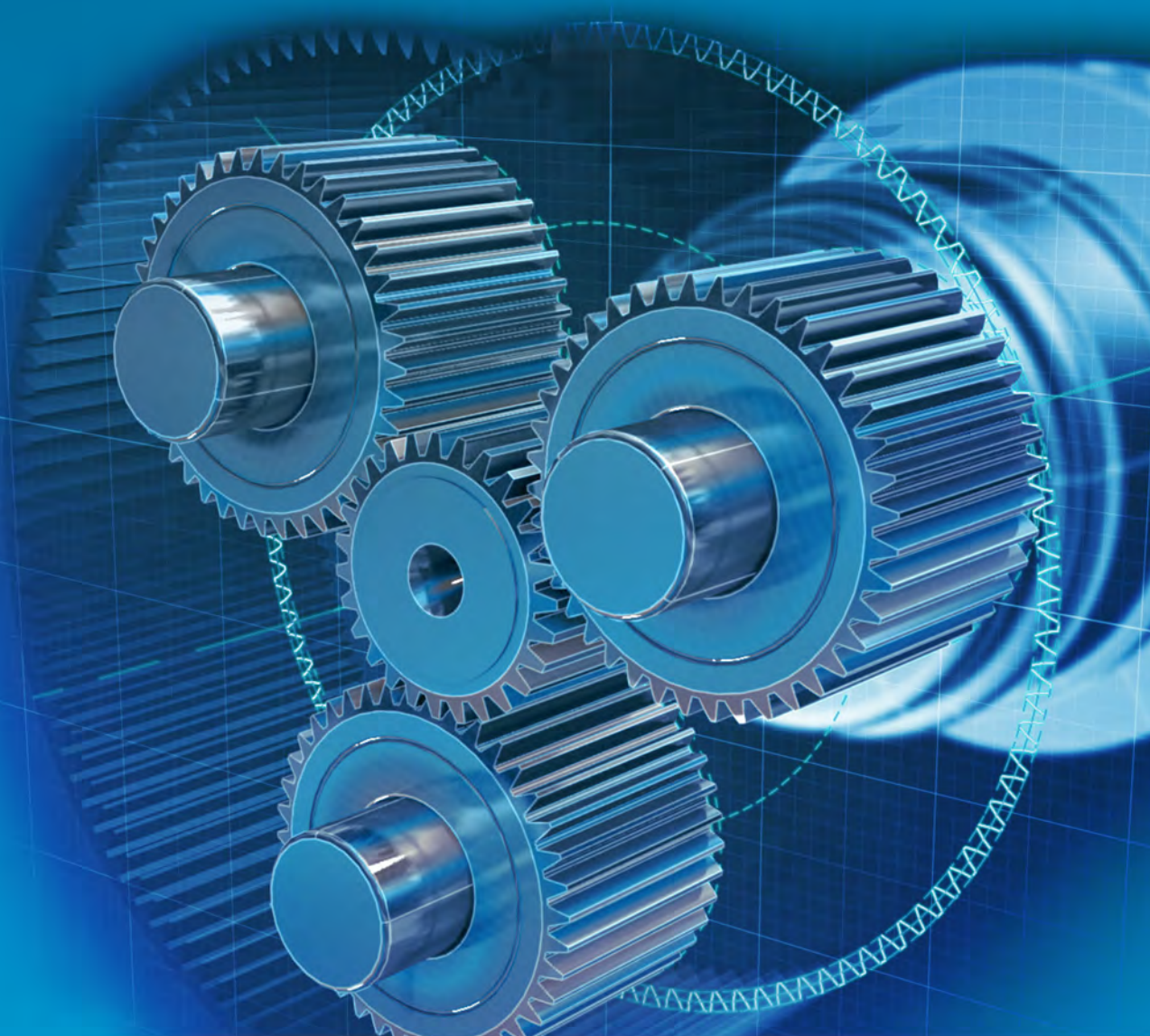


 **Bonfiglioli**  
Tecnoingranaggi

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# TQ-TQK-TR-MP LC-LCK-SL-KR Series

Precision Planetary Gearboxes



 **Bonfiglioli**  
power, control and green solutions



# Bonfiglioli solutions






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3	<b>We keep the world in motion</b>
4	<b>Mechatronics - the challenge to build your success</b>
5	<b>Our expertise from start to finish!</b>
6	<b>One stop shop for your mechatronic applications</b>
7	<b>Better performing, efficient &amp; cost effective designs</b>
8	<b>Energy cost model to allow the servo optimization</b>
9	<b>A reliable partner for your business</b>
10	<b>One-stop shop our services</b>
11	<b>Quality &amp; technology</b>
12	<b>Our products at a glance</b>
14	<b>Servo gearheads</b>
15	<b>Technical information</b>
16	1 General information
16	1.1 Symbols, units and definitions
18	1.2 Selecting the gear unit
22	1.3 Service life of bearings
25	<b>TQ series</b>
26	2 Features of TQ serie
27	2.1 Ordering code
28	2.2 Dimensions and technical specifications
39	<b>TQK series</b>
40	3 Features of TQK series
41	3.1 Ordering code
42	3.2 Dimensions and technical specifications
53	<b>TR series</b>
54	4 Features of TR series
56	4.1 Ordering code
57	4.1.1 Version and input section
57	4.1.2 Mounting positions
57	4.2 Admissible radial and thrust forces for MB version
58	4.3 Dimensions and technical specifications
92	4.3.1 Machine shaft

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93	<b>MP series</b>
94	5 Features of MP series
96	5.1 Ordering code
97	5.1.1 Version and input section
97	5.1.2 Mounting positions
97	5.2 Admissible radial and thrust forces for MB version
100	5.3 Dimensions and technical specifications
132	5.3.1 Machine shaft
133	<b>LC series</b>
134	6 Features of LC series
135	6.1 Ordering code
136	6.2 Dimensions and technical specifications
147	<b>LCK series</b>
148	7 Features of LCK series
149	7.1 Ordering code
150	7.2 Dimensions and technical specifications
161	<b>SL series</b>
162	8 Features of SL series
163	8.1 Ordering code
164	8.2 Dimensions and technical specifications
171	<b>KR series</b>
172	9 Features of KR series
173	9.1 Versions
173	9.2 Mounting positions
173	9.3 Coordinated shaft rotation
174	9.4 Ordering code
175	9.5 Technical specifications
176	9.6 Mass moment of inertia
176	9.6.1 KR 010...KR 040 with standard ball bearings
177	9.6.2 KR 020...KR 040 with taper roller bearings (HDB option)
178	9.7 Dimensions
186	9.7.1 Gearbox without motor adapter
187	9.7.2 Machine shaft

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## Revisions

Refer to page 188 for the catalogue revision index.  
 Visit [www.bonfiglioli.com](http://www.bonfiglioli.com) to search for catalogues with up-to-date revisions.





# WE KEEP THE WORLD IN MOTION

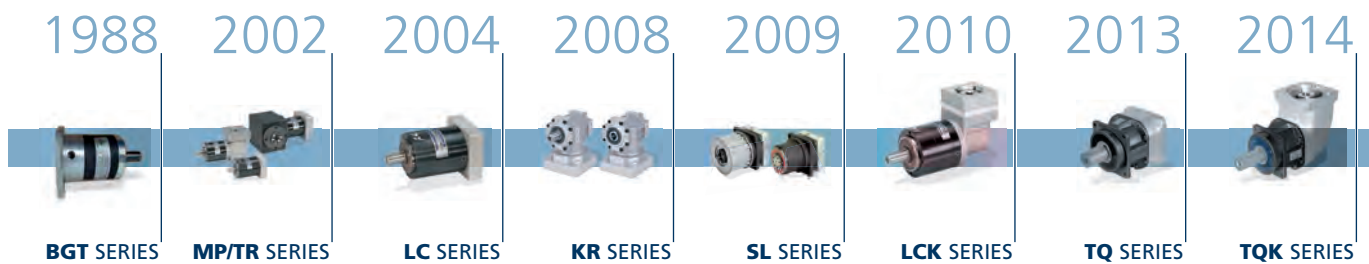


Committed to become your world class partner, Bonfiglioli is a leading name in power transmission since 1956.

Our best-in-class solutions are backed by nearly 60 years of engineering expertise as well as an in-depth understanding of the industries we serve.



High innovative mechatronic tailored solutions from unique supplier to meet any kind of specific needs.



# MECHATRONICS - THE CHALLENGE TO BUILD YOUR SUCCESS

**Faster, better and cheaper - this is the new challenge for machine designers!**

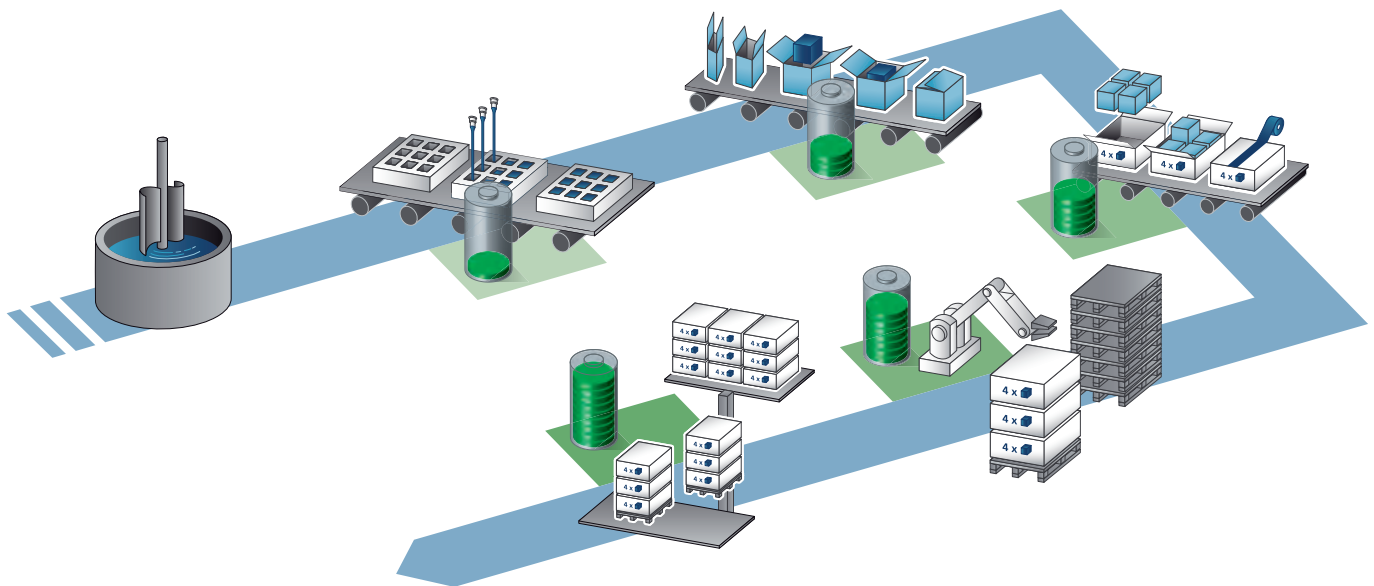
Increasing demands on the productivity of complex system machines, more flexible machines which run at highest efficiency level are requiring now new intelligent technical solutions that enhance growth tomorrow. Bonfiglioli has implemented a precise and detailed strategy to precisely achieve this objective!

Committed to be your world class partner of smart mechatronic solutions and servosystems, the Industrial Business Unit has established two divisions to serve its reference markets with specialist competence and care:

- Power Transmission Solutions division (PTS)
- Mechatronic Drives & Solutions division (MDS)

Our new Mechatronic Drives & Solutions (MDS) division is born with the mission to improve profitability by acting as a riskless partner and a provider of energy-efficient solutions over the total life cycle in the field of industrial automation.

- System integration
- Expertise
- Energy saving



Performance, reliability, low cost, robustness, efficiency and sustainability are absolutely essential.

TRAINING

MECHANICAL &  
MECHATRONIC STUDIES

PRODUCT  
CUSTOMIZATION

REALIZATION OF PROTOTYPES,  
TESTS AND ANALYSIS REPORTS

# OUR EXPERTISE FROM START TO FINISH!



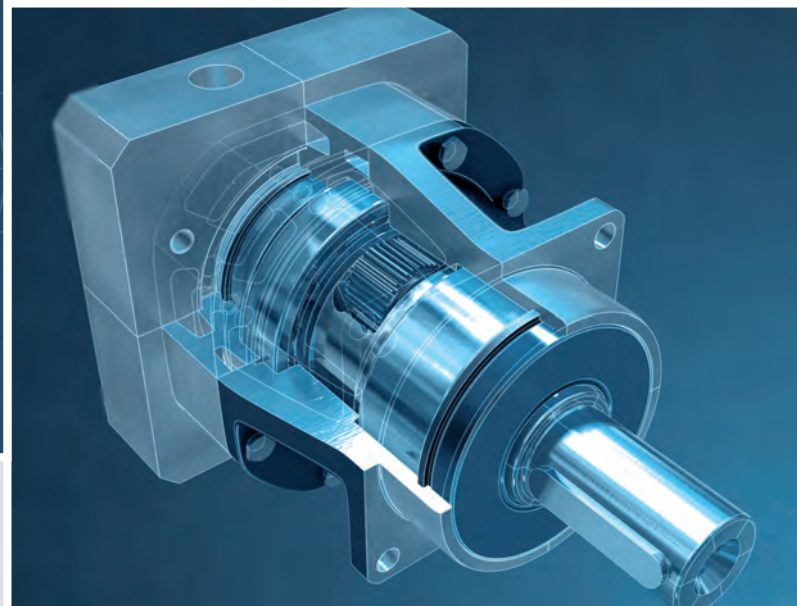
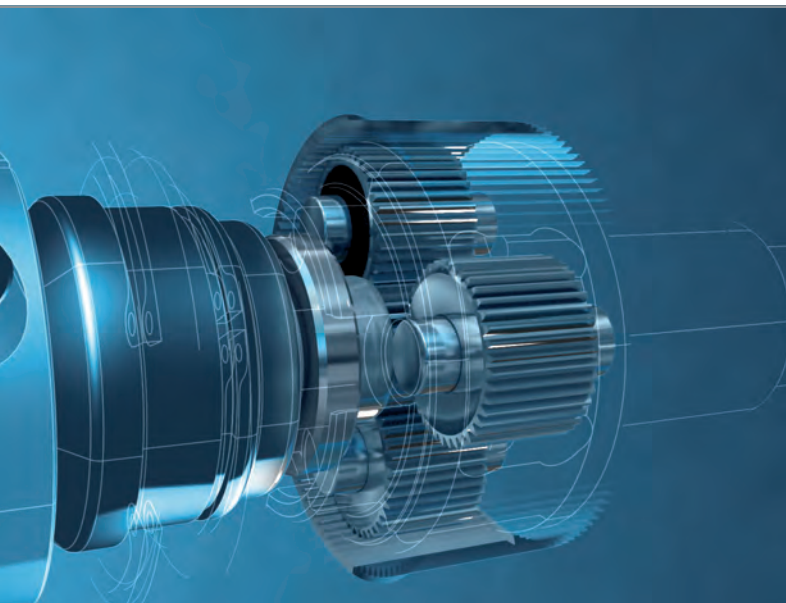
Two Centers of Excellence are driving MDS' innovation:

- Bonfiglioli Vectron in Germany, with strong technical, R&D and manufacturing capabilities as regards electronic components, and most notably inverters and servo drives;
- BMR (Bonfiglioli Mechatronic Research), situated in Rovereto (Trento, Italy) who offers a strong R&D capability able to provide innovative new solution for your specific needs. BMR is also a production facility where mechatronic new solutions become reality.

Key to our MDS' success is strongest technical support from our specialists DSC (Drive Service Center team). They accompany you throughout the entire installation's life cycle, from initial concept idea and design until commissioning.

## Bonfiglioli

is close to your needs internationally through its branches which can directly follow the customers using streamlined international teams.



ON-SITE  
ACTIVITIES

START-UP  
ASSISTANCE

COMMISSIONING

MAINTENANCE

CUSTOMER  
SERVICE



# ONE STOP SHOP FOR YOUR MECHATRONIC APPLICATIONS

As a competent technology partner, our engineering specialist are **building together with you tailored and forward looking integrated solutions to meet the individual needs and to deliver mechatronic energy-efficient for your application.**

Bonfiglioli Servopackage is including all the components required for a complete automation solution in one coordinating product package:

- HMI – Bonfiglioli Human Machine Interface
- Programmable controller (ACU / ACT / AGL)
- Highly dynamic servomotors with various feedback devices BMD serie
- Precision Planetary Gearboxes (TQ, TQK, TR; MP; LC;LCK; SL, KR)
- “Ready - to - use” accessories (cables, chokes, filters ecc)



### Your benefit:

- Highest Precision & Dynamic
- High Input Speed Application
- Frequent Reverse cycle
- Highest Power Density
- Smooth running



### Your benefit:

- High Precision & Dynamic
- Frequent Reverse Cycle
- Highest Power Density



### Your benefit:

- Energy Saving
- Simplified System Solution
- Wide Constant torque
- Accurate four Quadrant Torque & Velocity Control
- Highest Power Density

Complete automation Servo Package from unique supplier!

# BETTER PERFORMING, EFFICIENT & COST EFFECTIVE DESIGNS



Bonfiglioli is your partner assisting you in sizing, fine tuned optimization and selection of a drive train.

Our attention is focused in designing and manufacturing products for your motion requirements but we also have implemented servo tools that make your design process easier.

We are able to optimize the servopackage avoiding over sizing that increases the initial system cost as well as the ongoing operating cost of a servo system.

Optimized tailored solution and unique supplier.

**Req'd**

- Sequence: 6,961 s
- Velocity: 1.636 %/s
- Acceleration: 4.002 %/s<sup>2</sup>
- Deceleration: -4.002 %/s<sup>2</sup>
- Load + Payload: 0,0392 kg-m<sup>2</sup>
- Thrust: -12 Nm
- Drive pulley output torque: 14,74 Nm
- Belt tensile force: 421 N
- Input torque: 15,51 Nm
- Rigidity at input: 3,567e+13 Nm/rad

No.	Description	File Type	Material	Diagon	Step 10	Exp. 10	Step 20	Exp. 20	Step 30	Exp. 30	Step 40	Exp. 40	Step 50	Exp. 50	Step 60	Exp. 60	Step 70	Exp. 70	Step 80	Exp. 80	Step 90	Exp. 90	Step 100	Exp. 100
1	Axis Z - Decora 180mm	4,26	0	0	120	-78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Apertura assa	4,26	0,2395	-41,8	-730	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Axis Z - Salla 100 mm	5,4	0	0	730	730	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Axis Z - Salla 150 mm	5,4	0,2225	81,8	730	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Axis Z - Salla 200 mm	5,4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Axis Z - Salla 250 mm	5,4	1,322	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

# ENERGY COST MODEL TO ALLOW THE SERVO OPTIMIZATION

Most modern day servosystems are designed to be electrically coupled to share energy, minimize unused or oversized components, and reduce both initial hardware cost as well as operating costs by improved energy efficiency.

As energy prices continue to increase, energy efficiency has become a primary design objective, since energy costs can account for **95% of the life cost of a servo system**.

**Bonfiglioli optimize efficiency of entire drive trains by a detailed analysis identifying and assessing potentials for saving energy.**

	Units	Sistema B asse Z	Sistema B asse Y
<b>Energy: \$ 129,12/year</b>			
Output peak power	W	444	304,6
Regen cont power	W	0	18,42
Regen peak power	W	0	256,8
Energy	kWh/year	369	41,9
Energy cost	\$/year	36,90	4,19
<b>T1 Gearbox</b>			
Output cont power	W	62,2	21,08
Output peak power	W	428	293,5
Regen cont power	W	0	19,03
Regen peak power	W	0	264,9
Energy	kWh/year	20,53	1,80
Energy cost	\$/year	2,05	1,80
<b>Mechanism Belt and Pulley</b>			
Output cont power	W	62,2	21,08
Output peak power	W	428	293,5
Regen cont power	W	0	19,03
Regen peak power	W	0	264,9
Energy	kWh/year	543	17,96
Energy cost	\$/year	54,33	1,80
<b>Total</b>			
Energy	kWh/year	992	236,2
Energy cost	\$/year	99,20	23,62

Which is the energy distribution across the entire cinematic chain / axis?

Which is the potential to optimize the application in term of energy saving?



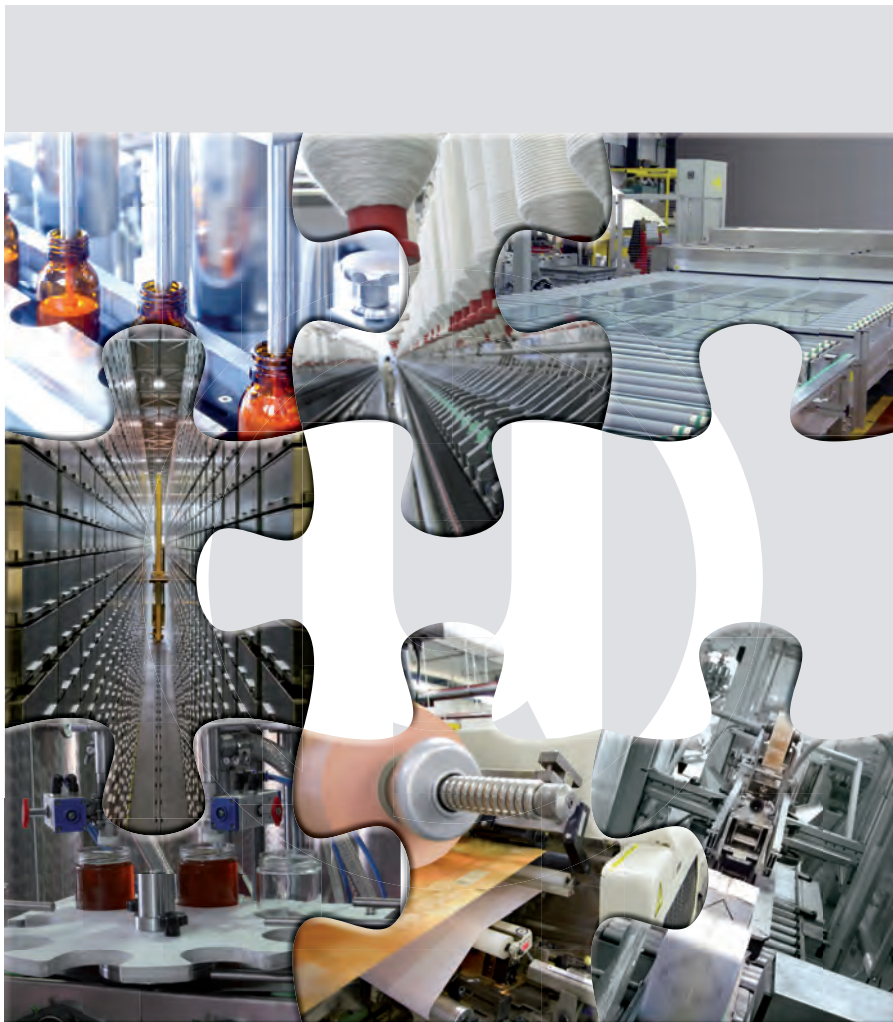
# A RELIABLE PARTNER FOR YOUR BUSINESS



Bonfiglioli Riduttori brings decades of experience supporting customers across a broad spectrum industry sectors.

Our industry expertise means we understand your applications: product and requirements must fit and form a solution that match to your application.

Our tailored-solution always offer to you a complete approach.



## Some of the industrial sectors we serve:

- Commercial HVAC
- Machine Tools
- Packaging & Labeling
- Food, Beverage & Tobacco
- Textiles
- Glass working
- Robotics
- Materials Handling
- Rubber & Plastics
- Paper & Paperboard
- Conveyors
- Electronics & Electronic Assembly
- Cranes and Hoists
- Woodworking
- Energy Production
- Renewable Energy
- Material Transformation
- Mining
- Elevators

**And many more besides**

# ONE-STOP SHOP OUR SERVICES

All Bonfiglioli solutions enjoy a prompt and reliable technical assistance worldwide.

Specialist personnel with an in-depth knowledge of the market in which they work provide pre-sales, installation, after-sales and user documentation service.

In details, we offer a full range of services tailored to suit our customers wishes and needs.

- Optimal delivery times for your products & very fast deliveries for unplanned requests with urgent procedure.
- Immediate professional technical support able to define customized solutions.
- Fast response time & delivery for your units to replace in case of time-critical situations.

BEFORE  
INSTALLATION

AFTER  
INSTALLATION



Mechanical & Mechatronic studies



Product customization



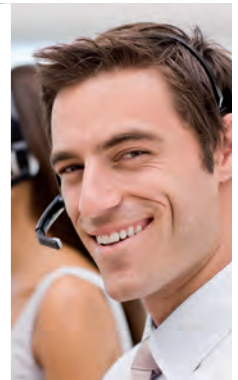
Realization of prototypes, tests & analysis reports



Start-up assistance



Maintenance



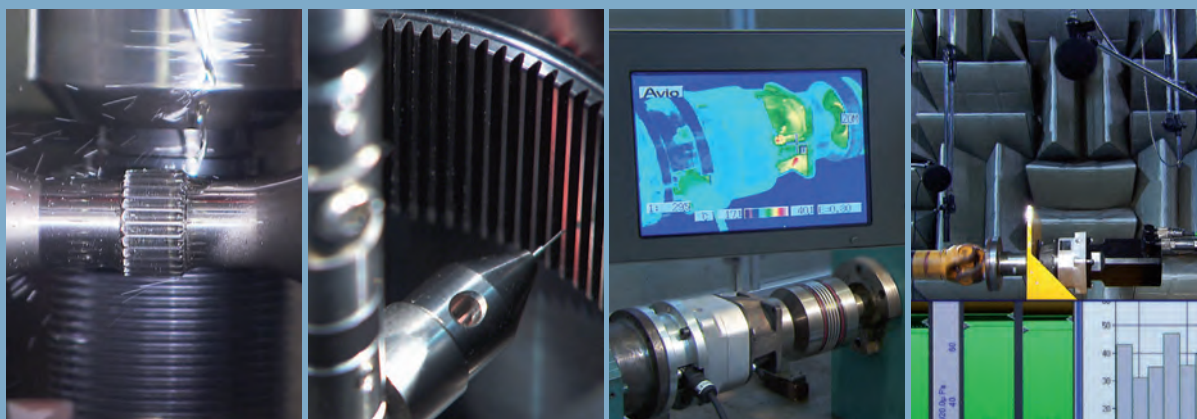
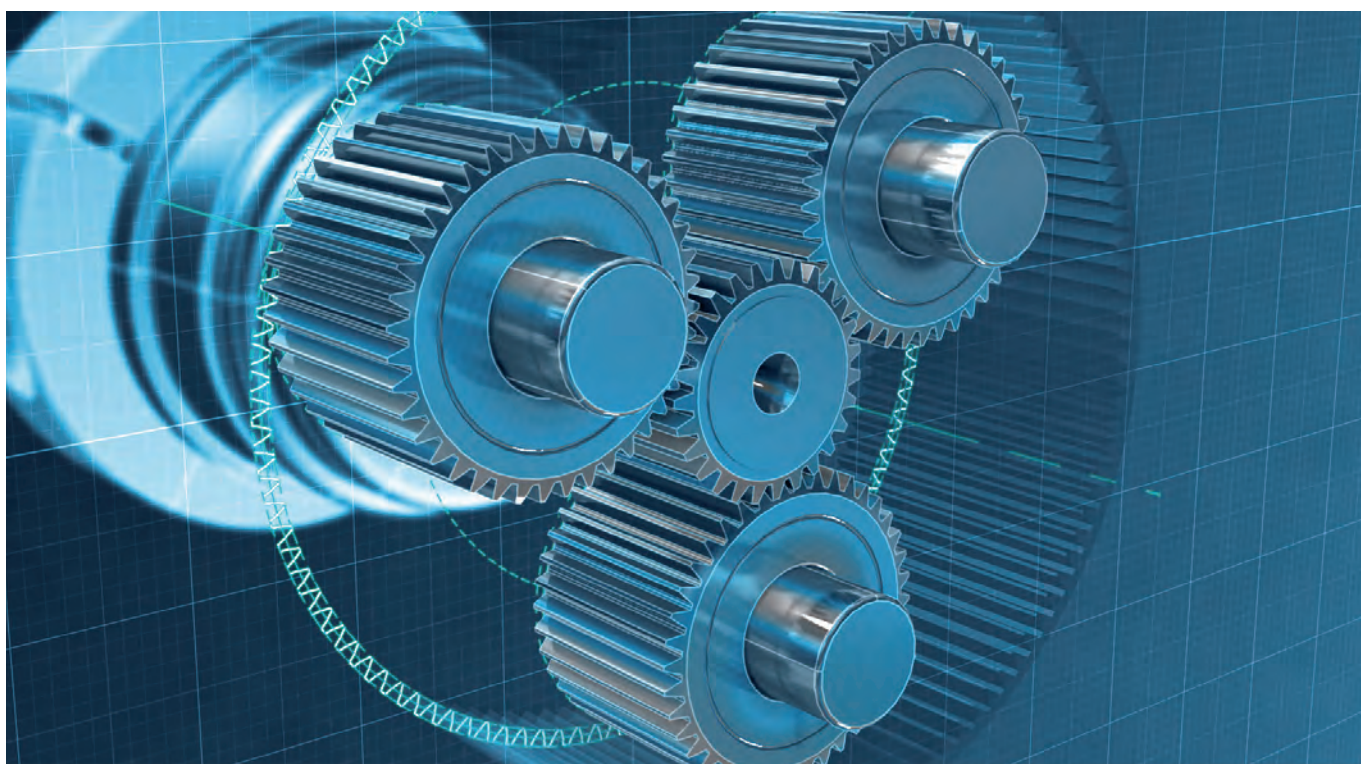
Customer service

TRAINING

# QUALITY & TECHNOLOGY



Product reliability is achieved through a production process geared towards excellence. Advanced machinery has always been central to Bonfiglioli's production system.



Bonfiglioli has always assigned top priority to the quality and efficiency of its machine park and has invested accordingly.



# OUR PRODUCTS AT A GLANCE

		PRODUCT	INLINE	RIGHT ANGLE	PRODUCT LINE-UP	CONFIGURATIONS
HIGH PERFORMANCE	TQ		Yes		<ul style="list-style-type: none"> <li>• Highest Precision &amp; Performance</li> <li>• High Speed Applications</li> <li>• Highest Axial &amp; Radial load capacities</li> <li>• Quiet operation</li> <li>• Modular design for your needs</li> </ul>	• Solid Shaft
	TQK			Yes	<ul style="list-style-type: none"> <li>• Highest Precision &amp; Performance</li> <li>• High Speed Applications</li> <li>• Highest axial &amp; radial load capacities</li> <li>• Quiet operation</li> <li>• Modular design for your needs</li> </ul>	• Solid Shaft
PRECISION	TR		Yes	Yes	<ul style="list-style-type: none"> <li>• High Performance</li> <li>• High Precision</li> <li>• Modular design for your needs</li> </ul>	<ul style="list-style-type: none"> <li>• Solid Shaft</li> <li>• Hollow Bore Shaft</li> <li>• Input Shaft</li> </ul>
	MP		Yes	Yes	<ul style="list-style-type: none"> <li>• High Performance</li> <li>• Medium Precision</li> <li>• Modular design for your needs</li> </ul>	<ul style="list-style-type: none"> <li>• Solid Shaft</li> <li>• Hollow Bore Shaft</li> <li>• Input Shaft</li> </ul>
FLEXIBILITY	LC		Yes		<ul style="list-style-type: none"> <li>• Flexible</li> <li>• Economic precision</li> </ul>	<ul style="list-style-type: none"> <li>• Solid Shaft</li> <li>• Input Shaft</li> </ul>
	LCK			Yes	<ul style="list-style-type: none"> <li>• Flexible</li> <li>• Economic precision</li> </ul>	<ul style="list-style-type: none"> <li>• Solid Shaft</li> <li>• Input Shaft</li> </ul>
	SL		Yes		<ul style="list-style-type: none"> <li>• Dynamic belt application</li> <li>• Compactness</li> <li>• Economic precision</li> </ul>	• Solid Shaft
	KR				Yes	Precision, dynamics & compactness at unbeatable price

HIGH POWER DENSITY



MAX. NOM. TORQUE MAX. ACC. TORQUE	RATIO i	TORQUE DENSITY	TORSIONAL STIFFNESS	BACKLASH	CONFIGURATIONS
[Nm]	[-]			[arcmin]	
800 1200	3-100	●●●●●	●●●●●	STANDARD ≤ 4-6 LOW ≤ 2-4	●●●●●
800 1200	6-200	●●●●●	●●●●●	STANDARD ≤ 5-7 LOW ≤ 3-5	●●●●●
1000 1200	3-1000	●●●	●●●	STANDARD ≤ 5-7 LOW ≤ 3-5	●●●
1000 1200	3-1000	●●●	●●●	STANDARD ≤ 15-17 LOW ≤ 10-12	●●●
300 450	3-100	●●●	●●●	STANDARD ≤ 12-15 LOW ≤ 6-8	●●●
300 450	6-100	●●●	●●●	STANDARD ≤ 6-8	●●●
110 190	3-100	●●●	●●●	STANDARD ≤ 12 LOW ≤ 6	●●●
120 170	1-5	●	●	STANDARD ≤ 8	●

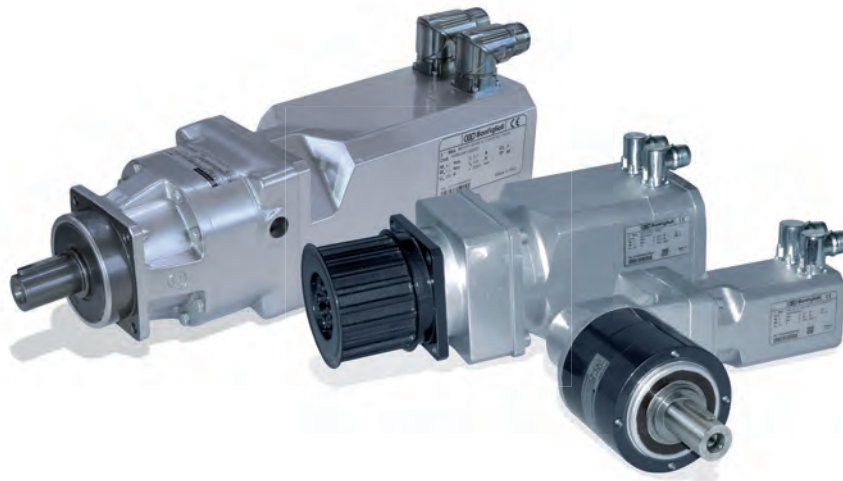
# SERVO GEARHEADS

Motion applications requires the use of planetary gearboxes to adapt speeds and torques, while ensuring precision demanded by the application.

Bonfiglioli Riduttori has chosen to use planetary precision gearboxes with BMD range of permanent magnet synchronous motors.

These gearheads combined with powerful drive electronics are designed for servo applications requiring highest standards in terms of dynamics, precision, robustness, durability and long operation.

An important requirement for automation applications is high torque capability in a compact and light package. This high torque density requirement (a high torque/volume or torque/weight ratio) is important for automation applications with changing high dynamic loads in order to avoid additional system inertia.









## 1 GENERAL INFORMATION

### 1.1 SYMBOLS, UNITS AND DEFINITIONS

#### Values depending on the APPLICATION

term	u.m.	definition
$A_2$	[N]	Axial force on output shaft
$A_2 \text{ EQU}$	[N]	Equivalent axial force applying on output shaft
$A_2 \text{ MAX}$	[N]	Maximum axial force applying on output shaft
$R_2$	[N]	Radial force on output shaft
$R_2 \text{ EQU}$	[N]	Equivalent radial force applying on output shaft
$R_2 \text{ MAX}$	[N]	Maximum radial force applying on output shaft
$ED$	[min]	Duration of the duty
$ED\%$	[%]	Cyclic duration factor
$L_{10h} \text{ TARGET}$	[h]	Output shaft bearings' desired basic rating life
$M_1 \text{ PEAK}$	[Nm]	Maximum input torque (limited by motor control)
$M_{2(1)} \dots M_{2(n)}$	[Nm]	Output torque at the times $t_1 \dots t_n$
$M_2 \text{ EQU}$	[Nm]	Equivalent output torque
$M_2 \text{ MAX}$	[Nm]	Maximum output torque in case of emergency
$M_{T2} \text{ EQU}$	[Nm]	Equivalent tilting moment applying on output shaft
$M_{T2} \text{ MAX}$	[Nm]	Maximum tilting moment applying on output shaft
$n_1$	[min <sup>-1</sup> ]	Nominal input speed
$n_2$	[min <sup>-1</sup> ]	Output speed
$n_{2(1)} \dots n_{2(n)}$	[min <sup>-1</sup> ]	Output speed based on the times $t_1 \dots t_n$
$n_2 \text{ EQU}$	[min <sup>-1</sup> ]	Equivalent output speed
$n_2 \text{ MAX}$	[min <sup>-1</sup> ]	Maximum output speed
$T$	[C°]	Ambient temperature
$t_1 \dots t_n$	[s]	Operating time
$t_\Sigma$	[s]	Cycle duration including pause
$Z$	[1/h]	Number of cycles per hour



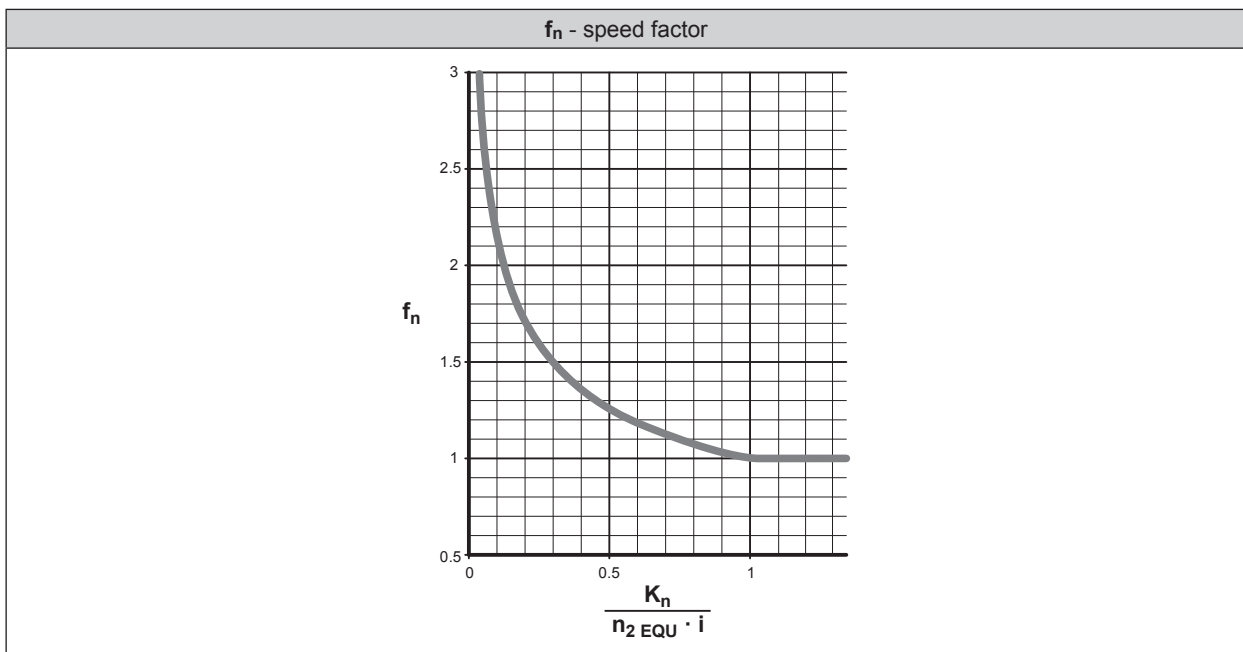
### Values depending on the GEAR DRIVE SELECTION

term	u.m.	definition
$A_{2\ 3\ max}$	[N]	Admissible axial force on output shaft
$A_{2'\ max}$	[N]	Axial force acting simultaneously with radial force
$R_{1\ max}$	[N]	Admissible radial force at midpoint of input shaft
$R_{2\ 3\ max}$	[N]	Admissible radial force at midpoint of output shaft
$C_B$	[Nm]	Constant for bearing's lifetime calculation
$C_t$	$\left[ \frac{Nm}{arcmin} \right]$	Torsional stiffness
$f_n$	—	Speed factor
$f_z$	—	Cycle factor
$f_T$	—	Temperature adjusting factor
$i$	—	Gearbox ratio
$J_G$	[kgcm <sup>2</sup> ]	Mass moment of inertia of the gearhead
$K_n$	—	Speed constant
$L_{10h}$	[h]	Bearings basic rating life
$L_z$	[mm]	Factor for bearing lifetime calculation
$M_{a\ 2}$	[Nm]	Maximum acceleration output torque
$M_{n\ 2}$	[Nm]	Rated output torque
$M_{p\ 2}$	[Nm]	Emergency stop output torque. Permitted 1000 times during service life of the gearbox
$M_{T2\ max}$	[Nm]	Maximum tilting moment applying on output shaft
$n_{1\ max}$	[min <sup>-1</sup> ]	Maximum momentary input speed. The speed the unit can be driven at occasionally and in non-repetitive conditions For duty type S5, it cannot be applied continuously for more than 30 seconds
$p$	—	Bearing lifetime exponent
$\eta$	[%]	Gear efficiency
$\varphi_R$	[arcmin]	Reduced backlash is calculated in static conditions and with the application of a torque equal to 2% of the gear unit rated torque
$\varphi_S$	[arcmin]	Standard backlash is calculated in static conditions and with the application of a torque equal to 2% of the gear unit rated torque



## 1.2 SELECTING THE GEAR UNIT

(a)	Ratio	$i$	—	$i = \frac{n_1}{n_2}$
(b)	Equivalent output torque	$M_{2\text{ EQU}}$	[Nm]	$M_{2\text{ EQU}} = \sqrt[3]{\frac{ n_{2(1)}  \cdot t_1 \cdot  M_{2(1)} ^3 + \dots +  n_{2(n)}  \cdot t_n \cdot  M_{2(n)} ^3}{ n_{2(1)}  \cdot t_1 + \dots +  n_{2(n)}  \cdot t_n}}$
(c)	Equivalent output speed	$n_{2\text{ EQU}}$	[min <sup>-1</sup> ]	$n_{2\text{ EQU}} = \frac{ n_{2(1)}  \cdot t_1 +  n_{2(2)}  \cdot t_2 + \dots +  n_{2(n)}  \cdot t_n}{t_\Sigma}$
(d)	Speed factor	$f_n$	—	<p>If <math>\frac{K_n}{n_{2\text{ EQU}} \cdot i} \geq 1 \Rightarrow f_n = 1</math></p> <p>If <math>\frac{K_n}{n_{2\text{ EQU}} \cdot i} &lt; 1 \Rightarrow f_n = \text{Obtain from diagram}</math></p>
(e)	Temperature adjusting factor	$f_T$	—	
(f)	Cyclic duration factor	ED%	[%]	$ED\% = \frac{t_1 + t_2 + \dots + t_n}{t_\Sigma} \cdot 100$
	Duration of the duty	ED	[min]	$ED = t_1 + t_2 + \dots + t_n$
(g)	Number of cycles per hour	Z	[1/h]	$Z = \frac{3600}{t_\Sigma}$
(h)	Cycle factor*	$f_z$	—	<p>*For Z&gt;6000 please contact us!</p>
(i)	Maximum input torque	$M_{1\text{ PEAK}}$	[Nm]	<p>a) maximum possible application torque</p> <p>b) limited motor torque by inverter</p> <p>c) maximum motor torque</p>







**K<sub>n</sub> - speed constant**

i	TQ 060	TQ 070	TQ 090	TQ 130	TQ 160
3	3500	3100	1050	1800	1100
4	3500	3300	1050	2000	1450
5	3500	3500	1700	2500	1650
7	4000	3500	3000	2800	2500
10	4000	3500	3000	2800	2500
16	4500	3500	3000	2800	2500
20	4500	3500	3000	2800	2500
25	4500	3500	3000	2800	2500
28	4500	3500	3000	2800	2500
35	4500	3500	3000	2800	2500
40	4500	3500	3000	2800	2500
50	4500	3500	3500	3200	2500
70	5000	4500	4000	3500	2500
100	5000	4500	4000	3500	2500

i	TQK 060	TQK 070	TQK 090	TQK 130	TQK 160
6	2400	2400	2000	1600	1600
8	2400	2400	2000	1600	1600
10	2400	2400	2000	1600	1600
14	2400	2400	2000	1600	1600
18	2400	2400	2400	2000	1600
20	2400	2400	2400	1600	1600
24	2400	2400	2400	2000	1600
30	2400	2400	2400	2000	1600
40	2400	2400	2400	2000	1600
50	2400	2400	2400	2000	1600
70	2400	2400	2400	2000	1600
80	2400	2400	2400	2000	1600
100	2400	2400	2400	2000	1600
140	2400	2400	2400	2000	1600
200	2400	2400	2400	2000	1600

i	MP/TR	MP/TR	MP/TR	MP/TR	MP/TR	MP/TR	MP/TR
	053	060	080	105	130	160	190
3	1400	1400	2700	2500	1700	550	1500
4	2000	1600	1500	1600*	500*	350*	1150
5	2300	2050	1750	1850*	600*	350*	1300
6	2300	2500	2500	1050*	150*	150*	1150*
7	3800	3000	2100	1350	400*	300*	1600
9	4000	3300	2900	2500	2100	1600	1500
10	-	4000	4000	3500	3200	1150	2900
12	3300	3300	1500	1500	500	300*	1050
15	3300	3300	1700	1750	600	350*	1200
16	3500	3500	1950	2050	700	450*	1400
20	3500	3500	2450	2550	850	300	1750
25	3500	3500	2800	2900	1000	350	2000
28	4000	4000	3450	3500	1200	450	2450
30	-	4000	4000	3500	3200	3000	1950
35	4000	4000	3950	3500	1350	500	2800
36	4000	3500	3200	1950	550	500	2300
40	-	4000	4000	3500	1700	650	2900
45	4000	-	-	-	-	-	-
48	4000	3500	3100	2800	2300	850	2100
50	-	4000	4000	3500	1950	750	2900
60	3500	-	-	-	-	-	-
64	3500	3500	3100	2800	2750	1000	2100
70	-	4000	4000	3500	2400	900	2900
75	3500	3500	3200	3000	3200	1350	2300
80	4000	3500	3100	2800	2400	1300	2100
81	4000	-	-	-	-	-	-
84	4000	4000	4000	3500	2900	1050	2900
90	-	4000	4000	3500	2850	3000	2900
100	4000	4000	4000	3500	3200	3000	2900
112	3500	-	-	-	-	-	-
120	-	4000	4000	3500	3200	2150	2900
125	4000	3500	3200	3000	2900	1800	2300
140	4000	4000	4000	3500	3200	2050	2900
144	4000	-	-	-	-	-	-
150	-	4000	4000	3500	3200	2200	2900
160	-	4000	4000	3500	3200	2550	2900
175	4000	4000	4000	3500	3200	2550	2900
180	4000	-	-	-	-	-	-
200	-	4000	4000	3500	3200	2900	2900
210	-	4000	4000	3500	3200	2700	2900
216	3500	3500	3200	3000	1900	-	-
225	4000	-	-	-	-	-	-
245	4000	-	-	-	-	-	-
250	-	4000	4000	3500	3200	3000	2900
252	4000	-	-	-	-	-	-
280	-	4000	4000	3500	3200	3000	2900
324	4000	-	-	-	-	-	-
350	-	4000	4000	3500	3200	3000	2900
400	-	4000	4000	3500	3200	3000	2900
405	4000	-	-	-	-	-	-
500	-	4000	4000	3500	3200	3000	2900
567	4000	-	-	-	-	-	-
700	-	4000	4000	3500	3200	3000	2900
729	4000	-	-	-	-	-	-
1000	-	4000	4000	3500	3200	3000	2900

i	LC 050	LC 070	LC 090	LC 120	LC 155
3	1650	1400	2900	2500	1350
4	2200	1600	2500	2100	900
5	2900	2050	2700	2300	950
7	3700	3000	3500	3000	1250
9	4000	3300	2900	3500	2100
10	-	4000	4000	3500	2500
12	3300	3300	2900	2500	2100
15	3300	3300	2900	2500	2100
16	3500	3500	3100	2800	3000
20	3500	3500	3200	3000	3000
25	3500	3500	3200	3000	3000
28	3500	4000	3500	3500	3000
30	-	4000	4000	3500	3000
35	3700	4000	3500	3000	3000
36	4000	-	-	-	-
40	-	4000	4000	3500	3000
45	4000	-	-	-	-
50	-	4000	4000	3500	3000
70	-	4000	4000	3500	3000
81	4000	-	-	-	-
100	-	4000	4000	3500	3000

i	LCK 050	LCK 070	LCK 090	LCK 120	LCK 155
6	2400	2400	2400	2000	1600
8	2400	2400	2400	2000	1600
10	2400	2400	2400	2000	1600
14	2400	2400	2400	2000	1600
20	-	2400	2400	2000	1600
24	2400	2400	2400	2000	1600
30	2400	2400	2400	2000	1600
50	2400	2400	2400	2000	1600
70	2400	2400	2400	2000	1600
80	-	2400	2400	2000	1600
90	2400	-	-	-	-
100	-	2400	2400	2000	1600

i	SL 070	SL 090	SL 120
3	1400	2900	2500
4	1600	2500	2100
5	2050	2700	2300
7	3000	3500	3000
9	3300	2900	2500
10	4000	4000	3500
12	3300	2900	2500
15	3300	2900	2500
16	3500	3100	2800
20	3500	3200	3000
25	3500	3200	3000
28	4000	3500	3500
30	4000	4000	3500
35	4000	3500	3000
40	4000	4000	3500
50	4000	4000	3500
70	4000	4000	3500
100	4000	4000	3500

i	KR 010	KR 020	KR 030	KR 040
1	1200	1200	1000	800
2	2400	2400	2000	1600
3	3000	3000	2800	2500

In case of S1 duty the values marked with \* reduce the average service life of bearings.

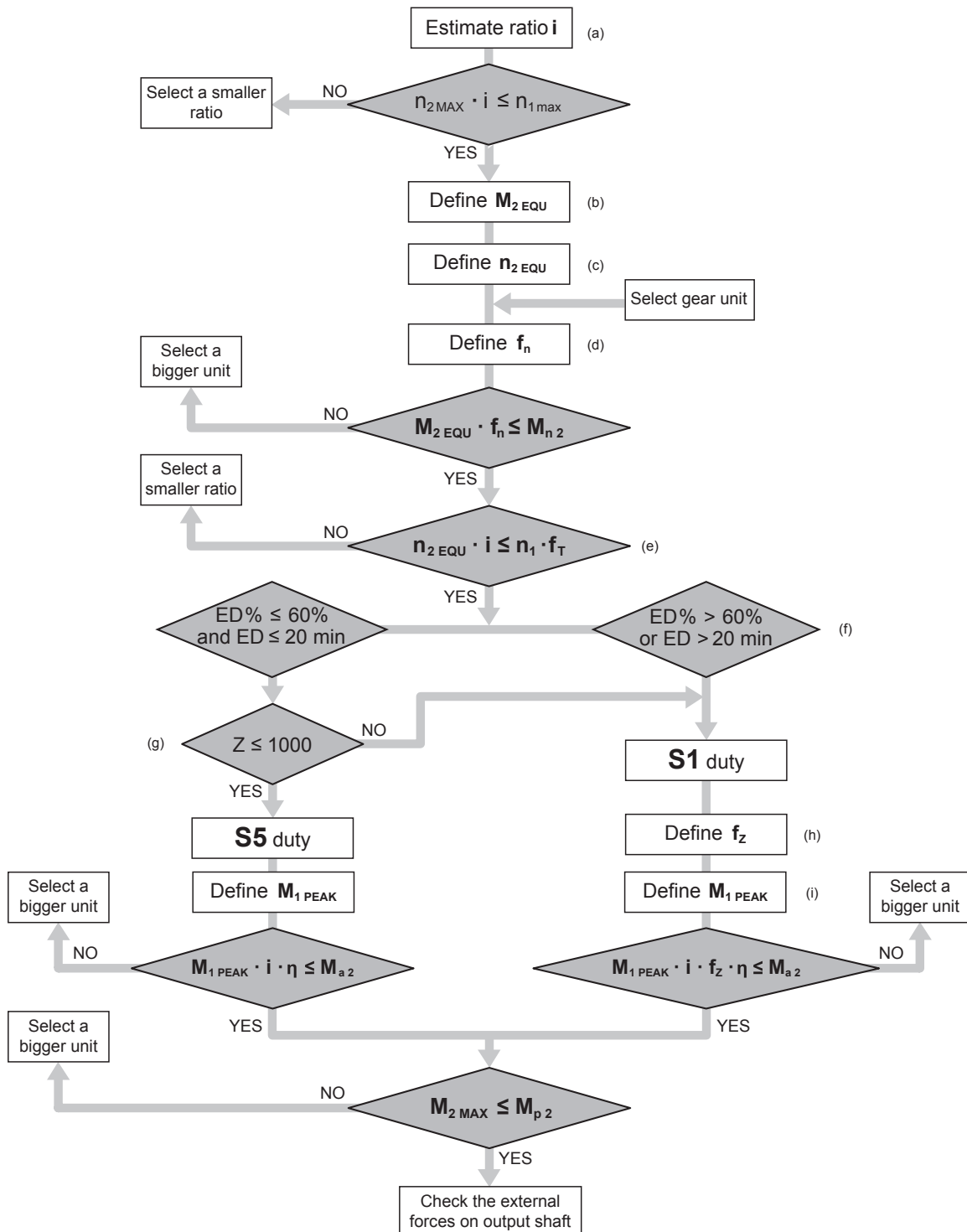
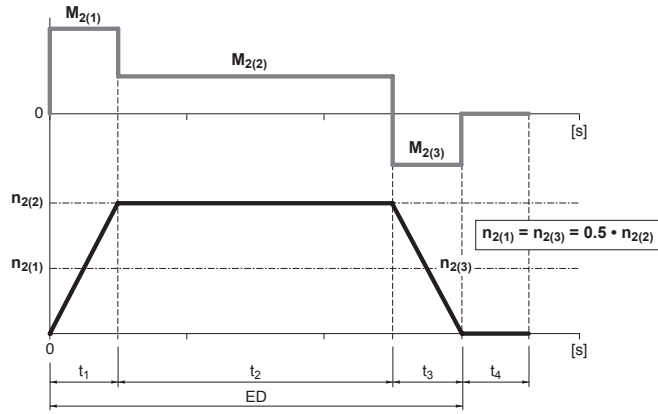


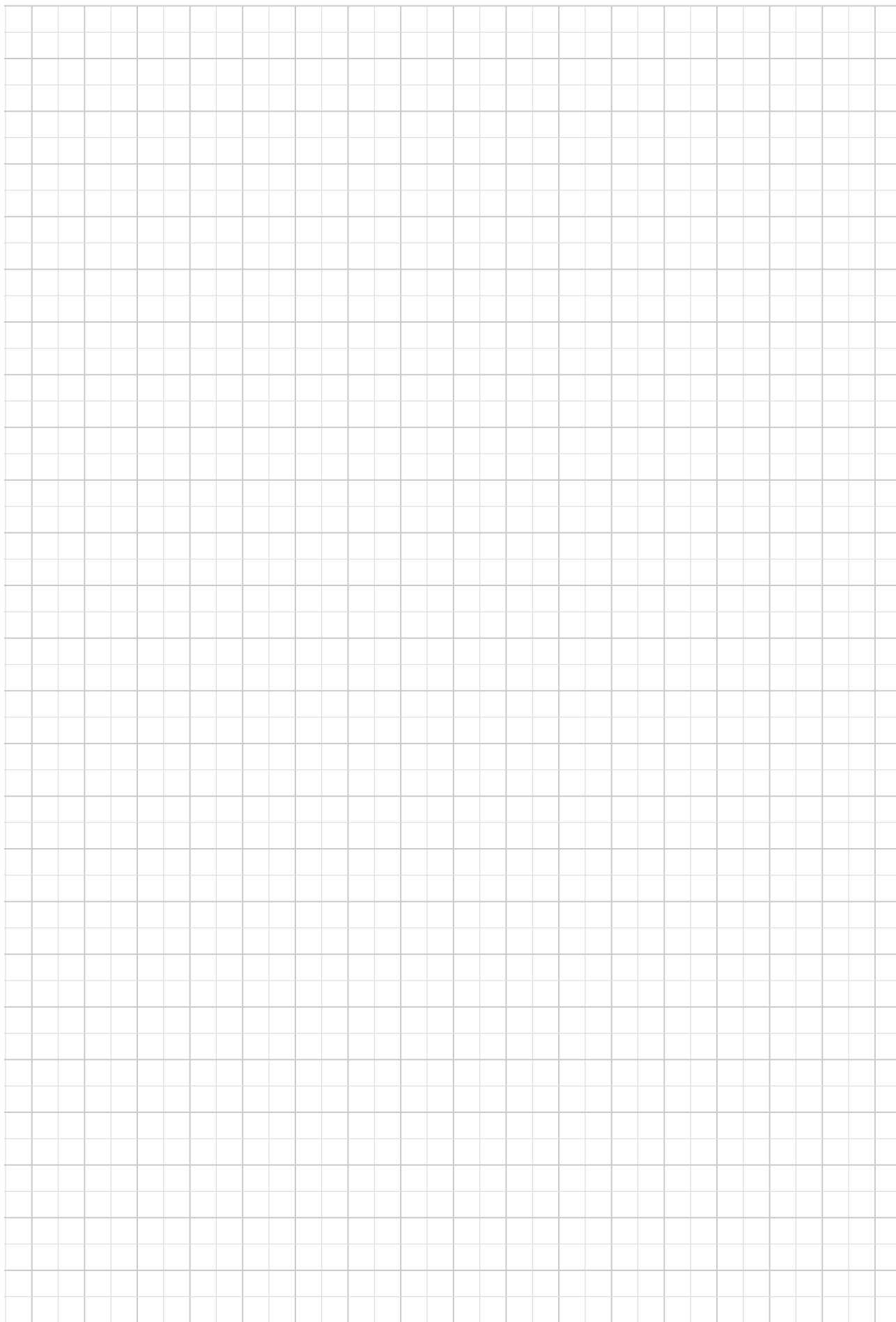
**Load diagram**

—  $M_2$ : Output torque

**Speed diagram**

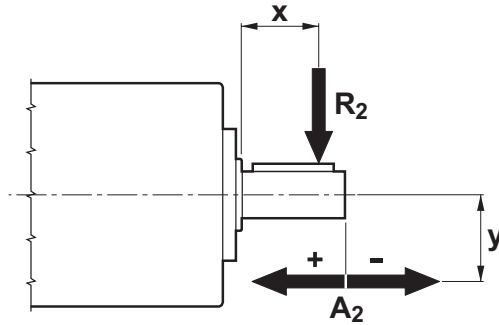
—  $n_2$ : Output speed







### 1.3 SERVICE LIFE OF BEARINGS



(a)	Maximum radial force applying on output shaft Maximum axial force applying on output shaft	$R_{2\text{ MAX}}$ $A_{2\text{ MAX}}$	[N] [N]	Please consider the specific conditions (e.g. belt drives under acceleration torque)
(b)	Maximum tilting moment applying on output shaft	$M_{T2\text{ MAX}}$	[Nm]	$M_{T2\text{ MAX}} = \frac{R_{2\text{ MAX}} \cdot (x + L_z) \pm A_{2\text{ MAX}} \cdot y}{1000}$
(c)	Equivalent forces applying on output shaft	$R_{2\text{ EQU}}$ $A_{2\text{ EQU}}$	[N] [N]	$R_{2\text{ EQU}} = \sqrt[3]{\frac{ n_{2(1)}  \cdot t_1 \cdot  R_{2(1)} ^3 + \dots +  n_{2(n)}  \cdot t_n \cdot  R_{2(n)} ^3}{ n_{2(1)}  \cdot t_1 + \dots +  n_{2(n)}  \cdot t_n}}$ $A_{2\text{ EQU}} = \sqrt[3]{\frac{ n_{2(1)}  \cdot t_1 \cdot  A_{2(1)} ^3 + \dots +  n_{2(n)}  \cdot t_n \cdot  A_{2(n)} ^3}{ n_{2(1)}  \cdot t_1 + \dots +  n_{2(n)}  \cdot t_n}}$
(d)	Equivalent tilting moment applying on output shaft	$M_{T2\text{ EQU}}$	[Nm]	$M_{T2\text{ EQU}} = \frac{R_{2\text{ EQU}} \cdot (x + L_z) + A_{2\text{ EQU}} \cdot y}{1000}$
(e)	Equivalent output speed	$n_{2\text{ EQU}}$	[min <sup>-1</sup> ]	$n_{2\text{ EQU}} = \frac{ n_{2(1)}  \cdot t_1 +  n_{2(2)}  \cdot t_2 + \dots +  n_{2(n)}  \cdot t_n}{t_1 + t_2 + \dots + t_n}$
(f)	Bearings' basic rating life	$L_{10h}$	[h]	$L_{10h} = \frac{16666}{n_{2\text{ EQU}}} \cdot \left( \frac{C_B}{M_{T2\text{ EQU}}} \right)^p$

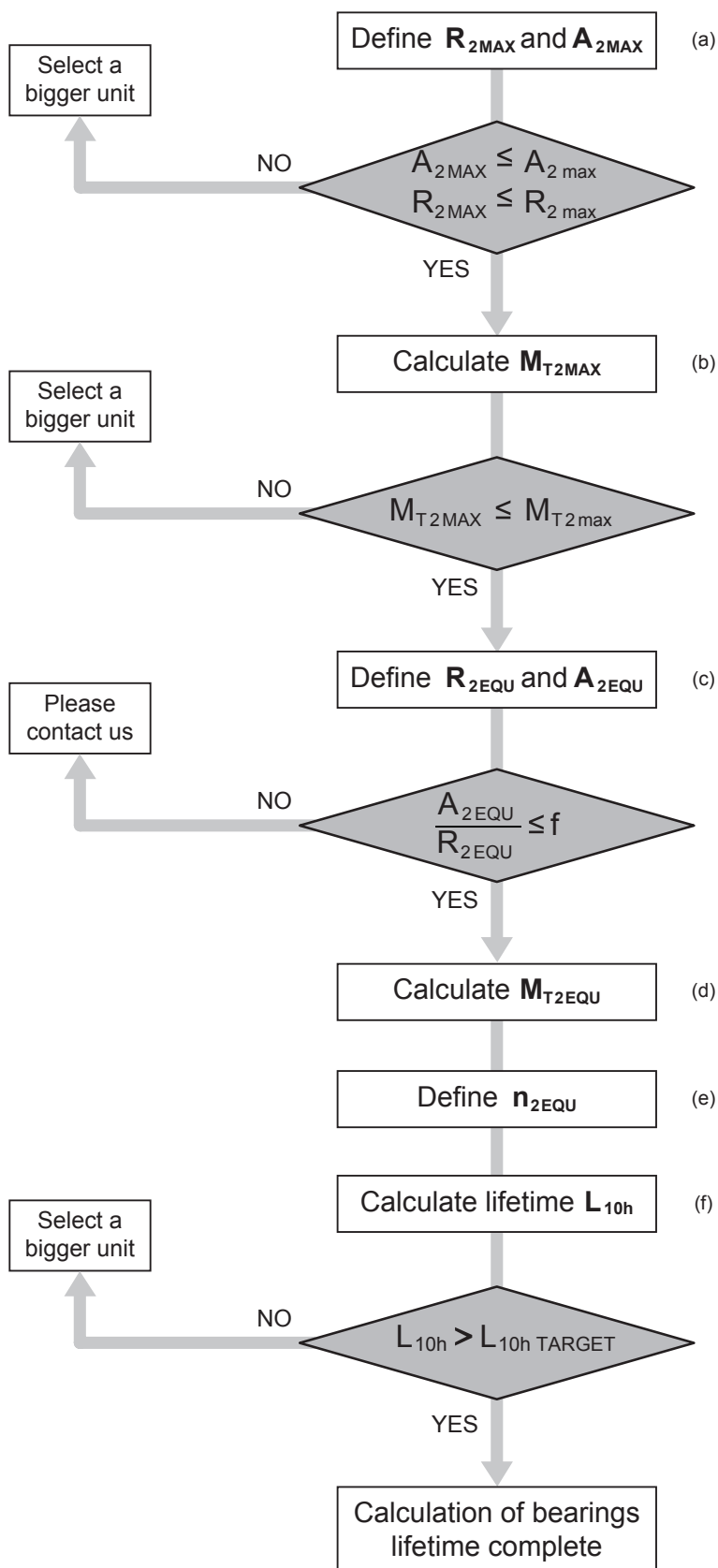
	TQ / TQK 060	TQ / TQK 070		TQ / TQK 090		TQ / TQK 130	TQ / TQK 160	
		SB	SB	HB	SB	HB	SB	SB
<b>Lz</b>	[mm]	56	67	64	95	89	96	114
<b>M<sub>T2 max</sub></b>	[Nm]	129.5	221	343	592	772	1233	2331
<b>C<sub>B</sub></b>	[Nm]	632	1065	1510	2898	3325	6395	9795
<b>p</b>	—	3	3	3.33	3	3.33	3.33	3.33

	MP 053	MP 060	MP 080		MP 105		MP 130	MP 160	MP 190	
	SB	SB	SB	HB	SB	HB	SB	SB	SB	
<b>Lz</b>	[mm]	22	23	44	42	46	53	74	94	100
<b>M<sub>T2 max</sub></b>	[Nm]	16	23	83	155	99	278	515	739	1683
<b>C<sub>B</sub></b>	[Nm]	91	143	407	994	637	2048	3893	5824	8680
<b>p</b>	—	3	3	3	3.33	3	3.33	3.33	3.33	3.33

	TR 053	TR 060	TR 080	TR 105	TR 130	TR 160	TR 190	
	SB	SB	SB	SB	SB	SB	SB	
<b>Lz</b>	[mm]	22	23	42	53	74	94	100
<b>M<sub>T2 max</sub></b>	[Nm]	16	23	155	278	515	739	1683
<b>C<sub>B</sub></b>	[Nm]	91	143	994	2048	3893	5824	8680
<b>p</b>	—	3	3	3.33	3.33	3.33	3.33	3.33

	LC / LCK 050	LC / LCK 070	LC / LCK 090	LC / LCK 120	LC / LCK 155	
	<b>Lz</b>	[mm]	22	28	30	39
<b>M<sub>T2 max</sub></b>	[Nm]	15	54	105	238	522
<b>C<sub>B</sub></b>	[Nm]	106	280	298	813	1588
<b>p</b>	—	3	3	3	3	3



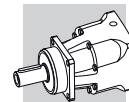


	TQ / TQK	
	060 SB ... 160 SB	070 HB ... 090 HB
f	0.26	0.37

	MP / TR	
	053 SB ... 160 SB	080 HB ... 105 HB , 160 HB
f	0.26	0.37

	LC / LCK
	050 SB ... 155 SB
f	0.26



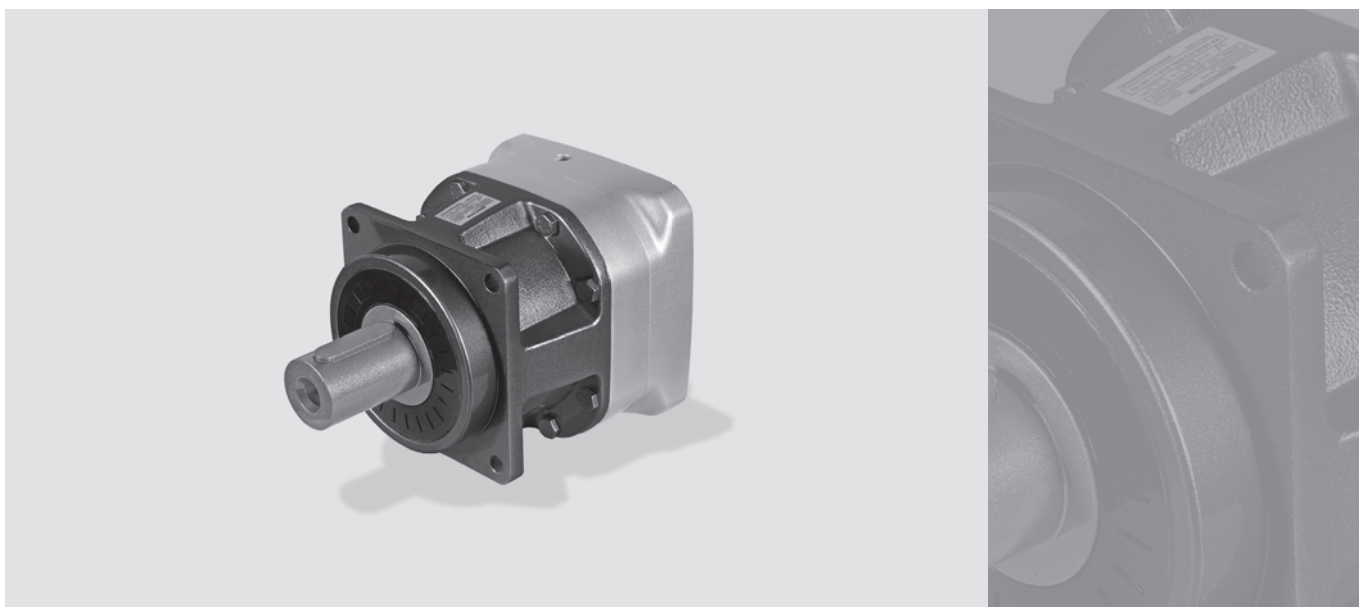


# TQ

## PLANETARY PRECISION INLINE GEARBOX

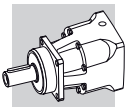
TQ

TQ features a higher positioning. Whether torque, robustness, or precision - this attractive product range scores in every category.



### Product Line Up:

- Outstanding Torque Density
- Outstanding Acceleration and Nominal Torques
- Outstanding Radial and Axial loading capacities
- Designed for Cyclic and Continuous duty
- Markedly higher Torsional Stiffness
- Extremely Geometrical Backlash less than 2 arcmin
- Quiet running
- Universal design allow any mounting orientation



## 2 FEATURES OF TQ SERIES

Low backlash planetary drives of TQ series combine outstanding performances with a distinctive Italian style which makes them immediately recognizable amongst similar products within the reference industry.

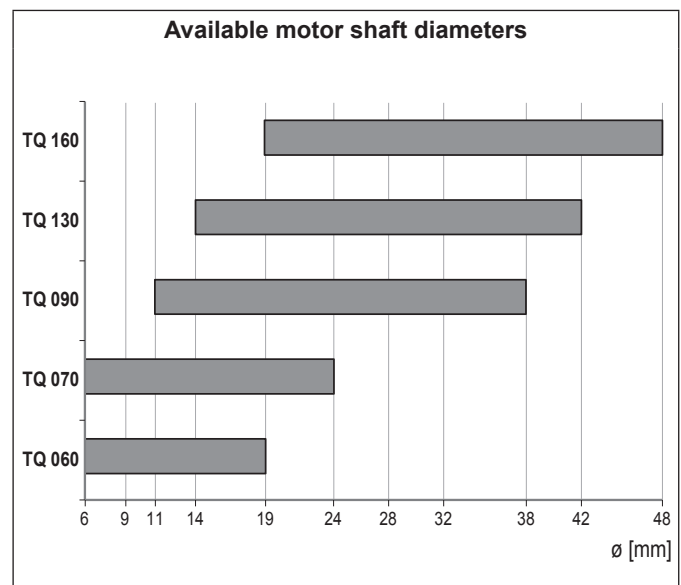
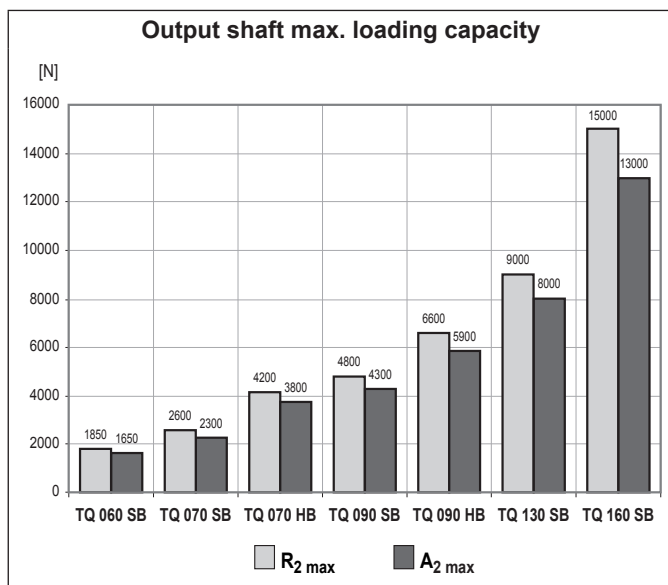
Their design and construction has been developed with the goal of offering consumers a line of products which feature absolute and consistent Quality, which in turn provides a competitive advantage for machines and systems that adopt them as transmission devices.

- TQ features two classes of precision, corresponding to the following values of circumferential backlash  
 1-stage units: standard  $\varphi_s \leq 3'$  reduced  $\varphi_R \leq 2'$  ( $\varphi_s \leq 4'$ ;  $\varphi_R \leq 2'$  for TQ 060 and TQ 070)  
 2-stage units: standard  $\varphi_s \leq 5'$  reduced  $\varphi_R \leq 3'$  ( $\varphi_s \leq 6'$ ;  $\varphi_R \leq 4'$  for TQ 060 and TQ 070)
- A high IP rating (IP65) provides inner parts with protection against the ingress of dust and liquids.
- Input section oil seals made from a Fluoroelastomer compound are supplied as standard.
- Noise pressure level  $60 \leq L_p \leq 70$  dB(A). Conditions: distance 1 m ; measured without load and an input speed of  $n_1 = 3000$  min<sup>-1</sup>;  $i = 10$ .
- Numerous adapters allow matching the most popular brands of servomotors.
- Lubrication optimized for the type of duty specified when ordering.  
 In the absence of contamination the lubricant requires no periodical changes.

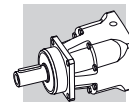
duty	TQ 060 ... TQ 160	other seals
<b>S1</b> (continuous)	Synthetic oil viscosity ISO VG 220	Fluoroelastomer
<b>S5</b> (intermittent)	NLGI grease consistency 00	NBR

- Ambient temperature min -20°C, max +30°C. For temperature higher than 30°C please consider derating factor  $f_T$ .
- Housing temperature must not exceed  $T_{max} = 90^\circ\text{C}$ .

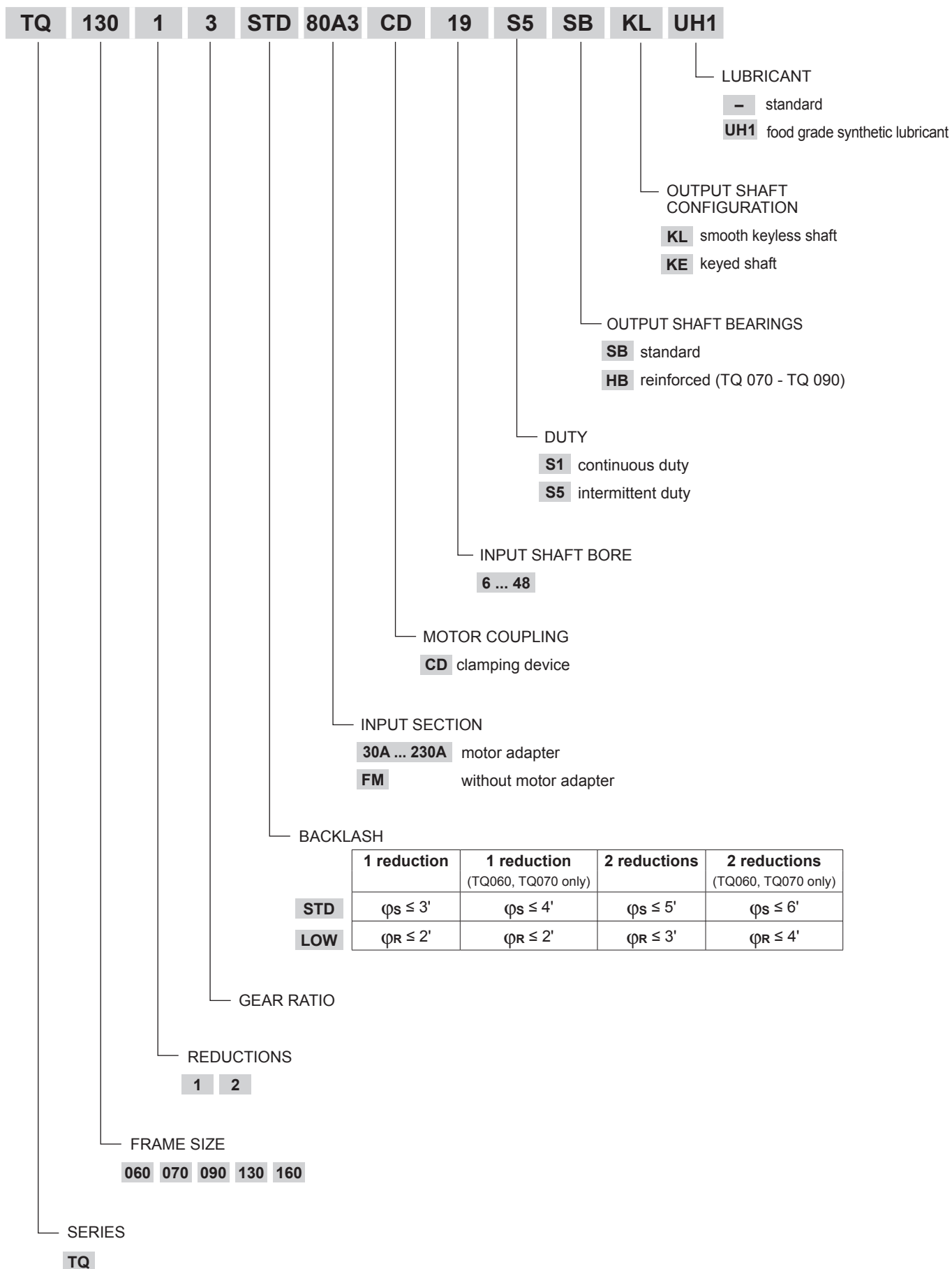
		Distribution of nominal torque $M_{n2}$ [Nm]													
[i]		3	4	5	7	10	16	20	25	28	35	40	50	70	100
<b>TQ 060</b>		21	30	30	25	20	30	30	30	30	30	30	30	25	20
<b>TQ 070</b>		45	70	70	60	40	70	70	70	70	70	70	70	60	40
<b>TQ 090</b>		130	200	180	160	110	200	180	180	200	180	200	180	160	110
<b>TQ 130</b>		260	400	400	360	280	400	400	400	400	400	400	400	360	280
<b>TQ 160</b>		530	800	800	750	550	800	800	800	800	800	800	800	750	550



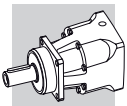




## 2.1 ORDERING CODE



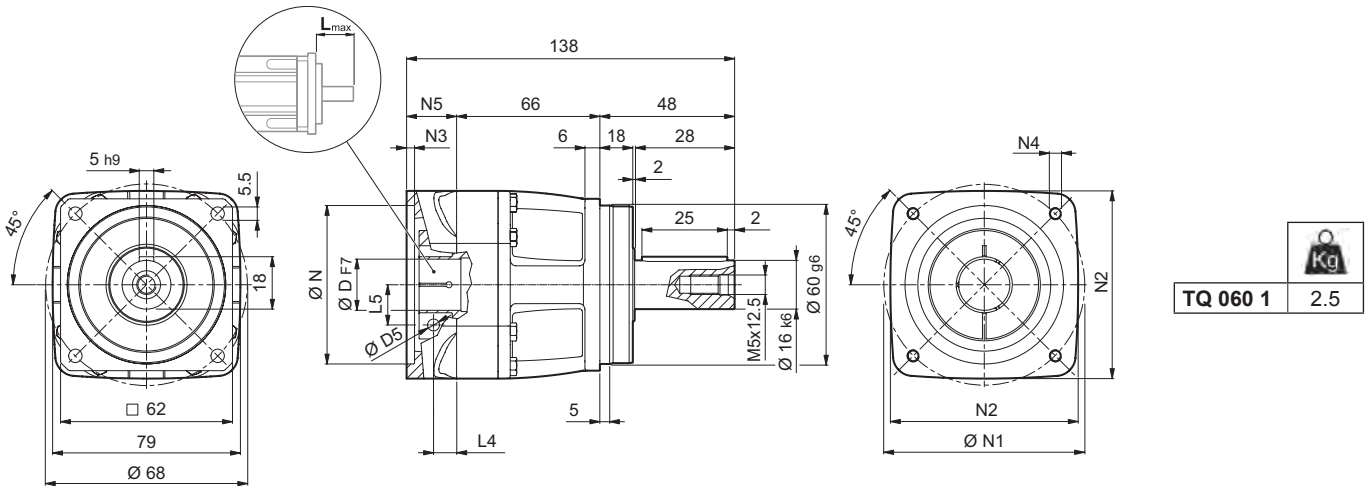
**TQ**



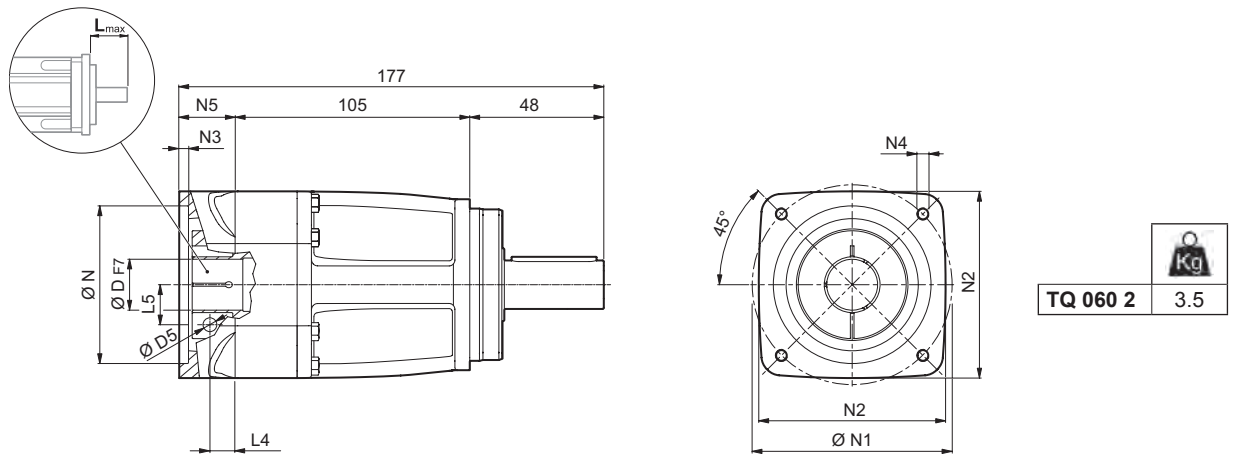
## 2.2 DIMENSIONS AND TECHNICAL SPECIFICATIONS

# TQ 060

TQ

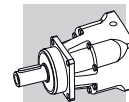


## 30A ... 110B0



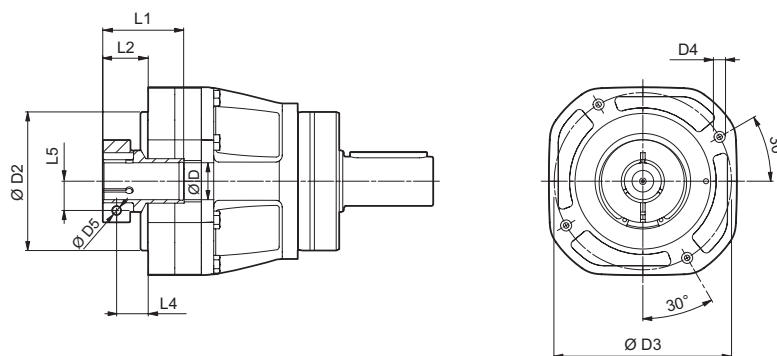
	D					N	N1	N2	N3	N4	N5	L <sub>max</sub>
	6	-	-	-	-	30	46	60	3.5	M4x10	24	40
<b>40B1</b>	6	9	11	14	-	40	63	60	3.5	M4x10	24	40
<b>50A1</b>	6	9	11	14	-	50	60	60	4.0	M4x10	24	40
<b>50C1</b>	6	9	11	14	-	50	70	60	4.0	M4x10	24	40
<b>60A2</b>	6	9	11	14	19	60	75	80	4.0	M5x12	24	40
<b>70B1</b>	6	9	11	14	19	70	90	80	4.0	M5x12	24	40
<b>80A1</b>	6	9	11	14	19	80	100	100	4.0	M6x14	24	40
<b>95A</b>	6	9	11	14	19	95	115	100	4.0	M8x24	24	40
<b>110B0</b>	6	9	11	14	19	110	145	120	4.0	M8x24	24	40

Please contact us for other motor adapters and input shaft bore.

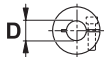


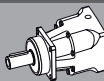

# TQ 060

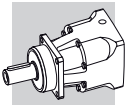
FM



TQ

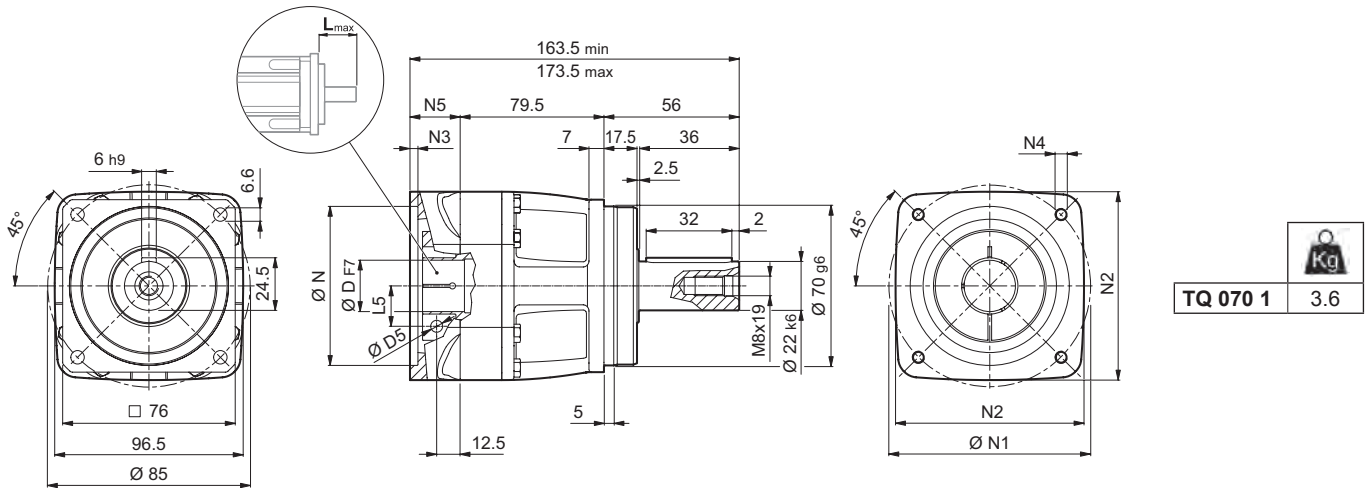
	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
6	37	59	72	M5x11	M4	31.5	15.5	4.5	10.5	8
9	49	59	72	M5x11	M5	35	19	4.5	11.5	10.5
11	49	59	72	M5x11	M6	35	19	4.5	11.5	12.5
14	49	59	72	M5x11	M6	35	19	4.5	11.5	14.5
19	54	59	72	M5x11	M6	35	19	4.5	11.5	16.5

	$M_{n2}$	$M_{a2}$	$M_{p2}$	$n_1$	$n_{1\max}$	$\varphi_S \leq \varphi_R$		$C_t$	$R_{2\max}$	$A_{2\max}$	$\eta$	$J_G$ [kgcm <sup>2</sup> ]		
													6 - 9	11 - 14
i	[Nm]	[Nm]	[Nm]	[min <sup>-1</sup> ]	[min <sup>-1</sup> ]	[arcmin]		$\left[ \frac{Nm}{arcmin} \right]$	[N]	[N]	%			
TQ 060 1_3	21	32	60	3500	6000	4'	2'	4.8	1850	1650	97	0.36	0.47	0.51
TQ 060 1_4	30	45	80	3500	6000	4'	2'	4.8	1850	1650	97	0.28	0.39	0.43
TQ 060 1_5	30	45	80	3500	6000	4'	2'	4.8	1850	1650	97	0.25	0.36	0.40
TQ 060 1_7	25	38	70	4000	6000	4'	2'	4.8	1850	1650	97	0.22	0.33	0.37
TQ 060 1_10	20	30	55	4000	6000	4'	2'	4.8	1850	1650	97	0.21	0.32	0.36
TQ 060 2_16	30	45	80	4500	6000	6'	4'	4.7	1850	1650	94	0.27	0.39	0.42
TQ 060 2_20	30	45	80	4500	6000	6'	4'	4.7	1850	1650	94	0.27	0.39	0.42
TQ 060 2_25	30	45	80	4500	6000	6'	4'	4.7	1850	1650	94	0.24	0.36	0.39
TQ 060 2_28	30	45	80	4500	6000	6'	4'	4.7	1850	1650	94	0.22	0.33	0.37
TQ 060 2_35	30	45	80	4500	6000	6'	4'	4.7	1850	1650	94	0.22	0.33	0.37
TQ 060 2_40	30	45	80	4500	6000	6'	4'	4.7	1850	1650	94	0.21	0.32	0.36
TQ 060 2_50	30	45	80	4500	6000	6'	4'	4.7	1850	1650	94	0.21	0.32	0.36
TQ 060 2_70	25	38	70	5000	6000	6'	4'	4.7	1850	1650	94	0.21	0.32	0.36
TQ 060 2_100	20	30	55	5000	6000	6'	4'	4.7	1850	1650	94	0.20	0.32	0.35

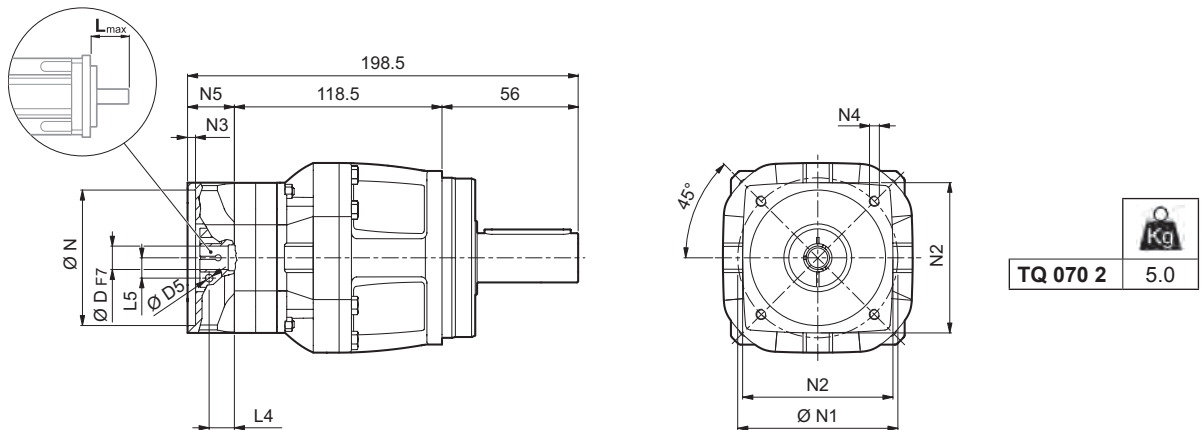


# TQ 070

## 50C ... 130A



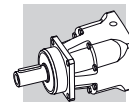
## 30A ... 110B0



	D						N	N1	N2	N3	N4	N5	L <sub>max</sub>
<b>TQ 070 1</b>													
<b>50C2</b>	6	9	11	14	–	–	50	70	80	6.5	M4x12	28	50
<b>60A3</b>	6	9	11	14	19	–	60	75	80	6.5	M5x14	28	50
<b>70B2</b>	6	9	11	14	19	–	70	90	80	6.5	M5x14	28	50
<b>80A2</b>	6	9	11	14	19	–	80	100	100	6.5	M6x14	28	50
<b>95A1</b>	6	9	11	14	19	24	95	115	100	6.5	M8x18	28	50
<b>110A1</b>	6	9	11	14	19	24	110	130	120	6.5	M8x18	28	50
<b>110B1</b>	6	9	11	14	19	24	110	145	120	6.5	M8x20	38	60
<b>130A</b>	6	9	11	14	19	24	130	165	140	6.5	M10x19	28	50
<b>TQ 070 2</b>													
<b>30A</b>	6	–	–	–	–	–	30	46	60	3.5	M4x10	24	40
<b>40B1</b>	6	9	11	14	–	–	40	63	60	3.5	M4x10	24	40
<b>50A1</b>	6	9	11	14	–	–	50	60	60	4.0	M4x10	24	40
<b>50C1</b>	6	9	11	14	–	–	50	70	60	4.0	M4x10	24	40
<b>60A2</b>	6	9	11	14	19	–	60	75	80	4.0	M5x12	24	40
<b>70B1</b>	6	9	11	14	19	–	70	90	80	4.0	M5x12	24	40
<b>80A1</b>	6	9	11	14	19	–	80	100	100	4.0	M6x14	24	40
<b>95A</b>	6	9	11	14	19	–	95	115	100	4.0	M8x24	24	40
<b>110B0</b>	6	9	11	14	19	–	110	145	120	4.0	M8x24	24	40

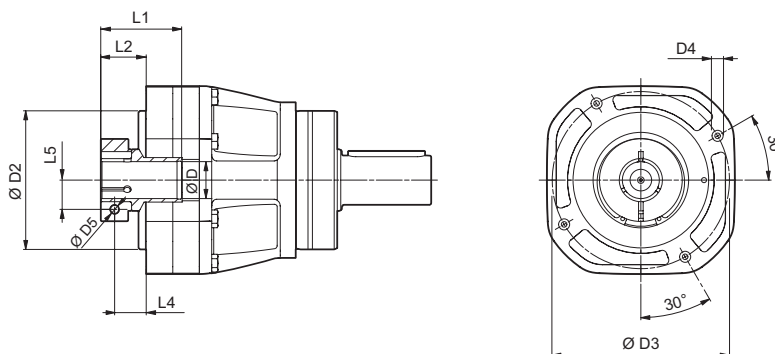
Please contact us for other motor adapters and input shaft bore.



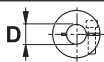


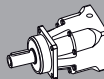
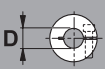
# TQ 070

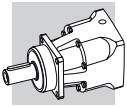
FM



TQ

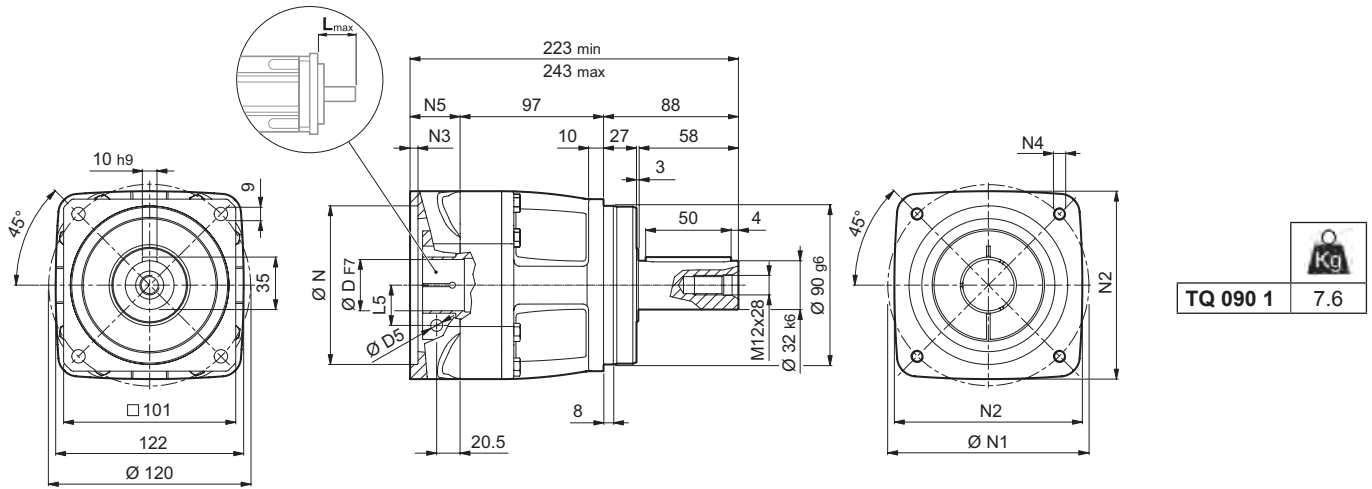
	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
<b>TQ 070 1</b>										
11	51	70	85	M6x11	M6	42	20	5	12.5	12.5
14	51	70	85	M6x11	M6	42	20	5	12.5	14.5
19	51	70	85	M6x11	M6	42	20	5	12.5	16.5
24	60	70	85	M6x11	M6	43.5	21.5	5	12.5	19
<b>TQ 070 2</b>										
6	37	59	72	M5x11	M4	31.5	15.5	4.5	10.5	8
9	49	59	72	M5x11	M5	35	19	4.5	11.5	10.5
11	49	59	72	M5x11	M6	35	19	4.5	11.5	12.5
14	49	59	72	M5x11	M6	35	19	4.5	11.5	14.5
19	54	59	72	M5x11	M6	35	19	4.5	11.5	16.5

	$M_{N2}$	$M_{A2}$	$M_{P2}$	$n_1$	$n_{1\max}$	$\varphi_S$	$\varphi_R$	$C_t$	SB		HB		$\eta$	$J_G$ [kgcm <sup>2</sup> ]			
									$R_{2\max}$	$A_{2\max}$	$R_{2\max}$	$A_{2\max}$					
$i$	[Nm]	[Nm]	[Nm]	[min <sup>-1</sup> ]	[min <sup>-1</sup> ]	[arcmin]	$\leq$	$\left[ \frac{Nm}{arcmin} \right]$	[N]	[N]	[N]	[N]	%	6 - 9	11 - 14	19	24
TQ 070 1_3	45	65	120	3000	6000	4'	2'	11.3	2600	2300	4200	3800	97	-	0.99	1.02	1.15
TQ 070 1_4	70	100	180	3000	6000	4'	2'	11.3	2600	2300	4200	3800	97	-	0.76	0.79	0.92
TQ 070 1_5	70	100	180	3000	6000	4'	2'	11.3	2600	2300	4200	3800	97	-	0.67	0.70	0.83
TQ 070 1_7	60	90	160	3500	6000	4'	2'	11.3	2600	2300	4200	3800	97	-	0.59	0.62	0.75
TQ 070 1_10	40	60	110	3500	6000	4'	2'	11.3	2600	2300	4200	3800	97	-	0.55	0.58	0.71
TQ 070 2_16	70	100	180	3500	6000	6'	4'	11.3	2600	2300	4200	3800	94	0.28	0.40	0.43	-
TQ 070 2_20	70	100	180	3500	6000	6'	4'	11.3	2600	2300	4200	3800	94	0.28	0.39	0.43	-
TQ 070 2_25	70	100	180	3500	6000	6'	4'	11.3	2600	2300	4200	3800	94	0.25	0.36	0.40	-
TQ 070 2_28	70	100	180	3500	6000	6'	4'	11.3	2600	2300	4200	3800	94	0.22	0.34	0.37	-
TQ 070 2_35	70	100	180	3500	6000	6'	4'	11.3	2600	2300	4200	3800	94	0.22	0.34	0.37	-
TQ 070 2_40	70	100	180	3500	6000	6'	4'	11.3	2600	2300	4200	3800	94	0.21	0.32	0.36	-
TQ 070 2_50	70	100	180	3500	6000	6'	4'	11.3	2600	2300	4200	3800	94	0.21	0.32	0.36	-
TQ 070 2_70	60	90	160	4000	6000	6'	4'	11.3	2600	2300	4200	3800	94	0.21	0.32	0.36	-
TQ 070 2_100	40	60	110	4500	6000	6'	4'	11.3	2600	2300	4200	3800	94	0.21	0.32	0.36	-

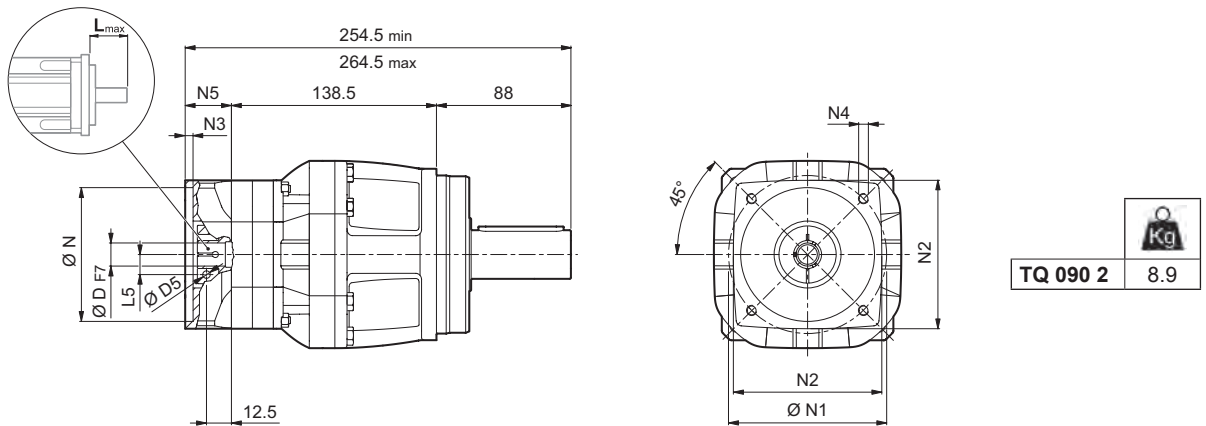


# TQ 090

## 60A4 ... 180A1

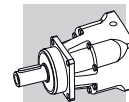


## 50C2 ... 130A



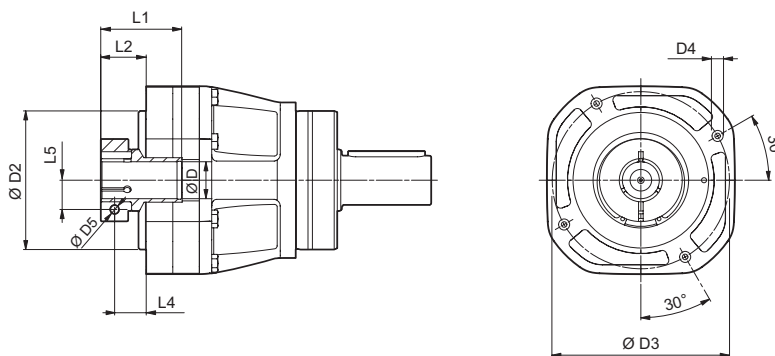
	D							N	N1	N2	N3	N4	N5	L <sub>max</sub>
<b>TQ 090 1</b>														
<b>60A4</b>	11	14	19	-	-	-	-	60	75	100	6.5	M5x14	38	60
<b>80A3</b>	11	14	19	-	-	-	-	80	100	100	6.5	M6x14	38	60
<b>95A2</b>	11	14	19	24	28	-	-	95	115	100	6.5	M8x18	38	60
<b>110A2</b>	11	14	19	24	-	-	-	110	130	122	6.5	M8x20	38	60
<b>110B1</b>	11	14	19	24	28	-	-	110	145	122	6.5	M8x20	38	60
<b>130A1</b>	11	14	19	24	28	32	-	130	165	140	6.5	M10x20	38	60
<b>180A</b>	11	14	19	24	28	32	-	180	215	190	6.5	M14x38	38	60
<b>180A1</b>	11	14	19	24	28	32	38	180	215	190	6.5	M14x28	58	80
<b>TQ 090 2</b>														
<b>50C2</b>	11	14	-	-	-	-	-	50	70	80	6.5	M4x12	28	50
<b>60A3</b>	11	14	19	-	-	-	-	60	75	80	6.5	M5x14	28	50
<b>70B2</b>	11	14	19	-	-	-	-	70	90	80	6.5	M5x14	28	50
<b>80A2</b>	11	14	19	-	-	-	-	80	100	100	6.5	M6x14	28	50
<b>95A1</b>	11	14	19	24	-	-	-	95	115	100	6.5	M8x18	28	50
<b>110A1</b>	11	14	19	24	-	-	-	110	130	120	6.5	M8x18	28	50
<b>110B1</b>	11	14	19	24	-	-	-	110	145	120	6.5	M8x20	38	60
<b>130A</b>	11	14	19	24	-	-	-	130	165	140	6.5	M10x19	28	50

Please contact us for other motor adapters and input shaft bore.

