Bonfiglioli
Forever Forward

RUBIX

Precision Planetary Gearboxes

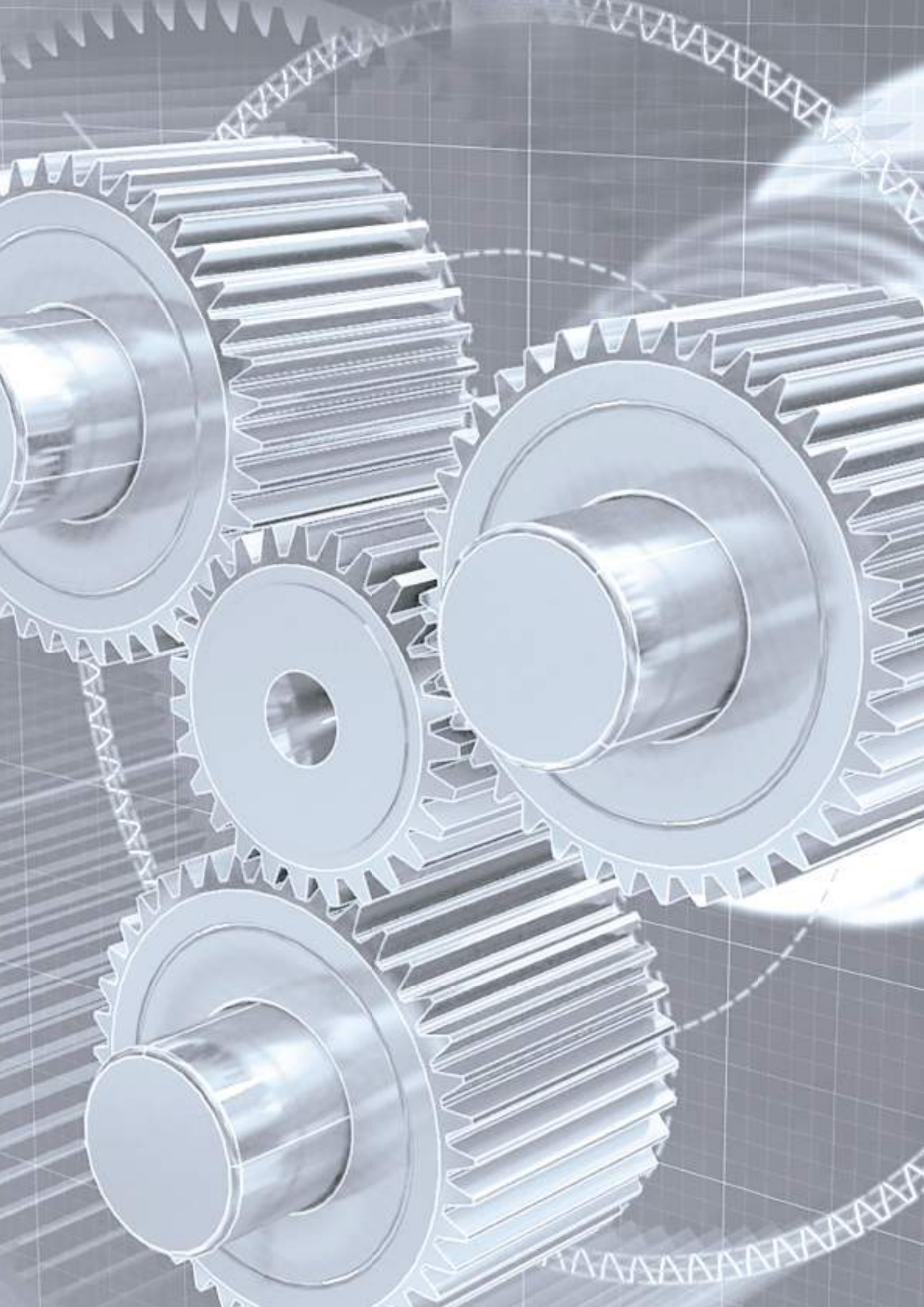
Performance & Effective line

PRODUCTS &
SOLUTIONS

Index

Revisions

Refer to page 258 for the catalogue revision index.
Visit www.bonfiglioli.com to search for catalogues with up-to-date revisions.



The highest level of precision, efficiency and energy optimization

With almost 20 years of experience in creating tailored and forward-thinking motion control systems, Bonfiglioli has proven being a reliable partner as **one-stop shop for mechatronic applications** in industrial automation.
Bonfiglioli engineering specialists work side by side with customers to develop dedicated integrated solutions, covering the entire motion drive train according to an **Industry 4.0 approach**.
Thanks to the extensive know-how and the long-term collaboration with key customers, our two centers of excellence, located in Italy and Germany, develop **breakthrough mechatronic innovations**, including low backlash planetary gearboxes, servomotors, open and closed loop inverters, servo drives and energy regenerative units.

This, combined with a comprehensive range of **Professional Services**, enables us to respond to customers' requests by:

- providing **user friendly, plug & play solutions**
- **increasing** applications' **efficiency** and **productivity**
- designing **flexible, modular solutions** targeted to a wide range of applications
- granting access to real time data for **diagnostic, maintenance** and **predictive analytics**


ASSESSMENT & RECOMMENDATION


ENGINEERING & PLANNING


INSTALLATION & COMMISSIONING

RETROFIT & UPGRADE


MAINTENANCE & REPAIR

Fully committed to the efficiency of customers' system over its life cycle

Bonfiglioli technical sales experts support customers with a proactive, flexible and dedicated approach **throughout the system's entire life cycle**.

- **Assessment and recommendation**: our team provides support starting from the very early stage of the project by assessing the requirements and developing a targeted analysis of the application, guiding customers in the choice of the most suitable components for their drive solution.
- **Engineering and planning**: our experts work with customers to co-engineer their application, offering consultancy in sizing, fine tuning and selecting the optimized drive train, always considering life cycle cost optimization.
- **Installation and commissioning**: we partner with our customers to ensure a quick, cost-effective and successful installation, optimizing the benefits and functions of their drive technology.
- **Retrofit and upgrade**: we update customers' machines with state-of-the-art technology to ensure constant levels of productivity, reliability and performance.
- **Maintenance and repair**: we work side by side with customers to avoid failures, reduce down times and ensure the best system operation.

A complete integrated solution for all industrial applications

Our engineering specialists **work side by side with customers** to create the most effective solution, whether the request is to optimize an existing machine or to develop a new one. Our relationship with customers is based on an **active partnership** with fast decision-making processes to develop individually tailored offers.

Our full-range and modular offering provides the necessary products for the development of vertically integrated solutions in **a variety of sectors**, such as material handling, automated storage, textile and packaging. Our team of experts assists customers in designing cost effective and energy efficient machines, aligning performance to meet the specific requirements.

A complete integrated solution

- Precision Planetary Gearboxes
- Industrial Gearboxes
- Permanent Magnet Synchronous Motors
- Synchronous Reluctance Motors
- Asynchronous Motors
- Servo Inverters
- Frequency Inverters
- Energy Regenerative Inverters
- Motion Control
- Industry 4.0 solutions

Industry sector expertise

- MATERIAL HANDLING
- HOIST & CRANES
- FOOD & BEVERAGE
- AUTOMATED WAREHOUSE
- PACKAGING
- TEXTILES
- MATERIAL WORKING

Bonfiglioli Digital Tools

Thanks to a powerful set of **software tools** and **online platforms**, developed through partnerships with the main market leaders, Bonfiglioli enables its customers to **engineer tailored applications** in a smooth and productive way: the components selection and sizing, as well as the design of the whole motion drive train, are made simpler and more reliable.

In addition, thanks to its in-depth knowledge of industrial solutions, **Bonfiglioli engineering team is ready to assist customers** in their selection and design process, providing high quality technical support for specific application developments.

SERVOSOFT | Develop optimized solutions

Bonfiglioli and SERVOsoft® work together to **support customers in sizing complete multi-axis servo systems**, including motors, gearboxes and servodrives with 15 mechanisms and up to 50 axes in a shared bus or standalone configuration.

With the Bonfiglioli products available on SERVOsoft, customers are able to select, size and design their customized and high performance applications.

In addition, the Bonfiglioli engineering team, thanks to its in-depth knowledge of the products, uses the high level servosizing tool SERVOsoft® to provide a **top level customer support service** by developing **optimized**, **energy-efficient** and **tailored engineering solutions** to meet individual needs.

MOSAICO 3.0 | Product configuration and order assistant

Bonfiglioli's **complete e-business system** guides customers, distributors and agents through the process of **selecting the right product** for their specific needs, and provides support for **design activities** and **order management**, greatly accelerating the selection and ordering process and improving accuracy.

Thanks to this web-based technology, customers can get in touch with Bonfiglioli technical service any time from anywhere around the world.

EPLAN | Enhance your electrical design

Bonfiglioli and EPLAN work together to **provide efficient engineering solutions**, aimed at reducing the gap between the initial concept and its development, programming and commissioning, thanks to:

- Always up-to-date device data and documentation
- Easy drag and drop function to develop optimized electrical drawings

Bonfiglioli Precision Planetary Gearboxes

We have decades of experience in supporting customers across a broad spectrum of industry sectors, providing a **wide range of innovative, efficient and highly reliable precision planetary gearboxes.**

Our team is fully dedicated to continuous improvements in terms of quality, safety and environmental sustainability across the entire value chain. We develop and manufacture our precision planetary gearboxes exclusively in Italy, according to the **highest quality standards** and procedures.

Robust, compact, highly performant and specially customized: we respond to our customers' needs in all industries, regardless the complexity of their projects. Our portfolio is constantly evolving with the aim of providing the right answer for each application, according to the different requirements in terms of performance, price and optimized machine integration.

Our story

1988

BGT SERIES

2002

MP/TR SERIES

2004

LC SERIES

2008

KR SERIES

2009

SL SERIES

2010

LCK SERIES

2013

TQ SERIES

2014

TQK SERIES

2015

TQF SERIES

2017

BMS SERIES

2019

TQFE, TQFEK, MPE, MPEK SERIES

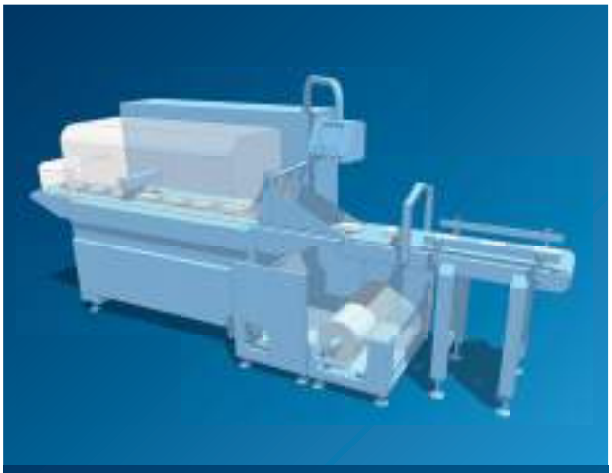
The right solution for a wide spectrum of applications

Whether in material handling, automated storage, packaging or automation technology, our precision planetary gearboxes are **optimized for numerous applications**.

Our offer expands far beyond standard, providing the **right solutions tailored to customers' needs** in terms of performance and price.

PALLETIZER

AUTOMATED STORAGE



FLOW PACK MACHINE

DRILLING-FORMING MACHINE

Performance Line

(P)

Developed to meet the most demanding requirements and to ensure maximum performance.

Bonfiglioli precision planetary gearboxes Performance Line includes a wide selection of products developed to **meet the most demanding requirements of servo applications** characterized by **high dynamics** and **high levels of precision**.

Bonfiglioli acknowledges the increasing demand for highly complex applications connected to the maximization of machine productivity and the growth of product variety in assembly systems. Hence, in combination with the products, we focus on offering **comprehensive consultancy services** and on **developing tailored solutions** which fully respond to customers' requirements, ensuring the optimization of applications both under the performance and the energy efficiency point of view.

The Performance Line presents the perfect features to be matched with our servomotors and frequency inverters in **optimized mechatronic integrated systems**.

Main benefits

- Maximum power density
- Outstanding position accuracy
- Top class design
- Extreme reliability
- Easy installation
- Customized solutions and engineering service

Product	TQ	TQK	TQF	TR	MP
					
Nominal output torque	●●●●	●●●●	●●●●	●●●●●	●●●●●
Bearing load	●●●●	●●●●	●●●●●	●●●●	●●●●
Input speed	●●●●	●●●●	●●●●	●●●●	●●●●
Torsional stiffness	●●●●	●●●●	●●●●●	●●●	●●●
Backlash	●●●●●	●●●	●●●●	●●●●	●●
Range of ratios	●●●	●●●●	●●●	●●●●●	●●●●●

● Standard > ●●●●● Excellent

Effective Line

(E)

Bonfiglioli performance and reliability at a great value-price ratio.

The precision planetary gearboxes Effective Line is specially designed for **systems with medium requirements for precision, dynamics, and power density**, delivering **well-known Bonfiglioli quality and reliability** standards at a great value-price ratio.

Our Effective Line covers a wide range of products characterized by high **flexibility**. Thanks to the wide variety of output configurations and design versions, this line provides great freedom when designing different applications.

In addition, this group of products ensures easy installation and retrofit thanks to **extensive compatibility** with a wide range of market standards.

Our technical team supports our customers already from the design phase with **servo-sizing and engineering services** in order to quickly select the most suitable solutions.

Main benefits

- Wide flexibility
- High modularity
- Great value-price ratio
- Bonfiglioli quality and reliability

TQFE	TQFEK	SL	LC	LCK	MPE	MPEK	KR	Product
								
●●	●●	●●	●●●	●●●	●●	●●	●	Nominal output torque
●●●●	●●●●	●●●●	●●●	●●●	●●●	●●●	●	Bearing load
●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●	Input speed
●●●●	●●●●	●●●●	●●	●●	●●	●●	●●	Torsional stiffness
●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●	Backlash
●●●	●●●	●●●	●●●	●●●	●●●	●●●	●	Range of ratios

● Standard > ●●●●● Excellent

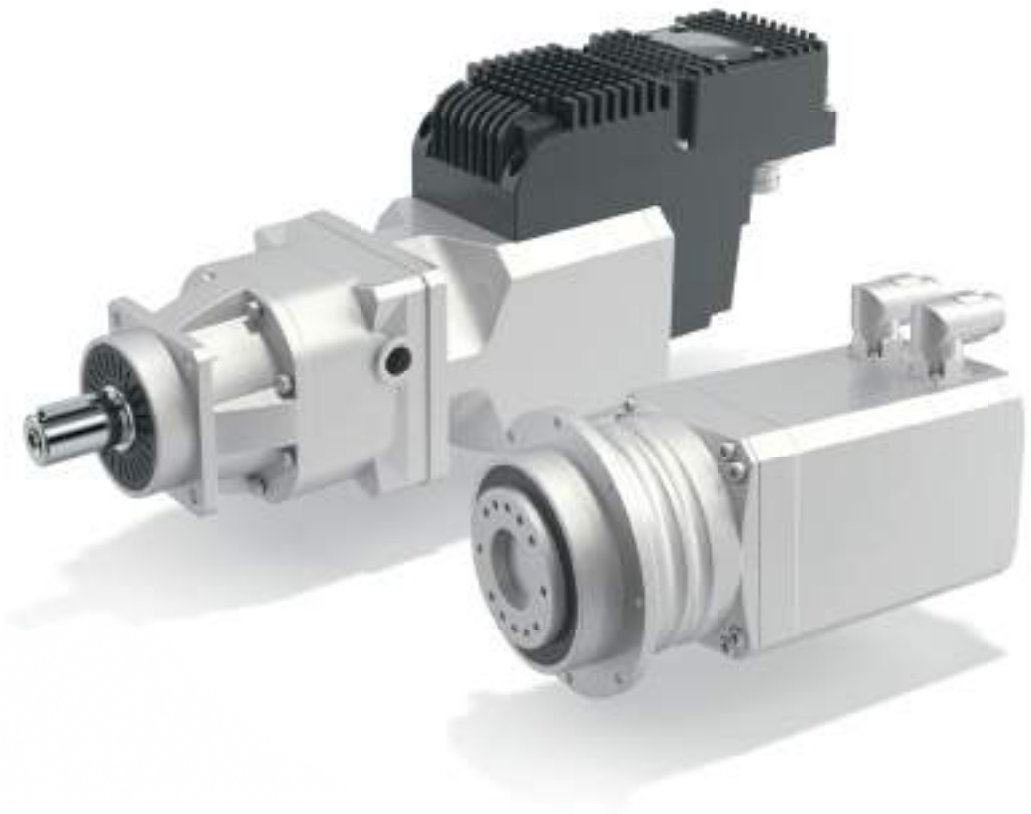
Top level Mechatronic Integration

Our **integrated servo actuators** represent the response to the increasing requirements of motion applications in terms of power, speed and precision. Our integrated products are designed to **maximize the sinergies between our drives, motors and gearboxes** with the main goal of **performance optimization and complexity reduction**.

Bonfiglioli mechatronic integrated solutions focus on providing increased performances in every key aspect: precision, compactness, energy efficiency, dynamics and reliability.

Our **servo gearmotors BMS** represents the best integration between our precision planetary gearboxes and our servomotors. It benefits from the **high torsional rigidity** and **low backlash** of our precision planetary gearboxes in combination with the **excellent torque density** and **high dynamics** of our permanent magnet synchronous motors.

In addition, the combination of our permanent magnet synchronous motors with our powerful servo drives is designed for servo applications requiring highest standards in terms of control dynamics, precision, robustness and long-term operation. **Our servomotors with integrated drive, iBMD**, delivers **high torque capability** and **extremely low inertia** in a **compact and light package**, ideal for decentralized applications characterized by high dynamics.



Technical information

1 GENERAL INFORMATION

1.1 SYMBOLS, UNITS AND DEFINITIONS

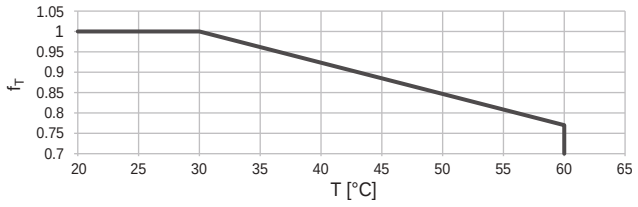
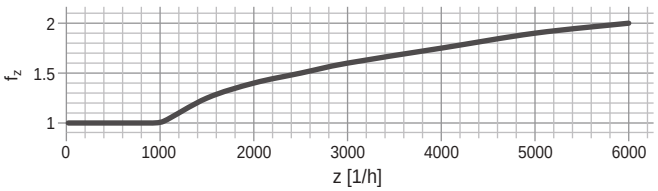
Values depending on the APPLICATION

term	u.m.	definition
A_2	[N]	Axial force on output shaft
$A_{2\ EQU}$	[N]	Equivalent axial force applying on output shaft
$A_{2\ MAX}$	[N]	Maximum axial force applying on output shaft
R_2	[N]	Radial force on output shaft
$R_{2\ EQU}$	[N]	Equivalent radial force applying on output shaft
$R_{2\ MAX}$	[N]	Maximum radial force applying on output shaft
ED	[s]	Duration of the duty (without brake)
ED%	[%]	Cyclic duration factor
$L_{10h\ TARGET}$	[h]	Output shaft bearings' desired basic rating life
$M_{1\ PEAK}$	[Nm]	Maximum input torque (limited by motor control)
$M_{2(1)}$ ... $M_{2(n)}$	[Nm]	Output torque at the times t_1 ... t_n
$M_{2\ EQU}$	[Nm]	Equivalent output torque
$M_{2\ MAX}$	[Nm]	Maximum output torque in case of emergency
$M_{T2\ EQU}$	[Nm]	Equivalent tilting moment applying on output shaft
$M_{T2\ MAX}$	[Nm]	Maximum permissible tilting moment applying on output shaft
n_1	[min^{-1}]	Nominal input speed
n_2	[min^{-1}]	Output speed
$n_{2(1)}$ ... $n_{2(n)}$	[min^{-1}]	Output speed based on the times t_1 ... t_n
$n_{2\ EQU}$	[min^{-1}]	Equivalent output speed
$n_{2\ MAX}$	[min^{-1}]	Maximum output speed
T	[C°]	Ambient temperature
t_1 ... t_n	[s]	Operating time
t_Σ	[s]	Cycle duration including pause
Z	[1/h]	Number of cycles per hour

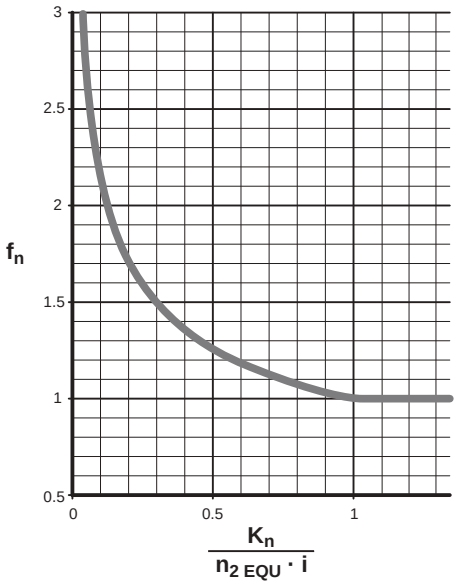
Values depending on the GEAR DRIVE SELECTION

term	u.m.	definition
$A_{2\ max}$ / $A_{3\ max}$	[N]	Admissible axial force on output shaft
$A_{2\ max}$ / $A_{3\ max}$	[N]	Axial force acting simultaneously with radial force
$R_{1\ max}$	[N]	Admissible radial force at midpoint of input shaft
$R_{2\ max}$ / $R_{3\ max}$	[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	—	Factor ratio between axial and radial force
f_n	—	Speed factor
f_z	—	Cycle factor
f_T	—	Temperature adjusting factor
i	—	Gearbox ratio
J_G	[kgcm²]	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^{-1}]	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
η	[%]	Gear efficiency
φ_R	[arcmin]	Reduced backlash
φ_S	[arcmin]	Standard backlash

1.2 SELECTING THE GEAR UNIT

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

f_n - speed factor



K_n - 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	TQF 060	TQF 070	TQF 090	TQF 130	TQF 160
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	TR / MP 053	TR / MP 060	TR / MP 080	TR / MP 105	TR / MP 130	TR / MP 160	TR / MP 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	2400	1000	2100
70	–	4000	4000	3500	2400	900	2900
75	3500	3500	3200	3000	2900	1350	2300
80	3500	3500	3100	2800	2400	1300	2100
81	4000	–	–	–	–	–	–
84	4000	4000	4000	3500	2900	1050	2900
90	–	4000	4000	3500	2850	3000	2900
100	3500	4000	4000	3500	3200	3000	2900
112	3500	–	–	–	–	–	–
120	–	4000	4000	3500	3200	2150	2900
125	3500	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

K_n - speed constant

i	MPE 040	MPE 060 TQFE 060	MPE 080 TQFE 070	MPE 120 TQFE 090
3	2000	1400	3500	3000
4	2000	1600	2000	1700
5	2000	2050	1500	1500
7	3000	3050	1900	1900
9	2000	3300	3500	3000
10	3000	4000	3500	3500
12	3000	3300	3500	3000
15	3000	3300	3500	3000
16	3000	3500	3100	2800
20	3000	3500	3200	3000
25	3000	3500	3200	3000
28	3000	3700	3500	3500
30	3000	4000	4000	3500
35	3000	4000	3500	3000
40	3000	4000	4000	3500
50	3000	4000	4000	3500
70	3000	4000	4000	3500
100	3000	4000	4000	3500

i	LC 050	LC 070 LC 070P	LC 090 / LC 090P	LC 120 / LC 120P	LC 155 / LC 155P
3	1650	1400	2900 / 3500	2500 / 3000	1350 / 2100
4	2200	1600	2500 / 2000	2100 / 1700	900 / 2200
5	2900	2050	2700 / 1500	2300 / 1500	950 / 800
7	3700	3050	3500 / 1900	3000 / 1900	1250
9	4000	3300	2900 / 3500	2500 / 3000	2100
10	–	4000	4000 / 3500	3500	2500 / 3200
12	3300	3300	2900 / 3500	2500 / 3000	2100
15	3300	3300	2900 / 3500	2500 / 3000	2100
16	3500	3500	3100	2800	2400
20	3500	3500	3200	3000	2900
25	3500	3500	3200	3000	2900
28	3500	3700	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 070P	LCK 090 LCK 090P	LCK 120 LCK 120P	LCK 155 LCK 155P
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	MPEK 060 TQFEK 060	MPEK 080 TQFEK 070	MPEK 120 TQFEK 090
3	1400	3500	3000
4	1600	2000	1700
5	2050	1500	1500
7	3050	1900	1900
9	3300	3500	3000
10	4000	3500	3500
12	3300	3500	3000
15	3300	3500	3000
16	3500	3100	2800
20	3500	3200	3000
25	3500	3200	3000
28	3700	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	SL 070 / SL 070P	SL 090 / SL 090P	SL 120 / SL 120P
3	1400	2900 / 3500	2500 / 3000
4	1600	2500 / 2000	2100 / 1700
5	2050	2700 / 1500	2300 / 1500
7	3050	3500 / 1900	3000 / 1900
9	3300	2900 / 3500	2500 / 3000
10	4000	4000 / 3500	3500
12	3300	2900 / 3500	2500 / 3000
15	3300	2900 / 3500	2500 / 3000
16	3500	3100	2800
20	3500	3200	3000
25	3500	3200	3000
28	3700	3500	3000
30	4000	4000	3500
35	4000	3500	3000
40	4000	4000	3500
50	4000	4000	3500
70	4000	4000	3500
100	4000	4000	3500

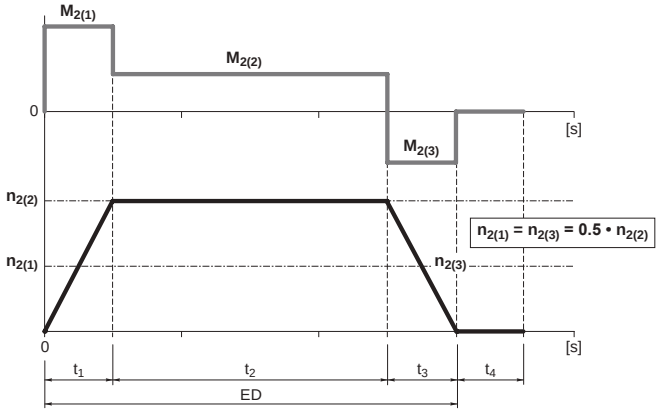
i	KR 010	KR 020	KR 030	KR 040
1	1200	1200	1000	800
2	2400	2400	2000	1600
3	3000	3000	2800	2500

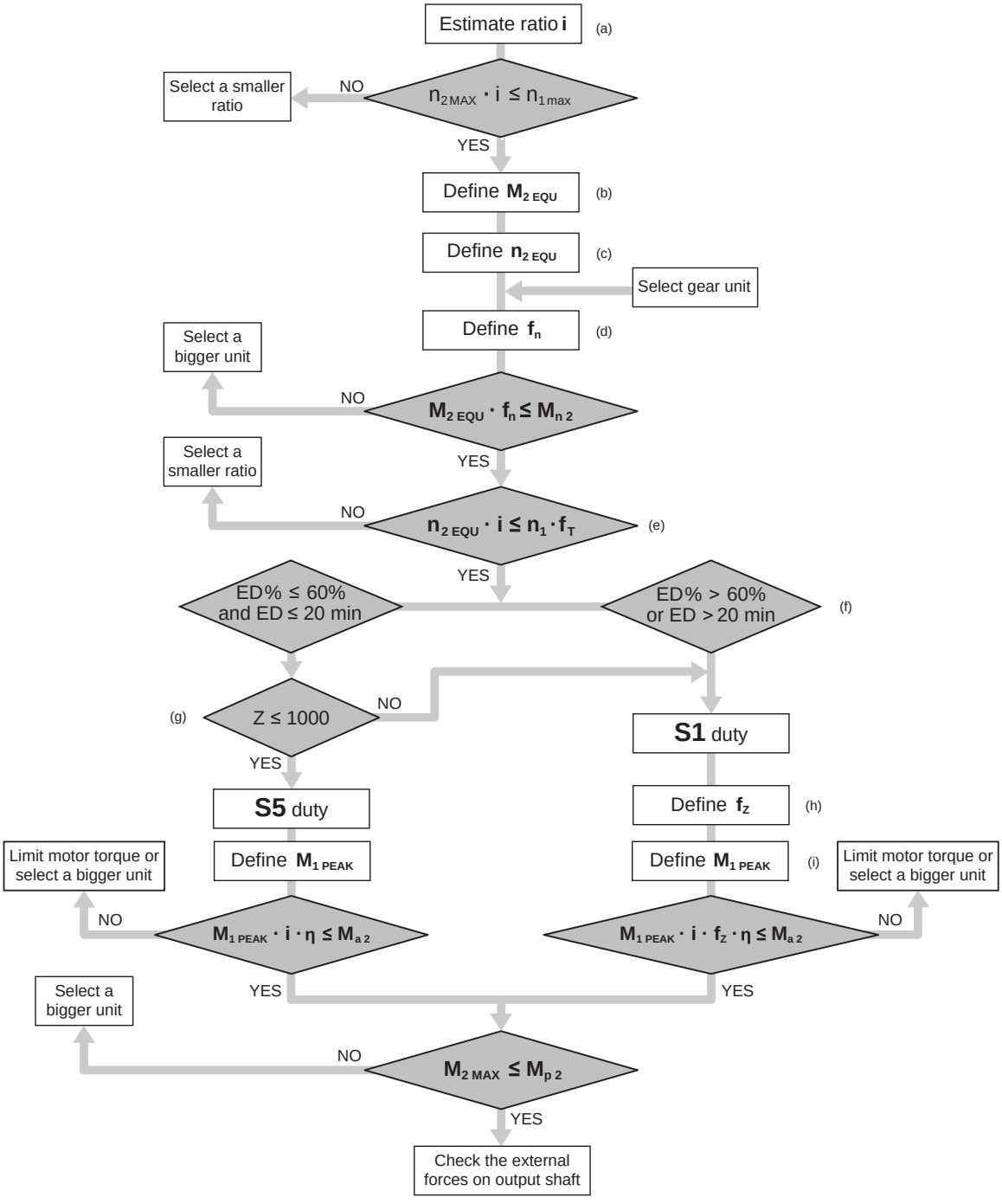
Load diagram

M_2: Output torque

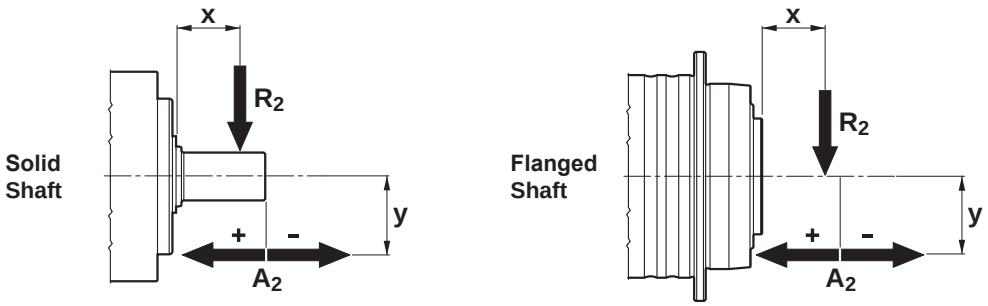
Speed diagram

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	$R_{2\,MAX}$ $A_{2\,MAX}$	[N] [N]	Please consider the specific conditions (e.g. belt drives under acceleration torque)
(b)	Maximum tilting moment applying on output shaft	$M_{T\,2\,MAX}$	[Nm]	$M_{T\,2\,MAX} = \frac{R_{2\,MAX} \cdot (x + L_Z) \pm A_{2\,MAX} \cdot y}{1000}$
(c)	Equivalent forces applying on output shaft	$R_{2\,EQU}$ $A_{2\,EQU}$	[N] [N]	$R_{2\,EQU} = \sqrt[3]{\frac{\lvert n_{2(1)}\rvert \cdot t_1 \cdot \lvert R_{2(1)}\rvert^3 + \ldots + \lvert n_{2(n)}\rvert \cdot t_n \cdot \lvert R_{2(n)}\rvert^3}{\lvert n_{2(1)}\rvert \cdot t_1 + \ldots + \lvert n_{2(n)}\rvert \cdot t_n}}$ $A_{2\,EQU} = \sqrt[3]{\frac{\lvert n_{2(1)}\rvert \cdot t_1 \cdot \lvert A_{2(1)}\rvert^3 + \ldots + \lvert n_{2(n)}\rvert \cdot t_n \cdot \lvert A_{2(n)}\rvert^3}{\lvert n_{2(1)}\rvert \cdot t_1 + \ldots + \lvert n_{2(n)}\rvert \cdot t_n}}$
(d)	Equivalent tilting moment applying on output shaft	$M_{T\,2\,EQU}$	[Nm]	$M_{T\,2\,EQU} = \frac{R_{2\,EQU} \cdot (x + L_Z) + A_{2\,EQU} \cdot y}{1000}$
(e)	Equivalent output speed	$n_{2\,EQU}$	[min^{-1}]	$n_{2\,EQU} = \frac{\lvert n_{2(1)}\rvert \cdot t_1 + \lvert n_{2(2)}\rvert \cdot t_2 + \ldots + \lvert n_{2(n)}\rvert \cdot t_n}{t_1 + t_2 + \ldots + t_n}$
(f)	Bearings' basic rating life	L_{10h}	[h]	$L_{10h} = \frac{16666}{n_{2\,EQU}} \cdot \left(\frac{C_B}{M_{T\,2\,EQU}}\right)^p$

		TQ / TQK 060	TQ / TQK 070		TQ / TQK 090		TQ / TQK 130	TQ / TQK 160
		SB	SB	HB	SB	HB	SB	SB
L_Z	[mm]	56	67	64	95	89	96	114
$M_{T\,2\,max}$	[Nm]	129.5	221	343	592	772	1233	2331
C_B	[Nm]	632	1065	1510	2898	3325	6395	9795
p	—	3	3	3.33	3	3.33	3.33	3.33

		TQF 060	TQF 070	TQF 090	TQF 130	TQF 160
L_Z	[mm]	48	72	78	100	128
$M_{T\,2\,max}$	[Nm]	115	318	430	1200	3700
C_B	[Nm]	490	1335	1815	5055	16200
p	-	3.33	3.33	3.33	3.33	3.33

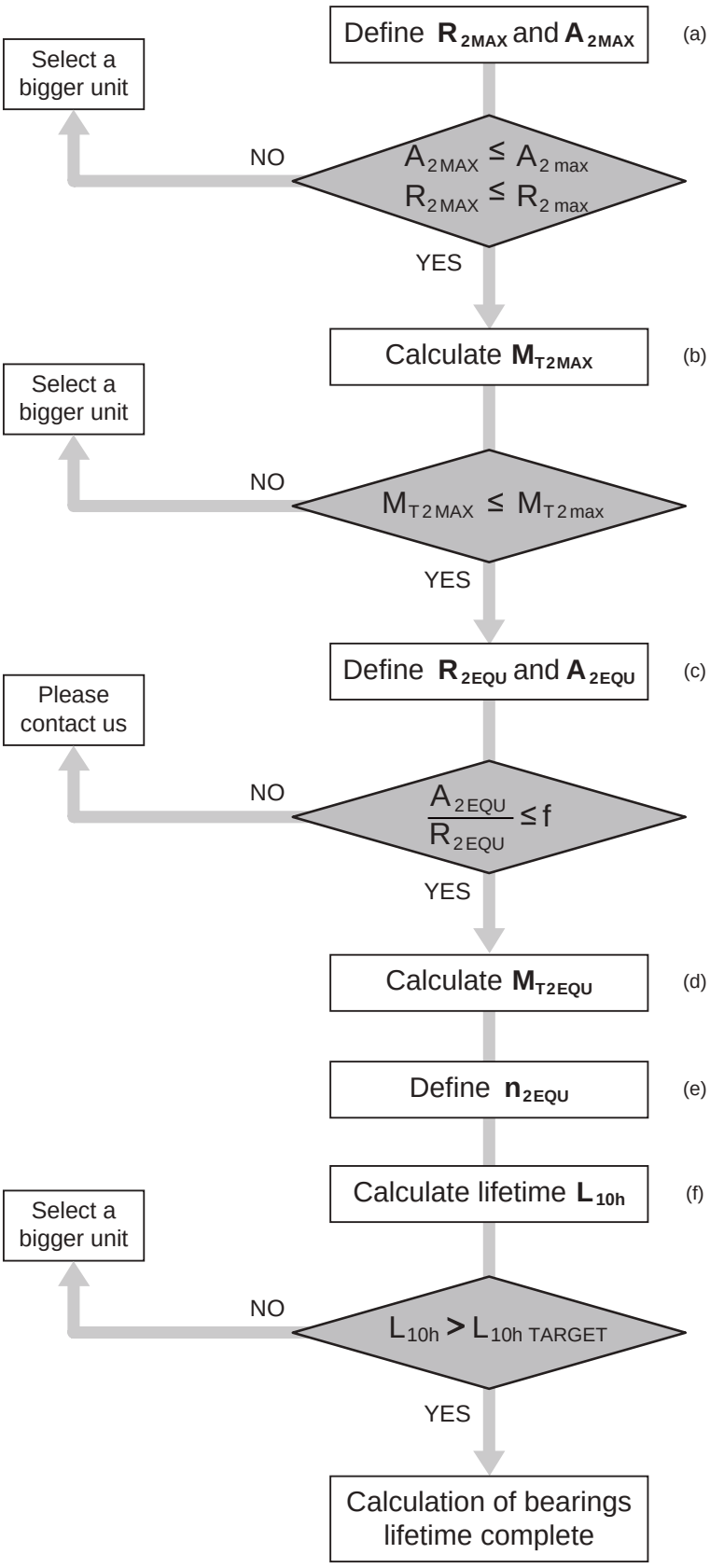
		TR 053 SB	TR 060 SB	TR 080 SB	TR 105 SB	TR 130 SB	TR 160 SB	TR 190 SB
L_Z	[mm]	22	23	42	53	74	94	100
$M_{T\,2\,max}$	[Nm]	16	23	155	278	515	739	1683
C_B	[Nm]	91	143	994	2048	3893	5824	8680
p	—	3	3	3.33	3.33	3.33	3.33	3.33

		MP 053	MP 060	MP 080		MP 105		MP 130	MP 160	MP 190
		SB	SB	SB	HB	SB	HB	SB	SB	SB
L_Z	[mm]	22	23	44	42	46	53	74	94	100
$M_{T\,2\,max}$	[Nm]	16	23	83	155	99	278	515	739	1683
C_B	[Nm]	91	143	407	994	637	2048	3893	5824	8680
p	—	3	3	3	3.33	3	3.33	3.33	3.33	3.33

		TQFE 060 TQFEK 060	TQFE 070 TQFEK 070	TQFE 090 TQFEK 090
L_Z	[mm]	21	34	44
$M_{T\,2\,max}$	[Nm]	70	280	650
C_B	[Nm]	14	57	125
p	—	3	3	3

		MPE 040	MPE 060 MPEK 060	MPE 080 MPEK 080	MPE 120 MPEK 120
L_Z	[mm]	16	23	31	37
$M_{T\,2\,max}$	[Nm]	6	17	44	124
C_B	[Nm]	29	80	213	615
p	—	3	3	3	3

		LC / LCK 050	LC / LCK / SL 070	LC / LCK / SL 090	LC / LCK / SL 120	LC / LCK 155
L_Z	[mm]	22	28	30	39	46
$M_{T\,2\,max}$	[Nm]	15	54	105	238	522
C_B	[Nm]	106	280	298	813	1588
p	—	3	3	3	3	3



f	TQ TQK	TQF	TR	MP	TQFE TQFEK	SL	LC LCK	MPE	MPEK	KR
0.26	060 SB ... 090 SB		053 SB ... 060 SB	053 SB ... 105 SB	060 ... 090	070 ... 120	050 ... 155	040 ... 120	060 ... 120	010 SB ... 040 SB
0.37	130 SB ; 160 SB 070 HB ; 090 HB	060 ... 160	080 SB ... 190 SB	130 SB ... 190 SB 080 HB ; 105 HB						020 HB ... 040 HB

Performance Line

(P)

TR Series

In addition to optimal performance, very low backlash, high overload capacity and easy installation, the TR series is characterized by great modularity due to multiple design configurations and wide ratios range, ensuring high reliability and the most fitting response to different applications requirements.

TR

Other design versions

- K/G version

- MB version

Main benefits

- Very low backlash
- Great flexibility thanks to a wide range of gear ratios and multiple design configurations
- Great variety of input and output configurations

Main features

- Nominal output torque (Nm)

12 - 1000

- Torsional backlash (arcmin)

3 - 7

- Torsional stiffness (Nm/arcmin)

0.7 - 130

- Max tilting moment (Nm)

16 - 1683

Protection class

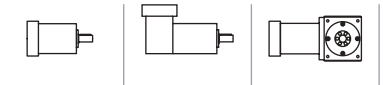
- IP65

Frame sizes

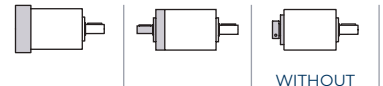
- 053
- 060
- 080
- 105
- 130
- 160
- 190

Main options

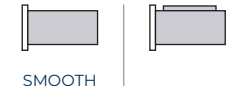
- Design versions



- Input versions



- Output shafts versions



- Service type

- Lubrication

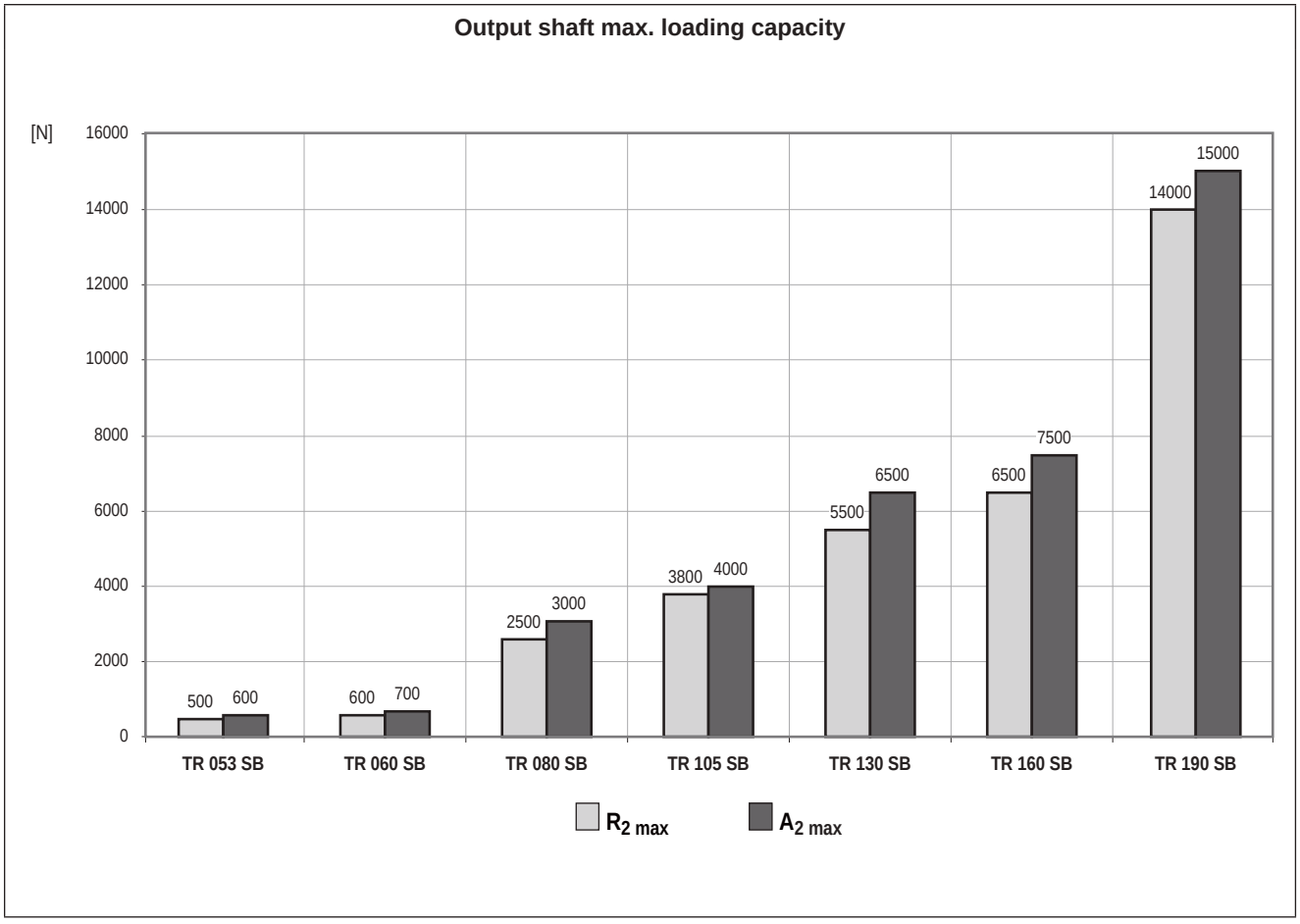
- Bearings versions

5 FEATURES OF TR SERIES

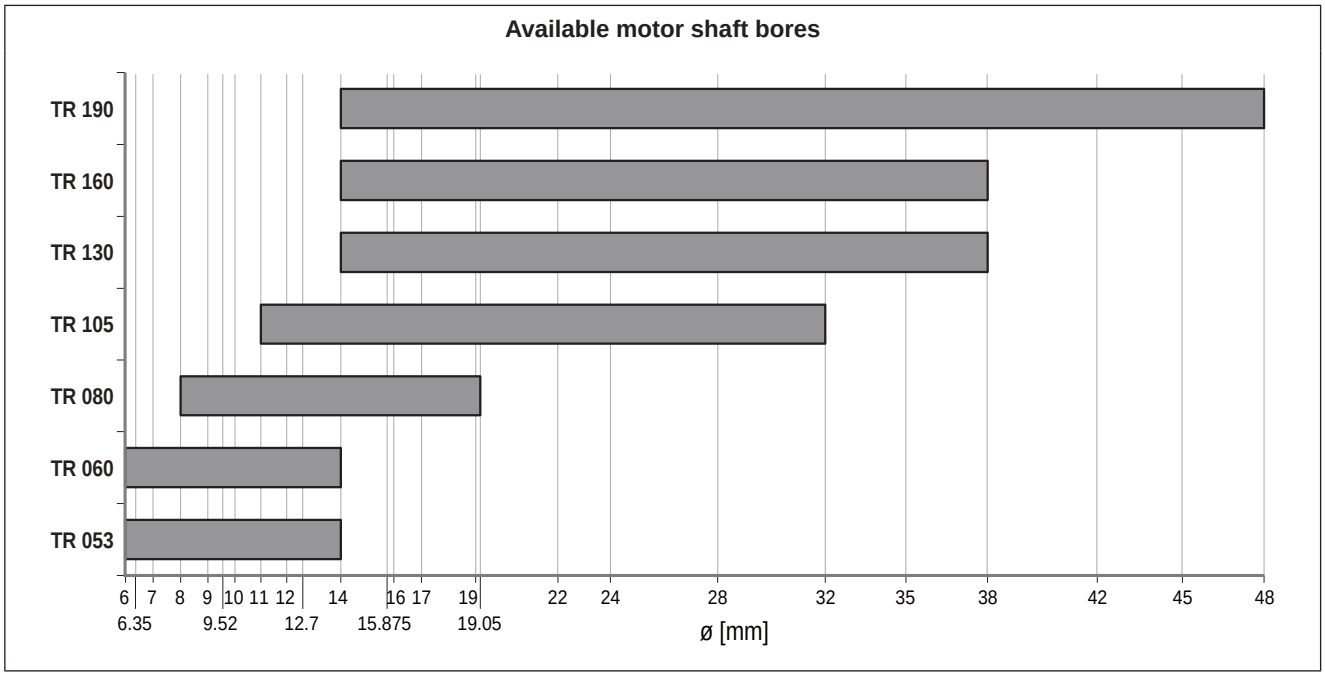
Planetary gear units of the TR series belong to a range of low backlash drives very broad and complete as far as transmissible torque, gear ratios and torsional backlash.
All units are generously proportioned to run quietly and provide a long service life without maintenance requirements.
Motor mounting 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 $\varphi_S \leq 5'$; reduced $\varphi_R \leq 3'$
  2-stage units: standard $\varphi_S \leq 5'$; reduced $\varphi_R \leq 3'$
  3-stage units (G and MB only): standard $\varphi_R \leq 5'$; reduced $\varphi_R \leq 3'$
  3-stage units: standard $\varphi_S \leq 7'$; reduced $\varphi_R \leq 5'$
  4-stage units (G and MB only): standard $\varphi_S \leq 7'$; reduced $\varphi_R \leq 5'$
- A high IP rating (IP65) provides inner parts with protection against the ingress of dust and liquids.
- Fluoroelastometer oils seals are supplied for S1 duty.
- Noise pressure level $L_P \leq 70$ dB(A). Conditions: distance 1 m; measured without load an input speed of $n_1 = 3000$ 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.

