G NEMA series
Imperial units

NEMA helical & bevel helical gearmotors

Contents

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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.

70 years

Experience

Shaped by 70 years of history Rossi meets your unique needs whether you need a standard design or a customized solution.

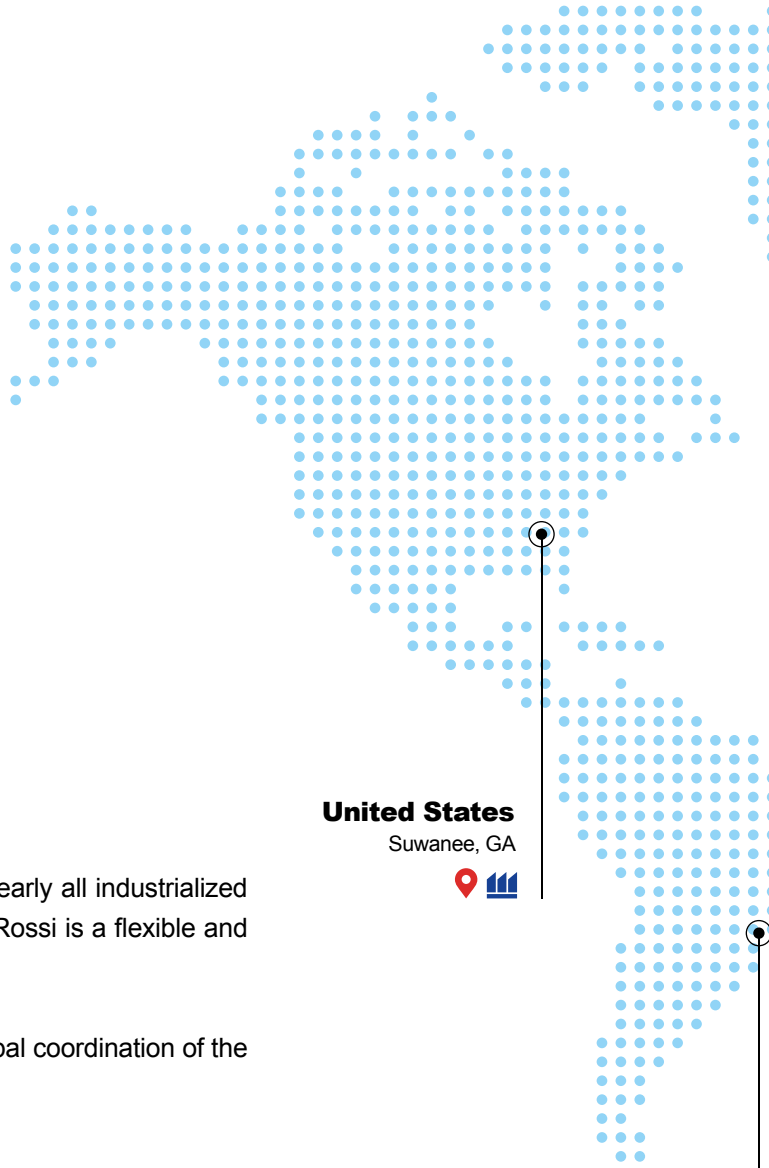

Rossi

Global presence local service

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

15 branches*

Worldwide distribution network*



United States
Suwanee, GA

Brazil
Cordeiropolis, SP

A widespread sales network of subsidiaries and dealers in nearly all industrialized countries. By your side from the design to after-sale phase, Rossi is a flexible and dependable partner throughout the world.

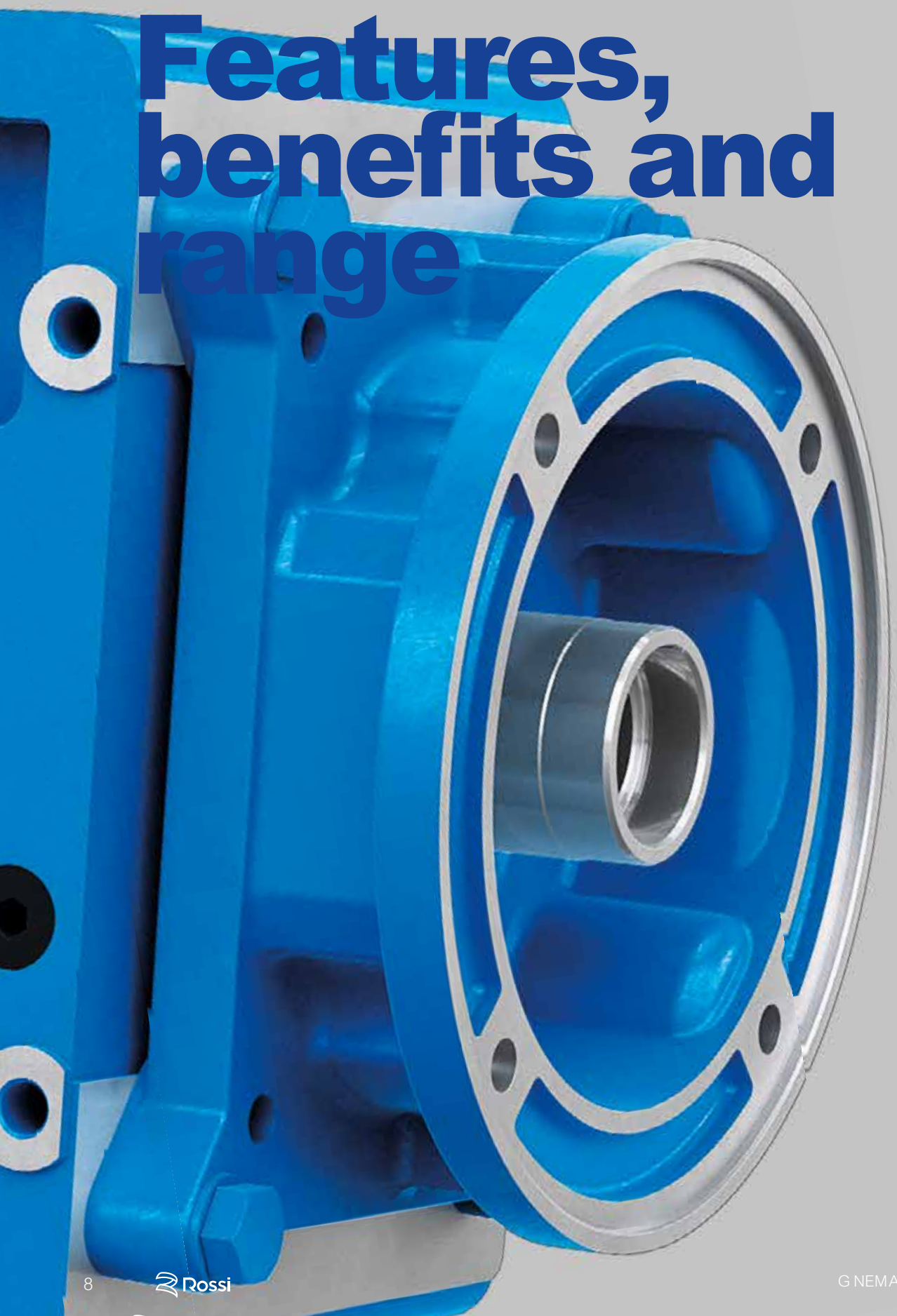
Rossi for You, our customer web portal, provides a 24/7 global coordination of the ordering, supply and service processes.

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


Headquarters
Branches
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
South Africa
La Mercy
India
Coimbatore
Australia
Perth
Malaysia
Kuala Lumpur

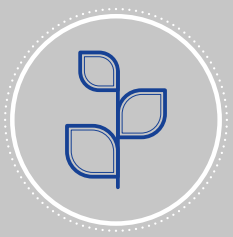
2

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

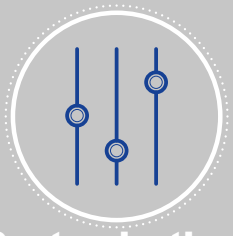
We are constantly thinking forward, solutions for an evolving industry

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

Universal «symmetrical» mounting: suitable for horizontal or vertical mounting

Rigid and precise cast iron single-piece housing; high oil capacity

Standard hollow low speed shaft, prearranged for installation of backstop device

Possibility of fitting particularly powerful motors and capability of withstanding high loads on the shaft end

Intermediate sizes 140, 180, 225, 280, 360 - dimensions similar to previous sizes 125, 160, 200, 250, 320 - conceived to be also a supporting series in particular applications; one size pairs, standard and strengthened, 320 and 321

Manufacturing and product management flexibility

High manufacturing quality standards

Minimum maintenance requirements

High, reliable and tested performance

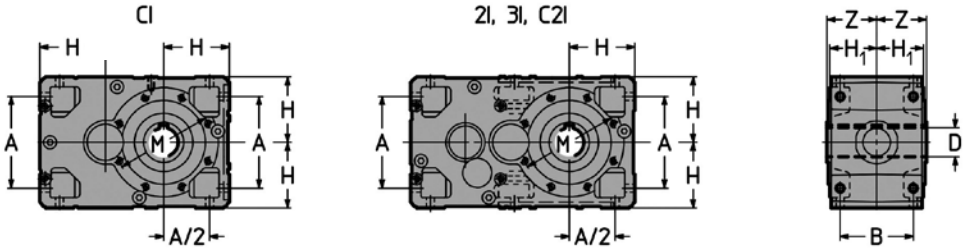
"Long" series of helical gearmotors for applications with U position of motor/machine shaft and considerable distance between input and output shafts; same input and output coupling dimensions, same transmission ratios and performances, same combinations of motors and gear reducers as the standard series (**patent pending**).

This series of gearmotors combines and exalts the traditional qualities of helical and bevel helical gearmotots – **strength**, **accuracy**, and **reliability** – with advantages derived from modern design, manufacturing and operating criteria – **suitability for the heaviest duties, universality and ease of application, comprehensive size range, service, economy** – the advantages typically associated with high quality gear reducers produced in large series.

2.1 - Gearmotor

Main structural features

– **universal** mounting having feet integral with housing on 4 faces and B14 flange on 2 faces, B5 flange with spigot recess mountable on the faces with B14 flange (see ch. 4); the drawing and the strength of housing allow **interesting shaft mounting arrangements**, foot mounted motor coupling arrangement (see ch. 4) and attachments points for a variety of equipment;



Fully interchangeable products of the same size independently from train of gears.

– gearmotor overall dimensions are suitable to be equipped with large motor sizes transmitting **high nominal and maximum torques**, supporting **high loads on low and high speed shaft ends**;
– standard hollow low speed shaft in steel, with keyway; solid (left or right hand extension) or double extension low speed shaft (see ch. 4).
– improved and upgraded modular construction both for component parts and assembled product;
– standardized dimensions and compliance with standards;
– hollow low speed shaft with inch dimensions, as standard;
– NEMA C standard motor directly fitted into hollow high speed shaft; with motors size ≥ N320TC, to obtain easier installing and removal and avoid fretting corrosion, bevel helical gearmotors (CI, C2I) have a keying system with key and bronze bushing whereas helical gearmotors (2I, 3I) have a keying system with hollow high speed shaft with longitudinal cuts, shrink disc and key for a perfect alignment;

– taper roller bearings, excluding some shafts (high speed shaft) on which bearings are cylindrical roller or ball type;
– **cast iron** single-piece housing 200 UNI ISO 185 (**spheroidal** UNI ISO 1083 for sizes 140, 180, 225) with **stiffening ribs and high oil capacity**;
– oil bath lubrication; synthetic or mineral oil (ch. 5) with filler plug and valve, level and drain plug, supplied **without oil**; sealed;
– additional bearings lubrication through proper pipelines or pump;
– natural or forced cooling (fan – also in **flange** mounting – and/or coil, see ch. 4);
– **paint**: **external** coating in acrilic alkyd enamel 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 see ch. 4); **internal** protection with synthetic paint suitable to resist polyalphaolefines based synthetic or mineral oils;
– non-standard designs: backstop device, supplementary cooling and lubrication systems, shaft mounting arrangements, special paints (ch. 4);
– **helical «long» model**: it is derived from the standard one (completing it) through the addition of an **idle gear** between wheel and pinion of the second-last reduction stage (first reduction stage for 2l train of gears) hence allowing to **distance considerably** the input and output shafts, whilst maintaining the same **specifications and performances** as the standard model. In particular:
– same **input and output coupling dimensions** (shafts and B14 output flange, motor sizes);
– same high speed shaft **bearing** (shafts and bearings) with the same transmission ratio;
– same **foot mounting dimensions** (A_1 dimension excluded);
– same **transmission ratios and performances**;
– same **combinations of motors and gear reducers**;
– same **thermal power** (thanks to the greater length of the housing);
– same **accessories** and non-standard **designs**;
– same **high quality level** (design solutions, production processes and tests, components, single-piece housing, modular and aesthetic design).

The «long» gearmotor obtained through this new design concept, makes possible also very low transmission ratios with proportioned and generous bearings in terms of high speed shaft roller bearings and shaft diameters.
Everything stated in this catalog is to be intended **valid both for standard and long model**, except otherwise stated.

Train of gears

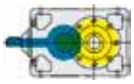
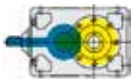
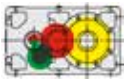
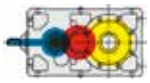
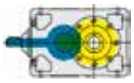
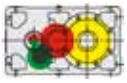
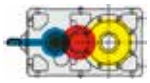
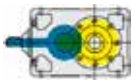
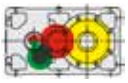
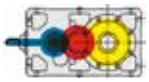
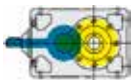
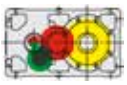
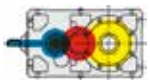
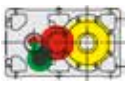
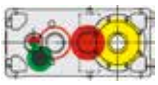
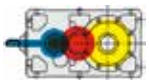
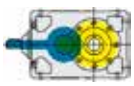
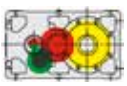
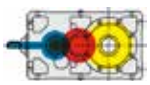
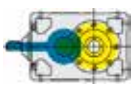
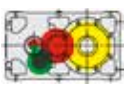
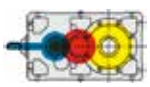
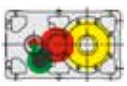
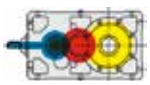
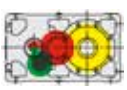
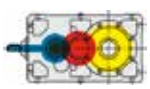
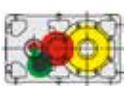
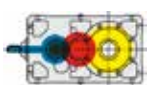
– 2, 3 helical gear pairs (helical gearmotors);
– 2, 3 helical gear pairs and **1 idle gear** («long» model, helical gearmotors);
– 1 bevel gear pair plus 1, 2 helical gear pairs (bevel helical gearmotors);
– 1 size with final reduction center distance to R 10 (125); 9 sizes with final reduction center distance to R 20 (140 ... 360, with 1 size pair: standard and strengthened);
– nominal transmission ratios to R 10 (i_N = 2.5 ... 160) for helical gear units; to R 10 (i_N = 5 ... 200 for bevel helical gear units; to R 20 (i_N = 9 ... 90), for all sizes 140 ... 360;
– casehardened and hardened gear pairs in 16 CrNi4 or 20 MnCr5 steel (depending on size) and 18 NiCrMo5 according to UNI EN 10084;
– helical gear pairs with **ground** profile;
– GLEASON spiral bevel gear pairs with **ground** or accurately lapped profile;
– gear load capacity calculated for tooth breakage and pitting.

Helical gearmotor with **backstop device** (always prearranged)

Bevel helical gearmotor CI (also C2I) with high speed shaft for **90° multiple drives**.

Specific standards

- nominal transmission ratios and principal dimensions according to UNI 2016 (DIN 323-74, NF X 01.001, BS 2045-65, ISO 3-73);
- toothing profile to UNI 6587-69 (DIN 867-86, NF E 23.011, BS 436.2-70, ISO 53-74);
- shaft heights to UNI 2946-68 (DIN 747-76, NF E 01.051, BS 5186-75, ISO 496-73);
- fixing flanges B14 and B5 (the latter with spigot «recess») taken from UNEL 13501-69 (DIN 42948-65, IEC 72.2);
- medium series fixing holes to UNI 1728-83 (DIN 69-71, NF E 27.040, BS 4186-67, ISO/R 273);
- helical shaft ends (long or short) to UNI ISO 775-88 (DIN 748, NF E 22.051, BS 4506-70, ISO/R775) with tapped butt-end hole to UNI 9321 (DIN 332 Bl. 2-70, NF E 22.056) excluding correspondence d-D;
- parallel keys UNI 6604-69 (DIN 6885 Bl. 1-68, NF E 27.656 and 22.175, BS 4235.1-72, ISO/R/773-69 / ANSI B17.1) except for specific cases of motor-to-gear reducer coupling where key height is reduced;
- mounting positions derived from CEI 2-14 (DIN EN 60034-7, IEC 34.7);
- load capacity verified according to UNI 8862, DIN 3990, AFNOR E 23-015, ISO 6336; thermal capacity verified.

Size T_{N2} [lb in] - F_{r2} [lb]	CI	2I	3I	2I «long»	3I «long»	C2I
125 30 700 - 4 500						
140 45 000 - 6 300						
160 69 000 - 8 000						
180 97 500 - 10 000						
200 136 000 - 12 500						
225 195 000 - 16000						
250 280 000 - 20 000						
280 387 000 - 25 000						
320 487 000 - 31 500						
321 615 000 - 31 500						
360 775 000 - 40 000						

Symbols and Units of Measurements
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_{1th}	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 ft^2
WK_0^2	moment of inertia (of mass) of the motor	lb ft^2
WK_1^2	moment of inertia (of mass) of the gear reducer referred to high speed shaft	lb ft^2
WK_R^2	external (gear reducer, coupling, driven machine) moment of inertia (of mass) referred to to high speed shaft	lb ft^2
z	starting frequency	starts/h
z_0	no load starting frequency	starts/h
α	angular acceleration	rad/s^2
η	efficiency	–
φ	plane angle	rad
φa_1	revolution of motor shaft during acceleration	rad
φb_1	revolution of motor shaft during deceleration	rad
ω	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	Farenheit 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$_{(f)}$ /in^2]	=	0.0689	bar	[bar]
Moment of inertia	1	WK^2	[lb$_{(f)}$ ft^2]	=	0.0421	kilogram square-meter	[kg m^2]

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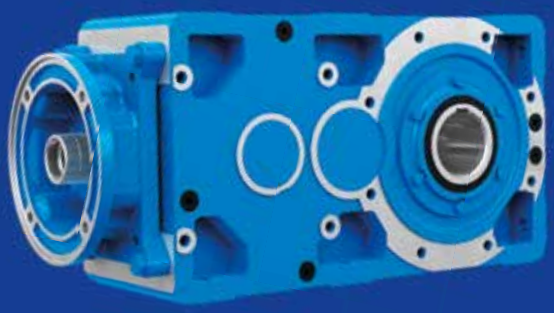
3

Product overview



Section content

Designation code

MR C2I 200 U O 2 V - N250TC - 35.3 V5

INPUT SPEED
(ref. page 20)

MOUNTING POSITION
(ref. page 19)

TRANSMISSION RATIO

NEMA MOTOR FRAME
(ref. ch. 3.7 and 3.9)

DESIGN
A standard
... others (ref. ch. 3.7 and 3.9)

MODEL
2 standard (ref. 3.7 and 3.9)
4 long (ref. 3.7)

SHAFT POSITION
P helical gear units
O bevel helical gear units

FASTENING
U universal

SIZE
125 ... 360 final center distance reduction [mm]

TRAIN OF GEARS

Helical gear pairs:
2I 2 helical gear pairs
3I 32 helical gear pairs

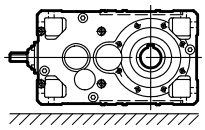
Bevel helical gear pairs:
CI 1 bevel and 1 helical gear pair
C2I 1 bevel and 2 helical gear pairs

MACHINE
MR gearmotor

Gearmotor mounting position

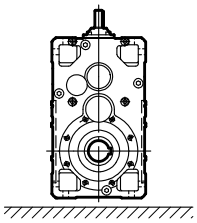
Gearmotor mounting positions are described in ch. 3.7 and 3.9 (the mounting position designation refers to foot mounting only, even if gear reducers are for universal mounting; e.g.: B14 flange fastening and derivatives; B5 flange fastening and derivatives, see ch. 4). Here following some designation examples of important mounting positions.

1. **Standard B3** mounting position; 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).

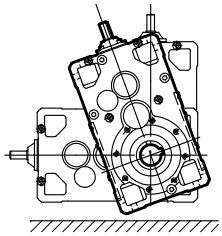


2. **Non-standard** mounting positions

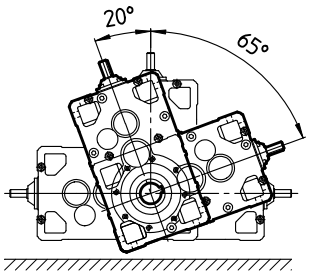
2a. Mounting position as per catalog (see ch. 3.7 and 3.9), **only one** and **fixed**, differing from B3; e.g.: mounting position **B6**



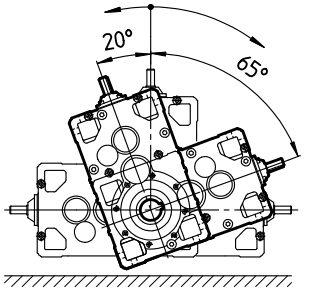
2b. **Inclined and fixed** mounting position; e.g.: mounting position **B6 - 20° B3**



2c. **One only** mounting position **but defined within a pre-determined angle**; e.g.: mounting position within **B6 - 20° B3 / B6 - 65° B8**



2d. **Oscillatory** mounting position (gear reducer oscillating when running); e.g.: mounting position B6 **- 20° B3 / B6 - 65° B8 oscillatory**



UT_C 2088

Input speed

Complete the designation stating the input speed n_1, in the following cases:
– $n_1 > 1800$ rpm or $n_1 \leqslant 355$ rpm;
– for cases highlighted with following symbols (▲, ,) (ch. 3.7 and 3.9);
– when forced cooling is required.

Example:
MR C2I 200 UO2V-N320TC - 62,6 $\boldsymbol{n_1}$ = **2000** – **600 rpm**

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. 4).

Service factor *fs* takes into account the different running conditions (nature of load, running time, frequency of starting, speed n_2, other considerations) which must be referred to when performing calculations of gear reducer selection and verification.

The **minimum service factor required** is given by:

$$\boldsymbol{fs} \text{ required} \geqslant \boldsymbol{fs}_1 \cdot \boldsymbol{fs}_2 \cdot \boldsymbol{fs}_3 \cdot \boldsymbol{fs}_4 \cdot \boldsymbol{fs}_5$$

or, in case of selection according to $\boldsymbol{n}_2 \cdot \boldsymbol{L}_h$:

$$\boldsymbol{fs} \text{ required} \geqslant \boldsymbol{fs}_1(8\ \text{h/d}) \cdot \boldsymbol{fs}_2 \cdot \boldsymbol{fs}_3 \cdot \boldsymbol{fs}_4$$

Service factor $\boldsymbol{fs}_1$ according to **nature of load** and to **running time**
Details and considerations about service factor.

Nature of load of driven machine[1]		fs_1[2] Running time [h/d] ⩽				
Ref.	Description	**2**	**4**	**8**	**16**	**24**
a	**Uniform**	0.8[3]	0.9[3]	1	1.18	1.32
b	**Moderate overloads** (1.6 x normal)	1	1.12	1.25	1.5	1.7
c	**Heavy overloads** (2.5 x normal)	1.32	1.5	1.7	2	2.24

Service factor $\boldsymbol{fs}_2$ based on **nature of load** and of **frequency of starting**

Nature of load of driven machine[1]		fs_2 Frequency of starting $\boldsymbol{z}$ [starts/h]							
Ref.	Description	**2**	**4**	**8**	**16**	**32**	**64**	**125**	**250**
a	**Uniform**	1	1.06	1.12	1.18	1.25	1.32	1.4	1.5
b	**Moderate overloads** (1.6 x normal)	1	1	1.06	1.12	1.18	1.25	1.32	1.4
c	**Heavy overloads** (2.5 x normal)	1	1	1	1.06	1.12	1.18	1.25	1.32

Service factor $\boldsymbol{fs}_3$ based on **motor type**

Motor type Description		fs_3
Electric three-phase	$\boldsymbol{P}_1 \leqslant 12.4$ hp	1
	$\boldsymbol{P}_1 > 12.4$ hp[4]	1.06[4]
Brake electric three-phase		1.06
Internal combustion	multi-cylinder	1.25
	single-cylinder	1.5

Service factor $\boldsymbol{fs}_4$ based on **reliability level**

Reliability level[5]	fs_4
normal	1
medium	1.25
high	1.4

Service factor $\boldsymbol{fs}_5$ based on **output angular speed** n_2

Output speed n_2 [rpm]	fs_5
560 – 355	1.25
355 – 224	1.18
224 – 140	1.12
140 – 90	1.06
< 90	1

fs values stated above are valid for:
- 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 overload should be assumed;

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 gear reducer and driven machine and particular types of coupling beetween gearmotor 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.

1) For indication on the type of load of the driven machine according to the application, see table on next page.
2) When selecting with $n_2 \cdot L_h$, use exclusively the column 8 h/d.
3) When having variable load verify each load cycle interval.
4) For Y-Δ starts, running with inverter or «soft start» devices, fs_3=1.
5) Reliability degrees higher than normal are required in presence of: very difficult maintenance, great importance of gear reducer in the production cycle, safety, etc.

Classification of nature of load according to application

Application	Ref. load *
Stirrers and mixers	
Liquids:	
– constant density	a
– varying density, solids in suspension, high viscosity	b
concrete mixers, mullers, flash mixers, concrete mixers, mullers, flash mixers	c
Feeders and batchers	
rotary (roller, table, sector)	a
belt, screw, plate	a, b
reciprocating, shaker	c
Compressors	
centrifugal (single-stage, multi-stage)	a
rotary (vane, lobe, screw)	b
axial	b
reciprocating:	
– multi-cylinder	b
– single-cylinder	c
Elevators	
belt, centrifugal or gravity discharge, screw jacks, escalators	a, b
bucket, arm and tray elevators, paddle wheel, hoists, skips	b
man lifts, mobile scaffolding, passenger transport (cable cars, chair, ski, gondola lifts etc.)	a, b
Excavators and dredges	
cable reels, conveyors, pumps, winches (manoeuvring and utility), stackers, draining wheels	b
cutter head drives, cutters, excavators (bucket ladder, paddle wheel, cutter)	c
vehicles:	
– on rails	b
– crawlers	c
Crushers and granulators	
sugar cane, rubber, plastics	b
minerals, stone	c
Cranes, winches and travelling lifts	
travel (bridge, trolley, forks)[1]	b
slewing	b
hoist[2]	a, b
Food industry	
cookers (cereals and malt), mash tubs	a
slicers, dough mixers, meat grinders, beet slicers, centrifuges, peelers, winemaking plant, bottle/bin/cratewashers, rinsers, fillers, corkers, cappers, extruders, crate filling and emptying equipment	b
Paper mills	
winders, suction rolls, dryers, embossing machinery, bleachers, press rolls, coating rolls, paper rolls, beaters, and pulpers	a
agitators, mixers, extruders, chip feeders, calenders, felt dryers and stretchers, rag grinders, washers, thickeners	b
cutters, chippers, calenders (super), felt whippers, glazing machines, presses	c
Lumber and woodworking industries	
mechanical loaders, pallet stackers	a, b
conveyors for:	
– boards, chips, waste	b
– logs	c
machine tools (planing, cutting, cross-cut and re-sawing, tenoning, bevelling, moulding, sanding, sizing and scratch-brushing machinery etc.):	
– feed drive	b
– cutter drive	c
barkers:	
– mechanical and hydraulic	b
– drum	b, c
Oil industry	
paraffin filter presses, chillers	b
rotary drilling equipment	c
pumping equipment	b
Textile industry	
calenders, cards, pickers, dryers, nappers, spinners, slashers, pads, soapers, washers, mangles, tenter frames, looms (Jacquard), warping machines, winders, knitting machines, dyeing machines, twisting frames, gig mills, cutters	b
Clay working machinery	
pug mills, extruders, rotary deslimers	b
brick and tile presses	c
Rubber and plastics industries	
extruders:	
– plastics	b
– rubber	c
mixing mills, warming mills, friction calenders, refiners, tubers and strainers, rolling mills	b
crackers, masticators	c
Wrapping and stacking machinery	
wrapping (film, cardboard), binding, strapping and labelling equipment	b
palletizing/depalletizing and stacking/unstacking machinery, palletizing robots	c
Engineering machine tools	
boring, shaping, planing, broaching, gear cutting and FMS machines, etc.:	
– main drivers (cut and feed)	a
auxiliary drives (tools magazine, chip conveyor, workpiece infeed)	b
Mechanisms	
indexing, crank and slotted link, Maltese cross, articulated parallelogram	b
rod and crank, cam control (cam and tappet, cam and rocker)	c
Metal mills	
shears:	
– trimming, cropping, facing	b
– for sheet/plate, ingots, billets	c

Application	Ref. load *
transverse drive rollers, draw benches, coilers, inverter, draglines, flattening rolls, bending rolls	b
pushers, descaling equipment, pipe welders, mill roll train drives, rolling mills, forging presses, billet croppers, power hammers, punches, impact extruders, tapping machines, straightening presses	c
Rollerways	b, c [3]
Mills	
rotary (rod, roller, pebble, ball)	b
hammer, pin crusher, centrifugal, impact, rolling (ball or roller)	c
Pumps	
rotary (gear, screw, lobe, vane) and axial	a, b
centrifugal:	
– liquids, constant density	a
– liquids, variable density or high viscosity	b
proportioning	b
alternative:	
– single acting (⩾ 3 cylinders), double acting (⩾ 2 cylinders)	b
– single acting (⩽ 2 cylinders), double acting single cylinder	c
Rotating drums	
dryers, chillers, rotary kilns, washing machines	b
tumblers, cement kilns	c
Transport conveyors	
belts (plastic, rubber, metal) for:	
– fine grade loose material	a
– coarse grade loose material or discrete items	b
belt, apron, bucket, slat, tray, roller, screw, chain, overhead rail, assembly	b
drag (slat, flight, chain, Redler, etc.) ground level chain, flow accumulating	b
reciprocating, shaker	b
overhead power rail	c
Sewage treatment	4)
biological tanks (revolving disk)	a
dewatering screws, collectors, rotary screens, thickeners, vacuum filters, anaerobic digestion tanks	b
aerators, rotary breakers	c
Screen and riddles	
air washing, travelling water intake	a
rotary (stone, gravel, cereals)	b
vibrating screens, riddles, jigs	c
Fans	
small diameter (centrifugal, axial-flow)	a
large diameter (mines, furnaces, etc.) cooling towers (inducted or forced draft), ducted, piston	b

* Nature of load reference admits of modification where precise knowledge of duty is available.
1) In the traverse movement of the bridge usually it is necessary to have at least *fs* > 1.6 and in the storeyard cranes *fs* > 2 (container handling).
2) For selection of fs to F.E.M./I-10.1987, consult us.
3) See cat. S.
4) See supplement to cat. A.

Nominal thermal power Pt_N, written in red in the table, is that which can be applied at the gearmotor input, also for long model, without exceeding 203 °F [1] (95 °C) approximately oil temperature when operating in following running conditions:
– input speed n_1 = 1 800 rpm;
– mounting position B3;
– continuous duty S1;
– maximum ambient temperature 68 °F (20 °C) (in the table also the values referred to 104 °F (40 °C) are stated);
– maximum altitude 3 300 ft above sea level;
– air speed ⩾ 4[2] ft/s (Value typical in presence of an gearmotor with self cooled motor).

T_{amb} °F	Gear red. size	Gear reducer size P_{tN} [2] hp									
		125	**140**	**160**	**180**	**200**	**225**	**250**	**280**	**320,321**	**360**
68 °F (20 °C)	**2I**	–	42.5	56	63	90	100	140	160	224	250
	3I	–	35.5	47.5	53	75	85	118	132	190	212
	CI	35.5	47.5	53	75	85	118	132	190	–	–
	C2I	–	35.5	47.5	53	75	85	118	132	190	212
104 °F (40 °C)	**2I**	–	31.5	42.5	47.5	67	75	106	118	170	190
	3I	–	26.5	35.5	40	56	63	90	100	140	160
	CI	26.5	35.5	40	56	63	90	100	140	–	–
	C2I	–	26.5	35.5	40	56	63	90	100	140	160

Always verify that power applied $\boldsymbol{P_1}$ is lower than or equal to gearmotor nominal thermal power $\boldsymbol{Pt_N}$ multiplied by the corrective coefficients $\boldsymbol{ft_1}$, $\boldsymbol{ft_2}$, $\boldsymbol{ft_3}$, $\boldsymbol{ft_4}$, $\boldsymbol{ft_5}$ (stated in the following tables) considering the several operational conditions:

$$\boldsymbol{P_1 \leqslant Pt_N \cdot ft_1 \cdot ft_2 \cdot ft_3 \cdot ft_4 \cdot ft_5}$$

When the power applied is not constant and when the exact load cycle is given, it is possible, or advisable, to calculate the equivalent power applied, according to the formula:

$$P_{1th} = \frac{1}{\eta} \cdot \sqrt[3]{\frac{P_{2_1}^3 \cdot t_1 + P_{2_2}^3 \cdot t_2 + \ldots + P_{2_i}^3 \cdot t_i + \ldots + P_{2_n}^3 \cdot t_n}{t_c}}$$

where:
η is the efficiency of gearmotor (see ch.3);
P_{2i} [hp] is the power, referred to the gearmotor output, required in the time interval t_i [s];
$t_c = t_1 + t_2 + \ldots + t_i + \ldots + t_n$ is the total duration of load cycle [s].

In these cases choose factor $\boldsymbol{ft_2}$ from the continuous duty column S1.

Whenever the thermal verification should not be satisfied, in spite the prearrangement of cooling system, it is possible to install an **independent cooling unit with heat exchanger** (see ch. 4); 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 $\boldsymbol{ft_1}$ (= $\boldsymbol{ft_{1a}} \cdot \boldsymbol{ft_{1b}}$) according to **cooling system** and **input speed** $\boldsymbol{n_1}$

Cooling system				ft_{1a}, ft_{1b} input speed n_1 [rpm] ⩾				
				710	**900**	**1 120**	**1 400**	**1 800**
ft_{1a}	Natural convection	train of gears	2I, CI	1.4	1.32	1.25	1.18	1
			3I, C2I	1.12	1.12	1.09	1.06	1
ft_{1b}	Fan cooling[3) 4) 6)]	with 1 radial fan (bevel helical gear unit)		1.25	1.4	1.6	1.8[5)]	2
	With water coil[4)]			see ch. 4				
	With internal exchanger[4)]							

1) Corresponding to a mean temperature of the housing external surface approx. equal to 185 °F (85° C) (locally this temperature may also reach the oil one).
2) For bevel helical gearmotors with double extension high speed shaft multiply Pt_N by **0.85**.
3) With simultaneous water cooling by coil, values are multiplied by 1.8.
4) Refer to ch. 4 about positions, overall dimensions and design verification.
5) Value valid also for proper electric fan (installation by Customer).
6) With axial fan, the values are to be multiplied by 1.12. Consult us.

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

Maximum ambient temperature °F (°C)	ft_2 Continous duty	Intermittent duty S3 ... S6 Cyclic duration factor [%] for 60 min running[1]			
	S1	**60**	**40**	**25**	**15**
122 (50)	0.6	0.71	0.8	0.95	1
104 (40)	0.75	0.9	1	1.12	1.25
86 (30)	0.9	1.06	1.18	1.32	1.5
68 (20)	**1**	1.18	1.32	1.5	1.7
50 (10)	1.12	1.32	1.5	1.7	1.9

Thermal factor ft_4 according to **installation 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_3 according to **mounting position** (see also ch. 3.7 and 3.9); **where it is not specified ft_3 = 1**

Train of gears	Mounting position		ft_3 140	160	180	200	225	250	280	320, 321	360
MR 2I	**B6**	$i_N \leqslant 14$	1	1	1	0.85	0.85	0.85	0.85	0.85	0.85
		$i_N \geqslant 16$	1	1	1	1	1	1	1	0.85	0.85
	B7	$i_N \leqslant 14$	1	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
		$i_N \geqslant 16$	1	1	1	1	1	0.71	0.71	0.71	0.71
	V5	$i_N \leqslant 14$	1	1	1	0.71	0.71	0.71	0.71	0.71	0.71
		$i_N \geqslant 16$	1	1	1	1	1	1	1	0.71	0.71
	V6	$i_N \leqslant 14$	1	1	1	1	1	1	1	0.85[2]	0.85[2]
MR 3I	**B6**	$i_N \leqslant 63$	1	1	1	1	1	0.85	0.85	0.85	0.85
	B7	$i_N \leqslant 63$	1	1	1	0.71	0.71	0.71	0.71	0.71	0.71
		$i_N \geqslant 71$	1	1	1	1	1	1	1	0.71	0.71
	V5	$i_N \leqslant 63$	1	1	1	1	1	1	1	0.71	0.71
	V6	$i_N \leqslant 63$	1	1	1	1	1	0.85	0.85	0.85	0.85
MR CI	**B7**		1	1	1	1	1	0.85	0.85	–	–
	B8		0.85	1	0.85	1	0.85	1	0.85	–	–
	V5, V6	• above	1	1	1	1	1	0.85	0.85	–	–
MR C2I	**B7**		1	1	1	1	1	1	1	0.85	0.85

Thermal factor ft_5 as dependent on air speed on the housing

Air speed ft/s	Working environment	ft_5
< 2	very small no air movement gear reducer shielded	Consult us
2	small and with limited air movement	0.71
3.15	large and without ventilation	0.90
4	large and with slight ventilation (e.g. gearmotor with self-cooled motor)	1.00
8	outdoor ventilated	1.18
12.5	strong air movement	1.32

1) (Durating of running on load [min] / 60)·100 [%].
2) For MR 2I, ft_3 = 1.
● Position of reference groove (see ch. 6).

Fan cooling for bevel helical gearmotors.

With double extension high speed shaft designs, (**... D**, **... H** and **... R**) only one extensions is **accessible** even with fan fitted: **personal safety-guards are the Buyer's responsibility (2006/42/EC).**

Preliminary considerations

Motor power

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

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

An oversized motor would involve: a greater starting current and consequently larger fuses and heavier cable; a higher running cost as power factor (cos 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.

In such cases, a detailed description of duty requirement must be made available: duration and frequency per hour of work cycle, acceleration and deceleration requirements if any, inertia, loads deriving from friction and work. In the absence of such data it is essential to provide all details which will permit their determination.

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

Gearmotor

Determining the gearmotors size

- Fill in the selection questionnaire in all its parts at page 28; in particular, make available the necessary data: power P_2 required at gearmotor output, angular speed n_2, running conditions (nature of load, duration, frequency of starting z, other considerations), referring to ch. 3.
- Determine service factor fs on the basis of running conditions (ch. 3).
- Select the gearmotor size on the basis of n_2, fs and of a power P_1 greater than or equal P_2 (ch. 3.6 and 3.8). If power P_2 required is the result of a precise calculation, the gearmotor should be selected on the basis of a power P_1 equal to or greater than P_2 / η, where $\eta = 0.96 - 0.92$ is gearmotor efficiency (ch. 3.5). The torque value T_2 stated in the tables (ch. 3.6 and 3.8) has been calculated taking into account efficiency.

When for reasons of motor standardization, power P_1 available in catalog is much greater than the power P_2 required, the gearmotor can be selected on the basis of a lower service factor ($fs \cdot P_2 / P_1$) 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).

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. 3.10.
- For the motor, verify frequency of starting z when higher than that normally permissible; this will normally be required for brake motors only.
- Verify that the **static bending moment T_b** generated by motor weight on the counter flange of gear reducer is lower than the value allowed T_{bmax}, stated in the ch. 3.5.
  Loads higher than permissible loads may be present in dynamical applications where the gearmotor is subjected to translations, rotations or oscillations: consult us for the study of every specific case
- When a load chart is available, and/or there are overloads – due to starting on full load (especially with high inertias and low transmission ratios), braking, shocks, gear reducers in which the low speed shaft becomes driving member due to driven machine inertia, or other static or dynamic causes - verify that the maximum torque peak (ch. 3.5 is always less than $1,6 \cdot T_{N2}$ ($T_{N2} = T_2 \cdot fs$, see ch. 3.6 and 3.8); if it is higher or cannot be evaluated in the above cases, install a safety device so that **$1.6 \cdot T_{N2}$ will never be exceeded**.
- Verify, usually for $P_1 \geqslant 40$ hp, possible need for forced cooling (ch. 4).

Questionnaire for the selection

For the collection of data and of all information necessary for a correct selection of gearmotor, fill in the questionnaire at the following page.

Attach technical specifications, if any, concerning the gearmotor excluding other parts of the machine or of the plant.

When it is possible, attach the questionnaire with drawings, pictures and any further information useful to facilitate the best selection from a technical and economic point of view.

1 Conditions of application

Area of application/Industry sector

Type of machine to be driven

- ☐ new machine
- ☐ existing and running machine
- ☐ gear reducer in use

Ambient temperature [°F]

min | normal | max

Altitude [m a.s.l.]

Ambient:

- ☐ normal (industrial) indoor
- ☐ normal (industrial) outdoor
- ☐ dusty
- ☐ corrosive / humid

Gear reducer position:

- ☐ tight space with insufficient air recycle (v_{air} < 2 ft/s)
- ☐ wide space with free air recycle (v_{air} ⩾ 4 ft/s)
- ☐ outdoor, protected against extremes of weather and radiation

2 Data of load

Output speed required [rpm]

min | nominal | max

Output torque required [lb in]

min | nominal | max

Power required on low speed shaft [hp]

min | nominal | max

Input speed (gear reducers) [rpm]

min | nominal | max

Nature of load:

- ☐ uniform
- ☐ moderate overloads
- ☐ heavy overloads

Frequency of starting [starts/h]

Moment of inertia of machine [lb ft²]

min | normal | max

Running time [h/d]

Total duration [h]

Duty cycle (S1 ... S10)

Load cycle attached

- ☐ yes
- ☐ no

3 Motor

Motor type:

- ☐ asynchronous three-phase (a.c.)
- ☐ asynchronous three-phase + inverter
- ☐ d.c. + converter
- ☐ internal combust. (one - cylinder)
- ☐ internal combust. (multi-cylinder)

Power P_1 [hp]

min | nominal | max

Nominal speed n_1 [rpm]

min | nominal | max

A.c. motor supply:

voltage [V] | frequency [Hz]

NEMA motor size (a.c. motor)

A.c. motor connection:

- ☐ direct
- ☐ Y / Δ
- ☐ soft starter / inverter

Electromagnetic brake

- ☐ parking
- ☐ working
- ☐ safety

Braking torque [lb in]

Starting torque [lb in]

Moment of inertia [lb ft²]

Electric motor design (a.c. and d.c.):

- ☐ with fan cooling
- ☐ with encoder:
- ☐ with tachometer generator

Connection with gear reducer:

- ☐ with coupling
- ☐ with V-belt

section | No. | d_m [in] | d_1 [in]

- ☐ with toothed belt

section | No. | d_m [in]

Eventual limitation of drive overall dimensions

4 Gear reducer

Mounting position

Output shaft direction of rotation

- ☐ white arrow
- ☐ black arrow
- ☐ black and white arrow

Backstop device (if any)

- ☐ white arrow free rotation
- ☐ black arrow free rotation

Type of cooling admitted

- ☐ fan cooling
- ☐ coil
- ☐ internal heat exchanger
- ☐ unit UR O/A
- ☐ unit UR O/W

Type of connection to machine

- ☐ shaft mounting
- ☐ flexible / semi-flexible coupling
- ☐ universal coupling
- ☐ timing belt

pitch | d_m | d_1 | φ

- ☐ chain

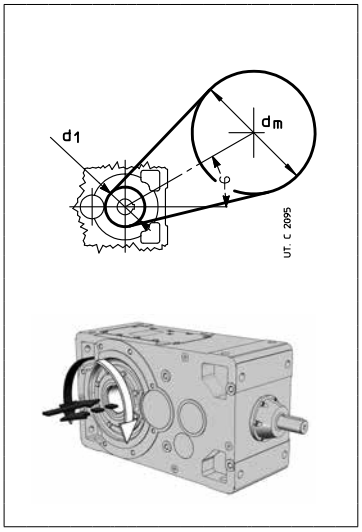
pitch | No. | z_2 | z_3 | overhang [in] | φ

- ☐ straight tooth helical gear pair

pitch | No. | z_2 | z_3 | overhang [in] | φ

Eventual axial load F_a [lb]

Eventual reduction of drive overall dimensions



Sound levels L_{WA} and $\bar{L}_{pA}$

Standard production sound power level L_{WA} [dB(A)][1] and mean sound pressure level $\bar{L}_{pA}$ [dB(A)][2] assuming nominal load, and input speed n_1 = 1 800[3] rpm. Tolerance +3 dB(A).

Gear reducer size	2I				3I				CI				C2I			
	$i_N \leq 14$		$i_N \geq 16$		$i_N \leq 90$		$i_N \geq 100$		$i_N \leq 18$		$i_N \geq 20$		$i_N \leq 71$		$i_N \geq 80$	
	L_{WA}	$\bar{L}_{pA}$	L_{WA}	$\bar{L}_{pA}$	L_{WA}	$\bar{L}_{pA}$	L_{WA}	$\bar{L}_{pA}$	L_{WA}	$\bar{L}_{pA}$	L_{WA}	$\bar{L}_{pA}$	L_{WA}	$\bar{L}_{pA}$	L_{WA}	$\bar{L}_{pA}$
125, 140	**89**	79	**86**	76	**85**	75	**82**	72	**87**	78	**82**	73	**84**	74	**81**	71
160, 180	**92**	81	**89**	78	**88**	77	**85**	74	**90**	81	**85**	76	**86**	76	**84**	73
200, 225	**95**	84	**92**	81	**91**	80	**88**	77	**94**	84	**89**	79	**89**	78	**86**	75
250, 280	**98**	87	**95**	84	**94**	83	**91**	80	**96**	86	**91**	81	**92**	81	**90**	78
320 ... 360	**102**	91	**99**	88	**98**	87	**95**	84					**95**	84	**93**	82

1) To ISO/CD 8579.
2) Mean value of measurement at 1 m from external profile of gear reducer standing in free field on a reflecting surface.
3) For n_1 710 – 1 400 rpm, modify tabulated values: thus n_1 = 710 rpm, -5 dB(A); n_1 = 900 rpm, -4 dB(A); n_1 = 1 120 min^{-1}, -3 dB(A); n_1 = 1 400 rpm, -2 dB(A).

If required, gearmotors can be supplied with reduced sound levels (normally 3 dB(A) less than tabulated values): consult us.

In case of gearmotors with fan cooling, add to the values in the table 3 dB(A) for 1 fan.

Efficiency

The efficiency stated in the table is indicative and referred to nominal running conditions (torque, speed, temperature); it is necessary to keep in mind that the efficiency value can diminish considerably for values of $T_2 \ll T_{N2}$

Model	Nominal efficiency η	
	2I, CI	**3I, C2I**
2	0.96	0.94
4	0.95	0.935

Overloads

When a gearmotor is subjected to high static and dynamic overloads, the need arises for verifying that such overloads will always remain lower than **1.6 · T_{N2}** (see ch. 3.6 and 3.8 where $T_{N2} = T_2 \cdot fs$).

Overloads are normally generated when one has:

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

– gearmotors in which the low speed shaft becomes driving member due to driven machine inertia;

– applied power higher than that required; other static or dynamic causes;

The following general observations on overloads are accompanied by some formulas for carrying out evaluations in certain typical instances.

Where no evaluation is possible, install safety devices which will keep values within **1.6 · T_{N2}**.

Starting torque

When starting on full load (especially for high inertias and low transmission ratios) verify that **1.6 · T_{N2}** is equal to or greater than starting torque, by using the following formula:

$$T_2\,\text{start} = \left(\frac{T\,\text{start}}{T_N} \cdot T_2\,\text{available} - T_2\,\text{required}\right) \frac{WK_R^2}{WK_R^2 + WK_0^2} + T_2\,\text{required}$$

where:

T_2 required is the torque absorbed by the machine through work and frictions;

T_2 available is the output torque due to motor nominal power;

WK_0^2 is the moment of inertia (of mass) of the motor;

WK_R^2 is the external moment of inertia (of mass); gear reducers, couplings, driven machine referred to the motor shaft;

NOTE: when seeking to verify that starting torque is sufficiently high for starting, take into account starting friction, if any, in evaluating T_2 required.

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

Verify braking stress by means of the formula:

$$\left(\frac{T_{brake}}{\eta} \cdot i + T_2\,\text{required}\right) \frac{WK_R^2}{WK_R^2 + WK_0^2} - T_2\,\text{required} < 1.6 \cdot T_{N2}$$

where:

T_{brake} is the braking torque setting; for other symbols see above and ch. 2.

Operation with brake motor

Starting time *t*a **and revolutions of motor** φa$_1$

$$ta = \frac{(WK_0^2 + WK_R^2) \cdot n_1}{25.603\left(T\,\text{start} - \dfrac{T_2\,\text{required}}{i}\right)}\ [\text{s}]; \qquad \varphi a_1 = \frac{ta \cdot n_1}{19.1}\ [\text{rad}]$$

Braking time *t*b **and revolutions of motor** φb$_1$

$$tb = \frac{(WK_0^2 + WK_R^2) \cdot n_1}{25.603\left(T_{brake} + \dfrac{T_2\,\text{required}}{i}\right)}\ [\text{s}]; \qquad \varphi b_1 = \frac{tb \cdot n_1}{19.1}\ [\text{rad}]$$

where:

T start [lb in] is motor starting torque $\left(\dfrac{9\,550 \cdot P_1}{n_1} \cdot \dfrac{T\,\text{start}}{M_N}\right)$;

*T*f [lb in] is the braking torque setting of the motor;

for other symbols see above and ch. 2.

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 ± 0,1 · φb$_1$.

Angular backlash and torsional stiffness

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

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

The values stated in the table, since necessarily estimated, are to be considered valid for long model too. On request, gear reducers with **reduced backlash** lower than or equal to the minimum table values are available.

Gear reducer size	Angular backlash[1]				Torsional stiffness[2]	
	[rad]		[arcmin]		[lb in / arcmin]	
	min	max	min	max	**2I, CI**	**3I, C2I**
125	0.0017	0.0034	5.8	12	1 250	–
140	0.0017	0.0034	5.8	12	1 750	1 000
160	0.0016	0.0032	5.5	11	2 500	1 400
180	0.0016	0.0032	5.5	11	3 550	2 000
200	0.0015	0.0030	5.2	10	5 000	2 800
225	0.0015	0.0030	5.2	10	7 100	4 000
250	0.0014	0.0028	4.8	9.6	10 000	5 600
280	0.0014	0.0028	4.8	9.6	14 000	8 000
320, 321	0.0013	0.0026	4.5	8.9	20 000	11 200
360	0.0013	0.0026	4.5	8.9	28 000	16 000

1) 1 rad = 3438'.
2) Values valid in condition of nominal load.

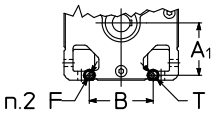
Moment of inertia (of mass) WK_1 [lb ft^2]

Train of gears	Gear reducer size									
i_N	**125**	**140**	**160**	**180**	**200**	**225**	**250**	**280**	**320, 321**	**360**
2I										
6,3 … 12,5	–	0.074	0.216	0.242	0.694	0.772	2.121	2.344	6.679	7.501
6,3 … 12,5[1]	–	0.107	0.316	0.342	1.021	1.100	3.038	3.261	9.423	10.245
14 … 28	–	0.040	0.109	0.131	0.359	0.439	1.230	1.344	3.439	4.150
14 … 28[1]	–	0.059	0.159	0.204	0.513	0.594	1.684	1.798	4.705	6.069
3I										
28 … 63	–	–	0.045	0.048	0.143	0.150	0.430	0.451	1.423	1.276
28 … 63[1]	–	–	0.055	0.057	0.176	0.183	0.523	0.544	1.698	1.368
71 … 160	–	–	0.021	0.021	0.064	0.067	0.197	0.202	0.641	0.589
71 … 160[1]	–	–	0.024	0.024	0.074	0.074	0.221	0.226	0.720	0.613
CI										
4 … 8	0.090	0.100	0.292	0.325	0.876	0.983	2.596	3.043	–	–
9 … 11,2	0.059	0.078	0.171	0.249	0.530	0.762	1.677	2.378	–	–
12,5 … 16	0.036	0.043	0.121	0.145	0.375	0.444	1.192	1.399	–	–
18, 20	0.019	0.024	0.069	0.083	0.202	0.242	0.663	0.779	–	–
25 … 31,5	–	–	0.038	–	0.112	–	0.375	–	–	–
C2I										
20 … 31,5	–	–	0.093	0.100	0.297	0.316	0.891	0.945	2.686	2.884
35,5 … 63	–	–	0.040	0.043	0.131	0.138	0.409	0.425	1.302	1.363
71 … 100	–	–	0.017	0.017	0.059	0.062	0.176	0.181	0.570	0.589
125 , 160	–	–	0.010	0.010	0.031	0.031	0.090	0.093	0.316	0.323

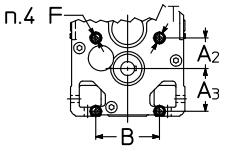
1) Values valid for long model.

Opposite side to motor input face

MR 2I 140 ... 360
MR 3I 140 ... 360
MR CI 125 ... 280
MR C2I 140 ... 360



MR CI



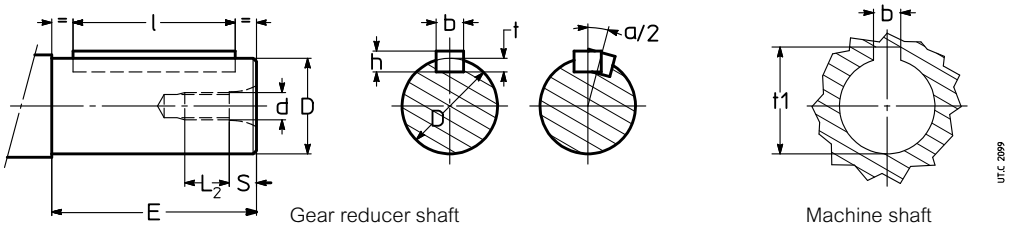
MR 2I, 3I, C2I

Gear reducer size		A_1	A_2	A_3	B	F Ø 1)	T
CI	**2I, 3I, C2I**						
125, 140	**140**	138	81	113	162	M 12	25
160, 180	**160, 180**	165	96	135	201	M 16	32
200, 225	**200, 225**	207	115	162	250	M 20	40
250, 280	**250, 280**	258	143	203	310	M 24	48
	320 ... 360		180	252	386	M 30	

1) Working length of thread 1.25 · F.

High speed second shaft end (metric)

It is recommended that the holes of parts keyed onto high speed second (metric) shaft ends should be machined to ISO H7 tolerance. Before mounting, clean carefully and lubricate mating surfaces 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.



Shaft end							Key			Keyway		
Ø **D**	**E**[1]	**d** Ø	**S**	L_2[1]	α/2[2] arc min	**b** h9 × **h** h11 × **l**[1]	**b** H9 hub N9 shaft	**t** shaft	t_1 hub
19 j 6	40	M 6	4.6	11.4	5.43	6 × 6 × 36	6	3.5	21.8
24 j 6	50	M 8	5.9	15.1	5.16	8 × 7 × 45	8	4	27.2
28 j 6	60	M 8	5.9	15.1	–	8 × 7 × 45	8	4	31.2
32 k 6	80	M 10	7.6	18.4	3.87	10 × 8 × 70	10	5	35.3
38 k 6	80	M 10	7.6	18.4	3.27	10 × 8 × 70	10	5	41.3
48 k 6	110	M 12	9.5	22.5	3.08	14 × 9 × 90	14	5.5	51.8
55 m 6	110	M 12	9.5	22.5	–	16 × 10 × 90	16	6	59.3
60 m 6	140	M 16	12.7	27.3	2.55	20 × 12 × 125	20	7.5	74.9

1) Values in brackets are for short shaft end.
2) Maximum angular misalignement between double extension shaft keys.

Hollow low speed shaft (imperial)

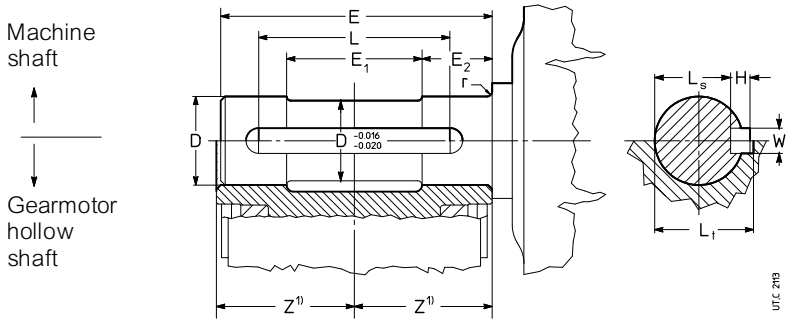
Gearmotors are equipped with hollow low speed shaft with inch diameter as standard; unlike the metric hollow low speed shaft the retaining ring grooves are not present with this design.

«Hollow low speed shaft washer» and «Hollow low speed shaft washer with locking rings or bushing» not available.

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

The suggested machine shaft D tolerance is valid for uniform load or moderate overloads without load reversals; otherwise a different fit should be taken into account; consult us.

Important: the shoulder diameter of the driven machine shaft end abutting with the gear reducer must be at least (1.18 – 1.25) D.

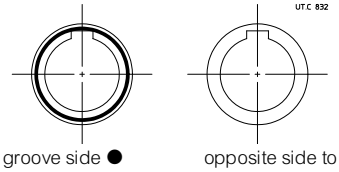


Gear reducer size	Hollow shaft D in		Machine shaft D Tolerance in	E in	E_1 in	E_2 in	r in	Key[2] W in		Key[2] H in		Key[2] L in	Keyway[2] W in		Keyway[2] Ls[3] in	Keyway[2] Lt in
125	**2.375**	*2 3/8*	+0.0000 −0.0010	8.58	4.33	2.17	0.08	0.625	+0.0000 −0.0030	0.4375	+0.0000 −0.0030	5.5	0.625	+0.0030 −0.0000	2.114	2.557
140	**2.75**	*2 3/4*	+0.0000 −0.0010	9.76	4.88	2.48	0.08	0.625	+0.0000 −0.0030	0.4375	+0.0000 −0.0030	7	0.625	+0.0030 −0.0000	2.495	2.938
160	**3.25**	*3 1/4*	+0.0000 −0.0010	10.6	5.35	2.68	0.12	0.75	+0.0000 −0.0030	0.461*	+0.0000 −0.0030	8	0.75	+0.0030 −0.0000	2.956	3.422*
180	**3.625**	*3 5/8*	+0.0000 −0.0010	11.7	5.91	2.95	0.12	0.875	+0.0000 −0.0040	0.586*	+0.0000 −0.0040	8	0.875	+0.0030 −0.0000	3.259	3.850*
200	**4**	*4*	+0.0000 −0.0010	13.0	6.85	3.15	0.12	1	+0.0000 −0.0040	0.671*	+0.0000 −0.0040	10	1	+0.0030 −0.0000	3.561	4.237*
225	**4.25**	*4 1/4*	+0.0000 −0.0010	14.0	7.09	3.54	0.14	1	+0.0000 −0.0040	0.711*	+0.0000 −0.0040	10	1	+0.0030 −0.0000	3.815	4.531*
250	**5**	*5*	+0.0000 −0.0010	16.1	8.35	3.94	0.16	1.25	+0.0000 −0.0040	0.777*	+0.0000 −0.0040	12.5	1.25	+0.0040 −0.0000	4.483	5.265*
280	**5.5**	*5 1/2*	+0.0000 −0.0010	17.3	8.66	4.41	0.16	1.25	+0.0000 −0.0040	0.875*	+0.0000 −0.0040	12.5	1.25	+0.0040 −0.0000	4.991	5.871*
320, 321	**6.25**	*6 1/4*	+0.0000 −0.0010	19.8	10.16	4.92	0.20	1.5	+0.0000 −0.0040	0.882*	+0.0000 −0.0040	16	1.5	+0.0040 −0.0000	5.659	6.546*
360	**7**	*7*	+0.0000 −0.0010	21.3	10.71	5.39	0.20	1.5	+0.0000 −0.0050	1.500*	+0.0000 −0.0050	16	1.75	+0.0040 −0.0000	6.139	7.644*

1) For Z dimension refer to ch. 3.7 and 3.9.
2) According to ANSI B17.1 except for cases marked with * for which, due to the out-of-standard Lt dimension, a suitable modified key is supplied
3) Tolerance +0.000/-0.015.

Reference groove

The reference for identification of the hollow low speed shaft side opposite to which it is advisable to apply the radial load, is provided by a groove as shown in the drawing below. The position of the reference groove is identified by the symbol ● in the drawings «Design» of ch. 3.7 and 3.9.

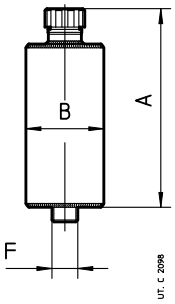


groove side ● opposite side to groove

Plug dimensions

Gearmotor size	**125 ... 280**	**160 ... 280**	**320 ... 360**
Size threaded holes	G 1/2"	G 3/4"	G 1"
Tightening torque lb in	124	124	220

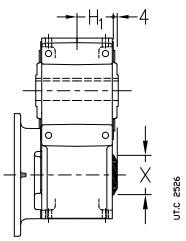
Expansion tank (sizes **125 ... 360**)



Gear reducer size	**A**	**B**	**F**	**Plug**
125 ... 140	131	46	G1/2"	1/2"
160 ... 280	205	80	G3/4"	3/4"
320 ... 360	230	102	G1"	1"

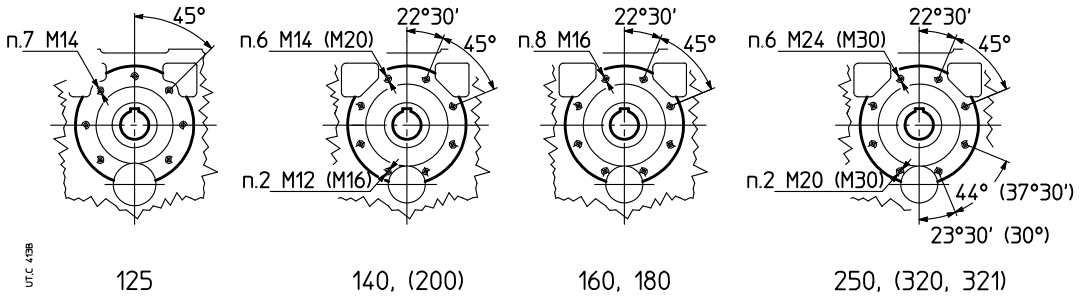
Cap overall dimension

For MR 2I 140, the cap opposite to this overhung of 4 mm from H1 dimension (ref. chap. 3,7 and 3.9) due to backstop device pre-arrangement (X = ⌀72 mm).



Fastening tapped holes (sizes 125 ... 321)

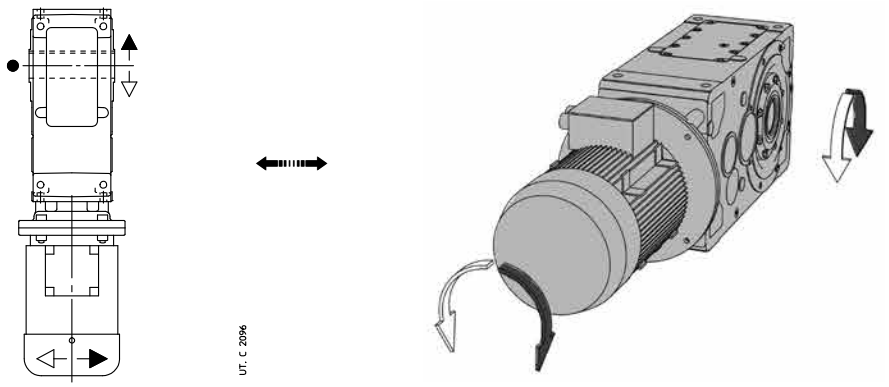
The relevant through holes to be realized on the driven machine must be all of equal diameter for sizes 140, 200 and 250 (ø 15, ø 21 and ø 25, respectively) as the 2 holes of smaller diameter are not in the position of 22° 30'.



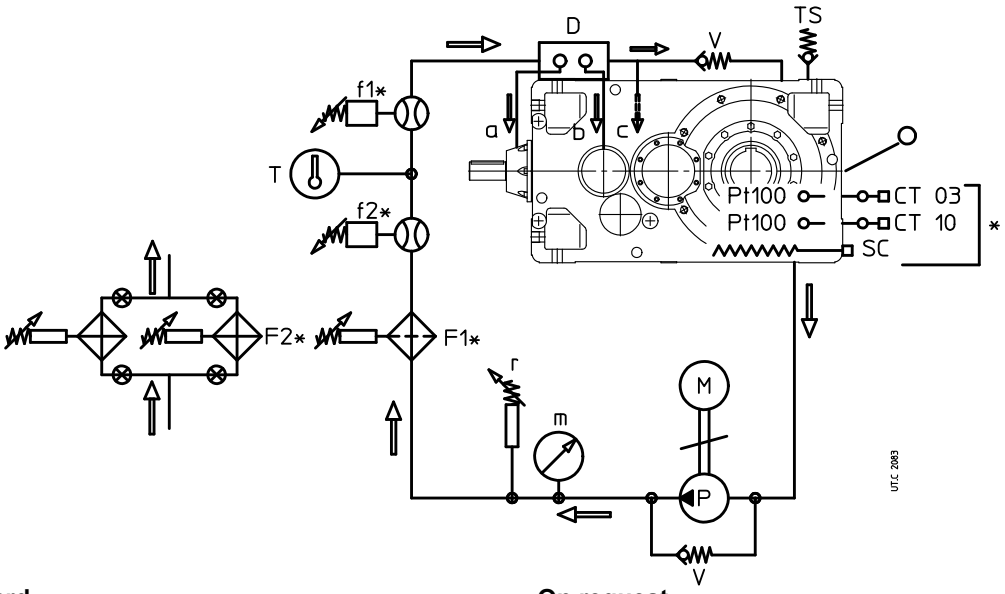
Directions of rotation

The correspondence between the high speed shaft and low speed shaft is stated at ch. 3.7 and 3.9 according to design and train of gears. For the interpretation of arrows, refer to the following 3D sketchs.

Bevel helical gearmotor MR C2I UO2A



Bearing and/or gear pair forced lubrication: hydraulic circuit diagram



Standard

a, b, c	Gear pair/bearing pipes
m	Pressure gauge (0 – 230 psi)
M	Motor pump
P	Pump
T	Thermometer
V	Safety valve
r	Minimum pressure gauge
TS	Filler plug
D	Distributor
◒	Oil level (approximate)

On request

Pt 100*	Oil temperature probe (loose)*
f1	Electric flow switch: vertical mounting
f2	Visible flow switch
F1	Filter
F2	Exchange filters
CT03*, CT10*	Signalling device (loose)*
SC*	Heater

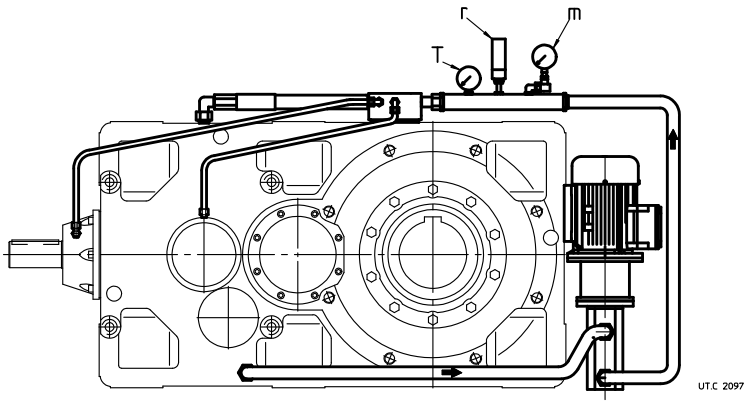
* On request, but necessary for gear reducer starting with $T_{ambient}$ ($= T_{oil}$) ≤ 77 °F (25 °C): preheat the oil with the heater.

NOTES: The bearings and/or the gear pairs to be forced lubricated are defined by Rossi according to gear reducer and application.

CT03: set the operating threshold at 122 °F (50 °C) (stopping the heater supply) and the reset threshold at 86 °F (30 °C).

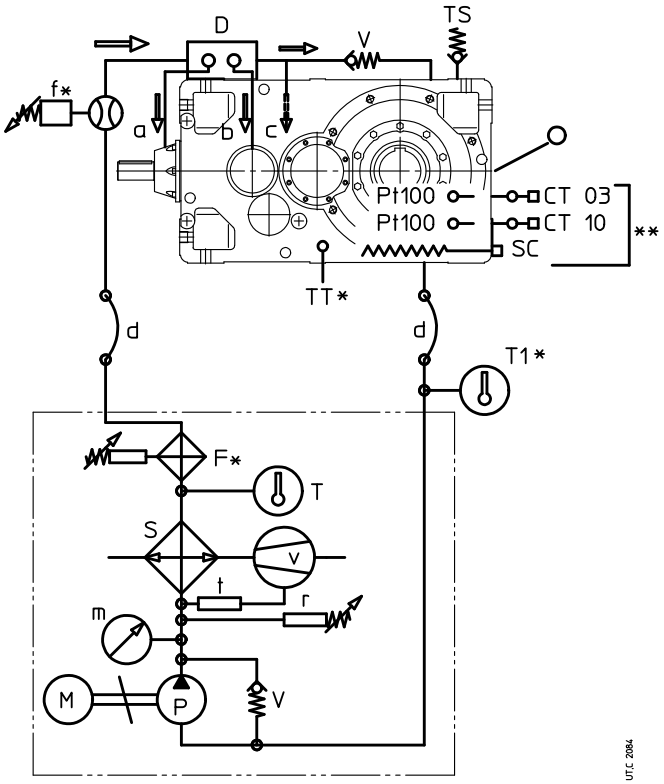
CT10: set the operating threshold at 86 °F (30 °C) to start gear reducer and motor pump; set the reset threshold at 50 °F (10 °C) and the safety threshold at 194 °F (90 °C).

For the gear reducer starting at $T_{ambient}$ ($= T_{oil}$) ≤ 32 °F (0 °C) the same logic is valid, but the devices CT03 and CT10 must be set according to the real ambient temperature.



Sketch of forced lubrication with motor pump; the exact position of motor pump depends on the gear reducer size, train of gears, mounting position and available overall dimensions: for this reason, on request, a drawing of the specific solution will be supplied; the pipes will be realized with suction and delivery flexible pipes and with rigid pipes between the distributor and the bearings.

Bearing and/or gear pair forced lubrication with oil/air or oil/water independent cooling unit: hydraulic circuit diagram



Standard

a, b, c	Gear pair/bearing pipes
d	Flexible connection (by Buyer)
m	Pressure gauge (0 – 230 psi)
M	Motor pump
P	Pump
S	Oil/air or oil/water exchanger
v	Motor fan (UR O/A...)
t	Fan thermostat 32 – 194 °F (0 – 90 °C) (UR O/A...)
T	Thermometer 32 – 248 °F (0 – 120 °C)
V	Safety valve
r	Minimum pressure gauge
TS	Filler plug
D	Distributor
◒	Oil level (approximate)

On request

Pt 100*	Oil temperature probe (loose)*
f	Flow switch (loose)
F	Filter with eletric blockage warning (with UR O/A... loose)
CT03* **CT10***	Signalling device (loose)*
T1	Thermometer 32 – 248 °F (0 – 120 °C)
TT	Bi-metal type thermometer
SC*	Heater

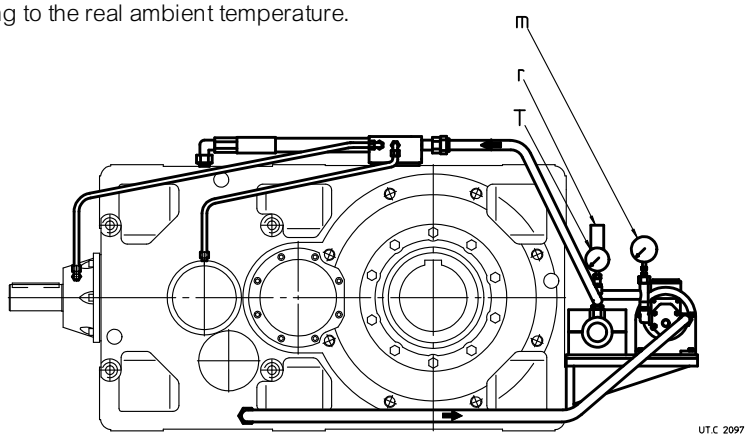
***** On request but necessary for gear reducer starting with $T_{ambient}$ ($= T_{oil}$) ⩽ 77 °F (25 °C): preheat the oil with heater.

NOTES: Bearings and/or gear pairs to be forced lubricated are defined by Rossi according to gear reducer and application.

CT03: set the operating threshold at 122 °F (50 °C), (stopping the heater supply) and the reset threshold at 86 °F (30 °C).

CT10: set the operating threshold at 86 °F (30 °C) to start gear reducer and motor pump; set the reset threshold at 50 °F (10 °C) and the safety threshold at 194 °F (90 °C).

For gear reducer starting with $T_{ambient}$ ($= T_{oil}$) ⩽ 32 °F (0 °C) the same logic is valid, but the devices CT03 and CT10 must be set according to the real ambient temperature.



Sketch of forced lubrication with cooling unit; the exact position of cooling unit depends on the gear reducer size, train of gears, mounting position and available overall dimensions: for this reason, on request, a drawing of the specific solution will be supplied; the pipes will be realized with suction and delivery flexible pipes and with rigid pipes between the distributor and the bearings.

Maximum bending moment of flange MR

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]

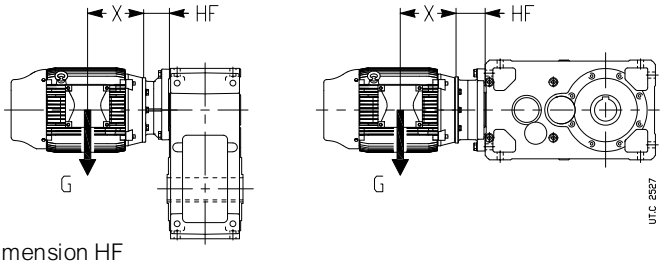
G [lb] motor weight

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

HF [in] supplied in the table, according to gear reducer size and NEMA motor frame

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.



Bending moment M_{bmax} and dimension HF

	NEMA motor frame	2I, 3I		CI		C2I	
		HF in	T_{bmax} lb in	HF in	T_{bmax} lb in	HF[1] in	T_{bmax} lb in
125	N210TC	–	–	3.47	**5000**	–	–
	N250TC	–	–	3.47	**5000**	–	–
	N280TC	–	–	4.1	**8000**	–	–
140	N180TC	3.66[2]	**5000**	–	–	3.47 (3.66)	**5000**
	N210TC	3.66	**5000**	3.47	**5000**	3.47 (3.66)	**5000**
	N250TC	3.66 4.45[2]	**5000**	3.47	**5000**	–	–
	N280TC	3.66	**8000**	4.1	**8000**	–	–
160, 180	N180TC	3.5[2]	**11200**	–	–	3.47 (3.5)	**11200**
	N210TC	3.5[2]	**11200**	–	–	3.47 (3.5)	**11200**
	N250TC	3.5	**11200**	3.5	**11200**	3.47 (3.5)	**11200**
	N280TC	4.1	**11200**	4.13	**11200**	4.1	**11200**
	N320TC	4.41[3]	**11200**	4.76	**11200**	–	–
	N360TC	4.41[3]	**17500**	–	–	–	–
200, 225	N210TC	4.1[2]	**22400**	–	–	3.5 (4.1)	**22400**
	N250TC	4.1[2]	**22400**	–	–	3.5 (4.1)	**22400**
	N280TC	4.1	**22400**	4.14	**22400**	4.14 (4.1)	**22400**
	N320TC	5	**22400**	4.76	**22400**	4.76 (5)	**22400**
	N360TC	5.71	**22400**	6.69	**22400**	–	–
	N400TC	5.71[3]	**35500**	6.69	**35500**	–	–
250, 280	N250TC	4.33[2]	**63000**	–	–	3.5 (4.33)	**40000**
	N280TC	4.33[2]	**63000**	–	–	4.14 (4.33)	**40000**
	N320TC	5.91[2]	**63000**	6.73	**63000**	6.69 (5.91)	**40000**
	N360TC	5.91	**63000**	6.73	**63000**	6.69 (5.91)	**40000**
	N400TC	5.91	**63000**	6.73	**63000**	6.69 (5.91)	**40000**
	N440TC	9.06	**63000**	8	**63000**	–	–
320, 360	N320TC	5.55[2]	**80000**	–	–	6.73 (5.55)	**80000**
	N360TC	5.55[2]	**80000**	–	–	6.73 (5.55)	**80000**
	N400TC	5.55[2]	**80000**	–	–	6.73 (5.55)	**80000**
	N440TC	7.33	**80000**	–	–	7.99 (7.33)	**80000**

1) The values in bracket is valid for design UO2V, UO2Vsin, UO2R, UO2Rsin.
2) For MR 3I, only.
3) For MR 2I, only.

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)	Gear ratio i
1.5	**9.38**	9 480	3.75	**MR 3I 140 - N180TC** 182 TC 6	123
	11.5	7 730	5.6	**MR 3I 140 - N180TC** 182 TC 6	100
	12.9	6 900	6.3	**MR 3I 140 - N180TC** 182 TC 6	89.4
	14.1	6 290	6.7	**MR 3I 140 - N180TC** 182 TC 6	81.4
	15.1	5 870	5.6	**MR 3I 140 - N180TC** 182 TC 6	76.0
	15.8	5 620	8	**MR 3I 140 - N180TC** 182 TC 6	72.8
	18.6	4 790	8.5	**MR 3I 140 - N180TC** 182 TC 6	62.0
	20.8	4 280	10	**MR 3I 140 - N180TC** 182 TC 6	55.4
	22.8	3 900	10.6	**MR 3I 140 - N180TC** 182 TC 6	50.4
2	**9.38**	12 650	2.8	**MR 3I 140 - N180TC** 184 TC 6	123
	11.5	10 300	4.25	**MR 3I 140 - N180TC** 184 TC 6	100
	12.9	9 210	4.75	**MR 3I 140 - N180TC** 184 TC 6	89.4
	14.1	8 390	5	**MR 3I 140 - N180TC** 184 TC 6	81.4
	15.1	7 830	4.25	**MR 3I 140 - N180TC** 184 TC 6	76.0
	15.8	7 500	6	**MR 3I 140 - N180TC** 184 TC 6	72.8
	18.6	6 380	6.3	**MR 3I 140 - N180TC** 184 TC 6	62.0
	20.8	5 700	7.5	**MR 3I 140 - N180TC** 184 TC 6	55.4
	22.8	5 200	8	**MR 3I 140 - N180TC** 184 TC 6	50.4
	25.5	4 640	9	**MR 3I 140 - N180TC** 184 TC 6	45.1
	29.7	3 980	10.6	**MR 3I 140 - N180TC** 184 TC 6	38.7
3	**9.38**	18 950	1.9	**MR 3I 140 - N210TC** 213 TC 6	123
	9.02	19 700	2.8	**MR 3I 160 - N210TC** 213 TC 6	128
	8.75	20 300	4	**MR 3I 180 - N210TC** 213 TC 6	131
	11.5	15 450	2.8	**MR 3I 140 - N210TC** 213 TC 6	100
	10.7	16 550	4	**MR 3I 160 - N210TC** 213 TC 6	107
	12.9	13 800	3.15	**MR 3I 140 - N210TC** 213 TC 6	89.4
	14.3	12 450	2.65	**MR 3I 140 - N180TC** 182 TC 4	123
	13.7	12 950	4	**MR 3I 160 - N180TC** 182 TC 4	128
	15.8	11 250	4	**MR 3I 140 - N210TC** 213 TC 6	72.8
	17.5	10 150	4	**MR 3I 140 - N180TC** 182 TC 4	100
	19.6	9 080	4.75	**MR 3I 140 - N180TC** 182 TC 4	89.4
	21.5	8 270	5	**MR 3I 140 - N180TC** 182 TC 4	81.4
	23.0	7 720	4.25	**MR 3I 140 - N180TC** 182 TC 4	76.0
	24.1	7 390	5.6	**MR 3I 140 - N180TC** 182 TC 4	72.8
	28.2	6 290	6.3	**MR 3I 140 - N180TC** 182 TC 4	62.0
	31.6	5 620	7.5	**MR 3I 140 - N180TC** 182 TC 4	55.4
	34.7	5 120	8	**MR 3I 140 - N180TC** 182 TC 4	50.4
	38.8	4 580	9	**MR 3I 140 - N180TC** 182 TC 4	45.1
	45.3	3 930	10.6	**MR 3I 140 - N180TC** 182 TC 4	38.7
5	**9.38**	31 600	1.12	**MR 3I 140 - N210TC** 215 TC 6	123
	9.02	32 850	1.7	**MR 3I 160 - N210TC** 215 TC 6	128
	8.75	33 850	2.36	**MR 3I 180 - N210TC** 215 TC 6	131
	9.65	30 700	3.55	**MR 3I 200 - N210TC** 215 TC 6	119
	11.5	25 750	1.7	**MR 3I 140 - N210TC** 215 TC 6	100
	10.7	27 600	2.36	**MR 3I 160 - N210TC** 215 TC 6	107
	10.7	27 700	3.15	**MR 3I 180 - N210TC** 215 TC 6	108
	12.9	23 000	1.9	**MR 3I 140 - N210TC** 215 TC 6	89.4
	12.3	24 150	2.8	**MR 3I 160 - N210TC** 215 TC 6	93.7
	12.3	24 050	3.35	**MR 3I 180 - N210TC** 215 TC 6	93.3
	14.3	20 750	1.6	**MR 3I 140 - N180TC** 184 TC 4	123
	14.1	20 950	2	**MR 3I 140 - N210TC** 215 TC 6	81.4
	13.7	21 600	2.36	**MR 3I 160 - N180TC** 184 TC 4	128
	13.4	22 050	2.8	**MR 3I 160 - N210TC** 215 TC 6	85.7
	13.3	22 250	3.35	**MR 3I 180 - N180TC** 184 TC 4	131
	15.8	18 750	2.36	**MR 3I 140 - N210TC** 215 TC 6	72.8

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)	Gear ratio i
5	**17.5**	16 950	2.36	**MR 3I 140 - N180TC** 184 TC 4	100
	18.6	15 950	2.5	**MR 3I 140 - N210TC** 215 TC 6	62.0
	16.3	18 150	3.35	**MR 3I 160 - N180TC** 184 TC 4	107
	19.6	15 150	2.8	**MR 3I 140 - N180TC** 184 TC 4	89.4
	20.8	14 250	3	**MR 3I 140 - N210TC** 215 TC 6	55.4
	18.7	15 850	4.25	**MR 3I 160 - N180TC** 184 TC 4	93.7
	21.5	13 800	3	**MR 3I 140 - N180TC** 184 TC 4	81.4
	24.1	12 300	3.35	**MR 3I 140 - N180TC** 184 TC 4	72.8
	28.2	10 500	3.75	**MR 3I 140 - N180TC** 184 TC 4	62.0
	31.6	9 370	4.5	**MR 3I 140 - N180TC** 184 TC 4	55.4
	34.7	8 540	4.75	**MR 3I 140 - N180TC** 184 TC 4	50.4
	38.8	7 630	5.6	**MR 3I 140 - N180TC** 184 TC 4	45.1
	45.3	6 540	6.3	**MR 3I 140 - N180TC** 184 TC 4	38.7
	46.6	6 350	6.3	**MR 3I 140 - N180TC** 184 TC 4	37.5
	54.4	5 450	6.7	**MR 3I 140 - N180TC** 184 TC 4	32.2
	60.2	4 920	6.7	**MR 3I 140 - N180TC** 184 TC 4	29.1
	76.4	3 960	9	**MR 2I 140 - N210TC** 215 TC 6	15.1
	78.2	3 870	9	**MR 2I 140 - N210TC** 215 TC 6	14.7
	86.3	3 500	10	**MR 2I 140 - N210TC** 215 TC 6	13.3
	96.6	3 130	11.8	**MR 2I 140 - N210TC** 215 TC 6	11.9
	113	2 690	12.5	**MR 2I 140 - N210TC** 215 TC 6	10.2
	125	2 430	12.5	**MR 2I 140 - N210TC** 215 TC 6	9.22
7.5	**9.02**	49 300	1.12	**MR 3I 160 - N250TC** 254 TC 6	128
	8.75	50 750	1.6	**MR 3I 180 - N250TC** 254 TC 6	131
	9.65	46 050	2.36	**MR 3I 200 - N250TC** 254 TC 6	119
	9.37	47 450	3.35	**MR 3I 225 - N250TC** 254 TC 6	123
	11.5	38 650	1.12	**MR 3I 140 - N250TC** 254 TC 6	100
	10.7	41 400	1.6	**MR 3I 160 - N250TC** 254 TC 6	107
	10.7	41 600	2.12	**MR 3I 180 - N250TC** 254 TC 6	108
	11.5	38 650	3.35	**MR 3I 200 - N250TC** 254 TC 6	100
	12.9	34 500	1.25	**MR 3I 140 - N250TC** 254 TC 6	89.4
	12.3	36 200	1.9	**MR 3I 160 - N250TC** 254 TC 6	93.7
	12.3	36 050	2.24	**MR 3I 180 - N250TC** 254 TC 6	93.3
	13.3	33 400	4	**MR 3I 200 - N250TC** 254 TC 6	86.4
	14.3	31 150	1.06	**MR 3I 140 - N210TC** 213 TC 4	123
	14.1	31 450	1.32	**MR 3I 140 - N250TC** 254 TC 6	81.4
	13.7	32 400	1.6	**MR 3I 160 - N210TC** 213 TC 4	128
	13.4	33 100	1.9	**MR 3I 160 - N250TC** 254 TC 6	85.7
	13.3	33 350	2.24	**MR 3I 180 - N210TC** 213 TC 4	131
	13.4	33 250	2.65	**MR 3I 180 - N250TC** 254 TC 6	86.1
	14.7	30 250	3.55	**MR 3I 200 - N210TC** 213 TC 4	119
	15.8	28 100	1.6	**MR 3I 140 - N250TC** 254 TC 6	72.8
	15.3	28 950	2.36	**MR 3I 160 - N250TC** 254 TC 6	74.9
	17.5	25 400	1.6	**MR 3I 140 - N210TC** 213 TC 4	100
	16.3	27 200	2.24	**MR 3I 160 - N210TC** 213 TC 4	107
	16.3	27 350	3	**MR 3I 180 - N210TC** 213 TC 4	108
	17.5	25 400	4.75	**MR 3I 200 - N210TC** 213 TC 4	100
	19.6	22 700	1.9	**MR 3I 140 - N210TC** 213 TC 4	89.4
	18.7	23 800	2.8	**MR 3I 160 - N210TC** 213 TC 4	93.7
	18.8	23 700	3.35	**MR 3I 180 - N210TC** 213 TC 4	93.3
	21.5	20 650	2	**MR 3I 140 - N210TC** 213 TC 4	81.4
	20.4	21 750	2.8	**MR 3I 160 - N210TC** 213 TC 4	85.7
	20.3	21 850	3.75	**MR 3I 180 - N210TC** 213 TC 4	86.1
	24.1	18 450	2.24	**MR 3I 140 - N210TC** 213 TC 4	72.8
	23.4	19 050	3.55	**MR 3I 160 - N210TC** 213 TC 4	74.9
	28.2	15 750	2.5	**MR 3I 140 - N210TC** 213 TC 4	62.0
	27.6	16 100	3.75	**MR 3I 160 - N210TC** 213 TC 4	63.5
	31.6	14 050	3	**MR 3I 140 - N210TC** 213 TC 4	55.4
	31.5	14 100	4.75	**MR 3I 160 - N210TC** 213 TC 4	55.5

1) Powers valid for continuous duty S1; **increase possible** for duty cycles S2 ... S10: in which case T_2 increases and fs decreases.
2) For complete designation when ordering see ch. 3.1.

