (D)



View from non-drive end (N)

## Accessories and non-standard designs

In the event of a gear reducer or gearmotor being required in a design different from those stated above, specify it in detail (ch. 5).

Nominal thermal power  $P_{tN}$ , written in red in the following tables, is that which can be applied at the gear reducer input without exceeding 203 °F<sup>1)</sup> (95 °C<sup>1)</sup>) approximately oil temperature when operating in following running conditions:

- input speed  $n_1 = 1\ 800$  rpm;
- mounting position B3;
- continuous duty S1;
- maximum ambient temperature 104 °F (40 °C);
- maximum altitude 3,300 ft (1 000 m) above sea level;
- air speed  $\geq 4$  ft/s (typical value in presence of a gearmotor with self cooled motor).

For the cases marked at ch. 7 and 9 it should be always verified that the applied power  $P_1$  is less than or equal to gear reducer nominal thermal power  $P_{tN}$  multiplied by the corrective coefficients  $f_{t1}$ ,  $f_{t2}$ ,  $f_{t4}$ ,  $f_{t5}$  (stated in the following tables) considering the several operational conditions:

$$P_1 \leq P_{tN} \cdot f_{t1} \cdot f_{t2} \cdot f_{t4} \cdot f_{t5}$$

When this condition is not satisfied consider the use of special lubricant or a cooling unit with heat exchanger: consult us.

Thermal power needs not be taken into account when maximum duration of continuous running time is 1 + 3 h (from small to large gear reducer sizes) followed by rest periods long enough to restore the gear reducer to near ambient temperature (likewise 1 + 3 h). In case of maximum ambient temperature above 122 °F (50 °C) or below 32 °F (0 °C) consult us.

### Nominal thermal power $P_{tN}$ [hp]

Train of gears	$P_{tN}$ [hp]					
	80, 81	100, 101	125, 126	140	160	180
<b>2I</b>	20	30	45	48	71	75
<b>3I</b>	15	23	33.5	35,5	54	57

### Thermal factor $f_{t1}$ according to input speed $n_1$

Train of gears	$f_{t1}$				
	Input speed $n_1$ [min <sup>-1</sup> ] $\geq$				
	710	900	1 120	1 400	1 800
<b>2I</b>	1,18	1,12	1,06	1	0,85
<b>3I</b>	1,06	1,06	1,03	1	0,95

### Thermal factor $f_{t2}$ according to ambient temperature and duty

Maximum ambient temperature °F (°C)	$f_{t2}$				
	Continuous duty <b>S1</b>	Intermittent duty <b>S3 ... S6</b>			
		Cyclic duration factor for 60 min running <sup>2)</sup>			
		60	40	25	15
<b>122 (50)</b>	0,8	0,95	1,06	1,18	1,32
<b>104 (40)</b>	<b>1</b>	1,18	1,32	1,5	1,7
<b>86 (30)</b>	1,18	1,4	1,6	1,8	2
<b>68 (20)</b>	1,32	1,6	1,8	2	2,24
<b>50 (10)</b>	1,5	1,8	2	2,24	2,5

### Thermal factor $f_{t4}$ according to altitude

Altitude a.s.l [ft]	$f_{t4}$
$\leq 3\ 300$	<b>1</b>
<b>3 300 + 6 600</b>	0,95
<b>6 600 + 9 800</b>	0,9
<b>9 800 + 13 100</b>	0,85
$\geq 13\ 100$	0,8

### Thermal factor $f_{t5}$ according to air speed on the housing

Air speed ft/s	Working environment	$f_{t5}$
<b>&lt; 2</b>	very small or no air movement or gear reducer shielded	consult us
<b>2</b>	small and with limited air movement	0,71
<b>3.15</b>	large and without ventilation	0,9
<b>4</b>	large and with slight ventilation (e.g. gearmotor with self-cooled motor)	<b>1</b>
<b>8</b>	outdoor ventilated	1,18
<b>12.5</b>	strong air movement	1,32

1) Corresponding to an average temperature of the external housing surface of approximately 85 °C; locally housing temperature can achieve the oil temperature.

2) (Duration of running on load / 60) · 100 [%].

Service factor *f<sub>s</sub>* takes into account the different running conditions (nature of load, running time, frequency of starting, other considerations) which must be referred to when performing calculations of gear reducer selection and verification.

The powers and torques shown in the catalog are nominal (i.e. valid for *f<sub>s</sub>* = 1) for gear reducers, corresponding to the *f<sub>s</sub>* indicated for gearmotors.

**Service factor based:** on the **nature of load** and **running time** (this value is to be multiplied by the values shown in the tables alongside).

...: on **frequency of starting** referred to the nature of load.

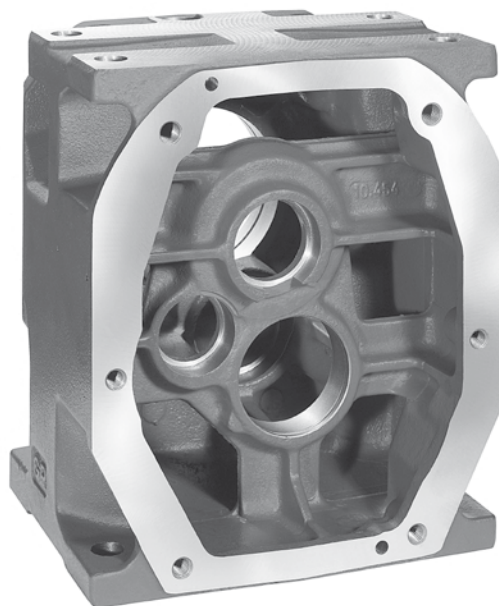
Natura del carico della macchina azionata Nature of load of the driven machine		Durata di funzionamento [h] Running time [h]					Rif. carico Load ref.								
Rif. Ref.	Descrizione Description	3 150 ≤2 h/d	6 300 2÷4 h/d	12 500 4÷8 h/d	25 000 8÷16 h/d	50 000 16÷24 h/d	Frequenza di avviamento z [avv./h] Frequency of starting z [starts/h]								
							2	4	8	16	32	63	125	250	
<b>a</b>	<b>Uniforme Uniform</b>	0.8	0.9	1	1.18	1.32	<b>a</b>	1	1.06	1.12	1.18	1.25	1.32	1.4	1.5
<b>b</b>	<b>Sovraccarichi moderati</b> (entità 1.6 volte il carico normale) <b>Moderate overloads</b> (1.6 × normal)	1	1.12	1.25	1.5	1.7	<b>b</b>	1	1	1.06	1.12	1.18	1.25	1.32	1.4
<b>c</b>	<b>Sovraccarichi forti</b> (entità 2.5 volte il carico normale) <b>Heavy overloads</b> (2.5 × normal)	1.32	1.5	1.7	2	2.24	<b>c</b>	1	1	1	1.06	1.12	1.18	1.25	1.32

Details of service factor, and considerations.

Given *f<sub>s</sub>* values are valid for:

- electric motor with cage rotor, direct on-line starting up to 12.34 hp (9,2 kW), star-delta starting for higher power ratings; for direct on-line starting above 12.34 hp (9,2 kW) or for brake motors, select *f<sub>s</sub>* according to a frequency of starting double the actual frequency; for internal combustion engines multiply *f<sub>s</sub>* by 1.25 (multicylinder) or 1.5 (single-cylinder);
- maximum time on overload 15 s; on starting 3 s; if over and/or subject to heavy shock effect, consult us;
- a whole number of overload cycles (or start) **imprecisely** completed in 1, 2, 3 or 4 revolutions of low speed shaft; if **precisely** a continuous overloads should be assumed;
- **standard** level of reliability; if a **higher** degree of reliability is required (particularly difficult maintenance conditions, key importance of gear reducer to production, personnel safety, etc.) multiply *f<sub>s</sub>* by **1.25 ÷ 1.4**.

Motors having a starting torque not exceeding nominal values (star-delta starting, particular types of motor operating on direct current, and single-phase motors), and particular types of coupling between gear reducer and motor, and gear reducer and driven machine (flexible, centrifugal, fluid and safety couplings, clutches and belt drives) affect service factor favourably, allowing its reduction in certain heavy-duty applications; consult us if need be.



## a - Gear reducer

### Determining the gear reducer size

- Make available all necessary data: required output power  $P_2$  of gear reducer, speeds  $n_2$  and  $n_1$ , running conditions (nature of load, running time, frequency of starting  $\mathbf{z}$ , other considerations) with reference to ch. 5.
- Determine service factor  $f_s$  on the basis of running conditions (ch. 5).
- Select the gear reducer size (also, the train of gears and transmission ratio  $i$  at the same time) on the basis of  $n_2$ ,  $n_1$  and of a power  $P_{N2}$  greater than or equal to  $P_2 \cdot f_s$  (ch. 7).
- Calculate power  $P_1$ , required at input side of gear reducer using — the formula  $\frac{P_2}{\eta}$ , where  $\eta = 0.96 \div 0.94$  is the efficiency of the gear reducer (ch. 3.13).

When for reasons of motor standardization, power  $P_1$  applied at input side of gear reducer turns out to be higher than the power required (considering motor/gear reducer efficiency), it must be certain that this excess power applied will never be required, and frequency of starting  $\mathbf{z}$  is so low as not to affect service factor (ch. 3.3).

Otherwise, make the selection by multiplying  $P_{N2}$  by  $\frac{P_1 \text{ applied}}{P_1 \text{ required}}$ .

Calculations can also be made on the basis of torque instead of power; this method is even preferable for low  $n_2$  values.

### Verifications

- Verify possible radial loads  $F_{r1}$ ,  $F_{r2}$  by referring to instructions and values given in ch. 3.11 and 3.12.
- When the load chart is available, and/or there are overloads — due to starting on full load (mainly for high inertias and low transmission ratios), braking, shocks, gear reducers in which the low speed shaft becomes driving member due to driven machine inertia, or other static or dynamic causes — verify that the maximum torque peak (ch. 3.13) is always less than  $2 \cdot M_{N2}$ ; if it is higher or cannot be evaluated in the above cases, install a safety device so that  $2 \cdot M_{N2}$  will never be exceeded.
- Verify, when  $f_s < 1$ , that torque  $M_2$  is less or equal to  $M_{N2}$  value valid for  $n_1 \leq 90$  rpm (see ch. 3.5).
- For the cases marked at ch. 7 with \* and \*\* (in red) verify that  $P_1 \leq Pt$  (ch. 3.2).

## b - Gearmotor

### Determining the gearmotor size

- Make available all necessary data: required output power  $P_2$  of gearmotor, speed  $n_2$ , running conditions (nature of load, running time, frequency of starting  $\mathbf{z}$ , other considerations) with reference to ch. 3.3.
- Determine service factor  $f_s$  on the basis of running conditions (ch. 3.3).
- Select the gearmotor size on the basis of  $n_2$ ,  $f_s$  and of a power  $P_1$  greater than or equal to  $P_2$  (ch. 3.7).

If power  $P_2$  required is the result of a precise calculation, the gearmotor should be selected on the basis of a power  $P_1$  equal to or greater than  $\frac{P_2}{\eta}$ , where  $\eta = 0.96 \div 0.94$  is gear reducer efficiency (ch. 3.13). The torque value  $M_2$  has been calculated taking into account efficiency.

When for reasons of motor standardization, power  $P_1$  available in catalogue is much greater than the power  $P_2$  required, the gearmotor can be selected on

the basis of a lower service factor ( $f_s \cdot \frac{P_2 \text{ required}}{P_1 \text{ available}}$ ) provided it is certain that this excess power available will never be required and

frequency of starting  $\mathbf{z}$  is low enough not to affect service factor (ch. 3.3).

Calculations can also be made on the basis of torque instead of power; this method is even preferable for low  $n_2$  values.

## Verifications

- Verify possible radial load  $F_{r2}$  referring to directions and values given in ch. 3.12.
- For the motor, verify frequency of starting  $z$  when higher than that normally permissible, referring to directions and values given in ch. 2b; this will normally be required for brake motors only.
- Verify, in case of **motors supplied by the customer**, that the **static bending moment  $M_b$**  generated by motor weight on the counter flange of gear reducer is lower than the value allowed  $M_{bmax}$  stated in the ch. 3.13.  
**Loads higher than permissible loads may be present in dynamical applications** where the gearmotor is subjected to translations, rotations or oscillations: consult us for the study of every specific case
- When a load chart is available, and/or there are overloads — due to starting on full load (especially with high inertias and low transmission ratios), braking, shocks, gear reducers in which the low speed shaft becomes driving member due to driven machine inertia, or other static or dynamic causes — verify that the maximum torque peak (ch. 3.13) is always less than  $2 \cdot M_{N2}$  ( $M_{N2} = M_2 \cdot fs$ , see ch. 3.7); if it is higher or cannot be evaluated in the above instances, install suitable safety devices so that  $2 \cdot M_{N2}$  will never be exceeded.
- For the cases marked at ch. 3.7 with \* and \*\* (in red) verify that  $P_1 \leq Pt$  (ch. 3.2).

## c - Combined gear reducer and gearmotor units

Combined units are obtained by coupling together **normal single** gear reducers and/or gearmotors so as to produce low output speeds.

### Determining the final gear reducer size and the combined unit

- Make available all necessary data relating to the output of the final gear reducer: required torque  $M_2$ , speed  $n_2$ , running conditions (nature of load, running time, frequency of starting  $z$ , other considerations) with reference to ch. 3.3.
- Determine service factor  $fs$  on the basis of running conditions (ch. 3.3).
- Select the final gear reducer size and basic reference, and the initial gear reducer or gearmotor size (ch. 3.9) on the basis of a torque value  $M_{N2}$  greater than or equal to  $M_2 \cdot fs$ .

### Selection of initial gear reducer or gearmotor

- Calculate the speed  $n_2$  and the required power  $P_2$  at the initial gearmotor output using the following formulae:

$$n_2 \text{ initial} = n_2 \text{ final} \cdot i \text{ final}$$

$$P_2 \text{ initial} = \frac{M_2 \text{ final} \cdot n_2 \text{ final}}{63\,025 \cdot \eta \text{ final}} \text{ [hp]}$$

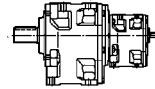
- In the case of gear reducer, make available input speed  $n_1$  at the input of the initial gear reducer.
- Make the selection of initial gear reducer or gearmotor as shown in ch. 3.4 paragraph a) or b) bearing in mind that sizes are pre-established (and cannot be changed on account of couplings being standard) and that it is not necessary to verify service factor.

## Designation for ordering

When ordering combined units, the single gear reducers or gearmotors must be designated **separately**, as indicated in ch. 3.1) bearing in mind the following:

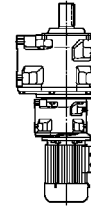
- insert the words **coupled with** between the final gear reducer designation and that of the initial gear reducer or gearmotor;
- always add the words **without motor** to the final gear reducer designation; select the design **oversized B5 flange** for the initial gear reducer or gearmotor (for size 63 also add **-Ø 28**); in case of initial gear reducer or gearmotor size 40 select with flange **FC1A** design.

E.g.: MR 3I 160 UC2A - 38 × 300 - 49.7 without motor coupled with R 2I 80 UC2A/15.7 oversized B5 flange



UT C 98B

MR 3I 125 UC2A - 28 × 250 - 34.1 without motor mounting position V6 coupled with  
MR 2I 63 UC2A - 19 × 200 - 24.3 oversized B5 flange - Ø 28, mounting position V6  
HB3 80B 4 230.400 B5



## Considerations on selection

### Motor power

Taking into account the efficiency of the gear reducer, and other drives — if any — motor power is to be as near as possible to the power rating required by the driven machine: accurate calculation is therefore recommended.

The power required by the machine can be calculated, seeing that it is related directly to the power-requirement of the work to be carried out, to friction (starting, sliding or rolling friction) and inertia (particularly when mass and/or acceleration or deceleration are considerable). It can also be determined experimentally on the basis of tests, comparisons with existing applications, or readings taken with amperometers or wattmeters.

An oversized motor would involve: a greater starting current and consequently larger fuses and heavier cable; a higher running cost as power factor ( $\cos \omega$ ) and efficiency would suffer; greater stress on the drive, causing danger of mechanical failure, drive being normally proportionate to the power rating required by the machine, not to motor power.

Only high values of ambient temperature, altitude, frequency of starting or other particular conditions require an increase in motor power.

### Input speed

Maximum input speed must be always  $n_1 \leq 2\,800$  rpm; for intermittent duty or for particular needs higher speeds may be accepted: consult us.

For  $n_1$  higher than 1 400 rpm, **power** and **torque** ratings relating to a given transmission ratio vary as shown in the table alongside. In this case no loads should be imposed on the high speed shaft end.

For variable  $n_1$ , the selection should be carried out on the basis of  $n_{1\max}$ ; but it should also be verified on the basis of  $n_{1\min}$ .

When there is a belt drive between motor and gear reducer, different input speeds  $n_1$  should be examined in order to select the most suitable unit from engineering and economy standpoints alike (our catalogue favours this method of selection as it shows a number of input speed values  $n_1$  relating to a determined output speed  $n_{N2}$  in the same section). Input speed should not be higher than 1 400 rpm, unless conditions make it necessary; better to take advantage of the transmission, and use an input speed lower than 900 rpm.

$n_1$ rpm	R 2I		R 3I	
	$P_{N2}$	$M_{N2}$	$P_{N2}$	$M_{N2}$
<b>2 800</b>	1.4	0.71	1.7	0.85
<b>2 240</b>	1.25	0.8	1.4	0.9
<b>1 800</b>	1.12	0.9	1.18	0.95
<b>1 400</b>	1	1	1	1

## Operation on 60 Hz supply

When motor is fed with 60 Hz frequency (ch. 2 b), the gearmotor specifications vary as follows.

- Speed  $n_2$  increases by 20%.
- Power  $P_1$  may either remain constant or increase (ch. 2 b).
- Torque  $M_2$  and service factor  $f_s$  vary as follows:

$$M_{2 \text{ at } 60 \text{ Hz}} = M_{2 \text{ at } 50 \text{ Hz}} \cdot \frac{P_{1 \text{ at } 60 \text{ Hz}}}{1.2 \cdot P_{1 \text{ at } 50 \text{ Hz}}}$$

$$f_{s \text{ at } 60 \text{ Hz}} = f_{s \text{ at } 50 \text{ Hz}} \cdot \frac{1.12 \cdot P_{1 \text{ at } 50 \text{ Hz}}}{P_{1 \text{ at } 60 \text{ Hz}}}$$

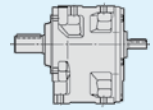
$n_{N2}$	$n_1$	$i_N$	Gear reducer size														
			32	40	50	51	63	64	80	81	100	101	125	126	140	160	
			$P_{N2}$ hp $T_{N2}$ lb in ... / i														
rpm																	
280	1 800	6.3	1.32	2.29	4.51	5.8	9.8	11.6	20.4	24*	38.4*	45.8**	79**	91**	—	184**	—
			292	489	1 030	1 330	2 170	2 590	4 360	5 100	8 700	10 400	17 500	20 200	—	40 800	—
			21/6.33	21/6.08	21/6.52	21/6.52	21/6.36	21/6.36	21/6.1	21/6.1	21/6.5	21/6.5	21/6.35	21/6.35	—	21/6.34	—
224	1 800	8	1.03	2.22	4.39	6.2	9.4	11.8	19.7	24.7*	37*	48.6**	75**	94**	—	195**	200**
			292	590	1 250	1 750	2 640	3 320	5 300	6 600	10 500	13 800	21 000	26 600	—	55 600	59 100
			21/8.12	21/7.61	21/8.13	21/8.13	21/8.05	21/8.05	21/7.64	21/7.64	21/8.11	21/8.11	21/8.03	21/8.03	—	21/8.12	21/8.43
1 400	6.3	1.04	1.8	3.54	4.57	7.7	9.1	16.0	18.9	30.1	36.1*	62*	72**	—	145**	—	
		297	495	1 040	1 340	2 200	2 620	4 410	5 200	8 800	10 600	17 600	20 500	—	41 200	—	
		21/6.33	21/6.08	21/6.52	21/6.52	21/6.36	21/6.36	21/6.1	21/6.1	21/6.5	21/6.5	21/6.35	21/6.35	—	21/6.34	—	
180	1 800	10	0.77	1.73	3.43	4.89	7.2	9.7	15.4	20.6	28.9	39*	58*	77**	96**	143**	200**
			292	590	1 250	1 780	2 640	3 540	5 300	7 100	10 500	14 200	21 000	28 200	33 500	53 800	75 600
			21/10.8	21/9.76	21/10.4	21/10.4	21/10.5	21/10.5	21/9.79	21/9.79	21/10.4	21/10.4	21/10.4	21/10.4	21/9.92	21/10.7	21/10.8
1 400	8	0.81	1.75	3.48	4.84	7.4	9.2	15.6	19.3	29.2	38.2*	59*	73**	—	154**	158**	
		297	600	1 270	1 770	2 680	3 320	5 400	6 600	10 700	14 000	21 400	26 600	—	56 500	59 800	
		21/8.12	21/7.61	21/8.13	21/8.13	21/8.05	21/8.05	21/7.64	21/7.64	21/8.11	21/8.11	21/8.03	21/8.03	—	21/8.12	21/8.43	
1 120	6.3	0.85	1.46	2.86	3.69	6.2	7.4	12.9	15.2	24.3	29.2	49.6	58*	—	117**	—	
		302	500	1 050	1 350	2 210	2 650	4 430	5 200	8 900	10 700	17 700	20 700	—	41 600	—	
		21/6.33	21/6.08	21/6.52	21/6.52	21/6.36	21/6.36	21/6.1	21/6.1	21/6.5	21/6.5	21/6.35	21/6.35	—	21/6.34	—	
160	1 250	8	0.73	1.58	3.13	4.35	6.7	8.2	14.0	17.2	26.2	34.3	53*	66**	—	139**	141**
			299	610	1 280	1 780	2 700	3 320	5 400	6 600	10 700	14 000	21 500	26 600	—	56 900	60 000
			21/8.12	21/7.61	21/8.13	21/8.13	21/8.05	21/8.05	21/7.64	21/7.64	21/8.11	21/8.11	21/8.03	21/8.03	—	21/8.12	21/8.43
1 000	6.3	0.76	1.31	2.57	3.31	5.5	6.6	11.5	13.7	21.8	26.2	44.2	52	—	105**	—	
		304	500	1 050	1 360	2 210	2 660	4 430	5 300	8 900	10 700	17 700	20 800	—	41 800	—	
		21/6.33	21/6.08	21/6.52	21/6.52	21/6.36	21/6.36	21/6.1	21/6.1	21/6.5	21/6.5	21/6.35	21/6.35	—	21/6.34	—	
140	1 800	12.5	0.58	1.3	2.86	3.97	5.9	7.7	11.6	15.1	24.1	31.4	47.3	61*	85**	129**	142**
			276	590	1 250	1 730	2 640	3 440	5 300	6 900	10 500	13 700	21 000	27 300	38 700	54 300	62 100
			21/13.5	21/13	21/12.5	21/12.5	21/12.7	21/12.7	21/13	21/13	21/12.5	21/12.5	21/12.7	21/12.7	21/12.9	21/12.1	21/12.5
1 400	10	0.61	1.37	2.72	3.86	5.7	7.6	12.2	16.3	22.8	30.8	45.5	61*	76**	113**	158**	
		297	600	1 270	1 810	2 680	3 600	5 400	7 200	10 700	14 400	21 400	28 600	33 900	54 700	76 400	
		21/10.8	21/9.76	21/10.4	21/10.4	21/10.5	21/10.5	21/9.79	21/9.79	21/10.4	21/10.4	21/10.4	21/10.4	21/9.92	21/10.7	21/10.8	
1 120	8	0.66	1.42	2.83	3.91	6.0	7.3	12.7	15.4	23.7	30.9	47.9	59*	—	125**	127**	
		302	610	1 290	1 790	2 720	3 320	5 400	6 600	10 800	14 100	21 600	26 600	—	57 300	60 300	
		21/8.12	21/7.61	21/8.13	21/8.13	21/8.05	21/8.05	21/7.64	21/7.64	21/8.11	21/8.11	21/8.03	21/8.03	—	21/8.12	21/8.43	
900	6.3	0.69	1.18	2.32	3.00	4.96	6.0	10.4	12.4	19.7	23.7	39.8	46.9	—	95*	—	
		306	500	1 060	1 370	2 210	2 660	4 430	5 300	9 000	10 800	17 700	20 900	—	42 000	—	
		21/6.33	21/6.08	21/6.52	21/6.52	21/6.36	21/6.36	21/6.1	21/6.1	21/6.5	21/6.5	21/6.35	21/6.35	—	21/6.34	—	
125	1 250	10	0.55	1.23	2.45	3.47	5.1	6.9	10.9	14.7	20.5	27.7	40.9	55*	68*	102*	141*
			299	610	1 280	1 820	2 700	3 630	5 400	7 200	10 700	14 500	21 500	28 800	34 000	55 100	76 700
			21/10.8	21/9.76	21/10.4	21/10.4	21/10.5	21/10.5	21/9.79	21/9.79	21/10.4	21/10.4	21/10.4	21/10.4	21/9.92	21/10.7	21/10.8

For  $n_1 > 1 400$  rpm or  $n_1 < 355$  rpm see ch. 3.4 and the table on page 36.  
 \* In case of ambient temperature  $> 86$  °F (30 °C) check the thermal power (ch. 3.2).  
 \*\* Check the thermal power (ch. 3.2).

# Nominal powers and torques (gear reducers)

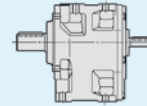
# 3.5

$n_{N2}$	$n_1$	$i_N$	Gear reducer size															
			32	40	50	51	63	64	80	81	100	101	125	126	140	160	180	
rpm			$P_{N2}$ hp		$T_{N2}$ lb in		...		/ i									
125	1000	8	0.59	1.28	2.54	3.51	5.4	6.5	11.4	13.8	21.3	27.7	43.1	52		113**	114**	
			304	610	1 300	1 800	2 740	3 320	5 500	6 600	10 900	14 200	21 800	26 600	-	57 700	60 600	
					2/8.12	2/7.61	2/8.13	2/8.13	2/8.05	2/8.05	2/7.64	2/7.64	2/8.11	2/8.11	2/8.03	2/8.03	2/8.12	2/8.43
		800	6.3	0.62	1.06	2.07	2.68	4.41	5.3	9.2	11.0	17.6	21.1	35.4	41.8		84*	-
				308	510	1 060	1 370	2 210	2 660	4 430	5 300	9 000	10 800	17 700	20 900	-	42 200	-
				2/6.33	2/6.08	2/6.52	2/6.52	2/6.36	2/6.36	2/6.1	2/6.1	2/6.5	2/6.5	2/6.35	2/6.35		2/6.34	
112	1800	16	-	0.98	2.26	2.94	4.73	5.8	9.9	12.3	18.9	25.5	39.9	52	72**	99*	135**	
				560	1 290	1 680	2 720	3 330	5 400	6 700	10 800	14 600	21 300	27 600	39 100	55 200	75 600	
				2/16.2	2/16.3	2/16.3	2/16.4	2/16.4	2/15.7	2/15.7	2/16.3	2/16.3	2/15.2	2/15.2	2/15.5	2/15.9	2/16	
		1400	12.5	0.46	1.03	2.26	3.13	4.68	6.1	9.1	11.9	19.0	24.9	37.4	48.5	67**	101**	111**
				279	600	1 270	1 760	2 680	3 500	5 400	7 000	10 700	14 000	21 400	27 700	39 300	54 900	62 800
				2/13.5	2/13	2/12.5	2/12.5	2/12.7	2/12.7	2/13	2/13	2/12.5	2/12.5	2/12.7	2/12.7	2/12.9	2/12.1	2/12.5
	1120	10	0.5	1.11	2.21	3.13	4.63	6.2	9.9	13.2	18.5	25.0	36.9	49.4	61*	92*	127*	
			302	610	1 290	1 830	2 720	3 650	5 400	7 300	10 800	14 600	21 600	29 000	34 200	55 500	77 100	
			2/10.8	2/9.76	2/10.4	2/10.4	2/10.5	2/10.5	2/9.79	2/9.79	2/10.4	2/10.4	2/10.4	2/10.4	2/9.92	2/10.7	2/10.8	
	900	8	0.54	1.16	2.31	3.18	4.9	5.9	10.3	12.4	19.3	25.1	39.0	47.2		102**	103*	
			306	620	1 310	1 810	2 760	3 320	5 500	6 600	10 900	14 300	21 900	26 600	-	58 100	60 900	
			2/8.12	2/7.61	2/8.13	2/8.13	2/8.05	2/8.05	2/7.64	2/7.64	2/8.11	2/8.11	2/8.03	2/8.03		2/8.12	2/8.43	
	710	6.3	0.55	0.94	1.85	2.39	3.92	4.7	8.2	9.8	15.7	18.9	31.4	37.1		75	-	
			310	510	1 070	1 380	2 210	2 660	4 430	5 300	9 100	10 900	17 700	20 900	-	42 400	-	
			2/6.33	2/6.08	2/6.52	2/6.52	2/6.36	2/6.36	2/6.1	2/6.1	2/6.5	2/6.5	2/6.35	2/6.35		2/6.34		
100	1250	12.5	0.41	0.92	2.04	2.82	4.21	5.5	8.2	10.7	17.1	22.4	33.6	43.6	61*	91*	100*	
			281	610	1 280	1 770	2 700	3 530	5 400	7 000	10 700	14 100	21 500	27 900	39 500	55 100	63 000	
				2/13.5	2/13	2/12.5	2/12.5	2/12.7	2/12.7	2/13	2/13	2/12.5	2/12.5	2/12.7	2/12.7	2/12.9	2/12.1	2/12.5
		1000	10	0.45	1.00	1.99	2.82	4.16	5.6	8.9	11.9	16.6	22.5	33.2	44.4	55	83	114**
				304	610	1 300	1 850	2 740	3 680	5 500	7 400	10 900	14 700	21 800	29 200	34 400	55 900	77 400
				2/10.8	2/9.76	2/10.4	2/10.4	2/10.5	2/10.5	2/9.79	2/9.79	2/10.4	2/10.4	2/10.4	2/10.4	2/9.92	2/10.7	2/10.8
	800	8	0.48	1.04	2.07	2.84	4.39	5.2	9.2	11.0	17.2	22.4	34.9	42.0		91*	92*	
			308	620	1 320	1 820	2 780	3 320	5 600	6 600	11 000	14 300	22 100	26 600	-	58 500	61 100	
			2/8.12	2/7.61	2/8.13	2/8.13	2/8.05	2/8.05	2/7.64	2/7.64	2/8.11	2/8.11	2/8.03	2/8.03		2/8.12	2/8.43	
	630	6.3	0.49	0.84	1.65	2.13	3.48	4.17	7.2	8.7	14.0	16.8	27.9	32.9		67	-	
			313	510	1 070	1 390	2 210	2 660	4 430	5 300	9 100	10 900	17 700	20 900	-	42 600	-	
			2/6.33	2/6.08	2/6.52	2/6.52	2/6.36	2/6.36	2/6.1	2/6.1	2/6.5	2/6.5	2/6.35	2/6.35		2/6.34		
90	1800	20	-	0.89	1.88	2.59	3.88	5.1	7.5	9.7	15.7	20.6	29.8	36.4	52	73	101*	
				620	1 290	1 780	2 720	3 550	5 400	7 100	10 800	14 100	19 800	24 200	34 400	48 600	68 900	
			2/19.9	2/19.6	2/19.6	2/20	2/20	2/20.8	2/20.8	2/19.6	2/19.6	2/19	2/19	2/19	2/19	2/19	2/19.5	
	1400	16	-	0.77	1.79	2.31	3.74	4.55	7.8	9.6	14.9	20.2	31.6	41.0	57*	78	106**	
			560	1 310	1 700	2 760	3 360	5 500	6 800	11 000	14 800	21 600	28 000	39 700	56 100	76 400		
			2/16.2	2/16.3	2/16.3	2/16.4	2/16.4	2/15.7	2/15.7	2/16.3	2/16.3	2/15.2	2/15.2	2/15.5	2/15.9	2/16		



For  $n_1 > 1400$  rpm or  $n_1 < 355$  rpm see ch. 3.4 and the table on page 36.  
 \* In case of ambient temperature  $> 86$  °F (30 °C) check the thermal power (ch. 3.2).  
 \*\* Check the thermal power (ch. 3.2).

$n_{N2}$	$n_1$	$i_N$	Gear reducer size														
			32	40	50	51	63	64	80	81	100	101	125	126	140	160	180
			$P_{N2}$ hp		$T_{N2}$ lb in		...		/ i								
90	1 120	12.5	0.37	0.83	1.84	2.54	3.8	4.96	7.4	9.7	15.4	20.2	30.3	39.3	55	82	90*
			283	610	1 290	1 780	2 720	3 550	5 400	7 100	10 800	14 200	21 600	28 100	39 800	55 400	63 300
	900	10	0.4	0.9	1.8	2.55	3.77	5.1	8.0	10.8	15.1	20.4	30.0	40.2	49.7	75	103*
			306	620	1 310	1 860	2 760	3 710	5 500	7 400	10 900	14 800	21 900	29 400	34 500	56 300	77 800
	710	8	0.43	0.93	1.85	2.53	3.92	4.65	8.3	9.8	15.4	20.0	31.2	37.3	—	82	82
			310	630	1 330	1 830	2 800	3 320	5 600	6 600	11 100	14 400	22 300	26 600	—	58 900	61 400
	560	6.3	0.44	0.75	1.47	1.9	3.09	3.71	6.4	7.7	12.5	15.0	24.8	29.2	—	60	—
			315	520	1 080	1 400	2 210	2 660	4 430	5 300	9 100	11 000	17 700	20 900	—	42 800	—
80	1 250	16	—	0.69	1.61	2.07	3.36	4.08	7.0	8.6	13.4	18.1	28.4	36.8	51	70	95*
			—	570	1 320	1 710	2 780	3 380	5 600	6 800	11 000	14 900	21 700	28 200	40 000	56 500	76 700
	1 000	12.5	0.33	0.75	1.66	2.28	3.42	4.46	6.7	8.7	13.9	18.2	27.2	35.4	49.1	73	81
			284	610	1 300	1 800	2 740	3 580	5 500	7 200	10 900	14 300	21 800	28 300	40 100	55 600	63 600
	800	10	0.36	0.81	1.62	2.28	3.38	4.53	7.2	9.7	13.5	18.3	26.9	36.0	44.4	67	92*
			308	620	1 320	1 870	2 780	3 730	5 600	7 500	11 000	14 900	22 100	29 600	34 700	56 700	78 100
	630	8	0.38	0.83	1.65	2.26	3.51	4.12	7.4	8.7	13.8	17.8	27.9	33.1	—	73	73
			313	630	1 340	1 840	2 830	3 320	5 600	6 600	11 200	14 500	22 400	26 600	—	59 300	61 700
71	1 800	25	—	—	—	—	—	—	—	—	—	—	24.6	32.9	38.2	68	76
			—	—	—	—	—	—	—	—	—	—	—	22 600	30 300	39 200	60 500
	1 800	25	—	0.67	1.42	1.86	2.89	3.54	5.6	6.8	12.0	14.6	21.3	—	—	—	—
			—	620	1 190	1 570	2 530	3 100	5 100	6 200	10 100	12 300	18 100	—	—	—	—
	1 400	20	—	0.7	1.49	2.05	3.07	4.00	5.9	7.7	12.4	16.3	23.5	28.8	40.8	58	79
			—	630	1 310	1 810	2 760	3 600	5 500	7 200	11 000	14 400	20 100	24 600	34 900	49 300	69 800
	1 120	16	—	0.62	1.45	1.87	3.03	3.67	6.4	7.8	12.1	16.4	25.6	33.2	46.1	64	86
			—	570	1 330	1 720	2 800	3 400	5 600	6 900	11 100	15 000	21 900	28 400	40 200	56 900	77 100
	900	12.5	0.3	0.68	1.5	2.07	3.1	4.04	6.1	7.9	12.5	16.5	24.7	32.1	44.5	66	73
			286	620	1 310	1 810	2 760	3 600	5 500	7 200	10 900	14 400	21 900	28 500	40 300	55 900	63 900

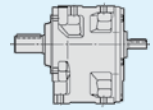


For  $n_1 > 1 400$  rpm or  $n_1 < 355$  rpm see ch. 3.4 and the table on page 36.  
 \* In case of ambient temperature  $> 86$  °F (30 °C) check the thermal power (ch. 3.2).  
 \*\* Check the thermal power (ch. 3.2).

# Nominal powers and torques (gear reducers)

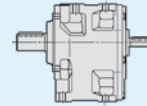
# 3.5

$n_{N2}$	$n_1$	$i_N$	Gear reducer size														
			32	40	50	51	63	64	80	81	100	101	125	126	140	160	180
rpm			$P_{N2}$ hp $T_{N2}$ lb in ... / i														
71	710	10	0.32	0.72	1.45	2.04	3.02	4.05	6.4	8.6	12.1	16.4	24.0	32.2	39.6	60	82
			310	630	1 330	1 880	2 800	3 760	5 600	7 500	11 100	15 100	22 300	29 800	34 900	57 100	78 500
63	560	8	0.34	0.74	1.48	2.02	3.14	3.66	6.6	7.7	12.3	15.9	25.0	29.4	65	65	
			315	640	1 360	1 850	2 850	3 320	5 700	6 600	11 200	14 600	22 600	26 600	59 700	62 000	
63	1 250	20	0.63	1.34	1.84	2.76	3.6	5.3	6.9	11.1	14.7	21.1	25.8	36.6	52	71	
			630	1 320	1 820	2 780	3 630	5 600	7 300	11 000	14 500	20 200	24 800	35 100	49 600	70 300	
63	1 000	16	0.56	1.31	1.67	2.73	3.29	5.7	7.0	10.8	14.7	23.0	29.9	41.5	57	77	
			570	1 340	1 720	2 820	3 410	5 600	6 900	11 200	15 200	22 000	28 600	40 500	57 300	77 400	
63	800	12.5	0.27	0.61	1.35	1.85	2.78	3.62	5.4	7.1	11.2	14.8	22.1	28.7	39.8	59	65
			287	620	1 320	1 820	2 780	3 630	5 600	7 300	11 000	14 500	22 100	28 700	40 600	56 100	64 200
63	630	10	0.29	0.65	1.29	1.82	2.7	3.63	5.8	7.7	10.8	14.6	21.5	28.8	35.3	54	73
			313	630	1 340	1 900	2 830	3 790	5 600	7 600	11 200	15 200	22 400	30 000	35 100	57 500	78 900
56	1 800	31.5	1.21	1.7	2.38	3.2	4.97	6.7	10.0	13.6	18.9	25.4	37.6	53	72		
			1 350	1 900	2 850	3 820	5 700	7 700	11 200	15 200	22 600	30 300	42 700	60 500	85 400		
56	1 800	31.5	0.5	1.08	2.04	4.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	
			580	1 110	2 280	4 560	9 400	9 400	9 400	9 400	9 400	9 400	9 400	9 400	9 400	9 400	9 400
56	1 400	25	19.4	26.0	30.2	54	60	60	60	60	60	60	60	60	60	60	
			22 900	30 700	39 800	61 400	79 400	79 400	79 400	79 400	79 400	79 400	79 400	79 400	79 400	79 400	79 400
56	1 400	25	0.53	1.12	1.47	2.28	2.79	4.38	5.4	9.4	11.5	16.7	16.7	16.7	16.7	16.7	16.7
			630	1 210	1 590	2 560	3 140	5 100	6 300	10 200	12 500	18 200	18 200	18 200	18 200	18 200	18 200
56	1 120	20	0.57	1.21	1.66	2.49	3.25	4.78	6.2	10.1	13.2	19.0	23.3	33.0	46.8	64	
			640	1 330	1 830	2 800	3 660	5 600	7 300	11 100	14 600	20 300	24 900	35 300	49 900	70 700	
56	900	16	0.51	1.18	1.51	2.47	2.98	5.2	6.3	9.8	13.3	20.8	27.1	37.6	52	69	
			580	1 350	1 730	2 840	3 430	5 700	6 900	11 200	15 300	22 200	28 800	40 800	57 700	77 800	
56	710	12.5	0.24	0.54	1.2	1.65	2.48	3.24	4.85	6.3	10.0	13.2	19.7	25.7	35.6	53	58
			289	630	1 330	1 830	2 800	3 660	5 600	7 300	11 100	14 600	22 300	28 900	40 900	56 400	64 500



For  $n_1 > 1 400$  rpm or  $n_1 < 355$  rpm see ch. 3.4 and the table on page 36.  
 \* In case of ambient temperature  $> > 86$  °F (30 °C) check the thermal power (ch. 3.2).  
 \*\* Check the thermal power (ch. 3.2).

$n_{N2}$	$n_1$	$i_N$	Gear reducer size														
			32	40	50	51	63	64	80	81	100	101	125	126	140	160	180
rpm			$P_{N2}$ hp $T_{N2}$ lb in ... / i														
56	560	10	0.26	0.58	1.16	1.63	2.42	3.25	5.2	6.9	9.6	13.1	19.2	25.8	31.6	48.1	65
			315 21/10.8	640 21/9.76	1 360 21/10.4	1 910 21/10.4	2 850 21/10.5	3 820 21/10.5	5 700 21/9.79	7 600 21/9.79	11 200 21/10.4	15 300 21/10.4	22 600 21/10.4	30 200 21/10.4	35 200 21/9.92	58 000 21/10.7	79 300 21/10.8
50	1 250	25	—	—	—	—	—	—	—	—	—	—	17.4	23.4	27.2	48.1	54
			—	—	—	—	—	—	—	—	—	—	—	23 100 31/26.2	30 900 31/26.2	40 100 31/29.3	61 800 31/25.5
50	1 250	25	—	0.47	1.00	1.32	2.05	2.5	3.94	4.81	8.5	10.3	15.0	—	—	—	—
			—	630 21/26.5	1 220 21/24.1	1 600 21/24.1	2 580 21/25	3 150 21/25	5 200 21/26	6 300 21/26	10 300 21/24.1	12 600 21/24.1	18 300 21/24.3	—	—	—	—
50	1 000	20	—	0.51	1.09	1.49	2.24	2.92	4.3	5.6	9.0	11.9	17.1	20.9	29.7	42.0	58
			—	640 21/19.9	1 340 21/19.6	1 840 21/19.6	2 820 21/20	3 680 21/20	5 600 21/20.8	7 400 21/20.8	11 200 21/19.6	14 700 21/19.6	20 400 21/19	25 100 21/19	35 500 21/19	50 200 21/19	71 100 21/19.5
50	800	16	—	0.45	1.06	1.35	2.21	2.66	4.64	5.6	8.8	11.9	18.6	24.2	33.5	46.3	62
			—	580 21/16.2	1 360 21/16.3	1 740 21/16.3	2 860 21/16.4	3 440 21/16.4	5 700 21/15.7	7 000 21/15.7	11 300 21/16.3	15 400 21/16.3	22 300 21/15.2	29 000 21/15.2	40 900 21/15.5	58 100 21/15.9	78 100 21/16
50	630	12.5	0.22	0.49	1.08	1.48	2.22	2.89	4.33	5.7	9.0	11.8	17.6	22.9	31.6	47.0	52
			291 21/13.5	630 21/13	1 340 21/12.5	1 850 21/12.5	2 830 21/12.7	3 680 21/12.7	5 600 21/13	7 400 21/13	11 200 21/12.5	14 700 21/12.5	22 400 21/12.7	29 100 21/12.7	40 900 21/12.9	56 700 21/12.1	64 800 21/12.5
45	1 800	40	—	0.37	1.01	1.38	1.96	2.55	3.74	4.88	8.3	11.0	15.6	20.2	28.0	38.9	55
			—	520 21/40.4	1 350 31/38.4	1 850 31/38.4	2 850 31/41.6	3 720 31/41.6	5 700 31/43.6	7 400 31/43.6	11 200 31/38.4	14 800 31/38.4	22 600 31/41.5	29 400 31/41.5	41 500 31/42.3	58 800 31/43.1	83 100 31/43.3
45	1 400	31.5	—	—	0.96	1.34	1.88	2.53	3.93	5.3	7.9	10.8	14.9	20.0	29.7	41.8	57
			—	—	1 370 31/31.9	1 930 31/31.9	2 890 31/34.2	3 890 31/34.2	5 800 31/32.8	7 800 31/32.8	11 400 31/32	15 500 31/32	22 900 31/34.1	30 700 31/34.1	43 300 31/32.4	61 400 31/32.7	86 600 31/33.9
45	1 400	31.5	—	0.39	0.85	—	1.6	—	3.22	—	7.2	—	—	—	—	—	—
			—	580 21/33.1	1 120 21/29.3	—	2 300 21/31.9	—	4 610 21/31.8	—	9 500 21/29.3	—	—	—	—	—	—
45	1 120	25	—	—	—	—	—	—	—	—	—	—	15.7	21.1	24.5	43.4	48.4
			—	—	—	—	—	—	—	—	—	—	—	23 200 31/26.2	31 100 31/26.2	40 400 31/29.3	62 200 31/25.5
45	1 120	25	—	0.43	0.9	1.19	1.84	2.25	3.55	4.34	7.6	9.3	13.5	—	—	—	—
			—	640 21/26.5	1 220 21/24.1	1 610 21/24.1	2 590 21/25	3 170 21/25	5 200 21/26	6 300 21/26	10 300 21/24.1	12 600 21/24.1	18 400 21/24.3	—	—	—	—
45	900	20	—	0.46	0.99	1.35	2.03	2.65	3.9	5.1	8.2	10.8	15.4	18.9	26.9	38.0	52
			—	650 21/19.9	1 350 21/19.6	1 860 21/19.6	2 840 21/20	3 710 21/20	5 700 21/20.8	7 400 21/20.8	11 200 21/19.6	14 800 21/19.6	20 500 21/19	25 200 21/19	35 700 21/19	50 500 21/19	71 500 21/19.5
45	710	16	—	0.41	0.95	1.21	1.98	2.37	4.15	5.0	7.9	10.7	16.7	21.7	29.7	41.4	55
			—	580 21/16.2	1 370 21/16.3	1 750 21/16.3	2 880 21/16.4	3 460 21/16.4	5 800 21/15.7	7 000 21/15.7	11 400 21/16.3	15 500 21/16.3	22 500 21/15.2	29 200 21/15.2	40 900 21/15.5	58 500 21/15.9	78 500 21/16

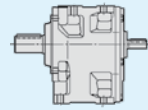


For  $n_1 > 1 400$  rpm or  $n_1 < 355$  rpm see ch. 3.4 and the table on page 36.  
 \* In case of ambient temperature  $> 86$  °F (30 °C) check the thermal power (ch. 3.2).  
 \*\* Check the thermal power (ch. 3.2).

# Nominal powers and torques (gear reducers)

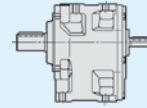
# 3.5

$n_{N2}$	$n_1$	$i_N$	Gear reducer size														
			32	40	50	51	63	64	80	81	100	101	125	126	140	160	180
rpm			$P_{N2}$ hp $T_{N2}$ lb in ... / i														
45	560	12.5	0.19	0.44	0.96	1.32	1.99	2.59	3.88	5.1	8.0	10.6	15.8	20.5	28.1	41.9	46.2
			293 21/13.5	640 21/13	1 360 21/12.5	1 860 21/12.5	2 850 21/12.7	3 710 21/12.7	5 700 21/13	7 400 21/13	11 200 21/12.5	14 800 21/12.5	22 600 21/12.7	29 300 21/12.7	40 900 21/12.9	56 900 21/12.1	65 100 21/12.5
40	1 250	31.5	—	—	0.86	1.21	1.69	2.27	3.53	4.74	7.1	9.7	13.4	18.0	26.7	37.5	51
			—	—	1 380 31/31.9	1 940 31/31.9	2 910 31/34.2	3 910 31/34.2	5 800 31/32.8	7 800 31/32.8	11 500 31/32	15 600 31/32	23 100 31/34.1	30 900 31/34.1	43 500 31/32.4	61 800 31/32.7	87 100 31/33.9
40	1 250	31.5	—	0.35	0.76	—	1.44	—	2.89	—	6.4	—	—	—	—	—	—
			—	590 21/33.1	1 120 21/29.3	—	2 310 21/31.9	—	4 630 21/31.8	—	9 500 21/29.3	—	—	—	—	—	—
40	1 000	25	—	—	—	—	—	—	—	—	—	—	14.1	18.9	22.1	39.0	43.5
			—	—	—	—	—	—	—	—	—	—	—	23 400 31/26.2	31 300 31/26.2	40 700 31/29.3	62 600 31/25.5
40	1 000	25	—	0.38	0.81	1.07	1.66	2.02	3.19	3.89	6.8	8.4	12.1	—	—	—	—
			—	640 21/26.5	1 230 21/24.1	1 620 21/24.1	2 610 21/25	3 190 21/25	5 200 21/26	6 400 21/26	10 400 21/24.1	12 700 21/24.1	18 500 21/24.3	—	—	—	—
40	800	20	—	0.41	0.88	1.21	1.82	2.37	3.49	4.55	7.3	9.7	13.8	17.0	24.0	34.0	46.8
			—	650 21/19.9	1 360 21/19.6	1 870 21/19.6	2 860 21/20	3 730 21/20	5 700 21/20.8	7 500 21/20.8	11 300 21/19.6	14 900 21/19.6	20 700 21/19	25 400 21/19	36 000 21/19	50 800 21/19	72 000 21/19.5
40	630	16	—	0.36	0.85	1.08	1.77	2.12	3.71	4.49	7.0	9.5	14.9	19.4	26.4	37.0	49.3
			—	590 21/16.2	1 390 21/16.3	1 760 21/16.3	2 910 21/16.4	3 480 21/16.4	5 800 21/15.7	7 000 21/15.7	11 500 21/16.3	15 600 21/16.3	22 600 21/15.2	29 500 21/15.2	40 900 21/15.5	58 900 21/15.9	78 900 21/16
35.5	1 800	50	—	—	0.75	1.06	1.65	2.22	3.35	4.5	6.2	8.5	13.1	17.6	23.6	35.6	45.5
			—	—	1 400 31/53	1 960 31/53	2 920 31/50.4	3 920 31/50.4	5 800 31/49.8	7 900 31/49.8	11 500 31/53.1	15 700 31/53.1	23 100 31/50.2	30 900 31/50.2	42 000 31/50.8	62 000 31/49.7	84 100 31/52.7
35.5	1 400	40	—	0.29	0.8	1.09	1.55	2.02	2.95	3.85	6.6	8.7	12.3	16.0	22.1	30.7	43.3
			—	520 21/40.4	1 370 31/38.4	1 880 31/38.4	2 890 31/41.6	3 770 31/41.6	5 800 31/43.6	7 600 31/43.6	11 400 31/38.4	15 000 31/38.4	22 900 31/41.5	29 800 31/41.5	42 100 31/42.3	59 700 31/43.1	84 400 31/43.3
35.5	1 120	31.5	—	—	0.78	1.09	1.53	2.05	3.18	4.28	6.4	8.7	12.1	16.2	24.0	33.8	46.0
			—	—	1 390 31/31.9	1 960 31/31.9	2 930 31/34.2	3 940 31/34.2	5 900 31/32.8	7 900 31/32.8	11 500 31/32	15 700 31/32	23 200 31/34.1	31 100 31/34.1	43 800 31/32.4	62 200 31/32.7	87 700 31/33.9
35.5	1 120	31.5	—	0.32	0.68	—	1.29	—	2.6	—	5.8	—	—	—	—	—	—
			—	590 21/33.1	1 130 21/29.3	—	2 320 21/31.9	—	4 650 21/31.8	—	9 600 21/29.3	—	—	—	—	—	—
35.5	900	25	—	—	—	—	—	—	—	—	—	—	12.8	17.1	20.0	35.2	39.4
			—	—	—	—	—	—	—	—	—	—	—	23 500 31/26.2	31 400 31/26.2	41 000 31/29.3	62 800 31/25.5
35.5	900	25	—	0.35	0.73	0.96	1.5	1.83	2.88	3.52	6.2	7.6	10.9	—	—	—	—
			—	650 21/26.5	1 240 21/24.1	1 630 21/24.1	2 620 21/25	3 210 21/25	5 300 21/26	6 400 21/26	10 400 21/24.1	12 800 21/24.1	18 600 21/24.3	—	—	—	—



For  $n_1 > 1 400$  rpm or  $n_1 < 355$  rpm see ch. 3.4 and the table on page 36.  
 \* In case of ambient temperature  $> > 86$  °F (30 °C) check the thermal power (ch. 3.2).  
 \*\* Check the thermal power (ch. 3.2).

$n_{N2}$	$n_1$	$i_N$	Gear reducer size														
			32	40	50	51	63	64	80	81	100	101	125	126	140	160	180
rpm																	
35.5	710	20	—	0.37 660 2I/19.9	0.79 1 370 2I/19.6	1.08 1 880 2I/19.6	1.62 2 880 2I/20	2.12 3 760 2I/20	3.12 5 800 2I/20.8	4.07 7 500 2I/20.8	6.5 11 400 2I/19.6	8.6 15 000 2I/19.6	12.3 20 800 2I/19	15.1 25 500 2I/19	21.5 36 200 2I/19	30.4 51 100 2I/19	41.8 72 500 2I/19.5
			—	0.32 590 2I/16.2	0.76 1 400 2I/16.3	0.96 1 770 2I/16.3	1.58 2 930 2I/16.4	1.89 3 500 2I/16.4	3.32 5 900 2I/15.7	4.01 7 100 2I/15.7	6.3 11 500 2I/16.3	8.5 15 700 2I/16.3	13.3 22 800 2I/15.2	17.3 29 700 2I/15.2	23.5 40 900 2I/15.5	33.1 59 400 2I/15.5	44.0 79 300 2I/16
31.5	1 250	40	—	0.26 530 2I/40.4	0.72 1 380 3I/38.4	0.98 1 890 3I/38.4	1.39 2 910 3I/41.6	1.81 3 800 3I/41.6	2.65 5 800 3I/43.6	3.47 7 600 3I/43.6	5.9 11 500 3I/38.4	7.8 15 200 3I/38.4	11.0 23 100 3I/41.5	14.4 30 000 3I/41.5	19.9 42 400 3I/42.3	27.6 60 100 3I/43.1	38.9 84 900 3I/43.3
			—	0.7 1 400 3I/31.9	0.98 1 970 3I/31.9	1.37 2 950 3I/34.2	1.84 3 970 3I/34.2	2.86 5 900 3I/32.8	3.84 7 900 3I/32.8	5.8 11 600 3I/32	7.8 15 800 3I/32	10.9 23 400 3I/34.1	14.6 31 300 3I/34.1	21.6 44 100 3I/32.4	30.4 62 600 3I/32.4	41.3 88 200 3I/33.9	
31.5	1 000	31.5	—	0.29 590 2I/33.1	0.61 1 130 2I/29.3	—	1.16 2 330 2I/31.9	—	2.33 4 670 2I/31.8	—	5.2 9 600 2I/29.3	—	—	—	—	—	—
			—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
28	800	25	—	—	—	—	—	—	—	—	—	—	11.4 23 500 3I/26.2	15.2 31 400 3I/26.2	17.9 41 300 3I/29.3	31.3 62 800 3I/25.5	35.3 82 200 3I/29.5
			—	0.31 650 2I/26.5	0.66 1 250 2I/24.1	0.86 1 640 2I/24.1	1.34 2 640 2I/25	1.64 3 230 2I/25	2.58 5 300 2I/26	3.15 6 500 2I/26	5.5 10 500 2I/24.1	6.8 12 900 2I/24.1	9.8 18 700 2I/24.3	—	—	—	—
28	630	20	—	0.33 660 2I/19.9	0.71 1 390 2I/19.6	0.96 1 890 2I/19.6	1.45 2 910 2I/20	1.89 3 790 2I/20	2.79 5 800 2I/20.8	3.64 7 600 2I/20.8	5.8 11 500 2I/19.6	7.7 15 200 2I/19.6	11.0 20 900 2I/19	13.5 25 700 2I/19	19.2 36 400 2I/19	27.1 51 500 2I/19	37.3 72 900 2I/19.5
			—	0.63 1 400 3I/63.6	0.86 1 910 3I/63.6	1.36 2 920 3I/61.3	1.77 3 810 3I/61.3	2.52 5 800 3I/66.3	3.29 7 600 3I/66.3	5.2 11 500 3I/63.8	6.8 15 300 3I/63.8	10.8 23 100 3I/61.2	14.0 30 100 3I/61.2	19.4 42 500 3I/62.3	26.2 60 200 3I/65.6	36.9 85 200 3I/65.9	
28	1 400	50	—	—	0.59 1 420 3I/53	0.83 1 980 3I/53	1.31 2 960 3I/50.4	1.75 3 980 3I/50.4	2.64 5 900 3I/49.8	3.55 8 000 3I/49.8	4.89 11 700 3I/53.1	6.7 15 900 3I/53.1	10.4 23 400 3I/50.2	13.9 31 400 3I/50.2	18.6 42 600 3I/50.8	28.1 62 800 3I/49.7	35.9 85 300 3I/52.7
			—	0.23 530 2I/40.4	0.65 1 390 3I/38.4	0.88 1 900 3I/38.4	1.25 2 930 3I/41.6	1.64 3 830 3I/41.6	2.39 5 900 3I/43.6	3.13 7 700 3I/43.6	5.3 11 500 3I/38.4	7.1 15 300 3I/38.4	9.9 23 200 3I/41.5	12.9 30 200 3I/41.5	17.9 42 700 3I/42.3	24.9 60 400 3I/43.1	35.0 85 400 3I/43.3
28	900	31.5	—	—	0.63 1 410 3I/31.9	0.89 1 980 3I/31.9	1.24 2 970 3I/34.2	1.67 3 980 3I/34.2	2.58 5 900 3I/32.8	3.47 8 000 3I/32.8	5.2 11 700 3I/32	7.1 15 900 3I/32	9.8 23 500 3I/34.1	13.2 31 400 3I/34.1	19.5 44 300 3I/32.4	27.5 62 800 3I/32.7	37.3 88 500 3I/33.9
			—	0.26 600 2I/33.1	0.55 1 140 2I/29.3	—	1.05 2 340 2I/31.9	—	2.11 4 690 2I/31.8	—	4.7 9 600 2I/29.3	—	—	—	—	—	—

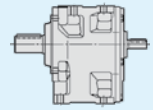


For  $n_1 > 1 400$  rpm or  $n_1 < 355$  rpm see ch. 3.4 and the table on page 36.  
 \* In case of ambient temperature  $> 86$  °F (30 °C) check the thermal power (ch. 3.2).  
 \*\* Check the thermal power (ch. 3.2).

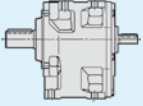
# Nominal powers and torques (gear reducers)

# 3.5

$n_{N2}$	$n_1$	$i_N$	Gear reducer size														
			32	40	50	51	63	64	80	81	100	101	125	126	140	160	180
rpm			$P_{N2}$ hp $T_{N2}$ lb in ... / i														
28	710	25	-	-	-	-	-	-	-	-	-	-	10.1 23 500 3I/26.2	13.5 31 400 3I/26.2	16.0 41 600 3I/29.3	27.8 62 800 3I/25.5	31.6 82 800 3I/29.5
	710	25	-	0.28 660 2I/26.5	0.59 1 250 2I/24.1	0.77 1 640 2I/24.1	1.2 2 660 2I/25	1.46 3 250 2I/25	2.3 5 300 2I/26	2.81 6 500 2I/26	4.94 10 600 2I/24.1	6.1 13 000 2I/24.1	8.7 18 800 2I/24.3	-	-	-	-
	560	20	-	0.3 660 2I/19.9	0.63 1 400 2I/19.6	0.86 1 910 2I/19.6	1.3 2 930 2I/20	1.7 3 820 2I/20	2.5 5 900 2I/20.8	3.26 7 600 2I/20.8	5.2 11 500 2I/19.6	6.9 15 300 2I/19.6	9.8 21 000 2I/19	12.1 25 900 2I/19	17.1 36 700 2I/19	24.3 51 800 2I/19	33.4 73 400 2I/19.5
25	1 250	50	-	-	0.53 1 420 3I/53	0.74 1 980 3I/53	1.17 2 970 3I/50.4	1.57 3 980 3I/50.4	2.36 5 900 3I/49.8	3.17 8 000 3I/49.8	4.36 11 700 3I/53.1	6.0 15 900 3I/53.1	9.3 23 500 3I/50.2	12.4 31 400 3I/50.2	16.7 42 800 3I/50.8	25.1 62 800 3I/49.7	32.3 85 900 3I/52.7
	1 000	40	-	0.21 530 2I/40.4	0.58 1 400 3I/38.4	0.79 1 920 3I/38.4	1.13 2 950 3I/41.6	1.47 3 850 3I/41.6	2.15 5 900 3I/43.6	2.81 7 700 3I/43.6	4.79 11 600 3I/38.4	6.3 15 400 3I/38.4	8.9 23 400 3I/41.5	11.6 30 400 3I/41.5	16.1 42 900 3I/42.3	22.4 60 800 3I/43.1	31.5 86 000 3I/43.3
	800	31.5	-	-	0.56 1 420 3I/31.9	0.79 1 980 3I/31.9	1.1 2 970 3I/34.2	1.48 3 980 3I/34.2	2.3 5 900 3I/32.8	3.09 8 000 3I/32.8	4.64 11 700 3I/32	6.3 15 900 3I/32	8.7 23 500 3I/34.1	11.7 31 400 3I/34.1	17.3 44 300 3I/32.4	24.4 62 800 3I/32.7	33.1 88 500 3I/33.9
22.4	800	31.5	-	0.23 600 2I/33.1	0.5 1 140 2I/29.3	-	0.94 2 350 2I/31.9	-	1.88 4 720 2I/31.8	-	4.2 9 700 2I/29.3	-	-	-	-	-	-
	630	25	-	-	-	-	-	-	-	-	-	8.9 23 500 3I/26.2	12.0 31 400 3I/26.2	14.3 42 000 3I/29.3	24.6 62 800 3I/25.5	28.2 83 300 3I/29.5	
	630	25	-	0.25 660 2I/26.5	0.52 1 260 2I/24.1	0.69 1 650 2I/24.1	1.07 2 670 2I/25	1.31 3 260 2I/25	2.06 5 400 2I/26	2.51 6 500 2I/26	4.41 10 600 2I/24.1	5.4 13 000 2I/24.1	7.8 18 800 2I/24.3	-	-	-	-
22.4	1 800	80	-	-	0.46 1 270 3I/78.2	0.61 1 660 3I/78.2	1.00 2 680 3I/76.7	1.22 3 280 3I/76.7	1.86 5 400 3I/82.7	2.27 6 600 3I/82.7	3.9 10 700 3I/78.3	4.79 13 100 3I/78.3	7.9 21 200 3I/76.5	9.8 26 200 3I/76.5	13.9 37 100 3I/76.5	22.1 60 900 3I/78.5	31.1 86 000 3I/78.9
	1 400	63	-	-	0.49 1 420 3I/63.6	0.67 1 930 3I/63.6	1.07 2 960 3I/61.3	1.4 3 860 3I/61.3	1.99 5 900 3I/66.3	2.59 7 700 3I/66.3	4.07 11 700 3I/63.8	5.4 15 500 3I/63.8	8.5 23 400 3I/61.2	11.1 30 500 3I/61.2	15.3 43 100 3I/62.3	20.7 61 100 3I/65.6	29.1 86 300 3I/65.9
	1 120	50	-	-	0.47 1 420 3I/53	0.66 1 980 3I/53	1.05 2 970 3I/50.4	1.4 3 980 3I/50.4	2.11 5 900 3I/49.8	2.84 8 000 3I/49.8	3.91 11 700 3I/53.1	5.3 15 900 3I/53.1	8.3 23 500 3I/50.2	11.1 31 400 3I/50.2	15.1 43 100 3I/50.8	22.5 62 800 3I/49.7	29.1 86 300 3I/52.7
22.4	900	40	-	0.19 530 2I/40.4	0.53 1 410 3I/38.4	0.72 1 930 3I/38.4	1.02 2 970 3I/41.6	1.33 3 870 3I/41.6	1.94 5 900 3I/43.6	2.54 7 700 3I/43.6	4.34 11 700 3I/38.4	5.7 15 500 3I/38.4	8.1 23 500 3I/41.5	10.5 30 500 3I/41.5	14.6 43 100 3I/42.3	20.2 61 100 3I/43.1	28.4 86 300 3I/43.3

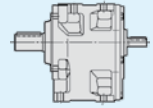


For  $n_1 > 1 400$  rpm or  $n_1 < 355$  rpm see ch. 3.4 and the table on page 36.  
 \* In case of ambient temperature  $> > 86$  °F (30 °C) check the thermal power (ch. 3.2).  
 \*\* Check the thermal power (ch. 3.2).