	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 optmized 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
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 f_T.
- Housing temperature must not exceed T_{max} = 90°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
TR 053	12	15	15	15	15	12	–	20	20	20	20	20	20	–	20	15	–	20	20	–	20	20	–	20	20	12	20	–
TR 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
TR 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
TR 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
TR 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
TR 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
TR 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
TR 053	20	20	–	20	20	20	–	–	20	20	–	–	20	20	20	–	20	–	20	–	–	20	–	20	–	12	–
TR 060	18	–	30	30	30	–	30	30	30	–	30	30	30	–	–	30	–	30	–	30	30	–	30	–	30	–	18
TR 080	40	–	70	70	70	–	70	70	70	–	70	70	70	–	–	70	–	70	–	70	70	–	70	–	70	–	40
TR 105	100	–	170	170	170	–	170	170	170	–	170	170	170	–	–	170	–	170	–	170	170	–	170	–	170	–	100
TR 130	215	–	450	450	450	–	450	450	450	–	450	450	450	–	–	450	–	450	–	450	450	–	450	–	450	–	215
TR 160	700	–	350	700	700	–	700	700	700	–	700	700	–	–	–	700	–	700	–	700	700	–	700	–	700	–	350
TR 190	1000	–	500	1000	1000	–	1000	1000	1000	–	1000	1000	–	–	–	1000	–	1000	–	1000	1000	–	1000	–	1000	–	500

5.1 ORDERING CODE

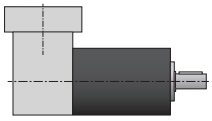
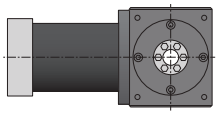
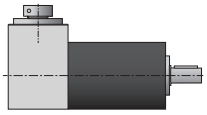
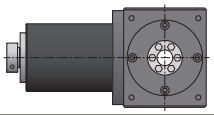
TR G 080 3 20 STD 95A CD 19 S1 OR SB KL UH1

- **SERIES**
  - **TR**
- **VERSION**
  - **–** coaxial
  - **K** with input right-angle (TR 053 ... TR 060)
  - **G** with input right-angle (TR 080 ... TR 160)
  - **MB** with output right-angle (TR 080 ... TR 160)
- **FRAME SIZE**
  - **053 060 080 105 130 160 190**
- **REDUCTIONS**
  - **1 2 3 4**
- **GEAR RATIO**
- **BACKLASH**

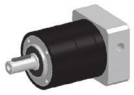
	1 reduction	2 reductions	3 reductions (K, G, MB only)	3 reductions	4 reductions (K, G, MB only)
STD	$\varphi_S \le 5'$	$\varphi_S \le 5'$	$\varphi_S \le 5'$	$\varphi_S \le 7'$	$\varphi_S \le 7'$
LOW (⛔ TR 053)	$\varphi_R \le 3'$	$\varphi_R \le 3'$	$\varphi_R \le 3'$	$\varphi_R \le 5'$	$\varphi_R \le 5'$

- **INPUT SECTION**
  - **25AH ... 180A1** motor adapter
  - **IS** solid input shaft (TR 053 ... TR 160) (⛔ K, G, MB)
  - **FM** without motor adapter
- **MOTOR COUPLING**
  - **CD** clamping device (⛔ IS)
- **INPUT SHAFT BORE**
  - **6 ... 48** (⛔ IS)
- **DUTY**
  - **S1** continuous duty
  - **S5** intermittent duty
- **MOUNTING POSITION**
  - **OR** horizontal
  - **VA** vertical with motor up
  - **VB** vertical with motor down
- **OUTPUT SHAFT BEARINGS**
  - **SB** standard
- **OUTPUT SHAFT CONFIGURATION**
  - **KL** smooth keyless shaft
  - **KE** keyed shaft (⛔ MB)
- **LUBRICANT**
  - **–** standard
  - **UH1** food grade synthetic lubricant

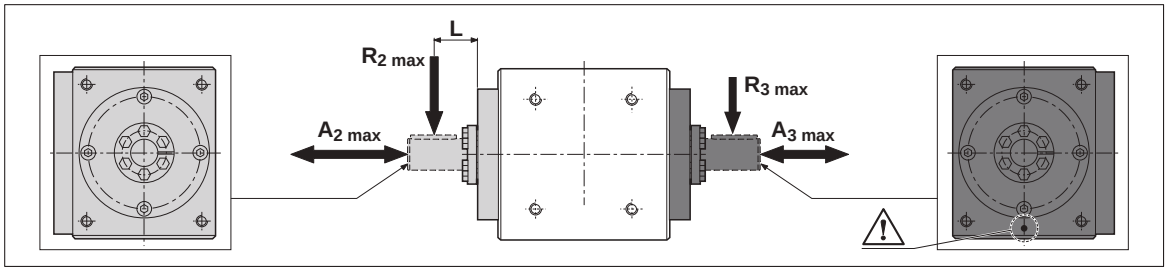
5.1.1 VERSION AND INPUT SECTION

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

5.1.2 MOUNTING POSITIONS

	OR	VA	VB
—			
K - G			
MB			

5.2 ADMISSIBLE RADIAL AND AXIAL FORCES FOR MB VERSION



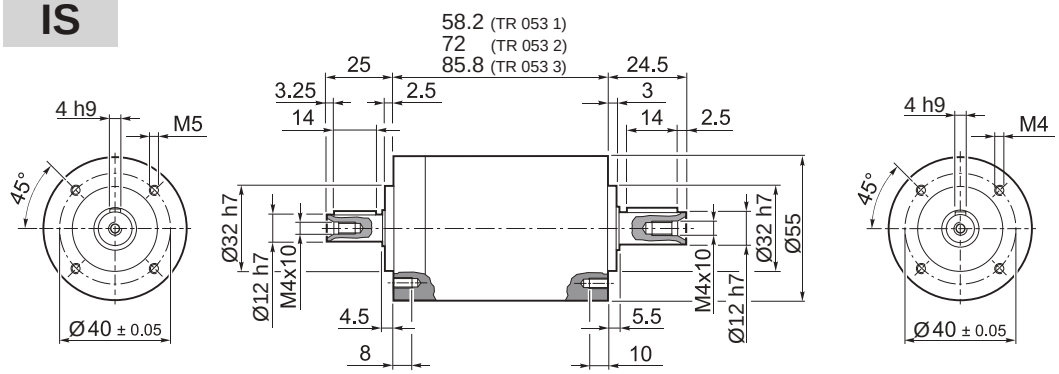
	$R_{2\ max}$ [N]	$A_{2\ max}$ [N]	L [mm]	$R_{3\ max}$ [N]	$A_{3\ max}$ [N]
TR MB 080	6000	5000	60	5500	5000
TR MB 105	9000	7500	80	7500	7500
TR MB 130	13500	11500	100	11000	11500
TR MB 160*	15000	11500	100	12500	11500

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

5.3 DIMENSIONS AND TECHNICAL SPECIFICATIONS

TR 053

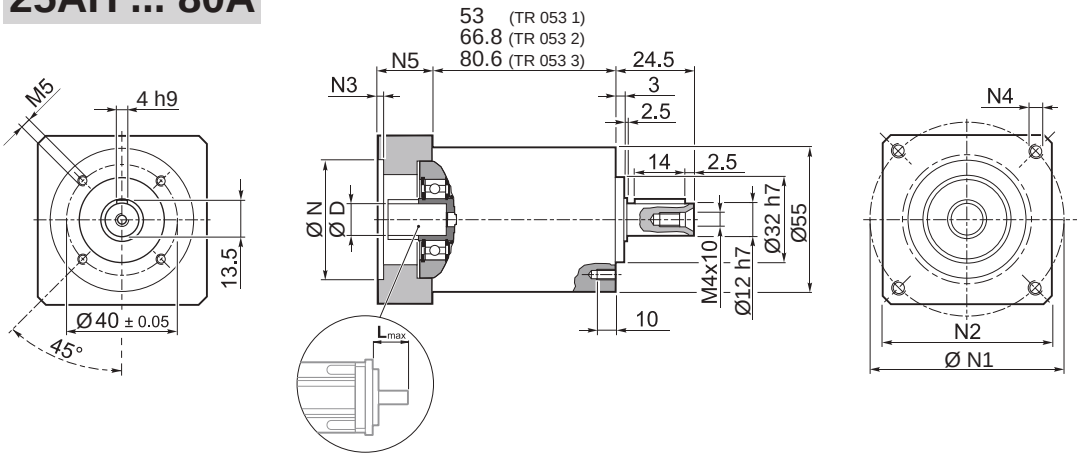
IS



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

TR

25AH ... 80A



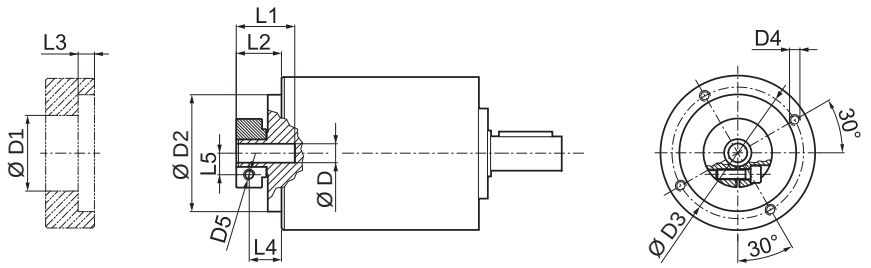
	Kg
TR 053 1	0.8
TR 053 2	1.0
TR 053 3	1.3

	D											N	N1		N2	N3	N4	N5	L_{max}
													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		65	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		65	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	5	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 different motor adapters and input shaft bore.

TR 053

FM

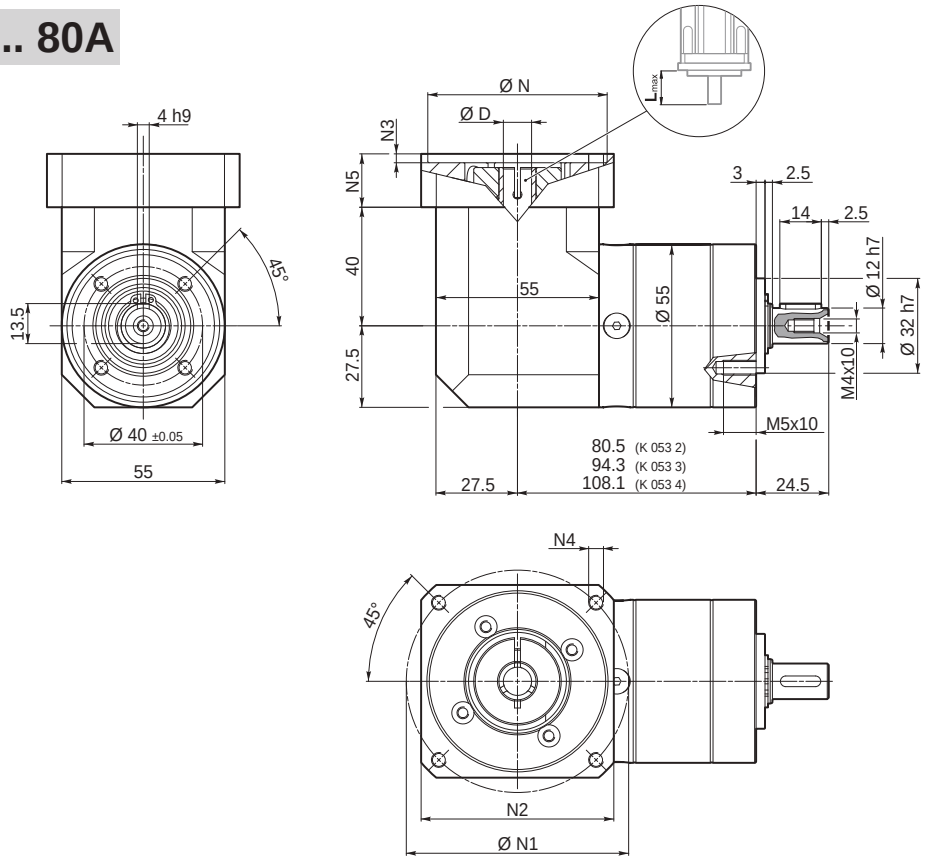


D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
6	6.35	7		32.5	50	42.5	M4x8	M4	20.2	13.2	3	8.7	8
8	9	9.52	10	32.5	50	42.5	M4x8	M4	20.2	13.2	3	7.8	9
11	12	12.7		35.5	50	42.5	M4x8	M4	20.5	13.5	3	8.5	11
14				35.5	50	42.5	M4x8	M4	24	17	3	10.2	11.5

i	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	C_t [Nm/arcmin]	$R_{1\,max}$ [N]	$R_{2\,max}$ [N]	$A_{2\,max}$ [N]	η %	J_G [$kgcm^2$] D 6 ... 9.52	J_G [$kgcm^2$] D 10 ... 14
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	4000	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 K 053

25AH ... 80A



	Kg
TR K 053 2	1.3
TR K 053 3	1.5
TR K 053 4	1.8

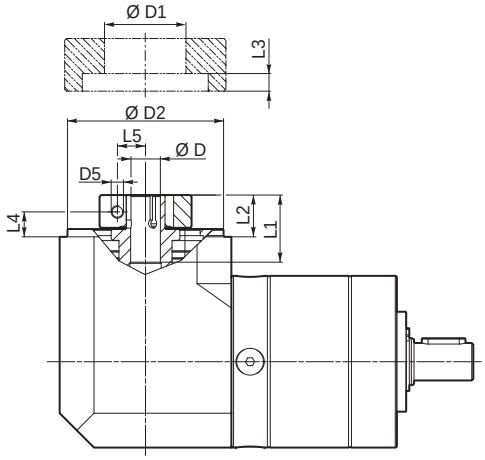
TR

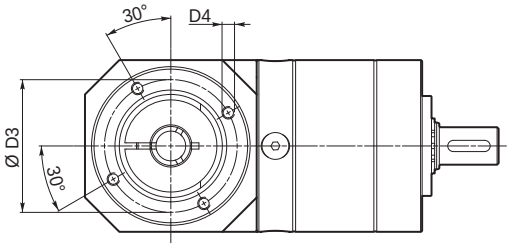
	D											N	N1		N2	N3	N4	N5	L_{max}
													min	max					
25AH	6	6.35	7	8	9	9.52	–	–	–	–	–	25	36	48					
26AH	6	6.35	7	8	9	9.52	–	–	–	–	–	26	36	48					
28AH	6	6.35	7	8	9	9.52	–	–	–	–	–	28	36	48					
30AH	6	6.35	7	8	9	9.52	–	–	–	–	–	30	36	48					
32AH	6	6.35	7	8	9	9.52	–	–	–	–	–	32	38	48	55	3.5	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		65	3	M5x12	18	25
60A1	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	75		65	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	5	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 different motor adapters and input shaft bore.

TR K 053

FM



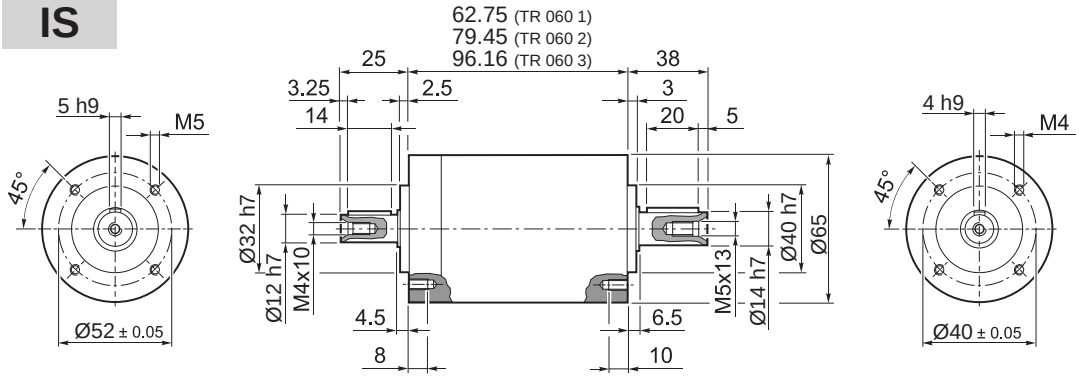


D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
6	6.35	7		32.5	50	42.5	M4x8	M4	20.2	13.2	3	8.7	8
8	9	9.52	10	32.5	50	42.5	M4x8	M4	20.2	13.2	3	7.8	9
11	12	12.7		35.5	50	42.5	M4x8	M4	20.5	13.5	3	8.5	11
14				35.5	50	42.5	M4x8	M4	24	17	3	10.2	11.5

i	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	C_t [Nm/arcmin]	$R_{2\,max}$ [N]	$A_{2\,max}$ [N]	η %	J_G [kgcm^2] D 6 ... 9.52	J_G [kgcm^2] D 10 ... 14
TR K 053 2_3	12	22	40	3300	4000	5'	1.0	500	600	94	0.18	0.20
TR K 053 2_4	15	28	45	3500	5000	5'	1.0	500	600	94	0.18	0.19
TR K 053 2_5	15	28	45	3500	5000	5'	1.0	500	600	94	0.17	0.19
TR K 053 2_6	15	28	45	3500	5000	5'	1.0	500	600	94	0.17	0.18
TR K 053 2_7	15	28	45	4000	6000	5'	1.0	500	600	94	0.17	0.19
TR K 053 2_9	12	22	40	4000	6000	5'	1.0	500	600	94	0.17	0.18
TR K 053 3_12	20	30	60	3300	4000	5'	0.9	500	600	91	0.18	0.20
TR K 053 3_15	20	30	60	3300	4000	5'	0.9	500	600	91	0.18	0.20
TR K 053 3_16	20	30	60	3500	5000	5'	0.9	500	600	91	0.17	0.19
TR K 053 3_20	20	30	60	3500	5000	5'	0.9	500	600	91	0.17	0.19
TR K 053 3_25	20	30	60	3500	5000	5'	0.9	500	600	91	0.17	0.19
TR K 053 3_28	20	30	60	4000	6000	5'	0.9	500	600	91	0.17	0.19
TR K 053 3_35	20	30	60	4000	6000	5'	0.9	500	600	91	0.17	0.19
TR K 053 3_36	15	28	45	4000	6000	5'	0.9	500	600	91	0.17	0.18
TR K 053 3_45	20	30	60	4000	6000	5'	0.9	500	600	91	0.17	0.19
TR K 053 3_81	12	22	40	4000	6000	5'	0.9	500	600	91	0.17	0.18
TR K 053 4_48	20	30	60	4000	5000	7'	0.7	500	600	89	0.18	0.19
TR K 053 4_60	20	30	60	3500	5000	7'	0.7	500	600	89	0.18	0.19
TR K 053 4_64	20	30	60	3500	5000	7'	0.7	500	600	89	0.17	0.19
TR K 053 4_75	20	30	60	3500	5000	7'	0.7	500	600	89	0.17	0.19
TR K 053 4_80	20	30	60	3500	5000	7'	0.7	500	600	89	0.17	0.19
TR K 053 4_84	20	30	60	4000	6000	7'	0.7	500	600	89	0.17	0.19
TR K 053 4_100	20	30	60	3500	5000	7'	0.7	500	600	89	0.17	0.19
TR K 053 4_112	20	30	60	4000	6000	7'	0.7	500	600	89	0.17	0.19
TR K 053 4_125	20	30	60	3500	5000	7'	0.7	500	600	89	0.17	0.19
TR K 053 4_140	20	30	60	4000	6000	7'	0.7	500	600	89	0.17	0.19
TR K 053 4_144	20	30	60	4000	6000	7'	0.7	500	600	89	0.17	0.18
TR K 053 4_175	20	30	60	4000	6000	7'	0.7	500	600	89	0.17	0.19
TR K 053 4_180	20	30	60	4000	6000	7'	0.7	500	600	89	0.17	0.18
TR K 053 4_216	20	30	60	3500	5000	7'	0.7	500	600	89	0.17	0.18
TR K 053 4_225	20	30	60	4000	6000	7'	0.7	500	600	89	0.17	0.18
TR K 053 4_245	20	30	60	4000	6000	7'	0.7	500	600	89	0.17	0.19
TR K 053 4_252	20	30	60	4000	6000	7'	0.7	500	600	89	0.18	0.20
TR K 053 4_324	20	30	60	4000	6000	7'	0.7	500	600	89	0.17	0.18
TR K 053 4_405	20	30	60	4000	6000	7'	0.7	500	600	89	0.17	0.18
TR K 053 4_567	20	30	60	4000	6000	7'	0.7	500	600	89	0.17	0.18
TR K 053 4_729	12	22	40	4000	6000	7'	0.7	500	600	89	0.17	0.18

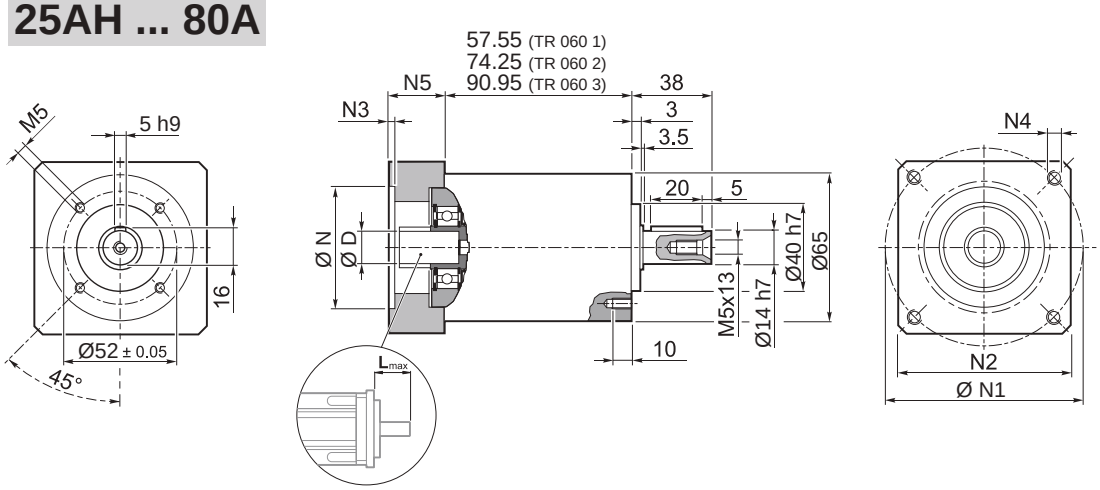
TR 060

IS



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

25AH ... 80A



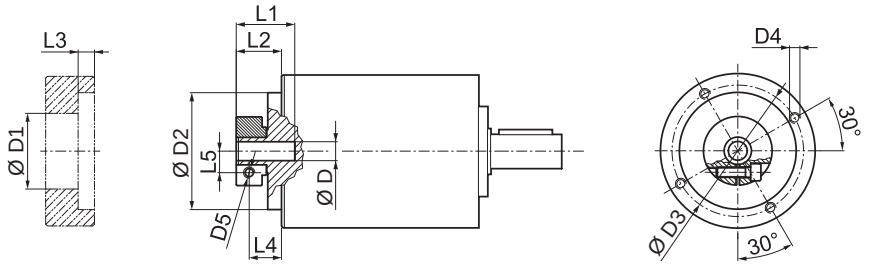
	Kg
TR 060 1	1.2
TR 060 2	1.7
TR 060 3	2.0

	D											N	N1		N2	N3	N4	N5	L_{max}
													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		65	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		65	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	5	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 different motor adapters and input shaft bore.

TR 060

FM

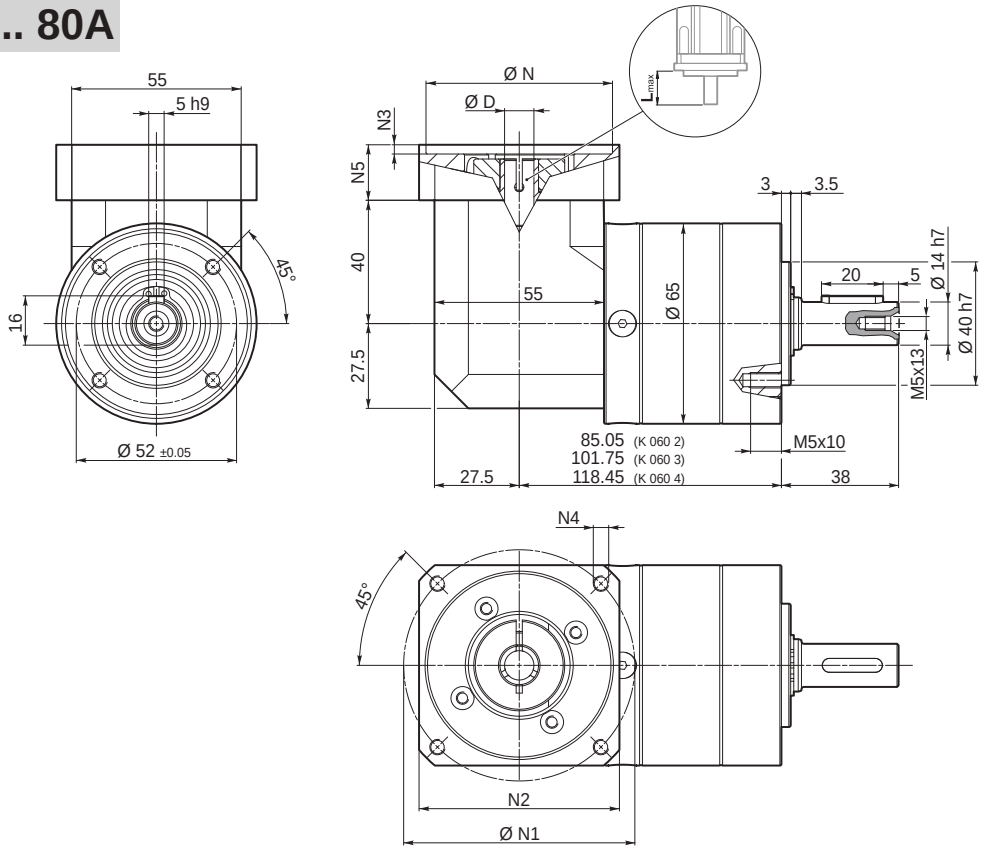


D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
6	6.35	7		32.5	50	42.5	M4x8	M4	20.2	13.2	3	8.7	8
8	9	9.52	10	32.5	50	42.5	M4x8	M4	20.2	13.2	3	7.8	9
11	12	12.7		35.5	50	42.5	M4x8	M4	20.5	13.5	3	8.5	11
14				35.5	50	42.5	M4x8	M4	24	17	3	10.2	11.5

i	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	φ_R [arcmin]	C_t [Nm/arcmin]	$R_{1\,max}$ [N]	$R_{2\,max}$ [N]	$A_{2\,max}$ [N]	η %	J_G [kgcm^2] D 6 ... 9.52	J_G [kgcm^2] D 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	3500	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 K 060

25AH ... 80A



	Kg
TR K 060 2	1.7
TR K 060 3	2.2
TR K 060 4	2.5

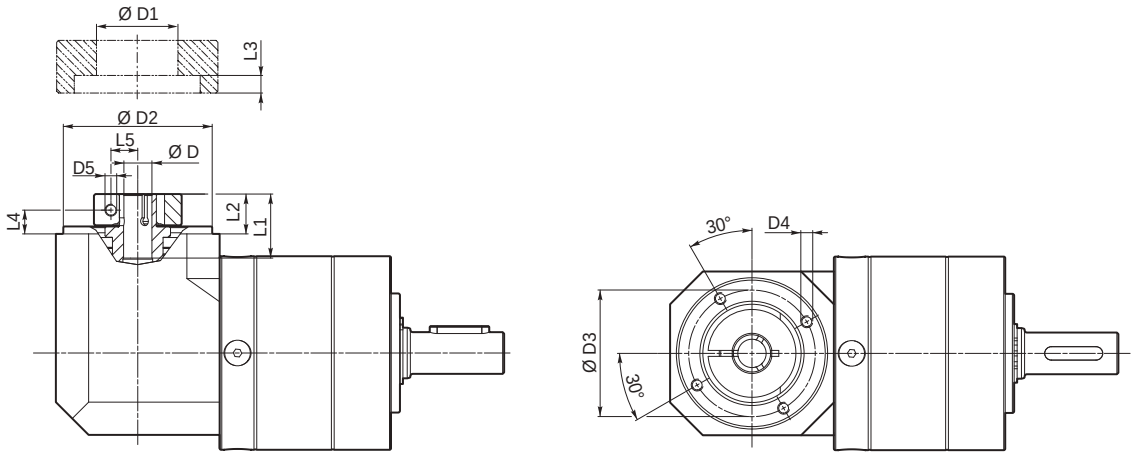
TR

	D											N	N1		N2	N3	N4	N5	L_{max}
													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		65	3	M5x12	18	25
60A1	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	75		65	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	5	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 different motor adapters and input shaft bore.

TR K 060

FM

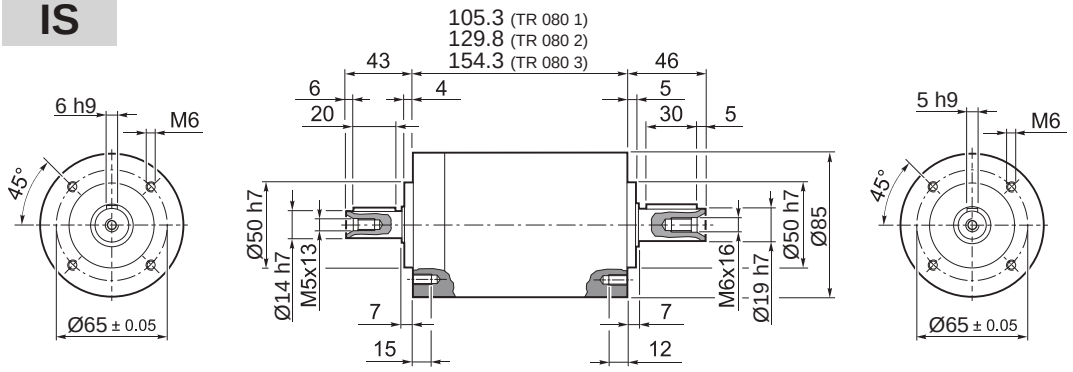


D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
6	6.35	7		32.5	50	42.5	M4x8	M4	20.2	13.2	3	8.7	8
8	9	9.52	10	32.5	50	42.5	M4x8	M4	20.2	13.2	3	7.8	9
11	12	12.7		35.5	50	42.5	M4x8	M4	20.5	13.5	3	8.5	11
14				35.5	50	42.5	M4x8	M4	24	17	3	10.2	11.5

i	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	φ_R [arcmin]	C_t [Nm/arcmin]	$R_{2\,max}$ [N]	$A_{2\,max}$ [N]	η %	J_G [kgcm^2] D 6 ... 9.52	J_G [kgcm^2] D 10 ... 14
TR K 060 2_3	18	35	70	3300	4000	5'	3'	3.0	600	700	94	0.20	0.20
TR K 060 2_4	25	40	90	3500	5000	5'	3'	3.0	600	700	94	0.18	0.20
TR K 060 2_5	25	40	90	3500	5000	5'	3'	3.0	600	700	94	0.17	0.19
TR K 060 2_6	25	40	90	3500	5000	5'	3'	3.0	600	700	94	0.17	0.19
TR K 060 2_7	25	40	90	4000	6000	5'	3'	3.0	600	700	94	0.17	0.19
TR K 060 2_10	18	35	70	4000	6000	5'	3'	3.0	600	700	94	0.17	0.18
TR K 060 3_9	18	35	70	3300	4000	5'	3'	2.5	600	700	91	0.20	0.21
TR K 060 3_12	30	45	100	3300	4000	5'	3'	2.5	600	700	91	0.20	0.21
TR K 060 3_15	30	45	100	3300	4000	5'	3'	2.5	600	700	91	0.19	0.21
TR K 060 3_16	30	45	100	3500	5000	5'	3'	2.5	600	700	91	0.18	0.20
TR K 060 3_20	30	45	100	3500	5000	5'	3'	2.5	600	700	91	0.17	0.19
TR K 060 3_25	30	45	100	3500	5000	5'	3'	2.5	600	700	91	0.17	0.18
TR K 060 3_28	30	45	100	4000	6000	5'	3'	2.5	600	700	91	0.17	0.19
TR K 060 3_30	18	35	70	4000	6000	5'	3'	2.5	600	700	91	0.17	0.18
TR K 060 3_35	30	45	100	4000	6000	5'	3'	2.5	600	700	91	0.18	0.19
TR K 060 3_36	25	40	90	3500	5000	5'	3'	2.5	600	700	91	0.18	0.19
TR K 060 3_40	30	45	100	4000	6000	5'	3'	2.5	600	700	91	0.17	0.18
TR K 060 3_50	30	45	100	4000	6000	5'	3'	2.5	600	700	91	0.17	0.18
TR K 060 3_70	30	45	100	4000	6000	5'	3'	2.5	600	700	91	0.17	0.18
TR K 060 3_100	18	35	70	4000	6000	5'	3'	2.5	600	700	91	0.17	0.18
TR K 060 4_48	30	45	100	3500	5000	7'	5'	2.0	600	700	89	0.18	0.20
TR K 060 4_64	30	45	100	3500	5000	7'	5'	2.0	600	700	89	0.18	0.20
TR K 060 4_75	30	45	100	3500	5000	7'	5'	2.0	600	700	89	0.17	0.19
TR K 060 4_80	30	45	100	3500	5000	7'	5'	2.0	600	700	89	0.18	0.20
TR K 060 4_84	30	45	100	4000	6000	7'	5'	2.0	600	700	89	0.17	0.19
TR K 060 4_90	18	35	70	4000	6000	7'	5'	2.0	600	700	89	0.17	0.18
TR K 060 4_120	30	45	100	4000	6000	7'	5'	2.0	600	700	89	0.15	0.17
TR K 060 4_125	30	45	100	3500	5000	7'	5'	2.0	600	700	89	0.17	0.19
TR K 060 4_140	30	45	100	4000	6000	7'	5'	2.0	600	700	89	0.17	0.19
TR K 060 4_150	30	45	100	4000	6000	7'	5'	2.0	600	700	89	0.17	0.18
TR K 060 4_160	30	45	100	4000	6000	7'	5'	2.0	600	700	89	0.17	0.18
TR K 060 4_175	30	45	100	4000	6000	7'	5'	2.0	600	700	89	0.17	0.19
TR K 060 4_200	30	45	100	4000	6000	7'	5'	2.0	600	700	89	0.17	0.18
TR K 060 4_210	30	45	100	4000	6000	7'	5'	2.0	600	700	89	0.17	0.18
TR K 060 4_216	30	45	100	3500	5000	7'	5'	2.0	600	700	89	0.17	0.19
TR K 060 4_250	30	45	100	4000	6000	7'	5'	2.0	600	700	89	0.17	0.18
TR K 060 4_280	30	45	100	4000	6000	7'	5'	2.0	600	700	89	0.17	0.18
TR K 060 4_350	30	45	100	4000	6000	7'	5'	2.0	600	700	89	0.17	0.18
TR K 060 4_400	30	45	100	4000	6000	7'	5'	2.0	600	700	89	0.17	0.18
TR K 060 4_500	30	45	100	4000	6000	7'	5'	2.0	600	700	89	0.17	0.18
TR K 060 4_700	30	45	100	4000	6000	7'	5'	2.0	600	700	89	0.17	0.18
TR K 060 4_1000	18	35	70	4000	6000	7'	5'	2.0	600	700	89	0.17	0.18

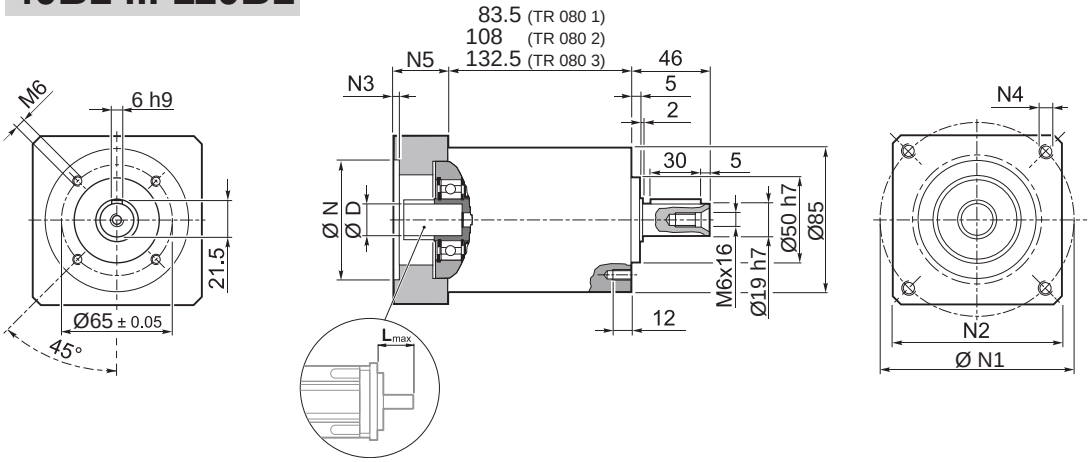
TR 080

IS



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

40B1 ... 110B1



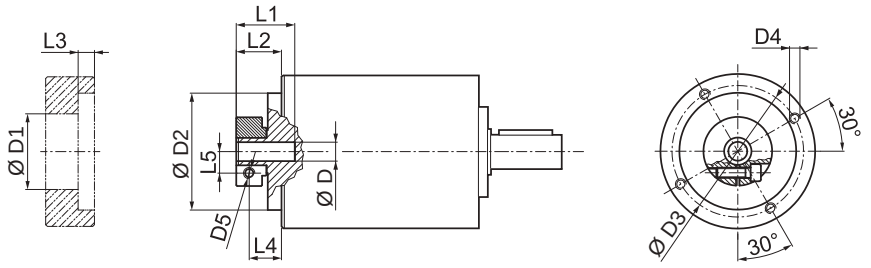
	Kg
TR 080 1	4.0
TR 080 2	4.6
TR 080 3	5.2

	D												N	N1	N2	N3	N4	N5	L_{max}
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 different motor adapters and input shaft bore.

TR 080

FM

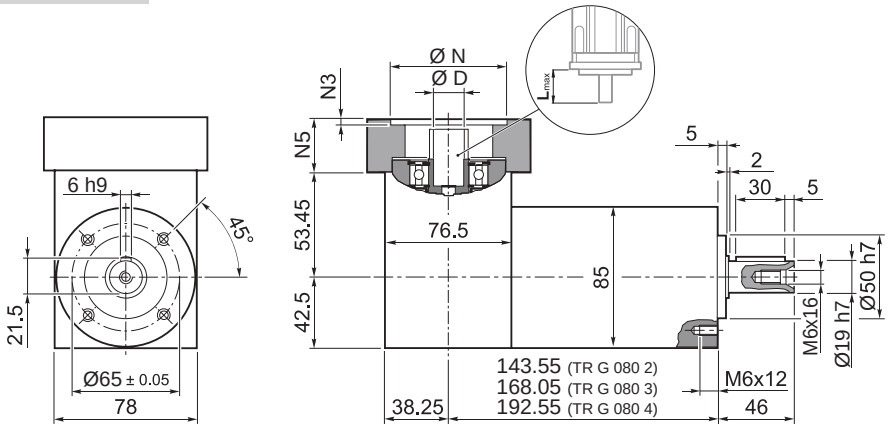


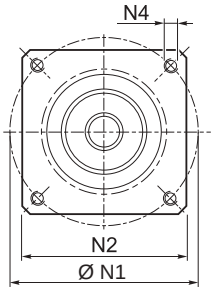
D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
8	9	9.52		38	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	10.5
11	12	12.7		43	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	12.5
14	15.875	16	17	48	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	14.5
19	19.05			51	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	16.5

i	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	φ_R [arcmin]	C_t [Nm/arcmin]	$R_{1\,max}$ [N]	$R_{2\,max}$ [N]	$A_{2\,max}$ [N]	η %	J_G [kgcm^2] D 8 ... 12.7	J_G [kgcm^2] D 14 ... 19.05
TR 080 1_3	40	80	180	2900	3500	5'	3'	8.0	400	2500	3000	97	0.50	0.59
TR 080 1_4	50	80	200	3100	4500	5'	3'	8.0	400	2500	3000	97	0.34	0.43
TR 080 1_5	50	80	200	3200	4500	5'	3'	8.0	400	2500	3000	97	0.28	0.37
TR 080 1_6	50	80	200	3200	4500	5'	3'	8.0	400	2500	3000	97	0.21	0.30
TR 080 1_7	50	80	200	4000	6000	5'	3'	8.0	400	2500	3000	97	0.23	0.32
TR 080 1_10	40	80	180	4000	6000	5'	3'	8.0	400	2500	3000	97	0.20	0.29
TR 080 2_9	40	80	180	2900	3500	5'	3'	6.5	400	2500	3000	94	0.49	0.58
TR 080 2_12	70	100	250	2900	3500	5'	3'	6.5	400	2500	3000	94	0.47	0.56
TR 080 2_15	70	100	250	2900	3500	5'	3'	6.5	400	2500	3000	94	0.46	0.55
TR 080 2_16	70	100	250	3100	4500	5'	3'	6.5	400	2500	3000	94	0.32	0.41
TR 080 2_20	70	100	250	3200	4500	5'	3'	6.5	400	2500	3000	94	0.27	0.36
TR 080 2_25	70	100	250	3200	4500	5'	3'	6.5	400	2500	3000	94	0.27	0.36
TR 080 2_28	70	100	250	4000	6000	5'	3'	6.5	400	2500	3000	94	0.22	0.31
TR 080 2_30	40	80	180	4000	6000	5'	3'	6.5	400	2500	3000	94	0.20	0.29
TR 080 2_35	70	100	250	4000	6000	5'	3'	6.5	400	2500	3000	94	0.22	0.31
TR 080 2_36	50	80	200	3200	4500	5'	3'	6.5	400	2500	3000	94	0.20	0.29
TR 080 2_40	70	100	250	4000	6000	5'	3'	6.5	400	2500	3000	94	0.20	0.29
TR 080 2_50	70	100	250	4000	6000	5'	3'	6.5	400	2500	3000	94	0.19	0.28
TR 080 2_70	70	100	250	4000	6000	5'	3'	6.5	400	2500	3000	94	0.19	0.28
TR 080 2_100	40	80	180	4000	6000	5'	3'	6.5	400	2500	3000	94	0.19	0.28
TR 080 3_48	70	100	250	3100	4500	7'	5'	5.5	400	2500	3000	91	0.33	0.42
TR 080 3_64	70	100	250	3100	4500	7'	5'	5.5	400	2500	3000	91	0.32	0.41
TR 080 3_75	70	100	250	3200	4500	7'	5'	5.5	400	2500	3000	91	0.27	0.36
TR 080 3_80	70	100	250	3100	4500	7'	5'	5.5	400	2500	3000	91	0.32	0.41
TR 080 3_84	70	100	250	4000	6000	7'	5'	5.5	400	2500	3000	91	0.23	0.32
TR 080 3_90	40	80	180	4000	6000	7'	5'	5.5	400	2500	3000	91	0.20	0.29
TR 080 3_120	70	100	250	4000	6000	7'	5'	5.5	400	2500	3000	91	0.20	0.29
TR 080 3_125	70	100	250	3200	4500	7'	5'	5.5	400	2500	3000	91	0.27	0.36
TR 080 3_140	70	100	250	4000	6000	7'	5'	5.5	400	2500	3000	91	0.22	0.31
TR 080 3_150	70	100	250	4000	6000	7'	5'	5.5	400	2500	3000	91	0.20	0.29
TR 080 3_160	70	100	250	4000	6000	7'	5'	5.5	400	2500	3000	91	0.20	0.29
TR 080 3_175	70	100	250	4000	6000	7'	5'	5.5	400	2500	3000	91	0.22	0.31
TR 080 3_200	70	100	250	4000	6000	7'	5'	5.5	400	2500	3000	91	0.20	0.29
TR 080 3_210	70	100	250	4000	6000	7'	5'	5.5	400	2500	3000	91	0.20	0.29
TR 080 3_216	70	100	250	3200	4500	7'	5'	5.5	400	2500	3000	91	0.20	0.29
TR 080 3_250	70	100	250	4000	6000	7'	5'	5.5	400	2500	3000	91	0.19	0.28
TR 080 3_280	70	100	250	4000	6000	7'	5'	5.5	400	2500	3000	91	0.19	0.28
TR 080 3_350	70	100	250	4000	6000	7'	5'	5.5	400	2500	3000	91	0.19	0.28
TR 080 3_400	70	100	250	4000	6000	7'	5'	5.5	400	2500	3000	91	0.19	0.28
TR 080 3_500	70	100	250	4000	6000	7'	5'	5.5	400	2500	3000	91	0.19	0.28
TR 080 3_700	70	100	250	4000	6000	7'	5'	5.5	400	2500	3000	91	0.19	0.28
TR 080 3_1000	40	80	180	4000	6000	7'	5'	5.5	400	2500	3000	91	0.19	0.28

TR G 080

40B1 ... 110B1





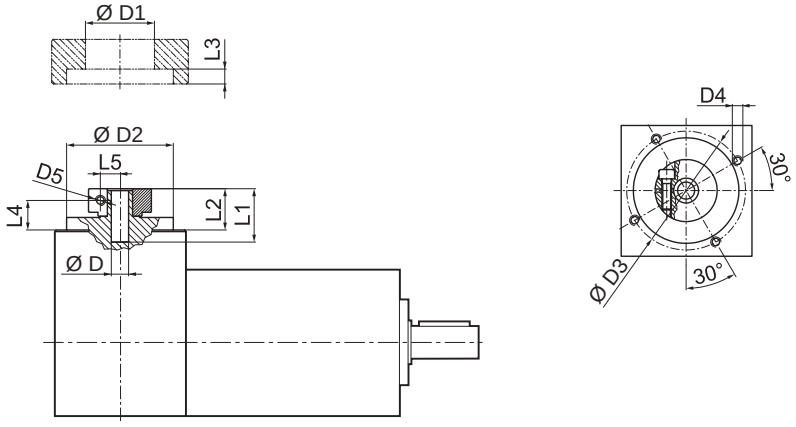
	Kg
TR G 080 2	5.2
TR G 080 3	5.8
TR G 080 4	6.4

	D												N	N1	N2	N3	N4	N5	L_{max}
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 different motor adapters and input shaft bore.