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)	Gear ratio i
7.5	**34.7**	12 800	3.15	**MR 3I 140 - N210TC** 213 TC 4	50.4
	38.8	11 450	3.75	**MR 3I 140 - N210TC** 213 TC 4	45.1
	45.3	9 820	4.25	**MR 3I 140 - N210TC** 213 TC 4	38.7
	46.6	9 530	4.25	**MR 3I 140 - N210TC** 213 TC 4	37.5
	54.4	8 170	4.25	**MR 3I 140 - N210TC** 213 TC 4	32.2
	60.2	7 390	4.25	**MR 3I 140 - N210TC** 213 TC 4	29.1
	72.6	6 250	4.75	**MR 2I 140 - N210TC** 213 TC 4	24.1
	80.7	5 620	6	**MR 2I 140 - N210TC** 213 TC 4	21.7
	89.1	5 090	6.7	**MR 2I 140 - N210TC** 213 TC 4	19.6
	99.7	4 550	8	**MR 2I 140 - N210TC** 213 TC 4	17.6
	116	3 900	9	**MR 2I 140 - N210TC** 213 TC 4	15.1
	119	3 810	9	**MR 2I 140 - N210TC** 213 TC 4	14.7
	131	3 450	10	**MR 2I 140 - N210TC** 213 TC 4	13.3
	147	3 090	11.2	**MR 2I 140 - N210TC** 213 TC 4	11.9
	171	2 650	12.5	**MR 2I 140 - N210TC** 213 TC 4	10.2
	190	2 390	12.5	**MR 2I 140 - N210TC** 213 TC 4	9.22
10	**9.02**	65 700	0.85	**MR 3I 160 - N250TC** 256 TC 6	128
	8.75	67 700	1.18	**MR 3I 180 - N250TC** 256 TC 6	131
	9.65	61 400	1.8	**MR 3I 200 - N250TC** 256 TC 6	119
	9.37	63 250	2.5	**MR 3I 225 - N250TC** 256 TC 6	123
	9.20	64 400	3.55	**MR 3I 250 - N250TC** 256 TC 6	125
	11.5	51 500	0.85	**MR 3I 140 - N250TC** 256 TC 6	100
	10.7	55 150	1.18	**MR 3I 160 - N250TC** 256 TC 6	107
	10.7	55 450	1.6	**MR 3I 180 - N250TC** 256 TC 6	108
	11.5	51 550	2.5	**MR 3I 200 - N250TC** 256 TC 6	100
	11.7	50 750	3.55	**MR 3I 225 - N250TC** 256 TC 6	98.5
	12.9	46 050	0.95	**MR 3I 140 - N250TC** 256 TC 6	89.4
	12.3	48 250	1.4	**MR 3I 160 - N250TC** 256 TC 6	93.7
	12.3	48 050	1.7	**MR 3I 180 - N250TC** 256 TC 6	93.3
	13.3	44 550	3.15	**MR 3I 200 - N250TC** 256 TC 6	86.4
	14.3	41 500	0.8	**MR 3I 140 - N210TC** 215 TC 4	123
	14.1	41 950	1	**MR 3I 140 - N250TC** 256 TC 6	81.4
	13.7	43 200	1.18	**MR 3I 160 - N210TC** 215 TC 4	128
	13.4	44 150	1.4	**MR 3I 160 - N250TC** 256 TC 6	85.7
	13.3	44 500	1.7	**MR 3I 180 - N210TC** 215 TC 4	131
	13.4	44 350	1.9	**MR 3I 180 - N250TC** 256 TC 6	86.1
	14.7	40 350	2.65	**MR 3I 200 - N210TC** 215 TC 4	119
	13.7	43 250	3	**MR 3I 200 - N250TC** 256 TC 6	84.0
	14.3	41 550	3.55	**MR 3I 225 - N210TC** 215 TC 4	123
	15.8	37 500	1.18	**MR 3I 140 - N250TC** 256 TC 6	72.8
	15.3	38 600	1.8	**MR 3I 160 - N250TC** 256 TC 6	74.9
	15.4	38 450	2.5	**MR 3I 180 - N250TC** 256 TC 6	74.6
	15.8	37 400	3.55	**MR 3I 200 - N250TC** 256 TC 6	72.6
	17.5	33 850	1.18	**MR 3I 140 - N210TC** 215 TC 4	100
	16.3	36 250	1.7	**MR 3I 160 - N210TC** 215 TC 4	107
	16.3	36 450	2.24	**MR 3I 180 - N210TC** 215 TC 4	108
	17.5	33 850	3.55	**MR 3I 200 - N210TC** 215 TC 4	100
	19.6	30 250	1.4	**MR 3I 140 - N210TC** 215 TC 4	89.4
	18.7	31 700	2.12	**MR 3I 160 - N210TC** 215 TC 4	93.7
	18.8	31 600	2.5	**MR 3I 180 - N210TC** 215 TC 4	93.3
	20.2	29 250	4.5	**MR 3I 200 - N210TC** 215 TC 4	86.4
	21.5	27 550	1.5	**MR 3I 140 - N210TC** 215 TC 4	81.4
	22.8	26 000	1.6	**MR 3I 140 - N250TC** 256 TC 6	50.4
	20.4	29 000	2.12	**MR 3I 160 - N210TC** 215 TC 4	85.7
	20.3	29 150	2.8	**MR 3I 180 - N210TC** 215 TC 4	86.1
	22.5	26 300	3.15	**MR 3I 180 - N250TC** 256 TC 6	51.0
	20.8	28 450	4.25	**MR 3I 200 - N210TC** 215 TC 4	84.0
	24.1	24 650	1.7	**MR 3I 140 - N210TC** 215 TC 4	72.8
	23.4	25 350	2.65	**MR 3I 160 - N210TC** 215 TC 4	74.9
	23.5	25 250	3.55	**MR 3I 180 - N210TC** 215 TC 4	74.6

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)	Gear ratio i
10	**28.2**	20 950	1.9	**MR 3I 140 - N210TC** 215 TC 4	62.0
	27.6	21 500	2.8	**MR 3I 160 - N210TC** 215 TC 4	63.5
	27.4	21 600	3.75	**MR 3I 180 - N210TC** 215 TC 4	63.8
	31.6	18 750	2.24	**MR 3I 140 - N210TC** 215 TC 4	55.4
	31.5	18 800	3.55	**MR 3I 160 - N210TC** 215 TC 4	55.5
	34.7	17 100	2.36	**MR 3I 140 - N210TC** 215 TC 4	50.4
	34.5	17 200	3.55	**MR 3I 160 - N210TC** 215 TC 4	50.8
	38.8	15 250	2.8	**MR 3I 140 - N210TC** 215 TC 4	45.1
	47.7	12 650	2.5	**MR 2I 140 - N250TC** 256 TC 6	24.1
	45.3	13 100	3.15	**MR 3I 140 - N210TC** 215 TC 4	38.7
	53.0	11 400	3	**MR 2I 140 - N250TC** 256 TC 6	21.7
	46.6	12 700	3.15	**MR 3I 140 - N210TC** 215 TC 4	37.5
	54.4	10 900	3.35	**MR 3I 140 - N210TC** 215 TC 4	32.2
	60.2	9 850	3.35	**MR 3I 140 - N210TC** 215 TC 4	29.1
	72.6	8 330	3.55	**MR 2I 140 - N210TC** 215 TC 4	24.1
	80.7	7 500	4.5	**MR 2I 140 - N210TC** 215 TC 4	21.7
	89.1	6 790	5.3	**MR 2I 140 - N210TC** 215 TC 4	19.6
	99.7	6 070	6	**MR 2I 140 - N210TC** 215 TC 4	17.6
	116	5 210	6.7	**MR 2I 140 - N210TC** 215 TC 4	15.1
	119	5 080	6.7	**MR 2I 140 - N210TC** 215 TC 4	14.7
	131	4 600	7.5	**MR 2I 140 - N210TC** 215 TC 4	13.3
	147	4 110	8.5	**MR 2I 140 - N210TC** 215 TC 4	11.9
	171	3 530	9.5	**MR 2I 140 - N210TC** 215 TC 4	10.2
	190	3 190	9.5	**MR 2I 140 - N210TC** 215 TC 4	9.22
15	**8.75**	101 500	0.8	**MR 3I 180 - N280TC** 284 TC 6	131
	9.65	92 100	1.18	**MR 3I 200 - N280TC** 284 TC 6	119
	9.37	94 850	1.7	**MR 3I 225 - N280TC** 284 TC 6	123
	9.20	96 550	2.36	**MR 3I 250 - N280TC** 284 TC 6	125
	9.34	95 100	3.15	**MR 3I 280 - N280TC** 284 TC 6	123
	10.7	82 750	0.8	**MR 3I 160 - N280TC** 284 TC 6	107
	10.7	83 150	1.06	**MR 3I 180 - N280TC** 284 TC 6	108
	11.5	77 300	1.7	**MR 3I 200 - N280TC** 284 TC 6	100
	11.7	76 150	2.36	**MR 3I 225 - N280TC** 284 TC 6	98.5
	11.7	76 100	3.35	**MR 3I 250 - N280TC** 284 TC 6	98.5
	12.3	72 400	0.95	**MR 3I 160 - N280TC** 284 TC 6	93.7
	12.3	72 100	1.12	**MR 3I 180 - N280TC** 284 TC 6	93.3
	13.3	66 800	2	**MR 3I 200 - N280TC** 284 TC 6	86.4
	13.0	68 600	2.8	**MR 3I 225 - N280TC** 284 TC 6	88.8
	12.9	68 750	3.75	**MR 3I 250 - N280TC** 284 TC 6	89.0
	13.7	64 750	0.8	**MR 3I 160 - N250TC** 254 TC 4	128
	13.4	66 200	0.95	**MR 3I 160 - N280TC** 284 TC 6	85.7
	13.3	66 700	1.12	**MR 3I 180 - N250TC** 254 TC 4	131
	13.4	66 550	1.32	**MR 3I 180 - N280TC** 284 TC 6	86.1
	14.7	60 500	1.7	**MR 3I 200 - N250TC** 254 TC 4	119
	13.7	64 900	1.9	**MR 3I 200 - N280TC** 284 TC 6	84.0
	14.3	62 350	2.36	**MR 3I 225 - N250TC** 254 TC 4	123
	13.9	63 950	2.8	**MR 3I 225 - N280TC** 284 TC 6	82.7
	14.0	63 450	3.35	**MR 3I 250 - N250TC** 254 TC 4	125
	15.3	57 900	1.18	**MR 3I 160 - N280TC** 284 TC 6	74.9
	15.4	57 650	1.6	**MR 3I 180 - N280TC** 284 TC 6	74.6
	15.8	56 100	2.36	**MR 3I 200 - N280TC** 284 TC 6	72.6
	17.5	50 800	0.8	**MR 3I 140 - N250TC** 254 TC 4	100
	16.3	54 400	1.12	**MR 3I 160 - N250TC** 254 TC 4	107
	18.1	49 050	1.25	**MR 3I 160 - N280TC** 284 TC 6	63.5
	16.3	54 650	1.5	**MR 3I 180 - N250TC** 254 TC 4	108
	18.0	49 300	1.7	**MR 3I 180 - N280TC** 284 TC 6	63.8
	17.5	50 800	2.36	**MR 3I 200 - N250TC** 254 TC 4	100
	17.8	50 050	3.55	**MR 3I 225 - N250TC** 254 TC 4	98.5

1) Powers valid for continuous duty S1; **increase possible** for duty cycles S2 ... S10: in which case T_2 increases and fs decreases.
2) For complete designation when ordering see ch. 3.1.

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
15	**19.6**	45 400	0.95	**MR 3I 140 - N250TC** 254 TC 4	89.4
	18.7	47 550	1.4	**MR 3I 160 - N250TC** 254 TC 4	93.7
	20.7	42 900	1.6	**MR 3I 160 - N280TC** 284 TC 6	55.5
	18.8	47 350	1.7	**MR 3I 180 - N250TC** 254 TC 4	93.3
	20.2	43 900	3	**MR 3I 200 - N250TC** 254 TC 4	86.4
	19.7	45 050	4	**MR 3I 225 - N250TC** 254 TC 4	88.8
	21.5	41 350	1	**MR 3I 140 - N250TC** 254 TC 4	81.4
	20.4	43 500	1.4	**MR 3I 160 - N250TC** 254 TC 4	85.7
	22.6	39 250	1.6	**MR 3I 160 - N280TC** 284 TC 6	50.8
	20.3	43 700	1.9	**MR 3I 180 - N250TC** 254 TC 4	86.1
	22.5	39 450	2.12	**MR 3I 180 - N280TC** 284 TC 6	51.0
	20.8	42 650	2.8	**MR 3I 200 - N250TC** 254 TC 4	84.0
	21.2	42 000	4.25	**MR 3I 225 - N250TC** 254 TC 4	82.7
	24.1	36 950	1.12	**MR 3I 140 - N250TC** 254 TC 4	72.8
	23.4	38 050	1.7	**MR 3I 160 - N250TC** 254 TC 4	74.9
	25.9	34 300	1.9	**MR 3I 160 - N280TC** 284 TC 6	44.4
	23.5	37 900	2.36	**MR 3I 180 - N250TC** 254 TC 4	74.6
	24.1	36 850	3.55	**MR 3I 200 - N250TC** 254 TC 4	72.6
	28.2	31 450	1.32	**MR 3I 140 - N250TC** 254 TC 4	62.0
	27.6	32 250	1.9	**MR 3I 160 - N250TC** 254 TC 4	63.5
	29.9	29 750	2.24	**MR 3I 160 - N280TC** 284 TC 6	38.5
	27.4	32 400	2.5	**MR 3I 180 - N250TC** 254 TC 4	63.8
	28.8	30 850	2.8	**MR 3I 180 - N280TC** 284 TC 6	39.9
	28.0	31 800	3.75	**MR 3I 200 - N250TC** 254 TC 4	62.6
	31.6	28 100	1.5	**MR 3I 140 - N250TC** 254 TC 4	55.4
	31.5	28 200	2.36	**MR 3I 160 - N250TC** 254 TC 4	55.5
	31.7	28 050	2.8	**MR 3I 180 - N250TC** 254 TC 4	55.3
	31.7	28 050	3.15	**MR 3I 180 - N280TC** 284 TC 6	36.3
	32.3	27 450	4.75	**MR 3I 200 - N250TC** 254 TC 4	54.1
	34.7	25 600	1.6	**MR 3I 140 - N250TC** 254 TC 4	50.4
	34.5	25 800	2.36	**MR 3I 160 - N250TC** 254 TC 4	50.8
	36.4	24 450	2.8	**MR 3I 160 - N280TC** 284 TC 6	31.6
	34.3	25 900	3.15	**MR 3I 180 - N250TC** 254 TC 4	51.0
	38.8	22 900	1.8	**MR 3I 140 - N250TC** 254 TC 4	45.1
	39.4	22 550	2.8	**MR 3I 160 - N250TC** 254 TC 4	44.4
	39.6	22 450	4	**MR 3I 180 - N250TC** 254 TC 4	44.2
	47.7	19 000	1.7	**MR 2I 140 - N280TC** 284 TC 6	24.1
	45.3	19 650	2.12	**MR 3I 140 - N250TC** 254 TC 4	38.7
	46.7	19 450	2.65	**MR 2I 160 - N280TC** 284 TC 6	24.6
	45.5	19 550	3.35	**MR 3I 160 - N250TC** 254 TC 4	38.5
	53.0	17 100	2	**MR 2I 140 - N280TC** 284 TC 6	21.7
	46.6	19 050	2.12	**MR 3I 140 - N250TC** 254 TC 4	37.5
	48.0	18 550	3.55	**MR 3I 160 - N250TC** 254 TC 4	36.5
	58.5	15 500	2.36	**MR 2I 140 - N280TC** 284 TC 6	19.6
	54.4	16 350	2.24	**MR 3I 140 - N250TC** 254 TC 4	32.2
	55.3	16 050	4	**MR 3I 160 - N250TC** 254 TC 4	31.6
	65.5	13 850	2.65	**MR 2I 140 - N280TC** 284 TC 6	17.6
	60.2	14 750	2.24	**MR 3I 140 - N250TC** 254 TC 4	29.1
	61.7	14 400	4	**MR 3I 160 - N250TC** 254 TC 4	28.4
	72.6	12 500	2.36	**MR 2I 140 - N250TC** 254 TC 4	24.1
	76.4	11 900	3	**MR 2I 140 - N280TC** 284 TC 6	15.1
	71.1	12 750	3.75	**MR 2I 160 - N250TC** 254 TC 4	24.6
	80.7	11 250	3	**MR 2I 140 - N250TC** 254 TC 4	21.7
	77.8	11 650	4.75	**MR 2I 160 - N250TC** 254 TC 4	22.5
	89.1	10 200	3.35	**MR 2I 140 - N250TC** 254 TC 4	19.6
	99.7	9 100	4	**MR 2I 140 - N250TC** 254 TC 4	17.6
	116	7 810	4.5	**MR 2I 140 - N250TC** 254 TC 4	15.1
	119	7 620	4.5	**MR 2I 140 - N250TC** 254 TC 4	14.7
	131	6 910	5	**MR 2I 140 - N250TC** 254 TC 4	13.3
	147	6 170	5.6	**MR 2I 140 - N250TC** 254 TC 4	11.9
	171	5 290	6.3	**MR 2I 140 - N250TC** 254 TC 4	10.2
	190	4 780	6.3	**MR 2I 140 - N250TC** 254 TC 4	9.22

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
15	**218**	4 170	12.5	**MR 2I 160 - N250TC** 254 TC 4	8.03
	273	3 330	12.5	**MR 2I 160 - N250TC** 254 TC 4	6.41
20	**9.65**	122 800	0.9	**MR 3I 200 - N280TC** 286 TC 6	119
	9.37	126 500	1.25	**MR 3I 225 - N280TC** 286 TC 6	123
	9.20	128 800	1.8	**MR 3I 250 - N280TC** 286 TC 6	125
	9.34	126 800	2.36	**MR 3I 280 - N280TC** 286 TC 6	123
	10.7	110 900	0.8	**MR 3I 180 - N280TC** 286 TC 6	108
	11.5	103 100	1.25	**MR 3I 200 - N280TC** 286 TC 6	100
	11.7	101 500	1.8	**MR 3I 225 - N280TC** 286 TC 6	98.5
	11.7	101 400	2.5	**MR 3I 250 - N280TC** 286 TC 6	98.5
	11.5	103 400	3.35	**MR 3I 280 - N280TC** 286 TC 6	100
	12.3	96 100	0.85	**MR 3I 180 - N280TC** 286 TC 6	93.3
	13.3	89 050	1.5	**MR 3I 200 - N280TC** 286 TC 6	86.4
	13.0	91 450	2.12	**MR 3I 225 - N280TC** 286 TC 6	88.8
	12.9	91 700	2.8	**MR 3I 250 - N280TC** 286 TC 6	89.0
	12.8	92 400	4	**MR 3I 280 - N280TC** 286 TC 6	89.7
	13.3	88 950	0.85	**MR 3I 180 - N250TC** 256 TC 4	131
	13.4	88 700	0.95	**MR 3I 180 - N280TC** 286 TC 6	86.1
	14.7	80 700	1.32	**MR 3I 200 - N250TC** 256 TC 4	119
	13.7	86 550	1.5	**MR 3I 200 - N280TC** 286 TC 6	84.0
	14.3	83 100	1.8	**MR 3I 225 - N250TC** 256 TC 4	123
	13.9	85 250	2.12	**MR 3I 225 - N280TC** 286 TC 6	82.7
	14.0	84 600	2.5	**MR 3I 250 - N250TC** 256 TC 4	125
	13.9	85 150	3	**MR 3I 250 - N280TC** 286 TC 6	82.7
	14.2	83 350	3.55	**MR 3I 280 - N250TC** 256 TC 4	123
	15.3	77 200	0.9	**MR 3I 160 - N280TC** 286 TC 6	74.9
	15.4	76 900	1.25	**MR 3I 180 - N280TC** 286 TC 6	74.6
	15.8	74 800	1.8	**MR 3I 200 - N280TC** 286 TC 6	72.6
	15.4	76 750	2.5	**MR 3I 225 - N280TC** 286 TC 6	74.5
	15.4	77 000	3.35	**MR 3I 250 - N280TC** 286 TC 6	74.7
	16.3	72 500	0.85	**MR 3I 160 - N250TC** 256 TC 4	107
	18.1	65 400	0.95	**MR 3I 160 - N280TC** 286 TC 6	63.5
	16.3	72 850	1.12	**MR 3I 180 - N250TC** 256 TC 4	108
	18.0	65 750	1.25	**MR 3I 180 - N280TC** 286 TC 6	63.8
	17.5	67 750	1.8	**MR 3I 200 - N250TC** 256 TC 4	100
	17.8	66 750	2.65	**MR 3I 225 - N250TC** 256 TC 4	98.5
	17.8	66 650	3.75	**MR 3I 250 - N250TC** 256 TC 4	98.5
	18.7	63 400	1.06	**MR 3I 160 - N250TC** 256 TC 4	93.7
	20.7	57 200	1.18	**MR 3I 160 - N280TC** 286 TC 6	55.5
	18.8	63 150	1.25	**MR 3I 180 - N250TC** 256 TC 4	93.3
	20.8	56 950	1.4	**MR 3I 180 - N280TC** 286 TC 6	55.3
	20.2	58 550	2.24	**MR 3I 200 - N250TC** 256 TC 4	86.4
	19.7	60 100	3	**MR 3I 225 - N250TC** 256 TC 4	88.8
	19.7	60 250	4.25	**MR 3I 250 - N250TC** 256 TC 4	89.0
	20.4	58 000	1.06	**MR 3I 160 - N250TC** 256 TC 4	85.7
	22.6	52 300	1.18	**MR 3I 160 - N280TC** 286 TC 6	50.8
	20.3	58 300	1.4	**MR 3I 180 - N250TC** 256 TC 4	86.1
	22.5	52 600	1.6	**MR 3I 180 - N280TC** 286 TC 6	51.0
	20.8	56 850	2.12	**MR 3I 200 - N250TC** 256 TC 4	84.0
	21.2	56 000	3.15	**MR 3I 225 - N250TC** 256 TC 4	82.7
	24.1	49 250	0.85	**MR 3I 140 - N250TC** 256 TC 4	72.8
	23.4	50 750	1.32	**MR 3I 160 - N250TC** 256 TC 4	74.9
	23.5	50 500	1.8	**MR 3I 180 - N250TC** 256 TC 4	74.6
	26.0	45 550	2	**MR 3I 180 - N280TC** 286 TC 6	44.2
	24.1	49 150	2.65	**MR 3I 200 - N250TC** 256 TC 4	72.6
	23.5	50 450	3.55	**MR 3I 225 - N250TC** 256 TC 4	74.5
	28.2	41 950	0.95	**MR 3I 140 - N250TC** 256 TC 4	62.0
	27.6	43 000	1.4	**MR 3I 160 - N250TC** 256 TC 4	63.5
	29.9	39 650	1.7	**MR 3I 160 - N280TC** 286 TC 6	38.5
	27.4	43 200	1.9	**MR 3I 180 - N250TC** 256 TC 4	63.8
	28.8	41 150	2.12	**MR 3I 180 - N280TC** 286 TC 6	39.9
	28.0	42 400	2.8	**MR 3I 200 - N250TC** 256 TC 4	62.6
	27.7	42 800	3.15	**MR 3I 200 - N280TC** 286 TC 6	41.5
	28.4	41 750	4	**MR 3I 225 - N250TC** 256 TC 4	61.7

1) Powers valid for continuous duty S1; **increase possible** for duty cycles S2 ... S10: in which case T_2 increases and fs decreases.
2) For complete designation when ordering see ch. 3.1.

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)				Gear ratio i
20	**31.6**	37 500	1.12	**MR**	**3I 140 - N250TC**	256 TC	4	55.4
	31.5	37 600	1.7	**MR**	**3I 160 - N250TC**	256 TC	4	55.5
	31.7	37 450	2.12	**MR**	**3I 180 - N250TC**	256 TC	4	55.3
	32.3	36 650	3.55	**MR**	**3I 200 - N250TC**	256 TC	4	54.1
	34.7	34 150	1.18	**MR**	**3I 140 - N250TC**	256 TC	4	50.4
	34.5	34 400	1.8	**MR**	**3I 160 - N250TC**	256 TC	4	50.8
	36.4	32 600	2	**MR**	**3I 160 - N280TC**	286 TC	6	31.6
	34.3	34 550	2.36	**MR**	**3I 180 - N250TC**	256 TC	4	51.0
	35.1	33 800	2.8	**MR**	**3I 180 - N280TC**	286 TC	6	32.8
	33.3	35 600	3.35	**MR**	**3I 200 - N250TC**	256 TC	4	52.6
	38.8	30 500	1.4	**MR**	**3I 140 - N250TC**	256 TC	4	45.1
	39.4	30 050	2.12	**MR**	**3I 160 - N250TC**	256 TC	4	44.4
	39.6	29 950	3	**MR**	**3I 180 - N250TC**	256 TC	4	44.2
	38.5	30 750	4.25	**MR**	**3I 200 - N250TC**	256 TC	4	45.4
	47.7	25 350	1.25	**MR**	**2I 140 - N280TC**	286 TC	6	24.1
	45.3	26 200	1.6	**MR**	**3I 140 - N250TC**	256 TC	4	38.7
	46.7	25 900	1.9	**MR**	**2I 160 - N280TC**	286 TC	6	24.6
	45.5	26 050	2.5	**MR**	**3I 160 - N250TC**	256 TC	4	38.5
	45.4	26 700	2.8	**MR**	**2I 180 - N280TC**	286 TC	6	25.4
	43.8	27 050	3.15	**MR**	**3I 180 - N250TC**	256 TC	4	39.9
	53.0	22 800	1.5	**MR**	**2I 140 - N280TC**	286 TC	6	21.7
	46.6	25 400	1.6	**MR**	**3I 140 - N250TC**	256 TC	4	37.5
	51.1	23 700	2.36	**MR**	**2I 160 - N280TC**	286 TC	6	22.5
	48.0	24 700	2.65	**MR**	**3I 160 - N250TC**	256 TC	4	36.5
	48.2	24 600	3.55	**MR**	**3I 180 - N250TC**	256 TC	4	36.3
	58.5	20 650	1.7	**MR**	**2I 140 - N280TC**	286 TC	6	19.6
	54.4	21 800	1.6	**MR**	**3I 140 - N250TC**	256 TC	4	32.2
	55.6	21 750	2.8	**MR**	**2I 160 - N280TC**	286 TC	6	20.7
	55.3	21 400	3.15	**MR**	**3I 160 - N250TC**	256 TC	4	31.6
	65.5	18 450	2	**MR**	**2I 140 - N280TC**	286 TC	6	17.6
	60.2	19 700	1.6	**MR**	**3I 140 - N250TC**	256 TC	4	29.1
	61.7	19 200	3	**MR**	**3I 160 - N250TC**	256 TC	4	28.4
	61.2	19 350	3.35	**MR**	**3I 180 - N250TC**	256 TC	4	28.6
	72.6	16 650	1.8	**MR**	**2I 140 - N250TC**	256 TC	4	24.1
	76.4	15 850	2.24	**MR**	**2I 140 - N280TC**	286 TC	6	15.1
	71.1	17 000	3	**MR**	**2I 160 - N250TC**	256 TC	4	24.6
	80.7	15 000	2.24	**MR**	**2I 140 - N250TC**	256 TC	4	21.7
	78.2	15 450	2.24	**MR**	**2I 140 - N280TC**	286 TC	6	14.7
	77.8	15 550	3.55	**MR**	**2I 160 - N250TC**	256 TC	4	22.5
	89.1	13 600	2.65	**MR**	**2I 140 - N250TC**	256 TC	4	19.6
	84.7	14 300	4	**MR**	**2I 160 - N250TC**	256 TC	4	20.7
	99.7	12 150	3	**MR**	**2I 140 - N250TC**	256 TC	4	17.6
	96.8	12 500	5	**MR**	**2I 160 - N250TC**	256 TC	4	18.1
	116	10 400	3.35	**MR**	**2I 140 - N250TC**	256 TC	4	15.1
	119	10 150	3.35	**MR**	**2I 140 - N250TC**	256 TC	4	14.7
	131	9 210	3.75	**MR**	**2I 140 - N250TC**	256 TC	4	13.3
	147	8 230	4.25	**MR**	**2I 140 - N250TC**	256 TC	4	11.9
	171	7 060	4.75	**MR**	**2I 140 - N250TC**	256 TC	4	10.2
	190	6 380	4.75	**MR**	**2I 140 - N250TC**	256 TC	4	9.22
	218	5 550	9.5	**MR**	**2I 160 - N250TC**	256 TC	4	8.03
	273	4 440	9.5	**MR**	**2I 160 - N250TC**	256 TC	4	6.41
25	**9.37**	158 100	1	**MR**	**3I 225 - N320TC**	324 TC	6	123
	9.20	161 000	1.4	**MR**	**3I 250 - N320TC**	324 TC	6	125
	9.34	158 500	1.9	**MR**	**3I 280 - N320TC**	324 TC	6	123
	9.07	163 200	2.36	**MR**	**3I 320 - N320TC**	324 TC	6	127
	9.07	163 200	3	**MR**	**3I 321 - N320TC**	324 TC	6	127
	11.5	128 900	1	**MR**	**3I 200 - N320TC**	324 TC	6	100
	11.7	126 900	1.5	**MR**	**3I 225 - N320TC**	324 TC	6	98.5
	11.7	126 800	2	**MR**	**3I 250 - N320TC**	324 TC	6	98.5
	11.5	129 200	2.65	**MR**	**3I 280 - N320TC**	324 TC	6	100
	11.0	134 900	3.35	**MR**	**3I 320 - N320TC**	324 TC	6	105

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)				Gear ratio i
25	**13.3**	111 300	1.25	**MR**	**3I 200 - N320TC**	324 TC	6	86.4
	13.0	114 300	1.7	**MR**	**3I 225 - N320TC**	324 TC	6	88.8
	12.9	114 600	2.36	**MR**	**3I 250 - N320TC**	324 TC	6	89.0
	12.8	115 500	3.15	**MR**	**3I 280 - N320TC**	324 TC	6	89.7
	14.7	100 900	1.06	**MR**	**3I 200 - N280TC**	284 TC	4	119
	13.7	108 200	1.18	**MR**	**3I 200 - N320TC**	324 TC	6	84.0
	14.3	103 900	1.5	**MR**	**3I 225 - N280TC**	284 TC	4	123
	13.9	106 600	1.7	**MR**	**3I 225 - N320TC**	324 TC	6	82.7
	14.0	105 800	2	**MR**	**3I 250 - N280TC**	284 TC	4	125
	13.9	106 500	2.36	**MR**	**3I 250 - N320TC**	324 TC	6	82.7
	14.2	104 200	2.8	**MR**	**3I 280 - N280TC**	284 TC	4	123
	15.8	93 500	1.4	**MR**	**3I 200 - N320TC**	324 TC	6	72.6
	15.4	95 950	2	**MR**	**3I 225 - N320TC**	324 TC	6	74.5
	15.4	96 250	2.65	**MR**	**3I 250 - N320TC**	324 TC	6	74.7
	15.3	96 950	3.75	**MR**	**3I 280 - N320TC**	324 TC	6	75.3
	16.3	91 100	0.9	**MR**	**3I 180 - N280TC**	284 TC	4	108
	17.5	84 650	1.4	**MR**	**3I 200 - N280TC**	284 TC	4	100
	17.8	83 400	2.12	**MR**	**3I 225 - N280TC**	284 TC	4	98.5
	17.8	83 350	3	**MR**	**3I 250 - N280TC**	284 TC	4	98.5
	17.4	84 950	3.75	**MR**	**3I 280 - N280TC**	284 TC	4	100
	18.7	79 300	0.85	**MR**	**3I 160 - N280TC**	284 TC	4	93.7
	18.8	78 950	1	**MR**	**3I 180 - N280TC**	284 TC	4	93.3
	20.2	73 150	1.8	**MR**	**3I 200 - N280TC**	284 TC	4	86.4
	19.7	75 100	2.5	**MR**	**3I 225 - N280TC**	284 TC	4	88.8
	19.7	75 300	3.35	**MR**	**3I 250 - N280TC**	284 TC	4	89.0
	20.4	72 500	0.85	**MR**	**3I 160 - N280TC**	284 TC	4	85.7
	20.3	72 850	1.12	**MR**	**3I 180 - N280TC**	284 TC	4	86.1
	20.8	71 100	1.7	**MR**	**3I 200 - N280TC**	284 TC	4	84.0
	21.2	70 050	2.5	**MR**	**3I 225 - N280TC**	284 TC	4	82.7
	21.2	69 950	3.55	**MR**	**3I 250 - N280TC**	284 TC	4	82.7
	23.4	63 400	1.06	**MR**	**3I 160 - N280TC**	284 TC	4	74.9
	23.5	63 150	1.4	**MR**	**3I 180 - N280TC**	284 TC	4	74.6
	24.1	61 450	2.12	**MR**	**3I 200 - N280TC**	284 TC	4	72.6
	23.5	63 050	2.8	**MR**	**3I 225 - N280TC**	284 TC	4	74.5
	23.4	63 250	4	**MR**	**3I 250 - N280TC**	284 TC	4	74.7
	27.6	53 700	1.12	**MR**	**3I 160 - N280TC**	284 TC	4	63.5
	27.4	54 000	1.5	**MR**	**3I 180 - N280TC**	284 TC	4	63.8
	28.0	53 000	2.24	**MR**	**3I 200 - N280TC**	284 TC	4	62.6
	27.7	53 500	2.5	**MR**	**3I 200 - N320TC**	324 TC	6	41.5
	28.4	52 200	3.35	**MR**	**3I 225 - N280TC**	284 TC	4	61.7
	31.5	47 000	1.4	**MR**	**3I 160 - N280TC**	284 TC	4	55.5
	31.7	46 800	1.7	**MR**	**3I 180 - N280TC**	284 TC	4	55.3
	32.3	45 800	2.8	**MR**	**3I 200 - N280TC**	284 TC	4	54.1
	31.5	47 000	3.75	**MR**	**3I 225 - N280TC**	284 TC	4	55.5
	34.5	43 000	1.4	**MR**	**3I 160 - N280TC**	284 TC	4	50.8
	34.3	43 200	1.9	**MR**	**3I 180 - N280TC**	284 TC	4	51.0
	33.3	44 500	2.65	**MR**	**3I 200 - N280TC**	284 TC	4	52.6
	36.5	40 550	3.35	**MR**	**3I 200 - N320TC**	324 TC	6	31.5
	33.8	43 800	4	**MR**	**3I 225 - N280TC**	284 TC	4	51.8
	39.4	37 600	1.7	**MR**	**3I 160 - N280TC**	284 TC	4	44.4
	39.6	37 450	2.36	**MR**	**3I 180 - N280TC**	284 TC	4	44.2
	38.5	38 450	3.35	**MR**	**3I 200 - N280TC**	284 TC	4	45.4
	46.7	32 400	1.5	**MR**	**2I 160 - N320TC**	324 TC	6	24.6
	45.5	32 600	2	**MR**	**3I 160 - N280TC**	284 TC	4	38.5
	45.4	33 350	2.24	**MR**	**2I 180 - N320TC**	324 TC	6	25.4
	43.8	33 800	2.5	**MR**	**3I 180 - N280TC**	284 TC	4	39.9
	42.1	35 150	3.75	**MR**	**3I 200 - N280TC**	284 TC	4	41.5
	51.1	29 600	1.9	**MR**	**2I 160 - N320TC**	324 TC	6	22.5
	48.0	30 900	2.12	**MR**	**3I 160 - N280TC**	284 TC	4	36.5
	49.3	30 700	2.65	**MR**	**2I 180 - N320TC**	324 TC	6	23.3
	48.2	30 750	2.8	**MR**	**3I 180 - N280TC**	284 TC	4	36.3
	50.8	29 150	4.25	**MR**	**3I 200 - N280TC**	284 TC	4	34.4
	55.6	27 200	2.24	**MR**	**2I 160 - N320TC**	324 TC	6	20.7
	55.3	26 750	2.5	**MR**	**3I 160 - N280TC**	284 TC	4	31.6
	55.4	27 300	3	**MR**	**2I 180 - N320TC**	324 TC	6	20.8
	53.4	27 750	3.35	**MR**	**3I 180 - N280TC**	284 TC	4	32.8

1) Powers valid for continuous duty S1; **increase possible** for duty cycles S2 ... S10: in which case T_2 increases and fs decreases.
2) For complete designation when ordering see ch. 3.1.

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
25	**63.6**	23 800	2.65	**MR 2I 160 - N320TC** 324 TC 6	18.1
	61.7	24 000	2.5	**MR 3I 160 - N280TC** 284 TC 4	28.4
	63.9	23 700	3	**MR 2I 180 - N320TC** 324 TC 6	18.0
	61.2	24 200	2.65	**MR 3I 180 - N280TC** 284 TC 4	28.6
	64.3	23 050	5.6	**MR 3I 200 - N280TC** 284 TC 4	27.2
	72.6	20 800	1.4	**MR 2I 140 - N280TC** 284 TC 4	24.1
	71.1	21 300	2.36	**MR 2I 160 - N280TC** 284 TC 4	24.6
	73.4	20 600	3	**MR 2I 160 - N320TC** 324 TC 6	15.7
	69.0	21 900	3.35	**MR 2I 180 - N280TC** 284 TC 4	25.4
	80.7	18 750	1.8	**MR 2I 140 - N280TC** 284 TC 4	21.7
	77.8	19 450	2.8	**MR 2I 160 - N280TC** 284 TC 4	22.5
	81.8	18 500	3	**MR 2I 160 - N320TC** 324 TC 6	14.1
	75.0	20 150	4	**MR 2I 180 - N280TC** 284 TC 4	23.3
	89.1	17 000	2.12	**MR 2I 140 - N280TC** 284 TC 4	19.6
	84.7	17 850	3.35	**MR 2I 160 - N280TC** 284 TC 4	20.7
	99.7	15 150	2.36	**MR 2I 140 - N280TC** 284 TC 4	17.6
	96.8	15 600	4	**MR 2I 160 - N280TC** 284 TC 4	18.1
	116	13 000	2.8	**MR 2I 140 - N280TC** 284 TC 4	15.1
	112	13 550	4.5	**MR 2I 160 - N280TC** 284 TC 4	15.7
	119	12 700	2.65	**MR 2I 140 - N280TC** 284 TC 4	14.7
	124	12 150	4.5	**MR 2I 160 - N280TC** 284 TC 4	14.1
	131	11 500	3	**MR 2I 140 - N280TC** 284 TC 4	13.3
	129	11 750	5	**MR 2I 160 - N280TC** 284 TC 4	13.6
	147	10 300	3.35	**MR 2I 140 - N280TC** 284 TC 4	11.9
	171	8 820	3.75	**MR 2I 140 - N280TC** 284 TC 4	10.2
	190	7 970	3.75	**MR 2I 140 - N280TC** 284 TC 4	9.22
	218	6 940	7.5	**MR 2I 160 - N280TC** 284 TC 4	8.03
	273	5 540	7.5	**MR 2I 160 - N280TC** 284 TC 4	6.41
30	**9.37**	189 700	0.85	**MR 3I 225 - N320TC** 326 TC 6	123
	9.20	193 100	1.18	**MR 3I 250 - N320TC** 326 TC 6	125
	9.34	190 200	1.6	**MR 3I 280 - N320TC** 326 TC 6	123
	9.07	195 900	1.9	**MR 3I 320 - N320TC** 326 TC 6	127
	9.07	195 900	2.36	**MR 3I 321 - N320TC** 326 TC 6	127
	8.81	201 800	3.35	**MR 3I 360 - N320TC** 326 TC 6	131
	11.5	154 600	0.85	**MR 3I 200 - N320TC** 326 TC 6	100
	11.7	152 300	1.18	**MR 3I 225 - N320TC** 326 TC 6	98.5
	11.7	152 200	1.7	**MR 3I 250 - N320TC** 326 TC 6	98.5
	11.5	155 100	2.12	**MR 3I 280 - N320TC** 326 TC 6	100
	11.0	161 800	2.8	**MR 3I 320 - N320TC** 326 TC 6	105
	11.0	161 800	3.55	**MR 3I 321 - N320TC** 326 TC 6	105
	13.3	133 600	1	**MR 3I 200 - N320TC** 326 TC 6	86.4
	13.0	137 200	1.4	**MR 3I 225 - N320TC** 326 TC 6	88.8
	12.9	137 500	1.9	**MR 3I 250 - N320TC** 326 TC 6	89.0
	12.8	138 600	2.65	**MR 3I 280 - N320TC** 326 TC 6	89.7
	12.8	139 300	3	**MR 3I 320 - N320TC** 326 TC 6	90.1
	14.7	121 000	0.85	**MR 3I 200 - N280TC** 286 TC 4	119
	13.7	129 800	0.95	**MR 3I 200 - N320TC** 326 TC 6	84.0
	14.3	124 700	1.18	**MR 3I 225 - N280TC** 286 TC 4	123
	13.9	127 900	1.4	**MR 3I 225 - N320TC** 326 TC 6	82.7
	14.0	126 900	1.7	**MR 3I 250 - N280TC** 286 TC 4	125
	13.9	127 800	2	**MR 3I 250 - N320TC** 326 TC 6	82.7
	14.2	125 000	2.36	**MR 3I 280 - N280TC** 286 TC 4	123
	13.9	127 500	3.35	**MR 3I 320 - N320TC** 326 TC 6	82.5
	15.8	112 200	1.18	**MR 3I 200 - N320TC** 326 TC 6	72.6
	15.4	115 200	1.6	**MR 3I 225 - N320TC** 326 TC 6	74.5
	15.4	115 500	2.24	**MR 3I 250 - N320TC** 326 TC 6	74.7
	15.3	116 400	3.15	**MR 3I 280 - N320TC** 326 TC 6	75.3
	17.5	101 600	1.18	**MR 3I 200 - N280TC** 286 TC 4	100
	17.8	100 100	1.7	**MR 3I 225 - N280TC** 286 TC 4	98.5
	17.8	100 000	2.5	**MR 3I 250 - N280TC** 286 TC 4	98.5
	17.4	101 900	3.15	**MR 3I 280 - N280TC** 286 TC 4	100

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
30	**18.8**	94 750	0.85	**MR 3I 180 - N280TC** 286 TC 4	93.3
	20.2	87 800	1.5	**MR 3I 200 - N280TC** 286 TC 4	86.4
	19.7	90 150	2	**MR 3I 225 - N280TC** 286 TC 4	88.8
	19.7	90 400	2.8	**MR 3I 250 - N280TC** 286 TC 4	89.0
	19.5	91 050	4	**MR 3I 280 - N280TC** 286 TC 4	89.7
	20.3	87 450	0.95	**MR 3I 180 - N280TC** 286 TC 4	86.1
	20.8	85 300	1.4	**MR 3I 200 - N280TC** 286 TC 4	84.0
	21.2	84 050	2.12	**MR 3I 225 - N280TC** 286 TC 4	82.7
	21.2	83 950	3	**MR 3I 250 - N280TC** 286 TC 4	82.7
	20.8	85 550	3.75	**MR 3I 280 - N280TC** 286 TC 4	84.3
	23.4	76 100	0.85	**MR 3I 160 - N280TC** 286 TC 4	74.9
	23.5	75 800	1.18	**MR 3I 180 - N280TC** 286 TC 4	74.6
	24.1	73 700	1.7	**MR 3I 200 - N280TC** 286 TC 4	72.6
	23.5	75 700	2.36	**MR 3I 225 - N280TC** 286 TC 4	74.5
	23.4	75 900	3.35	**MR 3I 250 - N280TC** 286 TC 4	74.7
	27.6	64 450	0.95	**MR 3I 160 - N280TC** 286 TC 4	63.5
	27.4	64 800	1.25	**MR 3I 180 - N280TC** 286 TC 4	63.8
	28.0	63 600	1.9	**MR 3I 200 - N280TC** 286 TC 4	62.6
	27.7	64 200	2.12	**MR 3I 200 - N320TC** 326 TC 6	41.5
	28.4	62 650	2.8	**MR 3I 225 - N280TC** 286 TC 4	61.7
	28.4	62 500	3.75	**MR 3I 250 - N280TC** 286 TC 4	61.5
	31.5	56 400	1.18	**MR 3I 160 - N280TC** 286 TC 4	55.5
	31.7	56 150	1.4	**MR 3I 180 - N280TC** 286 TC 4	55.3
	32.3	54 950	2.36	**MR 3I 200 - N280TC** 286 TC 4	54.1
	31.5	56 400	3.15	**MR 3I 225 - N280TC** 286 TC 4	55.5
	34.5	51 550	1.18	**MR 3I 160 - N280TC** 286 TC 4	50.8
	34.3	51 850	1.6	**MR 3I 180 - N280TC** 286 TC 4	51.0
	33.3	53 400	2.24	**MR 3I 200 - N280TC** 286 TC 4	52.6
	36.5	48 650	2.8	**MR 3I 200 - N320TC** 326 TC 6	31.5
	33.8	52 600	3.15	**MR 3I 225 - N280TC** 286 TC 4	51.8
	37.6	47 350	4	**MR 3I 225 - N320TC** 326 TC 6	30.6
	39.4	45 100	1.4	**MR 3I 160 - N280TC** 286 TC 4	44.4
	39.6	44 900	2	**MR 3I 180 - N280TC** 286 TC 4	44.2
	38.5	46 150	2.8	**MR 3I 200 - N280TC** 286 TC 4	45.4
	42.2	42 050	3.15	**MR 3I 200 - N320TC** 326 TC 6	27.2
	37.5	47 350	3.75	**MR 3I 225 - N280TC** 286 TC 4	46.6
	46.7	38 850	1.32	**MR 2I 160 - N320TC** 326 TC 6	24.6
	45.5	39 100	1.7	**MR 3I 160 - N280TC** 286 TC 4	38.5
	45.4	40 000	1.8	**MR 2I 180 - N320TC** 326 TC 6	25.4
	43.8	40 550	2.12	**MR 3I 180 - N280TC** 286 TC 4	39.9
	47.4	38 250	2.65	**MR 2I 200 - N320TC** 326 TC 6	24.2
	42.1	42 200	3.15	**MR 3I 200 - N280TC** 286 TC 4	41.5
	51.1	35 500	1.6	**MR 2I 160 - N320TC** 326 TC 6	22.5
	48.0	37 050	1.8	**MR 3I 160 - N280TC** 286 TC 4	36.5
	49.3	36 850	2.24	**MR 2I 180 - N320TC** 326 TC 6	23.3
	48.2	36 900	2.36	**MR 3I 180 - N280TC** 286 TC 4	36.3
	50.8	34 950	3.55	**MR 3I 200 - N280TC** 286 TC 4	34.4
	55.6	32 600	1.8	**MR 2I 160 - N320TC** 326 TC 6	20.7
	55.3	32 100	2	**MR 3I 160 - N280TC** 286 TC 4	31.6
	55.4	32 800	2.5	**MR 2I 180 - N320TC** 326 TC 6	20.8
	53.4	33 300	2.8	**MR 3I 180 - N280TC** 286 TC 4	32.8
	55.6	32 000	4	**MR 3I 200 - N280TC** 286 TC 4	31.5
	63.6	28 550	2.24	**MR 2I 160 - N320TC** 326 TC 6	18.1
	61.7	28 850	2	**MR 3I 160 - N280TC** 286 TC 4	28.4
	63.9	28 400	2.5	**MR 2I 180 - N320TC** 326 TC 6	18.0
	61.2	29 050	2.24	**MR 3I 180 - N280TC** 286 TC 4	28.6
	64.3	27 650	4.75	**MR 3I 200 - N280TC** 286 TC 4	27.2
	72.6	25 000	1.18	**MR 2I 140 - N280TC** 286 TC 4	24.1
	71.1	25 550	1.9	**MR 2I 160 - N280TC** 286 TC 4	24.6
	73.4	24 750	2.5	**MR 2I 160 - N320TC** 326 TC 6	15.7
	69.0	26 300	2.8	**MR 2I 180 - N280TC** 286 TC 4	25.4
	72.2	25 150	4	**MR 2I 200 - N280TC** 286 TC 4	24.2
	80.7	22 500	1.5	**MR 2I 140 - N280TC** 286 TC 4	21.7
	77.8	23 350	2.36	**MR 2I 160 - N280TC** 286 TC 4	22.5
	75.0	24 200	3.35	**MR 2I 180 - N280TC** 286 TC 4	23.3
	79.0	23 000	4.75	**MR 2I 200 - N280TC** 286 TC 4	22.2

1) Powers valid for continuous duty S1; **increase possible** for duty cycles S2 ... S10: in which case T_2 increases and fs decreases.
2) For complete designation when ordering see ch. 3.1.

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)				Gear ratio i
30	**89.1**	20 350	1.7	**MR**	**2I 140 - N280TC**	286 TC	4	19.6
	84.7	21 450	2.8	**MR**	**2I 160 - N280TC**	286 TC	4	20.7
	84.3	21 550	3.75	**MR**	**2I 180 - N280TC**	286 TC	4	20.8
	99.7	18 200	2	**MR**	**2I 140 - N280TC**	286 TC	4	17.6
	96.8	18 750	3.35	**MR**	**2I 160 - N280TC**	286 TC	4	18.1
	116	15 600	2.24	**MR**	**2I 140 - N280TC**	286 TC	4	15.1
	112	16 250	3.75	**MR**	**2I 160 - N280TC**	286 TC	4	15.7
	119	15 250	2.24	**MR**	**2I 140 - N280TC**	286 TC	4	14.7
	124	14 600	3.75	**MR**	**2I 160 - N280TC**	286 TC	4	14.1
	131	13 800	2.5	**MR**	**2I 140 - N280TC**	286 TC	4	13.3
	129	14 100	4	**MR**	**2I 160 - N280TC**	286 TC	4	13.6
	147	12 350	2.8	**MR**	**2I 140 - N280TC**	286 TC	4	11.9
	147	12 300	5	**MR**	**2I 160 - N280TC**	286 TC	4	11.9
	171	10 600	3.15	**MR**	**2I 140 - N280TC**	286 TC	4	10.2
	190	9 570	3.15	**MR**	**2I 140 - N280TC**	286 TC	4	9.22
	218	8 330	6.3	**MR**	**2I 160 - N280TC**	286 TC	4	8.03
	273	6 650	6.3	**MR**	**2I 160 - N280TC**	286 TC	4	6.41
40	**9.20**	257 500	0.9	**MR**	**3I 250 - N360TC**	364 TC	6	125
	9.34	253 600	1.18	**MR**	**3I 280 - N360TC**	364 TC	6	123
	9.07	261 200	1.5	**MR**	**3I 320 - N360TC**	364 TC	6	127
	9.07	261 200	1.8	**MR**	**3I 321 - N360TC**	364 TC	6	127
	8.81	269 100	2.5	**MR**	**3I 360 - N360TC**	364 TC	6	131
	11.7	203 100	0.9	**MR**	**3I 225 - N360TC**	364 TC	6	98.5
	11.7	202 900	1.32	**MR**	**3I 250 - N360TC**	364 TC	6	98.5
	11.5	206 800	1.6	**MR**	**3I 280 - N360TC**	364 TC	6	100
	11.0	215 800	2.12	**MR**	**3I 320 - N360TC**	364 TC	6	105
	11.0	215 800	2.65	**MR**	**3I 321 - N360TC**	364 TC	6	105
	11.2	212 200	3.55	**MR**	**3I 360 - N360TC**	364 TC	6	103
	13.0	182 900	1.06	**MR**	**3I 225 - N360TC**	364 TC	6	88.8
	12.9	183 400	1.4	**MR**	**3I 250 - N360TC**	364 TC	6	89.0
	12.8	184 800	2	**MR**	**3I 280 - N360TC**	364 TC	6	89.7
	12.8	185 700	2.24	**MR**	**3I 320 - N360TC**	364 TC	6	90.1
	12.8	185 700	2.8	**MR**	**3I 321 - N360TC**	364 TC	6	90.1
	12.4	191 000	3.75	**MR**	**3I 360 - N360TC**	364 TC	6	92.7
	14.3	166 200	0.9	**MR**	**3I 225 - N320TC**	324 TC	4	123
	13.9	170 500	1.06	**MR**	**3I 225 - N360TC**	364 TC	6	82.7
	14.0	169 200	1.25	**MR**	**3I 250 - N320TC**	324 TC	4	125
	13.9	170 300	1.5	**MR**	**3I 250 - N360TC**	364 TC	6	82.7
	14.2	166 700	1.7	**MR**	**3I 280 - N320TC**	324 TC	4	123
	13.8	171 600	2.12	**MR**	**3I 320 - N320TC**	324 TC	4	127
	13.9	170 000	2.5	**MR**	**3I 320 - N360TC**	364 TC	6	82.5
	13.8	171 600	2.65	**MR**	**3I 321 - N320TC**	324 TC	4	127
	13.9	170 000	3.15	**MR**	**3I 321 - N360TC**	364 TC	6	82.5
	13.4	176 800	3.55	**MR**	**3I 360 - N320TC**	324 TC	4	131
	15.8	149 600	0.9	**MR**	**3I 200 - N360TC**	364 TC	6	72.6
	15.4	153 500	1.25	**MR**	**3I 225 - N360TC**	364 TC	6	74.5
	15.4	154 000	1.7	**MR**	**3I 250 - N360TC**	364 TC	6	74.7
	15.3	155 100	2.36	**MR**	**3I 280 - N360TC**	364 TC	6	75.3
	16.2	146 300	2.8	**MR**	**3I 320 - N360TC**	364 TC	6	71.0
	16.2	146 300	3.55	**MR**	**3I 321 - N360TC**	364 TC	6	71.0
	17.5	135 500	0.9	**MR**	**3I 200 - N320TC**	324 TC	4	100
	17.8	133 500	1.32	**MR**	**3I 225 - N320TC**	324 TC	4	98.5
	17.8	133 300	1.8	**MR**	**3I 250 - N320TC**	324 TC	4	98.5
	17.4	135 900	2.36	**MR**	**3I 280 - N320TC**	324 TC	4	100
	16.7	141 800	3	**MR**	**3I 320 - N320TC**	324 TC	4	105
	16.7	141 800	3.75	**MR**	**3I 321 - N320TC**	324 TC	4	105
	20.2	117 100	1.12	**MR**	**3I 200 - N320TC**	324 TC	4	86.4
	19.7	120 200	1.5	**MR**	**3I 225 - N320TC**	324 TC	4	88.8
	19.7	120 500	2.12	**MR**	**3I 250 - N320TC**	324 TC	4	89.0
	19.5	121 400	3	**MR**	**3I 280 - N320TC**	324 TC	4	89.7
	19.4	122 000	3.35	**MR**	**3I 320 - N320TC**	324 TC	4	90.1

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)				Gear ratio i
40	**20.8**	113 700	1.06	**MR**	**3I 200 - N320TC**	324 TC	4	84.0
	21.2	112 000	1.5	**MR**	**3I 225 - N320TC**	324 TC	4	82.7
	22.8	104 000	1.4	**MR**	**3I 225 - N320TC**	324 TC	4	76.8
	21.2	111 900	2.12	**MR**	**3I 250 - N320TC**	324 TC	4	82.7
	20.8	114 100	2.8	**MR**	**3I 280 - N320TC**	324 TC	4	84.3
	21.2	111 700	3.75	**MR**	**3I 320 - N320TC**	324 TC	4	82.5
	24.1	98 300	1.32	**MR**	**3I 200 - N320TC**	324 TC	4	72.6
	23.5	100 900	1.8	**MR**	**3I 225 - N320TC**	324 TC	4	74.5
	23.4	101 200	2.5	**MR**	**3I 250 - N320TC**	324 TC	4	74.7
	23.2	101 900	3.55	**MR**	**3I 280 - N320TC**	324 TC	4	75.3
	28.0	84 800	1.4	**MR**	**3I 200 - N320TC**	324 TC	4	62.6
	28.4	83 500	2	**MR**	**3I 225 - N320TC**	324 TC	4	61.7
	28.4	83 350	2.8	**MR**	**3I 250 - N320TC**	324 TC	4	61.5
	27.9	84 950	3.75	**MR**	**3I 280 - N320TC**	324 TC	4	62.7
	32.3	73 250	1.7	**MR**	**3I 200 - N320TC**	324 TC	4	54.1
	31.5	75 200	2.36	**MR**	**3I 225 - N320TC**	324 TC	4	55.5
	31.5	75 300	3.35	**MR**	**3I 250 - N320TC**	324 TC	4	55.6
	33.3	71 200	1.7	**MR**	**3I 200 - N320TC**	324 TC	4	52.6
	36.5	64 900	2	**MR**	**3I 200 - N360TC**	364 TC	6	31.5
	33.8	70 100	2.5	**MR**	**3I 225 - N320TC**	324 TC	4	51.8
	37.6	63 100	3	**MR**	**3I 225 - N360TC**	364 TC	6	30.6
	33.9	69 950	3.35	**MR**	**3I 250 - N320TC**	324 TC	4	51.7
	38.5	61 500	2.12	**MR**	**3I 200 - N320TC**	324 TC	4	45.4
	37.5	63 150	2.8	**MR**	**3I 225 - N320TC**	324 TC	4	46.6
	37.5	63 250	3.75	**MR**	**3I 250 - N320TC**	324 TC	4	46.7
	46.7	51 800	0.95	**MR**	**2I 160 - N360TC**	364 TC	6	24.6
	45.4	53 350	1.4	**MR**	**2I 180 - N360TC**	364 TC	6	25.4
	47.4	51 000	2	**MR**	**2I 200 - N360TC**	364 TC	6	24.2
	42.1	56 250	2.36	**MR**	**3I 200 - N320TC**	324 TC	4	41.5
	46.1	52 550	2.8	**MR**	**2I 225 - N360TC**	364 TC	6	25.0
	43.3	54 700	3.35	**MR**	**3I 225 - N320TC**	324 TC	4	40.4
	51.1	47 350	1.18	**MR**	**2I 160 - N360TC**	364 TC	6	22.5
	49.3	49 100	1.6	**MR**	**2I 180 - N360TC**	364 TC	6	23.3
	51.9	46 600	2.36	**MR**	**2I 200 - N360TC**	364 TC	6	22.2
	50.8	46 650	2.65	**MR**	**3I 200 - N320TC**	324 TC	4	34.4
	49.5	47 850	3.75	**MR**	**3I 225 - N320TC**	324 TC	4	35.4
	55.6	43 500	1.4	**MR**	**2I 160 - N360TC**	364 TC	6	20.7
	55.4	43 700	1.8	**MR**	**2I 180 - N360TC**	364 TC	6	20.8
	56.5	42 800	2.8	**MR**	**2I 200 - N360TC**	364 TC	6	20.3
	55.6	42 650	3	**MR**	**3I 200 - N320TC**	324 TC	4	31.5
	57.1	41 450	4	**MR**	**3I 225 - N320TC**	324 TC	4	30.6
	63.6	38 050	1.7	**MR**	**2I 160 - N360TC**	364 TC	6	18.1
	63.9	37 900	1.8	**MR**	**2I 180 - N360TC**	364 TC	6	18.0
	65.4	37 000	3.35	**MR**	**2I 200 - N360TC**	364 TC	6	17.6
	64.3	36 850	3.55	**MR**	**3I 200 - N320TC**	324 TC	4	27.2
	71.1	34 050	1.5	**MR**	**2I 160 - N320TC**	324 TC	4	24.6
	73.4	32 950	1.8	**MR**	**2I 160 - N360TC**	364 TC	6	15.7
	69.0	35 050	2	**MR**	**2I 180 - N320TC**	324 TC	4	25.4
	72.2	33 500	3	**MR**	**2I 200 - N320TC**	324 TC	4	24.2
	71.5	33 850	3.75	**MR**	**2I 200 - N360TC**	364 TC	6	16.1
	70.1	34 550	4.25	**MR**	**2I 225 - N320TC**	324 TC	4	25.0
	77.8	31 100	1.8	**MR**	**2I 160 - N320TC**	324 TC	4	22.5
	75.0	32 250	2.5	**MR**	**2I 180 - N320TC**	324 TC	4	23.3
	79.0	30 650	3.55	**MR**	**2I 200 - N320TC**	324 TC	4	22.2
	84.7	28 600	2	**MR**	**2I 160 - N320TC**	324 TC	4	20.7
	84.3	28 700	2.8	**MR**	**2I 180 - N320TC**	324 TC	4	20.8
	86.0	28 150	4.25	**MR**	**2I 200 - N320TC**	324 TC	4	20.3
	96.8	25 000	2.5	**MR**	**2I 160 - N320TC**	324 TC	4	18.1
	97.2	24 900	2.8	**MR**	**2I 180 - N320TC**	324 TC	4	18.0
	99.5	24 300	5	**MR**	**2I 200 - N320TC**	324 TC	4	17.6
	112	21 650	2.8	**MR**	**2I 160 - N320TC**	324 TC	4	15.7
	105	23 000	3.35	**MR**	**2I 180 - N320TC**	324 TC	4	16.6
	124	19 450	2.8	**MR**	**2I 160 - N320TC**	324 TC	4	14.1
	124	19 450	3.15	**MR**	**2I 160 - N360TC**	364 TC	6	9.24
	122	19 900	3.75	**MR**	**2I 180 - N320TC**	324 TC	4	14.4

1) Powers valid for continuous duty S1; **increase possible** for duty cycles S2 ... S10: in which case T_2 increases and fs decreases.
2) For complete designation when ordering see ch. 3.1.

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)	Gear ratio i
40	**129**	18 800	3.15	**MR 2I 160 - N320TC** 324 TC 4	13.6
	147	16 450	3.75	**MR 2I 160 - N320TC** 324 TC 4	11.9
	170	14 250	4	**MR 2I 160 - N320TC** 324 TC 4	10.3
	189	12 800	4	**MR 2I 160 - N320TC** 324 TC 4	9.24
	218	11 100	4.75	**MR 2I 160 - N320TC** 324 TC 4	8.03
	273	8 870	4.75	**MR 2I 160 - N320TC** 324 TC 4	6.41
50	**9.34**	317 000	0.95	**MR 3I 280 - N360TC** 365 TC 6	123
	9.07	326 500	1.18	**MR 3I 320 - N360TC** 365 TC 6	127
	9.07	326 500	1.5	**MR 3I 321 - N360TC** 365 TC 6	127
	8.81	336 300	2	**MR 3I 360 - N360TC** 365 TC 6	131
	11.7	253 600	1	**MR 3I 250 - N360TC** 365 TC 6	98.5
	11.5	258 500	1.32	**MR 3I 280 - N360TC** 365 TC 6	100
	11.0	269 700	1.7	**MR 3I 320 - N360TC** 365 TC 6	105
	11.0	269 700	2.12	**MR 3I 321 - N360TC** 365 TC 6	105
	11.2	265 300	2.8	**MR 3I 360 - N360TC** 365 TC 6	103
	13.0	228 600	0.85	**MR 3I 225 - N360TC** 365 TC 6	88.8
	12.9	229 200	1.18	**MR 3I 250 - N360TC** 365 TC 6	89.0
	12.8	231 000	1.6	**MR 3I 280 - N360TC** 365 TC 6	89.7
	12.8	232 100	1.8	**MR 3I 320 - N360TC** 365 TC 6	90.1
	12.8	232 100	2.24	**MR 3I 321 - N360TC** 365 TC 6	90.1
	12.4	238 800	3	**MR 3I 360 - N360TC** 365 TC 6	92.7
	13.9	213 100	0.85	**MR 3I 225 - N360TC** 365 TC 6	82.7
	14.0	211 500	1	**MR 3I 250 - N320TC** 326 TC 4	125
	13.9	212 900	1.18	**MR 3I 250 - N360TC** 365 TC 6	82.7
	14.2	208 300	1.4	**MR 3I 280 - N320TC** 326 TC 4	123
	13.8	214 600	1.7	**MR 3I 320 - N320TC** 326 TC 4	127
	13.9	212 500	2	**MR 3I 320 - N360TC** 365 TC 6	82.5
	13.8	214 600	2.12	**MR 3I 321 - N320TC** 326 TC 4	127
	13.9	212 500	2.5	**MR 3I 321 - N360TC** 365 TC 6	82.5
	13.4	221 000	2.8	**MR 3I 360 - N320TC** 326 TC 4	131
	14.2	209 000	3.35	**MR 3I 360 - N360TC** 365 TC 6	81.1
	15.4	191 900	1	**MR 3I 225 - N360TC** 365 TC 6	74.5
	15.4	192 500	1.32	**MR 3I 250 - N360TC** 365 TC 6	74.7
	15.3	193 900	1.9	**MR 3I 280 - N360TC** 365 TC 6	75.3
	16.2	182 900	2.24	**MR 3I 320 - N360TC** 365 TC 6	71.0
	16.2	182 900	2.8	**MR 3I 321 - N360TC** 365 TC 6	71.0
	15.7	188 100	4	**MR 3I 360 - N360TC** 365 TC 6	73.0
	17.8	166 800	1.06	**MR 3I 225 - N320TC** 326 TC 4	98.5
	17.8	166 700	1.5	**MR 3I 250 - N320TC** 326 TC 4	98.5
	17.4	169 900	1.9	**MR 3I 280 - N320TC** 326 TC 4	100
	16.7	177 200	2.36	**MR 3I 320 - N320TC** 326 TC 4	105
	16.7	177 200	3	**MR 3I 321 - N320TC** 326 TC 4	105
	17.0	174 300	4	**MR 3I 360 - N320TC** 326 TC 4	103
	20.2	146 300	0.9	**MR 3I 200 - N320TC** 326 TC 4	86.4
	19.7	150 200	1.18	**MR 3I 225 - N320TC** 326 TC 4	88.8
	19.7	150 600	1.7	**MR 3I 250 - N320TC** 326 TC 4	89.0
	19.5	151 800	2.36	**MR 3I 280 - N320TC** 326 TC 4	89.7
	19.4	152 500	2.65	**MR 3I 320 - N320TC** 326 TC 4	90.1
	19.4	152 500	3.35	**MR 3I 321 - N320TC** 326 TC 4	90.1
	20.8	142 200	0.85	**MR 3I 200 - N320TC** 326 TC 4	84.0
	21.2	140 100	1.25	**MR 3I 225 - N320TC** 326 TC 4	82.7
	22.8	130 000	1.12	**MR 3I 225 - N320TC** 326 TC 4	76.8
	21.2	139 900	1.7	**MR 3I 250 - N320TC** 326 TC 4	82.7
	20.8	142 600	2.24	**MR 3I 280 - N320TC** 326 TC 4	84.3
	22.8	130 200	2.24	**MR 3I 280 - N320TC** 326 TC 4	76.9
	21.2	139 600	3	**MR 3I 320 - N320TC** 326 TC 4	82.5
	21.2	139 600	3.75	**MR 3I 321 - N320TC** 326 TC 4	82.5
	24.1	122 900	1.06	**MR 3I 200 - N320TC** 326 TC 4	72.6
	23.5	126 100	1.4	**MR 3I 225 - N320TC** 326 TC 4	74.5
	23.4	126 500	2	**MR 3I 250 - N320TC** 326 TC 4	74.7
	23.2	127 400	2.8	**MR 3I 280 - N320TC** 326 TC 4	75.3
	24.6	120 200	3.35	**MR 3I 320 - N320TC** 326 TC 4	71.0

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)	Gear ratio i
50	**28.0**	106 000	1.12	**MR 3I 200 - N320TC** 326 TC 4	62.6
	28.4	104 400	1.6	**MR 3I 225 - N320TC** 326 TC 4	61.7
	28.4	104 200	2.36	**MR 3I 250 - N320TC** 326 TC 4	61.5
	27.9	106 200	3	**MR 3I 280 - N320TC** 326 TC 4	62.7
	26.1	113 600	3.75	**MR 3I 320 - N320TC** 326 TC 4	67.1
	32.3	91 550	1.4	**MR 3I 200 - N320TC** 326 TC 4	54.1
	31.5	94 000	1.9	**MR 3I 225 - N320TC** 326 TC 4	55.5
	31.5	94 150	2.65	**MR 3I 250 - N320TC** 326 TC 4	55.6
	31.2	94 850	3.75	**MR 3I 280 - N320TC** 326 TC 4	56.0
	33.3	89 000	1.32	**MR 3I 200 - N320TC** 326 TC 4	52.6
	36.5	81 100	1.6	**MR 3I 200 - N360TC** 365 TC 6	31.5
	33.8	87 650	1.9	**MR 3I 225 - N320TC** 326 TC 4	51.8
	37.6	78 900	2.5	**MR 3I 225 - N360TC** 365 TC 6	30.6
	33.9	87 450	2.8	**MR 3I 250 - N320TC** 326 TC 4	51.7
	33.2	89 150	3.55	**MR 3I 280 - N320TC** 326 TC 4	52.7
	38.5	76 900	1.6	**MR 3I 200 - N320TC** 326 TC 4	45.4
	42.2	70 100	1.9	**MR 3I 200 - N360TC** 365 TC 6	27.2
	37.5	78 950	2.24	**MR 3I 225 - N320TC** 326 TC 4	46.6
	37.5	79 050	3.15	**MR 3I 250 - N320TC** 326 TC 4	46.7
	37.2	79 650	4	**MR 3I 280 - N320TC** 326 TC 4	47.1
	45.4	66 700	1.12	**MR 2I 180 - N360TC** 365 TC 6	25.4
	47.4	63 750	1.6	**MR 2I 200 - N360TC** 365 TC 6	24.2
	42.1	70 300	1.9	**MR 3I 200 - N320TC** 326 TC 4	41.5
	46.1	65 700	2.24	**MR 2I 225 - N360TC** 365 TC 6	25.0
	43.3	68 400	2.65	**MR 3I 225 - N320TC** 326 TC 4	40.4
	41.2	71 850	3.55	**MR 3I 250 - N320TC** 326 TC 4	42.4
	51.1	59 200	0.95	**MR 2I 160 - N360TC** 365 TC 6	22.5
	49.3	61 400	1.32	**MR 2I 180 - N360TC** 365 TC 6	23.3
	51.9	58 300	1.9	**MR 2I 200 - N360TC** 365 TC 6	22.2
	50.8	58 300	2.12	**MR 3I 200 - N320TC** 326 TC 4	34.4
	50.1	60 450	2.65	**MR 2I 225 - N360TC** 365 TC 6	23.0
	49.5	59 850	3	**MR 3I 225 - N320TC** 326 TC 4	35.4
	47.4	62 450	4	**MR 3I 250 - N320TC** 326 TC 4	36.9
	55.6	54 350	1.12	**MR 2I 160 - N360TC** 365 TC 6	20.7
	55.4	54 650	1.5	**MR 2I 180 - N360TC** 365 TC 6	20.8
	56.5	53 550	2.24	**MR 2I 200 - N360TC** 365 TC 6	20.3
	55.6	53 300	2.5	**MR 3I 200 - N320TC** 326 TC 4	31.5
	57.1	51 850	3.15	**MR 3I 225 - N320TC** 326 TC 4	30.6
	52.2	56 800	4.5	**MR 3I 250 - N320TC** 326 TC 4	33.5
	63.6	47 550	1.32	**MR 2I 160 - N360TC** 365 TC 6	18.1
	63.9	47 350	1.5	**MR 2I 180 - N360TC** 365 TC 6	18.0
	65.4	46 250	2.65	**MR 2I 200 - N360TC** 365 TC 6	17.6
	64.3	46 100	2.8	**MR 3I 200 - N320TC** 326 TC 4	27.2
	64.1	46 250	3.15	**MR 3I 225 - N320TC** 326 TC 4	27.3
	71.1	42 550	1.18	**MR 2I 160 - N320TC** 326 TC 4	24.6
	73.4	41 200	1.5	**MR 2I 160 - N360TC** 365 TC 6	15.7
	69.0	43 850	1.6	**MR 2I 180 - N320TC** 326 TC 4	25.4
	72.2	41 900	2.36	**MR 2I 200 - N320TC** 326 TC 4	24.2
	71.5	42 300	3.15	**MR 2I 200 - N360TC** 365 TC 6	16.1
	70.1	43 150	3.35	**MR 2I 225 - N320TC** 326 TC 4	25.0
	77.8	38 900	1.4	**MR 2I 160 - N320TC** 326 TC 4	22.5
	75.0	40 350	2	**MR 2I 180 - N320TC** 326 TC 4	23.3
	79.0	38 300	2.8	**MR 2I 200 - N320TC** 326 TC 4	22.2
	82.7	36 550	3.35	**MR 2I 200 - N360TC** 365 TC 6	13.9
	76.2	39 700	4	**MR 2I 225 - N320TC** 326 TC 4	23.0
	84.7	35 750	1.6	**MR 2I 160 - N320TC** 326 TC 4	20.7
	84.3	35 900	2.24	**MR 2I 180 - N320TC** 326 TC 4	20.8
	86.0	35 200	3.35	**MR 2I 200 - N320TC** 326 TC 4	20.3
	87.3	34 650	4.25	**MR 2I 225 - N320TC** 326 TC 4	20.0
	96.8	31 250	2	**MR 2I 160 - N320TC** 326 TC 4	18.1
	97.2	31 100	2.24	**MR 2I 180 - N320TC** 326 TC 4	18.0
	99.5	30 400	4	**MR 2I 200 - N320TC** 326 TC 4	17.6
	96.9	31 200	5	**MR 2I 225 - N320TC** 326 TC 4	18.1

1) Powers valid for continuous duty S1; **increase possible** for duty cycles S2 ... S10: in which case T_2 increases and fs decreases.
2) For complete designation when ordering see ch. 3.1.

