A series

Worm gear reducers and gearmotors

rossi.com

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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.

Experience

70 YEARS

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

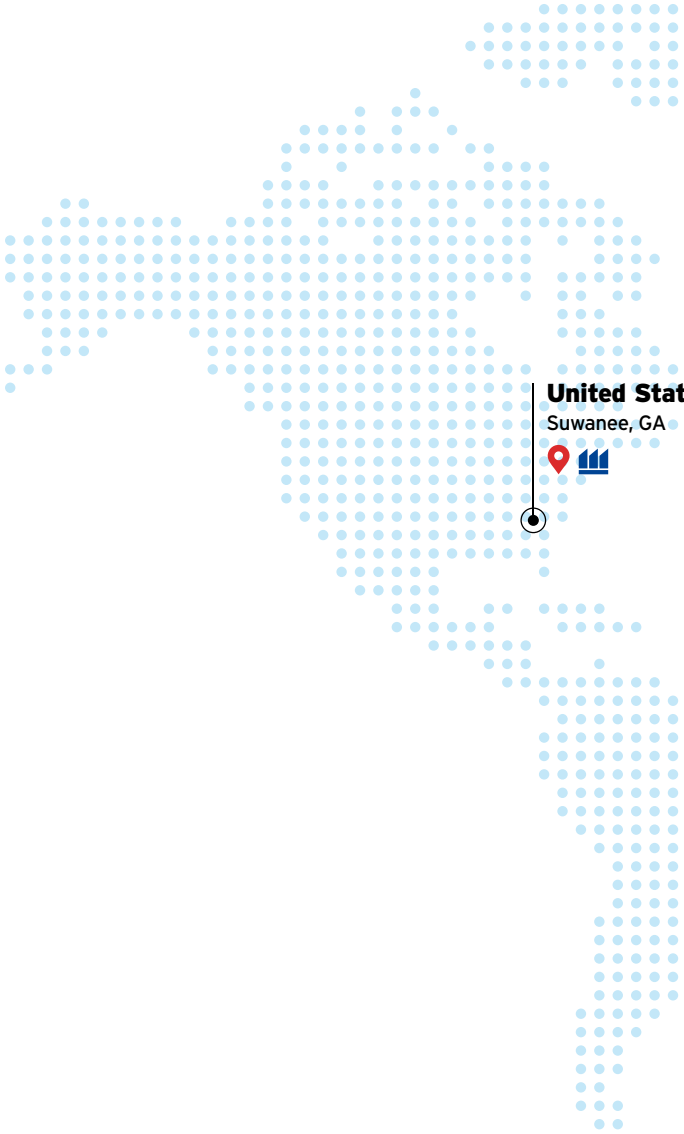
Rossi 5

Global presence local service

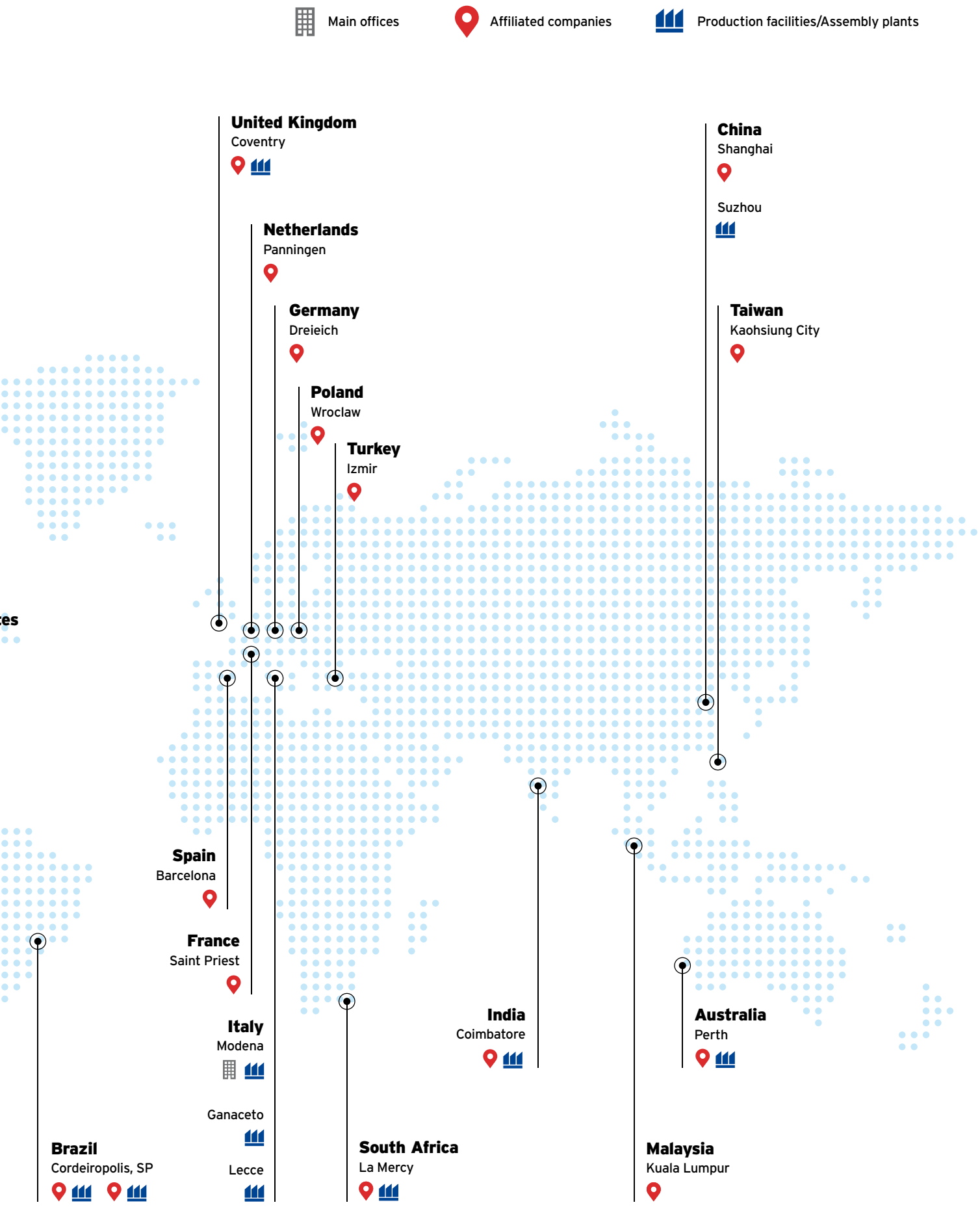
Local support
Sales, customer service,
technical support, spare parts

17 branches*

Worldwide distribution network*

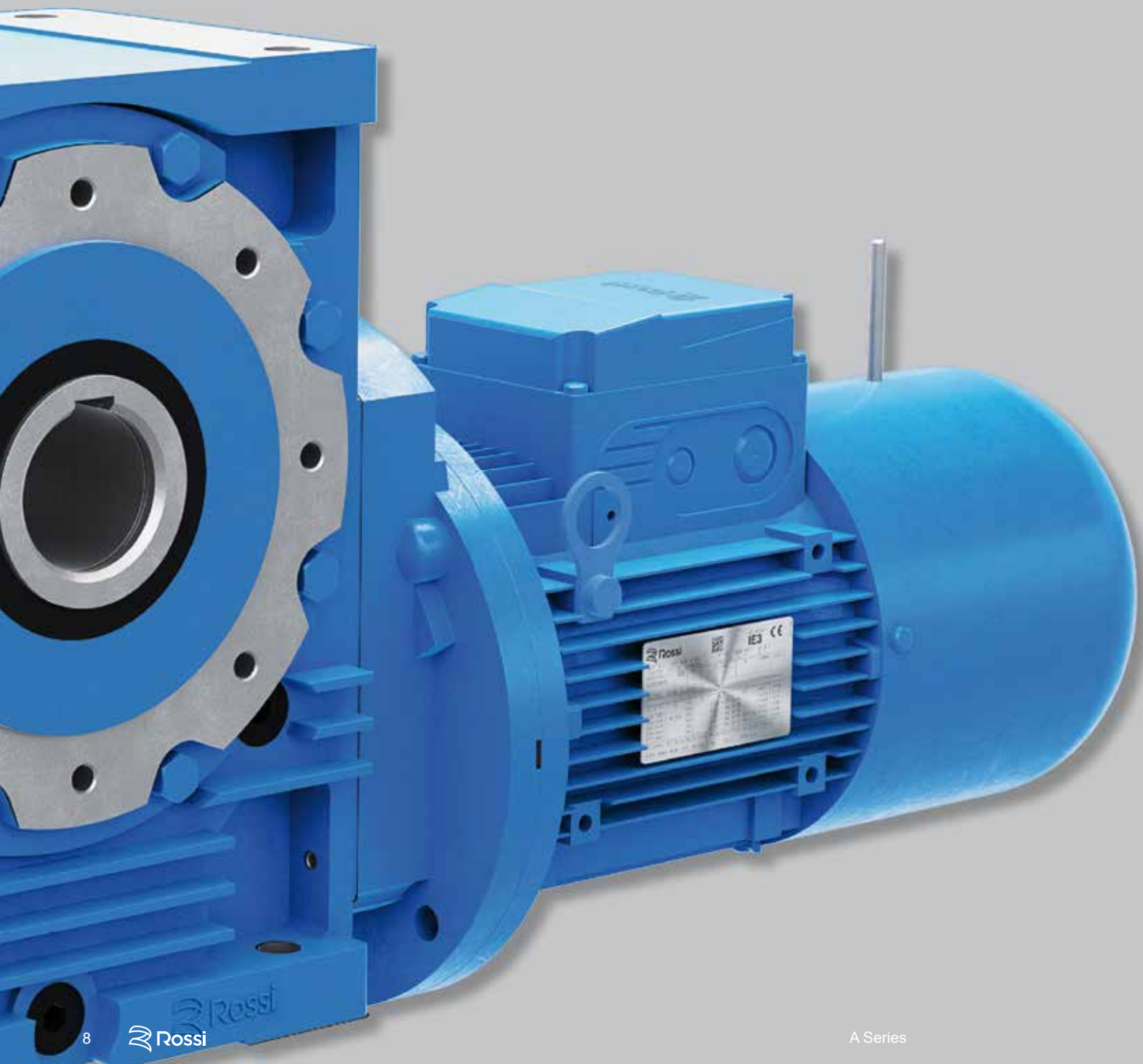


*All contacts available on **www.rossi.com**


Main offices
Affiliated companies
Production facilities/Assembly plants
United Kingdom
Coventry
Netherlands
Panningen
Germany
Dreieich
Poland
Wroclaw
Turkey
Izmir
China
Shanghai
Suzhou
Taiwan
Kaohsiung City
Spain
Barcelona
France
Saint Priest
Italy
Modena
Ganaceto
Lecce
Brazil
Cordeiropolis, SP
South Africa
La Mercy
India
Coimbatore
Malaysia
Kuala Lumpur
Australia
Perth

2

Features, benefits and range



Maximum performance

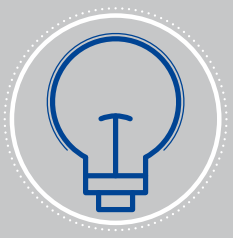
We drive the heaviest applications worldwide

Sustainability

We care about environment

Modular system

For cost–effective and high quality solutions



Innovation

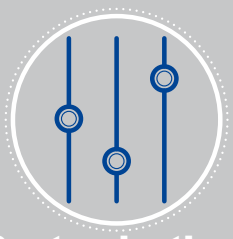
We are constantly thinking forward, solutions for an evolving industry

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

Worm gear reducers

32 ... 81

R V
with worm gear pair

R IV
with 1 cylindrical gear pair plus worm

100 ... 250

Worm gearmotors

32 ... 81

MR V
with worm gear pair

MR IV
with 1 cylindrical gear pair plus worm

100 ... 250

40 ... 81

MR 2IV
with 2 cylindrical gear pairs plus worm

100 ... 126

Combined gear reducer and gearmotors units

R V + R V

R V + R IV

MR V + R 2I, 3I

MR IV + R 2I, 3I

R V + MR V

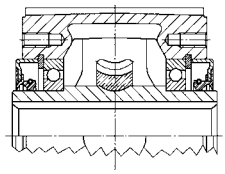
R V + MR IV

MR V + MR 2I, 3I

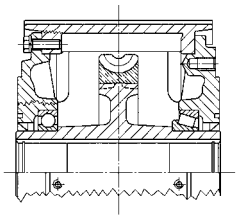
MR IV + MR 2I, 3I

Gear reducers and gearmotors (worm wheel)

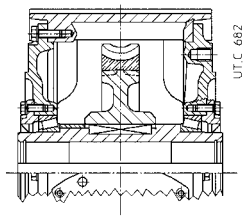
32 ... 50



63 ... 160 **161**

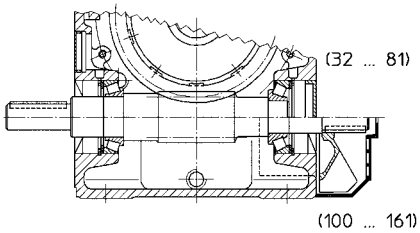


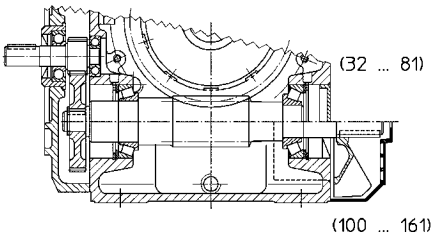
200, 250



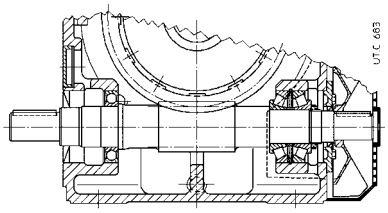
Gear reducers (worm)

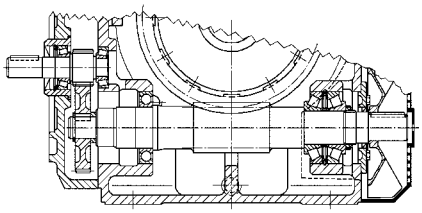
32* ... 161





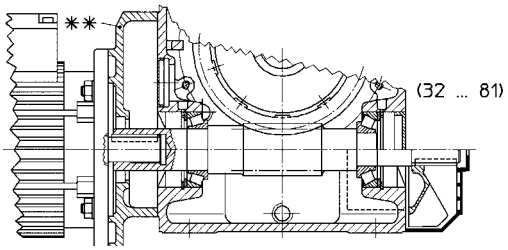
200, 250

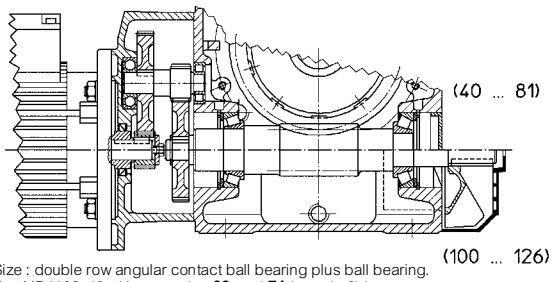




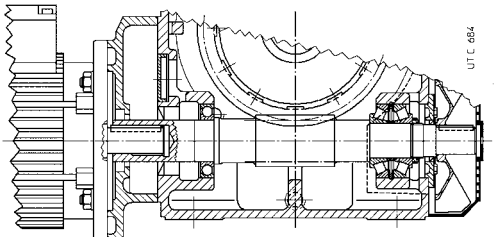
Gearmotors (worm)

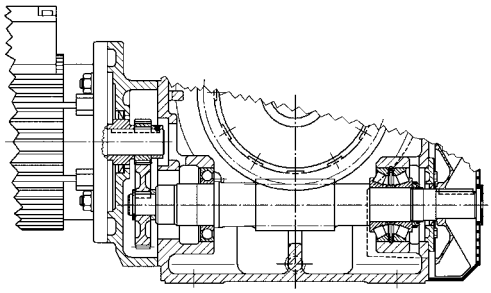
32* ... 161





200, 250





** Size : double row angular contact ball bearing plus ball bearing.
** For: MR V 32, 40 with motor size **63**, and **71** (see ch. 2b),
MR V 50 with motor size **71** and **80** (see ch. 2b),
MR V 63 ... 81 with motor size **80** and **90** (see c. 2b), motor flange is usually integral with housing.

Features, benefits and range 2

Universal mounting having **feet integral with housing** on 3 faces (sizes 32 .. 81) or on 2 faces (sizes 100 ... 250) and **B14 flange** on 2 faces. Design and strength of the casing permit **interesting shaft mounting solutions**

Thickened size and performance gradation (some sequential sizes are obtained with the same housing and many components in common)

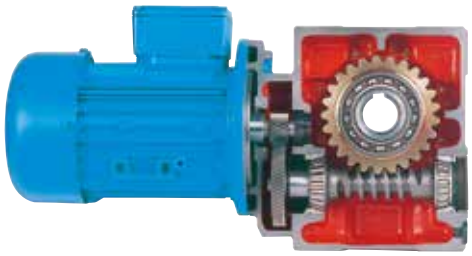
High, reliable and tested performances (Ni bronze); optimization of worm gear pair performances (ZI involute profile and adequately conjugate worm wheel profile)

Compactness, standardized dimensions and compliance with standards

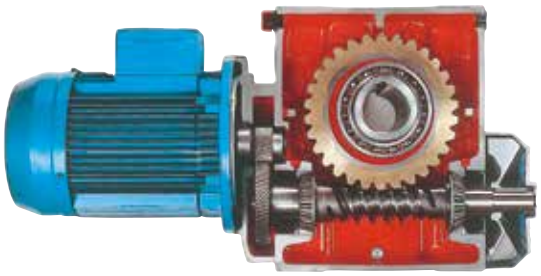
Motor standardized to IEC
Rigid and precise cast iron single-piece housing

Generous internal space between train of gears and housing allowing:

- high oil capacity;
- lower oil contamination;
- greater duration of worm wheel and worm bearings;
- lower running temperature.



32 ... 81



100 ... 250

Possibility of fitting particularly powerful motors and transmitting high nominal and maximum torques

Improved and up-graded modular construction both for component parts and assembled product which ensures manufacturing and product management flexibility

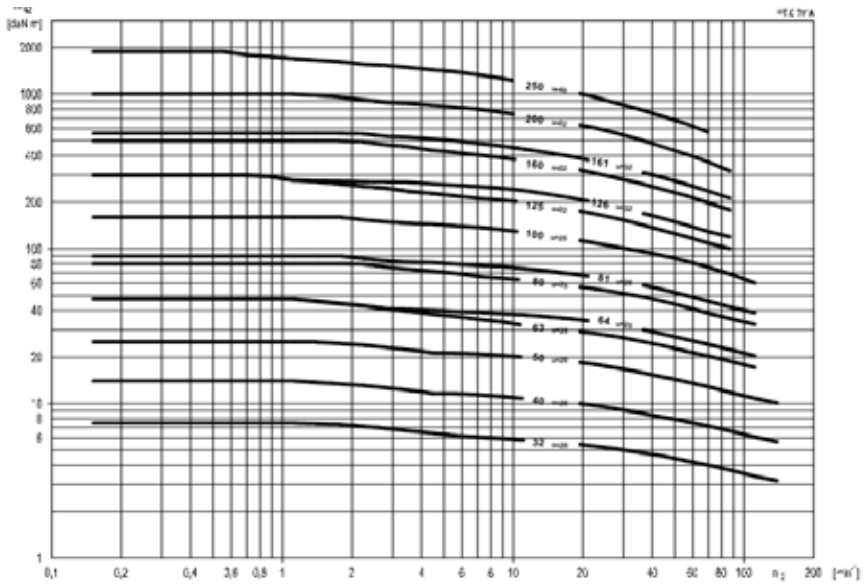
High manufacturing quality standard

Possibility of obtaining multiple drives and at synchronous speed

Wide design and acccessory availability: shaft-mounting arrangements, mixed keying systems with key and locking elements (rings for sizes 32 ... 50, bush for sizes 63 ... 250), **reduced backlash**, etc.

Reduced maintenance

A combination of modern concepts, analytical calculations carried out on **each single part**, use of the very latest machine tools, plus systematic checks on materials, assembling and workmanship, gives this series of gear reducers **high efficiency**, running **precision**, **regular** motion and **noiselessness**, **constant** performance, **life and reliability**, strength and overload withstanding and suitability for **heaviest applications**, wide size and ratio range, excellent service - **the advantages typically associated with high quality worm gear reducers produced in large series.**

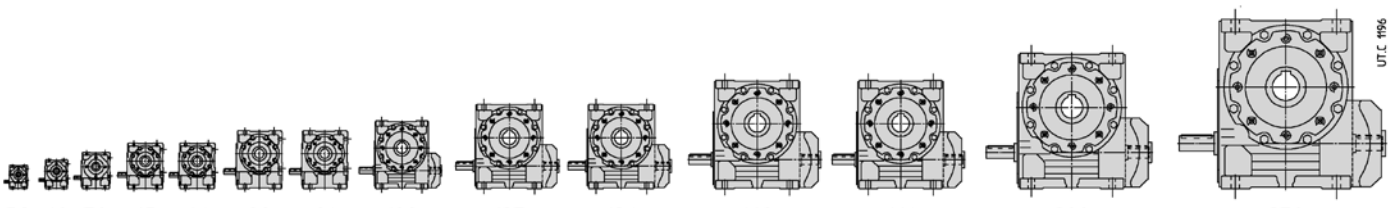


a - Gear reducer

Structural features

Main specifications are:

— **universal mounting** having **feet integral with housing** (lower, upper feet and vertical on the face opposite to motor for sizes 32 ... 81; lower and upper feet for sizes 100 ... 250) and **B14 flange** (integral with housing for sizes 32 ... 50) on 2 faces of hollow low speed shaft output. **B5 flange** with spigot «recess» which can be mounted onto B14 flanges (see chap. 5). Design and strength of the housing permit **interesting shaft mounting solutions**;



	32	40	50	63	64	80	81	100	125	126	160	161	200	250	1)
	2.8	3.23	3.94	4.92		5.91		7.09	8.86			11.02	13.19	16.14	H
	1.89	2.2	2.64	3.15		3.94		4.92	5.91			7.09	8.86	11.02	H_0
	0.748	0.945	1.102	1.26		1.496	1.575	1.89	2.362		2.576	2.953	3.543	4.331	D
	355	630	1132	1950	2375	3730	4425	7345	11770	14000	21800	25700	50000	71000	M_{N2} *
	670	1280	2212	4206		7080	7975	14160	26500		45000	50000	87500	165000	$M_{2\,Size}$
	400	560	800	1180		1800		2800	4000		6000	6700	10000	14000	F_{r2}

* concerning n_1 = 1 400 rpm and transmission ratio stated in the scheme.
1) H_1 H_0 shaft height; D Ø low speed shaft end [mm]: M_{N2}, $M_{2\,Size}$ torque [daN m]; F_{r2} radial load [daN].

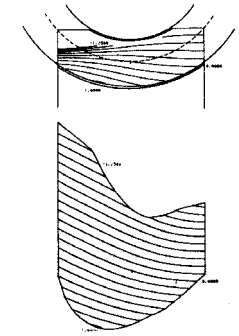
— thickened size (10 sizes with 4 size pairs with final centre distance 32 ... 250) and performance gradation; the size pairs are obtained with the same housing and with many components in common;
— gear reducer structure sized so as to accept particularly powerful motors — both MR V and MR IV — and to permit the transmission of high nominal and maximum torques at low output speeds, this being the particular advantage of worm gear pairs;
— gearmotor sizes 40 ... 126 with **2** cylindrical coaxial gear pair **first stage** in order to obtain high – **reversible** and irreversible – transmission ratios with standardized motor (63 ... 112) in a compact and economy way;
— normally, gearmotors MR V sizes 32, 40 (with motor sizes 63 and 71) 50 (with motor sizes 71 and 80) and 63 ... 81 (with motor sizes 80 and 90) have motor flange **integral** with the housing;
— hollow low speed shaft with keyway, and (sizes 63 ... 250) with circlip groove for removal purposes: in spheroidal cast iron (grey cast iron for sizes 32 and 40) integral with wormwheel (sizes 32 ... 161) or steel (sizes 200 and 250); standard (left or right extension) or double extension low speed shaft (see ch. 5).
— gear reducers: input face with machined surface (R V) or flange (R IV) and with fixing holes: wormshaft end with key, and reduced wormshaft end with circlip groove (the same as for R IV, MR IV, MR 2IV, MR V 160 ... 250 with coupling);
– gearmotors: **motor standardized to IEC directly** keyed into the worm (MR V), for motor sizes 200 ... 250 **patented** keying system to obtain easier installing and removing and avoid fretting corrosion; standardized motor with pinion directly mounted onto the shaft end (MR IV, MR 2IV);
– **fan cooling** (sizes 100 ... 250); use of **double extension worm-shaft** simply obtained by removing the fan cowl centre disc; for MR V 81 with motor 100 and 112, fan incorporated in motor mounting flange;
– bearings on worm: double row angular contact ball bearing plus ball bearing (size 32); face-to-face taper roller bearings (sizes 40 ... 161); paired back-to-back taper roller bearings plus one ball bearing (sizes 200 and 250);
– bearings on wormwheel: ball bearings (sizes 32 ... 160); taper roller bearings (sizes 161 ... 250);
– 200 UNI ISO 185 **cast iron single-piece housing** with transverse stiffening ribs, and high oil capacity;
– oil bath lubrication with **synthetic oil** (ch. 4) for **«long-life»** lubrication: units provided with one plug (sizes 32 ... 64) or two plugs (sizes 80 and 81) supplied **filled with oil**; with filler plug with **valve**, drain plug and level plug (sizes 100 ... 250) supplied **without oil**; sealed;
– **paint: external** coating in epoxy powder paint (sizes 32 ... 81) or water based dual compound acrylic-polyurethane resin basis enamel (sizes 100 ... 250) 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 ... 81) suitable to resist to synthetic oils or with synthetic paint (sizes 100 ... 250) suitable to resist synthetic oils.
– possibility of obtaining combined gear reducer and gearmotor units providing high transmission ratios with different train of gears depending on overall dimension, efficiency, and final output speed requirements.

Train of gears:

- worm gear pair; 1 cylindrical gear pair plus worm; with 2 cylindrical gear pairs plus worm gear pair (gearmotor only);
- worm gear pairs, with **whole-number** transmission ratios (i = 10 ... 63) **identical** for the different sizes; i = **7** for MR V 32 ... 81;
- 10 sizes having 4 sizes pairs (standard and strengthened) with final reduction center distance to R 10 series (32 ... 250) for a total of **14 sizes**;
- nominal transmission ratios to R 10 series (10 ... 315; up to 16 000 for combined units);
- casehardened and hardened cylindrical worm in 16 CrNi4 or 20 MnCr5 UNI 7846-78 steel (depending on size) with ground and **superfinished involute** profile **(ZI)**;
- wormwheel with profile especially conjugate to the worm through hob optimization, with hub in spheroidal or grey cast iron (depending on size) and **Ni bronze** CuSn12Ni2-B (EN1982-98) gear rim with high pureness and controlled phosphor contents;
- casehardened and hardened cylindrical gear pair in 16CrNi4 UNI 7846-78 steel with ground profile and helical toothing;
- train of gear load capacity calculated for breakage and wear; thermal capacity verified.

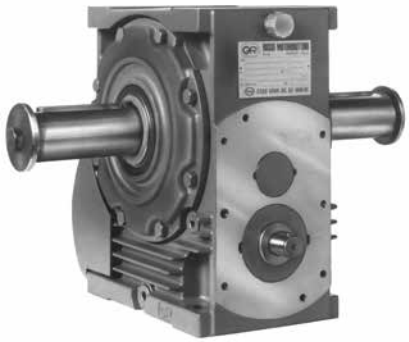
Specific standards:

- nominal transmission ratios and principal dimensions according to UNI 2016 standard numbers (DIN 323-74, NF X 01.001, BS 2045-65, ISO 3-73);
- basic rack to BS 721-83; involute profile (ZI) to UNI 4760/4-77 (DIN 3975-76), ISO/R 1122/2-69);
- shaft heights to UNI 2946-68 (DIN 747-67, NF E 01.051, BS 5186-75, ISO 496-73);
- fixing flanges B14 and B5 (the latter with spigot «recess») taken from UNIL 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 22.051, BS 4506-70, ISO/R775/88) with tapped butt-end hole to UNI 9321 (DIN 332 BI. 2-70, NF E 22.056) excluding d-D diameter ratio;
- parallel keys to UNI 6604-69 (DIN 6885 BI. 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 UNEL 05513-67 (DIN 42950-64, IEC 34;7);
- worm gear pair load capacity and efficiency to **BS 721-83** integrated with ISO/CD 14521.



Lines of contact and area of action determined by computer to check on each individual gear pair design.

Fan cowl centre disc removed so as to utilize double extension wormshaft.



Gear reducer design UO2B:
reduced wormshaft end (also suitable for R IV, MR IV, MR 2IV, MR V160 ... 250 with coupling). Double extension low speed shaft.

b - Electric motor

Gearmotor dimensions and masses of present catalog (see ch. 3.8 and 3.10) refer to HB and HBZ motors (cat. TX).

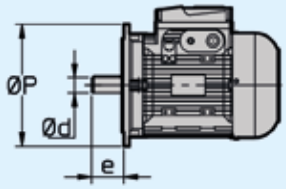
- motor **standardized to IEC**;
- asynchronous three-phase, totally-enclosed, externally ventilated, with cage rotor;
- single polarity, frequency 50 Hz, voltage Δ 230 V Y 400 V (size ≤ 132), Δ 400 V (size ≥ 160);
- IP 55 protection, insulation class F, temperature rise class B;
- rated power delivered 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), altitude 3 200 ft;
- 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 derivates 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 $M_f \approx 2\ M_N$) 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 ≤ 160S); removable lever rod.

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

Main coupling dimensions



IEC 60072
(UNEL 13117-17, DIN 43677 Bl. 1.A-65)

Motor mounting position

Motor size	IM **B5** Ød	e	-	ØP	**B5R** Ød	e	-	ØP	**B5A** Ød	e	-	ØP
63	11	23	-	140		–				–		
71	14	30	-	160	11	23	-	140	14	30	-	140
80	19	40	-	200	14	30	-	160	19	40	-	160
90	24	50	-	200	19	40	-	200		–		
100, 112	28	60	-	250	24	50	-	200		–		
132	38	80	-	300	28	60	-	250		–		
160	42	110	-	350	38	80	-	300		–		
180	48	110	-	350		–				–		
200	55	110	-	400	48	110	-	350		–		
225	60	140	-	450		–				–		
250	65	140	-	550	60	140	-	450		–		

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.

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

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

Duty			Motor size[1] 63 ... 90	100 ... 132	160 ... 280
S2	duration of running	**90 min**	1	1	1.06
		60 min	1	1.06	1.12
		30 min	1.12	1.18	1.25
		10 min	1.25	1.25	1.32
S3	cyclic duration factor	**60%**	1.12		
		40%	1.18		
		25%	1.25		
		15%	1.32		
S4 ... S10			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 remains unchanged, providing that higher temperature rise values are acceptable, 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 would 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 3,200 ft (1 000 m), it has to be derated according to the following tables:

Ambient temperature [°F]	**86**	**104**	**113**	**122**	**131**	**140**
P/P_N [%]	106	100	96.5	93	90	86.5

Altitude a.s.l. [ft]	**3 300**	**4 900**	**6 600**	**8 200**	**9 800**	**11 500**	**13 100**
P/P_N [%]	100	98	92	88	84	80	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 derivates;
- 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 EN 60034-1);
- 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);
- 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.

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**

Features, benefits and range

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, on request for 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**»[1] **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.

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
fs	service factor	–
ft	thermal factor	–
G	weight (weight force)	lb
i	transmission ratio	–
i_N	nominal transmission ratio	–
L_h	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_{2i}	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
Pt	thermal power	hp
Pt_N	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_{2i}	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
ta	starting time	s
tb	braking time	s
U	voltage	V
W	work, energy	10^6 lb in
WK	moment of inertia	lb ft²
WK_0^2	moment of inertia (of mass) of the motor	lb ft²
WK_1^2	moment of inertia (of mass) of the gear reducer referred to high speed shaft	lb ft²
WK_R^2	external (gear reducer, coupling, driven machine) moment of inertia (of mass) referred to to high speed shaft	lb ft²
z	starting frequency	starts/h
z_0	no load starting frequency	starts/h
	angular acceleration	rad/s²
	efficiency	–
	plane angle	rad
a_1	revolution of motor shaft during acceleration	rad
b_1	revolution of motor shaft during deceleration	rad
	agular 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)		
Length, Distance	1	inch	[in]	= 0.0254	meter	[m]	
	1	foot	[ft]	= 0.3048			
Mass	1	pound	[lb]	= 0.4536	kilogram	[kg]	
	1	ounce	[oz]	= 0.0283			
Volume	1	US liquid gallon	[gal]	= 3.7854	liter	[l]	
Temperature	1	Fahrenheit degree	[°F]	= 1.8 · °C + 32	Celsius degree	[°C]	
Force	1	pound-force	[$lb_{(f)}$]	= 4.4482	newton	[N]	
				= 0.4536	kilogram force	[$kg_{(f)}$]	
Power	1	horse power	[hp]	= 0.7457	kilowatt	[kW]	
Torque, Work	1	pound-force inch	[$lb_{(f)}$ in]	= 0.1130	newton meter, joule	[N m], [J]	
				= 0.0115	kilogram-force meter	[$kg_{(f)}$ m]	
	1	pound-force foot	[$lb_{(f)}$ ft]	= 1.3560	newton meter, joule	[N m], [J]	
				= 0.1383	kilogram-force meter	[$kg_{(f)}$ m]	
Pressure	1	pound-force per square inch (psi)	[$lb_{(f)}$/in²]	= 0.0689	bar	[bar]	
Moment of inertia	1	WK²	[$lb_{(f)}$ ft²]	= 0.0421	kilogram square-meter	[kg m²]	

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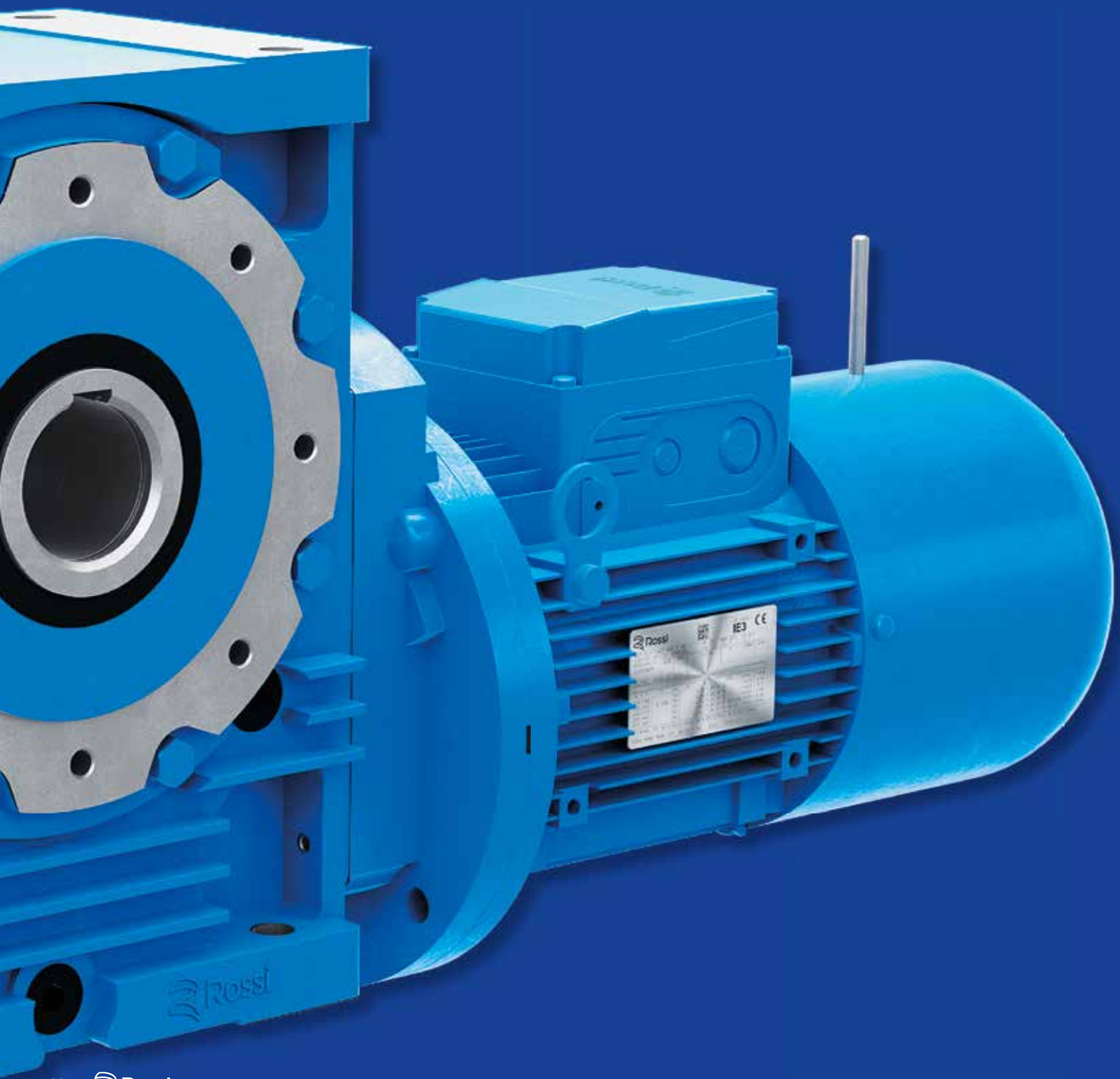
3

Product overview



Section content

Designation code

R	V	250	U	O	2	A			–	50	B3			
MR	V	80	U	O	3	A	-	24 × 200	–	25	V5		HB3 90L4 230.400-50 B5	TB3

TERMINAL BOX POSITION
(see page 25)

MOTOR DESIGNATION
(see page 25)

INPUT SPEED
(see page 25)

MOUNTING POSITION
(see page 25)

TRANSMISSION RATIO

IEC MOTOR COUPLING DIMENSIONS
Ød × **ØP** (see ch. 2b)

DESIGN
- **A** normal
- **B** reduced worm shaft end
- **C** double extension worm shaft with reduced end
- **D** double extension worm shaft

MODEL
- **3** sizes 32 ... 81
- **2** sizes 100 ... 250

SHAFT POSITION
- **O** orthogonal

MOUNTING
- **U** universal

SIZE
- **32 ... 250** final reduction center distance [mm]

TRAIN OF GEARS
- **V** worm gear pair
- **IV** 1 cylindrical and 1 worm gear pair
- **2IV** 2 cylindrical gear pairs and 1 worm gear pair

MACHINE
- **R** gear reducer
- **MR** gearmotor

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; e.g.: B14 flange fastening and derivatives; B5 flange fastening and derivatives, see ch.5).

When having no particular needs, **prefer B3 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, in the following cases:

– n_1 > 1400 rpm;

– for gear reducer sizes 200 and 250 mounting position B7

Example:

R V 250 UO2A / 50 n_1 = **560 rpm**, **mounting position B7**

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 V 200 UO2A - 48 × 350 – 25

HB3 180M 4 400-50 B5

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

Example:

MR V 200 UO2A - 48 × 350 – 25

HBZ 180M 4 400-50 B5

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

Esempio:

MR V 200 UO2A - 48350 – 25

without motor

When motor is supplied by the **Buyer**[1)], 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 V 200 UO2A - 48350 – 25

motore supplied by us

Motor terminal box position

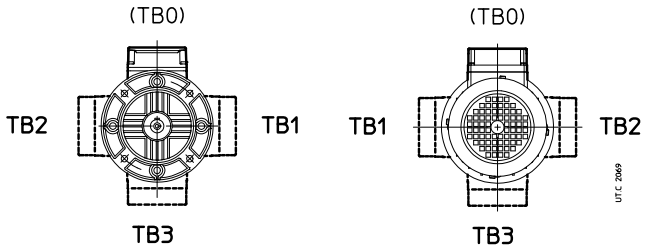
Complete the designation stating the motor terminal box position if differing from the standard one (TB0; see ch. 10 and scheme below); the cable input is Buyer's responsibility.

Example:

MR V 200 UO2A - 48350 / 25

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).

Thermal power *Pt* [hp] 3.2

Nominal thermal power Pt_N, written in red in the tables in the following page, is that which can be applied at the gear reducer input without exceeding 203 °F[1] (95 °C) approximately oil temperature when operating in following running conditions:
- input speed n_1 = 1 400 rpm;
- mounting position B3;
- continuous duty S1;
- maximum ambient temperature 104 °F (40 °C);
- maximum altitude 3200 ft above sea level;
- air speed ⩾ 0,38 ft/s (typical value in presence of a gearmotor with self cooled motor).

Wherever nominal thermal power Pt_N is indicated in ch 3.5 and 3.7 it should be always verified that the applied power P_1 is less than or equal to gear reducer nominal thermal power Pt_N multiplied by the corrective coefficients ft_2, ft_3, ft_4, ft_5 (stated in the following tables) considering the several operational conditions:

$$P_1 \leqslant Pt_N \cdot ft_2 \cdot ft_3 \cdot ft_4 \cdot ft_5$$

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.

Thermal factor ft_2 according to **ambient temperature** and **duty**

Maximum ambient temperature [°F]	ft_2 Continuous duty **S1**	ft_2 Intermittent duty **S3 ... S6** Cyclic duration factor for 60 min running[2]			
		60	**40**	**25**	**15**
122	0.8	0.95	1.06	1.18	1.32
104	**1**	1.18	1.32	1.5	1.7
86	1.18	1.4	1.6	1.8	2
68	1.32	1.6	1.8	2	2.24
50	1.5	1.8	2	2.24	2.5

Thermal factor ft_3 according to **mounting position**

Train of gears	ft_3 Mounting position	
	B3, B8, V5, V6	**B6, B7**
V	1	0.9
IV, 2IV	1	1

Thermal factor ft_4 according to **altitude**

Altitude a.s.l [ft]	ft_4
⩽ 3 300	**1**
3 300 ÷ 6 600	0.95
6 600 ÷ 9 800	0.9
9 800 ÷ 13 100	0.85
⩾ 13 100	0.8

Thermal factor ft_5 according to **air speed** on the housing

Air speed ft/s	Working environment	ft_5
< 2	very small or no air movement or gear reducer shielded	consult us
2	small and with limited air movement	0.71
3.15	large and without ventilation	0.9
4	large and with slight ventilation (e.g. gearmotor with self-cooled motor)	**1**
8	outdoor ventilated	1.18
12.5	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.
7) (Duration of running on load / 60) · 100 [%].

Pt_N for gear reducers and gearmotors

size **32**

n_{worm} [1] rpm	u_{worm} 7	10	13	16	20	25	32	40	50	63
1 400	0.82	0.67	–	–	0.44	–	–	–	–	–
1 120	–	0.61	–	–	0.4	–	–	–	–	–
900	–	–	–	–	–	–	–	–	–	–
710	–	–	–	–	–	–	–	–	–	–
560	–	–	–	–	–	–	–	–	–	–
450	–	–	–	–	–	–	–	–	–	–

size **40**

n_{worm} [1] rpm	u_{worm} 7	10	13	16	20	25	32	40	50	63
1 400	1.14	0.93	0.84	0.77	0.6	0.55	0.49	–	–	–
1 120	1.04	0.84	0.76	0.69	0.55	0.49	0.45	–	–	–
900	0.94	0.76	0.7	0.64	0.5	0.46	–	–	–	–
710	0.87	0.7	0.63	0.58	0.45	0.41	–	–	–	–
560	0.8	0.64	–	–	0.41	–	–	–	–	–
450	–	–	–	–	0.38	–	–	–	–	–

size **50**

n_{worm} [1] rpm	u_{worm} 7	10	13	16	20	25	32	40	50	63
1 400	1.72	1.4	1.29	1.18	0.92	0.84	0.76	0.68	–	–
1 120	1.58	1.28	1.16	1.06	0.83	0.76	0.68	0.62	–	–
900	1.43	1.16	1.05	0.96	0.75	0.69	0.63	–	–	–
710	1.31	1.05	0.96	0.88	0.69	0.63	0.57	–	–	–
560	1.2	0.96	0.88	0.81	0.63	0.58	–	–	–	–
450	1.1	0.89	0.82	0.75	0.58	0.54	–	–	–	–
355	1.01	0.81	–	–	0.53	–	–	–	–	–
280	–	–	–	–	0.5	–	–	–	–	–

sizes **63, 64**

n_{worm} [1] rpm	u_{worm} 7	10	13	16	20	25	32	40	50	63
1 400	2.73	2.34	1.97	1.81	1.67	1.3	1.17	1.08	0.96	–
1 120	2.49	2.13	1.79	1.64	1.5	1.17	1.06	0.97	–	–
900	2.28	1.93	1.62	1.48	1.37	1.06	0.95	0.88	–	–
710	2.07	1.75	1.46	1.34	1.24	0.96	0.87	–	–	–
560	1.9	1.61	1.34	1.23	–	0.88	0.8	–	–	–
450	1.76	1.48	1.24	1.14	–	0.82	–	–	–	–
355	1.62	1.37	1.13	1.04	–	0.74	–	–	–	–
280	1.51	1.27	1.06	–	–	–	–	–	–	–

sizes **80, 81**

n_{worm} [1] rpm	u_{worm} 7	10	13	16	20	25	32	40	50	63
1 400	4.15	3.59	3.04	2.82	2.58	2.1	1.83	1.66	1.49	1.32
1 120	3.82	3.28	2.76	2.54	2.34	1.82	1.65	1.5	1.35	–
900	3.51	2.99	2.51	2.31	2.11	1.65	1.49	1.36	1.23	–
710	3.17	2.7	2.27	2.09	1.91	1.49	1.35	1.23	1.11	–
560	2.89	2.46	2.06	1.89	1.75	1.36	1.22	1.13	–	–
450	2.67	2.28	1.9	1.75	1.61	1.24	1.13	1.05	–	–
355	2.47	2.09	1.73	1.6	1.49	1.14	1.04	–	–	–
280	2.31	1.94	1.61	1.49	–	1.06	0.96	–	–	–
224	2.11	1.8	1.5	–	–	0.99	–	–	–	–
180	1.98	1.69	1.4	–	–	–	–	–	–	–
140	1.8	–	–	–	–	–	–	–	–	–
112	–	–	–	–	–	–	–	–	–	–

size **100**

n_{worm} [1] rpm	u_{worm} 7	10	13	16	20	25	32	40	50	63
1 400	–	9.8	8.5	7.8	7.2	5.7	5.1	–	–	–
1 120	–	8.5	7.3	6.6	6.2	4.84	4.32	–	–	–
900	–	7.2	6.2	5.6	5.3	4.12	3.67	3.4	–	–
710	–	6.2	5.3	4.8	4.45	3.5	3.11	2.87	–	–
560	–	5.3	4.49	4.08	3.79	2.97	2.64	2.44	–	–
450	–	4.59	3.9	3.54	3.3	2.56	2.3	–	–	–
355	–	4.02	3.41	3.09	2.89	2.24	2.01	–	–	–
280	–	3.55	3.01	2.76	2.57	1.99	1.79	–	–	–
224	–	3.18	2.69	2.44	–	1.78	1.59	–	–	–
180	–	2.88	2.42	2.21	–	1.6	–	–	–	–
140	–	2.52	2.12	–	–	1.4	–	–	–	–
112	–	2.25	1.9	–	–	–	–	–	–	–

sizes **125, 126**

n_{worm} [1] rpm	u_{worm} 7	10	13	16	20	25	32	40	50	63
1 400	–	15.2	14	12.2	11.2	10.4	8	7.1	6.6	5.9
1 120	–	13.1	11.9	10.3	9.5	8.8	6.7	6	5.6	–
900	–	11.3	10.2	8.9	8.1	7.5	5.8	5.1	4.76	–
710	–	9.6	8.7	7.5	6.9	6.4	4.89	4.36	4.03	–
560	–	8.3	7.4	6.4	5.8	5.4	4.17	3.7	3.44	–
450	–	7.2	6.4	5.6	5.1	4.7	3.6	3.21	2.99	–
355	–	6.2	5.6	4.81	4.4	4.11	3.12	2.81	–	–
280	–	5.5	4.99	4.27	3.92	3.64	2.77	2.49	–	–
224	–	4.91	4.46	3.81	3.49	3.24	2.48	2.23	–	–
180	–	4.42	3.98	3.4	3.11	–	2.21	2.01	–	–
140	–	3.9	3.51	3.01	2.75	–	1.97	–	–	–
112	–	3.48	3.14	2.68	–	–	1.75	–	–	–
90 [2]	–	3.14	2.85	–	–	–	–	–	–	–

size **160, 161**

n_{worm} [1] rpm	u_{worm} 7	10	13	16	20	25	32	40	50	63
1 400	–	23.4	21.8	18.9	17.4	16.1	12.5	11.4	10.3	9.3
1 120	–	20.2	18.9	16.3	14.9	13.8	10.8	9.7	8.7	7.8
900	–	17.4	16.1	13.9	12.7	11.8	9.1	8.3	7.5	6.7
710	–	15	13.8	11.8	10.8	10	7.7	7	6.3	5.7
560	–	12.8	11.8	10.1	9.2	8.5	6.6	6	5.4	4.82
450	–	11.1	10.2	8.7	8	7.4	5.7	5.1	4.67	4.17
355	–	9.6	8.8	7.5	6.9	6.4	4.81	4.44	4.05	3.65
280	–	8.5	7.8	6.7	6.1	5.6	4.32	3.94	3.6	–
224	–	7.6	7	5.9	5.4	5	3.86	3.51	3.23	–
180	–	6.9	6.3	5.4	4.86	4.49	3.48	3.16	2.89	–
140	–	6	5.5	4.63	4.26	–	3.02	2.78	2.32	–
112	–	5.4	4.92	4.16	3.81	–	2.71	2.5	–	–
90 [2]	–	4.81	4.42	3.74	3.43	–	2.46	2.25	–	–

size **200**

n_{worm} [1] rpm	u_{worm} 7	10	13	16	20	25	32	40	50	63
1 400	–	–	33.1	31.3	27	25.1	19.4	17.7	16.2	14.5
1 120	–	–	28.6	26.9	23.2	21.5	16.7	15	13.9	12.3
900	–	–	24.7	23.1	20	18.3	14.5	12.8	11.7	10.5
710	–	–	21.2	19.9	17	15.7	12.2	10.9	10	8.9
560	–	–	18.2	17	14.5	13.4	10.4	9.3	8.5	7.6
450	–	–	15.8	14.7	12.6	11.6	9	8	7.3	6.5
355	–	–	13.7	12.7	10.8	10	7.7	6.9	6.3	5.7
280	–	–	12	11.2	9.5	8.8	6.8	6.1	5.6	–
224	–	–	10.7	10	8.5	7.8	6	5.4	5	–
180	–	–	9.6	9	7.6	7	5.4	4.85	4.52	–
140	–	–	8.4	7.8	6.6	6.1	4.74	4.25	3.93	–
112	–	–	7.5	7.1	5.9	5.5	4.17	3.83	–	–
90 [2]	–	–	6.8	6.3	5.3	4.93	3.79	3.46	–	–

size **250**

n_{worm} [1] rpm	u_{worm} 7	10	13	16	20	25	32	40	50	63
1 400	–	–	–	48.5	41.2	39.4	35.5	27.3	25.7	23.2
1 120	–	–	–	42.2	36	34	30.2	23.8	22.1	19.7
900	–	–	–	36.8	31	29.6	25.9	20.4	18.9	16.8
710	–	–	–	31.2	26.4	25	22.2	17.3	16	14.4
560	–	–	–	26.9	22.8	21.4	18.8	14.9	13.6	12.2
450	–	–	–	23.4	19.7	18.6	16.3	12.8	11.8	10.6
355	–	–	–	20.2	17	15.9	14	11	10.1	9.1
280	–	–	–	17.7	14.9	14	12.3	9.6	8.9	8
224	–	–	–	15.8	13.1	12.4	11	8.5	7.9	7.2
180	–	–	–	14.2	11.8	11.1	9.8	7.7	7.1	6.4
140	–	–	–	12.5	10.3	9.8	–	6.7	6.2	–
112	–	–	–	11	9.1	8.6	–	5.9	5.6	–
90 [2]	–	–	–	9.9	8.3	7.8	–	5.4	5	–

1) For worm speed n_x intermediate between two stated values (n_{sup}, n_{inf}), select the nearest lower value or interpolate: $Pt_{N\text{-}nx} = (Pt_{N\text{-}n\,sup} - Pt_{N\text{-}n\,inf}) \cdot (n_x - n_{inf}) / (n_{sup} - n_{inf}) + Pt_{N\text{-}n\,inf}$

2) For $n_{worm} < 90$ rpm, consult us.

Service factor *fs* 3.3

Service factor *f*s 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 catalogue are nominal (i.e. valid for *f*s = 1) for gear reducers, corresponding to the *f*s 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).

Nature of load of the driven machine		Running time [h]				
		3 150	**6 300**	**12 500**	**25 000**	**50 000**
Ref.	Description	≤ 2 h/d	2 ÷ 4 h/d	4 ÷ 8 h/d	8 ÷ 16 h/d	16 ÷ 24 h/d
a	**Uniform**	0.67	0.85	1	1.25	1.6
b	**Moderate overloads** (1.6 × normal)	0.85	1.06	1.25	1.6	2
c	**Heavy overloads** (2.5 × normal)	1	1.25	1.5	1.9	2.36

Service factor based on frequency of starting referred to the nature of load.

Load ref.	Frequency of starting *z* [starts/h]							
	4	**8**	**16**	**32**	**63**	**125**	**250**	**500**
a	1	1.06	1.12	1.18	1.25	1.32	1.4	1.5
b	1	1	1.06	1.12	1.18	1.25	1.32	1.4
c	1	1	1	1.06	1.12	1.18	1.25	1.32

Details of service factor and considerations.
Given *f*s values are valid for:

- electric motor with cage rotor, direct on-line starting up to 12.5 hp, star-delta starting for higher power ratings; for direct on-line starting above 12.5 hp or for brake motors, select *f*s according to a frequency of starting double the actual frequency; for internal combustion engines multiply *f*s 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*s 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 z, other considerations) with reference to ch. 3.3.
— Determine service factor fs on the basis of running conditions (ch. 3.3).
— 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 $P_2 \cdot fs$ (ch. 3.5).
— Calculate power P_1 required at input side of gear reducer using — the formula $\frac{P_2}{\eta}$, where $\eta = \frac{P_{N2}}{P_{N1}}$ is the efficiency of the gear reducer (ch. 3.5).

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 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} and axial load F_{a2} by referring to instructions and values given in ch. 3.11 and 3.13.
— 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, irreversible or with low reversibility gear reducers in which the wormwheel becomes driving member due to the driven machine inertia, applied power higher than that required, other static or dynamic causes — verify that the maximum torque peak (ch. 3.13) is always less than M_{2max} (ch. 3.5); if it is higher or cannot be evaluated, in the above cases, install a safety device so that M_{2max} will never be exceeded.
— When nominal thermal power Pt_N is indicated in red in ch. 3.5, 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 z, other considerations) with reference to ch. 3.3.
— Determine service factor fs on the basis of running conditions (ch. 3.3).
— Select the gearmotor size on the basis of n_2, fs, P_2 (ch. 3.7).

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

basis of a lower service factor ($fs \cdot \frac{P_2 \text{ required}}{P_2 \text{ available}}$)

provided it is certain that this excess power available will never be required and frequency of starting 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} and axial load F_{a2} 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;

– Verify, in case of **motors supplied by the customer**, that the s**tatic 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 (e.g.: **shaft mounting arrangements**): consult us for the study of every specific case

this will normally be required for brake motors only.

- 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, irreversible or with low reversibility gear reducers in which the wormwheel becomes driving member due to the driven machine inertia, other static or dynamic causes – verify that the maximum torque peak (ch. 3.13) is always less than M_{2max} (ch. 3.5); if it is higher or cannot be evaluated, in the above instances, install suitable safety devices so that M_{2max} will never be exceeded. M_{2max} value can be read off in ch. 3.5 against the corresponding speed n_2 and transmission ratio i of the worm gear pair.
- When nominal thermal power Pt_N is indicated in red in ch. 3.7, 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.

Determining the final gear reducer size

- 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) and of n_2 (see *, ** ch. 3.9).
- Select the final gear reducer size and the corresponding efficiency η (ch. 3.9, table A), on the basis of n_2 and a torque value M_{N2} greater than or equal to $M_2 \cdot fs$ (the η value shown can be taken as valid even if the final gear reducer's train of gears is type IV).
  For $fs < 1$ verify that $M_2 \leq M_{2\ Size}$.

Determining the type of combined unit

- Select the final gear reducer basic reference, and the type and size of initial gear reducer or gearmotor (ch. 3.9 table B), on the basis of the final gear reducer size, and of the type of combined unit selected.

When selecting the type of unit, refer to the drawings in table B bearing in mind the following considerations:

gear reducer: gives greater operational flexibility; stress deriving from starting and heavy duty can be diminished thanks to the possibility of locating couplings (flexibile, centrifugal, fluid, safety or friction type), belt drives, etc. between gear reducer and motor;

gearmotor: provides a more compact and economical solution compared to the equivalent gear reducer combined unit;

combined units **R V** + R V or MR V; **R V** + R IV or MR IV: input and output shafts can be either parallel or orthogonal, overall dimensions are kept to a minimum, especially within the plane perpendicular to the low speed shafts; these units are normally irreversible; the latter two types give higher transmission ratios than the former two types as well as higher efficiency, with the same transmission ratio;

combined units **MR V** + R 2I, 3I or MR 2I, 3I: input and output shafts are orthogonal, overall dimensions kept at minimum along the direction of the low speed shaft; high efficiency;

combined units **MR IV** + R 2I, 3I or MR 2I, 3I: the same as above but with the possibility of higher transmission ratios, and with overall dimensions of the initial gear reducer or gearmotor contained within those planes defined by the mounting feet.

Selection of initial gear reducer or gearmotor

– Calculate the speed n_2 and the required power P_2 at the initial gear reducer or gearmotor output, using the following formulae:

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

$$P_2 \text{ initial} = \frac{M_2 \text{ final} \cdot n_2 \text{ final}}{955 \cdot \eta \text{ final}} \text{ [hp]}$$

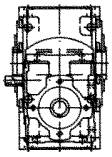
– In the case of gear reducer, establish input speed n_1 at the input of the initial gear reducer.
– Make the selection of initial gear reducer or gearmotor as shown in ch. 3.4, paragraph a) or b) of this catalog (in the case of worm gear reducers and gearmotors), or of catalogue E (in the case of coaxial gear reducers and gearmotors), 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 the service factor.

Designation for ordering

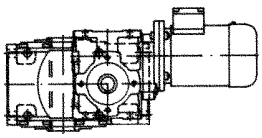
When ordering combined units, the single gear reducers or gearmotors must be designed **separately**, as indicated in ch. 3.1 paragraph a) or b), of this catalog (for the final gear reducer and initial worm gear reducer or gearmotor) or of catalog E (for initial coaxial gear reducer or gearmotor), bearing in mind the following):

– for all combined units, insert the words **coupled with** between the final gear reducer designation and that of the initial gear reducer or gearmotor;
– in the case of **R V** + R V or MR V and **R V** + R IV or MR IV, select the initial gear reducer or gearmotor stating the coupling **position** where applicable (ch. 3.10);
– when ordering **MR V** + R 2I, 3I or MR 2I, 3I and **MR IV** + R 2I, 3I or MR 2I, 3I always add the words **without motor** to the final gear reducer designation and select for the initial gear reducer or gearmotor **oversized B5 flange** design (for size 63 also add – **Ø 28**); in case of initial gear reducer or gearmotor size 32 or 40 select **FC1A** flange design;
– in order to make easier the individualization of mounting position of initial gear reducer or gearmotor see ch. 3.10.

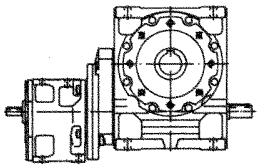
E.g: R V 100 UO2A/25
coupled with
R V 50 UO3A/32



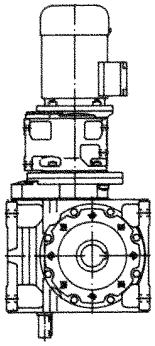
R V 100 UO2A/25 mounting position V5
coupled with
MR V 50 UO3A – 14 160 – 50 pos. 3
HB 71 A 4 230.400 B5



MR V 200 UO2A – 48 350 – 32 without motor
coupled with
R 2I 100 UC2A/29.3 oversized B5 flange



MR IV 200 UO2A – 138 300 – 81.8 without motor, mounting position B6, double extension low speed shaft
coupled with
MR 3I 80 UC2A – 19 200 – 49.8 mounting position V5
oversized B5 flange
HB3 80A 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 several requirements 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, comparison 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 φ) 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.

Driving machines with high kinetic energy

When driving machines with high inertias and/or speeds, **avoid** the use of **irreversible** gear reducers or gearmotors, rather select a train of gears with higher efficiency (e.g. IV, 2IV in place of V), keeping the same transmission ratio, as stopping and braking can cause very high overloads (cap. 3.13).

Drives with low input speed (n_1 < **355 rpm**)

Wherever possible select the following transmission $i = 20$ for sizes 32 ... 50, $i = 25$ for sizes 63 ... 100, $i = 32$ for sizes 125 ... 200, $i = 40$ for size 250, these being the ratios capable of transmitting highest torque (for performance figures see table A ch. 11; for sizes 32 and 40, consult us).

Input speed

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 catalog 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 1400 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	P_{N2}	M_{N2}
2 800	1.4	0.71
2 240	1.25	0.8
1 800	1.12	0.9
1 400	1	1

Operation at 60 Hz

When motor is supplied at 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 fs vary as follows:

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

$$fs_{at\,60\,Hz} = fs_{at\,50\,Hz} \cdot \frac{1{,}12 \cdot P_{1\,at\,50\,Hz}}{P_{1\,at\,60\,Hz}}$$

Nominal powers and torques (gear reducers) 3.5

n_{N2}	n_1	Train of gears i	P [hP] T [lb in]	Gear reducer size													
rpm		1)	2)	32	40	50	63	64	80	81	100	125	126	160	161	200	250
			P_{N1}	0.89	1.56	2.77 2.2	4.71 3.6	5.6 3.6	8.5 5.5	10.1 5.5	16	25.3	30.1 25	46.1 38	55 38		
180	1 800	**V** 10	P_{N2}	0.77	1.36	2.43	4.21	5	7.7	9.1	14.5	23	27.4	42.2	50	—	—
			T_{N2}	269	475	850	1 470	1 750	2 680	3 190	5 100	8 100	9 600	14 800	17 600		
			T_{2max}	488	870	1 540	2 730	2 960	4 900	5 300	9 200	14 500	15 800	27 700	31 900		
			P_{N1}	0.73	1.29	2.32	3.8 3	4.52 3	7.1 4.7	8.5 4.7	13.8	22.1	26.2	40.3	47.9 35	72 53	
140	1 800	**V** 13	P_{N2}	0.62	1.1	2	3.32	3.96	6.3	7.5	12.3	19.9	23.7	36.6	43.5	66	—
			T_{N2}	281	500	910	1 510	1 800	2 860	3 400	5 600	9 100	10 800	16 700	19 800	30 100	
			T_{2max}	492	920	1 650	2 780	3 020	5 200	5 600	10 300	16 500	18 000	30 900	33 600	54 700	
			P_{N1}	0.76	1.35	2.39 1.9	4.04 3.1	4.81 3.1	7.4 4.8	8.8 4.8	14.2	22.4	26.6 20	40.2 31	47.8 31		
	1 400	**V** 10	P_{N2}	0.65	1.16	2.08	3.59	4.27	6.7	7.9	12.8	20.3	24.1	36.6	43.6	—	—
			T_{N2}	291	520	940	1 620	1 920	3 000	3 570	5 800	9 100	10 900	16 500	19 600		
			T_{2max}	520	930	1 710	2 940	3 200	5 500	6 000	10 600	16 600	18 000	30 300	34 900		
			P_{N1}	0.7	1.26	2.23 1.8	3.78 3	4.5 3	7 4.6	8.3 4.6	13.3	21.1	25.1 19	37.7 29	44.9 29		
125	1 250	**V** 10	P_{N2}	0.6	1.08	1.93	3.35	3.98	6.2	7.4	12	19.1	22.7	34.3	40.8	—	—
			T_{N2}	301	540	970	1 690	2 010	3 150	3 740	6 000	9 600	11 500	17 300	20 600		
			T_{2max}	550	990	1 760	3 110	3 380	5 700	6 200	11 000	17 300	18 800	31 600	36 300		
			P_{N1}	0.64	1.14	2	3.29 2.8	3.92 2.8	6.2 4.3	7.3 4.3	11.6	18.7	22.2	34.3	40.8 31	62 51	110 78
112	1 800	**V** 16	P_{N2}	0.53	0.96	1.7	2.84	3.38	5.4	6.4	10.3	16.6	19.7	30.7	36.5	56	100
			T_{N2}	298	540	950	1 590	1 900	3 020	3 590	5 800	9 300	11 100	17 200	20 400	31 400	56 100
			T_{2max}	520	930	1 630	2 870	3 110	5 400	5 800	10 400	16 200	17 600	33 000	35 900	54 300	97 900
			P_{N1}	0.63	1.1	2	3.27 2.6	3.89 2.6	6.1 4.1	7.3 4.1	12.1	19.4	23 19	35.6 29	42.4 29	64 44	
	1 400	**V** 13	P_{N2}	0.52	0.93	1.71	2.84	3.38	5.4	6.4	10.7	17.4	20.7	32.3	38.4	58	—
			T_{N2}	307	540	1 000	1 660	1 980	3 130	3 730	6 300	10 200	12 100	18 900	22 500	34 200	
			T_{2max}	550	1 000	1 820	3 100	3 370	5 800	6 300	11 300	17 900	19 500	33 700	36 600	63 300	
			P_{N1}	0.65	1.18	2.08 1.7	3.54 2.9	4.22 2.9	6.6 4.4	7.8 4.4	12.5	20	23.8 18	35.5 27	42.2 27		
	1 120	**V** 10	P_{N2}	0.55	1	1.79	3.12	3.72	5.9	7	11.2	18	21.4	32.2	38.4	—	—
			T_{N2}	311	560	1 010	1 760	2 090	3 300	3 920	6 300	10 100	12 100	18 100	21 600		
			T_{2max}	570	1 020	1 810	3 270	3 550	5 900	6 400	11 300	17 900	19 500	32 900	37 800		
			P_{N1}	0.58	1.02	1.86	3.06 2.5	3.65 2.5	5.7 3.9	6.8 3.9	11.4	18.2	21.6 17	33.6 27	40 27	61 41	
100	1 250	**V** 13	P_{N2}	0.48	0.86	1.59	2.64	3.14	4.97	5.9	10	16.3	19.4	30.3	36.1	55	—
			T_{N2}	317	560	1 040	1 730	2 060	3 260	3 880	6 600	10 700	12 700	19 900	23 600	36 200	
			T_{2max}	570	1 020	1 870	3 270	3 550	6 100	6 700	11 900	19 400	21 100	36 500	39 600	66 200	
			P_{N1}	0.61	1.1	1.93 1.6	3.3 2.7	3.92 2.7	6.1 4.2	7.3 4.2	11.7	18.8	22.4 16	33.2 25	39.5 25		
	1 000	**V** 10	P_{N2}	0.51	0.93	1.65	2.89	3.44	5.4	6.5	10.5	16.9	20.1	30.1	35.8	—	—
			T_{N2}	321	590	1 040	1 820	2 170	3 430	4 080	6 600	10 700	12 700	18 900	22 500		
			T_{2max}	580	1 040	1 860	3 380	3 670	6 200	6 800	11 800	19 000	20 600	34 800	40 000		
			P_{N1}	0.59	1.04	1.82 1.4	2.67	3.18 2.6	4.9 3.9	5.8 3.9	9.5	15.5	18.5	28.4	33.7 29	55 43	94 66
90	1 800	**V** 20	P_{N2}	0.46	0.83	1.48	2.28	2.71	4.23	5	8.3	13.6	16.2	25.2	29.9	49	84
			T_{N2}	325	580	1 030	1 600	1 900	2 960	3 530	5 800	9 600	11 400	17 600	21 000	34 300	59 000
			T_{2max}	570	1 030	1 870	2 870	3 120	5 400	5 900	10 400	17 200	18 700	33 000	35 800	60 200	105 400

Values in red state nominal thermal power Pt_N (ambient temperature 104 °F (40 °C), continuous duty see ch. 3.2).
For n_1 higher than 1 400 rpm or lower than 355 rpm see ch. 3.4 and page 32.
1) Values given for train of gears **IV** are nominal; see page 93 for effective transmission ratios.
2) M_{2max} represents maximum torque peak the gear reducer will withstand.

Nominal powers and torques (gear reducers) 3.5

n_{N2} rpm	n_1 rpm	Train of gears i 1)	P [hP] T [lb in] 2)	Gear reducer size 32	40	50	63	64	80	81	100	125	126	160	161	200	250
			P_{N1}	0.55	0.98	1.74	2.87 2.4	3.42 2.4	5.4 3.8	6.4 3.8	10.1	16.1	19.2 16	30.2 25	35.9 25	55 42	99 65
90	1 400	**V** 16	P_{N2}	0.45	0.81	1.47	2.46	2.92	4.68	5.6	8.8	14.2	17	26.9	32	50	90
			T_{N2}	325	590	1 060	1 770	2 100	3 370	4 010	6 400	10 300	12 200	19 400	23 100	36 100	64 800
			T_{2max}	540	980	1 780	3 180	3 450	6 000	6 500	11 200	18 200	19 800	35 600	38 700	62 400	112 600
			P_{N1}	0.54	0.95	1.75	2.87 2.4	3.42 2.4	5.3 3.7	6.3 3.7	10.7	17.1	20.4 16	31.7 25	37.7 25	58 38	
	1 120	**V** 13	P_{N2}	0.45	0.8	1.48	2.47	2.94	4.63	5.5	9.4	15.3	18.2	28.6	34	52	—
			T_{N2}	327	580	1 080	1 810	2 150	3 390	4 030	6 900	11 200	13 300	20 900	24 900	38 300	
			T_{2max}	580	1 060	1 920	3 400	3 700	6 400	6 900	12 500	20 100	21 800	37 800	41 100	69 100	
			P_{N1}	0.56	1.03	1.81	3.08 2.6	3.67 2.6	5.7 4	6.8 4	11	17.8	21.1 15	31.2 23	37.1 23		
	900	**V** 10	P_{N2}	0.47	0.87	1.54	2.69	3.21	5.1	6	9.8	15.9	19	28.2	33.5	—	—
			T_{N2}	330	610	1 080	1 890	2 250	3 550	4 220	6 900	11 200	13 300	19 700	23 500		
			T_{2max}	590	1 070	1 910	3 480	3 780	6 500	7 100	12 400	20 000	21 700	36 000	41 400		
			P_{N1}	0.51	0.91	1.64	2.68	3.19 2.3	5.1 3.6	6 3.6	9.5	15.1	18 15	28.4 23	33.8 23	52 39	93 61
80	1 250	**V** 16	P_{N2}	0.42	0.75	1.37	2.28	2.72	4.37	5.2	8.3	13.3	15.8	25.3	30.1	47	84
			T_{N2}	337	610	1 110	1 840	2 190	3 530	4 200	6 700	10 700	12 800	20 400	24 200	37 900	68 100
			T_{2max}	570	1 020	1 830	3 280	3 560	6 200	6 700	12 000	18 900	20 500	37 000	40 100	65 100	117 600
			P_{N1}	0.5	0.89	1.62	2.68 2.3	3.19 2.3	4.98 3.5	5.9 3.5	10	16.1	19.1 15	29.7 23	35.3 23	55 36	
	1 000	**V** 13	P_{N2}	0.41	0.74	1.36	2.29	2.72	4.31	5.1	8.7	14.3	17	26.7	31.7	49.3	—
			T_{N2}	338	600	1 120	1 880	2 230	3 530	4 200	7 200	11 700	14 000	21 900	26 000	40 400	
			T_{2max}	600	1 090	1 960	3 510	3 810	6 500	7 100	12 800	20 700	22 500	39 200	42 500	72 100	
			P_{N1}	0.52	0.95	1.67	2.84	3.39 2.5	5.3 3.8	6.3 3.8	10.2	16.6	19.7 14	29.1 22	34.6 22		
	800	**V** 10	P_{N2}	0.43	0.8	1.42	2.48	2.95	4.67	5.6	9.1	14.8	17.7	26.2	31.2	—	—
			T_{N2}	341	630	1 120	1 950	2 320	3 680	4 380	7 100	11 700	13 900	20 600	24 600		
			T_{2max}	620	1 130	2 020	3 580	3 880	6 700	7 300	12 700	20 600	22 400	37 900	43 600		
			P_{N1}	0.47	0.87	1.53 1.3	2.51 2	2.99 2	4.67 3.1	5.6 3.1	9.1	13	15.5	23.6	28	43	78 63
71	1 800	**V** 25	P_{N2}	0.36	0.68	1.22	2.04	2.42	3.85	4.58	7.6	11.3	13.5	20.7	24.7	38.1	70
			T_{N2}	318	590	1 070	1 780	2 120	3 370	4 010	6 700	9 900	11 800	18 100	21 600	33 400	60 800
			T_{2max}	560	1 000	1 830	3 200	3 480	5 900	6 400	11 700	17 300	18 800	31 600	34 300	59 300	104 300
			P_{N1}	0.51	0.9	1.58 1.2	2.28	2.72 2.2	4.2 3.5	5 3.5	8.3	13.6	16.2	25	29.7 23	48.5 36	83 55
	1 400	**V** 20	P_{N2}	0.39	0.7	1.26	1.93	2.29	3.59	4.28	7.2	11.9	14.2	22	26.2	43.2	75
			T_{N2}	355	630	1 140	1 740	2 060	3 240	3 850	6 400	10 700	12 700	19 800	23 600	38 900	67 100
			T_{2max}	600	1 080	1 970	3 060	3 320	5 800	6 300	11 100	18 500	20 100	35 500	38 500	65 800	115 800
			P_{N1}	0.48	0.85	1.55	2.51	2.99 2.2	4.77 3.4	5.7 3.4	8.9	14.2	16.9 14	26.8 22	31.9 22	49.1 36	88 57
	1 120	**V** 16	P_{N2}	0.39	0.7	1.29	2.13	2.53	4.09	4.87	7.7	12.5	14.8	23.8	28.3	44.2	79
			T_{N2}	350	630	1 160	1 910	2 280	3 680	4 380	7 000	11 200	13 400	21 400	25 500	39 800	71 500
			T_{2max}	590	1 060	1 870	3 370	3 660	6 400	6 900	12 300	19 500	21 200	38 300	41 600	67 900	122 500
			P_{N1}	0.47	0.83	1.51	2.51	2.99 2.2	4.68 3.4	5.6 3.4	9.4	15.2	18.1 14	27.9 22	33.3 22	52 33	
	900	**V** 13	P_{N2}	0.38	0.68	1.26	2.13	2.54	4.03	4.79	8.2	13.5	16.1	25	29.8	46.6	—
			T_{N2}	348	620	1 150	1 940	2 310	3 670	4 360	7 400	12 300	14 600	22 800	27 100	42 400	
			T_{2max}	610	1 100	2 010	3 520	3 820	6 600	7 200	13 200	21 400	23 200	40 500	44 000	75 000	

Values in red state nominal thermal power Pt_N (ambient temperature 104 °F (40 °C), continuous duty see ch. 3.2).
For n_1 higher than 1 400 rpm or lower than 355 rpm see ch. 3.4 and page 32.
1) Values given for train of gears **IV** are nominal; see page 93 for effective transmission ratios.
2) M_{2max} represents maximum torque peak the gear reducer will withstand.

Nominal powers and torques (gear reducers) 3.5

n_{N2} rpm	n_1 rpm	Train of gears i 1)	P [hP] T [lb in] 2)	Gear reducer size 32	40	50	63	64	80	81	100	125	126	160	161	200	250
			P_{N1}	0.48	0.87	1.55	2.62	3.12 2.4	4.9 3.6	5.8 3.6	9.5	15.5	18.4 13	27.1 20	32.2 20		
71	710	**V** 10	P_{N2}	0.4	0.73	1.31	2.27	2.7	4.29	5.1	8.4	13.8	16.4	24.3	29	—	—
			T_{N2}	352	650	1 160	2 020	2 400	3 810	4 530	7 400	12 300	14 600	21 600	25 700		
			T_{2max}	640	1 150	2 060	3 660	3 970	6 900	7 500	13 000	21 200	23 000	39 200	45 000		
			P_{N1}	0.47	0.84	1.48 1.2	2.13	2.53 2.1	3.93 3.3	4.68 3.3	7.7	12.8	15.2	23.4	27.8 22	45.8 34	79 52
63	1 250	**V** 20	P_{N2}	0.36	0.65	1.17	1.78	2.12	3.34	3.97	6.7	11.1	13.2	20.5	24.5	40.7	70
			T_{N2}	367	660	1 180	1 800	2 140	3 370	4 010	6 700	11 200	13 400	20 700	24 700	41 000	70 600
			T_{2max}	610	1 120	2 020	3 250	3 530	6 100	6 700	11 400	19 800	21 500	36 800	39 900	69 900	120 900
			P_{N1}	0.44	0.79	1.44	2.34	2.79 2.1	4.43 3.3	5.3 3.3	8.3	13.4	15.9 13	25.1 20	29.9 20	46.2 33	82 52
	1 000	**V** 16	P_{N2}	0.36	0.64	1.19	1.97	2.34	3.79	4.51	7.2	11.7	13.9	22.2	26.4	41.5	75
			T_{N2}	361	650	1 200	1 990	2 360	3 820	4 550	7 300	11 800	14 000	22 400	26 600	41 800	75 100
			T_{2max}	610	1 080	1 980	3 470	3 770	6 600	7 100	12 800	20 100	21 900	41 000	44 500	74 600	127 500
			P_{N1}	0.43	0.77	1.39	2.33	2.78 2.1	4.35 3.2	5.2 3.2	8.7	14.2	16.9 13	26.1 20	31.1 20	48.4 31	
	800	**V** 13	P_{N2}	0.35	0.63	1.16	1.97	2.35	3.72	4.43	7.6	12.5	14.9	23.3	27.8	43.5	—
			T_{N2}	360	650	1 190	2 020	2 400	3 810	4 540	7 700	12 800	15 200	23 900	28 400	44 500	
			T_{2max}	640	1 140	2 110	3 720	4 040	7 000	7 600	13 500	22 800	24 700	42 200	45 800	80 300	
			P_{N1}	0.44	0.8	1.43	2.41	2.87 2.3	4.52 3.5	5.4 3.5	8.8	14.3	17 12	25.2 19	30 19		
	630	**V** 10	P_{N2}	0.36	0.67	1.19	2.08	2.48	3.94	4.69	7.7	12.7	15.1	22.5	26.8	—	—
			T_{N2}	362	670	1 200	2 080	2 480	3 940	4 690	7 700	12 700	15 200	22 600	26 800		
			T_{2max}	670	1 200	2 100	3 850	4 180	7 100	7 700	13 300	21 800	23 700	41 000	47 200		
			P_{N1}	0.38	0.69	1.18	1.95	2.32 1.8	3.63 2.8	4.32 2.8	7.1	11.4	13.6	20.7	24.6 20	38.1 31	58
56	1 800	**V** 32	P_{N2}	0.28	0.52	0.91	1.54	1.83	2.93	3.48	5.8	9.5	11.3	17.4	20.7	32.4	51
			T_{N2}	313	590	1 020	1 730	2 060	3 280	3 900	6 500	10 600	12 600	19 500	23 200	36 300	56 900
			T_{2max}	530	990	1 740	3 110	3 370	5 900	6 400	11 500	19 200	20 800	36 000	39 100	66 600	101 200
			P_{N1}	0.41	0.74	1.32	2.16 1.7	2.57 1.7	4.07 2.8	4.85 2.8	7.9	11.2	13.3	20.5	24.4	38	69 53
	1 400	**V** 25	P_{N2}	0.31	0.57	1.03	1.72	2.05	3.32	3.94	6.6	9.7	11.5	17.9	21.3	33.5	61
			T_{N2}	344	640	1 160	1 940	2 310	3 730	4 440	7 400	10 900	13 000	20 100	23 900	37 700	68 900
			T_{2max}	580	1 080	1 990	3 410	3 700	6 500	7 000	13 100	19 200	20 800	35 200	38 200	65 900	118 600
			P_{N1}	0.44	0.79	1.39 1.1	1.99	2.36	3.67	4.37 3.1	7.3	12.1	14.4	22	26.1 20	43.4 31	74 48
	1 120	**V** 20	P_{N2}	0.34	0.6	1.09	1.65	1.97	3.11	3.7	6.2	10.4	12.4	19.2	22.9	38.4	66
			T_{N2}	379	680	1 230	1 860	2 220	3 500	4 160	7 000	11 800	14 000	21 600	25 800	43 200	74 200
			T_{2max}	630	1 170	2 060	3 340	3 630	6 300	6 900	11 700	20 400	22 200	38 000	41 300	74 000	126 100
			P_{N1}	0.41	0.74	1.35	2.19	2.61 2	4.15 3.1	4.94 3.1	7.8	12.6	15 12	23.7 19	28.2 19	43.7 31	78 49
	900	**V** 16	P_{N2}	0.33	0.6	1.11	1.83	2.18	3.53	4.2	6.7	11	13	20.8	24.7	39.1	70
			T_{N2}	373	670	1 240	2 050	2 440	3 950	4 700	7 500	12 300	14 600	23 300	27 700	43 800	78 700
			T_{2max}	630	1 130	2 020	3 570	3 870	6 700	7 300	12 900	20 800	22 500	42 200	45 900	75 600	132 500
			P_{N1}	0.4	0.71	1.28	2.16	2.57 2	4.03 3	4.8 3	8.1	13.2	15.7 12	24.4 18	29 18	45.2 28	
	710	**V** 13	P_{N2}	0.32	0.58	1.06	1.82	2.16	3.43	4.09	7	11.6	13.8	21.7	25.8	40.5	—
			T_{N2}	373	670	1 220	2 100	2 500	3 960	4 720	8 000	13 400	15 900	25 100	29 800	46 700	
			T_{2max}	650	1 180	2 150	3 800	4 120	7 200	7 800	13 800	23 400	25 400	43 700	46 700	82 300	

Values in red state nominal thermal power Pt_N (ambient temperature 104 °F (40 °C), continuous duty see ch. 3.2).
For n_1 higher than 1 400 rpm or lower than 355 rpm see ch. 3.4 and page 32.
1) Values given for train of gears **IV** are nominal; see page 93 for effective transmission ratios.
2) M_{2max} represents maximum torque peak the gear reducer will withstand.