TR G 080

FM



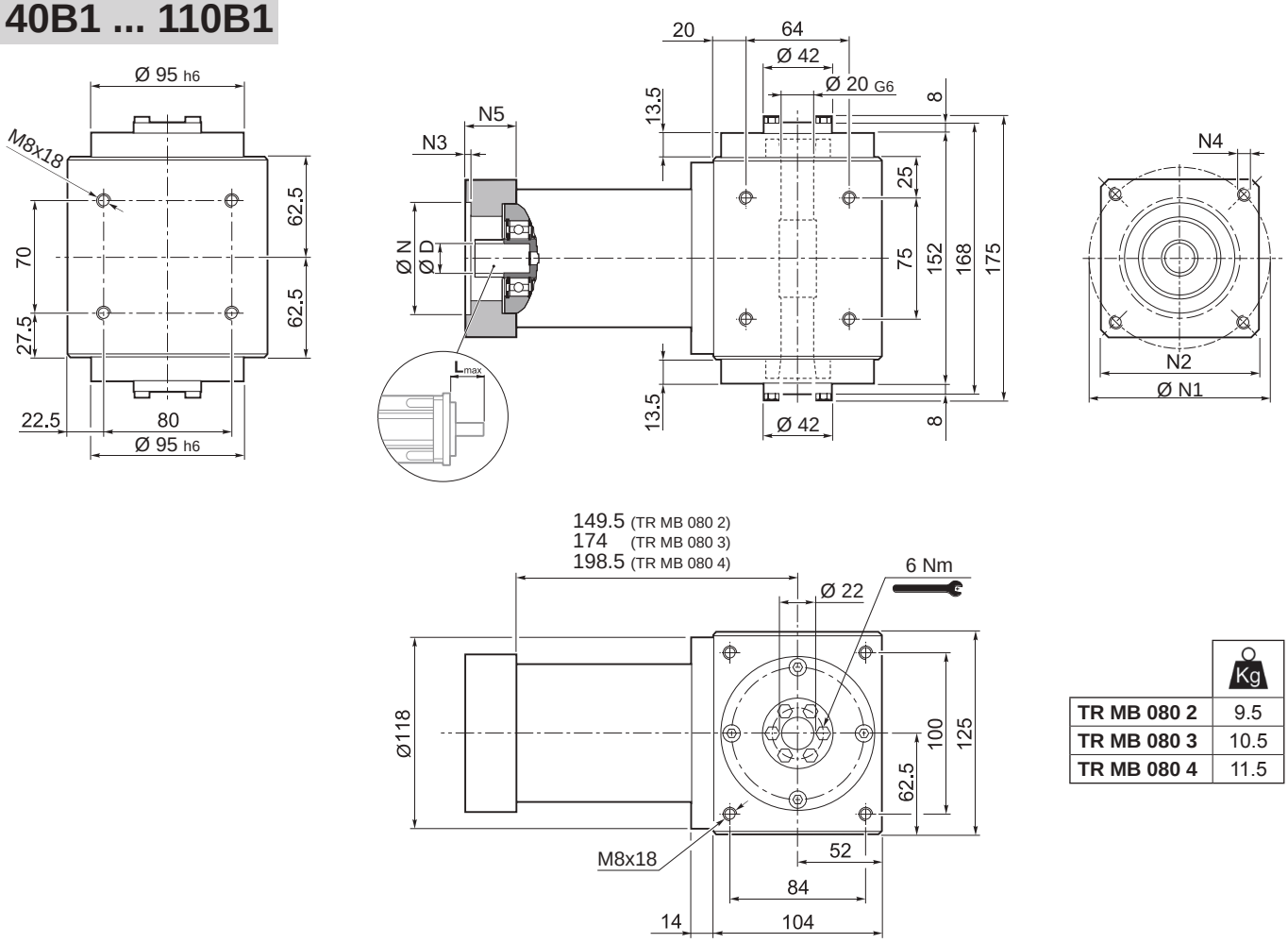
D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
8	9	9.52		38	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	10.5
11	12	12.7		43	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	12.5
14	15.875	16	17	48	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	14.5
19	19.05			51	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	16.5

TR

i	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	φ_R [arcmin]	C_t [Nm/arcmin]	$R_{2\,max}$ [N]	$A_{2\,max}$ [N]	η %	J_G [kgcm^2] D 8 ... 12.7	J_G [kgcm^2] D 14 ... 19.05
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 MB 080

40B1 ... 110B1



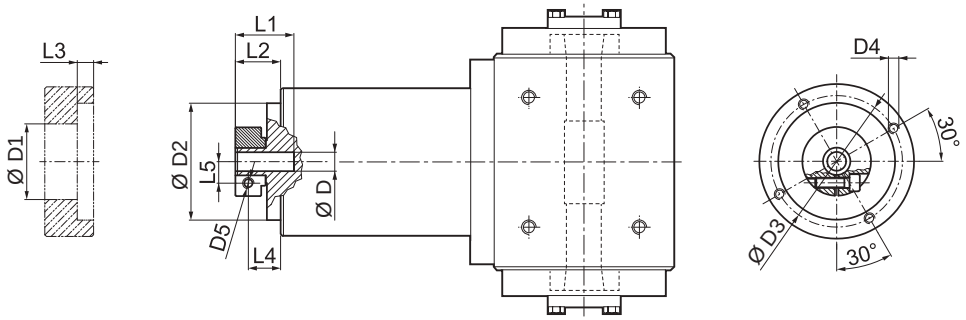
	Kg
TR MB 080 2	9.5
TR MB 080 3	10.5
TR MB 080 4	11.5

	D												N	N1	N2	N3	N4	N5	L_{max}
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 different motor adapters and input shaft bore.

TR MB 080

FM

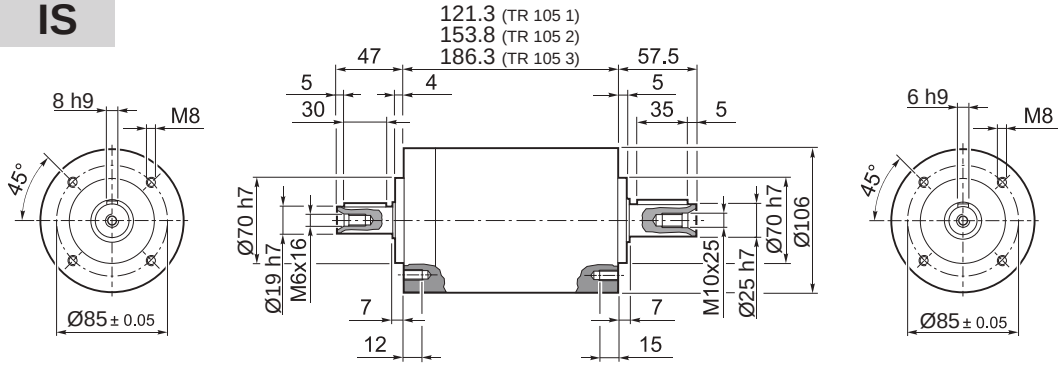


D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
8	9	9.52		38	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	10.5
11	12	12.7		43	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	12.5
14	15.875	16	17	48	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	14.5
19	19.05			51	68	76.5	M6x12	M6	32.2	26.3	9.5	19.3	16.5

i	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	φ_R [arcmin]	C_t [Nm/arcmin]	η %	J_G [kgcm^2] D 8 ... 12.7	J_G [kgcm^2] D 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

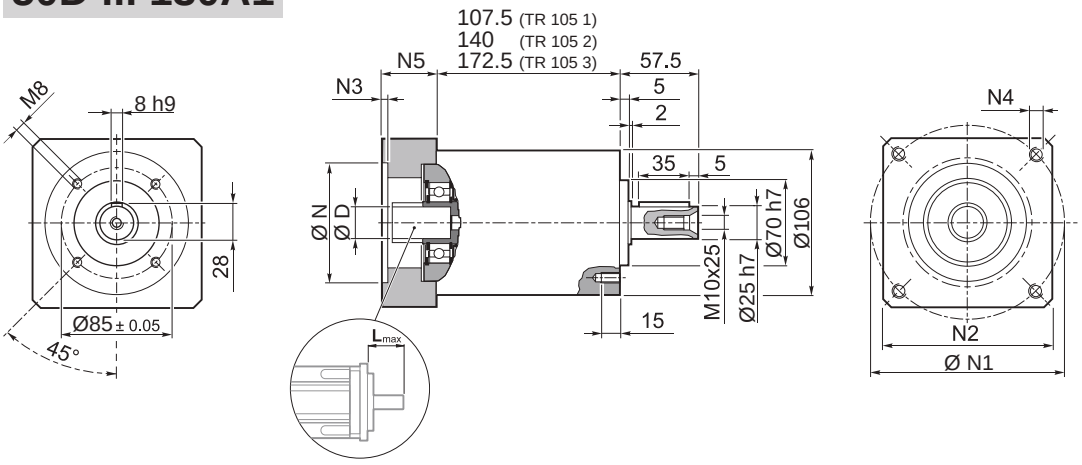
TR 105

IS



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

50D ... 130A1



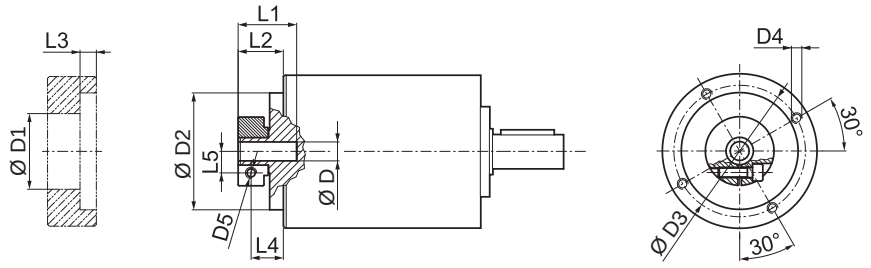
	Kg
TR 105 1	6.5
TR 105 2	8.5
TR 105 3	10.5

	D												N	N1	N2	N3	N4	N5	L_{max}
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 different motor adapters and input shaft bore.

TR 105

FM

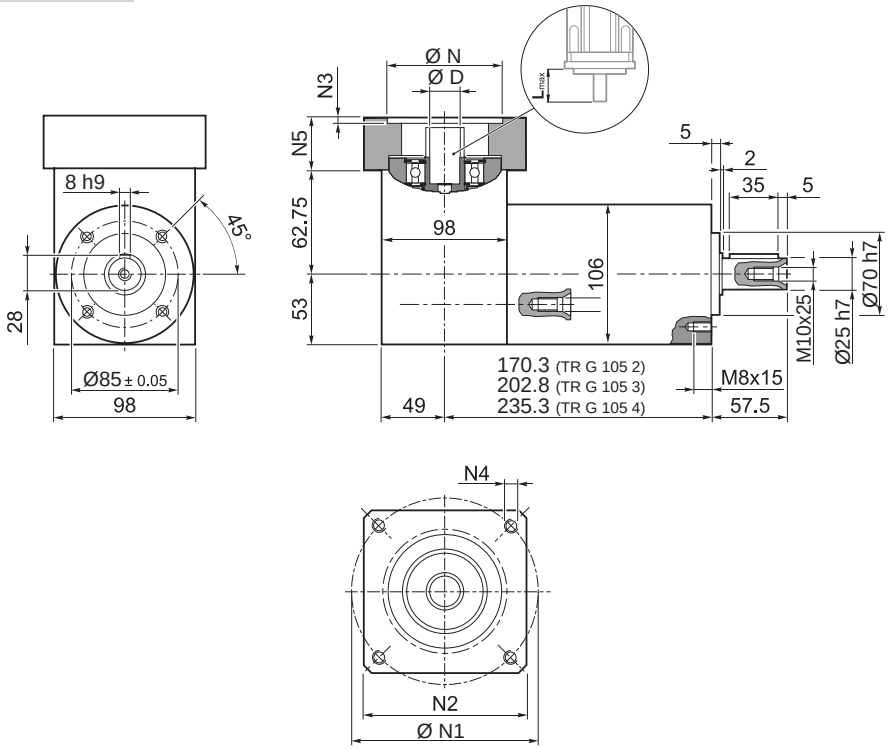


D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
11	12	12.7		43	90	98	M6x15	M6	31.5	19.5	7.6	12	12.5
14	15	15.875	16	48	90	98	M6x15	M6	31.5	19.5	7.6	12	14.5
19				51	90	98	M6x15	M6	31.5	19.5	7.6	12	16.5
22	24			56.5	90	98	M6x15	M6	35	23	7.6	12	19
28				67	90	98	M6x15	M8	35	23	7.6	14	22.5
32				71	90	98	M6x15	M8	37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

i	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	φ_R [arcmin]	C_t [Nm/arcmin]	$R_{1\,max}$ [N]	$R_{2\,max}$ [N]	$A_{2\,max}$ [N]	η %	J_G [kgcm^2] D: 11 ... 12.7	D: 14 ... 19	D: 22 - 24	D: 28 - 32
TR 105 1_3	100	180	360	2500	3500	5'	3'	24.0	600	3800	4000	97	1.70	1.78	2.22	2.59
TR 105 1_4	140	210	450	2800	4500	5'	3'	24.0	600	3800	4000	97	0.99	1.06	1.51	1.87
TR 105 1_5	140	210	450	3000	4500	5'	3'	24.0	600	3800	4000	97	0.72	0.79	1.23	1.60
TR 105 1_6	140	210	450	3000	4500	5'	3'	24.0	600	3800	4000	97	0.36	0.43	0.88	1.24
TR 105 1_7	140	210	450	3500	5000	5'	3'	24.0	600	3800	4000	97	0.47	0.55	0.99	1.35
TR 105 1_10	100	180	360	3500	5000	5'	3'	24.0	600	3800	4000	97	0.33	0.41	0.85	1.21
TR 105 2_9	100	180	360	2500	3500	5'	3'	21.5	600	3800	4000	94	1.58	1.63	2.07	2.44
TR 105 2_12	170	250	600	2500	3500	5'	3'	21.5	600	3800	4000	94	1.52	1.59	2.03	2.40
TR 105 2_15	170	250	600	2500	3500	5'	3'	21.5	600	3800	4000	94	1.47	1.55	1.99	2.36
TR 105 2_16	170	250	600	2800	4500	5'	3'	21.5	600	3800	4000	94	0.87	0.95	1.39	1.76
TR 105 2_20	170	250	600	3000	4500	5'	3'	21.5	600	3800	4000	94	0.86	0.93	1.37	1.74
TR 105 2_25	170	250	600	3000	4500	5'	3'	21.5	600	3800	4000	94	0.63	0.71	1.15	1.51
TR 105 2_28	170	250	600	3500	5000	5'	3'	21.5	600	3800	4000	94	0.43	0.51	0.95	1.32
TR 105 2_30	100	180	360	3500	5000	5'	3'	21.5	600	3800	4000	94	0.32	0.40	0.84	1.20
TR 105 2_35	170	250	600	3500	5000	5'	3'	21.5	600	3800	4000	94	0.43	0.50	0.95	1.31
TR 105 2_36	140	210	450	3000	4500	5'	3'	21.5	600	3800	4000	94	0.32	0.39	0.84	1.20
TR 105 2_40	170	250	600	3500	5000	5'	3'	21.5	600	3800	4000	94	0.31	0.39	0.83	1.20
TR 105 2_50	170	250	600	3500	5000	5'	3'	21.5	600	3800	4000	94	0.31	0.39	0.83	1.19
TR 105 2_70	170	250	600	3500	5000	5'	3'	21.5	600	3800	4000	94	0.31	0.38	0.83	1.19
TR 105 2_100	100	180	360	3500	5000	5'	3'	21.5	600	3800	4000	94	0.31	0.38	0.83	1.19
TR 105 3_48	170	250	600	2800	4500	7'	5'	18.0	600	3800	4000	91	0.91	0.98	1.42	1.79
TR 105 3_64	170	250	600	2800	4500	7'	5'	18.0	600	3800	4000	91	0.87	0.94	1.38	1.75
TR 105 3_75	170	250	600	3000	4500	7'	5'	18.0	600	3800	4000	91	0.66	0.74	1.18	1.55
TR 105 3_80	170	250	600	2800	4500	7'	5'	18.0	600	3800	4000	91	0.86	0.94	1.38	1.75
TR 105 3_84	170	250	600	3500	5000	7'	5'	18.0	600	3800	4000	91	0.44	0.52	0.96	1.33
TR 105 3_90	100	180	360	3500	5000	7'	5'	18.0	600	3800	4000	91	0.32	0.39	0.84	1.20
TR 105 3_120	170	250	600	3500	5000	7'	5'	18.0	600	3800	4000	91	0.32	0.39	0.84	1.20
TR 105 3_125	170	250	600	3000	4500	7'	5'	18.0	600	3800	4000	91	0.63	0.70	1.15	1.51
TR 105 3_140	170	250	600	3500	5000	7'	5'	18.0	600	3800	4000	91	0.43	0.51	0.95	1.32
TR 105 3_150	170	250	600	3500	5000	7'	5'	18.0	600	3800	4000	91	0.32	0.39	0.84	1.20
TR 105 3_160	170	250	600	3500	5000	7'	5'	18.0	600	3800	4000	91	0.31	0.39	0.83	1.21
TR 105 3_175	170	250	600	3500	5000	7'	5'	18.0	600	3800	4000	91	0.43	0.50	0.95	1.31
TR 105 3_200	170	250	600	3500	5000	7'	5'	18.0	600	3800	4000	91	0.31	0.39	0.83	1.20
TR 105 3_210	170	250	600	3500	5000	7'	5'	18.0	600	3800	4000	91	0.32	0.39	0.84	1.20
TR 105 3_216	170	250	600	3000	4500	7'	5'	18.0	600	3800	4000	91	0.31	0.39	0.83	1.20
TR 105 3_250	170	250	600	3500	5000	7'	5'	18.0	600	3800	4000	91	0.31	0.39	0.83	1.19
TR 105 3_280	170	250	600	3500	5000	7'	5'	18.0	600	3800	4000	91	0.31	0.38	0.83	1.19
TR 105 3_350	170	250	600	3500	5000	7'	5'	18.0	600	3800	4000	91	0.31	0.38	0.83	1.19
TR 105 3_400	170	250	600	3500	5000	7'	5'	18.0	600	3800	4000	91	0.31	0.38	0.83	1.19
TR 105 3_500	170	250	600	3500	5000	7'	5'	18.0	600	3800	4000	91	0.31	0.38	0.83	1.19
TR 105 3_700	170	250	600	3500	5000	7'	5'	18.0	600	3800	4000	91	0.31	0.38	0.83	1.19
TR 105 3_1000	100	180	360	3500	5000	7'	5'	18.0	600	3800	4000	91	0.31	0.38	0.83	1.19

TR G 105

50D ... 130A1



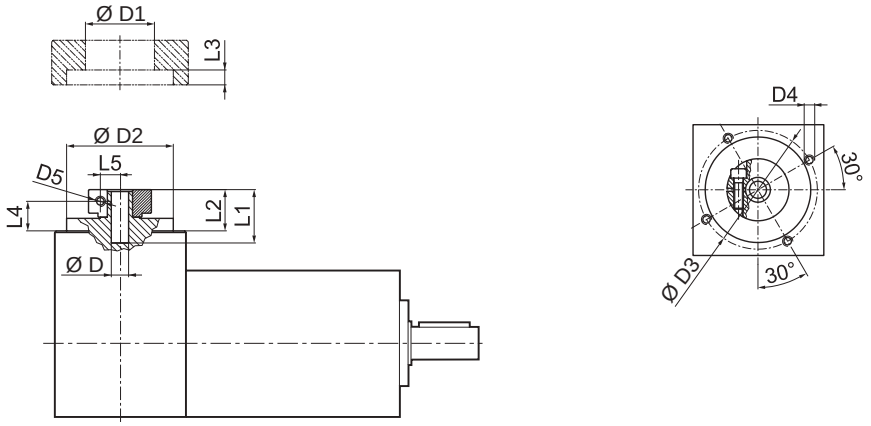
	Kg
TR G 105 2	8.5
TR G 105 3	10.5
TR G 105 4	12.5

	D												N	N1	N2	N3	N4	N5	L_{max}
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 different motor adapters and input shaft bore.

TR G 105

FM

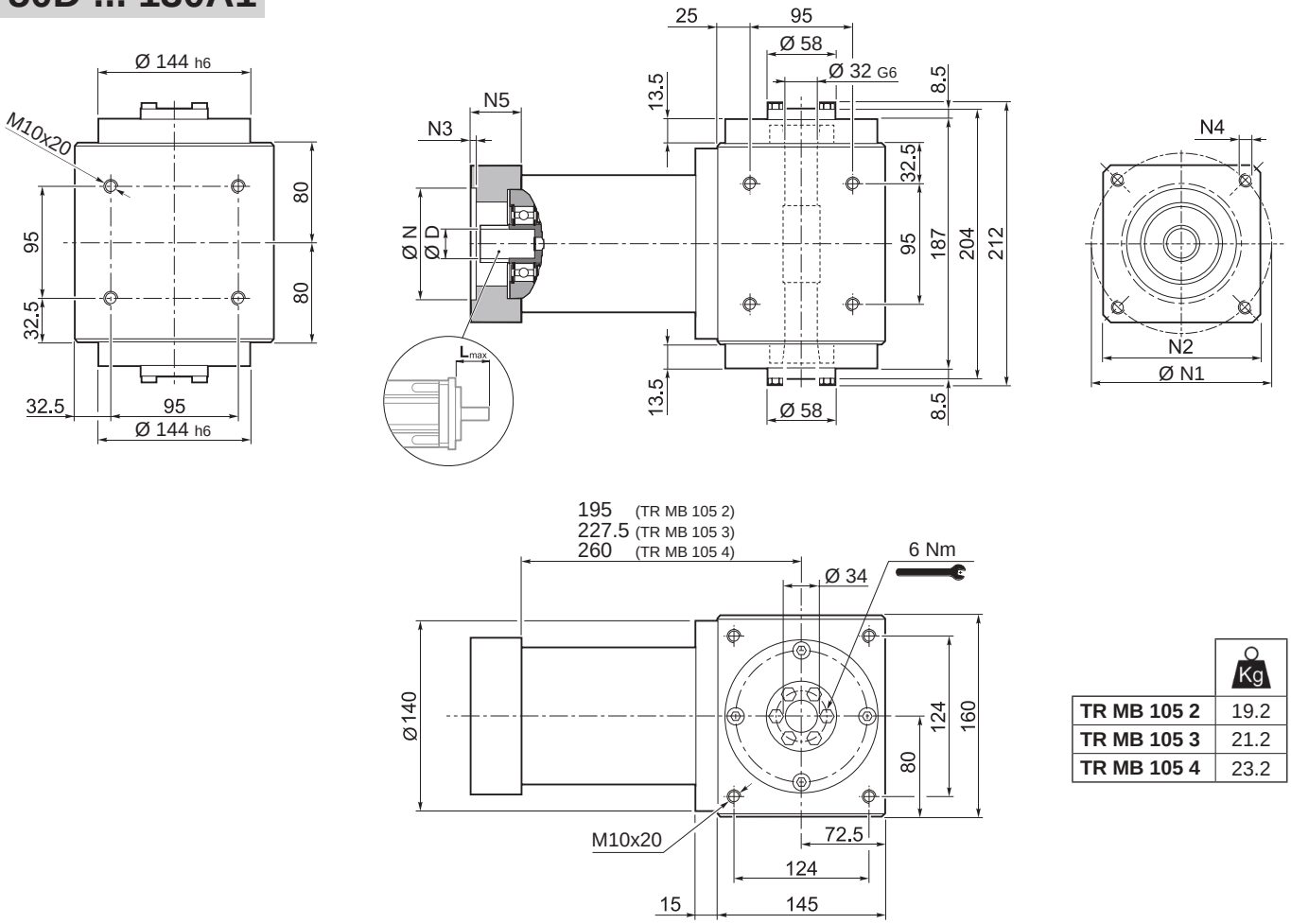


D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
11	12	12.7		43	90	98	M6x15	M6	31.5	19.5	7.6	12	12.5
14	15	15.875	16	48	90	98	M6x15	M6	31.5	19.5	7.6	12	14.5
19				51	90	98	M6x15	M6	31.5	19.5	7.6	12	16.5
22	24			56.5	90	98	M6x15	M6	35	23	7.6	12	19
28				67	90	98	M6x15	M8	35	23	7.6	14	22.5
32				71	90	98	M6x15	M8	37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

i	$M_{n\,2}$	$M_{a\,2}$	$M_{p\,2}$	n_1	$n_{1\,max}$	φ_S	φ_R	C_t	$R_{2\,max}$	$A_{2\,max}$	η	J_G [kgcm²] D			
	[Nm]	[Nm]	[Nm]	[min⁻¹]	[min⁻¹]	[arcmin]		[Nm/arcmin]	[N]	[N]	%	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 MB 105

50D ... 130A1



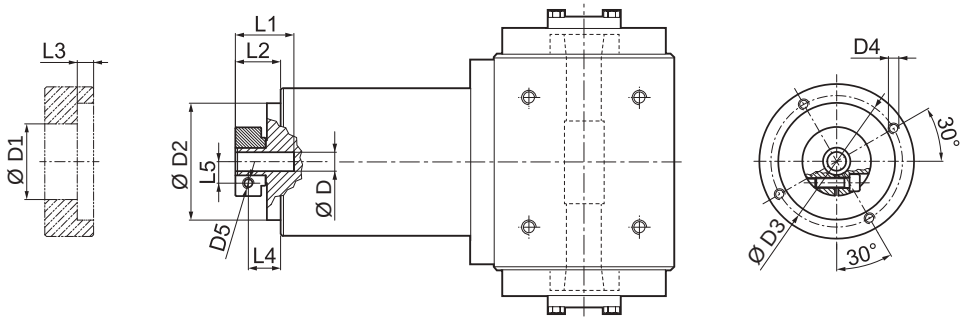
	Kg
TR MB 105 2	19.2
TR MB 105 3	21.2
TR MB 105 4	23.2

	D												N	N1	N2	N3	N4	N5	L_{max}
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 different motor adapters and input shaft bore.

TR MB 105

FM

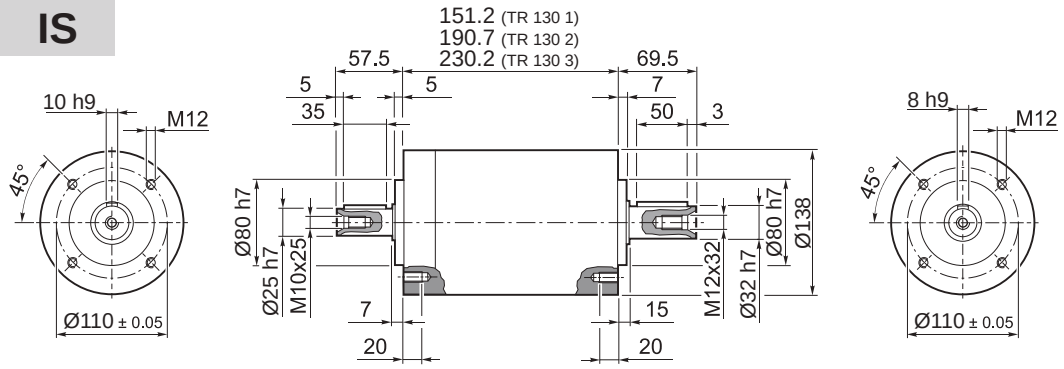


D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
11	12	12.7		43	90	98	M6x15	M6	31.5	19.5	7.6	12	12.5
14	15	15.875	16	48	90	98	M6x15	M6	31.5	19.5	7.6	12	14.5
19				51	90	98	M6x15	M6	31.5	19.5	7.6	12	16.5
22	24			56.5	90	98	M6x15	M6	35	23	7.6	12	19
28				67	90	98	M6x15	M8	35	23	7.6	14	22.5
32				71	90	98	M6x15	M8	37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

i	M_{n2}	M_{a2}	M_{p2}	n_1	$n_{1\,max}$	φ_S	φ_R	C_t	η	J_G [kgcm²] D			
	[Nm]	[Nm]	[Nm]	[min⁻¹]	[min⁻¹]	[arcmin]		[Nm/arcmin]	%	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

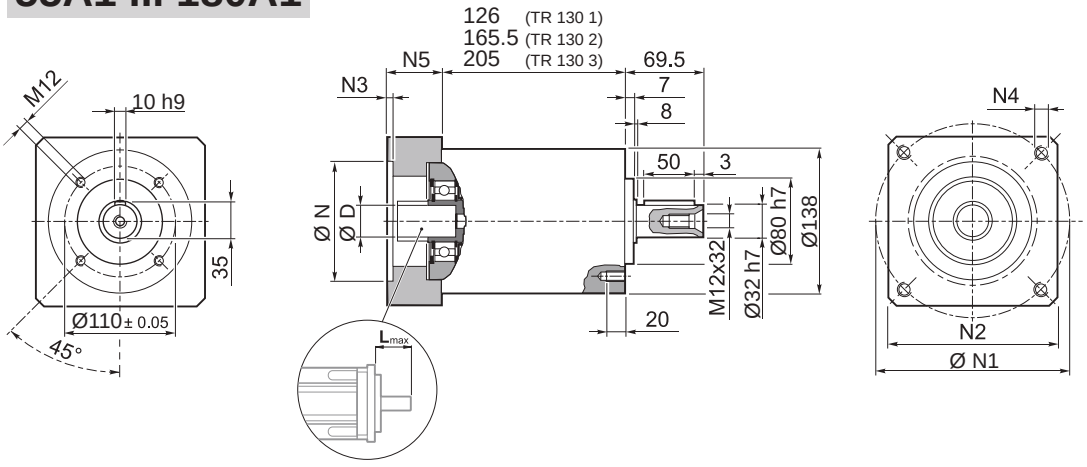
TR 130

IS



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

55A1 ... 180A1



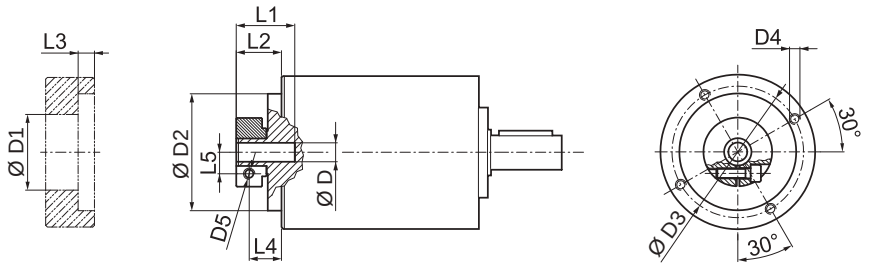
	Kg
TR 130 1	12.0
TR 130 2	15.5
TR 130 3	18.5

	D										N	N1	N2	N3	N4	N5	L_{max}
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 different motor adapters and input shaft bore.

TR 130

FM



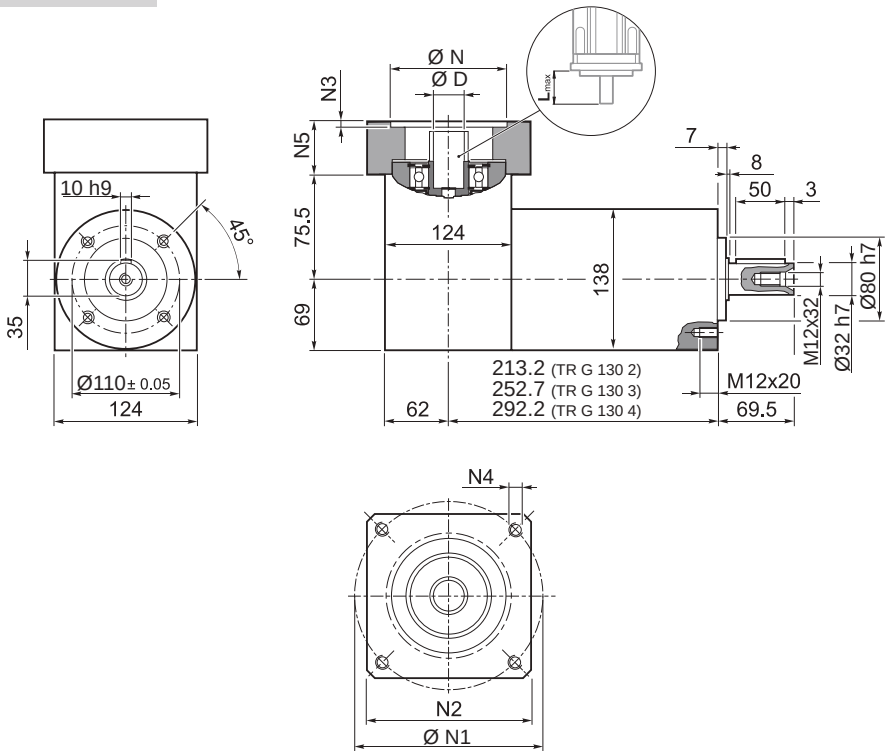
D			D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
14	15.875	16	48	113	125.5	M8x15	M6	40	27.5	6	20	14.5
19			51	113	125.5	M8x15	M6	40	27.5	6	20	16.5
22	24		56.5	113	125.5	M8x15	M6	41	28.5	6	19.5	19
28			67	113	125.5	M8x15	M8	41	28.5	6	19.5	22.5
32			71	113	125.5	M8x15	M8	41	28.5	6	19.5	24.5
35			73	113	125.5	M8x15	M8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

TR

i	M_{n2}	M_{a2}	M_{p2}	n_1	$n_{1\,max}$	φ_S	φ_R	C_t	$R_{1\,max}$	$R_{2\,max}$	$A_{2\,max}$	η	J_G [kgcm²] D			
	[Nm]	[Nm]	[Nm]	[min⁻¹]	[min⁻¹]	[arcmin]		[Nm/arcmin]	[N]	[N]	[N]	%	14 ... 19	22 - 24	28 - 32	35 - 38
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 G 130

55A1 ... 180A1



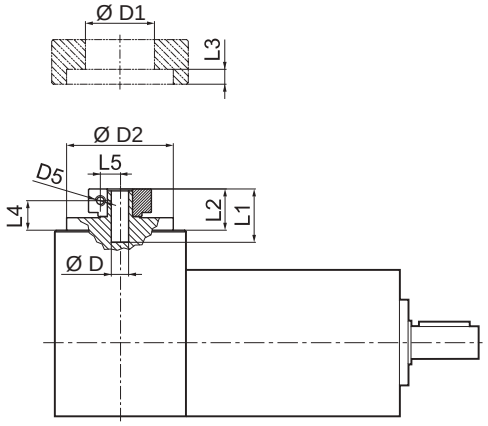
	Kg
TR G 130 2	16.0
TR G 130 3	19.5
TR G 130 4	22.5

	D										N	N1	N2	N3	N4	N5	L_{max}
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 different motor adapters and input shaft bore.

TR G 130

FM

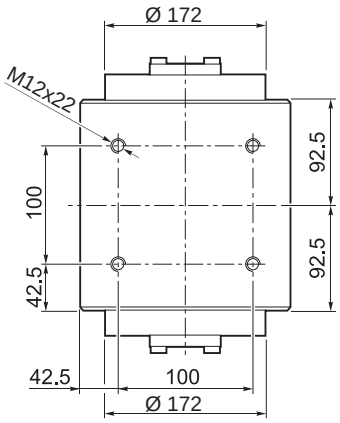


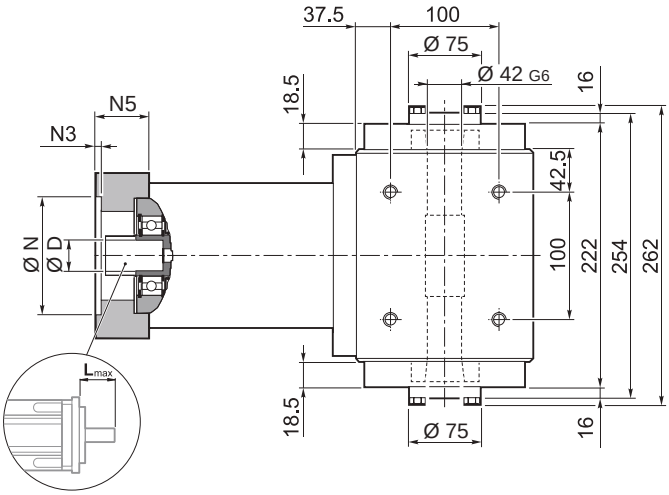
D			D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
14	15.875	16	48	113	125.5	M8x15	M6	40	27.5	6	20	14.5
19			51	113	125.5	M8x15	M6	40	27.5	6	20	16.5
22	24		56.5	113	125.5	M8x15	M6	41	28.5	6	19.5	19
28			67	113	125.5	M8x15	M8	41	28.5	6	19.5	22.5
32			71	113	125.5	M8x15	M8	41	28.5	6	19.5	24.5
35			73	113	125.5	M8x15	M8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

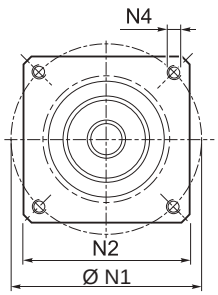
i	$M_{n\,2}$	$M_{a\,2}$	$M_{p\,2}$	n_1	$n_{1\,max}$	φ_S	φ_R	C_t	$R_{2\,max}$	$A_{2\,max}$	η	J_G [kgcm²] D			
	[Nm]	[Nm]	[Nm]	[min⁻¹]	[min⁻¹]	[arcmin]		[Nm/arcmin]	[N]	[N]	%	14 ... 19	22 - 24	28 - 32	35 - 38
TR G 130 2_3	215	400	800	2100	3000	5'	3'	45.0	5500	6500	94	7.09	7.28	7.66	10.37
TR G 130 2_4	380	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

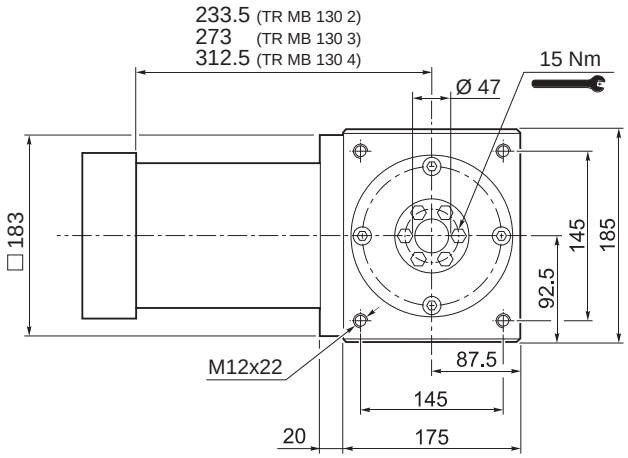
TR MB 130

55A1 ... 180A1









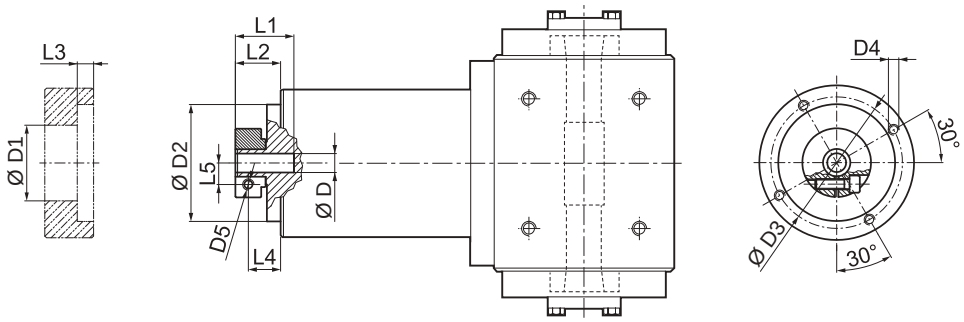
	Kg
TR MB 130 2	54
TR MB 130 3	58
TR MB 130 4	61

	D										N	N1	N2	N3	N4	N5	L_{max}
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 different motor adapters and input shaft bore.

TR MB 130

FM



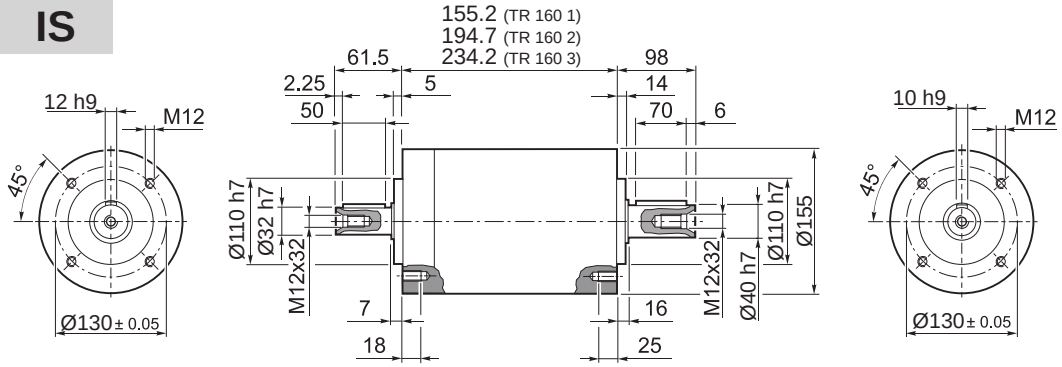
D			D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
14	15.875	16	48	113	125.5	M8x15	M6	40	27.5	6	20	14.5
19			51	113	125.5	M8x15	M6	40	27.5	6	20	16.5
22	24		56.5	113	125.5	M8x15	M6	41	28.5	6	19.5	19
28			67	113	125.5	M8x15	M8	41	28.5	6	19.5	22.5
32			71	113	125.5	M8x15	M8	41	28.5	6	19.5	24.5
35			73	113	125.5	M8x15	M8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

TR

i	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	φ_R [arcmin]	C_t [Nm/arcmin]	η %	J_G [kgcm^2] D 14 ... 19	22 - 24	28 - 32	35 - 38
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

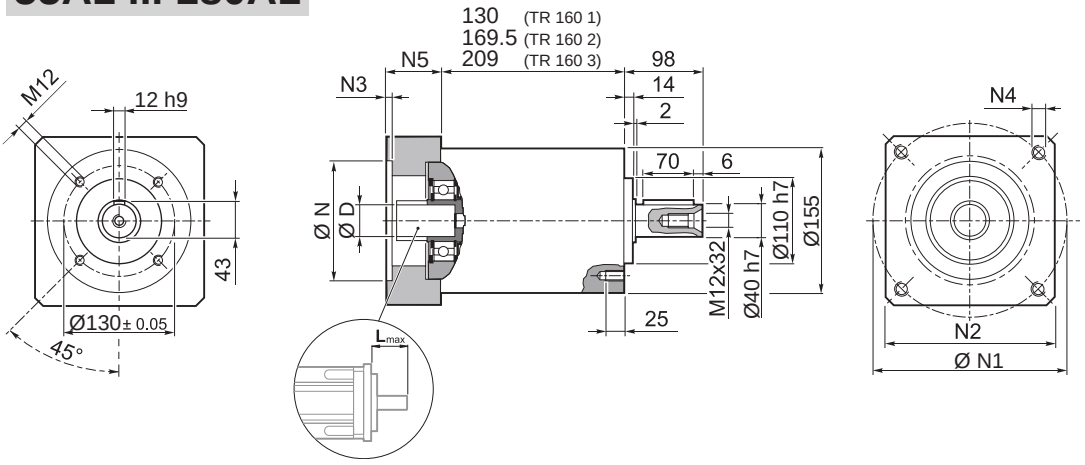
TR 160

IS



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

55A1 ... 180A1



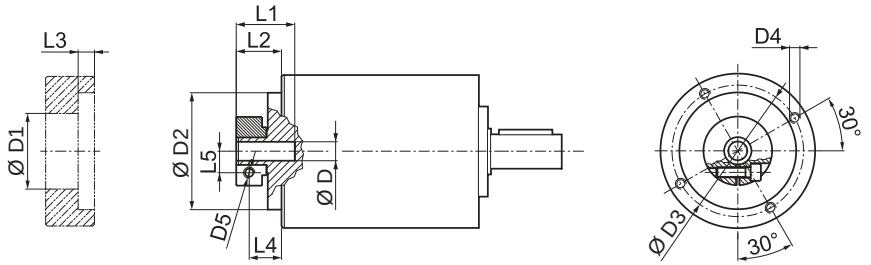
	Kg
TR 160 1	17.0
TR 160 2	21
TR 160 3	28

	D										N	N1	N2	N3	N4	N5	L_{max}
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	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 different motor adapters and input shaft bore.

TR 160

FM

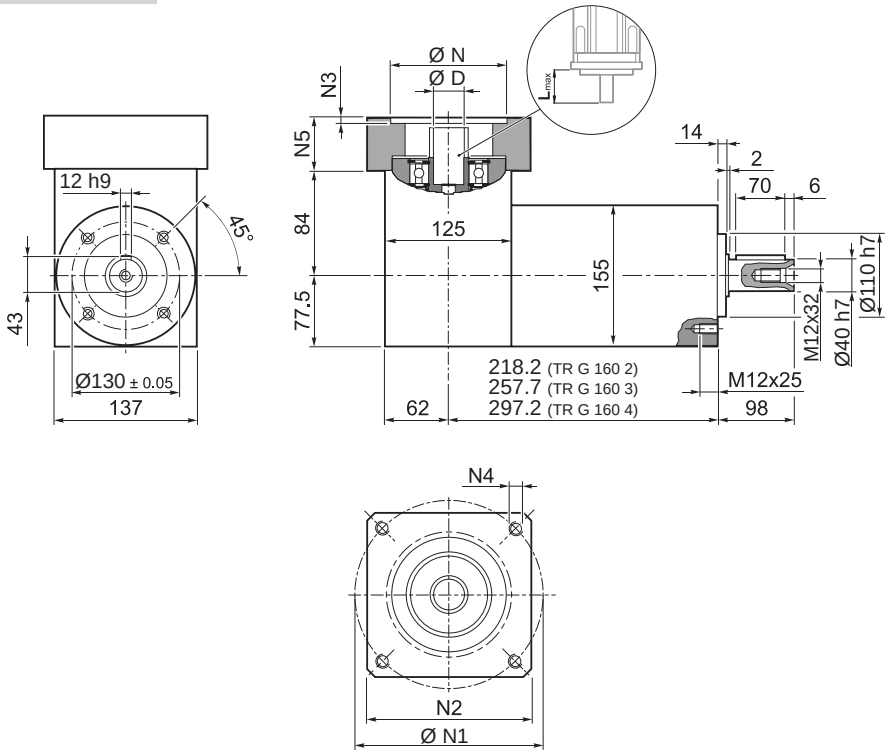


D			D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
14	15.875	16	48	130	142.5	M8x16	M6	40	27.5	6	20	14.5
19			51	130	142.5	M8x16	M6	40	27.5	6	20	16.5
22	24		56.5	130	142.5	M8x16	M6	41	28.5	6	19.5	19
28			67	130	142.5	M8x16	M8	41	28.5	6	19.5	22.5
32			71	130	142.5	M8x16	M8	41	28.5	6	19.5	24.5
35			73	130	142.5	M8x16	M8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

i	M_{n2}	M_{a2}	M_{p2}	n_1	$n_{1\,max}$	φ_S	φ_R	C_t	$R_{1\,max}$	$R_{2\,max}$	$A_{2\,max}$	η	J_G [kgcm²] D			
	[Nm]	[Nm]	[Nm]	[min⁻¹]	[min⁻¹]	[arcmin]		[Nm/arcmin]	[N]	[N]	[N]	%	14 ... 19	22 - 24	28 - 32	35 - 38
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 G 160

55A1 ... 180A1



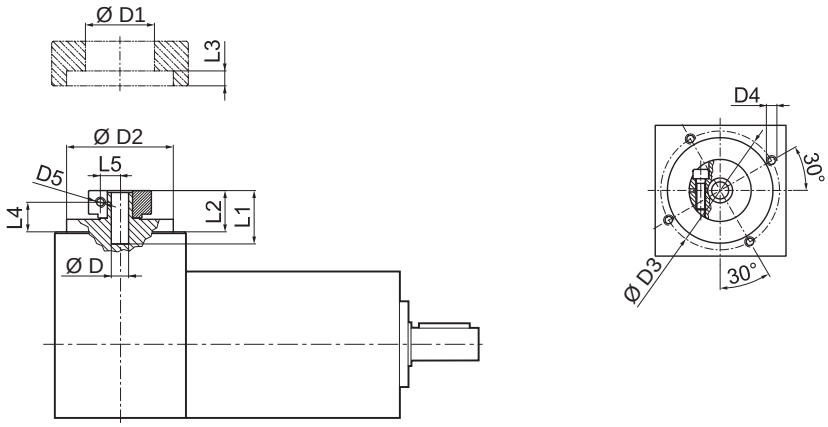
	Kg
TR G 160 2	24
TR G 160 3	28
TR G 160 4	34

	D										N	N1	N2	N3	N4	N5	L_{max}
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	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 different motor adapters and input shaft bore.