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)				Gear ratio i
50	**112**	27 100	2.24	**MR**	**2I 160 - N320TC**	326 TC	4	15.7
	105	28 700	2.8	**MR**	**2I 180 - N320TC**	326 TC	4	16.6
	108	28 100	2.24	**MR**	**2I 180 - N320TC**	326 TC	4	16.3
	109	27 800	4.25	**MR**	**2I 200 - N320TC**	326 TC	4	16.1
	112	27 050	5.3	**MR**	**2I 225 - N320TC**	326 TC	4	15.6
	124	24 300	2.24	**MR**	**2I 160 - N320TC**	326 TC	4	14.1
	124	24 300	2.5	**MR**	**2I 160 - N360TC**	365 TC	6	9.24
	122	24 900	3	**MR**	**2I 180 - N320TC**	326 TC	4	14.4
	126	24 050	4.5	**MR**	**2I 200 - N320TC**	326 TC	4	13.9
	120	25 300	6	**MR**	**2I 225 - N320TC**	326 TC	4	14.6
	129	23 500	2.5	**MR**	**2I 160 - N320TC**	326 TC	4	13.6
	128	23 600	3.35	**MR**	**2I 180 - N320TC**	326 TC	4	13.6
	135	22 400	5	**MR**	**2I 200 - N320TC**	326 TC	4	13.0
	137	22 050	6.7	**MR**	**2I 225 - N320TC**	326 TC	4	12.8
	147	20 550	3	**MR**	**2I 160 - N320TC**	326 TC	4	11.9
	148	20 450	3.75	**MR**	**2I 180 - N320TC**	326 TC	4	11.8
	156	19 350	6	**MR**	**2I 200 - N320TC**	326 TC	4	11.2
	152	19 850	7.5	**MR**	**2I 225 - N320TC**	326 TC	4	11.5
	170	17 800	3.35	**MR**	**2I 160 - N320TC**	326 TC	4	10.3
	164	18 450	3.75	**MR**	**2I 180 - N320TC**	326 TC	4	10.7
	171	17 700	6.3	**MR**	**2I 200 - N320TC**	326 TC	4	10.2
	176	17 200	8.5	**MR**	**2I 225 - N320TC**	326 TC	4	9.95
	189	15 950	3.35	**MR**	**2I 160 - N320TC**	326 TC	4	9.24
	188	16 100	3.75	**MR**	**2I 180 - N320TC**	326 TC	4	9.31
	198	15 300	7.1	**MR**	**2I 200 - N320TC**	326 TC	4	8.85
	197	15 350	9	**MR**	**2I 225 - N320TC**	326 TC	4	8.88
	218	13 900	3.75	**MR**	**2I 160 - N320TC**	326 TC	4	8.03
	219	13 850	7.5	**MR**	**2I 200 - N320TC**	326 TC	4	8.01
	273	11 100	3.75	**MR**	**2I 160 - N320TC**	326 TC	4	6.41
	273	11 100	8.5	**MR**	**2I 200 - N320TC**	326 TC	4	6.42
60	**9.34**	380 400	0.8	**MR**	**3I 280 - N400TC**	404 TC	6	123
	9.07	391 800	0.95	**MR**	**3I 320 - N400TC**	404 TC	6	127
	9.07	391 800	1.18	**MR**	**3I 321 - N400TC**	404 TC	6	127
	8.81	403 600	1.6	**MR**	**3I 360 - N400TC**	404 TC	6	131
	11.7	304 300	0.85	**MR**	**3I 250 - N400TC**	404 TC	6	98.5
	11.5	310 200	1.06	**MR**	**3I 280 - N400TC**	404 TC	6	100
	11.0	323 600	1.4	**MR**	**3I 320 - N400TC**	404 TC	6	105
	11.0	323 600	1.7	**MR**	**3I 321 - N400TC**	404 TC	6	105
	11.2	318 300	2.36	**MR**	**3I 360 - N400TC**	404 TC	6	103
	12.9	275 100	0.95	**MR**	**3I 250 - N400TC**	404 TC	6	89.0
	12.8	277 200	1.32	**MR**	**3I 280 - N400TC**	404 TC	6	89.7
	12.8	278 500	1.5	**MR**	**3I 320 - N400TC**	404 TC	6	90.1
	12.8	278 500	1.9	**MR**	**3I 321 - N400TC**	404 TC	6	90.1
	12.4	286 500	2.5	**MR**	**3I 360 - N400TC**	404 TC	6	92.7
	14.0	253 800	0.85	**MR**	**3I 250 - N360TC**	364 TC	4	125
	13.9	255 500	1	**MR**	**3I 250 - N400TC**	404 TC	6	82.7
	14.2	250 000	1.18	**MR**	**3I 280 - N360TC**	364 TC	4	123
	13.8	257 500	1.4	**MR**	**3I 320 - N360TC**	364 TC	4	127
	13.9	255 000	1.7	**MR**	**3I 320 - N400TC**	404 TC	6	82.5
	13.8	257 500	1.7	**MR**	**3I 321 - N360TC**	364 TC	4	127
	13.9	255 000	2.12	**MR**	**3I 321 - N400TC**	404 TC	6	82.5
	13.4	265 200	2.36	**MR**	**3I 360 - N360TC**	364 TC	4	131
	14.2	250 800	2.8	**MR**	**3I 360 - N400TC**	404 TC	6	81.1
	15.4	231 000	1.12	**MR**	**3I 250 - N400TC**	404 TC	6	74.7
	15.3	232 700	1.6	**MR**	**3I 280 - N400TC**	404 TC	6	75.3
	16.2	219 500	1.9	**MR**	**3I 320 - N400TC**	404 TC	6	71.0
	16.2	219 500	2.36	**MR**	**3I 321 - N400TC**	404 TC	6	71.0
	15.7	225 700	3.35	**MR**	**3I 360 - N400TC**	404 TC	6	73.0
	17.8	200 200	0.85	**MR**	**3I 225 - N360TC**	364 TC	4	98.5
	17.8	200 000	1.25	**MR**	**3I 250 - N360TC**	364 TC	4	98.5
	17.4	203 800	1.6	**MR**	**3I 280 - N360TC**	364 TC	4	100
	16.7	212 700	2	**MR**	**3I 320 - N360TC**	364 TC	4	105
	16.7	212 700	2.5	**MR**	**3I 321 - N360TC**	364 TC	4	105
	17.0	209 200	3.35	**MR**	**3I 360 - N360TC**	364 TC	4	103

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)				Gear ratio i
60	**19.7**	180 300	1	**MR**	**3I 225 - N360TC**	364 TC	4	88.8
	19.7	180 800	1.4	**MR**	**3I 250 - N360TC**	364 TC	4	89.0
	19.5	182 100	2	**MR**	**3I 280 - N360TC**	364 TC	4	89.7
	19.4	183 000	2.12	**MR**	**3I 320 - N360TC**	364 TC	4	90.1
	19.4	183 000	2.65	**MR**	**3I 321 - N360TC**	364 TC	4	90.1
	18.9	188 300	3.75	**MR**	**3I 360 - N360TC**	364 TC	4	92.7
	21.2	168 100	1.06	**MR**	**3I 225 - N360TC**	364 TC	4	82.7
	22.8	156 000	0.95	**MR**	**3I 225 - N360TC**	364 TC	4	76.8
	21.2	167 900	1.5	**MR**	**3I 250 - N360TC**	364 TC	4	82.7
	20.8	171 100	1.8	**MR**	**3I 280 - N360TC**	364 TC	4	84.3
	22.8	156 200	1.8	**MR**	**3I 280 - N360TC**	364 TC	4	76.9
	21.2	167 600	2.5	**MR**	**3I 320 - N360TC**	364 TC	4	82.5
	21.2	167 600	3.15	**MR**	**3I 321 - N360TC**	364 TC	4	82.5
	24.1	147 400	0.85	**MR**	**3I 200 - N360TC**	364 TC	4	72.6
	23.5	151 400	1.18	**MR**	**3I 225 - N360TC**	364 TC	4	74.5
	23.4	151 800	1.6	**MR**	**3I 250 - N360TC**	364 TC	4	74.7
	23.2	152 900	2.36	**MR**	**3I 280 - N360TC**	364 TC	4	75.3
	24.6	144 200	2.8	**MR**	**3I 320 - N360TC**	364 TC	4	71.0
	24.6	144 200	3.35	**MR**	**3I 321 - N360TC**	364 TC	4	71.0
	28.0	127 200	0.95	**MR**	**3I 200 - N360TC**	364 TC	4	62.6
	28.4	125 300	1.4	**MR**	**3I 225 - N360TC**	364 TC	4	61.7
	28.4	125 000	1.9	**MR**	**3I 250 - N360TC**	364 TC	4	61.5
	27.9	127 400	2.5	**MR**	**3I 280 - N360TC**	364 TC	4	62.7
	26.1	136 300	3	**MR**	**3I 320 - N360TC**	364 TC	4	67.1
	28.2	125 900	3.55	**MR**	**3I 320 - N400TC**	404 TC	6	40.7
	26.1	136 300	3.75	**MR**	**3I 321 - N360TC**	364 TC	4	67.1
	32.3	109 900	1.18	**MR**	**3I 200 - N360TC**	364 TC	4	54.1
	31.5	112 800	1.6	**MR**	**3I 225 - N360TC**	364 TC	4	55.5
	31.5	113 000	2.12	**MR**	**3I 250 - N360TC**	364 TC	4	55.6
	31.2	113 800	3.15	**MR**	**3I 280 - N360TC**	364 TC	4	56.0
	30.3	117 300	3.35	**MR**	**3I 320 - N360TC**	364 TC	4	57.8
	33.3	106 800	1.12	**MR**	**3I 200 - N360TC**	364 TC	4	52.6
	33.8	105 200	1.6	**MR**	**3I 225 - N360TC**	364 TC	4	51.8
	33.9	104 900	2.24	**MR**	**3I 250 - N360TC**	364 TC	4	51.7
	33.2	107 000	3	**MR**	**3I 280 - N360TC**	364 TC	4	52.7
	33.1	107 400	3.75	**MR**	**3I 320 - N360TC**	364 TC	4	52.9
	38.5	92 250	1.4	**MR**	**3I 200 - N360TC**	364 TC	4	45.4
	37.5	94 700	1.9	**MR**	**3I 225 - N360TC**	364 TC	4	46.6
	37.5	94 850	2.65	**MR**	**3I 250 - N360TC**	364 TC	4	46.7
	40.1	88 750	3	**MR**	**3I 250 - N400TC**	404 TC	6	28.7
	37.2	95 600	3.35	**MR**	**3I 280 - N360TC**	364 TC	4	47.1
	47.4	76 500	1.32	**MR**	**2I 200 - N400TC**	404 TC	6	24.2
	42.1	84 400	1.6	**MR**	**3I 200 - N360TC**	364 TC	4	41.5
	46.1	78 800	1.8	**MR**	**2I 225 - N400TC**	404 TC	6	25.0
	43.3	82 050	2.24	**MR**	**3I 225 - N360TC**	364 TC	4	40.4
	46.0	78 900	2.65	**MR**	**2I 250 - N400TC**	404 TC	6	25.0
	41.2	86 200	3	**MR**	**3I 250 - N360TC**	364 TC	4	42.4
	42.5	83 650	3.75	**MR**	**3I 280 - N360TC**	364 TC	4	41.2
	51.9	69 950	1.6	**MR**	**2I 200 - N400TC**	404 TC	6	22.2
	50.8	69 950	1.8	**MR**	**3I 200 - N360TC**	364 TC	4	34.4
	50.1	72 500	2.12	**MR**	**2I 225 - N400TC**	404 TC	6	23.0
	49.5	71 800	2.5	**MR**	**3I 225 - N360TC**	364 TC	4	35.4
	47.4	74 950	3.15	**MR**	**3I 250 - N360TC**	364 TC	4	36.9
	56.5	64 250	1.8	**MR**	**2I 200 - N400TC**	404 TC	6	20.3
	55.6	63 950	2	**MR**	**3I 200 - N360TC**	364 TC	4	31.5
	57.4	63 250	2.65	**MR**	**2I 225 - N400TC**	404 TC	6	20.0
	57.1	62 200	2.65	**MR**	**3I 225 - N360TC**	364 TC	4	30.6
	52.2	68 150	3.75	**MR**	**3I 250 - N360TC**	364 TC	4	33.5
	65.4	55 500	2.24	**MR**	**2I 200 - N400TC**	404 TC	6	17.6
	64.3	55 300	2.36	**MR**	**3I 200 - N360TC**	364 TC	4	27.2
	63.7	57 000	2.8	**MR**	**2I 225 - N400TC**	404 TC	6	18.1
	64.1	55 500	2.65	**MR**	**3I 225 - N360TC**	364 TC	4	27.3
	61.0	58 300	3.75	**MR**	**3I 250 - N360TC**	364 TC	4	28.7

1) Powers valid for continuous duty S1; **increase possible** for duty cycles S2 ... S10: in which case T_2 increases and fs decreases.
2) For complete designation when ordering see ch. 3.1.

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)	Gear ratio i
60	**71.1**	51 000	0.95	**MR 2I 160 - N360TC** 364 TC 4	24.6
	69.0	52 600	1.4	**MR 2I 180 - N360TC** 364 TC 4	25.4
	72.2	50 300	2	**MR 2I 200 - N360TC** 364 TC 4	24.2
	71.5	50 750	2.5	**MR 2I 200 - N400TC** 404 TC 6	16.1
	70.1	51 800	2.8	**MR 2I 225 - N360TC** 364 TC 4	25.0
	70.0	51 850	4	**MR 2I 250 - N360TC** 364 TC 4	25.0
	77.8	46 650	1.18	**MR 2I 160 - N360TC** 364 TC 4	22.5
	75.0	48 400	1.6	**MR 2I 180 - N360TC** 364 TC 4	23.3
	79.0	45 950	2.36	**MR 2I 200 - N360TC** 364 TC 4	22.2
	82.7	43 900	2.8	**MR 2I 200 - N400TC** 404 TC 6	13.9
	76.2	47 650	3.35	**MR 2I 225 - N360TC** 364 TC 4	23.0
	84.7	42 850	1.4	**MR 2I 160 - N360TC** 364 TC 4	20.7
	84.3	43 100	1.8	**MR 2I 180 - N360TC** 364 TC 4	20.8
	86.0	42 200	2.8	**MR 2I 200 - N360TC** 364 TC 4	20.3
	87.3	41 600	3.55	**MR 2I 225 - N360TC** 364 TC 4	20.0
	96.8	37 500	1.7	**MR 2I 160 - N360TC** 364 TC 4	18.1
	97.2	37 350	1.8	**MR 2I 180 - N360TC** 364 TC 4	18.0
	99.5	36 450	3.35	**MR 2I 200 - N360TC** 364 TC 4	17.6
	112	32 500	1.8	**MR 2I 160 - N360TC** 364 TC 4	15.7
	105	34 450	2.24	**MR 2I 180 - N360TC** 364 TC 4	16.6
	108	33 700	1.8	**MR 2I 180 - N360TC** 364 TC 4	16.3
	109	33 350	3.55	**MR 2I 200 - N360TC** 364 TC 4	16.1
	124	29 150	1.8	**MR 2I 160 - N360TC** 364 TC 4	14.1
	122	29 850	2.5	**MR 2I 180 - N360TC** 364 TC 4	14.4
	126	28 850	3.75	**MR 2I 200 - N360TC** 364 TC 4	13.9
	129	28 150	2	**MR 2I 160 - N360TC** 364 TC 4	13.6
	128	28 300	2.8	**MR 2I 180 - N360TC** 364 TC 4	13.6
	135	26 850	4.25	**MR 2I 200 - N360TC** 364 TC 4	13.0
	147	24 650	2.5	**MR 2I 160 - N360TC** 364 TC 4	11.9
	148	24 550	3	**MR 2I 180 - N360TC** 364 TC 4	11.8
	156	23 200	4.75	**MR 2I 200 - N360TC** 364 TC 4	11.2
	170	21 350	2.8	**MR 2I 160 - N360TC** 364 TC 4	10.3
	164	22 150	3.15	**MR 2I 180 - N360TC** 364 TC 4	10.7
	189	19 150	2.8	**MR 2I 160 - N360TC** 364 TC 4	9.24
	188	19 300	3.15	**MR 2I 180 - N360TC** 364 TC 4	9.31
	218	16 650	3.15	**MR 2I 160 - N360TC** 364 TC 4	8.03
	273	13 300	3.15	**MR 2I 160 - N360TC** 364 TC 4	6.41
75	**9.07**	489 700	0.8	**MR 3I 320 - N400TC** 405 TC 6	127
	9.07	489 700	0.95	**MR 3I 321 - N400TC** 405 TC 6	127
	8.81	504 500	1.32	**MR 3I 360 - N400TC** 405 TC 6	131
	11.5	387 700	0.85	**MR 3I 280 - N400TC** 405 TC 6	100
	11.0	404 600	1.12	**MR 3I 320 - N400TC** 405 TC 6	105
	11.0	404 600	1.4	**MR 3I 321 - N400TC** 405 TC 6	105
	11.2	397 900	1.9	**MR 3I 360 - N400TC** 405 TC 6	103
	12.8	346 500	1.06	**MR 3I 280 - N400TC** 405 TC 6	89.7
	12.8	348 200	1.18	**MR 3I 320 - N400TC** 405 TC 6	90.1
	12.8	348 200	1.5	**MR 3I 321 - N400TC** 405 TC 6	90.1
	12.4	358 100	2	**MR 3I 360 - N400TC** 405 TC 6	92.7
	13.9	319 400	0.8	**MR 3I 250 - N400TC** 405 TC 6	82.7
	14.2	312 500	0.95	**MR 3I 280 - N360TC** 365 TC 4	123
	13.8	321 800	1.12	**MR 3I 320 - N360TC** 365 TC 4	127
	13.9	318 700	1.4	**MR 3I 320 - N400TC** 405 TC 6	82.5
	13.8	321 800	1.4	**MR 3I 321 - N360TC** 365 TC 4	127
	13.9	318 700	1.7	**MR 3I 321 - N400TC** 405 TC 6	82.5
	13.4	331 500	1.9	**MR 3I 360 - N360TC** 365 TC 4	131
	14.2	313 500	2.24	**MR 3I 360 - N400TC** 405 TC 6	81.1
	15.4	288 700	0.9	**MR 3I 250 - N400TC** 405 TC 6	74.7
	15.3	290 900	1.25	**MR 3I 280 - N400TC** 405 TC 6	75.3
	16.2	274 300	1.5	**MR 3I 320 - N400TC** 405 TC 6	71.0
	16.2	274 300	1.9	**MR 3I 321 - N400TC** 405 TC 6	71.0
	15.7	282 200	2.8	**MR 3I 360 - N400TC** 405 TC 6	73.0

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)	Gear ratio i
75	**17.8**	250 000	1	**MR 3I 250 - N360TC** 365 TC 4	98.5
	17.4	254 800	1.25	**MR 3I 280 - N360TC** 365 TC 4	100
	16.7	265 800	1.6	**MR 3I 320 - N360TC** 365 TC 4	105
	16.7	265 800	2	**MR 3I 321 - N360TC** 365 TC 4	105
	17.0	261 500	2.65	**MR 3I 360 - N360TC** 365 TC 4	103
	19.7	225 300	0.8	**MR 3I 225 - N360TC** 365 TC 4	88.8
	19.7	226 000	1.12	**MR 3I 250 - N360TC** 365 TC 4	89.0
	19.5	227 700	1.6	**MR 3I 280 - N360TC** 365 TC 4	89.7
	19.4	228 800	1.7	**MR 3I 320 - N360TC** 365 TC 4	90.1
	19.4	228 800	2.12	**MR 3I 321 - N360TC** 365 TC 4	90.1
	18.9	235 300	3	**MR 3I 360 - N360TC** 365 TC 4	92.7
	21.2	210 100	0.8	**MR 3I 225 - N360TC** 365 TC 4	82.7
	21.2	209 900	1.18	**MR 3I 250 - N360TC** 365 TC 4	82.7
	20.8	213 900	1.5	**MR 3I 280 - N360TC** 365 TC 4	84.3
	22.8	195 300	1.5	**MR 3I 280 - N360TC** 365 TC 4	76.9
	21.2	209 500	2	**MR 3I 320 - N360TC** 365 TC 4	82.5
	21.2	209 500	2.5	**MR 3I 321 - N360TC** 365 TC 4	82.5
	20.9	212 500	3	**MR 3I 360 - N360TC** 365 TC 4	83.7
	21.6	206 000	3.35	**MR 3I 360 - N360TC** 365 TC 4	81.1
	23.5	189 200	0.95	**MR 3I 225 - N360TC** 365 TC 4	74.5
	23.4	189 700	1.32	**MR 3I 250 - N360TC** 365 TC 4	74.7
	23.2	191 200	1.9	**MR 3I 280 - N360TC** 365 TC 4	75.3
	24.6	180 300	2.24	**MR 3I 320 - N360TC** 365 TC 4	71.0
	24.6	180 300	2.8	**MR 3I 321 - N360TC** 365 TC 4	71.0
	24.0	185 400	3.55	**MR 3I 360 - N360TC** 365 TC 4	73.0
	28.4	156 600	1.12	**MR 3I 225 - N360TC** 365 TC 4	61.7
	28.4	156 200	1.5	**MR 3I 250 - N360TC** 365 TC 4	61.5
	27.9	159 300	2	**MR 3I 280 - N360TC** 365 TC 4	62.7
	26.1	170 400	2.5	**MR 3I 320 - N360TC** 365 TC 4	67.1
	26.1	170 400	3	**MR 3I 321 - N360TC** 365 TC 4	67.1
	26.5	167 600	4	**MR 3I 360 - N360TC** 365 TC 4	66.0
	32.3	137 400	0.95	**MR 3I 200 - N360TC** 365 TC 4	54.1
	31.5	141 000	1.25	**MR 3I 225 - N360TC** 365 TC 4	55.5
	31.5	141 200	1.7	**MR 3I 250 - N360TC** 365 TC 4	55.6
	31.2	142 300	2.5	**MR 3I 280 - N360TC** 365 TC 4	56.0
	30.3	146 600	2.65	**MR 3I 320 - N360TC** 365 TC 4	57.8
	30.3	146 600	3.35	**MR 3I 321 - N360TC** 365 TC 4	57.8
	33.3	133 500	0.9	**MR 3I 200 - N360TC** 365 TC 4	52.6
	33.8	131 500	1.32	**MR 3I 225 - N360TC** 365 TC 4	51.8
	33.9	131 200	1.8	**MR 3I 250 - N360TC** 365 TC 4	51.7
	33.2	133 700	2.36	**MR 3I 280 - N360TC** 365 TC 4	52.7
	33.1	134 200	3.15	**MR 3I 320 - N360TC** 365 TC 4	52.9
	33.1	134 200	3.75	**MR 3I 321 - N360TC** 365 TC 4	52.9
	38.5	115 300	1.12	**MR 3I 200 - N360TC** 365 TC 4	45.4
	37.5	118 400	1.5	**MR 3I 225 - N360TC** 365 TC 4	46.6
	37.5	118 600	2.12	**MR 3I 250 - N360TC** 365 TC 4	46.7
	37.2	119 500	2.8	**MR 3I 280 - N360TC** 365 TC 4	47.1
	38.5	115 500	3.35	**MR 3I 320 - N360TC** 365 TC 4	45.5
	47.4	95 650	1.06	**MR 2I 200 - N400TC** 405 TC 6	24.2
	42.1	105 500	1.25	**MR 3I 200 - N360TC** 365 TC 4	41.5
	46.1	98 500	1.5	**MR 2I 225 - N400TC** 405 TC 6	25.0
	43.3	102 600	1.8	**MR 3I 225 - N360TC** 365 TC 4	40.4
	46.0	98 650	2.12	**MR 2I 250 - N400TC** 405 TC 6	25.0
	41.2	107 800	2.36	**MR 3I 250 - N360TC** 365 TC 4	42.4
	46.7	97 150	2.8	**MR 2I 280 - N400TC** 405 TC 6	24.6
	42.5	104 500	3	**MR 3I 280 - N360TC** 365 TC 4	41.2
	43.0	103 400	4.25	**MR 3I 320 - N360TC** 365 TC 4	40.7
	51.9	87 400	1.25	**MR 2I 200 - N400TC** 405 TC 6	22.2
	50.8	87 400	1.4	**MR 3I 200 - N360TC** 365 TC 4	34.4
	50.1	90 650	1.7	**MR 2I 225 - N400TC** 405 TC 6	23.0
	49.5	89 750	2	**MR 3I 225 - N360TC** 365 TC 4	35.4
	52.3	86 750	2.5	**MR 2I 250 - N400TC** 405 TC 6	22.0
	47.4	93 700	2.65	**MR 3I 250 - N360TC** 365 TC 4	36.9
	47.1	94 400	3.35	**MR 3I 280 - N360TC** 365 TC 4	37.2

1) Powers valid for continuous duty S1; **increase possible** for duty cycles S2 ... S10: in which case T_2 increases and fs decreases.
2) For complete designation when ordering see ch. 3.1.

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)				Gear ratio i
75	**56.5**	80 300	1.5	**MR**	**2I 200 - N400TC**	405 TC	6	20.3
	55.6	79 950	1.6	**MR**	**3I 200 - N360TC**	365 TC	4	31.5
	57.4	79 100	2.12	**MR**	**2I 225 - N400TC**	405 TC	6	20.0
	57.1	77 750	2.12	**MR**	**3I 225 - N360TC**	365 TC	4	30.6
	58.4	77 700	2.8	**MR**	**2I 250 - N400TC**	405 TC	6	19.7
	52.2	85 150	3	**MR**	**3I 250 - N360TC**	365 TC	4	33.5
	53.8	82 600	3.75	**MR**	**3I 280 - N360TC**	365 TC	4	32.5
	65.4	69 400	1.8	**MR**	**2I 200 - N400TC**	405 TC	6	17.6
	64.3	69 100	1.9	**MR**	**3I 200 - N360TC**	365 TC	4	27.2
	63.7	71 250	2.24	**MR**	**2I 225 - N400TC**	405 TC	6	18.1
	64.1	69 350	2.12	**MR**	**3I 225 - N360TC**	365 TC	4	27.3
	61.0	72 900	3.15	**MR**	**3I 250 - N360TC**	365 TC	4	28.7
	69.0	65 750	1.12	**MR**	**2I 180 - N360TC**	365 TC	4	25.4
	72.2	62 850	1.6	**MR**	**2I 200 - N360TC**	365 TC	4	24.2
	71.5	63 450	2	**MR**	**2I 200 - N400TC**	405 TC	6	16.1
	70.1	64 750	2.24	**MR**	**2I 225 - N360TC**	365 TC	4	25.0
	70.0	64 800	3.15	**MR**	**2I 250 - N360TC**	365 TC	4	25.0
	77.8	58 350	0.95	**MR**	**2I 160 - N360TC**	365 TC	4	22.5
	75.0	60 500	1.32	**MR**	**2I 180 - N360TC**	365 TC	4	23.3
	79.0	57 450	1.9	**MR**	**2I 200 - N360TC**	365 TC	4	22.2
	82.7	54 850	2.24	**MR**	**2I 200 - N400TC**	405 TC	6	13.9
	76.2	59 550	2.65	**MR**	**2I 225 - N360TC**	365 TC	4	23.0
	79.6	57 000	3.55	**MR**	**2I 250 - N360TC**	365 TC	4	22.0
	84.7	53 600	1.12	**MR**	**2I 160 - N360TC**	365 TC	4	20.7
	84.3	53 850	1.5	**MR**	**2I 180 - N360TC**	365 TC	4	20.8
	86.0	52 750	2.24	**MR**	**2I 200 - N360TC**	365 TC	4	20.3
	87.3	51 950	2.8	**MR**	**2I 225 - N360TC**	365 TC	4	20.0
	88.9	51 050	4.25	**MR**	**2I 250 - N360TC**	365 TC	4	19.7
	96.8	46 850	1.32	**MR**	**2I 160 - N360TC**	365 TC	4	18.1
	97.2	46 650	1.5	**MR**	**2I 180 - N360TC**	365 TC	4	18.0
	99.5	45 600	2.65	**MR**	**2I 200 - N360TC**	365 TC	4	17.6
	96.9	46 800	3.35	**MR**	**2I 225 - N360TC**	365 TC	4	18.1
	112	40 600	1.5	**MR**	**2I 160 - N360TC**	365 TC	4	15.7
	105	43 100	1.8	**MR**	**2I 180 - N360TC**	365 TC	4	16.6
	108	42 150	1.5	**MR**	**2I 180 - N360TC**	365 TC	4	16.3
	109	41 700	2.8	**MR**	**2I 200 - N360TC**	365 TC	4	16.1
	112	40 400	3.15	**MR**	**2I 200 - N400TC**	405 TC	6	10.2
	112	40 550	3.55	**MR**	**2I 225 - N360TC**	365 TC	4	15.6
	124	36 450	1.5	**MR**	**2I 160 - N360TC**	365 TC	4	14.1
	122	37 350	2	**MR**	**2I 180 - N360TC**	365 TC	4	14.4
	126	36 050	3	**MR**	**2I 200 - N360TC**	365 TC	4	13.9
	120	37 900	4	**MR**	**2I 225 - N360TC**	365 TC	4	14.6
	129	35 200	1.6	**MR**	**2I 160 - N360TC**	365 TC	4	13.6
	128	35 400	2.24	**MR**	**2I 180 - N360TC**	365 TC	4	13.6
	135	33 600	3.35	**MR**	**2I 200 - N360TC**	365 TC	4	13.0
	147	30 800	2	**MR**	**2I 160 - N360TC**	365 TC	4	11.9
	148	30 650	2.5	**MR**	**2I 180 - N360TC**	365 TC	4	11.8
	156	29 000	4	**MR**	**2I 200 - N360TC**	365 TC	4	11.2
	170	26 700	2.24	**MR**	**2I 160 - N360TC**	365 TC	4	10.3
	164	27 700	2.5	**MR**	**2I 180 - N360TC**	365 TC	4	10.7
	171	26 550	4.25	**MR**	**2I 200 - N360TC**	365 TC	4	10.2
	189	23 950	2.24	**MR**	**2I 160 - N360TC**	365 TC	4	9.24
	188	24 150	2.5	**MR**	**2I 180 - N360TC**	365 TC	4	9.31
	198	22 950	4.75	**MR**	**2I 200 - N360TC**	365 TC	4	8.85
	218	20 850	2.5	**MR**	**2I 160 - N360TC**	365 TC	4	8.03
	219	20 750	5	**MR**	**2I 200 - N360TC**	365 TC	4	8.01
	273	16 650	2.5	**MR**	**2I 160 - N360TC**	365 TC	4	6.41
	273	16 650	5.6	**MR**	**2I 200 - N360TC**	365 TC	4	6.42
100	**8.81**	672 700	1	**MR**	**3I 360 - N440TC**	444 TC	6	131
	11.0	539 400	0.85	**MR**	**3I 320 - N440TC**	444 TC	6	105
	11.0	539 400	1.06	**MR**	**3I 321 - N440TC**	444 TC	6	105
	11.2	530 600	1.4	**MR**	**3I 360 - N440TC**	444 TC	6	103

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)				Gear ratio i
100	**12.8**	461 900	0.8	**MR**	**3I 280 - N440TC**	444 TC	6	89.7
	12.8	464 200	0.9	**MR**	**3I 320 - N440TC**	444 TC	6	90.1
	12.8	464 200	1.12	**MR**	**3I 321 - N440TC**	444 TC	6	90.1
	12.4	477 500	1.5	**MR**	**3I 360 - N440TC**	444 TC	6	92.7
	13.8	429 100	0.85	**MR**	**3I 320 - N400TC**	405 TC	4	127
	13.9	425 000	1	**MR**	**3I 320 - N440TC**	444 TC	6	82.5
	13.8	429 100	1.06	**MR**	**3I 321 - N400TC**	405 TC	4	127
	13.9	425 000	1.32	**MR**	**3I 321 - N440TC**	444 TC	6	82.5
	13.4	442 000	1.4	**MR**	**3I 360 - N400TC**	405 TC	4	131
	14.2	418 000	1.7	**MR**	**3I 360 - N440TC**	444 TC	6	81.1
	15.3	387 800	0.95	**MR**	**3I 280 - N440TC**	444 TC	6	75.3
	16.2	365 800	1.12	**MR**	**3I 320 - N440TC**	444 TC	6	71.0
	16.2	365 800	1.4	**MR**	**3I 321 - N440TC**	444 TC	6	71.0
	15.7	376 200	2	**MR**	**3I 360 - N440TC**	444 TC	6	73.0
	17.4	339 700	0.95	**MR**	**3I 280 - N400TC**	405 TC	4	100
	16.7	354 500	1.18	**MR**	**3I 320 - N400TC**	405 TC	4	105
	16.7	354 500	1.5	**MR**	**3I 321 - N400TC**	405 TC	4	105
	17.0	348 700	2	**MR**	**3I 360 - N400TC**	405 TC	4	103
	19.7	301 300	0.85	**MR**	**3I 250 - N400TC**	405 TC	4	89.0
	19.5	303 600	1.18	**MR**	**3I 280 - N400TC**	405 TC	4	89.7
	19.4	305 100	1.32	**MR**	**3I 320 - N400TC**	405 TC	4	90.1
	19.4	305 100	1.6	**MR**	**3I 321 - N400TC**	405 TC	4	90.1
	18.9	313 800	2.24	**MR**	**3I 360 - N400TC**	405 TC	4	92.7
	21.2	279 900	0.85	**MR**	**3I 250 - N400TC**	405 TC	4	82.7
	20.8	285 200	1.12	**MR**	**3I 280 - N400TC**	405 TC	4	84.3
	22.8	260 400	1.12	**MR**	**3I 280 - N400TC**	405 TC	4	76.9
	21.2	279 300	1.5	**MR**	**3I 320 - N400TC**	405 TC	4	82.5
	21.2	279 300	1.9	**MR**	**3I 321 - N400TC**	405 TC	4	82.5
	20.9	283 300	2.24	**MR**	**3I 360 - N400TC**	405 TC	4	83.7
	21.6	274 700	2.5	**MR**	**3I 360 - N400TC**	405 TC	4	81.1
	23.4	252 900	1	**MR**	**3I 250 - N400TC**	405 TC	4	74.7
	23.2	254 900	1.4	**MR**	**3I 280 - N400TC**	405 TC	4	75.3
	24.6	240 400	1.7	**MR**	**3I 320 - N400TC**	405 TC	4	71.0
	24.6	240 400	2.12	**MR**	**3I 321 - N400TC**	405 TC	4	71.0
	24.0	247 200	2.65	**MR**	**3I 360 - N400TC**	405 TC	4	73.0
	28.4	208 300	1.18	**MR**	**3I 250 - N400TC**	405 TC	4	61.5
	27.9	212 300	1.5	**MR**	**3I 280 - N400TC**	405 TC	4	62.7
	26.1	227 200	1.8	**MR**	**3I 320 - N400TC**	405 TC	4	67.1
	26.1	227 200	2.24	**MR**	**3I 321 - N400TC**	405 TC	4	67.1
	26.5	223 400	3	**MR**	**3I 360 - N400TC**	405 TC	4	66.0
	31.5	188 300	1.32	**MR**	**3I 250 - N400TC**	405 TC	4	55.6
	31.2	189 700	1.8	**MR**	**3I 280 - N400TC**	405 TC	4	56.0
	30.3	195 500	2	**MR**	**3I 320 - N400TC**	405 TC	4	57.8
	30.3	195 500	2.5	**MR**	**3I 321 - N400TC**	405 TC	4	57.8
	29.5	201 100	3.15	**MR**	**3I 360 - N400TC**	405 TC	4	59.4
	33.9	174 900	1.4	**MR**	**3I 250 - N400TC**	405 TC	4	51.7
	33.2	178 300	1.7	**MR**	**3I 280 - N400TC**	405 TC	4	52.7
	33.1	179 000	2.36	**MR**	**3I 320 - N400TC**	405 TC	4	52.9
	33.1	179 000	2.8	**MR**	**3I 321 - N400TC**	405 TC	4	52.9
	33.7	176 000	3.75	**MR**	**3I 360 - N400TC**	405 TC	4	52.0
	37.5	158 100	1.5	**MR**	**3I 250 - N400TC**	405 TC	4	46.7
	40.1	147 900	1.8	**MR**	**3I 250 - N440TC**	444 TC	6	28.7
	37.2	159 300	2	**MR**	**3I 280 - N400TC**	405 TC	4	47.1
	38.5	154 000	2.65	**MR**	**3I 320 - N400TC**	405 TC	4	45.5
	38.5	154 000	3.15	**MR**	**3I 321 - N400TC**	405 TC	4	45.5
	46.0	131 500	1.6	**MR**	**2I 250 - N440TC**	444 TC	6	25.0
	41.2	143 700	1.8	**MR**	**3I 250 - N400TC**	405 TC	4	42.4
	46.7	129 500	2.12	**MR**	**2I 280 - N440TC**	444 TC	6	24.6
	42.5	139 400	2.24	**MR**	**3I 280 - N400TC**	405 TC	4	41.2
	46.0	131 500	2.65	**MR**	**2I 320 - N440TC**	444 TC	6	25.0
	43.0	137 900	3.15	**MR**	**3I 320 - N400TC**	405 TC	4	40.7
	43.0	137 900	3.75	**MR**	**3I 321 - N400TC**	405 TC	4	40.7

1) Powers valid for continuous duty S1; **increase possible** for duty cycles S2 ... S10: in which case T_2 increases and fs decreases.
2) For complete designation when ordering see ch. 3.1.

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)	Gear ratio i
100	**52.3**	115 700	1.8	**MR 2I 250 - N440TC** 444 TC 6	22.0
	47.4	124 900	1.9	**MR 3I 250 - N400TC** 405 TC 4	36.9
	51.9	116 600	2.65	**MR 2I 280 - N440TC** 444 TC 6	22.2
	47.1	125 900	2.5	**MR 3I 280 - N400TC** 405 TC 4	37.2
	50.3	120 200	3	**MR 2I 320 - N440TC** 444 TC 6	22.8
	46.8	126 500	3.15	**MR 3I 320 - N400TC** 405 TC 4	37.4
	46.8	126 500	4	**MR 3I 321 - N400TC** 405 TC 4	37.4
	58.4	103 600	2.12	**MR 2I 250 - N440TC** 444 TC 6	19.7
	52.2	113 600	2.24	**MR 3I 250 - N400TC** 405 TC 4	33.5
	57.3	105 600	2.8	**MR 2I 280 - N440TC** 444 TC 6	20.1
	53.8	110 200	2.8	**MR 3I 280 - N400TC** 405 TC 4	32.5
	52.3	113 300	3.75	**MR 3I 320 - N400TC** 405 TC 4	33.5
	64.6	93 650	2.36	**MR 2I 250 - N440TC** 444 TC 6	17.8
	61.0	97 200	2.36	**MR 3I 250 - N400TC** 405 TC 4	28.7
	60.7	97 600	3	**MR 3I 280 - N400TC** 405 TC 4	28.8
	58.3	101 700	4.25	**MR 3I 320 - N400TC** 405 TC 4	30.0
	72.2	83 800	1.18	**MR 2I 200 - N400TC** 405 TC 4	24.2
	70.1	86 300	1.7	**MR 2I 225 - N400TC** 405 TC 4	25.0
	70.0	86 400	2.36	**MR 2I 250 - N400TC** 405 TC 4	25.0
	71.1	85 100	3.15	**MR 2I 280 - N400TC** 405 TC 4	24.6
	79.0	76 600	1.4	**MR 2I 200 - N400TC** 405 TC 4	22.2
	76.2	79 450	2	**MR 2I 225 - N400TC** 405 TC 4	23.0
	79.6	76 050	2.8	**MR 2I 250 - N400TC** 405 TC 4	22.0
	79.0	76 600	3.75	**MR 2I 280 - N400TC** 405 TC 4	22.2
	86.0	70 350	1.7	**MR 2I 200 - N400TC** 405 TC 4	20.3
	87.3	69 300	2.12	**MR 2I 225 - N400TC** 405 TC 4	20.0
	88.9	68 100	3.15	**MR 2I 250 - N400TC** 405 TC 4	19.7
	99.5	60 800	2	**MR 2I 200 - N400TC** 405 TC 4	17.6
	96.9	62 400	2.5	**MR 2I 225 - N400TC** 405 TC 4	18.1
	98.3	61 550	3.55	**MR 2I 250 - N400TC** 405 TC 4	17.8
	109	55 600	2.12	**MR 2I 200 - N400TC** 405 TC 4	16.1
	112	54 050	2.65	**MR 2I 225 - N400TC** 405 TC 4	15.6
	108	55 950	4	**MR 2I 250 - N400TC** 405 TC 4	16.2
	126	48 050	2.24	**MR 2I 200 - N400TC** 405 TC 4	13.9
	120	50 550	3	**MR 2I 225 - N400TC** 405 TC 4	14.6
	120	50 450	4	**MR 2I 250 - N400TC** 405 TC 4	14.6
	135	44 800	2.5	**MR 2I 200 - N400TC** 405 TC 4	13.0
	137	44 100	3.35	**MR 2I 225 - N400TC** 405 TC 4	12.8
	156	38 700	3	**MR 2I 200 - N400TC** 405 TC 4	11.2
	152	39 700	3.75	**MR 2I 225 - N400TC** 405 TC 4	11.5
	171	35 400	3.15	**MR 2I 200 - N400TC** 405 TC 4	10.2
	198	30 600	3.55	**MR 2I 200 - N400TC** 405 TC 4	8.85
	219	27 700	3.75	**MR 2I 200 - N400TC** 405 TC 4	8.01
	273	22 200	4.25	**MR 2I 200 - N400TC** 405 TC 4	6.42
125	**8.81**	840 800	0.8	**MR 3I 360 - N440TC** 445 TC 6	131
	11.0	674 300	0.85	**MR 3I 321 - N440TC** 445 TC 6	105
	11.2	663 200	1.12	**MR 3I 360 - N440TC** 445 TC 6	103
	12.8	580 300	0.9	**MR 3I 321 - N440TC** 445 TC 6	90.1
	12.4	596 900	1.18	**MR 3I 360 - N440TC** 445 TC 6	92.7
	13.9	531 200	0.8	**MR 3I 320 - N440TC** 445 TC 6	82.5
	13.8	536 400	0.85	**MR 3I 321 - N440TC** 444 TC 4	127
	13.9	531 200	1	**MR 3I 321 - N440TC** 445 TC 6	82.5
	13.4	552 600	1.12	**MR 3I 360 - N440TC** 444 TC 4	131
	14.2	522 500	1.4	**MR 3I 360 - N440TC** 445 TC 6	81.1
	16.2	457 200	0.9	**MR 3I 320 - N440TC** 445 TC 6	71.0
	16.2	457 200	1.12	**MR 3I 321 - N440TC** 445 TC 6	71.0
	15.7	470 300	1.6	**MR 3I 360 - N440TC** 445 TC 6	73.0
	18.3	403 900	0.8	**MR 3I 280 - N440TC** 445 TC 6	62.7
	16.7	443 100	0.95	**MR 3I 320 - N440TC** 444 TC 4	105
	16.7	443 100	1.18	**MR 3I 321 - N440TC** 444 TC 4	105
	17.0	435 800	1.6	**MR 3I 360 - N440TC** 444 TC 4	103

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)	Gear ratio i
125	**19.5**	379 500	0.95	**MR 3I 280 - N440TC** 444 TC 4	89.7
	19.4	381 300	1.06	**MR 3I 320 - N440TC** 444 TC 4	90.1
	19.4	381 300	1.32	**MR 3I 321 - N440TC** 444 TC 4	90.1
	18.9	392 200	1.8	**MR 3I 360 - N440TC** 444 TC 4	92.7
	20.8	356 500	0.9	**MR 3I 280 - N440TC** 444 TC 4	84.3
	22.8	325 500	0.9	**MR 3I 280 - N440TC** 444 TC 4	76.9
	21.2	349 100	1.18	**MR 3I 320 - N440TC** 444 TC 4	82.5
	21.2	349 100	1.5	**MR 3I 321 - N440TC** 444 TC 4	82.5
	20.9	354 100	1.8	**MR 3I 360 - N440TC** 444 TC 4	83.7
	21.6	343 400	2	**MR 3I 360 - N440TC** 444 TC 4	81.1
	23.4	316 200	0.8	**MR 3I 250 - N440TC** 444 TC 4	74.7
	23.2	318 600	1.12	**MR 3I 280 - N440TC** 444 TC 4	75.3
	24.6	300 500	1.32	**MR 3I 320 - N440TC** 444 TC 4	71.0
	24.6	300 500	1.6	**MR 3I 321 - N440TC** 444 TC 4	71.0
	24.0	309 000	2.12	**MR 3I 360 - N440TC** 444 TC 4	73.0
	28.4	260 400	0.95	**MR 3I 250 - N440TC** 444 TC 4	61.5
	27.9	265 400	1.18	**MR 3I 280 - N440TC** 444 TC 4	62.7
	26.1	283 900	1.5	**MR 3I 320 - N440TC** 444 TC 4	67.1
	26.1	283 900	1.8	**MR 3I 321 - N440TC** 444 TC 4	67.1
	26.5	279 300	2.5	**MR 3I 360 - N440TC** 444 TC 4	66.0
	31.5	235 400	1.06	**MR 3I 250 - N440TC** 444 TC 4	55.6
	31.2	237 200	1.5	**MR 3I 280 - N440TC** 444 TC 4	56.0
	30.3	244 400	1.6	**MR 3I 320 - N440TC** 444 TC 4	57.8
	30.3	244 400	2	**MR 3I 321 - N440TC** 444 TC 4	57.8
	29.5	251 400	2.5	**MR 3I 360 - N440TC** 444 TC 4	59.4
	33.9	218 600	1.12	**MR 3I 250 - N440TC** 444 TC 4	51.7
	33.2	222 800	1.4	**MR 3I 280 - N440TC** 444 TC 4	52.7
	33.1	223 700	1.8	**MR 3I 320 - N440TC** 444 TC 4	52.9
	33.1	223 700	2.36	**MR 3I 321 - N440TC** 444 TC 4	52.9
	33.7	220 000	3	**MR 3I 360 - N440TC** 444 TC 4	52.0
	37.5	197 600	1.25	**MR 3I 250 - N440TC** 444 TC 4	46.7
	37.2	199 100	1.6	**MR 3I 280 - N440TC** 444 TC 4	47.1
	38.5	192 500	2.12	**MR 3I 320 - N440TC** 444 TC 4	45.5
	38.5	192 500	2.5	**MR 3I 321 - N440TC** 444 TC 4	45.5
	37.4	198 000	3.15	**MR 3I 360 - N440TC** 444 TC 4	46.8
	46.0	164 400	1.25	**MR 2I 250 - N440TC** 445 TC 6	25.0
	41.2	179 600	1.4	**MR 3I 250 - N440TC** 444 TC 4	42.4
	42.5	174 200	1.8	**MR 3I 280 - N440TC** 444 TC 4	41.2
	43.0	172 400	2.5	**MR 3I 320 - N440TC** 444 TC 4	40.7
	43.0	172 400	3	**MR 3I 321 - N440TC** 444 TC 4	40.7
	41.4	178 800	3.55	**MR 3I 360 - N440TC** 444 TC 4	42.3
	52.3	144 600	1.5	**MR 2I 250 - N440TC** 445 TC 6	22.0
	47.4	156 200	1.6	**MR 3I 250 - N440TC** 444 TC 4	36.9
	51.9	145 700	2.12	**MR 2I 280 - N440TC** 445 TC 6	22.2
	47.1	157 400	2	**MR 3I 280 - N440TC** 444 TC 4	37.2
	50.3	150 200	2.36	**MR 2I 320 - N440TC** 445 TC 6	22.8
	46.8	158 200	2.5	**MR 3I 320 - N440TC** 444 TC 4	37.4
	50.3	150 200	3	**MR 2I 321 - N440TC** 445 TC 6	22.8
	46.8	158 200	3.15	**MR 3I 321 - N440TC** 444 TC 4	37.4
	45.5	162 700	3.75	**MR 3I 360 - N440TC** 444 TC 4	38.4
	58.4	129 500	1.7	**MR 2I 250 - N440TC** 445 TC 6	19.7
	52.2	141 900	1.8	**MR 3I 250 - N440TC** 444 TC 4	33.5
	57.3	132 000	2.24	**MR 2I 280 - N440TC** 445 TC 6	20.1
	53.8	137 700	2.24	**MR 3I 280 - N440TC** 444 TC 4	32.5
	55.7	135 800	3	**MR 2I 320 - N440TC** 445 TC 6	20.6
	52.3	141 600	3.15	**MR 3I 320 - N440TC** 444 TC 4	33.5
	64.6	117 100	1.9	**MR 2I 250 - N440TC** 445 TC 6	17.8
	61.0	121 500	1.9	**MR 3I 250 - N440TC** 444 TC 4	28.7
	64.1	117 900	2.65	**MR 2I 280 - N440TC** 445 TC 6	17.9
	60.7	122 000	2.36	**MR 3I 280 - N440TC** 444 TC 4	28.8
	58.3	127 100	3.35	**MR 3I 320 - N440TC** 444 TC 4	30.0
	70.0	108 000	1.9	**MR 2I 250 - N440TC** 444 TC 4	25.0
	71.1	106 400	2.65	**MR 2I 280 - N440TC** 444 TC 4	24.6
	70.0	108 000	3.15	**MR 2I 320 - N440TC** 444 TC 4	25.0
	79.6	95 050	2.12	**MR 2I 250 - N440TC** 444 TC 4	22.0
	79.0	95 750	3	**MR 2I 280 - N440TC** 444 TC 4	22.2
	76.6	98 750	3.55	**MR 2I 320 - N440TC** 444 TC 4	22.8

1) Powers valid for continuous duty S1; **increase possible** for duty cycles S2 ... S10: in which case T_2 increases and fs decreases.
2) For complete designation when ordering see ch. 3.1.

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)	Gear ratio i
125	**88.9**	85 100	2.5	**MR 2I 250 - N440TC** 444 TC 4	19.7
	87.2	86 750	3.35	**MR 2I 280 - N440TC** 444 TC 4	20.1
	98.3	76 900	2.8	**MR 2I 250 - N440TC** 444 TC 4	17.8
	97.6	77 500	4	**MR 2I 280 - N440TC** 444 TC 4	17.9
	108	69 900	3.15	**MR 2I 250 - N440TC** 444 TC 4	16.2
	120	63 050	3.15	**MR 2I 250 - N440TC** 444 TC 4	14.6
	134	56 450	3.75	**MR 2I 250 - N440TC** 444 TC 4	13.1
	148	51 050	4.25	**MR 2I 250 - N440TC** 444 TC 4	11.8
150	**13.4**	663 100	0.95	**MR 3I 360 - N440TC** 445 TC 4	131
	16.7	531 700	0.8	**MR 3I 320 - N440TC** 445 TC 4	105
	16.7	531 700	1	**MR 3I 321 - N440TC** 445 TC 4	105
	17.0	523 000	1.32	**MR 3I 360 - N440TC** 445 TC 4	103
	19.5	455 300	0.8	**MR 3I 280 - N440TC** 445 TC 4	89.7
	19.4	457 600	0.85	**MR 3I 320 - N440TC** 445 TC 4	90.1
	19.4	457 600	1.06	**MR 3I 321 - N440TC** 445 TC 4	90.1
	18.9	470 700	1.5	**MR 3I 360 - N440TC** 445 TC 4	92.7
	21.2	418 900	1	**MR 3I 320 - N440TC** 445 TC 4	82.5
	21.2	418 900	1.25	**MR 3I 321 - N440TC** 445 TC 4	82.5
	20.9	424 900	1.5	**MR 3I 360 - N440TC** 445 TC 4	83.7
	21.6	412 000	1.7	**MR 3I 360 - N440TC** 445 TC 4	81.1
	23.2	382 300	0.95	**MR 3I 280 - N440TC** 445 TC 4	75.3
	24.6	360 500	1.12	**MR 3I 320 - N440TC** 445 TC 4	71.0
	24.6	360 500	1.4	**MR 3I 321 - N440TC** 445 TC 4	71.0
	24.0	370 800	1.8	**MR 3I 360 - N440TC** 445 TC 4	73.0
	27.9	318 500	1	**MR 3I 280 - N440TC** 445 TC 4	62.7
	26.1	340 700	1.25	**MR 3I 320 - N440TC** 445 TC 4	67.1
	26.1	340 700	1.5	**MR 3I 321 - N440TC** 445 TC 4	67.1
	26.5	335 200	2	**MR 3I 360 - N440TC** 445 TC 4	66.0
	31.5	282 400	0.85	**MR 3I 250 - N440TC** 445 TC 4	55.6
	31.2	284 600	1.25	**MR 3I 280 - N440TC** 445 TC 4	56.0
	30.3	293 300	1.32	**MR 3I 320 - N440TC** 445 TC 4	57.8
	30.3	293 300	1.7	**MR 3I 321 - N440TC** 445 TC 4	57.8
	29.5	301 600	2.12	**MR 3I 360 - N440TC** 445 TC 4	59.4
	33.9	262 400	0.9	**MR 3I 250 - N440TC** 445 TC 4	51.7
	33.2	267 400	1.18	**MR 3I 280 - N440TC** 445 TC 4	52.7
	33.1	268 500	1.5	**MR 3I 320 - N440TC** 445 TC 4	52.9
	33.1	268 500	1.9	**MR 3I 321 - N440TC** 445 TC 4	52.9
	33.7	264 100	2.5	**MR 3I 360 - N440TC** 445 TC 4	52.0
	37.5	237 100	1.06	**MR 3I 250 - N440TC** 445 TC 4	46.7
	37.2	238 900	1.4	**MR 3I 280 - N440TC** 445 TC 4	47.1
	38.5	231 100	1.7	**MR 3I 320 - N440TC** 445 TC 4	45.5
	38.5	231 100	2.12	**MR 3I 321 - N440TC** 445 TC 4	45.5
	37.4	237 700	2.65	**MR 3I 360 - N440TC** 445 TC 4	46.8
	41.2	215 500	1.18	**MR 3I 250 - N440TC** 445 TC 4	42.4
	42.5	209 100	1.5	**MR 3I 280 - N440TC** 445 TC 4	41.2
	43.0	206 800	2.12	**MR 3I 320 - N440TC** 445 TC 4	40.7
	43.0	206 800	2.5	**MR 3I 321 - N440TC** 445 TC 4	40.7
	41.4	214 500	3	**MR 3I 360 - N440TC** 445 TC 4	42.3
	47.4	187 400	1.32	**MR 3I 250 - N440TC** 445 TC 4	36.9
	47.1	188 800	1.6	**MR 3I 280 - N440TC** 445 TC 4	37.2
	46.8	189 800	2.12	**MR 3I 320 - N440TC** 445 TC 4	37.4
	46.8	189 800	2.65	**MR 3I 321 - N440TC** 445 TC 4	37.4
	45.5	195 200	3.15	**MR 3I 360 - N440TC** 445 TC 4	38.4
	52.2	170 300	1.5	**MR 3I 250 - N440TC** 445 TC 4	33.5
	53.8	165 200	1.9	**MR 3I 280 - N440TC** 445 TC 4	32.5
	52.3	169 900	2.5	**MR 3I 320 - N440TC** 445 TC 4	33.5
	52.3	169 900	2.8	**MR 3I 321 - N440TC** 445 TC 4	33.5
	50.4	176 200	3.55	**MR 3I 360 - N440TC** 445 TC 4	34.7
	61.0	145 800	1.5	**MR 3I 250 - N440TC** 445 TC 4	28.7
	60.7	146 400	2	**MR 3I 280 - N440TC** 445 TC 4	28.8
	58.3	152 500	2.8	**MR 3I 320 - N440TC** 445 TC 4	30.0
	58.3	152 500	3.15	**MR 3I 321 - N440TC** 445 TC 4	30.0
	57.8	153 600	4	**MR 3I 360 - N440TC** 445 TC 4	30.3

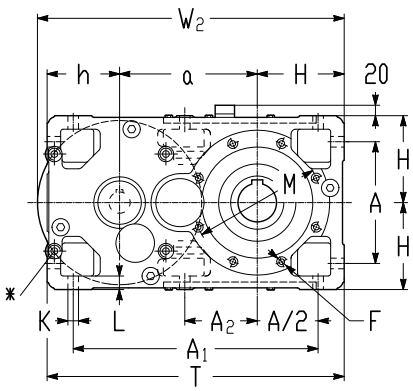
Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)	Gear ratio i
150	**70.0**	129 600	1.6	**MR 2I 250 - N440TC** 445 TC 4	25.0
	71.1	127 700	2.12	**MR 2I 280 - N440TC** 445 TC 4	24.6
	70.0	129 600	2.65	**MR 2I 320 - N440TC** 445 TC 4	25.0
	70.0	129 600	3.35	**MR 2I 321 - N440TC** 445 TC 4	25.0
	68.0	133 500	4.5	**MR 2I 360 - N440TC** 445 TC 4	25.7
	79.6	114 000	1.8	**MR 2I 250 - N440TC** 445 TC 4	22.0
	79.0	114 900	2.5	**MR 2I 280 - N440TC** 445 TC 4	22.2
	76.6	118 500	3	**MR 2I 320 - N440TC** 445 TC 4	22.8
	76.6	118 500	3.75	**MR 2I 321 - N440TC** 445 TC 4	22.8
	74.9	121 100	5	**MR 2I 360 - N440TC** 445 TC 4	23.4
	88.9	102 100	2.12	**MR 2I 250 - N440TC** 445 TC 4	19.7
	87.2	104 100	2.8	**MR 2I 280 - N440TC** 445 TC 4	20.1
	84.8	107 100	3.55	**MR 2I 320 - N440TC** 445 TC 4	20.6
	84.8	107 100	4.75	**MR 2I 321 - N440TC** 445 TC 4	20.6
	98.3	92 300	2.36	**MR 2I 250 - N440TC** 445 TC 4	17.8
	97.6	93 000	3.15	**MR 2I 280 - N440TC** 445 TC 4	17.9
	98.5	92 150	4.25	**MR 2I 320 - N440TC** 445 TC 4	17.8
	108	83 900	2.65	**MR 2I 250 - N440TC** 445 TC 4	16.2
	112	81 400	3.55	**MR 2I 280 - N440TC** 445 TC 4	15.7
	110	82 500	5	**MR 2I 320 - N440TC** 445 TC 4	15.9
	120	75 650	2.65	**MR 2I 250 - N440TC** 445 TC 4	14.6
	119	76 250	3.55	**MR 2I 280 - N440TC** 445 TC 4	14.7
	134	67 750	3.15	**MR 2I 250 - N440TC** 445 TC 4	13.1
	131	69 050	4.25	**MR 2I 280 - N440TC** 445 TC 4	13.3
	148	61 250	3.55	**MR 2I 250 - N440TC** 445 TC 4	11.8
	147	61 700	4.75	**MR 2I 280 - N440TC** 445 TC 4	11.9
	163	55 650	3.75	**MR 2I 250 - N440TC** 445 TC 4	10.7
	168	54 000	5.6	**MR 2I 280 - N440TC** 445 TC 4	10.4
	190	47 650	4.5	**MR 2I 250 - N440TC** 445 TC 4	9.19
	190	47 850	6	**MR 2I 280 - N440TC** 445 TC 4	9.22

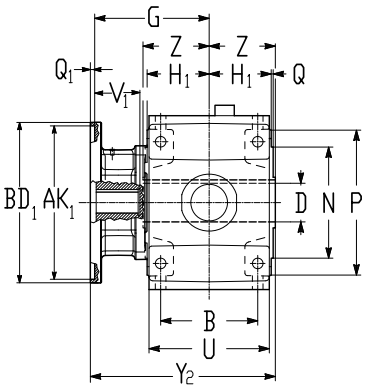
1) Powers valid for continuous duty S1; **increase possible** for duty cycles S2 ... S10: in which case T_2 increases and fs decreases.
2) For complete designation when ordering see ch. 3.1.

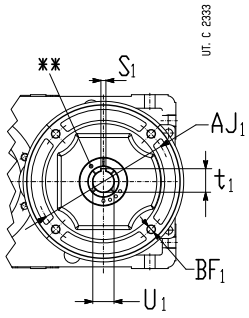
Gearmotors MR 2I

Dimensions

MR 2I 140 ... 360

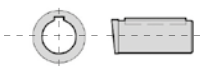






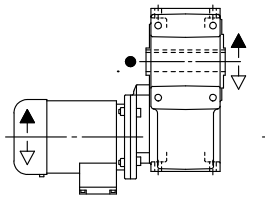
Gear red.	Size NEMA motor frame	a	A	A1	A2	B	D Ø in	F 1)	G	H h11	H1 h12	h h11	K Ø	L	M Ø	N Ø h6	P Ø	Q	T	U	Z	NEMA C-Face input side U1 Ø in 4)	V1 in	S1 in 5)	t1 in	BF1 Ø in	AJ1 Ø in	AK1 Ø in 6)	BD1 Ø in	Q1 in	Y2	W2	Mass lb
140	**N210TC**	240	212	427	127	162	2.75	3)	196.5	150	103.5	125	18	23	265	230	300	4	515	201	125	1.375	3.125	0.313	1.518	0.551	7.25	8.5	9.055	0.217	327	505	275
	N250TC								196.5													1.625	3.750	0.375	1.796	0.551	7.25	8.5	9.055	0.217	327	505	275
	N280TC								196.5													1.875	4.375	0.500	2.017[7]	0.551	9	10.5	11.024	0.217	327	530	275
160	**N250TC**	285	252	507	150*	201	3.25	M16	217.5	180	128.5	150	22	28	265	230	300	4	615	249	136	1.625	3.750	0.375	1.796	0.551	7.25	8.5	9.055	0.217	359	580	420
	N280TC								232.5													1.875	4.375	0.500	2.096	0.551	9	10.5	11.024	0.217	374	605	425
	N320TC								240.5													2.125	5.000	0.500	2.350	0.689	11	12.5	13.071	0.217	382	631	430
	N360TC								240.5													2.375	5.625	0.625	2.553[7]	0.689	11	12.5	13.071	0.217	382	631	430
180	**N280TC**	305	252	527	170	201	3.625	M16	232.5	180	128.5	150	22	28	300	250	350	5	635	249	150	1.875	4.375	0.500	2.096	0.551	9	10.5	11.024	0.217	388	625	470
	N320TC								240.5													2.125	5.000	0.500	2.350	0.689	11	12.5	13.071	0.217	396	651	475
	N360TC								240.5													2.375	5.625	0.625	2.553[7]	0.689	11	12.5	13.071	0.217	396	651	475
200	**N280TC**	360	320	635	198*	250	4	3)	262	225	158	180	27	34	350	300	400	5	765	307	167	1.875	4.375	0.500	2.096	0.551	9	10.5	11.250	0.217	435	728	715
	N320TC								285													2.125	5.000	0.500	2.350	0.689	11	12.5	13.071	0.217	458	751	720
	N360TC								303													2.375	5.625	0.625	2.553[7]	0.689	11	12.5	13.071	0.217	476	751	725
	N400TC								303													2.875	7	0.75	3.107[7]	0.689	11	12.5	13.071	0.217	476	751	725
225	**N320TC**	385	320	660	223	250	4.25	M20	285	225	158	180	27	34	400	350	450	5	790	307	180	2.125	5.000	0.500	2.350	0.689	11	12.5	13.071	0.217	471	776	785
	N360TC								303													2.375	5.625	0.625	2.553[7]	0.689	11	12.5	13.071	0.217	489	776	790
	N400TC								303													2.875	7	0.75	3.107[7]	0.689	11	12.5	13.071	0.217	489	776	790
250	**N360TC**	450	396	791	-	310	5	3)	345	280	195	225	33	42	500	450	550	5	955	380	206	2.375	5.625	0.625	2.651	0.689	11	12.5	14	0.217	557	908	1255
	N400TC								345													2.875	7	0.75	3.205	0.689	11	12.5	14	0.217	557	908	1255
	N440TC								425													3.375	8.25	0.875	3.76	0.689	14	16	18	0.217	637	959	1295
280	**N400TC**	480	396	821	277	310	5.5	M24	345	280	195	225	33	42	500	450	550	5	985	380	222	2.875	7	0.75	3.205	0.689	11	12.5	14	0.217	573	938	1375
	N440TC								425													3.375	8.25	0.875	3.76	0.689	14	16	18	0.217	653	989	1415
320 321	**N440TC**	570	510	1005	-	386	6.25	3)	427	355	241	280	39	52	600	550	660	6	1205	470	254	3.375	8.25	0.875	3.76	0.689	14	16	18	0.217	687	1154	2230
360	**N440TC**	610	510	1045	358	386	7	M30	427	355	241	280	39	52	600	550	660	6	1245	470	273	3.375	8.25	0.875	3.76	0.689	14	16	18	0.217	706	1194	2440

*Machined surface and N. 4 threaded holes (dimensions in ch. 3.5 «Input face») on opposite side (not in view) too.
** With motor size ≥ N320TC, input hollow shaft with longitudinal cuts, hub clamp and key.
1) Working length of thread 2 · F.
3) For dimension, number and angular position see ch. 3.5.
4) Tolerance +0.0004/+0.001 in (+0.009/+0.025 mm) for motors size ≤ N280TC, 0/+0.0007 in (0/+0.019 mm) for N320TC, N360TC, N400TC, 0/+0.0009 in (0/+0.022 mm) for N440TC.
5) Tolerance 0/+0.0014 in (0/+0.036 mm) for N210TC and N250TC, 0/+0.0017 in (0/+0.043 mm) for N280TC, N320TC, N360TC, 0/+0.002 in (0/+0.052 mm) for N400TC and N440TC.
6) Tolerance-0.0007/+0.0007 in (-0.017/+0.017 mm), -0.0011/+0.0011 in (-0.028/+0.028 mm) for motors size ≥ N320TC.
7) Out of standard dimension; a key properly modified is supplied together with the gearmotor.



Designs (direction of rotation)

MR 2I 140 ... 360



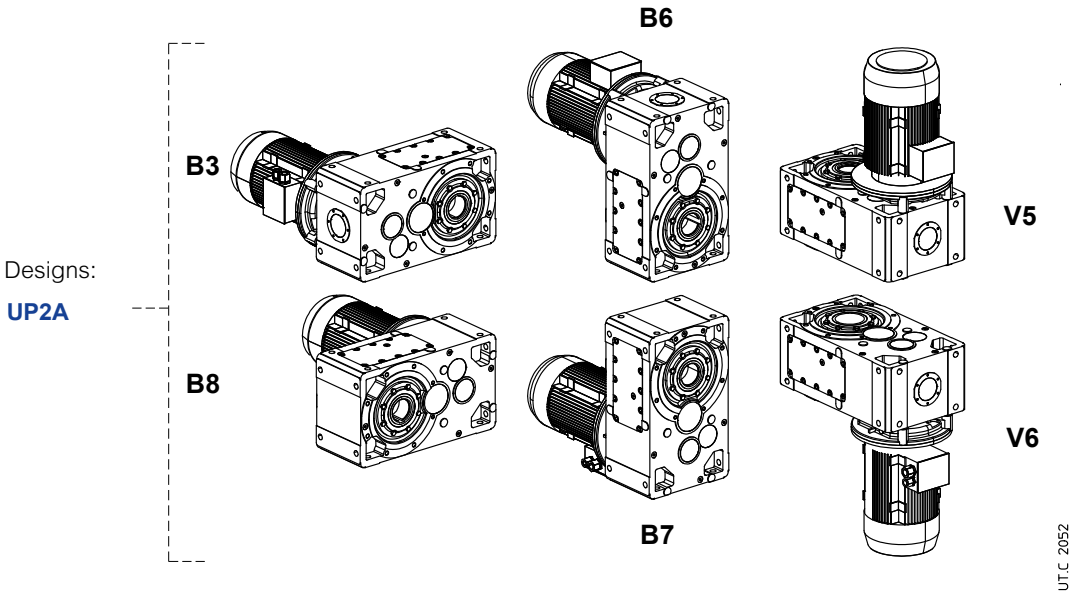
UP2A

● Position of reference groove (see ch. 3) for radial load verification.

Mounting positions

Unless otherwise stated, gearmotors are supplied in mounting position B3 (see ch. 2).

MR 2I 140 ... 360



Oil quantity MR 2I 140 ... 360

Stated oil quantities [gal] are approximate for provisioning. The exact oil quantity the gearmotor is to be filled with is defined by the level plug.

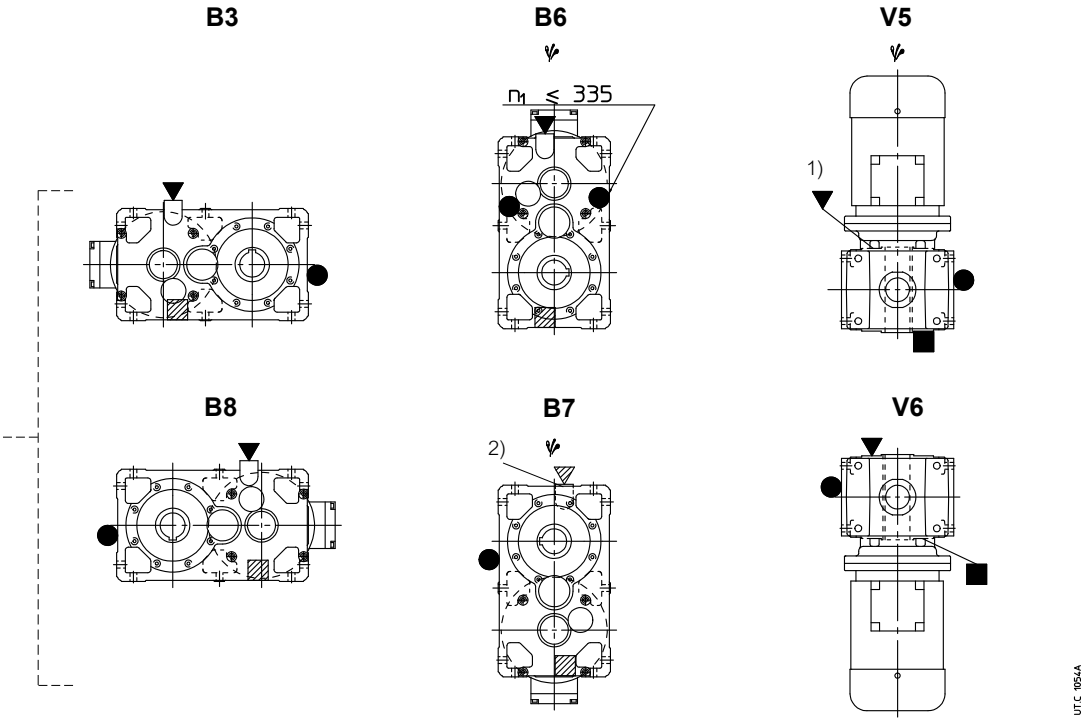
Mounting position	140	160	180	200	225	250	280	320, 321	360
B3	1.7	3.2	3.4	6.6	6.9	12	13	26	26
B8	1.7	3.2	3.4	6.6	6.9	12	13	26	26
B6	2.6	4.8	5	9.2	9.8	18	19	36	37
B7	2.6	4.8	5	9.2	9.8	18	19	36	37
V5	2.6	4.8	5	9.2	9.8	18	19	36	37
V6	2.6	4.8	5	9.2	9.8	18	19	36	37

Lubrication details

MR 2I 140 ... 360

Designs:

UP2A



1) Oil filler plug possible even on low speed shaft side.
2) Oil filler plug possible even on opposite side.

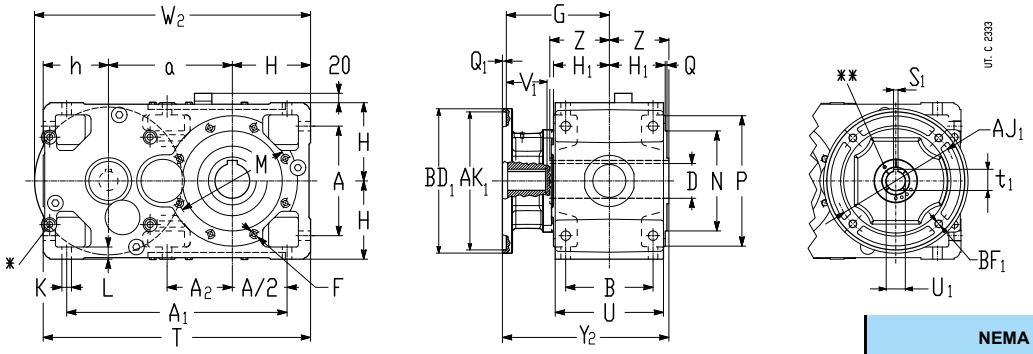
Possible high oil splash: for the corrective factor f_{t_3} of nominal thermal power Pt_N see ch. 3.

- oil filler plug
- oil level plug
- oil drain plug
- oil filler plug with oil level dip stick
- oil filler plug on opposite side (not in view)
- oil level plug on opposite side (not in view)
- oil drain plug on opposite side (not in view)

Gearmotors MR 3I

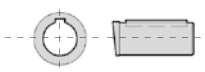
Dimensions

MR 3I 140 ... 360



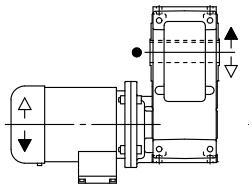
Gear red.	Size NEMA motor frame	a	A	A1	A2	B	D Ø in 1)	F	G	H h11	H1 h12	h h11	K Ø	L	M Ø	N Ø h6	P Ø	Q	T	U	Z	NEMA C-Face input side U1 Ø in 4)	V1 in	S1 in 5)	t1 in	BF1 Ø in	AJ1 Ø in	AK1 Ø in 6)	BD1 Ø in	Q1 in	Y2	W2	Mass lb
140	**N180TC**	240	212	427	127	162	2.75	3)	196.5	150	103.5	125	18	23	265	230	300	4	515	201	125	1.125	2.620	0.250	1.241	0.551	7.25	8.5	9.055	0.217	327	505	270
	N210TC								196.5													1.375	3.125	0.313	1.518	0.551	7.25	8.5	9.055	0.217	327	505	270
	N250TC								216.5													1.625	3.750	0.375	1.796	0.551	7.25	8.5	9.055	0.217	347	505	275
160	**N180TC**	285	252	507	150*	201	3.25	M16	217.5	180	128.5	150	22	28	265	230	300	4	615	249	136	1.125	2.620	0.250	1.241	0.551	7.25	8.5	9.055	0.217	359	580	420
	N210TC								217.5													1.375	3.125	0.313	1.518	0.551	7.25	8.5	9.055	0.217	359	580	420
	N250TC								217.5													1.625	3.750	0.375	1.796	0.551	7.25	8.5	9.055	0.217	359	580	420
	N280TC								232.5													1.875	4.375	0.500	2.096	0.551	9	10.5	11.024	0.217	374	605	425
180	**N180TC**	305	252	527	170	201	3.625	M16	217.5	180	128.5	150	22	28	300	250	350	5	635	249	150	1.125	2.620	0.250	1.241	0.551	7.25	8.5	9.055	0.217	373	600	465
	N210TC								217.5													1.375	3.125	0.313	1.518	0.551	7.25	8.5	9.055	0.217	373	600	465
	N250TC								217.5													1.625	3.750	0.375	1.796	0.551	7.25	8.5	9.055	0.217	373	600	465
	N280TC								232.5													1.875	4.375	0.500	2.096	0.551	9	10.5	11.024	0.217	388	625	470
200	**N210TC**	360	320	635	198*	250	4	3)	262	225	158	180	27	34	350	300	400	5	765	307	167	1.375	3.125	0.313	1.518	0.551	7.25	8.5	9.055	0.217	435	700	710
	N250TC								262													1.625	3.750	0.375	1.796	0.551	7.25	8.5	9.055	0.217	435	700	710
	N280TC								262													1.875	4.375	0.500	2.096	0.551	9	10.5	11.250	0.217	435	728	715
	N320TC								285													2.125	5.000	0.500	2.350	0.689	11	12.5	13.071	0.217	458	751	720
	N360TC								303													2.375	5.625	0.625	2.553[7]	0.689	11	12.5	13.071	0.217	476	751	725
225	**N210TC**	385	320	660	223	250	4.25	M20	262	225	158	180	27	34	400	350	450	5	790	307	180	1.375	3.125	0.313	1.518	0.551	7.25	8.5	9.055	0.217	448	725	775
	N250TC								262													1.625	3.750	0.375	1.796	0.551	7.25	8.5	9.055	0.217	448	725	775
	N280TC								262													1.875	4.375	0.500	2.096	0.551	9	10.5	11.250	0.217	448	753	780
	N320TC								285													2.125	5.000	0.500	2.350	0.689	11	12.5	13.071	0.217	471	776	785
	N360TC								303													2.375	5.625	0.625	2.553[7]	0.689	11	12.5	13.071	0.217	489	776	790
250	**N250TC**	450	396	791	-	310	5	3)	305	280	195	225	33	42	500	450	550	5	955	380	206	1.625	3.750	0.375	1.796	0.551	7.25	8.5	10	0.217	517	857	1240
	N280TC								305													1.875	4.375	0.5	2.096	0.551	9	10.5	11.27	0.217	517	873	1240
	N320TC								345													2.125	5	0.5	2.35	0.689	11	12.5	14	0.217	557	908	1255
	N360TC								345													2.375	5.625	0.625	2.651	0.689	11	12.5	14	0.217	557	908	1255
	N400TC								345													2.875	7	0.75	3.205	0.689	11	12.5	14	0.217	557	908	1255
	N440TC								425													3.375	8.25	0.875	3.76	0.689	14	16	18	0.217	637	959	1295
280	**N250TC**	480	396	821	277	310	5.5	M24	305	280	195	225	33	42	500	450	550	5	985	380	222	1.625	3.750	0.375	1.796	0.551	7.25	8.5	10	0.217	533	887	1360
	N280TC								305													1.875	4.375	0.5	2.096	0.551	9	10.5	11.27	0.217	533	903	1360
	N320TC								345													2.125	5	0.5	2.35	0.689	11	12.5	14	0.217	573	938	1375
	N360TC								345													2.375	5.625	0.625	2.651	0.689	11	12.5	14	0.217	573	938	1375
	N400TC								345													2.875	7	0.75	3.205	0.689	11	12.5	14	0.217	573	938	1375
	N440TC								425													3.375	8.25	0.875	3.76	0.689	14	16	18	0.217	653	989	1415
320	**N320TC**	570	510	1005	-	386	6.25	3)	382	355	241	280	39	52	600	550	660	6	1205	470	254	2.125	5	0.5	2.35	0.689	11	12.5	14	0.217	642	1103	2150
321	**N360TC**								382													2.375	5.625	0.625	2.651	0.689	11	12.5	14	0.217	642	1103	2150
	N400TC								382													2.875	7	0.75	3.205	0.689	11	12.5	14	0.217	642	1103	2150
	N440TC								427													3.375	8.25	0.875	3.76	0.689	14	16	18	0.217	687	1154	2230
360	**N320TC**	610	510	1045	358	386	7	M30	382	355	241	280	39	52	600	550	660	6	1245	470	273	2.125	5	0.5	2.35	0.689	11	12.5	14	0.217	661	1143	2360
	N360TC								382													2.375	5.625	0.625	2.651	0.689	11	12.5	14	0.217	661	1143	2360
	N400TC								382													2.875	7	0.75	3.205	0.689	11	12.5	14	0.217	661	1143	2360
	N440TC								427													3.375	8.25	0.875	3.76	0.689	14	16	18	0.217	706	1194	2440

*Machined surface and N. 4 threaded holes (dimensions in ch. 3.5 «Input face») on opposite side (not in view) too.
** With motor size ≥ N320TC, input hollow shaft with longitudinal cuts, hub clamp and key.
1) Working length of thread 2 · F.
3) For dimension, number and angular position see ch. 3.5.
4) Tolerance 0/+0.0005 in (0/+0.013 mm) for N180TC, +0.0004/+0.001 in (+0.009/+0.025 mm) for motors size ≤ N280TC, 0/+0.0007 in (0/+0.019 mm) for N320TC, N360TC, N400TC, 0/+0.0009 in (0/+0.022 mm) for N440TC .
5) Tolerance 0/+0.0014 in (0/+0.036 mm) for N180TC, N210TC, N250TC, 0/+0.0017 in (0/+0.043 mm) for N280TC, N320TC, N360TC, 0/+0.002 in (0/+0.052 mm) for N400TC and N440TC.
6) Tolerance -0.0007/+0.0007 in (-0.017/+0.017 mm), -0.0011/+0.0011 in (-0.028/+0.028 mm) for motor size ≥ N320TC
7) Out of standard dimension; a key properly modified is supplied together with the gearmotor.



Designs (direction of rotation)

MR 3I 140 ... 360



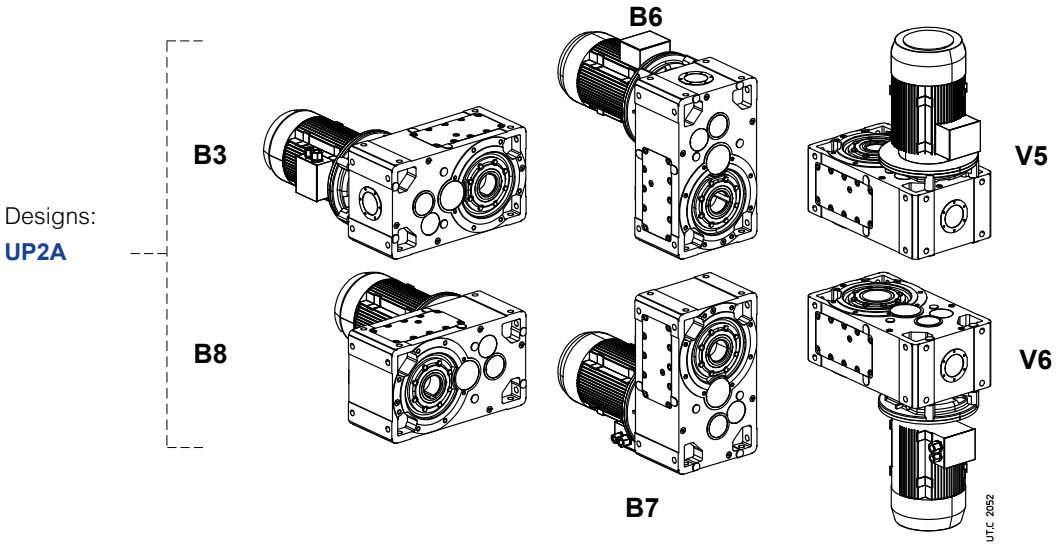
UP2A

● Position of reference groove (see ch. 3) for radial load verification.

Mounting positions

Unless otherwise stated, gearmotors are supplied in mounting position **B3** (see ch. 2).

MR 3I 140 ... 360



Oil quantity MR 3I 140 ... 360

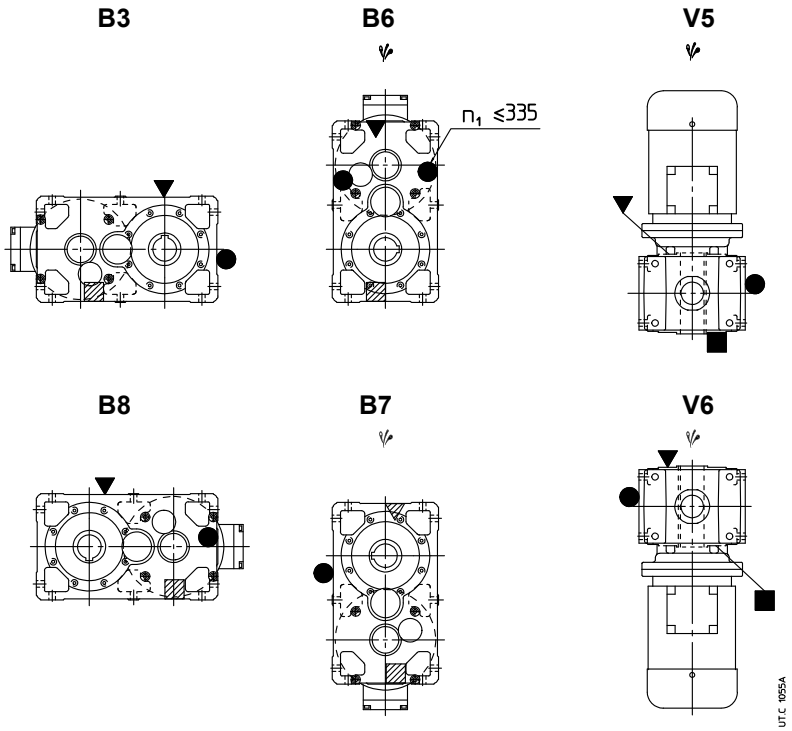
Lubricant quantities [gal] stated in the table are approximate for provisioning. The exact oil quantity the gearmotor is to be filled with is defined by the level plug.

Mounting position	140	160	180	200	225	250	280	320, 321	360
B3	1.7	3.2	3.4	6.6	6.9	12	13	26	26
B8	2.6	4.8	5	9.2	9.8	18	19	36	37
B6	2.6	4.8	5	9.2	9.8	18	19	36	37
B7	2.6	4.8	5	9.2	9.8	18	19	36	37
V5	2.6	4.8	5	9.2	9.8	18	19	36	37
V6	2.6	4.8	5	9.2	9.8	18	19	36	37

Lubrication details

MR 3I 140 ... 360

Designs:
UP2A



Possible high oil splash: for the corrective factor f_{t_3} of nominal thermal power Pt_N see ch. 3.