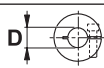


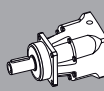
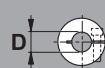
# TQ 090

FM

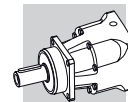


TQ

	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
<b>TQ 090 1</b>										
14	51	90	115	M8x13	M6	50	28	6.5	20.5	14.5
19	51	90	115	M8x13	M6	50	28	6.5	20.5	16.5
24	60	90	115	M8x13	M6	51.5	29.5	6.5	20.5	19
28	72	90	115	M8x13	M8	51.5	29.5	6.5	20.5	22.5
32	72	90	115	M8x13	M8	51.5	29.5	6.5	20.5	24.5
38	80	90	115	M8x13	M8	51.5	29.5	6.5	20.5	28
<b>TQ 090 2</b>										
11	51	70	85	M6x11	M6	42	20	5	12.5	12.5
14	51	70	85	M6x11	M6	42	20	5	12.5	14.5
19	51	70	85	M6x11	M6	42	20	5	12.5	16.5
24	60	70	85	M6x11	M6	43.5	21.5	5	12.5	19

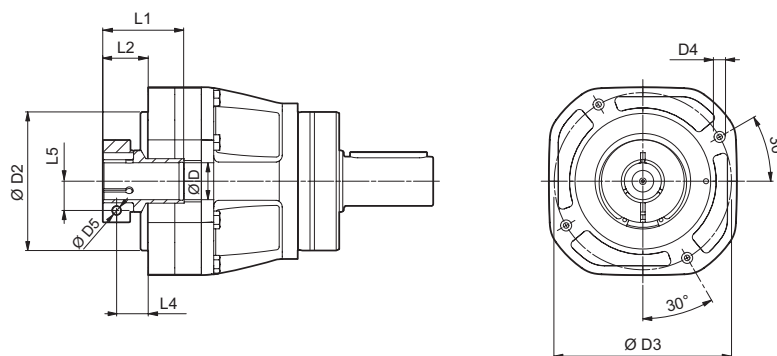
	M <sub>N 2</sub>	M <sub>a 2</sub>	M <sub>p 2</sub>	n <sub>1</sub>	n <sub>1 max</sub>	φ <sub>S</sub>	φ <sub>R</sub>	C <sub>t</sub>	SB		HB		η	J <sub>G</sub> [kgcm <sup>2</sup> ]				
									R <sub>2 max</sub>	A <sub>2 max</sub>	R <sub>2 max</sub>	A <sub>2 max</sub>						
i	[Nm]	[Nm]	[Nm]	[min <sup>-1</sup> ]	[min <sup>-1</sup> ]	[arcmin]	≤	[ $\frac{Nm}{arcmin}$ ]	[N]	[N]	[N]	[N]	%	11	14 - 19	24	28	32-38
TQ 090 1_3	130	200	400	2500	4500	3'	2'	28	4800	4300	6600	5900	97	-	2.18	2.30	2.69	4.48
TQ 090 1_4	200	300	500	2500	4500	3'	2'	28	4800	4300	6600	5900	97	-	1.63	1.75	2.14	3.93
TQ 090 1_5	180	280	500	2500	4500	3'	2'	28	4800	4300	6600	5900	97	-	1.39	1.52	1.90	3.70
TQ 090 1_7	160	250	500	3000	4500	3'	2'	28	4800	4300	6600	5900	97	-	1.19	1.32	1.70	3.50
TQ 090 1_10	110	170	350	3000	4500	3'	2'	28	4800	4300	6600	5900	97	-	1.08	1.21	1.59	3.39
TQ 090 2_16	200	300	500	3000	4500	5'	3'	28	4800	4300	6600	5900	94	0.70	0.80	0.94	-	-
TQ 090 2_20	180	280	500	3000	4500	5'	3'	28	4800	4300	6600	5900	94	0.69	0.79	0.92	-	-
TQ 090 2_25	180	280	500	3000	4500	5'	3'	28	4800	4300	6600	5900	94	0.60	0.70	0.83	-	-
TQ 090 2_28	200	300	500	3000	4500	5'	3'	28	4800	4300	6600	5900	94	0.53	0.63	0.76	-	-
TQ 090 2_35	180	280	500	3000	4500	5'	3'	28	4800	4300	6600	5900	94	0.52	0.62	0.75	-	-
TQ 090 2_40	200	300	500	3000	4500	5'	3'	28	4800	4300	6600	5900	94	0.48	0.58	0.71	-	-
TQ 090 2_50	180	280	500	3500	4500	5'	3'	28	4800	4300	6600	5900	94	0.48	0.58	0.71	-	-
TQ 090 2_70	160	250	500	4000	4500	5'	3'	28	4800	4300	6600	5900	94	0.48	0.58	0.71	-	-
TQ 090 2_100	110	170	350	4000	4500	5'	3'	28	4800	4300	6600	5900	94	0.48	0.58	0.71	-	-






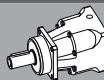

# TQ 130

FM



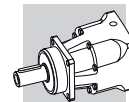
TQ

	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
<b>TQ 130 1</b>										
19	54	120	140	M10x16	M6	50	31	7.5	23.5	16.5
24	70	120	140	M10x16	M6	51.5	32.5	7.5	23.5	19
28	70	120	140	M10x16	M8	51.5	32.5	7.5	23.5	22.5
32	72	120	140	M10x16	M8	51.5	32.5	7.5	23.5	24.5
38	100	120	140	M10x16	M8	54	35	7.5	23.5	28
42	114	120	140	M10x16	M10	51.5	38.5	7.5	23.5	33
<b>TQ 130 2</b>										
14	51	90	115	M8x13	M6	50	28	6.5	20.5	14.5
19	51	90	115	M8x13	M6	50	28	6.5	20.5	16.5
24	60	90	115	M8x13	M6	51.5	29.5	6.5	20.5	19
28	72	90	115	M8x13	M8	51.5	29.5	6.5	20.5	22.5
32	72	90	115	M8x13	M8	51.5	29.5	6.5	20.5	24.5
38	80	90	115	M8x13	M8	51.5	29.5	6.5	20.5	28

	$M_{n2}$	$M_{a2}$	$M_{p2}$	$n_1$	$n_{1\max}$	$\Phi_S \leq \Phi_R$		$C_t$	$R_{2\max}$	$A_{2\max}$	$\eta$	$J_G$ [kgcm <sup>2</sup> ]				
						$\leq$										
i	[Nm]	[Nm]	[Nm]	[min <sup>-1</sup> ]	[min <sup>-1</sup> ]	[arcmin]	[arcmin]	[Nm/arcmin]	[N]	[N]	%	14	19 - 24	28 - 32	38	42
TQ 130 1_3	260	400	900	2100	4000	3'	2'	59	9000	8000	97	-	10.02	10.48	11.12	17.12
TQ 130 1_4	400	600	1000	2100	4000	3'	2'	59	9000	8000	97	-	6.38	6.85	7.49	13.49
TQ 130 1_5	400	600	1000	2500	4000	3'	2'	59	9000	8000	97	-	5.01	5.47	6.11	12.11
TQ 130 1_7	360	550	950	2500	4000	3'	2'	59	9000	8000	97	-	3.82	4.28	4.93	10.93
TQ 130 1_10	280	420	900	2500	4000	3'	2'	59	9000	8000	97	-	3.15	3.61	4.25	10.25
TQ 130 2_16	400	600	1000	2800	4000	5'	3'	58	9000	8000	94	1.72	1.87	3.53	4.05	-
TQ 130 2_20	400	600	1000	2800	4000	5'	3'	58	9000	8000	94	1.64	1.80	3.46	3.98	-
TQ 130 2_25	400	600	1000	2800	4000	5'	3'	58	9000	8000	94	1.39	1.55	3.21	3.73	-
TQ 130 2_28	400	600	1000	2800	4000	5'	3'	58	9000	8000	94	1.20	1.36	3.02	3.54	-
TQ 130 2_35	400	600	1000	2800	4000	5'	3'	58	9000	8000	94	1.17	1.33	2.99	3.51	-
TQ 130 2_40	400	600	1000	3200	4000	5'	3'	58	9000	8000	94	1.07	1.23	2.89	3.41	-
TQ 130 2_50	400	600	1000	3200	4000	5'	3'	58	9000	8000	94	1.06	1.21	2.87	3.39	-
TQ 130 2_70	360	550	950	3500	4000	5'	3'	58	9000	8000	94	1.05	1.20	2.86	3.38	-
TQ 130 2_100	280	420	900	4000	4000	5'	3'	58	9000	8000	94	1.04	1.20	2.86	3.38	-

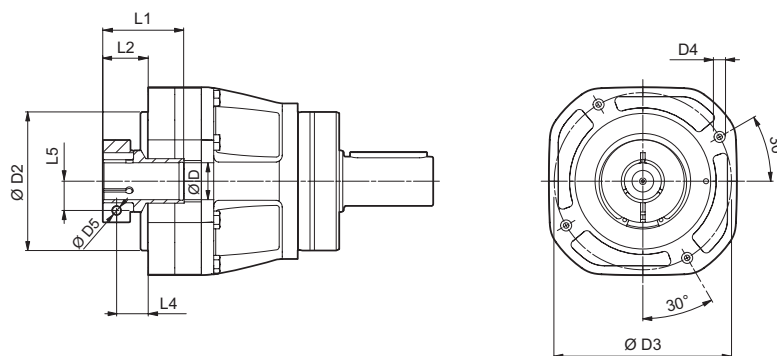




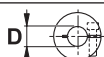


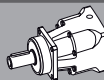

# TQ 160

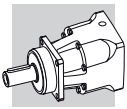
FM



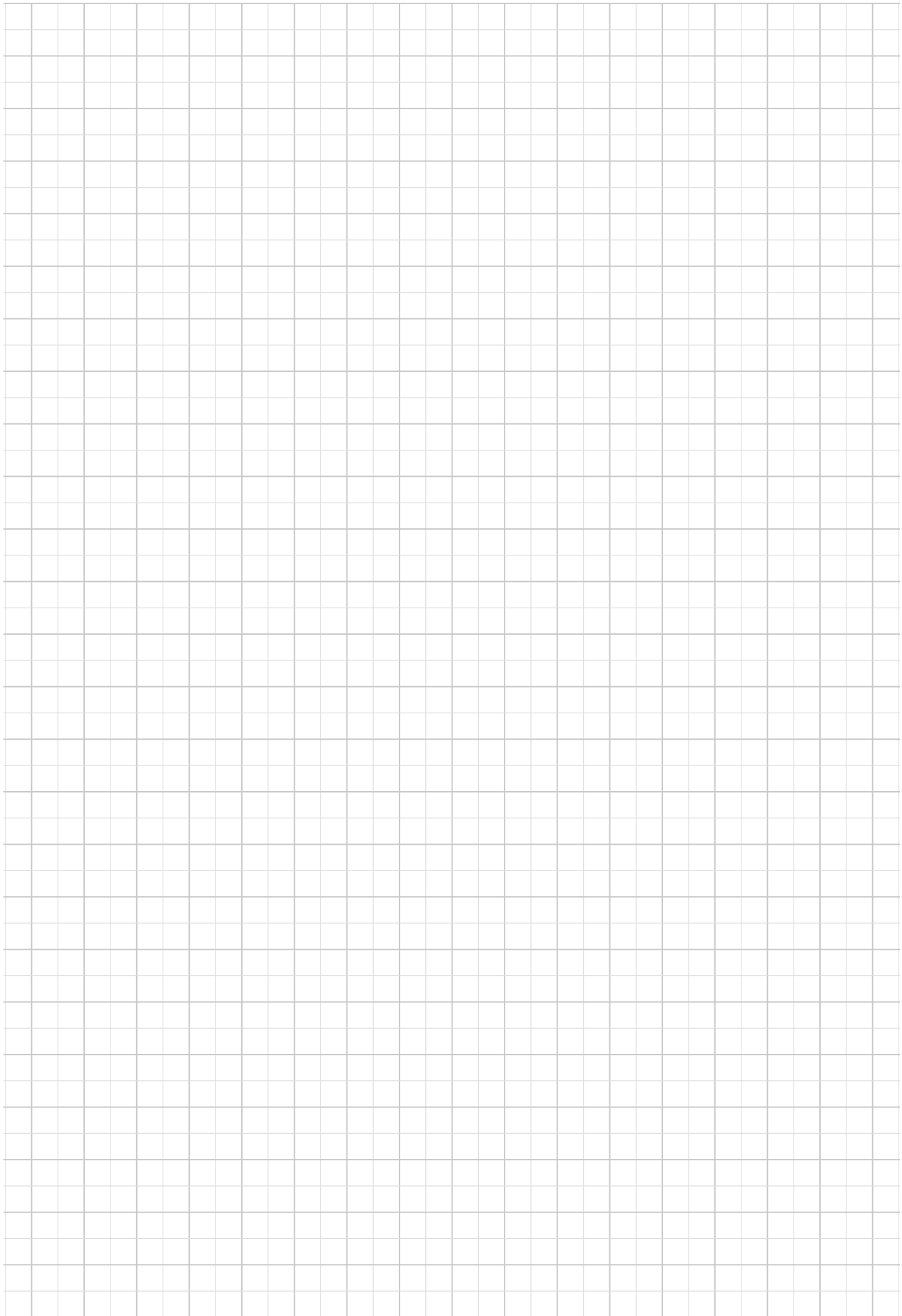
TQ

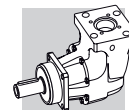
	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
<b>TQ 160 1</b>										
24	58	150	175	M12x20	M6	47	37	9.5	28	19
28	70	150	175	M12x20	M8	47	37	9.5	28	22.5
32	72	150	175	M12x20	M8	47	37	9.5	28	24.5
38	100	150	175	M12x20	M8	59.5	39.5	9.5	28	28
42	114	150	175	M12x20	M10	57	43	9.5	28	33
48	125	150	175	M12x20	M12	57	43	9.5	28	36.5
<b>TQ 160 2</b>										
19	54	120	140	M10x16	M6	50	31	7.5	23.5	16.5
24	70	120	140	M10x16	M6	51.5	32.5	7.5	23.5	19
28	70	120	140	M10x16	M8	51.5	32.5	7.5	23.5	22.5
32	72	120	140	M10x16	M8	51.5	32.5	7.5	23.5	24.5
38	100	120	140	M10x16	M8	54	35	7.5	23.5	28
42	114	120	140	M10x16	M10	51.5	38.5	7.5	23.5	33

	$M_{n2}$	$M_{a2}$	$M_{p2}$	$n_1$	$n_{1\max}$	$\Phi_S \leq \Phi_R$		$C_t$	$R_{2\max}$	$A_{2\max}$	$\eta$	$J_G$ [kgcm <sup>2</sup> ]				
						$\leq$										
$i$	[Nm]	[Nm]	[Nm]	[min <sup>-1</sup> ]	[min <sup>-1</sup> ]	[arcmin]	[arcmin]	[Nm/arcmin]	[N]	[N]	%	19	24 - 28	32 - 38	42	48
TQ 160 1_3	530	800	1500	1500	3500	3'	2'	170	15000	13000	97	-	29.58	29.99	32.89	45.99
TQ 160 1_4	800	1200	2000	1500	3500	3'	2'	170	15000	13000	97	-	18.03	18.44	21.33	34.44
TQ 160 1_5	800	1200	2000	1800	3500	3'	2'	170	15000	13000	97	-	11.76	12.17	15.06	28.17
TQ 160 1_7	750	1150	2000	2500	3500	3'	2'	170	15000	13000	97	-	9.27	9.68	12.58	25.68
TQ 160 1_10	550	850	1600	2500	3500	3'	2'	170	15000	13000	97	-	7.05	7.46	10.35	23.46
TQ 160 2_16	800	1200	2000	2800	3500	5'	3'	170	15000	13000	94	6.52	7.05	7.77	13.77	-
TQ 160 2_20	800	1200	2000	2800	3500	5'	3'	170	15000	13000	94	6.16	6.69	7.41	13.41	-
TQ 160 2_25	800	1200	2000	2800	3500	5'	3'	170	15000	13000	94	4.81	5.34	6.06	12.06	-
TQ 160 2_28	800	1200	2000	2800	3500	5'	3'	170	15000	13000	94	3.77	4.30	5.02	11.02	-
TQ 160 2_35	800	1200	2000	2800	3500	5'	3'	170	15000	13000	94	3.65	4.18	4.90	10.90	-
TQ 160 2_40	800	1200	2000	2800	3500	5'	3'	170	15000	13000	94	3.05	3.57	4.30	10.30	-
TQ 160 2_50	800	1200	2000	2800	3500	5'	3'	170	15000	13000	94	2.99	3.52	4.24	10.24	-
TQ 160 2_70	750	1150	2000	3000	3500	5'	3'	170	15000	13000	94	2.97	3.50	4.22	10.22	-
TQ 160 2_100	550	850	1600	3000	3500	5'	3'	170	15000	13000	94	2.95	3.48	4.20	10.20	-



TQ





# TQK

## PLANETARY PRECISION RIGHT ANGLE GEARBOX

TQK angular gearbox features a higher positioning like TQ inline serie.

This exceptional gearbox is the solution to space problems often posed by increasingly compact machines.

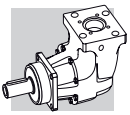
Whether torque, robustness, or precision - this attractive product range scores in every category.

TQK



### Product Line Up:

- Outstanding Torque Density
- Outstanding Acceleration and Nominal Torques
- Outstanding Radial and Axial loading capacities
- Designed for Cyclic and continuous duty
- Markedly higher Torsional Stiffness
- Extremely Geometrical Backlash less than 3 arcmin
- Quiet running
- Universal design allow any mounting orientation



### 3 FEATURES OF TQK SERIES

Low backlash bevel-planetary drives of the TQK series are the solution to space problems often posed by increasingly compact machines. TQK drives combine high levels of dynamic operation with top precision, which results in great accuracy and repeatability for any positioning mechanism in which they are installed.

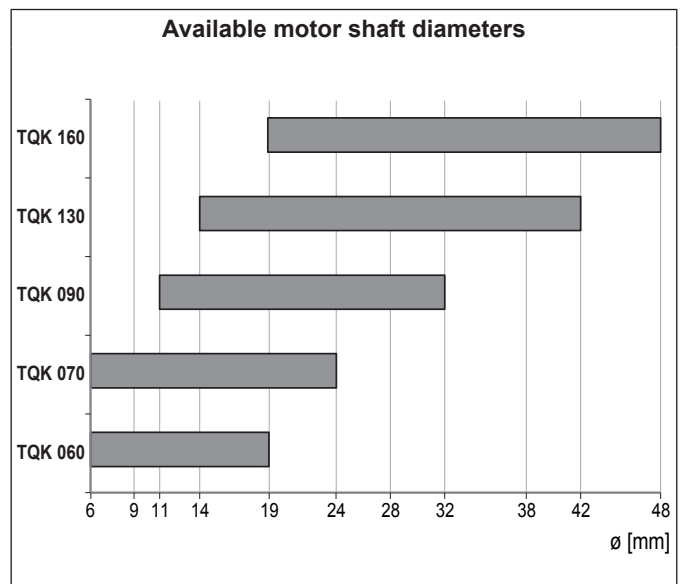
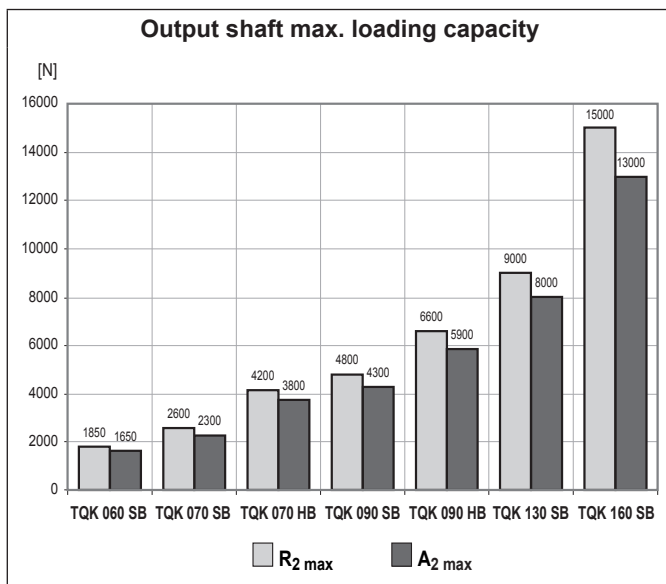
On top of their robustness and dependability TQK drives also feature a distinctive Italian style that makes them clearly recognizable amongst like products within the reference industry.

- TQK features two classes of precision, corresponding to the following values of circumferential backlash  
2-stage units: standard  $\varphi_S \leq 5'$ ; reduced  $\varphi_R \leq 4'$  ( $\varphi_S \leq 6'$ ;  $\varphi_R \leq 5'$  for TQK 060 and TQK 070)  
3-stage units: standard  $\varphi_S \leq 7'$ ; reduced  $\varphi_R \leq 6'$  ( $\varphi_S \leq 8'$ ;  $\varphi_R \leq 7'$  for TQK 060 and TQK 070)
- A high IP rating (IP65) provides inner parts with protection against the ingress of dust and liquids.
- Input section oil seals made from a Fluoroelastomer compound are supplied as standard.
- Noise pressure level  $60 \leq L_p \leq 70$  dB(A). Conditions: distance 1 m ; measured without load and an input speed of  $n_1 = 3000 \text{ min}^{-1}$ ;  $i = 10$ .
- Numerous adapters allow matching the most popular brands of servomotors.
- Lubrication optimized for the type of duty specified when ordering, in the absence of contamination the lubricant requires no periodical changes.

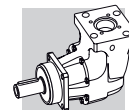
duty	TQK 060 ... TQK 160	other seals
<b>S1</b> (continuous)	Synthetic oil viscosity ISO VG 220	Fluoroelastomer
<b>S5</b> (intermittent)	NLGI grease consistency 00	NBR

- Ambient temperature min  $-20^\circ\text{C}$ , max  $+30^\circ\text{C}$ . For temperature higher than  $30^\circ\text{C}$  please consider derating factor  $f_T$ .
- Housing temperature must not exceed  $T_{\text{max}} = 90^\circ\text{C}$ .

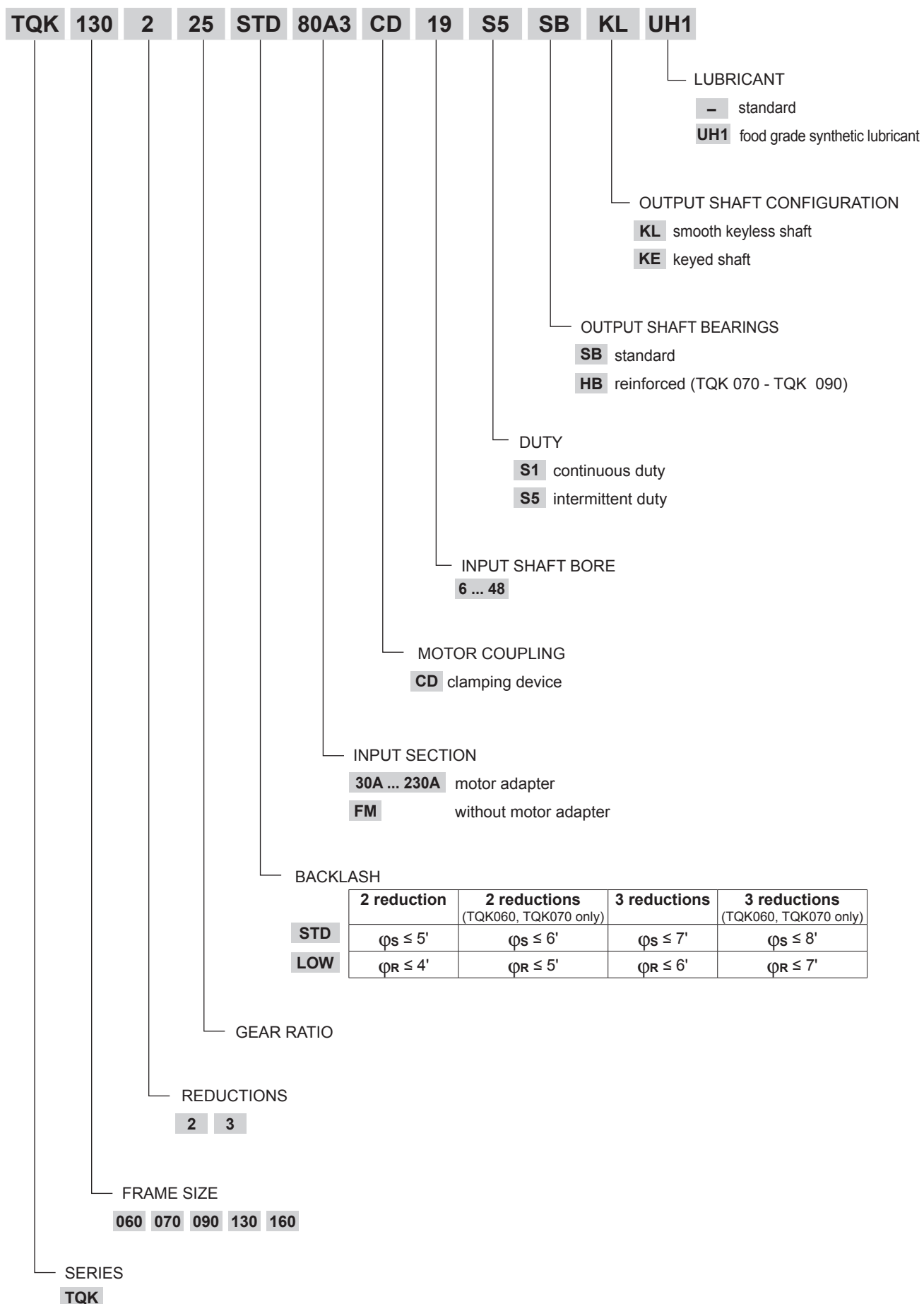
		Distribution of nominal torque $M_{n2}$ [Nm]														
[i]		6	8	10	14	18	20	24	30	40	50	70	80	100	140	200
<b>TQK 060</b>		21	28	30	25	21	20	30	30	30	30	30	30	30	25	20
<b>TQK 070</b>		45	60	70	60	45	40	70	70	70	70	70	70	70	60	40
<b>TQK 090</b>		110	150	180	160	130	110	200	180	180	180	180	200	180	160	110
<b>TQK 130</b>		255	340	400	360	260	280	400	400	400	400	400	400	400	360	280
<b>TQK 160</b>		420	560	700	750	530	550	800	800	800	800	800	800	800	750	550





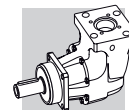


### 3.1 ORDERING CODE



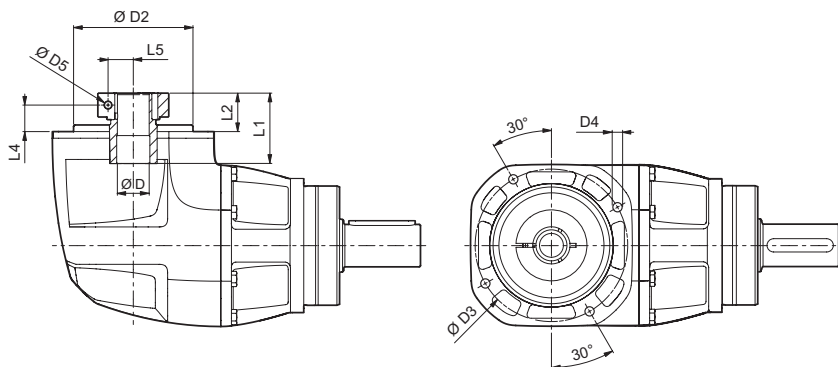
**TQK**






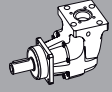

# TQK 060

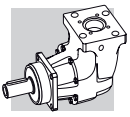
FM



TQK

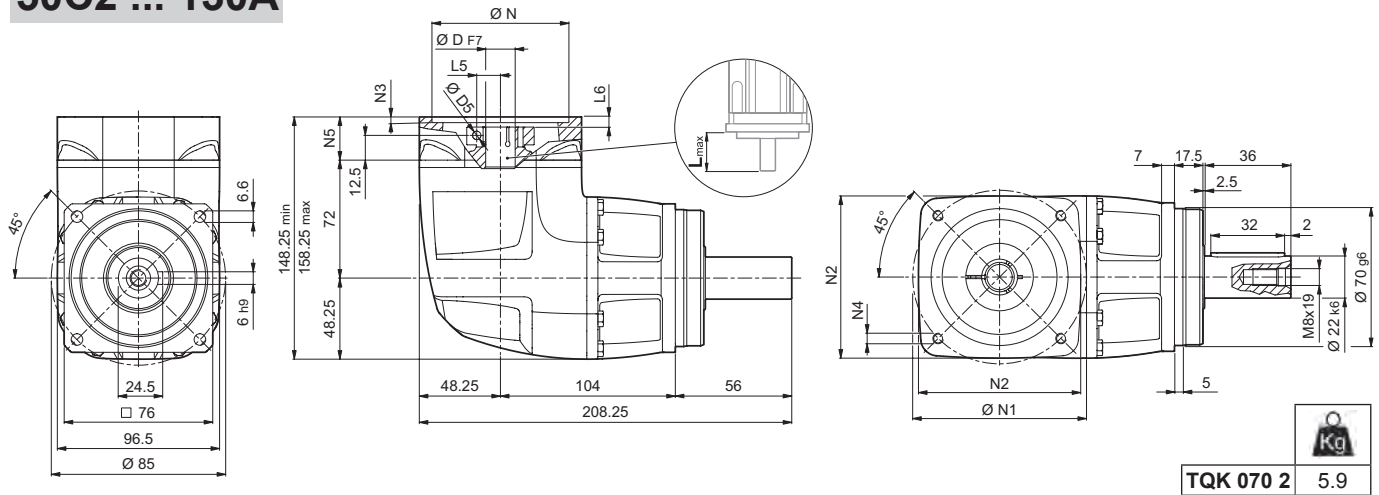
	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
6	37	59	72	M5x11	M4	31.5	15.5	4.5	10.5	8
9	49	59	72	M5x11	M5	35	19	4.5	11.5	10.5
11	49	59	72	M5x11	M6	35	19	4.5	11.5	12.5
14	49	59	72	M5x11	M6	35	19	4.5	11.5	14.5
19	54	59	72	M5x11	M6	35	19	4.5	11.5	16.5

	i	M <sub>n2</sub> [Nm]	M <sub>a2</sub> [Nm]	M <sub>p2</sub> [Nm]	n <sub>1</sub> [min <sup>-1</sup> ]	n <sub>1 max</sub> [min <sup>-1</sup> ]	φ <sub>S</sub> ≤ [arcmin]	φ <sub>R</sub> [arcmin]	C <sub>t</sub> [ $\frac{Nm}{arcmin}$ ]	R <sub>2 max</sub> [N]	A <sub>2 max</sub> [N]	η %	J <sub>G</sub> [kgcm <sup>2</sup> ]		
														6 - 9	11 - 14
TQK 060 2_6		21	30	45	2500	5000	6'	5'	4.3	2500	2250	94	0.76	0.78	0.78
TQK 060 2_8		28	40	60	2500	5000	6'	5'	4.3	2500	2250	94	0.75	0.76	0.77
TQK 060 2_10		30	45	70	2500	5000	6'	5'	4.3	2500	2250	94	0.73	0.75	0.75
TQK 060 2_14		25	38	70	2500	5000	6'	5'	4.3	2500	2250	94	0.72	0.73	0.74
TQK 060 2_20		20	30	55	2500	5000	6'	5'	4.3	2500	2250	94	0.71	0.72	0.73
TQK 060 3_18		21	32	60	2500	5000	8'	7'	4.3	2500	2250	91	0.61	0.62	0.63
TQK 060 3_24		30	45	80	2500	5000	8'	7'	4.3	2500	2250	91	0.61	0.62	0.63
TQK 060 3_30		30	45	80	2500	5000	8'	7'	4.3	2500	2250	91	0.60	0.62	0.62
TQK 060 3_40		30	45	80	2500	5000	8'	7'	4.3	2500	2250	91	0.60	0.61	0.62
TQK 060 3_50		30	45	80	2500	5000	8'	7'	4.3	2500	2250	91	0.60	0.61	0.62
TQK 060 3_70		30	45	80	2500	5000	8'	7'	4.3	2500	2250	91	0.60	0.61	0.62
TQK 060 3_80		30	45	80	2500	5000	8'	7'	4.3	2500	2250	91	0.60	0.61	0.62
TQK 060 3_100		30	45	80	2500	5000	8'	7'	4.3	2500	2250	91	0.59	0.61	0.61
TQK 060 3_140		25	38	70	2500	5000	8'	7'	4.3	2500	2250	91	0.59	0.61	0.61
TQK 060 3_200		20	30	55	2500	5000	8'	7'	4.3	2500	2250	91	0.59	0.61	0.61



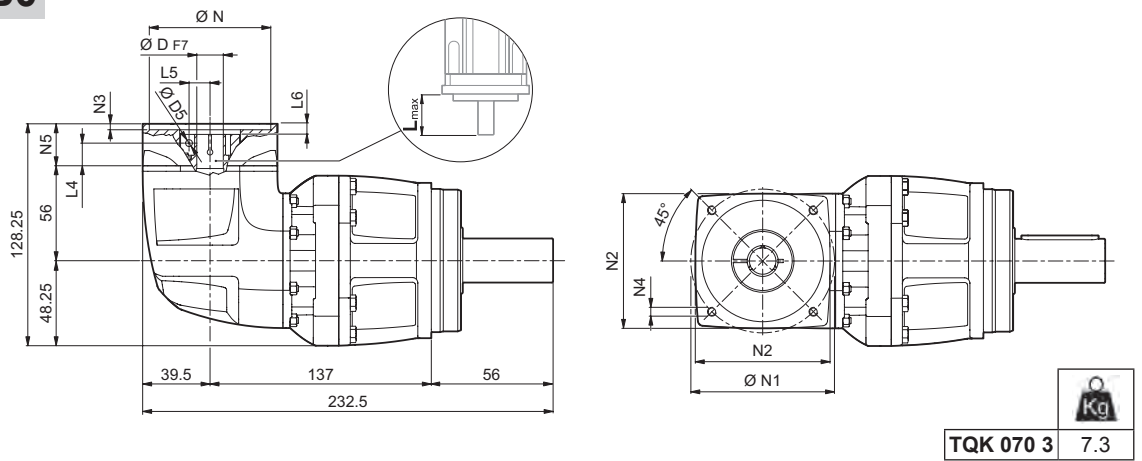
# TQK 070

## 50C2 ... 130A



TQK 070 2 5.9

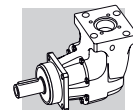
## 30A ... 110B0



TQK 070 3 7.3

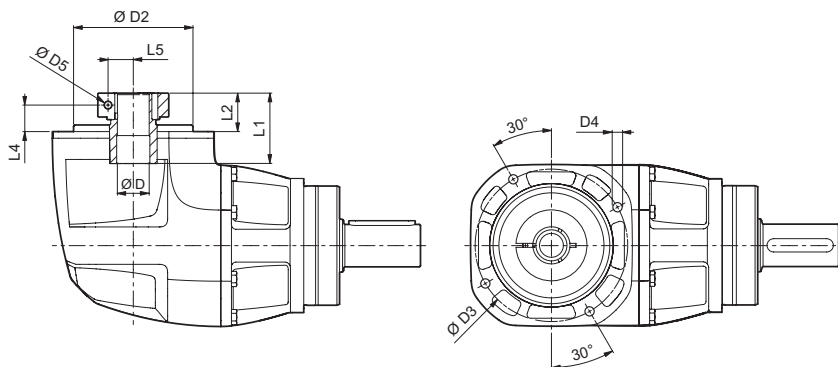
D	D						N	N1	N2	N3	N4	N5	L <sub>max</sub>
	6	9	11	14	19	24							
<b>TQK 070 2</b>													
50C2	6	9	11	14	—	—	50	70	80	6.5	M4x12	28	50
60A3	6	9	11	14	19	—	60	75	80	6.5	M5x14	28	50
70B2	6	9	11	14	19	—	70	90	80	6.5	M5x14	28	50
80A2	6	9	11	14	19	—	80	100	100	6.5	M6x14	28	50
95A1	6	9	11	14	19	24	95	115	100	6.5	M8x18	28	50
110A1	6	9	11	14	19	24	110	130	120	6.5	M8x18	28	50
110B1	6	9	11	14	19	—	110	145	120	6.5	M8x20	38	60
130A	6	9	11	14	19	24	130	165	140	6.5	M10x19	28	50
<b>TQK 070 3</b>													
30A	6	—	—	—	—	—	30	46	60	3.5	M4x10	24	40
40B1	6	9	11	14	—	—	40	63	60	3.5	M4x10	24	40
50A1	6	9	11	—	—	—	50	60	60	4.0	M4x10	24	40
50C1	6	9	11	14	—	—	50	70	60	4.0	M4x10	24	40
60A2	6	9	11	14	19	—	60	75	80	4.0	M5x12	24	40
70B1	6	9	11	14	19	—	70	90	80	4.0	M5x12	24	40
80A1	6	9	11	14	19	—	80	100	100	4.0	M6x14	24	40
95A	6	9	11	14	19	—	95	115	100	4.0	M8x24*	24	40
110B0	6	9	11	14	19	—	110	145	120	4.0	M8x24*	24	40

\* through hole. Please contact us for other motor adapters and input shaft bore.



# TQK 070

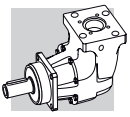
FM



TQK

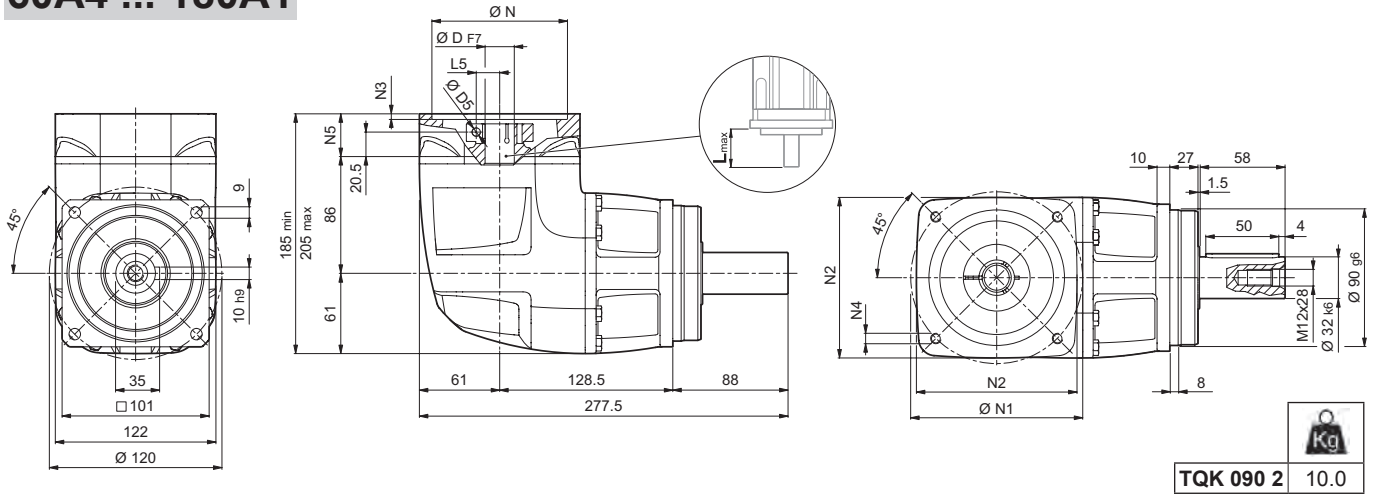
	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
<b>TQK 070 2</b>										
11	51	70	85	M6x11	M6	42	20	5	12.5	12.5
14	51	70	85	M6x11	M6	42	20	5	12.5	14.5
19	51	70	85	M6x11	M6	42	20	5	12.5	16.5
24	60	70	85	M6x11	M6	43.5	21.5	5	12.5	19
<b>TQK 070 3</b>										
6	37	59	72	M5x11	M4	31.5	15.5	4.5	10.5	8
9	49	59	72	M5x11	M5	35	19	4.5	11.5	10.5
11	49	59	72	M5x11	M6	35	19	4.5	11.5	12.5
14	49	59	72	M5x11	M6	35	19	4.5	11.5	14.5
19	54	59	72	M5x11	M6	35	19	4.5	11.5	16.5

	i	$M_{n2}$ [Nm]	$M_{a2}$ [Nm]	$M_{p2}$ [Nm]	$n_1$ [min <sup>-1</sup> ]	$n_{1max}$ [min <sup>-1</sup> ]	$\varphi_S$ [arcmin]	$\varphi_R$ [arcmin]	$C_t$ [Nm/arcmin]	SB		HB		$\eta$ %	$J_G$ [kgcm <sup>2</sup> ]			
										$R_{2max}$ [N]	$A_{2max}$ [N]	$R_{2max}$ [N]	$A_{2max}$ [N]					
															6-9	11-14	19	24
TQK 070 2_6		45	65	90	2500	5000	6'	5'	11	2600	2300	4200	3800	94	-	1.52	1.55	1.63
TQK 070 2_8		60	85	120	2500	5000	6'	5'	11	2600	2300	4200	3800	94	-	1.44	1.47	1.55
TQK 070 2_10		70	100	150	2500	5000	6'	5'	11	2600	2300	4200	3800	94	-	1.41	1.43	1.52
TQK 070 2_14		60	90	160	2500	5000	6'	5'	11	2600	2300	4200	3800	94	-	1.38	1.41	1.49
TQK 070 2_20		40	60	110	2500	5000	6'	5'	11	2600	2300	4200	3800	94	-	1.36	1.39	1.48
TQK 070 3_18		45	65	120	2500	5000	8'	7'	11	2600	2300	4200	3800	91	1.28	1.39	1.42	-
TQK 070 3_24		70	100	180	2500	5000	8'	7'	11	2600	2300	4200	3800	91	1.26	1.37	1.40	-
TQK 070 3_30		70	100	180	2500	5000	8'	7'	11	2600	2300	4200	3800	91	1.25	1.36	1.39	-
TQK 070 3_40		70	100	180	2500	5000	8'	7'	11	2600	2300	4200	3800	91	1.20	1.31	1.34	-
TQK 070 3_50		70	100	180	2500	5000	8'	7'	11	2600	2300	4200	3800	91	1.19	1.31	1.33	-
TQK 070 3_70		70	100	180	2500	5000	8'	7'	11	2600	2300	4200	3800	91	1.18	1.29	1.32	-
TQK 070 3_80		70	100	180	2500	5000	8'	7'	11	2600	2300	4200	3800	91	1.17	1.29	1.31	-
TQK 070 3_100		70	100	180	2500	5000	8'	7'	11	2600	2300	4200	3800	91	1.17	1.28	1.31	-
TQK 070 3_140		60	90	160	2500	5000	8'	7'	11	2600	2300	4200	3800	91	1.16	1.27	1.30	-
TQK 070 3_200		40	60	110	2500	5000	8'	7'	11	2600	2300	4200	3800	91	1.15	1.27	1.29	-

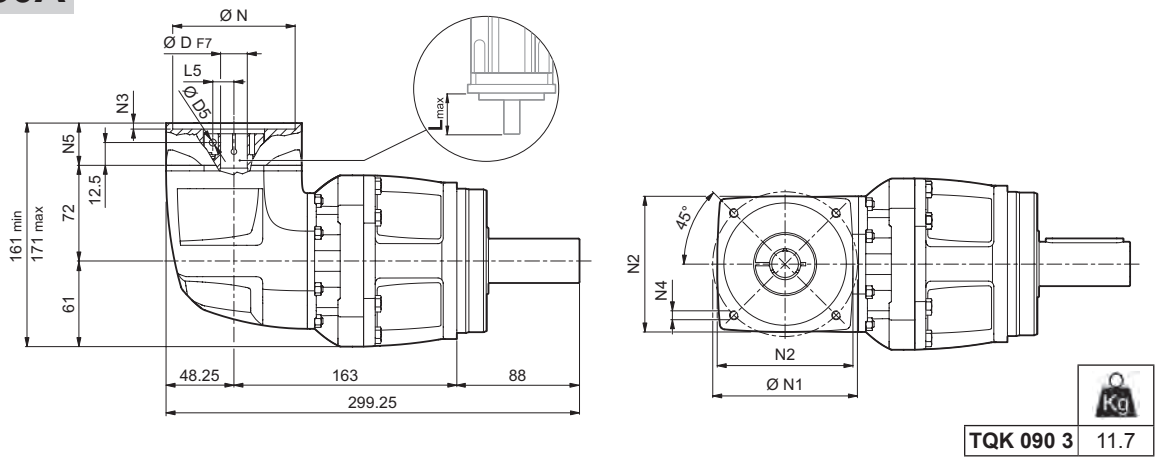


# TQK 090

## 60A4 ... 180A1



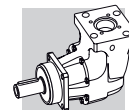
## 50C2 ... 130A



	D						N	N1	N2	N3	N4	N5	L <sub>max</sub>
<b>TQK 090 2</b>													
<b>60A4</b>	11	14	19	—	—	—	60	75	100	6.5	M5x14	38	60
<b>80A3</b>	11	14	19	—	—	—	80	100	100	6.5	M6x14	38	60
<b>95A2</b>	11	14	19	24	28	—	95	115	100	6.5	M8x18	38	60
<b>110A2</b>	11	14	19	24	—	—	110	130	122	6.5	M8x20	38	60
<b>110B1</b>	11	14	19	24	28	—	110	145	122	6.5	M8x20	38	60
<b>130A1</b>	11	14	19	24	28	32	130	165	140	6.5	M10x20	38	60
<b>180A</b>	11	14	19	24	28	—	180	215	190	6.5	M14x38*	38	60
<b>180A1</b>	11	14	19	24	28	32	180	215	190	6.5	M14x28	58	80
<b>TQK 090 3</b>													
<b>50C2</b>	11	14	—	—	—	—	50	70	80	6.5	M4x12	28	50
<b>60A3</b>	11	14	19	—	—	—	60	75	80	6.5	M5x14	28	50
<b>70B2</b>	11	14	19	—	—	—	70	90	80	6.5	M5x14	28	50
<b>80A2</b>	11	14	19	—	—	—	80	100	100	6.5	M6x14	28	50
<b>95A1</b>	11	14	19	24	—	—	95	115	100	6.5	M8x18	28	50
<b>110A1</b>	11	14	19	24	—	—	110	130	120	6.5	M8x18	28	50
<b>110B1</b>	11	14	19	24	—	—	110	145	120	6.5	M8x20	38	60
<b>130A</b>	11	14	19	24	—	—	130	165	140	6.5	M10x19	28	50

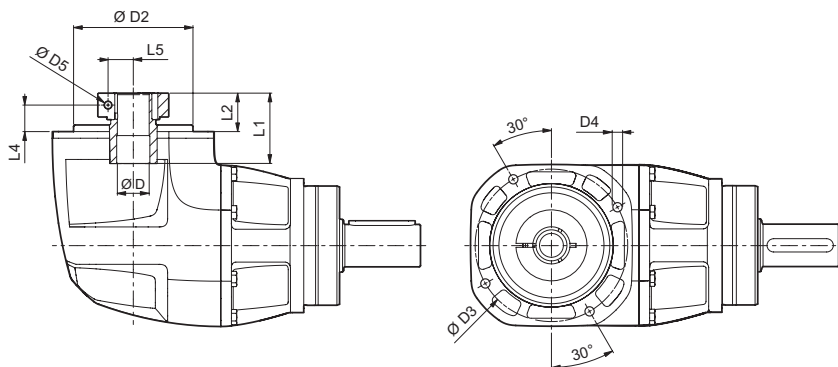
\* through hole. Please contact us for other motor adapters and input shaft bore.



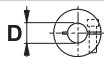


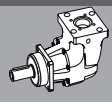
# TQK 090

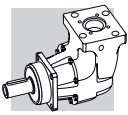
FM



TQK

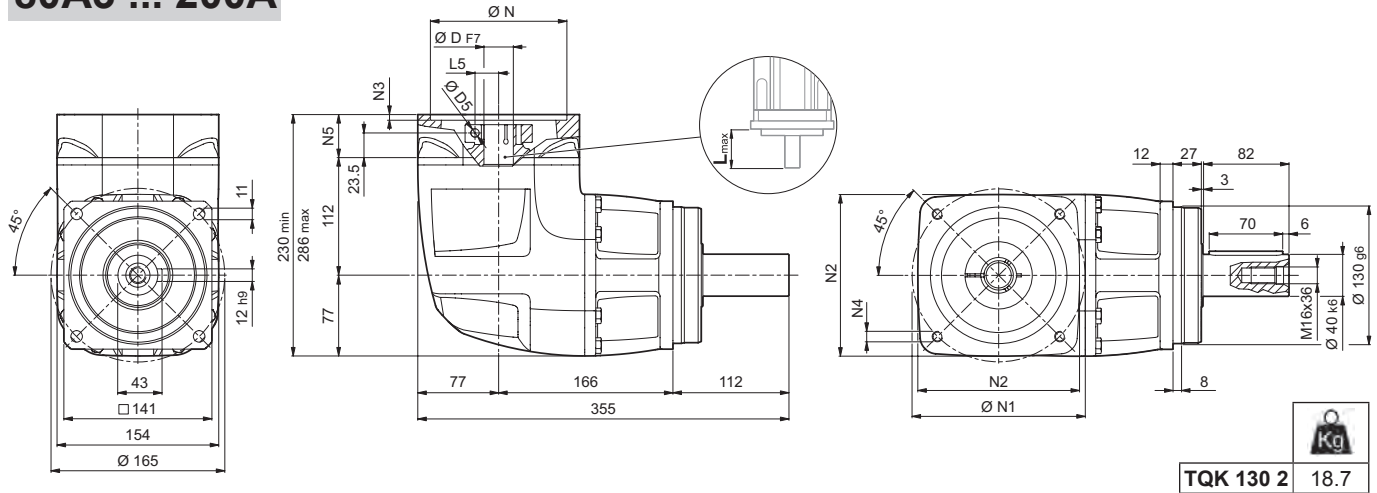
	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
<b>TQK 090 2</b>										
14	51	90	115	M8x13	M6	50	28	6.5	20.5	14.5
19	51	90	115	M8x13	M6	50	28	6.5	20.5	16.5
24	60	90	115	M8x13	M6	51.5	29.5	6.5	20.5	19
28	72	90	115	M8x13	M8	51.5	29.5	6.5	20.5	22.5
32	72	90	115	M8x13	M8	51.5	29.5	6.5	20.5	24.5
38	80	90	115	M8x13	M8	51.5	29.5	6.5	20.5	28
<b>TQK 090 3</b>										
11	51	70	85	M6x11	M6	42	20	5	12.5	12.5
14	51	70	85	M6x11	M6	42	20	5	12.5	14.5
19	51	70	85	M6x11	M6	42	20	5	12.5	16.5
24	60	70	85	M6x11	M6	43.5	21.5	5	12.5	19

	i	M <sub>n 2</sub> [Nm]	M <sub>a 2</sub> [Nm]	M <sub>p 2</sub> [Nm]	n <sub>1</sub> [min <sup>-1</sup> ]	n <sub>1 max</sub> [min <sup>-1</sup> ]	φ <sub>S</sub> [arcmin]	φ <sub>R</sub> [arcmin]	C <sub>t</sub> [Nm/arcmin]	SB		HB		η %	J <sub>G</sub> [kgcm <sup>2</sup> ]			
										R <sub>2 max</sub> [N]	A <sub>2 max</sub> [N]	R <sub>2 max</sub> [N]	A <sub>2 max</sub> [N]		11	14	19 - 24	28 - 32
TQK 090 2_6		110	150	225	2000	4500	5'	4'	28	4800	4300	6600	5900	94	-	4.82	4.89	5.42
TQK 090 2_8		150	208	300	2000	4500	5'	4'	28	4800	4300	6600	5900	94	-	4.56	4.63	5.16
TQK 090 2_10		180	260	360	2000	4500	5'	4'	28	4800	4300	6600	5900	94	-	4.45	4.51	5.04
TQK 090 2_14		160	250	500	2000	4500	5'	4'	28	4800	4300	6600	5900	94	-	4.34	4.41	4.94
TQK 090 2_20		110	170	350	2000	4500	5'	4'	28	4800	4300	6600	5900	94	-	4.29	4.36	4.88
TQK 090 3_18		130	200	400	2000	4500	7'	6'	28	4800	4300	6600	5900	91	3.56	3.63	3.70	-
TQK 090 3_24		200	300	500	2000	4500	7'	6'	28	4800	4300	6600	5900	91	3.53	3.60	3.67	-
TQK 090 3_30		180	280	500	2000	4500	7'	6'	28	4800	4300	6600	5900	91	3.52	3.59	3.66	-
TQK 090 3_40		180	280	500	2000	4500	7'	6'	28	4800	4300	6600	5900	91	3.45	3.52	3.58	-
TQK 090 3_50		180	280	500	2000	4500	7'	6'	28	4800	4300	6600	5900	91	3.42	3.49	3.56	-
TQK 090 3_70		180	280	500	2000	4500	7'	6'	28	4800	4300	6600	5900	91	3.40	3.46	3.53	-
TQK 090 3_80		200	300	500	2000	4500	7'	6'	28	4800	4300	6600	5900	91	3.38	3.45	3.52	-
TQK 090 3_100		180	280	500	2000	4500	7'	6'	28	4800	4300	6600	5900	91	3.38	3.45	3.52	-
TQK 090 3_140		160	250	500	2000	4500	7'	6'	28	4800	4300	6600	5900	91	3.38	3.45	3.52	-
TQK 090 3_200		110	170	350	2000	4500	7'	6'	28	4800	4300	6600	5900	91	3.38	3.45	3.52	-



# TQK 130

## 80A3 ... 200A



## 60A4 ... 180A1

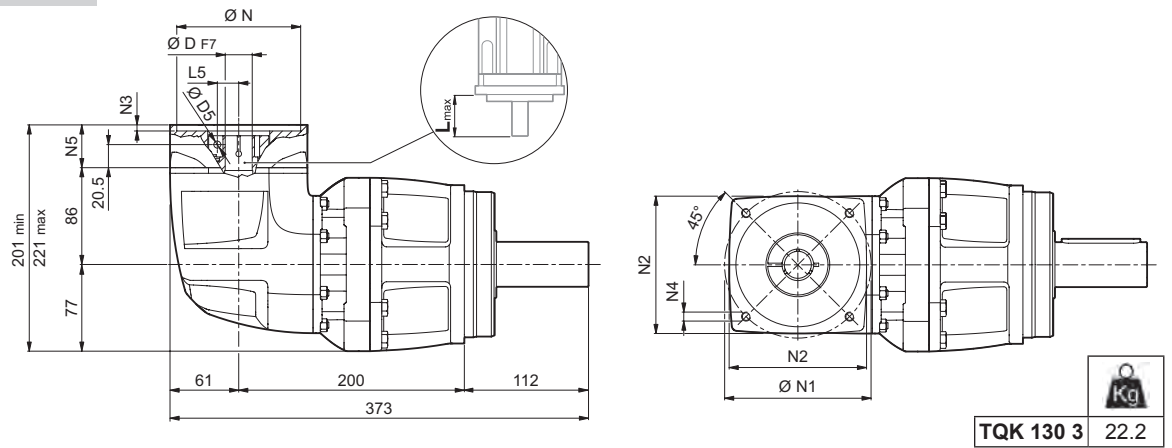
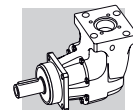


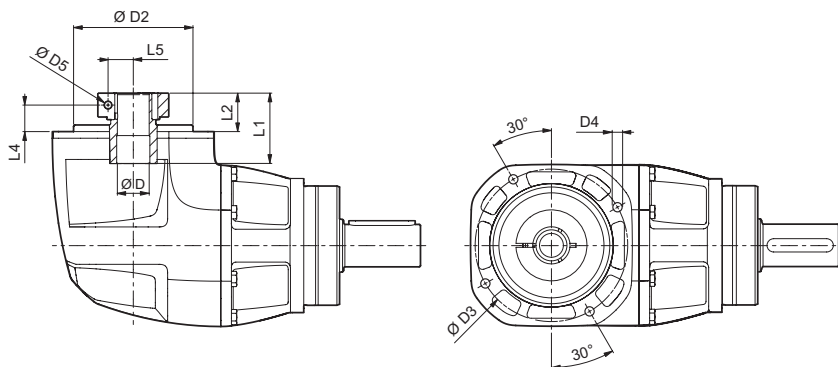
Image	D							N	N1	N2	N3	N4	N5	L <sub>max</sub>
	1	2	3	4	5	6	7							
<b>TQ 130 2</b>														
80A3	14	19	-	-	-	-	-	80	100	130	6.5	M6x14	41	60
95A2	14	19	24	28	-	-	-	95	115	130	6.5	M8x18	41	60
110A2	14	19	24	-	-	-	-	110	130	130	6.5	M8x20	41	60
110B1	14	19	24	28	-	-	-	110	145	130	6.5	M8x20	41	60
130A1	14	19	24	28	32	-	-	130	165	154	6.5	M10x20	41	60
180A	14	19	24	28	-	-	-	180	215	190	6.5	M14x28	41	60
180A1	14	19	24	28	32	38	-	180	215	190	6.5	M14x28	61	80
200A	14	19	24	28	32	38	42	200	235	210	6.5	M14x28	97	110
<b>TQ 130 3</b>														
60A4	14	19	-	-	-	-	-	60	75	100	6.5	M5x14	38	60
80A3	14	19	-	-	-	-	-	80	100	100	6.5	M6x14	38	60
95A2	14	19	24	28	-	-	-	95	115	100	6.5	M8x18	38	60
110A2	14	19	24	28	-	-	-	110	130	122	6.5	M8x20	38	60
110B1	14	19	24	28	-	-	-	110	145	122	6.5	M8x20	38	60
130A1	14	19	24	28	32	-	-	130	165	140	6.5	M10x20	38	60
180A	14	19	24	28	32	-	-	180	215	190	6.5	M14x38	38	60
180A1	14	19	24	28	32	38	-	180	215	190	6.5	M14x28	58	80

\* through hole. Please contact us for other motor adapters and input shaft bore.

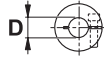


# TQK 130

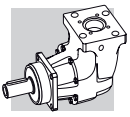
FM



TQK

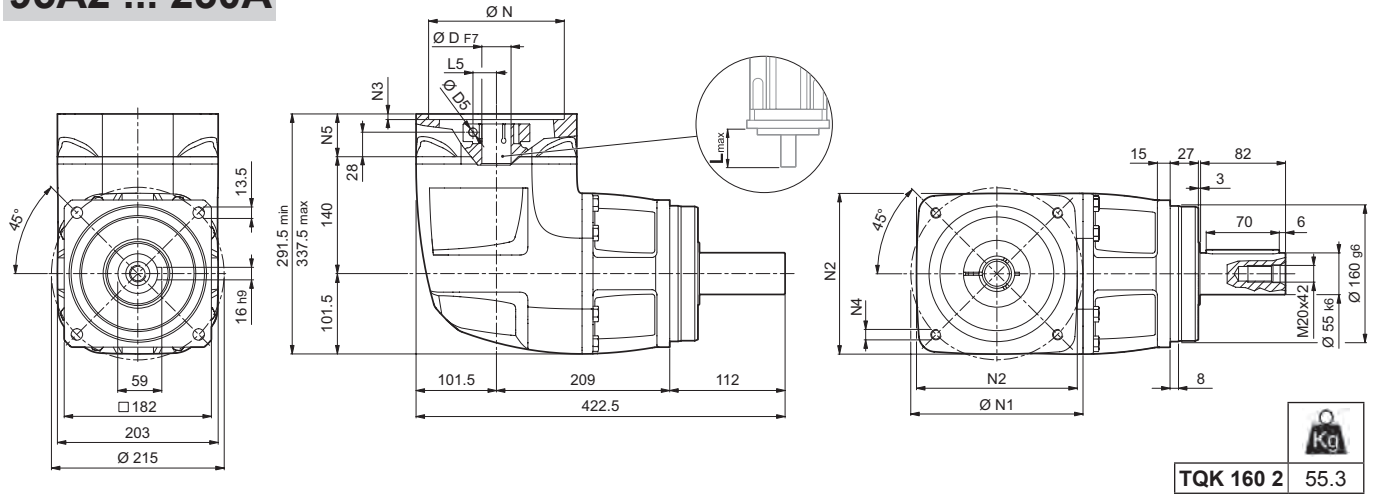
	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
<b>TQK 130 2</b>										
19	54	120	140	M10x16	M6	50	31	7.5	23.5	16.5
24	70	120	140	M10x16	M6	51.5	32.5	7.5	23.5	19
28	70	120	140	M10x16	M8	51.5	32.5	7.5	23.5	22.5
32	72	120	140	M10x16	M8	51.5	32.5	7.5	23.5	24.5
38	100	120	140	M10x16	M8	54	35	7.5	23.5	28
42	114	120	140	M10x16	M10	51.5	38.5	7.5	23.5	33
<b>TQK 130 3</b>										
14	51	90	115	M8x13	M6	50	28	6.5	20.5	14.5
19	51	90	115	M8x13	M6	50	28	6.5	20.5	16.5
24	60	90	115	M8x13	M6	51.5	29.5	6.5	20.5	19
28	72	90	115	M8x13	M8	51.5	29.5	6.5	20.5	22.5
32	72	90	115	M8x13	M8	51.5	29.5	6.5	20.5	24.5
38	80	90	115	M8x13	M8	51.5	29.5	6.5	20.5	28

	i	M <sub>n 2</sub> [Nm]	M <sub>a 2</sub> [Nm]	M <sub>p 2</sub> [Nm]	n <sub>1</sub> [min <sup>-1</sup> ]	n <sub>1 max</sub> [min <sup>-1</sup> ]	φ <sub>S</sub> ≤ [arcmin]	φ <sub>R</sub> [arcmin]	C <sub>t</sub> [Nm/arcmin]	R <sub>2 max</sub> [N]	A <sub>2 max</sub> [N]	η %	J <sub>G</sub> [kgcm <sup>2</sup> ]				
													14	19 - 24	28 - 32	38	42
TQK 130 2_6		255	360	510	2000	4500	5'	4'	56	9000	8000	94	-	17.44	18.02	18.55	24.47
TQK 130 2_8		340	480	680	2000	4500	5'	4'	56	9000	8000	94	-	16.31	16.89	17.41	23.33
TQK 130 2_10		400	600	850	2000	4500	5'	4'	56	9000	8000	94	-	15.77	16.35	16.88	22.80
TQK 130 2_14		360	550	950	2000	4500	5'	4'	56	9000	8000	94	-	15.35	15.93	16.46	22.38
TQK 130 2_20		280	420	900	2000	4500	5'	4'	56	9000	8000	94	-	15.13	15.71	16.23	22.15
TQK 130 3_18		260	400	900	2000	4500	7'	6'	56	9000	8000	91	15.18	15.34	15.92	16.44	-
TQK 130 3_24		400	600	1000	2000	4500	7'	6'	56	9000	8000	91	15.05	15.21	15.79	16.32	-
TQK 130 3_30		400	600	1000	2000	4500	7'	6'	56	9000	8000	91	14.99	15.15	15.73	16.26	-
TQK 130 3_40		400	600	1000	2000	4500	7'	6'	56	9000	8000	91	14.72	14.88	15.46	15.99	-
TQK 130 3_50		400	600	1000	2000	4500	7'	6'	56	9000	8000	91	14.61	14.77	15.35	15.88	-
TQK 130 3_70		400	600	1000	2000	4500	7'	6'	56	9000	8000	91	14.52	14.68	15.25	15.78	-
TQK 130 3_80		400	600	1000	2000	4500	7'	6'	56	9000	8000	91	14.47	14.63	15.21	15.74	-
TQK 130 3_100		400	600	1000	2000	4500	7'	6'	56	9000	8000	91	14.46	14.62	15.20	15.73	-
TQK 130 3_140		360	550	950	2000	4500	7'	6'	56	9000	8000	91	14.46	14.62	15.20	15.73	-
TQK 130 3_200		280	420	900	2000	4500	7'	6'	56	9000	8000	91	14.46	14.62	15.20	15.73	-



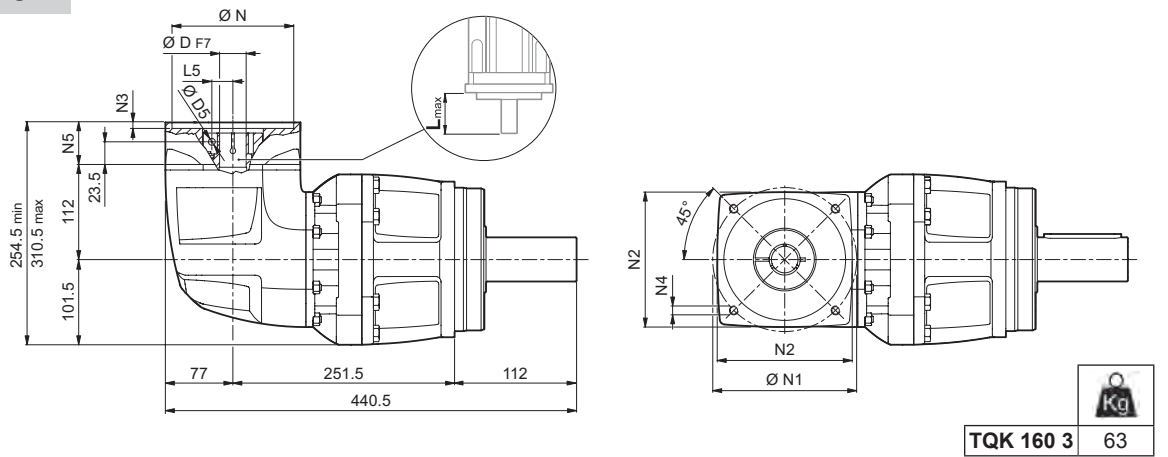
# TQK 160

## 95A2 ... 230A


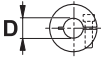


TQK 160 2 55.3

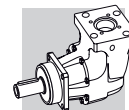
## 80A3 ... 200A



TQK 160 3 63

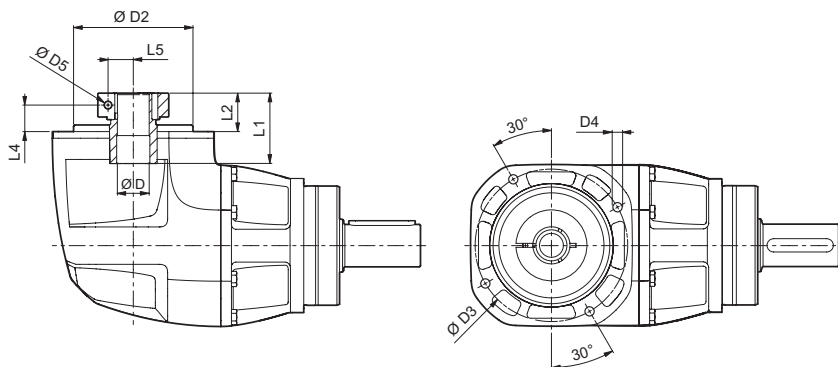
								N	N1	N2	N3	N4	N5	L <sub>max</sub>
	D													
<b>TQ 160 2</b>														
95A2	19	24	28	-	-	-	-	95	115	158	6.5	M8x20	50	60
110A2	19	24	-	-	-	-	-	110	130	158	6.5	M8x20	50	60
130A1	19	24	28	32	-	-	-	130	165	158	6.5	M10x20	50	60
180A	19	24	28	-	-	-	-	180	215	203	6.5	M14x28	50	60
180A1	19	24	28	32	38	-	-	180	215	205	6.5	M14x28	60	80
200A	19	24	28	32	38	42	-	200	235	220	6.5	M14x28	96	110
230A	19	24	28	32	38	42	48	230	265	240	6.5	M14x28	96	110
<b>TQ 160 3</b>														
80A3	19	-	-	-	-	-	-	80	100	130	6.5	M6x14	41	60
95A2	19	24	28	-	-	-	-	95	115	130	6.5	M8x18	41	60
110A2	19	24	-	-	-	-	-	110	130	130	6.5	M8x20	41	60
110B1	19	24	28	-	-	-	-	110	145	130	6.5	M8x20	41	60
130A1	19	24	28	32	-	-	-	130	165	154	6.5	M10x20	41	60
180A	19	24	28	32	-	-	-	180	215	190	6.5	M14x28	41	60
180A1	19	24	28	32	38	-	-	180	215	190	6.5	M14x28	61	80
200A	19	24	28	32	38	42	-	200	235	210	6.5	M14x28	97	110

Please contact us for other motor adapters and input shaft bore.

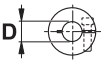


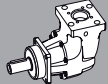

# TQK 160

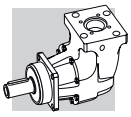
FM



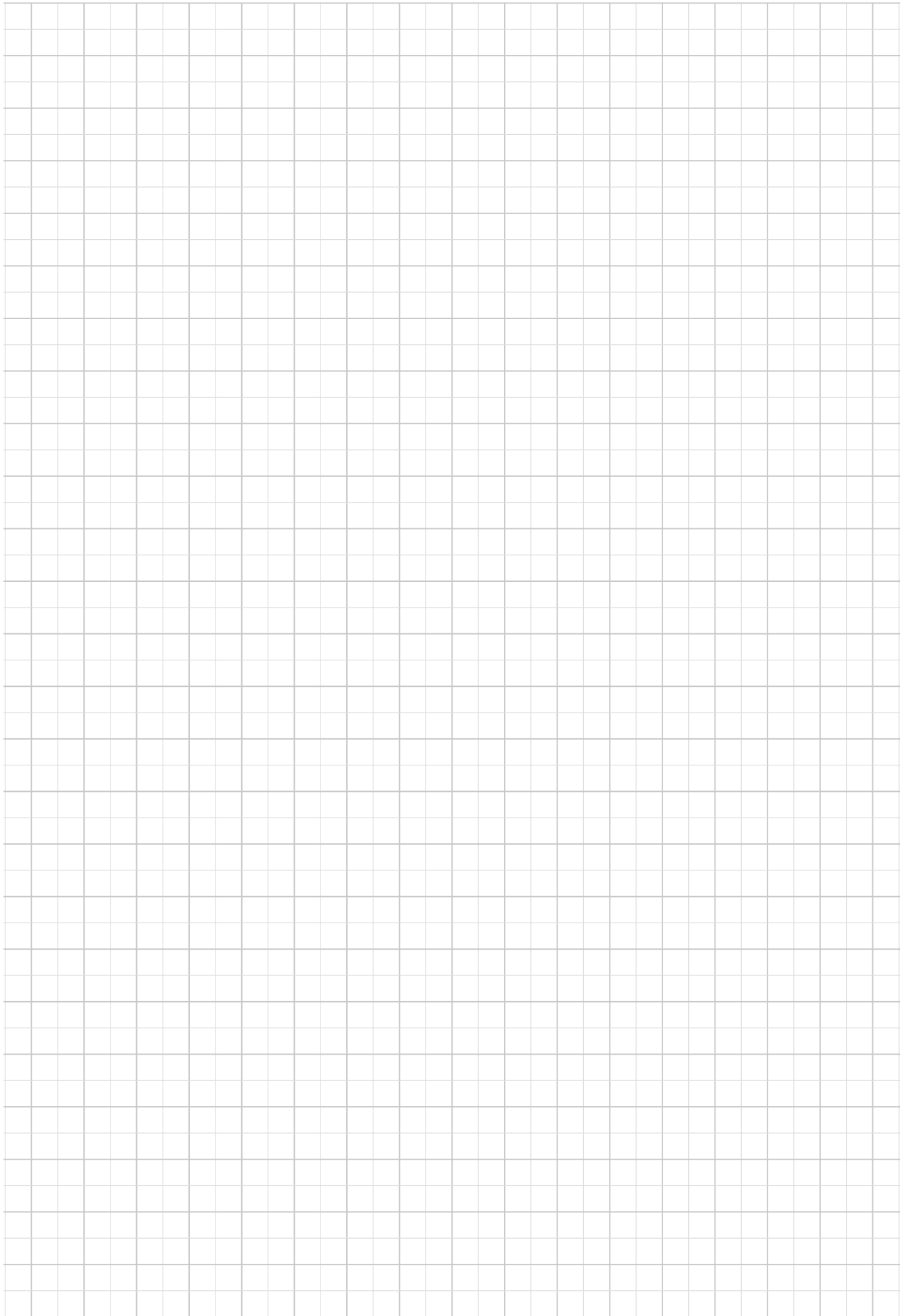
TQK

	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
<b>TQ 160 2</b>										
24	58	150	175	M12x20	M6	47	37	9.5	28	19
28	70	150	175	M12x20	M8	47	37	9.5	28	22.5
32	72	150	175	M12x20	M8	47	37	9.5	28	24.5
38	100	150	175	M12x20	M8	59.5	39.5	9.5	28	28
42	114	150	175	M12x20	M10	57	43	9.5	28	33
48	125	150	175	M12x20	M12	57	43	9.5	28	36.5
<b>TQ 160 3</b>										
19	54	120	140	M10x16	M6	50	31	7.5	23.5	16.5
24	70	120	140	M10x16	M6	51.5	32.5	7.5	23.5	19
28	70	120	140	M10x16	M8	51.5	32.5	7.5	23.5	22.5
32	72	120	140	M10x16	M8	51.5	32.5	7.5	23.5	24.5
38	100	120	140	M10x16	M8	54	35	7.5	23.5	28
42	114	120	140	M10x16	M10	51.5	38.5	7.5	23.5	33

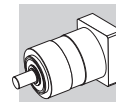
	i	M <sub>n 2</sub> [Nm]	M <sub>a 2</sub> [Nm]	M <sub>p 2</sub> [Nm]	n <sub>1</sub> [min <sup>-1</sup> ]	n <sub>1 max</sub> [min <sup>-1</sup> ]	$\varphi_S$ [arcmin]	$\varphi_R$ [arcmin]	C <sub>t</sub> [ $\frac{Nm}{arcmin}$ ]	R <sub>2 max</sub> [N]	A <sub>2 max</sub> [N]	$\eta$ %	J <sub>G</sub> [kgcm <sup>2</sup> ]				
														19	24 - 28	32 - 38	42
TQK 160 2_6		420	630	840	1600	4000	5'	4'	167	15000	13000	94	-	73.33	73.51	75.57	79.19
TQK 160 2_8		560	840	1120	1600	4000	5'	4'	167	15000	13000	94	-	69.49	69.66	71.73	75.34
TQK 160 2_10		700	1050	1400	1600	4000	5'	4'	167	15000	13000	94	-	67.98	68.16	70.22	73.83
TQK 160 2_14		750	1150	2000	1600	4000	5'	4'	167	15000	13000	94	-	66.68	66.85	68.92	72.53
TQK 160 2_20		550	850	1600	1600	4000	5'	4'	167	15000	13000	94	-	65.94	66.12	68.18	71.80
TQK 160 3_18		530	800	1500	1600	4000	7'	6'	167	15000	13000	91	66.84	67.17	67.34	69.41	-
TQK 160 3_24		800	1200	2000	1600	4000	7'	6'	167	15000	13000	91	66.47	66.79	66.97	69.03	-
TQK 160 3_30		800	1200	2000	1600	4000	7'	6'	167	15000	13000	91	66.30	66.63	66.80	68.87	-
TQK 160 3_40		800	1200	2000	1600	4000	7'	6'	167	15000	13000	91	65.41	65.73	65.91	67.97	-
TQK 160 3_50		800	1200	2000	1600	4000	7'	6'	167	15000	13000	91	64.99	65.32	65.49	67.56	-
TQK 160 3_70		800	1200	2000	1600	4000	7'	6'	167	15000	13000	91	64.67	65.00	65.17	67.24	-
TQK 160 3_80		800	1200	2000	1600	4000	7'	6'	167	15000	13000	91	64.51	64.84	65.01	67.08	-
TQK 160 3_100		800	1200	2000	1600	4000	7'	6'	167	15000	13000	91	64.49	64.82	65.00	67.06	-
TQK 160 3_140		750	1150	2000	1600	4000	7'	6'	167	15000	13000	91	64.48	64.81	64.99	67.05	-
TQK 160 3_200		550	850	1600	1600	4000	7'	6'	167	15000	13000	91	64.47	64.80	64.98	67.04	-



**TQK**



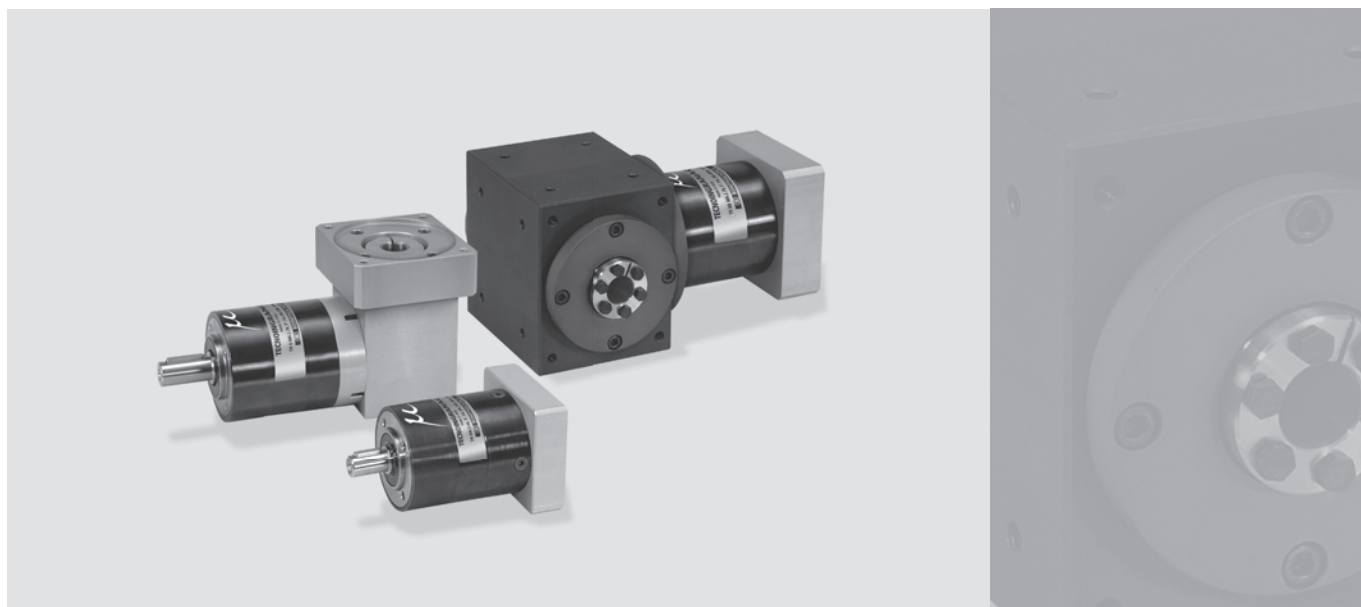




## TR PLANETARY PRECISION GEARBOX

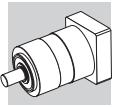
TR planetary precision gearboxes are landmark for extremely reduced backlash, optimal performance, silent operation and facilitated motor assembly along with top reliability.

Available in different configuration (with input right angle; with output right angle and hollow shaft; with solid input shaft), and servo-adapters to comply with most servomotors mechanical interface from the market.



### Product Line Up:

- Higher Torque Density
- Higher Acceleration and Nominal Torques
- Higher Radial and Axial loading capacities
- Designed for Cyclic and continuous duty
- Higher Torsional Stiffness
- Higher precision due to geometrical backlash less than 3 arcmin
- Quiet running
- Highest flexibility (low / reduced backlash; standard / reinforced bearings; different constructive version) to match with your specific requirement.



## 4 FEATURES OF TR SERIES

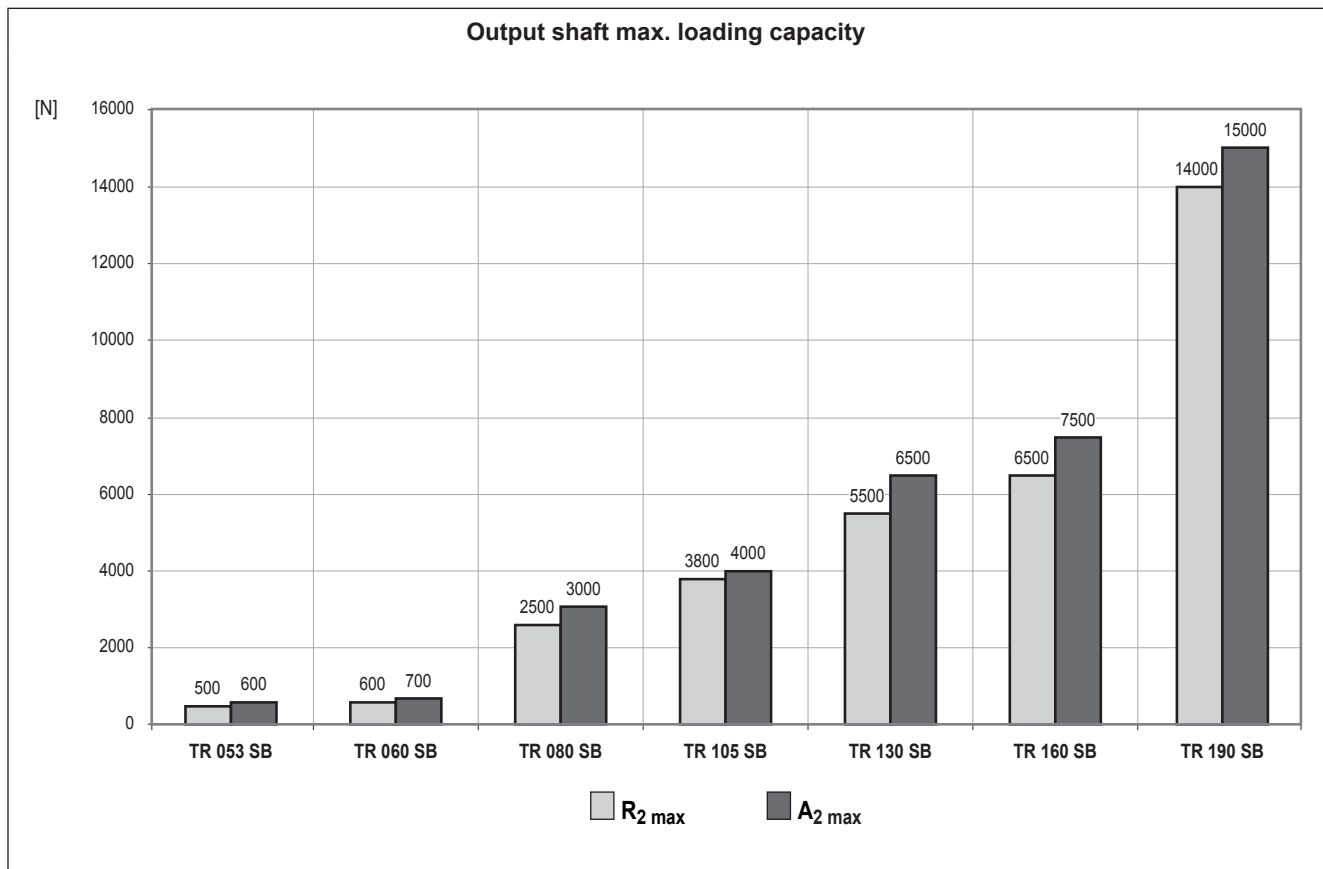
Planetary gear units of the TR series belong to a range of low backlash drives very broad and complete as far as transmissible torque, gear ratios and circumferential backlash.

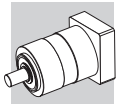
All units are generously proportioned to run quietly and provide a long service life without maintenance requirements.

Motor mounting is an operation that can be easily conducted without the need of any particular tooling, other than that usually available in a normally equipped workshop.

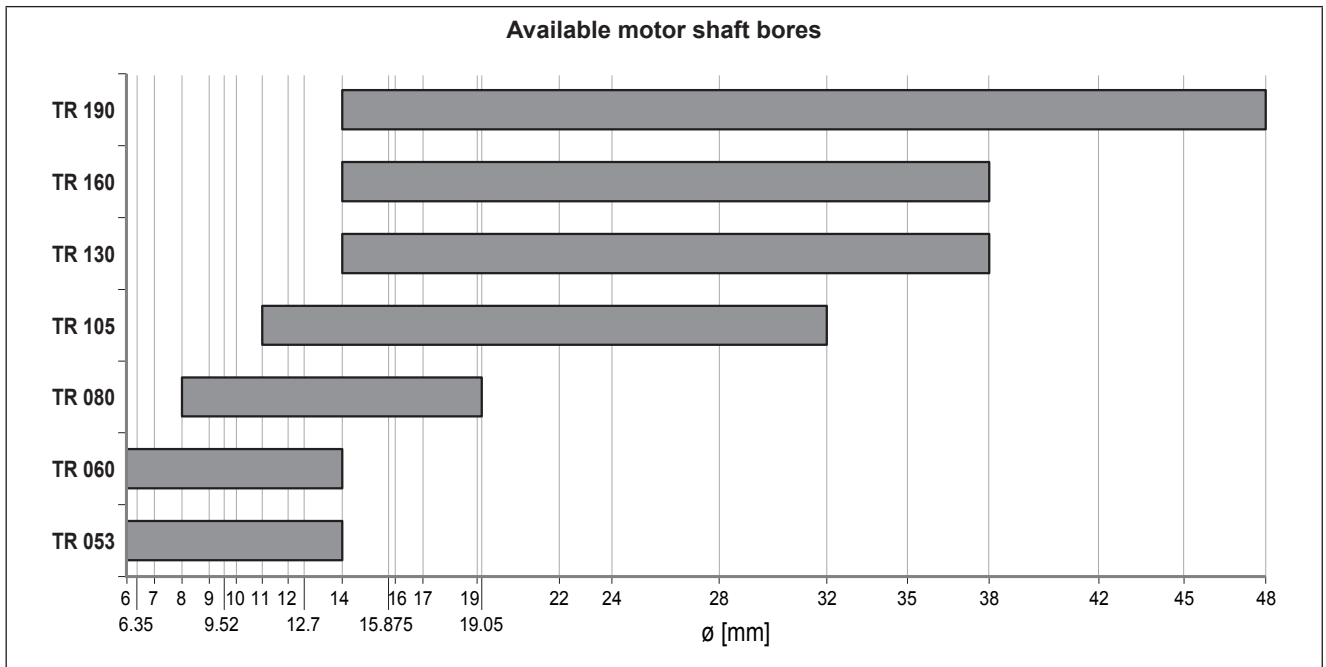
- Available with either standard (STD) or reduced (LOW) backlash:
  - 1-stage units: standard  $\Phi_s \leq 5'$ ; reduced  $\Phi_R \leq 3'$
  - 2-stage units: standard  $\Phi_s \leq 5'$ ; reduced  $\Phi_R \leq 3'$
  - 3-stage units (G and MB only): standard  $\Phi_R \leq 5'$ ; reduced  $\Phi_R \leq 3'$
  - 3-stage units: standard  $\Phi_s \leq 7'$ ; reduced  $\Phi_R \leq 5'$
  - 4-stage units (G and MB only): standard  $\Phi_s \leq 7'$ ; reduced  $\Phi_R \leq 5'$
- A high IP rating (IP65) provides inner parts with protection against the ingress of dust and liquids.
- Input section oil seals made from a Fluoroelastomer compound are supplied as standard.
- Noise pressure level  $L_P \leq 70$  dB(A). Conditions: distance 1 m; measured without load an input speed of  $n_1 = 3000$  min<sup>-1</sup>;  $i=10$ .
- Bearings suitably rated for an average service life of 20,000 hours under nominal operating conditions. The following chart shows the types of bearings for the output shaft.

	TR 053	TR 060	TR 080	TR 105	TR 130	TR 160	TR 190
SB							





- Wide range of adapter flanges matching the most popular brands of motors.

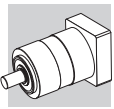


- Lubrication optimized for the type of duty specified when ordering.  
In the absence of contamination the lubricant requires no periodical changes.

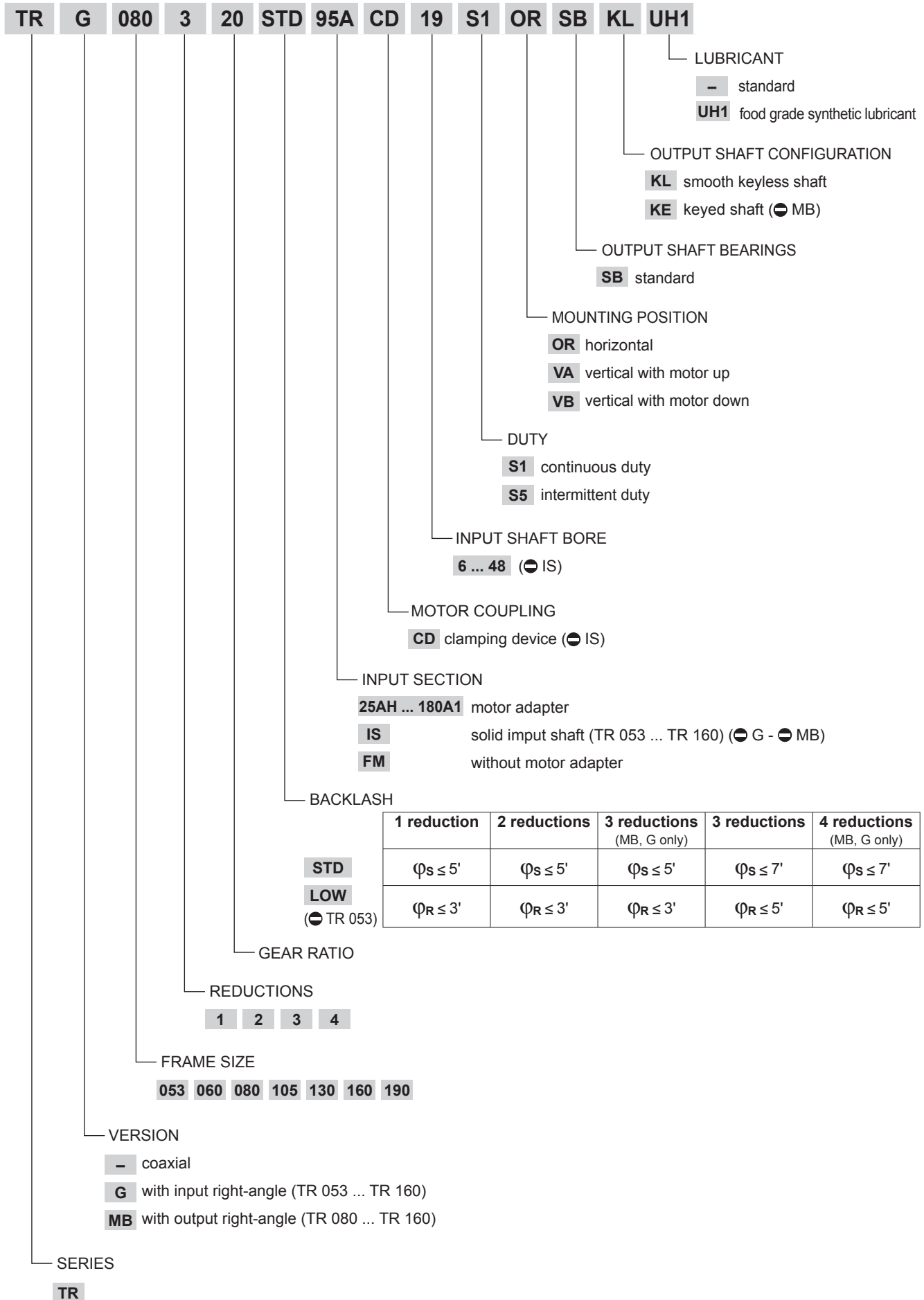
duty	TR 053 - TR 060	TR 080 ... TR 190	oil seals
<b>S1</b> (continuous)	NLGI grease consistency 00	Synthetic oil viscosity ISO VG 220	Fluoroelastomer
<b>S5</b> (intermittent)		NLGI grease consistency 00	NBR

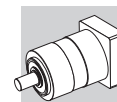
- Ambient temperature min -20°C, max +30°C. For temperature higher than 30°C please consider derating factor  $f_t$ .
- Housing temperature must not exceed  $T_{max} = 90^\circ\text{C}$ .

		Distribution of nominal torque $M_{n2}$ [Nm]																											
	[I]	3	4	5	6	7	9	10	12	15	16	20	25	28	30	35	36	40	45	48	50	60	64	70	75	80	81	84	90
<b>TR 053</b>		12	15	15	15	15	12	-	20	20	20	20	20	20	-	20	15	-	20	20	-	20	20	-	20	20	12	20	-
<b>TR 060</b>		18	25	25	25	25	18	18	30	30	30	30	30	30	18	30	25	30	-	30	30	-	30	30	30	30	-	30	18
<b>TR 080</b>		40	50	50	50	50	40	40	70	70	70	70	70	70	40	70	50	70	-	70	70	-	70	70	70	70	-	70	40
<b>TR 105</b>		100	140	140	140	140	100	100	170	170	170	170	170	170	100	170	140	170	-	170	170	-	170	170	170	170	-	170	100
<b>TR 130</b>		215	380	380	380	380	215	215	450	450	450	450	450	450	215	450	380	450	-	450	450	-	450	450	450	450	-	450	215
<b>TR 160</b>		350	500	500	500	500	350	350	700	700	700	700	700	700	350	700	500	700	-	700	700	-	700	700	700	700	-	700	350
<b>TR 190</b>		500	700	700	700	700	500	500	1000	1000	1000	1000	1000	1000	500	1000	700	1000	-	1000	1000	-	1000	1000	1000	1000	-	1000	500
	[II]	100	112	120	125	140	144	150	160	175	180	200	210	216	225	245	250	252	280	324	350	400	405	500	567	700	729	1000	
<b>TR 053</b>		20	20	-	20	20	20	-	-	20	20	-	-	20	20	20	-	20	-	20	-	-	20	-	20	-	12	-	
<b>TR 060</b>		18	-	30	30	30	-	30	30	30	-	30	30	30	-	-	30	-	30	-	30	30	-	30	-	30	-	18	
<b>TR 080</b>		40	-	70	70	70	-	70	70	70	-	70	70	70	-	-	70	-	70	-	70	70	-	70	-	70	-	40	
<b>TR 105</b>		100	-	170	170	170	-	170	170	170	-	170	170	170	-	-	170	-	170	-	170	170	-	170	-	170	-	100	
<b>TR 130</b>		215	-	450	450	450	-	450	450	450	-	450	450	450	-	-	450	-	450	-	450	450	-	450	-	450	-	215	
<b>TR 160</b>		350	-	500	500	500	-	500	500	500	-	500	500	500	-	-	500	-	500	-	500	500	-	500	-	500	-	350	
<b>TR 190</b>		500	-	700	700	700	-	700	700	700	-	700	700	700	-	-	700	-	700	-	700	700	-	700	-	700	-	500	



## 4.1 ORDERING CODE





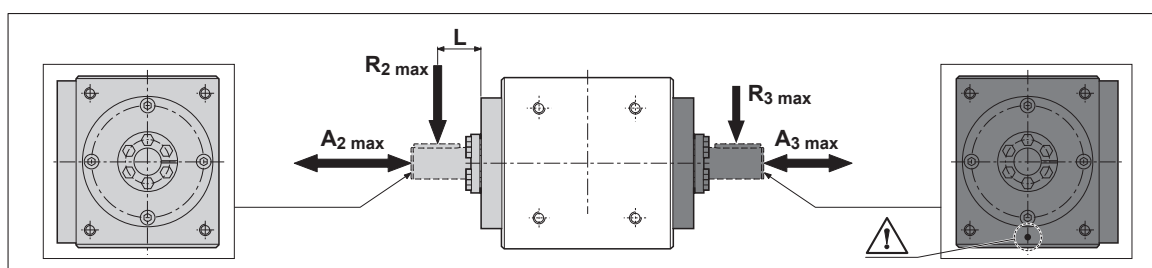
#### 4.1.1 VERSION AND INPUT SECTION

INPUT SECTION	VERSION		
	coaxial (—)	with input right-angle (G)	with output right-angle (MB)
25AH ... 180A1			
IS		—	—
FM			

#### 4.1.2 MOUNTING POSITIONS

	OR	VA	VB
—			
G			
MB			

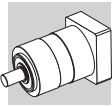
#### 4.2 ADMISSIBLE RADIAL AND THRUST FORCES FOR MB VERSION



	$R_2 \text{ max}$ [N]	$A_2 \text{ max}$ [N]	L [mm]	$R_3 \text{ max}$ [N]	$A_3 \text{ max}$ [N]
TR MB 080	6000	5000	60	5500	5000
TR MB 105	9000	7500	80	7500	7500
TR MB 130	13500	11500	100	11000	11500
TR MB 160*	15000	11500	100	12500	11500

\* Bearings suitably rated for an average service life of 10,000 hours under nominal operating conditions.

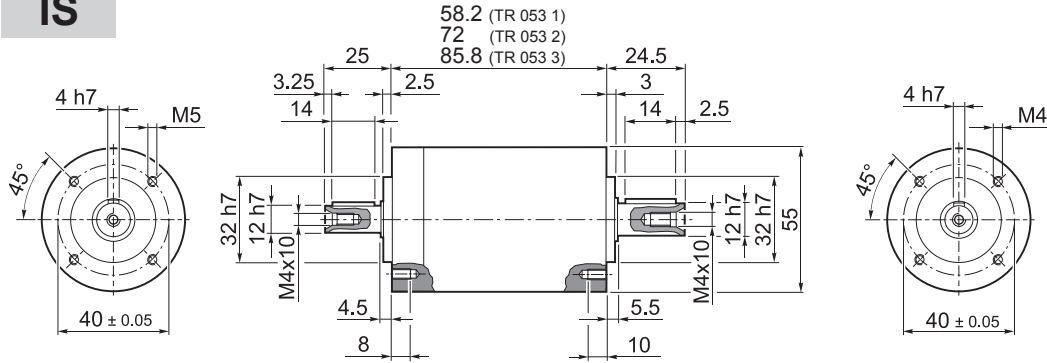
TR



### 4.3 DIMENSIONS AND TECHNICAL SPECIFICATIONS

## TR 053

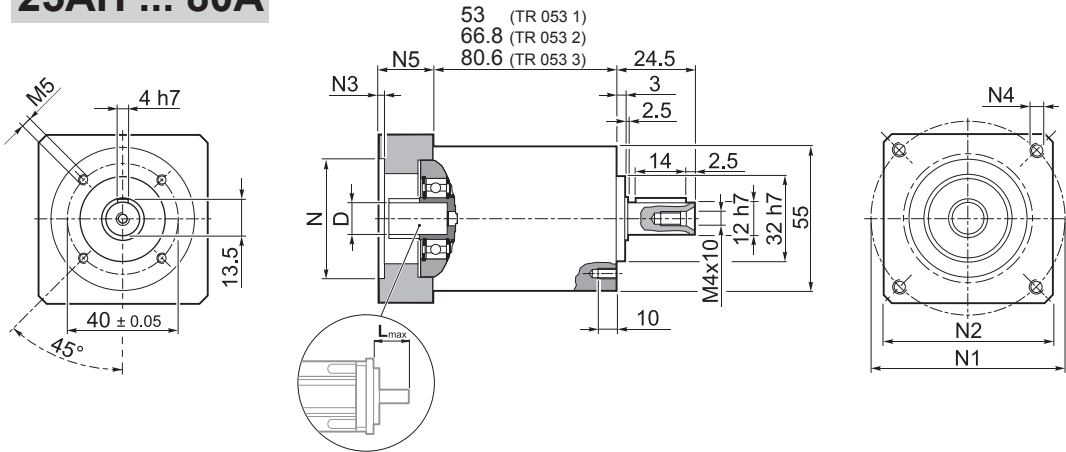
IS



TR 053 1	0.8
TR 053 2	1.0
TR 053 3	1.3

TR

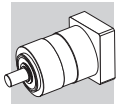
### 25AH ... 80A



TR 053 1	0.8
TR 053 2	1.0
TR 053 3	1.3

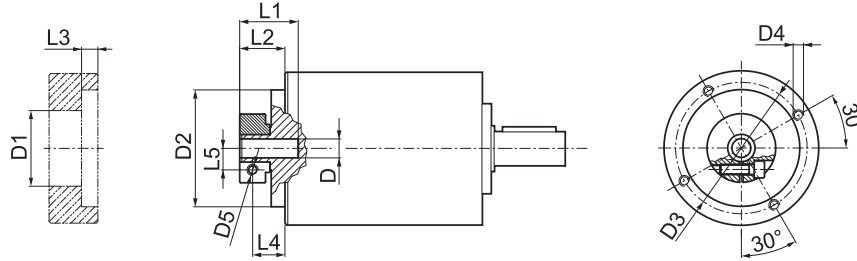
											N	N1		N2	N3	N4	N5	L <sub>max</sub>	
	6	6.35	7	8	9	9.52	-	-	-	-		min	max						
25AH	6	6.35	7	8	9	9.52	-	-	-	-	25	36	48	55	3.5	4.5	25	25	
26AH	6	6.35	7	8	9	9.52	-	-	-	-	26	36	48						
28AH	6	6.35	7	8	9	9.52	-	-	-	-	28	36	48						
30AH	6	6.35	7	8	9	9.52	-	-	-	-	30	36	48						
32AH	6	6.35	7	8	9	9.52	-	-	-	-	32	38	48						
34AH	6	6.35	7	8	9	9.52	-	-	-	-	34	40	48						
36AH	6	6.35	7	8	9	9.52	-	-	-	-	36	42	48						
38AH	6	6.35	7	8	9	9.52	-	-	-	-	38	44	48						
40AH	6	6.35	7	8	9	9.52	-	-	-	-	40	46	48						
38B	6	6.35	7	8	9	9.52	10	11	12	12.7	-	38.1	66.6		60	3	M4x10	18	25
40B	6	6.35	7	8	9	9.52	10	11	12	12.7	-	40	63		60	3	M4x10	18	25
50A	6	6.35	7	8	9	9.52	10	11	12	12.7	-	50	60		60	3	M4x10	18	25
50B	6	6.35	7	8	9	9.52	10	11	12	12.7	14	50	65		60	3	M5x12	23	30
50BH	6	6.35	7	8	9	9.52	10	11	12	12.7	14	50	65		60	4	5.5	23	30
50C	6	6.35	7	8	9	9.52	10	11	12	12.7	14	50	70		60	3	M4x10	23	30
50MH	6	6.35	7	8	9	9.52	10	11	12	12.7	-	50	65		55	2	5.5	16	23
60A	6	6.35	7	8	9	9.52	10	11	12	12.7	-	60	75		63	3	M5x12	18	25
60AH	6	6.35	7	8	9	9.52	10	11	12	12.7	-	60	75		65	3	5.5	18	25
60A1	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	75		63	3	M5x12	23	30
60AH1	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	75		65	3	5.5	23	30
60B	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	85		75	3	M5x12	23	30
60C	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	90		75	3	M5x12	23	30
70A	6	6.35	7	8	9	9.52	10	11	12	12.7	14	70	85		75	3	M6x15	23	30
70B	6	6.35	7	8	9	9.52	10	11	12	12.7	14	70	90		75	3	M5x12	23	30
73A	6	6.35	7	8	9	9.52	10	11	12	12.7	14	73	98.4		85	3	M5x12	25	32
80A	6	6.35	7	8	9	9.52	10	11	12	12.7	14	80	100		85	3	M6x15	23	30

Please contact us for other motor adapters and input shaft bore.

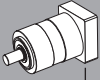



# TR 053

FM

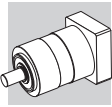


				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
6	6.35	7		32.5	50	42.5	M4x8	M4	20.2	13.2	3	8.7	8
8	9	9.52	10	32.5	50	42.5	M4x8	M4	20.2	13.2	3	7.8	9
11	12	12.7		35.5	50	42.5	M4x8	M4	20.5	13.5	3	8.5	11
14				35.5	50	42.5	M4x8	M4	24	17	3	10.2	11.5

	i	M <sub>n2</sub>	M <sub>a2</sub>	M <sub>p2</sub>	n <sub>1</sub>	n <sub>1 max</sub>	φ <sub>s</sub>	C <sub>t</sub>	R <sub>1 max</sub>	R <sub>2 max</sub>	A <sub>2 max</sub>	η	J <sub>G</sub> [kgcm <sup>2</sup> ]	
		[Nm]	[Nm]	[Nm]	[min <sup>-1</sup> ]	[min <sup>-1</sup> ]	[arcmin]	$\frac{Nm}{arcmin}$	[N]	[N]	[N]	%		6 ... 9.52
TR 053 1_3		12	22	40	3300	4000	5'	1.0	200	500	600	97	0.06	0.08
TR 053 1_4		15	28	45	3500	5000	5'	1.0	200	500	600	97	0.05	0.06
TR 053 1_5		15	28	45	3500	5000	5'	1.0	200	500	600	97	0.04	0.06
TR 053 1_6		15	28	45	3500	5000	5'	1.0	200	500	600	97	0.03	0.05
TR 053 1_7		15	28	45	4000	6000	5'	1.0	200	500	600	97	0.03	0.05
TR 053 1_9		12	22	40	4000	6000	5'	1.0	200	500	600	97	0.03	0.05
TR 053 2_12		20	30	60	3300	4000	5'	0.9	200	500	600	94	0.06	0.08
TR 053 2_15		20	30	60	3300	4000	5'	0.9	200	500	600	94	0.06	0.08
TR 053 2_16		20	30	60	3500	5000	5'	0.9	200	500	600	94	0.05	0.06
TR 053 2_20		20	30	60	3500	5000	5'	0.9	200	500	600	94	0.04	0.06
TR 053 2_25		20	30	60	3500	5000	5'	0.9	200	500	600	94	0.04	0.06
TR 053 2_28		20	30	60	4000	6000	5'	0.9	200	500	600	94	0.03	0.05
TR 053 2_35		20	30	60	4000	6000	5'	0.9	200	500	600	94	0.03	0.05
TR 053 2_36		15	28	45	4000	6000	5'	0.9	200	500	600	94	0.03	0.05
TR 053 2_45		20	30	60	4000	6000	5'	0.9	200	500	600	94	0.03	0.05
TR 053 2_81		12	22	40	3500	6000	5'	0.9	200	500	600	94	0.03	0.05
TR 053 3_48		20	30	60	4000	5000	7'	0.7	200	500	600	91	0.05	0.07
TR 053 3_60		20	30	60	3500	5000	7'	0.7	200	500	600	91	0.05	0.07
TR 053 3_64		20	30	60	3500	5000	7'	0.7	200	500	600	91	0.05	0.06
TR 053 3_75		20	30	60	3500	5000	7'	0.7	200	500	600	91	0.04	0.06
TR 053 3_80		20	30	60	3500	5000	7'	0.7	200	500	600	91	0.05	0.06
TR 053 3_84		20	30	60	4000	6000	7'	0.7	200	500	600	91	0.03	0.05
TR 053 3_100		20	30	60	3500	5000	7'	0.7	200	500	600	91	0.04	0.06
TR 053 3_112		20	30	60	4000	6000	7'	0.7	200	500	600	91	0.03	0.05
TR 053 3_125		20	30	60	3500	5000	7'	0.7	200	500	600	91	0.04	0.06
TR 053 3_140		20	30	60	4000	6000	7'	0.7	200	500	600	91	0.03	0.05
TR 053 3_144		20	30	60	4000	6000	7'	0.7	200	500	600	91	0.03	0.05
TR 053 3_175		20	30	60	4000	6000	7'	0.7	200	500	600	91	0.03	0.05
TR 053 3_180		20	30	60	4000	6000	7'	0.7	200	500	600	91	0.03	0.05
TR 053 3_216		20	30	60	3500	5000	7'	0.7	200	500	600	91	0.03	0.05
TR 053 3_225		20	30	60	4000	6000	7'	0.7	200	500	600	91	0.03	0.05
TR 053 3_245		20	30	60	4000	6000	7'	0.7	200	500	600	91	0.03	0.05
TR 053 3_252		20	30	60	4000	6000	7'	0.7	200	500	600	91	0.05	0.06
TR 053 3_324		20	30	60	4000	6000	7'	0.7	200	500	600	91	0.03	0.05
TR 053 3_405		20	30	60	4000	6000	7'	0.7	200	500	600	91	0.03	0.05
TR 053 3_567		20	30	60	4000	6000	7'	0.7	200	500	600	91	0.03	0.05
TR 053 3_729		12	22	40	4000	6000	7'	0.7	200	500	600	91	0.03	0.05

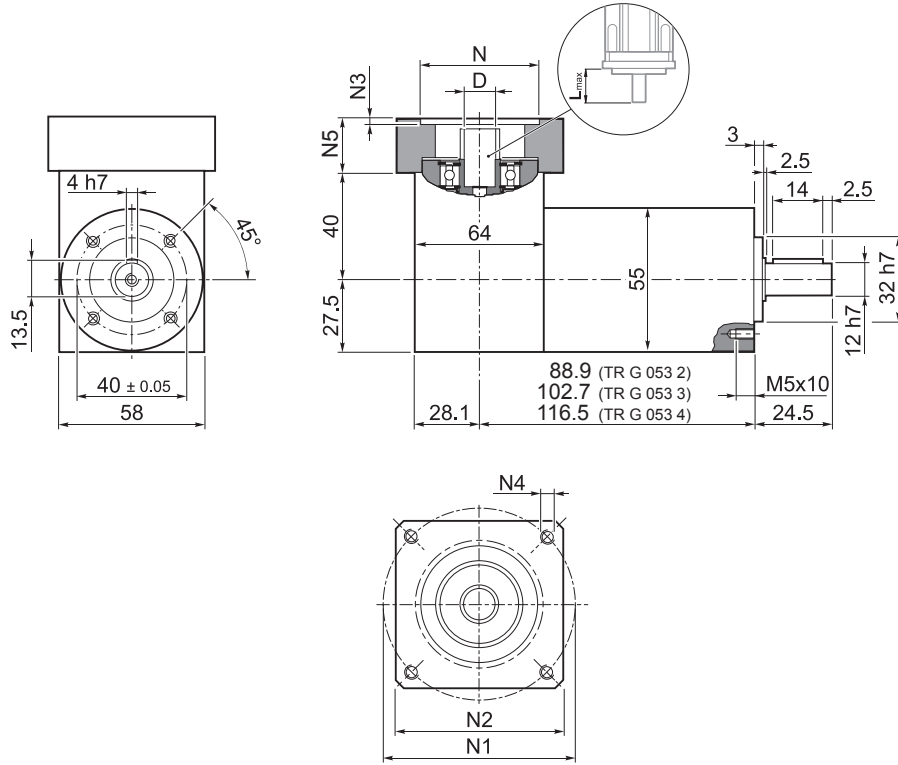
TR





# TR G 053

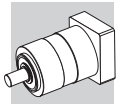
## 25AH ... 80A



TR G 053 2	1.3
TR G 053 3	1.5
TR G 053 4	1.8

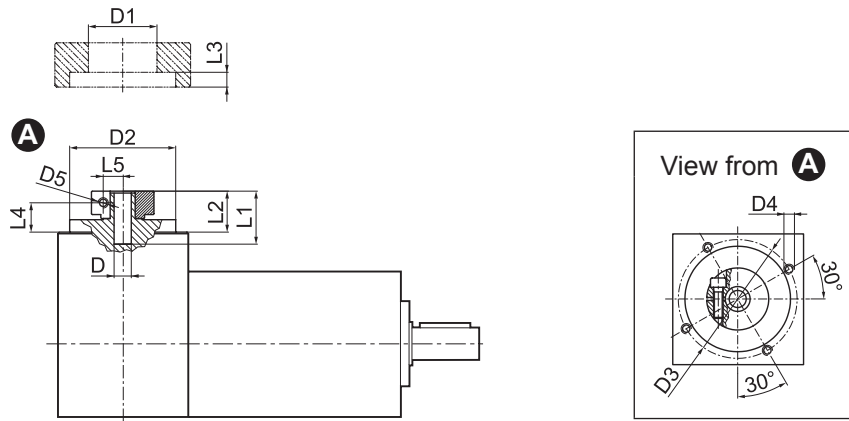
												N	N1		N2	N3	N4	N5	L <sub>max</sub>
	6	6.35	7	8	9	9.52	-	-	-	-	-		min	max					
25AH	6	6.35	7	8	9	9.52	-	-	-	-	-	25	36	48					
26AH	6	6.35	7	8	9	9.52	-	-	-	-	-	26	36	48					
28AH	6	6.35	7	8	9	9.52	-	-	-	-	-	28	36	48					
30AH	6	6.35	7	8	9	9.52	-	-	-	-	-	30	36	48					
32AH	6	6.35	7	8	9	9.52	-	-	-	-	-	32	38	48	55	3.5	4.5	25	25
34AH	6	6.35	7	8	9	9.52	-	-	-	-	-	34	40	48					
36AH	6	6.35	7	8	9	9.52	-	-	-	-	-	36	42	48					
38AH	6	6.35	7	8	9	9.52	-	-	-	-	-	38	44	48					
40AH	6	6.35	7	8	9	9.52	-	-	-	-	-	40	46	48					
38B	6	6.35	7	8	9	9.52	10	11	12	12.7	-	38.1	66.6	60	3	M4x10	18	25	
40B	6	6.35	7	8	9	9.52	10	11	12	12.7	-	40	63	60	3	M4x10	18	25	
50A	6	6.35	7	8	9	9.52	10	11	12	12.7	-	50	60	60	3	M4x10	18	25	
50B	6	6.35	7	8	9	9.52	10	11	12	12.7	14	50	65	60	3	M5x12	23	30	
50BH	6	6.35	7	8	9	9.52	10	11	12	12.7	14	50	65	60	4	5.5	23	30	
50C	6	6.35	7	8	9	9.52	10	11	12	12.7	14	50	70	60	3	M4x10	23	30	
50MH	6	6.35	7	8	9	9.52	10	11	12	12.7	-	50	65	55	2	5.5	16	23	
60A	6	6.35	7	8	9	9.52	10	11	12	12.7	-	60	75	63	3	M5x12	18	25	
60A1	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	75	63	3	M5x12	23	30	
60B	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	85	75	3	M5x12	23	30	
60C	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	90	75	3	M5x12	23	30	
70A	6	6.35	7	8	9	9.52	10	11	12	12.7	14	70	85	75	3	M6x15	23	30	
70B	6	6.35	7	8	9	9.52	10	11	12	12.7	14	70	90	75	3	M5x12	23	30	
73A	6	6.35	7	8	9	9.52	10	11	12	12.7	14	73	98.4	85	3	M5x12	25	32	
80A	6	6.35	7	8	9	9.52	10	11	12	12.7	14	80	100	85	3	M6x15	23	30	

Please contact us for other motor adapters and input shaft bore.