Nominal powers and torques (gear reducers) 3.5

n_{N2} rpm	n_1 rpm	Train of gears i 1)	P [hP] T [lb in] 2)	Gear reducer size 32	40	50	63	64	80	81	100	125	126	160	161	200	250
			P_{N1}	0.41	0.74	1.31	2.23	2.65 2.2	4.17 3.3	4.96 3.3	8.1	13.3	15.8 11	23.4 17	27.9 17		
56	560	**V** 10	P_{N2}	0.33	0.61	1.1	1.91	2.28	3.62	4.31	7.1	11.8	14	20.9	24.9	—	—
			T_{N2}	373	680	1 230	2 150	2 560	4 080	4 850	8 000	13 200	15 700	23 500	28 000		
			T_{2max}	680	1 230	2 200	3 920	4 260	7 200	7 900	13 600	22 400	24 400	42 200	48 500		
			P_{N1}	0.38	0.69	1.24	2.02 1.6	2.41 1.6	3.82 2.6	4.54 2.6	7.4	10.4	12.4	19.1	22.7	36.1	65 49
50	1 250	**V** 25	P_{N2}	0.28	0.52	0.96	1.6	1.9	3.09	3.67	6.1	9	10.7	16.6	19.8	31.7	58
			T_{N2}	357	660	1 210	2 020	2 400	3 890	4 630	7 700	11 300	13 400	21 000	24 900	40 000	72 600
			T_{2max}	620	1 110	2 030	3 620	3 940	6 700	7 300	13 500	19 800	21 500	36 300	39 400	69 300	123 500
			P_{N1}	0.41	0.73	1.3 1.1	1.85	2.2	3.43	4.08 3	6.8	11.3	13.4	20.6	24.5 18	40.8 29	70 45
	1 000	**V** 20	P_{N2}	0.31	0.56	1.01	1.53	1.82	2.88	3.42	5.8	9.7	11.6	17.9	21.3	36	62
			T_{N2}	392	700	1 270	1 930	2 290	3 630	4 320	7 300	12 300	14 600	22 600	26 900	45 400	78 200
			T_{2max}	660	1 200	2 170	3 430	3 730	6 500	7 000	12 400	21 100	22 900	40 600	44 000	76 900	133 500
			P_{N1}	0.38	0.68	1.25	2.03	2.42 1.9	3.84 2.9	4.57 2.9	7.3	11.7	14 11	22 17	26.2 17	40.7 29	73 45
	800	**V** 16	P_{N2}	0.31	0.55	1.02	1.69	2.01	3.24	3.86	6.2	10.2	12.1	19.3	23	36.3	65
			T_{N2}	385	690	1 280	2 130	2 530	4 090	4 860	7 900	12 800	15 300	24 300	28 900	45 700	82 500
			T_{2max}	650	1 170	2 090	3 750	4 070	7 100	7 800	13 400	21 700	23 600	43 500	47 200	77 500	142 300
			P_{N1}	0.37	0.65	1.17	2	2.38 1.9	3.73 2.9	4.44 2.9	7.5	12.2	14.5 11	22.7 17	27.1 17	42.3 26	
	630	**V** 13	P_{N2}	0.3	0.53	0.97	1.67	1.99	3.16	3.76	6.4	10.7	12.7	20.1	24	37.8	—
			T_{N2}	384	690	1 260	2 170	2 590	4 110	4 890	8 400	13 900	16 500	26 200	31 200	49 100	
			T_{2max}	670	1 230	2 230	3 980	4 320	7 500	8 200	14 300	24 100	26 100	45 400	50 900	84 200	
			P_{N1}	0.3	0.53	0.95	1.58	1.88	2.89	3.44 2.5	5.6	8.9	10.5	16.6	19.7	30	54 44
45	1 800	**V** 40	P_{N2}	0.21	0.39	0.71	1.22	1.45	2.27	2.7	4.55	7.2	8.6	13.7	16.3	25.1	45.2
			T_{N2}	300	540	990	1 710	2 030	3 180	3 790	6 400	10 100	12 000	19 200	22 900	35 200	63 300
			T_{2max}	510	940	1 680	3 040	3 310	5 800	6 200	10 700	18 300	19 900	35 900	39 000	64 400	113 400
			P_{N1}	0.32	0.59	1.01	1.69	2.01 1.6	3.15 2.5	3.74 2.5	6.2	9.9	11.8	18	21.4 17	33.6 26	51
	1 400	**V** 32	P_{N2}	0.23	0.44	0.76	1.31	1.56	2.5	2.98	5	8.2	9.7	15	17.9	28.4	44.5
			T_{N2}	337	630	1 100	1 890	2 250	3 600	4 290	7 200	11 800	14 000	21 600	25 800	40 900	64 100
			T_{2max}	570	1 060	1 880	3 290	3 570	6 200	6 800	12 400	20 900	22 600	38 600	41 900	72 300	113 900
			P_{N1}	0.36	0.65	1.16	1.9 1.6	2.26 1.6	3.59 2.4	4.27 2.4	6.9	9.7	11.6	17.9	21.3	34.4 29	61 46
	1 120	**V** 25	P_{N2}	0.26	0.49	0.89	1.49	1.77	2.88	3.43	5.7	8.3	9.9	15.5	18.5	30.1	54
			T_{N2}	369	680	1 250	2 090	2 490	4 050	4 820	8 000	11 700	13 900	21 800	26 000	42 300	76 400
			T_{2max}	630	1 130	2 070	3 720	4 040	6 900	7 500	13 800	20 400	22 100	37 400	40 700	72 500	128 300
			P_{N1}	0.39	0.68	1.22 1	1.73	2.06	3.21	3.82 2.8	6.4	10.6	12.6	19.3	23 17	38.6 27	66 42
	900	**V** 20	P_{N2}	0.29	0.52	0.94	1.42	1.69	2.68	3.19	5.4	9.1	10.8	16.8	20	33.9	59
			T_{N2}	405	720	1 310	1 990	2 370	3 750	4 470	7 600	12 800	15 200	23 500	28 000	47 500	82 100
			T_{2max}	690	1 250	2 220	3 500	3 800	6 700	7 200	12 600	21 600	23 500	41 800	45 400	79 700	141 100
			P_{N1}	0.35	0.63	1.15	1.87	2.23 1.8	3.55 2.8	4.22 2.8	6.8	10.9	13 10	20.5 16	24.4 16	37.8 27	68 42
	710	**V** 16	P_{N2}	0.28	0.5	0.94	1.55	1.84	2.98	3.54	5.8	9.4	11.2	17.9	21.3	33.6	61
			T_{N2}	398	710	1 330	2 200	2 620	4 230	5 000	8 200	13 400	15 900	25 400	30 200	47 700	86 500
			T_{2max}	660	1 210	2 150	3 820	4 150	7 300	8 000	13 900	22 600	24 600	44 700	48 600	79 300	143 300

Values in red state nominal thermal power Pt_N (ambient temperature 104 °F (40 °C), continuous duty see ch. 3.2).
For n_1 higher than 1 400 rpm or lower than 355 rpm see ch. 3.4 and page 32.
1) Values given for train of gears **IV** are nominal; see page 93 for effective transmission ratios.
2) M_{2max} represents maximum torque peak the gear reducer will withstand.

n_{N2} rpm	n_1 rpm	Train of gears i 1)	P [hP] T [lb in] 2)	Gear reducer size 32	40	50	63	64	80	81	100	125	126	160	161	200	250
			P_{N1}	0.34	0.6	1.08	1.85	2.2 1.8	3.46 2.8	4.12 2.8	6.9	11.3	13.4 10	21.2 16	25.2 16	39.6 24	
45	560	**V** 13	P_{N2}	0.27	0.48	0.88	1.54	1.83	2.92	3.47	5.9	9.8	11.7	18.7	22.3	35.3	—
			T_{N2}	395	710	1 290	2 250	2 680	4 270	5 100	8 700	14 400	17 100	27 400	32 600	51 600	
			T_{2max}	690	1 250	2 290	4 140	4 500	7 800	8 400	14 800	24 700	26 800	46 900	51 000	86 100	
			P_{N1}	0.35	0.63	1.13	1.91	2.26	3.56	4.24 3.1	7	11.4	13.6 9.6	20.5 15	24.4 15		
	450	**V** 10	P_{N2}	0.28	0.51	0.93	1.62	1.93	3.07	3.65	6.1	10	11.9	18.2	21.6	—	—
			T_{N2}	391	720	1 300	2 280	2 700	4 300	5 100	8 500	14 000	16 700	25 400	30 300		
			T_{2max}	720	1 300	2 340	4 180	4 540	7 700	8 400	14 500	24 400	26 400	45 200	51 900		
			P_{N1}	0.3	0.55	0.95	1.57	1.87 1.5	2.94 2.3	3.5 2.3	5.8	9.3	11.1	16.9	20.1 15	31.7 24	47.9
40	1 250	**V** 32	P_{N2}	0.22	0.4	0.71	1.21	1.44	2.32	2.76	4.66	7.6	9.1	14	16.7	26.7	41.8
			T_{N2}	348	650	1 150	1 950	2 320	3 740	4 450	7 500	12 300	14 600	22 600	26 900	43 100	67 500
			T_{2max}	590	1 100	1 950	3 480	3 780	6 500	7 100	12 700	21 500	23 300	39 800	43 200	75 200	118 200
			P_{N1}	0.33	0.6	1.08	1.77 1.5	2.11 1.5	3.36 2.3	4 2.3	6.5	9	10.7	16.7	19.9	32.3 27	58 42
	1 000	**V** 25	P_{N2}	0.24	0.44	0.82	1.38	1.64	2.67	3.18	5.3	7.7	9.1	14.4	17.1	28.2	51
			T_{N2}	381	700	1 290	2 170	2 580	4 210	5 000	8 300	12 100	14 400	22 700	27 000	44 400	80 000
			T_{2max}	660	1 180	2 140	3 880	4 210	7 200	7 800	14 400	21 300	23 100	38 600	41 900	76 400	135 500
			P_{N1}	0.36	0.63	1.13	1.59	1.89	2.97	3.53 2.7	6	9.9	11.7	18	21.4 16	36 25	62 39
	800	**V** 20	P_{N2}	0.26	0.47	0.87	1.3	1.54	2.46	2.93	5	8.4	10	15.6	18.5	31.4	55
			T_{N2}	416	750	1 360	2 050	2 430	3 880	4 610	7 900	13 200	15 800	24 500	29 200	49 500	86 000
			T_{2max}	700	1 270	2 290	3 670	3 980	6 900	7 500	12 900	22 600	24 500	43 000	46 700	82 100	146 300
			P_{N1}	0.32	0.57	1.06	1.72	2.05 1.7	3.27 2.7	3.89 2.7	6.3	10.2	12.1 9.4	19 15	22.7 15	35.1 25	63 39
	630	**V** 16	P_{N2}	0.26	0.46	0.85	1.41	1.68	2.73	3.25	5.3	8.7	10.4	16.5	19.7	31.1	56
			T_{N2}	408	730	1 370	2 260	2 690	4 370	5 200	8 500	13 900	16 600	26 400	31 500	49 700	90 100
			T_{2max}	670	1 210	2 220	3 990	4 340	7 600	8 200	14 200	23 600	25 600	46 600	50 600	82 400	149 000
			P_{N1}	0.33	0.56	1.02	1.63	1.94 1.7	3.11 2.5	3.71 2.5	6	9.9	11.8 8.6	18.3 14	21.7 14	33.7 23	60 36
35.5	1 800	**IV** 50	P_{N2}	0.24	0.43	0.8	1.31	1.56	2.53	3.01	4.94	8.3	9.9	15.5	18.4	29.1	53
			T_{N2}	427	750	1 400	2 330	2 770	4 510	5 400	8 800	14 500	17 300	27 500	32 700	51 800	93 900
			T_{2max}	710	1 240	2 280	4 060	4 410	7 800	8 500	14 400	24 500	26 600	48 500	52 700	85 400	152 200
			P_{N1}	0.23	0.41	0.73	1.22	1.46	2.26	2.69	4.19	7	8.3	12.8	15.3	24.4	42.6
	1 800	**V** 50	P_{N2}	0.16	0.29	0.52	0.91	1.08	1.72	2.05	3.28	5.6	6.7	10.4	12.4	20.1	35.5
			T_{N2}	274	500	920	1 600	1 900	3 020	3 590	5 800	9 800	11 600	18 200	21 700	35 200	62 200
			T_{2max}	452	880	1 670	2 830	3 080	5 300	5 800	10 000	17 700	19 300	34 100	37 000	64 600	115 300
			P_{N1}	0.26	0.46	0.8	1.34	1.6	2.49	2.96 2.2	4.88	7.7	9.1	14.6	17.3	26.5	46.9 37
	1 400	**V** 40	P_{N2}	0.18	0.32	0.58	1.02	1.21	1.93	2.29	3.87	6.1	7.3	11.9	14.2	22.1	39.4
			T_{N2}	319	580	1 050	1 830	2 180	3 470	4 130	7 000	11 100	13 200	21 500	25 600	39 700	71 000
			T_{2max}	540	980	1 800	3 210	3 490	6 100	6 600	11 800	20 100	21 900	38 200	41 500	72 300	127 900
			P_{N1}	0.28	0.51	0.9	1.47	1.75 1.4	2.76 2.2	3.28 2.2	5.5	8.8	10.5	15.9	18.9 14	30 22	45.3
	1 120	**V** 32	P_{N2}	0.2	0.37	0.66	1.12	1.33	2.15	2.56	4.35	7.1	8.5	13.1	15.6	25.2	39.4
			T_{N2}	359	670	1 190	2 020	2 400	3 880	4 610	7 800	12 800	15 300	23 600	28 100	45 300	71 000
			T_{2max}	610	1 130	2 020	3 570	3 880	6 800	7 400	12 900	22 500	24 400	41 100	44 600	78 000	122 600

Values in red state nominal thermal power Pt_N (ambient temperature 104 °F (40 °C), continuous duty see ch. 3.2).
For n_1 higher than 1 400 rpm or lower than 355 rpm see ch. 3.4 and page 32.
1) Values given for train of gears **IV** are nominal; see page 93 for effective transmission ratios.
2) M_{2max} represents maximum torque peak the gear reducer will withstand.

Nominal powers and torques (gear reducers) 3.5

n_{N2} rpm	n_1 rpm	Train of gears i 1)	P [hP] T [lb in] 2)	Gear reducer size 32	40	50	63	64	80	81	100	125	126	160	161	200	250
			P_{N1}	0.31	0.56	1.01	1.66	1.98 1.4	3.16 2.2	3.75 2.2	6.1	8.4	10	15.6	18.6	30.5 25	54 40
35.5	900	**V** 25	P_{N2}	0.22	0.41	0.76	1.28	1.53	2.49	2.96	4.88	7.1	8.5	13.4	15.9	26.5	47.7
			T_{N2}	393	720	1 330	2 240	2 670	4 360	5 200	8 600	12 500	14 800	23 500	27 900	46 400	83 500
			T_{2max}	670	1 200	2 210	4 040	4 380	7 500	8 100	14 900	22 200	24 100	39 700	43 100	77 400	142 700
			P_{N1}	0.33	0.58	1.05	1.46	1.74	2.74	3.26 2.6	5.5	9.1	10.9	16.8	20 15	33.4 23	58 35
	710	**V** 20	P_{N2}	0.24	0.43	0.8	1.18	1.41	2.26	2.68	4.65	7.7	9.2	14.4	17.1	29.1	51
			T_{N2}	427	770	1 410	2 100	2 500	4 000	4 760	8 300	13 800	16 400	25 600	30 400	51 600	90 100
			T_{2max}	710	1 290	2 360	3 730	4 050	7 200	7 800	13 500	23 500	25 500	44 100	47 900	83 900	151 500
			P_{N1}	0.3	0.53	0.97	1.58	1.89	3.02 2.5	3.59 2.5	5.8	9.4	11.2 8.6	17.7 14	21 14	32.6 23	58 36
	560	**V** 16	P_{N2}	0.23	0.42	0.78	1.29	1.54	2.5	2.98	4.89	8.1	9.6	15.3	18.2	28.7	52
			T_{N2}	418	750	1 400	2 330	2 770	4 510	5 400	8 800	14 500	17 300	27 500	32 700	51 800	93 900
			T_{2max}	680	1 240	2 280	4 060	4 410	7 800	8 500	14 400	24 500	26 600	48 500	52 700	85 400	152 200
			P_{N1}	0.29	0.51	0.92	1.59	1.9	2.98	3.55 2.5	6	9.7	11.5 8.6	18.5 14	22.1 14	34.7 21	
	450	**V** 13	P_{N2}	0.23	0.41	0.75	1.31	1.56	2.49	2.96	5.1	8.4	10	16.2	19.3	30.6	—
			T_{N2}	414	750	1 360	2 390	2 840	4 530	5 400	9 200	15 300	18 200	29 600	35 200	55 800	
			T_{2max}	730	1 320	2 430	4 300	4 670	8 000	8 700	15 700	26 500	28 800	50 800	55 200	92 300	
			P_{N1}	0.29	0.52	0.95	1.64	1.88	3	3.55 2.8	5.9	9.6	11.4 8.3	17.6 13	21 13		
	355	**V** 10	P_{N2}	0.23	0.42	0.78	1.38	1.59	2.56	3.03	5.1	8.4	10	15.5	18.4	—	—
			T_{N2}	415	740	1 380	2 460	2 820	4 550	5 400	9 100	14 900	17 700	27 500	32 700		
			T_{2max}	750	1 340	2 410	4 420	4 800	8 200	8 900	15 400	25 900	28 200	47 900	55 100		
			P_{N1}	0.24	0.42	0.75	1.26	1.49	2.33	2.77 2.1	4.55	7.2	8.6	13.7	16.3	25	44 34
31.5	1 250	**V** 40	P_{N2}	0.16	0.3	0.54	0.94	1.12	1.79	2.13	3.58	5.7	6.8	11.1	13.2	20.7	36.9
			T_{N2}	328	600	1 090	1 890	2 250	3 600	4 290	7 200	11 500	13 700	22 400	26 700	41 700	74 400
			T_{2max}	570	1 030	1 860	3 390	3 680	6 200	6 800	12 000	20 700	22 500	39 400	42 800	74 900	132 900
			P_{N1}	0.26	0.47	0.83	1.37	1.63 1.3	2.56 2.1	3.05 2.1	5.1	8.2	9.8	14.8	17.7 13	28.2 21	42.4
	1 000	**V** 32	P_{N2}	0.18	0.34	0.61	1.03	1.23	1.99	2.36	4.01	6.6	7.9	12.2	14.5	23.5	36.8
			T_{N2}	371	680	1 230	2 090	2 480	4 010	4 770	8 100	13 400	15 900	24 600	29 200	47 500	74 200
			T_{2max}	630	1 140	2 050	3 720	4 040	7 000	7 600	13 400	23 100	25 100	43 700	47 400	82 200	129 000
			P_{N1}	0.29	0.51	0.93	1.54	1.84 1.4	2.92 2.1	3.47 2.1	5.6	7.8	9.3	14.4	17.1	28.4 23	51 36
	800	**V** 25	P_{N2}	0.21	0.37	0.69	1.18	1.4	2.28	2.71	4.48	6.5	7.8	12.3	14.6	24.5	44.4
			T_{N2}	405	740	1 370	2 320	2 760	4 490	5 300	8 800	12 900	15 300	24 200	28 800	48 300	87 500
			T_{2max}	690	1 260	2 280	4 120	4 480	7 600	8 300	15 000	22 700	24 700	41 400	44 900	80 400	147 600
			P_{N1}	0.3	0.54	0.97	1.33	1.58	2.51	2.99 2.4	5.1	8.5	10.1 8.5	15.5	18.5 13	30.9 21	54 33
	630	**V** 20	P_{N2}	0.22	0.4	0.73	1.07	1.28	2.06	2.45	4.28	7.1	8.5	13.3	15.8	26.8	47.3
			T_{N2}	439	800	1 460	2 150	2 560	4 120	4 900	8 600	14 300	17 000	26 600	31 600	53 600	94 600
			T_{2max}	740	1 330	2 430	3 890	4 220	7 400	8 000	13 800	24 100	26 100	45 900	49 900	87 000	157 300
			P_{N1}	0.26	0.52	0.95	1.25	1.49	2.38	2.83 2.3	4.9	8.2	9.8 7.8	14.9 12	17.7 12	29.6 19	52 31
28	1 800	**IV** 63	P_{N2}	0.18	0.38	0.69	0.99	1.17	1.9	2.26	3.98	6.8	8	12.4	14.8	25.1	44.7
			T_{N2}	418	820	1 510	2 200	2 620	4 230	5 000	8 900	14 800	17 600	27 600	32 800	55 700	99 300
			T_{2max}	710	1 380	2 500	3 950	4 290	7 600	8 200	14 000	24 700	26 800	47 700	51 800	90 000	163 000

Values in red state nominal thermal power Pt_N (ambient temperature 104 °F (40 °C), continuous duty see ch. 3.2).
For n_1 higher than 1 400 rpm or lower than 355 rpm see ch. 3.4 and page 32.
1) Values given for train of gears **IV** are nominal; see page 93 for effective transmission ratios.
2) M_{2max} represents maximum torque peak the gear reducer will withstand.

Nominal powers and torques (gear reducers)

n_{N2} rpm	n_1 rpm	Train of gears i 1)	P [hP] T [lb in] 2)	Gear reducer size 32	40	50	63	64	80	81	100	125	126	160	161	200	250
			P_{N1}		0.3	0.57	0.94	1.11	1.76	2.09	3.34	5.4	6.5	9.7	11.6	18.5	32.8
28	1 800	**V** 63	P_{N2}	—	0.2	0.38	0.67	0.79	1.29	1.54	2.52	4.21	5	7.7	9.1	14.9	26.8
			T_{N2}		436	850	1 470	1 750	2 850	3 390	5 600	9 300	11 100	16 900	20 100	32 800	59 200
			T_{2max}		660	1 300	2 540	2 840	5 200	5 700	9 800	16 300	17 800	31 200	33 900	59 000	106 400
			P_{N1}	0.27	0.46	0.84	1.35	1.6	2.56	3.05 2.3	4.99	8.3	9.9 7.4	15.4 12	18.4 12	27.9 20	50 31
	1 400	**IV** 50	P_{N2}	0.19	0.35	0.65	1.06	1.27	2.06	2.45	4.06	6.9	8.2	12.9	15.4	23.9	43.5
			T_{N2}	451	790	1 470	2 440	2 900	4 730	5 600	9 300	15 400	18 400	29 600	35 200	54 700	99 600
			T_{2max}	750	1 280	2 410	4 290	4 650	8 300	9 000	15 400	25 600	27 800	50 900	55 300	88 700	158 300
			P_{N1}	0.19	0.35	0.62	1.04	1.23	1.94	2.3	3.6	6	7.2	11.1	13.3	21.5	37.7
	1 400	**V** 50	P_{N2}	0.13	0.24	0.44	0.76	0.9	1.45	1.73	2.77	4.72	5.6	8.9	10.6	17.5	31.3
			T_{N2}	287	530	980	1 700	2 030	3 260	3 880	6 200	10 600	12 600	20 100	23 900	39 400	70 400
			T_{2max}	458	890	1 730	3 070	3 330	5 800	6 300	10 900	18 800	20 400	36 200	39 400	69 600	124 600
			P_{N1}	0.22	0.4	0.7	1.18	1.4	2.18	2.6 2	4.27	6.8	8.1	12.9	15.3 13	23.7 20	41.4 32
	1 120	**V** 40	P_{N2}	0.15	0.27	0.5	0.87	1.03	1.66	1.98	3.33	5.3	6.4	10.4	12.4	19.4	34.5
			T_{N2}	337	620	1 130	1 960	2 330	3 740	4 450	7 500	12 000	14 300	23 400	27 800	43 700	77 800
			T_{2max}	580	1 050	1 920	3 470	3 770	6 400	7 000	12 300	21 300	23 100	40 500	44 000	77 600	137 800
			P_{N1}	0.25	0.44	0.78	1.29	1.53 1.3	2.4 2	2.86 2	4.76	7.8	9.2 7.8	13.9	16.6 12	26.6 19	40
	900	**V** 32	P_{N2}	0.17	0.31	0.56	0.96	1.14	1.84	2.19	3.73	6.2	7.4	11.4	13.5	22.1	34.5
			T_{N2}	382	700	1 270	2 150	2 560	4 130	4 910	8 400	13 900	16 600	25 400	30 300	49 600	77 300
			T_{2max}	640	1 200	2 090	3 860	4 190	7 100	7 700	13 900	23 700	25 800	44 900	48 700	86 500	135 400
			P_{N1}	0.26	0.47	0.86	1.43	1.7 1.3	2.69 2	3.2 2	5.2	7.2	8.5	13.2	15.8	26.4 21	47.5 33
	710	**V** 25	P_{N2}	0.19	0.34	0.63	1.08	1.28	2.08	2.48	4.1	6	7.1	11.2	13.4	22.7	41.3
			T_{N2}	418	760	1 400	2 390	2 850	4 620	5 500	9 100	13 300	15 900	24 900	29 700	50 300	91 700
			T_{2max}	710	1 280	2 350	4 190	4 550	7 800	8 500	15 500	23 300	25 300	43 100	46 800	83 300	150 800
			P_{N1}	0.28	0.5	0.9	1.22	1.45	2.31	2.74	4.75	7.8	9.3 7.8	14.4	17.1 12	28.7 19	51 31
	560	**V** 20	P_{N2}	0.2	0.36	0.67	0.98	1.16	1.88	2.23	3.94	6.6	7.8	12.3	14.6	24.7	44.1
			T_{N2}	451	820	1 510	2 200	2 620	4 230	5 000	8 900	14 800	17 600	27 600	32 800	55 700	99 300
			T_{2max}	750	1 380	2 500	3 950	4 290	7 600	8 200	14 000	24 700	26 800	47 700	51 800	90 000	163 000
			P_{N1}	0.25	0.45	0.83	1.35	1.61	2.57	3.06 2.3	5	8.2	9.7 7.4	15.4 12	18.4 12	27.9 20	50 31
	450	**V** 16	P_{N2}	0.2	0.35	0.65	1.09	1.3	2.11	2.51	4.16	6.9	8.2	13.2	15.7	24.4	44.4
			T_{N2}	439	790	1 470	2 440	2 900	4 730	5 600	9 300	15 400	18 400	29 600	35 200	54 700	99 600
			T_{2max}	710	1 280	2 410	4 290	4 650	8 300	9 000	15 400	25 600	27 800	50 900	55 300	88 700	158 300
			P_{N1}	0.24	0.43	0.77	1.35	1.6	2.54	3.02 2.3	5.1	8.2	9.7 7.5	15.8 12	18.8 12	29.6 18	
	355	**V** 13	P_{N2}	0.19	0.34	0.62	1.1	1.31	2.09	2.49	4.26	7	8.3	13.7	16.3	26	—
			T_{N2}	433	780	1 420	2 530	3 010	4 830	5 800	9 800	16 100	19 200	31 700	37 700	60 000	
			T_{2max}	750	1 390	2 500	4 530	4 920	8 500	9 200	16 200	28 100	30 500	52 900	57 400	95 700	
			P_{N1}	0.25	0.42	0.77	1.23	1.46	2.35	2.8 2.2	4.58	7.6	9.1 6.9	14.3 11	17 11	25.7 18	46.5 29
25	1 250	**IV** 50	P_{N2}	0.18	0.32	0.6	0.97	1.15	1.88	2.24	3.71	6.3	7.5	11.9	14.2	21.9	40.1
			T_{N2}	460	800	1 500	2 480	2 960	4 830	5 800	9 500	15 800	18 800	30 500	36 300	56 100	102 700
			T_{2max}	770	1 320	2 440	4 350	4 720	8 400	9 100	15 800	26 400	28 600	52 000	56 500	92 700	165 700

Values in red state nominal thermal power Pt_N (ambient temperature 104 °F (40 °C), continuous duty see ch. 3.2).
For n_1 higher than 1 400 rpm or lower than 355 rpm see ch. 3.4 and page 32.
1) Values given for train of gears **IV** are nominal; see page 93 for effective transmission ratios.
2) M_{2max} represents maximum torque peak the gear reducer will withstand.

Nominal powers and torques (gear reducers) 3.5

n_{N2} rpm	n_1 rpm	Train of gears i 1)	P [hP] T [lb in] 2)	Gear reducer size 32	40	50	63	64	80	81	100	125	126	160	161	200	250
			P_{N1}	0.18	0.32	0.58	0.96	1.15	1.8	2.14	3.35	5.6	6.7	10.5	12.5	20.3	35.7
25	1 250	**V** 50	P_{N2}	0.12	0.22	0.4	0.69	0.82	1.33	1.59	2.56	4.35	5.2	8.3	9.9	16.5	29.5
			T_{N2}	291	540	1 010	1 750	2 080	3 370	4 010	6 400	11 000	13 100	21 000	25 000	41 500	74 400
			T_{2max}	460	890	1 750	3 150	3 420	5 900	6 400	11 300	19 900	21 600	37 900	41 100	74 400	131 300
			P_{N1}	0.2	0.37	0.65	1.09	1.3	2.03	2.42 1.9	3.97	6.3	7.5	12	14.3 12	22	38.9 29
	1 000	**V** 40	P_{N2}	0.14	0.25	0.46	0.8	0.95	1.53	1.82	3.06	4.93	5.9	9.6	11.5	18	32.3
			T_{N2}	344	630	1 150	2 010	2 390	3 850	4 580	7 700	12 400	14 800	24 300	28 900	45 400	81 400
			T_{2max}	600	1 080	1 950	3 600	3 910	6 700	7 300	12 900	22 200	24 100	42 300	45 900	81 500	142 500
			P_{N1}	0.23	0.41	0.72	1.19	1.41	2.23	2.65 1.9	4.42	7.2	8.6 7.1	13	15.4 11	24.9 18	36.9
	800	**V** 32	P_{N2}	0.16	0.28	0.52	0.88	1.04	1.69	2.01	3.43	5.7	6.8	10.5	12.5	20.5	31.6
			T_{N2}	395	720	1 310	2 210	2 630	4 260	5 100	8 700	14 400	17 200	26 500	31 500	51 700	79 700
			T_{2max}	660	1 200	2 180	3 920	4 260	7 500	8 200	14 400	24 700	26 800	46 100	50 000	89 400	138 300
			P_{N1}	0.24	0.43	0.79	1.31	1.56 1.2	2.48 1.9	2.95 1.9	4.77	6.6	7.9	12.2	14.5	24.3 19	43.9 31
	630	**V** 25	P_{N2}	0.17	0.31	0.58	0.98	1.17	1.9	2.27	3.75	5.5	6.5	10.3	12.2	20.8	38.1
			T_{N2}	429	770	1 440	2 460	2 930	4 760	5 700	9 400	13 700	16 300	25 700	30 600	52 000	95 200
			T_{2max}	720	1 310	2 410	4 370	4 750	8 100	8 800	16 000	24 500	26 600	44 700	48 500	84 900	153 900
			P_{N1}	0.21	0.42	0.76	1.25	1.48 1.2	2.36 1.8	2.81 1.8	4.55	6.4	7.6	11.6	13.9 11	23.2 18	42 29
22.4	1 800	**IV** 80	P_{N2}	0.14	0.29	0.54	0.91	1.08	1.76	2.1	3.48	5.2	6.2	9.6	11.4	19.3	35.6
			T_{N2}	408	790	1 480	2 530	3 010	4 900	5 800	9 700	14 100	16 800	26 600	31 600	53 700	98 800
			T_{2max}	680	1 340	2 480	4 440	4 820	8 300	9 000	16 400	25 000	27 200	46 400	50 300	86 500	156 900
			P_{N1}	0.22	0.44	0.79	1.02	1.22	1.95	2.32	4.05	6.8	8.1 6.8	12.5	14.9 11	24.8 17	44.3 26
	1 400	**IV** 63	P_{N2}	0.15	0.31	0.57	0.79	0.94	1.54	1.83	3.25	5.5	6.6	10.3	12.3	20.8	37.5
			T_{N2}	439	860	1 590	2 270	2 710	4 410	5 200	9 300	15 500	18 400	29 500	35 100	59 400	107 100
			T_{2max}	720	1 400	2 570	4 140	4 510	8 000	8 700	14 800	26 300	28 500	50 000	54 300	95 900	169 300
			P_{N1}		0.24	0.46	0.77	0.92	1.48	1.76	2.83	4.62	5.5	8.3	9.9	16	28.4
	1 400	**V** 63	P_{N2}	—	0.15	0.3	0.54	0.64	1.06	1.26	2.1	3.5	4.17	6.5	7.7	12.7	23.1
			T_{N2}		439	860	1 520	1 810	3 000	3 570	6 000	9 900	11 800	18 400	21 900	36 000	65 400
			T_{2max}		670	1 320	2 560	2 870	5 300	5 900	10 400	17 800	19 400	34 100	37 100	65 400	118 500
			P_{N1}	0.23	0.39	0.71	1.13	1.35	2.17	2.58 2.2	4.23	7.1	8.4 6.5	13.3 10	15.8 10	23.7 17	43.2 27
	1 120	**IV** 50	P_{N2}	0.16	0.29	0.55	0.88	1.05	1.72	2.05	3.41	5.8	6.9	11	13.1	20.2	37.1
			T_{N2}	470	820	1 530	2 530	3 010	4 940	5 900	9 800	16 200	19 200	31 500	37 500	57 600	106 000
			T_{2max}	780	1 330	2 470	4 400	4 780	8 500	9 200	16 200	27 100	29 400	52 900	57 400	94 200	168 500
			P_{N1}	0.16	0.3	0.54	0.9	1.07	1.68	2	3.13	5.2	6.2	9.9	11.8	19.3	34
	1 120	**V** 50	P_{N2}	0.1	0.2	0.37	0.64	0.76	1.23	1.47	2.36	4.03	4.79	7.8	9.3	15.5	27.9
			T_{N2}	295	560	1 040	1 790	2 130	3 470	4 130	6 600	11 300	13 500	21 900	26 100	43 700	78 500
			T_{2max}	461	890	1 760	3 220	3 500	6 100	6 600	11 600	20 400	22 200	39 500	42 900	76 900	138 000
			P_{N1}	0.19	0.34	0.6	1.02	1.21	1.9	2.26 1.8	3.7	5.9	7	11.3	13.4 11	20.7 17	36.8 27
	900	**V** 40	P_{N2}	0.12	0.23	0.42	0.74	0.88	1.41	1.68	2.84	4.58	5.5	9	10.7	16.8	30.3
			T_{N2}	350	640	1 170	2 060	2 450	3 960	4 720	7 900	12 800	15 300	25 200	30 000	47 000	84 900
			T_{2max}	600	1 110	1 980	3 710	4 030	6 900	7 500	13 100	22 400	24 300	44 000	47 800	85 500	147 500

Values in red state nominal thermal power Pt_N (ambient temperature 104 °F (40 °C), continuous duty see ch. 3.2).
For n_1 higher than 1 400 rpm or lower than 355 rpm see ch. 3.4 and page 32.
1) Values given for train of gears **IV** are nominal; see page 93 for effective transmission ratios.
2) M_{2max} represents maximum torque peak the gear reducer will withstand.

Nominal powers and torques (gear reducers) 3.5

n_{N2} rpm	n_1 rpm	Train of gears i 1)	P [hP] T [lb in] 2)	Gear reducer size 32	40	50	63	64	80	81	100	125	126	160	161	200	250
			P_{N1}	0.21	0.37	0.67	1.09	1.3	2.06	2.45 1.8	4.1	6.7	8 6.6	12.1	14.4 10	23.2 16	33.9
22.4	710	V 32	P_{N2}	0.14	0.26	0.47	0.8	0.95	1.55	1.84	3.16	5.3	6.3	9.7	11.6	19	28.9
			T_{N2}	408	730	1 350	2 270	2 700	4 400	5 200	9 000	15 000	17 800	27 600	32 800	54 000	82 200
			T_{2max}	680	1 230	2 210	3 980	4 330	7 700	8 300	14 800	25 600	27 800	47 200	51 300	91 200	141 000
			P_{N1}	0.22	0.4	0.73	1.21	1.44 1.2	2.29 1.8	2.73 1.8	4.41	6.1	7.2	11.3	13.4	22.4 18	40.7 29
	560	V 25	P_{N2}	0.16	0.28	0.53	0.9	1.07	1.74	2.07	3.44	5	6	9.4	11.2	19.1	35.1
			T_{N2}	439	790	1 480	2 530	3 010	4 900	5 800	9 700	14 100	16 800	26 600	31 600	53 700	98 800
			T_{2max}	720	1 340	2 480	4 440	4 820	8 300	9 000	16 400	25 000	27 200	46 400	50 300	86 500	156 900
			P_{N1}	0.24	0.43	0.77	1.02	1.22	1.95	2.32	4.06	6.7	7.9	12.5	14.9 11	24.8 17	44.3 26
	450	V 20	P_{N2}	0.17	0.31	0.57	0.81	0.97	1.57	1.87	3.32	5.5	6.6	10.5	12.5	21.2	38.2
			T_{N2}	470	860	1 590	2 270	2 710	4 410	5 200	9 300	15 500	18 400	29 500	35 100	59 400	107 100
			T_{2max}	780	1 400	2 570	4 140	4 510	8 000	8 700	14 800	26 300	28 500	50 000	54 300	95 900	169 300
			P_{N1}	0.21	0.37	0.69	1.12	1.33	2.15	2.55 2.2	4.18	6.8	8.1 6.5	13.1 10	15.6 10	23.4 17	42.5 27
	355	V 16	P_{N2}	0.16	0.29	0.54	0.89	1.06	1.74	2.07	3.44	5.7	6.8	11.1	13.2	20.3	37.3
			T_{N2}	459	820	1 530	2 530	3 010	4 940	5 900	9 800	16 200	19 200	31 500	37 500	57 600	106 000
			T_{2max}	710	1 330	2 470	4 400	4 780	8 500	9 200	16 200	27 100	29 400	52 900	57 400	94 200	168 500
			P_{N1}	0.16	0.33	0.59	0.94	1.12	1.81	2.15 1.6	3.62	6.1	7.2 5.6	10.8 8.8	12.8 8.8	20.5 14	29.5
18	1 800	IV 100	P_{N2}	0.1	0.22	0.4	0.66	0.79	1.3	1.55	2.67	4.58	5.4	8.3	9.9	16.3	24.5
			T_{N2}	366	770	1 410	2 360	2 810	4 650	5 500	9 500	16 000	19 100	29 700	35 300	57 800	87 000
			T_{2max}	600	1 300	2 330	4 200	4 560	8 100	8 800	15 300	26 800	29 100	50 800	55 200	97 400	148 700
			P_{N1}	0.18	0.34	0.63	1.02	1.22	1.95	2.32 1.7	3.8	5.3	6.3	9.6	11.4	19.1 16	34.9 25
	1 400	IV 80	P_{N2}	0.12	0.23	0.44	0.73	0.87	1.43	1.7	2.86	4.23	5	7.8	9.3	15.7	29.2
			T_{N2}	433	820	1 540	2 630	3 130	5 100	6 100	10 200	14 900	17 700	27 900	33 200	56 100	104 300
			T_{2max}	710	1 410	2 540	4 670	5 100	8 800	9 500	17 400	26 400	28 700	48 400	52 600	91 900	167 100
			P_{N1}	0.19	0.37	0.67	0.88	1.02	1.63	1.94	3.44	5.8	6.9	10.7	12.8 9.2	21.4 15	38.5 23
	1 120	IV 63	P_{N2}	0.13	0.26	0.48	0.68	0.78	1.27	1.51	2.73	4.62	5.5	8.7	10.4	17.7	32.2
			T_{N2}	459	900	1 670	2 420	2 800	4 560	5 400	9 800	16 200	19 300	31 200	37 100	63 100	115 100
			T_{2max}	760	1 460	2 700	4 170	4 670	8 200	8 900	15 600	27 100	29 400	53 000	57 600	99 000	179 800
			P_{N1}		0.2	0.38	0.67	0.78	1.27	1.52	2.45	3.99	4.75	7.2	8.6	14.1	25.2
	1 120	V 63	P_{N2}	—	0.13	0.25	0.45	0.53	0.89	1.06	1.77	2.97	3.53	5.5	6.6	11	20.2
			T_{N2}		446	870	1 600	1 870	3 160	3 760	6 300	10 500	12 500	19 600	23 300	39 000	71 500
			T_{2max}		670	1 330	2 580	2 890	5 300	5 900	10 400	19 300	20 900	36 000	39 100	69 800	126 700
			P_{N1}	0.2	0.32	0.6	0.95	1.12	1.83	2.18	3.6	6	7.1 5.7	11.4 8.9	13.6 8.9	20.2 15	36.7 24
	900	IV 50	P_{N2}	0.13	0.24	0.45	0.73	0.87	1.44	1.71	2.87	4.82	5.7	9.4	11.2	17	31.3
			T_{N2}	488	840	1 580	2 610	3 090	5 100	6 100	10 200	16 900	20 100	33 300	39 700	60 400	111 200
			T_{2max}	800	1 410	2 620	4 700	5 100	9 100	9 900	17 400	29 100	31 600	56 900	61 800	101 300	181 800
			P_{N1}	0.14	0.26	0.47	0.77	0.91	1.46	1.74	2.7	4.54	5.4	8.6	10.3	17.3	30.6 25
	900	V 50	P_{N2}	0.09	0.17	0.31	0.53	0.63	1.05	1.25	2	3.43	4.09	6.7	8	13.7	24.8
			T_{N2}	302	580	1 090	1 860	2 220	3 670	4 360	7 000	12 000	14 300	23 500	27 900	48 000	86 700
			T_{2max}	465	900	1 770	3 420	3 710	6 500	7 100	12 100	21 400	23 300	41 500	45 100	81 000	147 400

Values in red state nominal thermal power Pt_N (ambient temperature 104 °F (40 °C), continuous duty see ch. 3.2).
For n_1 higher than 1 400 rpm or lower than 355 rpm see ch. 3.4 and page 32.
1) Values given for train of gears **IV** are nominal; see page 93 for effective transmission ratios.
2) M_{2max} represents maximum torque peak the gear reducer will withstand.

Nominal powers and torques (gear reducers) 3.5

n_{N2} rpm	n_1 rpm	Train of gears i 1)	P [hP] T [lb in] 2)	Gear reducer size 32	40	50	63	64	80	81	100	125	126	160	161	200	250
			P_{N1}	0.16	0.29	0.51	0.86	1.02	1.63	1.94	3.17	5.1	6.1	9.8	11.7 9.4	18 15	31.9 23
18	710	V 40	P_{N2}	0.1	0.19	0.35	0.61	0.72	1.18	1.41	2.37	3.9	4.65	7.7	9.1	14.4	25.9
			T_{N2}	366	670	1 230	2 160	2 570	4 200	5 000	8 400	13 900	16 500	27 300	32 400	51 200	92 000
			T_{2max}	600	1 160	2 090	3 820	4 150	7 400	8 000	13 900	24 100	26 200	46 200	50 200	88 800	162 000
			P_{N1}	0.18	0.31	0.56	0.91	1.09	1.76	2.09 1.6	3.51	5.8	6.8 5.6	10.4 8.8	12.4 8.8	19.9 14	28.6
	560	V 32	P_{N2}	0.12	0.21	0.39	0.65	0.78	1.29	1.54	2.64	4.45	5.3	8.2	9.8	16	24.1
			T_{N2}	433	770	1 410	2 360	2 810	4 650	5 500	9 500	16 000	19 100	29 700	35 300	57 800	87 000
			T_{2max}	710	1 300	2 330	4 200	4 560	8 100	8 800	15 300	26 800	29 100	50 800	55 200	97 400	148 700
			P_{N1}	0.19	0.34	0.62	1.03	1.22	1.96	2.33 1.7	3.81	5.2	6.2	9.6	11.4	19.1 16	34.9 25
	450	V 25	P_{N2}	0.13	0.23	0.44	0.75	0.89	1.46	1.74	2.92	4.24	5	8	9.5	16	29.8
			T_{N2}	459	820	1 540	2 630	3 130	5 100	6 100	10 200	14 900	17 700	27 900	33 200	56 100	104 300
			T_{2max}	760	1 410	2 540	4 670	5 100	8 800	9 500	17 400	26 400	28 700	48 400	52 600	91 900	167 100
			P_{N1}	0.2	0.36	0.65	0.87	1.01	1.61	1.92	3.4	5.6	6.6	10.6	12.6 9.2	21.1 15	37.9 23
	355	V 20	P_{N2}	0.14	0.25	0.47	0.68	0.79	1.28	1.53	2.75	4.57	5.4	8.8	10.4	17.8	32.4
			T_{N2}	488	900	1 670	2 420	2 800	4 560	5 400	9 800	16 200	19 300	31 200	37 100	63 100	115 100
			T_{2max}	800	1 460	2 700	4 170	4 670	8 200	8 900	15 600	27 100	29 400	53 000	57 600	99 000	179 800
			P_{N1}	0.12	0.25	0.45	0.75	0.89	1.4	1.67	2.76	4.64	5.5	8.8	10.4 8	16.2 12	28.5 20
14	1 800	IV 125	P_{N2}	0.07	0.16	0.29	0.51	0.6	0.98	1.16	1.98	3.38	4.02	6.6	7.9	12.4	22.4
			T_{N2}	312	690	1 270	2 260	2 690	4 360	5 200	8 800	14 800	17 600	29 400	35 000	55 300	99 600
			T_{2max}	467	1 180	2 200	4 020	4 360	7 600	8 200	14 400	25 200	27 400	49 500	53 800	94 400	168 000
			P_{N1}	0.13	0.27	0.49	0.78	0.93	1.49	1.78	3.03	5.1	6 4.8	9 7.6	10.7 7.6	17.1 12	24.4
	1 400	IV 100	P_{N2}	0.08	0.18	0.33	0.54	0.64	1.06	1.26	2.19	3.75	4.46	6.8	8.1	13.4	19.9
			T_{N2}	376	800	1 470	2 460	2 930	4 850	5 800	10 100	16 900	20 100	31 200	37 200	61 100	91 100
			T_{2max}	610	1 330	2 440	4 410	4 790	8 300	9 100	16 100	28 500	31 000	53 100	57 700	100 700	149 200
			P_{N1}	0.15	0.29	0.53	0.86	1.02	1.66	1.98 1.5	3.28	4.52	5.4	8.1	9.7	16.1 13	29.6 21
	1 120	IV 80	P_{N2}	0.1	0.19	0.36	0.6	0.72	1.2	1.42	2.42	3.57	4.25	6.5	7.7	13.1	24.5
			T_{N2}	450	840	1 600	2 700	3 220	5 400	6 400	10 900	15 700	18 600	29 000	34 600	58 600	109 400
			T_{2max}	720	1 430	2 630	4 840	5 300	9 000	9 800	17 800	26 700	29 500	51 000	55 400	95 900	176 700
			P_{N1}	0.16	0.31	0.57	0.75	0.86	1.39	1.64	2.9	4.87	5.8	9.1	10.9 8.2	18.1 13	32.9 20
	900	IV 63	P_{N2}	0.1	0.21	0.39	0.56	0.65	1.07	1.26	2.27	3.86	4.59	7.4	8.8	14.8	27.2
			T_{N2}	476	930	1 720	2 510	2 900	4 760	5 600	10 100	16 900	20 100	32 800	39 000	66 000	121 000
			T_{2max}	780	1 540	2 810	4 270	4 780	8 600	9 300	16 700	29 000	31 500	56 900	61 800	106 400	189 000
			P_{N1}		0.17	0.32	0.58	0.66	1.1	1.3	2.11	3.43	4.08	6.3	7.5	12.4	22.2
	900	V 63	P_{N2}	—	0.1	0.2	0.38	0.43	0.74	0.89	1.49	2.49	2.97	4.69	5.6	9.5	17.4
			T_{N2}		450	870	1 680	1 910	3 280	3 910	6 600	11 000	13 100	20 700	24 600	41 900	77 000
			T_{2max}		670	1 330	2 590	2 910	5 300	6 000	10 500	20 100	21 900	38 800	42 100	75 000	138 800
			P_{N1}	0.16	0.26	0.49	0.8	0.91	1.5	1.79	2.98	4.93	5.9	9.5 8	11.4 8	16.6 13	30.4 21
	710	IV 50	P_{N2}	0.11	0.19	0.37	0.61	0.7	1.17	1.39	2.34	3.95	4.7	7.8	9.2	13.9	25.7
			T_{N2}	500	860	1 620	2 760	3 150	5 300	6 300	10 600	17 500	20 800	34 900	41 600	62 600	115 800
			T_{2max}	840	1 460	2 700	4 970	5 300	9 500	10 300	18 100	31 000	33 700	61 000	66 200	103 700	190 600

Values in red state nominal thermal power Pt_N (ambient temperature 104 °F (40 °C), continuous duty see ch. 3.2).
For n_1 higher than 1 400 rpm or lower than 355 rpm see ch. 3.4 and page 32.
1) Values given for train of gears **IV** are nominal; see page 93 for effective transmission ratios.
2) M_{2max} represents maximum torque peak the gear reducer will withstand.

Nominal powers and torques (gear reducers)

n_{N2} rpm	n_1 rpm	Train of gears i 1)	P [hP] T [lb in] 2)	Gear reducer size 32	40	50	63	64	80	81	100	125	126	160	161	200	250
			P_{N1}	0.12	0.22	0.4	0.65	0.77	1.23	1.46	2.3	3.85	4.58	7.4	8.9	14.8	26.7 21
14	710	**V** 50	P_{N2}	0.07	0.14	0.26	0.44	0.52	0.86	1.02	1.66	2.85	3.39	5.7	6.7	11.6	21.3
			T_{N2}	312	610	1 140	1 940	2 310	3 800	4 530	7 400	12 700	15 100	25 100	29 900	51 400	94 600
			T_{2max}	467	910	1 780	3 480	3 900	6 700	7 300	12 800	23 000	25 000	44 600	48 500	86 300	158 300
			P_{N1}	0.13	0.24	0.42	0.72	0.86	1.36	1.62	2.67	4.41	5.2	8.5	10.1 8	15.7 12	27.5 20
	560	**V** 40	P_{N2}	0.08	0.15	0.28	0.5	0.6	0.97	1.15	1.96	3.28	3.9	6.5	7.8	12.3	22.1
			T_{N2}	376	690	1 270	2 260	2 690	4 360	5 200	8 800	14 800	17 600	29 400	35 000	55 300	99 600
			T_{2max}	610	1 180	2 200	4 020	4 360	7 600	8 200	14 400	25 200	27 400	49 500	53 800	94 400	168 000
			P_{N1}	0.15	0.27	0.48	0.78	0.93	1.5	1.78 1.5	3.04	4.97	5.9 4.8	9 7.6	10.7 7.6	17.1 12	24.4
	450	**V** 32	P_{N2}	0.1	0.18	0.33	0.55	0.65	1.08	1.29	2.24	3.76	4.48	7	8.3	13.6	20.3
			T_{N2}	450	800	1 470	2 460	2 930	4 850	5 800	10 100	16 900	20 100	31 200	37 200	61 100	91 100
			T_{2max}	720	1 330	2 440	4 410	4 790	8 300	9 100	16 100	28 500	31 000	53 100	57 700	100 700	149 200
			P_{N1}	0.16	0.28	0.52	0.85	1.01	1.64	1.95 1.5	3.24	4.38	5.2	8	9.5	15.9 13	29.2 21
	355	**V** 25	P_{N2}	0.11	0.19	0.36	0.61	0.73	1.21	1.44	2.44	3.53	4.2	6.5	7.8	13.2	24.6
			T_{N2}	476	840	1 600	2 700	3 220	5 400	6 400	10 900	15 700	18 600	29 000	34 600	58 600	109 400
			T_{2max}	780	1 430	2 630	4 840	5 300	9 000	9 800	17 800	26 700	29 500	51 000	55 400	95 900	176 700
			P_{N1}		0.19	0.35	0.56	0.66	1.05	1.25	2.01	3.44	4.09	6.6	7.8	13.2	23.5 18
11.2	1 800	**IV** 160	P_{N2}	—	0.11	0.22	0.36	0.43	0.71	0.84	1.39	2.44	2.9	4.78	5.7	9.9	18.1
			T_{N2}		620	1 190	2 020	2 400	3 930	4 680	7 800	13 300	15 900	26 600	31 600	55 000	100 400
			T_{2max}		910	1 790	3 500	3 920	7 100	7 700	13 200	24 500	26 600	46 500	50 500	89 100	163 700
			P_{N1}	0.09	0.2	0.37	0.61	0.73	1.14	1.36	2.27	3.85	4.58	7.5	8.9 6.9	13.6 11	23.8 17
	1 400	**IV** 125	P_{N2}	0.05	0.13	0.23	0.41	0.49	0.78	0.93	1.6	2.75	3.27	5.5	6.6	10.3	18.4
			T_{N2}	320	700	1 300	2 350	2 790	4 490	5 300	9 200	15 400	18 400	31 500	37 500	58 600	105 300
			T_{2max}	469	1 190	2 300	4 200	4 560	7 900	8 600	15 100	26 700	29 000	51 600	56 100	97 300	178 200
			P_{N1}	0.11	0.23	0.41	0.66	0.79	1.27	1.51	2.58	4.34	5.2 4.2	7.7 6.5	9.2 6.5	14.8 10	21
	1 120	**IV** 100	P_{N2}	0.07	0.15	0.27	0.45	0.53	0.88	1.05	1.83	3.16	3.76	5.8	6.8	11.3	16.9
			T_{N2}	384	830	1 520	2 560	3 030	5 000	6 000	10 500	17 700	21 100	32 900	39 100	64 600	96 700
			T_{2max}	610	1 370	2 500	4 600	5 000	8 700	9 500	16 900	30 000	32 500	56 300	61 100	106 300	158 600
			P_{N1}	0.13	0.24	0.45	0.74	0.86	1.41	1.68 1.4	2.81	3.84	4.57	6.9	8.2	13.7	25.1 19
	900	**IV** 80	P_{N2}	0.08	0.16	0.3	0.51	0.59	1	1.19	2.04	2.99	3.56	5.5	6.5	11	20.5
			T_{N2}	467	870	1 660	2 830	3 310	5 600	6 600	11 400	16 300	19 400	30 400	36 200	61 300	114 000
			T_{2max}	740	1 500	2 760	5 100	5 500	9 600	10 400	19 100	27 400	30 700	54 600	59 300	101 700	185 300
			P_{N1}	0.13	0.26	0.47	0.63	0.7	1.18	1.36	2.4	4	4.76	7.6	9 7.3	15 11	27.3 18
	710	**IV** 63	P_{N2}	0.09	0.17	0.32	0.47	0.53	0.89	1.03	1.85	3.13	3.73	6	7.2	12.2	22.3
			T_{N2}	492	960	1 770	2 650	2 970	5 100	5 800	10 500	17 400	20 700	34 000	40 500	68 600	125 900
			T_{2max}	820	1 620	2 950	4 370	4 890	9 000	9 800	17 400	30 900	33 600	60 800	66 000	113 800	202 900
			P_{N1}		0.14	0.26	0.49	0.54	0.93	1.09	1.8	2.9	3.45	5.3	6.4	10.6	19
	710	**V** 63	P_{N2}	—	0.08	0.16	0.31	0.35	0.61	0.72	1.24	2.06	2.45	3.92	4.66	8	14.7
			T_{N2}		454	900	1 740	1 950	3 430	4 030	6 900	11 500	13 700	21 900	26 100	44 700	82 200
			T_{2max}		680	1 340	2 610	2 920	5 400	6 000	10 500	20 600	23 100	40 500	44 000	77 600	143 800

Values in red state nominal thermal power Pt_N (ambient temperature 104 °F (40 °C), continuous duty see ch. 3.2).
For n_1 higher than 1 400 rpm or lower than 355 rpm see ch. 3.4 and page 32.
1) Values given for train of gears **IV** are nominal; see page 93 for effective transmission ratios.
2) M_{2max} represents maximum torque peak the gear reducer will withstand.

Nominal powers and torques (gear reducers) 3.5

n_{N2} rpm	n_1 rpm	Train of gears i 1)	P [hP] T [lb in] 2)	Gear reducer size 32	40	50	63	64	80	81	100	125	126	160	161	200	250
11.2	560	IV 50	P_{N1}	0.13	0.21	0.4	0.67	0.74	1.26	1.48	2.45	4.05	4.82	7.9	9.4 7.2	13.7	24.9 19
			P_{N2}	0.09	0.16	0.3	0.51	0.56	0.97	1.13	1.91	3.2	3.81	6.4	7.6	11.3	20.9
			T_{N2}	510	880	1 660	2 910	3 200	5 600	6 500	10 900	18 000	21 400	36 300	43 200	64 800	119 500
			T_{2max}	880	1 500	2 840	5 200	5 400	10 000	10 800	19 200	32 400	35 200	65 100	70 700	105 900	195 100
			P_{N1}	0.1	0.18	0.34	0.54	0.64	1.02	1.22	1.95	3.27	3.89	6.3	7.5	12.8	22.7 18
	560	V 50	P_{N2}	0.06	0.11	0.21	0.36	0.43	0.7	0.83	1.38	2.37	2.82	4.72	5.6	9.8	17.8
			T_{N2}	320	620	1 190	2 020	2 400	3 930	4 680	7 800	13 300	15 900	26 600	31 600	55 000	100 400
			T_{2max}	469	910	1 790	3 500	3 920	7 100	7 700	13 200	24 500	26 600	46 500	50 500	89 100	163 700
			P_{N1}	0.11	0.2	0.36	0.62	0.73	1.15	1.36	2.27	3.78	4.5	7.5	8.9 6.9	13.6 11	23.8 17
	450	V 40	P_{N2}	0.07	0.13	0.23	0.42	0.5	0.8	0.95	1.63	2.75	3.28	5.6	6.7	10.5	18.8
			T_{N2}	384	700	1 300	2 350	2 790	4 490	5 300	9 200	15 400	18 400	31 500	37 500	58 600	105 300
			T_{2max}	610	1 190	2 300	4 200	4 560	7 900	8 600	15 100	26 700	29 000	51 600	56 100	97 300	178 200
			P_{N1}	0.13	0.22	0.4	0.65	0.78	1.25	1.49	2.55	4.2	5 4.2	7.6 6.5	9.1 6.5	14.6 10	20.7
	355	V 32	P_{N2}	0.08	0.15	0.27	0.45	0.53	0.89	1.05	1.85	3.12	3.72	5.8	6.9	11.4	17
			T_{N2}	467	830	1 520	2 560	3 030	5 000	6 000	10 500	17 700	21 100	32 900	39 100	64 600	96 700
			T_{2max}	740	1 370	2 500	4 600	5 000	8 700	9 500	16 900	30 000	32 500	56 300	61 100	106 300	158 600
			P_{N1}		0.12	0.23	0.42	0.47	0.81	0.92	2.19	3.61	4.3	6.6	7.9 5.8	12.6 9.1	17.7
9	1 800	IV 200	P_{N2}	—	0.07	0.13	0.25	0.28	0.51	0.58	1.53	2.58	3.08	4.84	5.8	9.5	14.1
			T_{N2}		464	920	1 780	2 000	3 590	4 100	11 000	18 400	21 900	34 600	41 200	67 900	101 000
			T_{2max}		680	1 340	2 620	2 930	5 400	6 000	18 000	32 000	34 700	60 200	65 400	111 400	162 000
			P_{N1}		0.15	0.29	0.46	0.55	0.86	1.03	1.66	2.86	3.4	5.4	6.4	11	19.5 16
	1 400	IV 160	P_{N2}	—	0.09	0.17	0.29	0.35	0.57	0.67	1.13	1.98	2.36	3.86	4.59	8.1	14.7
			T_{N2}		630	1 230	2 100	2 490	4 050	4 820	8 100	13 900	16 600	27 600	32 800	57 800	105 300
			T_{2max}		910	1 790	3 500	3 920	7 200	8 000	13 800	25 100	27 300	49 400	53 700	94 000	168 800
			P_{N1}	0.08	0.17	0.31	0.51	0.61	0.96	1.14	1.91	3.28	3.9	6.4	7.6 5.9	11.8 9.3	20.7 15
	1 120	IV 125	P_{N2}	0.04	0.1	0.19	0.33	0.4	0.65	0.77	1.32	2.3	2.73	4.64	5.5	8.7	15.7
			T_{N2}	327	710	1 340	2 390	2 840	4 620	5 500	9 500	16 100	19 200	33 100	39 400	62 200	112 400
			T_{2max}	469	1 190	2 330	4 290	4 660	8 300	9 000	15 800	28 000	30 400	54 400	59 100	102 400	183 400
			P_{N1}	0.09	0.19	0.35	0.56	0.66	1.08	1.29	2.2	3.68	4.38 3.7	6.6	7.9 5.8	12.7 9.1	17.8
	900	IV 100	P_{N2}	0.05	0.12	0.23	0.37	0.44	0.74	0.88	1.54	2.63	3.13	4.87	5.8	9.5	14.2
			T_{N2}	387	850	1 580	2 660	3 130	5 200	6 200	11 000	18 400	21 900	34 600	41 200	67 900	101 000
			T_{2max}	610	1 440	2 630	4 790	5 200	9 300	10 100	18 000	32 000	34 700	60 200	65 400	111 400	162 000
			P_{N1}	0.11	0.2	0.38	0.63	0.7	1.17	1.39	2.34	3.22	3.78	5.9	6.9	11.3	20.6 17
	710	IV 80	P_{N2}	0.07	0.13	0.25	0.42	0.48	0.81	0.96	1.67	2.48	2.91	4.59	5.4	9	16.7
			T_{N2}	483	900	1 710	2 990	3 360	5 700	6 800	11 800	17 100	20 100	32 300	37 700	63 100	117 400
			T_{2max}	780	1 580	2 890	5 400	5 800	10 000	10 900	20 300	28 000	31 300	56 100	62 900	108 600	198 300
			P_{N1}	0.11	0.21	0.38	0.53	0.57	0.99	1.12	1.95	3.3	3.9	6.3	7.4	12.4 10	22.3 16
	560	IV 63	P_{N2}	0.07	0.14	0.26	0.39	0.42	0.74	0.84	1.49	2.55	3.01	4.93	5.9	10	18
			T_{N2}	510	990	1 810	2 790	3 040	5 300	6 000	10 700	17 900	21 100	35 200	41 800	71 100	128 900
			T_{2max}	840	1 690	3 100	4 460	4 990	9 200	10 300	18 000	32 200	35 000	63 400	68 900	121 200	216 700

Values in red state nominal thermal power Pt_N (ambient temperature 104 °F (40 °C), continuous duty see ch. 3.2).
For n_1 higher than 1 400 rpm or lower than 355 rpm see ch. 3.4 and page 32.
1) Values given for train of gears **IV** are nominal; see page 93 for effective transmission ratios.
2) M_{2max} represents maximum torque peak the gear reducer will withstand.

Nominal powers and torques (gear reducers) 3.5

n_{N2} rpm	n_1 rpm	Train of gears i 1)	P [hP] T [lb in] 2)	Gear reducer size 32	40	50	63	64	80	81	100	125	126	160	161	200	250
			P_{N1}		0.12	0.22	0.4	0.45	0.78	0.9	1.51	2.48	2.95	4.56	5.4	9.1	16.2
9	560	**V** 63	P_{N2}	—	0.07	0.13	0.25	0.28	0.51	0.58	1.01	1.71	2.04	3.26	3.85	6.7	12.3
			T_{N2}		464	920	1 780	2 000	3 590	4 100	7 200	12 100	14 400	23 100	27 300	47 400	87 100
			T_{2max}		680	1 340	2 620	2 930	5 400	6 000	10 600	20 700	23 200	43 200	47 000	80 100	152 200
			P_{N1}	0.11	0.18	0.33	0.56	0.61	1.08	1.23	2.07	3.48	4	6.7	7.9 6.2	11.6	20.8 17
	450	**IV** 50	P_{N2}	0.07	0.13	0.24	0.42	0.46	0.82	0.93	1.59	2.73	3.13	5.3	6.3	9.5	17.3
			T_{N2}	530	900	1 700	3 010	3 260	5 900	6 600	11 300	19 100	21 900	37 700	44 600	67 400	123 200
			T_{2max}	920	1 530	2 970	5 400	5 500	10 500	11 200	19 800	34 300	37 000	67 800	73 600	108 500	201 900
			P_{N1}	0.08	0.15	0.29	0.46	0.55	0.87	1.03	1.67	2.81	3.34	5.4	6.4	11	19.5 16
	450	**V** 50	P_{N2}	0.05	0.09	0.18	0.3	0.36	0.58	0.69	1.15	1.99	2.37	3.94	4.69	8.3	15
			T_{N2}	327	630	1 230	2 100	2 490	4 050	4 820	8 100	13 900	16 600	27 600	32 800	57 800	105 300
			T_{2max}	469	910	1 790	3 500	3 920	7 200	8 000	13 800	25 100	27 300	49 400	53 700	94 000	168 800
			P_{N1}	0.09	0.16	0.3	0.51	0.6	0.95	1.13	1.89	3.18	3.78	6.3	7.5 5.9	11.6 9.3	20.4 15
	355	**V** 40	P_{N2}	0.05	0.1	0.19	0.34	0.4	0.65	0.77	1.33	2.27	2.7	4.67	5.6	8.8	15.8
			T_{N2}	387	710	1 340	2 390	2 840	4 620	5 500	9 500	16 100	19 200	33 100	39 400	62 200	112 400
			T_{2max}	610	1 190	2 330	4 290	4 660	8 300	9 000	15 800	28 000	30 400	54 400	59 100	102 400	183 400
			P_{N1}								1.61	2.72	3.24	5.4	6.4 5.3	10.2 8.1	17.8 13
7.1	1 800	**IV** 250	P_{N2}	—	—	—	—	—	—	—	1.09	1.87	2.22	3.84	4.58	7.4	13.3
			T_{N2}								9 800	16 600	19 800	34 400	40 900	66 200	118 600
			T_{2max}								16 400	29 800	32 400	58 000	63 000	107 100	196 500
			P_{N1}		0.1	0.19	0.34	0.38	0.67	0.75	1.8	2.92	3.48	5.4	6.4 5.2	10.4 8	14.4
	1 400	**IV** 200	P_{N2}	—	0.05	0.11	0.2	0.23	0.41	0.46	1.23	2.05	2.45	3.91	4.65	7.7	11.4
			T_{N2}		474	930	1 820	2 040	3 740	4 180	11 300	18 800	22 400	35 900	42 800	71 000	104 500
			T_{2max}		680	1 340	2 620	2 930	5 400	6 000	18 800	33 300	36 200	64 100	69 700	119 000	165 100
			P_{N1}		0.13	0.25	0.39	0.46	0.74	0.87	1.41	2.44	2.89	4.59	5.5	9.3	16.5 14
	1 120	**IV** 160	P_{N2}	—	0.07	0.14	0.24	0.29	0.47	0.56	0.93	1.66	1.97	3.2	3.81	6.7	12.2
			T_{N2}		650	1 270	2 190	2 560	4 210	5 000	8 400	14 600	17 300	28 600	34 000	60 000	109 400
			T_{2max}		910	1 790	3 510	3 930	7 200	8 000	14 100	26 300	28 500	50 600	55 000	96 400	177 600
			P_{N1}	0.07	0.14	0.26	0.44	0.5	0.82	0.96	1.61	2.77	3.3	5.4	6.5 5.3	10.3 8.1	17.9 13
	900	**IV** 125	P_{N2}	0.04	0.08	0.16	0.28	0.32	0.54	0.63	1.1	1.9	2.26	3.87	4.6	7.4	13.3
			T_{N2}	334	730	1 360	2 520	2 870	4 790	5 600	9 800	16 600	19 800	34 400	40 900	66 200	118 600
			T_{2max}	471	1 210	2 380	4 540	4 870	8 600	9 400	16 400	29 800	32 400	58 000	63 000	107 100	196 500
			P_{N1}	0.07	0.16	0.29	0.48	0.54	0.89	1.06	1.83	3.02	3.59	5.5	6.6 5.2	10.7 8	14.7
	710	**IV** 100	P_{N2}	0.04	0.1	0.18	0.31	0.35	0.6	0.71	1.25	2.12	2.53	3.99	4.74	7.9	11.6
			T_{N2}	397	870	1 620	2 800	3 190	5 400	6 400	11 300	18 800	22 400	35 900	42 800	71 000	104 500
			T_{2max}	620	1 480	2 700	5 000	5 400	9 700	10 500	18 800	33 300	36 200	64 100	69 700	119 000	165 100
			P_{N1}	0.09	0.16	0.31	0.52	0.58	0.96	1.13	1.94	2.67	3.07	4.88	5.6	9.3	16.9
	560	**IV** 80	P_{N2}	0.05	0.11	0.2	0.35	0.38	0.66	0.77	1.36	2.03	2.34	3.77	4.33	7.3	13.5
			T_{N2}	494	920	1 750	3 090	3 440	5 900	6 900	12 200	17 800	20 500	33 600	38 700	65 000	120 500
			T_{2max}	800	1 620	3 030	5 600	5 800	10 600	11 400	21 100	28 500	31 900	57 200	64 100	111 800	211 200

Values in red state nominal thermal power Pt_N (ambient temperature 104 °F (40 °C), continuous duty see ch. 3.2).
For n_1 higher than 1 400 rpm or lower than 355 rpm see ch. 3.4 and page 32.
1) Values given for train of gears **IV** are nominal; see page 93 for effective transmission ratios.
2) M_{2max} represents maximum torque peak the gear reducer will withstand.

Nominal powers and torques (gear reducers) 3.5

n_{N2}	n_1	Train of gears i	P [hP] T [lb in]	Gear reducer size													
rpm		1)	2)	32	40	50	63	64	80	81	100	125	126	160	161	200	250
			P_{N1}	0.09	0.18	0.32	0.44	0.47	0.85	0.95	1.63	2.83	3.23	5.3	6.2	10.4	18.5 14
7.1	450	IV 63	P_{N2}	0.06	0.12	0.21	0.32	0.34	0.63	0.71	1.23	2.16	2.47	4.12	4.86	8.2	14.8
			T_{N2}	520	1 020	1 860	2 880	3 060	5 600	6 300	11 000	18 900	21 600	36 700	43 200	73 100	132 000
			T_{2max}	870	1 730	3 240	4 560	5 100	9 400	10 500	18 400	34 000	36 600	66 000	71 700	126 200	230 500
			P_{N1}		0.1	0.19	0.34	0.38	0.67	0.75	1.28	2.13	2.54	3.96	4.66	7.7	13.9
	450	V 63	P_{N2}	—	0.05	0.11	0.21	0.23	0.42	0.47	0.84	1.44	1.71	2.75	3.24	5.6	10.3
			T_{N2}		474	930	1 820	2 040	3 740	4 180	7 400	12 700	15 100	24 300	28 600	49 200	91 100
			T_{2max}		680	1 340	2 620	2 930	5 400	6 000	10 600	20 700	23 200	43 500	48 500	84 300	156 600
			P_{N1}	0.09	0.14	0.27	0.47	0.49	0.89	1	1.68	2.87	3.28	5.5	6.4	9.5	17.3
	355	IV 50	P_{N2}	0.06	0.1	0.2	0.35	0.37	0.67	0.75	1.28	2.22	2.54	4.32	5.1	7.7	14.2
			T_{N2}	540	920	1 740	3 150	3 310	6 000	6 800	11 600	19 700	22 500	38 900	45 600	69 600	128 200
			T_{2max}	940	1 560	3 040	5 700	5 600	10 900	11 500	20 800	35 400	37 500	71 600	77 400	110 700	206 100
			P_{N1}	0.07	0.13	0.24	0.39	0.46	0.73	0.86	1.4	2.37	2.8	4.52	5.4	9.2	16.3 14
	355	V 50	P_{N2}	0.04	0.07	0.14	0.25	0.29	0.47	0.56	0.94	1.64	1.94	3.22	3.84	6.8	12.3
			T_{N2}	334	650	1 270	2 190	2 560	4 210	5 000	8 400	14 600	17 300	28 600	34 000	60 000	109 400
			T_{2max}	471	910	1 790	3 510	3 930	7 200	8 000	14 100	26 300	28 500	50 600	55 000	96 400	177 600
			P_{N1}								1.19	2.09	2.4	3.92	4.58	7.9	14
5.6	1 800	IV 315	P_{N2}	—	—	—	—	—	—	—	0.77	1.39	1.6	2.68	3.14	5.6	10.2
			T_{N2}								8 600	15 500	17 800	30 000	35 100	62 500	113 600
			T_{2max}								14 400	27 900	30 300	53 900	58 600	102 800	185 700
			P_{N1}								1.32	2.24	2.65	4.4	5.2	8.4	14.7 11
	1 400	IV 250	P_{N2}	—	—	—	—	—	—	—	0.87	1.51	1.78	3.07	3.65	6	10.8
			T_{N2}								10 100	17 200	20 400	35 300	41 900	68 600	123 900
			T_{2max}								17 100	31 000	33 700	61 600	66 900	114 100	205 200
			P_{N1}		0.08	0.16	0.28	0.32	0.56	0.63	1.5	2.48	2.91	4.57	5.4	8.7 7.2	12.2
	1 120	IV 200	P_{N2}	—	0.04	0.09	0.16	0.18	0.34	0.38	1.01	1.7	2	3.24	3.86	6.4	9.5
			T_{N2}		482	950	1 860	2 080	3 810	4 270	11 600	19 500	22 900	37 300	44 400	73 100	108 700
			T_{2max}		680	1 340	2 620	2 930	5 400	6 000	19 400	34 600	37 600	66 800	72 500	126 500	172 400
			P_{N1}		0.11	0.21	0.34	0.39	0.63	0.74	1.2	2.13	2.45	3.94	4.61	8	14.1 12
	900	IV 160	P_{N2}	—	0.06	0.12	0.21	0.23	0.39	0.46	0.77	1.42	1.63	2.7	3.15	5.6	10.2
			T_{N2}		660	1 300	2 310	2 610	4 380	5 100	8 600	15 500	17 800	30 000	35 100	62 500	113 600
			T_{2max}		930	1 830	3 580	4 010	7 300	8 200	14 400	27 900	30 300	53 900	58 600	102 800	185 700
			P_{N1}	0.05	0.12	0.21	0.37	0.41	0.7	0.8	1.34	2.32	2.74	4.49	5.3	8.5	15 11
	710	IV 125	P_{N2}	0.03	0.07	0.13	0.23	0.26	0.45	0.51	0.89	1.56	1.84	3.13	3.72	6.1	11
			T_{N2}	341	750	1 400	2 600	2 890	5 100	5 800	10 100	17 200	20 400	35 300	41 900	68 600	123 900
			T_{2max}	481	1 240	2 430	4 680	4 920	9 100	9 800	17 100	31 000	33 700	61 600	66 900	114 100	205 200
			P_{N1}	0.06	0.13	0.24	0.4	0.44	0.75	0.88	1.51	2.52	2.96	4.6	5.5	8.8 7.2	12.3
	560	IV 100	P_{N2}	0.03	0.08	0.15	0.25	0.28	0.49	0.57	1.02	1.74	2.04	3.26	3.88	6.4	9.5
			T_{N2}	407	890	1 660	2 890	3 240	5 600	6 600	11 600	19 500	22 900	37 300	44 400	73 100	108 700
			T_{2max}	640	1 520	2 830	5 200	5 400	10 200	10 900	19 400	34 600	37 600	66 800	72 500	126 500	172 400

Values in red state nominal thermal power Pt_N (ambient temperature 104 °F (40 °C), continuous duty see ch. 3.2).
For n_1 higher than 1 400 rpm or lower than 355 rpm see ch. 3.4 and page 32.
1) Values given for train of gears **IV** are nominal; see page 93 for effective transmission ratios.
2) M_{2max} represents maximum torque peak the gear reducer will withstand.

Nominal powers and torques (gear reducers) 3.5

n_{N2} rpm	n_1 rpm	Train of gears i 1)	P [hP] T [lb in] 2)	Gear reducer size 32	40	50	63	64	80	81	100	125	126	160	161	200	250
			P_{N1}	0.07	0.14	0.25	0.44	0.48	0.83	0.95	1.62	2.29	2.58	4.12	4.74	7.9	14.1
5.6	450	**IV** 80	P_{N2}	0.04	0.09	0.16	0.29	0.31	0.55	0.63	1.12	1.72	1.93	3.14	3.62	6.1	11.2
			T_{N2}	499	960	1 790	3 250	3 490	6 200	7 100	12 500	18 700	21 100	34 900	40 200	67 900	124 100
			T_{2max}	820	1 660	3 110	5 800	6 000	10 900	11 900	22 100	29 100	32 600	58 500	65 500	114 200	219 800
			P_{N1}	0.07	0.14	0.26	0.36	0.37	0.69	0.77	1.32	2.34	2.64	4.46	5.1	8.5	15.2 12
	355	**IV** 63	P_{N2}	0.05	0.09	0.17	0.26	0.27	0.51	0.57	0.99	1.76	1.99	3.43	3.92	6.7	12
			T_{N2}	530	1 030	1 880	2 960	3 070	5 800	6 400	11 100	19 500	22 100	38 600	44 100	75 200	135 500
			T_{2max}	900	1 770	3 320	4 650	5 200	9 600	10 700	18 800	35 100	36 900	69 600	75 000	131 100	239 800
			P_{N1}		0.08	0.15	0.28	0.31	0.56	0.62	1.05	1.83	2.1	3.41	3.92	6.4	11.6
	355	**V** 63	P_{N2}	—	0.04	0.09	0.17	0.19	0.34	0.38	0.67	1.21	1.39	2.32	2.67	4.53	8.4
			T_{N2}		482	950	1 860	2 080	3 810	4 270	7 500	13 500	15 500	25 900	29 800	50 600	94 400
			T_{2max}		680	1 340	2 620	2 930	5 400	6 000	10 600	20 700	23 200	43 500	48 700	84 900	164 200
			P_{N1}								0.98	1.73	2	3.3	3.77	6.4	11.4
4.5	1 400	**IV** 315	P_{N2}	—	—	—	—	—	—	—	0.62	1.13	1.3	2.21	2.53	4.46	8.1
			T_{N2}								8 900	16 100	18 600	31 800	36 400	64 100	117 000
			T_{2max}								14 700	28 800	31 500	57 200	62 200	109 300	197 800
			P_{N1}								1.11	1.9	2.21	3.66	4.36	7.1	12.3 10
	1 120	**IV** 250	P_{N2}	—	—	—	—	—	—	—	0.72	1.25	1.45	2.5	2.97	4.94	8.9
			T_{N2}								10 400	17 900	20 800	35 900	42 700	71 000	127 500
			T_{2max}								18 000	32 200	35 000	64 000	69 600	121 000	218 300
			P_{N1}		0.07	0.13	0.24	0.27	0.47	0.53	1.26	2.1	2.42	3.88	4.6	7.4	10.3
	900	**IV** 200	P_{N2}	—	0.04	0.07	0.13	0.15	0.28	0.31	0.83	1.43	1.64	2.69	3.19	5.3	7.9
			T_{N2}		492	970	1 890	2 120	3 880	4 350	11 900	20 300	23 400	38 500	45 700	75 300	112 800
			T_{2max}		690	1 370	2 670	2 990	5 500	6 100	20 400	36 600	39 500	69 400	75 400	131 600	175 600
			P_{N1}		0.09	0.17	0.28	0.32	0.53	0.61	0.99	1.79	2.07	3.36	3.85	6.6	11.6
	710	**IV** 160	P_{N2}	—	0.05	0.1	0.17	0.19	0.33	0.37	0.63	1.16	1.35	2.26	2.58	4.55	8.3
			T_{N2}		670	1 320	2 380	2 630	4 610	5 300	8 900	16 100	18 600	31 800	36 400	64 100	117 000
			T_{2max}		950	1 860	3 640	4 080	7 500	8 400	14 700	28 800	31 500	57 200	62 200	109 300	197 800
			P_{N1}	0.04	0.1	0.17	0.31	0.34	0.58	0.66	1.11	1.94	2.25	3.68	4.38	7.1	12.4 10
	560	**IV** 125	P_{N2}	0.02	0.05	0.1	0.19	0.21	0.36	0.41	0.72	1.28	1.48	2.51	2.99	4.97	8.9
			T_{N2}	347	770	1 440	2 730	2 970	5 200	5 900	10 400	17 900	20 800	35 900	42 700	71 000	127 500
			T_{2max}	489	1 260	2 470	4 810	5 000	9 400	10 100	18 000	32 200	35 000	64 000	69 600	121 000	218 300
			P_{N1}	0.05	0.11	0.2	0.33	0.37	0.63	0.73	1.27	2.14	2.47	3.9	4.63	7.4	10.4
	450	**IV** 100	P_{N2}	0.03	0.06	0.12	0.21	0.23	0.41	0.47	0.84	1.45	1.67	2.71	3.21	5.3	7.9
			T_{N2}	424	900	1 680	2 980	3 270	5 800	6 700	11 900	20 300	23 400	38 500	45 700	75 300	112 800
			T_{2max}	650	1 550	2 900	5 400	5 400	10 500	11 200	20 400	36 600	39 500	69 400	75 400	131 600	175 600
			P_{N1}	0.06	0.11	0.21	0.36	0.39	0.68	0.77	1.34	1.89	2.08	3.46	3.95	6.5	11.6
	355	**IV** 80	P_{N2}	0.03	0.07	0.13	0.24	0.25	0.45	0.51	0.91	1.4	1.53	2.61	2.97	4.97	9.1
			T_{N2}	510	980	1 820	3 340	3 550	6 400	7 200	12 800	19 300	21 300	36 700	41 800	70 000	127 800
			T_{2max}	850	1 730	3 180	6 000	6 000	11 200	12 100	22 700	29 700	33 200	59 500	66 700	116 200	226 800

Values in red state nominal thermal power Pt_N (ambient temperature 104 °F (40 °C), continuous duty see ch. 3.2).
For n_1 higher than 1 400 rpm or lower than 355 rpm see ch. 3.4 and page 32.
1) Values given for train of gears **IV** are nominal; see page 93 for effective transmission ratios.
2) M_{2max} represents maximum torque peak the gear reducer will withstand.

Nominal powers and torques (gear reducers) 3.5

n_{N2}	n_1	Train of gears i	P [hP] T [lb in]	Gear reducer size													
rpm		1)	2)	32	40	50	63	64	80	81	100	125	126	160	161	200	250
			P_{N1}								0.82	1.46	1.67	2.81	3.23	5.4	9.6
4.5	1 120	**IV** 315	P_{N2}	—	—	—	—	—	—	—	0.51	0.93	1.07	1.84	2.11	3.63	6.7
			T_{N2}								9 100	16 700	19 100	33 000	38 000	65 300	120 900
			T_{2max}								14 900	29 300	32 500	59 500	64 600	113 600	209 900
			P_{N1}								0.94	1.64	1.86	3.09	3.65	5.9	10.5
	900	**IV** 250	P_{N2}	—	—	—	—	—	—	—	0.6	1.06	1.2	2.06	2.44	4.06	7.4
			T_{N2}								10 700	18 800	21 300	36 900	43 700	72 600	132 300
			T_{2max}								18 500	33 900	36 200	66 500	72 200	125 700	231 400
			P_{N1}		0.06	0.11	0.2	0.22	0.39	0.43	1.03	1.75	2	3.28	3.77	6.1	8.5
	710	**IV** 200	P_{N2}	—	0.03	0.06	0.11	0.12	0.22	0.25	0.67	1.16	1.32	2.24	2.57	4.28	6.4
			T_{N2}		500	990	1 920	2 150	3 950	4 420	12 100	20 900	23 900	40 600	46 700	77 500	116 700
			T_{2max}		710	1 390	2 710	3 040	5 600	6 200	20 900	37 700	39 900	73 100	79 000	136 700	178 300
			P_{N1}		0.07	0.14	0.24	0.26	0.44	0.5	0.82	1.49	1.7	2.82	3.25	5.4	9.7
	560	**IV** 160	P_{N2}	—	0.04	0.08	0.14	0.15	0.27	0.3	0.51	0.95	1.09	1.85	2.13	3.66	6.8
			T_{N2}		680	1 340	2 490	2 700	4 750	5 400	9 100	16 700	19 100	33 000	38 000	65 300	120 900
			T_{2max}		960	1 890	3 700	4 140	7 600	8 500	14 900	29 300	32 500	59 500	64 600	113 600	209 900
			P_{N1}	0.04	0.08	0.15	0.26	0.28	0.49	0.56	0.94	1.67	1.89	3.1	3.67	6	10.6 8.9
	450	**IV** 125	P_{N2}	0.02	0.05	0.08	0.16	0.17	0.31	0.34	0.6	1.08	1.22	2.08	2.46	4.08	7.4
			T_{N2}	352	800	1 470	2 810	2 990	5 500	6 100	10 700	18 800	21 300	36 900	43 700	72 600	132 300
			T_{2max}	497	1 280	2 510	4 900	5 100	9 800	10 400	18 500	33 900	36 200	66 500	72 200	125 700	231 400
			P_{N1}	0.04	0.09	0.16	0.27	0.29	0.52	0.59	1.03	1.78	2.03	3.3	3.79	6.1	8.5
	355	**IV** 100	P_{N2}	0.02	0.05	0.1	0.17	0.18	0.33	0.37	0.67	1.18	1.35	2.25	2.59	4.3	6.5
			T_{N2}	441	920	1 710	3 060	3 310	6 000	6 800	12 100	20 900	23 900	40 600	46 700	77 500	116 700
			T_{2max}	660	1 610	3 010	5 500	5 500	10 800	11 400	20 900	37 700	39 900	73 100	79 000	136 700	178 300
			P_{N1}								0.69	1.26	1.41	2.38	2.73	4.52	8.1
2.8	900	**IV** 315	P_{N2}	—	—	—	—	—	—	—	0.42	0.79	0.88	1.53	1.75	2.99	5.6
			T_{N2}								9 300	17 500	19 600	34 200	39 200	66 800	124 100
			T_{2max}								15 200	29 800	33 300	61 600	66 700	117 800	218 000
			P_{N1}								0.76	1.36	1.52	2.6	2.98	4.85	8.7
	710	**IV** 250	P_{N2}	—	—	—	—	—	—	—	0.48	0.86	0.96	1.71	1.96	3.27	6
			T_{N2}								10 800	19 400	21 700	38 800	44 400	74 200	136 300
			T_{2max}								19 300	34 900	36 500	68 900	75 200	130 300	240 200
			P_{N1}		0.05	0.09	0.16	0.18	0.32	0.36	0.83	1.46	1.6	2.71	3.08	4.97	6.9
	560	**IV** 200	P_{N2}	—	0.02	0.05	0.09	0.1	0.18	0.2	0.53	0.96	1.05	1.82	2.06	3.43	5.2
			T_{N2}		510	1 000	1 950	2 190	4 010	4 490	12 300	21 900	24 000	41 800	47 400	78 900	118 900
			T_{2max}		720	1 410	2 750	3 080	5 700	6 300	21 400	39 400	40 800	74 300	80 600	143 600	180 900
			P_{N1}		0.06	0.12	0.2	0.21	0.38	0.43	0.69	1.28	1.44	2.39	2.74	4.55	8.1
	450	**IV** 160	P_{N2}	—	0.03	0.06	0.12	0.12	0.22	0.25	0.42	0.8	0.9	1.54	1.76	3.01	5.6
			T_{N2}		700	1 370	2 560	2 710	4 970	5 600	9 300	17 500	19 600	34 200	39 200	66 800	124 100
			T_{2max}		980	1 930	3 770	4 220	7 700	8 600	15 200	29 800	33 300	61 600	66 700	117 800	218 000

Values in red state nominal thermal power Pt_N (ambient temperature 104 °F (40 °C), continuous duty see ch. 3.2).
For n_1 higher than 1 400 rpm or lower than 355 rpm see ch. 3.4 and page 32.
1) Values given for train of gears **IV** are nominal; see page 93 for effective transmission ratios.
2) M_{2max} represents maximum torque peak the gear reducer will withstand.