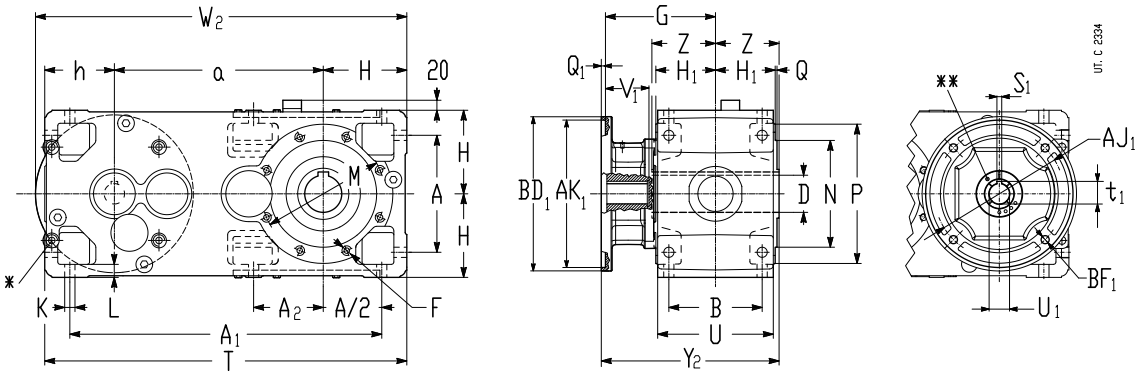
▼ oil filler plug
● oil level plug
■ oil drain plug
▼ oil filler plug with oil dip stick
●

▽ oil filler plug on opposite side (not in view)
◍ oil level plug on opposite side (not in view)
▨ oil drain plug on opposite side (not in view)

Gearmotors MR 2I - Long model

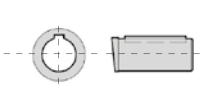
Dimensions

MR 2I 140 ... 225 - Long model



Gear red.	Size NEMA motor frame	a	A	A1	A2	B	D Ø in	F 1)	G	H h11	H1 h12	h h11	K Ø	L	M Ø	N Ø h6	P Ø	Q	T	U	Z	NEMA C-Face input side: U1 Ø in 4)	V1 in	S1 in 5)	t1 in	BF1 Ø in	AJ1 Ø in	AK1 Ø in 6)	BD1 Ø in	Q1 in	Y2	W2	Mass lb
140	**N210TC**	373	212	427	127	162	2.75	3)	196.5	150	103.5	125	18	23	265	230	300	4	515	201	125	1.375	3.125	0.313	1.518	0.551	7.25	8.5	9.055	0.217	327	638	315
	N250TC								196.5													1.625	3.750	0.375	1.796	0.551	7.25	8.5	9.055	0.217	327	638	315
	N280TC								196.5													1.875	4.375	0.500	2.017[7]	0.551	9	10.5	11.024	0.217	327	663	320
160	**N250TC**	450	252	507	150*	201	3.25	M16	217.5	180	128.5	150	22	28	265	230	300	4	615	249	136	1.625	3.750	0.375	1.796	0.551	7.25	8.5	9.055	0.217	359	745	485
	N280TC								232.5													1.875	4.375	0.500	2.096	0.551	9	10.5	11.024	0.217	374	770	490
	N320TC								240.5													2.125	5.000	0.500	2.350	0.689	11	12.5	13.071	0.217	382	796	500
	N360TC								240.5													2.375	5.625	0.625	2.553[7]	0.689	11	12.5	13.071	0.217	382	796	500
180	**N280TC**	470	252	527	170	201	3.625	M16	232.5	180	128.5	150	22	28	300	250	350	5	635	249	150	1.875	4.375	0.500	2.096	0.551	9	10.5	11.024	0.217	388	790	535
	N320TC								240.5													2.125	5.000	0.500	2.350	0.689	11	12.5	13.071	0.217	396	816	540
	N360TC								240.5													2.375	5.625	0.625	2.553[7]	0.689	11	12.5	13.071	0.217	396	816	540
200	**N280TC**	556	320	635	198*	250	4	3)	262	225	158	180	27	34	350	300	400	5	765	307	167	1.875	4.375	0.500	2.096	0.551	9	10.5	11.250	0.217	435	924	825
	N320TC								285													2.125	5.000	0.500	2.350	0.689	11	12.5	13.071	0.217	458	947	830
	N360TC								303													2.375	5.625	0.625	2.553[7]	0.689	11	12.5	13.071	0.217	476	947	835
	N400TC								303													2.875	7	0.75	3.107[7]	0.689	11	12.5	13.071	0.217	476	947	835
225	**N320TC**	581	320	660	223	250	4.25	M20	285	225	158	180	27	34	400	350	450	5	790	307	180	2.125	5.000	0.500	2.350	0.689	11	12.5	13.071	0.217	471	972	895
	N360TC								303													2.375	5.625	0.625	2.553[7]	0.689	11	12.5	13.071	0.217	489	972	900
	N400TC								303													2.875	7	0.75	3.107[7]	0.689	11	12.5	13.071	0.217	489	972	900

*Machined surface and N. 4 threaded holes (dimensions in ch. 3.5 «Input face») on opposite side (not in view) too.
** With motor size ≥ N320TC, input hollow shaft with longitudinal cuts, hub clamp and key.
1) Working length of thread 2 · F.
3) For dimension, number and angular position see ch. 3.5.
4) Tolerance +0.0004/+0.001 in (+0.009/+0.025 mm) for motors size ≤ N280TC, 0/+0.0007 in (0/+0.019 mm) for motors size ≥ 320TC.
5) Tolerance 0/+0.0014 in (0/+0.036 mm) for N180TC, N210TC and N250TC, 0/+0.0017 in (0/+0.043 mm) for N280TC, N320TC, N360TC, 0/+0.002 in (0/+0.052 mm) for N400TC.
6) Tolerance -0.0007/+0.0007 in (-0.017/+0.017 mm), -0.0011/+0.0011 in (-0.028/+0.028 mm) for motors size ≥ N320TC.
7) Out of standard dimension; a key properly modified is supplied together with the gearmotor.



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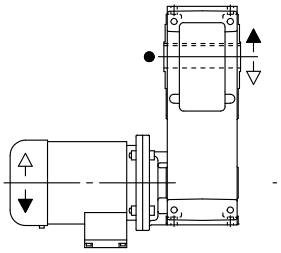
Designs (direction of rotation)

MR 2I 140 ... 225 - Long model



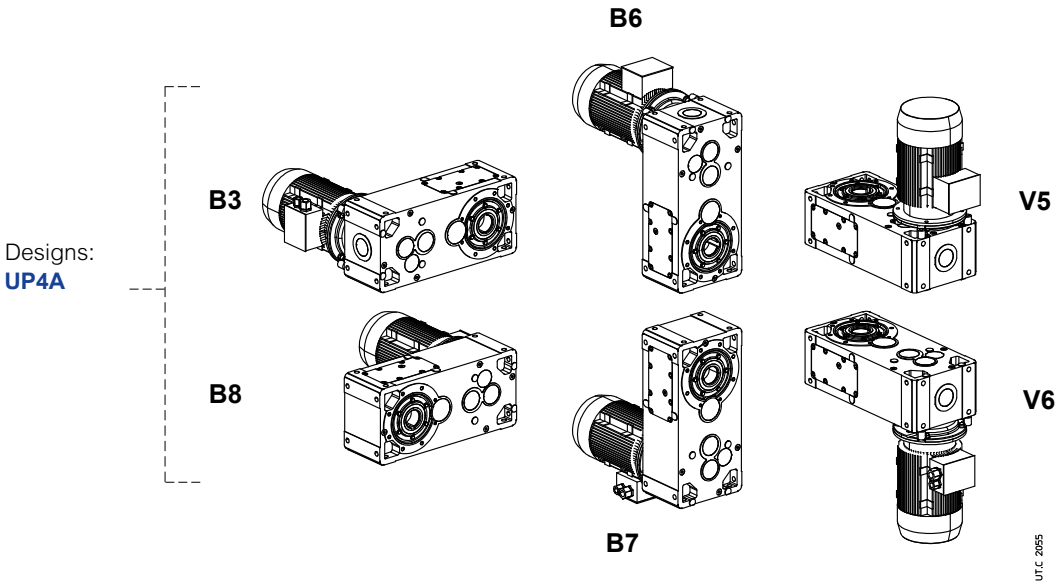
UP4A

● Position of reference groove (see ch. 3) for radial load verification.

Mounting positions

Unless otherwise stated, gearmotors are supplied in mounting position **B3** (see ch. 2).

MR 2I 140 ... 225 - Long model



Oil quantity MR 2I 140 ... 225 – Long model

Lubricant quantities [gal] stated in the table are approximate for provisioning. The exact oil quantity the gearmotor is to be filled with is defined by the level plug.

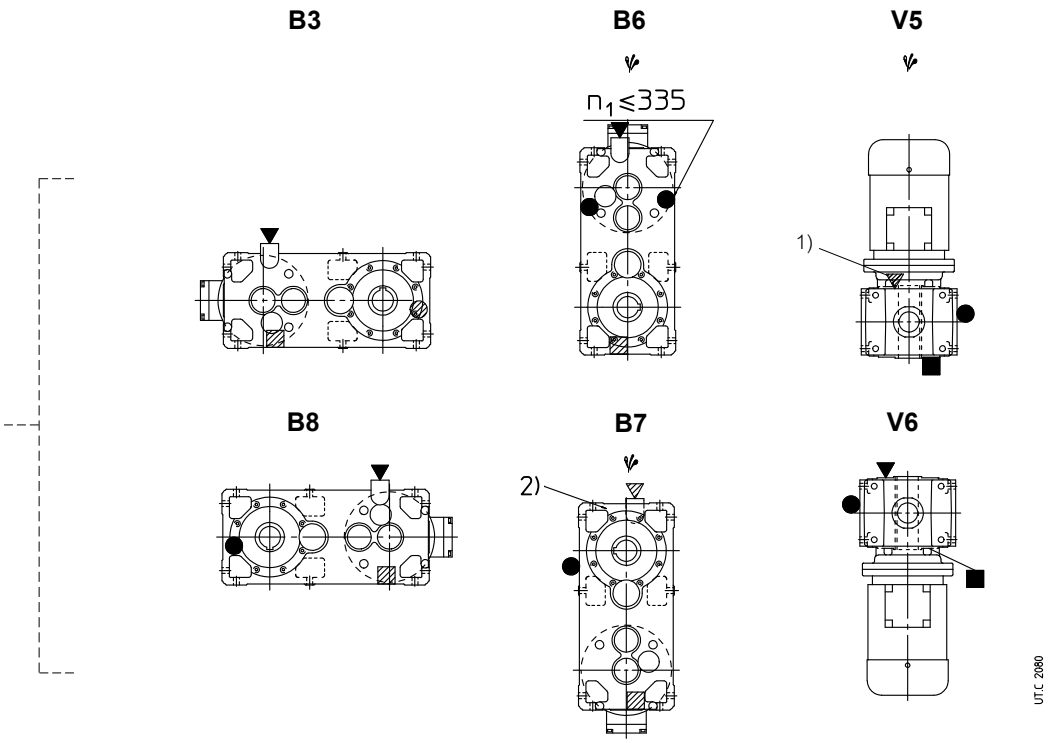
Mounting position	140	160	180	200	225
B3	2.3	4.2	4.6	8.7	9
B8	3.2	5.3	5.5	10	11
B7	4.1	7.4	7.8	15	15
B6	4.1	7.4	7.8	15	15
V5	3.6	6.3	6.7	13	13
V6	3.6	6.3	6.7	13	13

Lubrication details

MR 2I 140 ... 225 - Long model

Designs:

UP4A



1) Oil filler plug possible also on low speed shaft side.
2) Oil filler plug possible also on opposite side.

Possible high oil splash: for the corrective factor f_{t_3} of nominal thermal power P_{t_N} see ch. 3.

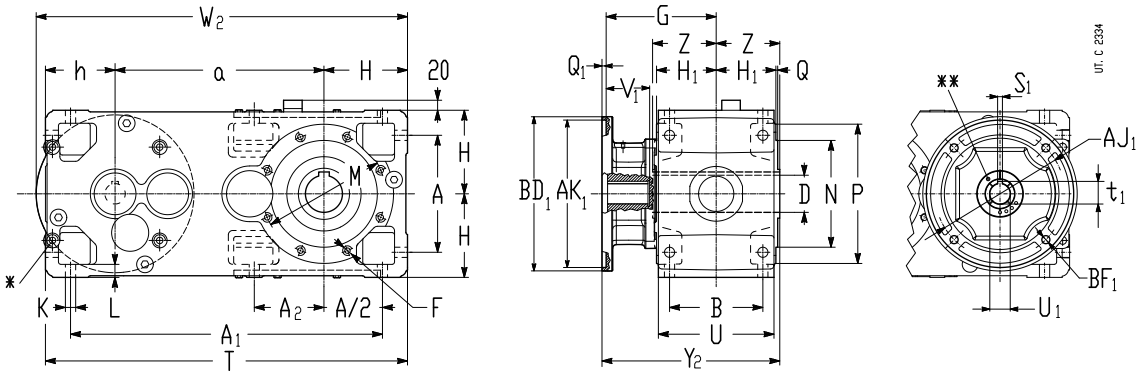
▼ oil filler plug
● oil level plug
■ oil drain plug
▼● oil filler plug with oil level dip stick

▽ oil filler plug on opposite side (not in view)
◍ oil level plug on opposite side (not in view)
▨ oil drain plug on opposite side (not in view)

Gearmotors MR 3I - Long model

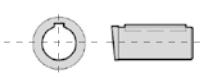
Dimensions

MR 3I 140 ... 225 - Long model



Gear red.	Size NEMA motor frame	a	A	A1	A2	B	D Ø in	F 1)	G	H h11	H1 h12	h h11	K Ø	L	M Ø	N Ø h6	P Ø	Q	T	U	Z	NEMA C-Face input side U1 Ø in 4)	V1 in	S1 in 5)	t1 in	BF1 Ø in	AJ1 Ø in	AK1 Ø in 6)	BD1 Ø in	Q1 in	Y2	W2	Mass lb
140	**N180TC**	373	212	427	127	162	2.75	3)	196.5	150	103.5	125	18	23	265	230	300	4	515	201	125	1.125	2.620	0.250	1.241	0.551	7.25	8.5	9.055	0.217	327	638	315
	N210TC								196.5													1.375	3.125	0.313	1.518	0.551	7.25	8.5	9.055	0.217	327	638	315
	N250TC								216.5													1.625	3.750	0.375	1.796	0.551	7.25	8.5	9.055	0.217	347	638	320
160	**N180TC**	450	252	507	150*	201	3.25	M16	217.5	180	128.5	150	22	28	265	230	300	4	615	249	136	1.125	2.620	0.250	1.241	0.551	7.25	8.5	9.055	0.217	359	745	485
	N210TC								217.5													1.375	3.125	0.313	1.518	0.551	7.25	8.5	9.055	0.217	359	745	485
	N250TC								217.5													1.625	3.750	0.375	1.796	0.551	7.25	8.5	9.055	0.217	359	745	485
	N280TC								232.5													1.875	4.375	0.500	2.096	0.551	9	10.5	11.024	0.217	374	770	490
180	**N180TC**	470	252	527	170	201	3.625	M16	217.5	180	128.5	150	22	28	300	250	350	5	635	249	150	1.125	2.620	0.250	1.241	0.551	7.25	8.5	9.055	0.217	373	765	530
	N210TC								217.5													1.375	3.125	0.313	1.518	0.551	7.25	8.5	9.055	0.217	373	765	530
	N250TC								217.5													1.625	3.750	0.375	1.796	0.551	7.25	8.5	9.055	0.217	373	765	530
	N280TC								232.5													1.875	4.375	0.500	2.096	0.551	9	10.5	11.024	0.217	388	790	535
200	**N210TC**	556	320	635	198*	250	4	3)	262	225	158	180	27	34	350	300	400	5	765	307	167	1.375	3.125	0.313	1.518	0.551	7.25	8.5	9.055	0.217	435	896	820
	N250TC								262													1.625	3.750	0.375	1.796	0.551	7.25	8.5	9.055	0.217	435	896	820
	N280TC								262													1.875	4.375	0.500	2.096	0.551	9	10.5	11.250	0.217	435	924	825
	N320TC								285													2.125	5.000	0.500	2.350	0.689	11	12.5	13.071	0.217	458	947	830
	N360TC								303													2.375	5.625	0.625	2.553 7)	0.689	11	12.5	13.071	0.217	476	947	835
225	**N210TC**	581	320	660	223	250	4.25	M20	262	225	158	180	27	34	400	350	450	5	790	307	180	1.375	3.125	0.313	1.518	0.551	7.25	8.5	9.055	0.217	448	921	885
	N250TC								262													1.625	3.750	0.375	1.796	0.551	7.25	8.5	9.055	0.217	448	921	885
	N280TC								262													1.875	4.375	0.500	2.096	0.551	9	10.5	11.250	0.217	448	949	890
	N320TC								285													2.125	5.000	0.500	2.350	0.689	11	12.5	13.071	0.217	471	972	895
	N360TC								303													2.375	5.625	0.625	2.553 7)	0.689	11	12.5	13.071	0.217	489	972	900

*Machined surface and N. 4 threaded holes (dimensions in ch. 3.5 «Input face») on opposite side (not in view) too.
** With motor size ≥ N320TC, input hollow shaft with longitudinal cuts, hub clamp and key.
1) Working length of thread 2 · F.
3) For dimension, number and angular position see ch. 3.5.
4) Tolerance 0/+0.0005 in (0/+0.013 mm) for N180TC, +0.0004/+0.001 in (+0.009/+0.025 mm) for motors size ≤ N280TC, 0/+0.0007 in (0/+0.019 mm) for motors size ≥ 320TC.
5) Tolerance 0/+0.0014 in (0/+0.036 mm) for N180TC, N210TC and N250TC, 0/+0.0017 in (0/+0.043 mm) for motors size ≥ N280TC.
6) Tolerance -0.0007/+0.0007 in (-0.017/+0.017 mm), -0.0011/+0.0011 in (-0.028/+0.028 mm) for motors size ≥ N320TC.
7) Out of standard dimension; a key properly modified is supplied together with the gearmotor.



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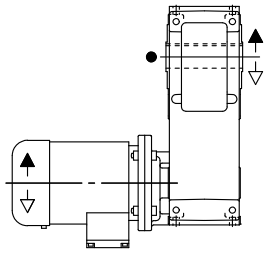
Designs (direction of rotation)

MR 3I 140 ... 225 - Long model



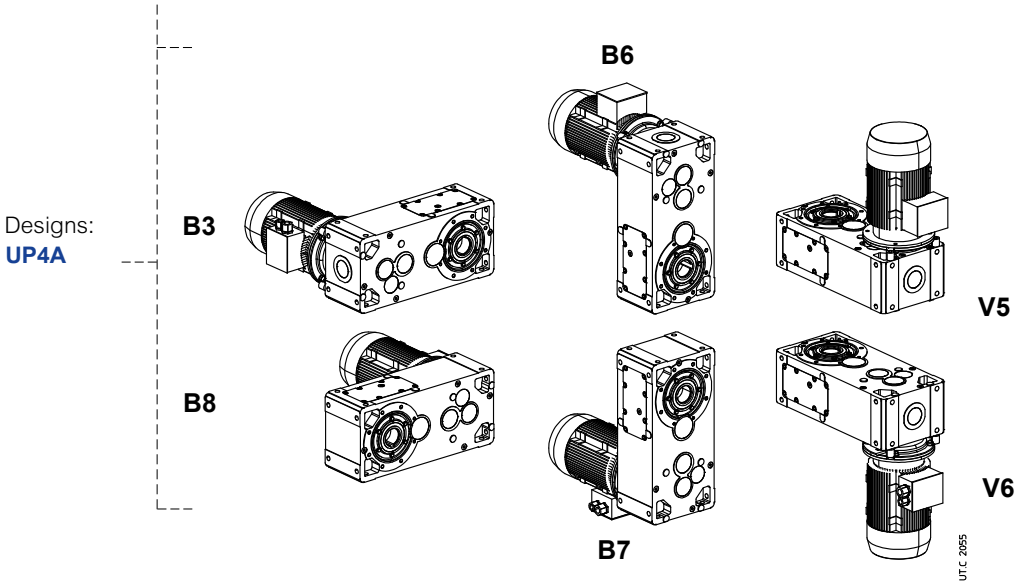
UP4A

● Position of reference groove (see ch. 3) for radial load verification.

Mounting positions

Unless otherwise stated, gearmotors are supplied in mounting position **B3** (see ch. 2).

MR 3I 140 ... 225 - Long model



Oil quantity MR 3I 140 ... 225 – Long model

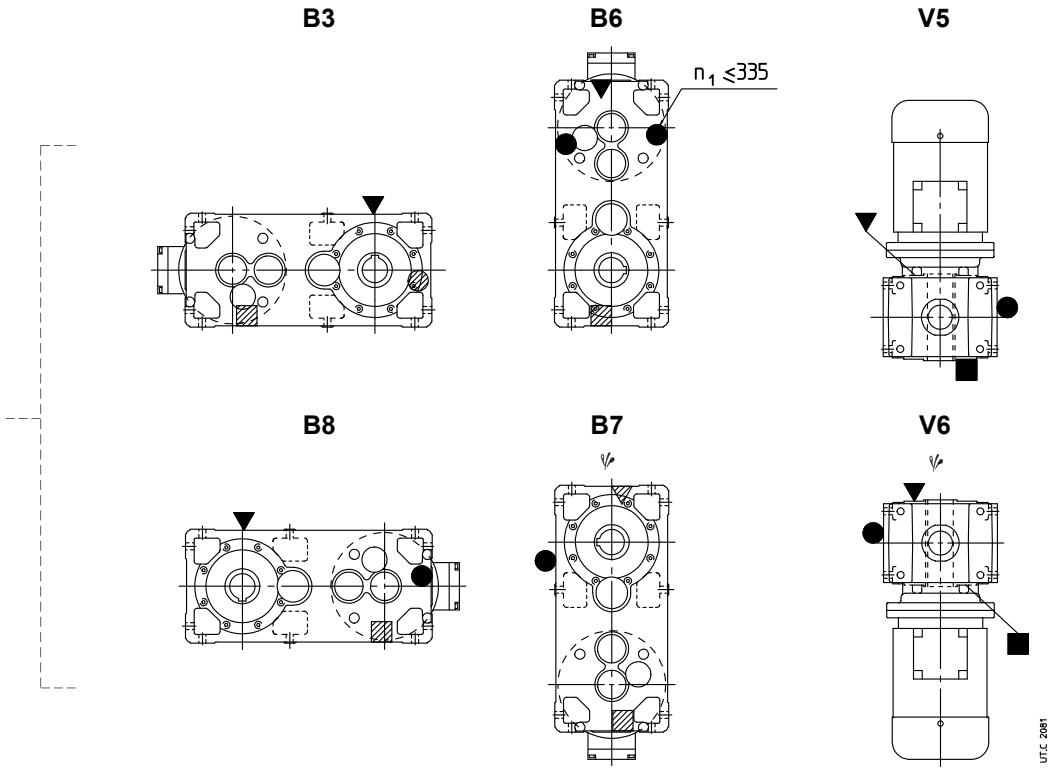
Lubricant quantities [gal] stated in the table are approximate for provisioning. The exact oil quantity the gearmotor is to be filled with is defined by the level plug.

Mounting position	140	160	180	200	225
B3	4.2	4.6	8.7	9	34
B8	5.8	6.2	12	12	46
B6	7.4	7.8	15	15	57
B7	7.4	7.8	15	15	57
V5	6.3	6.7	13	13	50
V6	6.3	6.7	13	13	50

Lubrication details

MR 3I 140 ... 225 - Long model

Designs:
UP4A



Possible high oil splash: for the corrective factor f_{t_3} of nominal thermal power Pt_N see ch. 3.

▼ oil filler plug
● oil level plug
■ oil drain plug
▼● oil filler plug with oil level dip stick

▽ oil filler plug on opposite side (not in view)
◍ oil level plug on opposite side (not in view)
▨ oil drain plug on opposite side (not in view)

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
1.5	**7.64**	11 650	3.15	**MR C2I 140 - N180TC** 182 TC 6	151
	9.37	9 490	4	**MR C2I 140 - N180TC** 182 TC 6	123
	11.7	7 590	5	**MR C2I 140 - N180TC** 182 TC 6	98.2
	13.1	6 780	5.6	**MR C2I 140 - N180TC** 182 TC 6	87.8
	14.6	6 070	7.1	**MR C2I 140 - N180TC** 182 TC 6	78.6
	16.4	5 430	7.1	**MR C2I 140 - N180TC** 182 TC 6	70.2
	18.6	4 790	8.5	**MR C2I 140 - N180TC** 182 TC 6	62.0
	20.8	4 280	9	**MR C2I 140 - N180TC** 182 TC 6	55.4
	22.8	3 900	9.5	**MR C2I 140 - N180TC** 182 TC 6	50.4
2	**7.64**	15 500	2.36	**MR C2I 140 - N180TC** 184 TC 6	151
	7.48	15 850	3.55	**MR C2I 160 - N180TC** 184 TC 6	154
	9.37	12 650	3	**MR C2I 140 - N180TC** 184 TC 6	123
	8.90	13 300	5	**MR C2I 160 - N180TC** 184 TC 6	129
	11.7	10 100	3.75	**MR C2I 140 - N180TC** 184 TC 6	98.2
	13.1	9 040	4.25	**MR C2I 140 - N180TC** 184 TC 6	87.8
	14.6	8 100	5.3	**MR C2I 140 - N180TC** 184 TC 6	78.6
	16.4	7 230	5.6	**MR C2I 140 - N180TC** 184 TC 6	70.2
	18.6	6 380	6.3	**MR C2I 140 - N180TC** 184 TC 6	62.0
	20.8	5 700	6.7	**MR C2I 140 - N180TC** 184 TC 6	55.4
	22.8	5 200	7.1	**MR C2I 140 - N180TC** 184 TC 6	50.4
	25.5	4 640	8	**MR C2I 140 - N180TC** 184 TC 6	45.1
	29.7	3 980	9	**MR C2I 140 - N180TC** 184 TC 6	38.7
	30.6	3 870	9.5	**MR C2I 140 - N180TC** 184 TC 6	37.5
	35.7	3 320	10	**MR C2I 140 - N180TC** 184 TC 6	32.2
3	**7.64**	23 250	1.6	**MR C2I 140 - N210TC** 213 TC 6	151
	7.48	23 800	2.36	**MR C2I 160 - N210TC** 213 TC 6	154
	7.26	24 500	3.35	**MR C2I 180 - N210TC** 213 TC 6	158
	9.37	18 950	2	**MR C2I 140 - N210TC** 213 TC 6	123
	8.90	19 950	3.35	**MR C2I 160 - N210TC** 213 TC 6	129
	11.6	15 300	2.24	**MR C2I 140 - N180TC** 182 TC 4	151
	11.7	15 200	2.5	**MR C2I 140 - N210TC** 213 TC 6	98.2
	11.4	15 600	3.35	**MR C2I 160 - N180TC** 182 TC 4	154
	13.1	13 550	2.8	**MR C2I 140 - N210TC** 213 TC 6	87.8
	14.3	12 450	3	**MR C2I 140 - N180TC** 182 TC 4	123
	13.5	13 100	4.75	**MR C2I 160 - N180TC** 182 TC 4	129
	16.4	10 850	3.55	**MR C2I 140 - N210TC** 213 TC 6	70.2
	17.8	9 970	3.75	**MR C2I 140 - N180TC** 182 TC 4	98.2
	19.9	8 910	4.25	**MR C2I 140 - N180TC** 182 TC 4	87.8
	22.3	7 980	5	**MR C2I 140 - N180TC** 182 TC 4	78.6
	24.9	7 130	5.3	**MR C2I 140 - N180TC** 182 TC 4	70.2
	28.2	6 290	5.6	**MR C2I 140 - N180TC** 182 TC 4	62.0
	31.6	5 620	6.7	**MR C2I 140 - N180TC** 182 TC 4	55.4
	36.8	4 930	3.75	**MR CI 125 - N210TC** 213 TC 6	31.3
	34.7	5 120	7.1	**MR C2I 140 - N180TC** 182 TC 4	50.4
	38.8	4 580	8	**MR C2I 140 - N180TC** 182 TC 4	45.1
	46.0	3 950	5.6	**MR CI 125 - N210TC** 213 TC 6	25.0
	45.3	3 930	9	**MR C2I 140 - N180TC** 182 TC 4	38.7
	46.6	3 810	10	**MR C2I 140 - N180TC** 182 TC 4	37.5
	57.5	3 160	7.1	**MR CI 125 - N210TC** 213 TC 6	20.0
	54.4	3 270	10	**MR C2I 140 - N180TC** 182 TC 4	32.2
	71.9	2 530	9	**MR CI 125 - N210TC** 213 TC 6	16.0
5	**7.64**	38 800	0.95	**MR C2I 140 - N210TC** 215 TC 6	151
	7.48	39 650	1.4	**MR C2I 160 - N210TC** 215 TC 6	154
	7.26	40 800	2	**MR C2I 180 - N210TC** 215 TC 6	158
	7.59	39 000	3	**MR C2I 200 - N210TC** 215 TC 6	151

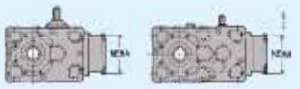
Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
5	**9.37**	31 600	1.18	**MR C2I 140 - N210TC** 215 TC 6	123
	8.90	33 250	2	**MR C2I 160 - N210TC** 215 TC 6	129
	8.86	33 450	2.5	**MR C2I 180 - N210TC** 215 TC 6	130
	9.04	32 750	4	**MR C2I 200 - N210TC** 215 TC 6	127
	11.6	25 500	1.32	**MR C2I 140 - N180TC** 184 TC 4	151
	11.7	25 300	1.5	**MR C2I 140 - N210TC** 215 TC 6	98.2
	11.4	26 050	2	**MR C2I 160 - N180TC** 184 TC 4	154
	11.1	26 600	2.5	**MR C2I 160 - N210TC** 215 TC 6	103
	11.0	26 850	2.8	**MR C2I 180 - N180TC** 184 TC 4	158
	13.1	22 600	1.7	**MR C2I 140 - N210TC** 215 TC 6	87.8
	12.7	23 300	3	**MR C2I 160 - N210TC** 215 TC 6	90.4
	14.3	20 800	1.8	**MR C2I 140 - N180TC** 184 TC 4	123
	14.6	20 250	2.12	**MR C2I 140 - N210TC** 215 TC 6	78.6
	13.5	21 850	2.8	**MR C2I 160 - N180TC** 184 TC 4	129
	13.9	21 300	3	**MR C2I 160 - N210TC** 215 TC 6	82.7
	13.5	21 950	3.75	**MR C2I 180 - N180TC** 184 TC 4	130
	16.4	18 100	2.24	**MR C2I 140 - N210TC** 215 TC 6	70.2
	17.8	16 600	2.24	**MR C2I 140 - N180TC** 184 TC 4	98.2
	18.6	15 950	2.5	**MR C2I 140 - N210TC** 215 TC 6	62.0
	16.9	17 500	3.55	**MR C2I 160 - N180TC** 184 TC 4	103
	19.9	14 850	2.5	**MR C2I 140 - N180TC** 184 TC 4	87.8
	20.8	14 250	2.65	**MR C2I 140 - N210TC** 215 TC 6	55.4
	19.4	15 300	4.25	**MR C2I 160 - N180TC** 184 TC 4	90.4
	22.3	13 300	3	**MR C2I 140 - N180TC** 184 TC 4	78.6
	24.9	11 900	3.15	**MR C2I 140 - N180TC** 184 TC 4	70.2
	28.2	10 500	3.55	**MR C2I 140 - N180TC** 184 TC 4	62.0
	31.6	9 370	4	**MR C2I 140 - N180TC** 184 TC 4	55.4
	36.8	8 220	2.24	**MR CI 125 - N210TC** 215 TC 6	31.3
	34.7	8 540	4.25	**MR C2I 140 - N180TC** 184 TC 4	50.4
	38.8	7 630	5	**MR C2I 140 - N180TC** 184 TC 4	45.1
	46.0	6 580	3.35	**MR CI 125 - N210TC** 215 TC 6	25.0
	45.3	6 540	5.3	**MR C2I 140 - N180TC** 184 TC 4	38.7
	46.6	6 350	6	**MR C2I 140 - N180TC** 184 TC 4	37.5
	57.5	5 260	4.25	**MR CI 125 - N210TC** 215 TC 6	20.0
	54.4	5 450	6	**MR C2I 140 - N180TC** 184 TC 4	32.2
	58.8	5 040	7.5	**MR C2I 140 - N180TC** 184 TC 4	29.8
	71.9	4 210	5.3	**MR CI 125 - N210TC** 215 TC 6	16.0
	68.6	4 320	8	**MR C2I 140 - N180TC** 184 TC 4	25.5
	81.0	3 730	8.5	**MR CI 140 - N210TC** 215 TC 6	14.2
	91.2	3 320	7.1	**MR CI 125 - N210TC** 215 TC 6	12.6
	100	3 020	8.5	**MR CI 140 - N210TC** 215 TC 6	11.5
	111	2 730	7.5	**MR CI 125 - N210TC** 215 TC 6	10.4
	144	2 100	7.5	**MR CI 125 - N210TC** 215 TC 6	7.98
	182	1 660	7.5	**MR CI 125 - N210TC** 215 TC 6	6.31
7.5	**7.48**	59 450	0.95	**MR C2I 160 - N250TC** 254 TC 6	154
	7.26	61 250	1.32	**MR C2I 180 - N250TC** 254 TC 6	158
	7.59	58 550	2	**MR C2I 200 - N250TC** 254 TC 6	151
	7.37	60 300	2.8	**MR C2I 225 - N250TC** 254 TC 6	156
	8.90	49 900	1.32	**MR C2I 160 - N250TC** 254 TC 6	129
	8.86	50 150	1.7	**MR C2I 180 - N250TC** 254 TC 6	130
	9.04	49 150	2.8	**MR C2I 200 - N250TC** 254 TC 6	127
	11.6	38 250	0.9	**MR C2I 140 - N210TC** 213 TC 4	151
	11.4	39 050	1.4	**MR C2I 160 - N210TC** 213 TC 4	154
	11.1	39 950	1.6	**MR C2I 160 - N250TC** 254 TC 6	103
	11.0	40 250	1.9	**MR C2I 180 - N210TC** 213 TC 4	158
	11.1	40 100	2.12	**MR C2I 180 - N250TC** 254 TC 6	104
	11.6	38 450	2.8	**MR C2I 200 - N210TC** 213 TC 4	151
	11.3	39 300	3.35	**MR C2I 200 - N250TC** 254 TC 6	102
	11.2	39 600	4	**MR C2I 225 - N210TC** 213 TC 4	156

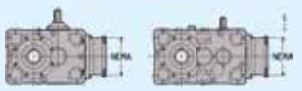
1) Powers valid for continuous duty S1; **increase possible** for duty cycles S2 ... S10: in which case T_2 increases and fs decreases.
2) For complete designation when ordering see ch. 3.1.

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
7.5	**12.7**	34 900	2	**MR C2I 160 - N250TC** 254 TC 6	90.4
	12.8	34 750	2.12	**MR C2I 180 - N250TC** 254 TC 6	90.0
	13.1	33 950	4	**MR C2I 200 - N250TC** 254 TC 6	87.9
	14.3	31 150	1.18	**MR C2I 140 - N210TC** 213 TC 4	123
	13.5	32 800	1.9	**MR C2I 160 - N210TC** 213 TC 4	129
	13.5	32 950	2.5	**MR C2I 180 - N210TC** 213 TC 4	130
	13.8	32 300	3.75	**MR C2I 200 - N210TC** 213 TC 4	127
	15.9	27 950	2.5	**MR C2I 160 - N250TC** 254 TC 6	72.3
	16.0	27 800	2.65	**MR C2I 180 - N250TC** 254 TC 6	72.0
	17.8	24 950	1.5	**MR C2I 140 - N210TC** 213 TC 4	98.2
	16.9	26 250	2.36	**MR C2I 160 - N210TC** 213 TC 4	103
	16.9	26 350	3.15	**MR C2I 180 - N210TC** 213 TC 4	104
	19.9	22 300	1.7	**MR C2I 140 - N210TC** 213 TC 4	87.8
	19.4	22 950	3	**MR C2I 160 - N210TC** 213 TC 4	90.4
	22.3	19 950	2	**MR C2I 140 - N210TC** 213 TC 4	78.6
	21.2	21 000	3	**MR C2I 160 - N210TC** 213 TC 4	82.7
	24.9	17 850	2.12	**MR C2I 140 - N210TC** 213 TC 4	70.2
	24.2	18 350	3.55	**MR C2I 160 - N210TC** 213 TC 4	72.3
	28.2	15 750	2.36	**MR C2I 140 - N210TC** 213 TC 4	62.0
	26.8	16 550	3.75	**MR C2I 160 - N210TC** 213 TC 4	65.2
	31.6	14 050	2.65	**MR C2I 140 - N210TC** 213 TC 4	55.4
	36.8	12 350	1.5	**MR CI 125 - N250TC** 254 TC 6	31.3
	34.7	12 800	2.8	**MR C2I 140 - N210TC** 213 TC 4	50.4
	33.6	13 250	4.5	**MR C2I 160 - N210TC** 213 TC 4	52.1
	38.8	11 450	3.35	**MR C2I 140 - N210TC** 213 TC 4	45.1
	46.0	9 860	2.24	**MR CI 125 - N250TC** 254 TC 6	25.0
	45.3	9 820	3.55	**MR C2I 140 - N210TC** 213 TC 4	38.7
	46.6	9 530	4	**MR C2I 140 - N210TC** 213 TC 4	37.5
	56.0	8 100	2.24	**MR CI 125 - N210TC** 213 TC 4	31.3
	57.5	7 890	2.8	**MR CI 125 - N250TC** 254 TC 6	20.0
	54.4	8 170	4	**MR C2I 140 - N210TC** 213 TC 4	32.2
	58.8	7 550	5	**MR C2I 140 - N210TC** 213 TC 4	29.8
	70.0	6 480	3.35	**MR CI 125 - N210TC** 213 TC 4	25.0
	81.0	5 600	5.6	**MR CI 140 - N250TC** 254 TC 6	14.2
	87.5	5 190	4.25	**MR CI 125 - N210TC** 213 TC 4	20.0
	97.2	4 670	6.3	**MR CI 140 - N210TC** 213 TC 4	18.0
	109	4 150	5	**MR CI 125 - N210TC** 213 TC 4	16.0
	123	3 680	8.5	**MR CI 140 - N210TC** 213 TC 4	14.2
	139	3 270	7.1	**MR CI 125 - N210TC** 213 TC 4	12.6
	152	2 980	8.5	**MR CI 140 - N210TC** 213 TC 4	11.5
	169	2 690	7.5	**MR CI 125 - N210TC** 213 TC 4	10.4
	219	2 070	7.5	**MR CI 125 - N210TC** 213 TC 4	7.98
	277	1 640	7.5	**MR CI 125 - N210TC** 213 TC 4	6.31
10	**7.26**	81 650	1	**MR C2I 180 - N250TC** 256 TC 6	158
	7.59	78 050	1.5	**MR C2I 200 - N250TC** 256 TC 6	151
	7.37	80 400	2.12	**MR C2I 225 - N250TC** 256 TC 6	156
	7.36	80 500	3	**MR C2I 250 - N250TC** 256 TC 6	156
	8.90	66 550	1	**MR C2I 160 - N250TC** 256 TC 6	129
	8.86	66 850	1.25	**MR C2I 180 - N250TC** 256 TC 6	130
	9.04	65 500	2	**MR C2I 200 - N250TC** 256 TC 6	127
	9.18	64 550	2.36	**MR C2I 225 - N250TC** 256 TC 6	125
	9.34	63 400	4.25	**MR C2I 250 - N250TC** 256 TC 6	123
	11.4	52 100	1	**MR C2I 160 - N210TC** 215 TC 4	154
	11.1	53 250	1.25	**MR C2I 160 - N250TC** 256 TC 6	103
	11.0	53 650	1.4	**MR C2I 180 - N210TC** 215 TC 4	158
	11.1	53 500	1.6	**MR C2I 180 - N250TC** 256 TC 6	104
	11.6	51 300	2.12	**MR C2I 200 - N210TC** 215 TC 4	151
	11.3	52 400	2.5	**MR C2I 200 - N250TC** 256 TC 6	102
	11.2	52 850	3	**MR C2I 225 - N210TC** 215 TC 4	156

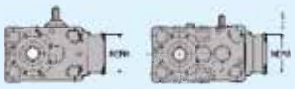
Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
10	**12.7**	46 550	1.5	**MR C2I 160 - N250TC** 256 TC 6	90.4
	12.8	46 350	1.6	**MR C2I 180 - N250TC** 256 TC 6	90.0
	13.1	45 300	3	**MR C2I 200 - N250TC** 256 TC 6	87.9
	14.3	41 550	0.9	**MR C2I 140 - N210TC** 215 TC 4	123
	13.5	43 750	1.4	**MR C2I 160 - N210TC** 215 TC 4	129
	13.5	43 950	1.9	**MR C2I 180 - N210TC** 215 TC 4	130
	13.8	43 050	3	**MR C2I 200 - N210TC** 215 TC 4	127
	14.1	41 950	3	**MR C2I 200 - N250TC** 256 TC 6	81.4
	14.0	42 400	3.55	**MR C2I 225 - N210TC** 215 TC 4	125
	15.9	37 250	1.8	**MR C2I 160 - N250TC** 256 TC 6	72.3
	16.0	37 100	2	**MR C2I 180 - N250TC** 256 TC 6	72.0
	16.4	36 250	3.75	**MR C2I 200 - N250TC** 256 TC 6	70.3
	17.8	33 250	1.12	**MR C2I 140 - N210TC** 215 TC 4	98.2
	16.9	35 000	1.8	**MR C2I 160 - N210TC** 215 TC 4	103
	16.9	35 150	2.36	**MR C2I 180 - N210TC** 215 TC 4	104
	17.2	34 450	3.55	**MR C2I 200 - N210TC** 215 TC 4	102
	19.9	29 700	1.25	**MR C2I 140 - N210TC** 215 TC 4	87.8
	19.4	30 600	2.24	**MR C2I 160 - N210TC** 215 TC 4	90.4
	19.4	30 450	2.36	**MR C2I 180 - N210TC** 215 TC 4	90.0
	19.9	29 750	4.25	**MR C2I 200 - N210TC** 215 TC 4	87.9
	22.3	26 600	1.5	**MR C2I 140 - N210TC** 215 TC 4	78.6
	21.2	28 000	2.24	**MR C2I 160 - N210TC** 215 TC 4	82.7
	21.1	28 100	3	**MR C2I 180 - N210TC** 215 TC 4	83.1
	21.5	27 550	4.5	**MR C2I 200 - N210TC** 215 TC 4	81.4
	24.9	23 750	1.6	**MR C2I 140 - N210TC** 215 TC 4	70.2
	24.2	24 500	2.65	**MR C2I 160 - N210TC** 215 TC 4	72.3
	24.3	24 350	3	**MR C2I 180 - N210TC** 215 TC 4	72.0
	24.9	23 800	5.3	**MR C2I 200 - N210TC** 215 TC 4	70.3
	28.2	20 950	1.7	**MR C2I 140 - N210TC** 215 TC 4	62.0
	26.8	22 050	2.8	**MR C2I 160 - N210TC** 215 TC 4	65.2
	26.7	22 200	3.75	**MR C2I 180 - N210TC** 215 TC 4	65.5
	31.6	18 750	2	**MR C2I 140 - N210TC** 215 TC 4	55.4
	30.7	19 300	3.35	**MR C2I 160 - N210TC** 215 TC 4	57.0
	36.8	16 450	1.12	**MR CI 125 - N250TC** 256 TC 6	31.3
	34.7	17 100	2.12	**MR C2I 140 - N210TC** 215 TC 4	50.4
	33.6	17 650	3.35	**MR C2I 160 - N210TC** 215 TC 4	52.1
	38.8	15 250	2.5	**MR C2I 140 - N210TC** 215 TC 4	45.1
	38.4	15 450	4.25	**MR C2I 160 - N210TC** 215 TC 4	45.6
	46.0	13 150	1.7	**MR CI 125 - N250TC** 256 TC 6	25.0
	45.3	13 100	2.8	**MR C2I 140 - N210TC** 215 TC 4	38.7
	44.3	13 400	4.5	**MR C2I 160 - N210TC** 215 TC 4	39.5
	46.6	12 700	3	**MR C2I 140 - N210TC** 215 TC 4	37.5
	46.7	12 700	4.5	**MR C2I 160 - N210TC** 215 TC 4	37.5
	56.0	10 800	1.7	**MR CI 125 - N210TC** 215 TC 4	31.3
	57.5	10 500	2.12	**MR CI 125 - N250TC** 256 TC 6	20.0
	57.5	10 500	3	**MR CI 140 - N250TC** 256 TC 6	20.0
	54.4	10 900	3	**MR C2I 140 - N210TC** 215 TC 4	32.2
	53.9	11 000	5	**MR C2I 160 - N210TC** 215 TC 4	32.5
	58.8	10 050	3.75	**MR C2I 140 - N210TC** 215 TC 4	29.8
	70.0	8 640	2.5	**MR CI 125 - N210TC** 215 TC 4	25.0
	68.6	8 640	4	**MR C2I 140 - N210TC** 215 TC 4	25.5
	81.0	7 470	4.25	**MR CI 140 - N250TC** 256 TC 6	14.2
	87.5	6 910	3.15	**MR CI 125 - N210TC** 215 TC 4	20.0
	87.5	6 910	4.25	**MR CI 140 - N210TC** 215 TC 4	20.0
	97.2	6 220	4.75	**MR CI 140 - N210TC** 215 TC 4	18.0
	109	5 530	3.75	**MR CI 125 - N210TC** 215 TC 4	16.0
	123	4 910	6.3	**MR CI 140 - N210TC** 215 TC 4	14.2
	139	4 360	5.3	**MR CI 125 - N210TC** 215 TC 4	12.6
	152	3 970	6.3	**MR CI 140 - N210TC** 215 TC 4	11.5
	169	3 580	5.6	**MR CI 125 - N210TC** 215 TC 4	10.4
	219	2 760	5.6	**MR CI 125 - N210TC** 215 TC 4	7.98
	277	2 180	5.6	**MR CI 125 - N210TC** 215 TC 4	6.31

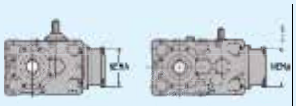
1) Powers valid for continuous duty S1; **increase possible** for duty cycles S2 ... S10: in which case T_2 increases and fs decreases.
2) For complete designation when ordering see ch. 3.1.

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)	Gear ratio i
15	**7.59**	117 100	1	**MR C2I 200 - N280TC** 284 TC 6	151
	7.37	120 600	1.4	**MR C2I 225 - N280TC** 284 TC 6	156
	7.36	120 700	2	**MR C2I 250 - N280TC** 284 TC 6	156
	7.48	118 900	2.65	**MR C2I 280 - N280TC** 284 TC 6	154
	8.86	100 300	0.85	**MR C2I 180 - N280TC** 284 TC 6	130
	9.04	98 300	1.4	**MR C2I 200 - N280TC** 284 TC 6	127
	9.18	96 800	1.6	**MR C2I 225 - N280TC** 284 TC 6	125
	9.34	95 100	2.8	**MR C2I 250 - N280TC** 284 TC 6	123
	9.17	96 950	3.35	**MR C2I 280 - N280TC** 284 TC 6	125
	11.1	79 850	0.8	**MR C2I 160 - N280TC** 284 TC 6	103
	11.0	80 500	0.95	**MR C2I 180 - N250TC** 254 TC 4	158
	11.1	80 250	1.06	**MR C2I 180 - N280TC** 284 TC 6	104
	11.6	76 900	1.4	**MR C2I 200 - N250TC** 254 TC 4	151
	11.3	78 600	1.7	**MR C2I 200 - N280TC** 284 TC 6	102
	11.2	79 250	2	**MR C2I 225 - N250TC** 254 TC 4	156
	11.2	79 350	2.8	**MR C2I 250 - N250TC** 254 TC 4	156
	11.7	76 100	3.35	**MR C2I 250 - N280TC** 284 TC 6	98.5
	11.4	78 100	3.75	**MR C2I 280 - N250TC** 254 TC 4	154
	12.7	69 850	1	**MR C2I 160 - N280TC** 284 TC 6	90.4
	12.8	69 550	1.06	**MR C2I 180 - N280TC** 284 TC 6	90.0
	13.1	67 950	2	**MR C2I 200 - N280TC** 284 TC 6	87.9
	12.7	69 750	2.5	**MR C2I 225 - N280TC** 284 TC 6	90.3
	12.9	68 750	3.75	**MR C2I 250 - N280TC** 284 TC 6	89.0
	13.5	65 600	0.95	**MR C2I 160 - N250TC** 254 TC 4	129
	13.5	65 900	1.25	**MR C2I 180 - N250TC** 254 TC 4	130
	13.8	64 600	1.9	**MR C2I 200 - N250TC** 254 TC 4	127
	14.0	63 600	2.36	**MR C2I 225 - N250TC** 254 TC 4	125
	14.3	61 950	2.8	**MR C2I 225 - N280TC** 284 TC 6	80.2
	14.2	62 500	4	**MR C2I 250 - N250TC** 254 TC 4	123
	15.9	55 900	1.25	**MR C2I 160 - N280TC** 284 TC 6	72.3
	16.0	55 650	1.32	**MR C2I 180 - N280TC** 284 TC 6	72.0
	16.4	54 350	2.5	**MR C2I 200 - N280TC** 284 TC 6	70.3
	16.9	52 450	1.18	**MR C2I 160 - N250TC** 254 TC 4	103
	16.9	52 750	1.6	**MR C2I 180 - N250TC** 254 TC 4	104
	17.2	51 650	2.36	**MR C2I 200 - N250TC** 254 TC 4	102
	17.5	50 900	3.35	**MR C2I 225 - N250TC** 254 TC 4	100
	19.4	45 900	1.5	**MR C2I 160 - N250TC** 254 TC 4	90.4
	19.4	45 700	1.6	**MR C2I 180 - N250TC** 254 TC 4	90.0
	19.9	44 650	2.8	**MR C2I 200 - N250TC** 254 TC 4	87.9
	19.4	45 850	3.55	**MR C2I 225 - N250TC** 254 TC 4	90.3
	21.2	42 000	1.5	**MR C2I 160 - N250TC** 254 TC 4	82.7
	21.1	42 200	2	**MR C2I 180 - N250TC** 254 TC 4	83.1
	21.5	41 350	3	**MR C2I 200 - N250TC** 254 TC 4	81.4
	21.8	40 700	4	**MR C2I 225 - N250TC** 254 TC 4	80.2
	24.2	36 700	1.8	**MR C2I 160 - N250TC** 254 TC 4	72.3
	24.3	36 550	2	**MR C2I 180 - N250TC** 254 TC 4	72.0
	24.9	35 700	3.55	**MR C2I 200 - N250TC** 254 TC 4	70.3
	26.8	33 100	1.8	**MR C2I 160 - N250TC** 254 TC 4	65.2
	29.1	30 550	2.24	**MR C2I 160 - N280TC** 284 TC 6	39.5
	26.7	33 250	2.5	**MR C2I 180 - N250TC** 254 TC 4	65.5
	27.3	32 600	3.75	**MR C2I 200 - N250TC** 254 TC 4	64.2
	30.7	28 950	2.24	**MR C2I 160 - N250TC** 254 TC 4	57.0
	30.8	28 850	2.5	**MR C2I 180 - N250TC** 254 TC 4	56.8
	31.6	28 150	4.5	**MR C2I 200 - N250TC** 254 TC 4	55.5
	37.4	24 300	1.4	**MR CI 160 - N280TC** 284 TC 6	30.8
	33.6	26 500	2.24	**MR C2I 160 - N250TC** 254 TC 4	52.1
	33.4	26 600	3	**MR C2I 180 - N250TC** 254 TC 4	52.4
	32.5	27 350	4.5	**MR C2I 200 - N250TC** 254 TC 4	53.9
	38.4	23 150	2.8	**MR C2I 160 - N250TC** 254 TC 4	45.6
	38.5	23 050	3.35	**MR C2I 180 - N250TC** 254 TC 4	45.4
	46.0	19 750	1.12	**MR CI 125 - N280TC** 284 TC 6	25.0
	46.7	19 450	2.24	**MR CI 160 - N280TC** 284 TC 6	24.6
	44.3	20 050	3	**MR C2I 160 - N250TC** 254 TC 4	39.5
	42.7	20 800	3.55	**MR C2I 180 - N250TC** 254 TC 4	41.0

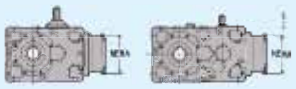
Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)	Gear ratio i
15	**46.7**	19 000	3	**MR C2I 160 - N250TC** 254 TC 4	37.5
	46.9	18 950	4.25	**MR C2I 180 - N250TC** 254 TC 4	37.3
	56.0	16 200	1.12	**MR CI 125 - N250TC** 254 TC 4	31.3
	57.5	15 800	1.4	**MR CI 125 - N280TC** 284 TC 6	20.0
	57.5	15 800	1.9	**MR CI 140 - N280TC** 284 TC 6	20.0
	56.9	15 950	2.12	**MR CI 160 - N250TC** 254 TC 4	30.8
	53.9	16 500	3.35	**MR C2I 160 - N250TC** 254 TC 4	32.5
	63.9	14 200	2.12	**MR CI 140 - N280TC** 284 TC 6	18.0
	63.9	14 200	3.35	**MR CI 160 - N280TC** 284 TC 6	18.0
	58.9	15 100	3.75	**MR C2I 160 - N250TC** 254 TC 4	29.7
	70.0	12 950	1.7	**MR CI 125 - N250TC** 254 TC 4	25.0
	72.9	12 450	2.5	**MR CI 140 - N280TC** 284 TC 6	15.8
	71.1	12 750	3.35	**MR CI 160 - N250TC** 254 TC 4	24.6
	81.0	11 200	2.8	**MR CI 140 - N280TC** 284 TC 6	14.2
	81.0	11 200	4.5	**MR CI 160 - N280TC** 284 TC 6	14.2
	87.5	10 350	2.12	**MR CI 125 - N250TC** 254 TC 4	20.0
	87.5	10 350	2.8	**MR CI 140 - N250TC** 254 TC 4	20.0
	88.9	10 200	4.5	**MR CI 160 - N250TC** 254 TC 4	19.7
	97.2	9 330	3.15	**MR CI 140 - N250TC** 254 TC 4	18.0
	109	8 300	2.5	**MR CI 125 - N250TC** 254 TC 4	16.0
	111	8 180	3.55	**MR CI 140 - N250TC** 254 TC 4	15.8
	123	7 360	4.25	**MR CI 140 - N250TC** 254 TC 4	14.2
	139	6 540	3.55	**MR CI 125 - N250TC** 254 TC 4	12.6
	152	5 960	4.25	**MR CI 140 - N250TC** 254 TC 4	11.5
	169	5 370	3.75	**MR CI 125 - N250TC** 254 TC 4	10.4
	219	4 140	3.75	**MR CI 125 - N250TC** 254 TC 4	7.98
	277	3 270	3.75	**MR CI 125 - N250TC** 254 TC 4	6.31
20	**7.37**	160 800	1.06	**MR C2I 225 - N280TC** 286 TC 6	156
	7.36	161 000	1.5	**MR C2I 250 - N280TC** 286 TC 6	156
	7.48	158 500	2	**MR C2I 280 - N280TC** 286 TC 6	154
	9.04	131 000	1	**MR C2I 200 - N280TC** 286 TC 6	127
	9.18	129 100	1.18	**MR C2I 225 - N280TC** 286 TC 6	125
	9.34	126 800	2.12	**MR C2I 250 - N280TC** 286 TC 6	123
	9.17	129 200	2.5	**MR C2I 280 - N280TC** 286 TC 6	125
	11.1	107 000	0.8	**MR C2I 180 - N280TC** 286 TC 6	104
	11.6	102 600	1.06	**MR C2I 200 - N250TC** 256 TC 4	151
	11.3	104 800	1.25	**MR C2I 200 - N280TC** 286 TC 6	102
	11.2	105 700	1.5	**MR C2I 225 - N250TC** 256 TC 4	156
	11.2	105 800	2.12	**MR C2I 250 - N250TC** 256 TC 4	156
	11.7	101 400	2.5	**MR C2I 250 - N280TC** 286 TC 6	98.5
	11.4	104 200	2.8	**MR C2I 280 - N250TC** 256 TC 4	154
	11.5	103 400	3.35	**MR C2I 280 - N280TC** 286 TC 6	100
	12.8	92 750	0.8	**MR C2I 180 - N280TC** 286 TC 6	90.0
	13.1	90 600	1.5	**MR C2I 200 - N280TC** 286 TC 6	87.9
	12.7	93 000	1.8	**MR C2I 225 - N280TC** 286 TC 6	90.3
	12.9	91 700	2.8	**MR C2I 250 - N280TC** 286 TC 6	89.0
	12.8	92 400	3.75	**MR C2I 280 - N280TC** 286 TC 6	89.7
	13.5	87 900	0.95	**MR C2I 180 - N250TC** 256 TC 4	130
	13.8	86 100	1.5	**MR C2I 200 - N250TC** 256 TC 4	127
	14.0	84 800	1.8	**MR C2I 225 - N250TC** 256 TC 4	125
	14.2	83 350	3	**MR C2I 250 - N250TC** 256 TC 4	123
	14.0	84 950	3.75	**MR C2I 280 - N250TC** 256 TC 4	125
	15.9	74 500	0.9	**MR C2I 160 - N280TC** 286 TC 6	72.3
	16.0	74 200	1	**MR C2I 180 - N280TC** 286 TC 6	72.0
	16.4	72 450	1.8	**MR C2I 200 - N280TC** 286 TC 6	70.3
	15.9	74 400	2.36	**MR C2I 225 - N280TC** 286 TC 6	72.2
	16.2	73 350	3.55	**MR C2I 250 - N280TC** 286 TC 6	71.2
	16.9	69 950	0.9	**MR C2I 160 - N250TC** 256 TC 4	103
	16.9	70 300	1.18	**MR C2I 180 - N250TC** 256 TC 4	104
	17.2	68 900	1.8	**MR C2I 200 - N250TC** 256 TC 4	102
	17.5	67 850	2.5	**MR C2I 225 - N250TC** 256 TC 4	100
	17.8	66 650	3.75	**MR C2I 250 - N250TC** 256 TC 4	98.5

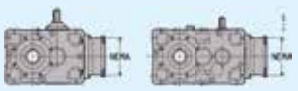
1) Powers valid for continuous duty S1; **increase possible** for duty cycles S2 ... S10: in which case T_2 increases and fs decreases.
2) For complete designation when ordering see ch. 3.1.

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)				Gear ratio i
20	**19.4**	61 200	1.12	**MR C2I 160 - N250TC**	256 TC	4		90.4
	19.4	60 950	1.18	**MR C2I 180 - N250TC**	256 TC	4		90.0
	19.9	59 500	2.12	**MR C2I 200 - N250TC**	256 TC	4		87.9
	19.4	61 100	2.65	**MR C2I 225 - N250TC**	256 TC	4		90.3
	19.7	60 250	4.25	**MR C2I 250 - N250TC**	256 TC	4		89.0
	21.2	55 950	1.12	**MR C2I 160 - N250TC**	256 TC	4		82.7
	21.1	56 250	1.5	**MR C2I 180 - N250TC**	256 TC	4		83.1
	21.5	55 100	2.24	**MR C2I 200 - N250TC**	256 TC	4		81.4
	21.8	54 300	3	**MR C2I 225 - N250TC**	256 TC	4		80.2
	22.2	53 350	4.5	**MR C2I 250 - N250TC**	256 TC	4		78.8
	24.2	48 950	1.32	**MR C2I 160 - N250TC**	256 TC	4		72.3
	24.3	48 750	1.5	**MR C2I 180 - N250TC**	256 TC	4		72.0
	24.9	47 600	2.65	**MR C2I 200 - N250TC**	256 TC	4		70.3
	24.2	48 900	3.15	**MR C2I 225 - N250TC**	256 TC	4		72.2
	26.8	44 150	1.4	**MR C2I 160 - N250TC**	256 TC	4		65.2
	29.1	40 750	1.7	**MR C2I 160 - N280TC**	286 TC	6		39.5
	26.7	44 350	1.8	**MR C2I 180 - N250TC**	256 TC	4		65.5
	27.3	43 450	2.8	**MR C2I 200 - N250TC**	256 TC	4		64.2
	27.7	42 800	3.75	**MR C2I 225 - N250TC**	256 TC	4		63.2
	30.7	38 600	1.7	**MR C2I 160 - N250TC**	256 TC	4		57.0
	30.8	38 450	1.9	**MR C2I 180 - N250TC**	256 TC	4		56.8
	31.6	37 550	3.35	**MR C2I 200 - N250TC**	256 TC	4		55.5
	37.4	32 400	1.06	**MR CI 160 - N280TC**	286 TC	6		30.8
	33.6	35 300	1.7	**MR C2I 160 - N250TC**	256 TC	4		52.1
	33.4	35 500	2.24	**MR C2I 180 - N250TC**	256 TC	4		52.4
	32.5	36 500	3.35	**MR C2I 200 - N250TC**	256 TC	4		53.9
	38.4	30 900	2.12	**MR C2I 160 - N250TC**	256 TC	4		45.6
	38.5	30 750	2.65	**MR C2I 180 - N250TC**	256 TC	4		45.4
	37.6	31 500	3.75	**MR C2I 200 - N250TC**	256 TC	4		46.6
	46.0	26 300	0.85	**MR CI 125 - N280TC**	286 TC	6		25.0
	46.7	25 900	1.6	**MR CI 160 - N280TC**	286 TC	6		24.6
	44.3	26 750	2.24	**MR C2I 160 - N250TC**	256 TC	4		39.5
	42.7	27 750	2.65	**MR C2I 180 - N250TC**	256 TC	4		41.0
	41.1	28 850	4	**MR C2I 200 - N250TC**	256 TC	4		42.6
	46.7	25 350	2.24	**MR C2I 160 - N250TC**	256 TC	4		37.5
	46.9	25 250	3.15	**MR C2I 180 - N250TC**	256 TC	4		37.3
	56.0	21 600	0.85	**MR CI 125 - N250TC**	256 TC	4		31.3
	57.5	21 050	1.06	**MR CI 125 - N280TC**	286 TC	6		20.0
	57.5	21 050	1.5	**MR CI 140 - N280TC**	286 TC	6		20.0
	56.9	21 300	1.6	**MR CI 160 - N250TC**	256 TC	4		30.8
	58.4	20 700	2.36	**MR CI 160 - N280TC**	286 TC	6		19.7
	53.9	22 000	2.5	**MR C2I 160 - N250TC**	256 TC	4		32.5
	56.7	21 350	2.8	**MR CI 180 - N280TC**	286 TC	6		20.3
	52.0	22 800	3.15	**MR C2I 180 - N250TC**	256 TC	4		33.7
	63.9	18 950	1.6	**MR CI 140 - N280TC**	286 TC	6		18.0
	63.9	18 950	2.5	**MR CI 160 - N280TC**	286 TC	6		18.0
	58.9	20 100	2.8	**MR C2I 160 - N250TC**	256 TC	4		29.7
	59.2	20 000	4	**MR C2I 180 - N250TC**	256 TC	4		29.6
	70.0	17 300	1.25	**MR CI 125 - N250TC**	256 TC	4		25.0
	72.9	16 600	1.8	**MR CI 140 - N280TC**	286 TC	6		15.8
	71.1	17 000	2.5	**MR CI 160 - N250TC**	256 TC	4		24.6
	68.0	17 450	3.15	**MR C2I 160 - N250TC**	256 TC	4		25.7
	81.0	14 950	2.12	**MR CI 140 - N280TC**	286 TC	6		14.2
	81.0	14 950	3.35	**MR CI 160 - N280TC**	286 TC	6		14.2
	87.5	13 850	1.6	**MR CI 125 - N250TC**	256 TC	4		20.0
	91.2	13 250	1.8	**MR CI 125 - N280TC**	286 TC	6		12.6
	87.5	13 850	2.12	**MR CI 140 - N250TC**	256 TC	4		20.0
	88.9	13 600	3.35	**MR CI 160 - N250TC**	256 TC	4		19.7
	97.2	12 450	2.5	**MR CI 140 - N250TC**	256 TC	4		18.0
	97.2	12 450	3.75	**MR CI 160 - N250TC**	256 TC	4		18.0
	109	11 050	1.9	**MR CI 125 - N250TC**	256 TC	4		16.0
	111	10 900	2.65	**MR CI 140 - N250TC**	256 TC	4		15.8
	106	11 450	3.75	**MR CI 160 - N250TC**	256 TC	4		16.5
	123	9 810	3.15	**MR CI 140 - N250TC**	256 TC	4		14.2

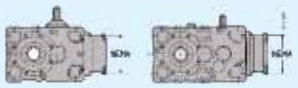
Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)				Gear ratio i
20	**139**	8 720	2.65	**MR CI 125 - N250TC**	256 TC	4		12.6
	136	8 890	3.15	**MR CI 140 - N250TC**	256 TC	4		12.9
	152	7 940	3.15	**MR CI 140 - N250TC**	256 TC	4		11.5
	169	7 170	2.8	**MR CI 125 - N250TC**	256 TC	4		10.4
	178	6 820	3.15	**MR CI 140 - N250TC**	256 TC	4		9.86
	219	5 520	2.8	**MR CI 125 - N250TC**	256 TC	4		7.98
	227	5 330	5.3	**MR CI 160 - N250TC**	256 TC	4		7.71
	277	4 360	2.8	**MR CI 125 - N250TC**	256 TC	4		6.31
	284	4 260	5.3	**MR CI 160 - N250TC**	256 TC	4		6.16
25	**7.37**	201 000	0.85	**MR C2I 225 - N320TC**	324 TC	6		156
	7.36	201 200	1.18	**MR C2I 250 - N320TC**	324 TC	6		156
	7.48	198 100	1.6	**MR C2I 280 - N320TC**	324 TC	6		154
	7.36	201 200	2	**MR C2I 320 - N320TC**	324 TC	6		156
	7.36	201 200	2.5	**MR C2I 321 - N320TC**	324 TC	6		156
	7.15	207 300	3.15	**MR C2I 360 - N320TC**	324 TC	6		161
	9.04	163 800	0.8	**MR C2I 200 - N320TC**	324 TC	6		127
	9.18	161 300	0.95	**MR C2I 225 - N320TC**	324 TC	6		125
	9.34	158 500	1.7	**MR C2I 250 - N320TC**	324 TC	6		123
	9.17	161 600	2	**MR C2I 280 - N320TC**	324 TC	6		125
	8.91	166 200	2.8	**MR C2I 320 - N320TC**	324 TC	6		129
	8.91	166 200	3.55	**MR C2I 321 - N320TC**	324 TC	6		129
	11.6	128 200	0.85	**MR C2I 200 - N280TC**	284 TC	4		151
	11.3	131 000	1	**MR C2I 200 - N320TC**	324 TC	6		102
	11.2	132 100	1.18	**MR C2I 225 - N280TC**	284 TC	4		156
	11.5	129 100	1.32	**MR C2I 225 - N320TC**	324 TC	6		100
	11.2	132 200	1.7	**MR C2I 250 - N280TC**	284 TC	4		156
	11.7	126 800	2	**MR C2I 250 - N320TC**	324 TC	6		98.5
	11.4	130 200	2.24	**MR C2I 280 - N280TC**	284 TC	4		154
	11.5	129 200	2.65	**MR C2I 280 - N320TC**	324 TC	6		100
	11.1	133 000	3.35	**MR C2I 320 - N320TC**	324 TC	6		103
	13.1	113 200	1.18	**MR C2I 200 - N320TC**	324 TC	6		87.9
	12.7	116 200	1.5	**MR C2I 225 - N320TC**	324 TC	6		90.3
	12.9	114 600	2.36	**MR C2I 250 - N320TC**	324 TC	6		89.0
	12.8	115 500	3	**MR C2I 280 - N320TC**	324 TC	6		89.7
	13.8	107 600	1.18	**MR C2I 200 - N280TC**	284 TC	4		127
	14.0	106 000	1.5	**MR C2I 225 - N280TC**	284 TC	4		125
	14.3	103 300	1.7	**MR C2I 225 - N320TC**	324 TC	6		80.2
	14.2	104 200	2.36	**MR C2I 250 - N280TC**	284 TC	4		123
	14.0	106 200	3	**MR C2I 280 - N280TC**	284 TC	4		125
	16.4	90 600	1.5	**MR C2I 200 - N320TC**	324 TC	6		70.3
	15.9	93 000	1.9	**MR C2I 225 - N320TC**	324 TC	6		72.2
	16.2	91 700	2.8	**MR C2I 250 - N320TC**	324 TC	6		71.2
	16.0	92 400	4	**MR C2I 280 - N320TC**	324 TC	6		71.7
	16.9	87 900	0.95	**MR C2I 180 - N280TC**	284 TC	4		104
	17.2	86 100	1.4	**MR C2I 200 - N280TC**	284 TC	4		102
	17.5	84 800	2	**MR C2I 225 - N280TC**	284 TC	4		100
	17.8	83 350	3	**MR C2I 250 - N280TC**	284 TC	4		98.5
	17.4	84 950	3.75	**MR C2I 280 - N280TC**	284 TC	4		100
	19.4	76 500	0.85	**MR C2I 160 - N280TC**	284 TC	4		90.4
	19.4	76 150	0.95	**MR C2I 180 - N280TC**	284 TC	4		90.0
	19.9	74 400	1.7	**MR C2I 200 - N280TC**	284 TC	4		87.9
	19.4	76 400	2.12	**MR C2I 225 - N280TC**	284 TC	4		90.3
	19.7	75 300	3.35	**MR C2I 250 - N280TC**	284 TC	4		89.0
	21.2	69 950	0.85	**MR C2I 160 - N280TC**	284 TC	4		82.7
	21.1	70 300	1.18	**MR C2I 180 - N280TC**	284 TC	4		83.1
	21.5	68 900	1.8	**MR C2I 200 - N280TC**	284 TC	4		81.4
	21.8	67 850	2.5	**MR C2I 225 - N280TC**	284 TC	4		80.2
	22.2	66 650	3.55	**MR C2I 250 - N280TC**	284 TC	4		78.8
	24.2	61 200	1.06	**MR C2I 160 - N280TC**	284 TC	4		72.3
	24.3	60 950	1.18	**MR C2I 180 - N280TC**	284 TC	4		72.0
	24.9	59 500	2.12	**MR C2I 200 - N280TC**	284 TC	4		70.3
	24.2	61 100	2.65	**MR C2I 225 - N280TC**	284 TC	4		72.2
	24.6	60 250	4	**MR C2I 250 - N280TC**	284 TC	4		71.2

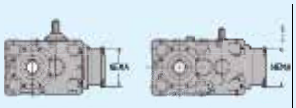
1) Powers valid for continuous duty S1; **increase possible** for duty cycles S2 ... S10: in which case T_2 increases and fs decreases.
2) For complete designation when ordering see ch. 3.1.

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)	Gear ratio i
25	**26.8**	55 150	1.12	**MR C2I 160 - N280TC** 284 TC 4	65.2
	26.7	55 450	1.5	**MR C2I 180 - N280TC** 284 TC 4	65.5
	27.3	54 300	2.24	**MR C2I 200 - N280TC** 284 TC 4	64.2
	27.7	53 500	3	**MR C2I 225 - N280TC** 284 TC 4	63.2
	30.7	48 250	1.4	**MR C2I 160 - N280TC** 284 TC 4	57.0
	30.8	48 050	1.5	**MR C2I 180 - N280TC** 284 TC 4	56.8
	31.6	46 950	2.65	**MR C2I 200 - N280TC** 284 TC 4	55.5
	30.7	48 200	3.35	**MR C2I 225 - N280TC** 284 TC 4	56.9
	37.4	40 450	0.85	**MR CI 160 - N320TC** 324 TC 6	30.8
	33.6	44 150	1.4	**MR C2I 160 - N280TC** 284 TC 4	52.1
	33.4	44 350	1.8	**MR C2I 180 - N280TC** 284 TC 4	52.4
	32.5	45 600	2.65	**MR C2I 200 - N280TC** 284 TC 4	53.9
	33.0	44 900	3.35	**MR C2I 225 - N280TC** 284 TC 4	53.1
	38.4	38 600	1.7	**MR C2I 160 - N280TC** 284 TC 4	45.6
	38.5	38 450	2.12	**MR C2I 180 - N280TC** 284 TC 4	45.4
	37.6	39 400	3	**MR C2I 200 - N280TC** 284 TC 4	46.6
	36.6	40 450	4	**MR C2I 225 - N280TC** 284 TC 4	47.8
	46.7	32 400	1.32	**MR CI 160 - N320TC** 324 TC 6	24.6
	44.3	33 450	1.8	**MR C2I 160 - N280TC** 284 TC 4	39.5
	42.7	34 700	2.12	**MR C2I 180 - N280TC** 284 TC 4	41.0
	46.7	32 400	2.65	**MR CI 200 - N320TC** 324 TC 6	24.6
	41.1	36 050	3.15	**MR C2I 200 - N280TC** 284 TC 4	42.6
	46.7	31 700	1.8	**MR C2I 160 - N280TC** 284 TC 4	37.5
	46.9	31 550	2.5	**MR C2I 180 - N280TC** 284 TC 4	37.3
	49.6	29 850	3.75	**MR C2I 200 - N280TC** 284 TC 4	35.3
	56.9	26 600	1.32	**MR CI 160 - N280TC** 284 TC 4	30.8
	58.4	25 900	1.9	**MR CI 160 - N320TC** 324 TC 6	19.7
	53.9	27 500	2	**MR C2I 160 - N280TC** 284 TC 4	32.5
	56.7	26 700	2.24	**MR CI 180 - N320TC** 324 TC 6	20.3
	52.0	28 500	2.5	**MR C2I 180 - N280TC** 284 TC 4	33.7
	56.9	26 600	2.65	**MR CI 200 - N280TC** 284 TC 4	30.8
	58.4	25 900	4	**MR CI 200 - N320TC** 324 TC 6	19.7
	54.2	27 300	4	**MR C2I 200 - N280TC** 284 TC 4	32.3
	63.9	23 700	2	**MR CI 160 - N320TC** 324 TC 6	18.0
	58.9	25 150	2.36	**MR C2I 160 - N280TC** 284 TC 4	29.7
	61.6	24 550	2.5	**MR CI 180 - N320TC** 324 TC 6	18.7
	59.2	25 050	3.15	**MR C2I 180 - N280TC** 284 TC 4	29.6
	70.0	21 600	1	**MR CI 125 - N280TC** 284 TC 4	25.0
	71.1	21 300	2	**MR CI 160 - N280TC** 284 TC 4	24.6
	68.0	21 800	2.5	**MR C2I 160 - N280TC** 284 TC 4	25.7
	71.9	21 050	3	**MR CI 180 - N320TC** 324 TC 6	16.0
	65.6	22 600	3.15	**MR C2I 180 - N280TC** 284 TC 4	26.7
	71.1	21 300	4	**MR CI 200 - N280TC** 284 TC 4	24.6
	81.0	18 650	2.65	**MR CI 160 - N320TC** 324 TC 6	14.2
	78.1	19 350	3.35	**MR CI 180 - N320TC** 324 TC 6	14.7
	87.5	17 300	1.32	**MR CI 125 - N280TC** 284 TC 4	20.0
	87.5	17 300	1.7	**MR CI 140 - N280TC** 284 TC 4	20.0
	88.9	17 000	2.65	**MR CI 160 - N280TC** 284 TC 4	19.7
	88.2	17 150	3	**MR CI 160 - N320TC** 324 TC 6	13.0
	86.3	17 550	3.35	**MR CI 180 - N280TC** 284 TC 4	20.3
	97.2	15 550	1.9	**MR CI 140 - N280TC** 284 TC 4	18.0
	97.2	15 550	3	**MR CI 160 - N280TC** 284 TC 4	18.0
	93.8	16 150	4	**MR CI 180 - N280TC** 284 TC 4	18.7
	109	13 850	1.5	**MR CI 125 - N280TC** 284 TC 4	16.0
	111	13 650	2.12	**MR CI 140 - N280TC** 284 TC 4	15.8
	106	14 300	3	**MR CI 160 - N280TC** 284 TC 4	16.5
	109	13 800	4.5	**MR CI 180 - N280TC** 284 TC 4	16.0
	123	12 250	2.5	**MR CI 140 - N280TC** 284 TC 4	14.2
	123	12 250	4	**MR CI 160 - N280TC** 284 TC 4	14.2
	139	10 900	2.12	**MR CI 125 - N280TC** 284 TC 4	12.6
	136	11 100	2.5	**MR CI 140 - N280TC** 284 TC 4	12.9
	134	11 250	4.25	**MR CI 160 - N280TC** 284 TC 4	13.0
	152	9 930	2.5	**MR CI 140 - N280TC** 284 TC 4	11.5
	153	9 860	4.25	**MR CI 160 - N280TC** 284 TC 4	11.4

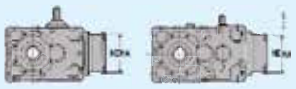
Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)	Gear ratio i
25	**169**	8 960	2.24	**MR CI 125 - N280TC** 284 TC 4	10.4
	178	8 520	2.5	**MR CI 140 - N280TC** 284 TC 4	9.86
	177	8 540	4.25	**MR CI 160 - N280TC** 284 TC 4	9.88
	219	6 900	2.24	**MR CI 125 - N280TC** 284 TC 4	7.98
	227	6 660	4.25	**MR CI 160 - N280TC** 284 TC 4	7.71
	277	5 450	2.24	**MR CI 125 - N280TC** 284 TC 4	6.31
	284	5 320	4.25	**MR CI 160 - N280TC** 284 TC 4	6.16
30	**7.36**	241 400	1	**MR C2I 250 - N320TC** 326 TC 6	156
	7.48	237 800	1.32	**MR C2I 280 - N320TC** 326 TC 6	154
	7.36	241 400	1.6	**MR C2I 320 - N320TC** 326 TC 6	156
	7.36	241 400	2	**MR C2I 321 - N320TC** 326 TC 6	156
	7.15	248 700	2.65	**MR C2I 360 - N320TC** 326 TC 6	161
	9.18	193 600	0.8	**MR C2I 225 - N320TC** 326 TC 6	125
	9.34	190 200	1.4	**MR C2I 250 - N320TC** 326 TC 6	123
	9.17	193 900	1.6	**MR C2I 280 - N320TC** 326 TC 6	125
	8.91	199 400	2.36	**MR C2I 320 - N320TC** 326 TC 6	129
	8.91	199 400	3	**MR C2I 321 - N320TC** 326 TC 6	129
	11.3	157 200	0.85	**MR C2I 200 - N320TC** 326 TC 6	102
	11.2	158 500	1	**MR C2I 225 - N280TC** 286 TC 4	156
	11.2	158 700	1.4	**MR C2I 250 - N280TC** 286 TC 4	156
	11.7	152 200	1.7	**MR C2I 250 - N320TC** 326 TC 6	98.5
	11.4	156 200	1.9	**MR C2I 280 - N280TC** 286 TC 4	154
	11.1	159 500	2.8	**MR C2I 320 - N320TC** 326 TC 6	103
	11.1	159 500	3.55	**MR C2I 321 - N320TC** 326 TC 6	103
	13.1	135 900	1	**MR C2I 200 - N320TC** 326 TC 6	87.9
	12.7	139 500	1.18	**MR C2I 225 - N320TC** 326 TC 6	90.3
	12.9	137 500	1.9	**MR C2I 250 - N320TC** 326 TC 6	89.0
	12.8	138 600	2.5	**MR C2I 280 - N320TC** 326 TC 6	89.7
	12.9	137 300	3.15	**MR C2I 320 - N320TC** 326 TC 6	88.8
	13.8	129 200	0.95	**MR C2I 200 - N280TC** 286 TC 4	127
	14.0	127 200	1.18	**MR C2I 225 - N280TC** 286 TC 4	125
	14.3	123 900	1.4	**MR C2I 225 - N320TC** 326 TC 6	80.2
	14.2	125 000	2	**MR C2I 250 - N280TC** 286 TC 4	123
	14.0	127 400	2.5	**MR C2I 280 - N280TC** 286 TC 4	125
	16.4	108 700	1.25	**MR C2I 200 - N320TC** 326 TC 6	70.3
	15.9	111 600	1.5	**MR C2I 225 - N320TC** 326 TC 6	72.2
	16.2	110 000	2.36	**MR C2I 250 - N320TC** 326 TC 6	71.2
	16.0	110 900	3.15	**MR C2I 280 - N320TC** 326 TC 6	71.7
	16.9	105 500	0.8	**MR C2I 180 - N280TC** 286 TC 4	104
	17.2	103 300	1.18	**MR C2I 200 - N280TC** 286 TC 4	102
	17.5	101 800	1.6	**MR C2I 225 - N280TC** 286 TC 4	100
	17.8	100 000	2.5	**MR C2I 250 - N280TC** 286 TC 4	98.5
	17.4	101 900	3.15	**MR C2I 280 - N280TC** 286 TC 4	100
	19.4	91 400	0.8	**MR C2I 180 - N280TC** 286 TC 4	90.0
	19.9	89 300	1.4	**MR C2I 200 - N280TC** 286 TC 4	87.9
	19.4	91 650	1.7	**MR C2I 225 - N280TC** 286 TC 4	90.3
	19.7	90 400	2.8	**MR C2I 250 - N280TC** 286 TC 4	89.0
	19.5	91 050	3.75	**MR C2I 280 - N280TC** 286 TC 4	89.7
	21.1	84 350	1	**MR C2I 180 - N280TC** 286 TC 4	83.1
	21.5	82 650	1.5	**MR C2I 200 - N280TC** 286 TC 4	81.4
	21.8	81 450	2	**MR C2I 225 - N280TC** 286 TC 4	80.2
	22.2	80 000	3	**MR C2I 250 - N280TC** 286 TC 4	78.8
	21.8	81 550	3.75	**MR C2I 280 - N280TC** 286 TC 4	80.3
	24.2	73 450	0.9	**MR C2I 160 - N280TC** 286 TC 4	72.3
	24.3	73 100	1	**MR C2I 180 - N280TC** 286 TC 4	72.0
	24.9	71 450	1.8	**MR C2I 200 - N280TC** 286 TC 4	70.3
	24.2	73 350	2.12	**MR C2I 225 - N280TC** 286 TC 4	72.2
	24.6	72 300	3.35	**MR C2I 250 - N280TC** 286 TC 4	71.2
	26.8	66 200	0.9	**MR C2I 160 - N280TC** 286 TC 4	65.2
	26.7	66 550	1.25	**MR C2I 180 - N280TC** 286 TC 4	65.5
	27.3	65 200	1.8	**MR C2I 200 - N280TC** 286 TC 4	64.2
	27.7	64 200	2.5	**MR C2I 225 - N280TC** 286 TC 4	63.2
	28.2	63 100	3.75	**MR C2I 250 - N280TC** 286 TC 4	62.1

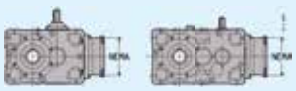
1) Powers valid for continuous duty S1; **increase possible** for duty cycles S2 ... S10: in which case T_2 increases and fs decreases.
2) For complete designation when ordering see ch. 3.1.