TR G 160

FM

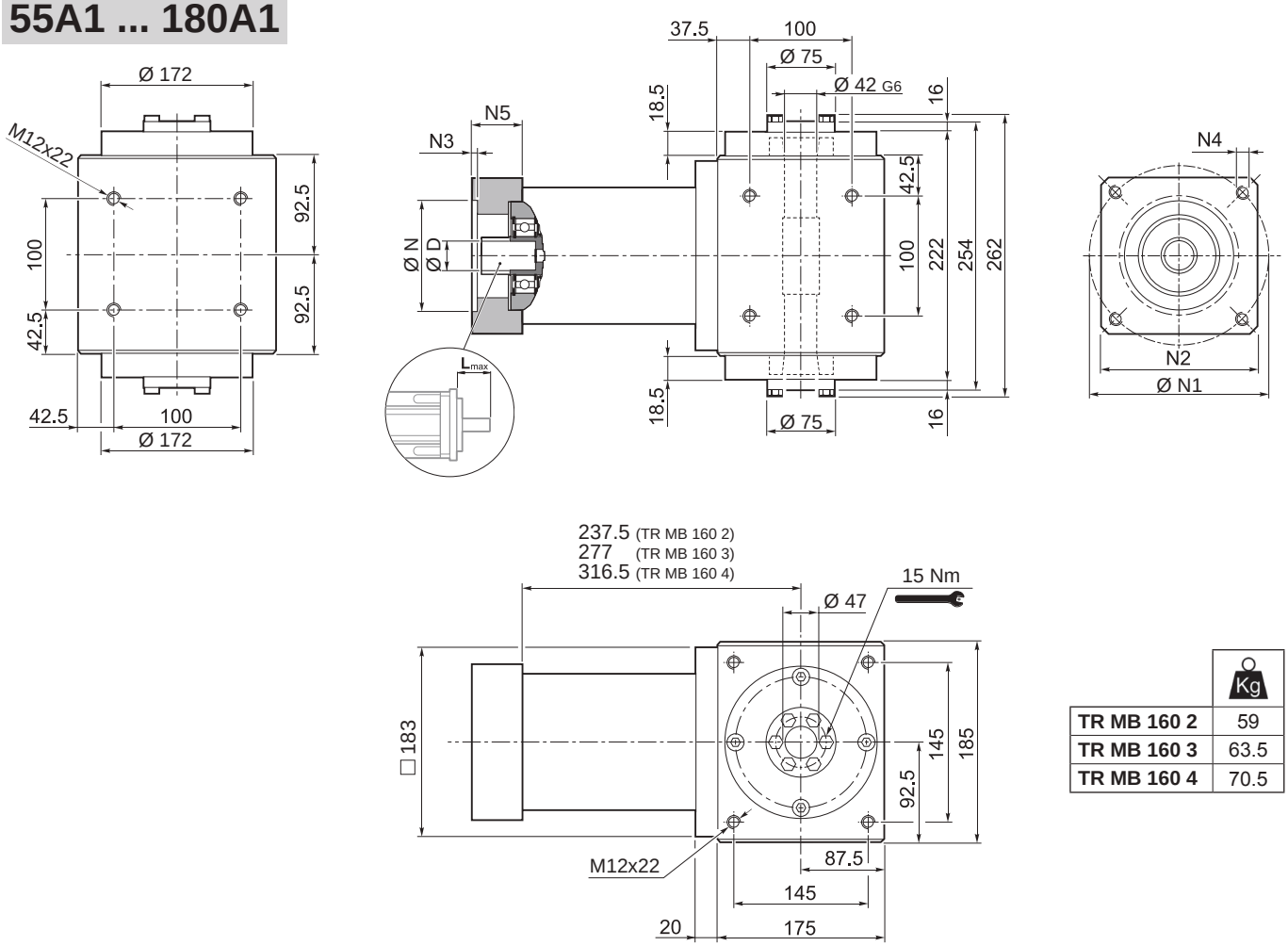


D			D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
14	15.875	16	48	113	125.5	M8x15	M6	40	27.5	6	20	14.5
19			51	113	125.5	M8x15	M6	40	27.5	6	20	16.5
22	24		56.5	113	125.5	M8x15	M6	41	28.5	6	19.5	19
28			67	113	125.5	M8x15	M8	41	28.5	6	19.5	22.5
32			71	113	125.5	M8x15	M8	41	28.5	6	19.5	24.5
35			73	113	125.5	M8x15	M8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

i	M_{n2}	M_{a2}	M_{p2}	n_1	$n_{1\,max}$	φ_S	φ_R	C_t	$R_{2\,max}$	$A_{2\,max}$	η	J_G [kgcm²] D			
	[Nm]	[Nm]	[Nm]	[min⁻¹]	[min⁻¹]	[arcmin]		[Nm/arcmin]	[N]	[N]	%	14 ... 19	22 - 24	28 - 32	35 - 38
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 MB 160

55A1 ... 180A1



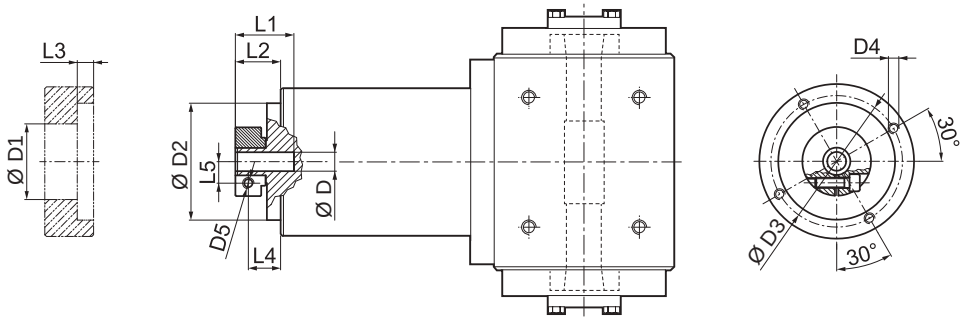
	Kg
TR MB 160 2	59
TR MB 160 3	63.5
TR MB 160 4	70.5

	D										N	N1	N2	N3	N4	N5	L_{max}
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	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 different motor adapters and input shaft bore.

TR MB 160

FM

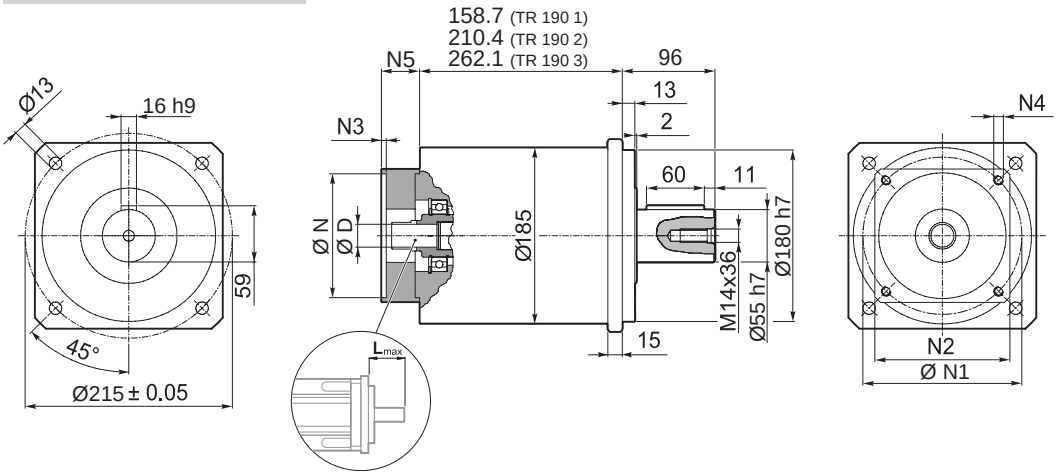


D			D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
14	15.875	16	48	130	142.5	M8x16	M6	40	27.5	6	20	14.5
19			51	130	142.5	M8x16	M6	40	27.5	6	20	16.5
22	24		56.5	130	142.5	M8x16	M6	41	28.5	6	19.5	19
28			67	130	142.5	M8x16	M8	41	28.5	6	19.5	22.5
32			71	130	142.5	M8x16	M8	41	28.5	6	19.5	24.5
35			73	130	142.5	M8x16	M8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

i	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	φ_R [arcmin]	C_t [Nm/arcmin]	η %	J_G [kgcm^2] D 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

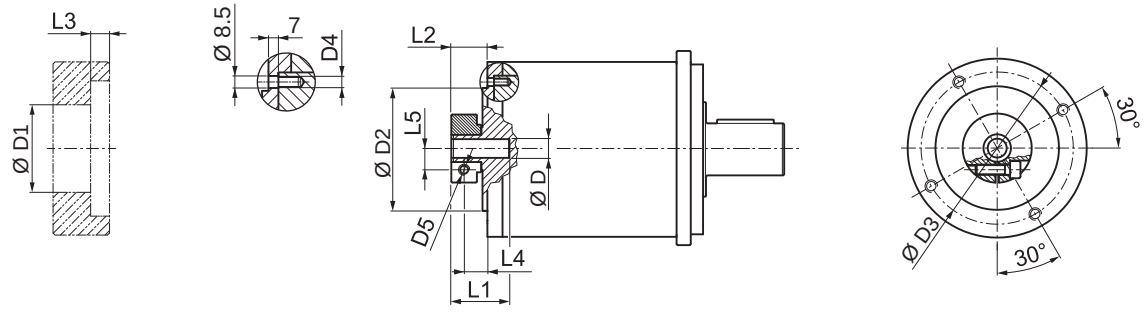


	Kg
TR 190 1	25
TR 190 2	29
TR 190 3	34

	D												N	N1	N2	N3	N4	N5	L_{max}
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	5.5	M14x25	49.5	60
180A1	14	16	19	22	24	28	32	35	38	42	45	48	180	215	190	5.5	M14x25	69.5	80

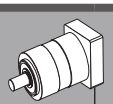
Please contact us for different motor adapters and input shaft bore.

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

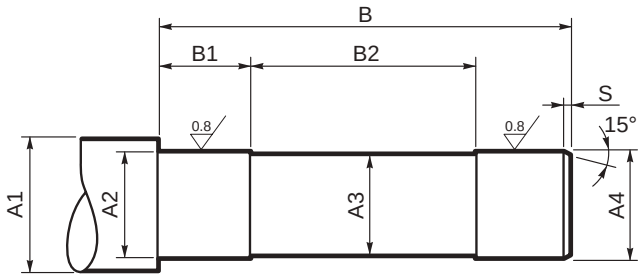
TR 190

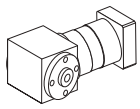
 i	M_{n2}	M_{a2}	M_{p2}	n_1	$n_{1\,max}$	φ_S	φ_R	C_t	$R_{2\,max}$	$A_{2\,max}$	η	J_G [kgcm²] D				
	[Nm]	[Nm]	[Nm]	[min⁻¹]	[min⁻¹]	[arcmin]		$\left[\frac{Nm}{arcmin}\right]$	[N]	[N]	%	14 ... 24	28 - 32	35 - 35	42	45 - 48
TR 190 1_3	500	800	1400	1500	2500	5'	3'	130	14000	15000	97	24.20	24.88	25.65	29.30	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

5.3.1 MACHINE SHAFT

Shaft 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
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	

Effective Line

(E)

SL Series

The SL series features a compact design optimized for timing belt pulley drive systems.
This series represents the most suitable solution for belt servo-drives conveyors and all other applications requiring positioning accuracy, an ultra-compact size and high radial load capacity.
The output design compatible with market standards allows easy retrofits and a high level of freedom in projects development.

Main benefits

- Optimized for timing belt pulley drive systems
- Great position accuracy
- High compatibility for easy retrofits

Main features

- Nominal output torque (Nm)
  18 - 155
- Torsional backlash (arcmin)
  6 - 15
- Torsional stiffness (Nm/arcmin)
  6 - 45
- Max tilting moment (Nm)
  54 - 238

Protection class

- IP54

Frame sizes

- 070
- 090
- 120

Main options

- Input versions
  MOTOR ADAPTER | WITHOUT MOTOR ADAPTER
- Output shafts versions
  PULLEY | NO PULLEY
- Lubrication
  STANDARD LUBRICATION | UH1 FOOD GRADE LUBRICATION
- High power version (P option)
  HIGH POWER VERSION

SL

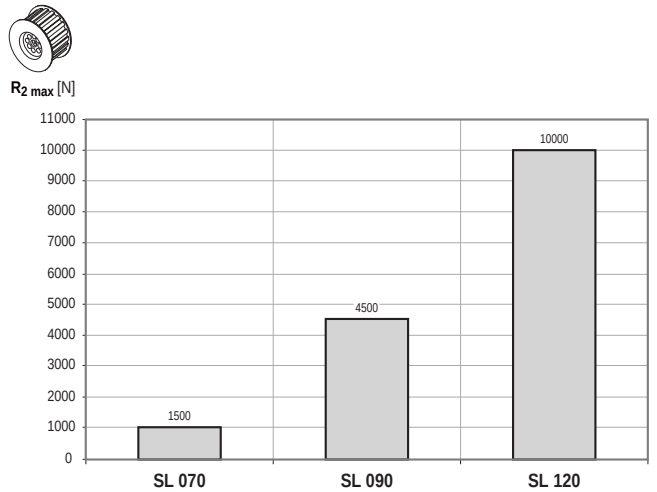
9 FEATURES OF SL SERIES

The 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.

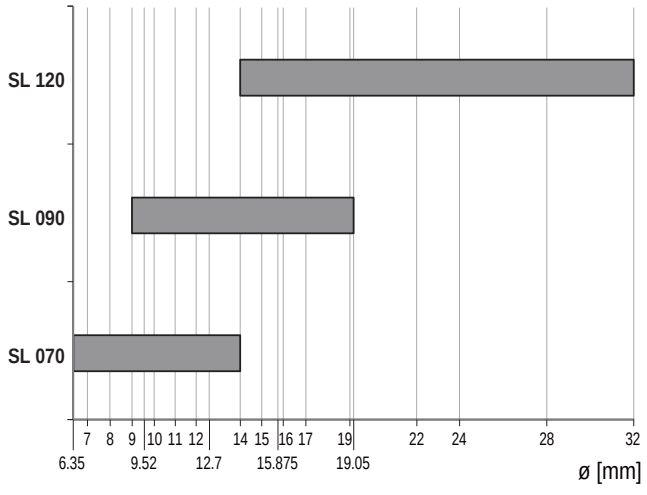
- Available with either standard (STD) or reduced (LOW) backlash:
  1-stage units: standard $\varphi_S \leq 12'$; reduced $\varphi_R \leq 6'$
  2-stage units: standard $\varphi_S \leq 15'$; reduced $\varphi_R \leq 8'$
- Its degree of protection IP54 provides protection against dust and liquid splashes.
- 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^{-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°C, max +30°C. For temperature higher than 30°C please consider derating factor f_T.
- Housing temperature must not exceed $T_{max} = 90$°C.
- Available as Version P with higher output torque.

Distribution of nominal torque M_{n2} [Nm]																		
[i]	**3**	**4**	**5**	**7**	**9**	**10**	**12**	**15**	**16**	**20**	**25**	**28**	**30**	**35**	**40**	**50**	**70**	**100**
SL 070	18	25	25	25	18	18	25	25	25	25	25	25	18	25	25	25	25	18
SL 070P	29	30	28	28	29	20	29	29	30	30	30	30	29	30	30	30	30	20
SL 090	37	43	43	43	37	37	43	43	43	43	43	43	37	43	43	43	43	37
SL 090P	65	60	50	50	65	40	65	65	60	60	50	50	65	50	60	50	50	40
SL 120	95	110	110	110	95	95	110	110	110	110	110	110	95	110	110	110	110	95
SL 120P	155	155	125	125	155	100	155	155	155	155	125	125	155	125	155	125	125	100

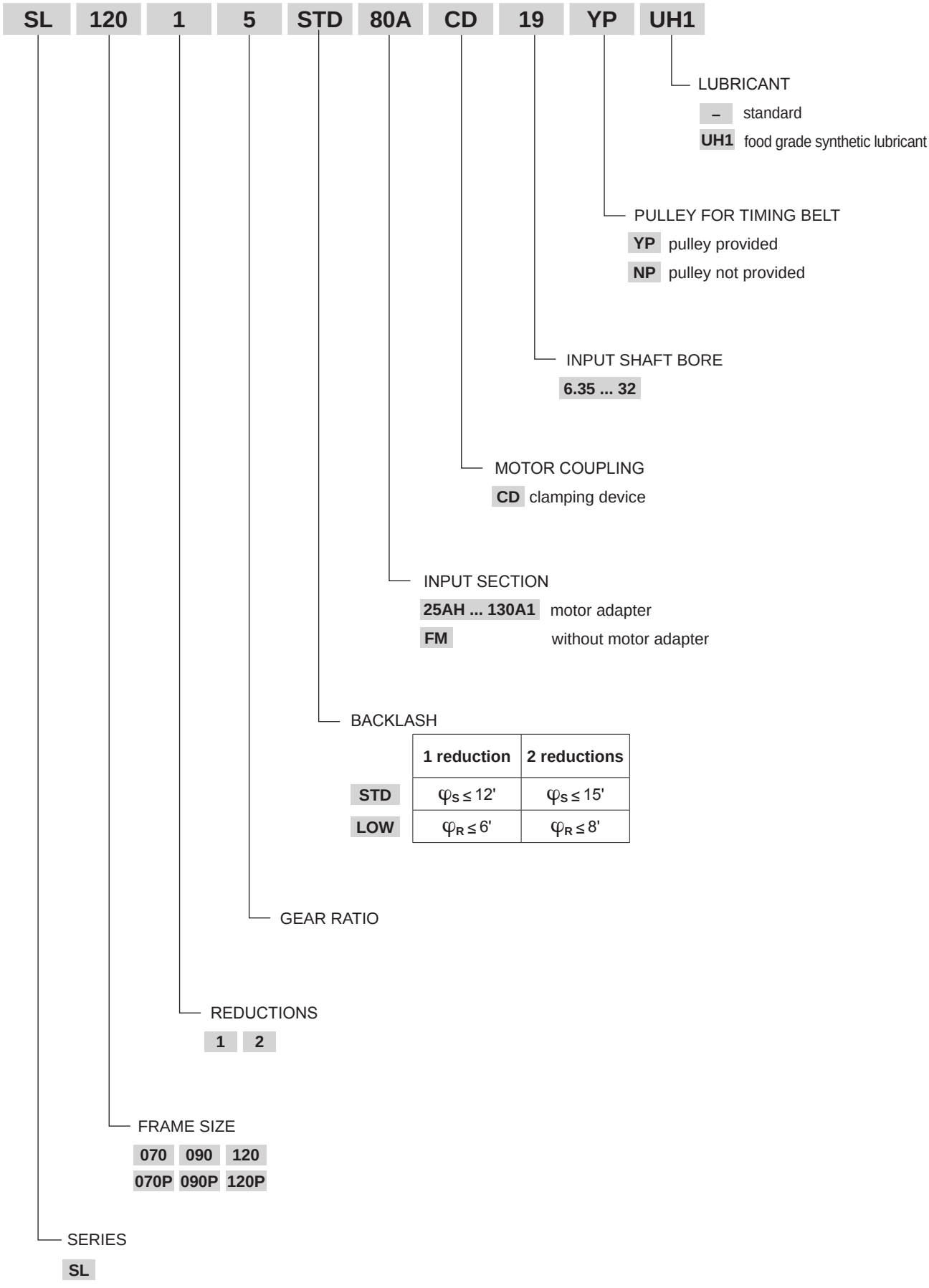
Output shaft max. loading capacity



Available motor shaft bores



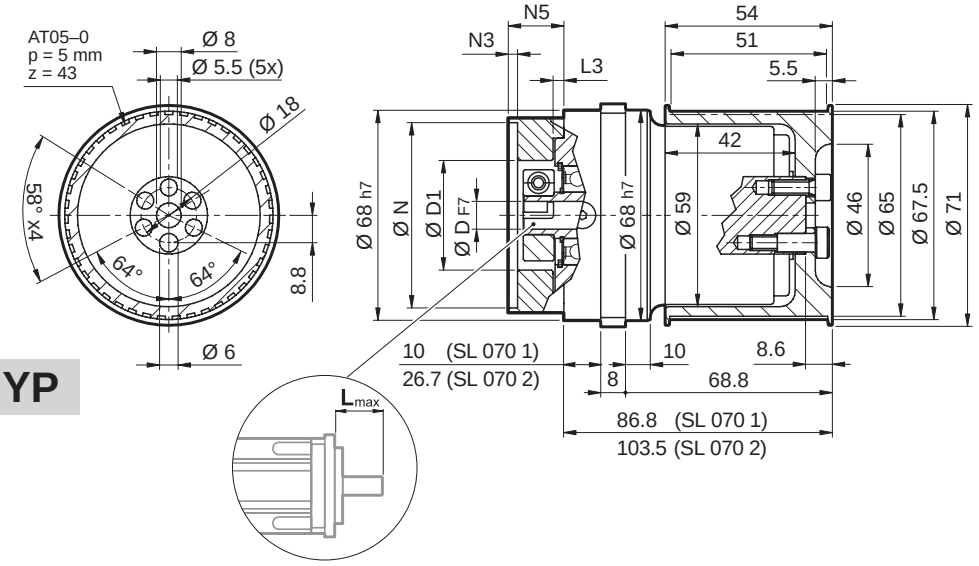
9.1 ORDERING CODE



	1 reduction	2 reductions
STD	$\varphi_S \leq 12'$	$\varphi_S \leq 15'$
LOW	$\varphi_R \leq 6'$	$\varphi_R \leq 8'$

9.2 DIMENSIONS AND TECHNICAL SPECIFICATIONS

SL 070



YP

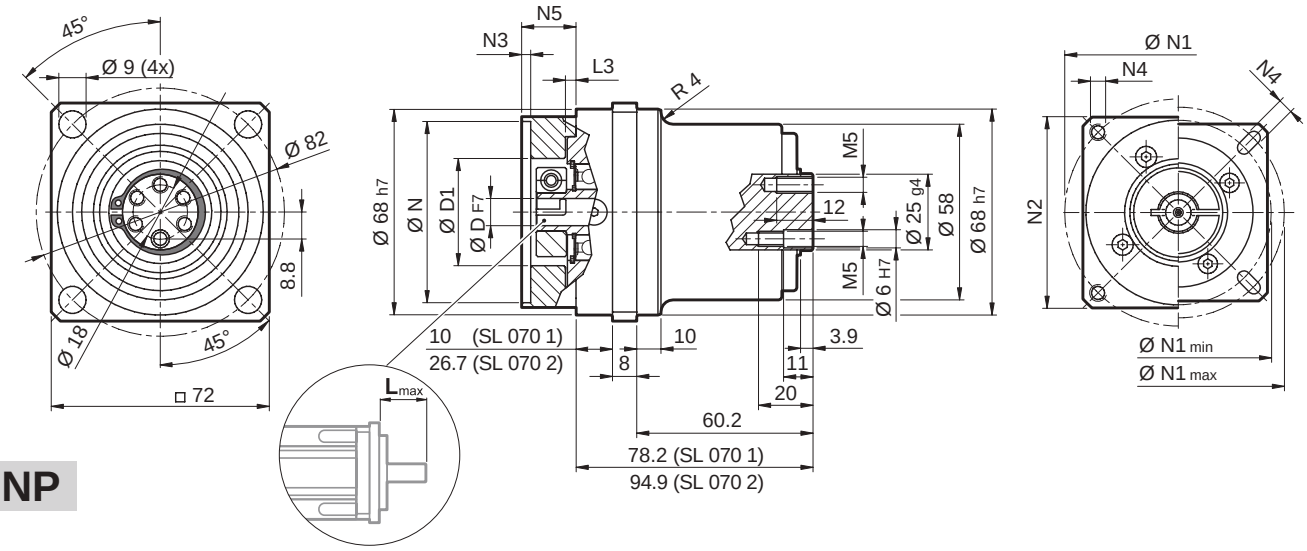
	Kg	
SL 070 1	2.0	0.5
SL 070 2	2.3	0.5

	D										N	N1		N2	N3	N4	N5	L_{max}
												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		65	3	M5x12	18	25
60A1	6.35	7	8	9	9.52	10	11	12	12.7	14	60	75		65	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	5	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

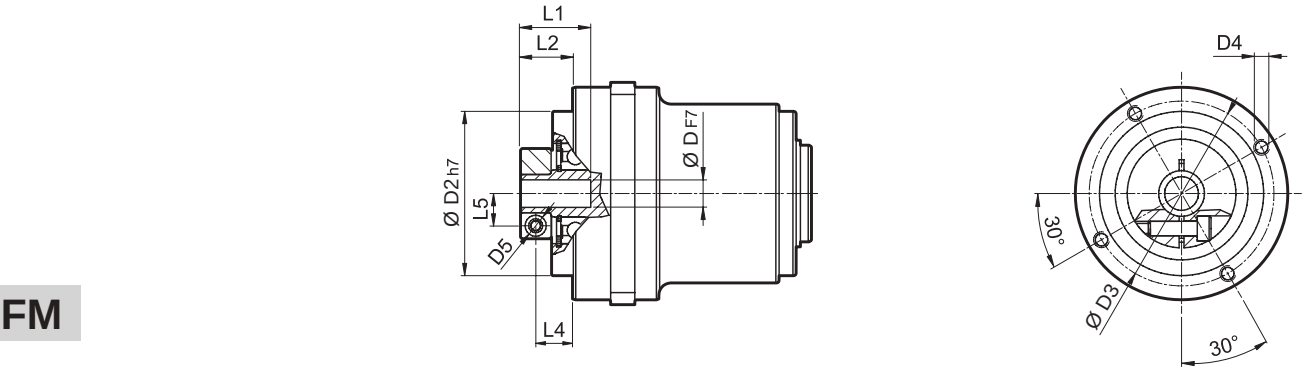
Please contact us for different motor adapters and input shaft bore.

SL 070

NP



FM

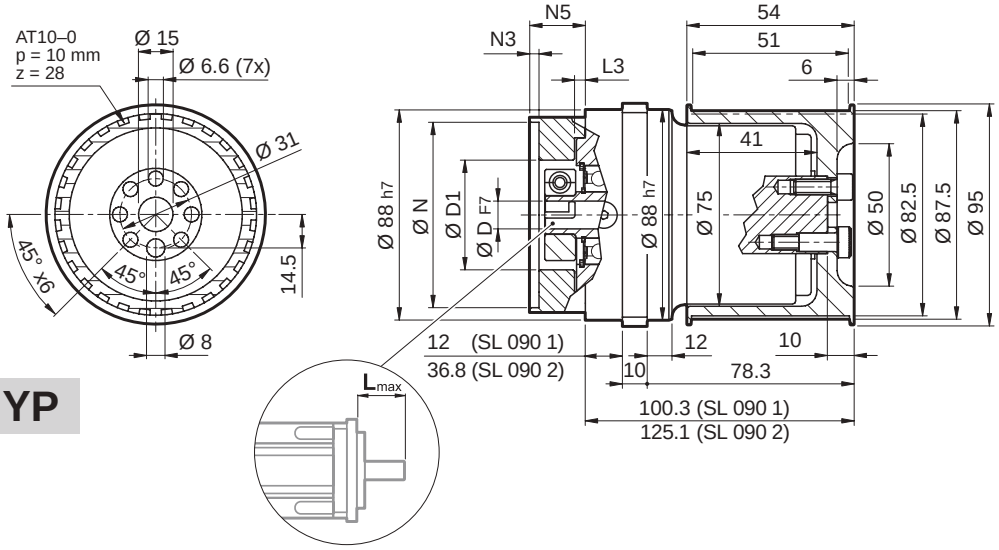


D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
6.35	7			32.5	50	42.5	M4x8	M4	21.7	13.2	3	8.2	8
8	9	9.52	10	32.5	50	42.5	M4x8	M4	21.7	13.2	3	8.2	9
11	12	12.7		35.5	50	42.5	M4x8	M4	22	13.5	3	8.5	11
14				35.5	50	42.5	M4x8	M4	25	17	3	10.2	11.5

i	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	φ_R [arcmin]	C_t [Nm/arcmin]	$R_{2\,max}$ * [N]	$A_{2\,max}$ [N]	η %	J_G [kgcm^2] D 6 ... 9.52	J_G [kgcm^2] D 11 ... 14	
SL 070 1_3	18	30	60	3300	4000	12'	6'	6.5	3500	1600	97	0.14	0.16	
SL 070 1_4	25	35	70	3500	5000	12'	6'	6.5	3500	1600	97	0.09	0.11	
SL 070 1_5	25	35	70	3500	5000	12'	6'	6.5	3500	1600	97	0.07	0.09	
SL 070 1_7	25	35	70	3500	5000	12'	6'	6.5	3500	1600	97	0.05	0.07	
SL 070 1_10	18	30	60	4000	6000	12'	6'	6.5	3500	1600	97	0.04	0.06	
SL 070 2_9	18	30	60	3300	4000	15'	8'	6	3500	1600	94	0.11	0.13	
SL 070 2_12	25	35	70	3300	4000	15'	8'	6	3500	1600	94	0.10	0.13	
SL 070 2_15	25	35	70	3300	4000	15'	8'	6	3500	1600	94	0.10	0.12	
SL 070 2_16	25	35	70	3500	5000	15'	8'	6	3500	1600	94	0.07	0.09	3.86
SL 070 2_20	25	35	70	3500	5000	15'	8'	6	3500	1600	94	0.06	0.08	
SL 070 2_25	25	35	70	3500	5000	15'	8'	6	3500	1600	94	0.06	0.08	
SL 070 2_28	25	35	70	4000	6000	15'	8'	6	3500	1600	94	0.05	0.07	
SL 070 2_30	18	30	60	4000	6000	15'	8'	6	3500	1600	94	0.04	0.06	
SL 070 2_35	25	35	70	4000	6000	15'	8'	6	3500	1600	94	0.05	0.07	
SL 070 2_40	25	35	70	4000	6000	15'	8'	6	3500	1600	94	0.04	0.06	
SL 070 2_50	25	35	70	4000	6000	15'	8'	6	3500	1600	94	0.04	0.06	
SL 070 2_70	25	35	70	4000	6000	15'	8'	6	3500	1600	94	0.04	0.06	
SL 070 2_100	18	30	60	4000	6000	15'	8'	6	3500	1600	94	0.04	0.06	

* Applies for timing belt application

SL 090



YP

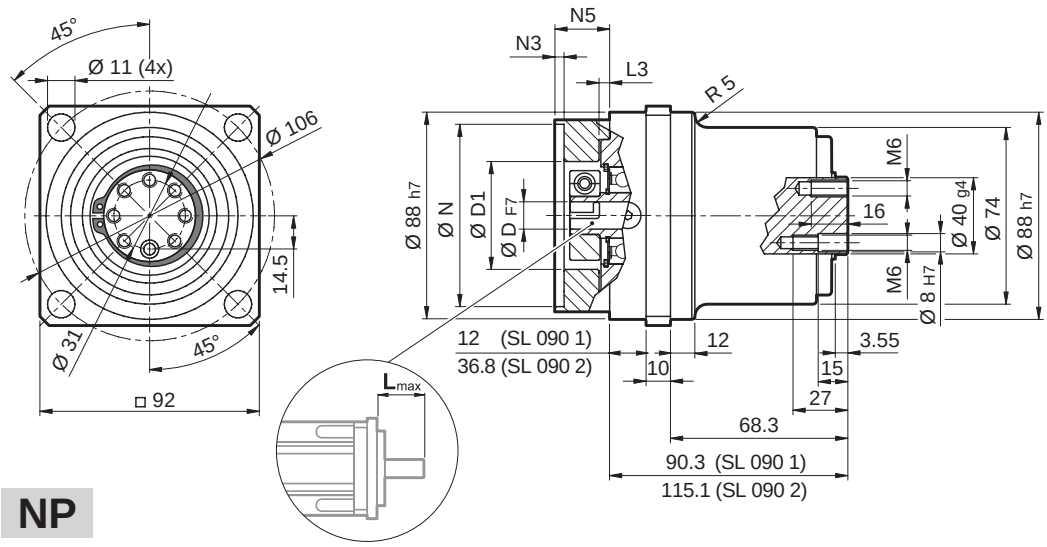
	Kg	
SL 090 1	3.6	0.8
SL 090 2	4.7	0.8

	D											N	N1	N2	N3	N4	N5	L_{max}
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

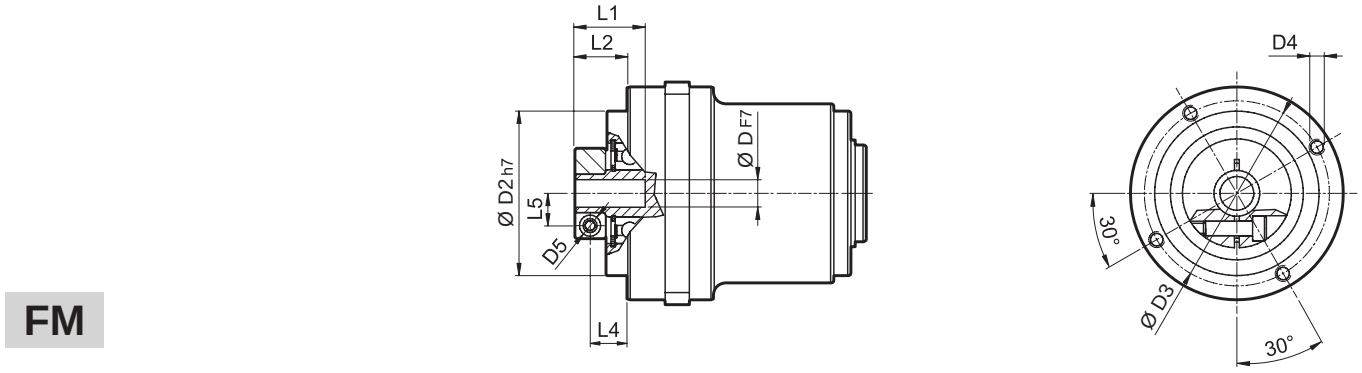
Please contact us for different motor adapters and input shaft bore.

SL 090

NP



FM

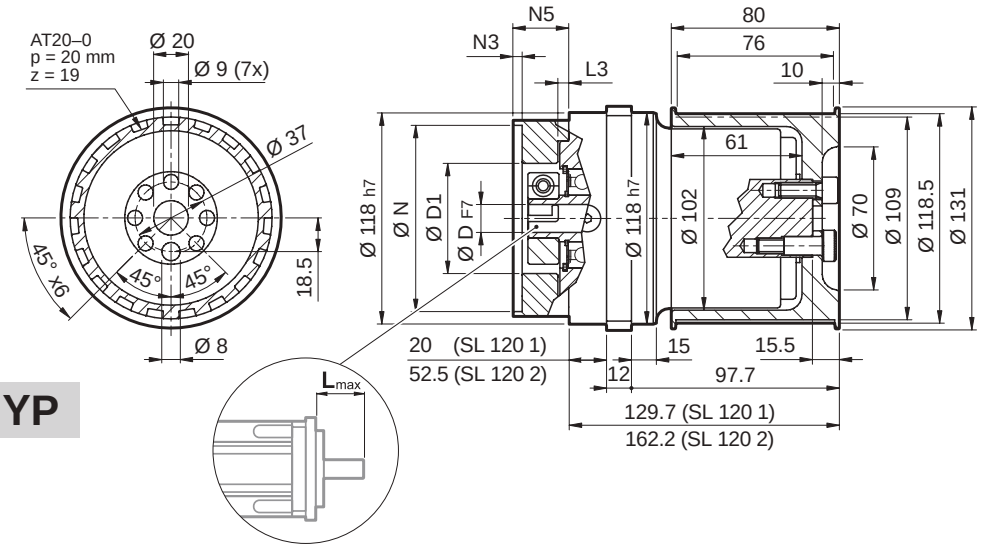


D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
9	9.52			38	68	76.5	M6x10	M6	34	26.8	9.5	18.8	10.5
11	12	12.7		52	68	76.5	M6x10	M6	34	26.8	9.5	18.8	12.5
14	15.875	16	17	48	68	76.5	M6x10	M6	34	26.8	9.5	18.8	14.5
19	19.05			51	68	76.5	M6x10	M6	34	26.8	9.5	18.8	16.5

i	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	φ_R [arcmin]	C_t [Nm/arcmin]	$R_{2\,max}$ * [N]	$A_{2\,max}$ [N]	η %	J_G [kgcm^2] D 9 ... 12.7	J_G [kgcm^2] D 14 ... 19	
SL 090 1_3	37	70	150	2900	3500	12'	6'	12	4500	2000	97	0.72	0.81	10.95
SL 090 1_4	43	80	160	3100	4500	12'	6'	12	4500	2000	97	0.49	0.58	
SL 090 1_5	43	80	160	3200	4500	12'	6'	12	4500	2000	97	0.39	0.48	
SL 090 1_7	43	80	160	4000	6000	12'	6'	12	4500	2000	97	0.31	0.40	
SL 090 1_10	37	70	150	4000	6000	12'	6'	12	4500	2000	97	0.27	0.35	
SL 090 2_9	37	70	150	2900	3500	15'	8'	11.5	4500	2000	94	0.47	0.61	
SL 090 2_12	43	80	160	2900	3500	15'	8'	11.5	4500	2000	94	0.44	0.58	
SL 090 2_15	43	80	160	2900	3500	15'	8'	11.5	4500	2000	94	0.43	0.57	
SL 090 2_16	43	80	160	3100	4500	15'	8'	11.5	4500	2000	94	0.31	0.45	
SL 090 2_20	43	80	160	3200	4500	15'	8'	11.5	4500	2000	94	0.26	0.40	
SL 090 2_25	43	80	160	3200	4500	15'	8'	11.5	4500	2000	94	0.26	0.40	
SL 090 2_28	43	80	160	4000	6000	15'	8'	11.5	4500	2000	94	0.22	0.36	
SL 090 2_30	37	70	150	4000	6000	15'	8'	11.5	4500	2000	94	0.20	0.34	
SL 090 2_35	43	80	160	4000	6000	15'	8'	11.5	4500	2000	94	0.22	0.36	
SL 090 2_40	43	80	160	4000	6000	15'	8'	11.5	4500	2000	94	0.20	0.34	
SL 090 2_50	43	80	160	4000	6000	15'	8'	11.5	4500	2000	94	0.20	0.34	
SL 090 2_70	43	80	160	4000	6000	15'	8'	11.5	4500	2000	94	0.20	0.34	
SL 090 2_100	37	70	150	4000	6000	15'	8'	11.5	4500	2000	94	0.19	0.34	

* Applies for timing belt application

SL 120



YP

	Kg	
		
SL 120 1	8.4	2.6
SL 120 2	10.9	2.6

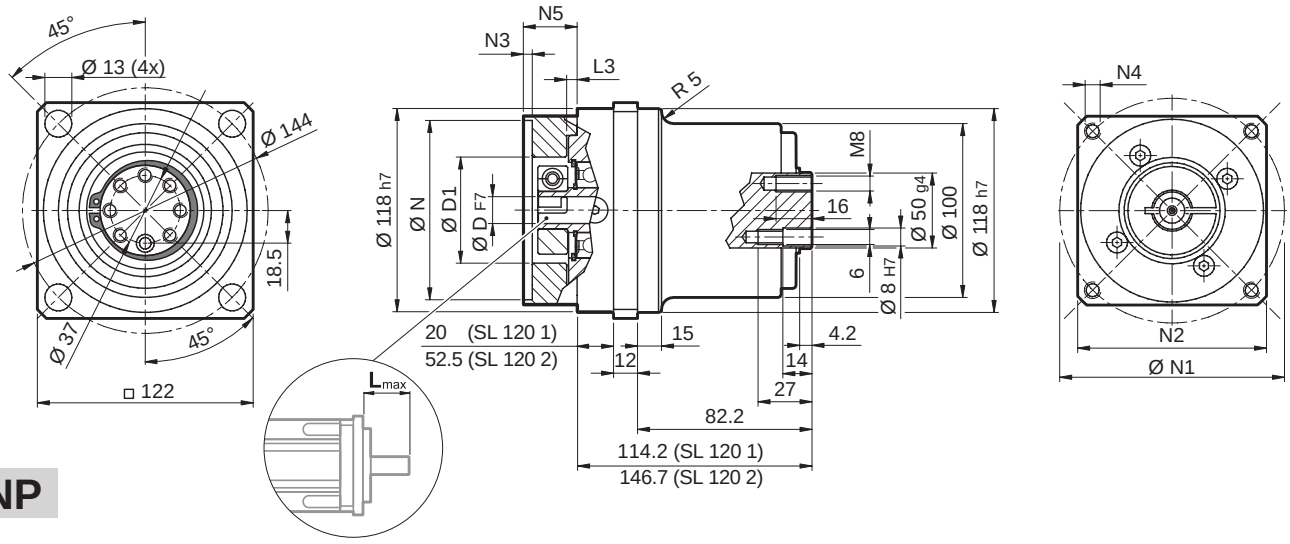
SL

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

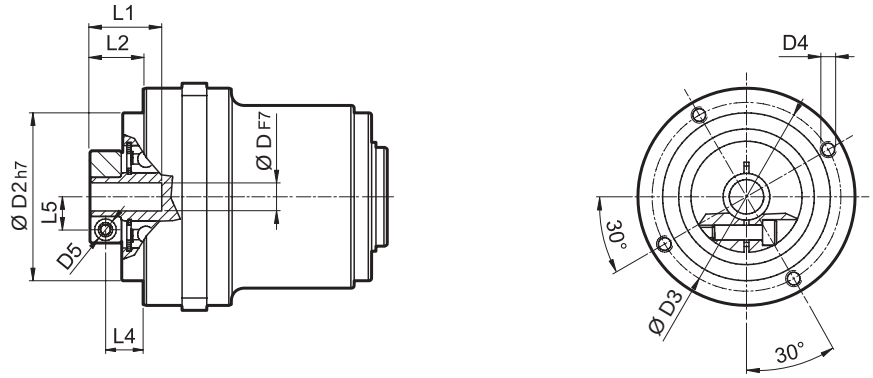
Please contact us for different motor adapters and input shaft bore.

SL 120

NP



FM

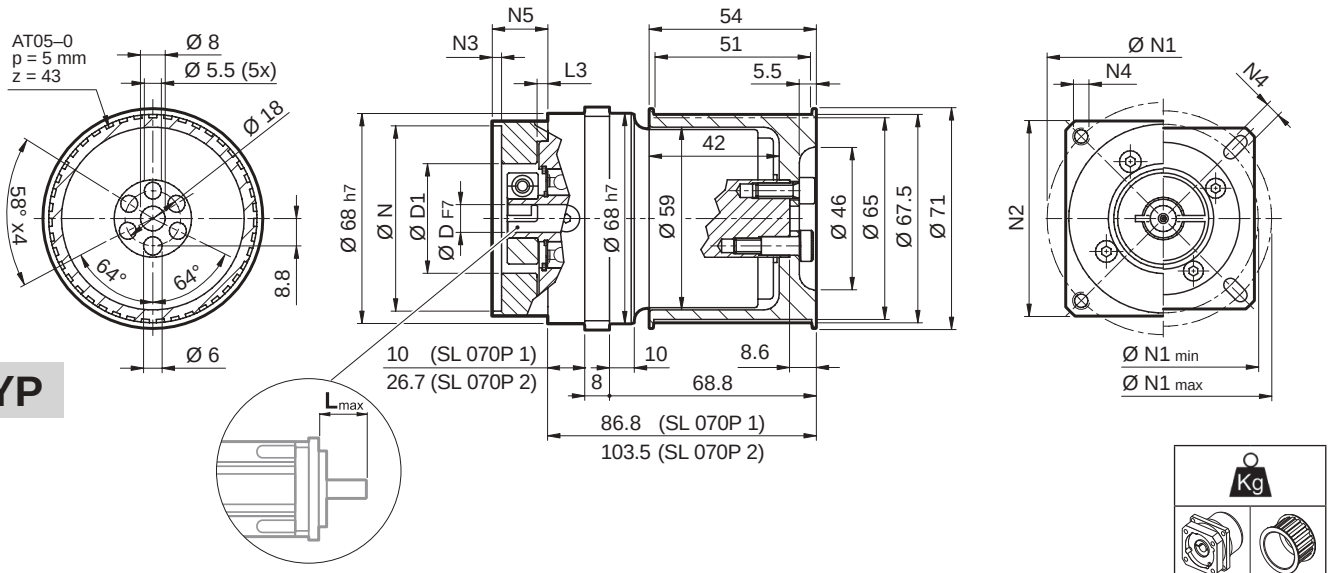


D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
14	15	15.875	16	48	90	98	M6x15	M6	33.5	20	7.6	12.5	14.5
19				51	90	98	M6x15	M6	33.5	20	7.6	12.5	16.5
22	24			56.5	90	98	M6x15	M6	36.5	23	7.6	14	19
28				70	90	98	M6x15	M8	36.5	23	7.6	14	22.5
32				71	90	98	M6x15	M8	38	24.5	7.6	15.5	24.5

i	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	φ_R [arcmin]	C_t [Nm/arcmin]	$R_{2\,max}$* [N]	$A_{2\,max}$ [N]	η %	J_G [kgcm^2] D 14 ... 19	D 22 ; 24	D 28 ; 32	
SL 120 1_3	95	160	300	2500	3500	12'	6'	45	10000	4500	97	2.18	2.81	3.25	50.62
SL 120 1_4	110	190	360	2800	4500	12'	6'	45	10000	4500	97	1.30	1.93	2.37	
SL 120 1_5	110	190	360	3000	4500	12'	6'	45	10000	4500	97	0.96	1.59	2.03	
SL 120 1_7	110	190	360	3500	4500	12'	6'	45	10000	4500	97	0.66	1.28	1.72	
SL 120 1_10	95	160	300	3500	5000	12'	6'	45	10000	4500	97	0.49	1.11	1.55	
SL 120 2_9	95	160	300	2500	3500	15'	8'	40	10000	4500	94	1.61	2.20	2.57	
SL 120 2_12	110	190	360	2500	3500	15'	8'	40	10000	4500	94	1.51	2.10	2.47	
SL 120 2_15	110	190	360	2500	3500	15'	8'	40	10000	4500	94	1.47	2.06	2.43	
SL 120 2_16	110	190	360	2800	4500	15'	8'	40	10000	4500	94	0.92	1.52	1.88	
SL 120 2_20	110	190	360	3000	4500	15'	8'	40	10000	4500	94	0.90	1.50	1.86	
SL 120 2_25	110	190	360	3000	4500	15'	8'	40	10000	4500	94	0.71	1.30	1.67	
SL 120 2_28	110	190	360	3500	5000	15'	8'	40	10000	4500	94	0.54	1.13	1.50	
SL 120 2_30	95	160	300	3500	5000	15'	8'	40	10000	4500	94	0.44	1.04	1.40	
SL 120 2_35	110	190	360	3500	5000	15'	8'	40	10000	4500	94	0.53	1.13	1.49	
SL 120 2_40	110	190	360	3500	5000	15'	8'	40	10000	4500	94	0.43	1.03	1.39	
SL 120 2_50	110	190	360	3500	5000	15'	8'	40	10000	4500	94	0.43	1.02	1.39	
SL 120 2_70	110	190	360	3500	5000	15'	8'	40	10000	4500	94	0.42	1.02	1.38	
SL 120 2_100	95	160	300	3500	5000	15'	8'	40	10000	4500	94	0.42	1.02	1.38	

* Applies for timing belt application

SL 070P



YP

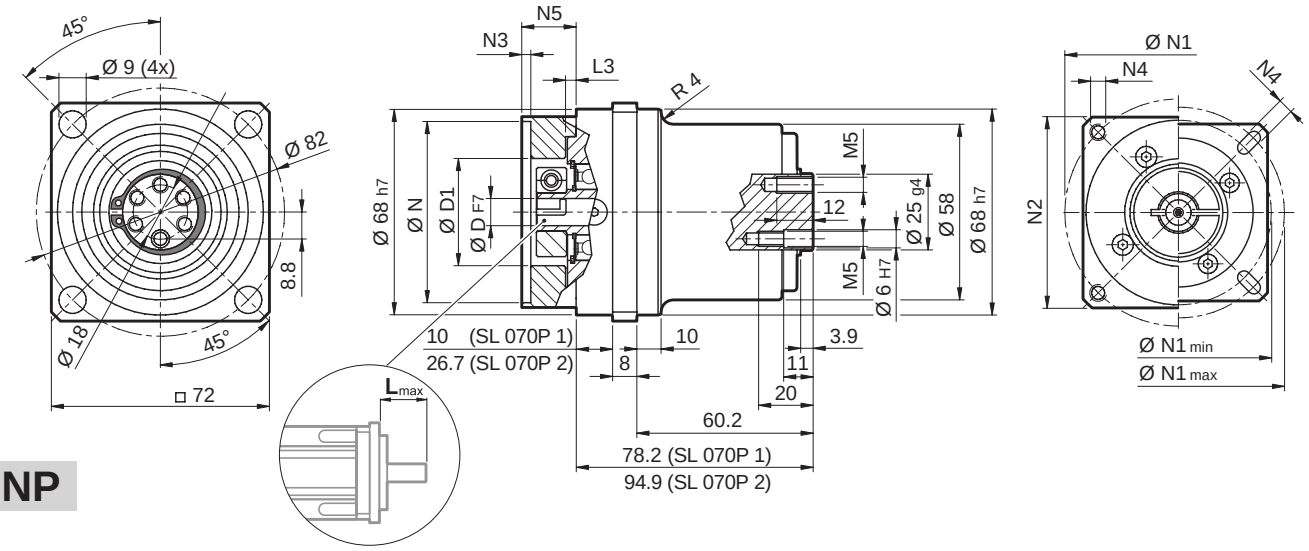
	Kg	
SL 070P 1	2.0	0.5
SL 070P 2	2.3	0.5

	D										N	N1		N2	N3	N4	N5	L_{max}
												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		65	3	M5x12	18	25
60A1	6.35	7	8	9	9.52	10	11	12	12.7	14	60	75		65	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	5	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

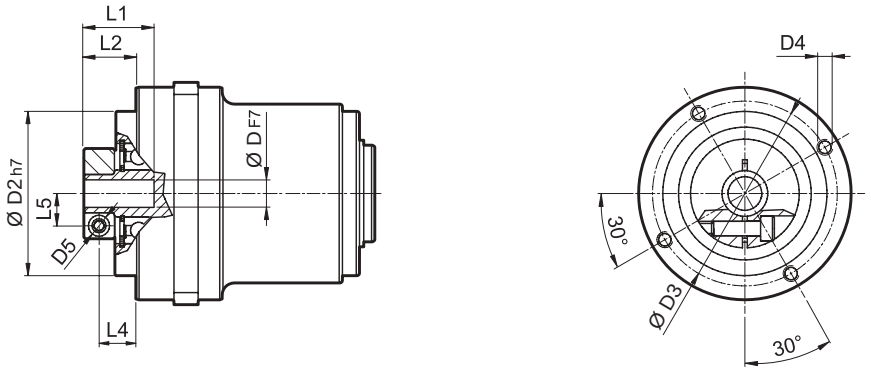
Please contact us for different motor adapters and input shaft bore.