# TR G 053

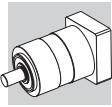
FM



D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
6	6.35	7		32.5	50	42.5	M4x8	M4	20.2	13.2	3	8.7	8
8	9	9.52	10	32.5	50	42.5	M4x8	M4	20.2	13.2	3	7.8	9
11	12	12.7		35.5	50	42.5	M4x8	M4	20.5	13.5	3	8.5	11
14				35.5	50	42.5	M4x8	M4	24	17	3	10.2	11.5

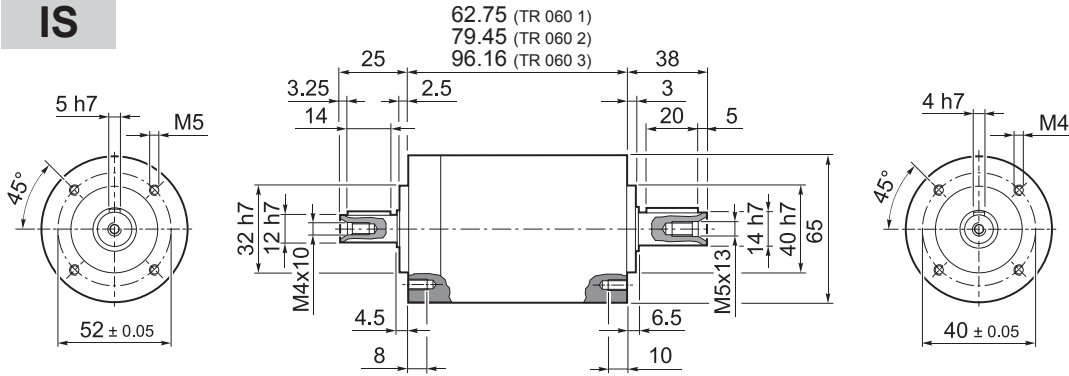
TR


 i	M <sub>n 2</sub>	M <sub>a 2</sub>	M <sub>p 2</sub>	n <sub>1</sub>	n <sub>1 max</sub>	φ <sub>S</sub>	C <sub>t</sub>	R <sub>2 max</sub>	A <sub>2 max</sub>	η	J <sub>G</sub> [kgcm <sup>2</sup> ]	
	[Nm]	[Nm]	[Nm]	[min <sup>-1</sup> ]	[min <sup>-1</sup> ]	[arcmin]	$\left[ \frac{Nm}{arcmin} \right]$	[N]	[N]	%	6 ... 9.52	10 ... 14
TR G 053 2_3	12	22	40	3300	4000	5'	1.0	500	600	94	0.18	0.20
TR G 053 2_4	15	28	45	3500	5000	5'	1.0	500	600	94	0.18	0.19
TR G 053 2_5	15	28	45	3500	5000	5'	1.0	500	600	94	0.17	0.19
TR G 053 2_6	15	28	45	3500	5000	5'	1.0	500	600	94	0.17	0.18
TR G 053 2_7	15	28	45	4000	6000	5'	1.0	500	600	94	0.17	0.19
TR G 053 2_9	12	22	40	4000	6000	5'	1.0	500	600	94	0.17	0.18
TR G 053 3_12	20	30	60	3300	4000	5'	0.9	500	600	91	0.18	0.20
TR G 053 3_15	20	30	60	3300	4000	5'	0.9	500	600	91	0.18	0.20
TR G 053 3_16	20	30	60	3500	5000	5'	0.9	500	600	91	0.17	0.19
TR G 053 3_20	20	30	60	3500	5000	5'	0.9	500	600	91	0.17	0.19
TR G 053 3_25	20	30	60	3500	5000	5'	0.9	500	600	91	0.17	0.19
TR G 053 3_28	20	30	60	4000	6000	5'	0.9	500	600	91	0.17	0.19
TR G 053 3_35	20	30	60	4000	6000	5'	0.9	500	600	91	0.17	0.19
TR G 053 3_36	15	28	45	4000	6000	5'	0.9	500	600	91	0.17	0.18
TR G 053 3_45	20	30	60	4000	6000	5'	0.9	500	600	91	0.17	0.19
TR G 053 3_81	12	22	40	3500	6000	5'	0.9	500	600	91	0.17	0.18
TR G 053 4_48	20	30	60	4000	5000	7'	0.7	500	600	89	0.18	0.19
TR G 053 4_60	20	30	60	3500	5000	7'	0.7	500	600	89	0.18	0.19
TR G 053 4_64	20	30	60	3500	5000	7'	0.7	500	600	89	0.17	0.19
TR G 053 4_75	20	30	60	3500	5000	7'	0.7	500	600	89	0.17	0.19
TR G 053 4_80	20	30	60	3500	5000	7'	0.7	500	600	89	0.17	0.19
TR G 053 4_84	20	30	60	4000	6000	7'	0.7	500	600	89	0.17	0.19
TR G 053 4_100	20	30	60	3500	5000	7'	0.7	500	600	89	0.17	0.19
TR G 053 4_112	20	30	60	4000	6000	7'	0.7	500	600	89	0.17	0.19
TR G 053 4_125	20	30	60	3500	5000	7'	0.7	500	600	89	0.17	0.19
TR G 053 4_140	20	30	60	4000	6000	7'	0.7	500	600	89	0.17	0.19
TR G 053 4_144	20	30	60	4000	6000	7'	0.7	500	600	89	0.17	0.18
TR G 053 4_175	20	30	60	4000	6000	7'	0.7	500	600	89	0.17	0.19
TR G 053 4_180	20	30	60	4000	6000	7'	0.7	500	600	89	0.17	0.18
TR G 053 4_216	20	30	60	3500	5000	7'	0.7	500	600	89	0.17	0.18
TR G 053 4_225	20	30	60	4000	6000	7'	0.7	500	600	89	0.17	0.18
TR G 053 4_245	20	30	60	4000	6000	7'	0.7	500	600	89	0.17	0.19
TR G 053 4_252	20	30	60	4000	6000	7'	0.7	500	600	89	0.18	0.20
TR G 053 4_324	20	30	60	4000	6000	7'	0.7	500	600	89	0.17	0.18
TR G 053 4_405	20	30	60	4000	6000	7'	0.7	500	600	89	0.17	0.18
TR G 053 4_567	20	30	60	4000	6000	7'	0.7	500	600	89	0.17	0.18
TR G 053 4_729	12	22	40	4000	6000	7'	0.7	500	600	89	0.17	0.18



# TR 060

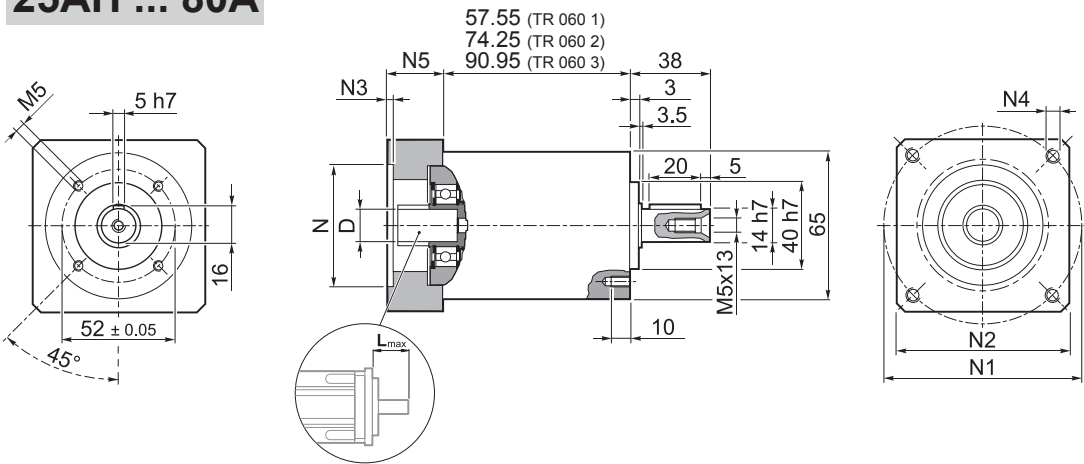
## IS





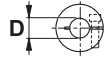
	
TR 060 1	1.2
TR 060 2	1.7
TR 060 3	2.0

## TR

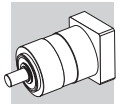
## 25AH ... 80A



	
TR 060 1	1.2
TR 060 2	1.7
TR 060 3	2.0

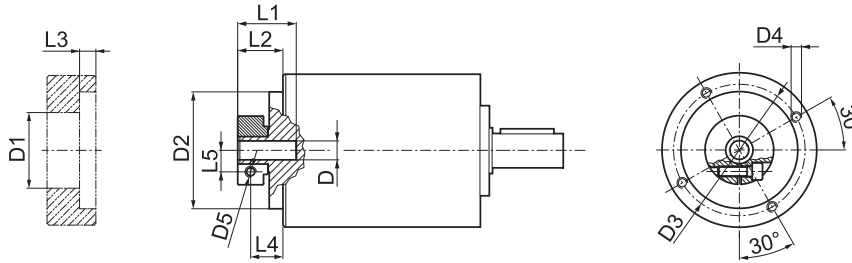
															N	N1		N2	N3	N4	N5	L <sub>max</sub>	
	6	6.35	7	8	9	9.52	-	-	-	-	-	-	-	-		min	max						
25AH	6	6.35	7	8	9	9.52	-	-	-	-	-	-	-	-	25	39	56						
26AH	6	6.35	7	8	9	9.52	-	-	-	-	-	-	-	-	26	39	56						
28AH	6	6.35	7	8	9	9.52	-	-	-	-	-	-	-	-	28	39	56						
30AH	6	6.35	7	8	9	9.52	-	-	-	-	-	-	-	-	30	39	56						
32AH	6	6.35	7	8	9	9.52	-	-	-	-	-	-	-	-	32	39	56	65	3.5	4.5	25	25	
34AH	6	6.35	7	8	9	9.52	-	-	-	-	-	-	-	-	34	40	56						
36AH	6	6.35	7	8	9	9.52	-	-	-	-	-	-	-	-	36	42	56						
39AH	6	6.35	7	8	9	9.52	-	-	-	-	-	-	-	-	39	45	56						
40AH	6	6.35	7	8	9	9.52	-	-	-	-	-	-	-	-	40	46	56						
38B	6	6.35	7	8	9	9.52	10	11	12	12.7	-	-	-	-	38.1	66.6	60	60	3	M4x10	18	25	
40B	6	6.35	7	8	9	9.52	10	11	12	12.7	-	-	-	-	40	63	60	60	3	M4x10	18	25	
50A	6	6.35	7	8	9	9.52	10	11	12	12.7	-	-	-	-	50	60	60	60	3	M4x10	18	25	
50B	6	6.35	7	8	9	9.52	10	11	12	12.7	14	-	-	-	50	65	60	60	3	M5x12	23	30	
50BH	6	6.35	7	8	9	9.52	10	11	12	12.7	14	-	-	-	50	65	65	60	3	5.5	25	32	
50C	6	6.35	7	8	9	9.52	10	11	12	12.7	14	-	-	-	50	70	60	60	3	M4x10	23	30	
55MH	6	6.35	7	8	9	9.52	10	11	12	12.7	-	-	-	-	55	80	65	60	2	5.5	16	23	
60A	6	6.35	7	8	9	9.52	10	11	12	12.7	-	-	-	-	60	75	63	60	3	M5x12	18	25	
60AH	6	6.35	7	8	9	9.52	10	11	12	12.7	-	-	-	-	60	75	65	60	3	5.5	18	25	
60A1	6	6.35	7	8	9	9.52	10	11	12	12.7	14	-	-	-	60	75	63	60	3	M5x12	23	30	
60AH1	6	6.35	7	8	9	9.52	10	11	12	12.7	14	-	-	-	60	75	65	60	3	5.5	23	30	
60B	6	6.35	7	8	9	9.52	10	11	12	12.7	14	-	-	-	60	85	75	60	3	M5x12	23	30	
60C	6	6.35	7	8	9	9.52	10	11	12	12.7	14	-	-	-	60	90	75	60	3	M5x12	23	30	
70A	6	6.35	7	8	9	9.52	10	11	12	12.7	14	-	-	-	70	85	75	60	3	M6x15	23	30	
70B	6	6.35	7	8	9	9.52	10	11	12	12.7	14	-	-	-	70	90	75	60	3	M5x12	23	30	
73A	6	6.35	7	8	9	9.52	10	11	12	12.7	14	-	-	-	73	98.4	85	60	3	M5x12	25	32	
80A	6	6.35	7	8	9	9.52	10	11	12	12.7	14	-	-	-	80	100	85	60	3	M6x15	23	30	

Please contact us for other motor adapters and input shaft bore.




# TR 060

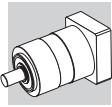
FM



D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
6	6.35	7		32.5	50	42.5	M4x8	M4	20.2	13.2	3	8.7	8
8	9	9.52	10	32.5	50	42.5	M4x8	M4	20.2	13.2	3	7.8	9
11	12	12.7		35.5	50	42.5	M4x8	M4	20.5	13.5	3	8.5	11
14				35.5	50	42.5	M4x8	M4	24	17	3	10.2	11.5

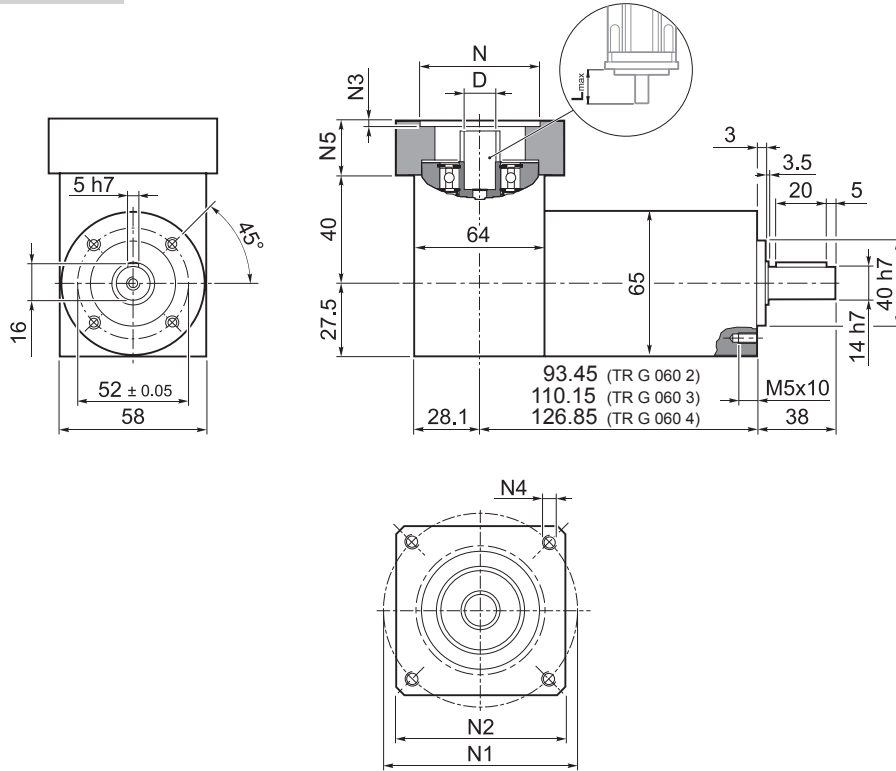
 i	M <sub>n 2</sub>	M <sub>a 2</sub>	M <sub>p 2</sub>	n <sub>1</sub>	n <sub>1 max</sub>	Φ <sub>S</sub>	Φ <sub>R</sub>	C <sub>t</sub>	R <sub>1 max</sub>	R <sub>2 max</sub>	A <sub>2 max</sub>	η	J <sub>G</sub> [kgcm <sup>2</sup> ]	
	[Nm]	[Nm]	[Nm]	[min <sup>-1</sup> ]	[min <sup>-1</sup> ]	[arcmin]	[arcmin]	$\frac{Nm}{arcmin}$	[N]	[N]	[N]	%	6 ... 9.52	10 ... 14
TR 060 1_3	18	35	70	3300	4000	5'	3'	3.0	200	600	700	97	0.10	0.11
TR 060 1_4	25	40	90	3500	5000	5'	3'	3.0	200	600	700	97	0.06	0.08
TR 060 1_5	25	40	90	3500	5000	5'	3'	3.0	200	600	700	97	0.05	0.07
TR 060 1_6	25	40	90	3500	5000	5'	3'	3.0	200	600	700	97	0.04	0.06
TR 060 1_7	25	40	90	4000	6000	5'	3'	3.0	200	600	700	97	0.04	0.06
TR 060 1_10	18	35	70	4000	6000	5'	3'	3.0	200	600	700	97	0.03	0.05
TR 060 2_9	18	35	70	3300	4000	5'	3'	2.5	200	600	700	94	0.10	0.12
TR 060 2_12	30	45	100	3300	4000	5'	3'	2.5	200	600	700	94	0.10	0.11
TR 060 2_15	30	45	100	3300	4000	5'	3'	2.5	200	600	700	94	0.09	0.11
TR 060 2_16	30	45	100	3500	5000	5'	3'	2.5	200	600	700	94	0.06	0.08
TR 060 2_20	30	45	100	3500	5000	5'	3'	2.5	200	600	700	94	0.05	0.07
TR 060 2_25	30	45	100	3500	5000	5'	3'	2.5	200	600	700	94	0.05	0.06
TR 060 2_28	30	45	100	4000	6000	5'	3'	2.5	200	600	700	94	0.04	0.06
TR 060 2_30	18	35	70	4000	6000	5'	3'	2.5	200	600	700	94	0.03	0.05
TR 060 2_35	30	45	100	4000	6000	5'	3'	2.5	200	600	700	94	0.04	0.06
TR 060 2_36	25	40	90	3500	5000	5'	3'	2.5	200	600	700	94	0.04	0.06
TR 060 2_40	30	45	100	4000	6000	5'	3'	2.5	200	600	700	94	0.03	0.05
TR 060 2_50	30	45	100	4000	6000	5'	3'	2.5	200	600	700	94	0.03	0.05
TR 060 2_70	30	45	100	4000	6000	5'	3'	2.5	200	600	700	94	0.03	0.05
TR 060 2_100	18	35	70	4000	6000	5'	3'	2.5	200	600	700	94	0.03	0.05
TR 060 3_48	30	45	100	3500	5000	7'	5'	2.0	200	600	700	91	0.06	0.08
TR 060 3_64	30	45	100	3500	5000	7'	5'	2.0	200	600	700	91	0.06	0.08
TR 060 3_75	30	45	100	350	5000	7'	5'	2.0	200	600	700	91	0.05	0.07
TR 060 3_80	30	45	100	3500	5000	7'	5'	2.0	200	600	700	91	0.06	0.08
TR 060 3_84	30	45	100	4000	6000	7'	5'	2.0	200	600	700	91	0.04	0.06
TR 060 3_90	18	35	70	4000	6000	7'	5'	2.0	200	600	700	91	0.03	0.05
TR 060 3_120	30	45	100	4000	6000	7'	5'	2.0	200	600	700	91	0.03	0.05
TR 060 3_125	30	45	100	3500	5000	7'	5'	2.0	200	600	700	91	0.05	0.07
TR 060 3_140	30	45	100	4000	6000	7'	5'	2.0	200	600	700	91	0.04	0.06
TR 060 3_150	30	45	100	4000	6000	7'	5'	2.0	200	600	700	91	0.03	0.05
TR 060 3_160	30	45	100	4000	6000	7'	5'	2.0	200	600	700	91	0.03	0.05
TR 060 3_175	30	45	100	4000	6000	7'	5'	2.0	200	600	700	91	0.04	0.06
TR 060 3_200	30	45	100	4000	6000	7'	5'	2.0	200	600	700	91	0.03	0.05
TR 060 3_210	30	45	100	4000	6000	7'	5'	2.0	200	600	700	91	0.03	0.05
TR 060 3_216	30	45	100	3500	5000	7'	5'	2.0	200	600	700	91	0.04	0.06
TR 060 3_250	30	45	100	4000	6000	7'	5'	2.0	200	600	700	91	0.03	0.05
TR 060 3_280	30	45	100	4000	6000	7'	5'	2.0	200	600	700	91	0.03	0.05
TR 060 3_350	30	45	100	4000	6000	7'	5'	2.0	200	600	700	91	0.03	0.05
TR 060 3_400	30	45	100	4000	6000	7'	5'	2.0	200	600	700	91	0.03	0.05
TR 060 3_500	30	45	100	4000	6000	7'	5'	2.0	200	600	700	91	0.03	0.05
TR 060 3_700	30	45	100	4000	6000	7'	5'	2.0	200	600	700	91	0.03	0.05
TR 060 3_1000	18	35	70	4000	6000	7'	5'	2.0	200	600	700	91	0.03	0.05

TR



# TR G 060

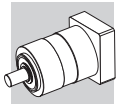
## 25AH ... 80A



TR

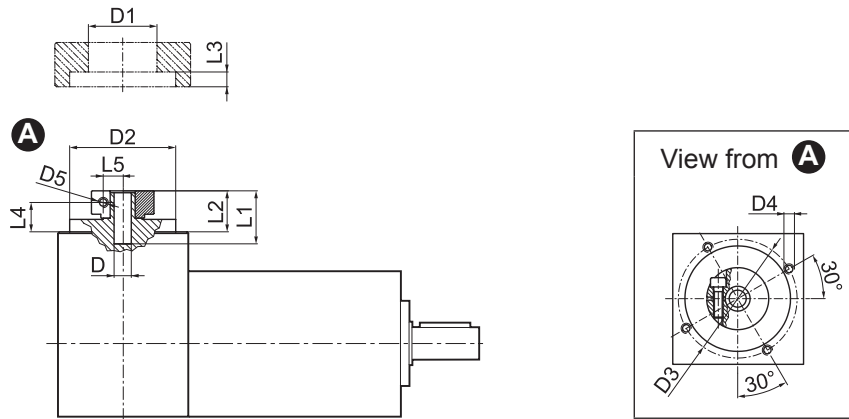
	D											N	N1		N2	N3	N4	N5	L <sub>max</sub>
	6	6.35	7	8	9	9.52	-	-	-	-	-		min	max					
25AH	6	6.35	7	8	9	9.52	-	-	-	-	-	25	39	56					
26AH	6	6.35	7	8	9	9.52	-	-	-	-	-	26	39	56					
28AH	6	6.35	7	8	9	9.52	-	-	-	-	-	28	39	56					
30AH	6	6.35	7	8	9	9.52	-	-	-	-	-	30	39	56					
32AH	6	6.35	7	8	9	9.52	-	-	-	-	-	32	39	56	65	3.5	4.5	25	25
34AH	6	6.35	7	8	9	9.52	-	-	-	-	-	34	40	56					
36AH	6	6.35	7	8	9	9.52	-	-	-	-	-	36	42	56					
39AH	6	6.35	7	8	9	9.52	-	-	-	-	-	39	45	56					
40AH	6	6.35	7	8	9	9.52	-	-	-	-	-	40	46	56					
38B	6	6.35	7	8	9	9.52	10	11	12	12.7	-	38.1	66.6	60	3	M4x10	18	25	
40B	6	6.35	7	8	9	9.52	10	11	12	12.7	-	40	63	60	3	M4x10	18	25	
50A	6	6.35	7	8	9	9.52	10	11	12	12.7	-	50	60	60	3	M4x10	18	25	
50B	6	6.35	7	8	9	9.52	10	11	12	12.7	14	50	65	60	3	M5x12	23	30	
50BH	6	6.35	7	8	9	9.52	10	11	12	12.7	14	50	65	65	3	5.5	25	32	
50C	6	6.35	7	8	9	9.52	10	11	12	12.7	14	50	70	60	3	M4x10	23	30	
55MH	6	6.35	7	8	9	9.52	10	11	12	12.7	-	55	80	65	2	5.5	16	23	
60A	6	6.35	7	8	9	9.52	10	11	12	12.7	-	60	75	63	3	M5x12	18	25	
60A1	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	75	63	3	M5x12	23	30	
60B	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	85	75	3	M5x12	23	30	
60C	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	90	75	3	M5x12	23	30	
70A	6	6.35	7	8	9	9.52	10	11	12	12.7	14	70	85	75	3	M6x15	23	30	
70B	6	6.35	7	8	9	9.52	10	11	12	12.7	14	70	90	75	3	M5x12	23	30	
73A	6	6.35	7	8	9	9.52	10	11	12	12.7	14	73	98.4	85	3	M5x12	25	32	
80A	6	6.35	7	8	9	9.52	10	11	12	12.7	14	80	100	85	3	M6x15	23	30	

Please contact us for other motor adapters and input shaft bore.



# TR G 060

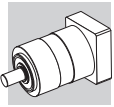
FM



D		D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	
6	6.35	7	32.5	50	42.5	M4x8	M4	20.2	13.2	3	8.7	8
8	9	9.52	32.5	50	42.5	M4x8	M4	20.2	13.2	3	7.8	9
11	12	12.7	35.5	50	42.5	M4x8	M4	20.5	13.5	3	8.5	11
14			35.5	50	42.5	M4x8	M4	24	17	3	10.2	11.5

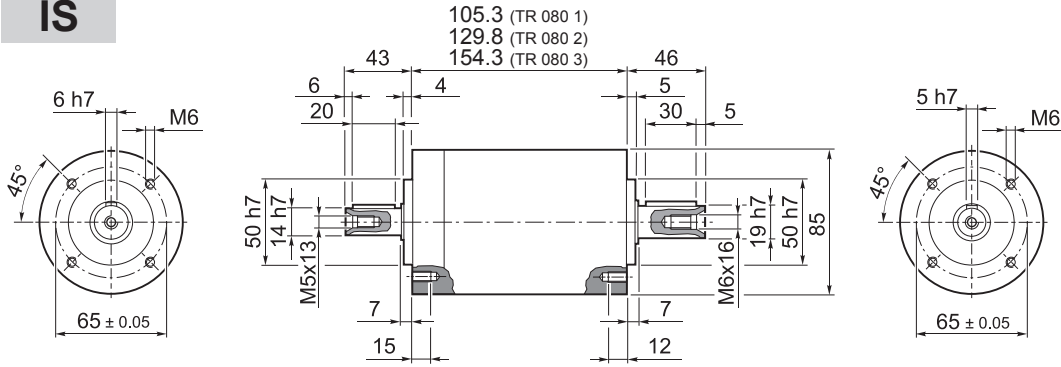
i	M <sub>n 2</sub> [Nm]	M <sub>a 2</sub> [Nm]	M <sub>p 2</sub> [Nm]	n <sub>1</sub> [min <sup>-1</sup> ]	n <sub>1 max</sub> [min <sup>-1</sup> ]	φ <sub>S</sub> [arcmin]	φ <sub>R</sub>	C <sub>t</sub> [Nm/arcmin]	R <sub>2 max</sub> [N]	A <sub>2 max</sub> [N]	η %	J <sub>G</sub> [kgcm <sup>2</sup> ]	
												D	6 ... 9.52
TR G 060 2_3	18	35	70	3300	4000	5'	3'	3.0	600	700	94	0.20	0.20
TR G 060 2_4	25	40	90	3500	5000	5'	3'	3.0	600	700	94	0.18	0.20
TR G 060 2_5	25	40	90	3500	5000	5'	3'	3.0	600	700	94	0.17	0.19
TR G 060 2_6	25	40	90	3500	5000	5'	3'	3.0	600	700	94	0.17	0.19
TR G 060 2_7	25	40	90	4000	6000	5'	3'	3.0	600	700	94	0.17	0.19
TR G 060 2_10	18	35	70	4000	6000	5'	3'	3.0	600	700	94	0.17	0.18
TR G 060 3_9	18	35	70	3300	4000	5'	3'	2.5	600	700	91	0.20	0.21
TR G 060 3_12	30	45	100	3300	4000	5'	3'	2.5	600	700	91	0.20	0.21
TR G 060 3_15	30	45	100	3300	4000	5'	3'	2.5	600	700	91	0.19	0.21
TR G 060 3_16	30	45	100	3500	5000	5'	3'	2.5	600	700	91	0.18	0.20
TR G 060 3_20	30	45	100	3500	5000	5'	3'	2.5	600	700	91	0.17	0.19
TR G 060 3_25	30	45	100	3500	5000	5'	3'	2.5	600	700	91	0.17	0.18
TR G 060 3_28	30	45	100	4000	6000	5'	3'	2.5	600	700	91	0.17	0.19
TR G 060 3_30	18	35	70	4000	6000	5'	3'	2.5	600	700	91	0.17	0.18
TR G 060 3_35	30	45	100	4000	6000	5'	3'	2.5	600	700	91	0.18	0.19
TR G 060 3_36	25	40	90	3500	5000	5'	3'	2.5	600	700	91	0.18	0.19
TR G 060 3_40	30	45	100	4000	6000	5'	3'	2.5	600	700	91	0.17	0.18
TR G 060 3_50	30	45	100	4000	6000	5'	3'	2.5	600	700	91	0.17	0.18
TR G 060 3_70	30	45	100	4000	6000	5'	3'	2.5	600	700	91	0.17	0.18
TR G 060 3_100	18	35	70	4000	6000	5'	3'	2.5	600	700	91	0.17	0.18
TR G 060 4_48	30	45	100	3500	5000	7'	5'	2.0	600	700	89	0.18	0.20
TR G 060 4_64	30	45	100	3500	5000	7'	5'	2.0	600	700	89	0.18	0.20
TR G 060 4_75	30	45	100	350	5000	7'	5'	2.0	600	700	89	0.17	0.19
TR G 060 4_80	30	45	100	3500	5000	7'	5'	2.0	600	700	89	0.18	0.20
TR G 060 4_84	30	45	100	4000	6000	7'	5'	2.0	600	700	89	0.17	0.19
TR G 060 4_90	18	35	70	4000	6000	7'	5'	2.0	600	700	89	0.17	0.18
TR G 060 4_120	30	45	100	4000	6000	7'	5'	2.0	600	700	89	0.15	0.17
TR G 060 4_125	30	45	100	3500	5000	7'	5'	2.0	600	700	89	0.17	0.19
TR G 060 4_140	30	45	100	4000	6000	7'	5'	2.0	600	700	89	0.17	0.19
TR G 060 4_150	30	45	100	4000	6000	7'	5'	2.0	600	700	89	0.17	0.18
TR G 060 4_160	30	45	100	4000	6000	7'	5'	2.0	600	700	89	0.17	0.18
TR G 060 4_175	30	45	100	4000	6000	7'	5'	2.0	600	700	89	0.17	0.19
TR G 060 4_200	30	45	100	4000	6000	7'	5'	2.0	600	700	89	0.17	0.18
TR G 060 4_210	30	45	100	4000	6000	7'	5'	2.0	600	700	89	0.17	0.18
TR G 060 4_216	30	45	100	3500	5000	7'	5'	2.0	600	700	89	0.17	0.19
TR G 060 4_250	30	45	100	4000	6000	7'	5'	2.0	600	700	89	0.17	0.18
TR G 060 4_280	30	45	100	4000	6000	7'	5'	2.0	600	700	89	0.17	0.18
TR G 060 4_350	30	45	100	4000	6000	7'	5'	2.0	600	700	89	0.17	0.18
TR G 060 4_400	30	45	100	4000	6000	7'	5'	2.0	600	700	89	0.17	0.18
TR G 060 4_500	30	45	100	4000	6000	7'	5'	2.0	600	700	89	0.17	0.18
TR G 060 4_700	30	45	100	4000	6000	7'	5'	2.0	600	700	89	0.17	0.18
TR G 060 4_1000	18	35	70	4000	6000	7'	5'	2.0	600	700	89	0.17	0.18

TR



# TR 080

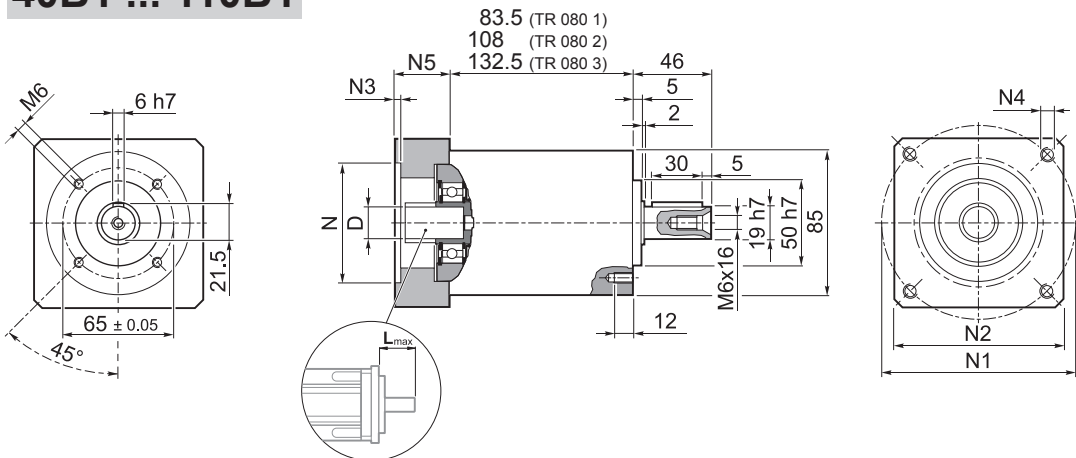
IS



TR 080 1	4.0
TR 080 2	4.6
TR 080 3	5.2

TR

## 40B1 ... 110B1

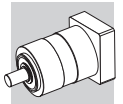


TR 080 1	4.0
TR 080 2	4.6
TR 080 3	5.2

												N	N1	N2	N3	N4	N5	L <sub>max</sub>	
40B1	8	9	9.52	11	12	12.7	14	-	-	-	-	40	63	80	4	M4x12	34	40	
45A	8	9	9.52	11	12	12.7	-	-	-	-	-	45	63	80	4	M4x12	34	40	
50B1	8	9	9.52	11	12	12.7	14	-	-	-	-	50	65	80	4	M5x16	34	40	
50BH1	8	9	9.52	11	12	12.7	14	-	-	-	-	50	65	80	4	5.5	34	40	
50C1	8	9	9.52	11	12	12.7	14	-	-	-	-	50	70	80	4	M4x10	34	40	
50D	8	9	9.52	11	12	12.7	14	-	-	-	-	50	95	80	4	M6x20	34	40	
55A	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	55.5	125.7	105	4	M6x20	34	40
60A2	8	9	9.52	11	12	12.7	14	-	-	-	-	60	75	80	4	M5x16	34	40	
60AH2	8	9	9.52	11	12	12.7	14	-	-	-	-	60	75	90	4	6.5	34	40	
60B1	8	9	9.52	11	12	12.7	14	15.875	16	-	-	60	85	80	4	M5x16	34	40	
60C1	8	9	9.52	11	12	12.7	14	15.875	16	-	-	60	90	80	4	M5x16	34	40	
70A1	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	70	85	80	4	M6x20	34	40
70AH1	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	70	85	90	4	6.5	34	40
70B1	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	70	90	80	4	M5x16	34	40
73A1	8	9	9.52	11	12	12.7	14	-	-	-	-	73	98.4	85	4	M5x16	34	40	
80A1	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	80	100	90	4	M6x16	34	40
95A	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	95	115	100	4	M8x20	34	40
95B	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	95	130	115	4	M8x20	34	40
110A	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	110	130	115	4	M8x20	34	40
110B	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	110	145	120	6.5	M8x20	44	50
110B1	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	110	145	120	6.5	M8x20	54	60

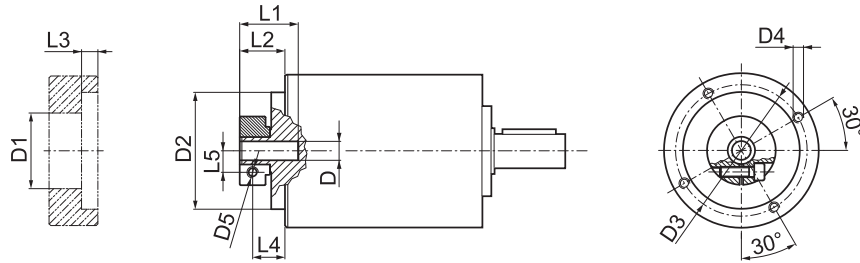
Please contact us for other motor adapters and input shaft bore.

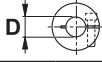





# TR 080

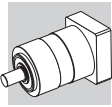
FM



				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
8	9	9.52		38	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	10.5
11	12	12.7		43	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	12.5
14	15.875	16	17	48	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	14.5
19	19.05			51	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	16.5

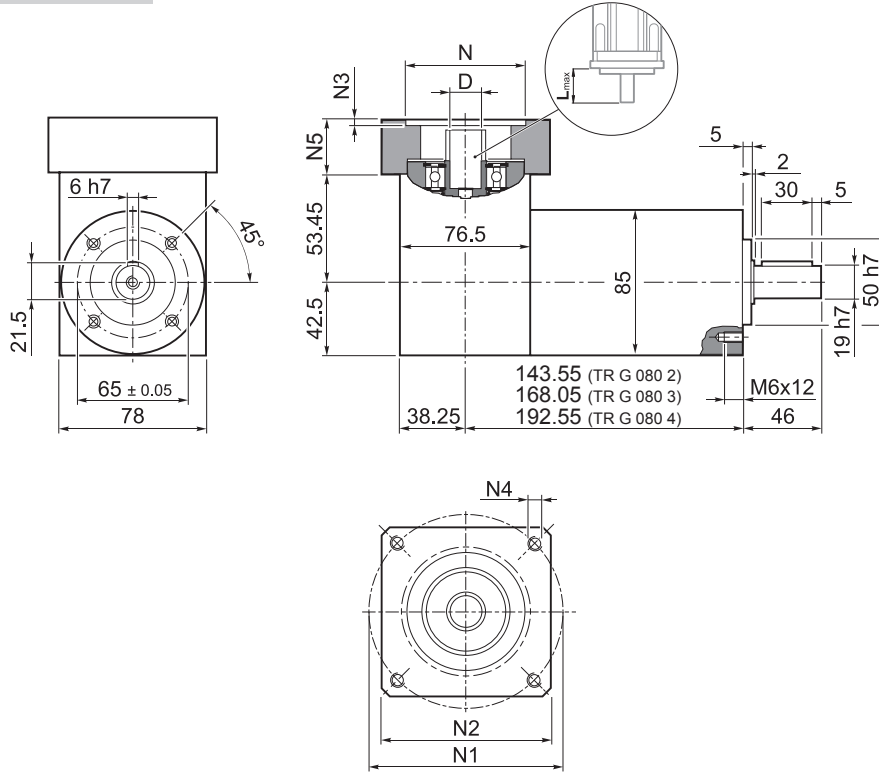
	M <sub>n2</sub> [Nm]	M <sub>a2</sub> [Nm]	M <sub>p2</sub> [Nm]	n <sub>1</sub> [min <sup>-1</sup> ]	n <sub>1 max</sub> [min <sup>-1</sup> ]	φ <sub>S</sub> [arcmin]	φ <sub>R</sub> [arcmin]	C <sub>t</sub> [Nm/arcmin]	R <sub>1 max</sub> [N]	R <sub>2 max</sub> [N]	A <sub>2 max</sub> [N]	η %	J <sub>G</sub> [kgcm <sup>2</sup> ]	
													8 ... 12.7	14 ... 19.05
TR 080 1_3	40	80	180	3500	3500	5'	3'	8.0	400	2500	3000	97	0.50	0.59
TR 080 1_4	50	80	200	4500	4500	5'	3'	8.0	400	2500	3000	97	0.34	0.43
TR 080 1_5	50	80	200	4500	4500	5'	3'	8.0	400	2500	3000	97	0.28	0.37
TR 080 1_6	50	80	200	4500	4500	5'	3'	8.0	400	2500	3000	97	0.21	0.30
TR 080 1_7	50	80	200	6000	6000	5'	3'	8.0	400	2500	3000	97	0.23	0.32
TR 080 1_10	40	80	180	6000	6000	5'	3'	8.0	400	2500	3000	97	0.20	0.29
TR 080 2_9	40	80	180	3500	3500	5'	3'	6.5	400	2500	3000	94	0.49	0.58
TR 080 2_12	70	100	250	3500	3500	5'	3'	6.5	400	2500	3000	94	0.47	0.56
TR 080 2_15	70	100	250	3500	3500	5'	3'	6.5	400	2500	3000	94	0.46	0.55
TR 080 2_16	70	100	250	4500	4500	5'	3'	6.5	400	2500	3000	94	0.32	0.41
TR 080 2_20	70	100	250	4500	4500	5'	3'	6.5	400	2500	3000	94	0.27	0.36
TR 080 2_25	70	100	250	4500	4500	5'	3'	6.5	400	2500	3000	94	0.27	0.36
TR 080 2_28	70	100	250	6000	6000	5'	3'	6.5	400	2500	3000	94	0.22	0.31
TR 080 2_30	40	80	180	6000	6000	5'	3'	6.5	400	2500	3000	94	0.20	0.29
TR 080 2_35	70	100	250	6000	6000	5'	3'	6.5	400	2500	3000	94	0.22	0.31
TR 080 2_36	50	80	200	4500	4500	5'	3'	6.5	400	2500	3000	94	0.20	0.29
TR 080 2_40	70	100	250	6000	6000	5'	3'	6.5	400	2500	3000	94	0.20	0.29
TR 080 2_50	70	100	250	6000	6000	5'	3'	6.5	400	2500	3000	94	0.19	0.28
TR 080 2_70	70	100	250	6000	6000	5'	3'	6.5	400	2500	3000	94	0.19	0.28
TR 080 2_100	40	80	180	6000	6000	5'	3'	6.5	400	2500	3000	94	0.19	0.28
TR 080 3_48	70	100	250	4500	4500	7'	5'	5.5	400	2500	3000	91	0.33	0.42
TR 080 3_64	70	100	250	4500	4500	7'	5'	5.5	400	2500	3000	91	0.32	0.41
TR 080 3_75	70	100	250	4500	4500	7'	5'	5.5	400	2500	3000	91	0.27	0.36
TR 080 3_80	70	100	250	4500	4500	7'	5'	5.5	400	2500	3000	91	0.32	0.41
TR 080 3_84	70	100	250	6000	6000	7'	5'	5.5	400	2500	3000	91	0.23	0.32
TR 080 3_90	40	80	180	6000	6000	7'	5'	5.5	400	2500	3000	91	0.20	0.29
TR 080 3_120	70	100	250	6000	6000	7'	5'	5.5	400	2500	3000	91	0.20	0.29
TR 080 3_125	70	100	250	4500	4500	7'	5'	5.5	400	2500	3000	91	0.27	0.36
TR 080 3_140	70	100	250	6000	6000	7'	5'	5.5	400	2500	3000	91	0.22	0.31
TR 080 3_150	70	100	250	6000	6000	7'	5'	5.5	400	2500	3000	91	0.20	0.29
TR 080 3_160	70	100	250	6000	6000	7'	5'	5.5	400	2500	3000	91	0.20	0.29
TR 080 3_175	70	100	250	6000	6000	7'	5'	5.5	400	2500	3000	91	0.22	0.31
TR 080 3_200	70	100	250	6000	6000	7'	5'	5.5	400	2500	3000	91	0.20	0.29
TR 080 3_210	70	100	250	6000	6000	7'	5'	5.5	400	2500	3000	91	0.20	0.29
TR 080 3_216	70	100	250	4500	4500	7'	5'	5.5	400	2500	3000	91	0.20	0.29
TR 080 3_250	70	100	250	6000	6000	7'	5'	5.5	400	2500	3000	91	0.19	0.28
TR 080 3_280	70	100	250	6000	6000	7'	5'	5.5	400	2500	3000	91	0.19	0.28
TR 080 3_350	70	100	250	6000	6000	7'	5'	5.5	400	2500	3000	91	0.19	0.28
TR 080 3_400	70	100	250	6000	6000	7'	5'	5.5	400	2500	3000	91	0.19	0.28
TR 080 3_500	70	100	250	6000	6000	7'	5'	5.5	400	2500	3000	91	0.19	0.28
TR 080 3_700	70	100	250	6000	6000	7'	5'	5.5	400	2500	3000	91	0.19	0.28
TR 080 3_1000	40	80	180	6000	6000	7'	5'	5.5	400	2500	3000	91	0.19	0.28

TR



# TR G 080

## 40B1 ... 110B1

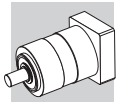


TR G 080 2	5.2
TR G 080 3	5.8
TR G 080 4	6.4

TR

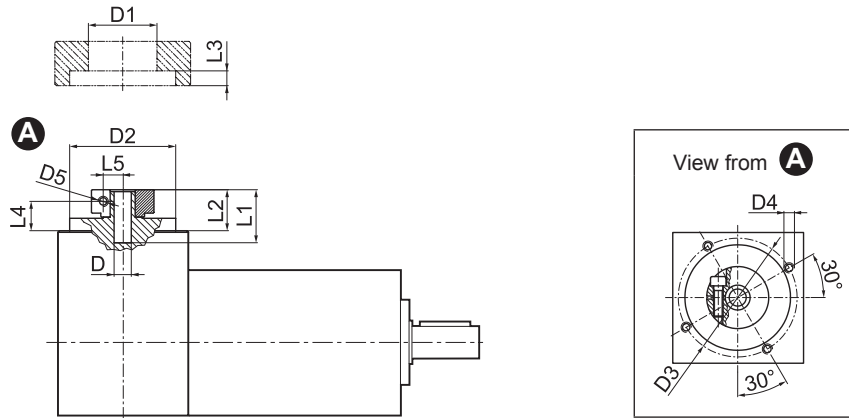
											N	N1	N2	N3	N4	N5	L <sub>max</sub>		
40B1	8	9	9.52	11	12	12.7	14	-	-	-	-	40	63	80	4	M4x12	34	40	
45A	8	9	9.52	11	12	12.7	-	-	-	-	-	45	63	80	4	M4x12	34	40	
50B1	8	9	9.52	11	12	12.7	14	-	-	-	-	50	65	80	4	M5x16	34	40	
50BH1	8	9	9.52	11	12	12.7	14	-	-	-	-	50	65	80	4	5.5	34	40	
50C1	8	9	9.52	11	12	12.7	14	-	-	-	-	50	70	80	4	M4x10	34	40	
50D	8	9	9.52	11	12	12.7	14	-	-	-	-	50	95	80	4	M6x20	34	40	
55A	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	55.5	125.7	105	4	M6x20	34	40
60A2	8	9	9.52	11	12	12.7	14	-	-	-	-	60	75	80	4	M5x16	34	40	
60AH2	8	9	9.52	11	12	12.7	14	-	-	-	-	60	75	90	4	6.5	34	40	
60B1	8	9	9.52	11	12	12.7	14	15.875	16	-	-	60	85	80	4	M5x16	34	40	
60C1	8	9	9.52	11	12	12.7	14	15.875	16	-	-	60	90	80	4	M5x16	34	40	
70A1	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	70	85	80	4	M6x20	34	40
70AH1	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	70	85	90	4	6.5	34	40
70B1	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	70	90	80	4	M5x16	34	40
73A1	8	9	9.52	11	12	12.7	14	-	-	-	-	73	98.4	85	4	M5x16	34	40	
80A1	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	80	100	90	4	M6x16	34	40
95A	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	95	115	100	4	M8x20	34	40
95B	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	95	130	115	4	M8x20	34	40
110A	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	110	130	115	4	M8x20	34	40
110B	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	110	145	120	6.5	M8x20	44	50
110B1	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	110	145	120	6.5	M8x20	54	60

Please contact us for other motor adapters and input shaft bore.



# TR G 080

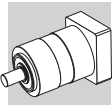
FM



D			D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
8	9	9.52	38	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	10.5
11	12	12.7	43	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	12.5
14	15.875	16	48	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	14.5
19	19.05		51	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	16.5

i	M <sub>n2</sub> [Nm]	M <sub>a2</sub> [Nm]	M <sub>p2</sub> [Nm]	n <sub>1</sub> [min <sup>-1</sup> ]	n <sub>1 max</sub> [min <sup>-1</sup> ]	φ <sub>s</sub> [arcmin]	φ <sub>R</sub> [arcmin]	C <sub>t</sub> [Nm/arcmin]	R <sub>2 max</sub> [N]	A <sub>2 max</sub> [N]	η %	J <sub>G</sub> [kgcm <sup>2</sup> ]	
												D	8 ... 12.7
TR G 080 2_3	40	80	180	2900	3500	5'	3'	8.0	2500	3000	94	0.67	0.79
TR G 080 2_4	50	80	200	3100	4500	5'	3'	8.0	2500	3000	94	0.62	0.75
TR G 080 2_5	50	80	200	3200	4500	5'	3'	8.0	2500	3000	94	0.61	0.74
TR G 080 2_6	50	80	200	3200	4500	5'	3'	8.0	2500	3000	94	0.58	0.71
TR G 080 2_7	50	80	200	4000	6000	5'	3'	8.0	2500	3000	94	0.60	0.73
TR G 080 2_10	40	80	180	4000	6000	5'	3'	8.0	2500	3000	94	0.60	0.72
TR G 080 3_9	40	80	180	2900	3500	5'	3'	6.5	2500	3000	91	0.66	0.78
TR G 080 3_12	70	100	250	2900	3500	5'	3'	6.5	2500	3000	91	0.75	0.87
TR G 080 3_15	70	100	250	2900	3500	5'	3'	6.5	2500	3000	91	0.74	0.87
TR G 080 3_16	70	100	250	3100	4500	5'	3'	6.5	2500	3000	91	0.60	0.73
TR G 080 3_20	70	100	250	3200	4500	5'	3'	6.5	2500	3000	91	0.60	0.73
TR G 080 3_25	70	100	250	3200	4500	5'	3'	6.5	2500	3000	91	0.64	0.76
TR G 080 3_28	70	100	250	4000	6000	5'	3'	6.5	2500	3000	91	0.59	0.72
TR G 080 3_30	40	80	180	4000	6000	5'	3'	6.5	2500	3000	91	0.60	0.72
TR G 080 3_35	70	100	250	4000	6000	5'	3'	6.5	2500	3000	91	0.61	0.74
TR G 080 3_36	50	80	200	3200	4500	5'	3'	6.5	2500	3000	91	0.57	0.70
TR G 080 3_40	70	100	250	4000	6000	5'	3'	6.5	2500	3000	91	0.60	0.72
TR G 080 3_50	70	100	250	4000	6000	5'	3'	6.5	2500	3000	91	0.59	0.71
TR G 080 3_70	70	100	250	4000	6000	5'	3'	6.5	2500	3000	91	0.59	0.71
TR G 080 3_100	40	80	180	4000	6000	5'	3'	6.5	2500	3000	91	0.59	0.71
TR G 080 4_48	70	100	250	3100	4500	7'	5'	5.5	2500	3000	89	0.61	0.75
TR G 080 4_64	70	100	250	3100	4500	7'	5'	5.5	2500	3000	89	0.60	0.73
TR G 080 4_75	70	100	250	3200	4500	7'	5'	5.5	2500	3000	89	0.60	0.73
TR G 080 4_80	70	100	250	3100	4500	7'	5'	5.5	2500	3000	89	0.60	0.73
TR G 080 4_84	70	100	250	4000	6000	7'	5'	5.5	2500	3000	89	0.60	0.73
TR G 080 4_90	40	80	180	4000	6000	7'	5'	5.5	2500	3000	89	0.60	0.72
TR G 080 4_120	70	100	250	4000	6000	7'	5'	5.5	2500	3000	89	0.60	0.72
TR G 080 4_125	70	100	250	3200	4500	7'	5'	5.5	2500	3000	89	0.60	0.73
TR G 080 4_140	70	100	250	4000	6000	7'	5'	5.5	2500	3000	89	0.59	0.72
TR G 080 4_150	70	100	250	4000	6000	7'	5'	5.5	2500	3000	89	0.60	0.72
TR G 080 4_160	70	100	250	4000	6000	7'	5'	5.5	2500	3000	89	0.60	0.72
TR G 080 4_175	70	100	250	4000	6000	7'	5'	5.5	2500	3000	89	0.59	0.72
TR G 080 4_200	70	100	250	4000	6000	7'	5'	5.5	2500	3000	89	0.60	0.72
TR G 080 4_210	70	100	250	4000	6000	7'	5'	5.5	2500	3000	89	0.60	0.72
TR G 080 4_216	70	100	250	3200	4500	7'	5'	5.5	2500	3000	89	0.57	0.70
TR G 080 4_250	70	100	250	4000	6000	7'	5'	5.5	2500	3000	89	0.59	0.71
TR G 080 4_280	70	100	250	4000	6000	7'	5'	5.5	2500	3000	89	0.59	0.71
TR G 080 4_350	70	100	250	4000	6000	7'	5'	5.5	2500	3000	89	0.59	0.71
TR G 080 4_400	70	100	250	4000	6000	7'	5'	5.5	2500	3000	89	0.59	0.71
TR G 080 4_500	70	100	250	4000	6000	7'	5'	5.5	2500	3000	89	0.59	0.71
TR G 080 4_700	70	100	250	4000	6000	7'	5'	5.5	2500	3000	89	0.59	0.71
TR G 080 4_1000	40	80	180	4000	6000	7'	5'	5.5	2500	3000	89	0.59	0.71

TR



# TR MB 080

## 40B1 ... 110B1

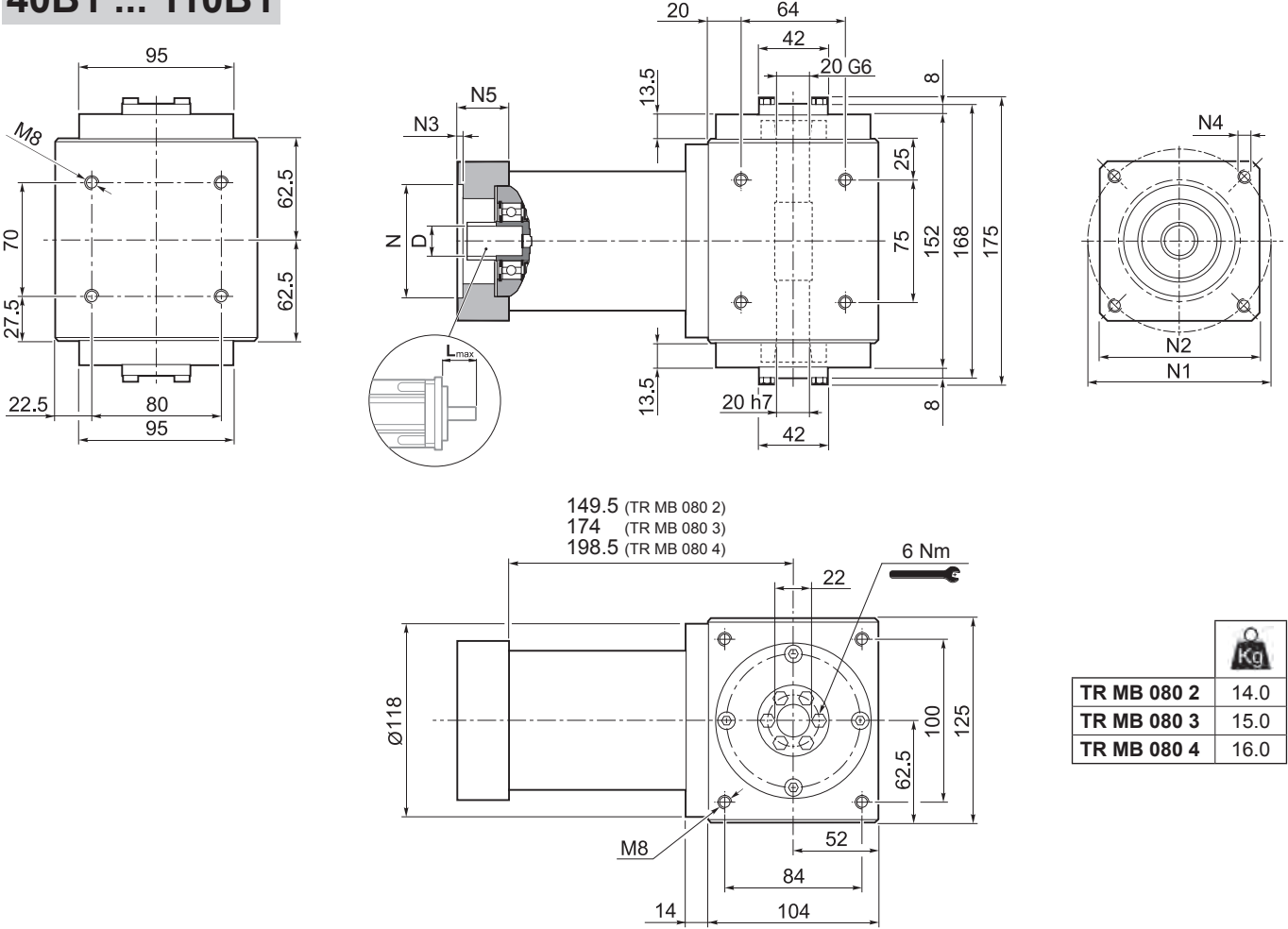
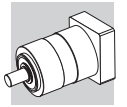


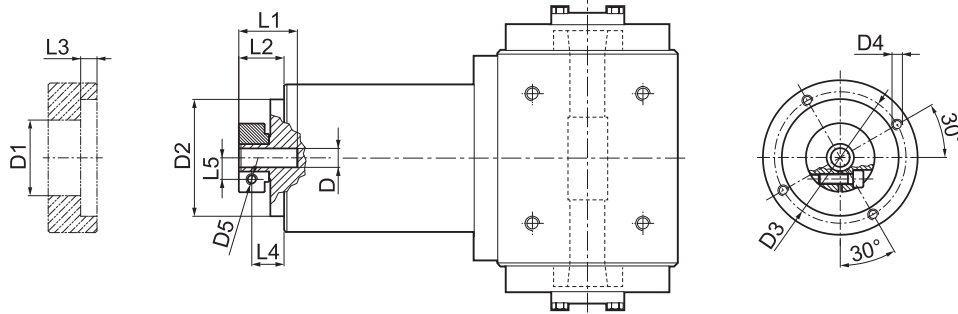
Image	D	Shaft Dimensions										N	N1	N2	N3	N4	N5	Lmax		
		8	9	9.52	11	12	12.7	14	15.875	16	17								19	19.05
40B1		8	9	9.52	11	12	12.7	14	-	-	-	-	40	63	80	4	M4x12	34	40	
45A		8	9	9.52	11	12	12.7	-	-	-	-	-	45	63	80	4	M4x12	34	40	
50B1		8	9	9.52	11	12	12.7	14	-	-	-	-	50	65	80	4	M5x16	34	40	
50BH1		8	9	9.52	11	12	12.7	14	-	-	-	-	50	65	80	4	5.5	34	40	
50C1		8	9	9.52	11	12	12.7	14	-	-	-	-	50	70	80	4	M4x10	34	40	
50D		8	9	9.52	11	12	12.7	14	-	-	-	-	50	95	80	4	M6x20	34	40	
55A		8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	55.5	125.7	105	4	M6x20	34	40
60A2		8	9	9.52	11	12	12.7	14	-	-	-	-	60	75	80	4	M5x16	34	40	
60AH2		8	9	9.52	11	12	12.7	14	-	-	-	-	60	75	90	4	6.5	34	40	
60B1		8	9	9.52	11	12	12.7	14	15.875	16	-	-	60	85	80	4	M5x16	34	40	
60C1		8	9	9.52	11	12	12.7	14	15.875	16	-	-	60	90	80	4	M5x16	34	40	
70A1		8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	70	85	80	4	M6x20	34	40
70AH1		8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	70	85	90	4	6.5	34	40
70B1		8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	70	90	80	4	M5x16	34	40
73A1		8	9	9.52	11	12	12.7	14	-	-	-	-	73	98.4	85	4	M5x16	34	40	
80A1		8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	80	100	90	4	M6x16	34	40
95A		8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	95	115	100	4	M8x20	34	40
95B		8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	95	130	115	4	M8x20	34	40
110A		8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	110	130	115	4	M8x20	34	40
110B		8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	110	145	120	6.5	M8x20	44	50
110B1		8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	110	145	120	6.5	M8x20	54	60

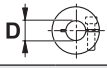
Please contact us for other motor adapters and input shaft bore.

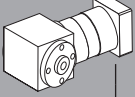


# TR MB 080

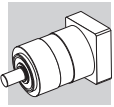
FM



				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
8	9	9.52		38	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	10.5
11	12	12.7		43	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	12.5
14	15.875	16	17	48	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	14.5
19	19.05			51	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	16.5

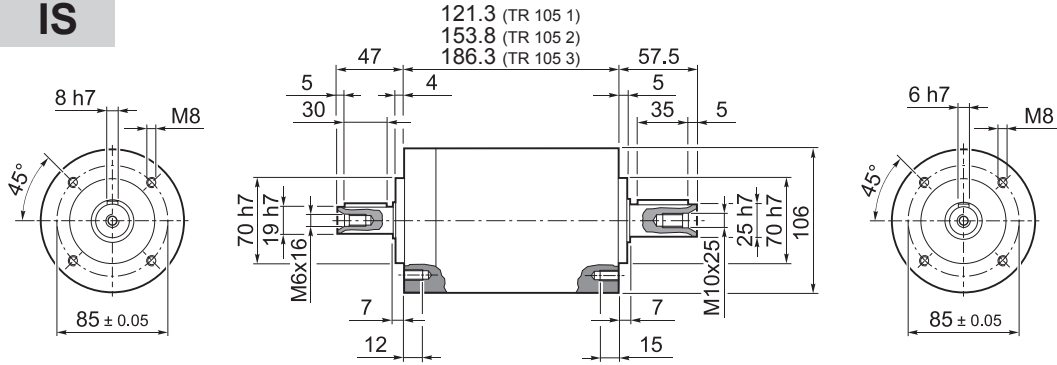
	i	M <sub>n 2</sub>	M <sub>a 2</sub>	M <sub>p 2</sub>	n <sub>1</sub>	n <sub>1 max</sub>	φ <sub>S</sub>	φ <sub>R</sub>	C <sub>t</sub>	η	J <sub>G</sub> [kgcm <sup>2</sup> ]	
		[Nm]	[Nm]	[Nm]	[min <sup>-1</sup> ]	[min <sup>-1</sup> ]	[arcmin]	[Nm/arcmin]	%	8 ... 12.7	14 ... 19.05	
TR MB 080 2_3		40	80	180	2900	3500	5'	3'	8.0	94	0.50	0.59
TR MB 080 2_4		50	80	200	3100	4500	5'	3'	8.0	94	0.34	0.43
TR MB 080 2_5		50	80	200	3200	4500	5'	3'	8.0	94	0.28	0.37
TR MB 080 2_6		50	80	200	3200	4500	5'	3'	8.0	94	0.21	0.30
TR MB 080 2_7		50	80	200	4000	6000	5'	3'	8.0	94	0.23	0.32
TR MB 080 2_10		40	80	180	4000	6000	5'	3'	8.0	94	0.20	0.29
TR MB 080 3_9		40	80	180	2900	3500	5'	3'	6.5	91	0.49	0.58
TR MB 080 3_12		70	100	250	2900	3500	5'	3'	6.5	91	0.47	0.56
TR MB 080 3_15		70	100	250	2900	3500	5'	3'	6.5	91	0.46	0.55
TR MB 080 3_16		70	100	250	3100	4500	5'	3'	6.5	91	0.32	0.41
TR MB 080 3_20		70	100	250	3200	4500	5'	3'	6.5	91	0.27	0.36
TR MB 080 3_25		70	100	250	3200	4500	5'	3'	6.5	91	0.27	0.36
TR MB 080 3_28		70	100	250	4000	6000	5'	3'	6.5	91	0.22	0.31
TR MB 080 3_30		40	80	180	4000	6000	5'	3'	6.5	91	0.20	0.29
TR MB 080 3_35		70	100	250	4000	6000	5'	3'	6.5	91	0.22	0.31
TR MB 080 3_36		50	80	200	3200	4500	5'	3'	6.5	91	0.20	0.29
TR MB 080 3_40		70	100	250	4000	6000	5'	3'	6.5	91	0.20	0.29
TR MB 080 3_50		70	100	250	4000	6000	5'	3'	6.5	91	0.19	0.28
TR MB 080 3_70		70	100	250	4000	6000	5'	3'	6.5	91	0.19	0.28
TR MB 080 3_100		40	80	180	4000	6000	5'	3'	6.5	91	0.19	0.28
TR MB 080 4_48		70	100	250	3100	4500	7'	5'	5.5	89	0.33	0.42
TR MB 080 4_64		70	100	250	3100	4500	7'	5'	5.5	89	0.32	0.41
TR MB 080 4_75		70	100	250	3200	4500	7'	5'	5.5	89	0.27	0.36
TR MB 080 4_80		70	100	250	3100	4500	7'	5'	5.5	89	0.32	0.41
TR MB 080 4_84		70	100	250	4000	6000	7'	5'	5.5	89	0.23	0.32
TR MB 080 4_90		40	80	180	4000	6000	7'	5'	5.5	89	0.20	0.29
TR MB 080 4_120		70	100	250	4000	6000	7'	5'	5.5	89	0.20	0.29
TR MB 080 4_125		70	100	250	3200	4500	7'	5'	5.5	89	0.27	0.36
TR MB 080 4_140		70	100	250	4000	6000	7'	5'	5.5	89	0.22	0.31
TR MB 080 4_150		70	100	250	4000	6000	7'	5'	5.5	89	0.20	0.29
TR MB 080 4_160		70	100	250	4000	6000	7'	5'	5.5	89	0.20	0.29
TR MB 080 4_175		70	100	250	4000	6000	7'	5'	5.5	89	0.22	0.31
TR MB 080 4_200		70	100	250	4000	6000	7'	5'	5.5	89	0.20	0.29
TR MB 080 4_210		70	100	250	4000	6000	7'	5'	5.5	89	0.20	0.29
TR MB 080 4_216		70	100	250	3200	4500	7'	5'	5.5	89	0.20	0.29
TR MB 080 4_250		70	100	250	4000	6000	7'	5'	5.5	89	0.19	0.28
TR MB 080 4_280		70	100	250	4000	6000	7'	5'	5.5	89	0.19	0.28
TR MB 080 4_350		70	100	250	4000	6000	7'	5'	5.5	89	0.19	0.28
TR MB 080 4_400		70	100	250	4000	6000	7'	5'	5.5	89	0.19	0.28
TR MB 080 4_500		70	100	250	4000	6000	7'	5'	5.5	89	0.19	0.28
TR MB 080 4_700		70	100	250	4000	6000	7'	5'	5.5	89	0.19	0.28
TR MB 080 4_1000		40	80	180	4000	6000	7'	5'	5.5	89	0.19	0.28

TR



# TR 105

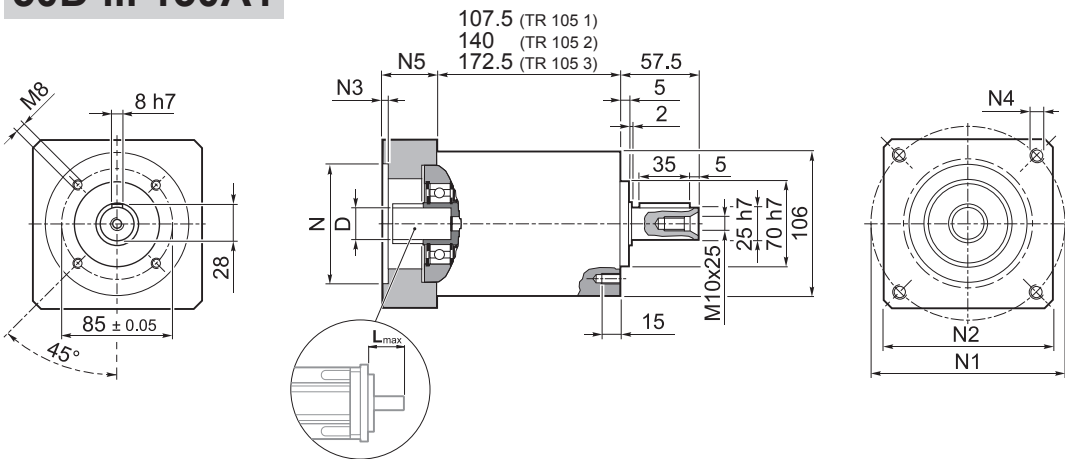
IS



TR 105 1	6.5
TR 105 2	8.5
TR 105 3	10.5

TR

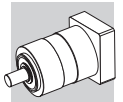
## 50D ... 130A1



TR 105 1	6.5
TR 105 2	8.5
TR 105 3	10.5

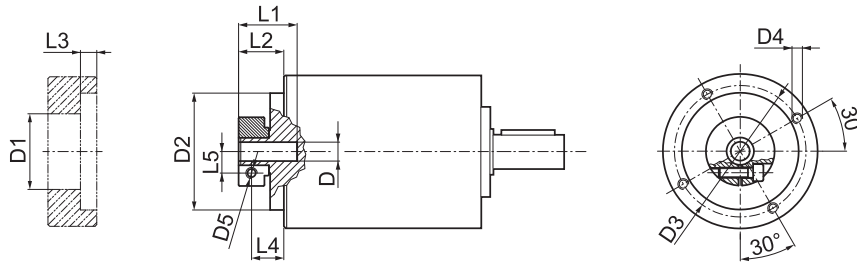
											N	N1	N2	N3	N4	N5	L <sub>max</sub>	
50D	11	12	12.7	14	15	15.875	16	19	-	-	-	50	95	100	5	M6x14	28	40
55A	11	12	12.7	14	15	15.875	16	19	-	-	-	55	125.7	105	5	M6x16	28	40
60A2	11	12	12.7	14	15	15.875	16	19	-	-	-	60	75	100	6.5	M5x14	28	40
60AH2	11	12	12.7	14	15	15.875	16	19	-	-	-	60	75	100	4	6.5	33	40
60B1	11	12	12.7	14	15	15.875	16	19	-	-	-	60	85	100	6.5	M5x14	28	40
70A1	11	12	12.7	14	15	15.875	16	19	-	-	-	70	85	100	6.5	M6x14	28	40
70AH1	11	12	12.7	14	15	15.875	16	19	-	-	-	70	85	100	4	6.5	33	40
70B1	11	12	12.7	14	15	15.875	16	19	-	-	-	70	90	100	6.5	M5x12	28	40
80A1	11	12	12.7	14	15	15.875	16	19	-	-	-	80	100	100	6.5	M6x16	28	40
80AH1	11	12	12.7	14	15	15.875	16	19	-	-	-	80	100	100	4	6.5	33	40
95A	11	12	12.7	14	15	15.875	16	19	-	-	-	95	115	100	6.5	M8x18	28	40
95A1	11	12	12.7	14	15	15.875	16	19	22	24	-	95	115	100	6.5	M8x18	38	50
95B	11	12	12.7	14	15	15.875	16	19	-	-	-	95	130	115	6.5	M8x18	28	40
110A	11	12	12.7	14	15	15.875	16	19	-	-	-	110	130	115	6.5	M8x18	28	40
110A1	11	12	12.7	14	15	15.875	16	19	22	24	-	110	130	115	6.5	M8x20	38	50
110B	11	12	12.7	14	15	15.875	16	19	22	24	-	110	145	120	6.5	M8x20	38	50
110B1	11	12	12.7	14	15	15.875	16	19	22	24	28	110	145	120	6.5	M8x20	48	60
130A	11	12	12.7	14	15	15.875	16	19	22	24	-	130	165	140	6.5	M10x20	38	50
130A1	11	12	12.7	14	15	15.875	16	19	22	24	28	130	165	140	6.5	M10x25	48	60

Please contact us for other motor adapters and input shaft bore.

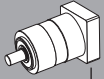


# TR 105

**FM**

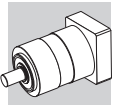


D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
11	12	12.7		43	90	98	M6x15	M6	31.5	19.5	7.6	12	12.5
14	15	15.875	16	48	90	98	M6x15	M6	31.5	19.5	7.6	12	14.5
19				51	90	98	M6x15	M6	31.5	19.5	7.6	12	16.5
22	24			56.5	90	98	M6x15	M6	35	23	7.6	12	19
28				67	90	98	M6x15	M8	35	23	7.6	14	22.5
32				71	90	98	M6x15	M8	37	25	7.6	16	24.5

 i	M <sub>n2</sub>	M <sub>a2</sub>	M <sub>p2</sub>	n <sub>1</sub>	n <sub>1 max</sub>	φ <sub>S</sub>	φ <sub>R</sub>	C <sub>t</sub>	R <sub>1 max</sub>	R <sub>2 max</sub>	A <sub>2 max</sub>	η	J <sub>G</sub> [kgcm <sup>2</sup> ]			
	[Nm]	[Nm]	[Nm]	[min <sup>-1</sup> ]	[min <sup>-1</sup> ]	[arcmin]		$\frac{Nm}{arcmin}$	[N]	[N]	[N]	%	11 ... 12.7	14 ... 19	22 - 24	28 - 32
TR 105 1_3	100	180	360	3500	3500	5'	3'	24.0	600	3800	4000	97	1.70	1.78	2.22	2.59
TR 105 1_4	140	210	450	4500	4500	5'	3'	24.0	600	3800	4000	97	0.99	1.06	1.51	1.87
TR 105 1_5	140	210	450	4500	4500	5'	3'	24.0	600	3800	4000	97	0.72	0.79	1.23	1.60
TR 105 1_6	140	210	450	4500	4500	5'	3'	24.0	600	3800	4000	97	0.36	0.43	0.88	1.24
TR 105 1_7	140	210	450	5000	5000	5'	3'	24.0	600	3800	4000	97	0.47	0.55	0.99	1.35
TR 105 1_10	100	180	360	5000	5000	5'	3'	24.0	600	3800	4000	97	0.33	0.41	0.85	1.21
TR 105 2_9	100	180	360	3500	3500	5'	3'	21.5	600	3800	4000	94	1.58	1.63	2.07	2.44
TR 105 2_12	170	250	600	3500	3500	5'	3'	21.5	600	3800	4000	94	1.52	1.59	2.03	2.40
TR 105 2_15	170	250	600	3500	3500	5'	3'	21.5	600	3800	4000	94	1.47	1.55	1.99	2.36
TR 105 2_16	170	250	600	4500	4500	5'	3'	21.5	600	3800	4000	94	0.87	0.95	1.39	1.76
TR 105 2_20	170	250	600	4500	4500	5'	3'	21.5	600	3800	4000	94	0.86	0.93	1.37	1.74
TR 105 2_25	170	250	600	4500	4500	5'	3'	21.5	600	3800	4000	94	0.63	0.71	1.15	1.51
TR 105 2_28	170	250	600	5000	5000	5'	3'	21.5	600	3800	4000	94	0.43	0.51	0.95	1.32
TR 105 2_30	100	180	360	5000	5000	5'	3'	21.5	600	3800	4000	94	0.32	0.40	0.84	1.20
TR 105 2_35	170	250	600	5000	5000	5'	3'	21.5	600	3800	4000	94	0.43	0.50	0.95	1.31
TR 105 2_36	140	210	450	4500	4500	5'	3'	21.5	600	3800	4000	94	0.32	0.39	0.84	1.20
TR 105 2_40	170	250	600	5000	5000	5'	3'	21.5	600	3800	4000	94	0.31	0.39	0.83	1.20
TR 105 2_50	170	250	600	5000	5000	5'	3'	21.5	600	3800	4000	94	0.31	0.39	0.83	1.19
TR 105 2_70	170	250	600	5000	5000	5'	3'	21.5	600	3800	4000	94	0.31	0.38	0.83	1.19
TR 105 2_100	100	180	360	5000	5000	5'	3'	21.5	600	3800	4000	94	0.31	0.38	0.83	1.19
TR 105 3_48	170	250	600	4500	4500	7'	5'	18.0	600	3800	4000	91	0.91	0.98	1.42	1.79
TR 105 3_64	170	250	600	4500	4500	7'	5'	18.0	600	3800	4000	91	0.87	0.94	1.38	1.75
TR 105 3_75	170	250	600	4500	4500	7'	5'	18.0	600	3800	4000	91	0.66	0.74	1.18	1.55
TR 105 3_80	170	250	600	4500	4500	7'	5'	18.0	600	3800	4000	91	0.86	0.94	1.38	1.75
TR 105 3_84	170	250	600	5000	5000	7'	5'	18.0	600	3800	4000	91	0.44	0.52	0.96	1.33
TR 105 3_90	100	180	360	5000	5000	7'	5'	18.0	600	3800	4000	91	0.32	0.39	0.84	1.20
TR 105 3_120	170	250	600	5000	5000	7'	5'	18.0	600	3800	4000	91	0.32	0.39	0.84	1.20
TR 105 3_125	170	250	600	4500	4500	7'	5'	18.0	600	3800	4000	91	0.63	0.70	1.15	1.51
TR 105 3_140	170	250	600	5000	5000	7'	5'	18.0	600	3800	4000	91	0.43	0.51	0.95	1.32
TR 105 3_150	170	250	600	5000	5000	7'	5'	18.0	600	3800	4000	91	0.32	0.39	0.84	1.20
TR 105 3_160	170	250	600	5000	5000	7'	5'	18.0	600	3800	4000	91	0.31	0.39	0.83	1.21
TR 105 3_175	170	250	600	5000	5000	7'	5'	18.0	600	3800	4000	91	0.43	0.50	0.95	1.31
TR 105 3_200	170	250	600	5000	5000	7'	5'	18.0	600	3800	4000	91	0.31	0.39	0.83	1.20
TR 105 3_210	170	250	600	5000	5000	7'	5'	18.0	600	3800	4000	91	0.32	0.39	0.84	1.20
TR 105 3_216	170	250	600	4500	4500	7'	5'	18.0	600	3800	4000	91	0.31	0.39	0.83	1.20
TR 105 3_250	170	250	600	5000	5000	7'	5'	18.0	600	3800	4000	91	0.31	0.39	0.83	1.19
TR 105 3_280	170	250	600	5000	5000	7'	5'	18.0	600	3800	4000	91	0.31	0.38	0.83	1.19
TR 105 3_350	170	250	600	5000	5000	7'	5'	18.0	600	3800	4000	91	0.31	0.38	0.83	1.19
TR 105 3_400	170	250	600	5000	5000	7'	5'	18.0	600	3800	4000	91	0.31	0.38	0.83	1.19
TR 105 3_500	170	250	600	5000	5000	7'	5'	18.0	600	3800	4000	91	0.31	0.38	0.83	1.19
TR 105 3_700	170	250	600	5000	5000	7'	5'	18.0	600	3800	4000	91	0.31	0.38	0.83	1.19
TR 105 3_1000	100	180	360	5000	5000	7'	5'	18.0	600	3800	4000	91	0.31	0.38	0.83	1.19

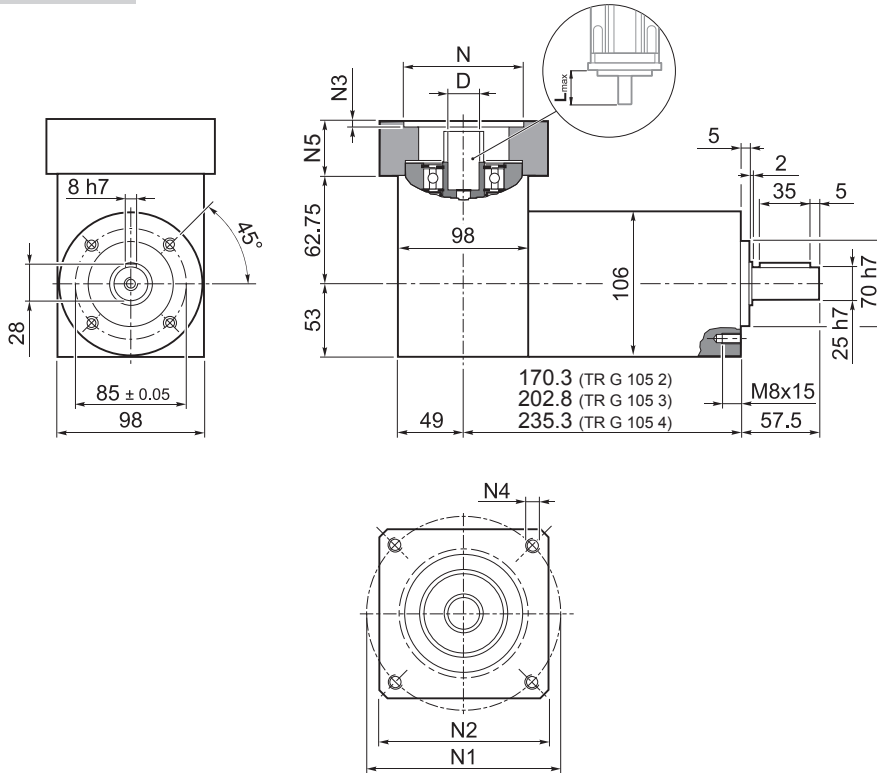
**TR**





# TR G 105

## 50D ... 130A1

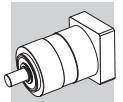


TR G 105 2	8.5
TR G 105 3	10.5
TR G 105 4	12.5

TR

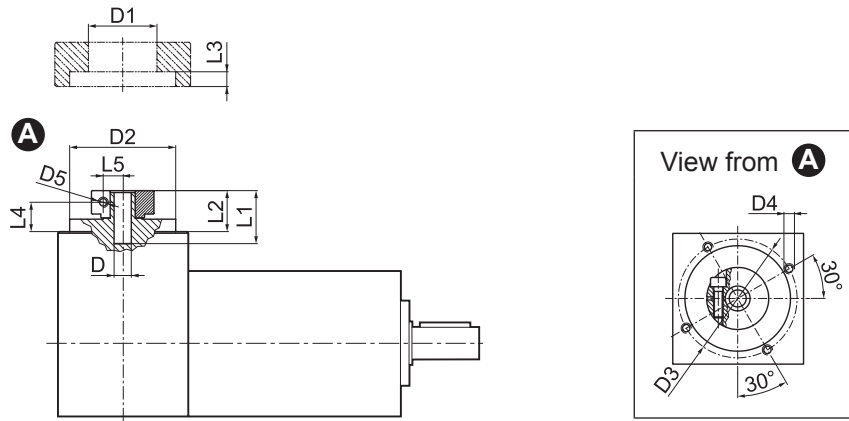
												N	N1	N2	N3	N4	N5	L <sub>max</sub>	
50D	11	12	12.7	14	15	15.875	16	19	-	-	-	-	50	95	100	5	M6x14	28	40
55A	11	12	12.7	14	15	15.875	16	19	-	-	-	-	55	125.7	105	5	M6x16	28	40
60A2	11	12	12.7	14	15	15.875	16	19	-	-	-	-	60	75	100	6.5	M5x14	28	40
60AH2	11	12	12.7	14	15	15.875	16	19	-	-	-	-	60	75	100	4	6.5	33	40
60B1	11	12	12.7	14	15	15.875	16	19	-	-	-	-	60	85	100	6.5	M5x14	28	40
70A1	11	12	12.7	14	15	15.875	16	19	-	-	-	-	70	85	100	6.5	M6x14	28	40
70AH1	11	12	12.7	14	15	15.875	16	19	-	-	-	-	70	85	100	4	6.5	33	40
70B1	11	12	12.7	14	15	15.875	16	19	-	-	-	-	70	90	100	6.5	M5x12	28	40
80A1	11	12	12.7	14	15	15.875	16	19	-	-	-	-	80	100	100	6.5	M6x16	28	40
80AH1	11	12	12.7	14	15	15.875	16	19	-	-	-	-	80	100	100	4	6.5	33	40
95A	11	12	12.7	14	15	15.875	16	19	-	-	-	-	95	115	100	6.5	M8x18	28	40
95A1	11	12	12.7	14	15	15.875	16	19	22	24	-	-	95	115	100	6.5	M8x18	38	50
95B	11	12	12.7	14	15	15.875	16	19	-	-	-	-	95	130	115	6.5	M8x18	28	40
110A	11	12	12.7	14	15	15.875	16	19	-	-	-	-	110	130	115	6.5	M8x18	28	40
110A1	11	12	12.7	14	15	15.875	16	19	22	24	-	-	110	130	115	6.5	M8x20	38	50
110B	11	12	12.7	14	15	15.875	16	19	22	24	-	-	110	145	120	6.5	M8x20	38	50
110B1	11	12	12.7	14	15	15.875	16	19	22	24	28	-	110	145	120	6.5	M8x20	48	60
130A	11	12	12.7	14	15	15.875	16	19	22	24	-	-	130	165	140	6.5	M10x20	38	50
130A1	11	12	12.7	14	15	15.875	16	19	22	24	28	32	130	165	140	6.5	M10x25	48	60

Please contact us for other motor adapters and input shaft bore.



# TR G 105

FM

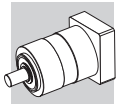


D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
11	12	12.7		43	90	98	M6x15	M6	31.5	19.5	7.6	12	12.5
14	15	15.875	16	48	90	98	M6x15	M6	31.5	19.5	7.6	12	14.5
19				51	90	98	M6x15	M6	31.5	19.5	7.6	12	16.5
22	24			56.5	90	98	M6x15	M6	35	23	7.6	12	19
28				67	90	98	M6x15	M8	35	23	7.6	14	22.5
32				71	90	98	M6x15	M8	37	25	7.6	16	24.5

i	M <sub>n2</sub> [Nm]	M <sub>a2</sub> [Nm]	M <sub>p2</sub> [Nm]	n <sub>1</sub> [min <sup>-1</sup> ]	n <sub>1 max</sub> [min <sup>-1</sup> ]	φ <sub>S</sub> [arcmin]	φ <sub>R</sub> [arcmin]	C <sub>t</sub> [Nm/arcmin]	R <sub>2 max</sub> [N]	A <sub>2 max</sub> [N]	η %	J <sub>G</sub> [kgcm <sup>2</sup> ]			
												11 ... 12.7	14 ... 19	22 - 24	28 - 32
TR G 105 2_3	100	180	360	2500	3500	5'	3'	24.0	3800	4000	94	1.85	2.01	2.33	3.07
TR G 105 2_4	140	210	450	2800	4500	5'	3'	24.0	3800	4000	94	1.14	1.29	1.62	2.35
TR G 105 2_5	140	210	450	3000	4500	5'	3'	24.0	3800	4000	94	1.07	1.21	1.34	2.08
TR G 105 2_6	140	210	450	3000	4500	5'	3'	24.0	3800	4000	94	0.87	1.02	1.16	1.89
TR G 105 2_7	140	210	450	3500	5000	5'	3'	24.0	3800	4000	94	0.98	1.14	1.27	2.00
TR G 105 2_10	100	180	360	3500	5000	5'	3'	24.0	3800	4000	94	0.94	1.09	1.23	1.95
TR G 105 3_9	100	180	360	2500	3500	5'	3'	21.5	3800	4000	91	1.76	1.86	2.18	2.92
TR G 105 3_12	170	250	600	2500	3500	5'	3'	21.5	3800	4000	91	1.60	1.75	2.14	2.88
TR G 105 3_15	170	250	600	2500	3500	5'	3'	21.5	3800	4000	91	1.57	1.73	2.10	2.84
TR G 105 3_16	170	250	600	2800	4500	5'	3'	21.5	3800	4000	91	1.02	1.18	1.50	2.24
TR G 105 3_20	170	250	600	3000	4500	5'	3'	21.5	3800	4000	91	1.20	1.35	1.48	2.22
TR G 105 3_25	170	250	600	3000	4500	5'	3'	21.5	3800	4000	91	1.13	1.29	1.42	2.15
TR G 105 3_28	170	250	600	3500	5000	5'	3'	21.5	3800	4000	91	0.94	1.10	1.23	1.97
TR G 105 3_30	100	180	360	3500	5000	5'	3'	21.5	3800	4000	91	0.93	1.08	1.22	1.94
TR G 105 3_35	170	250	600	3500	5000	5'	3'	21.5	3800	4000	91	1.02	1.17	1.31	2.04
TR G 105 3_36	140	210	450	3000	4500	5'	3'	21.5	3800	4000	91	0.83	0.98	1.12	1.85
TR G 105 3_40	170	250	600	3500	5000	5'	3'	21.5	3800	4000	91	0.96	1.11	1.25	1.98
TR G 105 3_50	170	250	600	3500	5000	5'	3'	21.5	3800	4000	91	0.96	1.11	1.25	1.98
TR G 105 3_70	170	250	600	3500	5000	5'	3'	21.5	3800	4000	91	0.92	1.06	1.21	1.93
TR G 105 3_100	100	180	360	3500	5000	5'	3'	21.5	3800	4000	91	0.92	1.06	1.21	1.93
TR G 105 4_48	170	250	600	2800	4500	7'	5'	18.0	3800	4000	89	1.06	1.21	1.53	2.27
TR G 105 4_64	170	250	600	2800	4500	7'	5'	18.0	3800	4000	89	1.02	1.17	1.49	2.23
TR G 105 4_75	170	250	600	3000	4500	7'	5'	18.0	3800	4000	89	1.00	1.16	1.29	2.03
TR G 105 4_80	170	250	600	2800	4500	7'	5'	18.0	3800	4000	89	1.01	1.17	1.49	2.23
TR G 105 4_84	170	250	600	3500	5000	7'	5'	18.0	3800	4000	89	0.95	1.11	1.24	1.98
TR G 105 4_90	100	180	360	3500	5000	7'	5'	18.0	3800	4000	89	0.93	1.07	1.22	1.94
TR G 105 4_120	170	250	600	3500	5000	7'	5'	18.0	3800	4000	89	0.93	1.07	1.22	1.94
TR G 105 4_125	170	250	600	3000	4500	7'	5'	18.0	3800	4000	89	0.97	1.12	1.26	1.99
TR G 105 4_140	170	250	600	3500	5000	7'	5'	18.0	3800	4000	89	0.94	1.10	1.23	1.97
TR G 105 4_150	170	250	600	3500	5000	7'	5'	18.0	3800	4000	89	0.93	1.07	1.22	1.94
TR G 105 4_160	170	250	600	3500	5000	7'	5'	18.0	3800	4000	89	0.92	1.07	1.21	1.96
TR G 105 4_175	170	250	600	3500	5000	7'	5'	18.0	3800	4000	89	0.94	1.09	1.23	1.96
TR G 105 4_200	170	250	600	3500	5000	7'	5'	18.0	3800	4000	89	0.92	1.07	1.21	1.94
TR G 105 4_210	170	250	600	3500	5000	7'	5'	18.0	3800	4000	89	0.93	1.07	1.22	1.94
TR G 105 4_216	170	250	600	3000	4500	7'	5'	18.0	3800	4000	89	0.83	0.98	1.11	1.85
TR G 105 4_250	170	250	600	3500	5000	7'	5'	18.0	3800	4000	89	0.92	1.07	1.21	1.93
TR G 105 4_280	170	250	600	3500	5000	7'	5'	18.0	3800	4000	89	0.92	1.06	1.21	1.93
TR G 105 4_350	170	250	600	3500	5000	7'	5'	18.0	3800	4000	89	0.92	1.06	1.21	1.93
TR G 105 4_400	170	250	600	3500	5000	7'	5'	18.0	3800	4000	89	0.92	1.06	1.21	1.93
TR G 105 4_500	170	250	600	3500	5000	7'	5'	18.0	3800	4000	89	0.92	1.06	1.21	1.93
TR G 105 4_700	170	250	600	3500	5000	7'	5'	18.0	3800	4000	89	0.92	1.06	1.21	1.93
TR G 105 4_1000	100	180	360	3500	5000	7'	5'	18.0	3800	4000	89	0.92	1.06	1.21	1.93

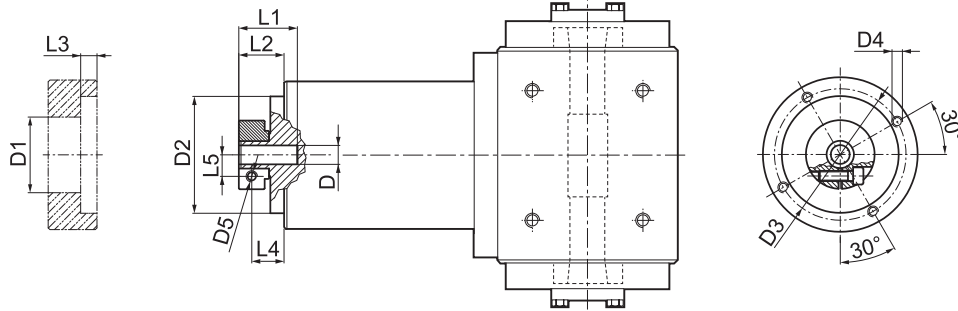
TR





# TR MB 105

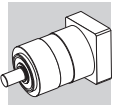
FM



D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
11	12	12.7		43	90	98	M6x15	M6	31.5	19.5	7.6	12	12.5
14	15	15.875	16	48	90	98	M6x15	M6	31.5	19.5	7.6	12	14.5
19				51	90	98	M6x15	M6	31.5	19.5	7.6	12	16.5
22	24			56.5	90	98	M6x15	M6	35	23	7.6	12	19
28				67	90	98	M6x15	M8	35	23	7.6	14	22.5
32				71	90	98	M6x15	M8	37	25	7.6	16	24.5

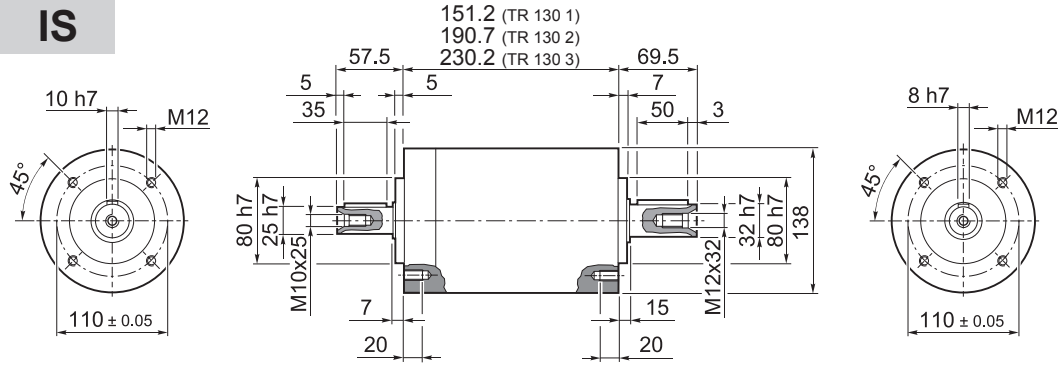
i	M <sub>n 2</sub> [Nm]	M <sub>a 2</sub> [Nm]	M <sub>p 2</sub> [Nm]	n <sub>1</sub> [min <sup>-1</sup> ]	n <sub>1 max</sub> [min <sup>-1</sup> ]	φ <sub>S</sub> [arcmin]	φ <sub>R</sub> [arcmin]	C <sub>t</sub> [ Nm / arcmin ]	η %	J <sub>G</sub> [kgcm <sup>2</sup> ]			
										D			
										11 ... 12.7	14 ... 19	22 - 24	28 - 32
TR MB 105 2_3	100	180	360	2500	3500	5'	3'	24.0	94	1.70	1.78	2.22	2.59
TR MB 105 2_4	140	210	450	2800	4500	5'	3'	24.0	94	0.99	1.06	1.51	1.87
TR MB 105 2_5	140	210	450	3000	4500	5'	3'	24.0	94	0.72	0.79	1.23	1.60
TR MB 105 2_6	140	210	450	3000	4500	5'	3'	24.0	94	0.36	0.43	0.88	1.24
TR MB 105 2_7	140	210	450	3500	5000	5'	3'	24.0	94	0.47	0.55	0.99	1.35
TR MB 105 2_10	100	180	360	3500	5000	5'	3'	24.0	94	0.33	0.41	0.85	1.21
TR MB 105 3_9	100	180	360	2500	3500	5'	3'	21.5	91	1.58	1.63	2.07	2.44
TR MB 105 3_12	170	250	600	2500	3500	5'	3'	21.5	91	1.52	1.59	2.03	2.40
TR MB 105 3_15	170	250	600	2500	3500	5'	3'	21.5	91	1.47	1.55	1.99	2.36
TR MB 105 3_16	170	250	600	2800	4500	5'	3'	21.5	91	0.87	0.95	1.39	1.76
TR MB 105 3_20	170	250	600	3000	4500	5'	3'	21.5	91	0.86	0.93	1.37	1.74
TR MB 105 3_25	170	250	600	3000	4500	5'	3'	21.5	91	0.63	0.71	1.15	1.51
TR MB 105 3_28	170	250	600	3500	5000	5'	3'	21.5	91	0.43	0.51	0.95	1.32
TR MB 105 3_30	100	180	360	3500	5000	5'	3'	21.5	91	0.32	0.40	0.84	1.20
TR MB 105 3_35	170	250	600	3500	5000	5'	3'	21.5	91	0.43	0.50	0.95	1.31
TR MB 105 3_36	140	210	450	3000	4500	5'	3'	21.5	91	0.32	0.39	0.84	1.20
TR MB 105 3_40	170	250	600	3500	5000	5'	3'	21.5	91	0.31	0.39	0.83	1.20
TR MB 105 3_50	170	250	600	3500	5000	5'	3'	21.5	91	0.31	0.39	0.83	1.19
TR MB 105 3_70	170	250	600	3500	5000	5'	3'	21.5	91	0.31	0.38	0.83	1.19
TR MB 105 3_100	100	180	360	3500	5000	5'	3'	21.5	91	0.31	0.38	0.83	1.19
TR MB 105 4_48	170	250	600	2800	4500	7'	5'	18.0	89	0.91	0.98	1.42	1.79
TR MB 105 4_64	170	250	600	2800	4500	7'	5'	18.0	89	0.87	0.94	1.38	1.75
TR MB 105 4_75	170	250	600	3000	4500	7'	5'	18.0	89	0.66	0.74	1.18	1.55
TR MB 105 4_80	170	250	600	2800	4500	7'	5'	18.0	89	0.86	0.94	1.38	1.75
TR MB 105 4_84	170	250	600	3500	5000	7'	5'	18.0	89	0.44	0.52	0.96	1.33
TR MB 105 4_90	100	180	360	3500	5000	7'	5'	18.0	89	0.32	0.39	0.84	1.20
TR MB 105 4_120	170	250	600	3500	5000	7'	5'	18.0	89	0.32	0.39	0.84	1.20
TR MB 105 4_125	170	250	600	3000	4500	7'	5'	18.0	89	0.63	0.70	1.15	1.51
TR MB 105 4_140	170	250	600	3500	5000	7'	5'	18.0	89	0.43	0.51	0.95	1.32
TR MB 105 4_150	170	250	600	3500	5000	7'	5'	18.0	89	0.32	0.39	0.84	1.20
TR MB 105 4_160	170	250	600	3500	5000	7'	5'	18.0	89	0.31	0.39	0.83	1.21
TR MB 105 4_175	170	250	600	3500	5000	7'	5'	18.0	89	0.43	0.50	0.95	1.31
TR MB 105 4_200	170	250	600	3500	5000	7'	5'	18.0	89	0.31	0.39	0.83	1.20
TR MB 105 4_210	170	250	600	3500	5000	7'	5'	18.0	89	0.32	0.39	0.84	1.20
TR MB 105 4_216	170	250	600	3000	4500	7'	5'	18.0	89	0.31	0.39	0.83	1.20
TR MB 105 4_250	170	250	600	3500	5000	7'	5'	18.0	89	0.31	0.39	0.83	1.19
TR MB 105 4_280	170	250	600	3500	5000	7'	5'	18.0	89	0.31	0.38	0.83	1.19
TR MB 105 4_350	170	250	600	3500	5000	7'	5'	18.0	89	0.31	0.38	0.83	1.19
TR MB 105 4_400	170	250	600	3500	5000	7'	5'	18.0	89	0.31	0.38	0.83	1.19
TR MB 105 4_500	170	250	600	3500	5000	7'	5'	18.0	89	0.31	0.38	0.83	1.19
TR MB 105 4_700	170	250	600	3500	5000	7'	5'	18.0	89	0.31	0.38	0.83	1.19
TR MB 105 4_1000	100	180	360	3500	5000	7'	5'	18.0	89	0.31	0.38	0.83	1.19

TR



# TR 130

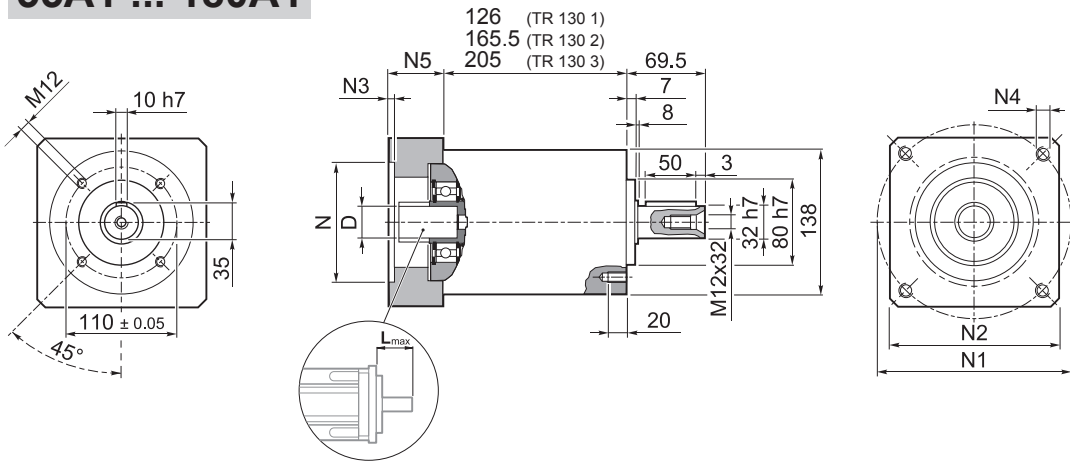
IS



TR 130 1	12.0
TR 130 2	15.5
TR 130 3	18.5

TR

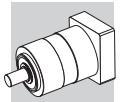
## 55A1 ... 180A1



TR 130 1	12.0
TR 130 2	15.5
TR 130 3	18.5

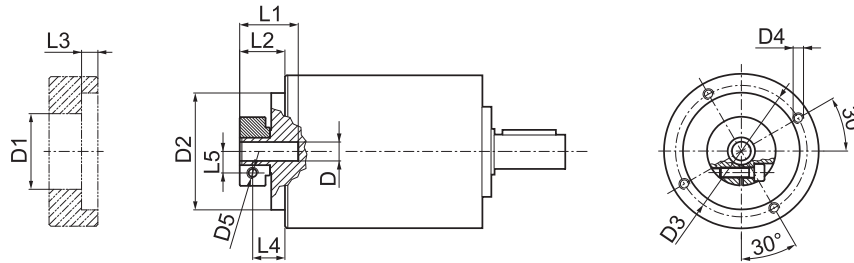
											N	N1	N2	N3	N4	N5	L <sub>max</sub>
55A1	14	15.875	16	19	-	-	-	-	-	-	55.5	125.7	130	4	M6x15	39.5	50
80A2	14	15.875	16	19	-	-	-	-	-	-	80	100	130	4	M6x15	39.5	50
95A1	14	15.875	16	19	22	24	-	-	-	-	95	115	130	4	M8x20	39.5	50
110A1	14	15.875	16	19	22	24	-	-	-	-	110	130	130	4	M8x20	39.5	50
110B1	14	15.875	16	19	22	24	-	-	-	-	110	145	130	6.5	M8x20	49.5	60
114A0	14	15.875	16	19	22	24	-	-	-	-	114.3	200	170	5.5	M12x25	39.5	50
114A	14	15.875	16	19	22	24	28	32	35	38	114.3	200	170	5.5	M12x25	69.5	80
130A	14	15.875	16	19	22	24	-	-	-	-	130	165	140	4	M10x20	39.5	50
130A1	14	15.875	16	19	22	24	28	32	-	-	130	165	140	4	M10x20	49.5	60
180A	14	15.875	16	19	22	24	28	32	-	-	180	215	190	5.5	M14x25	49.5	60
180A1	14	15.875	16	19	22	24	28	32	35	38	180	215	190	5.5	M14x25	69.5	80

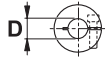
Please contact us for other motor adapters and input shaft bore.