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)	Gear ratio i
30	**30.7**	57 900	1.12	**MR C2I 160 - N280TC** 286 TC 4	57.0
	30.8	57 650	1.25	**MR C2I 180 - N280TC** 286 TC 4	56.8
	31.6	56 300	2.24	**MR C2I 200 - N280TC** 286 TC 4	55.5
	30.7	57 800	2.8	**MR C2I 225 - N280TC** 286 TC 4	56.9
	31.2	57 000	4.25	**MR C2I 250 - N280TC** 286 TC 4	56.1
	33.6	52 950	1.12	**MR C2I 160 - N280TC** 286 TC 4	52.1
	33.4	53 200	1.5	**MR C2I 180 - N280TC** 286 TC 4	52.4
	32.5	54 700	2.24	**MR C2I 200 - N280TC** 286 TC 4	53.9
	33.0	53 900	2.8	**MR C2I 225 - N280TC** 286 TC 4	53.1
	33.6	52 950	4.5	**MR C2I 250 - N280TC** 286 TC 4	52.1
	38.4	46 300	1.4	**MR C2I 160 - N280TC** 286 TC 4	45.6
	38.5	46 100	1.7	**MR C2I 180 - N280TC** 286 TC 4	45.4
	37.6	47 300	2.5	**MR C2I 200 - N280TC** 286 TC 4	46.6
	36.6	48 550	3.35	**MR C2I 225 - N280TC** 286 TC 4	47.8
	46.7	38 850	1.12	**MR CI 160 - N320TC** 326 TC 6	24.6
	44.3	40 150	1.5	**MR C2I 160 - N280TC** 286 TC 4	39.5
	42.7	41 650	1.8	**MR C2I 180 - N280TC** 286 TC 4	41.0
	46.7	38 850	2.24	**MR CI 200 - N320TC** 326 TC 6	24.6
	41.1	43 250	2.65	**MR C2I 200 - N280TC** 286 TC 4	42.6
	42.3	42 050	3.75	**MR C2I 225 - N280TC** 286 TC 4	41.4
	46.7	38 050	1.5	**MR C2I 160 - N280TC** 286 TC 4	37.5
	46.9	37 900	2.12	**MR C2I 180 - N280TC** 286 TC 4	37.3
	49.6	35 850	3.15	**MR C2I 200 - N280TC** 286 TC 4	35.3
	48.3	36 800	4.25	**MR C2I 225 - N280TC** 286 TC 4	36.2
	56.9	31 900	1.06	**MR CI 160 - N280TC** 286 TC 4	30.8
	58.4	31 100	1.6	**MR CI 160 - N320TC** 326 TC 6	19.7
	53.9	33 000	1.7	**MR C2I 160 - N280TC** 286 TC 4	32.5
	56.7	32 000	1.9	**MR CI 180 - N320TC** 326 TC 6	20.3
	52.0	34 200	2.12	**MR C2I 180 - N280TC** 286 TC 4	33.7
	56.9	31 900	2.24	**MR CI 200 - N280TC** 286 TC 4	30.8
	54.2	32 800	3.35	**MR C2I 200 - N280TC** 286 TC 4	32.3
	63.9	28 400	1.7	**MR CI 160 - N320TC** 326 TC 6	18.0
	58.9	30 150	1.9	**MR C2I 160 - N280TC** 286 TC 4	29.7
	61.6	29 450	2.12	**MR CI 180 - N320TC** 326 TC 6	18.7
	59.2	30 050	2.65	**MR C2I 180 - N280TC** 286 TC 4	29.6
	62.6	28 400	4	**MR C2I 200 - N280TC** 286 TC 4	28.0
	70.0	25 950	0.85	**MR CI 125 - N280TC** 286 TC 4	25.0
	71.1	25 550	1.6	**MR CI 160 - N280TC** 286 TC 4	24.6
	68.0	26 150	2.12	**MR C2I 160 - N280TC** 286 TC 4	25.7
	71.9	25 250	2.5	**MR CI 180 - N320TC** 326 TC 6	16.0
	65.6	27 100	2.65	**MR C2I 180 - N280TC** 286 TC 4	26.7
	71.1	25 550	3.35	**MR CI 200 - N280TC** 286 TC 4	24.6
	81.0	22 400	2.24	**MR CI 160 - N320TC** 326 TC 6	14.2
	78.1	23 250	2.8	**MR CI 180 - N320TC** 326 TC 6	14.7
	81.0	22 400	4.5	**MR CI 200 - N320TC** 326 TC 6	14.2
	87.5	20 750	1.06	**MR CI 125 - N280TC** 286 TC 4	20.0
	87.5	20 750	1.4	**MR CI 140 - N280TC** 286 TC 4	20.0
	88.9	20 450	2.24	**MR CI 160 - N280TC** 286 TC 4	19.7
	86.3	21 050	2.8	**MR CI 180 - N280TC** 286 TC 4	20.3
	88.9	20 450	4.5	**MR CI 200 - N280TC** 286 TC 4	19.7
	97.2	18 650	1.6	**MR CI 140 - N280TC** 286 TC 4	18.0
	97.2	18 650	2.5	**MR CI 160 - N280TC** 286 TC 4	18.0
	93.8	19 350	3.15	**MR CI 180 - N280TC** 286 TC 4	18.7
	109	16 600	1.25	**MR CI 125 - N280TC** 286 TC 4	16.0
	111	16 350	1.8	**MR CI 140 - N280TC** 286 TC 4	15.8
	106	17 150	2.5	**MR CI 160 - N280TC** 286 TC 4	16.5
	109	16 600	3.75	**MR CI 180 - N280TC** 286 TC 4	16.0
	123	14 700	2.12	**MR CI 140 - N280TC** 286 TC 4	14.2
	123	14 700	3.35	**MR CI 160 - N280TC** 286 TC 4	14.2
	139	13 100	1.8	**MR CI 125 - N280TC** 286 TC 4	12.6
	136	13 350	2.12	**MR CI 140 - N280TC** 286 TC 4	12.9
	134	13 500	3.55	**MR CI 160 - N280TC** 286 TC 4	13.0
	152	11 900	2.12	**MR CI 140 - N280TC** 286 TC 4	11.5
	153	11 850	3.55	**MR CI 160 - N280TC** 286 TC 4	11.4

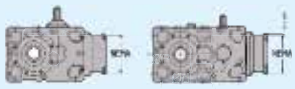
Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)	Gear ratio i
30	**169**	10 750	1.8	**MR CI 125 - N280TC** 286 TC 4	10.4
	178	10 200	2.12	**MR CI 140 - N280TC** 286 TC 4	9.86
	177	10 250	3.55	**MR CI 160 - N280TC** 286 TC 4	9.88
	219	8 270	1.8	**MR CI 125 - N280TC** 286 TC 4	7.98
	227	8 000	3.55	**MR CI 160 - N280TC** 286 TC 4	7.71
	277	6 540	1.8	**MR CI 125 - N280TC** 286 TC 4	6.31
	284	6 390	3.55	**MR CI 160 - N280TC** 286 TC 4	6.16
40	**7.48**	317 000	1	**MR C2I 280 - N360TC** 364 TC 6	154
	7.36	321 900	1.18	**MR C2I 320 - N360TC** 364 TC 6	156
	7.36	321 900	1.5	**MR C2I 321 - N360TC** 364 TC 6	156
	7.15	331 600	2	**MR C2I 360 - N360TC** 364 TC 6	161
	9.34	253 600	1.06	**MR C2I 250 - N360TC** 364 TC 6	123
	9.17	258 500	1.25	**MR C2I 280 - N360TC** 364 TC 6	125
	8.91	265 900	1.8	**MR C2I 320 - N360TC** 364 TC 6	129
	8.91	265 900	2.24	**MR C2I 321 - N360TC** 364 TC 6	129
	9.06	261 500	2.5	**MR C2I 360 - N360TC** 364 TC 6	127
	11.2	211 500	1.06	**MR C2I 250 - N320TC** 324 TC 4	156
	11.7	202 900	1.32	**MR C2I 250 - N360TC** 364 TC 6	98.5
	11.4	208 300	1.4	**MR C2I 280 - N320TC** 324 TC 4	154
	11.2	211 500	1.7	**MR C2I 320 - N320TC** 324 TC 4	156
	11.1	212 700	2.12	**MR C2I 320 - N360TC** 364 TC 6	103
	11.2	211 500	2.12	**MR C2I 321 - N320TC** 324 TC 4	156
	11.1	212 700	2.65	**MR C2I 321 - N360TC** 364 TC 6	103
	10.9	217 900	3	**MR C2I 360 - N320TC** 324 TC 4	161
	12.9	183 400	1.4	**MR C2I 250 - N360TC** 364 TC 6	89.0
	12.8	184 800	1.9	**MR C2I 280 - N360TC** 364 TC 6	89.7
	12.9	183 100	2.36	**MR C2I 320 - N360TC** 364 TC 6	88.8
	12.9	183 100	2.8	**MR C2I 321 - N360TC** 364 TC 6	88.8
	12.6	188 300	3.55	**MR C2I 360 - N360TC** 364 TC 6	91.4
	14.0	169 600	0.9	**MR C2I 225 - N320TC** 324 TC 4	125
	14.2	166 700	1.5	**MR C2I 250 - N320TC** 324 TC 4	123
	14.0	169 900	1.9	**MR C2I 280 - N320TC** 324 TC 4	125
	13.6	174 700	2.5	**MR C2I 320 - N320TC** 324 TC 4	129
	13.6	174 700	3.15	**MR C2I 321 - N320TC** 324 TC 4	129
	16.2	146 700	1.7	**MR C2I 250 - N360TC** 364 TC 6	71.2
	16.0	147 800	2.36	**MR C2I 280 - N360TC** 364 TC 6	71.7
	16.2	146 500	2.8	**MR C2I 320 - N360TC** 364 TC 6	71.1
	16.2	146 500	3.55	**MR C2I 321 - N360TC** 364 TC 6	71.1
	17.2	137 800	0.9	**MR C2I 200 - N320TC** 324 TC 4	102
	17.5	135 700	1.25	**MR C2I 225 - N320TC** 324 TC 4	100
	17.8	133 300	1.8	**MR C2I 250 - N320TC** 324 TC 4	98.5
	17.4	135 900	2.36	**MR C2I 280 - N320TC** 324 TC 4	100
	17.0	139 800	3	**MR C2I 320 - N320TC** 324 TC 4	103
	17.0	139 800	3.75	**MR C2I 321 - N320TC** 324 TC 4	103
	19.9	119 000	1.06	**MR C2I 200 - N320TC** 324 TC 4	87.9
	19.4	122 200	1.32	**MR C2I 225 - N320TC** 324 TC 4	90.3
	19.7	120 500	2.12	**MR C2I 250 - N320TC** 324 TC 4	89.0
	19.5	121 400	2.8	**MR C2I 280 - N320TC** 324 TC 4	89.7
	19.7	120 300	3.35	**MR C2I 320 - N320TC** 324 TC 4	88.8
	21.5	110 200	1.12	**MR C2I 200 - N320TC** 324 TC 4	81.4
	21.8	108 600	1.5	**MR C2I 225 - N320TC** 324 TC 4	80.2
	22.2	106 700	2.24	**MR C2I 250 - N320TC** 324 TC 4	78.8
	21.8	108 700	3	**MR C2I 280 - N320TC** 324 TC 4	80.3
	21.2	111 800	3.75	**MR C2I 320 - N320TC** 324 TC 4	82.6
	24.9	95 250	1.32	**MR C2I 200 - N320TC** 324 TC 4	70.3
	24.2	97 800	1.6	**MR C2I 225 - N320TC** 324 TC 4	72.2
	24.6	96 400	2.65	**MR C2I 250 - N320TC** 324 TC 4	71.2
	24.4	97 150	3.35	**MR C2I 280 - N320TC** 324 TC 4	71.7
	27.3	86 900	1.4	**MR C2I 200 - N320TC** 324 TC 4	64.2
	27.7	85 600	1.9	**MR C2I 225 - N320TC** 324 TC 4	63.2
	28.2	84 100	2.8	**MR C2I 250 - N320TC** 324 TC 4	62.1
	27.6	85 700	3.75	**MR C2I 280 - N320TC** 324 TC 4	63.3
	31.6	75 100	1.7	**MR C2I 200 - N320TC** 324 TC 4	55.5
	30.7	77 100	2	**MR C2I 225 - N320TC** 324 TC 4	56.9
	31.2	76 000	3.15	**MR C2I 250 - N320TC** 324 TC 4	56.1

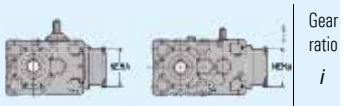
1) Powers valid for continuous duty S1; **increase possible** for duty cycles S2 ... S10: in which case T_2 increases and fs decreases.
2) For complete designation when ordering see ch. 3.1.

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)	Gear ratio i
40	**37.4**	64 750	1.12	**MR CI 200 - N360TC** 364 TC 6	30.8
	32.5	72 950	1.6	**MR C2I 200 - N320TC** 324 TC 4	53.9
	33.0	71 850	2.12	**MR C2I 225 - N320TC** 324 TC 4	53.1
	33.6	70 600	3.35	**MR C2I 250 - N320TC** 324 TC 4	52.1
	37.6	63 050	1.9	**MR C2I 200 - N320TC** 324 TC 4	46.6
	36.6	64 750	2.5	**MR C2I 225 - N320TC** 324 TC 4	47.8
	37.1	63 800	3.75	**MR C2I 250 - N320TC** 324 TC 4	47.1
	46.7	51 800	1.7	**MR CI 200 - N360TC** 364 TC 6	24.6
	41.1	57 650	2	**MR C2I 200 - N320TC** 324 TC 4	42.6
	42.3	56 050	2.8	**MR C2I 225 - N320TC** 324 TC 4	41.4
	40.9	58 000	4.25	**MR C2I 250 - N320TC** 324 TC 4	42.8
	49.6	47 800	2.36	**MR C2I 200 - N320TC** 324 TC 4	35.3
	48.3	49 050	3.15	**MR C2I 225 - N320TC** 324 TC 4	36.2
	56.9	42 550	0.8	**MR CI 160 - N320TC** 324 TC 4	30.8
	56.9	42 550	1.7	**MR CI 200 - N320TC** 324 TC 4	30.8
	58.4	41 450	2.36	**MR CI 200 - N360TC** 364 TC 6	19.7
	54.2	43 700	2.65	**MR C2I 200 - N320TC** 324 TC 4	32.3
	56.7	42 700	2.8	**MR CI 225 - N360TC** 364 TC 6	20.3
	55.8	42 500	3.15	**MR C2I 225 - N320TC** 324 TC 4	31.4
	63.9	37 900	2.5	**MR CI 200 - N360TC** 364 TC 6	18.0
	62.6	37 900	3	**MR C2I 200 - N320TC** 324 TC 4	28.0
	61.6	39 300	2.8	**MR CI 225 - N360TC** 364 TC 6	18.7
	60.9	38 900	4	**MR C2I 225 - N320TC** 324 TC 4	28.7
	71.1	34 050	1.25	**MR CI 160 - N320TC** 324 TC 4	24.6
	71.1	34 050	2.5	**MR CI 200 - N320TC** 324 TC 4	24.6
	68.4	34 650	3.15	**MR C2I 200 - N320TC** 324 TC 4	25.6
	81.0	29 850	3.35	**MR CI 200 - N360TC** 364 TC 6	14.2
	78.1	30 950	4.25	**MR CI 225 - N360TC** 364 TC 6	14.7
	78.4	30 900	4.75	**MR CI 250 - N320TC** 324 TC 4	22.3
	88.9	27 250	1.6	**MR CI 160 - N320TC** 324 TC 4	19.7
	86.3	28 050	2.12	**MR CI 180 - N320TC** 324 TC 4	20.3
	88.9	27 250	3.35	**MR CI 200 - N320TC** 324 TC 4	19.7
	97.2	24 900	1.9	**MR CI 160 - N320TC** 324 TC 4	18.0
	93.8	25 800	2.5	**MR CI 180 - N320TC** 324 TC 4	18.7
	97.2	24 900	3.75	**MR CI 200 - N320TC** 324 TC 4	18.0
	106	22 850	1.9	**MR CI 160 - N320TC** 324 TC 4	16.5
	109	22 100	2.8	**MR CI 180 - N320TC** 324 TC 4	16.0
	106	22 850	3.75	**MR CI 200 - N320TC** 324 TC 4	16.5
	123	19 650	2.5	**MR CI 160 - N320TC** 324 TC 4	14.2
	119	20 350	3.15	**MR CI 180 - N320TC** 324 TC 4	14.7
	134	18 050	2.65	**MR CI 160 - N320TC** 324 TC 4	13.0
	134	18 100	3.15	**MR CI 180 - N320TC** 324 TC 4	13.1
	153	15 750	2.65	**MR CI 160 - N320TC** 324 TC 4	11.4
	154	15 700	3.15	**MR CI 180 - N320TC** 324 TC 4	11.4
	177	13 650	2.65	**MR CI 160 - N320TC** 324 TC 4	9.88
	171	14 200	3.15	**MR CI 180 - N320TC** 324 TC 4	10.3
	227	10 650	2.65	**MR CI 160 - N320TC** 324 TC 4	7.71
	217	11 150	5.3	**MR CI 200 - N320TC** 324 TC 4	8.06
	284	8 520	2.65	**MR CI 160 - N320TC** 324 TC 4	6.16
	271	8 930	5.3	**MR CI 200 - N320TC** 324 TC 4	6.46
50	**7.48**	396 300	0.8	**MR C2I 280 - N360TC** 365 TC 6	154
	7.36	402 400	1	**MR C2I 320 - N360TC** 365 TC 6	156
	7.36	402 400	1.18	**MR C2I 321 - N360TC** 365 TC 6	156
	7.15	414 500	1.6	**MR C2I 360 - N360TC** 365 TC 6	161
	9.34	317 000	0.85	**MR C2I 250 - N360TC** 365 TC 6	123
	9.17	323 100	1	**MR C2I 280 - N360TC** 365 TC 6	125
	8.91	332 400	1.4	**MR C2I 320 - N360TC** 365 TC 6	129
	8.91	332 400	1.8	**MR C2I 321 - N360TC** 365 TC 6	129
	9.06	326 900	2	**MR C2I 360 - N360TC** 365 TC 6	127

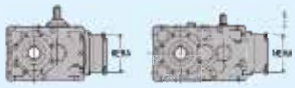
Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)	Gear ratio i
50	**11.2**	264 400	0.85	**MR C2I 250 - N320TC** 326 TC 4	156
	11.7	253 600	1	**MR C2I 250 - N360TC** 365 TC 6	98.5
	11.4	260 400	1.12	**MR C2I 280 - N320TC** 326 TC 4	154
	11.2	264 400	1.4	**MR C2I 320 - N320TC** 326 TC 4	156
	11.1	265 900	1.7	**MR C2I 320 - N360TC** 365 TC 6	103
	11.2	264 400	1.7	**MR C2I 321 - N320TC** 326 TC 4	156
	11.1	265 900	2.12	**MR C2I 321 - N360TC** 365 TC 6	103
	10.9	272 400	2.36	**MR C2I 360 - N320TC** 326 TC 4	161
	12.9	229 200	1.18	**MR C2I 250 - N360TC** 365 TC 6	89.0
	12.8	231 000	1.5	**MR C2I 280 - N360TC** 365 TC 6	89.7
	12.9	228 900	1.9	**MR C2I 320 - N360TC** 365 TC 6	88.8
	12.9	228 900	2.36	**MR C2I 321 - N360TC** 365 TC 6	88.8
	12.6	235 400	2.8	**MR C2I 360 - N360TC** 365 TC 6	91.4
	14.2	208 300	1.18	**MR C2I 250 - N320TC** 326 TC 4	123
	14.0	212 300	1.5	**MR C2I 280 - N320TC** 326 TC 4	125
	13.6	218 400	2	**MR C2I 320 - N320TC** 326 TC 4	129
	13.6	218 400	2.5	**MR C2I 321 - N320TC** 326 TC 4	129
	13.8	214 800	3	**MR C2I 360 - N320TC** 326 TC 4	127
	16.2	183 400	1.4	**MR C2I 250 - N360TC** 365 TC 6	71.2
	16.0	184 800	1.9	**MR C2I 280 - N360TC** 365 TC 6	71.7
	16.2	183 100	2.24	**MR C2I 320 - N360TC** 365 TC 6	71.1
	16.2	183 100	2.8	**MR C2I 321 - N360TC** 365 TC 6	71.1
	15.7	188 300	3.35	**MR C2I 360 - N360TC** 365 TC 6	73.1
	17.5	169 600	1	**MR C2I 225 - N320TC** 326 TC 4	100
	17.8	166 700	1.5	**MR C2I 250 - N320TC** 326 TC 4	98.5
	17.4	169 900	1.9	**MR C2I 280 - N320TC** 326 TC 4	100
	17.0	174 700	2.36	**MR C2I 320 - N320TC** 326 TC 4	103
	17.0	174 700	3	**MR C2I 321 - N320TC** 326 TC 4	103
	17.2	171 900	3.75	**MR C2I 360 - N320TC** 326 TC 4	102
	19.9	148 800	0.85	**MR C2I 200 - N320TC** 326 TC 4	87.9
	19.4	152 800	1.06	**MR C2I 225 - N320TC** 326 TC 4	90.3
	19.7	150 600	1.7	**MR C2I 250 - N320TC** 326 TC 4	89.0
	19.5	151 800	2.24	**MR C2I 280 - N320TC** 326 TC 4	89.7
	19.7	150 400	2.65	**MR C2I 320 - N320TC** 326 TC 4	88.8
	19.7	150 400	3.35	**MR C2I 321 - N320TC** 326 TC 4	88.8
	21.5	137 800	0.9	**MR C2I 200 - N320TC** 326 TC 4	81.4
	21.8	135 700	1.25	**MR C2I 225 - N320TC** 326 TC 4	80.2
	22.2	133 300	1.8	**MR C2I 250 - N320TC** 326 TC 4	78.8
	21.8	135 900	2.36	**MR C2I 280 - N320TC** 326 TC 4	80.3
	21.2	139 800	3	**MR C2I 320 - N320TC** 326 TC 4	82.6
	21.2	139 800	3.75	**MR C2I 321 - N320TC** 326 TC 4	82.6
	24.9	119 000	1.06	**MR C2I 200 - N320TC** 326 TC 4	70.3
	24.2	122 200	1.32	**MR C2I 225 - N320TC** 326 TC 4	72.2
	24.6	120 500	2	**MR C2I 250 - N320TC** 326 TC 4	71.2
	24.4	121 400	2.8	**MR C2I 280 - N320TC** 326 TC 4	71.7
	24.6	120 300	3.35	**MR C2I 320 - N320TC** 326 TC 4	71.1
	27.3	108 600	1.12	**MR C2I 200 - N320TC** 326 TC 4	64.2
	27.7	107 000	1.5	**MR C2I 225 - N320TC** 326 TC 4	63.2
	28.2	105 100	2.24	**MR C2I 250 - N320TC** 326 TC 4	62.1
	27.6	107 100	3	**MR C2I 280 - N320TC** 326 TC 4	63.3
	26.9	110 200	3.75	**MR C2I 320 - N320TC** 326 TC 4	65.1
	31.6	93 850	1.32	**MR C2I 200 - N320TC** 326 TC 4	55.5
	30.7	96 350	1.6	**MR C2I 225 - N320TC** 326 TC 4	56.9
	31.2	95 000	2.65	**MR C2I 250 - N320TC** 326 TC 4	56.1
	30.9	95 750	3.35	**MR C2I 280 - N320TC** 326 TC 4	56.6
	37.4	80 950	0.9	**MR CI 200 - N360TC** 365 TC 6	30.8
	32.5	91 200	1.32	**MR C2I 200 - N320TC** 326 TC 4	53.9
	33.0	89 850	1.7	**MR C2I 225 - N320TC** 326 TC 4	53.1
	33.6	88 250	2.8	**MR C2I 250 - N320TC** 326 TC 4	52.1
	32.9	89 950	3.35	**MR C2I 280 - N320TC** 326 TC 4	53.1
	37.6	78 800	1.5	**MR C2I 200 - N320TC** 326 TC 4	46.6
	36.6	80 900	2	**MR C2I 225 - N320TC** 326 TC 4	47.8
	37.1	79 800	3	**MR C2I 250 - N320TC** 326 TC 4	47.1
	36.9	80 400	4	**MR C2I 280 - N320TC** 326 TC 4	47.5

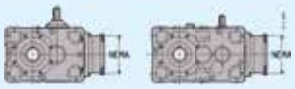
1) Powers valid for continuous duty S1; **increase possible** for duty cycles S2 ... S10: in which case T_2 increases and fs decreases.
2) For complete designation when ordering see ch. 3.1.

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)	Gear ratio i
50	**46.7**	64 750	1.32	**MR CI 200 - N360TC** 365 TC 6	24.6
	41.1	72 100	1.6	**MR C2I 200 - N320TC** 326 TC 4	42.6
	42.3	70 100	2.24	**MR C2I 225 - N320TC** 326 TC 4	41.4
	45.3	66 800	2.65	**MR CI 250 - N360TC** 365 TC 6	25.4
	40.9	72 500	3.35	**MR C2I 250 - N320TC** 326 TC 4	42.8
	49.6	59 750	1.9	**MR C2I 200 - N320TC** 326 TC 4	35.3
	48.3	61 350	2.5	**MR C2I 225 - N320TC** 326 TC 4	36.2
	47.0	63 050	3.55	**MR C2I 250 - N320TC** 326 TC 4	37.2
	56.9	53 200	1.32	**MR CI 200 - N320TC** 326 TC 4	30.8
	58.4	51 800	1.9	**MR CI 200 - N360TC** 365 TC 6	19.7
	54.2	54 650	2	**MR C2I 200 - N320TC** 326 TC 4	32.3
	56.7	53 350	2.24	**MR CI 225 - N360TC** 365 TC 6	20.3
	55.8	53 150	2.5	**MR C2I 225 - N320TC** 326 TC 4	31.4
	55.2	54 850	2.65	**MR CI 250 - N320TC** 326 TC 4	31.7
	51.7	57 300	4	**MR C2I 250 - N320TC** 326 TC 4	33.9
	63.9	47 350	2	**MR CI 200 - N360TC** 365 TC 6	18.0
	62.6	47 350	2.36	**MR C2I 200 - N320TC** 326 TC 4	28.0
	61.6	49 100	2.24	**MR CI 225 - N360TC** 365 TC 6	18.7
	60.9	48 600	3.15	**MR C2I 225 - N320TC** 326 TC 4	28.7
	71.1	42 550	1	**MR CI 160 - N320TC** 326 TC 4	24.6
	71.1	42 550	2	**MR CI 200 - N320TC** 326 TC 4	24.6
	68.4	43 300	2.65	**MR C2I 200 - N320TC** 326 TC 4	25.6
	71.9	42 100	3	**MR CI 225 - N360TC** 365 TC 6	16.0
	70.3	42 100	3.35	**MR C2I 225 - N320TC** 326 TC 4	24.9
	81.0	37 350	2.65	**MR CI 200 - N360TC** 365 TC 6	14.2
	78.1	38 700	3.35	**MR CI 225 - N360TC** 365 TC 6	14.7
	78.4	38 600	3.75	**MR CI 250 - N320TC** 326 TC 4	22.3
	88.9	34 050	1.32	**MR CI 160 - N320TC** 326 TC 4	19.7
	86.3	35 050	1.7	**MR CI 180 - N320TC** 326 TC 4	20.3
	88.9	34 050	2.8	**MR CI 200 - N320TC** 326 TC 4	19.7
	86.3	35 050	3.35	**MR CI 225 - N320TC** 326 TC 4	20.3
	97.2	31 100	1.5	**MR CI 160 - N320TC** 326 TC 4	18.0
	93.8	32 250	1.9	**MR CI 180 - N320TC** 326 TC 4	18.7
	97.2	31 100	3	**MR CI 200 - N320TC** 326 TC 4	18.0
	93.8	32 250	3.35	**MR CI 225 - N320TC** 326 TC 4	18.7
	106	28 600	1.5	**MR CI 160 - N320TC** 326 TC 4	16.5
	109	27 650	2.24	**MR CI 180 - N320TC** 326 TC 4	16.0
	106	28 600	3	**MR CI 200 - N320TC** 326 TC 4	16.5
	109	27 650	4.5	**MR CI 225 - N320TC** 326 TC 4	16.0
	123	24 550	2	**MR CI 160 - N320TC** 326 TC 4	14.2
	119	25 450	2.5	**MR CI 180 - N320TC** 326 TC 4	14.7
	123	24 550	4	**MR CI 200 - N320TC** 326 TC 4	14.2
	119	25 450	5	**MR CI 225 - N320TC** 326 TC 4	14.7
	134	22 550	2.12	**MR CI 160 - N320TC** 326 TC 4	13.0
	134	22 650	2.5	**MR CI 180 - N320TC** 326 TC 4	13.1
	134	22 550	4.25	**MR CI 200 - N320TC** 326 TC 4	13.0
	136	22 200	5	**MR CI 225 - N320TC** 326 TC 4	12.8
	153	19 700	2.12	**MR CI 160 - N320TC** 326 TC 4	11.4
	154	19 650	2.5	**MR CI 180 - N320TC** 326 TC 4	11.4
	155	19 450	4.25	**MR CI 200 - N320TC** 326 TC 4	11.3
	151	20 000	5	**MR CI 225 - N320TC** 326 TC 4	11.6
	177	17 100	2.12	**MR CI 160 - N320TC** 326 TC 4	9.88
	171	17 700	2.5	**MR CI 180 - N320TC** 326 TC 4	10.3
	170	17 800	4.25	**MR CI 200 - N320TC** 326 TC 4	10.3
	175	17 300	5	**MR CI 225 - N320TC** 326 TC 4	10.0
	227	13 350	2.12	**MR CI 160 - N320TC** 326 TC 4	7.71
	217	13 950	4.25	**MR CI 200 - N320TC** 326 TC 4	8.06
	284	10 650	2.12	**MR CI 160 - N320TC** 326 TC 4	6.16
	271	11 150	4.25	**MR CI 200 - N320TC** 326 TC 4	6.46
60	**7.36**	482 900	0.8	**MR C2I 320 - N400TC** 404 TC 6	156
	7.36	482 900	1	**MR C2I 321 - N400TC** 404 TC 6	156
	7.15	497 400	1.32	**MR C2I 360 - N400TC** 404 TC 6	161

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)	Gear ratio i
60	**9.17**	387 700	0.8	**MR C2I 280 - N400TC** 404 TC 6	125
	8.91	398 900	1.18	**MR C2I 320 - N400TC** 404 TC 6	129
	8.91	398 900	1.5	**MR C2I 321 - N400TC** 404 TC 6	129
	9.06	392 300	1.7	**MR C2I 360 - N400TC** 404 TC 6	127
	11.7	304 300	0.85	**MR C2I 250 - N400TC** 404 TC 6	98.5
	11.4	312 500	0.95	**MR C2I 280 - N360TC** 364 TC 4	154
	11.2	317 300	1.18	**MR C2I 320 - N360TC** 364 TC 4	156
	11.1	319 100	1.4	**MR C2I 320 - N400TC** 404 TC 6	103
	11.2	317 300	1.4	**MR C2I 321 - N360TC** 364 TC 4	156
	11.1	319 100	1.8	**MR C2I 321 - N400TC** 404 TC 6	103
	10.9	326 900	2	**MR C2I 360 - N360TC** 364 TC 4	161
	11.3	313 900	2.24	**MR C2I 360 - N400TC** 404 TC 6	102
	12.9	275 100	0.95	**MR C2I 250 - N400TC** 404 TC 6	89.0
	12.8	277 200	1.25	**MR C2I 280 - N400TC** 404 TC 6	89.7
	12.9	274 600	1.5	**MR C2I 320 - N400TC** 404 TC 6	88.8
	12.9	274 600	1.9	**MR C2I 321 - N400TC** 404 TC 6	88.8
	12.6	282 500	2.36	**MR C2I 360 - N400TC** 404 TC 6	91.4
	14.2	250 000	1	**MR C2I 250 - N360TC** 364 TC 4	123
	14.0	254 800	1.25	**MR C2I 280 - N360TC** 364 TC 4	125
	13.6	262 100	1.7	**MR C2I 320 - N360TC** 364 TC 4	129
	13.6	262 100	2.12	**MR C2I 321 - N360TC** 364 TC 4	129
	13.8	257 800	2.5	**MR C2I 360 - N360TC** 364 TC 4	127
	16.2	220 100	1.18	**MR C2I 250 - N400TC** 404 TC 6	71.2
	16.0	221 700	1.6	**MR C2I 280 - N400TC** 404 TC 6	71.7
	16.2	219 700	1.9	**MR C2I 320 - N400TC** 404 TC 6	71.1
	16.2	219 700	2.36	**MR C2I 321 - N400TC** 404 TC 6	71.1
	15.7	226 000	2.8	**MR C2I 360 - N400TC** 404 TC 6	73.1
	17.8	200 000	1.25	**MR C2I 250 - N360TC** 364 TC 4	98.5
	17.4	203 800	1.6	**MR C2I 280 - N360TC** 364 TC 4	100
	17.0	209 700	2	**MR C2I 320 - N360TC** 364 TC 4	103
	17.0	209 700	2.5	**MR C2I 321 - N360TC** 364 TC 4	103
	17.2	206 200	3.15	**MR C2I 360 - N360TC** 364 TC 4	102
	19.7	180 800	1.4	**MR C2I 250 - N360TC** 364 TC 4	89.0
	19.5	182 100	1.9	**MR C2I 280 - N360TC** 364 TC 4	89.7
	19.7	180 500	2.24	**MR C2I 320 - N360TC** 364 TC 4	88.8
	19.7	180 500	2.8	**MR C2I 321 - N360TC** 364 TC 4	88.8
	19.1	185 600	3.35	**MR C2I 360 - N360TC** 364 TC 4	91.4
	22.2	160 000	1.5	**MR C2I 250 - N360TC** 364 TC 4	78.8
	21.8	163 100	1.9	**MR C2I 280 - N360TC** 364 TC 4	80.3
	21.2	167 700	2.5	**MR C2I 320 - N360TC** 364 TC 4	82.6
	21.2	167 700	3.15	**MR C2I 321 - N360TC** 364 TC 4	82.6
	24.6	144 600	1.7	**MR C2I 250 - N360TC** 364 TC 4	71.2
	24.4	145 700	2.24	**MR C2I 280 - N360TC** 364 TC 4	71.7
	24.6	144 400	2.8	**MR C2I 320 - N360TC** 364 TC 4	71.1
	24.6	144 400	3.35	**MR C2I 321 - N360TC** 364 TC 4	71.1
	28.2	126 200	1.9	**MR C2I 250 - N360TC** 364 TC 4	62.1
	27.6	128 600	2.5	**MR C2I 280 - N360TC** 364 TC 4	63.3
	26.9	132 300	3.15	**MR C2I 320 - N360TC** 364 TC 4	65.1
	31.2	114 000	2.12	**MR C2I 250 - N360TC** 364 TC 4	56.1
	30.9	114 900	2.8	**MR C2I 280 - N360TC** 364 TC 4	56.6
	31.2	113 800	3.55	**MR C2I 320 - N360TC** 364 TC 4	56.0
	36.2	100 200	1.5	**MR CI 250 - N400TC** 404 TC 6	31.7
	33.6	105 900	2.24	**MR C2I 250 - N360TC** 364 TC 4	52.1
	32.9	108 000	2.8	**MR C2I 280 - N360TC** 364 TC 4	53.1
	34.1	104 200	4	**MR C2I 320 - N360TC** 364 TC 4	51.3
	41.2	88 150	1.5	**MR CI 250 - N400TC** 404 TC 6	27.9
	37.1	95 750	2.5	**MR C2I 250 - N360TC** 364 TC 4	47.1
	36.9	96 450	3.15	**MR C2I 280 - N360TC** 364 TC 4	47.5
	46.7	77 700	1.12	**MR CI 200 - N400TC** 404 TC 6	24.6
	45.3	80 150	2.24	**MR CI 250 - N400TC** 404 TC 6	25.4
	40.9	87 000	2.8	**MR C2I 250 - N360TC** 364 TC 4	42.8
	42.1	84 400	3.75	**MR C2I 280 - N360TC** 364 TC 4	41.6
	51.5	70 500	2.24	**MR CI 250 - N400TC** 404 TC 6	22.3
	47.0	75 650	3	**MR C2I 250 - N360TC** 364 TC 4	37.2
	46.6	76 250	4	**MR C2I 280 - N360TC** 364 TC 4	37.5

1) Powers valid for continuous duty S1; **increase possible** for duty cycles S2 ... S10: in which case T_2 increases and fs decreases.
2) For complete designation when ordering see ch. 3.1.

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)	Gear ratio i
60	**56.9**	63 850	1.12	**MR CI 200 - N360TC** 364 TC 4	30.8
	58.4	62 150	1.6	**MR CI 200 - N400TC** 404 TC 6	19.7
	56.7	64 050	1.9	**MR CI 225 - N400TC** 404 TC 6	20.3
	55.2	65 800	2.24	**MR CI 250 - N360TC** 364 TC 4	31.7
	51.7	68 750	3.35	**MR C2I 250 - N360TC** 364 TC 4	33.9
	63.9	56 800	1.7	**MR CI 200 - N400TC** 404 TC 6	18.0
	61.6	58 950	1.9	**MR CI 225 - N400TC** 404 TC 6	18.7
	62.7	57 900	2.24	**MR CI 250 - N360TC** 364 TC 4	27.9
	59.3	59 950	3.75	**MR C2I 250 - N360TC** 364 TC 4	29.5
	71.1	51 050	1.7	**MR CI 200 - N360TC** 364 TC 4	24.6
	71.9	50 500	2.5	**MR CI 225 - N400TC** 404 TC 6	16.0
	68.9	52 650	3.15	**MR CI 250 - N360TC** 364 TC 4	25.4
	81.0	44 800	2.24	**MR CI 200 - N400TC** 404 TC 6	14.2
	78.1	46 450	2.8	**MR CI 225 - N400TC** 404 TC 6	14.7
	78.4	46 350	3.15	**MR CI 250 - N360TC** 364 TC 4	22.3
	88.9	40 850	2.24	**MR CI 200 - N360TC** 364 TC 4	19.7
	86.3	42 100	2.8	**MR CI 225 - N360TC** 364 TC 4	20.3
	86.2	42 150	4.25	**MR CI 250 - N360TC** 364 TC 4	20.3
	97.2	37 350	2.5	**MR CI 200 - N360TC** 364 TC 4	18.0
	93.8	38 700	2.8	**MR CI 225 - N360TC** 364 TC 4	18.7
	97.9	37 050	5	**MR CI 250 - N360TC** 364 TC 4	17.9
	106	34 300	2.5	**MR CI 200 - N360TC** 364 TC 4	16.5
	109	33 200	3.75	**MR CI 225 - N360TC** 364 TC 4	16.0
	123	29 450	3.35	**MR CI 200 - N360TC** 364 TC 4	14.2
	134	27 050	3.55	**MR CI 200 - N360TC** 364 TC 4	13.0
	155	23 350	3.55	**MR CI 200 - N360TC** 364 TC 4	11.3
	170	21 350	3.55	**MR CI 200 - N360TC** 364 TC 4	10.3
	217	16 700	3.55	**MR CI 200 - N360TC** 364 TC 4	8.06
	271	13 400	3.55	**MR CI 200 - N360TC** 364 TC 4	6.46
75	**7.36**	603 600	0.8	**MR C2I 321 - N400TC** 405 TC 6	156
	7.15	621 800	1.06	**MR C2I 360 - N400TC** 405 TC 6	161
	8.91	498 600	0.95	**MR C2I 320 - N400TC** 405 TC 6	129
	8.91	498 600	1.18	**MR C2I 321 - N400TC** 405 TC 6	129
	9.06	490 400	1.32	**MR C2I 360 - N400TC** 405 TC 6	127
	11.5	387 700	0.85	**MR C2I 280 - N400TC** 405 TC 6	100
	11.2	396 600	0.9	**MR C2I 320 - N360TC** 365 TC 4	156
	11.1	398 900	1.12	**MR C2I 320 - N400TC** 405 TC 6	103
	11.2	396 600	1.18	**MR C2I 321 - N360TC** 365 TC 4	156
	11.1	398 900	1.4	**MR C2I 321 - N400TC** 405 TC 6	103
	10.9	408 600	1.6	**MR C2I 360 - N360TC** 365 TC 4	161
	12.8	346 500	1	**MR C2I 280 - N400TC** 405 TC 6	89.7
	12.9	343 300	1.25	**MR C2I 320 - N400TC** 405 TC 6	88.8
	12.9	343 300	1.5	**MR C2I 321 - N400TC** 405 TC 6	88.8
	12.6	353 100	1.9	**MR C2I 360 - N400TC** 405 TC 6	91.4
	14.2	312 500	0.8	**MR C2I 250 - N360TC** 365 TC 4	123
	14.0	318 500	1	**MR C2I 280 - N360TC** 365 TC 4	125
	13.6	327 600	1.32	**MR C2I 320 - N360TC** 365 TC 4	129
	13.6	327 600	1.7	**MR C2I 321 - N360TC** 365 TC 4	129
	13.8	322 300	2	**MR C2I 360 - N360TC** 365 TC 4	127
	16.2	275 100	0.95	**MR C2I 250 - N400TC** 405 TC 6	71.2
	16.0	277 200	1.32	**MR C2I 280 - N400TC** 405 TC 6	71.7
	16.2	274 600	1.5	**MR C2I 320 - N400TC** 405 TC 6	71.1
	16.2	274 600	1.9	**MR C2I 321 - N400TC** 405 TC 6	71.1
	15.7	282 500	2.24	**MR C2I 360 - N400TC** 405 TC 6	73.1
	17.8	250 000	1	**MR C2I 250 - N360TC** 365 TC 4	98.5
	17.4	254 800	1.25	**MR C2I 280 - N360TC** 365 TC 4	100
	17.0	262 100	1.6	**MR C2I 320 - N360TC** 365 TC 4	103
	17.0	262 100	2	**MR C2I 321 - N360TC** 365 TC 4	103
	17.2	257 800	2.5	**MR C2I 360 - N360TC** 365 TC 4	102
	19.7	226 000	1.12	**MR C2I 250 - N360TC** 365 TC 4	89.0
	19.5	227 700	1.5	**MR C2I 280 - N360TC** 365 TC 4	89.7
	19.7	225 600	1.8	**MR C2I 320 - N360TC** 365 TC 4	88.8
	19.7	225 600	2.24	**MR C2I 321 - N360TC** 365 TC 4	88.8
	19.1	232 000	2.65	**MR C2I 360 - N360TC** 365 TC 4	91.4

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	 2)	Gear ratio i
75	**22.2**	200 000	1.18	**MR C2I 250 - N360TC** 365 TC 4	78.8
	21.8	203 800	1.5	**MR C2I 280 - N360TC** 365 TC 4	80.3
	21.2	209 700	2	**MR C2I 320 - N360TC** 365 TC 4	82.6
	21.2	209 700	2.5	**MR C2I 321 - N360TC** 365 TC 4	82.6
	21.5	206 200	3	**MR C2I 360 - N360TC** 365 TC 4	81.2
	24.6	180 800	1.4	**MR C2I 250 - N360TC** 365 TC 4	71.2
	24.4	182 100	1.8	**MR C2I 280 - N360TC** 365 TC 4	71.7
	24.6	180 500	2.24	**MR C2I 320 - N360TC** 365 TC 4	71.1
	24.6	180 500	2.8	**MR C2I 321 - N360TC** 365 TC 4	71.1
	23.9	185 600	3.35	**MR C2I 360 - N360TC** 365 TC 4	73.1
	28.2	157 700	1.5	**MR C2I 250 - N360TC** 365 TC 4	62.1
	27.6	160 700	1.9	**MR C2I 280 - N360TC** 365 TC 4	63.3
	26.9	165 300	2.5	**MR C2I 320 - N360TC** 365 TC 4	65.1
	26.9	165 300	3.15	**MR C2I 321 - N360TC** 365 TC 4	65.1
	31.2	142 500	1.7	**MR C2I 250 - N360TC** 365 TC 4	56.1
	30.9	143 600	2.24	**MR C2I 280 - N360TC** 365 TC 4	56.6
	31.2	142 300	2.8	**MR C2I 320 - N360TC** 365 TC 4	56.0
	31.2	142 300	3.55	**MR C2I 321 - N360TC** 365 TC 4	56.0
	33.6	132 400	1.8	**MR C2I 250 - N360TC** 365 TC 4	52.1
	32.9	134 900	2.24	**MR C2I 280 - N360TC** 365 TC 4	53.1
	34.1	130 300	3.15	**MR C2I 320 - N360TC** 365 TC 4	51.3
	41.2	110 200	1.18	**MR CI 250 - N400TC** 405 TC 6	27.9
	37.1	119 700	2	**MR C2I 250 - N360TC** 365 TC 4	47.1
	36.9	120 600	2.65	**MR C2I 280 - N360TC** 365 TC 4	47.5
	39.6	112 100	3.55	**MR C2I 320 - N360TC** 365 TC 4	44.2
	46.7	97 150	0.9	**MR CI 200 - N400TC** 405 TC 6	24.6
	45.3	100 200	1.8	**MR CI 250 - N400TC** 405 TC 6	25.4
	40.9	108 800	2.24	**MR C2I 250 - N360TC** 365 TC 4	42.8
	42.1	105 500	3	**MR C2I 280 - N360TC** 365 TC 4	41.6
	44.3	100 400	4	**MR C2I 320 - N360TC** 365 TC 4	39.5
	51.5	88 150	1.8	**MR CI 250 - N400TC** 405 TC 6	22.3
	47.0	94 550	2.36	**MR C2I 250 - N360TC** 365 TC 4	37.2
	46.6	95 300	3.15	**MR C2I 280 - N360TC** 365 TC 4	37.5
	56.9	79 800	0.9	**MR CI 200 - N360TC** 365 TC 4	30.8
	58.4	77 700	1.32	**MR CI 200 - N400TC** 405 TC 6	19.7
	56.7	80 050	1.5	**MR CI 225 - N400TC** 405 TC 6	20.3
	55.2	82 300	1.8	**MR CI 250 - N360TC** 365 TC 4	31.7
	51.7	85 950	2.65	**MR C2I 250 - N360TC** 365 TC 4	33.9
	53.3	83 400	3.35	**MR C2I 280 - N360TC** 365 TC 4	32.8
	63.9	71 050	1.4	**MR CI 200 - N400TC** 405 TC 6	18.0
	61.6	73 650	1.5	**MR CI 225 - N400TC** 405 TC 6	18.7
	62.7	72 400	1.8	**MR CI 250 - N360TC** 365 TC 4	27.9
	59.3	74 950	3	**MR C2I 250 - N360TC** 365 TC 4	29.5
	58.8	75 550	4	**MR C2I 280 - N360TC** 365 TC 4	29.8
	71.1	63 850	1.32	**MR CI 200 - N360TC** 365 TC 4	24.6
	71.9	63 100	2	**MR CI 225 - N400TC** 405 TC 6	16.0
	68.9	65 800	2.5	**MR CI 250 - N360TC** 365 TC 4	25.4
	65.2	68 150	3.35	**MR C2I 250 - N360TC** 365 TC 4	26.8
	81.0	56 000	1.8	**MR CI 200 - N400TC** 405 TC 6	14.2
	78.1	58 100	2.24	**MR CI 225 - N400TC** 405 TC 6	14.7
	78.4	57 900	2.5	**MR CI 250 - N360TC** 365 TC 4	22.3
	81.6	55 600	3.55	**MR CI 250 - N400TC** 405 TC 6	14.1
	88.9	51 050	1.8	**MR CI 200 - N360TC** 365 TC 4	19.7
	86.3	52 600	2.24	**MR CI 225 - N360TC** 365 TC 4	20.3
	86.2	52 650	3.55	**MR CI 250 - N360TC** 365 TC 4	20.3
	97.2	46 650	2	**MR CI 200 - N360TC** 365 TC 4	18.0
	93.8	48 400	2.24	**MR CI 225 - N360TC** 365 TC 4	18.7
	97.9	46 350	4	**MR CI 250 - N360TC** 365 TC 4	17.9
	106	42 850	2	**MR CI 200 - N360TC** 365 TC 4	16.5
	109	41 450	3	**MR CI 225 - N360TC** 365 TC 4	16.0
	109	41 500	4	**MR CI 250 - N360TC** 365 TC 4	16.0
	123	36 800	2.65	**MR CI 200 - N360TC** 365 TC 4	14.2
	119	38 150	3.35	**MR CI 225 - N360TC** 365 TC 4	14.7

1) Powers valid for continuous duty S1; **increase possible** for duty cycles S2 ... S10: in which case T_2 increases and fs decreases.
2) For complete designation when ordering see ch. 3.1.

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
75	**134**	33 800	3	**MR CI 200 - N360TC** 365 TC 4	13.0
	136	33 300	3.35	**MR CI 225 - N360TC** 365 TC 4	12.8
	155	29 200	3	**MR CI 200 - N360TC** 365 TC 4	11.3
	151	30 000	3.35	**MR CI 225 - N360TC** 365 TC 4	11.6
	170	26 700	3	**MR CI 200 - N360TC** 365 TC 4	10.3
	175	26 000	3.35	**MR CI 225 - N360TC** 365 TC 4	10.0
	217	20 900	3	**MR CI 200 - N360TC** 365 TC 4	8.06
	271	16 750	3	**MR CI 200 - N360TC** 365 TC 4	6.46
100	**7.15**	829 000	0.8	**MR C2I 360 - N440TC** 444 TC 6	161
	8.91	664 800	0.9	**MR C2I 321 - N440TC** 444 TC 6	129
	9.06	653 900	1	**MR C2I 360 - N440TC** 444 TC 6	127
	11.2	528 800	0.85	**MR C2I 321 - N400TC** 405 TC 4	156
	11.1	531 800	1.06	**MR C2I 321 - N440TC** 444 TC 6	103
	10.9	544 800	1.18	**MR C2I 360 - N400TC** 405 TC 4	161
	12.9	457 700	0.95	**MR C2I 320 - N440TC** 444 TC 6	88.8
	12.9	457 700	1.18	**MR C2I 321 - N440TC** 444 TC 6	88.8
	12.6	470 800	1.4	**MR C2I 360 - N440TC** 444 TC 6	91.4
	13.6	436 800	1	**MR C2I 320 - N400TC** 405 TC 4	129
	13.6	436 800	1.25	**MR C2I 321 - N400TC** 405 TC 4	129
	13.8	429 700	1.5	**MR C2I 360 - N400TC** 405 TC 4	127
	16.2	366 200	1.12	**MR C2I 320 - N440TC** 444 TC 6	71.1
	16.2	366 200	1.4	**MR C2I 321 - N440TC** 444 TC 6	71.1
	15.7	376 600	1.7	**MR C2I 360 - N440TC** 444 TC 6	73.1
	17.4	339 700	0.95	**MR C2I 280 - N400TC** 405 TC 4	100
	17.0	349 500	1.18	**MR C2I 320 - N400TC** 405 TC 4	103
	17.0	349 500	1.5	**MR C2I 321 - N400TC** 405 TC 4	103
	17.2	343 700	1.9	**MR C2I 360 - N400TC** 405 TC 4	102
	19.7	301 300	0.85	**MR C2I 250 - N400TC** 405 TC 4	89.0
	19.5	303 600	1.12	**MR C2I 280 - N400TC** 405 TC 4	89.7
	19.7	300 800	1.32	**MR C2I 320 - N400TC** 405 TC 4	88.8
	19.7	300 800	1.7	**MR C2I 321 - N400TC** 405 TC 4	88.8
	19.1	309 400	2	**MR C2I 360 - N400TC** 405 TC 4	91.4
	22.2	266 700	0.9	**MR C2I 250 - N400TC** 405 TC 4	78.8
	21.8	271 800	1.18	**MR C2I 280 - N400TC** 405 TC 4	80.3
	21.2	279 600	1.5	**MR C2I 320 - N400TC** 405 TC 4	82.6
	21.2	279 600	1.9	**MR C2I 321 - N400TC** 405 TC 4	82.6
	21.5	275 000	2.24	**MR C2I 360 - N400TC** 405 TC 4	81.2
	24.6	241 000	1	**MR C2I 250 - N400TC** 405 TC 4	71.2
	24.4	242 900	1.4	**MR C2I 280 - N400TC** 405 TC 4	71.7
	24.6	240 600	1.7	**MR C2I 320 - N400TC** 405 TC 4	71.1
	24.6	240 600	2	**MR C2I 321 - N400TC** 405 TC 4	71.1
	23.9	247 500	2.5	**MR C2I 360 - N400TC** 405 TC 4	73.1
	28.2	210 300	1.12	**MR C2I 250 - N400TC** 405 TC 4	62.1
	27.6	214 300	1.5	**MR C2I 280 - N400TC** 405 TC 4	63.3
	26.9	220 400	1.9	**MR C2I 320 - N400TC** 405 TC 4	65.1
	26.9	220 400	2.36	**MR C2I 321 - N400TC** 405 TC 4	65.1
	27.3	216 800	2.8	**MR C2I 360 - N400TC** 405 TC 4	64.0
	31.2	190 000	1.32	**MR C2I 250 - N400TC** 405 TC 4	56.1
	30.9	191 500	1.7	**MR C2I 280 - N400TC** 405 TC 4	56.6
	31.2	189 700	2.12	**MR C2I 320 - N400TC** 405 TC 4	56.0
	31.2	189 700	2.65	**MR C2I 321 - N400TC** 405 TC 4	56.0
	30.4	195 100	3.15	**MR C2I 360 - N400TC** 405 TC 4	57.6
	33.6	176 500	1.4	**MR C2I 250 - N400TC** 405 TC 4	52.1
	32.9	179 900	1.7	**MR C2I 280 - N400TC** 405 TC 4	53.1
	34.1	173 700	2.36	**MR C2I 320 - N400TC** 405 TC 4	51.3
	34.1	173 700	2.8	**MR C2I 321 - N400TC** 405 TC 4	51.3
	34.7	170 800	3.55	**MR C2I 360 - N400TC** 405 TC 4	50.5
	41.2	146 900	0.9	**MR CI 250 - N440TC** 444 TC 6	27.9
	37.1	159 600	1.5	**MR C2I 250 - N400TC** 405 TC 4	47.1
	36.9	160 800	1.9	**MR C2I 280 - N400TC** 405 TC 4	47.5
	39.6	149 500	2.65	**MR C2I 320 - N400TC** 405 TC 4	44.2
	39.6	149 500	3.35	**MR C2I 321 - N400TC** 405 TC 4	44.2

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
100	**45.3**	133 600	1.32	**MR CI 250 - N440TC** 444 TC 6	25.4
	40.9	145 000	1.7	**MR C2I 250 - N400TC** 405 TC 4	42.8
	42.1	140 700	2.24	**MR C2I 280 - N400TC** 405 TC 4	41.6
	44.3	133 800	3	**MR C2I 320 - N400TC** 405 TC 4	39.5
	44.3	133 800	3.75	**MR C2I 321 - N400TC** 405 TC 4	39.5
	51.5	117 500	1.32	**MR CI 250 - N440TC** 444 TC 6	22.3
	47.0	126 100	1.8	**MR C2I 250 - N400TC** 405 TC 4	37.2
	46.6	127 100	2.36	**MR C2I 280 - N400TC** 405 TC 4	37.5
	48.3	122 800	3.15	**MR C2I 320 - N400TC** 405 TC 4	36.3
	55.2	109 700	1.32	**MR CI 250 - N400TC** 405 TC 4	31.7
	51.7	114 600	2	**MR C2I 250 - N400TC** 405 TC 4	33.9
	57.5	105 200	2.24	**MR CI 280 - N440TC** 444 TC 6	20.0
	53.3	111 200	2.5	**MR C2I 280 - N400TC** 405 TC 4	32.8
	53.9	109 900	3.55	**MR C2I 320 - N400TC** 405 TC 4	32.5
	62.7	96 500	1.32	**MR CI 250 - N400TC** 405 TC 4	27.9
	59.3	99 950	2.24	**MR C2I 250 - N400TC** 405 TC 4	29.5
	63.9	94 700	2.24	**MR CI 280 - N440TC** 444 TC 6	18.0
	58.8	100 700	3.15	**MR C2I 280 - N400TC** 405 TC 4	29.8
	60.9	97 350	4	**MR C2I 320 - N400TC** 405 TC 4	28.8
	60.9	97 350	5	**MR C2I 321 - N400TC** 405 TC 4	28.8
	59.2	100 100	6.3	**MR C2I 360 - N400TC** 405 TC 4	29.6
	71.1	85 100	1	**MR CI 200 - N400TC** 405 TC 4	24.6
	68.9	87 750	1.9	**MR CI 250 - N400TC** 405 TC 4	25.4
	65.2	90 850	2.5	**MR C2I 250 - N400TC** 405 TC 4	26.8
	67.2	88 150	3.35	**MR C2I 280 - N400TC** 405 TC 4	26.0
	78.4	77 200	1.9	**MR CI 250 - N400TC** 405 TC 4	22.3
	81.6	74 100	2.8	**MR CI 250 - N440TC** 444 TC 6	14.1
	81.0	74 650	3.35	**MR CI 280 - N440TC** 444 TC 6	14.2
	88.9	68 100	1.4	**MR CI 200 - N400TC** 405 TC 4	19.7
	86.3	70 150	1.7	**MR CI 225 - N400TC** 405 TC 4	20.3
	86.2	70 200	2.65	**MR CI 250 - N400TC** 405 TC 4	20.3
	87.5	69 150	3.35	**MR CI 280 - N400TC** 405 TC 4	20.0
	97.2	62 250	1.5	**MR CI 200 - N400TC** 405 TC 4	18.0
	93.8	64 550	1.7	**MR CI 225 - N400TC** 405 TC 4	18.7
	97.9	61 750	3	**MR CI 250 - N400TC** 405 TC 4	17.9
	97.2	62 250	3.35	**MR CI 280 - N400TC** 405 TC 4	18.0
	106	57 150	1.5	**MR CI 200 - N400TC** 405 TC 4	16.5
	109	55 300	2.24	**MR CI 225 - N400TC** 405 TC 4	16.0
	109	55 300	3	**MR CI 250 - N400TC** 405 TC 4	16.0
	111	54 500	4.5	**MR CI 280 - N400TC** 405 TC 4	15.8
	123	49 050	2	**MR CI 200 - N400TC** 405 TC 4	14.2
	119	50 900	2.5	**MR CI 225 - N400TC** 405 TC 4	14.7
	124	48 700	4	**MR CI 250 - N400TC** 405 TC 4	14.1
	134	45 050	2.12	**MR CI 200 - N400TC** 405 TC 4	13.0
	136	44 400	2.5	**MR CI 225 - N400TC** 405 TC 4	12.8
	139	43 600	4.25	**MR CI 250 - N400TC** 405 TC 4	12.6
	155	38 950	2.12	**MR CI 200 - N400TC** 405 TC 4	11.3
	151	40 000	2.5	**MR CI 225 - N400TC** 405 TC 4	11.6
	153	39 400	4.25	**MR CI 250 - N400TC** 405 TC 4	11.4
	170	35 600	2.12	**MR CI 200 - N400TC** 405 TC 4	10.3
	175	34 650	2.5	**MR CI 225 - N400TC** 405 TC 4	10.0
	169	35 850	4.25	**MR CI 250 - N400TC** 405 TC 4	10.4
	217	27 850	2.12	**MR CI 200 - N400TC** 405 TC 4	8.06
	271	22 350	2.12	**MR CI 200 - N400TC** 405 TC 4	6.46
125	**9.06**	817 300	0.8	**MR C2I 360 - N440TC** 445 TC 6	127
	11.1	664 800	0.85	**MR C2I 321 - N440TC** 445 TC 6	103
	10.9	681 000	0.95	**MR C2I 360 - N440TC** 444 TC 4	161
	12.9	572 100	0.95	**MR C2I 321 - N440TC** 445 TC 6	88.8
	12.6	588 500	1.12	**MR C2I 360 - N440TC** 445 TC 6	91.4
	13.6	546 100	0.8	**MR C2I 320 - N440TC** 444 TC 4	129
	13.6	546 100	1	**MR C2I 321 - N440TC** 444 TC 4	129
	13.8	537 100	1.18	**MR C2I 360 - N440TC** 444 TC 4	127

1) Powers valid for continuous duty S1; **increase possible** for duty cycles S2 ... S10: in which case T_2 increases and fs decreases.
2) For complete designation when ordering see ch. 3.1.

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
125	**16.2**	457 700	0.9	**MR C2I 320 - N440TC** 445 TC	6	71.1
	16.2	457 700	1.12	**MR C2I 321 - N440TC** 445 TC	6	71.1
	15.7	470 800	1.32	**MR C2I 360 - N440TC** 445 TC	6	73.1
	17.0	436 800	0.95	**MR C2I 320 - N440TC** 444 TC	4	103
	17.0	436 800	1.18	**MR C2I 321 - N440TC** 444 TC	4	103
	17.2	429 700	1.5	**MR C2I 360 - N440TC** 444 TC	4	102
	19.7	376 000	1.06	**MR C2I 320 - N440TC** 444 TC	4	88.8
	19.7	376 000	1.32	**MR C2I 321 - N440TC** 444 TC	4	88.8
	19.1	386 700	1.6	**MR C2I 360 - N440TC** 444 TC	4	91.4
	21.2	349 500	1.18	**MR C2I 320 - N440TC** 444 TC	4	82.6
	21.2	349 500	1.5	**MR C2I 321 - N440TC** 444 TC	4	82.6
	21.5	343 700	1.8	**MR C2I 360 - N440TC** 444 TC	4	81.2
	24.6	300 800	1.32	**MR C2I 320 - N440TC** 444 TC	4	71.1
	24.6	300 800	1.6	**MR C2I 321 - N440TC** 444 TC	4	71.1
	23.9	309 400	2	**MR C2I 360 - N440TC** 444 TC	4	73.1
	26.9	275 500	1.5	**MR C2I 320 - N440TC** 444 TC	4	65.1
	26.9	275 500	1.9	**MR C2I 321 - N440TC** 444 TC	4	65.1
	27.3	271 000	2.24	**MR C2I 360 - N440TC** 444 TC	4	64.0
	31.2	237 200	1.7	**MR C2I 320 - N440TC** 444 TC	4	56.0
	31.2	237 200	2.12	**MR C2I 321 - N440TC** 444 TC	4	56.0
	30.4	243 900	2.65	**MR C2I 360 - N440TC** 444 TC	4	57.6
	34.1	217 100	1.9	**MR C2I 320 - N440TC** 444 TC	4	51.3
	34.1	217 100	2.24	**MR C2I 321 - N440TC** 444 TC	4	51.3
	34.7	213 500	2.8	**MR C2I 360 - N440TC** 444 TC	4	50.5
	39.6	186 800	2.12	**MR C2I 320 - N440TC** 444 TC	4	44.2
	39.6	186 800	2.65	**MR C2I 321 - N440TC** 444 TC	4	44.2
	38.5	192 200	3.35	**MR C2I 360 - N440TC** 444 TC	4	45.4
	45.3	166 900	1.06	**MR CI 250 - N440TC** 445 TC	6	25.4
	44.3	167 300	2.36	**MR C2I 320 - N440TC** 444 TC	4	39.5
	44.3	167 300	3	**MR C2I 321 - N440TC** 444 TC	4	39.5
	42.7	173 500	3.55	**MR C2I 360 - N440TC** 444 TC	4	41.0
	51.5	146 900	1.06	**MR CI 250 - N440TC** 445 TC	6	22.3
	48.3	153 500	2.65	**MR C2I 320 - N440TC** 444 TC	4	36.3
	48.3	153 500	3.15	**MR C2I 321 - N440TC** 444 TC	4	36.3
	55.2	137 100	1.06	**MR CI 250 - N440TC** 444 TC	4	31.7
	56.6	133 600	1.4	**MR CI 250 - N440TC** 445 TC	6	20.3
	57.5	131 500	1.8	**MR CI 280 - N440TC** 445 TC	6	20.0
	53.9	137 400	2.8	**MR C2I 320 - N440TC** 444 TC	4	32.5
	53.9	137 400	3.55	**MR C2I 321 - N440TC** 444 TC	4	32.5
	62.7	120 600	1.06	**MR CI 250 - N440TC** 444 TC	4	27.9
	64.4	117 500	1.6	**MR CI 250 - N440TC** 445 TC	6	17.9
	63.9	118 400	1.8	**MR CI 280 - N440TC** 445 TC	6	18.0
	60.9	121 700	3.15	**MR C2I 320 - N440TC** 444 TC	4	28.8
	68.9	109 700	1.5	**MR CI 250 - N440TC** 444 TC	4	25.4
	72.9	103 700	2.5	**MR CI 280 - N440TC** 445 TC	6	15.8
	68.0	108 900	3.55	**MR C2I 320 - N440TC** 444 TC	4	25.7
	78.4	96 500	1.5	**MR CI 250 - N440TC** 444 TC	4	22.3
	81.6	92 650	2.12	**MR CI 250 - N440TC** 445 TC	6	14.1
	81.0	93 350	2.65	**MR CI 280 - N440TC** 445 TC	6	14.2
	86.2	87 750	2.12	**MR CI 250 - N440TC** 444 TC	4	20.3
	87.5	86 450	2.65	**MR CI 280 - N440TC** 444 TC	4	20.0
	97.9	77 200	2.36	**MR CI 250 - N440TC** 444 TC	4	17.9
	97.2	77 800	2.65	**MR CI 280 - N440TC** 444 TC	4	18.0
	109	69 150	2.36	**MR CI 250 - N440TC** 444 TC	4	16.0
	111	68 150	3.55	**MR CI 280 - N440TC** 444 TC	4	15.8
	124	60 900	3.15	**MR CI 250 - N440TC** 444 TC	4	14.1
	139	54 500	3.55	**MR CI 250 - N440TC** 444 TC	4	12.6
	153	49 300	3.55	**MR CI 250 - N440TC** 444 TC	4	11.4
	169	44 800	3.55	**MR CI 250 - N440TC** 444 TC	4	10.4
150	**10.9**	817 200	0.8	**MR C2I 360 - N440TC** 445 TC	4	161
	13.6	655 300	0.85	**MR C2I 321 - N440TC** 445 TC	4	129
	13.8	644 500	1	**MR C2I 360 - N440TC** 445 TC	4	127

Motor power P_1 hp 1)	Output speed n_2 rpm	Output torque T_2 lb in	Service factor fs	2)	Gear ratio i
150	**17.0**	524 200	0.8	**MR C2I 320 - N440TC** 445 TC	4	103
	17.0	524 200	1	**MR C2I 321 - N440TC** 445 TC	4	103
	17.2	515 600	1.25	**MR C2I 360 - N440TC** 445 TC	4	102
	19.7	451 200	0.9	**MR C2I 320 - N440TC** 445 TC	4	88.8
	19.7	451 200	1.12	**MR C2I 321 - N440TC** 445 TC	4	88.8
	19.1	464 100	1.32	**MR C2I 360 - N440TC** 445 TC	4	91.4
	21.2	419 400	1	**MR C2I 320 - N440TC** 445 TC	4	82.6
	21.2	419 400	1.25	**MR C2I 321 - N440TC** 445 TC	4	82.6
	21.5	412 500	1.5	**MR C2I 360 - N440TC** 445 TC	4	81.2
	24.6	360 900	1.12	**MR C2I 320 - N440TC** 445 TC	4	71.1
	24.6	360 900	1.4	**MR C2I 321 - N440TC** 445 TC	4	71.1
	23.9	371 200	1.7	**MR C2I 360 - N440TC** 445 TC	4	73.1
	26.9	330 700	1.25	**MR C2I 320 - N440TC** 445 TC	4	65.1
	26.9	330 700	1.6	**MR C2I 321 - N440TC** 445 TC	4	65.1
	27.3	325 200	1.9	**MR C2I 360 - N440TC** 445 TC	4	64.0
	31.2	284 600	1.4	**MR C2I 320 - N440TC** 445 TC	4	56.0
	31.2	284 600	1.7	**MR C2I 321 - N440TC** 445 TC	4	56.0
	30.4	292 700	2.12	**MR C2I 360 - N440TC** 445 TC	4	57.6
	34.1	260 500	1.6	**MR C2I 320 - N440TC** 445 TC	4	51.3
	34.1	260 500	1.9	**MR C2I 321 - N440TC** 445 TC	4	51.3
	34.7	256 200	2.36	**MR C2I 360 - N440TC** 445 TC	4	50.5
	39.6	224 200	1.8	**MR C2I 320 - N440TC** 445 TC	4	44.2
	39.6	224 200	2.24	**MR C2I 321 - N440TC** 445 TC	4	44.2
	38.5	230 600	2.65	**MR C2I 360 - N440TC** 445 TC	4	45.4
	44.3	200 700	2	**MR C2I 320 - N440TC** 445 TC	4	39.5
	44.3	200 700	2.5	**MR C2I 321 - N440TC** 445 TC	4	39.5
	42.7	208 200	3	**MR C2I 360 - N440TC** 445 TC	4	41.0
	48.3	184 200	2.12	**MR C2I 320 - N440TC** 445 TC	4	36.3
	48.3	184 200	2.65	**MR C2I 321 - N440TC** 445 TC	4	36.3
	46.9	189 400	3.15	**MR C2I 360 - N440TC** 445 TC	4	37.3
	55.2	164 600	0.9	**MR CI 250 - N440TC** 445 TC	4	31.7
	53.9	164 900	2.36	**MR C2I 320 - N440TC** 445 TC	4	32.5
	53.9	164 900	3	**MR C2I 321 - N440TC** 445 TC	4	32.5
	52.0	171 000	3.35	**MR C2I 360 - N440TC** 445 TC	4	33.7
	62.7	144 800	0.9	**MR CI 250 - N440TC** 445 TC	4	27.9
	60.9	146 000	2.65	**MR C2I 320 - N440TC** 445 TC	4	28.8
	60.9	146 000	3.35	**MR C2I 321 - N440TC** 445 TC	4	28.8
	68.9	131 600	1.25	**MR CI 250 - N440TC** 445 TC	4	25.4
	68.0	130 700	3	**MR C2I 320 - N440TC** 445 TC	4	25.7
	68.0	130 700	3.75	**MR C2I 321 - N440TC** 445 TC	4	25.7
	78.4	115 800	1.25	**MR CI 250 - N440TC** 445 TC	4	22.3
	86.2	105 300	1.7	**MR CI 250 - N440TC** 445 TC	4	20.3
	87.5	103 700	2.24	**MR CI 280 - N440TC** 445 TC	4	20.0
	97.9	92 650	2	**MR CI 250 - N440TC** 445 TC	4	17.9
	97.2	93 350	2.24	**MR CI 280 - N440TC** 445 TC	4	18.0
	109	83 000	2	**MR CI 250 - N440TC** 445 TC	4	16.0
	111	81 800	3	**MR CI 280 - N440TC** 445 TC	4	15.8
	124	73 050	2.65	**MR CI 250 - N440TC** 445 TC	4	14.1
	123	73 600	3.35	**MR CI 280 - N440TC** 445 TC	4	14.2
	139	65 400	3	**MR CI 250 - N440TC** 445 TC	4	12.6
	136	66 700	3.35	**MR CI 280 - N440TC** 445 TC	4	12.9
	153	59 150	3	**MR CI 250 - N440TC** 445 TC	4	11.4
	152	59 600	3.35	**MR CI 280 - N440TC** 445 TC	4	11.5
	169	53 750	3	**MR CI 250 - N440TC** 445 TC	4	10.4
	174	52 150	3.35	**MR CI 280 - N440TC** 445 TC	4	10.1

1) Powers valid for continuous duty S1; **increase possible** for duty cycles S2 ... S10: in which case T_2 increases and fs decreases.
2) For complete designation when ordering see ch. 3.1.

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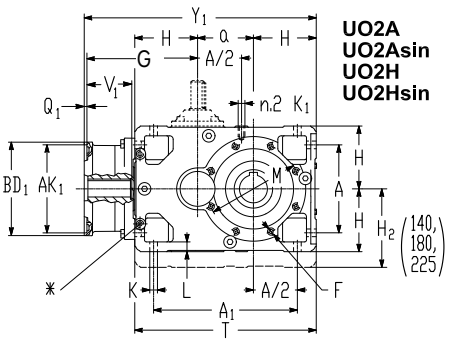
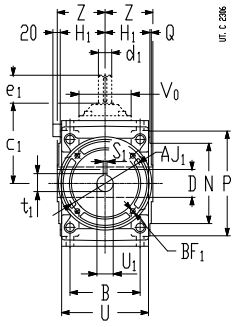
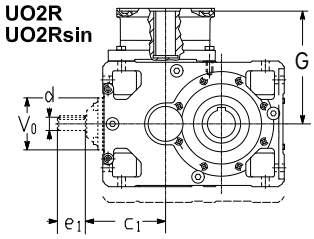
Gearmotors MR CI

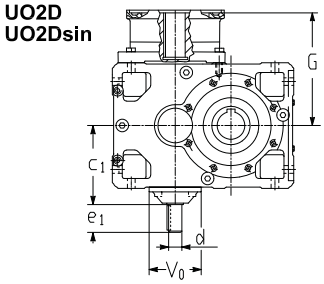
Dimensions

MR CI 125 ... 280









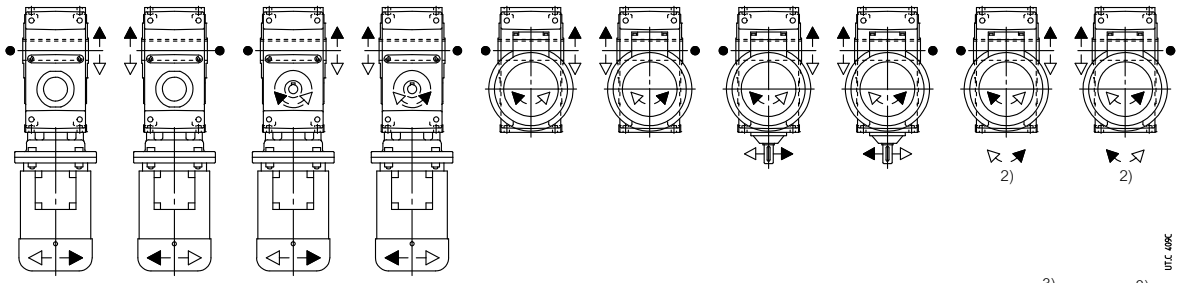
Gear red.	Size NEMA motor frame	a	A	A1	B	D Ø in 1)	F	G	H h11	H1 h12	H2 h11	K Ø	K1 2)	L	M Ø	N Ø h6	P Ø	Q	T	U	V0 Ø h8	Z	NEMA C-Face input side: U1 Ø in 4)	V1 in	S1 in 5)	t1 in	BF1 Ø in	AJ1 Ø in	AK1 Ø in 6)	BD1 Ø in	Q1 in	Y1	Mass lb
125	**N210TC**	125	212	337	162	2.375	3)	238	150	103.5	-	18	M12	23	215	180	250	4	425	201	122	110	1.375	3.125	0.312	1.518	0.551	7.25	8.5	9.055	0.217	519	235
	N250TC							238															1.625	3.750	0.375	1.796	0.551	7.25	8.5	9.055	0.217	519	235
	N280TC							259															1.875	4.375	0.500	2.017 7)	0.551	9	10.5	11.02	0.217	540	235
140	**N210TC**	140	212	352	162	2.75	3)	238	150	103.5	180	18	M12	23	265	230	300	4	440	201	122	125	1.375	3.125	0.312	1.518	0.551	7.25	8.5	9.055	0.217	534	265
	N250TC							238															1.625	3.750	0.375	1.796	0.551	7.25	8.5	9.055	0.217	534	265
	N280TC							259															1.875	4.375	0.500	2.017 7)	0.551	9	10.5	11.02	0.217	555	270
160	**N250TC**	160	252	412	201	3.25	M16	269	180	128.5	-	22	M16	28	265	230	300	4	520	249	155	136	1.625	3.750	0.375	1.796	0.551	7.25	8.5	9.640	0.217	615	390
	N280TC							285															1.875	4.375	0.500	2.096	0.551	9	10.5	11.25	0.217	631	395
	N320TC							301															2.125	5.000	0.500	2.350	0.689	11	12.5	13.07	0.217	647	395
180	**N280TC**	180	252	432	201	3.625	M16	285	180	128.5	225	22	M16	28	300	250	350	5	540	249	155	150	1.875	4.375	0.500	2.096	0.551	9	10.5	11.25	0.217	651	440
	N320TC							301															2.125	5.000	0.500	2.350	0.689	11	12.5	13.07	0.217	667	440
200	**N280TC**	200	320	520	250	4	3)	330	225	158	-	27	M20	34	350	300	400	5	650	307	190	167	1.875	4.375	0.500	2.096	0.551	9	10.5	11.25	0.217	761	660
	N320TC							346															2.125	5.000	0.500	2.350	0.689	11	12.5	13.07	0.217	777	660
	N360TC							395															2.375	5.625	0.625	2.651	0.689	11	12.5	14	0.217	826	705
	N400TC							395															2.875	7	0.75	3.205	0.689	11	12.5	14	0.217	826	705
225	**N320TC**	225	320	545	250	4.25	M20	346	225	158	280	27	M20	34	400	350	450	5	675	307	190	180	2.125	5.000	0.500	2.350	0.689	11	12.5	13.07	0.217	802	730
	N360TC							395															2.375	5.625	0.625	2.651	0.689	11	12.5	14	0.217	851	800
	N400TC							395															2.875	7	0.75	3.205	0.689	11	12.5	14	0.217	851	800
250	**N320TC**	250	396	646	310	5	4)	451	280	195	-	33	M24	42	500	450	550	5	810	380	235	206	2.125	5	0.5	2.35	0.689	11	12.5	14	0.217	987	1305
	N360TC							451															2.375	5.625	0.625	2.651	0.689	11	12.5	14	0.217	987	1305
	N400TC							451															2.875	7	0.75	3.205	0.689	11	12.5	14	0.217	987	1305
	N440TC							483															3.375	8.25	0.875	3.76	0.689	14	16	18	0.217	1019	1352
280	**N400TC**	280	396	676	310	5.5	M24	451	280	195	355	33	M24	42	500	450	550	5	840	380	235	222	2.875	7	0.75	3.205	0.689	11	12.5	14	0.217	1017	1470
	N440TC							483															3.375	8.25	0.875	3.76	0.689	14	16	18	0.217	1049	1517

Gear red. size	2nd input shaft end: c1	d1	e1	d1	e1
125	188	28	$i_N \leq 14$ 60	24	$i_N \geq 16$ 50
140	188	28	$i_N \leq 16$ 60	24	$i_N \geq 18$ 50
160	226	38	$i_N \leq 14$ 80	32	$i_N \geq 16$ 80
180	226	38	$i_N \leq 16$ 80	32	$i_N \geq 18$ 80
200	282	48	$i_N \leq 14$ 110	38	$i_N \geq 16$ 80
225	282	48	$i_N \leq 16$ 110	38	$i_N \geq 18$ 80
250	357	55	$i_N \leq 14$ 110	48	$i_N \geq 16$ 110
280	357	55	$i_N \leq 16$ 110	48	$i_N \geq 18$ 110

*Machined surface and N.2 threaded holes (dimensions in ch. 6 <<Input face>>) on opposite side (not in view) too.
1) Working length of thread 2 · F.
2) Working length of thread 2 · K_1.
3) For holes dimensions, number and angular position see ch. 3.5.
4) Tolerance +0.0004/+0.001 in (+0.009/+0.025 mm) for motors size ≤ N280TC, -0.0012/0 in (-0.030/0 mm) for N320TC, N360TC, N400TC, -0.0014/0 in (-0.035/0 mm) for N440TC
5) Tolerance 0/+0.0014 in (0/+0.036 mm) for N210TC and N250TC, 0/+0.0017 in (0/+0.043 mm) for N280TC, N320TC, N360TC, 0/+0.002 in (0/+0.052 mm) for N400TC and N440TC.
6) Tolerance -0.0007/+0.0007 in (-0.017/+0.017 mm), -0.0011/+0.0011 in (-0.028/+0.028 mm) for motor size ≥ N320TC.
7) Out of standard dimension; a suitable modified key is supplied together with the gearmotor.

Designs (direction of rotation)

MR CI 125 ... 280

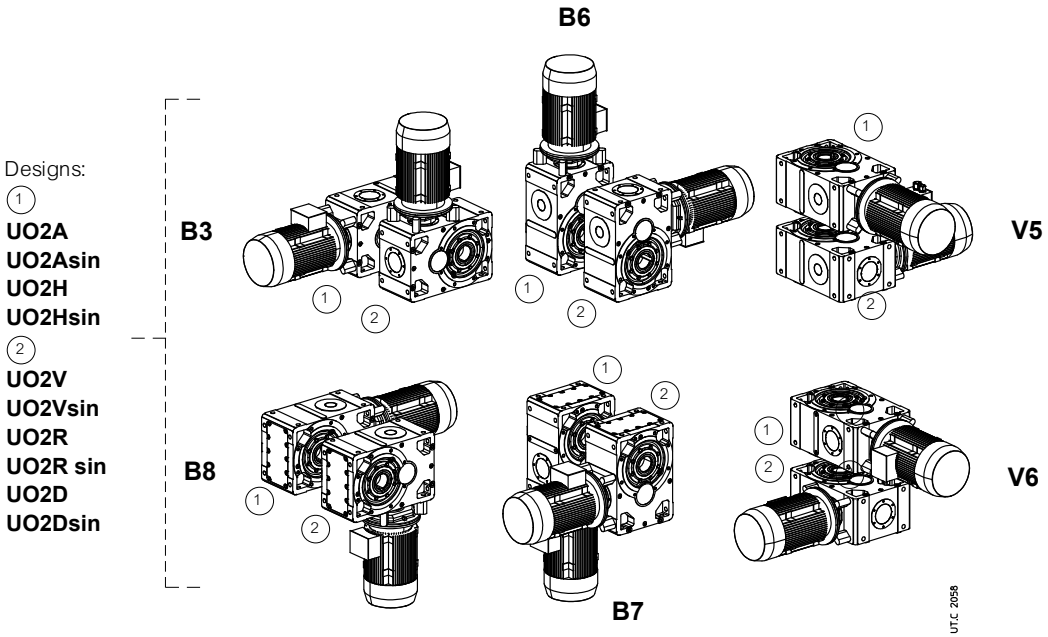


● Position of reference groove (see ch. 3.5) for radial load verification.
2) Direction of rotation of high speed shaft extension not in view.
3) Design **not possible** for size 140,180, 225, 280.

Mounting positions

Unless otherwise stated, gear reducers are supplied in mounting position B3 (see ch. 3).

MR CI 125 ... 280



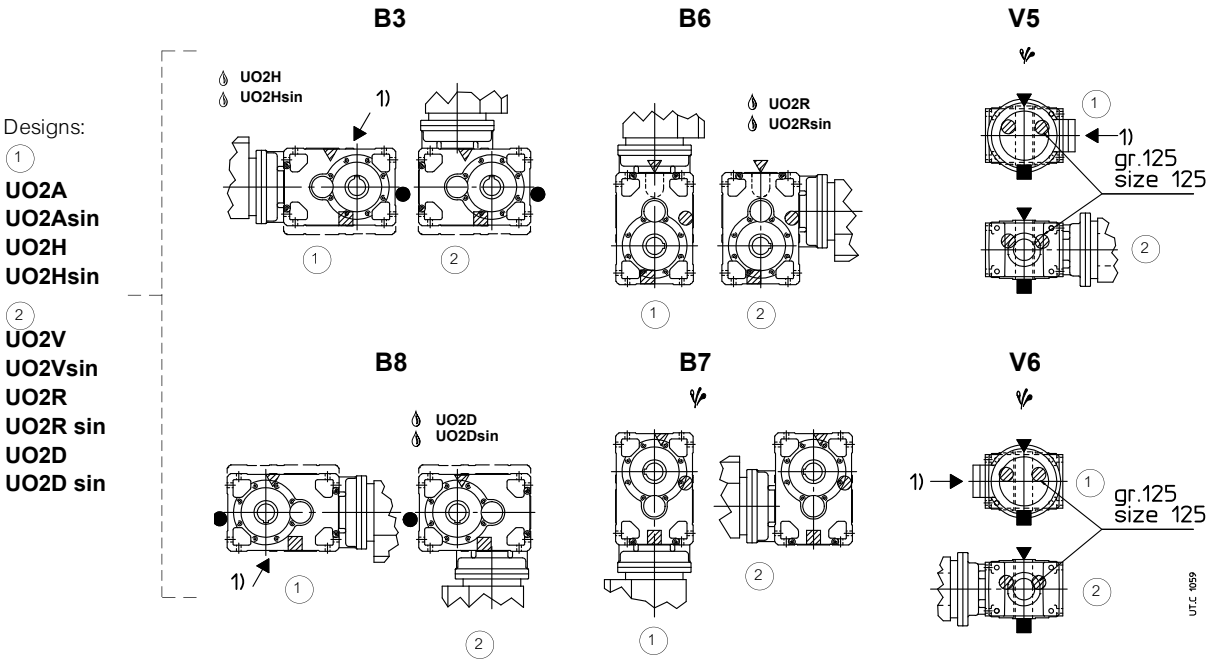
Oil quantity MR CI 125 ... 280

Lubricant quantities [gal] stated are approximate for provisioning. The exact oil quantity the gear reducer is to be filled with is defined by the level plug.