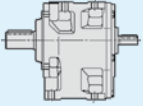
$n_{N2}$	$n_1$	$i_N$	Gear reducer size														
			32	40	50	51	63	64	80	81	100	101	125	126	140	160	180
				$P_{N2}$ hp $T_{N2}$ lb in ... / i													
																	
rpm																	
22.4	710	31.5	-	-	0.5 1 420 3I/31.9	0.7 1 980 3I/31.9	0.98 2 970 3I/34.2	1.31 3 980 3I/34.2	2.04 5 900 3I/32.8	2.74 8 000 3I/32.8	4.11 11 700 3I/32	5.6 15 900 3I/32	7.8 23 500 3I/34.1	10.4 31 400 3I/34.1	15.4 44 300 3I/32.4	21.7 62 800 3I/32.7	29.4 88 500 3I/33.9
	710	31.5	-	0.21 600 2I/33.1	0.44 1 150 2I/29.3	0.83 2 360 2I/31.9	1.68 4 740 2I/31.8	3.74 9 700 2I/29.3	-	-	-	-	-	-	-	-	-
	560	25	-	-	-	-	-	-	-	-	-	-	7.9 23 500 3I/26.2	10.6 31 400 3I/26.2	12.8 42 300 3I/29.3	21.9 62 800 3I/25.5	25.2 83 900 3I/29.5
	560	25	-	0.22 660 2I/26.5	0.47 1 270 2I/24.1	0.61 1 660 2I/24.1	0.96 2 690 2I/25	1.17 3 280 2I/25	1.84 5 400 2I/26	2.24 6 600 2I/26	3.94 10 700 2I/24.1	4.84 13 100 2I/24.1	6.9 18 900 2I/24.3	-	-	-	-
18	1 800	100	-	-	0.4 1 420 3I/102	0.54 1 930 3I/102	0.88 2 970 3I/96.4	1.15 3 870 3I/96.4	1.63 5 900 3I/104	2.12 7 700 3I/104	3.27 11 700 3I/102	4.34 15 500 3I/102	7.0 23 500 3I/96.4	9.0 30 500 3I/96.4	12.5 43 100 3I/98.2	17.4 61 100 3I/100	23.3 82 100 3I/101
	1 400	80	-	-	0.36 1 280 3I/78.2	0.48 1 680 3I/78.2	0.79 2 720 3I/76.7	0.96 3 320 3I/76.7	1.46 5 400 3I/82.7	1.78 6 600 3I/82.7	3.06 10 800 3I/78.3	3.77 13 300 3I/78.3	6.2 21 500 3I/76.5	7.7 26 500 3I/76.5	10.9 37 600 3I/76.5	17.3 61 100 3I/78.5	24.3 86 300 3I/78.9
	1 120	63	-	-	0.4 1 420 3I/63.6	0.54 1 930 3I/63.6	0.86 2 970 3I/61.3	1.12 3 870 3I/61.3	1.59 5 900 3I/66.3	2.08 7 700 3I/66.3	3.26 11 700 3I/63.8	4.32 15 500 3I/63.8	6.8 23 500 3I/61.2	8.9 30 500 3I/61.2	12.3 43 100 3I/62.3	16.5 61 100 3I/65.6	23.3 86 300 3I/65.9
	900	50	-	-	0.38 1 420 3I/53	0.53 1 980 3I/53	0.84 2 970 3I/50.4	1.13 3 980 3I/50.4	1.7 5 900 3I/49.8	2.28 8 000 3I/49.8	3.14 11 700 3I/53.1	4.29 15 900 3I/53.1	6.7 23 500 3I/50.2	8.9 31 400 3I/50.2	12.1 43 100 3I/50.8	18.0 62 800 3I/49.7	23.4 86 300 3I/52.7
	710	40	-	0.15 540 2I/40.4	0.42 1 420 3I/38.4	0.57 1 930 3I/38.4	0.8 2 970 3I/41.6	1.05 3 870 3I/41.6	1.53 5 900 3I/43.6	2.00 7 700 3I/43.6	3.43 11 700 3I/38.4	4.54 15 500 3I/38.4	6.4 23 500 3I/41.5	8.3 30 500 3I/41.5	11.5 43 100 3I/42.3	16.0 61 100 3I/43.1	22.4 86 300 3I/43.3
	560	31.5	-	-	0.39 1 420 3I/31.9	0.55 1 980 3I/31.9	0.77 2 970 3I/34.2	1.04 3 980 3I/34.2	1.61 5 900 3I/32.8	2.16 8 000 3I/32.8	3.25 11 700 3I/32	4.43 15 900 3I/32	6.1 23 500 3I/34.1	8.2 31 400 3I/34.1	12.1 44 300 3I/32.4	17.1 62 800 3I/32.7	23.2 88 500 3I/33.9
	560	31.5	-	0.16 610 2I/33.1	0.35 1 160 2I/29.3	0.66 2 390 2I/31.9	1.34 4 780 2I/31.8	2.98 9 800 2I/29.3	-	-	-	-	-	-	-	-	-
	14	1 800	125	-	-	0.29 1 280 3I/125	0.38 1 680 3I/125	0.64 2 720 3I/120	0.79 3 320 3I/120	1.27 5 900 3I/133	1.66 7 700 3I/133	2.68 11 700 3I/125	3.55 15 500 3I/125	5.7 23 500 3I/117	7.4 30 500 3I/117	10.3 42 900 3I/119	12.7 53 100 3I/119
1 400		100	-	-	0.31 1 420 3I/102	0.42 1 930 3I/102	0.68 2 970 3I/96.4	0.89 3 870 3I/96.4	1.26 5 900 3I/104	1.65 7 700 3I/104	2.54 11 700 3I/102	3.37 15 500 3I/102	5.4 23 500 3I/96.4	7.0 30 500 3I/96.4	9.7 43 100 3I/98.2	13.5 61 100 3I/100	18.3 82 900 3I/101

For  $n_1 > 1 400$  rpm or  $n_1 < 355$  rpm see ch. 3.4 and the table on page 36.  
 \* In case of ambient temperature  $> 86$  °F (30 °C) check the thermal power (ch. 3.2).  
 \*\* Check the thermal power (ch. 3.2).

$n_{N2}$	$n_1$	$i_N$	Gear reducer size														
			32	40	50	51	63	64	80	81	100	101	125	126	140	160	180
rpm																	
<b>14</b>	1 120	<b>80</b>	–	–	0.29 1 280 3/178.2	0.38 1 680 3/178.2	0.63 2 720 3/176.7	0.77 3 320 3/176.7	1.17 5 400 3/182.7	1.43 6 600 3/182.7	2.45 10 800 3/178.3	3.01 13 300 3/178.3	5.0 21 500 3/176.5	6.2 26 600 3/176.5	8.7 37 600 3/176.5	13.8 61 100 3/178.5	19.4 86 300 3/178.9
	900	<b>63</b>	–	–	0.32 1 420 3/163.6	0.43 1 930 3/163.6	0.69 2 970 3/161.3	0.9 3 870 3/161.3	1.28 5 900 3/166.3	1.67 7 700 3/166.3	2.62 11 700 3/163.8	3.47 15 500 3/163.8	5.5 23 500 3/161.2	7.1 30 500 3/161.2	9.9 43 100 3/162.3	13.3 61 100 3/165.6	18.7 86 300 3/165.9
	710	<b>50</b>	–	–	0.3 1 420 3/153	0.42 1 980 3/153	0.66 2 970 3/150.4	0.89 3 980 3/150.4	1.34 5 900 3/149.8	1.8 8 000 3/149.8	2.48 11 700 3/153.1	3.38 15 900 3/153.1	5.3 23 500 3/150.2	7.0 31 400 3/150.2	9.6 43 100 3/150.8	14.2 62 800 3/149.7	18.4 86 300 3/152.7
	560	<b>40</b>	–	0.12 540 2/140.4	0.33 1 420 3/138.4	0.45 1 930 3/138.4	0.63 2 970 3/141.6	0.83 3 870 3/141.6	1.21 5 900 3/143.6	1.58 7 700 3/143.6	2.7 11 700 3/138.4	3.58 15 500 3/138.4	5.0 23 500 3/141.5	6.5 30 500 3/141.5	9.1 43 100 3/142.3	12.6 61 100 3/143.1	17.7 86 300 3/143.3
<b>11.2</b>	1 800	<b>160</b>	–	–	0.22 1 170 3/152	–	0.45 2 410 3/154	–	0.94 5 400 3/166	1.14 6 600 3/166	2.01 10 800 3/153	2.48 13 300 3/153	4.19 21 500 3/146	5.2 26 600 3/146	7.3 37 600 3/146	–	–
	1 400	<b>125</b>	–	–	0.23 1 280 3/125	0.3 1 680 3/125	0.5 2 720 3/120	0.61 3 320 3/120	0.99 5 900 3/133	1.29 7 700 3/133	2.08 11 700 3/125	2.76 15 500 3/125	4.45 23 500 3/117	5.8 30 500 3/117	8.0 43 100 3/119	9.9 53 100 3/119	13.6 75 200 3/123
	1 120	<b>100</b>	–	–	0.25 1 420 3/102	0.34 1 930 3/102	0.55 2 970 3/96.4	0.71 3 870 3/96.4	1.01 5 900 3/104	1.32 7 700 3/104	2.04 11 700 3/102	2.7 15 500 3/102	4.32 23 500 3/96.4	5.6 30 500 3/96.4	7.8 43 100 3/98.2	10.8 61 100 3/100	14.8 83 700 3/101
	900	<b>80</b>	–	–	0.23 1 280 3/178.2	0.31 1 680 3/178.2	0.51 2 720 3/176.7	0.62 3 320 3/176.7	0.94 5 400 3/182.7	1.15 6 600 3/182.7	1.97 10 800 3/178.3	2.42 13 300 3/178.3	4.02 21 500 3/176.5	4.96 26 600 3/176.5	7.0 37 600 3/176.5	11.1 61 100 3/178.5	15.6 86 300 3/178.9
	710	<b>63</b>	–	–	0.25 1 420 3/163.6	0.34 1 930 3/163.6	0.54 2 970 3/161.3	0.71 3 870 3/161.3	1.01 5 900 3/166.3	1.32 7 700 3/166.3	2.06 11 700 3/163.8	2.74 15 500 3/163.8	4.32 23 500 3/161.2	5.6 30 500 3/161.2	7.8 43 100 3/162.3	10.5 61 100 3/165.6	14.7 86 300 3/165.9
	560	<b>50</b>	–	–	0.24 1 420 3/153	0.33 1 980 3/153	0.52 2 970 3/150.4	0.7 3 980 3/150.4	1.06 5 900 3/149.8	1.42 8 000 3/149.8	1.96 11 700 3/153.1	2.67 15 900 3/153.1	4.15 23 500 3/150.2	5.6 31 400 3/150.2	7.5 43 100 3/150.8	11.2 62 800 3/149.7	14.5 86 300 3/152.7
<b>9</b>	1 800	<b>200</b>	–	–	–	–	–	0.68 4 820 3/203	–	1.52 9 900 3/186	–	2.95 19 300 3/187	–	–	–	–	
	1 400	<b>160</b>	–	–	0.17 1 170 3/152	–	0.35 2 410 3/154	–	0.73 5 400 3/166	0.89 6 600 3/166	1.57 10 800 3/153	1.93 13 300 3/153	3.26 21 500 3/146	4.03 26 600 3/146	5.7 37 600 3/146	–	–
	1 120	<b>125</b>	–	–	0.18 1 280 3/125	0.24 1 680 3/125	0.4 2 720 3/120	0.49 3 320 3/120	0.79 5 900 3/133	1.03 7 700 3/133	1.66 11 700 3/125	2.21 15 500 3/125	3.56 23 500 3/117	4.63 30 500 3/117	6.4 43 100 3/119	7.9 53 100 3/119	10.9 75 200 3/123



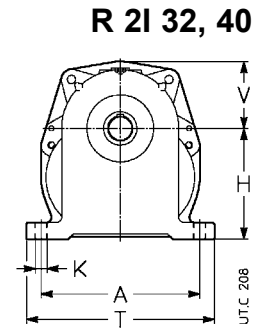
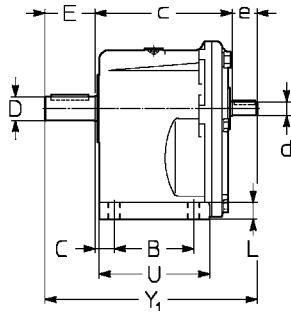
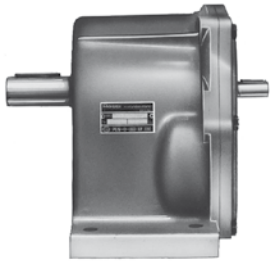
For  $n_1 > 1 400$  rpm or  $n_1 < 355$  rpm see ch. 3.4 and the table on page 36.  
 \* In case of ambient temperature  $> 86$  °F (30 °C) check the thermal power (ch. 3.2).  
 \*\* Check the thermal power (ch. 3.2).

$n_{N2}$	$n_1$	$i_N$	Gear reducer size														
			32	40	50	51	63	64	80	81	100	101	125	126	140	160	180
				$P_{N2}$ hp $T_{N2}$ lb in ... / i													
																	
rpm																	
9	900	100	—	—	0.2 1 420 3I/102	0.27 1 930 3I/102	0.44 2 970 3I/96.4	0.57 3 870 3I/96.4	0.81 5 900 3I/104	1.06 7 700 3I/104	1.64 11 700 3I/102	2.17 15 500 3I/102	3.48 23 500 3I/96.4	4.52 30 500 3I/96.4	6.3 43 100 3I/98.2	8.7 61 100 3I/100	12.0 84 400 3I/101
	710	80	—	—	0.18 1 280 3I/78.2	0.24 1 680 3I/78.2	0.4 2 720 3I/76.7	0.49 3 320 3I/76.7	0.74 5 400 3I/82.7	0.9 6 600 3I/82.7	1.55 10 800 3I/78.3	1.91 13 300 3I/78.3	3.17 21 500 3I/76.5	3.91 26 600 3I/76.5	5.5 37 600 3I/76.5	8.8 61 100 3I/78.5	12.3 86 300 3I/78.9
	560	63	—	—	0.2 1 420 3I/63.6	0.27 1 930 3I/63.6	0.43 2 970 3I/61.3	0.56 3 870 3I/61.3	0.79 5 900 3I/66.3	1.04 7 700 3I/66.3	1.63 11 700 3I/63.8	2.16 15 500 3I/63.8	3.41 23 500 3I/61.2	4.44 30 500 3I/61.2	6.1 43 100 3I/62.3	8.3 61 100 3I/65.6	11.6 86 300 3I/65.9
7.1	1 400	200	—	—	—	—	—	0.53 4 820 3I/203	—	1.18 9 900 3I/186	—	2.29 19 300 3I/187	—	—	—	—	—
	1 120	160	—	—	0.14 1 170 3I/152	—	0.28 2 410 3I/154	—	0.58 5 400 3I/166	0.71 6 600 3I/166	1.25 10 800 3I/153	1.54 13 300 3I/153	2.61 21 500 3I/146	3.22 26 600 3I/146	4.56 37 600 3I/146	—	—
	900	125	—	—	0.15 1 280 3I/125	0.19 1 680 3I/125	0.32 2 720 3I/120	0.39 3 320 3I/120	0.64 5 900 3I/133	0.83 7 700 3I/133	1.34 11 700 3I/125	1.77 15 500 3I/125	2.86 23 500 3I/117	3.72 30 500 3I/117	5.2 43 100 3I/119	6.3 53 100 3I/119	8.7 75 200 3I/123
5.6	710	100	—	—	0.16 1 420 3I/102	0.21 1 930 3I/102	0.35 2 970 3I/96.4	0.45 3 870 3I/96.4	0.64 5 900 3I/104	0.84 7 700 3I/104	1.29 11 700 3I/102	1.71 15 500 3I/102	2.74 23 500 3I/96.4	3.57 30 500 3I/96.4	4.94 43 100 3I/98.2	6.9 61 100 3I/100	9.5 85 200 3I/101
	560	80	—	—	0.15 1 280 3I/78.2	0.19 1 680 3I/78.2	0.31 2 720 3I/76.7	0.38 3 320 3I/76.7	0.58 5 400 3I/82.7	0.71 6 600 3I/82.7	1.23 10 800 3I/78.3	1.51 13 300 3I/78.3	2.5 21 500 3I/76.5	3.09 26 600 3I/76.5	4.37 37 600 3I/76.5	6.9 61 100 3I/78.5	9.7 86 300 3I/78.9
	1 120	200	—	—	—	—	—	—	0.42 4 820 3I/203	—	0.95 9 900 3I/186	—	1.83 19 300 3I/187	—	—	—	—
5.6	900	160	—	—	0.11 1 170 3I/152	—	0.22 2 410 3I/154	—	0.47 5 400 3I/166	0.57 6 600 3I/166	1.01 10 800 3I/153	1.24 13 300 3I/153	2.1 21 500 3I/146	2.59 26 600 3I/146	3.67 37 600 3I/146	—	—
	710	125	—	—	0.12 1 280 3I/125	0.15 1 680 3I/125	0.25 2 720 3I/120	0.31 3 320 3I/120	0.5 5 900 3I/133	0.66 7 700 3I/133	1.06 11 700 3I/125	1.4 15 500 3I/125	2.26 23 500 3I/117	2.94 30 500 3I/117	4.07 43 100 3I/119	5.0 53 100 3I/119	6.9 75 200 3I/123
	560	100	—	—	0.12 1 420 3I/102	0.17 1 930 3I/102	0.27 2 970 3I/96.4	0.36 3 870 3I/96.4	0.51 5 900 3I/104	0.66 7 700 3I/104	1.02 11 700 3I/102	1.35 15 500 3I/102	2.16 23 500 3I/96.4	2.82 30 500 3I/96.4	3.9 43 100 3I/98.2	5.4 61 100 3I/100	7.6 85 900 3I/101

For  $n_1 > 1 400$  rpm or  $n_1 < 355$  rpm see ch. 3.4 and the table on page 36.  
 \* In case of ambient temperature  $> 86$  °F (30 °C) check the thermal power (ch. 3.2).  
 \*\* Check the thermal power (ch. 3.2).

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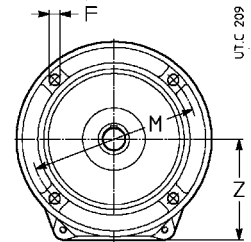
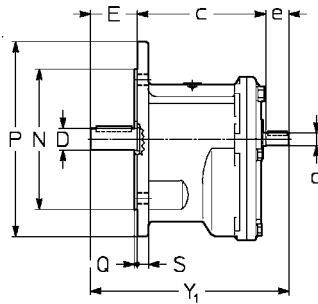
# Designs, dimensions, mounting positions and lubricant quantities 3.6



## Standard design

Mounting position B3, B6, B7, B8, V5, V6

## PC1A



## Standard design

Mounting position B5, V1, V3

## FC1A

Size	A	B	C	c	D ∅	E	d	e	Y <sub>1</sub>	F ∅	H h11	K ∅	L	M ∅	N ∅ h6	P ∅	Q	S	T	U	V	Z	Mass lb
<b>32</b> <b>40</b>	115 132	53 63	20 19	103-93 <sup>1)</sup> 122	16 19	30 40	11 11	20 23	153 185	9.5 9.5	75 90	9.5 9.5	10 12	115 130	95 110	140 160	3 3.5	10 10	139 156	77 92	48 <sup>2)</sup> 56	73 87	8.8 15.4

1) Dimensions of shaft end shoulder and flange surface respectively.  
2) Square input flange ∅ 105: consult us if need be.

## Mounting positions and grease quantities [gal]

Design	Mounting Positions						Size	Grease Quantities [gal]	
	B3	B6	B7	B8	V5	V6		B3, B6 B7, B8	V5, V6
PC1A							<b>32</b> <b>40</b>	0.31 0.57	0.55 1.04
FC1A							<b>32</b> <b>40</b>	B5 0.22 0.42	V1, V3 0.4 0.77

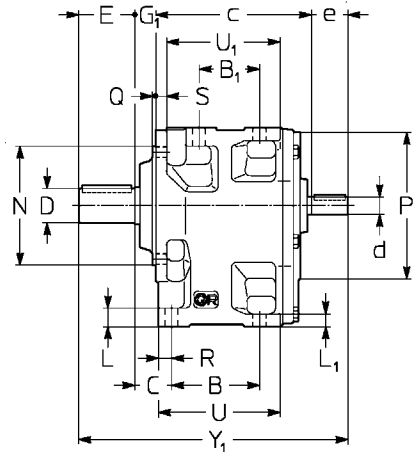
U.T.C. 216

# Designs, dimensions, mounting positions and lubricant quantities 3.6



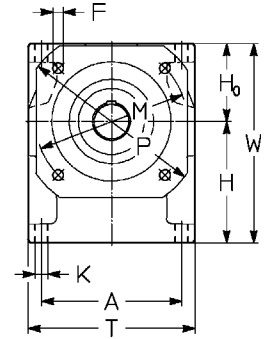
## Standard design

Mounting position B3, B6, B7, B8, V5, V6



R 2I, 3I 50 ... 180

UTC 625



UC2A

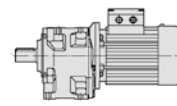
Size	A	B	C	c	D Ø	E	d		Y <sub>1</sub>		d		Y <sub>1</sub>		F Ø	G <sub>1</sub>	H h11	H <sub>0</sub> h11	K Ø	L	L <sub>1</sub>	M Ø	N Ø h6	P Ø Q <sub>0/2</sub>	P <sub>1</sub> Ø	R	S	T	U	U <sub>1</sub>	W <sub>1</sub>	Mass lb
							e	R2I e   I <sub>N</sub> ≤ 12.5	e	R3I e   I <sub>N</sub> ≥ 16	e	R2I e   I <sub>N</sub> ≤ 80	e	R3I e   I <sub>N</sub> ≥ 100																		
50 51	124	76 52	30.5	138	24 28	50 42	14 30	234 226	14 30	234 226	11 23	227 219	11 23	227 219	9.5	16	106	71	11.5	17	12	130	110	160 3.5	140	13.5	10	148	110	100	177	26.5
63 64	153	96 66	36.5	168	32 38	58	19 40	285 30	16 30	275 30	14 30	275 30	14 30	275 30	11.5	19	132	85	14	20	14	165	130	200 3.5	160	16	12	182	136	124	217	44.1
80 81	192	123 87	43	208	38 48	80	24 50	360 40	19 40	350 40	19 40	350 40	19 40	350 40	14	22	160	106	16	24	17	215	180	250 4	200	19	14	226	171	157	266	77.2
100 101	240	160 119	51.5	253	48 55	82	28 60	422 60	24 50	412 60	24 50	412 60	19 40	402 40	14	27	195	132	18	28.5	20	265	230	300 4	250	22.5	16	280	214	198	327	137
125 126	297	200 151	59	311 <sup>1)</sup>	60 70	105	32 80	526 80	32 80	526 80	28 60	502 50	24 50	492 40	18	30	236	160	22	35	25	300	250	350 5	300	26.5	19	345	264	245	396	243
140	297	218 169	59	329 <sup>2)</sup>	80	130	32 80	569 80	32 80	569 80	28 60	545 24	24 50	535 40	18	30	250 <sup>1)</sup>	160 <sup>1)</sup>	22	35	25	300	250	350 5	300	26.5	19	345	282	263	410	271
160	373	250 191	68.5	385 <sup>3)</sup>	90	130	42 110	659 110	42 110	659 110	32 80	623 80	32 80	623 80	22	34	295 <sup>2)</sup>	200 <sup>2)</sup>	27	42	30	400	350	450 5	400	31.5	22	430	326	304	495	430
180	373	275 216	68.5	410 <sup>3)</sup>	100	165	42 110	719 110	42 110	719 110	32 80	683 80	32 80	683 80	22	34	315 <sup>3)</sup>	200 <sup>3)</sup>	27	42	30	400	350	450 5	400	31.5	22	430	351	329	515	573

- 1) For high speed shaft H dimension is -15 mm, H<sub>0</sub> +15 mm.
- 2) For high speed shaft H dimension is -8 mm, H<sub>0</sub> +8 mm.
- 3) For high speed shaft H dimension is -29 mm, H<sub>0</sub> +29 mm.
- 4) For R 3I c dimension is -4 mm (sizes 125 ... 140), -6 mm (sizes 160 and 180).

## Mounting positions and oil quantities [gal]

Size						Size	B3	B6, B7	B8, V6	V5
B3	B6	B7	B8	V5	V6					
						50, 51	0.8	1.1	1.1	1.4
						63, 64	1.6	2.2	2.2	2.8
						80, 81	3.1	4.3	4.3	5.5
						100, 101	5.6	7.1	8	10
						125, 126	10.2	13	14.6	18.3
						140	11.6	14.8	16.6	21
						160	19.6	25	28	35
						180	23	29	32	40

UTC 628



# Gearmotors selection tables

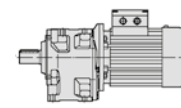
# 3.7

Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$	2)		Gear ratio $i$
0.12	8.82	825	1.4	MR 3I	50 - 11 × 140 63 A	6 130
0.12	10.7	675	1.9	MR 3I	50 - 11 × 140 63 A	6 107
0.12	10.7	675	2.5	MR 3I	51 - 11 × 140 63 A	6 107
0.12	12.4	585	1.06	MR 3I	40 - 11 × 140 63 A	6 92.8
0.12	13.2	550	2.5	MR 3I	50 - 11 × 140 63 A	6 87.3
0.12	13.2	550	3.55	MR 3I	51 - 11 × 140 63 A	6 87.3
0.12	15.5	470	1.4	MR 3I	40 - 11 × 140 63 A	6 74.4
0.12	15.5	470	1.7	MR 3I	41 - 11 × 140 63 A	6 74.4
0.12	16.1	450	3.15	MR 3I	50 - 11 × 140 63 A	6 71.4
0.12	17.4	415	1.6	MR 3I	40 - 11 × 140 63 A	6 65.9
0.12	17.4	415	2	MR 3I	41 - 11 × 140 63 A	6 65.9
0.12	17.7	410	3.55	MR 3I	50 - 11 × 140 63 A	6 65.0
0.12	20.6	355	1.9	MR 3I	40 - 11 × 140 63 A	6 55.9
0.12	20.6	355	2.36	MR 3I	41 - 11 × 140 63 A	6 55.9
0.12	19.3	375	3.75	MR 3I	50 - 11 × 140 63 A	6 59.5
0.12	24.2	300	1.12	MR 3I	32 - 11 × 140 63 A	6 47.5
0.12	22.4	325	2	MR 3I	40 - 11 × 140 63 A	6 51.3
0.12	22.4	325	2.5	MR 3I	41 - 11 × 140 63 A	6 51.3
0.12	22.4	325	4.25	MR 3I	50 - 11 × 140 63 A	6 51.4
0.12	25.7	280	2.36	MR 3I	40 - 11 × 140 63 A	6 44.7
0.12	25.7	280	2.8	MR 3I	41 - 11 × 140 63 A	6 44.7
0.12	26.7	270	5.3	MR 3I	50 - 11 × 140 63 A	6 43.0
0.12	27.3	265	1.25	MR 3I	32 - 11 × 140 63 A	6 42.1
0.12	29.0	250	2.65	MR 3I	40 - 11 × 140 63 A	6 39.6
0.12	29.0	250	3.35	MR 3I	41 - 11 × 140 63 A	6 39.6
0.12	32.2	225	1.5	MR 3I	32 - 11 × 140 63 A	6 35.7
0.12	35.9	200	1.6	MR 3I	32 - 11 × 140 63 A	6 32.1
0.12	34.2	210	3.15	MR 3I	40 - 11 × 140 63 A	6 33.6
0.12	37.3	195	3.35	MR 3I	40 - 11 × 140 63 A	6 30.8
0.12	41.0	175	1.8	MR 3I	32 - 11 × 140 63 A	6 28.1
0.12	46.2	155	2.12	MR 3I	32 - 11 × 140 63 A	6 24.9
0.12	43.8	165	3.75	MR 3I	40 - 11 × 140 63 A	6 26.2
0.12	52.0	140	3.75	MR 2I	40 - 11 × 140 63 A	6 22.1
0.12	54.5	135	2.5	MR 3I	32 - 11 × 140 63 A	6 21.1
0.12	60.7	120	2.65	MR 3I	32 - 11 × 140 63 A	6 18.9
0.12	69.8	105	3	MR 3I	32 - 11 × 140 63 A	6 16.5
0.12	85.4	87	3.35	MR 2I	32 - 11 × 140 63 A	6 13.5
0.12	107	70	4.5	MR 2I	32 - 11 × 140 63 A	6 10.8
0.12	120	62	5	MR 2I	32 - 11 × 140 63 A	6 9.57
0.16	8.82	1 100	1.06	MR 3I	50 - 11 × 140 63 B	6 130
0.16	10.7	900	1.4	MR 3I	50 - 11 × 140 63 B	6 107
0.16	10.7	900	1.9	MR 3I	51 - 11 × 140 63 B	6 107
0.16	13.2	735	1.9	MR 3I	50 - 11 × 140 63 B	6 87.3
0.16	13.2	735	2.65	MR 3I	51 - 11 × 140 63 B	6 87.3
0.16	13.4	720	1.6	MR 3I	50 - 11 × 140 63 A	4 130
0.16	15.5	625	1.06	MR 3I	40 - 11 × 140 63 B	6 74.4
0.16	15.5	625	1.32	MR 3I	41 - 11 × 140 63 B	6 74.4
0.16	16.3	595	2.12	MR 3I	50 - 11 × 140 63 A	4 107
0.16	16.3	595	2.8	MR 3I	51 - 11 × 140 63 A	4 107
0.16	17.4	555	1.18	MR 3I	40 - 11 × 140 63 B	6 65.9
0.16	17.4	555	1.5	MR 3I	41 - 11 × 140 63 B	6 65.9
0.16	17.7	545	2.65	MR 3I	50 - 11 × 140 63 B	6 65.0
0.16	17.7	545	3.55	MR 3I	51 - 11 × 140 63 B	6 65.0
0.16	20.6	470	1.4	MR 3I	40 - 11 × 140 63 B	6 55.9
0.16	18.9	515	1.18	MR 3I	40 - 11 × 140 63 A	4 92.8
0.16	20.6	470	1.8	MR 3I	41 - 11 × 140 63 B	6 55.9
0.16	20.0	485	3	MR 3I	50 - 11 × 140 63 A	4 87.3
0.16	20.0	485	4	MR 3I	51 - 11 × 140 63 A	4 87.3
0.16	23.5	410	1.6	MR 3I	40 - 11 × 140 63 A	4 74.4
0.16	23.5	410	2	MR 3I	41 - 11 × 140 63 A	4 74.4
0.16	22.4	435	3.35	MR 3I	50 - 11 × 140 63 B	6 51.4

Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$	2)		Gear ratio $i$
0.16	25.7	375	1.8	MR 3I	40 - 11 × 140 63 B	6 44.7
0.16	25.7	375	2.12	MR 3I	41 - 11 × 140 63 B	6 44.7
0.16	24.5	395	3.55	MR 3I	50 - 11 × 140 63 A	4 71.4
0.16	26.6	365	1.8	MR 3I	40 - 11 × 140 63 A	4 65.9
0.16	29.0	335	2.5	MR 3I	41 - 11 × 140 63 B	6 39.6
0.16	26.6	365	2.36	MR 3I	41 - 11 × 140 63 A	4 65.9
0.16	26.9	360	4	MR 3I	50 - 11 × 140 63 A	4 65.0
0.16	29.4	330	4.25	MR 3I	50 - 11 × 140 63 A	4 59.5
0.16	32.2	300	1.12	MR 3I	32 - 11 × 140 63 B	6 35.7
0.16	31.3	310	2.12	MR 3I	40 - 11 × 140 63 A	4 55.9
0.16	31.3	310	2.65	MR 3I	41 - 11 × 140 63 A	4 55.9
0.16	36.8	265	1.25	MR 3I	32 - 11 × 140 63 A	4 47.5
0.16	34.1	285	2.36	MR 3I	40 - 11 × 140 63 A	4 51.3
0.16	34.1	285	2.8	MR 3I	41 - 11 × 140 63 A	4 51.3
0.16	34.1	285	5	MR 3I	50 - 11 × 140 63 A	4 51.4
0.16	41.6	235	1.4	MR 3I	32 - 11 × 140 63 A	4 42.1
0.16	39.1	245	2.65	MR 3I	40 - 11 × 140 63 A	4 44.7
0.16	39.1	245	3.15	MR 3I	41 - 11 × 140 63 A	4 44.7
0.16	46.2	210	1.5	MR 3I	32 - 11 × 140 63 B	6 24.9
0.16	44.2	220	3	MR 3I	40 - 11 × 140 63 A	4 39.6
0.16	44.2	220	3.75	MR 3I	41 - 11 × 140 63 A	4 39.6
0.16	49.0	200	1.6	MR 3I	32 - 11 × 140 63 A	4 35.7
0.16	52.0	185	3.55	MR 3I	40 - 11 × 140 63 A	4 33.6
0.16	52.0	190	2.8	MR 2I	40 - 11 × 140 63 B	6 22.1
0.16	54.6	175	1.7	MR 3I	32 - 11 × 140 63 A	4 32.1
0.16	56.8	170	3.75	MR 3I	40 - 11 × 140 63 A	4 30.8
0.16	62.3	155	2	MR 3I	32 - 11 × 140 63 A	4 28.1
0.16	63.5	155	3.75	MR 2I	40 - 11 × 140 63 B	6 18.1
0.16	70.4	140	2.24	MR 3I	32 - 11 × 140 63 A	4 24.9
0.16	66.7	145	4.25	MR 3I	40 - 11 × 140 63 A	4 26.2
0.16	70.9	140	4.25	MR 2I	40 - 11 × 140 63 B	6 16.2
0.16	82.9	115	2.65	MR 3I	32 - 11 × 140 63 A	4 21.1
0.16	85.4	115	2.5	MR 2I	32 - 11 × 140 63 B	6 13.5
0.16	79.2	125	4	MR 2I	40 - 11 × 140 63 A	4 22.1
0.16	92.4	105	3	MR 3I	32 - 11 × 140 63 A	4 18.9
0.16	107	93	3.35	MR 2I	32 - 11 × 140 63 B	6 10.8
0.16	106	91	3.15	MR 3I	32 - 11 × 140 63 A	4 16.5
0.16	120	82	3.75	MR 2I	32 - 11 × 140 63 B	6 9.57
0.16	130	76	3.75	MR 2I	32 - 11 × 140 63 A	4 13.5
0.16	162	61	5	MR 2I	32 - 11 × 140 63 A	4 10.8
0.16	183	54	5.6	MR 2I	32 - 11 × 140 63 A	4 9.57
0.16	216	46	6.3	MR 2I	32 - 11 × 140 63 A	4 8.12
0.16	240	41	7.1	MR 2I	32 - 11 × 140 63 A	4 7.29
0.16	276	36	8.5	MR 2I	32 - 11 × 140 63 A	4 6.33
0.16	346	29	8.5	MR 2I	32 - 11 × 140 63 A	4 5.06
0.25	8.09	1 870	1.32	MR 3I	63 - 14 × 160 71 A	6 142
0.25	10.3	1 460	1.9	MR 3I	63 - 14 × 160 71 A	6 111
0.25	10.3	1 460	2.24	MR 3I	64 - 14 × 160 71 A	6 111
0.25	12.9	1 170	2.5	MR 3I	63 - 14 × 160 71 A	6 89.0
0.25	12.9	1 170	3.35	MR 3I	64 - 14 × 160 71 A	6 89.0
0.25	14.8	1 020	1.25	MR 3I	50 - 14 × 160 71 A	6 77.7
0.25	13.4	1 130	1.06	MR 3I	50 - 11 × 140 63 B	4 130
0.25	14.8	1 020	1.6	MR 3I	51 - 14 × 160 71 A	6 77.7
0.25	16.3	925	1.4	MR 3I	50 - 11 × 140 63 B	4 107
0.25	16.3	925	1.8	MR 3I	51 - 11 × 140 63 B	4 107
0.25	15.4	980	3	MR 3I	63 - 14 × 160 71 A	6 74.5
0.25	18.2	830	1.7	MR 3I	50 - 14 × 160 71 A	6 63.2
0.25	18.2	830	2.36	MR 3I	51 - 14 × 160 71 A	6 63.2
0.25	18.8	805	3.75	MR 3I	63 - 14 × 160 71 A	6 61.3
0.25	21.3	710	1.18	MR 3I	41 - 14 × 160 71 A	6 53.9
0.25	20.0	755	1.9	MR 3I	50 - 11 × 140 63 B	4 87.3
0.25	20.0	755	2.5	MR 3I	51 - 11 × 140 63 B	4 87.3

1) Powers valid for continuous duty S1; **increase** possible for S2 ... S10 (ch. 2b) in which case  $P_2$  and  $M_2$  increase and  $f_s$  decreases proportionately.  
2) For complete designation when ordering, see ch. 3.

# Gearmotors selection tables

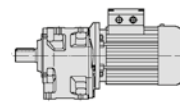


# 3.7

Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$	2)		Gear ratio $i$
0.25	23.5	645	1.06	MR 3I	40 - 11 × 140 63 B	4 74.4
0.25	23.5	645	1.25	MR 3I	41 - 11 × 140 63 B	4 74.4
0.25	22.2	680	2.12	MR 3I	50 - 14 × 160 71 A	6 51.7
0.25	22.2	680	2.8	MR 3I	51 - 14 × 160 71 A	6 51.7
0.25	24.5	615	2.24	MR 3I	50 - 11 × 140 63 B	4 71.4
0.25	24.5	615	3.15	MR 3I	51 - 11 × 140 63 B	4 71.4
0.25	26.6	570	1.18	MR 3I	40 - 11 × 140 63 B	4 65.9
0.25	26.6	570	1.5	MR 3I	41 - 11 × 140 63 B	4 65.9
0.25	26.9	560	2.5	MR 3I	50 - 11 × 140 63 B	4 65.0
0.25	29.4	515	2.8	MR 3I	50 - 11 × 140 63 B	4 59.5
0.25	26.9	560	3.55	MR 3I	51 - 11 × 140 63 B	4 65.0
0.25	31.3	485	1.4	MR 3I	40 - 11 × 140 63 B	4 55.9
0.25	31.3	485	1.7	MR 3I	41 - 11 × 140 63 B	4 55.9
0.25	34.1	445	1.5	MR 3I	40 - 11 × 140 63 B	4 51.3
0.25	34.1	445	1.8	MR 3I	41 - 11 × 140 63 B	4 51.3
0.25	34.1	445	3.15	MR 3I	50 - 11 × 140 63 B	4 51.4
0.25	39.1	385	1.7	MR 3I	40 - 11 × 140 63 B	4 44.7
0.25	39.1	385	2.12	MR 3I	41 - 11 × 140 63 B	4 44.7
0.25	40.7	370	3.75	MR 3I	50 - 11 × 140 63 B	4 43.0
0.25	44.2	345	1.9	MR 3I	40 - 11 × 140 63 B	4 39.6
0.25	44.2	345	2.36	MR 3I	41 - 11 × 140 63 B	4 39.6
0.25	44.7	340	4	MR 3I	50 - 11 × 140 63 B	4 39.2
0.25	49.0	310	1.06	MR 3I	32 - 11 × 140 63 B	4 35.7
0.25	52.0	290	2.24	MR 3I	40 - 11 × 140 63 B	4 33.6
0.25	52.0	290	2.8	MR 3I	41 - 11 × 140 63 B	4 33.6
0.25	48.8	310	4.5	MR 3I	50 - 11 × 140 63 B	4 35.8
0.25	54.6	275	1.12	MR 3I	32 - 11 × 140 63 B	4 32.1
0.25	56.8	265	2.5	MR 3I	40 - 11 × 140 63 B	4 30.8
0.25	56.8	265	3.15	MR 3I	41 - 11 × 140 63 B	4 30.8
0.25	62.3	245	1.32	MR 3I	32 - 11 × 140 63 B	4 28.1
0.25	70.4	215	1.5	MR 3I	32 - 11 × 140 63 B	4 24.9
0.25	66.7	225	2.65	MR 3I	40 - 11 × 140 63 B	4 26.2
0.25	66.7	225	3.15	MR 3I	41 - 11 × 140 63 B	4 26.2
0.25	71.0	220	2.36	MR 2I	40 - 14 × 160 71 A	6 16.2
0.25	82.9	180	1.7	MR 3I	32 - 11 × 140 63 B	4 21.1
0.25	79.2	195	2.65	MR 2I	40 - 11 × 140 63 B	4 22.1
0.25	92.4	165	1.9	MR 3I	32 - 11 × 140 63 B	4 18.9
0.25	86.5	180	3.15	MR 2I	40 - 14 × 160 71 A	6 13.3
0.25	96.7	160	3.55	MR 2I	40 - 11 × 140 63 B	4 18.1
0.25	106	140	2	MR 3I	32 - 11 × 140 63 B	4 16.5
0.25	108	145	4.25	MR 2I	40 - 11 × 140 63 B	4 16.2
0.25	130	120	2.36	MR 2I	32 - 11 × 140 63 B	4 13.5
0.25	121	130	4.75	MR 2I	40 - 11 × 140 63 B	4 14.5
0.25	137	115	5.3	MR 2I	40 - 11 × 140 63 B	4 12.8
0.25	162	95	3.15	MR 2I	32 - 11 × 140 63 B	4 10.8
0.25	183	84	3.55	MR 2I	32 - 11 × 140 63 B	4 9.57
0.25	216	72	4.25	MR 2I	32 - 11 × 140 63 B	4 8.12
0.25	240	64	4.75	MR 2I	32 - 11 × 140 63 B	4 7.29
0.25	276	56	5.3	MR 2I	32 - 11 × 140 63 B	4 6.33
0.25	346	45	5.6	MR 2I	32 - 11 × 140 63 B	4 5.06
0.33	10.3	1 930	1.4	MR 3I	63 - 14 × 160 71 B	6 111
0.33	10.3	1 930	1.7	MR 3I	64 - 14 × 160 71 B	6 111
0.33	12.9	1 550	1.9	MR 3I	63 - 14 × 160 71 B	6 89.0
0.33	12.3	1 620	1.5	MR 3I	63 - 14 × 160 71 A	4 142
0.33	12.9	1 550	2.5	MR 3I	64 - 14 × 160 71 B	6 89.0
0.33	14.8	1 350	1.25	MR 3I	51 - 14 × 160 71 B	6 77.7
0.33	16.3	1 220	1.06	MR 3I	50 - 11 × 140 63 C	4 107
0.33	16.3	1 220	1.4	MR 3I	51 - 11 × 140 63 C	4 107
0.33	15.7	1 270	2.12	MR 3I	63 - 14 × 160 71 A	4 111
0.33	15.4	1 290	3	MR 3I	64 - 14 × 160 71 B	6 74.5
0.33	15.7	1 270	2.65	MR 3I	64 - 14 × 160 71 A	4 111

Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$	2)		Gear ratio $i$
0.33	18.2	1 100	1.32	MR 3I	50 - 14 × 160 71 B	6 63.2
0.33	18.5	1 080	1.06	MR 3I	50 - 14 × 160 71 A	4 94.4
0.33	18.2	1 100	1.8	MR 3I	51 - 14 × 160 71 B	6 63.2
0.33	18.8	1 060	2.8	MR 3I	63 - 14 × 160 71 B	6 61.3
0.33	20.0	995	1.4	MR 3I	50 - 11 × 140 63 C	4 87.3
0.33	20.0	995	1.9	MR 3I	51 - 11 × 140 63 C	4 87.3
0.33	19.7	1 020	3	MR 3I	63 - 14 × 160 71 A	4 89.0
0.33	19.7	1 020	3.75	MR 3I	64 - 14 × 160 71 A	4 89.0
0.33	22.5	885	1.4	MR 3I	50 - 14 × 160 71 A	4 77.7
0.33	22.2	900	2.12	MR 3I	51 - 14 × 160 71 B	6 51.7
0.33	22.5	885	1.9	MR 3I	51 - 14 × 160 71 A	4 77.7
0.33	23.5	850	3.55	MR 3I	63 - 14 × 160 71 A	4 74.5
0.33	24.5	815	1.7	MR 3I	50 - 11 × 140 63 C	4 71.4
0.33	24.5	815	2.36	MR 3I	51 - 11 × 140 63 C	4 71.4
0.33	24.8	805	3.55	MR 3I	63 - 14 × 160 71 B	6 46.3
0.33	26.6	750	1.12	MR 3I	41 - 11 × 140 63 C	4 65.9
0.33	26.9	740	1.9	MR 3I	50 - 11 × 140 63 C	4 65.0
0.33	29.4	680	2.12	MR 3I	50 - 11 × 140 63 C	4 59.5
0.33	27.7	720	2	MR 3I	50 - 14 × 160 71 A	4 63.2
0.33	26.9	740	2.65	MR 3I	51 - 11 × 140 63 C	4 65.0
0.33	29.4	680	3	MR 3I	51 - 11 × 140 63 C	4 59.5
0.33	27.7	720	2.65	MR 3I	51 - 14 × 160 71 A	4 63.2
0.33	28.5	700	4.25	MR 3I	63 - 14 × 160 71 A	4 61.3
0.33	31.3	640	1.06	MR 3I	40 - 11 × 140 63 C	4 55.9
0.33	32.5	615	1.06	MR 3I	40 - 14 × 160 71 A	4 53.9
0.33	31.3	640	1.32	MR 3I	41 - 11 × 140 63 C	4 55.9
0.33	32.5	615	1.32	MR 3I	41 - 14 × 160 71 A	4 53.9
0.33	30.6	650	2.12	MR 3I	50 - 14 × 160 71 A	4 57.1
0.33	30.6	650	2.8	MR 3I	51 - 14 × 160 71 A	4 57.1
0.33	31.6	630	4.75	MR 3I	63 - 14 × 160 71 A	4 55.4
0.33	34.1	585	1.12	MR 3I	40 - 11 × 140 63 C	4 51.3
0.33	36.6	545	1.18	MR 3I	40 - 14 × 160 71 A	4 47.7
0.33	34.1	585	1.4	MR 3I	41 - 11 × 140 63 C	4 51.3
0.33	36.6	545	1.5	MR 3I	41 - 14 × 160 71 A	4 47.7
0.33	34.1	585	2.36	MR 3I	50 - 11 × 140 63 C	4 51.4
0.33	33.8	590	2.36	MR 3I	50 - 14 × 160 71 A	4 51.7
0.33	37.2	535	2.65	MR 3I	50 - 14 × 160 71 A	4 47.1
0.33	34.1	585	3.35	MR 3I	51 - 11 × 140 63 C	4 51.4
0.33	33.8	590	3.15	MR 3I	51 - 14 × 160 71 A	4 51.7
0.33	37.2	535	3.75	MR 3I	51 - 14 × 160 71 A	4 47.1
0.33	39.1	510	1.25	MR 3I	40 - 11 × 140 63 C	4 44.7
0.33	39.1	510	1.6	MR 3I	41 - 11 × 140 63 C	4 44.7
0.33	40.7	490	2.8	MR 3I	50 - 11 × 140 63 C	4 43.0
0.33	40.6	490	2.8	MR 3I	50 - 14 × 160 71 A	4 43.1
0.33	40.6	490	4	MR 3I	51 - 14 × 160 71 A	4 43.1
0.33	44.2	450	1.4	MR 3I	40 - 11 × 140 63 C	4 39.6
0.33	43.2	460	1.4	MR 3I	40 - 14 × 160 71 A	4 40.5
0.33	44.2	450	1.8	MR 3I	41 - 11 × 140 63 C	4 39.6
0.33	43.2	460	1.8	MR 3I	41 - 14 × 160 71 A	4 40.5
0.33	44.7	445	3.15	MR 3I	50 - 11 × 140 63 C	4 39.2
0.33	52.0	385	1.7	MR 3I	40 - 11 × 140 63 C	4 33.6
0.33	47.2	425	1.6	MR 3I	40 - 14 × 160 71 A	4 37.1
0.33	52.0	385	2.12	MR 3I	41 - 11 × 140 63 C	4 33.6
0.33	47.2	425	1.9	MR 3I	41 - 14 × 160 71 A	4 37.1
0.33	48.8	410	3.35	MR 3I	50 - 11 × 140 63 C	4 35.8
0.33	47.0	425	3.35	MR 3I	50 - 14 × 160 71 A	4 37.2
0.33	51.7	395	2.8	MR 2I	50 - 14 × 160 71 B	6 22.3
0.33	56.8	350	1.8	MR 3I	40 - 11 × 140 63 C	4 30.8
0.33	54.0	370	1.7	MR 3I	40 - 14 × 160 71 A	4 32.4
0.33	56.8	350	2.36	MR 3I	41 - 11 × 140 63 C	4 30.8
0.33	54.0	370	2.12	MR 3I	41 - 14 × 160 71 A	4 32.4
0.33	56.5	355	4	MR 3I	50 - 11 × 140 63 C	4 31.0
0.33	56.1	355	3.75	MR 3I	50 - 14 × 160 71 A	4 31.2
0.33	62.3	320	1	MR 3I	32 - 11 × 140 63 C	4 28.1
0.33	60.9	330	1.9	MR 3I	40 - 14 × 160 71 A	4 28.7
0.33	60.9	330	2.5	MR 3I	41 - 14 × 160 71 A	4 28.7
0.33	61.7	325	4.25	MR 3I	50 - 14 × 160 71 A	4 28.4

1) Powers valid for continuous duty S1; increase possible for S2 ... S10 (ch. 2b) in which case  $P_2$  and  $M_2$  increase and  $f_s$  decreases proportionately.  
2) For complete designation when ordering, see ch. 3.



# Gearmotors selection tables

# 3.7

Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$				Gear ratio $i$
2)							
0.33	70.4	285	1.12	MR 3I	32 - 11 × 140	63 C	4 24.9
0.33	66.7	300	2	MR 3I	40 - 11 × 140	63 C	4 26.2
0.33	71.8	280	2.24	MR 3I	40 - 14 × 160	71 A	4 24.4
0.33	66.7	300	2.36	MR 3I	41 - 11 × 140	63 C	4 26.2
0.33	71.8	280	3	MR 3I	41 - 14 × 160	71 A	4 24.4
0.33	67.4	295	4.5	MR 3I	50 - 14 × 160	71 A	4 26.0
0.33	71.0	285	1.8	MR 2I	40 - 14 × 160	71 B	6 16.2
0.33	82.9	240	1.32	MR 3I	32 - 11 × 140	63 C	4 21.1
0.33	78.5	255	2.5	MR 3I	40 - 14 × 160	71 A	4 22.3
0.33	78.5	255	3.15	MR 3I	41 - 14 × 160	71 A	4 22.3
0.33	78.0	255	5.3	MR 3I	50 - 14 × 160	71 A	4 22.4
0.33	79.2	255	2	MR 2I	40 - 11 × 140	63 C	4 22.1
0.33	78.6	260	4.25	MR 2I	50 - 14 × 160	71 A	4 22.3
0.33	92.4	215	1.5	MR 3I	32 - 11 × 140	63 C	4 18.9
0.33	92.1	215	2.8	MR 3I	40 - 14 × 160	71 A	4 19.0
0.33	92.1	215	3.35	MR 3I	41 - 14 × 160	71 A	4 19.0
0.33	86.5	235	2.36	MR 2I	40 - 14 × 160	71 B	6 13.3
0.33	86.5	235	2.8	MR 2I	41 - 14 × 160	71 B	6 13.3
0.33	97.8	210	2.8	MR 2I	40 - 14 × 160	71 B	6 11.8
0.33	96.7	210	2.65	MR 2I	40 - 11 × 140	63 C	4 18.1
0.33	97.8	210	3.35	MR 2I	41 - 14 × 160	71 B	6 11.8
0.33	106	190	1.5	MR 3I	32 - 11 × 140	63 C	4 16.5
0.33	115	175	2.8	MR 3I	40 - 14 × 160	71 A	4 15.2
0.33	108	190	3.15	MR 2I	40 - 11 × 140	63 C	4 16.2
0.33	108	190	2.65	MR 2I	40 - 14 × 160	71 A	4 16.2
0.33	108	190	3.75	MR 2I	41 - 11 × 140	63 C	4 16.2
0.33	130	155	1.8	MR 2I	32 - 11 × 140	63 C	4 13.5
0.33	121	170	3.55	MR 2I	40 - 11 × 140	63 C	4 14.5
0.33	132	155	3.55	MR 2I	40 - 14 × 160	71 A	4 13.3
0.33	137	150	4	MR 2I	40 - 11 × 140	63 C	4 12.8
0.33	162	125	2.36	MR 2I	32 - 11 × 140	63 C	4 10.8
0.33	161	125	4.75	MR 2I	40 - 11 × 140	63 C	4 10.9
0.33	149	135	4.25	MR 2I	40 - 14 × 160	71 A	4 11.8
0.33	183	110	2.65	MR 2I	32 - 11 × 140	63 C	4 9.57
0.33	166	125	4.75	MR 2I	40 - 14 × 160	71 A	4 10.6
0.33	186	110	5.3	MR 2I	40 - 14 × 160	71 A	4 9.41
0.33	216	95	3.15	MR 2I	32 - 11 × 140	63 C	4 8.12
0.33	219	93	6.3	MR 2I	40 - 14 × 160	71 A	4 7.98
0.33	240	85	3.55	MR 2I	32 - 11 × 140	63 C	4 7.29
0.33	239	85	7.1	MR 2I	40 - 14 × 160	71 A	4 7.32
0.33	276	74	4	MR 2I	32 - 11 × 140	63 C	4 6.33
0.33	346	59	4.25	MR 2I	32 - 11 × 140	63 C	4 5.06
0.5	7.46	4 060	1.18	MR 3I	80 - 19 × 200	80 A	6 154
0.5	9.12	3 320	1.6	MR 3I	80 - 19 × 200	80 A	6 126
0.5	9.12	3 320	2	MR 3I	81 - 19 × 200	80 A	6 126
0.5	10.3	2 930	1.12	MR 3I	64 - 14 × 160	71 C	6 111
0.5	11.4	2 660	2.24	MR 3I	80 - 19 × 200	80 A	6 101
0.5	11.4	2 660	3	MR 3I	81 - 19 × 200	80 A	6 101
0.5	12.9	2 340	1.25	MR 3I	63 - 14 × 160	71 C	6 89.0
0.5	12.3	2 460	1	MR 3I	63 - 14 × 160	71 B	4 142
0.5	12.9	2 340	1.7	MR 3I	64 - 14 × 160	71 C	6 89.0
0.5	13.6	2 230	2.65	MR 3I	80 - 19 × 200	80 A	6 84.6
0.5	13.6	2 230	3.55	MR 3I	81 - 19 × 200	80 A	6 84.6
0.5	15.4	1 960	1.5	MR 3I	63 - 14 × 160	71 C	6 74.5
0.5	15.7	1 920	1.4	MR 3I	63 - 14 × 160	71 B	4 111
0.5	15.4	1 960	2	MR 3I	64 - 14 × 160	71 C	6 74.5
0.5	15.7	1 920	1.7	MR 3I	64 - 14 × 160	71 B	4 111
0.5	18.2	1 660	1.18	MR 3I	51 - 14 × 160	71 C	6 63.2
0.5	18.8	1 610	1.8	MR 3I	63 - 14 × 160	71 C	6 61.3
0.5	18.8	1 610	2.36	MR 3I	64 - 14 × 160	71 C	6 61.3
0.5	17.3	1 740	3.35	MR 3I	80 - 19 × 200	80 A	6 66.3

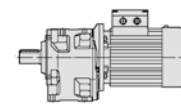
Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$				Gear ratio $i$
2)							
0.5	20.6	1 470	1.25	MR 3I	51 - 19 × 200	80 A	6 55.9
0.5	19.7	1 540	1.9	MR 3I	63 - 14 × 160	71 B	4 89.0
0.5	19.7	1 540	2.5	MR 3I	64 - 14 × 160	71 B	4 89.0
0.5	19.6	1 550	3.75	MR 3I	80 - 19 × 200	80 A	6 58.7
0.5	22.7	1 330	1.06	MR 3I	50 - 19 × 200	80 A	6 50.6
0.5	22.5	1 340	0.95	MR 3I	50 - 14 × 160	71 B	4 77.7
0.5	22.7	1 330	1.4	MR 3I	51 - 19 × 200	80 A	6 50.6
0.5	22.5	1 340	1.25	MR 3I	51 - 14 × 160	71 B	4 77.7
0.5	23.5	1 290	2.36	MR 3I	63 - 14 × 160	71 B	4 74.5
0.5	23.5	1 290	3	MR 3I	64 - 14 × 160	71 B	4 74.5
0.5	26.7	1 130	1.25	MR 3I	50 - 14 × 160	71 C	6 43.1
0.5	26.7	1 130	1.7	MR 3I	51 - 14 × 160	71 C	6 43.1
0.5	26.0	1 160	2.5	MR 3I	63 - 19 × 200	80 A	6 44.2
0.5	24.8	1 220	3	MR 3I	64 - 14 × 160	71 C	6 46.3
0.5	27.7	1 090	1.32	MR 3I	50 - 14 × 160	71 B	4 63.2
0.5	27.7	1 090	1.8	MR 3I	51 - 14 × 160	71 B	4 63.2
0.5	28.5	1 060	2.8	MR 3I	63 - 14 × 160	71 B	4 61.3
0.5	28.5	1 060	3.55	MR 3I	64 - 14 × 160	71 B	4 61.3
0.5	30.6	990	1.4	MR 3I	50 - 14 × 160	71 B	4 57.1
0.5	33.3	905	2.24	MR 3I	51 - 19 × 200	80 A	6 34.5
0.5	30.6	990	1.8	MR 3I	51 - 14 × 160	71 B	4 57.1
0.5	31.6	960	3.15	MR 3I	63 - 14 × 160	71 B	4 55.4
0.5	36.6	825	1	MR 3I	41 - 14 × 160	71 B	4 47.7
0.5	33.8	895	1.6	MR 3I	50 - 14 × 160	71 B	4 51.7
0.5	37.2	815	1.7	MR 3I	50 - 14 × 160	71 B	4 47.1
0.5	33.8	895	2.12	MR 3I	51 - 14 × 160	71 B	4 51.7
0.5	37.2	815	2.36	MR 3I	51 - 14 × 160	71 B	4 47.1
0.5	34.7	870	3.35	MR 3I	63 - 14 × 160	71 B	4 50.4
0.5	40.1	755	1.12	MR 3I	41 - 14 × 160	71 C	6 28.7
0.5	40.6	745	1.9	MR 3I	50 - 14 × 160	71 B	4 43.1
0.5	40.6	745	2.65	MR 3I	51 - 14 × 160	71 B	4 43.1
0.5	37.8	800	3.55	MR 3I	63 - 14 × 160	71 B	4 46.3
0.5	43.2	700	1.18	MR 3I	41 - 14 × 160	71 B	4 40.5
0.5	44.3	685	2	MR 3I	50 - 14 × 160	71 C	6 26.0
0.5	44.3	685	2.8	MR 3I	51 - 14 × 160	71 C	6 26.0
0.5	42.1	720	4	MR 3I	63 - 14 × 160	71 B	4 41.6
0.5	46.6	650	4.5	MR 3I	63 - 14 × 160	71 B	4 37.6
0.5	47.2	640	1	MR 3I	40 - 14 × 160	71 B	4 37.1
0.5	51.6	585	1.4	MR 3I	41 - 14 × 160	71 C	6 22.3
0.5	47.2	640	1.25	MR 3I	41 - 14 × 160	71 B	4 37.1
0.5	47.0	645	2.12	MR 3I	50 - 14 × 160	71 B	4 37.2
0.5	47.0	645	3	MR 3I	51 - 14 × 160	71 B	4 37.2
0.5	51.7	600	1.9	MR 2I	50 - 14 × 160	71 C	6 22.3
0.5	54.0	560	1.12	MR 3I	40 - 14 × 160	71 B	4 32.4
0.5	54.0	560	1.4	MR 3I	41 - 14 × 160	71 B	4 32.4
0.5	56.1	540	2.5	MR 3I	50 - 14 × 160	71 B	4 31.2
0.5	56.1	540	3.35	MR 3I	51 - 14 × 160	71 B	4 31.2
0.5	60.9	495	1.32	MR 3I	40 - 14 × 160	71 B	4 28.7
0.5	60.9	495	1.6	MR 3I	41 - 14 × 160	71 B	4 28.7
0.5	61.7	490	2.8	MR 3I	50 - 14 × 160	71 B	4 28.4
0.5	61.7	490	4	MR 3I	51 - 14 × 160	71 B	4 28.4
0.5	71.8	420	1.5	MR 3I	40 - 14 × 160	71 B	4 24.4
0.5	71.8	420	1.9	MR 3I	41 - 14 × 160	71 B	4 24.4
0.5	67.4	450	3	MR 3I	50 - 14 × 160	71 B	4 26.0
0.5	78.5	385	1.7	MR 3I	40 - 14 × 160	71 B	4 22.3
0.5	78.5	385	2.12	MR 3I	41 - 14 × 160	71 B	4 22.3
0.5	78.0	390	3.55	MR 3I	50 - 14 × 160	71 B	4 22.4
0.5	78.6	395	2.8	MR 2I	50 - 14 × 160	71 B	4 22.3
0.5	92.1	330	1.8	MR 3I	40 - 14 × 160	71 B	4 19.0
0.5	92.1	330	2.12	MR 3I	41 - 14 × 160	71 B	4 19.0
0.5	86.2	350	3.75	MR 3I	50 - 14 × 160	71 B	4 20.3
0.5	86.5	355	1.6	MR 2I	40 - 14 × 160	71 C	6 13.3
0.5	86.5	355	1.8	MR 2I	41 - 14 × 160	71 C	6 13.3
0.5	97.8	315	1.9	MR 2I	40 - 14 × 160	71 C	6 11.8
0.5	97.8	315	2.24	MR 2I	41 - 14 × 160	71 C	6 11.8
0.5	95.6	325	3.75	MR 2I	50 - 14 × 160	71 B	4 18.3

1) Powers valid for continuous duty S1; increase possible for S2 ... S10 (ch. 2b) in which case  $P_2$  and  $M_2$  increase and  $f_s$  decreases proportionately.

2) For complete designation when ordering, see ch. 3.

\* Mounting position B5R (see table ch. 2b).