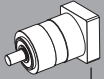



# TR 130

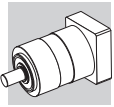
FM



			D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
14	15.875	16	48	113	125.5	M8x15	M6	40	27.5	6	20	14.5
19			51	113	125.5	M8x15	M6	40	27.5	6	20	16.5
22	24		56.5	113	125.5	M8x15	M6	41	28.5	6	19.5	19
28			67	113	125.5	M8x15	M8	41	28.5	6	19.5	22.5
32			71	113	125.5	M8x15	M8	41	28.5	6	19.5	24.5
35			73	113	125.5	M8x15	M8	50	37.5	11.25	26	26
38			77.5	113	125.5	M8x15	M8	50	37.5	11.25	26	28

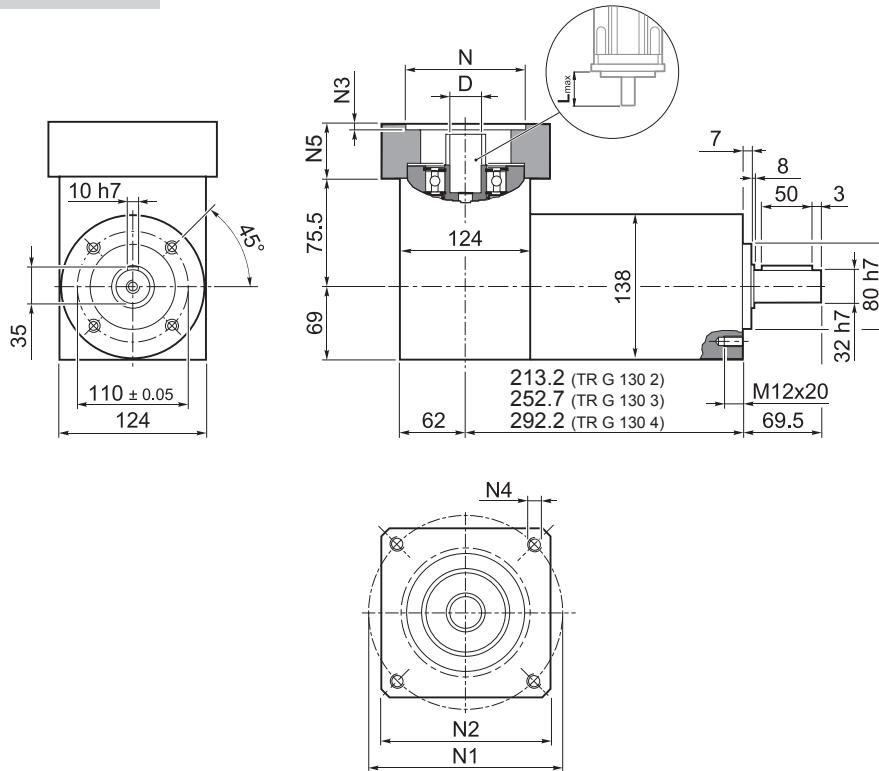
	$M_{n2}$	$M_{a2}$	$M_{p2}$	$n_1$	$n_{1\max}$	$\varphi_S$	$\varphi_R$	$C_t$	$R_{1\max}$	$R_{2\max}$	$A_{2\max}$	$\eta$	$J_G$ [kgcm <sup>2</sup> ]			
													$D$ 	14 ... 19	22 - 24	28 - 32
$i$	[Nm]	[Nm]	[Nm]	[min <sup>-1</sup> ]	[min <sup>-1</sup> ]	[arcmin]		$\frac{Nm}{aromin}$	[N]	[N]	[N]	%				
TR 130 1_3	215	400	800	2100	3000	5'	3'	45.0	800	5500	6500	97	5.25	5.46	5.81	7.16
TR 130 1_4	380	600	1100	2400	3500	5'	3'	45.0	800	5500	6500	97	3.06	3.26	3.61	4.97
TR 130 1_5	380	600	1100	2900	3500	5'	3'	45.0	800	5500	6500	97	2.22	2.42	2.77	4.13
TR 130 1_6	380	600	1100	2900	3500	5'	3'	45.0	800	5500	6500	97	1.19	1.40	1.75	3.10
TR 130 1_7	380	600	1100	3200	4000	5'	3'	45.0	800	5500	6500	97	1.47	1.68	2.03	3.38
TR 130 1_10	215	400	800	3200	4000	5'	3'	45.0	800	5500	6500	97	1.04	1.25	1.60	2.95
TR 130 2_9	215	400	800	2100	3000	5'	3'	38.5	800	5500	6500	94	4.82	5.02	5.37	6.72
TR 130 2_12	450	700	1300	2100	3000	5'	3'	38.5	800	5500	6500	94	4.57	4.78	5.13	6.48
TR 130 2_15	450	700	1300	2100	3000	5'	3'	38.5	800	5500	6500	94	4.48	4.69	5.04	6.39
TR 130 2_16	450	700	1300	2400	3500	5'	3'	38.5	800	5500	6500	94	2.67	2.88	3.23	4.58
TR 130 2_20	450	700	1300	2900	3500	5'	3'	38.5	800	5500	6500	94	1.97	2.18	2.53	3.88
TR 130 2_25	450	700	1300	2900	3500	5'	3'	38.5	800	5500	6500	94	1.94	2.15	2.50	3.85
TR 130 2_28	450	700	1300	3200	4000	5'	3'	38.5	800	5500	6500	94	1.34	1.55	1.90	3.25
TR 130 2_30	215	400	800	3200	4000	5'	3'	38.5	800	5500	6500	94	1.00	1.21	1.56	2.91
TR 130 2_35	450	700	1300	3200	4000	5'	3'	38.5	800	5500	6500	94	1.33	1.53	1.88	3.24
TR 130 2_36	380	600	1100	2900	3500	5'	3'	38.5	800	5500	6500	94	1.05	1.26	1.61	2.96
TR 130 2_40	450	700	1300	3200	4000	5'	3'	38.5	800	5500	6500	94	0.98	1.19	1.54	2.89
TR 130 2_50	450	700	1300	3200	4000	5'	3'	38.5	800	5500	6500	94	0.97	1.18	1.53	2.88
TR 130 2_70	450	700	1300	3200	4000	5'	3'	38.5	800	5500	6500	94	0.96	1.17	1.52	2.87
TR 130 2_100	215	400	800	3200	4000	5'	3'	38.5	800	5500	6500	94	0.96	1.17	1.52	2.87
TR 130 3_48	450	700	1300	2400	3500	7'	5'	30.0	800	5500	6500	91	2.77	2.98	3.33	4.68
TR 130 3_64	450	700	1300	2400	3500	7'	5'	30.0	800	5500	6500	91	2.65	2.86	3.21	4.56
TR 130 3_75	450	700	1300	2900	3500	7'	5'	30.0	800	5500	6500	91	2.03	2.24	2.59	3.94
TR 130 3_80	450	700	1300	2400	3500	7'	5'	30.0	800	5500	6500	91	2.65	2.85	3.20	4.56
TR 130 3_84	450	700	1300	3200	4000	7'	5'	30.0	800	5500	6500	91	1.37	1.58	1.93	3.28
TR 130 3_90	215	400	800	3200	4000	7'	5'	30.0	800	5500	6500	91	1.00	1.20	1.55	2.91
TR 130 3_120	450	700	1300	3200	4000	7'	5'	30.0	800	5500	6500	91	0.99	1.20	1.55	2.90
TR 130 3_125	450	700	1300	2900	3500	7'	5'	30.0	800	5500	6500	91	1.93	2.13	2.48	3.84
TR 130 3_140	450	700	1300	3200	4000	7'	5'	30.0	800	5500	6500	91	1.34	1.54	1.89	3.25
TR 130 3_150	450	700	1300	3200	4000	7'	5'	30.0	800	5500	6500	91	0.99	1.20	1.55	2.90
TR 130 3_160	450	700	1300	3200	4000	7'	5'	30.0	800	5500	6500	91	0.98	1.18	1.53	2.89
TR 130 3_175	450	700	1300	3200	4000	7'	5'	30.0	800	5500	6500	91	1.32	1.53	1.88	3.23
TR 130 3_200	450	700	1300	3200	4000	7'	5'	30.0	800	5500	6500	91	0.97	1.18	1.53	2.88
TR 130 3_210	450	700	1300	3200	4000	7'	5'	30.0	800	5500	6500	91	0.99	1.20	1.55	2.90
TR 130 3_216	450	700	1300	2900	3500	7'	5'	30.0	800	5500	6500	91	1.05	1.26	1.61	2.96
TR 130 3_250	450	700	1300	3200	4000	7'	5'	30.0	800	5500	6500	91	0.97	1.18	1.53	2.88
TR 130 3_280	450	700	1300	3200	4000	7'	5'	30.0	800	5500	6500	91	0.96	1.17	1.52	2.87
TR 130 3_350	450	700	1300	3200	4000	7'	5'	30.0	800	5500	6500	91	0.96	1.17	1.52	2.87
TR 130 3_400	450	700	1300	3200	4000	7'	5'	30.0	800	5500	6500	91	0.96	1.17	1.52	2.87
TR 130 3_500	450	700	1300	3200	4000	7'	5'	30.0	800	5500	6500	91	0.96	1.17	1.52	2.87
TR 130 3_700	450	700	1300	3200	4000	7'	5'	30.0	800	5500	6500	91	0.96	1.17	1.52	2.87
TR 130 3_1000	215	400	800	3200	4000	7'	5'	30.0	800	5500	6500	91	0.96	1.17	1.52	2.87


TR





# TR G 130

## 55A1 ... 180A1



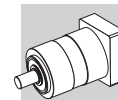
	
TR G 130 2	16.0
TR G 130 3	19.5
TR G 130 4	22.5

TR

											N	N1	N2	N3	N4	N5	L <sub>max</sub>
<b>55A1</b>	14	15.875	16	19	-	-	-	-	-	-	55.5	125.7	130	4	M6x15	39.5	50
<b>80A2</b>	14	15.875	16	19	-	-	-	-	-	-	80	100	130	4	M6x15	39.5	50
<b>95A1</b>	14	15.875	16	19	22	24	-	-	-	-	95	115	130	4	M8x20	39.5	50
<b>110A1</b>	14	15.875	16	19	22	24	-	-	-	-	110	130	130	4	M8x20	39.5	50
<b>110B1</b>	14	15.875	16	19	22	24	-	-	-	-	110	145	130	6.5	M8x20	49.5	60
<b>114A0</b>	14	15.875	16	19	22	24	-	-	-	-	114.3	200	170	5.5	M12x25	39.5	50
<b>114A</b>	14	15.875	16	19	22	24	28	32	35	38	114.3	200	170	5.5	M12x25	69.5	80
<b>130A</b>	14	15.875	16	19	22	24	-	-	-	-	130	165	140	4	M10x20	39.5	50
<b>130A1</b>	14	15.875	16	19	22	24	28	32	-	-	130	165	140	4	M10x20	49.5	60
<b>180A</b>	14	15.875	16	19	22	24	28	32	-	-	180	215	190	5.5	M14x25	49.5	60
<b>180A1</b>	14	15.875	16	19	22	24	28	32	35	38	180	215	190	5.5	M14x25	69.5	80

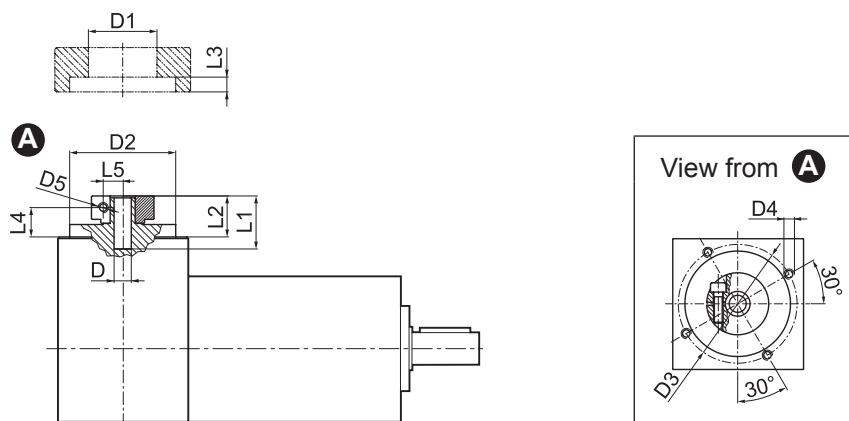
Please contact us for other motor adapters and input shaft bore.





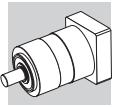
# TR G 130

FM



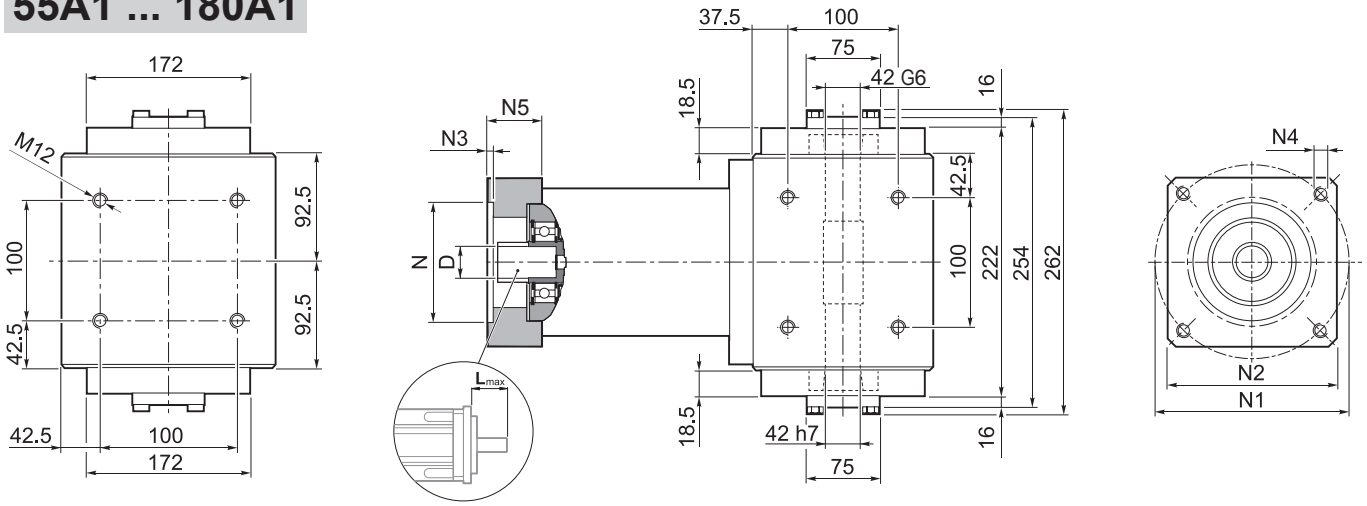
D			D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
14	15.875	16	48	113	125.5	M8x15	M6	40	27.5	6	20	14.5
19			51	113	125.5	M8x15	M6	40	27.5	6	20	16.5
22	24		56.5	113	125.5	M8x15	M6	41	28.5	6	19.5	19
28			67	113	125.5	M8x15	M8	41	28.5	6	19.5	22.5
32			71	113	125.5	M8x15	M8	41	28.5	6	19.5	24.5
35			73	113	125.5	M8x15	M8	50	37.5	11.25	26	26
38			77.5	113	125.5	M8x15	M8	50	37.5	11.25	26	28

i	M <sub>n2</sub> [Nm]	M <sub>a2</sub> [Nm]	M <sub>p2</sub> [Nm]	n <sub>1</sub> [min <sup>-1</sup> ]	n <sub>1 max</sub> [min <sup>-1</sup> ]	φ <sub>S</sub> [arcmin]	φ <sub>R</sub>	C <sub>t</sub> [Nm/arcmin]	R <sub>2 max</sub> [N]	A <sub>2 max</sub> [N]	η %	J <sub>G</sub> [kgcm <sup>2</sup> ]			
												D			
												14 ... 19	22 - 24	28 - 32	35 - 38
TR G 130 2_3	215	400	800	2100	3000	5'	3'	45.0	5500	6500	94	7.09	7.28	7.66	10.37
TR G 130 2_4	380	600	1100	2400	3500	5'	3'	45.0	5500	6500	94	4.90	5.08	5.46	8.18
TR G 130 2_5	380	600	1100	2900	3500	5'	3'	45.0	5500	6500	94	4.81	4.99	5.38	8.10
TR G 130 2_6	380	600	1100	2900	3500	5'	3'	45.0	5500	6500	94	4.45	4.64	5.03	7.73
TR G 130 2_7	380	600	1100	3200	4000	5'	3'	45.0	5500	6500	94	4.73	4.92	5.31	8.01
TR G 130 2_10	215	400	800	3200	4000	5'	3'	45.0	5500	6500	94	4.68	4.88	5.26	7.97
TR G 130 3_9	215	400	800	2100	3000	5'	3'	38.5	5500	6500	91	6.66	6.84	7.22	9.93
TR G 130 3_12	450	700	1300	2100	3000	5'	3'	38.5	5500	6500	91	6.25	6.45	6.84	9.54
TR G 130 3_15	450	700	1300	2100	3000	5'	3'	38.5	5500	6500	91	6.25	6.44	6.83	9.53
TR G 130 3_16	450	700	1300	2400	3500	5'	3'	38.5	5500	6500	91	4.51	4.70	5.08	7.79
TR G 130 3_20	450	700	1300	2900	3500	5'	3'	38.5	5500	6500	91	4.56	5.36	5.75	8.45
TR G 130 3_25	450	700	1300	2900	3500	5'	3'	38.5	5500	6500	91	5.13	4.72	5.11	7.82
TR G 130 3_28	450	700	1300	3200	4000	5'	3'	38.5	5500	6500	91	4.60	4.79	5.18	7.88
TR G 130 3_30	215	400	800	3200	4000	5'	3'	38.5	5500	6500	91	4.64	4.84	5.22	7.93
TR G 130 3_35	450	700	1300	3200	4000	5'	3'	38.5	5500	6500	91	4.92	5.10	5.49	8.20
TR G 130 3_36	380	600	1100	2900	3500	5'	3'	38.5	5500	6500	91	4.31	4.50	4.89	7.59
TR G 130 3_40	450	700	1300	3200	4000	5'	3'	38.5	5500	6500	91	4.77	4.96	5.35	8.05
TR G 130 3_50	450	700	1300	3200	4000	5'	3'	38.5	5500	6500	91	4.76	4.96	5.34	8.05
TR G 130 3_70	450	700	1300	3200	4000	5'	3'	38.5	5500	6500	91	4.60	4.80	5.18	7.89
TR G 130 3_100	215	400	800	3200	4000	5'	3'	38.5	5500	6500	91	4.60	4.80	5.18	7.89
TR G 130 4_48	450	700	1300	2400	3500	7'	5'	30.0	5500	6500	89	4.61	4.81	5.18	7.89
TR G 130 4_64	450	700	1300	2400	3500	7'	5'	30.0	5500	6500	89	4.49	4.68	5.06	7.77
TR G 130 4_75	450	700	1300	2900	3500	7'	5'	30.0	5500	6500	89	4.62	4.81	5.20	7.91
TR G 130 4_80	450	700	1300	2400	3500	7'	5'	30.0	5500	6500	89	4.49	4.67	5.05	7.77
TR G 130 4_84	450	700	1300	3200	4000	7'	5'	30.0	5500	6500	89	4.63	4.82	5.21	7.91
TR G 130 4_90	215	400	800	3200	4000	7'	5'	30.0	5500	6500	89	4.64	4.83	5.21	7.93
TR G 130 4_120	450	700	1300	3200	4000	7'	5'	30.0	5500	6500	89	4.63	4.83	5.21	7.92
TR G 130 4_125	450	700	1300	2900	3500	7'	5'	30.0	5500	6500	89	4.52	4.70	5.09	7.81
TR G 130 4_140	450	700	1300	3200	4000	7'	5'	30.0	5500	6500	89	4.60	4.78	5.17	7.88
TR G 130 4_150	450	700	1300	3200	4000	7'	5'	30.0	5500	6500	89	4.63	4.83	5.21	7.92
TR G 130 4_160	450	700	1300	3200	4000	7'	5'	30.0	5500	6500	89	4.62	4.81	5.19	7.91
TR G 130 4_175	450	700	1300	3200	4000	7'	5'	30.0	5500	6500	89	4.58	4.77	5.16	7.86
TR G 130 4_200	450	700	1300	3200	4000	7'	5'	30.0	5500	6500	89	4.61	4.81	5.19	7.90
TR G 130 4_210	450	700	1300	3200	4000	7'	5'	30.0	5500	6500	89	4.63	4.83	5.21	7.92
TR G 130 4_216	450	700	1300	2900	3500	7'	5'	30.0	5500	6500	89	4.31	4.50	4.89	7.59
TR G 130 4_250	450	700	1300	3200	4000	7'	5'	30.0	5500	6500	89	4.61	4.81	5.19	7.90
TR G 130 4_280	450	700	1300	3200	4000	7'	5'	30.0	5500	6500	89	4.60	4.80	5.18	7.89
TR G 130 4_350	450	700	1300	3200	4000	7'	5'	30.0	5500	6500	89	4.60	4.80	5.18	7.89
TR G 130 4_400	450	700	1300	3200	4000	7'	5'	30.0	5500	6500	89	4.60	4.80	5.18	7.89
TR G 130 4_500	450	700	1300	3200	4000	7'	5'	30.0	5500	6500	89	4.60	4.80	5.18	7.89
TR G 130 4_700	450	700	1300	3200	4000	7'	5'	30.0	5500	6500	89	4.60	4.80	5.18	7.89
TR G 130 4_1000	215	400	800	3200	4000	7'	5'	30.0	5500	6500	89	4.60	4.80	5.18	7.89

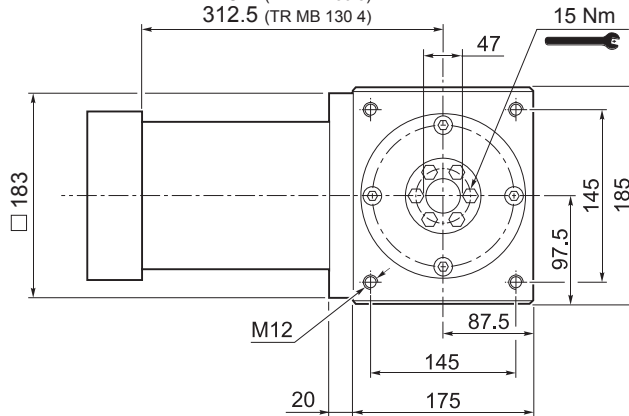


# TR MB 130

## 55A1 ... 180A1



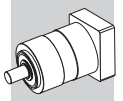
233.5 (TR MB 130 2)  
273 (TR MB 130 3)  
312.5 (TR MB 130 4)



TR MB 130 2	54
TR MB 130 3	58
TR MB 130 4	61

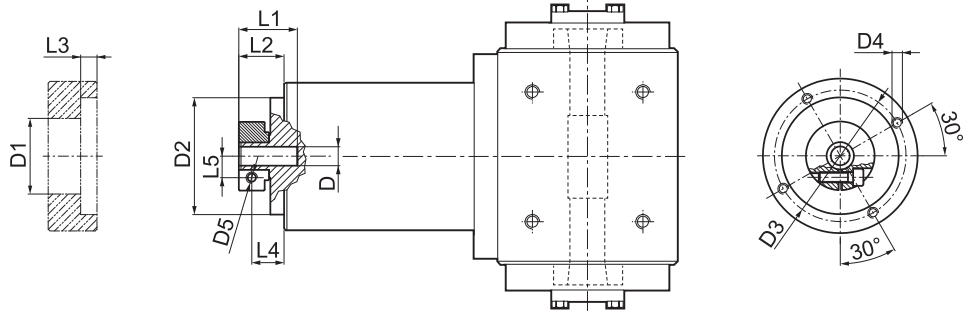
											N	N1	N2	N3	N4	N5	L <sub>max</sub>
<b>55A1</b>	14	15.875	16	19	-	-	-	-	-	-	55.5	125.7	130	4	M6x15	39.5	50
<b>80A2</b>	14	15.875	16	19	-	-	-	-	-	-	80	100	130	4	M6x15	39.5	50
<b>95A1</b>	14	15.875	16	19	22	24	-	-	-	-	95	115	130	4	M8x20	39.5	50
<b>110A1</b>	14	15.875	16	19	22	24	-	-	-	-	110	130	130	4	M8x20	39.5	50
<b>110B1</b>	14	15.875	16	19	22	24	-	-	-	-	110	145	130	6.5	M8x20	49.5	60
<b>114A0</b>	14	15.875	16	19	22	24	-	-	-	-	114.3	200	170	5.5	M12x25	39.5	50
<b>114A</b>	14	15.875	16	19	22	24	28	32	35	38	114.3	200	170	5.5	M12x25	69.5	80
<b>130A</b>	14	15.875	16	19	22	24	-	-	-	-	130	165	140	4	M10x20	39.5	50
<b>130A1</b>	14	15.875	16	19	22	24	28	32	-	-	130	165	140	4	M10x20	49.5	60
<b>180A</b>	14	15.875	16	19	22	24	28	32	-	-	180	215	190	5.5	M14x25	49.5	60
<b>180A1</b>	14	15.875	16	19	22	24	28	32	35	38	180	215	190	5.5	M14x25	69.5	80

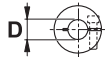
Please contact us for other motor adapters and input shaft bore.

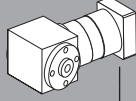



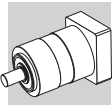
# TR MB 130

FM



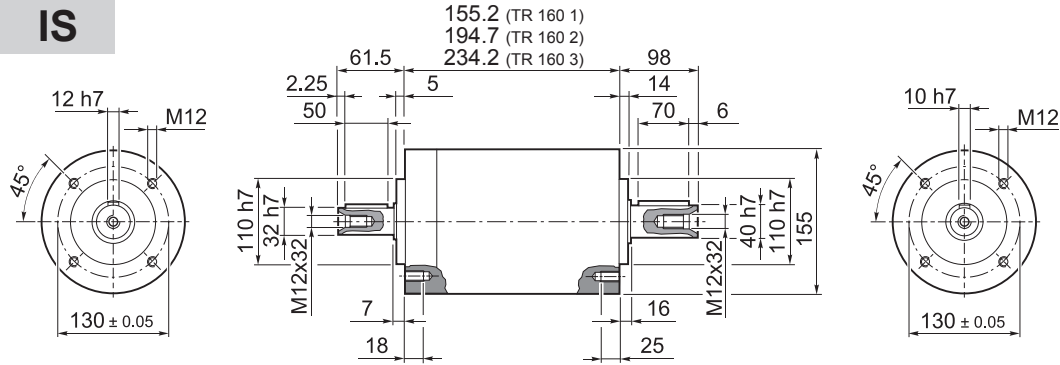
	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5		
14	15.875	16	48	113	125.5	M8x15	M6	40	27.5	6	20	14.5
19			51	113	125.5	M8x15	M6	40	27.5	6	20	16.5
22	24		56.5	113	125.5	M8x15	M6	41	28.5	6	19.5	19
28			67	113	125.5	M8x15	M8	41	28.5	6	19.5	22.5
32			71	113	125.5	M8x15	M8	41	28.5	6	19.5	24.5
35			73	113	125.5	M8x15	M8	50	37.5	11.25	26	26
38			77.5	113	125.5	M8x15	M8	50	37.5	11.25	26	28

	i	M <sub>n2</sub> [Nm]	M <sub>a2</sub> [Nm]	M <sub>p2</sub> [Nm]	n <sub>1</sub> [min <sup>-1</sup> ]	n <sub>1 max</sub> [min <sup>-1</sup> ]	φ <sub>S</sub> [arcmin]	φ <sub>R</sub> [arcmin]	C <sub>t</sub> [Nm/arcmin]	η %	J <sub>G</sub> [kgcm <sup>2</sup> ]			
												14 ... 19	22 - 24	28 - 32
TR MB 130 2_3		215	400	800	2100	3000	5'	3'	45.0	94	5.25	5.46	5.81	7.16
TR MB 130 2_4		380	600	1100	2400	3500	5'	3'	45.0	94	3.06	3.26	3.61	4.97
TR MB 130 2_5		380	600	1100	2900	3500	5'	3'	45.0	94	2.22	2.42	2.77	4.13
TR MB 130 2_6		380	600	1100	2900	3500	5'	3'	45.0	94	1.19	1.40	1.75	3.10
TR MB 130 2_7		380	600	1100	3200	4000	5'	3'	45.0	94	1.47	1.68	2.03	3.38
TR MB 130 2_10		215	400	800	3200	4000	5'	3'	45.0	94	1.04	1.25	1.60	2.95
TR MB 130 3_9		215	400	800	2100	3000	5'	3'	38.5	91	4.82	5.02	5.37	6.72
TR MB 130 3_12		450	700	1300	2100	3000	5'	3'	38.5	91	4.57	4.78	5.13	6.48
TR MB 130 3_15		450	700	1300	2100	3000	5'	3'	38.5	91	4.48	4.69	5.04	6.39
TR MB 130 3_16		450	700	1300	2400	3500	5'	3'	38.5	91	2.67	2.88	3.23	4.58
TR MB 130 3_20		450	700	1300	2900	3500	5'	3'	38.5	91	1.97	2.18	2.53	3.88
TR MB 130 3_25		450	700	1300	2900	3500	5'	3'	38.5	91	1.94	2.15	2.50	3.85
TR MB 130 3_28		450	700	1300	3200	4000	5'	3'	38.5	91	1.34	1.55	1.90	3.25
TR MB 130 3_30		215	400	800	3200	4000	5'	3'	38.5	91	1.00	1.21	1.56	2.91
TR MB 130 3_35		450	700	1300	3200	4000	5'	3'	38.5	91	1.33	1.53	1.88	3.24
TR MB 130 3_36		380	600	1100	2900	3500	5'	3'	38.5	91	1.05	1.26	1.61	2.96
TR MB 130 3_40		450	700	1300	3200	4000	5'	3'	38.5	91	0.98	1.19	1.54	2.89
TR MB 130 3_50		450	700	1300	3200	4000	5'	3'	38.5	91	0.97	1.18	1.53	2.88
TR MB 130 3_70		450	700	1300	3200	4000	5'	3'	38.5	91	0.96	1.17	1.52	2.87
TR MB 130 3_100		215	400	800	3200	4000	5'	3'	38.5	91	0.96	1.17	1.52	2.87
TR MB 130 4_48		450	700	1300	2400	3500	7'	5'	30.0	89	2.77	2.98	3.33	4.68
TR MB 130 4_64		450	700	1300	2400	3500	7'	5'	30.0	89	2.65	2.86	3.21	4.56
TR MB 130 4_75		450	700	1300	2900	3500	7'	5'	30.0	89	2.03	2.24	2.59	3.94
TR MB 130 4_80		450	700	1300	2400	3500	7'	5'	30.0	89	2.65	2.85	3.20	4.56
TR MB 130 4_84		450	700	1300	3200	4000	7'	5'	30.0	89	1.37	1.58	1.93	3.28
TR MB 130 4_90		215	400	800	3200	4000	7'	5'	30.0	89	1.00	1.20	1.55	2.91
TR MB 130 4_120		450	700	1300	3200	4000	7'	5'	30.0	89	0.99	1.20	1.55	2.90
TR MB 130 4_125		450	700	1300	2900	3500	7'	5'	30.0	89	1.93	2.13	2.48	3.84
TR MB 130 4_140		450	700	1300	3200	4000	7'	5'	30.0	89	1.34	1.54	1.89	3.25
TR MB 130 4_150		450	700	1300	3200	4000	7'	5'	30.0	89	0.99	1.20	1.55	2.90
TR MB 130 4_160		450	700	1300	3200	4000	7'	5'	30.0	89	0.98	1.18	1.53	2.89
TR MB 130 4_175		450	700	1300	3200	4000	7'	5'	30.0	89	1.32	1.53	1.88	3.23
TR MB 130 4_200		450	700	1300	3200	4000	7'	5'	30.0	89	0.97	1.18	1.53	2.88
TR MB 130 4_210		450	700	1300	3200	4000	7'	5'	30.0	89	0.99	1.20	1.55	2.90
TR MB 130 4_216		450	700	1300	2900	3500	7'	5'	30.0	89	1.05	1.26	1.61	2.96
TR MB 130 4_250		450	700	1300	3200	4000	7'	5'	30.0	89	0.97	1.18	1.53	2.88
TR MB 130 4_280		450	700	1300	3200	4000	7'	5'	30.0	89	0.96	1.17	1.52	2.87
TR MB 130 4_350		450	700	1300	3200	4000	7'	5'	30.0	89	0.96	1.17	1.52	2.87
TR MB 130 4_400		450	700	1300	3200	4000	7'	5'	30.0	89	0.96	1.17	1.52	2.87
TR MB 130 4_500		450	700	1300	3200	4000	7'	5'	30.0	89	0.96	1.17	1.52	2.87
TR MB 130 4_700		450	700	1300	3200	4000	7'	5'	30.0	89	0.96	1.17	1.52	2.87
TR MB 130 4_1000		215	400	800	3200	4000	7'	5'	30.0	89	0.96	1.17	1.52	2.87



# TR 160

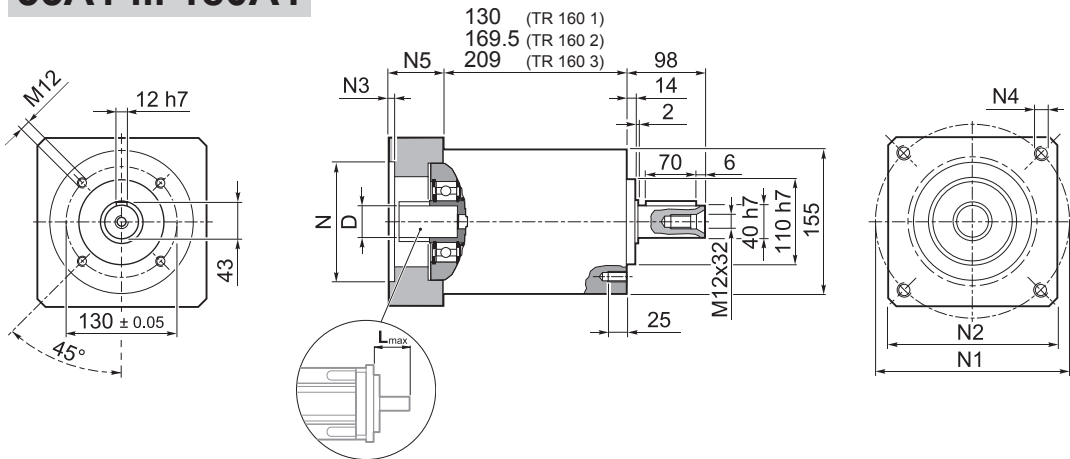
IS



TR 160 1	17.0
TR 160 2	21
TR 160 3	28

TR

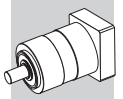
# 55A1 ... 180A1



TR 160 1	17.0
TR 160 2	21
TR 160 3	28

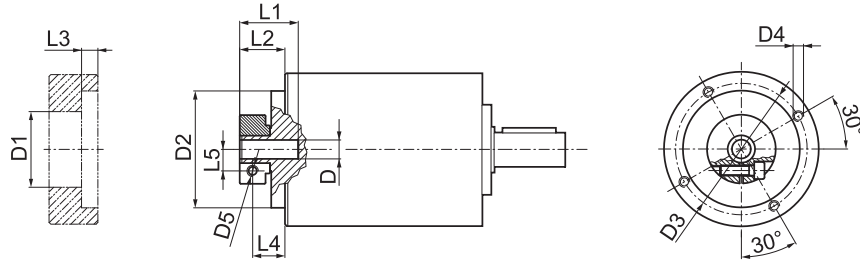
											N	N1	N2	N3	N4	N5	L <sub>max</sub>
55A1	14	15.875	16	19	-	-	-	-	-	-	55.5	125.7	140	5	M6x15	39.5	50
80A2	14	15.875	16	19	-	-	-	-	-	-	80	100	140	5	M6x15	39.5	50
95A1	14	15.875	16	19	22	24	-	-	-	-	95	115	140	5	M8x20	39.5	50
110A1	14	15.875	16	19	22	24	-	-	-	-	110	130	140	5	M8x20	39.5	50
110B1	14	15.875	16	19	22	24	-	-	-	-	110	145	140	6.5	M8x20	49.5	60
114A	14	15.875	16	19	22	24	28	32	35	38	114.3	200	170	6.5	M12x25	69.5	80
130A	14	15.875	16	19	22	24	-	-	-	-	130	165	140	5	M10x20	39.5	50
130A1	14	15.875	16	19	22	24	28	32	-	-	130	165	140	5	M10x20	49.5	60
180A	14	15.875	16	19	22	24	28	32	-	-	180	215	190	6.5	M14x25	49.5	60
180A1	14	15.875	16	19	22	24	28	32	35	38	180	215	190	6.5	M14x25	69.5	80

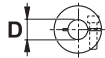
Please contact us for other motor adapters and input shaft bore.

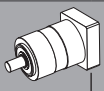



# TR 160

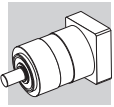
FM



			D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
14	15.875	16	48	130	142.5	M8x16	M6	40	27.5	6	20	14.5
19			51	130	142.5	M8x16	M6	40	27.5	6	20	16.5
22	24		56.5	130	142.5	M8x16	M6	41	28.5	6	19.5	19
28			67	130	142.5	M8x16	M8	41	28.5	6	19.5	22.5
32			71	130	142.5	M8x16	M8	41	28.5	6	19.5	24.5
35			73	130	142.5	M8x16	M8	50	37.5	11.25	26	26
38			77.5	130	142.5	M8x16	M8	50	37.5	11.25	26	28

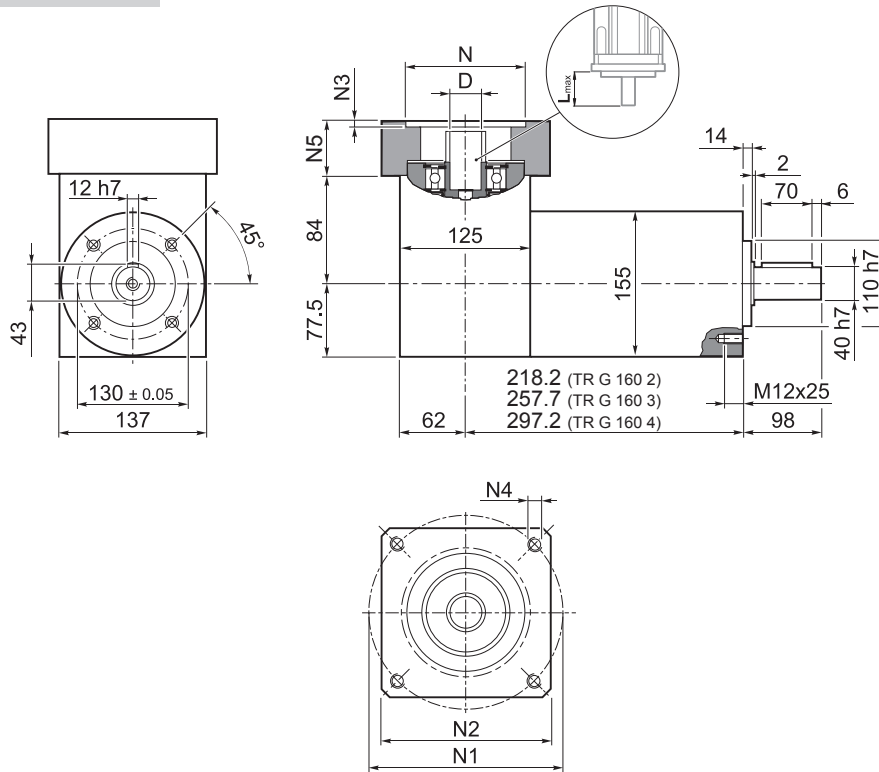
	$M_{n2}$	$M_{a2}$	$M_{p2}$	$n_1$	$n_{1max}$	$\phi_S$	$\phi_R$	$C_t$	$R_{1max}$	$R_{2max}$	$A_{2max}$	$\eta$	$J_G$ [kgcm <sup>2</sup> ]			
																
													i	[Nm]	[Nm]	[Nm]
TR 160 1_3	350	660	1200	1900	3000	5'	3'	90	1200	6500	7500	97	8.39	8.60	8.95	10.30
TR 160 1_4	500	750	1400	2200	3500	5'	3'	90	1200	6500	7500	97	4.68	4.89	5.24	6.59
TR 160 1_5	500	750	1400	2500	3500	5'	3'	90	1200	6500	7500	97	3.28	3.49	3.84	5.19
TR 160 1_6	500	750	1400	2500	3500	5'	3'	90	1200	6500	7500	97	1.32	1.53	1.88	3.23
TR 160 1_7	500	750	1400	3000	4000	5'	3'	90	1200	6500	7500	97	2.03	2.24	2.59	3.94
TR 160 1_10	350	660	1200	3000	4000	5'	3'	90	1200	6500	7500	97	1.33	1.53	1.88	3.24
TR 160 2_9	350	660	1200	1900	3000	5'	3'	83.5	1200	6500	7500	94	7.51	7.72	8.07	9.42
TR 160 2_12	700	950	1800	1900	3000	5'	3'	83.5	1200	6500	7500	94	7.10	7.30	7.65	9.01
TR 160 2_15	700	950	1800	1900	3000	5'	3'	83.5	1200	6500	7500	94	6.94	7.15	7.50	8.85
TR 160 2_16	700	950	1800	2200	3500	5'	3'	83.5	1200	6500	7500	94	3.95	4.16	4.51	5.86
TR 160 2_20	700	950	1800	2500	3500	5'	3'	83.5	1200	6500	7500	94	2.82	3.02	3.37	4.73
TR 160 2_25	700	950	1800	2500	3500	5'	3'	83.5	1200	6500	7500	94	2.76	2.97	3.32	4.67
TR 160 2_28	700	950	1800	3000	4000	5'	3'	83.5	1200	6500	7500	94	1.79	2.00	2.35	3.70
TR 160 2_30	350	660	1200	3000	4000	5'	3'	83.5	1200	6500	7500	94	1.25	1.46	1.81	3.16
TR 160 2_35	700	950	1800	3000	4000	5'	3'	83.5	1200	6500	7500	94	1.77	1.97	2.32	3.68
TR 160 2_36	500	750	1400	2500	3500	5'	3'	83.5	1200	6500	7500	94	1.06	1.27	1.62	2.97
TR 160 2_40	700	950	1800	3000	4000	5'	3'	83.5	1200	6500	7500	94	1.21	1.42	1.77	3.12
TR 160 2_50	700	950	1800	3000	4000	5'	3'	83.5	1200	6500	7500	94	1.20	1.40	1.75	3.11
TR 160 2_70	700	950	1800	3000	4000	5'	3'	83.5	1200	6500	7500	94	1.18	1.39	1.74	3.09
TR 160 2_100	350	660	1200	3000	4000	5'	3'	83.5	1200	6500	7500	94	1.18	1.38	1.73	3.09
TR 160 3_48	700	950	1800	2200	3500	7'	5'	60	1200	6500	7500	91	4.10	4.31	4.66	6.01
TR 160 3_64	700	950	1800	2200	3500	7'	5'	60	1200	6500	7500	91	3.90	4.11	4.46	5.81
TR 160 3_75	700	950	1800	2500	3500	7'	5'	60	1200	6500	7500	91	2.91	3.11	3.46	4.82
TR 160 3_80	700	950	1800	2200	3500	7'	5'	60	1200	6500	7500	91	3.90	4.11	4.46	5.81
TR 160 3_84	700	950	1800	3000	4000	7'	5'	60	1200	6500	7500	91	1.84	2.05	2.40	3.75
TR 160 3_90	350	660	1200	3000	4000	7'	5'	60	1200	6500	7500	91	1.24	1.45	1.80	3.15
TR 160 3_120	700	950	1800	3000	4000	7'	5'	60	1200	6500	7500	91	1.23	1.44	1.79	3.14
TR 160 3_125	700	950	1800	2500	3500	7'	5'	60	1200	6500	7500	91	2.74	2.95	3.30	4.65
TR 160 3_140	700	950	1800	3000	4000	7'	5'	60	1200	6500	7500	91	1.78	1.98	2.33	3.69
TR 160 3_150	700	950	1800	3000	4000	7'	5'	60	1200	6500	7500	91	1.23	1.44	1.79	3.14
TR 160 3_160	700	950	1800	3000	4000	7'	5'	60	1200	6500	7500	91	1.20	1.41	1.76	3.11
TR 160 3_175	700	950	1800	3000	4000	7'	5'	60	1200	6500	7500	91	1.76	1.96	2.31	3.67
TR 160 3_200	700	950	1800	3000	4000	7'	5'	60	1200	6500	7500	91	1.20	1.41	1.76	3.11
TR 160 3_210	700	950	1800	3000	4000	7'	5'	60	1200	6500	7500	91	1.23	1.44	1.79	3.14
TR 160 3_250	700	950	1800	3000	4000	7'	5'	60	1200	6500	7500	91	1.19	1.40	1.75	3.10
TR 160 3_280	700	950	1800	3000	4000	7'	5'	60	1200	6500	7500	91	1.18	1.39	1.74	3.09
TR 160 3_350	700	950	1800	3000	4000	7'	5'	60	1200	6500	7500	91	1.18	1.39	1.74	3.09
TR 160 3_400	700	950	1800	3000	4000	7'	5'	60	1200	6500	7500	91	1.18	1.38	1.73	3.09
TR 160 3_500	700	950	1800	3000	4000	7'	5'	60	1200	6500	7500	91	1.18	1.38	1.73	3.09
TR 160 3_700	700	950	1800	3000	4000	7'	5'	60	1200	6500	7500	91	1.18	1.38	1.73	3.09
TR 160 3_1000	350	660	1200	3000	4000	7'	5'	60	1200	6500	7500	91	1.18	1.38	1.73	3.09

TR



# TR G 160

## 55A1 ... 180A1

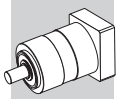


TR G 160 2	24
TR G 160 3	28
TR G 160 4	34

TR

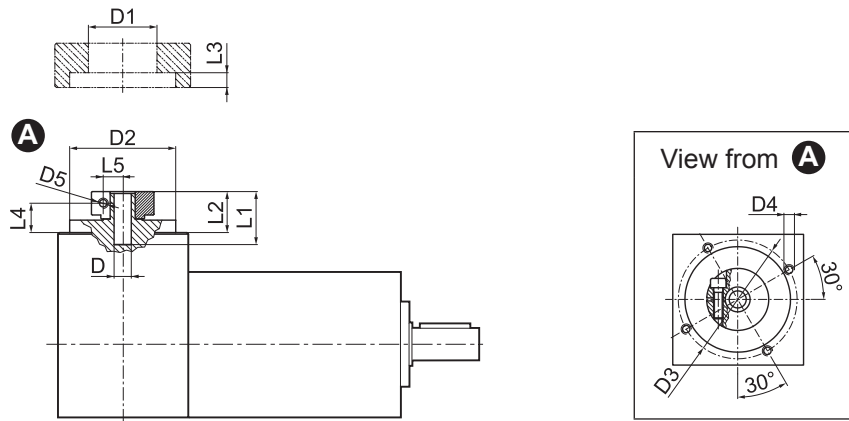
											N	N1	N2	N3	N4	N5	L <sub>max</sub>
<b>55A1</b>	14	15.875	16	19	-	-	-	-	-	-	55.5	125.7	140	5	M6x15	39.5	50
<b>80A2</b>	14	15.875	16	19	-	-	-	-	-	-	80	100	140	5	M6x15	39.5	50
<b>95A1</b>	14	15.875	16	19	22	24	-	-	-	-	95	115	140	5	M8x20	39.5	50
<b>110A1</b>	14	15.875	16	19	22	24	-	-	-	-	110	130	140	5	M8x20	39.5	50
<b>110B1</b>	14	15.875	16	19	22	24	-	-	-	-	110	145	140	6.5	M8x20	49.5	60
<b>114A</b>	14	15.875	16	19	22	24	28	32	35	38	114.3	200	170	6.5	M12x25	69.5	80
<b>130A</b>	14	15.875	16	19	22	24	-	-	-	-	130	165	140	5	M10x20	39.5	50
<b>130A1</b>	14	15.875	16	19	22	24	28	32	-	-	130	165	140	5	M10x20	49.5	60
<b>180A</b>	14	15.875	16	19	22	24	28	32	-	-	180	215	190	6.5	M14x25	49.5	60
<b>180A1</b>	14	15.875	16	19	22	24	28	32	35	38	180	215	190	6.5	M14x25	69.5	80

Please contact us for other motor adapters and input shaft bore.



# TR G 160

FM

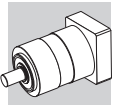


D			D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
14	15.875	16	48	113	125.5	M8x15	M6	40	27.5	6	20	14.5
19			51	113	125.5	M8x15	M6	40	27.5	6	20	16.5
22	24		56.5	113	125.5	M8x15	M6	41	28.5	6	19.5	19
28			67	113	125.5	M8x15	M8	41	28.5	6	19.5	22.5
32			71	113	125.5	M8x15	M8	41	28.5	6	19.5	24.5
35			73	113	125.5	M8x15	M8	50	37.5	11.25	26	26
38			77.5	113	125.5	M8x15	M8	50	37.5	11.25	26	28

i	M <sub>n 2</sub> [Nm]	M <sub>a 2</sub> [Nm]	M <sub>p 2</sub> [Nm]	n <sub>1</sub> [min <sup>-1</sup> ]	n <sub>1 max</sub> [min <sup>-1</sup> ]	φ <sub>S</sub> [arcmin]	φ <sub>R</sub> [arcmin]	C <sub>t</sub> [Nm/arcmin]	R <sub>2 max</sub> [N]	A <sub>2 max</sub> [N]	η %	J <sub>G</sub> [kgcm <sup>2</sup> ]			
												D	14 ... 19	22 - 24	28 - 32
TR G 160 2_3	350	660	1200	1900	3000	5'	3'	90	6500	7500	94	10.23	10.42	10.80	13.51
TR G 160 2_4	500	750	1400	2200	3500	5'	3'	90	6500	7500	94	6.52	6.71	7.09	9.80
TR G 160 2_5	500	750	1400	2500	3500	5'	3'	90	6500	7500	94	5.87	6.06	6.45	9.16
TR G 160 2_6	500	750	1400	2500	3500	5'	3'	90	6500	7500	94	4.58	4.77	5.16	7.86
TR G 160 2_7	500	750	1400	3000	4000	5'	3'	90	6500	7500	94	5.29	5.48	5.87	8.57
TR G 160 2_10	350	660	1200	3000	4000	5'	3'	90	6500	7500	94	4.97	5.16	5.54	8.25
TR G 160 3_9	350	660	1200	1900	3000	5'	3'	83.5	6500	7500	91	9.35	9.54	9.92	12.63
TR G 160 3_12	700	950	1800	1900	3000	5'	3'	83.5	6500	7500	91	8.78	8.97	9.36	12.07
TR G 160 3_15	700	950	1800	1900	3000	5'	3'	83.5	6500	7500	91	8.71	8.90	9.29	11.99
TR G 160 3_16	700	950	1800	2200	3500	5'	3'	83.5	6500	7500	91	5.79	5.98	6.36	9.07
TR G 160 3_20	700	950	1800	2500	3500	5'	3'	83.5	6500	7500	91	5.41	6.20	6.59	9.30
TR G 160 3_25	700	950	1800	2500	3500	5'	3'	83.5	6500	7500	91	5.95	5.54	5.93	8.64
TR G 160 3_28	700	950	1800	3000	4000	5'	3'	83.5	6500	7500	91	5.05	5.24	5.63	8.33
TR G 160 3_30	350	660	1200	3000	4000	5'	3'	83.5	6500	7500	91	4.89	5.09	5.47	8.18
TR G 160 3_35	700	950	1800	3000	4000	5'	3'	83.5	6500	7500	91	5.36	5.54	5.93	8.64
TR G 160 3_36	500	750	1400	2500	3500	5'	3'	83.5	6500	7500	91	4.32	4.51	4.90	7.60
TR G 160 3_40	700	950	1800	3000	4000	5'	3'	83.5	6500	7500	91	5.00	5.19	5.58	8.28
TR G 160 3_50	700	950	1800	3000	4000	5'	3'	83.5	6500	7500	91	4.99	5.18	5.56	8.27
TR G 160 3_70	700	950	1800	3000	4000	5'	3'	83.5	6500	7500	91	4.82	5.02	5.40	8.11
TR G 160 3_100	350	660	1200	3000	4000	5'	3'	83.5	6500	7500	91	4.82	5.01	5.39	8.10
TR G 160 4_48	700	950	1800	2200	3500	7'	5'	60	6500	7500	89	5.94	6.13	6.53	9.22
TR G 160 4_64	700	950	1800	2200	3500	7'	5'	60	6500	7500	89	5.74	5.93	6.31	9.02
TR G 160 4_75	700	950	1800	2500	3500	7'	5'	60	6500	7500	89	5.50	5.68	6.07	8.79
TR G 160 4_80	700	950	1800	2200	3500	7'	5'	60	6500	7500	89	5.74	5.93	6.31	9.02
TR G 160 4_84	700	950	1800	3000	4000	7'	5'	60	6500	7500	89	5.10	5.29	5.68	8.38
TR G 160 4_90	350	660	1200	3000	4000	7'	5'	60	6500	7500	89	4.88	5.08	5.46	8.17
TR G 160 4_120	700	950	1800	3000	4000	7'	5'	60	6500	7500	89	4.87	5.07	5.45	8.16
TR G 160 4_125	700	950	1800	2500	3500	7'	5'	60	6500	7500	89	5.33	5.52	5.91	8.62
TR G 160 4_140	700	950	1800	3000	4000	7'	5'	60	6500	7500	89	5.04	5.22	5.61	8.32
TR G 160 4_150	700	950	1800	3000	4000	7'	5'	60	6500	7500	89	4.87	5.07	5.45	8.16
TR G 160 4_160	700	950	1800	3000	4000	7'	5'	60	6500	7500	89	4.84	5.04	5.42	8.13
TR G 160 4_175	700	950	1800	3000	4000	7'	5'	60	6500	7500	89	5.02	5.20	5.59	8.30
TR G 160 4_200	700	950	1800	3000	4000	7'	5'	60	6500	7500	89	4.84	5.04	5.42	8.13
TR G 160 4_210	700	950	1800	3000	4000	7'	5'	60	6500	7500	89	4.87	5.07	5.45	8.16
TR G 160 4_250	700	950	1800	3000	4000	7'	5'	60	6500	7500	89	4.83	5.03	5.41	8.12
TR G 160 4_280	700	950	1800	3000	4000	7'	5'	60	6500	7500	89	4.82	5.02	5.40	8.11
TR G 160 4_350	700	950	1800	3000	4000	7'	5'	60	6500	7500	89	4.82	2.05	5.40	8.11
TR G 160 4_400	700	950	1800	3000	4000	7'	5'	60	6500	7500	89	4.82	5.01	5.39	8.11
TR G 160 4_500	700	950	1800	3000	4000	7'	5'	60	6500	7500	89	4.82	5.01	5.39	8.11
TR G 160 4_700	700	950	1800	3000	4000	7'	5'	60	6500	7500	89	4.82	5.01	5.39	8.11
TR G 160 4_1000	350	660	1200	3000	4000	7'	5'	60	6500	7500	89	4.82	5.01	5.39	8.11

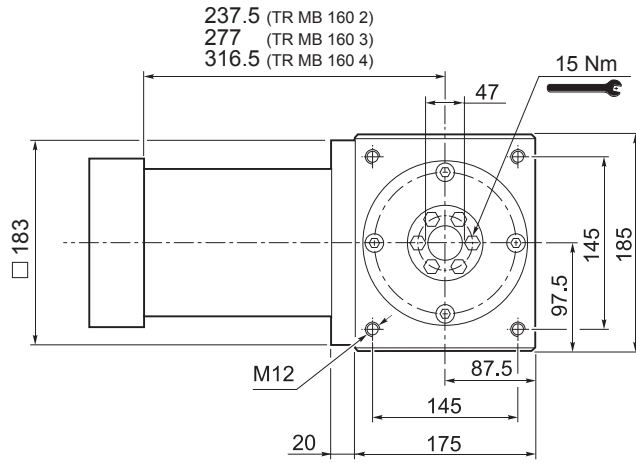
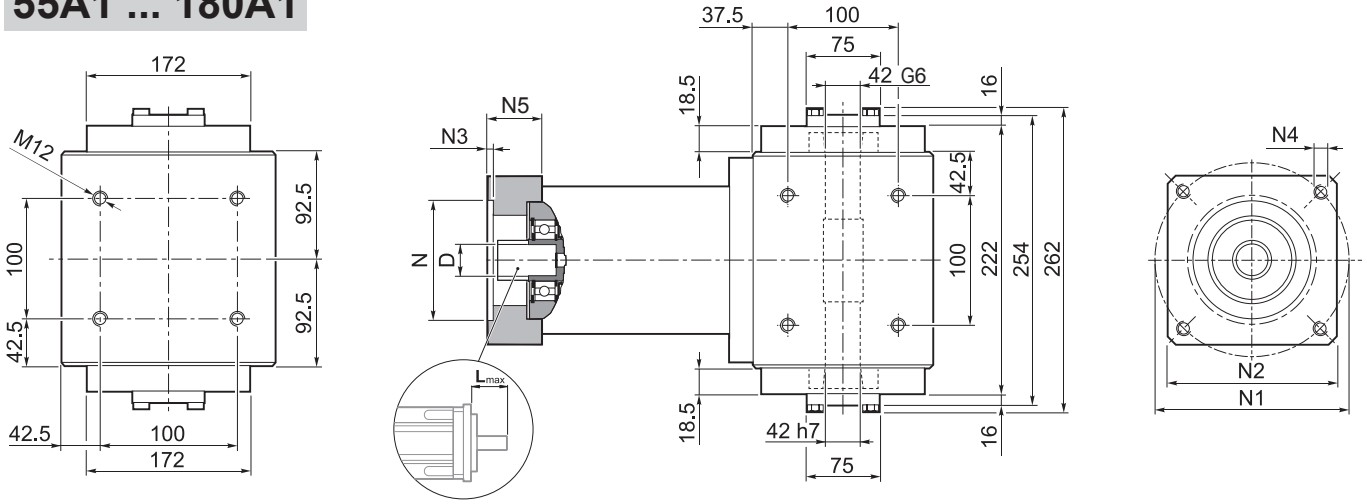
TR





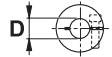


# TR MB 160

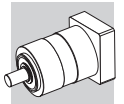
## 55A1 ... 180A1



	 Kg
TR MB 160 2	59
TR MB 160 3	63.5
TR MB 160 4	70.5

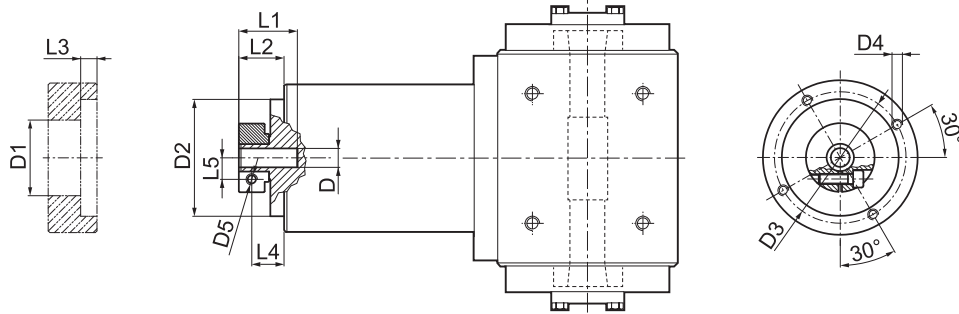
											N	N1	N2	N3	N4	N5	L <sub>max</sub>
<b>55A1</b>	14	15.875	16	19	-	-	-	-	-	-	55.5	125.7	140	5	M6x15	39.5	50
<b>80A2</b>	14	15.875	16	19	-	-	-	-	-	-	80	100	140	5	M6x15	39.5	50
<b>95A1</b>	14	15.875	16	19	22	24	-	-	-	-	95	115	140	5	M8x20	39.5	50
<b>110A1</b>	14	15.875	16	19	22	24	-	-	-	-	110	130	140	5	M8x20	39.5	50
<b>110B1</b>	14	15.875	16	19	22	24	-	-	-	-	110	145	140	6.5	M8x20	49.5	60
<b>114A</b>	14	15.875	16	19	22	24	28	32	35	38	114.3	200	170	6.5	M12x25	69.5	80
<b>130A</b>	14	15.875	16	19	22	24	-	-	-	-	130	165	140	5	M10x20	39.5	50
<b>130A1</b>	14	15.875	16	19	22	24	28	32	-	-	130	165	140	5	M10x20	49.5	60
<b>180A</b>	14	15.875	16	19	22	24	28	32	-	-	180	215	190	6.5	M14x25	49.5	60
<b>180A1</b>	14	15.875	16	19	22	24	28	32	35	38	180	215	190	6.5	M14x25	69.5	80


Please contact us for other motor adapters and input shaft bore.

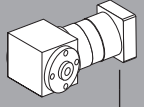


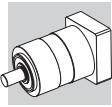
# TR MB 160

FM



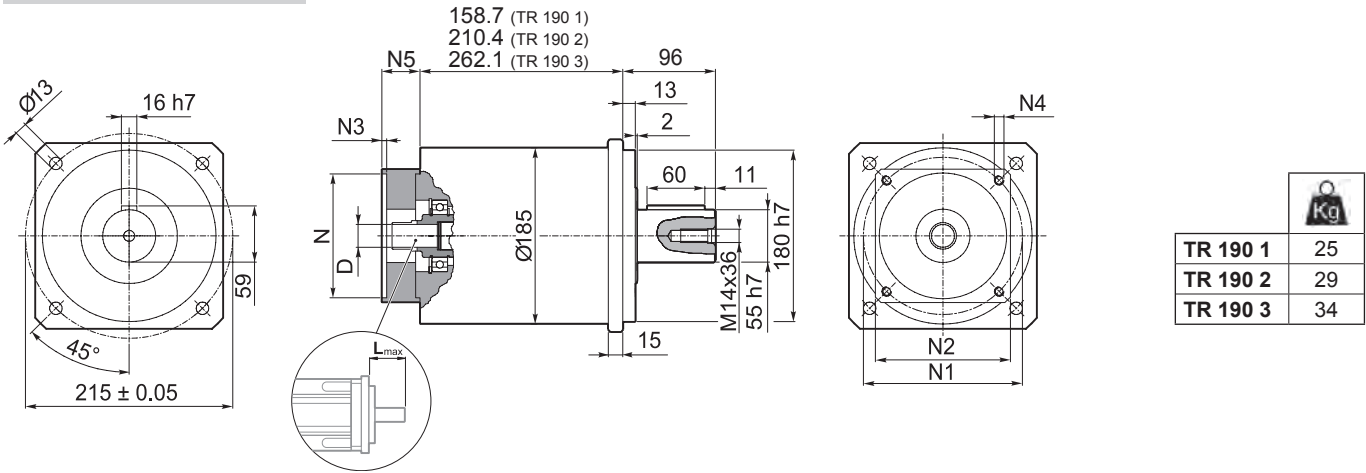
		D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	
14	15.875	16	48	130	142.5	M8x16	M6	40	27.5	6	20	14.5
19			51	130	142.5	M8x16	M6	40	27.5	6	20	16.5
22	24		56.5	130	142.5	M8x16	M6	41	28.5	6	19.5	19
28			67	130	142.5	M8x16	M8	41	28.5	6	19.5	22.5
32			71	130	142.5	M8x16	M8	41	28.5	6	19.5	24.5
35			73	130	142.5	M8x16	M8	50	37.5	11.25	26	26
38			77.5	130	142.5	M8x16	M8	50	37.5	11.25	26	28

	M <sub>n2</sub> [Nm]	M <sub>a2</sub> [Nm]	M <sub>p2</sub> [Nm]	n <sub>1</sub> [min <sup>-1</sup> ]	n <sub>1 max</sub> [min <sup>-1</sup> ]	Φ <sub>S</sub> [arcmin]	Φ <sub>R</sub> [arcmin]	C <sub>t</sub> [Nm/arcmin]	η %	J <sub>G</sub> [kgcm <sup>2</sup> ]			
										14 ... 19	22 - 24	28 - 32	35 - 38
TR MB 160 2_3	350	660	1200	1900	3000	5'	3'	90	94	8.39	8.60	8.95	10.30
TR MB 160 2_4	500	750	1400	2200	3500	5'	3'	90	94	4.68	4.89	5.24	6.59
TR MB 160 2_5	500	750	1400	2500	3500	5'	3'	90	94	3.28	3.49	3.84	5.19
TR MB 160 2_6	500	750	1400	2500	3500	5'	3'	90	94	1.32	1.53	1.88	3.23
TR MB 160 2_7	500	750	1400	3000	4000	5'	3'	90	94	2.03	2.24	2.59	3.94
TR MB 160 2_10	350	660	1200	3000	4000	5'	3'	90	94	1.33	1.53	1.88	3.24
TR MB 160 3_9	350	660	1200	1900	3000	5'	3'	83	91	7.51	7.72	8.07	9.42
TR MB 160 3_12	700	950	1800	1900	3000	5'	3'	83	91	7.10	7.30	7.65	9.01
TR MB 160 3_15	700	950	1800	1900	3000	5'	3'	83	91	6.94	7.15	7.50	8.85
TR MB 160 3_16	700	950	1800	2200	3500	5'	3'	83	91	3.95	4.16	4.51	5.86
TR MB 160 3_20	700	950	1800	2500	3500	5'	3'	83	91	2.82	3.02	3.37	4.73
TR MB 160 3_25	700	950	1800	2500	3500	5'	3'	83	91	2.76	2.97	3.32	4.67
TR MB 160 3_28	700	950	1800	3000	4000	5'	3'	83	91	1.79	2.00	2.35	3.70
TR MB 160 3_30	350	660	1200	3000	4000	5'	3'	83	91	1.25	1.46	1.81	3.16
TR MB 160 3_35	700	950	1800	3000	4000	5'	3'	83	91	1.77	1.97	2.32	3.68
TR MB 160 3_36	500	750	1400	2500	3500	5'	3'	83	91	1.06	1.27	1.62	2.97
TR MB 160 3_40	700	950	1800	3000	4000	5'	3'	83	91	1.21	1.42	1.77	3.12
TR MB 160 3_50	700	950	1800	3000	4000	5'	3'	83	91	1.20	1.40	1.75	3.11
TR MB 160 3_70	700	950	1800	3000	4000	5'	3'	83	91	1.18	1.39	1.74	3.09
TR MB 160 3_100	350	660	1200	3000	4000	5'	3'	83	91	1.18	1.38	1.73	3.09
TR MB 160 4_48	700	950	1800	2200	3500	7'	5'	60	89	4.10	4.31	4.66	6.01
TR MB 160 4_64	700	950	1800	2200	3500	7'	5'	60	89	3.90	4.11	4.46	5.81
TR MB 160 4_75	700	950	1800	2500	3500	7'	5'	60	89	2.91	3.11	3.46	4.82
TR MB 160 4_80	700	950	1800	2200	3500	7'	5'	60	89	3.90	4.11	4.46	5.81
TR MB 160 4_84	700	950	1800	3000	4000	7'	5'	60	89	1.84	2.05	2.40	3.75
TR MB 160 4_90	350	660	1200	3000	4000	7'	5'	60	89	1.24	1.45	1.80	3.15
TR MB 160 4_120	700	950	1800	3000	4000	7'	5'	60	89	1.23	1.44	1.79	3.14
TR MB 160 4_125	700	950	1800	2500	3500	7'	5'	60	89	2.74	2.95	3.30	4.65
TR MB 160 4_140	700	950	1800	3000	4000	7'	5'	60	89	1.78	1.98	2.33	3.69
TR MB 160 4_150	700	950	1800	3000	4000	7'	5'	60	89	1.23	1.44	1.79	3.14
TR MB 160 4_160	700	950	1800	3000	4000	7'	5'	60	89	1.20	1.41	1.76	3.11
TR MB 160 4_175	700	950	1800	3000	4000	7'	5'	60	89	1.76	1.96	2.31	3.67
TR MB 160 4_200	700	950	1800	3000	4000	7'	5'	60	89	1.20	1.41	1.76	3.11
TR MB 160 4_210	700	950	1800	3000	4000	7'	5'	60	89	1.23	1.44	1.79	3.14
TR MB 160 4_250	700	950	1800	3000	4000	7'	5'	60	89	1.19	1.40	1.75	3.10
TR MB 160 4_280	700	950	1800	3000	4000	7'	5'	60	89	1.18	1.39	1.74	3.09
TR MB 160 4_350	700	950	1800	3000	4000	7'	5'	60	89	1.18	1.39	1.74	3.09
TR MB 160 4_400	700	950	1800	3000	4000	7'	5'	60	89	1.18	1.38	1.73	3.09
TR MB 160 4_500	700	950	1800	3000	4000	7'	5'	60	89	1.18	1.38	1.73	3.09
TR MB 160 4_700	700	950	1800	3000	4000	7'	5'	60	89	1.18	1.38	1.73	3.09
TR MB 160 4_1000	350	660	1200	3000	4000	7'	5'	60	89	1.18	1.38	1.73	3.09



# TR 190

## 55A1 ... 180A1



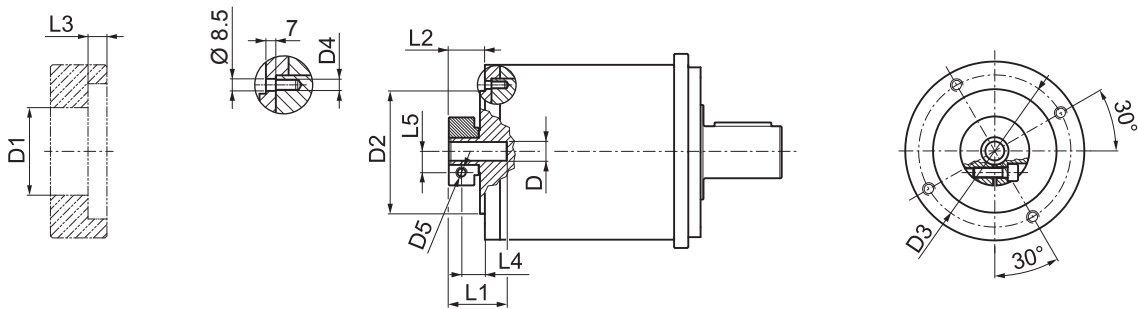
TR 190 1	25
TR 190 2	29
TR 190 3	34

TR

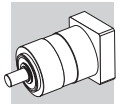
												N	N1	N2	N3	N4	N5	L <sub>max</sub>	
55A1	14	16	19	-	-	-	-	-	-	-	-	-	55.5	125.7	140	5	M6x15	39.5	50
80A2	14	16	19	-	-	-	-	-	-	-	-	-	80	100	140	5	M6x15	39.5	50
95A1	14	16	19	22	24	-	-	-	-	-	-	-	95	115	140	5	M8x20	39.5	50
110A1	14	16	19	22	24	-	-	-	-	-	-	-	110	130	140	5	M8x20	39.5	50
110B1	14	16	19	22	24	-	-	-	-	-	-	-	110	145	140	6.5	M8x20	49.5	60
114A	14	16	19	22	24	28	32	35	38	42	45	48	114.3	200	170	6.5	M12x25	69.5	80
130A	14	16	19	22	24	-	-	-	-	-	-	-	130	165	140	5	M10x20	39.5	50
130A1	14	16	19	22	24	28	32	-	-	-	-	-	130	165	140	5	M10x20	49.5	60
180A	14	16	19	22	24	28	32	-	-	-	-	-	180	215	190	6.5	M14x25	49.5	60
180A1	14	16	19	22	24	28	32	35	38	42	45	48	180	215	190	6.5	M14x25	69.5	80

Please contact us for other motor adapters and input shaft bore.

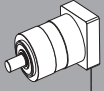
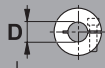
## FM



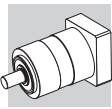
	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
14 16	48	130	142.5	M8x14	M6	45.5	27.5	6	20	14.5
19 16	51	130	142.5	M8x14	M6	45.5	27.5	6	20	16.5
22 24	56.5	130	142.5	M8x14	M6	47	29	6	20	19
28 24	67	130	142.5	M8x14	M8	47	29	6	20	22.5
32 24	71	130	142.5	M8x14	M8	47	29	6	20	24.5
35 24	73	130	142.5	M8x14	M8	54.5	36.5	6	25	26
38 24	77.5	130	142.5	M8x14	M8	54.5	36.5	6	25	28
42 24	92	130	142.5	M8x14	M10	60.5	40	6	25	33
45 24	95	130	142.5	M8x14	M10	60.5	40	6	25	33
48 24	97	130	142.5	M8x14	M10	60.5	40	6	25	33



# TR 190

 i	M <sub>n 2</sub>	M <sub>a 2</sub>	M <sub>p 2</sub>	n <sub>1</sub>	n <sub>1 max</sub>	φ <sub>S</sub>	φ <sub>R</sub>	C <sub>t</sub>	R <sub>2 max</sub>	A <sub>2 max</sub>	η	J <sub>G</sub> [kgcm <sup>2</sup> ]				
	[Nm]	[Nm]	[Nm]	[min <sup>-1</sup> ]	[min <sup>-1</sup> ]	[arcmin]	[arcmin]	$\left[ \frac{Nm}{arcmin} \right]$	[N]	[N]	%	14 ... 24	28 - 32	 35 - 35	42	45 - 48
TR 190 1_3	500	800	1400	1500	2500	5'	3'	130	14000	15000	97	24.20	24.88	25.65	29.30	29.90
TR 190 1_4	700	950	1800	2100	3000	5'	3'	130	14000	15000	97	13.41	14.09	14.85	18.51	19.11
TR 190 1_5	700	950	1800	2300	3000	5'	3'	130	14000	15000	97	9.32	10.00	10.77	14.42	15.02
TR 190 1_6	700	950	1800	2300	3000	5'	3'	130	14000	15000	97	2.88	3.56	4.33	7.98	8.58
TR 190 1_7	700	950	1800	2900	3500	5'	3'	130	14000	15000	97	5.68	6.36	7.13	10.78	11.38
TR 190 1_10	500	800	1400	2900	3500	5'	3'	130	14000	15000	97	3.57	4.25	5.02	8.67	9.27
TR 190 2_9	500	800	1400	1500	2500	5'	3'	100	14000	15000	94	23.23	23.91	24.67	28.33	28.93
TR 190 2_12	1000	1200	2200	1500	2500	5'	3'	100	14000	15000	94	22.03	22.71	23.48	27.13	27.73
TR 190 2_15	1000	1200	2200	1500	2500	5'	3'	100	14000	15000	94	21.58	22.25	23.02	26.68	27.27
TR 190 2_16	1000	1200	2200	2100	3000	5'	3'	100	14000	15000	94	12.19	12.86	13.63	17.29	17.89
TR 190 2_20	1000	1200	2200	2300	3000	5'	3'	100	14000	15000	94	8.54	9.22	9.98	13.64	14.24
TR 190 2_25	1000	1200	2200	2300	3000	5'	3'	100	14000	15000	94	8.37	9.05	9.82	13.48	14.07
TR 190 2_28	1000	1200	2200	2900	3500	5'	3'	100	14000	15000	94	5.28	5.96	6.73	10.38	10.98
TR 190 2_30	500	800	1400	2900	3500	5'	3'	100	14000	15000	94	3.48	4.16	4.93	8.58	9.18
TR 190 2_35	1000	1200	2200	2900	3500	5'	3'	100	14000	15000	94	5.20	5.87	6.64	10.30	10.90
TR 190 2_36	700	950	1800	2300	3000	5'	3'	100	14000	15000	94	2.18	2.86	3.63	7.28	7.88
TR 190 2_40	1000	1200	2200	2900	3500	5'	3'	100	14000	15000	94	3.37	4.05	4.82	8.48	9.07
TR 190 2_50	1000	1200	2200	2900	3500	5'	3'	100	14000	15000	94	3.33	4.01	4.78	8.44	9.03
TR 190 2_70	1000	1200	2200	2900	3500	5'	3'	100	14000	15000	94	3.30	3.97	4.74	8.40	9.00
TR 190 2_100	500	800	1400	2900	3500	5'	3'	100	14000	15000	94	3.28	3.95	4.72	8.38	8.98
TR 190 3_48	1000	1200	2200	2100	3000	7'	5'	90	14000	15000	91	12.73	13.40	14.17	17.83	18.43
TR 190 3_64	1000	1200	2200	2100	3000	7'	5'	90	14000	15000	91	12.10	12.78	13.55	17.21	17.80
TR 190 3_75	1000	1200	2200	2300	3000	7'	5'	90	14000	15000	91	8.86	9.54	10.31	13.97	14.56
TR 190 3_80	1000	1200	2200	2100	3000	7'	5'	90	14000	15000	91	12.09	12.76	13.53	17.19	17.79
TR 190 3_84	1000	1200	2200	2900	3500	7'	5'	90	14000	15000	91	5.46	6.13	6.90	10.56	11.16
TR 190 3_90	500	800	1400	2900	3500	7'	5'	90	14000	15000	91	3.47	4.15	4.92	8.57	9.17
TR 190 3_120	1000	1200	2200	2900	3500	7'	5'	90	14000	15000	91	3.46	4.14	4.91	8.56	9.16
TR 190 3_125	1000	1200	2200	2300	3000	7'	5'	90	14000	15000	91	8.34	9.01	9.78	13.44	14.04
TR 190 3_140	1000	1200	2200	2900	3500	7'	5'	90	14000	15000	91	5.25	5.92	6.69	10.35	10.95
TR 190 3_150	1000	1200	2200	2900	3500	7'	5'	90	14000	15000	91	3.46	4.13	4.90	8.56	9.15
TR 190 3_160	1000	1200	2200	2900	3500	7'	5'	90	14000	15000	91	3.36	4.04	4.81	8.46	9.06
TR 190 3_175	1000	1200	2200	2900	3500	7'	5'	90	14000	15000	91	5.18	5.85	6.62	10.28	10.88
TR 190 3_200	1000	1200	2200	2900	3500	7'	5'	90	14000	15000	91	3.36	4.03	4.80	8.46	9.06
TR 190 3_210	1000	1200	2200	2900	3500	7'	5'	90	14000	15000	91	3.45	4.13	4.90	8.55	9.15
TR 190 3_250	1000	1200	2200	2900	3500	7'	5'	90	14000	15000	91	3.32	4.00	4.77	8.42	9.02
TR 190 3_280	1000	1200	2200	2900	3500	7'	5'	90	14000	15000	91	3.29	3.97	4.74	8.39	8.99
TR 190 3_350	1000	1200	2200	2900	3500	7'	5'	90	14000	15000	91	3.29	3.97	4.74	8.39	8.99
TR 190 3_400	1000	1200	2200	2900	3500	7'	5'	90	14000	15000	91	3.27	3.95	4.72	8.38	8.97
TR 190 3_500	1000	1200	2200	2900	3500	7'	5'	90	14000	15000	91	3.27	3.95	4.72	8.38	8.97
TR 190 3_700	1000	1200	2200	2900	3500	7'	5'	90	14000	15000	91	3.27	3.95	4.72	8.38	8.97
TR 190 3_1000	500	800	1400	2900	3500	7'	5'	90	14000	15000	91	3.27	3.95	4.72	8.38	8.97

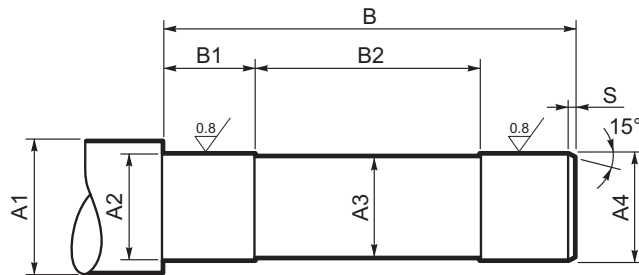
TR



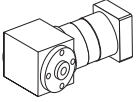
### 4.3.1 MACHINE SHAFT

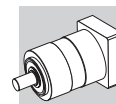
Pivot of driven equipment should be made from high grade alloy steel. Table below shows recommended dimensions for the Customer to consider when designing mating shaft. A device retaining the shaft axially is also recommended (not shown). The number and size of relative tapped holes at shaft end depend on application requirements.

## MB



TR

	A1	A2	A3	A4	B	B1	B2	S
TR MB 080	≥ 25	20 h7	18	20 h7	178	50	90	1
TR MB 105	≥ 40	32 h7	30	32 h7	205	60	115	
TR MB 130/160	≥ 50	42 h7	40	42 h7	259	70	140	

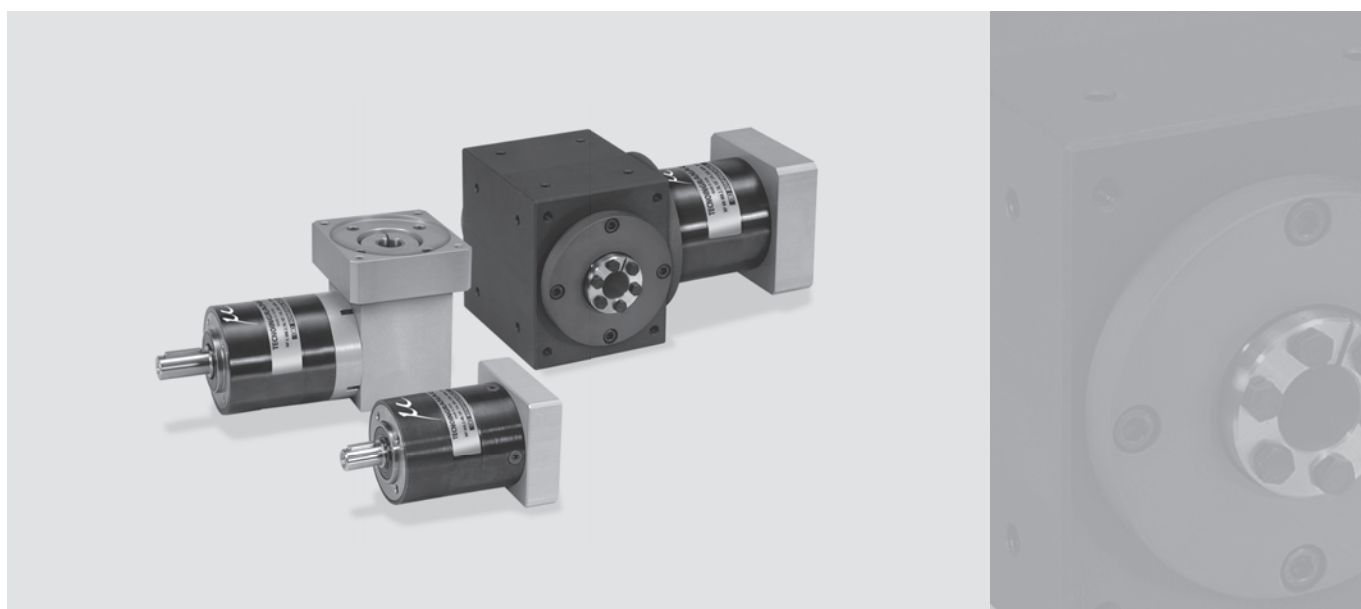


# MP

## PLANETARY PRECISION GEARBOX

MP planetary precision gearboxes are landmark for optimal performance, along with top reliability.

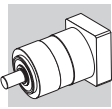
Available in different configuration (with input right angle; with output right angle; and hollow shaft, with solid input shaft), and servo-adapters to comply with most servomotors mechanical interface from the market.



MP

### Product Line Up:

- Higher Torque Density
- Higher Acceleration and Nominal Torques
- Higher Radial and Axial loading capacities
- Designed for Cyclic and continuous duty
- Higher Torsional Stiffness
- Geometrical Backlash less than 10 arcmin
- Highest flexibility (low / reduced backlash; standard / reinforced bearings; different constructive version) to match with your specific requirement.



## 5 FEATURES OF MP SERIES

Planetary gear units of the MP series belong to a range of low backlash drives very broad and complete as far as transmissible torque, gear ratios and circumferential backlash.

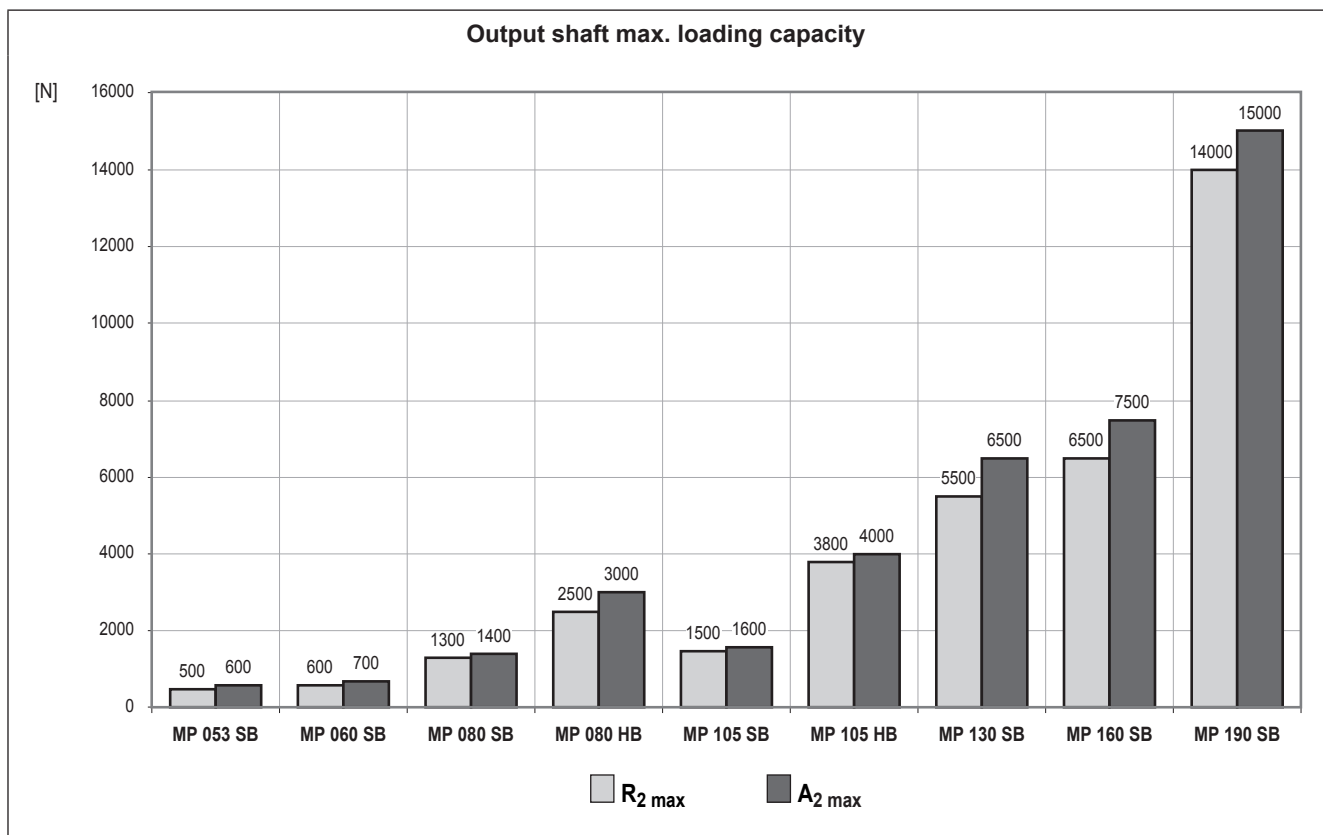
All units are generously proportioned to run quietly and provide a long service life without maintenance requirements.

Motor mounting is an operation that can be easily conducted without the need of any particular tooling, other than that usually available in a normally equipped workshop.

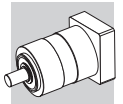
- Available with either standard (STD) or reduced (LOW) backlash:
  - 1-stage units: standard  $s \leq 15'$ ; reduced  $R \leq 10'$
  - 2-stage units: standard  $s \leq 15'$ ; reduced  $R \leq 10'$
  - 3-stage units (G and MB only): standard  $R \leq 15'$ ; reduced  $R \leq 10'$
  - 3-stage units: standard  $s \leq 17'$ ; reduced  $R \leq 12'$
  - 4-stage units (G and MB only): standard  $s \leq 17'$ ; reduced  $R \leq 12'$
- A high IP rating (IP65) provides inner parts with protection against the ingress of dust and liquids.
- Input section oil seals made from a Fluoroelastomer compound are supplied as standard.
- Noise pressure level  $L_P \leq 70$  dB(A). Conditions: distance 1 m; measured without load an input speed of  $n_1 = 3000 \text{ min}^{-1}$ ;  $i=10$ .
- Bearings suitably rated for an average service life of 20,000 hours under nominal operating conditions. The following chart shows the types of bearings for the output shaft.

	MP 053	MP 060	MP 080	MP 105	MP 130	MP 160	MP 190
SB							
HB							

MP







- Wide range of adapter flanges matching the most popular brands of motors.

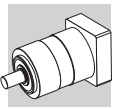


- Lubrication optimized for the type of duty specified when ordering.  
In the absence of contamination the lubricant requires no periodical changes.

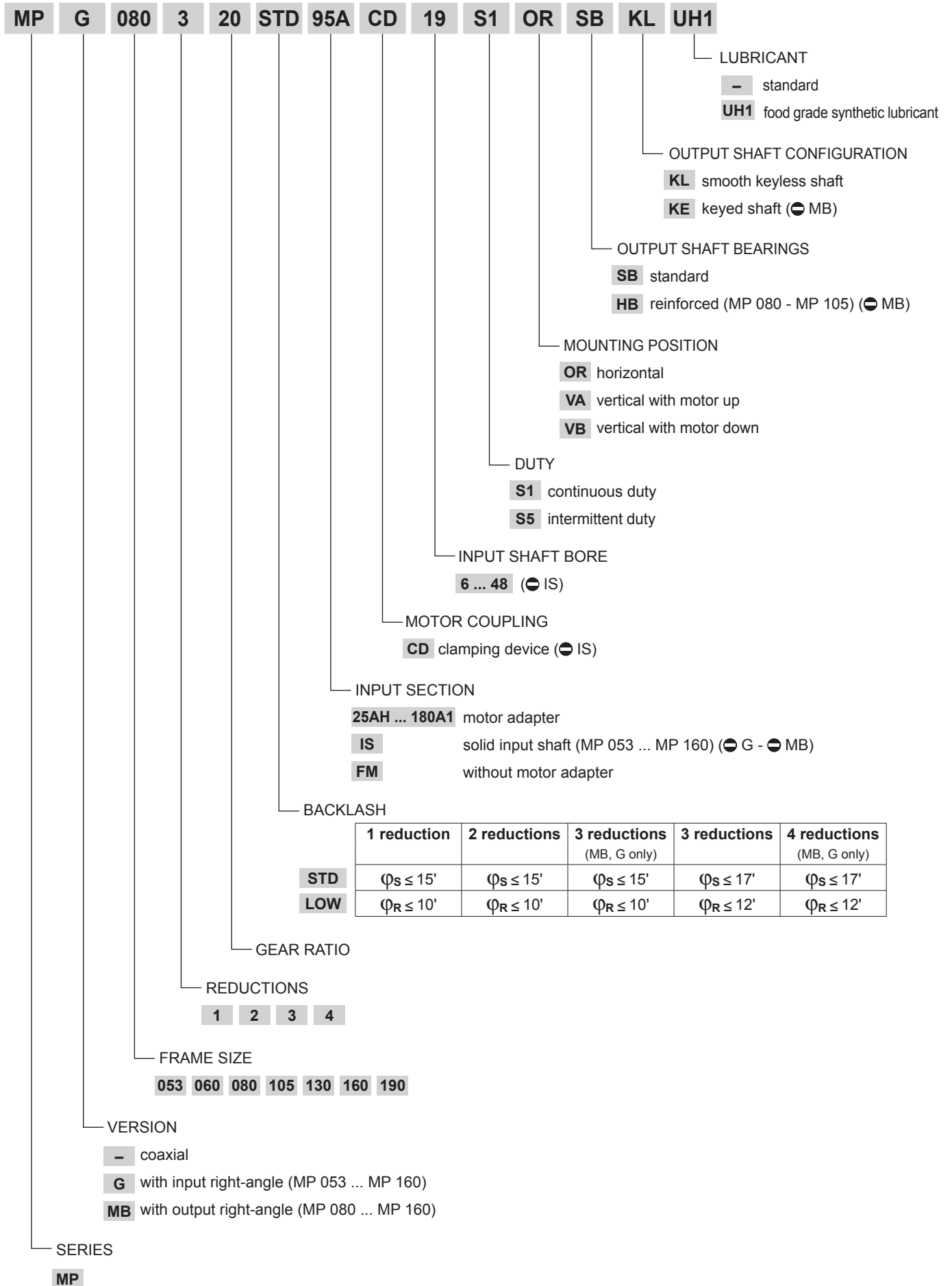
duty	MP 053 - MP 060	MP 080 ... MP 190	oil seals
S1 (continuous)	NLGI grease consistency 00	Synthetic oil viscosity ISO VG 220	Fluoroelastomer
S5 (intermittent)		NLGI grease consistency 00	NBR

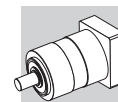
- Ambient temperature min -20°C, max +30°C. For temperature higher than 30°C please consider derating factor ft.
- Housing temperature must not exceed  $T_{max} = 90^{\circ}C$ .

		Distribution of nominal torque $M_{n2}$ [Nm]																											
	[I]	3	4	5	6	7	9	10	12	15	16	20	25	28	30	35	36	40	45	48	50	60	64	70	75	80	81	84	90
MP 053		12	15	15	15	15	12	-	20	20	20	20	20	20	-	20	15	-	20	20	-	20	20	-	20	20	12	20	-
MP 060		18	25	25	25	25	18	18	30	30	30	30	30	30	18	30	25	30	-	30	30	-	30	30	30	30	-	30	18
MP 080		40	50	50	50	50	40	40	70	70	70	70	70	70	40	70	50	70	-	70	70	-	70	70	70	70	-	70	40
MP 105		100	140	140	140	140	100	100	170	170	170	170	170	170	100	170	140	170	-	170	170	-	170	170	170	170	-	170	100
MP 130		215	380	380	380	380	215	215	450	450	450	450	450	450	215	450	380	450	-	450	450	-	450	450	450	450	-	450	215
MP 160		350	500	500	500	500	350	350	700	700	700	700	700	700	350	700	500	700	-	700	700	-	700	700	700	700	-	700	350
MP 190		500	700	700	700	700	500	500	1000	1000	1000	1000	1000	1000	500	1000	700	1000	-	1000	1000	-	1000	1000	1000	1000	-	1000	500
	[I]	100	112	120	125	140	144	150	160	175	180	200	210	216	225	245	250	252	280	324	350	400	405	500	567	700	729	1000	
MP 053		20	20	-	20	20	20	-	-	20	20	-	-	20	20	20	-	20	-	20	-	-	20	-	20	-	12	-	
MP 060		18	-	30	30	30	-	30	30	30	-	30	30	30	-	-	30	-	30	-	30	30	-	30	-	30	-	18	
MP 080		40	-	70	70	70	-	70	70	70	-	70	70	70	-	-	70	-	70	-	70	70	-	70	-	70	-	40	
MP 105		100	-	170	170	170	-	170	170	170	-	170	170	170	-	-	170	-	170	-	170	170	-	170	-	170	-	100	
MP 130		215	-	450	450	450	-	450	450	450	-	450	450	450	-	-	450	-	450	-	450	450	-	450	-	450	-	215	
MP 160		350	-	700	700	700	-	700	700	700	-	700	700	-	-	700	-	700	-	700	-	700	700	-	700	-	700	-	350
MP 190		500	-	1000	1000	1000	-	1000	1000	1000	-	1000	1000	-	-	1000	-	1000	-	1000	-	1000	1000	-	1000	-	1000	-	500



## 5.1 ORDERING CODE





### 5.1.1 VERSION AND INPUT SECTION

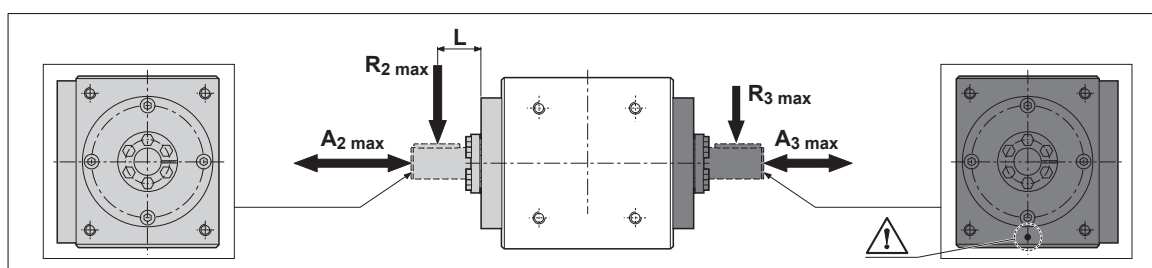
INPUT SECTION	VERSION		
	coaxial (—)	with input right-angle (G)	with output right-angle (MB)
25AH ... 180A1			
IS		—	—
FM			

### 5.1.2 MOUNTING POSITIONS

	OR	VA	VB
—			
G			
MB			

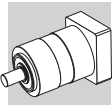
MP

### 5.2 ADMISSIBLE RADIAL AND THRUST FORCES FOR MB VERSION



	$R_2 \text{ max}$ [N]	$A_2 \text{ max}$ [N]	L [mm]	$R_3 \text{ max}$ [N]	$A_3 \text{ max}$ [N]
MP MB 080	6000	5000	60	5500	5000
MP MB 105	9000	7500	80	7500	7500
MP MB 130	13500	11500	100	11000	11500
MP MB 160*	15000	11500	100	12500	11500

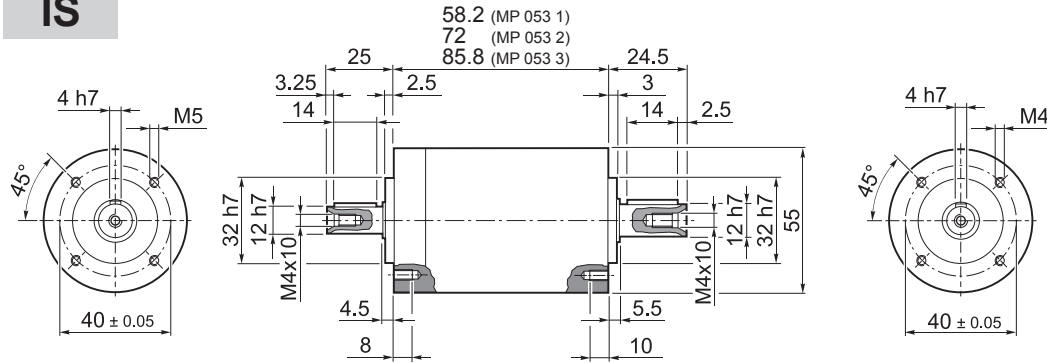
\* Bearings suitably rated for an average service life of 10,000 hours under nominal operating conditions.



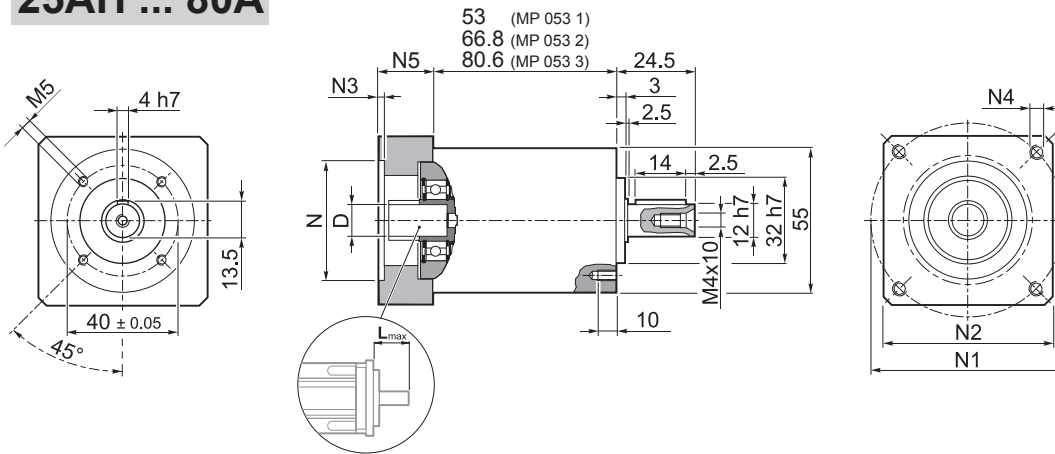
### 5.3 DIMENSIONS AND TECHNICAL SPECIFICATIONS

## MP 053

**IS**



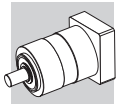
## 25AH ... 80A



**MP**

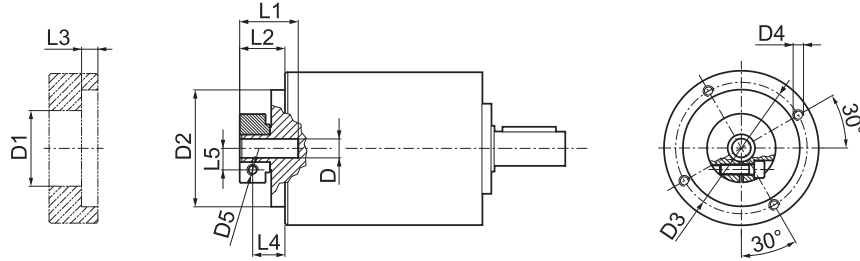
												N	N1		N2	N3	N4	N5	Lmax
													min	max					
<b>25AH</b>	6	6.35	7	8	9	9.52	-	-	-	-	-	25	36	48	55	3.5	4.5	25	25
<b>26AH</b>	6	6.35	7	8	9	9.52	-	-	-	-	-	26	36	48					
<b>28AH</b>	6	6.35	7	8	9	9.52	-	-	-	-	-	28	36	48					
<b>30AH</b>	6	6.35	7	8	9	9.52	-	-	-	-	-	30	36	48					
<b>32AH</b>	6	6.35	7	8	9	9.52	-	-	-	-	-	32	38	48					
<b>34AH</b>	6	6.35	7	8	9	9.52	-	-	-	-	-	34	40	48					
<b>36AH</b>	6	6.35	7	8	9	9.52	-	-	-	-	-	36	42	48					
<b>38AH</b>	6	6.35	7	8	9	9.52	-	-	-	-	-	38	44	48					
<b>40AH</b>	6	6.35	7	8	9	9.52	-	-	-	-	-	40	46	48					
<b>38B</b>	6	6.35	7	8	9	9.52	10	11	12	12.7	-	38.1	66.6		60	3	M4x10	18	25
<b>40B</b>	6	6.35	7	8	9	9.52	10	11	12	12.7	-	40	63		60	3	M4x10	18	25
<b>50A</b>	6	6.35	7	8	9	9.52	10	11	12	12.7	-	50	60		60	3	M4x10	18	25
<b>50B</b>	6	6.35	7	8	9	9.52	10	11	12	12.7	14	50	65		60	3	M5x12	23	30
<b>50BH</b>	6	6.35	7	8	9	9.52	10	11	12	12.7	14	50	65		60	4	5.5	23	30
<b>50C</b>	6	6.35	7	8	9	9.52	10	11	12	12.7	14	50	70		60	3	M4x10	23	30
<b>50MH</b>	6	6.35	7	8	9	9.52	10	11	12	12.7	-	50	65		55	2	5.5	16	23
<b>60A</b>	6	6.35	7	8	9	9.52	10	11	12	12.7	-	60	75		63	3	M5x12	18	25
<b>60AH</b>	6	6.35	7	8	9	9.52	10	11	12	12.7	-	60	75		65	3	5.5	18	25
<b>60A1</b>	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	75		63	3	M5x12	23	30
<b>60AH1</b>	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	75		65	3	5.5	23	30
<b>60B</b>	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	85		75	3	M5x12	23	30
<b>60C</b>	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	90		75	3	M5x12	23	30
<b>70A</b>	6	6.35	7	8	9	9.52	10	11	12	12.7	14	70	85		75	3	M6x15	23	30
<b>70B</b>	6	6.35	7	8	9	9.52	10	11	12	12.7	14	70	90		75	3	M5x12	23	30
<b>73A</b>	6	6.35	7	8	9	9.52	10	11	12	12.7	14	73	98.4		85	3	M5x12	25	32
<b>80A</b>	6	6.35	7	8	9	9.52	10	11	12	12.7	14	80	100		85	3	M6x15	23	30

Please contact us for other motor adapters and input shaft bore.



