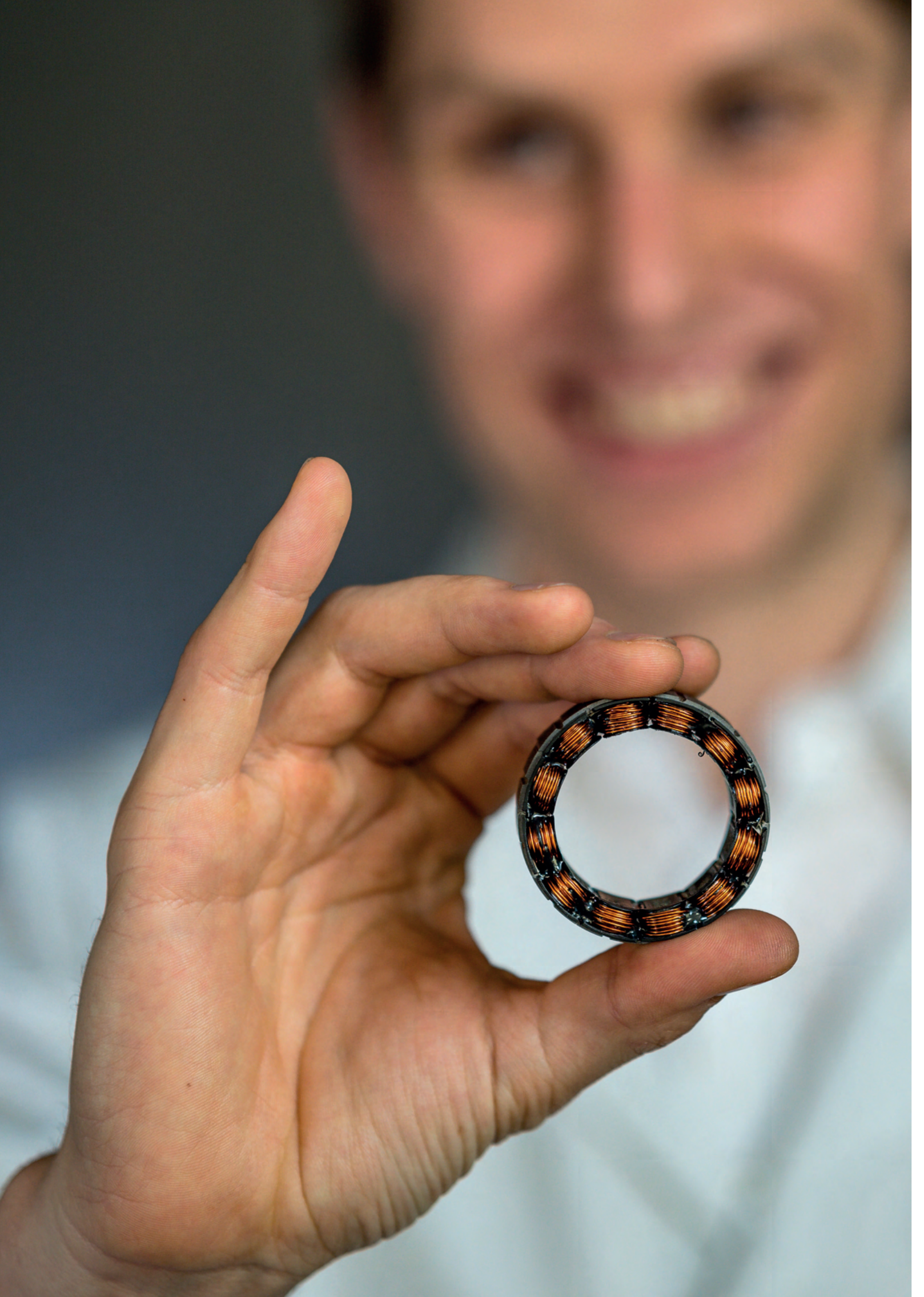
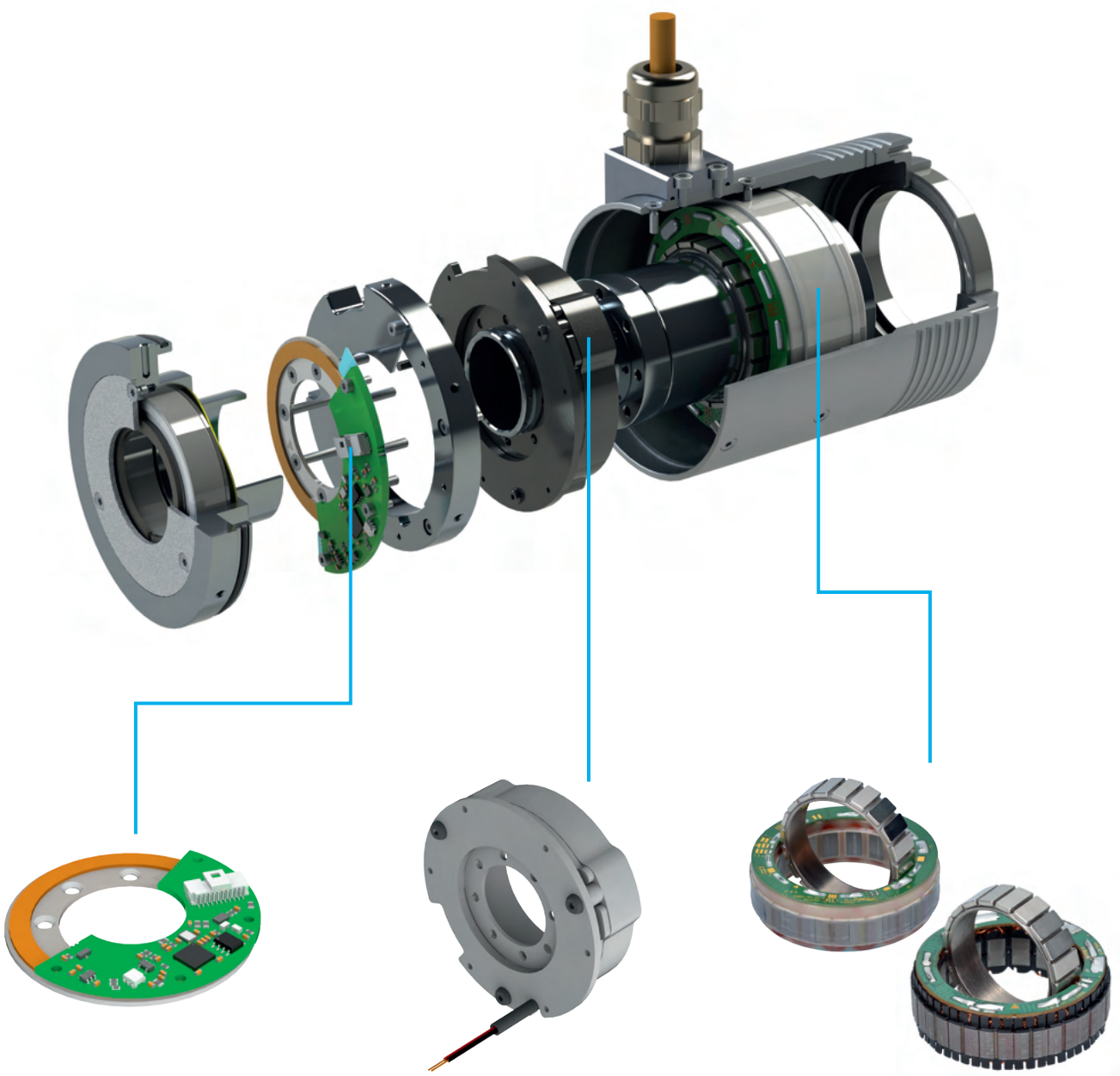
TQ-RoboDrive