SL 070P

NP



FM

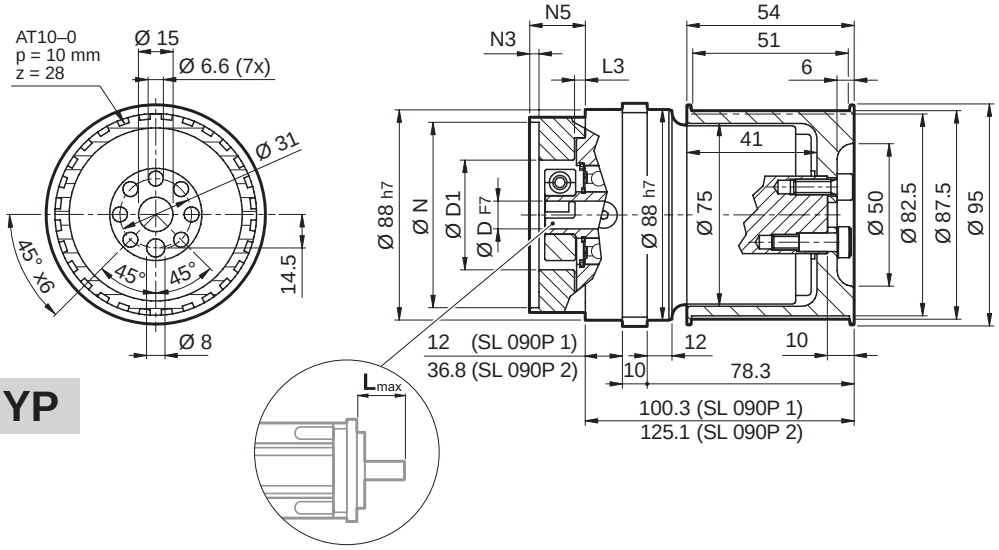


D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
6.35	7			32.5	50	42.5	M4x8	M4	21.7	13.2	3	8.2	8
8	9	9.52	10	32.5	50	42.5	M4x8	M4	21.7	13.2	3	8.2	9
11	12	12.7		35.5	50	42.5	M4x8	M4	22	13.5	3	8.5	11
14				35.5	50	42.5	M4x8	M4	25	17	3	10.2	11.5

i	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	φ_R [arcmin]	C_t [Nm/arcmin]	$R_{2\,max}$ * [N]	$A_{2\,max}$ [N]	η %	J_G [kgcm^2] D 6 ... 9.52	J_G [kgcm^2] D 11 ... 14	
SL 070P 1_3	29	55	60	3300	4000	12'	6'	6.5	3500	1600	97	0.14	0.16	3.86
SL 070P 1_4	30	45	70	3500	5000	12'	6'	6.5	3500	1600	97	0.09	0.11	
SL 070P 1_5	28	40	70	3500	5000	12'	6'	6.5	3500	1600	97	0.07	0.09	
SL 070P 1_7	28	40	70	4000	5000	12'	6'	6.5	3500	1600	97	0.05	0.07	
SL 070P 1_10	20	33	60	4000	6000	12'	6'	6.5	3500	1600	97	0.04	0.06	
SL 070P 2_9	29	55	60	3300	4000	15'	8'	6	3500	1600	94	0.11	0.13	
SL 070P 2_12	29	55	70	3300	4000	15'	8'	6	3500	1600	94	0.10	0.13	
SL 070P 2_15	29	55	70	3300	4000	15'	8'	6	3500	1600	94	0.10	0.12	
SL 070P 2_16	30	45	70	3500	5000	15'	8'	6	3500	1600	94	0.07	0.09	
SL 070P 2_20	30	45	70	3500	5000	15'	8'	6	3500	1600	94	0.06	0.08	
SL 070P 2_25	30	45	70	3500	5000	15'	8'	6	3500	1600	94	0.06	0.08	
SL 070P 2_28	30	45	70	4000	6000	15'	8'	6	3500	1600	94	0.05	0.07	
SL 070P 2_30	29	55	60	4000	6000	15'	8'	6	3500	1600	94	0.04	0.06	
SL 070P 2_35	30	45	70	4000	6000	15'	8'	6	3500	1600	94	0.05	0.07	
SL 070P 2_40	30	45	70	4000	6000	15'	8'	6	3500	1600	94	0.04	0.06	
SL 070P 2_50	30	45	70	4000	6000	15'	8'	6	3500	1600	94	0.04	0.06	
SL 070P 2_70	30	45	70	4000	6000	15'	8'	6	3500	1600	94	0.04	0.06	
SL 070P 2_100	20	33	60	4000	6000	15'	8'	6	3500	1600	94	0.04	0.06	

* Applies for timing belt application

SL 090P



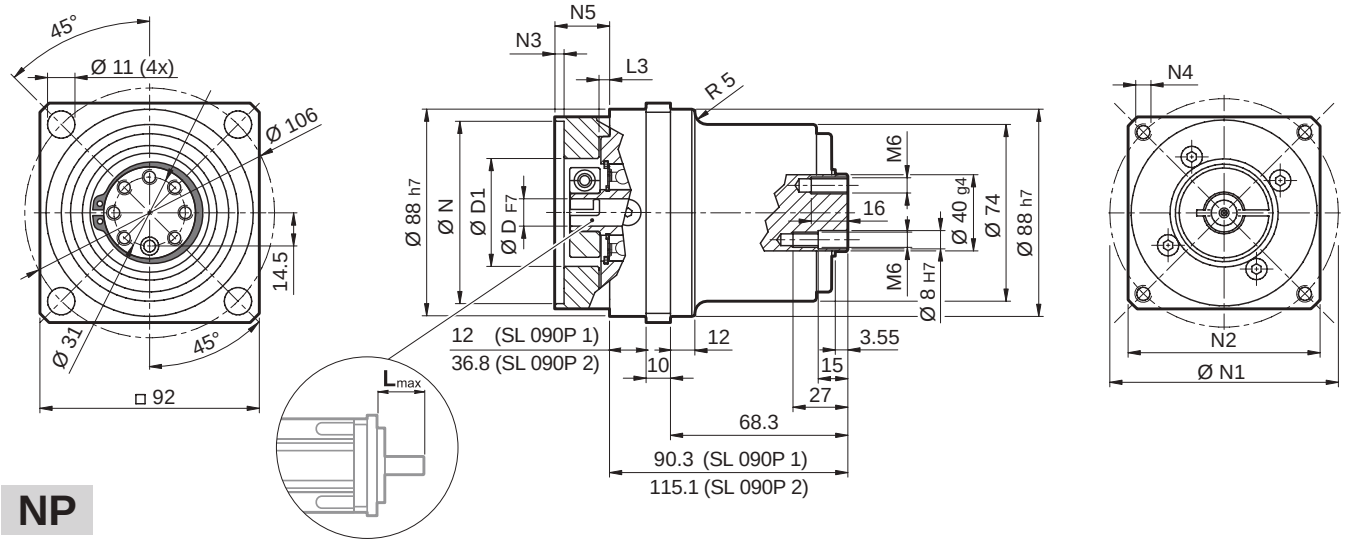
YP

	Kg	
SL 090P 1	3.6	0.8
SL 090P 2	4.7	0.8

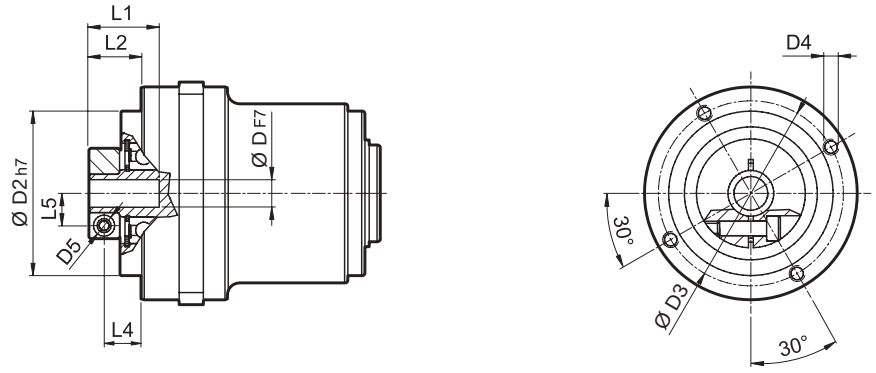
	D											N	N1	N2	N3	N4	N5	L_{max}
40B1	9	9.52	11	12	12.7	14	–	–	–	–	–	40	63	80	4	M4x10	34	40
45A	9	9.52	11	12	12.7	–	–	–	–	–	–	45	63	80	4	M4x10	34	40
50B1	9	9.52	11	12	12.7	14	–	–	–	–	–	50	65	80	4	M5x16	34	40
50BH1	9	9.52	11	12	12.7	14	–	–	–	–	–	50	65	80	4	5.5	34	40
50C1	9	9.52	11	12	12.7	14	–	–	–	–	–	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 different motor adapters and input shaft bore.

SL 090P



NP



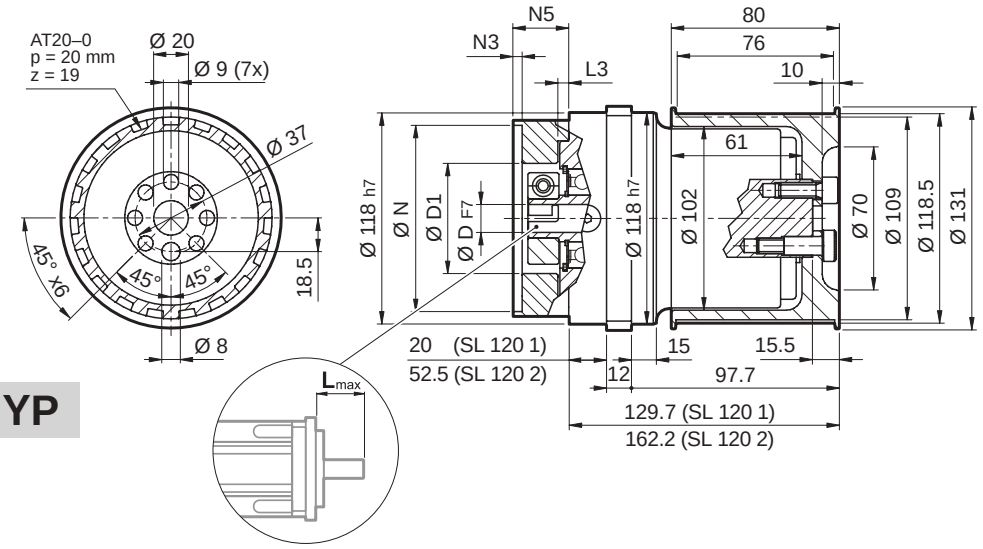
FM

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	12.7		52	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	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	φ_R [arcmin]	C_t [Nm/arcmin]	$R_{2\,max}$ * [N]	$A_{2\,max}$ [N]	η %	J_G [kgcm^2] D 9 ... 12.7	J_G [kgcm^2] D 14 ... 19	
SL 090P 1_3	65	120	150	3500	4000	12'	6'	12	4500	2000	97	0.72	0.81	10.95
SL 090P 1_4	60	110	160	3500	4000	12'	6'	12	4500	2000	97	0.49	0.58	
SL 090P 1_5	50	100	160	3200	4500	12'	6'	12	4500	2000	97	0.39	0.48	
SL 090P 1_7	50	100	160	4000	6000	12'	6'	12	4500	2000	97	0.31	0.40	
SL 090P 1_10	40	75	150	4000	6000	12'	6'	12	4500	2000	97	0.27	0.35	
SL 090P 2_9	65	120	150	3500	4000	15'	8'	11.5	4500	2000	94	0.47	0.61	
SL 090P 2_12	65	120	160	3500	4000	15'	8'	11.5	4500	2000	94	0.44	0.58	
SL 090P 2_15	65	120	160	3500	4000	15'	8'	11.5	4500	2000	94	0.43	0.57	
SL 090P 2_16	60	110	160	3500	4500	15'	8'	11.5	4500	2000	94	0.31	0.45	
SL 090P 2_20	60	110	160	3500	4500	15'	8'	11.5	4500	2000	94	0.26	0.40	
SL 090P 2_25	50	100	160	3200	4500	15'	8'	11.5	4500	2000	94	0.26	0.40	
SL 090P 2_28	50	100	160	4000	6000	15'	8'	11.5	4500	2000	94	0.22	0.36	
SL 090P 2_30	65	120	150	4000	6000	15'	8'	11.5	4500	2000	94	0.20	0.34	
SL 090P 2_35	50	100	160	4000	6000	15'	8'	11.5	4500	2000	94	0.22	0.36	
SL 090P 2_40	60	110	160	4000	6000	15'	8'	11.5	4500	2000	94	0.20	0.34	
SL 090P 2_50	50	100	160	4000	6000	15'	8'	11.5	4500	2000	94	0.20	0.34	
SL 090P 2_70	50	100	160	4000	6000	15'	8'	11.5	4500	2000	94	0.20	0.34	
SL 090P 2_100	40	75	150	4000	6000	15'	8'	11.5	4500	2000	94	0.19	0.34	

* Applies for timing belt application

SL 120P



YP

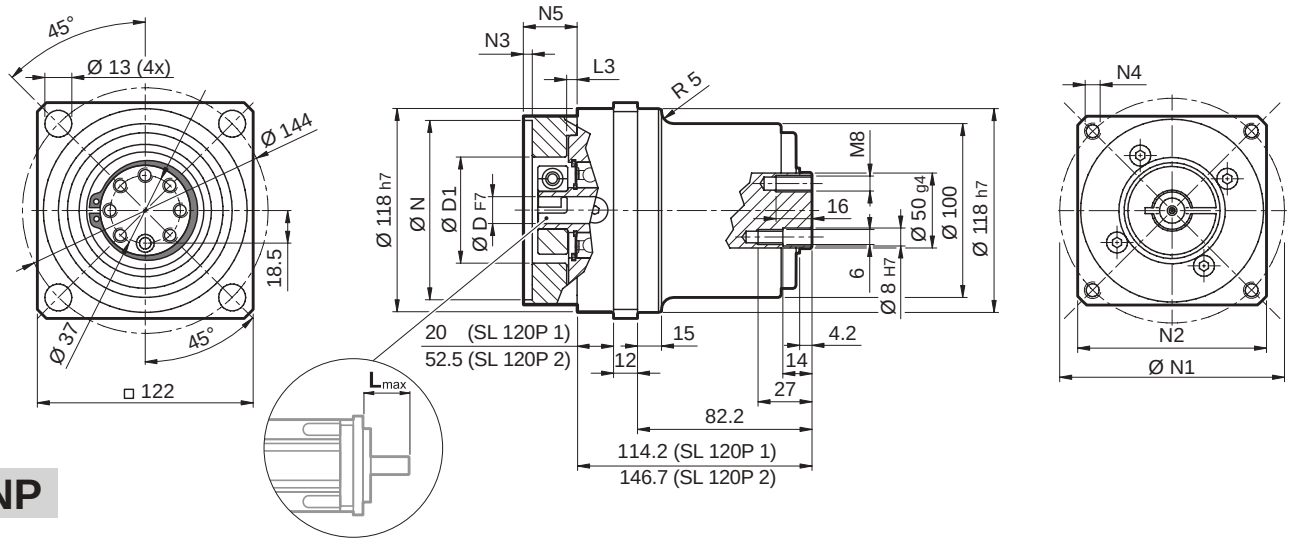
	Kg	
SL 120P 1	8.4	2.6
SL 120P 2	10.9	2.6

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

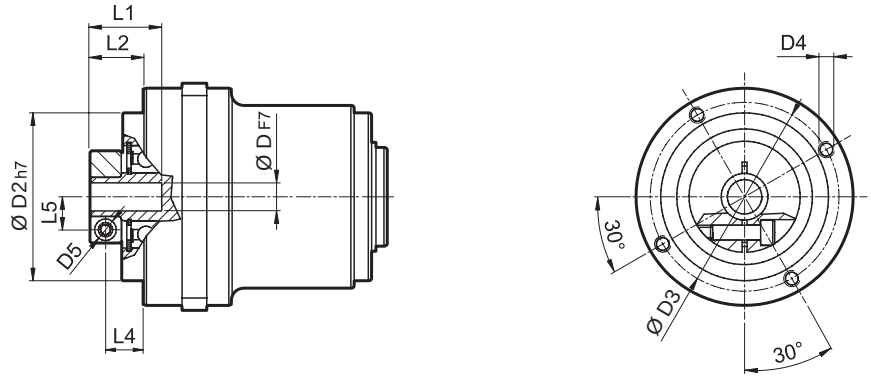
Please contact us for different motor adapters and input shaft bore.

SL 120P

NP



FM



D				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	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	φ_R [arcmin]	C_t [Nm/arcmin]	$R_{2\,max}$* [N]	$A_{2\,max}$ [N]	η %	J_G [kgcm^2] D 14 ... 19	D 22 ; 24	D 28 ; 32	
SL 120P 1_3	155	280	300	3000	4000	12'	6'	45	10000	4500	97	2.18	2.81	3.25	50.62
SL 120P 1_4	155	300	360	3000	4500	12'	6'	45	10000	4500	97	1.30	1.93	2.37	
SL 120P 1_5	125	240	360	3000	4500	12'	6'	45	10000	4500	97	0.96	1.59	2.03	
SL 120P 1_7	125	240	360	3500	4500	12'	6'	45	10000	4500	97	0.66	1.28	1.72	
SL 120P 1_10	100	165	300	3500	5000	12'	6'	45	10000	4500	97	0.49	1.11	1.55	
SL 120P 2_9	155	280	300	3000	4000	15'	8'	40	10000	4500	94	1.61	2.20	2.57	
SL 120P 2_12	155	300	360	3000	4000	15'	8'	40	10000	4500	94	1.51	2.10	2.47	
SL 120P 2_15	155	300	360	3000	4000	15'	8'	40	10000	4500	94	1.47	2.06	2.43	
SL 120P 2_16	155	300	360	3000	4500	15'	8'	40	10000	4500	94	0.92	1.52	1.88	
SL 120P 2_20	155	300	360	3000	4500	15'	8'	40	10000	4500	94	0.90	1.50	1.86	
SL 120P 2_25	125	240	360	3000	4500	15'	8'	40	10000	4500	94	0.71	1.30	1.67	
SL 120P 2_28	125	240	360	3500	5000	15'	8'	40	10000	4500	94	0.54	1.13	1.50	
SL 120P 2_30	155	300	300	3500	5000	15'	8'	40	10000	4500	94	0.44	1.04	1.40	
SL 120P 2_35	125	240	360	3500	5000	15'	8'	40	10000	4500	94	0.53	1.13	1.49	
SL 120P 2_40	155	300	360	3500	5000	15'	8'	40	10000	4500	94	0.43	1.03	1.39	
SL 120P 2_50	125	240	360	3500	5000	15'	8'	40	10000	4500	94	0.43	1.02	1.39	
SL 120P 2_70	125	240	360	3500	5000	15'	8'	40	10000	4500	94	0.42	1.02	1.38	
SL 120P 2_100	100	165	300	3500	5000	15'	8'	40	10000	4500	94	0.42	1.02	1.38	

* Applies for timing belt application

Effective Line

(E)

LC Series

LC precision planetary gearboxes represent a flexible solution and valuable alternative with optimal performance and reliability levels.
The output design in line with market standards ensures great compatibility for easy retrofits and a high level of freedom in projects development.

Main benefits

- Cost effective yet powerful
- Highly reliable
- High compatibility for easy retrofits

Main features

- Nominal output torque (Nm)
  10 - 450
- Torsional backlash (arcmin)
  6 - 15
- Torsional stiffness (Nm/arcmin)
  0.75 - 50
- Max tilting moment (Nm)
  15 - 522

Protection class

- IP54

Frame sizes

- 050
- 070
- 090
- 120
- 155

Main options

- Input versions
  MOTOR ADAPTER | WITHOUT MOTOR ADAPTER
- Output shafts versions
  SMOOTH KEYLESS SHAFT | KEYED SHAFT
- Lubrication
  STANDARD LUBRICATION | FOOD GRADE LUBRICATION (UH1)
- High power version (P option)
  HIGH POWER VERSION

LC

10 FEATURES OF LC SERIES

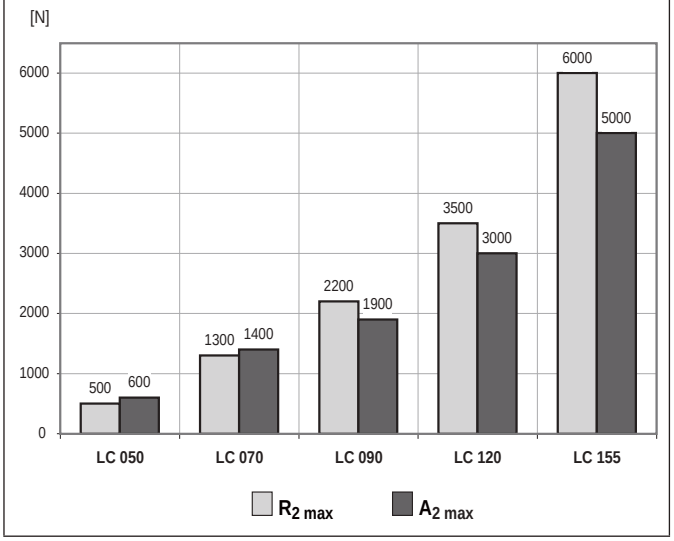
Planetary gear units of the LC series belong to a range of low backlash drives very broad and complete as far as transmissible torque, gear ratios and torsional backlash.
All units are generously proportioned to run quietly and provide a long service life without maintenance requirements.
Motor mounting 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 $\varphi_R \leq 8'$
- Its degree of protection IP54 provides protection against dust and liquid splashes.
- 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^{-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°C, max +30°C. For temperature higher than 30°C please consider derating factor f_T.
- Housing temperature must not exceed $T_{max} = 90$°C.
- Available as Version P with higher output torque.

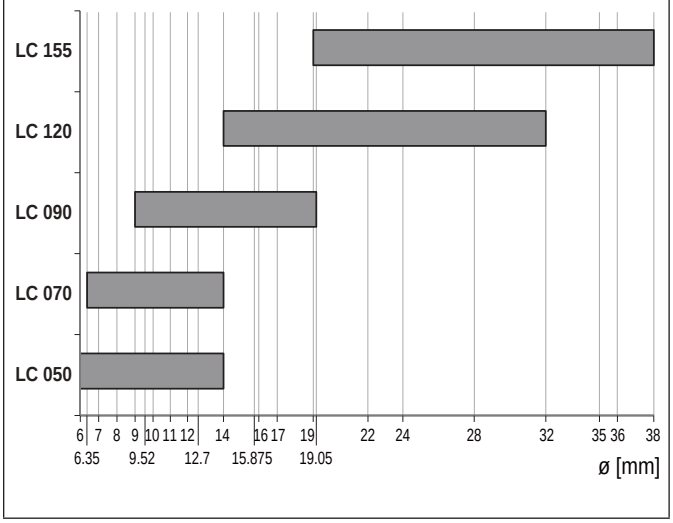
Distribution of nominal torque M_{n2} [Nm]

[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 070P	29	30	28	28	29	20	29	29	30	30	30	30	29	30	-	30	-	30	30	-	20
LC 090	37	43	43	43	37	37	43	43	43	43	43	43	37	43	–	43	–	43	43	–	37
LC 090P	65	60	50	50	65	40	65	65	60	60	50	50	65	50	-	60	-	50	50	-	40
LC 120	95	110	110	110	95	95	110	110	110	110	110	110	95	110	–	110	–	110	110	–	95
LC 120P	155	155	125	125	155	100	155	155	155	155	125	125	155	125	-	155	-	125	125	-	100
LC 155	250	300	300	300	250	230	300	300	300	300	300	300	250	300	–	300	–	300	300	–	230

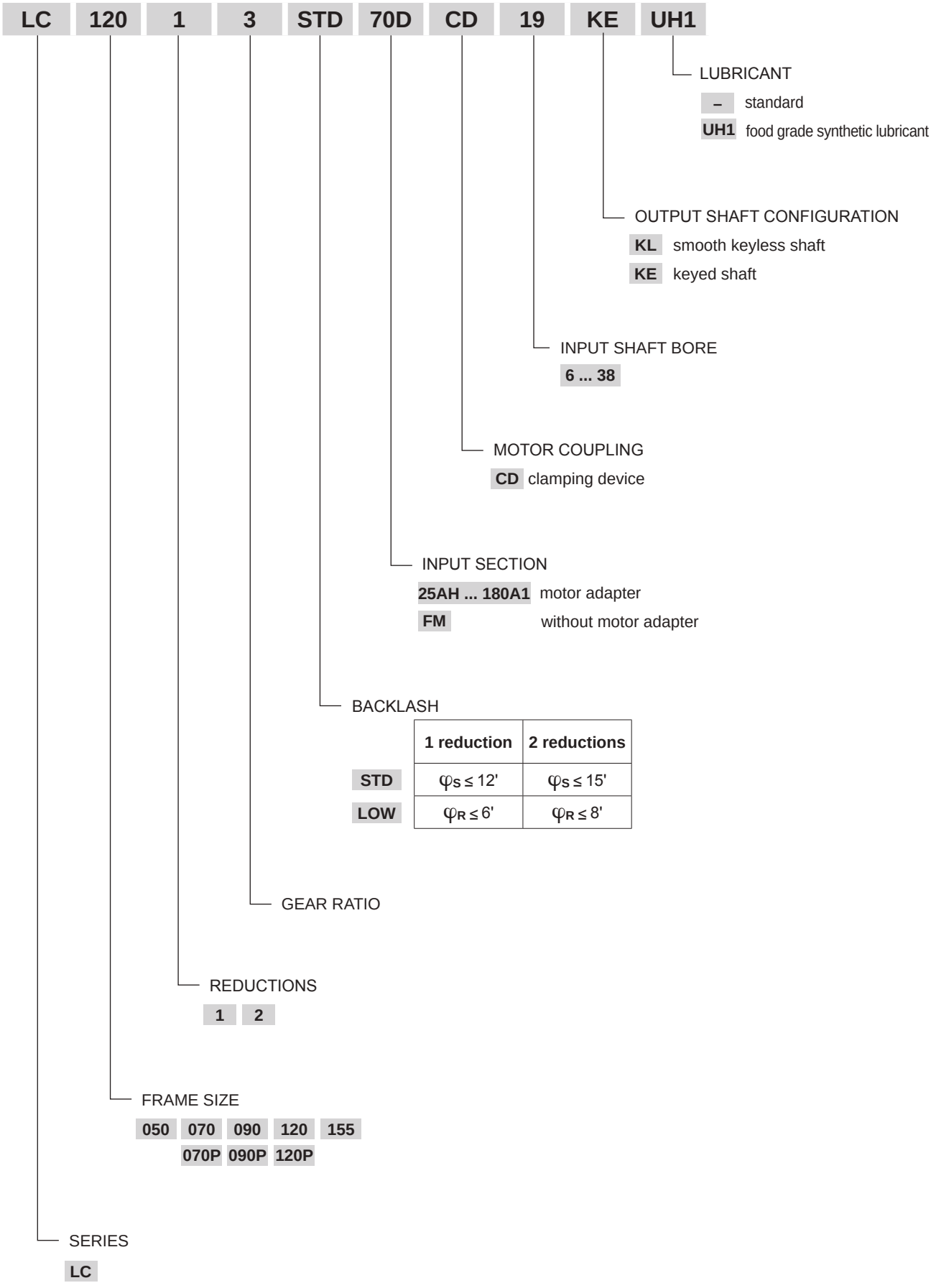
Output shaft max. loading capacity



Available motor shaft bores



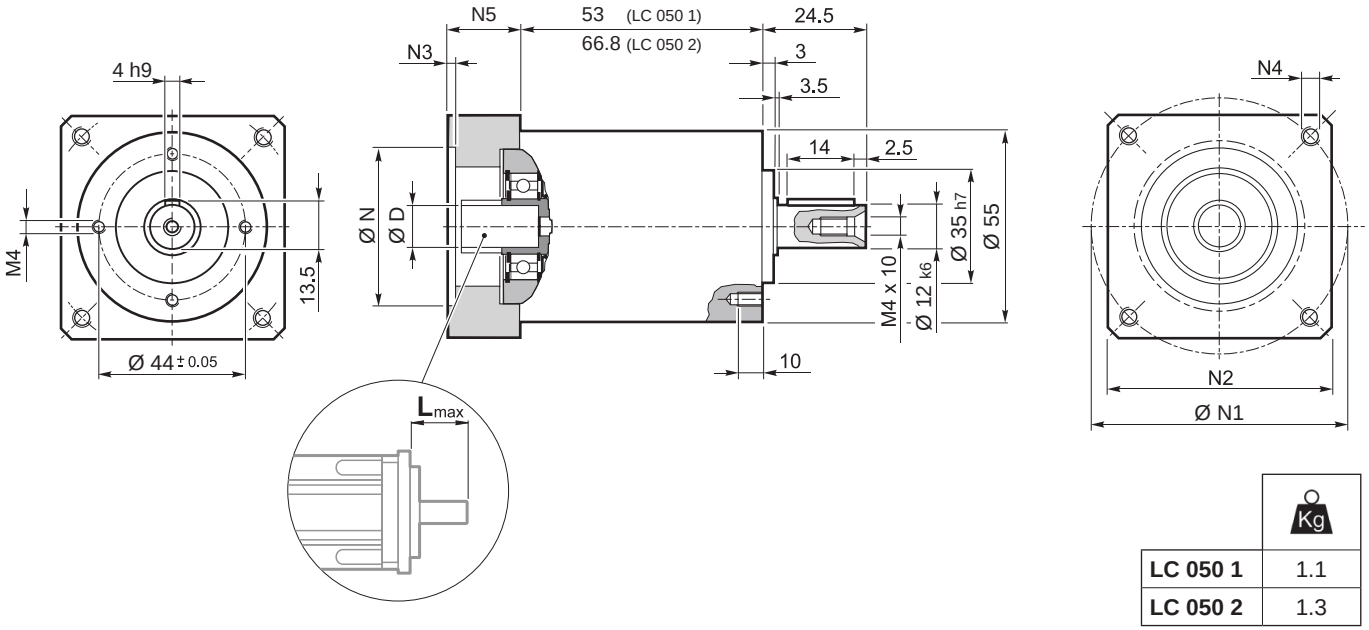
10.1 ORDERING CODE



10.2 DIMENSIONS AND TECHNICAL SPECIFICATIONS

LC 050

25AH ... 80A



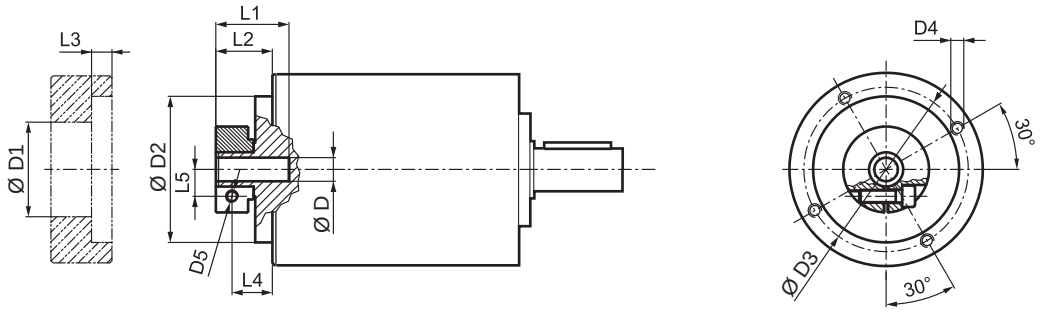
	Kg
LC 050 1	1.1
LC 050 2	1.3

	D											N	N1		N2	N3	N4	N5	L_{max}
													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		65	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		65	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	5	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 different motor adapters and input shaft bore.

LC 050

FM

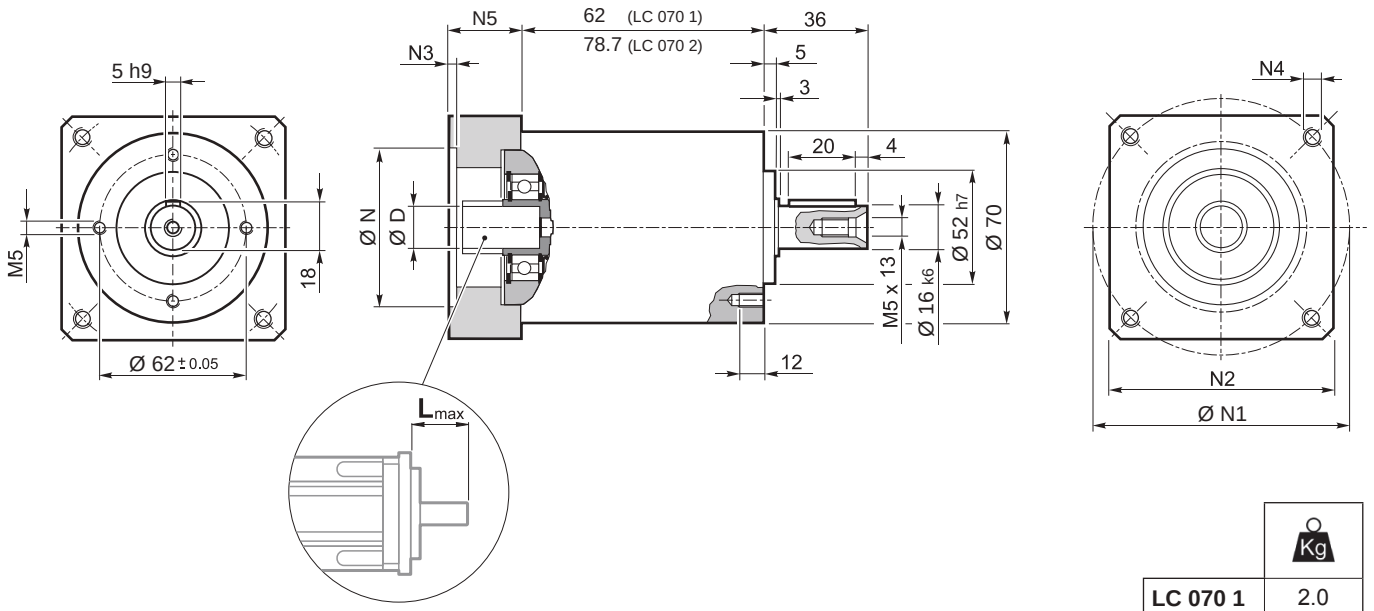


D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
6	6.35	7		32.5	50	42.5	M4x8	M4	21.7	13.2	3	8.2	8
8	9	9.52	10	32.5	50	42.5	M4x8	M4	21.7	13.2	3	8.2	9
11	12	12.7		35.5	50	42.5	M4x8	M4	22	13.5	3	8.5	11
14				35.5	50	42.5	M4x8	M4	25	17	3	10.2	11.5

i	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	φ_R [arcmin]	C_t [Nm/arcmin]	$R_{2\,max}$ [N]	$A_{2\,max}$ [N]	η %	J_G [kgcm^2] D 6 ... 9.52	J_G [kgcm^2] D 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 070

25AH ... 80A



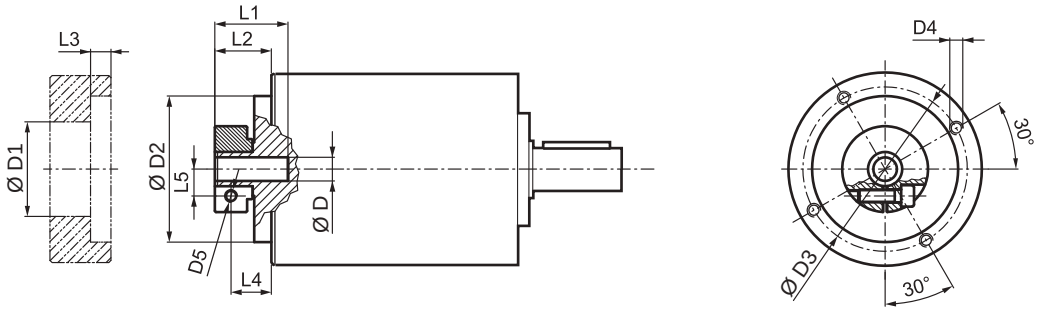
	Kg
LC 070 1	2.0
LC 070 2	2.3

	D										N	N1		N2	N3	N4	N5	L_{max}
												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		65	3	M5x12	18	25
60A1	6.35	7	8	9	9.52	10	11	12	12.7	14	60	75		65	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	5	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 different motor adapters and input shaft bore.

LC 070

FM

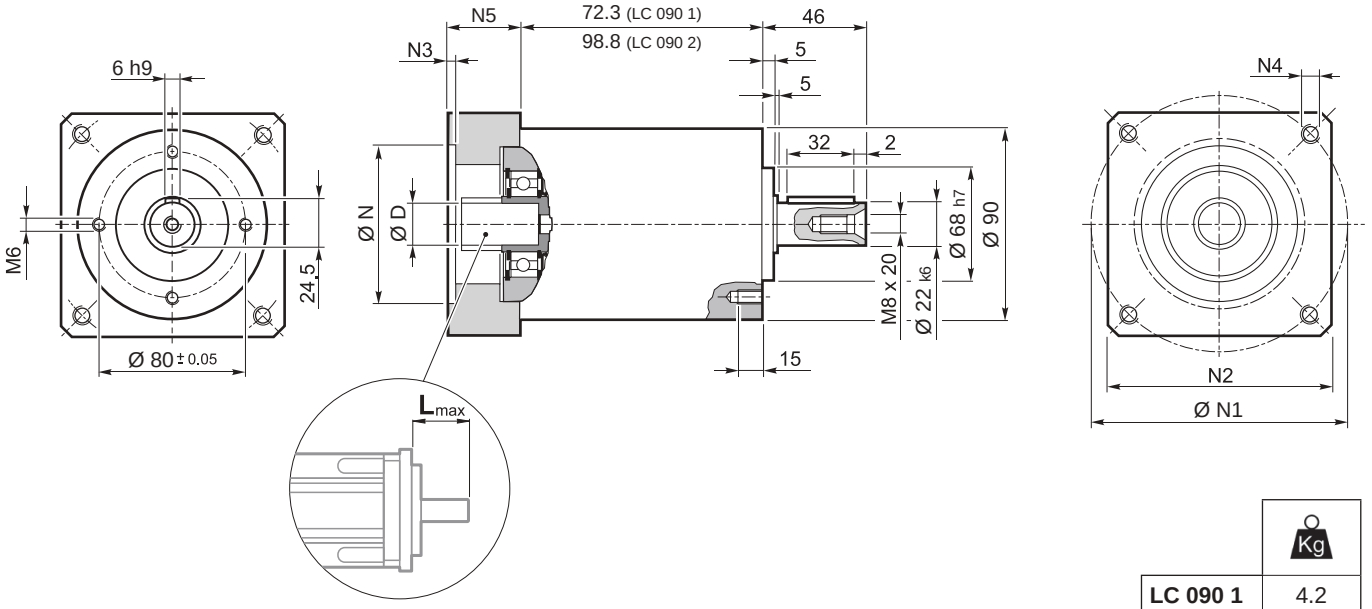


D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
6.35	7			32.5	50	42.5	M4x8	M4	21.7	13.2	3	8.2	8
8	9	9.52	10	32.5	50	42.5	M4x8	M4	21.7	13.2	3	8.2	9
11	12	12.7		35.5	50	42.5	M4x8	M4	22	13.5	3	8.5	11
14				35.5	50	42.5	M4x8	M4	25	17	3	10.2	11.5

i	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	φ_R [arcmin]	C_t [Nm/arcmin]	$R_{2\,max}$ [N]	$A_{2\,max}$ [N]	η %	J_G [kgcm^2] D 6.35 ... 9.52	J_G [kgcm^2] D 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 090

40B1 ... 110B1



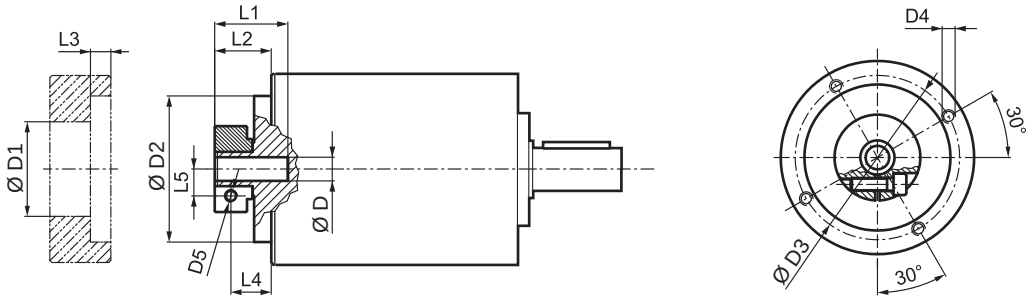
	Kg
LC 090 1	4.2
LC 090 2	5.3

	D											N	N1	N2	N3	N4	N5	L_{max}
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 different motor adapters and input shaft bore.

LC 090

FM

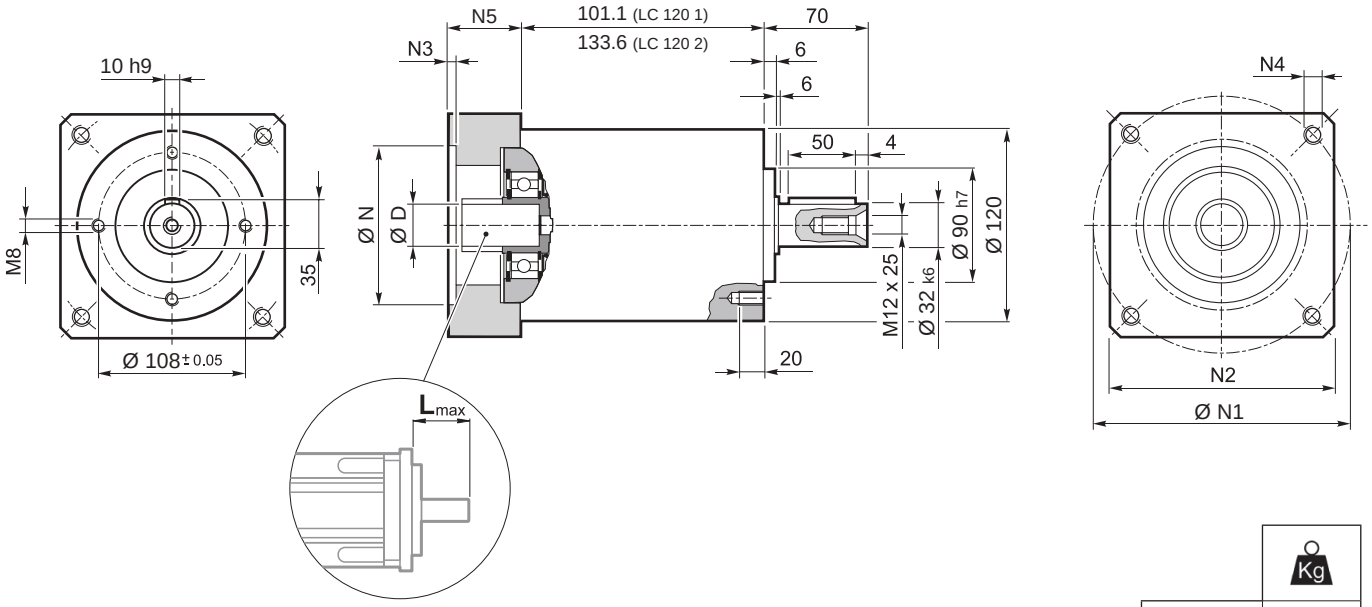


D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
9	9.52			38	68	76.5	M6x10	M6	34	26.8	9.5	18.8	10.5
11	12	12.7		43	68	76.5	M6x10	M6	34	26.8	9.5	18.8	12.5
14	15.875	16	17	48	68	76.5	M6x10	M6	34	26.8	9.5	18.8	14.5
19	19.05			51	68	76.5	M6x10	M6	34	26.8	9.5	18.8	16.5

i	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	φ_R [arcmin]	C_t [Nm/arcmin]	$R_{2\,max}$ [N]	$A_{2\,max}$ [N]	η %	J_G [kgcm^2] D 9 ... 12.7	J_G [kgcm^2] D 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 120

50D ... 130A1



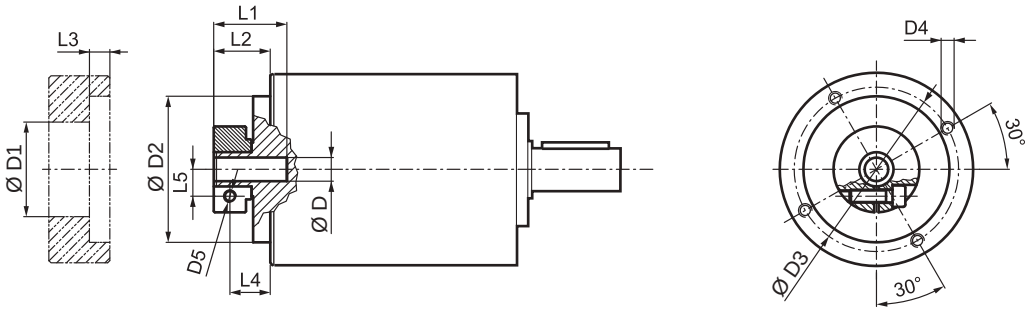
	Kg
LC 120 1	9.6
LC 120 2	12.1

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

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

LC 120

FM

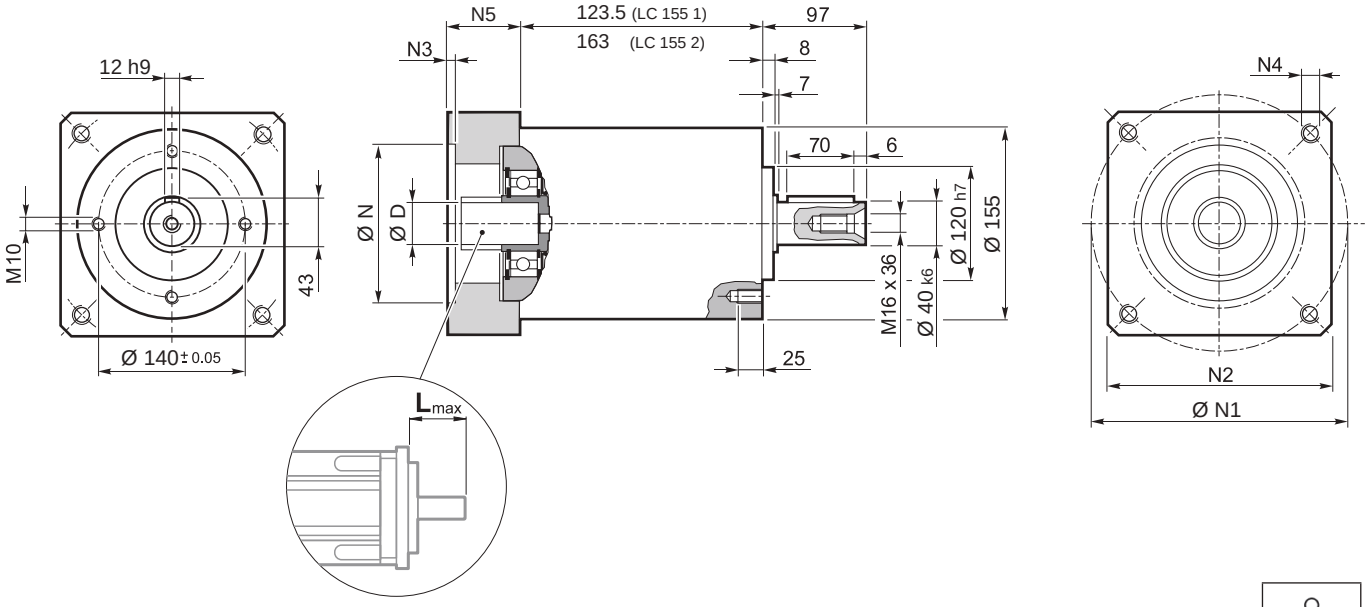


D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
14	15	15.875	16	48	90	98	M6x15	M6	33.5	20	7.6	12.5	14.5
19				51	90	98	M6x15	M6	33.5	20	7.6	12.5	16.5
22	24			56.5	90	98	M6x15	M6	36.5	23	7.6	14	19
28				67	90	98	M6x15	M8	36.5	23	7.6	14	22.5
32				71	90	98	M6x15	M8	38	24.5	7.6	15.5	24.5

i	$M_{n\,2}$	$M_{a\,2}$	$M_{p\,2}$	n_1	$n_{1\,max}$	φ_S	φ_R	C_t	$R_{2\,max}$	$A_{2\,max}$	η	J_G [kgcm²] D		
	[Nm]	[Nm]	[Nm]	[min⁻¹]	[min⁻¹]	[arcmin]		[Nm/arcmin]	[N]	[N]	%	14 ... 19	22 ; 24	28 ; 32
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 155

55A1 ... 180A1



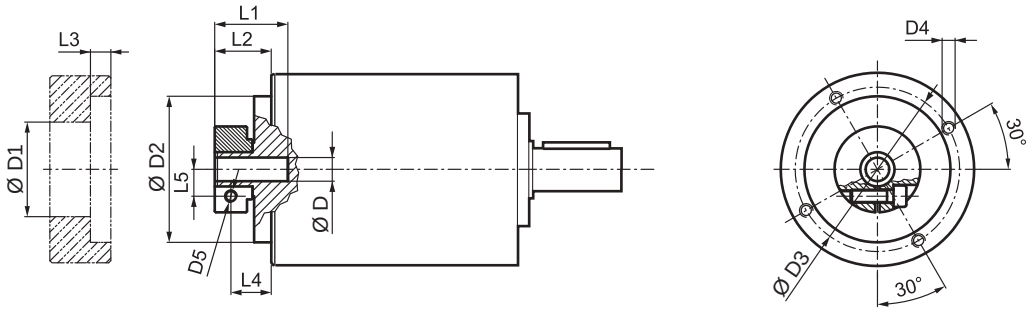
	Kg
LC 155 1	19.3
LC 155 2	24.3

	D							N	N1	N2	N3	N4	N5	L_{max}
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 different motor adapters and input shaft bore.