# MP 053

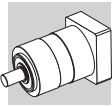
**FM**



				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
6	6.35	7		32.5	50	42.5	M4x8	M4	20.2	13.2	3	8.7	8
8	9	9.52	10	32.5	50	42.5	M4x8	M4	20.2	13.2	3	7.8	9
11	12	12.7		35.5	50	42.5	M4x8	M4	20.5	13.5	3	8.5	11
14				35.5	50	42.5	M4x8	M4	24	17	3	10.2	11.5

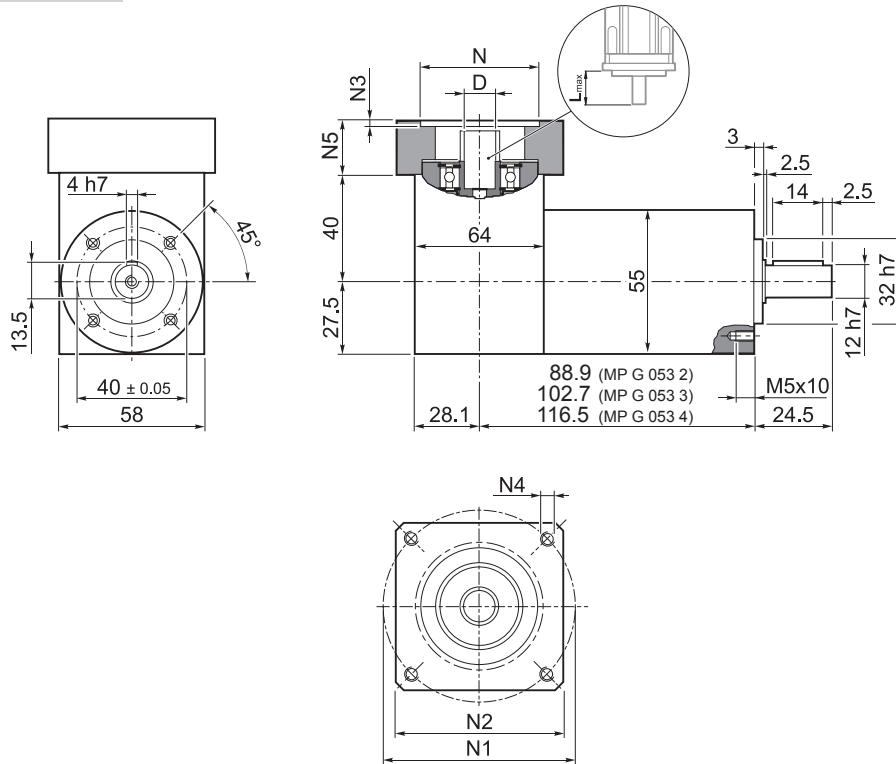
	i	M <sub>n 2</sub>	M <sub>a 2</sub>	M <sub>p 2</sub>	n <sub>1</sub>	n <sub>1 max</sub>	Φ <sub>S</sub>	Φ <sub>R</sub>	C <sub>t</sub>	R <sub>1 max</sub>	R <sub>2 max</sub>	A <sub>2 max</sub>	η	J <sub>G</sub> [kgcm <sup>2</sup> ]	
		[Nm]	[Nm]	[Nm]	[min <sup>-1</sup> ]	[min <sup>-1</sup> ]	[arcmin]	[Nm/arcmin]	[N]	[N]	[N]	%		6 ... 9.52	10 ... 14
MP 053 1_3		12	22	40	3300	4000	15'	10'	1.0	200	500	600	97	0.06	0.08
MP 053 1_4		15	28	45	3500	5000	15'	10'	1.0	200	500	600	97	0.05	0.06
MP 053 1_5		15	28	45	3500	5000	15'	10'	1.0	200	500	600	97	0.04	0.06
MP 053 1_6		15	28	45	3500	5000	15'	10'	1.0	200	500	600	97	0.03	0.05
MP 053 1_7		15	28	45	4000	6000	15'	10'	1.0	200	500	600	97	0.03	0.05
MP 053 1_9		12	22	40	4000	6000	15'	10'	1.0	200	500	600	97	0.03	0.05
MP 053 2_12		20	30	60	3300	4000	15'	10'	0.9	200	500	600	94	0.06	0.08
MP 053 2_15		20	30	60	3300	4000	15'	10'	0.9	200	500	600	94	0.06	0.08
MP 053 2_16		20	30	60	3500	5000	15'	10'	0.9	200	500	600	94	0.05	0.06
MP 053 2_20		20	30	60	3500	5000	15'	10'	0.9	200	500	600	94	0.04	0.06
MP 053 2_25		20	30	60	3500	5000	15'	10'	0.9	200	500	600	94	0.04	0.06
MP 053 2_28		20	30	60	4000	6000	15'	10'	0.9	200	500	600	94	0.03	0.05
MP 053 2_35		20	30	60	4000	6000	15'	10'	0.9	200	500	600	94	0.03	0.05
MP 053 2_36		15	28	45	4000	6000	15'	10'	0.9	200	500	600	94	0.03	0.05
MP 053 2_45		20	30	60	4000	6000	15'	10'	0.9	200	500	600	94	0.03	0.05
MP 053 2_81		12	22	40	3500	6000	15'	10'	0.9	200	500	600	94	0.03	0.05
MP 053 3_48		20	30	60	4000	5000	17'	12'	0.7	200	500	600	91	0.05	0.07
MP 053 3_60		20	30	60	3500	5000	17'	12'	0.7	200	500	600	91	0.05	0.07
MP 053 3_64		20	30	60	3500	5000	17'	12'	0.7	200	500	600	91	0.05	0.06
MP 053 3_75		20	30	60	3500	5000	17'	12'	0.7	200	500	600	91	0.04	0.06
MP 053 3_80		20	30	60	3500	5000	17'	12'	0.7	200	500	600	91	0.05	0.06
MP 053 3_84		20	30	60	4000	6000	17'	12'	0.7	200	500	600	91	0.03	0.05
MP 053 3_100		20	30	60	3500	5000	17'	12'	0.7	200	500	600	91	0.04	0.06
MP 053 3_112		20	30	60	4000	6000	17'	12'	0.7	200	500	600	91	0.03	0.05
MP 053 3_125		20	30	60	3500	5000	17'	12'	0.7	200	500	600	91	0.04	0.06
MP 053 3_140		20	30	60	4000	6000	17'	12'	0.7	200	500	600	91	0.03	0.05
MP 053 3_144		20	30	60	4000	6000	17'	12'	0.7	200	500	600	91	0.03	0.05
MP 053 3_175		20	30	60	4000	6000	17'	12'	0.7	200	500	600	91	0.03	0.05
MP 053 3_180		20	30	60	4000	6000	17'	12'	0.7	200	500	600	91	0.03	0.05
MP 053 3_216		20	30	60	3500	5000	17'	12'	0.7	200	500	600	91	0.03	0.05
MP 053 3_225		20	30	60	4000	6000	17'	12'	0.7	200	500	600	91	0.03	0.05
MP 053 3_245		20	30	60	4000	6000	17'	12'	0.7	200	500	600	91	0.03	0.05
MP 053 3_252		20	30	60	4000	6000	17'	12'	0.7	200	500	600	91	0.05	0.06
MP 053 3_324		20	30	60	4000	6000	17'	12'	0.7	200	500	600	91	0.03	0.05
MP 053 3_405		20	30	60	4000	6000	17'	12'	0.7	200	500	600	91	0.03	0.05
MP 053 3_567		20	30	60	4000	6000	17'	12'	0.7	200	500	600	91	0.03	0.05
MP 053 3_729		12	22	40	4000	6000	17'	12'	0.7	200	500	600	91	0.03	0.05

**MP**



# MP G 053

## 25AH ... 80A

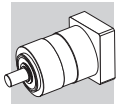


Model	Weight (Kg)
MP G 053 2	1.3
MP G 053 3	1.5
MP G 053 4	1.8

MP

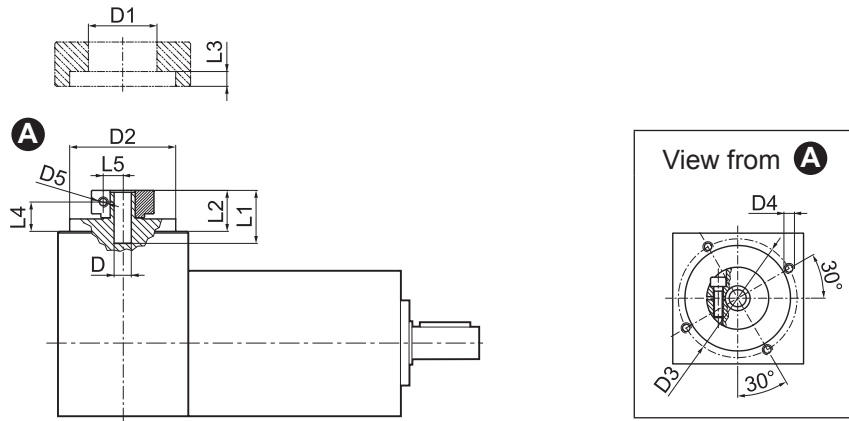
Model	D										N	N1		N2	N3	N4	N5	Lmax
	6	6.35	7	8	9	9.52	-	-	-	-		min	max					
25AH	6	6.35	7	8	9	9.52	-	-	-	-	25	36	48					
26AH	6	6.35	7	8	9	9.52	-	-	-	-	26	36	48					
28AH	6	6.35	7	8	9	9.52	-	-	-	-	28	36	48					
30AH	6	6.35	7	8	9	9.52	-	-	-	-	30	36	48					
32AH	6	6.35	7	8	9	9.52	-	-	-	-	32	38	48	55	3.5	4.5	25	25
34AH	6	6.35	7	8	9	9.52	-	-	-	-	34	40	48					
36AH	6	6.35	7	8	9	9.52	-	-	-	-	36	42	48					
38AH	6	6.35	7	8	9	9.52	-	-	-	-	38	44	48					
40AH	6	6.35	7	8	9	9.52	-	-	-	-	40	46	48					
38B	6	6.35	7	8	9	9.52	10	11	12	12.7	38.1	66.6		60	3	M4x10	18	25
40B	6	6.35	7	8	9	9.52	10	11	12	12.7	40	63		60	3	M4x10	18	25
50A	6	6.35	7	8	9	9.52	10	11	12	12.7	50	60		60	3	M4x10	18	25
50B	6	6.35	7	8	9	9.52	10	11	12	12.7	50	65		60	3	M5x12	23	30
50BH	6	6.35	7	8	9	9.52	10	11	12	12.7	50	65		60	4	5.5	23	30
50C	6	6.35	7	8	9	9.52	10	11	12	12.7	50	70		60	3	M4x10	23	30
50MH	6	6.35	7	8	9	9.52	10	11	12	12.7	50	65		55	2	5.5	16	23
60A	6	6.35	7	8	9	9.52	10	11	12	12.7	60	75		63	3	M5x12	18	25
60A1	6	6.35	7	8	9	9.52	10	11	12	12.7	60	75		63	3	M5x12	23	30
60B	6	6.35	7	8	9	9.52	10	11	12	12.7	60	85		75	3	M5x12	23	30
60C	6	6.35	7	8	9	9.52	10	11	12	12.7	60	90		75	3	M5x12	23	30
70A	6	6.35	7	8	9	9.52	10	11	12	12.7	70	85		75	3	M6x15	23	30
70B	6	6.35	7	8	9	9.52	10	11	12	12.7	70	90		75	3	M5x12	23	30
73A	6	6.35	7	8	9	9.52	10	11	12	12.7	73	98.4		85	3	M5x12	25	32
80A	6	6.35	7	8	9	9.52	10	11	12	12.7	80	100		85	3	M6x15	23	30

Please contact us for other motor adapters and input shaft bore.



# MP G 053

FM

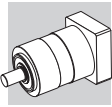


D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
6	6.35	7		32.5	50	42.5	M4x8	M4	20.2	13.2	3	8.7	8
8	9	9.52	10	32.5	50	42.5	M4x8	M4	20.2	13.2	3	7.8	9
11	12	12.7		35.5	50	42.5	M4x8	M4	20.5	13.5	3	8.5	11
14				35.5	50	42.5	M4x8	M4	24	17	3	10.2	11.5

i	M <sub>n2</sub> [Nm]	M <sub>a2</sub> [Nm]	M <sub>p2</sub> [Nm]	n <sub>1</sub> [min <sup>-1</sup> ]	n <sub>1 max</sub> [min <sup>-1</sup> ]	φ <sub>S</sub> [arcmin]	φ <sub>R</sub> [arcmin]	C <sub>t</sub> [ $\frac{Nm}{arcmin}$ ]	R <sub>2 max</sub> [N]	A <sub>2 max</sub> [N]	η %	J <sub>G</sub> [kgcm <sup>2</sup> ]	
												D	D
MP G 053 2_3	12	22	40	3300	4000	15'	10'	1.0	500	600	94	0.18	0.20
MP G 053 2_4	15	28	45	3500	5000	15'	10'	1.0	500	600	94	0.18	0.19
MP G 053 2_5	15	28	45	3500	5000	15'	10'	1.0	500	600	94	0.17	0.19
MP G 053 2_6	15	28	45	3500	5000	15'	10'	1.0	500	600	94	0.17	0.18
MP G 053 2_7	15	28	45	4000	6000	15'	10'	1.0	500	600	94	0.17	0.19
MP G 053 2_9	12	22	40	4000	6000	15'	10'	1.0	500	600	94	0.17	0.18
MP G 053 3_12	20	30	60	3300	4000	15'	10'	0.9	500	600	91	0.18	0.20
MP G 053 3_15	20	30	60	3300	4000	15'	10'	0.9	500	600	91	0.18	0.20
MP G 053 3_16	20	30	60	3500	5000	15'	10'	0.9	500	600	91	0.17	0.19
MP G 053 3_20	20	30	60	3500	5000	15'	10'	0.9	500	600	91	0.17	0.19
MP G 053 3_25	20	30	60	3500	5000	15'	10'	0.9	500	600	91	0.17	0.19
MP G 053 3_28	20	30	60	4000	6000	15'	10'	0.9	500	600	91	0.17	0.19
MP G 053 3_35	20	30	60	4000	6000	15'	10'	0.9	500	600	91	0.17	0.19
MP G 053 3_36	15	28	45	4000	6000	15'	10'	0.9	500	600	91	0.17	0.18
MP G 053 3_45	20	30	60	4000	6000	15'	10'	0.9	500	600	91	0.17	0.19
MP G 053 3_81	12	22	40	3500	6000	15'	10'	0.9	500	600	91	0.17	0.18
MP G 053 4_48	20	30	60	4000	5000	17'	12'	0.7	500	600	89	0.18	0.19
MP G 053 4_60	20	30	60	3500	5000	17'	12'	0.7	500	600	89	0.18	0.19
MP G 053 4_64	20	30	60	3500	5000	17'	12'	0.7	500	600	89	0.17	0.19
MP G 053 4_75	20	30	60	3500	5000	17'	12'	0.7	500	600	89	0.17	0.19
MP G 053 4_80	20	30	60	3500	5000	17'	12'	0.7	500	600	89	0.17	0.19
MP G 053 4_84	20	30	60	4000	6000	17'	12'	0.7	500	600	89	0.17	0.19
MP G 053 4_100	20	30	60	3500	5000	17'	12'	0.7	500	600	89	0.17	0.19
MP G 053 4_112	20	30	60	4000	6000	17'	12'	0.7	500	600	89	0.17	0.19
MP G 053 4_125	20	30	60	3500	5000	17'	12'	0.7	500	600	89	0.17	0.19
MP G 053 4_140	20	30	60	4000	6000	17'	12'	0.7	500	600	89	0.17	0.19
MP G 053 4_144	20	30	60	4000	6000	17'	12'	0.7	500	600	89	0.17	0.18
MP G 053 4_175	20	30	60	4000	6000	17'	12'	0.7	500	600	89	0.17	0.19
MP G 053 4_180	20	30	60	4000	6000	17'	12'	0.7	500	600	89	0.17	0.18
MP G 053 4_216	20	30	60	3500	5000	17'	12'	0.7	500	600	89	0.17	0.18
MP G 053 4_225	20	30	60	4000	6000	17'	12'	0.7	500	600	89	0.17	0.18
MP G 053 4_245	20	30	60	4000	6000	17'	12'	0.7	500	600	89	0.17	0.19
MP G 053 4_252	20	30	60	4000	6000	17'	12'	0.7	500	600	89	0.18	0.20
MP G 053 4_324	20	30	60	4000	6000	17'	12'	0.7	500	600	89	0.17	0.18
MP G 053 4_405	20	30	60	4000	6000	17'	12'	0.7	500	600	89	0.17	0.18
MP G 053 4_567	20	30	60	4000	6000	17'	12'	0.7	500	600	89	0.17	0.18
MP G 053 4_729	12	22	40	4000	6000	17'	12'	0.7	500	600	89	0.17	0.18

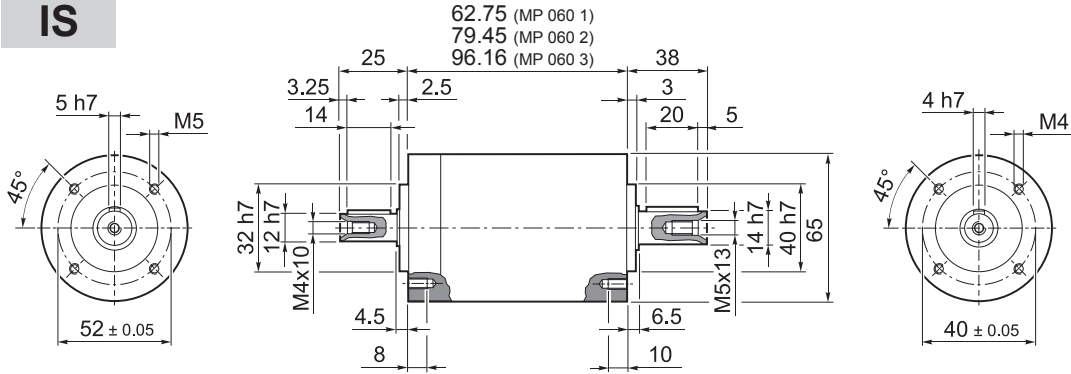
MP





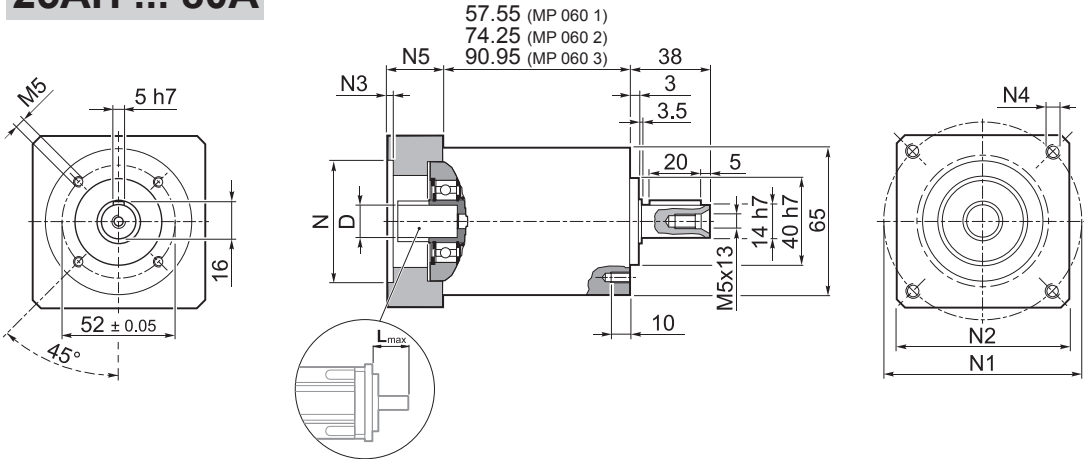
# MP 060

## IS



<b>MP 060 1</b>	1.2
<b>MP 060 2</b>	1.7
<b>MP 060 3</b>	2.0

## 25AH ... 80A

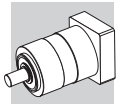


<b>MP 060 1</b>	1.2
<b>MP 060 2</b>	1.7
<b>MP 060 3</b>	2.0

**MP**

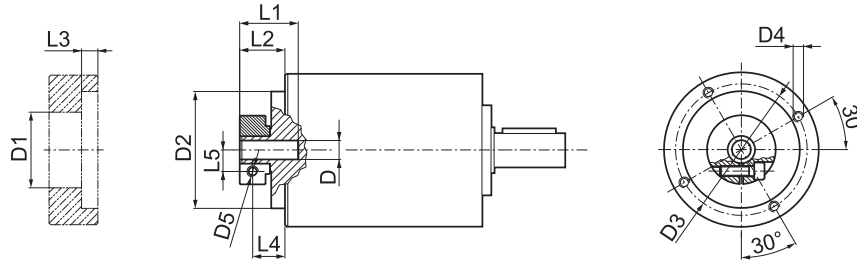
												N	N1		N2	N3	N4	N5	Lmax
	min	max																	
25AH	6	6.35	7	8	9	9.52	-	-	-	-	-	25	39	56	65	3.5	4.5	25	25
26AH	6	6.35	7	8	9	9.52	-	-	-	-	-	26	39	56					
28AH	6	6.35	7	8	9	9.52	-	-	-	-	-	28	39	56					
30AH	6	6.35	7	8	9	9.52	-	-	-	-	-	30	39	56					
32AH	6	6.35	7	8	9	9.52	-	-	-	-	-	32	39	56					
34AH	6	6.35	7	8	9	9.52	-	-	-	-	-	34	40	56					
36AH	6	6.35	7	8	9	9.52	-	-	-	-	-	36	42	56					
39AH	6	6.35	7	8	9	9.52	-	-	-	-	-	39	45	56					
40AH	6	6.35	7	8	9	9.52	-	-	-	-	-	40	46	56					
38B	6	6.35	7	8	9	9.52	10	11	12	12.7	-	38.1	66.6	60	3	M4x10	18	25	
40B	6	6.35	7	8	9	9.52	10	11	12	12.7	-	40	63	60	3	M4x10	18	25	
50A	6	6.35	7	8	9	9.52	10	11	12	12.7	-	50	60	60	3	M4x10	18	25	
50B	6	6.35	7	8	9	9.52	10	11	12	12.7	14	50	65	60	3	M5x12	23	30	
50BH	6	6.35	7	8	9	9.52	10	11	12	12.7	14	50	65	65	3	5.5	25	32	
50C	6	6.35	7	8	9	9.52	10	11	12	12.7	14	50	70	60	3	M4x10	23	30	
55MH	6	6.35	7	8	9	9.52	10	11	12	12.7	-	55	80	65	2	5.5	16	23	
60A	6	6.35	7	8	9	9.52	10	11	12	12.7	-	60	75	63	3	M5x12	18	25	
60AH	6	6.35	7	8	9	9.52	10	11	12	12.7	-	60	75	65	3	5.5	18	25	
60A1	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	75	63	3	M5x12	23	30	
60AH1	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	75	65	3	5.5	23	30	
60B	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	85	75	3	M5x12	23	30	
60C	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	90	75	3	M5x12	23	30	
70A	6	6.35	7	8	9	9.52	10	11	12	12.7	14	70	85	75	3	M6x15	23	30	
70B	6	6.35	7	8	9	9.52	10	11	12	12.7	14	70	90	75	3	M5x12	23	30	
73A	6	6.35	7	8	9	9.52	10	11	12	12.7	14	73	98.4	85	3	M5x12	25	32	
80A	6	6.35	7	8	9	9.52	10	11	12	12.7	14	80	100	85	3	M6x15	23	30	

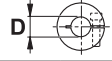
Please contact us for other motor adapters and input shaft bore.

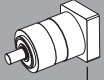


# MP 060

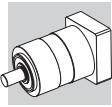
FM



				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
6	6.35	7		32.5	50	42.5	M4x8	M4	20.2	13.2	3	8.7	8
8	9	9.52	10	32.5	50	42.5	M4x8	M4	20.2	13.2	3	7.8	9
11	12	12.7		35.5	50	42.5	M4x8	M4	20.5	13.5	3	8.5	11
14				35.5	50	42.5	M4x8	M4	24	17	3	10.2	11.5

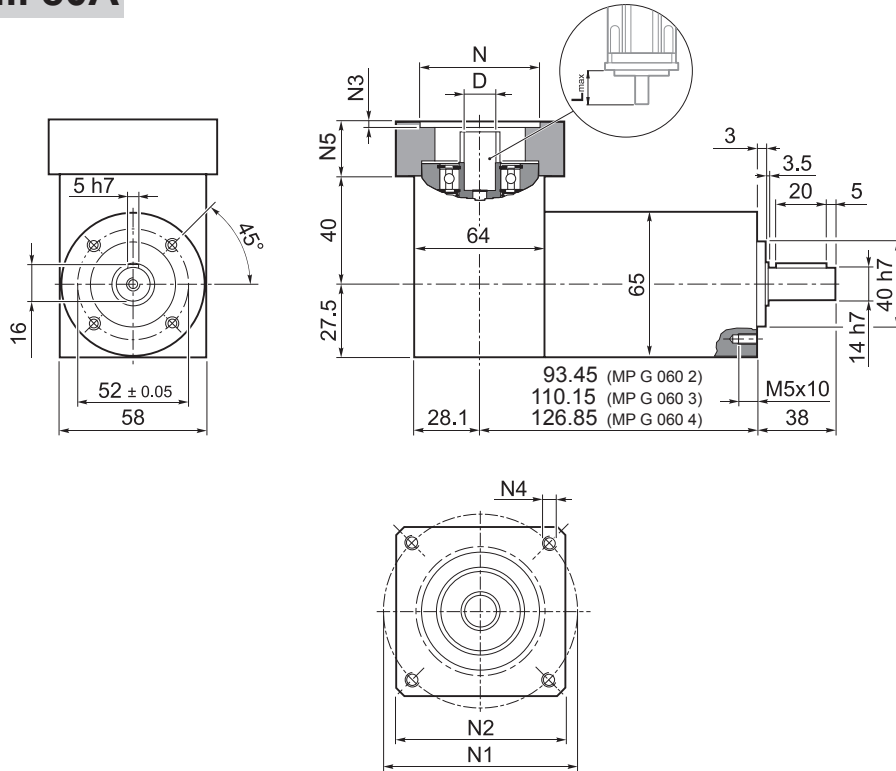
	$M_n$	$M_a$	$M_p$	$n_1$	$n_1 \text{ max}$	$\varphi_s$		$C_t$	$R_1 \text{ max}$	$R_2 \text{ max}$	$A_2 \text{ max}$	$\eta$	$J_G$ [kgcm <sup>2</sup> ]	
						[Nm]	[Nm]						[Nm]	[min <sup>-1</sup> ]
MP 060 1_3	18	35	70	3300	4000	15'	10'	3.0	200	600	700	97	0.10	0.11
MP 060 1_4	25	40	90	3500	5000	15'	10'	3.0	200	600	700	97	0.06	0.08
MP 060 1_5	25	40	90	3500	5000	15'	10'	3.0	200	600	700	97	0.05	0.07
MP 060 1_6	25	40	90	3500	5000	15'	10'	3.0	200	600	700	97	0.04	0.06
MP 060 1_7	25	40	90	4000	6000	15'	10'	3.0	200	600	700	97	0.04	0.06
MP 060 1_10	18	35	70	4000	6000	15'	10'	3.0	200	600	700	97	0.03	0.05
MP 060 2_9	18	35	70	3300	4000	15'	10'	2.5	200	600	700	94	0.10	0.12
MP 060 2_12	30	45	100	3300	4000	15'	10'	2.5	200	600	700	94	0.10	0.11
MP 060 2_15	30	45	100	3300	4000	15'	10'	2.5	200	600	700	94	0.09	0.11
MP 060 2_16	30	45	100	3500	5000	15'	10'	2.5	200	600	700	94	0.06	0.08
MP 060 2_20	30	45	100	3500	5000	15'	10'	2.5	200	600	700	94	0.05	0.07
MP 060 2_25	30	45	100	3500	5000	15'	10'	2.5	200	600	700	94	0.05	0.06
MP 060 2_28	30	45	100	4000	6000	15'	10'	2.5	200	600	700	94	0.04	0.06
MP 060 2_30	18	35	70	4000	6000	15'	10'	2.5	200	600	700	94	0.03	0.05
MP 060 2_35	30	45	100	4000	6000	15'	10'	2.5	200	600	700	94	0.04	0.06
MP 060 2_36	25	40	90	3500	5000	15'	10'	2.5	200	600	700	94	0.04	0.06
MP 060 2_40	30	45	100	4000	6000	15'	10'	2.5	200	600	700	94	0.03	0.05
MP 060 2_50	30	45	100	4000	6000	15'	10'	2.5	200	600	700	94	0.03	0.05
MP 060 2_70	30	45	100	4000	6000	15'	10'	2.5	200	600	700	94	0.03	0.05
MP 060 2_100	18	35	70	4000	6000	15'	10'	2.5	200	600	700	94	0.03	0.05
MP 060 3_48	30	45	100	3500	5000	17'	12'	1.8	200	600	700	91	0.06	0.08
MP 060 3_64	30	45	100	3500	5000	17'	12'	1.8	200	600	700	91	0.06	0.08
MP 060 3_75	30	45	100	350	5000	17'	12'	1.8	200	600	700	91	0.05	0.07
MP 060 3_80	30	45	100	3500	5000	17'	12'	1.8	200	600	700	91	0.06	0.08
MP 060 3_84	30	45	100	4000	6000	17'	12'	1.8	200	600	700	91	0.04	0.06
MP 060 3_90	18	35	70	4000	6000	17'	12'	1.8	200	600	700	91	0.03	0.05
MP 060 3_120	30	45	100	4000	6000	17'	12'	1.8	200	600	700	91	0.03	0.05
MP 060 3_125	30	45	100	3500	5000	17'	12'	1.8	200	600	700	91	0.05	0.07
MP 060 3_140	30	45	100	4000	6000	17'	12'	1.8	200	600	700	91	0.04	0.06
MP 060 3_150	30	45	100	4000	6000	17'	12'	1.8	200	600	700	91	0.03	0.05
MP 060 3_160	30	45	100	4000	6000	17'	12'	1.8	200	600	700	91	0.03	0.05
MP 060 3_175	30	45	100	4000	6000	17'	12'	1.8	200	600	700	91	0.04	0.06
MP 060 3_200	30	45	100	4000	6000	17'	12'	1.8	200	600	700	91	0.03	0.05
MP 060 3_210	30	45	100	4000	6000	17'	12'	1.8	200	600	700	91	0.03	0.05
MP 060 3_216	30	45	100	3500	5000	17'	12'	1.8	200	600	700	91	0.04	0.06
MP 060 3_250	30	45	100	4000	6000	17'	12'	1.8	200	600	700	91	0.03	0.05
MP 060 3_280	30	45	100	4000	6000	17'	12'	1.8	200	600	700	91	0.03	0.05
MP 060 3_350	30	45	100	4000	6000	17'	12'	1.8	200	600	700	91	0.03	0.05
MP 060 3_400	30	45	100	4000	6000	17'	12'	1.8	200	600	700	91	0.03	0.05
MP 060 3_500	30	45	100	4000	6000	17'	12'	1.8	200	600	700	91	0.03	0.05
MP 060 3_700	30	45	100	4000	6000	17'	12'	1.8	200	600	700	91	0.03	0.05
MP 060 3_1000	18	35	70	4000	6000	17'	12'	1.8	200	600	700	91	0.03	0.05

MP



# MP G 060

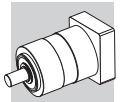
## 25AH ... 80A



MP

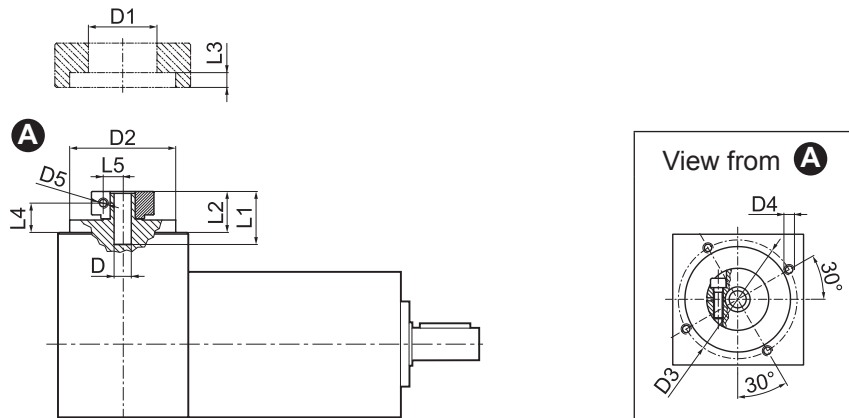
	D											N	N1		N2	N3	N4	N5	L <sub>max</sub>
	6	6.35	7	8	9	9.52	-	-	-	-	-		min	max					
25AH	6	6.35	7	8	9	9.52	-	-	-	-	-	25	39	56					
26AH	6	6.35	7	8	9	9.52	-	-	-	-	-	26	39	56					
28AH	6	6.35	7	8	9	9.52	-	-	-	-	-	28	39	56					
30AH	6	6.35	7	8	9	9.52	-	-	-	-	-	30	39	56					
32AH	6	6.35	7	8	9	9.52	-	-	-	-	-	32	39	56	65	3.5	4.5	25	25
34AH	6	6.35	7	8	9	9.52	-	-	-	-	-	34	40	56					
36AH	6	6.35	7	8	9	9.52	-	-	-	-	-	36	42	56					
39AH	6	6.35	7	8	9	9.52	-	-	-	-	-	39	45	56					
40AH	6	6.35	7	8	9	9.52	-	-	-	-	-	40	46	56					
38B	6	6.35	7	8	9	9.52	10	11	12	12.7	-	38.1	66.6	60	3	M4x10	18	25	
40B	6	6.35	7	8	9	9.52	10	11	12	12.7	-	40	63	60	3	M4x10	18	25	
50A	6	6.35	7	8	9	9.52	10	11	12	12.7	-	50	60	60	3	M4x10	18	25	
50B	6	6.35	7	8	9	9.52	10	11	12	12.7	14	50	65	60	3	M5x12	23	30	
50BH	6	6.35	7	8	9	9.52	10	11	12	12.7	14	50	65	65	3	5.5	25	32	
50C	6	6.35	7	8	9	9.52	10	11	12	12.7	14	50	70	60	3	M4x10	23	30	
55MH	6	6.35	7	8	9	9.52	10	11	12	12.7	-	55	80	65	2	5.5	16	23	
60A	6	6.35	7	8	9	9.52	10	11	12	12.7	-	60	75	63	3	M5x12	18	25	
60A1	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	75	63	3	M5x12	23	30	
60B	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	85	75	3	M5x12	23	30	
60C	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	90	75	3	M5x12	23	30	
70A	6	6.35	7	8	9	9.52	10	11	12	12.7	14	70	85	75	3	M6x15	23	30	
70B	6	6.35	7	8	9	9.52	10	11	12	12.7	14	70	90	75	3	M5x12	23	30	
73A	6	6.35	7	8	9	9.52	10	11	12	12.7	14	73	98.4	85	3	M5x12	25	32	
80A	6	6.35	7	8	9	9.52	10	11	12	12.7	14	80	100	85	3	M6x15	23	30	

Please contact us for other motor adapters and input shaft bore.



# MP G 060

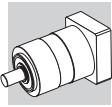
FM



D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
6	6.35	7		32.5	50	42.5	M4x8	M4	20.2	13.2	3	8.7	8
8	9	9.52	10	32.5	50	42.5	M4x8	M4	20.2	13.2	3	7.8	9
11	12	12.7		35.5	50	42.5	M4x8	M4	20.5	13.5	3	8.5	11
14				35.5	50	42.5	M4x8	M4	24	17	3	10.2	11.5

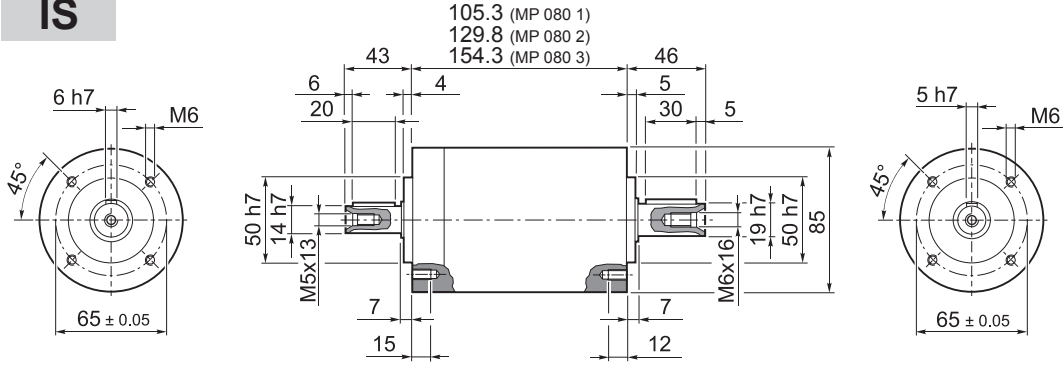
i	M <sub>n 2</sub> [Nm]	M <sub>a 2</sub> [Nm]	M <sub>p 2</sub> [Nm]	n <sub>1</sub> [min <sup>-1</sup> ]	n <sub>1 max</sub> [min <sup>-1</sup> ]	φ <sub>S</sub> [arcmin]	φ <sub>R</sub> [arcmin]	C <sub>t</sub> [Nm/arcmin]	R <sub>2 max</sub> [N]	A <sub>2 max</sub> [N]	η %	J <sub>G</sub> [kgcm <sup>2</sup> ]	
												D	6 ... 9.52
MP G 060 2_3	18	35	70	3300	4000	15'	10'	3.0	600	700	94	0.20	0.20
MP G 060 2_4	25	40	90	3500	5000	15'	10'	3.0	600	700	94	0.18	0.20
MP G 060 2_5	25	40	90	3500	5000	15'	10'	3.0	600	700	94	0.17	0.19
MP G 060 2_6	25	40	90	3500	5000	15'	10'	3.0	600	700	94	0.17	0.19
MP G 060 2_7	25	40	90	4000	6000	15'	10'	3.0	600	700	94	0.17	0.19
MP G 060 2_10	18	35	70	4000	6000	15'	10'	3.0	600	700	94	0.17	0.18
MP G 060 3_9	18	35	70	3300	4000	15'	10'	2.5	600	700	91	0.20	0.21
MP G 060 3_12	30	45	100	3300	4000	15'	10'	2.5	600	700	91	0.20	0.21
MP G 060 3_15	30	45	100	3300	4000	15'	10'	2.5	600	700	91	0.19	0.21
MP G 060 3_16	30	45	100	3500	5000	15'	10'	2.5	600	700	91	0.18	0.20
MP G 060 3_20	30	45	100	3500	5000	15'	10'	2.5	600	700	91	0.17	0.19
MP G 060 3_25	30	45	100	3500	5000	15'	10'	2.5	600	700	91	0.17	0.18
MP G 060 3_28	30	45	100	4000	6000	15'	10'	2.5	600	700	91	0.17	0.19
MP G 060 3_30	18	35	70	4000	6000	15'	10'	2.5	600	700	91	0.17	0.18
MP G 060 3_35	30	45	100	4000	6000	15'	10'	2.5	600	700	91	0.18	0.19
MP G 060 3_36	25	40	90	3500	5000	15'	10'	2.5	600	700	91	0.18	0.19
MP G 060 3_40	30	45	100	4000	6000	15'	10'	2.5	600	700	91	0.17	0.18
MP G 060 3_50	30	45	100	4000	6000	15'	10'	2.5	600	700	91	0.17	0.18
MP G 060 3_70	30	45	100	4000	6000	15'	10'	2.5	600	700	91	0.17	0.18
MP G 060 3_100	18	35	70	4000	6000	15'	10'	2.5	600	700	91	0.17	0.18
MP G 060 4_48	30	45	100	3500	5000	17'	12'	1.8	600	700	89	0.18	0.20
MP G 060 4_64	30	45	100	3500	5000	17'	12'	1.8	600	700	89	0.18	0.20
MP G 060 4_75	30	45	100	350	5000	17'	12'	1.8	600	700	89	0.17	0.19
MP G 060 4_80	30	45	100	3500	5000	17'	12'	1.8	600	700	89	0.18	0.20
MP G 060 4_84	30	45	100	4000	6000	17'	12'	1.8	600	700	89	0.17	0.19
MP G 060 4_90	18	35	70	4000	6000	17'	12'	1.8	600	700	89	0.17	0.18
MP G 060 4_120	30	45	100	4000	6000	17'	12'	1.8	600	700	89	0.15	0.17
MP G 060 4_125	30	45	100	3500	5000	17'	12'	1.8	600	700	89	0.17	0.19
MP G 060 4_140	30	45	100	4000	6000	17'	12'	1.8	600	700	89	0.17	0.19
MP G 060 4_150	30	45	100	4000	6000	17'	12'	1.8	600	700	89	0.17	0.18
MP G 060 4_160	30	45	100	4000	6000	17'	12'	1.8	600	700	89	0.17	0.18
MP G 060 4_175	30	45	100	4000	6000	17'	12'	1.8	600	700	89	0.17	0.19
MP G 060 4_200	30	45	100	4000	6000	17'	12'	1.8	600	700	89	0.17	0.18
MP G 060 4_210	30	45	100	4000	6000	17'	12'	1.8	600	700	89	0.17	0.18
MP G 060 4_216	30	45	100	3500	5000	17'	12'	1.8	600	700	89	0.17	0.19
MP G 060 4_250	30	45	100	4000	6000	17'	12'	1.8	600	700	89	0.17	0.18
MP G 060 4_280	30	45	100	4000	6000	17'	12'	1.8	600	700	89	0.17	0.18
MP G 060 4_350	30	45	100	4000	6000	17'	12'	1.8	600	700	89	0.17	0.18
MP G 060 4_400	30	45	100	4000	6000	17'	12'	1.8	600	700	89	0.17	0.18
MP G 060 4_500	30	45	100	4000	6000	17'	12'	1.8	600	700	89	0.17	0.18
MP G 060 4_700	30	45	100	4000	6000	17'	12'	1.8	600	700	89	0.17	0.18
MP G 060 4_1000	18	35	70	4000	6000	17'	12'	1.8	600	700	89	0.17	0.18

MP



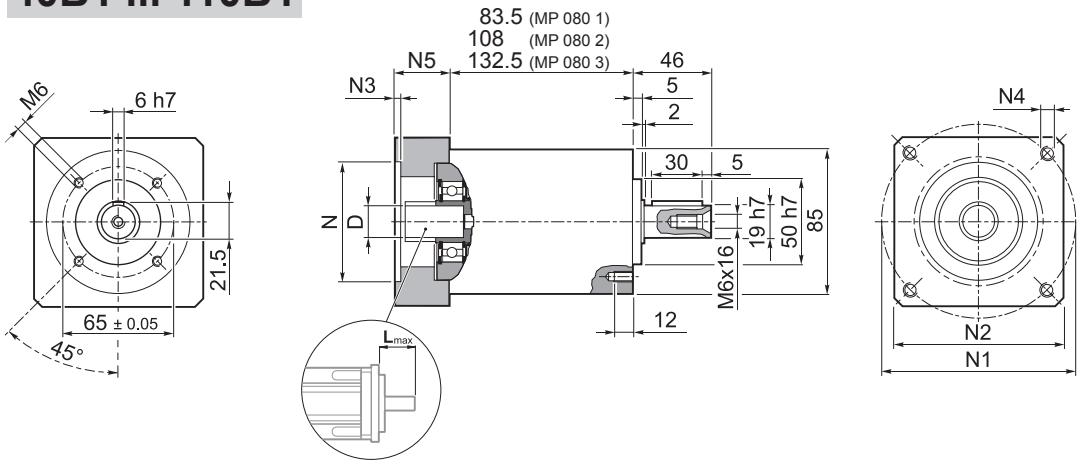
# MP 080

IS



MP 080 1	4.0
MP 080 2	4.6
MP 080 3	5.2

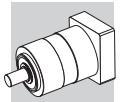
# 40B1 ... 110B1



MP 080 1	4.0
MP 080 2	4.6
MP 080 3	5.2

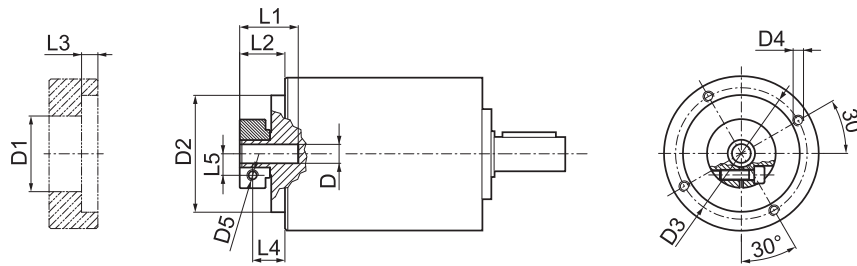
											N	N1	N2	N3	N4	N5	L <sub>max</sub>		
40B1	8	9	9.52	11	12	12.7	14	-	-	-	-	40	63	80	4	M4x12	34	40	
45A	8	9	9.52	11	12	12.7	-	-	-	-	-	45	63	80	4	M4x12	34	40	
50B1	8	9	9.52	11	12	12.7	14	-	-	-	-	50	65	80	4	M5x16	34	40	
50BH1	8	9	9.52	11	12	12.7	14	-	-	-	-	50	65	80	4	5.5	34	40	
50C1	8	9	9.52	11	12	12.7	14	-	-	-	-	50	70	80	4	M4x10	34	40	
50D	8	9	9.52	11	12	12.7	14	-	-	-	-	50	95	80	4	M6x20	34	40	
55A	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	55.5	125.7	105	4	M6x20	34	40
60A2	8	9	9.52	11	12	12.7	14	-	-	-	-	60	75	80	4	M5x16	34	40	
60AH2	8	9	9.52	11	12	12.7	14	-	-	-	-	60	75	90	4	6.5	34	40	
60B1	8	9	9.52	11	12	12.7	14	15.875	16	-	-	60	85	80	4	M5x16	34	40	
60C1	8	9	9.52	11	12	12.7	14	15.875	16	-	-	60	90	80	4	M5x16	34	40	
70A1	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	70	85	80	4	M6x20	34	40
70AH1	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	70	85	90	4	6.5	34	40
70B1	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	70	90	80	4	M5x16	34	40
73A1	8	9	9.52	11	12	12.7	14	-	-	-	-	73	98.4	85	4	M5x16	34	40	
80A1	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	80	100	90	4	M6x16	34	40
95A	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	95	115	100	4	M8x20	34	40
95B	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	95	130	115	4	M8x20	34	40
110A	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	110	130	115	4	M8x20	34	40
110B	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	110	145	120	6.5	M8x20	44	50
110B1	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	110	145	120	6.5	M8x20	54	60

Please contact us for other motor adapters and input shaft bore.



# MP 080

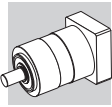
**FM**



				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
8	9	9.52		38	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	10.5
11	12	12.7		43	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	12.5
14	15.875	16	17	48	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	14.5
19	19.05			51	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	16.5

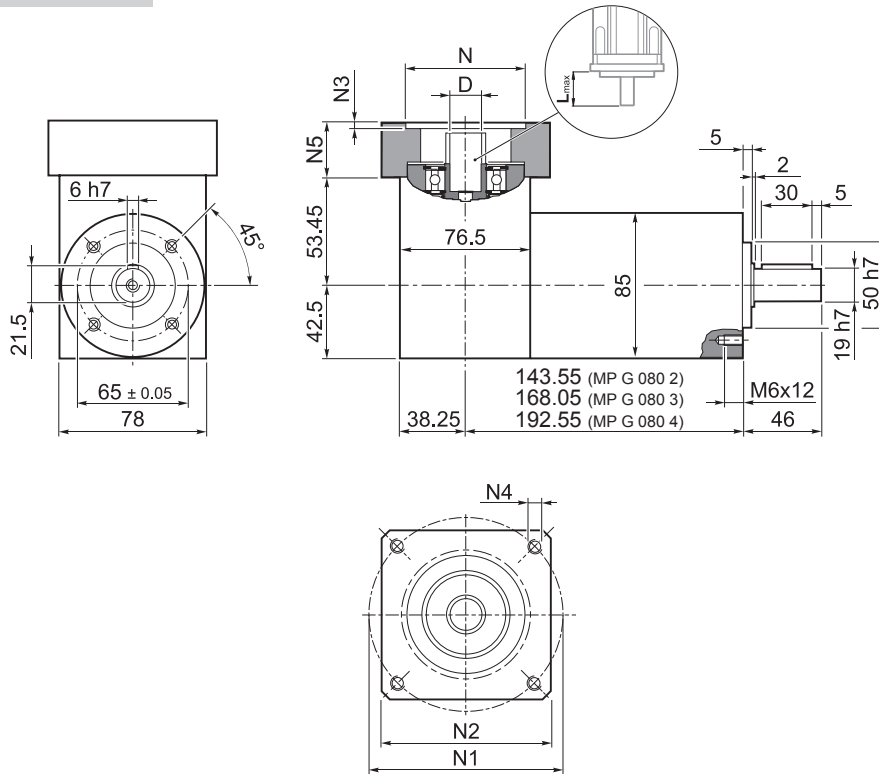
	i	M <sub>n2</sub>	M <sub>a2</sub>	M <sub>p2</sub>	n <sub>1</sub>	n <sub>1 max</sub>	φ <sub>s</sub>	φ <sub>R</sub>	C <sub>t</sub>	R <sub>1 max</sub>	R <sub>2 max</sub>	A <sub>2 max</sub>	R <sub>2 max</sub>	A <sub>2 max</sub>	η	J <sub>G</sub> [kgcm <sup>2</sup> ]	
		[Nm]	[Nm]	[Nm]	[min <sup>-1</sup> ]	[min <sup>-1</sup> ]	[arcmin]	[Nm/arcmin]	[N]	[N]	[N]	[N]	[N]	%		8 ... 12.7	14 ... 19.05
MP 080 1_3		40	80	180	2900	3500	15'	10'	7.0	400	1300	1400	2500	3000	97	0.50	0.59
MP 080 1_4		50	80	200	3100	4500	15'	10'	7.0	400	1300	1400	2500	3000	97	0.34	0.43
MP 080 1_5		50	80	200	3200	4500	15'	10'	7.0	400	1300	1400	2500	3000	97	0.28	0.37
MP 080 1_6		50	80	200	3200	4500	15'	10'	7.0	400	1300	1400	2500	3000	97	0.21	0.30
MP 080 1_7		50	80	200	4000	6000	15'	10'	7.0	400	1300	1400	2500	3000	97	0.23	0.32
MP 080 1_10		40	80	180	4000	6000	15'	10'	7.0	400	1300	1400	2500	3000	97	0.20	0.29
MP 080 2_9		40	80	180	2900	3500	15'	10'	5.9	400	1300	1400	2500	3000	94	0.49	0.58
MP 080 2_12		70	100	250	2900	3500	15'	10'	5.9	400	1300	1400	2500	3000	94	0.47	0.56
MP 080 2_15		70	100	250	2900	3500	15'	10'	5.9	400	1300	1400	2500	3000	94	0.46	0.55
MP 080 2_16		70	100	250	3100	4500	15'	10'	5.9	400	1300	1400	2500	3000	94	0.32	0.41
MP 080 2_20		70	100	250	3200	4500	15'	10'	5.9	400	1300	1400	2500	3000	94	0.27	0.36
MP 080 2_25		70	100	250	3200	4500	15'	10'	5.9	400	1300	1400	2500	3000	94	0.27	0.36
MP 080 2_28		70	100	250	4000	6000	15'	10'	5.9	400	1300	1400	2500	3000	94	0.22	0.31
MP 080 2_30		40	80	180	4000	6000	15'	10'	5.9	400	1300	1400	2500	3000	94	0.20	0.29
MP 080 2_35		70	100	250	4000	6000	15'	10'	5.9	400	1300	1400	2500	3000	94	0.22	0.31
MP 080 2_36		50	80	200	3200	4500	15'	10'	5.9	400	1300	1400	2500	3000	94	0.20	0.29
MP 080 2_40		70	100	250	4000	6000	15'	10'	5.9	400	1300	1400	2500	3000	94	0.20	0.29
MP 080 2_50		70	100	250	4000	6000	15'	10'	5.9	400	1300	1400	2500	3000	94	0.19	0.28
MP 080 2_70		70	100	250	4000	6000	15'	10'	5.9	400	1300	1400	2500	3000	94	0.19	0.28
MP 080 2_100		40	80	180	4000	6000	15'	10'	5.9	400	1300	1400	2500	3000	94	0.19	0.28
MP 080 3_48		70	100	250	3100	4500	17'	12'	5.4	400	1300	1400	2500	3000	91	0.33	0.42
MP 080 3_64		70	100	250	3100	4500	17'	12'	5.4	400	1300	1400	2500	3000	91	0.32	0.41
MP 080 3_75		70	100	250	3200	4500	17'	12'	5.4	400	1300	1400	2500	3000	91	0.27	0.36
MP 080 3_80		70	100	250	3100	4500	17'	12'	5.4	400	1300	1400	2500	3000	91	0.32	0.41
MP 080 3_84		70	100	250	4000	6000	17'	12'	5.4	400	1300	1400	2500	3000	91	0.23	0.32
MP 080 3_90		40	80	180	4000	6000	17'	12'	5.4	400	1300	1400	2500	3000	91	0.20	0.29
MP 080 3_120		70	100	250	4000	6000	17'	12'	5.4	400	1300	1400	2500	3000	91	0.20	0.29
MP 080 3_125		70	100	250	3200	4500	17'	12'	5.4	400	1300	1400	2500	3000	91	0.27	0.36
MP 080 3_140		70	100	250	4000	6000	17'	12'	5.4	400	1300	1400	2500	3000	91	0.22	0.31
MP 080 3_150		70	100	250	4000	6000	17'	12'	5.4	400	1300	1400	2500	3000	91	0.20	0.29
MP 080 3_160		70	100	250	4000	6000	17'	12'	5.4	400	1300	1400	2500	3000	91	0.20	0.29
MP 080 3_175		70	100	250	4000	6000	17'	12'	5.4	400	1300	1400	2500	3000	91	0.22	0.31
MP 080 3_200		70	100	250	4000	6000	17'	12'	5.4	400	1300	1400	2500	3000	91	0.20	0.29
MP 080 3_210		70	100	250	4000	6000	17'	12'	5.4	400	1300	1400	2500	3000	91	0.20	0.29
MP 080 3_216		70	100	250	3200	4500	17'	12'	5.4	400	1300	1400	2500	3000	91	0.20	0.29
MP 080 3_250		70	100	250	4000	6000	17'	12'	5.4	400	1300	1400	2500	3000	91	0.19	0.28
MP 080 3_280		70	100	250	4000	6000	17'	12'	5.4	400	1300	1400	2500	3000	91	0.19	0.28
MP 080 3_350		70	100	250	4000	6000	17'	12'	5.4	400	1300	1400	2500	3000	91	0.19	0.28
MP 080 3_400		70	100	250	4000	6000	17'	12'	5.4	400	1300	1400	2500	3000	91	0.19	0.28
MP 080 3_500		70	100	250	4000	6000	17'	12'	5.4	400	1300	1400	2500	3000	91	0.19	0.28
MP 080 3_700		70	100	250	4000	6000	17'	12'	5.4	400	1300	1400	2500	3000	91	0.19	0.28
MP 080 3_1000		40	80	180	4000	6000	17'	12'	5.4	400	1300	1400	2500	3000	91	0.19	0.28

**MP**



# MP G 080

## 40B1 ... 110B1



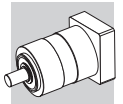
MP G 080 2	5.2
MP G 080 3	5.8
MP G 080 4	6.4

MP

											N	N1	N2	N3	N4	N5	L <sub>max</sub>		
40B1	8	9	9.52	11	12	12.7	14	-	-	-	-	40	63	80	4	M4x12	34	40	
45A	8	9	9.52	11	12	12.7	-	-	-	-	-	45	63	80	4	M4x12	34	40	
50B1	8	9	9.52	11	12	12.7	14	-	-	-	-	50	65	80	4	M5x16	34	40	
50BH1	8	9	9.52	11	12	12.7	14	-	-	-	-	50	65	80	4	5.5	34	40	
50C1	8	9	9.52	11	12	12.7	14	-	-	-	-	50	70	80	4	M4x10	34	40	
50D	8	9	9.52	11	12	12.7	14	-	-	-	-	50	95	80	4	M6x20	34	40	
55A	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	55.5	125.7	105	4	M6x20	34	40
60A2	8	9	9.52	11	12	12.7	14	-	-	-	-	60	75	80	4	M5x16	34	40	
60AH2	8	9	9.52	11	12	12.7	14	-	-	-	-	60	75	90	4	6.5	34	40	
60B1	8	9	9.52	11	12	12.7	14	15.875	16	-	-	60	85	80	4	M5x16	34	40	
60C1	8	9	9.52	11	12	12.7	14	15.875	16	-	-	60	90	80	4	M5x16	34	40	
70A1	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	70	85	80	4	M6x20	34	40
70AH1	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	70	85	90	4	6.5	34	40
70B1	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	70	90	80	4	M5x16	34	40
73A1	8	9	9.52	11	12	12.7	14	-	-	-	-	73	98.4	85	4	M5x16	34	40	
80A1	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	80	100	90	4	M6x16	34	40
95A	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	95	115	100	4	M8x20	34	40
95B	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	95	130	115	4	M8x20	34	40
110A	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	110	130	115	4	M8x20	34	40
110B	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	110	145	120	6.5	M8x20	44	50
110B1	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	110	145	120	6.5	M8x20	54	60

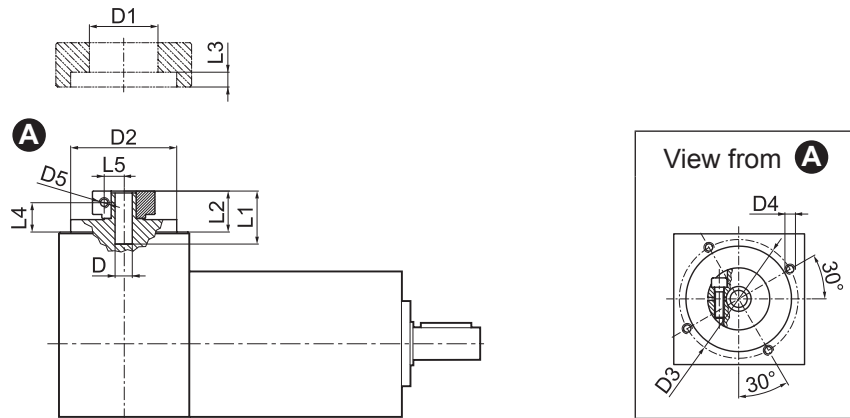
Please contact us for other motor adapters and input shaft bore.





# MP G 080

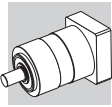
FM



D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
8	9	9.52		38	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	10.5
11	12	12.7		43	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	12.5
14	15.875	16	17	48	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	14.5
19	19.05			51	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	16.5

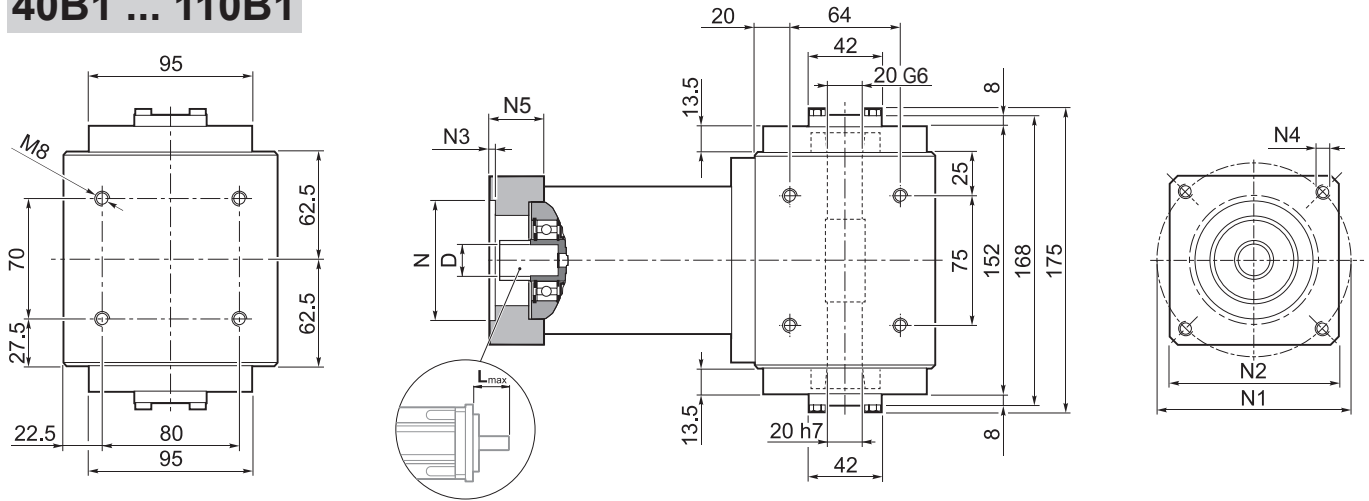
 i	M <sub>n 2</sub>	M <sub>a 2</sub>	M <sub>p 2</sub>	n <sub>1</sub>	n <sub>1 max</sub>	φ <sub>S</sub>	φ <sub>R</sub>	C <sub>t</sub>	SB		HB		η	J <sub>G</sub> [kgcm <sup>2</sup> ]	
	[Nm]	[Nm]	[Nm]	[min <sup>-1</sup> ]	[min <sup>-1</sup> ]	[arcmin]		$\frac{Nm}{arcmin}$	R <sub>2 max</sub>	A <sub>2 max</sub>	R <sub>2 max</sub>	A <sub>2 max</sub>	%	8 ... 12.7	14 ... 19.05
MP G 080 2_3	40	80	180	2900	3500	15'	10'	7.0	1300	1400	2500	3000	94	0.67	0.79
MP G 080 2_4	50	80	200	3100	4500	15'	10'	7.0	1300	1400	2500	3000	94	0.62	0.75
MP G 080 2_5	50	80	200	3200	4500	15'	10'	7.0	1300	1400	2500	3000	94	0.61	0.74
MP G 080 2_6	50	80	200	3200	4500	15'	10'	7.0	1300	1400	2500	3000	94	0.58	0.71
MP G 080 2_7	50	80	200	4000	6000	15'	10'	7.0	1300	1400	2500	3000	94	0.60	0.73
MP G 080 2_10	40	80	180	4000	6000	15'	10'	7.0	1300	1400	2500	3000	94	0.60	0.72
MP G 080 3_9	40	80	180	2900	3500	15'	10'	5.9	1300	1400	2500	3000	91	0.66	0.78
MP G 080 3_12	70	100	250	2900	3500	15'	10'	5.9	1300	1400	2500	3000	91	0.75	0.87
MP G 080 3_15	70	100	250	2900	3500	15'	10'	5.9	1300	1400	2500	3000	91	0.74	0.87
MP G 080 3_16	70	100	250	3100	4500	15'	10'	5.9	1300	1400	2500	3000	91	0.60	0.73
MP G 080 3_20	70	100	250	3200	4500	15'	10'	5.9	1300	1400	2500	3000	91	0.60	0.73
MP G 080 3_25	70	100	250	3200	4500	15'	10'	5.9	1300	1400	2500	3000	91	0.64	0.76
MP G 080 3_28	70	100	250	4000	6000	15'	10'	5.9	1300	1400	2500	3000	91	0.59	0.72
MP G 080 3_30	40	80	180	4000	6000	15'	10'	5.9	1300	1400	2500	3000	91	0.60	0.72
MP G 080 3_35	70	100	250	4000	6000	15'	10'	5.9	1300	1400	2500	3000	91	0.61	0.74
MP G 080 3_36	50	80	200	3200	4500	15'	10'	5.9	1300	1400	2500	3000	91	0.57	0.70
MP G 080 3_40	70	100	250	4000	6000	15'	10'	5.9	1300	1400	2500	3000	91	0.60	0.72
MP G 080 3_50	70	100	250	4000	6000	15'	10'	5.9	1300	1400	2500	3000	91	0.59	0.71
MP G 080 3_70	70	100	250	4000	6000	15'	10'	5.9	1300	1400	2500	3000	91	0.59	0.71
MP G 080 3_100	40	80	180	4000	6000	15'	10'	5.9	1300	1400	2500	3000	91	0.59	0.71
MP G 080 4_48	70	100	250	3100	4500	17'	12'	5.4	1300	1400	2500	3000	89	0.61	0.75
MP G 080 4_64	70	100	250	3100	4500	17'	12'	5.4	1300	1400	2500	3000	89	0.60	0.73
MP G 080 4_75	70	100	250	3200	4500	17'	12'	5.4	1300	1400	2500	3000	89	0.60	0.73
MP G 080 4_80	70	100	250	3100	4500	17'	12'	5.4	1300	1400	2500	3000	89	0.60	0.73
MP G 080 4_84	70	100	250	4000	6000	17'	12'	5.4	1300	1400	2500	3000	89	0.60	0.73
MP G 080 4_90	40	80	180	4000	6000	17'	12'	5.4	1300	1400	2500	3000	89	0.60	0.72
MP G 080 4_120	70	100	250	4000	6000	17'	12'	5.4	1300	1400	2500	3000	89	0.60	0.72
MP G 080 4_125	70	100	250	3200	4500	17'	12'	5.4	1300	1400	2500	3000	89	0.60	0.73
MP G 080 4_140	70	100	250	4000	6000	17'	12'	5.4	1300	1400	2500	3000	89	0.59	0.72
MP G 080 4_150	70	100	250	4000	6000	17'	12'	5.4	1300	1400	2500	3000	89	0.60	0.72
MP G 080 4_160	70	100	250	4000	6000	17'	12'	5.4	1300	1400	2500	3000	89	0.60	0.72
MP G 080 4_175	70	100	250	4000	6000	17'	12'	5.4	1300	1400	2500	3000	89	0.59	0.72
MP G 080 4_200	70	100	250	4000	6000	17'	12'	5.4	1300	1400	2500	3000	89	0.60	0.72
MP G 080 4_210	70	100	250	4000	6000	17'	12'	5.4	1300	1400	2500	3000	89	0.60	0.72
MP G 080 4_216	70	100	250	3200	4500	17'	12'	5.4	1300	1400	2500	3000	89	0.57	0.70
MP G 080 4_250	70	100	250	4000	6000	17'	12'	5.4	1300	1400	2500	3000	89	0.59	0.71
MP G 080 4_280	70	100	250	4000	6000	17'	12'	5.4	1300	1400	2500	3000	89	0.59	0.71
MP G 080 4_350	70	100	250	4000	6000	17'	12'	5.4	1300	1400	2500	3000	89	0.59	0.71
MP G 080 4_400	70	100	250	4000	6000	17'	12'	5.4	1300	1400	2500	3000	89	0.59	0.71
MP G 080 4_500	70	100	250	4000	6000	17'	12'	5.4	1300	1400	2500	3000	89	0.59	0.71
MP G 080 4_700	70	100	250	4000	6000	17'	12'	5.4	1300	1400	2500	3000	89	0.59	0.71
MP G 080 4_1000	40	80	180	4000	6000	17'	12'	5.4	1300	1400	2500	3000	89	0.59	0.71

MP

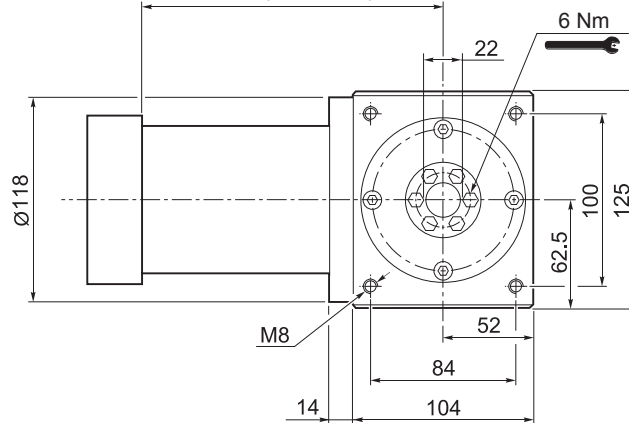



# MP MB 080


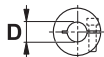
## 40B1 ... 110B1



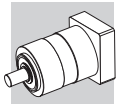
149.5 (MP MB 080 2)  
174 (MP MB 080 3)  
198.5 (MP MB 080 4)



	
MP MB 080 2	14.0
MP MB 080 3	15.0
MP MB 080 4	16.0

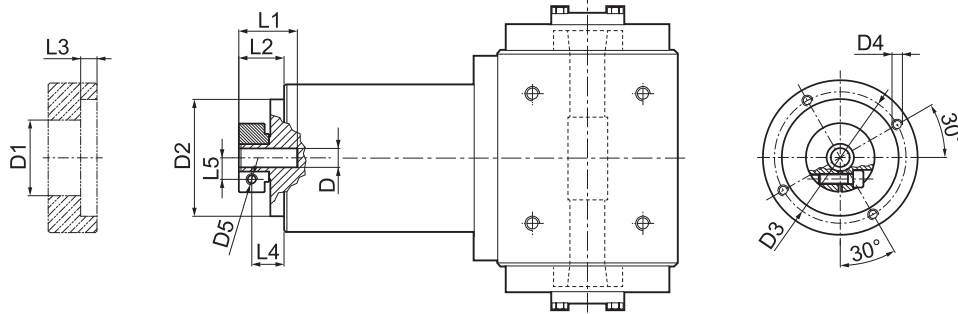
												N	N1	N2	N3	N4	N5	L <sub>max</sub>	
40B1	8	9	9.52	11	12	12.7	14	-	-	-	-	40	63	80	4	M4x12	34	40	
45A	8	9	9.52	11	12	12.7	-	-	-	-	-	45	63	80	4	M4x12	34	40	
50B1	8	9	9.52	11	12	12.7	14	-	-	-	-	50	65	80	4	M5x16	34	40	
50BH1	8	9	9.52	11	12	12.7	14	-	-	-	-	50	65	80	4	5.5	34	40	
50C1	8	9	9.52	11	12	12.7	14	-	-	-	-	50	70	80	4	M4x10	34	40	
50D	8	9	9.52	11	12	12.7	14	-	-	-	-	50	95	80	4	M6x20	34	40	
55A	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	55.5	125.7	105	4	M6x20	34	40
60A2	8	9	9.52	11	12	12.7	14	-	-	-	-	60	75	80	4	M5x16	34	40	
60AH2	8	9	9.52	11	12	12.7	14	-	-	-	-	60	75	90	4	6.5	34	40	
60B1	8	9	9.52	11	12	12.7	14	15.875	16	-	-	60	85	80	4	M5x16	34	40	
60C1	8	9	9.52	11	12	12.7	14	15.875	16	-	-	60	90	80	4	M5x16	34	40	
70A1	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	70	85	80	4	M6x20	34	40
70AH1	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	70	85	90	4	6.5	34	40
70B1	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	70	90	80	4	M5x16	34	40
73A1	8	9	9.52	11	12	12.7	14	-	-	-	-	73	98.4	85	4	M5x16	34	40	
80A1	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	80	100	90	4	M6x16	34	40
95A	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	95	115	100	4	M8x20	34	40
95B	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	95	130	115	4	M8x20	34	40
110A	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	110	130	115	4	M8x20	34	40
110B	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	110	145	120	6.5	M8x20	44	50
110B1	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	110	145	120	6.5	M8x20	54	60

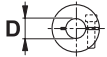
Please contact us for other motor adapters and input shaft bore.

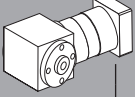


# MP MB 080

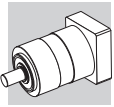
FM



				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
8	9	9.52		38	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	10.5
11	12	12.7		43	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	12.5
14	15.875	16	17	48	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	14.5
19	19.05			51	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	16.5

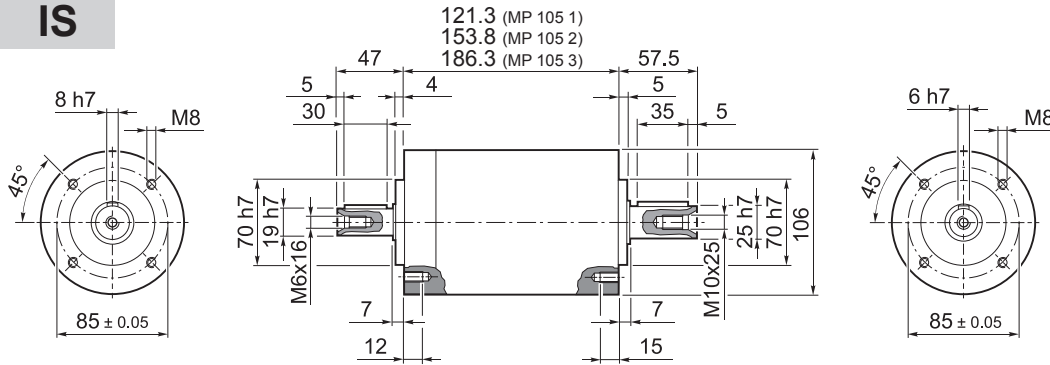
	i	M <sub>n2</sub>	M <sub>a2</sub>	M <sub>p2</sub>	n <sub>1</sub>	n <sub>1 max</sub>	φ <sub>S</sub>	φ <sub>R</sub>	C <sub>t</sub>	η	J <sub>G</sub> [kgcm <sup>2</sup> ]	
		[Nm]	[Nm]	[Nm]	[min <sup>-1</sup> ]	[min <sup>-1</sup> ]	[arcmin]	[Nm/arcmin]	%	8 ... 12.7	14 ... 19.05	
MP MB 080 2_3		40	80	180	2900	3500	15'	10'	7.0	94	0.50	0.59
MP MB 080 2_4		50	80	200	3100	4500	15'	10'	7.0	94	0.34	0.43
MP MB 080 2_5		50	80	200	3200	4500	15'	10'	7.0	94	0.28	0.37
MP MB 080 2_6		50	80	200	3200	4500	15'	10'	7.0	94	0.21	0.30
MP MB 080 2_7		50	80	200	4000	6000	15'	10'	7.0	94	0.23	0.32
MP MB 080 2_10		40	80	180	4000	6000	15'	10'	7.0	94	0.20	0.29
MP MB 080 3_9		40	80	180	2900	3500	15'	10'	5.9	91	0.49	0.58
MP MB 080 3_12		70	100	250	2900	3500	15'	10'	5.9	91	0.47	0.56
MP MB 080 3_15		70	100	250	2900	3500	15'	10'	5.9	91	0.46	0.55
MP MB 080 3_16		70	100	250	3100	4500	15'	10'	5.9	91	0.32	0.41
MP MB 080 3_20		70	100	250	3200	4500	15'	10'	5.9	91	0.27	0.36
MP MB 080 3_25		70	100	250	3200	4500	15'	10'	5.9	91	0.27	0.36
MP MB 080 3_28		70	100	250	4000	6000	15'	10'	5.9	91	0.22	0.31
MP MB 080 3_30		40	80	180	4000	6000	15'	10'	5.9	91	0.20	0.29
MP MB 080 3_35		70	100	250	4000	6000	15'	10'	5.9	91	0.22	0.31
MP MB 080 3_36		50	80	200	3200	4500	15'	10'	5.9	91	0.20	0.29
MP MB 080 3_40		70	100	250	4000	6000	15'	10'	5.9	91	0.20	0.29
MP MB 080 3_50		70	100	250	4000	6000	15'	10'	5.9	91	0.19	0.28
MP MB 080 3_70		70	100	250	4000	6000	15'	10'	5.9	91	0.19	0.28
MP MB 080 3_100		40	80	180	4000	6000	15'	10'	5.9	91	0.19	0.28
MP MB 080 4_48		70	100	250	3100	4500	17'	12'	5.4	89	0.33	0.42
MP MB 080 4_64		70	100	250	3100	4500	17'	12'	5.4	89	0.32	0.41
MP MB 080 4_75		70	100	250	3200	4500	17'	12'	5.4	89	0.27	0.36
MP MB 080 4_80		70	100	250	3100	4500	17'	12'	5.4	89	0.32	0.41
MP MB 080 4_84		70	100	250	4000	6000	17'	12'	5.4	89	0.23	0.32
MP MB 080 4_90		40	80	180	4000	6000	17'	12'	5.4	89	0.20	0.29
MP MB 080 4_120		70	100	250	4000	6000	17'	12'	5.4	89	0.20	0.29
MP MB 080 4_125		70	100	250	3200	4500	17'	12'	5.4	89	0.27	0.36
MP MB 080 4_140		70	100	250	4000	6000	17'	12'	5.4	89	0.22	0.31
MP MB 080 4_150		70	100	250	4000	6000	17'	12'	5.4	89	0.20	0.29
MP MB 080 4_160		70	100	250	4000	6000	17'	12'	5.4	89	0.20	0.29
MP MB 080 4_175		70	100	250	4000	6000	17'	12'	5.4	89	0.22	0.31
MP MB 080 4_200		70	100	250	4000	6000	17'	12'	5.4	89	0.20	0.29
MP MB 080 4_210		70	100	250	4000	6000	17'	12'	5.4	89	0.20	0.29
MP MB 080 4_216		70	100	250	3200	4500	17'	12'	5.4	89	0.20	0.29
MP MB 080 4_250		70	100	250	4000	6000	17'	12'	5.4	89	0.19	0.28
MP MB 080 4_280		70	100	250	4000	6000	17'	12'	5.4	89	0.19	0.28
MP MB 080 4_350		70	100	250	4000	6000	17'	12'	5.4	89	0.19	0.28
MP MB 080 4_400		70	100	250	4000	6000	17'	12'	5.4	89	0.19	0.28
MP MB 080 4_500		70	100	250	4000	6000	17'	12'	5.4	89	0.19	0.28
MP MB 080 4_700		70	100	250	4000	6000	17'	12'	5.4	89	0.19	0.28
MP MB 080 4_1000		40	80	180	4000	6000	17'	12'	5.4	89	0.19	0.28

MP



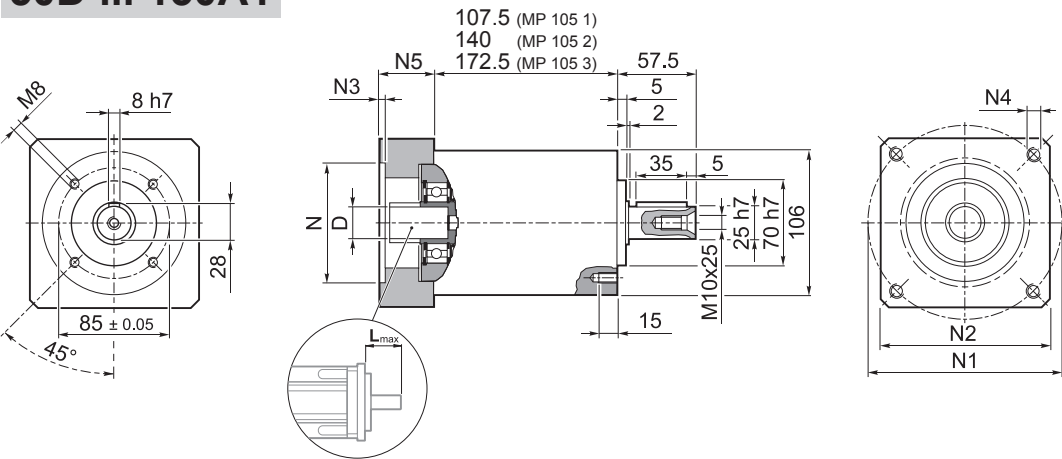
# MP 105

IS



<b>MP 105 1</b>	6.5
<b>MP 105 2</b>	8.5
<b>MP 105 3</b>	10.5

## 50D ... 130A1

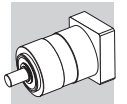


<b>MP 105 1</b>	6.5
<b>MP 105 2</b>	8.5
<b>MP 105 3</b>	10.5

MP

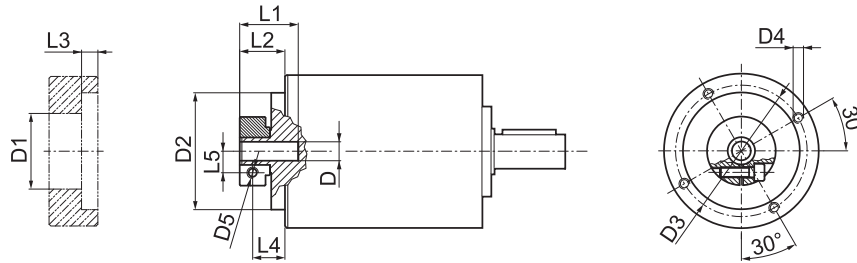
											N	N1	N2	N3	N4	N5	L <sub>max</sub>	
<b>50D</b>	11	12	12.7	14	15	15.875	16	19	-	-	-	50	95	100	5	M6x14	28	40
<b>55A</b>	11	12	12.7	14	15	15.875	16	19	-	-	-	55	125.7	105	5	M6x16	28	40
<b>60A2</b>	11	12	12.7	14	15	15.875	16	19	-	-	-	60	75	100	6.5	M5x14	28	40
<b>60AH2</b>	11	12	12.7	14	15	15.875	16	19	-	-	-	60	75	100	4	6.5	33	40
<b>60B1</b>	11	12	12.7	14	15	15.875	16	19	-	-	-	60	85	100	6.5	M5x14	28	40
<b>70A1</b>	11	12	12.7	14	15	15.875	16	19	-	-	-	70	85	100	6.5	M6x14	28	40
<b>70AH1</b>	11	12	12.7	14	15	15.875	16	19	-	-	-	70	85	100	4	6.5	33	40
<b>70B1</b>	11	12	12.7	14	15	15.875	16	19	-	-	-	70	90	100	6.5	M5x12	28	40
<b>80A1</b>	11	12	12.7	14	15	15.875	16	19	-	-	-	80	100	100	6.5	M6x16	28	40
<b>80AH1</b>	11	12	12.7	14	15	15.875	16	19	-	-	-	80	100	100	4	6.5	33	40
<b>95A</b>	11	12	12.7	14	15	15.875	16	19	-	-	-	95	115	100	6.5	M8x18	28	40
<b>95A1</b>	11	12	12.7	14	15	15.875	16	19	22	24	-	95	115	100	6.5	M8x18	38	50
<b>95B</b>	11	12	12.7	14	15	15.875	16	19	-	-	-	95	130	115	6.5	M8x18	28	40
<b>110A</b>	11	12	12.7	14	15	15.875	16	19	-	-	-	110	130	115	6.5	M8x18	28	40
<b>110A1</b>	11	12	12.7	14	15	15.875	16	19	22	24	-	110	130	115	6.5	M8x20	38	50
<b>110B</b>	11	12	12.7	14	15	15.875	16	19	22	24	-	110	145	120	6.5	M8x20	38	50
<b>110B1</b>	11	12	12.7	14	15	15.875	16	19	22	24	28	110	145	120	6.5	M8x20	48	60
<b>130A</b>	11	12	12.7	14	15	15.875	16	19	22	24	-	130	165	140	6.5	M10x20	38	50
<b>130A1</b>	11	12	12.7	14	15	15.875	16	19	22	24	28	130	165	140	6.5	M10x25	48	60

Please contact us for other motor adapters and input shaft bore.



# MP 105

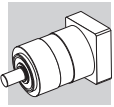
FM



D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
11	12	12.7		43	90	98	M6x15	M6	31.5	19.5	7.6	12	12.5
14	15	15.875	16	48	90	98	M6x15	M6	31.5	19.5	7.6	12	14.5
19				51	90	98	M6x15	M6	31.5	19.5	7.6	12	16.5
22	24			56.5	90	98	M6x15	M6	35	23	7.6	12	19
28				67	90	98	M6x15	M8	35	23	7.6	14	22.5
32				71	90	98	M6x15	M8	37	25	7.6	16	24.5

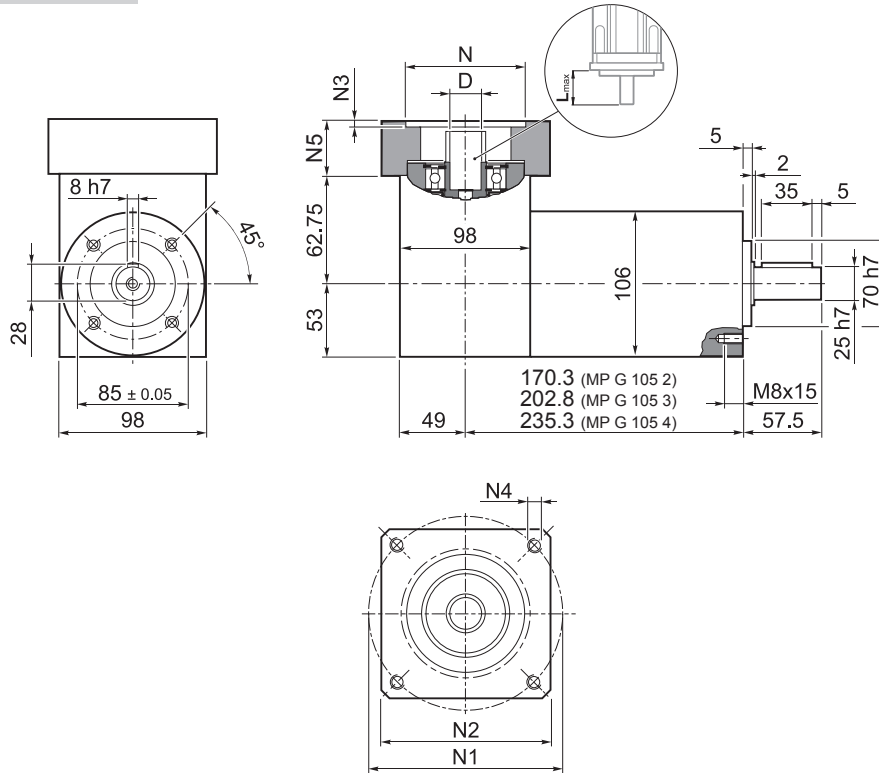
 i	M <sub>n 2</sub>	M <sub>a 2</sub>	M <sub>p 2</sub>	n <sub>1</sub>	n <sub>1 max</sub>	φ <sub>S</sub>	φ <sub>R</sub>	C <sub>t</sub>	SB				HB		η	J <sub>G</sub> [kgcm <sup>2</sup> ]			
	[Nm]	[Nm]	[Nm]	[min <sup>-1</sup> ]	[min <sup>-1</sup> ]	[arcmin]	[arcmin]	$\frac{Nm}{arcmin}$	R <sub>1 max</sub>	R <sub>2 max</sub>	A <sub>2 max</sub>	R <sub>2 max</sub>	A <sub>2 max</sub>	%	11 ... 12.7	14 ... 19	22 - 24	28 - 32	
MP 105 1_3	100	180	360	2500	3500	15'	10'	22.0	600	1500	1600	3800	4000	97	1.70	1.78	2.22	2.59	
MP 105 1_4	140	210	450	2800	4500	15'	10'	22.0	600	1500	1600	3800	4000	97	0.99	1.06	1.51	1.87	
MP 105 1_5	140	210	450	3000	4500	15'	10'	22.0	600	1500	1600	3800	4000	97	0.72	0.79	1.23	1.60	
MP 105 1_6	140	210	450	3000	4500	15'	10'	22.0	600	1500	1600	3800	4000	97	0.36	0.43	0.88	1.24	
MP 105 1_7	140	210	450	3500	5000	15'	10'	22.0	600	1500	1600	3800	4000	97	0.47	0.55	0.99	1.35	
MP 105 1_10	100	180	360	3500	5000	15'	10'	22.0	600	1500	1600	3800	4000	97	0.33	0.41	0.85	1.21	
MP 105 2_9	100	180	360	2500	3500	15'	10'	20.5	600	1500	1600	3800	4000	94	1.58	1.63	2.07	2.44	
MP 105 2_12	170	250	600	2500	3500	15'	10'	20.5	600	1500	1600	3800	4000	94	1.52	1.59	2.03	2.40	
MP 105 2_15	170	250	600	2500	3500	15'	10'	20.5	600	1500	1600	3800	4000	94	1.47	1.55	1.99	2.36	
MP 105 2_16	170	250	600	2800	4500	15'	10'	20.5	600	1500	1600	3800	4000	94	0.87	0.95	1.39	1.76	
MP 105 2_20	170	250	600	3000	4500	15'	10'	20.5	600	1500	1600	3800	4000	94	0.86	0.93	1.37	1.74	
MP 105 2_25	170	250	600	3000	4500	15'	10'	20.5	600	1500	1600	3800	4000	94	0.63	0.71	1.15	1.51	
MP 105 2_28	170	250	600	3500	5000	15'	10'	20.5	600	1500	1600	3800	4000	94	0.43	0.51	0.95	1.32	
MP 105 2_30	100	180	360	3500	5000	15'	10'	20.5	600	1500	1600	3800	4000	94	0.32	0.40	0.84	1.20	
MP 105 2_35	170	250	600	3500	5000	15'	10'	20.5	600	1500	1600	3800	4000	94	0.43	0.50	0.95	1.31	
MP 105 2_36	140	210	450	3000	4500	15'	10'	20.5	600	1500	1600	3800	4000	94	0.32	0.39	0.84	1.20	
MP 105 2_40	170	250	600	3500	5000	15'	10'	20.5	600	1500	1600	3800	4000	94	0.31	0.39	0.83	1.20	
MP 105 2_50	170	250	600	3500	5000	15'	10'	20.5	600	1500	1600	3800	4000	94	0.31	0.39	0.83	1.19	
MP 105 2_70	170	250	600	3500	5000	15'	10'	20.5	600	1500	1600	3800	4000	94	0.31	0.38	0.83	1.19	
MP 105 2_100	100	180	360	3500	5000	15'	10'	20.5	600	1500	1600	3800	4000	94	0.31	0.38	0.83	1.19	
MP 105 3_48	170	250	600	2800	4500	17'	12'	17.5	600	1500	1600	3800	4000	91	0.91	0.98	1.42	1.79	
MP 105 3_64	170	250	600	2800	4500	17'	12'	17.5	600	1500	1600	3800	4000	91	0.87	0.94	1.38	1.75	
MP 105 3_75	170	250	600	3000	4500	17'	12'	17.5	600	1500	1600	3800	4000	91	0.66	0.74	1.18	1.55	
MP 105 3_80	170	250	600	2800	4500	17'	12'	17.5	600	1500	1600	3800	4000	91	0.86	0.94	1.38	1.75	
MP 105 3_84	170	250	600	3500	5000	17'	12'	17.5	600	1500	1600	3800	4000	91	0.44	0.52	0.96	1.33	
MP 105 3_90	100	180	360	3500	5000	17'	12'	17.5	600	1500	1600	3800	4000	91	0.32	0.39	0.84	1.20	
MP 105 3_120	170	250	600	3500	5000	17'	12'	17.5	600	1500	1600	3800	4000	91	0.32	0.39	0.84	1.20	
MP 105 3_125	170	250	600	3000	4500	17'	12'	17.5	600	1500	1600	3800	4000	91	0.63	0.70	1.15	1.51	
MP 105 3_140	170	250	600	3500	5000	17'	12'	17.5	600	1500	1600	3800	4000	91	0.43	0.51	0.95	1.32	
MP 105 3_150	170	250	600	3500	5000	17'	12'	17.5	600	1500	1600	3800	4000	91	0.32	0.39	0.84	1.20	
MP 105 3_160	170	250	600	3500	5000	17'	12'	17.5	600	1500	1600	3800	4000	91	0.31	0.39	0.83	1.21	
MP 105 3_175	170	250	600	3500	5000	17'	12'	17.5	600	1500	1600	3800	4000	91	0.43	0.50	0.95	1.31	
MP 105 3_200	170	250	600	3500	5000	17'	12'	17.5	600	1500	1600	3800	4000	91	0.31	0.39	0.83	1.20	
MP 105 3_210	170	250	600	3500	5000	17'	12'	17.5	600	1500	1600	3800	4000	91	0.32	0.39	0.84	1.20	
MP 105 3_216	170	250	600	3000	4500	17'	12'	17.5	600	1500	1600	3800	4000	91	0.31	0.39	0.83	1.20	
MP 105 3_250	170	250	600	3500	5000	17'	12'	17.5	600	1500	1600	3800	4000	91	0.31	0.39	0.83	1.19	
MP 105 3_280	170	250	600	3500	5000	17'	12'	17.5	600	1500	1600	3800	4000	91	0.31	0.38	0.83	1.19	
MP 105 3_350	170	250	600	3500	5000	17'	12'	17.5	600	1500	1600	3800	4000	91	0.31	0.38	0.83	1.19	
MP 105 3_400	170	250	600	3500	5000	17'	12'	17.5	600	1500	1600	3800	4000	91	0.31	0.38	0.83	1.19	
MP 105 3_500	170	250	600	3500	5000	17'	12'	17.5	600	1500	1600	3800	4000	91	0.31	0.38	0.83	1.19	
MP 105 3_700	170	250	600	3500	5000	17'	12'	17.5	600	1500	1600	3800	4000	91	0.31	0.38	0.83	1.19	
MP 105 3_1000	100	180	360	3500	5000	17'	12'	17.5	600	1500	1600	3800	4000	91	0.31	0.38	0.83	1.19	

MP


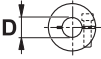


# MP G 105

## 50D ... 130A1

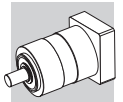


MP

												N	N1	N2	N3	N4	N5	L <sub>max</sub>
	11	12	12.7	14	15	15.875	16	19	-	-	-							
<b>50D</b>	11	12	12.7	14	15	15.875	16	19	-	-	-	50	95	100	5	M6x14	28	40
<b>55A</b>	11	12	12.7	14	15	15.875	16	19	-	-	-	55	125.7	105	5	M6x16	28	40
<b>60A2</b>	11	12	12.7	14	15	15.875	16	19	-	-	-	60	75	100	6.5	M5x14	28	40
<b>60AH2</b>	11	12	12.7	14	15	15.875	16	19	-	-	-	60	75	100	4	6.5	33	40
<b>60B1</b>	11	12	12.7	14	15	15.875	16	19	-	-	-	60	85	100	6.5	M5x14	28	40
<b>70A1</b>	11	12	12.7	14	15	15.875	16	19	-	-	-	70	85	100	6.5	M6x14	28	40
<b>70AH1</b>	11	12	12.7	14	15	15.875	16	19	-	-	-	70	85	100	4	6.5	33	40
<b>70B1</b>	11	12	12.7	14	15	15.875	16	19	-	-	-	70	90	100	6.5	M5x12	28	40
<b>80A1</b>	11	12	12.7	14	15	15.875	16	19	-	-	-	80	100	100	6.5	M6x16	28	40
<b>80AH1</b>	11	12	12.7	14	15	15.875	16	19	-	-	-	80	100	100	4	6.5	33	40
<b>95A</b>	11	12	12.7	14	15	15.875	16	19	-	-	-	95	115	100	6.5	M8x18	28	40
<b>95A1</b>	11	12	12.7	14	15	15.875	16	19	22	24	-	95	115	100	6.5	M8x18	38	50
<b>95B</b>	11	12	12.7	14	15	15.875	16	19	-	-	-	95	130	115	6.5	M8x18	28	40
<b>110A</b>	11	12	12.7	14	15	15.875	16	19	-	-	-	110	130	115	6.5	M8x18	28	40
<b>110A1</b>	11	12	12.7	14	15	15.875	16	19	22	24	-	110	130	115	6.5	M8x20	38	50
<b>110B</b>	11	12	12.7	14	15	15.875	16	19	22	24	-	110	145	120	6.5	M8x20	38	50
<b>110B1</b>	11	12	12.7	14	15	15.875	16	19	22	24	28	110	145	120	6.5	M8x20	48	60
<b>130A</b>	11	12	12.7	14	15	15.875	16	19	22	24	-	130	165	140	6.5	M10x20	38	50
<b>130A1</b>	11	12	12.7	14	15	15.875	16	19	22	24	28	130	165	140	6.5	M10x25	48	60

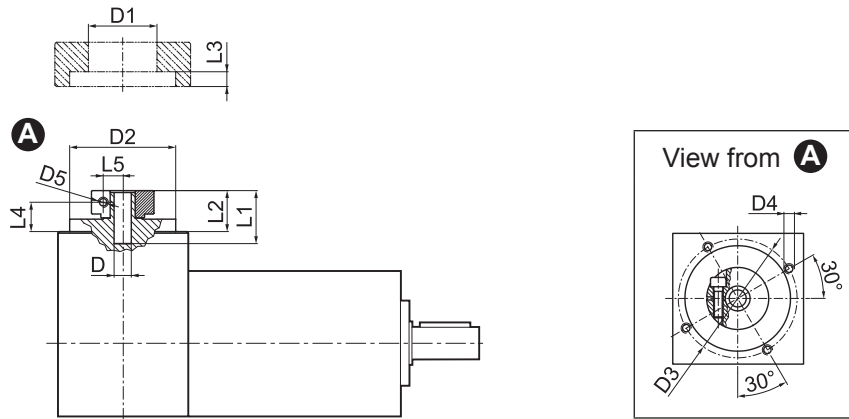
Please contact us for other motor adapters and input shaft bore.





# MP G 105

FM

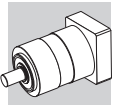


D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
11	12	12.7		43	90	98	M6x15	M6	31.5	19.5	7.6	12	12.5
14	15	15.875	16	48	90	98	M6x15	M6	31.5	19.5	7.6	12	14.5
19				51	90	98	M6x15	M6	31.5	19.5	7.6	12	16.5
22	24			56.5	90	98	M6x15	M6	35	23	7.6	12	19
28				67	90	98	M6x15	M8	35	23	7.6	14	22.5
32				71	90	98	M6x15	M8	37	25	7.6	16	24.5

i	M <sub>n2</sub> [Nm]	M <sub>a2</sub> [Nm]	M <sub>p2</sub> [Nm]	n <sub>1</sub> [min <sup>-1</sup> ]	n <sub>1 max</sub> [min <sup>-1</sup> ]	φ <sub>S</sub> [arcmin]	φ <sub>R</sub> [arcmin]	C <sub>t</sub> [Nm/arcmin]	SB				HB		η %	J <sub>G</sub> [kgcm <sup>2</sup> ]			
									R <sub>2 max</sub> [N]	A <sub>2 max</sub> [N]	R <sub>2 max</sub> [N]	A <sub>2 max</sub> [N]	11 ... 12.7	14 ... 19		22 - 24	28 - 32		
									D	D			D						
MP G 105 2_3	100	180	360	2500	3500	15'	10'	22.0	1500	1600	3800	4000	94	1.85	2.01	2.33	3.07		
MP G 105 2_4	140	210	450	2800	4500	15'	10'	22.0	1500	1600	3800	4000	94	1.14	1.29	1.62	2.35		
MP G 105 2_5	140	210	450	3000	4500	15'	10'	22.0	1500	1600	3800	4000	94	1.07	1.21	1.34	2.08		
MP G 105 2_6	140	210	450	3000	4500	15'	10'	22.0	1500	1600	3800	4000	94	0.87	1.02	1.16	1.89		
MP G 105 2_7	140	210	450	3500	5000	15'	10'	22.0	1500	1600	3800	4000	94	0.98	1.14	1.27	2.00		
MP G 105 2_10	100	180	360	3500	5000	15'	10'	22.0	1500	1600	3800	4000	94	0.94	1.09	1.23	1.95		
MP G 105 3_9	100	180	360	2500	3500	15'	10'	20.5	1500	1600	3800	4000	91	1.76	1.86	2.18	2.92		
MP G 105 3_12	170	250	600	2500	3500	15'	10'	20.5	1500	1600	3800	4000	91	1.60	1.75	2.14	2.88		
MP G 105 3_15	170	250	600	2500	3500	15'	10'	20.5	1500	1600	3800	4000	91	1.57	1.73	2.10	2.84		
MP G 105 3_16	170	250	600	2800	4500	15'	10'	20.5	1500	1600	3800	4000	91	1.02	1.18	1.50	2.24		
MP G 105 3_20	170	250	600	3000	4500	15'	10'	20.5	1500	1600	3800	4000	91	1.20	1.35	1.48	2.22		
MP G 105 3_25	170	250	600	3000	4500	15'	10'	20.5	1500	1600	3800	4000	91	1.13	1.29	1.42	2.15		
MP G 105 3_28	170	250	600	3500	5000	15'	10'	20.5	1500	1600	3800	4000	91	0.94	1.10	1.23	1.97		
MP G 105 3_30	100	180	360	3500	5000	15'	10'	20.5	1500	1600	3800	4000	91	0.93	1.08	1.22	1.94		
MP G 105 3_35	170	250	600	3500	5000	15'	10'	20.5	1500	1600	3800	4000	91	1.02	1.17	1.31	2.04		
MP G 105 3_36	140	210	450	3000	4500	15'	10'	20.5	1500	1600	3800	4000	91	0.83	0.98	1.12	1.85		
MP G 105 3_40	170	250	600	3500	5000	15'	10'	20.5	1500	1600	3800	4000	91	0.96	1.11	1.25	1.98		
MP G 105 3_50	170	250	600	3500	5000	15'	10'	20.5	1500	1600	3800	4000	91	0.96	1.11	1.25	1.98		
MP G 105 3_70	170	250	600	3500	5000	15'	10'	20.5	1500	1600	3800	4000	91	0.92	1.06	1.21	1.93		
MP G 105 3_100	100	180	360	3500	5000	15'	10'	20.5	1500	1600	3800	4000	91	0.92	1.06	1.21	1.93		
MP G 105 4_48	170	250	600	2800	4500	17'	12'	17.5	1500	1600	3800	4000	89	1.06	1.21	1.53	2.27		
MP G 105 4_64	170	250	600	2800	4500	17'	12'	17.5	1500	1600	3800	4000	89	1.02	1.17	1.49	2.23		
MP G 105 4_75	170	250	600	3000	4500	17'	12'	17.5	1500	1600	3800	4000	89	1.00	1.16	1.29	2.03		
MP G 105 4_80	170	250	600	2800	4500	17'	12'	17.5	1500	1600	3800	4000	89	1.01	1.17	1.49	2.23		
MP G 105 4_84	170	250	600	3500	5000	17'	12'	17.5	1500	1600	3800	4000	89	0.95	1.11	1.24	1.98		
MP G 105 4_90	100	180	360	3500	5000	17'	12'	17.5	1500	1600	3800	4000	89	0.93	1.07	1.22	1.94		
MP G 105 4_120	170	250	600	3500	5000	17'	12'	17.5	1500	1600	3800	4000	89	0.93	1.07	1.22	1.94		
MP G 105 4_125	170	250	600	3000	4500	17'	12'	17.5	1500	1600	3800	4000	89	0.97	1.12	1.26	1.99		
MP G 105 4_140	170	250	600	3500	5000	17'	12'	17.5	1500	1600	3800	4000	89	0.94	1.10	1.23	1.97		
MP G 105 4_150	170	250	600	3500	5000	17'	12'	17.5	1500	1600	3800	4000	89	0.93	1.07	1.22	1.94		
MP G 105 4_160	170	250	600	3500	5000	17'	12'	17.5	1500	1600	3800	4000	89	0.92	1.07	1.21	1.96		
MP G 105 4_175	170	250	600	3500	5000	17'	12'	17.5	1500	1600	3800	4000	89	0.94	1.09	1.23	1.96		
MP G 105 4_200	170	250	600	3500	5000	17'	12'	17.5	1500	1600	3800	4000	89	0.92	1.07	1.21	1.94		
MP G 105 4_210	170	250	600	3500	5000	17'	12'	17.5	1500	1600	3800	4000	89	0.93	1.07	1.22	1.94		
MP G 105 4_216	170	250	600	3000	4500	17'	12'	17.5	1500	1600	3800	4000	89	0.83	0.98	1.11	1.85		
MP G 105 4_250	170	250	600	3500	5000	17'	12'	17.5	1500	1600	3800	4000	89	0.92	1.07	1.21	1.93		
MP G 105 4_280	170	250	600	3500	5000	17'	12'	17.5	1500	1600	3800	4000	89	0.92	1.06	1.21	1.93		
MP G 105 4_350	170	250	600	3500	5000	17'	12'	17.5	1500	1600	3800	4000	89	0.92	1.06	1.21	1.93		
MP G 105 4_400	170	250	600	3500	5000	17'	12'	17.5	1500	1600	3800	4000	89	0.92	1.06	1.21	1.93		
MP G 105 4_500	170	250	600	3500	5000	17'	12'	17.5	1500	1600	3800	4000	89	0.92	1.06	1.21	1.93		
MP G 105 4_700	170	250	600	3500	5000	17'	12'	17.5	1500	1600	3800	4000	89	0.92	1.06	1.21	1.93		
MP G 105 4_1000	100	180	360	3500	5000	17'	12'	17.5	1500	1600	3800	4000	89	0.92	1.06	1.21	1.93		

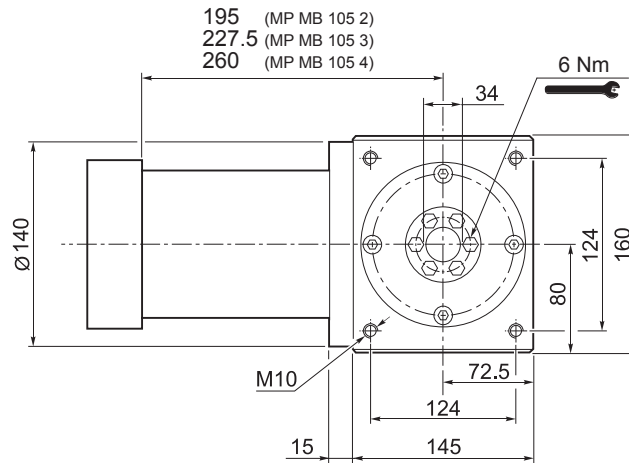
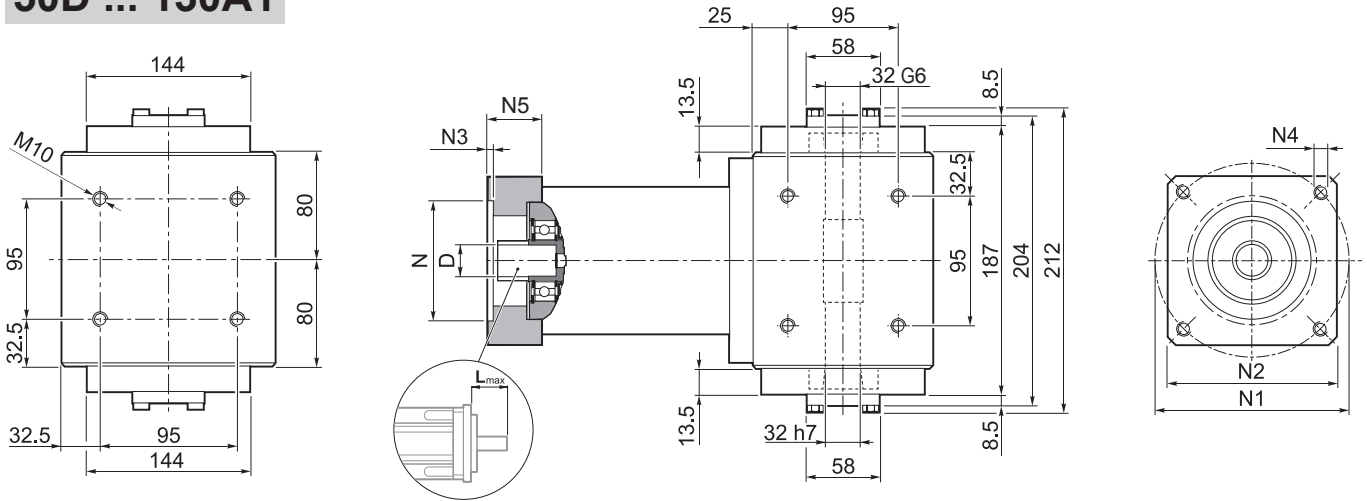
MP





# MP MB 105

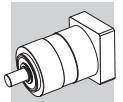
## 50D ... 130A1



MP MB 105 2	32
MP MB 105 3	34
MP MB 105 4	36

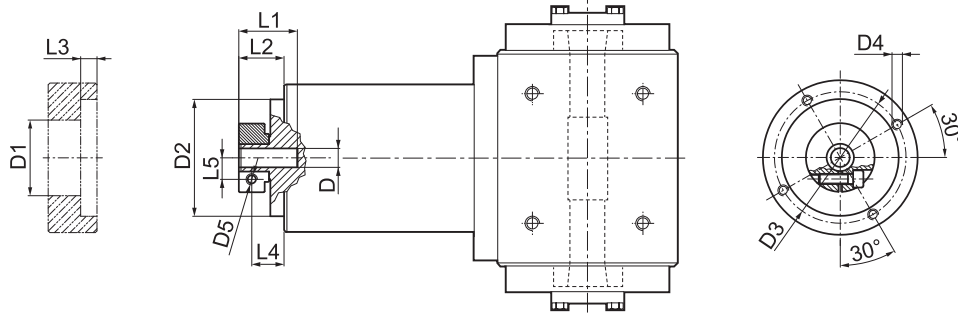
											N	N1	N2	N3	N4	N5	L <sub>max</sub>	
50D	11	12	12.7	14	15	15.875	16	19	-	-	-	50	95	100	5	M6x14	28	40
55A	11	12	12.7	14	15	15.875	16	19	-	-	-	55	125.7	105	5	M6x16	28	40
60A2	11	12	12.7	14	15	15.875	16	19	-	-	-	60	75	100	6.5	M5x14	28	40
60AH2	11	12	12.7	14	15	15.875	16	19	-	-	-	60	75	100	4	6.5	33	40
60B1	11	12	12.7	14	15	15.875	16	19	-	-	-	60	85	100	6.5	M5x14	28	40
70A1	11	12	12.7	14	15	15.875	16	19	-	-	-	70	85	100	6.5	M6x14	28	40
70AH1	11	12	12.7	14	15	15.875	16	19	-	-	-	70	85	100	4	6.5	33	40
70B1	11	12	12.7	14	15	15.875	16	19	-	-	-	70	90	100	6.5	M5x12	28	40
80A1	11	12	12.7	14	15	15.875	16	19	-	-	-	80	100	100	6.5	M6x16	28	40
80AH1	11	12	12.7	14	15	15.875	16	19	-	-	-	80	100	100	4	6.5	33	40
95A	11	12	12.7	14	15	15.875	16	19	-	-	-	95	115	100	6.5	M8x18	28	40
95A1	11	12	12.7	14	15	15.875	16	19	22	24	-	95	115	100	6.5	M8x18	38	50
95B	11	12	12.7	14	15	15.875	16	19	-	-	-	95	130	115	6.5	M8x18	28	40
110A	11	12	12.7	14	15	15.875	16	19	-	-	-	110	130	115	6.5	M8x18	28	40
110A1	11	12	12.7	14	15	15.875	16	19	22	24	-	110	130	115	6.5	M8x20	38	50
110B	11	12	12.7	14	15	15.875	16	19	22	24	-	110	145	120	6.5	M8x20	38	50
110B1	11	12	12.7	14	15	15.875	16	19	22	24	28	110	145	120	6.5	M8x20	48	60
130A	11	12	12.7	14	15	15.875	16	19	22	24	-	130	165	140	6.5	M10x20	38	50
130A1	11	12	12.7	14	15	15.875	16	19	22	24	28	130	165	140	6.5	M10x25	48	60

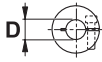
Please contact us for other motor adapters and input shaft bore.