Nominal powers and torques (gear reducers) 3.5

n_{N2} rpm	n_1 rpm	Train of gears i 1)	P [hP] T [lb in] 2)	Gear reducer size 32	40	50	63	64	80	81	100	125	126	160	161	200	250
			P_{N1}	0.03	0.07	0.12	0.21	0.22	0.41	0.45	0.76	1.39	1.55	2.62	3	4.88	8.8
2.8	355	**IV** 125	P_{N2}	0.02	0.04	0.07	0.13	0.13	0.25	0.28	0.48	0.88	0.98	1.72	1.97	3.29	6
			T_{N2}	358	830	1 530	2 880	2 990	5 600	6 300	10 800	19 400	21 700	38 800	44 400	74 200	136 300
			T_{2max}	510	1 300	2 550	4 980	5 100	10 100	10 500	19 300	34 900	36 500	68 900	75 200	130 300	240 200
			P_{N1}								0.57	1.04	1.14	2.01	2.29	3.71	6.7
2.24	710	**IV** 315	P_{N2}	—	—	—	—	—	—	—	0.34	0.64	0.7	1.26	1.44	2.41	4.51
			T_{N2}								9 700	18 000	19 700	35 800	40 800	68 300	127 800
			T_{2max}								15 400	30 300	33 500	63 600	68 500	123 700	226 100
			P_{N1}								0.61	1.14	1.23	2.16	2.44	3.97	7.1
	560	**IV** 250	P_{N2}	—	—	—	—	—	—	—	0.38	0.71	0.77	1.39	1.57	2.63	4.81
			T_{N2}								11 000	20 300	22 000	39 900	45 100	75 500	138 300
			T_{2max}								19 700	36 500	37 400	69 900	75 200	136 000	248 900
			P_{N1}		0.04	0.07	0.13	0.15	0.26	0.3	0.68	1.22	1.31	2.31	2.6	4.22	5.7
	450	**IV** 200	P_{N2}	—	0.02	0.04	0.07	0.08	0.15	0.16	0.43	0.79	0.85	1.53	1.72	2.86	4.22
			T_{N2}		520	1 020	1 990	2 220	4 080	4 570	12 300	22 500	24 100	43 700	49 200	81 700	120 700
			T_{2max}		730	1 440	2 800	3 140	5 700	6 400	22 100	40 500	41 000	75 200	81 500	147 100	183 500
			P_{N1}		0.05	0.09	0.16	0.17	0.31	0.35	0.58	1.06	1.16	2.02	2.3	3.73	6.7
	355	**IV** 160	P_{N2}	—	0.03	0.05	0.09	0.1	0.18	0.2	0.34	0.65	0.71	1.27	1.45	2.43	4.54
			T_{N2}		710	1 390	2 610	2 760	5 100	5 700	9 700	18 000	19 700	35 800	40 800	68 300	127 800
			T_{2max}		1 000	1 960	3 820	4 280	7 800	8 800	15 400	30 300	33 500	63 600	68 500	123 700	226 100
			P_{N1}								0.47	0.85	0.91	1.66	1.87	3.08	5.5
1.8	560	**IV** 315	P_{N2}	—	—	—	—	—	—	—	0.28	0.52	0.55	1.03	1.15	1.96	3.66
			T_{N2}								9 900	18 500	19 800	36 800	41 500	70 400	131 300
			T_{2max}								15 600	30 700	33 700	64 500	68 500	126 200	236 400
			P_{N1}								0.52	0.95	1	1.81	2.03	3.34	6
	450	**IV** 250	P_{N2}	—	—	—	—	—	—	—	0.32	0.59	0.62	1.15	1.29	2.16	4.03
			T_{N2}								11 300	20 800	22 100	41 200	46 200	77 300	144 100
			T_{2max}								20 000	37 500	37 500	70 800	75 200	139 200	259 400
			P_{N1}		0.03	0.06	0.11	0.12	0.21	0.24	0.56	1.01	1.05	1.86	2.09	3.51	4.62
	355	**IV** 200	P_{N2}	—	0.02	0.03	0.06	0.06	0.12	0.13	0.35	0.64	0.67	1.22	1.37	2.35	3.38
			T_{N2}		520	1 030	2 010	2 260	4 130	4 630	12 700	23 300	24 300	44 300	49 600	85 100	122 500
			T_{2max}		740	1 460	2 840	3 180	5 800	6 500	22 300	41 400	41 400	75 200	81 500	153 200	186 000
			P_{N1}								0.39	0.72	0.75	1.39	1.55	2.61	4.69
1.4	450	**IV** 315	P_{N2}	—	—	—	—	—	—	—	0.23	0.43	0.45	0.85	0.94	1.64	3.03
			T_{N2}								10 200	19 100	20 000	37 800	42 300	73 200	135 600
			T_{2max}								15 800	31 100	34 000	65 400	68 500	128 000	244 000
			P_{N1}								0.42	0.78	0.81	1.49	1.66	2.72	4.97
	355	**IV** 250	P_{N2}	—	—	—	—	—	—	—	0.26	0.48	0.49	0.94	1.04	1.75	3.25
			T_{N2}								11 600	21 500	22 200	42 500	47 300	79 100	147 500
			T_{2max}								20 000	37 900	37 700	71 700	75 200	141 300	265 100

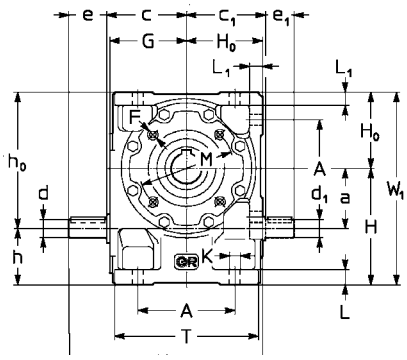
Values in red state nominal thermal power Pt_N (ambient temperature 104 °F (40 °C), continuous duty see ch. 3.2).
For n_1 higher than 1 400 rpm or lower than 355 rpm see ch. 3.4 and page 32.
1) Values given for train of gears **IV** are nominal; see page 93 for effective transmission ratios.
2) M_{2max} represents maximum torque peak the gear reducer will withstand.

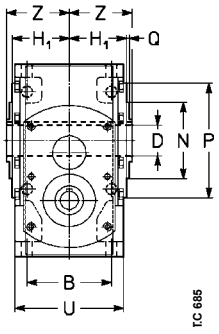
Nominal powers and torques (gear reducers) 3.5

n_{N2} rpm	n_1 rpm	Train of gears i 1)	P [hP] T [lb in] 2)	Gear reducer size 32	40	50	63	64	80	81	100	125	126	160	161	200	250
			P_{N1}								0.33	0.6	0.61	1.15	1.27	2.13	3.86
1.12	355	**IV** 315	P_{N2}	—	—	—	—	—	—	—	0.19	0.35	0.36	0.69	0.76	1.32	2.47
			T_{N2}								10 600	19 900	20 300	39 100	43 200	74 800	139 800
			T_{2max}								16 100	31 500	34 100	66 200	68 500	129 700	245 100

Values in red state nominal thermal power Pt_N (ambient temperature 104 °F (40 °C), continuous duty see ch. 3.2).
For n_1 higher than 1 400 rpm or lower than 355 rpm see ch. 3.4 and page 32.
1) Values given for train of gears **IV** are nominal; see page 93 for effective transmission ratios.
2) M_{2max} represents maximum torque peak the gear reducer will withstand.

Designs, dimensions, mounting positions & oil quantity 3.6

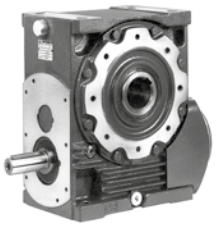


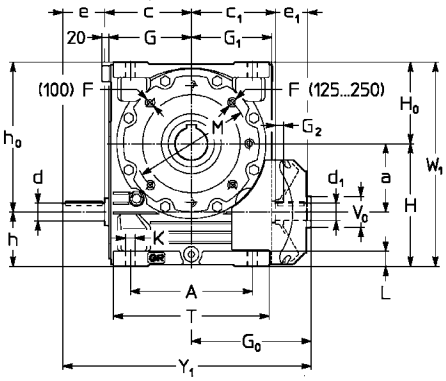


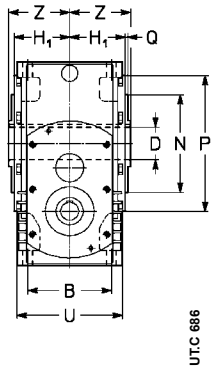
R V 32 ... 81

Design

standard	**UO3A**[1) 5)]
double extension worm	**UO3D**[1) 5)]
reduced worm shaft end	**UO3B**[1) 5)]
double extension worm with reduced shaft end	**UO3C**[1) 5)]







R V 100 ... 250

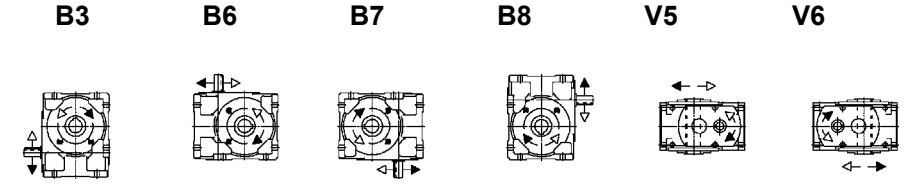
Design

standard	**UO2A**[5) 5)]
reduced worm shaft end	**UO2B**[1) 5)]

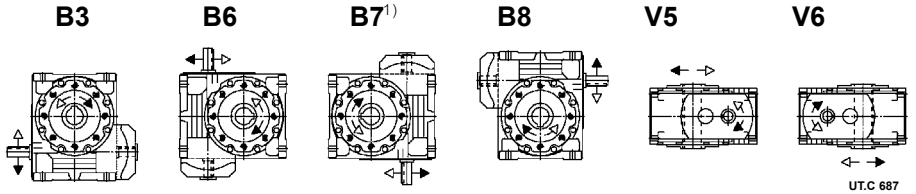
Size	a	A	B	D Ø H7	c c_1	d Ø	e	c UO3B[1] UO3C[1] UO2B[1]	d Ø UO3B[1] UO3C[1] UO2B[1]	e UO3B[1] UO3C[1] UO2B[1]	Y_1 Ø UO3B[1] UO3C[1] UO2B[1]	d_1	e_1	F 2)	G_0	G_1	G_2	H h11	H_0 h11 G	H_1 h12	h h11	h_0 h11	K Ø	L	L_1	M Ø	N Ø h6	P Ø	Q	T	U	V_0 Ø max	W_1	Y_1	Z	Mass lb
32	32	61	52	19	51	14	25	50	10	14	112	11	20	M5[6)]	–	–	–	71	48	34.5	39	80	7	10	8.5	75	55[7)]	90	3	91	66	–	119	124	39	6.6
40	40	70	62	24	59.5[4)]	16	30	59.5	12	14	130	14	25	M6[6)]	–	–	–	82	56	41.5	42	96	9.5	12	10	85	68[7)]	105	3	106	80	–	138	146	46	11
50	50	86	75	28	70.5	19	30	70.5	12	14	152	16	30	M6[6)]	–	–	–	100	67	49	50	117	9.5	13	12	100	85[7)]	120	3	126	95	–	167	168	53	19.8
63, 64	63	102	90	32	83	19	40	85	17	17	182	19	30	M8	–	–	–	125	80	58.5	62	143	11.5	16	14	100	80	120	3	151	114	–	205	203	63	31
80 81	80	132	106	38 40	103	24	50	105	17	17	222	24	36	M10	–	–	–	150	100	69.5	70	180	14	20	17	130	110	160	3.5	189	135	– –	250	253	75	53
100	100	180	131	48	130	28	60	130	20	21	331	28	42	M12	180	122	11	180	125	84.5	80	225	16	23	–	165	130	200	3.5	236	165	45	305	370	90	95
125,126	125	225	155	60	155	32	80	155	25	26	402	32	58	M12[8]	221	148	15	225	150	99.5	100	275	18	28	–	215	180	250	4	287	194	50	375	456	106	163
160 161	160	272	183	70 75	187	38	80	181	35	36	472	38	58	M14[8]	255	178	15	280	180	118.5	120	340	22	33	–	265	230	300	4	345	232	60	460	522	125	287
200	200	342	214	90	232[4)]	48	110	226	35	36	586	48	82	M16[8]	324	222	20	335	225	137.5	135	425	27	40	–	300	250	350	5	431	270	80	560	666	150	514
250	250	425	250	110	292[4)]	60	105	281	40	46	706	55	82	M20[8 3)]	379	277	20	410	280	163	160	530	33	50	–	400	350	450	5	537	320	80	690	776	180	842

1) Only for i ⩾ 16.
2) Working length of thread 2 · F.
3) Holes turned through 22° 30' with respect to the drawing.
4) Size 40: c_1 = 57,5; size 200: c_1 = 235; size 250: c_1 = 287.
5) Prearranged design for double extension worm shaft (see ch. 2).
6) Holes turned through 45° with respect to the drawing.
7) Tolerance t8.

Mounting positions - direction of rotation - and oil quantities [gal]



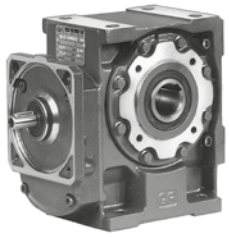
Size	B3	B6, B7	B8	V5, V6
32	0.04	0.05	0.04	0.04
40	0.07	0.09	0.07	0.07
50	0.11	0.16	0.11	0.11
63, 64	0.21	0.3	0.21	0.21
80, 81	0.34	0.58	0.45	0.34

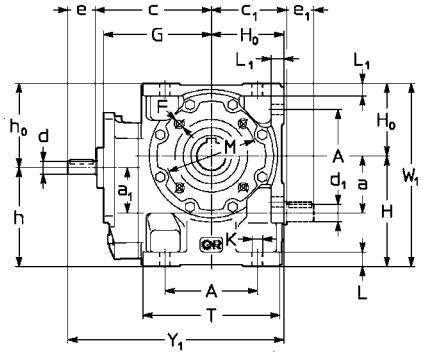


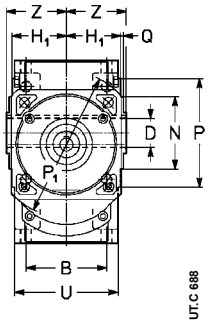
100	0.5	1.4	1.1	0.8
125, 126	0.9	2.6	2.2	1.5
160, 161	1.5	4.8	4	2.6
200	2.5	8.7	7.9	5.3
250	4.5	15.1	13.5	9

1) Sizes 200 and 250 in mounting position **B7**, with $n_1 > 710$ min^{-1} carry a price addition.

Designs, dimensions, mounting positions & oil quantity 3.6





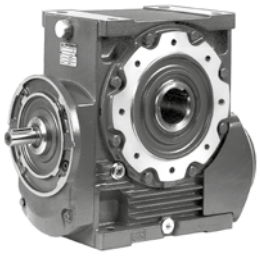


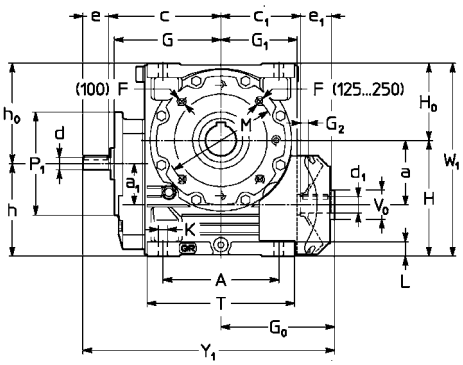
R IV 32 ... 81

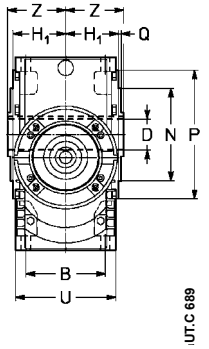
Design

standard **UO3A**[1)]

worm extension **UO3D**[1)]







R IV 100 ... 250

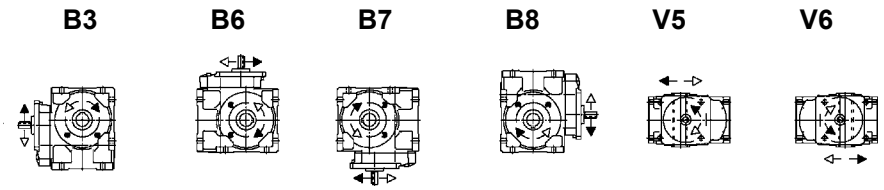
Design

standard **UO2A**[1)]

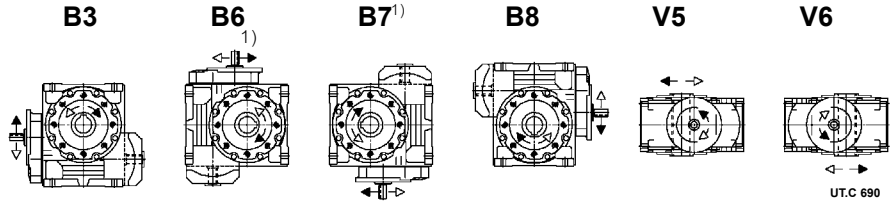
Size	a	a_1	A	B	c	c_1	D Ø H7	d Ø	e	d_1 Ø	e_1	F 2)	G	G_0	G_1	G_2	H h11	H_0 h11	H_1 h12	h h11	h_0 h11	K Ø	L	L_1	M Ø	N Ø h6	P Ø	P_1 Ø	Q	T	U	V_0 Ø max	W_1	Y_1	Z	Mass lb
32	32	32	61	52	81	51	19	11	20	11	20	M5[4)]	76	–	–	–	71	48	34.5	71	48	7	10	8.5	75	55[5)]	90	140[6)]	3	91	66	–	124	149	39	11
40	40	40	70	62	96	57.5	24	11	23	14	25	M6[4)]	87	–	–	–	82	56	41.5	82	56	9.5	12	10	85	68[5)]	105	140[6)]	3	106	80	–	138	175	46	15
50	50	40	86	75	107	70.5	28	11	23	16	30	M6[4)]	98	–	–	–	100	67	49	90	77	9.5	13	12	100	85[5)]	120	140[6)]	3	126	95	–	167	197	53	24
63, 64	63	50	102	90	127	83	32	14	30	19	30	M8	118	–	–	–	125	80	58.5	112	93	11.5	16	14	100	80	120	160[6)]	3	151	114	–	205	237	63	37
80 **81**	80	50	132	106	147	103	38 40	14	30	24	36	M10	138	–	–	–	150	100	69.5	120	130	14	20	17	130	110	160	160[6)]	3.5	189	135	–	250	277	75	60
100	100	63	180	131	181	130	48	19*	40*	28	42	M12	170	180	122	11	180	125	84.5	143	162	16	23	–	165	130	200	200	3.5	236	165	45	305	401	90	108
125, 126	125	80	225	155	216	155	60	24*	50*	32	58	M12[8)]	205	221	148	15	225	150	99.5	180	195	18	28	–	215	180	250	200	4	287	194	50	375	487	106	181
160 **161**	160	100	272	183	258	187	70 75	28*	60*	38	58	M14[8)]	247	255	178	15	280	180	118.5	220	240	22	33	–	265	230	300	250	4	345	232	60	460	573	125	322
200	200	100	342	214	303	235	90	28*	60*	48	82	M16[8)]	292	324	222	20	335	225	137.5	235	325	27	40	–	300	250	350	250	5	431	270	80	560	687	150	549
250	250	125	425	250	373	287	110	32	80	55	82	M20[8)3)]	360	379	277	20	410	280	163	285	405	33	50	–	400	350	450	300	5	537	320	80	690	832	180	899

1) Prearranged design for worm shaft extension (see ch. 2).
2) Working length of thread 2 · F.
3) Holes turned through 22° 30' with respect to the drawing.
4) Holes turned through 45° with respect to the drawing.
5) Tolerance t8.
6) Square flange: for dimensions see ch. 15.
***** When $i_N \geq 200$ the shaft end will be:
size 100: d = 16, e = 30;
sizes 125, 126: d = 19, e = 40;
sizes 160 ... 200: d = 24, e = 50.

Mounting positions - direction of rotation **- and oil quantities** [gal]



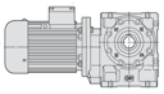
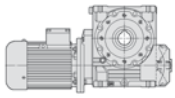
Size	B3	B6, B7	B8	V5, V6
32	0,05	0,07	0,05	0,05
40	0.08	0.11	0.08	0.08
50	0.13	0.18	0.13	0.13
63, 64	0.26	0.34	0.26	0.26
80, 81	0.4	0.66	0.53	0.4



100	0.55	1.66	1.19	0.87
125, 126	1	3.06	2.32	1.66
160, 161	1.72	5.49	4.36	2.96
200	2.75	10	8.32	5.6
250	4.83	17.7	14	9.43

1) Sizes 100 ... 250 in mounting position **B6** carry a price addition.

Gearmotors selection tables

Motor power P_1 hp 1)	Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)			Gear ratio i
0.12	**2.63**	0.07	1 630	0.95	**MR 2IV 50 - 11 x 140**	63 A	6	437
	3.3	0.07	1 370	1.25	**MR 2IV 50 - 11 x 140**	63 A	6	349
	4.21	0.07	1 110	0.9	**MR 2IV 40 - 11 x 140**	63 A	6	273
	4.21	0.08	1 130	1.6	**MR 2IV 50 - 11 x 140**	63 A	6	273
	5.28	0.08	920	1.12	**MR 2IV 40 - 11 x 140**	63 A	6	218
	5.28	0.08	935	2	**MR 2IV 50 - 11 x 140**	63 A	6	218
	5.2	0.07	800	1.18	**MR IV 50 - 11 x 140**	63 A	6	221
	6.46	0.08	745	1.25	**MR 2IV 40 - 11 x 140**	63 A	6	178
	6.57	0.07	660	1	**MR IV 40 - 11 x 140**	63 A	6	175
	6.46	0.08	755	2.36	**MR 2IV 50 - 11 x 140**	63 A	6	178
	6.57	0.07	680	1.9	**MR IV 50 - 11 x 140**	63 A	6	175
	8.1	0.08	615	1.6	**MR 2IV 40 - 11 x 140**	63 A	6	142
	8.21	0.07	560	1.32	**MR IV 40 - 11 x 140**	63 A	6	140
	8.21	0.08	580	2.36	**MR IV 50 - 11 x 140**	63 A	6	140
	10.1	0.09	545	1.6	**MR 2IV 40 - 11 x 140**	63 A	6	114
	10.3	0.08	475	1.8	**MR IV 40 - 11 x 140**	63 A	6	112
	10.3	0.08	485	3.15	**MR IV 50 - 11 x 140**	63 A	6	112
	11.1	0.07	420	0.9	**MR IV 32 - 11 x 140**	63 A	6	104
	13.1	0.08	390	2.24	**MR IV 40 - 11 x 140**	63 A	6	87.5
	13.9	0.08	355	1.25	**MR IV 32 - 11 x 140**	63 A	6	82.9
	16.4	0.08	325	2.8	**MR IV 40 - 11 x 140**	63 A	6	70
	17.7	0.08	295	1.6	**MR IV 32 - 11 x 140**	63 A	6	64.8
	18.3	0.07	255	1.7	**MR V 40 - 11 x 140**	63 A	6	63
	22.2	0.09	240	1.9	**MR IV 32 - 11 x 140**	63 A	6	51.8
	23	0.08	210	1.4	**MR V 32 - 11 x 140**	63 A	6	50
	23	0.08	215	2.5	**MR V 40 - 11 x 140**	63 A	6	50
	27.7	0.09	210	2.12	**MR IV 32 - 11 x 140**	63 A	6	41.5
	28.8	0.08	180	1.9	**MR V 32 - 11 x 140**	63 A	6	40
	35.9	0.09	150	2.36	**MR V 32 - 11 x 140**	63 A	6	32
	46	0.09	120	3	**MR V 32 - 11 x 140**	63 A	6	25
0.16	**3.3**	0.1	1 830	0.95	**MR 2IV 50 - 11 x 140**	63 B	6	349
	4	0.09	1 470	1	**MR 2IV 50 - 11 x 140**	63 A	4	437
	4.21	0.1	1 510	1.18	**MR 2IV 50 - 11 x 140**	63 B	6	273
	5.01	0.1	1 240	1.32	**MR 2IV 50 - 11 x 140**	63 A	4	349
	5.28	0.1	1 250	1.5	**MR 2IV 50 - 11 x 140**	63 B	6	218
	5.2	0.09	1 060	0.9	**MR IV 50 - 11 x 140**	63 B	6	221
	6.41	0.1	1 000	0.95	**MR 2IV 40 - 11 x 140**	63 A	4	273
	6.41	0.1	1 020	1.7	**MR 2IV 50 - 11 x 140**	63 A	4	273
	6.57	0.09	905	1.4	**MR IV 50 - 11 x 140**	63 B	6	175
	8.03	0.11	825	1.18	**MR 2IV 40 - 11 x 140**	63 A	4	218
	8.21	0.1	750	0.95	**MR IV 40 - 11 x 140**	63 B	6	140
	8.03	0.11	840	2.24	**MR 2IV 50 - 11 x 140**	63 A	4	218
	7.92	0.09	735	1.25	**MR IV 50 - 11 x 140**	63 A	4	221
	8.21	0.1	770	1.8	**MR IV 50 - 11 x 140**	63 B	6	140
	9.83	0.1	665	1.32	**MR 2IV 40 - 11 x 140**	63 A	4	178
	10	0.1	605	1.06	**MR IV 40 - 11 x 140**	63 A	4	175
	10.3	0.1	630	1.32	**MR IV 40 - 11 x 140**	63 B	6	112
	9.83	0.11	680	2.5	**MR 2IV 50 - 11 x 140**	63 A	4	178
	10	0.1	625	1.9	**MR IV 50 - 11 x 140**	63 A	4	175
	10.3	0.11	645	2.36	**MR IV 50 - 11 x 140**	63 B	6	112
	12.3	0.11	550	1.7	**MR 2IV 40 - 11 x 140**	63 A	4	142
	12.5	0.1	515	1.4	**MR IV 40 - 11 x 140**	63 A	4	140
	13.1	0.11	520	1.6	**MR IV 40 - 11 x 140**	63 B	6	87.5
	12.5	0.11	530	2.36	**MR IV 50 - 11 x 140**	63 A	4	140
	13.9	0.1	475	0.95	**MR IV 32 - 11 x 140**	63 B	6	82.9
	15.4	0.12	485	1.8	**MR 2IV 40 - 11 x 140**	63 A	4	114
	15.6	0.11	435	1.8	**MR IV 40 - 11 x 140**	63 A	4	112
	16.4	0.11	430	2.12	**MR IV 40 - 11 x 140**	63 B	6	70
	16.8	0.1	390	0.95	**MR IV 32 - 11 x 140**	63 A	4	104
	17.7	0.11	390	1.18	**MR IV 32 - 11 x 140**	63 B	6	64.8
	18.3	0.1	340	1.32	**MR V 40 - 11 x 140**	63 B	6	63
	18.3	0.1	350	2.5	**MR V 50 - 11 x 140**	63 B	6	63

Motor power P_1 hp 1)	Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)			Gear ratio i
0.16	**21.1**	0.11	325	1.25	**MR IV 32 - 11 x 140**	63 A	4	82.9
	20	0.11	355	2.24	**MR IV 40 - 11 x 140**	63 A	4	87.5
	22.2	0.11	325	1.5	**MR IV 32 - 11 x 140**	63 B	6	51.8
	23	0.1	280	1.06	**MR V 32 - 11 x 140**	63 B	6	50
	23	0.11	290	1.9	**MR V 40 - 11 x 140**	63 B	6	50
	25	0.12	290	2.8	**MR IV 40 - 11 x 140**	63 A	4	70
	27	0.11	265	1.6	**MR IV 32 - 11 x 140**	63 A	4	64.8
	28.8	0.11	240	1.4	**MR V 32 - 11 x 140**	63 B	6	40
	27.8	0.11	240	1.8	**MR V 40 - 11 x 140**	63 A	4	63
	28.8	0.11	240	2.5	**MR V 40 - 11 x 140**	63 B	6	40
	33.8	0.12	220	1.9	**MR IV 32 - 11 x 140**	63 A	4	51.8
	35	0.11	195	1.4	**MR V 32 - 11 x 140**	63 A	4	50
	35.9	0.11	200	1.8	**MR V 32 - 11 x 140**	63 B	6	32
	35	0.11	200	2.5	**MR V 40 - 11 x 140**	63 A	4	50
	42.2	0.13	190	2.12	**MR IV 32 - 11 x 140**	63 A	4	41.5
	43.8	0.11	165	1.8	**MR V 32 - 11 x 140**	63 A	4	40
	46	0.12	160	2.24	**MR V 32 - 11 x 140**	63 B	6	25
	43.8	0.12	165	3.35	**MR V 40 - 11 x 140**	63 A	4	40
	54.7	0.12	135	2.36	**MR V 32 - 11 x 140**	63 A	4	32
	57.5	0.12	135	2.8	**MR V 32 - 11 x 140**	63 B	6	20
	70	0.12	110	2.8	**MR V 32 - 11 x 140**	63 A	4	25
	87.5	0.13	91	3.55	**MR V 32 - 11 x 140**	63 A	4	20
	109	0.13	77	4	**MR V 32 - 11 x 140**	63 A	4	16
	135	0.14	63	4.5	**MR V 32 - 11 x 140**	63 A	4	13
	175	0.14	50	5.3	**MR V 32 - 11 x 140**	63 A	4	10
0.25	**1.9**	0.14	4 750	1.12	**MR 2IV 80 - 14 x 160**	71 A	6	605
	1.9	0.14	4 750	1.25	**MR 2IV 81 - 14 x 160**	71 A	6	605
	2.38	0.15	4 000	1.4	**MR 2IV 80 - 14 x 160**	71 A	6	484
	2.38	0.15	4 000	1.6	**MR 2IV 81 - 14 x 160**	71 A	6	484
	2.97	0.15	3 250	1	**MR 2IV 63 - 14 x 160**	71 A	6	387
	2.97	0.16	3 330	1.8	**MR 2IV 80 - 14 x 160**	71 A	6	387
	2.97	0.16	3 330	2	**MR 2IV 81 - 14 x 160**	71 A	6	387
	3.81	0.16	2 660	1.32	**MR 2IV 63 - 14 x 160**	71 A	6	302
	3.81	0.16	2 720	2.36	**MR 2IV 80 - 14 x 160**	71 A	6	302
	3.81	0.16	2 720	2.65	**MR 2IV 81 - 14 x 160**	71 A	6	302
	4.55	0.16	2 250	1.5	**MR 2IV 63 - 14 x 160**	71 A	6	253
	4.55	0.17	2 300	2.8	**MR 2IV 80 - 14 x 160**	71 A	6	253
	4.55	0.17	2 300	3.15	**MR 2IV 81 - 14 x 160**	71 A	6	253
	5.01	0.15	1 930	0.85	**MR 2IV 50 - 11 x 140**	63 B	4	349
	4.81	0.14	1 900	1	**MR IV 63 - 14 x 160**	71 A	6	239
	4.81	0.14	1 900	1.12	**MR IV 64 - 14 x 160**	71 A	6	239
	4.81	0.15	1 960	2	**MR IV 80 - 14 x 160**	71 A	6	239
	4.81	0.15	1 960	2.24	**MR IV 81 - 14 x 160**	71 A	6	239
	5.81	0.16	1 740	1	**MR 2IV 50 - 14 x 160**	71 A	6	198
	5.64	0.16	1 780	1.6	**MR 2IV 63 - 14 x 160**	71 A	6	204
	6.05	0.15	1 610	1.4	**MR IV 63 - 14 x 160**	71 A	6	190
	6.05	0.15	1 610	1.6	**MR IV 64 - 14 x 160**	71 A	6	190
	6.05	0.16	1 660	2.65	**MR IV 80 - 14 x 160**	71 A	6	190
	6.41	0.16	1 590	1.12	**MR 2IV 50 - 11 x 140**	63 B	4	273
	7.28	0.17	1 440	1.32	**MR 2IV 50 - 14 x 160**	71 A	6	158
	7.23	0.17	1 450	2.12	**MR 2IV 63 - 14 x 160**	71 A	6	159
	7.57	0.16	1 360	1.9	**MR IV 63 - 14 x 160**	71 A	6	152
	7.57	0.16	1 360	2.12	**MR IV 64 - 14 x 160**	71 A	6	152
	8.03	0.17	1 310	1.4	**MR 2IV 50 - 11 x 140**	63 B	4	218
	7.92	0.14	1 150	0.8	**MR IV 50 - 11 x 140**	63 B	4	221
	8.91	0.16	1 160	1.5	**MR 2IV 50 - 14 x 160**	71 A	6	129
	9.06	0.15	1 060	1.18	**MR IV 50 - 14 x 160**	71 A	6	127
	9.43	0.17	1 130	2.36	**MR IV 63 - 14 x 160**	71 A	6	122
	9.83	0.16	1 040	0.85	**MR 2IV 40 - 11 x 140**	63 B	4	178
	9.83	0.17	1 070	1.6	**MR 2IV 50 - 11 x 140**	63 B	4	178
	10	0.16	980	1.25	**MR IV 50 - 11 x 140**	63 B	4	175
	11.4	0.16	875	0.8	**MR IV 40 - 14 x 160**	71 A	6	101
	11.2	0.17	960	1.9	**MR 2IV 50 - 14 x 160**	71 A	6	103
	11.4	0.16	895	1.5	**MR IV 50 - 14 x 160**	71 A	6	101
	11.3	0.17	960	2.65	**MR IV 63 - 14 x 160**	71 A	6	102

1) Powers valid for continuous duty S1; **increase** possible for S2 ... S10 (see ch. 2b) in which case P_2, M_2 increase and fs decreases proportionately.
2) For complete designation when ordering see ch. 3.1.

Motor power P_1 hp 1)	Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)				Gear ratio i
0.25	12.3	0.17	860	1.12	MR 2IV	40 - 11 x 140	63 B	4	142
	12.5	0.16	800	0.85	MR IV	40 - 11 x 140	63 B	4	140
	12.3	0.17	880	2	MR 2IV	50 - 11 x 140	63 B	4	142
	12.5	0.16	830	1.5	MR IV	50 - 11 x 140	63 B	4	140
	14.2	0.17	740	1.06	MR IV	40 - 14 x 160	71 A	6	81.1
	14.2	0.17	755	1.9	MR IV	50 - 14 x 160	71 A	6	81.1
	15.4	0.19	760	1.12	MR 2IV	40 - 11 x 140	63 B	4	114
	15.6	0.17	675	1.18	MR IV	40 - 11 x 140	63 B	4	112
	15.6	0.17	695	2.12	MR IV	50 - 11 x 140	63 B	4	112
	18.1	0.17	605	1.4	MR IV	40 - 14 x 160	71 A	6	63.4
	18.3	0.15	535	0.85	MR V	40 - 14 x 160	71 A	6	63
	18.1	0.18	620	2.5	MR IV	50 - 14 x 160	71 A	6	63.4
	18.3	0.16	550	1.6	MR V	50 - 14 x 160	71 A	6	63
	21.1	0.17	505	0.8	MR IV	32 - 11 x 140	63 B	4	82.9
	20	0.18	550	1.5	MR IV	40 - 11 x 140	63 B	4	87.5
	20	0.18	565	2.65	MR IV	50 - 11 x 140	63 B	4	87.5
	22.7	0.18	495	1.7	MR IV	40 - 14 x 160	71 A	6	50.7
	23	0.16	450	1.25	MR V	40 - 14 x 160	71 A	6	50
	22.7	0.18	510	3.15	MR IV	50 - 14 x 160	71 A	6	50.7
	23	0.17	465	2.24	MR V	50 - 14 x 160	71 A	6	50
	25	0.18	455	1.8	MR IV	40 - 11 x 140	63 B	4	70
	27	0.18	415	1	MR IV	32 - 11 x 140	63 B	4	64.8
	28.3	0.2	435	1.8	MR IV	40 - 14 x 160	71 A	6	40.6
	27.8	0.16	375	1.18	MR V	40 - 11 x 140	63 B	4	63
	28.8	0.17	380	1.6	MR V	40 - 14 x 160	71 A	6	40
	27.8	0.17	385	2.24	MR V	50 - 11 x 140	63 B	4	63
	31.3	0.2	395	1.9	MR IV	40 - 11 x 140	63 B	4	56
	33.8	0.18	340	1.25	MR IV	32 - 11 x 140	63 B	4	51.8
	35	0.17	305	0.9	MR V	32 - 11 x 140	63 B	4	50
	35.9	0.18	310	1.18	MR V	32 - 11 x 140	71 A	B5R 6	32
	35	0.17	315	1.6	MR V	40 - 11 x 140	63 B	4	50
	35.9	0.18	315	2.12	MR V	40 - 14 x 160	71 A	6	32
	35	0.18	320	2.8	MR V	50 - 11 x 140	63 B	4	50
	42.2	0.2	295	1.32	MR IV	32 - 11 x 140	63 B	4	41.5
	43.8	0.18	255	1.18	MR V	32 - 11 x 140	63 B	4	40
	46	0.18	255	1.5	MR V	32 - 11 x 140	71 A	B5R 6	25
	43.8	0.18	260	2.12	MR V	40 - 11 x 140	63 B	4	40
	46	0.19	255	2.65	MR V	40 - 14 x 160	71 A	6	25
	54.7	0.18	215	1.5	MR V	32 - 11 x 140	63 B	4	32
	57.5	0.19	210	1.8	MR V	32 - 11 x 140	71 A	B5R 6	20
	54.7	0.19	220	2.65	MR V	40 - 11 x 140	63 B	4	32
	70	0.19	175	1.8	MR V	32 - 11 x 140	63 B	4	25
	70	0.19	175	3.35	MR V	40 - 11 x 140	63 B	4	25
	87.5	0.2	140	2.24	MR V	32 - 11 x 140	63 B	4	20
	109	0.21	120	2.5	MR V	32 - 11 x 140	63 B	4	16
	135	0.21	99	2.8	MR V	32 - 11 x 140	63 B	4	13
	175	0.22	78	3.55	MR V	32 - 11 x 140	63 B	4	10
	250	0.22	56	4.25	MR V	32 - 11 x 140	63 B	4	7
0.33	1.9	0.19	6 270	0.85	MR 2IV	80 - 14 x 160	71 B	6	605
	1.9	0.19	6 270	0.95	MR 2IV	81 - 14 x 160	71 B	6	605
	2.38	0.2	5 280	1.12	MR 2IV	80 - 14 x 160	71 B	6	484
	2.38	0.2	5 280	1.18	MR 2IV	81 - 14 x 160	71 B	6	484
	2.89	0.19	4 230	1.18	MR 2IV	80 - 14 x 160	71 A	4	605
	2.89	0.19	4 230	1.32	MR 2IV	81 - 14 x 160	71 A	4	605
	2.97	0.21	4 400	1.4	MR 2IV	80 - 14 x 160	71 B	6	387
	2.97	0.21	4 400	1.6	MR 2IV	81 - 14 x 160	71 B	6	387
	3.81	0.21	3 510	1	MR 2IV	63 - 14 x 160	71 B	6	302
	3.62	0.2	3 560	1.5	MR 2IV	80 - 14 x 160	71 A	4	484
	3.62	0.2	3 560	1.7	MR 2IV	81 - 14 x 160	71 A	4	484
	3.81	0.22	3 580	1.8	MR 2IV	80 - 14 x 160	71 B	6	302
	3.81	0.22	3 580	2	MR 2IV	81 - 14 x 160	71 B	6	302

Motor power P_1 hp 1)	Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)				Gear ratio i
0.33	4.52	0.21	2 890	1	MR 2IV	63 - 14 x 160	71 A	4	387
	4.52	0.21	2 890	1.12	MR 2IV	64 - 14 x 160	71 A	4	387
	4.55	0.21	2 980	1.12	MR 2IV	63 - 14 x 160	71 B	6	253
	4.52	0.21	2 960	2	MR 2IV	80 - 14 x 160	71 A	4	387
	4.52	0.21	2 960	2.24	MR 2IV	81 - 14 x 160	71 A	4	387
	4.55	0.22	3 030	2.12	MR 2IV	80 - 14 x 160	71 B	6	253
	4.55	0.22	3 030	2.36	MR 2IV	81 - 14 x 160	71 B	6	253
	4.81	0.19	2 500	0.85	MR IV	64 - 14 x 160	71 B	6	239
	4.81	0.2	2 590	1.5	MR IV	80 - 14 x 160	71 B	6	239
	4.81	0.2	2 590	1.7	MR IV	81 - 14 x 160	71 B	6	239
	5.79	0.22	2 360	1.4	MR 2IV	63 - 14 x 160	71 A	4	302
	5.79	0.22	2 360	1.5	MR 2IV	64 - 14 x 160	71 A	4	302
	6.05	0.2	2 130	1.06	MR IV	63 - 14 x 160	71 B	6	190
	6.05	0.2	2 130	1.25	MR IV	64 - 14 x 160	71 B	6	190
	5.79	0.22	2 410	2.5	MR 2IV	80 - 14 x 160	71 A	4	302
	5.79	0.22	2 410	3	MR 2IV	81 - 14 x 160	71 A	4	302
	6.05	0.21	2 190	2	MR IV	80 - 14 x 160	71 B	6	190
	6.05	0.21	2 190	2.36	MR IV	81 - 14 x 160	71 B	6	190
	6.41	0.21	2 090	0.85	MR 2IV	50 - 11 x 140	63 C	4	273
	7.28	0.22	1 900	1	MR 2IV	50 - 14 x 160	71 B	6	158
	6.92	0.22	2 000	1.5	MR 2IV	63 - 14 x 160	71 A	4	253
	6.92	0.22	2 000	1.7	MR 2IV	64 - 14 x 160	71 A	4	253
	7.32	0.2	1 730	1.06	MR IV	63 - 14 x 160	71 A	4	239
	7.32	0.2	1 730	1.18	MR IV	64 - 14 x 160	71 A	4	239
	7.57	0.22	1 790	1.4	MR IV	63 - 14 x 160	71 B	6	152
	7.57	0.22	1 790	1.6	MR IV	64 - 14 x 160	71 B	6	152
	7.32	0.21	1 790	2.12	MR IV	80 - 14 x 160	71 A	4	239
	7.32	0.21	1 790	2.36	MR IV	81 - 14 x 160	71 A	4	239
	8.03	0.22	1 730	1.06	MR 2IV	50 - 11 x 140	63 C	4	218
	8.84	0.22	1 550	1.12	MR 2IV	50 - 14 x 160	71 A	4	198
	9.06	0.2	1 400	0.9	MR IV	50 - 14 x 160	71 B	6	127
	8.58	0.22	1 610	1.7	MR 2IV	63 - 14 x 160	71 A	4	204
	8.58	0.22	1 610	1.9	MR 2IV	64 - 14 x 160	71 A	4	204
	9.21	0.21	1 460	1.4	MR IV	63 - 14 x 160	71 A	4	190
	9.21	0.21	1 460	1.7	MR IV	64 - 14 x 160	71 A	4	190
	9.43	0.22	1 490	1.8	MR IV	63 - 14 x 160	71 B	6	122
	9.43	0.22	1 490	2.12	MR IV	64 - 14 x 160	71 B	6	122
	9.83	0.22	1 410	1.18	MR 2IV	50 - 11 x 140	63 C	4	178
	10	0.2	1 290	0.95	MR IV	50 - 11 x 140	63 C	4	175
	11.1	0.22	1 280	1.4	MR 2IV	50 - 14 x 160	71 A	4	158
	11.4	0.21	1 180	1.12	MR IV	50 - 14 x 160	71 B	6	101
	11.5	0.22	1 230	1.9	MR IV	63 - 14 x 160	71 A	4	152
	11.5	0.22	1 230	2.24	MR IV	64 - 14 x 160	71 A	4	152
	12.3	0.23	1 160	1.5	MR 2IV	50 - 11 x 140	63 C	4	142
	12.5	0.22	1 100	1.18	MR IV	50 - 11 x 140	63 C	4	140
	14.2	0.22	975	0.8	MR IV	40 - 14 x 160	71 B	6	81.1
	13.6	0.23	1 040	1.5	MR 2IV	50 - 14 x 160	71 A	4	129
	13.8	0.21	970	1.18	MR IV	50 - 14 x 160	71 A	4	127
	14.2	0.22	995	1.5	MR IV	50 - 14 x 160	71 B	6	81.1
	14.3	0.23	1 020	2.36	MR IV	63 - 14 x 160	71 A	4	122
	15.6	0.22	895	0.9	MR IV	40 - 11 x 140	63 C	4	112
	15.6	0.23	920	1.6	MR IV	50 - 11 x 140	63 C	4	112
	17.3	0.22	795	0.85	MR IV	40 - 14 x 160	71 A	4	101
	18.1	0.23	795	1.06	MR IV	40 - 14 x 160	71 B	6	63.4
	17	0.23	860	1.9	MR 2IV	50 - 14 x 160	71 A	4	103
	17.3	0.22	820	1.5	MR IV	50 - 14 x 160	71 A	4	101
	18.1	0.23	820	1.9	MR IV	50 - 14 x 160	71 B	6	63.4
	18.3	0.21	725	1.18	MR V	50 - 14 x 160	71 B	6	63
	17.2	0.24	865	2.8	MR IV	63 - 14 x 160	71 A	4	102
	18.3	0.22	765	2.12	MR V	63 - 14 x 160	71 B	6	63
	18.3	0.22	765	2.5	MR V	64 - 14 x 160	71 B	6	63
	20	0.23	730	1.12	MR IV	40 - 11 x 140	63 C	4	87.5
	21.2	0.25	750	2	MR 2IV	50 - 14 x 160	71 A	4	82.4
	20	0.24	745	2	MR IV	50 - 11 x 140	63 C	4	87.5

1) Powers valid for continuous duty S1; **increase** possible for S2 ... S10 (see ch. 2b) in which case P_2, M_2 increase and fs decreases proportionately.
2) For complete designation when ordering see ch. 3.1.
***** Mounting position **B5R**; available also for mounting position **B5** (see table ch. 2b).

Motor power P_1 hp 1)	Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
0.33	**21.6**	0.23	670	1.12	**MR IV 40 - 14 x 160** 71 A 4	81.1
	22.7	0.24	655	1.32	**MR IV 40 - 14 x 160** 71 B 6	50.7
	23	0.22	595	0.95	**MR V 40 - 14 x 160** 71 B 6	50
	21.6	0.23	685	2	**MR IV 50 - 14 x 160** 71 A 4	81.1
	22.7	0.24	670	2.36	**MR IV 50 - 14 x 160** 71 B 6	50.7
	23	0.22	615	1.7	**MR V 50 - 14 x 160** 71 B 6	50
	23	0.23	640	2.8	**MR V 63 - 14 x 160** 71 B 6	50
	25	0.24	600	1.4	**MR IV 40 - 11 x 140** 63 C 4	70
	25	0.24	615	2.5	**MR IV 50 - 11 x 140** 63 C 4	70
	27.6	0.24	545	1.4	**MR IV 40 - 14 x 160** 71 A 4	63.4
	27.8	0.22	490	0.9	**MR V 40 - 11 x 140** 63 C 4	63
	27.8	0.22	490	0.9	**MR V 40 - 14 x 160** 71 A 4	63
	28.8	0.23	500	1.25	**MR V 40 - 14 x 160** 71 B 6	40
	27.6	0.24	555	2.5	**MR IV 50 - 14 x 160** 71 A 4	63.4
	27.8	0.22	510	1.7	**MR V 50 - 14 x 160** 71 A 4	63
	28.8	0.23	515	2.24	**MR V 50 - 14 x 160** 71 B 6	40
	27.8	0.23	530	2.8	**MR V 63 - 14 x 160** 71 A 4	63
	31.3	0.26	520	1.5	**MR IV 40 - 11 x 140** 63 C 4	56
	33.8	0.24	450	0.95	**MR IV 32 - 11 x 140** 63 C 4	51.8
	35.9	0.23	410	0.85	**MR V 32 - 11 x 140** 71 B B5R 6	32
	34.5	0.25	450	1.7	**MR IV 40 - 14 x 160** 71 A 4	50.7
	35	0.23	415	1.18	**MR V 40 - 11 x 140** 63 C 4	50
	35	0.23	415	1.18	**MR V 40 - 14 x 160** 71 A 4	50
	35.9	0.24	420	1.6	**MR V 40 - 14 x 160** 71 B 6	32
	34.5	0.25	455	3.15	**MR IV 50 - 14 x 160** 71 A 4	50.7
	35	0.24	425	2.12	**MR V 50 - 14 x 160** 71 A 4	50
	35.9	0.24	430	2.8	**MR V 50 - 14 x 160** 71 B 6	32
	42.2	0.26	390	1	**MR IV 32 - 11 x 140** 63 C 4	41.5
	43.8	0.23	335	0.9	**MR V 32 - 11 x 140** 63 C 4	40
	46	0.24	335	1.12	**MR V 32 - 11 x 140** 71 B B5R 6	25
	43.1	0.26	385	1.8	**MR IV 40 - 14 x 160** 71 A 4	40.6
	43.8	0.24	345	1.6	**MR V 40 - 11 x 140** 63 C 4	40
	43.8	0.24	345	1.6	**MR V 40 - 14 x 160** 71 A 4	40
	46	0.25	340	2	**MR V 40 - 14 x 160** 71 B 6	25
	43.8	0.25	355	2.8	**MR V 50 - 14 x 160** 71 A 4	40
	54.7	0.24	280	1.12	**MR V 32 - 11 x 140** 63 C 4	32
	54.7	0.24	280	1.12	**MR V 32 - 11 x 140** 71 A B5R 4	32
	57.5	0.25	275	1.4	**MR V 32 - 11 x 140** 71 B B5R 6	20
	54.7	0.25	285	2	**MR V 40 - 11 x 140** 63 C 4	32
	54.7	0.25	285	2	**MR V 40 - 14 x 160** 71 A 4	32
	57.5	0.25	280	2.5	**MR V 40 - 14 x 160** 71 B 6	20
	70	0.25	230	1.4	**MR V 32 - 11 x 140** 63 C 4	25
	70	0.25	230	1.4	**MR V 32 - 11 x 140** 71 A B5R 4	25
	70	0.26	230	2.5	**MR V 40 - 11 x 140** 63 C 4	25
	70	0.26	230	2.5	**MR V 40 - 14 x 160** 71 A 4	25
	87.5	0.26	185	1.7	**MR V 32 - 11 x 140** 63 C 4	20
	87.5	0.26	185	1.7	**MR V 32 - 11 x 140** 71 A B5R 4	20
	87.5	0.26	190	3.15	**MR V 40 - 14 x 160** 71 A 4	20
	109	0.27	160	1.9	**MR V 32 - 11 x 140** 63 C 4	16
	109	0.27	160	1.9	**MR V 32 - 11 x 140** 71 A B5R 4	16
	109	0.28	160	3.35	**MR V 40 - 14 x 160** 71 A 4	16
	135	0.28	130	2.12	**MR V 32 - 11 x 140** 63 C 4	13
	135	0.28	130	2.12	**MR V 32 - 11 x 140** 71 A B5R 4	13
	175	0.28	100	2.65	**MR V 32 - 11 x 140** 63 C 4	10
	175	0.28	100	2.65	**MR V 32 - 11 x 140** 71 A B5R 4	10
	250	0.29	74	3.15	**MR V 32 - 11 x 140** 63 C 4	7
	250	0.29	74	3.15	**MR V 32 - 11 x 140** 71 A B5R 4	7
0.5	**1.9**	0.29	9 770	1	**MR 2IV 100 - 19 x 200** 80 A 6	605
	2.38	0.31	8 220	1.32	**MR 2IV 100 - 19 x 200** 80 A 6	484
	2.89	0.29	6 420	0.8	**MR 2IV 80 - 14 x 160** 71 B 4	605
	2.89	0.29	6 420	0.85	**MR 2IV 81 - 14 x 160** 71 B 4	605
	2.97	0.31	6 670	0.9	**MR 2IV 80 - 14 x 160** 71 C 6	387
	2.97	0.31	6 670	1	**MR 2IV 81 - 14 x 160** 71 C 6	387
	2.97	0.32	6 810	1.8	**MR 2IV 100 - 19 x 200** 80 A 6	387

Motor power P_1 hp 1)	Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
0.5	**3.62**	0.31	5 390	1	**MR 2IV 80 - 14 x 160** 71 B 4	484
	3.62	0.31	5 390	1.12	**MR 2IV 81 - 14 x 160** 71 B 4	484
	3.81	0.33	5 430	1.18	**MR 2IV 80 - 14 x 160** 71 C 6	302
	3.81	0.33	5 430	1.32	**MR 2IV 81 - 14 x 160** 71 C 6	302
	3.81	0.34	5 550	2.36	**MR 2IV 100 - 19 x 200** 80 A 6	302
	4.52	0.32	4 480	1.32	**MR 2IV 80 - 14 x 160** 71 B 4	387
	4.52	0.32	4 480	1.5	**MR 2IV 81 - 14 x 160** 71 B 4	387
	4.55	0.34	4 700	2.8	**MR 2IV 100 - 19 x 200** 80 A 6	253
	4.81	0.3	3 930	1	**MR IV 80 - 14 x 160** 71 C 6	239
	4.81	0.3	3 930	1.12	**MR IV 81 - 14 x 160** 71 C 6	239
	4.81	0.31	4 070	1.9	**MR IV 100 - 19 x 200** 80 A 6	239
	5.79	0.33	3 580	0.9	**MR 2IV 63 - 14 x 160** 71 B 4	302
	5.79	0.33	3 580	1	**MR 2IV 64 - 14 x 160** 71 B 4	302
	6.05	0.31	3 220	0.8	**MR IV 64 - 14 x 160** 71 C 6	190
	5.79	0.34	3 650	1.7	**MR 2IV 80 - 14 x 160** 71 B 4	302
	5.79	0.34	3 650	1.9	**MR 2IV 81 - 14 x 160** 71 B 4	302
	6.05	0.32	3 320	1.32	**MR IV 80 - 14 x 160** 71 C 6	190
	6.05	0.32	3 320	1.5	**MR IV 81 - 14 x 160** 71 C 6	190
	6.05	0.33	3 440	2.5	**MR IV 100 - 19 x 200** 80 A 6	190
	6.92	0.33	3 030	1	**MR 2IV 63 - 14 x 160** 71 B 4	253
	6.92	0.33	3 030	1.12	**MR 2IV 64 - 14 x 160** 71 B 4	253
	7.32	0.3	2 610	0.8	**MR IV 64 - 14 x 160** 71 B 4	239
	7.57	0.33	2 710	0.95	**MR IV 63 - 14 x 160** 71 C 6	152
	7.57	0.33	2 710	1.06	**MR IV 64 - 14 x 160** 71 C 6	152
	6.92	0.34	3 110	1.9	**MR 2IV 80 - 14 x 160** 71 B 4	253
	6.92	0.34	3 110	2.24	**MR 2IV 81 - 14 x 160** 71 B 4	253
	7.32	0.31	2 710	1.4	**MR IV 80 - 14 x 160** 71 B 4	239
	7.32	0.31	2 710	1.5	**MR IV 81 - 14 x 160** 71 B 4	239
	7.57	0.33	2 780	1.7	**MR IV 80 - 14 x 160** 71 C 6	152
	7.57	0.33	2 780	2	**MR IV 81 - 14 x 160** 71 C 6	152
	8.58	0.33	2 430	1.12	**MR 2IV 63 - 14 x 160** 71 B 4	204
	8.58	0.33	2 430	1.32	**MR 2IV 64 - 14 x 160** 71 B 4	204
	9.06	0.34	2 360	1.25	**MR 2IV 63 - 19 x 200** 80 A 6	127
	9.06	0.34	2 360	1.4	**MR 2IV 64 - 19 x 200** 80 A 6	127
	9.21	0.32	2 210	0.95	**MR IV 63 - 14 x 160** 71 B 4	190
	9.21	0.32	2 210	1.12	**MR IV 64 - 14 x 160** 71 B 4	190
	9.43	0.34	2 260	1.18	**MR IV 63 - 14 x 160** 71 C 6	122
	9.43	0.34	2 260	1.4	**MR IV 64 - 14 x 160** 71 C 6	122
	8.58	0.34	2 500	2.12	**MR 2IV 80 - 14 x 160** 71 B 4	204
	8.58	0.34	2 500	2.5	**MR 2IV 81 - 14 x 160** 71 B 4	204
	9.21	0.33	2 280	1.8	**MR IV 80 - 14 x 160** 71 B 4	190
	9.21	0.33	2 280	2.12	**MR IV 81 - 14 x 160** 71 B 4	190
	9.43	0.35	2 320	2.24	**MR IV 80 - 14 x 160** 71 C 6	122
	9.43	0.35	2 320	2.65	**MR IV 81 - 14 x 160** 71 C 6	122
	11.1	0.34	1 930	0.9	**MR 2IV 50 - 14 x 160** 71 B 4	158
	11	0.34	1 980	1.4	**MR 2IV 63 - 14 x 160** 71 B 4	159
	11	0.34	1 980	1.7	**MR 2IV 64 - 14 x 160** 71 B 4	159
	11.5	0.34	1 870	1.25	**MR IV 63 - 14 x 160** 71 B 4	152
	11.5	0.34	1 870	1.5	**MR IV 64 - 14 x 160** 71 B 4	152
	11.3	0.34	1 920	1.32	**MR IV 63 - 14 x 160** 71 C 6	102
	11.3	0.34	1 920	1.6	**MR IV 64 - 14 x 160** 71 C 6	102
	11.5	0.35	1 920	2.36	**MR IV 80 - 14 x 160** 71 B 4	152
	11.5	0.35	1 920	2.8	**MR IV 81 - 14 x 160** 71 B 4	152
	13.6	0.34	1 580	1	**MR 2IV 50 - 14 x 160** 71 B 4	129
	13.8	0.32	1 470	0.8	**MR IV 50 - 14 x 160** 71 B 4	127
	14.2	0.34	1 510	0.95	**MR IV 50 - 14 x 160** 71 C 6	81.1
	14.3	0.35	1 550	1.6	**MR IV 63 - 14 x 160** 71 B 4	122
	14.3	0.35	1 550	1.9	**MR IV 64 - 14 x 160** 71 B 4	122
	14.3	0.36	1 590	3	**MR IV 80 - 14 x 160** 71 B 4	122
	17	0.35	1 310	1.25	**MR 2IV 50 - 14 x 160** 71 B 4	103
	17.3	0.34	1 240	1	**MR IV 50 - 14 x 160** 71 B 4	101
	18.1	0.36	1 240	1.25	**MR IV 50 - 14 x 160** 71 C 6	63.4
	17.7	0.35	1 240	1.12	**MR IV 50 - 19 x 200** 80 A 6	65
	17.2	0.36	1 310	1.8	**MR IV 63 - 14 x 160** 71 B 4	102
	17.2	0.36	1 310	2.12	**MR IV 64 - 14 x 160** 71 B 4	102
	18.3	0.34	1 160	1.4	**MR V 63 - 14 x 160** 71 C 6	63
	18.3	0.34	1 160	1.4	**MR V 63 - 19 x 200** 80 A 6	63
	18.3	0.34	1 160	1.6	**MR V 64 - 19 x 200** 80 A 6	63
	18.3	0.35	1 200	2.65	**MR V 80 - 19 x 200** 80 A 6	63

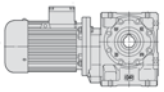
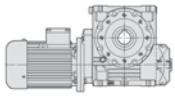
1) Powers valid for continuous duty S1; **increase** possible for S2 ... S10 (see ch. 2b) in which case P_2, M_2 increase and fs decreases proportionately.
2) For complete designation when ordering see ch. 3.1.
***** Mounting position **B5R**; available also for mounting position **B5** (see table ch. 2b).

Motor power P_1 hp 1)	Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)				Gear ratio i
0.5	**21.2**	0.38	1 140	1.32	**MR 2IV 50 - 14 x 160**	71 B	4		82.4
	22.7	0.36	995	0.85	**MR IV 40 - 14 x 160**	71 C	6		50.7
	21.6	0.36	1 040	1.32	**MR IV 50 - 14 x 160**	71 B	4		81.1
	22.7	0.37	1 020	1.6	**MR IV 50 - 14 x 160**	71 C	6		50.7
	22.6	0.36	1 010	1.5	**MR IV 50 - 19 x 200**	80 A	6		50.8
	23	0.34	930	1.12	**MR V 50 - 14 x 160**	71 C	6		50
	22	0.37	1 070	2.36	**MR IV 63 - 14 x 160**	71 B	4		79.5
	23	0.36	975	1.8	**MR V 63 - 14 x 160**	71 C	6		50
	23	0.36	975	1.8	**MR V 63 - 19 x 200**	80 A	6		50
	23	0.36	975	2.24	**MR V 64 - 19 x 200**	80 A	6		50
	27.6	0.36	825	0.9	**MR IV 40 - 14 x 160**	71 B	4		63.4
	28.8	0.35	755	0.8	**MR V 40 - 14 x 160**	71 C	6		40
	27.6	0.37	840	1.7	**MR IV 50 - 14 x 160**	71 B	4		63.4
	28.3	0.4	880	1.7	**MR IV 50 - 14 x 160**	71 C	6		40.6
	27.8	0.34	770	1.12	**MR V 50 - 14 x 160**	71 B	4		63
	28.8	0.36	780	1.4	**MR V 50 - 14 x 160**	71 C	6		40
	27.5	0.4	920	2.36	**MR IV 63 - 14 x 160**	71 B	4		63.6
	27.8	0.36	805	1.8	**MR V 63 - 14 x 160**	71 B	4		63
	27.8	0.36	805	2.12	**MR V 64 - 14 x 160**	71 B	4		63
	28.8	0.37	810	2.36	**MR V 63 - 14 x 160**	71 C	6		40
	28.8	0.37	810	2.36	**MR V 63 - 19 x 200**	80 A	6		40
	34.5	0.37	680	1.12	**MR IV 40 - 14 x 160**	71 B	4		50.7
	35	0.35	630	0.8	**MR V 40 - 14 x 160**	71 B	4		50
	35.9	0.36	635	1.06	**MR V 40 - 14 x 160**	71 C	6		32
	34.5	0.38	690	2	**MR IV 50 - 14 x 160**	71 B	4		50.7
	35.4	0.4	715	2	**MR IV 50 - 19 x 200**	80 A	6		32.5
	35	0.36	645	1.4	**MR V 50 - 14 x 160**	71 B	4		50
	35.9	0.37	650	1.8	**MR V 50 - 14 x 160**	71 C	6		32
	35	0.37	670	2.36	**MR V 63 - 14 x 160**	71 B	4		50
	43.1	0.4	585	1.18	**MR IV 40 - 14 x 160**	71 B	4		40.6
	43.8	0.36	520	1.06	**MR V 40 - 14 x 160**	71 B	4		40
	46	0.37	515	1.32	**MR V 40 - 14 x 160**	71 C	6		25
	43.1	0.41	595	2.24	**MR IV 50 - 14 x 160**	71 B	4		40.6
	43.8	0.37	535	1.9	**MR V 50 - 14 x 160**	71 B	4		40
	46	0.38	525	2.36	**MR V 50 - 14 x 160**	71 C	6		25
	43.8	0.39	555	3.15	**MR V 63 - 14 x 160**	71 B	4		40
	54.7	0.37	425	0.75	**MR V 32 - 11 x 140**	71 B	B5R	4	32
	57.5	0.38	415	0.9	**MR V 32 - 11 x 140**	71 C	B5R	6	20
	54.7	0.38	435	1.32	**MR V 40 - 14 x 160**	71 B		4	32
	57.5	0.38	420	1.6	**MR V 40 - 14 x 160**	71 C		6	20
	54.7	0.39	445	2.24	**MR V 50 - 14 x 160**	71 B		4	32
	57.5	0.39	430	2.8	**MR V 50 - 14 x 160**	71 C		6	20
	70	0.38	345	0.9	**MR V 32 - 11 x 140**	71 B	B5R	4	25
	70	0.39	350	1.7	**MR V 40 - 14 x 160**	71 B		4	25
	70	0.4	360	3	**MR V 50 - 14 x 160**	71 B		4	25
	87.5	0.39	285	1.12	**MR V 32 - 11 x 140**	71 B	B5R	4	20
	87.5	0.4	285	2	**MR V 40 - 14 x 160**	71 B		4	20
	109	0.42	240	1.25	**MR V 32 - 11 x 140**	71 B	B5R	4	16
	109	0.42	245	2.24	**MR V 40 - 14 x 160**	71 B		4	16
	135	0.42	200	1.4	**MR V 32 - 11 x 140**	71 B	B5R	4	13
	135	0.43	200	2.5	**MR V 40 - 14 x 160**	71 B		4	13
	175	0.43	155	1.7	**MR V 32 - 11 x 140**	71 B	B5R	4	10
	175	0.43	155	3	**MR V 40 - 14 x 160**	71 B		4	10
	250	0.44	110	2.12	**MR V 32 - 11 x 140**	71 B	B5R	4	7
	250	0.45	115	3.75	**MR V 40 - 14 x 160**	71 B		4	7
0.75	**2.38**	0.47	12 300	0.9	**MR 2IV 100 - 19 x 200**	80 B		6	484
	2.89	0.45	9 900	0.95	**MR 2IV 100 - 19 x 200**	80 A		4	605
	2.97	0.48	10 200	1.18	**MR 2IV 100 - 19 x 200**	80 B		6	387
	3.62	0.48	8 320	1.32	**MR 2IV 100 - 19 x 200**	80 A		4	484
	3.81	0.5	8 320	1.6	**MR 2IV 100 - 19 x 200**	80 B		6	302
	4.52	0.48	6 720	0.85	**MR 2IV 80 - 14 x 160**	71 C		4	387
	4.52	0.48	6 720	1	**MR 2IV 81 - 14 x 160**	71 C		4	387
	4.52	0.49	6 900	1.7	**MR 2IV 100 - 19 x 200**	80 A		4	387
	4.55	0.51	7 050	1.8	**MR 2IV 100 - 19 x 200**	80 B		6	253
	4.81	0.47	6 110	1.25	**MR IV 100 - 19 x 200**	80 B		6	239

Motor power P_1 hp 1)	Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)				Gear ratio i
0.75	**5.79**	0.5	5 480	1.12	**MR 2IV 80 - 14 x 160**	71 C	4		302
	5.79	0.5	5 480	1.32	**MR 2IV 81 - 14 x 160**	71 C	4		302
	5.42	0.48	5 610	0.9	**MR 2IV 80 - 19 x 200**	80 A	4		323
	5.42	0.48	5 610	1.06	**MR 2IV 81 - 19 x 200**	80 A	4		323
	5.79	0.52	5 640	2.24	**MR 2IV 100 - 19 x 200**	80 A	4		302
	6.05	0.49	5 150	1.7	**MR IV 100 - 19 x 200**	80 B	6		190
	6.92	0.51	4 670	1.25	**MR 2IV 80 - 14 x 160**	71 C	4		253
	6.92	0.51	4 670	1.5	**MR 2IV 81 - 14 x 160**	71 C	4		253
	6.78	0.5	4 660	1.18	**MR 2IV 80 - 19 x 200**	80 A	4		258
	6.78	0.5	4 660	1.4	**MR 2IV 81 - 19 x 200**	80 A	4		258
	7.32	0.47	4 060	0.9	**MR IV 80 - 14 x 160**	71 C	4		239
	7.32	0.47	4 060	1.06	**MR IV 81 - 14 x 160**	71 C	4		239
	7.19	0.47	4 130	0.9	**MR IV 80 - 19 x 200**	80 B	6		160
	7.19	0.47	4 130	1	**MR IV 81 - 19 x 200**	80 B	6		160
	6.92	0.53	4 800	2.5	**MR 2IV 100 - 19 x 200**	80 A	4		253
	7.32	0.49	4 230	1.7	**MR IV 100 - 19 x 200**	80 A	4		239
	7.57	0.52	4 320	2.24	**MR IV 100 - 19 x 200**	80 B	6		152
	8.66	0.51	3 700	0.8	**MR 2IV 63 - 19 x 200**	80 A	4		202
	8.66	0.51	3 700	0.9	**MR 2IV 64 - 19 x 200**	80 A	4		202
	8.66	0.52	3 790	1.5	**MR 2IV 80 - 19 x 200**	80 A	4		202
	8.66	0.52	3 790	1.8	**MR 2IV 81 - 19 x 200**	80 A	4		202
	9.21	0.5	3 430	1.18	**MR IV 80 - 14 x 160**	71 C	4		190
	9.21	0.5	3 430	1.4	**MR IV 81 - 14 x 160**	71 C	4		190
	9.06	0.5	3 480	1.18	**MR IV 80 - 19 x 200**	80 B	6		127
	9.06	0.5	3 480	1.4	**MR IV 81 - 19 x 200**	80 B	6		127
	9.21	0.52	3 540	2.24	**MR IV 100 - 19 x 200**	80 A	4		190
	11	0.52	2 960	0.95	**MR 2IV 63 - 14 x 160**	71 C	4		159
	11	0.52	2 960	1.12	**MR 2IV 64 - 14 x 160**	71 C	4		159
	10.8	0.51	2 950	0.85	**MR 2IV 63 - 19 x 200**	80 A	4		162
	10.8	0.51	2 950	1	**MR 2IV 64 - 19 x 200**	80 A	4		162
	11.5	0.51	2 800	0.85	**MR IV 63 - 14 x 160**	71 C	4		152
	11.5	0.51	2 800	1	**MR IV 64 - 14 x 160**	71 C	4		152
	11.3	0.51	2 850	0.8	**MR IV 63 - 19 x 200**	80 B	6		102
	11.3	0.51	2 850	1	**MR IV 64 - 19 x 200**	80 B	6		102
	10.8	0.52	3 040	1.7	**MR 2IV 80 - 19 x 200**	80 A	4		162
	10.8	0.52	3 040	2	**MR 2IV 81 - 19 x 200**	80 A	4		162
	11.5	0.52	2 870	1.6	**MR IV 80 - 14 x 160**	71 C	4		152
	11.5	0.52	2 870	1.9	**MR IV 81 - 14 x 160**	71 C	4		152
	10.9	0.5	2 870	1.18	**MR IV 80 - 19 x 200**	80 A	4		160
	10.9	0.5	2 870	1.4	**MR IV 81 - 19 x 200**	80 A	4		160
	11.3	0.52	2 920	1.5	**MR IV 80 - 19 x 200**	80 B	6		102
	11.3	0.52	2 920	1.8	**MR IV 81 - 19 x 200**	80 B	6		102
	11.5	0.54	2 960	3.15	**MR IV 100 - 19 x 200**	80 A	4		152
	13.8	0.53	2 400	1.12	**MR 2IV 63 - 19 x 200**	80 A	4		127
	13.8	0.53	2 400	1.32	**MR 2IV 64 - 19 x 200**	80 A	4		127
	14.3	0.53	2 320	1.06	**MR IV 63 - 14 x 160**	71 C	4		122
	14.3	0.53	2 320	1.25	**MR IV 64 - 14 x 160**	71 C	4		122
	13.8	0.51	2 320	0.85	**MR IV 63 - 19 x 200**	80 A	4		127
	13.8	0.51	2 320	1	**MR IV 64 - 19 x 200**	80 A	4		127
	14.2	0.53	2 340	1.06	**MR IV 63 - 19 x 200**	80 B	6		81.2
	14.2	0.53	2 340	1.25	**MR IV 64 - 19 x 200**	80 B	6		81.2
	13.8	0.54	2 470	2.12	**MR 2IV 80 - 19 x 200**	80 A	4		127
	13.8	0.54	2 470	2.65	**MR 2IV 81 - 19 x 200**	80 A	4		127
	14.3	0.54	2 390	2	**MR IV 80 - 14 x 160**	71 C	4		122
	14.3	0.54	2 390	2.36	**MR IV 81 - 14 x 160**	71 C	4		122
	13.8	0.52	2 390	1.6	**MR IV 80 - 19 x 200**	80 A	4		127
	13.8	0.52	2 390	1.9	**MR IV 81 - 19 x 200**	80 A	4		127
	14.2	0.54	2 410	2	**MR IV 80 - 19 x 200**	80 B	6		81.2
	14.2	0.54	2 410	2.36	**MR IV 81 - 19 x 200**	80 B	6		81.2
	17.2	0.54	1 970	1.18	**MR IV 63 - 14 x 160**	71 C	4		102
	17.2	0.54	1 970	1.4	**MR IV 64 - 14 x 160**	71 C	4		102
	17.2	0.53	1 950	1.12	**MR IV 63 - 19 x 200**	80 A	4		102
	17.2	0.53	1 950	1.32	**MR IV 64 - 19 x 200**	80 A	4		102
	18.1	0.55	1 910	1.4	**MR IV 63 - 19 x 200**	80 B	6		63.5
	18.1	0.55	1 910	1.6	**MR IV 64 - 19 x 200**	80 B	6		63.5
	18.3	0.51	1 740	0.9	**MR V 63 - 19 x 200**	80 B	6		63
	18.3	0.51	1 740	1.06	**MR V 64 - 19 x 200**	80 B	6		63

1) Powers valid for continuous duty S1; **increase** possible for S2 ... S10 (see ch. 2b) in which case P_2, M_2 increase and fs decreases proportionately.
2) For complete designation when ordering see ch. 3.1.
***** Mounting position **B5R**; available also for mounting position **B5** (see table ch. 2b).

Gearmotors selection tables

Motor power P_1 hp 1)	Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
0.75	**17.2**	0.55	2 020	2.36	**MR IV 80 - 14 x 160** 71 C 4	102
	17.2	0.55	2 020	2.8	**MR IV 81 - 14 x 160** 71 C 4	102
	17.2	0.55	2 000	2.12	**MR IV 80 - 19 x 200** 80 A 4	102
	17.2	0.55	2 000	2.5	**MR IV 81 - 19 x 200** 80 A 4	102
	18.3	0.52	1 800	1.7	**MR V 80 - 19 x 200** 80 B 6	63
	18.3	0.52	1 800	2.12	**MR V 81 - 19 x 200** 80 B 6	63
	21.6	0.53	1 550	0.85	**MR IV 50 - 14 x 160** 71 C 4	81.1
	22.6	0.54	1 520	1	**MR IV 50 - 19 x 200** 80 B 6	50.8
	22	0.56	1 600	1.6	**MR IV 63 - 14 x 160** 71 C 4	79.5
	22	0.56	1 600	1.9	**MR IV 64 - 14 x 160** 71 C 4	79.5
	21.6	0.55	1 600	1.4	**MR IV 63 - 19 x 200** 80 A 4	81.2
	21.6	0.55	1 600	1.7	**MR IV 64 - 19 x 200** 80 A 4	81.2
	23	0.53	1 460	1.25	**MR V 63 - 19 x 200** 80 B 6	50
	23	0.53	1 460	1.5	**MR V 64 - 19 x 200** 80 B 6	50
	22	0.57	1 630	3	**MR IV 80 - 14 x 160** 71 C 4	79.5
	22	0.57	1 630	3.55	**MR IV 81 - 14 x 160** 71 C 4	79.5
	21.6	0.56	1 640	2.65	**MR IV 80 - 19 x 200** 80 A 4	81.2
	21.6	0.56	1 640	3.15	**MR IV 81 - 19 x 200** 80 A 4	81.2
	23	0.55	1 510	2.36	**MR V 80 - 19 x 200** 80 B 6	50
	23	0.55	1 510	2.8	**MR V 81 - 19 x 200** 80 B 6	50
	27.6	0.55	1 260	1.12	**MR IV 50 - 14 x 160** 71 C 4	63.4
	26.9	0.54	1 270	1	**MR IV 50 - 19 x 200** 80 A 4	65
	28.3	0.56	1 240	1.18	**MR IV 50 - 19 x 200** 80 B 6	40.6
	28.8	0.53	1 170	0.95	**MR V 50 - 19 x 200** 80 B 6	40
	27.5	0.6	1 380	1.6	**MR IV 63 - 14 x 160** 71 C 4	63.6
	27.5	0.6	1 380	1.9	**MR IV 64 - 14 x 160** 71 C 4	63.6
	27.6	0.57	1 290	1.8	**MR IV 63 - 19 x 200** 80 A 4	63.5
	27.6	0.57	1 290	2.24	**MR IV 64 - 19 x 200** 80 A 4	63.5
	27.8	0.53	1 210	1.18	**MR V 63 - 14 x 160** 71 C 4	63
	27.8	0.53	1 210	1.4	**MR V 64 - 14 x 160** 71 C 4	63
	27.8	0.53	1 210	1.18	**MR V 63 - 19 x 200** 80 A 4	63
	27.8	0.53	1 210	1.4	**MR V 64 - 19 x 200** 80 A 4	63
	28.8	0.55	1 210	1.6	**MR V 63 - 19 x 200** 80 B 6	40
	28.8	0.55	1 210	1.9	**MR V 64 - 19 x 200** 80 B 6	40
	27.8	0.55	1 250	2.24	**MR V 80 - 19 x 200** 80 A 4	63
	27.8	0.55	1 250	2.65	**MR V 81 - 19 x 200** 80 A 4	63
0.6	**34.5**	0.56	1 020	0.75	**MR IV 40 - 14 x 160** 71 C 4	50.7
	34.5	0.57	1 040	1.4	**MR IV 50 - 14 x 160** 71 C 4	50.7
	34.4	0.56	1 030	1.32	**MR IV 50 - 19 x 200** 80 A 4	50.8
	35	0.54	965	0.95	**MR V 50 - 14 x 160** 71 C 4	50
	35	0.54	965	0.95	**MR V 50 - 19 x 200** 80 A 4	50
	35.9	0.55	975	1.25	**MR V 50 - 19 x 200** 80 B 6	32
	34.4	0.61	1 120	2.12	**MR IV 63 - 14 x 160** 71 C 4	50.9
	34.4	0.61	1 120	2.5	**MR IV 64 - 14 x 160** 71 C 4	50.9
	34.4	0.61	1 120	1.9	**MR IV 63 - 19 x 200** 80 A 4	50.8
	34.4	0.61	1 120	2.24	**MR IV 64 - 19 x 200** 80 A 4	50.8
	35	0.56	1 010	1.6	**MR V 63 - 14 x 160** 71 C 4	50
	35	0.56	1 010	1.9	**MR V 64 - 14 x 160** 71 C 4	50
	35	0.56	1 010	1.6	**MR V 63 - 19 x 200** 80 A 4	50
	35	0.56	1 010	1.9	**MR V 64 - 19 x 200** 80 A 4	50
	35.9	0.57	1 000	2	**MR V 63 - 19 x 200** 80 B 6	32
	35.9	0.57	1 000	2.36	**MR V 64 - 19 x 200** 80 B 6	32
	43.1	0.6	880	0.8	**MR IV 40 - 14 x 160** 71 C 4	40.6
	46	0.56	770	0.9	**MR V 40 - 14 x 160** 80 B B5R 6	25
	43.1	0.61	890	1.5	**MR IV 50 - 14 x 160** 71 C 4	40.6
	43.1	0.58	845	1.6	**MR IV 50 - 19 x 200** 80 A 4	40.6
	43.8	0.56	805	1.25	**MR V 50 - 14 x 160** 71 C 4	40
	43.8	0.56	805	1.25	**MR V 50 - 19 x 200** 80 A 4	40
	46	0.57	785	1.6	**MR V 50 - 19 x 200** 80 B 6	25
	43.1	0.62	905	2.36	**MR IV 63 - 19 x 200** 80 A 4	40.6
	43.8	0.58	830	2	**MR V 63 - 14 x 160** 71 C 4	40
	43.8	0.58	830	2	**MR V 63 - 19 x 200** 80 A 4	40
	54.7	0.57	655	0.9	**MR V 40 - 14 x 160** 71 C 4	32
	57.5	0.58	630	1.06	**MR V 40 - 14 x 160** 80 B B5R 6	20
	53.8	0.62	720	1.7	**MR IV 50 - 19 x 200** 80 A 4	32.5
	54.7	0.58	665	1.5	**MR V 50 - 14 x 160** 71 C 4	32
	54.7	0.58	665	1.5	**MR V 50 - 19 x 200** 80 A 4	32
	57.5	0.59	645	1.9	**MR V 50 - 19 x 200** 80 B 6	20
	54.7	0.59	685	2.5	**MR V 63 - 19 x 200** 80 A 4	32

Motor power P_1 hp 1)	Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
0.75	**70**	0.58	525	1.12	**MR V 40 - 14 x 160** 71 C 4	25
	70	0.58	525	1.12	**MR V 40 - 14 x 160** 80 A B5R 4	25
	70	0.6	535	2	**MR V 50 - 14 x 160** 71 C 4	25
	70	0.6	535	2	**MR V 50 - 19 x 200** 80 A 4	25
	87.5	0.59	425	0.75	**MR V 32 - 11 x 140** 71 C B5R 4	20
	87.5	0.6	430	1.32	**MR V 40 - 14 x 160** 71 C 4	20
	87.5	0.6	430	1.32	**MR V 40 - 14 x 160** 80 A B5R 4	20
	87.5	0.61	440	2.36	**MR V 50 - 14 x 160** 71 C 4	20
	87.5	0.61	440	2.36	**MR V 50 - 19 x 200** 80 A 4	20
	109	0.62	360	0.85	**MR V 32 - 11 x 140** 71 C B5R 4	16
	109	0.63	365	1.5	**MR V 40 - 14 x 160** 71 C 4	16
	109	0.63	365	1.5	**MR V 40 - 14 x 160** 80 A B5R 4	16
	109	0.64	370	2.65	**MR V 50 - 14 x 160** 71 C 4	16
	109	0.64	370	2.65	**MR V 50 - 19 x 200** 80 A 4	16
	135	0.64	295	0.95	**MR V 32 - 11 x 140** 71 C B5R 4	13
	135	0.64	300	1.7	**MR V 40 - 14 x 160** 71 C 4	13
	135	0.64	300	1.7	**MR V 40 - 14 x 160** 80 A B5R 4	13
	135	0.65	305	3	**MR V 50 - 14 x 160** 71 C 4	13
	135	0.65	305	3	**MR V 50 - 19 x 200** 80 A 4	13
	175	0.65	235	1.18	**MR V 32 - 11 x 140** 71 C B5R 4	10
	175	0.65	235	2	**MR V 40 - 14 x 160** 71 C 4	10
	175	0.65	235	2	**MR V 40 - 14 x 160** 80 A B5R 4	10
	250	0.66	170	1.4	**MR V 32 - 11 x 140** 71 C B5R 4	7
	250	0.67	170	2.5	**MR V 40 - 14 x 160** 71 C 4	7
	250	0.67	170	2.5	**MR V 40 - 14 x 160** 80 A B5R 4	7
1	**1.91**	0.61	20 000	0.95	**MR 2IV 125 - 24 x 200** 100 LA B5R 6	602
	2.39	0.62	16 450	1.25	**MR 2IV 125 - 24 x 200** 100 LA B5R 6	481
	2.97	0.64	13 650	0.9	**MR 2IV 100 - 19 x 200** 80 C S3 6	387
	2.99	0.65	13 800	1.6	**MR 2IV 125 - 24 x 200** 100 LA B5R 6	385
	3.62	0.64	11 100	0.95	**MR 2IV 100 - 19 x 200** 90 S B5R 4	484
	3.81	0.67	11 100	1.18	**MR 2IV 100 - 19 x 200** 80 C S3 6	302
	3.69	0.66	11 350	1.8	**MR 2IV 125 - 24 x 200** 100 LA B5R 6	312
	3.69	0.66	11 350	2.12	**MR 2IV 126 - 24 x 200** 100 LA B5R 6	312
	4.52	0.66	9 190	1.32	**MR 2IV 100 - 19 x 200** 90 S B5R 4	387
	4.53	0.66	9 160	2	**MR 2IV 125 - 24 x 200** 100 LA B5R 6	254
	4.53	0.66	9 160	2.24	**MR 2IV 126 - 24 x 200** 100 LA B5R 6	254
	4.73	0.65	8 600	1.6	**MR IV 125 - 24 x 200** 100 LA B5R 6	243
	4.73	0.65	8 600	1.9	**MR IV 126 - 24 x 200** 100 LA B5R 6	243
	4.81	0.62	8 150	0.95	**MR IV 100 - 19 x 200** 80 C S3 6	239
	5.69	0.67	7 430	0.95	**MR 2IV 81 - 19 x 200** 80 C S3 6	202
	5.79	0.69	7 520	1.7	**MR 2IV 100 - 19 x 200** 90 S B5R 4	302
	6.05	0.66	6 870	1.25	**MR IV 100 - 19 x 200** 80 C S3 6	190
	5.96	0.68	7 200	2.12	**MR IV 125 - 24 x 200** 100 LA B5R 6	193
	5.96	0.68	7 200	2.5	**MR IV 126 - 24 x 200** 100 LA B5R 6	193
	6.78	0.67	6 220	0.85	**MR 2IV 80 - 19 x 200** 90 S B5R 4	258
	6.78	0.67	6 220	1.06	**MR 2IV 81 - 19 x 200** 90 S B5R 4	258
	6.92	0.7	6 390	1.9	**MR 2IV 100 - 19 x 200** 90 S B5R 4	253
	7.32	0.66	5 640	1.32	**MR IV 100 - 19 x 200** 90 S B5R 4	239
	7.57	0.69	5 770	1.7	**MR IV 100 - 19 x 200** 80 C S3 6	152
	7.47	0.7	5 900	2.8	**MR IV 125 - 24 x 200** 100 LA B5R 6	154
	8.66	0.69	5 060	1.12	**MR 2IV 80 - 19 x 200** 90 S B5R 4	202
	8.66	0.69	5 060	1.32	**MR 2IV 81 - 19 x 200** 90 S B5R 4	202
	9.06	0.67	4 640	0.85	**MR IV 80 - 19 x 200** 80 C S3 6	127
	9.06	0.67	4 640	1.06	**MR IV 81 - 19 x 200** 80 C S3 6	127
	8.58	0.7	5 140	2.12	**MR 2IV 100 - 19 x 200** 90 S B5R 4	204
	9.21	0.69	4 730	1.7	**MR IV 100 - 19 x 200** 90 S B5R 4	190
	9.43	0.71	4 770	2.36	**MR IV 100 - 19 x 200** 80 C S3 6	122
	10.8	0.69	4 050	1.25	**MR 2IV 80 - 19 x 200** 90 S B5R 4	162
	10.8	0.69	4 050	1.5	**MR 2IV 81 - 19 x 200** 90 S B5R 4	162
	10.9	0.66	3 820	0.9	**MR IV 80 - 19 x 200** 90 S B5R 4	160
	10.9	0.66	3 820	1.06	**MR IV 81 - 19 x 200** 90 S B5R 4	160
	11.3	0.7	3 900	1.18	**MR IV 80 - 19 x 200** 80 C S3 6	102
	11.3	0.7	3 900	1.4	**MR IV 81 - 19 x 200** 80 C S3 6	102
	11.5	0.72	3 940	2.36	**MR IV 100 - 19 x 200** 90 S B5R 4	152

Values in red state nominal thermal power Pt_N (ambient temperature 40 °C, continuous duty, see ch. 3.2).

Motor (cat.TX) with efficiency value not according to IE3 class (IEC 60034-30).

Nominal power and nameplate data refer to intermittent periodic duty S3 70%.

1) Powers valid for continuous duty S1; **increase** possible for S2 ... S10 (see ch. 2b) in which case P_2, M_2 increase and fs decreases proportionately.
2) For complete designation when ordering see ch. 3.1.
* Mounting position **B5R**; available also for mounting position **B5** (see table ch. 2b).