Mounting position	125	140	160	180	200	225	250	280
B3	1.4	2.2	2.8	4.3	5.4	8.3	11	16
B8	1.4	1.5	2.8	2.8	5.4	5.5	11	11
B6	1.8	2.3	3.6	4.5	7.1	8.8	14	17
B7	2	2.6	4	5	7.7	9.8	15	19
V5	2.4	2.7	4.6	5.3	9	10	18	20
V6	2.4	2.7	4.6	5.3	9	10	18	20

Lubrication details

MR CI 125 ... 280



Possible high oil splash: for the corrective factor f_{t_3} of nominal thermal power Pt_N see ch. 3.3.

Possible bearing lubrication pump (see ch. 4 (19)).

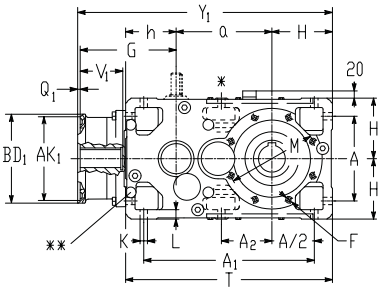
1) Threaded hole position for mounting position identification.

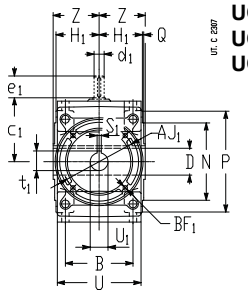
▼ oil filler plug
● oil level plug
■ oil drain plug

▽ oil filler plug on opposite side (not in view)
◍ oil level plug on opposite side (not in view)
▨ oil drain plug on opposite side (not in view)

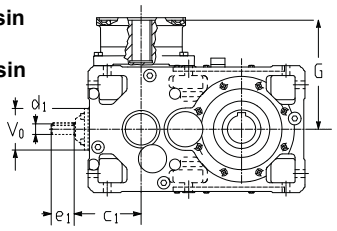
Gearmotors MR C2I

Dimensions MR C2I 140 ... 360





UO2A
UO2H
UO2Hsin

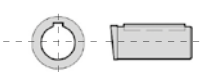


UO2V
UO2Vsin
UO2R
UO2Rsin

Gear red.	Size NEMA motor frame	a	A	A1	A2	B	D Ø in 1)	F	G 1)	G 2)	H h11	H1 h12	h h11	K Ø	L	M Ø	N Ø h6	P Ø	Q	T	U	V0 Ø h8	Z	NEMA C-Face input side U1 Ø in 4)	V1 in	S1 in 5)	t1 in	BF1 Ø in	AJ1 Ø in	AK1 Ø in 6)	BD1 Ø in 8)	Q1 in	Y1	Mass lb
140	**N180TC**	240	212	427	127	162	2.75	3)	213	243	150	103.5	125	18	23	265	230	300	4	515	201	104	125	1.125	2.620	0.250	1.241	0.551	7.25	8.5	9.055	0.217	609	290
	N210TC								213	243														1.375	3.125	0.312	1.518	0.551	7.25	8.5	9.055	0.217	609	290
160	**N180TC**	285	252	507	150*	201	3.25	M16	238	269	180	128.5	150	22	28	265	230	300	4	615	249	122	136	1.125	2.620	0.250	1.241	0.551	7.25	8.5	9.055	0.217	709	445
	N210TC								238	269														1.375	3.125	0.312	1.518	0.551	7.25	8.5	9.055	0.217	709	445
	N250TC								238	269														1.625	3.750	0.375	1.796	0.551	7.25	8.5	9.055	0.217	709	445
	N280TC								259	284														1.875	4.375	0.500	2.017 7)	0.551	9	10.5	11.024	0.217	730	445
180	**N180TC**	305	252	527	170	201	3.625	M16	238	269	180	128.5	150	22	28	300	250	350	5	635	249	122	150	1.125	2.620	0.250	1.241	0.551	7.25	8.5	9.055	0.217	2349	490
	N210TC								238	269														1.375	3.125	0.312	1.518	0.551	7.25	8.5	9.055	0.217	2349	490
	N250TC								238	269														1.625	3.750	0.375	1.796	0.551	7.25	8.5	9.055	0.217	2349	490
	N280TC								259	284														1.875	4.375	0.500	2.017 7)	0.551	9	10.5	11.024	0.217	2370	490
200	**N210TC**	360	320	635	198*	250	4	3)	269	329	225	158	180	27	34	350	300	400	5	765	307	155	167	1.375	3.125	0.313	1.518	0.551	7.25	8.5	9.640 8)	0.217	860	750
	N250TC								269	329														1.625	3.750	0.375	1.796	0.551	7.25	8.5	9.640 8)	0.217	860	750
	N280TC								285	329														1.875	4.375	0.500	2.096	0.551	9	10.5	11.250	0.217	876	760
	N320TC								301	352														2.125	5.000	0.500	2.350	0.689	11	12.5	13.071	0.217	892	760
225	**N210TC**	385	320	660	223	250	4.25	M20	269	329	225	158	180	27	34	400	350	450	5	790	307	155	180	1.375	3.125	0.313	1.518	0.551	7.25	8.5	9.640 8)	0.217	885	815
	N250TC								269	329														1.625	3.750	0.375	1.796	0.551	7.25	8.5	9.640 8)	0.217	885	815
	N280TC								285	329														1.875	4.375	0.500	2.096	0.551	9	10.5	11.250	0.217	901	825
	N320TC								301	352														2.125	5.000	0.500	2.350	0.689	11	12.5	13.071	0.217	917	825
250	**N250TC**	450	396	791	247*	310	5	3)	314	390	280	195	225	33	42	500	450	550	5	955	380	190	206	1.625	3.750	0.375	1.796	0.551	7.25	8.5	10	0.217	1050	1295
	N280TC								330	390														1.875	4.375	0.5	2.096	0.551	9	10.5	11.27	0.217	1066	1295
	N320TC								395	430														2.125	5	0.5	2.35	0.689	11	12.5	14	0.217	1131	1335
	N360TC								395	430														2.375	5.625	0.625	2.651	0.689	11	12.5	14	0.217	1131	1335
	N400TC								395	430														2.875	7	0.75	3.205	0.689	11	12.5	14	0.217	1131	1335
280	**N250TC**	480	396	821	277	310	5.5	M24	314	390	280	195	225	33	42	500	450	550	5	985	380	190	222	1.625	3.750	0.375	1.796	0.551	7.25	8.5	10	0.217	1080	1415
	N280TC								330	390														1.875	4.375	0.5	2.096	0.551	9	10.5	11.27	0.217	1096	1415
	N320TC								395	430														2.125	5	0.5	2.35	0.689	11	12.5	14	0.217	1161	1455
	N360TC								395	430														2.375	5.625	0.625	2.651	0.689	11	12.5	14	0.217	1161	1455
	N400TC								395	430														2.875	7	0.75	3.205	0.689	11	12.5	14	0.217	1161	1455
320	**N320TC**	570	510	1005	318*	386	6.25	3)	451	496	355	241	280	39	52	600	550	660	6	1205	470	235	254	2.125	5	0.5	2.35	0.689	11	12.5	14	0.217	1382	2305
321	**N360TC**								451	496														2.375	5.625	0.625	2.651	0.689	11	12.5	14	0.217	1382	2305
	N400TC								451	496														2.875	7	0.75	3.205	0.689	11	12.5	14	0.217	1382	2305
	N440TC								483	541														3.375	8.25	0.875	3.76	0.689	14	16	18	0.217	1414	2354
360	**N320TC**	610	510	1045	358	386	7	M30	451	496	355	241	280	39	52	600	550	660	6	1245	470	235	273	2.125	5	0.5	2.35	0.689	11	12.5	14	0.217	1422	2515
	N360TC								451	496														2.375	5.625	0.625	2.651	0.689	11	12.5	14	0.217	1422	2515
	N400TC								451	496														2.875	7	0.75	3.205	0.689	11	12.5	14	0.217	1422	2515
	N440TC								483	541														3.375	8.25	0.875	3.76	0.689	14	16	18	0.217	1454	2564

Gear reducer size	2nd input shaft end c1	d1	e1	c1	d1	e1	c1	d1	e1
	$i_N \le 28$			$i_N = 31{,}5 \dots 63$			$i_N \ge 71$		
140	157	24	50	157	24	50	157	19	40
160	188	28	60	188	28	60	188	24	50
180	188	28	60	188	28	60	188	24	50
200	226	38	80	226	38	80	226	32	80
225	226	38	80	226	38	80	226	32	80
250	282	48	110	282	48	110	282	38	80
280	282	48	110	282	48	110	282	38	80
320	380	70	140	357	55	110	357	48	110
321									
360	380	70	140	357	55	110	357	48	110

* Machined surface and N. 4 threaded holes (dimensions in ch. 6 «Input face») on opposite side (not in view) too.
** Only No. 2 holes M 16 × 32 (size 160), M 20 × 38 (size 200), M 24 x 46 (size 250), and M 30 x 58 (size 320), and not for UO2A design.
1) Working length for thread 2 · F.
2) Values valid for ...V, ...V sin, ...R, ...R sin design.
3) For holes dimensions, number and angular position see ch. 3.5..
4) Tolerance 0/+0.0005 in (0/+0.013 mm) for N180TC, +0.0004/+0.001 in (+0.009/+0.025 mm) for motors size ≤ N280TC, -0.0012/0 in (-0.030/0 mm) for N320TC, N360TC, N400TC, -0.0014/0 in (-0.035/0 mm) for N440TC.
5) Tolerance 0/+0.0014 in (0/+0.036 mm) for N180TC, N210TC and N250TC, 0/+0.0017 in (0/+0.043 mm) for N280TC, N320TC, N360TC, 0/+0.002 in (0/+0.052 mm) for N400TC and N440TC.
6) Tolerance -0.0007/+0.0007 in (-0.017/+0.017 mm), -0.0011/+0.0011 in (-0.028/+0.028 mm) for motor size ≥ N320TC
7) Out of standard dimension; a suitable modified key is supplied together with the gearmotor.
8) BD1 = 9.055 for ...V, ...Vsin, ...R, ...Rsin design.



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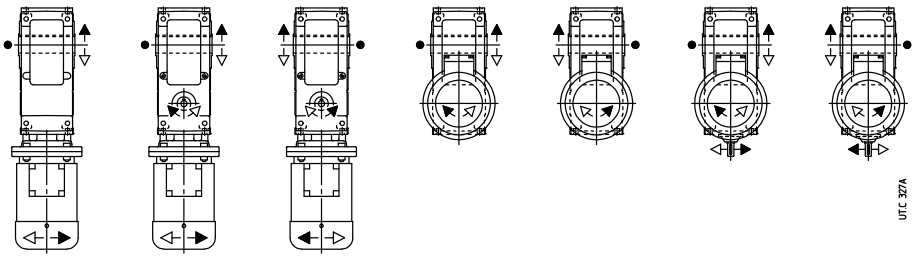
Designs (direction of rotation)

MR C2I 140 ... 360



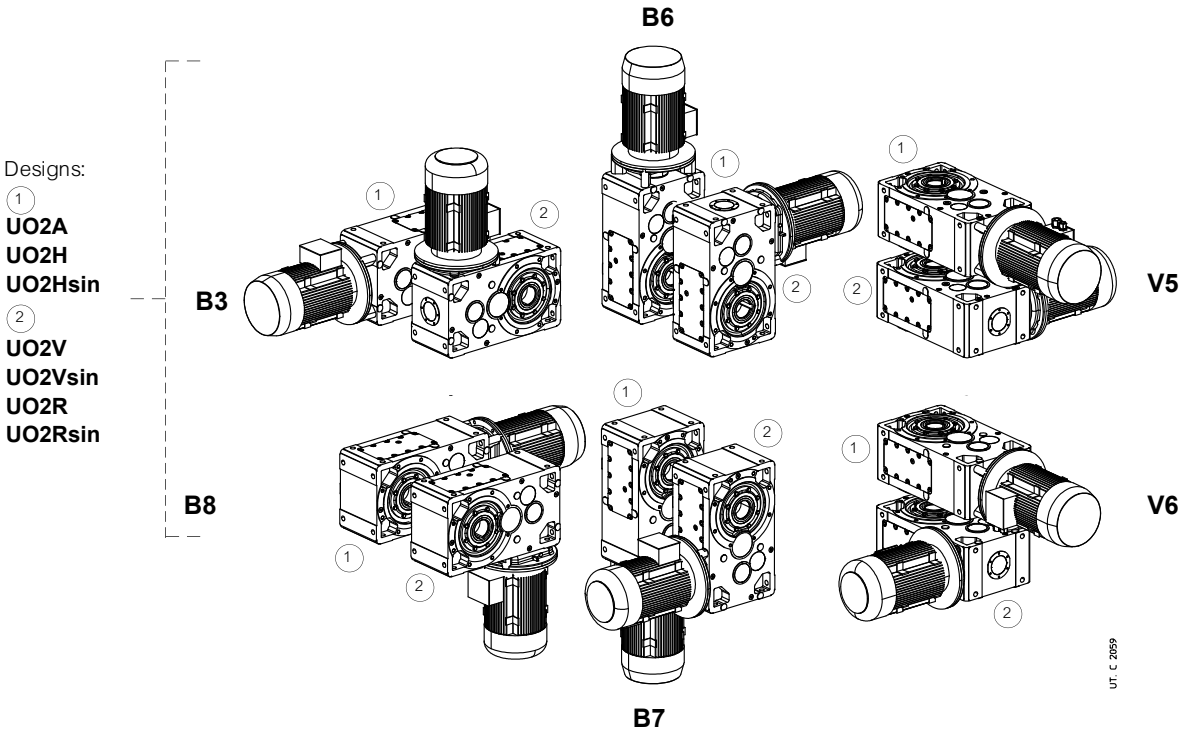
U02A[1)] U02H U02Hsin U02V U02Vsin U02R U02Rsin

● Position of reference groove (see ch. 3.5) for radial load verification.
1) The housing of this design is not pre-arranged for other designs.

Mounting positions

Unless otherwise stated, gear reducers are supplied in mounting position **B3** (see ch. 3).

MR C2I 140 ... 360



Oil quantity MR C2I 140 ... 360

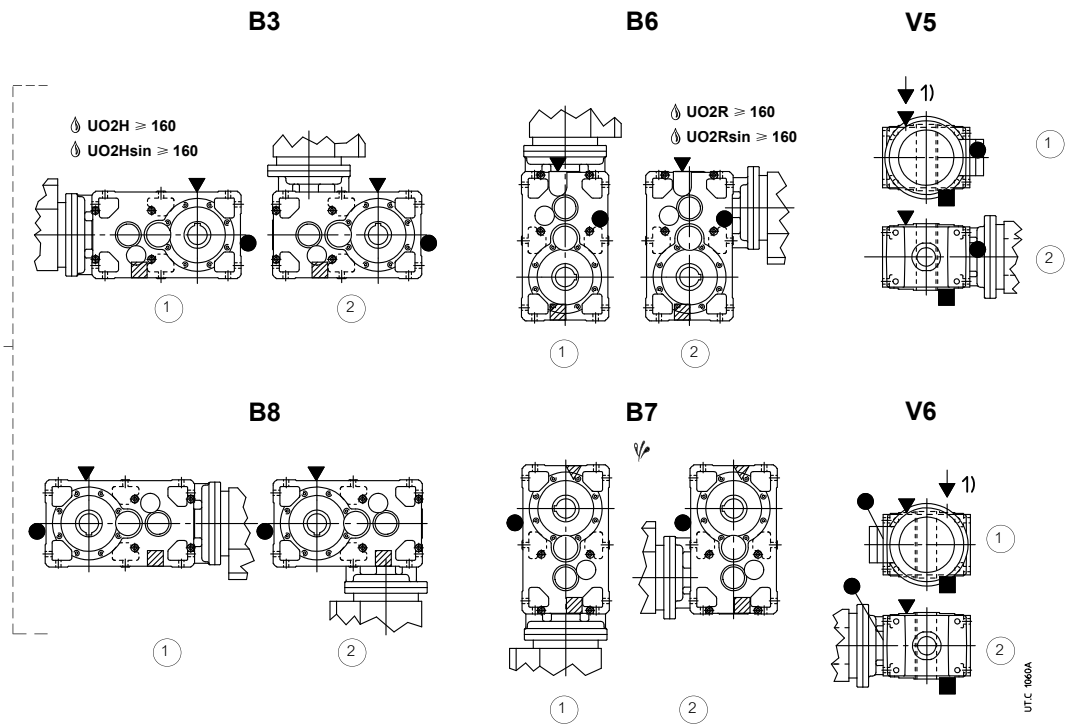
Lubricant quantities [gal] stated are approximate for provisioning. The exact oil quantity the gear reducer is to be filled with is defined by the level plug.

	140	160	180	200	225	250	280	320, 321	360
B3	1.7	3.2	3.4	6.6	6.9	12	13	26	26
B8	1.7	3.2	3.4	6.6	6.9	12	13	26	26
B6	2.9	5.3	5.5	10	11	20	21	40	41
B7	2.6	4.8	5	9.2	9.8	18	19	36	37
V5	2.6	4.8	5	9.2	9.8	18	19	36	37
V6	2.6	4.8	5	9.2	9.8	18	19	36	37

Lubrication details

MR C2I 140 ... 360

Designs:
① **UO2A**
UO2H
UO2Hsin
② **UO2V**
UO2Vsin
UO2R
UO2Rsin



Possible high oil splash: for the corrective factor f_{t_3} of nominal thermal power Pt_N see ch. 3.3.
Possible bearing lubrication pump (see ch 4 (19)).
1) Position of intermediate hole for mounting position identification.

▼ oil filler plug
● oil level plug
■ oil drain plug

▽ oil drain plug on opposite side (not in view)
◍ oil level plug on opposite side (not in view)
▨ oil drain plug on opposite side (not in view)

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 gearmotor in question. Direction of rotation and direction of force may be established viewing the gear reducer from any point (from groove side or from opposite side to groove, indifferently), providing the same point is adopted for rotation and axial load (see fig. below).

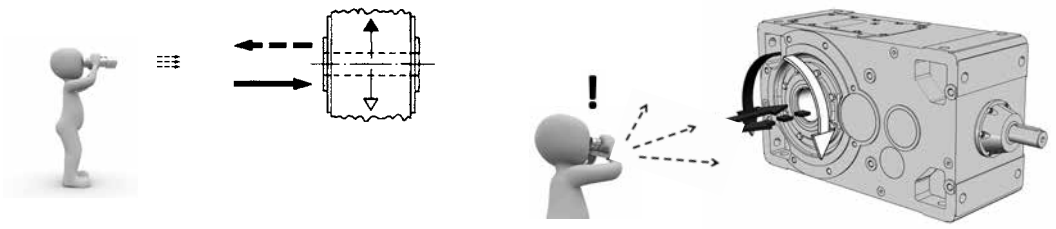
Notes:

– White and black arrows of present chapter do not refer to the ones stating the correspondence of direction of rotation for the different designs (see ch. 3.7 and 3.9);

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

– The values stated in the table are valid for the center line axial load; in the event of a misaligned axial load, consult us.

Radial loads F_{r2}



Radial loads generated on the shaft end by a drive connecting gearmotor and machine must be less than or equal to those given in the following pages.

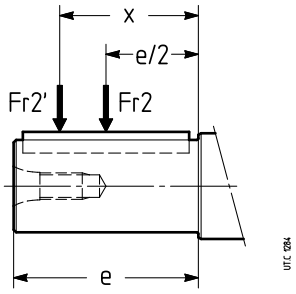
Normally, radial loads on low speed shaft ends are considerable: in fact there is a tendency to connect the gearmotor to the machine by means of a transmission with high transmission ratio (economizing on the gearmotor) and with small diameters (economizing on the drive, and for requirements dictated 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 permissible radial loads stated in the tables are according to: low speed shaft end where the radial load is applied according to reference groove (see ch. 3) of the product of angular speed n_2 [rpm] multiplied by the bearing life required L_h [h], of direction of rotation, of angular position φ [°] of load and of torque required T_2 [lbf in].

The radial loads given in the tables are valid for loads on shaft center line of low speed shaft, i.e. at a distance from shoulder of 0.5 · E (E = shaft end length); in the event of radial load acting in a different position (not center line), i.e. at a distance from shoulder different from 0.5 · E, re-calculate the permissible value of radial load according to the following formula, verifying simultaneously not to exceed the maximum value F_{r2max}, given in the tables.

$$F_{r2}' = F_{r2} \cdot \frac{E/2 + y}{x + y} \quad [lb]$$



where:

F_{r2}' [lb] is the permissible radial load acting at distance x from the shoulder;

F_{r2} [lb] is the permissible radial load acting on center line of high speed shaft end (see table on following pages);

E [mm] is the shaft end length (see ch. 4);

y [mm] is given in the table;

x [mm] is the distance of load application starting from shaft shoulder.

	size									
	125	**140**	**160**	**180**	**200**	**225** 1)	**250**	**280** 1)	**320, 321**	**360** 1)
y	166	189	205	228	258	287 (279)	318	351 (344)	398	432 (424)

1) Values in brackets are valid for «Solid low speed shaft», see ch. 4.

Chain drives

This drive is usually advised for low tip speeds (v ⩽ 1.5 ft/s with periodical lubrication, v ⩽ 4.5 ft/s with drop lubrication) and for this reason it is usually placed between gear reducer and machine. Compared with gear transmissions it offers the advantage of a high flexibility, allowing larger misalignements and higher distances among the shaft to be connected.

On the other hand, it is less suitable with alternate shock operations, in particular with high tip speed (shocks, noise, clearance worsening) and requires a specific maintenance as it is subjected to wear and periodic clearance taking up.

For the correct belt drive dimensioning refer to specific manufacturer's literature; as a rough guide, we can assume:

$$p \approx 0.5 \cdot D$$

$$d = p \cdot z / \pi$$

where:

p chain pitch

D diameter of gear reducer shaft end

d pinion pitch diameter

z pinion number of teeth

Keep in mind that the number of pinion teeth ***z***, except some particular cases, should be at least **17** (the numbers of teeth classically adopted are: 17, 19, 21, 23) and that the smaller the pitch, the quieter the chain;

As a rough guide, for a rapid evaluation of the radial load generated by the low speed shaft end of gear reducer from chain drive, see the table including:

- the **pitch diameter** values ***d*** of pinion and the **maximum transmissible power**, for two pinion speeds, according to pitch *p* and teeth number *z*
- the **maximum pinion width** b_{max}, the **mass** and the **maximum breaking load** R_R of chain, according to the pitch and to the chain (simple, double or triple).

No. teeth	Pitch ***p*** [in]																							
	0.5 (1/2)			**0.625** (5/8)			**0.75** (3/4)			**1**			**1.25** (1 1/4)			**1.5** (1 1/2)			**1.75** (1 3/4)			**2**		
	d	P_{max} hp		*d*	P_{max} hp		*d*	P_{max} hp		*d*	P_{max} hp		*d*	P_{max} hp		*d*	P_{max} hp		*d*	P_{max} hp		*d*	P_{max} hp	
z	in	50 rpm	100 rpm	in	50 rpm	100 rpm	in	50 rpm	100 rpm	in	50 rpm	100 rpm	in	50 rpm	100 rpm	in	50 rpm	100 rpm	in	50 rpm	100 rpm	in	50 rpm	100 rpm
15	2.39	0.36	1.22	2.98	0.54	0.94	3.58	0.80	1.61	4.77	2.41	4.56	5.97	4.29	8.05	7.16	6.84	12.7	8.36	10.7	20.1	9.55	16.1	28.2
16	2.55	0.39	1.34	3.18	0.54	1.07	3.82	0.94	1.88	5.09	2.55	4.69	6.37	4.56	8.45	7.64	7.38	13.4	8.91	11.4	21.5	10.2	16.1	30.8
17	2.71	0.43	1.41	3.38	0.67	1.07	4.06	1.07	2.01	5.41	2.68	4.96	6.76	4.83	9.12	8.12	7.78	14.8	9.47	12.2	22.8	10.8	17.4	32.2
18	2.86	0.46	1.50	3.58	0.67	1.21	4.30	1.07	2.01	5.73	2.95	5.36	7.16	5.10	9.66	8.59	8.31	16.1	10.0	12.9	24.1	11.5	18.8	34.9
19	3.02	0.48	1.58	3.78	0.67	1.21	4.54	1.21	2.15	6.05	3.08	5.63	7.56	5.50	10.2	9.07	8.85	16.1	10.6	13.4	25.5	12.1	20.1	37.5
20	3.18	0.50	1.69	3.98	0.80	1.21	4.77	1.21	2.28	6.37	3.22	5.90	7.96	5.77	10.7	9.55	9.25	17.4	11.1	14.8	26.8	12.7	21.5	38.9
21	3.34	0.51	1.78	4.18	0.80	1.34	5.01	1.34	2.41	6.68	3.35	6.30	8.36	6.17	11.4	10.0	9.79	18.8	11.7	14.8	28.2	13.4	22.8	48.3
22	3.50	0.54	1.89	4.38	0.80	1.34	5.25	1.34	2.55	7.00	3.62	6.57	8.75	6.44	11.9	10.5	10.3	18.8	12.3	16.1	29.5	14.0	22.8	42.9
23	3.66	0.55	2.01	4.58	0.80	1.48	5.49	1.48	2.68	7.32	3.75	6.97	9.15	6.71	12.5	11.0	10.9	20.1	12.8	17.4	32.2	14.6	24.1	45.6
24	3.82	0.58	2.12	4.77	0.80	1.48	5.73	1.48	2.82	7.64	3.89	7.24	9.55	7.11	13.1	11.5	11.4	21.5	13.4	17.4	33.5	15.3	25.5	46.9
25	3.98	0.60	2.21	4.97	0.94	1.48	5.97	1.61	2.95	7.96	4.16	7.64	9.95	7.38	13.4	11.9	11.8	22.8	13.9	18.8	34.9	15.9	26.8	49.6
26	4.14	0.63	2.29	5.17	0.98	1.53	6.21	1.68	3.07	8.28	4.26	7.78	10.3	7.58	13.8	12.4	12.2	23.9	14.5	19.4	36.2	16.6	27.6	51.6
27	4.30	0.66	2.39	5.37	1.02	1.60	6.45	1.74	3.19	8.59	4.36	7.91	10.7	7.71	14.2	12.9	12.9	24.8	15.0	20.8	37.5	17.2	28.4	52.6
28	4.46	0.68	2.55	5.57	1.07	1.74	6.68	1.88	3.49	8.91	4.43	8.05	11.1	7.91	14.8	13.4	13.4	25.5	15.6	21.5	38.9	17.8	29.5	56.3
29	4.62	0.71	2.64	5.77	1.11	1.81	6.92	1.94	3.62	9.23	4.56	8.33	11.5	8.18	15.6	13.8	14.2	26.3	16.2	22.3	39.7	18.5	30.8	58.3
30	4.77	0.74	2.68	5.97	1.21	1.88	7.16	2.01	3.75	9.55	4.69	8.72	11.9	8.45	16.1	14.3	14.8	26.8	16.7	22.8	41.6	19.1	32.2	60.3

Pitch ***p*** in	Chain type **simple**			**double**			**triple**		
	b_{max} in	weight lbf / ft	R_R lbf	b_{max} in	weight lbf / ft	R_R lbf	b_{max} in	weight lbf / ft	R_R lbf
1/2	**0.94**	0.27	3 150	**1.54**	0.94	6 300	**2.09**	1.34	9 500
5/8	**1.06**	0.60	5 000	**1.73**	1.14	10 000	**2.40**	1.68	15 000
3/4	**1.18**	0.81	7 100	**2.05**	1.61	14 000	**2.80**	2.49	21 200
1	**1.81**	1.81	12 500	**3.11**	3.49	25 000	**4.37**	5.38	37 500
1¼	**1.97**	2.42	20 000	**3.58**	4.84	40 000	**5.04**	7.39	60 000
1½	**2.56**	4.50	28 000	**4.53**	9.07	56 000	**6.46**	14.1	85 000
1¾	**3.07**	5.58	40 000	**5.51**	11.4	80 000	**7.87**	16.8	118 000
2	**3.07**	7.06	50 000	**5.55**	14.1	100 000	**7.87**	21.5	150 000

Axial F_{a2} [lb] or radial loads F_{r2} [lb] on low speed shaft end 3.10

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

$$F_{r2} = \frac{315\,150 \cdot P_2}{d \cdot n_2} \text{ [lb]}$$

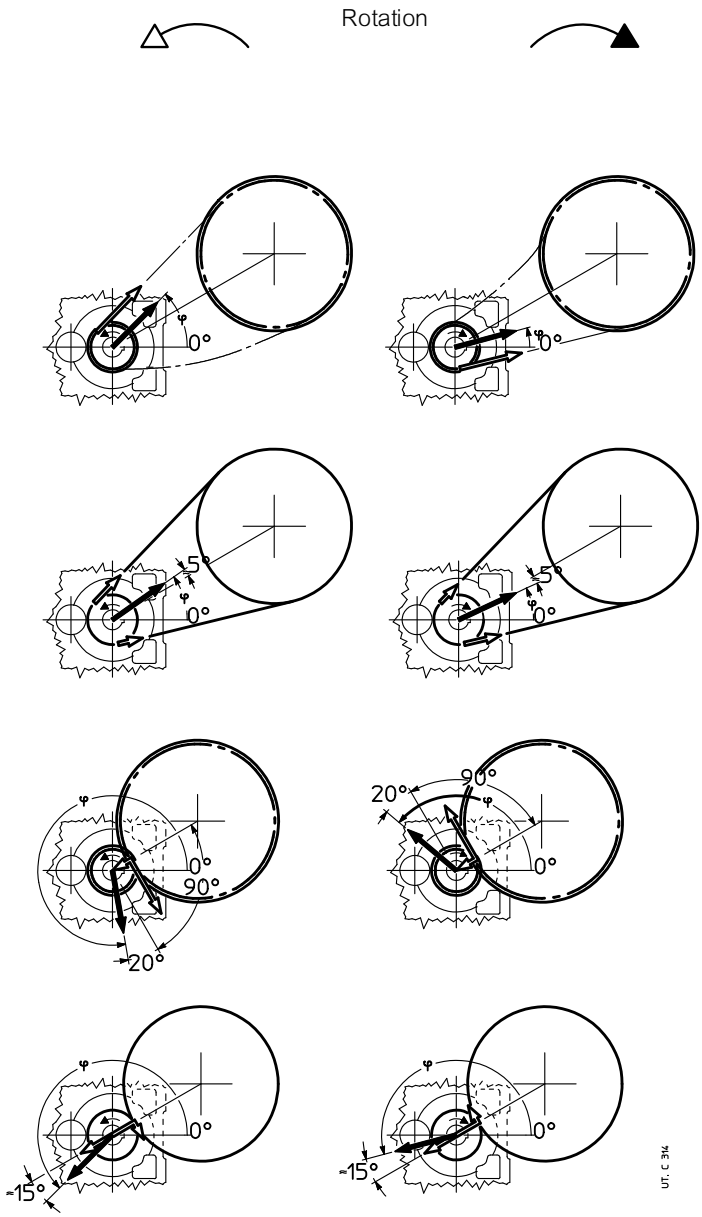
for V-belt drive

$$F_{r2} = \frac{134\,110 \cdot P_2}{d \cdot n_2} \text{ [lb]}$$

for spur gear pair drive

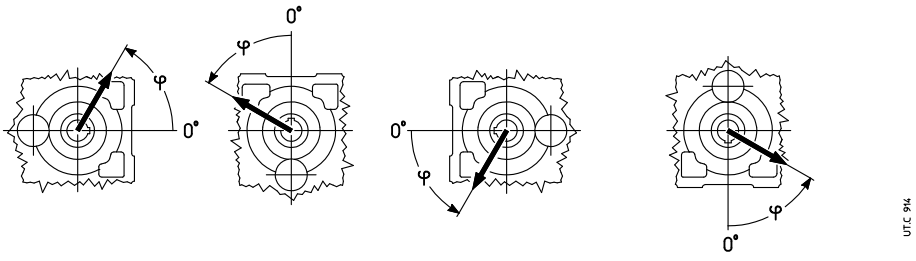
$$F_{r2} = \frac{447\,550 \cdot P_2}{d \cdot n_2} \text{ [lb]}$$

for friction wheel drive (rubber-on-metal)



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

IMPORTANT: 0° coincides with a straight line concurrent with the axis of the last reduction and orientated as shown above, and therefore it follows the rotation of the housing, as shown below.



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Axial F_{a2} [lb] or radial loads F_{r2} [lb] on low speed shaft end 3.10

Radial load applied on **opposite side to groove**

Size **125**

$n_2 \cdot L_h$	T_2	F_{r2} [1) 2) 3)]																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	22 400	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 250	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	3 150	1 600
	16 000	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	3 150	1 600
450 000	22 400	4 250	4 500	4 500	4 500	4 500	4 500	4 250	4 000	4 500	4 500	4 500	4 500	4 250	4 500	4 500	4 500	3 150	1 600
	16 000	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 250	4 500	4 500	4 500	4 500	4 500	4 500	4 500	4 500	3 150	1 600
560 000	22 400	3 750	4 250	4 500	4 500	4 500	4 500	4 000	3 550	4 500	4 500	4 000	4 000	3 750	4 000	4 500	4 500	3 150	1 500
	16 000	4 250	4 500	4 500	4 500	4 500	4 500	4 250	4 000	4 500	4 500	4 250	4 250	4 500	4 500	4 500	4 500	3 150	1 600
710 000	22 400	3 350	3 550	4 000	4 500	4 500	4 500	3 550	3 150	4 500	4 250	3 750	3 550	3 350	3 550	4 250	4 500	3 000	1 250
	16 000	3 750	4 500	4 500	4 500	4 500	4 500	4 000	3 550	4 500	4 250	4 000	4 000	4 250	4 500	4 500	4 500	3 000	1 600
900 000	22 400	3 150	3 150	3 550	4 250	4 500	4 250	3 350	3 000	4 500	3 750	3 350	3 150	2 800	3 150	3 550	4 250	2 650	1 060
	16 000	3 550	4 000	4 500	4 500	4 500	4 250	3 550	3 350	4 500	4 000	3 550	3 550	3 750	4 000	4 500	4 500	2 800	1 600
	11 200	3 750	4 250	4 500	4 500	4 500	4 250	3 750	3 550	4 500	4 000	3 750	3 750	4 000	4 500	4 500	4 500	2 800	1 600
1 120 000	22 400	2 800	2 650	3 150	3 750	4 250	4 000	3 000	2 650	4 250	3 550	3 150	2 650	2 360	2 650	3 350	3 750	2 500	850
	16 000	3 150	3 750	4 000	4 500	4 500	4 000	3 350	3 000	4 250	3 750	3 350	3 350	3 350	3 550	4 000	4 500	2 650	1 400
	11 200	3 350	3 750	4 500	4 500	4 500	4 000	3 550	3 350	4 250	3 750	3 550	3 550	3 750	4 250	4 500	4 500	2 650	1 600
1 400 000	16 000	3 000	3 350	3 550	4 000	4 500	3 750	3 150	2 800	4 000	3 350	3 150	3 150	3 150	3 150	3 550	4 000	2 360	1 180
	11 200	3 150	3 550	4 250	4 500	4 250	3 750	3 350	3 150	4 000	3 550	3 350	3 350	3 550	3 750	4 250	4 250	2 500	1 600
1 800 000	16 000	2 650	3 000	3 150	3 550	4 000	3 350	2 800	2 500	3 750	3 150	2 800	2 800	2 650	2 800	3 150	3 550	2 240	1 000
	11 200	3 000	3 350	3 750	4 250	4 000	3 550	3 000	2 800	3 550	3 350	3 150	3 000	3 150	3 550	3 750	4 000	2 240	1 400
2 240 000	16 000	2 500	2 650	2 800	3 350	3 750	3 150	2 500	2 240	3 550	3 000	2 650	2 500	2 240	2 500	3 000	3 350	2 120	900
	11 200	2 650	3 150	3 550	3 750	3 750	3 150	2 800	2 650	3 350	3 150	2 800	2 800	3 000	3 150	3 350	3 750	2 120	1 250
2 800 000	11 200	2 500	3 000	3 150	3 550	3 550	3 000	2 650	2 360	3 150	2 800	2 650	2 650	2 800	3 000	3 150	3 550	2 000	1 120
	8 000	2 650	3 000	3 350	3 550	3 350	3 150	2 650	2 500	3 150	3 000	2 800	2 800	3 000	3 150	3 350	3 350	2 000	1 400
3 550 000	11 200	2 240	2 650	3 000	3 150	3 350	2 800	2 360	2 120	3 000	2 650	2 360	2 360	2 500	2 650	2 800	3 150	1 800	1 000
	8 000	2 500	2 800	3 150	3 350	3 150	2 800	2 500	2 360	3 000	2 650	2 500	2 500	2 650	3 000	3 150	3 150	1 900	1 250
4 500 000	11 200	2 120	2 360	2 650	3 000	3 150	2 650	2 120	2 000	2 800	2 500	2 240	2 240	2 240	2 240	2 650	3 000	1 700	900
	8 000	2 240	2 500	3 000	3 150	3 000	2 650	2 360	2 120	2 800	2 500	2 360	2 360	2 500	2 800	3 000	3 000	1 700	1 120
5 600 000	11 200	1 900	2 120	2 360	2 650	3 000	2 500	2 000	1 800	2 650	2 240	2 000	2 000	1 900	2 000	2 360	2 650	1 600	750
	8 000	2 120	2 360	2 800	3 000	2 800	2 500	2 120	2 000	2 650	2 360	2 120	2 120	2 360	2 500	2 650	2 800	1 600	1 000
7 100 000	11 200	1 800	1 900	2 000	2 360	2 650	2 240	1 800	1 700	2 500	2 120	1 900	1 800	1 700	1 800	2 120	2 360	1 500	630
	8 000	1 900	2 240	2 500	2 800	2 650	2 240	2 000	1 800	2 360	2 120	2 000	2 000	2 120	2 240	2 500	2 650	1 500	900
max		**4 500**																**3 150**	**1 600**

Size **140**

280 000	33 500	6 300	6 300	6 300	6 300	6 300	6 300	6 300	6 000	6 300	6 300	6 300	6 300	6 300	6 300	6 300	6 300	4 000	2 000
	23 600	6 300	6 300	6 300	6 300	6 300	6 300	6 300	6 300	6 300	6 300	6 300	6 300	6 300	6 300	6 300	6 300	4 000	2 000
355 000	33 500	5 600	6 300	6 300	6 300	6 300	6 300	6 000	5 300	6 300	6 300	6 000	6 000	6 300	6 300	6 300	6 300	4 000	2 000
	23 600	6 300	6 300	6 300	6 300	6 300	6 300	6 300	6 000	6 300	6 300	6 300	6 300	6 300	6 300	6 300	6 300	4 000	2 000
450 000	33 500	5 300	6 300	6 300	6 300	6 300	6 300	5 300	4 750	6 300	6 000	5 600	5 600	5 600	6 000	6 300	6 300	4 000	2 000
	23 600	5 600	6 300	6 300	6 300	6 300	6 300	6 000	5 300	6 300	6 300	6 000	6 000	6 300	6 300	6 300	6 300	4 000	2 000
560 000	33 500	4 750	5 300	6 000	6 300	6 300	6 300	5 000	4 500	6 300	5 600	5 000	5 000	4 750	5 300	6 000	6 300	3 750	1 700
	23 600	5 300	6 000	6 300	6 300	6 300	6 300	5 300	5 000	6 300	6 000	5 300	5 300	6 000	6 300	6 300	6 300	4 000	2 000
710 000	33 500	4 250	4 750	5 300	6 300	6 300	5 600	4 500	4 000	6 300	5 300	4 500	4 500	4 250	5 600	4 500	4 000	3 550	1 400
	23 600	4 750	5 600	6 300	6 300	6 300	6 000	5 000	4 500	6 300	5 300	5 000	5 000	5 600	6 000	6 300	6 300	3 550	2 000
	17 000	5 000	5 600	6 300	6 300	6 300	6 000	5 300	5 000	6 000	5 600	5 300	5 300	5 600	6 300	6 300	6 300	3 750	2 000
900 000	33 500	4 000	4 000	4 750	5 600	6 000	5 300	4 000	3 550	6 000	4 750	4 250	3 750	3 550	4 000	4 750	5 300	3 350	1 120
	23 600	4 500	5 300	6 000	6 300	6 300	5 300	4 500	4 250	5 600	5 000	4 500	4 750	5 000	5 300	6 000	6 300	3 350	1 900
	17 000	4 750	5 300	6 000	6 300	6 300	5 600	4 750	4 500	5 600	5 300	4 750	4 750	5 300	5 600	6 300	6 000	3 350	2 000
1 120 000	23 600	4 000	5 000	5 300	6 000	6 000	5 000	4 250	3 750	5 300	4 750	4 250	4 250	4 500	4 750	5 300	6 000	3 150	1 700
	17 000	4 500	5 000	5 600	6 000	6 000	5 000	4 500	4 250	5 300	4 750	4 500	4 500	4 750	5 300	5 600	5 600	3 150	2 000
1 400 000	23 600	3 550	4 250	4 750	5 300	5 600	4 750	3 750	3 350	5 000	4 250	3 750	3 750	3 750	4 250	4 750	5 300	3 000	1 400
	17 000	4 000	4 750	5 300	5 600	5 300	4 750	4 000	3 750	5 000	4 500	4 000	4 250	4 500	5 000	5 300	5 300	3 000	1 900
1 800 000	23 600	3 350	3 750	4 250	4 750	5 300	4 250	3 350	3 150	4 750	4 000	3 550	3 550	3 350	3 750	4 250	4 750	2 650	1 180
	17 000	3 550	4 250	5 000	5 300	5 000	4 500	3 750	3 550	4 750	4 000	3 750	3 750	4 250	4 500	5 000	5 000	2 800	1 700
2 240 000	17 000	3 350	4 000	4 500	5 000	4 750	4 000	3 350	3 150	4 250	3 750	3 550	3 550	3 750	4 000	4 500	4 750	2 650	1 500
	11 800	3 550	4 000	4 500	4 750	4 750	4 250	3 550	3 550	4 250	4 000	3 750	3 750	4 000	4 250	4 750	4 500	2 650	1 900
2 800 000	17 000	3 150	3 750	4 250	4 500	4 500	3 750	3 150	3 000	4 000	3 550	3 150	3 150	3 550	3 550	4 000	4 500	2 360	1 320
	11 800	3 350	3 750	4 250	4 500	4 250	3 750	3 350	3 150	4 000	3 550	3 350	3 350	3 550	4 000	4 250	4 250	2 500	1 700
3 550 000	17 000	2 800	3 350	3 750	4 250	4 250	3 550	3 000	2 650	3 750	3 350	3 000	3 000	3 150	3 350	3 550	4 000	2 240	1 120
	11 800	3 150	3 550	4 000	4 250	4 000	3 550	3 150	3 000	3 750	3 350	3 150	3 150	3 350	3 750	4 000	4 000	2 240	1 500
4 500 000	17 000	2 650	3 150	3 350	3 750	4 000	3 350	2 650	2 360	3 550	3 000	2 800	2 800	2 800	3 000	3 350	3 550	2 000	1 000
	11 800	2 800	3 350	3 750	4 000	3 750	3 350	3 000	2 800	3 550	3 150	3 000	3 000	3 150	3 550	3 750	3 750	2 120	1 400
5 600 000	17 000	2 360	2 650	3 000	3 350	3 750	3 150	2 360	2 240	3 350	2 800	2 500	2 500	2 360	2 650	3 000	3 350	1 900	850
	11 800	2 650	3 000	3 550	3 750	3 550	3 150	2 650	2 500	3 350	3 000	2 650	2 650	3 000	3 150	3 550	3 550	2 000	1 180
max		**6 300** (**3 550** for «short side»)																**4 000**	**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) For radial loads acting simultaneously on both sides consult us.
3) An unfavourable direction of load can limit F_{r2} to $0.9 \cdot F_{r2max}$.

Axial F_{a2} [lb] or radial loads F_{r2} [lb] on low speed shaft end 3.10

Radial load applied on **groove side** •

Size **125**

$n_2 \cdot L_h$	T_2	F_{r2} [1) 2) 3)]								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	22 400	3 750	4 500	4 500	4 500	4 500	4 500	3 350	3 150	4 500	4 000	3 550	4 000	4 500	4 500	4 500	4 500	3 150	1 600
	16 000	4 500	4 500	4 500	4 500	4 500	4 500	4 000	3 750	4 500	4 500	4 250	4 500	4 500	4 500	4 500	4 500	3 150	1 600
450 000	22 400	3 350	4 500	4 500	4 500	4 500	4 250	3 000	2 800	4 500	3 550	3 150	3 550	4 500	4 500	4 500	4 500	3 150	1 600
	16 000	4 000	4 500	4 500	4 500	4 500	4 500	3 550	3 350	4 500	4 000	3 750	4 250	4 500	4 500	4 500	4 500	3 150	1 600
560 000	22 400	3 000	4 500	4 500	4 500	4 500	3 750	2 650	2 360	4 500	3 150	3 000	3 350	4 500	4 500	4 500	4 500	3 150	1 500
	16 000	3 550	4 500	4 500	4 500	4 500	4 250	3 350	3 150	4 500	3 750	3 350	3 750	4 500	4 500	4 500	4 500	3 150	1 600
710 000	22 400	2 650	4 250	4 500	4 500	4 500	3 350	2 240	2 000	4 000	3 000	2 500	3 000	3 750	4 500	4 500	4 500	3 000	1 250
	16 000	3 350	4 500	4 500	4 500	4 500	4 000	3 000	2 800	4 250	3 350	3 150	3 350	4 500	4 500	4 500	4 500	3 000	1 600
900 000	22 400	2 240	3 750	4 500	4 500	4 500	3 150	1 900	1 800	3 550	2 500	2 240	2 650	3 350	4 500	4 500	4 500	2 650	1 060
	16 000	3 000	4 250	4 500	4 500	4 500	3 550	2 650	2 500	4 000	3 150	2 800	3 150	4 000	4 500	4 500	4 500	2 800	1 600
	11 200	3 350	4 250	4 500	4 500	4 500	3 750	3 150	3 000	4 000	3 350	3 150	3 550	4 250	4 500	4 500	4 500	2 800	1 600
1 120 000	22 400	1 900	3 350	4 500	4 500	4 500	2 800	1 700	1 500	3 350	2 240	1 900	2 360	3 000	4 000	4 500	4 500	2 500	850
	16 000	2 650	3 750	4 500	4 500	4 500	3 350	2 360	2 240	3 550	2 800	2 500	2 800	3 750	4 500	4 500	4 500	2 650	1 400
	11 200	3 150	4 000	4 500	4 500	4 500	3 550	3 000	2 800	3 750	3 150	3 000	3 150	3 750	4 500	4 500	4 500	2 650	1 600
1 400 000	16 000	2 360	3 550	4 500	4 500	4 500	3 000	2 120	1 900	3 350	2 500	2 240	2 650	3 550	4 250	4 500	4 500	2 360	1 180
	11 200	2 800	3 750	4 500	4 500	4 500	3 350	2 650	2 500	3 550	3 000	2 800	3 000	3 550	4 500	4 500	4 500	2 500	1 600
1 800 000	16 000	2 000	3 150	4 500	4 500	4 250	2 650	1 800	1 700	3 150	2 240	2 000	2 240	3 150	3 750	4 500	4 250	2 240	1 000
	11 200	2 650	3 350	4 500	4 500	4 000	3 150	2 360	2 240	3 350	2 650	2 500	2 650	3 350	4 250	4 500	4 000	2 240	1 400
2 240 000	16 000	1 800	3 000	4 000	4 500	4 000	2 360	1 600	1 400	2 800	2 000	1 800	2 000	2 650	3 550	4 000	4 000	2 120	900
	11 200	2 360	3 150	4 250	4 500	3 750	2 800	2 120	2 000	3 150	2 360	2 240	2 500	3 150	4 000	4 250	3 750	2 120	1 250
2 800 000	11 200	2 120	3 000	4 000	4 250	3 550	2 650	1 900	1 800	2 800	2 240	2 000	2 240	3 000	3 550	4 000	3 550	2 000	1 120
	8 000	2 360	3 150	3 750	4 000	3 550	2 800	2 240	2 120	3 000	2 500	2 360	2 500	3 000	3 550	3 750	3 550	2 000	1 400
3 550 000	11 200	1 900	2 800	3 750	4 000	3 350	2 360	1 700	1 600	2 650	2 000	1 800	2 000	2 650	3 350	3 550	3 350	1 800	1 000
	8 000	2 240	2 800	3 550	3 750	3 350	2 500	2 000	1 900	2 650	2 240	2 120	2 240	2 800	3 350	3 550	3 350	1 900	1 250
4 500 000	11 200	1 700	2 500	3 350	3 750	3 150	2 120	1 500	1 400	2 360	1 800	1 600	1 800	2 500	3 000	3 350	3 150	1 700	900
	8 000	2 000	2 650	3 350	3 550	3 150	2 360	1 800	1 700	2 500	2 000	1 900	2 120	2 500	3 150	3 350	3 150	1 700	1 120
5 600 000	11 200	1 500	2 360	3 150	3 550	3 000	1 900	1 320	1 180	2 240	1 600	1 400	1 700	2 240	2 800	3 150	3 150	1 600	750
	8 000	1 800	2 500	3 150	3 350	3 000	2 120	1 700	1 600	2 360	1 900	1 700	1 900	2 360	3 000	3 150	3 000	1 600	1 000
7 100 000	11 200	1 320	2 120	2 800	3 150	2 800	1 700	1 120	1 060	2 000	1 400	1 250	1 500	1 900	2 500	3 000	2 800	1 500	630
	8 000	1 700	2 240	3 000	3 150	2 800	2 000	1 500	1 400	2 120	1 700	1 600	1 700	2 240	2 800	3 000	2 800	1 500	900
max		**4 500**																**3 150**	**1 600**

Size **140**

280 000	33 500	5 300	6 300	6 300	6 300	6 300	6 300	5 000	4 500	6 300	5 600	5 000	5 600	6 300	6 300	6 300	6 300	4 000	2 000
	23 600	6 300	6 300	6 300	6 300	6 300	6 300	5 600	5 600	6 300	6 300	6 000	6 300	6 300	6 300	6 300	6 300	4 000	2 000
355 000	33 500	4 750	6 300	6 300	6 300	6 300	6 000	4 250	4 000	6 300	5 000	4 500	5 300	6 300	6 300	6 300	6 300	4 000	2 000
	23 600	5 600	6 300	6 300	6 300	6 300	6 300	5 300	5 000	6 300	6 000	5 300	6 000	6 300	6 300	6 300	6 300	4 000	2 000
450 000	33 500	4 250	6 300	6 300	6 300	6 300	5 600	3 750	3 550	6 300	4 750	4 250	4 750	6 300	6 300	6 300	6 300	4 000	2 000
	23 600	5 300	6 300	6 300	6 300	6 300	6 000	4 750	4 500	6 300	5 300	5 000	5 300	6 300	6 300	6 300	6 300	4 000	2 000
560 000	33 500	3 750	6 000	6 300	6 300	6 300	5 000	3 350	3 150	5 600	4 250	3 550	4 250	5 600	6 300	6 300	6 300	3 750	1 700
	23 600	4 750	6 300	6 300	6 300	6 300	5 600	4 250	4 000	6 000	4 500	4 500	4 750	6 000	6 300	6 300	6 300	4 000	2 000
710 000	33 500	3 350	5 300	6 300	6 300	6 300	4 500	3 000	2 650	5 300	3 550	3 150	3 750	4 750	6 300	6 300	6 300	3 550	1 400
	23 600	4 250	5 600	6 300	6 300	6 300	5 000	3 750	3 550	5 600	4 500	4 000	4 500	5 600	6 300	6 300	6 300	3 550	2 000
	17 000	4 750	6 000	6 300	6 300	6 300	5 300	4 500	4 250	5 600	4 750	4 500	4 750	5 600	6 300	6 300	6 300	3 750	2 000
900 000	33 500	3 000	4 750	6 300	6 300	6 300	4 000	2 500	2 240	4 750	3 350	3 000	3 350	4 250	5 600	6 300	6 300	3 350	1 120
	23 600	3 750	5 300	6 300	6 300	6 300	4 750	3 350	3 150	5 000	4 000	3 550	4 000	5 300	6 300	6 300	6 300	3 350	1 900
	17 000	4 250	5 600	6 300	6 300	6 300	5 000	4 000	3 750	5 300	4 500	4 250	4 500	5 300	6 300	6 300	6 300	3 350	2 000
1 120 000	23 600	3 350	5 000	6 300	6 300	6 300	4 250	3 150	2 800	4 750	3 550	3 350	3 550	4 750	6 000	6 300	6 300	3 150	1 700
	17 000	4 000	5 000	6 300	6 300	6 000	4 750	3 750	3 550	5 000	4 000	3 750	4 000	5 000	6 000	6 300	6 000	3 150	2 000
1 400 000	23 600	3 000	4 500	6 000	6 300	5 600	3 750	2 800	2 500	4 250	3 150	3 000	3 350	4 500	5 300	6 000	6 000	3 000	1 400
	17 000	3 550	4 750	6 000	6 300	5 600	4 250	3 350	3 150	4 500	3 750	3 350	3 750	4 500	5 600	6 000	5 600	3 000	1 900
1 800 000	23 600	2 650	4 250	5 600	6 300	5 300	3 550	2 360	2 240	4 000	3 000	2 650	3 000	3 750	4 750	5 600	5 600	2 650	1 180
	17 000	3 350	4 500	5 600	6 000	5 300	3 750	3 000	2 800	4 250	3 350	3 150	3 350	4 250	5 300	6 000	5 300	2 800	1 700
2 240 000	17 000	3 000	4 000	5 300	6 000	5 000	3 550	2 800	2 500	4 000	3 150	2 800	3 150	4 000	5 000	5 300	5 000	2 650	1 500
	11 800	3 350	4 250	5 000	5 300	4 750	3 750	3 150	3 000	4 000	3 350	3 150	3 350	4 000	4 750	5 000	4 750	2 650	1 900
2 800 000	17 000	2 650	3 750	5 000	5 600	4 750	3 350	2 360	2 240	3 550	2 800	2 500	3 000	3 550	4 500	5 000	4 750	2 360	1 320
	11 800	3 150	3 750	4 750	5 000	4 500	3 550	3 000	2 800	3 750	3 150	3 000	3 150	3 750	4 500	4 750	4 500	2 500	1 700
3 550 000	17 000	2 360	3 350	4 750	5 300	4 250	3 000	2 120	2 000	3 350	2 500	2 240	2 650	3 350	4 000	4 750	4 500	2 240	1 120
	11 800	2 800	3 550	4 500	4 750	4 250	3 150	2 650	2 500	3 350	3 000	2 650	3 000	3 350	4 250	4 500	4 250	2 240	1 500
4 500 000	17 000	2 120	3 150	4 250	4 750	4 000	2 800	1 900	1 800	3 150	2 240	2 000	2 360	3 150	3 750	4 250	4 250	2 000	1 000
	11 800	2 650	3 350	4 250	4 500	4 000	3 000	2 360	2 240	3 150	2 650	2 500	2 650	3 350	4 000	4 250	4 000	2 120	1 400
5 600 000	17 000	1 900	3 000	3 750	4 500	3 750	2 500	1 700	1 500	2 800	2 000	1 800	2 120	2 800	3 350	4 000	3 750	1 900	850
	11 800	2 240	3 150	4 000	4 250	3 550	2 800	2 120	2 000	3 000	2 360	2 240	2 500	3 000	3 750	4 000	3 750	2 000	1 180
max		**6 300** (**3 550** for «short side»)																**4 000**	**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) For radial loads acting simultaneously on both sides consult us.
3) An unfavourable direction of load can limit F_{r2} to 0.9 · F_{r2max}.

Axial F_{a2} [lb] or radial loads F_{r2} [lb] on low speed shaft end 3.10

Radial load applied on **opposite side to groove**

Size **160**

$n_2 \cdot L_h$	T_2	F_{r2} [1) 2) 3)]																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	50 000	8 000	8 000	8 000	7 500	7 500	7 100	7 100	7 500	6 700	6 300	6 700	8 000	8 000	8 000	8 000	8 000	2 500	5 000
	35 500	8 000	8 000	8 000	8 000	8 000	7 500	7 500	8 000	7 100	6 700	7 100	8 000	8 000	8 000	8 000	8 000	2 500	5 000
355 000	50 000	8 000	8 000	7 500	6 700	6 300	6 300	6 300	7 100	6 000	5 600	6 300	7 500	8 000	8 000	7 500	7 100	2 500	5 000
	35 500	8 000	8 000	8 000	8 000	7 100	6 700	6 700	7 100	6 700	6 300	6 700	7 500	8 000	8 000	8 000	7 500	2 500	5 000
450 000	50 000	7 500	7 500	6 700	6 000	5 600	6 000	6 000	6 300	5 600	5 300	5 600	7 100	8 000	7 500	6 700	6 300	2 360	4 750
	35 500	7 500	8 000	8 000	7 500	6 700	6 300	6 300	6 700	6 000	6 000	6 300	8 000	8 000	8 000	7 100	7 100	2 500	4 750
560 000	50 000	7 100	7 100	6 000	5 300	5 000	5 300	5 300	6 000	5 000	4 750	5 300	6 300	7 500	7 100	6 000	5 300	2 000	4 250
	35 500	7 100	7 500	7 100	6 700	6 300	5 600	5 600	6 300	5 600	5 300	5 600	6 700	7 500	8 000	7 100	6 300	2 500	4 500
710 000	50 000	6 700	6 300	5 000	4 500	4 250	4 500	5 000	5 600	4 500	4 250	4 750	6 000	6 700	6 300	5 300	4 750	1 700	4 000
	35 500	6 300	7 100	6 300	6 000	5 600	5 300	5 300	5 600	5 000	4 750	5 300	6 300	7 100	7 100	6 700	6 000	2 500	4 250
	25 000	6 300	7 100	7 100	6 300	6 000	5 600	5 600	6 000	5 600	5 300	5 600	6 300	7 100	7 100	6 700	6 000	2 500	4 250
900 000	50 000	6 300	5 600	4 250	3 750	3 550	3 750	4 500	5 000	4 250	3 750	4 250	5 600	6 300	5 600	4 500	4 000	1 320	3 550
	35 500	6 300	6 700	6 000	5 300	5 300	5 000	5 000	5 300	4 750	4 500	4 750	5 600	6 700	6 700	6 000	5 600	2 240	3 750
	25 000	6 000	6 300	6 300	6 000	5 600	5 300	5 300	5 600	5 000	4 750	5 000	6 000	6 700	6 700	6 300	5 600	2 500	4 000
1 120 000	35 500	5 600	6 000	5 300	4 750	4 500	4 500	4 500	5 000	4 250	4 000	4 500	5 300	6 300	6 000	5 300	5 000	1 900	3 550
	25 000	5 600	6 000	6 300	5 600	5 300	4 750	4 750	5 300	4 750	4 500	4 750	5 300	6 300	6 300	6 000	5 300	2 500	3 750
1 400 000	35 500	5 300	5 300	4 750	4 250	4 000	4 000	4 000	4 500	3 750	3 550	4 000	5 000	6 000	5 300	4 750	4 500	1 700	3 350
	25 000	5 300	5 600	5 600	5 000	4 750	4 500	4 500	4 750	4 250	4 000	4 250	5 000	5 600	6 000	5 600	5 000	2 240	3 350
1 800 000	35 500	5 000	5 000	4 250	3 750	3 550	3 750	3 750	4 250	3 550	3 350	3 550	4 750	5 300	4 750	4 250	3 750	1 400	3 150
	25 000	5 000	5 300	5 000	4 750	4 500	4 000	4 000	4 500	4 000	3 750	4 000	4 750	5 600	5 600	5 300	4 500	2 000	3 150
2 240 000	25 000	4 750	5 000	4 750	4 250	4 000	3 750	3 750	4 000	3 550	3 350	3 750	4 500	5 000	5 000	4 750	4 250	1 800	3 000
	18 000	4 500	5 000	5 000	4 500	4 250	4 000	4 000	4 250	3 750	3 750	4 000	4 500	5 000	5 300	4 750	4 250	2 240	3 150
2 800 000	25 000	4 250	4 750	4 250	3 750	3 550	3 350	3 350	3 750	3 350	3 150	3 350	4 000	4 750	4 750	4 250	4 000	1 600	2 800
	18 000	4 250	4 500	4 500	4 250	3 750	3 550	3 550	3 750	3 550	3 350	3 550	4 000	4 750	4 750	4 500	4 000	2 000	2 800
3 550 000	25 000	4 000	4 250	3 750	3 350	3 150	3 150	3 150	3 550	3 000	2 800	3 150	3 750	4 500	4 250	3 750	3 550	1 320	2 500
	18 000	4 000	4 250	4 250	4 000	3 550	3 350	3 350	3 550	3 350	3 150	3 350	3 750	4 250	4 500	4 250	3 750	1 800	2 650
4 500 000	25 000	3 750	3 750	3 350	3 000	2 800	3 000	3 000	3 150	2 800	2 650	2 800	3 550	4 250	3 750	3 350	3 150	1 180	2 360
	18 000	3 750	4 000	4 000	3 550	3 350	3 150	3 150	3 350	3 000	3 000	3 150	3 550	4 000	4 250	4 000	3 350	1 600	2 500
5 600 000	25 000	3 550	3 350	3 000	2 650	2 500	2 650	2 650	3 000	2 500	2 360	2 650	3 350	3 750	3 350	3 000	2 800	1 000	2 120
	18 000	3 550	3 750	3 550	3 350	3 150	3 000	3 000	3 150	2 800	2 650	2 800	3 350	3 750	4 000	3 550	3 150	1 400	2 240
max		**8 000**																**2 500**	**5 000**

Size **180**

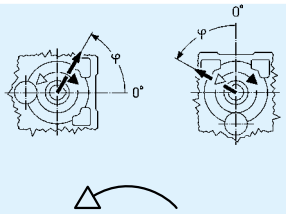
280 000	71 000	10 000	10 000	10 000	10 000	10 000	9 500	9 000	10 000	9 000	8 500	9 000	10 000	10 000	10 000	10 000	10 000	3 150	6 300
	50 000	10 000	10 000	10 000	10 000	10 000	10 000	9 500	10 000	9 500	9 000	9 500	10 000	10 000	10 000	10 000	10 000	3 150	6 300
355 000	71 000	10 000	10 000	10 000	9 500	9 000	8 500	8 500	9 500	8 000	7 500	8 000	10 000	10 000	10 000	10 000	10 000	3 150	6 300
	50 000	10 000	10 000	10 000	10 000	10 000	9 000	9 000	9 500	9 000	8 000	9 000	10 000	10 000	10 000	10 000	10 000	3 150	6 300
450 000	71 000	10 000	10 000	10 000	9 000	8 000	8 000	8 000	8 500	7 500	7 100	7 500	9 500	10 000	10 000	10 000	9 000	3 150	6 300
	50 000	10 000	10 000	10 000	10 000	9 000	8 500	8 500	9 000	8 500	8 000	8 500	9 500	10 000	10 000	10 000	9 500	3 150	6 300
560 000	71 000	9 500	10 000	9 000	8 000	7 100	7 100	7 100	8 000	6 700	6 300	7 100	8 500	10 000	10 000	9 000	8 000	2 650	5 600
	50 000	9 500	10 000	10 000	9 500	8 500	8 000	7 500	8 500	7 500	7 100	7 500	9 000	10 000	10 000	10 000	9 000	3 150	6 000
710 000	71 000	9 000	9 000	8 000	6 700	6 300	6 300	6 300	7 500	6 300	5 600	6 300	8 000	9 500	9 000	8 000	6 700	2 240	5 300
	50 000	9 000	9 500	9 500	8 500	8 000	7 100	7 100	7 500	7 100	6 300	7 100	8 500	10 000	10 000	9 500	8 000	3 150	5 600
	35 500	9 000	9 500	9 500	9 000	8 000	7 500	7 500	8 000	7 500	7 100	7 500	8 500	9 500	10 000	9 500	8 500	3 150	5 600
900 000	71 000	8 500	8 000	6 700	6 000	5 300	5 600	6 000	6 700	5 600	5 000	5 600	7 500	9 000	8 000	7 100	6 000	1 900	4 750
	50 000	8 500	9 000	8 500	7 500	7 500	6 700	6 300	7 100	6 300	6 000	6 300	7 500	9 500	9 500	8 500	7 500	3 000	5 000
	35 500	8 500	9 000	9 000	8 500	7 500	7 100	7 100	7 500	6 700	6 300	7 100	8 000	9 000	9 500	9 000	8 000	3 150	5 300
1 120 000	50 000	7 500	8 500	8 000	7 100	6 700	6 000	6 000	6 700	6 000	5 300	6 000	7 100	9 000	8 500	8 000	7 100	2 650	4 750
	35 500	7 500	8 500	8 500	8 000	7 100	6 300	6 300	7 100	6 300	6 000	6 300	7 500	8 500	9 000	8 500	7 100	3 150	5 000
1 400 000	50 000	7 100	7 500	7 100	6 300	5 600	5 600	5 600	6 000	5 300	4 750	5 300	6 700	8 500	8 000	7 100	6 300	2 240	4 250
	35 500	7 100	8 000	8 000	7 500	6 300	6 000	6 000	6 300	5 600	5 300	6 000	6 700	8 000	8 500	8 000	6 700	3 000	4 500
1 800 000	50 000	6 700	7 100	6 300	5 600	5 000	5 000	5 000	5 600	4 750	4 500	5 000	6 300	8 000	7 100	6 300	5 600	1 900	4 000
	35 500	6 700	7 500	7 100	6 700	6 000	5 600	5 600	6 000	5 300	5 000	5 300	6 300	7 500	8 000	7 500	6 300	2 650	4 250
2 240 000	35 500	6 300	7 100	6 700	6 000	5 600	5 000	5 000	5 600	5 000	4 500	5 000	6 000	7 100	7 500	6 700	6 000	2 360	3 750
	25 000	6 300	6 700	6 700	6 300	5 600	5 300	5 300	5 600	5 300	5 000	5 300	6 000	6 700	7 100	6 700	6 000	3 000	4 000
2 800 000	35 500	6 000	6 300	6 000	5 600	5 300	4 750	4 500	5 000	4 500	4 250	4 500	5 600	6 700	6 700	6 000	5 300	2 120	3 550
	25 000	6 000	6 300	6 300	6 000	5 300	5 000	5 000	5 300	4 750	4 500	4 750	5 600	6 300	6 700	6 300	5 600	2 650	3 750
3 550 000	35 500	5 300	6 000	5 300	5 000	4 500	4 250	4 250	4 750	4 000	3 750	4 000	5 000	6 300	6 000	5 600	5 000	1 800	3 350
	25 000	5 300	6 000	6 000	5 600	5 000	4 500	4 500	4 750	4 500	4 250	4 500	5 300	6 000	6 300	6 000	5 000	2 360	3 350
4 500 000	35 500	5 000	5 600	5 000	4 500	4 000	4 000	3 750	4 250	3 750	3 350	3 750	4 750	6 000	5 600	5 000	4 500	1 600	3 150
	25 000	5 000	5 600	5 600	5 300	4 750	4 250	4 250	4 500	4 000	3 750	4 250	4 750	5 600	6 000	5 600	4 750	2 120	3 150
5 600 000	35 500	4 750	5 000	4 500	3 750	3 550	3 550	3 550	4 000	3 350	3 150	3 350	4 500	5 600	5 000	4 500	4 000	1 320	2 800
	25 000	4 750	5 300	5 000	4 750	4 250	3 750	3 750	4 250	3 750	3 550	3 750	4 500	5 300	5 600	5 300	4 500	1 900	3 000
max		**10 000** (**5 600** for «short side»)																**3 150**	**6 300**

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) For radial loads acting simultaneously on both sides consult us.
3) An unfavourable direction of load can limit F_{r2} to $0.9 \cdot F_{r2max}$.

Axial F_{a2} [lb] or radial loads F_{r2}[lb] on low speed shaft end 3.10

Radial load applied on **groove side** •

Size **160**

$n_2 \cdot L_h$	T_2	F_{r2} [1) 2) 3)]								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	50 000	7 500	8 000	8 000	8 000	8 000	5 600	5 000	5 600	5 300	4 250	4 750	6 300	8 000	8 000	8 000	8 000	2 500	5 000
	35 500	8 000	8 000	8 000	8 000	8 000	6 300	6 000	6 300	6 300	5 300	5 600	7 100	8 000	8 000	8 000	8 000	2 500	5 000
355 000	50 000	6 700	8 000	8 000	8 000	7 100	5 000	4 500	4 750	4 750	3 750	4 000	6 000	8 000	8 000	8 000	7 500	2 500	5 000
	35 500	7 100	8 000	8 000	8 000	7 500	6 000	5 300	5 600	5 600	4 750	5 300	6 700	8 000	8 000	8 000	7 500	2 500	5 000
450 000	50 000	6 300	8 000	8 000	8 000	6 700	4 500	3 750	4 250	4 000	3 150	3 550	5 300	8 000	8 000	8 000	6 700	2 360	4 750
	35 500	6 700	8 000	8 000	8 000	7 100	5 300	4 750	5 300	5 300	4 500	4 750	6 000	8 000	8 000	8 000	7 100	2 500	4 750
560 000	50 000	5 600	8 000	8 000	7 500	6 000	4 000	3 350	3 750	3 550	2 800	3 000	4 750	8 000	8 000	8 000	6 300	2 000	4 250
	35 500	6 300	8 000	8 000	8 000	6 300	5 000	4 250	4 750	4 750	3 750	4 250	5 600	8 000	8 000	8 000	6 700	2 500	4 500
710 000	50 000	5 000	7 500	8 000	7 100	5 000	3 550	3 000	3 350	3 000	2 240	2 500	4 000	7 500	8 000	8 000	5 600	1 700	4 000
	35 500	5 600	7 500	8 000	7 500	6 000	4 500	3 750	4 250	4 250	3 350	3 550	5 000	7 500	8 000	8 000	6 300	2 500	4 250
	25 000	6 000	7 100	8 000	7 500	6 300	5 000	4 500	5 000	5 000	4 250	4 500	5 600	7 100	8 000	8 000	6 300	2 500	4 250
900 000	50 000	4 500	7 100	7 500	6 300	4 500	3 150	2 500	3 000	2 500	1 900	2 120	3 550	7 100	8 000	7 100	5 000	1 320	3 550
	35 500	5 300	7 100	8 000	7 100	5 600	4 000	3 550	3 750	3 750	3 000	3 350	4 500	7 100	8 000	8 000	5 600	2 240	3 750
	25 000	5 600	6 700	7 500	7 100	5 600	4 500	4 250	4 500	4 500	3 750	4 000	5 000	6 700	8 000	7 500	6 000	2 500	4 000
1 120 000	35 500	4 750	6 700	7 100	6 300	5 000	3 550	3 150	3 350	3 350	2 650	3 000	4 250	6 300	8 000	7 100	5 300	1 900	3 550
	25 000	5 000	6 300	7 100	6 700	5 300	4 250	3 750	4 000	4 000	3 350	3 550	4 750	6 300	7 500	7 100	5 600	2 500	3 750
1 400 000	35 500	4 250	6 300	6 700	6 000	4 750	3 150	2 650	3 150	3 000	2 240	2 500	3 550	6 000	7 500	6 700	4 750	1 700	3 350
	25 000	4 750	6 000	6 700	6 300	5 000	3 750	3 350	3 550	3 550	3 150	3 350	4 250	6 000	7 100	6 700	5 000	2 240	3 350
1 800 000	35 500	4 000	6 000	6 300	5 300	4 250	2 800	2 360	2 650	2 500	1 900	2 120	3 350	5 600	7 100	6 000	4 500	1 400	3 150
	25 000	4 250	5 600	6 300	6 000	4 500	3 550	3 150	3 350	3 350	2 800	3 000	4 000	5 600	6 700	6 300	4 750	2 000	3 150
2 240 000	25 000	4 000	5 300	6 000	5 300	4 250	3 150	2 800	3 150	3 000	2 500	2 650	3 550	5 300	6 300	6 000	4 250	1 800	3 000
	18 000	4 250	5 000	5 600	5 300	4 250	3 550	3 150	3 350	3 350	3 000	3 150	4 000	5 000	6 000	5 600	4 500	2 240	3 150
2 800 000	25 000	3 550	5 000	5 600	5 000	3 750	2 800	2 500	2 800	2 650	2 120	2 360	3 150	5 000	6 000	5 600	4 000	1 600	2 800
	18 000	3 750	4 750	5 300	5 000	4 000	3 150	3 000	3 150	3 150	2 650	2 800	3 550	4 750	5 600	5 300	4 250	2 000	2 800
3 550 000	25 000	3 350	4 750	5 000	4 500	3 550	2 500	2 240	2 500	2 360	1 900	2 000	3 000	4 500	5 600	5 000	3 550	1 320	2 500
	18 000	3 550	4 500	5 000	4 750	3 750	3 000	2 650	2 800	2 800	2 360	2 650	3 350	4 500	5 300	5 000	3 750	1 800	2 650
4 500 000	25 000	3 150	4 500	4 750	4 250	3 350	2 240	1 900	2 240	2 120	1 600	1 800	2 650	4 250	5 300	4 750	3 350	1 180	2 360
	18 000	3 350	4 250	4 750	4 500	3 350	2 650	2 360	2 650	2 650	2 240	2 360	3 000	4 250	5 000	4 750	3 550	1 600	2 500
5 600 000	25 000	2 800	4 250	4 500	3 750	3 000	2 000	1 700	1 900	1 800	1 320	1 500	2 360	4 000	4 750	4 250	3 150	1 000	2 120
	18 000	3 150	4 000	4 500	4 250	3 150	2 500	2 120	2 360	2 360	1 900	2 000	2 800	4 000	4 750	4 500	3 350	1 400	2 240
max		**8 000**																**2 500**	**5 000**

Size **180**

280 000	71 000	10 000	10 000	10 000	10 000	10 000	8 000	7 100	7 500	7 500	6 000	6 700	9 000	10 000	10 000	10 000	10 000	3 150	6 300
	50 000	10 000	10 000	10 000	10 000	10 000	9 000	8 500	9 000	9 000	7 500	8 000	10 000	10 000	10 000	10 000	10 000	3 150	6 300
355 000	71 000	9 500	10 000	10 000	10 000	9 500	7 100	6 300	7 100	6 700	5 300	5 600	8 500	10 000	10 000	10 000	10 000	3 150	6 300
	50 000	10 000	10 000	10 000	10 000	10 000	8 500	7 500	8 000	8 000	6 700	7 100	9 000	10 000	10 000	10 000	10 000	3 150	6 300
450 000	71 000	8 500	10 000	10 000	10 000	9 000	6 300	5 600	6 300	6 000	4 750	5 000	7 500	10 000	10 000	10 000	9 000	3 150	6 300
	50 000	9 000	10 000	10 000	10 000	9 500	7 500	6 700	7 500	7 100	6 300	6 700	8 500	10 000	10 000	10 000	9 500	3 150	6 300
560 000	71 000	8 000	10 000	10 000	10 000	8 500	5 600	4 750	5 600	5 000	4 000	4 500	6 700	10 000	10 000	10 000	8 500	2 650	5 600
	50 000	8 500	10 000	10 000	10 000	9 000	6 700	6 300	6 700	6 300	5 600	6 000	7 500	10 000	10 000	10 000	9 000	3 150	6 000
710 000	71 000	7 100	10 000	10 000	9 500	7 100	5 000	4 250	4 750	4 500	3 350	3 750	6 000	10 000	10 000	10 000	7 500	2 240	5 300
	50 000	8 000	10 000	10 000	10 000	8 000	6 300	5 600	6 000	6 000	4 750	5 300	7 100	10 000	10 000	10 000	8 500	3 150	5 600
	35 500	8 000	9 500	10 000	10 000	8 500	7 100	6 300	6 700	6 700	6 000	6 300	7 500	9 500	10 000	10 000	8 500	3 150	5 600
900 000	71 000	6 300	9 500	10 000	8 500	6 300	4 500	3 550	4 250	3 750	2 800	3 150	5 300	9 500	10 000	10 000	7 100	1 900	4 750
	50 000	7 100	9 500	10 000	9 500	7 500	5 600	5 000	5 600	5 300	4 250	4 750	6 300	9 500	10 000	10 000	7 500	3 000	5 000
	35 500	7 500	9 000	10 000	9 500	8 000	6 300	6 000	6 300	6 300	5 300	5 600	7 100	9 000	10 000	10 000	8 000	3 150	5 300
1 120 000	50 000	6 700	9 000	10 000	9 000	7 100	5 000	4 500	5 000	4 750	3 750	4 250	6 000	9 000	10 000	10 000	7 100	2 650	4 750
	35 500	7 100	8 500	9 500	9 000	7 100	6 000	5 300	5 600	5 600	4 750	5 300	6 300	8 500	10 000	9 500	7 500	3 150	5 000
1 400 000	50 000	6 000	8 500	9 000	8 000	6 300	4 500	3 750	4 500	4 000	3 350	3 550	5 300	8 500	10 000	9 000	6 300	2 240	4 250
	35 500	6 300	8 000	9 000	8 500	6 700	5 300	4 750	5 300	5 000	4 250	4 500	6 000	8 000	9 500	9 000	6 700	3 000	4 500
1 800 000	50 000	5 600	8 000	8 500	7 500	6 000	4 000	3 350	3 750	3 550	2 800	3 150	4 750	8 000	9 500	8 500	6 000	1 900	4 000
	35 500	6 000	7 500	8 500	8 000	6 300	4 750	4 250	4 750	4 500	3 750	4 250	5 600	7 500	9 000	8 500	6 300	2 650	4 250
2 240 000	35 500	5 600	7 100	8 000	7 500	5 600	4 500	3 750	4 250	4 250	3 350	3 750	5 000	7 100	8 500	8 000	6 000	2 360	3 750
	25 000	5 600	7 100	7 500	7 100	6 000	5 000	4 500	4 750	4 750	4 250	4 500	5 300	7 100	8 000	7 500	6 000	3 000	4 000
2 800 000	35 500	5 000	6 700	7 500	6 700	5 300	4 000	3 550	3 750	3 750	3 150	3 350	4 500	6 700	8 000	7 500	5 600	2 120	3 550
	25 000	5 300	6 300	7 100	6 700	5 600	4 500	4 000	4 500	4 500	3 750	4 000	5 000	6 300	7 500	7 100	5 600	2 650	3 750
3 550 000	35 500	4 750	6 300	7 100	6 300	5 000	3 550	3 150	3 350	3 350	2 650	3 000	4 000	6 300	7 500	7 100	5 000	1 800	3 350
	25 000	5 000	6 300	6 700	6 300	5 000	4 000	3 750	4 000	4 000	3 350	3 550	4 500	6 000	7 100	6 700	5 300	2 360	3 350
4 500 000	35 500	4 250	6 000	6 300	5 600	4 500	3 150	2 800	3 150	3 000	2 360	2 500	3 750	6 000	7 100	6 300	4 750	1 600	3 150
	25 000	4 500	5 600	6 300	6 000	4 750	3 750	3 350	3 550	3 550	3 150	3 350	4 250	5 600	6 700	6 300	4 750	2 120	3 150
5 600 000	35 500	3 750	5 600	6 000	5 300	4 000	2 800	2 500	2 800	2 500	2 000	2 240	3 350	5 600	6 700	6 000	4 250	1 320	2 800
	25 000	4 250	5 300	6 000	5 600	4 500	3 350	3 150	3 350	3 350	2 800	3 000	3 750	5 300	6 300	6 000	4 500	1 900	3 000
max		**10 000** (**5 600** for «short side»)																**3 150**	**6 300**

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) For radial loads acting simultaneously on both sides consult us.
3) An unfavourable direction of load can limit F_{r2} to $0.9 \cdot F_{r2max}$.