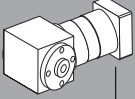



# MP MB 105

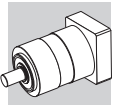
FM



				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
11	12	12.7		43	90	98	M6x15	M6	31.5	19.5	7.6	12	12.5
14	15	15.875	16	48	90	98	M6x15	M6	31.5	19.5	7.6	12	14.5
19				51	90	98	M6x15	M6	31.5	19.5	7.6	12	16.5
22	24			56.5	90	98	M6x15	M6	35	23	7.6	12	19
28				67	90	98	M6x15	M8	35	23	7.6	14	22.5
32				71	90	98	M6x15	M8	37	25	7.6	16	24.5

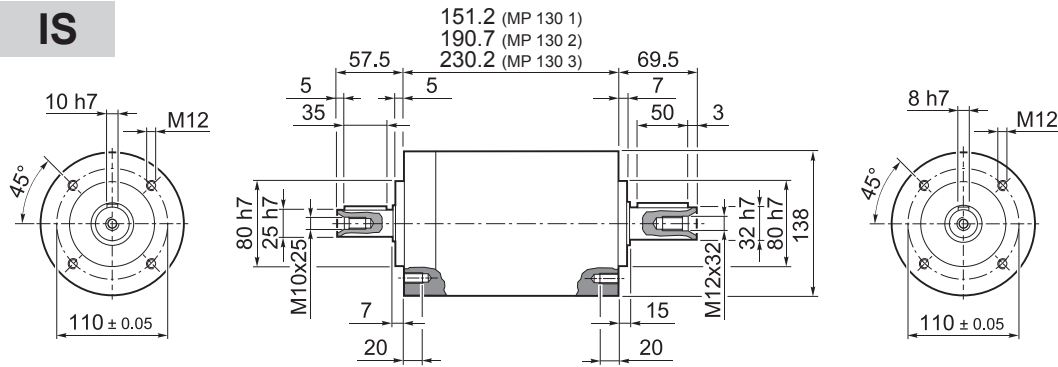
	i	M <sub>n2</sub> [Nm]	M <sub>a2</sub> [Nm]	M <sub>p2</sub> [Nm]	n <sub>1</sub> [min <sup>-1</sup> ]	n <sub>1 max</sub> [min <sup>-1</sup> ]	φ <sub>S</sub> [arcmin]	φ <sub>R</sub> [arcmin]	C <sub>t</sub> [ $\frac{Nm}{arcmin}$ ]	η %	J <sub>G</sub> [kgcm <sup>2</sup> ] 			
											11 ... 12.7	14 ... 19	22 - 24	28 - 32
MP MB 105 2_3		100	180	360	2500	3500	15'	10'	22.0	94	1.70	1.78	2.22	2.59
MP MB 105 2_4		140	210	450	2800	4500	15'	10'	22.0	94	0.99	1.06	1.51	1.87
MP MB 105 2_5		140	210	450	3000	4500	15'	10'	22.0	94	0.72	0.79	1.23	1.60
MP MB 105 2_6		140	210	450	3000	4500	15'	10'	22.0	94	0.36	0.43	0.88	1.24
MP MB 105 2_7		140	210	450	3500	5000	15'	10'	22.0	94	0.47	0.55	0.99	1.35
MP MB 105 2_10		100	180	360	3500	5000	15'	10'	22.0	94	0.33	0.41	0.85	1.21
MP MB 105 3_9		100	180	360	2500	3500	15'	10'	20.5	91	1.58	1.63	2.07	2.44
MP MB 105 3_12		170	250	600	2500	3500	15'	10'	20.5	91	1.52	1.59	2.03	2.40
MP MB 105 3_15		170	250	600	2500	3500	15'	10'	20.5	91	1.47	1.55	1.99	2.36
MP MB 105 3_16		170	250	600	2800	4500	15'	10'	20.5	91	0.87	0.95	1.39	1.76
MP MB 105 3_20		170	250	600	3000	4500	15'	10'	20.5	91	0.86	0.93	1.37	1.74
MP MB 105 3_25		170	250	600	3000	4500	15'	10'	20.5	91	0.63	0.71	1.15	1.51
MP MB 105 3_28		170	250	600	3500	5000	15'	10'	20.5	91	0.43	0.51	0.95	1.32
MP MB 105 3_30		100	180	360	3500	5000	15'	10'	20.5	91	0.32	0.40	0.84	1.20
MP MB 105 3_35		170	250	600	3500	5000	15'	10'	20.5	91	0.43	0.50	0.95	1.31
MP MB 105 3_36		140	210	450	3000	4500	15'	10'	20.5	91	0.32	0.39	0.84	1.20
MP MB 105 3_40		170	250	600	3500	5000	15'	10'	20.5	91	0.31	0.39	0.83	1.20
MP MB 105 3_50		170	250	600	3500	5000	15'	10'	20.5	91	0.31	0.39	0.83	1.19
MP MB 105 3_70		170	250	600	3500	5000	15'	10'	20.5	91	0.31	0.38	0.83	1.19
MP MB 105 3_100		100	180	360	3500	5000	15'	10'	20.5	91	0.31	0.38	0.83	1.19
MP MB 105 4_48		170	250	600	2800	4500	17'	12'	17.5	89	0.91	0.98	1.42	1.79
MP MB 105 4_64		170	250	600	2800	4500	17'	12'	17.5	89	0.87	0.94	1.38	1.75
MP MB 105 4_75		170	250	600	3000	4500	17'	12'	17.5	89	0.66	0.74	1.18	1.55
MP MB 105 4_80		170	250	600	2800	4500	17'	12'	17.5	89	0.86	0.94	1.38	1.75
MP MB 105 4_84		170	250	600	3500	5000	17'	12'	17.5	89	0.44	0.52	0.96	1.33
MP MB 105 4_90		100	180	360	3500	5000	17'	12'	17.5	89	0.32	0.39	0.84	1.20
MP MB 105 4_120		170	250	600	3500	5000	17'	12'	17.5	89	0.32	0.39	0.84	1.20
MP MB 105 4_125		170	250	600	3000	4500	17'	12'	17.5	89	0.63	0.70	1.15	1.51
MP MB 105 4_140		170	250	600	3500	5000	17'	12'	17.5	89	0.43	0.51	0.95	1.32
MP MB 105 4_150		170	250	600	3500	5000	17'	12'	17.5	89	0.32	0.39	0.84	1.20
MP MB 105 4_160		170	250	600	3500	5000	17'	12'	17.5	89	0.31	0.39	0.83	1.21
MP MB 105 4_175		170	250	600	3500	5000	17'	12'	17.5	89	0.43	0.50	0.95	1.31
MP MB 105 4_200		170	250	600	3500	5000	17'	12'	17.5	89	0.31	0.39	0.83	1.20
MP MB 105 4_210		170	250	600	3500	5000	17'	12'	17.5	89	0.32	0.39	0.84	1.20
MP MB 105 4_216		170	250	600	3000	4500	17'	12'	17.5	89	0.31	0.39	0.83	1.20
MP MB 105 4_250		170	250	600	3500	5000	17'	12'	17.5	89	0.31	0.39	0.83	1.19
MP MB 105 4_280		170	250	600	3500	5000	17'	12'	17.5	89	0.31	0.38	0.83	1.19
MP MB 105 4_350		170	250	600	3500	5000	17'	12'	17.5	89	0.31	0.38	0.83	1.19
MP MB 105 4_400		170	250	600	3500	5000	17'	12'	17.5	89	0.31	0.38	0.83	1.19
MP MB 105 4_500		170	250	600	3500	5000	17'	12'	17.5	89	0.31	0.38	0.83	1.19
MP MB 105 4_700		170	250	600	3500	5000	17'	12'	17.5	89	0.31	0.38	0.83	1.19
MP MB 105 4_1000		100	180	360	3500	5000	17'	12'	17.5	89	0.31	0.38	0.83	1.19


MP



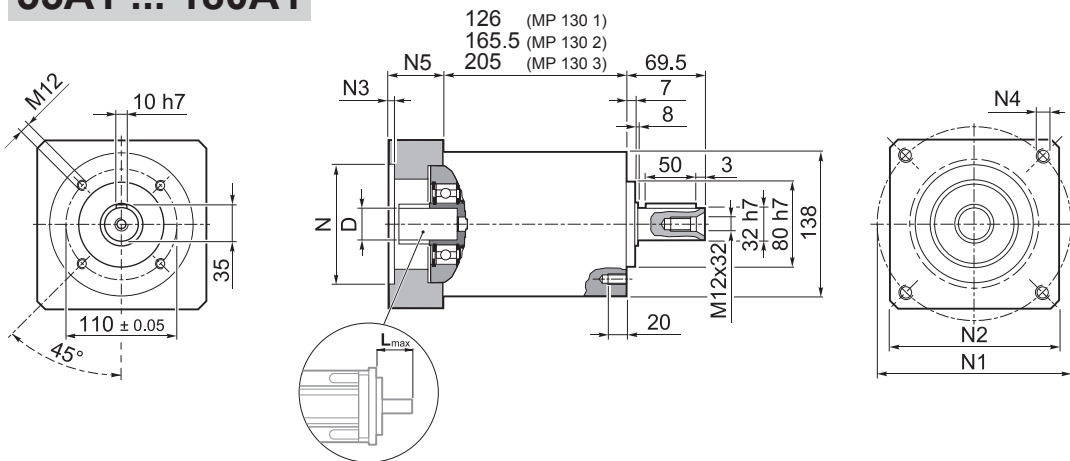
# MP 130


## IS


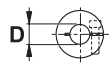


	 Kg
<b>MP 130 1</b>	12.0
<b>MP 130 2</b>	15.5
<b>MP 130 3</b>	18.5

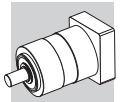
## 55A1 ... 180A1



	 Kg
<b>MP 130 1</b>	12.0
<b>MP 130 2</b>	15.5
<b>MP 130 3</b>	18.5

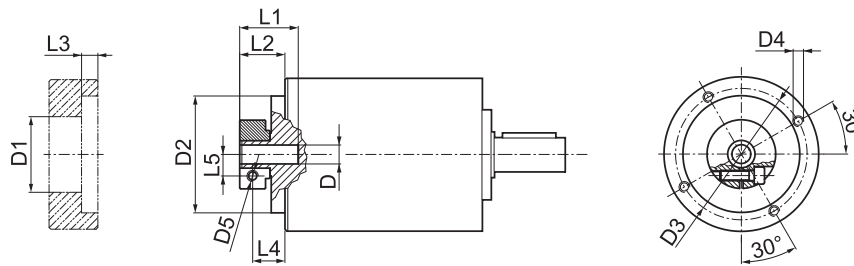
											N	N1	N2	N3	N4	N5	L <sub>max</sub>
<b>55A1</b>	14	15.875	16	19	-	-	-	-	-	-	55.5	125.7	130	4	M6x15	39.5	50
<b>80A2</b>	14	15.875	16	19	-	-	-	-	-	-	80	100	130	4	M6x15	39.5	50
<b>95A1</b>	14	15.875	16	19	22	24	-	-	-	-	95	115	130	4	M8x20	39.5	50
<b>110A1</b>	14	15.875	16	19	22	24	-	-	-	-	110	130	130	4	M8x20	39.5	50
<b>110B1</b>	14	15.875	16	19	22	24	-	-	-	-	110	145	130	6.5	M8x20	49.5	60
<b>114A0</b>	14	15.875	16	19	22	24	-	-	-	-	114.3	200	170	5.5	M12x25	39.5	50
<b>114A</b>	14	15.875	16	19	22	24	28	32	35	38	114.3	200	170	5.5	M12x25	69.5	80
<b>130A</b>	14	15.875	16	19	22	24	-	-	-	-	130	165	140	4	M10x20	39.5	50
<b>130A1</b>	14	15.875	16	19	22	24	28	32	-	-	130	165	140	4	M10x20	49.5	60
<b>180A</b>	14	15.875	16	19	22	24	28	32	-	-	180	215	190	5.5	M14x25	49.5	60
<b>180A1</b>	14	15.875	16	19	22	24	28	32	35	38	180	215	190	5.5	M14x25	69.5	80

Please contact us for other motor adapters and input shaft bore.



# MP 130

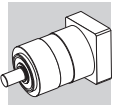
FM



			D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
14	15.875	16	48	113	125.5	M8x15	M6	40	27.5	6	20	14.5
19			51	113	125.5	M8x15	M6	40	27.5	6	20	16.5
22	24		56.5	113	125.5	M8x15	M6	41	28.5	6	19.5	19
28			67	113	125.5	M8x15	M8	41	28.5	6	19.5	22.5
32			71	113	125.5	M8x15	M8	41	28.5	6	19.5	24.5
35			73	113	125.5	M8x15	M8	50	37.5	11.25	26	26
38			77.5	113	125.5	M8x15	M8	50	37.5	11.25	26	28

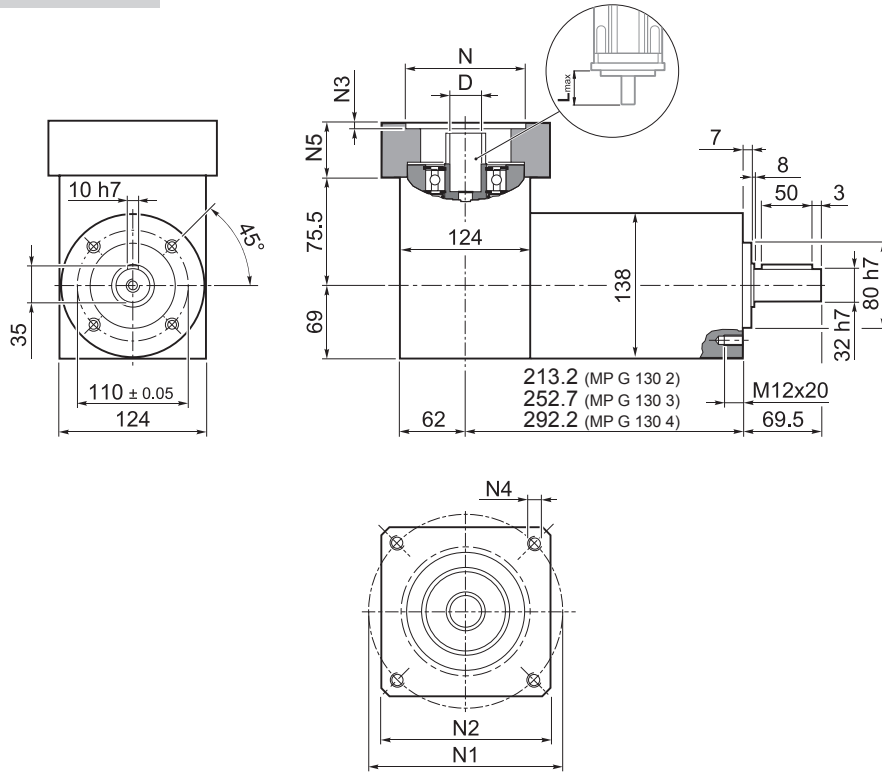
	M <sub>n 2</sub> [Nm]	M <sub>a 2</sub> [Nm]	M <sub>p 2</sub> [Nm]	n <sub>1</sub> [min <sup>-1</sup> ]	n <sub>1 max</sub> [min <sup>-1</sup> ]	φ <sub>S</sub> [arcmin]	φ <sub>R</sub> [arcmin]	C <sub>t</sub> [ $\frac{Nm}{arcmin}$ ]	R <sub>1 max</sub> [N]	R <sub>2 max</sub> [N]	A <sub>2 max</sub> [N]	η %	J <sub>G</sub> [kgcm <sup>2</sup> ]			
														14 ... 19	22 - 24	28 - 32
MP 130 1_3	215	400	800	2100	3000	15'	10'	43.0	800	5500	6500	97	5.25	5.46	5.81	7.16
MP 130 1_4	380	600	1100	2400	3500	15'	10'	43.0	800	5500	6500	97	3.06	3.26	3.61	4.97
MP 130 1_5	380	600	1100	2900	3500	15'	10'	43.0	800	5500	6500	97	2.22	2.42	2.77	4.13
MP 130 1_6	380	600	1100	2900	3500	15'	10'	43.0	800	5500	6500	97	1.19	1.40	1.75	3.10
MP 130 1_7	380	600	1100	3200	4000	15'	10'	43.0	800	5500	6500	97	1.47	1.68	2.03	3.38
MP 130 1_10	215	400	800	3200	4000	15'	10'	43.0	800	5500	6500	97	1.04	1.25	1.60	2.95
MP 130 2_9	215	400	800	2100	3000	15'	10'	37.5	800	5500	6500	94	4.82	5.02	5.37	6.72
MP 130 2_12	450	700	1300	2100	3000	15'	10'	37.5	800	5500	6500	94	4.57	4.78	5.13	6.48
MP 130 2_15	450	700	1300	2100	3000	15'	10'	37.5	800	5500	6500	94	4.48	4.69	5.04	6.39
MP 130 2_16	450	700	1300	2400	3500	15'	10'	37.5	800	5500	6500	94	2.67	2.88	3.23	4.58
MP 130 2_20	450	700	1300	2900	3500	15'	10'	37.5	800	5500	6500	94	1.97	2.18	2.53	3.88
MP 130 2_25	450	700	1300	2900	3500	15'	10'	37.5	800	5500	6500	94	1.94	2.15	2.50	3.85
MP 130 2_28	450	700	1300	3200	4000	15'	10'	37.5	800	5500	6500	94	1.34	1.55	1.90	3.25
MP 130 2_30	215	400	800	3200	4000	15'	10'	37.5	800	5500	6500	94	1.00	1.21	1.56	2.91
MP 130 2_35	450	700	1300	3200	4000	15'	10'	37.5	800	5500	6500	94	1.33	1.53	1.88	3.24
MP 130 2_36	380	600	1100	2900	3500	15'	10'	37.5	800	5500	6500	94	1.05	1.26	1.61	2.96
MP 130 2_40	450	700	1300	3200	4000	15'	10'	37.5	800	5500	6500	94	0.98	1.19	1.54	2.89
MP 130 2_50	450	700	1300	3200	4000	15'	10'	37.5	800	5500	6500	94	0.97	1.18	1.53	2.88
MP 130 2_70	450	700	1300	3200	4000	15'	10'	37.5	800	5500	6500	94	0.96	1.17	1.52	2.87
MP 130 2_100	215	400	800	3200	4000	15'	10'	37.5	800	5500	6500	94	0.96	1.17	1.52	2.87
MP 130 3_48	450	700	1300	2400	3500	17'	12'	29.5	800	5500	6500	91	2.77	2.98	3.33	4.68
MP 130 3_64	450	700	1300	2400	3500	17'	12'	29.5	800	5500	6500	91	2.65	2.86	3.21	4.56
MP 130 3_75	450	700	1300	2900	3500	17'	12'	29.5	800	5500	6500	91	2.03	2.24	2.59	3.94
MP 130 3_80	450	700	1300	2400	3500	17'	12'	29.5	800	5500	6500	91	2.65	2.85	3.20	4.56
MP 130 3_84	450	700	1300	3200	4000	17'	12'	29.5	800	5500	6500	91	1.37	1.58	1.93	3.28
MP 130 3_90	215	400	800	3200	4000	17'	12'	29.5	800	5500	6500	91	1.00	1.20	1.55	2.91
MP 130 3_120	450	700	1300	3200	4000	17'	12'	29.5	800	5500	6500	91	0.99	1.20	1.55	2.90
MP 130 3_125	450	700	1300	2900	3500	17'	12'	29.5	800	5500	6500	91	1.93	2.13	2.48	3.84
MP 130 3_140	450	700	1300	3200	4000	17'	12'	29.5	800	5500	6500	91	1.34	1.54	1.89	3.25
MP 130 3_150	450	700	1300	3200	4000	17'	12'	29.5	800	5500	6500	91	0.99	1.20	1.55	2.90
MP 130 3_160	450	700	1300	3200	4000	17'	12'	29.5	800	5500	6500	91	0.98	1.18	1.53	2.89
MP 130 3_175	450	700	1300	3200	4000	17'	12'	29.5	800	5500	6500	91	1.32	1.53	1.88	3.23
MP 130 3_200	450	700	1300	3200	4000	17'	12'	29.5	800	5500	6500	91	0.97	1.18	1.53	2.88
MP 130 3_210	450	700	1300	3200	4000	17'	12'	29.5	800	5500	6500	91	0.99	1.20	1.55	2.90
MP 130 3_216	450	700	1300	2900	3500	17'	12'	29.5	800	5500	6500	91	1.05	1.26	1.61	2.96
MP 130 3_250	450	700	1300	3200	4000	17'	12'	29.5	800	5500	6500	91	0.97	1.18	1.53	2.88
MP 130 3_280	450	700	1300	3200	4000	17'	12'	29.5	800	5500	6500	91	0.96	1.17	1.52	2.87
MP 130 3_350	450	700	1300	3200	4000	17'	12'	29.5	800	5500	6500	91	0.96	1.17	1.52	2.87
MP 130 3_400	450	700	1300	3200	4000	17'	12'	29.5	800	5500	6500	91	0.96	1.17	1.52	2.87
MP 130 3_500	450	700	1300	3200	4000	17'	12'	29.5	800	5500	6500	91	0.96	1.17	1.52	2.87
MP 130 3_700	450	700	1300	3200	4000	17'	12'	29.5	800	5500	6500	91	0.96	1.17	1.52	2.87
MP 130 3_1000	215	400	800	3200	4000	17'	12'	29.5	800	5500	6500	91	0.96	1.17	1.52	2.87


MP




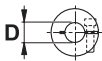
# MP G 130

## 55A1 ... 180A1

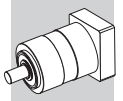


	
MP G 130 2	16.0
MP G 130 3	19.5
MP G 130 4	22.5

MP

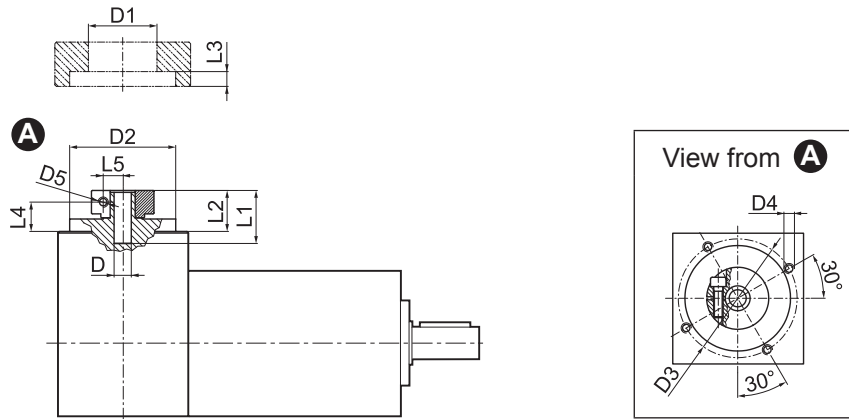
											N	N1	N2	N3	N4	N5	L <sub>max</sub>
<b>55A1</b>	14	15.875	16	19	-	-	-	-	-	-	55.5	125.7	130	4	M6x15	39.5	50
<b>80A2</b>	14	15.875	16	19	-	-	-	-	-	-	80	100	130	4	M6x15	39.5	50
<b>95A1</b>	14	15.875	16	19	22	24	-	-	-	-	95	115	130	4	M8x20	39.5	50
<b>110A1</b>	14	15.875	16	19	22	24	-	-	-	-	110	130	130	4	M8x20	39.5	50
<b>110B1</b>	14	15.875	16	19	22	24	-	-	-	-	110	145	130	6.5	M8x20	49.5	60
<b>114A0</b>	14	15.875	16	19	22	24	-	-	-	-	114.3	200	170	5.5	M12x25	39.5	50
<b>114A</b>	14	15.875	16	19	22	24	28	32	35	38	114.3	200	170	5.5	M12x25	69.5	80
<b>130A</b>	14	15.875	16	19	22	24	-	-	-	-	130	165	140	4	M10x20	39.5	50
<b>130A1</b>	14	15.875	16	19	22	24	28	32	-	-	130	165	140	4	M10x20	49.5	60
<b>180A</b>	14	15.875	16	19	22	24	28	32	-	-	180	215	190	5.5	M14x25	49.5	60
<b>180A1</b>	14	15.875	16	19	22	24	28	32	35	38	180	215	190	5.5	M14x25	69.5	80

Please contact us for other motor adapters and input shaft bore.



# MP G 130

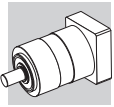
FM



D			D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
14	15.875	16	48	113	125.5	M8x15	M6	40	27.5	6	20	14.5
19			51	113	125.5	M8x15	M6	40	27.5	6	20	16.5
22	24		56.5	113	125.5	M8x15	M6	41	28.5	6	19.5	19
28			67	113	125.5	M8x15	M8	41	28.5	6	19.5	22.5
32			71	113	125.5	M8x15	M8	41	28.5	6	19.5	24.5
35			73	113	125.5	M8x15	M8	50	37.5	11.25	26	26
38			77.5	113	125.5	M8x15	M8	50	37.5	11.25	26	28

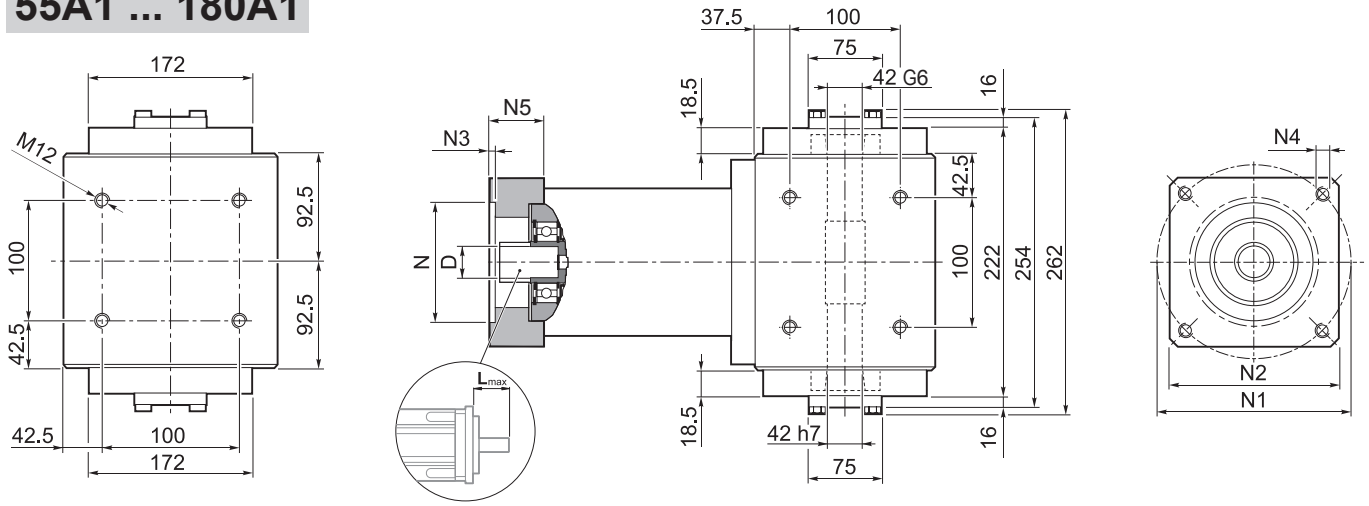
i	M <sub>n 2</sub> [Nm]	M <sub>a 2</sub> [Nm]	M <sub>p 2</sub> [Nm]	n <sub>1</sub> [min <sup>-1</sup> ]	n <sub>1 max</sub> [min <sup>-1</sup> ]	φ <sub>S</sub> [arcmin]	φ <sub>R</sub> [arcmin]	C <sub>t</sub> [Nm/arcmin]	R <sub>2 max</sub> [N]	A <sub>2 max</sub> [N]	η %	J <sub>G</sub> [kgcm <sup>2</sup> ]			
												14 ... 19	22 - 24	28 - 32	35 - 38
MP G 130 2_3	215	400	800	2100	3000	15'	10'	43.0	5500	6500	94	7.09	7.28	7.66	10.37
MP G 130 2_4	380	600	1100	2400	3500	15'	10'	43.0	5500	6500	94	4.90	5.08	5.46	8.18
MP G 130 2_5	380	600	1100	2900	3500	15'	10'	43.0	5500	6500	94	4.81	4.99	5.38	8.10
MP G 130 2_6	380	600	1100	2900	3500	15'	10'	43.0	5500	6500	94	4.45	4.64	5.03	7.73
MP G 130 2_7	380	600	1100	3200	4000	15'	10'	43.0	5500	6500	94	4.73	4.92	5.31	8.01
MP G 130 2_10	215	400	800	3200	4000	15'	10'	43.0	5500	6500	94	4.68	4.88	5.26	7.97
MP G 130 3_9	215	400	800	2100	3000	15'	10'	37.5	5500	6500	91	6.66	6.84	7.22	9.93
MP G 130 3_12	450	700	1300	2100	3000	15'	10'	37.5	5500	6500	91	6.25	6.45	6.84	9.54
MP G 130 3_15	450	700	1300	2100	3000	15'	10'	37.5	5500	6500	91	6.25	6.44	6.83	9.53
MP G 130 3_16	450	700	1300	2400	3500	15'	10'	37.5	5500	6500	91	4.51	4.70	5.08	7.79
MP G 130 3_20	450	700	1300	2900	3500	15'	10'	37.5	5500	6500	91	4.56	5.36	5.75	8.45
MP G 130 3_25	450	700	1300	2900	3500	15'	10'	37.5	5500	6500	91	5.13	4.72	5.11	7.82
MP G 130 3_28	450	700	1300	3200	4000	15'	10'	37.5	5500	6500	91	4.60	4.79	5.18	7.88
MP G 130 3_30	215	400	800	3200	4000	15'	10'	37.5	5500	6500	91	4.64	4.84	5.22	7.93
MP G 130 3_35	450	700	1300	3200	4000	15'	10'	37.5	5500	6500	91	4.92	5.10	5.49	8.20
MP G 130 3_36	380	600	1100	2900	3500	15'	10'	37.5	5500	6500	91	4.31	4.50	4.89	7.59
MP G 130 3_40	450	700	1300	3200	4000	15'	10'	37.5	5500	6500	91	4.77	4.96	5.35	8.05
MP G 130 3_50	450	700	1300	3200	4000	15'	10'	37.5	5500	6500	91	4.76	4.96	5.34	8.05
MP G 130 3_70	450	700	1300	3200	4000	15'	10'	37.5	5500	6500	91	4.60	4.80	5.18	7.89
MP G 130 3_100	215	400	800	3200	4000	15'	10'	37.5	5500	6500	91	4.60	4.80	5.18	7.89
MP G 130 4_48	450	700	1300	2400	3500	17'	12'	29.5	5500	6500	89	4.61	4.81	5.18	7.89
MP G 130 4_64	450	700	1300	2400	3500	17'	12'	29.5	5500	6500	89	4.49	4.68	5.06	7.77
MP G 130 4_75	450	700	1300	2900	3500	17'	12'	29.5	5500	6500	89	4.62	4.81	5.20	7.91
MP G 130 4_80	450	700	1300	2400	3500	17'	12'	29.5	5500	6500	89	4.49	4.67	5.05	7.77
MP G 130 4_84	450	700	1300	3200	4000	17'	12'	29.5	5500	6500	89	4.63	4.82	5.21	7.91
MP G 130 4_90	215	400	800	3200	4000	17'	12'	29.5	5500	6500	89	4.64	4.83	5.21	7.93
MP G 130 4_120	450	700	1300	3200	4000	17'	12'	29.5	5500	6500	89	4.63	4.83	5.21	7.92
MP G 130 4_125	450	700	1300	2900	3500	17'	12'	29.5	5500	6500	89	4.52	4.70	5.09	7.81
MP G 130 4_140	450	700	1300	3200	4000	17'	12'	29.5	5500	6500	89	4.60	4.78	5.17	7.88
MP G 130 4_150	450	700	1300	3200	4000	17'	12'	29.5	5500	6500	89	4.63	4.83	5.21	7.92
MP G 130 4_160	450	700	1300	3200	4000	17'	12'	29.5	5500	6500	89	4.62	4.81	5.19	7.91
MP G 130 4_175	450	700	1300	3200	4000	17'	12'	29.5	5500	6500	89	4.58	4.77	5.16	7.86
MP G 130 4_200	450	700	1300	3200	4000	17'	12'	29.5	5500	6500	89	4.61	4.81	5.19	7.90
MP G 130 4_210	450	700	1300	3200	4000	17'	12'	29.5	5500	6500	89	4.63	4.83	5.21	7.92
MP G 130 4_216	450	700	1300	2900	3500	17'	12'	29.5	5500	6500	89	4.31	4.50	4.89	7.59
MP G 130 4_250	450	700	1300	3200	4000	17'	12'	29.5	5500	6500	89	4.61	4.81	5.19	7.90
MP G 130 4_280	450	700	1300	3200	4000	17'	12'	29.5	5500	6500	89	4.60	4.80	5.18	7.89
MP G 130 4_350	450	700	1300	3200	4000	17'	12'	29.5	5500	6500	89	4.60	4.80	5.18	7.89
MP G 130 4_400	450	700	1300	3200	4000	17'	12'	29.5	5500	6500	89	4.60	4.80	5.18	7.89
MP G 130 4_500	450	700	1300	3200	4000	17'	12'	29.5	5500	6500	89	4.60	4.80	5.18	7.89
MP G 130 4_700	450	700	1300	3200	4000	17'	12'	29.5	5500	6500	89	4.60	4.80	5.18	7.89
MP G 130 4_1000	215	400	800	3200	4000	17'	12'	29.5	5500	6500	89	4.60	4.80	5.18	7.89

MP

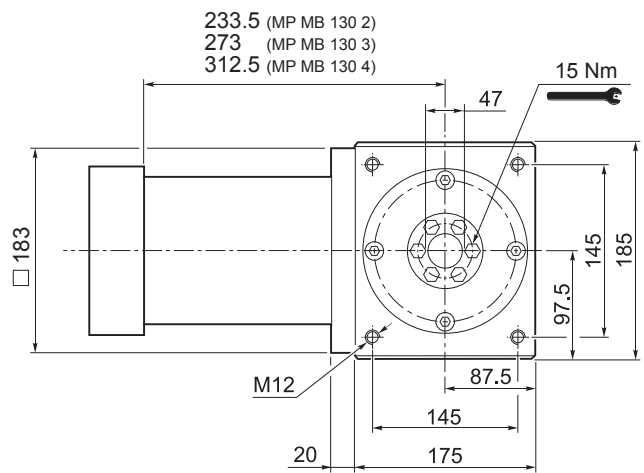


# MP MB 130

## 55A1 ... 180A1



**MP**

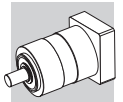


MP MB 130 2	54
MP MB 130 3	58
MP MB 130 4	61

												N	N1	N2	N3	N4	N5	L <sub>max</sub>
	14	15.875	16	19	-	-	-	-	-	-	-							
<b>55A1</b>	14	15.875	16	19	-	-	-	-	-	-	-	55.5	125.7	130	4	M6x15	39.5	50
<b>80A2</b>	14	15.875	16	19	-	-	-	-	-	-	-	80	100	130	4	M6x15	39.5	50
<b>95A1</b>	14	15.875	16	19	22	24	-	-	-	-	-	95	115	130	4	M8x20	39.5	50
<b>110A1</b>	14	15.875	16	19	22	24	-	-	-	-	-	110	130	130	4	M8x20	39.5	50
<b>110B1</b>	14	15.875	16	19	22	24	-	-	-	-	-	110	145	130	6.5	M8x20	49.5	60
<b>114A0</b>	14	15.875	16	19	22	24	-	-	-	-	-	114.3	200	170	5.5	M12x25	39.5	50
<b>114A</b>	14	15.875	16	19	22	24	28	32	35	38	-	114.3	200	170	5.5	M12x25	69.5	80
<b>130A</b>	14	15.875	16	19	22	24	-	-	-	-	-	130	165	140	4	M10x20	39.5	50
<b>130A1</b>	14	15.875	16	19	22	24	28	32	-	-	-	130	165	140	4	M10x20	49.5	60
<b>180A</b>	14	15.875	16	19	22	24	28	32	-	-	-	180	215	190	5.5	M14x25	49.5	60
<b>180A1</b>	14	15.875	16	19	22	24	28	32	35	38	-	180	215	190	5.5	M14x25	69.5	80

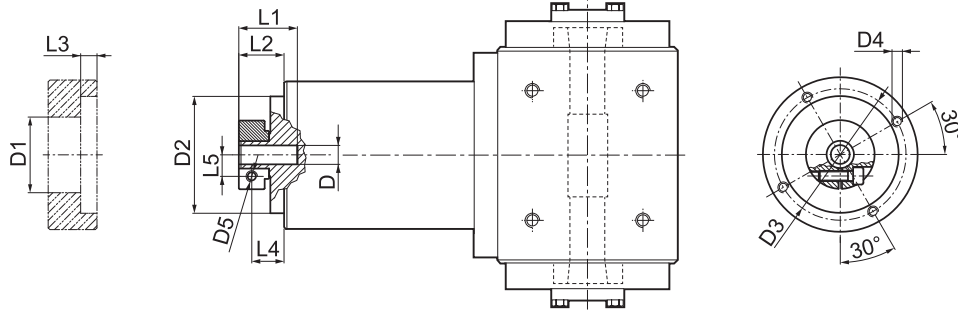
Please contact us for other motor adapters and input shaft bore.





# MP MB 130

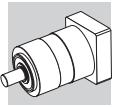
FM



		D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	
14	15.875	16	48	113	125.5	M8x15	M6	40	27.5	6	20	14.5
19			51	113	125.5	M8x15	M6	40	27.5	6	20	16.5
22	24		56.5	113	125.5	M8x15	M6	41	28.5	6	19.5	19
28			67	113	125.5	M8x15	M8	41	28.5	6	19.5	22.5
32			71	113	125.5	M8x15	M8	41	28.5	6	19.5	24.5
35			73	113	125.5	M8x15	M8	50	37.5	11.25	26	26
38			77.5	113	125.5	M8x15	M8	50	37.5	11.25	26	28

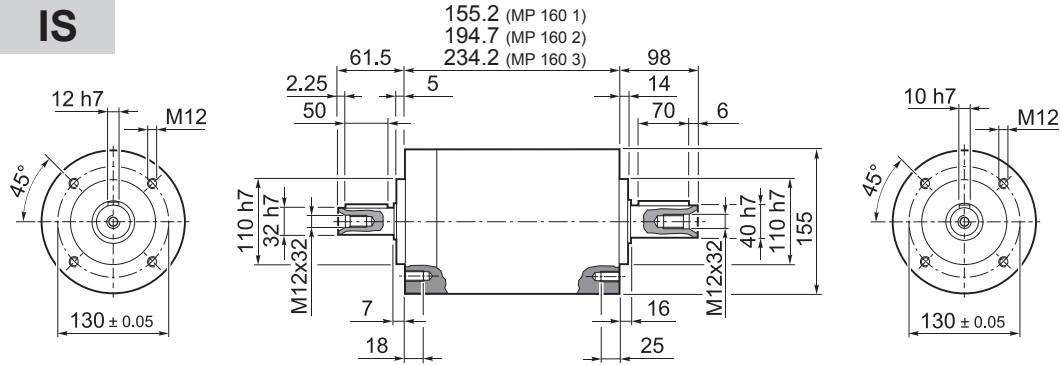
	i	M <sub>n2</sub> [Nm]	M <sub>a2</sub> [Nm]	M <sub>p2</sub> [Nm]	n <sub>1</sub> [min <sup>-1</sup> ]	n <sub>1 max</sub> [min <sup>-1</sup> ]	φ <sub>S</sub> [arcmin]	φ <sub>R</sub> [arcmin]	C <sub>t</sub> [Nm/arcmin]	η %	J <sub>G</sub> [kgcm <sup>2</sup> ]			
												14 ... 19	22 - 24	28 - 32
MP MB 130 2_3		215	400	800	2100	3000	15'	10'	43.0	94	5.25	5.46	5.81	7.16
MP MB 130 2_4		380	600	1100	2400	3500	15'	10'	43.0	94	3.06	3.26	3.61	4.97
MP MB 130 2_5		380	600	1100	2900	3500	15'	10'	43.0	94	2.22	2.42	2.77	4.13
MP MB 130 2_6		380	600	1100	2900	3500	15'	10'	43.0	94	1.19	1.40	1.75	3.10
MP MB 130 2_7		380	600	1100	3200	4000	15'	10'	43.0	94	1.47	1.68	2.03	3.38
MP MB 130 2_10		215	400	800	3200	4000	15'	10'	43.0	94	1.04	1.25	1.60	2.95
MP MB 130 3_9		215	400	800	2100	3000	15'	10'	37.5	91	4.82	5.02	5.37	6.72
MP MB 130 3_12		450	700	1300	2100	3000	15'	10'	37.5	91	4.57	4.78	5.13	6.48
MP MB 130 3_15		450	700	1300	2100	3000	15'	10'	37.5	91	4.48	4.69	5.04	6.39
MP MB 130 3_16		450	700	1300	2400	3500	15'	10'	37.5	91	2.67	2.88	3.23	4.58
MP MB 130 3_20		450	700	1300	2900	3500	15'	10'	37.5	91	1.97	2.18	2.53	3.88
MP MB 130 3_25		450	700	1300	2900	3500	15'	10'	37.5	91	1.94	2.15	2.50	3.85
MP MB 130 3_28		450	700	1300	3200	4000	15'	10'	37.5	91	1.34	1.55	1.90	3.25
MP MB 130 3_30		215	400	800	3200	4000	15'	10'	37.5	91	1.00	1.21	1.56	2.91
MP MB 130 3_35		450	700	1300	3200	4000	15'	10'	37.5	91	1.33	1.53	1.88	3.24
MP MB 130 3_36		380	600	1100	2900	3500	15'	10'	37.5	91	1.05	1.26	1.61	2.96
MP MB 130 3_40		450	700	1300	3200	4000	15'	10'	37.5	91	0.98	1.19	1.54	2.89
MP MB 130 3_50		450	700	1300	3200	4000	15'	10'	37.5	91	0.97	1.18	1.53	2.88
MP MB 130 3_70		450	700	1300	3200	4000	15'	10'	37.5	91	0.96	1.17	1.52	2.87
MP MB 130 3_100		215	400	800	3200	4000	15'	10'	37.5	91	0.96	1.17	1.52	2.87
MP MB 130 4_48		450	700	1300	2400	3500	17'	12'	29.5	89	2.77	2.98	3.33	4.68
MP MB 130 4_64		450	700	1300	2400	3500	17'	12'	29.5	89	2.65	2.86	3.21	4.56
MP MB 130 4_75		450	700	1300	2900	3500	17'	12'	29.5	89	2.03	2.24	2.59	3.94
MP MB 130 4_80		450	700	1300	2400	3500	17'	12'	29.5	89	2.65	2.85	3.20	4.56
MP MB 130 4_84		450	700	1300	3200	4000	17'	12'	29.5	89	1.37	1.58	1.93	3.28
MP MB 130 4_90		215	400	800	3200	4000	17'	12'	29.5	89	1.00	1.20	1.55	2.91
MP MB 130 4_120		450	700	1300	3200	4000	17'	12'	29.5	89	0.99	1.20	1.55	2.90
MP MB 130 4_125		450	700	1300	2900	3500	17'	12'	29.5	89	1.93	2.13	2.48	3.84
MP MB 130 4_140		450	700	1300	3200	4000	17'	12'	29.5	89	1.34	1.54	1.89	3.25
MP MB 130 4_150		450	700	1300	3200	4000	17'	12'	29.5	89	0.99	1.20	1.55	2.90
MP MB 130 4_160		450	700	1300	3200	4000	17'	12'	29.5	89	0.98	1.18	1.53	2.89
MP MB 130 4_175		450	700	1300	3200	4000	17'	12'	29.5	89	1.32	1.53	1.88	3.23
MP MB 130 4_200		450	700	1300	3200	4000	17'	12'	29.5	89	0.97	1.18	1.53	2.88
MP MB 130 4_210		450	700	1300	3200	4000	17'	12'	29.5	89	0.99	1.20	1.55	2.90
MP MB 130 4_216		450	700	1300	2900	3500	17'	12'	29.5	89	1.05	1.26	1.61	2.96
MP MB 130 4_250		450	700	1300	3200	4000	17'	12'	29.5	89	0.97	1.18	1.53	2.88
MP MB 130 4_280		450	700	1300	3200	4000	17'	12'	29.5	89	0.96	1.17	1.52	2.87
MP MB 130 4_350		450	700	1300	3200	4000	17'	12'	29.5	89	0.96	1.17	1.52	2.87
MP MB 130 4_400		450	700	1300	3200	4000	17'	12'	29.5	89	0.96	1.17	1.52	2.87
MP MB 130 4_500		450	700	1300	3200	4000	17'	12'	29.5	89	0.96	1.17	1.52	2.87
MP MB 130 4_700		450	700	1300	3200	4000	17'	12'	29.5	89	0.96	1.17	1.52	2.87
MP MB 130 4_1000		215	400	800	3200	4000	17'	12'	29.5	89	0.96	1.17	1.52	2.87

MP



# MP 160

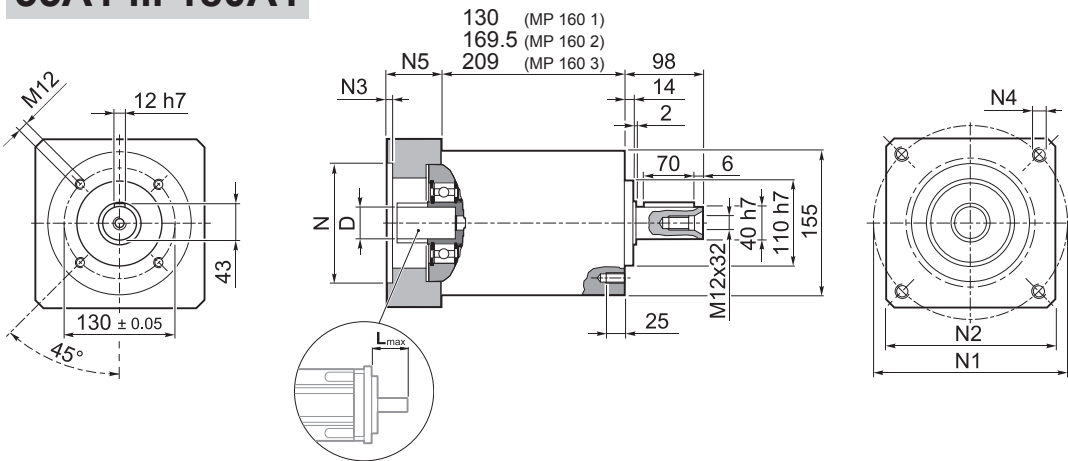
**IS**



<b>MP 160 1</b>	17.0
<b>MP 160 2</b>	21
<b>MP 160 3</b>	28

# 55A1 ... 180A1

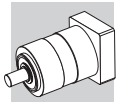
**MP**



<b>MP 160 1</b>	17.0
<b>MP 160 2</b>	21
<b>MP 160 3</b>	28

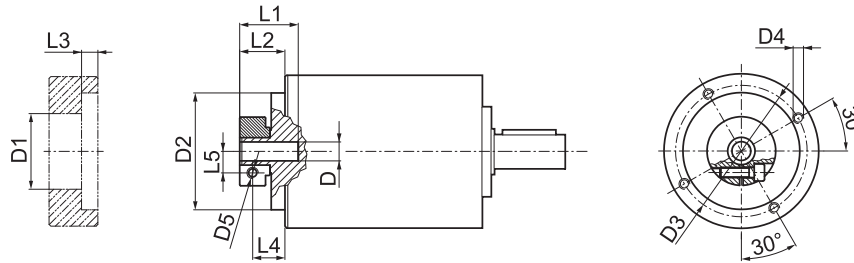
											N	N1	N2	N3	N4	N5	L <sub>max</sub>
<b>55A1</b>	14	15.875	16	19	-	-	-	-	-	-	55.5	125.7	140	5	M6x15	39.5	50
<b>80A2</b>	14	15.875	16	19	-	-	-	-	-	-	80	100	140	5	M6x15	39.5	50
<b>95A1</b>	14	15.875	16	19	22	24	-	-	-	-	95	115	140	5	M8x20	39.5	50
<b>110A1</b>	14	15.875	16	19	22	24	-	-	-	-	110	130	140	5	M8x20	39.5	50
<b>110B1</b>	14	15.875	16	19	22	24	-	-	-	-	110	145	140	6.5	M8x20	49.5	60
<b>114A</b>	14	15.875	16	19	22	24	28	32	35	38	114.3	200	170	6.5	M12x25	69.5	80
<b>130A</b>	14	15.875	16	19	22	24	-	-	-	-	130	165	140	5	M10x20	39.5	50
<b>130A1</b>	14	15.875	16	19	22	24	28	32	-	-	130	165	140	5	M10x20	49.5	60
<b>180A</b>	14	15.875	16	19	22	24	28	32	-	-	180	215	190	6.5	M14x25	49.5	60
<b>180A1</b>	14	15.875	16	19	22	24	28	32	35	38	180	215	190	6.5	M14x25	69.5	80

Please contact us for other motor adapters and input shaft bore.



# MP 160

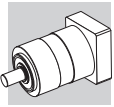
FM



D			D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
14	15.875	16	48	130	142.5	M8x16	M6	40	27.5	6	20	14.5
19			51	130	142.5	M8x16	M6	40	27.5	6	20	16.5
22	24		56.5	130	142.5	M8x16	M6	41	28.5	6	19.5	19
28			67	130	142.5	M8x16	M8	41	28.5	6	19.5	22.5
32			71	130	142.5	M8x16	M8	41	28.5	6	19.5	24.5
35			73	130	142.5	M8x16	M8	50	37.5	11.25	26	26
38			77.5	130	142.5	M8x16	M8	50	37.5	11.25	26	28

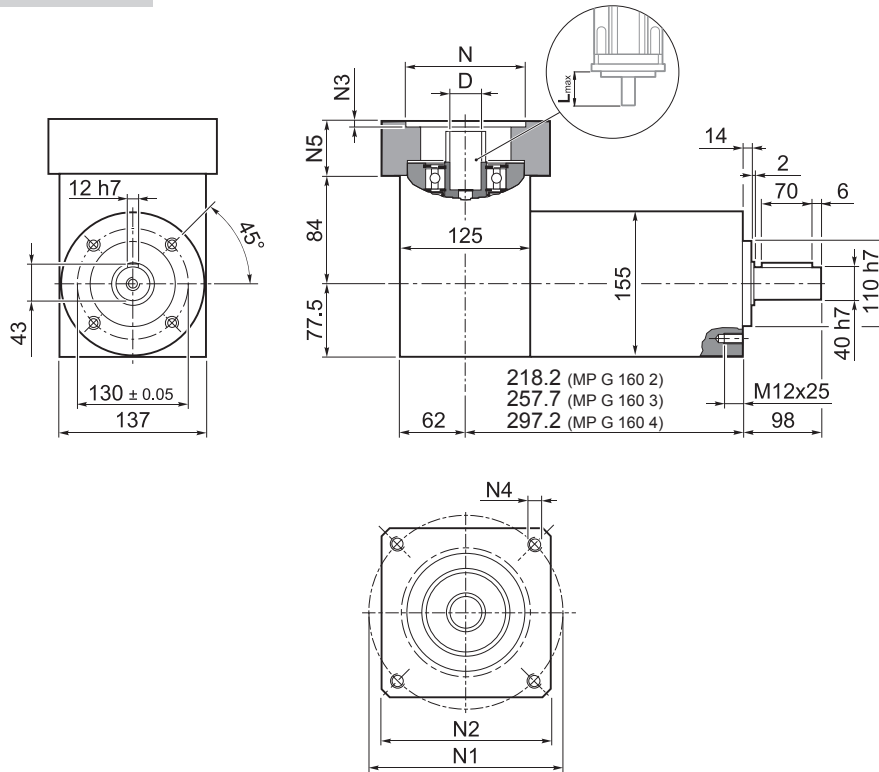
i	M <sub>n 2</sub> [Nm]	M <sub>a 2</sub> [Nm]	M <sub>p 2</sub> [Nm]	n <sub>1</sub> [min <sup>-1</sup> ]	n <sub>1 max</sub> [min <sup>-1</sup> ]	φ <sub>S</sub> [arcmin]	φ <sub>R</sub> [arcmin]	C <sub>t</sub> [Nm/arcmin]	R <sub>1 max</sub> [N]	R <sub>2 max</sub> [N]	A <sub>2 max</sub> [N]	η %	J <sub>G</sub> [kgcm <sup>2</sup> ]			
													14 ... 19	22 - 24	28 - 32	35 - 38
MP 160 1_3	350	660	1200	1900	3000	15'	10'	90	1200	6500	7500	97	8.39	8.60	8.95	10.30
MP 160 1_4	500	750	1400	2200	3500	15'	10'	90	1200	6500	7500	97	4.68	4.89	5.24	6.59
MP 160 1_5	500	750	1400	2500	3500	15'	10'	90	1200	6500	7500	97	3.28	3.49	3.84	5.19
MP 160 1_6	500	750	1400	2500	3500	15'	10'	90	1200	6500	7500	97	1.32	1.53	1.88	3.23
MP 160 1_7	500	750	1400	3000	4000	15'	10'	90	1200	6500	7500	97	2.03	2.24	2.59	3.94
MP 160 1_10	350	660	1200	3000	4000	15'	10'	90	1200	6500	7500	97	1.33	1.53	1.88	3.24
MP 160 2_9	350	660	1200	1900	3000	15'	10'	83	1200	6500	7500	94	7.51	7.72	8.07	9.42
MP 160 2_12	700	950	1800	1900	3000	15'	10'	83	1200	6500	7500	94	7.10	7.30	7.65	9.01
MP 160 2_15	700	950	1800	1900	3000	15'	10'	83	1200	6500	7500	94	6.94	7.15	7.50	8.85
MP 160 2_16	700	950	1800	2200	3500	15'	10'	83	1200	6500	7500	94	3.95	4.16	4.51	5.86
MP 160 2_20	700	950	1800	2500	3500	15'	10'	83	1200	6500	7500	94	2.82	3.02	3.37	4.73
MP 160 2_25	700	950	1800	2500	3500	15'	10'	83	1200	6500	7500	94	2.76	2.97	3.32	4.67
MP 160 2_28	700	950	1800	3000	4000	15'	10'	83	1200	6500	7500	94	1.79	2.00	2.35	3.70
MP 160 2_30	350	660	1200	3000	4000	15'	10'	83	1200	6500	7500	94	1.25	1.46	1.81	3.16
MP 160 2_35	700	950	1800	3000	4000	15'	10'	83	1200	6500	7500	94	1.77	1.97	2.32	3.68
MP 160 2_36	500	750	1400	2500	3500	15'	10'	83	1200	6500	7500	94	1.06	1.27	1.62	2.97
MP 160 2_40	700	950	1800	3000	4000	15'	10'	83	1200	6500	7500	94	1.21	1.42	1.77	3.12
MP 160 2_50	700	950	1800	3000	4000	15'	10'	83	1200	6500	7500	94	1.20	1.40	1.75	3.11
MP 160 2_70	700	950	1800	3000	4000	15'	10'	83	1200	6500	7500	94	1.18	1.39	1.74	3.09
MP 160 2_100	350	660	1200	3000	4000	15'	10'	83	1200	6500	7500	94	1.18	1.38	1.73	3.09
MP 160 3_48	700	950	1800	2200	3500	17'	12'	60	1200	6500	7500	91	4.10	4.31	4.66	6.01
MP 160 3_64	700	950	1800	2200	3500	17'	12'	60	1200	6500	7500	91	3.90	4.11	4.46	5.81
MP 160 3_75	700	950	1800	2500	3500	17'	12'	60	1200	6500	7500	91	2.91	3.11	3.46	4.82
MP 160 3_80	700	950	1800	2200	3500	17'	12'	60	1200	6500	7500	91	3.90	4.11	4.46	5.81
MP 160 3_84	700	950	1800	3000	4000	17'	12'	60	1200	6500	7500	91	1.84	2.05	2.40	3.75
MP 160 3_90	350	660	1200	3000	4000	17'	12'	60	1200	6500	7500	91	1.24	1.45	1.80	3.15
MP 160 3_120	700	950	1800	3000	4000	17'	12'	60	1200	6500	7500	91	1.23	1.44	1.79	3.14
MP 160 3_125	700	950	1800	2500	3500	17'	12'	60	1200	6500	7500	91	2.74	2.95	3.30	4.65
MP 160 3_140	700	950	1800	3000	4000	17'	12'	60	1200	6500	7500	91	1.78	1.98	2.33	3.69
MP 160 3_150	700	950	1800	3000	4000	17'	12'	60	1200	6500	7500	91	1.23	1.44	1.79	3.14
MP 160 3_160	700	950	1800	3000	4000	17'	12'	60	1200	6500	7500	91	1.20	1.41	1.76	3.11
MP 160 3_175	700	950	1800	3000	4000	17'	12'	60	1200	6500	7500	91	1.76	1.96	2.31	3.67
MP 160 3_200	700	950	1800	3000	4000	17'	12'	60	1200	6500	7500	91	1.20	1.41	1.76	3.11
MP 160 3_210	700	950	1800	3000	4000	17'	12'	60	1200	6500	7500	91	1.23	1.44	1.79	3.14
MP 160 3_250	700	950	1800	3000	4000	17'	12'	60	1200	6500	7500	91	1.19	1.40	1.75	3.10
MP 160 3_280	700	950	1800	3000	4000	17'	12'	60	1200	6500	7500	91	1.18	1.39	1.74	3.09
MP 160 3_350	700	950	1800	3000	4000	17'	12'	60	1200	6500	7500	91	1.18	1.39	1.74	3.09
MP 160 3_400	700	950	1800	3000	4000	17'	12'	60	1200	6500	7500	91	1.18	1.38	1.73	3.09
MP 160 3_500	700	950	1800	3000	4000	17'	12'	60	1200	6500	7500	91	1.18	1.38	1.73	3.09
MP 160 3_700	700	950	1800	3000	4000	17'	12'	60	1200	6500	7500	91	1.18	1.38	1.73	3.09
MP 160 3_1000	350	660	1200	3000	4000	17'	12'	60	1200	6500	7500	91	1.18	1.38	1.73	3.09


MP




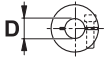
# MP G 160

## 55A1 ... 180A1

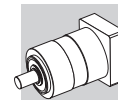


	
MP G 160 2	24
MP G 160 3	28
MP G 160 4	34

MP

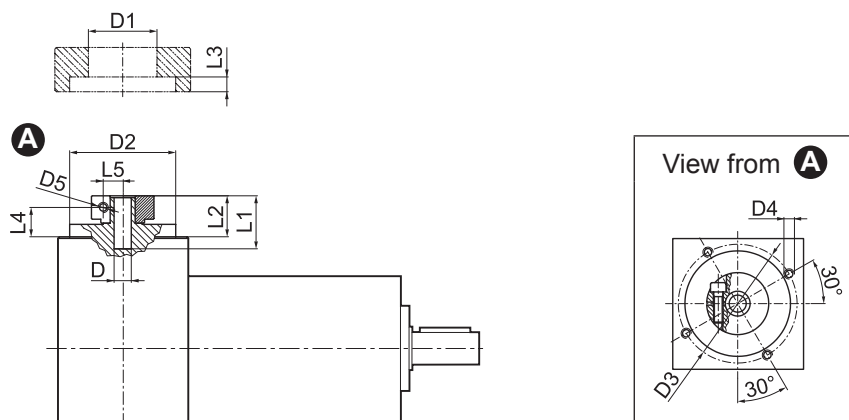
											N	N1	N2	N3	N4	N5	L <sub>max</sub>
	14	15.875	16	19													
<b>55A1</b>	14	15.875	16	19	-	-	-	-	-	-	55.5	125.7	140	5	M6x15	39.5	50
<b>80A2</b>	14	15.875	16	19	-	-	-	-	-	-	80	100	140	5	M6x15	39.5	50
<b>95A1</b>	14	15.875	16	19	22	24	-	-	-	-	95	115	140	5	M8x20	39.5	50
<b>110A1</b>	14	15.875	16	19	22	24	-	-	-	-	110	130	140	5	M8x20	39.5	50
<b>110B1</b>	14	15.875	16	19	22	24	-	-	-	-	110	145	140	6.5	M8x20	49.5	60
<b>114A</b>	14	15.875	16	19	22	24	28	32	35	38	114.3	200	170	6.5	M12x25	69.5	80
<b>130A</b>	14	15.875	16	19	22	24	-	-	-	-	130	165	140	5	M10x20	39.5	50
<b>130A1</b>	14	15.875	16	19	22	24	28	32	-	-	130	165	140	5	M10x20	49.5	60
<b>180A</b>	14	15.875	16	19	22	24	28	32	-	-	180	215	190	6.5	M14x25	49.5	60
<b>180A1</b>	14	15.875	16	19	22	24	28	32	35	38	180	215	190	6.5	M14x25	69.5	80


Please contact us for other motor adapters and input shaft bore.

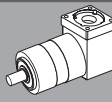



# MP G 160

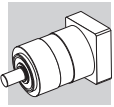
FM



	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
14 15.875 16	48	113	125.5	M8x15	M6	40	27.5	6	20	14.5
19	51	113	125.5	M8x15	M6	40	27.5	6	20	16.5
22 24	56.5	113	125.5	M8x15	M6	41	28.5	6	19.5	19
28	67	113	125.5	M8x15	M8	41	28.5	6	19.5	22.5
32	71	113	125.5	M8x15	M8	41	28.5	6	19.5	24.5
35	73	113	125.5	M8x15	M8	50	37.5	11.25	26	26
38	77.5	113	125.5	M8x15	M8	50	37.5	11.25	26	28

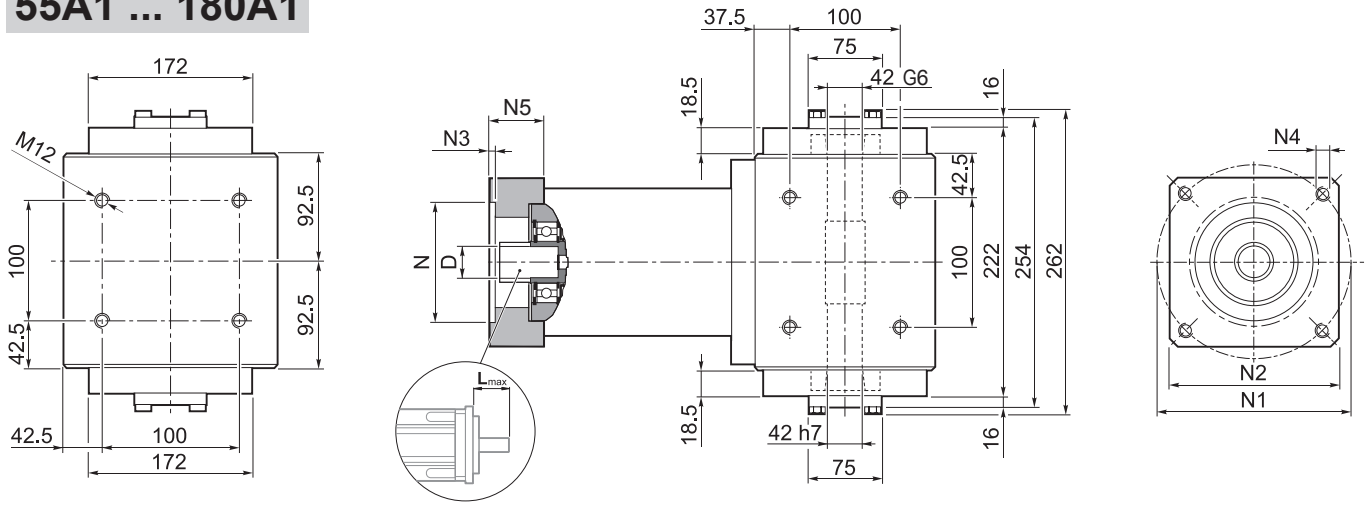
	i	M <sub>n2</sub> [Nm]	M <sub>a2</sub> [Nm]	M <sub>p2</sub> [Nm]	n <sub>1</sub> [min <sup>-1</sup> ]	n <sub>1 max</sub> [min <sup>-1</sup> ]	φ <sub>S</sub> [arcmin]	φ <sub>R</sub> [arcmin]	C <sub>t</sub> [Nm/arcmin]	R <sub>2 max</sub> [N]	A <sub>2 max</sub> [N]	η %	J <sub>G</sub> [kgcm <sup>2</sup> ]			
														14 ... 19	22 - 24	28 - 32
MP G 160 2_3		350	660	1200	1900	3000	15'	10'	90	6500	7500	94	10.23	10.42	10.80	13.51
MP G 160 2_4		500	750	1400	2200	3500	15'	10'	90	6500	7500	94	6.52	6.71	7.09	9.80
MP G 160 2_5		500	750	1400	2500	3500	15'	10'	90	6500	7500	94	5.87	6.06	6.45	9.16
MP G 160 2_6		500	750	1400	2500	3500	15'	10'	90	6500	7500	94	4.58	4.77	5.16	7.86
MP G 160 2_7		500	750	1400	3000	4000	15'	10'	90	6500	7500	94	5.29	5.48	5.87	8.57
MP G 160 2_10		350	660	1200	3000	4000	15'	10'	90	6500	7500	94	4.97	5.16	5.54	8.25
MP G 160 3_9		350	660	1200	1900	3000	15'	10'	83	6500	7500	91	9.35	9.54	9.92	12.63
MP G 160 3_12		700	950	1800	1900	3000	15'	10'	83	6500	7500	91	8.78	8.97	9.36	12.07
MP G 160 3_15		700	950	1800	1900	3000	15'	10'	83	6500	7500	91	8.71	8.90	9.29	11.99
MP G 160 3_16		700	950	1800	2200	3500	15'	10'	83	6500	7500	91	5.79	5.98	6.36	9.07
MP G 160 3_20		700	950	1800	2500	3500	15'	10'	83	6500	7500	91	5.41	6.20	6.59	9.30
MP G 160 3_25		700	950	1800	2500	3500	15'	10'	83	6500	7500	91	5.95	5.54	5.93	8.64
MP G 160 3_28		700	950	1800	3000	4000	15'	10'	83	6500	7500	91	5.05	5.24	5.63	8.33
MP G 160 3_30		350	660	1200	3000	4000	15'	10'	83	6500	7500	91	4.89	5.09	5.47	8.18
MP G 160 3_35		700	950	1800	3000	4000	15'	10'	83	6500	7500	91	5.36	5.54	5.93	8.64
MP G 160 3_36		500	750	1400	2500	3500	15'	10'	83	6500	7500	91	4.32	4.51	4.90	7.60
MP G 160 3_40		700	950	1800	3000	4000	15'	10'	83	6500	7500	91	5.00	5.19	5.58	8.28
MP G 160 3_50		700	950	1800	3000	4000	15'	10'	83	6500	7500	91	4.99	5.18	5.56	8.27
MP G 160 3_70		700	950	1800	3000	4000	15'	10'	83	6500	7500	91	4.82	5.02	5.40	8.11
MP G 160 3_100		350	660	1200	3000	4000	15'	10'	83	6500	7500	91	4.82	5.01	5.39	8.10
MP G 160 4_48		700	950	1800	2200	3500	17'	12'	60	6500	7500	89	5.94	6.13	6.53	9.22
MP G 160 4_64		700	950	1800	2200	3500	17'	12'	60	6500	7500	89	5.74	5.93	6.31	9.02
MP G 160 4_75		700	950	1800	2500	3500	17'	12'	60	6500	7500	89	5.50	5.68	6.07	8.79
MP G 160 4_80		700	950	1800	2200	3500	17'	12'	60	6500	7500	89	5.74	5.93	6.31	9.02
MP G 160 4_84		700	950	1800	3000	4000	17'	12'	60	6500	7500	89	5.10	5.29	5.68	8.38
MP G 160 4_90		350	660	1200	3000	4000	17'	12'	60	6500	7500	89	4.88	5.08	5.46	8.17
MP G 160 4_120		700	950	1800	3000	4000	17'	12'	60	6500	7500	89	4.87	5.07	5.45	8.16
MP G 160 4_125		700	950	1800	2500	3500	17'	12'	60	6500	7500	89	5.33	5.52	5.91	8.62
MP G 160 4_140		700	950	1800	3000	4000	17'	12'	60	6500	7500	89	5.04	5.22	5.61	8.32
MP G 160 4_150		700	950	1800	3000	4000	17'	12'	60	6500	7500	89	4.87	5.07	5.45	8.16
MP G 160 4_160		700	950	1800	3000	4000	17'	12'	60	6500	7500	89	4.84	5.04	5.42	8.13
MP G 160 4_175		700	950	1800	3000	4000	17'	12'	60	6500	7500	89	5.02	5.20	5.59	8.30
MP G 160 4_200		700	950	1800	3000	4000	17'	12'	60	6500	7500	89	4.84	5.04	5.42	8.13
MP G 160 4_210		700	950	1800	3000	4000	17'	12'	60	6500	7500	89	4.87	5.07	5.45	8.16
MP G 160 4_250		700	950	1800	3000	4000	17'	12'	60	6500	7500	89	4.83	5.03	5.41	8.12
MP G 160 4_280		700	950	1800	3000	4000	17'	12'	60	6500	7500	89	4.82	5.02	5.40	8.11
MP G 160 4_350		700	950	1800	3000	4000	17'	12'	60	6500	7500	89	4.82	2.05	5.40	8.11
MP G 160 4_400		700	950	1800	3000	4000	17'	12'	60	6500	7500	89	4.82	5.01	5.39	8.11
MP G 160 4_500		700	950	1800	3000	4000	17'	12'	60	6500	7500	89	4.82	5.01	5.39	8.11
MP G 160 4_700		700	950	1800	3000	4000	17'	12'	60	6500	7500	89	4.82	5.01	5.39	8.11
MP G 160 4_1000		350	660	1200	3000	4000	17'	12'	60	6500	7500	89	4.82	5.01	5.39	8.11

MP

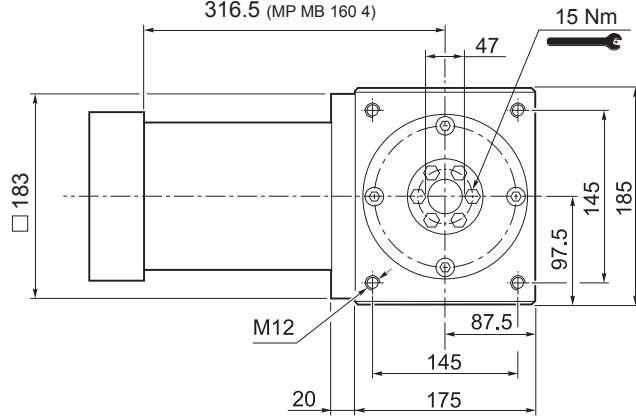


# MP MB 160

## 55A1 ... 180A1


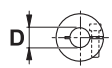


237.5 (MP MB 160 2)  
277 (MP MB 160 3)  
316.5 (MP MB 160 4)

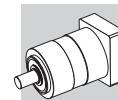


MP MB 160 2	59
MP MB 160 3	63.5
MP MB 160 4	70.5

MP

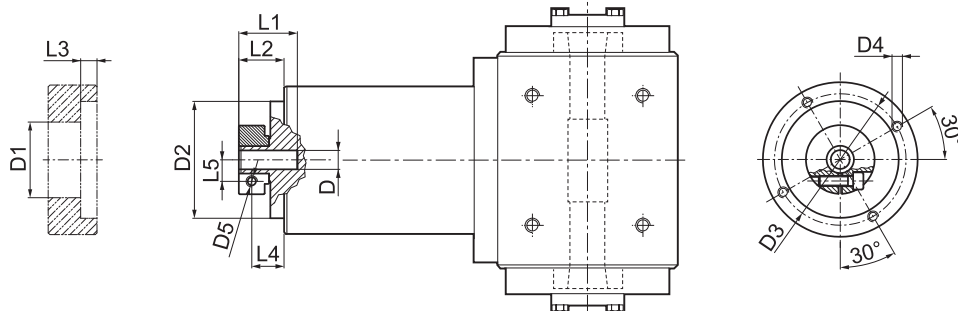
											N	N1	N2	N3	N4	N5	L <sub>max</sub>
	14	15.875	16	19	-	-	-	-	-	-							
55A1	14	15.875	16	19	-	-	-	-	-	-	55.5	125.7	140	5	M6x15	39.5	50
80A2	14	15.875	16	19	-	-	-	-	-	-	80	100	140	5	M6x15	39.5	50
95A1	14	15.875	16	19	22	24	-	-	-	-	95	115	140	5	M8x20	39.5	50
110A1	14	15.875	16	19	22	24	-	-	-	-	110	130	140	5	M8x20	39.5	50
110B1	14	15.875	16	19	22	24	-	-	-	-	110	145	140	6.5	M8x20	49.5	60
114A	14	15.875	16	19	22	24	28	32	35	38	114.3	200	170	6.5	M12x25	69.5	80
130A	14	15.875	16	19	22	24	-	-	-	-	130	165	140	5	M10x20	39.5	50
130A1	14	15.875	16	19	22	24	28	32	-	-	130	165	140	5	M10x20	49.5	60
180A	14	15.875	16	19	22	24	28	32	-	-	180	215	190	6.5	M14x25	49.5	60
180A1	14	15.875	16	19	22	24	28	32	35	38	180	215	190	6.5	M14x25	69.5	80

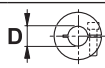
Please contact us for other motor adapters and input shaft bore.

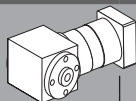


# MP MB 160

FM

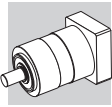


	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
14 15.875 16	48	130	142.5	M8x16	M6	40	27.5	6	20	14.5
19	51	130	142.5	M8x16	M6	40	27.5	6	20	16.5
22 24	56.5	130	142.5	M8x16	M6	41	28.5	6	19.5	19
28	67	130	142.5	M8x16	M8	41	28.5	6	19.5	22.5
32	71	130	142.5	M8x16	M8	41	28.5	6	19.5	24.5
35	73	130	142.5	M8x16	M8	50	37.5	11.25	26	26
38	77.5	130	142.5	M8x16	M8	50	37.5	11.25	26	28

	$M_{n2}$	$M_{a2}$	$M_{p2}$	$n_1$	$n_{1max}$	$\Phi_S$	$\Phi_R$	$C_t$	$\eta$	$J_G$ [kgcm <sup>2</sup> ]			
										14 ... 19	22 - 24	28 - 32	35 - 38
MP MB 160 2_3	350	660	1200	1900	3000	15'	10'	90	94	8.39	8.60	8.95	10.30
MP MB 160 2_4	500	750	1400	2200	3500	15'	10'	90	94	4.68	4.89	5.24	6.59
MP MB 160 2_5	500	750	1400	2500	3500	15'	10'	90	94	3.28	3.49	3.84	5.19
MP MB 160 2_6	500	750	1400	2500	3500	15'	10'	90	94	1.32	1.53	1.88	3.23
MP MB 160 2_7	500	750	1400	3000	4000	15'	10'	90	94	2.03	2.24	2.59	3.94
MP MB 160 2_10	350	660	1200	3000	4000	15'	10'	90	94	1.33	1.53	1.88	3.24
MP MB 160 3_9	350	660	1200	1900	3000	15'	10'	83	91	7.51	7.72	8.07	9.42
MP MB 160 3_12	700	950	1800	1900	3000	15'	10'	83	91	7.10	7.30	7.65	9.01
MP MB 160 3_15	700	950	1800	1900	3000	15'	10'	83	91	6.94	7.15	7.50	8.85
MP MB 160 3_16	700	950	1800	2200	3500	15'	10'	83	91	3.95	4.16	4.51	5.86
MP MB 160 3_20	700	950	1800	2500	3500	15'	10'	83	91	2.82	3.02	3.37	4.73
MP MB 160 3_25	700	950	1800	2500	3500	15'	10'	83	91	2.76	2.97	3.32	4.67
MP MB 160 3_28	700	950	1800	3000	4000	15'	10'	83	91	1.79	2.00	2.35	3.70
MP MB 160 3_30	350	660	1200	3000	4000	15'	10'	83	91	1.25	1.46	1.81	3.16
MP MB 160 3_35	700	950	1800	3000	4000	15'	10'	83	91	1.77	1.97	2.32	3.68
MP MB 160 3_36	500	750	1400	2500	3500	15'	10'	83	91	1.06	1.27	1.62	2.97
MP MB 160 3_40	700	950	1800	3000	4000	15'	10'	83	91	1.21	1.42	1.77	3.12
MP MB 160 3_50	700	950	1800	3000	4000	15'	10'	83	91	1.20	1.40	1.75	3.11
MP MB 160 3_70	700	950	1800	3000	4000	15'	10'	83	91	1.18	1.39	1.74	3.09
MP MB 160 3_100	350	660	1200	3000	4000	15'	10'	83	91	1.18	1.38	1.73	3.09
MP MB 160 4_48	700	950	1800	2200	3500	17'	12'	60	89	4.10	4.31	4.66	6.01
MP MB 160 4_64	700	950	1800	2200	3500	17'	12'	60	89	3.90	4.11	4.46	5.81
MP MB 160 4_75	700	950	1800	2500	3500	17'	12'	60	89	2.91	3.11	3.46	4.82
MP MB 160 4_80	700	950	1800	2200	3500	17'	12'	60	89	3.90	4.11	4.46	5.81
MP MB 160 4_84	700	950	1800	3000	4000	17'	12'	60	89	1.84	2.05	2.40	3.75
MP MB 160 4_90	350	660	1200	3000	4000	17'	12'	60	89	1.24	1.45	1.80	3.15
MP MB 160 4_120	700	950	1800	3000	4000	17'	12'	60	89	1.23	1.44	1.79	3.14
MP MB 160 4_125	700	950	1800	2500	3500	17'	12'	60	89	2.74	2.95	3.30	4.65
MP MB 160 4_140	700	950	1800	3000	4000	17'	12'	60	89	1.78	1.98	2.33	3.69
MP MB 160 4_150	700	950	1800	3000	4000	17'	12'	60	89	1.23	1.44	1.79	3.14
MP MB 160 4_160	700	950	1800	3000	4000	17'	12'	60	89	1.20	1.41	1.76	3.11
MP MB 160 4_175	700	950	1800	3000	4000	17'	12'	60	89	1.76	1.96	2.31	3.67
MP MB 160 4_200	700	950	1800	3000	4000	17'	12'	60	89	1.20	1.41	1.76	3.11
MP MB 160 4_210	700	950	1800	3000	4000	17'	12'	60	89	1.23	1.44	1.79	3.14
MP MB 160 4_250	700	950	1800	3000	4000	17'	12'	60	89	1.19	1.40	1.75	3.10
MP MB 160 4_280	700	950	1800	3000	4000	17'	12'	60	89	1.18	1.39	1.74	3.09
MP MB 160 4_350	700	950	1800	3000	4000	17'	12'	60	89	1.18	1.39	1.74	3.09
MP MB 160 4_400	700	950	1800	3000	4000	17'	12'	60	89	1.18	1.38	1.73	3.09
MP MB 160 4_500	700	950	1800	3000	4000	17'	12'	60	89	1.18	1.38	1.73	3.09
MP MB 160 4_700	700	950	1800	3000	4000	17'	12'	60	89	1.18	1.38	1.73	3.09
MP MB 160 4_1000	350	660	1200	3000	4000	17'	12'	60	89	1.18	1.38	1.73	3.09

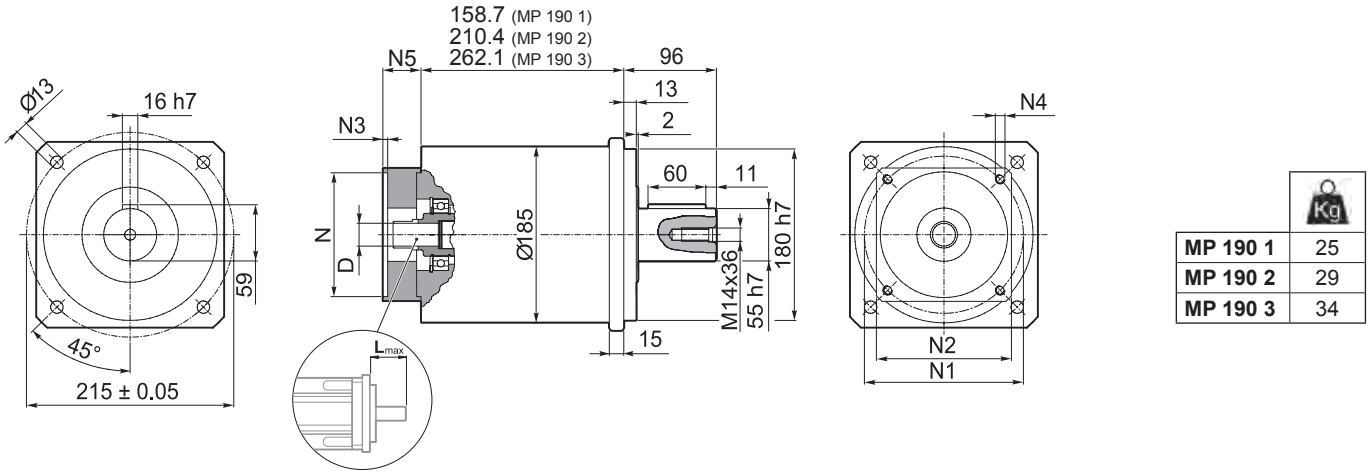
MP





# MP 190

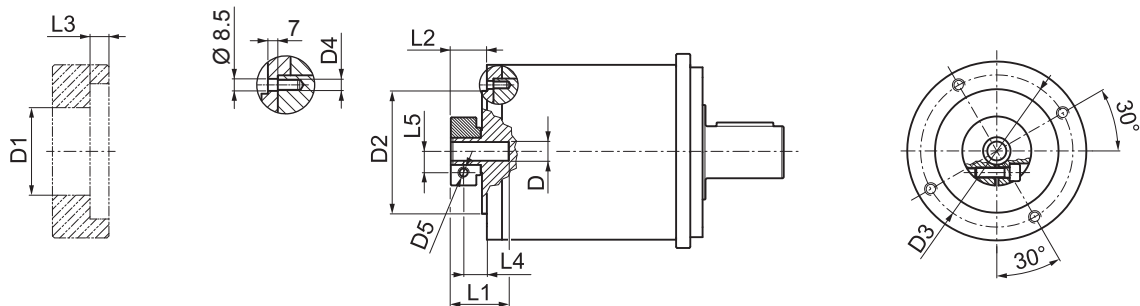
## 55A1 ... 180A1



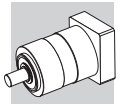
	D												N	N1	N2	N3	N4	N5	L <sub>max</sub>	
<b>55A1</b>	14	16	19	-	-	-	-	-	-	-	-	-	-	55.5	125.7	140	5	M6x15	39.5	50
<b>80A2</b>	14	16	19	-	-	-	-	-	-	-	-	-	-	80	100	140	5	M6x15	39.5	50
<b>95A1</b>	14	16	19	22	24	-	-	-	-	-	-	-	-	95	115	140	5	M8x20	39.5	50
<b>110A1</b>	14	16	19	22	24	-	-	-	-	-	-	-	-	110	130	140	5	M8x20	39.5	50
<b>110B1</b>	14	16	19	22	24	-	-	-	-	-	-	-	-	110	145	140	6.5	M8x20	49.5	60
<b>114A</b>	14	16	19	22	24	28	32	35	38	42	45	48	114.3	200	170	6.5	M12x25	69.5	80	
<b>130A</b>	14	16	19	22	24	-	-	-	-	-	-	-	-	130	165	140	5	M10x20	39.5	50
<b>130A1</b>	14	16	19	22	24	28	32	-	-	-	-	-	-	130	165	140	5	M10x20	49.5	60
<b>180A</b>	14	16	19	22	24	28	32	-	-	-	-	-	-	180	215	190	6.5	M14x25	49.5	60
<b>180A1</b>	14	16	19	22	24	28	32	35	38	42	45	48	180	215	190	6.5	M14x25	69.5	80	

Please contact us for other motor adapters and input shaft bore.

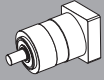
## FM



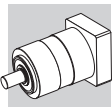
D	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	
14	16	48	130	142.5	M8x14	M6	45.5	27.5	6	20	14.5
19		51	130	142.5	M8x14	M6	45.5	27.5	6	20	16.5
22	24	56.5	130	142.5	M8x14	M6	47	29	6	20	19
28		67	130	142.5	M8x14	M8	47	29	6	20	22.5
32		71	130	142.5	M8x14	M8	47	29	6	20	24.5
35		73	130	142.5	M8x14	M8	54.5	36.5	6	25	26
38		77.5	130	142.5	M8x14	M8	54.5	36.5	6	25	28
42		92	130	142.5	M8x14	M10	60.5	40	6	25	33
45		95	130	142.5	M8x14	M10	60.5	40	6	25	33
48		97	130	142.5	M8x14	M10	60.5	40	6	25	33



# MP 190

 i	M <sub>n 2</sub>	M <sub>a 2</sub>	M <sub>p 2</sub>	n <sub>1</sub>	n <sub>1 max</sub>	Φ <sub>S</sub>	Φ <sub>R</sub>	C <sub>t</sub>	R <sub>2 max</sub>	A <sub>2 max</sub>	η	J <sub>G</sub> [kgcm <sup>2</sup> ]				
	[Nm]	[Nm]	[Nm]	[min <sup>-1</sup> ]	[min <sup>-1</sup> ]	[arcmin]	[Nm/arcmin]	[N]	[N]	%	14 ... 24	28 - 32	35 - 35	42	45 - 48	
MP 190 1_3	500	800	1400	1500	2500	15'	10'	130	14000	15000	97	24.20	24.88	25.65	29.30	29.90
MP 190 1_4	700	950	1800	2100	3000	15'	10'	130	14000	15000	97	13.41	14.09	14.85	18.51	19.11
MP 190 1_5	700	950	1800	2300	3000	15'	10'	130	14000	15000	97	9.32	10.00	10.77	14.42	15.02
MP 190 1_6	700	950	1800	2300	3000	15'	10'	130	14000	15000	97	2.88	3.56	4.33	7.98	8.58
MP 190 1_7	700	950	1800	2900	3500	15'	10'	130	14000	15000	97	5.68	6.36	7.13	10.78	11.38
MP 190 1_10	500	800	1400	2900	3500	15'	10'	130	14000	15000	97	3.57	4.25	5.02	8.67	9.27
MP 190 2_9	500	800	1400	1500	2500	15'	10'	100	14000	15000	94	23.23	23.91	24.67	28.33	28.93
MP 190 2_12	1000	1200	2200	1500	2500	15'	10'	100	14000	15000	94	22.03	22.71	23.48	27.13	27.73
MP 190 2_15	1000	1200	2200	1500	2500	15'	10'	100	14000	15000	94	21.58	22.25	23.02	26.68	27.27
MP 190 2_16	1000	1200	2200	2100	3000	15'	10'	100	14000	15000	94	12.19	12.86	13.63	17.29	17.89
MP 190 2_20	1000	1200	2200	2300	3000	15'	10'	100	14000	15000	94	8.54	9.22	9.98	13.64	14.24
MP 190 2_25	1000	1200	2200	2300	3000	15'	10'	100	14000	15000	94	8.37	9.05	9.82	13.48	14.07
MP 190 2_28	1000	1200	2200	2900	3500	15'	10'	100	14000	15000	94	5.28	5.96	6.73	10.38	10.98
MP 190 2_30	500	800	1400	2900	3500	15'	10'	100	14000	15000	94	3.48	4.16	4.93	8.58	9.18
MP 190 2_35	1000	1200	2200	2900	3500	15'	10'	100	14000	15000	94	5.20	5.87	6.64	10.30	10.90
MP 190 2_36	700	950	1800	2300	3000	15'	10'	100	14000	15000	94	2.18	2.86	3.63	7.28	7.88
MP 190 2_40	1000	1200	2200	2900	3500	15'	10'	100	14000	15000	94	3.37	4.05	4.82	8.48	9.07
MP 190 2_50	1000	1200	2200	2900	3500	15'	10'	100	14000	15000	94	3.33	4.01	4.78	8.44	9.03
MP 190 2_70	1000	1200	2200	2900	3500	15'	10'	100	14000	15000	94	3.30	3.97	4.74	8.40	9.00
MP 190 2_100	500	800	1400	2900	3500	15'	10'	100	14000	15000	94	3.28	3.95	4.72	8.38	8.98
MP 190 3_48	1000	1200	2200	2100	3000	17'	12'	90	14000	15000	91	12.73	13.40	14.17	17.83	18.43
MP 190 3_64	1000	1200	2200	2100	3000	17'	12'	90	14000	15000	91	12.10	12.78	13.55	17.21	17.80
MP 190 3_75	1000	1200	2200	2300	3000	17'	12'	90	14000	15000	91	8.86	9.54	10.31	13.97	14.56
MP 190 3_80	1000	1200	2200	2100	3000	17'	12'	90	14000	15000	91	12.09	12.76	13.53	17.19	17.79
MP 190 3_84	1000	1200	2200	2900	3500	17'	12'	90	14000	15000	91	5.46	6.13	6.90	10.56	11.16
MP 190 3_90	500	800	1400	2900	3500	17'	12'	90	14000	15000	91	3.47	4.15	4.92	8.57	9.17
MP 190 3_120	1000	1200	2200	2900	3500	17'	12'	90	14000	15000	91	3.46	4.14	4.91	8.56	9.16
MP 190 3_125	1000	1200	2200	2300	3000	17'	12'	90	14000	15000	91	8.34	9.01	9.78	13.44	14.04
MP 190 3_140	1000	1200	2200	2900	3500	17'	12'	90	14000	15000	91	5.25	5.92	6.69	10.35	10.95
MP 190 3_150	1000	1200	2200	2900	3500	17'	12'	90	14000	15000	91	3.46	4.13	4.90	8.56	9.15
MP 190 3_160	1000	1200	2200	2900	3500	17'	12'	90	14000	15000	91	3.36	4.04	4.81	8.46	9.06
MP 190 3_175	1000	1200	2200	2900	3500	17'	12'	90	14000	15000	91	5.18	5.85	6.62	10.28	10.88
MP 190 3_200	1000	1200	2200	2900	3500	17'	12'	90	14000	15000	91	3.36	4.03	4.80	8.46	9.06
MP 190 3_210	1000	1200	2200	2900	3500	17'	12'	90	14000	15000	91	3.45	4.13	4.90	8.55	9.15
MP 190 3_250	1000	1200	2200	2900	3500	17'	12'	90	14000	15000	91	3.32	4.00	4.77	8.42	9.02
MP 190 3_280	1000	1200	2200	2900	3500	17'	12'	90	14000	15000	91	3.29	3.97	4.74	8.39	8.99
MP 190 3_350	1000	1200	2200	2900	3500	17'	12'	90	14000	15000	91	3.29	3.97	4.74	8.39	8.99
MP 190 3_400	1000	1200	2200	2900	3500	17'	12'	90	14000	15000	91	3.27	3.95	4.72	8.38	8.97
MP 190 3_500	1000	1200	2200	2900	3500	17'	12'	90	14000	15000	91	3.27	3.95	4.72	8.38	8.97
MP 190 3_700	1000	1200	2200	2900	3500	17'	12'	90	14000	15000	91	3.27	3.95	4.72	8.38	8.97
MP 190 3_1000	500	800	1400	2900	3500	17'	12'	90	14000	15000	91	3.27	3.95	4.72	8.38	8.97

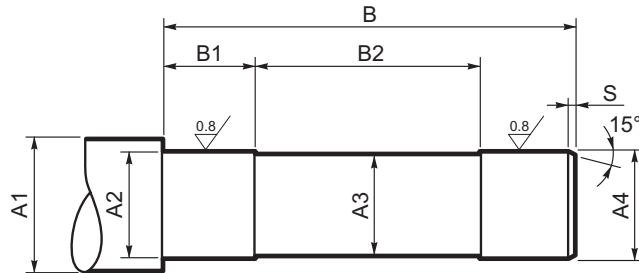
**MP**

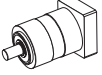


### 5.3.1 MACHINE SHAFT

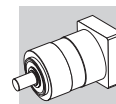
Pivot of driven equipment should be made from high grade alloy steel. Table below shows recommended dimensions for the Customer to consider when designing mating shaft. A device retaining the shaft axially is also recommended (not shown). The number and size of relative tapped holes at shaft end depend on application requirements.

#### MB



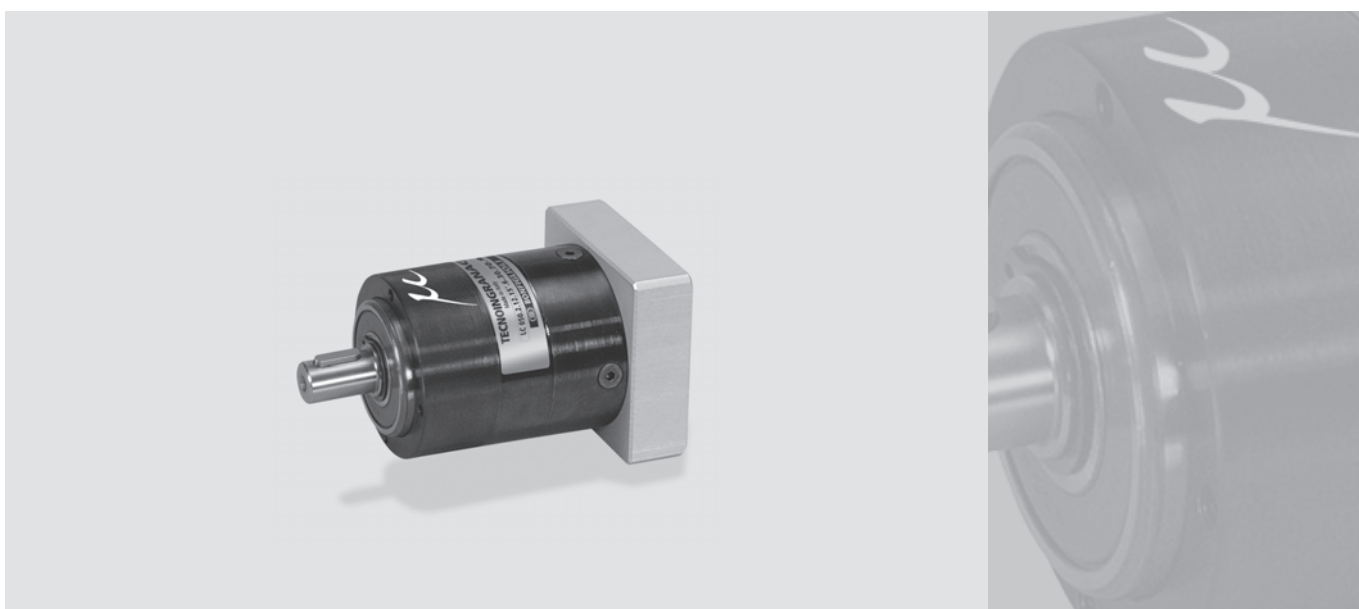
	A1	A2	A3	A4	B	B1	B2	S
MP MB 080	$\geq 25$	20 h7	18	20 h7	178	50	90	1
MP MB 105	$\geq 40$	32 h7	30	32 h7	205	60	115	
MP MB 130/160	$\geq 50$	42 h7	40	42 h7	259	70	140	

MP



# LC PLANETARY PRECISION GEARBOX IN LINE

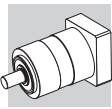
LC planetary precision gearboxes represent a flexible solution, and economic alternative together with an optimal performance and reliability.



LC

## Product Line Up:

- Optimal Torque Density
- Optimal Acceleration and Nominal Torques
- Optimal Radial and Axial loading capacities
- Designed for Cyclic and Continuous duty
- Optimal Torsional Stiffness
- Geometrical Backlash less than 6 arcmin
- Universal design allow any mounting orientation



## 6 FEATURES OF LC SERIES

Planetary gear units of the LC series belong to a range of low backlash drives very broad and complete as far as transmissible torque, gear ratios and circumferential backlash.

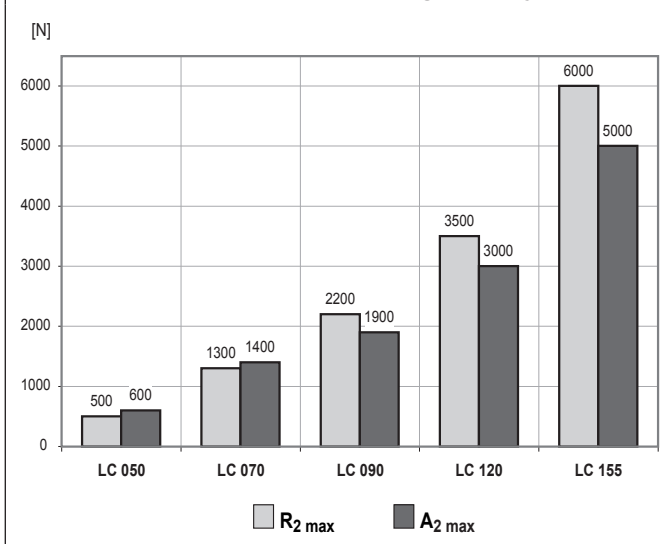
All units are generously proportioned to run quietly and provide a long service life without maintenance requirements.

Motor mounting is an operation that can be easily conducted without the need of any particular tooling, other than that usually available in a normally equipped workshop.

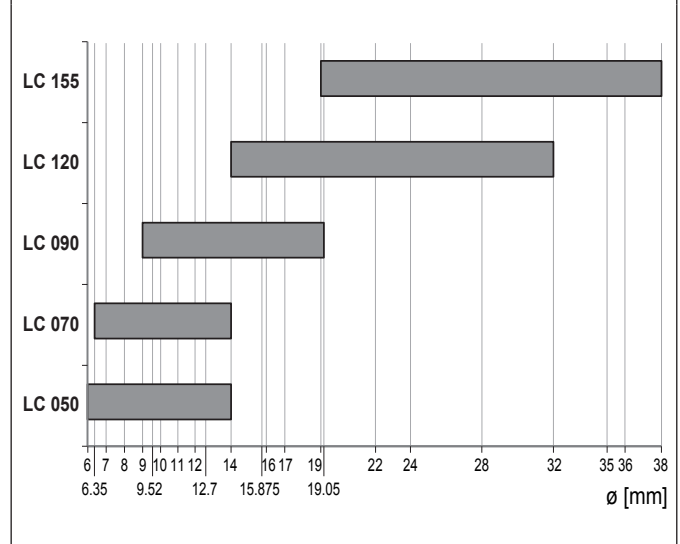
- Available with either standard (STD) or reduced (LOW) backlash:
  - 1-stage units: standard  $\varphi_S \leq 12'$ ; reduced  $\varphi_R \leq 6'$
  - 2-stage units: standard  $\varphi_S \leq 15'$ ; reduced  $\varphi_R \leq 8'$
- A high IP rating (IP64) provides inner parts with protection against the ingress of dust and liquids.
- Input section oil seals made from a Fluoroelastomer compound are supplied as standard.
- Noise pressure level  $L_P \leq 70$  dB(A). Conditions: distance 1 m; measured without load an input speed of  $n_1 = 3000 \text{ min}^{-1}$ ;  $i=10$ .
- Wide range of adapter flanges matching the most popular brands of motors
- Units are factory filled with synthetic grease to NLGI consistency class 00, in the absence of contamination the lubricant requires no periodical changes.
- Ambient temperature min  $-20^\circ\text{C}$ , max  $+30^\circ\text{C}$ . For temperature higher than  $30^\circ\text{C}$  please consider derating factor ft.
- Housing temperature must not exceed  $T_{\text{max}} = 90^\circ\text{C}$ .

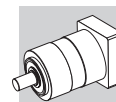
		Distribution of nominal torque $M_{n2}$ [Nm]																			
[i]	3	4	5	7	9	10	12	15	16	20	25	28	30	35	36	40	45	50	70	81	100
LC 050	10	12	12	12	10	-	12	12	12	12	12	12	-	12	12	-	12	-	-	10	-
LC 070	18	25	25	25	18	18	25	25	25	25	25	25	18	25	-	25	-	25	25	-	18
LC 090	37	43	43	43	37	37	43	43	43	43	43	43	37	43	-	43	-	43	43	-	37
LC 120	95	110	110	110	95	95	110	110	110	110	110	110	95	110	-	110	-	110	110	-	95
LC 155	250	300	300	300	250	230	300	300	300	300	300	300	250	300	-	300	-	300	300	-	230

Output shaft max. loading capacity

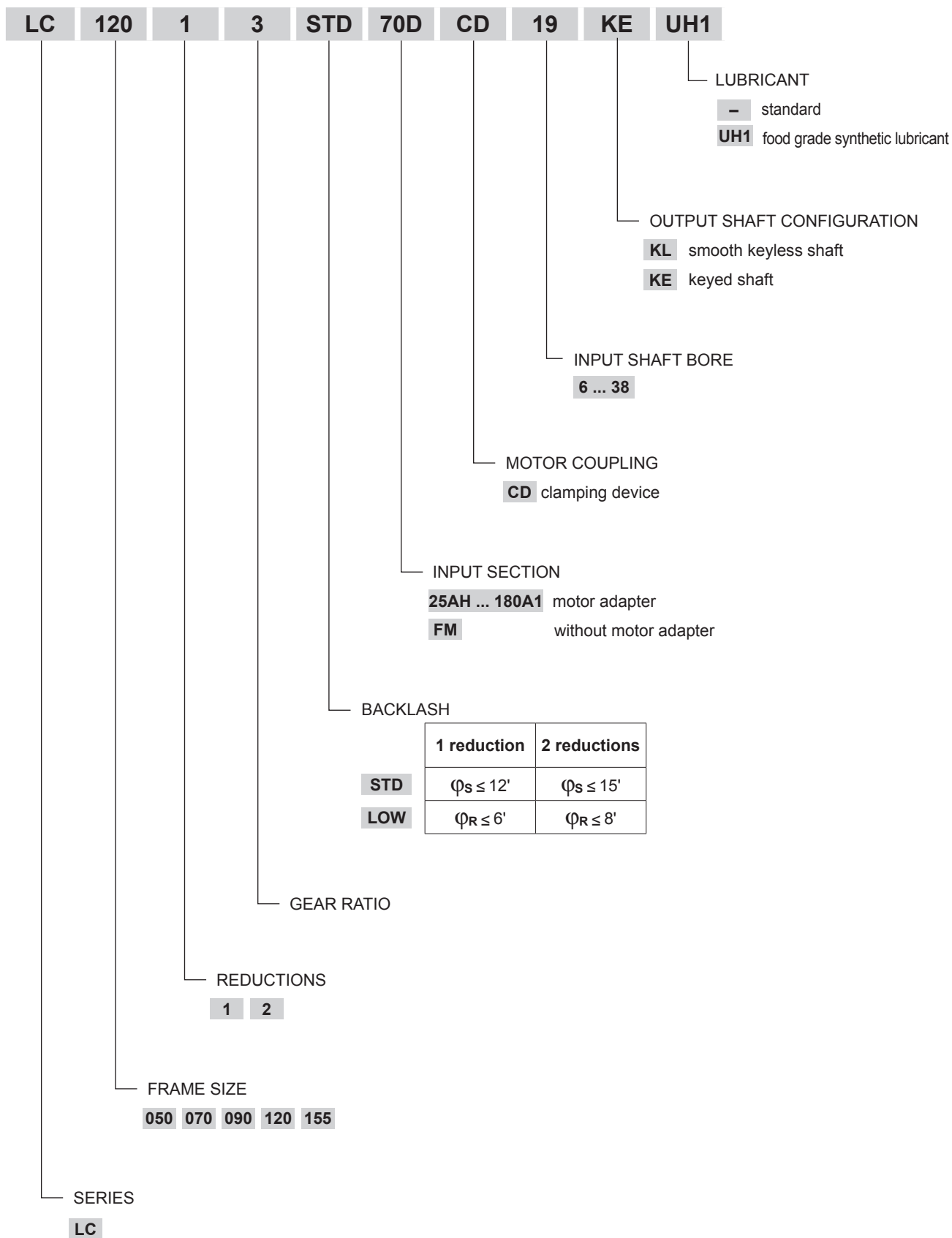


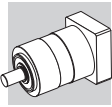
Available motor shaft bores





## 6.1 ORDERING CODE

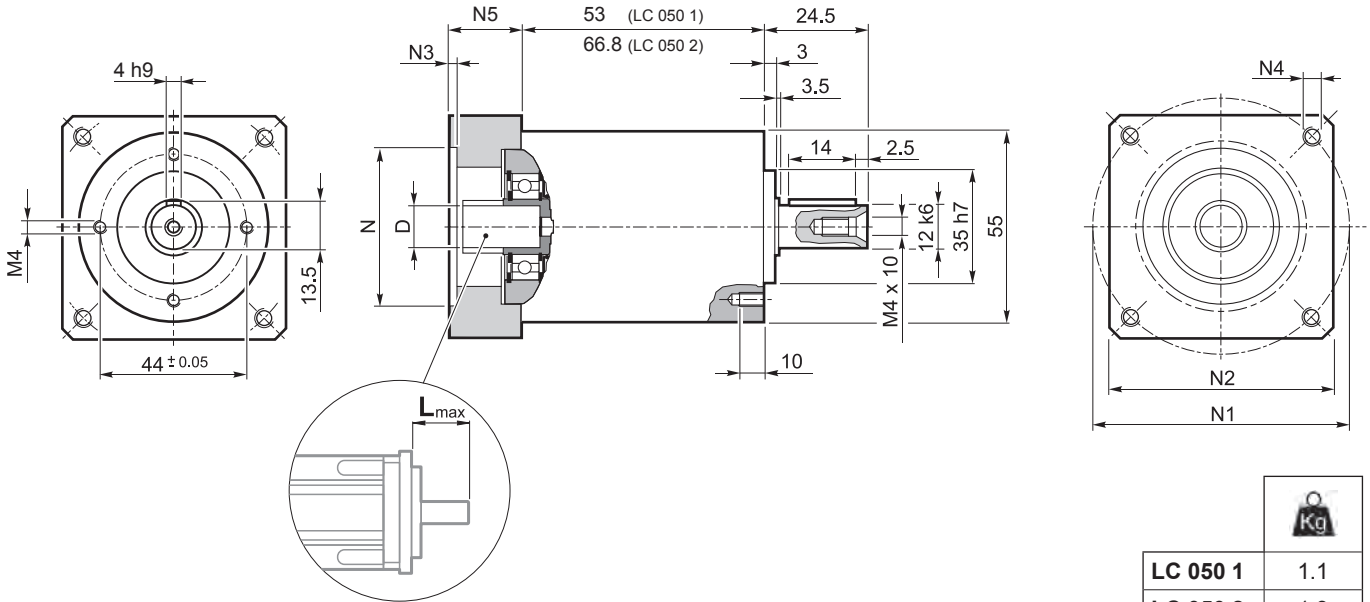




## 6.2 DIMENSIONS AND TECHNICAL SPECIFICATIONS

# LC 050

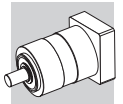
## 25AH ... 80A



	D											N	N1		N2	N3	N4	N5	L <sub>max</sub>
	6	6.35	7	8	9	9.52	-	-	-	-	-		min	max					
25AH	6	6.35	7	8	9	9.52	-	-	-	-	-	25	36	48					
26AH	6	6.35	7	8	9	9.52	-	-	-	-	-	26	36	48					
28AH	6	6.35	7	8	9	9.52	-	-	-	-	-	28	36	48					
30AH	6	6.35	7	8	9	9.52	-	-	-	-	-	30	36	48					
32AH	6	6.35	7	8	9	9.52	-	-	-	-	-	32	38	48	55	3.5	4.5	25	25
34AH	6	6.35	7	8	9	9.52	-	-	-	-	-	34	40	48					
36AH	6	6.35	7	8	9	9.52	-	-	-	-	-	36	42	48					
38AH	6	6.35	7	8	9	9.52	-	-	-	-	-	38	44	48					
40AH	6	6.35	7	8	9	9.52	-	-	-	-	-	40	46	48					
38B	6	6.35	7	8	9	9.52	10	11	12	12.7	-	38.1	66.6	60	3	M4x10	18	25	
40B	6	6.35	7	8	9	9.52	10	11	12	12.7	-	40	63	60	3	M4x10	18	25	
50A	6	6.35	7	8	9	9.52	10	11	12	12.7	-	50	60	60	3	M4x10	18	25	
50B	6	6.35	7	8	9	9.52	10	11	12	12.7	14	50	65	60	3	M5x12	23	30	
50BH	6	6.35	7	8	9	9.52	10	11	12	12.7	14	50	65	60	4	5.5	23	30	
50C	6	6.35	7	8	9	9.52	10	11	12	12.7	14	50	70	60	3	M4x10	23	30	
50MH	6	6.35	7	8	9	9.52	10	11	12	12.7	-	50	65	55	4	5.5	16	23	
60A	6	6.35	7	8	9	9.52	10	11	12	12.7	-	60	75	63	3	M5x12	18	25	
60AH	6	6.35	7	8	9	9.52	10	11	12	12.7	-	60	75	65	3	5.5	18	25	
60A1	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	75	63	3	M5x12	23	30	
60AH1	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	75	65	3	5.5	23	30	
60B	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	85	75	3	M5x12	23	30	
60C	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	90	75	3	M5x12	23	30	
70A	6	6.35	7	8	9	9.52	10	11	12	12.7	14	70	85	75	3	M6x15	23	30	
70B	6	6.35	7	8	9	9.52	10	11	12	12.7	14	70	90	75	3	M5x12	23	30	
73A	6	6.35	7	8	9	9.52	10	11	12	12.7	14	73	98.4	85	3	M5x12	25	32	
80A	6	6.35	7	8	9	9.52	10	11	12	12.7	14	80	100	85	3	M6x15	23	30	

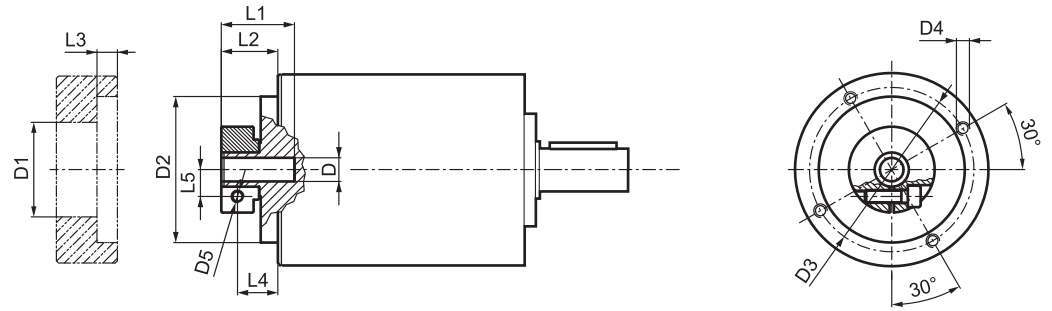
Please contact us for other motor adapters and input shaft bore.