# Gearmotors selection tables



# 3.7

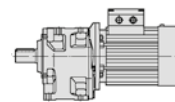
Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$	2)		Gear ratio $i$
0.5	115	260	1.8	MR 3I	40 - 14 × 160 71 B	4 15.2
0.5	109	285	2.12	MR 2I	40 - 14 × 160 71 C	6 10.6
0.5	108	285	1.8	MR 2I	40 - 14 × 160 71 B	4 16.2
0.5	109	285	2.65	MR 2I	41 - 14 × 160 71 C	6 10.6
0.5	106	290	4.25	MR 2I	50 - 14 × 160 71 B	4 16.5
0.5	117	265	5	MR 2I	50 - 14 × 160 71 B	4 14.9
0.5	130	240	1.18	MR 2I	32 - 11 × 140 71 B	BSR 4 13.5
0.5	132	235	2.36	MR 2I	40 - 14 × 160 71 B	4 13.3
0.5	132	235	2.65	MR 2I	41 - 14 × 160 71 B	4 13.3
0.5	127	245	5	MR 2I	50 - 14 × 160 71 B	4 13.8
0.5	140	220	5.6	MR 2I	50 - 14 × 160 71 B	4 12.5
0.5	162	190	1.6	MR 2I	32 - 11 × 140 71 B	BSR 4 10.8
0.5	149	205	2.8	MR 2I	40 - 14 × 160 71 B	4 11.8
0.5	149	205	3.35	MR 2I	41 - 14 × 160 71 B	4 11.8
0.5	183	170	1.8	MR 2I	32 - 11 × 140 71 B	BSR 4 9.57
0.5	166	185	3.15	MR 2I	40 - 14 × 160 71 B	4 10.6
0.5	186	165	3.55	MR 2I	40 - 14 × 160 71 B	4 9.41
0.5	216	145	2.12	MR 2I	32 - 11 × 140 71 B	BSR 4 8.12
0.5	219	140	4.25	MR 2I	40 - 14 × 160 71 B	4 7.98
0.5	240	130	2.36	MR 2I	32 - 11 × 140 71 B	BSR 4 7.29
0.5	239	130	4.5	MR 2I	40 - 14 × 160 71 B	4 7.32
0.5	276	110	2.65	MR 2I	32 - 11 × 140 71 B	BSR 4 6.33
0.5	281	110	5.3	MR 2I	40 - 14 × 160 71 B	4 6.22
0.5	346	89	2.8	MR 2I	32 - 11 × 140 71 B	BSR 4 5.06
0.5	352	88	5.6	MR 2I	40 - 14 × 160 71 B	4 4.97
0.75	9.12	4 980	1.12	MR 3I	80 - 19 × 200 80 B	6 126
0.75	9.12	4 980	1.32	MR 3I	81 - 19 × 200 80 B	6 126
0.75	11.4	3 990	1.5	MR 3I	80 - 19 × 200 80 B	6 101
0.75	11.3	4 000	1.18	MR 3I	80 - 19 × 200 80 A	4 154
0.75	11.4	3 990	1.9	MR 3I	81 - 19 × 200 80 B	6 101
0.75	13.6	3 340	1.8	MR 3I	80 - 19 × 200 80 B	6 84.6
0.75	13.9	3 270	1.7	MR 3I	80 - 19 × 200 80 A	4 126
0.75	13.6	3 340	2.36	MR 3I	81 - 19 × 200 80 B	6 84.6
0.75	13.9	3 270	2	MR 3I	81 - 19 × 200 80 A	4 126
0.75	15.5	2 930	1.12	MR 3I	64 - 19 × 200 80 B	6 74.3
0.75	15.7	2 890	1.18	MR 3I	64 - 14 × 160 71 C	4 111
0.75	18.4	2 460	1	MR 3I	63 - 19 × 200 80 A	4 94.9
0.75	17.3	2 620	2.24	MR 3I	80 - 19 × 200 80 A	4 101
0.75	17.3	2 620	3	MR 3I	81 - 19 × 200 80 A	4 101
0.75	19.3	2 350	1.25	MR 3I	63 - 19 × 200 80 B	6 59.5
0.75	19.7	2 310	1.32	MR 3I	63 - 14 × 160 71 C	4 89.0
0.75	19.3	2 350	1.6	MR 3I	64 - 19 × 200 80 B	6 59.5
0.75	19.7	2 310	1.7	MR 3I	64 - 14 × 160 71 C	4 89.0
0.75	20.7	2 190	2.65	MR 3I	80 - 19 × 200 80 A	4 84.6
0.75	20.7	2 190	3.55	MR 3I	81 - 19 × 200 80 A	4 84.6
0.75	23.5	1 930	1.5	MR 3I	63 - 14 × 160 71 C	4 74.5
0.75	23.5	1 930	1.4	MR 3I	63 - 19 × 200 80 A	4 74.3
0.75	23.5	1 930	2	MR 3I	64 - 19 × 200 80 B	6 48.9
0.75	23.5	1 930	2	MR 3I	64 - 14 × 160 71 C	4 74.5
0.75	23.5	1 930	1.7	MR 3I	64 - 19 × 200 80 A	4 74.3
0.75	23.1	1 970	3	MR 3I	80 - 19 × 200 80 B	6 49.8
0.75	25.1	1 810	1	MR 3I	51 - 19 × 200 80 B	6 45.7
0.75	26.0	1 740	1.7	MR 3I	63 - 19 × 200 80 B	6 44.2
0.75	26.0	1 740	2.24	MR 3I	64 - 19 × 200 80 B	6 44.2
0.75	26.4	1 720	3.35	MR 3I	80 - 19 × 200 80 A	4 66.3
0.75	27.7	1 640	1.18	MR 3I	51 - 14 × 160 71 C	4 63.2
0.75	28.1	1 610	1.06	MR 3I	51 - 19 × 200 80 A	4 62.2
0.75	28.5	1 590	1.9	MR 3I	63 - 14 × 160 71 C	4 61.3
0.75	29.4	1 540	1.9	MR 3I	63 - 19 × 200 80 A	4 59.5
0.75	28.5	1 590	2.5	MR 3I	64 - 14 × 160 71 C	4 61.3
0.75	29.4	1 540	2.5	MR 3I	64 - 19 × 200 80 A	4 59.5

Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$	2)		Gear ratio $i$
0.75	30.5	1 490	1.32	MR 3I	51 - 19 × 200 80 B	6 37.7
0.75	33.3	1 360	1.5	MR 3I	51 - 19 × 200 80 B	6 34.5
0.75	30.6	1 480	1.18	MR 3I	51 - 14 × 160 71 C	4 57.1
0.75	31.3	1 450	1.25	MR 3I	51 - 19 × 200 80 A	4 55.9
0.75	31.6	1 440	2.12	MR 3I	63 - 14 × 160 71 C	4 55.4
0.75	32.1	1 410	2	MR 3I	63 - 19 × 200 80 A	4 54.5
0.75	31.6	1 440	2.8	MR 3I	64 - 14 × 160 71 C	4 55.4
0.75	32.1	1 410	2.5	MR 3I	64 - 19 × 200 80 A	4 54.5
0.75	29.8	1 520	4	MR 3I	80 - 19 × 200 80 A	4 58.7
0.75	33.8	1 340	1.06	MR 3I	50 - 14 × 160 71 C	4 51.7
0.75	37.2	1 220	1.12	MR 3I	50 - 14 × 160 71 C	4 47.1
0.75	34.6	1 310	1.06	MR 3I	50 - 19 × 200 80 A	4 50.6
0.75	33.8	1 340	1.4	MR 3I	51 - 14 × 160 71 C	4 51.7
0.75	37.2	1 220	1.6	MR 3I	51 - 14 × 160 71 C	4 47.1
0.75	34.6	1 310	1.5	MR 3I	51 - 19 × 200 80 A	4 50.6
0.75	34.7	1 310	2.24	MR 3I	63 - 14 × 160 71 C	4 50.4
0.75	35.8	1 270	2.36	MR 3I	63 - 19 × 200 80 A	4 48.9
0.75	34.7	1 310	3	MR 3I	64 - 14 × 160 71 C	4 50.4
0.75	35.8	1 270	3	MR 3I	64 - 19 × 200 80 A	4 48.9
0.75	38.6	1 180	1.18	MR 3I	50 - 19 × 200 80 B	6 29.8
0.75	40.6	1 120	1.25	MR 3I	50 - 14 × 160 71 C	4 43.1
0.75	38.3	1 190	1.12	MR 3I	50 - 19 × 200 80 A	4 45.7
0.75	38.6	1 180	1.7	MR 3I	51 - 19 × 200 80 B	6 29.8
0.75	40.6	1 120	1.8	MR 3I	51 - 14 × 160 71 C	4 43.1
0.75	38.3	1 190	1.5	MR 3I	51 - 19 × 200 80 A	4 45.7
0.75	37.8	1 200	2.36	MR 3I	63 - 14 × 160 71 C	4 46.3
0.75	39.6	1 150	2.5	MR 3I	63 - 19 × 200 80 A	4 44.2
0.75	37.8	1 200	3	MR 3I	64 - 14 × 160 71 C	4 46.3
0.75	39.6	1 150	3.35	MR 3I	64 - 19 × 200 80 A	4 44.2
0.75	42.3	1 070	1.32	MR 3I	50 - 19 × 200 80 A	4 41.4
0.75	46.4	980	1.4	MR 3I	50 - 19 × 200 80 A	4 37.7
0.75	42.3	1 070	1.8	MR 3I	51 - 19 × 200 80 A	4 41.4
0.75	46.4	980	2	MR 3I	51 - 19 × 200 80 A	4 37.7
0.75	42.1	1 080	2.65	MR 3I	63 - 14 × 160 71 C	4 41.6
0.75	46.6	975	3	MR 3I	63 - 14 × 160 71 C	4 37.6
0.75	43.5	1 040	2.8	MR 3I	63 - 19 × 200 80 A	4 40.2
0.75	42.1	1 080	3.55	MR 3I	64 - 14 × 160 71 C	4 41.6
0.75	43.5	1 040	3.75	MR 3I	64 - 19 × 200 80 A	4 40.2
0.75	47.4	975	2.36	MR 2I	63 - 19 × 200 80 B	6 24.3
0.75	47.0	965	1.5	MR 3I	50 - 14 × 160 71 C	4 37.2
0.75	50.7	895	1.5	MR 3I	50 - 19 × 200 80 A	4 34.5
0.75	47.0	965	2	MR 3I	51 - 14 × 160 71 C	4 37.2
0.75	50.7	895	2.12	MR 3I	51 - 19 × 200 80 A	4 34.5
0.75	51.2	885	3.35	MR 3I	63 - 14 × 160 71 C	4 34.2
0.75	47.4	960	2.8	MR 3I	63 - 19 × 200 80 A	4 36.9
0.75	52.8	860	3.35	MR 3I	63 - 19 × 200 80 A	4 33.2
0.75	51.7	895	1.25	MR 2I	50 - 14 × 160 80 B	BSR 6 22.3
0.75	55.3	820	1.7	MR 3I	50 - 19 × 200 80 B	6 20.8
0.75	56.1	810	1.7	MR 3I	50 - 14 × 160 71 C	4 31.2
0.75	58.7	775	1.8	MR 3I	50 - 19 × 200 80 A	4 29.8
0.75	55.3	820	2.36	MR 3I	51 - 19 × 200 80 B	6 20.8
0.75	56.1	810	2.24	MR 3I	51 - 14 × 160 71 C	4 31.2
0.75	58.7	775	2.5	MR 3I	51 - 19 × 200 80 A	4 29.8
0.75	58.4	775	3.75	MR 3I	63 - 19 × 200 80 A	4 30.0
0.75	60.5	765	3.35	MR 2I	63 - 19 × 200 80 B	6 19.0
0.75	60.9	745	1.06	MR 3I	41 - 14 × 160 71 C	4 28.7
0.75	64.0	710	1.9	MR 3I	50 - 19 × 200 80 B	6 18.0
0.75	61.7	735	1.8	MR 3I	50 - 14 × 160 71 C	4 28.4
0.75	64.0	710	2.8	MR 3I	51 - 19 × 200 80 B	6 18.0
0.75	61.7	735	2.65	MR 3I	51 - 14 × 160 71 C	4 28.4
0.75	62.8	740	1.7	MR 2I	50 - 14 × 160 80 B	BSR 6 18.3
0.75	62.8	740	2.12	MR 2I	51 - 14 × 160 80 B	BSR 6 18.3
0.75	71.8	630	1	MR 3I	40 - 14 × 160 71 C	4 24.4
0.75	71.8	630	1.25	MR 3I	41 - 14 × 160 71 C	4 24.4
0.75	67.4	675	2	MR 3I	50 - 14 × 160 71 C	4 26.0
0.75	70.1	645	2.12	MR 3I	50 - 19 × 200 80 A	4 25.0
0.75	67.4	675	2.8	MR 3I	51 - 14 × 160 71 C	4 26.0
0.75	70.1	645	2.8	MR 3I	51 - 19 × 200 80 A	4 25.0
0.75	69.8	665	1.9	MR 2I	50 - 14 × 160 80 B	BSR 6 16.5
0.75	69.8	665	2.65	MR 2I	51 - 14 × 160 80 B	BSR 6 16.5
0.75	72.1	640	3.55	MR 2I	63 - 19 × 200 80 A	4 24.3

1) Powers valid for continuous duty S1; increase possible for S2 ... S10 (ch. 2b) in which case  $P_2$  and  $M_2$  increase and  $f_s$  decreases proportionately.  
2) For complete designation when ordering, see ch. 3.

\* Mounting position B5R (see table ch. 2b).

# Gearmotors selection tables

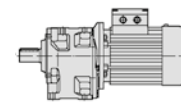


# 3.7

Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$	2)		Gear ratio $i$		
0.75	78.5	580	1.12	MR 3I	40 - 14 × 160	71 C	4	22.3
0.75	78.5	580	1.4	MR 3I	41 - 14 × 160	71 C	4	22.3
0.75	78.0	580	2.36	MR 3I	50 - 14 × 160	71 C	4	22.4
0.75	77.0	590	2.24	MR 3I	50 - 19 × 200	80 A	4	22.7
0.75	78.0	580	3.35	MR 3I	51 - 14 × 160	71 C	4	22.4
0.75	77.0	590	3.15	MR 3I	51 - 19 × 200	80 A	4	22.7
0.75	77.1	600	2.24	MR 2I	50 - 14 × 160	80 B	BSR 6	14.9
0.75	83.4	555	2.24	MR 2I	50 - 14 × 160	80 B	BSR 6	13.8
0.75	77.3	600	1.8	MR 2I	50 - 19 × 200	80 B	6	14.9
0.75	78.6	590	1.9	MR 2I	50 - 14 × 160	71 C	4	22.3
0.75	77.1	600	3	MR 2I	51 - 14 × 160	80 B	BSR 6	14.9
0.75	83.4	555	3.15	MR 2I	51 - 14 × 160	80 B	BSR 6	13.8
0.75	92.1	495	1.18	MR 3I	40 - 14 × 160	71 C	4	19.0
0.75	92.1	495	1.4	MR 3I	41 - 14 × 160	71 C	4	19.0
0.75	86.2	525	2.65	MR 3I	50 - 14 × 160	71 C	4	20.3
0.75	84.2	540	2.5	MR 3I	50 - 19 × 200	80 A	4	20.8
0.75	86.2	525	3.55	MR 3I	51 - 14 × 160	71 C	4	20.3
0.75	84.2	540	3.55	MR 3I	51 - 19 × 200	80 A	4	20.8
0.75	86.5	535	1.06	MR 2I	40 - 14 × 160	80 B	BSR 6	13.3
0.75	86.5	535	1.18	MR 2I	41 - 14 × 160	80 B	BSR 6	13.3
0.75	94.0	495	2.36	MR 2I	50 - 19 × 200	80 B	6	12.2
0.75	94.0	495	3.15	MR 2I	51 - 19 × 200	80 B	6	12.2
0.75	97.4	465	2.8	MR 3I	50 - 19 × 200	80 A	4	18.0
0.75	97.4	465	4	MR 3I	51 - 19 × 200	80 A	4	18.0
0.75	97.8	475	1.25	MR 2I	40 - 14 × 160	80 B	BSR 6	11.8
0.75	97.8	475	1.5	MR 2I	41 - 14 × 160	80 B	BSR 6	11.8
0.75	95.6	485	2.5	MR 2I	50 - 14 × 160	71 C	4	18.3
0.75	95.6	485	3.15	MR 2I	51 - 14 × 160	71 C	4	18.3
0.75	115	395	1.18	MR 3I	40 - 14 × 160	71 C	4	15.2
0.75	108	420	3.15	MR 3I	50 - 19 × 200	80 A	4	16.3
0.75	109	425	1.4	MR 2I	40 - 14 × 160	80 B	BSR 6	10.6
0.75	108	430	1.18	MR 2I	40 - 14 × 160	71 C	4	16.2
0.75	109	425	1.8	MR 2I	41 - 14 × 160	80 B	BSR 6	10.6
0.75	106	435	2.8	MR 2I	50 - 14 × 160	71 C	4	16.5
0.75	117	395	3.35	MR 2I	50 - 14 × 160	71 C	4	14.9
0.75	118	395	2.8	MR 2I	50 - 19 × 200	80 A	4	14.9
0.75	106	435	3.75	MR 2I	51 - 14 × 160	71 C	4	16.5
0.75	132	350	1.6	MR 2I	40 - 14 × 160	71 C	4	13.3
0.75	122	380	2	MR 2I	41 - 14 × 160	80 B	BSR 6	9.41
0.75	132	350	1.8	MR 2I	41 - 14 × 160	71 C	4	13.3
0.75	127	365	3.35	MR 2I	50 - 14 × 160	71 C	4	13.8
0.75	144	320	1.9	MR 2I	40 - 14 × 160	80 B	BSR 6	7.98
0.75	144	320	2.36	MR 2I	41 - 14 × 160	80 B	BSR 6	7.98
0.75	140	330	3.75	MR 2I	50 - 14 × 160	71 C	4	12.5
0.75	143	325	3.55	MR 2I	50 - 19 × 200	80 A	4	12.2
0.75	162	285	1.06	MR 2I	32 - 11 × 140	71 C	BSR 4	10.8
0.75	149	310	1.9	MR 2I	40 - 14 × 160	71 C	4	11.8
0.75	157	295	2.65	MR 2I	41 - 14 × 160	80 B	BSR 6	7.32
0.75	149	310	2.24	MR 2I	41 - 14 × 160	71 C	4	11.8
0.75	154	300	4.25	MR 2I	50 - 14 × 160	71 C	4	11.4
0.75	159	290	4.25	MR 2I	50 - 19 × 200	80 A	4	11.0
0.75	183	255	1.18	MR 2I	32 - 11 × 140	71 C	BSR 4	9.57
0.75	166	280	2.12	MR 2I	40 - 14 × 160	71 C	4	10.6
0.75	186	250	2.36	MR 2I	40 - 14 × 160	71 C	4	9.41
0.75	166	280	2.65	MR 2I	41 - 14 × 160	71 C	4	10.6
0.75	186	250	3	MR 2I	41 - 14 × 160	71 C	4	9.41
0.75	168	275	4.75	MR 2I	50 - 14 × 160	71 C	4	10.4
0.75	176	265	4.75	MR 2I	50 - 19 × 200	80 A	4	9.96
0.75	193	240	5.3	MR 2I	50 - 19 × 200	80 A	4	9.07
0.75	216	215	1.4	MR 2I	32 - 11 × 140	71 C	BSR 4	8.12
0.75	219	210	2.8	MR 2I	40 - 14 × 160	71 C	4	7.98
0.75	219	210	3.55	MR 2I	41 - 14 × 160	71 C	4	7.98
0.75	240	195	1.5	MR 2I	32 - 11 × 140	71 C	BSR 4	7.29
0.75	239	195	3	MR 2I	40 - 14 × 160	71 C	4	7.32
0.75	239	195	4	MR 2I	41 - 14 × 160	71 C	4	7.32
0.75	276	170	1.8	MR 2I	32 - 11 × 140	71 C	BSR 4	6.33
0.75	281	165	3.55	MR 2I	40 - 14 × 160	71 C	4	6.22

Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$	2)		Gear ratio $i$			
0.75	346	135	1.8	MR 2I	32 - 11 × 140	71 C	BSR 4	5.06	
0.75	352	130	3.75	MR 2I	40 - 14 × 160	71 C	4	4.97	
1	8.01	7 560	1.32	MR 3I	100 - 24 × 200	100 LA	BSR 6	144	
1	9.12	6 640	1	MR 3I	81 - 19 × 200	80 C	S3	6	126
1	9.73	6 220	1.7	MR 3I	100 - 24 × 200	100 LA	BSR 6	118	
1	9.73	6 220	2.12	MR 3I	101 - 24 × 200	100 LA	BSR 6	118	
1	11.4	5 320	1.12	MR 3I	80 - 19 × 200	80 C	S3	6	101
1	11.4	5 320	1.5	MR 3I	81 - 19 × 200	80 C	S3	6	101
1	12.0	5 060	2.36	MR 3I	100 - 24 × 200	100 LA	BSR 6	96.2	
1	12.0	5 060	3	MR 3I	101 - 24 × 200	100 LA	BSR 6	96.2	
1	13.9	4 360	1.25	MR 3I	80 - 19 × 200	90 S	BSR 4	126	
1	13.9	4 360	1.5	MR 3I	81 - 19 × 200	90 S	BSR 4	126	
1	14.8	4 100	2.8	MR 3I	100 - 24 × 200	100 LA	BSR 6	77.9	
1	14.8	4 100	3.75	MR 3I	101 - 24 × 200	100 LA	BSR 6	77.9	
1	17.3	3 500	1.7	MR 3I	80 - 19 × 200	90 S	BSR 4	101	
1	17.3	3 500	2.24	MR 3I	81 - 19 × 200	90 S	BSR 4	101	
1	18.0	3 350	3.55	MR 3I	100 - 24 × 200	100 LA	BSR 6	63.8	
1	21.1	2 870	1	MR 3I	63 - 19 × 200	80 C	S3	6	54.5
1	21.1	2 870	1.25	MR 3I	64 - 19 × 200	80 C	S3	6	54.5
1	20.7	2 930	2	MR 3I	80 - 19 × 200	90 S	BSR 4	84.6	
1	20.7	2 930	2.65	MR 3I	81 - 19 × 200	90 S	BSR 4	84.6	
1	21.7	2 790	4.25	MR 3I	100 - 24 × 200	100 LA	BSR 6	53.1	
1	23.5	2 570	1.06	MR 3I	63 - 19 × 200	90 S	BSR 4	74.3	
1	23.5	2 570	1.5	MR 3I	64 - 19 × 200	80 C	S3	6	48.9
1	23.5	2 570	1.32	MR 3I	64 - 19 × 200	90 S	BSR 4	74.3	
1	23.1	2 620	2.24	MR 3I	80 - 19 × 200	80 C	S3	6	49.8
1	23.1	2 620	3	MR 3I	81 - 19 × 200	80 C	S3	6	49.8
1	26.0	2 330	1.25	MR 3I	63 - 19 × 200	80 C	S3	6	44.2
1	24.5	2 470	1.18	MR 3I	63 - 24 × 200	100 LA	BSR 6	46.9	
1	26.0	2 330	1.7	MR 3I	64 - 19 × 200	80 C	S3	6	44.2
1	24.5	2 470	1.6	MR 3I	64 - 24 × 200	100 LA	BSR 6	46.9	
1	26.4	2 290	2.65	MR 3I	80 - 19 × 200	90 S	BSR 4	66.3	
1	26.4	2 290	3.35	MR 3I	81 - 19 × 200	90 S	BSR 4	66.3	
1	29.4	2 060	1.4	MR 3I	63 - 19 × 200	90 S	BSR 4	59.5	
1	29.4	2 060	1.9	MR 3I	64 - 19 × 200	90 S	BSR 4	59.5	
1	29.8	2 030	3	MR 3I	80 - 19 × 200	80 C	S3	6	38.6
1	33.3	1 810	1.12	MR 3I	51 - 19 × 200	80 C	S3	6	34.5
1	32.1	1 880	1.5	MR 3I	63 - 19 × 200	90 S	BSR 4	54.5	
1	33.0	1 830	2.12	MR 3I	64 - 24 × 200	100 LA	BSR 6	34.8	
1	32.1	1 880	1.9	MR 3I	64 - 19 × 200	90 S	BSR 4	54.5	
1	29.8	2 030	3	MR 3I	80 - 19 × 200	90 S	BSR 4	58.7	
1	29.8	2 030	4	MR 3I	81 - 19 × 200	90 S	BSR 4	58.7	
1	37.2	1 630	1.18	MR 3I	51 - 14 × 160	80 B	S3	BSR 4	47.1
1	34.6	1 750	1.12	MR 3I	51 - 19 × 200	90 S	BSR 4	50.6	
1	35.8	1 690	1.7	MR 3I	63 - 19 × 200	90 S	BSR 4	48.9	
1	35.8	1 690	2.24	MR 3I	64 - 19 × 200	90 S	BSR 4	48.9	
1	35.1	1 720	3.35	MR 3I	80 - 19 × 200	90 S	BSR 4	49.8	
1	40.6	1 490	1.32	MR 3I	51 - 14 × 160	80 B	S3	BSR 4	43.1
1	38.3	1 580	1.12	MR 3I	51 - 19 × 200	90 S	BSR 4	45.7	
1	39.6	1 530	1.9	MR 3I	63 - 19 × 200	90 S	BSR 4	44.2	
1	39.6	1 530	2.5	MR 3I	64 - 19 × 200	90 S	BSR 4	44.2	
1	40.2	1 510	3.75	MR 3I	80 - 19 × 200	90 S	BSR 4	43.6	
1	46.4	1 300	1.06	MR 3I	50 - 19 × 200	90 S	BSR 4	37.7	
1	42.3	1 430	1.32	MR 3I	51 - 19 × 200	90 S	BSR 4	41.4	
1	46.4	1 300	1.5	MR 3I	51 - 19 × 200	90 S	BSR 4	37.7	
1	43.5	1 390	2.12	MR 3I	63 - 19 × 200	90 S	BSR 4	40.2	
1	43.5	1 390	2.8	MR 3I	64 - 19 × 200	90 S	BSR 4	40.2	
1	50.7	1 190	1.18	MR 3I	50 - 19 × 200	90 S	BSR 4	34.5	
1	50.7	1 190	1.6	MR 3I	51 - 19 × 200	90 S	BSR 4	34.5	
1	47.4	1 280	2.12	MR 3I	63 - 19 × 200	90 S	BSR 4	36.9	
1	52.8	1 150	2.5	MR 3I	63 - 19 × 200	90 S	BSR 4	33.2	
1	47.4	1 280	2.8	MR 3I	64 - 19 × 200	90 S	BSR 4	36.9	
1	52.8	1 150	3.15	MR 3I	64 - 19 × 200	90 S	BSR 4	33.2	
1	58.7	1 030	1.32	MR 3I	50 - 19 × 200	90 S	BSR 4	29.8	
1	58.7	1 030	1.9	MR 3I	51 - 19 × 200	90 S	BSR 4	29.8	
1	58.4	1 040	2.8	MR 3I	63 - 19 × 200	90 S	BSR 4	30.0	
1	58.4	1 040	3.75	MR 3I	64 - 19 × 200	90 S	BSR 4	30.0	

# Gearmotors selection tables

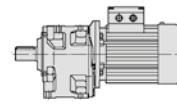


# 3.7

Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$	2)						Gear ratio $i$		
1	61.7	980	1.4	MR	3I	50 - 14	× 160	80 B	S3	B5R	4	28.4
1	61.7	980	1.9	MR	3I	51 - 14	× 160	80 B	S3	B5R	4	28.4
1	64.2	940	3	MR	3I	63 - 19	× 200	90 S		B5R	4	27.2
1	64.2	940	4	MR	3I	64 - 19	× 200	90 S		B5R	4	27.2
1	70.1	865	1.5	MR	3I	50 - 19	× 200	90 S		B5R	4	25.0
1	70.1	865	2.12	MR	3I	51 - 19	× 200	90 S		B5R	4	25.0
1	72.1	855	2.65	MR	2I	63 - 19	× 200	90 S		B5R	4	24.3
1	77.0	785	1.7	MR	3I	50 - 19	× 200	90 S		B5R	4	22.7
1	77.0	785	2.36	MR	3I	51 - 19	× 200	90 S		B5R	4	22.7
1	75.0	805	3.55	MR	3I	63 - 19	× 200	90 S		B5R	4	23.3
1	83.4	725	4	MR	3I	63 - 19	× 200	90 S		B5R	4	21.0
1	77.3	800	1.4	MR	2I	50 - 19	× 200	80 C	S3		6	14.9
1	84.2	720	1.9	MR	3I	50 - 19	× 200	90 S		B5R	4	20.8
1	84.2	720	2.65	MR	3I	51 - 19	× 200	90 S		B5R	4	20.8
1	94.0	655	1.8	MR	2I	50 - 19	× 200	80 C	S3		6	12.2
1	94.0	655	2.36	MR	2I	51 - 19	× 200	80 C	S3		6	12.2
1	92.1	670	3.75	MR	2I	63 - 19	× 200	90 S		B5R	4	19.0
1	97.4	620	2.12	MR	3I	50 - 19	× 200	90 S		B5R	4	18.0
1	97.4	620	3	MR	3I	51 - 19	× 200	90 S		B5R	4	18.0
1	105	590	2.12	MR	2I	50 - 19	× 200	80 C	S3		6	11.0
1	98.2	630	1.7	MR	2I	50 - 24	× 200	100 LA		B5R	6	11.7
1	105	590	2.8	MR	2I	51 - 19	× 200	80 C	S3		6	11.0
1	103	595	4.5	MR	2I	63 - 19	× 200	90 S		B5R	4	16.9
1	108	560	2.36	MR	3I	50 - 19	× 200	90 S		B5R	4	16.3
1	108	560	3.35	MR	3I	51 - 19	× 200	90 S		B5R	4	16.3
1	109	565	1.12	MR	2I	41 - 19	× 160	80 C	S3	B5A	6	10.6
1	115	535	2.36	MR	2I	50 - 19	× 200	80 C	S3		6	9.96
1	119	520	2.24	MR	2I	50 - 24	× 200	100 LA		B5R	6	9.64
1	118	525	2.12	MR	2I	50 - 19	× 200	90 S		B5R	4	14.9
1	119	520	3	MR	2I	51 - 24	× 200	100 LA		B5R	6	9.64
1	132	470	1.18	MR	2I	40 - 14	× 160	80 B	S3	B5R	4	13.3
1	132	470	1.32	MR	2I	41 - 14	× 160	80 B	S3	B5R	4	13.3
1	127	485	2.65	MR	2I	50 - 19	× 200	80 C	S3		6	9.07
1	133	465	2.65	MR	2I	50 - 24	× 200	100 LA		B5R	6	8.67
1	127	485	3.75	MR	2I	51 - 19	× 200	80 C	S3		6	9.07
1	133	465	3.55	MR	2I	51 - 24	× 200	100 LA		B5R	6	8.67
1	136	455	1.32	MR	2I	40 - 19	× 160	80 C	S3	B5A	6	8.46
1	136	455	1.12	MR	2I	40 - 19	× 160	80 B	S3	B5A	4	12.9
1	136	455	1.6	MR	2I	41 - 19	× 160	80 C	S3	B5A	6	8.46
1	143	430	2.65	MR	2I	50 - 19	× 200	90 S		B5R	4	12.2
1	143	430	3.55	MR	2I	51 - 19	× 200	90 S		B5R	4	12.2
1	149	415	1.4	MR	2I	40 - 14	× 160	80 B	S3	B5R	4	11.8
1	153	405	1.9	MR	2I	41 - 19	× 160	80 C	S3	B5A	6	7.50
1	149	415	1.7	MR	2I	41 - 14	× 160	80 B	S3	B5R	4	11.8
1	159	390	3.15	MR	2I	50 - 19	× 200	90 S		B5R	4	11.0
1	166	375	1.6	MR	2I	40 - 14	× 160	80 B	S3	B5R	4	10.6
1	186	330	1.8	MR	2I	40 - 14	× 160	80 B	S3	B5R	4	9.41
1	166	375	1.5	MR	2I	40 - 19	× 160	80 B	S3	B5A	4	10.6
1	186	330	1.7	MR	2I	40 - 19	× 160	80 B	S3	B5A	4	9.41
1	166	375	2	MR	2I	41 - 14	× 160	80 B	S3	B5R	4	10.6
1	186	330	2.24	MR	2I	41 - 14	× 160	80 B	S3	B5R	4	9.41
1	166	375	1.6	MR	2I	41 - 19	× 160	80 B	S3	B5A	4	10.6
1	186	330	2	MR	2I	41 - 19	× 160	80 B	S3	B5A	4	9.41
1	176	350	3.55	MR	2I	50 - 19	× 200	90 S		B5R	4	9.96
1	207	300	2	MR	2I	40 - 19	× 160	80 B	S3	B5A	4	8.46
1	207	300	2.36	MR	2I	41 - 19	× 160	80 B	S3	B5A	4	8.46
1	193	320	4	MR	2I	50 - 19	× 200	90 S		B5R	4	9.07
1	211	295	4.25	MR	2I	50 - 19	× 200	90 S		B5R	4	8.29
1	219	280	2.12	MR	2I	40 - 14	× 160	80 B	S3	B5R	4	7.98
1	233	265	2.24	MR	2I	40 - 19	× 160	80 B	S3	B5A	4	7.50
1	219	280	2.65	MR	2I	41 - 14	× 160	80 B	S3	B5R	4	7.98
1	233	265	2.8	MR	2I	41 - 19	× 160	80 B	S3	B5A	4	7.50
1	244	255	5	MR	2I	50 - 19	× 200	90 S		B5R	4	7.17
1	275	225	2.65	MR	2I	40 - 19	× 160	80 B	S3	B5A	4	6.36
1	275	225	3.35	MR	2I	41 - 19	× 160	80 B	S3	B5A	4	6.36
1	270	230	5.6	MR	2I	50 - 19	× 200	90 S		B5R	4	6.49

Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$	2)						Gear ratio $i$		
1	300	205	2.8	MR	2I	40 - 19	× 160	80 B	S3	B5A	4	5.83
1	300	205	3.55	MR	2I	41 - 19	× 160	80 B	S3	B5A	4	5.83
1	353	175	3.35	MR	2I	40 - 19	× 160	80 B	S3	B5A	4	4.96
1	441	140	3.55	MR	2I	40 - 19	× 160	80 B	S3	B5A	4	3.96
1.5	9.73	9 320	1.18	MR	3I	100 - 24	× 200	112 M		B5R	6	118
1.5	9.73	9 320	1.4	MR	3I	101 - 24	× 200	112 M		B5R	6	118
1.5	12.0	7 590	1.5	MR	3I	100 - 24	× 200	112 M		B5R	6	96.2
1.5	12.0	7 590	2	MR	3I	101 - 24	× 200	112 M		B5R	6	96.2
1.5	12.2	7 450	1.32	MR	3I	100 - 24	× 200	90 L			4	144
1.5	13.6	6 650	1	MR	3I	81 - 24	× 200	112 M		B5R	6	84.3
1.5	13.9	6 540	1	MR	3I	81 - 19	× 200	80 C	S3		4	126
1.5	14.8	6 150	1.9	MR	3I	100 - 24	× 200	112 M		B5R	6	77.9
1.5	14.8	6 150	2.5	MR	3I	101 - 24	× 200	112 M		B5R	6	77.9
1.5	14.8	6 130	1.8	MR	3I	100 - 24	× 200	90 L			4	118
1.5	14.8	6 130	2.12	MR	3I	101 - 24	× 200	90 L			4	118
1.5	17.0	5 330	1.12	MR	3I	80 - 24	× 200	112 M		B5R	6	67.5
1.5	17.3	5 240	1.12	MR	3I	80 - 19	× 200	80 C	S3		4	101
1.5	17.0	5 330	1.5	MR	3I	81 - 24	× 200	112 M		B5R	6	67.5
1.5	17.3	5 240	1.5	MR	3I	81 - 19	× 200	80 C	S3		4	101
1.5	18.2	4 990	2.36	MR	3I	100 - 24	× 200	90 L			4	96.2
1.5	18.2	4 990	3.15	MR	3I	101 - 24	× 200	90 L			4	96.2
1.5	20.7	4 390	1.32	MR	3I	80 - 19	× 200	80 C	S3		4	84.6
1.5	20.8	4 370	1.25	MR	3I	80 - 24	× 200	90 L			4	84.3
1.5	20.7	4 390	1.8	MR	3I	81 - 19	× 200	80 C	S3		4	84.6
1.5	20.8	4 370	1.5	MR	3I	81 - 24	× 200	90 L			4	84.3
1.5	21.7	4 190	2.8	MR	3I	100 - 24	× 200	112 M		B5R	6	53.1
1.5	21.7	4 170	1.4	MR	3I	80 - 24	× 200	112 M		B5R	6	52.9
1.5	21.7	4 170	1.9	MR	3I	81 - 24	× 200	112 M		B5R	6	52.9
1.5	22.5	4 040	2.8	MR	3I	100 - 24	× 200	90 L			4	77.9
1.5	22.5	4 040	3.75	MR	3I	101 - 24	× 200	90 L			4	77.9
1.5	24.5	3 700	1.06	MR	3I	64 - 24	× 200	112 M		B5R	6	46.9
1.5	26.8	3 390	1.06	MR	3I	64 - 24	× 200	112 M		B5R	6	42.9
1.5	26.4	3 440	1.7	MR	3I	80 - 19	× 200	80 C	S3		4	66.3
1.5	25.9	3 500	1.7	MR	3I	80 - 24	× 200	90 L			4	67.5
1.5	26.4	3 440	2.24	MR	3I	81 - 19	× 200	80 C	S3		4	66.3
1.5	25.9	3 500	2.24	MR	3I	81 - 24	× 200	90 L			4	67.5
1.5	25.1	3 620	3.15	MR	3I	100 - 24	× 200	112 M		B5R	6	45.9
1.5	29.4	3 080	0.95	MR	3I	63 - 19	× 200	80 C	S3		4	59.5
1.5	29.8	3 040	1.25	MR	3I	64 - 24	× 200	112 M		B5R	6	38.5
1.5	29.4	3 080	1.25	MR	3I	64 - 19	× 200	80 C	S3		4	59.5
1.5	28.9	3 140	1.9	MR	3I	80 - 24	× 200	112 M		B5R	6	39.8
1.5	28.9	3 140	2.5	MR	3I	81 - 24	× 200	112 M		B5R	6	39.8
1.5	27.5	3 310	3.55	MR	3I	100 - 24	× 200	90 L			4	63.8
1.5	33.0	2 750	1.06	MR	3I	63 - 24	× 200	112 M		B5R	6	34.8
1.5	32.1	2 830	1	MR	3I	63 - 19	× 200	80 C	S3		4	54.5
1.5	33.0	2 750	1.4	MR	3I	64 - 24	× 200	112 M		B5R	6	34.8
1.5	32.1	2 830	1.25	MR	3I	64 - 19	× 200	80 C	S3		4	54.5

# Gearmotors selection tables

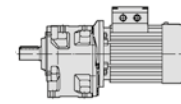


# 3.7

Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$	2)				Gear ratio $i$	
1.5	39.6	2 290	1.25	MR 3I	63 - 19	× 200	80 C S3	4	44.2
1.5	40.8	2 230	1.25	MR 3I	63 - 24	× 200	90 L	4	42.9
1.5	39.6	2 290	1.7	MR 3I	64 - 19	× 200	80 C S3	4	44.2
1.5	40.8	2 230	1.6	MR 3I	64 - 24	× 200	90 L	4	42.9
1.5	40.2	2 260	2.5	MR 3I	80 - 19	× 200	80 C S3	4	43.6
1.5	40.2	2 260	3.35	MR 3I	81 - 19	× 200	80 C S3	4	43.6
1.5	46.4	1 960	1	MR 3I	51 - 19	× 200	80 C S3	4	37.7
1.5	43.5	2 080	1.4	MR 3I	63 - 19	× 200	80 C S3	4	40.2
1.5	45.4	2 000	1.4	MR 3I	63 - 24	× 200	90 L	4	38.5
1.5	43.5	2 080	1.9	MR 3I	64 - 19	× 200	80 C S3	4	40.2
1.5	45.4	2 000	1.9	MR 3I	64 - 24	× 200	90 L	4	38.5
1.5	45.3	2 000	2.8	MR 3I	80 - 19	× 200	80 C S3	4	38.6
1.5	44.0	2 060	2.8	MR 3I	80 - 24	× 200	90 L	4	39.8
1.5	44.0	2 060	3.75	MR 3I	81 - 24	× 200	90 L	4	39.8
1.5	47.4	1 950	1.18	MR 2I	63 - 19	× 200	90 L S3 B5R	6	24.3
1.5	46.9	1 980	2.36	MR 2I	80 - 24	× 200	112 M B5R	6	24.5
1.5	50.7	1 790	1.06	MR 3I	51 - 19	× 200	80 C S3	4	34.5
1.5	47.4	1 920	1.4	MR 3I	63 - 19	× 200	80 C S3	4	36.9
1.5	52.8	1 720	1.7	MR 3I	63 - 19	× 200	80 C S3	4	33.2
1.5	50.2	1 810	1.6	MR 3I	63 - 24	× 200	90 L	4	34.8
1.5	47.4	1 920	1.8	MR 3I	64 - 19	× 200	80 C S3	4	36.9
1.5	52.8	1 720	2.12	MR 3I	64 - 19	× 200	80 C S3	4	33.2
1.5	50.2	1 810	2.12	MR 3I	64 - 24	× 200	90 L	4	34.8
1.5	50.4	1 800	3.15	MR 3I	80 - 24	× 200	90 L	4	34.8
1.5	58.7	1 550	1.25	MR 3I	51 - 19	× 200	80 C S3	4	29.8
1.5	58.4	1 550	1.8	MR 3I	63 - 19	× 200	80 C S3	4	30.0
1.5	55.3	1 640	1.8	MR 3I	63 - 24	× 200	90 L	4	31.7
1.5	58.4	1 550	2.5	MR 3I	64 - 19	× 200	80 C S3	4	30.0
1.5	55.3	1 640	2.36	MR 3I	64 - 24	× 200	90 L	4	31.7
1.5	53.4	1 700	3.35	MR 3I	80 - 19	× 200	80 C S3	4	32.8
1.5	56.8	1 600	3.55	MR 3I	80 - 24	× 200	90 L	4	30.8
1.5	60.5	1 530	1.7	MR 2I	63 - 19	× 200	90 L S3 B5R	6	19.0
1.5	60.5	1 530	2.12	MR 2I	64 - 19	× 200	90 L S3 B5R	6	19.0
1.5	57.3	1 620	3.15	MR 2I	80 - 24	× 200	112 M B5R	6	20.1
1.5	64.2	1 410	2	MR 3I	63 - 19	× 200	80 C S3	4	27.2
1.5	60.1	1 510	1.8	MR 3I	63 - 24	× 200	90 L	4	29.1
1.5	64.2	1 410	2.65	MR 3I	64 - 19	× 200	80 C S3	4	27.2
1.5	60.1	1 510	2.24	MR 3I	64 - 24	× 200	90 L	4	29.1
1.5	70.1	1 290	1.06	MR 3I	50 - 19	× 200	80 C S3	4	25.0
1.5	70.1	1 290	1.4	MR 3I	51 - 19	× 200	80 C S3	4	25.0
1.5	67.0	1 360	2.12	MR 3I	63 - 24	× 200	90 L	4	26.1
1.5	74.1	1 220	2.24	MR 3I	63 - 24	× 200	90 L	4	23.6
1.5	67.0	1 360	2.65	MR 3I	64 - 24	× 200	90 L	4	26.1
1.5	74.1	1 220	3.15	MR 3I	64 - 24	× 200	90 L	4	23.6
1.5	71.0	1 310	1.7	MR 2I	63 - 24	× 200	112 M B5R	6	16.2
1.5	72.1	1 280	1.8	MR 2I	63 - 19	× 200	80 C S3	4	24.3
1.5	71.4	1 300	3.55	MR 2I	80 - 24	× 200	90 L	4	24.5
1.5	77.0	1 180	1.12	MR 3I	50 - 19	× 200	80 C S3	4	22.7
1.5	77.0	1 180	1.6	MR 3I	51 - 19	× 200	80 C S3	4	22.7
1.5	75.0	1 210	2.36	MR 3I	63 - 19	× 200	80 C S3	4	23.3
1.5	83.4	1 090	2.65	MR 3I	63 - 19	× 200	80 C S3	4	21.0
1.5	81.5	1 110	2.5	MR 3I	63 - 24	× 200	90 L	4	21.5
1.5	75.0	1 210	3.15	MR 3I	64 - 19	× 200	80 C S3	4	23.3
1.5	83.4	1 090	3.55	MR 3I	64 - 19	× 200	80 C S3	4	21.0
1.5	81.5	1 110	3.35	MR 3I	64 - 24	× 200	90 L	4	21.5
1.5	84.2	1 080	1.25	MR 3I	50 - 19	× 200	80 C S3	4	20.8
1.5	84.2	1 080	1.7	MR 3I	51 - 19	× 200	80 C S3	4	20.8
1.5	94.0	985	1.18	MR 2I	50 - 19	× 200	90 L S3 B5R	6	12.2
1.5	94.0	985	1.6	MR 2I	51 - 19	× 200	90 L S3 B5R	6	12.2
1.5	90.6	1 020	2.5	MR 2I	63 - 24	× 200	112 M B5R	6	12.7
1.5	92.1	1 010	2.5	MR 2I	63 - 19	× 200	80 C S3	4	19.0
1.5	90.6	1 020	3	MR 2I	64 - 24	× 200	112 M B5R	6	12.7
1.5	92.1	1 010	3.15	MR 2I	64 - 19	× 200	80 C S3	4	19.0
1.5	97.4	930	1.4	MR 3I	50 - 19	× 200	80 C S3	4	18.0
1.5	97.4	930	2	MR 3I	51 - 19	× 200	80 C S3	4	18.0
1.5	95.2	955	3	MR 3I	63 - 24	× 200	90 L	4	18.4
1.5	106	855	3.35	MR 3I	63 - 24	× 200	90 L	4	16.5
1.5	105	885	1.4	MR 2I	50 - 19	× 200	90 L S3 B5R	6	11.0
1.5	98.2	945	1.18	MR 2I	50 - 24	× 200	112 M B5R	6	11.7
1.5	105	885	1.9	MR 2I	51 - 19	× 200	90 L S3 B5R	6	11.0
1.5	103	895	3	MR 2I	63 - 19	× 200	80 C S3	4	16.9

Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$	2)				Gear ratio $i$	
1.5	108	845	1.6	MR 3I	50 - 19	× 200	80 C S3	4	16.3
1.5	108	845	2.24	MR 3I	51 - 19	× 200	80 C S3	4	16.3
1.5	115	800	1.6	MR 2I	50 - 19	× 200	90 L S3 B5R	6	9.96
1.5	119	775	1.5	MR 2I	50 - 24	× 200	112 M B5R	6	9.64
1.5	118	785	1.4	MR 2I	50 - 19	× 200	80 C S3	4	14.9
1.5	115	800	2.24	MR 2I	51 - 19	× 200	90 L S3 B5R	6	9.96
1.5	119	775	2	MR 2I	51 - 24	× 200	112 M B5R	6	9.64
1.5	113	820	3.35	MR 2I	63 - 24	× 200	112 M B5R	6	10.2
1.5	115	805	3.35	MR 2I	63 - 19	× 200	80 C S3	4	15.2
1.5	108	860	2.65	MR 2I	63 - 24	× 200	90 L	4	16.2
1.5	133	700	1.8	MR 2I	50 - 24	× 200	112 M B5R	6	8.67
1.5	133	700	2.36	MR 2I	51 - 24	× 200	112 M B5R	6	8.67
1.5	123	750	3.55	MR 2I	63 - 19	× 200	80 C S3	4	14.2
1.5	147	630	2	MR 2I	50 - 24	× 200	112 M B5R	6	7.85
1.5	143	650	1.8	MR 2I	50 - 19	× 200	80 C S3	4	12.2
1.5	147	630	2.8	MR 2I	51 - 24	× 200	112 M B5R	6	7.85
1.5	143	650	2.36	MR 2I	51 - 19	× 200	80 C S3	4	12.2
1.5	138	675	4	MR 2I	63 - 19	× 200	80 C S3	4	12.7
1.5	138	670	3.75	MR 2I	63 - 24	× 200	90 L	4	12.7
1.5	161	575	2.24	MR 2I	50 - 24	× 200	112 M B5R	6	7.14
1.5	159	580	2.12	MR 2I	50 - 19	× 200	80 C S3	4	11.0
1.5	149	620	1.7	MR 2I	50 - 24	× 200	90 L	4	11.7
1.5	161	575	3.15	MR 2I	51 - 24	× 200	112 M B5R	6	7.14
1.5	159	580	2.8	MR 2I	51 - 19	× 200	80 C S3	4	11.0
1.5	152	610	4.5	MR 2I	63 - 19	× 200	80 C S3	4	11.5
1.5	155	600	4.25	MR 2I	63 - 24	× 200	90 L	4	11.3
1.5	166	560	1	MR 2I	40 - 19	× 160	80 C S3 B5A	4	10.6
1.5	186	500	1.12	MR 2I	40 - 19	× 160	80 C S3 B5A	4	9.41
1.5	166	560	1.12	MR 2I	41 - 19	× 160	80 C S3 B5A	4	10.6
1.5	186	500	1.4	MR 2I	41 - 19	× 160	80 C S3 B5A	4	9.41
1.5	176	525	2.36	MR 2I	50 - 19	× 200	80 C S3	4	9.96
1.5	182	510	2.24	MR 2I	50 - 24	× 200	90 L	4	9.64
1.5	176	525	3.35	MR 2I	51 - 19	× 200	80 C S3	4	9.96
1.5	182	510	3	MR 2I	51 - 24	× 200	90 L	4	9.64
1.5	207	450	1.32	MR 2I	40 - 19	× 160	80 C S3 B5A	4	8.46
1.5	207	450	1.6	MR 2I	41 - 19	× 160	80 C S3 B5A	4	8.46
1.5	193	480	2.65	MR 2I	50 - 19	× 200	80 C S3	4	9.07
1.5	211	440	2.8	MR 2I	50 - 19	× 200	80 C S3	4	8.29
1.5	202	460	2.65	MR 2I	50 - 24	× 200	90 L	4	8.67
1.5	193	480	3.75	MR 2I	51 - 19	× 200	80 C S3	4	9.07
1.5	202	460	3.55	MR 2I	51 - 24	× 200	90 L	4	8.67
1.5	233	395	1.5	MR 2I	40 - 19	× 160	80 C S3 B5A	4	7.50
1.5	233	395	1.9	MR 2I	41 - 19	× 160	80 C S3 B5A	4	7.50
1.5	223	415	3	MR 2I	50 - 24	× 200	90 L	4	7.85
1.5	223	415	4	MR 2I	51 - 24	× 200	90 L	4	7.85
1.5	244	380	3.35	MR 2I	50 - 19	× 200	80 C S3	4	7.17
1.5	245	380	3.35	MR 2I	50 - 24	× 200	90 L	4	7.14
1.5	275	335	1.7	MR 2I	40 - 19	× 160	80 C S3 B5A	4	6.36
1.5	275	335	2.24	MR 2I	41 - 19	× 160	80 C S3 B5A	4	6.36
1.5	270	345	3.55	MR 2I	50 - 19	× 200	80 C S3	4	6.49
1.5	268	345	3.55	MR 2I	50 - 24	× 200	90 L	4	6.53
1.5	300	310	1.9	MR 2I	40 - 19	× 160	80 C S3 B5A	4	5.83
1.5	300	310	2.36	MR 2I	41 - 19	× 160	80 C S3 B5A	4	5.83
1.5	310	300	4	MR 2I	50 - 24	× 200	90 L	4	5.65
1.5	353	265	2.24	MR 2I	40 - 19	× 160	80 C S3 B5A	4	4.96
1.5	353	265	2.65	MR 2I	41 - 19	× 160	80 C S3 B5A	4	4.96

# Gearmotors selection tables



# 3.7

Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$		Gear ratio $i$	Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$		Gear ratio $i$				
				2)						2)					
2	12.0	10 050	1.06	MR 3I 100 - 28 × 250	112 MB	6	95.7	2	55.3	2 190	1.32	MR 3I 63 - 24 × 200	90 LB	4	31.7
2	12.0	10 100	1.18	MR 3I 100 - 24 × 200	90 LC S3	6	96.2	2	55.3	2 190	1.8	MR 3I 64 - 24 × 200	90 LB	4	31.7
2	12.0	10 050	1.32	MR 3I 101 - 28 × 250	112 MB	6	95.7	2	56.8	2 130	2.65	MR 3I 80 - 24 × 200	90 LB	4	30.8
2	12.0	10 100	1.5	MR 3I 101 - 24 × 200	90 LC S3	6	96.2	2	56.8	2 130	3.55	MR 3I 81 - 24 × 200	90 LB	4	30.8
2	12.2	9 930	1	MR 3I 100 - 24 × 200	90 LB	4	144	2	62.6	1 930	1.5	MR 3I 63 - 24 × 200	90 LC S3	6	18.4
2	12.3	9 860	2.36	MR 3I 125 - 28 × 250	112 MB	6	93.7	2	60.1	2 010	1.32	MR 3I 63 - 24 × 200	90 LB	4	29.1
2	12.3	9 860	3.15	MR 3I 126 - 28 × 250	112 MB	6	93.7	2	62.6	1 930	2	MR 3I 64 - 24 × 200	90 LC S3	6	18.4
2	14.8	8 200	1.4	MR 3I 100 - 28 × 250	112 MB	6	77.9	2	60.1	2 010	1.7	MR 3I 64 - 24 × 200	90 LB	4	29.1
2	14.8	8 200	1.4	MR 3I 100 - 24 × 200	90 LC S3	6	77.9	2	62.2	1 940	3	MR 3I 80 - 28 × 250	112 MB	6	18.5
2	14.8	8 200	1.9	MR 3I 101 - 28 × 250	112 MB	6	77.9	2	64.3	1 920	2.8	MR 2I 80 - 24 × 200	90 LC S3	6	17.9
2	14.8	8 200	1.9	MR 3I 101 - 24 × 200	90 LC S3	6	77.9	2	70.1	1 730	1.06	MR 3I 51 - 19 × 200	90 LB	B5R 4	25.0
2	14.8	8 170	1.32	MR 3I 100 - 24 × 200	90 LB	4	118	2	67.0	1 810	1.6	MR 3I 63 - 24 × 200	90 LB	4	26.1
2	14.8	8 170	1.6	MR 3I 101 - 24 × 200	90 LB	4	118	2	74.1	1 630	1.7	MR 3I 63 - 24 × 200	90 LB	4	23.6
2	15.5	7 820	3	MR 3I 125 - 28 × 250	112 MB	6	74.4	2	67.0	1 810	2	MR 3I 64 - 24 × 200	90 LB	4	26.1
2	15.5	7 820	4	MR 3I 126 - 28 × 250	112 MB	6	74.4	2	74.1	1 630	2.36	MR 3I 64 - 24 × 200	90 LB	4	23.6
2	17.0	7 110	1.06	MR 3I 81 - 24 × 200	90 LC S3	6	67.5	2	67.0	1 810	3.15	MR 3I 80 - 24 × 200	90 LB	4	26.1
2	18.2	6 650	1.8	MR 3I 100 - 24 × 200	90 LB	4	96.2	2	74.6	1 620	3.55	MR 3I 80 - 24 × 200	90 LB	4	23.5
2	18.2	6 650	2.36	MR 3I 101 - 24 × 200	90 LB	4	96.2	2	72.1	1 710	1.32	MR 2I 63 - 19 × 200	90 LB	B5R 4	24.3
2	18.8	6 440	3.55	MR 3I 125 - 28 × 250	112 MB	6	61.2	2	71.4	1 730	2.65	MR 2I 80 - 24 × 200	90 LB	4	24.5
2	21.6	5 600	1.4	MR 3I 81 - 28 × 250	112 MB	6	53.2	2	77.0	1 570	1.18	MR 3I 51 - 19 × 200	90 LB	B5R 4	22.7
2	20.8	5 830	1.12	MR 3I 81 - 24 × 200	90 LB	4	84.3	2	81.5	1 480	1.9	MR 3I 63 - 24 × 200	90 LB	4	21.5
2	20.1	6 010	1.9	MR 3I 100 - 28 × 250	112 MB	6	57.1	2	81.5	1 480	2.5	MR 3I 64 - 24 × 200	90 LB	4	21.5
2	21.7	5 590	2.12	MR 3I 100 - 24 × 200	90 LC S3	6	53.1	2	79.4	1 560	3.35	MR 2I 80 - 28 × 250	112 MB	6	14.5
2	20.1	6 010	2.36	MR 3I 101 - 28 × 250	112 MB	6	57.1	2	79.4	1 560	3.35	MR 2I 80 - 24 × 200	90 LC S3	6	14.5
2	21.7	5 590	2.8	MR 3I 101 - 24 × 200	90 LC S3	6	53.1	2	84.2	1 440	1.32	MR 3I 51 - 19 × 200	90 LB	B5R 4	20.8
2	20.8	5 820	4	MR 3I 125 - 28 × 250	112 MB	6	55.3	2	90.1	1 370	1.6	MR 2I 63 - 28 × 250	112 MB	6	12.8
2	21.7	5 560	1.06	MR 3I 80 - 24 × 200	90 LC S3	6	52.9	2	92.1	1 340	1.9	MR 2I 63 - 19 × 200	90 LB	B5R 4	19.0
2	21.7	5 560	1.4	MR 3I 81 - 24 × 200	90 LC S3	6	52.9	2	92.1	1 340	2.36	MR 2I 64 - 19 × 200	90 LB	B5R 4	19.0
2	22.5	5 390	2.12	MR 3I 100 - 24 × 200	90 LB	4	77.9	2	87.3	1 420	3.55	MR 2I 80 - 24 × 200	90 LB	4	20.1
2	22.5	5 390	2.8	MR 3I 101 - 24 × 200	90 LB	4	77.9	2	97.4	1 240	1.06	MR 3I 50 - 19 × 200	90 LB	B5R 4	18.0
2	25.9	4 670	1.25	MR 3I 80 - 24 × 200	90 LB	4	67.5	2	97.4	1 240	1.5	MR 3I 51 - 19 × 200	90 LB	B5R 4	18.0
2	25.9	4 670	1.7	MR 3I 81 - 24 × 200	90 LB	4	67.5	2	95.2	1 270	2.24	MR 3I 63 - 24 × 200	90 LB	4	18.4
2	26.7	4 530	2.65	MR 3I 100 - 28 × 250	112 MB	6	43.1	2	106	1 140	2.5	MR 3I 63 - 24 × 200	90 LB	4	16.5
2	25.1	4 830	2.36	MR 3I 100 - 24 × 200	90 LC S3	6	45.9	2	95.2	1 270	3	MR 3I 64 - 24 × 200	90 LB	4	18.4
2	24.4	4 960	3.15	MR 3I 101 - 28 × 250	112 MB	6	47.1	2	106	1 140	3.35	MR 3I 64 - 24 × 200	90 LB	4	16.5
2	28.9	4 180	1.4	MR 3I 80 - 24 × 200	90 LC S3	6	39.8	2	103	1 190	2.24	MR 2I 63 - 19 × 200	90 LB	B5R 4	16.9
2	28.9	4 180	1.9	MR 3I 81 - 24 × 200	90 LC S3	6	39.8	2	103	1 190	2.8	MR 2I 64 - 19 × 200	90 LB	B5R 4	16.9
2	27.5	4 410	2.65	MR 3I 100 - 24 × 200	90 LB	4	63.8	2	108	1 120	1.18	MR 3I 50 - 19 × 200	90 LB	B5R 4	16.3
2	27.5	4 410	3.55	MR 3I 101 - 24 × 200	90 LB	4	63.8	2	108	1 120	1.7	MR 3I 51 - 19 × 200	90 LB	B5R 4	16.3
2	33.0	3 670	1.06	MR 3I 64 - 24 × 200	90 LC S3	6	34.8	2	119	1 040	1.12	MR 2I 50 - 24 × 200	90 LC S3	6	9.64
2	29.7	4 070	1.4	MR 3I 80 - 24 × 200	90 LB	4	58.8	2	118	1 050	1.06	MR 2I 50 - 19 × 200	90 LB	B5R 4	14.9
2	33.1	3 660	1.6	MR 3I 80 - 24 × 200	90 LB	4	52.9	2	119	1 040	1.5	MR 2I 51 - 24 × 200	90 LC S3	6	9.64
2	29.7	4 070	1.8	MR 3I 81 - 24 × 200	90 LB	4	58.8	2	115	1 070	2.5	MR 2I 63 - 19 × 200	90 LB	B5R 4	15.2
2	33.1	3 660	2.12	MR 3I 81 - 24 × 200	90 LB	4	52.9	2	108	1 140	2	MR 2I 63 - 24 × 200	90 LB	4	16.2
2	30.2	4 010	3	MR 3I 100 - 24 × 200	90 LB	4	58.0	2	115	1 070	2.8	MR 2I 63 - 28 × 250	112 MB	6	10.0
2	33.0	3 670	3.15	MR 3I 100 - 24 × 200	90 LB	4	53.1	2	115	1 070	3.35	MR 2I 64 - 19 × 200	90 LB	B5R 4	15.2
2	33.5	3 610	1	MR 3I 64 - 24 × 200	90 LB	4	52.2	2	133	930	1.32	MR 2I 50 - 24 × 200	90 LC S3	6	8.67
2	37.3	3 240	1.18	MR 3I 64 - 24 × 200	90 LB	4	46.9	2	133	930	1.8	MR 2I 51 - 24 × 200	90 LC S3	6	8.67
2	37.3	3 240	1.8	MR 3I 80 - 24 × 200	90 LB	4	46.9	2	123	1 000	2.65	MR 2I 63 - 19 × 200	90 LB	B5R 4	14.2
2	37.3	3 240	2.36	MR 3I 81 - 24 × 200	90 LB	4	46.9	2	123	1 000	3.35	MR 2I 64 - 19 × 200	90 LB	B5R 4	14.2
2	36.9	3 280	3.55	MR 3I 100 - 28 × 250	112 MB	6	31.2	2	147	845	1.5	MR 2I 50 - 24 × 200	90 LC S3	6	7.85
2	36.0	3 370	3.55	MR 3I 100 - 24 × 200	90 LC S3	6	32.0	2	143	865	1.32	MR 2I 50 - 19 × 200	90 LB	B5R 4	12.2
2	40.8	2 970	1.18	MR 3I 64 - 24 × 200	90 LB	4	42.9	2	147	845	2.12	MR 2I 51 - 24 × 200	90 LC S3	6	7.85
2	42.0	2 880	2	MR 3I 80 - 28 × 250	112 MB	6	27.4	2	143	865	1.8	MR 2I 51 - 19 × 200	90 LB	B5R 4	12.2
2	42.0	2 880	2.65	MR 3I 81 - 28 × 250	112 MB	6	27.4	2	138	895	2.8	MR 2I 63 - 24 × 200	90 LB	4	12.7
2	38.1	3 170	3.75	MR 3I 100 - 24 × 200	90 LB	4	45.9	2	138	895	3.35	MR 2I 64 - 24 × 200	90 LB	4	12.7
2	45.4	2 670	1.06	MR 3I 63 - 24 × 200	90 LB	4	38.5	2	159	775	1.6	MR 2I 50 - 19 × 200	90 LB	B5R 4	11.0
2	45.4	2 670	1.4	MR 3I 64 - 24 × 200	90 LB	4	38.5	2	149	825	1.32	MR 2I 50 - 24 × 200	90 LB	4	11.7
2	44.0	2 750	2.12	MR 3I 80 - 24 × 200	90 LB	4	39.8	2	159	775	2.12	MR 2I 51 - 19 × 200	90 LB	B5R 4	11.0
2	44.0	2 750	2.8	MR 3I 81 - 24 × 200	90 LB	4	39.8	2	155	800	3.15	MR 2I 63 - 24 × 200	90 LB	4	11.3
2	45.6	2 660	4.25	MR 3I 100 - 24 × 200	90 LB	4	38.4	2	155	800	4	MR 2I 64 - 24 × 200	90 LB	4	11.3
2	50.2	2 410	1.18	MR 3I 63 - 24 × 200	90 LB	4	34.8	2	176	705	1.8	MR 2I 50 - 19 × 200	90 LB	B5R 4	9.96
2	50.2	2 410	1.6	MR 3I 64 - 24 × 200	90 LB	4	34.8	2	182	680	1.7	MR 2I 50 - 24 × 200	90 LB	4	9.64
2	50.4	2 400	2.36	MR 3I 80 - 24 × 200	90 LB	4	34.8	2	176	705	2.5	MR 2I 51 - 19 × 200	90 LB	B5R 4	9.96
2	50.4	2 400	3.15	MR 3I 81 - 24 × 200	90 LB	4	34.8	2	182	680	2.24	MR 2I 51 - 24 × 200	90 LB	4	9.64
									172	715	3.75	MR 2I 63 - 24 × 200	90 LB	4	10.2

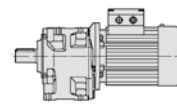
Motor (cat. TX) with efficiency value not according to IE3 class (IEC 60034-30); the nominal power and nameplate data refer to intermittent duty S3 70%.

1) Powers valid for continuous duty S1; increase possible for S2 ... S10 (ch. 2b) in which case  $P_2$  and  $M_2$  increase and  $f_s$  decreases proportionately.

2) For complete designation when ordering, see ch. 3.a

\* Mounting position B5R (see table ch. 2b).