Product Catalogue



Content

One-Stop Industrial Drive Solutions
Available components



Absolute Encoder (Hollow Shaft)

Safety Brake

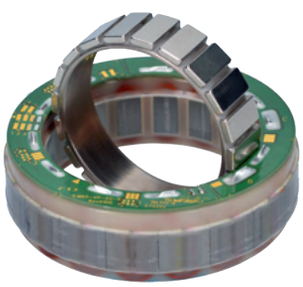
Servo Kit

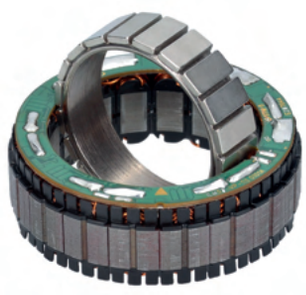
TQ-RoboDrive ILM & ILM-E Frameless motors
Stator-rotor servo kits with integrated safety brakes and encoders

Frameless, hollow-shaft servo motors from TQ-RoboDrive utilize the original stator-rotor kit technology specially developed by the German Aerospace Center for use aboard the International Space Station.

Thanks to their high copper-fill factor and innovative stator-rotor design, these frameless motors offer superior torque density, exceptionally low losses and highly dynamic performance, while also affording excellent heat dissipation. They may be used as direct drives with reduced motor speed and can be delivered with custom-matching, hollow-shaft safety brakes and absolute encoders.

Frameless servo motors from TQ are ideal for designers exploring the boundaries of performance in medical & industrial engineering, automation, aerospace, optics, robotics and other technically challenging applications.