LC 155

FM

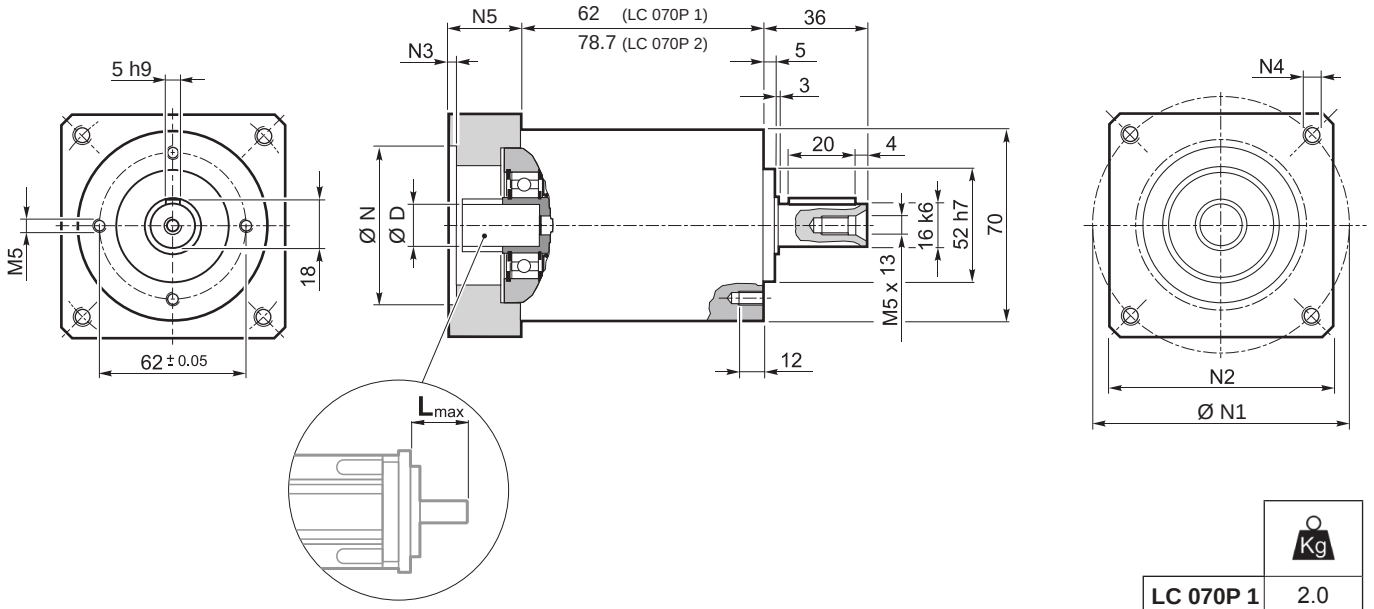


D	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
19	51	113	125.5	M8x15	M6	40	27.5	6	20	16.5
22 24	56.5	113	125.5	M8x15	M6	41	28.5	6	19.5	19
28	67	113	125.5	M8x15	M8	41	28.5	6	19.5	22.5
32	71	113	125.5	M8x15	M8	41	28.5	6	18.5	24.5
35	73	113	125.5	M8x15	M8	50	37.5	11.25	26	26
38	77.5	113	125.5	M8x15	M8	50	37.5	11.25	26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

i	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	φ_R [arcmin]	C_t [Nm/arcmin]	$R_{2\,max}$ [N]	$A_{2\,max}$ [N]	η %	J_G [kgcm^2] D 19	D 22 ; 24	D 28 ; 32	D 35 ; 38
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 070P

25AH ... 80A



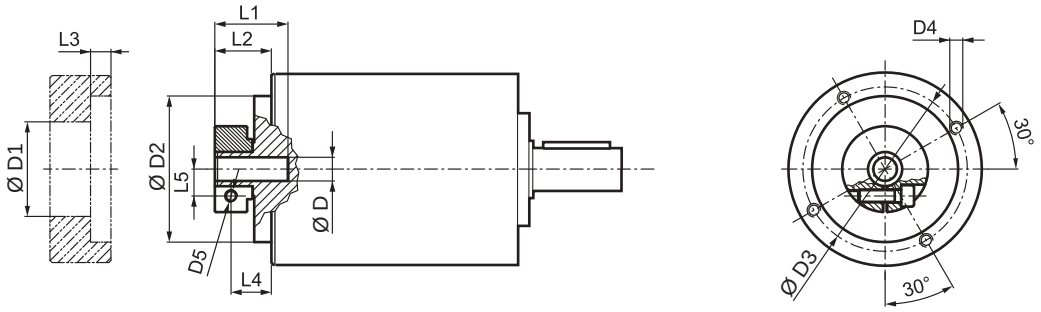
	Kg
LC 070P 1	2.0
LC 070P 2	2.3

	D										N	N1		N2	N3	N4	N5	L_{max}
												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		65	3	M5x12	18	25
60A1	6.35	7	8	9	9.52	10	11	12	12.7	14	60	75		65	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	5	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 different motor adapters and input shaft bore.

LC 070P

FM

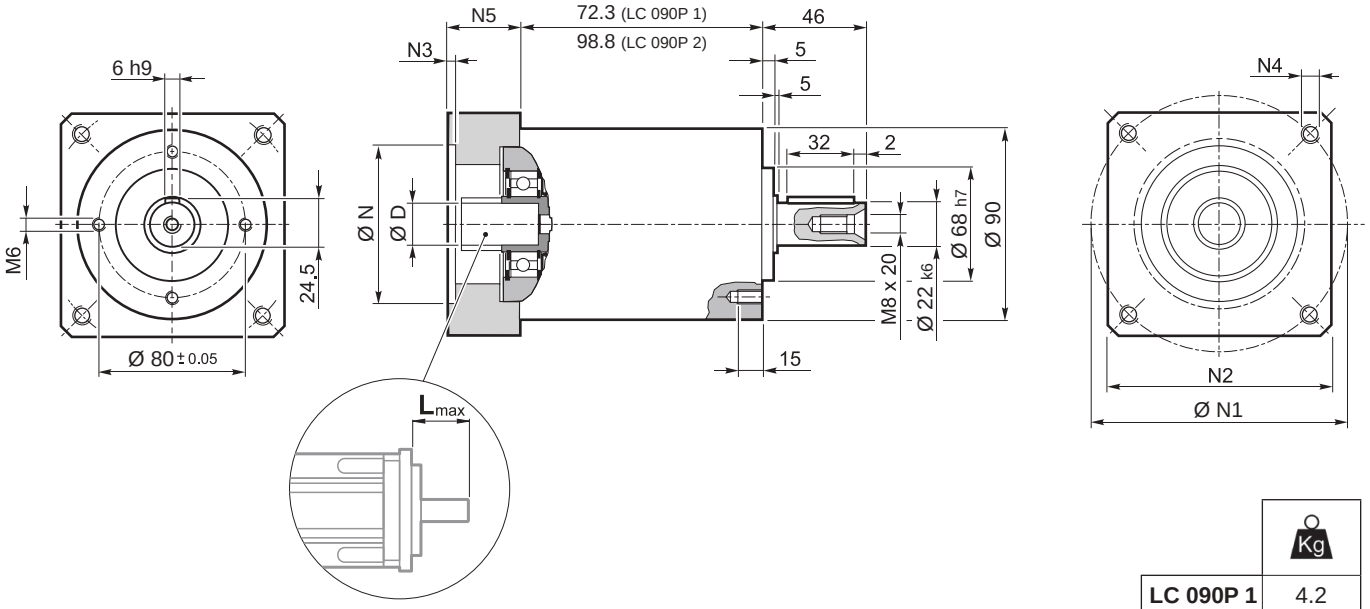


D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
6.35	7			32.5	50	42.5	M4x8	M4	21.7	13.2	3	8.2	8
8	9	9.52	10	32.5	50	42.5	M4x8	M4	21.7	13.2	3	8.2	9
11	12	12.7		35.5	50	42.5	M4x8	M4	22	13.5	3	8.5	11
14				35.5	50	42.5	M4x8	M4	25	17	3	10.2	11.5

i	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	φ_R [arcmin]	C_t [Nm/arcmin]	$R_{2\,max}$ [N]	$A_{2\,max}$ [N]	η %	J_G [kgcm^2] D 6 ... 9.52	J_G [kgcm^2] D 11 ... 14
LC 070P 1_ 3	29	55	60	3300	4000	12'	6'	3	1300	1400	97	0.12	0.14
LC 070P 1_ 4	30	45	70	3500	5000	12'	6'	3	1300	1400	97	0.08	0.10
LC 070P 1_ 5	28	40	70	3500	5000	12'	6'	3	1300	1400	97	0.06	0.09
LC 070P 1_ 7	28	40	70	4000	5000	12'	6'	3	1300	1400	97	0.05	0.07
LC 070P 1_ 10	20	33	60	4000	6000	12'	6'	3	3500	1400	97	0.04	0.06
LC 070P 2_ 9	29	55	60	3300	4000	15'	8'	2.5	1300	1400	94	0.11	0.13
LC 070P 2_ 12	29	55	70	3300	4000	15'	8'	2.5	1300	1400	94	0.10	0.13
LC 070P 2_ 15	29	55	70	3300	4000	15'	8'	2.5	1300	1400	94	0.10	0.12
LC 070P 2_ 16	30	45	70	3500	5000	15'	8'	2.5	1300	1400	94	0.07	0.09
LC 070P 2_ 20	30	45	70	3500	5000	15'	8'	2.5	1300	1400	94	0.06	0.08
LC 070P 2_ 25	30	45	70	3500	5000	15'	8'	2.5	1300	1400	94	0.06	0.08
LC 070P 2_ 28	30	45	70	4000	6000	15'	8'	2.5	1300	1400	94	0.05	0.07
LC 070P 2_ 30	29	55	60	4000	6000	15'	8'	2.5	1300	1400	94	0.04	0.06
LC 070P 2_ 35	30	45	70	4000	6000	15'	8'	2.5	1300	1400	94	0.05	0.07
LC 070P 2_ 40	30	45	70	4000	6000	15'	8'	2.5	1300	1400	94	0.04	0.06
LC 070P 2_ 50	30	45	70	4000	6000	15'	8'	2.5	1300	1400	94	0.04	0.06
LC 070P 2_ 70	30	45	70	4000	6000	15'	8'	2.5	1300	1400	94	0.04	0.06
LC 070P 2_ 100	20	33	60	4000	6000	15'	8'	2.5	1300	1400	94	0.04	0.06

LC 090P

40B1 ... 110B1



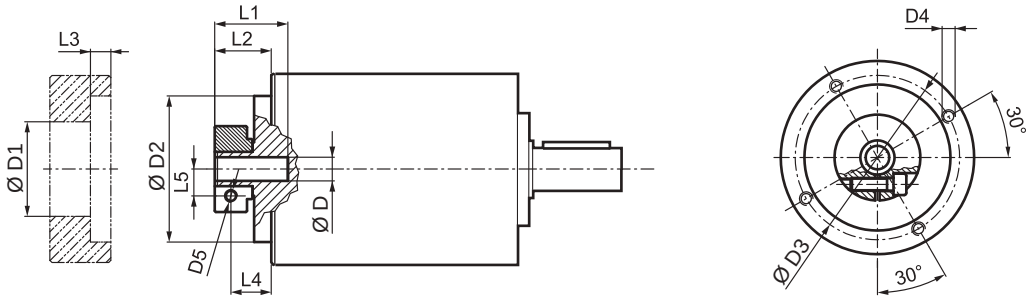
	Kg
LC 090P 1	4.2
LC 090P 2	5.3

	D											N	N1	N2	N3	N4	N5	L_{max}
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 different motor adapters and input shaft bore.

LC 090P

FM

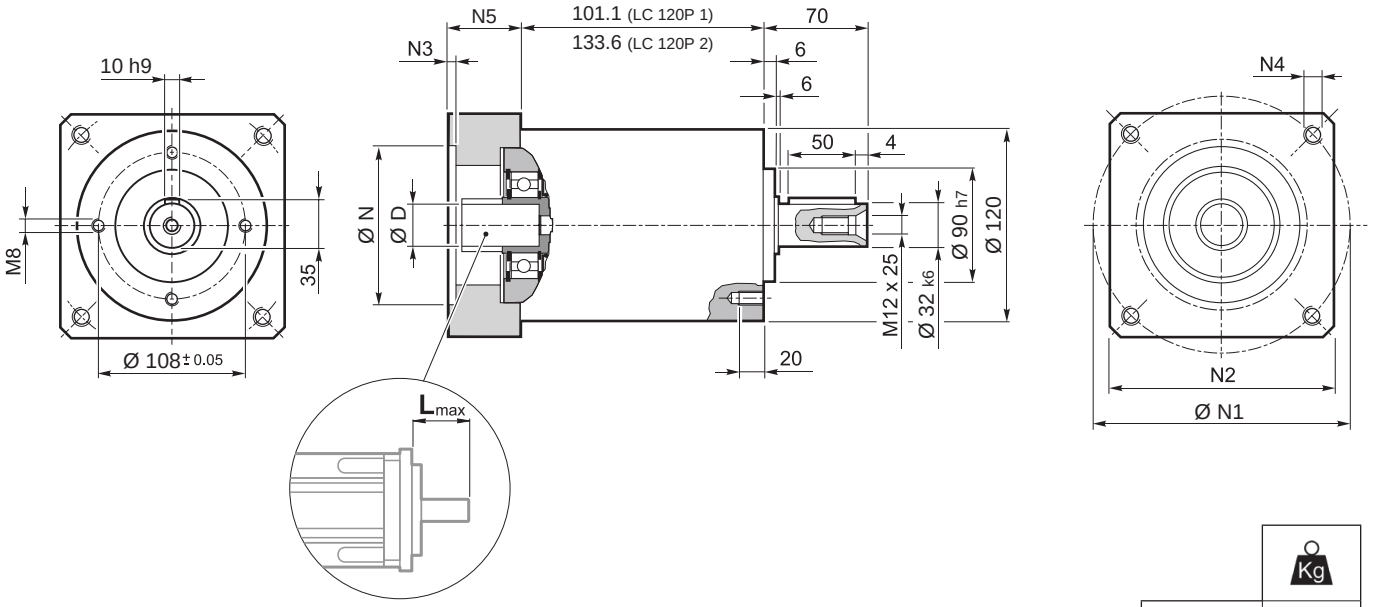


D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
9	9.52			38	68	76.5	M6x10	M6	34	26.8	9.5	18.8	10.5
11	12	12.7		43	68	76.5	M6x10	M6	34	26.8	9.5	18.8	12.5
14	15.875	16	17	48	68	76.5	M6x10	M6	34	26.8	9.5	18.8	14.5
19	19.05			51	68	76.5	M6x10	M6	34	26.8	9.5	18.8	16.5

i	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	φ_R [arcmin]	C_t [Nm/arcmin]	$R_{2\,max}$ [N]	$A_{2\,max}$ [N]	η %	J_G [kgcm^2] D 8 ... 12.7	J_G [kgcm^2] D 14 ... 19
LC 090P 1_ 3	65	120	150	3500	4000	12'	6'	12	2200	1900	97	0.62	0.77
LC 090P 1_ 4	60	110	160	3500	4000	12'	6'	12	2200	1900	97	0.41	0.55
LC 090P 1_ 5	50	100	160	3200	4500	12'	6'	9	2200	1900	97	0.33	0.47
LC 090P 1_ 7	50	100	160	4000	6000	12'	6'	9	2200	1900	97	0.26	0.40
LC 090P 1_ 10	40	75	150	4000	6000	12'	6'	9	2200	1900	97	0.21	0.35
LC 090P 2_ 9	65	120	150	3500	4000	15'	8'	12	2200	1900	94	0.47	0.61
LC 090P 2_ 12	65	120	160	3500	4000	15'	8'	12	2200	1900	94	0.44	0.58
LC 090P 2_ 15	65	120	160	3500	4000	15'	8'	12	2200	1900	94	0.43	0.57
LC 090P 2_ 16	60	110	160	3500	4500	15'	8'	12	2200	1900	94	0.31	0.45
LC 090P 2_ 20	60	110	160	3500	4500	15'	8'	12	2200	1900	94	0.26	0.40
LC 090P 2_ 25	50	100	160	3200	4500	15'	8'	9	2200	1900	94	0.26	0.40
LC 090P 2_ 28	50	100	160	4000	6000	15'	8'	9	2200	1900	94	0.22	0.36
LC 090P 2_ 30	65	120	150	4000	6000	15'	8'	12	2200	1900	94	0.20	0.34
LC 090P 2_ 35	50	100	160	4000	6000	15'	8'	9	2200	1900	94	0.22	0.36
LC 090P 2_ 40	60	110	160	4000	6000	15'	8'	12	2200	1900	94	0.20	0.34
LC 090P 2_ 50	50	100	160	4000	6000	15'	8'	9	2200	1900	94	0.20	0.34
LC 090P 2_ 70	50	100	160	4000	6000	15'	8'	9	2200	1900	94	0.20	0.34
LC 090P 2_ 100	40	75	150	4000	6000	15'	8'	9	2200	1900	94	0.19	0.34

LC 120P

50D ... 130A1



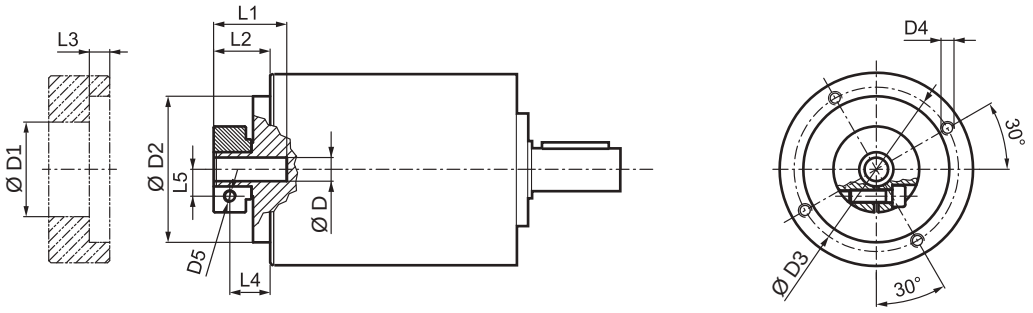
	Kg
LC 120P 1	9.6
LC 120P 2	12.1

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

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

LC 120P

FM



D				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	$M_{n\,2}$	$M_{a\,2}$	$M_{p\,2}$	n_1	$n_{1\,max}$	φ_S	φ_R	C_t	$R_{2\,max}$	$A_{2\,max}$	η	J_G [kgcm²] D		
	[Nm]	[Nm]	[Nm]	[min⁻¹]	[min⁻¹]	[arcmin]		[Nm/arcmin]	[N]	[N]	%	14 ... 19	22 ; 24	28 ; 32
LC 120P 1_ 3	155	280	300	3000	4000	12'	6'	30	3500	3000	97	2.17	2.77	3.13
LC 120P 1_ 4	155	300	360	3000	4500	12'	6'	30	3500	3000	97	1.30	1.89	2.26
LC 120P 1_ 5	125	240	360	3000	4500	12'	6'	25	3500	3000	97	0.96	1.56	1.92
LC 120P 1_ 7	125	240	360	3500	4500	12'	6'	25	3500	3000	97	0.66	1.26	1.62
LC 120P 1_ 10	100	165	300	3500	5000	12'	6'	25	3500	3000	97	0.49	1.09	1.45
LC 120P 2_ 9	155	280	300	3000	4000	15'	8'	30	3500	3000	94	1.61	2.20	2.57
LC 120P 2_ 12	155	300	360	3000	4000	15'	8'	30	3500	3000	94	1.51	2.10	2.47
LC 120P 2_ 15	155	300	360	3000	4000	15'	8'	30	3500	3000	94	1.47	2.06	2.43
LC 120P 2_ 16	155	300	360	3000	4500	15'	8'	30	3500	3000	94	0.92	1.52	1.88
LC 120P 2_ 20	155	300	360	3000	4500	15'	8'	30	3500	3000	94	0.90	1.50	1.86
LC 120P 2_ 25	125	240	360	3000	4500	15'	8'	22.5	3500	3000	94	0.71	1.30	1.67
LC 120P 2_ 28	125	240	360	3500	5000	15'	8'	22.5	3500	3000	94	0.54	1.13	1.50
LC 120P 2_ 30	155	300	300	3500	5000	15'	8'	30	3500	3000	94	0.44	1.04	1.40
LC 120P 2_ 35	125	240	360	3500	5000	15'	8'	22.5	3500	3000	94	0.53	1.13	1.49
LC 120P 2_ 40	155	300	360	3500	5000	15'	8'	30	3500	3000	94	0.43	1.03	1.39
LC 120P 2_ 50	125	240	360	3500	5000	15'	8'	22.5	3500	3000	94	0.43	1.02	1.39
LC 120P 2_ 70	125	240	360	3500	5000	15'	8'	22.5	3500	3000	94	0.42	1.02	1.38
LC 120P 2_ 100	100	165	300	3500	5000	15'	8'	22.5	3500	3000	94	0.42	1.02	1.38

Effective Line

(E)

LCK Series

LCK precision planetary right-angle gearboxes represent a flexible, reliable and cost-effective solution for machines that require a very compact layout.
The output design in line with market standards ensures great compatibility for easy retrofits and a high level of freedom in projects development.

Main benefits

- Cost effective yet powerful
- High compatibility for easy retrofits
- Compact design for space-saving layouts

Main features

- Nominal output torque (Nm)

10 - 450

- Torsional backlash (arcmin)

6 - 8

- Torsional stiffness (Nm/arcmin)

0.7 - 47.9

- Max tilting moment (Nm)

15 - 522

Protection class

- IP54

Frame sizes

- 050
- 070
- 090
- 120
- 155

Main options

- Input versions

MOTOR ADAPTER

WITHOUT MOTOR ADAPTER

- Output shafts versions

SMOOTH KEYLESS SHAFT

KEYED SHAFT

- Lubrication

STANDARD LUBRICATION

FOOD GRADE LUBRICATION

- High power version (P option)

HIGH POWER VERSION

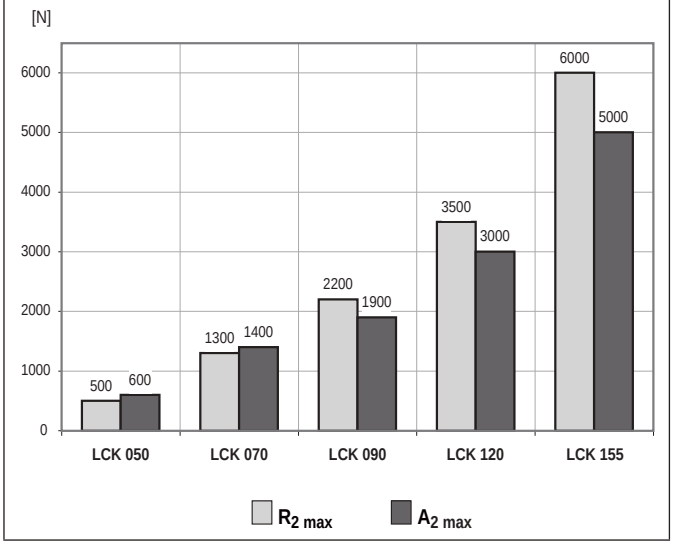
11 FEATURES OF LCK SERIES

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.

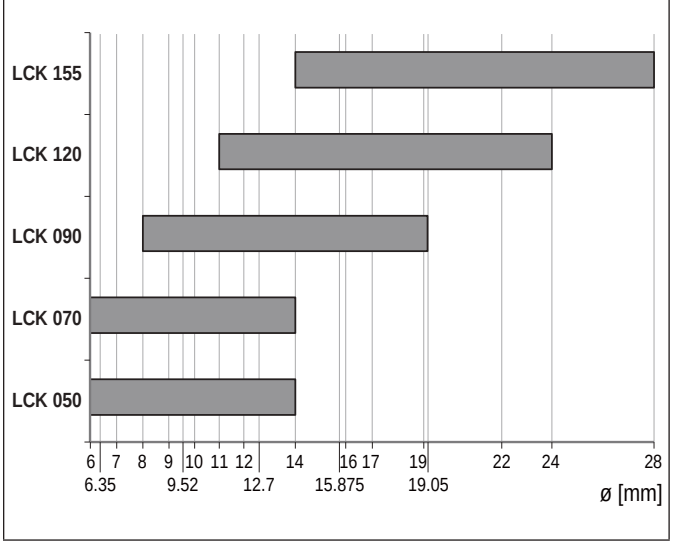
- Available in one only backlash option, corresponding to following values:
  2-stage units: standard $\varphi_S \leq 6'$;
  3-stage units: standard $\varphi_S \leq 8'$;
- Its degree of protection IP54 provides protection against dust and liquid splashes.
- Input section oil seals made from a Fluoroelastomer 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^{-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°C, max +30°C. For temperature higher than 30°C please consider derating factor f_T.
- Housing temperature must not exceed T_{max} = 90°C.
- Available as Version P with higher output torque.

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 070P	25	30	28	28	20	29	29	30	30	30	–	30
LCK 090	37	43	43	43	37	43	43	43	43	43	–	43
LCK 090P	45	60	50	50	40	60	60	50	50	60	–	50
LCK 120	95	110	110	110	95	110	110	110	110	110	–	110
LCK 120P	110	140	125	125	100	155	155	125	125	155	–	125
LCK 155	250	300	300	300	230	300	300	300	300	300	–	300

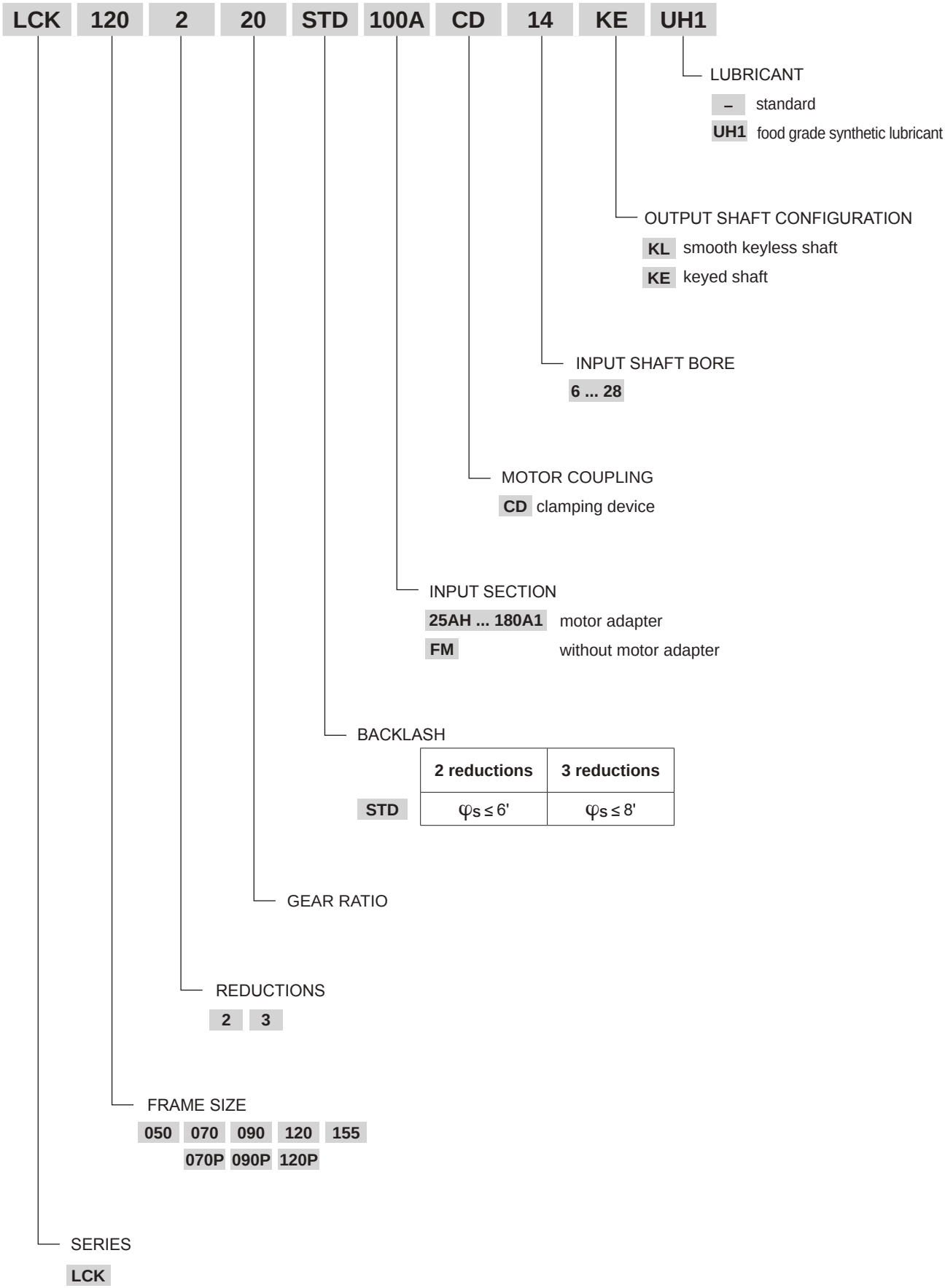
Output shaft max. loading capacity



Available motor shaft bores



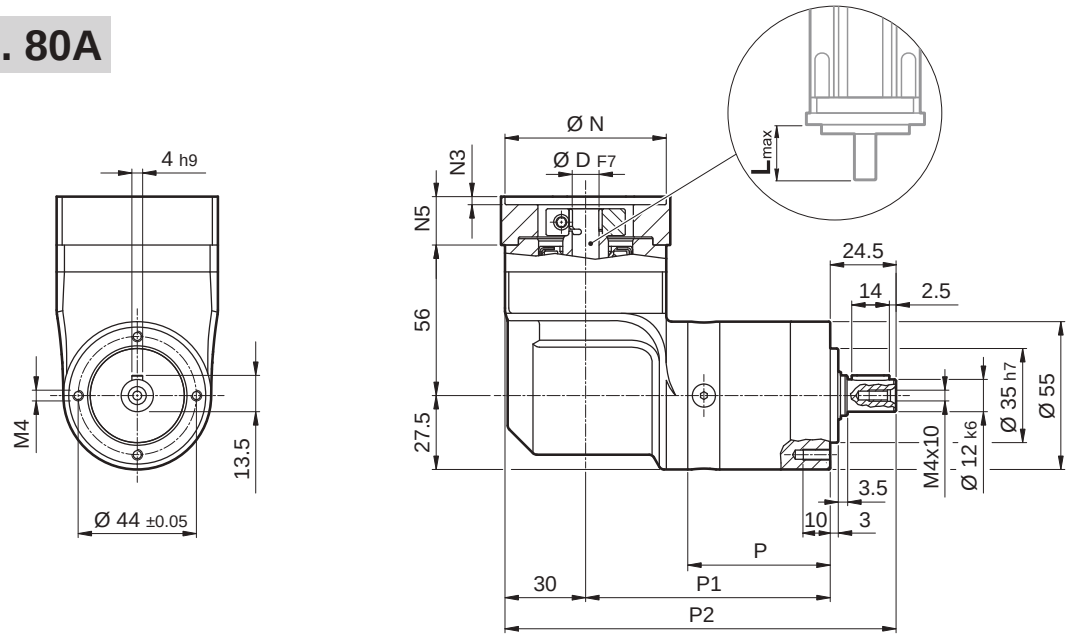
11.1 ORDERING CODE



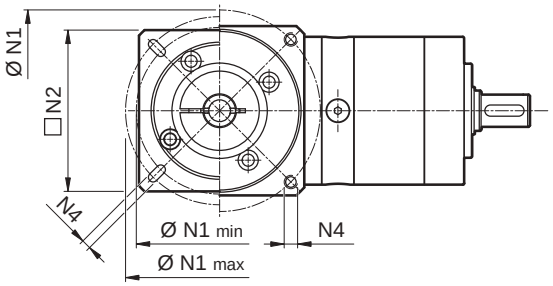
11.2 DIMENSIONS AND TECHNICAL SPECIFICATIONS

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

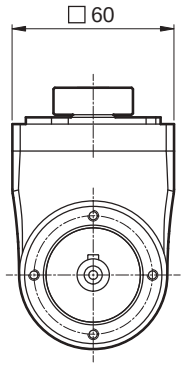


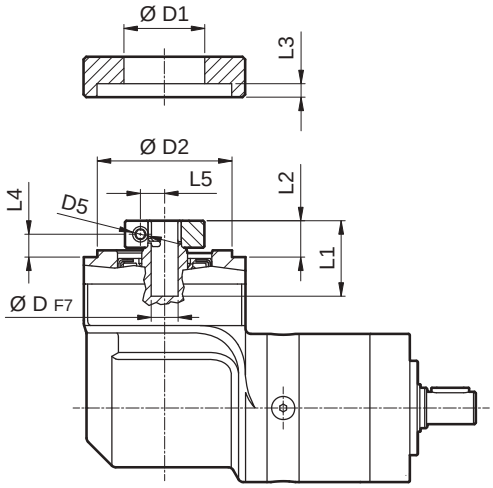
	D											N	N1		N2	N3	N4	N5	L_{max}
													min	max					
25AH	6	6.35	7	8	9	9.52	–	–	–	–	–	25	39	56					
26AH	6	6.35	7	8	9	9.52	–	–	–	–	–	26	39	56					
28AH	6	6.35	7	8	9	9.52	–	–	–	–	–	28	39	56					
30AH	6	6.35	7	8	9	9.52	–	–	–	–	–	30	39	56					
32AH	6	6.35	7	8	9	9.52	–	–	–	–	–	32	39	56	65	3.5	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		65	3	M5x12	18	25
60A1	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	75		65	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	5	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

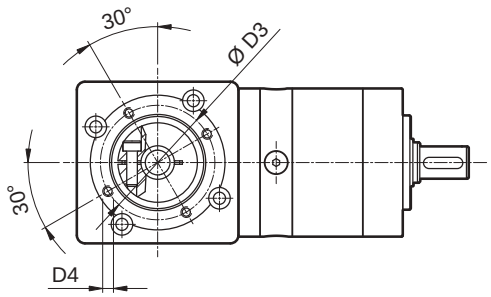
Please contact us for different motor adapters and input shaft bore.

LCK 050

FM





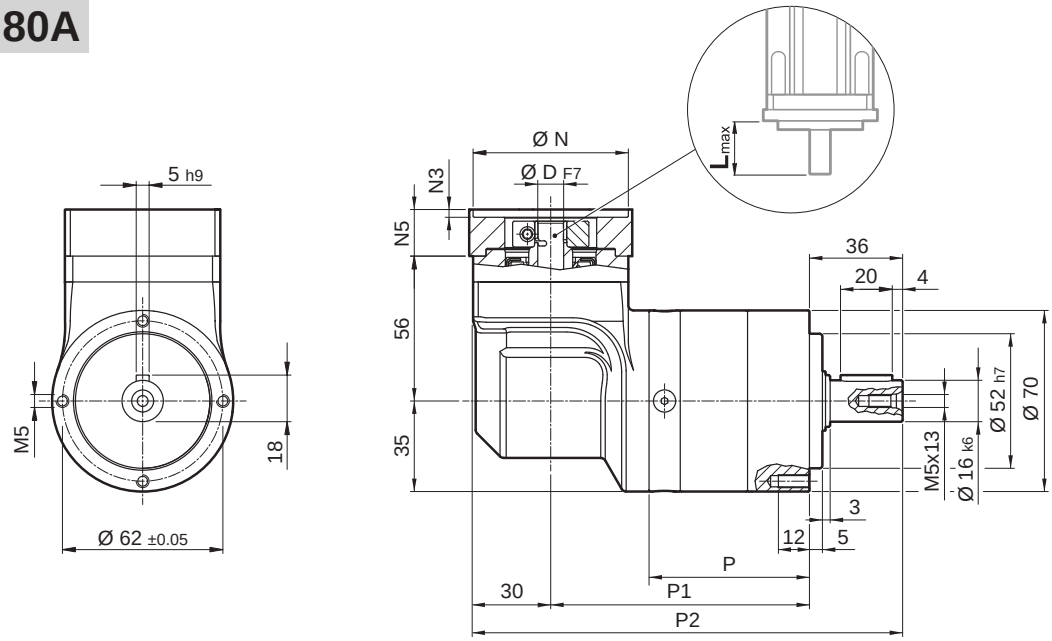


D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
6	6.35	7		32.5	50	42.5	M4x8	M4	28	13.5	3	8.5	8
8	9	9.52	10	32.5	50	42.5	M4x8	M4	28	13.5	3	8.5	9
11	12	12.7		35.5	50	42.5	M4x8	M4	23	13.5	3	8.5	11
14				35.5	50	42.5	M4x8	M4	25	15.5	3	8.9	11.5

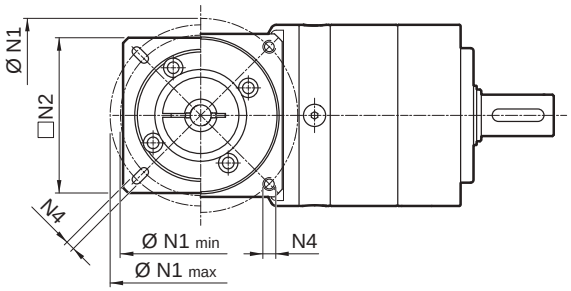
i	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	C_t [Nm/arcmin]	$R_{2\,max}$ [N]	$A_{2\,max}$ [N]	η %	J_G [kgcm^2] D 6 ... 9.52	J_G [kgcm^2] D 10 ... 14
LCK 050 2_6	10	16	28	2500	5000	6'	0.9	500	600	94	0.23	0.25
LCK 050 2_8	12	20	30	2500	5000	6'	0.9	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 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

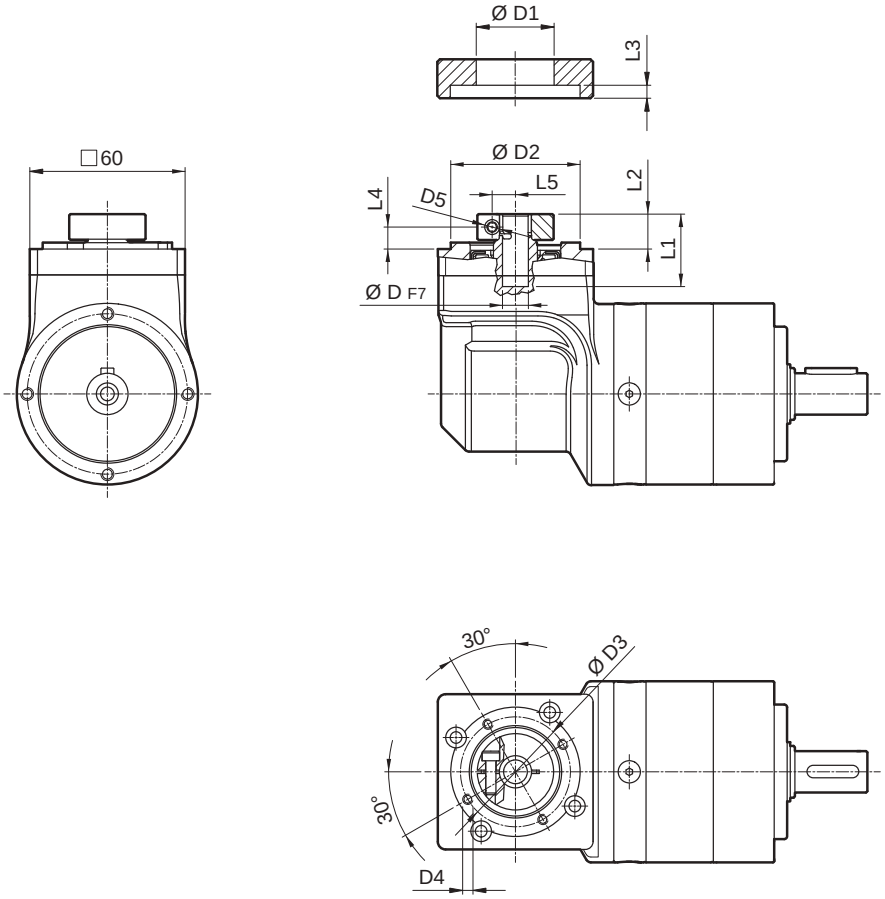


	D											N	N1		N2	N3	N4	N5	L_{max}
													min	max					
25AH	6	6.35	7	8	9	9.52	–	–	–	–	–	25	39	56					
26AH	6	6.35	7	8	9	9.52	–	–	–	–	–	26	39	56					
28AH	6	6.35	7	8	9	9.52	–	–	–	–	–	28	39	56					
30AH	6	6.35	7	8	9	9.52	–	–	–	–	–	30	39	56					
32AH	6	6.35	7	8	9	9.52	–	–	–	–	–	32	39	56	65	3.5	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		65	3	M5x12	18	25
60A1	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	75		65	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	5	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 different motor adapters and input shaft bore.

LCK 070

FM

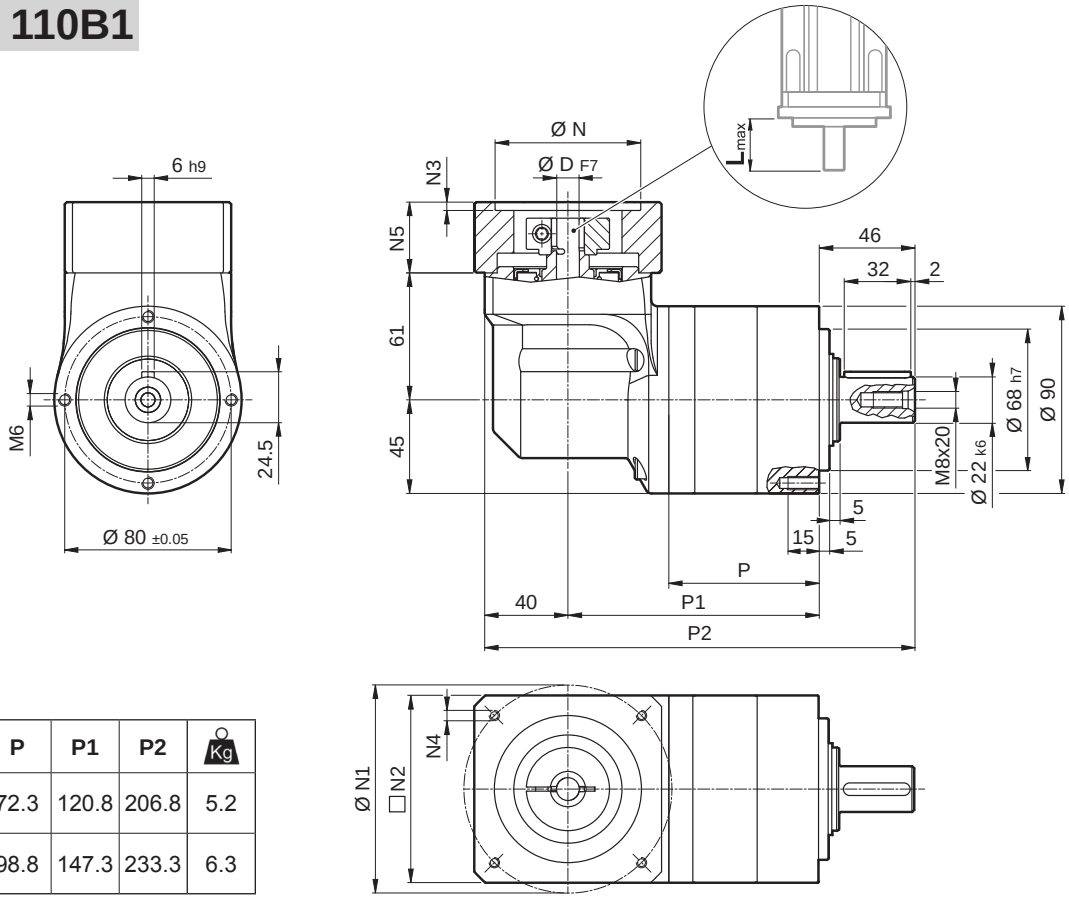


D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
6	6.35	7		32.5	50	42.5	M4x8	M4	28	13.5	3	8.5	8
8	9	9.52	10	32.5	50	42.5	M4x8	M4	28	13.5	3	8.5	9
11	12	12.7		35.5	50	42.5	M4x8	M4	23	13.5	3	8.5	11
14				35.5	50	42.5	M4x8	M4	25	15.5	3	8.9	11.5

i	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	C_t [Nm/arcmin]	$R_{2\,max}$ [N]	$A_{2\,max}$ [N]	η %	J_G [kgcm^2] D 6 ... 9.52	J_G [kgcm^2] D 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	28	40	70	2500	5000	6'	2.8	1300	1400	94	0.23	0.25
LCK 070 2_14	28	40	70	2500	5000	6'	2.8	1300	1400	94	0.23	0.24
LCK 070 2_20	20	33	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 090

40B1 ... 110B1



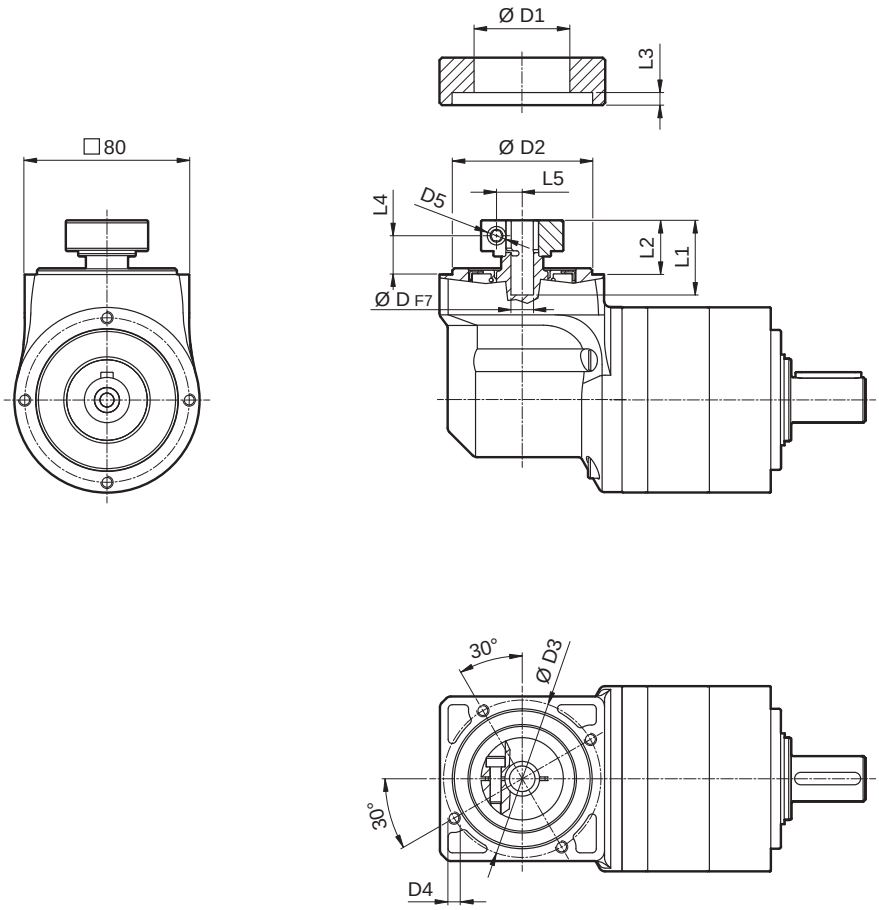
	P	P1	P2	Kg
LCK 090 2	72.3	120.8	206.8	5.2
LCK 090 3	98.8	147.3	233.3	6.3

	D												N	N1	N2	N3	N4	N5	L_{max}
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 different motor adapters and input shaft bore.