Motor power P_1 hp 1)	Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
1	13.8	0.7	3 210	0.85	MR 2IV 63 - 19 x 200 90 S B5R 4	127
	13.8	0.7	3 210	1	MR 2IV 64 - 19 x 200 90 S B5R 4	127
	14.2	0.7	3 120	0.8	MR IV 63 - 19 x 200 80 C S3 6	81.2
	14.2	0.7	3 120	0.95	MR IV 64 - 19 x 200 80 C S3 6	81.2
	13.8	0.72	3 290	1.6	MR 2IV 80 - 19 x 200 90 S B5R 4	127
	13.8	0.72	3 290	1.9	MR 2IV 81 - 19 x 200 90 S B5R 4	127
	13.8	0.7	3 190	1.18	MR IV 80 - 19 x 200 90 S B5R 4	127
	13.8	0.7	3 190	1.4	MR IV 81 - 19 x 200 90 S B5R 4	127
	14.2	0.72	3 210	1.5	MR IV 80 - 19 x 200 80 C S3 6	81.2
	14.2	0.72	3 210	1.8	MR IV 81 - 19 x 200 80 C S3 6	81.2
	14.3	0.74	3 260	3.15	MR IV 100 - 19 x 200 90 S B5R 4	122
	17.2	0.71	2 600	0.85	MR IV 63 - 19 x 200 90 S B5R 4	102
	17.2	0.71	2 600	1	MR IV 64 - 19 x 200 90 S B5R 4	102
	18.1	0.73	2 540	1.06	MR IV 63 - 19 x 200 80 C S3 6	63.5
	18.1	0.73	2 540	1.25	MR IV 64 - 19 x 200 80 C S3 6	63.5
	18	0.72	2 510	0.95	MR IV 63 - 24 x 200 100 LA B5R 6	64
	18.3	0.67	2 320	0.8	MR V 64 - 19 x 200 80 C S3 6	63
	18.3	0.67	2 320	0.8	MR V 64 - 24 x 200 100 LA B5R 6	63
	17.2	0.73	2 660	1.6	MR IV 80 - 19 x 200 90 S B5R 4	102
	17.2	0.73	2 660	1.9	MR IV 81 - 19 x 200 90 S B5R 4	102
	18.1	0.75	2 610	2	MR IV 80 - 19 x 200 80 C S3 6	63.5
	18.1	0.75	2 610	2.36	MR IV 81 - 19 x 200 80 C S3 6	63.5
	18.3	0.7	2 410	1.32	MR V 80 - 24 x 200 100 LA B5R 6	63
	18.3	0.7	2 410	1.6	MR V 81 - 24 x 200 100 LA B5R 6	63
	18.3	0.72	2 490	2.5	MR V 100 - 24 x 200 100 LA B5R 6	63
	21.6	0.73	2 130	1.06	MR IV 63 - 19 x 200 90 S B5R 4	81.2
	21.6	0.73	2 130	1.25	MR IV 64 - 19 x 200 90 S B5R 4	81.2
	23	0.74	2 040	1.25	MR IV 63 - 24 x 200 100 LA B5R 6	50
	23	0.74	2 040	1.5	MR IV 64 - 24 x 200 100 LA B5R 6	50
	23	0.71	1 950	0.9	MR V 63 - 19 x 200 80 C S3 6	50
	23	0.71	1 950	1.12	MR V 64 - 19 x 200 80 C S3 6	50
	23	0.71	1 950	0.9	MR V 63 - 24 x 200 100 LA B5R 6	50
	23	0.71	1 950	1.12	MR V 64 - 24 x 200 100 LA B5R 6	50
	21.6	0.75	2 190	2	MR IV 80 - 19 x 200 90 S B5R 4	81.2
	21.6	0.75	2 190	2.36	MR IV 81 - 19 x 200 90 S B5R 4	81.2
	23	0.76	2 080	2.36	MR IV 80 - 24 x 200 100 LA B5R 6	50
	23	0.73	2 010	1.7	MR V 80 - 24 x 200 100 LA B5R 6	50
	23	0.73	2 010	2	MR V 81 - 24 x 200 100 LA B5R 6	50
	23	0.75	2 070	3.15	MR V 100 - 24 x 200 100 LA B5R 6	50
0.84	28.3	0.75	1 660	0.9	MR IV 50 - 19 x 200 80 C S3 6	40.6
	27.6	0.76	1 730	1.4	MR IV 63 - 19 x 200 90 S B5R 4	63.5
	27.6	0.76	1 730	1.7	MR IV 64 - 19 x 200 90 S B5R 4	63.5
	27.8	0.71	1 610	0.9	MR V 63 - 19 x 200 90 S B5R 4	63
	27.8	0.71	1 610	1.06	MR V 64 - 19 x 200 90 S B5R 4	63
	28.8	0.74	1 620	1.18	MR V 63 - 19 x 200 80 C S3 6	40
	28.8	0.74	1 620	1.4	MR V 64 - 19 x 200 80 C S3 6	40
	28.8	0.74	1 620	1.18	MR V 63 - 24 x 200 100 LA B5R 6	40
	28.8	0.74	1 620	1.4	MR V 64 - 24 x 200 100 LA B5R 6	40
	27.6	0.77	1 770	2.65	MR IV 80 - 19 x 200 90 S B5R 4	63.5
	27.6	0.77	1 770	3.15	MR IV 81 - 19 x 200 90 S B5R 4	63.5
	27.8	0.73	1 660	1.7	MR V 80 - 19 x 200 90 S B5R 4	63
	27.8	0.73	1 660	2	MR V 81 - 19 x 200 90 S B5R 4	63
	28.8	0.76	1 660	2.24	MR V 80 - 24 x 200 100 LA B5R 6	40
	28.8	0.76	1 660	2.65	MR V 81 - 24 x 200 100 LA B5R 6	40
	34.4	0.75	1 380	0.95	MR IV 50 - 19 x 200 90 S B5R 4	50.8
	35.9	0.74	1 300	0.9	MR V 50 - 19 x 200 80 C S3 6	32
	34.4	0.81	1 490	1.4	MR IV 63 - 19 x 200 90 S B5R 4	50.8
	34.4	0.81	1 490	1.7	MR IV 64 - 19 x 200 90 S B5R 4	50.8
	35.9	0.82	1 430	1.6	MR IV 63 - 24 x 200 100 LA B5R 6	32
	35.9	0.82	1 430	1.9	MR IV 64 - 24 x 200 100 LA B5R 6	32
	35	0.74	1 340	1.18	MR V 63 - 19 x 200 90 S B5R 4	50
	35	0.74	1 340	1.4	MR V 64 - 19 x 200 90 S B5R 4	50
	35.9	0.76	1 340	1.5	MR V 63 - 19 x 200 80 C S3 6	32
	35.9	0.76	1 340	1.8	MR V 64 - 19 x 200 80 C S3 6	32
	35.9	0.76	1 340	1.5	MR V 63 - 24 x 200 100 LA B5R 6	32
	35.9	0.76	1 340	1.8	MR V 64 - 24 x 200 100 LA B5R 6	32
	34.4	0.82	1 510	2.65	MR IV 80 - 19 x 200 90 S B5R 4	50.8
	34.4	0.82	1 510	3.15	MR IV 81 - 19 x 200 90 S B5R 4	50.8
	35	0.76	1 380	2.24	MR V 80 - 19 x 200 90 S B5R 4	50
	35	0.76	1 380	2.65	MR V 81 - 19 x 200 90 S B5R 4	50
	35.9	0.78	1 370	2.8	MR V 80 - 24 x 200 100 LA B5R 6	32

Motor power P_1 hp 1)	Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
1	43.1	0.77	1 130	1.18	MR IV 50 - 19 x 200 90 S B5R 4	40.6
	43.8	0.74	1 070	0.95	MR V 50 - 19 x 200 90 S B5R 4	40
	46	0.77	1 050	1.18	MR V 50 - 19 x 200 80 C S3 6	25
	43.1	0.83	1 210	1.8	MR IV 63 - 19 x 200 90 S B5R 4	40.6
	43.1	0.83	1 210	2.12	MR IV 64 - 19 x 200 90 S B5R 4	40.6
	43.8	0.77	1 110	1.5	MR V 63 - 19 x 200 90 S B5R 4	40
	43.8	0.77	1 110	1.8	MR V 64 - 19 x 200 90 S B5R 4	40
	46	0.79	1 080	1.9	MR V 63 - 19 x 200 80 C S3 6	25
	46	0.79	1 080	2.36	MR V 64 - 19 x 200 80 C S3 6	25
	46	0.79	1 080	1.9	MR V 63 - 24 x 200 100 LA B5R 6	25
	46	0.79	1 080	2.36	MR V 64 - 24 x 200 100 LA B5R 6	25
	43.8	0.79	1 130	2.8	MR V 80 - 19 x 200 90 S B5R 4	40
0.73	57.5	0.77	845	0.8	MR V 40 - 14 x 160 80 C S3 B5R 6	20
	53.8	0.82	965	1.32	MR IV 50 - 19 x 200 90 S B5R 4	32.5
	54.7	0.77	890	1.12	MR V 50 - 19 x 200 90 S B5R 4	32
	57.5	0.79	860	1.4	MR V 50 - 19 x 200 80 C S3 6	20
	54.7	0.79	910	1.9	MR V 63 - 19 x 200 90 S B5R 4	32
	54.7	0.79	910	2.24	MR V 64 - 19 x 200 90 S B5R 4	32
0.84	70	0.78	700	0.85	MR V 40 - 14 x 160 80 B S3 B5R 4	25
	70	0.79	715	1.5	MR V 50 - 19 x 200 90 S B5R 4	25
	70	0.81	730	2.5	MR V 63 - 19 x 200 90 S B5R 4	25
	87.5	0.8	575	1	MR V 40 - 14 x 160 80 B S3 B5R 4	20
	87.5	0.81	585	1.8	MR V 50 - 19 x 200 90 S B5R 4	20
	87.5	0.85	615	2.65	MR V 63 - 19 x 200 90 S B5R 4	20
	109	0.84	485	1.12	MR V 40 - 14 x 160 80 B S3 B5R 4	16
	109	0.85	495	1.9	MR V 50 - 19 x 200 90 S B5R 4	16
	109	0.86	500	3.15	MR V 63 - 19 x 200 90 S B5R 4	16
	135	0.86	400	1.25	MR V 40 - 14 x 160 80 B S3 B5R 4	13
	135	0.86	405	2.24	MR V 50 - 19 x 200 90 S B5R 4	13
	175	0.87	315	1.5	MR V 40 - 14 x 160 80 B S3 B5R 4	10
	175	0.88	315	2.65	MR V 50 - 19 x 200 90 S B5R 4	10
	250	0.89	225	1.9	MR V 40 - 14 x 160 80 B S3 B5R 4	7
	250	0.9	225	3.35	MR V 50 - 19 x 200 90 S B5R 4	7
1.5	2.39	0.94	24 650	0.9	MR 2IV 126 - 24 x 200 112 M B5R 6	481
	2.91	0.94	20 300	0.85	MR 2IV 125 - 24 x 200 90 L 4	602
	2.91	0.94	20 300	0.95	MR 2IV 126 - 24 x 200 90 L 4	602
	2.99	0.98	20 650	1.06	MR 2IV 125 - 24 x 200 112 M B5R 6	385
	2.99	0.98	20 650	1.18	MR 2IV 126 - 24 x 200 112 M B5R 6	385
	3.64	0.97	16 750	1.12	MR 2IV 125 - 24 x 200 90 L 4	481
	3.64	0.97	16 750	1.25	MR 2IV 126 - 24 x 200 90 L 4	481
	3.69	1	17 000	1.25	MR 2IV 125 - 24 x 200 112 M B5R 6	312
	4.52	0.99	13 800	0.85	MR 2IV 100 - 19 x 200 80 C S3 4	387
	4.55	1.02	14 100	1.4	MR 2IV 125 - 24 x 200 90 L 4	385
	4.55	1.02	14 100	1.7	MR 2IV 126 - 24 x 200 90 L 4	385
	4.73	0.97	12 900	1.06	MR IV 125 - 24 x 200 112 M B5R 6	243
	4.73	0.97	12 900	1.25	MR IV 126 - 24 x 200 112 M B5R 6	243
	5.79	1.04	11 300	1.12	MR 2IV 100 - 19 x 200 80 C S3 4	302
	5.61	1.03	11 600	1.7	MR 2IV 125 - 24 x 200 90 L 4	312
	5.61	1.03	11 600	2	MR 2IV 126 - 24 x 200 90 L 4	312
	5.96	1.02	10 800	1.4	MR IV 125 - 24 x 200 112 M B5R 6	193
	5.96	1.02	10 800	1.7	MR IV 126 - 24 x 200 112 M B5R 6	193
	6.92	1.05	9 590	1.25	MR 2IV 100 - 19 x 200 80 C S3 4	253
	6.78	1.03	9 530	1.18	MR 2IV 100 - 24 x 200 90 L 4	258
	7.32	0.98	8 460	0.85	MR IV 100 - 19 x 200 80 C S3 4	239
	7.19	0.98	8 610	0.85	MR IV 100 - 24 x 200 112 M B5R 6	160
	6.89	1.03	9 410	1.8	MR 2IV 125 - 24 x 200 90 L 4	254
	6.89	1.03	9 410	2.12	MR 2IV 126 - 24 x 200 90 L 4	254
	7.2	1.01	8 870	1.4	MR IV 125 - 24 x 200 90 L 4	243
	7.2	1.01	8 870	1.7	MR IV 126 - 24 x 200 90 L 4	243
	7.47	1.05	8 860	1.9	MR IV 125 - 24 x 200 112 M B5R 6	154
	7.47	1.05	8 860	2.24	MR IV 126 - 24 x 200 112 M B5R 6	154
	8.66	1.04	7 590	0.9	MR 2IV 81 - 19 x 200 80 C S3 4	202
	8.66	1.07	7 790	1.5	MR 2IV 100 - 24 x 200 90 L 4	202
	9.21	1.04	7 090	1.12	MR IV 100 - 19 x 200 80 C S3 4	190
	9.06	1.04	7 210	1.12	MR IV 100 - 24 x 200 112 M B5R 6	127
	8.62	1.07	7 840	2.36	MR 2IV 125 - 24 x 200 90 L 4	203
	9.07	1.06	7 380	1.9	MR IV 125 - 24 x 200 90 L 4	193
	9.07	1.06	7 380	2.24	MR IV 126 - 24 x 200 90 L 4	193
	9.2	1.07	7 340	2.24	MR IV 125 - 24 x 200 112 M B5R 6	125

See notes on page 50.

Motor power P_1 hp 1)	Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
1.5	10.8	1.04	6 070	0.85	MR 2IV 80 - 19 x 200 80 C S3 4	162
	10.8	1.04	6 070	1	MR 2IV 81 - 19 x 200 80 C S3 4	162
	11.5	1.03	5 620	0.85	MR IV 81 - 24 x 200 112 M B5R 6	100
	11	1.09	6 250	1.8	MR 2IV 100 - 19 x 200 80 C S3 4	159
	10.8	1.07	6 230	1.7	MR 2IV 100 - 24 x 200 90 L 4	162
	11.5	1.08	5 910	1.5	MR IV 100 - 19 x 200 80 C S3 4	152
	10.9	1.03	5 970	1.18	MR IV 100 - 24 x 200 90 L 4	160
	11.3	1.08	6 020	1.5	MR IV 100 - 24 x 200 112 M B5R 6	102
	11.4	1.09	6 040	2.5	MR IV 125 - 24 x 200 90 L 4	154
	13.8	1.08	4 930	1.06	MR 2IV 80 - 19 x 200 80 C S3 4	127
	13.8	1.08	4 930	1.32	MR 2IV 81 - 19 x 200 80 C S3 4	127
	13.8	1.05	4 780	0.8	MR IV 80 - 19 x 200 80 C S3 4	127
	13.8	1.05	4 780	0.95	MR IV 81 - 19 x 200 80 C S3 4	127
	13.9	1.02	4 620	0.85	MR IV 81 - 24 x 200 90 L 4	126
	14.4	1.07	4 680	0.95	MR IV 80 - 24 x 200 112 M B5R 6	80
	14.4	1.07	4 680	1.12	MR IV 81 - 24 x 200 112 M B5R 6	80
	13.8	1.11	5 070	2.12	MR 2IV 100 - 24 x 200 90 L 4	127
	14.3	1.11	4 880	2	MR IV 100 - 19 x 200 80 C S3 4	122
	13.8	1.08	4 940	1.5	MR IV 100 - 24 x 200 90 L 4	127
	14.2	1.11	4 920	2	MR IV 100 - 24 x 200 112 M B5R 6	81.2
	17.2	1.17	4 290	1.06	MR 2IV 80 - 19 x 200 80 C S3 4	102
	17.2	1.17	4 290	1.25	MR 2IV 81 - 19 x 200 80 C S3 4	102
	17.2	1.09	4 000	1.06	MR IV 80 - 19 x 200 80 C S3 4	102
	17.2	1.09	4 000	1.25	MR IV 81 - 19 x 200 80 C S3 4	102
	17.5	1.07	3 860	0.95	MR IV 80 - 24 x 200 90 L 4	100
	17.5	1.07	3 860	1.12	MR IV 81 - 24 x 200 90 L 4	100
	18	1.1	3 860	1.18	MR IV 80 - 24 x 200 112 M B5R 6	64
	18	1.1	3 860	1.4	MR IV 81 - 24 x 200 112 M B5R 6	64
	18.3	1.05	3 610	0.85	MR V 80 - 24 x 200 112 M B5R 6	63
	18.3	1.05	3 610	1.06	MR V 81 - 24 x 200 112 M B5R 6	63
	17.2	1.19	4 360	2.24	MR 2IV 100 - 24 x 200 90 L 4	102
	17.2	1.13	4 140	2.24	MR IV 100 - 19 x 200 80 C S3 4	102
	17.2	1.12	4 120	2	MR IV 100 - 24 x 200 90 L 4	102
	18.1	1.15	4 000	2.5	MR IV 100 - 24 x 200 112 M B5R 6	63.5
	18.3	1.09	3 740	1.7	MR V 100 - 24 x 200 112 M B5R 6	63
1.17	21.6	1.09	3 190	0.85	MR IV 64 - 19 x 200 80 C S3 4	81.2
1.19	23	1.12	3 060	0.85	MR IV 63 - 24 x 200 112 M B5R 6	50
1.19	23	1.12	3 060	1	MR IV 64 - 24 x 200 112 M B5R 6	50
	21.6	1.13	3 290	1.32	MR IV 80 - 19 x 200 80 C S3 4	81.2
	21.6	1.13	3 290	1.6	MR IV 81 - 19 x 200 80 C S3 4	81.2
	21.9	1.11	3 210	1.25	MR IV 80 - 24 x 200 90 L 4	80
	21.9	1.11	3 210	1.5	MR IV 81 - 24 x 200 90 L 4	80
	23	1.14	3 130	1.6	MR IV 80 - 24 x 200 112 M B5R 6	50
	23	1.14	3 130	1.9	MR IV 81 - 24 x 200 112 M B5R 6	50
	23	1.1	3 010	1.18	MR V 80 - 24 x 200 112 M B5R 6	50
	23	1.1	3 010	1.4	MR V 81 - 24 x 200 112 M B5R 6	50
	21.6	1.15	3 360	2.65	MR IV 100 - 24 x 200 90 L 4	81.2
	23	1.13	3 100	2.12	MR V 100 - 24 x 200 112 M B5R 6	50
	27.6	1.13	2 590	0.9	MR IV 63 - 19 x 200 80 C S3 4	63.5
	27.6	1.13	2 590	1.12	MR IV 64 - 19 x 200 80 C S3 4	63.5
	27.3	1.12	2 580	0.85	MR IV 63 - 24 x 200 90 L 4	64
	27.3	1.12	2 580	1	MR IV 64 - 24 x 200 90 L 4	64
	28.8	1.11	2 430	0.95	MR V 64 - 24 x 200 112 M B5R 6	40
	27.6	1.16	2 650	1.7	MR IV 80 - 19 x 200 80 C S3 4	63.5
	27.6	1.16	2 650	2.12	MR IV 81 - 19 x 200 80 C S3 4	63.5
	27.3	1.15	2 650	1.6	MR IV 80 - 24 x 200 90 L 4	64
	27.3	1.15	2 650	1.9	MR IV 81 - 24 x 200 90 L 4	64
	27.8	1.1	2 500	1.12	MR V 80 - 19 x 200 80 C S3 4	63
	27.8	1.1	2 500	1.32	MR V 81 - 19 x 200 80 C S3 4	63
	27.8	1.1	2 500	1.12	MR V 80 - 24 x 200 90 L 4	63
	27.8	1.1	2 500	1.32	MR V 81 - 24 x 200 90 L 4	63
	28.8	1.14	2 500	1.5	MR V 80 - 24 x 200 112 M B5R 6	40
	28.8	1.14	2 500	1.8	MR V 81 - 24 x 200 112 M B5R 6	40
	27.6	1.19	2 720	3.35	MR IV 100 - 24 x 200 90 L 4	63.5
	27.8	1.13	2 570	2.12	MR V 100 - 24 x 200 90 L 4	63
	34.4	1.22	2 230	0.95	MR IV 63 - 19 x 200 80 C S3 4	50.8
	34.4	1.22	2 230	1.12	MR IV 64 - 19 x 200 80 C S3 4	50.8
	35	1.16	2 080	1.06	MR IV 63 - 24 x 200 90 L 4	50
	35	1.16	2 080	1.32	MR IV 64 - 24 x 200 90 L 4	50
	35.9	1.23	2 150	1.06	MR IV 63 - 24 x 200 112 M B5R 6	32

Motor power P_1 hp 1)	Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
1.5	35	1.12	2 010	0.8	MR V 63 - 19 x 200 80 C S3 4	50
	35	1.12	2 010	0.95	MR V 64 - 19 x 200 80 C S3 4	50
	35	1.12	2 010	0.8	MR V 63 - 24 x 200 90 L 4	50
	35	1.12	2 010	0.95	MR V 64 - 24 x 200 90 L 4	50
	35.9	1.14	2 010	1	MR V 63 - 24 x 200 112 M B5R 6	32
	35.9	1.14	2 010	1.18	MR V 64 - 24 x 200 112 M B5R 6	32
	34.4	1.24	2 260	1.8	MR IV 80 - 19 x 200 80 C S3 4	50.8
	34.4	1.24	2 260	2.12	MR IV 81 - 19 x 200 80 C S3 4	50.8
	35	1.18	2 130	2	MR IV 80 - 24 x 200 90 L 4	50
	35	1.18	2 130	2.5	MR IV 81 - 24 x 200 90 L 4	50
	35	1.15	2 060	1.5	MR V 80 - 19 x 200 80 C S3 4	50
	35	1.15	2 060	1.7	MR V 81 - 19 x 200 80 C S3 4	50
	35	1.15	2 060	1.5	MR V 80 - 24 x 200 90 L 4	50
	35	1.15	2 060	1.7	MR V 81 - 24 x 200 90 L 4	50
	35.9	1.17	2 060	1.9	MR V 80 - 24 x 200 112 M B5R 6	32
	35.9	1.17	2 060	2.24	MR V 81 - 24 x 200 112 M B5R 6	32
1.01	43.1	1.16	1 690	0.8	MR IV 50 - 19 x 200 80 C S3 4	40.6
1.02	46	1.15	1 570	0.8	MR V 50 - 19 x 200 90 L S3 B5R 6	25
	43.1	1.24	1 810	1.18	MR IV 63 - 19 x 200 80 C S3 4	40.6
	43.1	1.24	1 810	1.4	MR IV 64 - 19 x 200 80 C S3 4	40.6
	43.8	1.23	1 770	1.12	MR IV 63 - 24 x 200 90 L 4	40
	43.8	1.23	1 770	1.32	MR IV 64 - 24 x 200 90 L 4	40
	43.8	1.16	1 660	1	MR V 63 - 19 x 200 80 C S3 4	40
	43.8	1.16	1 660	1.25	MR V 64 - 19 x 200 80 C S3 4	40
	43.8	1.16	1 660	1	MR V 63 - 24 x 200 90 L 4	40
	43.8	1.16	1 660	1.25	MR V 64 - 24 x 200 90 L 4	40
	46	1.18	1 610	1.32	MR V 63 - 24 x 200 112 M B5R 6	25
	46	1.18	1 610	1.5	MR V 64 - 24 x 200 112 M B5R 6	25
	43.1	1.26	1 840	2.24	MR IV 80 - 19 x 200 80 C S3 4	40.6
	43.1	1.26	1 840	2.8	MR IV 81 - 19 x 200 80 C S3 4	40.6
	43.8	1.25	1 800	2.12	MR IV 80 - 24 x 200 90 L 4	40
	43.8	1.25	1 800	2.5	MR IV 81 - 24 x 200 90 L 4	40
	43.8	1.18	1 700	1.9	MR V 80 - 19 x 200 80 C S3 4	40
	43.8	1.18	1 700	2.24	MR V 81 - 19 x 200 80 C S3 4	40
	43.8	1.18	1 700	1.9	MR V 80 - 24 x 200 90 L 4	40
	43.8	1.18	1 700	2.24	MR V 81 - 24 x 200 90 L 4	40
	46	1.2	1 650	2.5	MR V 80 - 24 x 200 112 M B5R 6	25
	53.8	1.23	1 440	0.85	MR IV 50 - 19 x 200 80 C S3 4	32.5
1.17	54.7	1.16	1 330	0.75	MR V 50 - 19 x 200 80 C S3 4	32
1.12	57.5	1.18	1 290	0.95	MR V 50 - 19 x 200 90 L S3 B5R 6	20
	54.7	1.25	1 440	1.4	MR IV 63 - 24 x 200 90 L 4	32
	54.7	1.25	1 440	1.7	MR IV 64 - 24 x 200 90 L 4	32
	54.7	1.19	1 370	1.25	MR V 63 - 19 x 200 80 C S3 4	32
	54.7	1.19	1 370	1.5	MR V 64 - 19 x 200 80 C S3 4	32
	54.7	1.19	1 370	1.25	MR V 63 - 24 x 200 90 L 4	32
	54.7	1.19	1 370	1.5	MR V 64 - 24 x 200 90 L 4	32
	57.5	1.25	1 370	1.6	MR V 64 - 24 x 200 112 M B5R 6	20
	54.7	1.27	1 470	2.65	MR IV 80 - 24 x 200 90 L 4	32
	54.7	1.27	1 470	3.15	MR IV 81 - 24 x 200 90 L 4	32
	54.7	1.21	1 390	2.36	MR V 80 - 19 x 200 80 C S3 4	32
	54.7	1.21	1 390	2.8	MR V 81 - 19 x 200 80 C S3 4	32
	54.7	1.21	1 390	2.36	MR V 80 - 24 x 200 90 L 4	32
	54.7	1.21	1 390	2.8	MR V 81 - 24 x 200 90 L 4	32
	70	1.19	1 070	1	MR V 50 - 19 x 200 80 C S3 4	25
	70	1.19	1 070	1	MR V 50 - 19 x 200 90 L B5R 4	25
	70	1.22	1 090	1.6	MR V 63 - 19 x 200 80 C S3 4	25
	70	1.22	1 090	1.9	MR V 64 - 19 x 200 80 C S3 4	25
	70	1.22	1 090	1.6	MR V 63 - 24 x 200 90 L 4	25
	70	1.22	1 090	1.9	MR V 64 - 24 x 200 90 L 4	25
	70	1.24	1 110	3	MR V 80 - 24 x 200 90 L 4	25
	70	1.24	1 110	3.55	MR V 81 - 24 x 200 90 L 4	25
	87.5	1.22	875	1.18	MR V 50 - 19 x 200 80 C S3 4	20
	87.5	1.22	875	1.18	MR V 50 - 19 x 200 90 L B5R 4	20
	87.5	1.28	920	1.7	MR V 63 - 19 x 200 80 C S3 4	20
	87.5	1.28	920	2.12	MR V 64 - 19 x 200 80 C S3 4	20
	87.5	1.28	920	1.7	MR V 63 - 24 x 200 90 L 4	20
	87.5	1.28	920	2.12	MR V 64 - 24 x 200 90 L 4	20
	88.5	1.29	915	2	MR V 63 - 24 x 200 112 M B5R 6	13
	88.5	1.29	915	2.36	MR V 64 - 24 x 200 112 M B5R 6	13

See notes on page 53.

Motor power P_1 hp 1)	Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
1.5 1.18	**109**	1.26	730	0.75	**MR V 40 - 14 x 160** 80 C S3 B5R 4	16
	109	1.28	740	1.32	**MR V 50 - 19 x 200** 80 C S3 4	16
	109	1.28	740	1.32	**MR V 50 - 19 x 200** 90 L B5R 4	16
	109	1.3	750	2.12	**MR V 63 - 19 x 200** 80 C S3 4	16
	109	1.3	750	2.12	**MR V 63 - 24 x 200** 90 L 4	16
	135	1.28	600	0.85	**MR V 40 - 14 x 160** 80 C S3 B5R 4	13
	135	1.3	605	1.5	**MR V 50 - 19 x 200** 80 C S3 4	13
	135	1.3	605	1.5	**MR V 50 - 19 x 200** 90 L B5R 4	13
	135	1.31	615	2.5	**MR V 63 - 24 x 200** 90 L 4	13
	175	1.3	470	1	**MR V 40 - 14 x 160** 80 C S3 B5R 4	10
	175	1.32	475	1.8	**MR V 50 - 19 x 200** 80 C S3 4	10
	175	1.32	475	1.8	**MR V 50 - 19 x 200** 90 L B5R 4	10
	175	1.34	485	3	**MR V 63 - 24 x 200** 90 L 4	10
	250	1.34	340	1.25	**MR V 40 - 14 x 160** 80 C S3 B5R 4	7
	250	1.35	340	2.24	**MR V 50 - 19 x 200** 80 C S3 4	7
	250	1.35	340	2.24	**MR V 50 - 19 x 200** 90 L B5R 4	7
2	**3.64**	1.29	22 350	0.85	**MR 2IV 125 - 24 x 200** 90 LB 4	481
	3.64	1.29	22 350	0.95	**MR 2IV 126 - 24 x 200** 90 LB 4	481
	4.55	1.36	18 750	1.06	**MR 2IV 125 - 24 x 200** 90 LB 4	385
	4.55	1.36	18 750	1.25	**MR 2IV 126 - 24 x 200** 90 LB 4	385
	4.73	1.29	17 200	0.8	**MR IV 125 - 24 x 200** 90 LC S3 6	243
	4.73	1.29	17 200	0.95	**MR IV 126 - 24 x 200** 90 LC S3 6	243
	4.56	1.33	18 400	1.5	**MR IV 160 - 28 x 250** 112 MB 6	252
	4.56	1.33	18 400	1.7	**MR IV 161 - 28 x 250** 112 MB 6	252
	5.61	1.38	15 450	1.25	**MR 2IV 125 - 24 x 200** 90 LB 4	312
	5.61	1.38	15 450	1.5	**MR 2IV 126 - 24 x 200** 90 LB 4	312
	5.84	1.32	14 250	0.95	**MR IV 125 - 28 x 250** 112 MB 6	197
	5.84	1.32	14 250	1.12	**MR IV 126 - 28 x 250** 112 MB 6	197
	5.96	1.36	14 400	1.06	**MR IV 125 - 24 x 200** 90 LC S3 6	193
	5.96	1.36	14 400	1.25	**MR IV 126 - 24 x 200** 90 LC S3 6	193
	5.75	1.4	15 300	2	**MR IV 160 - 28 x 250** 112 MB 6	200
	5.75	1.4	15 300	2.24	**MR IV 161 - 28 x 250** 112 MB 6	200
	6.78	1.37	12 700	0.9	**MR 2IV 100 - 24 x 200** 90 LB 4	258
	6.89	1.37	12 550	1.32	**MR 2IV 125 - 24 x 200** 90 LB 4	254
	6.89	1.37	12 550	1.6	**MR 2IV 126 - 24 x 200** 90 LB 4	254
	6.97	1.41	12 700	1.5	**MR 2IV 125 - 28 x 250** 112 MB 6	165
	7.2	1.35	11 800	1.06	**MR IV 125 - 24 x 200** 90 LB 4	243
	7.2	1.35	11 800	1.25	**MR IV 126 - 24 x 200** 90 LB 4	243
	7.37	1.39	11 850	1.25	**MR IV 125 - 28 x 250** 112 MB 6	156
	7.37	1.39	11 850	1.5	**MR IV 126 - 28 x 250** 112 MB 6	156
	7.47	1.4	11 800	1.4	**MR IV 125 - 24 x 200** 90 LC S3 6	154
	7.47	1.4	11 800	1.7	**MR IV 126 - 24 x 200** 90 LC S3 6	154
	7.19	1.45	12 700	2.65	**MR IV 160 - 28 x 250** 112 MB 6	160
	7.19	1.45	12 700	3.15	**MR IV 161 - 28 x 250** 112 MB 6	160
	8.66	1.43	10 400	1.12	**MR 2IV 100 - 24 x 200** 90 LB 4	202
	9.21	1.38	9 450	0.85	**MR IV 100 - 19 x 200** 90 LB B5R 4	190
	9.06	1.38	9 610	0.85	**MR IV 100 - 24 x 200** 90 LC S3 6	127
	8.62	1.43	10 450	1.8	**MR 2IV 125 - 24 x 200** 90 LB 4	203
	8.62	1.43	10 450	2.12	**MR 2IV 126 - 24 x 200** 90 LB 4	203
	9.07	1.42	9 840	1.4	**MR IV 125 - 24 x 200** 90 LB 4	193
	9.07	1.42	9 840	1.7	**MR IV 126 - 24 x 200** 90 LB 4	193
	9.2	1.43	9 790	1.6	**MR IV 125 - 28 x 250** 112 MB 6	125
	9.2	1.43	9 790	2	**MR IV 126 - 28 x 250** 112 MB 6	125
	9.2	1.43	9 790	1.6	**MR IV 125 - 24 x 200** 90 LC S3 6	125
	9.2	1.43	9 790	2	**MR IV 126 - 24 x 200** 90 LC S3 6	125
	9.06	1.48	10 250	3.15	**MR IV 160 - 28 x 250** 112 MB 6	127
	10.8	1.42	8 300	1.25	**MR 2IV 100 - 24 x 200** 90 LB 4	162
	11.5	1.44	7 880	1.18	**MR IV 100 - 19 x 200** 90 LB B5R 4	152
	10.9	1.38	7 960	0.85	**MR IV 100 - 24 x 200** 90 LB 4	160
	11.5	1.41	7 730	1	**MR IV 100 - 28 x 250** 112 MB 6	100
	11	1.56	8 920	2.12	**MR 2IV 126 - 24 x 200** 90 LB 4	159
	11.4	1.46	8 050	1.9	**MR IV 125 - 24 x 200** 90 LB 4	154
	11.4	1.46	8 050	2.24	**MR IV 126 - 24 x 200** 90 LB 4	154
	11.5	1.49	8 140	2.12	**MR IV 125 - 24 x 200** 90 LC S3 6	100
	11.5	1.49	8 140	2.65	**MR IV 126 - 24 x 200** 90 LC S3 6	100

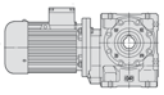
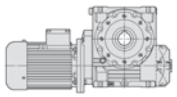
Motor power P_1 hp 1)	Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
2 1.52	**14.4**	1.43	6 240	0.85	**MR IV 81 - 24 x 200** 90 LC S3 6	80
	13.8	1.48	6 760	1.6	**MR 2IV 100 - 24 x 200** 90 LB 4	127
	14.3	1.48	6 510	1.5	**MR IV 100 - 19 x 200** 90 LB B5R 4	122
	13.8	1.44	6 590	1.12	**MR IV 100 - 24 x 200** 90 LB 4	127
	14.4	1.47	6 420	1.4	**MR IV 100 - 28 x 250** 112 MB 6	80
	14.2	1.48	6 560	1.5	**MR IV 100 - 24 x 200** 90 LC S3 6	81.2
	14	1.49	6 700	2.24	**MR IV 125 - 24 x 200** 90 LB 4	125
	14.2	1.51	6 720	2.5	**MR IV 125 - 28 x 250** 112 MB 6	81.1
1.65	**17.2**	1.45	5 330	0.8	**MR IV 80 - 19 x 200** 90 LB B5R 4	102
1.65	**17.2**	1.45	5 330	0.95	**MR IV 81 - 19 x 200** 90 LB B5R 4	102
1.65	**17.5**	1.43	5 150	0.85	**MR IV 81 - 24 x 200** 90 LB 4	100
1.64	**18**	1.47	5 150	0.9	**MR IV 80 - 24 x 200** 90 LC S3 6	64
1.64	**18**	1.47	5 150	1.06	**MR IV 81 - 24 x 200** 90 LC S3 6	64
	17.2	1.59	5 810	1.7	**MR 2IV 100 - 24 x 200** 90 LB 4	102
	17.2	1.51	5 520	1.7	**MR IV 100 - 19 x 200** 90 LB B5R 4	102
	17.2	1.5	5 490	1.5	**MR IV 100 - 24 x 200** 90 LB 4	102
	18	1.51	5 280	1.8	**MR IV 100 - 28 x 250** 112 MB 6	64
	18.1	1.53	5 340	1.9	**MR IV 100 - 24 x 200** 90 LC S3 6	63.5
	18.3	1.45	4 980	1.25	**MR V 100 - 28 x 250** 112 MB 6	63
	18.3	1.45	4 980	1.25	**MR V 100 - 24 x 200** 90 LC S3 6	63
	17.5	1.54	5 560	2.8	**MR IV 125 - 24 x 200** 90 LB 4	100
	18.3	1.49	5 120	2	**MR V 125 - 28 x 250** 112 MB 6	63
	18.3	1.49	5 120	2.5	**MR V 126 - 28 x 250** 112 MB 6	63
	21.6	1.5	4 380	1	**MR IV 80 - 19 x 200** 90 LB B5R 4	81.2
	21.9	1.49	4 280	0.95	**MR IV 80 - 24 x 200** 90 LB 4	80
	21.6	1.5	4 380	1.18	**MR IV 81 - 19 x 200** 90 LB B5R 4	81.2
	21.9	1.49	4 280	1.12	**MR IV 81 - 24 x 200** 90 LB 4	80
	23	1.52	4 170	1.18	**MR IV 80 - 24 x 200** 90 LC S3 6	50
	23	1.52	4 170	1.4	**MR IV 81 - 24 x 200** 90 LC S3 6	50
	23	1.47	4 020	0.85	**MR V 80 - 28 x 250** 112 MB 6	50
	23	1.47	4 020	1	**MR V 81 - 28 x 250** 112 MB 6	50
	23	1.47	4 020	0.85	**MR V 80 - 24 x 200** 90 LC S3 6	50
	23	1.47	4 020	1	**MR V 81 - 24 x 200** 90 LC S3 6	50
	22	1.56	4 470	2.12	**MR IV 100 - 19 x 200** 90 LB B5R 4	79.5
	21.6	1.54	4 490	2	**MR IV 100 - 24 x 200** 90 LB 4	81.2
	23	1.56	4 280	2.24	**MR IV 100 - 28 x 250** 112 MB 6	50
	23	1.51	4 140	1.6	**MR V 100 - 28 x 250** 112 MB 6	50
	23	1.51	4 140	1.6	**MR V 100 - 24 x 200** 90 LC S3 6	50
	23	1.54	4 230	2.65	**MR V 125 - 28 x 250** 112 MB 6	50
	27.6	1.55	3 540	1.32	**MR IV 80 - 19 x 200** 90 LB B5R 4	63.5
	27.3	1.53	3 540	1.18	**MR IV 80 - 24 x 200** 90 LB 4	64
	27.6	1.55	3 540	1.6	**MR IV 81 - 19 x 200** 90 LB B5R 4	63.5
	27.3	1.53	3 540	1.4	**MR IV 81 - 24 x 200** 90 LB 4	64
	27.8	1.47	3 330	0.85	**MR V 80 - 24 x 200** 90 LB 4	63
	27.8	1.47	3 330	1	**MR V 81 - 24 x 200** 90 LB 4	63
	28.8	1.52	3 330	1.12	**MR V 80 - 28 x 250** 112 MB 6	40
	28.8	1.52	3 330	1.32	**MR V 81 - 28 x 250** 112 MB 6	40
	28.8	1.52	3 330	1.12	**MR V 80 - 24 x 200** 90 LC S3 6	40
	28.8	1.52	3 330	1.32	**MR V 81 - 24 x 200** 90 LC S3 6	40
	27.6	1.59	3 630	2.5	**MR IV 100 - 24 x 200** 90 LB 4	63.5
	27.8	1.51	3 420	1.6	**MR V 100 - 24 x 200** 90 LB 4	63
	28.8	1.56	3 410	2.24	**MR V 100 - 28 x 250** 112 MB 6	40
	28.8	1.56	3 410	2.24	**MR V 100 - 24 x 200** 90 LC S3 6	40
1.42	**35**	1.54	2 770	0.8	**MR IV 63 - 24 x 200** 90 LB 4	50
1.42	**35**	1.54	2 770	0.95	**MR IV 64 - 24 x 200** 90 LB 4	50
1.42	**35.9**	1.52	2 670	0.9	**MR V 64 - 24 x 200** 90 LC S3 6	32
	35	1.58	2 840	1.5	**MR IV 80 - 24 x 200** 90 LB 4	50
	35	1.58	2 840	1.8	**MR IV 81 - 24 x 200** 90 LB 4	50
	35	1.53	2 750	1.12	**MR V 80 - 24 x 200** 90 LB 4	50
	35	1.53	2 750	1.32	**MR V 81 - 24 x 200** 90 LB 4	50
	35.9	1.56	2 740	1.4	**MR V 80 - 28 x 250** 112 MB 6	32
	35.9	1.56	2 740	1.7	**MR V 81 - 28 x 250** 112 MB 6	32
	35.9	1.56	2 740	1.4	**MR V 80 - 24 x 200** 90 LC S3 6	32
	35.9	1.56	2 740	1.7	**MR V 81 - 24 x 200** 90 LC S3 6	32
	34.4	1.68	3 070	2.65	**MR IV 100 - 24 x 200** 90 LB 4	50.8
	35	1.57	2 820	2	**MR V 100 - 24 x 200** 90 LB 4	50

Values in red state nominal thermal power Pt_N (ambient temperature 40 °C, continuous duty, see ch. 3.2).

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

1) Powers valid for continuous duty S1; **increase** possible for S2 ... S10 (see ch. 2b) in which case P_2, M_2 increase and fs decreases proportionately.
2) For complete designation when ordering see ch. 3.1.
* Mounting position **B5R**; available also for mounting position **B5** (see table ch. 2b).

Gearmotors selection tables

Motor power P_1 hp 1)	Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
2	**43.8**	1.64	2 360	0.85	**MR IV 63 - 24 x 200** 90 LB 4	40
	43.8	1.64	2 360	1	**MR IV 64 - 24 x 200** 90 LB 4	40
1.65	**43.8**	1.54	2 220	0.75	**MR V 63 - 24 x 200** 90 LB 4	40
1.65	**43.8**	1.54	2 220	0.9	**MR V 64 - 24 x 200** 90 LB 4	40
1.57	**46**	1.57	2 150	0.95	**MR V 63 - 24 x 200** 112 MB B5R 6	25
1.57	**46**	1.57	2 150	1.18	**MR V 64 - 24 x 200** 112 MB B5R 6	25
1.57	**46**	1.57	2 150	0.95	**MR V 63 - 24 x 200** 90 LC S3 6	25
1.57	**46**	1.57	2 150	1.18	**MR V 64 - 24 x 200** 90 LC S3 6	25
	43.1	1.68	2 450	1.7	**MR IV 80 - 19 x 200** 90 LB B5R 4	40.6
	43.8	1.67	2 400	1.6	**MR IV 80 - 24 x 200** 90 LB 4	40
	43.1	1.68	2 450	2	**MR IV 81 - 19 x 200** 90 LB B5R 4	40.6
	43.8	1.67	2 400	1.9	**MR IV 81 - 24 x 200** 90 LB 4	40
	43.8	1.57	2 270	1.4	**MR V 80 - 24 x 200** 90 LB 4	40
	43.8	1.57	2 270	1.7	**MR V 81 - 24 x 200** 90 LB 4	40
	46	1.6	2 200	1.8	**MR V 80 - 28 x 250** 112 MB 6	25
	46	1.6	2 200	2.24	**MR V 81 - 28 x 250** 112 MB 6	25
	46	1.6	2 200	1.8	**MR V 80 - 24 x 200** 90 LC S3 6	25
	46	1.6	2 200	2.24	**MR V 81 - 24 x 200** 90 LC S3 6	25
	43.1	1.7	2 490	3.35	**MR IV 100 - 24 x 200** 90 LB 4	40.6
	43.8	1.61	2 320	2.8	**MR V 100 - 24 x 200** 90 LB 4	40
	54.7	1.67	1 930	1.06	**MR IV 63 - 24 x 200** 90 LB 4	32
	54.7	1.67	1 930	1.25	**MR IV 64 - 24 x 200** 90 LB 4	32
	54.7	1.58	1 820	0.95	**MR V 63 - 24 x 200** 90 LB 4	32
	54.7	1.58	1 820	1.12	**MR V 64 - 24 x 200** 90 LB 4	32
	54.7	1.7	1 960	2	**MR IV 80 - 24 x 200** 90 LB 4	32
	54.7	1.7	1 960	2.36	**MR IV 81 - 24 x 200** 90 LB 4	32
	54.7	1.61	1 860	1.8	**MR V 80 - 24 x 200** 90 LB 4	32
	54.7	1.61	1 860	2.12	**MR V 81 - 24 x 200** 90 LB 4	32
1.3	**70**	1.59	1 430	0.75	**MR V 50 - 19 x 200** 90 LB B5R 4	25
	70	1.62	1 460	1.25	**MR V 63 - 24 x 200** 90 LB 4	25
	70	1.62	1 460	1.5	**MR V 64 - 24 x 200** 90 LB 4	25
	71.9	1.69	1 480	1.32	**MR V 63 - 24 x 200** 112 MB B5R 6	16
	70	1.65	1 490	2.24	**MR V 80 - 24 x 200** 90 LB 4	25
	70	1.65	1 490	2.65	**MR V 81 - 24 x 200** 90 LB 4	25
1.42	**87.5**	1.62	1 170	0.9	**MR V 50 - 19 x 200** 90 LB B5R 4	20
	87.5	1.71	1 230	1.32	**MR V 63 - 24 x 200** 90 LB 4	20
	87.5	1.71	1 230	1.5	**MR V 64 - 24 x 200** 90 LB 4	20
	88.5	1.72	1 220	1.8	**MR V 64 - 24 x 200** 112 MB B5R 6	13
	88.5	1.72	1 220	1.5	**MR V 63 - 24 x 200** 90 LC S3 6	13
	88.5	1.72	1 220	1.8	**MR V 64 - 24 x 200** 90 LC S3 6	13
	87.5	1.73	1 240	2.36	**MR V 80 - 24 x 200** 90 LB 4	20
	87.5	1.73	1 240	2.8	**MR V 81 - 24 x 200** 90 LB 4	20
	109	1.7	985	0.95	**MR V 50 - 19 x 200** 90 LB B5R 4	16
	109	1.73	1 000	1.6	**MR V 63 - 24 x 200** 90 LB 4	16
	109	1.73	1 000	1.9	**MR V 64 - 24 x 200** 90 LB 4	16
	109	1.75	1 010	3	**MR V 80 - 24 x 200** 90 LB 4	16
	109	1.75	1 010	3.55	**MR V 81 - 24 x 200** 90 LB 4	16
	135	1.73	810	1.12	**MR V 50 - 19 x 200** 90 LB B5R 4	13
	135	1.75	815	1.9	**MR V 63 - 24 x 200** 90 LB 4	13
	135	1.75	815	2.24	**MR V 64 - 24 x 200** 90 LB 4	13
	175	1.75	630	1.32	**MR V 50 - 19 x 200** 90 LB B5R 4	10
	175	1.79	645	2.24	**MR V 63 - 24 x 200** 90 LB 4	10
	250	1.8	455	1.7	**MR V 50 - 19 x 200** 90 LB B5R 4	7
	250	1.82	460	2.8	**MR V 63 - 24 x 200** 90 LB 4	7
2.5	**4.55**	1.69	23 450	0.85	**MR 2IV 125 - 24 x 200** 90 LB S3 4	385
	4.55	1.69	23 450	1	**MR 2IV 126 - 24 x 200** 90 LB S3 4	385
	4.56	1.66	23 000	1.18	**MR IV 160 - 28 x 250** 100 LB S3 6	252
	4.56	1.66	23 000	1.4	**MR IV 161 - 28 x 250** 100 LB S3 6	252
	4.56	1.72	23 750	2.24	**MR IV 200 - 28 x 250** 100 LB S3 6	252
	5.61	1.72	19 300	1	**MR 2IV 125 - 24 x 200** 90 LB S3 4	312
	5.61	1.72	19 300	1.18	**MR 2IV 126 - 24 x 200** 90 LB S3 4	312
	5.84	1.65	17 800	0.85	**MR IV 126 - 28 x 250** 100 LB S3 6	197
	5.75	1.75	19 150	1.6	**MR IV 160 - 28 x 250** 100 LB S3 6	200
	5.75	1.75	19 150	1.8	**MR IV 161 - 28 x 250** 100 LB S3 6	200

Motor power P_1 hp 1)	Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
2.5	**6.89**	1.71	15 700	1.06	**MR 2IV 125 - 24 x 200** 90 LB S3 4	254
	6.89	1.71	15 700	1.25	**MR 2IV 126 - 24 x 200** 90 LB S3 4	254
	6.97	1.76	15 900	1.18	**MR 2IV 125 - 28 x 250** 100 LB S3 6	165
	6.97	1.76	15 900	1.4	**MR 2IV 126 - 28 x 250** 100 LB S3 6	165
	7.2	1.69	14 800	0.85	**MR IV 125 - 24 x 200** 90 LB S3 4	243
	7.2	1.69	14 800	1	**MR IV 126 - 24 x 200** 90 LB S3 4	243
	7.37	1.73	14 850	1	**MR IV 125 - 28 x 250** 100 LB S3 6	156
	7.37	1.73	14 850	1.18	**MR IV 126 - 28 x 250** 100 LB S3 6	156
	7.19	1.81	15 900	2.12	**MR IV 160 - 28 x 250** 100 LB S3 6	160
	7.19	1.81	15 900	2.65	**MR IV 161 - 28 x 250** 100 LB S3 6	160
	8.66	1.78	13 000	0.9	**MR 2IV 100 - 24 x 200** 90 LB S3 4	202
	8.62	1.79	13 050	1.4	**MR 2IV 125 - 24 x 200** 90 LB S3 4	203
	8.62	1.79	13 050	1.7	**MR 2IV 126 - 24 x 200** 90 LB S3 4	203
	9.07	1.77	12 300	1.12	**MR IV 125 - 24 x 200** 90 LB S3 4	193
	9.07	1.77	12 300	1.32	**MR IV 126 - 24 x 200** 90 LB S3 4	193
	9.2	1.79	12 250	1.32	**MR IV 125 - 28 x 250** 100 LB S3 6	125
	9.2	1.79	12 250	1.6	**MR IV 126 - 28 x 250** 100 LB S3 6	125
	9.06	1.84	12 850	2.65	**MR IV 160 - 28 x 250** 100 LB S3 6	127
	9.06	1.84	12 850	3.15	**MR IV 161 - 28 x 250** 100 LB S3 6	127
	10.8	1.78	10 400	1	**MR 2IV 100 - 24 x 200** 90 LB S3 4	162
	11.5	1.8	9 860	0.95	**MR IV 100 - 19 x 200** 90 LB S3 B5R 4	152
	11.5	1.76	9 660	0.8	**MR IV 100 - 28 x 250** 100 LB S3 6	100
	11	1.95	11 150	1.5	**MR 2IV 125 - 24 x 200** 90 LB S3 4	159
	11	1.95	11 150	1.7	**MR 2IV 126 - 24 x 200** 90 LB S3 4	159
	11.4	1.82	10 050	1.5	**MR IV 125 - 24 x 200** 90 LB S3 4	154
	11.4	1.82	10 050	1.8	**MR IV 126 - 24 x 200** 90 LB S3 4	154
	13.8	1.85	8 450	1.32	**MR 2IV 100 - 24 x 200** 90 LB S3 4	127
	14.3	1.85	8 140	1.25	**MR IV 100 - 19 x 200** 90 LB S3 B5R 4	122
	13.8	1.8	8 240	0.9	**MR IV 100 - 24 x 200** 90 LB S3 4	127
	14.4	1.83	8 030	1.12	**MR IV 100 - 28 x 250** 100 LB S3 6	80
	14	1.86	8 370	1.8	**MR IV 125 - 24 x 200** 90 LB S3 4	125
	14	1.86	8 370	2.12	**MR IV 126 - 24 x 200** 90 LB S3 4	125
	14.2	1.89	8 400	2	**MR IV 125 - 28 x 250** 100 LB S3 6	81.1
	14.2	1.89	8 400	2.36	**MR IV 126 - 28 x 250** 100 LB S3 6	81.1
1.64	**18**	1.84	6 440	0.85	**MR IV 81 - 24 x 200** 100 LB S3 B5R 6	64
	17.2	1.98	7 270	1.32	**MR 2IV 100 - 24 x 200** 90 LB S3 4	102
	17.2	1.88	6 900	1.4	**MR IV 100 - 19 x 200** 90 LB S3 B5R 4	102
	17.2	1.87	6 870	1.25	**MR IV 100 - 24 x 200** 90 LB S3 4	102
	18	1.88	6 600	1.4	**MR IV 100 - 28 x 250** 100 LB S3 6	64
	18.3	1.81	6 230	1	**MR V 100 - 28 x 250** 100 LB S3 6	63
	17.5	1.93	6 950	2.36	**MR IV 125 - 24 x 200** 90 LB S3 4	100
	18.3	1.86	6 400	1.6	**MR V 125 - 28 x 250** 100 LB S3 6	63
	18.3	1.86	6 400	2	**MR V 126 - 28 x 250** 100 LB S3 6	63
1.81	**21.6**	1.88	5 480	0.8	**MR IV 80 - 19 x 200** 90 LB S3 B5R 4	81.2
1.81	**21.6**	1.88	5 480	0.95	**MR IV 81 - 19 x 200** 90 LB S3 B5R 4	81.2
1.82	**21.9**	1.86	5 350	0.9	**MR IV 81 - 24 x 200** 90 LB S3 4	80
1.82	**23**	1.9	5 210	0.95	**MR IV 80 - 24 x 200** 100 LB S3 B5R 6	50
1.82	**23**	1.9	5 210	1.12	**MR IV 81 - 24 x 200** 100 LB S3 B5R 6	50
2.07	**23**	1.83	5 020	0.8	**MR V 81 - 28 x 250** 100 LB S3 6	50
	22	1.95	5 590	1.7	**MR IV 100 - 19 x 200** 90 LB S3 B5R 4	79.5
	21.6	1.92	5 610	1.6	**MR IV 100 - 24 x 200** 90 LB S3 4	81.2
	23	1.89	5 170	1.32	**MR V 100 - 28 x 250** 100 LB S3 6	50
	22.4	2.06	5 800	2.5	**MR IV 125 - 24 x 200** 90 LB S3 4	78.1
	23	1.93	5 290	2.12	**MR V 125 - 28 x 250** 100 LB S3 6	50
	23	1.93	5 290	2.5	**MR V 126 - 28 x 250** 100 LB S3 6	50
2	**27.6**	1.94	4 420	1.06	**MR IV 80 - 19 x 200** 90 LB S3 B5R 4	63.5
2	**27.3**	1.92	4 420	0.95	**MR IV 80 - 24 x 200** 90 LB S3 4	64
2	**27.6**	1.94	4 420	1.25	**MR IV 81 - 19 x 200** 90 LB S3 B5R 4	63.5
2	**27.3**	1.92	4 420	1.12	**MR IV 81 - 24 x 200** 90 LB S3 4	64
2.04	**27.8**	1.83	4 160	0.8	**MR V 81 - 24 x 200** 90 LB S3 4	63
2.02	**28.8**	1.9	4 160	0.9	**MR V 80 - 28 x 250** 100 LB S3 6	40
	28.8	1.9	4 160	1.06	**MR V 81 - 28 x 250** 100 LB S3 6	40
	27.6	1.99	4 540	2	**MR IV 100 - 24 x 200** 90 LB S3 4	63.5
	27.8	1.89	4 280	1.32	**MR V 100 - 24 x 200** 90 LB S3 4	63
	28.8	1.95	4 270	1.8	**MR V 100 - 28 x 250** 100 LB S3 6	40
	28.8	1.97	4 310	2.8	**MR V 125 - 28 x 250** 100 LB S3 6	40

Values in red state nominal thermal power Pt_N (ambient temperature 40 °C, continuous duty, see ch. 3.2).

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

1) Powers valid for continuous duty S1; **increase** possible for S2 ... S10 (see ch. 2b) in which case P_2, M_2 increase and fs decreases proportionately.
2) For complete designation when ordering see ch. 3.1.
* Mounting position **B5R**; available also for mounting position **B5** (see table ch. 2b).

Motor power P_1 hp 1)	Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
2.5 1.42	**35**	1.93	3 470	0.75	**MR IV 64 - 24 x 200** 90 LB S3 4	50
	35	1.97	3 550	1.25	**MR IV 80 - 24 x 200** 90 LB S3 4	50
	35	1.97	3 550	1.5	**MR IV 81 - 24 x 200** 90 LB S3 4	50
	35	1.91	3 440	0.9	**MR V 80 - 24 x 200** 90 LB S3 4	50
	35	1.91	3 440	1.06	**MR V 81 - 24 x 200** 90 LB S3 4	50
	35.9	1.95	3 430	1.12	**MR V 80 - 28 x 250** 100 LB S3 6	32
	35.9	1.95	3 430	1.32	**MR V 81 - 28 x 250** 100 LB S3 6	32
	34.4	2.1	3 850	2.24	**MR IV 100 - 19 x 200** 90 LB S3 B5R 4	50.9
	34.4	2.1	3 840	2.12	**MR IV 100 - 24 x 200** 90 LB S3 4	50.8
	35	1.96	3 530	1.6	**MR V 100 - 24 x 200** 90 LB S3 4	50
	35.9	1.99	3 500	2.24	**MR V 100 - 28 x 250** 100 LB S3 6	32
1.83	**43.8**	2.05	2 960	0.8	**MR IV 64 - 24 x 200** 90 LB S3 4	40
1.57	**46**	1.96	2 690	0.8	**MR V 63 - 24 x 200** 100 LB S3 B5R 6	25
1.57	**46**	1.96	2 690	0.95	**MR V 64 - 24 x 200** 100 LB S3 B5R 6	25
	43.1	2.1	3 070	1.4	**MR IV 80 - 19 x 200** 90 LB S3 B5R 4	40.6
	43.8	2.09	3 000	1.25	**MR IV 80 - 24 x 200** 90 LB S3 4	40
	43.1	2.1	3 070	1.6	**MR IV 81 - 19 x 200** 90 LB S3 B5R 4	40.6
	43.8	2.09	3 000	1.5	**MR IV 81 - 24 x 200** 90 LB S3 4	40
	43.8	1.97	2 830	1.12	**MR V 80 - 24 x 200** 90 LB S3 4	40
	43.8	1.97	2 830	1.32	**MR V 81 - 24 x 200** 90 LB S3 4	40
	46	2	2 750	1.5	**MR V 80 - 28 x 250** 100 LB S3 6	25
	46	2	2 750	1.8	**MR V 81 - 28 x 250** 100 LB S3 6	25
	43.1	2.13	3 110	2.65	**MR IV 100 - 24 x 200** 90 LB S3 4	40.6
	43.8	2.02	2 900	2.24	**MR V 100 - 24 x 200** 90 LB S3 4	40
1.99	**54.7**	2.09	2 410	0.85	**MR IV 63 - 24 x 200** 90 LB S3 4	32
1.99	**54.7**	2.09	2 410	1	**MR IV 64 - 24 x 200** 90 LB S3 4	32
1.81	**54.7**	1.98	2 280	0.75	**MR V 63 - 24 x 200** 90 LB S3 4	32
1.81	**54.7**	1.98	2 280	0.9	**MR V 64 - 24 x 200** 90 LB S3 4	32
	54.7	2.12	2 450	1.6	**MR IV 80 - 24 x 200** 90 LB S3 4	32
	54.7	2.12	2 450	1.9	**MR IV 81 - 24 x 200** 90 LB S3 4	32
	54.7	2.01	2 320	1.4	**MR V 80 - 24 x 200** 90 LB S3 4	32
	54.7	2.01	2 320	1.7	**MR V 81 - 24 x 200** 90 LB S3 4	32
	54.7	2.05	2 360	2.8	**MR V 100 - 24 x 200** 90 LB S3 4	32
2	**70**	2.03	1 820	1	**MR V 63 - 24 x 200** 90 LB S3 4	25
2	**70**	2.03	1 820	1.18	**MR V 64 - 24 x 200** 90 LB S3 4	25
	70	2.06	1 860	1.8	**MR V 80 - 24 x 200** 90 LB S3 4	25
	70	2.06	1 860	2.12	**MR V 81 - 24 x 200** 90 LB S3 4	25
	87.5	2.13	1 540	1.06	**MR V 63 - 24 x 200** 90 LB S3 4	20
	87.5	2.13	1 540	1.25	**MR V 64 - 24 x 200** 90 LB S3 4	20
	87.5	2.16	1 550	1.9	**MR V 80 - 24 x 200** 90 LB S3 4	20
	87.5	2.16	1 550	2.24	**MR V 81 - 24 x 200** 90 LB S3 4	20
1.81	**109**	2.13	1 230	0.75	**MR V 50 - 19 x 200** 90 LB S3 B5R 4	16
	109	2.16	1 250	1.25	**MR V 63 - 24 x 200** 90 LB S3 4	16
	109	2.16	1 250	1.5	**MR V 64 - 24 x 200** 90 LB S3 4	16
	109	2.18	1 260	2.36	**MR V 80 - 24 x 200** 90 LB S3 4	16
	109	2.18	1 260	2.8	**MR V 81 - 24 x 200** 90 LB S3 4	16
1.97	**135**	2.16	1 010	0.9	**MR V 50 - 19 x 200** 90 LB S3 B5R 4	13
	135	2.19	1 020	1.5	**MR V 63 - 24 x 200** 90 LB S3 4	13
	135	2.19	1 020	1.8	**MR V 64 - 24 x 200** 90 LB S3 4	13
	135	2.21	1 030	2.8	**MR V 80 - 24 x 200** 90 LB S3 4	13
	135	2.21	1 030	3.35	**MR V 81 - 24 x 200** 90 LB S3 4	13
	175	2.19	790	1.06	**MR V 50 - 19 x 200** 90 LB S3 B5R 4	10
	175	2.24	805	1.8	**MR V 63 - 24 x 200** 90 LB S3 4	10
	175	2.24	805	2.12	**MR V 64 - 24 x 200** 90 LB S3 4	10
	250	2.25	565	1.32	**MR V 50 - 19 x 200** 90 LB S3 B5R 4	7
	250	2.27	575	2.24	**MR V 63 - 24 x 200** 90 LB S3 4	7
3	**4.55**	2.03	28 150	0.85	**MR 2IV 126 - 24 x 200** 90 LC S3 4	385
	4.56	2	27 600	1	**MR IV 160 - 28 x 250** 132 S B5R 6	252
	4.56	2	27 600	1.12	**MR IV 161 - 28 x 250** 132 S B5R 6	252
	4.56	2.06	28 500	1.8	**MR IV 200 - 28 x 250** 132 S B5R 6	252
	5.61	2.06	23 200	0.85	**MR 2IV 125 - 24 x 200** 90 LC S3 4	312
	5.61	2.06	23 200	1	**MR 2IV 126 - 24 x 200** 90 LC S3 4	312
	5.75	2.09	22 950	1.32	**MR IV 160 - 28 x 250** 132 S B5R 6	200
	5.75	2.09	22 950	1.5	**MR IV 161 - 28 x 250** 132 S B5R 6	200
	5.75	2.16	23 650	2.65	**MR IV 200 - 28 x 250** 132 S B5R 6	200

Motor power P_1 hp 1)	Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
3	**6.92**	2.11	19 200	1	**MR 2IV 125 - 28 x 250** 112 MA 4	253
	6.92	2.11	19 200	1.18	**MR 2IV 126 - 28 x 250** 112 MA 4	253
	7.2	2.03	17 750	0.85	**MR IV 126 - 24 x 200** 90 LC S3 4	243
	7.37	2.08	17 800	0.8	**MR IV 125 - 28 x 250** 132 S B5R 6	156
	7.37	2.08	17 800	0.95	**MR IV 126 - 28 x 250** 132 S B5R 6	156
	6.94	2.09	18 950	1.32	**MR IV 160 - 28 x 250** 112 MA 4	252
	6.94	2.09	18 950	1.5	**MR IV 161 - 28 x 250** 112 MA 4	252
	7.19	2.17	19 050	1.8	**MR IV 160 - 28 x 250** 132 S B5R 6	160
	7.19	2.17	19 050	2.12	**MR IV 161 - 28 x 250** 132 S B5R 6	160
	8.5	2.1	15 550	1.06	**MR 2IV 125 - 28 x 250** 112 MA 4	206
	8.5	2.1	15 550	1.25	**MR 2IV 126 - 28 x 250** 112 MA 4	206
	8.62	2.15	15 700	1.18	**MR 2IV 125 - 24 x 200** 90 LC S3 4	203
	8.62	2.15	15 700	1.4	**MR 2IV 126 - 24 x 200** 90 LC S3 4	203
	8.88	2.07	14 700	0.8	**MR IV 125 - 28 x 250** 112 MA 4	197
	8.88	2.07	14 700	1	**MR IV 126 - 28 x 250** 112 MA 4	197
	9.07	2.12	14 750	0.95	**MR IV 125 - 24 x 200** 90 LC S3 4	193
	9.07	2.12	14 750	1.12	**MR IV 126 - 24 x 200** 90 LC S3 4	193
	9.2	2.14	14 700	1.12	**MR IV 125 - 28 x 250** 132 S B5R 6	125
	9.2	2.14	14 700	1.32	**MR IV 126 - 28 x 250** 132 S B5R 6	125
	8.75	2.18	15 750	1.8	**MR IV 160 - 28 x 250** 112 MA 4	200
	8.75	2.18	15 750	2.12	**MR IV 161 - 28 x 250** 112 MA 4	200
	9.06	2.21	15 400	2.12	**MR IV 160 - 28 x 250** 132 S B5R 6	127
	9.06	2.21	15 400	2.5	**MR IV 161 - 28 x 250** 132 S B5R 6	127
	10.8	2.13	12 450	0.85	**MR 2IV 100 - 24 x 200** 90 LC S3 4	162
	10.6	2.18	13 000	1.4	**MR 2IV 125 - 28 x 250** 112 MA 4	165
	10.6	2.18	13 000	1.6	**MR 2IV 126 - 28 x 250** 112 MA 4	165
	11.2	2.17	12 250	1.06	**MR IV 125 - 28 x 250** 112 MA 4	156
	11.2	2.17	12 250	1.32	**MR IV 126 - 28 x 250** 112 MA 4	156
	11.4	2.18	12 050	1.25	**MR IV 125 - 24 x 200** 90 LC S3 4	154
	11.4	2.18	12 050	1.5	**MR IV 126 - 24 x 200** 90 LC S3 4	154
	11.4	2.18	12 050	1.25	**MR IV 125 - 28 x 250** 132 S B5R 6	101
	11.4	2.18	12 050	1.5	**MR IV 126 - 28 x 250** 132 S B5R 6	101
	10.9	2.26	13 050	2.36	**MR IV 160 - 28 x 250** 112 MA 4	160
	10.9	2.26	13 050	2.8	**MR IV 161 - 28 x 250** 112 MA 4	160
	13.8	2.22	10 150	1.06	**MR 2IV 100 - 24 x 200** 90 LC S3 4	127
	13.8	2.17	9 890	0.75	**MR IV 100 - 24 x 200** 90 LC S3 4	127
	14.4	2.2	9 630	0.9	**MR IV 100 - 28 x 250** 132 S B5R 6	80
	14	2.23	10 050	1.5	**MR IV 125 - 28 x 250** 112 MA 4	125
	14	2.23	10 050	1.7	**MR IV 126 - 28 x 250** 112 MA 4	125
	14	2.23	10 050	1.5	**MR IV 125 - 24 x 200** 90 LC S3 4	125
	14	2.23	10 050	1.7	**MR IV 126 - 24 x 200** 90 LC S3 4	125
	14.2	2.27	10 100	1.7	**MR IV 125 - 28 x 250** 132 S B5R 6	81.1
	14.2	2.27	10 100	2	**MR IV 126 - 28 x 250** 132 S B5R 6	81.1
	13.8	2.31	10 550	2.8	**MR IV 160 - 28 x 250** 112 MA 4	127
	13.8	2.31	10 550	3.35	**MR IV 161 - 28 x 250** 112 MA 4	127
	17.2	2.38	8 720	1.12	**MR 2IV 100 - 24 x 200** 90 LC S3 4	102
	17.5	2.22	7 990	0.9	**MR IV 100 - 28 x 250** 112 MA 4	100
	17.2	2.25	8 240	1	**MR IV 100 - 24 x 200** 90 LC S3 4	102
	18	2.26	7 920	1.18	**MR IV 100 - 28 x 250** 132 S B5R 6	64
	18.3	2.17	7 480	0.85	**MR V 100 - 28 x 250** 132 S B5R 6	63
	17.3	2.28	8 310	1.7	**MR IV 125 - 28 x 250** 112 MA 4	101
	17.3	2.28	8 310	2	**MR IV 126 - 28 x 250** 112 MA 4	101
	17.5	2.32	8 340	1.9	**MR IV 125 - 24 x 200** 90 LC S3 4	100
	17.5	2.32	8 340	2.24	**MR IV 126 - 24 x 200** 90 LC S3 4	100
	18.3	2.23	7 680	1.4	**MR V 125 - 28 x 250** 132 S B5R 6	63
	18.3	2.23	7 680	1.6	**MR V 126 - 28 x 250** 132 S B5R 6	63
	18.3	2.29	7 870	2.5	**MR V 160 - 28 x 250** 132 S B5R 6	63
	21.9	2.3	6 610	1.18	**MR IV 100 - 28 x 250** 112 MA 4	80
	21.6	2.31	6 730	1.32	**MR IV 100 - 24 x 200** 90 LC S3 4	81.2
	23	2.34	6 420	1.5	**MR IV 100 - 28 x 250** 132 S B5R 6	50
	23	2.26	6 200	1.06	**MR V 100 - 28 x 250** 132 S B5R 6	50
	21.6	2.36	6 880	2.12	**MR IV 125 - 28 x 250** 112 MA 4	81.1
	22.4	2.48	6 960	2	**MR IV 125 - 24 x 200** 90 LC S3 4	78.1
	23	2.32	6 350	1.8	**MR V 125 - 28 x 250** 132 S B5R 6	50
	23	2.32	6 350	2.12	**MR V 126 - 28 x 250** 132 S B5R 6	50

Values in red state nominal thermal power Pt_N (ambient temperature 40 °C, continuous duty, see ch. 3.2).

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

1) Powers valid for continuous duty S1; **increase** possible for S2 ... S10 (see ch. 2b) in which case P_2, M_2 increase and fs decreases proportionately.
2) For complete designation when ordering see ch. 3.1.
***** Mounting position **B5R**; available also for mounting position **B5** (see table ch. 2b).

Motor power P_1 hp 1)	Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)						Gear ratio i
3	**27.3**	2.3	5 310	0.8	**MR**	**IV**	**80 - 24 x 200**	90 LC	S3	4	64
2	**27.3**	2.3	5 310	0.95	**MR**	**IV**	**81 - 24 x 200**	90 LC	S3	4	64
2.31	**28.8**	2.28	4 990	0.9	**MR**	**V**	**81 - 28 x 250**	132 S	B5R	6	40
	27.3	2.35	5 420	1.5	**MR**	**IV**	**100 - 28 x 250**	112 MA		4	64
	27.6	2.38	5 440	1.7	**MR**	**IV**	**100 - 24 x 200**	90 LC	S3	4	63.5
	27.8	2.27	5 140	1.06	**MR**	**V**	**100 - 28 x 250**	112 MA		4	63
	27.8	2.27	5 140	1.06	**MR**	**V**	**100 - 24 x 200**	90 LC	S3	4	63
	28.8	2.34	5 120	1.5	**MR**	**V**	**100 - 28 x 250**	132 S	B5R	6	40
	27.6	2.51	5 730	2.36	**MR**	**IV**	**125 - 28 x 250**	112 MA		4	63.4
	27.8	2.32	5 270	1.8	**MR**	**V**	**125 - 28 x 250**	112 MA		4	63
	27.8	2.32	5 270	2.12	**MR**	**V**	**126 - 28 x 250**	112 MA		4	63
	28.8	2.36	5 180	2.36	**MR**	**V**	**125 - 28 x 250**	132 S	B5R	6	40
2.22	**35**	2.37	4 260	1	**MR**	**IV**	**80 - 24 x 200**	90 LC	S3	4	50
2.22	**35**	2.37	4 260	1.18	**MR**	**IV**	**81 - 24 x 200**	90 LC	S3	4	50
2.29	**35**	2.29	4 130	0.75	**MR**	**V**	**80 - 28 x 250**	112 MA		4	50
	35	2.29	4 130	0.85	**MR**	**V**	**81 - 28 x 250**	112 MA		4	50
2.29	**35**	2.29	4 130	0.75	**MR**	**V**	**80 - 24 x 200**	90 LC	S3	4	50
2.29	**35**	2.29	4 130	0.85	**MR**	**V**	**81 - 24 x 200**	90 LC	S3	4	50
2.21	**35.9**	2.34	4 110	0.95	**MR**	**V**	**80 - 28 x 250**	132 S	B5R	6	32
2.51	**35.9**	2.34	4 110	1.12	**MR**	**V**	**81 - 28 x 250**	132 S	B5R	6	32
	35	2.42	4 360	2	**MR**	**IV**	**100 - 28 x 250**	112 MA		4	50
	34.4	2.52	4 610	1.8	**MR**	**IV**	**100 - 24 x 200**	90 LC	S3	4	50.8
	35	2.35	4 230	1.32	**MR**	**V**	**100 - 28 x 250**	112 MA		4	50
	35	2.35	4 230	1.32	**MR**	**V**	**100 - 24 x 200**	90 LC	S3	4	50
	35.9	2.39	4 200	1.9	**MR**	**V**	**100 - 28 x 250**	132 S	B5R	6	32
	34.5	2.55	4 650	3	**MR**	**IV**	**125 - 28 x 250**	112 MA		4	50.7
	35	2.39	4 310	2.24	**MR**	**V**	**125 - 28 x 250**	112 MA		4	50
	43.8	2.5	3 600	1.06	**MR**	**IV**	**80 - 24 x 200**	90 LC	S3	4	40
	43.8	2.5	3 600	1.25	**MR**	**IV**	**81 - 24 x 200**	90 LC	S3	4	40
2.55	**43.8**	2.36	3 400	0.95	**MR**	**V**	**80 - 28 x 250**	112 MA		4	40
	43.8	2.36	3 400	1.12	**MR**	**V**	**81 - 28 x 250**	112 MA		4	40
2.55	**43.8**	2.36	3 400	0.95	**MR**	**V**	**80 - 24 x 200**	90 LC	S3	4	40
2.55	**43.8**	2.36	3 400	1.12	**MR**	**V**	**81 - 24 x 200**	90 LC	S3	4	40
2.44	**46**	2.41	3 300	1.25	**MR**	**V**	**80 - 28 x 250**	132 S	B5R	6	25
	46	2.41	3 300	1.5	**MR**	**V**	**81 - 28 x 250**	132 S	B5R	6	25
	43.8	2.55	3 670	2.12	**MR**	**IV**	**100 - 28 x 250**	112 MA		4	40
	43.1	2.55	3 730	2.24	**MR**	**IV**	**100 - 24 x 200**	90 LC	S3	4	40.6
	43.8	2.42	3 480	1.8	**MR**	**V**	**100 - 28 x 250**	112 MA		4	40
	43.8	2.42	3 480	1.8	**MR**	**V**	**100 - 24 x 200**	90 LC	S3	4	40
	46	2.46	3 370	2.36	**MR**	**V**	**100 - 28 x 250**	132 S	B5R	6	25
	43.8	2.44	3 510	2.8	**MR**	**V**	**125 - 28 x 250**	112 MA		4	40
1.99	**54.7**	2.51	2 890	0.85	**MR**	**IV**	**64 - 24 x 200**	90 LC	S3	4	32
1.81	**54.7**	2.37	2 730	0.75	**MR**	**V**	**64 - 24 x 200**	90 LC	S3	4	32
	54.7	2.55	2 940	1.32	**MR**	**IV**	**80 - 24 x 200**	90 LC	S3	4	32
	54.7	2.55	2 940	1.6	**MR**	**IV**	**81 - 24 x 200**	90 LC	S3	4	32
	54.7	2.42	2 790	1.18	**MR**	**V**	**80 - 28 x 250**	112 MA		4	32
	54.7	2.42	2 790	1.4	**MR**	**V**	**81 - 28 x 250**	112 MA		4	32
	54.7	2.42	2 790	1.18	**MR**	**V**	**80 - 24 x 200**	90 LC	S3	4	32
	54.7	2.42	2 790	1.4	**MR**	**V**	**81 - 24 x 200**	90 LC	S3	4	32
	54.7	2.58	2 970	2.5	**MR**	**IV**	**100 - 28 x 250**	112 MA		4	32
	54.7	2.46	2 830	2.24	**MR**	**V**	**100 - 28 x 250**	112 MA		4	32
2	**70**	2.43	2 190	0.8	**MR**	**V**	**63 - 24 x 200**	112 MA	B5R	4	25
2	**70**	2.43	2 190	0.95	**MR**	**V**	**64 - 24 x 200**	112 MA	B5R	4	25
2	**70**	2.43	2 190	0.8	**MR**	**V**	**63 - 24 x 200**	90 LC	S3	4	25
2	**70**	2.43	2 190	0.95	**MR**	**V**	**64 - 24 x 200**	90 LC	S3	4	25
	70	2.47	2 230	1.5	**MR**	**V**	**80 - 28 x 250**	112 MA		4	25
	70	2.47	2 230	1.8	**MR**	**V**	**81 - 28 x 250**	112 MA		4	25
	70	2.47	2 230	1.5	**MR**	**V**	**80 - 24 x 200**	90 LC	S3	4	25
	70	2.47	2 230	1.8	**MR**	**V**	**81 - 24 x 200**	90 LC	S3	4	25
	70	2.52	2 270	3	**MR**	**V**	**100 - 28 x 250**	112 MA		4	25
	87.5	2.56	1 840	0.85	**MR**	**V**	**63 - 24 x 200**	112 MA	B5R	4	20
	87.5	2.56	1 840	1.06	**MR**	**V**	**64 - 24 x 200**	112 MA	B5R	4	20
	87.5	2.56	1 840	0.85	**MR**	**V**	**63 - 24 x 200**	90 LC	S3	4	20
	87.5	2.56	1 840	1.06	**MR**	**V**	**64 - 24 x 200**	90 LC	S3	4	20
	87.5	2.59	1 860	1.6	**MR**	**V**	**80 - 28 x 250**	112 MA		4	20
	87.5	2.59	1 860	1.9	**MR**	**V**	**81 - 28 x 250**	112 MA		4	20
	87.5	2.59	1 860	1.6	**MR**	**V**	**80 - 24 x 200**	90 LC	S3	4	20
	87.5	2.59	1 860	1.9	**MR**	**V**	**81 - 24 x 200**	90 LC	S3	4	20
	88.5	2.61	1 860	1.8	**MR**	**V**	**80 - 28 x 250**	132 S	B5R	6	13
	88.5	2.61	1 860	2.12	**MR**	**V**	**81 - 28 x 250**	132 S	B5R	6	13
	87.5	2.62	1 890	3.15	**MR**	**V**	**100 - 28 x 250**	112 MA		4	20

Motor power P_1 hp 1)	Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)						Gear ratio i
3	**109**	2.59	1 500	1.06	**MR**	**V**	**63 - 24 x 200**	112 MA	B5R	4	16
	109	2.59	1 500	1.25	**MR**	**V**	**64 - 24 x 200**	112 MA	B5R	4	16
	109	2.59	1 500	1.06	**MR**	**V**	**63 - 24 x 200**	90 LC	S3	4	16
	109	2.59	1 500	1.25	**MR**	**V**	**64 - 24 x 200**	90 LC	S3	4	16
	109	2.62	1 520	2	**MR**	**V**	**80 - 28 x 250**	112 MA		4	16
	109	2.62	1 520	2.36	**MR**	**V**	**81 - 28 x 250**	112 MA		4	16
	109	2.62	1 520	2	**MR**	**V**	**80 - 24 x 200**	90 LC	S3	4	16
	109	2.62	1 520	2.36	**MR**	**V**	**81 - 24 x 200**	90 LC	S3	4	16
	135	2.62	1 230	1.25	**MR**	**V**	**63 - 24 x 200**	112 MA	B5R	4	13
	135	2.62	1 230	1.5	**MR**	**V**	**64 - 24 x 200**	112 MA	B5R	4	13
	135	2.62	1 230	1.25	**MR**	**V**	**63 - 24 x 200**	90 LC	S3	4	13
	135	2.62	1 230	1.5	**MR**	**V**	**64 - 24 x 200**	90 LC	S3	4	13
	135	2.65	1 240	2.36	**MR**	**V**	**80 - 28 x 250**	112 MA		4	13
	135	2.65	1 240	2.8	**MR**	**V**	**81 - 28 x 250**	112 MA		4	13
	135	2.65	1 240	2.36	**MR**	**V**	**80 - 24 x 200**	90 LC	S3	4	13
	135	2.65	1 240	2.8	**MR**	**V**	**81 - 24 x 200**	90 LC	S3	4	13
	175	2.68	965	1.5	**MR**	**V**	**63 - 24 x 200**	112 MA	B5R	4	10
	175	2.68	965	1.8	**MR**	**V**	**64 - 24 x 200**	112 MA	B5R	4	10
	175	2.68	965	1.5	**MR**	**V**	**63 - 24 x 200**	90 LC	S3	4	10
	175	2.68	965	1.8	**MR**	**V**	**64 - 24 x 200**	90 LC	S3	4	10
	175	2.7	975	2.8	**MR**	**V**	**80 - 28 x 250**	112 MA		4	10
	175	2.7	975	3.35	**MR**	**V**	**81 - 28 x 250**	112 MA		4	10
	175	2.7	975	2.8	**MR**	**V**	**80 - 24 x 200**	90 LC	S3	4	10
	175	2.7	975	3.35	**MR**	**V**	**81 - 24 x 200**	90 LC	S3	4	10
	250	2.73	685	1.9	**MR**	**V**	**63 - 24 x 200**	112 MA	B5R	4	7
	250	2.73	685	2.24	**MR**	**V**	**64 - 24 x 200**	112 MA	B5R	4	7
	250	2.73	685	1.9	**MR**	**V**	**63 - 24 x 200**	90 LC	S3	4	7
	250	2.73	685	2.24	**MR**	**V**	**64 - 24 x 200**	90 LC	S3	4	7
4	**4.56**	2.66	36 800	0.85	**MR**	**IV**	**161 - 28 x 250**	112 MC	S3	6	252
	4.56	2.75	38 000	1.4	**MR**	**IV**	**200 - 28 x 250**	112 MC	S3	6	252
	4.81	2.84	37 250	2.65	**MR**	**IV**	**250 - 38 x 300**	132 M		6	239
	5.75	2.79	30 600	1	**MR**	**IV**	**160 - 28 x 250**	112 MC	S3	6	200
	5.75	2.79	30 600	1.12	**MR**	**IV**	**161 - 28 x 250**	112 MC	S3	6	200
	5.75	2.88	31 500	2	**MR**	**IV**	**200 - 28 x 250**	112 MC	S3	6	200
	6.05	2.96	30 850	3.75	**MR**	**IV**	**250 - 38 x 300**	132 M		6	190
3.32	**6.92**	2.81	25 600	0.85	**MR**	**2IV**	**126 - 28 x 250**	112 M		4	253
	6.94	2.78	25 300	0.95	**MR**	**IV**	**160 - 28 x 250**	112 M		4	252
	6.94	2.78	25 300	1.12	**MR**	**IV**	**161 - 28 x 250**	112 M		4	252
	7.19	2.9	25 400	1.32	**MR**	**IV**	**160 - 28 x 250**	112 MC	S3	6	160
	7.19	2.9	25 400	1.6	**MR**	**IV**	**161 - 28 x 250**	112 MC	S3	6	160
	6.94	2.88	26 100	1.9	**MR**	**IV**	**200 - 28 x 250**	112 M		4	252
	7.19	2.96	25 950	2.5	**MR**	**IV**	**200 - 28 x 250**	112 MC	S3	6	160
	8.5	2.8	20 750	0.9	**MR**	**2IV**	**126 - 28 x 250**	112 M		4	206
	9.2	2.86	19 600	0.8	**MR**	**IV**	**125 - 28 x 250**	112 MC	S3	6	125
	9.2	2.86	19 600	1	**MR**	**IV**	**126 - 28 x 250**	112 MC	S3	6	125
	8.75	2.91	21 000	1.32	**MR**	**IV**	**160 - 28 x 250**	112 M		4	200
	8.75	2.91	21 000	1.6	**MR**	**IV**	**161 - 28 x 250**	112 M		4	200
	9.06	2.95	20 500	1.6	**MR**	**IV**	**160 - 28 x 250**	112 MC	S3	6	127
	9.06	2.95	20 500	1.9	**MR**	**IV**	**161 - 28 x 250**	112 MC	S3	6	127
	8.75	3	21 600	2.65	**MR**	**IV**	**200 - 28 x 250**	112 M		4	200
	10.6	2.91	17 300	1	**MR**	**2IV**	**125 - 28 x 250**	112 M		4	165
	10.6	2.91	17 300	1.18	**MR**	**2IV**	**126 - 28 x 250**	112 M		4	165
	11.2	2.9	16 300	0.8	**MR**	**IV**	**125 - 28 x 250**	112 M		4	156
	11.2	2.9	16 300	0.95	**MR**	**IV**	**126 - 28 x 250**	112 M		4	156
	11.4	2.91	16 100	0.95	**MR**	**IV**	**125 - 28 x 250**	112 MC	S3	6	101
	11.4	2.91	16 100	1.12	**MR**	**IV**	**126 - 28 x 250**	112 MC	S3	6	101
	10.9	3.01	17 400	1.8	**MR**	**IV**	**160 - 28 x 250**	112 M		4	160
	10.9	3.01	17 400	2.12	**MR**	**IV**	**161 - 28 x 250**	112 M		4	160
	10.9	3.08	17 850	3.35	**MR**	**IV**	**200 - 28 x 250**	112 M		4	160
	14	2.97	13 400	1.12	**MR**	**IV**	**125 - 28 x 250**	112 M		4	125
	14	2.97	13 400	1.32	**MR**	**IV**	**126 - 28 x 250**	112 M		4	125
	14.2	3.03	13 450	1.25	**MR**	**IV**	**125 - 28 x 250**	112 MC	S3	6	81.1
	14.2	3.03	13 450	1.5	**MR**	**IV**	**126 - 28 x 250**	112 MC	S3	6	81.1
	13.8	3.08	14 050	2.12	**MR**	**IV**	**160 - 28 x 250**	112 M		4	127
	13.8	3.08	14 050	2.5	**MR**	**IV**	**161 - 28 x 250**	112 M		4	127

Values in red state nominal thermal power Pt_N (ambient temperature 40 °C, continuous duty, see ch. 3.2).