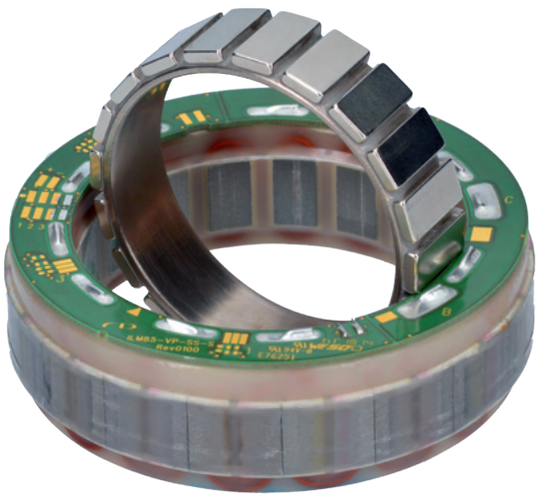




ILM	ILM-E
Highest quality and torque density	Excellent torque density at an attractive price-performance ratio
Minimal thermal losses	Low thermal losses
Insulated with Nomex paper	Insulated with pole caps
Fully potted/enclosed stator	Stator is only filled in gaps between the windings
Has to be glued into the housing	Can be shrink-fitted or glued in to the housing
Available in diameter of 25, 38, 50, 70, 85 and 115	Available in diameter of 50, 70 and 85 (38 and 106 available upon request)
Rotor with block magnets	Rotor with segment-magnets
Stack length can be fitted	Stack length and the winding can be quickly customized to customer's requirements

ILM Series

Frameless servo kits



HIGHLIGHTS

- Frameless motors for highest design flexibility
- Available with integrated safety brakes and encoders
- Hollow-shaft capability
- Extra-low voltage 12 V – 48 V
- Highest torque density and dynamics due to excellent copper fill factor
- Low thermal losses due to concentrated coils
- Thermally optimized actuator design
- High control quality due to high bandwidth and lowest harmonics
- Customer-specific tailoring upon request

Frameless servo motors with maximum torque density and freedom of design.

The ILM Series of frameless, stator-rotor installation kits from TQ-RoboDrive utilize integrated drive engineering originally developed by the German Aerospace Center (DLR) for applications in extremely demanding environments. The motors deliver market-leading torque density, unsurpassed precision and excellent overload capability in an exceptionally compact design. TQ-RoboDrive offers development expertise, engineering services and detailed documentation to assist you in implementing customer-specific solutions optimized for size, thermal properties and other requirements. Alternative voltage levels and customized torque-speed characteristics can also be made available upon request.

BASIC DATA

	ILM 25×04	ILM 25×08	ILM 38×06	ILM 38×12	ILM 50×08	ILM 50×14	ILM 70×10	ILM 70×18	ILM 85×04	ILM 85×13	ILM 85×23	ILM 85×26	ILM 115×25	ILM 115×50
Max Power [W]	70	80	110	240	210	210	250	270	290	440	460	470	570	618
Rated voltage U_r* [V]	24	24	24	48	48	48	48	48	48	48	48	48	48	48
Rated torque T_r* [Nm]	0.032	0.063	0.102	0.234	0.298	0.54	0.66	1.24	0.3	1.44	2.56	2.9	3.9	9.51
Peak torque Tmax at 20% deviation from linearity [Nm]	0.105	0.204	0.32	0.76	0.96	1.75	2.13	4.05	0.99	4.66	8.3	9.4	12.7	31.4
max Rotation speed nmax at Ur [rpm]**	24,000***	24,000***	15,000***	15,000***	12,000***	12,000***	10,000	7,340	7,900***	7,900***	5,900	5,400	2,400	1,070
Diameter D [mm]	25	25	38	38	50	50	69	69	85	85	85	85	115	115
Length L [mm]	10.8	15.2	15.3	22.3	16.4	22.8	22.6	30.5	17.6	27.2	37.2	40.7	39	68
Weight m [g]	16	25	53	89	87	135	220	330	210	400	620	670	1,070	2,170
Number of pole pairs	7	7	7	7	10	10	10	10	10	10	10	10	15	15
Rotor inertia J [kgcm²]	0.00147	0.00231	0.0101	0.0203	0.054	0.09	0.196	0.321	0.276	0.61	0.98	1.06	3.93	7.9

* At nominal current. Thermal behavior is strongly dependent on installation situation. Nominal operational temperature of the stator: -40°C to 125°C.
** Theoretical no-load rotation speeds at Ur . Variations can arise from operation with different inverters.
*** Max rotatation speed due to mechanical structure

STAR-SERIAL

	ILM 25×04	ILM 25×08	ILM 38×06	ILM 38×12	ILM 50×08	ILM 50×14	ILM 70×10	ILM 70×18	ILM 85×04	ILM 85×13	ILM 85×23	ILM 85×26	ILM 115×25	ILM 115×50
Rated current I_r* [A]	3.8	4.3	5.5	6.1	5.1	5.3	6.1	6.7	7.2	10.8	11.3	11.5	14.1	15.1
Copper losses $P_{L,r}$ at T_r and 20°C [W]	5.6	10.3	7.9	13.7	10.5	16	13.1	22.2	5.4	19.3	28.7	31.7	20.9	43.4
Torque constant k_T* at 20°C [mNm/A]	8.8	14.7	18.2	39	58	103	109	187	43	134	229	253	281	640
Motor constant kM at 20°C [Nm/√W]	0.0139	0.0197	0.0355	0.064	0.091	0.136	1.184	0.266	0.133	0.33	0.48	0.52	0.87	1.47
Terminal resistance RTT* at 20°C [mΩ]	530	740	350	490	540	770	470	660	140	220	300	320	140	254
Terminal inductance LTT* [µH]	180	330	280	520	490	850	900	1,460	200	560	930	1,040	600	1,570
No load speed [rpm]	22,650	13,530	10,470	10,190	6,850	3,870	3,650	2,120	7,900**	2,950	1,730	1,560	1,400	620