# Gearmotors selection tables



# 3.7

Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$	2)		Gear ratio $i$
2	193	640	2	MR 2I 50 - 19 × 200	90 LB	B5R 4 9.07
2	211	585	2.12	MR 2I 50 - 19 × 200	90 LB	B5R 4 8.29
2	202	610	2	MR 2I 50 - 24 × 200	90 LB	4 8.67
2	193	640	2.8	MR 2I 51 - 19 × 200	90 LB	B5R 4 9.07
2	211	585	3	MR 2I 51 - 19 × 200	90 LB	B5R 4 8.29
2	202	610	2.65	MR 2I 51 - 24 × 200	90 LB	4 8.67
2	191	650	4	MR 2I 63 - 24 × 200	90 LB	4 9.18
2	210	590	4.5	MR 2I 63 - 24 × 200	90 LB	4 8.34
2	223	555	2.24	MR 2I 50 - 24 × 200	90 LB	4 7.85
2	223	555	3.15	MR 2I 51 - 24 × 200	90 LB	4 7.85
2	245	505	2.5	MR 2I 50 - 24 × 200	90 LB	4 7.14
2	245	505	3.55	MR 2I 51 - 24 × 200	90 LB	4 7.14
2	268	460	2.65	MR 2I 50 - 24 × 200	90 LB	4 6.53
2	268	460	3.75	MR 2I 51 - 24 × 200	90 LB	4 6.53
2	310	400	3.15	MR 2I 50 - 24 × 200	90 LB	4 5.65
2	342	360	3.35	MR 2I 50 - 24 × 200	90 LB	4 5.11
2	427	290	3.55	MR 2I 50 - 24 × 200	90 LB	4 4.10
2.5	7.69	19 650	1	MR 3I 125 - 28 × 250	100 LB S3	6 150
2.5	9.82	15 400	1.4	MR 3I 125 - 28 × 250	100 LB S3	6 117
2.5	9.82	15 400	1.7	MR 3I 126 - 28 × 250	100 LB S3	6 117
2.5	9.82	15 400	2.5	MR 3I 140 - 28 × 250	100 LB S3	6 117
2.5	12.0	12 600	1.06	MR 3I 101 - 28 × 250	100 LB S3	6 95.7
2.5	12.0	12 550	3.35	MR 3I 140 - 28 × 250	100 LB S3	6 95.5
2.5	12.3	12 350	1.9	MR 3I 125 - 28 × 250	100 LB S3	6 93.7
2.5	12.3	12 350	2.5	MR 3I 126 - 28 × 250	100 LB S3	6 93.7
2.5	14.8	10 250	1.12	MR 3I 100 - 28 × 250	100 LB S3	6 77.9
2.5	14.8	10 250	1.5	MR 3I 101 - 28 × 250	100 LB S3	6 77.9
2.5	14.8	10 200	1.06	MR 3I 100 - 24 × 200	90 LB S3	4 118
2.5	14.8	10 200	1.32	MR 3I 101 - 24 × 200	90 LB S3	4 118
2.5	15.5	9 780	2.36	MR 3I 125 - 28 × 250	100 LB S3	6 74.4
2.5	15.5	9 780	3.15	MR 3I 126 - 28 × 250	100 LB S3	6 74.4
2.5	18.2	8 310	1.4	MR 3I 100 - 24 × 200	90 LB S3	4 96.2
2.5	18.2	8 310	1.9	MR 3I 101 - 24 × 200	90 LB S3	4 96.2
2.5	18.8	8 050	3	MR 3I 125 - 28 × 250	100 LB S3	6 61.2
2.5	21.6	7 000	1.12	MR 3I 81 - 28 × 250	100 LB S3	6 53.2
2.5	20.1	7 520	1.5	MR 3I 100 - 28 × 250	100 LB S3	6 57.1
2.5	20.1	7 520	1.9	MR 3I 101 - 28 × 250	100 LB S3	6 57.1
2.5	20.8	7 270	3.15	MR 3I 125 - 28 × 250	100 LB S3	6 55.3
2.5	22.5	6 740	1.7	MR 3I 100 - 24 × 200	90 LB S3	4 77.9
2.5	22.5	6 740	2.24	MR 3I 101 - 24 × 200	90 LB S3	4 77.9
2.5	22.9	6 610	3.55	MR 3I 125 - 28 × 250	100 LB S3	6 50.2
2.5	25.9	5 840	1	MR 3I 80 - 24 × 200	90 LB S3	4 67.5
2.5	25.9	5 840	1.32	MR 3I 81 - 24 × 200	90 LB S3	4 67.5
2.5	26.7	5 670	2.12	MR 3I 100 - 28 × 250	100 LB S3	6 43.1
2.5	26.7	5 670	2.8	MR 3I 101 - 28 × 250	100 LB S3	6 43.1
2.5	27.6	5 480	1.06	MR 3I 80 - 28 × 250	100 LB S3	6 41.7
2.5	27.6	5 480	1.4	MR 3I 81 - 28 × 250	100 LB S3	6 41.7
2.5	27.5	5 510	2.12	MR 3I 100 - 24 × 200	90 LB S3	4 63.8
2.5	27.5	5 510	2.8	MR 3I 101 - 24 × 200	90 LB S3	4 63.8
2.5	29.7	5 090	1.12	MR 3I 80 - 24 × 200	90 LB S3	4 58.8
2.5	33.1	4 570	1.32	MR 3I 80 - 24 × 200	90 LB S3	4 52.9
2.5	29.7	5 090	1.4	MR 3I 81 - 24 × 200	90 LB S3	4 58.8
2.5	33.1	4 570	1.7	MR 3I 81 - 24 × 200	90 LB S3	4 52.9
2.5	30.2	5 020	2.36	MR 3I 100 - 24 × 200	90 LB S3	4 58.0
2.5	33.0	4 590	2.5	MR 3I 100 - 24 × 200	90 LB S3	4 53.1
2.5	30.2	5 020	3.15	MR 3I 101 - 24 × 200	90 LB S3	4 58.0
2.5	33.0	4 590	3.55	MR 3I 101 - 24 × 200	90 LB S3	4 53.1
2.5	37.3	4 050	1.4	MR 3I 80 - 24 × 200	90 LB S3	4 46.9
2.5	37.3	4 050	1.9	MR 3I 81 - 24 × 200	90 LB S3	4 46.9
2.5	36.9	4 100	2.8	MR 3I 100 - 28 × 250	100 LB S3	6 31.2
2.5	42.0	3 600	1.6	MR 3I 80 - 28 × 250	100 LB S3	6 27.4
2.5	42.0	3 600	2.12	MR 3I 81 - 28 × 250	100 LB S3	6 27.4
2.5	38.1	3 970	3	MR 3I 100 - 24 × 200	90 LB S3	4 45.9

Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$	2)		Gear ratio $i$
2.5	45.4	3 330	1.12	MR 3I 64 - 24 × 200	90 LB S3	4 38.5
2.5	44.0	3 440	1.7	MR 3I 80 - 24 × 200	90 LB S3	4 39.8
2.5	44.0	3 440	2.24	MR 3I 81 - 24 × 200	90 LB S3	4 39.8
2.5	45.6	3 320	3.35	MR 3I 100 - 24 × 200	90 LB S3	4 38.4
2.5	50.2	3 010	0.95	MR 3I 63 - 24 × 200	90 LB S3	4 34.8
2.5	50.2	3 010	1.32	MR 3I 64 - 24 × 200	90 LB S3	4 34.8
2.5	50.4	3 000	1.9	MR 3I 80 - 24 × 200	90 LB S3	4 34.8
2.5	50.4	3 000	2.5	MR 3I 81 - 24 × 200	90 LB S3	4 34.8
2.5	50.0	3 020	3.75	MR 3I 100 - 24 × 200	90 LB S3	4 35.0
2.5	55.3	2 740	1.06	MR 3I 63 - 24 × 200	90 LB S3	4 31.7
2.5	55.3	2 740	1.4	MR 3I 64 - 24 × 200	90 LB S3	4 31.7
2.5	56.8	2 660	2.12	MR 3I 80 - 24 × 200	90 LB S3	4 30.8
2.5	56.8	2 660	2.8	MR 3I 81 - 24 × 200	90 LB S3	4 30.8
2.5	54.7	2 760	4	MR 3I 100 - 24 × 200	90 LB S3	4 32.0
2.5	60.1	2 520	1.06	MR 3I 63 - 24 × 200	90 LB S3	4 29.1
2.5	60.1	2 520	1.4	MR 3I 64 - 24 × 200	90 LB S3	4 29.1
2.5	62.2	2 430	2.36	MR 3I 80 - 28 × 250	100 LB S3	6 18.5
2.5	62.2	2 430	3.15	MR 3I 81 - 28 × 250	100 LB S3	6 18.5
2.5	67.0	2 260	1.25	MR 3I 63 - 24 × 200	90 LB S3	4 26.1
2.5	74.1	2 040	1.4	MR 3I 63 - 24 × 200	90 LB S3	4 23.6
2.5	67.0	2 260	1.6	MR 3I 64 - 24 × 200	90 LB S3	4 26.1
2.5	74.1	2 040	1.8	MR 3I 64 - 24 × 200	90 LB S3	4 23.6
2.5	67.0	2 260	2.5	MR 3I 80 - 24 × 200	90 LB S3	4 26.1
2.5	74.6	2 030	3.75	MR 3I 81 - 24 × 200	90 LB S3	4 23.5
2.5	72.1	2 140	1.06	MR 2I 63 - 19 × 200	90 LB S3 B5R 4	24.3
2.5	70.8	2 180	2.36	MR 2I 80 - 28 × 250	100 LB S3	6 16.3
2.5	71.4	2 160	2.12	MR 2I 80 - 24 × 200	90 LB S3	4 24.5
2.5	81.5	1 860	1.5	MR 3I 63 - 24 × 200	90 LB S3	4 21.5
2.5	81.5	1 860	2	MR 3I 64 - 24 × 200	90 LB S3	4 21.5
2.5	79.4	1 950	2.8	MR 2I 80 - 28 × 250	100 LB S3	6 14.5
2.5	79.4	1 950	3.55	MR 2I 81 - 28 × 250	100 LB S3	6 14.5
2.5	85.8	1 760	3.15	MR 3I 80 - 24 × 200	90 LB S3	4 20.4
2.5	92.1	1 680	1.5	MR 2I 63 - 19 × 200	90 LB S3 B5R 4	19.0
2.5	92.1	1 680	1.8	MR 2I 64 - 19 × 200	90 LB S3 B5R 4	19.0
2.5	87.3	1 770	2.8	MR 2I 80 - 24 × 200	90 LB S3	4 20.1
2.5	87.3	1 770	3.55	MR 2I 81 - 24 × 200	90 LB S3	4 20.1
2.5	95.2	1 590	1.8	MR 3I 63 - 24 × 200	90 LB S3	4 18.4
2.5	106	1 430	2	MR 3I 63 - 24 × 200	90 LB S3	4 16.5
2.5	95.2	1 590	2.36	MR 3I 64 - 24 × 200	90 LB S3	4 18.4
2.5	106	1 430	2.65	MR 3I 64 - 24 × 200	90 LB S3	4 16.5
2.5	103	1 490	1.8	MR 2I 63 - 19 × 200	90 LB S3 B5R 4	16.9
2.5	103	1 490	2.24	MR 2I 64 - 19 × 200	90 LB S3 B5R 4	16.9
2.5	97.9	1 580	3.35	MR 2I 80 - 24 × 200	90 LB S3	4 17.9
2.5	119	1 290	1.18	MR 2I 51 - 24 × 200	100 LB S3 B5R 6	9.64
2.5	115	1 340	2	MR 2I 63 - 19 × 200	90 LB S3 B5R 4	15.2
2.5	108	1 430	1.6	MR 2I 63 - 24 × 200	90 LB S3	4 16.2
2.5	115	1 340	2.65	MR 2I 64 - 19 × 200	90 LB S3 B5R 4	15.2
2.5	109	1 420	3.75	MR 2I 80 - 24 × 200	90 LB S3	4 16.1
2.5	133	1 160	1.06	MR 2I 50 - 24 × 200	100 LB S3 B5R 6	8.67
2.5	133	1 160	1.4	MR 2I 51 - 24 × 200	100 LB S3 B5R 6	8.67
2.5	123	1 250	2.12	MR 2I 63 - 19 × 200	90 LB S3 B5R 4	14.2
2.5	123	1 250	2.65	MR 2I 64 - 19 × 200	90 LB S3 B5R 4	14.2
2.5	121	1 280	4	MR 2I 80 - 24 × 200	90 LB S3	4 14.5
2.5	147	1 050	1.18	MR 2I 50 - 24 × 200	100 LB S3 B5R 6	7.85
2.5	143	1 080	1.06	MR 2I 50 - 19 × 200	90 LB S3 B5R 4	12.2
2.5	147	1 050	1.7	MR 2I 51 - 24 × 200	100 LB S3 B5R 6	7.85
2.5	143	1 080	1.4	MR 2I 51 - 19 × 200	90 LB S3 B5R 4	12.2
2.5	138	1 120	2.36	MR 2I 63 - 19 × 200	90 LB S3 B5R 4	12.7
2.5	138	1 120	2.24	MR 2I 63 - 24 × 200	90 LB S3	4 12.7
2.5	138	1 120	3.15	MR 2I 64 - 19 × 200	90 LB S3 B5R 4	12.7
2.5	138	1 120	2.65	MR 2I 64 - 24 × 200	90 LB S3	4 12.7
2.5	134	1 150	4.75	MR 2I 80 - 24 × 200	90 LB S3	4 13.0
2.5	159	970	1.25	MR 2I 50 - 19 × 200	90 LB S3 B5R 4	11.0
2.5	149	1 030	1.06	MR 2I 50 - 24 × 200	90 LB S3	4 11.7
2.5	159	970	1.7	MR 2I 51 - 19 × 200	90 LB S3 B5R 4	11.0
2.5	155	1 000	2.65	MR 2I 63 - 24 × 200	90 LB S3	4 11.3
2.5	155	1 000	3.35	MR 2I 64 - 24 × 200	90 LB S3	4 11.3

Motor (cat. TX) with efficiency value not according to IE3 class (IEC 60034-30); the nominal power and nameplate data refer to intermittent duty S3 70%.

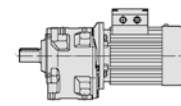
1) Powers valid for continuous duty S1; increase possible for S2... S10 (ch. 2b) in which case  $P_2$  and  $M_2$  increase and  $f_s$  decreases proportionately.

2) For complete designation when ordering, see ch. 3.

\* Mounting position B5R (see table ch. 2b).

\*\* Mounting position B5A (see table ch. 2b).

# Gearmotors selection tables

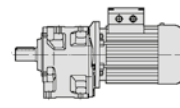


# 3.7

Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$	2)				Gear ratio $i$
2.5	182	850	1.32	MR 21 50 - 24 × 200	90 LB	S3	4	9.64
2.5	176	880	2	MR 21 51 - 19 × 200	90 LB	S3 B5R	4	9.96
2.5	182	850	1.8	MR 21 51 - 24 × 200	90 LB	S3	4	9.64
2.5	172	895	3	MR 21 63 - 24 × 200	90 LB	S3	4	10.2
2.5	172	895	3.75	MR 21 64 - 24 × 200	90 LB	S3	4	10.2
2.5	211	730	1.7	MR 21 50 - 19 × 200	90 LB	S3 B5R	4	8.29
2.5	202	765	1.6	MR 21 50 - 24 × 200	90 LB	S3	4	8.67
2.5	211	730	2.5	MR 21 51 - 19 × 200	90 LB	S3 B5R	4	8.29
2.5	202	765	2.12	MR 21 51 - 24 × 200	90 LB	S3	4	8.67
2.5	191	810	3.35	MR 21 63 - 24 × 200	90 LB	S3	4	9.18
2.5	210	735	3.55	MR 21 63 - 24 × 200	90 LB	S3	4	8.34
2.5	223	690	1.8	MR 21 50 - 24 × 200	90 LB	S3	4	7.85
2.5	223	690	2.5	MR 21 51 - 24 × 200	90 LB	S3	4	7.85
2.5	245	630	2	MR 21 50 - 24 × 200	90 LB	S3	4	7.14
2.5	245	630	2.8	MR 21 51 - 24 × 200	90 LB	S3	4	7.14
2.5	245	630	4.25	MR 21 63 - 24 × 200	90 LB	S3	4	7.14
2.5	268	575	2.12	MR 21 50 - 24 × 200	90 LB	S3	4	6.53
2.5	268	575	3	MR 21 51 - 24 × 200	90 LB	S3	4	6.53
2.5	273	565	4.75	MR 21 63 - 24 × 200	90 LB	S3	4	6.42
2.5	310	500	2.5	MR 21 50 - 24 × 200	90 LB	S3	4	5.65
2.5	310	500	3.35	MR 21 51 - 24 × 200	90 LB	S3	4	5.65
2.5	342	450	2.8	MR 21 50 - 24 × 200	90 LB	S3	4	5.11
2.5	342	450	3.35	MR 21 51 - 24 × 200	90 LB	S3	4	5.11
2.5	427	360	2.8	MR 21 50 - 24 × 200	90 LB	S3	4	4.10
3	9.82	18 500	1.18	MR 31 125 - 28 × 250	132 S	B5R 6	117	
3	9.82	18 500	1.4	MR 31 126 - 28 × 250	132 S	B5R 6	117	
3	9.82	18 500	2	MR 31 140 - 28 × 250	132 S	B5R 6	117	
3	11.7	15 500	1.25	MR 31 125 - 28 × 250	112 MA		4	150
3	12.0	15 100	2.8	MR 31 140 - 28 × 250	132 S	B5R 6	95.5	
3	12.3	14 800	1.6	MR 31 125 - 28 × 250	132 S	B5R 6	93.7	
3	12.3	14 800	2.12	MR 31 126 - 28 × 250	132 S	B5R 6	93.7	
3	14.8	12 300	1.25	MR 31 101 - 28 × 250	132 S	B5R 6	77.9	
3	14.8	12 250	1.06	MR 31 101 - 24 × 200	90 LC	S3	4	118
3	15.5	11 750	2	MR 31 125 - 28 × 250	132 S	B5R 6	74.4	
3	14.9	12 150	1.8	MR 31 125 - 28 × 250	112 MA		4	117
3	15.5	11 750	2.65	MR 31 126 - 28 × 250	132 S	B5R 6	74.4	
3	14.9	12 150	2.24	MR 31 126 - 28 × 250	112 MA		4	117
3	14.9	12 150	3.15	MR 31 140 - 28 × 250	112 MA		4	117
3	18.2	9 980	1.18	MR 31 100 - 28 × 250	132 S	B5R 6	63.2	
3	18.3	9 930	1.06	MR 31 100 - 28 × 250	112 MA		4	95.7
3	18.2	9 980	1.18	MR 31 100 - 24 × 200	90 LC	S3	4	96.2
3	18.2	9 980	1.6	MR 31 101 - 28 × 250	132 S	B5R 6	63.2	
3	18.3	9 930	1.32	MR 31 101 - 28 × 250	112 MA		4	95.7
3	18.2	9 980	1.6	MR 31 101 - 24 × 200	90 LC	S3	4	96.2
3	18.7	9 720	2.36	MR 31 125 - 28 × 250	112 MA		4	93.7
3	18.7	9 720	3.15	MR 31 126 - 28 × 250	112 MA		4	93.7
3	20.1	9 020	1.25	MR 31 100 - 28 × 250	132 S	B5R 6	57.1	
3	20.1	9 020	1.6	MR 31 101 - 28 × 250	132 S	B5R 6	57.1	
3	20.8	8 730	2.65	MR 31 125 - 28 × 250	132 S	B5R 6	55.3	
3	20.8	8 730	3.55	MR 31 126 - 28 × 250	132 S	B5R 6	55.3	
3	22.5	8 080	1.4	MR 31 100 - 28 × 250	112 MA		4	77.9
3	22.5	8 080	1.4	MR 31 100 - 24 × 200	90 LC	S3	4	77.9
3	22.5	8 080	1.9	MR 31 101 - 28 × 250	112 MA		4	77.9
3	22.5	8 080	1.9	MR 31 101 - 24 × 200	90 LC	S3	4	77.9
3	23.5	7 710	3	MR 31 125 - 28 × 250	112 MA		4	74.4
3	26.4	6 890	0.95	MR 31 81 - 28 × 250	112 MA		4	66.4
3	25.9	7 000	1.12	MR 31 81 - 24 × 200	90 LC	S3	4	67.5
3	26.7	6 800	1.7	MR 31 100 - 28 × 250	132 S	B5R 6	43.1	
3	26.7	6 800	2.36	MR 31 101 - 28 × 250	132 S	B5R 6	43.1	
3	24.9	7 290	3.15	MR 31 125 - 28 × 250	132 S	B5R 6	46.2	
3	27.6	6 580	1.18	MR 31 81 - 28 × 250	132 S	B5R 6	41.7	
3	27.7	6 560	1.8	MR 31 100 - 28 × 250	112 MA		4	63.2
3	27.5	6 610	1.8	MR 31 100 - 24 × 200	90 LC	S3	4	63.8
3	27.7	6 560	2.36	MR 31 101 - 28 × 250	112 MA		4	63.2
3	27.5	6 610	2.36	MR 31 101 - 24 × 200	90 LC	S3	4	63.8
3	28.6	6 340	3.75	MR 31 125 - 28 × 250	112 MA		4	61.2

Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$	2)				Gear ratio $i$
3	32.9	5 520	1.06	MR 31 80 - 28 × 250	112 MA		4	53.2
3	33.1	5 490	1.06	MR 31 80 - 24 × 200	90 LC	S3	4	52.9
3	29.6	6 140	1.18	MR 31 81 - 28 × 250	112 MA		4	59.2
3	32.9	5 520	1.4	MR 31 81 - 28 × 250	112 MA		4	53.2
3	29.7	6 100	1.18	MR 31 81 - 24 × 200	90 LC	S3	4	58.8
3	33.1	5 490	1.4	MR 31 81 - 24 × 200	90 LC	S3	4	52.9
3	30.6	5 930	1.9	MR 31 100 - 28 × 250	112 MA		4	57.1
3	30.2	6 020	1.9	MR 31 100 - 24 × 200	90 LC	S3	4	58.0
3	33.0	5 510	2.12	MR 31 100 - 24 × 200	90 LC	S3	4	53.1
3	30.6	5 930	2.5	MR 31 101 - 28 × 250	112 MA		4	57.1
3	30.2	6 020	2.65	MR 31 101 - 24 × 200	90 LC	S3	4	58.0
3	33.0	5 510	2.8	MR 31 101 - 24 × 200	90 LC	S3	4	53.1
3	31.7	5 730	4	MR 31 125 - 28 × 250	112 MA		4	55.3
3	36.7	4 950	1.18	MR 31 80 - 28 × 250	132 S	B5R 6	31.3	
3	37.3	4 860	1.18	MR 31 80 - 24 × 200	90 LC	S3	4	46.9
3	36.7	4 950	1.6	MR 31 81 - 28 × 250	132 S	B5R 6	31.3	
3	37.3	4 860	1.6	MR 31 81 - 24 × 200	90 LC	S3	4	46.9
3	33.8	5 370	2.12	MR 31 100 - 28 × 250	112 MA		4	51.7
3	37.2	4 880	2.36	MR 31 100 - 28 × 250	112 MA		4	47.1
3	33.8	5 370	2.8	MR 31 101 - 28 × 250	112 MA		4	51.7
3	37.2	4 880	3.15	MR 31 101 - 28 × 250	112 MA		4	47.1
3	42.0	4 320	1.32	MR 31 80 - 28 × 250	132 S	B5R 6	27.4	
3	37.7	4 810	1.18	MR 31 80 - 28 × 250	112 MA		4	46.4
3	42.0	4 320	1.7	MR 31 81 - 28 × 250	132 S	B5R 6	27.4	
3	37.7	4 810	1.5	MR 31 81 - 28 × 250	112 MA		4	46.4
3	40.6	4 470	2.65	MR 31 100 - 28 × 250	112 MA		4	43.1
3	38.1	4 760	2.5	MR 31 100 - 24 × 200	90 LC	S3	4	45.9
3	40.6	4 470	3.55	MR 31 101 - 28 × 250	112 MA		4	43.1
3	38.1	4 760	3.35	MR 31 101 - 24 × 200	90 LC	S3	4	45.9
3	42.0	4 320	1.32	MR 31 80 - 28 × 250	112 MA		4	41.7
3	44.0	4 120	1.4	MR 31 80 - 24 × 200	90 LC	S3	4	39.8
3	42.0	4 320	1.7	MR 31 81 - 28 × 250	112 MA		4	41.7
3	44.0	4 120	1.9	MR 31 81 - 24 × 200	90 LC	S3	4	39.8
3	45.6	3 980	2.8	MR 31 100 - 24 × 200	90 LC	S3	4	38.4
3	50.2	3 610	1.06	MR 31 64 - 24 × 200	90 LC	S3	4	34.8
3	47.4	3 830	1.5	MR 31 80 - 28 × 250	112 MA		4	36.9
3	50.4	3 600	1.6	MR 31 80 - 24 × 200	90 LC	S3	4	34.8
3	47.4	3 830	2	MR 31 81 - 28 × 250	112 MA		4	36.9
3	50.4	3 600	2.12	MR 31 81 - 24 × 200	90 LC	S3	4	34.8
3	47.0	3 860	3	MR 31 100 - 28 × 250	112 MA		4	37.2
3	50.0	3 630	3.15	MR 31 100 - 24 × 200	90 LC	S3	4	35.0
3	49.1	3 770	2.5	MR 21 100 - 28 × 250	132 S	B5R 6	23.4	
3	55.3	3 280	1.18	MR 31 64 - 24 × 200	90 LC	S3	4	31.7
3	55.9	3 250	1.8	MR 31 80 - 28 × 250	112 MA		4	31.3
3	56.8	3 190	1.8	MR 31 80 - 24 × 200	90 LC	S3	4	30.8
3	55.9	3 250	2.36	MR 31 81 - 28 × 250	112 MA		4	31.3
3	56.8	3 190	2.36	MR 31 81 - 24 × 200	90 LC	S3	4	30.8
3	56.1	3 230	3.55	MR 31 100 - 28 × 250	112 MA		4	31.2
3	54.7	3 320	3.35	MR 31 100 - 24 × 200	90 LC	S3	4	32.0
3	57.9	3 200	1.4	MR 21 80 - 28 × 250	132 S	B5R 6	19.9	
3	59.7	3 110	3.35	MR 21 100 - 28 × 250	132 S	B5R 6	19.3	
3	60.1	3 020	1.12	MR 31 64 - 24 × 200	90 LC	S3	4	29.1
3	63.9	2 840	2	MR 31 80 - 28 × 250	112 MA		4	27.4
3	63.9	2 840	2.65	MR 31 81 - 28 × 250	112 MA		4	27.4
3	61.7	2 940	3.75	MR 31 100 - 28 × 250	112 MA		4	28.4
3	67.0	2 710	1.06	MR 31 63 - 24 × 200	90 LC	S3	4	26.1
3	74.1	2 450	1.12	MR 31 63 - 24 × 200	90 LC	S3	4	23.6
3	67.0	2 710	1.32	MR 31 64 - 24 × 200	90 LC	S3	4	26.1
3	74.1	2 450	1.5	MR 31 64 - 24 × 200	90 LC	S3	4	23.6
3	72.1	2 520	2.24	MR 31 80 - 28 × 250	112 MA		4	24.3
3	67.0	2 710	2.12	MR 31 80 - 24 × 200	90 LC	S3	4	26.1
3	74.6	2 430	2.36	MR 31 80 - 24 × 200	90 LC	S3	4	23.5
3	72.1	2 520	3	MR 31 81 - 28 × 250	112 MA		4	24.3
3	67.0	2 710	2.8	MR 31 81 - 24 × 200	90 LC	S3	4	26.1
3	74.6	2 430	3.15	MR 31 81 - 24 × 200	90 LC	S3	4	23.5
3	70.8	2 620	2	MR 21 80 - 28 × 250	132 S	B5R 6	16.3	
3	71.4	2 600	1.8	MR 21 80 - 24 × 200	90 LC	S3	4	24.5
3	70.8	2 620	2.36	MR 21 81 - 28 × 250	132 S	B5R 6	16.3	
3	74.7	2 480	3.75</					

# Gearmotors selection tables



# 3.7

Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$	2)		Gear ratio $i$
3	81.5	2 230	1.25	MR 3I 63 - 24 × 200	90 LC S3	4 21.5
3	81.5	2 230	1.7	MR 3I 64 - 24 × 200	90 LC S3	4 21.5
3	85.0	2 140	2.65	MR 3I 80 - 28 × 250	112 MA	4 20.6
3	85.8	2 110	2.65	MR 3I 80 - 24 × 200	90 LC S3	4 20.4
3	85.0	2 140	3.55	MR 3I 81 - 28 × 250	112 MA	4 20.6
3	90.1	2 060	1.12	MR 2I 63 - 28 × 250	132 S B5R	6 12.8
3	88.3	2 100	2.65	MR 2I 80 - 28 × 250	132 S B5R	6 13.0
3	88.1	2 100	2.12	MR 2I 80 - 28 × 250	112 MA	4 19.9
3	87.3	2 120	2.36	MR 2I 80 - 24 × 200	90 LC S3	4 20.1
3	88.3	2 100	3.35	MR 2I 81 - 28 × 250	132 S B5R	6 13.0
3	87.3	2 120	3	MR 2I 81 - 24 × 200	90 LC S3	4 20.1
3	95.2	1 910	1.5	MR 3I 63 - 24 × 200	90 LC S3	4 18.4
3	106	1 710	1.6	MR 3I 63 - 24 × 200	90 LC S3	4 16.5
3	95.2	1 910	2	MR 3I 64 - 24 × 200	90 LC S3	4 18.4
3	106	1 710	2.24	MR 3I 64 - 24 × 200	90 LC S3	4 16.5
3	94.7	1 920	3	MR 3I 80 - 28 × 250	112 MA	4 18.5
3	97.9	1 890	2.8	MR 2I 80 - 24 × 200	90 LC S3	4 17.9
3	109	1 670	3.35	MR 3I 80 - 28 × 250	112 MA	4 16.1
3	115	1 610	1.6	MR 2I 63 - 28 × 250	132 S B5R	6 10.0
3	108	1 720	1.32	MR 2I 63 - 24 × 200	90 LC S3	4 16.2
3	115	1 610	1.9	MR 2I 64 - 28 × 250	132 S B5R	6 10.0
3	108	1 720	3	MR 2I 80 - 28 × 250	112 MA	4 16.3
3	109	1 700	3.15	MR 2I 80 - 24 × 200	90 LC S3	4 16.1
3	108	1 720	3.55	MR 2I 81 - 28 × 250	112 MA	4 16.3
3	129	1 440	1.8	MR 2I 63 - 28 × 250	132 S B5R	6 8.91
3	129	1 440	2.24	MR 2I 64 - 28 × 250	132 S B5R	6 8.91
3	121	1 530	3.35	MR 2I 80 - 28 × 250	112 MA	4 14.5
3	121	1 530	3.35	MR 2I 80 - 24 × 200	90 LC S3	4 14.5
3	143	1 300	1.18	MR 2I 51 - 19 × 200	90 LC S3 B5R	4 12.2
3	144	1 290	2.12	MR 2I 63 - 28 × 250	132 S B5R	6 8.00
3	137	1 350	1.6	MR 2I 63 - 28 × 250	112 MA	4 12.8
3	138	1 340	1.8	MR 2I 63 - 24 × 200	90 LC S3	4 12.7
3	144	1 290	2.65	MR 2I 64 - 28 × 250	132 S B5R	6 8.00
3	138	1 340	2.24	MR 2I 64 - 24 × 200	90 LC S3	4 12.7
3	134	1 380	4	MR 2I 80 - 28 × 250	112 MA	4 13.0
3	159	1 160	1.06	MR 2I 50 - 19 × 200	90 LC S3 B5R	4 11.0
3	159	1 160	1.4	MR 2I 51 - 19 × 200	90 LC S3 B5R	4 11.0
3	159	1 170	2.24	MR 2I 63 - 28 × 250	132 S B5R	6 7.23
3	155	1 200	2.12	MR 2I 63 - 24 × 200	90 LC S3	4 11.3
3	159	1 170	3.15	MR 2I 64 - 28 × 250	132 S B5R	6 7.23
3	155	1 200	2.65	MR 2I 64 - 24 × 200	90 LC S3	4 11.3
3	182	1 020	1.12	MR 2I 50 - 24 × 200	90 LC S3	4 9.64
3	176	1 050	1.6	MR 2I 51 - 19 × 200	90 LC S3 B5R	4 9.96
3	182	1 020	1.5	MR 2I 51 - 24 × 200	90 LC S3	4 9.64
3	175	1 060	2.36	MR 2I 63 - 28 × 250	112 MA	4 10.0
3	172	1 080	2.5	MR 2I 63 - 24 × 200	90 LC S3	4 10.2
3	175	1 060	2.8	MR 2I 64 - 28 × 250	112 MA	4 10.0
3	172	1 080	3.15	MR 2I 64 - 24 × 200	90 LC S3	4 10.2
3	211	880	1.4	MR 2I 50 - 19 × 200	90 LC S3 B5R	4 8.29
3	202	920	1.32	MR 2I 50 - 24 × 200	90 LC S3	4 8.67
3	211	880	2	MR 2I 51 - 19 × 200	90 LC S3 B5R	4 8.29
3	202	920	1.8	MR 2I 51 - 24 × 200	90 LC S3	4 8.67
3	196	945	2.65	MR 2I 63 - 28 × 250	112 MA	4 8.91
3	191	970	2.8	MR 2I 63 - 24 × 200	90 LC S3	4 9.18
3	210	885	3	MR 2I 63 - 24 × 200	90 LC S3	4 8.34
3	196	945	3.35	MR 2I 64 - 28 × 250	112 MA	4 8.91
3	191	970	3.55	MR 2I 64 - 24 × 200	90 LC S3	4 9.18
3	223	830	1.5	MR 2I 50 - 24 × 200	90 LC S3	4 7.85
3	223	830	2	MR 2I 51 - 24 × 200	90 LC S3	4 7.85
3	219	845	3.15	MR 2I 63 - 28 × 250	112 MA	4 8.00
3	219	845	4	MR 2I 64 - 28 × 250	112 MA	4 8.00
3	245	755	1.6	MR 2I 50 - 24 × 200	90 LC S3	4 7.14
3	245	755	2.36	MR 2I 51 - 24 × 200	90 LC S3	4 7.14
3	242	765	3.35	MR 2I 63 - 28 × 250	112 MA	4 7.23
3	245	755	3.55	MR 2I 63 - 24 × 200	90 LC S3	4 7.14
3	268	690	1.8	MR 2I 50 - 24 × 200	90 LC S3	4 6.53
3	268	690	2.5	MR 2I 51 - 24 × 200	90 LC S3	4 6.53
3	266	695	3.75	MR 2I 63 - 28 × 250	112 MA	4 6.57
3	273	680	4	MR 2I 63 - 24 × 200	90 LC S3	4 6.42

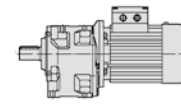
Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$	2)		Gear ratio $i$
3	310	600	2	MR 2I 50 - 24 × 200	90 LC S3	4 5.65
3	310	600	2.8	MR 2I 51 - 24 × 200	90 LC S3	4 5.65
3	311	595	4.25	MR 2I 63 - 28 × 250	112 MA	4 5.63
3	342	540	2.24	MR 2I 50 - 24 × 200	90 LC S3	4 5.11
3	342	540	2.8	MR 2I 51 - 24 × 200	90 LC S3	4 5.11
3	346	535	4.75	MR 2I 63 - 28 × 250	112 MA	4 5.06
3	427	435	2.36	MR 2I 50 - 24 × 200	90 LC S3	4 4.10
3	427	435	2.8	MR 2I 51 - 24 × 200	90 LC S3	4 4.10
4	9.35	25 900	3	MR 3I 180 - 38 × 300	132 M	6 123
4	9.82	24 650	1.06	MR 3I 126 - 28 × 250	112 MC S3	6 117
4	9.82	24 650	1.5	MR 3I 140 - 28 × 250	112 MC S3	6 117
4	9.63	25 150	2.12	MR 3I 160 - 38 × 300	132 M	6 119
4	12.0	20 100	2.12	MR 3I 140 - 28 × 250	112 MC S3	6 95.5
4	11.5	21 100	2.8	MR 3I 160 - 38 × 300	132 M	6 100
4	12.3	19 700	1.18	MR 3I 125 - 28 × 250	112 MC S3	6 93.7
4	12.3	19 700	1.5	MR 3I 126 - 28 × 250	112 MC S3	6 93.7
4	13.7	17 650	3.55	MR 3I 160 - 38 × 300	132 M	6 83.8
4	15.5	15 650	1.5	MR 3I 125 - 28 × 250	112 MC S3	6 74.4
4	14.9	16 200	1.32	MR 3I 125 - 28 × 250	112 M	4 117
4	15.5	15 650	2	MR 3I 126 - 28 × 250	112 MC S3	6 74.4
4	14.9	16 200	1.6	MR 3I 126 - 28 × 250	112 M	4 117
4	15.2	15 950	2.65	MR 3I 140 - 28 × 250	112 MC S3	6 75.8
4	14.9	16 200	2.36	MR 3I 140 - 28 × 250	112 M	4 117
4	18.2	13 300	1.18	MR 3I 101 - 28 × 250	112 MC S3	6 63.2
4	18.3	13 250	1	MR 3I 101 - 28 × 250	112 M	4 95.7
4	18.7	12 950	1.8	MR 3I 125 - 28 × 250	112 M	4 93.7
4	18.7	12 950	2.36	MR 3I 126 - 28 × 250	112 M	4 93.7
4	18.3	13 200	3.35	MR 3I 140 - 28 × 250	112 M	4 95.5
4	20.1	12 000	1.18	MR 3I 101 - 28 × 250	112 MC S3	6 57.1
4	20.8	11 650	2	MR 3I 125 - 28 × 250	112 MC S3	6 55.3
4	20.8	11 650	2.65	MR 3I 126 - 28 × 250	112 MC S3	6 55.3
4	20.6	11 700	3.75	MR 3I 140 - 28 × 250	112 MC S3	6 55.7
4	22.5	10 800	1.06	MR 3I 100 - 28 × 250	112 M	4 77.9
4	22.5	10 800	1.4	MR 3I 101 - 28 × 250	112 M	4 77.9
4	23.5	10 300	2.24	MR 3I 125 - 28 × 250	112 M	4 74.4
4	23.5	10 300	3	MR 3I 126 - 28 × 250	112 M	4 74.4
4	22.7	10 700	4	MR 3I 140 - 28 × 250	112 MC S3	6 50.8
4	24.4	9 910	1.18	MR 3I 100 - 28 × 250	112 MC S3	6 47.1
4	26.7	9 060	1.32	MR 3I 100 - 28 × 250	112 MC S3	6 43.1
4	25.1	9 630	1.18	MR 3I 100 - 38 × 300	132 M	6 45.7
4	24.4	9 910	1.6	MR 3I 101 - 28 × 250	112 MC S3	6 47.1
4	26.7	9 060	1.8	MR 3I 101 - 28 × 250	112 MC S3	6 43.1
4	25.1	9 630	1.5	MR 3I 101 - 38 × 300	132 M	6 45.7
4	24.9	9 720	2.36	MR 3I 125 - 28 × 250	112 MC S3	6 46.2
4	25.8	9 370	2.5	MR 3I 125 - 38 × 300	132 M	6 44.5
4	24.9	9 720	3	MR 3I 126 - 28 × 250	112 MC S3	6 46.2
4	24.6	9 820	4.25	MR 3I 140 - 28 × 250	112 MC S3	6 46.7
4	27.7	8 750	1.32	MR 3I 100 - 28 × 250	112 M	4 63.2
4	27.7	8 750	1.8	MR 3I 101 - 28 × 250	112 M	4 63.2
4	28.6	8 460	2.8	MR 3I 125 - 28 × 250	112 M	4 61.2
4	28.6	8 460	3.55	MR 3I 126 - 28 × 250	112 M	4 61.2
4	32.9	7 360	1.06	MR 3I 81 - 28 × 250	112 M	4 53.2
4	30.6	7 900	1.4	MR 3I 100 - 28 × 250	112 M	4 57.1
4	30.9	7 840	2	MR 3I 101 - 28 × 250	112 MC S3	6 37.2
4	30.6	7 900	1.8	MR 3I 101 - 28 × 250	112 M	4 57.1
4	31.7	7 650	3	MR 3I 125 - 28 × 250	112 M	4 55.3
4	37.3	6 480	1.18	MR 3I 81 - 24 × 200	112 M B5R	4 46.9
4	33.8	7 150	1.6	MR 3I 100 - 28 × 250	112 M	4 51.7
4	37.2	6 510	1.8	MR 3I 100 - 28 × 250	112 M	4 47.1
4	33.8	7 150	2.12	MR 3I 101 - 28 × 250	112 M	4 51.7
4	37.2	6 510	2.36	MR 3I 101 - 28 × 250	112 M	4 47.1
4	34.8	6 950	3.35	MR 3I 125 - 28 × 250	112 M	4 50.2
4	42.0	5 760	1.32	MR 3I 81 - 28 × 250	112 MC S3	6 27.4
4	37.7	6 410	1.12	MR 3I 81 - 28 × 250	112 M	4 46.4
4	40.6	5 960	1.9	MR 3I 100 - 28 × 250	112 M	4 43.1
4	40.6	5 960	2.65	MR 3I 101 - 28 × 250	112 M	4 43.1
4	37.9	6 390	3.55	MR 3I 125 - 28 × 250	112 M	4 46.2

Motor (cat. TX) with efficiency value not according to IE3 class (IEC 60034-30); the nominal power and nameplate data refer to intermittent duty S3 70%.

1) Powers valid for continuous duty S1; increase possible for S2... S10 (ch. 2b) in which case  $P_2$  and  $M_2$  increase and  $f_s$  decreases proportionately.  
2) For complete designation when ordering, see ch. 3.

\* Mounting position B5R (see table ch. 2b).

# Gearmotors selection tables



# 3.7

Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$	2)			Gear ratio $i$
4	47.4	5 110	1.12	MR 3I 80 - 28 × 250	112 MC S3	6	24.3
4	42.0	5 760	1	MR 3I 80 - 28 × 250	112 M	4	41.7
4	47.4	5 110	1.5	MR 3I 81 - 28 × 250	112 MC S3	6	24.3
4	42.0	5 760	1.32	MR 3I 81 - 28 × 250	112 M	4	41.7
4	44.3	5 460	2.12	MR 3I 100 - 28 × 250	112 MC S3	6	26.0
4	44.3	5 460	2.8	MR 3I 101 - 28 × 250	112 MC S3	6	26.0
4	42.2	5 740	4	MR 3I 125 - 28 × 250	112 M	4	41.5
4	46.7	5 180	4.5	MR 3I 125 - 28 × 250	112 M	4	37.5
4	47.4	5 110	1.12	MR 3I 80 - 28 × 250	112 M	4	36.9
4	47.4	5 110	1.5	MR 3I 81 - 28 × 250	112 M	4	36.9
4	47.0	5 150	2.24	MR 3I 100 - 28 × 250	112 M	4	37.2
4	47.0	5 150	3	MR 3I 101 - 28 × 250	112 M	4	37.2
4	49.1	5 030	1.9	MR 2I 100 - 28 × 250	112 MC S3	6	23.4
4	55.9	4 330	1.32	MR 3I 80 - 28 × 250	112 M	4	31.3
4	55.9	4 330	1.8	MR 3I 81 - 28 × 250	112 M	4	31.3
4	56.1	4 310	2.65	MR 3I 100 - 28 × 250	112 M	4	31.2
4	56.1	4 310	3.35	MR 3I 101 - 28 × 250	112 M	4	31.2
4	59.7	4 140	2.5	MR 2I 100 - 28 × 250	112 MC S3	6	19.3
4	59.7	4 140	3	MR 2I 101 - 28 × 250	112 MC S3	6	19.3
4	63.9	3 790	1.5	MR 3I 80 - 28 × 250	112 M	4	27.4
4	63.9	3 790	1.9	MR 3I 81 - 28 × 250	112 M	4	27.4
4	61.7	3 920	2.8	MR 3I 100 - 28 × 250	112 M	4	28.4
4	61.7	3 920	4	MR 3I 101 - 28 × 250	112 M	4	28.4
4	67.0	3 610	1	MR 3I 64 - 24 × 200	112 M B5R	4	26.1
4	74.1	3 270	1.18	MR 3I 64 - 24 × 200	112 M B5R	4	23.6
4	72.1	3 360	1.7	MR 3I 80 - 28 × 250	112 M	4	24.3
4	72.1	3 360	2.24	MR 3I 81 - 28 × 250	112 M	4	24.3
4	67.4	3 590	3.15	MR 3I 100 - 28 × 250	112 M	4	26.0
4	70.8	3 490	1.5	MR 2I 80 - 28 × 250	112 MC S3	6	16.3
4	71.4	3 460	1.32	MR 2I 80 - 24 × 200	112 M B5R	4	24.5
4	70.8	3 490	1.8	MR 2I 81 - 28 × 250	112 MC S3	6	16.3
4	74.7	3 310	2.8	MR 2I 100 - 28 × 250	112 M	4	23.4
4	81.5	2 970	1.25	MR 3I 64 - 24 × 200	112 M B5R	4	21.5
4	78.0	3 100	3.55	MR 3I 100 - 28 × 250	112 M	4	22.4
4	79.4	3 110	1.7	MR 2I 80 - 28 × 250	112 MC S3	6	14.5
4	79.4	3 110	2.24	MR 2I 81 - 28 × 250	112 MC S3	6	14.5
4	85.0	2 850	2	MR 3I 80 - 28 × 250	112 M	4	20.6
4	85.0	2 850	2.65	MR 3I 81 - 28 × 250	112 M	4	20.6
4	87.3	2 830	1.8	MR 2I 80 - 24 × 200	112 M B5R	4	20.1
4	88.1	2 800	1.6	MR 2I 80 - 28 × 250	112 M	4	19.9
4	87.3	2 830	2.24	MR 2I 81 - 24 × 200	112 M B5R	4	20.1
4	90.8	2 720	3.75	MR 2I 100 - 28 × 250	112 M	4	19.3
4	95.2	2 540	1.12	MR 3I 63 - 24 × 200	112 M B5R	4	18.4
4	106	2 290	1.25	MR 3I 63 - 24 × 200	112 M B5R	4	16.5
4	95.2	2 540	1.5	MR 3I 64 - 24 × 200	112 M B5R	4	18.4
4	106	2 290	1.7	MR 3I 64 - 24 × 200	112 M B5R	4	16.5
4	94.7	2 560	2.24	MR 3I 80 - 28 × 250	112 M	4	18.5
4	94.7	2 560	3	MR 3I 81 - 28 × 250	112 M	4	18.5
4	97.9	2 520	2.65	MR 2I 81 - 24 × 200	112 M B5R	4	17.9
4	101	2 450	4.25	MR 2I 100 - 28 × 250	112 M	4	17.3
4	109	2 220	2.5	MR 3I 80 - 28 × 250	112 M	4	16.1
4	109	2 220	3.35	MR 3I 81 - 28 × 250	112 M	4	16.1
4	115	2 150	1.18	MR 2I 63 - 28 × 250	112 MC S3	6	10.0
4	115	2 150	1.4	MR 2I 64 - 28 × 250	112 MC S3	6	10.0
4	109	2 270	2.36	MR 2I 80 - 24 × 200	112 M B5R	4	16.1
4	108	2 290	2.24	MR 2I 80 - 28 × 250	112 M	4	16.3
4	109	2 270	3.15	MR 2I 81 - 24 × 200	112 M B5R	4	16.1
4	108	2 290	2.65	MR 2I 81 - 28 × 250	112 M	4	16.3
4	129	1 910	1.32	MR 2I 63 - 28 × 250	112 MC S3	6	8.91
4	129	1 910	1.7	MR 2I 64 - 28 × 250	112 MC S3	6	8.91
4	121	2 050	2.5	MR 2I 80 - 28 × 250	112 M	4	14.5
4	121	2 050	3.15	MR 2I 81 - 28 × 250	112 M	4	14.5
4	144	1 720	1.6	MR 2I 63 - 28 × 250	112 MC S3	6	8.00
4	138	1 790	1.4	MR 2I 63 - 24 × 200	112 M B5R	4	12.7
4	137	1 800	1.25	MR 2I 63 - 28 × 250	112 M	4	12.8
4	144	1 720	2	MR 2I 64 - 28 × 250	112 MC S3	6	8.00
4	138	1 790	1.7	MR 2I 64 - 24 × 200	112 M B5R	4	12.7
4	134	1 840	3	MR 2I 80 - 28 × 250	112 M	4	13.0
4	134	1 840	3.75	MR 2I 81 - 28 × 250	112 M	4	13.0

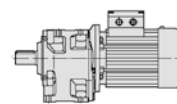
Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$	2)			Gear ratio $i$
4	159	1 550	1.7	MR 2I 63 - 28 × 250	112 MC S3	6	7.23
4	155	1 600	1.6	MR 2I 63 - 24 × 200	112 M B5R	4	11.3
4	159	1 550	2.36	MR 2I 63 - 28 × 250	112 MC S3	6	7.23
4	155	1 600	2	MR 2I 64 - 24 × 200	112 M B5R	4	11.3
4	149	1 660	3.15	MR 2I 80 - 28 × 250	112 M	4	11.8
4	182	1 360	1.12	MR 2I 51 - 24 × 200	112 M B5R	4	9.64
4	172	1 430	1.8	MR 2I 63 - 24 × 200	112 M B5R	4	10.2
4	175	1 410	1.7	MR 2I 63 - 28 × 250	112 M	4	10.0
4	175	1 410	2.5	MR 2I 64 - 28 × 250	112 MC S3	6	6.57
4	172	1 430	2.36	MR 2I 64 - 24 × 200	112 M B5R	4	10.2
4	175	1 410	2.12	MR 2I 64 - 28 × 250	112 M	4	10.0
4	166	1 490	3.55	MR 2I 80 - 28 × 250	112 M	4	10.6
4	187	1 320	4	MR 2I 80 - 28 × 250	112 M	4	9.36
4	202	1 220	1	MR 2I 50 - 24 × 200	112 M B5R	4	8.67
4	202	1 220	1.32	MR 2I 51 - 24 × 200	112 M B5R	4	8.67
4	210	1 180	2.24	MR 2I 63 - 24 × 200	112 M B5R	4	8.34
4	196	1 260	2	MR 2I 63 - 28 × 250	112 M	4	8.91
4	210	1 180	3	MR 2I 64 - 24 × 200	112 M B5R	4	8.34
4	196	1 260	2.5	MR 2I 64 - 28 × 250	112 M	4	8.91
4	223	1 110	1.12	MR 2I 50 - 24 × 200	112 M B5R	4	7.85
4	223	1 110	1.5	MR 2I 51 - 24 × 200	112 M B5R	4	7.85
4	219	1 130	2.36	MR 2I 63 - 28 × 250	112 M	4	8.00
4	219	1 130	3	MR 2I 64 - 28 × 250	112 M	4	8.00
4	220	1 120	4.75	MR 2I 80 - 28 × 250	112 M	4	7.95
4	245	1 010	1.25	MR 2I 50 - 24 × 200	112 M B5R	4	7.14
4	245	1 010	1.7	MR 2I 51 - 24 × 200	112 M B5R	4	7.14
4	242	1 020	2.5	MR 2I 63 - 28 × 250	112 M	4	7.23
4	242	1 020	3.35	MR 2I 64 - 28 × 250	112 M	4	7.23
4	268	920	1.32	MR 2I 50 - 24 × 200	112 M B5R	4	6.53
4	268	920	1.9	MR 2I 51 - 24 × 200	112 M B5R	4	6.53
4	288	860	2.5	MR 2I 63 - 28 × 250	112 MC S3	6	4.00
4	266	930	2.8	MR 2I 63 - 28 × 250	112 M	4	6.57
4	288	860	2.8	MR 2I 64 - 28 × 250	112 MC S3	6	4.00
4	266	930	3.75	MR 2I 64 - 28 × 250	112 M	4	6.57
4	310	795	1.5	MR 2I 50 - 24 × 200	112 M B5R	4	5.65
4	310	795	2	MR 2I 51 - 24 × 200	112 M B5R	4	5.65
4	311	795	3.35	MR 2I 63 - 28 × 250	112 M	4	5.63
4	342	720	1.7	MR 2I 50 - 24 × 200	112 M B5R	4	5.11
4	342	720	2	MR 2I 51 - 24 × 200	112 M B5R	4	5.11
4	346	715	3.55	MR 2I 63 - 28 × 250	112 M	4	5.06
4	427	580	1.8	MR 2I 50 - 24 × 200	112 M B5R	4	4.10
4	427	580	2	MR 2I 51 - 24 × 200	112 M B5R	4	4.10
4	438	565	3.75	MR 2I 63 - 28 × 250	112 M	4	4.00
5.4	9.35	34 950	2.12	MR 3I 180 - 38 × 300	132 MB	6	123
5.4	9.63	33 950	1.6	MR 3I 160 - 38 × 300	132 MB	6	119
5.4	11.5	28 500	2.12	MR 3I 160 - 38 × 300	132 MB	6	100
5.4	11.4	28 650	3	MR 3I 180 - 38 × 300	132 MB	6	101
5.4	13.7	23 800	2.5	MR 3I 160 - 38 × 300	132 MB	6	83.8
5.4	13.7	23 900	3.55	MR 3I 180 - 38 × 300	132 MB	6	84.2
5.4	14.9	21 850	1	MR 3I 125 - 28 × 250	112 MB	4	117
5.4	14.9	21 850	1.18	MR 3I 126 - 28 × 250	112 MB	4	117
5.4	14.9	21 850	1.7	MR 3I 140 - 28 × 250	112 MB	4	117
5.4	18.7	17 500	1.32	MR 3I 125 - 28 × 250	112 MB	4	93.7
5.4	18.7	17 500	1.7	MR 3I 126 - 28 × 250	112 MB	4	93.7
5.4	18.3	17 850	2.36	MR 3I 140 - 28 × 250	112 MB	4	95.5
5.4	17.5	18 650	3.35	MR 3I 160 - 38 × 300	132 MB	6	65.6
5.4	21.0	15 600	1.5	MR 3I 125 - 38 × 300	132 MB	6	54.8
5.4	21.0	15 600	1.8	MR 3I 126 - 38 × 300	132 MB	6	54.8
5.4	20.8	15 750	2.65	MR 3I 140 - 38 × 300	132 MB	6	55.4
5.4	20.0	16 300	3.75	MR 3I 160 - 38 × 300	132 MB	6	57.4
5.4	22.5	14 550	1.06	MR 3I 101 - 28 × 250	112 MB	4	77.9
5.4	23.5	13 900	1.7	MR 3I 125 - 28 × 250	112 MB	4	74.4
5.4	23.5	13 900	2.24	MR 3I 126 - 28 × 250	112 MB	4	74.4
5.4	23.1	14 150	3	MR 3I 140 - 28 × 250	112 MB	4	75.8

Motor (cat. TX) with efficiency value not according to IE3 class (IEC 60034-30); the nominal power and nameplate data refer to intermittent duty S3 70%.

1) Powers valid for continuous duty S1; **increase** possible for S2 ... S10 (ch. 2b) in which case  $P_2$  and  $M_2$  increase and  $f_s$  decreases proportionately.  
2) For complete designation when ordering, see ch. 3.

\* Mounting position **B5R** (see table ch. 2b).

# Gearmotors selection tables



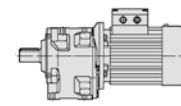
# 3.7

Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$		Gear ratio $i$		Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$		Gear ratio $i$		
				2)							2)			
5.4	25.1	13 000	1.12	MR 3I 101 - 38 × 300	132 MB	6	5.4	109	3 000	1.9	MR 3I 80 - 28 × 250	112 MB	4	16.1
5.4	25.8	12 650	1.9	MR 3I 125 - 38 × 300	132 MB	6	5.4	109	3 000	2.5	MR 3I 81 - 28 × 250	112 MB	4	16.1
5.4	25.8	12 650	2.5	MR 3I 126 - 38 × 300	132 MB	6	5.4	109	3 060	1.8	MR 2I 80 - 24 × 200	112 MB	BSR 4	16.1
5.4	25.6	12 750	3.35	MR 3I 140 - 38 × 300	132 MB	6	5.4	108	3 100	1.6	MR 2I 80 - 28 × 250	112 MB	4	16.3
5.4	27.7	11 800	1	MR 3I 100 - 28 × 250	112 MB	4	5.4	109	3 060	2.36	MR 2I 81 - 24 × 200	112 MB	BSR 4	16.1
5.4	27.7	11 800	1.32	MR 3I 101 - 28 × 250	112 MB	4	5.4	108	3 100	2	MR 2I 81 - 28 × 250	112 MB	4	16.3
5.4	28.6	11 400	2	MR 3I 125 - 28 × 250	112 MB	4	5.4	112	2 990	3.55	MR 2I 100 - 28 × 250	112 MB	4	15.7
5.4	28.6	11 400	2.65	MR 3I 126 - 28 × 250	112 MB	4	5.4	121	2 760	1.9	MR 2I 80 - 28 × 250	112 MB	4	14.5
5.4	28.1	11 650	3.75	MR 3I 140 - 28 × 250	112 MB	4	5.4	121	2 760	2.36	MR 2I 81 - 28 × 250	112 MB	4	14.5
5.4	33.3	9 800	1.18	MR 3I 100 - 38 × 300	132 MB	6	5.4	127	2 620	4	MR 2I 100 - 28 × 250	112 MB	4	13.8
5.4	30.6	10 650	1.06	MR 3I 100 - 28 × 250	112 MB	4	5.4	138	2 420	1.25	MR 2I 64 - 24 × 200	112 MB	BSR 4	12.7
5.4	33.3	9 800	1.6	MR 3I 101 - 38 × 300	132 MB	6	5.4	134	2 480	2.12	MR 2I 80 - 28 × 250	112 MB	4	13.0
5.4	30.6	10 650	1.32	MR 3I 101 - 28 × 250	112 MB	4	5.4	134	2 480	2.8	MR 2I 81 - 28 × 250	112 MB	4	13.0
5.4	31.7	10 300	2.24	MR 3I 125 - 28 × 250	112 MB	4	5.4	141	2 370	4.5	MR 2I 100 - 28 × 250	112 MB	4	12.5
5.4	31.7	10 300	3	MR 3I 126 - 28 × 250	112 MB	4	5.4	155	2 160	1.18	MR 2I 63 - 24 × 200	112 MB	BSR 4	11.3
5.4	33.8	9 660	1.18	MR 3I 100 - 28 × 250	112 MB	4	5.4	155	2 160	1.5	MR 2I 64 - 24 × 200	112 MB	BSR 4	11.3
5.4	37.2	8 790	1.32	MR 3I 100 - 28 × 250	112 MB	4	5.4	152	2 200	2.5	MR 2I 80 - 24 × 200	112 MB	BSR 4	11.5
5.4	33.8	9 660	1.6	MR 3I 101 - 28 × 250	112 MB	4	5.4	149	2 240	2.24	MR 2I 80 - 28 × 250	112 MB	4	11.8
5.4	37.2	8 790	1.8	MR 3I 101 - 28 × 250	112 MB	4	5.4	152	2 200	3.35	MR 2I 81 - 24 × 200	112 MB	BSR 4	11.5
5.4	34.8	9 380	2.5	MR 3I 125 - 28 × 250	112 MB	4	5.4	149	2 240	3	MR 2I 81 - 28 × 250	112 MB	4	11.8
5.4	34.8	9 380	3.35	MR 3I 126 - 28 × 250	112 MB	4	5.4	154	2 160	5	MR 2I 100 - 28 × 250	112 MB	4	11.3
5.4	40.6	8 040	1.4	MR 3I 100 - 28 × 250	112 MB	4	5.4	172	1 940	1.4	MR 2I 63 - 24 × 200	112 MB	BSR 4	10.2
5.4	40.6	8 040	2	MR 3I 101 - 28 × 250	112 MB	4	5.4	175	1 910	1.25	MR 2I 63 - 28 × 250	112 MB	4	10.0
5.4	37.9	8 620	2.65	MR 3I 125 - 28 × 250	112 MB	4	5.4	172	1 940	1.8	MR 2I 64 - 24 × 200	112 MB	BSR 4	10.2
5.4	37.9	8 620	3.35	MR 3I 126 - 28 × 250	112 MB	4	5.4	175	1 910	1.6	MR 2I 64 - 28 × 250	112 MB	4	10.0
5.4	42.0	7 780	0.95	MR 3I 81 - 28 × 250	112 MB	4	5.4	166	2 010	2.65	MR 2I 80 - 28 × 250	112 MB	4	10.6
5.4	46.1	7 090	1.6	MR 3I 100 - 38 × 300	132 MB	6	5.4	187	1 780	3	MR 2I 80 - 28 × 250	112 MB	4	9.36
5.4	46.1	7 090	2.12	MR 3I 101 - 38 × 300	132 MB	6	5.4	166	2 010	3.35	MR 2I 81 - 28 × 250	112 MB	4	10.6
5.4	42.2	7 740	3	MR 3I 125 - 28 × 250	112 MB	4	5.4	187	1 780	4	MR 2I 81 - 28 × 250	112 MB	4	9.36
5.4	46.7	7 000	3.35	MR 3I 125 - 28 × 250	112 MB	4	5.4	210	1 590	1.7	MR 2I 63 - 24 × 200	112 MB	BSR 4	8.34
5.4	47.4	7 040	2.65	MR 3I 125 - 38 × 300	132 MB	6	5.4	196	1 700	1.5	MR 2I 63 - 28 × 250	112 MB	4	8.91
5.4	47.4	6 890	1.12	MR 3I 81 - 28 × 250	112 MB	4	5.4	210	1 590	2.24	MR 2I 64 - 24 × 200	112 MB	BSR 4	8.34
5.4	47.0	6 950	1.7	MR 3I 100 - 28 × 250	112 MB	4	5.4	196	1 700	1.9	MR 2I 64 - 28 × 250	112 MB	4	8.91
5.4	47.0	6 950	2.24	MR 3I 101 - 28 × 250	112 MB	4	5.4	201	1 660	3.15	MR 2I 80 - 38 × 300	132 MB	6	5.71
5.4	51.4	6 360	3.55	MR 3I 125 - 28 × 250	112 MB	4	5.4	223	1 500	1.12	MR 2I 51 - 24 × 200	112 MB	BSR 4	7.85
5.4	55.9	5 850	1	MR 3I 80 - 28 × 250	112 MB	4	5.4	219	1 520	1.7	MR 2I 63 - 28 × 250	112 MB	4	8.00
5.4	55.9	5 850	1.32	MR 3I 81 - 28 × 250	112 MB	4	5.4	219	1 520	2.24	MR 2I 64 - 28 × 250	112 MB	4	8.00
5.4	56.1	5 820	1.9	MR 3I 100 - 28 × 250	112 MB	4	5.4	220	1 510	3.55	MR 2I 80 - 28 × 250	112 MB	4	7.95
5.4	56.1	5 820	2.5	MR 3I 101 - 28 × 250	112 MB	4	5.4	245	1 360	1.32	MR 2I 51 - 24 × 200	112 MB	BSR 4	7.14
5.4	60.5	5 510	3.75	MR 2I 125 - 38 × 300	132 MB	6	5.4	242	1 380	1.9	MR 2I 63 - 28 × 250	112 MB	4	7.23
5.4	63.9	5 110	1.12	MR 3I 80 - 28 × 250	112 MB	4	5.4	242	1 380	2.5	MR 2I 64 - 28 × 250	112 MB	4	7.23
5.4	63.9	5 110	1.4	MR 3I 81 - 28 × 250	112 MB	4	5.4	245	1 360	4	MR 2I 80 - 28 × 250	112 MB	4	7.13
5.4	61.7	5 300	2.12	MR 3I 100 - 28 × 250	112 MB	4	5.4	268	1 250	1.4	MR 2I 51 - 24 × 200	112 MB	BSR 4	6.53
5.4	61.7	5 300	2.8	MR 3I 101 - 28 × 250	112 MB	4	5.4	266	1 250	2.12	MR 2I 63 - 28 × 250	112 MB	4	6.57
5.4	72.1	4 530	1.25	MR 3I 80 - 28 × 250	112 MB	4	5.4	266	1 250	2.8	MR 2I 64 - 28 × 250	112 MB	4	6.57
5.4	72.1	4 530	1.7	MR 3I 81 - 28 × 250	112 MB	4	5.4	282	1 180	4.5	MR 2I 80 - 28 × 250	112 MB	4	6.20
5.4	67.4	4 850	2.36	MR 3I 100 - 28 × 250	112 MB	4	5.4	310	1 080	1.5	MR 2I 51 - 24 × 200	112 MB	BSR 4	5.65
5.4	67.4	4 850	3.15	MR 3I 101 - 28 × 250	112 MB	4	5.4	311	1 070	2.36	MR 2I 63 - 28 × 250	112 MB	4	5.63
5.4	71.4	4 670	1	MR 2I 80 - 24 × 200	112 MB	BSR 4	5.4	311	1 070	3	MR 2I 64 - 28 × 250	112 MB	4	5.63
5.4	74.7	4 470	2.12	MR 2I 100 - 28 × 250	112 MB	4	5.4	342	975	1.5	MR 2I 51 - 24 × 200	112 MB	BSR 4	5.11
5.4	78.0	4 190	2.65	MR 3I 100 - 28 × 250	112 MB	4	5.4	346	965	2.65	MR 2I 63 - 28 × 250	112 MB	4	5.06
5.4	78.0	4 190	3.55	MR 3I 101 - 28 × 250	112 MB	4	5.4	346	965	3	MR 2I 64 - 28 × 250	112 MB	4	5.06
5.4	76.8	4 340	2.12	MR 2I 100 - 38 × 300	132 MB	6	5.4	427	780	1.5	MR 2I 51 - 24 × 200	112 MB	BSR 4	4.10
5.4	85.0	3 840	1.5	MR 3I 80 - 28 × 250	112 MB	4	5.4	438	760	2.8	MR 2I 63 - 28 × 250	112 MB	4	4.00
5.4	85.0	3 840	2	MR 3I 81 - 28 × 250	112 MB	4	5.4	438	760	3	MR 2I 64 - 28 × 250	112 MB	4	4.00
5.4	86.2	3 790	3	MR 3I 100 - 28 × 250	112 MB	4								
5.4	87.3	3 820	1.32	MR 2I 80 - 24 × 200	112 MB	BSR 4	7.5	9.35	48 550	1.5	MR 3I 180 - 38 × 300	132 MB S3	6	123
5.4	88.1	3 790	1.18	MR 2I 80 - 28 × 250	112 MB	4	7.5	9.63	47 150	1.12	MR 3I 160 - 38 × 300	132 MB S3	6	119
5.4	87.3	3 820	1.6	MR 2I 81 - 24 × 200	112 MB	BSR 4	7.5	11.5	39 550	1.5	MR 3I 160 - 38 × 300	132 MB S3	6	100
5.4	90.8	3 670	2.8	MR 2I 100 - 28 × 250	112 MB	4	7.5	11.4	39 750	2.12	MR 3I 180 - 38 × 300	132 MB S3	6	101
5.4	90.8	3 670	3.35	MR 2I 101 - 28 × 250	112 MB	4	7.5	13.7	33 050	1.8	MR 3I 160 - 38 × 300	132 MB S3	6	83.8
5.4	94.7	3 450	1.6	MR 3I 80 - 28 × 250	112 MB	4	7.5	14.7	30 950	1.7	MR 3I 160 - 38 × 300	132 M	4	119
5.4	94.7	3 450	2.24	MR 3I 81 - 28 × 250	112 MB	4	7.5	13.7	33 200	2.5	MR 3I 180 - 38 × 300	132 MB S3	6	84.2
5.4	97.9	3 410	1.5	MR 2I 80 - 24 × 200	112 MB	BSR 4	7.5	14.2	31 900	2.36	MR 3I 180 - 38 × 300	132 M	4	123
5.4	97.9	3 410	2	MR 2I 81 - 24 × 200	112 MB	BSR 4	7.5	15.4	29 550	1.25	MR 3I 140 - 38 × 300	132 MB S3	6	74.8
5.4	101	3 300	3.15	MR 2I 100 - 28 × 250	112 MB	4	7.5	14.9	30 400	1.25	MR 3I 140 - 28 × 250	112 MC S3	4	117

1) Powers valid for continuous duty S1; **increase** possible for S2 ... S10 (ch. 2b) in which case  $P_2$  and  $M_2$  increase and  $f_s$  decreases proportionately.  
 2) For complete designation when ordering, see ch. 3.

\* Mounting position **BSR** (see table ch. 2b).