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

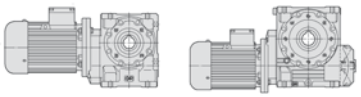
1) Powers valid for continuous duty S1; **increase** possible for S2 ... S10 (see ch. 2b) in which case P_2, M_2 increase and fs decreases proportionately.
2) For complete designation when ordering see ch. 3.1.
* Mounting position **B5R**; available also for mounting position **B5** (see table ch. 2b).

Motor power P_1 hp 1)	Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
4	**17.2**	3	11 000	0.75	**MR IV 100 - 24 x 200** 112 M B5R 4	102
	18	3.01	10 550	0.9	**MR IV 100 - 28 x 250** 112 MC S3 6	64
	17.3	3.04	11 100	1.25	**MR IV 125 - 28 x 250** 112 M 4	101
	17.3	3.04	11 100	1.5	**MR IV 126 - 28 x 250** 112 M 4	101
	18.3	2.97	10 250	1	**MR V 125 - 28 x 250** 112 MC S3 6	63
	18.3	2.97	10 250	1.25	**MR V 126 - 28 x 250** 112 MC S3 6	63
	18.3	2.97	10 250	1	**MR V 125 - 38 x 300** 132 M 6	63
	18.3	2.97	10 250	1.25	**MR V 126 - 38 x 300** 132 M 6	63
	17.2	3.16	11 600	2.5	**MR IV 160 - 28 x 250** 112 M 4	102
	17.2	3.16	11 600	3	**MR IV 161 - 28 x 250** 112 M 4	102
	18.3	3.05	10 500	1.9	**MR V 160 - 28 x 250** 112 MC S3 6	63
	18.3	3.05	10 500	2.24	**MR V 161 - 28 x 250** 112 MC S3 6	63
	18.3	3.05	10 500	1.9	**MR V 160 - 38 x 300** 132 M 6	63
	18.3	3.05	10 500	2.24	**MR V 161 - 38 x 300** 132 M 6	63
	21.9	3.06	8 820	0.9	**MR IV 100 - 28 x 250** 112 M 4	80
	23	3.12	8 550	1.12	**MR IV 100 - 28 x 250** 112 MC S3 6	50
	23	3.02	8 270	0.8	**MR V 100 - 28 x 250** 112 MC S3 6	50
	21.6	3.15	9 180	1.6	**MR IV 125 - 28 x 250** 112 M 4	81.1
	21.6	3.15	9 180	1.9	**MR IV 126 - 28 x 250** 112 M 4	81.1
	23	3.09	8 470	1.32	**MR V 125 - 28 x 250** 112 MC S3 6	50
	23	3.09	8 470	1.6	**MR V 126 - 28 x 250** 112 MC S3 6	50
	23	3.09	8 470	1.32	**MR V 125 - 38 x 300** 132 M 6	50
	23	3.09	8 470	1.6	**MR V 126 - 38 x 300** 132 M 6	50
	22.1	3.35	9 560	2.8	**MR IV 160 - 28 x 250** 112 M 4	79.3
	22.1	3.35	9 560	3.35	**MR IV 161 - 28 x 250** 112 M 4	79.3
	23	3.15	8 630	2.5	**MR V 160 - 28 x 250** 112 MC S3 6	50
	23	3.15	8 630	3	**MR V 161 - 28 x 250** 112 MC S3 6	50
	23	3.15	8 630	2.5	**MR V 160 - 38 x 300** 132 M 6	50
	27.3	3.13	7 230	1.18	**MR IV 100 - 28 x 250** 112 M 4	64
	27.8	3.02	6 850	0.8	**MR V 100 - 28 x 250** 112 M 4	63
	28.8	3.12	6 830	1.12	**MR V 100 - 28 x 250** 112 MC S3 6	40
	27.6	3.34	7 640	1.7	**MR IV 125 - 28 x 250** 112 M 4	63.4
	27.6	3.34	7 640	2.12	**MR IV 126 - 28 x 250** 112 M 4	63.4
	28.3	3.37	7 510	2	**MR IV 125 - 28 x 250** 112 MC S3 6	40.6
	28.3	3.37	7 510	2.5	**MR IV 126 - 28 x 250** 112 MC S3 6	40.6
	27.8	3.1	7 020	1.32	**MR V 125 - 28 x 250** 112 M 4	63
	27.8	3.1	7 020	1.6	**MR V 126 - 28 x 250** 112 M 4	63
	28.8	3.15	6 900	1.7	**MR V 125 - 28 x 250** 112 MC S3 6	40
	28.8	3.15	6 900	2.12	**MR V 126 - 28 x 250** 112 MC S3 6	40
	28.8	3.15	6 900	1.7	**MR V 125 - 38 x 300** 132 M 6	40
	28.8	3.15	6 900	2.12	**MR V 126 - 38 x 300** 132 M 6	40
2.22	**35**	3.16	5 690	0.75	**MR IV 80 - 24 x 200** 112 M B5R 4	50
2.22	**35**	3.16	5 690	0.9	**MR IV 81 - 24 x 200** 112 M B5R 4	50
2.51	**35.9**	3.12	5 480	0.85	**MR V 81 - 28 x 250** 112 MC S3 6	32
	35	3.23	5 810	1.5	**MR IV 100 - 28 x 250** 112 M 4	50
	35	3.13	5 640	1	**MR V 100 - 28 x 250** 112 M 4	50
	35.9	3.19	5 600	1.4	**MR V 100 - 28 x 250** 112 MC S3 6	32
	35.9	3.19	5 600	1.4	**MR V 100 - 38 x 300** 132 M 6	32
	34.5	3.39	6 200	2.24	**MR IV 125 - 28 x 250** 112 M 4	50.7
	35	3.19	5 750	1.7	**MR V 125 - 28 x 250** 112 M 4	50
	35	3.19	5 750	2	**MR V 126 - 28 x 250** 112 M 4	50
	35.9	3.24	5 690	2.24	**MR V 125 - 28 x 250** 112 MC S3 6	32
	35.9	3.24	5 690	2.24	**MR V 125 - 38 x 300** 132 M 6	32
2.83	**43.8**	3.34	4 800	0.8	**MR IV 80 - 24 x 200** 112 M B5R 4	40
2.83	**43.8**	3.34	4 800	0.95	**MR IV 81 - 24 x 200** 112 M B5R 4	40
3.06	**43.8**	3.15	4 530	0.85	**MR V 81 - 28 x 250** 112 M 4	40
2.79	**46**	3.21	4 390	1.12	**MR V 81 - 28 x 250** 112 MC S3 6	25
	43.8	3.4	4 890	1.6	**MR IV 100 - 28 x 250** 112 M 4	40
	43.8	3.23	4 640	1.4	**MR V 100 - 28 x 250** 112 M 4	40
	46	3.28	4 490	1.8	**MR V 100 - 28 x 250** 112 MC S3 6	25
	46	3.28	4 490	1.8	**MR V 100 - 38 x 300** 132 M 6	25
	43.1	3.45	5 040	2.65	**MR IV 125 - 28 x 250** 112 M 4	40.6
	43.8	3.25	4 670	2.12	**MR V 125 - 28 x 250** 112 M 4	40
3.1	**54.7**	3.4	3 910	1	**MR IV 80 - 24 x 200** 112 M B5R 4	32
3.1	**54.7**	3.4	3 910	1.18	**MR IV 81 - 24 x 200** 112 M B5R 4	32
2.79	**54.7**	3.22	3 710	0.9	**MR V 80 - 28 x 250** 112 M 4	32
3.35	**54.7**	3.22	3 710	1.06	**MR V 81 - 28 x 250** 112 M 4	32
	54.7	3.44	3 960	1.9	**MR IV 100 - 28 x 250** 112 M 4	32
	54.7	3.28	3 780	1.7	**MR V 100 - 28 x 250** 112 M 4	32
	54.7	3.33	3 840	2.8	**MR V 125 - 28 x 250** 112 M 4	32

Motor power P_1 hp 1)	Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
4 3.1	**70**	3.3	2 970	1.12	**MR V 80 - 28 x 250** 112 M 4	25
	70	3.3	2 970	1.32	**MR V 81 - 28 x 250** 112 M 4	25
	70	3.36	3 020	2.24	**MR V 100 - 28 x 250** 112 M 4	25
2.57	**87.5**	3.41	2 460	0.75	**MR V 64 - 24 x 200** 112 M B5R 4	20
	87.5	3.45	2 490	1.18	**MR V 80 - 28 x 250** 112 M 4	20
	87.5	3.45	2 490	1.4	**MR V 81 - 28 x 250** 112 M 4	20
	88.5	3.48	2 480	1.6	**MR V 81 - 28 x 250** 112 MC S3 6	13
	87.5	3.5	2 520	2.36	**MR V 100 - 28 x 250** 112 M 4	20
2.79	**109**	3.46	2 000	0.8	**MR V 63 - 24 x 200** 112 M B5R 4	16
2.79	**109**	3.46	2 000	0.95	**MR V 64 - 24 x 200** 112 M B5R 4	16
	109	3.49	2 020	1.5	**MR V 80 - 28 x 250** 112 M 4	16
	109	3.49	2 020	1.8	**MR V 81 - 28 x 250** 112 M 4	16
	109	3.53	2 040	2.8	**MR V 100 - 28 x 250** 112 M 4	16
3.02	**135**	3.5	1 630	0.95	**MR V 63 - 24 x 200** 112 M B5R 4	13
3.02	**135**	3.5	1 630	1.12	**MR V 64 - 24 x 200** 112 M B5R 4	13
	135	3.53	1 650	1.7	**MR V 80 - 28 x 250** 112 M 4	13
	135	3.53	1 650	2.12	**MR V 81 - 28 x 250** 112 M 4	13
	135	3.57	1 670	3.35	**MR V 100 - 28 x 250** 112 M 4	13
	175	3.58	1 290	1.12	**MR V 63 - 24 x 200** 112 M B5R 4	10
	175	3.58	1 290	1.4	**MR V 64 - 24 x 200** 112 M B5R 4	10
	175	3.6	1 300	2.12	**MR V 80 - 28 x 250** 112 M 4	10
	175	3.6	1 300	2.5	**MR V 81 - 28 x 250** 112 M 4	10
	250	3.64	915	1.4	**MR V 63 - 24 x 200** 112 M B5R 4	7
	250	3.64	915	1.7	**MR V 64 - 24 x 200** 112 M B5R 4	7
	250	3.66	920	2.65	**MR V 80 - 28 x 250** 112 M 4	7
	250	3.66	920	3.15	**MR V 81 - 28 x 250** 112 M 4	7
5.4	**4.81**	3.84	50 300	2	**MR IV 250 - 38 x 300** 132 MB 6	239
	6.05	4	41 650	2.8	**MR IV 250 - 38 x 300** 132 MB 6	190
	6.94	3.76	34 150	0.85	**MR IV 161 - 28 x 250** 112 MB 4	252
	6.94	3.88	35 250	1.4	**MR IV 200 - 28 x 250** 112 MB 4	252
	7.57	4.11	34 200	3.55	**MR IV 250 - 38 x 300** 132 MB 6	152
	8.75	3.93	28 300	0.95	**MR IV 160 - 28 x 250** 112 MB 4	200
	8.75	3.93	28 300	1.18	**MR IV 161 - 28 x 250** 112 MB 4	200
	8.75	4.04	29 150	2	**MR IV 200 - 28 x 250** 112 MB 4	200
4.18	**10.6**	3.93	23 350	0.9	**MR 2IV 126 - 28 x 250** 112 MB 4	165
	10.9	4.07	23 500	1.32	**MR IV 160 - 28 x 250** 112 MB 4	160
	10.9	4.07	23 500	1.6	**MR IV 161 - 28 x 250** 112 MB 4	160
	10.9	4.16	24 050	2.5	**MR IV 200 - 28 x 250** 112 MB 4	160
	13.6	4.26	19 750	0.95	**MR 2IV 126 - 28 x 250** 112 MB 4	129
	14	4.02	18 100	0.8	**MR IV 125 - 28 x 250** 112 MB 4	125
	14	4.02	18 100	0.95	**MR IV 126 - 28 x 250** 112 MB 4	125
	13.8	4.15	18 950	1.5	**MR IV 160 - 28 x 250** 112 MB 4	127
	13.8	4.15	18 950	1.8	**MR IV 161 - 28 x 250** 112 MB 4	127
	13.8	4.24	19 350	2.8	**MR IV 200 - 28 x 250** 112 MB 4	127
	17	4.33	16 050	1.18	**MR 2IV 126 - 28 x 250** 112 MB 4	103
	17.3	4.11	14 950	0.95	**MR IV 125 - 28 x 250** 112 MB 4	101
	17.3	4.11	14 950	1.12	**MR IV 126 - 28 x 250** 112 MB 4	101
	17.7	4.17	14 850	1.32	**MR IV 126 - 38 x 300** 132 MB 6	65
	18.3	4.02	13 850	0.9	**MR V 126 - 38 x 300** 132 MB 6	63
	17.2	4.27	15 650	1.9	**MR IV 160 - 28 x 250** 112 MB 4	102
	17.2	4.27	15 650	2.24	**MR IV 161 - 28 x 250** 112 MB 4	102
4	**18.3**	4.12	14 150	1.4	**MR V 160 - 38 x 300** 132 MB 6	63
	18.3	4.12	14 150	1.6	**MR V 161 - 38 x 300** 132 MB 6	63
	18.3	4.22	14 500	2.65	**MR V 200 - 38 x 300** 132 MB 6	63
	21.6	4.25	12 400	1.18	**MR IV 125 - 28 x 250** 112 MB 4	81.1
	21.6	4.25	12 400	1.4	**MR IV 126 - 28 x 250** 112 MB 4	81.1
	23	4.17	11 450	1	**MR V 125 - 38 x 300** 132 MB 6	50
	23	4.17	11 450	1.18	**MR V 126 - 38 x 300** 132 MB 6	50
	22.1	4.53	12 900	2	**MR IV 160 - 28 x 250** 112 MB 4	79.3
	22.1	4.53	12 900	2.5	**MR IV 161 - 28 x 250** 112 MB 4	79.3
	23	4.25	11 650	1.9	**MR V 160 - 38 x 300** 132 MB 6	50
	23	4.25	11 650	2.24	**MR V 161 - 38 x 300** 132 MB 6	50

See notes on page 56.

Gearmotors selection tables



Motor power P_1 hp 1)	Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)					Gear ratio i
5.4	**27.3**	4.23	9 760	0.85	**MR**	**IV**	**100 - 28 x 250**	112 MB	4	64
	27.6	4.52	10 300	1.32	**MR**	**IV**	**125 - 28 x 250**	112 MB	4	63.4
	27.6	4.52	10 300	1.5	**MR**	**IV**	**126 - 28 x 250**	112 MB	4	63.4
	28.3	4.52	10 100	1.7	**MR**	**IV**	**126 - 38 x 300**	132 MB	6	40.6
	27.8	4.18	9 480	1	**MR**	**V**	**125 - 28 x 250**	112 MB	4	63
	27.8	4.18	9 480	1.18	**MR**	**V**	**126 - 28 x 250**	112 MB	4	63
	28.8	4.26	9 320	1.32	**MR**	**V**	**125 - 38 x 300**	132 MB	6	40
	28.8	4.26	9 320	1.5	**MR**	**V**	**126 - 38 x 300**	132 MB	6	40
	27.6	4.59	10 500	2.65	**MR**	**IV**	**160 - 28 x 250**	112 MB	4	63.5
	27.6	4.59	10 500	3.15	**MR**	**IV**	**161 - 28 x 250**	112 MB	4	63.5
	27.8	4.26	9 660	1.8	**MR**	**V**	**160 - 28 x 250**	112 MB	4	63
	27.8	4.26	9 660	2.12	**MR**	**V**	**161 - 28 x 250**	112 MB	4	63
	28.8	4.36	9 550	2.5	**MR**	**V**	**160 - 38 x 300**	132 MB	6	40
	28.8	4.36	9 550	3	**MR**	**V**	**161 - 38 x 300**	132 MB	6	40
	35	4.36	7 850	1.06	**MR**	**IV**	**100 - 28 x 250**	112 MB	4	50
	35	4.23	7 620	0.75	**MR**	**V**	**100 - 28 x 250**	112 MB	4	50
	35.9	4.3	7 560	1.06	**MR**	**V**	**100 - 38 x 300**	132 MB	6	32
	34.5	4.58	8 370	1.6	**MR**	**IV**	**125 - 28 x 250**	112 MB	4	50.7
	34.5	4.58	8 370	2	**MR**	**IV**	**126 - 28 x 250**	112 MB	4	50.7
	35	4.31	7 760	1.25	**MR**	**V**	**125 - 28 x 250**	112 MB	4	50
	35	4.31	7 760	1.5	**MR**	**V**	**126 - 28 x 250**	112 MB	4	50
	35.9	4.38	7 680	1.7	**MR**	**V**	**125 - 38 x 300**	132 MB	6	32
	35.9	4.38	7 680	2	**MR**	**V**	**126 - 38 x 300**	132 MB	6	32
	34.4	4.67	8 550	3.15	**MR**	**IV**	**160 - 28 x 250**	112 MB	4	50.8
	34.4	4.67	8 550	3.75	**MR**	**IV**	**161 - 28 x 250**	112 MB	4	50.8
	35	4.38	7 890	2.36	**MR**	**V**	**160 - 28 x 250**	112 MB	4	50
	35	4.38	7 890	2.8	**MR**	**V**	**161 - 28 x 250**	112 MB	4	50
	43.8	4.59	6 600	1.18	**MR**	**IV**	**100 - 28 x 250**	112 MB	4	40
	43.8	4.36	6 270	1	**MR**	**V**	**100 - 28 x 250**	112 MB	4	40
	46	4.42	6 060	1.32	**MR**	**V**	**100 - 38 x 300**	132 MB	6	25
	43.1	4.65	6 800	2	**MR**	**IV**	**125 - 28 x 250**	112 MB	4	40.6
	43.1	4.65	6 800	2.36	**MR**	**IV**	**126 - 28 x 250**	112 MB	4	40.6
	43.8	4.39	6 310	1.6	**MR**	**V**	**125 - 28 x 250**	112 MB	4	40
	43.8	4.39	6 310	1.9	**MR**	**V**	**126 - 28 x 250**	112 MB	4	40
	46	4.62	6 330	1.8	**MR**	**V**	**125 - 38 x 300**	132 MB	6	25
	46	4.62	6 330	2.24	**MR**	**V**	**126 - 38 x 300**	132 MB	6	25
	43.8	4.47	6 430	3	**MR**	**V**	**160 - 28 x 250**	112 MB	4	40
	43.8	4.47	6 430	3.55	**MR**	**V**	**161 - 28 x 250**	112 MB	4	40
3.35	**54.7**	4.35	5 010	0.8	**MR**	**V**	**81 - 28 x 250**	112 MB	4	32
	54.7	4.64	5 350	1.4	**MR**	**IV**	**100 - 28 x 250**	112 MB	4	32
	54.7	4.43	5 100	1.25	**MR**	**V**	**100 - 28 x 250**	112 MB	4	32
	54.7	4.49	5 180	2	**MR**	**V**	**125 - 28 x 250**	112 MB	4	32
	54.7	4.49	5 180	2.5	**MR**	**V**	**126 - 28 x 250**	112 MB	4	32
3.1	**70**	4.45	4 010	0.85	**MR**	**V**	**80 - 28 x 250**	112 MB	4	25
3.71	**70**	4.45	4 010	1	**MR**	**V**	**81 - 28 x 250**	112 MB	4	25
	70	4.53	4 080	1.6	**MR**	**V**	**100 - 28 x 250**	112 MB	4	25
	70	4.7	4 230	2.36	**MR**	**V**	**125 - 28 x 250**	112 MB	4	25
3.94	**87.5**	4.66	3 360	0.9	**MR**	**V**	**80 - 28 x 250**	112 MB	4	20
	87.5	4.66	3 360	1.06	**MR**	**V**	**81 - 28 x 250**	112 MB	4	20
	87.5	4.72	3 400	1.7	**MR**	**V**	**100 - 28 x 250**	112 MB	4	20
	88.5	4.75	3 380	2	**MR**	**V**	**100 - 38 x 300**	132 MB	6	13
	87.5	4.75	3 420	2.8	**MR**	**V**	**125 - 28 x 250**	112 MB	4	20
4.29	**109**	4.72	2 730	1.12	**MR**	**V**	**80 - 28 x 250**	112 MB	4	16
	109	4.72	2 730	1.32	**MR**	**V**	**81 - 28 x 250**	112 MB	4	16
	109	4.76	2 750	2.12	**MR**	**V**	**100 - 28 x 250**	112 MB	4	16
	135	4.77	2 230	1.32	**MR**	**V**	**80 - 28 x 250**	112 MB	4	13
	135	4.77	2 230	1.5	**MR**	**V**	**81 - 28 x 250**	112 MB	4	13
	135	4.82	2 250	2.5	**MR**	**V**	**100 - 28 x 250**	112 MB	4	13
	175	4.87	1 750	1.5	**MR**	**V**	**80 - 28 x 250**	112 MB	4	10
	175	4.87	1 750	1.8	**MR**	**V**	**81 - 28 x 250**	112 MB	4	10
	175	4.89	1 760	2.8	**MR**	**V**	**100 - 28 x 250**	112 MB	4	10
	250	4.94	1 250	1.9	**MR**	**V**	**80 - 28 x 250**	112 MB	4	7
	250	4.94	1 250	2.24	**MR**	**V**	**81 - 28 x 250**	112 MB	4	7
7.5	**4.81**	5.3	69 900	1.4	**MR**	**IV**	**250 - 38 x 300**	132 MB S3	6	239
	6.05	5.6	57 850	2	**MR**	**IV**	**250 - 38 x 300**	132 MB S3	6	190
	6.94	5.4	48 950	1	**MR**	**IV**	**200 - 28 x 250**	112 MC S3	4	252
	7.14	5.4	47 600	1.06	**MR**	**IV**	**200 - 38 x 300**	132 MB S3	6	161
	7.32	5.6	48 050	1.9	**MR**	**IV**	**250 - 38 x 300**	132 M	4	239
	7.57	5.7	47 450	2.5	**MR**	**IV**	**250 - 38 x 300**	132 MB S3	6	152

Motor power P_1 hp 1)	Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)					Gear ratio i
7.5 6.3	**8.75**	5.5	39 350	0.85	**MR**	**IV**	**161 - 28 x 250**	112 MC S3	4	200
6.3	**8.98**	5.5	38 350	0.85	**MR**	**IV**	**161 - 38 x 300**	132 MB S3	6	128
	8.75	5.6	40 450	1.4	**MR**	**IV**	**200 - 28 x 250**	112 MC S3	4	200
	8.98	5.6	39 450	1.5	**MR**	**IV**	**200 - 38 x 300**	132 MB S3	6	128
	9.21	5.8	39 600	2.65	**MR**	**IV**	**250 - 38 x 300**	132 M	4	190
	10.9	5.6	32 650	0.95	**MR**	**IV**	**160 - 28 x 250**	112 MC S3	4	160
	10.9	5.6	32 650	1.12	**MR**	**IV**	**161 - 28 x 250**	112 MC S3	4	160
	10.9	5.5	31 750	0.8	**MR**	**IV**	**161 - 38 x 300**	132 M	4	161
	11.3	5.6	31 500	1.18	**MR**	**IV**	**161 - 38 x 300**	132 MB S3	6	102
	10.9	5.8	33 450	1.8	**MR**	**IV**	**200 - 28 x 250**	112 MC S3	4	160
	10.9	5.6	32 600	1.4	**MR**	**IV**	**200 - 38 x 300**	132 M	4	161
	11.3	5.8	32 250	1.8	**MR**	**IV**	**200 - 38 x 300**	132 MB S3	6	102
	11.5	5.9	32 450	3.15	**MR**	**IV**	**250 - 38 x 300**	132 M	4	152
	13.8	5.8	26 350	1.12	**MR**	**IV**	**160 - 28 x 250**	112 MC S3	4	127
	13.8	5.8	26 350	1.32	**MR**	**IV**	**161 - 28 x 250**	112 MC S3	4	127
	13.7	5.7	26 250	0.95	**MR**	**IV**	**160 - 38 x 300**	132 M	4	128
	13.7	5.7	26 250	1.12	**MR**	**IV**	**161 - 38 x 300**	132 M	4	128
	14.1	5.8	26 000	1.18	**MR**	**IV**	**160 - 38 x 300**	132 MB S3	6	81.8
	14.1	5.8	26 000	1.4	**MR**	**IV**	**161 - 38 x 300**	132 MB S3	6	81.8
	13.7	5.8	26 900	1.9	**MR**	**IV**	**200 - 38 x 300**	132 M	4	128
	14.1	6	26 650	2.24	**MR**	**IV**	**200 - 38 x 300**	132 MB S3	6	81.8
	13.8	6	27 500	3.55	**MR**	**IV**	**250 - 38 x 300**	132 M	4	127
5.8	**17.3**	5.7	20 750	0.8	**MR**	**IV**	**126 - 28 x 250**	112 MC S3	4	101
5.6	**17.7**	5.8	20 650	0.8	**MR**	**IV**	**125 - 38 x 300**	132 MB S3	6	65
5.6	**17.7**	5.8	20 650	0.9	**MR**	**IV**	**126 - 38 x 300**	132 MB S3	6	65
	17.2	5.9	21 750	1.4	**MR**	**IV**	**160 - 28 x 250**	112 MC S3	4	102
	17.2	5.9	21 750	1.6	**MR**	**IV**	**161 - 28 x 250**	112 MC S3	4	102
	17.2	5.9	21 500	1.25	**MR**	**IV**	**160 - 38 x 300**	132 M	4	102
	17.2	5.9	21 500	1.5	**MR**	**IV**	**161 - 38 x 300**	132 M	4	102
	18.3	5.7	19 700	1	**MR**	**V**	**160 - 38 x 300**	132 MB S3	6	63
	18.3	5.7	19 700	1.18	**MR**	**V**	**161 - 38 x 300**	132 MB S3	6	63
	17.2	6	21 950	2.36	**MR**	**IV**	**200 - 38 x 300**	132 M	4	102
	18.3	5.9	20 150	1.9	**MR**	**V**	**200 - 38 x 300**	132 MB S3	6	63
	21.6	5.9	17 200	0.85	**MR**	**IV**	**125 - 28 x 250**	112 MC S3	4	81.1
	21.6	5.9	17 200	1.06	**MR**	**IV**	**126 - 28 x 250**	112 MC S3	4	81.1
	21.6	5.8	16 950	0.75	**MR**	**IV**	**125 - 38 x 300**	132 M	4	81.2
	21.6	5.8	16 950	0.9	**MR**	**IV**	**126 - 38 x 300**	132 M	4	81.2
	23	5.8	15 850	0.85	**MR**	**V**	**126 - 38 x 300**	132 MB S3	6	50
	22.1	6.3	17 950	1.5	**MR**	**IV**	**160 - 28 x 250**	112 MC S3	4	79.3
	22.1	6.3	17 950	1.8	**MR**	**IV**	**161 - 28 x 250**	112 MC S3	4	79.3
	21.4	6	17 750	1.6	**MR**	**IV**	**160 - 38 x 300**	132 M	4	81.8
	21.4	6	17 750	1.8	**MR**	**IV**	**161 - 38 x 300**	132 M	4	81.8
	23	5.9	16 200	1.32	**MR**	**V**	**160 - 38 x 300**	132 MB S3	6	50
	23	5.9	16 200	1.6	**MR**	**V**	**161 - 38 x 300**	132 MB S3	6	50
	21.4	6.1	18 100	3	**MR**	**IV**	**200 - 38 x 300**	132 M	4	81.8
	23	6	16 600	2.65	**MR**	**V**	**200 - 38 x 300**	132 MB S3	6	50
	27.6	6.3	14 300	0.95	**MR**	**IV**	**125 - 28 x 250**	112 MC S3	4	63.4
	27.6	6.3	14 300	1.12	**MR**	**IV**	**126 - 28 x 250**	112 MC S3	4	63.4
	26.9	6	14 050	1	**MR**	**IV**	**125 - 38 x 300**	132 M	4	65
	26.9	6	14 050	1.18	**MR**	**IV**	**126 - 38 x 300**	132 M	4	65
	27.8	5.8	13 150	0.85	**MR**	**V**	**126 - 28 x 250**	112 MC S3	4	63
	27.8	5.8	13 150	0.85	**MR**	**V**	**126 - 38 x 300**	132 M	4	63
	28.8	5.9	12 950	0.95	**MR**	**V**	**125 - 38 x 300**	132 MB S3	6	40
	28.8	5.9	12 950	1.12	**MR**	**V**	**126 - 38 x 300**	132 MB S3	6	40
	27.6	6.4	14 550	1.9	**MR**	**IV**	**160 - 28 x 250**	112 MC S3	4	63.5
	27.6	6.4	14 550	2.24	**MR**	**IV**	**161 - 28 x 250**	112 MC S3	4	63.5
	27.4	6.4	14 650	1.7	**MR**	**IV**	**160 - 38 x 300**	132 M	4	63.9
	27.4	6.4	14 650	2	**MR**	**IV**	**161 - 38 x 300**	132 M	4	63.9
	28.1	6.4	14 350	2	**MR**	**IV**	**160 - 38 x 300**	132 MB S3	6	40.9
	28.1	6.4	14 350	2.5	**MR**	**IV**	**161 - 38 x 300**	132 MB S3	6	40.9
	27.8	5.9	13 400	1.25	**MR**	**V**	**160 - 28 x 250**	112 MC S3	4	63
	27.8	5.9	13 400	1.5	**MR**	**V**	**161 - 28 x 250**	112 MC S3	4	63
	27.8	5.9	13 400	1.25	**MR**	**V**	**160 - 38 x 300**	132 M	4	63
	27.8	5.9	13 400	1.5	**MR**	**V**	**161 - 38 x 300**	132 M	4	63
	28.8	6.1	13 250	1.8	**MR**	**V**	**160 - 38 x 300**	132 MB S3	6	40
	28.8	6.1	13 250	2.12	**MR**	**V**	**161 - 38 x 300**	132 MB S3	6	40
	27.8	6	13 650	2.36	**MR**	**V**	**200 - 38 x 300**	132 M	4	63

Values in red state nominal thermal power Pt_N (ambient temperature 40 °C, continuous duty, see ch. 3.2).

Motor (cat.TX) with efficiency value not according to IE3 class (IEC 60034-30).

Nominal power and nameplate data refer to intermittent periodic duty S3 70%.

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

2) For complete designation when ordering see ch. 3.1.

Motor power P_1 hp 1)	Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
7.5 5.5	35	6.1	10 900	0.8	MR IV 100 - 28 x 250 112 MC S3 4	50
	34.5	6.4	11 650	1.18	MR IV 125 - 28 x 250 112 MC S3 4	50.7
	34.5	6.4	11 650	1.4	MR IV 126 - 28 x 250 112 MC S3 4	50.7
	34.4	6.3	11 600	1.06	MR IV 125 - 38 x 300 132 M 4	50.8
	34.4	6.3	11 600	1.25	MR IV 126 - 38 x 300 132 M 4	50.8
	35.4	6.4	11 400	1.25	MR IV 125 - 38 x 300 132 MB S3 6	32.5
	35.4	6.4	11 400	1.5	MR IV 126 - 38 x 300 132 MB S3 6	32.5
	35	6	10 750	0.9	MR V 125 - 28 x 250 112 MC S3 4	50
	35	6	10 750	1.06	MR V 126 - 28 x 250 112 MC S3 4	50
	35	6	10 750	0.9	MR V 125 - 38 x 300 132 M 4	50
	35	6	10 750	1.06	MR V 126 - 38 x 300 132 M 4	50
	35.9	6.1	10 650	1.18	MR V 125 - 38 x 300 132 MB S3 6	32
	35.9	6.1	10 650	1.4	MR V 126 - 38 x 300 132 MB S3 6	32
	34.4	6.5	11 850	2.36	MR IV 160 - 28 x 250 112 MC S3 4	50.8
	34.2	6.4	11 900	2.12	MR IV 160 - 38 x 300 132 M 4	51.1
	34.2	6.4	11 900	2.5	MR IV 161 - 38 x 300 132 M 4	51.1
	35	6.1	10 950	1.7	MR V 160 - 28 x 250 112 MC S3 4	50
	35	6.1	10 950	2	MR V 161 - 28 x 250 112 MC S3 4	50
	35	6.1	10 950	1.7	MR V 160 - 38 x 300 132 M 4	50
	35	6.1	10 950	2	MR V 161 - 38 x 300 132 M 4	50
	35.9	6.2	10 900	2.12	MR V 160 - 38 x 300 132 MB S3 6	32
	35.9	6.2	10 900	2.65	MR V 161 - 38 x 300 132 MB S3 6	32
	43.8	6.4	9 160	0.85	MR IV 100 - 28 x 250 112 MC S3 4	40
	43.8	6.1	8 710	0.75	MR V 100 - 28 x 250 112 MC S3 4	40
	46	6.1	8 420	0.95	MR V 100 - 38 x 300 132 MB S3 6	25
	43.1	6.5	9 450	1.4	MR IV 125 - 28 x 250 112 MC S3 4	40.6
	43.1	6.5	9 450	1.7	MR IV 126 - 28 x 250 112 MC S3 4	40.6
	43.1	6.4	9 400	1.32	MR IV 125 - 38 x 300 132 M 4	40.6
	43.1	6.4	9 400	1.6	MR IV 126 - 38 x 300 132 M 4	40.6
	43.8	6.1	8 770	1.12	MR V 125 - 28 x 250 112 MC S3 4	40
	43.8	6.1	8 770	1.4	MR V 126 - 28 x 250 112 MC S3 4	40
	43.8	6.1	8 770	1.12	MR V 125 - 38 x 300 132 M 4	40
	43.8	6.1	8 770	1.4	MR V 126 - 38 x 300 132 M 4	40
	46	6.4	8 790	1.32	MR V 125 - 38 x 300 132 MB S3 6	25
	46	6.4	8 790	1.6	MR V 126 - 38 x 300 132 MB S3 6	25
	42.8	6.5	9 630	2.65	MR IV 160 - 38 x 300 132 M 4	40.9
	42.8	6.5	9 630	3.15	MR IV 161 - 38 x 300 132 M 4	40.9
	43.8	6.2	8 940	2.12	MR V 160 - 38 x 300 132 M 4	40
	43.8	6.2	8 940	2.5	MR V 161 - 38 x 300 132 M 4	40
	54.7	6.4	7 430	1	MR IV 100 - 28 x 250 112 MC S3 4	32
	54.7	6.1	7 080	0.9	MR V 100 - 28 x 250 112 MC S3 4	32
	54.7	6.1	7 080	0.9	MR V 100 - 38 x 300 132 M 4	32
	53.8	6.5	7 640	1.6	MR IV 125 - 38 x 300 132 M 4	32.5
	53.8	6.5	7 640	1.9	MR IV 126 - 38 x 300 132 M 4	32.5
	54.7	6.2	7 190	1.5	MR V 125 - 28 x 250 112 MC S3 4	32
	54.7	6.2	7 190	1.8	MR V 126 - 28 x 250 112 MC S3 4	32
	54.7	6.2	7 190	1.5	MR V 125 - 38 x 300 132 M 4	32
	54.7	6.2	7 190	1.8	MR V 126 - 38 x 300 132 M 4	32
	54.7	6.3	7 280	2.65	MR V 160 - 38 x 300 132 M 4	32
	54.7	6.3	7 280	3.15	MR V 161 - 38 x 300 132 M 4	32
3.71	70	6.2	5 570	0.71	MR V 81 - 28 x 250 112 MC S3 4	25
	70	6.3	5 670	1.18	MR V 100 - 28 x 250 112 MC S3 4	25
	70	6.3	5 670	1.18	MR V 100 - 38 x 300 132 M 4	25
	70	6.5	5 880	1.7	MR V 125 - 28 x 250 112 MC S3 4	25
	70	6.5	5 880	2	MR V 126 - 28 x 250 112 MC S3 4	25
	70	6.5	5 880	1.7	MR V 125 - 38 x 300 132 M 4	25
	70	6.5	5 880	2	MR V 126 - 38 x 300 132 M 4	25
	71.9	6.6	5 760	1.9	MR V 125 - 38 x 300 132 MB S3 6	16
	71.9	6.6	5 760	2.36	MR V 126 - 38 x 300 132 MB S3 6	16
	70	6.6	5 940	3	MR V 160 - 38 x 300 132 M 4	25
	70	6.6	5 940	3.55	MR V 161 - 38 x 300 132 M 4	25
4.73	87.5	6.5	4 660	0.75	MR V 81 - 28 x 250 112 MC S3 4	20
	87.5	6.6	4 720	1.25	MR V 100 - 28 x 250 112 MC S3 4	20
	87.5	6.6	4 720	1.25	MR V 100 - 38 x 300 132 M 4	20
	88.5	6.6	4 700	1.5	MR V 100 - 38 x 300 132 MB S3 6	13
	87.5	6.6	4 750	2	MR V 125 - 28 x 250 112 MC S3 4	20
	87.5	6.6	4 750	2	MR V 125 - 38 x 300 132 M 4	20
	87.5	6.6	4 750	2.36	MR V 126 - 38 x 300 132 M 4	20

Motor power P_1 hp 1)	Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
7.5 5.1	109	6.6	3 790	0.95	MR V 81 - 28 x 250 112 MC S3 4	16
	109	6.6	3 820	1.5	MR V 100 - 28 x 250 112 MC S3 4	16
	109	6.6	3 820	1.5	MR V 100 - 38 x 300 132 M 4	16
	109	6.7	3 860	2.36	MR V 125 - 38 x 300 132 M 4	16
5.6	135	6.6	3 090	1.12	MR V 81 - 28 x 250 112 MC S3 4	13
	135	6.7	3 120	1.8	MR V 100 - 28 x 250 112 MC S3 4	13
	135	6.7	3 120	1.8	MR V 100 - 38 x 300 132 M 4	13
	135	6.8	3 160	2.8	MR V 125 - 38 x 300 132 M 4	13
	175	6.8	2 430	1.32	MR V 81 - 28 x 250 112 MC S3 4	10
	175	6.8	2 450	2.12	MR V 100 - 28 x 250 112 MC S3 4	10
	175	6.8	2 450	2.12	MR V 100 - 38 x 300 132 M 4	10
	250	6.9	1 730	1.6	MR V 81 - 28 x 250 112 MC S3 4	7
10	4.81	7.1	93 150	1.06	MR IV 250 - 38 x 300 132 MC S3 6	239
	6.05	7.4	77 150	1.5	MR IV 250 - 38 x 300 132 MC S3 6	190
	5.75	7.3	79 700	1.18	MR IV 250 - 42 x 350 160 M 6	200
	7.32	7.4	64 100	1.4	MR IV 250 - 38 x 300 132 MB 4	239
	7.57	7.6	63 300	1.9	MR IV 250 - 38 x 300 132 MC S3 6	152
	7.23	7.6	65 900	1.7	MR IV 250 - 42 x 350 160 M 6	159
	8.98	7.5	52 550	1.12	MR IV 200 - 38 x 300 132 MC S3 6	128
	8.98	7.5	52 550	1.12	MR IV 200 - 42 x 350 160 M 6	128
	9.21	7.7	52 800	2	MR IV 250 - 38 x 300 132 MB 4	190
	9.06	7.8	53 950	2.12	MR IV 250 - 38 x 300 132 MC S3 6	127
6.9	11.3	7.5	42 000	0.9	MR IV 161 - 38 x 300 132 MC S3 6	102
	10.9	7.5	43 500	1	MR IV 200 - 38 x 300 132 MB 4	161
	11.3	7.7	43 000	1.4	MR IV 200 - 38 x 300 132 MC S3 6	102
	11.3	7.7	43 000	1.4	MR IV 200 - 42 x 350 160 M 6	102
	11.5	7.9	43 250	2.5	MR IV 250 - 38 x 300 132 MB 4	152
8.5	13.7	7.6	35 000	0.85	MR IV 161 - 38 x 300 132 MB 4	128
7.6	14.1	7.8	34 700	0.9	MR IV 160 - 38 x 300 132 MC S3 6	81.8
7.6	14.1	7.8	34 700	1.06	MR IV 161 - 38 x 300 132 MC S3 6	81.8
8	14.4	7.7	33 650	1.06	MR IV 161 - 42 x 350 160 M 6	80
	13.7	7.8	35 850	1.4	MR IV 200 - 38 x 300 132 MB 4	128
	14.1	8	35 550	1.7	MR IV 200 - 38 x 300 132 MC S3 6	81.8
	13.8	8	36 650	2.65	MR IV 250 - 38 x 300 132 MB 4	127
	17.2	7.8	28 700	0.95	MR IV 160 - 38 x 300 132 MB 4	102
	17.2	7.8	28 700	1.12	MR IV 161 - 38 x 300 132 MB 4	102
	18.3	7.6	26 250	0.9	MR V 161 - 38 x 300 132 MC S3 6	63
	18.3	7.6	26 250	0.9	MR V 161 - 42 x 350 160 M 6	63
	17.2	8	29 250	1.7	MR IV 200 - 38 x 300 132 MB 4	102
	18.3	7.8	26 900	1.5	MR V 200 - 38 x 300 132 MC S3 6	63
	18.3	7.8	26 900	1.5	MR V 200 - 42 x 350 160 M 6	63
	17.2	8.4	30 950	2.8	MR IV 250 - 38 x 300 132 MB 4	102
	18.3	8	27 550	2.65	MR V 250 - 42 x 350 160 M 6	63
6.6	21.6	7.9	22 950	0.8	MR IV 126 - 28 x 250 132 MB B5R 4	81.1
	21.4	8	23 650	1.18	MR IV 160 - 38 x 300 132 MB 4	81.8
	21.4	8	23 650	1.4	MR IV 161 - 38 x 300 132 MB 4	81.8
	23	7.9	21 550	1	MR V 160 - 38 x 300 132 MC S3 6	50
	23	7.9	21 550	1.18	MR V 161 - 38 x 300 132 MC S3 6	50
	23	7.9	21 550	1	MR V 160 - 42 x 350 160 M 6	50
	23	7.9	21 550	1.18	MR V 161 - 42 x 350 160 M 6	50
	21.4	8.2	24 100	2.24	MR IV 200 - 38 x 300 132 MB 4	81.8
	23	8.1	22 100	2	MR V 200 - 38 x 300 132 MC S3 6	50
	23	8.1	22 100	2	MR V 200 - 42 x 350 160 M 6	50
	23	8.2	22 500	3.55	MR V 250 - 42 x 350 160 M 6	50
7.8	26.9	8	18 750	0.9	MR IV 126 - 38 x 300 132 MB 4	65
7.8	28.3	8.4	18 650	0.95	MR IV 126 - 38 x 300 132 MC S3 6	40.6
8.1	28.8	7.9	17 250	0.85	MR V 126 - 38 x 300 132 MC S3 6	40
	27.6	8.5	19 450	1.4	MR IV 160 - 28 x 250 132 MB B5R 4	63.5
	27.4	8.5	19 500	1.25	MR IV 160 - 38 x 300 132 MB 4	63.9
	27.6	8.5	19 450	1.7	MR IV 161 - 28 x 250 132 MB B5R 4	63.5
	27.4	8.5	19 500	1.5	MR IV 161 - 38 x 300 132 MB 4	63.9
	28.1	8.5	19 150	1.5	MR IV 160 - 38 x 300 132 MC S3 6	40.9
	28.1	8.5	19 150	1.8	MR IV 161 - 38 x 300 132 MC S3 6	40.9
	27.8	7.9	17 900	0.95	MR V 160 - 38 x 300 132 MB 4	63
	27.8	7.9	17 900	1.12	MR V 161 - 38 x 300 132 MB 4	63
	28.8	8.1	17 700	1.32	MR V 160 - 38 x 300 132 MC S3 6	40
	28.8	8.1	17 700	1.6	MR V 161 - 38 x 300 132 MC S3 6	40
	28.8	8.1	17 700	1.32	MR V 160 - 42 x 350 160 M 6	40
	28.8	8.1	17 700	1.6	MR V 161 - 42 x 350 160 M 6	40

Values in red state nominal thermal power Pt_N (ambient temperature 40 °C, continuous duty, see ch. 3.2).

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

1) Powers valid for continuous duty S1; **increase** possible for S2 ... S10 (see ch. 2b) in which case P_2, M_2 increase and fs decreases proportionately.
2) For complete designation when ordering see ch. 3.1.
***** Mounting position **B5R**; available also for mounting position **B5** (see table ch. 2b).

Motor power P_1 hp 1)	Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
10	**27.4**	8.6	19 800	2.5	**MR IV 200 - 38 x 300** 132 MB 4	63.9
	27.8	8	18 200	1.8	**MR V 200 - 38 x 300** 132 MB 4	63
	28.8	8.2	17 950	2.5	**MR V 200 - 38 x 300** 132 MC S3 6	40
	28.8	8.2	17 950	2.5	**MR V 200 - 42 x 350** 160 M 6	40
	34.5	8.5	15 500	0.9	**MR IV 125 - 28 x 250** 132 MB B5R 4	50.7
	34.4	8.5	15 500	0.8	**MR IV 125 - 38 x 300** 132 MB 4	50.8
	34.5	8.5	15 500	1.06	**MR IV 126 - 28 x 250** 132 MB B5R 4	50.7
	34.4	8.5	15 500	0.95	**MR IV 126 - 38 x 300** 132 MB 4	50.8
	35.4	8.5	15 200	1.12	**MR IV 126 - 38 x 300** 132 MC S3 6	32.5
	35	8	14 350	0.8	**MR V 126 - 38 x 300** 132 MB 4	50
	35.9	8.1	14 250	0.9	**MR V 125 - 38 x 300** 132 MC S3 6	32
	35.9	8.1	14 250	1.06	**MR V 126 - 38 x 300** 132 MC S3 6	32
	34.2	8.6	15 850	1.6	**MR IV 160 - 38 x 300** 132 MB 4	51.1
	34.2	8.6	15 850	1.9	**MR IV 161 - 38 x 300** 132 MB 4	51.1
	35	8.1	14 600	1.25	**MR V 160 - 38 x 300** 132 MB 4	50
	35	8.1	14 600	1.5	**MR V 161 - 38 x 300** 132 MB 4	50
	35.9	8.3	14 550	1.6	**MR V 160 - 38 x 300** 132 MC S3 6	32
	35.9	8.3	14 550	1.9	**MR V 161 - 38 x 300** 132 MC S3 6	32
	35.9	8.3	14 550	1.6	**MR V 160 - 42 x 350** 160 M 6	32
	35.9	8.3	14 550	1.9	**MR V 161 - 42 x 350** 160 M 6	32
	34.2	8.7	16 050	3.15	**MR IV 200 - 38 x 300** 132 MB 4	51.1
	35	8.2	14 850	2.36	**MR V 200 - 38 x 300** 132 MB 4	50
	43.1	8.6	12 600	1.06	**MR IV 125 - 28 x 250** 132 MB B5R 4	40.6
	43.1	8.6	12 550	1	**MR IV 125 - 38 x 300** 132 MB 4	40.6
	43.1	8.6	12 550	1.18	**MR IV 126 - 38 x 300** 132 MB 4	40.6
	43.8	8.1	11 700	0.85	**MR V 125 - 38 x 300** 132 MB 4	40
	43.8	8.1	11 700	1	**MR V 126 - 38 x 300** 132 MB 4	40
	46	8.6	11 750	1	**MR V 125 - 38 x 300** 132 MC S3 6	25
	46	8.6	11 750	1.18	**MR V 126 - 38 x 300** 132 MC S3 6	25
	42.8	8.7	12 850	2	**MR IV 160 - 38 x 300** 132 MB 4	40.9
	42.8	8.7	12 850	2.36	**MR IV 161 - 38 x 300** 132 MB 4	40.9
	43.8	8.3	11 900	1.6	**MR V 160 - 38 x 300** 132 MB 4	40
	43.8	8.3	11 900	1.9	**MR V 161 - 38 x 300** 132 MB 4	40
	43.8	8.4	12 050	3	**MR V 200 - 38 x 300** 132 MB 4	40
	53.8	8.7	10 200	1.18	**MR IV 125 - 38 x 300** 132 MB 4	32.5
	53.8	8.7	10 200	1.4	**MR IV 126 - 38 x 300** 132 MB 4	32.5
	54.7	8.3	9 590	1.12	**MR V 125 - 38 x 300** 132 MB 4	32
	54.7	8.3	9 590	1.32	**MR V 126 - 38 x 300** 132 MB 4	32
	57.5	8.7	9 480	1.5	**MR V 126 - 38 x 300** 132 MC S3 6	20
	54.7	8.4	9 710	2	**MR V 160 - 38 x 300** 132 MB 4	32
	54.7	8.4	9 710	2.36	**MR V 161 - 38 x 300** 132 MB 4	32
	70	8.4	7 560	0.9	**MR V 100 - 38 x 300** 132 MB 4	25
	70	8.7	7 840	1.25	**MR V 125 - 38 x 300** 132 MB 4	25
	70	8.7	7 840	1.5	**MR V 126 - 38 x 300** 132 MB 4	25
	71.9	8.8	7 680	1.5	**MR V 125 - 38 x 300** 132 MC S3 6	16
	71.9	8.8	7 680	1.7	**MR V 126 - 38 x 300** 132 MC S3 6	16
	70	8.8	7 920	2.24	**MR V 160 - 38 x 300** 132 MB 4	25
	70	8.8	7 920	2.8	**MR V 161 - 38 x 300** 132 MB 4	25
	87.5	8.7	6 300	0.95	**MR V 100 - 38 x 300** 132 MB 4	20
	87.5	8.8	6 330	1.5	**MR V 125 - 38 x 300** 132 MB 4	20
	87.5	8.8	6 330	1.8	**MR V 126 - 38 x 300** 132 MB 4	20
	88.5	8.9	6 360	1.8	**MR V 125 - 38 x 300** 132 MC S3 6	13
	88.5	8.9	6 360	2.12	**MR V 126 - 38 x 300** 132 MC S3 6	13
	87.5	8.9	6 390	2.8	**MR V 160 - 38 x 300** 132 MB 4	20
	87.5	8.9	6 390	3.35	**MR V 161 - 38 x 300** 132 MB 4	20
	109	8.8	5 100	1.12	**MR V 100 - 38 x 300** 132 MB 4	16
	109	8.9	5 140	1.8	**MR V 125 - 38 x 300** 132 MB 4	16
	109	8.9	5 140	2.12	**MR V 126 - 38 x 300** 132 MB 4	16
	135	8.9	4 160	1.32	**MR V 100 - 38 x 300** 132 MB 4	13
	135	9	4 220	2.12	**MR V 125 - 38 x 300** 132 MB 4	13
	175	9.1	3 260	1.6	**MR V 100 - 38 x 300** 132 MB 4	10
	175	9.1	3 280	2.5	**MR V 125 - 38 x 300** 132 MB 4	10
12.4	**7.32**	9.2	79 450	1.12	**MR IV 250 - 38 x 300** 132 MB S3 4	239
	9.21	9.6	65 500	1.6	**MR IV 250 - 38 x 300** 132 MB S3 4	190
	10.9	9.3	53 950	0.85	**MR IV 200 - 38 x 300** 132 MB S3 4	161
	11.5	9.8	53 600	2	**MR IV 250 - 38 x 300** 132 MB S3 4	152
	13.7	9.7	44 450	1.18	**MR IV 200 - 38 x 300** 132 MB S3 4	128
	13.8	10	45 450	2.24	**MR IV 250 - 38 x 300** 132 MB S3 4	127

Motor power P_1 hp 1)	Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
12.4 9.4	**17.2**	9.7	35 550	0.75	**MR IV 160 - 38 x 300** 132 MB S3 4	102
9.4	**17.2**	9.7	35 550	0.9	**MR IV 161 - 38 x 300** 132 MB S3 4	102
	17.2	9.9	36 300	1.4	**MR IV 200 - 38 x 300** 132 MB S3 4	102
	17.2	10.5	38 350	2.24	**MR IV 250 - 38 x 300** 132 MB S3 4	102
10.4	**21.4**	10	29 350	0.95	**MR IV 160 - 38 x 300** 132 MB S3 4	81.8
10.4	**21.4**	10	29 350	1.12	**MR IV 161 - 38 x 300** 132 MB S3 4	81.8
	21.4	10.2	29 900	1.8	**MR IV 200 - 38 x 300** 132 MB S3 4	81.8
	22.1	10.7	30 500	3.15	**MR IV 250 - 38 x 300** 132 MB S3 4	79.3
	27.4	10.5	24 200	1.06	**MR IV 160 - 38 x 300** 132 MB S3 4	63.9
	27.4	10.5	24 200	1.25	**MR IV 161 - 38 x 300** 132 MB S3 4	63.9
	27.8	9.8	22 150	0.75	**MR V 160 - 38 x 300** 132 MB S3 4	63
	27.8	9.8	22 150	0.9	**MR V 161 - 38 x 300** 132 MB S3 4	63
	27.4	10.7	24 550	2	**MR IV 200 - 38 x 300** 132 MB S3 4	63.9
	27.8	10	22 600	1.5	**MR V 200 - 38 x 300** 132 MB S3 4	63
10.1	**34.4**	10.5	19 200	0.75	**MR IV 126 - 38 x 300** 132 MB S3 4	50.8
	34.2	10.7	19 650	1.32	**MR IV 160 - 38 x 300** 132 MB S3 4	51.1
	34.2	10.7	19 650	1.6	**MR IV 161 - 38 x 300** 132 MB S3 4	51.1
	35	10.1	18 100	1	**MR V 160 - 38 x 300** 132 MB S3 4	50
	35	10.1	18 100	1.18	**MR V 161 - 38 x 300** 132 MB S3 4	50
	34.2	10.8	19 900	2.65	**MR IV 200 - 38 x 300** 132 MB S3 4	51.1
	35	10.2	18 400	1.9	**MR V 200 - 38 x 300** 132 MB S3 4	50
	43.1	10.6	15 550	0.8	**MR IV 125 - 38 x 300** 132 MB S3 4	40.6
	43.1	10.6	15 550	1	**MR IV 126 - 38 x 300** 132 MB S3 4	40.6
	43.8	10.1	14 500	0.85	**MR V 126 - 38 x 300** 132 MB S3 4	40
	42.8	10.8	15 900	1.6	**MR IV 160 - 38 x 300** 132 MB S3 4	40.9
	42.8	10.8	15 900	1.9	**MR IV 161 - 38 x 300** 132 MB S3 4	40.9
	43.8	10.3	14 750	1.32	**MR V 160 - 38 x 300** 132 MB S3 4	40
	43.8	10.3	14 750	1.5	**MR V 161 - 38 x 300** 132 MB S3 4	40
	42.8	11	16 250	3	**MR IV 200 - 38 x 300** 132 MB S3 4	40.9
	43.8	10.4	14 950	2.36	**MR V 200 - 38 x 300** 132 MB S3 4	40
	53.8	10.8	12 650	0.95	**MR IV 125 - 38 x 300** 132 MB S3 4	32.5
	53.8	10.8	12 650	1.18	**MR IV 126 - 38 x 300** 132 MB S3 4	32.5
	54.7	10.3	11 900	0.9	**MR V 125 - 38 x 300** 132 MB S3 4	32
	54.7	10.3	11 900	1.06	**MR V 126 - 38 x 300** 132 MB S3 4	32
	54.7	10.4	12 050	1.6	**MR V 160 - 38 x 300** 132 MB S3 4	32
	54.7	10.4	12 050	1.9	**MR V 161 - 38 x 300** 132 MB S3 4	32
	54.7	10.6	12 150	3	**MR V 200 - 38 x 300** 132 MB S3 4	32
	70	10.8	9 720	1	**MR V 125 - 38 x 300** 132 MB S3 4	25
	70	10.8	9 720	1.18	**MR V 126 - 38 x 300** 132 MB S3 4	25
	70	10.9	9 820	1.8	**MR V 160 - 38 x 300** 132 MB S3 4	25
	70	10.9	9 820	2.24	**MR V 161 - 38 x 300** 132 MB S3 4	25
	87.5	10.8	7 810	0.75	**MR V 100 - 38 x 300** 132 MB S3 4	20
	87.5	10.9	7 860	1.18	**MR V 125 - 38 x 300** 132 MB S3 4	20
	87.5	10.9	7 860	1.4	**MR V 126 - 38 x 300** 132 MB S3 4	20
	87.5	11	7 920	2.24	**MR V 160 - 38 x 300** 132 MB S3 4	20
	87.5	11	7 920	2.65	**MR V 161 - 38 x 300** 132 MB S3 4	20
	109	10.9	6 320	0.9	**MR V 100 - 38 x 300** 132 MB S3 4	16
	109	11	6 380	1.5	**MR V 125 - 38 x 300** 132 MB S3 4	16
	109	11	6 380	1.7	**MR V 126 - 38 x 300** 132 MB S3 4	16
	109	11.1	6 420	2.65	**MR V 160 - 38 x 300** 132 MB S3 4	16
	109	11.1	6 420	3.15	**MR V 161 - 38 x 300** 132 MB S3 4	16
	135	11.1	5 160	1.06	**MR V 100 - 38 x 300** 132 MB S3 4	13
	135	11.2	5 230	1.7	**MR V 125 - 38 x 300** 132 MB S3 4	13
	135	11.2	5 230	2.12	**MR V 126 - 38 x 300** 132 MB S3 4	13
	175	11.2	4 050	1.25	**MR V 100 - 38 x 300** 132 MB S3 4	10
	175	11.3	4 070	2	**MR V 125 - 38 x 300** 132 MB S3 4	10
	175	11.3	4 070	2.36	**MR V 126 - 38 x 300** 132 MB S3 4	10
15 12.2	**5.75**	10.9	119 600	0.8	**MR IV 250 - 42 x 350** 160 L 6	200
	7.32	11.2	96 150	0.95	**MR IV 250 - 38 x 300** 132 MC S3 4	239
	7.23	11.3	98 800	1.12	**MR IV 250 - 42 x 350** 160 L 6	159
	9.21	11.6	79 200	1.32	**MR IV 250 - 38 x 300** 132 MC S3 4	190
	8.75	11.4	82 050	1.06	**MR IV 250 - 42 x 350** 160 M 4	200
	9.06	11.6	80 900	1.4	**MR IV 250 - 42 x 350** 160 L 6	127
10.8	**11.3**	11.6	64 500	0.9	**MR IV 200 - 42 x 350** 160 L 6	102
	11.5	11.8	64 850	1.6	**MR IV 250 - 38 x 300** 132 MC S3 4	152
	11	11.8	67 500	1.5	**MR IV 250 - 42 x 350** 160 M 4	159
	11.3	11.8	66 000	1.6	**MR IV 250 - 42 x 350** 160 L 6	102

See notes on page 59.

Motor power P_1 hp 1)	Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
15	13.7	11.7	53 800	0.95	**MR IV 200 - 38 x 300** 132 MC S3 4	128
	13.7	11.7	53 800	0.95	**MR IV 200 - 42 x 350** 160 M 4	128
	13.8	12	55 000	1.8	**MR IV 250 - 38 x 300** 132 MC S3 4	127
	13.8	12	55 000	1.8	**MR IV 250 - 42 x 350** 160 M 4	127
9.4	17.2	11.7	43 000	0.75	**MR IV 161 - 38 x 300** 132 MC S3 4	102
8.8	18	11.9	41 550	0.85	**MR IV 161 - 42 x 350** 160 L 6	64
	17.2	12	43 900	1.18	**MR IV 200 - 38 x 300** 132 MC S3 4	102
	17.2	12	43 900	1.18	**MR IV 200 - 42 x 350** 160 M 4	102
	18	12.1	42 450	1.4	**MR IV 200 - 42 x 350** 160 L 6	64
	18.3	11.7	40 350	0.95	**MR V 200 - 42 x 350** 160 L 6	63
	17.2	12.7	46 400	1.9	**MR IV 250 - 38 x 300** 132 MC S3 4	102
	17.2	12.2	44 700	2	**MR IV 250 - 42 x 350** 160 M 4	102
	18	12.8	44 900	2.36	**MR IV 250 - 42 x 350** 160 L 6	63.9
	18.3	12	41 300	1.7	**MR V 250 - 42 x 350** 160 L 6	63
10.4	21.4	12.1	35 500	0.8	**MR IV 160 - 38 x 300** 132 MC S3 4	81.8
10.4	21.4	12.1	35 500	0.9	**MR IV 161 - 38 x 300** 132 MC S3 4	81.8
11.1	21.9	11.9	34 350	0.75	**MR IV 160 - 42 x 350** 160 M 4	80
11.1	21.9	11.9	34 350	0.85	**MR IV 161 - 42 x 350** 160 M 4	80
11.7	23	11.8	32 350	0.8	**MR V 161 - 42 x 350** 160 L 6	50
	21.4	12.3	36 150	1.5	**MR IV 200 - 38 x 300** 132 MC S3 4	81.8
	21.9	12.1	34 950	1.32	**MR IV 200 - 42 x 350** 160 M 4	80
	23	12.1	33 150	1.32	**MR V 200 - 42 x 350** 160 L 6	50
	22.1	12.9	36 900	2.65	**MR IV 250 - 38 x 300** 132 MC S3 4	79.3
	21.4	12.8	37 750	2.12	**MR IV 250 - 42 x 350** 160 M 4	81.8
	23	12.3	33 750	2.36	**MR V 250 - 42 x 350** 160 L 6	50
	27.4	12.7	29 250	0.85	**MR IV 160 - 38 x 300** 132 MC S3 4	63.9
	27.4	12.7	29 250	1	**MR IV 161 - 38 x 300** 132 MC S3 4	63.9
12.2	27.3	12.2	28 200	0.9	**MR IV 160 - 42 x 350** 160 M 4	64
12.2	27.3	12.2	28 200	1.06	**MR IV 161 - 42 x 350** 160 M 4	64
12.4	28.8	12.8	27 950	1	**MR IV 160 - 42 x 350** 160 L 6	40
12.4	28.8	12.8	27 950	1.18	**MR IV 161 - 42 x 350** 160 L 6	40
	27.8	11.8	26 800	0.75	**MR V 161 - 38 x 300** 132 MC S3 4	63
	27.8	11.8	26 800	0.75	**MR V 161 - 42 x 350** 160 M 4	63
	28.8	12.1	26 550	0.9	**MR V 160 - 42 x 350** 160 L 6	40
	28.8	12.1	26 550	1.06	**MR V 161 - 42 x 350** 160 L 6	40
	27.4	12.9	29 650	1.7	**MR IV 200 - 38 x 300** 132 MC S3 4	63.9
	27.3	12.5	28 800	1.7	**MR IV 200 - 42 x 350** 160 M 4	64
	27.8	12.1	27 350	1.18	**MR V 200 - 38 x 300** 132 MC S3 4	63
	27.8	12.1	27 350	1.18	**MR V 200 - 42 x 350** 160 M 4	63
	28.8	12.3	26 950	1.6	**MR V 200 - 42 x 350** 160 L 6	40
	27.4	13.1	30 050	3	**MR IV 250 - 42 x 350** 160 M 4	63.9
	27.8	12.3	27 800	2.12	**MR V 250 - 42 x 350** 160 M 4	63
	34.2	12.9	23 750	1.06	**MR IV 160 - 38 x 300** 132 MC S3 4	51.1
	34.2	12.9	23 750	1.32	**MR IV 161 - 38 x 300** 132 MC S3 4	51.1
	35	12.9	23 150	1	**MR IV 160 - 42 x 350** 160 M 4	50
	35	12.9	23 150	1.18	**MR IV 161 - 42 x 350** 160 M 4	50
	35.9	13	22 750	1.18	**MR IV 160 - 42 x 350** 160 L 6	32
	35.9	13	22 750	1.4	**MR IV 161 - 42 x 350** 160 L 6	32
	35	12.2	21 900	0.85	**MR V 160 - 38 x 300** 132 MC S3 4	50
	35	12.2	21 900	1	**MR V 161 - 38 x 300** 132 MC S3 4	50
	35	12.2	21 900	0.85	**MR V 160 - 42 x 350** 160 M 4	50
	35	12.2	21 900	1	**MR V 161 - 42 x 350** 160 M 4	50
	35.9	12.4	21 800	1.06	**MR V 160 - 42 x 350** 160 L 6	32
	35.9	12.4	21 800	1.32	**MR V 161 - 42 x 350** 160 L 6	32
	34.2	13.1	24 050	2.12	**MR IV 200 - 38 x 300** 132 MC S3 4	51.1
	35	13	23 400	2	**MR IV 200 - 42 x 350** 160 M 4	50
	35	12.4	22 250	1.6	**MR V 200 - 38 x 300** 132 MC S3 4	50
	35	12.4	22 250	1.6	**MR V 200 - 42 x 350** 160 M 4	50
	35.9	12.6	22 100	2	**MR V 200 - 42 x 350** 160 L 6	32
	34.2	13.2	24 250	3.75	**MR IV 250 - 42 x 350** 160 M 4	51.1
	35	12.5	22 550	2.8	**MR V 250 - 42 x 350** 160 M 4	50
10.9	43.1	12.9	18 800	0.8	**MR IV 126 - 38 x 300** 132 MC S3 4	40.6
	42.8	13.1	19 250	1.32	**MR IV 160 - 38 x 300** 132 MC S3 4	40.9
	42.8	13.1	19 250	1.6	**MR IV 161 - 38 x 300** 132 MC S3 4	40.9
	43.8	13	18 750	1.25	**MR IV 160 - 42 x 350** 160 M 4	40
	43.8	13	18 750	1.5	**MR IV 161 - 42 x 350** 160 M 4	40
	43.8	12.4	17 850	1.06	**MR V 160 - 38 x 300** 132 MC S3 4	40
	43.8	12.4	17 850	1.32	**MR V 161 - 38 x 300** 132 MC S3 4	40
	43.8	12.4	17 850	1.06	**MR V 160 - 42 x 350** 160 M 4	40
	43.8	12.4	17 850	1.32	**MR V 161 - 42 x 350** 160 M 4	40

Motor power P_1 hp 1)	Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
15	42.8	13.3	19 650	2.5	**MR IV 200 - 38 x 300** 132 MC S3 4	40.9
	43.8	13.2	18 950	2.5	**MR IV 200 - 42 x 350** 160 M 4	40
	43.8	12.5	18 050	1.9	**MR V 200 - 38 x 300** 132 MC S3 4	40
	43.8	12.5	18 050	1.9	**MR V 200 - 42 x 350** 160 M 4	40
11.9	53.8	13	15 300	0.95	**MR IV 126 - 38 x 300** 132 MC S3 4	32.5
	54.7	12.5	14 400	0.75	**MR V 125 - 38 x 300** 132 MC S3 4	32
	54.7	12.5	14 400	0.9	**MR V 126 - 38 x 300** 132 MC S3 4	32
	54.7	13.2	15 200	1.5	**MR IV 160 - 42 x 350** 160 M 4	32
	54.7	13.2	15 200	1.8	**MR IV 161 - 42 x 350** 160 M 4	32
	54.7	12.6	14 550	1.32	**MR V 160 - 38 x 300** 132 MC S3 4	32
	54.7	12.6	14 550	1.6	**MR V 161 - 38 x 300** 132 MC S3 4	32
	54.7	12.6	14 550	1.32	**MR V 160 - 42 x 350** 160 M 4	32
	54.7	12.6	14 550	1.6	**MR V 161 - 42 x 350** 160 M 4	32
	57.5	13.1	14 400	1.5	**MR V 160 - 42 x 350** 160 L 6	20
	57.5	13.1	14 400	1.8	**MR V 161 - 42 x 350** 160 L 6	20
	54.7	13.4	15 450	2.8	**MR IV 200 - 42 x 350** 160 M 4	32
	54.7	12.8	14 700	2.5	**MR V 200 - 42 x 350** 160 M 4	32
	70	13.1	11 750	0.85	**MR V 125 - 38 x 300** 132 MC S3 4	25
	70	13.1	11 750	1	**MR V 126 - 38 x 300** 132 MC S3 4	25
	70	13.2	11 900	1.5	**MR V 160 - 38 x 300** 132 MC S3 4	25
	70	13.2	11 900	1.8	**MR V 161 - 38 x 300** 132 MC S3 4	25
	70	13.2	11 900	1.5	**MR V 160 - 42 x 350** 160 M 4	25
	70	13.2	11 900	1.8	**MR V 161 - 42 x 350** 160 M 4	25
	71.9	13.3	11 650	1.8	**MR V 160 - 42 x 350** 160 L 6	16
	71.9	13.3	11 650	2.24	**MR V 161 - 42 x 350** 160 L 6	16
	70	13.3	11 950	2.8	**MR V 200 - 42 x 350** 160 M 4	25
	87.5	13.2	9 500	1	**MR V 125 - 38 x 300** 132 MC S3 4	20
	87.5	13.2	9 500	1.18	**MR V 126 - 38 x 300** 132 MC S3 4	20
	87.5	13.3	9 580	1.8	**MR V 160 - 38 x 300** 132 MC S3 4	20
	87.5	13.3	9 580	2.24	**MR V 161 - 38 x 300** 132 MC S3 4	20
	87.5	13.3	9 580	1.8	**MR V 160 - 42 x 350** 160 M 4	20
	87.5	13.3	9 580	2.24	**MR V 161 - 42 x 350** 160 M 4	20
	109	13.3	7 710	1.18	**MR V 125 - 38 x 300** 132 MC S3 4	16
	109	13.3	7 710	1.4	**MR V 126 - 38 x 300** 132 MC S3 4	16
	109	13.4	7 760	2.24	**MR V 160 - 42 x 350** 160 M 4	16
	109	13.4	7 760	2.65	**MR V 161 - 42 x 350** 160 M 4	16
	135	13.5	6 320	1.4	**MR V 125 - 38 x 300** 132 MC S3 4	13
	135	13.5	6 320	1.7	**MR V 126 - 38 x 300** 132 MC S3 4	13
	135	13.6	6 360	2.65	**MR V 160 - 42 x 350** 160 M 4	13
	135	13.6	6 360	3.15	**MR V 161 - 42 x 350** 160 M 4	13
	175	13.7	4 920	1.6	**MR V 125 - 38 x 300** 132 MC S3 4	10
	175	13.7	4 920	1.9	**MR V 126 - 38 x 300** 132 MC S3 4	10
	175	13.7	4 940	3	**MR V 160 - 42 x 350** 160 M 4	10
	175	13.7	4 940	3.55	**MR V 161 - 42 x 350** 160 M 4	10
20 16.3	8.75	15.2	109 400	0.8	**MR IV 250 - 42 x 350** 160 L 4	200
15.8	8.98	15.4	108 300	0.95	**MR IV 250 - 48 x 350** 180 L 6	128
	11	15.7	90 000	1.12	**MR IV 250 - 42 x 350** 160 L 4	159
	13.8	16.1	73 350	1.32	**MR IV 250 - 42 x 350** 160 L 4	127
14.7	17.2	16	58 550	0.85	**MR IV 200 - 42 x 350** 160 L 4	102
13.9	18	16.2	56 550	1	**MR IV 200 - 48 x 350** 180 L 6	64
	17.2	16.3	59 600	1.5	**MR IV 250 - 42 x 350** 160 L 4	102
	18	17.1	59 850	1.7	**MR IV 250 - 48 x 350** 180 L 6	63.9
	18.3	16	55 050	1.32	**MR V 250 - 48 x 350** 180 L 6	63
	21.9	16.2	46 600	1	**MR IV 200 - 42 x 350** 160 L 4	80
	23	16.1	44 200	1	**MR V 200 - 48 x 350** 180 L 6	50
	21.4	17.1	50 300	1.6	**MR IV 250 - 42 x 350** 160 L 4	81.8
	22.5	17.3	48 350	2.24	**MR IV 250 - 48 x 350** 180 L 6	51.1
	23	16.4	45 000	1.7	**MR V 250 - 48 x 350** 180 L 6	50
12.2	27.3	16.3	37 600	0.8	**MR IV 161 - 42 x 350** 160 L 4	64
	27.3	16.6	38 400	1.32	**MR IV 200 - 42 x 350** 160 L 4	64
	28.8	17.3	37 750	1.5	**MR IV 200 - 48 x 350** 180 L 6	40
	27.8	16.1	36 450	0.9	**MR V 200 - 42 x 350** 160 L 4	63
	28.8	16.4	35 900	1.18	**MR V 200 - 48 x 350** 180 L 6	40
	27.4	17.4	40 050	2.24	**MR IV 250 - 42 x 350** 160 L 4	63.9
	27.8	16.3	37 050	1.6	**MR V 250 - 42 x 350** 160 L 4	63
	28.8	16.7	36 500	2.12	**MR V 250 - 48 x 350** 180 L 6	40

Values in red state nominal thermal power Pt_N (ambient temperature 40 °C, continuous duty, see ch. 3.2).

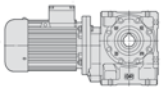
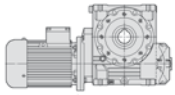
Motor (cat.TX) with efficiency value not according to IE3 class (IEC 60034-30).

Nominal power and nameplate data refer to intermittent periodic duty S3 70%.

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

2) For complete designation when ordering see ch. 3.1.

Gearmotors selection tables

Motor power P_1 hp 1)		Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)			Gear ratio i
20	15.9	**35**	17.2	30 900	0.9	**MR IV 161 - 42 x 350**	160 L	4	50
		35	16.2	29 250	0.75	**MR V 161 - 42 x 350**	160 L	4	50
	14.4	**35.9**	16.5	29 050	0.8	**MR V 160 - 48 x 350**	180 L	6	32
	14.4	**35.9**	16.5	29 050	0.95	**MR V 161 - 48 x 350**	180 L	6	32
		35	17.3	31 200	1.5	**MR IV 200 - 42 x 350**	160 L	4	50
		35	16.5	29 650	1.18	**MR V 200 - 42 x 350**	160 L	4	50
		35.9	16.8	29 450	1.5	**MR V 200 - 48 x 350**	180 L	6	32
		34.2	17.6	32 350	2.8	**MR IV 250 - 42 x 350**	160 L	4	51.1
		35	16.7	30 100	2.12	**MR V 250 - 42 x 350**	160 L	4	50
		43.8	17.4	24 950	0.95	**MR IV 160 - 42 x 350**	160 L	4	40
		43.8	17.4	24 950	1.12	**MR IV 161 - 42 x 350**	160 L	4	40
		43.8	16.6	23 850	0.8	**MR V 160 - 42 x 350**	160 L	4	40
		43.8	16.6	23 850	0.95	**MR V 161 - 42 x 350**	160 L	4	40
		43.8	17.6	25 250	1.9	**MR IV 200 - 42 x 350**	160 L	4	40
		43.8	16.7	24 050	1.5	**MR V 200 - 42 x 350**	160 L	4	40
		46	17.5	24 000	1.8	**MR V 200 - 48 x 350**	180 L	6	25
		42.8	17.9	26 400	3.35	**MR IV 250 - 42 x 350**	160 L	4	40.9
		43.8	16.9	24 300	2.65	**MR V 250 - 42 x 350**	160 L	4	40
		54.7	17.6	20 250	1.18	**MR IV 160 - 42 x 350**	160 L	4	32
		54.7	17.6	20 250	1.4	**MR IV 161 - 42 x 350**	160 L	4	32
		54.7	16.9	19 400	1	**MR V 160 - 42 x 350**	160 L	4	32
		54.7	16.9	19 400	1.18	**MR V 161 - 42 x 350**	160 L	4	32
		54.7	17.9	20 600	2.12	**MR IV 200 - 42 x 350**	160 L	4	32
		54.7	17	19 600	1.9	**MR V 200 - 42 x 350**	160 L	4	32
		57.5	17.7	19 400	2.24	**MR V 200 - 48 x 350**	180 L	6	20
		54.7	17.6	20 300	2.8	**MR V 250 - 42 x 350**	160 L	4	32
		70	17.4	15 700	0.75	**MR V 126 - 38 x 300**	160 L B5R	4	25
		70	17.6	15 850	1.12	**MR V 160 - 42 x 350**	160 L	4	25
		70	17.6	15 850	1.4	**MR V 161 - 42 x 350**	160 L	4	25
		71.9	17.7	15 550	1.4	**MR V 160 - 48 x 350**	180 L	6	16
		71.9	17.7	15 550	1.6	**MR V 161 - 48 x 350**	180 L	6	16
		70	17.7	15 950	2.12	**MR V 200 - 42 x 350**	160 L	4	25
		71.9	18	15 800	2.5	**MR V 200 - 48 x 350**	180 L	6	16
		87.5	17.6	12 650	0.75	**MR V 125 - 38 x 300**	160 L B5R	4	20
		87.5	17.6	12 650	0.9	**MR V 126 - 38 x 300**	160 L B5R	4	20
		87.5	17.7	12 800	1.4	**MR V 160 - 42 x 350**	160 L	4	20
		87.5	17.7	12 800	1.6	**MR V 161 - 42 x 350**	160 L	4	20
		88.5	18	12 850	1.6	**MR V 160 - 48 x 350**	180 L	6	13
		88.5	18	12 850	1.9	**MR V 161 - 48 x 350**	180 L	6	13
		87.5	17.8	12 850	2.65	**MR V 200 - 42 x 350**	160 L	4	20
		109	17.8	10 300	0.9	**MR V 125 - 38 x 300**	160 L B5R	4	16
		109	17.8	10 300	1.06	**MR V 126 - 38 x 300**	160 L B5R	4	16
		109	17.9	10 350	1.7	**MR V 160 - 42 x 350**	160 L	4	16
		109	17.9	10 350	2	**MR V 161 - 42 x 350**	160 L	4	16
		109	18.2	10 500	3	**MR V 200 - 42 x 350**	160 L	4	16
		135	18.1	8 430	1.06	**MR V 125 - 38 x 300**	160 L B5R	4	13
		135	18.1	8 430	1.25	**MR V 126 - 38 x 300**	160 L B5R	4	13
		135	18.2	8 490	2	**MR V 160 - 42 x 350**	160 L	4	13
		135	18.2	8 490	2.36	**MR V 161 - 42 x 350**	160 L	4	13
		175	18.2	6 560	1.25	**MR V 125 - 38 x 300**	160 L B5R	4	10
		175	18.2	6 560	1.5	**MR V 126 - 38 x 300**	160 L B5R	4	10
		175	18.3	6 590	2.24	**MR V 160 - 42 x 350**	160 L	4	10
		175	18.3	6 590	2.65	**MR V 161 - 42 x 350**	160 L	4	10
25	17.1	**11.3**	19.7	110 000	0.95	**MR IV 250 - 55 x 400**	200 LR	6	102
		13.7	20	91 850	1	**MR IV 250 - 48 x 350**	180 M	4	128
		17.2	20.3	74 500	1.25	**MR IV 250 - 48 x 350**	180 M	4	102
		18.3	20	68 850	1.06	**MR V 250 - 55 x 400**	200 LR	6	63
	17.2	**21.9**	20.2	58 250	0.8	**MR IV 200 - 48 x 350**	180 M	4	80
	18.6	**23**	20.2	55 250	0.8	**MR V 200 - 55 x 400**	200 LR	6	50
		21.4	21.4	62 900	1.32	**MR IV 250 - 48 x 350**	180 M	4	81.8
		23	21.6	59 150	1.7	**MR IV 250 - 55 x 400**	200 LR	6	50
		23	20.5	56 250	1.4	**MR V 250 - 55 x 400**	200 LR	6	50
	19.4	**27.3**	20.8	48 000	1.06	**MR IV 200 - 48 x 350**	180 M	4	64
	20.1	**28.8**	20.5	44 900	0.95	**MR V 200 - 55 x 400**	200 LR	6	40
		27.4	21.8	50 050	1.8	**MR IV 250 - 48 x 350**	180 M	4	63.9
		28.8	21.8	47 700	2.12	**MR IV 250 - 55 x 400**	200 LR	6	40
		27.8	20.4	46 350	1.25	**MR V 250 - 48 x 350**	180 M	4	63
		28.8	20.9	45 650	1.7	**MR V 250 - 55 x 400**	200 LR	6	40

Motor power P_1 hp 1)		Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)			Gear ratio i
25		**35**	21.7	39 050	1.18	**MR IV 200 - 48 x 350**	180 M	4	50
		35	20.6	37 100	0.95	**MR V 200 - 48 x 350**	180 M	4	50
		35.9	21	36 850	1.25	**MR V 200 - 55 x 400**	200 LR	6	32
		34.2	21.9	40 450	2.24	**MR IV 250 - 48 x 350**	180 M	4	51.1
		35	20.9	37 600	1.7	**MR V 250 - 48 x 350**	180 M	4	50
	17.1	**43.8**	21.7	31 200	0.75	**MR IV 160 - 48 x 350**	180 M	4	40
	17.1	**43.8**	21.7	31 200	0.9	**MR IV 161 - 48 x 350**	180 M	4	40
	18.7	**43.8**	20.7	29 800	0.75	**MR V 161 - 48 x 350**	180 M	4	40
		43.8	21.9	31 600	1.5	**MR IV 200 - 48 x 350**	180 M	4	40
		43.8	20.9	30 100	1.18	**MR V 200 - 48 x 350**	180 M	4	40
		46	21.9	29 950	1.4	**MR V 200 - 55 x 400**	200 LR	6	25
		42.8	22.4	33 000	2.65	**MR IV 250 - 48 x 350**	180 M	4	40.9
		43.8	21.1	30 350	2.12	**MR V 250 - 48 x 350**	180 M	4	40
	18.6	**54.7**	22	25 300	0.9	**MR IV 160 - 48 x 350**	180 M	4	32
	18.6	**54.7**	22	25 300	1.12	**MR IV 161 - 48 x 350**	180 M	4	32
	20.5	**54.7**	21.1	24 250	0.8	**MR V 160 - 48 x 350**	180 M	4	32
	20.5	**54.7**	21.1	24 250	0.95	**MR V 161 - 48 x 350**	180 M	4	32
		54.7	22.4	25 750	1.7	**MR IV 200 - 48 x 350**	180 M	4	32
		54.7	21.3	24 500	1.5	**MR V 200 - 48 x 350**	180 M	4	32
		57.5	22.1	24 250	1.8	**MR V 200 - 55 x 400**	200 LR	6	20
		54.7	22	25 350	2.24	**MR V 250 - 48 x 350**	180 M	4	32
		70	22	19 800	0.9	**MR V 160 - 48 x 350**	180 M	4	25
		70	22	19 800	1.12	**MR V 161 - 48 x 350**	180 M	4	25
		70	22.1	19 950	1.7	**MR V 200 - 48 x 350**	180 M	4	25
		71.9	22.5	19 750	2	**MR V 200 - 55 x 400**	200 LR	6	16
		70	22.3	20 100	3	**MR V 250 - 48 x 350**	180 M	4	25
		87.5	22.2	15 950	1.12	**MR V 160 - 48 x 350**	180 M	4	20
		87.5	22.2	15 950	1.32	**MR V 161 - 48 x 350**	180 M	4	20
		87.5	22.3	16 050	2.12	**MR V 200 - 48 x 350**	180 M	4	20
		109	22.4	12 950	1.32	**MR V 160 - 48 x 350**	180 M	4	16
		109	22.4	12 950	1.6	**MR V 161 - 48 x 350**	180 M	4	16
		109	22.7	13 150	2.36	**MR V 200 - 48 x 350**	180 M	4	16
		135	22.7	10 600	1.6	**MR V 160 - 48 x 350**	180 M	4	13
		135	22.7	10 600	1.9	**MR V 161 - 48 x 350**	180 M	4	13
		135	22.8	10 650	2.8	**MR V 200 - 48 x 350**	180 M	4	13
		175	22.9	8 240	1.8	**MR V 160 - 48 x 350**	180 M	4	10
		175	22.9	8 240	2.12	**MR V 161 - 48 x 350**	180 M	4	10
30	17.1	**11.3**	23.7	132 000	0.8	**MR IV 250 - 55 x 400**	200 L	6	102
	21.5	**13.7**	24	110 200	0.85	**MR IV 250 - 48 x 350**	180 L	4	128
	23.2	**17.2**	24.4	89 400	1	**MR IV 250 - 48 x 350**	180 L	4	102
		18.3	24	82 600	0.85	**MR V 250 - 55 x 400**	200 L	6	63
		21.4	25.6	75 500	1.06	**MR IV 250 - 48 x 350**	180 L	4	81.8
		23	25.9	70 950	1.4	**MR IV 250 - 55 x 400**	200 L	6	50
		23	24.6	67 500	1.18	**MR V 250 - 55 x 400**	200 L	6	50
	19.4	**27.3**	24.9	57 550	0.85	**MR IV 200 - 48 x 350**	180 L	4	64
	20.1	**28.8**	24.6	53 850	0.8	**MR V 200 - 55 x 400**	200 L	6	40
		27.4	26.1	60 050	1.5	**MR IV 250 - 48 x 350**	180 L	4	63.9
		28.8	26.1	57 200	1.7	**MR IV 250 - 55 x 400**	200 L	6	40
		27.8	24.5	55 600	1.06	**MR V 250 - 48 x 350**	180 L	4	63
		28.8	25	54 800	1.4	**MR V 250 - 55 x 400**	200 L	6	40
	24.6	**35**	26	46 850	1	**MR IV 200 - 48 x 350**	180 L	4	50
		35	24.7	44 500	0.8	**MR V 200 - 48 x 350**	180 L	4	50
	22.4	**35.9**	25.2	44 200	1	**MR V 200 - 55 x 400**	200 L	6	32
		34.2	26.3	48 550	1.9	**MR IV 250 - 48 x 350**	180 L	4	51.1
		35	25.1	45 100	1.4	**MR V 250 - 48 x 350**	180 L	4	50
		35.9	26.1	45 800	1.6	**MR V 250 - 55 x 400**	200 L	6	32
		43.8	26.3	37 900	1.25	**MR IV 200 - 48 x 350**	180 L	4	40
		43.8	25.1	36 100	0.95	**MR V 200 - 48 x 350**	180 L	4	40
		46	26.2	35 950	1.18	**MR V 200 - 55 x 400**	200 L	6	25
		42.8	26.9	39 600	2.24	**MR IV 250 - 48 x 350**	180 L	4	40.9
		43.8	25.3	36 450	1.7	**MR V 250 - 48 x 350**	180 L	4	40
		46	26.5	36 350	2.12	**MR V 250 - 55 x 400**	200 L	6	25
	20.5	**54.7**	25.3	29 150	0.8	**MR V 161 - 48 x 350**	180 L	4	32
		54.7	26.8	30 900	1.4	**MR IV 200 - 48 x 350**	180 L	4	32
		54.7	25.5	29 400	1.25	**MR V 200 - 48 x 350**	180 L	4	32
		57.5	26.5	29 100	1.5	**MR V 200 - 55 x 400**	200 L	6	20
		54.7	26.4	30 450	1.9	**MR V 250 - 48 x 350**	180 L	4	32
		57.5	26.7	29 300	2.5	**MR V 250 - 55 x 400**	200 L	6	20

Values in red state nominal thermal power Pt_N (ambient temperature 40 °C, continuous duty, see ch. 3.2).