DELTA SERIAL

	ILM 50×08	ILM 50×14	ILM 70×10	ILM 70×18	ILM 85×04	ILM 85×13	ILM 85×23	ILM 85×26	ILM 115×25	ILM 115×50
Rated current I_r* [A]	8.8	9.2	10.6	11.6	12	18.7	19.6	19.9	24	30.2
Copper losses $P_{L,r}$ at T_r and 20°C [W]	10.5	16	13.1	22.2	5.4	19.3	28.7	31.7	20.9	43.4
Torque constant k_T* at 20°C [mNm/A]	33	59	63	108	25	77	132	146	162	370
Motor constant kM at 20°C [Nm/√W]	0.091	0.136	0.184	0.266	0.133	0.33	0.48	0.52	0.87	1.47
Terminal resistance R_{TT}* at 20°C [mΩ]	180	257	157	220	47	73	100	107	47	85
Terminal inductance L_{TT}* [µH]	163	283	303	487	67	187	310	347	200	523
No load speed [rpm]	11,800	6,700	6,300	3,670	7,900**	5,100	290	2,700	2,400	1,070

STAR PARALLEL

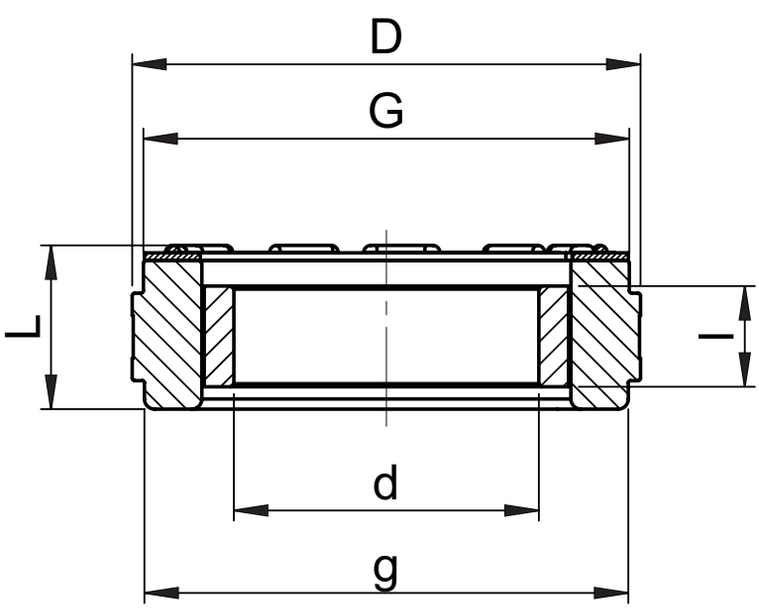
	ILM 25×04	ILM 25×08	ILM 38×06	ILM 38×12	ILM 50×08	ILM 50×14	ILM 70×10	ILM 70×18	ILM 85×04	ILM 85×13	ILM 85×23	ILM 85×26
Rated current I_r* [A]	7.5	8.6	11	12.2	10.2	10.6	12.2	13.4	14	21.6	22.6	23
Copper losses $P_{L,r}$ at T_r and 20°C [W]	5.6	10.3	7.9	13.7	10.5	16	13.1	22.2	5.4	21.6	28.7	31.7
Torque constant k_T* at 20°C [mNm/A]	4.4	7.4	9.5	20	29	52	55	94	22	67	115	127
Motor constant kM at 20°C [Nm/√W]	0.0139	0.0197	0.0355	0.064	0.091	0.136	0.184	0.266	0.133	0.33	0.48	0.52
Terminal resistance R_{TT}* at 20°C [mΩ]	133	182	88	123	135	193	118	165	35	55	75	80
Terminal inductance L_{TT}* [µH]	45	83	70	130	123	213	228	365	50	140	233	260
No load speed [rpm]	24,000**	24,000**	15,000**	15,000**	12,000**	7,740	7,300	4,240	7,900**	7,900**	3,460	3,120

DELTA PARALLEL

	ILM 50×08	ILM 50×14	ILM 70×10	ILM 70×18	ILM 85×04	ILM 85×13	ILM 85×23	ILM 85×26
Rated current I_r* [A]	17.7	18.4	21.1	23.2	25	37.4	39.1	39.8
Copper losses P_{Lr} at T_r and 20°C [W]	10.5	16	13.1	22.2	5.4	19.3	28.7	31.7
Torque constant k_T* at 20°C [mNm/A]	17	30	31	54	12	39	66	73
Motor constant kM at 20°C [Nm/√W]	0.091	0.136	0.184	0.266	0.133	0.33	0.48	0.52
Terminal resistance R_{TT}* at 20°C [mΩ]	45	64	39	55	12	18	25	27
Terminal inductance L_{TT}* [µH]	41	71	76	122	17	47	78	87
No load speed [rpm]	12,000**	12,000**	10,000**	7,340	7,900**	7,900**	5,900	5,400