# Gearmotors selection tables

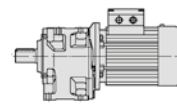


# 3.7

Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$			Gear ratio $i$	
7.5	18.7	24 300	0.95	MR	3I 125 - 28 × 250 112 MC S3	4	93.7
7.5	18.7	24 300	1.25	MR	3I 126 - 28 × 250 112 MC S3	4	93.7
7.5	18.3	24 750	1.7	MR	3I 140 - 28 × 250 112 MC S3	4	95.5
7.5	17.5	26 000	2.36	MR	3I 160 - 38 × 300 132 M	4	100
7.5	17.4	26 150	3.15	MR	3I 180 - 38 × 300 132 M	4	101
7.5	21.0	21 650	1.06	MR	3I 125 - 38 × 300 132 MB S3	6	54.8
7.5	21.0	21 650	1.32	MR	3I 126 - 38 × 300 132 MB S3	6	54.8
7.5	20.8	21 850	1.9	MR	3I 140 - 38 × 300 132 MB S3	6	55.4
7.5	20.9	21 700	2.8	MR	3I 160 - 38 × 300 132 M	4	83.8
7.5	20.8	21 850	3.75	MR	3I 180 - 38 × 300 132 M	4	84.2
7.5	23.3	19 450	1.18	MR	3I 125 - 38 × 300 132 MB S3	6	49.3
7.5	23.5	19 300	1.18	MR	3I 125 - 28 × 250 112 MC S3	4	74.4
7.5	23.4	19 400	1.12	MR	3I 125 - 38 × 300 132 M	4	74.8
7.5	23.3	19 450	1.6	MR	3I 126 - 38 × 300 132 MB S3	6	49.3
7.5	23.5	19 300	1.6	MR	3I 126 - 28 × 250 112 MC S3	4	74.4
7.5	23.4	19 400	1.4	MR	3I 126 - 38 × 300 132 M	4	74.8
7.5	22.9	19 800	2.12	MR	3I 140 - 38 × 300 132 MB S3	6	50.2
7.5	23.1	19 650	2.12	MR	3I 140 - 28 × 250 112 MC S3	4	75.8
7.5	23.4	19 400	1.9	MR	3I 140 - 38 × 300 132 M	4	74.8
7.5	23.1	19 600	3.15	MR	3I 160 - 38 × 300 132 MB S3	6	49.7
7.5	25.8	17 550	1.32	MR	3I 125 - 38 × 300 132 MB S3	6	44.5
7.5	25.8	17 550	1.8	MR	3I 126 - 38 × 300 132 MB S3	6	44.5
7.5	25.6	17 700	2.5	MR	3I 140 - 38 × 300 132 MB S3	6	44.9
7.5	26.7	17 000	3.55	MR	3I 160 - 38 × 300 132 MB S3	6	43.1
7.5	28.6	15 850	1.5	MR	3I 125 - 28 × 250 112 MC S3	4	61.2
7.5	29.2	15 550	1.5	MR	3I 125 - 38 × 300 132 M	4	59.9
7.5	28.6	15 850	1.9	MR	3I 126 - 28 × 250 112 MC S3	4	61.2
7.5	29.2	15 550	2	MR	3I 126 - 38 × 300 132 M	4	59.9
7.5	28.1	16 150	2.65	MR	3I 140 - 28 × 250 112 MC S3	4	62.3
7.5	28.7	15 800	2.65	MR	3I 140 - 38 × 300 132 M	4	61.0
7.5	26.7	17 000	3.55	MR	3I 160 - 38 × 300 132 M	4	65.6
7.5	30.5	14 900	1.06	MR	3I 101 - 38 × 300 132 MB S3	6	37.7
7.5	33.3	13 600	1.18	MR	3I 101 - 38 × 300 132 MB S3	6	34.5
7.5	30.6	14 800	1	MR	3I 101 - 28 × 250 112 MC S3	4	57.1
7.5	31.7	14 350	1.6	MR	3I 125 - 28 × 250 112 MC S3	4	55.3
7.5	31.9	14 200	1.6	MR	3I 125 - 38 × 300 132 M	4	54.8
7.5	31.7	14 350	2.24	MR	3I 126 - 28 × 250 112 MC S3	4	55.3
7.5	31.9	14 200	2	MR	3I 126 - 38 × 300 132 M	4	54.8
7.5	31.4	14 450	3	MR	3I 140 - 28 × 250 112 MC S3	4	55.7
7.5	31.6	14 350	2.8	MR	3I 140 - 38 × 300 132 M	4	55.4
7.5	30.5	14 900	4.25	MR	3I 160 - 38 × 300 132 M	4	57.4
7.5	37.2	12 200	0.95	MR	3I 100 - 28 × 250 112 MC S3	4	47.1
7.5	33.8	13 400	1.12	MR	3I 101 - 28 × 250 112 MC S3	4	51.7
7.5	37.2	12 200	1.32	MR	3I 101 - 28 × 250 112 MC S3	4	47.1
7.5	34.6	13 150	1.18	MR	3I 101 - 38 × 300 132 M	4	50.6
7.5	34.8	13 050	1.8	MR	3I 125 - 28 × 250 112 MC S3	4	50.2
7.5	35.5	12 750	1.8	MR	3I 125 - 38 × 300 132 M	4	49.3
7.5	34.8	13 050	2.36	MR	3I 126 - 28 × 250 112 MC S3	4	50.2
7.5	35.5	12 750	2.36	MR	3I 126 - 38 × 300 132 M	4	49.3
7.5	34.5	13 150	3.15	MR	3I 140 - 28 × 250 112 MC S3	4	50.8
7.5	34.9	13 000	3.35	MR	3I 140 - 38 × 300 132 M	4	50.2
7.5	40.6	11 150	1.06	MR	3I 100 - 28 × 250 112 MC S3	4	43.1
7.5	40.6	11 150	1.4	MR	3I 101 - 28 × 250 112 MC S3	4	43.1
7.5	38.3	11 850	1.18	MR	3I 101 - 38 × 300 132 M	4	45.7
7.5	37.9	12 000	1.9	MR	3I 125 - 28 × 250 112 MC S3	4	46.2
7.5	39.3	11 550	2	MR	3I 125 - 38 × 300 132 M	4	44.5
7.5	37.9	12 000	2.36	MR	3I 126 - 28 × 250 112 MC S3	4	46.2
7.5	39.3	11 550	2.65	MR	3I 126 - 38 × 300 132 M	4	44.5
7.5	37.5	12 100	3.35	MR	3I 140 - 28 × 250 112 MC S3	4	46.7
7.5	39.0	11 650	3.75	MR	3I 140 - 38 × 300 132 M	4	44.9
7.5	42.3	10 750	1.06	MR	3I 100 - 38 × 300 132 M	4	41.4
7.5	46.4	9 780	1.18	MR	3I 100 - 38 × 300 132 M	4	37.7
7.5	42.3	10 750	1.4	MR	3I 101 - 38 × 300 132 M	4	41.4
7.5	46.4	9 780	1.6	MR	3I 101 - 38 × 300 132 M	4	37.7
7.5	42.2	10 750	2.12	MR	3I 125 - 28 × 250 112 MC S3	4	41.5
7.5	46.7	9 720	2.36	MR	3I 125 - 28 × 250 112 MC S3	4	37.5
7.5	43.3	10 500	2.24	MR	3I 125 - 38 × 300 132 M	4	40.5
7.5	42.2	10 750	2.8	MR	3I 126 - 28 × 250 112 MC S3	4	41.5
7.5	46.7	9 720	3.15	MR	3I 126 - 28 × 250 112 MC S3	4	37.5
7.5	43.3	10 500	3	MR	3I 126 - 38 × 300 132 M	4	40.5
7.5	46.6	9 740	4	MR	3I 140 - 38 × 300 132 M	4	37.6
7.5	47.4	9 770	1.9	MR	2I 125 - 38 × 300 132 MB S3	6	24.3

Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$			Gear ratio $i$	
7.5	47.0	9 650	1.18	MR	3I 100 - 28 × 250 112 MC S3	4	37.2
7.5	50.7	8 940	1.25	MR	3I 100 - 38 × 300 132 M	4	34.5
7.5	47.0	9 650	1.6	MR	3I 101 - 28 × 250 112 MC S3	4	37.2
7.5	50.7	8 940	1.7	MR	3I 101 - 38 × 300 132 M	4	34.5
7.5	51.4	8 830	2.65	MR	3I 125 - 28 × 250 112 MC S3	4	34.1
7.5	47.1	9 640	2.24	MR	3I 125 - 38 × 300 132 M	4	37.2
7.5	52.4	8 660	2.65	MR	3I 125 - 38 × 300 132 M	4	33.4
7.5	47.1	9 640	2.8	MR	3I 126 - 38 × 300 132 M	4	37.2
7.5	52.4	8 660	3.35	MR	3I 126 - 38 × 300 132 M	4	33.4
7.5	55.9	8 120	0.95	MR	3I 81 - 28 × 250 112 MC S3	4	31.3
7.5	56.1	8 080	1.4	MR	3I 100 - 28 × 250 112 MC S3	4	31.2
7.5	58.7	7 730	1.5	MR	3I 100 - 38 × 300 132 M	4	29.8
7.5	56.1	8 080	1.8	MR	3I 101 - 28 × 250 112 MC S3	4	31.2
7.5	58.7	7 730	2	MR	3I 101 - 38 × 300 132 M	4	29.8
7.5	58.0	7 830	2.8	MR	3I 125 - 38 × 300 132 M	4	30.2
7.5	60.5	7 650	2.65	MR	2I 125 - 38 × 300 132 MB S3	6	19.0
7.5	63.9	7 100	1.06	MR	3I 81 - 28 × 250 112 MC S3	4	27.4
7.5	61.7	7 360	1.5	MR	3I 100 - 28 × 250 112 MC S3	4	28.4
7.5	61.7	7 360	2.12	MR	3I 101 - 28 × 250 112 MC S3	4	28.4
7.5	63.8	7 110	3.15	MR	3I 125 - 38 × 300 132 M	4	27.4
7.5	72.1	6 290	1.18	MR	3I 81 - 28 × 250 112 MC S3	4	24.3
7.5	67.4	6 730	1.7	MR	3I 100 - 28 × 250 112 MC S3	4	26.0
7.5	70.1	6 470	1.7	MR	3I 100 - 38 × 300 132 M	4	25.0
7.5	67.4	6 730	2.24	MR	3I 101 - 28 × 250 112 MC S3	4	26.0
7.5	70.1	6 470	2.24	MR	3I 101 - 38 × 300 132 M	4	25.0
7.5	74.5	6 090	3.75	MR	3I 125 - 38 × 300 132 M	4	23.5
7.5	74.7	6 200	1.5	MR	2I 100 - 28 × 250 112 MC S3	4	23.4
7.5	72.1	6 420	2.8	MR	2I 125 - 38 × 300 132 M	4	24.3
7.5	77.0	5 820	1.9	MR	3I 100 - 28 × 250 112 MC S3	4	22.4
7.5	78.0	5 890	1.9	MR	3I 100 - 38 × 300 132 M	4	22.7
7.5	78.0	5 820	2.65	MR	3I 101 - 28 × 250 112 MC S3	4	22.4
7.5	77.0	5 890	2.5	MR	3I 101 - 38 × 300 132 M	4	22.7
7.5	82.9	5 480	4.25	MR	3I 125 - 38 × 300 132 M	4	21.1
7.5	76.8	6 030	1.6	MR	2I 100 - 38 × 300 132 MB S3	6	15.0
7.5	85.0	5 340	1.06	MR	3I 80 - 28 × 250 112 MC S3	4	20.6
7.5	85.0	5 340	1.4	MR	3I 81 - 28 × 250 112 MC S3	4	20.6
7.5	86.2	5 270	2.12	MR	3I 100 - 28 × 250 112 MC S3	4	20.3
7.5	84.2	5 390	2.12	MR	3I 100 - 38 × 300 132 M	4	20.8
7.5	86.2	5 270	3	MR	3I 101 - 28 × 250 112 MC S3	4	20.3
7.5	84.2	5 390	2.8	MR	3I 101 - 38 × 300 132 M	4	20.8
7.5	93.4	4 960	2	MR	2I 100 - 38 × 300 132 MB S3	6	12.3
7.5	90.8	5 100	2	MR	2I 100 - 28 × 250 112 MC S3	4	19.3
7.5	93.4	4 960	2.5	MR	2I 101 - 38 × 300 132 MB S3	6	12.3
7.5	90.8	5 100	2.36	MR	2I 101 - 28 × 250 112 MC S3	4	19.3
7.5	92.1	5 030	4	MR	2I 125 - 38 × 300 132 M	4	19.0
7.5	94.7	4 790	1.18	MR	3I 80 - 28 × 250 112 MC S3	4	18.5
7.5	94.7	4 790	1.6	MR	3I 81 - 28 × 250 112 MC S3	4	18.5
7.5	97.4	4 660	2.36	MR	3I 100 - 38 × 300 132 M	4	18.0
7.5	97.4	4 660	3.15	MR	3I 101 - 38 × 300 132 M	4	18.0
7.5	101	4 590	2.24	MR	2I 100 - 28 × 250 112 MC S3	4	17.3
7.5	101	4 590	3	MR	2I 101 - 28 × 250 112 MC S3	4	17.3
7.5	109	4 170	1.32	MR	3I 80 - 28 × 250 112 MC S3	4	16.1
7.5	109	4 170	1.8	MR	3I 81 - 28 × 250 112 MC S3	4	16.1
7.5	108	4 220	2.65	MR	3I 100 - 38 × 300 132 M	4	16.3
7.5	108	4 220	3.55	MR	3I 101 - 38 × 300 132 M	4	16.3
7.5	108	4 300	1.18	MR	2I 80 - 28 × 250 112 MC S3	4	16.3
7.5	109	4 250	1.4	MR	2I 81 - 38 × 300 132 MB S3	6	10.6
7.5	108	4 300	1.4	MR	2I 81 - 28 × 250 112 MC S3	4	16.3
7.5	112	4 150	2.65	MR	2I 100 - 28 × 250 112 MC S3	4	15.7
7.5	117	3 960	2.36	MR	2I 100 - 38 × 300 132 M	4	15.0
7.5	112	4 150	3.35	MR	2I 101 - 28 × 250 112 MC S3	4	15.7
7.5	121	3 840	1.32	MR	2I 80 - 28 × 250 112 MC S3	4	14.5
7.5	121	3 840	1.7	MR	2I 81 - 28 × 250 112 MC S3	4	14.5
7.5	127	3 640	2.8	MR	2I 100 - 28 × 250 112 MC S3	4	13.8

# Gearmotors selection tables



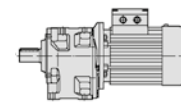
# 3.7

Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$			Gear ratio $i$	
2)							
7.5	136	3 410	1.6	MR 2I 80 - 38 × 300	132 MB S3	6	8.46
7.5	134	3 450	1.6	MR 2I 80 - 28 × 250	112 MC S3	4	13.0
7.5	136	3 420	1.32	MR 2I 80 - 38 × 300	132 M	4	12.9
7.5	136	3 410	2	MR 2I 81 - 38 × 300	132 MB S3	6	8.46
7.5	134	3 450	2	MR 2I 81 - 28 × 250	112 MC S3	4	13.0
7.5	141	3 300	3.15	MR 2I 100 - 28 × 250	112 MC S3	4	12.5
7.5	142	3 260	3	MR 2I 100 - 38 × 300	132 M	4	12.3
7.5	142	3 260	3.75	MR 2I 101 - 38 × 300	132 M	4	12.3
7.5	153	3 020	1.8	MR 2I 80 - 38 × 300	132 MB S3	6	7.50
7.5	149	3 110	1.7	MR 2I 80 - 28 × 250	112 MC S3	4	11.8
7.5	153	3 020	2.36	MR 2I 81 - 38 × 300	132 MB S3	6	7.50
7.5	149	3 110	2.12	MR 2I 81 - 28 × 250	112 MC S3	4	11.8
7.5	154	3 000	3.55	MR 2I 100 - 28 × 250	112 MC S3	4	11.3
7.5	158	2 930	3.55	MR 2I 100 - 38 × 300	132 M	4	11.1
7.5	175	2 650	1.12	MR 2I 64 - 28 × 250	112 MC S3	4	10.0
7.5	166	2 800	1.9	MR 2I 80 - 28 × 250	112 MC S3	4	10.6
7.5	187	2 480	2.12	MR 2I 80 - 28 × 250	112 MC S3	4	9.36
7.5	166	2 790	1.7	MR 2I 80 - 38 × 300	132 M	4	10.6
7.5	186	2 490	2	MR 2I 80 - 38 × 300	132 M	4	9.41
7.5	181	2 560	2.8	MR 2I 81 - 38 × 300	132 MB S3	6	6.36
7.5	166	2 800	2.5	MR 2I 81 - 28 × 250	112 MC S3	4	10.6
7.5	187	2 480	2.8	MR 2I 81 - 28 × 250	112 MC S3	4	9.36
7.5	166	2 790	2.12	MR 2I 81 - 38 × 300	132 M	4	10.6
7.5	186	2 490	2.65	MR 2I 81 - 38 × 300	132 M	4	9.41
7.5	169	2 740	4	MR 2I 100 - 28 × 250	112 MC S3	4	10.4
7.5	175	2 650	4	MR 2I 100 - 38 × 300	132 M	4	10.0
7.5	196	2 360	1.06	MR 2I 63 - 28 × 250	112 MC S3	4	8.91
7.5	196	2 360	1.32	MR 2I 64 - 28 × 250	112 MC S3	4	8.91
7.5	207	2 240	2.36	MR 2I 80 - 38 × 300	132 M	4	8.46
7.5	207	2 240	3	MR 2I 81 - 38 × 300	132 M	4	8.46
7.5	192	2 420	4.25	MR 2I 100 - 38 × 300	132 M	4	9.13
7.5	219	2 120	1.25	MR 2I 63 - 28 × 250	112 MC S3	4	8.00
7.5	219	2 120	1.6	MR 2I 64 - 28 × 250	112 MC S3	4	8.00
7.5	220	2 100	2.5	MR 2I 80 - 28 × 250	112 MC S3	4	7.95
7.5	233	1 980	2.65	MR 2I 80 - 38 × 300	132 M	4	7.50
7.5	220	2 100	3.35	MR 2I 81 - 28 × 250	112 MC S3	4	7.95
7.5	233	1 980	3.55	MR 2I 81 - 38 × 300	132 M	4	7.50
7.5	242	1 910	1.32	MR 2I 63 - 28 × 250	112 MC S3	4	7.23
7.5	242	1 910	1.8	MR 2I 64 - 28 × 250	112 MC S3	4	7.23
7.5	245	1 890	2.8	MR 2I 80 - 28 × 250	112 MC S3	4	7.13
7.5	245	1 890	3.75	MR 2I 81 - 28 × 250	112 MC S3	4	7.13
7.5	266	1 740	1.5	MR 2I 63 - 28 × 250	112 MC S3	4	6.57
7.5	266	1 740	2	MR 2I 64 - 28 × 250	112 MC S3	4	6.57
7.5	282	1 640	3.15	MR 2I 80 - 28 × 250	112 MC S3	4	6.20
7.5	275	1 680	3.15	MR 2I 80 - 38 × 300	132 M	4	6.36
7.5	311	1 490	1.7	MR 2I 63 - 28 × 250	112 MC S3	4	5.63
7.5	311	1 490	2.12	MR 2I 64 - 28 × 250	112 MC S3	4	5.63
7.5	306	1 510	3.35	MR 2I 80 - 38 × 300	132 M	4	5.71
7.5	346	1 340	1.9	MR 2I 63 - 28 × 250	112 MC S3	4	5.06
7.5	346	1 340	2.12	MR 2I 64 - 28 × 250	112 MC S3	4	5.06
7.5	353	1 310	4	MR 2I 80 - 38 × 300	132 M	4	4.96
7.5	438	1 060	2	MR 2I 63 - 28 × 250	112 MC S3	4	4.00
7.5	438	1 060	2.12	MR 2I 64 - 28 × 250	112 MC S3	4	4.00
7.5	441	1 050	4.25	MR 2I 80 - 38 × 300	132 M	4	3.96
10	9.35	64 750	1.18	MR 3I 180 - 38 × 300	132 MC S3	6	123
10	11.5	52 750	1.18	MR 3I 160 - 38 × 300	132 MC S3	6	100
10	11.4	53 000	1.6	MR 3I 180 - 38 × 300	132 MC S3	6	101
10	11.2	54 050	1.4	MR 3I 180 - 42 × 350	160 M	6	103
10	13.7	44 050	1.4	MR 3I 160 - 42 × 350	160 M	6	83.8
10	14.7	41 300	1.32	MR 3I 160 - 38 × 300	132 MB	4	119
10	13.7	44 300	1.9	MR 3I 180 - 42 × 350	160 M	6	84.2
10	14.2	42 550	1.8	MR 3I 180 - 38 × 300	132 MB	4	123
10	18.8	32 100	1.32	MR 3I 140 - 38 × 300	132 MC S3	6	61.0
10	18.8	32 100	1.32	MR 3I 140 - 42 × 350	160 M	6	61.0
10	17.5	34 650	1.8	MR 3I 160 - 38 × 300	132 MB	4	100
10	17.4	34 850	2.36	MR 3I 180 - 38 × 300	132 MB	4	101

Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$			Gear ratio $i$	
2)							
10	21.0	28 850	1	MR 3I 126 - 38 × 300	132 MC S3	6	54.8
10	20.8	29 150	1.4	MR 3I 140 - 38 × 300	132 MC S3	6	55.4
10	20.8	29 150	1.4	MR 3I 140 - 42 × 350	160 M	6	55.4
10	20.9	28 950	2.12	MR 3I 160 - 38 × 300	132 MB	4	83.8
10	20.8	29 100	2.8	MR 3I 180 - 38 × 300	132 MB	4	84.2
10	23.3	25 900	1.18	MR 3I 126 - 38 × 300	132 MC S3	6	49.3
10	23.3	25 900	1.18	MR 3I 126 - 42 × 350	160 M	6	49.3
10	23.4	25 900	1	MR 3I 126 - 38 × 300	132 MB	4	74.8
10	22.9	26 400	1.6	MR 3I 140 - 38 × 300	132 MC S3	6	50.2
10	23.4	25 900	1.5	MR 3I 140 - 38 × 300	132 MB	4	74.8
10	23.1	26 150	2.36	MR 3I 160 - 38 × 300	132 MC S3	6	49.7
10	21.8	27 800	2.24	MR 3I 160 - 42 × 350	160 M	6	52.8
10	23.6	25 600	3.15	MR 3I 180 - 38 × 300	132 MC S3	6	48.7
10	25.8	23 400	1	MR 3I 125 - 38 × 300	132 MC S3	6	44.5
10	25.8	23 400	1.32	MR 3I 126 - 38 × 300	132 MC S3	6	44.5
10	25.6	23 600	1.9	MR 3I 140 - 38 × 300	132 MC S3	6	44.9
10	26.5	22 800	1.8	MR 3I 140 - 42 × 350	160 M	6	43.4
10	26.7	22 700	2.65	MR 3I 160 - 38 × 300	132 MC S3	6	43.1
10	27.1	22 350	3.75	MR 3I 180 - 42 × 350	160 M	6	42.5
10	29.2	20 700	1.12	MR 3I 125 - 38 × 300	132 MB	4	59.9
10	29.2	20 700	1.5	MR 3I 126 - 38 × 300	132 MB	4	59.9
10	28.7	21 100	2	MR 3I 140 - 38 × 300	132 MB	4	61.0
10	26.7	22 700	2.65	MR 3I 160 - 38 × 300	132 MB	4	65.6
10	26.5	22 800	3.75	MR 3I 180 - 38 × 300	132 MB	4	65.9
10	31.9	18 950	1.18	MR 3I 125 - 38 × 300	132 MB	4	54.8
10	33.0	18 350	1.7	MR 3I 126 - 42 × 350	160 M	6	34.8
10	31.9	18 950	1.5	MR 3I 126 - 38 × 300	132 MB	4	54.8
10	33.8	17 900	2.36	MR 3I 140 - 38 × 300	132 MC S3	6	34.0
10	31.6	19 150	2.12	MR 3I 140 - 38 × 300	132 MB	4	55.4
10	30.5	19 850	3.15	MR 3I 160 - 38 × 300	132 MB	4	57.4
10	35.5	17 050	1.32	MR 3I 125 - 38 × 300	132 MB	4	49.3
10	35.5	17 050	1.8	MR 3I 126 - 38 × 300	132 MB	4	49.3
10	37.8	16 000	2.8	MR 3I 140 - 38 × 300	132 MC S3	6	30.4
10	34.9	17 350	2.5	MR 3I 140 - 38 × 300	132 MB	4	50.2
10	35.2	17 200	3.75	MR 3I 160 - 38 × 300	132 MB	4	49.7
10	38.6	15 700	1	MR 3I 101 - 38 × 300	132 MC S3	6	29.8
10	39.3	15 400	1.5	MR 3I 125 - 38 × 300	132 MB	4	44.5
10	39.3	15 400	2	MR 3I 126 - 38 × 300	132 MB	4	44.5
10	39.0	15 500	2.8	MR 3I 140 - 38 × 300	132 MB	4	44.9
10	40.6	14 900	4	MR 3I 160 - 38 × 300	132 MB	4	43.1
10	42.3	14 300	1.06	MR 3I 101 - 38 × 300	132 MB	4	41.4
10	46.4	13 050	1.18	MR 3I 101 - 38 × 300	132 MB	4	37.7
10	43.3	14 000	1.7	MR 3I 125 - 38 × 300	132 MB	4	40.5
10	43.3	14 000	2.24	MR 3I 126 - 38 × 300	132 MB	4	40.5
10	42.8	14 150	3	MR 3I 140 - 38 × 300	132 MB	4	40.9
10	46.6	13 000	3	MR 3I 140 - 38 × 300	132 MB	4	37.6
10	50.7	11 900	1.32	MR 3I 101 - 38 × 300	132 MB	4	34.5
10	47.1	12 850	1.7	MR 3I 125 - 38 × 300	132 MB	4	37.2
10	52.4	11 550	2	MR 3I 125 - 38 × 300	132 MB	4	33.4
10	47.1	12 850	2.12	MR 3I 126 - 38 × 300	132 MB	4	37.2
10	52.4	11 550	2.5	MR 3I 126 - 38 × 300	132 MB	4	33.4
10	51.4	11 750	3.55	MR 3I 140 - 38 × 300	132 MB	4	34.0
10	58.7	10 300	1.12	MR 3I 100 - 38 × 300	132 MB	4	29.8
10	58.7	10 300	1.5	MR 3I 101 - 38 × 300	132 MB	4	29.8
10	58.0	10 450	2.12	MR 3I 125 - 38 × 300	132 MB	4	30.2
10	58.0	10 450	3	MR 3I 126 - 38 × 300	132 MB	4	30.2
10	57.5	10 500	4	MR 3I 140 - 38 × 300	132 MB	4	30.4
10	60.5	10 200	2	MR 2I 125 - 38 × 300	132 MC S3	6	19.0
10	56.8	10 900	1.7	MR 2I 125 - 42 × 350	160 M	6	20.3
10	64.0	9 450	1.18	MR 3I 100 - 38 × 300	132 MC S3	6	18.0
10	64.0	9 450	1.6	MR 3I 101 - 38 × 300	132 MC S3	6	18.0
10	63.8	9 480	2.36	MR 3I 125 - 38 × 300	132 MB	4	27.4
10	63.8	9 480	3.15	MR 3I 126 - 38 × 300	132 MB	4	27.4
10	70.1	8 630	1.32	MR 3I 100 - 38 × 300	132 MB	4	25.0
10	70.1	8 630	1.7	MR 3I 101 - 38 × 300	132 MB	4	25.0
10	74.5	8 120	2.8	MR 3I 125 - 38 × 300	132 MB	4	23.5
10	74.5	8 120	3.75	MR 3I 126 - 38 × 300	132 MB	4	23.5
10	74.7	8 270	1.12	MR 2I 100 - 28 × 250	132 MB B5R	4	23.4
10	75.7	8 160	2.65	MR 2I 125 - 38 × 300	132 MC S3	6	15.2
10	72.5	8 520	2.36	MR 2I 125 - 42 × 350	160 M	6	15.9
10	72.1	8 560	2.12	MR 2I 125 - 38 × 300	132 MB	4	24.3

Motor (cat. TX) with efficiency value not according to IE3 class (IEC 60034-30); the nominal power and nameplate data refer to intermittent duty S3 70%.

# Gearmotors selection tables



# 3.7

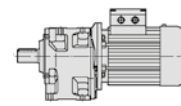
Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$		Gear ratio $i$
10	77.0	7 860	1.4	MR 3I 100 - 38 × 300 132 MB	4 22.7
10	77.0	7 860	1.9	MR 3I 101 - 38 × 300 132 MB	4 22.7
10	82.9	7 300	3.15	MR 3I 125 - 38 × 300 132 MB	4 21.1
10	76.8	8 040	1.18	MR 2I 100 - 38 × 300 132 MC S3	6 15.0
10	76.8	8 040	1.18	MR 2I 100 - 42 × 350 160 M	6 15.0
10	81.3	7 590	2.8	MR 2I 125 - 38 × 300 132 MC S3	6 14.1
10	84.2	7 180	1.5	MR 3I 100 - 38 × 300 132 MB	4 20.8
10	84.2	7 180	2.12	MR 3I 101 - 38 × 300 132 MB	4 20.8
10	93.4	6 610	1.5	MR 2I 100 - 38 × 300 132 MC S3	6 12.3
10	93.4	6 610	1.5	MR 2I 100 - 42 × 350 160 M	6 12.3
10	90.8	6 800	1.5	MR 2I 100 - 28 × 250 132 MB B5R	4 19.3
10	93.4	6 610	1.9	MR 2I 101 - 38 × 300 132 MC S3	6 12.3
10	93.4	6 610	1.9	MR 2I 101 - 42 × 350 160 M	6 12.3
10	90.8	6 800	1.8	MR 2I 101 - 28 × 250 132 MB B5R	4 19.3
10	92.1	6 710	3	MR 2I 125 - 38 × 300 132 MB	4 19.0
10	92.1	6 710	3.75	MR 2I 126 - 38 × 300 132 MB	4 19.0
10	97.4	6 210	1.8	MR 3I 100 - 38 × 300 132 MB	4 18.0
10	97.4	6 210	2.36	MR 3I 101 - 38 × 300 132 MB	4 18.0
10	104	5 950	1.8	MR 2I 100 - 38 × 300 132 MC S3	6 11.1
10	104	5 950	1.8	MR 2I 100 - 42 × 350 160 M	6 11.1
10	101	6 120	1.7	MR 2I 100 - 28 × 250 132 MB B5R	4 17.3
10	104	5 950	2.24	MR 2I 101 - 38 × 300 132 MC S3	6 11.1
10	104	5 950	2.24	MR 2I 101 - 42 × 350 160 M	6 11.1
10	101	6 120	2.12	MR 2I 101 - 28 × 250 132 MB B5R	4 17.3
10	103	5 970	3.55	MR 2I 125 - 38 × 300 132 MB	4 16.9
10	108	5 620	2	MR 3I 100 - 38 × 300 132 MB	4 16.3
10	108	5 620	2.65	MR 3I 101 - 38 × 300 132 MB	4 16.3
10	108	5 740	1.06	MR 2I 81 - 28 × 250 132 MB B5R	4 16.3
10	115	5 380	2	MR 2I 100 - 38 × 300 132 MC S3	6 10.0
10	112	5 540	2	MR 2I 100 - 28 × 250 132 MB B5R	4 15.7
10	117	5 280	1.7	MR 2I 100 - 38 × 300 132 MB	4 15.0
10	115	5 380	2.65	MR 2I 101 - 38 × 300 132 MC S3	6 10.0
10	115	5 380	2.65	MR 2I 101 - 42 × 350 160 M	6 10.0
10	112	5 540	2.5	MR 2I 101 - 28 × 250 132 MB B5R	4 15.7
10	115	5 360	4	MR 2I 125 - 38 × 300 132 MB	4 15.2
10	121	5 110	1	MR 2I 80 - 28 × 250 132 MB B5R	4 14.5
10	121	5 110	1.32	MR 2I 81 - 28 × 250 132 MB B5R	4 14.5
10	126	4 900	2.24	MR 2I 100 - 38 × 300 132 MC S3	6 9.13
10	133	4 650	2.24	MR 2I 100 - 42 × 350 160 M	6 8.67
10	127	4 850	2.12	MR 2I 100 - 28 × 250 132 MB B5R	4 13.8
10	126	4 900	3	MR 2I 101 - 38 × 300 132 MC S3	6 9.13
10	133	4 650	2.8	MR 2I 101 - 42 × 350 160 M	6 8.67
10	127	4 850	2.65	MR 2I 101 - 28 × 250 132 MB B5R	4 13.8
10	124	4 990	4.25	MR 2I 125 - 38 × 300 132 MB	4 14.1
10	134	4 600	1.18	MR 2I 80 - 28 × 250 132 MB B5R	4 13.0
10	136	4 560	1	MR 2I 80 - 38 × 300 132 MB	4 12.9
10	134	4 600	1.5	MR 2I 81 - 28 × 250 132 MB B5R	4 13.0
10	141	4 390	2.36	MR 2I 100 - 28 × 250 132 MB B5R	4 12.5
10	142	4 350	2.24	MR 2I 100 - 38 × 300 132 MB	4 12.3
10	141	4 390	3.15	MR 2I 101 - 28 × 250 132 MB B5R	4 12.5
10	142	4 350	2.8	MR 2I 101 - 38 × 300 132 MB	4 12.3
10	138	4 480	4.75	MR 2I 125 - 38 × 300 132 MB	4 12.7
10	149	4 150	1.25	MR 2I 80 - 28 × 250 132 MB B5R	4 11.8
10	153	4 030	1.8	MR 2I 81 - 38 × 300 132 MC S3	6 7.50
10	149	4 150	1.6	MR 2I 81 - 28 × 250 132 MB B5R	4 11.8
10	158	3 910	2.65	MR 2I 100 - 38 × 300 132 MB	4 11.1
10	158	3 910	3.35	MR 2I 101 - 38 × 300 132 MB	4 11.1
10	166	3 730	1.4	MR 2I 80 - 28 × 250 132 MB B5R	4 10.6
10	187	3 300	1.6	MR 2I 80 - 28 × 250 132 MB B5R	4 9.36
10	166	3 730	1.32	MR 2I 80 - 38 × 300 132 MB	4 10.6
10	186	3 320	1.5	MR 2I 80 - 38 × 300 132 MB	4 9.41
10	166	3 730	1.8	MR 2I 81 - 28 × 250 132 MB B5R	4 10.6
10	187	3 300	2.12	MR 2I 81 - 28 × 250 132 MB B5R	4 9.36
10	166	3 730	1.6	MR 2I 81 - 38 × 300 132 MB	4 10.6
10	186	3 320	1.9	MR 2I 81 - 38 × 300 132 MB	4 9.41
10	175	3 540	3	MR 2I 100 - 38 × 300 132 MB	4 10.0
10	175	3 540	4	MR 2I 101 - 38 × 300 132 MB	4 10.0

Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$		Gear ratio $i$
10	207	2 990	1.7	MR 2I 80 - 38 × 300 132 MB	4 8.46
10	207	2 990	2.24	MR 2I 81 - 38 × 300 132 MB	4 8.46
10	192	3 220	3.35	MR 2I 100 - 38 × 300 132 MB	4 9.13
10	210	2 950	3.55	MR 2I 100 - 38 × 300 132 MB	4 8.35
10	219	2 820	1.18	MR 2I 64 - 28 × 250 132 MB B5R	4 8.00
10	233	2 650	2	MR 2I 80 - 38 × 300 132 MB	4 7.50
10	233	2 650	2.65	MR 2I 81 - 38 × 300 132 MB	4 7.50
10	242	2 550	1.4	MR 2I 64 - 28 × 250 132 MB B5R	4 7.23
10	245	2 520	2.12	MR 2I 80 - 28 × 250 132 MB B5R	4 7.13
10	245	2 520	2.8	MR 2I 81 - 28 × 250 132 MB B5R	4 7.13
10	243	2 550	4.25	MR 2I 100 - 38 × 300 132 MB	4 7.22
10	266	2 320	1.5	MR 2I 64 - 28 × 250 132 MB B5R	4 6.57
10	275	2 250	2.36	MR 2I 80 - 38 × 300 132 MB	4 6.36
10	275	2 250	3.15	MR 2I 81 - 38 × 300 132 MB	4 6.36
10	311	1 990	1.6	MR 2I 64 - 28 × 250 132 MB B5R	4 5.63
10	306	2 020	2.65	MR 2I 80 - 38 × 300 132 MB	4 5.71
10	306	2 020	3.15	MR 2I 81 - 38 × 300 132 MB	4 5.71
10	346	1 790	1.6	MR 2I 64 - 28 × 250 132 MB B5R	4 5.06
10	353	1 750	3	MR 2I 80 - 38 × 300 132 MB	4 4.96
10	353	1 750	3.15	MR 2I 81 - 38 × 300 132 MB	4 4.96
10	438	1 410	1.6	MR 2I 64 - 28 × 250 132 MB B5R	4 4.00
10	441	1 400	3.15	MR 2I 80 - 38 × 300 132 MB	4 3.96
12.4	14.7	51 200	1.06	MR 3I 160 - 38 × 300 132 MB S3	4 119
12.4	14.2	52 750	1.4	MR 3I 180 - 38 × 300 132 MB S3	4 123
12.4	17.5	43 000	1.4	MR 3I 160 - 38 × 300 132 MB S3	4 100
12.4	17.4	43 200	1.9	MR 3I 180 - 38 × 300 132 MB S3	4 101
12.4	20.9	35 900	1.7	MR 3I 160 - 38 × 300 132 MB S3	4 83.8
12.4	20.8	36 100	2.24	MR 3I 180 - 38 × 300 132 MB S3	4 84.2
12.4	23.4	32 100	1.18	MR 3I 140 - 38 × 300 132 MB S3	4 74.8
12.4	29.2	25 650	1.18	MR 3I 126 - 38 × 300 132 MB S3	4 59.9
12.4	28.7	26 150	1.6	MR 3I 140 - 38 × 300 132 MB S3	4 61.0
12.4	26.7	28 100	2.12	MR 3I 160 - 38 × 300 132 MB S3	4 65.6
12.4	26.5	28 250	3	MR 3I 180 - 38 × 300 132 MB S3	4 65.9
12.4	31.9	23 500	1.18	MR 3I 126 - 38 × 300 132 MB S3	4 54.8
12.4	31.6	23 750	1.7	MR 3I 140 - 38 × 300 132 MB S3	4 55.4
12.4	30.5	24 600	2.5	MR 3I 160 - 38 × 300 132 MB S3	4 57.4
12.4	30.6	24 500	3.55	MR 3I 180 - 38 × 300 132 MB S3	4 57.1
12.4	35.5	21 100	1.12	MR 3I 125 - 38 × 300 132 MB S3	4 49.3
12.4	35.5	21 100	1.4	MR 3I 126 - 38 × 300 132 MB S3	4 49.3
12.4	34.9	21 500	2	MR 3I 140 - 38 × 300 132 MB S3	4 50.2
12.4	35.2	21 300	3	MR 3I 160 - 38 × 300 132 MB S3	4 49.7
12.4	36.0	20 850	3.75	MR 3I 180 - 38 × 300 132 MB S3	4 48.7
12.4	39.3	19 100	1.18	MR 3I 125 - 38 × 300 132 MB S3	4 44.5
12.4	39.3	19 100	1.6	MR 3I 126 - 38 × 300 132 MB S3	4 44.5
12.4	39.0	19 250	2.24	MR 3I 140 - 38 × 300 132 MB S3	4 44.9
12.4	40.6	18 500	3.15	MR 3I 160 - 38 × 300 132 MB S3	4 43.1
12.4	46.4	16 150	0.95	MR 3I 101 - 38 × 300 132 MB S3	4 37.7
12.4	43.3	17 350	1.32	MR 3I 125 - 38 × 300 132 MB S3	4 40.5
12.4	43.3	17 350	1.8	MR 3I 126 - 38 × 300 132 MB S3	4 40.5
12.4	42.8	17 500	2.36	MR 3I 140 - 38 × 300 132 MB S3	4 40.9
12.4	46.6	16 100	2.5	MR 3I 140 - 38 × 300 132 MB S3	4 37.6
12.4	46.4	16 150	3.75	MR 3I 160 - 38 × 300 132 MB S3	4 37.7
12.4	50.7	14 800	1.06	MR 3I 101 - 38 × 300 132 MB S3	4 34.5
12.4	47.1	15 950	1.4	MR 3I 125 - 38 × 300 132 MB S3	4 37.2
12.4	52.4	14 300	1.6	MR 3I 125 - 38 × 300 132 MB S3	4 33.4
12.4	47.1	15 950	1.7	MR 3I 126 - 38 × 300 132 MB S3	4 37.2
12.4	52.4	14 300	2	MR 3I 126 - 38 × 300 132 MB S3	4 33.4
12.4	51.4	14 600	2.8	MR 3I 140 - 38 × 300 132 MB S3	4 34.0
12.4	58.7	12 800	1.18	MR 3I 101 - 38 × 300 132 MB S3	4 29.8
12.4	58.0	12 950	1.7	MR 3I 125 - 38 × 300 132 MB S3	4 30.2
12.4	58.0	12 950	2.36	MR 3I 126 - 38 × 300 132 MB S3	4 30.2
12.4	57.5	13 050	3.35	MR 3I 140 - 38 × 300 132 MB S3	4 30.4
12.4	63.8	11 750	1.9	MR 3I 125 - 38 × 300 132 MB S3	4 27.4
12.4	63.8	11 750	2.65	MR 3I 126 - 38 × 300 132 MB S3	4 27.4

Motor (cat. TX) with efficiency value not according to IE3 class (IEC 60034-30); the nominal power and nameplate data refer to intermittent duty S3 70%.

1) Powers valid for continuous duty S1; increase possible for S2 ... S10 (ch. 2b) in which case  $P_2$  and  $M_2$  increase and  $f_s$  decreases proportionately.  
2) For complete designation when ordering, see ch. 3.

\* Mounting position B5R (see table ch. 2b).



# Gearmotors selection tables

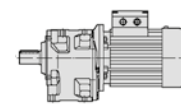
# 3.7

Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$	2)			Gear ratio $i$
12.4	70.1	10 700	1.06	MR 3I 100 - 38 × 300	132 MB S3	4	25.0
12.4	70.1	10 700	1.4	MR 3I 101 - 38 × 300	132 MB S3	4	25.0
12.4	74.5	10 050	2.24	MR 3I 125 - 38 × 300	132 MB S3	4	23.5
12.4	74.5	10 050	3	MR 3I 126 - 38 × 300	132 MB S3	4	23.5
12.4	67.1	11 200	3.75	MR 3I 140 - 38 × 300	132 MB S3	4	26.1
12.4	72.1	10 600	1.7	MR 2I 125 - 38 × 300	132 MB S3	4	24.3
12.4	77.0	9 740	1.12	MR 3I 100 - 38 × 300	132 MB S3	4	22.7
12.4	77.0	9 740	1.5	MR 3I 101 - 38 × 300	132 MB S3	4	22.7
12.4	82.9	9 050	2.5	MR 3I 125 - 38 × 300	132 MB S3	4	21.1
12.4	82.9	9 050	3.35	MR 3I 126 - 38 × 300	132 MB S3	4	21.1
12.4	84.2	8 910	1.25	MR 3I 100 - 38 × 300	132 MB S3	4	20.8
12.4	84.2	8 910	1.7	MR 3I 101 - 38 × 300	132 MB S3	4	20.8
12.4	92.1	8 320	2.36	MR 2I 125 - 38 × 300	132 MB S3	4	19.0
12.4	92.1	8 320	3	MR 2I 126 - 38 × 300	132 MB S3	4	19.0
12.4	97.4	7 700	1.4	MR 3I 100 - 38 × 300	132 MB S3	4	18.0
12.4	97.4	7 700	2	MR 3I 101 - 38 × 300	132 MB S3	4	18.0
12.4	103	7 410	2.8	MR 2I 125 - 38 × 300	132 MB S3	4	16.9
12.4	103	7 410	3.55	MR 2I 126 - 38 × 300	132 MB S3	4	16.9
12.4	108	6 970	1.6	MR 3I 100 - 38 × 300	132 MB S3	4	16.3
12.4	108	6 970	2.12	MR 3I 101 - 38 × 300	132 MB S3	4	16.3
12.4	117	6 550	1.4	MR 2I 100 - 38 × 300	132 MB S3	4	15.0
12.4	115	6 650	3.15	MR 2I 125 - 38 × 300	132 MB S3	4	15.2
12.4	124	6 190	3.35	MR 2I 125 - 38 × 300	132 MB S3	4	14.1
12.4	142	5 390	1.8	MR 2I 100 - 38 × 300	132 MB S3	4	12.3
12.4	142	5 390	2.24	MR 2I 101 - 38 × 300	132 MB S3	4	12.3
12.4	138	5 560	3.75	MR 2I 125 - 38 × 300	132 MB S3	4	12.7
12.4	158	4 850	2.12	MR 2I 100 - 38 × 300	132 MB S3	4	11.1
12.4	158	4 850	2.65	MR 2I 101 - 38 × 300	132 MB S3	4	11.1
12.4	153	5 020	4.25	MR 2I 125 - 38 × 300	132 MB S3	4	11.5
12.4	166	4 620	1.06	MR 2I 80 - 38 × 300	132 MB S3	4	10.6
12.4	186	4 120	1.25	MR 2I 80 - 38 × 300	132 MB S3	4	9.41
12.4	166	4 620	1.32	MR 2I 81 - 38 × 300	132 MB S3	4	10.6
12.4	186	4 120	1.6	MR 2I 81 - 38 × 300	132 MB S3	4	9.41
12.4	175	4 390	2.36	MR 2I 100 - 38 × 300	132 MB S3	4	10.0
12.4	175	4 390	3.15	MR 2I 101 - 38 × 300	132 MB S3	4	10.0
12.4	207	3 700	1.4	MR 2I 80 - 38 × 300	132 MB S3	4	8.46
12.4	207	3 700	1.8	MR 2I 81 - 38 × 300	132 MB S3	4	8.46
12.4	192	3 990	2.65	MR 2I 100 - 38 × 300	132 MB S3	4	9.13
12.4	210	3 650	2.8	MR 2I 100 - 38 × 300	132 MB S3	4	8.35
12.4	192	3 990	3.55	MR 2I 101 - 38 × 300	132 MB S3	4	9.13
12.4	210	3 650	4	MR 2I 101 - 38 × 300	132 MB S3	4	8.35
12.4	233	3 280	1.6	MR 2I 80 - 38 × 300	132 MB S3	4	7.50
12.4	233	3 280	2.12	MR 2I 81 - 38 × 300	132 MB S3	4	7.50
12.4	243	3 160	3.35	MR 2I 100 - 38 × 300	132 MB S3	4	7.22
12.4	275	2 780	1.9	MR 2I 80 - 38 × 300	132 MB S3	4	6.36
12.4	275	2 780	2.5	MR 2I 81 - 38 × 300	132 MB S3	4	6.36
12.4	268	2 860	3.75	MR 2I 100 - 38 × 300	132 MB S3	4	6.53
12.4	306	2 500	2.12	MR 2I 80 - 38 × 300	132 MB S3	4	5.71
12.4	306	2 500	2.65	MR 2I 81 - 38 × 300	132 MB S3	4	5.71
12.4	353	2 170	2.36	MR 2I 80 - 38 × 300	132 MB S3	4	4.96
12.4	353	2 170	2.65	MR 2I 81 - 38 × 300	132 MB S3	4	4.96
12.4	441	1 730	2.5	MR 2I 80 - 38 × 300	132 MB S3	4	3.96
12.4	441	1 730	2.65	MR 2I 81 - 38 × 300	132 MB S3	4	3.96
15	13.7	66 450	1.25	MR 3I 180 - 42 × 350	160 L	6	84.2
15	14.2	63 800	1.18	MR 3I 180 - 38 × 300	132 MC S3	4	123
15	17.1	53 200	1.12	MR 3I 160 - 42 × 350	160 L	6	67.4
15	17.5	52 000	1.18	MR 3I 160 - 38 × 300	132 MC S3	4	100
15	17.4	52 250	1.6	MR 3I 180 - 38 × 300	132 MC S3	4	101
15	17.0	53 300	1.4	MR 3I 180 - 42 × 350	160 M	4	103
15	20.9	43 450	1.4	MR 3I 160 - 38 × 300	132 MC S3	4	83.8
15	20.9	43 450	1.4	MR 3I 160 - 42 × 350	160 M	4	83.8
15	20.8	43 650	1.9	MR 3I 180 - 38 × 300	132 MC S3	4	84.2
15	20.8	43 650	1.9	MR 3I 180 - 42 × 350	160 M	4	84.2
15	22.9	39 600	1.06	MR 3I 140 - 42 × 350	160 L	6	50.2

Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$	2)			Gear ratio $i$
15	26.5	34 200	1.18	MR 3I 140 - 42 × 350	160 L	6	43.4
15	25.9	35 000	1.7	MR 3I 160 - 42 × 350	160 M	4	67.4
15	25.8	35 150	2.36	MR 3I 180 - 42 × 350	160 M	4	67.8
15	29.8	30 400	1	MR 3I 126 - 42 × 350	160 L	6	38.5
15	29.2	31 050	1	MR 3I 126 - 38 × 300	132 MC S3	4	59.9
15	28.7	31 650	1.32	MR 3I 140 - 38 × 300	132 MC S3	4	61.0
15	28.7	31 650	1.32	MR 3I 140 - 42 × 350	160 M	4	61.0
15	28.7	31 600	2	MR 3I 160 - 42 × 350	160 L	6	40.0
15	26.7	34 000	1.8	MR 3I 160 - 38 × 300	132 MC S3	4	65.6
15	26.5	34 200	2.5	MR 3I 180 - 38 × 300	132 MC S3	4	65.9
15	29.3	30 900	2.65	MR 3I 180 - 42 × 350	160 M	4	59.6
15	33.0	27 500	1.12	MR 3I 126 - 42 × 350	160 L	6	34.8
15	31.9	28 450	1	MR 3I 126 - 38 × 300	132 MC S3	4	54.8
15	32.8	27 700	1.6	MR 3I 140 - 42 × 350	160 L	6	35.1
15	31.6	28 750	1.4	MR 3I 140 - 38 × 300	132 MC S3	4	55.4
15	31.6	28 750	1.4	MR 3I 140 - 42 × 350	160 M	4	55.4
15	30.5	29 750	2.12	MR 3I 160 - 38 × 300	132 MC S3	4	57.4
15	30.4	29 800	1.9	MR 3I 160 - 42 × 350	160 M	4	57.5
15	30.6	29 650	2.8	MR 3I 180 - 38 × 300	132 MC S3	4	57.1
15	33.0	27 550	3.15	MR 3I 180 - 42 × 350	160 M	4	53.1
15	35.5	25 550	1.18	MR 3I 126 - 38 × 300	132 MC S3	4	49.3
15	35.5	25 550	1.18	MR 3I 126 - 42 × 350	160 M	4	49.3
15	34.9	26 050	1.6	MR 3I 140 - 38 × 300	132 MC S3	4	50.2
15	34.9	26 050	1.6	MR 3I 140 - 42 × 350	160 M	4	50.2
15	35.2	25 800	2.5	MR 3I 160 - 38 × 300	132 MC S3	4	49.7
15	33.1	27 400	2.24	MR 3I 160 - 42 × 350	160 M	4	52.8
15	33.2	27 350	3.15	MR 3I 180 - 38 × 300	132 MC S3	4	52.7
15	36.0	25 250	3.15	MR 3I 180 - 38 × 300	132 MC S3	4	48.7
15	39.3	23 100	1	MR 3I 125 - 38 × 300	132 MC S3	4	44.5
15	40.8	22 250	1	MR 3I 125 - 42 × 350	160 M	4	42.9
15	39.3	23 100	1.32	MR 3I 126 - 38 × 300	132 MC S3	4	44.5
15	40.8	22 250	1.25	MR 3I 126 - 42 × 350	160 M	4	42.9
15	39.0	23 250	1.8	MR 3I 140 - 38 × 300	132 MC S3	4	44.9
15	40.4	22 500	1.8	MR 3I 140 - 42 × 350	160 M	4	43.4
15	40.6	22 350	2.65	MR 3I 160 - 38 × 300	132 MC S3	4	43.1
15	37.9	23 950	2.65	MR 3I 160 - 42 × 350	160 M	4	46.2
15	38.0	23 850	3.55	MR 3I 180 - 42 × 350	160 M	4	46.0
15	43.3	21 000	1.12	MR 3I 125 - 38 × 300	132 MC S3	4	40.5
15	45.4	20 000	1.12	MR 3I 125 - 42 × 350	160 M	4	38.5
15	43.3	21 000	1.5	MR 3I 126 - 38 × 300	132 MC S3	4	40.5
15	45.4	20 000	1.5	MR 3I 126 - 42 × 350	160 M	4	38.5
15	42.8	21 200	2	MR 3I 140 - 38 × 300	132 MC S3	4	40.9
15	46.6	19 500	2	MR 3I 140 - 38 × 300	132 MC S3	4	37.6
15	44.5	20 350	2	MR 3I 140 - 42 × 350	160 M	4	39.3
15	46.4	19 550	3.15	MR 3I 160 - 38 × 300	132 MC S3	4	37.7
15	43.7	20 750	3	MR 3I 160 - 42 × 350	160 M	4	40.0
15	47.1	19 300	1.12	MR 3I 125 - 38 × 300	132 MC S3	4	37.2
15	52.4	17 300	1.32	MR 3I 125 - 38 × 300	132 MC S3	4	33.4
15	50.2	18 050	1.25	MR 3I 125 - 42 × 350	160 M	4	34.8
15	47.1	19 300	1.4	MR 3I 126 - 38 × 300	132 MC S3	4	37.2
15	52.4	17 300	1.7	MR 3I 126 - 38 × 300	132 MC S3	4	33.4
15	50.2	18 050	1.7	MR 3I 126 - 42 × 350	160 M	4	34.8
15	51.4	17 650	2.36	MR 3I 140 - 38 × 300	132 MC S3	4	34.0
15	49.9	18 200	2.36	MR 3I 140 - 42 × 350	160 M	4	35.1
15	50.4	18 000	3.35	MR 3I 160 - 42 × 350	160 M	4	34.7
15	58.7	15 450	1	MR 3I 101 - 38 × 300	132 MC S3	4	29.8
15	58.0	15 650	1.4	MR 3I 125 - 38 × 300	132 MC S3	4	30.2
15	55.3	16 400	1.4	MR 3I 125 - 42 × 350	160 M	4	31.7
15	58.0	15 650	1.9	MR 3I 126 - 38 × 300	132 MC S3	4	30.2
15	55.3	16 400	1.9	MR 3I 126 - 42 × 350	160 M	4	31.7
15	57.5	15 750	2.65	MR 3I 140 - 38 × 300	132 MC S3	4	30.4
15	54.7	16 600	2.5	MR 3I 140 - 42 × 350	160 M	4	32.0
15	53.6	16 950	3.55	MR 3I 160 - 38 × 300	132 MC S3	4	32.7
15	57.6	15 750	3.75	MR 3I 160 - 42 × 350	160 M	4	30.4
15	63.8	14 250	1.6	MR 3I 125 - 38 × 300	132 MC S3	4	27.4
15	60.1	15 100	1.4	MR 3I 125 - 42 × 350	160 M	4	29.1
15	63.8	14 250	2.12	MR 3I 126 - 38 × 300	132 MC S3	4	27.4
15	60.1	15 100	1.8	MR 3I 126 - 42 × 350	160 M	4	29.1
15	59.5	15 250	2.5	MR 3I 140 - 42 × 350	160 M	4	29.4
15	65.7	13 800	3	MR 3I 140 - 42 × 350	160 M	4	26.6
15	66.4	13 950	4	MR 2I 160 - 42 × 350	160 L	6	17.3

Motor (cat. TX) with efficiency value not according to IE3 class (IEC 60034-30); the nominal power and nameplate data refer to intermittent duty S3 70%.

# Gearmotors selection tables



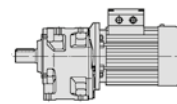
# 3.7

Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$		Gear ratio $i$
15	70.1	12 950	1.12	MR 3I 101 - 38 × 300 132 MC S3	4 25.0
15	74.5	12 200	1.9	MR 3I 125 - 38 × 300 132 MC S3	4 23.5
15	67.0	13 550	1.6	MR 3I 125 - 42 × 350 160 M	4 26.1
15	74.1	12 250	1.8	MR 3I 125 - 42 × 350 160 M	4 23.6
15	74.5	12 200	2.5	MR 3I 126 - 38 × 300 132 MC S3	4 23.5
15	67.0	13 550	2.12	MR 3I 126 - 42 × 350 160 M	4 26.1
15	74.1	12 250	2.5	MR 3I 126 - 42 × 350 160 M	4 23.6
15	67.1	13 550	3.15	MR 3I 140 - 38 × 300 132 MC S3	4 26.1
15	74.2	12 200	3.15	MR 3I 140 - 38 × 300 132 MC S3	4 23.6
15	73.5	12 350	3.35	MR 3I 140 - 42 × 350 160 M	4 23.8
15	72.1	12 850	1.4	MR 2I 125 - 38 × 300 132 MC S3	4 24.3
15	77.0	11 800	1.25	MR 3I 101 - 38 × 300 132 MC S3	4 22.7
15	82.9	10 950	2.12	MR 3I 125 - 38 × 300 132 MC S3	4 21.1
15	81.5	11 150	2	MR 3I 125 - 42 × 350 160 M	4 21.5
15	82.9	10 950	2.8	MR 3I 126 - 38 × 300 132 MC S3	4 21.1
15	81.5	11 150	2.65	MR 3I 126 - 42 × 350 160 M	4 21.5
15	84.2	10 800	1.06	MR 3I 100 - 38 × 300 132 MC S3	4 20.8
15	84.2	10 800	1.4	MR 3I 101 - 38 × 300 132 MC S3	4 20.8
15	85.7	10 600	4	MR 3I 140 - 42 × 350 160 M	4 20.4
15	93.4	9 920	1	MR 2I 100 - 42 × 350 160 L	6 12.3
15	93.4	9 920	1.25	MR 2I 101 - 42 × 350 160 L	6 12.3
15	92.1	10 050	2	MR 2I 125 - 38 × 300 132 MC S3	4 19.0
15	86.4	10 750	1.7	MR 2I 125 - 42 × 350 160 M	4 20.3
15	90.6	10 250	2.8	MR 2I 126 - 42 × 350 160 L	6 12.7
15	92.1	10 050	2.5	MR 2I 126 - 38 × 300 132 MC S3	4 19.0
15	92.1	10 050	3.55	MR 2I 140 - 38 × 300 132 MC S3	4 19.0
15	97.4	9 320	1.18	MR 3I 100 - 38 × 300 132 MC S3	4 18.0
15	97.4	9 320	1.6	MR 3I 101 - 38 × 300 132 MC S3	4 18.0
15	95.2	9 530	2.36	MR 3I 125 - 42 × 350 160 M	4 18.4
15	106	8 570	2.65	MR 3I 125 - 42 × 350 160 M	4 16.5
15	95.2	9 530	3.15	MR 3I 126 - 42 × 350 160 M	4 18.4
15	106	8 570	3.55	MR 3I 126 - 42 × 350 160 M	4 16.5
15	104	8 920	1.18	MR 2I 100 - 42 × 350 160 L	6 11.1
15	104	8 920	1.5	MR 2I 101 - 42 × 350 160 L	6 11.1
15	103	8 960	2.36	MR 2I 125 - 38 × 300 132 MC S3	4 16.9
15	103	8 960	3	MR 2I 126 - 38 × 300 132 MC S3	4 16.9
15	108	8 430	1.32	MR 3I 100 - 38 × 300 132 MC S3	4 16.3
15	108	8 430	1.8	MR 3I 101 - 38 × 300 132 MC S3	4 16.3
15	115	8 080	1.32	MR 2I 100 - 42 × 350 160 L	6 10.0
15	117	7 920	1.18	MR 2I 100 - 38 × 300 132 MC S3	4 15.0
15	117	7 920	1.18	MR 2I 100 - 42 × 350 160 M	4 15.0
15	115	8 080	1.8	MR 2I 101 - 42 × 350 160 L	6 10.0
15	115	8 050	2.65	MR 2I 125 - 38 × 300 132 MC S3	4 15.2
15	110	8 400	2.36	MR 2I 125 - 42 × 350 160 M	4 15.9
15	115	8 050	3.55	MR 2I 126 - 38 × 300 132 MC S3	4 15.2
15	110	8 400	2.8	MR 2I 126 - 42 × 350 160 M	4 15.9
15	110	8 400	4	MR 2I 140 - 42 × 350 160 M	4 15.9
15	133	6 980	1.5	MR 2I 100 - 42 × 350 160 L	6 8.67
15	133	6 980	1.9	MR 2I 101 - 42 × 350 160 L	6 8.67
15	124	7 490	2.8	MR 2I 125 - 38 × 300 132 MC S3	4 14.1
15	124	7 490	2.8	MR 2I 125 - 42 × 350 160 M	4 14.1
15	124	7 490	3.55	MR 2I 126 - 42 × 350 160 M	4 14.1
15	142	6 520	1.5	MR 2I 100 - 38 × 300 132 MC S3	4 12.3
15	142	6 520	1.5	MR 2I 100 - 42 × 350 160 M	4 12.3
15	147	6 320	2.24	MR 2I 101 - 42 × 350 160 L	6 7.85
15	142	6 520	1.8	MR 2I 101 - 38 × 300 132 MC S3	4 12.3
15	142	6 520	1.8	MR 2I 101 - 42 × 350 160 M	4 12.3
15	138	6 720	3.15	MR 2I 125 - 38 × 300 132 MC S3	4 12.7
15	138	6 720	3.15	MR 2I 125 - 42 × 350 160 M	4 12.7
15	158	5 860	1.7	MR 2I 100 - 38 × 300 132 MC S3	4 11.1
15	158	5 860	1.7	MR 2I 100 - 42 × 350 160 M	4 11.1
15	161	5 750	2.5	MR 2I 101 - 42 × 350 160 L	6 7.14
15	158	5 860	2.24	MR 2I 101 - 38 × 300 132 MC S3	4 11.1
15	158	5 860	2.24	MR 2I 101 - 42 × 350 160 M	4 11.1
15	153	6 070	3.55	MR 2I 125 - 38 × 300 132 MC S3	4 11.5
15	154	6 030	3.35	MR 2I 125 - 42 × 350 160 M	4 11.4

Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$		Gear ratio $i$
15	186	4 980	1	MR 2I 80 - 38 × 300 132 MC S3	4 9.41
15	166	5 590	1.06	MR 2I 81 - 38 × 300 132 MC S3	4 10.6
15	186	4 980	1.32	MR 2I 81 - 38 × 300 132 MC S3	4 9.41
15	175	5 310	2	MR 2I 100 - 38 × 300 132 MC S3	4 10.0
15	175	5 310	2	MR 2I 100 - 42 × 350 160 M	4 10.0
15	175	5 310	2.65	MR 2I 101 - 38 × 300 132 MC S3	4 10.0
15	175	5 310	2.65	MR 2I 101 - 42 × 350 160 M	4 10.0
15	168	5 520	3.75	MR 2I 125 - 38 × 300 132 MC S3	4 10.4
15	171	5 410	4	MR 2I 125 - 42 × 350 160 M	4 10.2
15	207	4 480	1.18	MR 2I 80 - 38 × 300 132 MC S3	4 8.46
15	207	4 480	1.5	MR 2I 81 - 38 × 300 132 MC S3	4 8.46
15	192	4 830	2.12	MR 2I 100 - 38 × 300 132 MC S3	4 9.13
15	210	4 420	2.36	MR 2I 100 - 38 × 300 132 MC S3	4 8.35
15	202	4 590	2.24	MR 2I 100 - 42 × 350 160 M	4 8.67
15	192	4 830	3	MR 2I 101 - 38 × 300 132 MC S3	4 9.13
15	210	4 420	3.15	MR 2I 101 - 38 × 300 132 MC S3	4 8.35
15	202	4 590	2.8	MR 2I 101 - 42 × 350 160 M	4 8.67
15	189	4 890	4.25	MR 2I 125 - 42 × 350 160 M	4 9.24
15	233	3 970	1.32	MR 2I 80 - 38 × 300 132 MC S3	4 7.50
15	233	3 970	1.8	MR 2I 81 - 38 × 300 132 MC S3	4 7.50
15	223	4 150	2.5	MR 2I 100 - 42 × 350 160 M	4 7.85
15	223	4 150	3.35	MR 2I 101 - 42 × 350 160 M	4 7.85
15	243	3 820	2.8	MR 2I 100 - 38 × 300 132 MC S3	4 7.22
15	245	3 780	2.8	MR 2I 100 - 42 × 350 160 M	4 7.14
15	243	3 820	3.75	MR 2I 101 - 38 × 300 132 MC S3	4 7.22
15	245	3 780	3.75	MR 2I 101 - 42 × 350 160 M	4 7.14
15	275	3 370	1.5	MR 2I 80 - 38 × 300 132 MC S3	4 6.36
15	275	3 370	2.12	MR 2I 81 - 38 × 300 132 MC S3	4 6.36
15	268	3 460	3	MR 2I 100 - 38 × 300 132 MC S3	4 6.53
15	268	3 460	3	MR 2I 100 - 42 × 350 160 M	4 6.53
15	306	3 020	1.7	MR 2I 80 - 38 × 300 132 MC S3	4 5.71
15	306	3 020	2.12	MR 2I 81 - 38 × 300 132 MC S3	4 5.71
15	310	2 990	3.55	MR 2I 100 - 42 × 350 160 M	4 5.65
15	353	2 630	2	MR 2I 80 - 38 × 300 132 MC S3	4 4.96
15	353	2 630	2.12	MR 2I 81 - 38 × 300 132 MC S3	4 4.96
15	334	2 770	3.15	MR 2I 100 - 38 × 300 132 MC S3	4 5.23
15	342	2 710	3.75	MR 2I 100 - 42 × 350 160 M	4 5.11
15	441	2 100	2.12	MR 2I 80 - 38 × 300 132 MC S3	4 3.96
15	441	2 100	2.12	MR 2I 81 - 38 × 300 132 MC S3	4 3.96
15	427	2 170	4	MR 2I 100 - 42 × 350 160 M	4 4.10
20	17.0	71 050	1.06	MR 3I 180 - 42 × 350 160 L	4 103
20	20.9	57 900	1.06	MR 3I 160 - 42 × 350 160 L	4 83.8
20	21.7	55 850	1.5	MR 3I 180 - 48 × 350 180 L	6 53.1
20	20.8	58 200	1.4	MR 3I 180 - 42 × 350 160 L	4 84.2
20	25.9	46 650	1.32	MR 3I 160 - 42 × 350 160 L	4 67.4
20	27.1	44 700	1.9	MR 3I 180 - 48 × 350 180 L	6 42.5
20	25.8	46 850	1.7	MR 3I 180 - 42 × 350 160 L	4 67.8
20	28.7	42 200	1	MR 3I 140 - 42 × 350 160 L	4 61.0
20	28.7	42 150	1.5	MR 3I 160 - 48 × 350 180 L	6 40.0
20	29.3	41 250	2	MR 3I 180 - 42 × 350 160 L	4 59.6
20	31.6	38 300	1.06	MR 3I 140 - 42 × 350 160 L	4 55.4
20	30.4	39 750	1.4	MR 3I 160 - 42 × 350 160 L	4 57.5
20	33.0	36 700	2.36	MR 3I 180 - 42 × 350 160 L	4 53.1
20	34.9	34 700	1.25	MR 3I 140 - 42 × 350 160 L	4 50.2
20	33.1	36 500	1.7	MR 3I 160 - 42 × 350 160 L	4 52.8
20	40.4	30 000	1.32	MR 3I 140 - 42 × 350 160 L	4 43.4
20	37.9	31 950	1.9	MR 3I 160 - 42 × 350 160 L	4 46.2
20	38.0	31 800	2.65	MR 3I 180 - 42 × 350 160 L	4 46.0
20	41.2	29 350	2.8	MR 3I 180 - 42 × 350 160 L	4 42.5
20	45.4	26 650	1.12	MR 3I 126 - 42 × 350 160 L	4 38.5
20	44.5	27 150	1.5	MR 3I 140 - 42 × 350 160 L	4 39.3
20	43.7	27 700	2.24	MR 3I 160 - 42 × 350 160 L	4 40.0
20	44.7	27 100	3	MR 3I 180 - 42 × 350 160 L	4 39.2
20	50.2	24 100	1.25	MR 3I 126 - 42 × 350 160 L	4 34.8
20	49.9	24 250	1.7	MR 3I 140 - 42 × 350 160 L	4 35.1
20	50.4	24 000	2.5	MR 3I 160 - 42 × 350 160 L	4 34.7
20	50.2	24 100	3.55	MR 3I 180 - 42 × 350 160 L	4 34.9

Motor (cat. TX) with efficiency value not according to IE3 class (IEC 60034-30); the nominal power and nameplate data refer to intermittent duty S3 70%.

1) Powers valid for continuous duty S1; increase possible for S2... S10 (ch. 2b) in which case  $P_2$  and  $M_2$  increase and  $f_s$  decreases proportionately.  
2) For complete designation when ordering, see ch. 3.