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

2) For complete designation when ordering see ch. 3.1.

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

Motor power P_1 hp 1)		Output speed n_2 rpm	Output power P_2 hp	Output torque T_2 lb in	Service factor fs	2)		Gear ratio i
30		**70**	26.4	23 750	0.75	**MR V 160 - 48 x 350** 180 L	4	25
		70	26.4	23 750	0.9	**MR V 161 - 48 x 350** 180 L	4	25
		70	26.6	23 950	1.4	**MR V 200 - 48 x 350** 180 L	4	25
		71.9	27	23 650	1.7	**MR V 200 - 55 x 400** 200 L	6	16
		70	26.8	24 100	2.5	**MR V 250 - 48 x 350** 180 L	4	25
		87.5	26.6	19 150	0.9	**MR V 160 - 48 x 350** 180 L	4	20
		87.5	26.6	19 150	1.12	**MR V 161 - 48 x 350** 180 L	4	20
		87.5	26.8	19 300	1.8	**MR V 200 - 48 x 350** 180 L	4	20
		88.5	27.2	19 350	2	**MR V 200 - 55 x 400** 200 L	6	13
		87.5	26.9	19 350	3	**MR V 250 - 48 x 350** 180 L	4	20
		109	26.9	15 550	1.12	**MR V 160 - 48 x 350** 180 L	4	16
		109	26.9	15 550	1.32	**MR V 161 - 48 x 350** 180 L	4	16
		109	27.2	15 750	2	**MR V 200 - 48 x 350** 180 L	4	16
		135	27.3	12 750	1.32	**MR V 160 - 48 x 350** 180 L	4	13
		135	27.3	12 750	1.6	**MR V 161 - 48 x 350** 180 L	4	13
		135	27.4	12 750	2.36	**MR V 200 - 48 x 350** 180 L	4	13
		175	27.5	9 890	1.5	**MR V 160 - 48 x 350** 180 L	4	10
		175	27.5	9 890	1.8	**MR V 161 - 48 x 350** 180 L	4	10
40	23.2	**17.2**	32.5	119 200	0.75	**MR IV 250 - 55 x 400** 200 L	4	102
	27.3	**21.9**	33	94 850	0.9	**MR IV 250 - 55 x 400** 200 L	4	80
	33.5	**27.4**	34.8	80 100	1.12	**MR IV 250 - 48 x 350** 200 L B5R	4	63.9
		27.3	34.5	79 600	0.95	**MR IV 250 - 55 x 400** 200 L	4	64
		27.8	32.7	74 150	0.8	**MR V 250 - 55 x 400** 200 L	4	63
		34.2	35.1	64 700	1.4	**MR IV 250 - 48 x 350** 200 L B5R	4	51.1
		35	35.2	63 300	1.32	**MR IV 250 - 55 x 400** 200 L	4	50
		35	33.4	60 150	1.06	**MR V 250 - 55 x 400** 200 L	4	50
	26.8	**43.8**	35.1	50 500	0.95	**MR IV 200 - 48 x 350** 200 L B5R	4	40
	28.6	**43.8**	33.5	48 150	0.75	**MR V 200 - 55 x 400** 200 L	4	40
		43.8	35.4	50 900	1.6	**MR IV 250 - 55 x 400** 200 L	4	40
		43.8	33.8	48 600	1.32	**MR V 250 - 55 x 400** 200 L	4	40
	31	**54.7**	35.8	41 200	1.06	**MR IV 200 - 48 x 350** 200 L B5R	4	32
	31.3	**54.7**	34	39 200	0.95	**MR V 200 - 55 x 400** 200 L	4	32
		54.7	36.1	41 600	1.9	**MR IV 250 - 55 x 400** 200 L	4	32
		54.7	35.2	40 600	1.4	**MR V 250 - 55 x 400** 200 L	4	32
		70	35.4	31 900	1.06	**MR V 200 - 55 x 400** 200 L	4	25
		70	35.7	32 100	1.9	**MR V 250 - 55 x 400** 200 L	4	25
		87.5	35.7	25 700	1.32	**MR V 200 - 55 x 400** 200 L	4	20
		87.5	35.9	25 850	2.24	**MR V 250 - 55 x 400** 200 L	4	20
		109	36.3	21 000	1.5	**MR V 200 - 55 x 400** 200 L	4	16
		109	36.5	21 100	2.65	**MR V 250 - 55 x 400** 200 L	4	16
		135	36.5	17 050	1.8	**MR V 200 - 55 x 400** 200 L	4	13
50	39.6	**35**	43.9	79 150	1.06	**MR IV 250 - 60 x 450** 225 S	4	50
	41.6	**35**	41.8	75 200	0.85	**MR V 250 - 60 x 450** 225 S	4	50
	41.5	**43.8**	44.2	63 650	1.32	**MR IV 250 - 60 x 450** 225 S	4	40
		43.8	42.2	60 750	1.06	**MR V 250 - 60 x 450** 225 S	4	40
		54.7	45.1	52 000	1.5	**MR IV 250 - 60 x 450** 225 S	4	32
		54.7	44	50 700	1.12	**MR V 250 - 60 x 450** 225 S	4	32
		70	44.6	40 150	1.5	**MR V 250 - 60 x 450** 225 S	4	25
		87.5	44.8	32 300	1.8	**MR V 250 - 60 x 450** 225 S	4	20
		109	45.6	26 350	2.12	**MR V 250 - 60 x 450** 225 S	4	16
60	39.6	**35**	53	94 950	0.9	**MR IV 250 - 60 x 450** 225 M	4	50
	41.5	**43.8**	53	76 350	1.06	**MR IV 250 - 60 x 450** 225 M	4	40
	44	**43.8**	51	72 900	0.85	**MR V 250 - 60 x 450** 225 M	4	40
	49.3	**54.7**	54	62 400	1.25	**MR IV 250 - 60 x 450** 225 M	4	32
		54.7	53	60 850	0.95	**MR V 250 - 60 x 450** 225 M	4	32
		70	54	48 200	1.25	**MR V 250 - 60 x 450** 225 M	4	25
		87.5	54	38 750	1.5	**MR V 250 - 60 x 450** 225 M	4	20
		109	55	31 650	1.8	**MR V 250 - 60 x 450** 225 M	4	16
75	57	**54.7**	66	76 100	0.75	**MR V 250 - 60 x 450** 250 M B5R	4	32
	63	**70**	67	60 250	1	**MR V 250 - 60 x 450** 250 M B5R	4	25
		87.5	67	48 400	1.18	**MR V 250 - 60 x 450** 250 M B5R	4	20
		109	68	39 550	1.4	**MR V 250 - 60 x 450** 250 M B5R	4	16

Values in red state nominal thermal power Pt_N (ambient temperature 40 °C, continuous duty, see ch. 3.2).

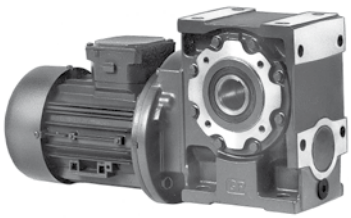
1) Powers valid for continuous duty S1; **increase** possible for S2 ... S10 (see ch. 2b) in which case P_2, M_2 increase and fs decreases proportionately.

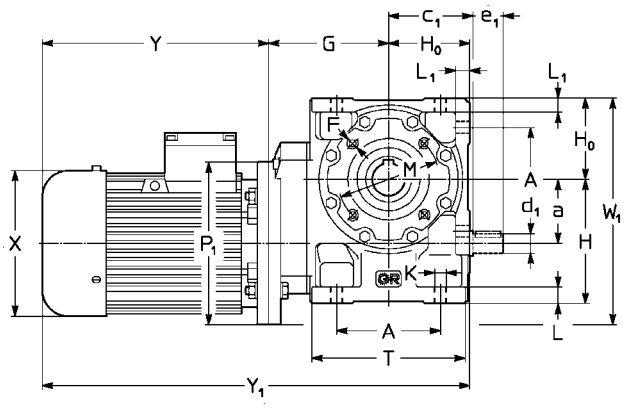
2) For complete designation when ordering see ch. 3.1.

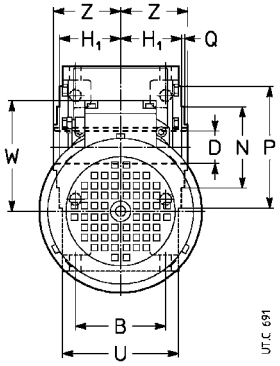
* Mounting position **B5R** (see table ch. 2b).

Designs, dimensions, mounting positions and oil quantity 3.8

MR V 32 ... 81







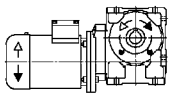
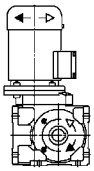
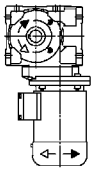
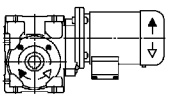
Design[1)]

standard **UO3A**
worm extension **UO3D**

Size red.	Size motor B5	a	A B	c	D Ø H7	d_1 Ø e_1	F 2)	G	H h11	H_0 h11	H h12	K Ø	L L_1	M Ø	N Ø h6	P Ø Q	T U	Z	P Ø	X Ø ≈	Y ≈		Y ≈		W ≈	W ≈	Mass lb		
																						3)		3)			8)		3)
32	**63**	32	61	51	19	11	M5	76	71	48	34.5	7	10	75	55	90	91	39	140	123	189	244	313	368	95	165	8.8	20	53
	71																		160	138	216	278	340	402	112	192	8.8	24	31
	71 B5R		52			20	4)						8.5		5)	3	66		140	138	235	297	359	421	112	182	8.8	24	31
40	**63**	40	70	57.5	24	14	M6	87	82	56	41.5	9.5	12	85	68	105	106	46	140	123	189	244	332	387	95	166	15.4	26	31
	71		62			25	4)	87					10		5)	3	80		160	138	216	278	359	421	112	192	15.4	31	37
	80 [9)]							99											200	156	233	302	376	445	121	221	17.6	44	51
	80 B5R[9)]							87											160	156	254	323	397	466	121	201	15.4	41	48
50	**63**	50	86	70.5	28	16	M6	98	100	67	49	9.5	13	100	85	120	126	53	140	123	189	244	354	409	95	187	22	33	37
	71		75			30	4)	98					12		5)	3	95		160	138	216	278	381	443	112	197	24	40	46
	80[6)]							98											200	156	233	302	398	467	121	221	12	53	59
	90[9)]							110											200	176	287	–	452	–	141	241	26	68	–
	90 B5R[9)]							98											200	176	287	–	452	–	141	241	26	68	–
63	**71**	63	102	83	32	19	M8	118	125	80	58.5	11.5	16	100	80	120	151	63	160	138	216	278	414	476	112	223	35	51	57
64	**80**		90			30		118					14			3	114		200	156	233	302	431	500	121	243	37	64	70
	90							118											200	176	287	366	485	564	141	243	37	79	92
	100							130											250	194	310	405	508	603	151	276	40	97	106
	100 B5R							118											200	194	337	432	535	630	151	251	37	95	104
80	**80**	80	132	103	38	24	M10	138	150	100	69.5	14	20	130	110	160	189	75	200	156	233	302	471	540	121	280	57	84	90
81	**90**		106		**(80)**	36							17			3.5	135		200	176	287	366	525	604	141	280	57	99	112
	100[7)]				40														250	194	310	405	548	643	151	305	62	119	128
	112[7) 9)]				**(81)**														250	218	336	–	574	–	163	305	62	139	–

1) See ch. 3.1 for motor design.
2) Working length of thread 2 · F.
3) Values valid for brake motor.
4) Holes turned through 45° with respect to the drawing.
5) Tolerance t8.
6) Option of P_1 = 160 (m.p. B5A, see ch. 2b), with price addition: consult us.
7) On request for 100L 4, 112M 4 excluded size 81 also available mounting position **B5R** (see ch. 2b).
8) Values valid for gearmotor without motor.
9) **Brake motor** (cat. TX) **not possible**.

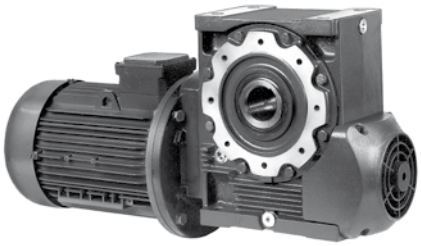
Mounting positions - direction of rotation - and oil quantities [gal]

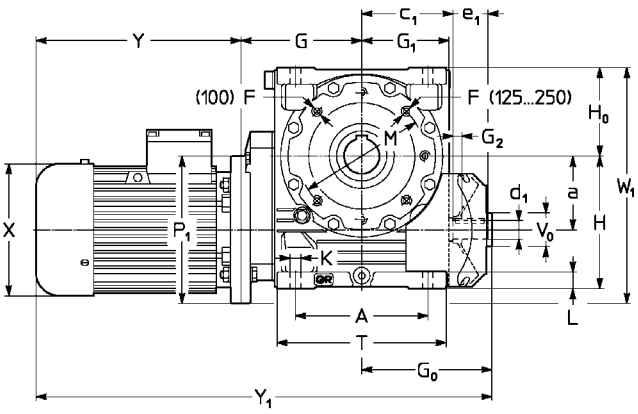
B3	B6	B7	B8	V5	V6
					 UT.C 693

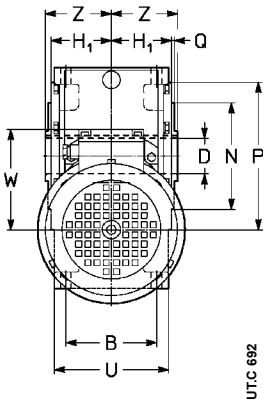
Size.	B3	B6. B7	B8	V5. V6
32	0.04	0.05	0.04	0.04
40	0.07	0.09	0.07	0.07
50	0.11	0.16	0.11	0.11
63. 64	0.21	0.3	0.21	0.21
80. 81	0.34	0.58	0.45	0.34

Designs, dimensions, mounting positions and oil quantity 3.8

MR V 100 ... 250







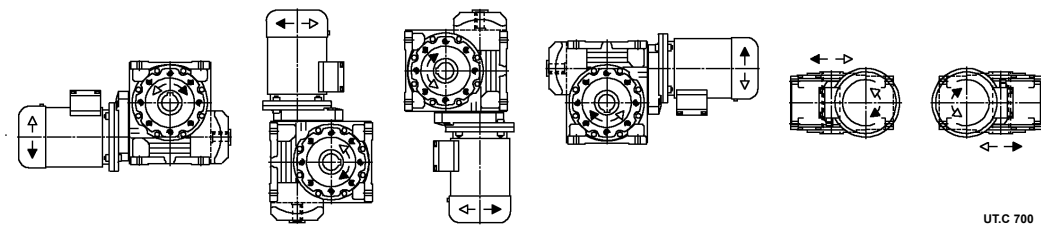
Design[1)]

standard **UO2A**[5)]

Size red.	Size motor / B5	a	A / B	c	D Ø H7	d_1 Ø / e_1	F / 2)	G	G_0	G	G_2	H h11	H_0 h11 / L	H h12	K Ø	L	M Ø	N Ø h6	P Ø / Q	T / U	V Ø max	Z	P Ø ≈	X	Y ≈		Y ≈		W ≈	W ≈	Mass lb		
																										4)		4)			8)		4)
100	**90**	100	180	130	48	28	M12	170	180	122	11	180	125	84.5	16	23	165	130	200	236	45	90	200	176	287	366	637	716	141	325	97	139	152
	100		131			42													3.5	165			250	194	310	405	660	755	151	350	104	161	170
	112																						250	218	336	435	686	785	163	350	104	82	190
	132[7)]							190															300	257	445	553	815	923	194	375	106	181	278
125	**100**	125	225	155	60	32	M12[8]	205	221	148	15	225	150	99.5	18	28	215	180	250	287	50	106	250	194	310	405	736	831	151	400	176	234	243
126	**112**		155			58													4	194			250	218	336	435	762	861	163	400	176	254	262
	132																						300	257	445	553	871	979	194	425	183	335	355
	160[6) 9)]																						300	314	573	–	999	–	258	425	183	476	–
160	**112**	160	272	187	70	38	M14[8]	247	255	178	15	280	180	118.5	22	33	265	230	300	345	60	125	250	218	336	435	838	937	163	465	309	386	385
161	**132**		183		**(160)**	58													4	232			300	257	445	553	947	1055	194	490	315	467	487
	160				75			260															350	314	573	640	1088	1155	258	515	322	615	573
	180[6) 9)]				**(161)**																		350	354	613	734	1128	1249	278	515	322	668	670
200	**132**	200	342	235	90	48	M16[8]	292	324	222	20	335	225	137.5	27	40	300	250	350	431	80	150	300	257	445	553	1061	1169	194	575	540	692	712
	160		214			82		305											5	270			350	314	573	640	1202	1269	258	600	547	840	798
	180																						350	354	613	734	1242	1363	278	600	547	893	895
	200[9)]																						400	354	654	–	1283	–	278	625	551	1093	–
250	**160**	250	425	287	110	55	M20[8]	360	379	277	20	410	280	163	33	50	400	350	450	537	80	180	350	314	573	640	1312	1379	258	705	882	1175	1133
	180		250			82	3)												5	320			350	354	613	734	1352	1473	278	705	882	1228	1230
	200																						400	354	654	734	1393	1473	278	730	893	1435	1294
	225							370															450	411	710	–	1459	–	298	755	904	1618	–
	250[6)]																						450	411	710	–	1459	–	298	755	904	1909	–

1) See ch. 3.1 for motor design.
2) Working length of thread 2 · F.
3) Holes turned through 22° 30' with respect to the drawing.
4) Values valid for brake motor.
5) Prearranged design for worm shaft extension (see ch. 2).
6) Mounting position **B5R** (see ch. 2b).
7) On request for 132M 4 also available mounting position B5R (see ch. 2b)
8) Values valid for gearmotor without motor.
9) **Brake motor 160**, **180L**, **200** (cat. TX) **not possible.**

Mounting positions - direction of rotation - and oil quantities [gal]

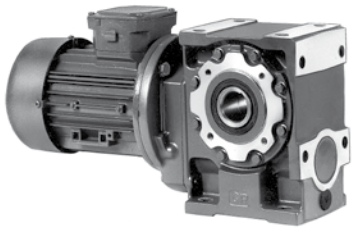


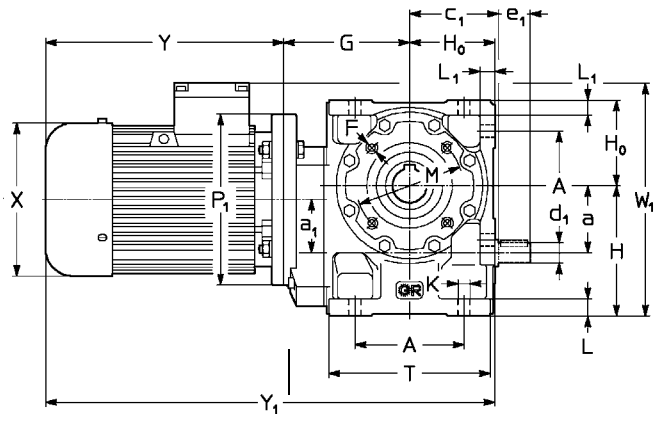
Size	B3	B6. B7	B8	V5. V6
100	0.5	1.4	1.1	0.79
125, 126	0.9	2.6	2.2	1.5
160, 161	1.5	4.8	4	2.6
200	2.5	8.7	7.9	5.3
250	4.5	15.1	13.5	9

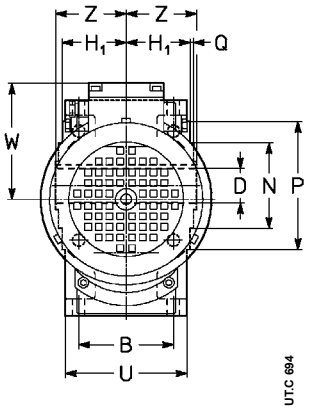
1) Sizes 200 and 250 in **B7**, mounting position with $n_1 > 710\ min^{-1}$, carry a price addition.

Designs, dimensions, mounting positions and oil quantity 3.8

MR IV 32 ... 81







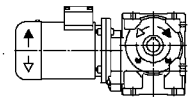
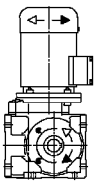
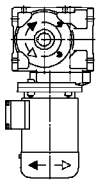
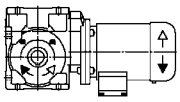
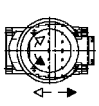
Design[1)]

standard	**UO3A**
worm extension	**UO3D**

Size red.	Size motor	a	A	c	D Ø H7	d_1 Ø	F	G	H h11	H_0 h11	H_1 h12	K Ø	L	M Ø	N Ø h6	P Ø	T	Z	P Ø	X	Y ≈		Y ≈		W ≈	W ≈	Mass lb		
	B5	a	B			e_1	2)						L			Q	U					3)		3)			8)		3)
32	**63**	32 32	61 52	51	19	11 20	M5 4)	76	71	48	34.5	7	10 8.5	75	55 5)	90 3	91 66	39	140	123	189	244	313	368	95	166	9	20	24
40	**63** **71**	40 40	70 62	57.5	24	14 25	M6 4)	87	82	56	41.5	9.5	12 10	85	68 5)	105 3	106 80	46	140 160	123 138	189 216	244 278	332 359	387 421	95 112	177 194	15 15	26 31	31 37
50	**63** **71** **80**[6)]	50 40	86 75	70.5	28	16 30	M6 4)	98	100	67	49	9.5	13 12	100	85 5)	120 3	126 95	53 69	140 160 200	123 138 156	189 216 233	244 278 302	354 381 398	409 443 467	95 112 121	185 202 221	22 24 26	33 40 53	37 46 60
63 **64**	**71** **80** **90**	63 50	102 90	83	32	19 30	M8	118	125	80	58.5	11.5	16 14	100	80	120 3	151 114	63	160 200 200	138 156 176	216 233 287	278 302 366	414 431 485	476 500 564	112 121 141	224 233 253	35 37 37	51 64 75	57 71 88
80 **81**	**71** **80** **90**	80 50	132 106	103	38 **(80)** 40	24 36	M10	138	150	100	69.5	14	20 17	130	110	160 3.5	189 135	75	160 200 200	138 156 176	216 233 287	278 302 366	454 471 525	516 540 604	112 121 141	250 250 261	57 60 60	73 86 97	79 93 110
	100[7)]				**(81)**														200	194	337	432	575	670	151	271	27	51	55

1) See ch. 3 for motor design.
2) Working length of thread 2 · F.
3) Values valid for brake motor.
4) Holes turned through 45° with respect to the drawing.
5) Tolerance t8.
6) Option of P_1 = 160 (m.p. B5A, ved. cap. 2b), with price addition: consult us.
7) Mounting position **B5R** (see ch. 2b);
8) Values valid for gearmotor without motor.

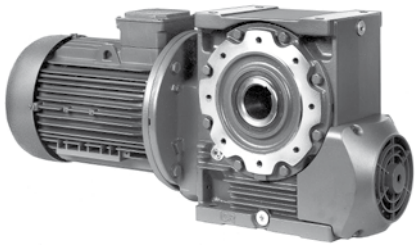
Mounting positions - direction of rotation - and oil quantities [gal]

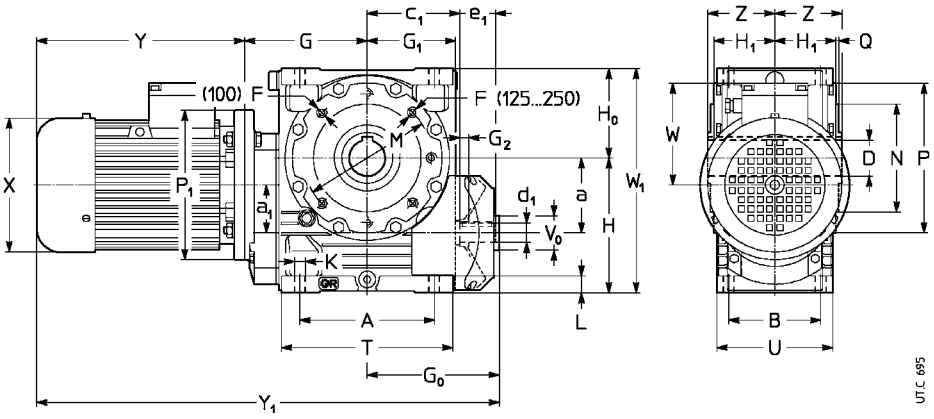
B3	B6	B7	B8	V5	V6
					 UT.C 696

Size	B3	B6, B7	B8	V5, V6
32	0.05	0.07	0.05	0.05
40	0.08	0.11	0.08	0.08
50	0.13	0.18	0.13	0.13
63, 64	0.26	1.34	0.26	0.26
80, 81	0.4	0.66	0.53	0.4

Designs, dimensions, mounting positions and oil quantity 3.8

MR IV 100 ... 250





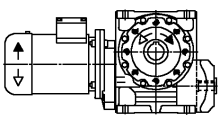
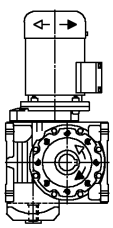
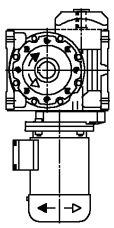
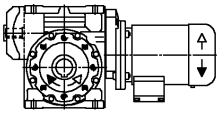
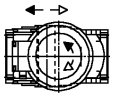
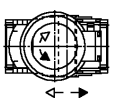
Design[1]

standard **UO2A**[5]

Size red.	Size motor	a	A	c	D Ø H7	d_1 Ø	F	G	G_0	G	G_2	H h11	H_0 h11	H h12	K Ø	L	M Ø	N Ø h6	P Ø	T	V Ø° max	Z	P Ø ≈	X	Y ≈		Y ≈		W ≈	W ≈	Mass lb		
	B5	a_1	B			e_1	2)												Q	U						4)		4)			7)		4)
100	**80**	100	180	130	48	28	M12	170	180	122	11	180	125	84.5	16	23	165	130	200	236	45	90	200	156	233	302	583	652	121	305	99	126	132
	90	63	131			42													3.5	165			200	176	287	366	637	716	141	305	99	141	154
	112																						250	194	310	405	660	755	151	305	106	163	172
125	**90**	125	225	155	60	32	$M12^8$	205	221	148	15	225	150	99.5	18	28	215	180	250	287	50	106	200	176	287	366	713	792	141	375	176	218	231
126	**100**	80	155			58													4	194			250	194	310	405	736	831	151	375	183	240	249
	112																						250	218	336	435	762	861	163	375	183	260	276
	132																						300	257	445	553	871	979	194	375	187	340	359
160	**100**	160	272	187	70	38	$M14^8$	247	255	178	15	280	180	118.5	22	33	265	230	300	345	60	125	250	194	310	405	812	907	151	460	309	366	375
161	**112**	100	183		**(160)**	58													4	232			250	218	336	435	838	937	163	460	309	386	401
	132				75																		300	257	445	553	947	1055	194	460	320	472	514
	160				**(161)**			260															350	314	573	640	1088	1155	258	478	331	624	582
	180M																						350	354	613	640	1128	1155	278	498	331	628	604
200	**100**	200	342	235	90	48	$M16^8$	292	324	222	20	335	225	137.5	27	40	300	250	350	431	80	150	250	194	310	405	926	1021	151	560	540	597	606
	112	100	214			82													5	270			250	218	336	435	952	1051	163	560	540	617	626
	132																						300	257	445	553	1061	1169	194	560	553	703	723
	160							305															350	314	573	640	1202	1269	258	560	562	855	814
	180																						350	354	613	734	1242	1363	278	560	562	908	911
	200[6]																						350	354	654	734	1283	1363	278	560	562	1105	963
250	**132**	250	425	287	110	55	$M20^8$	360	379	277	20	410	280	163	33	50	400	350	450	537	80	180	300	257	445	553	1184	1292	194	690	893	1045	1065
	160	125	250			82	3)												5	320			350	314	573	640	1312	1379	258	690	904	1197	1155
	180																						350	354	613	734	1352	1473	278	690	904	1250	1252
	200																						400	354	654	734	1393	1473	278	690	904	1446	1305
	225							370															450	411	710	-	1459	-	298	690	915	1629	-

1) See ch. 3 for motor design.
2) Working length of thread 2 · F.
3) Holes turned through 22° 30' with respect to the drawing.
4) Values valid for brake motor.
5) Prearranged design for worm shaft extension (see ch. 2).
6) Mounting position **B5R** (see ch. 2b).
7) Values valid for gearmotor without motor.

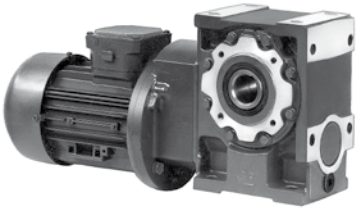
Mounting positions - direction of rotation **- and oil quantities** [gal]

B3	B6[1]	B7	B8	V5	V6
					 UT.C 701

Size	B3	B6, B7	B8	V5, V6
100	0.55	1.66	1.19	0.87
125, 126	1	3.06	2.32	1.66
160, 161	1.72	5.49	4.36	2.96
200	2.75	10.04	8.32	5.6
250	4.83	17.7	14	9.43

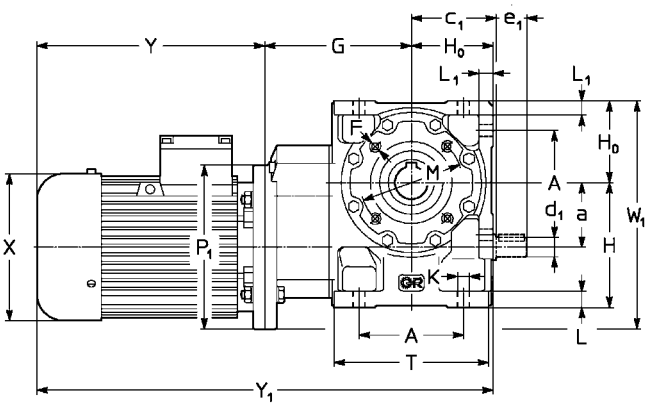
1) Sizes 100 ... 250 in mounting position **B6** carry a price addition.

Designs, dimensions, mounting positions and oil quantity 3.8

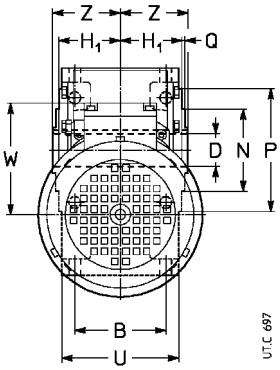


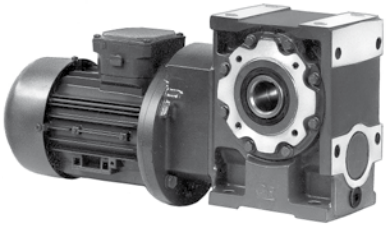
Design[1)]
standard
worm extension

UO3A
UO3D



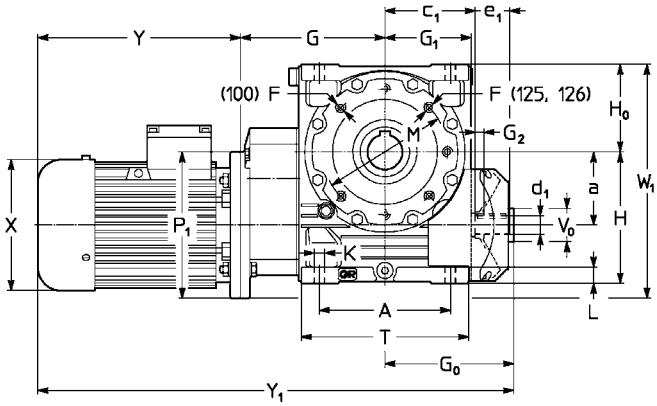
MR 2IV 40 ... 81



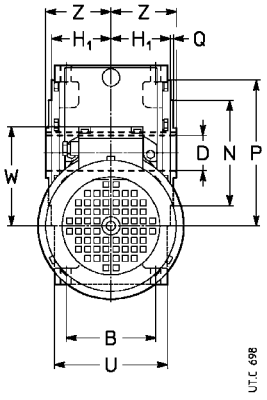


Design[1)]
standard

UO2A[4)]



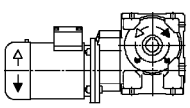
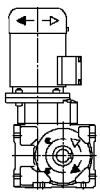
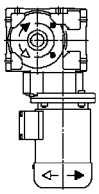
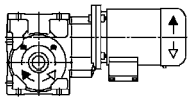
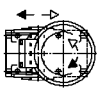
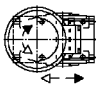
MR 2IV 100 ... 126



Size red.	Size motor	a	A	c	D Ø H7	d_1 Ø	F	G	G_0	G	G_2	H h11	H_0 h11	H h12	K Ø	L	L	M Ø	N Ø h6	P Ø	T	V_0 Ø max	Z	P Ø ≈	X	Y ≈	Y ≈	W ≈	W ≈	Mass lb		
	B5		B			e_1	2)						L							Q	U					3)	3)			7)		3)
40	**63**	40	70 6	57.5	24	14 25	M6 5)	106	–	–	–	82	56	41.5	9.5	12	10	85	68 6)	105 3	106 80	–	46	140	123	189	244	351	406	95	166	15	26	31
50	**63** **71**	50	86 75	70.5	28	16 30	M6 5)	117	– –	– –	– –	100	67	49	9.5	13	12	100	85 6)	120 3	126 95	–	53	140 160	123 138	189 216	244 278	373 400	428 462	95 112	187 197	22 24	33 40	37 46
63 **64**	**71** **80**	63	102 90	83	32	19 30	M8	145	–	–	–	125	80	58.5	11.5	16	14	100	80	120 3	151 114	–	63	160 200	138 156	216 233	278 302	441 458	503 527	112 121	223 243	37 40	53 66	60 73
80 **81**	**71** **80**	80	132 106	103	38 **(80)** 40 **(81)**	24 36	M10	165	–	–	–	150	100	69.5	14	20	17	130	110	160 3.5	189 135	– –	75	160 200	138 156	216 233	278 302	481 498	543 567	112 121	260 280	60 62	75 88	82 95
100	**80** **90**	100	180 131	130	48	28 42	M12	203	180	122	11	180	125	84.5	16	23	–	165	130	200 3.5	236 165	45	90	200 200	156 176	233 287	302 366	316 670	685 749	121 141	325 325	106 106	132 148	139 161
125 **126**	**90** **100** **112M**	125	225 155	155	60	32 58	M12[8]	249	221	148	15	225	150	99.5	18	28	–	215	180	250 4	287 194	50	106	200 250 250	176 194 218	287 310 336	366 405 435	757 780 806	836 875 905	141 151 163	375 400 400	176 187 187	218 245 265	231 254 273

1) See ch. 3 for motor design.
2) Working length of thread 2 · F.
3) Values valid for brake motor.
4) Prearranged design for worm shaft extension (see ch. 2).
5) Holes turned through 45° with respect to the drawing.
6) Tolerance t8.
7) Values valid for gearmotor without motor.

Mounting positions - direction of rotation - **and oil quantities** [gal]

B3	B6	B7	B8	V5	V6
					

UT.C 699

Size	B3	B6. B7	B8	V5. V6
40	0.11	0.13	0.11	0.11
50	0.16	0.21	0.16	0.16
63, 64	0.32	0.41	0.32	0.32
80, 81	0.45	0.74	0.61	0.48
100	0.63	1.8	1.3	0.95
125,126	1.1	3.4	2.5	1.8

Schemi di grand. 40 ... 81 validi anche per grand. 100 ... 126.

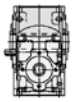
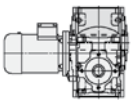
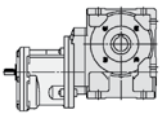
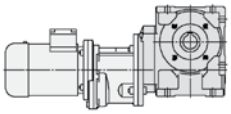
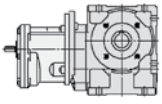
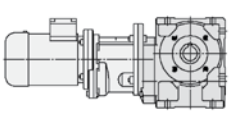
Schemes for sizes 40 ... 81 valid also for sizes 100 ... 126.

Table A - Nominal torques for final gear reducer

n_2 rpm	50/20 M_{N2} lb in	50/20 η	50/20 M_{2max} lb in	63/25 M_{N2} lb in	63/25 η	63/25 M_{2max} lb in	80/25 M_{N2} lb in	80/25 η	80/25 M_{2max} lb in	81/25 M_{N2} lb in	81/25 η	81/25 M_{2max} lb in
11.2	1 800	0.7	3 000	2 800	0.7	5 000	5 600	0.72	9 500	6 700	0.72	10 600
9	1 800	0.68	3 150	3 000	0.69	5 300	5 600	0.71	10 000	6 700	0.71	10 600
4.5	1 900	0.66	3 350	3 350	0.66	6 000	6 300	0.68	11 200	7 100	0.68	11 800
2.24	2 120	0.64	3 550	3 750	0.64	6 300	7 100	0.65	11 800	7 500	0.65	12 500
1.12	2 240	0.62	3 550	4 250	0.62	6 300	7 100	0.63	11 800	8 000	0.63	12 500
0.56	2 240 *	0.6	3 550	4 250	0.6	6 300	7 100 *	0.61	11 800	8 000 *	0.61	12 500
0.28	2 240 **	0.58	3 550	4 250 *	0.58	6 300	7 100 **	0.59	11 800	8 000 **	0.59	12 500
0.14	2 240 **	0.57	3 550	4 250 *	0.57	6 300	7 100 **	0.58	11 800	8 000 **	0.58	12 500
⩽ 0.071	2 240 **	0.55	3 550	4 250 *	0.55	6 300	7 100 **	0.56	11 800	8 000 **	0.56	12 500
M_2 Size [lb in]	**2 240**			**4 250**			**7 100**			**8 000**		

*. **In these cases *fs* required, provided that it always results ⩾ 1, can be reduced of **1.12** (*) or **1.18** (**).

Table B - Types of combined units

Type of combined unit	50	63	80	81
R V + R V  **R V + MR V**  1) i_N ≈ 250 ... 1 600	**R V 50/20** + **R V** or **MR V 32** i_{final} = 20	**R V 63/25** + **R V** or **MR V 32** i_{final} = 25	**R V 80/25** + **R V** or **MR V 40**[5] 5) i = 63 is not admitted. i_{final} = 25	**R V 81/25** + **R V** or **MR V 40**[5] 5) i = 63 is not admitted. i_{final} = 25
MR V + R 2I. 3I  **MR V + MR 2I. 3I**  i_N ≈ 160 ... 4 000	**MR V 50-80B 4 ... B5A/70**[3] + **R 2I** or **MR 2I, 3I 40** i_{final} = 20	**MR V 63-80B 4 ... B5A/56**[3] + **R 2I** or **MR 2I, 3I 40** i_{final} = 25	**MR V 80-90L 4 ... B5/56** + **R 2I, 3I** or **MR 2I, 3I 50**[4] for M_{N2} ⩽ 60 daN m **MR V 80-80B 4 ... B5A/56**[3] + **R 2I** or **MR 2I, 3I 40** i_{final} = 25	**MR V 81-90L 4 ... B5/56** + **R 2I, 3I** or **MR 2I, 3I 50**[4] i_{final} = 25
MR IV + R 2I  **MR IV + MR 2I. 3I**  i_N ≈ 400 ... 10 000	**MR IV 50-71B 4 ... B5A/27.6**[2] + **R 2I** or **MR 2I, 3I 32** design: **shaft end Ø 14** i_{final} = 50.7	**MR IV 63-80B 4 ... B5A/22.1**[3] + **R 2I** or **MR 2I, 3I 40** i_{final} = 63.5	**MR IV 80-80B 4 ... B5A/22.1**[3] + **R 2I** or **MR 2I, 3I 40** i_{final} = 63.5	**MR IV 81-80B 4 ... B5A/22.1**[3] + **R 2I** or **MR 2I, 3I 40** i_{final} = 63.5

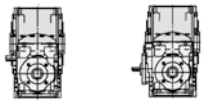
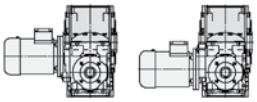
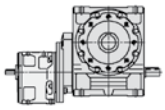
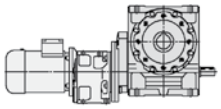
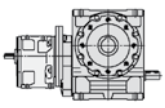
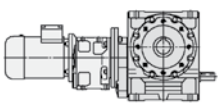
For initial gear reducer performance see: this catalog ch. 7 or 9 for worm gear reducer, i for coaxial gear reducers see cat. E.
1) An anchor link is fitted between initial and final gear reducer.
2) The gearmotor has 5.51 in motor mounting flange.
3) The gearmotor has 6.30 in motor mounting flange.
4) Gear reducer in «oversized B5 flange».

Table A - Nominal torques for final gear reducer

n_2 rpm	Final gear reducer size / *i* worm gear pair								
	100/25			**125**/32			**160**/32		
	M_{N2} lb in	η	M_{2max} lb in	M_{N2} lb in	η	M_{2max} lb in	M_{N2} lb in	η	M_{2max} lb in
11.2	11 200	0.74	19 000	18 000	0.74	30 000	33 500	0.76	56 000
9	11 800	0.73	20 000	18 000	0.73	31 500	35 500	0.75	60 000
4.5	13 200	0.69	22 400	20 000	0.69	37 500	37 500	0.71	71 000
2.24	14 000	0.67	23 600	22 400	0.66	40 000	45 000	0.68	75 000
1.12	14 000	0.65	23 600	25 000	0.64	42 500	45 000	0.65	75 000
0.56	14 000*	0.63	23 600	26 500	0.61	42 500	45 000*	0.63	75 000
0.28	14 000**	0.61	23 600	26 500*	0.6	42 500	45 000**	0.61	75 000
0.14	14 000**	0.59	23 600	26 500*	0.58	42 500	45 000**	0.59	75 000
⩽ 0.071	14 000**	0.57	23 600	26 500*	0.56	42 500	45 000**	0.57	75 000
M_2 Size [lb in]	**50 000**			**90 000**			**170 000**		

*. ** In these cases *f*s required, provided that it always results ⩾ 1, can be reduced of **1.12** (*) or **1.18** (**).

Table B - Types of combined units

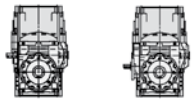
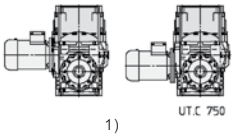
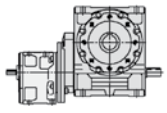
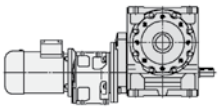
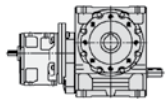
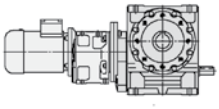
Type of combined unit	Final gear reducer size		
	100	**125**	**160**
R V + R V **R V + R IV**  **R V + MR V** **R V + MR IV**  1)	**R V 100/25** + **R V, IV** or **MR V, IV 50**	**R V 125/32** + **R V, IV** or **MR V, IV 63**	**R V 160/32** + **R V, IV** or **MR V, IV 80**
$i_N \approx 315 \ldots 8\,000$	$i_{final} = 25$	$i_{final} = 32$	$i_{final} = 32$
MR V + R 2I, 3I  **MR V + MR 2I, 3I** 	**MR V 100-100LB 4 ... B5/56** + **R 2I, 3I** or **MR 2I, 3I 63**[4] for $M_{N2} \leqslant 10\,000$ lb in **MR V 100-90L 4 ... B5/56** + **R 2I, 3I** or **MR 2I, 3I 50**[4]	**MR V 125-112M 4 ... B5/43.8** + **R 2I, 3I** or **MR 2I, 3I 63**[4]	**MR V 160-132MB 4 ... B5/43.8** + **R 2I, 3I** or **MR 2I, 3I 80**[4] for $M_{N2} \leqslant 35\,500$ lb in **MR V 160-132MB 4 ... B5A/43.8**[5] + **R 2I, 3I** or **MR 2I, 3I 64**[4] for $M_{N2} \leqslant 315$ daN m **MR V 160-112M 4 ... B5/43.8** + **R 2I, 3I** or **MR 2I, 3I 63**[4]
$i_N \approx 200 \ldots 5\,000$	$i_{final} = 25$	$i_{final} = 32$	$i_{final} = 32$
MR IV + R 2I, 3I  **MR IV + MR 2I, 3I** 	**MR IV 100-90L 4 ... B5/22.1** + **R 2I, 3I** or **MR 2I, 3I 50**[4]	**MR IV 125-112M 4 ... B5/17.3** + **R 2I, 3I** or **MR 2I, 3I 63**[4]	**MR IV 160-112M 4 ... B5/13.8** + **R 2I, 3I** or **MR 2I, 3I 63**[4]
$i_N \approx 500 \ldots 12\,500$	$i_{final} = 63.5$	$i_{final} = 81.1$	$i_{final} = 102$

For initial gear reducer performance see: this catalog ch. 7 or 9 for worm gear reducer, i for coaxial gear reducers see cat. E.
1) An anchor link is fitted between initial and final gear reducer.
4) Gear reducer in «oversized B5 flange» (see ch. 17 cat. E); size 63 has a low speed shaft reduced to 1.10 in: «oversized B5 flange - Ø 1.10».
5) The gearmotor has 9.84 in motor mounting flange. 6) The gearmotor has 11.81 in motor mounting flange. 7) The gearmotor has 13.78 in motor mounting flange.

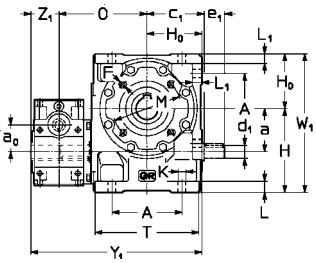
Table A - Nominal torques for final gear reducer

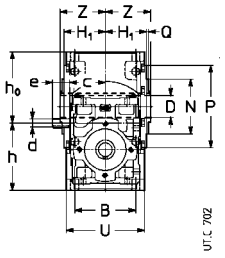
	Final gear reducer size / *i* worm gear pair								
	161/32			**200**/32			**250**/40		
n_2 rpm	M_{N2} lb in	η	M_{2max} lb in	M_{N2} lb in	η	M_{2max} lb in	M_{N2} lb in	η	M_{2max} lb in
11.2	40 000	0.76	60 000	63 000	0.78	106 000	106 000	0.79	1 800 000
9	42 500	0.75	67 000	67 000	0.77	112 000	112 000	0.78	1 800 000
4.5	45 000	0.71	75 000	75 000	0.73	132 000	125 000	0.73	2 240 000
2.24	50 000	0.68	80 000	80 000	0.69	150 000	140 000	0.69	2 500 000
1.12	50 000	0.65	80 000	90 000	0.67	150 000	150 000	0.66	2 650 000
0.56	50 000*	0.63	80 000	90 000*	0.64	150 000	170 000	0.64	2 800 000
0.28	50 000**	0.61	80 000	90 000**	0.63	150 000	170 000*	0.61	2 800 000
0.14	50 000**	0.59	80 000	90 000**	0.61	150 000	170 000**	0.6	2 800 000
⩽ 0.071	50 000**	0.57	80 000	90 000**	0.58	150 000	170 000**	0.57	2 800 000
M_2 Size [daN m]	**50 000**			**90 000**			**170 000**		

Table B - Types of combined units

Type of combined unit	Final gear reducer size		
	161	**200**	**250**
R V + R V R V + R IV  **R V + MR V R V + MR IV**  1)	**R V 161/32** + **R V, IV** or **MR V, IV 80**	**R V 200/32** + **R V, IV** or **MR V, IV 100**	**R V 250/40** + **R V, IV** or **MR V, IV 125**
$i_N \approx 315 \ldots 10\,000$	$i_{final} = 32$	$i_{final} = 32$	$i_{final} = 40$
MR V + R 2I, 3I  **MR V + MR 2I, 3I** 	**MR V 161-132MB 4 ... B5/43.8** + **R 2I, 3I** or **MR 2I, 3I 80**[4] for $M_{N2} \leqslant 35\,500$ lb in **MR V 161-132MB 4 ... B5A/43.8**[5] + **R 2I, 3I** or **MR 2I, 3I 64**[4]	**MR V 200-180L 4 ... B5/43.8** + **R 2I, 3I** or **MR 2I, 3I 100**[4] for $M_{N2} \leqslant 71\,000$ lb in **MR V 200-180L 4 ... B5A/43.8**[6] + **R 2I, 3I** or **MR 2I, 3I 81**[4] for $M_{N2} \leqslant 60\,000$ lb in **MR V 200-132MB 4 ... B5/43.8** + **R 2I, 3I** or **MR 2I, 3I 80**[4]	**MR V 250-200L 4 ... B5A/35**[7] + **R 2I, 3I** or **MR 2I, 3I 101**[4] for $M_{N2} \leqslant 128\,000$ lb in **MR V 250-180L 4 ... B5/35** + **R 2I, 3I** or **MR 2I, 3I 100**[4]
$i_N \approx 200 \ldots 6\,300$	$i_{final} = 32$	$i_{final} = 32$	$i_{final} = 40$
MR IV + R 2I, 3I  **MR IV + MR 2I, 3I** 	**MR IV 161-112M 4 ... B5/13.8** + **R 2I, 3I** or **MR 2I, 3I 63**[4]	**MR IV 200-132MB 4 ... B5/17.1** + **R 2I, 3I** or **MR 2I, 3I 80**[4]	**MR IV 250-180L 4 ... B5/13.7** + **R 2I, 3I** or **MR 2I, 3I 100**[4]
$i_N \approx 500 \ldots 16\,000$	$i_{final} = 102$	$i_{final} = 81.8$	$i_{final} = 102$

Combined unit dimensions [1] (gear reducers) 3.10

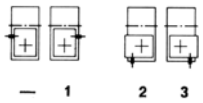


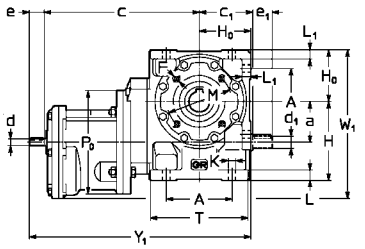


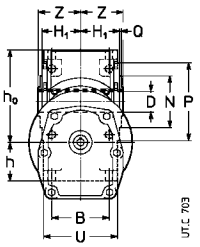
Final gear reducer size

50 ... 81

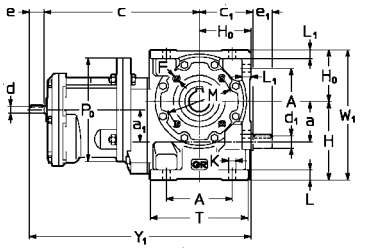
R V ... + R V ... [2]

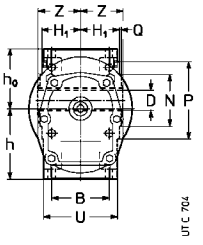






MR V ... + R 2I, 3I ...



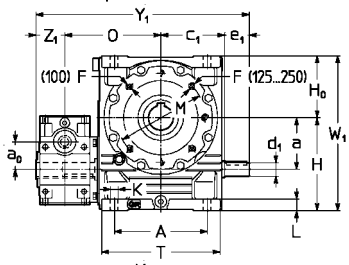


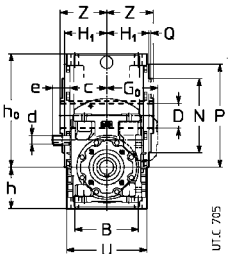
MR IV ... + R 2I ...

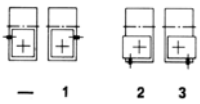
Final gear reducer size

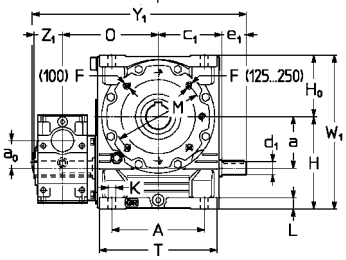
100 ... 250

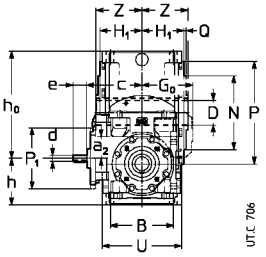
R V ... + R V ... [2]



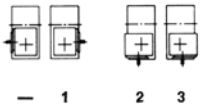


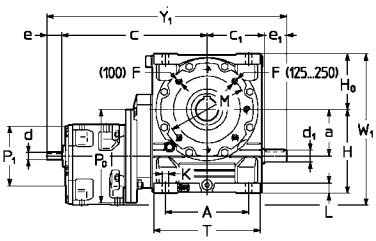


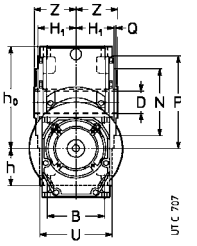




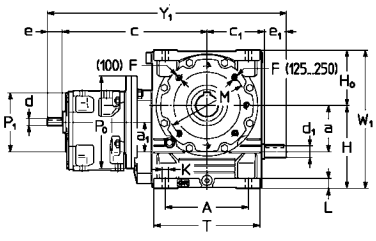
R V ... + R IV ... [2]

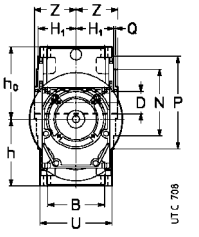






MR V ... + R 2I, 3I ...





MR IV ... + R 2I, 3I ...

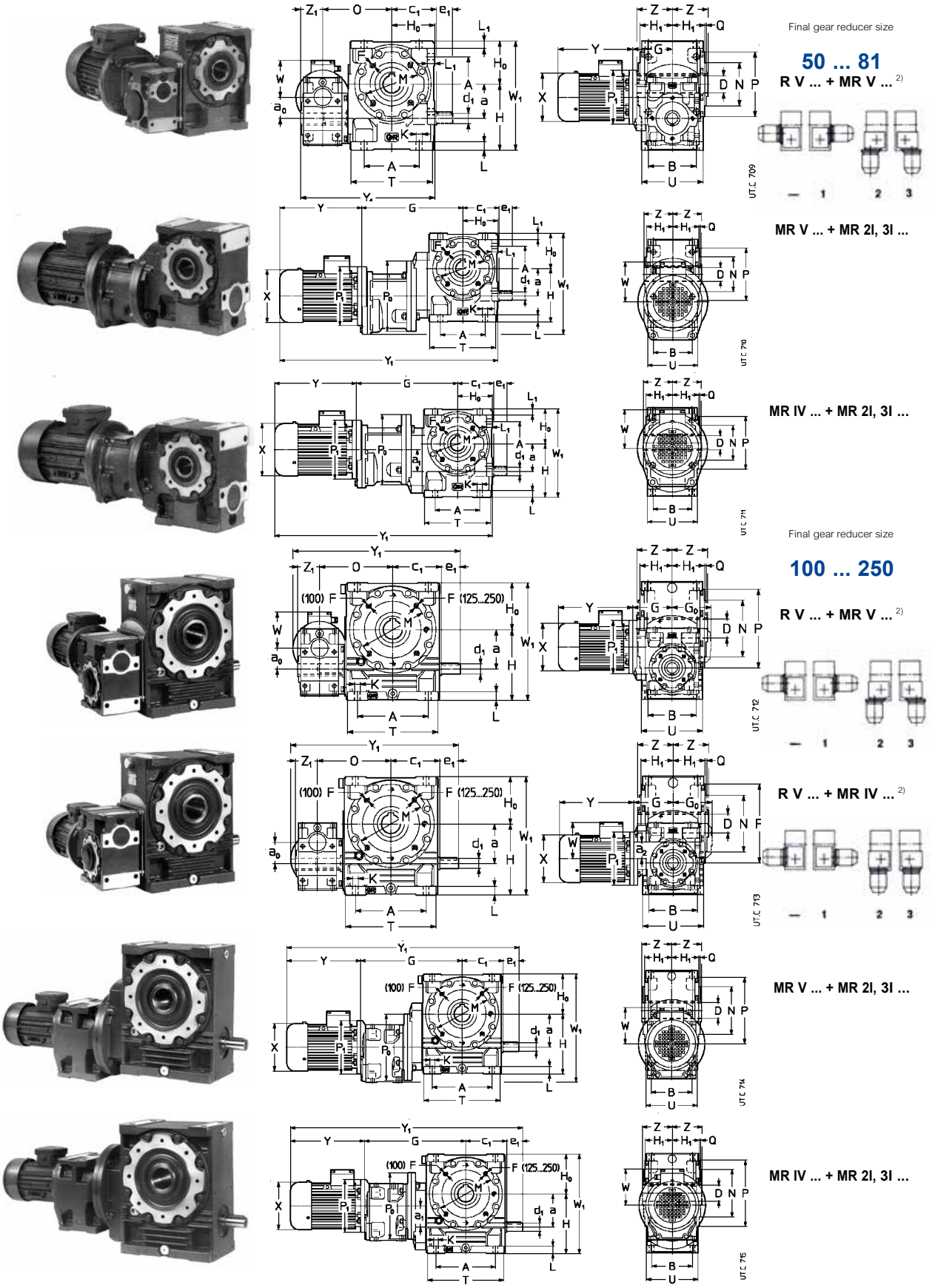
Combined unit dimensions [1] (gear reducers)

Gear reducer size final	Gear reducer size initial	a a_0	a_1 a_2	A B	c	c_1	D Ø H7	d Ø	e	d_1 Ø e_1	F [1]	H h11 H_0 h11	H_1 h12	h h11	h_0 h11	K Ø	L L_1	M Ø	N Ø h6	O ≈ G_0	P Ø Q	P_0 Ø	P_1 Ø	T U	W_1	Y_1	Z Z_1	Mass lb
50 R V	**R V 32**	50	40	86	51	70.5	28	14	25	16	M 6	100	49	82	85	9.5	13	100	85	116	120	–	–	126	167	222	53	26
	MR V R 2I 40	32	–	75	220			11	23	30	2)	67		50	117		12		4)	–	3	160		95	204	310	39	40
	MR IV R 2I 32				191			11	20					90	77							140			167	278		40
63 R V	**R V 32**	63	50	102	51	83	32	14	25	19	M 8	125	58.5	94	111	11.5	16	100	80	129	120	–	–	151	205	248	63	37
	MR V R 2I 40	32	–	90	240			11	23	30		80		62	143		14			–	3	160		114	230	343	39	51
	MR IV R 2I 40				240			11	23					112	93							160			205	343		51
80 R V	**R V 40**	80	50	132	69.5	103	38	16	30	24	M 10	150	69.5	110	140	14	20	130	110	153	160	–	–	189	250	299	75	66
81 MR V	**R 2I 50**	40	–	106	292		**(80)**	14	30	36		100		70	180		17			–	3.5	200	140	135	286	422	46	86
	R 3I 50				292		40	11	23					70	180							200			286	415		86
	R 2I 40				260		**(81)**	11	23					70	180							160	–		267	383		33
	MR IV R 2I 40				260			11	23					120	130							160			250	383		73
100 R V	**R V 50**	100	63	180	70.5	130	48	19	30	28	M 12	180	84.5	130	175	16	23	165	130	187	200	–	140	236	305	412	90	115
	R IV 50	50	40	131	107			11	23	42		125		90	215		–			–	3.5	–		165	305	429	53	119
	MR V R 2I 63 $i_N \leq 12.5$ $i_N \geq 16$				357			19	40					80	225							250	160		357	569		145
					357			16	30					80	225							250			357	559		145
	R 3I 63				357			14	30					80	225							250			357	559		145
	R 2I 50				324			14	30					80	225							200	140		331	526		128
	R 3I 50				324			11	23					80	225							200			331	519		128
	MR IV R 2I 50				324			14	30					143	162							200			305	526		130
	R 3I 50				324			11	23					143	162							200			305	519		130
125 R V	**R V 63**	125	80	225	83	155	60	19	40	32	M 12 [4]	225	99.5	163	212	18	28	215	180	222	250	–	160	287	375	498	106	194
	R IV 63	63	50	155	127			14	30	58		150		113	262		–			–	4	–		194	375	515	63	201
	MR V R 2I 63 $i_N \leq 12.5$ $i_N \geq 16$				392			19	40					100	275							250			407	645		223
					392			16	30					100	275							250			407	635		223
	R 3I 63				392			14	30					100	275							250			407	635		223
	MR IV R 2I 63 $i_N \leq 12.5$ $i_N \geq 16$				392			19	40					180	195							250			375	645		227
					392			16	30					180	195							250			375	635		227
	R 3I 63				392			14	30					180	195							250			375	635		227
160 R V	**R V 80**	160	100	272	103	187	70	24	50	38	M 14 [4]	280	118.5	200	260	22	33	265	230	268	300	–	160	345	460	588	125	339
161	**R IV 80**	80	50	183	147		**(160)**	14	30	58		180		150	310		–			–	4	–		232	460	593	75	346
	MR V R 2I 80 $i_N \leq 12.5$ $i_N \geq 16$				477		75	24	50					120	340							300	200		500	772		392
					477		**(161)**	19	40					120	340							300			500	762		392
	R 3I 80 $i_N \leq 80$ $i_N \geq 100$				477			19	40					120	340							300			500	762		392
					477			16	30					120	340							300			500	752		392
	R 2I 63, 64 $i_N \leq 12.5$ $i_N \geq 16$				434			19	40					120	340							250	160		472	719		353
					434			16	30					120	340							250			472	709		353
	R 3I 63, 64				434			14	30					120	340							250			472	709		353
	MR IV R 2I 63 $i_N \leq 12.5$ $i_N \geq 16$				434			19	40					220	240							250			460	719		359
					434			16	30					220	240							250			460	709		359
	R 3I 63				434			14	30					220	240							250			460	709		359
200 R V	**R V 100**	200	100	342	130	235	90	28	60	48	M 16 [4]	335	137.5	235	325	27	40	300	250	328	350	–	200	431	560	735	150	608
	R IV 100 $i_N \leq 160$ $i_N \geq 200$	100	63	214	181			19	40	82		225		172	388		–			180	5	–		270	560	745	90	619
					181			16	30					172	388							–			560	745		619
	MR V R 2I 100 $i_N \leq 12.5$ $i_N \geq 16$				585			28	60					135	425							350	250		620	962		686
					585			24	50					135	425							350			620	952		686
	R 3I 100 $i_N \leq 80$ $i_N \geq 100$				585			24	50					135	425							350			620	952		686
					585			19	40					135	425							350			620	942		686
	R 2I 80, 81 $i_N \leq 12.5$ $i_N \geq 16$				522			24	50					135	425							300	200		585	889		619
					522			19	40					135	425							300			585	879		619
	R 3I 80, 81 $i_N \leq 80$ $i_N \geq 100$				522			19	40					135	425							300			585	879		619
					522			16	30					135	425							300			585	869		619
	MR IV R 2I 80 $i_N \leq 12.5$ $i_N \geq 16$				522			24	50					235	325							300			560	889		628
					522			19	40					235	325							300			560	879		628
	R 3I 80 $i_N \leq 80$ $i_N \geq 100$				522			19	40					235	325							300			560	879		628
					522			16	30					235	325							300			560	869		628
250 R V	**R V 125**	250	125	425	155	287	110	32	80	55	M 20 [4]	410	163	285	405	33	50	400	350	401	450	–	200	537	690	876	180	1005
	R IV 125 $i_N \leq 160$ $i_N \geq 200$	125	80	250	216			24	50	82	3)	280		205	485		–			221	5	–		320	690	876	106	1005
					216			19	40					205	485							–			690	876		1005
	MR V R 2I 100, 101 $i_N \leq 12.5$ $i_N \geq 16$				640			28	60					160	530							350	250		725	1069		1005
					640			24	50					160	530							350			725	1059		1005
	R 3I 100, 101 $i_N \leq 80$ $i_N \geq 100$				640			24	50					160	530							350			725	1059		1005
					640			19	40					160	530							350			725	1049		1005
	MR IV R 2I 100 $i_N \leq 12.5$ $i_N \geq 16$				640			28	60					285	405							350			690	1069		1038
					640			24	50					285	405							350			690	1059		1038
	R 3I 100 $i_N \leq 80$ $i_N \geq 100$				640			24	50					285	405							350			690	1059		1038
					640			19	40					285	405							350			690	1049		1038

1) Working length of thread 2 · F.
2) Holes turned through 45° with respect to the drawing.
3) Holes turned through 22° 30' with respect to the drawing.
4) Tolerance t8.

Footnotes of page 72
1) See catalogues for design, mounting position and oil quantities of single gear reducers.
2) The coupling position of the initial gear reducer with respect to the final one should be described in detail, though only in the case of **1**, **2** or **3**.
Important: personal safety-guards are the Buyer's responsibility (2006/42/EC).

Combined unit dimensions [1] (gear reducers) 3.10



1) See relevant catalogues for design, mounting position and oil quantities of single gear reducers.
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Important: personal safety-guards are the Buyer's responsibility (2006/42/EC).

Combined unit dimensions [1] (gear reducers)

Gear reducer size final			Gear reducer size initial					a a_0	a_1 a_2	A B	c_1	D Ø H7	d_1 Ø e_1	F 1)	G	H h11 H_0 h11	H_1 h12	K Ø L L_1	M	N Ø h6	O ≈ G_0	P Ø Q	P_0 Ø	P_1 Ø	T Ø U	W_1 Z_1	Z ≈	X Ø ≈	Y ≈ 6)	Y_1 ≈ 6)	w ≈ 6)	Mass lb 7)		6)
50	R	V	MR	V		32	63	50	40	86	70.5	28	16	M6	76	100	49	9.5	100	85	116	120	–	140	126	177	53	123	189	244	253	253	95	29	40	44
	MR	V	MR	2I,	3I	40	63	32	–	75			30	2)	211	67		13		4)	–	3	160	140	95	204	39	123	189	244	467	522	95	40	51	55
							71								211			12					160	160		204		138	216	278	494	556	112	40	55	62
	MR	IV	MR	2I,	3I	32	63								186								140	140		185		123	189	244	442	497	95	35	46	51
63	R	V	MR	V		32	63	63	50	102	83.5	32	19	M8	76	125	58.5	11.5	100	80	129	120	–	140	151	205	63	123	189	244	279	279	95	40	51	55
	MR	V	MR	2I,	3I	40	63	32	–	90			30		231	80		16			–	3	160	140	114	230[5]	39	123	189	244	500	555	95	51	62	66
	MR	IV					71								231			14					160	160		224[5]		138	216	278	527	589	112	51	66	73
80	R	V	MR	V		40	63	80	50	132	103	38	24	M10	87	150	69.5	14	130	110	153	160	–	140	189	250	75	123	189	244	323	323	95	68	79	84
81							71	40	–	106		(80)	36		87	100		20			–	3.5	–	160	135	250	46	138	216	278	333	333	112	68	84	90
	MR	V	MR	2I,	3I	50	63					40			282			17					200	140		286		123	189	244	571	626	95	86	97	101
							71					(81)			282								200	160		286		138	216	278	598	660	112	88	104	110
							80								282								200	200		286		156	233	302	615	684	121	90	117	123
			MR	2I,	3I	40	63								251								160	140		267		123	189	244	540	595	95	73	84	88
							71								251								160	160		267		138	216	278	567	629	112	73	88	95
	MR	IV	MR	2I,	3I	40	63								251								160	140		250		123	189	244	540	595	95	73	84	88
							71								251								160	160		250		138	216	278	567	629	112	73	88	95
100	R	V	MR	V		50	63	100	63	180	130	48	28	M12	98	180	84.5	16	165	130	187	200	–	140	236	305	90	123	189	244	429	429	95	119	130	134
	MR	IV				50	71	50	40	131			42		89	125		23			–	3.5	–	160	165	305	53	138	216	278	439	439	112	121	137	143
							80								98			–					–	200		305		156	233	302	459	459	121	123	150	157
	MR	V	MR	2I,	3I	63	71								347								250	160		357		138	216	278	735	797	112	148	163	170
							80								347								250	200		357		156	233	302	752	821	121	150	176	183
							90								347								250	200		357		176	287	366	806	885	141	150	187	201
			MR	2I,	3I	50	63								314								200	140		331		123	189	244	675	730	95	130	141	146
							71								314								200	160		331		138	216	278	702	764	112	132	148	154
							80								314								200	200		331		156	233	302	719	788	121	134	161	168
	MR	IV	MR	2I,	3I	50	63								314								200	140		305		123	189	244	675	730	95	130	141	146
							71								314								200	160		305		138	216	278	702	764	112	132	148	154
							80								314								200	200		305		156	233	302	719	788	121	134	161	168
125	R	V	MR	V		63	71	125	80	225	155	60	32	M12[8]	118	225	99.5	18	215	180	222	250	–	160	287	375	106	138	216	278	515	515	112	198	214	220
	MR	IV				63	80	63	50	115			58		118	150		28			–	4	–	200	194	375	63	156	233	302	535	535	121	201	227	234
							90								118			–					–	200		375		176	287	366	535	535	141	201	238	251
	MR	V	MR	2I,	3I	63	71								382								250	160		407[5]		138	216	278	811	873	112	227	243	249
	MR	IV					80								382								250	200		375[5]		156	233	302	828	897	121	229	256	262
							90								382								250	200				176	287	366	882	961	141	229	267	280
							100								382								250	250				194	310	405	905	1000	151	234	282	291
160	R	V	MR	V		80	71	160	100	272	187	70	38	M14[8]	138	280	118.5	22	265	230	268	300	–	160	345	460	125	138	216	278	593	593	112	344	359	366
161	MR	IV				80	80	80	50	183		(160)	58		138	180		33			–	4	–	200	232	460	75	156	233	302	613	613	121	346	373	379
							90					75			138			–					–	200		460		176	287	366	613	613	141	346	384	397
							100					(161)			138								–	250		460		194	310	405	638	638	151	351	399	408
	MR	V	MR	2I,	3I	80	80								466								300	200		500		156	233	302	944	1013	121	392	419	425
							90								466								300	200		500		176	287	366	998	1077	141	392	430	443
							100								466								300	250		500		194	310	405	1021	1116	151	395	445	454
							112								466								300	250		500		218	336	435	1047	1146	163	395	472	487
							132								469								300	300		500		257	445	553	1159	1267	194	397	549	569
			MR	2I,	3I	63	71								424								250	160		472		138	216	278	885	947	112	353	368	375
						64	80								424								250	200		472		156	233	302	902	971	121	355	381	388
							90								424								250	200		472		176	287	366	956	1035	141	355	392	406
							100								424								250	250		472		194	310	405	979	1074	151	357	408	417
							112								424								250	250		472		218	336	435	1005	1104	163	357	434	450
	MR	IV	MR	2I,	3I	63	71								424								250	160		460		138	216	278	885	947	112	359	375	381
							80								424								250	200		460		156	233	302	902	971	121	362	388	395
							90								424								250	200		460		176	287	366	956	1035	141	362	399	412
							100								424								250	250		460		194	310	405	979	1074	151	364	414	423
200	R	V	MR	V		100	80	200	100	342	235	90	48	M16[8]	170	335	137.5	27.5	300	250	328	350	–	200	431	560	150	156	233	302	745	745	121	617	644	650
	MR	IV				100	90	100	63	214			82		170	225		40			180	5	–	200	270	560	90	176	287	366	745	745	141	617	655	668
							100								170			–					–	250		560		194	310	405	770	770	151	619	670	679
							112								170								–	250		560		218	336	435	770	770	163	619	697	712
	MR	V	MR	2I,	3I	100	90								574								350	200		620		176	287	366	1178	1257	141	681	723	736
							100								574								350	250		620		194	310	405	1201	1296	151	688	739	747
							112								574								350	250		620		218	336	435	1227	1326	163	688	765	780
							132								574								350	300		620		257	445	553	1336	1444	194	692	844	864
			MR	2I,	3I	80	80								511								300	200		585		156	233	302	1061	1130	121	619	646	653
						81	90								511								300	200		585		176	287	366	1115	1194	141	619	657	670
							100								511								300	250		585		194	310	405	1138	1233	151	622	672	681
							112								511								300	250		585		218	336	435	1164	1263	163	622	699	714
							132								514								300	300		585		257	445	553	1276	1384	194	626	778	798
	MR	IV	MR	2I,	3I	80	80								511								300	200		560		156	233	302	1061	1130	121	628	655	661
							90								511								300	200		560		176	287	366	1115	1194	141	628	666	679
							100								511								300	250		560		194	310	405	1138	1233	151	631	681	690
							112								511								300	250		560		218	336	435	1164	1263	163	631	708	723
250	R	V	MR	V		125	90	250	125	425	287	110	55	M16[8]	205	410	163	33	400	350	401	450	–	200	537	690	180	176	287	366	876	876	141	1019	1060	1074
	MR	IV				125	100	125	80	250			82	3)	205	280		50			221	5	–	250	320	690	106	194	310	405	895	895	151	1025	1076	1085
							112								205			–					–	250		690		218	336	435	895	895	163	1025	1102	1118
							132								205			–					–	300		690		257	445	553	920	920	194	1030	1182	1202
	MR	V	MR	2I,	3I	100	90								629								350	200		725[5]		176	287	366	1285	1364	141	1027	1069	1082
	MR	IV				101	100								629								350	250		690[5]		194	310	405	1308	1403	151	1034	1085	1093
							112								629								350	250				218	336	435	1334	1433	163	1034	1111	1127
							132								629								350	300				257	445	553	1443	1551	194	1038	1190	1210
							160								645								350	350				314	573	640	1587	1654	258	1045	1338	128

1) Working length of thread 2 · F.
2) Holes turned through 45° with respect to the drawing.
3) Holes turned through 22° 30' with respect to the drawing.
4) Tolerance t8.
5) Highest value is valid for **MR V**.
6) Values valid for brake motor.
7) Values valid for gearmotor without motor.

Combined unit dimensions [1] (gear reducers) 3.10

Initial gear reducer or gearmotor mounting position

In order to make easier the individualization of the combined gear reducer and gearmotor mounting position refer to following table where, according to the final gear reducer mounting position and to the initial gear reducer or gearmotor coupling position, the mounting positions of the same initial gear reducer or gearmotor are stated.

Initial **gear reducer** mounting position

Coupling position	Final gear reducer mounting position					
	B3	B6	B7	B8	V5	V6
–	B8	V6	R V … + R V … V5	R V … + R IV … B3	B7	B6
1	B8	V5	R V … + R V … V6	R V … + R IV … B3	B6	B7
2	B7	V6	R V … + R V … V5	R V … + R IV … B6	B3	B8
3	B7	V5	R V … + R V … V6	R V … + R IV … B6	B8	B3
	B5 ≤40 B3 ≥50	V1 ≤40 V5 ≥50	MR V … + R 2I, 3I … V3 ≤40 V6 ≥50	MR IV … + R 2I, 3I … B5 ≤40 B3 ≥50	B5 ≤40 [1] B6 ≥50	B5 ≤40 [1] B7 ≥50

1) Grease quantity is the same foreseen for B3 mounting position of cat. E.
On name plate there is a * in correspondence of mounting position.

Initial **gearmotor** mounting position[2)]

Coupling position	Final gear reducer mounting position					
	B3	B6	B7	B8	V5	V6
–	B8	V6	R V ... + MR V ... V5	R V ... + MR IV ... B3	B7	B6
1	B8	V5	R V ... + MR V ... V6	R V ... + MR IV ... B3	B6	B7
2	B7	V6	R V ... + MR V ... V5	R V ... + MR IV ... B6	B3	B8
3	B7	V5	R V ... + MR V ... V6	R V ... + MR IV ... B6	B8	B3
	B5 ≤40 B3 ≥50	MR V ... + MR 2I, 3I ... V1 ≤40 V5 ≥50 V3 ≤40 V6 ≥50		MR IV ... + MR 2I, 3I ... B5 ≤40 B3 ≥50	B5 ≤40 1) B6 ≥50	B5 ≤40 1) B7 ≥50

1) Grease quantity is the same foreseen for B3 mounting position of cat. E.
On name plate there is a * in correspondence of mounting position.
1) For initial worm gearmotor the motor terminal box position is always in TB3 position see ch. 3.1).

Radial loads[1] F_{r1} [lb] 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:

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

$$F_{r1} = \frac{315\,150 \cdot P_1}{d \cdot n_1}\ [\text{lb}] \qquad \text{for V-belt drive}$$

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 center line of high speed shaft end, i.e. operating at a distance of 0.5 · e (e = shaft end length) from the shoulder. If they operate at 0.315 · e multiply by 1.25; if they operate at 0.8 · e multiply by 0.8.

	Gear reducer size																			
n_1	32		40		50		63, 64		80, 81		100		125, 126		160, 161		200		250	
rpm	R V	R IV	R V	R IV	R V	R IV	R V	R IV	R V	R IV	R V	R IV	R V	R IV	R V	R IV	R V	R IV	R V	R IV
1 800	30	23,6	45	35,5	67	35,5	100	56	150	56	224	90	335	160	500	355	560	355	800	530
1 120	34	27	50	40	75	40	112	63	170	63	250	101	375	180	560	400	630	400	900	600
710	40	32	60	48	90	48	132	75	200	75	300	119	450	212	670	475	750	475	1060	710
355	50	40	75	60	112	60	170	95	250	95	375	151	560	265	850	600	950	600	1320	900

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.

Radial F_{r2} 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. Direction of rotation and direction of force may be established viewing the gear reducer from any point, providing the same point adopted for both.
Wherever possible, choose the load conditions corresponding the column on the **right**.

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 [min^{-1}] multiplied by bearing life L_h [h] required, the direction of rotation, the angular position φ [°] of the load and torque M_2 [daN m] required.

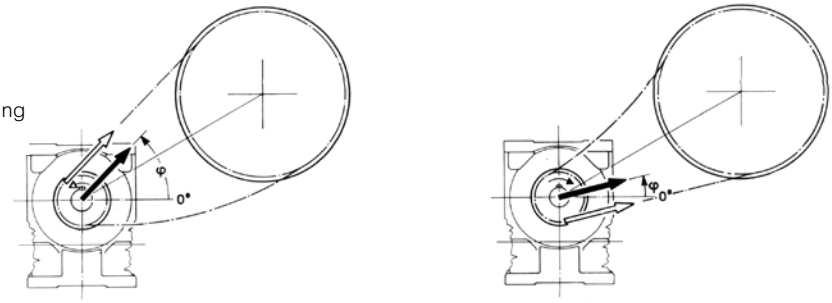
Radial loads given in the table are valid for overhung loads on centre line of low speed shaft end, i.e. operating at a distance of 0,5 · E (E = shaft end length) from the shoulder. If operating at 0,315 · E multiply by 1,25; if operating at 0,8 · E multiply by 0,8.

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

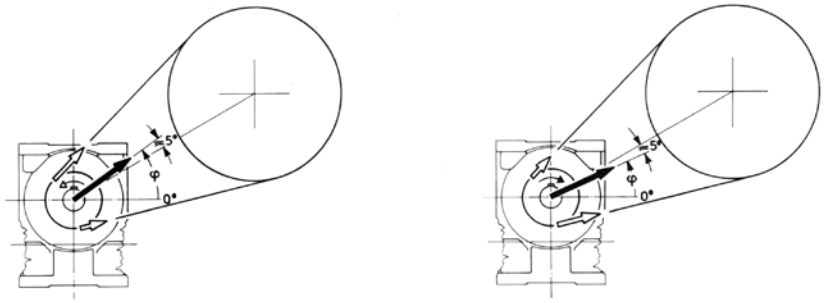
Radial load F_{r2} for most common drives has the following value and angular position:

Rotation

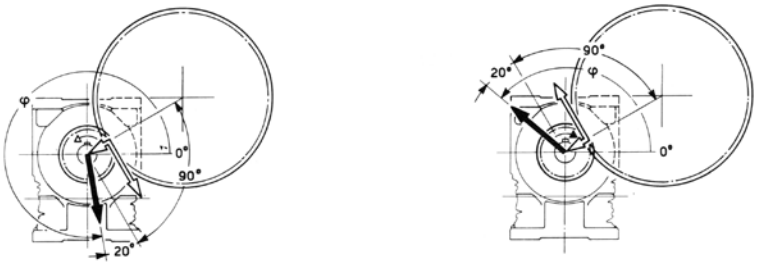
$$F_{r2} = \frac{126\,060 \cdot P_2}{d \cdot n_2}$$ [lb] for chain drive (lifting in general); for timing belt drive replace 126 060 with 189 090



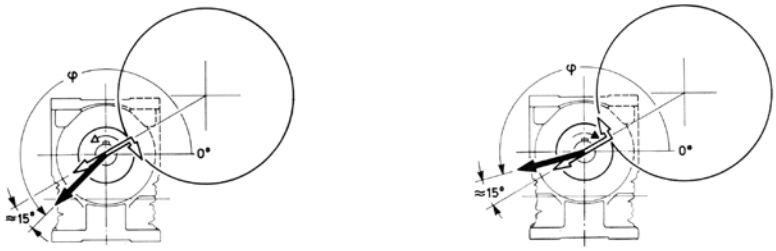
$$F_{r2} = \frac{315\,150 \cdot P_2}{d \cdot n_2}$$ [lb] for V-belt drive



$$F_{r2} = \frac{134\,112 \cdot P_2}{d \cdot n_2}$$ [lb] for spur gear pair drive

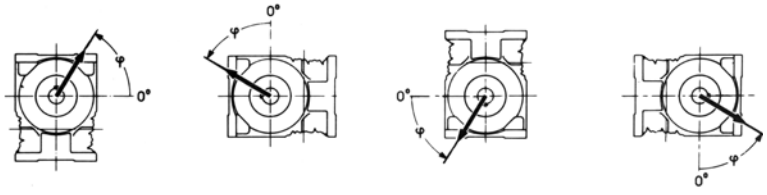


$$F_{r2} = \frac{447\,546 \cdot P_2}{d \cdot n_2}$$ [lb] for friction wheel drive (rubber-on-metal)



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

IMPORTANT: 0° coincides with a half line lying parallel to the worm axis, and oriented as shown above, and therefore it follows the rotation of the worm axis as shown below.