# LC 050

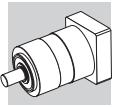
FM



				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
6	6.35	7		32.5	50	42.5	M4x8	M4	21.7	13.2	3	8.2	8
8	9	9.52	10	32.5	50	42.5	M4x8	M4	21.7	13.2	3	8.2	9
11	12	12.7		35.5	50	42.5	M4x8	M4	22	13.5	3	8.5	11
14				35.5	50	42.5	M4x8	M4	25	17	3	10.2	11.5

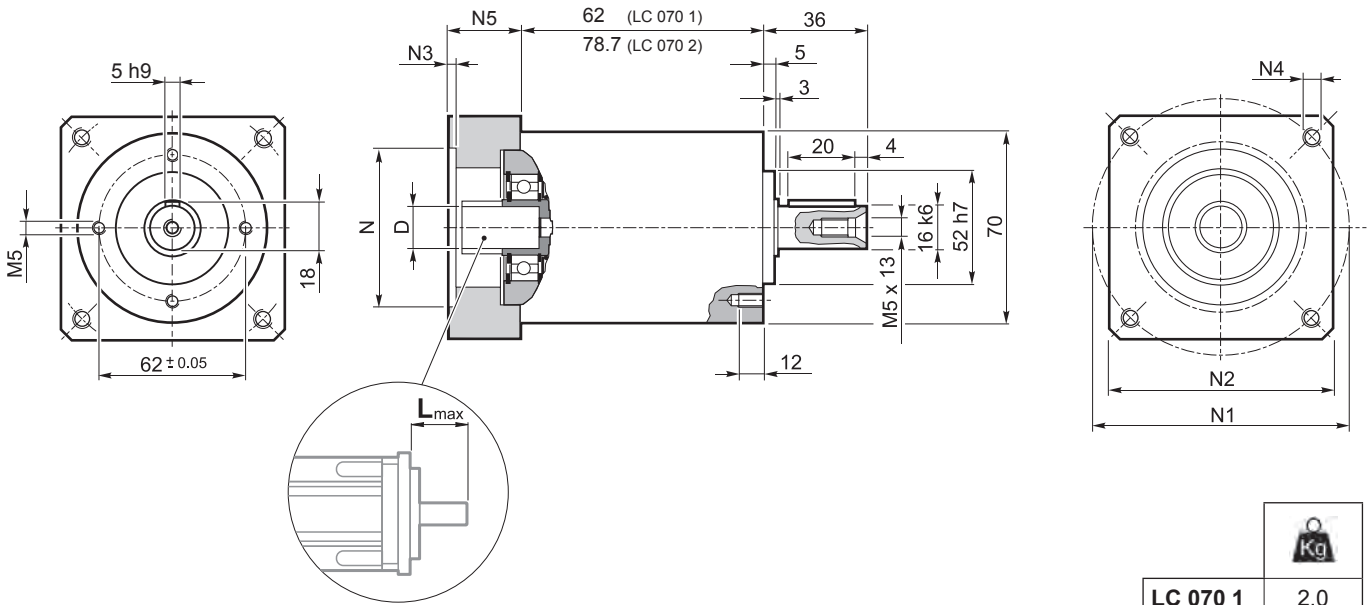
	i	M <sub>n2</sub>	M <sub>a2</sub>	M <sub>p2</sub>	n <sub>1</sub>	n <sub>1 max</sub>	φ <sub>S</sub>	φ <sub>R</sub>	C <sub>t</sub>	R <sub>2 max</sub>	A <sub>2 max</sub>	η	J <sub>G</sub> [kgcm <sup>2</sup> ]	
		[Nm]	[Nm]	[Nm]	[min <sup>-1</sup> ]	[min <sup>-1</sup> ]	[arcmin]	[Nm/arcmin]	[N]	[N]	%		6 ... 9.52	10 ... 14
LC 050 1_3		10	16	28	3300	4000	12'	6'	0.9	500	600	97	0.07	0.10
LC 050 1_4		12	20	30	3500	5000	12'	6'	0.9	500	600	97	0.06	0.08
LC 050 1_5		12	20	30	3500	5000	12'	6'	0.9	500	600	97	0.05	0.07
LC 050 1_7		12	20	30	4000	5000	12'	6'	0.9	500	600	97	0.04	0.06
LC 050 1_9		10	16	28	4000	6000	12'	6'	0.9	500	600	97	0.04	0.06
LC 050 2_12		12	20	30	3300	4000	15'	8'	0.75	500	600	94	0.07	0.09
LC 050 2_15		12	20	30	3300	4000	15'	8'	0.75	500	600	94	0.07	0.09
LC 050 2_16		12	20	30	3500	5000	15'	8'	0.75	500	600	94	0.05	0.07
LC 050 2_20		12	20	30	3500	5000	15'	8'	0.75	500	600	94	0.05	0.07
LC 050 2_25		12	20	30	3500	5000	15'	8'	0.75	500	600	94	0.05	0.07
LC 050 2_28		12	20	30	4000	5000	15'	8'	0.75	500	600	94	0.04	0.06
LC 050 2_35		12	20	30	4000	5000	15'	8'	0.75	500	600	94	0.04	0.06
LC 050 2_36		12	20	30	4000	6000	15'	8'	0.75	500	600	94	0.04	0.06
LC 050 2_45		12	20	30	4000	6000	15'	8'	0.75	500	600	94	0.04	0.06
LC 050 2_81		10	16	28	4000	6000	15'	8'	0.75	500	600	94	0.04	0.06

LC



# LC 070

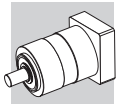
## 25AH ... 80A



	<b>LC 070 1</b>	2.0
	<b>LC 070 2</b>	2.3

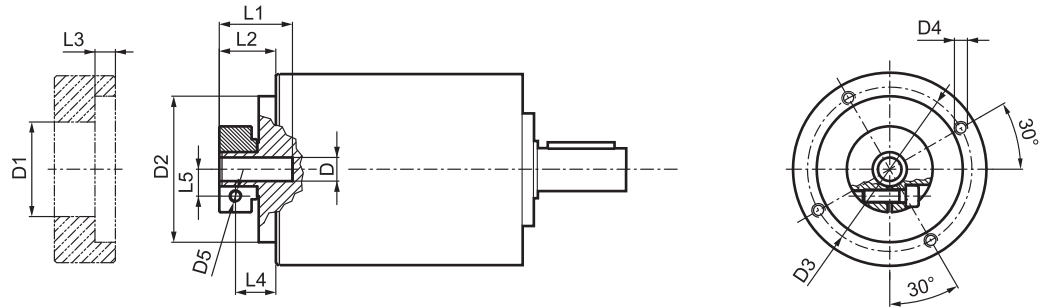
											N	N1		N2	N3	N4	N5	L <sub>max</sub>
	min	max																
25AH	6.35	7	8	9	9.52	-	-	-	-	-	25	39	56	65	3.5	4.5	25	25
26AH	6.35	7	8	9	9.52	-	-	-	-	-	26	39	56					
28AH	6.35	7	8	9	9.52	-	-	-	-	-	28	39	56					
30AH	6.35	7	8	9	9.52	-	-	-	-	-	30	39	56					
32AH	6.35	7	8	9	9.52	-	-	-	-	-	32	39	56					
34AH	6.35	7	8	9	9.52	-	-	-	-	-	34	40	56					
36AH	6.35	7	8	9	9.52	-	-	-	-	-	36	42	56					
39AH	6.35	7	8	9	9.52	-	-	-	-	-	39	45	56					
40AH	6.35	7	8	9	9.52	-	-	-	-	-	40	46	56					
38B	6.35	7	8	9	9.52	10	11	12	12.7	-	38.1	66.6	60	3	M4x10	18	25	
40B	6.35	7	8	9	9.52	10	11	12	12.7	-	40	63	60	3	M4x10	18	25	
50A	6.35	7	8	9	9.52	10	11	12	12.7	-	50	60	60	3	M4x10	18	25	
50B	6.35	7	8	9	9.52	10	11	12	12.7	14	50	65	60	3	M5x12	23	30	
50BH	6.35	7	8	9	9.52	10	11	12	12.7	14	50	65	65	3	5.5	25	32	
50C	6.35	7	8	9	9.52	10	11	12	12.7	14	50	70	60	3	M4x10	23	30	
55MH	6.35	7	8	9	9.52	10	11	12	12.7	-	55	80	65	2	5.5	16	23	
60A	6.35	7	8	9	9.52	10	11	12	12.7	-	60	75	63	3	M5x12	18	25	
60A1	6.35	7	8	9	9.52	10	11	12	12.7	14	60	75	63	3	M5x12	23	30	
60B	6.35	7	8	9	9.52	10	11	12	12.7	14	60	85	75	3	M5x12	23	30	
60C	6.35	7	8	9	9.52	10	11	12	12.7	14	60	90	75	3	M5x12	23	30	
70A	6.35	7	8	9	9.52	10	11	12	12.7	14	70	85	75	3	M6x15	23	30	
70B	6.35	7	8	9	9.52	10	11	12	12.7	14	70	90	75	3	M5x12	23	30	
73A	6.35	7	8	9	9.52	10	11	12	12.7	14	73	98.4	85	3	M5x12	25	32	
80A	6.35	7	8	9	9.52	10	11	12	12.7	14	80	100	85	3	M6x15	23	30	

Please contact us for other motor adapters and input shaft bore.



# LC 070

**FM**

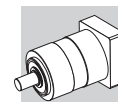


				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
6.35	7			32.5	50	42.5	M4x8	M4	21.7	13.2	3	8.2	8
8	9	9.52	10	32.5	50	42.5	M4x8	M4	21.7	13.2	3	8.2	9
11	12	12.7		35.5	50	42.5	M4x8	M4	22	13.5	3	8.5	11
14				35.5	50	42.5	M4x8	M4	25	17	3	10.2	11.5

	i	M <sub>n 2</sub>	M <sub>a 2</sub>	M <sub>p 2</sub>	n <sub>1</sub>	n <sub>1 max</sub>	φ <sub>S</sub>	φ <sub>R</sub>	C <sub>t</sub>	R <sub>2 max</sub>	A <sub>2 max</sub>	η	J <sub>G</sub> [kgcm <sup>2</sup> ]	
		[Nm]	[Nm]	[Nm]	[min <sup>-1</sup> ]	[min <sup>-1</sup> ]	[arcmin]	[arcmin]	[Nm/arcmin]	[N]	[N]	%	6.35 ... 9.52	10 ... 14
LC 070 1_3		18	30	60	3300	4000	12'	6'	3	1300	1400	97	0.12	0.14
LC 070 1_4		25	35	70	3500	5000	12'	6'	3	1300	1400	97	0.08	0.10
LC 070 1_5		25	35	70	3500	5000	12'	6'	3	1300	1400	97	0.06	0.09
LC 070 1_7		25	35	70	4000	5000	12'	6'	3	1300	1400	97	0.05	0.07
LC 070 1_10		18	30	60	4000	6000	12'	6'	3	1300	1400	97	0.04	0.06
LC 070 2_9		18	30	60	3300	4000	15'	8'	2.5	1300	1400	94	0.11	0.13
LC 070 2_12		25	35	70	3300	4000	15'	8'	2.5	1300	1400	94	0.10	0.13
LC 070 2_15		25	35	70	3300	4000	15'	8'	2.5	1300	1400	94	0.10	0.12
LC 070 2_16		25	35	70	3500	5000	15'	8'	2.5	1300	1400	94	0.07	0.09
LC 070 2_20		25	35	70	3500	5000	15'	8'	2.5	1300	1400	94	0.06	0.08
LC 070 2_25		25	35	70	3500	5000	15'	8'	2.5	1300	1400	94	0.06	0.08
LC 070 2_28		25	35	70	4000	5000	15'	8'	2.5	1300	1400	94	0.05	0.07
LC 070 2_30		18	30	60	4000	6000	15'	8'	2.5	1300	1400	94	0.04	0.06
LC 070 2_35		25	35	70	4000	5000	15'	8'	2.5	1300	1400	94	0.05	0.07
LC 070 2_40		25	35	70	4000	6000	15'	8'	2.5	1300	1400	94	0.04	0.06
LC 070 2_50		25	35	70	4000	6000	15'	8'	2.5	1300	1400	94	0.04	0.06
LC 070 2_70		25	35	70	4000	6000	15'	8'	2.5	1300	1400	94	0.04	0.06
LC 070 2_100		18	30	60	4000	6000	15'	8'	2.5	1300	1400	94	0.04	0.06

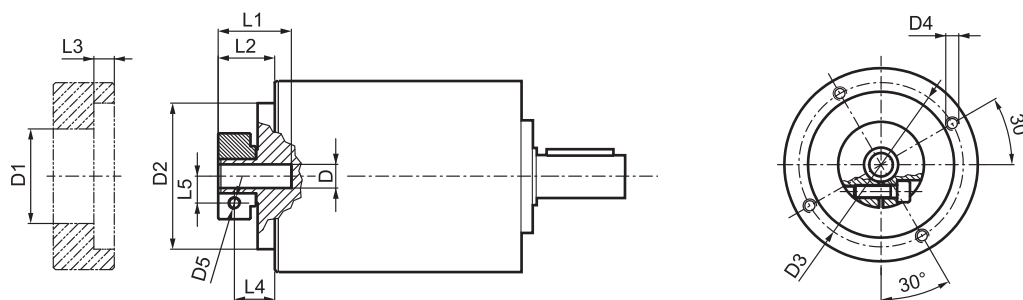
**LC**



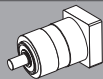


# LC 090

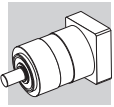
FM



D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
9	9.52			38	68	76.5	M6x10	M6	34	26.8	9.5	18.8	10.5
11	12	12.7		43	68	76.5	M6x10	M6	34	26.8	9.5	18.8	12.5
14	15.875	16	17	48	68	76.5	M6x10	M6	34	26.8	9.5	18.8	14.5
19	19.05			51	68	76.5	M6x10	M6	34	26.8	9.5	18.8	16.5

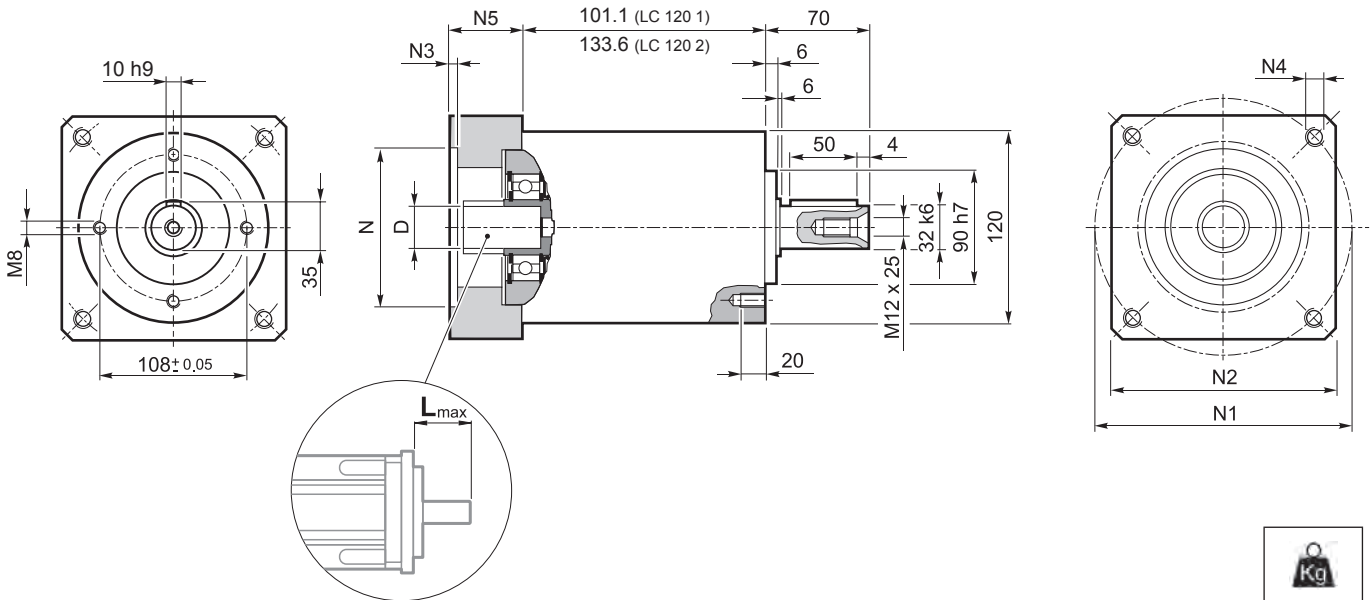
 i	M <sub>n 2</sub>	M <sub>a 2</sub>	M <sub>p 2</sub>	n <sub>1</sub>	n <sub>1 max</sub>	φ <sub>S</sub>	φ <sub>R</sub>	C <sub>t</sub>	R <sub>2 max</sub>	A <sub>2 max</sub>	η	J <sub>G</sub> [kgcm <sup>2</sup> ]	
	[Nm]	[Nm]	[Nm]	[min <sup>-1</sup> ]	[min <sup>-1</sup> ]	[arcmin]		$\left[ \frac{Nm}{arcmin} \right]$	[N]	[N]	%	9 ... 12.7	14 ... 19.05
LC 090 1_3	37	70	150	2900	3500	12'	6'	9	2200	1900	97	0.62	0.77
LC 090 1_4	43	80	160	3100	4500	12'	6'	9	2200	1900	97	0.41	0.55
LC 090 1_5	43	80	160	3200	4500	12'	6'	9	2200	1900	97	0.33	0.47
LC 090 1_7	43	80	160	4000	4500	12'	6'	9	2200	1900	97	0.26	0.40
LC 090 1_10	37	70	150	4000	6000	12'	6'	9	2200	1900	97	0.21	0.35
LC 090 2_9	37	70	150	2900	3500	15'	8'	8.5	2200	1900	94	0.47	0.61
LC 090 2_12	43	80	160	2900	3500	15'	8'	8.5	2200	1900	94	0.44	0.58
LC 090 2_15	43	80	160	2900	3500	15'	8'	8.5	2200	1900	94	0.43	0.57
LC 090 2_16	43	80	160	3100	4500	15'	8'	8.5	2200	1900	94	0.31	0.45
LC 090 2_20	43	80	160	3200	4500	15'	8'	8.5	2200	1900	94	0.26	0.40
LC 090 2_25	43	80	160	3200	4500	15'	8'	8.5	2200	1900	94	0.26	0.40
LC 090 2_28	43	80	160	4000	4500	15'	8'	8.5	2200	1900	94	0.22	0.36
LC 090 2_30	37	70	150	4000	6000	15'	8'	8.5	2200	1900	94	0.20	0.34
LC 090 2_35	43	80	160	4000	4500	15'	8'	8.5	2200	1900	94	0.22	0.36
LC 090 2_40	43	80	160	4000	6000	15'	8'	8.5	2200	1900	94	0.20	0.34
LC 090 2_50	43	80	160	4000	6000	15'	8'	8.5	2200	1900	94	0.20	0.34
LC 090 2_70	43	80	160	4000	6000	15'	8'	8.5	2200	1900	94	0.20	0.34
LC 090 2_100	37	70	150	4000	6000	15'	8'	8.5	2200	1900	94	0.19	0.34

LC



# LC 120

## 50D ... 130A1

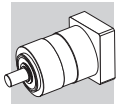


<b>LC 120 1</b>	9.6
<b>LC 120 2</b>	12.1

LC

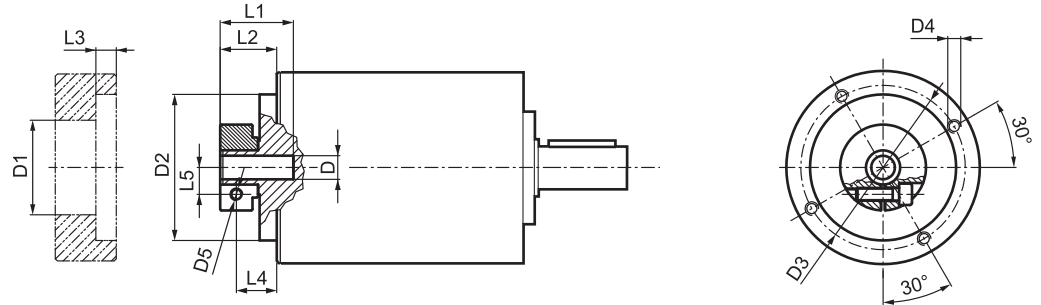
										N	N1	N2	N3	N4	N5	L <sub>max</sub>
	14	15	15.875	16	19	-	-	-	-							
<b>50D</b>	14	15	15.875	16	19	-	-	-	-	50	95	100	5	M6x14	28	40
<b>55A</b>	14	15	15.875	16	19	-	-	-	-	55.5	125.7	105	5	M6x16	28	40
<b>60A2</b>	14	15	15.875	16	19	-	-	-	-	60	75	100	5	M5x14	28	40
<b>60AH2</b>	14	15	15.875	16	19	-	-	-	-	60	75	100	5	6.5	33	40
<b>60B1</b>	14	15	15.875	16	19	-	-	-	-	60	85	100	6.5	M5x14	28	40
<b>70A1</b>	14	15	15.875	16	19	-	-	-	-	70	85	100	5	M6x14	28	40
<b>70AH1</b>	14	15	15.875	16	19	-	-	-	-	70	85	100	5	6	33	40
<b>70B1</b>	14	15	15.875	16	19	-	-	-	-	70	90	100	5	M5x12	28	40
<b>80A1</b>	14	15	15.875	16	19	-	-	-	-	80	100	100	5	M6x16	28	40
<b>80AH1</b>	14	15	15.875	16	19	-	-	-	-	80	100	100	5	6.5	28	40
<b>95A</b>	14	15	15.875	16	19	-	-	-	-	95	115	100	5	M8x18	28	40
<b>95A1</b>	14	15	15.875	16	19	22	24	-	-	95	115	100	5	M8x18	38	50
<b>95B</b>	14	15	15.875	16	19	-	-	-	-	95	130	115	5	M8x18	28	40
<b>110A</b>	14	15	15.875	16	19	-	-	-	-	110	130	115	5	M8x18	28	40
<b>110A1</b>	14	15	15.875	16	19	22	24	-	-	110	130	115	6.5	M8x20	38	50
<b>110B</b>	14	15	15.875	16	19	22	24	-	-	110	145	120	6.5	M8x20	38	50
<b>110B1</b>	14	15	15.875	16	19	22	24	28	-	110	145	120	6.5	M8x20	48	60
<b>130A</b>	14	15	15.875	16	19	22	24	-	-	130	165	140	6.5	M10x20	38	50
<b>130A1</b>	14	15	15.875	16	19	22	24	28	32	130	165	140	6.5	M10x25	48	60

Please contact us for other motor adapters and input shaft bore.



# LC 120

FM

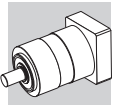


				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
14	15	15.875	16	48	90	98	M6x15	M6	33.5	20	7.6	12.5	14.5
19				51	90	98	M6x15	M6	33.5	20	7.6	12.5	16.5
22	24			56.5	90	98	M6x15	M6	36.5	23	7.6	14	19
28				67	90	98	M6x15	M8	36.5	23	7.6	14	22.5
32				71	90	98	M6x15	M8	38	24.5	7.6	15.5	24.5

	i	M <sub>n 2</sub> [Nm]	M <sub>a 2</sub> [Nm]	M <sub>p 2</sub> [Nm]	n <sub>1</sub> [min <sup>-1</sup> ]	n <sub>1 max</sub> [min <sup>-1</sup> ]	φ <sub>S</sub> [arcmin]	φ <sub>R</sub> [arcmin]	C <sub>t</sub> [Nm/arcmin]	R <sub>2 max</sub> [N]	A <sub>2 max</sub> [N]	η %	J <sub>G</sub> [kgcm <sup>2</sup> ]		
														14 ... 19	22 ; 24
LC 120 1_3		95	160	300	2500	3500	12'	6'	25	3500	3000	97	2.17	2.77	3.13
LC 120 1_4		110	190	360	2800	4500	12'	6'	25	3500	3000	97	1.30	1.89	2.26
LC 120 1_5		110	190	360	3000	4500	12'	6'	25	3500	3000	97	0.96	1.56	1.92
LC 120 1_7		110	190	360	3500	4500	12'	6'	25	3500	3000	97	0.66	1.26	1.62
LC 120 1_10		95	160	300	3500	5000	12'	6'	25	3500	3000	97	0.49	1.09	1.45
LC 120 2_9		95	160	300	2500	3500	15'	8'	22.5	3500	3000	94	1.61	2.20	2.57
LC 120 2_12		110	190	360	2500	3500	15'	8'	22.5	3500	3000	94	1.51	2.10	2.47
LC 120 2_15		110	190	360	2500	3500	15'	8'	22.5	3500	3000	94	1.47	2.06	2.43
LC 120 2_16		110	190	360	2800	4500	15'	8'	22.5	3500	3000	94	0.92	1.52	1.88
LC 120 2_20		110	190	360	3000	4500	15'	8'	22.5	3500	3000	94	0.90	1.50	1.86
LC 120 2_25		110	190	360	3000	4500	15'	8'	22.5	3500	3000	94	0.71	1.30	1.67
LC 120 2_28		110	190	360	3500	4500	15'	8'	22.5	3500	3000	94	0.54	1.13	1.50
LC 120 2_30		95	160	300	3500	5000	15'	8'	22.5	3500	3000	94	0.44	1.04	1.40
LC 120 2_35		110	190	360	3500	4500	15'	8'	22.5	3500	3000	94	0.53	1.13	1.49
LC 120 2_40		110	190	360	3500	5000	15'	8'	22.5	3500	3000	94	0.43	1.03	1.39
LC 120 2_50		110	190	360	3500	5000	15'	8'	22.5	3500	3000	94	0.43	1.02	1.39
LC 120 2_70		110	190	360	3500	5000	15'	8'	22.5	3500	3000	94	0.42	1.02	1.38
LC 120 2_100		95	160	300	3500	5000	15'	8'	22.5	3500	3000	94	0.42	1.02	1.38

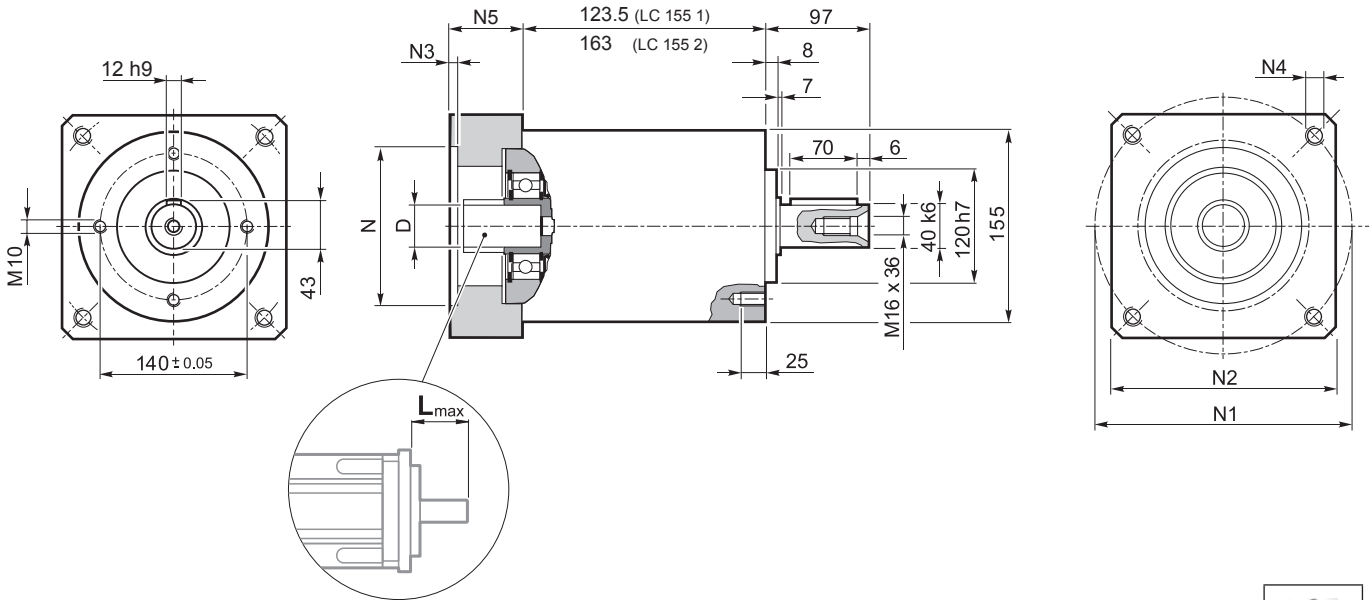
LC





# LC 155

## 55A1 ... 180A1

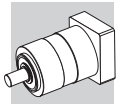


LC 155 1	19.3
LC 155 2	24.3

LC

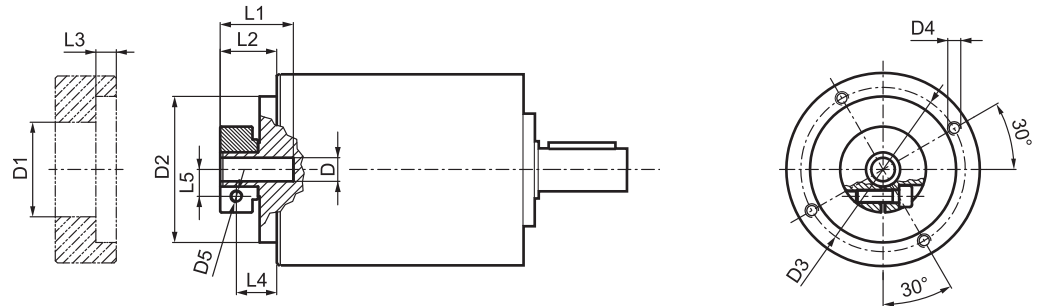
								N	N1	N2	N3	N4	N5	L <sub>max</sub>
55A1	19	-	-	-	-	-	-	55.5	125.7	130	4	M6x15	39.5	50
80A2	19	-	-	-	-	-	-	80	100	130	4	M6x15	39.5	50
95A1	19	22	24	-	-	-	-	95	115	130	4	M8x20	39.5	50
110A1	19	22	24	-	-	-	-	110	130	130	4	M8x20	39.5	50
110B1	19	22	24	-	-	-	-	110	145	130	6.5	M8x20	49.5	60
114A	19	22	24	28	32	35	38	114.3	200	170	5.5	M12x25	69.5	80
130A	19	22	24	-	-	-	-	130	165	140	4	M10x20	39.5	50
130A1	19	22	24	28	32	-	-	130	165	140	4	M10x20	49.5	60
180A	19	22	24	28	32	-	-	180	215	190	5.5	M14x25	49.5	60
180A1	19	22	24	28	32	35	38	180	215	190	5.5	M14x25	69.5	80

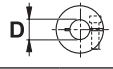
Please contact us for other motor adapters and input shaft bore.

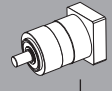
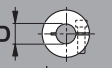


# LC 155

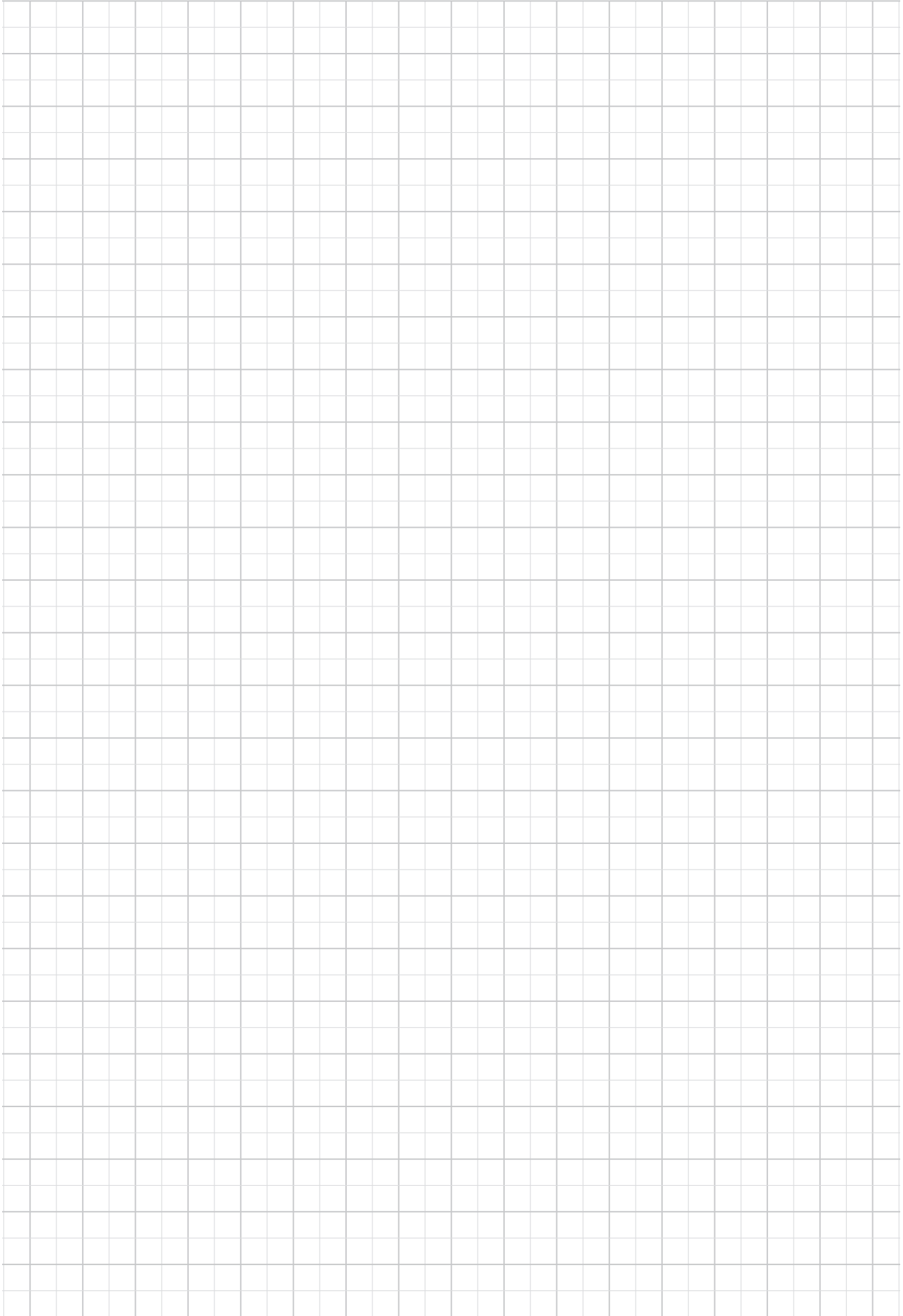
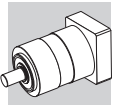
FM



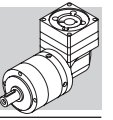
	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
19	51	113	125.5	M8x15	M6	40	27.5	6	20	16.5
22 24	56.5	113	125.5	M8x15	M6	41	28.5	6	19.5	19
28	67	113	125.5	M8x15	M8	41	28.5	6	19.5	22.5
32	71	113	125.5	M8x15	M8	41	28.5	6	18.5	24.5
35	73	113	125.5	M8x15	M8	50	37.5	11.25	26	26
38	77.5	113	125.5	M8x15	M8	50	37.5	11.25	26	28

	i	M <sub>n2</sub> [Nm]	M <sub>a2</sub> [Nm]	M <sub>p2</sub> [Nm]	n <sub>1</sub> [min <sup>-1</sup> ]	n <sub>1 max</sub> [min <sup>-1</sup> ]	φ <sub>s</sub> [arcmin]	φ <sub>R</sub> [arcmin]	C <sub>t</sub> [ $\frac{Nm}{arcmin}$ ]	R <sub>2 max</sub> [N]	A <sub>2 max</sub> [N]	η %	J <sub>G</sub> [kgcm <sup>2</sup> ]			
														19	22 ; 24	28 ; 32
LC 155 1_3		250	380	600	2100	3600	12'	6'	43	6000	5000	97	7.99	8.19	8.54	9.90
LC 155 1_4		300	450	700	2400	3600	12'	6'	43	6000	5000	97	4.66	4.87	5.23	6.57
LC 155 1_5		300	450	900	2900	3600	12'	6'	43	6000	5000	97	3.32	3.53	3.88	5.23
LC 155 1_7		300	450	900	3200	3600	12'	6'	43	6000	5000	97	2.14	2.35	2.70	4.05
LC 155 1_10		230	350	750	3200	3600	12'	6'	43	6000	5000	97	1.45	1.66	2.01	3.36
LC 155 2_9		250	380	600	2100	3600	15'	8'	37.5	6000	5000	94	5.30	5.51	5.86	7.21
LC 155 2_12		300	450	700	2100	3600	15'	8'	37.5	6000	5000	94	4.93	5.14	5.49	6.84
LC 155 2_15		300	450	900	2100	3600	15'	8'	37.5	6000	5000	94	4.79	4.99	5.34	6.70
LC 155 2_16		300	450	700	2400	3600	15'	8'	37.5	6000	5000	94	2.97	3.18	3.53	4.88
LC 155 2_20		300	450	900	2900	3600	15'	8'	37.5	6000	5000	94	2.23	2.44	2.79	4.14
LC 155 2_25		300	450	900	2900	3600	15'	8'	37.5	6000	5000	94	2.18	2.39	2.74	4.09
LC 155 2_28		300	450	900	3200	3600	15'	8'	37.5	6000	5000	94	1.58	1.79	2.14	3.49
LC 155 2_30		250	380	600	3200	3600	15'	8'	37.5	6000	5000	94	1.23	1.44	1.79	3.14
LC 155 2_35		300	450	900	3200	3600	15'	8'	37.5	6000	5000	94	1.55	1.76	2.11	3.46
LC 155 2_40		300	450	700	3200	3600	15'	8'	37.5	6000	5000	94	1.20	1.41	1.76	3.11
LC 155 2_50		300	450	900	3200	3600	15'	8'	37.5	6000	5000	94	1.19	1.39	1.74	3.10
LC 155 2_70		300	450	900	3200	3600	15'	8'	37.5	6000	5000	94	1.17	1.38	1.73	3.08
LC 155 2_100		230	350	750	3200	3600	15'	8'	37.5	6000	5000	94	1.17	1.38	1.73	3.08

LC



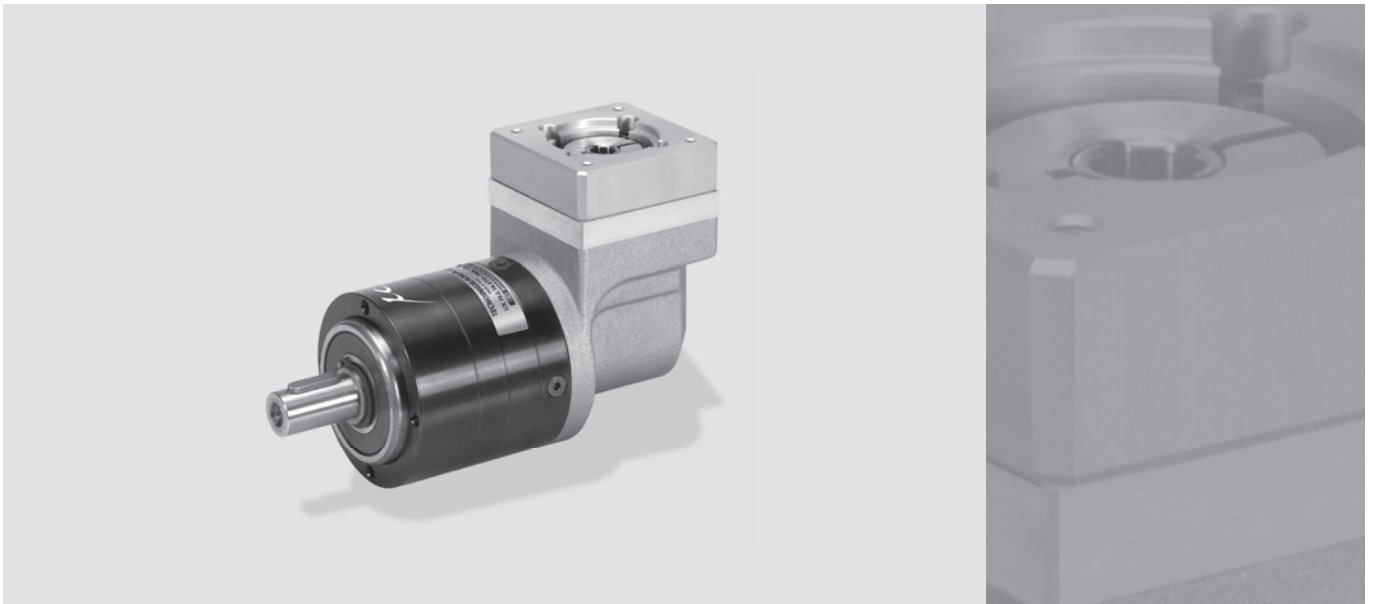
LC



# LCK PLANETARY PRECISION RIGHT ANGLE GEARBOX

LCK replicate in the right angle layout excellent features already typical of the inline products LC series. Right angle layout is the solution to space problems often posed by increasingly compact machines.

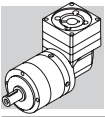
This serie represent a flexible solution, and economic alternative together with an optimal performance and reliability.



LCK

## Product Line Up:

- Optimal Torque Density
- Optimal Acceleration and Nominal Torques
- Optimal Radial and Axial loading capacities
- Designed for Cyclic and Continuous duty
- Optimal Torsional Stiffness
- Geometrical Backlash less than 6 arcmin
- Universal design allow any mounting orientation



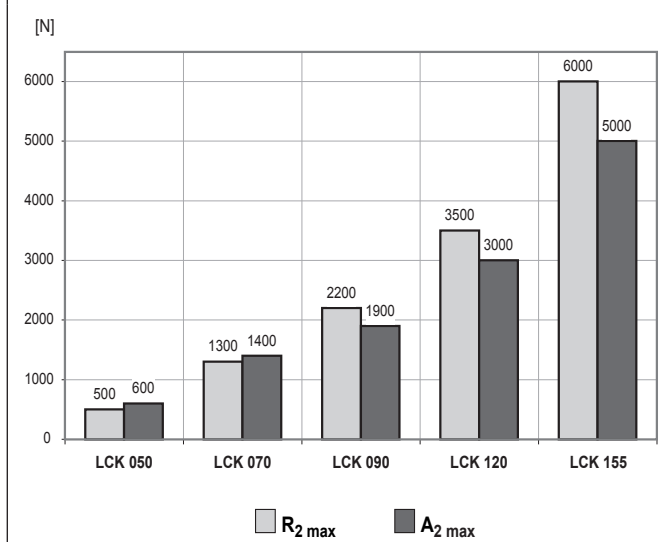
## 7 FEATURES OF LCK SERIES

Gear units of series LCK replicate in the right angle layout the brilliant features that are already typical of the in-line products of the LC series, with the additional benefit of a facilitated installation in tight spaces.

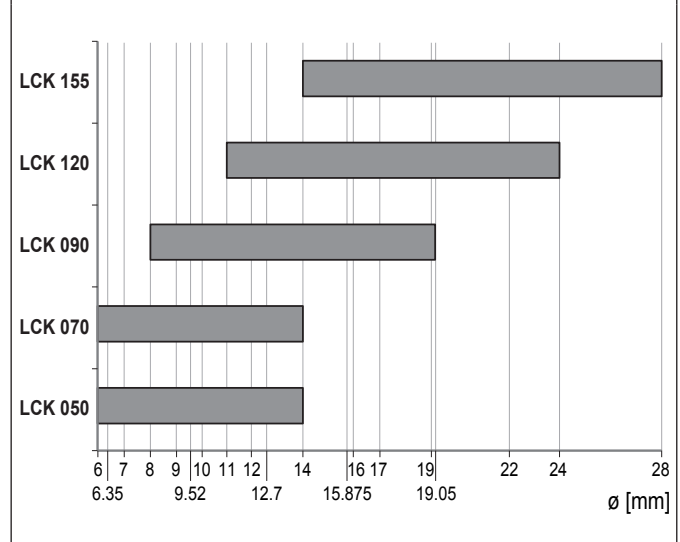
- Available in one only backlash option, corresponding to following values:  
2-stage units: standard  $\varphi_S \leq 6'$ ;  
3-stage units: standard  $\varphi_S \leq 8'$ ;
- A high IP rating (IP64) provides inner parts with protection against the ingress of dust and liquids.
- Input section oil seals made from a Fluoroelastomer compound are supplied as standard.
- Noise pressure level  $L_P \leq 70$  dB(A). Conditions: distance 1 m; measured without load an input speed of  $n_1 = 3000$  min<sup>-1</sup>;  $i=10$ .
- Wide range of adapter flanges matching the most popular brands of motors
- Units are factory filled with synthetic grease to NLGI consistency class 00, in the absence of contamination the lubricant requires no periodical changes.
- Ambient temperature min -20°C, max +30°C. For temperature higher than 30°C please consider derating factor ft.
- Housing temperature must not exceed  $T_{max} = 90^\circ\text{C}$ .

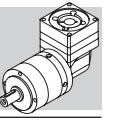
		Distribution of nominal torque $M_{n2}$ [Nm]										
[i]	6	8	10	14	20	24	30	50	70	80	90	100
LCK 050	10	12	12	12	-	12	12	12	12	-	12	-
LCK 070	18	25	25	25	18	25	25	25	25	25	-	25
LCK 090	37	43	43	43	37	43	43	43	43	43	-	43
LCK 120	95	110	110	110	95	110	110	110	110	110	-	110
LCK 155	250	300	300	300	230	300	300	300	300	300	-	300

Output shaft max. loading capacity

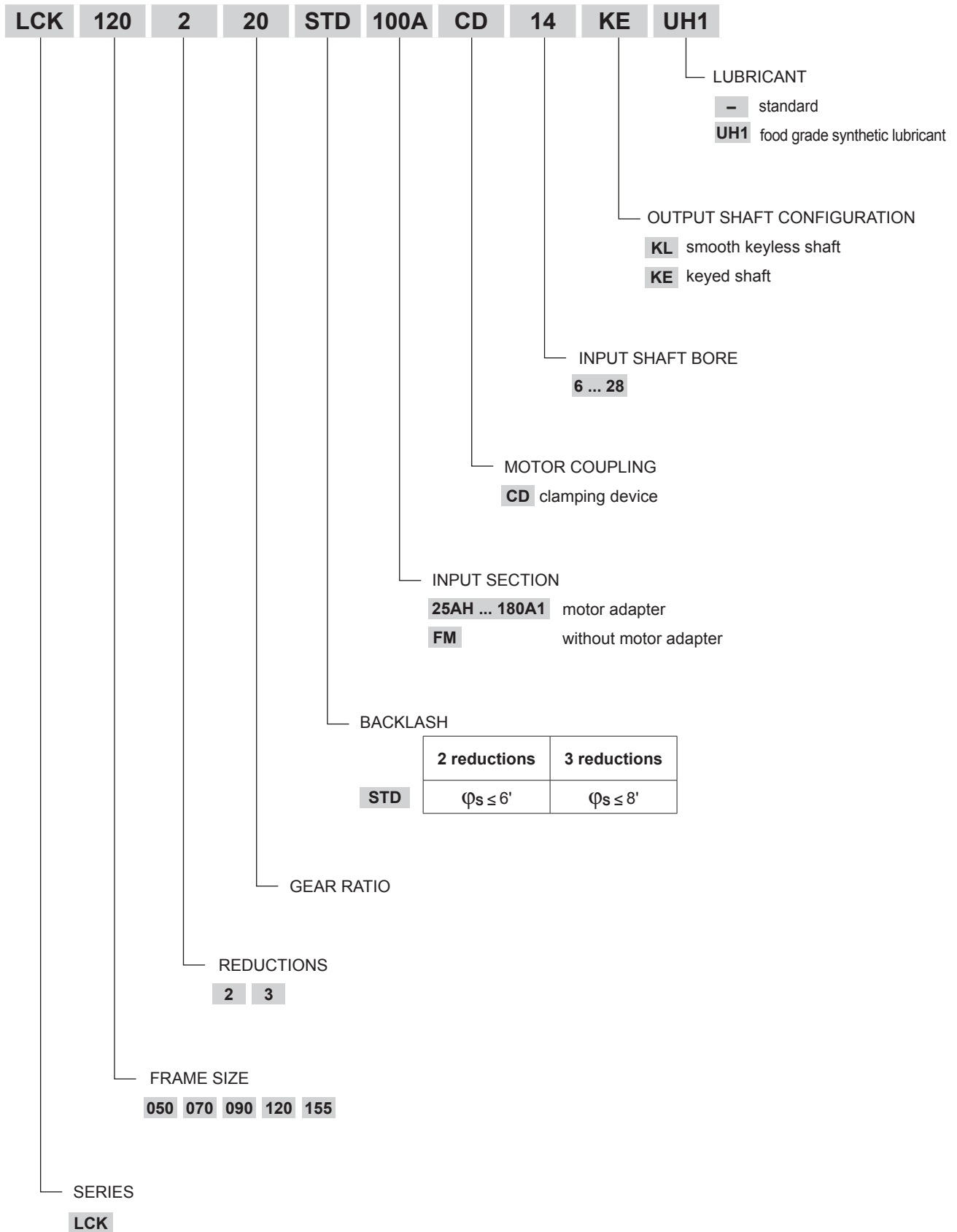


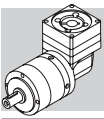
Available motor shaft bores





## 7.1 ORDERING CODE

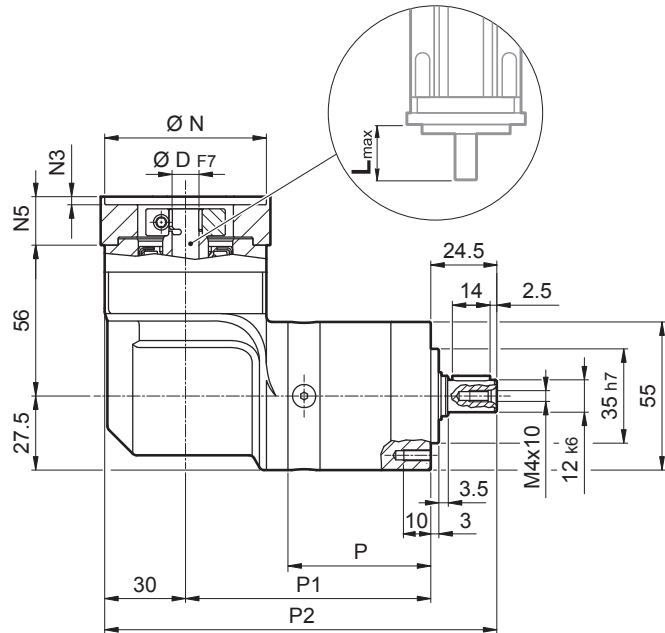
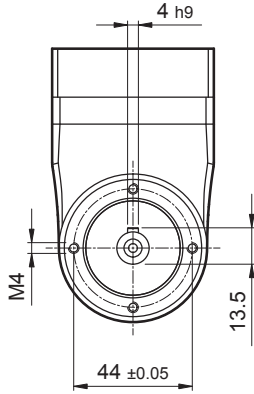




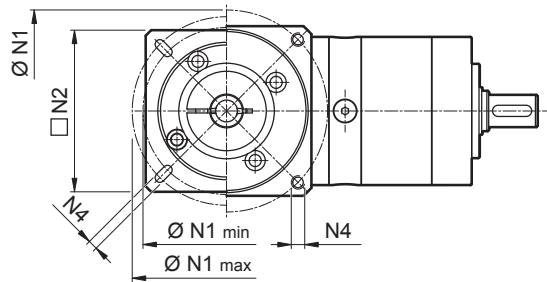
## 7.2 DIMENSIONS AND TECHNICAL SPECIFICATIONS

# LCK 050

## 25AH ... 80A



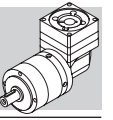
	P	P1	P2	kg
LCK 050 2	53	91	145.5	1.6
LCK 050 3	66.8	104.8	159.3	1.8



	D											N	N1		N2	N3	N4	N5	L <sub>max</sub>
													min	max					
25AH	6	6.35	7	8	9	9.52	-	-	-	-	-	25	39	56					
26AH	6	6.35	7	8	9	9.52	-	-	-	-	-	26	39	56					
28AH	6	6.35	7	8	9	9.52	-	-	-	-	-	28	39	56					
30AH	6	6.35	7	8	9	9.52	-	-	-	-	-	30	39	56					
32AH	6	6.35	7	8	9	9.52	-	-	-	-	-	32	39	56	65	3.5	4.5	25	25
34AH	6	6.35	7	8	9	9.52	-	-	-	-	-	34	40	56					
36AH	6	6.35	7	8	9	9.52	-	-	-	-	-	36	42	56					
39AH	6	6.35	7	8	9	9.52	-	-	-	-	-	39	45	56					
40AH	6	6.35	7	8	9	9.52	-	-	-	-	-	40	46	56					
38B	6	6.35	7	8	9	9.52	10	11	12	12.7	-	38.1	66.6	60	3	M4x10	18	25	
40B	6	6.35	7	8	9	9.52	10	11	12	12.7	-	40	63	60	3	M4x10	18	25	
50A	6	6.35	7	8	9	9.52	10	11	12	12.7	-	50	60	60	3	M4x10	18	25	
50B	6	6.35	7	8	9	9.52	10	11	12	12.7	14	50	65	60	3	M5x12	23	30	
50BH	6	6.35	7	8	9	9.52	10	11	12	12.7	14	50	65	65	3	5.5	25	32	
50C	6	6.35	7	8	9	9.52	10	11	12	12.7	14	50	70	60	3	M4x10	23	30	
55MH	6	6.35	7	8	9	9.52	10	11	12	12.7	-	55	80	65	2	5.5	16	23	
60A	6	6.35	7	8	9	9.52	10	11	12	12.7	-	60	75	63	3	M5x12	18	25	
60A1	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	75	63	3	M5x12	23	30	
60B	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	85	75	3	M5x12	23	30	
60C	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	90	75	3	M5x12	23	30	
70A	6	6.35	7	8	9	9.52	10	11	12	12.7	14	70	85	75	3	M6x15	23	30	
70B	6	6.35	7	8	9	9.52	10	11	12	12.7	14	70	90	75	3	M5x12	23	30	
73A	6	6.35	7	8	9	9.52	10	11	12	12.7	14	73	98.4	85	3	M5x12	25	32	
80A	6	6.35	7	8	9	9.52	10	11	12	12.7	14	80	100	85	3	M6x15	23	30	

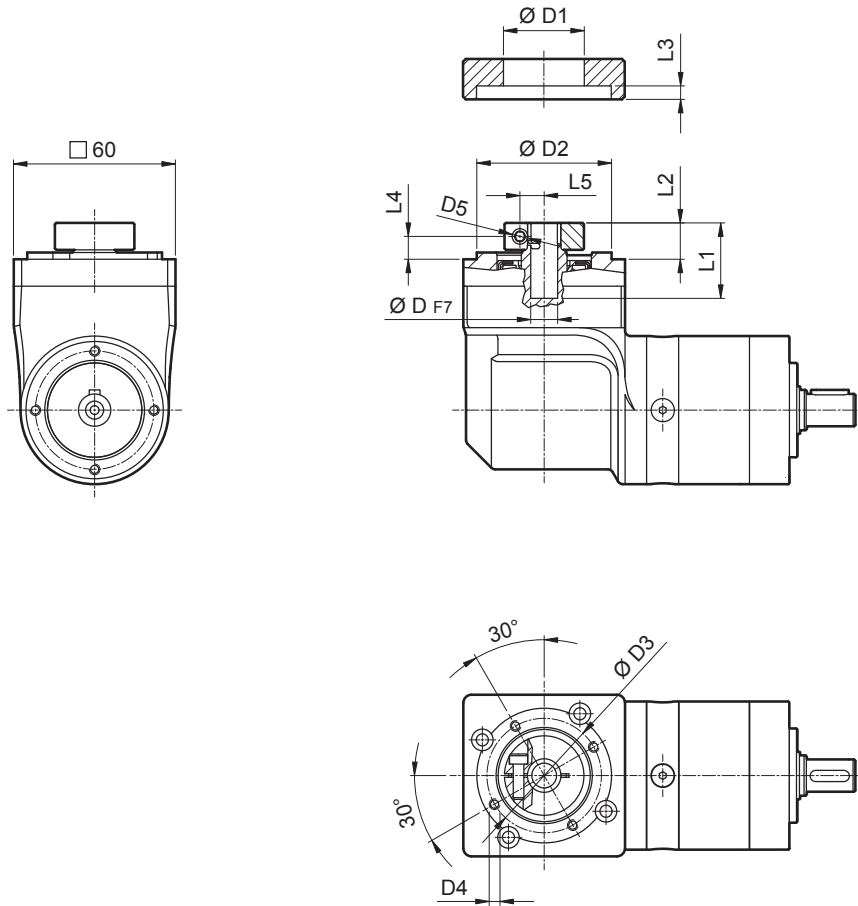
Please contact us for other motor adapters and input shaft bore.





# LCK 050

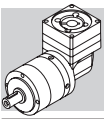
FM



D	D		D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
	6.35	7										
6	6.35	7	32.5	50	42.5	M4x8	M4	28	13.5	3	8.5	8
8	9	9.52	32.5	50	42.5	M4x8	M4	28	13.5	3	8.5	9
11	12	12.7	35.5	50	42.5	M4x8	M4	23	13.5	3	8.5	11
14			35.5	50	42.5	M4x8	M4	25	15.5	3	8.9	11.5

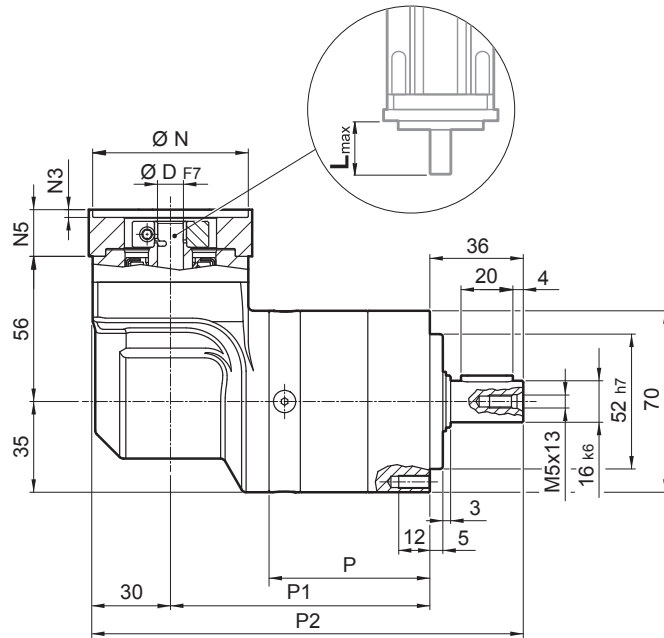
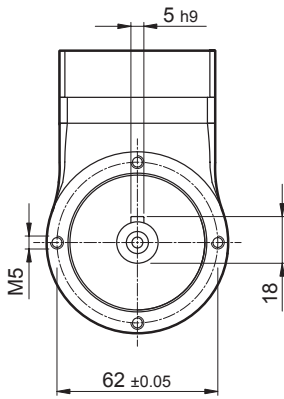
 i	M <sub>n 2</sub>	M <sub>a 2</sub>	M <sub>p 2</sub>	n <sub>1</sub>	n <sub>1 max</sub>	φ <sub>s</sub>	C <sub>t</sub>	R <sub>2 max</sub>	A <sub>2 max</sub>	η	J <sub>G</sub> [kgcm <sup>2</sup> ]	
	[Nm]	[Nm]	[Nm]	[min <sup>-1</sup> ]	[min <sup>-1</sup> ]	[arcmin]	$\left[ \frac{Nm}{arcmin} \right]$	[N]	[N]	%	6 ... 9.52	10 ... 14
LCK 050 2_6	10	16	28	2500	5000	6'	0.9	500	600	94	0.23	0.25
LCK 050 2_8	12	20	30	2500	5000	6'	0.9	500	600	94	0.23	0.24
LCK 050 2_10	12	20	30	2500	5000	6'	0.9	500	600	94	0.23	0.24
LCK 050 2_14	12	20	30	2500	5000	6'	0.9	500	600	94	0.23	0.24
LCK 050 3_24	12	20	30	2500	5000	8'	0.7	500	600	91	0.23	0.25
LCK 050 3_30	12	20	30	2500	5000	8'	0.7	500	600	91	0.23	0.25
LCK 050 3_50	12	20	30	2500	5000	8'	0.7	500	600	91	0.23	0.24
LCK 050 3_70	12	20	30	2500	5000	8'	0.7	500	600	91	0.23	0.24
LCK 050 3_90	12	20	30	2500	5000	8'	0.7	500	600	91	0.22	0.24

LCK

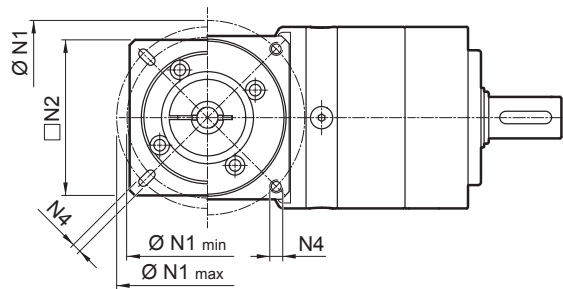


# LCK 070

## 25AH ... 80A

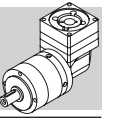


	P	P1	P2	kg
LCK 070 2	62	100	166	2.7
LCK 070 3	78.7	116.7	182.7	3.0



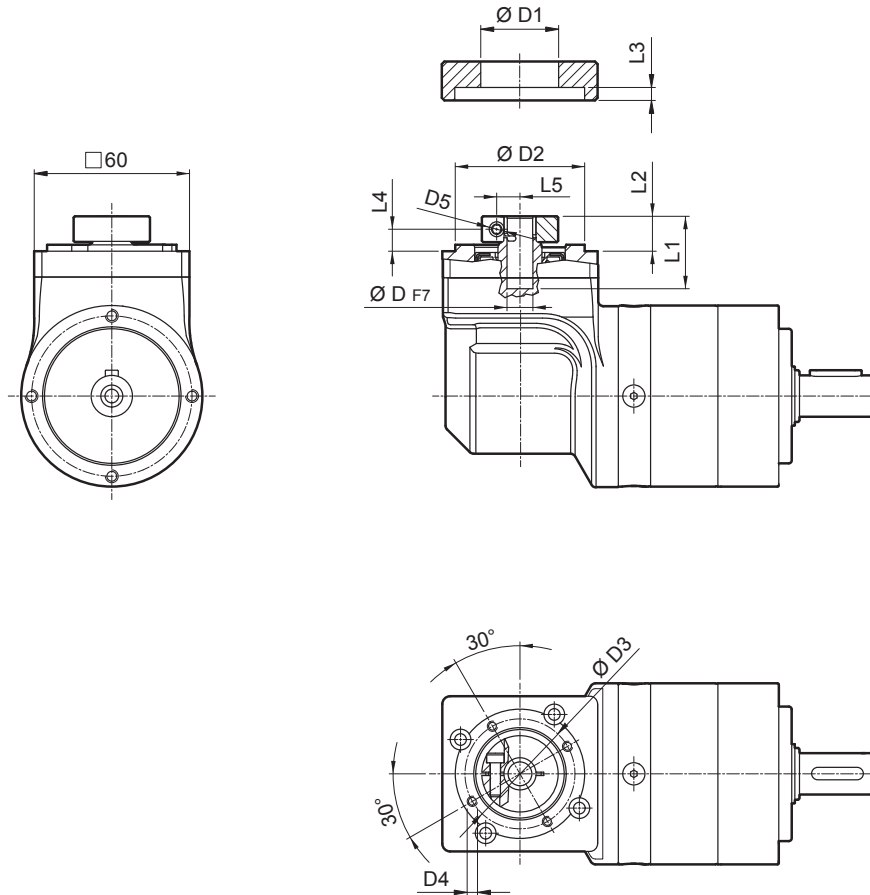
	D										N	N1		N2	N3	N4	N5	L <sub>max</sub>
	6	6.35	7	8	9	9.52	-	-	-	-		min	max					
25AH	6	6.35	7	8	9	9.52	-	-	-	-	25	39	56					
26AH	6	6.35	7	8	9	9.52	-	-	-	-	26	39	56					
28AH	6	6.35	7	8	9	9.52	-	-	-	-	28	39	56					
30AH	6	6.35	7	8	9	9.52	-	-	-	-	30	39	56					
32AH	6	6.35	7	8	9	9.52	-	-	-	-	32	39	56	65	3.5	4.5	25	25
34AH	6	6.35	7	8	9	9.52	-	-	-	-	34	40	56					
36AH	6	6.35	7	8	9	9.52	-	-	-	-	36	42	56					
39AH	6	6.35	7	8	9	9.52	-	-	-	-	39	45	56					
40AH	6	6.35	7	8	9	9.52	-	-	-	-	40	46	56					
38B	6	6.35	7	8	9	9.52	10	11	12	12.7	-	38.1	66.6	60	3	M4x10	18	25
40B	6	6.35	7	8	9	9.52	10	11	12	12.7	-	40	63	60	3	M4x10	18	25
50A	6	6.35	7	8	9	9.52	10	11	12	12.7	-	50	60	60	3	M4x10	18	25
50B	6	6.35	7	8	9	9.52	10	11	12	12.7	14	50	65	60	3	M5x12	23	30
50BH	6	6.35	7	8	9	9.52	10	11	12	12.7	14	50	65	65	3	5.5	25	32
50C	6	6.35	7	8	9	9.52	10	11	12	12.7	14	50	70	60	3	M4x10	23	30
55MH	6	6.35	7	8	9	9.52	10	11	12	12.7	-	55	80	65	2	5.5	16	23
60A	6	6.35	7	8	9	9.52	10	11	12	12.7	-	60	75	63	3	M5x12	18	25
60A1	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	75	63	3	M5x12	23	30
60B	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	85	75	3	M5x12	23	30
60C	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	90	75	3	M5x12	23	30
70A	6	6.35	7	8	9	9.52	10	11	12	12.7	14	70	85	75	3	M6x15	23	30
70B	6	6.35	7	8	9	9.52	10	11	12	12.7	14	70	90	75	3	M5x12	23	30
73A	6	6.35	7	8	9	9.52	10	11	12	12.7	14	73	98.4	85	3	M5x12	25	32
80A	6	6.35	7	8	9	9.52	10	11	12	12.7	14	80	100	85	3	M6x15	23	30

Please contact us for other motor adapters and input shaft bore.



# LCK 070

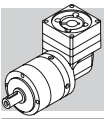
FM



D	D			D1	D2	2500 D3	D4	D5	L1	L2	L3	L4	L5
	6	8	11										
6	6.35	7		32.5	50	42.5	M4x8	M4	28	13.5	3	8.5	8
8	9	9.52	10	32.5	50	42.5	M4x8	M4	28	13.5	3	8.5	9
11	12	12.7		35.5	50	42.5	M4x8	M4	23	13.5	3	8.5	11
14				35.5	50	42.5	M4x8	M4	25	15.5	3	8.9	11.5

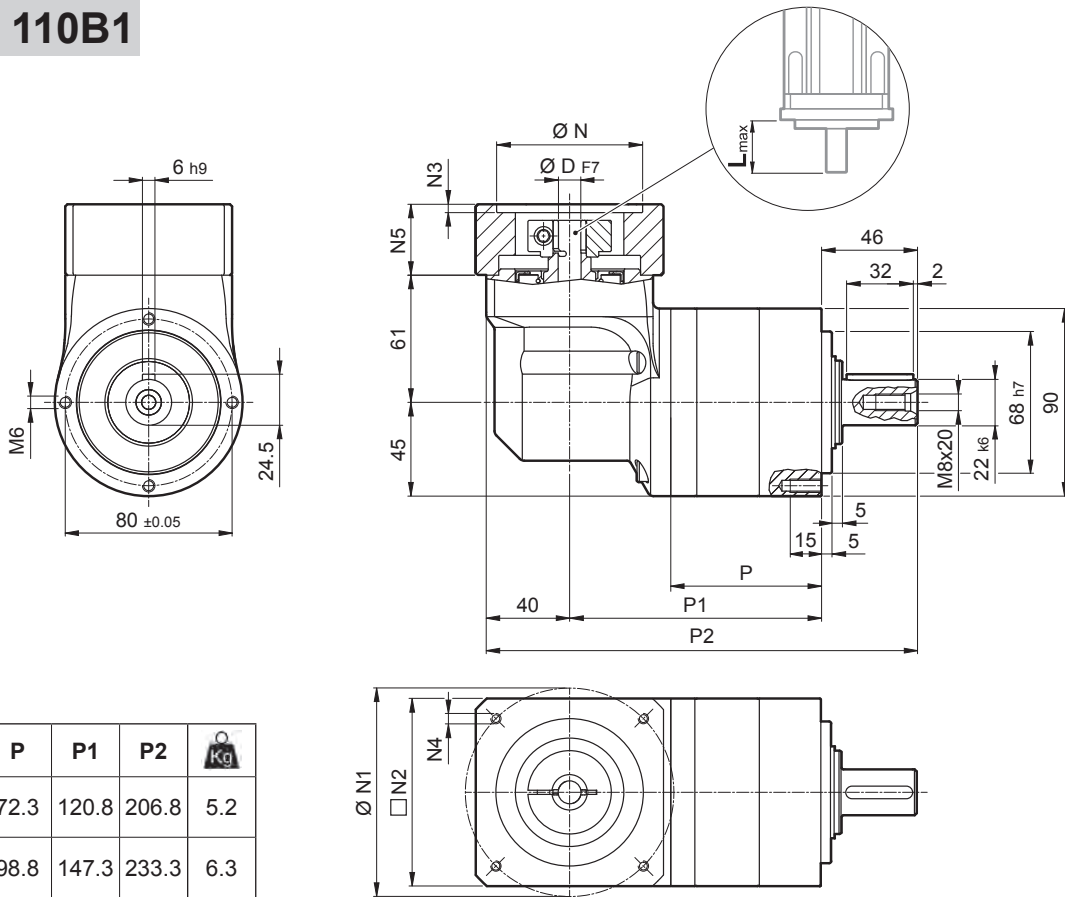
i	M <sub>n 2</sub> [Nm]	M <sub>a 2</sub> [Nm]	M <sub>p 2</sub> [Nm]	n <sub>1</sub> [min <sup>-1</sup> ]	n <sub>1 max</sub> [min <sup>-1</sup> ]	φ <sub>S</sub> [arcmin]	C <sub>t</sub> [ $\frac{Nm}{arcmin}$ ]	R <sub>2 max</sub> [N]	A <sub>2 max</sub> [N]	η %	J <sub>G</sub> [kgcm <sup>2</sup> ]	
											6 ... 9.52	10 ... 14
LCK 070 2_6	18	30	45	2500	5000	6'	2.8	1300	1400	94	0.25	0.26
LCK 070 2_8	25	35	60	2500	5000	6'	2.8	1300	1400	94	0.24	0.25
LCK 070 2_10	25	35	70	2500	5000	6'	2.8	1300	1400	94	0.23	0.25
LCK 070 2_14	25	35	70	2500	5000	6'	2.8	1300	1400	94	0.23	0.24
LCK 070 2_20	18	30	60	2500	5000	6'	2.8	1300	1400	94	0.23	0.24
LCK 070 3_24	25	35	70	2500	5000	8'	2.5	1300	1400	91	0.24	0.26
LCK 070 3_30	25	35	70	2500	5000	8'	2.5	1300	1400	91	0.24	0.26
LCK 070 3_50	25	35	70	2500	5000	8'	2.5	1300	1400	91	0.23	0.24
LCK 070 3_70	25	35	70	2500	5000	8'	2.5	1300	1400	91	0.23	0.24
LCK 070 3_80	25	35	70	2500	5000	8'	2.5	1300	1400	91	0.23	0.24
LCK 070 3_100	25	35	70	2500	5000	8'	2.5	1300	1400	91	0.23	0.24

LCK



# LCK 090

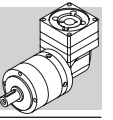
## 40B1 ... 110B1



	P	P1	P2	Kg
<b>LCK 090 2</b>	72.3	120.8	206.8	5.2
<b>LCK 090 3</b>	98.8	147.3	233.3	6.3

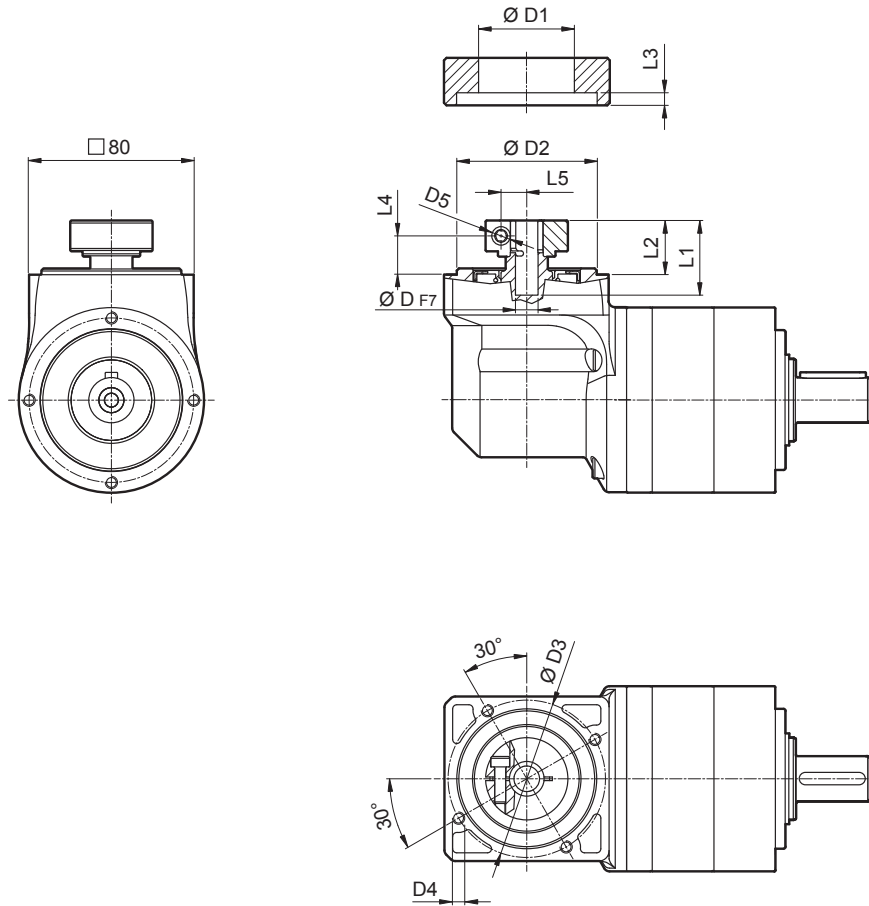
												N	N1	N2	N3	N4	N5	L <sub>max</sub>	
<b>40B1</b>	8	9	9.52	11	12	12.7	14	-	-	-	-	40	63	80	4	M4x10	34	40	
<b>45A</b>	8	9	9.52	11	12	12.7	-	-	-	-	-	45	63	80	4	M4x10	34	40	
<b>50B1</b>	8	9	9.52	11	12	12.7	14	-	-	-	-	50	65	80	4	M5x16	34	40	
<b>50BH1</b>	8	9	9.52	11	12	12.7	14	-	-	-	-	50	65	80	4	5.5	34	40	
<b>50C1</b>	8	9	9.52	11	12	12.7	14	-	-	-	-	50	70	80	4	M4x10	34	40	
<b>50D</b>	8	9	9.52	11	12	12.7	14	-	-	-	-	50	95	80	4	M6x10	34	40	
<b>55A</b>	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	55.5	125.7	105	4	M6x16	34	40
<b>60A2</b>	8	9	9.52	11	12	12.7	14	-	-	-	-	60	75	80	4	M5x16	34	40	
<b>60AH2</b>	8	9	9.52	11	12	12.7	14	-	-	-	-	60	75	90	4	5.5	34	40	
<b>60B1</b>	8	9	9.52	11	12	12.7	14	15.875	16	-	-	60	85	80	4	M5x16	34	40	
<b>60C1</b>	8	9	9.52	11	12	12.7	14	15.875	16	-	-	60	90	80	4	M5x16	34	40	
<b>70A1</b>	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	70	85	80	4	M6x20	34	40
<b>70AH1</b>	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	70	85	90	4	6.5	34	40
<b>70B1</b>	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	70	90	80	4	M5x16	34	40
<b>73A1</b>	8	9	9.52	11	12	12.7	14	-	-	-	-	73	98.4	85	4	M5x16	34	40	
<b>80A1</b>	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	80	100	90	4	M6x16	34	40
<b>95A</b>	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	95	115	100	4	M8x20	34	40
<b>95B</b>	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	95	130	115	4	M8x20	34	40
<b>110A</b>	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	110	130	115	4	M8x20	34	40
<b>110B</b>	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	110	145	120	6.5	M8x20	44	50
<b>110B1</b>	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	110	145	120	6.5	M8x20	54	60

Please contact us for other motor adapters and input shaft bore.



# LCK 090

FM

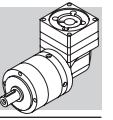


D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
8	9	9.52		38	68	76.5	M6x10	M6	36.3	26.3	9.5	18.8	10.5
11	12	12.7		43	68	76.5	M6x10	M6	36.3	26.3	9.5	18.8	12.5
14	15.875	16	17	48	68	76.5	M6x10	M6	36.3	26.3	9.5	18.8	14.5
19	19.05			51	68	76.5	M6x10	M6	36.3	26.3	9.5	18.8	16.5

 i	M <sub>n 2</sub>	M <sub>a 2</sub>	M <sub>p 2</sub>	n <sub>1</sub>	n <sub>1 max</sub>	φ <sub>S</sub>	C <sub>t</sub>	R <sub>2 max</sub>	A <sub>2 max</sub>	η	J <sub>G</sub> [kgcm <sup>2</sup> ]	
	[Nm]	[Nm]	[Nm]	[min <sup>-1</sup> ]	[min <sup>-1</sup> ]	[arcmin]	$\frac{Nm}{arcmin}$	[N]	[N]	%	8 ... 12.7	14 ... 19.05
LCK 090 2_6	37	63	90	2500	5000	6'	8	2200	1900	94	0.85	1.03
LCK 090 2_8	43	80	120	2500	5000	6'	8	2200	1900	94	0.79	0.98
LCK 090 2_10	43	80	150	2500	5000	6'	8	2200	1900	94	0.77	0.96
LCK 090 2_14	43	80	160	2500	5000	6'	8	2200	1900	94	0.75	0.94
LCK 090 2_20	37	70	150	2500	5000	6'	8	2200	1900	94	0.74	0.93
LCK 090 3_24	43	80	160	2500	5000	8'	7.8	2200	1900	91	0.81	1.00
LCK 090 3_30	43	80	160	2500	5000	8'	7.8	2200	1900	91	0.81	1.00
LCK 090 3_50	43	80	160	2500	5000	8'	7.8	2200	1900	91	0.76	0.94
LCK 090 3_70	43	80	160	2500	5000	8'	7.8	2200	1900	91	0.74	0.93
LCK 090 3_80	43	80	160	2500	5000	8'	7.8	2200	1900	91	0.74	0.93
LCK 090 3_100	43	80	160	2500	5000	8'	7.8	2200	1900	91	0.74	0.93

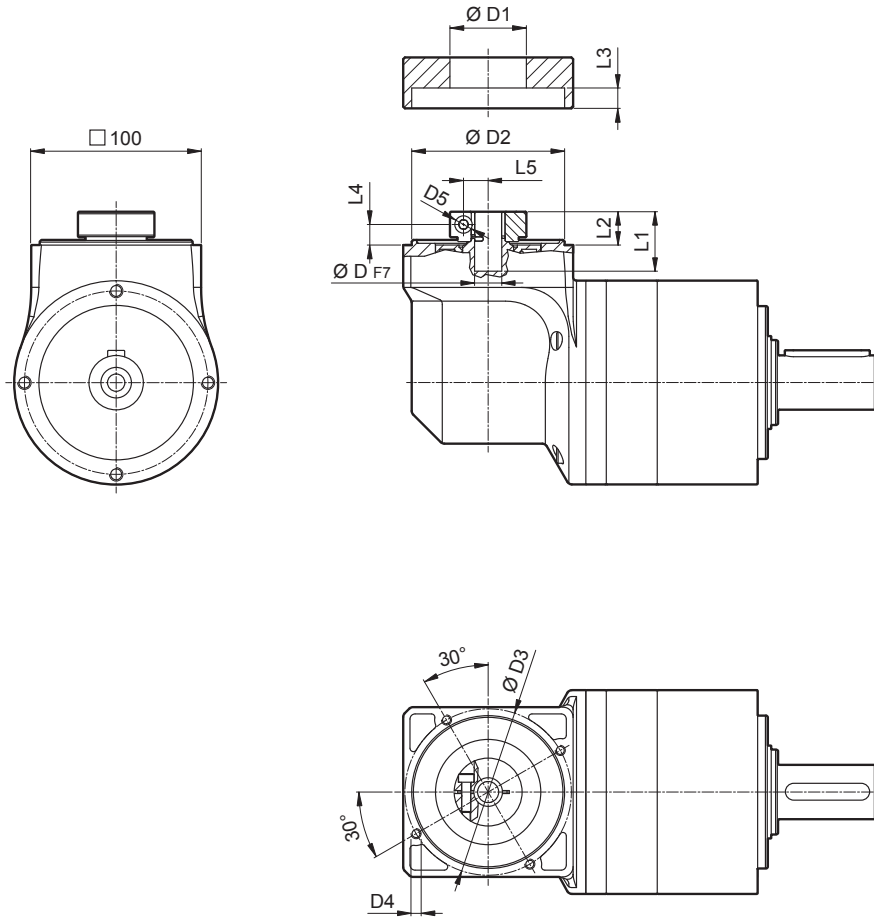
LCK





# LCK 120

FM

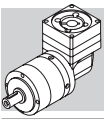


D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
11	12	12.7		43	90	98	M6x15	M6	35	19.5	7.6	12.1	12.5
14	15	15.875	16	48	90	98	M6x15	M6	35	19.5	7.6	12.1	14.5
19				51	90	98	M6x15	M6	35	19.5	7.6	12.1	16.5
22	24			56.5	90	98	M6x15	M6	37	21.5	7.6	12.1	19

 i	M <sub>n2</sub>	M <sub>a2</sub>	M <sub>p2</sub>	n <sub>1</sub>	n <sub>1 max</sub>	φ <sub>S</sub>	C <sub>t</sub>	R <sub>2 max</sub>	A <sub>2 max</sub>	η	J <sub>G</sub> [kgcm <sup>2</sup> ]		
	[Nm]	[Nm]	[Nm]	[min <sup>-1</sup> ]	[min <sup>-1</sup> ]	[arcmin]	$\frac{Nm}{arcmin}$	[N]	[N]	%	11 ... 12.7	14 ... 19	22 ; 24
LCK 120 2_6	95	156	225	2000	4500	6'	23.4	3500	3000	94	1.74	1.82	2.01
LCK 120 2_8	110	190	300	2000	4500	6'	23.4	3500	3000	94	1.52	1.60	1.79
LCK 120 2_10	110	190	360	2000	4500	6'	23.4	3500	3000	94	1.44	1.52	1.71
LCK 120 2_14	110	190	360	2000	4500	6'	23.4	3500	3000	94	1.37	1.45	1.63
LCK 120 2_20	95	160	300	2000	4500	6'	23.4	3500	3000	94	1.32	1.40	1.59
LCK 120 3_24	110	190	360	2000	4500	8'	22.9	3500	3000	91	1.64	1.72	1.90
LCK 120 3_30	110	190	360	2000	4500	8'	22.9	3500	3000	91	1.63	1.71	1.89
LCK 120 3_50	110	190	360	2000	4500	8'	22.9	3500	3000	91	1.40	1.48	1.67
LCK 120 3_70	110	190	360	2000	4500	8'	22.9	3500	3000	91	1.34	1.42	1.61
LCK 120 3_80	110	190	360	2000	4500	8'	22.9	3500	3000	91	1.31	1.39	1.58
LCK 120 3_100	110	190	360	2000	4500	8'	22.9	3500	3000	91	1.31	1.39	1.58

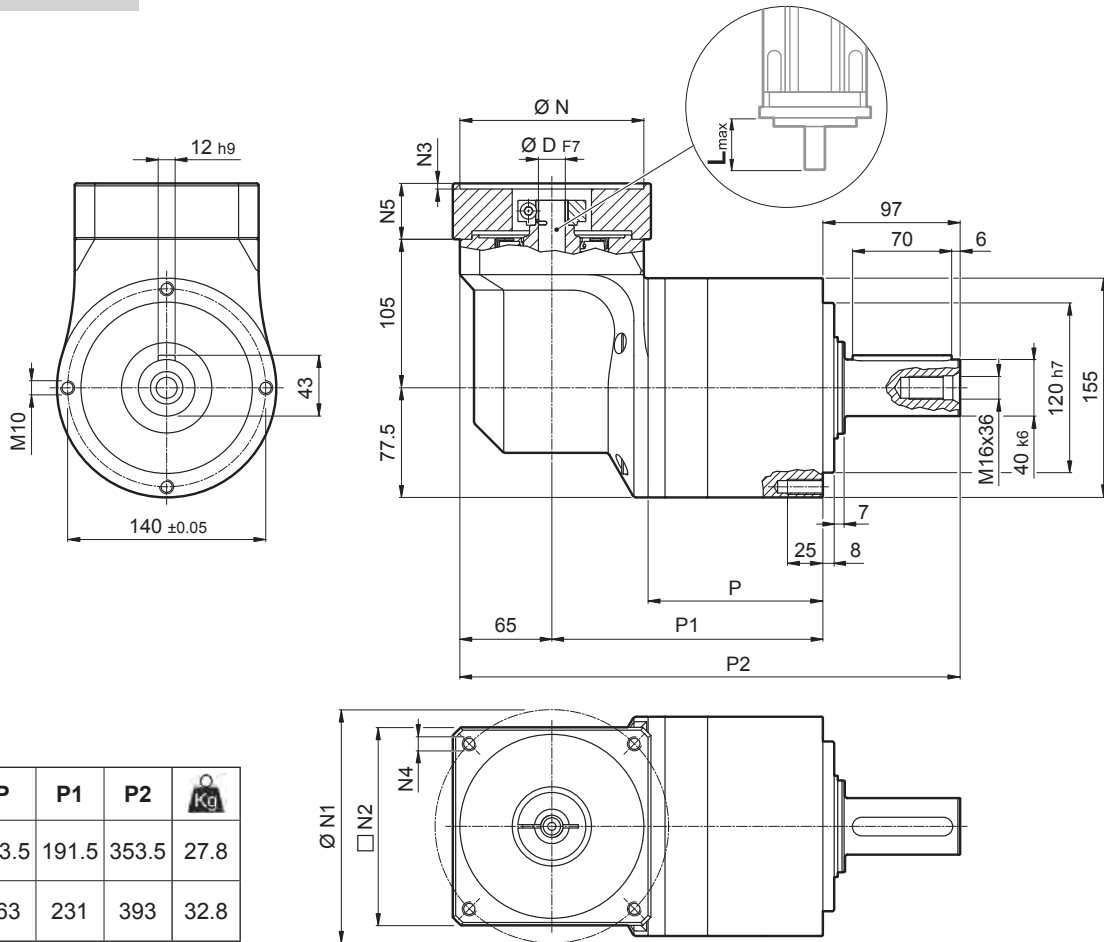
LCK







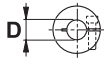
# LCK 155

## 55A1 ... 180A1

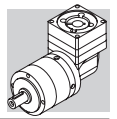


	P	P1	P2	
<b>LCK 155 2</b>	123.5	191.5	353.5	27.8
<b>LCK 155 3</b>	163	231	393	32.8

**LCK**

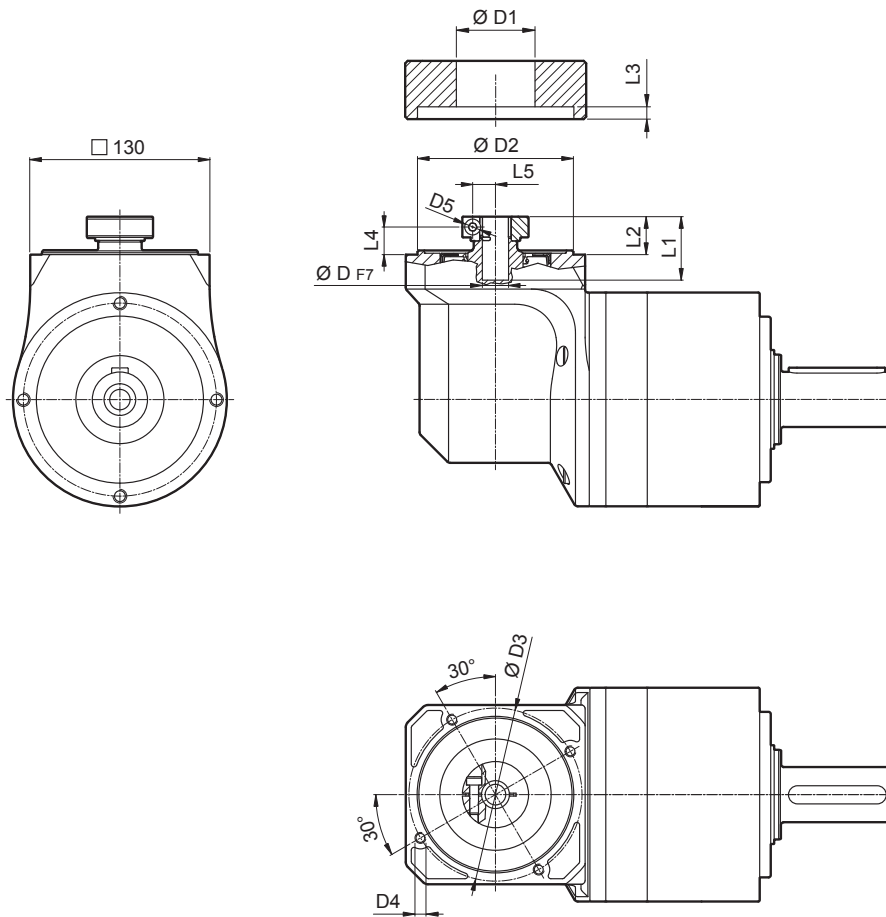
								N	N1	N2	N3	N4	N5	L <sub>max</sub>
<b>55A1</b>	14	15.875	16	19	-	-	-	55.5	125.7	130	4	M6x15	39.5	50
<b>80A2</b>	14	15.875	16	19	-	-	-	80	100	130	4	M6x15	39.5	50
<b>95A1</b>	14	15.875	16	19	22	24	-	95	115	130	4	M8x20	39.5	50
<b>110A1</b>	14	15.875	16	19	22	24	-	110	130	130	4	M8x20	39.5	50
<b>110B1</b>	14	15.875	16	19	22	24	-	110	145	130	6.5	M8x20	49.5	60
<b>114A</b>	14	15.875	16	19	22	24	28	114.3	200	170	5.5	M12x25	69.5	80
<b>130A</b>	14	15.875	16	19	22	24	-	130	165	140	4	M10x20	39.5	50
<b>130A1</b>	14	15.875	16	19	22	24	28	130	165	140	4	M10x20	49.5	60
<b>180A</b>	14	15.875	16	19	22	24	28	180	215	190	5.5	M14x25	49.5	60
<b>180A1</b>	14	15.875	16	19	22	24	28	180	215	190	5.5	M14x25	69.5	80


Please contact us for other motor adapters and input shaft bore.





# LCK 155

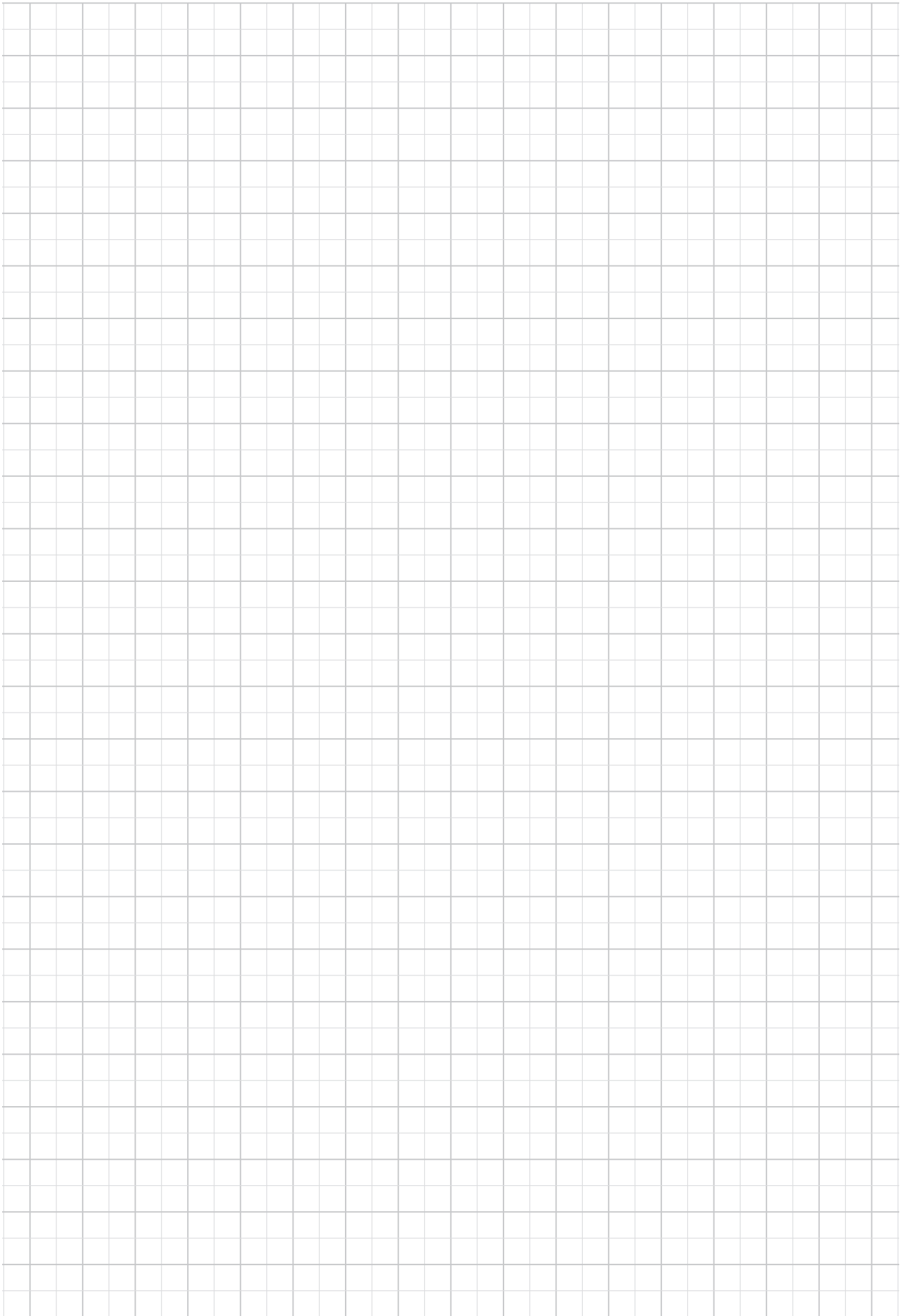
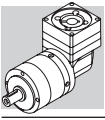
FM



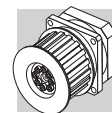
	D	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	
14	15.875	16	48	113	125.5	M8x15	M6	46	27.5	6	20	14.5
19			51	113	125.5	M8x15	M6	46	27.5	6	20	16.5
22	24		56.5	113	125.5	M8x15	M6	47.5	29	6	20	19
28			67	113	125.5	M8x15	M8	47.5	29	6	20	22.5

	i	M <sub>n2</sub> [Nm]	M <sub>a2</sub> [Nm]	M <sub>p2</sub> [Nm]	n <sub>1</sub> [min <sup>-1</sup> ]	n <sub>1 max</sub> [min <sup>-1</sup> ]	φ <sub>s</sub> [arcmin]	C <sub>t</sub> [ $\frac{Nm}{arcmin}$ ]	R <sub>2 max</sub> [N]	A <sub>2 max</sub> [N]	η %	J <sub>G</sub> [kgcm <sup>2</sup> ]		
													14 ... 19	22 ; 24
LCK 155 2_6		250	360	510	2000	4500	6'	40.7	6000	5000	94	7.94	8.13	8.53
LCK 155 2_8		300	450	680	2000	4500	6'	40.7	6000	5000	94	7.11	7.30	7.70
LCK 155 2_10		300	450	850	2000	4500	6'	40.7	6000	5000	94	6.78	6.96	7.36
LCK 155 2_14		300	450	900	2000	4500	6'	40.7	6000	5000	94	6.48	6.67	7.07
LCK 155 2_20		230	350	750	2000	4500	6'	40.7	6000	5000	94	6.31	6.49	6.90
LCK 155 3_24		300	450	900	2000	4500	8'	37.4	6000	5000	91	7.18	7.37	7.77
LCK 155 3_30		300	450	900	2000	4500	8'	37.4	6000	5000	91	7.14	7.33	7.73
LCK 155 3_50		300	450	900	2000	4500	8'	37.4	6000	5000	91	6.49	6.68	7.08
LCK 155 3_70		300	450	900	2000	4500	8'	37.4	6000	5000	91	6.33	6.52	6.92
LCK 155 3_80		300	450	700	2000	4500	8'	37.4	6000	5000	91	6.25	6.43	6.83
LCK 155 3_100		300	450	900	2000	4500	8'	37.4	6000	5000	91	6.24	6.43	6.83

LCK



**LCK**



# SL PLANETARY PRECISION GEARBOX FOR PULLEY DRIVES

SL - Planetary precision gearbox for pulley drives Series knows no rivals in compactness, efficiency and optimization for timing belt pulley drive systems.

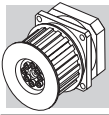
This series is the ideal complement to conveyor belt servo-drives and all other applications needing to combine high precision with ultra-compact size.



## Product Line Up:

- Higher Torque Density
- Higher Acceleration and Nominal Torques
- Higher Radial and Axial loading capacities
- Designed for Cyclic and Continuous duty
- Higher Torsional Stiffness
- Geometrical Backlash less than 6 arcmin
- Optionally available with a timing belt pulley.
- Quiet running
- Universal design allow any mounting orientation

SL

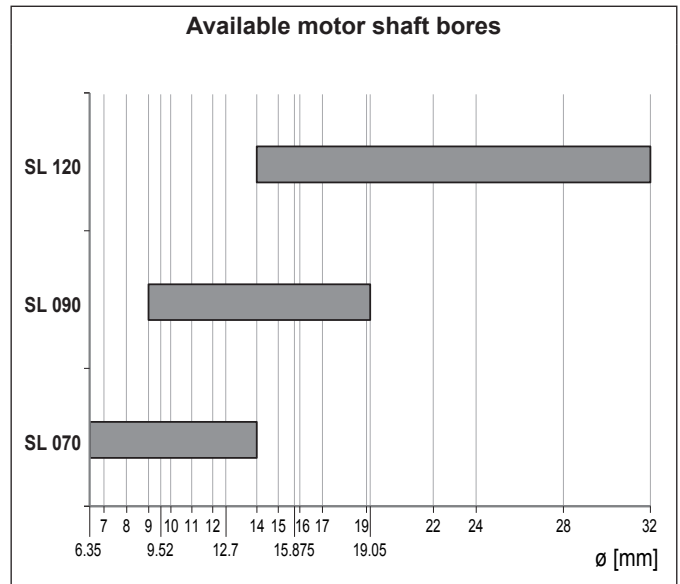
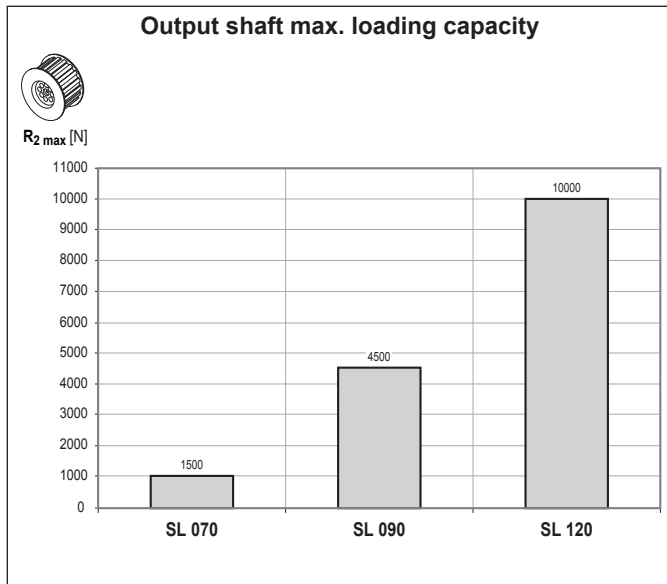


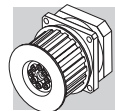
## 8 FEATURES OF SL SERIES

The new SL Series from Tecnoingranaggi knows no rivals in compactness, efficiency and optimisation for timing belt pulley drive systems. Reduced backlash units from the SL Series are the ideal complement to conveyor belt servo-drives and all other applications needing to combine high precision with ultra-compact size.