# Gearmotors selection tables

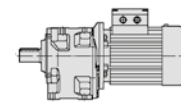
# 3.7

Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$			Gear ratio $i$
2)						
20	55.3	21 900	1.06	MR 3I 125 - 42 × 350	160 L	4 31.7
20	55.3	21 900	1.4	MR 3I 126 - 42 × 350	160 L	4 31.7
20	54.7	22 100	1.9	MR 3I 140 - 42 × 350	160 L	4 32.0
20	57.6	21 000	2.8	MR 3I 160 - 42 × 350	160 L	4 30.4
20	57.9	20 900	4	MR 3I 180 - 42 × 350	160 L	4 30.2
20	60.7	20 350	2.5	MR 2I 160 - 48 × 350	180 L	6 19.0
20	60.1	20 100	1.06	MR 3I 125 - 42 × 350	160 L	4 29.1
20	62.6	19 350	1.6	MR 3I 126 - 48 × 350	180 L	6 18.4
20	60.1	20 100	1.32	MR 3I 126 - 42 × 350	160 L	4 29.1
20	59.5	20 350	1.9	MR 3I 140 - 42 × 350	160 L	4 29.4
20	65.7	18 400	2.24	MR 3I 140 - 42 × 350	160 L	4 26.6
20	66.4	18 600	3	MR 2I 160 - 48 × 350	180 L	6 17.3
20	67.0	18 050	1.25	MR 3I 125 - 42 × 350	160 L	4 26.1
20	74.1	16 350	1.4	MR 3I 125 - 42 × 350	160 L	4 23.6
20	67.0	18 050	1.6	MR 3I 126 - 42 × 350	160 L	4 26.1
20	74.1	16 350	1.8	MR 3I 126 - 42 × 350	160 L	4 23.6
20	73.5	16 450	2.5	MR 3I 140 - 42 × 350	160 L	4 23.8
20	66.5	18 200	3.35	MR 3I 160 - 42 × 350	160 L	4 26.3
20	74.1	16 350	3.75	MR 3I 160 - 42 × 350	160 L	4 23.6
20	81.5	14 850	1.5	MR 3I 125 - 42 × 350	160 L	4 21.5
20	81.5	14 850	2	MR 3I 126 - 42 × 350	160 L	4 21.5
20	82.6	14 950	4	MR 2I 160 - 48 × 350	180 L	6 13.9
20	85.7	14 100	3	MR 3I 140 - 42 × 350	160 L	4 20.4
20	90.0	13 750	1.5	MR 2I 125 - 48 × 350	180 L	6 12.8
20	86.4	14 300	1.25	MR 2I 125 - 42 × 350	160 L	4 20.3
20	90.0	13 750	1.8	MR 2I 126 - 48 × 350	180 L	6 12.8
20	90.0	13 750	2.5	MR 2I 140 - 48 × 350	180 L	6 12.8
20	92.3	13 400	3.75	MR 2I 160 - 42 × 350	160 L	4 19.0
20	95.2	12 700	1.8	MR 3I 125 - 42 × 350	160 L	4 18.4
20	106	11 450	2	MR 3I 125 - 42 × 350	160 L	4 16.5
20	95.2	12 700	2.36	MR 3I 126 - 42 × 350	160 L	4 18.4
20	106	11 450	2.65	MR 3I 126 - 42 × 350	160 L	4 16.5
20	94.9	12 750	3	MR 3I 140 - 42 × 350	160 L	4 18.4
20	101	12 250	1.7	MR 2I 125 - 48 × 350	180 L	6 11.4
20	101	12 250	2.12	MR 2I 126 - 48 × 350	180 L	6 11.4
20	100	12 350	3	MR 2I 140 - 48 × 350	180 L	6 11.5
20	101	12 250	4.25	MR 2I 160 - 42 × 350	160 L	4 17.3
20	110	11 200	1.8	MR 2I 125 - 42 × 350	160 L	4 15.9
20	113	11 000	2.5	MR 2I 126 - 48 × 350	180 L	6 10.2
20	110	11 200	2.12	MR 2I 126 - 42 × 350	160 L	4 15.9
20	110	11 200	3.15	MR 2I 140 - 42 × 350	160 L	4 15.9
20	124	9 980	2.12	MR 2I 125 - 42 × 350	160 L	4 14.1
20	124	9 980	2.65	MR 2I 126 - 42 × 350	160 L	4 14.1
20	123	10 100	3.75	MR 2I 140 - 42 × 350	160 L	4 14.3
20	142	8 690	1.12	MR 2I 100 - 42 × 350	160 L	4 12.3
20	142	8 690	1.4	MR 2I 101 - 42 × 350	160 L	4 12.3
20	138	8 960	2.36	MR 2I 125 - 42 × 350	160 L	4 12.7
20	138	8 960	3.15	MR 2I 126 - 42 × 350	160 L	4 12.7
20	158	7 820	1.32	MR 2I 100 - 42 × 350	160 L	4 11.1
20	158	7 820	1.7	MR 2I 101 - 42 × 350	160 L	4 11.1
20	154	8 040	2.5	MR 2I 125 - 42 × 350	160 L	4 11.4
20	154	8 040	3.15	MR 2I 126 - 42 × 350	160 L	4 11.4
20	175	7 080	1.5	MR 2I 100 - 42 × 350	160 L	4 10.0
20	175	7 080	1.9	MR 2I 101 - 42 × 350	160 L	4 10.0
20	171	7 220	3	MR 2I 125 - 42 × 350	160 L	4 10.2
20	171	7 220	3.75	MR 2I 126 - 42 × 350	160 L	4 10.2
20	202	6 120	1.6	MR 2I 100 - 42 × 350	160 L	4 8.67
20	202	6 120	2.12	MR 2I 101 - 42 × 350	160 L	4 8.67
20	189	6 520	3.15	MR 2I 125 - 42 × 350	160 L	4 9.24
20	208	5 930	3.55	MR 2I 125 - 42 × 350	160 L	4 8.40
20	223	5 540	1.9	MR 2I 100 - 42 × 350	160 L	4 7.85
20	223	5 540	2.5	MR 2I 101 - 42 × 350	160 L	4 7.85
20	245	5 040	2	MR 2I 100 - 42 × 350	160 L	4 7.14
20	245	5 040	2.8	MR 2I 101 - 42 × 350	160 L	4 7.14
20	243	5 070	4.25	MR 2I 125 - 42 × 350	160 L	4 7.19

Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$			Gear ratio $i$
2)						
20	268	4 610	2.24	MR 2I 100 - 42 × 350	160 L	4 6.53
20	268	4 610	3	MR 2I 101 - 42 × 350	160 L	4 6.53
20	271	4 560	4.5	MR 2I 125 - 42 × 350	160 L	4 6.46
20	310	3 990	2.65	MR 2I 100 - 42 × 350	160 L	4 5.65
20	310	3 990	3.35	MR 2I 101 - 42 × 350	160 L	4 5.65
20	342	3 610	2.8	MR 2I 100 - 42 × 350	160 L	4 5.11
20	342	3 610	3.35	MR 2I 101 - 42 × 350	160 L	4 5.11
20	427	2 890	3	MR 2I 100 - 42 × 350	160 L	4 4.10
25	25.9	58 300	1.06	MR 3I 160 - 48 × 350	180 M	4 67.4
25	25.8	58 600	1.4	MR 3I 180 - 48 × 350	180 M	4 67.8
25	29.3	51 550	1.6	MR 3I 180 - 48 × 350	180 M	4 59.6
25	31.8	47 550	1.32	MR 3I 160 - 55 × 400	200 LR	6 36.2
25	30.4	49 700	1.12	MR 3I 160 - 48 × 350	180 M	4 57.5
25	33.0	45 900	1.9	MR 3I 180 - 48 × 350	180 M	4 53.1
25	36.7	41 200	1.5	MR 3I 160 - 55 × 400	200 LR	6 31.3
25	33.1	45 650	1.32	MR 3I 160 - 48 × 350	180 M	4 52.8
25	40.4	37 500	1.06	MR 3I 140 - 48 × 350	180 M	4 43.4
25	37.9	39 950	1.6	MR 3I 160 - 48 × 350	180 M	4 46.2
25	38.0	39 750	2.12	MR 3I 180 - 48 × 350	180 M	4 46.0
25	41.2	36 700	2.24	MR 3I 180 - 48 × 350	180 M	4 42.5
25	44.5	33 950	1.25	MR 3I 140 - 48 × 350	180 M	4 39.3
25	43.7	34 600	1.8	MR 3I 160 - 48 × 350	180 M	4 40.0
25	44.7	33 850	2.36	MR 3I 180 - 48 × 350	180 M	4 39.2
25	50.2	30 100	1	MR 3I 126 - 48 × 350	180 M	4 34.8
25	49.9	30 350	1.4	MR 3I 140 - 48 × 350	180 M	4 35.1
25	50.4	30 000	2	MR 3I 160 - 48 × 350	180 M	4 34.7
25	50.2	30 150	2.8	MR 3I 180 - 48 × 350	180 M	4 34.9
25	55.3	27 350	1.12	MR 3I 126 - 48 × 350	180 M	4 31.7
25	54.7	27 650	1.5	MR 3I 140 - 48 × 350	180 M	4 32.0
25	57.6	26 250	2.36	MR 3I 160 - 48 × 350	180 M	4 30.4
25	57.9	26 150	3.35	MR 3I 180 - 48 × 350	180 M	4 30.2
25	60.1	25 150	1.06	MR 3I 126 - 48 × 350	180 M	4 29.1
25	59.5	25 400	1.5	MR 3I 140 - 48 × 350	180 M	4 29.4
25	65.7	23 000	1.8	MR 3I 140 - 48 × 350	180 M	4 26.6
25	64.1	23 600	3.55	MR 3I 180 - 48 × 350	180 M	4 27.3
25	67.0	22 600	1	MR 3I 125 - 48 × 350	180 M	4 26.1
25	74.1	20 400	1.12	MR 3I 125 - 48 × 350	180 M	4 23.6
25	67.0	22 600	1.32	MR 3I 126 - 48 × 350	180 M	4 26.1
25	74.1	20 400	1.5	MR 3I 126 - 48 × 350	180 M	4 23.6
25	73.5	20 550	2	MR 3I 140 - 48 × 350	180 M	4 23.8
25	66.5	22 750	2.65	MR 3I 160 - 48 × 350	180 M	4 26.3
25	74.1	20 400	3	MR 3I 160 - 48 × 350	180 M	4 23.6
25	81.5	18 550	1.18	MR 3I 125 - 48 × 350	180 M	4 21.5
25	81.5	18 550	1.6	MR 3I 126 - 48 × 350	180 M	4 21.5
25	85.7	17 650	2.36	MR 3I 140 - 48 × 350	180 M	4 20.4
25	85.3	17 750	3.35	MR 3I 160 - 48 × 350	180 M	4 20.5
25	92.3	16 700	3	MR 2I 160 - 48 × 350	180 M	4 19.0
25	95.2	15 900	1.4	MR 3I 125 - 48 × 350	180 M	4 18.4
25	106	14 300	1.6	MR 3I 125 - 48 × 350	180 M	4 16.5
25	95.2	15 900	1.9	MR 3I 126 - 48 × 350	180 M	4 18.4
25	106	14 300	2.12	MR 3I 126 - 48 × 350	180 M	4 16.5
25	94.9	15 950	2.36	MR 3I 140 - 48 × 350	180 M	4 18.4
25	101	15 300	3.55	MR 2I 160 - 48 × 350	180 M	4 17.3
25	107	14 400	1.25	MR 2I 125 - 48 × 350	180 M	4 16.3
25	110	14 050	4	MR 2I 160 - 48 × 350	180 M	4 15.9
25	129	11 950	1.7	MR 2I 125 - 55 × 400	200 LR	6 8.91
25	129	11 950	2.12	MR 2I 126 - 55 × 400	200 LR	6 8.91
25	128	12 100	3	MR 2I 140 - 55 × 400	200 LR	6 9.00
25	126	12 300	4.75	MR 2I 160 - 48 × 350	180 M	4 13.9
25	137	11 250	1.7	MR 2I 125 - 48 × 350	180 M	4 12.8
25	137	11 250	2.12	MR 2I 126 - 48 × 350	180 M	4 12.8
25	137	11 250	3	MR 2I 140 - 48 × 350	180 M	4 12.8

1) Powers valid for continuous duty S1; **increase** possible for S2... S10 (ch. 2b) in which case  $P_2$  and  $M_2$  increase and  $f_s$  decreases proportionately.  
2) For complete designation when ordering, see ch. 3.

# Gearmotors selection tables



# 3.7

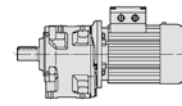
Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$		Gear ratio $i$	Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$		Gear ratio $i$				
				2)						2)					
25	154	10 050	2	MR 21 125 - 48 × 350	180 M	4	11.4	30	85.7	21 200	2	MR 31 140 - 48 × 350	180 L	4	20.4
25	154	10 050	2.5	MR 21 126 - 48 × 350	180 M	4	11.4	30	85.3	21 300	2.8	MR 31 160 - 48 × 350	180 L	4	20.5
25	152	10 150	3.55	MR 21 140 - 48 × 350	180 M	4	11.5	30	90.0	20 600	1	MR 21 125 - 55 × 400	200 L	6	12.8
25	182	8 500	1.12	MR 21 100 - 48 × 350	180 M	4	9.64	30	90.0	20 600	1.18	MR 21 126 - 55 × 400	200 L	6	12.8
25	182	8 500	1.4	MR 21 101 - 48 × 350	180 M	4	9.64	30	90.0	20 600	1.7	MR 21 140 - 55 × 400	200 L	6	12.8
25	171	9 020	2.36	MR 21 125 - 48 × 350	180 M	4	10.2	30	92.3	20 050	2.5	MR 21 160 - 48 × 350	180 L	4	19.0
25	171	9 020	3	MR 21 126 - 48 × 350	180 M	4	10.2	30	89.6	20 650	3.35	MR 21 180 - 48 × 350	180 L	4	19.5
25	202	7 650	1.32	MR 21 100 - 48 × 350	180 M	4	8.67	30	95.2	19 050	1.18	MR 31 125 - 48 × 350	180 L	4	18.4
25	202	7 650	1.7	MR 21 101 - 48 × 350	180 M	4	8.67	30	106	17 150	1.32	MR 31 125 - 48 × 350	180 L	4	16.5
25	189	8 150	2.65	MR 21 125 - 48 × 350	180 M	4	9.24	30	95.2	19 050	1.6	MR 31 126 - 48 × 350	180 L	4	18.4
25	208	7 410	2.8	MR 21 125 - 48 × 350	180 M	4	8.40	30	106	17 150	1.7	MR 31 126 - 48 × 350	180 L	4	16.5
25	189	8 150	3.55	MR 21 126 - 48 × 350	180 M	4	9.24	30	94.9	19 150	2	MR 31 140 - 48 × 350	180 L	4	18.4
25	208	7 410	3.75	MR 21 126 - 48 × 350	180 M	4	8.40	30	101	18 350	2.8	MR 21 160 - 48 × 350	180 L	4	17.3
25	223	6 920	1.5	MR 21 100 - 48 × 350	180 M	4	7.85	30	97.4	19 000	4	MR 21 180 - 48 × 350	180 L	4	18.0
25	223	6 920	2	MR 21 101 - 48 × 350	180 M	4	7.85	30	113	16 450	1.32	MR 21 125 - 55 × 400	200 L	6	10.2
25	245	6 300	1.6	MR 21 100 - 48 × 350	180 M	4	7.14	30	107	17 300	1.06	MR 21 125 - 48 × 350	180 L	4	16.3
25	245	6 300	2.24	MR 21 101 - 48 × 350	180 M	4	7.14	30	113	16 450	1.7	MR 21 126 - 55 × 400	200 L	6	10.2
25	243	6 340	3.35	MR 21 125 - 48 × 350	180 M	4	7.19	30	110	16 800	2.36	MR 21 140 - 55 × 400	200 L	6	10.4
25	268	5 760	1.8	MR 21 100 - 48 × 350	180 M	4	6.53	30	110	16 850	3.35	MR 21 160 - 48 × 350	180 L	4	15.9
25	268	5 760	2.36	MR 21 101 - 48 × 350	180 M	4	6.53	30	129	14 350	1.4	MR 21 125 - 55 × 400	200 L	6	8.91
25	271	5 700	3.75	MR 21 125 - 48 × 350	180 M	4	6.46	30	129	14 350	1.8	MR 21 126 - 55 × 400	200 L	6	8.91
25	310	4 980	2.12	MR 21 100 - 48 × 350	180 M	4	5.65	30	128	14 500	2.5	MR 21 140 - 55 × 400	200 L	6	9.00
25	310	4 980	2.65	MR 21 101 - 48 × 350	180 M	4	5.65	30	126	14 750	4	MR 21 160 - 48 × 350	180 L	4	13.9
25	342	4 510	2.24	MR 21 100 - 48 × 350	180 M	4	5.11	30	144	12 900	1.7	MR 21 125 - 55 × 400	200 L	6	8.00
25	342	4 510	2.65	MR 21 101 - 48 × 350	180 M	4	5.11	30	137	13 550	1.5	MR 21 125 - 48 × 350	180 L	4	12.8
25	427	3 610	2.36	MR 21 100 - 48 × 350	180 M	4	4.10	30	144	12 900	2.12	MR 21 126 - 55 × 400	200 L	6	8.00
25	427	3 610	2.65	MR 21 101 - 48 × 350	180 M	4	4.10	30	137	13 550	1.8	MR 21 126 - 48 × 350	180 L	4	12.8
30	24.6	73 650	1.12	MR 31 180 - 55 × 400	200 L	6	46.7	30	141	13 150	3	MR 21 140 - 55 × 400	200 L	6	8.15
30	25.8	70 300	1.18	MR 31 180 - 48 × 350	180 L	4	67.8	30	137	13 550	2.5	MR 21 140 - 48 × 350	180 L	4	12.8
30	27.7	65 550	1.32	MR 31 180 - 55 × 400	200 L	6	41.5	30	145	12 750	4.5	MR 21 160 - 48 × 350	180 L	4	12.1
30	29.3	61 850	1.32	MR 31 180 - 48 × 350	180 L	4	59.6	30	154	12 050	2.12	MR 21 126 - 48 × 350	180 L	4	11.4
30	31.8	57 050	1.12	MR 31 160 - 55 × 400	200 L	6	36.2	30	152	12 200	3	MR 21 140 - 48 × 350	180 L	4	11.5
30	30.4	59 650	0.95	MR 31 160 - 48 × 350	180 L	4	57.5	30	171	10 800	1.9	MR 21 125 - 48 × 350	180 L	4	10.2
30	33.0	55 050	1.6	MR 31 180 - 48 × 350	180 L	4	53.1	30	171	10 800	2.5	MR 21 126 - 48 × 350	180 L	4	10.2
30	36.7	49 450	1.25	MR 31 160 - 55 × 400	200 L	6	31.3	30	168	11 050	3.55	MR 21 140 - 48 × 350	180 L	4	10.4
30	33.1	54 800	1.12	MR 31 160 - 48 × 350	180 L	4	52.8	30	189	9 780	2.12	MR 21 125 - 48 × 350	180 L	4	9.24
30	34.6	52 450	1.6	MR 31 180 - 55 × 400	200 L	6	33.2	30	208	8 890	2.36	MR 21 125 - 48 × 350	180 L	4	8.40
30	37.9	47 900	1.32	MR 31 160 - 48 × 350	180 L	4	46.2	30	189	9 780	2.8	MR 21 126 - 48 × 350	180 L	4	9.24
30	38.0	47 700	1.8	MR 31 180 - 48 × 350	180 L	4	46.0	30	208	8 890	3.15	MR 21 126 - 48 × 350	180 L	4	8.40
30	41.2	44 050	1.9	MR 31 180 - 48 × 350	180 L	4	42.5	30	243	7 610	2.8	MR 21 125 - 48 × 350	180 L	4	7.19
30	44.5	40 750	1	MR 31 140 - 48 × 350	180 L	4	39.3	30	243	7 610	3.75	MR 21 126 - 48 × 350	180 L	4	7.19
30	43.7	41 550	1.5	MR 31 160 - 48 × 350	180 L	4	40.0	30	271	6 840	3.15	MR 21 125 - 48 × 350	180 L	4	6.46
30	44.7	40 650	1.9	MR 31 180 - 48 × 350	180 L	4	39.2	30	342	5 410	3.15	MR 21 125 - 48 × 350	180 L	4	5.11
30	49.9	36 400	1.18	MR 31 140 - 48 × 350	180 L	4	35.1	40	37.5	64 550	1.25	MR 31 180 - 55 × 400	200 L	4	46.7
30	50.4	36 000	1.6	MR 31 160 - 48 × 350	180 L	4	34.7	40	42.1	57 450	1.5	MR 31 180 - 55 × 400	200 L	4	41.5
30	50.2	36 200	2.36	MR 31 180 - 48 × 350	180 L	4	34.9	40	48.4	50 000	1.25	MR 31 160 - 55 × 400	200 L	4	36.2
30	54.7	33 200	1.25	MR 31 140 - 48 × 350	180 L	4	32.0	40	48.6	49 800	1.7	MR 31 180 - 55 × 400	200 L	4	36.0
30	57.6	31 500	1.9	MR 31 160 - 48 × 350	180 L	4	30.4	40	52.7	45 950	1.8	MR 31 180 - 55 × 400	200 L	4	33.2
30	57.9	31 350	2.8	MR 31 180 - 48 × 350	180 L	4	30.2	40	55.9	43 350	1.4	MR 31 160 - 55 × 400	200 L	4	31.3
30	59.5	30 500	1.25	MR 31 140 - 48 × 350	180 L	4	29.4	40	57.1	42 400	1.8	MR 31 180 - 55 × 400	200 L	4	30.7
30	65.7	27 650	1.5	MR 31 140 - 48 × 350	180 L	4	26.6	40	65.7	36 850	1.12	MR 31 140 - 48 × 350	200 L	BSR 4	26.6
30	64.1	28 300	3	MR 31 180 - 48 × 350	180 L	4	27.3	40	64.4	37 550	1.5	MR 31 160 - 55 × 400	200 L	4	27.2
30	67.0	27 100	1.06	MR 31 126 - 48 × 350	180 L	4	26.1	40	64.1	37 750	2.12	MR 31 180 - 55 × 400	200 L	4	27.3
30	74.1	24 500	1.18	MR 31 126 - 48 × 350	180 L	4	23.6	40	73.5	32 900	1.32	MR 31 140 - 48 × 350	200 L	BSR 4	23.8
30	73.5	24 700	1.7	MR 31 140 - 48 × 350	180 L	4	23.8	40	73.7	32 850	1.8	MR 31 160 - 55 × 400	200 L	4	23.8
30	66.5	27 300	2.24	MR 31 160 - 48 × 350	180 L	4	26.3	40	74.0	32 700	2.65	MR 31 180 - 55 × 400	200 L	4	23.7
30	74.1	24 500	2.5	MR 31 160 - 48 × 350	180 L	4	23.6	40	81.9	29 550	2.8	MR 31 180 - 55 × 400	200 L	4	21.4
30	73.6	24 700	3.15	MR 31 180 - 48 × 350	180 L	4	23.8	40	85.7	28 250	1.5	MR 31 140 - 48 × 350	200 L	BSR 4	20.4
30	73.6	24 700	2	MR 21 160 - 55 × 400	200 L	6	15.6	40	85.0	28 500	2.12	MR 31 160 - 55 × 400	200 L	4	20.6
30	71.4	25 950	2.8	MR 21 180 - 55 × 400	200 L	6	16.1	40	94.9	25 500	1.5	MR 31 140 - 48 × 350	200 L	BSR 4	18.4
30	81.5	22 250	1	MR 31 125 - 48 × 350	180 L	4	21.5	40	94.7	25 550	2.36	MR 31 160 - 55 × 400	200 L	4	18.5
30	81.5	22 250	1.32	MR 31 126 - 48 × 350	180 L	4	21.5	40	94.0	25 750	3	MR 31 180 - 55 × 400	200 L	4	18.6
30	80.5	23 000	2.36	MR 21 160 - 55 × 400	200 L	6	14.3								
30	77.6	23 850	3.15	MR 21 180 - 55 × 400	200 L	6	14.8								

1) Powers valid for continuous duty S1; **increase** possible for S2 ... S10 (ch. 2b) in which case  $M_2$  increases and  $f_s$  decreases proportionately.

2) For complete designation when ordering, see ch. 3.

\* Mounting position **B5R** (see table ch. 2b).

\* In case of ambient temperature > 30 °C check the thermal power (ch. 4).



# Gearmotors selection tables

# 3.7

Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$			Gear ratio $i$
40	109	22 200	2.65	MR 3I 160 - 55 × 400	200 L	4 16.1
40	112	22 050	2.24	MR 2I 160 - 55 × 400	200 L	4 15.6
40	109	22 700	3	MR 2I 180 - 55 × 400	200 L	4 16.1
40	118	20 900	3.55	MR 2I 180 - 55 × 400	200 L	4 14.8
40	123	20 150	2.65	MR 2I 160 - 55 × 400	200 L	4 14.3
40	137	18 050	1.12	MR 2I 125 - 55 × 400	200 L	4 12.8
40	137	18 050	1.32	MR 2I 126 - 55 × 400	200 L	4 12.8
40	137	18 050	1.9	MR 2I 140 - 55 × 400	200 L	4 12.8
40	133	18 500	3	MR 2I 160 - 55 × 400	200 L	4 13.1
40	133	18 600	4	MR 2I 180 - 55 × 400	200 L	4 13.2
40	154	16 050	1.25	MR 2I 125 - 55 × 400	200 L	4 11.4
40	154	16 050	1.6	MR 2I 126 - 55 × 400	200 L	4 11.4
40	152	16 250	2.24	MR 2I 140 - 55 × 400	200 L	4 11.5
40	153	16 200	3.55	MR 2I 160 - 55 × 400	200 L	4 11.5
40	171	14 450	1.5	MR 2I 125 - 55 × 400	200 L	4 10.2
40	171	14 450	1.9	MR 2I 126 - 55 × 400	200 L	4 10.2
40	168	14 700	2.65	MR 2I 140 - 55 × 400	200 L	4 10.4
40	176	14 050	4	MR 2I 160 - 55 × 400	200 L	4 9.94
40	196	12 600	1.6	MR 2I 125 - 55 × 400	200 L	4 8.91
40	196	12 600	2	MR 2I 126 - 55 × 400	200 L	4 8.91
40	194	12 700	2.8	MR 2I 140 - 55 × 400	200 L	4 9.00
40	219	11 300	1.8	MR 2I 125 - 55 × 400	200 L	4 8.00
40	219	11 300	2.36	MR 2I 126 - 55 × 400	200 L	4 8.00
40	215	11 500	3.35	MR 2I 140 - 55 × 400	200 L	4 8.15
40	242	10 200	2	MR 2I 125 - 55 × 400	200 L	4 7.23
40	242	10 200	2.8	MR 2I 126 - 55 × 400	200 L	4 7.23
40	240	10 300	3.35	MR 2I 140 - 55 × 400	200 L	4 7.29
40	266	9 280	2.24	MR 2I 125 - 55 × 400	200 L	4 6.57
40	266	9 280	3	MR 2I 126 - 55 × 400	200 L	4 6.57
40	280	8 820	3.35	MR 2I 140 - 55 × 400	200 L	4 6.25
40	311	7 940	2.65	MR 2I 125 - 55 × 400	200 L	4 5.63
40	311	7 940	3.35	MR 2I 126 - 55 × 400	200 L	4 5.63
40	346	7 140	3	MR 2I 125 - 55 × 400	200 L	4 5.06
40	346	7 140	3.35	MR 2I 126 - 55 × 400	200 L	4 5.06
40	438	5 650	3	MR 2I 125 - 55 × 400	200 L	4 4.00
50	37.5	80 650	1	MR 3I 180 - 60 × 450	225 S	4 46.7
50	42.1	71 800	1.18	MR 3I 180 - 60 × 450	225 S	4 41.5
50	48.4	62 500	1	MR 3I 160 - 60 × 450	225 S	4 36.2
50	48.6	62 250	1.32	MR 3I 180 - 60 × 450	225 S	4 36.0
50	52.7	57 450	1.4	MR 3I 180 - 60 × 450	225 S	4 33.2
50	55.9	54 150	1.12	MR 3I 160 - 60 × 450	225 S	4 31.3
50	57.1	53 000	1.5	MR 3I 180 - 60 × 450	225 S	4 30.7
50	64.4	46 950	1.25	MR 3I 160 - 60 × 450	225 S	4 27.2
50	64.1	47 200	1.7	MR 3I 180 - 60 × 450	225 S	4 27.3
50	73.7	41 050	1.5	MR 3I 160 - 60 × 450	225 S	4 23.8
50	74.0	40 900	2.12	MR 3I 180 - 60 × 450	225 S	4 23.7
50	81.9	36 900	2.24	MR 3I 180 - 60 × 450	225 S	4 21.4
50	85.0	35 600	1.7	MR 3I 160 - 60 × 450	225 S	4 20.6
50	94.7	31 950	1.9	MR 3I 160 - 60 × 450	225 S	4 18.5
50	94.0	32 200	2.36	MR 3I 180 - 60 × 450	225 S	4 18.6
50	109	27 750	2.12	MR 3I 160 - 60 × 450	225 S	4 16.1
50	137	22 500	2.12	MR 2I 160 - 60 × 450	225 S	4 12.8
50	133	23 200	3	MR 2I 180 - 60 × 450	225 S	4 13.1
50	145	21 350	3.35	MR 2I 180 - 60 × 450	225 S	4 12.1
50	150	20 600	2.5	MR 2I 160 - 60 × 450	225 S	4 11.7
50	163	18 900	2.8	MR 2I 160 - 60 × 450	225 S	4 10.7
50	163	19 000	4	MR 2I 180 - 60 × 450	225 S	4 10.8
50	175	17 650	1.9	MR 2I 140 - 60 × 450	225 S	4 10.0
50	187	16 550	3.35	MR 2I 160 - 60 × 450	225 S	4 9.37
50	194	15 900	2.24	MR 2I 140 - 60 × 450	225 S	4 9.00
50	188	16 450	4	MR 2I 180 - 60 × 450	225 S	4 9.33

Motor power $P_1$ hp 1)	Output speed $n_2$ rpm	Output torque $T_2$ lb in	Service factor $f_s$			Gear ratio $i$
50	215	14 400	2.65	MR 2I 140 - 60 × 450	225 S	4 8.15
50	215	14 350	4	MR 2I 160 - 60 × 450	225 S	4 8.12
50	240	12 850	2.65	MR 2I 140 - 60 × 450	225 S	4 7.29
50	280	11 050	2.65	MR 2I 140 - 60 × 450	225 S	4 6.25
50	310	9 970	2.65	MR 2I 140 - 60 × 450	225 S	4 5.65
60	42.1	86 150	1	MR 3I 180 - 60 × 450	225 M	4 41.5
60	48.6	74 700	1.12	MR 3I 180 - 60 × 450	225 M	4 36.0
60	52.7	68 950	1.18	MR 3I 180 - 60 × 450	225 M	4 33.2
60	57.1	63 600	1.25	MR 3I 180 - 60 × 450	225 M	4 30.7
60	64.4	56 350	1	MR 3I 160 - 60 × 450	225 M	4 27.2
60	64.1	56 650	1.5	MR 3I 180 - 60 × 450	225 M	4 27.3
60	73.7	49 300	1.18	MR 3I 160 - 60 × 450	225 M	4 23.8
60	74.0	49 100	1.7	MR 3I 180 - 60 × 450	225 M	4 23.7
60	81.9	44 300	1.9	MR 3I 180 - 60 × 450	225 M	4 21.4
60	85.0	42 700	1.4	MR 3I 160 - 60 × 450	225 M	4 20.6
60	94.7	38 350	1.6	MR 3I 160 - 60 × 450	225 M	4 18.5
60	94.0	38 600	2	MR 3I 180 - 60 × 450	225 M	4 18.6
60	109	33 300	1.8	MR 3I 160 - 60 × 450	225 M	4 16.1
60	137	27 050	1.8	MR 2I 160 - 60 × 450	225 M	4 12.8
60	133	27 850	2.5	MR 2I 180 - 60 × 450	225 M	4 13.1
60	145	25 600	2.8	MR 2I 180 - 60 × 450	225 M	4 12.1
60	150	24 700	2.12	MR 2I 160 - 60 × 450	225 M	4 11.7
60	163	22 700	2.36	MR 2I 160 - 60 × 450	225 M	4 10.7
60	163	22 800	3.35	MR 2I 180 - 60 × 450	225 M	4 10.8
60	175	21 200	1.6	MR 2I 140 - 60 × 450	225 M	4 10.0
60	187	19 850	2.8	MR 2I 160 - 60 × 450	225 M	4 9.37
60	194	19 050	1.9	MR 2I 140 - 60 × 450	225 M	4 9.00
60	188	19 750	3.35	MR 2I 180 - 60 × 450	225 M	4 9.33
60	215	17 250	2.12	MR 2I 140 - 60 × 450	225 M	4 8.15
60	215	17 200	3.35	MR 2I 160 - 60 × 450	225 M	4 8.12
60	240	15 450	2.12	MR 2I 140 - 60 × 450	225 M	4 7.29
60	240	15 450	3.35	MR 2I 160 - 60 × 450	225 M	4 7.29
60	280	13 250	2.12	MR 2I 140 - 60 × 450	225 M	4 6.25
60	276	13 400	3.35	MR 2I 160 - 60 × 450	225 M	4 6.34
60	310	11 950	2.12	MR 2I 140 - 60 × 450	225 M	4 5.65
75	52.7	86 150	0.95	MR 3I 180 - 60 × 450	250 M	BSR 4 33.2
75	57.1	79 500	1	MR 3I 180 - 60 × 450	250 M	BSR 4 30.7
75	64.1	70 800	1.18	MR 3I 180 - 60 × 450	250 M	BSR 4 27.3
75	74.0	61 350	1.4	MR 3I 180 - 60 × 450	250 M	BSR 4 23.7
75	81.9	55 400	1.5	MR 3I 180 - 60 × 450	250 M	BSR 4 21.4
75	94.0	48 300	1.6	MR 3I 180 - 60 × 450	250 M	BSR 4 18.6
75	137	33 800	1.4	MR 2I 160 - 65 × 550	250 M	4 12.8
75	133	34 800	2	MR 2I 180 - 65 × 550	250 M	4 13.1
75	145	32 050	2.24	MR 2I 180 - 65 × 550	250 M	4 12.1
75	150	30 900	1.7	MR 2I 160 - 65 × 550	250 M	4 11.7
75	163	28 350	1.9	MR 2I 160 - 65 × 550	250 M	4 10.7
75	163	28 500	2.65	MR 2I 180 - 65 × 550	250 M	4 10.8
75	187	24 800	2.24	MR 2I 160 - 65 × 550	250 M	4 9.37
75	188	24 700	2.65	MR 2I 180 - 65 × 550	250 M	4 9.33
75	208	22 300	2.65	MR 2I 180 - 65 × 550	250 M	4 8.43
75	215	21 500	2.65	MR 2I 160 - 65 × 550	250 M	4 8.12
75	240	19 300	2.65	MR 2I 160 - 65 × 550	250 M	4 7.29
75	238	19 450	2.65	MR 2I 180 - 65 × 550	250 M	4 7.35
75	276	16 800	2.65	MR 2I 160 - 65 × 550	250 M	4 6.34
100	170	36 350	1.9	MR 2I 180 - 75 × 550	280 S	4 10.3
100	185	33 450	2.12	MR 2I 180 - 75 × 550	280 S	4 9.48
100	207	29 800	2.12	MR 2I 180 - 75 × 550	280 S	4 8.44
100	239	25 800	2.12	MR 2I 180 - 75 × 550	280 S	4 7.31
100	265	23 300	2.12	MR 2I 180 - 75 × 550	280 S	4 6.60
100	304	20 300	2.12	MR 2I 180 - 75 × 550	280 S	4 5.76

1) Powers valid for continuous duty S1; **increase** possible for S2 ... S10 (ch. 2b) in which case  $M_2$  increases and  $f_s$  decreases proportionately.

2) For complete designation when ordering, see ch. 3.

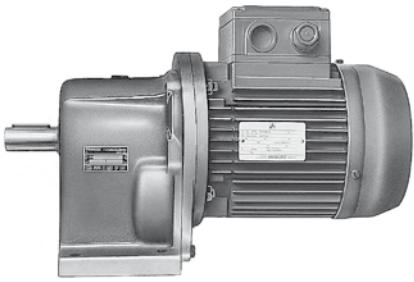
\* Mounting position **B5R** (see table ch. 2b).

\*\* In case of ambient temperature > 30 °C check the thermal power (ch. 4).

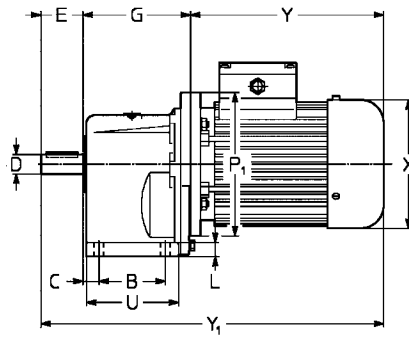
\*\* Check the thermal power.

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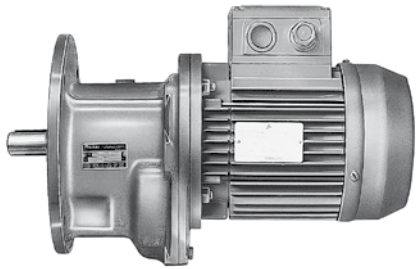
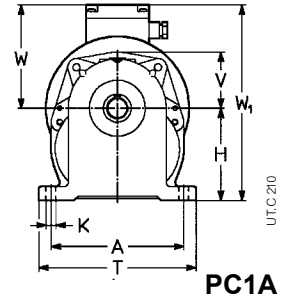
# Designs, dimensions, mounting positions and lubricant quantities 3.8



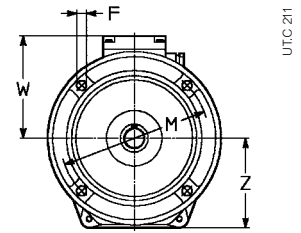
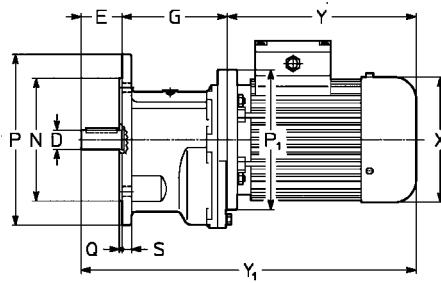
Standard design<sup>1)</sup>  
Mounting position B3, B6, B7, B8, V5, V6



MR 2I, 3I 32 ... 41



Standard design<sup>1)</sup>  
Mounting position B5, V1, V3



Size	A	B	C	D ∅	E	F ∅	G	H h11	K ∅	L	M ∅	N ∅ h6	P ∅	Q	S	T	U	V	P <sub>1</sub> ∅	X ∅ ≈	Y ≈ 2)	Y <sub>1</sub> ≈ 2)	W ≈	W <sub>1</sub> ≈	Mass					
																									lb	HB	HBZ			
red. motor																														
<b>B5</b>																			<b>Z</b>											
<b>32</b>	<b>63</b>	115	53	20	16	30	9.5	98-88 <sup>5)</sup>	75	9.5	10	115	95	140	3	10	139	77	48	140	123	189	244	317	372	95	170	9	20	24
	<b>71<sup>6)</sup></b>																	73	140	138	235	297	363	425	112	187	9	26	33	
<b>40</b>	<b>63</b>	132	63	19	19	40	9.5	113	90	9.5	12	130	110	160	3.5	10	156	92	56	140	123	189	244	342	397	95	185	15	26	31
	<b>71</b>																	87	160	138	216	278	369	431	112	202	15	33	40	
	<b>80<sup>9)</sup></b>																	160	156	254	323	407	476	121	211	15	42	51		
<b>41</b>	<b>63</b>	132	63	34	24	36	9.5	128-113 <sup>5)</sup>	90	9.5	12	130	110	160	3.5	10	156	92	56	140	123	189	244	353	408	95	185	15	26	31
	<b>71</b>																	87	160	138	216	278	380	442	112	202	15	33	40	
	<b>80<sup>9)</sup></b>																	160	156	254	323	418	487	121	211	15	42	51		

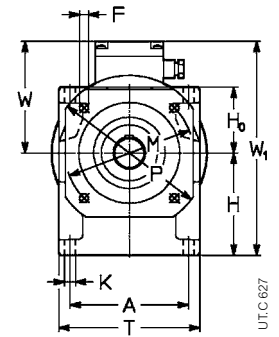
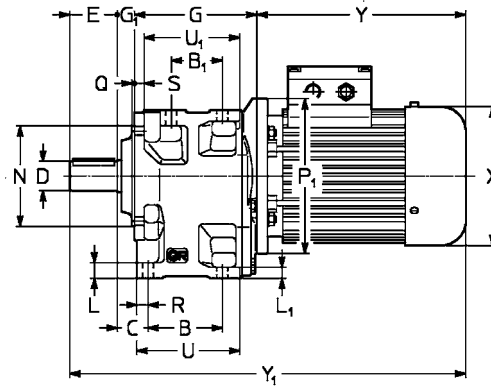
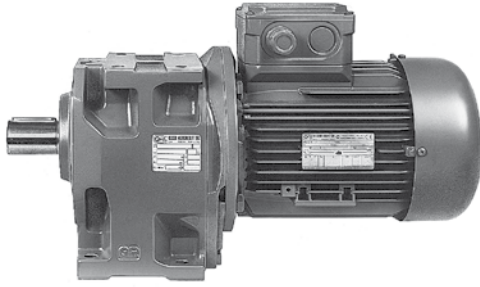
- See ch. 3 for motor design.
- Values valid for brake motor.
- Mounting position **B5A** (see ch. 2b).
- Mounting position **B5R** (see ch. 2b).
- Dimensions of shaft end shoulder and flange surface respectively.
- For size 51 **Y<sub>1</sub>** is -8 mm.
- For motor shaft **H** is -15 mm, **H<sub>1</sub>** +15 mm.
- For motor shaft **H** is -8 mm, **H<sub>1</sub>** +8 mm.
- For motor shaft **H** is -29 mm, **H<sub>1</sub>** +29 mm.
- Two of the motor flange holes are slotted (see ch. 2b).
- Values valid for gearmotor without motor.
- Brake motor** cat. TX **not possible**.

## Mounting positions and grease quantities [gal]

Design	B3	B6	B7	B8	V5	V6	Size	B3, B6 B7, B8	V5, V6
								PC1A	
FC1A	B5				V1	V3	32 40,41	B5 0.22 0.42	V1, V3 0.4 0.77

# Designs, dimensions, mounting positions and lubricant quantities 3.8

MR 21, 31 50 ... 180



UTC627  
UC2A

## Standard design<sup>1)</sup>

Mounting position B3, B6, B7, B8, V5, V6

Size	A	B	B1	C	D Ø	E Ø	F Ø	G	G1	H h11	Hb h11	K Ø	L	L1	M Ø	N Ø h6	P Ø	R	S	T	U	U1	P1 Ø	X Ø	Y		Y1		W	W1	Mass					
																									HB	HBZ	HB	HBZ			TX	11)	HB	HBZ		
50 51	63 <sup>10)</sup> 71 80 90 100 <sup>11)</sup> 112 <sup>12)</sup>	124	76	52	30.5	24 (50) 28 (51)	50 (50) 42 (51)	9.5	128	16	106	71	11.5	17	12	130	110	160 3.5	13.5	10	148	110	100	140	123	189	244	383	438	95	201	26	37	42		
																										160	216	278	410	472	112	218	26	44	51	
																										200	156	233	302	427	496	121	227	26	53	62
																										200	176	287	366	481	560	141	247	26	68	82
																										200	194	337	—	531	—	151	257	26	84	—
63 64	71 80 90 100 112 132 <sup>9)</sup>	153	96	66	36.5	32 (63) 38 (64)	58	11.5	158	19	132	85	14	20	14	165	130	200 3.5	16	12	182	136	124	160	138	216	278	451	513	112	244	44	62	68		
																										200	156	233	302	468	537	121	253	44	71	79
																										200	176	287	366	522	601	141	273	44	86	99
																										250	194	310	405	545	640	151	283	44	101	115
																										250	218	336	435	571	670	163	295	44	121	141
80 81	80 90 100 112 132	192	123	87	43	38 (80) 48 (81)	80	14	197	22	160	106	16	24	17	215	180	250 4	19	14	226	171	157	200	156	233	302	532	601	121	281	77	104	112		
																										200	176	287	366	586	665	141	301	77	119	132
																										250	194	310	405	609	704	151	311	77	134	148
																										250	218	336	435	635	734	163	323	77	154	174
																										300	257	445	553	747	855	194	354	77	229	256
100 101	90 100 112 132 160 180M	240	160	119	51.5	48 (100) 55 (101)	82	14	242	27	195	132	18	28.5	20	265	230	300 4	22.5	16	280	214	198	200	176	287	366	638	717	141	336	137	179	192		
																										250	194	310	405	661	756	151	346	137	194	207
																										250	218	336	435	687	786	163	358	137	214	234
																										300	257	445	553	796	904	194	389	137	289	315
																										350	315	540	630	907	997	240	435	137	408	489
125 126	100 112 132 160 180 200	297	200	151	59	60 (125) 70 (126)	105	18	297	30	236	160	22	35	25	300	250	350 5	26.5	19	345	264	245	250	194	310	405	742	837	151	396	243	300	313		
																										250	218	336	435	768	867	163	399	243	320	340
																										300	257	445	553	877	985	194	430	243	395	421
																										350	315	540	630	972	1062	240	476	243	514	595
																										400	360	590	725	1022	1157	278	514	243	772	877
140	100 112 132 160 180 200 225	297	218	169	59	80	130	18	315	30	250 7)	160 7)	22	35	25	300	250	350 5	26.5	19	345	282	263	250	194	310	405	785	880	151	410	271	328	342		
																										250	218	336	435	811	910	163	410	271	348	368
																										300	257	445	553	920	1028	194	429	271	423	450
																										350	315	540	630	1015	1105	240	475	271	542	624
																										400	360	590	725	1065	1200	278	513	271	800	906
160	132 160 180 200 225 250	373	250	191	68.5	90	130	22	366	34	295 8)	200 8)	27	42	30	400	350	450 5	31.5	22	430	326	304	300	257	445	553	975	1083	194	495	430	582	608		
																										350	315	540	630	1070	1160	240	527	430	701	783
																										350	360	590	725	1120	1255	278	565	430	959	1065
																										400	400	650	760	1180	1290	310	597	430	948	1054
																										450	450	680	—	1212	—	330	617	430	1157	—
180	132 160 180 200 225 250 280	373	275	216	68.5	100	165	22	391	34	315 9)	200 9)	27	42	30	400	350	450 5	31.5	22	430	351	329	300	257	445	553	1035	1143	194	515	481	633	659		
																										350	315	540	630	1130	1220	240	526	481	752	833
																										350	360	590	725	1180	1315	278	564	481	1010	1116
																										400	400	650	760	1240	1350	310	596	481	999	1105
																										450	450	680	—	1272	—	330	616	481	1208	—

See notes on page 62

## Mounting positions and oil quantities [gal]

B3	B6	B7	B8	V5	V6	Size	B3	B6, B7	B8, V6	V5
						50, 51	0.21	0.29	0.29	0.37
						63, 64	0.42	0.58	0.58	0.74
						80, 81	0.82	1.1	1.1	1.50
						100, 101	1.5	1.9	2.1	2.6
						125, 126	2.7	3.4	3.9	4.8
						140	3.1	3.9	4.4	5.5
						160	5.2	6.6	7.4	9.2
						180	6.1	7.7	8.5	10.6

## Nominal torques for final gear reducer

$M_{N2}$ [lb in] for $n_2 \leq 11,2 \text{ rpm}^{(3)}$	$\eta_{\text{final}}$	$i_{\text{final}}$	Final gear reducer	+	Initial gear reducer or gearmotor
3,000	0.94	30	MR 3I 63-19×160 - 30 <sup>(1)</sup>	+	R 2I or MR 2I, 3I 40
4,000		30	MR 3I 64-19×160 - 30 <sup>(1)</sup>	+	R 2I or MR 2I, 3I 40
6,000		32.8	MR 3I 80-19×160 - 32.8 <sup>(1)</sup>	+	R 2I or MR 2I, 3I 40
8,000		49.8	MR 3I 81-19×160 - 49.8 <sup>(1)</sup>	+	R 2I or MR 2I, 3I 40
11,800		32	MR 3I 100-24×200 - 32	+	R 2I, 3I or MR 2I, 3I 50 <sup>(2)</sup>
16,000		53.1	MR 3I 101-24×200 - 53.1	+	R 2I, 3I or MR 2I, 3I 50 <sup>(2)</sup>
23,600		34.1	MR 3I 125-28×250 - 34.1	+	R 2I, 3I or MR 2I, 3I 63 <sup>(2)</sup>
31,500		50.2	MR 3I 126-28×250 - 50.2	+	R 2I, 3I or MR 2I, 3I 63 <sup>(2)</sup>
45,000		55.7	MR 3I 140-28×250 - 55.7	+	R 2I, 3I or MR 2I, 3I 63 <sup>(2)</sup>
63,000		49.7	MR 3I 160-38×300 - 49.7	+	R 2I, 3I or MR 2I, 3I 80 <sup>(2)</sup>
85,000	57.1	MR 3I 180-38×300 - 57.1	+	R 2I, 3I or MR 2I, 3I 80 <sup>(2)</sup>	

For initial gear reducer or gearmotor performance data see ch. 3.5 and 3.7.

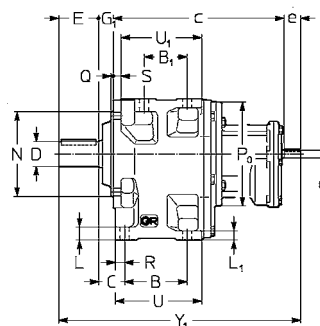
1) Final gearmotor has a 160 mm motor mounting flange (see dimension  $P_3$ , ch. 3.8).

2) Gear reducer in design «Oversized B5 flange» (see ch. 5); moreover, size 63 has the low speed shaft reduced to 28 mm: «Oversized B5 flange - Ø 28».

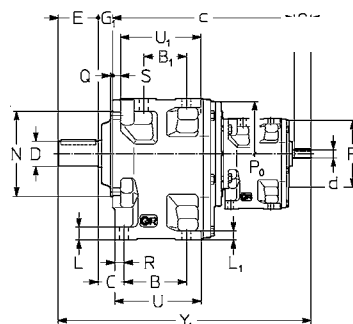
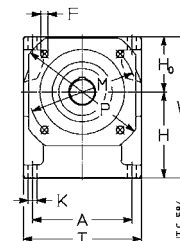
3) Provided that  $f_s$  is always  $\geq 0.8$ , it can be reduced by **1.06** for  $n_2 = 2.8 \pm 0.71 \text{ rpm}$ , by **1.12** for  $n_2 \leq 0.71 \text{ rpm}$ .

## Combined unit dimensions<sup>1)</sup>

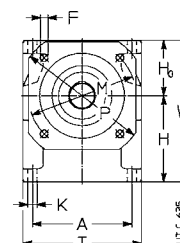
## 3.10



MR 3I 63 ... 81 + R 2I, 3I ...



MR 3I 100 ... 180 + R 2I, 3I ...



1) For design, mounting position and lubricant quantity of single gear reducers, see ch. 3.6 and 3.8.

Notes of page 65.

1) For high speed shaft or motor shaft  $H$  is -15 mm,  $H_0$  +15 mm.

2) For high speed shaft or motor shaft  $H$  is -8 mm,  $H_0$  +8 mm.

3) For high speed shaft or motor shaft  $H$  is -29 mm,  $H_0$  +29 mm.

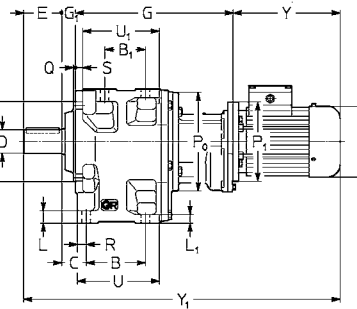
4) Values valid for brake motor.

5) Values valid for gearmotor without motor.

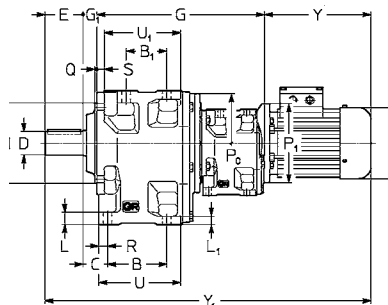
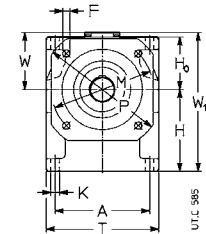
# Combined unit dimensions

# 3.10

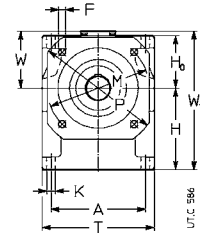
Gear reducer size		A	B	C	c	D	E	d	Y <sub>1</sub>	d	Y <sub>1</sub>	d	Y <sub>1</sub>	F	G <sub>1</sub>	H	K	L	M	N	P	P <sub>0</sub>	P <sub>1</sub>	R	S	T	U	W <sub>1</sub>	Mass							
final	initial	B <sub>1</sub>				∅		∅		∅		∅		∅		h <sub>11</sub>	∅		∅	∅	∅	∅	∅	∅	∅	∅	∅	∅	∅	lb						
								e   i <sub>N</sub> ≤ 12,5	e   i <sub>N</sub> ≥ 16	e   i <sub>N</sub> ≤ 80	e   i <sub>N</sub> ≥ 100					H <sub>0</sub> h <sub>11</sub>		L <sub>1</sub>		N	Q <sub>+2</sub>						U <sub>1</sub>									
MR 3I 63	R 2I 40	153	96	36.5	280	32	58	11	380	11	380	—	—	—	—	11.5	19	132	14	20	14	165	130	200	160	—	16	12	182	136	217	60				
MR 3I 80	R 2I 40	192	123	43	319	38	80	11	444	11	444	—	—	—	—	14	22	160	16	24	17	215	180	250	160	—	19	14	226	171	266	93				
MR 3I 100	R 2I. 3I 50	240	160	51.5	396	48	82	14	535	14	535	11	23	528	11	23	528	14	27	195	132	18	28.5	20	265	230	300	4	200	140	22.5	16	280	214	327	74
MR 3I 125	R 2I. 3I 63	297	200	59	484	60	105	19	649	16	649	14	30	649	14	30	649	18	30	236	160	22	35	25	300	250	350	5	250	160	26.5	19	345	264	396	163
MR 3I 140	R 2I. 3I 63	297	218	59	502	80	130	11	692	16	692	14	30	692	14	30	692	18	30	250 <sup>1)</sup>	160 <sup>1)</sup>	22	35	25	300	250	350	5	250	160	26.5	19	345	282	410	315
MR 3I 160	R 2I. 3I 80	373	250	68.5	596	90	130	11	800	19	800	19	40	800	16	30	790	22	34	295 <sup>2)</sup>	200 <sup>2)</sup>	27	42	30	400	350	450	5	300	200	31.5	22	430	326	495	507
MR 3I 180	R 2I. 3I 80	373	275	68.5	621	100	165	11	800	19	860	19	40	860	16	30	850	22	34	315 <sup>3)</sup>	200 <sup>3)</sup>	27	42	30	400	350	450	5	300	200	31.5	22	430	351	515	558



MR 3I 63 ... 81 + MR 2I, 3I ...



MR 3I 100 ... 180 + R 2I, 3I ...



Size		A	B	C	D	E	F	G	G <sub>1</sub>	H	K	L	M	N	P	R	S	T	U	P <sub>0</sub>	P <sub>1</sub>	X	Y	Y <sub>1</sub>	W	W <sub>1</sub>	Mass						
gear reducer	motor				∅	∅	∅			h <sub>11</sub>	∅		∅	∅	∅	∅	∅	∅	∅	∅	∅	∅						Mass					
final	initial	B <sub>5</sub>	B <sub>1</sub>							H <sub>0</sub> h <sub>11</sub>	L <sub>1</sub>		N	Q <sub>+2</sub>					U <sub>1</sub>									lb					
MR 3I 63	MR 2I, 3I 40	63	153	96	36.5	32	58	11.5	271	19	132	14	20	14	165	130	200	16	12	182	136	160	140	123	189	244	537	592	95	227	60	71	75
MR 3I 64		71	153	96	36.5	(63) 38 (64)	58	11.5	271	19	132	14	20	14	165	130	200	16	12	182	136	160	140	123	189	244	537	592	95	227	60	71	75
MR 3I 80	MR 2I, 3I 40	63	192	123	43	38	80	14	310	22	160	16	24	17	215	180	250	19	14	226	171	160	140	123	189	244	601	656	95	266	93	104	108
MR 3I 81		71	192	123	43	(80) 48 (81)	80	14	310	22	160	16	24	17	215	180	250	19	14	226	171	160	140	123	189	244	601	656	95	266	93	104	108
MR 3I 80 <sup>BSA</sup>		80	192	123	43	(80) 48 (81)	80	14	310	22	160	16	24	17	215	180	250	19	14	226	171	160	140	123	189	244	601	656	95	266	93	104	108
MR 3I 100	MR 2I, 3I 50	63	240	160	51.5	48	82	14	386	27	195	18	28.5	20	265	230	300	16	16	280	214	200	140	123	189	244	684	739	95	327	163	174	179
MR 3I 101		70	240	160	51.5	(100) 55 (101)	82	14	386	27	195	18	28.5	20	265	230	300	16	16	280	214	200	140	123	189	244	684	739	95	327	163	174	179
MR 3I 101		71	240	160	51.5	(100) 55 (101)	82	14	386	27	195	18	28.5	20	265	230	300	16	16	280	214	200	140	123	189	244	684	739	95	327	163	174	179
MR 3I 125	MR 2I, 3I 63	70	297	200	59	60	105	18	474	30	236	22	35	25	300	250	350	19	19	345	264	250	160	138	216	278	825	887	112	396	287	304	311
MR 3I 126		80	297	200	59	(125) 70 (126)	105	18	474	30	236	22	35	25	300	250	350	19	19	345	264	250	160	138	216	278	825	887	112	396	287	304	311
MR 3I 126		90	297	200	59	(125) 70 (126)	105	18	474	30	236	22	35	25	300	250	350	19	19	345	264	250	160	138	216	278	825	887	112	396	287	304	311
MR 3I 126		100	297	200	59	(125) 70 (126)	105	18	474	30	236	22	35	25	300	250	350	19	19	345	264	250	160	138	216	278	825	887	112	396	287	304	311
MR 3I 140	MR 2I, 3I 63	71	297	218	59	80	130	18	492	30	250	22	35	25	300	250	350	19	19	345	282	250	160	138	216	278	868	930	112	410	315	333	340
MR 3I 140		80	297	218	59	80	130	18	492	30	250	22	35	25	300	250	350	19	19	345	282	250	160	138	216	278	868	930	112	410	315	333	340
MR 3I 140		90	297	218	59	80	130	18	492	30	250	22	35	25	300	250	350	19	19	345	282	250	160	138	216	278	868	930	112	410	315	333	340
MR 3I 140		100	297	218	59	80	130	18	492	30	250	22	35	25	300	250	350	19	19	345	282	250	160	138	216	278	868	930	112	410	315	333	340
MR 3I 140		112	297	218	59	80	130	18	492	30	250	22	35	25	300	250	350	19	19	345	282	250	160	138	216	278	868	930	112	410	315	333	340
MR 3I 140		112	297	218	59	80	130	18	492	30	250	22	35	25	300	250	350	19	19	345	282	250	160	138	216	278	868	930	112	410	315	333	340
MR 3I 140		112	297	218	59	80	130	18	492	30	250	22	35	25	300	250	350	19	19	345	282	250	160	138	216	278	868	930	112	410	315	333	340
MR 3I 140		112	297	218	59	80	130	18	492	30	250	22	35	25	300	250	350	19	19	345	282	250	160	138	216	278	868	930	112	410	315	333	340
MR 3I 140		112	297	218	59	80	130	18	492	30	250	22	35	25	300	250	350	19	19	345	282	250	160	138	216	278	868	930	112	410	315	333	340
MR 3I 140		112	297	218	59	80	130	18	492	30	250	22	35	25	300	250	350	19	19	345	282	250	160	138	216	278	868	930	112	410	315	333	340
MR 3I 140		112	297	218	59	80	130	18	492	30	250	22	35	25	300	250	350	19	19	345	282	250	160	138	216	278	868	930	112	410	315	333	340
MR 3I 140		112	297	218	59	80	130	18	492	30	250	22	35	25	300	250	350	19	19	345	282	250	160	138	216	278	868	930	112	410	315	333	340
MR 3I 140		112	297	218	59	80	130	18	492	30	250	22	35	25	300	250	350	19	19	345	282	250	160	138	216	278	868	930	112	410	315	333	340
MR 3I 140		112	297	218	59	80	130	18	492	30	250	22	35	25	300	250	350	19	19	345	282	250	160	138	216	278	868	930	112	410	315	333	340
MR 3I 140		112	297	218	59	80	130	18	492	30	250	22	35	25	300	250	350	19	19	345	282	250	160	138	216	278	868	930	112	410	315	333	340
MR 3I 140		112	297	218	59	80	130	18	492	30	250	22	35	25	300	250	350	19	19	345	282	250	160	138	216	278	868	930	112	410	315	333	340
MR 3I 140		112	297	218	59	80	130	18	492	30	250	22	35	25	300	250	350	19	19	345	282	250	160	138	216	278	868	930	112	410	315	333	340
MR 3I 140		112	297	218	59	80	130	18	492	30	250	22	35	25	300	250	350	19	19	345	282	250	160	138	216	278	868	930	112	410	315	333	340
MR 3I 140		112</																															

## Radial loads<sup>1)</sup> $F_{r1}$ [daN] on high speed shaft end

## 3.11

Radial loads generated on the shaft end by a drive connecting gear reducer and motor must be less than or equal to those given in the relevant table.

The radial load  $F_{r1}$  given by the following formula refers to most common drives:

$$F_{r1} = \frac{189,090 \cdot P_1}{d \cdot n_1} \text{ [lb]} \quad \text{for timing belt drive}$$

$$F_{r1} = \frac{345,050 \cdot P_1}{d \cdot n_1} \text{ [lb]} \quad \text{for V-belt drive}$$

where:  $P_1$  [hp] is power required at the input side of the gear reducer,  $n_1$  [rpm] is the speed,  $d$  [in] is the pitch diameter.

Radial loads given in the table are valid for overhung loads on centre line of high speed shaft end, i.e. operating at a distance of  $0.5 \cdot e$  ( $e$  = shaft end length) from the shoulder. If they operate at  $0.315 \cdot e$  multiply by 1.25; if they operate at  $0.8 \cdot e$  multiply by 0.8.

$n_1$ rpm	Gear reducer																		
	32		40		50			63			80			100, 101		125, 126, 140		160, 180	
	R 2l	R 2l	51 <small><math>i_N \leq 12,5</math></small>	51 <small><math>i_N \geq 16</math></small>	51 <small><math>i_N \geq 16</math></small>	64 <small><math>i_N \leq 12,5</math></small>	64 <small><math>i_N \geq 16</math></small>	64 <small><math>i_N \geq 16</math></small>	81 <small><math>i_N \leq 12,5</math></small>	81 <small><math>i_N \geq 16</math></small>	81 <small><math>i_N \geq 16</math></small>	R 2l	R 3l	R 2l	R 3l	R 2l	R 3l		
<b>1 400</b>	11.2	17	42.5	26.5	17	67	42.5	26.5	106	67	42.5	170	67	265	170	425	265		
<b>1 120</b>	11.8	18	45	28	18	71	45	28	112	71	45	180	71	280	180	450	280		
<b>900</b>	12.5	19	47.5	30	19	75	47.5	30	118	75	47.5	190	75	300	190	475	300		
<b>710</b>	14	21.2	53	33.5	21.2	85	53	33.5	132	85	53	212	85	335	212	530	335		
<b>560</b>	15	22.4	56	35.5	22.4	90	56	35.5	140	90	56	224	90	355	224	560	355		
<b>450</b>	16	23.6	60	37.5	23.6	95	60	37.5	150	95	60	236	95	375	236	600	375		
<b>355</b>	18	26.5	67	42.5	26.5	106	67	42.5	170	106	67	265	106	425	265	670	425		

1) An axial load of up to 0.2 times the value in the table is permissible, simultaneously with the radial load. If exceeded consult us.

**IMPORTANT:** tabulated values for radial load  $F_{r1}$  can increase considerably in certain instances (direction of rotation, angular position of load, etc.). **Consult us** if need be.

## Radial $F_{r2}$ [lb] or axial loads $F_{a2}$ [lb] on low speed shaft end

## 3.12

### Axial loads $F_{a2}$

Permissible  $F_{a2}$  is shown in the column where direction of rotation of low speed shaft (black or white arrow) and direction of the axial force (solid or broken arrow) correspond to those of the gear reducer in question.

Wherever possible, choose the load conditions corresponding to the **column with highest** admissible values.

### Radial loads $F_{r2}$

Radial loads generated on the shaft end by a drive connecting gear reducer and machine must be less than or equal to those given in the relevant table.

Normally, radial loads on low speed shaft ends are considerable: in fact there is a tendency to connect the gear reducer to the machine by means of a transmission with high transmission ratio (economizing on the gear reducer) and with small diameters (economizing on the drive, and for requirements dictated by overall dimensions).

Bearing life and wear (which also affect gears unfavourably) and low speed shaft strength, clearly impose limits on permissible radial load.

The high value which radial load may take on, and the importance of not exceeding permissible values, make it necessary to take full advantage of the gear reducer's possibilities.

Permissible radial loads given in the table are therefore based on: the product of speed  $n_2$  [ $\text{min}^{-1}$ ] multiplied by bearing life  $L_h$  [h] required, the direction of rotation, the angular position  $\varphi$  [ $^\circ$ ] of the load and torque  $M_2$  [lb in] required.

Radial loads given in the table are valid for overhung loads on centre line of low speed shaft end, i.e. operating at a distance of  $0.5 \cdot E$  ( $E$  = shaft end length) from the shoulder. If operating at  $0.315 \cdot E$  multiply by 1.25; if operating at  $0.8 \cdot E$  multiply by 0.8.