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

size **32**

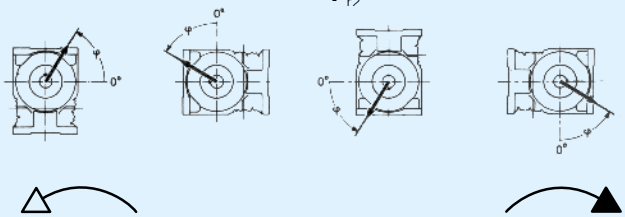
$n_2 \cdot L_h$	T_2	F_{r2} [1) 2)]								F_{a2} [1)]									
rpm h	lb in	0	45	90	135	180	225	270	315	0	45	90	135	180	225	270	315		
355,000	475	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	180	280
710,000	335	315	335	375	400	400	400	400	355	400	400	335	300	315	375	400	400	180	280
	236	335	355	400	400	400	400	400	400	400	400	375	335	335	375	400	400	180	280
900,000	335	280	300	355	400	400	400	375	315	400	400	315	280	280	335	400	400	180	280
	236	315	315	355	400	400	400	375	335	400	400	335	315	315	355	400	400	180	280
	170	335	335	375	400	400	400	375	355	400	400	355	335	335	355	400	400	180	280
1,120,000	236	280	300	335	400	400	400	355	315	400	375	315	280	280	335	375	400	180	250
	170	315	315	335	375	400	400	355	315	400	355	315	300	315	335	375	400	180	265
	118	315	335	355	375	400	375	355	335	400	355	335	315	315	335	375	400	180	265
1,400,000	236	265	265	315	355	400	375	335	280	400	335	280	250	265	300	355	400	180	236
	170	280	300	315	355	375	375	335	300	375	335	300	280	280	315	355	375	180	236
	118	300	300	315	355	355	355	335	315	355	335	315	300	300	315	355	375	180	236
1,800,000	236	236	236	280	335	375	355	315	265	375	315	265	224	236	280	335	375	160	212
	170	250	265	300	335	355	335	315	280	355	315	280	250	250	280	335	355	180	212
	118	265	280	300	315	335	335	315	280	335	315	280	265	265	300	315	335	180	212
2,240,000	236	212	224	265	315	355	335	300	236	355	300	236	200	212	250	315	355	140	190
	170	236	236	265	315	335	315	300	250	335	300	250	224	236	265	315	335	160	190
	118	250	250	280	300	315	315	300	265	315	300	265	250	250	265	300	315	180	200
2,800,000	236	190	200	236	300	335	315	265	212	335	280	212	180	190	224	300	335	125	170
	170	212	224	250	300	315	315	265	236	315	280	224	212	212	236	300	315	140	180
	118	224	236	250	280	300	300	265	236	300	280	236	224	224	250	280	300	160	180
3,550,000	170	190	200	224	265	300	280	250	212	300	250	212	190	190	224	265	300	125	160
	118	212	212	236	265	280	280	250	224	280	250	224	200	212	224	265	280	140	160
		max **400**																max **180**	max **280**

size **40**

224,000	800	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	250	400
450,000	560	450	450	530	560	560	560	560	500	560	560	475	425	450	530	560	560	250	400
	400	475	500	560	560	560	560	560	530	560	560	530	475	475	530	560	560	250	400
560,000	560	400	425	500	560	560	560	560	450	560	560	450	375	400	475	560	560	250	400
	400	450	450	530	560	560	560	560	475	560	560	475	425	450	500	560	560	250	400
	280	475	475	530	560	560	560	560	500	560	560	500	475	475	500	560	560	250	400
710,000	560	355	375	450	560	560	560	500	400	560	530	400	335	355	425	560	560	250	355
	400	400	425	475	560	560	560	500	425	560	530	425	375	400	450	560	560	250	355
	280	425	450	475	530	560	560	500	450	560	530	450	425	425	475	530	560	250	375
900,000	560	315	335	425	530	560	560	475	355	560	475	355	315	315	400	530	560	236	315
	400	355	375	425	500	560	530	475	400	560	475	400	355	355	425	500	560	250	335
	280	400	400	450	500	530	530	475	425	530	475	425	375	375	425	500	530	250	335
1,120,000	400	335	335	400	475	530	500	425	355	530	450	355	315	335	375	475	530	236	300
	280	355	355	400	475	500	475	450	375	500	450	375	355	355	400	475	500	250	315
	200	375	375	425	450	475	475	450	400	475	450	400	375	375	400	450	475	250	315
1,400,000	400	300	315	355	450	500	475	400	335	500	400	335	300	300	355	450	500	212	265
	280	335	335	375	425	475	450	400	355	475	400	355	315	335	355	425	475	236	280
	200	355	355	375	425	450	450	400	355	450	400	355	335	355	375	425	450	250	280
1,800,000	400	265	280	335	425	475	450	375	300	450	375	300	250	265	315	400	475	180	236
	280	300	315	335	400	425	425	375	315	425	375	315	300	300	335	400	450	200	250
	200	315	315	355	400	425	400	375	335	425	375	335	315	315	335	375	425	224	250
2,240,000	400	236	250	315	375	450	425	335	280	425	355	265	236	236	300	375	450	160	212
	280	265	280	315	375	400	400	335	300	400	355	300	265	265	315	375	425	180	224
	200	300	300	335	355	375	375	335	315	375	355	315	280	300	315	355	400	200	224
2,800,000	400	224	224	280	355	425	400	315	250	400	335	250	200	212	265	355	425	132	200
	280	250	250	300	355	375	375	315	265	375	335	265	236	250	280	335	375	160	200
	200	265	280	300	335	355	355	315	280	355	335	280	265	265	300	335	375	180	212
3,550,000	280	224	236	280	335	355	335	300	250	355	300	250	212	224	265	315	355	140	180
	200	236	250	280	315	335	335	300	265	335	300	265	236	236	280	315	335	160	190
	140	265	265	280	315	335	315	300	265	335	300	265	250	265	280	315	335	170	190
		max **560**																max **250**	max **400**

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

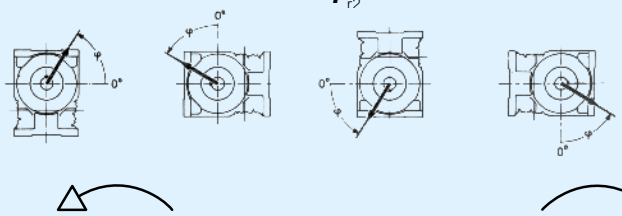
size **50**

$n_2 \cdot L_h$	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		
140,000	2 240	750	800	800	800	800	800	800	800	800	800	800	710	710	800	800	800	355	560
	1 600	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	355	560
	1 120	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	355	560
180,000	1 600	670	710	800	800	800	800	800	750	800	800	750	630	630	800	800	800	355	560
	1 120	750	800	800	800	800	800	800	800	750	800	800	710	750	800	800	800	355	560
	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	355	560
224,000	1 600	600	630	800	800	800	800	800	670	800	800	670	560	560	750	800	800	355	560
	1 120	670	710	800	800	800	800	800	750	800	800	750	670	670	800	800	800	355	560
	800	750	750	800	800	800	800	800	800	800	800	800	710	750	800	800	800	355	560
280,000	1 120	630	630	750	800	800	800	800	710	800	800	670	600	600	750	800	800	355	560
	800	670	710	800	800	800	800	800	750	800	800	750	670	670	750	800	800	355	560
355,000	1 120	560	600	710	800	800	800	800	630	800	800	630	530	560	670	800	800	355	560
	800	630	630	750	800	800	800	800	670	800	800	670	600	630	710	800	800	355	560
	560	670	670	750	800	800	800	800	710	800	800	710	630	670	750	800	800	355	560
450,000	1 120	500	530	630	800	800	800	710	560	800	750	560	475	475	600	800	800	355	530
	800	560	600	670	800	800	800	710	600	800	750	600	530	560	630	800	800	355	560
	560	600	630	710	750	800	800	710	630	800	750	630	600	600	670	750	800	355	560
	400	630	630	710	750	800	800	710	670	800	750	670	630	630	670	750	800	355	560
560,000	1 120	450	475	600	750	800	800	670	500	800	670	500	425	450	560	750	800	335	475
	800	500	530	630	750	800	800	670	560	800	670	560	475	500	600	750	800	355	500
	560	560	560	630	710	750	750	670	600	750	670	600	530	560	630	710	800	355	530
	400	600	600	630	710	750	710	670	630	750	670	630	560	600	630	710	750	355	530
710,000	1 120	400	425	530	710	800	800	600	450	800	630	450	355	375	500	710	800	300	425
	800	450	475	560	710	750	750	630	500	750	630	500	450	450	530	670	800	355	450
	560	500	530	600	670	710	710	630	530	710	630	530	500	500	560	670	750	355	475
	400	530	560	600	670	710	670	630	560	710	630	560	530	530	600	630	710	355	475
900,000	1 120	355	375	500	670	800	710	560	400	750	560	400	315	335	450	630	800	250	375
	800	400	425	530	630	710	670	560	450	710	600	450	375	400	500	630	750	315	400
	560	450	475	530	630	670	630	560	500	670	600	500	450	450	530	630	710	355	425
	400	500	500	560	600	630	630	560	530	630	600	530	475	475	530	600	630	355	425
1,120,000	800	375	375	475	600	670	630	530	425	670	530	400	355	355	450	600	710	265	355
	560	425	425	500	600	630	630	530	450	630	530	450	400	425	475	600	630	315	375
	400	450	450	500	560	600	600	530	475	600	530	475	450	450	500	560	630	335	400
1,400,000	800	335	355	450	560	630	600	475	375	630	500	375	315	315	400	560	670	224	335
	560	375	400	450	560	600	560	500	425	600	500	400	355	375	450	530	600	280	355
	400	400	425	475	530	560	560	500	450	560	500	450	400	400	450	530	560	300	355
1,800,000	800	300	315	400	530	600	560	450	335	600	450	335	280	280	355	500	630	190	300
	560	335	355	425	500	560	530	450	375	560	475	375	335	335	400	500	560	236	315
	400	375	375	425	500	530	500	450	400	530	475	400	355	355	425	500	530	265	315
2,240,000	800	265	280	355	500	560	530	400	315	560	425	300	236	250	335	475	600	170	265
	560	315	315	375	475	530	500	425	335	530	425	335	300	300	355	475	530	212	280
	400	335	355	400	450	500	475	425	355	500	425	355	335	335	375	450	500	236	300
2,800,000	800	236	250	335	450	530	500	375	280	530	400	265	212	224	300	450	560	140	236
	560	280	300	355	450	500	475	375	315	500	400	315	265	280	335	450	500	180	250
	400	315	315	355	425	475	450	375	335	475	400	335	300	315	355	425	475	212	265
	280	335	335	375	425	450	425	400	355	450	400	355	335	335	355	425	450	224	265
3,550,000	560	250	265	315	400	475	450	355	280	450	355	280	236	250	315	400	475	160	224
	400	280	300	335	400	450	425	355	315	425	375	300	265	280	315	400	450	190	236
	280	300	315	335	375	400	400	355	315	400	375	315	300	300	335	375	425	200	236
							max **800**											max **355**	max **560**

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

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

size **63, 64**

$n_2 \cdot L_h$	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		
90,000	4 250	900	950	1 180	1 180	1 180	1 180	1 180	1 060	1 180	1 180	1 000	800	850	1 180	1 180	1 180	530	850
	3 000	1 060	1 120	1 180	1 180	1 180	1 180	1 180	1 180	1 180	1 180	1 180	1 000	1 060	1 180	1 180	1 180	530	850
112,000	3 000	950	1 000	1 180	1 180	1 180	1 180	1 180	1 120	1 180	1 180	1 060	900	950	1 180	1 180	1 180	530	850
	2 120	1 120	1 120	1 180	1 180	1 180	1 180	1 180	1 180	1 180	1 180	1 180	1 060	1 060	1 180	1 180	1 180	530	850
140,000	3 000	850	950	1 180	1 180	1 180	1 180	1 180	1 000	1 180	1 180	950	800	850	1 060	1 180	1 180	530	850
	2 120	1 000	1 060	1 180	1 180	1 180	1 180	1 180	1 120	1 180	1 180	1 060	950	1 000	1 180	1 180	1 180	530	850
	1 500	1 060	1 120	1 180	1 180	1 180	1 180	1 180	1 180	1 180	1 180	1 120	1 060	1 060	1 180	1 180	1 180	530	850
180,000	3 000	750	850	1 060	1 180	1 180	1 180	1 180	900	1 180	1 180	850	710	750	950	1 180	1 180	530	850
	2 120	900	950	1 120	1 180	1 180	1 180	1 180	1 000	1 180	1 180	950	850	900	1 060	1 180	1 180	530	850
	1 500	950	1 000	1 120	1 180	1 180	1 180	1 180	1 060	1 180	1 180	1 060	950	950	1 120	1 180	1 180	530	850
	1 060	1 060	1 060	1 180	1 180	1 180	1 180	1 180	1 120	1 180	1 180	1 120	1 000	1 060	1 120	1 180	1 180	530	850
224,000	3 000	670	750	950	1 180	1 180	1 180	1 060	800	1 180	1 120	750	630	630	900	1 180	1 180	530	850
	2 120	800	850	1 000	1 180	1 180	1 180	1 120	900	1 180	1 120	900	750	800	950	1 180	1 180	530	850
	1 500	900	950	1 060	1 180	1 180	1 180	1 120	950	1 180	1 120	950	850	900	1 000	1 180	1 180	530	850
	1 060	950	1 000	1 060	1 180	1 180	1 180	1 120	1 000	1 180	1 120	1 000	950	950	1 060	1 180	1 180	530	850
280,000	2 120	710	750	950	1 180	1 180	1 180	1 000	850	1 180	1 060	800	670	710	900	1 180	1 180	530	800
	1 500	800	850	1 000	1 120	1 180	1 180	1 060	900	1 180	1 060	900	800	800	950	1 120	1 180	530	850
	1 060	900	900	1 000	1 120	1 180	1 180	1 060	950	1 180	1 060	950	850	900	950	1 120	1 180	530	850
355,000	2 120	630	710	850	1 120	1 180	1 180	950	750	1 180	950	710	600	630	800	1 120	1 180	530	710
	1 500	750	750	900	1 060	1 180	1 120	950	800	1 180	1 000	800	710	710	850	1 060	1 180	530	750
	1 060	800	850	900	1 060	1 120	1 060	950	850	1 120	1 000	850	800	800	900	1 060	1 120	530	800
450,000	2 120	560	630	800	1 060	1 180	1 120	900	670	1 180	900	630	530	560	710	1 000	1 180	450	630
	1 500	670	710	850	1 000	1 120	1 060	900	750	1 120	900	710	630	630	800	1 000	1 120	530	670
	1 060	750	750	850	950	1 060	1 000	900	800	1 000	900	800	710	710	850	950	1 060	530	710
	750	800	800	850	950	1 000	950	900	800	1 000	900	800	750	750	850	950	1 000	530	710
560,000	2 120	530	560	710	950	1 120	1 060	800	600	1 120	850	600	475	500	670	950	1 180	375	600
	1 500	600	630	750	950	1 060	1 000	850	670	1 000	850	670	560	600	710	900	1 060	475	600
	1 060	670	710	800	900	950	950	850	710	950	850	710	630	670	750	900	1 000	530	630
	750	710	750	800	900	950	900	850	750	950	850	750	710	710	800	900	950	530	670
710,000	1 500	530	560	710	900	950	900	750	600	950	800	600	500	530	670	850	1 000	400	560
	1 060	600	630	710	850	900	900	750	670	900	800	630	600	600	710	850	950	475	560
	750	630	670	750	850	850	850	750	710	850	800	670	630	630	710	850	900	500	600
900,000	1 500	475	500	630	800	900	850	710	530	900	710	530	450	475	600	800	950	355	500
	1 060	560	560	670	800	850	850	710	600	850	710	600	530	530	630	800	900	400	500
	750	600	600	670	750	800	800	710	630	800	710	630	560	600	670	750	850	450	530
1,120,000	1 500	425	450	600	750	900	800	630	500	850	670	475	400	425	530	750	900	300	450
	1 060	500	530	630	750	800	750	670	560	800	670	530	475	500	600	710	850	355	475
	750	530	560	630	710	750	750	670	600	750	670	560	530	530	600	710	800	400	475
1,400,000	1 500	375	400	530	710	800	750	600	450	800	630	425	355	355	500	710	850	265	400
	1 060	450	475	560	710	750	710	600	500	750	630	500	425	450	530	670	800	315	425
	750	500	500	600	670	710	710	630	530	710	630	530	475	500	560	670	750	355	425
1,800,000	1 500	335	355	475	670	750	710	530	400	750	560	375	300	315	425	630	800	212	355
	1 060	400	425	530	630	710	670	560	450	710	560	450	375	400	475	630	710	280	375
	750	450	475	530	630	670	630	560	475	670	560	475	425	450	500	630	670	315	375
	530	475	500	530	600	630	630	560	500	630	560	500	475	475	530	600	630	335	400
2,240,000	1 500	300	315	450	630	670	630	500	355	710	530	335	265	280	375	600	750	180	315
	1 060	355	375	475	600	670	630	530	400	670	530	400	335	355	450	600	710	236	335
	750	400	425	500	600	630	600	530	450	630	530	450	400	400	475	560	630	280	355
	530	450	450	500	560	600	600	530	475	600	530	475	425	450	500	560	600	315	355
2,800,000	1 500	265	280	400	600	600	530	450	315	630	475	300	224	236	335	560	670	150	300
	1 060	335	335	425	560	630	600	475	375	630	500	355	315	315	400	560	630	200	315
	750	375	375	450	530	600	560	475	400	600	500	400	355	355	425	530	600	250	315
	530	400	425	475	530	560	530	475	425	560	500	425	400	400	450	530	560	280	335
3,550,000	1 060	300	315	400	530	600	560	450	335	600	450	315	265	280	355	500	630	180	280
	750	335	355	425	500	560	530	450	355	560	450	355	315	335	400	500	560	212	280
	280	355	375	425	475	530	500	450	400	530	450	375	355	355	400	475	530	236	300
							max **1 180**											max **530**	max **850**

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

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

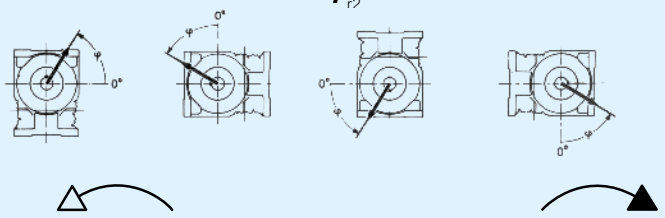
size **80, 81**

$n_2 \cdot L_h$	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		
90,000	7 100	1 250	1 400	1 800	1 800	1 800	1 800	1 800	1 500	1 800	1 800	1 500	1 500	1 250	1 700	1 800	1 800	800	1 250
	5 000	1 600	1 700	1 800	1 800	1 800	1 800	1 800	1 800	1 800	1 800	1 700	1 500	1 500	1 800	1 800	1 800	800	1 250
112,000	5 000	1 400	1 500	1 800	1 800	1 800	1 800	1 800	1 600	1 800	1 800	1 600	1 320	1 400	1 700	1 800	1 800	800	1 250
	3 550	1 600	1 700	1 800	1 800	1 800	1 800	1 800	1 700	1 800	1 800	1 700	1 500	1 600	1 800	1 800	1 800	800	1 250
140,000	5 000	1 250	1 320	1 700	1 800	1 800	1 800	1 800	1 400	1 800	1 800	1 400	1 180	1 250	1 600	1 800	1 800	800	1 250
	3 550	1 400	1 500	1 800	1 800	1 800	1 800	1 800	1 600	1 800	1 800	1 600	1 400	1 400	1 700	1 800	1 800	800	1 250
	2 500	1 600	1 600	1 800	1 800	1 800	1 800	1 800	1 700	1 800	1 800	1 700	1 500	1 600	1 800	1 800	1 800	800	1 250
180,000	5 000	1 120	1 180	1 500	1 800	1 800	1 800	1 700	1 250	1 800	1 800	1 250	1 000	1 060	1 400	1 800	1 800	800	1 250
	3 550	1 250	1 320	1 600	1 800	1 800	1 800	1 700	1 400	1 800	1 800	1 400	1 250	1 250	1 500	1 800	1 800	800	1 250
	2 500	1 400	1 500	1 700	1 800	1 800	1 800	1 700	1 500	1 800	1 800	1 500	1 400	1 400	1 600	1 800	1 800	800	1 250
224,000	5 000	1 000	1 060	1 400	1 800	1 800	1 800	1 600	1 180	1 800	1 600	1 120	900	950	1 250	1 800	1 800	750	1 120
	3 550	1 180	1 250	1 500	1 800	1 800	1 800	1 600	1 250	1 800	1 700	1 250	1 120	1 120	1 400	1 800	1 800	800	1 180
	2 500	1 250	1 320	1 500	1 800	1 800	1 800	1 600	1 400	1 800	1 700	1 400	1 250	1 250	1 500	1 800	1 800	800	1 250
	1 800	1 400	1 400	1 600	1 700	1 800	1 800	1 600	1 500	1 800	1 700	1 400	1 320	1 400	1 500	1 700	1 800	800	1 250
280,000	3 550	1 060	1 120	1 320	1 700	1 800	1 800	1 500	1 180	1 800	1 500	1 180	1 000	1 000	1 250	1 700	1 800	800	1 060
	2 500	1 180	1 250	1 400	1 700	1 800	1 700	1 500	1 250	1 800	1 500	1 250	1 120	1 180	1 320	1 700	1 800	800	1 120
	1 800	1 250	1 320	1 400	1 600	1 700	1 700	1 500	1 320	1 700	1 500	1 320	1 250	1 250	1 400	1 600	1 700	800	1 120
355,000	3 550	950	1 000	1 250	1 600	1 800	1 700	1 320	1 060	1 800	1 400	1 060	900	900	1 180	1 600	1 800	710	950
	2 500	1 060	1 120	1 250	1 500	1 700	1 600	1 400	1 180	1 700	1 400	1 180	1 000	1 060	1 250	1 500	1 700	800	1 000
	1 800	1 180	1 180	1 320	1 500	1 600	1 500	1 400	1 250	1 600	1 400	1 250	1 120	1 120	1 250	1 500	1 600	800	1 000
	1 250	1 250	1 250	1 320	1 500	1 500	1 500	1 400	1 250	1 500	1 400	1 250	1 180	1 250	1 320	1 400	1 500	800	1 060
450,000	3 550	850	900	1 120	1 500	1 700	1 600	1 250	950	1 700	1 250	950	750	800	1 060	1 400	1 800	600	850
	2 500	950	1 000	1 180	1 400	1 600	1 500	1 250	1 060	1 600	1 320	1 060	900	950	1 120	1 400	1 600	710	900
	1 800	1 060	1 120	1 250	1 400	1 500	1 400	1 250	1 120	1 500	1 320	1 120	1 000	1 060	1 180	1 400	1 500	800	950
	1 250	1 120	1 120	1 250	1 320	1 400	1 400	1 250	1 180	1 400	1 320	1 180	1 120	1 120	1 180	1 320	1 400	800	950
560,000	3 550	750	800	1 060	1 400	1 600	1 500	1 180	850	1 600	1 180	850	670	710	950	1 320	1 700	500	800
	2 500	900	900	1 120	1 320	1 500	1 400	1 180	950	1 500	1 180	950	850	850	1 060	1 320	1 500	630	800
	1 800	950	1 000	1 120	1 250	1 400	1 320	1 180	1 060	1 400	1 180	1 000	950	950	1 120	1 250	1 400	710	850
	1 250	1 000	1 060	1 120	1 250	1 320	1 250	1 180	1 060	1 320	1 180	1 060	1 000	1 000	1 120	1 250	1 320	750	850
710,000	3 550	670	710	950	1 250	1 500	1 400	1 060	750	1 500	1 120	750	600	630	850	1 250	1 600	425	710
	2 500	800	850	1 000	1 250	1 400	1 320	1 060	900	1 400	1 120	850	750	750	950	1 250	1 400	560	750
	1 800	900	900	1 060	1 180	1 320	1 250	1 120	950	1 250	1 120	950	850	850	1 000	1 180	1 320	630	750
	1 250	950	950	1 060	1 180	1 250	1 180	1 120	1 000	1 250	1 120	1 000	900	950	1 060	1 180	1 250	670	800
900,000	3 550	560	630	850	1 180	1 400	1 320	950	670	1 400	1 000	630	500	530	750	1 180	1 500	355	630
	2 500	710	750	900	1 180	1 320	1 250	1 000	800	1 250	1 000	800	670	710	850	1 120	1 320	475	670
	1 800	800	850	950	1 120	1 250	1 180	1 000	850	1 180	1 060	850	750	800	900	1 120	1 250	560	670
	1 250	850	900	950	1 120	1 180	1 120	1 000	900	1 180	1 060	900	850	850	950	1 120	1 180	600	710
1,120,000	2 500	630	670	850	1 120	1 250	1 180	950	710	1 250	950	710	600	630	800	1 060	1 250	400	600
	1 800	710	750	900	1 060	1 180	1 120	950	800	1 120	950	800	710	710	800	1 060	1 180	475	630
	1 250	800	800	900	1 000	1 120	1 060	950	850	1 060	950	850	750	800	900	1 000	1 120	530	630
1,400,000	2 500	560	600	800	1 000	1 180	1 120	850	630	1 180	900	630	530	560	710	1 000	1 180	355	530
	1 800	670	710	800	1 000	1 060	1 000	900	710	1 060	900	710	630	630	800	950	1 120	425	560
	1 250	710	750	850	950	1 000	1 000	900	750	1 000	900	750	710	710	800	950	1 060	475	560
1,800,000	2 500	500	530	710	950	1 120	1 000	800	560	1 060	800	560	450	475	630	900	1 120	300	475
	1 800	600	630	750	900	1 000	950	800	630	1 000	800	630	560	560	710	900	1 060	355	500
	1 250	630	670	750	900	950	900	800	710	950	850	710	630	630	750	900	950	425	500
	900	710	710	800	850	900	900	800	750	900	850	710	670	710	750	850	900	450	530
2,240,000	1 800	530	560	670	850	950	900	750	600	950	750	600	500	530	630	850	1 000	315	450
	1 250	600	630	710	850	900	850	750	630	900	750	630	560	600	670	850	900	375	475
	900	630	670	710	800	850	850	750	670	850	750	670	630	630	710	800	850	400	475
2,800,000	1 800	475	500	630	800	900	850	670	530	900	710	530	450	475	600	800	950	280	400
	1 250	530	560	670	800	850	800	710	560	850	710	600	530	530	630	750	850	335	425
	900	600	600	670	750	800	800	710	630	800	710	630	560	600	630	750	800	355	425
3,550,000	1 800	425	450	560	750	850	800	630	475	850	630	475	375	400	530	750	900	236	355
	1 250	475	500	600	710	800	750	630	530	800	670	530	475	475	560	710	800	280	375
	900	530	560	630	670	750	710	630	560	750	670	560	530	530	600	710	750	315	375
							max **1 800**											max **800**	max **1 250**

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

Radial F_{r2} or axial loads F_{a2} [daN] 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		
90,000	14 000	1 500	1 700	2 360	2 800	2 800	2 800	2 650	1 800	2 800	2 800	1 700	1 250	1 400	2 000	2 800	2 800	1 180	2 000
	10 000	1 900	2 000	2 650	2 800	2 800	2 800	2 800	2 240	2 800	2 800	2 120	1 800	1 900	2 240	2 800	2 800	1 250	2 000
112,000	10 000	1 700	1 800	2 360	2 800	2 800	2 800	2 650	2 000	2 800	2 650	1 900	1 600	1 700	2 120	2 800	2 800	1 250	2 000
	7 100	2 000	2 120	2 500	2 800	2 800	2 800	2 650	2 240	2 800	2 800	2 120	1 900	1 900	2 360	2 800	2 800	1 250	2 000
	5 000	2 240	2 240	2 500	2 800	2 800	2 800	2 650	2 360	2 800	2 800	2 360	2 120	2 120	2 500	2 800	2 800	1 250	2 000
	3 550	2 360	2 360	2 650	2 800	2 800	2 800	2 650	2 500	2 800	2 800	2 360	2 240	2 360	2 500	2 800	2 800	1 250	2 000
140,000	10 000	1 500	1 700	2 120	2 800	2 800	2 800	2 360	1 800	2 800	2 500	1 700	1 400	1 400	2 000	2 800	2 800	1 180	1 800
	7 100	1 800	1 900	2 240	2 800	2 800	2 800	2 500	2 000	2 800	2 500	2 000	1 700	1 800	2 120	2 800	2 800	1 250	1 900
	5 000	2 000	2 120	2 360	2 800	2 800	2 800	2 500	2 120	2 800	2 500	2 120	1 900	2 000	2 240	2 800	2 800	1 250	2 000
	3 550	2 120	2 240	2 360	2 650	2 800	2 800	2 500	2 240	2 800	2 500	2 240	2 120	2 120	2 360	2 650	2 800	1 250	2 000
180,000	10 000	1 320	1 400	1 900	2 800	2 800	2 800	2 240	1 600	2 800	2 240	1 500	1 180	1 250	1 800	2 650	2 800	1 000	1 600
	7 100	1 600	1 700	2 120	2 650	2 800	2 800	2 240	1 800	2 800	2 360	1 800	1 500	1 600	1 900	2 650	2 800	1 250	1 700
	5 000	1 800	1 900	2 120	2 500	2 800	2 650	2 240	1 900	2 800	2 360	1 900	1 700	1 800	2 120	2 500	2 800	1 250	1 800
	3 550	1 900	2 000	2 240	2 500	2 650	2 500	2 240	2 000	2 650	2 360	2 000	1 900	1 900	2 120	2 500	2 650	1 250	1 800
224,000	10 000	1 180	1 250	1 800	2 500	2 800	2 650	2 000	1 400	2 800	2 120	1 320	1 000	1 060	1 600	2 500	2 800	850	1 400
	7 100	1 400	1 500	1 900	2 500	2 800	2 650	2 120	1 600	2 800	2 120	1 600	1 320	1 400	1 800	2 360	2 800	1 120	1 500
	5 000	1 700	1 700	2 000	2 360	2 650	2 500	2 120	1 800	2 650	2 240	1 800	1 600	1 600	1 900	2 360	2 650	1 250	1 600
	3 550	1 800	1 800	2 000	2 360	2 500	2 360	2 120	1 900	2 500	2 240	1 900	1 700	1 800	2 000	2 240	2 500	1 250	1 700
280,000	7 100	1 250	1 400	1 800	2 360	2 650	2 500	1 900	1 500	2 650	2 000	1 400	1 180	1 250	1 600	2 240	2 800	950	1 320
	5 000	1 500	1 600	1 800	2 240	2 500	2 360	2 000	1 700	2 360	2 000	1 600	1 400	1 500	1 800	2 240	2 500	1 120	1 400
	3 550	1 600	1 700	1 900	2 120	2 240	2 240	2 000	1 700	2 240	2 000	1 700	1 600	1 600	1 800	2 120	2 360	1 250	1 500
355,000	7 100	1 120	1 250	1 600	2 120	2 500	2 360	1 800	1 320	2 500	1 800	1 250	1 000	1 120	1 400	2 120	2 650	800	1 250
	5 000	1 320	1 400	1 700	2 120	2 240	2 120	1 800	1 500	2 240	1 900	1 500	1 250	1 320	1 600	2 000	2 360	1 000	1 250
	3 550	1 500	1 500	1 800	2 000	2 120	2 120	1 800	1 600	2 120	1 900	1 600	1 400	1 500	1 700	2 000	2 240	1 120	1 320
450,000	7 100	1 000	1 060	1 400	2 000	2 360	2 120	1 600	1 180	2 360	1 700	1 120	900	950	1 250	1 900	2 500	670	1 060
	5 000	1 180	1 250	1 600	1 900	2 120	2 000	1 700	1 320	2 120	1 700	1 320	1 120	1 180	1 500	1 900	2 240	850	1 180
	3 550	1 320	1 400	1 600	1 900	2 000	1 900	1 700	1 400	2 000	1 700	1 400	1 250	1 320	1 500	1 900	2 000	950	1 180
	2 500	1 400	1 500	1 600	1 800	1 900	1 900	1 700	1 500	1 900	1 700	1 500	1 400	1 400	1 600	1 800	1 900	1 060	1 250
560,000	7 100	900	950	1 320	1 900	2 120	2 000	1 500	1 060	2 240	1 500	1 000	800	850	1 180	1 800	2 360	560	1 000
	5 000	1 060	1 180	1 400	1 800	2 000	1 900	1 600	1 250	2 000	1 600	1 180	1 000	1 060	1 320	1 800	2 120	750	1 060
	3 550	1 250	1 250	1 500	1 800	1 900	1 800	1 600	1 320	1 900	1 600	1 320	1 180	1 180	1 400	1 700	1 900	900	1 060
	2 500	1 320	1 320	1 500	1 700	1 800	1 800	1 600	1 400	1 800	1 600	1 400	1 250	1 320	1 500	1 700	1 800	950	1 120
710,000	5 000	950	1 000	1 250	1 700	1 900	1 800	1 400	1 120	1 900	1 500	1 060	900	950	1 180	1 700	2 000	630	950
	3 550	1 120	1 180	1 320	1 600	1 800	1 700	1 400	1 180	1 800	1 500	1 180	1 060	1 060	1 250	1 600	1 800	750	950
	2 500	1 180	1 250	1 400	1 600	1 700	1 600	1 400	1 250	1 700	1 500	1 250	1 180	1 180	1 320	1 600	1 700	850	1 000
900,000	5 000	850	900	1 180	1 600	1 800	1 700	1 250	1 000	1 800	1 320	950	800	850	1 060	1 500	1 900	560	850
	3 550	1 000	1 060	1 250	1 500	1 700	1 600	1 320	1 120	1 700	1 320	1 060	950	950	1 180	1 500	1 700	670	900
	2 500	1 120	1 120	1 250	1 500	1 600	1 500	1 320	1 180	1 600	1 320	1 180	1 060	1 060	1 250	1 400	1 600	750	900
1,120,000	5 000	750	850	1 060	1 500	1 700	1 600	1 180	900	1 700	1 250	850	710	710	1 000	1 400	1 800	475	750
	3 550	900	950	1 120	1 400	1 600	1 500	1 250	1 000	1 600	1 250	1 000	850	900	1 060	1 400	1 600	600	800
	2 500	1 000	1 060	1 180	1 320	1 500	1 400	1 250	1 060	1 500	1 250	1 060	950	1 000	1 120	1 320	1 500	670	850
1,400,000	5 000	670	750	1 000	1 400	1 600	1 500	1 120	800	1 600	1 120	750	600	630	900	1 320	1 700	375	670
	3 550	800	850	1 060	1 320	1 500	1 400	1 120	900	1 500	1 180	900	750	800	1 000	1 320	1 500	500	710
	2 500	900	950	1 120	1 250	1 400	1 320	1 180	1 000	1 400	1 180	1 000	900	900	1 060	1 250	1 400	600	750
1,800,000	5 000	600	630	900	1 250	1 400	1 320	1 000	710	1 500	1 060	670	500	530	800	1 250	1 600	315	600
	3 550	710	750	950	1 250	1 400	1 320	1 060	800	1 400	1 060	800	670	710	900	1 180	1 400	425	630
	2 500	850	850	1 000	1 180	1 250	1 250	1 060	900	1 250	1 120	900	800	800	950	1 180	1 320	530	670
2,240,000	3 550	630	710	900	1 180	1 320	1 250	950	750	1 250	1 000	710	600	630	800	1 120	1 320	375	600
	2 500	750	800	900	1 120	1 250	1 180	1 000	850	1 180	1 000	800	710	750	900	1 120	1 250	450	600
2,800,000	3 550	560	630	800	1 060	1 250	1 180	900	670	1 250	900	630	530	560	750	1 060	1 250	315	530
	2 500	670	710	850	1 060	1 120	1 120	900	750	1 120	950	750	630	670	800	1 000	1 180	400	560
3,550,000	3 550	500	560	710	1 000	1 180	1 120	800	600	1 180	850	560	450	475	670	1 000	1 250	265	475
	2 500	600	630	800	950	1 060	1 000	850	670	1 060	850	670	560	600	750	950	1 120	335	500
							max **2 800**											max **1 250**	max **2 000**

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

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

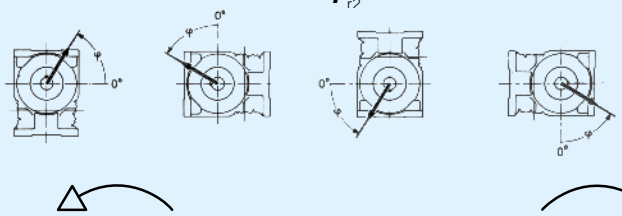
size **100 bis**[3)]

$n_2 \cdot L_h$	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		
280,000	14 000	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	1 250	2 000
	10 000	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	1 250	2 000
355,000	7 100	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	1 250	2 000
	5 000	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	1 250	2 000
450,000	7 100	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	1 250	2 000
	5 000	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	1 250	2 000
560,000	7 100	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	1 250	2 000
	5 000	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	1 250	2 000
710,000	5 000	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	1 250	2 000
	3 550	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	1 250	2 000
900,000	5 000	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	1 250	2 000
	3 550	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	1 250	2 000
1,120,000	5 000	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	1 250	2 000
	3 550	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	1 250	2 000
	2 500	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	1 250	2 000
1,400,000	5 000	2 650	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 650	2 650	2 800	2 800	2 800	1 250	1 900
	3 550	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	1 250	2 000
	2 500	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	1 250	2 000
1,800,000	5 000	2 500	2 650	2 800	2 800	2 800	2 800	2 800	2 650	2 800	2 800	2 650	2 500	2 500	2 800	2 800	2 800	1 250	1 800
	3 550	2 650	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 650	2 650	2 800	2 800	2 800	1 250	1 900
	2 500	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	2 800	1 250	1 900
2,240,000	3 550	2 500	2 500	2 800	2 800	2 800	2 800	2 800	2 650	2 800	2 800	2 650	2 360	2 500	2 650	2 800	2 800	1 250	1 700
	2 500	2 650	2 650	2 800	2 800	2 800	2 800	2 800	2 650	2 800	2 800	2 650	2 500	2 650	2 800	2 800	2 800	1 250	1 800
2,800,000	3 550	2 360	2 360	2 650	2 800	2 800	2 800	2 650	2 360	2 800	2 650	2 360	2 240	2 240	2 500	2 800	2 800	1 250	1 600
	2 500	2 360	2 500	2 650	2 800	2 800	2 800	2 650	2 500	2 800	2 650	2 500	2 360	2 360	2 500	2 800	2 800	1 250	1 700
3,550,000	3 550	2 120	2 240	2 360	2 650	2 800	2 650	2 500	2 240	2 800	2 500	2 240	2 120	2 120	2 360	2 650	2 800	1 250	1 500
	2 500	2 240	2 240	2 360	2 650	2 650	2 650	2 500	2 240	2 650	2 500	2 240	2 240	2 240	2 360	2 650	2 650	1 250	1 500
	1 800	2 240	2 360	2 360	2 500	2 650	2 500	2 500	2 360	2 650	2 500	2 360	2 240	2 240	2 360	2 500	2 650	1 250	1 600
		max **2 800**																max **1 250**	max **2 000**

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.
2) A radial load of up to 0,2 times the value in the table is permissible, simultaneously with the axial load. If exceeded consult us.
3) Values valid for taper roller bearings on low speed shaft (ch. 5).

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

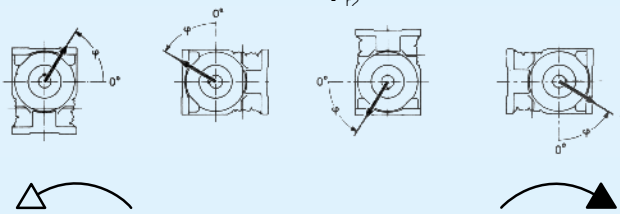
size **125, 126**

$n_2 \cdot L_h$	T_2	F_{r2} [1) 2)]								F_{a2} [1)]	
											
rpm h	lb in	0	45	90	135	180	225	270	315		
90,000	26 500	1 800	1 900	3 000	4 000	4 000	3 550	3 350	2 120	1 400	2 500
	19 000	2 360	2 500	3 150	4 000	4 000	4 000	3 550	2 650	1 800	2 800
112,000	19 000	2 000	2 240	3 000	4 000	4 000	4 000	3 350	2 360	1 700	2 500
	13 200	2 500	2 650	3 150	4 000	4 000	4 000	3 350	2 800	1 800	2 650
140,000	19 000	1 800	2 000	2 650	3 750	4 000	4 000	3 150	2 120	1 400	2 240
	13 200	2 240	2 360	3 000	3 750	4 000	4 000	3 150	2 500	1 800	2 360
	9 500	2 500	2 650	3 000	3 550	3 750	3 750	3 150	2 800	1 800	2 500
180,000	19 000	1 600	1 700	2 360	3 550	3 550	3 350	2 800	1 900	1 180	1 900
	13 200	2 000	2 120	2 650	3 350	4 000	3 550	3 000	2 240	1 600	2 120
	9 500	2 240	2 360	2 800	3 350	3 550	3 350	3 000	2 500	1 800	2 240
	6 700	2 500	2 500	2 800	3 150	3 350	3 350	3 000	2 650	1 800	2 240
224,000	13 200	1 800	1 900	2 360	3 150	3 750	3 350	2 650	2 000	1 320	1 900
	9 500	2 000	2 120	2 500	3 150	3 350	3 350	2 800	2 240	1 600	2 000
	6 700	2 240	2 360	2 650	3 000	3 150	3 150	2 800	2 360	1 800	2 120
280,000	13 200	1 600	1 700	2 240	3 000	3 550	3 350	2 500	1 800	1 180	1 700
	9 500	1 900	2 000	2 360	3 000	3 150	3 150	2 500	2 000	1 400	1 800
	6 700	2 000	2 120	2 360	2 800	3 000	3 000	2 650	2 240	1 600	1 900
	4 750	2 240	2 240	2 500	2 800	3 000	2 800	2 650	2 360	1 800	1 900
355,000	13 200	1 400	1 500	2 000	2 800	3 350	3 150	2 240	1 600	950	1 500
	9 500	1 700	1 800	2 120	2 650	3 000	2 800	2 360	1 900	1 250	1 600
	6 700	1 900	1 900	2 240	2 650	2 800	2 800	2 360	2 000	1 400	1 700
	4 750	2 000	2 120	2 240	2 500	2 650	2 650	2 360	2 120	1 600	1 800
450,000	13 200	1 180	1 320	1 800	2 650	2 800	2 650	2 120	1 400	800	1 320
	9 500	1 500	1 600	2 000	2 500	2 800	2 650	2 120	1 700	1 060	1 400
	6 700	1 700	1 800	2 000	2 500	2 650	2 500	2 240	1 800	1 250	1 500
	4 750	1 800	1 900	2 120	2 360	2 500	2 500	2 240	1 900	1 320	1 600
560,000	13 200	1 060	1 120	1 700	2 500	2 360	2 240	1 900	1 250	670	1 180
	9 500	1 320	1 400	1 800	2 360	2 650	2 500	2 000	1 500	900	1 320
	6 700	1 500	1 600	1 900	2 240	2 500	2 360	2 000	1 700	1 120	1 320
	4 750	1 700	1 700	1 900	2 240	2 360	2 240	2 000	1 800	1 250	1 400
710,000	9 500	1 180	1 250	1 700	2 240	2 500	2 360	1 800	1 320	800	1 180
	6 700	1 400	1 400	1 700	2 120	2 360	2 240	1 900	1 500	950	1 250
	4 750	1 500	1 600	1 800	2 000	2 240	2 120	1 900	1 700	1 060	1 250
900,000	9 500	1 000	1 120	1 500	2 000	2 360	2 240	1 700	1 180	670	1 060
	6 700	1 250	1 320	1 600	2 000	2 240	2 120	1 700	1 400	850	1 120
	4 750	1 400	1 400	1 700	1 900	2 120	2 000	1 800	1 500	950	1 120
1,120,000	9 500	900	1 000	1 320	1 900	2 120	2 000	1 500	1 060	560	950
	6 700	1 120	1 180	1 500	1 900	2 120	2 000	1 600	1 250	710	1 000
	4 750	1 250	1 320	1 500	1 800	1 900	1 900	1 600	1 400	850	1 000
	3 350	1 320	1 400	1 600	1 800	1 900	1 800	1 600	1 400	950	1 060
1,400,000	9 500	800	900	1 250	1 800	1 900	1 800	1 400	950	450	850
	6 700	1 000	1 060	1 320	1 700	2 000	1 900	1 500	1 120	630	900
	4 750	1 120	1 180	1 400	1 700	1 800	1 800	1 500	1 250	750	950
	3 350	1 250	1 250	1 400	1 600	1 700	1 700	1 500	1 320	850	950
1,800,000	6 700	900	950	1 180	1 600	1 900	1 700	1 320	1 000	530	800
	4 750	1 000	1 060	1 250	1 600	1 700	1 700	1 400	1 120	630	850
	3 350	1 120	1 180	1 320	1 500	1 600	1 600	1 400	1 180	710	850
2,240,000	6 700	800	850	1 120	1 500	1 800	1 600	1 250	900	450	710
	4 750	950	1 000	1 180	1 500	1 600	1 500	1 250	1 000	560	750
	3 350	1 000	1 060	1 250	1 400	1 500	1 500	1 250	1 120	630	800
2,800,000	6 700	710	750	1 000	1 400	1 700	1 500	1 120	850	375	670
	4 750	850	900	1 060	1 320	1 500	1 400	1 180	950	475	670
	3 350	950	1 000	1 120	1 320	1 400	1 400	1 180	1 000	560	710
3,550,000	6 700	600	670	900	1 320	1 400	1 320	1 060	710	315	600
	4 750	750	800	1 000	1 250	1 400	1 320	1 060	850	425	600
	3 350	850	900	1 000	1 250	1 320	1 250	1 120	950	500	630
		max **4 000**								max **1 800**	max **2 800**

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

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

size **125 bis**[3], **126 bis**[3]

$n_2 \cdot L_h$	T_2	F_{r2} [1) 2)]								F_{a2} [1)]	
											
rpm h	lb in	0	45	90	135	180	225	270	315		
224,000	26 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	2 000	3 150
	19 000	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	2 000	3 150
280,000	13 200	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	2 000	3 150
	9 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	2 000	3 150
355,000	13 200	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	2 000	3 150
	9 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	2 000	3 150
450,000	13 200	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	2 000	3 150
	9 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	2 000	3 150
560,000	13 200	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	2 000	3 150
	9 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	2 000	3 150
	6 700	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	2 000	3 150
710,000	13 200	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	2 000	3 150
	9 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	2 000	3 150
	6 700	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	2 000	3 150
	4 750	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	2 000	3 150
900,000	9 500	4 250	4 500	4 500	4 500	4 500	4 500	4 500	4 500	2 000	3 150
	6 700	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	2 000	3 150
	4 750	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	2 000	3 150
1,120,000	9 500	4 000	4 250	4 500	4 500	4 500	4 500	4 500	4 250	2 000	3 000
	6 700	4 250	4 250	4 500	4 500	4 500	4 500	4 500	4 500	2 000	3 150
	4 750	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	2 000	3 150
	3 350	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	2 000	3 150
1,400,000	9 500	3 750	3 750	4 250	4 500	4 500	4 500	4 500	4 000	2 000	2 800
	6 700	3 750	4 000	4 250	4 500	4 500	4 500	4 500	4 000	2 000	3 000
	4 750	4 000	4 000	4 250	4 500	4 500	4 500	4 500	4 250	2 000	3 000
	3 350	4 000	4 250	4 500	4 500	4 500	4 500	4 500	4 250	2 000	3 000
1,800,000	9 500	3 350	3 550	4 000	4 500	4 500	4 500	4 000	3 550	2 000	2 650
	6 700	3 550	3 550	4 000	4 250	4 500	4 500	4 000	3 750	2 000	2 650
	4 750	3 750	3 750	4 000	4 250	4 500	4 250	4 000	3 750	2 000	2 800
	3 350	3 750	3 750	4 000	4 250	4 250	4 250	4 000	3 750	2 000	2 800
2,240,000	6 700	3 550	3 550	4 000	4 250	4 500	4 250	4 000	3 550	2 000	2 500
	4 750	3 550	3 750	4 000	4 250	4 250	4 250	4 000	3 750	2 000	2 650
	3 350	3 750	3 750	4 000	4 000	4 250	4 250	4 000	3 750	2 000	2 650
2,800,000	6 700	3 350	3 350	3 550	4 000	4 250	4 000	3 750	3 350	2 000	2 360
	4 750	3 350	3 550	3 750	4 000	4 000	4 000	3 750	3 550	2 000	2 360
	3 350	3 550	3 550	3 750	3 750	4 000	3 750	3 750	3 550	2 000	2 500
3,550,000	6 700	3 000	3 150	3 350	3 750	4 000	3 750	3 550	3 150	1 900	2 240
	4 750	3 150	3 150	3 350	3 550	3 750	3 750	3 550	3 350	2 000	2 240
	3 350	3 350	3 350	3 350	3 550	3 750	3 550	3 550	3 350	2 000	2 240
		max **4 500**								max **2 000**	max **3 150**

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.
2) A radial load of up to 0,2 times the value in the table is permissible, simultaneously with the axial load. If exceeded consult us.
3) Values valid for taper roller bearings on low speed shaft (ch. 5).

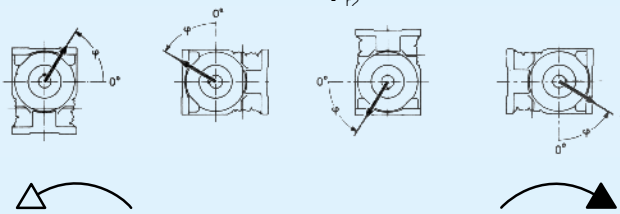
Radial F_{r2} or axial loads F_{a2} [daN] on low speed shaft end 3.12

size **160**

$n_2 \cdot L_h$	T_2	F_{r2} [1) 2)]								F_{a2} [1)]	
rpm h	lb in	0	45	90	135	180	225	270	315		
90,000	45 000	2 240	2 500	3 750	6 000	5 600	5 300	4 750	2 800	1 600	3 000
	31 500	3 150	3 350	4 500	6 000	6 000	6 000	5 000	3 550	2 240	3 350
112,000	31 500	2 800	3 000	4 000	6 000	6 000	6 000	4 500	3 350	1 900	3 000
	22 400	3 350	3 550	4 500	5 600	6 000	6 000	4 750	3 750	2 500	3 150
140,000	31 500	2 360	2 650	3 550	5 300	6 000	6 000	4 250	2 800	1 700	2 650
	22 400	3 000	3 150	4 000	5 300	6 000	5 600	4 500	3 350	2 120	2 800
	16 000	3 350	3 550	4 250	5 000	5 600	5 300	4 500	3 750	2 500	3 000
180,000	31 500	2 000	2 240	3 350	5 000	5 300	5 000	3 750	2 500	1 320	2 360
	22 400	2 650	2 800	3 550	4 750	5 600	5 000	4 000	3 000	1 800	2 500
	16 000	3 150	3 150	3 750	4 750	5 000	4 750	4 000	3 350	2 120	2 650
	11 200	3 350	3 550	4 000	4 500	4 750	4 750	4 000	3 550	2 360	2 800
224,000	31 500	1 800	2 000	3 000	4 750	4 500	4 000	3 550	2 120	1 060	2 120
	22 400	2 360	2 500	3 350	4 500	5 300	4 750	3 750	2 800	1 600	2 240
	16 000	2 800	3 000	3 550	4 250	4 750	4 500	3 750	3 150	1 900	2 360
	11 200	3 150	3 150	3 550	4 250	4 500	4 250	3 750	3 350	2 120	2 500
280,000	22 400	2 120	2 240	3 000	4 250	5 000	4 500	3 350	2 500	1 320	2 000
	16 000	2 500	2 650	3 350	4 000	4 500	4 250	3 550	2 800	1 700	2 120
	11 200	2 800	3 000	3 350	4 000	4 250	4 000	3 550	3 000	1 900	2 240
	8 000	3 000	3 150	3 350	3 750	4 000	4 000	3 550	3 150	2 120	2 360
355,000	22 400	1 800	2 000	2 800	4 000	4 750	4 250	3 150	2 240	1 120	1 800
	16 000	2 240	2 500	3 000	3 750	4 250	4 000	3 150	2 500	1 400	1 900
	11 200	2 500	2 650	3 150	3 550	4 000	3 750	3 350	2 800	1 700	2 000
	8 000	2 800	2 800	3 150	3 550	3 750	3 550	3 350	3 000	1 900	2 120
450,000	22 400	1 600	1 800	2 500	3 550	4 250	3 750	2 800	1 900	900	1 600
	16 000	2 000	2 120	2 650	3 550	4 000	3 750	3 000	2 240	1 250	1 800
	11 200	2 240	2 360	2 800	3 350	3 750	3 550	3 000	2 500	1 500	1 800
	8 000	2 500	2 500	3 000	3 350	3 550	3 350	3 000	2 650	1 600	1 900
560,000	22 400	1 320	1 500	2 240	3 350	3 550	3 350	2 650	1 700	750	1 500
	16 000	1 800	1 900	2 500	3 350	3 750	3 550	2 800	2 000	1 060	1 600
	11 200	2 000	2 120	2 650	3 150	3 550	3 350	2 800	2 240	1 320	1 700
	8 000	2 240	2 360	2 650	3 150	3 350	3 150	2 800	2 360	1 500	1 700
710,000	22 400	1 120	1 250	2 000	3 150	2 800	2 650	2 360	1 500	600	1 320
	16 000	1 600	1 700	2 240	3 150	3 550	3 350	2 500	1 800	900	1 400
	11 200	1 900	2 000	2 360	3 000	3 350	3 150	2 500	2 120	1 120	1 500
	8 000	2 000	2 120	2 500	2 800	3 150	3 000	2 650	2 240	1 250	1 500
900,000	16 000	1 320	1 500	2 000	2 800	3 350	3 150	2 240	1 600	750	1 250
	11 200	1 700	1 800	2 120	2 800	3 150	3 000	2 360	1 900	950	1 320
	8 000	1 900	1 900	2 240	2 650	3 000	2 800	2 360	2 000	1 120	1 320
1,120,000	16 000	1 180	1 320	1 800	2 650	3 150	3 000	2 120	1 400	630	1 120
	11 200	1 500	1 600	2 000	2 650	3 000	2 800	2 240	1 700	850	1 180
	8 000	1 700	1 800	2 120	2 500	2 800	2 650	2 240	1 900	1 000	1 250
	5 600	1 900	1 900	2 120	2 500	2 500	2 500	2 240	2 000	1 120	1 250
1,400,000	16 000	1 000	1 120	1 700	2 500	2 650	2 500	1 900	1 250	500	1 000
	11 200	1 320	1 400	1 800	2 360	2 800	2 650	2 000	1 500	750	1 060
	8 000	1 500	1 600	1 900	2 360	2 500	2 500	2 000	1 700	900	1 120
	5 600	1 700	1 800	2 000	2 240	2 360	2 360	2 000	1 800	1 000	1 180
1,800,000	11 200	1 180	1 250	1 700	2 240	2 650	2 360	1 800	1 320	600	950
	8 000	1 320	1 600	1 800	2 120	2 360	2 240	1 900	1 500	750	1 000
	5 600	1 500	1 600	1 800	2 120	2 240	2 120	1 900	1 700	850	1 060
2,240,000	11 200	1 060	1 120	1 500	2 120	2 500	2 240	1 700	1 250	530	900
	8 000	1 250	1 320	1 600	2 000	2 240	2 120	1 800	1 400	670	900
	5 600	1 400	1 500	1 700	2 000	2 120	2 000	1 800	1 500	750	950
2,800,000	11 200	900	1 000	1 320	2 000	2 360	2 120	1 600	1 060	425	800
	8 000	1 120	1 180	1 500	1 900	2 120	2 000	1 600	1 250	560	850
	5 600	1 250	1 320	1 600	1 800	2 000	1 900	1 700	1 400	670	850
3,550,000	11 200	800	900	1 250	1 800	2 120	1 900	1 400	950	335	710
	8 000	1 000	1 060	1 320	1 800	2 000	1 900	1 500	1 120	475	750
	5 600	1 120	1 180	1 400	1 700	1 900	1 800	1 500	1 250	600	750
		max **6 000**								max **2 500**	max **3 550**

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

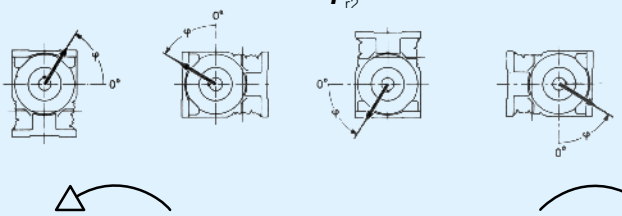
size **161**

$n_2 \cdot L_h$	T_2	F_{r2} [1) 2)]								F_{a2} [1)]	
											
rpm h	lb in	0	45	90	135	180	225	270	315		
180 000	45 000	6 700	6 700	6 700	6 700	6 700	6 700	6 700	6 700	3 000	4 750
	31 500	6 700	6 700	6 700	6 700	6 700	6 700	6 700	6 700	3 000	4 750
224,000	31 500	6 700	6 700	6 700	6 700	6 700	6 700	6 700	6 700	3 000	4 750
	22 400	6 700	6 700	6 700	6 700	6 700	6 700	6 700	6 700	3 000	4 750
280,000	31 500	6 700	6 700	6 700	6 700	6 700	6 700	6 700	6 700	3 000	4 750
	22 400	6 700	6 700	6 700	6 700	6 700	6 700	6 700	6 700	3 000	4 750
355,000	31 500	6 700	6 700	6 700	6 700	6 700	6 700	6 700	6 700	3 000	4 750
	22 400	6 700	6 700	6 700	6 700	6 700	6 700	6 700	6 700	3 000	4 750
450,000	31 500	6 700	6 700	6 700	6 700	6 700	6 700	6 700	6 700	3 000	4 750
	22 400	6 700	6 700	6 700	6 700	6 700	6 700	6 700	6 700	3 000	4 750
560,000	22 400	6 700	6 700	6 700	6 700	6 700	6 700	6 700	6 700	3 000	4 750
	16 000	6 700	6 700	6 700	6 700	6 700	6 700	6 700	6 700	3 000	4 750
	11 200	6 700	6 700	6 700	6 700	6 700	6 700	6 700	6 700	3 000	4 750
710,000	22 400	6 000	6 300	6 700	6 700	6 700	6 700	6 700	6 300	3 000	4 500
	16 000	6 300	6 300	6 700	6 700	6 700	6 700	6 700	6 700	3 000	4 500
	11 200	6 300	6 700	6 700	6 700	6 700	6 700	6 700	6 700	3 000	4 750
	8 000	6 700	6 700	6 700	6 700	6 700	6 700	6 700	6 700	3 000	4 750
900,000	22 400	5 300	5 600	6 300	6 700	6 700	6 700	6 700	5 600	3 000	4 000
	16 000	5 600	6 000	6 300	6 700	6 700	6 700	6 700	6 000	3 000	4 250
	11 200	6 000	6 300	6 700	6 700	6 700	6 700	6 700	6 300	3 000	4 250
	8 000	6 300	6 300	6 700	6 700	6 700	6 700	6 700	6 300	3 000	4 250
1,120,000	16 000	5 300	5 600	6 000	6 700	6 700	6 700	6 300	5 600	3 000	3 750
	11 200	5 600	5 600	6 300	6 700	6 700	6 700	6 300	6 000	3 000	4 000
	8 000	5 600	6 000	6 300	6 300	6 700	6 700	6 300	6 000	3 000	4 000
	5 600	6 000	6 000	6 300	6 300	6 700	6 300	6 300	6 000	3 000	4 000
1,400,000	16 000	5 000	5 000	5 600	6 300	6 700	6 300	6 000	5 300	3 000	3 550
	11 200	5 300	5 300	5 600	6 300	6 300	6 300	6 000	5 300	3 000	3 750
	8 000	5 300	5 600	5 600	6 000	6 300	6 300	6 000	5 600	3 000	3 750
	5 600	5 600	5 600	5 600	6 000	6 000	6 000	6 000	5 600	3 000	3 750
1,800,000	11 200	5 000	5 300	5 600	6 000	6 300	6 300	5 600	5 300	3 000	3 350
	8 000	5 300	5 300	5 600	6 000	6 300	6 000	5 600	5 300	3 000	3 550
	5 600	5 300	5 600	5 600	6 000	6 000	6 000	5 600	5 600	3 000	3 550
2,240,000	11 200	4 750	4 750	5 300	5 600	6 000	6 000	5 300	5 000	2 800	3 150
	8 000	4 750	5 000	5 300	5 600	6 000	5 600	5 300	5 000	3 000	3 350
	5 600	5 000	5 000	5 300	5 600	5 600	5 600	5 300	5 000	3 000	3 350
2,800,000	11 200	4 250	4 500	4 750	5 300	5 600	5 600	5 000	4 500	2 650	3 000
	8 000	4 500	4 750	5 000	5 300	5 600	5 300	5 000	4 750	2 800	3 150
	5 600	4 750	4 750	5 000	5 300	5 300	5 300	5 000	4 750	3 000	3 150
3,550,000	11 200	4 000	4 000	4 500	5 000	5 300	5 000	4 750	4 250	2 360	2 800
	8 000	4 250	4 250	4 500	5 000	5 000	5 000	4 750	4 250	2 650	2 800
	5 600	4 250	4 500	4 500	4 750	5 000	5 000	4 750	4 500	2 650	3 000
		max **6 700**								max **3 000**	max **4 750**

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

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

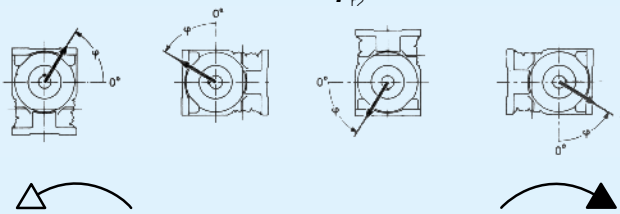
size **200**

$n_2 \cdot L_h$	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		
140,000	90 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	4 500	7 100
	63 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	4 500	7 100
180,000	90 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	4 500	7 100
	63 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	4 500	7 100
	45 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	4 500	7 100
224,000	63 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	4 500	7 100
	45 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	4 500	7 100
	31 500	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	4 500	7 100
280,000	63 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	9 500	10 000	10 000	10 000	10 000	4 500	7 100
	45 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	4 500	7 100
	31 500	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	4 500	7 100
	22 400	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	4 500	7 100
	16 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	4 500	7 100
355,000	45 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	9 500	10 000	10 000	10 000	10 000	4 500	7 100
	31 500	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	4 500	7 100
	22 400	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	4 500	7 100
	16 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	4 500	7 100
450,000	45 000	9 000	9 500	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	9 500	9 000	9 000	10 000	10 000	10 000	4 500	7 100
	31 500	9 500	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	9 500	9 500	10 000	10 000	10 000	4 500	7 100
	22 400	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	4 500	7 100
	16 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	4 500	7 100
560,000	45 000	8 500	9 000	10 000	10 000	10 000	10 000	10 000	9 000	10 000	10 000	9 000	8 000	8 500	9 500	10 000	10 000	4 500	6 700
	31 500	9 000	9 500	10 000	10 000	10 000	10 000	10 000	9 500	10 000	10 000	9 500	9 000	9 000	10 000	10 000	10 000	4 500	6 700
	22 400	9 500	9 500	10 000	10 000	10 000	10 000	10 000	9 500	10 000	10 000	9 500	9 000	9 500	10 000	10 000	10 000	4 500	7 100
	16 000	9 500	9 500	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	9 500	9 500	9 500	10 000	10 000	10 000	4 500	7 100
	11 200	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	9 500	10 000	10 000	10 000	10 000	4 500	7 100
710,000	45 000	7 500	8 000	9 500	10 000	10 000	10 000	9 500	8 500	10 000	9 500	8 000	7 500	7 500	9 000	10 000	10 000	4 500	6 000
	31 500	9 000	8 500	9 500	10 000	10 000	10 000	9 500	8 500	10 000	9 500	8 500	8 000	8 500	9 000	10 000	10 000	4 500	6 300
	22 400	9 000	9 000	9 500	10 000	10 000	10 000	9 500	9 000	10 000	9 500	9 000	8 500	8 500	9 500	10 000	10 000	4 500	6 700
	16 000	9 000	9 000	9 500	10 000	10 000	10 000	9 500	9 000	10 000	9 500	9 000	9 000	9 000	9 500	10 000	10 000	4 500	6 700
	11 200	9 000	9 500	9 500	10 000	10 000	10 000	9 500	9 500	10 000	9 500	9 500	9 000	9 000	9 500	10 000	10 000	4 500	6 700
900,000	31 500	7 500	8 000	9 000	9 500	10 000	10 000	9 000	8 000	10 000	9 000	8 000	7 500	7 500	8 500	9 500	10 000	4 500	6 000
	22 400	8 000	8 500	9 000	9 500	10 000	9 500	9 000	8 500	10 000	9 000	8 500	8 000	8 000	9 000	9 500	10 000	4 500	6 000
	16 000	8 500	8 500	9 000	9 500	9 500	9 500	9 000	8 500	9 500	9 000	8 500	8 000	8 500	9 000	9 500	9 500	4 500	6 300
	11 200	8 500	8 500	9 000	9 500	9 500	9 500	9 000	8 500	9 500	9 000	8 500	8 500	8 500	9 000	9 500	9 500	4 500	6 300
1,120,000	31 500	7 100	7 500	8 500	9 000	9 500	9 500	8 500	7 500	9 500	8 500	7 500	6 700	7 100	8 000	9 000	10 000	4 500	5 600
	22 400	7 500	7 500	8 500	9 000	9 500	9 000	8 500	7 500	9 500	8 500	7 500	7 100	7 500	8 000	9 000	9 500	4 500	5 600
	16 000	7 500	8 000	8 500	9 000	9 000	9 000	8 500	8 000	9 000	8 500	8 000	7 500	7 500	8 000	9 000	9 000	4 500	5 600
	11 200	8 000	8 000	8 500	9 000	9 000	9 000	8 500	8 000	9 000	8 500	8 000	8 000	8 000	8 500	9 000	9 000	4 500	6 000
1,400,000	31 500	6 700	6 700	7 500	9 000	9 000	9 000	8 000	6 700	9 000	8 000	6 700	6 300	6 300	7 500	8 500	9 500	4 250	5 000
	22 400	6 700	7 100	8 000	8 500	9 000	8 500	8 000	7 100	9 000	8 000	7 100	6 700	6 700	7 500	8 500	9 000	4 500	5 300
	16 000	7 100	7 500	8 000	8 500	8 500	8 500	8 000	7 500	8 500	8 000	7 500	7 100	7 100	7 500	8 500	8 500	4 500	5 300
	11 200	7 500	7 500	8 000	8 000	8 500	8 000	8 000	7 500	8 500	8 000	7 500	7 100	7 500	7 500	8 000	8 500	4 500	5 300
1,800,000	31 500	6 000	6 300	7 100	8 000	8 500	8 000	7 100	6 300	8 500	7 500	6 300	5 600	6 000	6 700	8 000	9 000	3 750	4 750
	22 400	6 300	6 700	7 100	8 000	8 000	8 000	7 100	6 700	8 000	7 500	6 700	6 300	6 300	7 100	8 000	8 500	4 250	4 750
	16 000	6 700	6 700	7 100	7 500	8 000	7 500	7 100	6 700	8 000	7 500	6 700	6 300	6 700	7 100	7 500	8 000	4 500	5 000
	11 200	6 700	6 700	7 100	7 500	7 500	7 500	7 100	7 100	7 500	7 500	6 700	6 700	6 700	7 100	7 500	8 000	4 500	5 000
2,240,000	22 400	6 000	6 000	6 700	7 500	7 500	7 500	6 700	6 300	7 500	6 700	6 000	5 600	6 000	6 700	7 500	8 000	4 000	4 500
	16 000	6 300	6 300	6 700	7 100	7 500	7 100	6 700	6 300	7 500	6 700	6 300	6 000	6 000	6 700	7 100	7 500	4 250	4 500
	11 200	6 300	6 300	6 700	7 100	7 100	7 100	6 700	6 300	7 100	6 700	6 300	6 300	6 300	6 700	7 100	7 500	4 500	4 750
2,800,000	22 400	5 300	5 600	6 300	7 100	7 500	7 100	6 300	5 600	7 100	6 300	5 600	5 300	5 300	6 000	7 100	7 500	3 550	4 250
	16 000	5 600	6 000	6 300	6 700	7 100	6 700	6 300	6 000	7 100	6 300	6 000	5 600	5 600	6 300	6 700	7 100	3 750	4 250
	11 200	6 000	6 000	6 300	6 700	6 700	6 700	6 300	6 000	6 700	6 300	6 000	6 000	6 000	6 300	6 700	6 700	4 000	4 250
3,550,000	22 400	5 000	5 300	6 000	6 700	6 700	6 700	6 000	5 300	6 700	6 000	5 300	4 750	5 000	5 300	6 700	7 100	3 350	3 750
	16 000	5 300	5 300	6 000	6 300	6 700	6 300	6 000	5 300	6 700	6 000	5 300	5 000	5 300	5 600	6 300	6 700	3 550	4 000
	11 200	5 300	5 600	6 000	6 300	6 300	6 300	6 000	5 600	6 300	6 000	5 600	5 300	5 300	6 000	6 300	6 700	3 750	4 000
		max **10 000**																**4 500**	max **7 100**

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

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

size **250**

$n_2 \cdot L_h$	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		
180,000	170 000	11 200	12 500	14 000	14 000	14 000	14 000	14 000	13 200	14 000	14 000	12 500	10 000	10 600	14 000	14 000	14 000	3 150	6 700
	118 000	13 200	14 000	14 000	14 000	14 000	14 000	14 000	14 000	14 000	14 000	14 000	12 500	13 200	14 000	14 000	14 000	4 500	6 700
224,000	118 000	11 800	13 200	14 000	14 000	14 000	14 000	14 000	13 200	14 000	14 000	13 200	11 200	11 800	14 000	14 000	14 000	4 000	6 300
	85 000	13 200	14 000	14 000	14 000	14 000	14 000	14 000	14 000	14 000	14 000	14 000	13 200	13 200	14 000	14 000	14 000	5 000	6 700
280,000	118 000	11 200	11 800	14 000	14 000	14 000	14 000	14 000	12 500	14 000	14 000	11 800	10 000	10 600	13 200	14 000	14 000	3 550	6 000
	85 000	12 500	13 200	14 000	14 000	14 000	14 000	14 000	13 200	14 000	14 000	13 200	11 800	12 500	14 000	14 000	14 000	4 500	6 300
	60 000	13 200	14 000	14 000	14 000	14 000	14 000	14 000	14 000	14 000	14 000	14 000	13 200	13 200	14 000	14 000	14 000	5 300	6 300
355,000	85 000	11 200	11 800	14 000	14 000	14 000	14 000	14 000	12 500	14 000	14 000	11 800	10 600	11 200	13 200	14 000	14 000	4 000	5 600
	60 000	12 500	12 500	14 000	14 000	14 000	14 000	14 000	13 200	14 000	14 000	13 200	11 800	13 200	14 000	14 000	14 000	4 750	6 000
	42 500	13 200	13 200	14 000	14 000	14 000	14 000	14 000	13 200	14 000	14 000	13 200	12 500	13 200	14 000	14 000	14 000	5 300	6 000
450,000	85 000	10 000	10 600	12 500	14 000	14 000	14 000	14 000	11 200	14 000	14 000	11 200	9 500	10 000	12 500	14 000	14 000	3 550	5 300
	60 000	11 200	11 800	13 200	14 000	14 000	14 000	14 000	11 800	14 000	14 000	11 800	10 600	11 200	13 200	14 000	14 000	4 250	5 600
	42 500	11 800	12 500	13 200	14 000	14 000	14 000	13 200	12 500	14 000	14 000	12 500	11 800	11 800	13 200	14 000	14 000	4 750	5 600
560,000	85 000	9 500	10 000	11 800	14 000	14 000	14 000	12 500	10 600	14 000	13 200	10 000	9 000	9 500	11 200	14 000	14 000	3 350	5 000
	60 000	10 600	10 600	12 500	14 000	14 000	14 000	12 500	11 200	14 000	13 200	11 200	10 000	10 000	11 800	14 000	14 000	3 750	5 000
	42 500	11 200	11 200	12 500	13 200	14 000	14 000	12 500	11 800	14 000	13 200	11 800	10 600	11 200	12 500	13 200	14 000	4 250	5 300
	30 000	11 800	11 800	12 500	13 200	14 000	13 200	12 500	11 800	14 000	13 200	11 800	11 200	11 800	12 500	13 200	14 000	4 750	5 300
710,000	85 000	8 500	9 000	11 200	13 200	14 000	14 000	11 800	9 500	14 000	11 800	9 500	8 000	8 500	10 600	13 200	14 000	2 800	4 500
	60 000	9 500	10 000	11 200	13 200	14 000	13 200	11 800	10 000	14 000	12 500	10 000	9 000	9 500	11 200	13 200	14 000	3 550	4 750
	42 500	10 000	10 600	11 800	13 200	13 200	13 200	11 800	10 600	13 200	11 800	10 600	10 000	10 000	11 200	12 500	14 000	4 000	4 750
	30 000	10 600	11 200	11 800	12 500	13 200	13 200	11 800	11 200	13 200	11 800	11 200	10 600	10 600	11 800	12 500	13 200	4 250	5 000
900,000	60 000	9 000	9 000	10 600	12 500	13 200	13 200	11 200	9 500	13 200	11 200	9 500	8 500	8 500	10 000	12 500	14 000	3 150	4 250
	42 500	9 500	9 500	10 600	11 800	12 500	12 500	11 200	10 000	12 500	11 200	10 000	9 000	9 500	10 600	11 800	13 200	3 550	4 500
	30 000	10 000	10 000	10 600	11 800	12 500	11 800	11 200	10 000	12 500	11 200	10 000	9 500	10 000	10 600	11 800	12 500	4 000	4 500
1,120,000	60 000	8 000	8 500	10 000	11 800	12 500	11 800	10 600	9 000	12 500	10 600	8 500	7 500	8 000	9 500	11 800	13 200	2 800	4 000
	42 500	9 000	9 000	10 000	11 200	11 800	11 800	10 600	9 500	11 800	10 600	9 000	8 500	9 000	9 500	11 200	12 500	3 350	4 250
	30 000	9 000	9 500	10 000	11 200	11 800	11 200	10 600	9 500	11 800	10 600	9 500	9 000	9 000	10 000	11 200	11 800	3 550	4 250
1,400,000	60 000	7 500	8 000	9 000	11 200	11 800	11 200	9 500	8 000	11 800	10 000	8 000	7 100	7 100	9 000	10 600	12 500	2 650	3 750
	42 500	8 000	8 500	9 500	10 600	11 200	11 200	9 500	8 500	11 200	10 000	8 500	8 000	8 000	9 000	10 600	11 800	3 150	3 750
	30 000	8 500	9 000	9 500	10 600	10 600	10 600	9 500	9 000	10 600	10 000	9 000	8 500	8 500	9 500	10 600	11 200	3 350	4 000
1,800,000	60 000	6 700	7 100	8 500	10 000	11 200	10 600	9 000	7 500	11 200	9 000	7 100	6 300	6 700	8 000	10 000	11 800	2 240	3 350
	42 500	7 500	7 500	9 000	10 000	10 600	10 000	9 000	8 000	10 600	9 500	8 000	7 100	7 500	8 500	10 000	11 200	2 800	3 550
	30 000	8 000	8 000	9 000	9 500	10 000	10 000	9 000	8 500	10 000	9 500	8 500	7 500	8 000	8 500	9 500	10 600	3 150	3 550
2,240,000	42 500	6 700	7 100	8 000	9 500	10 000	9 500	8 500	7 500	10 000	9 000	7 100	6 700	6 700	8 000	9 500	10 600	2 500	3 350
	30 000	7 100	7 500	8 500	9 000	9 500	9 500	8 500	7 500	9 500	8 500	7 500	7 100	7 100	8 000	9 000	10 000	2 800	3 350
		max **14 000**																max **5 300**	max **6 700**

Values valid for **solid** low speed shaft (see ch. 5).

size **250 bis**

180 000	170 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	7 100	11 200
224,000	118 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	7 100	11 200
280,000	118 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	7 100	11 200
355,000	85 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	7 100	11 200
450,000	85 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	7 100	11 200
560,000	85 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	15 000	16 000	16 000	16 000	16 000	7 100	10 000
710,000	85 000	15 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	14 000	15 000	16 000	16 000	16 000	7 100	9 500
	60 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	7 100	10 000
900,000	85 000	15 000	15 000	16 000	16 000	16 000	16 000	16 000	15 000	16 000	16 000	15 000	14 000	15 000	16 000	16 000	16 000	7 100	9 000
	60 000	15 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	15 000	15 000	16 000	16 000	16 000	7 100	9 500
1,120,000	60 000	13 200	14 000	16 000	16 000	16 000	16 000	16 000	14 000	16 000	16 000	14 000	13 200	13 200	15 000	16 000	16 000	6 700	8 500
	42 500	14 000	15 000	16 000	16 000	16 000	16 000	16 000	15 000	16 000	16 000	15 000	14 000	14 000	15 000	16 000	16 000	7 100	9 000
	30 000	15 000	15 000	16 000	16 000	16 000	16 000	16 000	15 000	16 000	16 000	15 000	15 000	15 000	16 000	16 000	16 000	7 100	9 000
1,400,000	60 000	12 500	13 200	14 000	16 000	16 000	16 000	15 000	13 200	16 000	15 000	13 200	11 800	12 500	14 000	16 000	16 000	6 300	8 000
	42 500	13 200	13 200	15 000	16 000	16 000	16 000	15 000	13 200	16 000	15 000	13 200	13 200	13 200	14 000	16 000	16 000	7 100	8 000
	30 000	13 200	14 000	15 000	16 000	16 000	16 000	15 000	14 000	16 000	15 000	14 000	13 200	13 200	14 000	16 000	16 000	7 100	8 500
1,800,000	60 000	11 200	11 800	13 200	15 000	16 000	15 000	13 200	11 800	16 000	14 000	11 800	11 200	11 200	13 200	15 000	16 000	6 000	7 100
	42 500	11 800	12 500	13 200	15 000	15 000	15 000	13 200	12 500	15 000	14 000	12 500	11 800	11 800	13 200	15 000	16 000	6 700	7 500
	30 000	12 500	12 500	13 200	14 000	15 000	15 000	13 200	13 200	15 000	14 000	13 200	12 500	12 500	13 200	14 000	15 000	7 100	7 500
2,240,000	42 500	11 200	11 800	12 500	14 000	14 000	14 000	12 500	11 800	14 000	13 200	11 800	11 200	11 200	12 500	13 200	15 000	6 000	7 100
	30 000	11 800	11 800	12 500	13 200	14 000	13 200	12 500	11 800	14 000	13 200	11 800	11 800	11 800	12 500	13 200	14 000	6 700	7 100
		max **16 000**																max **7 100**	max **11 200**

Worm gear pair

Number of teeth – wormwheel z_2 and worm z_1, axial module m_x, reference lead angle γ_m, static efficiency η_s and worm gear pair moment of inertia J_1 for gear reducers and gearmotors **R V**, **R IV**, **MR V**, **MR IV**, **MR 2IV**.

In the case of **R IV**, **MR IV** and **MR 2IV** gear reducers and gearmotors, the moment of inertia on the high speed shaft (disregarding motor) is that of the worm divided by the cylindrical gear pair total ratio squared.

		Gear reducer size									
i		**32**	**40**	**50**	**63, 64**	**80, 81**	**100**	**125, 126**	**160, 161**	**200**	**250**
7	z_2/z_1	21/3	21/3	21/3	28/4	28/4					
	m_x	2,2	2,8	3,4	3,5	4,5					
	γ_m	22° 29'	22° 29'	22° 35'	28° 35'	28° 30'	–	–	–	–	–
	η_s	0,71	0,71	0,71	0,74	0,74					
10	z_2/z_1	20/2	20/2	20/2	30/3	30/3	30/3	30/3	30/3		
	m_x	2,3	2,8	3,5	3,3	4,2	5,3	6,6	8,6		
	γ_m	15° 10'	15° 10'	15° 7'	19° 52'	20° 28'	21° 20'	21° 53'	23° 1'	–	–
	η_s	0,65	0,65	0,65	0,69	0,7	0,7	0,7	0,72		
13	z_2/z_1	26/2	26/2	26/2	26/2	26/2	26/2	39/3	39/3	39/3	
	m_x	1,8	2,3	2,9	3,7	4,7	5,9	5,2	6,8	8,5	
	γ_m	13° 28'	13° 14'	13° 36'	14° 23'	14° 48'	15° 24'	18° 48'	19° 52'	20° 38'	–
	η_s	0,62	0,62	0,63	0,64	0,64	0,65	0,68	0,69	0,7	
16	z_2/z_1	32/2	32/2	32/2	32/2	32/2	32/2	32/2	32/2	48/3	48/3
	m_x	1,5	1,9	2,4	3,1	3,9	4,9	6,2	8	7,1	9
	γ_m	11° 52'	11° 53'	12° 4'	12° 47'	13° 14'	13° 47'	14° 7'	14° 52'	19° 4'	20° 21'
	η_s	0,6	0,6	0,6	0,61	0,62	0,63	0,63	0,64	0,68	0,69
20	z_2/z_1	20/1	20/1	20/1	40/2	40/2	40/2	40/2	40/2	40/2	40/2
	m_x	2,3	2,8	3,5	2,5	3,2	4,1	5,1	6,6	8,3	10,4
	γ_m	7° 41'	7° 40'	7° 46'	11° 46'	12° 1'	12° 29'	12° 24'	13° 6'	13° 36'	14° 3'
	η_s	0,5	0,5	0,5	0,6	0,6	0,61	0,61	0,62	0,63	0,63
25	z_2/z_1	25/1	25/1	25/1	25/1	25/1	25/1	50/2	50/2	50/2	50/2
	m_x	1,9	2,4	3	3,8	4,8	6,1	4,2	5,4	6,8	8,6
	γ_m	6° 55'	6° 52'	6° 58'	7° 21'	7° 34'	7° 53'	11° 33'	11° 49'	12° 28'	13° 18'
	η_s	0,48	0,48	0,48	0,5	0,5	0,51	0,59	0,6	0,61	0,62
32	z_2/z_1	32/1	32/1	32/1	32/1	32/1	32/1	32/1	32/1	32/1	64/2
	m_x	1,5	1,9	2,4	3,1	3,9	4,9	6,2	8	10,1	6,8
	γ_m	6°	6°	6° 3'	6° 25'	6° 38'	6° 55'	7° 5'	7° 27'	7° 43'	11° 22'
	η_s	0,45	0,45	0,45	0,46	0,47	0,48	0,49	0,5	0,51	0,59
40	z_2/z_1	40/1	40/1	40/1	40/1	40/1	40/1	40/1	40/1	40/1	40/1
	m_x	1,3	1,6	2	2,5	3,2	4,1	5,1	6,6	8,3	10,4
	γ_m	5° 12'	5° 10'	5° 16'	5° 54'	6° 2'	6° 16'	6° 13'	6° 34'	6° 50'	7° 3'
	η_s	0,42	0,42	0,42	0,44	0,45	0,46	0,46	0,47	0,48	0,49
50	z_2/z_1	50/1	50/1	50/1	50/1	50/1	50/1	50/1	50/1	50/1	50/1
	m_x	1	1,3	1,6	2,1	2,7	3,3	4,2	5,4	6,8	8,6
	γ_m	4° 29'	4° 25'	4° 32'	5° 7'	5° 15'	5° 27'	5° 48'	5° 56'	6° 15'	6° 41'
	η_s	0,38	0,38	0,38	0,41	0,42	0,43	0,44	0,45	0,46	0,47
63	z_2/z_1		63/1	63/1	63/1	63/1	63/1	63/1	63/1	63/1	63/1
	m_x		1	1,3	1,7	2,1	2,7	3,4	4,4	5,5	6,9
	γ_m	–	3° 43'	3° 50'	4° 21'	4° 27'	4° 39'	4° 57'	5° 5'	5° 22'	5° 46'
	η_s		0,34	0,35	0,38	0,38	0,39	0,4	0,41	0,42	0,44
Moment of inertia (of mass) J_1 [[lb ft^2] on the worm ≈		–	–	–	–	–	0.0332	0.0878	0.1851	0.4556	0.8923

Low speed shaft angular backlash

A rough guide for low speed shaft angular backlash is given in the table (the worm being held stationary). Values vary according to design and temperature.
Gear reducers with **controlled** or **reduced backlash** can be supplied on request (see ch. 5), subject to longer delivery times and price addition; choose a **higher** service factor.

Gear reducer size	Angular backlash [rad][1]	
	min	max
32	0.0030	0.0118
40	0.0025	0.0100
50	0.0020	0.0080
63, 64	0.0018	0.0071
80, 81	0.0016	0.0063
100	0.0013	0.0050
125, 126	0.0011	0.0045
160, 161	0.0010	0.0040
200	0.0008	0.0032
250	0.0007	0.0028

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

Gear ratio of input helical gear stage (gearmotors MR IV, MR 2IV)

The partial transmission ratio of input helical gear stage is given in the table; this ratio has to be used when calculating the input speed of the intermediate worm shaft.

i_N	MR **IV** gearmotor size																											
	Motor main coupling dimensions Ød ØP																											
	32		**40, 50**				**63 ... 100**						**125, 126**						**160 ... 200**						**250**			
	11×140		11×140		14×160		19×200		14×160 (19×200)[1]		19×200 (24×200)[1]		24×200 (28×250)[1]		24×200		28×250		38×300		28×250		38×300		42×350 48×350		38×300		42×350 48×350		55×400 60×450	
	i	2)	*i*	2)	*i*	2)	*i*	2)	*i*	2)	*i*	2)	*i*	2)	*i*	2)	*i*	2)	*i*	2)	*i*	2)	*i*	2)	*i*	2)	*i*	2)	*i*	2)
31,5	–	–	–	–	–	–	**32,5**	2,03	–	–	–	–	**32**	2	–	–	–	–	**32,5**	2,03	–	–	–	–	**32**	2	–	–	–	–	**32**	2
40	**41,5**	2,59	–	–	**40,6**	2,54	**40,6**	2,03	–	–	**40,6**	2,54	**40**	2	–	–	**40,6**	2,54	**40,6**	2,03	–	–	**40,9**	2,56	**40**	2	–	–	**40,9**	2,56	**40**	2
50	**51,8**	2,59	**56**	3,5	**50,7**	2,54	**50,8**	2,03	**50,9**	3,18	**50,8**	2,54	**50**	2	–	–	**50,7**	2,54	**50,8**	2,03	**50,8**	3,17	**51,1**	2,56	**50**	2	–	–	**51,1**	2,56	**50**	2
63	**64,8**	2,59	**70**	3,5	**63,4**	2,54	**65**	2,03	**63,6**	3,18	**63,5**	2,54	**64**	2	–	–	**63,4**	2,54	**65**	2,03	**63,5**	3,17	**63,9**	2,56	**64**	2	–	–	**63,9**	2,56	**64**	2
80	**82,9**	2,59	**87,5**	3,5	**81,1**	2,54	–	–	**79,5**	3,18	**81,2**	2,54	**80**	2	**78,1**	3,13	**81,1**	2,54	**81,2**	2,03	**79,3**	3,17	**81,8**	2,56	**80**	2	**79,3**	3,17	**81,8**	2,56	**80**	2
100	**104**	2,59	**112**	3,5	**101**	2,54	–	–	**102**	3,18	**102**	2,54	**100**	2	**100**	3,13	**101**	2,54	–	–	**102**	3,17	**102**	2,56	**102**	2,56	**102**	3,17	**102**	2,56	**102**	2,56
125	–	–	**140**	3,5	**127**	2,54	–	–	**122**	3,8	**127**	2,54	**126**	2	**125**	3,13	**125**	3,13	–	–	**127**	3,17	**128**	2,56	**128**	2,56	**127**	3,17	**127**[3]	3,17[3]	–	–
160	–	–	**175**	3,5	–	–	–	–	**152**	3,8	**160**	2,54	–	–	**154**	3,86	**156**	3,13	–	–	**160**	4	**161**	2,56	–	–	**152**	3,8	**159**	3,17	–	–
200	–	–	**221**	3,5	–	–	–	–	**190**	3,8	–	–	–	–	**193**	3,86	**197**	3,13	–	–	**200**	4	–	–	–	–	**190**	3,8	**200**	3,17	–	–
250	–	–	–	–	–	–	–	–	**239**	3,8	–	–	–	–	**243**	3,86	–	–	–	–	**252**	4	–	–	–	–	**239**	3,8	–	–	–	–

i_N	MR **2IV** gearmotor size													
	Motor main coupling dimensions Ød ØP													
	40, 50				**63 ... 81**				**100**				**125, 126**			
	11×140		14×160		14×160		19×200		19×200		24×200		24×200		28×250	
	i	2)	*i*	2)	*i*	2)	*i*	2)	*i*	2)	*i*	2)	*i*	2)	*i*	2)
80	–	–	**82,4**	5,15	–	–	–	–	–	–	**81,2**	5,08	–	–	**82,3**	5,15
100	**114**	7,11	**103**	5,15	–	–	**102**	5,08	–	–	**102**	5,08	–	–	**103**	5,15
125	**142**	7,11	**129**	5,15	–	–	**127**	5,08	–	–	**127**	5,08	–	–	**129**	5,15
160	**178**	7,11	**158**	7,91	**159**	6,36	**162**	5,08	**159**	6,36	**162**	5,08	**159**	6,34	**165**	5,15
200	**218**	10,9	**198**	7,91	**204**	6,36	**202**	8,08	**204**	6,36	**202**	8,08	**203**	6,34	**206**	5,15
250	**273**	10,9	–	–	**253**	10,1	**258**	8,08	**253**	10,1	**258**	8,08	**254**	6,34	**253**	7,91
315	**349**	10,9	–	–	**302**	12,1	**323**	8,08	**302**	12,1	–	–	**312**	9,75	–	–
400	**437**	10,9	–	–	**387**	12,1	–	–	**387**	12,1	–	–	**385**	12	–	–
500			–	–	**484**	12,1	–	–	**484**	12,1	–	–	**481**	12	–	–
630	–	–	–	–	**605**	12,1	–	–	**605**	12,1	–	–	**602**	12	–	–

1) Motor coupling dimensions valid for gearmotor size 100.
2) Partial transmission ratio of input helical gear stage.
3) With motor size 180 values are **128** and *2,56* respectively.