MOUNTING DIMENSIONS

	ILM 25×04	ILM 25×08	ILM 38×06	ILM 38×12	ILM 50×08	ILM 50×14	ILM 70×10	ILM 70×18	ILM 85×04	ILM 85×13	ILM 85×23	ILM 85×26	ILM 115×25	ILM 115×50
Stator diameter D js8 [mm]	25	25	38	38	50	50	69	69	85	85	85	85	115	115
PCB diameter G [mm]	23.8	23.8	36.2	36.2	47.6	47.6	66.8	66.8	82.8	82.8	82.8	82.8	111.8	111.8
Winding head diameter g [mm]	23.8	23.8	36	36	47.6	47.6	66	66	81	81	81	81	110	110
Stator length L [mm]	10.8	15.2	15.3	22.3	16.4	22.8	22.6	30.5	17.6	27.2	37.2	40.7	39.0	68.4
Hollow-shaft diameter rotor d H7 [mm]	11.6	11.6	18	18	30	30	42	42	52	52	52	52	74	74
Rotor length l [mm]	6.3	9.7	8.1	16.2	9.9	16.1	12.7	20.7	7.1	15.7	25.1	27.2	27.1	54.2

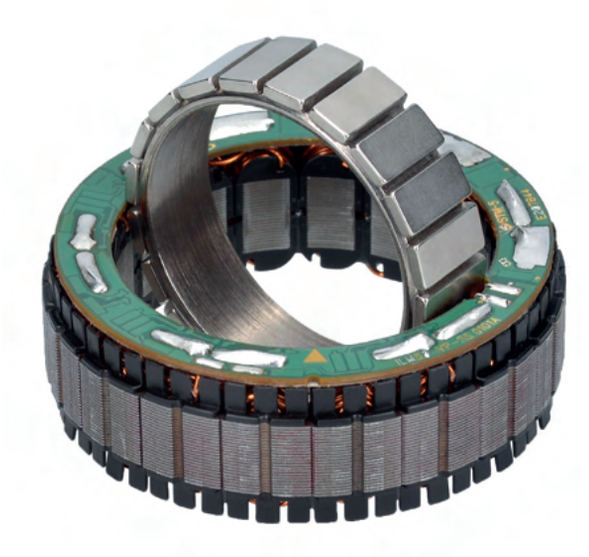


* At nominal current. Thermal behavior is strongly dependent on installation situation. Nominal operational temperature of the stator: -40°C to 125°C.

** Theoretical no-load rotation speeds at Ur . Variations can arise from operation with different inverters.

ILM-E Series

Frameless servo kits



HIGHLIGHTS

- Frameless construction for high design flexibility
- Excellent torque density at an attractive price-performance ratio
- Low thermal losses thanks to high copper fill-factor
- Lightweight and compact
- Smallest and lightest solution compared to competitors
- Spacious hollow shafts for additional functions in the same installation space
- Excellent dynamic control and precision
- Flexibly adaptable to customer requirements
- 100 % Made in Germany

Cost-efficient drive solutions for the most demanding applications.

The new TQ-ILM-E series offers market-leading torque density with low weight for the most challenging applications. Whether in automation, medical technology, mechanical engineering, aviation and robotics, they enable designers to overcome technological boundaries. The series is a cost-effective alternative to our premium ILM series and offers the essential TQ-RoboDrive performance at an excellent price/performance ratio. Particularly noteworthy is that the ILM-E series has the same torque per kilogram as the premium ILM series. In addition, TQ-RoboDrive offers customized frameless motors based on the ILM-E, which can be adapted to the individual customer requirements via the number of windings and the lengths. This means that the performance of the motors can be adapted to your personal needs.

BASIC DATA

	ILM-E 50×08	ILM-E 50×14	ILM-E 70×10	ILM-E 70×18	ILM-E 85×13	ILM-E 85×23	ILM-E 85×26
Power [W]	140	154	219	202	300	324	326
Rated voltage U_r [V]	48	48	48	48	48	48	48
Rated torque T_r* [Nm]	0.185	0.35	0.56	0.98	0.93	1.79	2
Peak torque T_{max} at 20% deviation from linearity [Nm]	0.6	1.12	1.83	3.19	3.03	5.83	6.6
Max rotation speed n_{max} at U_r [rpm]**	12,000***	8,528	7,416	3,930	6,132	3,462	3,084
Diameter D [mm]	50	50	69	69	85	85	85
Length L [mm]	17.2	23.2	22.7	30.7	27.1	37.1	40.1
Weight m [g]	77	135	162.2	292	356	629.8	712
Number of pole pairs	10	10	10	10	10	10	10
Rotor inertia J [kgcm²]	0.056	0.0928	0.232	0.4	0.643	1.138	1.286

* At nominal current. Thermal behavior is strongly dependent on installation situation.
** Theoretical no-load rotation speeds at U_r. Variations can arise from operation with different inverters.
*** Max rotatation speed due to mechanical structure.