LCK 090

FM

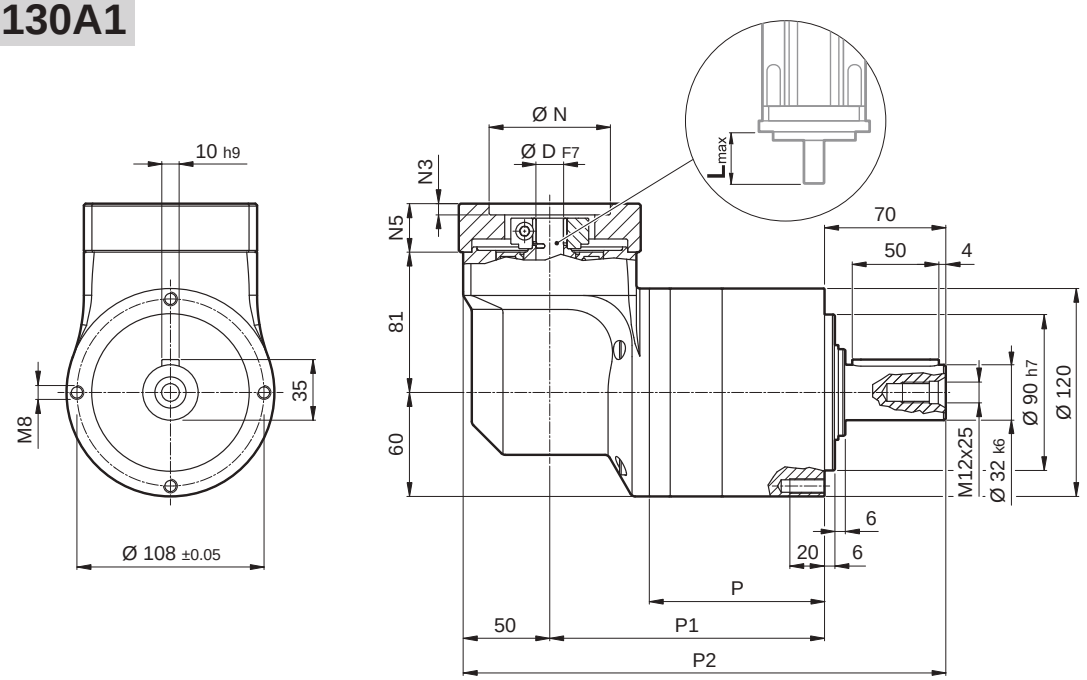


D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
8	9	9.52		38	68	76.5	M6x10	M6	36.3	26.3	9.5	18.8	10.5
11	12	12.7		43	68	76.5	M6x10	M6	36.3	26.3	9.5	18.8	12.5
14	15.875	16	17	48	68	76.5	M6x10	M6	36.3	26.3	9.5	18.8	14.5
19	19.05			51	68	76.5	M6x10	M6	36.3	26.3	9.5	18.8	16.5

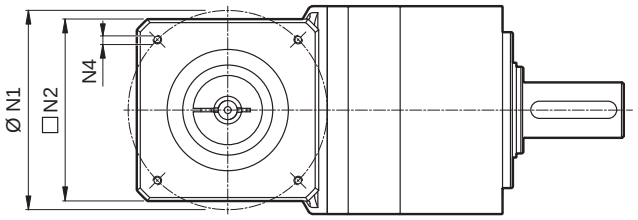
i	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	C_t [Nm/arcmin]	$R_{2\,max}$ [N]	$A_{2\,max}$ [N]	η %	J_G [kgcm^2] D 8 ... 12.7	J_G [kgcm^2] D 14 ... 19.05
LCK 090 2_6	37	63	90	2500	5000	6'	8	2200	1900	94	0.85	1.03
LCK 090 2_8	43	80	120	2500	5000	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	40	75	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 120

50D ... 130A1



	P	P1	P2	Kg
LCK 120 2	101.1	158.6	278.6	11.3
LCK 120 3	133.6	191.1	311.1	13.8

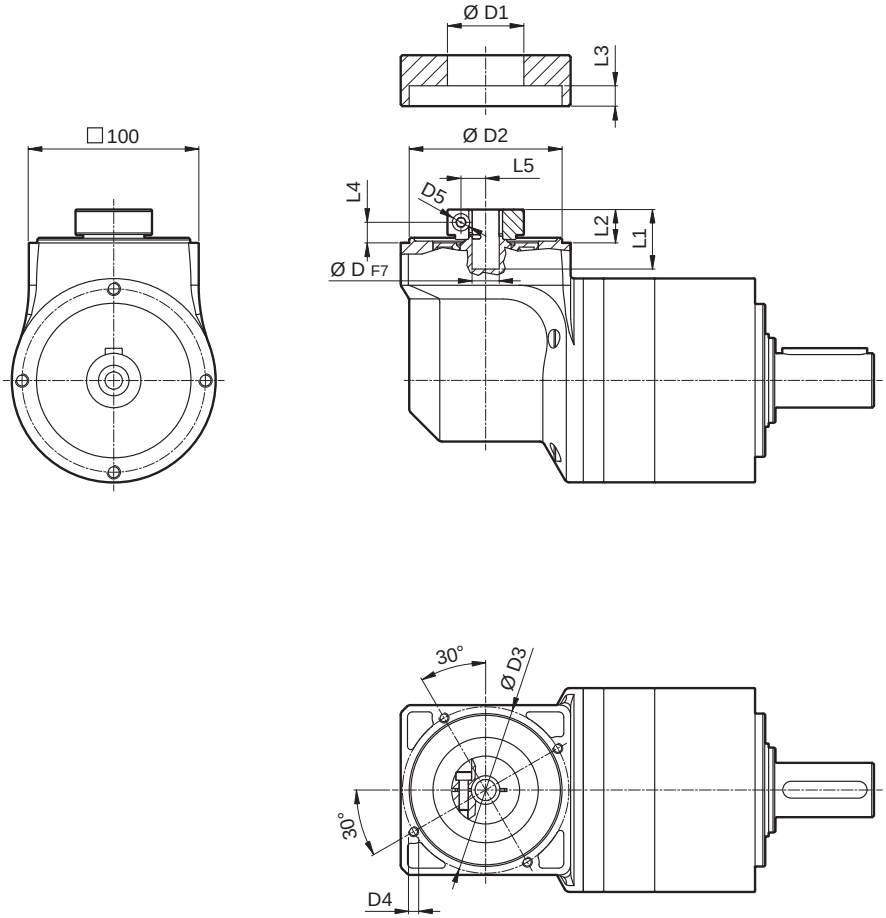


	D										N	N1	N2	N3	N4	N5	L_{max}
50D	11	12	12.7	14	15	15.875	16	19	–	–	50	95	100	5	M6x14	28	40
55A	11	12	12.7	14	15	15.875	16	19	–	–	55.5	125.7	105	5	M6x16	28	40
60A2	11	12	12.7	14	15	15.875	16	19	–	–	60	75	100	5	M5x14	28	40
60AH2	11	12	12.7	14	15	15.875	16	19	–	–	60	75	100	5	6.5	33	40
60B1	11	12	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	6.5	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 different motor adapters and input shaft bore.

LCK 120

FM

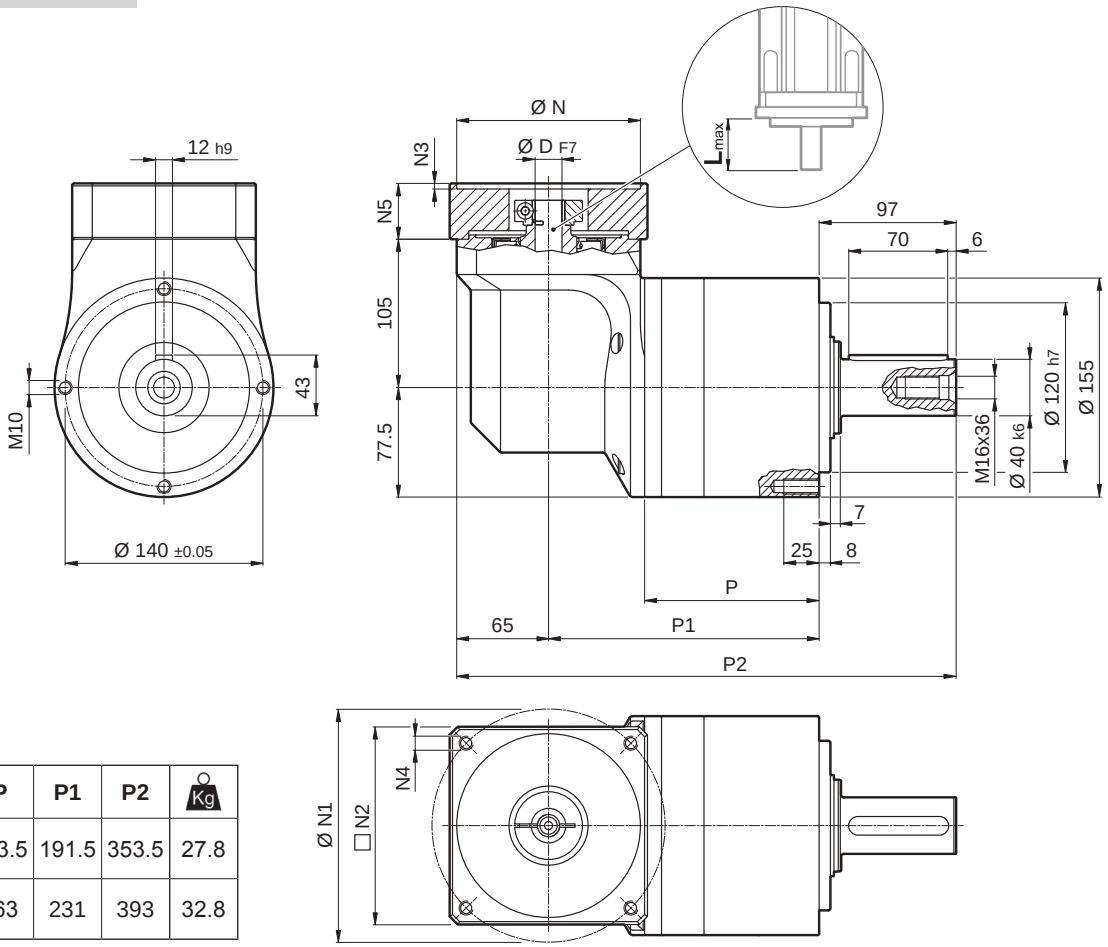


D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
11	12	12.7		43	90	98	M6x15	M6	35	19.5	7.6	12.1	12.5
14	15	15.875	16	48	90	98	M6x15	M6	35	19.5	7.6	12.1	14.5
19				51	90	98	M6x15	M6	35	19.5	7.6	12.1	16.5
22	24			56.5	90	98	M6x15	M6	37	21.5	7.6	12.1	19

i	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	C_t [Nm/arcmin]	$R_{2\,max}$ [N]	$A_{2\,max}$ [N]	η %	J_G [kgcm^2] D 11 ... 12.7	D 14 ... 19	D 22 ; 24
LCK 120 2_6	95	160	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	100	165	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 155

55A1 ... 180A1



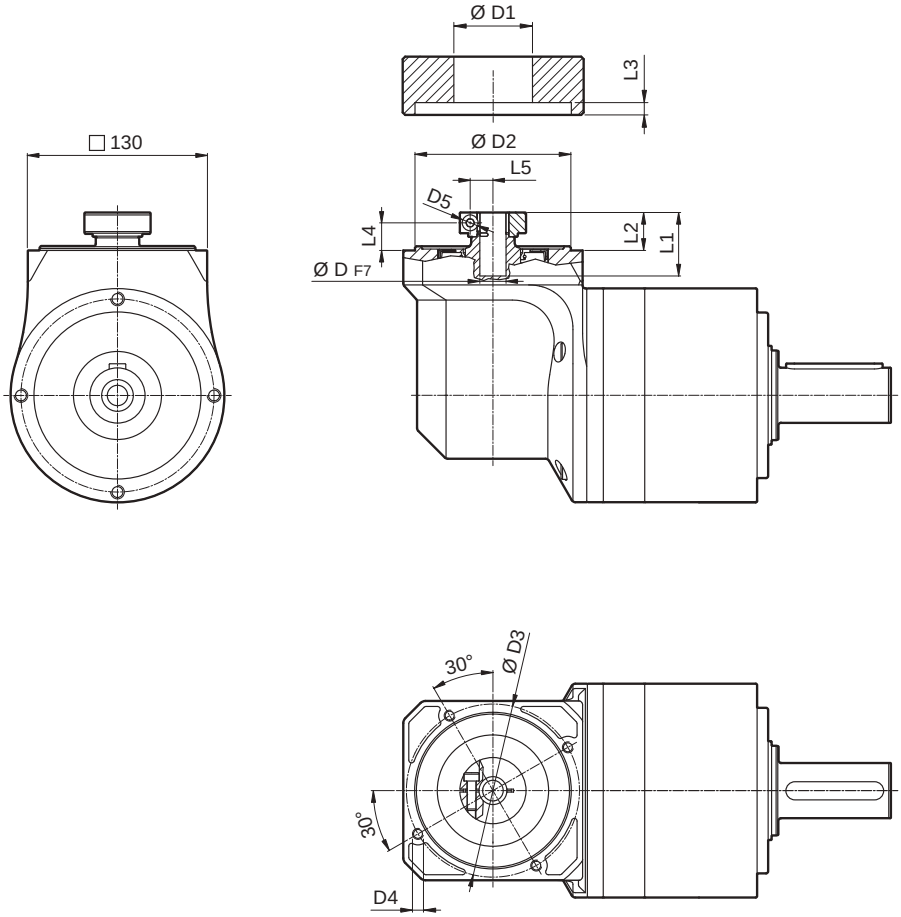
	P	P1	P2	Kg
LCK 155 2	123.5	191.5	353.5	27.8
LCK 155 3	163	231	393	32.8

	D							N	N1	N2	N3	N4	N5	L_{max}
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
114A	14	15.875	16	19	22	24	28	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	130	165	140	4	M10x20	49.5	60
180A	14	15.875	16	19	22	24	28	180	215	190	5.5	M14x25	49.5	60
180A1	14	15.875	16	19	22	24	28	180	215	190	5.5	M14x25	69.5	80

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

LCK 155

FM

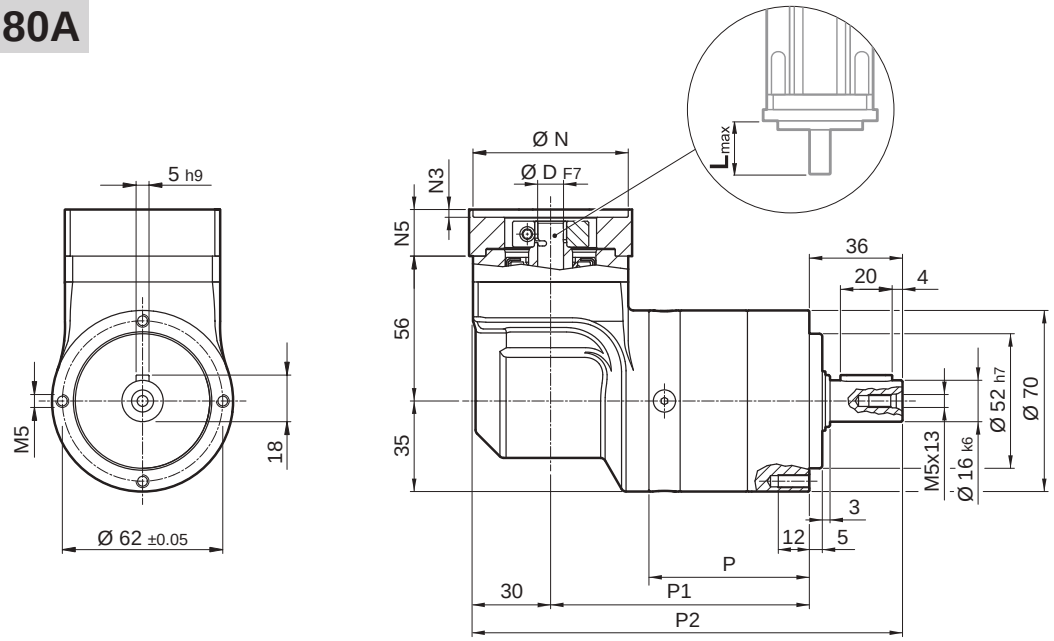


D			D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
14	15.875	16	48	113	125.5	M8x15	M6	46	27.5	6	20	14.5
19			51	113	125.5	M8x15	M6	46	27.5	6	20	16.5
22	24		56.5	113	125.5	M8x15	M6	47.5	29	6	20	19
28			67	113	125.5	M8x15	M8	47.5	29	6	20	22.5

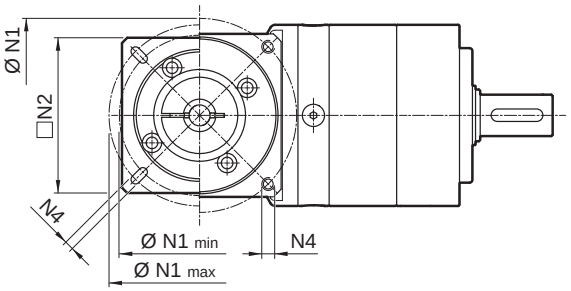
i	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	C_t [Nm/arcmin]	$R_{2\,max}$ [N]	$A_{2\,max}$ [N]	η %	J_G [kgcm^2] D 14 ... 19	22 ; 24	28
LCK 155 2_6	250	360	510	2000	4500	6'	40.7	6000	5000	94	7.94	8.13	8.53
LCK 155 2_8	300	450	680	2000	4500	6'	40.7	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 070P

25AH ... 80A



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

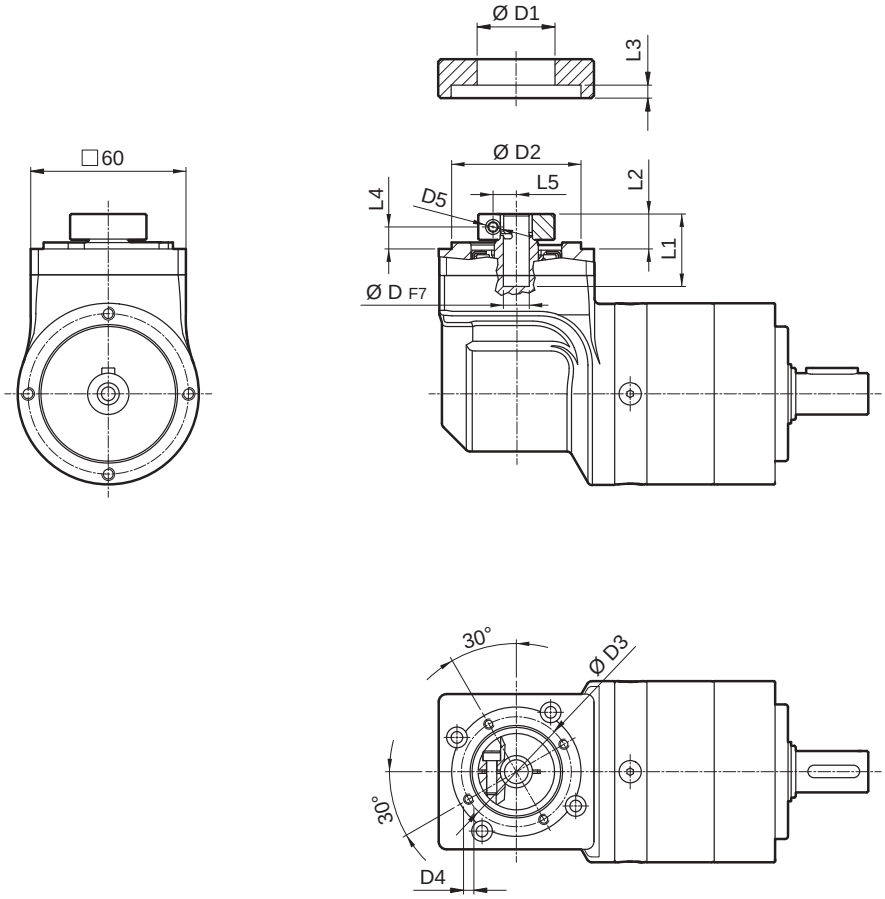


	D											N	N1		N2	N3	N4	N5	L_{max}
													min	max					
25AH	6	6.35	7	8	9	9.52	–	–	–	–	–	25	39	56					
26AH	6	6.35	7	8	9	9.52	–	–	–	–	–	26	39	56					
28AH	6	6.35	7	8	9	9.52	–	–	–	–	–	28	39	56					
30AH	6	6.35	7	8	9	9.52	–	–	–	–	–	30	39	56					
32AH	6	6.35	7	8	9	9.52	–	–	–	–	–	32	39	56	65	3.5	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		65	3	M5x12	18	25
60A1	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	75		65	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	5	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 different motor adapters and input shaft bore.

LCK 070P

FM

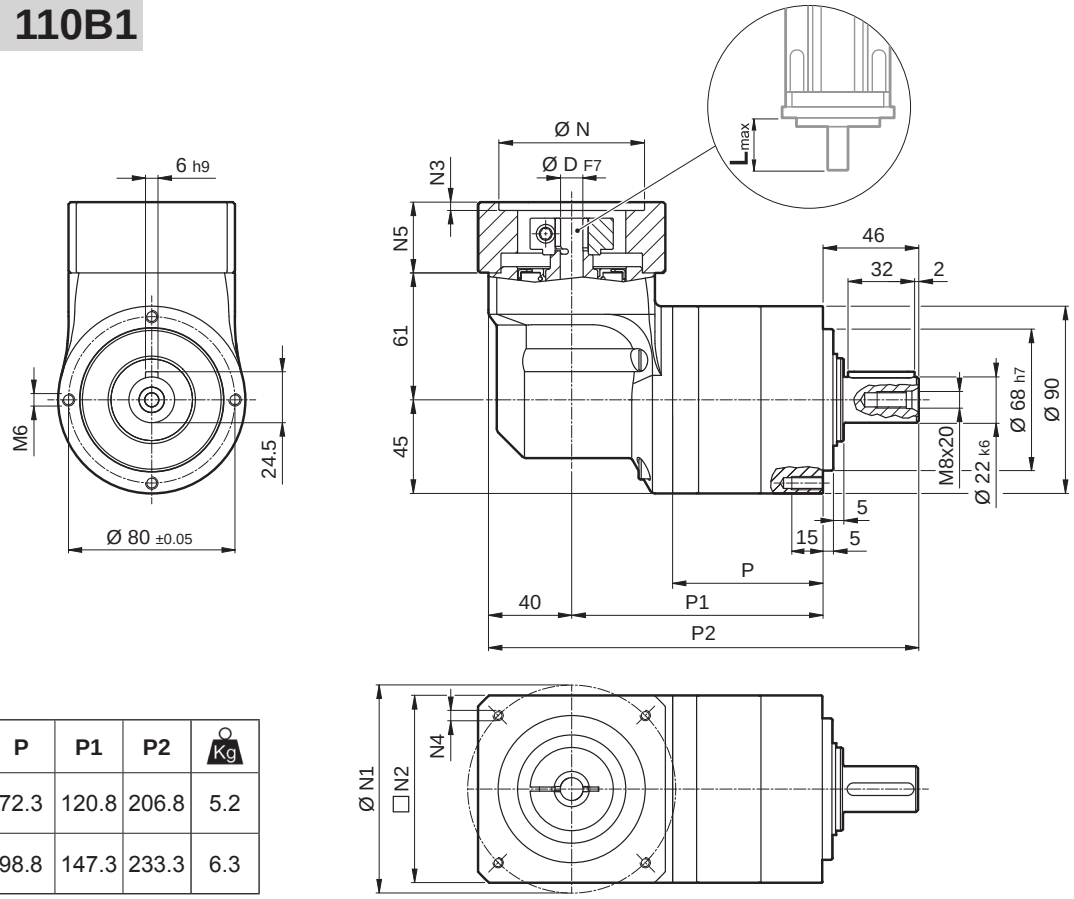


D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
6	6.35	7		32.5	50	42.5	M4x8	M4	28	13.5	3	8.5	8
8	9	9.52	10	32.5	50	42.5	M4x8	M4	28	13.5	3	8.5	9
11	12	12.7		35.5	50	42.5	M4x8	M4	23	13.5	3	8.5	11
14				35.5	50	42.5	M4x8	M4	25	15.5	3	8.9	11.5

i	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	C_t [Nm/arcmin]	$R_{2\,max}$ [N]	$A_{2\,max}$ [N]	η %	J_G [kgcm^2] D 6 ... 9.52	J_G [kgcm^2] D 11 ... 14
LCK 070P 2_6	25	38	45	2500	5000	6'	2.8	1300	1400	94	0.25	0.26
LCK 070P 2_8	30	40	60	2500	5000	6'	2.8	1300	1400	94	0.24	0.25
LCK 070P 2_10	28	40	70	2500	5000	6'	2.8	1300	1400	94	0.23	0.25
LCK 070P 2_14	28	40	70	2500	5000	6'	2.8	1300	1400	94	0.23	0.24
LCK 070P 2_20	28	39	60	2500	5000	6'	2.8	1300	1400	94	0.23	0.24
LCK 070P 3_24	29	45	70	2500	5000	8'	2.5	1300	1400	91	0.24	0.26
LCK 070P 3_30	29	45	70	2500	5000	8'	2.5	1300	1400	91	0.24	0.26
LCK 070P 3_50	30	45	70	2500	5000	8'	2.5	1300	1400	91	0.23	0.24
LCK 070P 3_70	30	45	70	2500	5000	8'	2.5	1300	1400	91	0.23	0.24
LCK 070P 3_80	30	45	70	2500	5000	8'	2.5	1300	1400	91	0.23	0.24
LCK 070P 3_100	30	45	70	2500	5000	8'	2.5	1300	1400	91	0.23	0.24

LCK 090P

40B1 ... 110B1



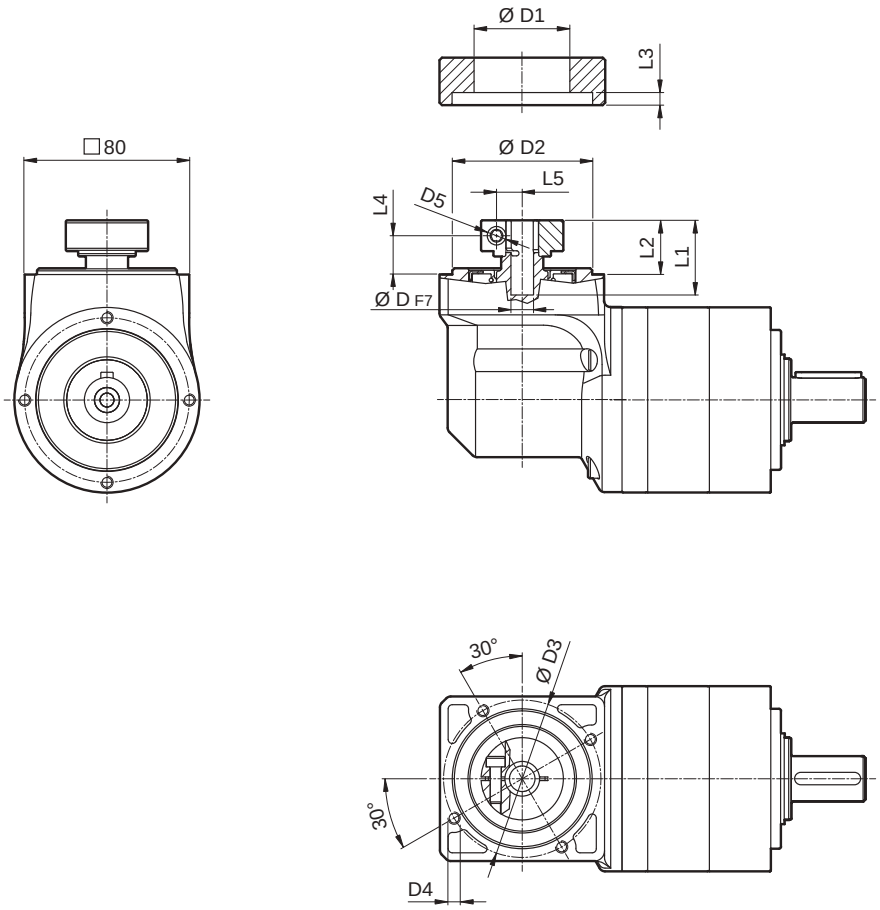
	P	P1	P2	Kg
LCK 090P 2	72.3	120.8	206.8	5.2
LCK 090P 3	98.8	147.3	233.3	6.3

	D												N	N1	N2	N3	N4	N5	L_{max}
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 different motor adapters and input shaft bore.

LCK 090P

FM

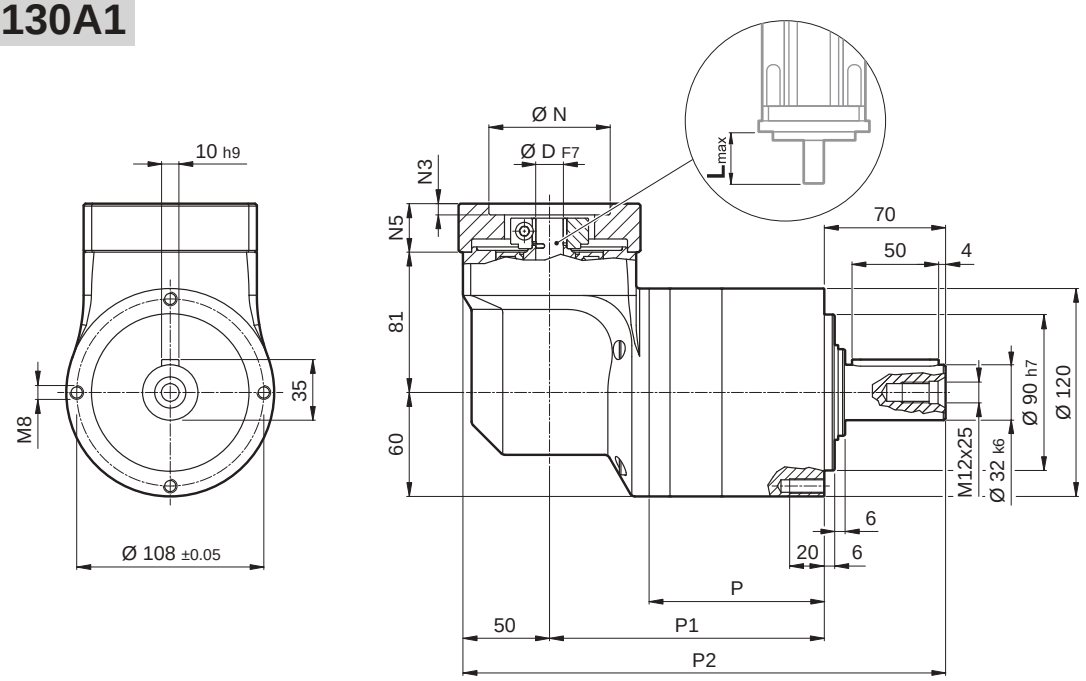


D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5
8	9	9.52		38	68	76.5	M6x10	M6	36.3	26.3	9.5	18.8	10.5
11	12	12.7		43	68	76.5	M6x10	M6	36.3	26.3	9.5	18.8	12.5
14	15.875	16	17	48	68	76.5	M6x10	M6	36.3	26.3	9.5	18.8	14.5
19	19.05			51	68	76.5	M6x10	M6	36.3	26.3	9.5	18.8	16.5

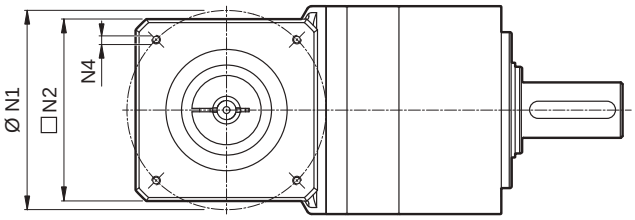
i	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	C_t [Nm/arcmin]	$R_{2\,max}$ [N]	$A_{2\,max}$ [N]	η %	J_G [kgcm^2] D 8 ... 12.7	J_G [kgcm^2] D 14 ... 19
LCK 090P 2_6	45	70	90	2500	5000	6'	11	2200	1900	94	0.85	1.03
LCK 090P 2_8	60	90	120	2500	5000	6'	11	2200	1900	94	0.79	0.98
LCK 090P 2_10	50	90	150	2500	5000	6'	8	2200	1900	94	0.77	0.96
LCK 090P 2_14	50	90	160	2500	5000	6'	8	2200	1900	94	0.75	0.94
LCK 090P 2_20	40	75	150	2500	5000	6'	8	2200	1900	94	0.74	0.93
LCK 090P 3_24	60	90	160	2500	5000	8'	10.8	2200	1900	91	0.81	1.00
LCK 090P 3_30	60	90	160	2500	5000	8'	10.8	2200	1900	91	0.81	1.00
LCK 090P 3_50	50	90	160	2500	5000	8'	7.8	2200	1900	91	0.76	0.94
LCK 090P 3_70	50	90	160	2500	5000	8'	7.8	2200	1900	91	0.74	0.93
LCK 090P 3_80	60	90	160	2500	5000	8'	10.8	2200	1900	91	0.74	0.93
LCK 090P 3_100	50	90	160	2500	5000	8'	7.8	2200	1900	91	0.74	0.93

LCK 120P

50D ... 130A1



	P	P1	P2	Kg
LCK 120P 2	101.1	158.6	278.6	11.3
LCK 120P 3	133.6	191.1	311.1	13.8

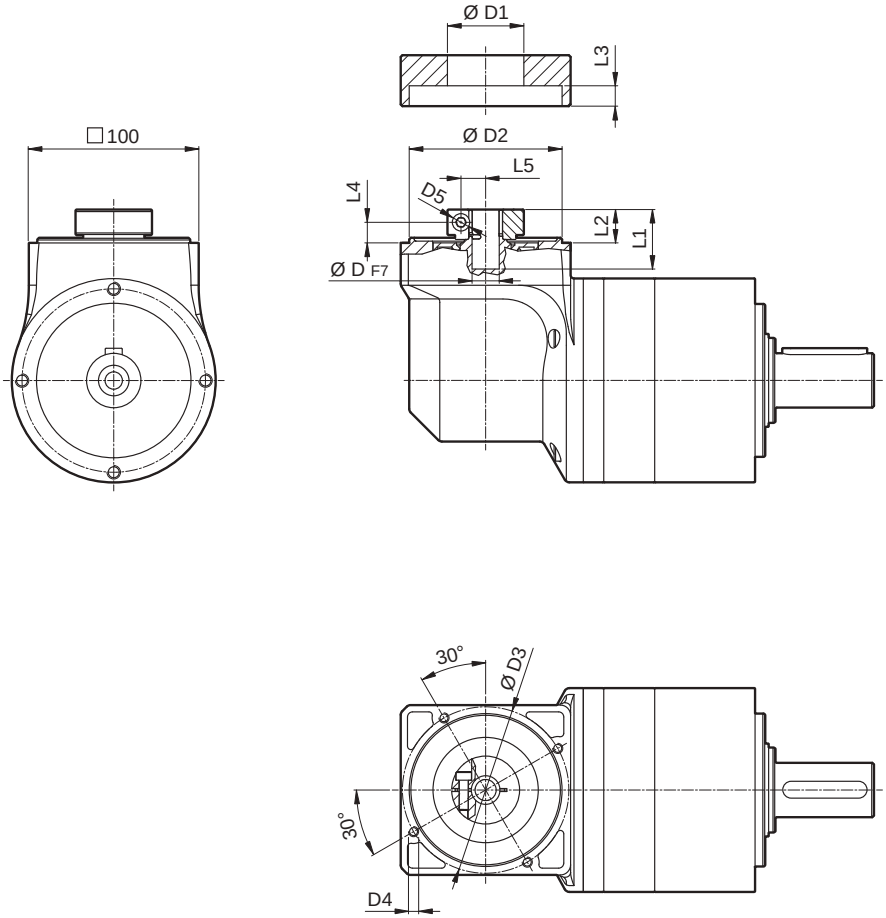


	D										N	N1	N2	N3	N4	N5	L_{max}
50D	11	12	12.7	14	15	15.875	16	19	–	–	50	95	100	5	M6x14	28	40
55A	11	12	12.7	14	15	15.875	16	19	–	–	55.5	125.7	105	5	M6x16	28	40
60A2	11	12	12.7	14	15	15.875	16	19	–	–	60	75	100	5	M5x14	28	40
60AH2	11	12	12.7	14	15	15.875	16	19	–	–	60	75	100	5	6.5	33	40
60B1	11	12	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	6.5	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 different motor adapters and input shaft bore.

LCK 120P

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	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	C_t [Nm/arcmin]	$R_{2\,max}$ [N]	$A_{2\,max}$ [N]	η %	J_G [kgcm^2] D 14 ... 19	D 22 ; 24	D 28 ; 32
LCK 120P 2_6	110	160	225	2000	4500	6'	28.4	3500	3000	94	1.74	1.82	2.01
LCK 120P 2_8	140	220	300	2000	4500	6'	28.4	3500	3000	94	1.52	1.60	1.79
LCK 120P 2_10	125	220	360	2000	4500	6'	28.4	3500	3000	94	1.44	1.52	1.71
LCK 120P 2_14	125	220	360	2000	4500	6'	28.4	3500	3000	94	1.37	1.45	1.63
LCK 120P 2_20	100	165	300	2000	4500	6'	28.4	3500	3000	94	1.32	1.40	1.59
LCK 120P 3_24	155	220	360	2000	4500	8'	28.4	3500	3000	91	1.64	1.72	1.90
LCK 120P 3_30	155	220	360	2000	4500	8'	28.4	3500	3000	91	1.63	1.71	1.89
LCK 120P 3_50	125	220	360	2000	4500	8'	22.9	3500	3000	91	1.40	1.48	1.67
LCK 120P 3_70	125	220	360	2000	4500	8'	22.9	3500	3000	91	1.34	1.42	1.61
LCK 120P 3_80	155	220	360	2000	4500	8'	28.4	3500	3000	91	1.31	1.39	1.58
LCK 120P 3_100	125	220	360	2000	4500	8'	22.9	3500	3000	91	1.31	1.39	1.58

Effective Line

(E)

KR Series

The KR flexible series represents an alternative for applications that require space-saving and medium precision levels. It is available in multiple configurations such as solid/hollow shaft, single/double shaft extension, shrink disk version or flange option.

Main benefits

- Space saving solution
- Optimized backlash
- Wide variety of configurations
- Optional reinforced bearings

Main features

- Nominal output torque (Nm)

3 - 120

- Torsional backlash (arcmin)

8

- Torsional stiffness (Nm/arcmin)

0.2 - 11

Protection class

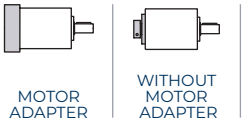
- IP65

Frame sizes

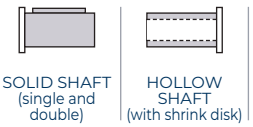
- 010
- 020
- 030
- 040

Main options

- Input versions



- Output shafts versions



- Service type

- Bearings versions

KR

14 FEATURES OF KR SERIES

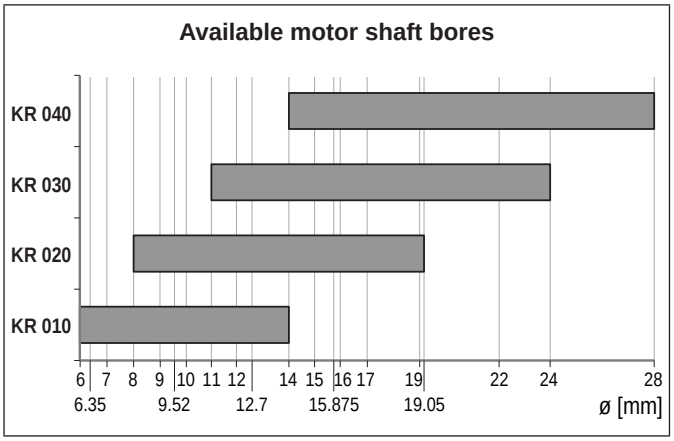
Bevel helical units type KR, manufactured under the most stringent quality specifications, are designed for dynamic and accurate applications where light weight and space effectiveness are a factor.
Many options can be selected from the catalogue as far as motor adapters and output shaft configurations 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^{-1}
- Lubrication optmized for the type of duty specified when ordering, in the absence of contamination the lubricant requires no periodical changes.

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

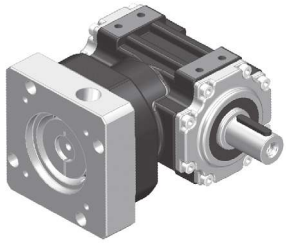
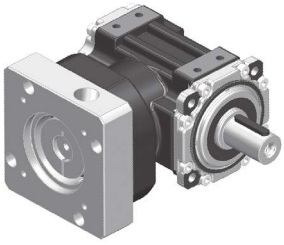
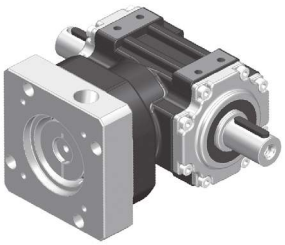
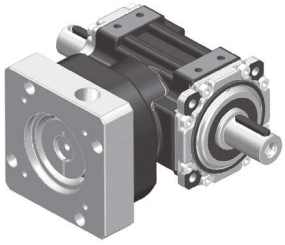
- Ambient temperature min -20°C, max +30°C. For temperature higher than 30°C please consider derating factor f_T.
- Housing temperature must not exceed T_{max} = 90°C.