Efficiency η

Efficiency η is derived from the P_{N2} / P_{N1} ratio in the case of gear reducers (ch. 3.5) and P_2 / P_1 in the case of gearmotors (ch. 9). The values obtained will be valid assuming normal working conditions, worm operating as driving member, proper lubrication, adequate running-in (ch. 4), and a load near to the nominal value.

During the **initial working period** (about 50 hours) and generally at every cold start, efficiency will be lower (by about 12% for worms with $z_1 = 1$; 6% for worms with $z_1 = 2$ and 3% for worms with $z_1 = 3$).

«Static» efficiency η_s on starting (see table in the preceding section) is much lower than η («starting friction») must be overcome at speed 0); as speed picks up gradually, efficiency will rise correspondingly until the catalogue value is reached.

Inverse efficiency η_{inv}, – produced by the wormwheel as driver– is always less than η. It can be calculated approximately as follows:

$$\eta_{inv} \approx 2 - 1 / \eta; \quad \text{likewise:} \quad \eta_{s\,inv} \approx 2 - 1 / \eta_s$$

Irreversibility

A worm gear reducer or gearmotor is **dynamically irreversible** (that is, it ceases to turn the instant the wormshaft receives no further stimulus that would keep the worm itself in rotation e.g. motor torque, inertia from the worm and related fan, motor flywheels, couplings, etc.) when $\eta < 0{,}5$ as η_{inv} then drops below 0. This state becomes necessary wherever there is a **need for stopping and holding** the load, even without the aid of a brake. Where continuous vibration occurs, dynamic irreversibility may not be obtainable. A gear reducer or gearmotor is **statically irreversible** (that is, rotation cannot be imparted by way of the low speed shaft) when $\eta_s < 0{,}5$. This is a state **necessary to keep the load at standstill**; taking into account, however, that efficiency can increase with time spent in operation, it would be advisable to assume $\eta_s \leq 0{,}4$ ($\gamma_m < 5°$).

Where continuous vibration occurs, static irreversibility may not be obtainable.

A gear reducer or gearmotor has **low static reversibility** (i.e. rotation may be imparted by way of the low speed shaft with high torque and/or vibration) when $0{,}5 < \eta_s \leq 0{,}6$ ($7° 30' < \gamma_m \leq 12°$). A gear reducer or gearmotor has **complete static reversibility** (i.e. rotation may be imparted by way of the low speed shaft) when $\eta_s > 0{,}6$ ($\gamma_m > 12°$).

This state is advisable where there is a **need for easy start-up of the gear reducer by way of the low speed shaft**.

Overloads

Since worm gear pairs are often subject to high static and dynamic overloads by dint of the fact that they are especially suited to bear them, the need arises – more so than with other gear pairs – for verifying that such overloads will always remain lower than $M_{2\,max}$ (ch. 3.5).

Overloads are normally generated when one has:

– starting on full load (especially for high inertias and low transmission ratios), braking, shocks;

– irreversible gear reducers, or gear reducers with low reversibility in which the wormwheel becomes driver 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 M_{2max}.

Starting torque

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

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

where:
M_2 required is torque absorbed by the machine through work and friction;
M_2 available is output torque derived from the motor's nominal power rating;
J_0 is the moment of inertia (of mass) of the motor;
J is the external moment of inertia (of mass) in 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 efficiency η_s when evaluating M_2 available, and starting friction, if any, in evaluating M_2 required.

Stopping machines with high kinetic energy (high moments of inertia combined with high speeds) with or without braking (braking applied to wormshaft, or use of brake motor)

Select a gear reducer with static reversibility ($\eta_s > 0{,}5$); if using a brake motor, verify braking stress with the following formula:

$$\left(\frac{Mf}{\eta_{s\,inv}} \cdot i + M_2\,\text{required}\right) \frac{J}{J + J_0/\eta_{s\,inv}} - M_2\,\text{required} \leqslant M_{2\,max}$$

where:
Mf is the braking torque setting (see table in ch. 2b).
$\eta_{s\,inv}$ is static inverse efficiency (see previous heading);
for other symbols see above and ch.1.

Where selection of a statically reversible gear reducer is not pos-sible (i.e. $\eta_s \leqslant 0{,}5$) slowing-down should be sufficiently gradual (avoiding application of excessive stress to the unit itself) as to ensure that:

$$\frac{J_2 \cdot \alpha_2}{10} - M_2 \leqslant M_{2\,max}$$

where:
J_2 is the moment of inertia (of mass) of the driven machine referred to the gear reducer's low speed shaft;
M_2 is torque absorbed by the machine through work and friction;
α_2 is the low speed shaft's angular deceleration; this may be reduced by flywheel fitted to the wormshaft, electric deceleration ramps, lowering of braking torque when braking systems are in use, etc.
α_2 may be arrived at theorically (within broadly safe limits) or experimentally (by testing against stopping time and distance etc.).
If a brake motor is in use, the following formula may be used for a safe evaluation of α_2:

$$\alpha_2 = \frac{10 \cdot Mf}{J_0 \cdot i}$$

in which the motor is presumed without load and subject to its braking torque setting Mf (see table in ch. 2b).

Operation with brake motor

Stating time ta **and revolutions of motor** φa_1

$$ta = \frac{(J_0 + J/\eta) \cdot n_1}{25.605 \left(M\,\text{start} - \frac{M_2\,\text{required}}{i \cdot \eta}\right)}\ [s]; \qquad \varphi a_1 = \frac{ta \cdot n_1}{19{,}1}\ [rad]$$

Braking time tf **and revolutions of motor** φf_1

$$tf = \frac{(J_0 + J/\eta_{inv}) \cdot n_1}{25.605 \left(Mf + \frac{M_2\,\text{required} \cdot \eta_{inv}}{i}\right)}\ [s]; \qquad \varphi f_1 = \frac{tf \cdot n_1}{19{,}1}\ [rad]$$

where:

M start [lb in] 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.

With the gear reducer run in and operating at normal running temperature — 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 $\pm 0{,}1 \cdot \varphi f_1$.
During warm-up (1 ÷ 3 h, small through to large sizes), braking times and distances tend to increase to the point of stabilizing at or around values corresponding to rated catalogue efficiency.

Duration of friction surface

As a rough guide, the number of applications permis sible between successive adjustments of the air-gap isgiven by the following formula:

$$\frac{W \cdot 10^5}{Mf \cdot \varphi f_1}$$

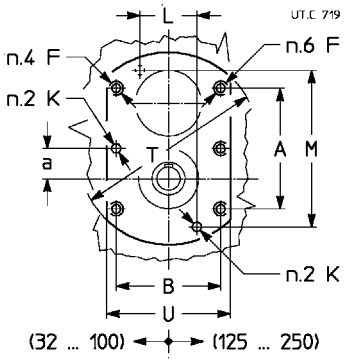
where:
W [MJ] is the work of friction between successive adjustments of the air-gap as indicated in the table. For other symbols see above.

The air-gap should measure between 0,25 minimum and 0,7 maximum; as a rough guide, 5 adjustments can be made.

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

Gear reducers input face

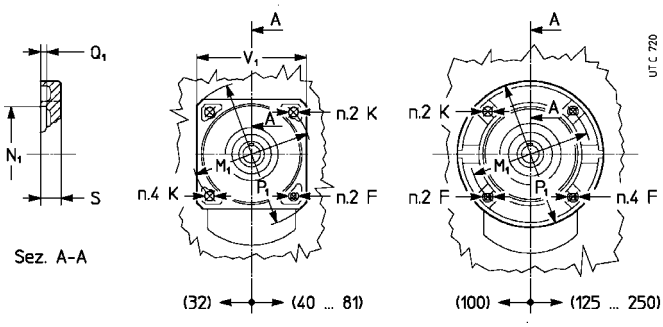
The **R V** gear reducer input face has a machined surface with tapped holes for fitting motor mounting etc.



Gear reducer size	a	A	B	F 1)	K Ø H8 2)	L	M	T Ø	U
32	0.63	2.83	2.13	M 5	0.197	—	—	4.06	2.6
40, 50	0.79	3.21	2.62	M 5	0.197	—	—	4.69	3.15
63 ... 81	0.98	4.17	3.15	M 6	0.236	—	—	5.87	3.78
100	1.23	4.92	4.25	M 8	0.315	—	—	7.36	5.08
125, 126	1.57	6.54	5.35	M 8	0.315	3.07	8.50	9.92	6.18
160 ... 200	1.97	8.43	6.61	M 10	0.394	3.86	10.55	12.28	7.64
250	2.46	10.79	8.27	M 12	0.472	5.04	13.07	15.24	9.49

1) Working length of thread 2 · F.
2) Working length of hole 1.6 · K.

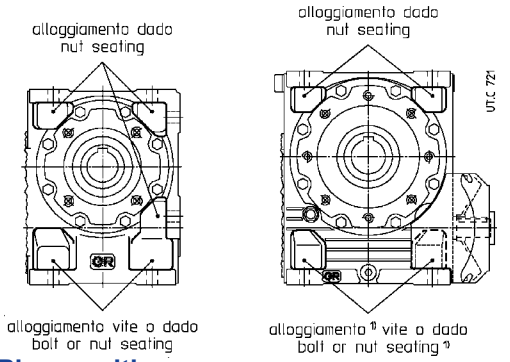
The **R IV** gear reducer input face has a machined flange with holes for fitting motor mountings etc.



Gear reducer size	F 1)	K Ø	M_1 Ø	N_1 Ø	P_1 Ø H7	V_1 □	Q_1	S
32	—	0.37	4.53	3.74	5.51	4.13	0.16	0.39
40, 50	M 8	0.37	4.53	3.74	5.51	4.13	0.16	0.43
63 ... 81	M 8	0.37	5.12	4.331	6.3	4.72	0.18	0.47
100	M 10	0.45	6.5	5.118	7.87	—	0.18	0.55
125, 126	M 10	—	6.5	5.118	7.87	—	0.18	0.63
160 ... 200	M 12	—	8.46	7.087	9.84	—	0.2	0.71
250	M 12	—	10.43	9.055	11.81	—	0.2	0.79

1) Working length of thread 1.25 · F.

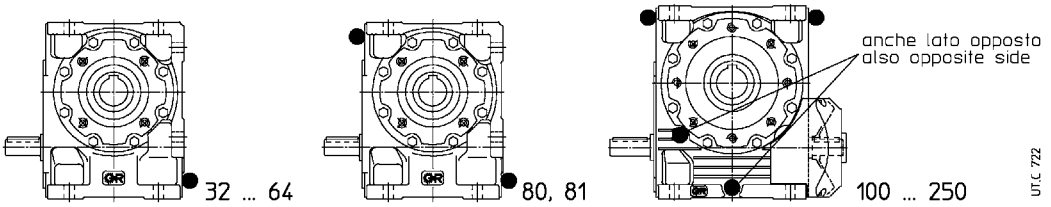
Fixing bolt dimensions for gear reducer feet



1) When tightening bolts at the fan side (sizes 100 ... 250) the fan cowl (which must enclose the fan assembly in order to enhance air-flow) needs to be removed for the purpose. When installing, ensure the cowl clears any surrounding walls by at least half the gear reducer's centre distance.

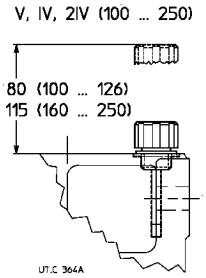
Grandezza riduttore Gear reducer size	Vite Bolt UNI 5737-88 (l max)
32	M 6 × 25
40	M 8 × 35
50	M 8 × 40
63, 64	M 10 × 50
80, 81	M 12 × 60
100	M 14 × 55
125, 126	M 16 × 65
160, 161	M 20 × 80
200	M 24 × 90
250	M 30 × 120

Plug position



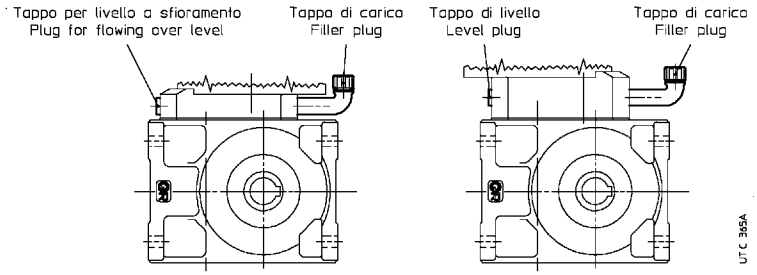
Mounting position **B7**

V, IV, 2IV (100 ... 250)



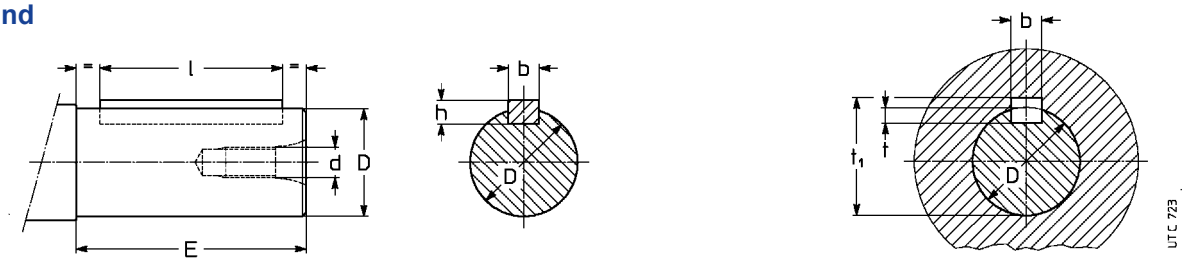
Mounting position **B6**[1]

IV (100 ... 250) **2IV (40 ... 126)** (100 ... 126)



1) For high input speed duty an expansion tank is envisaged.

Shaft end



Shaft end

Shaft end						Parallel key	Keyway		
D[1] Ø		**E**[2]		**d** Ø		**b × h × l**[2]	**b**	**t**	**t1**
0.433	j 6	0.91	(0.79)	M 5		0.157 x 0.157 x 0.709 (0.472)	0.157	0.098	0.5
0.551	j 6	1.18	(0.98)	M 6		0.197 x 0.197 x 0.984 (0.63)	0.197	0.118	0.638
0.63	j 6	1.18		M 6		0.197 x 0.197 x 0.984	0.197	0.118	0.717
0.748	j 6	1.57	(1.18)	M 6		0.236 x 0.236 x 1.417 (0.984)	0.236	0.138	0.854
0.945	j 6	1.97	(1.42)	M 8		0.315 x 0.276 x 1.772 (0.984)	0.315	0.157	1.071
1.102	j 6	2.36	(1.65)	M 8		0.315 x 0.276 x 1.772 (1.417)	0.315	0.157	1.228
1.26	k 6	3.15	(2.28)	M 10		0.394 x 0.315 x 2.756 (1.969)	0.394	0.197	1.39
1.496	k 6	3.15	(2.28)	M 10		0.394 x 0.315 x 2.756 (1.969)	0.394	0.197	1.626
1.575	h 7	2.28		M 10		0.472 x 0.315 x 1.969	0.472	0.197	1.705
1.89	k 6	4.33	(3.23)	M 12		0.551 x 0.354 x 3.543 (2.756)	0.551	0.217	2.039
2.165	m 6	4.33	(3.23)	M 12		0.630 x 0.394 x 3.543 (2.756)	0.63	0.236	2.354
2.362	m 6	4.13		M 16		0.709 x 0.433 x 3.543	0.709	0.276	2.535
2.756	j 6	4.13		M 16		0.787 x 0.472 x 3.543	0.787	0.295	2.949
2.953	j 6	4.13		M 16		0.787 x 0.472 x 3.543	0.787	0.295	3.146
3.543	j 6	5.12		M 20		0.984 x 0.551 x 4.331	0.984	0.354	3.756
4.331	j 6	6.5		M 24		1.102 x 0.63 x 5.512	1.102	0.394	4.583

1) Tolerance valid only for high speed shaft end. Diameter D tolerance for low speed shaft end (ch. 16) is **h7** for D ⩽ 2.362, **j6** for D ⩾ 2.756.
2) Values in brackets are for short shaft end.

Hollow low speed shaft

Hole	Parallel key	Keyway		
D Ø H7	**b × h × l***	**b**	**t**	**t1**
0.748	0.236x 0.236 x 1.417	0.236	0.138	0.854
0.945	0.315x 0.276 x 1.772	0.315	0.157	1.071
1.102	0.315x 0.276 x 2.48	0.315	0.157	1.228
1.26	0.394x 0.315 x 2.756	0.394	0.197	1.39
1.496	0.394x 0.315 x 3.543	0.394	0.197	1.626
1.575	0.472x 0.315 x 3.543	0.472	0.197	1.705
1.89	0.551x 0.354 x 4.331	0.551	0.217	2.039
2.362	0.709x 0.433 x 5.512	0.709	0.276	2.535
2.756	0.787x 0.472 x 7.087	0.787	0.295	2.949
2.953	0.787x 0.472 x 7.087	0.787	0.295	3.146
3.543	0.984x 0.551 x 7.874	0.984	0.354	3.756
4.331	1.102x 0.63 x 9.843	1.102	0.394	4.583

***** Recommended length.

Shaft end of driven machine

Dimensions of shaft end to which the gear reducer's hollow shaft is to be keyed are those recommended in the table on following page and shown in the figures below.

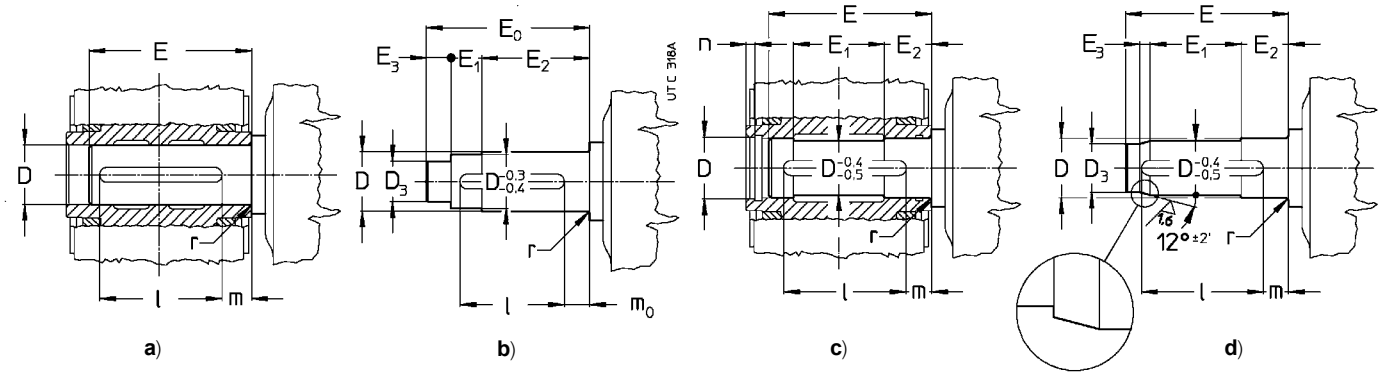
Sizes 32 ... 50: fitting with key (fig. a) or fitting with key and locking rings (fig. b).

Sizes 63 ... 250: fitting with key (fig. c) or fitting with key and locking bush (fig. d); see also ch.4 and 5.

In the case of cylindrical shaft end with only diameter D (fig. a, c), for the seat D on input side, we recommend tolerance h6 or j6 instead of j6 or k6 to facilitate mounting.

Important: the shoulder diameter of the shaft end of the driven machine abutting with the gear reducer must be at least (1,18 ÷ 1,25) · D.

32 ... 50 **63 ... 250**



Gear reducer size	D Ø H7/j6, k6	D_3 Ø H7/h6	E	E_0	E_1	E_2	E_3	l	m	m_0	n	r
32	0.748	0.591	2.46	2.64	0	2.32	0.31	1.42	0.83	0.77	–	0.06
40	0.945	0.748	3.01	3.19	0.51	2.13	0.55	1.77	0.93	0.73	–	0.06
50	1.102	0.945	3.43	3.6	0.65	2.4	0.55	2.48	0.85	0.43	–	0.06
63, 64	1.26	1.063	4.33	–	2.24	1.34	0.39	2.76	1.1	–	0.24	0.06
80	1.496	1.26	5.28	–	2.8	1.56	0.47	3.54	1.18	–	0.24	0.06
81	1.575	1.339	5.28	–	2.8	1.56	0.47	3.54	1.18	–	0.24	0.06
100	1.89	1.614	6.38	–	3.43	1.83	0.55	4.33	1.38	–	0.28	0.08
125, 126	2.362	2.047	7.6	–	4.02	2.17	0.63	5.51	1.26	–	0.28	0.08
160	2.756	2.441	8.98	–	4.88	2.48	0.63	7.09	1.38	–	0.31	0.08
161	2.953	2.598	8.98	–	4.88	2.48	0.71	7.09	1.38	–	0.31	0.08
200	3.543	3.15	10.79	–	5.91	2.95	0.83	7.87	1.97	–	0.35	0.12
250	4.331	3.858	13.03	–	7.09	3.54	0.98	9.84	2.17	–	0.39	0.12

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:

$$M_b \leq M_{bmax}$$

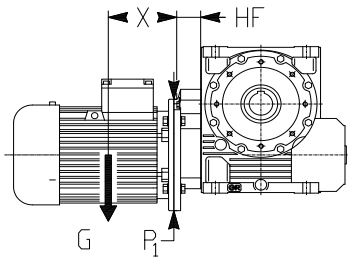
where:

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

G [lb] motor weight; numerically nearly equal to motor mass, expressed in kg
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 (e.g.: **shaft mounting arrangements**): consult us for the study of every specific case



Max allowable bending moment M_{bmax} and HF dimension

Gear reducer size	P_1	V, IV		2IV	
		HF	M_{bmax}	HF	M_{bmax}
	Ø	in	lb in	in	lb in
32	140	1.10	**496**	–	**–**
	160	1.18	**496**	–	**–**
40, 50	140	1.22	**558**	1.97	**558**
	160	1.22	**558**	1.97	**558**
	200	1.69	**558**	–	**–**
63 ... 81	160	1.50	**991**	2.56	**991**
	200	1.50	**991**	2.56	**991**
	250	1.50	**991**	–	**–**
100	200	1.77	**2478**	3.07	**2478**
	250	1.77	**2478**	–	**–**
	300	2.56	**2478**	–	**–**
125, 126	200	2.16	**4425**	3.90	**4425**
	250	2.16	**4425**	3.90	**4425**
	300	2.20	**4956**	–	**–**
160 ... 200	250	2.64	**8851**	–	**–**
	300	2.64	**8851**	–	**–**
	350	3.15	**9913**	–	**–**
	400	3.15	**9913**	–	**–**
250	300	3.15	**15931**	–	**–**
	350	3.15	**15931**	–	**–**
	400	3.15	**15931**	–	**–**
	450	3.54	**17701**	–	**–**

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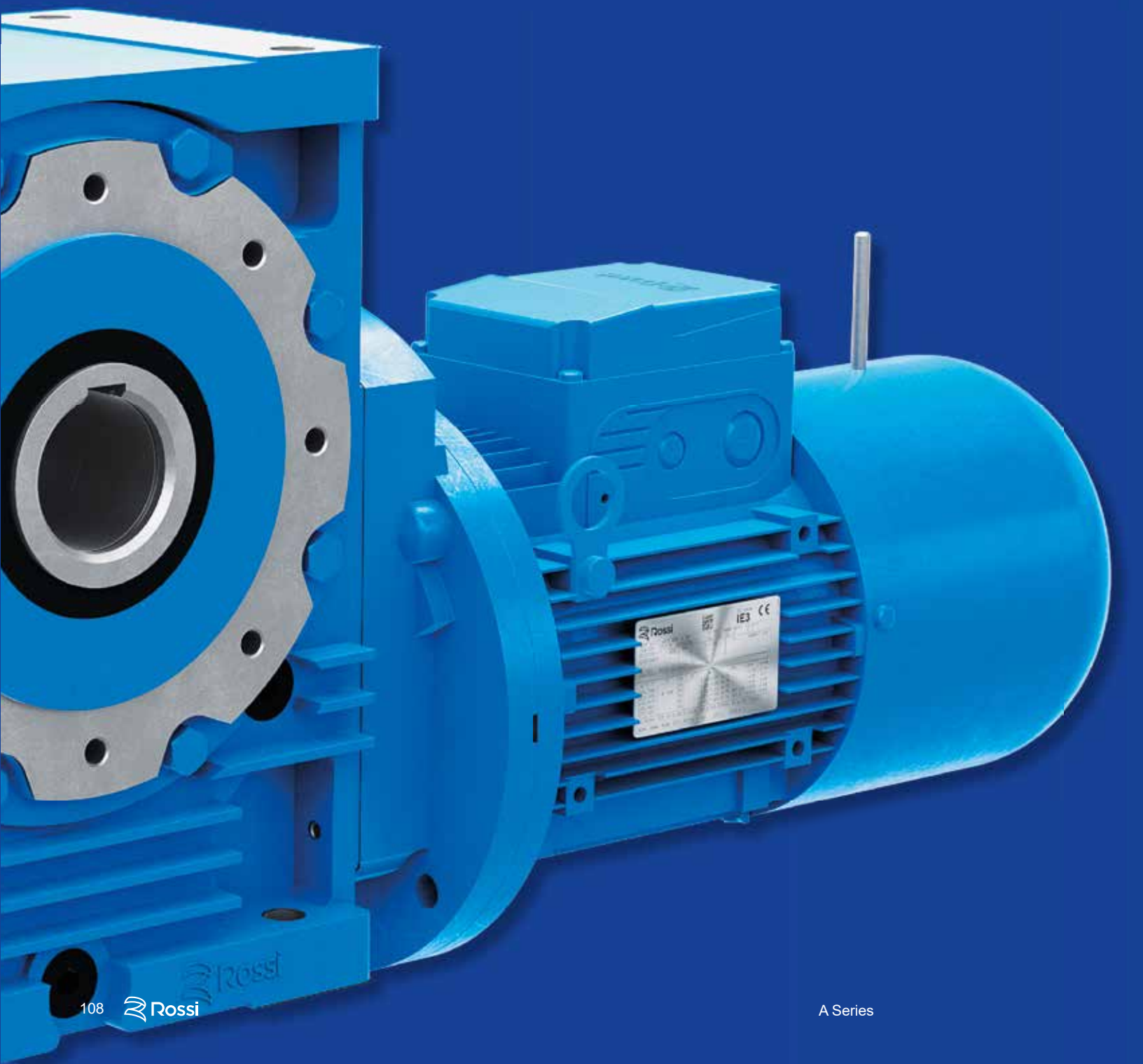
4

Installation and maintenance



Section content

Installation and maintenance 4

4.1- 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 gear reducer and motor fan sides).

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 104 °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.

Caution! 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 special 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; G7 is permissible for high speed shaft ends D $\geqslant$ 55 mm, provided that load is uniform and light; 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).

Hollow low speed shaft

For the shaft end of machines where the hollow shaft of the gear reducer is to be keyed, j6 or k6 tolerances are recommended (according to requirements). Other details are given under «Shaft end» and «Shaft end of driven machine» (ch. 3.13).

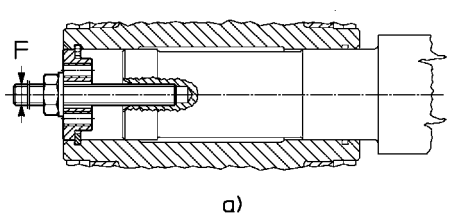
In order to have an easier installing and removing of gear reducer sizes 63 ... 250 (with circlip groove) proceed as per the drawings a, b, respectively.

The system illustrated in the fig. c, d is good for axial fastening.
For sizes 63 ... 250, when shaft end of driven machine has no shoulder a spacer may be located between the circlip and the shaft end itself (as in the lower half of the fig. d).

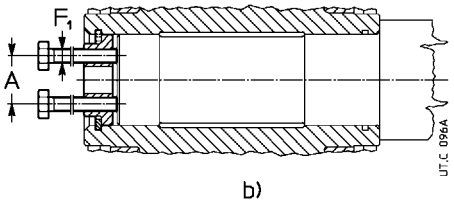
The use of **locking rings** (sizes 32 ...50, fig. e), or of **locking bush** (sizes 63 ... 250, fig. f) will permit easier and more accurate installing and removing and to eliminate backlash between key and keyway.

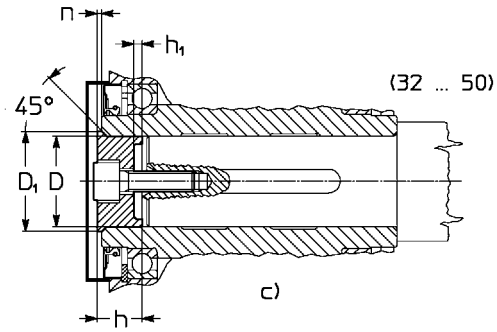
The locking rings or the locking bush are fitted after mounting, the shaft end of the driven machine must be as prescribed at ch. 3.13. Do not use molybdenum bisulphide or equivalent lubricant for the lubrication of the parts in contact. We recommend the use of a **locking adhesive** such as LOCTITE 601. For vertical ceiling-type mounting, contact us.

A **washer** for installing, removing (excluding sizes 32 ... 50) and axial fastening of gear reducer (ch. 5) with or without **locking rings** or **locking bush** (dimensions shown in the table) and a **protection cap** for the hollow low speed shaft can be supplied on request. Parts in contact with the circlip must have sharp edges.

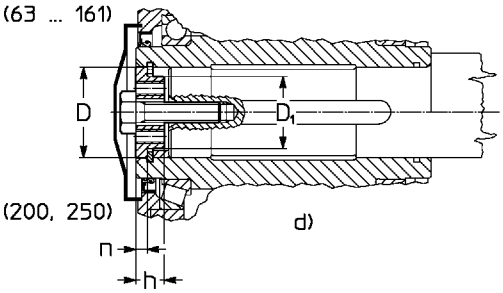


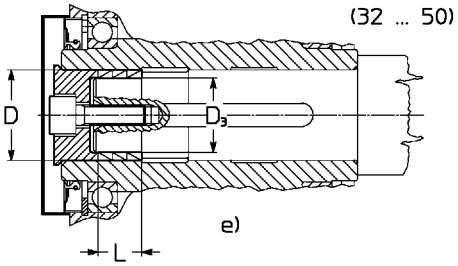
Bolt for axial fastening
Installing a) and removing b)



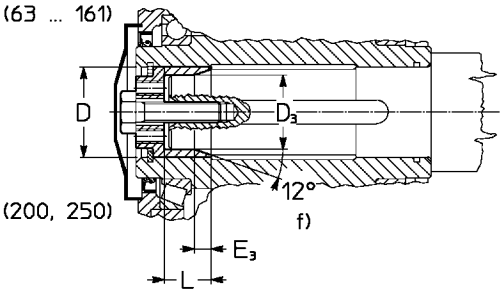


Bolt for axial fastening
Axial fastening





Bolt for axial fastening
Fitting with key and locking rings e)
or
locking bush f)



Gear reducer size	A	D Ø	D_1 Ø	D_3 Ø	E_3 ≈	F	F_1	h	h_1	L	n	Bolt for axial fastening UNI 5737-88	Bolt for axial fastening *M* [lb in][3]
32	–	19	22,5	15	–	–	–	14,8	2,8	6,3	1,1	M 8 × 25[1]	257
40	–	24	27,5	19	–	–	–	14,8	2,8	12,6	1,2	M 8 × 25[1]	283
50	–	28	32	24	–	–	–	18,5	3,2	12,6	1,2	M 10 × 30[1]	381
63,64	18	32	23	27	9	M 10	M 6	10	–	19	6	M 10 × 35	381
80	18	38	27	32	11	M 10	M 6	12	–	23	6	M 10 × 35	469
81	18	40	28	34	11	M 10	M 6	12	–	23	6	M 10 × 35	469
100	23	48	35	41	13	M 12	M 8	14	–	28	7	M 12 × 45	814
125, 126	30	60	45	52	15	M 14	M 10	16	–	35	7	M 14 × 45	1505
160	36	70	54	62	15	M 16	M 12	19	–	40	8	M 16 × 50	1859
161	36	75	59	66	17	M 16	M 12	19	–	40	8	M 16 × 50[3]	1859
200	49	90	72	80	20	M 20	M 16	23	–	49	9	M 20 × 60[2]	3806
250	64	110	89	98	24	M 24	M 16	24	–	60	10	M 24 × 70[2]	7346

1) UNI 5931-84.
2) For locking bush: M 20 × 65 and M 24 × 80 UNI 5737-88 class 10.9.
3) Tightening torque for locking rings or bush.

4.2 - Lubrication

Gear pairs and bearings on worm are oil-bath lubricated; sizes 200 and 250 mounting position B7 with worm speed > 710 min^{-1} have upper bearings on worm lubricated by a pump inside the casing. Other bearings are likewise lubricated by oil-bath, or splashed, with the exception of upper-bearings on wormwheel in mounting position V5 and V6, where life-grease lubrication is employed (NILOS ring in sizes 161 ... 250).

All sizes are envisaged with **synthetic oli** lubrification.
Syntetic oil can withstand temperature up to **203÷ 230 °F (90° ÷ 110°C)**.

Sizes 32 ... 81: gear reducers are supplied filled with synthetic oil (KLÜBER Klübersynth GH 6-320, MOBIL Glygoyle 320, SHELL Omala S4 WE 320; when worm speed < 280 min-1 KLÜBER Klübersynth GH 6-680), providing **«long life»** lubrication, assuming pollution-free surroundings; quantities as indicated in ch. 8 and 10, and on the lubrication plate. Ambient temperature 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 ... 250: gear reducers are supplied without oil; before putting into service, fill to the specified level[1)] with polyglycol basis (PAG) synthetic oil having the ISO viscosity-grade given in the table. Under normal conditions, the first speed range is for train of gears **V**, the second **IV** and **V**, (low speed), and the third **combined units** and **V**, **IV**, **2IV** (low speed).

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.

Produttore Manufacturer	Olio sintetico PAG PAG synthetic oil
AGIP	Blasia S
ARAL	Degol GS
BP	Enersyn SG-XP
CASTROL	Optiflex A
FUCHS	Renolin PG
KLÜBER	Klübersynth GH6
MOBIL	Mobil Glygoyle
SHELL	Omala S4 WE
TEXACO	Synlube CLP
TOTAL	Carter SY

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

Worm speed min^{-1}	Synthetic oil - Ambient temperature 32 ÷ 104 °F[1)] (0 ÷ 40 °C[1)]) Gear reducer size					
	100	125 ... 161		200, 250		
		B3, V5, V6	B6, B7, B8	B3, V5, V6	B6, B7, B8
2 800 ÷ 1 400 [2)]	320	320	220	220	
1 400 ÷ 710 [2)]	320	320		320	220
710 ÷ 355 [2)]	460	460		460	320
355 ÷ 180 [2)]	680	680	460	460	
< 180	680	680		680	

1) Peaks of 50 °F (10 °C) above and 50 °F (10 °C) (68 °F (20 °C) for < 460 cSt) below the ambient temperature range are acceptable
2) For these speeds we advise to replace oil after running-in.

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

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

Temperatura olio [°F]	Intervallo di lubrificazione [h] - Olio sintetico
⩽ 149	18 000
149 ÷ 176	12 500
176 ÷ 203	9 000
203 ÷ 230	6 300

Oil temperature [°F]	Oil-change interaval [h] - Synthetic oil
⩽ 149	18 000
149 ÷ 176	12 500
176 ÷ 203	9 000
203 ÷ 230	6 300

Never mix different makes of synthetic oil; if oil-change involves switching to a type different from that used hitherto, then give the gear reducer a thorough clean-out.

Running-in: a period of about 400 ÷ 1 600 h is advisable, by which time the gear pair will have reached maximum efficiency (ch. 3.13); oil temperature during this period is likely to reach higher levels than would normally be the case.

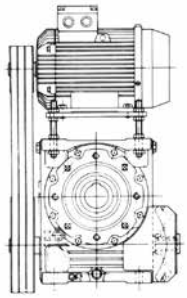
Seal rings: duration depends on several factors such as dragging speed, temperature, ambient conditions, etc.; as a rough guide; it can vary from 3 150 to 25 000 h.

Warning: for gear reducers sizes 100 ... 250, before unscrewing the filler plug with valve (symbol ⊸) wait until the unit has cooled and then open with caution.

4.3 - Shaft-mounting arrangements

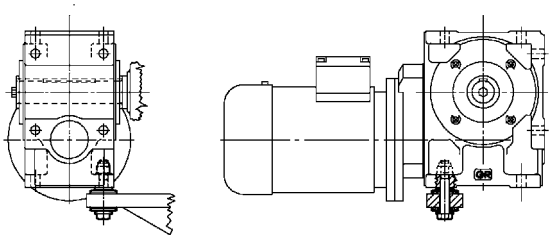
The strength and shape of the housing offer: **advantageous** possibilities for shaft mounting even – for instance – in the case of gearmotor with belt drive.
A few shaft mounting arrangements are shown here with the relative details as to selection, and installation.

In ch. 3.4 are shown the shaft-mounting arrangements which **can be supplied**.

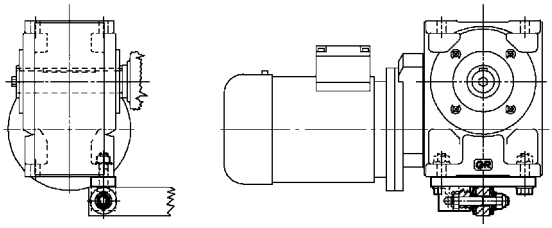


IMPORTANT. When shaft mounted, the gearmotor must be supported both axially and radially by the shaft end of the driven machine, as well as anchored against rotation only, by means of a reaction having **freedom of axial movement** and sufficient **clearance in its couplings** to permit minor oscillations – always in evidence – without provoking dangerous overloads on the actual gearmotor. Pivots and components subject to sliding have to be properly lubricated; we recommend the use of a locking adhesive such as LOCTITE 601 when fitting the bolts.

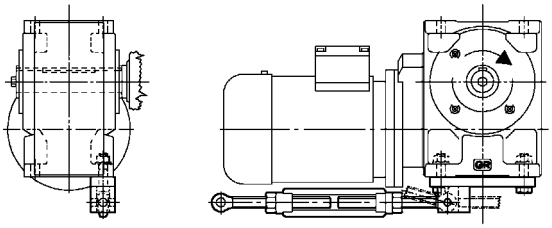
For sizes 32 ... 126 can be supplied (ch. 3.4) a semi-flexible and economical reaction arrangement, with bolt using disc springs.



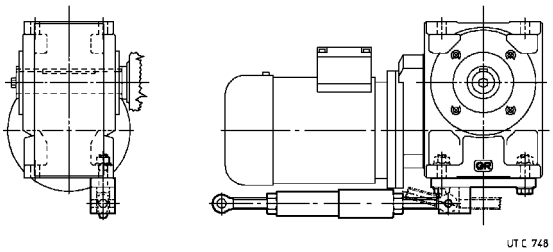
Semi-flexible reaction arrangement for sizes 63 ... 250 (ch. 5) using disc springs and bracket.



Rigid reaction arrangement for variable-distance anchorage for sizes 63 ... 250 (ch. 5) using a torque arm.
Where direction of rotation is opposite to the one shown in the drawing, turn the torque arm through 180°.



Similar to the previous arrangement for sizes 100 ... 250 (ch. 5), but using a flexible torque arm; safety devices may be installed to prevent accidental overloads.a
The flexible torque arm may be turned through 180° regardless of direction of rotation.



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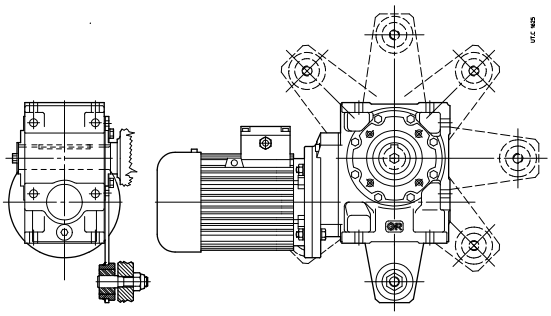
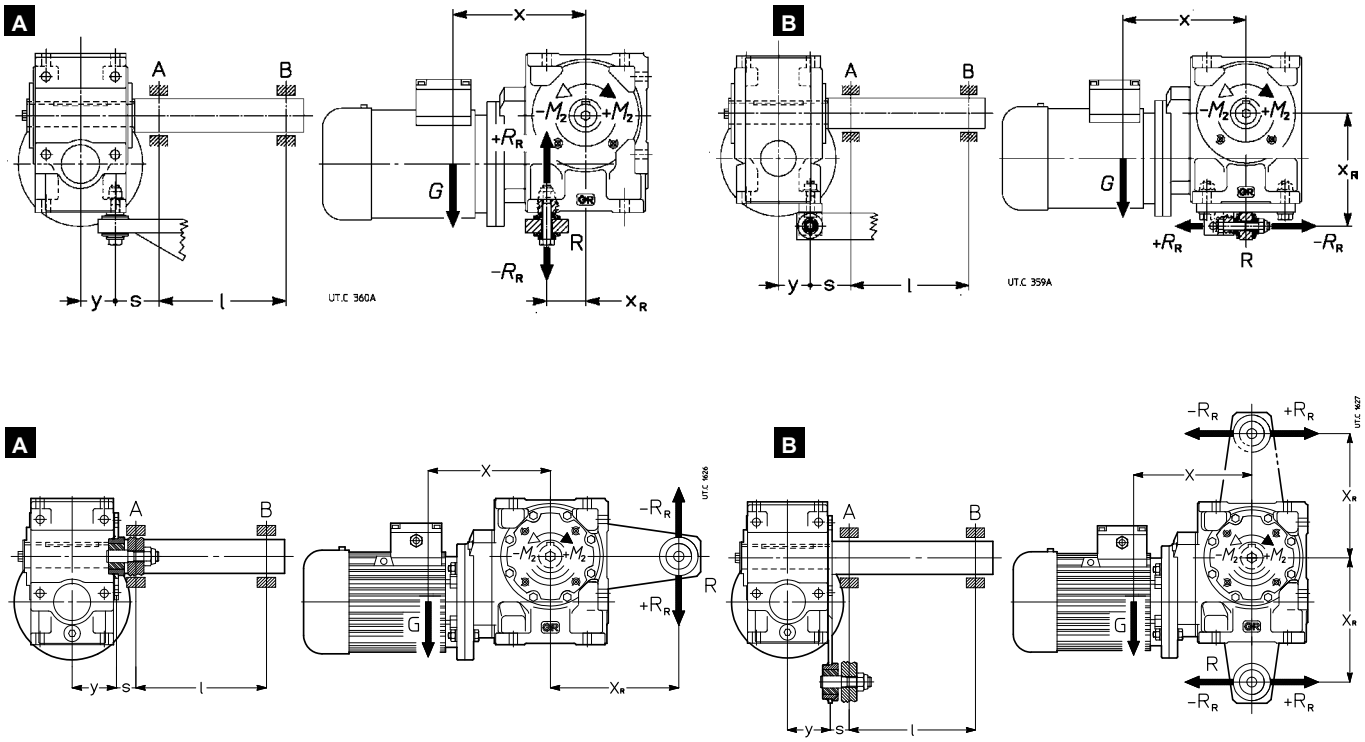
Reaction arrangement using torque arm, fitted onto B14 flange, with plastic damping bush (see ch. 5).



For the majority of normal cases, where weight force *G* is orthogonal or parallel to reaction R_R as illustrated in the drawings, reactions are calculated thus:



1) reaction R_R [daN] produced by support R:

$$R_R = (1 / x_R) \cdot [G \cdot x + (\pm M_2)]$$

2) bending moment M_{fA} [lb in] through the cross-section of bearing A:

A $M_{fA} = [G \cdot (y + s)] - [(\pm R_R) \cdot s]$

B $M_{fA} = \sqrt{[G \cdot (y + s)]^2 + [R_R \cdot s]^2}$

3) bearing A radial reaction R_A [lbf]:

A $R_A = \frac{1}{l} \{[G \cdot (y + s + l)] - [(\pm R_R) \cdot (s + l)]\}$

B $R_A = \frac{1}{l} \sqrt{[G \cdot (y + s + l)]^2 + [R_R \cdot (s + l)]^2}$

4) bearing B radial reaction R_B [lbf]:

$$R_B = \frac{M_{fA}}{l}$$

where:

- *G* [lbf]: weight force almost equal numerically to gearmotor mass (ch.3.8);
- M_2 [lb in]: output torque expressed by + or − according to the direction of rotation in the drawing;
- x [m]: dimension to x = G + 0,2 · Y (ch. 3.8);
- y [m]: dimension y = 0,5 · B (ch. 3.8);
- x_R [m] (for reaction bolt with disc spring): dimension x_R = 0,5 · A (drawing on the left) or x_R = H + S (drawing on the right) (ch. 3.8 and 5);
- x_R [m] (for torque arm): see table at ch. 5;
- l, s [m]: dimension s must be as short as possible.

4.4 - Motor replacement

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

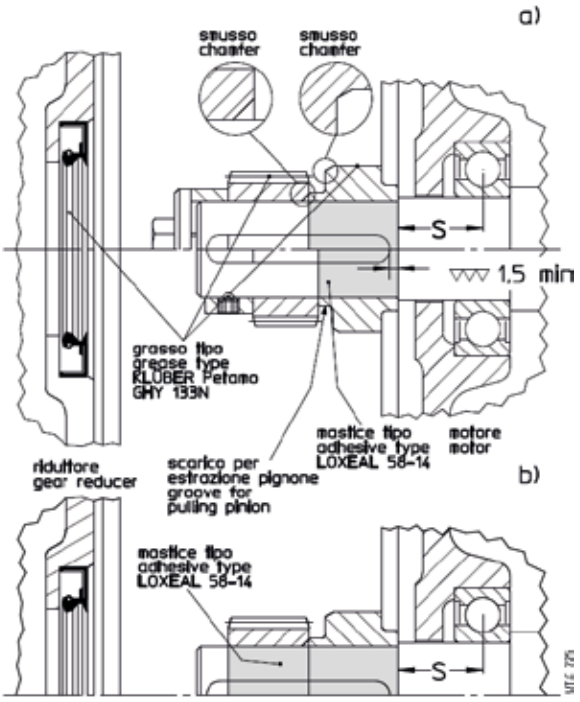
- be sure that the mating surfaces are machined under accuracy rating (IEC 60072-1);
- clean surfaces to be fitted thoroughly;
- in the event of a lowered keyway, replace the motor keyway with the one supplied with the gear reducer; adjust the keyway length to the motor shaft, if need be; check that between the top and the bottom of the hole keyway there is a backlash of 0,1 - 0,2 mm; in the event of output shaft keyway, lock the key by pins.

for MR V:

– check that the fit-tolerance (push-fit) between holes hole-shaft end is G7/j6 for D < 28 mm, F7/k6 for D >38 mm;
– lubricate surfaces to be fitted against fretting corrosion;

For MR IV, 2IV

- check that the fit-tolerance (push-fit) between hole and shaft end is K6/j6 for D ⩽ 28 mm, J6/k6 for D ⩾ 38 mm;
- make sure that the motors have bearing location and overhang (distance S) as shown in the table;

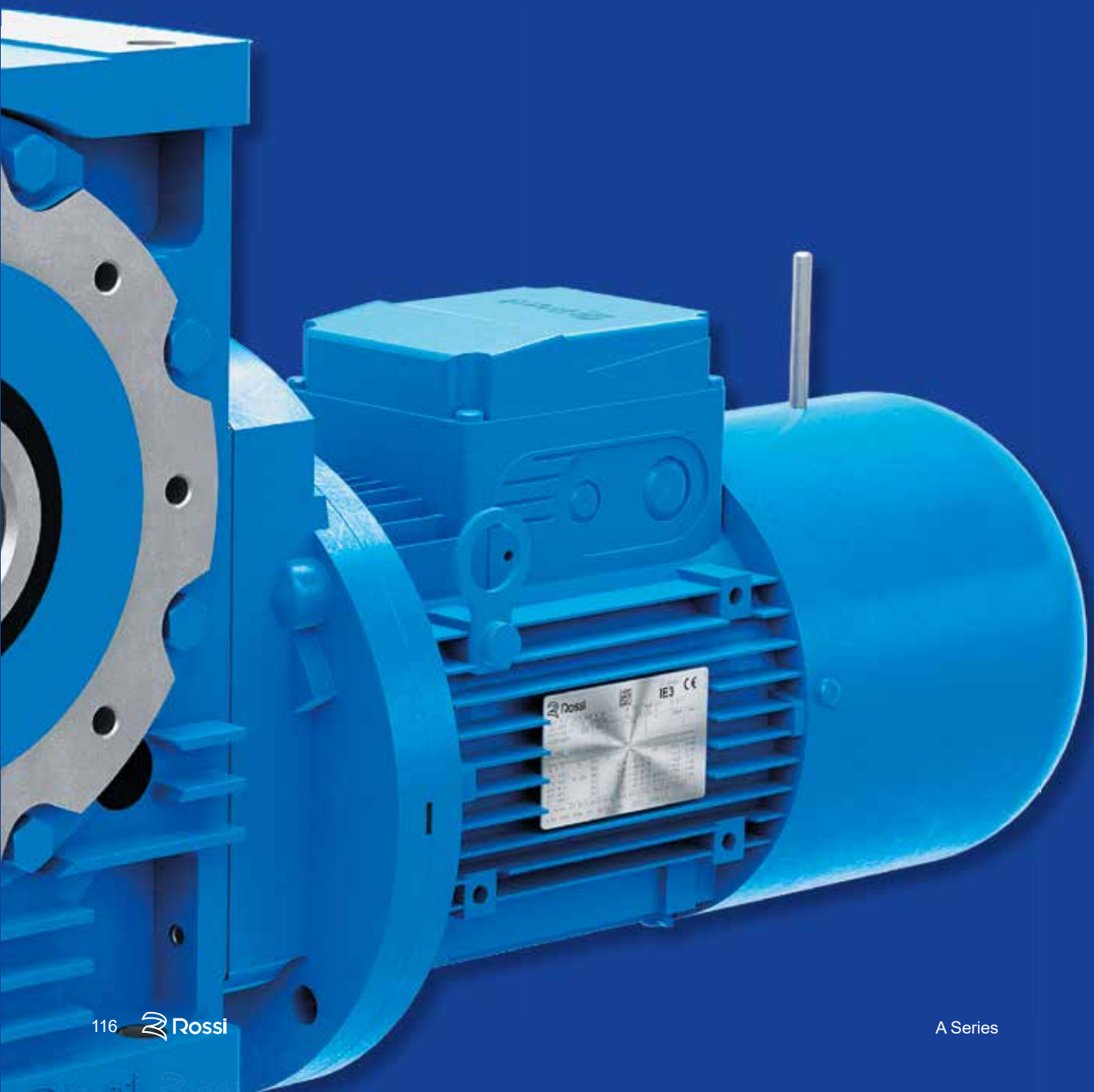


Motor size	Min. dynamic load capacity [lbf]		Max dimension 'S'
	Front	Rear	mm
63	1012	753	6
71	1416	1068	18
80	2023	1506	20
90	2967	2248	22,5
100	4496	3372	25
112	5620	4271	28
132	7980	5957	33,5
160	10678	7531	37,5
180	14163	10116	40
200	17985	12589	45
225	22481	15961	47,5

- 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 cylindrical 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**.

5

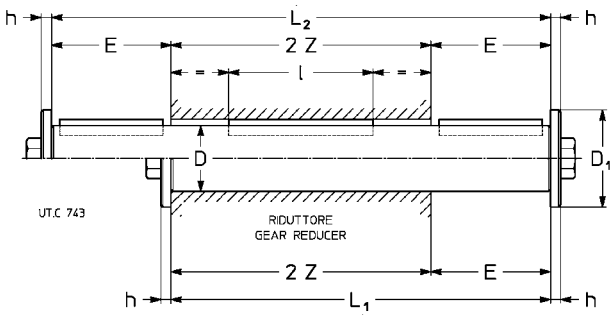
Accessories and non-standard designs



Section content

5.1 - Low speed shafts

Supplementary description when ordering by **designation: standard**, or **double extension low speed shaft**.



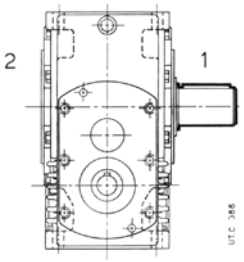
Gear. reducer size	D Ø	E	D1 Ø	h	L1	L2	l	2 Z	Bolt	Mass [lb] Standard	Mass [lb] Double extens.
32	19 h7	30	28	4	108	138	36	78	M 6 × 20	0.7	0.9
40	24 h7	36	35	5	128	164	45	92	M 8 × 25	1.3	1.5
50	28 h7	42	35	5	148	190	63	106	M 8 × 25	1.8	2.2
63, 64	32 h7	58	47	5	184	242	70	126	M 10 × 30	2.6	3.3
80	38 h7	58	47	5	208	266	90	150	M 10 × 30	4.2	5.3
81	40 h7	58	47	5	208	266	90	150	M 10 × 30	4.6	6
100	48 h7	82	57	6	262	344	110	180	M 12 × 40	8.2	10.8
125, 126	60 h7	105	82	8	317	422	140	212	M 16 × 45	15.4	20.7
160	70 j6	105	82	8	355	460	180	250	M 16 × 45	24	31
161	75 j6	105	82	8	355	460	180	250	M 16 × 45	28	35
200	90 j6	130	102	10	430	560	200	300	M 20 × 60	46	62
250	110 j6	165	135	12	525	690	250	360	M 24 × 60	86	112

The shoulder outer diameter of the part, or of spacer abutting with the gear reducer must be (1.25 ÷ 1.4) · D.

5.2 - Solid low speed shaft (size **250**)

In order to permit the high radial loads given in the catalog (250 bis), the gear reducer size 250 can be supplied with solid low speed shaft and strengthened bearings. Dimensions remain unchanged (missing the washer on shaft end).

Supplementary description when ordering by **designation: solid low speed shaft pos. 1** or **2** or **double extension**.

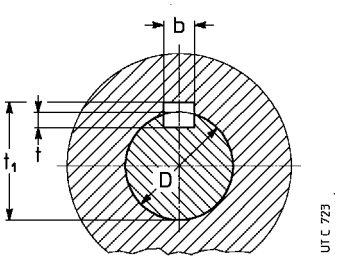


5.3 - Oversized hollow low speed shaft

The gear reducers and gearmotors sizes 32 ... 64 and 100 can be supplied with oversized hollow low speed shaft; dimensions are according to table on the left.

Gear reducer size	D Ø H7	Parallel key b x h x l*	Keyway b	Keyway t	Keyway t1
32	20	6 × 6 × 36	6	4[1]	22.2[1]
40	25	8 × 7 × 45	8	4,5[1]	27.7[1]
50	30	8 × 7 × 63	8	5[1]	32.2[1]
63[2], **64**[2]	35	10 × 8 × 90	10	6[1]	37.3[1]
100	50	14 × 9 × 110	14	5.5[1]	53.8

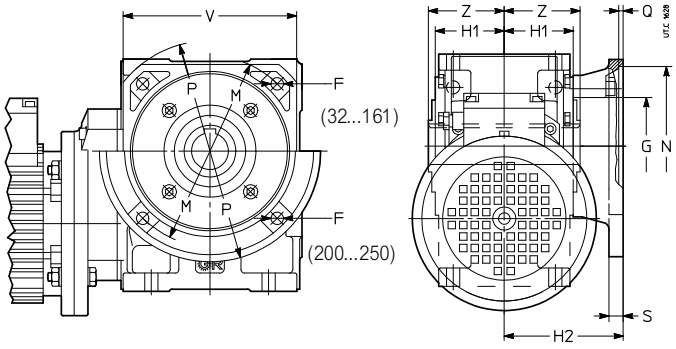
* Recommended length.
1) **Not** unified values.
2) Without circlip groove.



Supplementary description when ordering by **designation**: **oversized hollow low speed shaft**.

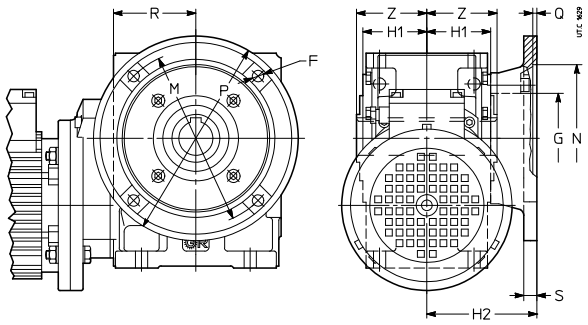
5.4 - Flange

B5 flange having clearance holes and spigot «recess».
Available in 2 different options with different mating dimensions: **B5 flange** and **B5 flange Type B**.
The accessory is supplied fitted onto the gear reducer. If not differently stated, the standard mounting position is on the gear reducer right side - seen from motor side. For reverse mounting, specify in designation «**mounted on opposite side**».
Locking adhesives are recommended both around threads and on mating surface.



B5 flange

Grandezza riduttore Gear reducer size	F Ø	G Ø	H1 h12	H2 Ø h12	M Ø	N Ø H7	P	Q	S	V ⌀	Z	Massa Mass lb
32	7	55	34.5	71	100	80	120	4	10	95	39	1.1
40	9.5	68	41.5	80	115	95	140	4	11	110	46	1.8
50	9.5	85	49	80	130	110	160	4.5	12	125	53	2.2
63, 64	11.5	80	58.5	100	165	130	200	4.5	14	152	63	4.4
80, 81	14	110	69.5	112	215	180	250	5	16	196	75	7.1
100	14	130	84.5	132	265	230	300	5	18	248	90	12.1
125, 126	18	180	99.5	150	300	250	350	6	20	290	106	18.7
160, 161	18	230	118.5	180	350	300	400	6	22	350	125	28.7
200	18[8]	250	137.5	200	400	350	450	6	22	—	150	44
250	22[8]	350	163	236	500	450	550	6	25	—	180	68



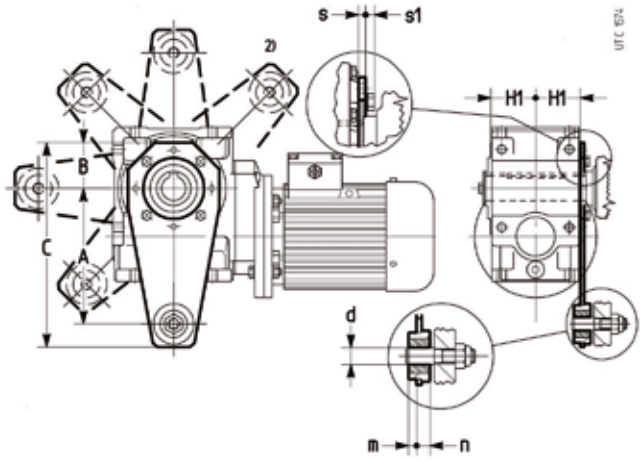
B5 flange type B

Gear reducer size	F Ø	G Ø	H_1 h12	H_2 h12	M Ø	N Ø H7	P Ø	Q	R	S	Z	Mass lb
32	9.5	55	34.5	75	87	60	110	5	–	9	39	0.8
40	11.5	68	41.5	82	150	115	180	5	80	11	46	1.7
50	14	85	53	98	165	130	200	5	91	12	53	2.4
63, 64	14	80	63.5	107	176	152	210	6	–	14	63	2.9
80, 81	14	110	74.5	129	230	170	280	6	121	16	75	5.8

Supplementary description when ordering by **designation: flange B5 or B5 flange type B**.
In case of separate order from the gear reducer's one, the accessory designation must include the catalog and reducers size data.

5.5 - Torque arm

See technical explanations at ch. 4.
The accessory, including fixing bolts for gear reducer, is supplied not assembled. Fitting towards motor is not possible.



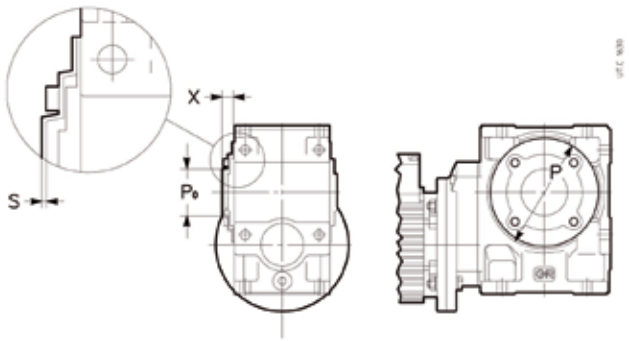
Gear reducer size	A	B	C	d Ø H11	H1 h12	m	n	s	s1 ≈	x_R m	M_2 ⩽ lb in
32	100	45	157	8[1)]	31.5	5	9	4	4.7	0.100	841
40	150	52.5	230	10	44.5	7	13	6	5.6	0.150	1328
50	200	60	294	20	53	9.5	15.5	6	5.6	0.200	1593
63, 64	200	60	294	20	63.5	9.5	15.5	6	7.5	0.200	2965
80, 81	250	80	364	20	74.5	9.5	15.5	6	9.2	0.250	5930

1) Plastic damping bush not present.
2) Position not possible for MR V 32 ... 50, MR IV 32 ... 81

Supplementary description when ordering by **designation: torque arm.**

5.6 - Hollow low speed shaft Standardfit protection

Protection hollow low speed shaft free area, made of plastic (polypropilene PP material color black)
The accessory is supplied disassembled and complete with fastening screws. We recommend the use of locking adhesive on the screws.



Gear reducer size	P Ø	P_0 Ø	X	s H11	Screws UNI 5931	$M_{tightening}$ 1) N m
32	90	48	20.5	1.5	M5×14	1.5
40	105	50	20.5	1.6	M6×18	2.8
50	120	61	24	1.7	M6×18	2.8
63. 64	120	61	24	1.7	M8×20	6.3
80. 81	160	78	27.5	1.8	M10×20	12.3

1) Tightening torque.

Non standard design code for designation:
Hollow low speed shaft STANDARDFIT protection

In case of separate order from the gear reducer's one, the accessory designation must include the catalog and gear reducers size data.

5.7 - Strengthened low speed shaft bearings

Gear reducers and gearmotors sizes 63 ... 126 can be supplied with taper roller bearings supporting the low speed shaft, allowing increased radial and/or axial loads. Values for sizes 100 ... 126 are given in ch. 3.12, other values, consult us.
Supplementary description when ordering by **designation: strengthened low speed shaft bearings**.

5.8 - Strengthened high speed shaft bearings

Gear reducers R IV sizes 80 ... 126 with $i_N \leqslant 160$ can be supplied with cylindrical roller bearings supporting the high speed shaft allowing increased radial loads, values **x 1.6** for sizes 80 ... 100, **x 1,4** for sizes 125 and 126 (ch. 3.11); this design is standard for sizes 160 ... 250.
Supplementary description when ordering by **designation**: **strenghened high speed shaft bearing**.

5.9 - Controlled or reduced backlash

Gear reducers and gearmotors with worm gear pair **controlled or reduced backlash**.
Values are 1/2 (controlled backlash) or 1/4 (reduced backlash) those stated on ch. 3.13; reduced backlash designed not possible for R V and MR V with input speed $n_1 > 1\,400$ rpm.
Supplementary description when ordering by designation: **controlled backlash** or **reduced backlash**.

5.10 - Hollow low speed shaft washer

All gear reducers and gearmotors can be supplied with washer, circlip (excluding sizes 32 ... 50), bolt for axial fastening and protection cap (ch. 4).
Supplementary description when ordering by **designation**: **hollow low speed shaft washer**.

5.11 - Hollow low speed shaft washer with locking rings or bush

All gear reducers and gearmotors can be supplied with washer, circlip (excluding sizes 32 ... 50), locking rings (sizes 32 ... 50) or locking bush (sizes 63 ... 250), bolt for axial fastening and protection cap (ch. 4).
Supplementary description when ordering by **designation**: **hollow low speed shaft washer with locking rings** or **bush**.

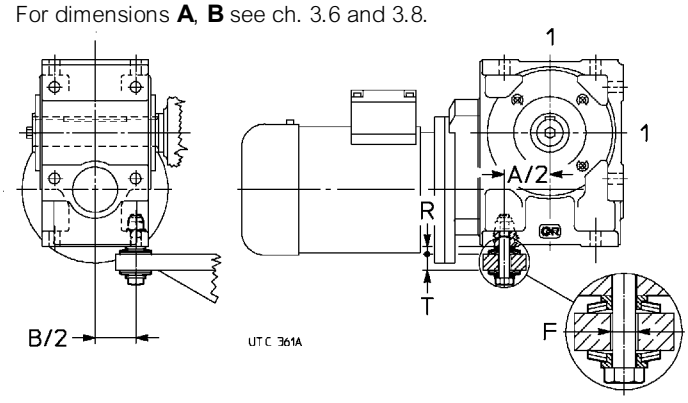
5.12 - Hollow low speed shaft protection

Gear reducers and gearmotors, sizes 32 ... 161, can be supplied with only the protection cap for the area not utilized by the hollow low speed shaft (ch. 4).
Supplementary description when ordering by **designation**: **hollow low speed shaft protection**.

5.13 - Shaft-mounting arrangements

See technical explanations at ch. 4.

For dimensions **A**, **B** see ch. 3.6 and 3.8.

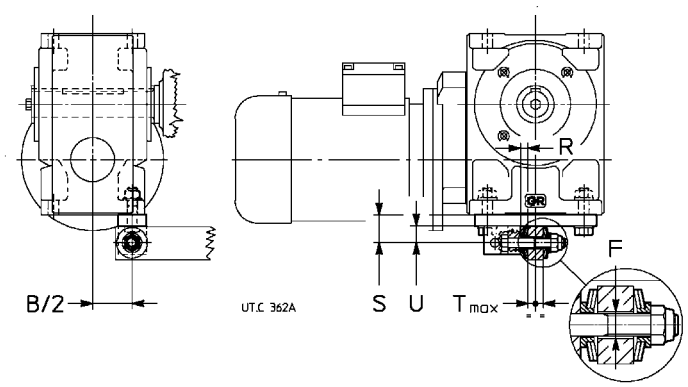


Gear reducer size	Bolt UNI 5737-88	Disc spring DIN 2093	T	F Ø	R 1)	$M_2 \leqslant$ 2) lb in
32	M 6 × 40	A 18 n. 2	8 ÷ 10	8	4.9	—
40	M 8 × 55	A 25 n. 2	10 ÷ 14	11	6.5	—
50	M 8 × 55	A 25 n. 2	10 ÷ 14	11	6.5	1770
63, 64	M 12 × 70*	A 35.5 n. 2	14 ÷ 17	20	8.8	2788
80, 81	M 12 × 90	A 35.5 n. 3	18 ÷ 25	20	10.8	4956
100	M 16 × 110	A 50 n. 2	23 ÷ 32	20	13.1	8851
125, 126	M 16 × 110	A 50 n. 2	23 ÷ 32	20	13.1	14161

1) Theoretical value: tolerance 0 ÷ -1.
2) For higher M_2 values, utilize 2 reaction bolts or the arrangement with bracket (see below).
* Modified bolt.

It is **better** if this arrangement is applied on sides 1.

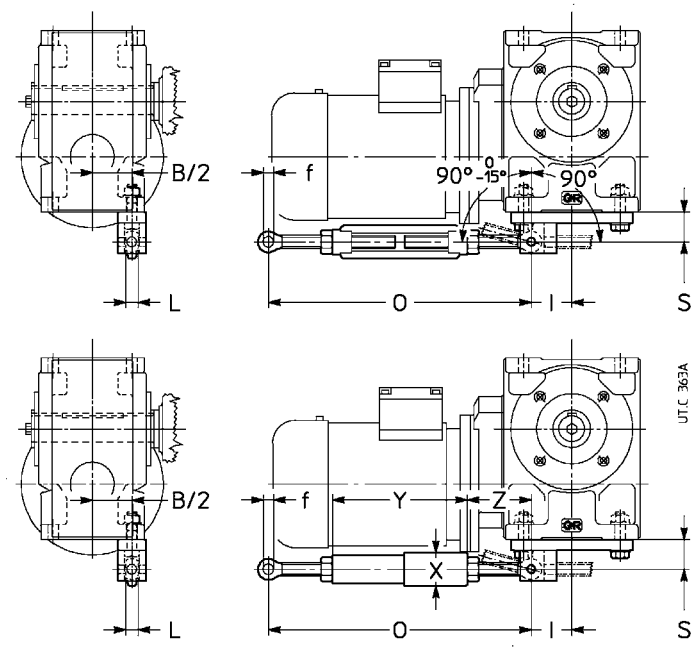
Supplementary description when ordering by **designation: reaction bolt using disc springs**.



Gear reducer size	Bolt UNI 5737-88	Disc spring DIN 2093	T	F Ø	S	U	R 1)
63, 64	M 12 × 70*	A 35.5 n. 1	14 ÷ 17	20	38	23	6.8
80, 81	M 12 × 90	A 35.5 n. 2	18 ÷ 25	20	38	23	8.8
100	M 16 × 110	A 50 n. 2	25 ÷ 32	20	50	30	13.1
125, 126	M 16 × 110	A 50 n. 2	25 ÷ 32	20	50	30	13.1
160, 161	M 20 × 130	A 63 n. 3	23 ÷ 38	24	65	40	17.9
200	M 24 × 160	A 80 n. 2	29 ÷ 48	30	80	48	20.7
250	M 30 × 200	A 100 n. 2	37 ÷ 60	36	100	60	26.2

1) Theoretical value: tolerance 0 ÷ -1.
* Modified bolt.

Supplementary description when ordering by **designation: reaction bolt using disc springs and bracket**.



Gear reducer size	f Ø	O	S	L	X Ø	Y	Z ≈	I
63, 64	12	280 ÷ 350	38	14	—	—	—	50
80, 81	12	280 ÷ 350	38	14	—	—	—	56
100	16	410 ÷ 510	50	17	52	242	84	74
125, 126	16	410 ÷ 510	50	17	52	242	84	74
160, 161	22	580 ÷ 680	65	24	64	285	147	92
200	28	580 ÷ 680	80	30	88	305	137	113
250	28	580 ÷ 680	100	30	88	305	137	141

Supplementary description when ordering by **designation**: **rigid** (for torque arm positioning, see ch. 4) or **flexible torque arm using bracket**.

5.14 - Gear reducer design ATEX II 2 GD and 3 GD

Worm gear reducers and gearmotors 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 (gas), 21 (dust): presence of **probable** explosive atmosphere) and **3 GD** (for operation in zones 2 (gas) 22 (dust): **improbable** presence of explosive atmosphere) with surface temperature T275 °F (135 °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 based 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 (sizes 200, 250)
– double seal rings on low speed shaft (size ⩾ 63);
– oil temperature probe;
this solution is advisable when the gear reducer has difficult access or when a decrease in control frequency is required.
Operating ambiente temperature: - 4 ÷ 104 °F (-20 ÷ +40 °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 necessity consult us.

Gear reducer size selection

Determine the size of gear reducer as indicated in ch. 6 considering following additional limitations:
a) maximum input speed $n_1 \leqslant$ **1 500** min^{-1}.
b) **service factor requested** determined according to ch. 6 increased with the factors stated in the following table - **never lower than 0.85**.

Verify, at last, that the **applied poiwer** P_1 is lower than or equal to nominal thermal power $P\,t_N$ multiplied by thermal factors $f t_2$ [1] ... $f t_5$ (see ch. 3.2) and by corretive factor $f t_{ATEX}$ given in the following table.

ATEX design **corrective factors** for required service factor $f s$ and nominal thermal power $P t_N$.

ATEX category	$f s_{ATEX}$	$f t_{ATEX}$
2GD	1.18	0.8
3GD	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 sparkling

Zone	Rossi **Gear reducer** ATEX II design	Required **motor** category [1]	
1	2 GD	2 G EEx e 2 G EEx d 2 G EEx de	with thermistors or Pt100
21		2 D IP65	
1, 21		2 GD EEx e 2 GD EEx d 2 GD EEx de	
2	3 GD	3 G EEx nA	–
22		3 D IP54 [2]	–
2, 22		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.

Additional description when ordering by **designation**:

Design ATEX II ...

... 3 GD T4	sizes 32 ... 250
... 2 GD T4 monthly control	sizes 32 ... 250
... 2 GD T4 quarterly control	sizes 200, 250

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

5.15 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
Applications in aggressive environments	Good resistance to atmospheric and aggressive agents	C4	L	Dual-compound, high-thickness epoxy primer Water-based dual-compound polyacrylic enamel	≥ 160	**1HRAL5010** (blue)
			M [2]	Dual-compound, high-thickness epoxy primer Water-based dual-compound polyacrylic enamel	≥ 180	**2HRAL5010** (blue)
			H [3]	Dual-compound, high-thickness epoxy primer Water-based dual-compound polyacrylic enamel	≥ 240	**3HRAL5010** (blue)
Outdoor applications in saline environment [1]	Excellent resistance to atmospheric and aggressive agents Outdoor applications in saline environment	C 5 [1]	M	Sandblasting High zinc dual-compound anti-rust primer Dual-compound, high-thickness epoxy primer Water-based dual-compound polyacrylic enamel	≥ 240	**2IRAL5010** (blue) [1]
			H [2]	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	**2KRAL5010** (blue) [1]
Outdoor applications in chemically aggressive environment and high humidity industrial areas [1]	Excellent resistance to atmospheric and aggressive agents Outdoor applications in chemically aggressive environment (fertilizers, etc.)	C 5 [1]	M	Sandblasting High zinc dual-compound anti-rust primer Dual-compound, high-thickness epoxy primer Water-based dual-compound polyacrylic enamel	≥ 240	**2LRAL5010** (blue) [1]
			H [2]	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	**2YRAL5010** (blue) [1]

1) Available for sizes ≥ 63.

2) Not available on motors.

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

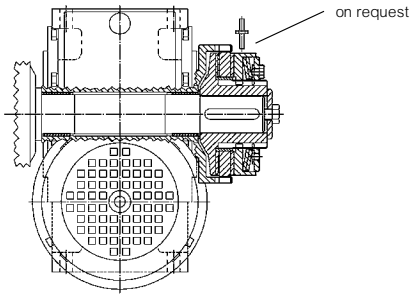
NOTE: cycles with specific features: antibacterial for FOOD environments, for ATEX environments, for zinc free environments available on request.

Accessories and non-standard designs

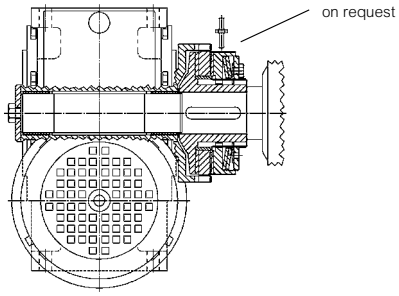
Miscellaneous

- Expansion tank for continuous duty and high speed running of gear reducers and gearmotors **IV 100 ... 250** and **2IV 100 ... 126** mounting position **B6**.
- Gear reducers and gearmotors sizes **100 ... 250** supplied **filled with synthetic oil**.
- 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;
- **two-speed motor** (standard motor, brake motors, brake motors with safety and/or parking brake, with flywheel) 2.4, 2.6, 2.8, 2.12, 4.6, 4.8, 6.8 poles;
- **brake motor for traverse movements**: 2, 2.4, 2.6, 2.8, 2.12 poles (always with low noise d.c. brake, see picture);

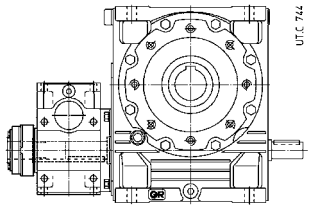
- motor featuring: d.c. supply; single-phase; explosion-proof; with second shaft end; with non-standard protection, voltage and frequency; provided with devices against overloads and overheating;
- **motor without fan** cooled **by natural convection** (size 63 ... 112); design for textile industry.
- Gear reducers and gearmotors with **mechanical torque limiter** on **output** shaft, gear reducer sizes **32 ... 160** (excluding size 81).
- Gear reducer design with mechanical **friction** type torque limiter (friction surfaces without asbestos), compact and with high transmissible torque — up to **26,250** lb in — and top quality standards.
- It protects the drive from accidental overloads by excluding the effect of intertia loads transmitted from up-line masses and, also if the gear reducer is irreversible (the torque limiter being mounted on the output shaft), inertia loads transmitted from down-line masses.
- When the transmitted torque tends to exceed the setting value the drive «slips» although it **remains** engaged with 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.



External limiter mounting



Intermediate limiter mounting



Limiter mounting onto combined units

The system, as the unit is mounted externally to the gear pair, will not after if the direction of rotation changes and it does not affect the rigidity and meshing precision between worm and worm wheel (this is important to ensure the correct transmission of torque and the limitation of undue backlash between teeth through time). The system also permits **shaft mounting** with the limiter mounted **externally** (easily accessible) or in the **intermediate** position (better safety protection). It can be interposed, in the **combined units**, between initial worm gear reducer and final worm gear reducer, sizes **100 ... 250**.

On request slide detector. For more details see **specific literature**.

– **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 worm gear reducer, sizes **50 ... 250**.

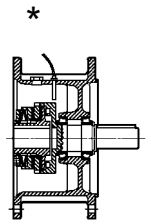
Axially ultra-compact design: excellent load bearing with life lubricated double row angular contact ball bearings (motor size ⩽ 112) or «O» disposed taper roller bearings.

The unit protects the drive from accidental overloads by excluding inertia loads trasmitted from up-line masses and if the gear reducer is reversible (the torque limiter being on the input shaft), inertia loads transmitted from down-line masses.

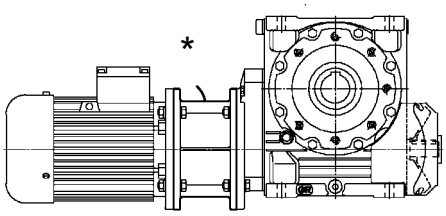
LA unit is friction type (friction surfaces without asbestos). When the transmitted torque tends to exceed the setting, the drive «slips» although **it remains** engaged and transmits torque equal to the limiter setting value; slipping stops as soon as the load returns to normal; in the case of very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

On request slide detector. For more details see **specific literature**.

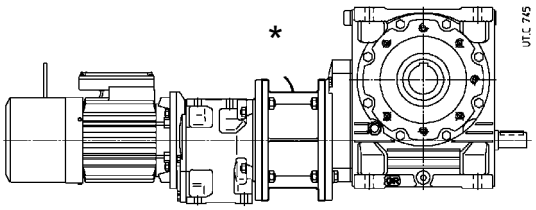
– Hollow low speed shaft with acme-type thread.
– Gearmotors with interposed compact clutch-brake or fluid coupling/brake unit
– Semi-flexible and hydrodynamic couplings.
– Special paints
– Special seal rings; **double seal** (excluding sizes 32 ... 50).
– For high transmission ratios combined units can be also obtained with initial gearmotor **MR IV** with final gear reducer size ⩽ 81 and with initial gearmotor **MR 2IV** for final gear reducer size ⩾ 100.



MLA
friction type



MLA
mounted between gear reducer and motor or motor-variator



MLA
mounted onto combined units

* on request

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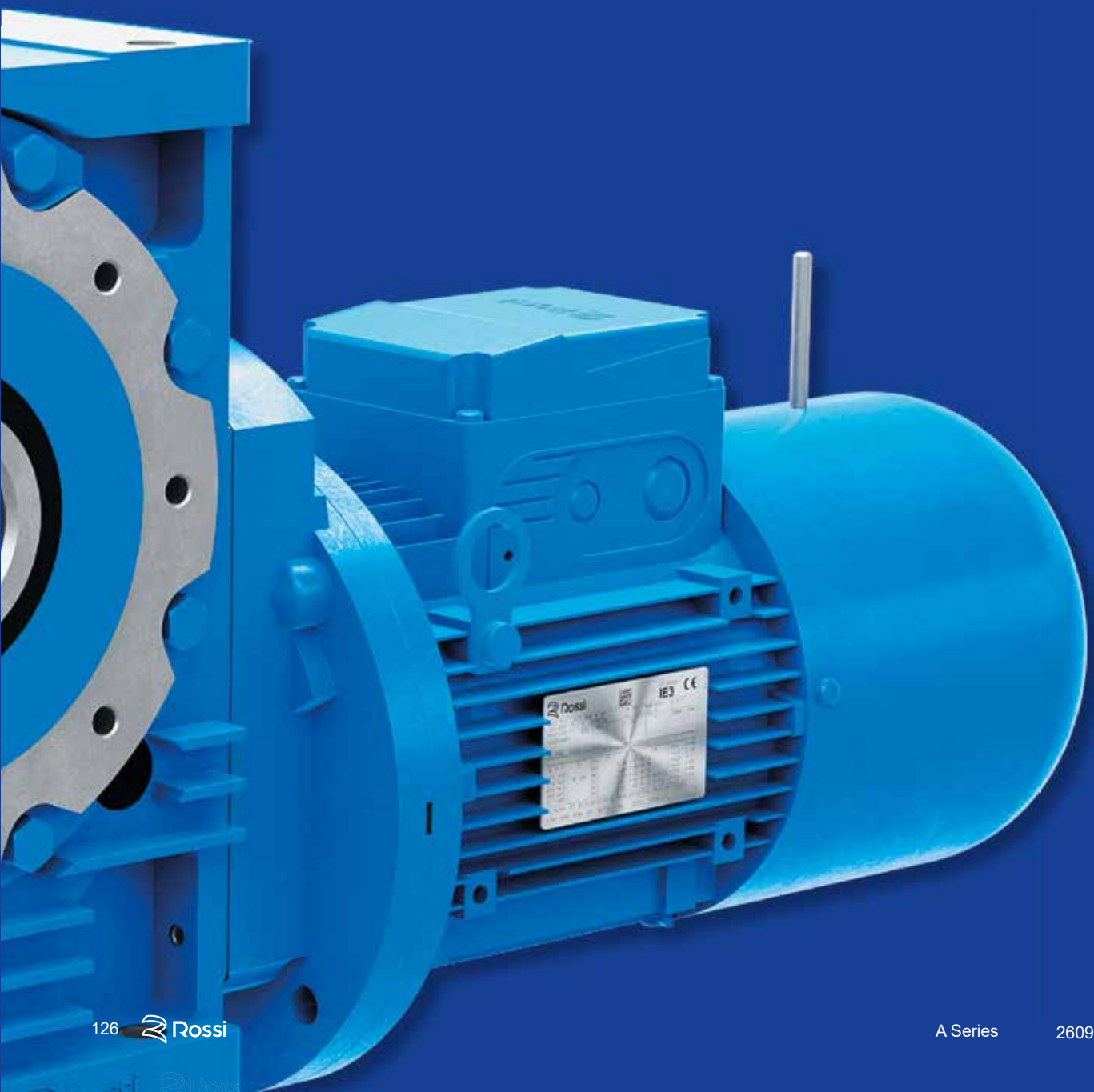
Technical formulae



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 **time** 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]	$t = \frac{J \cdot \omega}{M}$ [s]
velocity in rotary motion	$v = \frac{\pi \cdot d \cdot n}{60} = \frac{d \cdot n}{19,1}$ [m/s]		$v = \omega \cdot r$ [m/s]
speed n and **angular velocity ω**	$n = \frac{60 \cdot v}{\pi \cdot d} = \frac{19,1 \cdot v}{d}$ [min^{-1}]		$\omega = \frac{v}{r}$ [rad/s]
acceleration or deceleration as a function of starting or stopping time		$a = \frac{v}{t}$ [m/s^2]	
angular acceleration 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]		$\alpha = \frac{\omega}{t}$ [rad/s^2]
	$\alpha = \frac{39,2 \cdot M}{Gd^2}$ [rad/s^2]		$\alpha = \frac{M}{J}$ [rad/s^2]
starting or stopping **distance** 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]
		$\varphi = \frac{\alpha \cdot t^2}{2}$ [rad]	
starting or stopping **angle** as a function of an angular acceleration or deceleration, of a final or initial angular velocity	$\varphi = \frac{n \cdot t}{19,1}$ [rad]		$\varphi = \frac{\omega \cdot t}{2}$ [rad]
mass	$m = \frac{G}{g}$ $[\frac{kgf\ s^2}{m}]$		m è l'unità di massa [kg] m is the unit of mass [kg]
weight (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]		
force in vertical (lifting), horizontal, inclined motion of translation (μ = coefficient of friction; φ = angle of inclination)	$F = G$ [kgf]		$F = m \cdot g$ [N]
	$F = \mu \cdot G$ [kgf]		$F = \mu \cdot m \cdot g$ [N]
	$F = G\ (\mu \cdot \cos \varphi + \text{sen}\ \varphi)$ [kgf]		$F = m \cdot g\ (\mu \cdot \cos \varphi + \text{sen}\ \varphi)$ [N]
dynamic moment Gd^2, moment of inertia J due to a motion of translation (numerically $J = \frac{Gd^2}{4}$)	$Gd^2 = \frac{365 \cdot G \cdot v^2}{n^2}$ [kgf m^2]		$J = \frac{m \cdot v^2}{\omega^2}$ [kg m^2]
torque 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 m]		$M = F \cdot r$ [N m]
	$M = \frac{Gd^2 \cdot n}{375 \cdot t}$ [kgf m]		$M = \frac{J \cdot \omega}{t}$ [N m]
	$M = \frac{716 \cdot P}{n}$ [kgf m]		$M = \frac{P}{\omega}$ [N m]
work, energy in motion of translation, in rotary motion	$W = \frac{G \cdot v^2}{19,6}$ [kgf m]		$W = \frac{m \cdot v^2}{2}$ [J]
	$W = \frac{Gd^2 \cdot n^2}{7160}$ [kgf m]		$W = \frac{J \cdot \omega^2}{2}$ [J]
power in motion of translation, in rotary motion	$P = \frac{F \cdot v}{75}$ [CV]		$P = F \cdot v$ [W]
	$P = \frac{M \cdot n}{716}$ [CV]		$P = M \cdot \omega$ [W]
power 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]
power 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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Rossi North America
3355 Martin Farm Road, Suite #400
Suwanee, GA 30024

Phone – 1 800 931-2044
Fax – 1 678- 288-3658

info.northamerica@rossi.com
www.rossi.com/northamerica

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