STAR-SERIAL

	ILM-E 50×08	ILM-E 50×14	ILM-E 70×10	ILM-E 70×18	ILM-E 85×13	ILM-E 85×23	ILM-E 85×26
Rated current I_r* [A]	3.4	3.76	5.4	4.9	7	8	8
Copper losses $P_{L,r}$ at T_r and 20°C [W]	5.40	9.36	11.35	13.25	8.97	16.56	18.14
Torque constant k_T* at 20°C [mNm/A]	54.97	93.1	107	202	129	229	254
Motor constant kM at 20°C [Nm/√W]	0.08	0.11	0.17	0.27	0.30	0.45	0.48
Terminal resistance R_{TT}* at 20°C [mΩ]	623	883	519	736	244	345	378
Terminal inductance L^{TT}* [µH]	660	1,131	1,097	1,746	775	1,240	1,394
No load speed [rpm]	7,221	4,264	3,708	1,965	3,066	1,731	1,542

DELTA SERIAL

	ILM-E 50×08	ILM-E 50×14	ILM-E 70×10	ILM-E 70×18	ILM-E 85×13	ILM-E 85×23	ILM-E 85×26
Rated current I_r* [A]	5.9	6.5	9.3	8.6	13	14	14
Copper losses $P_{L,r}$ at T_r and 20°C [W]	5.43	9.32	11.22	13.59	10.27	16.91	18.52
Torque constant k_T* at 20°C [mNm/A]	32	54	62	117	75	132	147
Motor constant kM at 20°C [Nm/√W]	0.08	0.11	0.17	0.27	0.30	0.45	0.48
Terminal resistance R_{TT}* at 20°C [mΩ]	208	294	173	245	81	115	126
Terminal inductance L_{TT}* [µH]	220	377	366	582	258	413	465
No load speed [rpm]	12,507	7,385	6,422	3,403	5,310	2,998	2,671

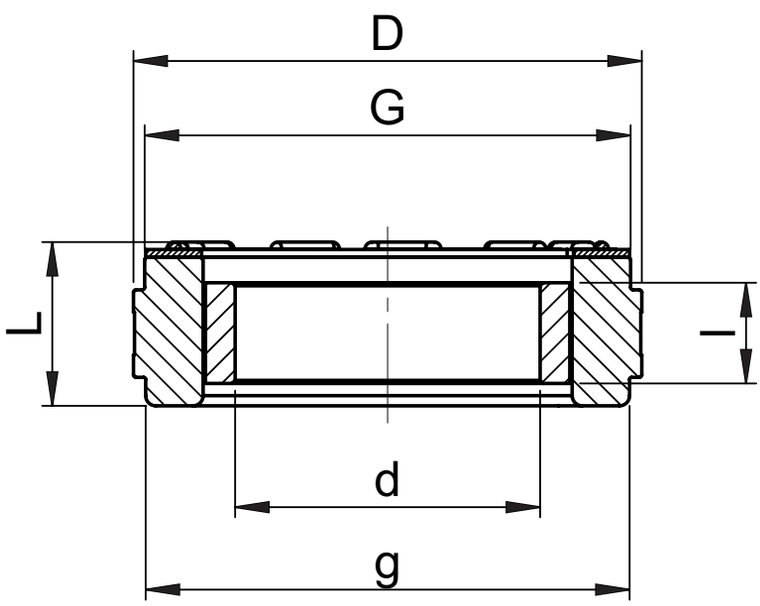
STAR PARALLEL

	ILM-E 50×08	ILM-E 50×14	ILM-E 70×10	ILM-E 70×18	ILM-E 85×13	ILM-E 85×23	ILM-E 85×26
Rated current I_r* [A]	6.8	7.5	10.7	9.9	15	16	16
Copper losses $P_{L,r}$ at T_r and 20°C [W]	5.38	9.32	11.16	13.53	13.67	16.51	18.24
Torque constant k_T* at 20°C [mNm/A]	28	47	54	101	65	115	127
Motor constant kM at 20°C [Nm/√W]	0.08	0.12	0.17	0.27	0.26	0.45	0.48
Terminal resistance R_{TT}* at 20°C [mΩ]	155	221	130	184	81	86	95
Terminal inductance L_{TT}* [µH]	165	282	274	437	258	310	349
No load speed [rpm]	12,000***	8,528	7,416	3,930	6,132	3,462	3,084

* At nominal current. Thermal behavior is strongly dependent on installation situation.
** Theoretical no-load rotation speeds at Ur . Variations can arise from operation with different inverters.
*** Max rotatation speed due to mechanical structure.