Axial F_{a2} [lb] or radial loads F_{r2} [lb] on low speed shaft end 3.10

Radial load applied on **opposite side to groove** Size **200**

$n_2 \cdot L_h$	T_2	F_{r2} [1) 2) 3)]								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	100 000	10 600	12 500	12 500	12 500	12 500	12 500	11 200	10 000	12 500	12 500	11 200	11 200	11 200	11 800	12 500	12 500	8 000	4 000
	71 000	11 800	12 500	12 500	12 500	12 500	12 500	11 800	11 200	12 500	12 500	11 800	11 800	12 500	12 500	12 500	12 500	8 000	4 000
355 000	100 000	10 000	11 200	12 500	12 500	12 500	12 500	10 000	9 000	12 500	11 800	10 600	10 600	10 000	10 600	12 500	12 500	8 000	3 750
	71 000	10 600	12 500	12 500	12 500	12 500	12 500	11 200	10 000	12 500	11 800	11 200	11 200	11 800	12 500	12 500	12 500	8 000	4 000
450 000	100 000	9 000	9 500	11 200	12 500	12 500	11 800	9 500	8 500	12 500	10 600	9 500	9 500	9 000	9 500	11 200	12 500	7 500	3 150
	71 000	10 000	11 200	12 500	12 500	12 500	11 800	10 000	9 500	12 500	11 200	10 000	10 000	11 200	11 800	12 500	12 500	7 500	4 000
560 000	100 000	8 000	8 500	9 500	11 200	12 500	10 600	8 500	7 500	11 800	10 000	9 000	8 000	7 500	8 500	9 500	11 200	7 100	2 650
	71 000	9 000	10 600	11 800	12 500	12 500	11 200	9 500	8 500	11 800	10 000	9 500	9 500	10 000	10 600	11 800	12 500	7 100	4 000
710 000	100 000	7 500	7 100	8 500	10 000	11 200	10 000	7 500	6 700	10 600	9 000	8 000	6 700	6 300	7 100	8 500	10 000	6 300	2 120
	71 000	8 500	10 000	10 600	11 800	11 800	10 000	8 500	8 000	11 200	9 500	8 500	8 500	9 000	9 500	10 600	11 800	6 700	3 550
	50 000	9 000	10 000	11 200	11 800	11 800	10 600	9 000	8 500	10 600	10 000	9 000	9 000	10 000	10 600	11 200	11 200	6 700	4 000
900 000	100 000	6 000	6 000	7 100	9 000	10 000	9 500	7 100	6 300	9 500	8 500	7 500	5 600	5 300	6 000	7 500	9 000	6 000	1 700
	71 000	7 500	9 000	9 500	10 600	11 200	9 500	8 000	7 100	10 000	9 000	8 000	8 000	8 000	8 500	9 500	10 600	6 300	3 150
	50 000	8 500	9 500	10 600	11 200	11 200	9 500	8 500	8 000	10 000	9 000	8 500	8 500	9 000	10 000	10 600	10 600	6 300	4 000
1 120 000	71 000	7 100	8 000	8 500	10 000	10 600	9 000	7 100	6 700	9 500	8 500	7 500	7 500	7 100	7 500	8 500	9 500	5 600	2 650
	50 000	7 500	9 000	10 000	10 600	10 600	9 000	8 000	7 500	9 500	8 500	8 000	8 000	8 500	9 500	10 000	10 000	6 000	3 750
1 400 000	71 000	6 300	6 700	7 500	9 000	9 500	8 500	6 700	6 000	9 000	7 500	6 700	6 700	6 300	6 700	7 500	8 500	5 300	2 240
	50 000	7 100	8 000	9 500	10 000	9 500	8 500	7 100	6 700	9 000	7 500	7 100	7 100	8 000	8 500	9 000	9 500	5 300	3 350
1 800 000	71 000	6 000	6 000	6 700	8 000	9 000	7 500	6 000	5 300	8 500	7 100	6 300	5 600	5 300	6 000	7 100	8 000	5 000	1 900
	50 000	6 300	7 500	8 500	9 500	9 000	8 000	6 700	6 300	8 500	7 500	6 700	6 700	7 500	7 500	8 500	9 000	5 000	3 000
2 240 000	50 000	6 000	7 100	7 500	8 500	8 500	7 500	6 000	5 600	8 000	6 700	6 300	6 300	6 300	6 700	7 500	8 500	4 750	2 650
	35 500	6 300	7 100	8 000	8 500	8 500	7 500	6 300	6 000	7 500	7 100	6 700	6 300	7 100	7 500	8 500	8 500	4 750	3 150
2 800 000	50 000	5 300	6 300	7 100	7 500	8 000	6 700	5 600	5 000	7 100	6 300	5 600	5 600	5 600	6 000	6 700	7 500	4 250	2 240
	35 500	6 000	6 700	7 500	8 000	8 000	6 700	6 000	5 600	7 100	6 300	6 000	6 000	6 300	7 100	7 500	7 500	4 500	3 000
3 550 000	50 000	5 000	5 600	6 300	7 100	7 500	6 300	5 000	4 750	6 700	6 000	5 300	5 300	5 000	5 300	6 300	6 700	4 000	1 900
	35 500	5 300	6 300	7 100	7 500	7 500	6 300	5 600	5 000	6 700	6 000	5 600	5 600	6 000	6 300	7 100	7 100	4 000	2 650
4 500 000	50 000	4 500	5 000	5 600	6 300	7 100	6 000	4 750	4 250	6 300	5 300	4 750	4 750	4 500	4 750	5 600	6 300	3 750	1 600
	35 500	5 000	5 600	6 700	7 100	7 100	6 000	5 000	4 750	6 300	5 600	5 300	5 300	5 600	6 000	6 300	6 700	3 750	2 360
5 600 000	50 000	4 000	4 250	4 750	5 600	6 300	5 300	4 250	3 750	6 000	5 000	4 500	4 000	3 750	4 250	5 000	5 600	3 350	1 320
	35 500	4 500	5 300	6 000	6 700	6 300	5 600	4 750	4 250	6 000	5 300	4 750	4 750	5 000	5 300	6 000	6 300	3 550	2 000
max		12 500																8 000	4 000

Values valid for metric «Solid low speed shaft» [4)] (see ch.17 (2)). Size **225**

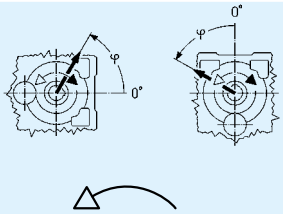
280 000	140 000	15 000	16 000	16 000	16 000	16 000	16 000	16 000	14 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	10 000	5 000
	100 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	10 000	5 000
355 000	140 000	14 000	16 000	16 000	16 000	16 000	16 000	14 000	12 500	16 000	16 000	15 000	15 000	15 000	16 000	16 000	16 000	10 000	5 000
	100 000	15 000	16 000	16 000	16 000	16 000	16 000	15 000	14 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	16 000	10 000	5 000
450 000	140 000	12 500	15 000	16 000	16 000	16 000	16 000	13 200	11 800	16 000	15 000	13 200	13 200	13 200	14 000	16 000	16 000	9 500	4 500
	100 000	14 000	16 000	16 000	16 000	16 000	16 000	14 000	13 200	16 000	16 000	14 000	14 000	16 000	16 000	16 000	16 000	10 000	5 000
560 000	140 000	11 800	12 500	14 000	16 000	16 000	15 000	11 800	10 600	16 000	14 000	12 500	11 800	11 200	12 500	14 000	16 000	9 000	3 750
	100 000	12 500	15 000	16 000	16 000	16 000	15 000	13 200	11 800	16 000	14 000	13 200	13 200	14 000	16 000	16 000	16 000	9 500	5 000
710 000	140 000	10 600	11 200	12 500	15 000	16 000	14 000	10 600	9 500	15 000	12 500	11 200	10 000	9 500	10 600	13 200	14 000	8 500	3 000
	100 000	11 800	14 000	16 000	16 000	16 000	14 000	11 800	11 200	15 000	13 200	12 500	12 500	13 200	14 000	15 000	16 000	8 500	4 750
	71 000	12 500	14 000	16 000	16 000	16 000	14 000	12 500	11 800	15 000	13 200	12 500	12 500	14 000	15 000	16 000	16 000	9 000	5 000
900 000	140 000	9 500	9 500	11 200	13 200	15 000	12 500	10 000	9 000	14 000	11 800	10 000	8 500	8 500	9 500	11 200	13 200	8 000	2 500
	100 000	10 600	12 500	14 000	16 000	16 000	13 200	11 200	10 000	14 000	12 500	11 200	11 200	11 800	12 500	14 000	16 000	8 000	4 250
	71 000	11 800	13 200	15 000	16 000	15 000	13 200	11 800	11 200	14 000	12 500	11 800	11 800	12 500	14 000	15 000	15 000	8 500	5 000
1 120 000	100 000	10 000	11 800	12 500	14 000	15 000	12 500	10 000	9 000	13 200	11 200	10 600	10 600	10 600	11 200	12 500	14 000	7 500	3 550
	71 000	10 600	12 500	14 000	15 000	14 000	12 500	11 200	10 000	13 200	11 800	11 200	11 200	11 800	13 200	14 000	14 000	7 500	5 000
1 400 000	100 000	9 000	10 000	11 200	12 500	14 000	11 200	9 000	8 500	12 500	10 600	9 500	9 500	9 000	10 000	11 200	12 500	7 100	3 150
	71 000	10 000	11 200	13 200	14 000	13 200	11 800	10 000	9 500	12 500	11 200	10 000	10 000	11 200	11 800	13 200	13 200	7 500	4 500
1 800 000	100 000	8 500	9 000	10 000	11 800	12 500	10 600	8 500	7 500	11 800	10 000	9 000	8 500	8 000	9 000	10 000	11 200	6 300	2 650
	71 000	9 000	10 600	12 500	13 200	12 500	11 200	9 500	8 500	11 800	10 000	9 500	9 500	10 000	11 200	11 800	12 500	6 700	3 750
2 240 000	71 000	8 500	10 000	11 200	12 500	11 800	10 000	8 500	8 000	10 600	9 500	8 500	8 500	9 500	10 000	11 200	11 800	6 300	3 350
	50 000	9 000	10 000	11 200	11 800	11 800	10 000	9 000	8 500	10 600	9 500	9 000	9 000	9 500	10 600	11 200	11 200	6 300	4 500
2 800 000	71 000	7 500	9 000	10 000	11 200	11 200	9 500	8 000	7 100	10 000	9 000	8 000	8 000	8 500	9 000	10 000	11 200	5 600	3 000
	50 000	8 500	9 500	10 600	11 200	10 600	9 500	8 500	8 000	10 000	9 000	8 500	8 500	9 000	10 000	10 600	10 600	6 000	3 750
3 550 000	71 000	7 100	8 500	9 000	10 000	10 600	9 000	7 100	6 300	9 500	8 000	7 500	7 500	7 500	8 000	9 000	10 000	5 300	2 500
	50 000	7 500	8 500	10 000	10 600	10 000	9 000	7 500	7 100	9 500	8 500	8 000	8 000	8 500	9 500	10 000	10 000	5 300	3 550
4 500 000	71 000	6 300	7 500	8 000	9 500	10 000	8 500	6 700	6 000	9 000	7 500	6 700	6 700	6 300	7 100	8 000	9 000	5 000	2 240
	50 000	7 100	8 000	9 500	10 000	9 500	8 500	7 100	6 700	9 000	8 000	7 100	7 100	8 000	8 500	9 500	9 500	5 000	3 150
5 600 000	71 000	6 000	6 300	7 100	8 500	9 000	7 500	6 000	5 300	8 500	7 100	6 300	6 000	5 600	6 300	7 100	8 000	4 500	1 800
	50 000	6 300	7 500	9 000	9 500	9 000	7 500	6 700	6 000	8 000	7 100	6 700	6 700	7 100	8 000	8 500	9 000	4 750	2 800
max		16 000 (9 000 for «short side»)																10 000	5 000

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) For radial loads acting simultaneously on both sides consult us.
3) An unfavourable direction of load can limit F_{r2} to $0.9 \cdot F_{r2max}$.
4) With «Solid low speed shaft with inch diameter» (ch.17 (39)) or with hollow low speed shaft (standard or with inch diameter, see ch. 17 (40)), the F_{r2} permissible is 0.4 times the one stated in the table.

Axial F_{a2} [lb] or radial loads F_{r2}[lb] on low speed shaft end 3.10

Radial load applied on **groove side** •

Size **200**

$n_2 \cdot L_h$	T_2	F_{r2} [1) 2) 3)]								F_{a2} [1)]	
											
rpm · h	lb in	0°	45°	90°	135°	180°	225°	270°	315°		
280 000	100 000	8 500	12 500	12 500	12 500	12 500	11 200	7 500	7 100	8 000	4 000
	71 000	10 600	12 500	12 500	12 500	12 500	11 800	9 500	9 000	8 000	4 000
355 000	100 000	7 500	11 800	12 500	12 500	12 500	10 000	6 700	6 300	8 000	3 750
	71 000	9 500	12 500	12 500	12 500	12 500	11 200	8 500	8 000	8 000	4 000
450 000	100 000	6 700	11 200	12 500	12 500	12 500	9 000	6 000	5 300	7 500	3 150
	71 000	8 500	11 800	12 500	12 500	12 500	10 000	8 000	7 100	7 500	4 000
560 000	100 000	6 000	10 000	12 500	12 500	12 500	8 000	5 000	4 500	7 100	2 650
	71 000	7 500	10 600	12 500	12 500	12 500	9 500	7 100	6 300	7 100	4 000
710 000	100 000	5 000	9 000	12 500	12 500	12 500	7 100	4 250	3 750	6 300	2 120
	71 000	6 700	10 000	12 500	12 500	12 500	8 500	6 300	5 600	6 700	3 550
	50 000	8 000	10 600	12 500	12 500	11 800	9 500	7 500	7 100	6 700	4 000
900 000	100 000	4 250	7 500	11 200	12 500	11 800	6 000	3 550	3 150	6 000	1 700
	71 000	6 300	9 500	12 500	12 500	11 800	8 000	5 600	5 000	6 300	3 150
	50 000	7 500	9 500	12 500	12 500	11 200	8 500	6 700	6 300	6 300	4 000
1 120 000	71 000	5 600	8 500	11 800	12 500	11 200	7 100	4 750	4 500	5 600	2 650
	50 000	6 700	9 000	11 800	12 500	10 600	8 000	6 300	6 000	6 000	3 750
1 400 000	71 000	4 750	8 000	10 600	11 800	10 000	6 300	4 000	3 750	5 300	2 240
	50 000	6 000	8 500	10 600	11 800	10 000	7 100	5 600	5 000	5 300	3 350
1 800 000	71 000	4 000	7 100	9 500	11 200	9 500	5 600	3 550	3 150	5 000	1 900
	50 000	5 600	7 500	10 000	11 200	9 500	6 700	5 000	4 500	5 000	3 000
2 240 000	50 000	5 000	7 100	9 500	10 600	9 000	6 000	4 500	4 000	4 750	2 650
	35 500	5 600	7 500	9 000	9 500	8 500	6 700	5 300	5 000	4 750	3 150
2 800 000	50 000	4 500	6 700	9 000	10 000	8 500	5 600	3 750	3 550	4 250	2 240
	35 500	5 300	6 700	8 500	9 000	8 000	6 000	4 750	4 500	4 500	3 000
3 550 000	50 000	3 750	6 000	8 500	9 000	8 000	5 000	3 350	3 150	4 000	1 900
	35 500	4 750	6 300	8 500	9 000	7 500	5 600	4 250	4 000	4 000	2 650
4 500 000	50 000	3 350	5 600	7 500	8 500	7 100	4 500	3 000	2 650	3 750	1 600
	35 500	4 250	6 000	8 000	8 500	7 100	5 000	3 750	3 550	3 750	2 360
5 600 000	50 000	3 000	5 000	6 700	8 000	6 700	4 000	2 500	2 240	3 350	1 320
	35 500	3 750	5 300	7 500	8 000	6 700	4 750	3 350	3 150	3 550	2 000
max		**12 500**								**8 000**	**4 000**

Values valid for metric «Solid low speed shaft» [4)] (see ch.17 (2)).

Size **225**

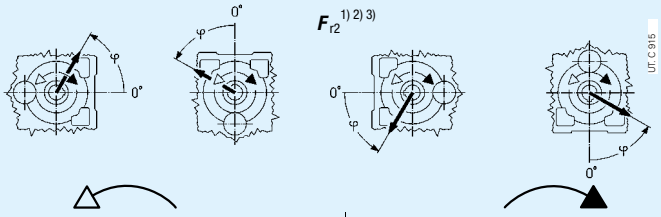
280 000	140 000	12 500	16 000	16 000	16 000	16 000	16 000	11 800	10 600	16 000	13 200	12 500	14 000	16 000	16 000	16 000	16 000	10 000	5 000
	100 000	15 000	16 000	16 000	16 000	16 000	16 000	14 000	13 200	16 000	15 000	14 000	15 000	16 000	16 000	16 000	16 000	10 000	5 000
355 000	140 000	11 200	16 000	16 000	16 000	16 000	14 000	10 000	9 500	16 000	12 500	11 200	12 500	16 000	16 000	16 000	16 000	10 000	5 000
	100 000	13 200	16 000	16 000	16 000	16 000	16 000	12 500	11 800	16 000	14 000	12 500	14 000	16 000	16 000	16 000	16 000	10 000	5 000
450 000	140 000	10 000	16 000	16 000	16 000	16 000	13 200	9 000	8 500	15 000	11 200	10 000	11 200	15 000	16 000	16 000	16 000	9 500	4 500
	100 000	12 500	16 000	16 000	16 000	16 000	15 000	11 200	10 600	16 000	12 500	11 800	12 500	16 000	16 000	16 000	16 000	10 000	5 000
560 000	140 000	9 000	14 000	16 000	16 000	16 000	11 800	8 000	7 100	14 000	10 000	9 000	10 000	13 200	16 000	16 000	16 000	9 000	3 750
	100 000	11 200	15 000	16 000	16 000	16 000	13 200	10 000	9 500	15 000	11 800	10 600	11 800	15 000	16 000	16 000	16 000	9 500	5 000
710 000	140 000	8 000	12 500	16 000	16 000	16 000	10 600	6 700	6 000	12 500	9 000	7 500	9 000	11 200	15 000	16 000	16 000	8 500	3 000
	100 000	10 000	14 000	16 000	16 000	16 000	12 500	9 000	8 500	13 200	10 600	9 500	10 600	14 000	16 000	16 000	16 000	8 500	4 750
	71 000	11 200	14 000	16 000	16 000	16 000	13 200	10 600	10 000	14 000	11 800	11 200	11 800	14 000	16 000	16 000	16 000	9 000	5 000
900 000	140 000	6 700	11 200	16 000	16 000	16 000	9 500	6 000	5 300	11 800	8 000	6 700	8 000	10 000	13 200	16 000	16 000	8 000	2 500
	100 000	9 000	13 200	16 000	16 000	16 000	11 200	8 500	7 500	12 500	9 500	9 000	9 500	12 500	16 000	16 000	16 000	8 000	4 250
	71 000	10 600	13 200	16 000	16 000	16 000	12 500	10 000	9 500	12 500	10 600	10 000	11 200	13 200	16 000	16 000	16 000	8 500	5 000
1 120 000	100 000	8 000	11 800	16 000	16 000	15 000	10 000	7 500	6 700	11 800	9 000	8 000	9 000	11 800	14 000	16 000	16 000	7 500	3 550
	71 000	9 500	12 500	16 000	16 000	15 000	11 200	9 000	8 500	11 800	10 000	9 000	10 000	12 500	15 000	16 000	15 000	7 500	5 000
1 400 000	100 000	7 100	11 200	15 000	16 000	14 000	9 000	6 300	5 600	10 600	8 000	7 100	8 000	10 600	12 500	15 000	15 000	7 100	3 150
	71 000	8 500	11 800	15 000	16 000	14 000	10 600	8 000	7 500	11 200	9 000	8 500	9 000	11 200	14 000	15 000	14 000	7 500	4 500
1 800 000	100 000	6 300	10 000	13 200	16 000	13 200	8 500	5 600	5 000	10 000	7 100	6 300	7 100	9 000	11 800	14 000	13 200	6 300	2 650
	71 000	8 000	10 600	14 000	15 000	12 500	9 500	7 100	6 700	10 000	8 500	7 500	8 500	10 600	13 200	14 000	13 200	6 700	3 750
2 240 000	71 000	7 100	10 000	13 200	14 000	12 500	9 000	6 700	6 000	9 500	7 500	7 100	7 500	9 500	12 500	13 200	12 500	6 300	3 350
	50 000	8 500	10 000	12 500	13 200	11 800	9 500	7 500	7 500	10 000	8 500	8 000	8 500	10 000	11 800	12 500	11 800	6 300	4 500
2 800 000	71 000	6 300	9 000	12 500	14 000	11 200	8 000	6 000	5 300	9 000	6 700	6 300	7 100	9 000	11 200	12 500	11 800	5 600	3 000
	50 000	7 500	9 500	11 800	12 500	11 200	8 500	7 100	6 700	9 000	7 500	7 100	8 000	9 500	11 200	11 800	11 200	6 000	3 750
3 550 000	71 000	5 600	8 500	11 800	12 500	10 600	7 100	5 000	4 750	8 500	6 300	5 600	6 300	8 500	10 000	11 200	11 200	5 300	2 500
	50 000	6 700	9 000	11 200	11 800	10 600	8 000	6 300	6 000	8 500	7 100	6 300	7 100	8 500	10 600	11 200	10 600	5 300	3 550
4 500 000	71 000	5 000	8 000	10 600	11 800	10 000	6 700	4 500	4 000	7 500	5 600	5 000	5 600	7 500	9 500	10 600	10 600	5 000	2 240
	50 000	6 300	8 500	10 600	11 200	10 000	7 500	5 600	5 300	8 000	6 300	6 000	6 300	8 000	10 000	10 600	10 000	5 000	3 150
5 600 000	71 000	4 500	7 100	9 500	11 200	9 500	6 000	4 000	3 550	7 100	5 000	4 250	5 000	6 300	8 500	9 500	9 500	4 500	1 800
	50 000	5 600	7 500	10 000	10 600	9 000	6 700	5 300	4 750	7 500	6 000	5 300	6 000	7 500	9 500	10 000	9 500	4 750	2 800
max		**16 000** (**9 000** for «short side»)																**10 000**	**5 000**

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) For radial loads acting simultaneously on both sides consult us.
3) An unfavourable direction of load can limit F_{r2} to $0.9 \cdot F_{r2max}$.
4) With «Solid low speed shaft with inch diameter» (ch.17 (39)) or with hollow low speed shaft (standard or with inch diameter, see ch. 17 (40)), the F_{r2} permissible is 0.4 times the one stated in the table.

Axial F_{a2} [lb] or radial loads F_{r2} [lb] on low speed shaft end 3.10

Radial load applied on **opposite side to groove**

Size **250**



$n_2 \cdot L_h$	T_2	F_{r2} [1) 2) 3)]																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	200 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	19 000	18 000	19 000	20 000	20 000	20 000	20 000	20 000	6 300	12 500
	140 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	19 000	20 000	20 000	20 000	20 000	20 000	20 000	6 300	12 500
355 000	200 000	20 000	20 000	20 000	20 000	19 000	18 000	18 000	20 000	17 000	16 000	18 000	20 000	20 000	20 000	20 000	20 000	6 300	12 500
	140 000	20 000	20 000	20 000	20 000	20 000	19 000	19 000	20 000	19 000	18 000	19 000	20 000	20 000	20 000	20 000	20 000	6 300	12 500
450 000	200 000	20 000	20 000	20 000	18 000	17 000	17 000	17 000	19 000	16 000	15 000	16 000	20 000	20 000	20 000	20 000	19 000	6 300	12 500
	140 000	20 000	20 000	20 000	20 000	19 000	18 000	18 000	19 000	17 000	16 000	18 000	20 000	20 000	20 000	20 000	20 000	6 300	12 500
560 000	200 000	20 000	20 000	18 000	16 000	14 000	15 000	15 000	17 000	14 000	13 200	15 000	19 000	20 000	20 000	18 000	16 000	5 600	11 800
	140 000	20 000	20 000	20 000	19 000	18 000	16 000	16 000	18 000	16 000	15 000	16 000	19 000	20 000	20 000	20 000	18 000	6 300	12 500
710 000	200 000	19 000	18 000	16 000	13 200	12 500	13 200	14 000	16 000	13 200	11 800	13 200	17 000	20 000	18 000	16 000	14 000	4 750	11 200
	140 000	19 000	20 000	19 000	17 000	16 000	15 000	15 000	17 000	14 000	14 000	15 000	18 000	20 000	20 000	19 000	17 000	6 300	11 800
	100 000	18 000	19 000	19 000	18 000	17 000	16 000	16 000	17 000	15 000	15 000	16 000	18 000	20 000	20 000	19 000	17 000	6 300	11 800
900 000	200 000	18 000	16 000	14 000	11 800	10 600	11 200	12 500	15 000	11 800	11 200	12 500	16 000	18 000	17 000	14 000	11 200	3 750	10 600
	140 000	17 000	19 000	17 000	16 000	15 000	14 000	14 000	15 000	13 200	12 500	13 200	16 000	19 000	19 000	18 000	16 000	6 000	10 600
	100 000	17 000	18 000	18 000	17 000	16 000	15 000	15 000	16 000	14 000	13 200	14 000	17 000	19 000	19 000	18 000	16 000	6 300	10 600
1 120 000	140 000	16 000	17 000	16 000	14 000	13 200	12 500	12 500	14 000	11 800	11 800	12 500	15 000	18 000	18 000	16 000	14 000	5 300	10 000
	100 000	16 000	17 000	17 000	16 000	14 000	13 200	13 200	14 000	13 200	12 500	13 200	15 000	17 000	18 000	17 000	15 000	6 300	10 000
1 400 000	140 000	15 000	16 000	14 000	12 500	11 800	11 800	11 800	13 200	11 200	10 600	11 800	14 000	17 000	16 000	14 000	13 200	4 750	9 000
	100 000	15 000	16 000	16 000	15 000	13 200	12 500	12 500	13 200	11 800	11 800	12 500	14 000	16 000	17 000	16 000	13 200	6 000	9 500
1 800 000	140 000	14 000	14 000	12 500	11 200	10 600	10 600	11 200	11 800	10 000	9 500	10 600	13 200	16 000	14 000	12 500	11 800	4 000	8 500
	100 000	14 000	15 000	15 000	13 200	12 500	11 800	11 800	12 500	11 200	10 600	11 200	13 200	15 000	16 000	15 000	12 500	5 600	9 000
2 240 000	100 000	13 200	14 000	13 200	11 800	11 800	10 600	10 600	11 800	10 600	10 000	10 600	12 500	14 000	15 000	14 000	11 800	5 000	8 000
	71 000	13 200	13 200	13 200	12 500	11 800	11 200	11 200	11 800	11 200	10 600	11 200	12 500	14 000	14 000	13 200	11 800	6 000	8 500
2 800 000	100 000	11 800	13 200	11 800	11 200	10 600	10 000	10 000	10 600	9 500	9 000	9 500	11 800	13 200	13 200	12 500	11 200	4 250	7 500
	71 000	11 800	12 500	12 500	11 800	11 200	10 600	10 600	11 200	10 000	9 500	10 600	11 800	13 200	13 200	12 500	11 200	5 300	8 000
3 550 000	100 000	11 200	11 800	11 200	10 000	9 500	9 000	9 000	10 000	8 500	8 000	9 000	10 600	12 500	12 500	11 200	10 000	3 750	7 100
	71 000	11 200	11 800	11 800	11 200	10 000	9 500	9 500	10 600	9 500	9 000	9 500	10 600	11 800	12 500	11 800	10 600	5 000	7 100
4 500 000	100 000	10 600	11 200	10 000	9 000	8 500	8 500	8 500	9 500	8 000	7 500	8 000	10 000	11 800	11 200	10 000	9 500	3 350	6 700
	71 000	10 600	11 200	11 200	10 600	9 500	9 000	9 000	9 500	8 500	8 500	9 000	10 000	11 800	11 800	11 200	10 000	4 500	6 700
5 600 000	100 000	10 000	10 000	9 000	8 000	7 100	7 500	7 500	8 500	7 100	6 700	7 500	9 500	11 200	10 000	9 000	8 000	2 800	6 000
	71 000	10 000	10 600	10 600	9 500	9 000	8 000	8 000	9 000	8 000	7 500	8 000	9 500	10 600	11 200	10 600	9 000	4 000	6 300
max		**20 000**																**6 300**	**12 500**

Values valid for metric «Solid low speed shaft»[4] (see ch.17 (2)).

Size **280**

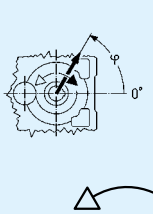
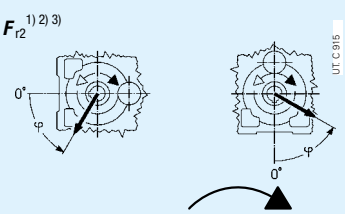
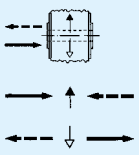
280 000	280 000	25 000	25 000	25 000	25 000	25 000	25 000	25 000	25 000	25 000	23 600	25 000	25 000	25 000	25 000	25 000	25 000	8 000	16 000
	200 000	25 000	25 000	25 000	25 000	25 000	25 000	25 000	25 000	25 000	25 000	25 000	25 000	25 000	25 000	25 000	25 000	8 000	16 000
355 000	280 000	25 000	25 000	25 000	25 000	25 000	23 600	23 600	25 000	22 400	21 200	23 600	25 000	25 000	25 000	25 000	25 000	8 000	16 000
	200 000	25 000	25 000	25 000	25 000	25 000	25 000	25 000	25 000	25 000	23 600	25 000	25 000	25 000	25 000	25 000	25 000	8 000	16 000
450 000	280 000	25 000	25 000	25 000	25 000	23 600	22 400	22 400	23 600	21 200	20 000	21 200	25 000	25 000	25 000	25 000	25 000	8 000	16 000
	200 000	25 000	25 000	25 000	25 000	25 000	23 600	23 600	25 000	22 400	21 200	23 600	25 000	25 000	25 000	25 000	25 000	8 000	16 000
560 000	280 000	25 000	25 000	25 000	22 400	21 200	20 000	20 000	22 400	19 000	18 000	19 000	23 600	25 000	25 000	25 000	22 400	7 500	15 000
	200 000	25 000	25 000	25 000	25 000	23 600	21 200	21 200	23 600	21 200	20 000	21 200	25 000	25 000	25 000	25 000	23 600	8 000	15 000
710 000	280 000	25 000	25 000	22 400	20 000	18 000	19 000	18 000	20 000	18 000	16 000	18 000	22 400	25 000	25 000	22 400	20 000	6 300	13 200
	200 000	23 600	25 000	25 000	23 600	22 400	20 000	20 000	21 200	19 000	18 000	19 000	22 400	25 000	25 000	25 000	22 400	8 000	14 000
	140 000	23 600	25 000	25 000	25 000	22 400	21 200	21 200	22 400	20 000	20 000	21 200	23 600	25 000	25 000	25 000	22 400	8 000	14 000
900 000	280 000	22 400	22 400	20 000	17 000	16 000	17 000	17 000	19 000	16 000	14 000	16 000	21 200	25 000	23 600	20 000	18 000	5 300	12 500
	200 000	22 400	25 000	23 600	22 400	20 000	18 000	18 000	20 000	18 000	17 000	18 000	21 200	25 000	25 000	25 000	21 200	8 000	13 200
	140 000	22 400	23 600	23 600	22 400	21 200	19 000	19 000	20 000	19 000	18 000	19 000	21 200	25 000	25 000	23 600	21 200	8 000	13 200
1 120 000	200 000	21 200	23 600	21 200	20 000	19 000	17 000	17 000	18 000	16 000	15 000	17 000	20 000	23 600	25 000	22 400	19 000	7 100	12 500
	140 000	21 200	22 400	22 400	21 200	19 000	18 000	18 000	19 000	18 000	17 000	18 000	20 000	22 400	23 600	22 400	20 000	8 000	12 500
1 400 000	200 000	20 000	21 200	19 000	18 000	17 000	16 000	15 000	17 000	15 000	14 000	15 000	18 000	22 400	22 400	20 000	18 000	6 000	11 200
	140 000	20 000	22 400	20 000	19 000	18 000	16 000	16 000	17 000	16 000	15 000	16 000	19 000	21 200	22 400	21 200	18 000	8 000	11 800
1 800 000	200 000	19 000	19 000	18 000	16 000	14 000	14 000	14 000	16 000	13 200	12 500	14 000	17 000	21 200	20 000	18 000	16 000	5 300	10 600
	140 000	18 000	20 000	20 000	19 000	17 000	15 000	15 000	17 000	15 000	14 000	15 000	18 000	20 000	21 200	20 000	17 000	7 100	10 600
2 240 000	140 000	17 000	19 000	19 000	17 000	16 000	14 000	14 000	15 000	14 000	12 500	14 000	17 000	19 000	20 000	19 000	16 000	6 300	10 000
	100 000	17 000	18 000	18 000	17 000	16 000	15 000	15 000	16 000	15 000	14 000	15 000	17 000	18 000	19 000	18 000	16 000	7 500	10 000
2 800 000	140 000	16 000	18 000	17 000	15 000	14 000	12 500	12 500	14 000	12 500	11 800	12 500	15 000	18 000	19 000	17 000	15 000	5 600	9 500
	100 000	16 000	17 000	17 000	16 000	15 000	13 200	13 200	14 000	13 200	12 500	13 200	15 000	17 000	18 000	17 000	15 000	7 100	9 500
3 550 000	140 000	15 000	17 000	15 000	14 000	13 200	11 800	11 800	12 500	11 200	10 600	11 800	14 000	17 000	17 000	16 000	14 000	5 000	8 500
	100 000	15 000	16 000	16 000	15 000	13 200	12 500	12 500	13 200	12 500	11 800	12 500	14 000	16 000	17 000	16 000	14 000	6 300	9 000
4 500 000	140 000	14 000	15 000	14 000	12 500	11 800	11 200	11 200	11 800	10 600	10 000	10 600	13 200	16 000	16 000	14 000	12 500	4 250	8 000
	100 000	14 000	15 000	15 000	14 000	12 500	11 800	11 800	12 500	11 200	11 200	11 800	13 200	15 000	16 000	15 000	13 200	5 600	8 500
5 600 000	140 000	13 200	14 000	12 500	11 200	10 600	10 000	10 000	11 200	9 500	9 000	10 000	11 800	15 000	14 000	12 500	11 800	3 750	7 500
	100 000	12 500	14 000	14 000	13 200	11 800	10 600	10 600	11 800	10 600	10 000	10 600	12 500	14 000	15 000	14 000	12 500	5 000	7 500
max		**25 000** (**14 000** for «short side»)																**8 000**	**16 000**

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) For radial loads acting simultaneously on both sides consult us.
3) An unfavourable direction of load can limit F_{r2} to .,9 · F_{r2max}.
4) With hollow low speed shaft F_{r2} and F_{a2} permissible is 0.4 times the one stated in the table.

Axial F_{a2} [lb] or radial loads F_{r2}[lb] on low speed shaft end 3.10

Radial load applied on **groove side** •

Size **250**

$n_2 \cdot L_h$	T_2	F_{r2} [1) 2) 3)]								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	200 000	20 000	20 000	20 000	20 000	20 000	17 000	15 000	17 000	16 000	13 200	14 000	19 000	20 000	20 000	20 000	20 000	6 300	12 500
	140 000	20 000	20 000	20 000	20 000	20 000	19 000	17 000	19 000	18 000	16 000	17 000	20 000	20 000	20 000	20 000	20 000	6 300	12 500
355 000	200 000	20 000	20 000	20 000	20 000	20 000	15 000	13 200	15 000	14 000	11 200	12 500	17 000	20 000	20 000	20 000	20 000	6 300	12 500
	140 000	20 000	20 000	20 000	20 000	20 000	17 000	16 000	17 000	17 000	14 000	15 000	19 000	20 000	20 000	20 000	20 000	6 300	12 500
450 000	200 000	18 000	20 000	20 000	20 000	19 000	13 200	11 800	13 200	12 500	10 000	11 200	16 000	20 000	20 000	20 000	19 000	6 300	12 500
	140 000	19 000	20 000	20 000	20 000	20 000	16 000	14 000	16 000	15 000	13 200	14 000	18 000	20 000	20 000	20 000	20 000	6 300	12 500
560 000	200 000	17 000	20 000	20 000	20 000	17 000	11 800	10 600	11 800	11 200	8 500	9 500	14 000	20 000	20 000	20 000	18 000	5 600	11 800
	140 000	18 000	20 000	20 000	20 000	18 000	14 000	13 200	14 000	13 200	11 800	12 500	16 000	20 000	20 000	20 000	19 000	6 300	12 500
710 000	200 000	15 000	20 000	20 000	19 000	15 000	10 600	9 500	10 600	9 500	7 500	8 000	12 500	20 000	20 000	20 000	16 000	4 750	11 200
	140 000	16 000	20 000	20 000	20 000	17 000	13 200	11 800	12 500	12 500	10 600	11 200	15 000	20 000	20 000	20 000	17 000	6 300	11 800
	100 000	17 000	20 000	20 000	20 000	17 000	14 000	13 200	14 000	14 000	12 500	13 200	16 000	20 000	20 000	20 000	18 000	6 300	11 800
900 000	200 000	14 000	20 000	20 000	18 000	12 500	9 500	8 000	9 500	8 000	6 300	7 100	11 200	20 000	20 000	20 000	14 000	3 750	10 600
	140 000	15 000	20 000	20 000	20 000	16 000	11 800	10 600	11 800	11 200	9 500	10 000	13 200	20 000	20 000	20 000	16 000	6 000	10 600
	100 000	16 000	19 000	20 000	19 000	16 000	13 200	11 800	13 200	12 500	11 200	11 800	15 000	19 000	20 000	20 000	16 000	6 300	10 600
1 120 000	140 000	14 000	19 000	20 000	18 000	14 000	10 600	9 500	10 600	10 000	8 500	9 000	12 500	19 000	20 000	20 000	15 000	5 300	10 000
	100 000	15 000	18 000	20 000	18 000	15 000	11 800	11 200	11 800	11 800	10 600	11 200	13 200	18 000	20 000	19 000	15 000	6 300	10 000
1 400 000	140 000	12 500	18 000	19 000	17 000	13 200	9 500	8 500	9 500	9 000	7 100	8 000	11 200	17 000	20 000	19 000	13 200	4 750	9 000
	100 000	13 200	17 000	18 000	17 000	14 000	11 200	10 000	11 200	10 600	9 000	10 000	12 500	17 000	19 000	18 000	14 000	6 000	9 500
1 800 000	140 000	11 800	17 000	17 000	15 000	11 800	8 500	7 500	8 500	8 000	6 300	6 700	10 000	16 000	19 000	17 000	12 500	4 000	8 500
	100 000	12 500	16 000	17 000	16 000	12 500	10 600	9 000	10 000	9 500	8 500	9 000	11 800	16 000	18 000	17 000	13 200	5 600	9 000
2 240 000	100 000	11 800	15 000	17 000	15 000	11 800	9 500	8 500	9 000	9 000	7 500	8 000	10 600	15 000	18 000	16 000	11 800	5 000	8 000
	71 000	11 800	14 000	15 000	14 000	11 800	10 600	9 500	10 000	10 000	9 000	9 500	11 200	14 000	16 000	15 000	12 500	6 000	8 500
2 800 000	100 000	10 600	14 000	16 000	14 000	11 200	8 500	7 500	8 500	8 000	6 700	7 100	9 500	14 000	17 000	15 000	11 200	4 250	7 500
	71 000	11 200	13 200	14 000	13 200	11 200	9 500	8 500	9 500	9 000	8 500	8 500	10 600	13 200	15 000	14 000	11 800	5 300	8 000
3 550 000	100 000	10 000	13 200	14 000	12 500	10 000	7 500	6 700	7 500	7 100	6 000	6 300	9 000	13 200	16 000	14 000	10 600	3 750	7 100
	71 000	10 600	12 500	14 000	12 500	10 600	8 500	8 000	8 500	8 500	7 100	7 500	9 500	12 500	14 000	13 200	10 600	5 000	7 100
4 500 000	100 000	9 000	12 500	13 200	11 800	9 500	6 700	6 000	6 700	6 300	5 000	5 600	8 000	11 800	15 000	13 200	9 500	3 350	6 700
	71 000	9 500	11 800	13 200	11 800	10 000	8 000	7 100	8 000	7 500	6 700	7 100	9 000	11 800	13 200	12 500	10 000	4 500	6 700
5 600 000	100 000	8 500	11 800	11 800	10 600	8 500	6 000	5 300	6 000	5 600	4 500	4 750	7 100	11 200	14 000	11 800	9 000	2 800	6 000
	71 000	9 000	11 200	12 500	11 200	9 000	7 100	6 700	7 100	6 700	6 000	6 300	8 000	11 200	13 200	11 800	9 500	4 000	6 300
max		**20 000**																**6 300**	**12 500**

Values valid for metric «Solid low speed shaft»[4] (see ch.17 (2)).

Size **280**

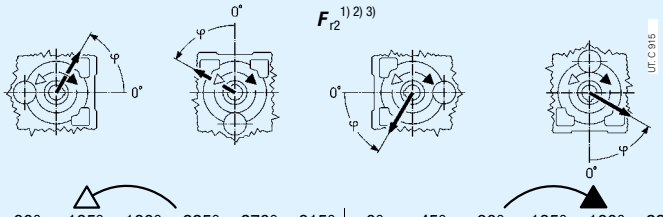
280 000	280 000	25 000	25 000	25 000	25 000	25 000	22 400	20 000	22 400	21 200	18 000	19 000	25 000	25 000	25 000	25 000	25 000	8 000	16 000
	200 000	25 000	25 000	25 000	25 000	25 000	25 000	23 600	25 000	25 000	21 200	22 400	25 000	25 000	25 000	25 000	25 000	8 000	16 000
355 000	280 000	25 000	25 000	25 000	25 000	25 000	20 000	18 000	20 000	19 000	16 000	17 000	23 600	25 000	25 000	25 000	25 000	8 000	16 000
	200 000	25 000	25 000	25 000	25 000	25 000	22 400	21 200	22 400	22 400	19 000	20 000	25 000	25 000	25 000	25 000	25 000	8 000	16 000
450 000	280 000	23 600	25 000	25 000	25 000	25 000	18 000	16 000	18 000	17 000	14 000	15 000	21 200	25 000	25 000	25 000	25 000	8 000	16 000
	200 000	25 000	25 000	25 000	25 000	25 000	21 200	19 000	20 000	20 000	18 000	19 000	23 600	25 000	25 000	25 000	25 000	8 000	16 000
560 000	280 000	22 400	25 000	25 000	25 000	23 600	17 000	14 000	16 000	15 000	11 800	12 500	19 000	25 000	25 000	25 000	23 600	7 500	15 000
	200 000	23 600	25 000	25 000	25 000	23 600	19 000	17 000	19 000	18 000	16 000	17 000	21 200	25 000	25 000	25 000	25 000	8 000	15 000
710 000	280 000	20 000	25 000	25 000	25 000	21 200	15 000	12 500	14 000	13 200	10 000	11 200	17 000	25 000	25 000	25 000	21 200	6 300	13 200
	200 000	21 200	25 000	25 000	25 000	22 400	18 000	16 000	17 000	17 000	14 000	15 000	20 000	25 000	25 000	25 000	23 600	8 000	14 000
	140 000	22 400	25 000	25 000	25 000	22 400	19 000	18 000	19 000	19 000	17 000	18 000	21 200	25 000	25 000	25 000	23 600	8 000	14 000
900 000	280 000	18 000	25 000	25 000	25 000	18 000	12 500	11 200	12 500	11 200	9 000	9 500	15 000	25 000	25 000	25 000	20 000	5 300	12 500
	200 000	20 000	25 000	25 000	25 000	21 200	16 000	14 000	15 000	15 000	12 500	13 200	18 000	25 000	25 000	25 000	21 200	8 000	13 200
	140 000	21 200	25 000	25 000	25 000	21 200	18 000	17 000	18 000	17 000	15 000	16 000	20 000	25 000	25 000	25 000	22 400	8 000	13 200
1 120 000	200 000	19 000	25 000	25 000	25 000	19 000	14 000	12 500	14 000	13 200	11 200	11 800	17 000	23 600	25 000	25 000	20 000	7 100	12 500
	140 000	19 000	23 600	25 000	23 600	20 000	17 000	15 000	16 000	16 000	14 000	15 000	18 000	23 600	25 000	25 000	20 000	8 000	12 500
1 400 000	200 000	17 000	23 600	25 000	22 400	18 000	12 500	11 200	12 500	11 800	9 500	10 600	15 000	22 400	25 000	25 000	18 000	6 000	11 200
	140 000	17 000	22 400	25 000	23 600	18 000	13 200	11 800	13 200	14 000	12 500	13 200	17 000	22 400	25 000	23 600	19 000	8 000	11 800
1 800 000	200 000	16 000	22 400	23 600	21 200	17 000	11 800	10 000	11 200	10 600	8 500	9 000	13 200	21 200	25 000	23 600	17 000	5 300	10 600
	140 000	17 000	21 200	23 600	21 200	17 000	13 200	12 500	13 200	12 500	11 200	11 800	15 000	21 200	25 000	22 400	18 000	7 100	10 600
2 240 000	140 000	15 000	20 000	22 400	20 000	16 000	12 500	11 200	11 800	11 800	10 000	10 600	14 000	19 000	23 600	21 200	17 000	6 300	10 000
	100 000	16 000	19 000	20 000	19 000	17 000	14 000	12 500	13 200	13 200	11 800	12 500	15 000	19 000	21 200	20 000	17 000	7 500	10 000
2 800 000	140 000	14 000	18 000	21 200	19 000	15 000	11 200	10 000	11 200	10 600	9 000	9 500	12 500	18 000	22 400	20 000	15 000	5 600	9 500
	100 000	15 000	18 000	19 000	18 000	15 000	12 500	11 200	12 500	12 500	10 600	11 200	14 000	18 000	20 000	19 000	15 000	7 100	9 500
3 550 000	140 000	13 200	18 000	19 000	18 000	13 200	10 000	9 000	10 000	9 500	8 000	8 500	11 800	17 000	21 200	19 000	14 000	5 000	8 500
	100 000	13 200	17 000	18 000	17 000	14 000	11 200	10 600	11 200	11 200	9 500	10 000	12 500	17 000	19 000	18 000	14 000	6 300	9 000
4 500 000	140 000	11 800	17 000	18 000	16 000	12 500	9 000	8 000	9 000	8 500	7 100	7 500	10 600	16 000	20 000	18 000	12 500	4 250	8 000
	100 000	12 500	16 000	17 000	16 000	13 200	10 600	9 500	10 600	10 000	9 000	9 500	11 800	16 000	18 000	17 000	13 200	5 600	8 500
5 600 000	140 000	11 200	16 000	17 000	15 000	11 800	8 500	7 100	8 000	7 500	6 000	6 700	9 500	15 000	19 000	17 000	11 800	3 750	7 500
	100 000	11 800	15 000	17 000	15 000	11 800	9 500	9 000	9 500	9 000	8 000	8 500	10 600	15 000	17 000	16 000	12 500	5 000	7 500
max		**25 000** (**14 000** for «short side»)																**8 000**	**16 000**

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) For radial loads acting simultaneously on both sides consult us.
3) An unfavourable direction of load can limit F_{r2} to 0.9 · F_{r2max}.
4) With hollow low speed shaft F_{r2} and F_{a2} permissible is 0.4 times the one stated in the table.

Axial F_{a2} [lb] or radial loads F_{r2} [lb] on low speed shaft end 3.10

Radial load applied on **opposite side to groove**

Sizes **320, 321**

$n_2 \cdot L_h$	T_2	F_{r2} [1) 2) 3)]																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	400 000	30 000	31 500	31 500	31 500	31 500	31 500	30 000	26 500	31 500	31 500	30 000	30 000	31 500	31 500	31 500	31 500	20 000	10 000
	280 000	31 500	31 500	31 500	31 500	31 500	31 500	31 500	30 000	31 500	31 500	31 500	31 500	31 500	31 500	31 500	31 500	20 000	10 000
355 000	400 000	26 500	31 500	31 500	31 500	31 500	31 500	26 500	25 000	31 500	30 000	28 000	28 000	30 000	30 000	31 500	31 500	19 000	10 000
	280 000	30 000	31 500	31 500	31 500	31 500	31 500	30 000	28 000	31 500	31 500	30 000	30 000	31 500	31 500	31 500	31 500	20 000	10 000
450 000	400 000	23 600	28 000	31 500	31 500	31 500	31 500	25 000	22 400	31 500	28 000	25 000	26 500	25 000	28 000	31 500	31 500	18 000	8 500
	280 000	26 500	31 500	31 500	31 500	31 500	31 500	26 500	25 000	31 500	30 000	28 000	28 000	30 000	31 500	31 500	31 500	19 000	10 000
560 000	400 000	22 400	25 000	26 500	31 500	31 500	28 000	22 400	20 000	31 500	26 500	23 600	23 600	22 400	23 600	28 000	31 500	17 000	7 100
	280 000	25 000	28 000	31 500	31 500	31 500	30 000	25 000	23 600	31 500	26 500	25 000	25 000	28 000	30 000	31 500	31 500	17 000	10 000
710 000	400 000	20 000	21 200	23 600	28 000	30 000	26 500	20 000	18 000	30 000	23 600	21 200	20 000	19 000	21 200	25 000	28 000	15 000	5 600
	280 000	22 400	26 500	30 000	31 500	31 500	26 500	22 400	21 200	28 000	25 000	23 600	23 600	25 000	26 500	30 000	31 500	16 000	9 500
	200 000	23 600	26 500	30 000	31 500	31 500	26 500	23 600	22 400	28 000	26 500	23 600	25 000	26 500	28 000	30 000	30 000	17 000	10 000
900 000	400 000	18 000	18 000	21 200	25 000	28 000	25 000	19 000	17 000	26 500	22 400	19 000	17 000	16 000	18 000	21 200	25 000	14 000	4 500
	280 000	20 000	25 000	28 000	30 000	30 000	25 000	21 200	19 000	26 500	23 600	21 200	21 200	23 600	23 600	26 500	30 000	15 000	8 500
	200 000	22 400	25 000	28 000	30 000	30 000	25 000	22 400	21 200	26 500	23 600	22 400	22 400	25 000	26 500	28 000	28 000	15 000	10 000
1 120 000	280 000	19 000	22 400	25 000	28 000	28 000	23 600	19 000	18 000	25 000	21 200	20 000	20 000	21 200	22 400	23 600	26 500	13 200	7 100
	200 000	20 000	23 600	26 500	28 000	26 500	23 600	20 000	19 000	25 000	22 400	21 200	21 200	22 400	25 000	26 500	26 500	14 000	9 500
1 400 000	280 000	17 000	20 000	21 200	25 000	26 500	21 200	18 000	16 000	23 600	20 000	18 000	18 000	18 000	19 000	21 200	23 600	12 500	6 000
	200 000	19 000	21 200	25 000	26 500	25 000	22 400	19 000	18 000	22 400	20 000	19 000	19 000	21 200	23 600	25 000	25 000	13 200	8 500
1 800 000	280 000	16 000	18 000	19 000	22 400	23 600	20 000	16 000	14 000	22 400	18 000	17 000	17 000	16 000	17 000	20 000	22 400	11 800	5 000
	200 000	17 000	20 000	23 600	25 000	23 600	20 000	18 000	16 000	21 200	19 000	18 000	18 000	19 000	21 200	22 400	23 600	11 800	7 500
2 240 000	200 000	16 000	19 000	21 200	23 600	22 400	19 000	16 000	15 000	20 000	18 000	17 000	17 000	18 000	19 000	21 200	22 400	11 200	6 700
	140 000	17 000	19 000	21 200	22 400	21 200	19 000	17 000	16 000	20 000	18 000	17 000	17 000	19 000	20 000	21 200	21 200	11 800	8 500
2 800 000	200 000	14 000	17 000	19 000	21 200	21 200	18 000	15 000	13 200	19 000	17 000	15 000	15 000	17 000	17 000	19 000	21 200	10 600	5 600
	140 000	16 000	18 000	20 000	21 200	20 000	18 000	16 000	15 000	19 000	17 000	16 000	16 000	17 000	19 000	20 000	20 000	10 600	7 500
3 550 000	200 000	13 200	16 000	17 000	19 000	20 000	17 000	13 200	12 500	18 000	15 000	14 000	14 000	14 000	15 000	17 000	19 000	9 500	5 000
	140 000	14 000	17 000	19 000	20 000	19 000	17 000	15 000	14 000	18 000	16 000	15 000	15 000	16 000	18 000	19 000	19 000	10 000	6 700
4 500 000	200 000	12 500	14 000	15 000	17 000	19 000	15 000	12 500	11 200	17 000	14 000	12 500	12 500	12 500	13 200	15 000	17 000	9 000	4 250
	140 000	13 200	15 000	18 000	19 000	18 000	16 000	13 200	12 500	17 000	15 000	13 200	14 000	15 000	17 000	18 000	18 000	9 500	6 000
5 600 000	200 000	11 200	12 500	13 200	16 000	17 000	14 000	11 200	10 000	15 000	12 500	11 800	11 800	11 200	11 800	14 000	15 000	8 500	3 550
	140 000	12 500	14 000	17 000	18 000	17 000	14 000	12 500	11 800	15 000	13 200	12 500	12 500	14 000	15 000	16 000	17 000	8 500	5 300
max		**31 500**																**20 000**	**10 000**

Values valid for metric «Solid low speed shaft»[4] (see ch.17 (2)).

Sizes **360**

280 000	560 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	37 500	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	25 000	12 500
	400 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	25 000	12 500
355 000	560 000	35 500	40 000	40 000	40 000	40 000	40 000	35 500	33 500	40 000	40 000	37 500	37 500	40 000	40 000	40 000	40 000	25 000	12 500
	400 000	37 500	40 000	40 000	40 000	40 000	40 000	40 000	37 500	40 000	40 000	40 000	40 000	40 000	40 000	40 000	40 000	25 000	12 500
450 000	560 000	33 500	40 000	40 000	40 000	40 000	40 000	33 500	31 500	40 000	37 500	33 500	35 500	37 500	40 000	40 000	40 000	25 000	12 500
	400 000	35 500	40 000	40 000	40 000	40 000	40 000	40 000	33 500	40 000	40 000	35 500	37 500	40 000	40 000	40 000	40 000	25 000	12 500
560 000	560 000	30 000	35 500	40 000	40 000	40 000	37 500	31 500	28 000	40 000	35 500	31 500	31 500	35 500	40 000	40 000	40 000	23 600	11 200
	400 000	33 500	37 500	40 000	40 000	40 000	40 000	33 500	31 500	40 000	35 500	33 500	33 500	37 500	40 000	40 000	40 000	23 600	12 500
710 000	560 000	28 000	31 500	35 500	40 000	40 000	35 500	28 000	25 000	37 500	31 500	30 000	30 000	28 000	31 500	35 500	40 000	21 200	9 500
	400 000	30 000	35 500	40 000	40 000	40 000	35 500	31 500	28 000	37 500	33 500	31 500	31 500	33 500	37 500	40 000	40 000	22 400	12 500
	280 000	31 500	35 500	40 000	40 000	40 000	35 500	33 500	31 500	37 500	35 500	33 500	33 500	35 500	37 500	40 000	40 000	23 600	12 500
900 000	560 000	25 000	28 000	31 500	35 500	40 000	33 500	25 000	22 400	35 500	30 000	26 500	26 500	25 000	28 000	31 500	35 500	20 000	8 000
	400 000	28 000	33 500	37 500	40 000	40 000	33 500	28 000	26 500	35 500	31 500	30 000	30 000	31 500	33 500	37 500	40 000	21 200	12 500
	280 000	30 000	33 500	37 500	40 000	37 500	33 500	30 000	30 000	35 500	31 500	31 500	31 500	33 500	35 500	37 500	37 500	21 200	12 500
1 120 000	400 000	25 000	31 500	35 500	37 500	37 500	31 500	26 500	23 600	33 500	30 000	26 500	26 500	30 000	31 500	33 500	37 500	19 000	10 600
	280 000	28 000	31 500	35 500	37 500	35 500	31 500	28 000	26 500	33 500	30 000	28 000	28 000	31 500	33 500	35 500	35 500	20 000	12 500
1 400 000	400 000	23 600	28 000	31 500	35 500	35 500	30 000	23 600	21 200	31 500	26 500	23 600	25 000	26 500	28 000	31 500	33 500	18 000	9 000
	280 000	25 000	30 000	33 500	35 500	33 500	30 000	26 500	23 600	31 500	28 000	26 500	26 500	28 000	31 500	33 500	33 500	18 000	12 500
1 800 000	400 000	21 200	25 000	28 000	31 500	33 500	28 000	21 200	20 000	30 000	25 000	22 400	22 400	22 400	25 000	28 000	31 500	17 000	8 000
	280 000	23 600	28 000	31 500	33 500	31 500	28 000	23 600	22 400	30 000	26 500	23 600	23 600	26 500	30 000	31 500	31 500	17 000	11 200
2 240 000	280 000	21 200	25 000	30 000	31 500	30 000	26 500	22 400	20 000	28 000	23 600	22 400	22 400	25 000	26 500	30 000	30 000	16 000	10 000
	200 000	22 400	26 500	30 000	31 500	30 000	26 500	23 600	22 400	26 500	25 000	23 600	23 600	25 000	28 000	30 000	30 000	17 000	12 500
2 800 000	280 000	20 000	23 600	28 000	30 000	28 000	23 600	20 000	19 000	25 000	22 400	20 000	20 000	22 400	25 000	26 500	28 000	15 000	9 000
	200 000	21 200	23 600	28 000	30 000	28 000	23 600	21 200	20 000	25 000	22 400	21 200	21 200	23 600	25 000	28 000	26 500	15 000	11 200
3 550 000	280 000	18 000	21 200	25 000	28 000	26 500	22 400	18 000	17 000	23 600	20 000	19 000	19 000	21 200	22 400	23 600	26 500	13 200	7 500
	200 000	19 000	22 400	25 000	26 500	26 500	22 400	20 000	19 000	23 600	21 200	20 000	20 000	21 200	23 600	25 000	25 000	14 000	10 000
4 500 000	280 000	17 000	20 000	22 400	25 000	25 000	21 200	17 000	15 000	22 400	19 000	17 000	18 000	19 000	20 000	22 400	23 600	12 500	6 700
	200 000	18 000	21 200	23 600	25 000	23 600	21 200	18 000	17 000	22 400	20 000	18 000	19 000	20 000	22 400	23 600	23 600	13 200	9 000
5 600 000	280 000	15 000	18 000	20 000	22 400	23 600	19 000	15 000	14 000	21 200	18 000	16 000	16 000	16 000	18 000	20 000	22 400	11 800	5 600
	200 000	17 000	19 000	22 400	23 600	22 400	19 000	17 000	16 000	20 000	18 000	17 000	17 000	19 000	21 200	22 400	22 400	11 800	8 000
max		**40 000** (**22 400** for «short side»)																**25 000**	**12 500**

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) For radial loads acting simultaneously on both sides consult us.
3) An unfavourable direction of load can limit F_{r2} to $0.9 \cdot F_{r2max}$.
4) With hollow low speed shaft F_{r2} and F_{a2} permissible is 0.4 times the one stated in the table.

Axial F_{a2} [lb] or radial loads F_{r2}[lb] on low speed shaft end 3.10

Radial load applied on **groove side** •

Sizes **320, 321**

$n_2 \cdot L_h$	T_2	F_{r2} [1) 2) 3)]																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	400 000	23 600	31 500	31 500	31 500	31 500	28 000	20 000	19 000	31 500	23 600	22 400	25 000	31 500	31 500	31 500	31 500	20 000	10 000
	280 000	28 000	31 500	31 500	31 500	31 500	31 500	25 000	23 600	31 500	28 000	26 500	30 000	31 500	31 500	31 500	31 500	20 000	10 000
355 000	400 000	21 200	31 500	31 500	31 500	31 500	26 500	18 000	17 000	30 000	21 200	19 000	22 400	31 500	31 500	31 500	31 500	19 000	10 000
	280 000	25 000	31 500	31 500	31 500	31 500	30 000	22 400	21 200	31 500	25 000	23 600	26 500	31 500	31 500	31 500	31 500	20 000	10 000
450 000	400 000	18 000	30 000	31 500	31 500	31 500	23 600	16 000	14 000	26 500	19 000	17 000	20 000	30 000	31 500	31 500	31 500	18 000	8 500
	280 000	23 600	31 500	31 500	31 500	31 500	26 500	21 200	19 000	30 000	23 600	21 200	23 600	31 500	31 500	31 500	31 500	19 000	10 000
560 000	400 000	16 000	28 000	31 500	31 500	31 500	20 000	13 200	11 800	25 000	17 000	15 000	18 000	26 500	31 500	31 500	31 500	17 000	7 100
	280 000	21 200	30 000	31 500	31 500	31 500	25 000	19 000	17 000	26 500	21 200	19 000	21 200	28 000	31 500	31 500	31 500	17 000	10 000
710 000	400 000	13 200	25 000	31 500	31 500	31 500	18 000	11 200	10 000	22 400	15 000	12 500	16 000	22 400	31 500	31 500	31 500	15 000	5 600
	280 000	19 000	26 500	31 500	31 500	31 500	22 400	17 000	15 000	25 000	19 000	17 000	20 000	26 500	31 500	31 500	31 500	16 000	9 500
	200 000	21 200	28 000	31 500	31 500	31 500	25 000	20 000	19 000	26 500	21 200	20 000	22 400	26 500	31 500	31 500	31 500	17 000	10 000
900 000	400 000	11 200	22 400	31 500	31 500	31 500	16 000	9 500	8 500	20 000	12 500	11 200	14 000	20 000	28 000	31 500	31 500	14 000	4 500
	280 000	17 000	25 000	31 500	31 500	30 000	20 000	15 000	13 200	22 400	17 000	16 000	18 000	23 600	31 500	31 500	31 500	15 000	8 500
	200 000	20 000	26 500	31 500	31 500	30 000	22 400	18 000	17 000	23 600	20 000	18 000	20 000	25 000	31 500	31 500	30 000	15 000	10 000
1 120 000	280 000	15 000	23 600	31 500	31 500	28 000	18 000	12 500	11 800	21 200	15 000	14 000	16 000	22 400	30 000	31 500	30 000	13 200	7 100
	200 000	18 000	23 600	31 500	31 500	28 000	20 000	16 000	15 000	22 400	18 000	17 000	19 000	23 600	30 000	31 500	28 000	14 000	9 500
1 400 000	280 000	12 500	21 200	30 000	31 500	26 500	17 000	11 200	10 000	19 000	13 200	11 800	14 000	20 000	26 500	30 000	28 000	12 500	6 000
	200 000	16 000	22 400	30 000	31 500	26 500	19 000	14 000	13 200	20 000	16 000	15 000	17 000	21 200	26 500	30 000	26 500	13 200	8 500
1 800 000	280 000	11 200	19 000	28 000	31 500	25 000	15 000	9 500	9 000	18 000	11 800	10 600	12 500	19 000	23 600	28 000	26 500	11 800	5 000
	200 000	15 000	20 000	28 000	30 000	25 000	17 000	12 500	12 500	19 000	15 000	13 200	15 000	20 000	26 500	28 000	25 000	11 800	7 500
2 240 000	200 000	13 200	19 000	26 500	28 000	22 400	16 000	11 800	11 200	18 000	13 200	12 500	14 000	19 000	23 600	26 500	23 600	11 200	6 700
	140 000	15 000	20 000	23 600	25 000	22 400	17 000	14 000	13 200	18 000	15 000	14 000	16 000	19 000	22 400	25 000	22 400	11 800	8 500
2 800 000	200 000	11 800	18 000	25 000	26 500	21 200	14 000	10 000	9 500	16 000	11 800	11 200	12 500	17 000	22 400	25 000	22 400	10 600	5 600
	140 000	14 000	18 000	22 400	23 600	21 200	16 000	12 500	11 800	17 000	14 000	13 200	14 000	18 000	21 200	23 600	21 200	10 600	7 500
3 550 000	200 000	10 600	16 000	22 400	25 000	20 000	12 500	9 000	8 500	15 000	10 600	9 500	11 200	16 000	20 000	22 400	20 000	9 500	5 000
	140 000	12 500	17 000	21 200	22 400	19 000	15 000	11 200	11 200	16 000	12 500	11 800	13 200	17 000	20 000	22 400	20 000	10 000	6 700
4 500 000	200 000	9 000	15 000	21 200	23 600	19 000	11 800	8 000	7 100	13 200	9 500	8 500	10 000	15 000	19 000	21 200	19 000	9 000	4 250
	140 000	11 800	16 000	20 000	21 200	18 000	13 200	10 600	10 000	15 000	11 800	10 600	11 800	15 000	19 000	21 200	19 000	9 500	6 000
5 600 000	200 000	8 000	13 200	19 000	21 200	18 000	10 600	6 700	6 300	12 500	8 500	7 500	9 000	13 200	17 000	19 000	18 000	8 500	3 550
	140 000	10 600	15 000	19 000	20 000	17 000	12 500	9 500	9 000	13 200	10 600	9 500	11 200	14 000	18 000	20 000	18 000	8 500	5 300
max		**31 500**																**20 000**	**10 000**

Values valid for metric «Solid low speed shaft»[4] (see ch.17 (2)).

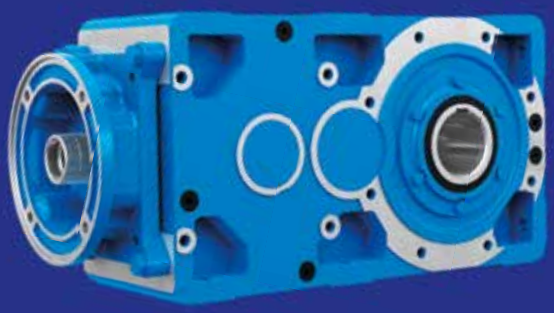
Sizes **360**

280 000	560 000	33 500	40 000	40 000	40 000	40 000	40 000	30 000	28 000	40 000	33 500	31 500	35 500	40 000	40 000	40 000	40 000	25 000	12 500
	400 000	37 500	40 000	40 000	40 000	40 000	40 000	35 500	33 500	40 000	37 500	35 500	40 000	40 000	40 000	40 000	40 000	25 000	12 500
355 000	560 000	30 000	40 000	40 000	40 000	40 000	35 500	26 500	23 600	40 000	31 500	28 000	31 500	40 000	40 000	40 000	40 000	25 000	12 500
	400 000	35 500	40 000	40 000	40 000	40 000	40 000	31 500	30 000	40 000	35 500	33 500	35 500	40 000	40 000	40 000	40 000	25 000	12 500
450 000	560 000	26 500	40 000	40 000	40 000	40 000	33 500	23 600	21 200	37 500	28 000	25 000	28 000	40 000	40 000	40 000	40 000	25 000	12 500
	400 000	31 500	40 000	40 000	40 000	40 000	37 500	30 000	28 000	40 000	31 500	30 000	33 500	40 000	40 000	40 000	40 000	25 000	12 500
560 000	560 000	23 600	37 500	40 000	40 000	40 000	30 000	20 000	18 000	33 500	25 000	22 400	25 000	35 500	40 000	40 000	40 000	23 600	11 200
	400 000	30 000	40 000	40 000	40 000	40 000	33 500	26 500	25 000	37 500	30 000	26 500	30 000	37 500	40 000	40 000	40 000	23 600	12 500
710 000	560 000	20 000	33 500	40 000	40 000	40 000	26 500	17 000	16 000	31 500	22 400	19 000	22 400	33 500	40 000	40 000	40 000	21 200	9 500
	400 000	26 500	35 500	40 000	40 000	40 000	31 500	23 600	21 200	33 500	26 500	23 600	28 000	35 500	40 000	40 000	40 000	22 400	12 500
	280 000	30 000	37 500	40 000	40 000	40 000	33 500	28 000	26 500	35 500	30 000	28 000	30 000	35 500	40 000	40 000	40 000	23 600	12 500
900 000	560 000	17 000	31 500	40 000	40 000	40 000	23 600	15 000	13 200	30 000	19 000	17 000	20 000	30 000	37 500	40 000	40 000	20 000	8 000
	400 000	23 600	33 500	40 000	40 000	40 000	28 000	21 200	19 000	31 500	23 600	23 600	25 000	33 500	40 000	40 000	40 000	21 200	12 500
	280 000	28 000	33 500	40 000	40 000	40 000	31 500	25 000	23 600	33 500	28 000	26 500	28 000	33 500	40 000	40 000	40 000	21 200	12 500
1 120 000	400 000	21 200	31 500	40 000	40 000	37 500	26 500	19 000	17 000	30 000	22 400	20 000	22 400	30 000	40 000	40 000	40 000	19 000	10 600
	280 000	25 000	31 500	40 000	40 000	37 500	30 000	22 400	21 200	31 500	25 000	23 600	26 500	31 500	37 500	40 000	37 500	20 000	12 500
1 400 000	400 000	18 000	28 000	40 000	40 000	35 500	23 600	16 000	15 000	26 500	19 000	17 000	20 000	28 000	35 500	40 000	37 500	18 000	9 000
	280 000	22 400	30 000	37 500	40 000	35 500	26 500	20 000	19 000	28 000	22 400	21 200	23 600	30 000	35 500	37 500	35 500	18 000	12 500
1 800 000	400 000	16 000	26 500	37 500	40 000	33 500	21 200	14 000	12 500	25 000	18 000	15 000	18 000	26 500	33 500	37 500	35 500	17 000	8 000
	280 000	20 000	28 000	35 500	37 500	33 500	23 600	19 000	17 000	26 500	21 200	19 000	21 200	26 500	33 500	35 500	33 500	17 000	11 200
2 240 000	280 000	19 000	26 500	33 500	35 500	31 500	22 400	17 000	16 000	23 600	19 000	18 000	19 000	25 000	31 500	35 500	31 500	16 000	10 000
	200 000	21 200	26 500	31 500	33 500	30 000	23 600	19 000	19 000	25 000	21 200	20 000	21 200	26 500	31 500	33 500	30 000	17 000	12 500
2 800 000	280 000	17 000	23 600	31 500	35 500	30 000	20 000	15 000	14 000	22 400	17 000	16 000	18 000	23 600	30 000	33 500	30 000	15 000	9 000
	200 000	19 000	25 000	30 000	31 500	28 000	22 400	18 000	17 000	23 600	19 000	18 000	20 000	23 600	30 000	31 500	28 000	15 000	11 200
3 550 000	280 000	15 000	22 400	31 500	33 500	28 000	18 000	13 200	11 800	20 000	15 000	14 000	16 000	21 200	28 000	31 500	28 000	13 200	7 500
	200 000	18 000	22 400	28 000	30 000	26 500	20 000	16 000	15 000	21 200	18 000	17 000	18 000	22 400	26 500	30 000	26 500	14 000	10 000
4 500 000	280 000	13 200	20 000	30 000	31 500	25 000	17 000	11 800	10 600	19 000	14 000	12 500	14 000	20 000	26 500	30 000	26 500	12 500	6 700
	200 000	16 000	21 200	26 500	30 000	25 000	19 000	14 000	13 200	20 000	16 000	15 000	17 000	20 000	25 000	28 000	25 000	13 200	9 000
5 600 000	280 000	11 800	19 000	26 500	30 000	23 600	15 000	10 000	9 000	17 000	12 500	11 200	12 500	18 000	23 600	26 500	25 000	11 800	5 600
	200 000	14 000	20 000	25 000	28 000	23 600	17 000	13 200	12 500	19 000	15 000	13 200	15 000	19 000	23 600	26 500	23 600	11 800	8 000
max		**40 000** (**22 400** for «short side»)																**25 000**	**12 500**

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) For radial loads acting simultaneously on both sides consult us.
3) An unfavourable direction of load can limit F_{r2} to 0.9 · F_{r2max}.
4) With hollow low speed shaft F_{r2} and F_{a2} permissible is 0.4 times the one stated in the table.

4

Accessories and non-standard designs



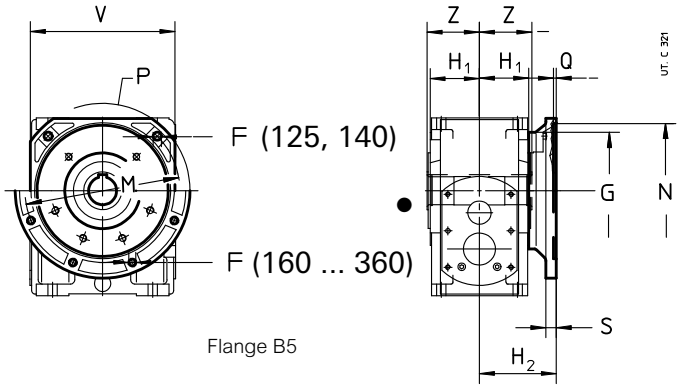
Section content

4.1 - Overview

Ref.	Description	Size	Designation
(8)	Flange	125 ... 360	flange B5
(9)	Backstop device	125 ... 360	backstop device free rotation white arrow backstop device free rotation black arrow
(10)	Reaction bolt using disc springs	125 ... 360	reaction bolt using disc springs
(12)	Reaction bolt using disc springs and bracket	125 ... 225	reaction bolt using disc springs and bracket
(13)	Rigid or flexible torque arm using bracket	125 ... 225	rigid torque arm using bracket flexible torque arm using bracket
(15)	Fan cooling	125 ... 360	fan cooling
(16)	Water cooling by coil	125 ... 360	water cooling by coil water cooling by coil and thermostatic valve
(17)	Independent cooling unit with internal heat exchanger	140 ... 360	Independent cooling unit with internal heat exchanger
(18)	Additional housing hole with oversized for pipe oil cooling	125 ... 360	additional housing hole with oversized diameter
(19)	Bearing lubrication pump	125 ... 360 125 ... 360	bearing lubrication pump high speed shaft lubrication device
(20)	Hollow low speed shaft washer	125 ... 360	hollow low speed shaft washer
(22)	Hollow low speed shaft protection cap	125 ... 360	hollow low speed shaft protection cap
(24)	Option paint	125 ... 360	option paint 1HRAL 5010 option paint 2HRAL 5010 option paint 3HRAL 5010 option paint 2IRAL 5010 option paint 2LRAL 5010
(25)	Heater	125 ... 360	heater
(26)	Seals on high and low speed shafts	125 ... 360	miscellaneous
(27)	Magnetic oil drain plug	125 ... 360	oil drain magnetic plug
(28)	Oil drain tap	125 ... 360	oil drain tap
(29)	Independent cooling unit	–	independent cooling unit oil-air UR O/A ... independent cooling unit oil-water UR O/W ... independent cooling unit oil-air UR O/A ... and bearing and/or gear forced lubrication ... independent cooling unit oil-water UR O/W ... and bearing and/or gear forced lubrication ...
(30)	Oil temperature probe	125 ... 360	oil temperature probe
(31)	Oil temperature probe with terminal box and amperometric transducer	200 ... 360	oil temperature probe with amperometric transducer
(32)	Bearing temperature probe	200 ... 360	bearing temperature probe
(33)	Bearing temperature probe with terminal box and amperometric transducer	200 ... 360	bearing temperature probe with amperometric transducer
(34)	Bi-metal type thermostat	100 ... 360	bi-metal type thermostat
(35)	Oil level switch with float	125 ... 360	oil level switch with float
(36)	Oil optical probe	125 ... 360	oil optical probe
(39)	Solid low speed shaft with inch diameter	125 ... 360	solid low speed shaft with inch diameter opposite to grove side solid low speed shaft with inch diameter to grove side solid low speed shaft with inch diameter double extension

(8) Flange (sizes 125 ... 360)

All gearmotors can be supplied with B5 flange having clearance holes and spigot «recess».
The accessory is supplied fitted onto the gearmotor. Unless otherwise stated, the mounting position is on groove opposite side (input opposite, for helical gear units: consult us). For groove side mounting position (for bevel helical gear units only), state in the designation: «**mounting on groove side**». Locking adhesives such as LOCTITE are recommended both around threads and on mating surfaces.
For dimensions H_1 and Z see ch. 3.7 and 3.9.
Supplementary description when ordering by **designation**: **flange B5**.



Flange B5

● Position of the reference groove (see ch. 3) for radial load verification.

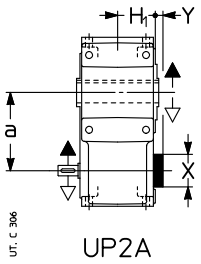
Size	F Ø	G Ø	H_2 h12	M Ø	N Ø H7	P Ø	Q	R	S	V □	lb	Designation
125	18	180	154	300	250	350	6	–	20	290	19	**Flange B5**
140	18	230	165	350	300	400	6	–	22	350	29	**Flange B5**
160	18^{8}	230	191	400	350	450	6	–	22	–	33	**Flange B5**
180	18^{8}	250	191	400	350	450	6	–	22	–	44	**Flange B5**
200	18^{8}	300	231	500	450	550	6	–	25	–	55	**Flange B5**
225	22^{8}	350	231	500	450	550	6	–	25	–	68	**Flange B5**
250, 280	27^{8}	450	280	600	550	660	7	–	30	–	110	**Flange B5**
320 ... 360	33^{8}	550	345	740	680	800	7	–	37	–	176	**Flange B5**

(9) Backstop device (sizes 125 ... 360)

For the sizes stated in the table, helical and bevel helical **gearmotors** with $n_2 \geqslant$ **224** rpm, can be supplied together with backstop device; the designs and the positions are the ones stated below. For the value of dimensions **a**, **C**, **H**, $\mathbf{H_1}$, $\mathbf{H_0}$ see ch. 3.7 and 3.9.

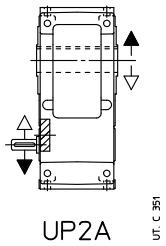
Supplementary description when ordering by **designation**: **backstop device**, **white or black arrow free-rotation**.

2I 140 ... 360



UP2A

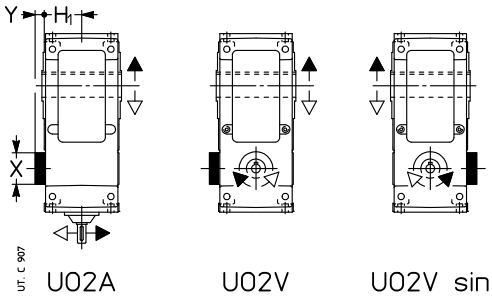
3I 140 ... 360



UP2A

Size	2I, 3I	
	X Ø	Y
125, 140	72	10
160, 180	90	10
200, 225	110	10
250, 280	130	7
320 ... 360	170	7

C2I 140 ... 360

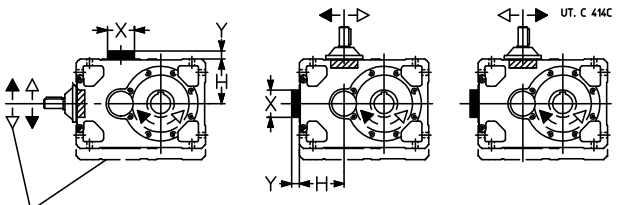


U02A

U02V
UO2H
UO2R

U02V sin
UO2H sin
UO2R sin

CI 125 ... 280



U02A sin U02A
(140, 180, 225, 280)

U02V

U02V sin

Size	CI		C2I	
	X Ø	Y	X Ø	Y
125, 140	122	16	72	10
160, 180	155	21	90	10
200, 225	190	21	110	10
250, 280	238	26	130	7
320 ... 360	–	–	170	7

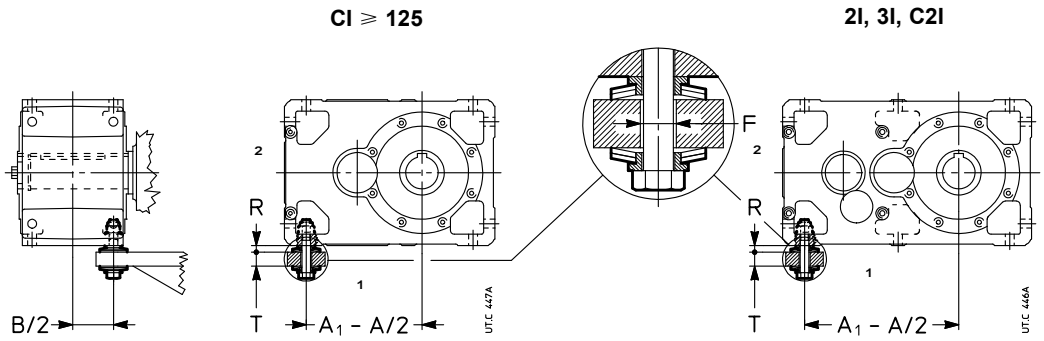
Backstop device load capacity

Nominal torque T_{N2} [lb in] of backstop device when lower than T_{N2} of gearmotor (see ch. 3.6 and 3.8). Maximum permissible overload **1.7 · T_{N2}**.

Size	Train of gears (i_N) T_{N2} [lb in]		
	3I *(28)* **C2I** *(20)*	**2I** *(10)* **3I** (**31.5**) **C2I** *(22.4)*	**3I** *(35.5)* **C2I** *(25)*
140	25 000	28 000	31 500
180	50 000	56 000	63 000
225	100 000	112 000	125 000
280	190 000	206 000	236 000
321, 360	375 000	425 000	475 000

(10) Reaction bolt using disc spring (sizes 125 ... 360)

Reaction arrangement for shaft mounting
See technical explanations in ch. 5.
For dimensions **A**, $\mathbf{A_1}$, **B** see ch. 3.7 and 3.9.
For trains of gears CI, apply this system **preferably** on side **1**; for trains of gears 2I, 3I do not apply on side **2**.
Supplementary description when ordering by **designation**: **reaction bolt using disc springs**.



Size	Screw	Disc spring		T	F	R	T_2≤
					Ø	1)	2)
	UNI 5737-88	DIN 2093					lb in
125, 140	M 16 × 110	A50	n.2	25 - 32	20	13.1	8 750
160, 180	M 20 × 130	A63	n.3	25 - 38	24	17.9	–
200, 225	M 24 × 160	A80	n.2	29 - 48	30	20.7	–
250, 280	M 30 × 200	A100	n.2	37 - 60	36	26.2	–
320 ... 360	M 36 × 260	A100	n.3	45 - 75	42	32.2	–

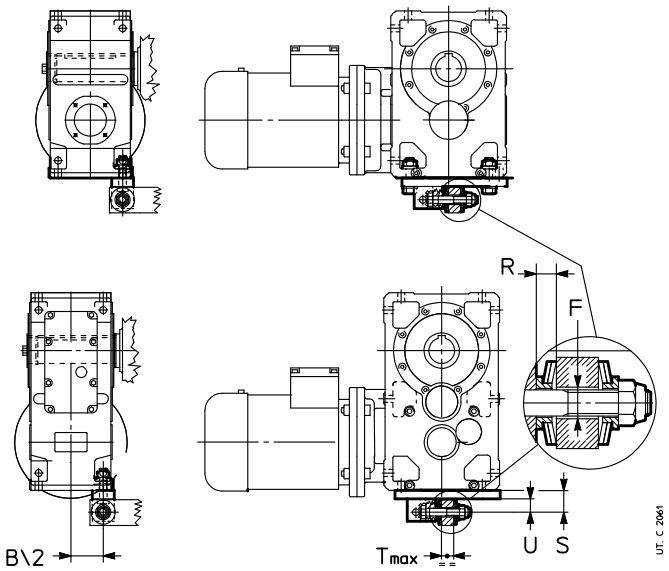
* Modified bolt.
1) Theoretical value: tolerance 0 / -1.
2) For higher T_2 values, use 2 reaction bolts or the arrangement with bracket (see following page).

(12) Reaction bolt using disc springs with bracket (sizes 125 ... 225)

Reaction arrangement for shaft mounting
See technical explanations in ch. 5
For dimensions **A**, $\mathbf{A_1}$, **B** see ch. 3.7 and 3.9.
This arrangement can be applied, if need be (overall dimension, less stress or other reasons) on the **short** farthest side from low speed shaft also for parallel shaft gear reducers sizes 125 ... 225.

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

CI ⩾ 125 ; C2I



Gear reducer size	Screw DIN 931	Disc spring DIN 2093		T	F Ø	S	U	R 1)	B/2
125, 140	M 16 × 110	A 50	n.2	25 – 32	20	50	30	13.1	81
160, 180	M 20 × 130	A 63	n.3	23 – 38	24	65	40	17.9	100.5
200, 225	M 24 × 160	A 80	n.2	29 – 48	30	80	48	20.7	125

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

(13) Rigid or flexible torque arm using bracket (sizes 125 ... 225)

Reaction arrangement for shaft mounting

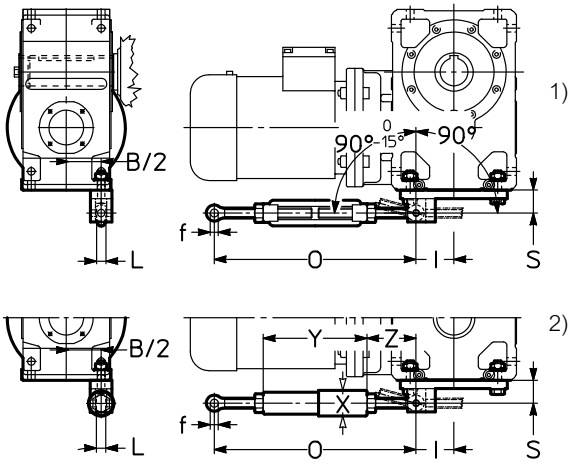
See technical explanations in ch. 5.