Radial load  $F_{r2}$  for most common drives has the following value and angular position:

$$F_{r2} = \frac{126,060 \cdot P_2}{d \cdot n_2} \text{ [lb]}$$

for chain drive (lifting in general); for timing belt drive replace 126,060 with 189,090

$$F_{r2} = \frac{315,050 \cdot P_2}{d \cdot n_2} \text{ [lb]}$$

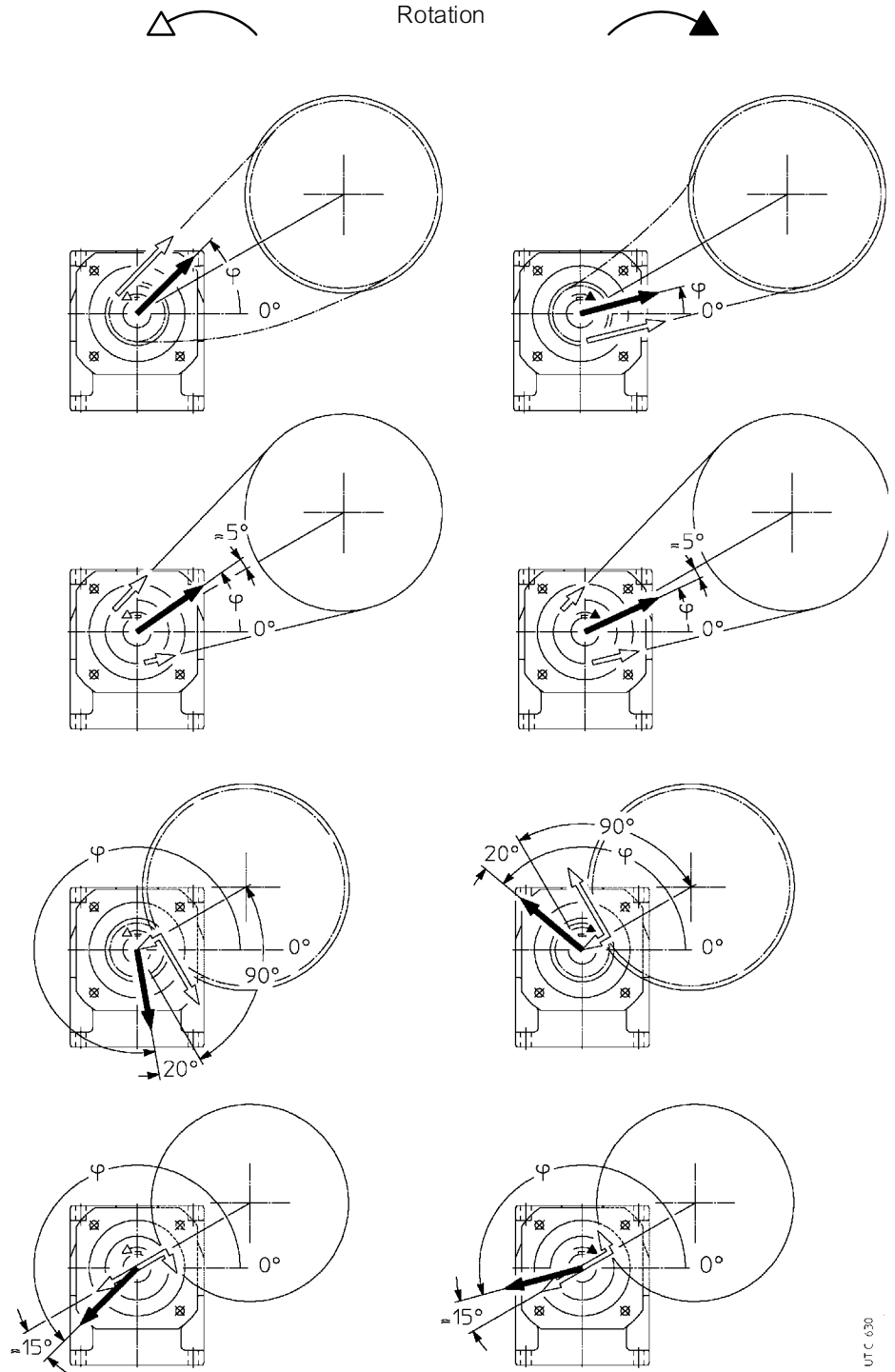
for V-belt drive

$$F_{r2} = \frac{134,112 \cdot P_2}{d \cdot n_2} \text{ [lb]}$$

for spur gear pair drive

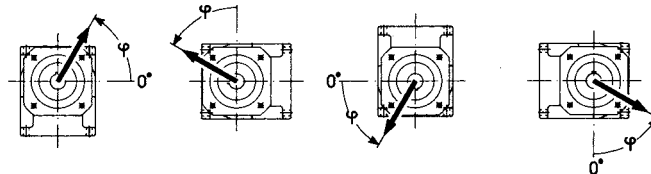
$$F_{r2} = \frac{447,546 \cdot P_2}{d \cdot n_2} \text{ [lb]}$$

for friction wheel drive (rubber-on-metal)



where:  $P_2$  [hp] is power required at the output side of the gear reducer,  $n_2$  [rpm] is the speed,  $d$  [in] is the pitch diameter.

**IMPORTANT:**  $0^\circ$  coincides with a half line parallel to the bolted base of the housing as shown above, and therefore it follows the rotation of the housing, as shown below.

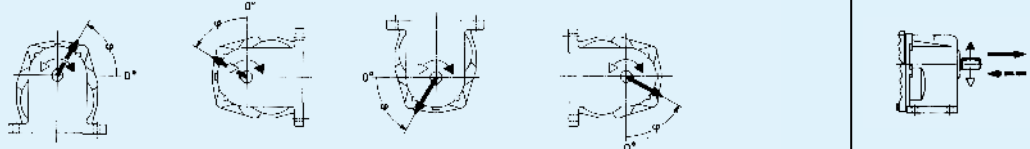
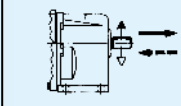


In the flanged design (sizes 32 ... 41),  $0^\circ$  remains in the same position, as per the same shape of the housing.

$n_2 \cdot L_h$	$T_2$	$F_{r2}^{1)2)}$														$F_{a2}^{1)}$					
rpm h	lb in	0	45	90	135	180	225	270	315	0	45	90	135	180	225	270	315				
<b>900,000</b>	315	280	280	280	280	280	280	280	280	280	280	280	265	265	280	280	280	80	160	160	80
	224	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	80	160	160	80
	160	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	80	160	160	80
<b>1,120,000</b>	315	236	236	265	280	280	280	280	265	280	280	265	236	224	265	280	280	80	160	160	80
	224	250	250	280	280	280	280	280	280	280	280	280	250	236	280	280	280	80	160	160	80
	160	265	265	280	280	280	280	280	280	280	280	280	265	250	280	280	280	80	160	160	80
<b>1,400,000</b>	224	224	236	250	280	280	250	265	265	280	280	250	224	212	250	280	280	80	160	160	80
	160	236	250	265	280	280	280	280	280	280	280	265	236	224	265	280	280	80	160	160	80
	112	250	265	265	280	280	280	280	280	280	280	265	250	250	265	280	280	80	160	160	80
<b>1,800,000</b>	224	212	212	236	280	265	224	236	250	250	265	236	200	190	236	280	280	75	160	160	75
	160	224	224	250	280	280	280	280	250	280	280	236	224	212	236	265	280	80	160	160	80
	112	236	236	250	280	280	280	280	250	280	280	250	236	224	250	265	280	80	160	160	80
<b>2,240,000</b>	224	190	190	212	250	250	224	236	212	250	250	212	190	180	200	224	250	80	160	160	80
	160	200	200	224	265	265	224	250	224	265	265	224	200	190	224	250	280	80	160	160	80
	112	212	212	224	265	265	265	250	236	280	265	224	212	200	224	250	280	80	160	160	80
<b>2,800,000</b>	224	160	180	190	250	250	200	212	190	212	212	200	160	170	190	236	250	80	160	160	80
	160	180	190	200	250	250	212	224	212	236	236	200	180	180	200	236	265	80	160	160	80
	112	200	200	212	236	250	250	236	224	265	250	212	200	190	212	236	265	80	160	160	80
<b>3,550,000</b>	160	170	180	190	236	224	190	200	200	212	212	190	170	160	190	212	236	80	150	160	71
	112	180	190	200	224	236	224	212	200	236	236	200	180	180	200	212	236	80	160	160	80
<b>4,500,000</b>	160	150	160	180	212	190	170	180	180	180	200	170	150	140	180	200	224	80	140	160	56
	112	170	170	180	212	224	200	200	190	212	212	180	170	160	180	200	224	80	140	160	80
<b>5,600,000</b>	112	150	150	170	190	200	180	190	170	190	200	170	150	140	170	190	212	80	132	160	71
max		<b>280</b>														<b>80</b>	<b>160</b>	<b>160</b>	<b>80</b>		

1) An axial load of up to 0.2 times the value in the table is permissible, simultaneously with the radial load and vice versa. If exceeded consult us.

size **40**

$n_2 \cdot L_h$	$T_2$	$F_{r2}^{1)2)}$														$F_{a2}^{1)}$					
																					
rpm h	lb in	0	45	90	135	180	225	270	315	0	45	90	135	180	225	270	315	0	125	125	250
<b>710,000</b>	630	335	315	375	450	375	300	355	375	355	400	375	335	300	355	400	450	250	125	125	250
	450	355	355	400	450	450	400	425	400	450	450	400	355	335	375	450	450	250	125	125	250
	315	375	400	425	450	450	450	450	425	450	450	425	375	375	400	450	450	250	125	125	250
<b>900,000</b>	630	335	335	375	450	400	355	375	375	400	425	355	335	315	375	450	375	250	100	125	250
	450	355	355	375	450	450	425	425	400	450	450	375	355	335	375	425	450	250	125	125	250
	315	375	375	400	450	450	450	425	400	450	450	400	375	355	400	425	450	250	125	125	250
<b>1,120,000</b>	630	280	300	315	450	315	280	265	315	315	355	315	280	265	315	375	425	250	67	125	250
	450	300	315	335	450	355	315	315	355	355	375	335	300	280	335	400	450	250	125	125	250
	315	315	335	355	425	425	375	400	355	400	400	355	315	315	355	400	450	250	125	125	250
<b>1,400,000</b>	450	265	280	315	400	315	265	280	335	315	335	300	265	236	315	375	425	250	125	125	250
	315	300	300	335	400	375	335	355	335	375	355	315	300	280	335	375	400	250	125	125	250
	224	315	315	335	375	400	400	355	335	400	375	335	315	300	335	355	400	250	125	125	250
<b>1,800,000</b>	450	236	250	300	375	280	224	236	300	265	300	280	236	212	280	335	375	250	100	125	250
	315	265	250	300	355	355	300	315	315	335	335	300	265	250	300	335	375	250	125	125	250
	224	280	300	315	355	375	355	335	315	375	355	315	280	280	315	335	375	250	125	125	250
<b>2,240,000</b>	450	212	236	265	315	300	236	250	265	265	300	250	212	200	250	300	315	250	63	125	250
	315	236	250	280	335	315	265	280	280	300	315	265	236	224	280	315	355	250	125	125	250
	224	265	265	280	335	335	315	315	300	335	335	280	265	250	280	315	355	250	125	125	250
<b>2,800,000</b>	450	212	212	236	300	250	180	190	236	224	250	236	200	180	224	280	300	250	45	125	236
	315	224	224	250	315	280	224	236	265	265	280	250	212	200	250	300	335	250	112	125	250
	224	236	236	265	315	315	280	300	265	315	315	265	236	224	265	300	335	250	125	125	250
<b>3,550,000</b>	315	200	212	236	300	236	200	212	236	236	250	224	190	180	224	280	315	250	90	125	224
	224	212	224	236	300	300	250	265	250	280	280	236	212	200	236	280	300	250	125	125	224
<b>4,500,000</b>	315	180	190	212	280	212	180	180	224	212	224	200	180	160	212	250	300	250	67	125	200
	224	200	200	224	265	265	224	236	224	250	250	212	200	190	224	250	280	250	112	125	212
<b>5,600,000</b>	224	180	190	200	250	236	200	212	212	224	224	200	180	170	200	236	265	250	90	125	180
max		<b>450</b>														<b>250</b>	<b>125</b>	<b>125</b>	<b>250</b>		

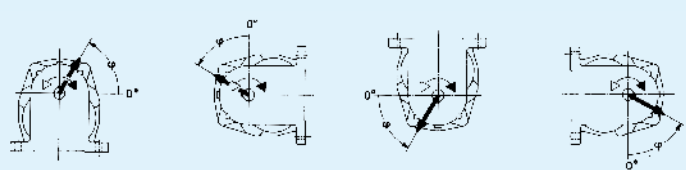
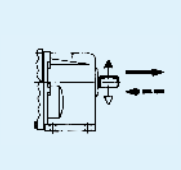
size **41**

<b>710,000</b>	630	475	475	530	560	425	335	400	500	400	450	500	450	450	500	560	500	315	150	160	315
	450	500	500	530	560	560	530	560	530	560	560	530	475	475	500	560	560	315	160	160	315
	315	500	500	530	560	560	560	560	530	560	560	530	500	500	530	560	560	315	160	160	315
<b>900,000</b>	630	425	425	475	560	450	400	425	475	450	475	475	400	400	450	530	425	315	150	160	315
	450	450	450	500	560	560	475	530	475	500	560	475	450	425	475	530	560	315	160	160	315
	315	475	475	500	530	560	560	530	500	560	560	500	475	450	475	530	560	315	160	160	315
<b>1,120,000</b>	630	375	375	425	500	355	315	300	425	355	400	425	355	355	400	500	475	315	106	160	315
	450	400	425	450	500	475	375	450	450	425	475	450	400	400	425	500	530	315	160	160	315
	315	425	425	450	500	530	530	500	450	530	500	450	425	425	450	500	530	315	160	160	315
<b>1,400,000</b>	450	375	375	425	475	400	315	375	400	355	425	400	355	355	400	475	475	315	160	160	315
	315	400	400	425	475	500	475	450	425	500	475	425	375	375	400	500	500	315	160	160	315
	224	400	400	425	450	475	475	450	425	475	475	425	400	400	425	450	475	315	160	160	315
<b>1,800,000</b>	450	355	355	375	450	335	250	315	375	315	355	375	335	335	355	425	425	315	150	160	315
	315	355	355	400	425	450	400	425	375	450	450	375	355	355	375	425	475	315	160	160	315
	224	375	375	400	425	450	450	425	400	450	425	400	375	375	375	425	450	315	160	160	315
<b>2,240,000</b>	450	315	315	355	400	335	265	280	335	300	335	335	300	300	335	400	355	315	106	160	315
	315	335	335	355	400	425	355	400	355	375	400	355	335	315	355	400	425	315	160	160	315
	224	355	355	355	400	400	400	375	355	425	400	355	335	335	355	375	425	315	160	160	315
<b>2,800,000</b>	450	300	300	335	375	280	200	236	315	250	280	315	265	280	300	355	335	315	150	160	280
	315	315	315	335	375	355	300	335	335	335	375	335	300	300	315	355	400	315	160	160	300
	224	315	315	335	355	375	375	355	335	400	375	335	315	315	335	355	400	315	160	160	315
<b>3,550,000</b>	315	280	280	315	355	315	250	280	300	280	315	315	265	265	300	335	355	315	125	160	265
	224	300	300	315	335	355	355	335	315	375	355	315	300	280	315	335	355	315	160	160	300
<b>4,500,000</b>	315	250	265	280	335	250	200	236	280	236	265	280	250	236	265	315	335	315	100	160	236
	224	265	280	300	315	335	315	315	280	335	335	300	265	265	280	315	335	315	160	160	265
<b>5,600,000</b>	224	250	265	280	300	315	300	300	265	300	315	280	250	250	250	300	315	315	140	160	236
max		<b>560</b>														<b>315</b>	<b>160</b>	<b>160</b>	<b>315</b>		

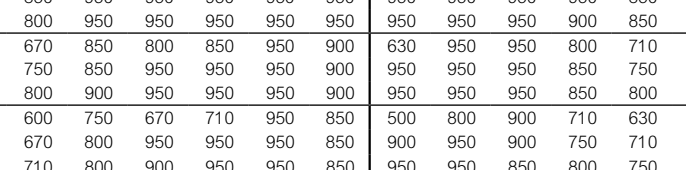
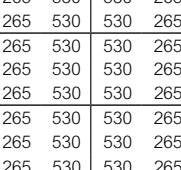
1) An axial load of up to 0,2 times the value in the table is permissible, simultaneously with the radial load and vice versa. If exceeded consult us.

# Radial $F_{r2}$ [daN] or axial loads $F_{a2}$ [daN] on low speed shaft end 3.12

size **50**

$n_2 \cdot L_h$	$T_2$	$F_{r2}^{1)2)}$																$F_{a2}^{1)}$			
																					
rpm h	lb in	0	45	90	135	180	225	270	315	0	45	90	135	180	225	270	315	0	45	450	224
<b>710,000</b>	1 120	670	630	670	750	630	630	800	800	500	750	800	750	670	670	750	500	224	450	450	224
	800	710	670	750	800	710	710	800	800	710	800	750	800	710	710	750	670	224	450	450	224
	1 120	630	560	600	710	530	530	800	750	400	630	800	670	600	630	630	400	224	450	450	224
<b>900,000</b>	800	670	630	670	710	710	750	800	750	630	800	750	710	630	670	710	630	224	450	450	224
	560	670	670	670	750	800	800	800	750	800	800	750	710	670	670	710	800	224	450	450	224
	1 120	560	500	530	600	425	450	670	670	315	500	710	600	560	560	500	315	224	450	450	170
<b>1,120,000</b>	800	600	560	600	670	630	630	800	710	560	750	710	630	600	600	670	560	224	450	450	224
	560	630	600	630	670	710	710	750	710	710	750	710	670	630	630	670	710	224	450	450	224
	800	560	500	530	630	560	560	750	630	475	670	670	600	530	560	600	475	224	450	450	224
<b>1,400,000</b>	560	600	560	560	630	710	710	710	630	630	710	670	600	560	600	630	630	224	450	450	224
	400	600	560	600	630	670	710	710	630	710	670	670	630	600	600	630	670	224	450	450	224
	800	500	450	475	560	475	475	670	600	375	560	630	530	500	500	560	400	224	450	450	212
<b>1,800,000</b>	560	530	500	530	600	630	630	670	600	560	670	630	560	530	530	560	560	224	450	450	224
	400	560	530	530	600	630	670	630	600	630	630	600	560	560	560	600	630	224	450	450	224
	800	450	400	425	530	400	400	600	530	315	475	560	500	450	450	475	315	224	450	450	150
<b>2,240,000</b>	560	475	450	475	530	530	560	630	560	475	630	560	500	475	475	530	475	224	450	450	224
	400	500	475	500	530	600	630	600	560	600	600	560	530	500	500	530	560	224	450	450	224
	800	400	375	400	450	335	335	530	500	250	375	530	450	400	425	400	250	224	400	450	112
<b>2,800,000</b>	560	450	400	425	500	475	500	600	500	425	560	530	475	450	450	475	425	224	400	450	224
	400	475	450	450	500	560	600	560	500	530	560	530	475	450	475	500	530	224	450	450	224
	560	400	375	400	450	425	425	530	475	355	500	475	425	400	400	450	355	224	375	450	180
<b>3,550,000</b>	400	425	400	425	450	500	530	530	475	475	530	475	450	425	425	450	475	224	400	450	224
	560	355	335	355	425	355	375	500	425	300	425	450	400	355	375	400	300	224	335	450	140
<b>4,500,000</b>	400	375	355	375	425	450	475	475	450	425	475	450	400	375	375	425	425	224	355	450	212
	560	335	315	315	375	315	315	450	400	250	355	425	355	335	335	355	250	224	315	450	112
<b>5,600,000</b>	400	355	335	335	375	400	425	450	400	355	450	425	375	355	355	375	375	224	335	450	180
max		<b>800</b>																<b>224</b>	<b>450</b>	<b>450</b>	<b>224</b>

size **51**

$n_2 \cdot L_h$	$T_2$	$F_{r2}^{1)2)}$																$F_{a2}^{1)}$			
																					
rpm h	lb in	0	45	90	135	180	225	270	315	0	45	90	135	180	225	270	315	0	45	450	265
<b>450,000</b>	1 600	850	800	850	950	950	950	950	950	950	950	950	950	850	850	950	950	265	530	530	265
	1 120	850	800	800	950	950	950	950	950	950	950	950	900	850	850	950	950	265	530	530	265
<b>560,000</b>	1 600	710	630	670	850	800	850	950	900	630	950	950	800	710	710	850	630	265	530	530	265
	1 120	750	710	750	850	950	950	950	900	950	950	950	850	750	750	850	950	265	530	530	265
	800	800	750	800	900	950	950	950	900	950	950	950	850	800	800	850	950	265	530	530	265
<b>710,000</b>	1 600	630	560	600	750	670	710	950	850	500	800	900	710	630	630	750	500	265	530	530	265
	1 120	710	630	670	800	950	950	950	850	900	950	900	750	710	710	800	900	265	530	530	265
	800	750	710	710	800	900	950	950	850	950	950	850	800	750	750	800	900	265	530	530	265
<b>900,000</b>	1 600	560	500	530	710	530	560	900	750	355	600	800	630	560	600	630	355	265	530	530	180
	1 120	630	600	630	750	900	900	900	750	750	900	800	710	630	630	710	750	265	530	530	265
	800	670	630	670	750	850	900	900	800	900	850	800	710	670	670	750	850	265	530	530	265
<b>1,120,000</b>	1 600	500	425	475	630	425	450	750	670	224	425	750	600	500	530	425	224	265	530	530	100
	1 120	600	530	560	670	750	800	850	710	630	850	750	630	560	600	670	630	265	530	530	265
	800	630	560	600	670	800	850	850	710	850	800	750	670	630	630	670	750	265	530	530	265
<b>1,400,000</b>	1 120	530	475	500	630	630	670	800	670	530	800	710	600	530	530	600	530	265	530	530	265
	800	560	530	560	630	750	800	750	670	750	750	670	600	560	560	630	710	265	530	530	265
	560	600	560	600	630	710	750	750	670	750	750	670	630	600	600	630	710	265	530	530	265
<b>1,800,000</b>	1 120	475	425	450	560	560	560	750	600	425	670	630	530	475	475	560	425	265	530	530	200
	800	530	475	500	600	710	750	710	630	670	710	630	560	500	530	600	670	265	530	530	265
	560	560	530	530	600	670	710	710	630	710	670	630	600	560	560	600	670	265	530	530	265
<b>2,240,000</b>	1 120	425	375	400	500	450	475	710	560	315	500	600	475	425	425	500	315	265	530	530	132
	800	475	425	450	530	630	670	670	560	560	670	600	500	475	475	530	560	265	530	530	265
	560	500	475	475	560	630	670	630	560	630	630	600	530	500	500	530	600	265	530	530	265
<b>2,800,000</b>	1 120	375	335	355	475	355	375	600	500	224	400	560	450	375	400	400	224	265	475	530	90
	800	425	375	400	500	560	600	630	530	475	630	560	475	425	425	475	475	265	530	530	224
	560	450	425	450	500	600	630	600	530	600	600	560	475	450	450	500	560	265	530	530	265
<b>3,550,000</b>	800	375	355	375	450	500	500	600	475	400	600	500	425	375	400	450	400	265	475	530	180
	560	425	375	400	475	560	600	560	500	560	560	500	450	425	425	475	530	265	500	530	265
<b>4,500,000</b>	800	355	315	335	425	400	425	560	450	315	500	475	375	355	355	400	315	265	425	530	125
	560	375	355	375	425	500	560	530	450	500	530	475	400	375	375	425	475	265	450	530	236
<b>5,600,000</b>	800	315	280	300	375	335	355	530	400	250	400	425	355	315	315	375	250	265	375	530	90
	560	355	315	335	400	475	530	500	425	450	475	425	375	335	355	375	450	265	400	530	190
max		<b>950</b>																<b>265</b>	<b>530</b>	<b>530</b>	<b>265</b>

1) An axial load of up to 0.2 times the value in the table is permissible, simultaneously with the radial load and vice versa. If exceeded consult us.

# Radial $F_{r2}$ [daN] or axial loads $F_{a2}$ [daN] on low speed shaft end 3.12

size **63**

$n_2 \cdot L_h$	$T_2$	$F_{r2}^{1)2)}$														$F_{a2}^{1)}$					
rpm h	lb in	0	45	90	135	180	225	270	315	0	45	90	135	180	225	270	315	↔	↔	↔	↔
<b>450,000</b>	2 240	1 000	1 120	1 180	1 180	800	850	1 180	1 060	1 000	1 180	1 000	950	1 060	1 180	1 180	1 060	670	335	335	670
<b>560,000</b>	2 240 1 600	950	1 060	1 180	1 000	630	670	1 060	950	850	1 060	900	850	950	1 180	1 180	900	670	335	335	670
<b>710,000</b>	2 240 1 600	850	950	1 120	800	475	500	850	850	710	1 000	800	750	850	1 060	1 120	710	670	335	335	670
<b>900,000</b>	2 240 1 600 1 120	800	900	1 060	560	335	335	630	800	560	850	750	670	800	1 000	900	560	670	265	335	670
<b>1,120,000</b>	2 240 1 600 1 120	710	800	950	355	236	250	400	710	400	670	670	630	710	900	750	425	670	170	335	670
<b>1,400,000</b>	1 600 1 120 800	710	750	900	750	500	500	800	710	670	800	670	630	710	850	950	670	670	315	335	670
<b>1,800,000</b>	1 600 1 120 800	630	710	850	600	375	400	670	630	530	750	600	560	630	800	850	560	670	236	335	670
<b>2,240,000</b>	1 600 1 120 800	560	630	750	450	265	280	500	560	425	630	530	500	600	750	710	425	670	160	335	670
<b>2,800,000</b>	1 600 1 120 800	530	600	710	300	160	170	335	530	335	500	475	450	530	670	560	335	670	112	335	600
<b>3,550,000</b>	1 120 800	530	560	670	600	400	425	600	530	530	600	500	475	530	630	750	530	670	224	335	560
<b>4,500,000</b>	1 120 800	475	530	630	500	315	335	530	475	425	530	450	425	475	600	670	450	670	170	335	500
<b>5,600,000</b>	1 120 800	425	475	560	375	236	250	425	425	355	500	400	375	425	530	560	355	670	118	335	450
max		<b>1180</b>														<b>670</b>	<b>335</b>	<b>335</b>	<b>670</b>		

size **64**

<b>335,000</b>	3 150	1 320	1 500	1 500	1 500	1 120	1 180	1 500	1 320	1 400	1 500	1 250	1 180	1 320	1 500	1 500	1 500	850	425	425	850
<b>450,000</b>	3 150 2 240	1 180	1 320	1 500	1 320	900	900	1 320	1 180	1 180	1 320	1 120	1 060	1 180	1 500	1 500	1 180	850	425	425	850
<b>560,000</b>	3 150 2 240 1 600	1 060	1 180	1 500	1 060	670	670	1 180	1 250	950	1 250	1 000	950	1 060	1 400	1 500	1 000	850	425	425	850
<b>710,000</b>	3 150 2 240 1 600	950	1 120	1 320	800	450	475	900	1 000	750	1 120	900	850	1 000	1 250	1 250	800	850	375	425	850
<b>900,000</b>	3 150 2 240 1 600	900	1 000	1 250	500	265	265	560	900	560	900	800	750	900	1 180	1 000	600	850	236	425	850
<b>1,120,000</b>	3 150 2 240 1 600	800	900	1 180	425	224	236	280	800	400	670	710	670	800	1 060	750	400	850	118	425	850
<b>1,400,000</b>	2 240 1 600 1 120	800	900	1 060	900	560	560	900	800	750	950	750	710	800	1 000	1 180	800	850	355	425	850
<b>1,800,000</b>	2 240 1 600 1 120	750	850	1 000	670	400	425	750	750	630	850	670	630	750	950	1 000	630	850	265	425	850
<b>2,240,000</b>	2 240 1 600 1 120	670	750	950	450	250	265	500	670	475	750	600	560	670	900	800	500	850	160	425	850
<b>2,800,000</b>	2 240 1 600 1 120	600	670	850	375	224	236	265	600	355	560	530	500	600	800	630	355	850	90	425	750
<b>3,550,000</b>	1 600 1 120	600	670	800	670	425	450	670	600	600	670	560	530	600	750	900	600	850	236	425	710
<b>4,500,000</b>	1 600 1 120	530	630	750	500	300	315	500	530	475	630	500	475	530	710	750	500	850	170	425	670
<b>5,600,000</b>	1 600 1 120	475	560	670	315	250	265	335	475	375	560	450	425	475	630	630	375	850	100	400	600
max		<b>1500</b>														<b>850</b>	<b>425</b>	<b>425</b>	<b>850</b>		

$n_2 \cdot L_h$	$T_2$	$F_{r2}^{1)2)}$														$F_{a2}^{1)}$					
rpm h	lb in	0	45	90	135	180	225	270	315	0	45	90	135	180	225	270	315	0	1000	1000	500
<b>355,000</b>	4 500	1 800	1 600	1 700	1 800	1 600	1 700	1 800	1 800	1 320	1 800	1 800	1 800	1 700	1 700	1 800	1 320	500	1 000	1 000	500
	3 150	1 800	1 600	1 700	1 800	1 800	1 800	1 800	1 800	1 500	1 800	1 800	1 320	1 800	1 800	1 800	1 500	500	1 000	1 000	500
<b>450,000</b>	4 500	1 600	1 400	1 500	1 800	1 320	1 400	1 800	1 800	1 060	1 600	1 800	1 700	1 600	1 600	1 700	1 060	500	1 000	1 000	500
	3 150	1 700	1 600	1 600	1 800	1 800	1 800	1 800	1 800	1 700	1 800	1 800	1 800	1 700	1 700	1 800	1 700	500	1 000	1 000	500
<b>560,000</b>	4 500	1 400	1 250	1 320	1 600	1 120	1 120	1 700	1 800	800	1 250	1 800	1 600	1 400	1 400	1 320	850	500	1 000	1 000	500
	3 150	1 500	1 400	1 500	1 700	1 600	1 700	1 800	1 800	1 400	1 800	1 800	1 700	1 500	1 500	1 700	1 400	500	1 000	1 000	500
	2 240	1 600	1 500	1 600	1 700	1 800	1 800	1 800	1 800	1 800	1 800	1 800	1 700	1 600	1 600	1 700	1 800	500	1 000	1 000	500
<b>710,000</b>	4 500	1 320	1 180	1 180	1 320	900	950	1 500	1 700	600	1 000	1 700	1 400	1 250	1 320	1 060	630	500	1 000	1 000	375
	3 150	1 400	1 250	1 320	1 500	1 400	1 400	1 800	1 700	1 180	1 700	1 700	1 500	1 400	1 400	1 500	1 250	500	1 000	1 000	500
	2 240	1 500	1 400	1 400	1 600	1 800	1 800	1 800	1 700	1 700	1 800	1 700	1 600	1 500	1 500	1 600	1 700	500	1 000	1 000	500
<b>900,000</b>	4 500	1 180	1 060	1 120	1 060	710	750	1 180	1 500	400	710	1 600	1 320	1 180	1 180	750	400	500	1 000	1 000	224
	3 150	1 250	1 180	1 180	1 400	1 250	1 250	1 700	1 500	1 000	1 400	1 600	1 400	1 250	1 250	1 400	1 000	500	1 000	1 000	500
	2 240	1 320	1 250	1 320	1 400	1 600	1 600	1 700	1 500	1 400	1 700	1 600	1 400	1 320	1 320	1 400	1 400	500	1 000	1 000	500
<b>1,120,000</b>	4 500	1 060	900	950	850	530	560	950	1 400	224	425	1 500	1 180	1 060	1 060	475	236	500	1 000	1 000	90
	3 150	1 180	1 060	1 120	1 250	1 000	1 060	1 500	1 400	850	1 180	1 500	1 250	1 180	1 180	1 250	850	500	1 000	1 000	500
	2 240	1 250	1 180	1 180	1 320	1 400	1 400	1 600	1 400	1 250	1 600	1 400	1 320	1 250	1 250	1 320	1 250	500	1 000	1 000	500
<b>1,400,000</b>	3 150	1 060	950	1 000	1 180	900	900	1 320	1 320	670	1 000	1 320	1 180	1 060	1 060	670	670	500	1 000	1 000	375
	2 240	1 120	1 060	1 120	1 250	1 250	1 250	1 500	1 320	1 120	1 400	1 320	1 180	1 120	1 120	1 250	1 120	500	1 000	1 000	500
	1 600	1 180	1 120	1 120	1 250	1 400	1 500	1 400	1 320	1 320	1 400	1 320	1 250	1 180	1 180	1 250	1 320	500	1 000	1 000	500
<b>1,800,000</b>	3 150	950	900	900	1 060	710	750	1 120	1 180	500	800	1 250	1 060	950	950	850	500	500	1 000	1 000	265
	2 240	1 060	950	1 000	1 120	1 060	1 120	1 400	1 180	950	1 250	1 250	1 120	1 060	1 060	1 120	950	500	1 000	1 000	500
	1 600	1 120	1 000	1 060	1 180	1 250	1 320	1 320	1 180	1 250	1 320	1 250	1 120	1 060	1 060	1 120	1 250	500	1 000	1 000	500
<b>2,240,000</b>	3 150	900	750	800	850	560	600	950	1 120	335	600	1 180	1 000	850	900	630	355	500	900	1 000	150
	2 240	950	900	900	1 060	950	950	1 250	1 120	800	1 120	1 180	1 000	950	950	1 000	800	500	1 000	1 000	450
	1 600	1 000	950	950	1 060	1 180	1 180	1 250	1 120	1 060	1 180	1 120	1 060	1 000	1 000	1 060	1 060	500	1 000	1 000	500
<b>2,800,000</b>	3 150	800	710	750	670	425	450	750	1 000	170	315	1 120	900	800	800	355	170	500	850	1 000	63
	2 240	630	800	850	950	800	850	1 120	1 060	670	950	1 060	950	850	850	950	670	500	900	1 000	335
	1 600	900	850	900	1 000	1 060	1 060	1 180	1 060	950	1 120	1 060	950	900	900	950	950	500	950	1 000	500
<b>3,550,000</b>	2 240	800	710	750	900	670	710	1 000	950	530	800	1 000	900	800	800	850	530	500	800	1 000	265
	1 600	850	800	800	900	950	950	1 060	950	850	1 060	1 000	900	850	850	900	850	500	850	1 000	450
<b>4,500,000</b>	2 240	710	630	670	800	560	600	900	900	400	630	950	800	710	710	670	425	500	710	900	180
	1 600	750	710	750	850	800	850	1 000	900	710	950	900	850	750	750	850	710	500	750	1 000	355
<b>5,600,000</b>	2 240	670	600	600	670	450	475	750	850	315	500	850	710	630	630	560	315	500	670	1 000	112
	1 600	710	630	670	750	710	710	950	850	600	850	850	750	710	710	750	600	500	670	1 000	300
max		<b>1 800</b>														<b>500</b>	<b>1 000</b>	<b>1 000</b>	<b>500</b>		

<b>710,000</b>	6 300	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 120	2 240	2 240	2 240	2 240	2 240	2 240	2 120	—	1 250	1 250	—
<b>900,000</b>	6 300	2 240	2 000	2 120	2 240	2 240	2 240	2 240	2 240	1 800	2 240	2 240	2 240	2 240	2 240	2 240	1 800	—	1 250	1 250	—
	4 500	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	—	1 250	1 250	—
<b>1,120,000</b>	6 300	2 000	1 900	1 900	2 240	2 120	2 120	2 240	2 240	1 320	2 000	2 240	2 240	2 000	2 000	2 240	1 400	—	1 250	1 250	—
	4 500	2 240	2 000	2 120	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	—	1 250	1 250	—
	3 150	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	—	1 250	1 250	—
<b>1,400,000</b>	4 500	2 000	1 900	2 000	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 000	2 000	2 240	2 240	—	1 250	1 250	—
	3 150	2 120	2 000	2 120	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 120	2 120	2 240	2 240	—	1 250	1 250	—
	2 240	2 240	2 120	2 120	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 240	—	1 250	1 250	—
<b>1,800,000</b>	4 500	1 900	1 800	1 800	2 120	2 240	2 240	2 240	2 240	2 000	2 240	2 240	2 240	2 000	1 900	2 000	2 000	—	1 250	1 250	—
	3 150	2 000	1 900	1 900	2 120	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 120	2 000	2 000	2 120	2 240	—	1 250	1 250	—
	2 240	2 000	2 000	2 000	2 120	2 240	2 240	2 240	2 240	2 240	2 240	2 240	2 120	2 000	2 000	2 120	2 240	—	1 250	1 250	—
<b>2,240,000</b>	4 500	1 800	1 600	1 700	1 900	2 000	2 000	2 240	2 120	1 500	2 120	2 120	1 900	1 700	1 700	1 900	1 500	—	1 250	1 250	—
	3 150	1 800	1 700	1 800	2 000	2 240	2 240	2 240	2 120	2 240	2 240	2 120	1 900	1 800	1 800	1 900	2 120	—	1 250	1 250	—
	2 240	1 900	1 800	1 900	2 000	2 240	2 240	2 240	2 120	2 240	2 240	2 120	2 000	1 900	1 900	2 000	2 120	—	1 250	1 250	—
<b>2,800,000</b>	4 500	1 600	1 400	1 500	1 800	1 800	1 800	2 240	1 900	1 250	1 800	2 000	1 800	1 600	1 600	1 800	1 250	—	1 250	1 250	—
	3 150	1 700	1 600	1 700	1 800	2 120	2 240	2 240	1 900	2 000	2 120	2 000	1 800	1 700	1 700	1 800	2 000	—	1 250	1 250	—
	2 240	1 800	1 700	1 700	1 900	2 000	2 120	2 120	1 900	2 120	2 120	2 000	1 800	1 800	1 800	1 900	2 000	—	1 250	1 250	—
<b>3,550,000</b>	3 150	1 600	1 500	1 500	1 700	2 000	2 000	2 000	1 800	1 800	2 000	1 900	1 700	1 600	1 600	1 700	1 900	—	1 250	1 250	—
	2 240	1 700	1 600	1 600	1 800	1 900	2 000	2 000	1 800	2 000	2 000	1 900	1 700	1 600	1 700	1 700					

# Radial $F_{r2}$ [lb] or axial loads $F_{a2}$ [lb] on low speed shaft end

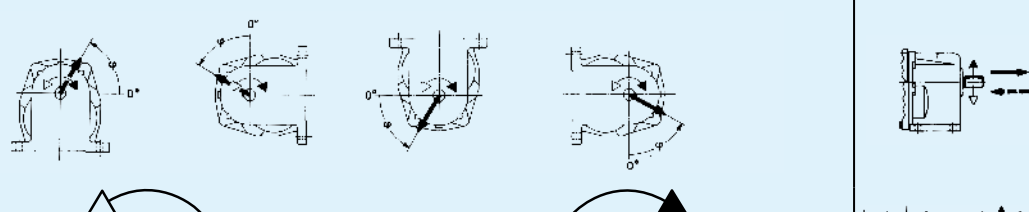
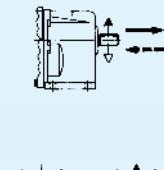
# 3.12

size **100**

$n_2 \cdot L_h$	$T_2$	$F_{r2}^{1)2)}$														$F_{a2}^{1)}$					
rpm h	lb in	0	45	90	135	180	225	270	315	0	45	90	135	180	225	270	315	↕	↔	↕	↔
<b>280,000</b>	9 000	2 800	2 800	2 800	2 800	2 240	2 240	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	1 600	800	800	1 600
<b>355,000</b>	9 000	2 650	2 800	2 800	2 650	1 800	1 900	2 800	2 650	2 360	2 800	2 500	2 500	2 800	2 800	2 800	2 360	1 600	800	800	1 600
<b>450,000</b>	9 000	2 500	2 800	2 800	2 120	1 400	1 400	2 360	2 360	1 900	2 800	2 240	2 240	2 500	2 800	2 800	2 000	1 600	800	800	1 600
	6 300	2 650	2 800	2 800	2 800	2 500	2 500	2 800	2 650	2 800	2 800	2 500	2 360	2 650	2 800	2 800	2 800	1 600	800	800	1 600
<b>560,000</b>	9 000	2 240	2 500	2 800	1 700	1 000	1 060	1 800	2 240	1 600	2 360	2 120	2 000	2 240	2 800	2 500	1 600	1 600	800	800	1 600
	6 300	2 360	2 650	2 800	2 800	2 000	2 120	2 500	2 360	2 500	2 650	2 240	2 240	2 360	2 800	2 800	2 500	1 600	800	800	1 600
	4 500	2 500	2 650	2 800	2 800	2 800	2 800	2 650	2 500	2 800	2 650	2 360	2 360	2 500	2 800	2 800	2 800	1 600	800	800	1 600
<b>710,000</b>	9 000	2 000	2 240	2 800	1 180	670	710	1 320	2 000	1 250	1 900	1 900	1 800	2 000	2 650	2 120	1 250	1 600	600	800	1 600
	6 300	2 120	2 360	2 650	2 500	1 800	1 800	2 360	2 120	2 120	2 360	2 120	2 000	2 240	2 650	2 800	2 120	1 600	800	800	1 600
	4 500	2 240	2 500	2 650	2 800	2 500	2 500	2 360	2 240	2 800	2 500	2 240	2 120	2 360	2 650	2 800	2 800	1 600	800	800	1 600
<b>900,000</b>	9 000	1 800	2 120	2 500	630	335	335	750	1 800	900	1 500	1 700	1 600	1 800	2 360	1 600	950	1 600	355	800	1 600
	6 300	2 000	2 240	2 500	2 000	1 400	1 400	2 120	2 000	1 800	2 240	1 900	1 800	2 000	2 360	2 650	1 800	1 600	800	800	1 600
	4 500	2 120	2 240	2 500	2 650	2 120	2 240	2 240	2 120	2 360	2 240	2 000	2 000	2 120	2 360	2 650	2 500	1 600	800	800	1 600
<b>1,120,000</b>	9 000	1 700	1 900	2 240	850	450	475	950	1 700	950	1 600	1 500	1 400	1 700	2 120	1 700	1 000	1 600	375	800	1 600
	6 300	1 800	2 000	2 360	1 700	1 120	1 120	1 800	1 800	1 500	2 000	1 700	1 700	1 800	2 240	2 240	1 500	1 600	750	800	1 600
	4 500	1 900	2 000	2 240	2 500	1 900	1 900	2 000	1 900	2 120	2 120	1 900	1 800	1 900	2 240	2 500	2 120	1 600	800	800	1 600
<b>1,400,000</b>	6 300	1 700	1 800	2 120	1 320	850	900	1 500	1 700	1 250	1 800	1 600	1 500	1 700	2 000	1 900	1 250	1 600	560	800	1 600
	4 500	1 800	1 900	2 120	2 120	1 600	1 700	1 900	1 800	1 900	1 900	1 700	1 700	1 800	2 120	2 360	1 900	1 600	800	800	1 600
	3 150	1 800	1 900	2 120	2 240	2 120	2 120	1 900	1 800	2 120	2 000	1 800	1 800	1 900	2 000	2 240	2 240	1 600	800	800	1 600
<b>1,800,000</b>	6 300	1 500	1 700	2 000	1 000	600	630	1 120	1 500	1 000	1 500	1 400	1 320	1 500	1 900	1 600	1 000	1 600	400	800	1 600
	4 500	1 600	1 800	2 000	1 900	1 320	1 400	1 800	1 600	1 700	1 800	1 600	1 500	1 700	1 900	2 240	1 700	1 600	800	800	1 600
	3 150	1 700	1 800	2 000	2 120	1 900	1 900	1 800	1 700	2 000	1 800	1 700	1 600	1 700	1 900	2 120	2 120	1 600	800	800	1 600
<b>2,240,000</b>	6 300	1 320	1 500	1 900	530	280	280	600	1 320	750	1 180	1 250	1 180	1 320	1 800	1 250	750	1 600	224	800	1 400
	4 500	1 500	1 600	1 800	1 600	1 120	1 120	1 600	1 500	1 400	1 600	1 400	1 320	1 500	1 800	2 000	1 400	1 600	630	800	1 500
	3 150	1 600	1 700	1 800	1 900	1 600	1 700	1 700	1 500	1 800	1 700	1 500	1 500	1 600	1 800	1 900	1 900	1 600	800	800	1 600
<b>2,800,000</b>	6 300	1 250	1 400	1 700	710	375	375	800	1 250	800	1 180	1 120	1 060	1 250	1 600	1 320	800	1 600	250	800	1 400
	4 500	1 320	1 500	1 700	1 320	900	950	1 400	1 320	1 180	1 500	1 250	1 250	1 320	1 700	1 700	1 180	1 600	500	800	1 320
	3 150	1 400	1 500	1 700	1 800	1 400	1 400	1 500	1 400	1 600	1 500	1 400	1 320	1 400	1 700	1 800	1 700	1 600	800	800	1 400
<b>3,550,000</b>	4 500	1 250	1 320	1 600	1 120	710	710	1 180	1 250	1 000	1 320	1 180	1 120	1 250	1 500	1 500	1 000	1 600	375	800	1 250
	3 150	1 320	1 400	1 600	1 700	1 250	1 250	1 400	1 320	1 400	1 400	1 250	1 250	1 320	1 500	1 700	1 400	1 600	670	800	1 250
<b>4,500,000</b>	4 500	1 120	1 250	1 500	850	500	530	950	1 120	800	1 180	1 060	1 000	1 120	1 400	1 250	800	1 600	265	800	1 120
	3 150	1 180	1 250	1 400	1 400	1 060	1 060	1 250	1 180	1 250	1 320	1 120	1 120	1 180	1 400	1 600	1 250	1 600	560	800	1 180
<b>5,600,000</b>	4 500	1 000	1 120	1 320	425	236	236	500	1 000	630	950	950	900	1 000	1 250	1 000	630	1 600	160	800	1 000
	3 150	1 060	1 180	1 320	1 250	850	900	1 180	1 060	1 060	1 180	1 060	1 000	1 120	1 320	1 500	1 060	1 600	450	800	1 060
max		<b>2 800</b>														<b>1 600</b>	<b>800</b>	<b>800</b>	<b>1 600</b>		

size **101**

<b>560,000</b>	12 500	3 550	3 550	3 550	3 550	2 800	2 800	3 550	3 550	3 550	3 550	3 550	3 550	3 550	3 550	3 550	3 550	2 000	—	—	2 000
<b>710,000</b>	12 500	3 550	3 550	3 550	3 350	2 120	2 240	3 550	3 550	3 550	3 550	3 350	3 550	3 550	3 550	3 550	3 550	2 000	—	—	2 000
<b>900,000</b>	12 500	3 350	3 550	3 550	2 500	1 600	1 600	2 800	3 350	3 000	3 550	3 150	3 150	3 350	3 550	3 550	3 000	2 000	—	—	2 000
	9 000	3 550	3 550	3 550	3 550	3 550	3 550	3 550	3 550	3 550	3 550	3 550	3 350	3 550	3 550	3 550	3 550	2 000	—	—	2 000
<b>1,120,000</b>	12 500	3 150	3 550	3 550	1 700	1 000	1 000	2 000	3 150	2 500	3 550	3 000	2 800	3 150	3 550	3 550	2 500	2 000	—	—	2 000
	9 000	3 350	3 550	3 550	3 550	3 150	3 350	3 550	3 350	3 550	3 550	3 150	3 150	3 350	3 550	3 550	3 550	2 000	—	—	2 000
	6 300	3 550	3 550	3 550	3 550	3 550	3 550	3 550	3 550	3 550	3 550	3 350	3 350	3 550	3 550	3 550	3 550	2 000	—	—	2 000
<b>1,400,000</b>	9 000	3 150	3 350	3 550	3 350	2 360	2 500	3 350	3 150	3 350	3 350	3 000	2 800	3 150	3 550	3 550	3 350	2 000	—	—	2 000
	6 300	3 150	3 350	3 550	3 550	3 550	3 550	3 550	3 350	3 550	3 550	3 150	3 150	3 350	3 550	3 550	3 550	2 000	—	—	2 000
	4 500	3 350	3 550	3 550	3 550	3 550	3 550	3 550	3 350	3 550	3 550	3 350	3 150	3 350	3 550	3 550	3 550	2 000	—	—	2 000
<b>1,800,000</b>	9 000	2 800	3 150	3 550	2 800	1 900	2 000	3 150	2 800	3 000	3 150	2 800	2 650	2 800	3 350	3 550	3 000	2 000	—	—	2 000
	6 300	3 000	3 150	3 550	3 550	3 350	3 550	3 150	3 000	3 550	3 350	3 000	2 800	3 000	3 350	3 550	3 550	2 000	—	—	2 000
	4 500	3 150	3 350	3 550	3 550	3 550	3 550	3 350	3 150	3 550	3 350	3 150	3 000	3 150	3 350	3 550	3 550	2 000	—	—	2 000
<b>2,240,000</b>	9 000	2 650	2 800	3 350	2 240	1 500	1 500	2 500	2 650	2 500	3 000	2 500	2 360	2 650	3 150	3 550	2 500	2 000	—	—	2 000
	6 300	2 800	3 000	3 350	3 550	3 000	3 150	3 000	2 800	3 350	3 000	2 650	2 650	2 800	3 150	3 550	3 350	2 000	—	—	2 000
	4 500	2 800	3 000	3 350	3 350	3 350	3 350	3 000	2 800	3 350	3 150	2 800	2 800	3 000	3 150	3 350	3 550	2 000	—	—	2 000
<b>2,800,000</b>	9 000	2 360	2 650	3 150	1 700	1 060	1 120	1 900	2 360	2 120	2 650	2 240	2 120	2 360	3 000	3 150	2 120	2 000	—	—	2 000
	6 300	2 500	2 800	3 150	3 350	2 650	2 650	2 800	2 500	3 000	2 800	2 500	2 360	2 650	3 000	3 350	3 150	2 000	—	—	2 000
	4 500	2 650	2 800	3 150	3 150	3 150	3 150	2 800	2 650	3 150	2 800	2 650	2 500	2 650	3 000	3 350	3 350	2 000	—	—	2 000
<b>3,550,000</b>	6 300	2 360	2 500	2 800	2 800	2 240	2 360	2 500	2 360	2 650	2 650	2 240	2 240	2							

$n_2 \cdot L_h$	$T_2$	$F_{r2}^{1)2)}$														$F_{a2}^{1)}$									
																									
rpm h	lb in	0	45	90	135	180	225	270	315	0	45	90	135	180	225	270	315	0	45	90	135	180	225	270	315
<b>560,000</b>	18 000	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 250	4 500	4 500	4 500	4 500	4 250	3 750	3 750	1 250	2 500	2 500	1 250				
<b>710,000</b>	18 000	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	3 750	4 250	4 500	4 500	4 500	3 750	3 350	3 350	1 250	2 500	2 500	1 250				
<b>900,000</b>	18 000	4 500	4 000	4 000	4 500	4 500	4 500	4 500	4 500	3 350	3 750	4 000	4 500	4 250	3 150	2 800	3 000	1 250	2 500	2 500	1 250				
	12 500	4 500	4 250	4 250	4 500	4 500	4 500	4 500	4 500	4 000	4 500	4 500	4 500	4 500	4 250	3 750	3 750	1 250	2 500	2 500	1 250				
<b>1,120,000</b>	18 000	4 000	3 550	3 750	4 250	4 250	4 250	4 500	4 500	3 000	3 350	3 550	4 000	3 550	2 650	2 360	2 500	1 250	2 500	2 500	1 250				
	12 500	4 250	4 000	4 000	4 500	4 500	4 500	4 500	4 500	3 550	4 000	4 250	4 500	4 250	3 750	3 350	3 350	1 250	2 500	2 500	1 250				
	9 000	4 500	4 250	4 250	4 500	4 500	4 500	4 500	4 500	4 250	4 500	4 500	4 500	4 500	4 250	4 000	4 000	1 250	2 500	2 500	1 250				
<b>1,400,000</b>	12 500	4 000	3 550	3 750	4 000	4 500	4 500	4 500	4 500	3 350	3 550	4 000	4 250	4 000	3 350	3 000	3 150	1 250	2 500	2 500	1 250				
	9 000	4 000	3 750	3 750	4 250	4 500	4 500	4 500	4 500	3 750	4 000	4 500	4 250	4 000	4 000	3 550	3 550	1 250	2 500	2 500	1 250				
	6 300	4 250	4 000	4 000	4 250	4 500	4 500	4 500	4 500	4 250	4 500	4 500	4 250	4 250	4 000	4 000	4 000	1 250	2 500	2 500	1 250				
<b>1,800,000</b>	12 500	3 750	3 350	3 350	3 750	4 500	4 500	4 500	4 250	3 000	3 350	3 550	4 000	3 550	3 000	2 650	2 800	1 250	2 500	2 500	1 250				
	9 000	3 750	3 550	3 550	3 750	4 250	4 500	4 500	4 250	3 550	3 750	4 000	4 000	3 750	3 550	3 350	3 350	1 250	2 500	2 500	1 250				
	6 300	4 000	3 750	3 750	4 000	4 250	4 500	4 500	4 250	3 750	4 000	4 250	4 000	3 750	3 750	3 750	1 250	2 500	2 500	1 250					
<b>2,240,000</b>	12 500	3 350	3 150	3 150	3 550	3 750	4 000	4 500	4 000	2 650	3 000	3 150	3 550	3 350	2 650	2 360	2 360	1 250	2 500	2 500	1 250				
	9 000	3 550	3 350	3 350	3 550	4 000	4 250	4 250	4 000	3 150	3 350	3 550	3 750	3 550	3 350	3 000	3 000	1 250	2 500	2 500	1 250				
	6 300	3 550	3 350	3 550	3 550	4 000	4 250	4 250	3 750	3 550	3 750	4 000	3 750	3 550	3 550	3 350	3 350	1 250	2 500	2 500	1 250				
<b>2,800,000</b>	12 500	3 150	2 800	2 800	3 350	3 350	3 550	4 250	3 750	2 360	2 650	3 000	3 350	3 150	2 240	2 000	2 120	1 250	2 500	2 500	1 250				
	9 000	3 350	3 150	3 150	3 350	3 750	4 000	4 000	3 750	2 800	3 150	3 350	3 550	3 350	3 000	2 650	2 650	1 250	2 500	2 500	1 250				
	6 300	3 350	3 150	3 150	3 350	3 750	4 000	3 750	3 550	3 150	3 350	3 550	3 550	3 350	3 350	3 150	3 150	1 250	2 500	2 500	1 250				
<b>3,550,000</b>	9 000	3 150	2 800	2 800	3 150	3 550	3 750	3 750	3 350	2 650	2 800	3 150	3 350	3 000	2 650	2 360	2 360	1 250	2 500	2 500	1 250				
	6 300	3 150	3 000	3 000	3 150	3 550	3 750	3 550	3 350	3 000	3 150	3 350	3 350	3 150	3 150	2 800	2 800	1 250	2 500	2 500	1 250				
<b>4,500,000</b>	9 000	2 800	2 650	2 650	3 000	3 350	3 550	3 550	3 150	2 360	2 500	2 800	3 000	2 800	2 360	2 120	2 120	1 250	2 500	2 500	1 250				
	6 300	3 000	2 800	2 800	3 000	3 350	3 550	3 350	3 150	2 650	2 800	3 150	3 150	2 800	2 800	2 650	2 500	1 250	2 500	2 500	1 250				
<b>5,600,000</b>	9 000	2 650	2 360	2 360	2 650	3 150	3 150	3 350	3 000	2 120	2 360	2 500	2 800	2 500	2 120	1 900	1 900	1 250	2 500	2 500	1 250				
	6 300	2 650	2 500	2 500	2 800	3 150	3 350	3 150	3 000	2 500	2 650	2 800	2 800	2 650	2 500	2 360	2 360	1 250	2 500	2 500	1 250				
max		<b>4 500</b>														<b>1 250</b>	<b>2 500</b>	<b>2 500</b>	<b>1 250</b>						

<b>280,000</b>	25 000	5 600	5 600	5 600	5 600	5 600	5 600	5 600	5 600	5 000	5 600	5 600	5 600	5 600	5 300	4 500	4 500	1 600	3 150	3 150	1 600
<b>355,000</b>	25 000	5 600	5 600	5 600	5 600	5 600	5 600	5 600	5 600	4 500	5 300	5 600	5 600	5 600	4 500	3 750	4 000	1 600	3 150	3 150	1 600
<b>450,000</b>	25 000	5 600	5 300	5 300	5 600	5 300	5 300	5 600	5 600	4 000	4 500	5 000	5 600	5 300	3 750	3 350	3 350	1 600	3 150	3 150	1 600
	18 000	5 600	5 600	5 600	5 600	5 600	5 600	5 600	5 600	5 000	5 600	5 600	5 600	5 600	5 300	4 750	4 750	1 600	3 150	3 150	1 600
<b>560,000</b>	25 000	5 300	4 750	4 750	5 600	4 500	4 750	5 600	5 600	3 350	4 000	4 500	5 000	4 500	3 150	2 800	3 000	1 600	3 150	3 150	1 600
	18 000	5 600	5 300	5 300	5 600	5 600	5 600	5 600	5 600	4 500	5 000	5 600	5 600	5 600	4 750	4 000	4 000	1 600	3 150	3 150	1 600
	12 500	5 600	5 600	5 600	5 600	5 600	5 600	5 600	5 600	5 300	5 600	5 600	5 600	5 600	5 000	5 000	5 000	1 600	3 150	3 150	1 600
<b>710,000</b>	25 000	5 000	4 500	4 500	5 000	3 750	4 000	5 600	5 600	2 800	3 550	3 750	4 250	3 550	2 500	2 240	2 500	1 600	3 150	3 150	1 500
	18 000	5 300	4 750	5 000	5 600	5 600	5 600	5 600	5 600	4 000	4 500	5 000	5 600	5 300	4 250	3 550	3 550	1 600	3 150	3 150	1 600
	12 500	5 600	5 000	5 300	5 600	5 600	5 600	5 600	5 600	4 750	5 300	5 600	5 600	5 300	5 000	4 500	4 750	1 600	3 150	3 150	1 600
<b>900,000</b>	25 000	4 500	4 000	4 000	4 250	3 150	3 350	5 000	5 600	2 000	3 150	3 350	3 350	2 800	1 900	1 700	2 000	1 600	3 150	3 150	1 060
	18 000	4 750	4 500	4 500	5 000	4 750	5 000	5 600	5 600	3 550	4 000	4 500	5 000	4 750	3 550	3 150	3 150	1 600	3 150	3 150	1 600
	12 500	5 000	4 750	4 750	5 300	5 600	5 600	5 600	5 600	4 250	4 750	5 000	5 300	5 000	4 500	4 000	4 000	1 600	3 150	3 150	1 600
<b>1,120,000</b>	25 000	4 250	3 550	3 550	3 550	2 650	2 650	4 250	5 300	1 400	2 360	2 800	2 650	1 900	1 250	1 180	1 500	1 600	3 150	3 150	710
	18 000	4 500	4 000	4 000	4 750	4 250	4 250	5 600	5 300	3 150	3 550	4 000	4 500	4 250	3 150	2 650	2 800	1 600	3 150	3 150	1 600
	12 500	4 750	4 250	4 500	4 750	5 300	5 600	5 600	5 300	4 000	4 250	4 750	5 000	4 750	4 000	3 550	3 550	1 600	3 150	3 150	1 600
<b>1,400,000</b>	18 000	4 250	3 750	3 750	4 250	3 750	3 750	5 300	5 000	2 800	3 150	3 550	4 000	3 750	2 650	2 240	2 360	1 600	3 150	3 150	1 600
	12 500	4 250	4 000	4 000	4 500	5 000	5 000	5 300	5 000	3 550	3 750	4 250	4 750	4 250	3 750	3 350	3 350	1 600	3 150	3 150	1 600
	9 000	4 500	4 250	4 250	4 500	5 000	5 300	5 300	5 000	4 000	4 250	4 750	4 750	4 500	4 250	4 000	3 750	1 600	3 150	3 150	1 600
<b>1,800,000</b>	18 000	3 750	3 350	3 350	4 000	3 150	3 350	4 750	4 750	2 360	2 800	3 150	3 550	3 150	2 240	1 900	2 000	1 600	3 150	3 150	1 320
	12 500	4 000	3 750	3 750	4 250	4 500	5 000	4 750	4 750	3 150	3 550	4 000	4 250	4 000	3 350	3 000	3 000	1 600	3 150	3 150	1 600
	9 000	4 250	4 000	4 000	4 250	4 750	5 000	5 000	4 500	3 750	4 000	4 250	4 500	4 000	4 000	3 550	3 550	1 600	3 150	3 150	1 600
<b>2,240,000</b>	18 000	3 550	3 150	3 150	3 550	2 650	2 800	4 000	4 250	1 800	2 500	2 800	3 000	2 500	1 700	1 500	1 700	1 600	3 150	3 150	1 000
	12 500	3 750	3 350	3 350	3 750	3 750	4 000	4 750	4 250	2 800	3 150	3 550	4 000	3 550	3 000	2 650	2 650	1 600	3 150	3 150	1 600
	9 000	3 750	3 550	3 550	4 000	4 250	4 750	4 500	4 250	3 350	3 550	4 000	4 000	3 750	3 550	3 150	3 150	1 600	3 150	3 150	1 600
<b>2,800,000</b>	18 000	3 350	2 800	2 800	3 000	2 240	2 240														

$n_2 \cdot L_h$	$T_2$	$F_{r2}^{1)2)}$														$F_{a2}^{1)}$					
rpm h	lb in	0	45	90	135	180	225	270	315	0	45	90	135	180	225	270	315	→	←	↑	↓
<b>280,000</b>	35 500	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	6 300	7 100	7 100	7 100	7 100	6 700	6 000	6 000	2 000	4 000	4 000	2 000
	25 000	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	2 000	4 000	4 000	2 000
	18 000	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	2 000	4 000	4 000	2 000
<b>355,000</b>	35 500	7 100	6 700	6 700	7 100	7 100	7 100	7 100	7 100	6 000	6 700	7 100	7 100	7 100	6 000	5 000	5 000	2 000	4 000	4 000	2 000
	25 000	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	6 700	6 700	2 000	4 000	4 000	2 000
	18 000	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	2 000	4 000	4 000	2 000
<b>450,000</b>	35 500	7 100	6 300	6 300	7 100	6 700	6 700	7 100	7 100	5 000	6 000	6 700	7 100	7 100	5 000	4 250	4 500	2 000	4 000	4 000	2 000
	25 000	7 100	6 700	6 700	7 100	7 100	7 100	7 100	7 100	6 300	7 100	7 100	7 100	7 100	7 100	6 000	6 000	2 000	4 000	4 000	2 000
	18 000	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	7 100	2 000	4 000	4 000	2 000
<b>560,000</b>	35 500	6 300	5 600	5 600	6 300	5 600	6 000	7 100	5 600	4 250	5 300	6 000	7 100	6 300	4 250	3 550	3 750	2 000	4 000	4 000	2 000
	25 000	6 700	6 300	6 300	6 700	7 100	7 100	7 100	7 100	5 600	6 300	7 100	7 100	6 700	6 300	5 300	5 300	2 000	4 000	4 000	2 000
	18 000	7 100	6 700	6 700	7 100	7 100	7 100	7 100	7 100	6 700	7 100	7 100	7 100	7 100	6 700	6 300	6 300	2 000	4 000	4 000	2 000
<b>710,000</b>	35 500	6 000	5 300	5 300	5 600	5 000	5 000	7 100	7 100	3 550	4 500	5 300	6 000	5 300	3 550	3 000	3 150	2 000	4 000	4 000	2 000
	25 000	6 300	5 600	6 000	6 300	7 100	7 100	7 100	7 100	5 300	6 000	6 700	6 700	6 300	5 600	4 750	4 750	2 000	4 000	4 000	2 000
	18 000	6 300	6 000	6 000	6 700	7 100	7 100	7 100	7 100	6 000	6 700	7 100	6 700	6 300	6 300	6 000	6 000	2 000	4 000	4 000	2 000
<b>900,000</b>	35 500	5 600	4 750	4 750	4 750	4 000	4 250	6 300	6 700	2 650	4 000	4 500	5 000	4 000	2 800	2 360	2 500	2 000	4 000	4 000	1 700
	25 000	6 000	5 300	5 300	6 000	6 300	6 300	7 100	6 700	4 750	5 300	6 000	6 300	5 600	5 000	4 250	4 250	2 000	4 000	4 000	2 000
	18 000	6 000	5 600	5 600	6 000	6 700	7 100	7 100	6 700	5 600	6 000	6 700	6 300	6 000	6 000	5 300	5 300	2 000	4 000	4 000	2 000
<b>1,120,000</b>	35 500	5 000	4 250	4 250	3 750	3 350	3 350	5 600	6 300	1 900	3 150	3 750	4 000	3 000	2 000	1 700	1 900	2 000	4 000	4 000	1 180
	25 000	5 300	4 750	4 750	5 300	5 300	5 600	7 100	6 300	4 000	4 750	5 300	6 000	5 300	4 250	3 550	3 550	2 000	4 000	4 000	2 000
	18 000	5 600	5 000	5 300	5 600	6 300	6 700	6 700	6 300	5 000	5 600	6 000	6 000	5 600	5 300	4 750	4 750	2 000	4 000	4 000	2 000
<b>1,400,000</b>	25 000	5 000	4 500	4 500	5 000	4 750	5 000	6 300	6 000	3 550	4 250	4 750	5 600	5 000	3 550	3 150	3 150	2 000	4 000	4 000	2 000
	18 000	5 300	4 750	4 750	5 300	6 000	6 300	6 300	6 000	4 500	5 000	5 600	5 600	5 000	4 750	4 250	4 250	2 000	4 000	4 000	2 000
	12 500	5 300	5 000	5 000	5 300	6 000	6 300	6 300	6 000	5 300	5 600	6 000	5 600	5 300	5 300	5 000	5 000	2 000	4 000	4 000	2 000
<b>1,800,000</b>	25 000	4 500	4 000	4 000	4 500	4 000	4 250	6 000	5 600	3 150	3 750	4 250	5 000	4 500	3 150	2 650	2 800	2 000	4 000	4 000	2 000
	18 000	4 750	4 500	4 500	4 750	5 600	5 600	6 000	5 600	4 000	4 500	5 000	5 300	4 750	4 500	3 750	3 750	2 000	4 000	4 000	2 000
	12 500	5 000	4 750	4 750	5 000	5 600	6 000	6 000	5 300	4 750	5 000	5 600	5 300	5 000	4 750	4 750	4 500	2 000	4 000	4 000	2 000
<b>2,240,000</b>	25 000	4 250	3 550	3 750	3 750	3 550	3 550	5 000	5 000	2 500	3 350	3 750	4 250	3 550	2 500	2 120	2 240	2 000	4 000	4 000	1 600
	18 000	4 500	4 000	4 000	4 500	5 000	5 000	5 600	5 000	3 550	4 000	4 500	4 750	4 500	3 750	3 350	3 350	2 000	4 000	4 000	2 000
	12 500	4 500	4 250	4 250	4 500	5 000	5 300	5 300	5 000	4 250	4 750	5 000	4 750	4 500	4 500	4 250	4 000	2 000	4 000	4 000	2 000
<b>2,800,000</b>	25 000	3 750	3 350	3 350	3 350	3 000	3 000	4 750	4 750	1 900	2 800	3 150	3 550	3 000	2 000	1 700	1 900	2 000	4 000	4 000	1 180
	18 000	4 000	3 750	3 750	4 250	4 250	4 500	5 300	4 750	3 350	3 750	4 250	4 500	4 000	3 350	3 000	3 000	2 000	4 000	4 000	2 000
	12 500	4 250	4 000	4 000	4 250	4 750	5 000	5 000	4 750	3 750	4 250	4 750	4 500	4 250	4 000	3 750	3 750	2 000	4 000	4 000	2 000
<b>3,550,000</b>	18 000	3 750	3 350	3 350	3 750	3 750	4 000	5 000	4 500	3 000	3 350	3 750	4 250	3 750	3 000	2 500	2 650	2 000	4 000	4 000	2 000
	12 500	4 000	3 550	3 550	4 000	4 500	4 750	4 750	4 500	3 550	3 750	4 250	4 250	4 000	3 750	3 350	3 350	2 000	4 000	4 000	2 000
	18 000	3 550	3 150	3 150	3 550	3 350	3 350	4 500	4 250	2 500	3 000	3 350	3 750	3 550	2 650	2 240	2 240	2 000	4 000	4 000	1 700
<b>4,500,000</b>	18 000	3 550	3 350	3 350	3 750	4 250	4 500	4 500	4 000	3 150	3 550	4 000	3 750	3 550	3 350	3 150	3 000	2 000	4 000	4 000	2 000
	12 500	3 150	2 800	2 800	3 150	2 800	3 000	4 000	3 750	2 120	2 650	3 000	3 350	3 150	2 120	1 800	1 900	2 000	3 750	4 000	1 320
	18 000	3 350	3 150	3 150	3 350	3 750	4 000	4 250	3 750	2 800	3 150	3 550	3 550	3 350	3 150	2 650	2 650	2 000	3 750	4 000	2 000
max		<b>7 100</b>														<b>2 000</b>	<b>4 000</b>	<b>4 000</b>	<b>2 000</b>		

1) An axial load of up to 0,2 times the value in the table is permissible, simultaneously with the radial load and vice versa. If exceeded consult us.