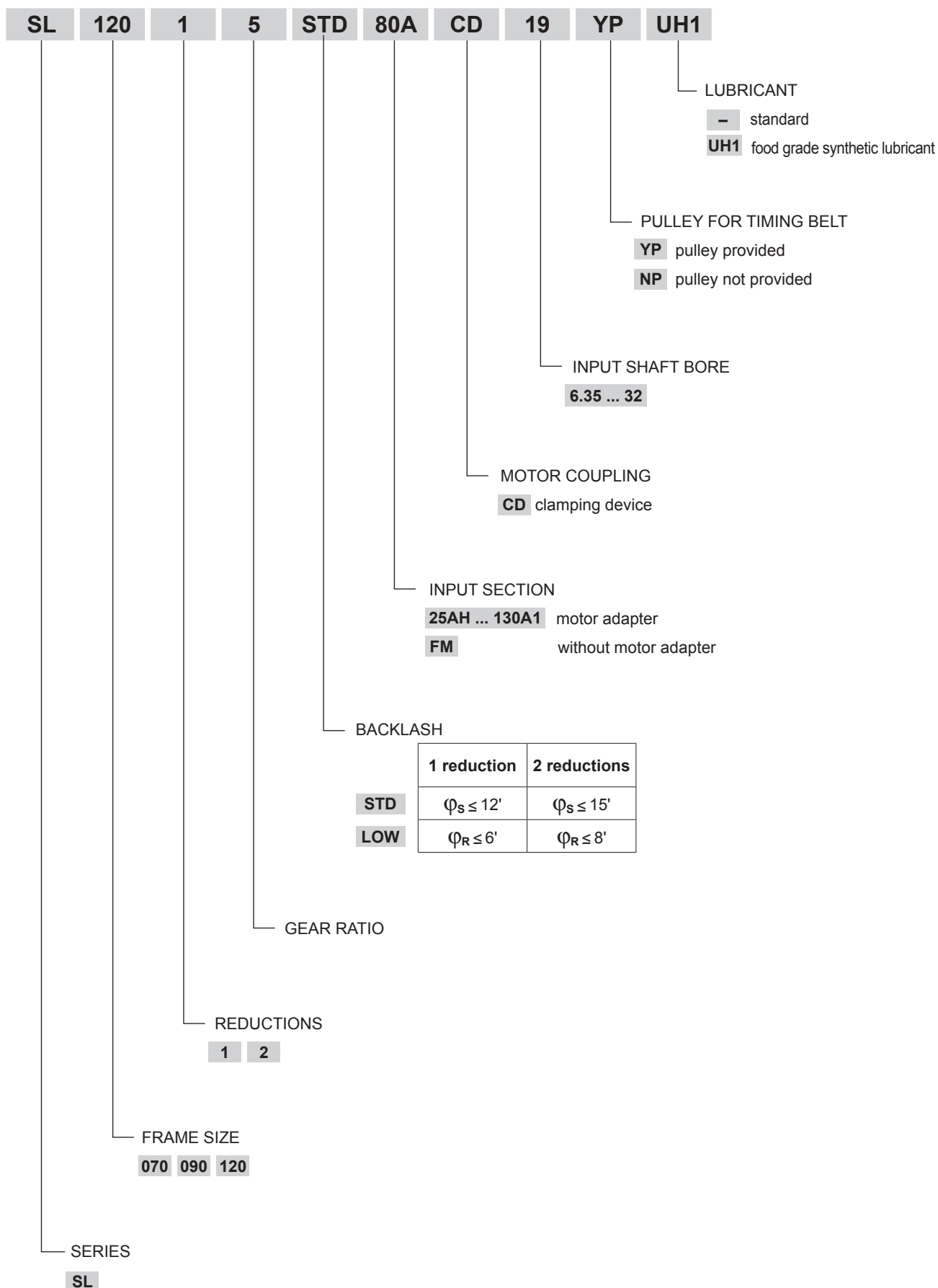
- Available with either standard (STD) or reduced (LOW) backlash:
  - 1-stage units: standard  $\varphi_S \leq 12'$ ; reduced  $\varphi_R \leq 6'$
  - 2-stage units: standard  $\varphi_S \leq 15'$ ; reduced  $\varphi_R \leq 8'$
- A high IP rating (IP64) provides inner parts with protection against the ingress of dust and liquids.
- Input section oil seals made from a FI or elastomer compound are supplied as standard.
- Noise pressure level  $L_p \leq 70$  dB(A). Conditions: distance 1 m; measured without load an input speed of  $n_1 = 3000 \text{ min}^{-1}$ ;  $i=10$ .
- Units are factory packed with synthetic grease to NLGI consistency class 00, in the absence of contamination the lubricant requires no periodical changes.
- Ambient temperature min  $-20^\circ\text{C}$ , max  $+30^\circ\text{C}$ . For temperature higher than  $30^\circ\text{C}$  please consider derating factor ft.
- Housing temperature must not exceed  $T_{\text{max}} = 90^\circ\text{C}$ .

		Distribution of nominal torque $M_{n2}$ [Nm]																				
[i]		3	4	5	7	9	10	12	15	16	20	25	28	30	35	36	40	45	50	70	81	100
SL 070		18	25	25	25	18	18	25	25	25	25	25	25	18	25	-	25	-	25	25	-	18
SL 090		37	43	43	43	37	37	43	43	43	43	43	43	37	43	-	43	-	43	43	-	37
SL 120		95	110	110	110	95	95	110	110	110	110	110	110	95	110	-	110	-	110	110	-	95

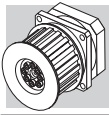




## 8.1 ORDERING CODE

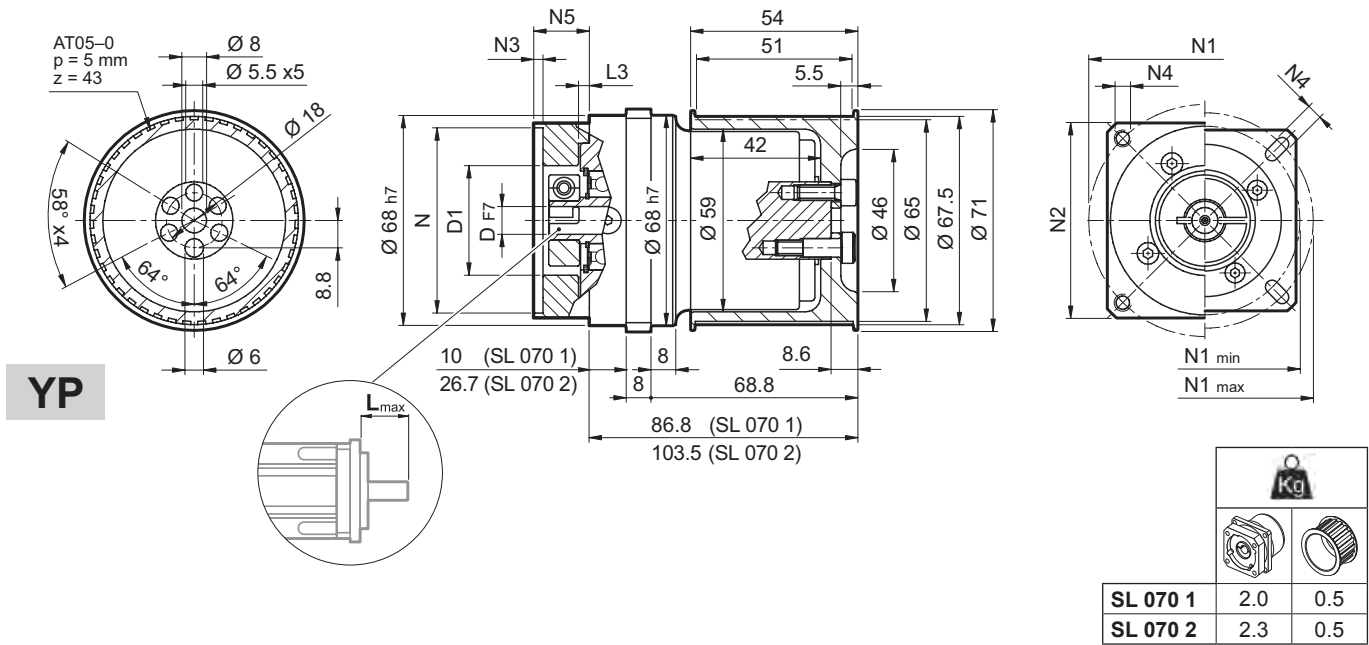


TS



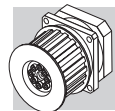
## 8.2 DIMENSIONS AND TECHNICAL SPECIFICATIONS

# SL 070

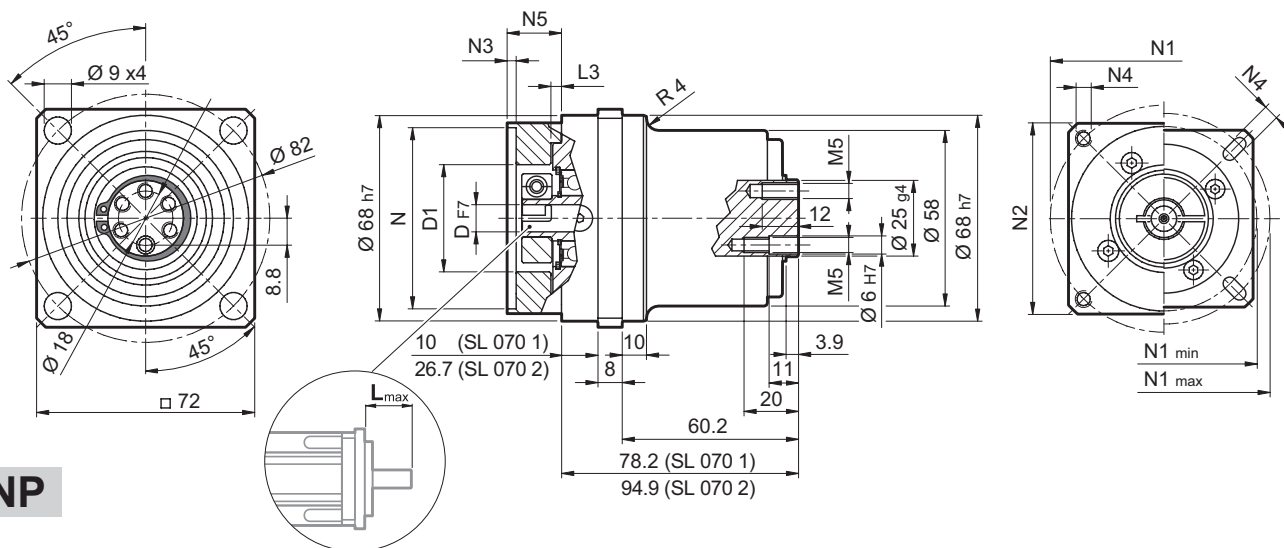


	D										N	N1		N2	N3	N4	N5	L <sub>max</sub>
												min	max					
25AH	6.35	7	8	9	9.52	-	-	-	-	-	25	39	56					
26AH	6.35	7	8	9	9.52	-	-	-	-	-	26	39	56					
28AH	6.35	7	8	9	9.52	-	-	-	-	-	28	39	56					
30AH	6.35	7	8	9	9.52	-	-	-	-	-	30	39	56					
32AH	6.35	7	8	9	9.52	-	-	-	-	-	32	39	56	65	3.5	4.5	25	25
34AH	6.35	7	8	9	9.52	-	-	-	-	-	34	40	56					
36AH	6.35	7	8	9	9.52	-	-	-	-	-	36	42	56					
39AH	6.35	7	8	9	9.52	-	-	-	-	-	39	45	56					
40AH	6.35	7	8	9	9.52	-	-	-	-	-	40	46	56					
38B	6.35	7	8	9	9.52	10	11	12	12.7	-	38.1	66.6	60	3	M4x10	18	25	
40B	6.35	7	8	9	9.52	10	11	12	12.7	-	40	63	60	3	M4x10	18	25	
50A	6.35	7	8	9	9.52	10	11	12	12.7	-	50	60	60	3	M4x10	18	25	
50B	6.35	7	8	9	9.52	10	11	12	12.7	14	50	65	60	3	M5x12	23	30	
50BH	6.35	7	8	9	9.52	10	11	12	12.7	14	50	65	65	3	5.5	25	32	
50C	6.35	7	8	9	9.52	10	11	12	12.7	14	50	70	60	3	M4x10	23	30	
55MH	6.35	7	8	9	9.52	10	11	12	12.7	-	55	80	65	2	5.5	16	23	
60A	6.35	7	8	9	9.52	10	11	12	12.7	-	60	75	63	3	M5x12	18	25	
60A1	6.35	7	8	9	9.52	10	11	12	12.7	14	60	75	63	3	M5x12	23	30	
60B	6.35	7	8	9	9.52	10	11	12	12.7	14	60	85	75	3	M5x12	23	30	
60C	6.35	7	8	9	9.52	10	11	12	12.7	14	60	90	75	3	M5x12	23	30	
70A	6.35	7	8	9	9.52	10	11	12	12.7	14	70	85	75	3	M6x15	23	30	
70B	6.35	7	8	9	9.52	10	11	12	12.7	14	70	90	75	3	M5x12	23	30	
73A	6.35	7	8	9	9.52	10	11	12	12.7	14	73	98.4	85	3	M5x12	25	32	
80A	6.35	7	8	9	9.52	10	11	12	12.7	14	80	100	85	3	M6x15	23	30	

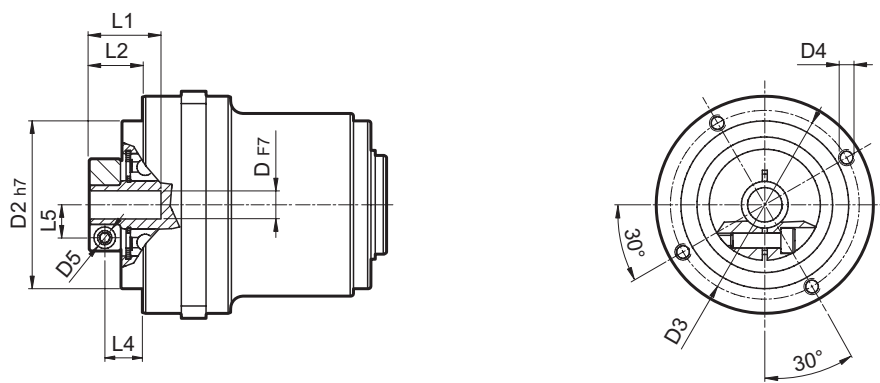
Please contact us for other motor adapters and input shaft bore.



# SL 070





**NP**



**FM**

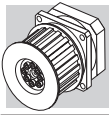
D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
6.35	7			32.5	50	42.5	M4x8	M4	21.7	13.2	3	8.2	8
8	9	9.52	10	32.5	50	42.5	M4x8	M4	21.7	13.2	3	8.2	9
11	12	12.7		35.5	50	42.5	M4x8	M4	22	13.5	3	8.5	11
14				35.5	50	42.5	M4x8	M4	25	17	3	10.2	11.5

 i	M <sub>n2</sub> [Nm]	M <sub>a2</sub> [Nm]	M <sub>p2</sub> [Nm]	n <sub>1</sub> [min <sup>-1</sup> ]	n <sub>1 max</sub> [min <sup>-1</sup> ]	φ <sub>S</sub> [arcmin]	φ <sub>R</sub>	C <sub>t</sub> [ $\frac{Nm}{arcmin}$ ]	R <sub>2 max</sub> * [N]	η %	J <sub>G</sub> [kgcm <sup>2</sup> ]		 3.86
											D	6 ... 9.52	
SL 070 1_3	18	30	60	3300	4000	12'	6'	6.5	3500	97	0.14	0.16	3.86
SL 070 1_4	25	35	70	3500	5000	12'	6'	6.5	3500	97	0.09	0.11	
SL 070 1_5	25	35	70	3500	5000	12'	6'	6.5	3500	97	0.07	0.09	
SL 070 1_7	25	35	70	3500	5000	12'	6'	6.5	3500	97	0.05	0.07	
SL 070 1_10	18	30	60	4000	6000	12'	6'	6.5	3500	97	0.04	0.06	
SL 070 2_9	18	30	60	3300	4000	15'	8'	6	3500	94	0.11	0.13	
SL 070 2_12	25	35	70	3300	4000	15'	8'	6	3500	94	0.10	0.13	
SL 070 2_15	25	35	70	3300	4000	15'	8'	6	3500	94	0.10	0.12	
SL 070 2_16	25	35	70	3500	5000	15'	8'	6	3500	94	0.07	0.09	
SL 070 2_20	25	35	70	3500	5000	15'	8'	6	3500	94	0.06	0.08	
SL 070 2_25	25	35	70	3500	5000	15'	8'	6	3500	94	0.06	0.08	
SL 070 2_28	25	35	70	4000	6000	15'	8'	6	3500	94	0.05	0.07	
SL 070 2_30	18	30	60	4000	6000	15'	8'	6	3500	94	0.04	0.06	
SL 070 2_35	25	35	70	4000	6000	15'	8'	6	3500	94	0.05	0.07	
SL 070 2_40	25	35	70	4000	6000	15'	8'	6	3500	94	0.04	0.06	
SL 070 2_50	25	35	70	4000	6000	15'	8'	6	3500	94	0.04	0.06	
SL 070 2_70	25	35	70	4000	6000	15'	8'	6	3500	94	0.04	0.06	
SL 070 2_100	18	30	60	4000	6000	15'	8'	6	3500	94	0.04	0.06	

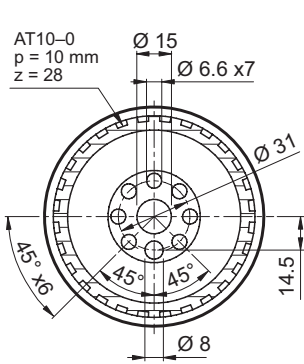
\* Applies for timing belt application

**SL**

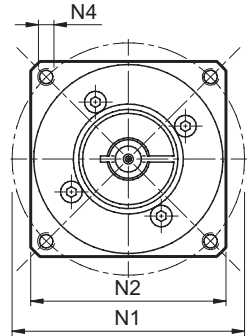
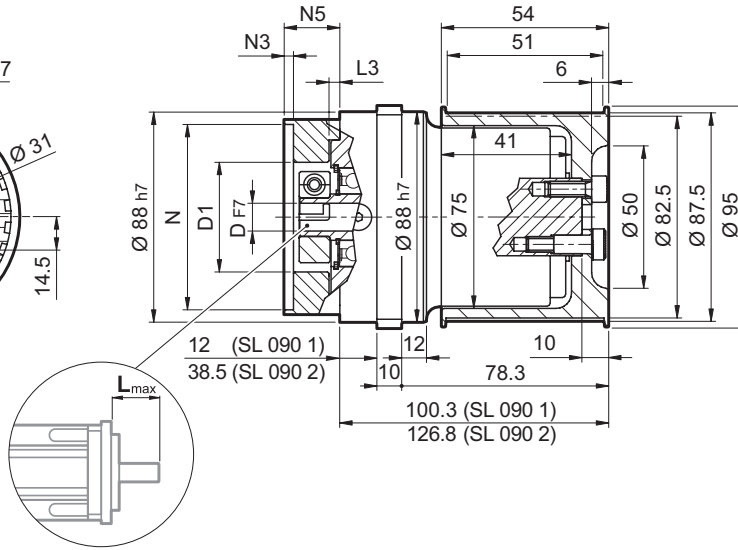








# SL 090



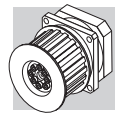
YP



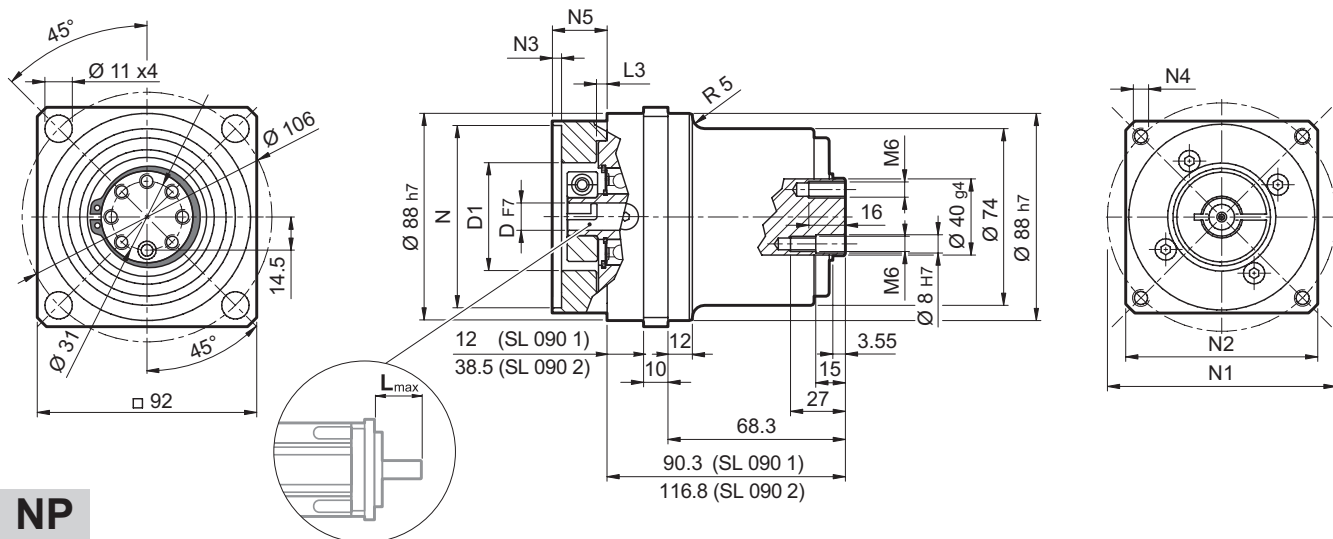
	Kg	
		
<b>SL 090 1</b>	3.6	0.8
<b>SL 090 2</b>	4.7	0.8

												N	N1	N2	N3	N4	N5	L <sub>max</sub>
40B1	9	9.52	11	12	12.7	14	-	-	-	-	-	40	63	80	4	M4x10	34	40
45A	9	9.52	11	12	12.7	-	-	-	-	-	-	45	63	80	4	M4x10	34	40
50B1	9	9.52	11	12	12.7	14	-	-	-	-	-	50	65	80	4	M5x16	34	40
50BH1	9	9.52	11	12	12.7	14	-	-	-	-	-	50	65	80	4	5.5	34	40
50C1	9	9.52	11	12	12.7	14	-	-	-	-	-	50	70	80	4	M4x10	34	40
50D	9	9.52	11	12	12.7	14	-	-	-	-	-	50	95	80	4	M6x10	34	40
55A	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	55.5	125.7	105	4	M6x16	34	40
60A2	9	9.52	11	12	12.7	14	-	-	-	-	-	60	75	80	4	M5x16	34	40
60AH2	9	9.52	11	12	12.7	14	-	-	-	-	-	60	75	90	4	5.5	34	40
60B1	9	9.52	11	12	12.7	14	15.875	16	-	-	-	60	85	80	4	M5x16	34	40
60C1	9	9.52	11	12	12.7	14	15.875	16	-	-	-	60	90	80	4	M5x16	34	40
70A1	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	70	85	80	4	M6x20	34	40
70AH1	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	70	85	90	4	6.5	34	40
70B1	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	70	90	80	4	M5x16	34	40
73A1	9	9.52	11	12	12.7	14	-	-	-	-	-	73	98.4	85	4	M5x16	34	40
80A1	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	80	100	90	4	M6x16	34	40
95A	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	95	115	100	4	M8x20	34	40
95B	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	95	130	115	4	M8x20	34	40
110A	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	110	130	115	4	M8x20	34	40
110B	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	110	145	120	6.5	M8x20	44	50
110B1	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	110	145	120	6.5	M8x20	54	60

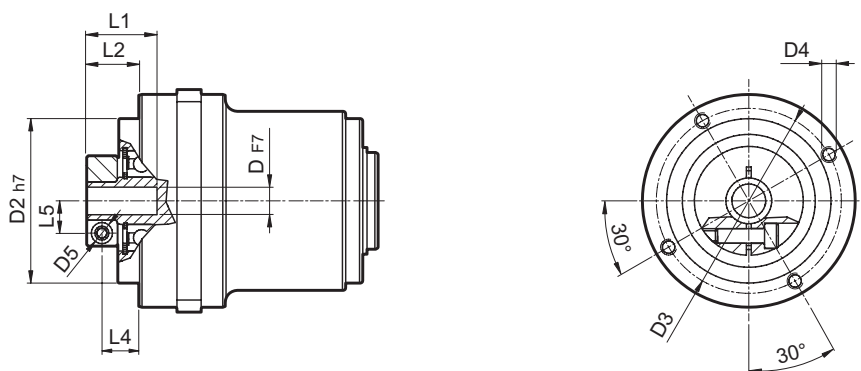
Please contact us for other motor adapters and input shaft bore.



# SL 090



**NP**

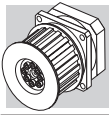


**FM**

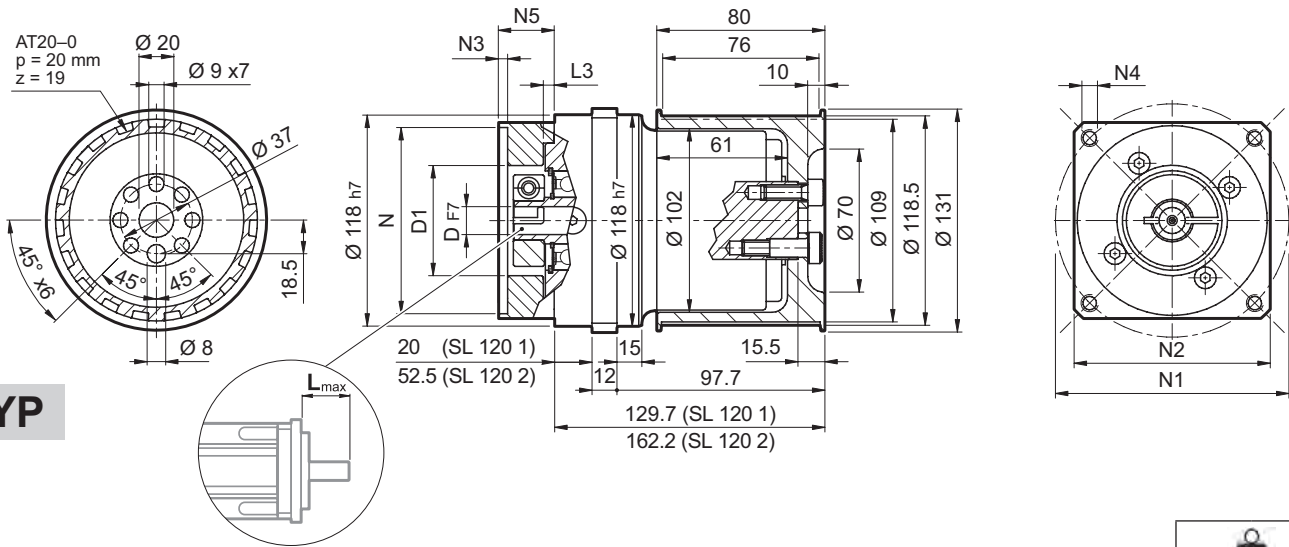
D		D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
9	9.52	38	68	76.5	M6x10	M6	34	26.8	9.5	18.8	10.5
11	12	52	68	76.5	M6x10	M6	34	26.8	9.5	18.8	12.5
14	15.875	48	68	76.5	M6x10	M6	34	26.8	9.5	18.8	14.5
19	19.05	51	68	76.5	M6x10	M6	34	26.8	9.5	18.8	16.5

i	$M_{n2}$ [Nm]	$M_{a2}$ [Nm]	$M_{p2}$ [Nm]	$n_1$ [min <sup>-1</sup> ]	$n_{1 max}$ [min <sup>-1</sup> ]	$\varphi_s$ [arcmin]	$\varphi_R$	$C_t$ [ $\frac{Nm}{arcmin}$ ]	$R_{2 max}^*$ [N]	$\eta$ %	$J_G$ [kgcm <sup>2</sup> ]		10.95
											D	D	
SL 090 1_3	37	70	150	2900	3500	12'	6'	12	4500	97	0.72	0.81	10.95
SL 090 1_4	43	80	160	3100	4500	12'	6'	12	4500	97	0.49	0.58	
SL 090 1_5	43	80	160	3200	4500	12'	6'	12	4500	97	0.39	0.48	
SL 090 1_7	43	80	160	4000	6000	12'	6'	12	4500	97	0.31	0.40	
SL 090 1_10	37	70	150	4000	6000	12'	6'	12	4500	97	0.27	0.35	
SL 090 2_9	37	70	150	2900	3500	15'	8'	11.5	4500	94	0.47	0.61	
SL 090 2_12	43	80	160	2900	3500	15'	8'	11.5	4500	94	0.44	0.58	
SL 090 2_15	43	80	160	2900	3500	15'	8'	11.5	4500	94	0.43	0.57	
SL 090 2_16	43	80	160	3100	4500	15'	8'	11.5	4500	94	0.31	0.45	
SL 090 2_20	43	80	160	3200	4500	15'	8'	11.5	4500	94	0.26	0.40	
SL 090 2_25	43	80	160	3200	4500	15'	8'	11.5	4500	94	0.26	0.40	
SL 090 2_28	43	80	160	4000	6000	15'	8'	11.5	4500	94	0.22	0.36	
SL 090 2_30	37	70	150	4000	6000	15'	8'	11.5	4500	94	0.20	0.34	
SL 090 2_35	43	80	160	4000	6000	15'	8'	11.5	4500	94	0.22	0.36	
SL 090 2_40	43	80	160	4000	6000	15'	8'	11.5	4500	94	0.20	0.34	
SL 090 2_50	43	80	160	4000	6000	15'	8'	11.5	4500	94	0.20	0.34	
SL 090 2_70	43	80	160	4000	6000	15'	8'	11.5	4500	94	0.20	0.34	
SL 090 2_100	37	70	150	4000	6000	15'	8'	11.5	4500	94	0.19	0.34	

\* Applies for timing belt application



# SL 120



YP

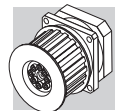
	Kg	
	8.4	2.6
	10.9	2.6

<b>SL 120 1</b>	8.4	2.6
<b>SL 120 2</b>	10.9	2.6

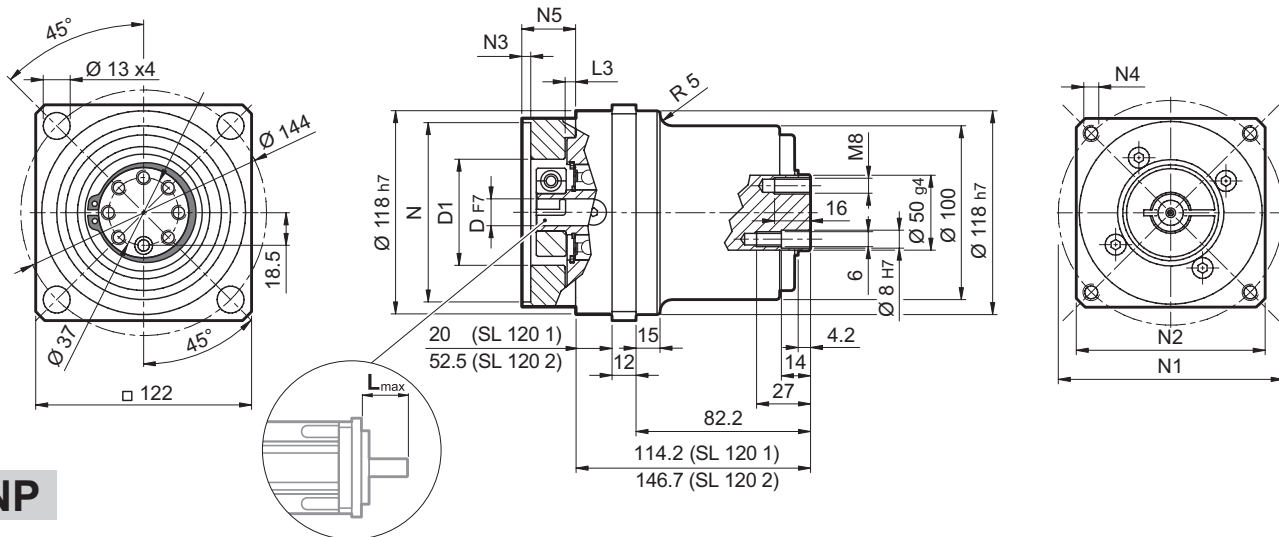
SL

									N	N1	N2	N3	N4	N5	L <sub>max</sub>
<b>50D</b>	14	15	15.875	16	19	-	-	-	50	95	100	5	M6x14	28	40
<b>55A</b>	14	15	15.875	16	19	-	-	-	55.5	125.7	105	5	M6x16	28	40
<b>60A2</b>	14	15	15.875	16	19	-	-	-	60	75	100	5	M5x14	28	40
<b>60AH2</b>	14	15	15.875	16	19	-	-	-	60	75	100	5	6.5	33	40
<b>60B1</b>	14	15	15.875	16	19	-	-	-	60	85	100	6.5	M5x14	28	40
<b>70A1</b>	14	15	15.875	16	19	-	-	-	70	85	100	5	M6x14	28	40
<b>70AH1</b>	14	15	15.875	16	19	-	-	-	70	85	100	5	6	33	40
<b>70B1</b>	14	15	15.875	16	19	-	-	-	70	90	100	5	M5x12	28	40
<b>80A1</b>	14	15	15.875	16	19	-	-	-	80	100	100	5	M6x16	28	40
<b>80AH1</b>	14	15	15.875	16	19	-	-	-	80	100	100	5	6.5	28	40
<b>95A</b>	14	15	15.875	16	19	-	-	-	95	115	100	5	M8x18	28	40
<b>95A1</b>	14	15	15.875	16	19	22	24	-	95	115	100	5	M8x18	38	50
<b>95B</b>	14	15	15.875	16	19	-	-	-	95	130	115	5	M8x18	28	40
<b>110A</b>	14	15	15.875	16	19	-	-	-	110	130	115	5	M8x18	28	40
<b>110A1</b>	14	15	15.875	16	19	22	24	-	110	130	115	6.5	M8x20	38	50
<b>110B</b>	14	15	15.875	16	19	22	24	-	110	145	120	6.5	M8x20	38	50
<b>110B1</b>	14	15	15.875	16	19	22	24	28	110	145	120	6.5	M8x20	48	60
<b>130A</b>	14	15	15.875	16	19	22	24	-	130	165	140	6.5	M10x20	38	50
<b>130A1</b>	14	15	15.875	16	19	22	24	28	130	165	140	6.5	M10x25	48	60

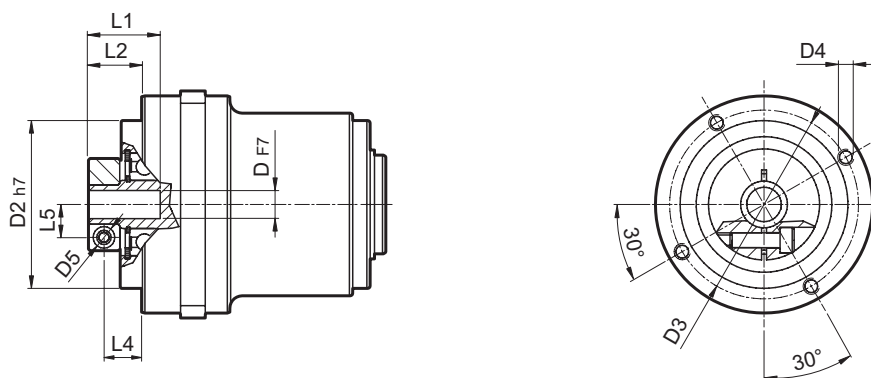
Please contact us for other motor adapters and input shaft bore.



# SL 120



**NP**

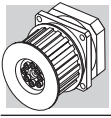


**FM**

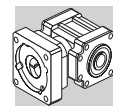
				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
14	15	15.875	16	48	90	98	M6x15	M6	33.5	20	7.6	12.5	14.5
19				51	90	98	M6x15	M6	33.5	20	7.6	12.5	16.5
22	24			56.5	90	98	M6x15	M6	36.5	23	7.6	14	19
28				70	90	98	M6x15	M8	36.5	23	7.6	14	22.5
32				71	90	98	M6x15	M8	38	24.5	7.6	15.5	24.5

	i	M <sub>n2</sub> [Nm]	M <sub>a2</sub> [Nm]	M <sub>p2</sub> [Nm]	n <sub>1</sub> [min <sup>-1</sup> ]	n <sub>1 max</sub> [min <sup>-1</sup> ]	φ <sub>S</sub> [arcmin]	φ <sub>R</sub>	C <sub>t</sub> [ $\frac{Nm}{arcmin}$ ]	R <sub>2 max</sub> * [N]	η %	J <sub>G</sub> [kgcm <sup>2</sup> ]			
												14 ... 19	22 ; 24	28 ; 32	
SL 120 1_3	95	160	300	2500	3500	12'	6'	45	10000	97	2.18	2.81	3.25	50.62	
SL 120 1_4	110	190	360	2800	4500	12'	6'	45	10000	97	1.30	1.93	2.37		
SL 120 1_5	110	190	360	3000	4500	12'	6'	45	10000	97	0.96	1.59	2.03		
SL 120 1_7	110	190	360	3500	4500	12'	6'	45	10000	97	0.66	1.28	1.72		
SL 120 1_10	95	160	300	3500	5000	12'	6'	45	10000	97	0.49	1.11	1.55		
SL 120 2_9	95	160	300	2500	3500	15'	8'	40	10000	94	1.61	2.20	2.57		
SL 120 2_12	110	190	360	2500	3500	15'	8'	40	10000	94	1.51	2.10	2.47		
SL 120 2_15	110	190	360	2500	3500	15'	8'	40	10000	94	1.47	2.06	2.43		
SL 120 2_16	110	190	360	2800	4500	15'	8'	40	10000	94	0.92	1.52	1.88		
SL 120 2_20	110	190	360	3000	4500	15'	8'	40	10000	94	0.90	1.50	1.86		
SL 120 2_25	110	190	360	3000	4500	15'	8'	40	10000	94	0.71	1.30	1.67		
SL 120 2_28	110	190	360	3500	5000	15'	8'	40	10000	94	0.54	1.13	1.50		
SL 120 2_30	95	160	300	3500	5000	15'	8'	40	10000	94	0.44	1.04	1.40		
SL 120 2_35	110	190	360	3500	5000	15'	8'	40	10000	94	0.53	1.13	1.49		
SL 120 2_40	110	190	360	3500	5000	15'	8'	40	10000	94	0.43	1.03	1.39		
SL 120 2_50	110	190	360	3500	5000	15'	8'	40	10000	94	0.43	1.02	1.39		
SL 120 2_70	110	190	360	3500	5000	15'	8'	40	10000	94	0.42	1.02	1.38		
SL 120 2_100	95	160	300	3500	5000	15'	8'	40	10000	94	0.42	1.02	1.38		

\* Applies for timing belt application



SL

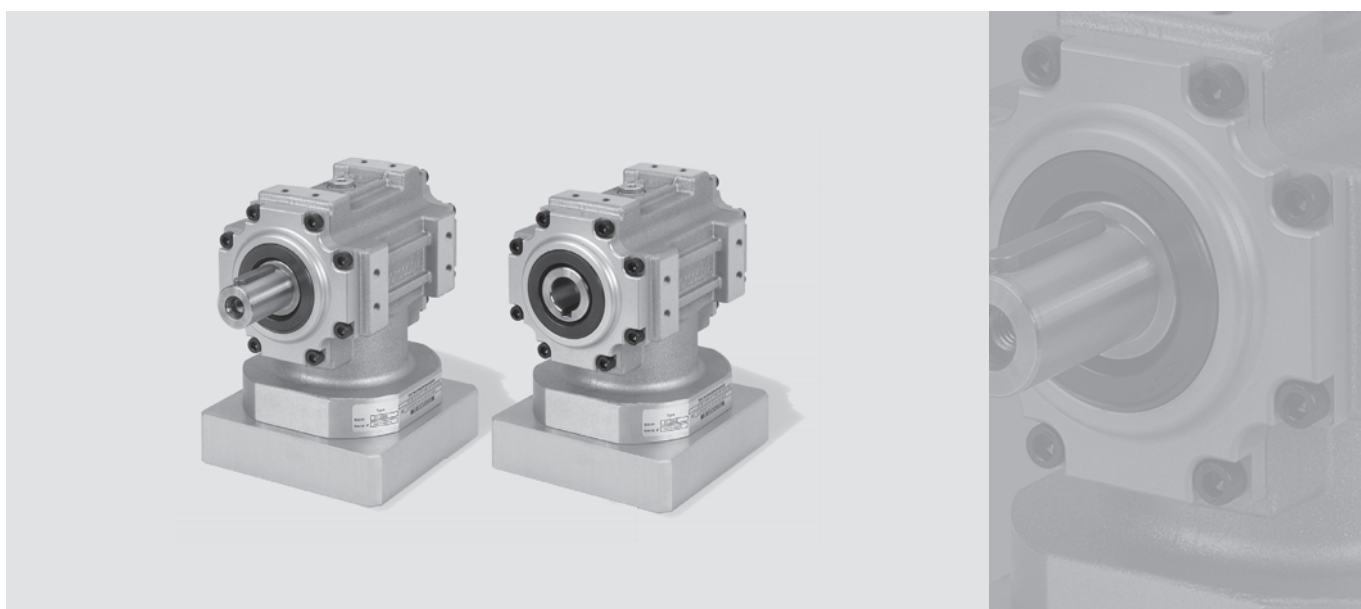


# KR

## PLANETARY PRECISION RIGHT ANGLE GEARBOX

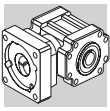
The flexible, efficient economical solution to applications calling for space saving right angle drives with minimal backlash.

Available in different configurations with numerous input and output configuration.



### Product Line Up:

- Best combination of dynamics, compactness and precision
- Designed for Cyclic and Continuous duty
- Good Torsional Stiffness
- Geometrical Backlash less than 8 arcmin



## 9 FEATURES OF KR SERIES

Bevel helical units type KR, manufactured under the most stringent quality specifications, are designed for dynamic and accurate applications where light weight and space effectiveness are a factor.

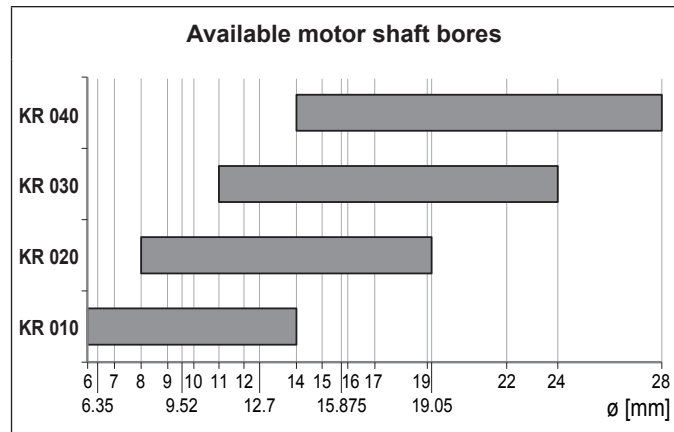
Many options can be selected from the catalogue as far as motor adapters and output shaft configurations that facilitate the installation on the driven equipment.

- Available in one only backlash option ( $\varphi_s \leq 8'$ )
- Single reduction: ratios  $i = 1, 2, 5$
- Radial ball bearings (SB) are of standard supply, while taper roller bearings (HB) can be optionally specified for particularly demanding loading conditions
- Degree of protection IP65
- Oil seals from fluoroelastomer compound as standard
- Noise pressure level  $L_P \leq 70$  dB(A). Conditions: distance 1 m; measured without load an input speed of  $n_1 = 3000$  min<sup>-1</sup>
- Lubrication optimized for the type of duty specified when ordering, in the absence of contamination the lubricant requires no periodical changes.

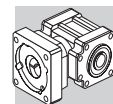
duty	KR 010 ... KR 040
<b>S1</b> (continuous)	Synthetic oil viscosity ISO VG 220
<b>S5</b> (intermittent)	NLGI grease consistency 00

- Ambient temperature min -20°C, max +30°C. For temperature higher than 30°C please consider derating factor  $f_t$ .
- Housing temperature must not exceed  $T_{max} = 90^\circ\text{C}$ .

Distribution of nominal torque		$M_{n2}$ [Nm]		
	[i]	1	2	5
<b>KR 010</b>		10	7	3
<b>KR 020</b>		24	15	10
<b>KR 030</b>		55	37	22
<b>KR 040</b>		120	85	45

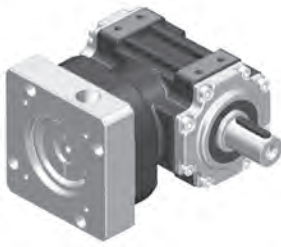
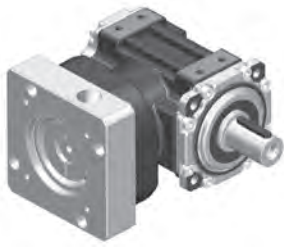
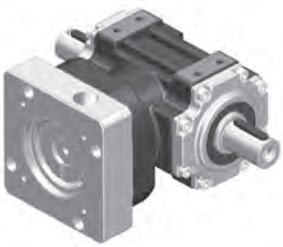
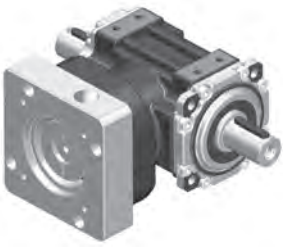




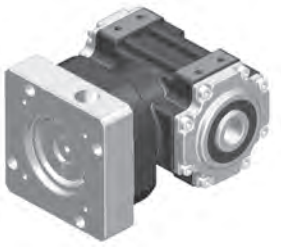
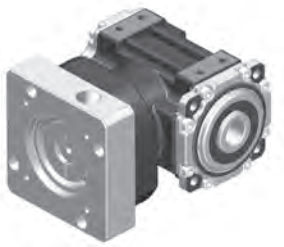




## 9.1 VERSIONS

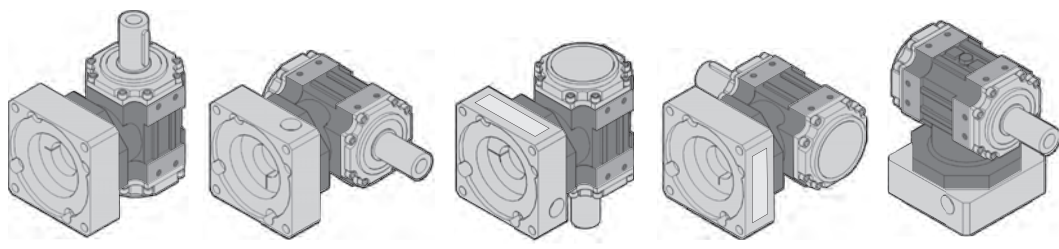
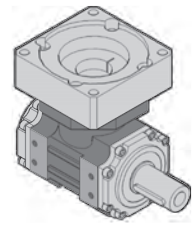
### Parallel shaft

LP	LPF	LD	LDF
			
single extension	single extension + flange	double extension	double extension + flange

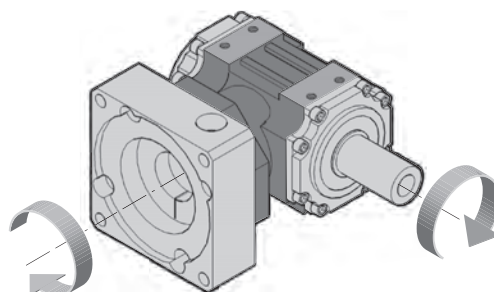
### Hollow shaft

H	HF	S	SF
			
keyed (KR 030...KR 040)	keyed shaft + flange (KR 030...KR 040)	with shrink disc	with shrink disc + flange

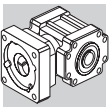
## 9.2 MOUNTING POSITIONS

U	VA
	

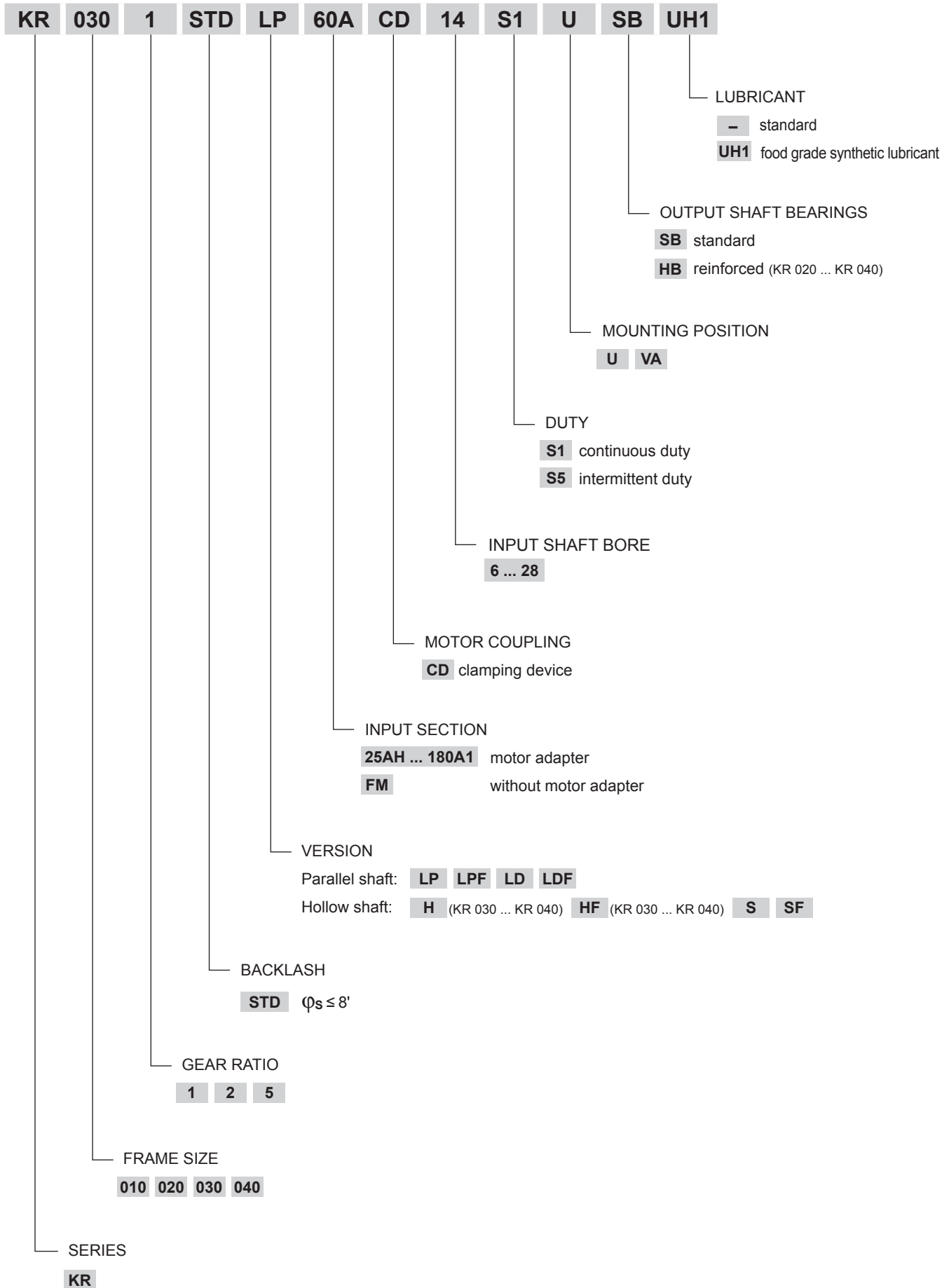
## 9.3 COORDINATED SHAFT ROTATION



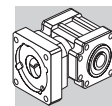




## 9.4 ORDERING CODE



**KR**



## 9.5 TECHNICAL SPECIFICATIONS

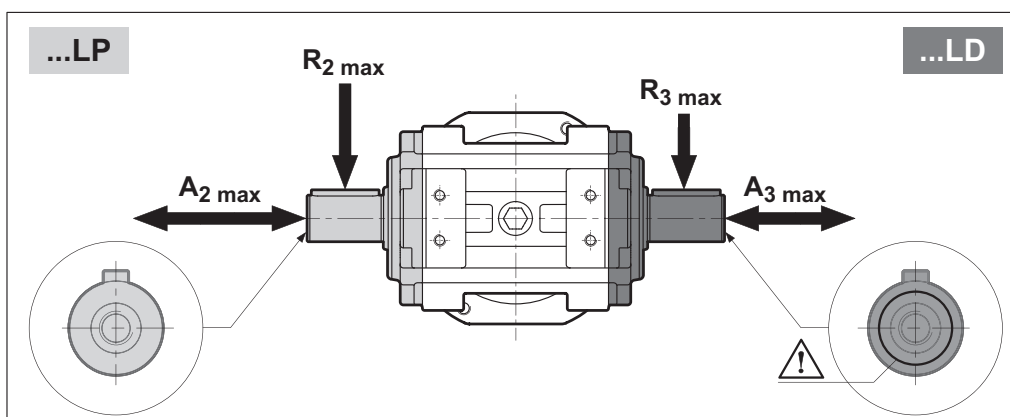
KR 010								
	$M_{n2}$	$M_{a2}$	$M_{p2}$	$C_t$	$n_1$	$n_{1\ max}$	$\varphi_s$	$\eta$
	[Nm]	[Nm]	[Nm]	$\left[ \frac{Nm}{arcmin} \right]$	[min <sup>-1</sup> ]	[min <sup>-1</sup> ]	[arcmin]	%
<b>i = 1</b>	10	14	20	0.5	2000	4000	8'	97
<b>i = 2</b>	7	10	15	0.4	2500	5000		
<b>i = 5</b>	3	4	6	0.2	3000	5000		

KR 020								
	$M_{n2}$	$M_{a2}$	$M_{p2}$	$C_t$	$n_1$	$n_{1\ max}$	$\varphi_s$	$\eta$
	[Nm]	[Nm]	[Nm]	$\left[ \frac{Nm}{arcmin} \right]$	[min <sup>-1</sup> ]	[min <sup>-1</sup> ]	[arcmin]	%
<b>i = 1</b>	24	35	50	1.4	2000	4000	8'	97
<b>i = 2</b>	15	21	30	1.1	2500	5000		
<b>i = 5</b>	10	13	20	0.7	3000	5000		

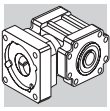
KR 030								
	$M_{n2}$	$M_{a2}$	$M_{p2}$	$C_t$	$n_1$	$n_{1\ max}$	$\varphi_s$	$\eta$
	[Nm]	[Nm]	[Nm]	$\left[ \frac{Nm}{arcmin} \right]$	[min <sup>-1</sup> ]	[min <sup>-1</sup> ]	[arcmin]	%
<b>i = 1</b>	55	75	110	4	1500	3500	8'	97
<b>i = 2</b>	37	52	75	3	2000	4500		
<b>i = 5</b>	22	29	45	2	2800	4500		

KR 040								
	$M_{n2}$	$M_{a2}$	$M_{p2}$	$C_t$	$n_1$	$n_{1\ max}$	$\varphi_s$	$\eta$
	[Nm]	[Nm]	[Nm]	$\left[ \frac{Nm}{arcmin} \right]$	[min <sup>-1</sup> ]	[min <sup>-1</sup> ]	[arcmin]	%
<b>i = 1</b>	120	170	240	11	1500	3500	8'	97
<b>i = 2</b>	85	120	170	9	2000	4500		
<b>i = 5</b>	45	60	90	5	2500	4500		

Stiffness value is referred to LP version



	...LP			...LD		
	$R_{2\ max}$	$A_{2\ max}$	$A_{2'\ max}$	$R_{3\ max}$	$A_{3\ max}$	$A_{3'\ max}$
	[N]	[N]	[N]	[N]	[N]	[N]
<b>KR 010</b> <b>SB</b>	1000	—	200	500	—	100
<b>KR 020</b> <b>SB</b>	1500	—	300	750	—	150
<b>KR 020</b> <b>HB</b>	3000	1500	600	3000	1500	600
<b>KR 030</b> <b>SB</b>	2000	—	400	1000	—	200
<b>KR 030</b> <b>HB</b>	4000	2000	800	4000	2000	800
<b>KR 040</b> <b>SB</b>	3000	—	600	1500	—	300
<b>KR 040</b> <b>HB</b>	5500	2750	1100	5500	2750	1100



## 9.6 MASS MOMENT OF INERTIA

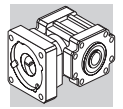
### 9.6.1 KR 010...KR 040 with standard ball bearings - SB

KR 010			
		$J_G$ [kgcm <sup>2</sup> ]	
		$6 \leq D \leq 9.52$	$10 \leq D \leq 14$
i = 1	S, SF	0.52	0.52
	LP, LPF	0.38	0.38
	LD, LDF	0.39	0.39
i = 2	S, SF	0.27	0.29
	LP, LPF	0.24	0.25
	LD, LDF	0.24	0.25
i = 5	S, SF	0.20	0.21
	LP, LPF	0.19	0.21
	LD, LDF	0.19	0.21

KR 020			
		$J_G$ [kgcm <sup>2</sup> ]	
		$8 \leq D \leq 12.7$	$14 \leq D \leq 19.05$
i = 1	S, SF	1.61	1.80
	LP, LPF	1.34	1.52
	LD, LDF	1.37	1.55
i = 2	S, SF	0.86	1.05
	LP, LPF	0.80	0.98
	LD, LDF	0.80	0.99
i = 5	S, SF	0.66	0.84
	LP, LPF	0.64	0.83
	LD, LDF	0.65	0.83

KR 030				
		$J_G$ [kgcm <sup>2</sup> ]		
		$11 \leq D \leq 12.7$	$14 \leq D \leq 19$	$22 \leq D \leq 24$
i = 1	H, HF	4.37	4.45	4.64
	S, SF	5.00	5.08	5.27
	LP, LPF	4.70	4.78	4.97
	LD, LDF	4.63	4.71	4.90
i = 2	H, HF	2.04	2.12	2.31
	S, SF	2.20	2.28	2.47
	LP, LPF	2.12	2.20	2.39
	LD, LDF	2.11	2.19	2.37
i = 5	H, HF	1.47	1.55	1.74
	S, SF	1.50	1.57	1.76
	LP, LPF	1.48	1.56	1.75
	LD, LDF	1.48	1.56	1.75

KR 040				
		$J_G$ [kgcm <sup>2</sup> ]		
		$14 \leq D \leq 19$	$22 \leq D \leq 24$	$D = 28$
i = 1	H, HF	17.19	17.37	17.77
	S, SF	20.46	20.65	21.05
	LP, LPF	18.21	18.40	18.80
	LD, LDF	18.90	19.08	19.48
i = 2	H, HF	4.47	4.65	5.06
	S, SF	5.29	5.47	5.87
	LP, LPF	4.73	4.91	5.31
	LD, LDF	4.90	5.08	5.48
i = 5	H, HF	5.23	5.42	5.82
	S, SF	5.36	5.55	5.95
	LP, LPF	5.27	5.46	5.86
	LD, LDF	5.30	5.49	5.89

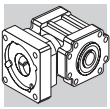


### 9.6.2 KR 020...KR 040 with taper roller bearings - HB

KR 020			
		$J_G$ [kgcm <sup>2</sup> ]	
HB		$8 \leq D \leq 12.7$	$14 \leq D \leq 19.05$
i = 1	S, SF	1.87	2.06
	LP, LPF	1.60	1.78
	LD, LDF	1.62	1.81
i = 2	S, SF	0.93	1.12
	LP, LPF	0.86	1.05
	LD, LDF	0.87	1.05
i = 5	S, SF	0.67	0.85
	LP, LPF	0.66	0.84
	LD, LDF	0.66	0.84

KR 030				
		$J_G$ [kgcm <sup>2</sup> ]		
HB		$11 \leq D \leq 12.7$	$14 \leq D \leq 19$	$22 \leq D \leq 24$
i = 1	H, HF	5.48	5.56	5.75
	S, SF	6.11	6.19	6.38
	LP, LPF	5.81	5.89	6.08
	LD, LDF	5.74	5.82	6.01
i = 2	H, HF	2.92	3.00	3.19
	S, SF	3.08	3.16	3.35
	LP, LPF	3.01	3.09	3.27
	LD, LDF	2.99	3.07	3.26
i = 5	H, HF	1.51	1.59	1.78
	S, SF	1.54	1.62	1.81
	LP, LPF	1.53	1.61	1.80
	LD, LDF	1.53	1.60	1.79

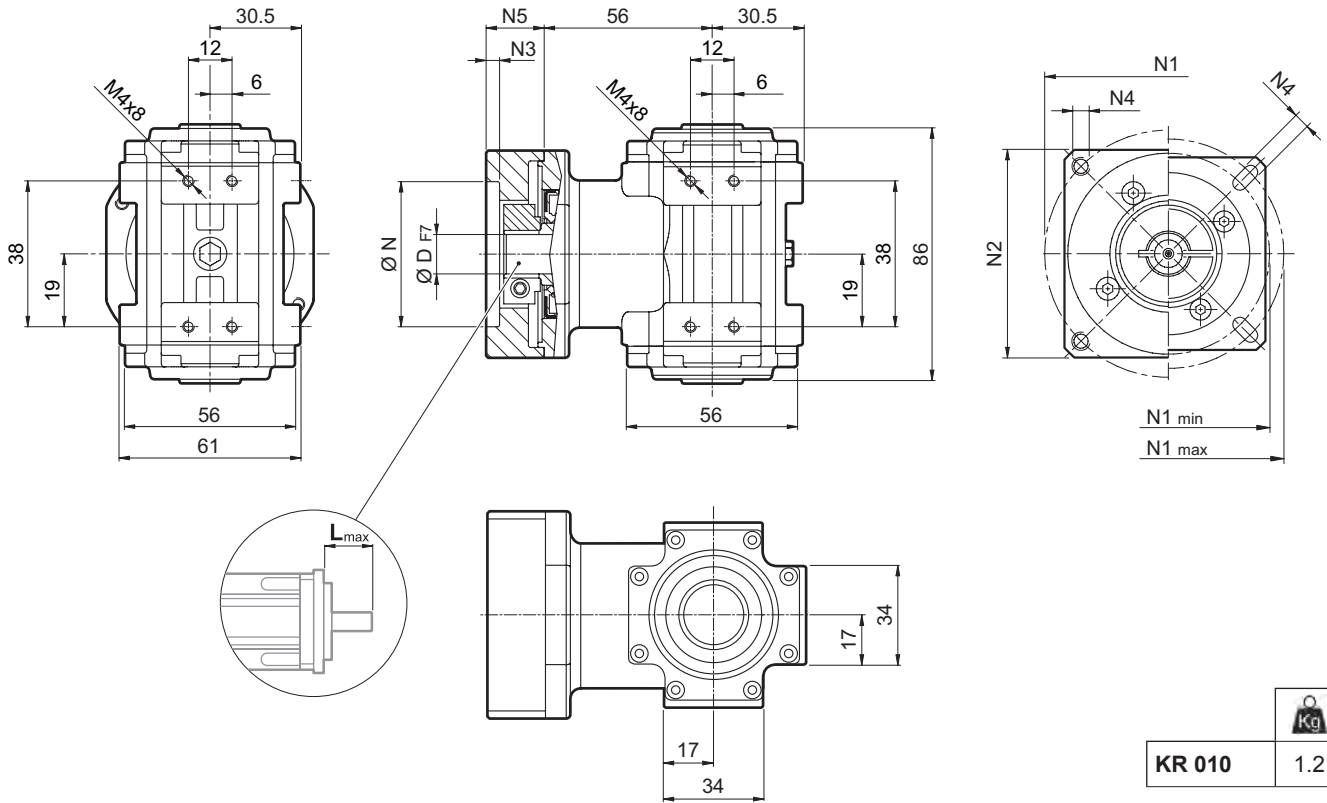
KR 040				
		$J_G$ [kgcm <sup>2</sup> ]		
HB		$14 \leq D \leq 19$	$22 \leq D \leq 24$	D = 28
i = 1	H, HF	18.82	19.01	19.41
	S, SF	22.10	22.28	22.69
	LP, LPF	19.85	20.04	20.44
	LD, LDF	20.53	20.72	21.12
i = 2	H, HF	4.88	5.06	5.47
	S, SF	5.70	6.28	6.28
	LP, LPF	5.13	5.72	5.72
	LD, LDF	5.31	5.89	5.89
i = 5	H, HF	5.30	5.48	5.89
	S, SF	5.43	6.02	6.02
	LP, LPF	5.34	5.93	5.93
	LD, LDF	5.37	5.95	5.95



## 9.7 DIMENSIONS

# KR 010

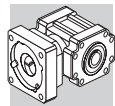
## 25AH ... 80A



<b>KR 010</b>	1.2
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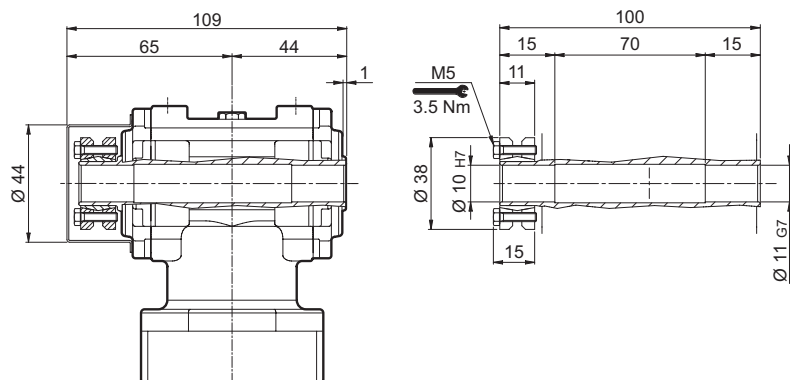
			N	N1		N2	N3	N4	N5	L <sub>max</sub>									
				min	max														
25AH	6	6.35	7	8	9	9.52	-	-	-	-	25	39	56						
26AH	6	6.35	7	8	9	9.52	-	-	-	-	26	39	56						
28AH	6	6.35	7	8	9	9.52	-	-	-	-	28	39	56						
30AH	6	6.35	7	8	9	9.52	-	-	-	-	30	39	56						
32AH	6	6.35	7	8	9	9.52	-	-	-	-	32	39	56	65	3.5	4.5	25	25	
34AH	6	6.35	7	8	9	9.52	-	-	-	-	34	40	56						
36AH	6	6.35	7	8	9	9.52	-	-	-	-	36	42	56						
39AH	6	6.35	7	8	9	9.52	-	-	-	-	39	45	56						
40AH	6	6.35	7	8	9	9.52	-	-	-	-	40	46	56						
38B	6	6.35	7	8	9	9.52	10	11	12	12.7	-	38.1	66.6	60	3	M4x10	18	25	
40B	6	6.35	7	8	9	9.52	10	11	12	12.7	-	40	63	60	3	M4x10	18	25	
50A	6	6.35	7	8	9	9.52	10	11	12	12.7	-	50	60	60	3	M4x10	18	25	
50B	6	6.35	7	8	9	9.52	10	11	12	12.7	14	50	65	60	3	M5x12	23	30	
50BH	6	6.35	7	8	9	9.52	10	11	12	12.7	14	50	65	65	3	5.5	25	32	
50C	6	6.35	7	8	9	9.52	10	11	12	12.7	14	50	70	60	3	M4x10	23	30	
55MH	6	6.35	7	8	9	9.52	10	11	12	12.7	-	55	80	65	2	5.5	16	23	
60A	6	6.35	7	8	9	9.52	10	11	12	12.7	-	60	75	63	3	M5x12	18	25	
60A1	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	75	63	3	M5x12	23	30	
60B	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	85	75	3	M5x12	23	30	
60C	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	90	75	3	M5x12	23	30	
70A	6	6.35	7	8	9	9.52	10	11	12	12.7	14	70	85	75	3	M6x15	23	30	
70B	6	6.35	7	8	9	9.52	10	11	12	12.7	14	70	90	75	3	M5x12	23	30	
73A	6	6.35	7	8	9	9.52	10	11	12	12.7	14	73	98.4	85	3	M5x12	25	32	
80A	6	6.35	7	8	9	9.52	10	11	12	12.7	14	80	100	85	3	M6x15	23	30	

Please contact us for other motor adapters and input shaft bore.

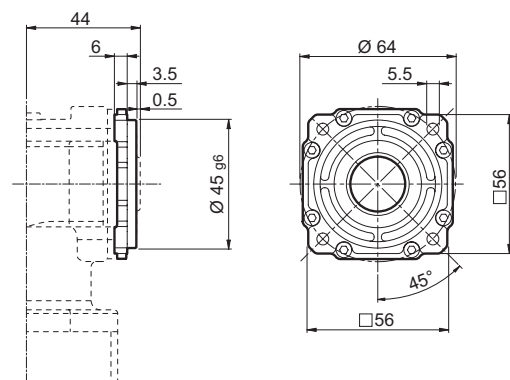


# KR 010

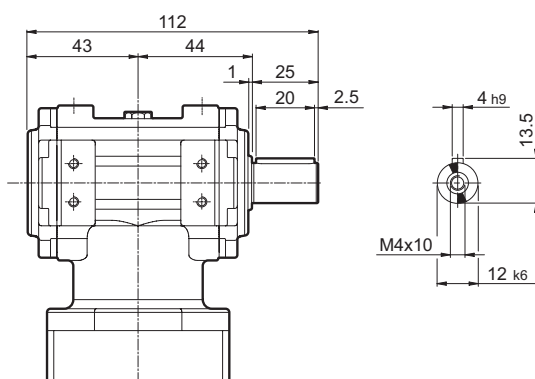
## KR 010... S



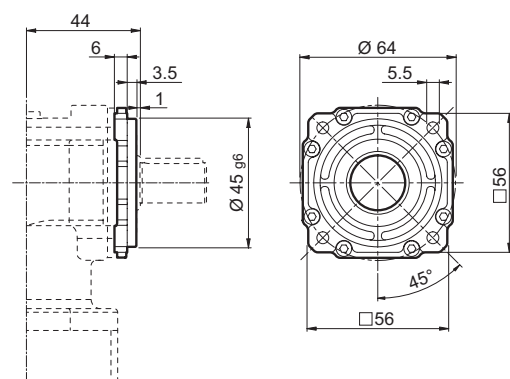
## KR 010... SF



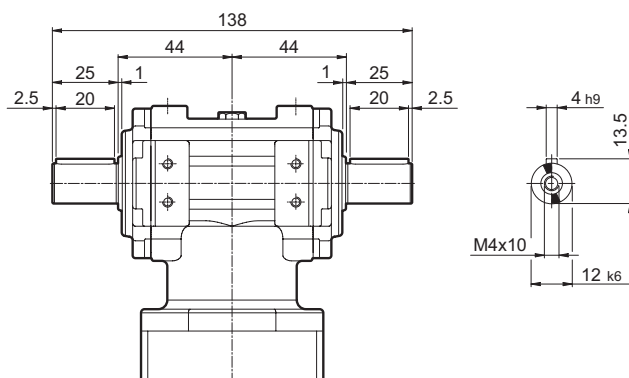
## KR 010... LP



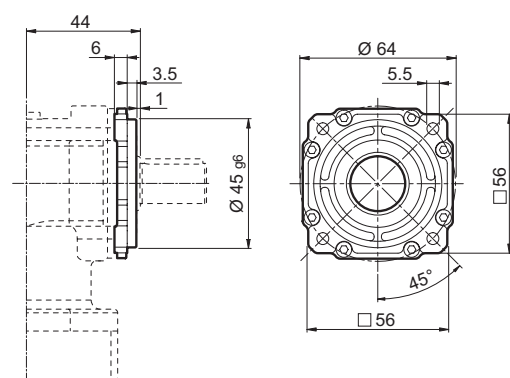
## KR 010... LPF



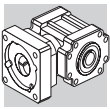
## KR 010... LD



## KR 010... LDF

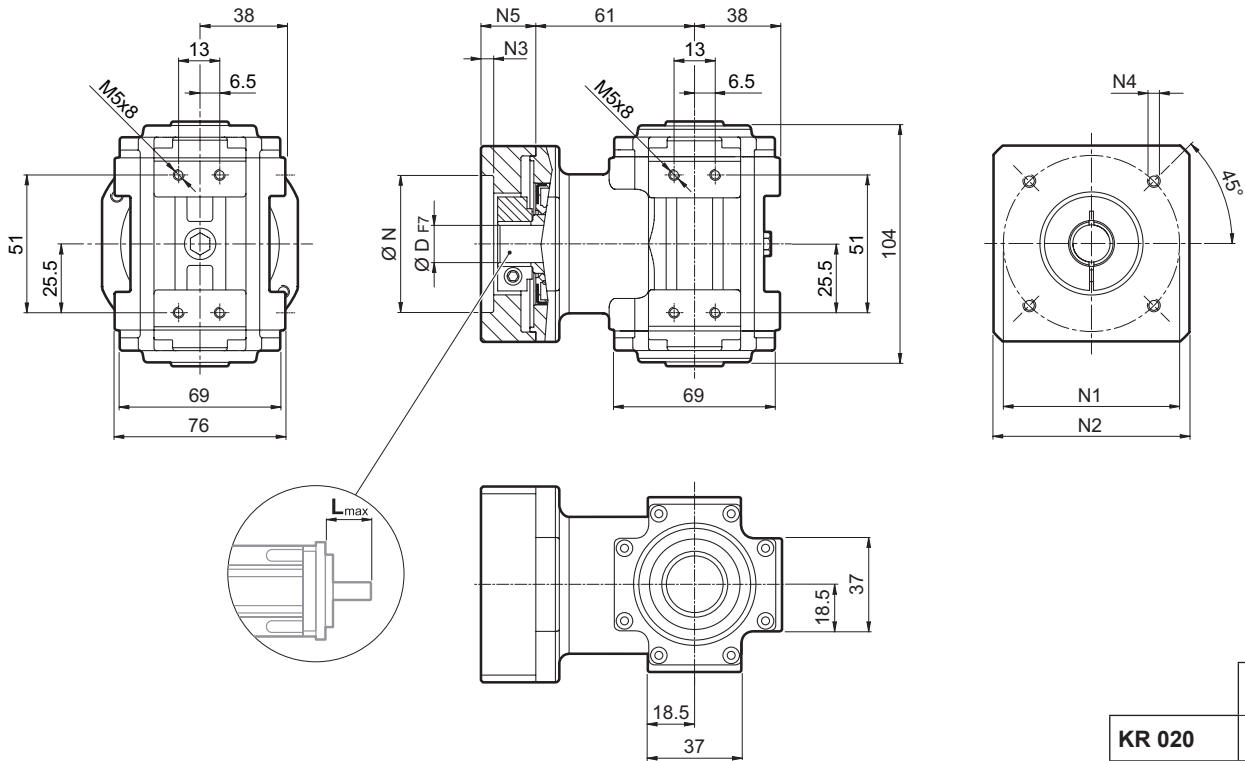


**KR**



# KR 020

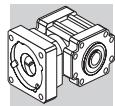
## 40B1 ... 110B1



	2.6
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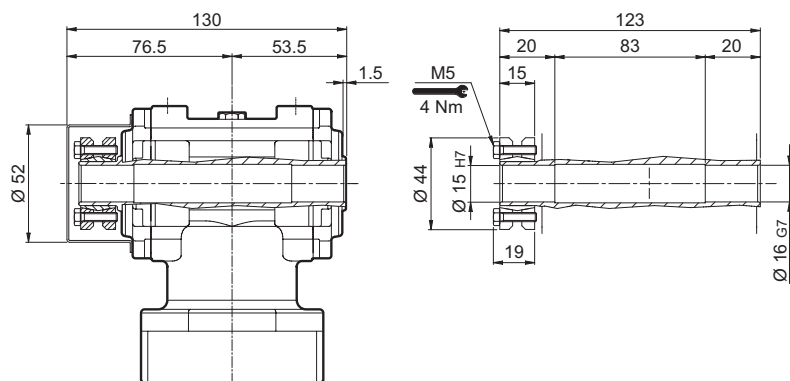
												N	N1	N2	N3	N4	N5	L <sub>max</sub>	
40B1	8	9	9.52	11	12	12.7	14	-	-	-	-	40	63	80	4	M4x10	34	40	
45A	8	9	9.52	11	12	12.7	-	-	-	-	-	45	63	80	4	M4x10	34	40	
50B1	8	9	9.52	11	12	12.7	14	-	-	-	-	50	65	80	4	M5x16	34	40	
50BH1	8	9	9.52	11	12	12.7	14	-	-	-	-	50	65	80	4	5.5	34	40	
50C1	8	9	9.52	11	12	12.7	14	-	-	-	-	50	70	80	4	M4x10	34	40	
50D	8	9	9.52	11	12	12.7	14	-	-	-	-	50	95	80	4	M6x10	34	40	
55A	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	55.5	125.7	105	4	M6x16	34	40
60A2	8	9	9.52	11	12	12.7	14	-	-	-	-	60	75	80	4	M5x16	34	40	
60AH2	8	9	9.52	11	12	12.7	14	-	-	-	-	60	75	90	4	5.5	34	40	
60B1	8	9	9.52	11	12	12.7	14	15.875	16	-	-	60	85	80	4	M5x16	34	40	
60C1	8	9	9.52	11	12	12.7	14	15.875	16	-	-	60	90	80	4	M5x16	34	40	
70A1	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	70	85	80	4	M6x20	34	40
70AH1	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	70	85	90	4	6.5	34	40
70B1	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	70	90	80	4	M5x16	34	40
73A1	8	9	9.52	11	12	12.7	14	-	-	-	-	73	98.4	85	4	M5x16	34	40	
80A1	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	80	100	90	4	M6x16	34	40
95A	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	95	115	100	4	M8x20	34	40
95B	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	95	130	115	4	M8x20	34	40
110A	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	110	130	115	4	M8x20	34	40
110B	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	110	145	120	6.5	M8x20	44	50
110B1	8	9	9.52	11	12	12.7	14	15.875	16	17	19	19.05	110	145	120	6.5	M8x20	54	60

Please contact us for other motor adapters and input shaft bore.

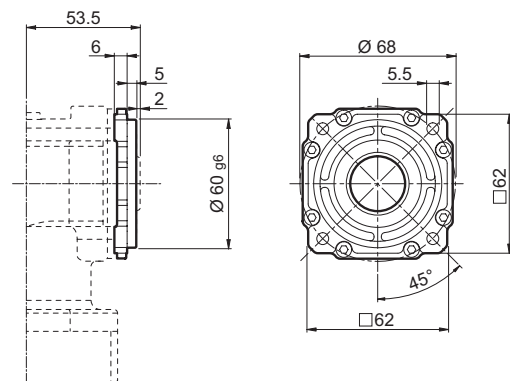


# KR 020

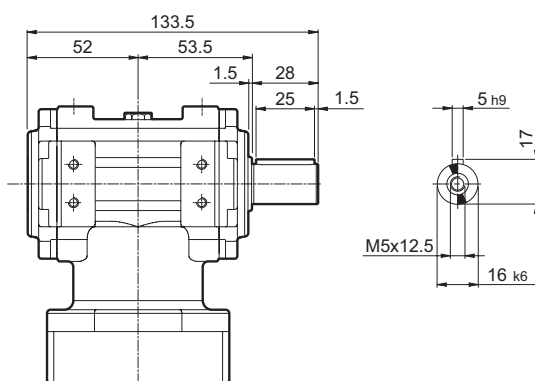
### KR 020... S



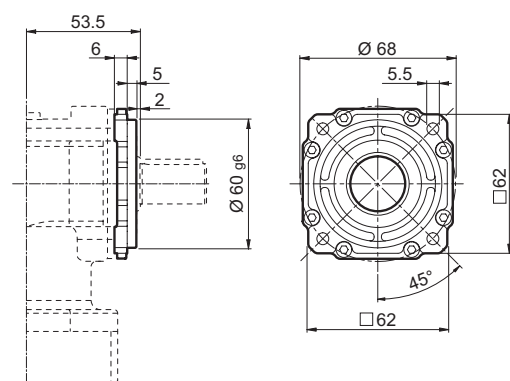
### KR 020... SF



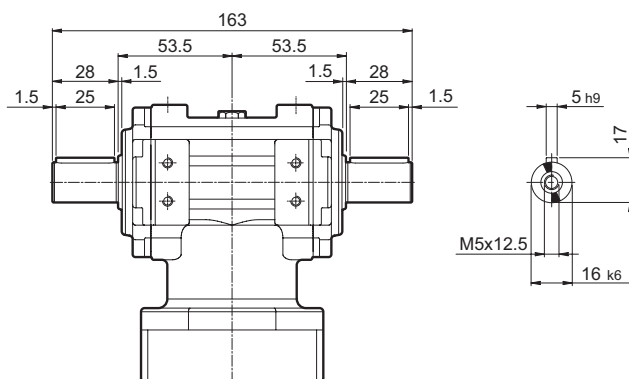
### KR 020... LP



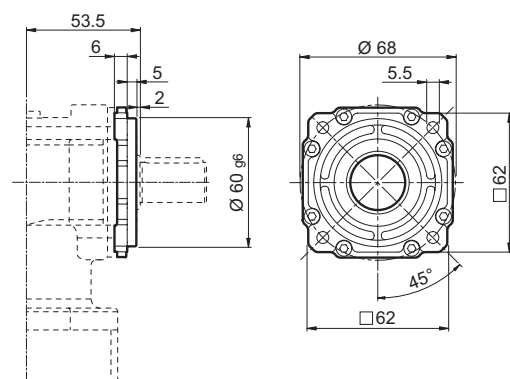
### KR 020... LPF



### KR 020... LD

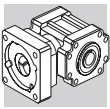


### KR 020... LDF



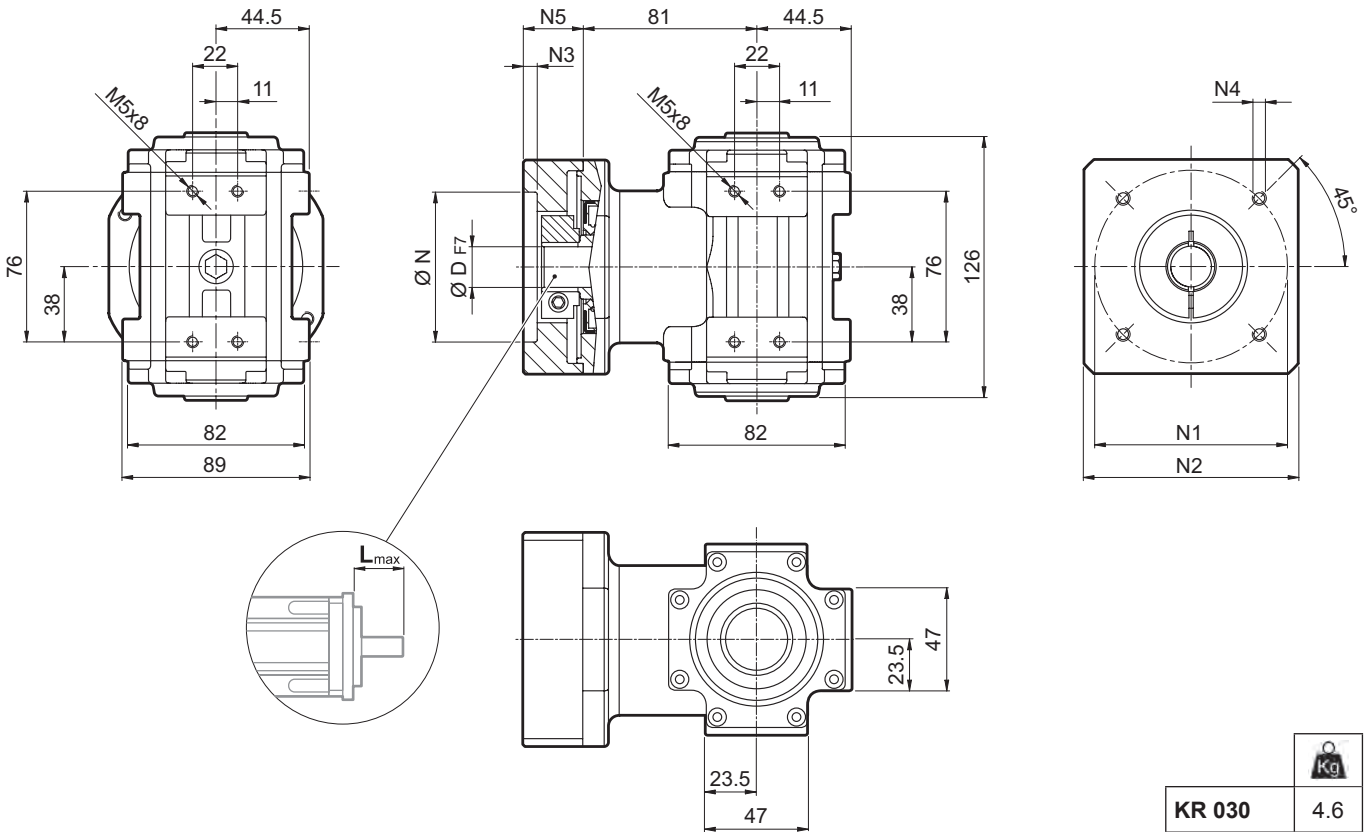
**KR**





# KR 030

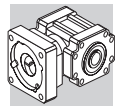
## 50D ... 130A1



	4.6
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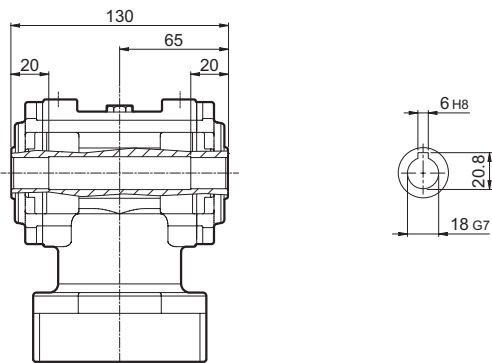
											N	N1	N2	N3	N4	N5	L <sub>max</sub>
50D	11	12	12.7	14	15	15.875	16	19	-	-	50	95	100	5	M6x14	28	40
55A	11	12	12.7	14	15	15.875	16	19	-	-	55.5	125.7	105	5	M6x16	28	40
60A2	11	12	12.7	14	15	15.875	16	19	-	-	60	75	100	5	M5x14	28	40
60AH2	11	12	12.7	14	15	15.875	16	19	-	-	60	75	100	5	6.5	33	40
60B1	11	12	12.7	14	15	15.875	16	19	-	-	60	85	100	6.5	M5x14	28	40
70A1	11	12	12.7	14	15	15.875	16	19	-	-	70	85	100	5	M6x14	28	40
70AH1	11	12	12.7	14	15	15.875	16	19	-	-	70	85	100	5	6	33	40
70B1	11	12	12.7	14	15	15.875	16	19	-	-	70	90	100	5	M5x12	28	40
80A1	11	12	12.7	14	15	15.875	16	19	-	-	80	100	100	5	M6x16	28	40
80AH1	11	12	12.7	14	15	15.875	16	19	-	-	80	100	100	5	6.5	28	40
95A	11	12	12.7	14	15	15.875	16	19	-	-	95	115	100	5	M8x18	28	40
95A1	11	12	12.7	14	15	15.875	16	19	22	24	95	115	100	5	M8x18	38	50
95B	11	12	12.7	14	15	15.875	16	19	-	-	95	130	115	5	M8x18	28	40
110A	11	12	12.7	14	15	15.875	16	19	-	-	110	130	115	5	M8x18	28	40
110A1	11	12	12.7	14	15	15.875	16	19	22	24	110	130	115	6.5	M8x20	38	50
110B	11	12	12.7	14	15	15.875	16	19	22	24	110	145	120	6.5	M8x20	38	50
110B1	11	12	12.7	14	15	15.875	16	19	22	24	110	145	120	6.5	M8x20	48	60
130A	11	12	12.7	14	15	15.875	16	19	22	24	130	165	140	6.5	M10x20	38	50
130A1	11	12	12.7	14	15	15.875	16	19	22	24	130	165	140	6.5	M10x25	48	60

Please contact us for other motor adapters and input shaft bore.

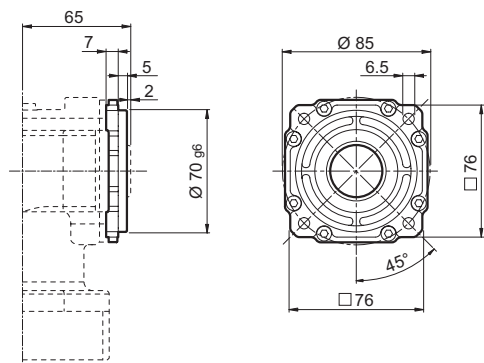


# KR 030

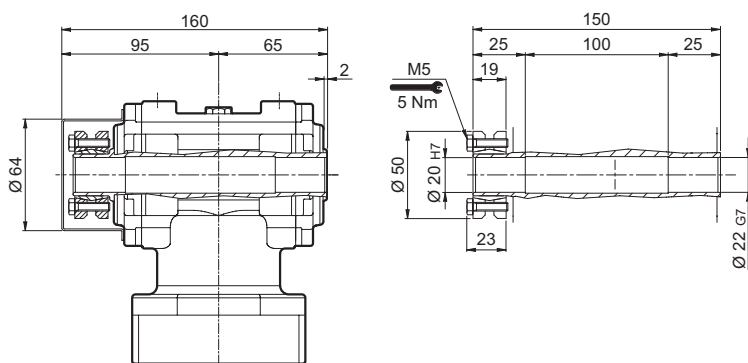
### KR 030... H



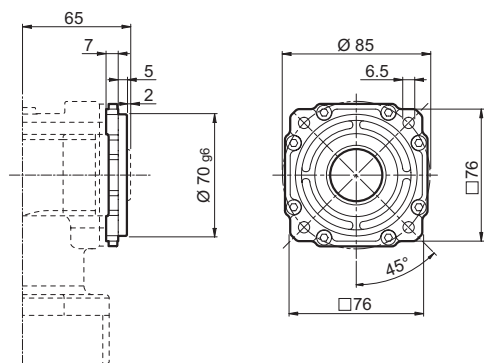
### KR 030... HF



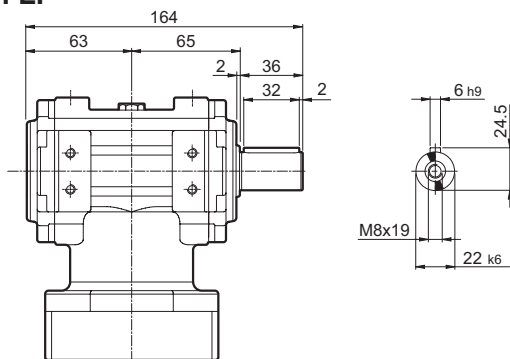
### KR 030... S



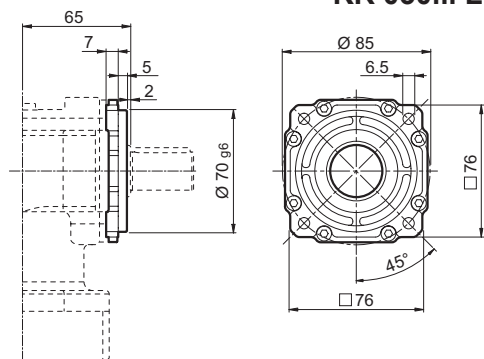
### KR 030... SF



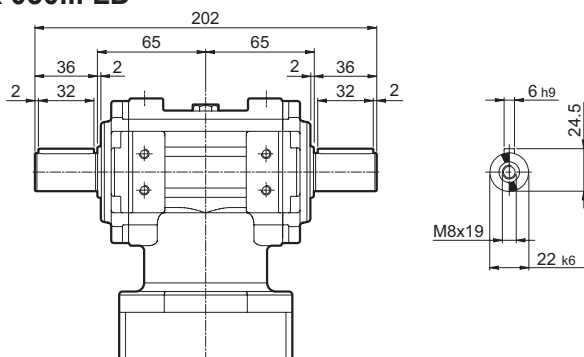
### KR 030... LP



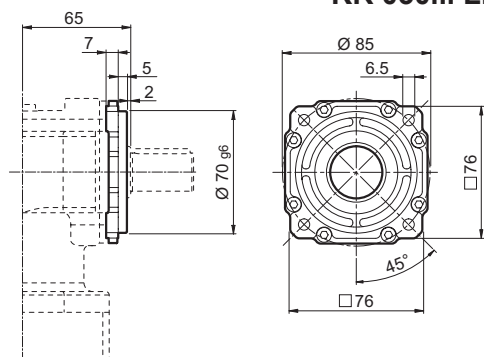
### KR 030... LPF



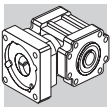
### KR 030... LD



### KR 030... LDF

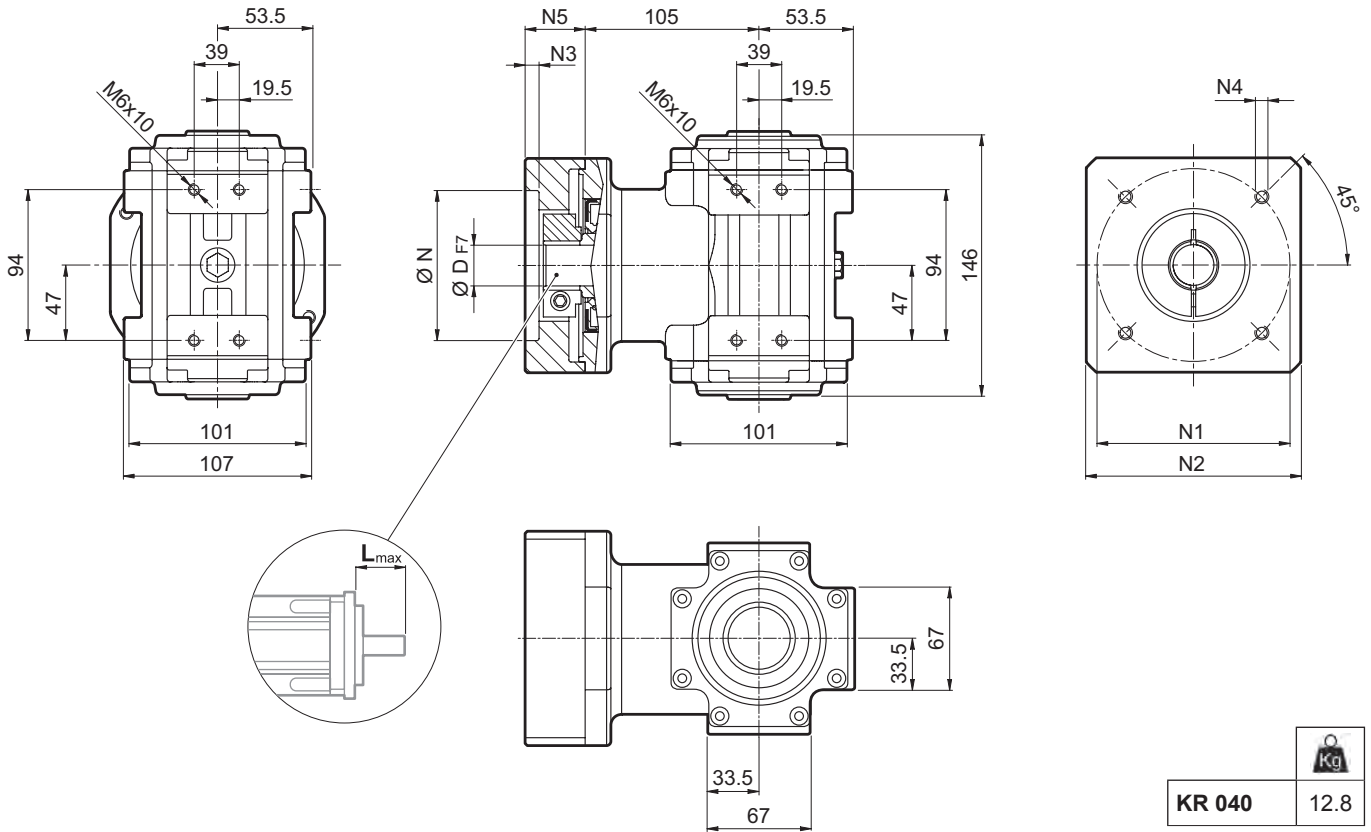


**KR**



# KR 040

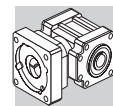
## 55A1 ... 180A1



<b>KR 040</b>	12.8
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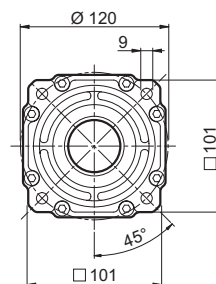
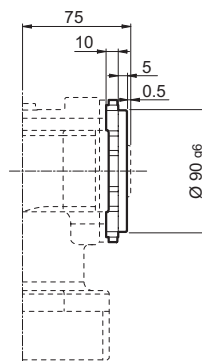
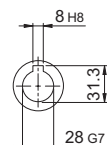
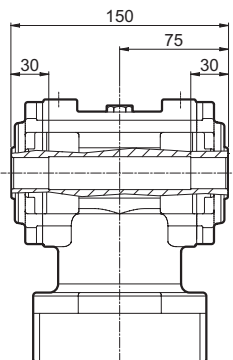
								N	N1	N2	N3	N4	N5	L <sub>max</sub>
<b>55A1</b>	14	15.875	16	19	-	-	-	55.5	125.7	130	4	M6x15	39.5	50
<b>80A2</b>	14	15.875	16	19	-	-	-	80	100	130	4	M6x15	39.5	50
<b>95A1</b>	14	15.875	16	19	22	24	-	95	115	130	4	M8x20	39.5	50
<b>110A1</b>	14	15.875	16	19	22	24	-	110	130	130	4	M8x20	39.5	50
<b>110B1</b>	14	15.875	16	19	22	24	-	110	145	130	6.5	M8x20	49.5	60
<b>114A</b>	14	15.875	16	19	22	24	28	114.3	200	170	5.5	M12x25	69.5	80
<b>130A</b>	14	15.875	16	19	22	24	-	130	165	140	4	M10x20	39.5	50
<b>130A1</b>	14	15.875	16	19	22	24	28	130	165	140	4	M10x20	49.5	60
<b>180A</b>	14	15.875	16	19	22	24	28	180	215	190	5.5	M14x25	49.5	60
<b>180A1</b>	14	15.875	16	19	22	24	28	180	215	190	5.5	M14x25	69.5	80

Please contact us for other motor adapters and input shaft bore.



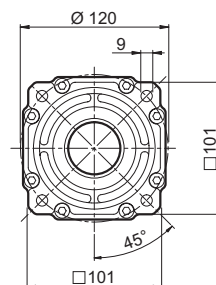
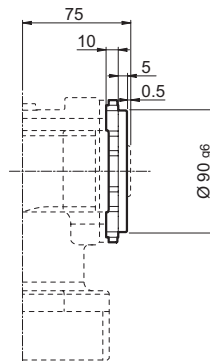
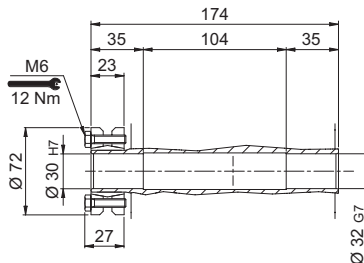
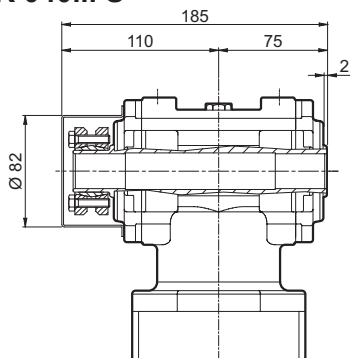
# KR 040

### KR 040... H



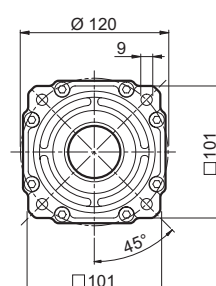
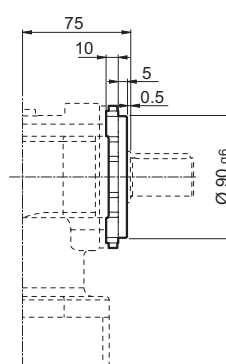
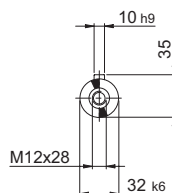
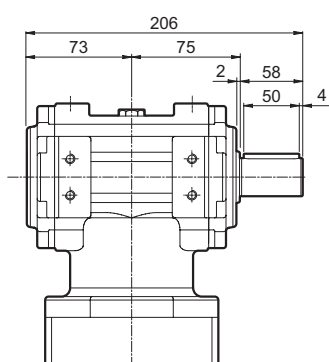
### KR 040... HF

### KR 040... S



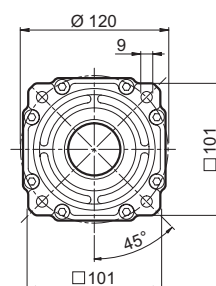
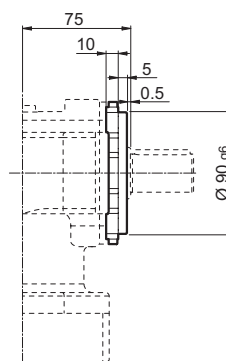
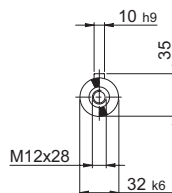
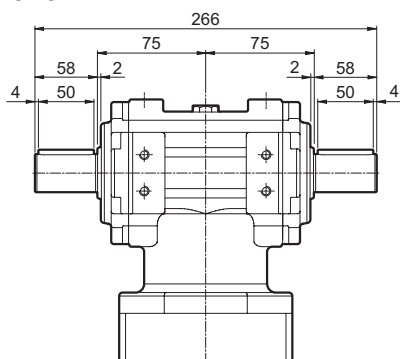
### KR 040... SF

### KR 040... LP



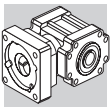
### KR 040... LPF

### KR 040... LD



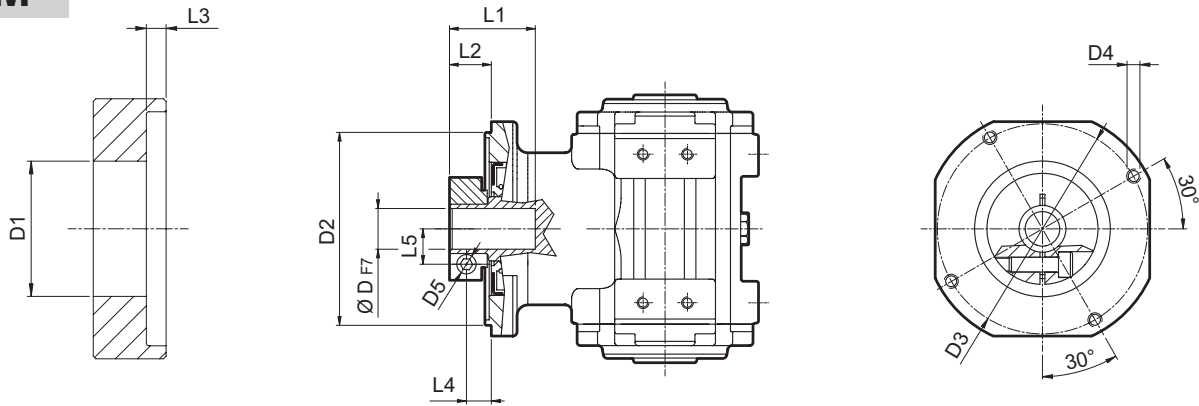
### KR 040... LDF

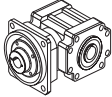


**KR**



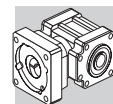
### 9.7.1 GEARBOX WITHOUT MOTOR ADAPTER

**FM**



		D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	
<b>KR 010</b>	6 6.35 7	32.5	50	42.5	M4x8	M4	28	13.5	3	8.5	8	1.0
	8 9 9.52 10	32.5	50	42.5	M4x8	M4	28	13.5	3	8.5	9	
	11 12 12.7	35.5	50	42.5	M4x8	M4	23	13.5	3	8.5	11	
	14	35.5	50	42.5	M4x8	M4	25	15.5	3	8.9	11.5	
<b>KR 020</b>	8 9 9.52	38	68	76.5	M6x10	M6	36.3	26.3	9.5	18.8	10.5	2.0
	11 12 12.7	43	68	76.5	M6x10	M6	36.3	26.3	9.5	18.8	12.5	
	14 15.875 16 17	48	68	76.5	M6x10	M6	36.3	26.3	9.5	18.8	14.5	
	19 19.05	51	68	76.5	M6x10	M6	36.3	26.3	9.5	18.8	16.5	
<b>KR 030</b>	11 12 12.7	43	90	98	M6x15	M6	35	19.5	7.6	12.1	12.5	3.5
	14 15 15.875 16	48	90	98	M6x15	M6	35	19.5	7.6	12.1	14.5	
	19	51	90	98	M6x15	M6	35	19.5	7.6	12.1	16.5	
	22 24	56.5	90	98	M6x15	M6	37	21.5	7.6	12.1	19	
<b>KR 040</b>	14 15.875 16	48	113	125.5	M8x15	M6	46	27.5	6	20	14.5	10.0
	19	51	113	125.5	M8x15	M6	46	27.5	6	20	16.5	
	22 24	56.5	113	125.5	M8x15	M6	47.5	29	6	20	19	
	28	67	113	125.5	M8x15	M8	47.5	29	6	20	22.5	

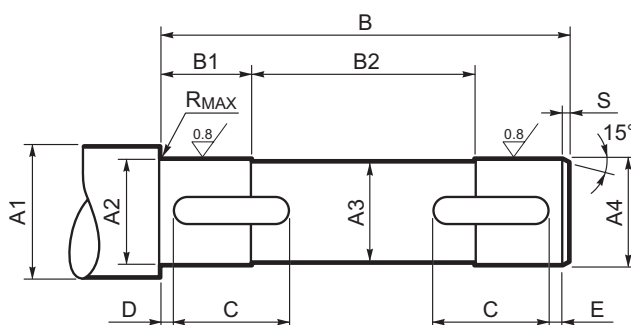
**KR**

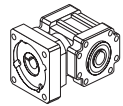



## 9.7.2 MACHINE SHAFT

Pivot of driven equipment should be made from high grade alloy steel. Table below shows recommended dimensions for the Customer to consider when designing mating shaft. A device retaining the shaft axially is also recommended (not shown). The number and size of relative tapped holes at shaft end depend on application requirements.

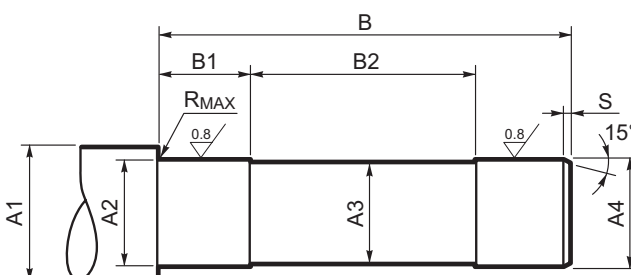
**H**

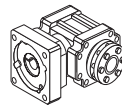


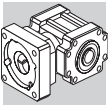
	A1	A2	A3	A4	B	B1	B2	C	D	E	R <sub>MAX</sub>	 UNI 6604	S
<b>KR 030</b>	≥ 26	18 h7	17	18 h7	129	18	90	32	2	2	0.5	6x6x25 A	1
<b>KR 040</b>	≥ 36	28 h7	27	28 h7	149	28	90	50	2	2	0.5	8x7x35 A	1

NB: The choice of driven shaft with a UNI 6604 key as described introduces increased backlash into the application compared to that achieved by a configuration with just the gearbox ( $\varphi_s \leq 8^\circ$ ).


**S**



	A1	A2	A3	A4	B	B1	B2	R <sub>MAX</sub>	S
<b>KR 010</b>	≥ 15	11 h7	9.5	10 h6	99	13	70	0.5	1
<b>KR 020</b>	≥ 20	16 h7	14.5	15 h6	122	18	83	0.2	
<b>KR 030</b>	≥ 30	22 h7	19.5	20 h6	149	23	100	0.5	
<b>KR 040</b>	≥ 40	32 h7	29.5	30 h6	173	33	104	0.5	



## INDEX OF REVISIONS

	TI_CAT_TIR_STD_ENG_R00_0
	Description
16...23	Updated selection procedure.
25...187	Updated dimensions and technical specifications.

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