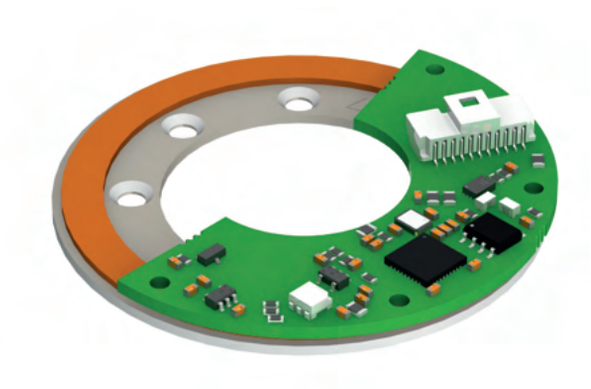
MOUNTING DIMENSIONS

	ILM-E 50×08	ILM-E 50×14	ILM-E 70×10	ILM-E 70×18	ILM-E 85×13	ILM-E 85×23	ILM-E 85×26
Stator diameter D js8 [mm]	50	50	69	69	85	85	85
PCB diameter G [mm]	48.2	48.2	67.4	67.4	83.4	83.4	83.4
Winding head diameter g [mm]	48	48	67.2	67.2	82.8	82.8	82.8
Stator length L [mm]	17.2	23.2	22.7	30.7	27.1	37.1	40.1
Hollow-shaft diameter rotor d H7 [mm]	30	30	42	42	52	52	52
Rotor length l [mm]	10.1	16.1	12.1	20.6	15.7	25.1	27.1



RD50/70/85-AKSIM

Absolute position sensors



HIGHLIGHTS

- Hollow-shaft capability
- Flat off-axis system for space-constrained applications
- Singleturn resolution up to 262,144 incs/rev (18 bit)
- Multiturn resolution 65,536 revs (16 bit)
- Absolute accuracy ±0.1°, repeatability 0.002°, no hysteresis
- High speed operation up to 10,000 rpm
- Differential BiSS-C interface (update rate 28 kHz)
- Sampling rate 18 kHz
- Dimensions adapted to corresponding TQ-RoboDrive servo kits

Magnetic absolute multi-turn encoders with hollow shaft.

Designed for use in TQ-RoboDrive ILM Servo Kits and RD Servo Motors. RD-AKSIM encoders from TQ-RoboDrive provide accurate, high-resolution absolute position data for extremely precise and efficient control of TQ-RoboDrive servo motors. Because they use robust ASIC magnetic sensors rather than optical position sensors, readings are not susceptible to distortion arising from dust and dirt.

Multi-turn cycle information is stored electronically and not updated during motion that occurs when the sensor is not supplied with power. Thanks to the hollow-shaft magnet ring, signals, media and fluids, rays and cables may be guided through the sensor. Designed for integration into space-constrained applications, the sensor system has an axial length of less than 10 mm. RD-AKSIM encoders from TQ-RoboDrive are available in several sizes, all designed to geometrically fit corresponding TQ-RoboDrive servo kits and safety brakes and enable the design of entire actuators and joints.

BASIC DATA

	50-AKSIM	70-AKSIM	85-AKSIM
Singleturn resolution [incs/rev]	131,072 (17 bit)	262,144 (18 bit)	262,144 (18 bit)
Multiturn resolution [revs]	65,536 (16 bit)	65,536 (16 bit)	65,536 (16 bit)
Accuracy [deg]	±0.1	±0.1	±0.1
Repeatability [deg]	0.0027	0.0014	0.0014
Sampling rate f_s [kHz]	18	18	18
Maximum rotation speed n_{max} [rpm]	10,000	7,000	6,000
Maximum acceleration a_{max} [rad/s²]	80,000	60,000	40,000
Sensor PCB diameter D [mm]	54	74	89
Sensor length L [mm]	9.2	9.2	9.2
Weight m [g]	13.2	19.8	26.0
Inertia J [kgcm²]	0.022	0.070	0.141

Operational temperature range -40°C to +105°C.

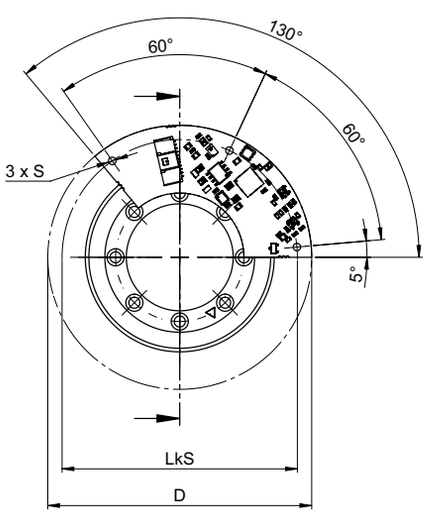
ELECTRICAL DATA AND DIGITAL INTERFACE

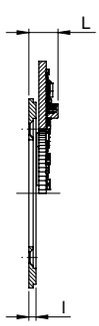
	50-AKSIM	70-AKSIM	85-AKSIM
Supply voltage U_{dd} [V]	5	5	5
Supply current I_{dd} [mA]	150	150	150
Communication interface*	BiSS-C differential	BiSS-C differential	BiSS-C differential
Max. master clock frequency f_{cl} [MHz]	3	3	3
CRC bits number	0...5	0...5	0...5
Warning bit number	6	6	6
Error bit number	7	7	7
Logic of warning and error bit	Active low	Active low	Active low
Position LSB number	8	8	8
Singleturn position data number	8...24	8...25	8...25
Multiturn position data number	25...40	26...41	26...41
Protocol total bits	41	42	42