2) An unfavourable direction of load can limit  $F_{r2}$  to  $0,9 \cdot F_{r2max}$ .

$n_2 \cdot L_h$	$T_2$	$F_{r2}^{1)2)}$														$F_{a2}^{1)}$					
rpm h	lb in	0	45	90	135	180	225	270	315	0	45	90	135	180	225	270	315	0	45	90	180
<b>224,000</b>	50 000	9 000	9 000	9 000	9 000	9 000	8 500	8 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	5 000	2 500	2 500	5 000
	35 500	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	5 000	2 500	2 500	5 000	
	25 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	5 000	2 500	2 500	5 000	
<b>280,000</b>	50 000	9 000	9 000	9 000	9 000	8 000	7 500	7 100	8 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	5 000	2 500	2 500	5 000	
	35 500	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	5 000	2 500	2 500	5 000		
	25 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	5 000	2 500	2 500	5 000		
<b>355,000</b>	50 000	9 000	9 000	9 000	8 500	7 500	6 300	6 300	7 100	9 000	9 000	8 500	8 500	9 000	9 000	9 000	5 000	2 500	2 500	5 000	
	35 500	9 000	9 000	9 000	9 000	9 000	8 500	8 500	9 000	9 000	9 000	9 000	9 000	9 000	9 000	5 000	2 500	2 500	5 000		
	25 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	5 000	2 500	2 500	5 000		
<b>450,000</b>	50 000	8 500	9 000	8 000	7 500	6 300	5 600	5 300	6 000	9 000	9 000	7 500	7 500	8 500	9 000	9 000	5 000	2 500	2 500	5 000	
	35 500	9 000	9 000	9 000	9 000	8 000	7 500	7 500	8 500	9 000	9 000	8 500	8 500	9 000	9 000	5 000	2 500	2 500	5 000		
	25 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	5 000	2 500	2 500	5 000		
<b>560,000</b>	50 000	6 700	8 000	7 100	6 700	5 600	4 750	4 250	5 000	8 000	8 000	7 100	6 700	8 000	9 000	8 000	5 000	2 500	2 500	5 000	
	35 500	8 000	9 000	9 000	8 000	7 100	6 700	6 700	7 500	9 000	8 500	7 500	7 500	8 500	9 000	5 000	2 500	2 500	5 000		
	25 000	8 500	9 000	9 000	9 000	8 500	8 000	8 000	8 500	9 000	9 000	8 000	8 000	8 500	9 000	5 000	2 500	2 500	5 000		
<b>710,000</b>	50 000	5 600	6 700	6 300	6 000	4 750	3 750	3 550	4 000	6 700	7 100	6 300	6 300	7 100	9 000	6 700	5 000	2 360	2 500	5 000	
	35 500	7 500	8 500	8 000	7 100	6 300	6 000	6 000	6 700	9 000	8 000	7 100	7 100	7 500	9 000	5 000	2 500	2 500	5 000		
	25 000	8 000	8 500	9 000	8 500	7 500	7 100	7 100	8 000	9 000	8 000	7 500	7 500	8 000	9 000	5 000	2 500	2 500	5 000		
<b>900,000</b>	50 000	4 250	5 300	5 300	5 000	3 550	3 150	2 650	3 000	5 600	6 300	5 600	5 600	6 700	8 500	5 600	5 000	1 700	2 500	5 000	
	35 500	7 100	8 000	7 100	6 300	5 600	5 000	5 000	5 600	8 500	7 100	6 300	6 300	7 100	8 500	5 000	2 500	2 500	5 000		
	25 000	7 500	8 000	8 000	7 500	7 100	6 300	6 700	7 100	8 500	7 500	7 100	6 700	7 500	8 500	5 000	2 500	2 500	5 000		
<b>1,120,000</b>	50 000	3 000	4 000	4 500	4 250	2 650	2 360	1 900	2 000	4 500	5 000	5 300	5 000	6 000	8 000	4 750	5 000	1 120	2 500	5 000	
	35 500	6 300	7 100	6 300	6 000	5 000	4 500	4 250	5 000	7 100	6 700	6 000	6 000	6 700	8 000	5 000	2 500	2 500	5 000		
	25 000	6 700	7 500	7 500	6 700	6 300	6 000	6 000	6 700	8 000	7 100	6 300	6 300	6 700	8 000	5 000	2 500	2 800	5 000		
<b>1,400,000</b>	35 500	6 000	6 300	5 600	5 300	4 500	3 750	3 550	4 250	6 300	6 300	5 300	5 300	6 000	7 500	6 300	5 000	2 500	2 500	5 000	
	25 000	6 300	6 700	6 700	6 300	5 600	5 300	5 300	6 000	7 500	6 300	6 000	6 000	6 300	7 500	5 000	2 500	2 500	5 000		
	18 000	6 300	6 700	7 500	6 700	6 300	6 300	6 300	6 300	7 500	6 700	6 300	6 300	6 700	7 100	5 000	2 500	2 500	5 000		
<b>1,800,000</b>	35 500	4 750	5 600	5 000	4 500	4 000	3 350	3 150	3 350	5 600	5 600	5 000	4 750	5 600	7 100	5 600	5 000	2 120	2 500	5 000	
	25 000	6 000	6 300	6 300	5 600	5 000	4 750	4 750	5 300	7 100	6 000	5 300	5 300	6 000	6 700	5 000	2 500	2 500	5 000		
	18 000	6 000	6 300	6 700	6 300	6 000	5 600	5 600	6 000	6 700	6 300	5 600	5 600	6 300	6 700	5 000	2 500	2 500	5 000		
<b>2,240,000</b>	35 500	3 750	4 500	4 250	4 000	3 350	2 650	2 360	2 650	4 750	5 000	4 500	4 500	5 000	6 300	4 750	5 000	1 600	2 500	5 000	
	25 000	5 300	6 000	5 600	5 000	4 500	4 000	4 000	4 750	6 300	5 600	5 000	5 000	5 300	6 300	5 000	2 500	2 500	5 000		
	18 000	5 600	6 000	6 300	5 600	5 300	5 000	5 000	5 600	6 300	5 600	5 300	5 300	5 600	6 300	5 000	2 500	2 500	5 000		
<b>2,800,000</b>	35 500	3 000	3 750	3 750	3 550	2 500	2 120	1 900	2 000	3 750	4 250	4 000	4 000	4 750	6 000	4 000	5 000	1 180	2 500	5 000	
	9 000	5 000	5 600	4 500	5 000	4 000	3 550	3 550	4 000	6 000	5 300	4 500	4 500	5 000	6 000	5 000	2 500	2 500	5 000		
	18 000	5 300	5 600	5 600	5 300	4 750	4 500	4 500	5 000	6 000	5 300	4 750	4 750	5 300	6 000	5 000	2 500	2 500	5 000		
<b>3,550,000</b>	25 000	4 500	5 000	4 500	4 250	3 550	3 150	3 150	3 550	5 300	4 750	4 250	4 250	4 750	6 300	5 000	2 240	2 500	5 000		
	18 000	4 750	5 300	5 300	4 750	4 500	4 000	4 250	4 750	5 600	5 000	4 500	4 500	4 750	6 000	5 000	2 500	2 500	5 000		
<b>4,500,000</b>	25 000	4 250	4 500	4 000	3 550	3 150	2 800	2 650	3 000	4 500	4 500	3 750	3 750	4 250	5 300	5 000	1 900	2 500	5 000		
	18 000	4 500	4 750	4 750	4 500	4 000	3 750	3 550	4 250	5 300	4 500	4 250	4 000	4 500	5 300	5 000	2 500	2 650	5 000		
<b>5,600,000</b>	25 000	3 350	3 750	3 550	3 350	2 800	2 360	2 120	2 500	4 000	4 000	3 550	3 350	4 000	4 750	5 000	1 500	2 500	4 500		
	18 000	4 000	4 500	4 250	4 000	3 550	3 350	3 350	3 750	5 000	4 250	3 750	3 750	4 250	4 750	5 000	2 500	2 500	4 750		
max		<b>9 000</b>														<b>5 000</b>	<b>2 500</b>	<b>2 800</b>	<b>5 000</b>		

1) An axial load of up to 0,2 times the value in the table is permissible, simultaneously with the radial load and vice versa. If exceeded consult us.

$n_2 \cdot L_h$	$T_2$	$F_{r2}^{1)2)}$														$F_{a2}^{1)}$						
rpm h	lb in	0	45	90	135	180	225	270	315	0	45	90	135	180	225	270	315					
<b>224,000</b>	71 000	11 200	11 200	11 200	11 200	10 000	9 000	9 000	10 600	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	6 300	3 150	3 150	6 300	
	50 000	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	6 300	3 150	3 150	6 300	
	35 500	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	6 300	3 150	3 150	6 300
<b>280,000</b>	71 000	11 200	11 200	11 200	10 000	9 000	8 000	8 000	9 000	11 200	11 200	10 600	10 600	11 200	11 200	11 200	11 200	6 300	3 150	3 150	6 300	
	50 000	11 200	11 200	11 200	11 200	11 200	10 000	10 000	10 600	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	6 300	3 150	3 150	6 300
	35 500	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	6 300	3 150	3 150	6 300
<b>355,000</b>	71 000	10 600	11 200	10 600	9 000	8 000	6 700	6 700	8 000	10 000	11 200	9 500	9 500	11 200	11 200	11 200	10 600	6 300	3 150	3 150	6 300	
	50 000	11 200	11 200	11 200	11 200	10 000	9 500	9 500	10 600	11 200	11 200	10 600	10 600	11 200	11 200	11 200	11 200	6 300	3 150	3 150	6 300	
	35 500	11 200	11 200	11 200	11 200	11 200	10 600	10 600	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	11 200	6 300	3 150	3 150	6 300
<b>450,000</b>	71 000	9 500	10 600	9 000	8 000	6 700	6 000	5 600	6 700	9 000	10 000	9 000	9 000	10 000	11 200	11 200	11 200	6 300	3 150	3 150	6 300	
	50 000	10 600	11 200	11 200	10 000	9 000	8 500	8 500	9 500	11 200	10 600	9 500	9 500	10 600	11 200	11 200	11 200	6 300	3 150	3 150	6 300	
	35 500	10 600	11 200	11 200	11 200	10 000	9 500	10 000	10 600	11 200	10 600	10 000	10 000	10 600	11 200	11 200	11 200	6 300	3 150	3 150	6 300	
<b>560,000</b>	71 000	7 500	9 000	8 000	7 100	5 000	4 750	4 500	5 300	7 500	9 000	8 000	8 000	9 500	11 200	11 200	7 500	6 300	3 150	3 150	6 300	
	50 000	9 500	10 600	10 000	9 000	8 000	7 500	7 500	8 500	11 200	10 000	9 000	9 000	9 500	11 200	11 200	11 200	6 300	3 150	3 150	6 300	
	35 500	10 000	10 600	11 200	10 000	9 500	9 000	9 000	9 500	11 200	10 000	9 500	9 500	10 000	11 200	11 200	11 200	6 300	3 150	3 150	6 300	
<b>710,000</b>	71 000	6 300	7 500	7 100	6 300	3 750	4 000	3 550	4 250	6 300	7 500	7 500	7 500	8 500	10 600	10 000	6 300	6 300	2 650	3 150	6 300	
	50 000	9 000	10 000	9 000	8 000	7 100	6 300	6 300	7 500	9 500	9 000	8 500	8 500	9 000	10 600	11 200	10 000	6 300	3 150	3 150	6 300	
	35 500	9 500	10 000	10 000	9 500	8 500	8 000	8 500	9 000	10 600	9 500	9 000	9 000	9 500	10 600	11 200	11 200	6 300	3 150	3 150	6 300	
<b>900,000</b>	71 000	4 500	6 000	6 000	4 500	2 650	2 650	2 650	3 000	5 000	6 300	6 700	6 700	8 000	10 000	8 500	5 000	6 300	1 900	3 150	6 300	
	50 000	8 500	9 000	8 500	7 500	6 300	5 600	5 600	6 700	8 500	8 500	7 500	7 500	8 500	10 000	11 200	8 500	6 300	3 150	3 150	6 300	
	35 500	8 500	9 000	9 500	8 500	7 500	7 100	7 500	8 500	9 500	9 000	8 000	8 000	9 000	9 500	10 600	10 600	6 300	3 150	3 150	6 300	
<b>1,120,000</b>	71 000	2 800	4 500	4 750	2 650	1 400	1 500	1 700	1 800	3 750	5 000	6 000	6 000	7 100	9 000	6 700	3 750	6 300	1 120	3 150	6 300	
	50 000	7 500	8 500	7 500	6 300	5 600	4 750	4 750	5 600	7 500	8 000	6 700	6 700	7 500	9 000	10 000	7 500	6 300	3 150	3 150	6 300	
	35 500	8 000	8 500	8 500	7 500	7 100	6 300	6 700	7 500	9 000	8 000	7 500	7 500	8 000	9 000	10 000	10 000	6 300	3 150	3 150	6 300	
<b>1,400,000</b>	50 000	6 700	7 500	6 700	6 000	4 750	4 250	4 000	4 750	6 300	7 100	6 300	6 300	7 100	8 500	9 000	6 700	6 300	3 150	3 150	6 300	
	35 500	7 500	8 000	8 000	7 100	6 300	6 000	6 000	6 700	8 500	7 500	6 700	6 700	7 500	8 500	9 500	9 000	6 300	3 150	3 150	6 300	
	25 000	7 500	8 000	8 500	8 000	7 500	7 100	7 100	7 500	8 500	7 500	7 100	7 100	7 500	8 500	9 000	9 000	6 300	3 150	3 150	6 300	
<b>1,800,000</b>	50 000	5 600	6 700	6 000	5 000	3 750	3 550	3 350	3 750	5 300	6 300	6 000	6 000	6 700	8 000	8 500	5 600	6 300	2 500	3 150	6 300	
	35 500	6 700	7 500	7 100	6 300	5 600	5 300	5 300	6 000	8 000	7 100	6 300	6 300	7 100	8 000	9 000	8 000	6 300	3 150	3 150	6 300	
	25 000	7 100	7 500	8 000	7 100	6 700	6 300	6 300	7 100	8 000	7 100	6 700	6 700	7 100	8 000	8 500	8 500	6 300	3 150	3 150	6 300	
<b>2,240,000</b>	50 000	4 500	5 300	5 000	4 500	2 800	2 800	2 500	3 000	4 500	5 300	5 300	5 300	6 000	7 500	7 100	4 500	6 300	1 900	3 150	6 300	
	35 500	6 300	7 100	6 300	5 600	5 000	4 500	4 500	5 300	6 700	6 300	6 000	5 600	6 300	7 500	8 500	7 100	6 300	3 150	3 150	6 300	
	25 000	6 700	7 100	7 100	6 700	6 000	5 600	6 000	6 300	7 500	6 700	6 300	6 300	6 700	7 500	8 000	8 000	6 300	3 150	3 150	6 300	
<b>2,800,000</b>	50 000	3 350	4 250	4 250	3 350	1 900	2 000	1 900	2 240	3 550	4 500	4 750	4 750	5 600	7 100	6 000	3 750	6 300	1 400	3 000	6 300	
	35 500	6 000	6 300	6 000	5 000	4 500	4 000	3 750	4 500	6 000	6 000	5 300	5 300	6 000	7 100	8 000	6 000	6 300	3 150	3 150	6 300	
	25 000	6 000	6 700	6 700	6 000	5 600	5 000	5 300	6 000	7 100	6 300	5 600	5 600	6 300	7 100	7 500	7 500	6 300	3 150	3 150	6 300	
<b>3,550,000</b>	35 500	5 300	6 000	5 300	4 500	4 000	3 350	3 350	4 000	5 300	5 600	4 750	4 750	5 600	6 700	7 100	5 300	6 300	2 650	3 150	6 300	
	25 000	5 600	6 300	6 300	5 600	5 000	4 750	4 750	5 300	6 300	5 600	5 300	5 300	5 600	6 300	7 100	7 100	6 300	3 150	3 150	6 300	
<b>4,500,000</b>	35 500	4 750	5 300	4 500	4 000	3 350	3 000	2 800	3 350	4 500	5 000	4 500	4 500	5 000	6 300	6 700	4 500	6 300	2 240	3 150	6 000	
	25 000	5 300	5 600	5 600	5 000	4 500	4 000	4 250	4 750	6 000	5 300	4 750	4 750	5 300	6 000	6 700	6 300	6 300	3 150	3 150	6 300	
<b>5,600,000</b>	35 500	3 750	4 500	4 000	3 550	2 500	2 360	2 240	2 650	3 750	4 500	4 00	4 000	4 750	5 600	5 600	3 750	6 300	1 800	3 150	5 600	
	25 000	4 750	5 300	5 000	4 500	4 000	3 550	3 550	4 250	5 600	5 000	4 500	4 500	5 000	5 600	6 300	5 600	6 300	3 150	3 150	6 000	
max		<b>11 200</b>														<b>6 300</b>	<b>3 150</b>	<b>3 150</b>	<b>6 300</b>			

1) An axial load of up to 0,2 times the value in the table is permissible, simultaneously with the radial load and vice versa. If exceeded consult us.  
 2) An unfavourable direction of load can limit  $F_{r2}$  to  $0,9 \cdot F_{r2max}$

## Efficiency $\eta$ :

— gear reducer with 2 gear pairs (2i) 0.96, with 3 gear pairs (3i) 0.94; for  $M_2 \ll M_{N2}$ ,  $\eta$  could considerably decrease; consult us.

## Overloads

Where a gear reducer is subjected to high static and dynamic overloads, the need arises for verifying that such overloads will always remain lower than  $2 \cdot M_{N2}$  (see ch. 3.5; see ch. 3.7 where  $M_{N2} = M_2 \cdot fs$ ).

Overloads are normally generated when one has:

- starting on full load (especially for high inertias and low transmission ratios), braking, shocks;
- gear reducers in which the low speed shaft becomes driving member due to driven machine inertia;
- applied power higher than that required; other static or dynamic causes.

The following general observations on overloads are accompanied by some formulae for carrying out evaluations in certain typical instances. Where no evaluation is possible, install safety devices which will keep values within  $2 \cdot M_{N2}$ .

## Starting torque

When starting on full load (especially for high inertias and low transmission ratios) verify that  $2 \cdot M_{N2}$  is equal to or greater than starting torque, by using the following formula:

$$M_2 \text{ start} = \left( \frac{M \text{ start}}{M_N} \cdot M_2 \text{ available} - M_2 \text{ required} \right) \frac{J}{J + J_0} + M_2 \text{ required}$$

where:

$M_2$  required is torque absorbed by the machine through work and frictions;

$M_2$  available is output torque due to the motor's nominal power;

$J_0$  is the moment of inertia (of mass) of the motor;

$J$  is the external moment of inertia (of mass) in  $\text{kg m}^2$  (gear reducers, couplings, driven machine) referred to the motor shaft;

for other symbols see ch. 2b.

NOTE: when seeking to verify that starting torque is sufficiently high for starting, take into account starting friction, if any, in evaluating  $M_2$  required.

## Stopping machines with high kinetic energy (high moments of inertia combined with high speeds) with brake motor

Verify braking stress by means of the formula:

$$\left( \frac{Mf}{\eta} \cdot i + M_2 \text{ required} \right) \frac{J}{J + J_0} - M_2 \text{ required} \leq 2 \cdot M_{N2}$$

where:

$Mf$  is the braking torque setting (see table in ch. 2b); for other symbols see above and ch. 1.

## Operation with brake motor

### Starting time $t_{a1}$ and revolutions of motor $\varphi_{a1}$

$$t_{a1} = \frac{(J_0 + J) \cdot n_1}{25,605 \left( M \text{ start} - \frac{M_2 \text{ required}}{i} \right)} \text{ [s];} \quad \varphi_{a1} = \frac{t_{a1} \cdot n_1}{19.1} \text{ [rad]}$$

### Braking time $t_{f1}$ and revolutions of motor $\varphi_{f1}$

$$t_{f1} = \frac{(J_0 + J) \cdot n_1}{25,605 \left( Mf + \frac{M_2 \text{ required}}{i} \right)} \text{ [s];} \quad \varphi_{f1} = \frac{t_{f1} \cdot n_1}{19.1} \text{ [rad]}$$

where:

$M \text{ start}$  [daN m] is motor starting torque  $\left( \frac{63,025 \cdot P_1}{n_1} \cdot \frac{M \text{ start}}{M_N} \right)$  (see ch. 2b);

$Mf$  [daN m] is the braking torque setting of the motor (see ch. 2b);

for other symbols see above and ch. 1.

Assuming a regular air-gap and ambient humidity, and utilizing suitable electrical equipment, repetition of the braking action, as affected by variation in temperature of the brake and by the state of wear of friction surface, is approx  $\pm 0.1 \cdot \varphi_{f1}$ .

## Duration of friction surface

As a rough guide, the number of applications permissible between successive adjustments of the air-gap is given by the formula:

$$\frac{W \cdot 10^5}{Mf \cdot \varphi_{f1}}$$

where:

$W$  [MJ] is the work of friction between successive adjustments of the airgap as indicated in the table; for other symbols see above.

The air-gap should measure between 0.25 minimum and 0.6 maximum; as a rule, 5 adjustments can be made.

Motor size	W MJ
<b>63</b>	10,6
<b>71</b>	14
<b>80</b>	18
<b>90</b>	24
<b>100</b>	24
<b>112</b>	45
<b>132</b>	67
<b>160, 180M</b>	90
<b>180L, 200</b>	125

## Low speed shaft angular backlash and torsional stiffness

**A rough guide** for the angular backlash (high speed shaft being locked) is given in the table. Values vary according to temperature and transmission ratio.

Also the **approx.** values for low speed shaft torsional stiffness — high speed shaft being locked — are given in the table according to the train of gears.

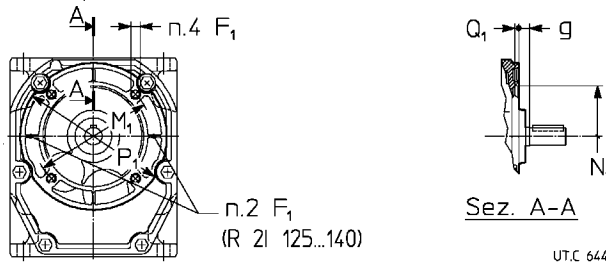
On request it is possible to supply gear reducers with **reduced backlash** (sizes 32 ... 41 excluded) lower than or equal to the minimum values stated on the table.

1) At the distance of 1 m from the low speed shaft centre, angular backlash in mm is obtained by multiplying the value stated in the table by 1 000 (1 rad = 3438').

Gear reducer size	Angular backlash [rad] <sup>1)</sup>		Torsional stiffness [lb in/°]	
	min	max	R, MR 2I	R, MR 3I
32	0.0050	0.0100	14	8
40	0.0045	0.0090	28	15.9
41	0.0045	0.0090	31	17.7
50	0.0036	0.0071	66	38.1
51	0.0036	0.0071	75	42.5
63	0.0032	0.0063	133	75
64	0.0032	0.0063	150	84
80	0.0028	0.0056	265	150
81	0.0028	0.0056	296	168
100	0.0023	0.0050	531	296
101	0.0025	0.0050	593	332
125	0.0022	0.0044	1044	593
126	0.0022	0.0044	1168	664
140	0.0022	0.0044	1328	752
160	0.0020	0.0040	2089	1168
180	0.0020	0.0040	2965	1682

## Gear reducers input face

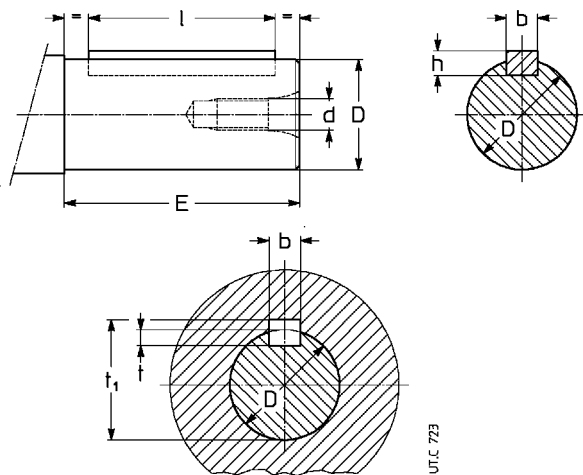
The input face of gear reducers (size ≥ 50) has a flange with tapped holes and «hole» centering for eventual fitting of motor support, etc. The use of threaded holes closed with dowel, if any, requires the removal of dowel (avoiding eventual oil loss) and the readjustment of sealant.



Gear reducer size	F <sub>1</sub>	g	M <sub>1</sub> ∅	N <sub>1</sub> ∅ H7	P <sub>1</sub> ∅	Q <sub>1</sub>
	1)	≈				
50, 51	M 8	9,5	115 <sup>2)</sup>	95	140	4
63, 64	M 8	10	130	110	160	4.5
80, 81	M 10	10,5	165	130	200	4.5
100, 101	M 12	11	215	180	250	5
125, 126, 140	M 12 <sup>5)</sup>	14 <sup>3)</sup>	265	230	300	5
160, 180	M 16	19 <sup>3)</sup>	350	300	400	6

1) Working length of thread 1.05 F<sub>1</sub>, 1.5 F<sub>1</sub> for R 2I 125 ... 180.  
 2) The two upper holes are on a diameter M<sub>1</sub> of 130 mm: consult us.  
 3) For R 3I g dimension is -4 mm (sizes 125 ... 140), -6 mm (sizes 160 and 180).

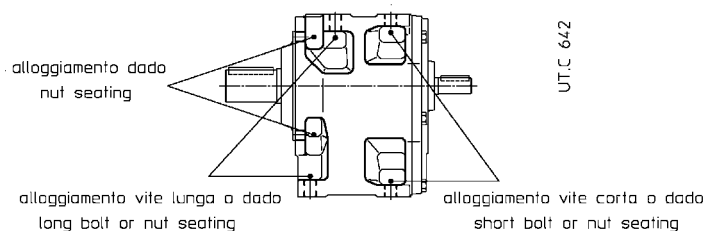
## Shaft end



1) Values in brackets are for short shaft end.

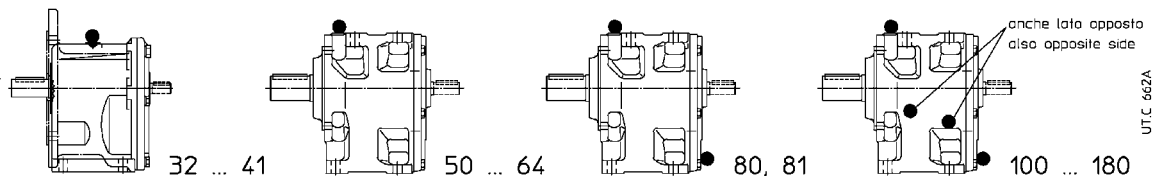
D ∅	Shaft end		Parallel key b × h × l <sup>1)</sup>	Keyway			
	E <sup>1)</sup>	d ∅		b	t	t <sub>i</sub>	
11	j6	23 (20)	M 5	4 × 4 × 18 (12)	4	2.5	12.7
14	j6	30	M 6	5 × 5 × 25	5	3	16.2
16	j6	30	M 6	5 × 5 × 25	5	3	18.2
19	j6	40	M 6	6 × 6 × 36	6	3.5	21.7
24	j6	50 (36)	M 8	8 × 7 × 45 (25)	8	4	27.2
28	j6	60 (42)	M 8	8 × 7 × 45 (36)	8	4	31.2
32	k6	80 (58)	M 10	10 × 8 × 70 (50)	10	5	35.3
38	k6	80 (58)	M 10	10 × 8 × 70 (50)	10	5	41.3
42	k6	110	M 12	12 × 8 × 90	12	5	45.3
45	k6	82	M 12	14 × 9 × 70	14	5.5	48.8
48	k6	82 (80)	M 12	14 × 9 × 70	14	5.5	51.8
55	m6	82	M 12	16 × 10 × 70	16	6	59.3
60	m6	105	M 16	18 × 11 × 90	18	7	64.4
70	m6	105	M 16	20 × 12 × 90	20	7.5	74.9
80	m6	130	M 20	22 × 14 × 110	22	9	85.4
90	m6	130	M 20	25 × 14 × 110	25	9	95.4
100	m6	165	M 24	28 × 16 × 140	28	10	106.4

## Fixing bolt dimensions for gear reducer feet



Gear reducer size	Short bolt	Long bolt
	UNI 5737-88 (l max)	
<b>50, 51</b>	M 10 × 30	M 10 × 35
<b>63, 64</b>	M 12 × 35	M 12 × 40
<b>80, 81</b>	M 14 × 40	M 14 × 50
<b>100, 101</b>	M 16 × 50	M 16 × 60
<b>125, 126, 140</b>	M 20 × 60	M 20 × 70
<b>160, 180</b>	M 24 × 70	M 24 × 90

## Plug position



## Maximum bending moment of flange MR

In case of assembly of motors supplied by the customer, verify that the static bending moment  $M_b$  generated by motor weight on the counter flange of gear reducer is lower than the value allowed  $M_{bmax}$ , stated in the table:

$$M_b \leq M_{bmax}$$

where:

$$M_b = G \cdot (X + HF) / 1000 \text{ [lb in]}$$

G [lb] motor weight; numerically nearly equal to motor mass, expressed in lb

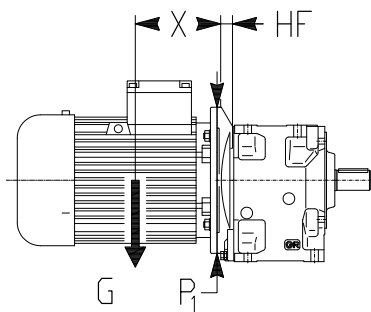
X [in] distance from motor center of gravity from flange surface

HF [in] given in the table, according to gear reducer size and flange diameter  $P_1$ .

Very long and thin motors, though with bending moments within the prescribed limits, may generate anomalous vibrations during the operation. In these cases it is necessary to foresee a proper additional motor support (see motor specific documentation).

**Loads higher than permissible loads may be present in dynamical applications** where the gearmotor is subjected to translations, rotations or oscillations: consult us for the study of every specific case

## Max allowable bending moment $M_{bmax}$ and HF dimension



Gear reducer size	$P_1$ ø	2I		3I	
		HF in	$M_{bmax}$ lb in	HF in	$M_{bmax}$ lb in
<b>32</b>	140	0.43	<b>1239</b>	0.43	<b>1239</b>
<b>40, 41</b>	140	0.47	<b>2213</b>	13,5	<b>2213</b>
	160	0.47	<b>2213</b>	13,5	<b>2213</b>
<b>50, 51</b>	140	–	–	0.63	<b>2478</b>
	160	0.63	<b>2478</b>	0.63	<b>2478</b>
	200	0.63	<b>3540</b>	0.63	<b>3540</b>
<b>63, 64</b>	160	–	–	0.75	<b>4425</b>
	200	0.75	<b>4425</b>	0.75	<b>4425</b>
	250	0.75	<b>7966</b>	–	–
<b>80, 81</b>	200	0.87	<b>9913</b>	0.87	<b>9913</b>
	250	0.87	<b>9913</b>	0.87	<b>9913</b>
	300	0.96	<b>14161</b>	–	–
<b>100, 101</b>	200	–	–	0.94	<b>12391</b>
	250	0.94	<b>12391</b>	0.94	<b>12391</b>
	300	0.94	<b>12391</b>	0.94	<b>12391</b>
	350	1.57	<b>12391</b>	–	–
<b>125 ... 140</b>	250	–	–	1.12	<b>22127</b>
	300	1.12	<b>22127</b>	1.12	<b>22127</b>
	350	1.12	<b>22127</b>	1.12	<b>22127</b>
	400	1.18	<b>22127</b>	–	–
	450	2.07	<b>27880</b>	–	–
<b>160, 180</b>	300	–	–	1.34	<b>49564</b>
	350	1.34	<b>49564</b>	1.34	<b>49564</b>
	400	1.34	<b>49564</b>	1.34	<b>49564</b>
	450	1.42	<b>49564</b>	1.42	<b>49564</b>
	550	1.89	<b>49564</b>	–	–



# Installation and maintenance





## General

Be sure that the structure on which gear reducer or gearmotor is fitted is plane, levelled and sufficiently dimensioned in order to assure fitting stability and vibration absence, keeping in mind all transmitted forces due to the masses, to the torque, to the radial and axial loads.

Position the gear reducer or gearmotor so as to allow a free passage of air for cooling both gear reducer and motor (especially at motor fan side).

Avoid: any obstruction to the air-flow; heat sources near the gear reducer that might affect the temperature of cooling-air and of gear reducer for radiation; insufficient air recycle or any other factor hindering the steady dissipation of heat.

Mount the gear reducer so as not to receive vibrations.

When external loads are present use pins or locking blocks, if necessary.

When fitting gear reducer and machine and/or gear reducer and eventual flange **B5** it is recommended to use **locking adhesives** such as LOCTITE on the fastening screws (also on flange mating surfaces).

For outdoor installation or in a hostile environment protect the gear reducer or gearmotor with anticorrosion paint. Added protection may be afforded by water-repellent grease (especially around the rotary seating of seal rings and the accessible zones of shaft end).

Gear reducers and gearmotors should be protected wherever possible, and by whatever appropriate means, from solar radiation and extremes of weather; weather protection **becomes essential** when high or low speed shafts are vertically disposed, or where the motor is installed vertical with fan uppermost.

For ambient temperatures greater than 124 °F (40 °C) or less than 32 °F (0 °C), consult us.

Before wiring-up the gearmotor, make sure that motor voltage corresponds to input voltage. If the direction of rotation is not as desired, invert two phases at the terminals.

Star-delta starting should be adopted for starting on no load (or with a very small load) and/or when the necessity is for smooth starts, low starting current and limited stresses.

If overloads are imposed for long periods of time, or if shocks or danger of jamming are envisaged, then motor-protections, electronic torque limiters, fluid couplings, safety couplings, control units or other suitable devices should be fitted.

Where duty cycles involve a high number of starts on-load, it is advisable to utilize **thermal probes** (fitted on the wiring) for motor protection; a thermal overload relay is unsuitable since its threshold must be set higher than the motor's nominal current rating.

Use varistors to limit voltage peaks due to contactors.

**Warning! Bearing life, good shaft and coupling running depend on alignment precision between the shafts.** Carefully align the gear reducer with the motor and the driven machine (with the aid of shims if need be), interposing flexible couplings whenever possible.

Whenever a leakage of lubricant could cause heavy damages, increase the frequency of inspections and/or envisage appropriate control devices (e.g.: remote oil level gauge, lubricant for food industry, etc.).

In polluting surroundings, take suitable precautions against lubricant contamination through seal rings or other.

Gear reducer or gearmotor should not be put into service before it has been incorporated on a machine which is conform to 2006/42/EC directive.

For brake or non-standard motors, consult us for specific information.

## Fitting of components to shaft ends

It is recommended that the bore of parts keyed to shaft ends is machined to H7 tolerance; for low speed shaft ends, tolerance must be **K7** when load is not uniform and light. Other details are given in the «Shaft end» table (ch. 3.13).

Before mounting, clean mating surfaces thoroughly and lubricate against seizure and fretting corrosion.

Installing and removal operations should be carried out with **pullers** and **jacking screws** using the tapped hole at the shaft butt-end; for H7/m6 and K7/j6 fits it is advisable that the part to be keyed is pre-heated to a temperature of 176 ÷ 212 °F (80 ÷ 100 °C).

## Lubrication

Gear pairs and bearings are oil-bath or splash lubricated excluding sizes 32 ... 41 which are grease lubricated.

**Sizes 32 ... 41:** gear reducers are supplied **filled with synthetic grease** (SHELL Gadus S5, MOBIL SHX Polyrex 005), providing lubrication «for life» – assuming pollution-free surroundings.

**Sizes 50 ... 81:** gear reducers are supplied **filled with synthetic oil** (KLÜBER Klübersynth GH 6-220, MOBIL Glygoyle 220, SHELL Omala S4 WE 220) providing lubrication «for life» – assuming pollution-free surroundings. Ambient temperature range 32 ÷ 104 °F (0 ÷ 40 °C) with peaks of -4 °F (20 °C) and +122 °F (50 °C).

**Important:** verify mounting position keeping in mind that if gear reducer is installed in a mounting position which differs from the one indicated on the name plate, it could require the addition of the difference between the two quantities of lubricant given in ch. 3.6 and 3.8, by way of the housing filler hole.

**Sizes 100 ... 180:** gear reducers are supplied **without oil**; before putting into service, fill to the specified level with **mineral oil** having the ISO viscosity grade given in the table.

1) Lubricant quantities stated on ch. 3.6 and 3.8 are approximate for provisioning. The exact oil quantity the gear reducer is to be filled with is definitely given by the level.

When it is required to increase oil change interval («long life»), the ambient temperature range, and/or reduce oil temperature, use **synthetic oil** with polyalphaolefines basis (PAO), always suggested, or with polyglycol basis (PAG) having ISO viscosity grade as indicated in the table.

Manufacturer	PAO synthetic oil	PAG synthetic oil	Mineral Oil
AGIP	Blasia SX	Blasia S	Blasia
ARAL	Degol PAS	Degol GS	Degol BG
BP	Enersyn EPX	Enersyn SG-XP	Energol GR XP
CASTROL	Alphasyn EP	Optiflex A	Alpha SP
FUCHS	Renolin Unisys	Renolin PG	CLP Renolin CLP
KLÜBER	Klübersynth GEM4	Klübersynth GH6	Klüberoil GEM1
MOBIL	Mobil SHC Gear	Mobil Glygoyle	Mobilgear 600 XP
SHELL	Omala S4 GX	Omala S4 WE	Omala S2 G
TEXACO	Pinnacle	Synlube CLP	Meropa
TOTAL	Carter SH	Carter SY	Carter EP

## ISO viscosity grade

Mean kinematic viscosity [cSt] at 104 °F (40 °C).

Speed $n_2$ min <sup>-1</sup>	Ambient temperature <sup>2)</sup> [°F]		
	32 ÷ 50 mineral oil	50 ÷ 104 mineral oil	32 ÷ 104 synthetic oil
> 224	150	150	150
224 ÷ 22,4	150	220	220
22,4 ÷ 5,6	220	320	320
< 5,6	320	460	460


2) Peaks of 50 °F (10 °C) above and 50 °F (10 °C) (68 °F (20 °C) for synthetic oil) below the ambient temperature range are acceptable.

An overall guide to **oil-change interval** is given in the table, and assumes pollution-free surroundings. Where heavy overloads are present, halve the values.

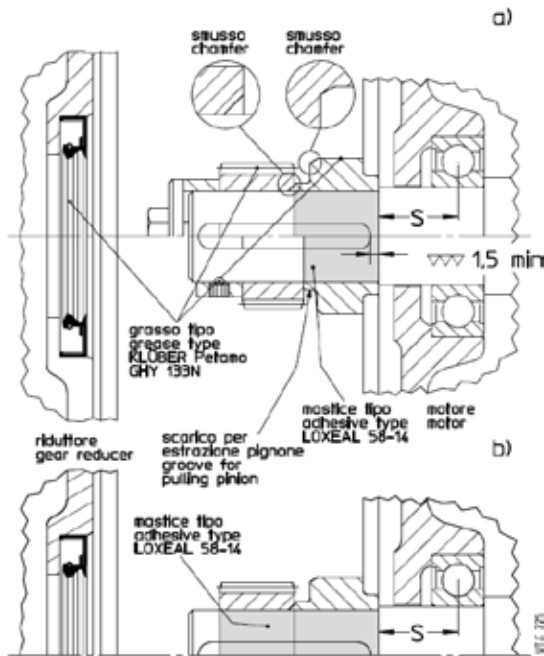
Oil temperature [°F]	Oil-change interval [h]	
	mineral oil	synthetic oil
≤ 149	8,000	25,000
149 ÷ 176	4 000	18,000
176 ÷ 203	2,000	12,500

**Combined gear reducer and gearmotor units:** lubrication remains independent, thus data relative to each single gear reducer hold good.

**Seal rings:** duration depends on several factors such as dragging speed, temperature, ambient conditions, etc.; as a rough guide; it can vary from 3 150 to 12 500 h.

**Warning:** for gear reducers sizes 100 ... 180, before unscrewing the filler plug with valve (symbol ) wait until the unit has cooled and then open with caution.

## Motor replacement



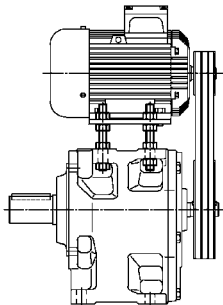
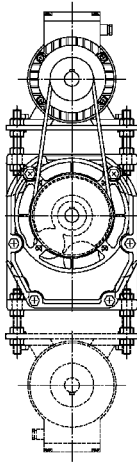
Motor size	Min dynamic load capacity [lb in]		Max dimension 'S' mm
	Front	Rear	
<b>63</b>	39,828	29,650	16
<b>71</b>	55,760	42,041	18
<b>80</b>	79,657	59,300	20
<b>90</b>	116,830	88,507	22.5
<b>100</b>	177,015	132,762	25
<b>112</b>	221,269	168,164	28
<b>132</b>	314,201	234,545	33.5
<b>160</b>	420,410	296,500	37.5
<b>180</b>	557,597	398,284	40
<b>200</b>	708,060	495,642	45
<b>225</b>	885,075	628,403	47.5
<b>250</b>	1,106,343	796,567	53
<b>280</b>	1,416,119	991,283	56

As all gearmotors are fitted with **standard** motors, motor replacement is extremely easy. Simply observe the following instructions:

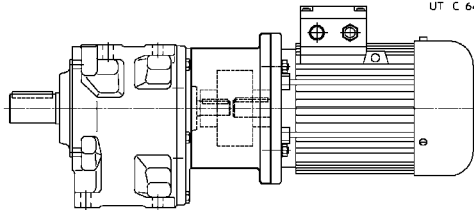
- be sure that the mating surfaces are machined under accuracy rating (IEC 60072-1);
- clean surfaces to be fitted thoroughly;
- check that the fit-tolerance (push-fit) between hole and shaft end is K6/j6 for  $D \leq 28$  mm, J6/k6 for  $D \geq 38$  mm;
- in the event of a lowered keyway, replace the motor keyway with the one supplied with the gear reducer; adjust the keyway length to the motor shaft, if need be; check that between the top and the bottom of the hole keyway there is a backlash of  $0.1 \pm 0.2$  mm; in the event of output shaft keyway, lock the key by pins;
- make sure that the motors have bearing location and overhang (distance S) as shown in the table;
- assemble on motor shaft, as follows:
  - the **spacer** pre-heated at **149 °F (65 °C)** sealing the motor shaft part with **locking adhesive type LOXEAL 58-14** and ensuring that between keyway and motor shaft shoulder there is a ground helical section of at least 1.5 mm; pay attention **not to damage the external surface** of spacer;
  - the **key** in the keyway, taking care that a brief segment of at least 0,9 times the pinion width;
  - the pinion pre-heated at **176 ÷ 212 °F (80 ÷ 100 °C)**;
  - the **axial fastening system** where foreseen (head self-locking screw with base, spacer, or hub clamp with one or more dowels, fig. a); for the cases foreseen **without axial fastening** (fig. b), seal with **locking adhesive type LOXEAL 58-14** also the motor shaft section below the **pinion**;
- in the event of axial fastening system with hub clamp and dowels, be sure that these ones do not overhang from spacer external surface: screw the dowel and matrix the motor shaft with a tip;
- grease the pinion teeth, the sealing ring rotary seat and the seal ring (with KLÜBER Petamo GHY 133N), and assemble carefully, **paying attention not to damage the seal ring lip due to accidental shock with the pinion toothing.**

## Systems of motor-gear reducer mounting

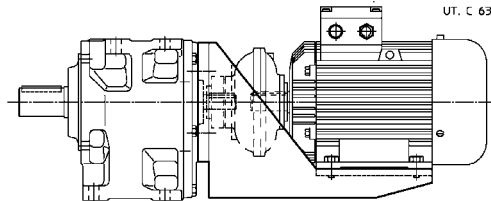
The strength and shape of housing offer **advantageous** systems of motor-gear reducer mounting: gearmotor with belt drive, mechanic or hydraulic coupling.



UT.C. 637



UT. C. 641



UT. C. 639

5

# Accessories and non-standard designs





## Strengthened high speed shaft bearings

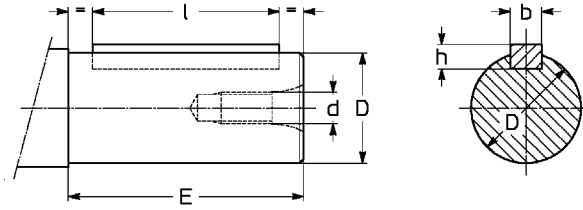
Gear reducer R 2l sizes 50, 63, 80 and sizes 51, 64, 81 with  $i_N \geq 16$  and R 3l sizes 63 ... 101 can be supplied with cylindrical roller bearings on high speed shaft so as to allow high radial loads, values **x 1.6** (ch. 13); this design is standard for all remaining gear reducers, which present cylindrical roller or taper roller bearings as a standard.

Supplementary description when ordering by **designation: strengthened high speed shaft bearings**.

## Non-standard low speed shaft end

The gear reducers and gearmotors size 40 ... 101 can be supplied with non-standard low speed shaft end; dimensions as per following table.

Gear reducer size	D Ø	E	d Ø	Keyway b x h x l
<b>40</b> <sup>1)</sup>	20 g6	40	M6	6 x 6 x 36
<b>41</b>	20 j6	36	M6	6 x 6 x 25
<b>50</b>	25 j6	50	M8	8 x 7 x 45
<b>51</b>	25 j6	42	M8	8 x 7 x 36
<b>63, 64</b>	30 k6	58	M10	8 x 7 x 45
<b>63</b> <sup>1)</sup>	35 g6	58	M10	10 x 8 x 50
<b>64</b>	35 k6	58	M10	10 x 8 x 50
<b>80</b> <sup>1)</sup>	40 g6	80	M12	12 x 8 x 70
<b>81</b>	40 k6	80	M12	12 x 8 x 70
<b>100</b> <sup>1)</sup>	50 g6	82	M12	14 x 9 x 70
<b>101</b>	50 k6	82	M12	14 x 9 x 70



1) Shaft end without shoulder.

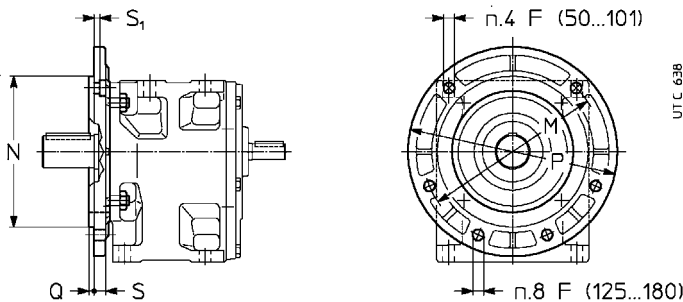
Supplementary description when ordering by **designation: nonstandard low speed shaft end, D ...** (dimension D Ø).

## Oversized B5 flange (low speed shaft)

All gear reducers and gearmotors (sizes  $\geq 50$ ) can be supplied with oversized B5 flange (always having through holes) supplied separately (complete with stud bolts) or fitted on standard B5 flange – if indicated when ordering –. Flange plane coincides with low speed shaft end shoulder.

The gear reducer is to be fastened after having fastened the flange on the machine.

Locking adhesives such as LOCTITE, should be used both on screws and coupling surfaces.



Gear reducer size	F Ø	M Ø	N Ø h6	P Ø	Q	S	S <sub>1</sub> 1)
<b>50, 51</b>	10.5	165	130	200	3.5	12	5.5
<b>63, 64</b>	13	215	180	250	4	14	6.5
<b>80, 81</b>	13	265	230	300	4	15	9
<b>100, 101</b>	17	300	250	350	5	17	10.5
<b>125, 126, 140</b>	17 <sup>B</sup>	400	350	450	5	17	—
<b>160, 180</b>	17 <sup>B</sup>	500	450	550	5	20	—

1) Screw type UNI 5931-84

Supplementary description when ordering by **designation: oversized B5 flange**.

## Design for agitators and aerators

This design has been specifically developed for aerators and agitators.

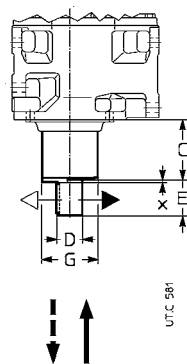
In addition to the rigid and precise **single-piece** housing, **universal** mounting, taper roller bearings (sizes 125 ... 180), the main features of this **reliable compact and economic** design are:

- extended bearing housing to improve radial and axial load ratings (sizes  $\geq 125$ : taper roller bearings) and to reduce overhangs;
- plentiful low speed shaft end diameter;
- double seals on the low speed shaft with chromium plated raceway;
- space between double seals packed with grease and top hat arrangement which acts as water splash guard for aerators;
- **oil** lubricated bearing on low speed shaft end side; additional stainless steel drain plug to facilitate complete oil drainage; all this ensures **total reliability** (gear pairs and bearings) during running and **minimum maintenance**;
- special single compound paint: antirust zinc primer plus blue RAL 5010 DIN 1843 synthetic paint.

Options:

- drip proof cover for motor (standard protection IP 55);
- special dual compound paint;
- remote oil level and/or oil temperature indicator with threshold signal (sizes  $\geq 160$ ).
- oversized B5 flange.

Axial load  $F_{a2}$  on low speed shaft end can be doubled according to direction of rotation for combinations **2** (as shown in the ch. 3.12 and in table) which are to be **preferred**; (for sizes 81 and 101 consult us for values of  $F_{a2}$ ).



Gear reducer size	C	D Ø	E	G Ø	x ≈ 1)	Axial load $F_{a2}$			
						← ↓	↑ →	↓ →	↑ ←
<b>80, 81</b>	112	45 k6	82	104	—	1	2	2	1
<b>100, 101</b>	137	55 m6	82	126	—	2	1	1	2
<b>125, 126</b>	139	70 m6	105	140	3	1	2	2	1
<b>140</b>	140	80 m6	130	159	3	1	2	2	1
<b>160</b>	168	90 m6	130	183	4	2	1	1	2
<b>180</b>	158	100 m6	165	226	4	2	1	1	2

1) Thickness of protection disc.

Supplementary description when ordering by **designation: design for agitators**.



## Gear reducer design ATEX II 2 GD and 3 GD

Coaxial gear reducers and gearmotors (sizes 32 ... 41 excluding) may be supplied according to European Community Directive ATEX 2014/34/EU in order to be used in potentially explosive atmospheres:

- category **2 GD** (for operation in zones 1 (G = gas), 21 (D = dust); **probable** presence of explosive atmosphere) and **3 GD** (for operation in zones 2 (gas), 22 (dust): **improbable** presence of explosive atmosphere) - with surface temperature  $T \leq 275 \text{ °F}$  ( $135 \text{ °C}$ ) (T4).

These are the main variations of the product:

- fluoro-rubber seal rings;
- metal plugs; filler plug with filter and valve;
- special name plate with ATEX mark and indication of application limits.
- external protection tested on a water-soluble dual-compound polyurethane **conductive** enamel, **color grey** RAL 7040, corrosivity class C3 ISO 12944-2;
- «ATEX instructions» manual.

For category 2 GD, depending on **minimum control intervals**, also:

- 2 GD monthly control
- double seal rings on low speed shaft;
- 2 GD quarterly control (size 100 ... 180)
- double seal rings on low speed shaft;
- oil temperature probe;
- bearing temperature probe, if any;

this solution is advisable when the gear reducer has difficult access or when a decrease in control frequency is required.

Operating ambient temperature:  $-4 \div 104 \text{ °F}$  ( $-20 \div +40 \text{ °C}$ ).

The «**ATEX operating instructions**» (with the additional documentation, if any) are **integral part of the supply** of each gear reducer; every indication stated in it must be carefully applied. In case of needs, consult us.

### Gear reducer size selection

Determine the size of gear reducer as indicated in ch. 5 considering following additional limitations:

- maximum input speed  $n_1 \leq 1\,500$  rpm;
- **service factor requested** determined according to ch. 3.4 increased with the factors stated in following table - **never lower than 1**.

Verify, at last, that the applied power  $P_1$  is lower than or equal to nominal thermal power  $P_{tN}$  multiplied by thermal factors  $f_{t2} \dots f_{t5}$  (see ch 4) and by corrective factor  $f_{ATEX}$  given in the following table.

ATEX design **corrective factors** for required service factor  $f_s$  and nominal thermal power  $P_{tN}$ .

Categoria ATEX - ATEX Category	$f_{sATEX}$	$f_{ATEX}$
<b>2 GD</b>	1,18	0,8
<b>3 GD</b>	1,06	0,9

### Motor category selection

In the table on the right the minimum features of motors to be installed with Rossi gear reducers in ATEX design, in potentially explosive atmosphere areas.

Protection methods of electric tools:

- EEx **e** increased safety;
- EEx **d** flameproof enclosure;
- EEx **de** combination of «d» and «e»;
- EEx **nA** reduced sparking

Zona Zone	Riduttore Rossi in esecuzione ATEX II Rossi <b>Gear reducer</b> ATEX II design	Categoria motore richiesta <sup>1)</sup> Required <b>motor</b> category <sup>1)</sup>
<b>1</b>	2 GD	2 G EEx e 2 G EEx d 2 G EEx de _____ con termistori o Pt100
<b>21</b>		2 D IP65 _____
<b>1, 21</b>		2 GD EEx e _____ with 2 GD EEx d _____ thermistors or 2 GD EEx de _____ Pt100
<b>2</b>	3 GD	3 G EEx nA _____ -
<b>22</b>		3 D IP54 <sup>2)</sup> _____ -
<b>2, 22</b>		3 GD EEx nA _____

1) The devices suitable for zone 1 are also suitable for zone 2, similarly the devices suitable for zone 21 are also suitable for zone 22.

2) For conductive dusts motor must be 2 D IP65.

Supplementary description when ordering by **designation**<sup>1)</sup>:

**design ATEX II ...**

- ... **3 GD T4** sizes 50 ... 180
- ... **2 GD T4 monthly control** sizes 50 ... 180
- ... **2 GD T4 quarterly control** sizes 100 ... 180

1) For gearmotors, this designation refers to the only **gear reducer part**.

## Optional paint

The gear reducers and gearmotors can be supplied with optional painting cycles, according to following table. Additional description when ordering by **designation: optional paint ...** (see code stated in the table; i.e.: «**optional paint 2HRAL5010**»).

Application field	Features	Corrosivity class ISO 12944-2	Durability classes ISO 12944-2	Description	Final thickness on machined parts ISO 19840 µm	Code
<b>Applications in aggressive environments</b>	Good resistance to atmospheric and aggressive agents	C4	L	Dual-compound, high-thickness epoxy primer Water-based dual-compound polyacrylic enamel	≥ 160	<b>1HRAL5010</b> (blue)
			M <sup>2)</sup>	Dual-compound, high-thickness epoxy primer Water-based dual-compound polyacrylic enamel	≥ 180	<b>2HRAL5010</b> (blue)
			H <sup>3)</sup>	Dual-compound, high-thickness epoxy primer Water-based dual-compound polyacrylic enamel	≥ 240	<b>3HRAL5010</b> (blue)
<b>Outdoor applications in saline environment</b>  1)	Excellent resistance to atmospheric and aggressive agents Outdoor applications in saline environment	C 5 <sup>1)</sup>	M	Sandblasting High zinc dual-compound anti-rust primer Dual-compound, high-thickness epoxy primer Water-based dual-compound polyacrylic enamel	≥ 240	<b>2IRAL5010</b> (blue) 1)
			H <sup>2)</sup>	Sandblasting High zinc dual-compound anti-rust primer Dual-compound, high-thickness epoxy primer Sealing with polyurethane sealant Water-based dual-compound polyacrylic enamel	≥ 280	<b>2KRAL5010</b> (blue) 1)
<b>Outdoor applications in chemically aggressive environment and high humidity industrial areas</b>  1)	Excellent resistance to atmospheric and aggressive agents Outdoor applications in chemically aggressive environment (fertilizers, etc.)	C 5 <sup>1)</sup>	M	Sandblasting High zinc dual-compound anti-rust primer Dual-compound, high-thickness epoxy primer Water-based dual-compound polyacrylic enamel	≥ 240	<b>2LRAL5010</b> (blue) 1)
			H <sup>2)</sup>	Sandblasting High zinc dual-compound anti-rust primer Dual-compound, high-thickness epoxy primer Sealing with polyurethane sealant Water-based dual-compound polyacrylic enamel	≥ 280	<b>2YRAL5010</b> (blue) 1)

1) Available for sizes ≥ 63.

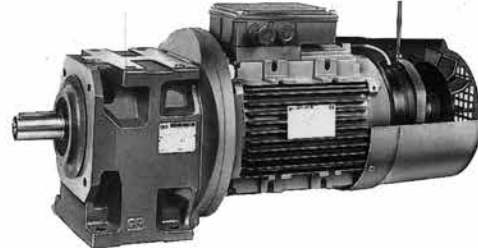
2) Not available on motors.

3) For motors ,C4H possible with cycle 2H sp ≥ 180 µm.

NOTE: cycles with specific features: antibacterial for FOOD environments, for ATEX environments, for zinc free environments available on request.

## Miscellaneous

- Gearmotors with:
  - **brake motor** (also single-phase) with d.c. **safety and/or parking brake** (sizes 63 ... 132) having overall dimensions nearly the same of a standard motor and braking torque  $M_f \geq M_N$ , maximum economy; **suitable for running with inverter**, non-standard designs with axial independent cooling fan and/or encoder (see ch. 2b);
  - **two-speed motor** (standard, brake motor, brake motor with safety brake and/or parking brake, with flywheel) with 2.4, 2.6, 2.8, 2.12, 4.6, 4.8, 6.8 poles;



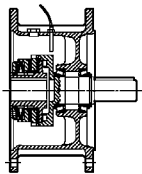
- motor featuring: d.c. supply; single-phase; explosion-proof; with second shaft end; with non-standard protection, voltage and frequency; provided with devices against overloads and overheating;
- **motor without fan** externally cooled **by natural convection** (sizes 63 ... 112); design for textile industry.
- **MLA unit, mechanical torque limiter on input shaft**, motor sizes **80 ... 200**.

Mechanical torque limiter unit to be interposed between gear reducer and B5 mounting position motor standardized to IEC (or wide belt or planetary motor-variator) or, in **combined units**, between the initial gear reducer and the final gear reducer.

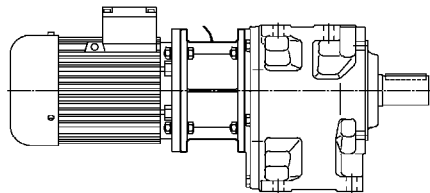
Axially ultra-compact design: excellent load bearing with life lubricated double row angular contact ball bearings (motor size  $\leq 112$ ) or «O» disposed taper roller bearings.

The unit protects the drive from accidental overloads by excluding inertia loads transmitted from up-line masses and down-line masses.

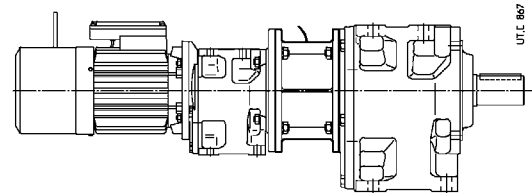
**LA unit is friction type** (friction surfaces without asbestos). When the transmitted torque tends to exceed the setting, the drive «slips» although **it remains** engaged and transmits torque equal to the limiter setting value; slipping stops as soon as the load returns to normal; in the case of very brief overloads the driven machine will continue normal operation (after decelerating or stopping) without requiring reset procedures.



MLA  
friction



MLA  
mounted between gear reducer  
and motor or motor-variator



MLA  
mounted onto combined units

\* on request

- Gearmotors with interposed compact clutch-brake or fluid coupling/brake unit.
- Semi-flexible low speed shaft couplings.
- Special paint options:
  - **external, single-compound:** antirust zinc primer plus blue RAL 5010 DIN 1843 synthetic paint (excluding 32 ... 41);
  - **external, dual-compound:** dual-compound epoxy-polyamidic antirust primer plus dual-compound blue RAL 5010 DIN 1843 polyurethane enamel;
  - **internal, dual-compound:** unaffected by polyglycol synthetic oils (sizes 100 ... 180).
- Special seal rings; double seal.

# Technical formulae





Main formulae concerning mechanical drives, according to the Technical System and International Unit System (SI).

Size	Con unità Sistema Tecnico With Technical System units	Con unità SI With SI units
starting or stopping <b>time</b> as a function of an acceleration or deceleration, of a starting or braking torque	$t = \frac{Gd^2 \cdot n}{375 \cdot M} [s]$	$t = \frac{v}{a} [s]$
<b>velocity</b> in rotary motion	$v = \frac{\pi \cdot d \cdot n}{60} = \frac{d \cdot n}{19,1} [m/s]$	$t = \frac{J \cdot \omega}{M} [s]$
<b>speed n</b> and <b>angular velocity</b> $\omega$	$n = \frac{60 \cdot v}{\pi \cdot d} = \frac{19,1 \cdot v}{d} [min^{-1}]$	$v = \omega \cdot r [m/s]$
<b>acceleration</b> or deceleration as a function of starting or stopping time		$\omega = \frac{v}{r} [rad/s]$
<b>angular acceleration</b> or deceleration as a function of a starting or stopping time, of a starting or braking torque	$\alpha = \frac{n}{9,55 \cdot t} [rad/s^2]$ $\alpha = \frac{39,2 \cdot M}{Gd^2} [rad/s^2]$	$a = \frac{v}{t} [m/s^2]$ $\alpha = \frac{\omega}{t} [rad/s^2]$ $\alpha = \frac{M}{J} [rad/s^2]$
starting or stopping <b>distance</b> as a function of an acceleration or deceleration, of a final or initial velocity		$s = \frac{a \cdot t^2}{2} [m]$ $s = \frac{v \cdot t}{2} [m]$
starting or stopping <b>angle</b> as a function of an angular acceleration or deceleration, of a final or initial angular velocity	$\varphi = \frac{n \cdot t}{19,1} [rad]$	$\varphi = \frac{\alpha \cdot t^2}{2} [rad]$ $\varphi = \frac{\omega \cdot t}{2} [rad]$
<b>mass</b>	$m = \frac{G}{g} [\frac{kgf \cdot s^2}{m}]$	$m$ è l'unità di massa [kg] $m$ is the unit of mass [kg]
<b>weight</b> (weight force)	$G$ è l'unità di peso (forza peso) [kgf] $G = m \cdot g$ [N] $G$ is the unit of weight (weight force) [kgf]	
<b>force</b> in vertical (lifting), horizontal, inclined motion of translation ( $\mu$ = coefficient of friction; $\varphi$ = angle of inclination)	$F = G$ [kgf] $F = \mu \cdot G$ [kgf] $F = G (\mu \cdot \cos \varphi + \sin \varphi)$ [kgf]	$F = m \cdot g$ [N] $F = \mu \cdot m \cdot g$ [N] $F = m \cdot g (\mu \cdot \cos \varphi + \sin \varphi)$ [N]
<b>dynamic moment Gd<sup>2</sup>, moment of inertia J</b> due to a motion of translation (numerically $J = \frac{Gd^2}{4}$ )	$Gd^2 = \frac{365 \cdot G \cdot v^2}{n^2} [kgf \cdot m^2]$	$J = \frac{m \cdot v^2}{\omega^2} [kg \cdot m^2]$
<b>torque</b> as a function of a force, of a dynamic moment or of a moment of inertia, of a power	$M = \frac{F \cdot d}{2} [kgf \cdot m]$ $M = \frac{Gd^2 \cdot n}{375 \cdot t} [kgf \cdot m]$ $M = \frac{716 \cdot P}{n} [kgf \cdot m]$	$M = F \cdot r$ [N m] $M = \frac{J \cdot \omega}{t}$ [N m] $M = \frac{P}{\omega}$ [N m]
<b>work, energy</b> in motion of translation, in rotary motion	$W = \frac{G \cdot v^2}{19,6} [kgf \cdot m]$ $W = \frac{Gd^2 \cdot n^2}{7160} [kgf \cdot m]$	$W = \frac{m \cdot v^2}{2}$ [J] $W = \frac{J \cdot \omega^2}{2}$ [J]
<b>power</b> in motion of translation, in rotary motion	$P = \frac{F \cdot v}{75} [CV]$ $P = \frac{M \cdot n}{716} [CV]$	$P = F \cdot v$ [W] $P = M \cdot \omega$ [W]
<b>power</b> available at the shaft of a single-phase motor (cos $\varphi$ = power factor)	$P = \frac{U \cdot I \cdot \eta \cdot \cos \varphi}{736} [CV]$	$P = U \cdot I \cdot \eta \cdot \cos \varphi$ [W]
<b>power</b> available at the shaft of a three-phase motor	$P = \frac{U \cdot I \cdot \eta \cdot \cos \varphi}{425} [CV]$	$P = 1,73 \cdot U \cdot I \cdot \eta \cdot \cos \varphi$ [W]

Note. Acceleration or deceleration are understood constant; motion of translation and rotary motion are understood rectilinear and circular respectively.





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