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

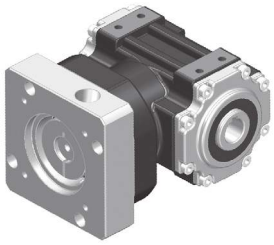
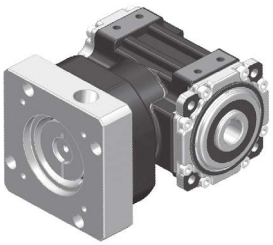
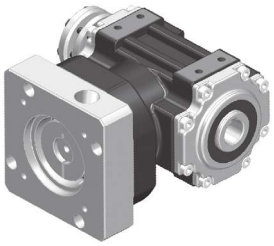
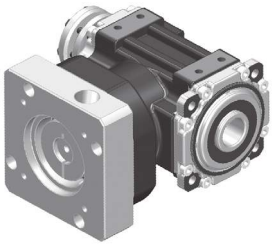


14.1 VERSIONS

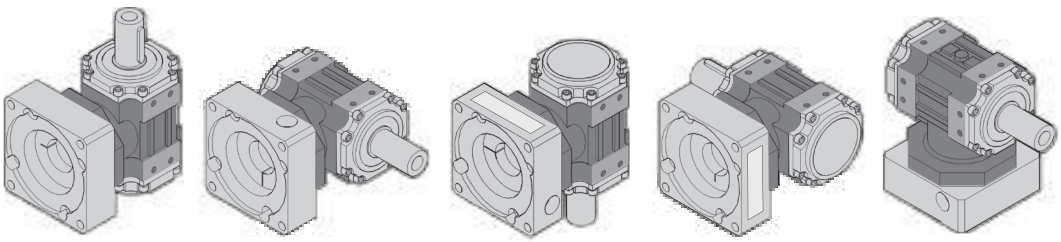
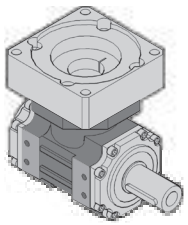
Solid shaft

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

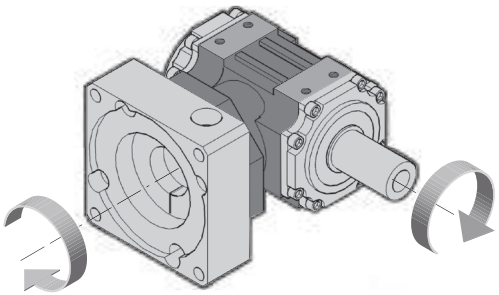
Hollow shaft

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

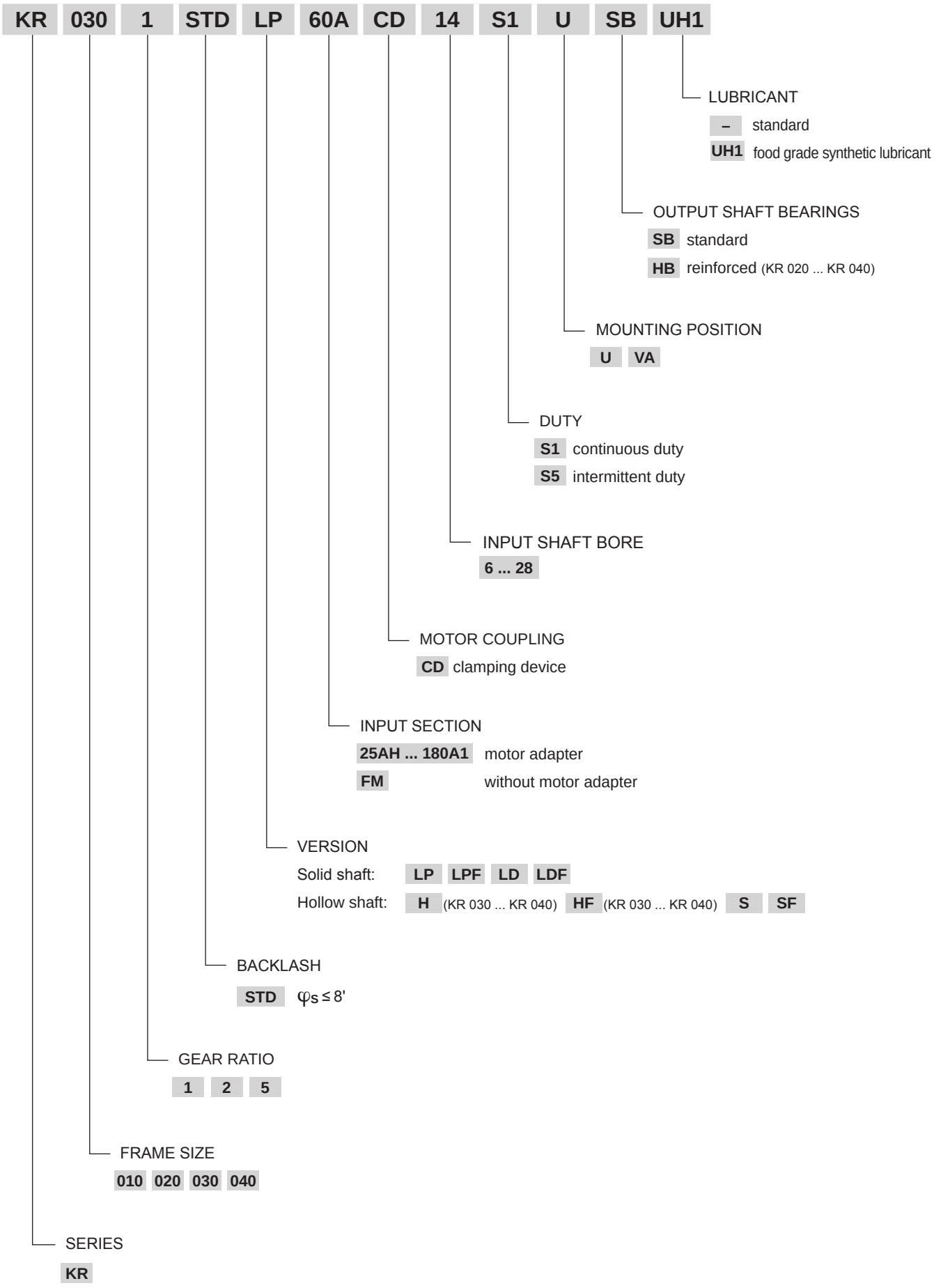
14.2 MOUNTING POSITIONS

U	VA
	

14.3 COORDINATED SHAFT ROTATION



14.4 ORDERING CODE



14.5 TECHNICAL SPECIFICATIONS

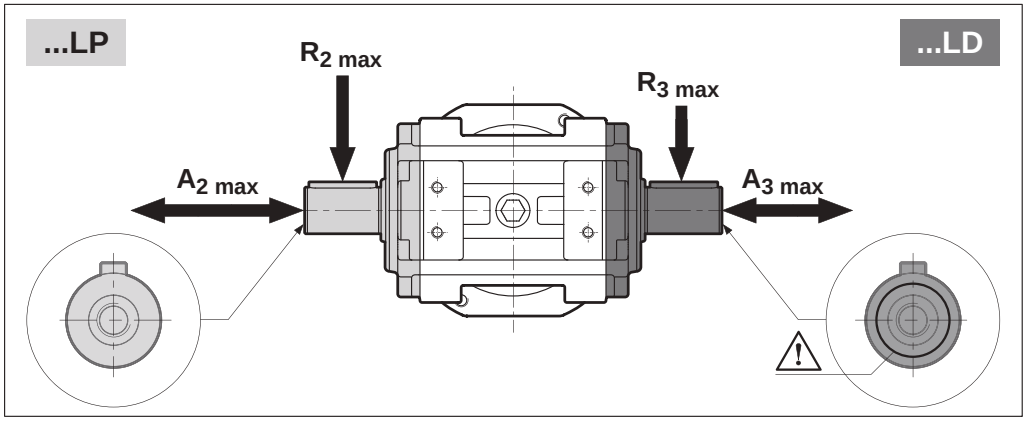
KR 010	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	C_t [Nm/arcmin]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	η %
i = 1	10	14	20	0.5	2000	4000	8’	97
i = 2	7	10	15	0.4	2500	5000		
i = 5	3	4	6	0.2	3000	5000		

KR 020	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	C_t [Nm/arcmin]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	η %
i = 1	24	35	50	1.4	2000	4000	8’	97
i = 2	15	21	30	1.1	2500	5000		
i = 5	10	13	20	0.7	3000	5000		

KR 030	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	C_t [Nm/arcmin]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	η %
i = 1	55	75	110	4	1500	3500	8’	97
i = 2	37	52	75	3	2000	4500		
i = 5	22	29	45	2	2800	4500		

KR 040	$M_{n\,2}$ [Nm]	$M_{a\,2}$ [Nm]	$M_{p\,2}$ [Nm]	C_t [Nm/arcmin]	n_1 [min^{-1}]	$n_{1\,max}$ [min^{-1}]	φ_S [arcmin]	η %
i = 1	120	170	240	11	1500	3500	8’	97
i = 2	85	120	170	9	2000	4500		
i = 5	45	60	90	5	2500	4500		

Stiffness value is referred to LP version

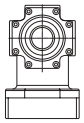


		$R_{2\,max}$ [N]	$A_{2\,max}$ [N]	$A_2'_{max}$ [N]	$R_{3\,max}$ [N]	$A_{3\,max}$ [N]	$A_3'_{max}$ [N]
KR 010	**SB**	1000	—	200	500	—	100
KR 020	**SB**	1500	—	300	750	—	150
	HB	3000	1500	600	3000	1500	600
KR 030	**SB**	2000	—	400	1000	—	200
	HB	4000	2000	800	4000	2000	800
KR 040	**SB**	3000	—	600	1500	—	300
	HB	5500	2750	1100	5500	2750	1100

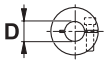
14.6 MASS MOMENT OF INERTIA

14.6.1 KR 010...KR 040 with standard ball bearings - SB

KR 010

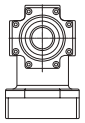


J_G [kgcm^2]

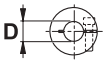


	SB	6 ≤ D ≤ 9.52	10 ≤ D ≤ 14
i = 1	S, SF	0.52	0.52
	LP, LPF	0.38	0.38
	LD, LDF	0.39	0.39
i = 2	S, SF	0.27	0.29
	LP, LPF	0.24	0.25
	LD, LDF	0.24	0.25
i = 5	S, SF	0.20	0.21
	LP, LPF	0.19	0.21
	LD, LDF	0.19	0.21

KR 020

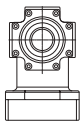


J_G [kgcm^2]

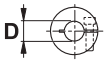


	SB	8 ≤ D ≤ 12.7	14 ≤ D ≤ 19.05
i = 1	S, SF	1.61	1.80
	LP, LPF	1.34	1.52
	LD, LDF	1.37	1.55
i = 2	S, SF	0.86	1.05
	LP, LPF	0.80	0.98
	LD, LDF	0.80	0.99
i = 5	S, SF	0.66	0.84
	LP, LPF	0.64	0.83
	LD, LDF	0.65	0.83

KR 030

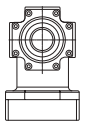


J_G [kgcm^2]

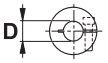


	SB	11 ≤ D ≤ 12.7	14 ≤ D ≤ 19	22 ≤ D ≤ 24
i = 1	H, HF	4.37	4.45	4.64
	S, SF	5.00	5.08	5.27
	LP, LPF	4.70	4.78	4.97
	LD, LDF	4.63	4.71	4.90
i = 2	H, HF	2.04	2.12	2.31
	S, SF	2.20	2.28	2.47
	LP, LPF	2.12	2.20	2.39
	LD, LDF	2.11	2.19	2.37
i = 5	H, HF	1.47	1.55	1.74
	S, SF	1.50	1.57	1.76
	LP, LPF	1.48	1.56	1.75
	LD, LDF	1.48	1.56	1.75

KR 040

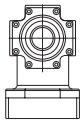
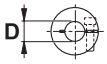


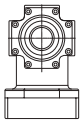
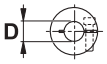
J_G [kgcm^2]

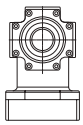
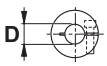


	SB	14 ≤ D ≤ 19	22 ≤ D ≤ 24	D = 28
i = 1	H, HF	17.19	17.37	17.77
	S, SF	20.46	20.65	21.05
	LP, LPF	18.21	18.40	18.80
	LD, LDF	18.90	19.08	19.48
i = 2	H, HF	4.47	4.65	5.06
	S, SF	5.29	5.47	5.87
	LP, LPF	4.73	4.91	5.31
	LD, LDF	4.90	5.08	5.48
i = 5	H, HF	5.23	5.42	5.82
	S, SF	5.36	5.55	5.95
	LP, LPF	5.27	5.46	5.86
	LD, LDF	5.30	5.49	5.89

14.6.2 KR 020...KR 040 with taper roller bearings - HB

KR 020			
		J_G [kgcm^2]	
			
	HB 	8 ≤ D ≤ 12.7	14 ≤ D ≤ 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

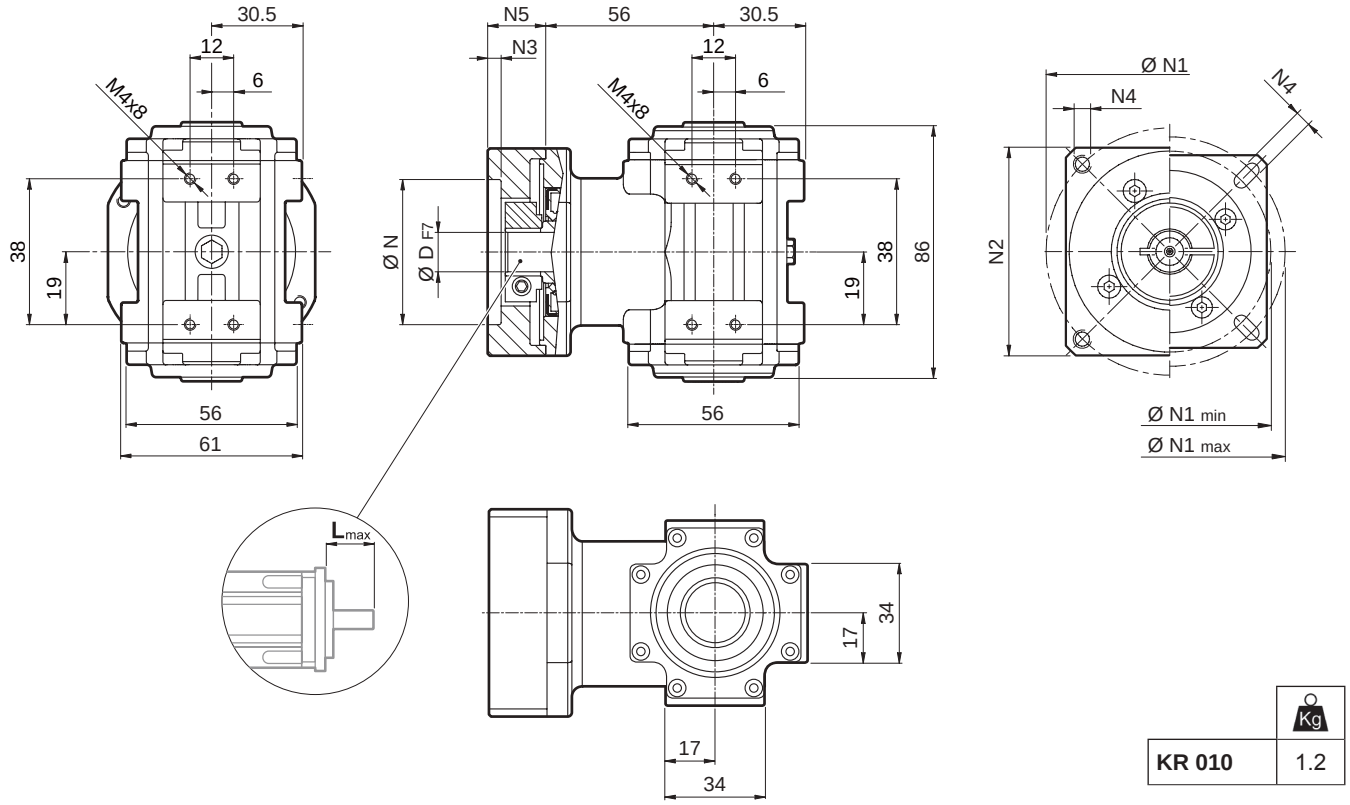
KR 030				
		J_G [kgcm^2]		
				
	HB 	11 ≤ D ≤ 12.7	14 ≤ D ≤ 19	22 ≤ D ≤ 24
i = 1	H, HF	5.48	5.56	5.75
	S, SF	6.11	6.19	6.38
	LP, LPF	5.81	5.89	6.08
	LD, LDF	5.74	5.82	6.01
i = 2	H, HF	2.92	3.00	3.19
	S, SF	3.08	3.16	3.35
	LP, LPF	3.01	3.09	3.27
	LD, LDF	2.99	3.07	3.26
i = 5	H, HF	1.51	1.59	1.78
	S, 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^2]		
				
	HB 	14 ≤ D ≤ 19	22 ≤ D ≤ 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

14.7 DIMENSIONS

KR 010

25AH ... 80A



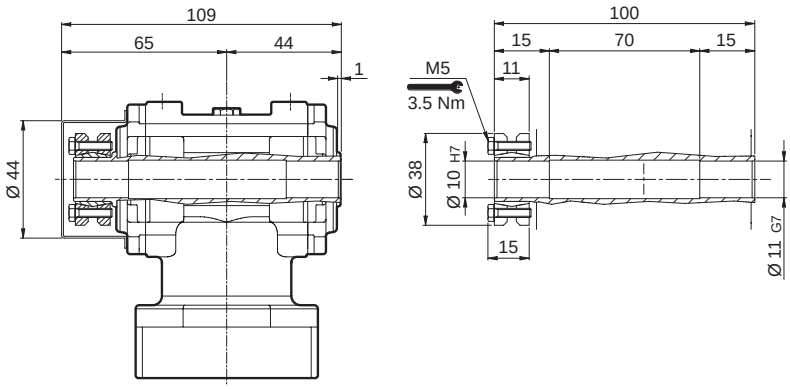
	Kg
KR 010	1.2

	D											N	N1		N2	N3	N4	N5	L_{max}
													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		65	3	M5x12	18	25
60A1	6	6.35	7	8	9	9.52	10	11	12	12.7	14	60	75		65	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	5	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

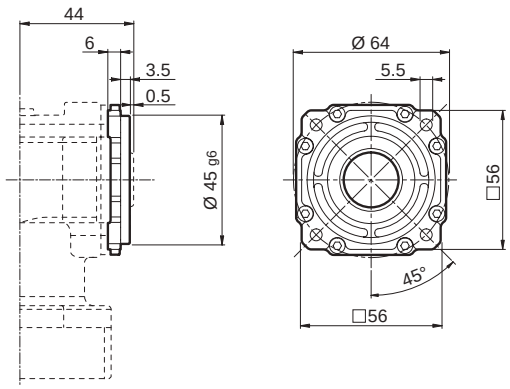
Please contact us for different motor adapters and input shaft bore.

KR 010

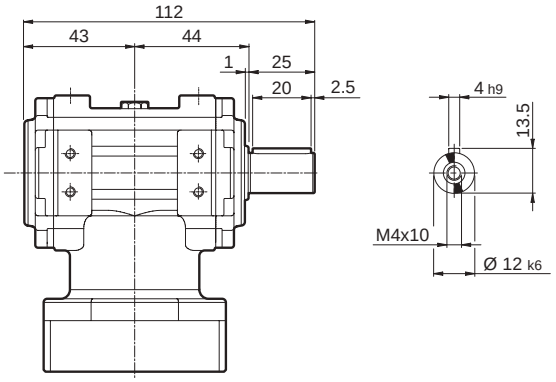
KR 010... S



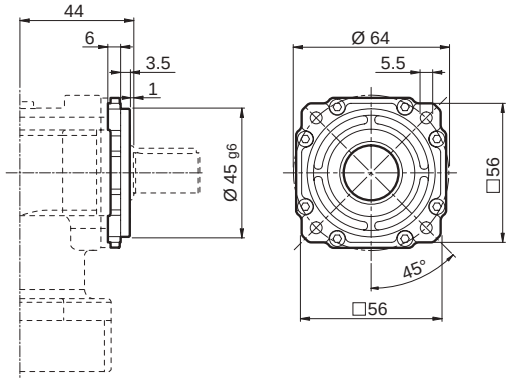
KR 010... SF



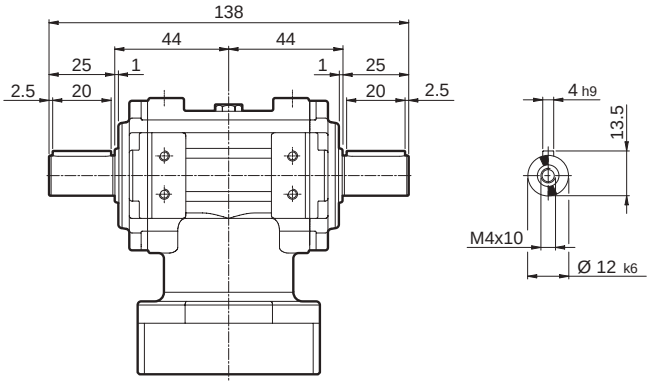
KR 010... LP



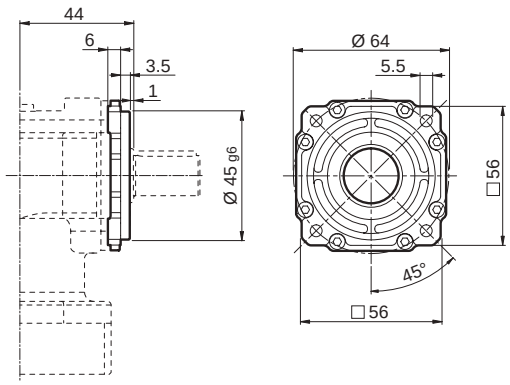
KR 010... LPF



KR 010... LD

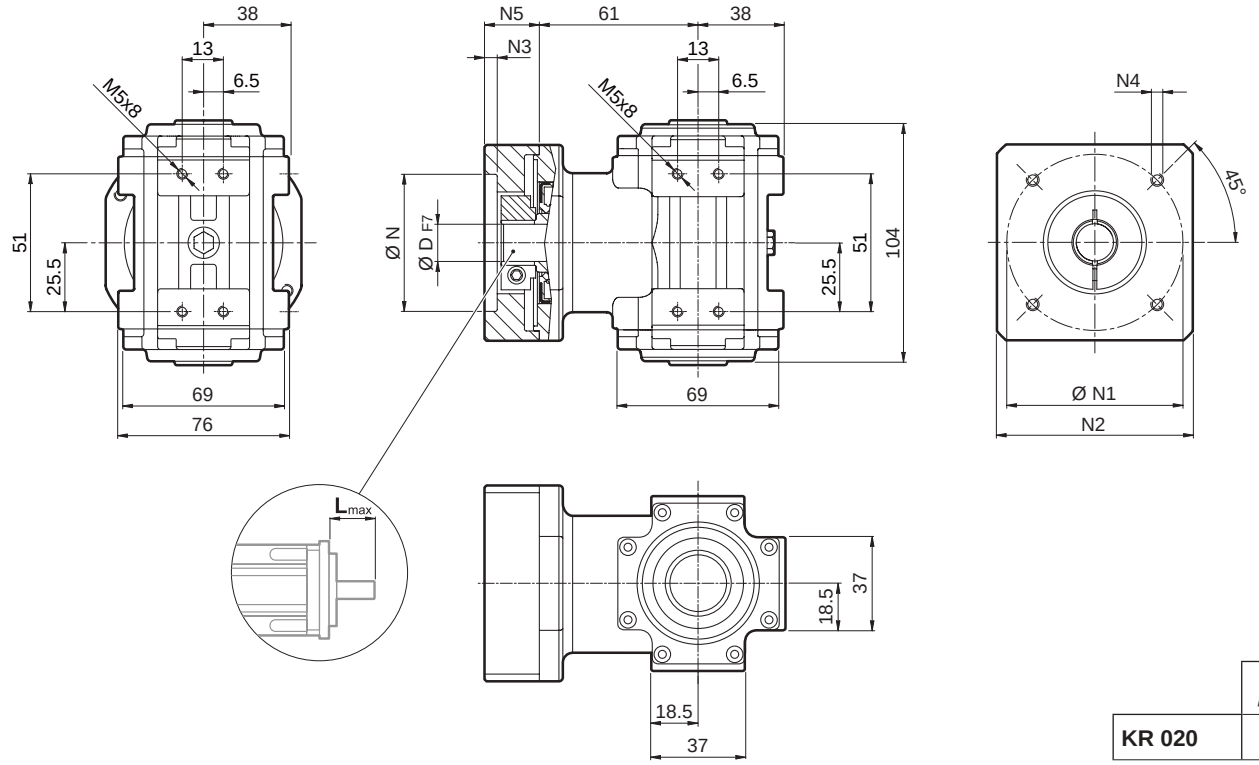


KR 010... LDF



KR 020

40B1 ... 110B1



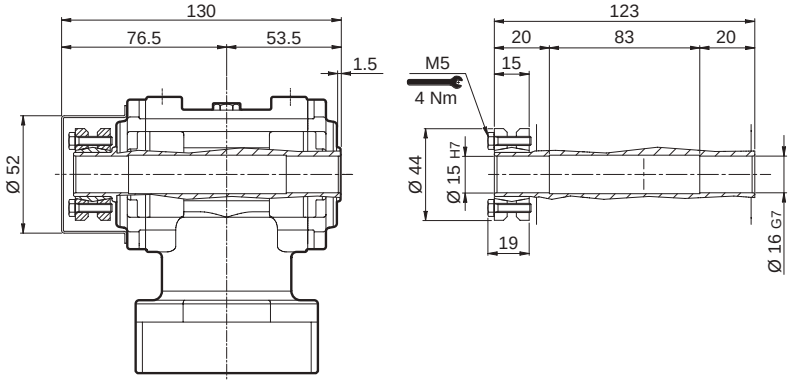
	Kg
KR 020	2.6

	D												N	N1	N2	N3	N4	N5	L_{max}
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

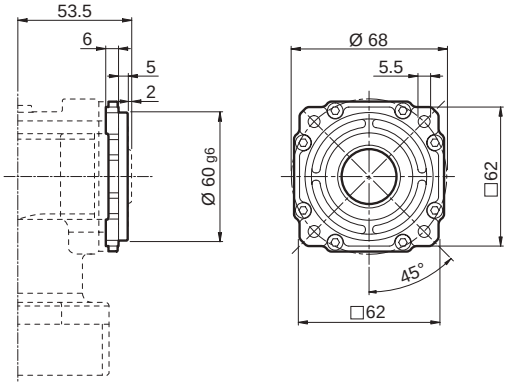
Please contact us for different motor adapters and input shaft bore.

KR 020

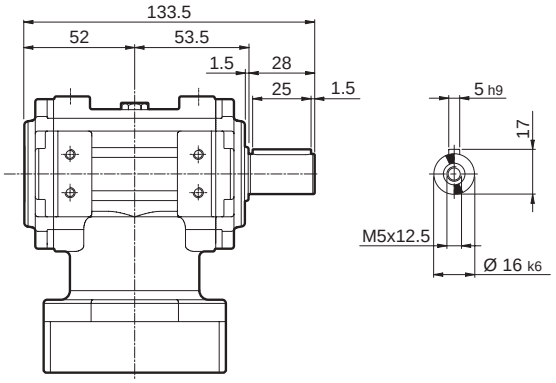
KR 020... S



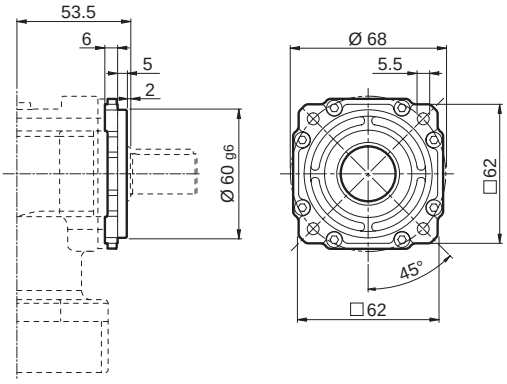
KR 020... SF



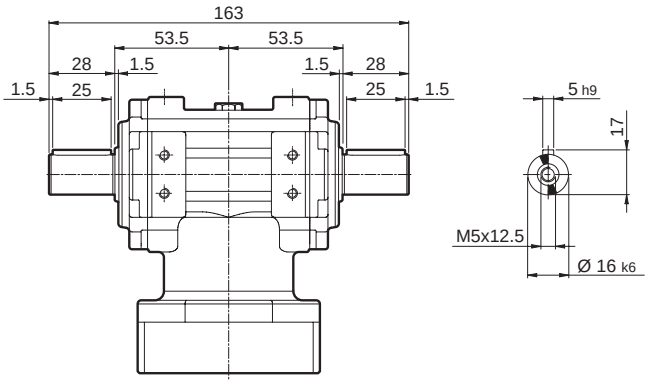
KR 020... LP



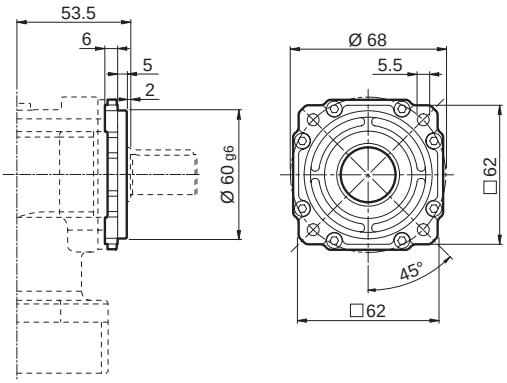
KR 020... LPF



KR 020... LD

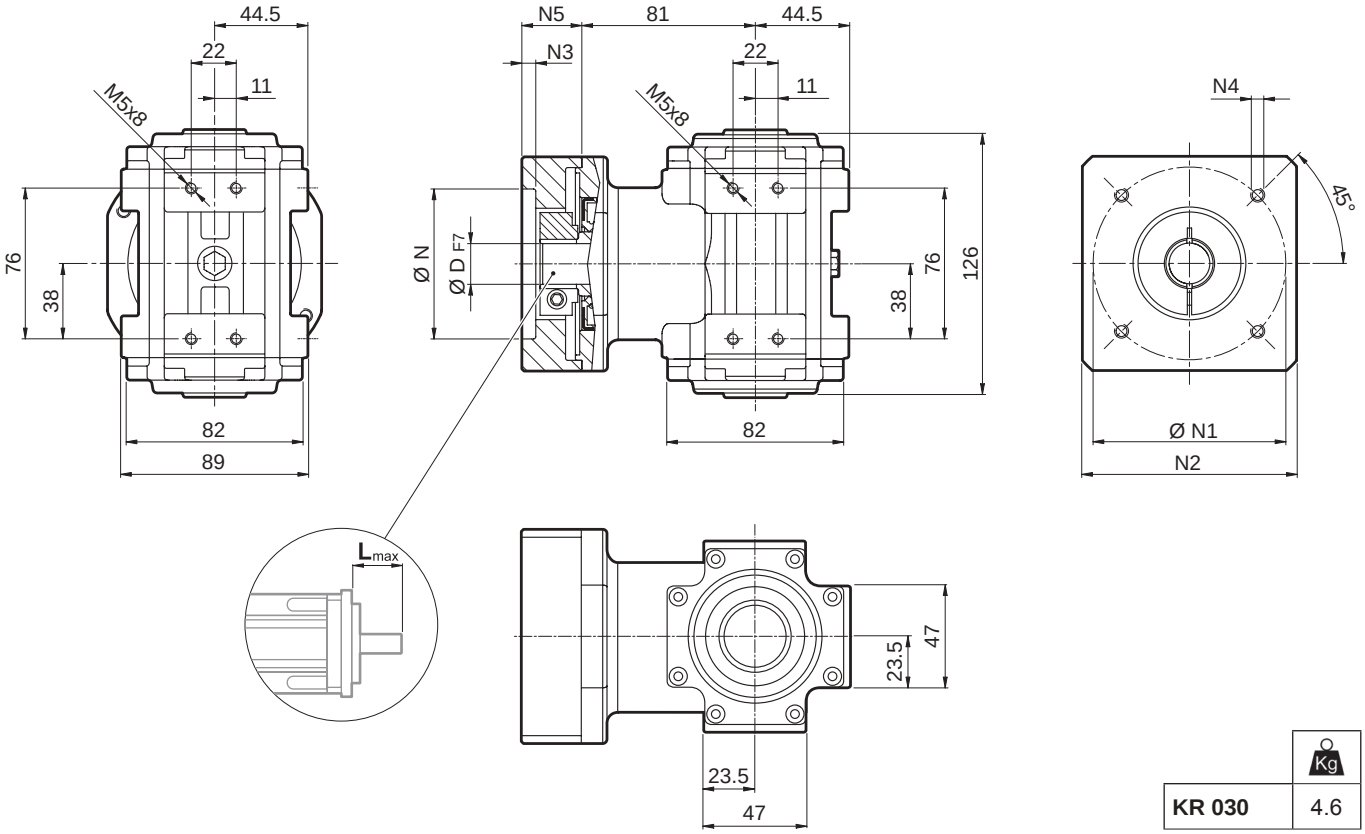


KR 020... LDF



KR 030

50D ... 130A1



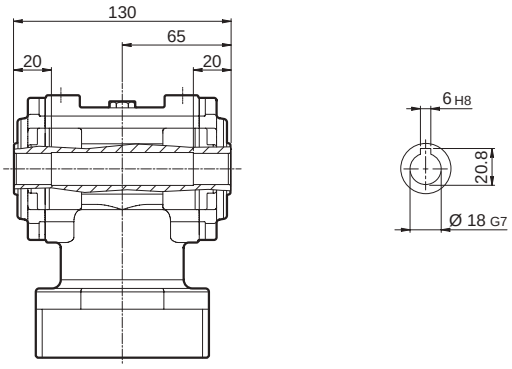
	Kg
KR 030	4.6

	D										N	N1	N2	N3	N4	N5	L_{max}
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	6.5	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

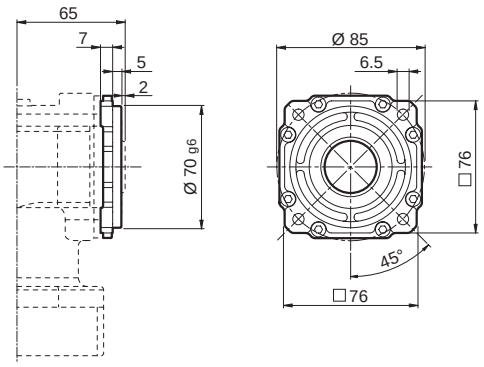
Please contact us for different motor adapters and input shaft bore.

KR 030

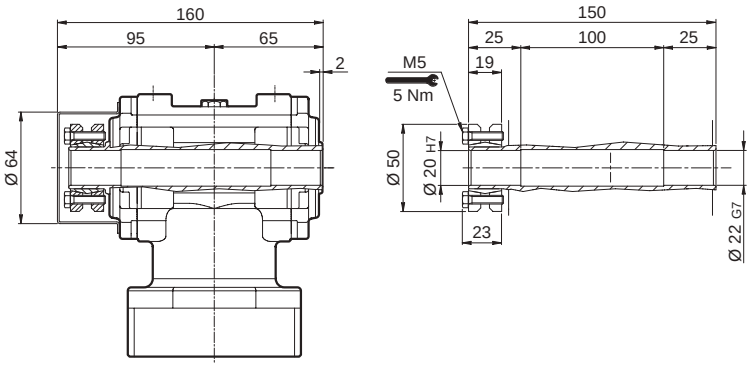
KR 030... H



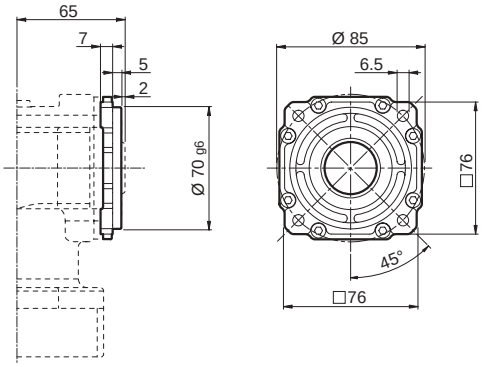
KR 030... HF



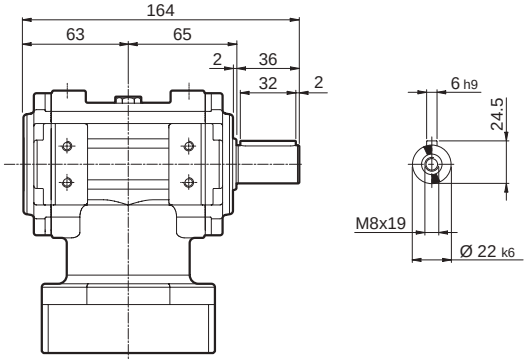
KR 030... S



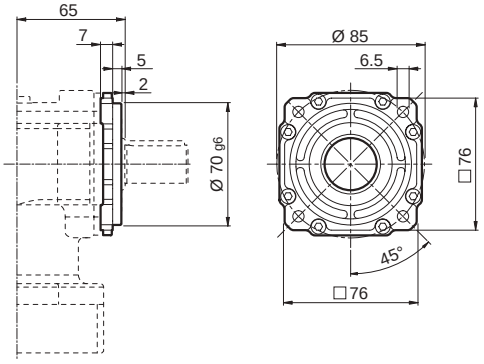
KR 030... SF



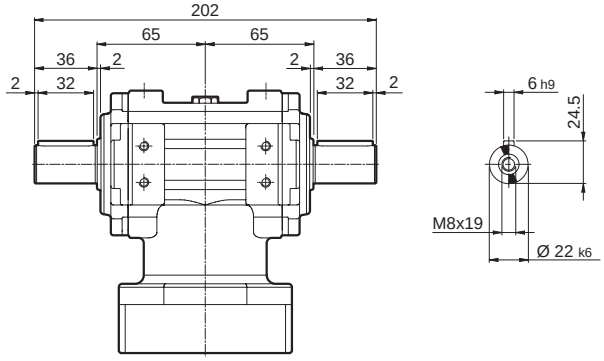
KR 030... LP



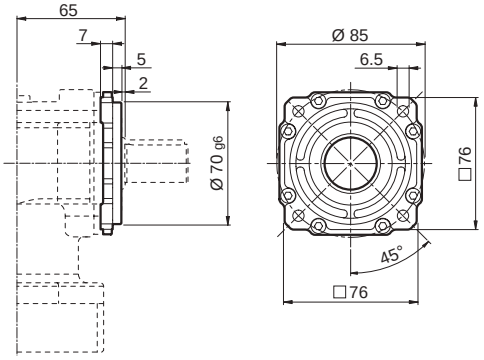
KR 030... LPF



KR 030... LD

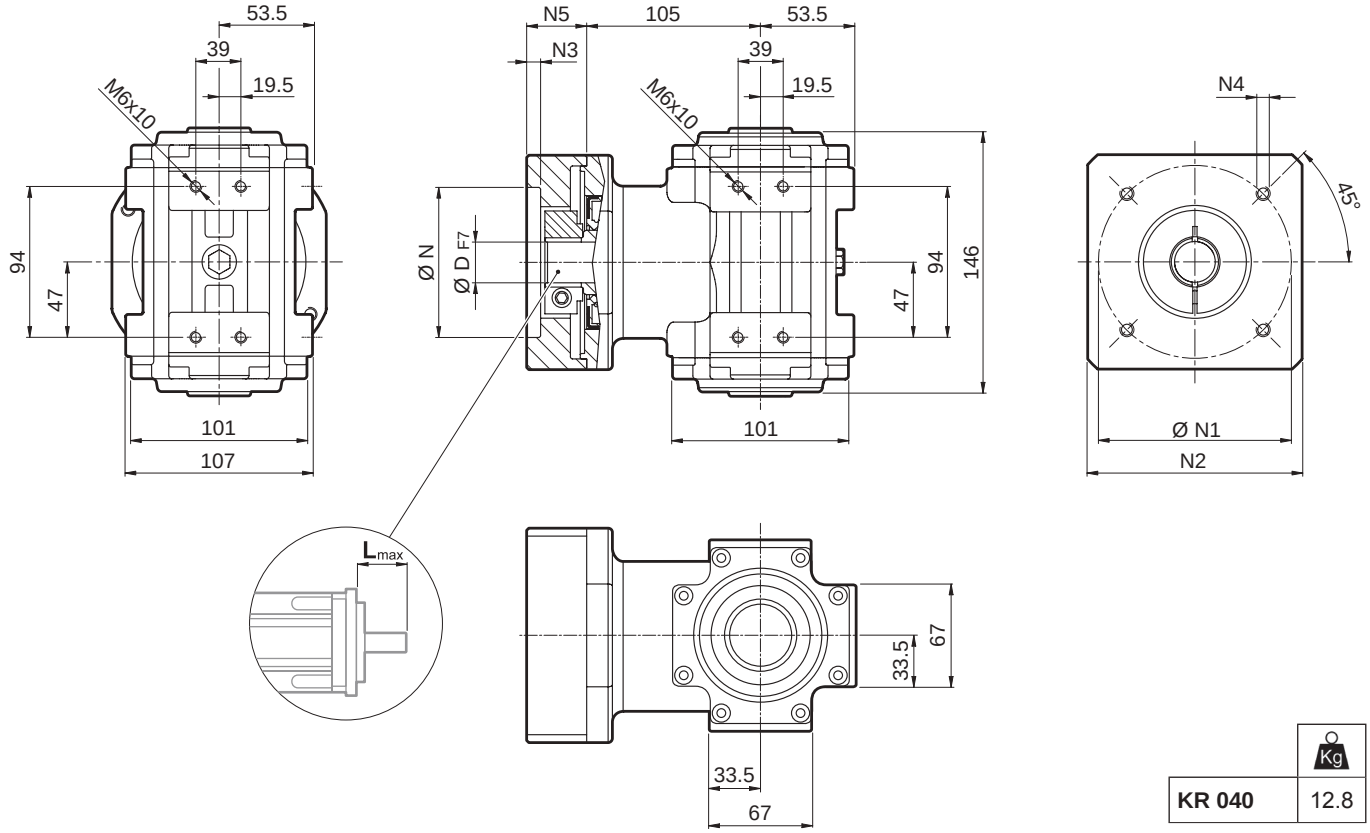


KR 030... LDF



KR 040

55A1 ... 180A1



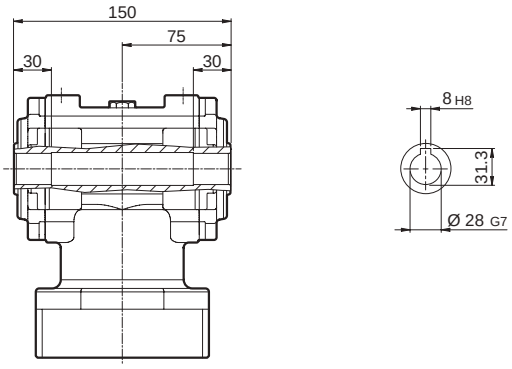
	Kg
KR 040	12.8

	D							N	N1	N2	N3	N4	N5	L_{max}
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
114A	14	15.875	16	19	22	24	28	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	130	165	140	4	M10x20	49.5	60
180A	14	15.875	16	19	22	24	28	180	215	190	5.5	M14x25	49.5	60
180A1	14	15.875	16	19	22	24	28	180	215	190	5.5	M14x25	69.5	80

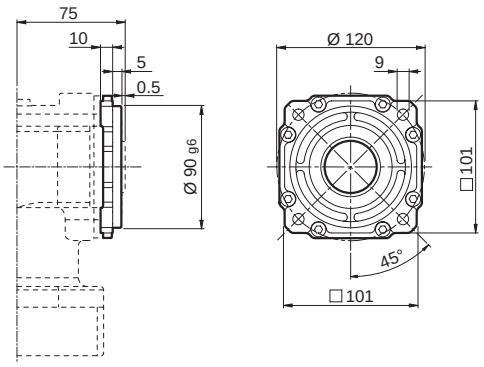
Please contact us for different motor adapters and input shaft bore.

KR 040

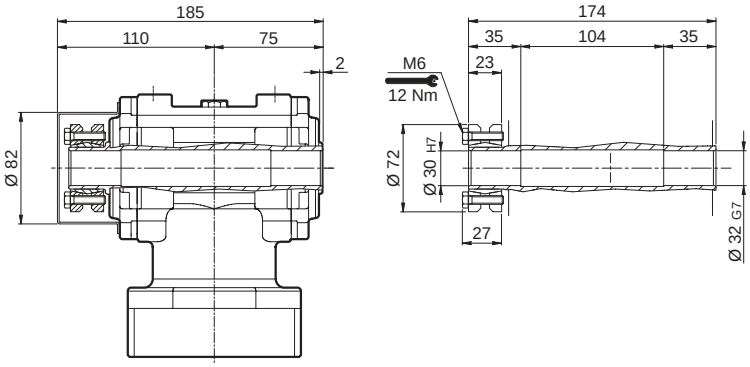
KR 040... H



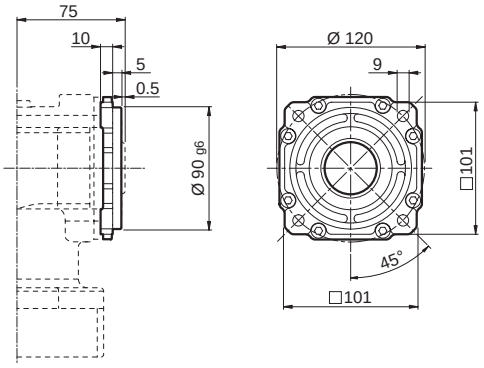
KR 040... HF



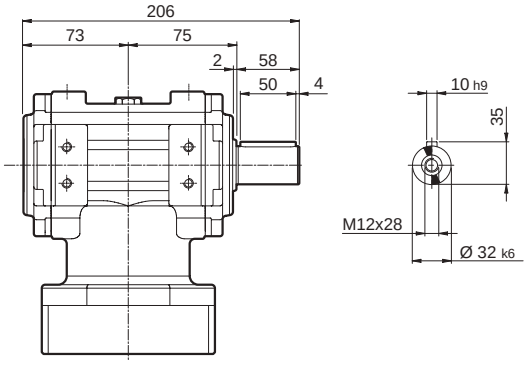
KR 040... S



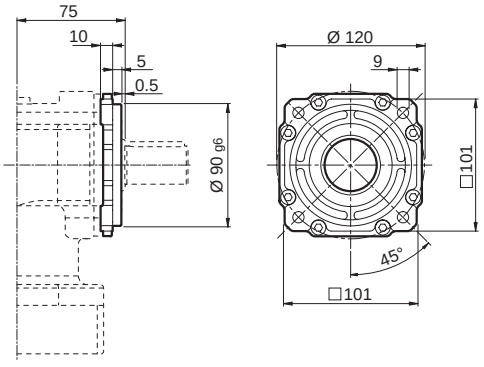
KR 040... SF



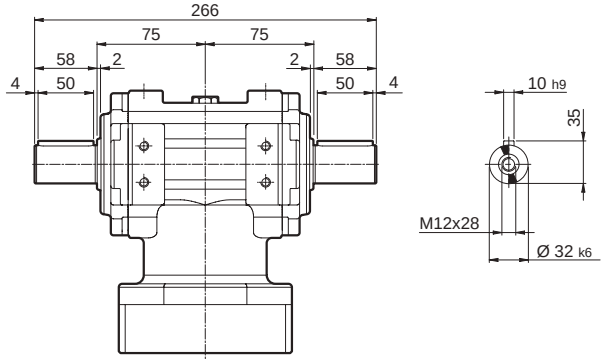
KR 040... LP



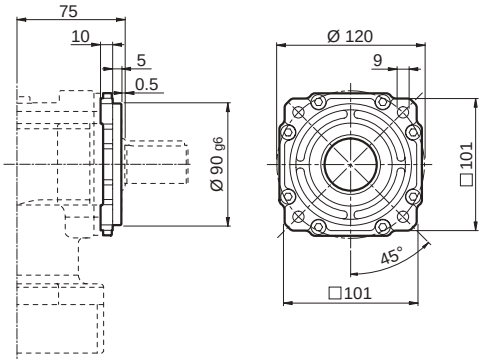
KR 040... LPF



KR 040... LD



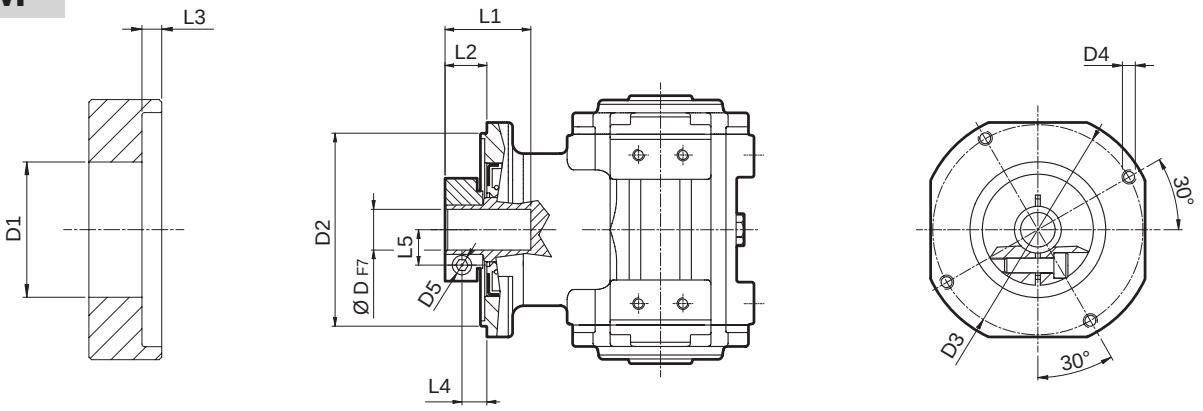
KR 040... LDF



KR

14.7.1 GEARBOX WITHOUT MOTOR ADAPTER

FM

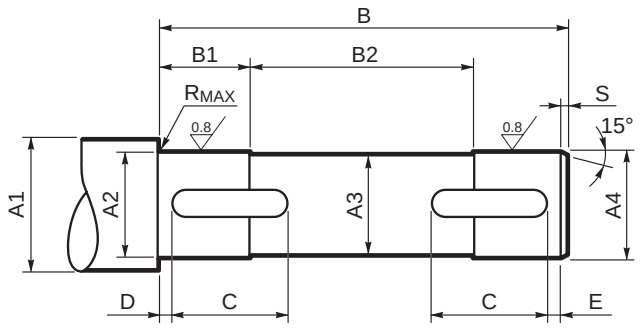


	D				D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	Kg
KR 010	6	6.35	7		32.5	50	42.5	M4x8	M4	28	13.5	3	8.5	8	1.0
	8	9	9.52	10	32.5	50	42.5	M4x8	M4	28	13.5	3	8.5	9	
	11	12	12.7		35.5	50	42.5	M4x8	M4	23	13.5	3	8.5	11	
	14				35.5	50	42.5	M4x8	M4	25	15.5	3	8.9	11.5	
KR 020	8	9	9.52		38	68	76.5	M6x10	M6	36.3	26.3	9.5	18.8	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	
KR 030	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	
KR 040	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	

14.7.2 MACHINE SHAFT

Shaft 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.

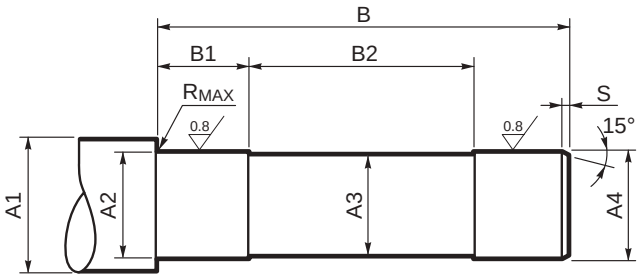
H



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

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 ($\Phi_S \leq 8'$).

S



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

INDEX OF REVISIONS

	TI_CAT_TIR_STD_ENG_R06_0
	Description
...	Amended some data.

2021 02 20

Bonfiglioli

We have a relentless commitment to excellence, innovation & sustainability. Our team creates, distributes and services world-class power transmission & drive solutions to keep the world in motion.

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