For dimensions **A**, $\mathbf{A_1}$, **B** see ch. 3.7 and 3.9.

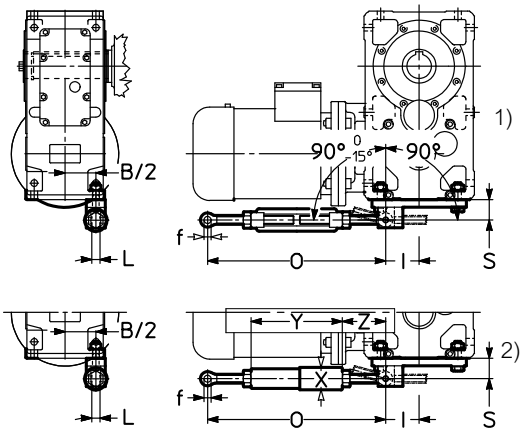
This arrangement can be applied, if need be (overall dimension, less stress or other reasons) on the short farthest side from low speed shaft in all gear reducers sizes 125 ... 225.

Supplementary description when ordering by **designation: rigid** or **flexible torque arm using bracket.**

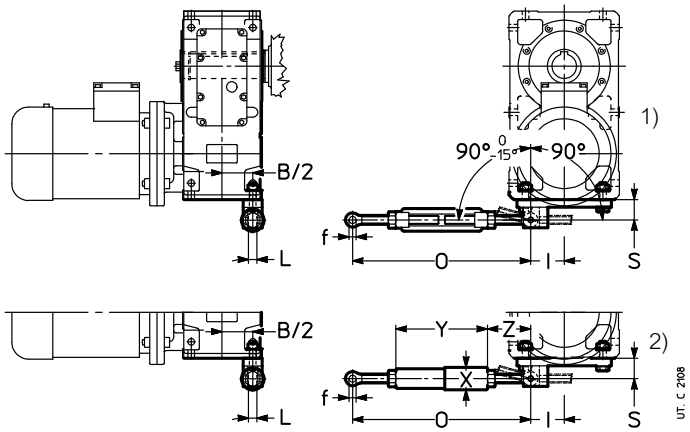
CI ⩾ 125



C2I



2I ⩾ 140 ; 3I ⩾ 140

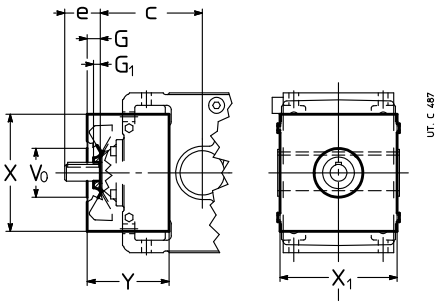


1) Rigid torque arm using bracket.
2) Flexible torque arm using bracket.

Gear red. size	f ø	O	S	L	X ø	Y	Z ≈	I	B/2
125, 140	16	410 – 510	50	17	52	242	84	74	81
160, 180	22	580 – 680	65	24	64	285	147	92	100.5
200, 225	28	580 – 680	80	30	88	305	137	113	125

(15) Fan cooling (sizes 125 ... 360)

Bevel helical gearmotors MR CI 125 ... 280, MR C2I 160 ... 360 **... D ...**, **... H ...**, **... R ...** can be supplied fitted with **one** fan.



Gear reducer size CI			G	G1	V0 Ø	X	X1 1)	Y
125	MR		25	15	90	212	212	127
140	MR		25	15	90	212	212	127
160	MR		29	15	110	264	264	184
180	MR		29	15	110	264	264	184
200	MR	$i_N \leqslant 14$	41	20	130	326	326	232
		$i_N \geqslant 16$	41	15	130	326	326	232
225	MR	$i_N \leqslant 16$	41	20	130	326	326	232
		$i_N \geqslant 18$	41	15	130	326	326	232
250	MR	$i_N \leqslant 14$	46	25	150	426	404	293
		$i_N \geqslant 16$	46	20	150	426	404	293
280	MR	$i_N \leqslant 16$	46	25	150	426	404	293
		$i_N \geqslant 18$	46	20	150	426	404	293

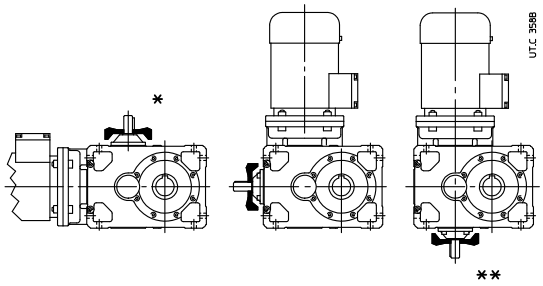
1) Bolts projecting 6 mm from dimension X_1.

Gear reducer size C2I			G	G1	V0 Ø	X	X1 1)	Y
160	MR		25	15	110	264	264	173
180	MR		25	15	110	264	264	173
200	MR		41	15	130	326	326	222
225	MR		41	15	130	326	326	222
250	MR	$i_N \leqslant 63$	41	20	150	426	404	268
		$i_N \geqslant 71$	41	15	150	426	404	268
280	MR	$i_N \leqslant 63$	41	20	150	426	404	268
		$i_N \geqslant 71$	41	15	150	426	404	268
320	MR	$31.5 \leqslant i_N \leqslant 28$	55	32	220	554	500	365
321		$i_N \leqslant 63$	46	25	185	554	500	333
360		$i_N \geqslant 71$	46	20	185	554	500	333

1) Bolts projecting 6 mm from dimension X_1.

With double extension high speed shaft designs both extensions are **accessible** even with fan fitted: personnel safety-guards are the Buyer's responsibility (2006/42/EC).

Designs and positions are as shown below.



* Fan position is not possible for train of gears C2I.
** Not possible for MR CI sizes 140, 180, 225, 280.

Temperature of cooling air must not exceed ambient temperature.

Supplementary description when ordering by **designation**: **fan cooling**.
Also available independent cooling unit with heat exchanger (see ch. 4 (29)); consult us, if need be.

(16) Water cooling by coil (sizes 125 ... 360)

Gearmotors sizes 125 ... 360, excluding mounting positions V... with groove side towards the bottom, can be supplied with copper alloy coil for water cooling.

On request, available also stainless steel coil; consult us.

Cooling water specifications:

– be not too hard;
– max temperature 68 °F (20 °C);
– capacity 2.6 – 5.2 gal/min;
– pressure 29 – 58 psi (2 – 4 bar).

A smooth metallic pipe (with external diameter **d** stated on table) is sufficient for the connection.

The load loss in the coil, according to the water flow and pressure, is of 9 – 12 psi for diameters d Ø16 and 12 – 15 bar for diameters d Ø12.

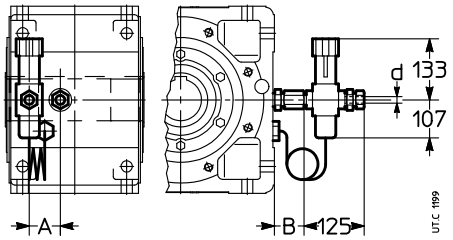
On request **thermostatic valve** which, automatically and without auxiliary supply need, permits water circulation when gear reducer oil reaches the set temperature; the valve sensor is equipped with immersion bulb. Mounting and setting, adjustable within 122 – 194 °F (50 – 90 °C), are Buyer's responsibility.

For ambient temperature lower than 32 °F (0 °C) consult us.

Supplementary description when ordering by **designation: water cooling by coil** or **water cooling by coil and thermostatic valve.**

Gear reducer size	**A**[1] ≈	**B**[1] ≈	**d** Ø	*Ts*[2] lb in
125 ... 180	40	40	12	305
200 ... 225	50	40	12	265
320 ... 360	60	45	16	305

1) Values valid for B3 mounting position and U ... A design. For other mounting positions and/or designs: consult us.
2) Tightening torque.



(17) Cooling by internal exchanger (sizes 140 ... 360)

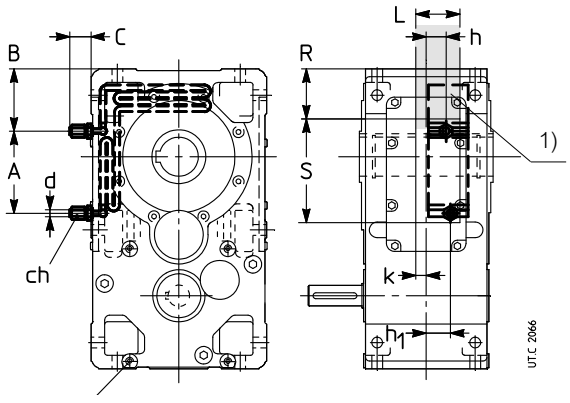
The following gearmotors:

– sizes 140 ... 360;
– mounting positions B3, B6, B7, B8;
– helical gearmotors;
– bevel helical C2I, design UO2A, ...H, ...V, ...R (excluding the relevant versions sin);

can be equipped with **internal** and **extractable** heat exchanger, made of aluminium, finned, mounted on gear reducer inspection cover (facilitating the maintenance operations) for the water cooling of lubrication oil.

In case of gearmotors in mounting position UO2V ... UO2H the heat exchanger may not be fully extractable.

Internal heat exchanger, on gear reducer inspection cover



1) Free area for pipe fastening and coil fastening devices.

The value of thermal factor ft_{1b} according to size and mounting position is given in the table.

Gear reducer size	ft_{1b}			A	B	C	ch	d	h	h_1	K	L	R	S
	B3	B6, B7	B8	≈	≈			Ø						
140	1.7	1.9	1.8	30	81.5	54	22	12	32	19	16	68	60	130
160	2.12	2.36	2.24	0	102	54	22	12	20	46	16	86	77	177
180	2	2.24	2.12	0	102	54	22	12	21	47	15	86	77	177
200	2.24	2.5	2.36	190	152	25	22	12	41	41	14	75	105	263
225	2.12	2.36	2.12	190	152	25	22	12	41	41	14	75	105	263
250	2.36	2.65	2.5	180.5	170.5	25	22	12	50.5	50.5	18	100	125	311
280	2.24	2.5	2.36	180.5	170.5	25	22	12	54	54	15	100	125	311
320, 321	2.12	2.36	2.24	60	255	34	30	16	66	66	2	129	177	302
360	2	2.24	2.12	60	255	34	30	16	66	66	2	129	177	302

Cooling water specifications:
– be not too hard;
– max temperature max 68 °F (20 °C);
– capacity 2.6 – 5.2 gal/min;
– pressure 29 – 58 psi (2 – 4 bar).

A smooth metallic pipe (with external diameter **d** stated on table) is sufficient for the connection, paying attention to keep fixed the fillet using a second hexagon wrench, when fastening the pipe on the fillet.

The load loss in the internal exchanger, according to the water flow and pressure, is of 20 – 26 psi for diameter d Ø16 and 26 – 29 bar for d Ø12.

On request **thermostatic valve** which, automatically and without auxiliary supply need, permits water circulation when gear reducer oil reaches the set temperature (after technical feasibility verification, consult us); the valve sensor is equipped with immersion bulb. Mounting and setting, adjustable within 122 – 194 °F (50 – 90 °C), are Buyer's responsibility.

For ambient temperature lower than 32 °F (0 °C) consult us.

Supplementary description when ordering by **designation**: **independent cooling with internal exchanger**.

(18) Additional oversized housing hole for oil pipe cooling (sizes **160 ... 360**)

In the event of oil cooling system through centralized external circuit (e.g.: paper plants) it is necessary to foresee an additional hole of proper dimensions on gearmotor housing in order to allow the lubricant flow for gravity.

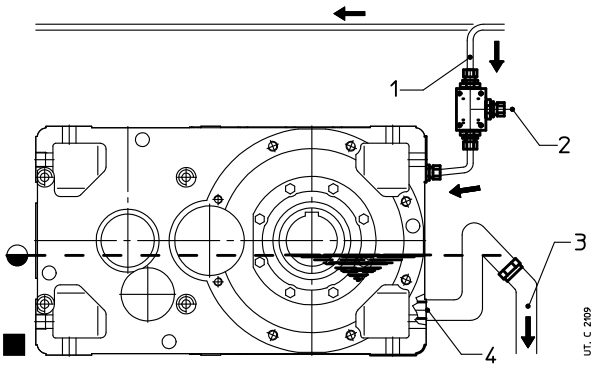
The setting of oil flow at gearmotor input must be executed by the Customer during the installation.

The heat quantity dissipated by the system depends on oil flow and on input and output oil temperature difference.

Available only for mounting positions B3 and B8 and sizes 160 ... 360.

Threaded hole **G 2"** for sizes 160 ... 250 and **G 2 1/2"** for sizes 250 ... 360.

Supplementary description when ordering by **designation**: **additional oversized housing hole**.



Legend:

1 Oil input.
2 Flow rate fine tuning value
3 Oil drain, towards centralized cooling tank
4 Additional oversized diameter housing hole

(19) Bearing lubrication pump (sizes 125 ... 360)

Piston pump (driven by a cam from the low speed shaft) for non oil bath lubrication.

In the following table the cases are stated where for input speed included in the range n_1 = **1 400** – **1 800** rpm it is necessary to foresee the bearing lubrication pump (see also 🔥 at ch. 3.7 and 3.9). For other speed values, consult us.

The other cases where according to mounting positon, it could be necessary to foresee a bearing lubrication pump, are marked with symbol 🔥 at ch. 3.7 and 3.9; consult us.

In general, when the maximum system reliability is required, in presence of particularly heavy duty cycles or sever ambient conditions, it is necessary to evaluate the possibility to install a bearing lubrication pump; consult us.

Supplementary description when ordering by **designation: bearings lubrication pump**

Train of gears	Mounting position	Presence of lubrication pump or lubrication device n_1 = **1 400** ÷ **1 800** min^{-1} Gear reducer size				
		125	**140 ... 180**	**200, 225**	**250, 280**	**320, 360**
MR CI	**B3, B6, B8 with** 🔥	P	P	P	P	-
MR C2I	**B3, B6 with** 🔥	-	P	P	P	P

– = Bearing lubrication pump not necessary.
P = Lubrication pump.

(20) Hollow low speed shaft washer (sizes 125 ... 360)

All gearmotors can be supplied with washer, retaining ring, bolt for axial fastening and protection cap, see ch. 5.

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

(22) Hollow low speed shaft protection cap (sizes 125 ... 360)

The gearmotors, sizes 125 ... 360, can be supplied with a protection cap of the hollow low speed shaft free area (see ch. 5 «Hollow low speed shaft»).

ATTENTION. The protection cannot be mounted:
– on sizes 180 ... 360 not equipped with the necessary pre-arrangement (e.g.: assembly is not possible for «aftermarket» supplies).

The protection cannot be supplied in presence of:
– double seal on low speed shaft (sizes 125 ... 160);
– labyrinth seal and greaser;

Consult us, if need be.

Supplementary description when ordering by **designation: hollow low speed shaft with protection cap**

(24) Optional paint (sizes 125 ... 360)

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	Average final thickness on machined parts µm	Code
Applications in aggressive environments	Good resistance to atmospheric and aggressive agents	C4	Low	Dual-compound epoxy primer Water-soluble dual-compound enamel with acrylic-polyurethan resins	150	**1HRAL5010** (blue)
			Medium	Dual-compound epoxy primer (× 2) Water-soluble dual-compound enamel with acrylic-polyurethan resins	200	**2HRAL5010** (blue)
			High	Dual-compound epoxy primer (× 4) Water-soluble dual-compound enamel with acrylic-polyurethan resins	300	**3HRAL5010** (blue)
Outdoor applications in saline environment	Excellent resistance to atmospheric and aggressive agents Outdoor applications in saline environment	C 5 - M	Medium	Sand blasting Dual-compound antirust primer with zinc phosphates Dual-compound epoxy primer Water-soluble dual-compound enamel with acrylic-polyurethan resins	300	**2IRAL5010** (blue)
			High	Sand blasting Dual-compound antirust primer with zinc phosphates Recess sealing with polyurethan sealant Dual-compound epoxy primer Water-soluble dual-compound enamel with acrylic-polyurethan resins	400	**2KRAL5010** (blue)
Outdoor applications in chemically aggressive environment and high humidity industrial areas	Excellent resistance to atmospheric and aggressive agents Outdoor applications in chemically aggressive environment (fertilizers, etc.)	C 5 - I	Medium	Sand blasting Dual-compound antirust primer with zinc phosphates Dual-compound epoxy primer Water-soluble dual-compound enamel with epoxy resins	300	**2LRAL5010** (blue)
			High	Sand blasting Dual-compound antirust primer with zinc phosphates Recess sealing with polyurethan sealant Dual-compound epoxy primer Water-soluble dual-compound enamel with epoxy resins	400	**2YRAL5010** (blue)

Other colors are available on request, preferred RAL codes are as follows:

1000, 1003, 1004, 1013, 1014, 1015, 1016, 1018, 1021, 1023, 1028,

2000, 2001, 2002, 2003, 2004, 2009, 2010,

3000, 3001, 3002, 3003, 3005, 3007, 3011, 3016, 3020,

4003,

5000, 5001, 5002, 5003, 5005, 5007, 5008, 5009, 5011, 5012, 5013, 5015, 5017, 5018, 5019, 5021, 5022, 5023, 5024,

6000, 6001, 6003, 6004, 6005, 6010, 6011, 6012, 6017, 6018, 6019, 6020, 6021, 6024, 6025, 6026, 6027, 6028, 6029, 6032, 6033, 6037,

7000, 7001, 7004, 7006, 7011, 7012, 7015, 7016, 7021, 7022, 7023, 7024, 7030, 7031,7032, 7033, 7034, 7035, 7036, 7037, 7038, 7040, 7042, 7043, 7044, 7046, 7048,

8012, 8014,

9001, 9002, 9003, 9005, 9011, 9017, 9006, 9007, 9010, 9016, 9018, 9023

(25) Heater (sizes 125 ... 360)

Oil heater for starting at low ambient temperature.

Specify the design «Oil temperature probe» together with this design.

The heater is controlled through a proper device (at customer's care e.g.: PLC or supplied by Rossi e.g. 2-threshold signalling device CT03 or 3 threshold signalling device CT10) releasing when achieving the pre-set oil temperature.

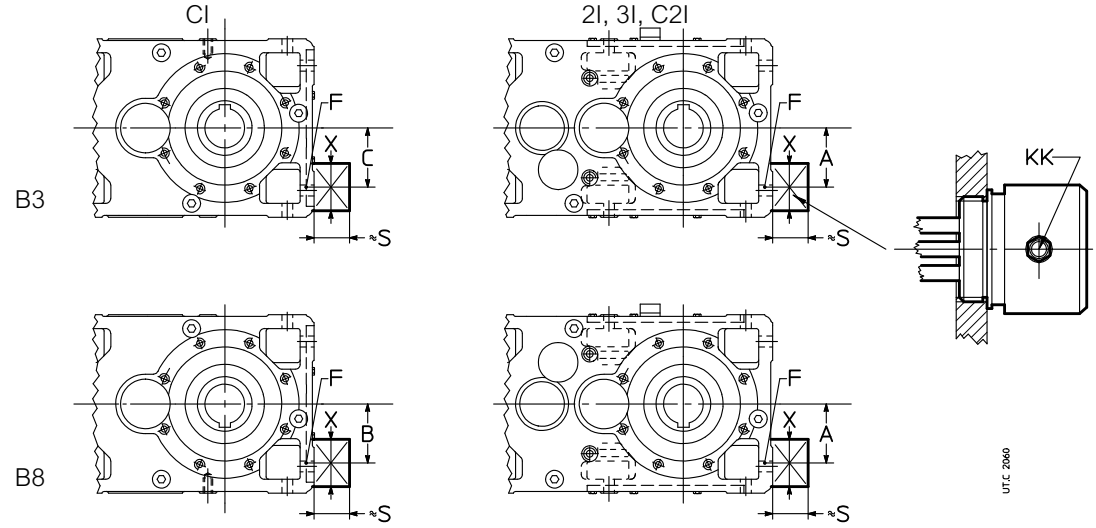
IMPORTANT. The data stated in the table refer to **mounting positions B3** and **B8 only**; for other mounting positions, consult us.

The design couldn't be compatible with other designs (e.g. internal pump...), consult us.

Features:

– specific power max 2W/cm$^{2;}$
– single phase or three-phase supply (see table; for other supply, consult us);
– UL recognized heating elements;
– stainless steel resistors AISI 316Ti;
– metallic terminal box; cable gland protection IP 65;
– horizontal mounting with oil bath lubrication;
– max oil temperature 194 °F (90°C);
– threaded brass joint;

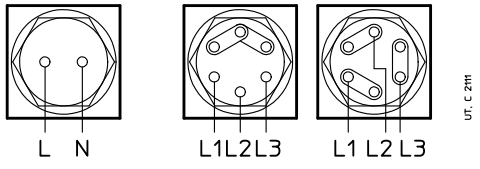
Supplementary description when ordering by **designation**: **oil heater**.



Size	A	B	C	F	L 1) ≈	S ≈	X ≈	P W	KK	Supply
125	85	85	85	G 1″	215	85	85	300	Pg 11	1~ 230 V 50-60 Hz
140	100	85	100							
160	125	114	114	G 1″ 1/4	240			600		
180		100	125							
200	150	146	146	G 1″ 1/2	360	90		900	Pg 13	3~ Δ230 Y400 V 50-60 Hz
225		140	155							
250	200	170	170	G 2″	310			1500		
280		170	235							
320, 321	250	235	235		410			2100		
360		222	318							

1) Maximum oil heater length.

Wiring schemes:



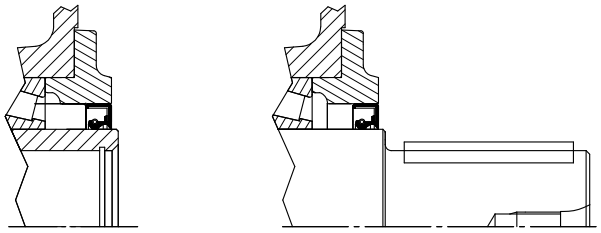
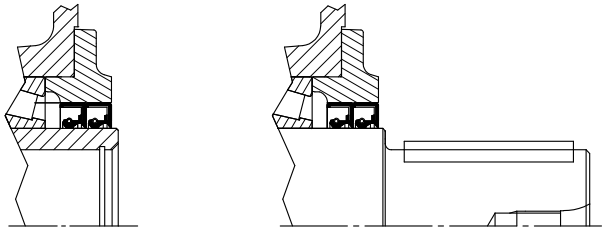
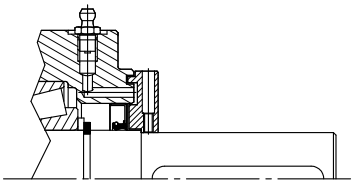
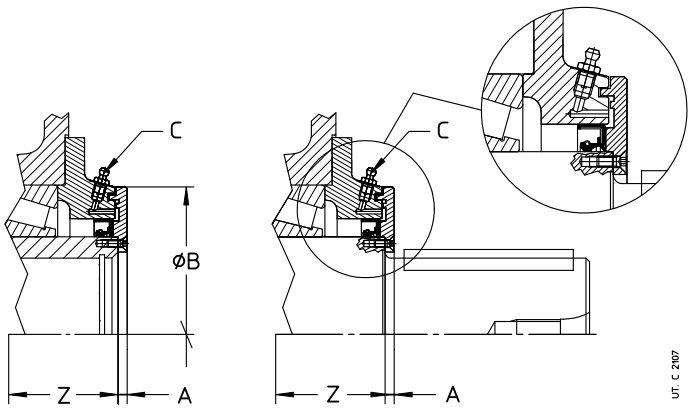
Single-phase connection

Three-phase connection Y

Three-phase connection Δ

(26) Seals on high and low speed shafts (sizes 125 ... 360)

The seal types available (standard and on request) on low and high speed shaft, are stated in the following table.

Type of seal	Scheme
Standard	
High speed shaft double seal Environment is quite dirty and/ or outdoor **Low speed shaft double seal** Environment is quite dirty and/ or outdoor	 Additional description when ordering by **designation**: **high speed shaft double seal.** **low speed shaft double seal**.
Labyrinth seal and high speed shaft greaser («taconite») Environment is very dirty (e.g.: mining industry)	 Additional description when ordering by **designation**: **labyrinth seal and high speed shaft greaser.**
Low speed shaft labyrinth seal greaser («taconite») Environment is very dirty (e.g.: mining industry) 1)	 Additional description when ordering by **designation**: **labyrinth seal and low speed shaft greaser**.

Size	A	B Ø	C nr.1
125	5	138	M6
140	5	155	M6
160	6	178	M8
180	6	175	M8
200	8	195	M8
225	8	195	M8
250	8	242	M8
280	9	242	M8
320, 321	9	310	M8
360	9	310	M8

1) The labyrinth disc overhangs from A dimension compared with shaft shoulder; the length of low speed shaft end is equal to E - A.

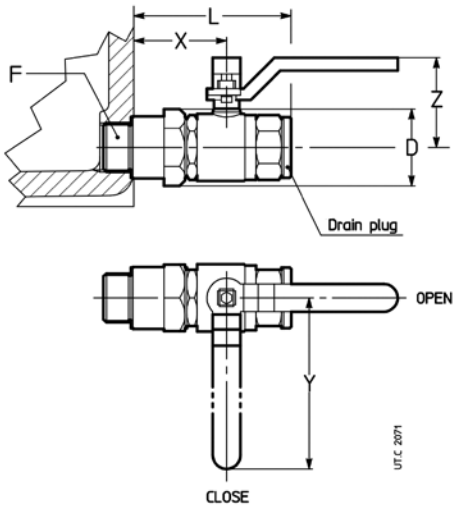
Notes.
– The compound of seal rings is acrylonitrilic as standard; on request, seal rings with fluoro compound are available (e.g.: for high temperatures, for aggressive environments or for high rotation speed, etc.); specify in the designation: **seal with fluoro compound**.
– The **double seal of high speed shaft** is generally **to be avoided** as the bigger localized heating reduces the life of seal; for gearmotors the design can be supplied only on the eventual double extension high speed shaft.
– In case of **double seal**, the external seal ring can be counter mounted (e.g. in presence of water jets); speficy in the designation: **external ring counter mounted**.
– The design **high speed shaft seal with labyrinth and greaser** can be supplied only after technical verification of feasibility by Rossi: consult us.
– For the additional description to the **designation** when ordering, see table on the previous page.

(27) Magnetic plug (sizes 125 ... 360)

In order to reduce lubricant contamination and to increase the maintenance interval and oil replacement, gearmotors can be supplied with magnetic plug.
In presence of oil drain tap (28) the oil drain magnetic plug is mounted in a second drain hole on housing and not in the tap.
Additional description when ordering by **designation**: **oil drain magnetic plug**.

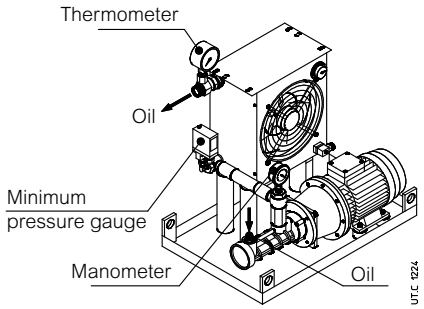
(28) Oil drain tap (sizes 125 ... 360)

Gearmotors can be supplied with oil drain tap (accessory already assembled).
Additional description when ordering by **designation**: **oil drain tap**.

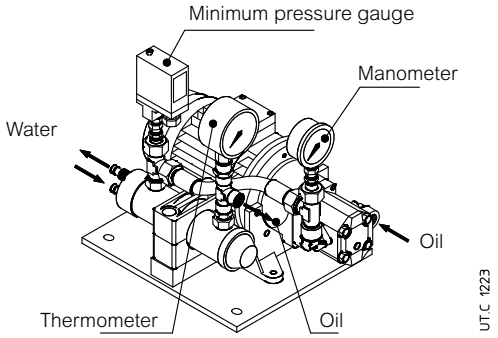


Gear reducer size	F	D Ø	L ≈	X	Y	Z
125, 140	G 1/2"	31	80	50	80	40
160 ÷ 280	G 3/4"	40	90	56	112	55
320 ÷ 360	G 1"	46	106	66	115	60

(29) Independent cooling unit



Oil/Air



Oil/Water

Additional cooling device in the event that the other forced cooling systems are not sufficient for the dissipation of thermal power produced by gear reducer during operation (see ch. 3.3).

Including:

– **oil/air heat exchanger** (O/A; with thermostat and adjustable control knob 32 – 194 °F (0 – 90 °C) or **oil/water heat exchanger** (O/W),
– **motor pump**: screw pump with fluoro rubber seals (gear pump for UR O/W5.4 hp – UR O/W 28 hp); 4 pole motor B3/B5; motor-pump connection with coupling;
– **motor fan** (O/A) (three-phase or single phase supply, see next table)
– **analogic manometer** 0 – 250 psi (0 – 16 bar) mounted between pump and exchanger;
– **analogic thermometer** 32 – 250 °F (0 – 120 °C) mounted at exchanger output;
– **low pressure switch** (with on-off switch) mounted between pump and exchanger;
– **supporting frame** with nameplate.

On request, several accessories are at disposal (supplied separately, assembled by Customer) in order to satisfy all functionality and safety needs.

– **oil temperature probe Pt100**;
– **2-threshold signalling device CT03** (necessary also the oil temperature probe Pt100) for the mounting on rail to DIN EN 50022;
– **3-threshold signalling device CT10** (necessary also the oil temperature probe Pt100) for the mounting on rail to DIN EN 50022;
– **bi-metal type thermostat**;
– **flow gauge**;
– **filter** (with optical-electric blockage warning and one or two filters M60)

Connections realized by flexible pipes (type SAE 100 R1, maximum length 6 ft) between gear reducer and cooling unit and the assembly of accessories and signalling devices are Buyer's responsibility.

For the heat exchanger power required by the independent cooling unit:

$$\boldsymbol{P}s \geqslant (\boldsymbol{P}_1 - \boldsymbol{Pt}_N \cdot \boldsymbol{ft}_1 \cdot \boldsymbol{ft}_2 \cdot \boldsymbol{ft}_3 \cdot \boldsymbol{ft}_4) \cdot (\mathbf{1} - \boldsymbol{\eta}) \cdot \mathbf{K}_1$$

where:

Ps	nominal power of unit [hp], i.e. the power dissipated by hot oil at approx. 176 °F (80 °C) and cooling air at 104 °F (40 °C) (O/A) or cooling water at 68 °F (20°C) (O/W) with stated capacity (see next table);
P_1	power at gear reducer input [hp] (consider the power installed when being uncertain about the power absorbed).
Pt_N	nominal thermal power of gear reducer [hp] (see ch. 3.3);
ft_1	thermal factor according to input speed (see ch.3.3);
ft_2	thermal factor according to ambient temperature (see ch. 3.3);
ft_3	thermal factor according to mounting position (see ch. 3.3);
ft_4	thermal factor according to altitude (see ch. 3.3); for UR O/A derate also the exchanger power: multiply Ps by 0.85 (for 3 300 – 8 200 ft a.s.l.) or by 0.71 (for 8 200 – 16 400 ft a.s.l.);
η	gear reducer efficiency (see ch. 3.5);

K_1 = 1.18 takes into account the decrease of the exchanger efficiency due to dirt on the external surface.

Notes of page 103.

1) Oil connection valid for UR O/A 21 hp.
2) Oil connections valid when filter is present.
3) It is advisable to delay the gear reducer motor starting by at least 1 min compared to the motor pump starting.
4) The oil filter requires that cooling unit is started with oil already warm: refer to case A1 or B1.

Designation	Nominal power P_S hp	kW	Heat exchanger code	Oil motor pump motor 3~ hp	flow rate ft³/min	Motor fan motor hp	flow rate ft³/min	Oil connections intake	delivery	Exchanger capacity ft³	lb
UR O/A 7hp	**6.7**	5	AP 300 E	2	1.1	0.20 1~	540	1" (1¼")[2]	1" (1¼")[2]	0.07	130
UR O/A 9hp	**9.4**	7	AP 300/2 E	2	1.1	0.20 1~	770			0.13	145
UR O/A 13hp	**13**	10	AP 430 E	2	1.1	0.15 3~	1620			0.13	155
UR O/A 17hp	**17**	13	AP 430/2 E	2	1.1	0.19 3~	2060			0.19	165
UR O/A 21hp	**21**	16	AP 580 EB	3	2	0.19 3~	2830			0.53	210
UR O/A 28hp	**28**	21	AP 680 EB	3	2	1.41 3~	5180			0.57	260
UR O/A 35hp	**35**	26	AP 730 EB	4	2	1.41 3~	5180	1¼"	1½" (1")[1]	0.57	280
UR O/A 40hp	**40**	30	AP 730 EB	4	2.8	1.41 3~	5180			0.57	280
UR O/A 54hp	**54**	40	AP 830 EB	3	2	1.74 3~	6770			0.71	310
UR O/A 62hp	**62**	46	AP 830 EB	4	2.8	1.74 3~	6770			0.71	310

Designation	Nominal power P_S hp	kW	Heat exchanger code	Oil motor pump motor 3~ hp	flow rate ft³/min	Water pipe flow rate ft³/min	connections	Oil connections intake	delivery	Exchanger capacity ft³	lb
UR O/W 5hp	**5.4**	4	T60CB1	0.5	0.6	≥ 0.3 (≤ 1.1)	Ø12 mm	G ½"	G ½"	0.01	30
UR O/W 8hp	**8**	6	T60CB2	0.5	0.6	≥ 0.4 (≤ 1.1)	Ø12 mm	G ½"	G ½"	0.02	35
UR O/W 12hp	**12**	9	T80CB2	0.75	0.6	≥ 0.6 (≤ 1.1)	Ø12 mm	G ½"	G ½"	0.04	40
UR O/W 17hp	**17**	13	MS84P2	1.5	1.1	≥ 0.9 (≤ 1.6)	G ½"	G ¾"	G ¾"	0.04	70
UR O/W 28hp	**28**	21	MS134P1	2	1.1	≥ 1.4 (≤ 3.9)	G 1"	G ¾"	G ¾"	0.11	95
UR O/W 42hp	**42**	31	MS134P1	3	2	≥ 1.8 (≤ 3.9)	G 1"	G 1¼"	G 1¼"	0.11	120
UR O/W 67hp	**67**	50	MS134P2	4	2.8	≥ 2.8 (≤ 3.9)	G 1"	G 1¼"	G 1¼"	0.16	155

Starting mode and required accessories

Ref.	Gear reducer lubrication system	Gear reducer starting mode	T_{amb} °F (°C)	Required accessories	Required oil type	Description and remarks
A1	Splash lubrication	Without oil pre-heating	32 – 77 (0 – 25)	Pt100 + CT10	Mineral oil or synthetic oil (preferable)	**Gear reducer starting and subsequent motor-pump starting with warm oil**. The motor-pump is managed by the **three-threshold** oil temperature control system (Pt100 + CT10). Set the three-threshold device CT10 with: – operating temperature 140 °F (60 °C) (starting of motor-pump); – restoring temperature 104 °F (40 °C); – warning temperature 194 °F (90° C).
A2	Splash lubrication	Without oil pre-heating	> 77 (> 25)	–	Polyalphaolefine based synthetic oil	**Simultaneous starting of gear reducer and motor-pump** Oil filter not possible[4].
B1	Forced lubrication (bearings and/or gears)	With oil pre-heating	32– 77 (0 – 25)	Pt100 + CT03 Pt100 + CT10 Oil heater	Mineral oil or synthetic oil (preferable)	**Simultaneous starting of gear reducer and motor-pump after oil pre-heating**[3]. The oil heater is managed by the **two-threshold** oil temperature control system (Pt100 + CT03). The motor-pump and the gear reducer motor are managed by the **three-threshold** oil temperature control system (Pt100 + CT10). Set the two-threshold device CT03 with: – operating temperature 122 °F (50 °C) (oil heater disconnection); – restoring temperature 86 °F (30° C). Set the three-threshold device CT10 with: – operating temperature 104°F (40 °C) (starting of motor-pump and gear reducer motor); – restoring temperature 50 °F (10 °C); – warning temperature 194 °F (90° C).
B2	Forced lubrication (bearings and/or gears)	Without oil pre-heating	> 77 (> 25)	–	Polyalphaolefine based synthetic oil	**Simultaneous starting of gear reducer and motor-pump**[3] Oil filter not possible[4].

see notes on page 102.

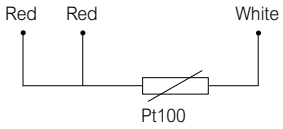
Additional description when ordering by **designation**:

independent oil-air cooling unit UR O/A ... or **independent oil-water cooling unit UR O/W ...** , possibly integrated, when required by the application, with description: «**Forced lubrication …**» and the statement of bearings and/or gear pairs to be lubricated. For dimensions, accessories and further technical details, see specific literature.

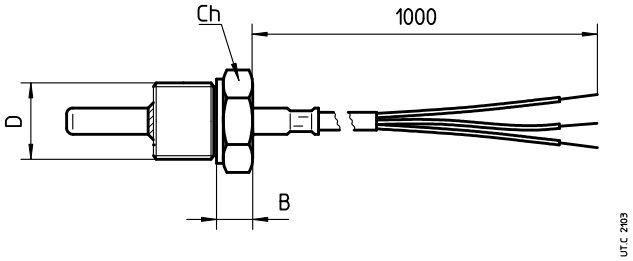
(30) Oil temperature probe (sizes **125 ... 360**)

Remote oil temperature gauge; installation (at Buyer's responsibility) instead of an existing drain plug, or into a hole properly pre-arranged. The temperature gauge is realized with a thermo-resistor Pt100 having following features:
– platinum wire with 100 Ω at 32 °F (0 °C) according to EN 60751;
– precision class B according to EN 60751;
– operation temperature field -40 °F – +392 °F (-40 °C – +200 °C);
– max current 3 mA;
– 3 wires connection according to IEC 751 (see fig. below);
– stainless steel probe AISI 316; diameter 6 mm;
– cable 1 m long with free end.
For the connection of probe to relevant signalling device CT03 or CT10 (on request, consult us) use a protected section cable ⩾ 1.5 mm² positioned separately from power cables.

Supplementary description when ordering by **designation**: **oil temperature probe**.

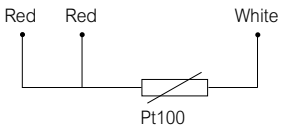


Gear reducer size	**B**	**C**h (key)	**D**
125, 140	8	22	G 1/2"
160 ... 225	10	32	G 3/4"
320 ... 360	15	36	G 1"

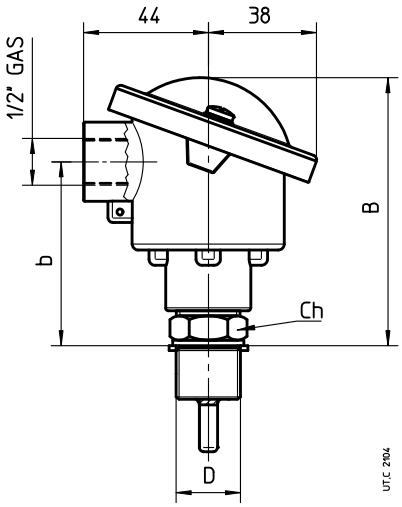


(31) Oil temperature probe with terminal box and amperometric transducer 4 – 20 mA (sizes 125 ... 360)

Remote oil temperature gauge, with terminal box and amperometric transducer; installation (at Buyer's responsibility) instead of drain plug. The temperature gauge is realized with a thermo-resistor Pt100 having following features:
– platinum wire with 100 Ω at 32 °F (0 °C) according to EN 60751;
– precision class B according to EN 60751;
– temperature range -40 °F – +392 °F (-40 °C – +200 °C);
– 3 wires connection according to IEC 751 (see fig. below);
– stainless steel probe AISI 316; diameter 6 mm;
– amperometric transducer with output signal 4 – 20 mA;
– alluminium terminal block (supplied without cable gland);
– protection IP65;
– input cables G ½''.
For the connection of probe to relevant signalling device use a protected section cable ⩾ 1.5 mm² positioned separately from power cables.
ATTENTION. Accessory available only for technical feasibility evaluation by Rossi: consult us.
Supplementary description when ordering by **designation**: **oil temperature probe with terminal box and amperometric transducer**.



Gear reducer size	B	Ch (key)	b	D
125, 140	90	24	60	G 1/2"
160 ... 280	92	32	62	G 3/4"
320 ... 360	97	36	67	G 1"



(32) Bearing temperature probe (sizes 125 … 360)

Probe for the remote monitoring of bearing temperature; installation (at Buyer's responsibility) into a hole properly pre-arranged, next to a bearing to **be agreed during order phase** (for the most common cases, in order to facilitate the identification of bearing to be monitored, refer to following scheme).

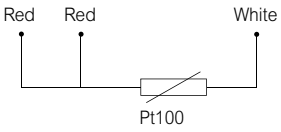
The temperature gauge is realized with a thermo-resistor Pt100 having following features:

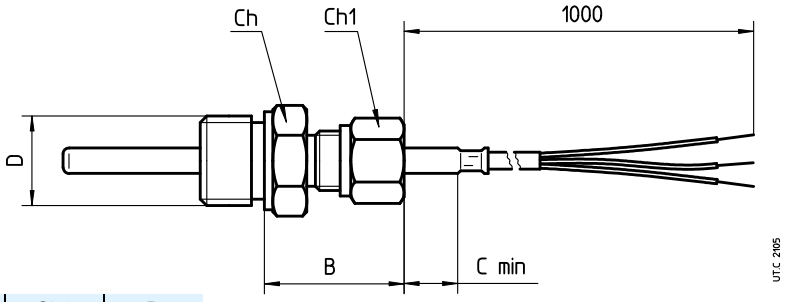
– platinum wire with 100 Ω at 32 °F (0 °C) according to EN 60751;
– precision class B according to EN 60751;
– temperature range -40 °F – +392 °F (-40 °C – +200 °C);
– max current 40 mA;
– 3 wire connection according to IEC 751 (see fig. below);
– stainless steel AISI 316 flat probe; diameter 6 mm;
– stainless steel **sliding** fillet.

For gearmotors, positions A1 and A2 not available.

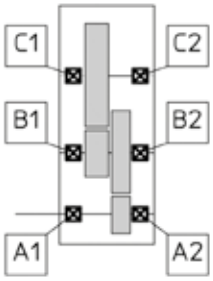
For the connection of probe to relevant signalling device CT03 or CT10 (on request, consult us) use a protected section cable ⩾ 1.5 mm^2 positioned separately from power cables.

Supplementary description when ordering by **designation**: **bearing temperature probe**.

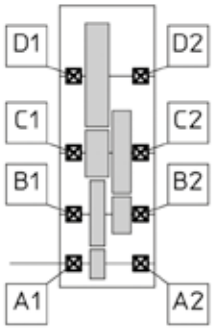




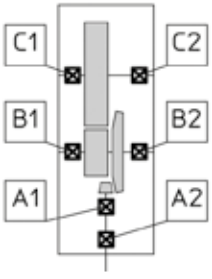
Gear reducer size	C min	B	Ch (key)	Ch1 (key)	D
125 ... 360	5	32	24	17	G 1/2"



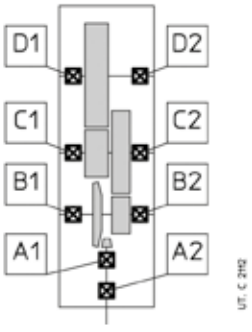
2I ... UP2A



3I ... UP2A



CI ... UO2A (UO2V)



C2I ... UO2A (UO2V)

(33) Bearing temperature probe with terminal box and amperometric transducer 4 – 20 mA (sizes 125 … 360)

Probe for remote bearing temperature monitoring, with terminal box and amperometric transducer; installation (at Buyer's responsibility) in a threaded hole properly pre-arranged next to a bearing **to be agreed when ordering** (for the most common cases, in order to facilitate the identification of the bearing to be monitored, it is possible to refer to the scheme at (32)).

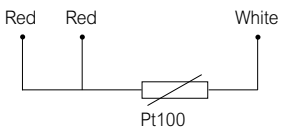
The temperature gauge is realized with a thermo-resistor Pt100 having following features:

– platinum wire with 100 Ω at 32 °F (0 °C) according to EN 60751;
– precision class B according to EN 60751;
– temperature range -40 °F – +392 °F (-40 °C – +200 °C);
– 3 wire connection according to IEC 751 (see fig. below);
– amperometric transducer with output signal 4 – 20 mA;
– alluminium terminal block (supplied without cable gland);
– protection IP65;
– input cables G ½";
– stainless steel AISI 316 flat probe; diameter 6 mm;
– stainless steel **sliding** fillet.

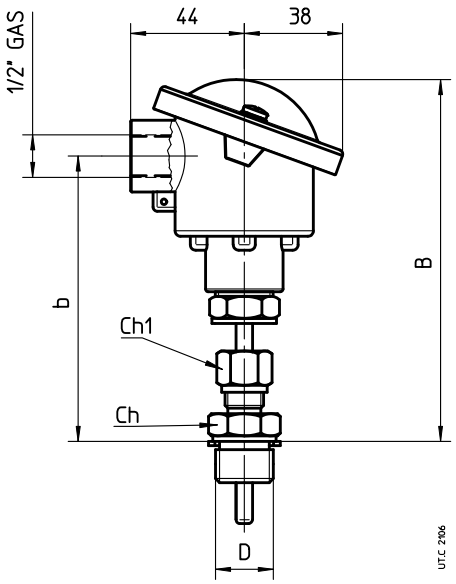
For the connection of probe to relevant signalling device use a protected section cable ⩾ 1.5 mm^2 positioned separately from power cables.

For gearmotors, positions A1 and A2 not available.

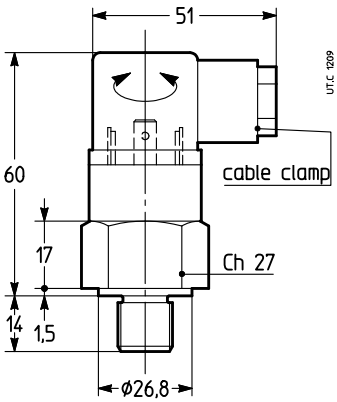
Supplementary description when ordering by **designation**: bearing temperature probe with **amperometric transducer**.



Gear reducer size	**B**	**b**	**C**h (key)	**C**h1 (key)	**D**
125 ... 360	134	104	24	17	G 1/2"



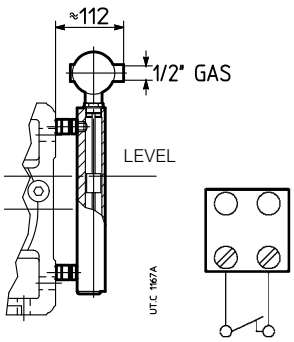
(34) Bi-metal type thermostat (sizes 125 … 360)



Gearmotors sizes 125 ... 360 can be supplied with bimetal type thermostat for the control of the maximum admissible oil temperature.
Thermostat specifications:
– NC contact with maximum alternate current 10 A - 240 V d.c. (5 A - 24 V d.c.);
– G 1/2" thread connection;
– Pg 09 DIN 43650 cable gland;
– IP65 protection;
– Setting temperature 194 ± 9 °F (90 ± 5 °C)
(other setting temperatures are possible, on request);
– Differential temperature 27 °F (15 °C).
Mounting into a threaded hole (position to be defined according to mounting position and mounting arrangement: consult us) and oil bath lubrication is Buyer's responsibility.
ATTENTION. Accessory available only for technical feasibility evaluation by Rossi: consult us.

Supplementary description when ordering by **designation**: **bimetal type thermostat**.

(35) Oil level switch with float (sizes 125 … 360)



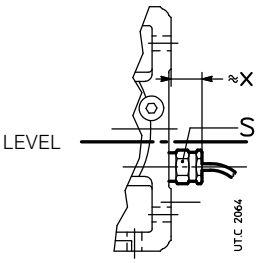
It is a level control device with reed contacts in a supporting stem moved by the magnetic field activated by the magnets included in the float.
The float and the supporting stem are included in a hollow column of non-magnetic material connected to the gear reducer housing through communicating vessels.
Connecting features:
– 2 wires connection;
– maximum voltage: 350 V
– maximum current: 1.5 A
– 1 cable input 1/2" ISO 7/1 – IP65
– G 1" brass joint.
The switch is supplied ready for use; when level goes down approx 5 mm, the switch goes on and contact opens.
When filling oil in the gear reducer it is necessary to verify that device is properly calibrated. If any problems occur during this operation contact Rossi.
ATTENTION. Accessory available only for technical feasibility evaluation by Rossi: consult us.

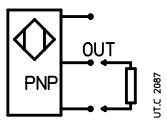
Supplementary description when ordering by **designation: oil level switch with float**

(36) Oil optical probe (sizes 125 … 360)

Optical scanner, without moving parts, for the constant control of oil level, inside the gear reducer (at rest).
Features:
– stainless steel probe;
– operating temperature range -40 °F – +257 °F (-40 °C – +125 °C);
– d.c. supply 12 – 28 V (other types on request, consult us);
– PNP output (other types on request, consult us), max 100 mA;
– male coupling G 3/8", G 1/2", G 3/4", G 1" according to gear reducer size.

Supplementary description when ordering by **designation**: **oil optical probe.**





Gear reducer size	S	x
125... 140	27	40
160 ... 360	36	45

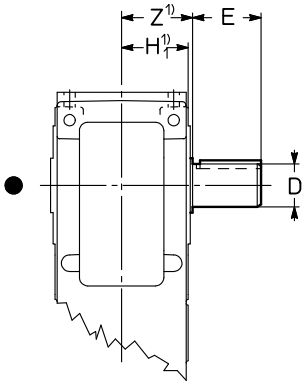
(39) Solid low speed shaft with inch diameter (sizes 125 ... 360)

Gearmotors sizes 125 ... 360 can be equipped with solid low speed shaft with inch diameter; shaft end can be on opposite to groove side, on groove side or on both (double extension).

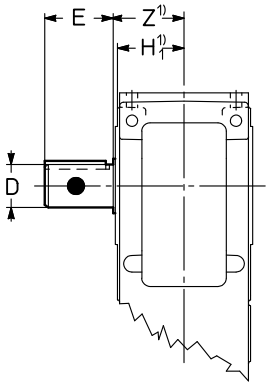
For sizes 225, 280 and 360 radial loads (ch.3.10) are to be multiplied by 0.4.

For the bore of parts keyed onto shaft end the D tolerance +0.0015 / -0.0000 is suggested provided that the load is uniform or with moderate overloads and without reversals; otherwise an interference fit should be taken into account; consult us. Before mounting, clean carefully and lubricate mating surfaces against seizure and fretting corrosion.

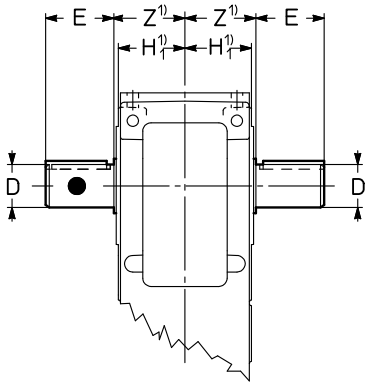
Installing and removal operations should be carried out with **pullers** and **jacking screws** using the tapped hole at the shaft butt-end; for interference fits it is advisable that the part to be keyed is preheated to a temperature of 176 – 212 °F (80 – 100 °C).



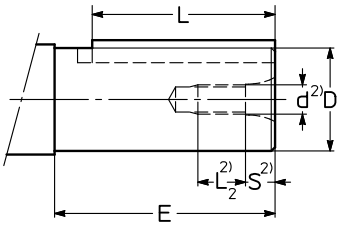
Opposite to groove side

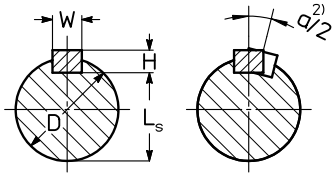


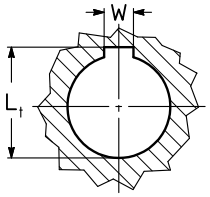
Groove side



Double extension







UTC 2114

Gearmotor low speed shaft end

Machine hollow shaft

Gear reducer size	Shaft end D +0.0000 −0.0010 in		E mm	Key[3] W in	Key[3] H in	Key[3] L in	Keyway[3] W in	Keyway[3] Ls in	Keyway[3] Lt in
125	**2.375**	*2 3/8*	105	0.625 +0.0000 −0.0020	0.625 +0.0000 −0.0020	3.625	0.625 +0.0030 −0.0000	2.021	2.651
140	**2.875**	*2 7/8*	105	0.75 +0.0000 −0.0020	0.75 +0.0000 −0.0020	3.625	0.75 +0.0030 −0.0000	2.450	3.205
160	**3.25**	*3 1/4*	130	0.75 +0.0000 −0.0020	0.75 +0.0000 −0.0020	4.5	0.75 +0.0030 −0.0000	2.831	3.586
180	**3.625**	*3 5/8*	130	0.875 +0.0000 −0.0030	0.875 +0.0000 −0.0030	4.375	0.875 +0.0030 −0.0000	3.134	4.014
200	**4.375**	*4 3/8*	165	1 +0.0000 −0.0030	1 +0.0000 −0.0030	5.5	1 +0.0030 −0.0000	3.817	4.822
225	**4.75**	*4 3/4*	165	1.25 +0.0000 −0.0030	1.25 +0.0000 −0.0030	5.375	1.25 +0.0040 −0.0000	4.041	5.296
250	**5**	*5*	200	1.25 +0.0000 −0.0030	1.25 +0.0000 −0.0030	6.75	1.25 +0.0040 −0.0000	4.296	5.551
280	**6.25**	*6 1/4*	200	1.5 +0.0000 −0.0030	1.5 +0.0000 −0.0030	6.75	1.5 +0.0040 −0.0000	5.409	6.914
320, 321	**7.5**	*7 1/2*	240	1.75 +0.0000 −0.0050	1.5 +0.0000 −0.0050	8	1.75 +0.0040 −0.0000	6.646	8.151
360	**8**	*8*	240	2 +0.0000 −0.0050	1.5 +0.0000 −0.0050	8	2 +0.0040 −0.0000	7.123	8.628

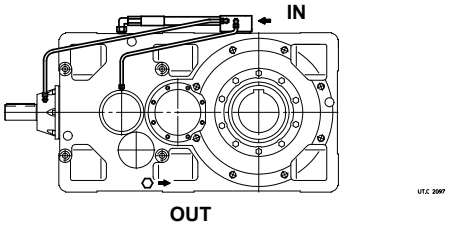
• Position of the reference groove (see ch. 3.5).
1) For Z and H_1 dimension refer to ch. 3.7 and 3.9.
2) For threaded hole and max key angular misalignment refer to ch. 3.5 «High and low speed shaft end».
3) According to ANSI B17.1.

Supplementary description when ordering by designation: **solid low speed shaft with inch diameter** followed by **opposite to groove side** or **groove side** or **double extension**.

4.2 - Miscellaneous

Gearmotors
– Design with **2**nd **motorization** with identical speed (**same** or different direction of rotation) or **reduced** (same direction of rotation, free-wheel coupling) (see picture);

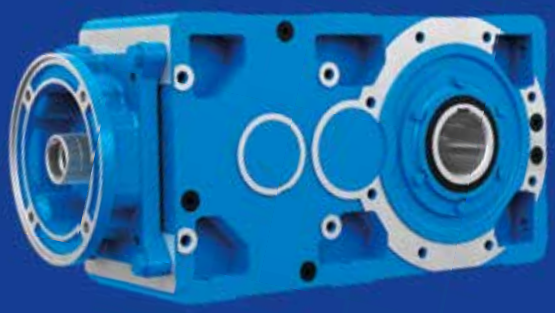
– Fitting with key, bronze bushing and shrink disc of CI, C2I trains of gears or motor size ⩽ N320TC;
– Semi-flexible and hydrodynamic couplings;
– Pre-arranged for bearing and gear forced lubrication.



Driving group complete of base - motor, coupling, brake if any, second drive for shaft - mounting arrangements.

5

Installation and maintenance



Section content

5.1 - Safety

IMPORTANT: gear reducers and gearmotors supplied by Rossi are **components** to be incorporated into machinery and **should not be commissioned before the machinery in which the components have been incorporated conforms to:**

– Machinery directive 2006/42/EC and subsequent updatings; in particular, possible safety guards for shaft ends not being used for eventually accessible fan cover passages (or other) are the Buyer's responsibility;

– «Electromagnetic compatibility (EMC)» 2004/108/EC and subsequent updatings.

Attention! It is recommended to pay attention to all instructions of present catalog, all standards concerning correct installation and all existing safety laws. Whenever personal injury or property damage may occur, foresee adequate supplementary protection devices against:

– release or breakage of fastening screws;

– rotation or unthreading of the gear reducer from shaft end of driven machine following to accidental breakage of the reaction arrangement;

– accidental breakage of shaft end of driven machine.

If deviations from normal operation occur (temperature increase, unusual noise, etc.) immediately switch off the machine.

Installation

An incorrect installation, an improper use, the removing or disconnection of protection devices, the lack of inspections and maintenance, improper connections may cause severe personal injury or property damage. Therefore the component must be moved, installed, commissioned, handled, controlled, serviced and re-paired **exclusively by responsible qualified personnel specifically instructed** and have the experience necessary to **recognize** and prevent **dangers** connected to present products avoiding all possibile emergencies.

Gear reducers and gearmotors of present handbook are normally suitable for installations in **industrial areas**: **additional protection** measures, if necessary, must be adopted and assured by the personnel responsible for the installation.

Attention! Components in non-standard design or with special executions or with constructive variations may differ in the details from the ones described here following and may require additional information.

Attention! For the installation, use and maintenance of the **electric motor** or of the eventual motor variator and/or electric supply device (frequency converter, soft-start etc.), and/or optional electric devices (e.g.: independent cooling unit, etc.), consult the attached specific documentation. If necessary, require it.

Maintenance

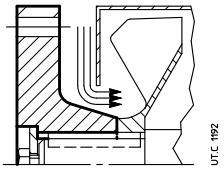
When operating on gear reducer or on components connected to it the **machine** must be **at rest**: disconnect motor (including auxiliary equipments) from power supply, gear reducer from load, be sure that safety systems are on against any accidental starting and, if necessary, pre-arrange mechanical locking devices (to be removed before commissioning).

Attention! During the running the gear reducers could have **hot surfaces**; always wait that the gear reducer or the gearmotor to cool before carrying out any operations.

Please download further technical documentation from our website www.rossi.com.

5.2 - Generals

Be sure that the structure on which 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 gearmotor so as to allow a free passage of air for cooling both gearmotor (especially at gear reducer and motor fan sides).

If there is fan on the gearmotor verify that there is sufficient space allowing an adequate circulation of cooling air also after fitting coupling protection. If a coupling protection is fitted, smooth the coupling hub, if necessary.

Avoid: any obstruction to the air-flow; heat sources near the gearmotor 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 gearmotor so as not to receive vibrations.

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

When fitting gearmotor and machine and/or gearnotor 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 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).

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 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 or if shocks or danger of jamming are envisaged, then motor-protection, electronic torque limiters, fluid couplings, safety couplings, control units or other similar devices should be fitted.

Usually protect the motor with a thermal cut-out; however, where duty cycles involve a high number of on-load starts, it is necessary to utilise thermal probes for motor protection (fitted on the wiring); thermal cut-out is unsuitable since its threshold must be set higher than the motor nominal current of rating.

Connect thermal probes, if any, to auxiliary safety circuits.

Use varistors to limit voltage peaks due to contactors.

Attention! 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.

Gearmotors 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.

5.3 - Shaft end of driven machine

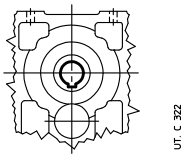
Recommended dimensions at ch. 3.5 on page 32.

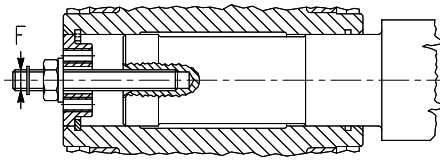
5.4 - Fitting of components to high speed second shaft end

Recommended dimensions at ch. 3.5 on page 32.

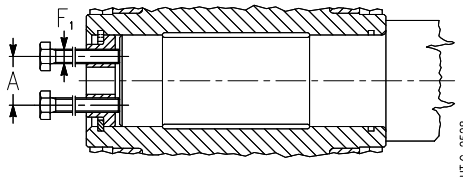
5.5 - Hollow low speed shaft

In order to remove the hollow low speed shaft (this is the first operation to perform when disassembling the gearmotor) turn the shaft until the keyway is facing the intermediate shaft, as shown in the drawing alongside, and push the shaft from the reference groove side (see ch. 3.5).





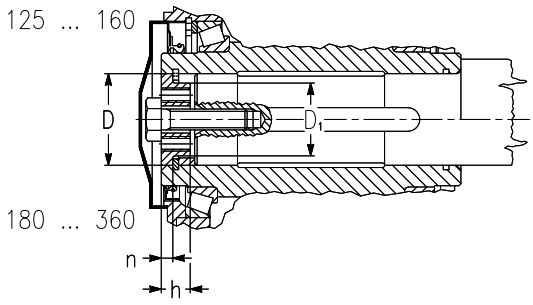
In order to have an easier **installing and removing** of gearmotors with retaining ring groove proceed as per the drawings a, b, respectively.



For the axial fastening it is possible to adopt the system as per fig. c. When shaft end of driven machine has no shoulder, a spacer may be located between the retaining ring and the shaft end itself (as in the lower half of the fig. c)

A **washer** for gearmotors installing, removing and gearmotor axial fastening and hollow low speed shaft **protection cap** can be supplied on request.

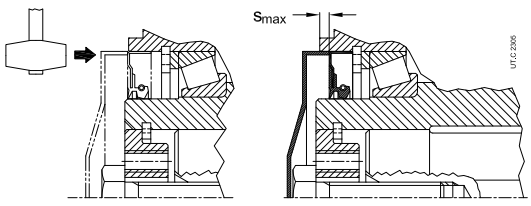
Parts in contact with retaining ring, if any, must have sharp edges.



Whenever personal injury or property damage may occur, **foresee adequate supplementary protection devices** against:

- rotation or unthreading of the gearmotor from shaft end of driven machine following to accidental breakage of the reaction arrangement;
- accidental breakage of shaft end of driven machine.

Size	125	140	160
s_{max}	9	9	11



For sizes 125 ... 160, the hollow speed shaft protection cap must be keyed into seal ring seat that, for this reason, must be pushed towards gearmotors inside for the maximum depth stated in the table.
For this operation use the protection cap as a tool, hammering it carefully along the periphery (see fig. above).

Gear reducer size	A	D Ø in	D_3 Ø	F	F_1	h	n	Axial fastening bolt UNI 5737-8.8
125	30	2.375	45	M14	M10	16	7	M14x45
140	36	2.75	54	M16	M12	19	8	M16x50
160	45	3.25	65	M20	M12	19	8	M20x60
180	49	3.625	74	M20	M16	23	9	M20x60
200	56	4	83	M24	M16	23	10	M24x70
225	64	4.25	89	M24	M16	24	10	M24x70
250	72	5	104.5	M30	M20	28	11	M30x90
280	87	5.5	117	M30	M20	30	12	M30x90
320, 321	97	6.25	133.5	M36	M24	33	13	M36x110
360	117	7	153	M36	M24	36	14	M36x110

5.6 - Lubrication

Gear pairs are oil-bath lubricated «for life» with grease (SHELL Gadus S5). Bearings are either oil-bathed or splashed with the exception of the top bearings which are lubricated with a pump (see ch. 17(4)) or lubricated «**for life**» with grease (with or without NILOS ring according to speed).

Sizes 125 ... 360

The gearmotors are supplied **without oil**; before putting into service, fill to the specified level[1)], with **mineral oil** having the ISO viscosity grade given in the table.

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

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

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

Speed n_2 rpm	Ambient temperature[1)] mineral oil 32 – 68 °F (0 – 20 °C)	mineral oil 50 – 104 °F (10 – 40 °C)	synthetic oil 32 – 104 °F (0 – 40 °C)
> **224**	150	150	150
224 – 22.4	150	220	220
22.4 – 5.6	220	320	320
< **5.6**	320	460	460

1) Peaks of 18 °F (10 °C); 36 °F (20 °C) for synthetic oil below and 18 °F (10 °C) above the ambient temperature range are acceptable.

Oil types

Manufacturer	**PAO synthetic oil** ISO VG 150 ... 460	mineral oil ISO VG 150 ... 460
AGIP	Blasia SX	Blasia
ARAL	Degol PAS	Degol BG
BP	Enersyn EPX	Energol GR XP
CASTROL	Alphasyn EP	Alpha SP
FUCHS	Renolin Unisys CLP	Renolin CLP
KLÜBER	Klübersynth GEM4	Klüberoil GEM1
MOBIL	Mobil SHC Gear	Mobilgear 600 XP
SHELL	Omala S4 GX	Omala S2 G
TEXACO	Pinnacle	Meropa
TOTAL	Carter SH	Carter EP

For continuous duty, the use of synthetic oil is recommended for:
- gearmotors with size and mounting positions marked with ♈ (see ch. 3.7 and 3.8).

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

Oil temperature °F	Oil temperature °C	Oil change interval [h] mineral oil	Oil change interval [h] synthetic oil
⩽ **149**	⩽ 65	8 000	25 000
149 – 176	65 – 80	4 000	18 000
176 – 203	80 – 95	2 000	12 500
203 – 230[1)]	95 – 110[1)]	–	9 000

1) Values admissible for not continuous duty, only.

Apart from the running hours:
- replace the mineral oil at least each 3 years;
- replace or regenerate the synthetic oil at least each 5 - 8 years, according to gearmotor size, running and environmental conditions.

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

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.

Filler plug

For gearmotors, before unscrewing the filler plug with valve (symbol ⊸◇⊸) wait until the unit has cooled and then open with caution.

5.7 - Motor assembly and disassembly

Gearmotors with NEMA standard motor keyed onto hollow high speed shaft of gearmotor

- be sure that the mating surfaces are machined under accuracy rating (IEC 60072-1);
- clean surfaces to be fitted thoroughly;
- lubricate surfaces to be fitted against fretting corrosion;
- some combinations of gearmotors require a non-standard key: this key is supplied together with the gearmotor; in case, replace the motor key with the one supplied; if necessary, check the key so that between its top and the bottom of the hub keyway there is a backlash of 0.1 - 0.2 mm; in case of a slot keyway on the motor shaft, lock the key by pins;
- bevel helical gearmotors in combination with motor size ≥ N320TC are equipped with a bronze bushing to facilitate installation and removal and to avoid fretting corrosion; in these cases, remove the key from the motor shaft; mount the bush on the motor shaft by pushing it against the shaft shoulder (there must be a slight interference, if necessary arrange with fine grain sandpaper); grease the external part with MOLIKOTE BR 2 PLUS grease (or similar); apply LOCTITE 221 mastic (or similar) on the sides of the key; fit to the gearmotor input side.

Helical gearmotors for NEMA motors size ≥ N320 TC are equipped with **hub clamp.**

For the mounting:

- Turn the hub clamp until the fastening screw head is aligned with one of the access holes on gear reducers flange, after having removed the relevant closure plugs;
- do not modify the axial position of the hub clamp supplied from workshop, as this position is the excellent one in order to achieve the maximum tightening effect;
- push the motor up to shoulder;
- tighten the motor fastening screws or nuts to gear reducer motor flange;
- complete the tightening with dynamometric wrench up to the tightening torque stated in the table; during this operation pay attention not to modify the axial position of hub clamp;
- screw again the closure plugs of access holes to gear reducer flange;

For the disassembly, proceed as follows:

- acting on motor shaft rear end, whenever possible, or disconnecting the gear reducer from machine and acting on gear reducer low speed shaft, align the wrench hole with the tightening screw of hub clamp;
- loosen the tightening screw and consequently the hub clamp (taking care not to modify the axial position of hub clamp);
- unscrew the motor fastening screws of nuts to gear reducer flange;
- disassemble the motor.

Gear reducer size		Screw	*M*s
2I	**3I**	ANSI B18.3	lb in
160 ... 225	**200, 225**	1/2″ - 13 x 1″3/4	1265
250 ... 360	**250 ... 360**	5/8″ - 11 x 2″	2436

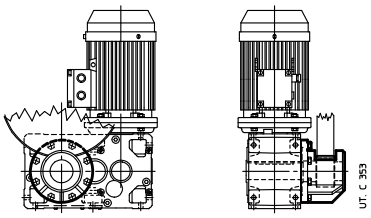
5.8 - Shaft mounting arrangements

The strength and shape of the housing offer advantageous possibilities for shaft mounting (for several reaction arrangements which can be supplied, see ch. 4 «Shaft mounting arrangements»).

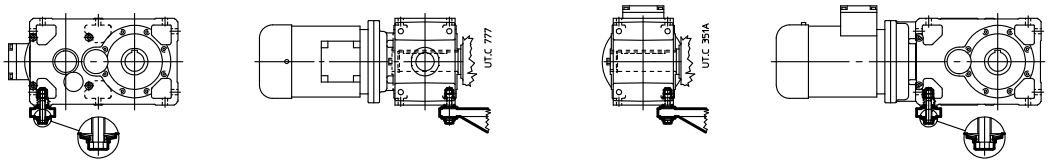
A few shaft mounting arrangements are shown here with the relative details as to selection, and installation.

IMPORTANT: When shaft mounted, the gearmotor must be supported both axially and radially (even for mounting positions B3 ... B8) by the shaft end of 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 gearmotor. Lubricate with proper products the hinges and the parts subject to sliding; when tightening the screws it is recommended to apply locking adhesives type LOCTITE 601.

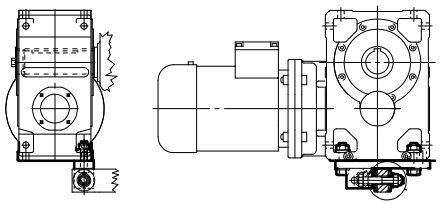
In case of shaft-mounting arrangement with elastic constraint, for trains of gears C 2l, 2l, 3l in B3 or B8 mounting position, ensure that the housing oscillation, during the running, not overtake - towards the top - the horizontal position.



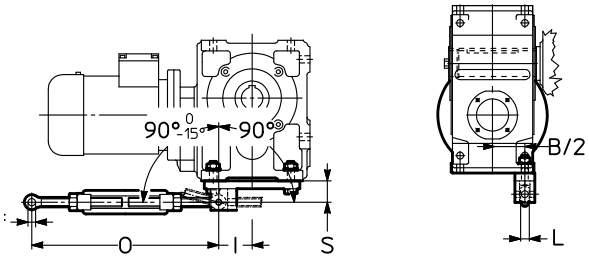
Semi-flexible and economic **reaction arrangement**, **using disc springs**. Safety devices may be installed to prevent accidental overloads.



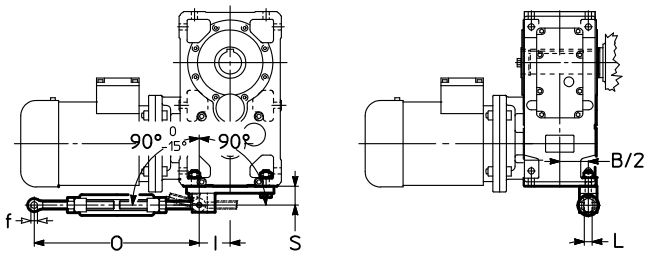
Semi-flexible reaction arrangement, **using disc springs and bracket**.



Rigid torque arm arrangement for variable distance anchorage (ch. 4).
If the direction of rotation is opposite to that given in the fig. rotate the torque arm by 180°.



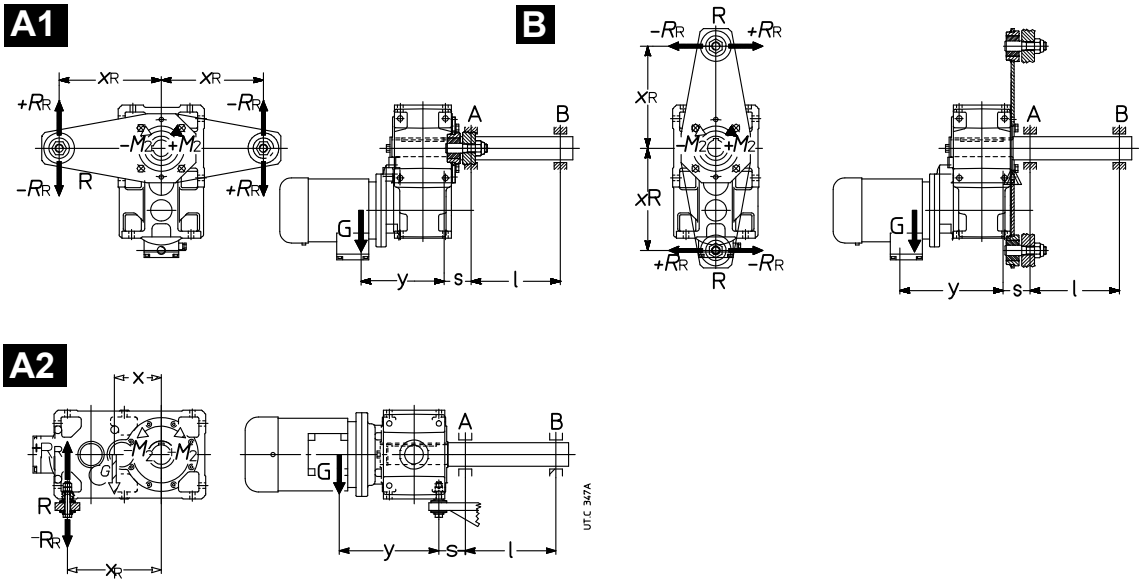
Reaction arrangement see above (ch. 4), but **flexible**; safety devices may be installed to prevent accidental overloads
The flexible torque arm may be turned through 180° regardless of direction of rotation.



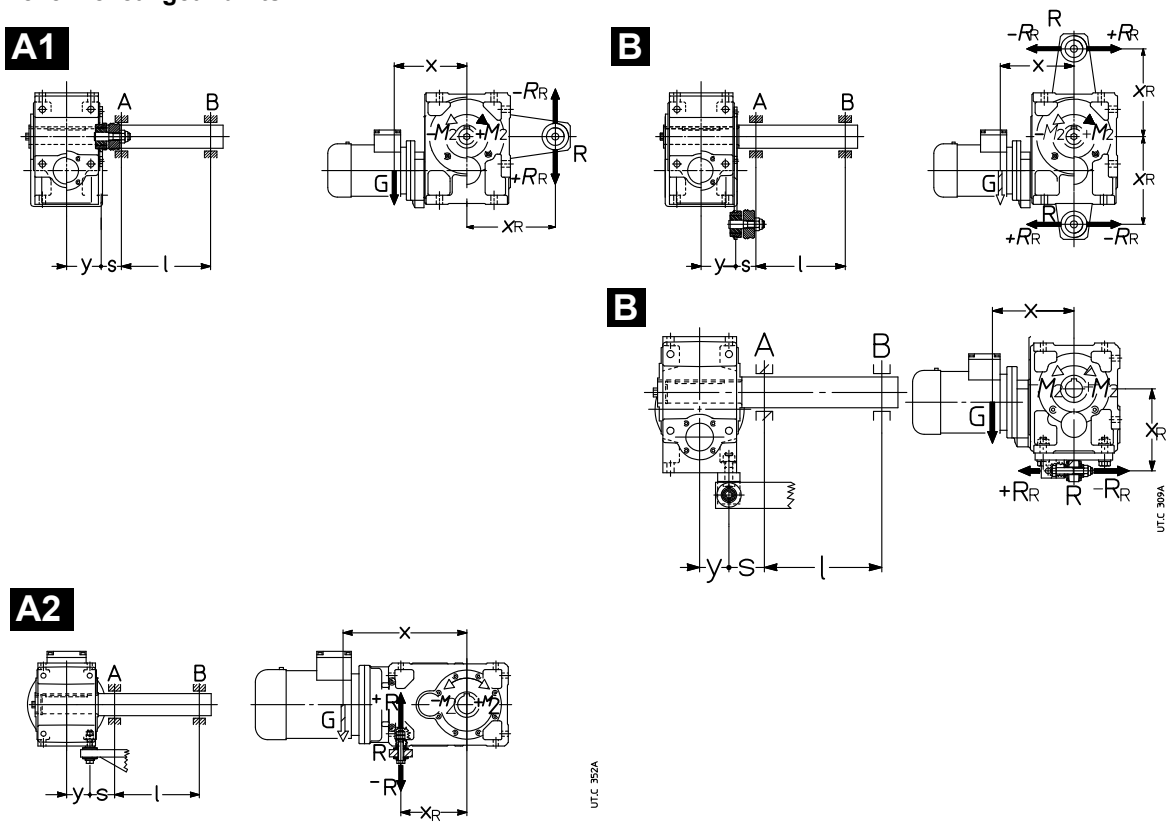
Flexible reaction arrangement using **rubber buffers** (drawings are approximate, but the buffers will be positioned abutting with gear reducer housing). It is possible to install safety devices against accidental overloads.

For the majority of normal cases, where weight force G is parallel or orthogonal to reaction R_R as illustrated in the drawings, reactions are calculated thus (verify the worst condition) valid for long model too, if applicable:

Helical gear units



Bevel helical gear units



– G [lb]: weight of the gearmotor;
– T_2 [lb in]: output torque expressed by + or – according to the direction of rotation in the drawing;
– x [in]: for helical gearmotors dimension x = 0 (scheme A1 and B) or x = 0.67 · a (scheme A2) (ch. 12); for bevel helical gearmotors dimension x = G + 0.2 · Y (schemes A1 and B) or x = a + G + 0.2 · Y (scheme A2) (ch. 14);
– y [in]: for helical gearmotors dimension y = 0.5 · B + G + 0.2 · Y (ch. 12); for bevel helical gearmotors dimension y = 0.5 · B (ch. 14);
– x_R [in]: see ch. 12, 14, 17;
– l, s [in]: dimension s must be as short as possible.

1) reaction R_R [lb] produced by support *R*:

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

2) bending moment M_{bA} through the cross-section of bearing A:

A2 $M_{bA} = [G \cdot (y + s)] - [(\pm R_R) \cdot s]$ [lb in]

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

3) Radial reaction R_A produced by bearing A:

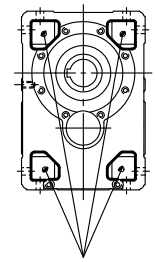
A2 $R_A = \frac{1}{l} \{[G \cdot (y + s + l)] - [(\pm R_R) \cdot (s + l)]\}$ [lb]

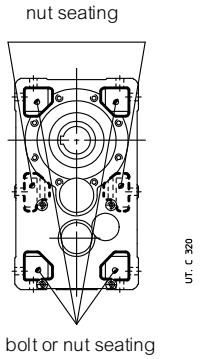
B $R_A = \frac{1}{l} \sqrt{[G \cdot (y + s + l)]^2 + [R_R \cdot (s + l)]}$ [lb]

4) radial reaction R_B [lb] produced by bearing B:

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

5.9 - Fastening bolt dimensions for gear reducer feet





Gear reducer size	Bolt DIN 931 *ANSI B18.2.1* (l max)
125, 140	M 16 × 55 *5/8" - 11 x 2"*
160, 180	M 20 × 70 *3/4" - 10 x 2"3/4*
200, 225	M 24 × 90 *1" - 8 x 3"1/2*
250, 280	M 30 × 110 *1"1/4 - 7 x 4"1/4*
320 ... 360	M 36 × 130 *1"1/2 - 6 x 5"*

5.10 - Tightening torque

Unless otherwise stated, usually it is sufficient to use bolts in class 8.8;
- before tightening the bolt be sure that the eventual centering of flanges are inserted properly;
- the bolts are to be diagonally tightened with the maximum tightening torque.

Before tightening, carefully degreaase the blots: for strong vibrations, heavy duties, frequent motion reversals, apply a thread-braking seal Loxeal 23-18 or equivalent.

Table of tightening torque for fastening bolts (feet, flange)

Screw	*Ts* [lb in] DIN 931, DIN 912			Screw	T_S [lb in] ANSI B18.2.1, ANSI B18.3		
	cl. 8.8	cl. 10.9	cl. 12.9		Grade 5	Grade 8	FNL Grade 9
M4	26	35	-	-	-	-	-
M5	53	75	89	-	-	-	-
M6	97	135	175	***1/4" - 20***	76	107	126
M8	220	310	355	***5/16" - 18***	157	221	259
		[lb ft]				[lb ft]	
M10	37	51	63	***3/8" - 16***	23	33	38
M12	62	88	106	***1/2" - 13***	57	80	94
M14	99	140	170		57	80	94
M16	150	214	258	***5/8" - 11***	113	159	186
M18	206	295	354	***3/4" - 10***	200	282	331
M20	295	413	500		200	282	331
M22	405	568	685	***7/8" - 9***	322	455	533
M24	523	738	883	***1" - 8***	483	681	799
M27	738	1033	1254	***1"1/8 - 7***	596	966	1087
M30	1016	1437	1733	***1"1/4 - 7***	840	1363	1597
M33	1475	2066	2508	***1"3/8 - 6***	1102	1768	2094
M36	1845	2616	3096	***1"1/2 - 6***	1462	2371	2779

Table of tightening torque for plugs

Gear reducer size	Thread dimension	*Ts* [lb in]
125 ... 140	G 1/2"	125
160 ... 280	G 3/4"	125
320 ... 360	G 1"	220

Technical formulas

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

Size	With Technical System units	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]	$t = \frac{J \cdot \omega}{M}$ [s]
		$t = \frac{v}{a}$ [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	$n = \frac{60 \cdot v}{\pi \cdot d} = \frac{19{,}1 \cdot v}{d}$ [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 a starting or stopping time, of a starting or braking velocity	$s = \frac{a \cdot t^2}{2}$ [m]	
	$s = \frac{v \cdot t}{2}$ [m]	
starting or stopping **angle** as a function of an angular acceleration or deceleration, of a final or initial angular velocity	$\varphi = \frac{\alpha \cdot t^2}{2}$ [rad]	
	$\varphi = \frac{n \cdot t}{19.1}$ [rad]	$\varphi = \frac{\omega \cdot t}{2}$ [rad]
mass	$m = \frac{G}{g}$ $[\frac{kgf\ s^2}{m}]$ m is the unit of mass [kg]	
weight (weight force)	G is the unit of weight (weight force) [kgf]	$G = m \cdot g$ [N]
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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