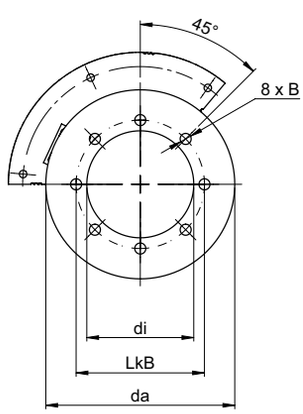
* SSI, SPI, PWM, I2C, asynchronous serial communication interfaces can be realized on request.

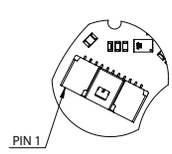
DIMENSIONS

	50-AKSIM	70-AKSIM	85-AKSIM
Sensor PCB diameter D [mm]	54	74	89
Sensor length L [mm]	9.2	9.2	9.2
Sensor ring diameter da [mm]	39	53	64
Hollow-shaft diameter di [mm]	20	30	40
Sensor ring length l [mm]	2	2	2
Pitch circle diameter LkS/LkB [mm]	49/25	66/36	80/46
Mounting hole S/B [mm]	2.1/2.5	2.1/3.1	2.1/3.1







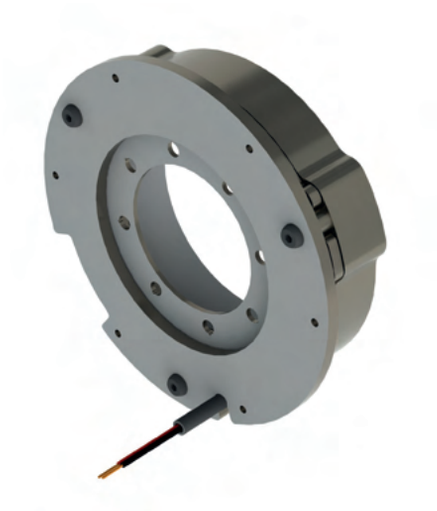


Molex plug 501568-1107

Pin number	Signal
1	VDD
2	VDD
3	GND
4	GND
5	
6	
7	CLOCK+
8	CLOCK-
9	
10	DATA+
11	DATA-

RD50/70/85/115-RSV

Safety brakes



HIGHLIGHTS

- Hollow-shaft capability
- Light-weight design
- Low power consumption and heat dissipation
- Fail-safe in case of power loss
- Narrow braking torque tolerances
- Dimensions and braking torques match corresponding TQ-RoboDrive servo kits

Lightweight, hollow-shaft safety brakes.

Designed for use in TQ-RoboDrive ILM Servo Kits and RD Servo Motors. The TQ-RoboDrive RD-RSV series of spring-engaged, electromagnetic safety brakes were developed to enable the design of compact, lightweight actuators and robotic joints. The brakes stop reliably and maintain position during voltage supply failure or emergency stop events. Their hollow-shaft design enables signals, media, fluids, rays and cables to be passed through the brake. The RD-RSV series is available in four sizes and two braking torques, which correspond to the nominal torque of their respective ILM Servo Kits from TQ-RoboDrive. In applications using gearheads, maximum braking torque levels have been defined to protect gears from overload. Thanks to their low power consumption and minimal heat build-up, the brakes are the perfect complement to the premium performance offered by ILM Servo Kits from TQ-RoboDrive.

BASIC DATA

	50-RSV50		70-RSV60		85-RSV80		115-RSV100	
Nominal braking torque $T_{B,r}$* [Nm]	0.30	0.60	0.84	1.44	1.68	3.12	6.8	13.4
Maximum braking torque $T_{B,max}$* [Nm]	0.75	1.50	2.10	3.60	4.20	7.80	17.0	33.5
Maximum rotation speed n_{max} [rpm]	10,000	7,000	7,000	4,400	6,000	3,800	1,500	1,000
Brake diameter D [mm]	53.4	53.4	72.4	72.4	88.4	88.4	118.4	118.4
Brake length L [mm]	15.9	15.9	17.9	17.9	17.9	17.9	26	26
Weight m [g]	110	110	210	210	300	300	820	820
Inertia J [kgmm²]	2.10	2.10	6.95	6.95	18.6	18.6	98.6	98.6

* Braking torque can be adapted on request. Given values for the two standard configurations are valid for a operational temperature range of +5°C to +80°C. Maximum temperature: 130°C.

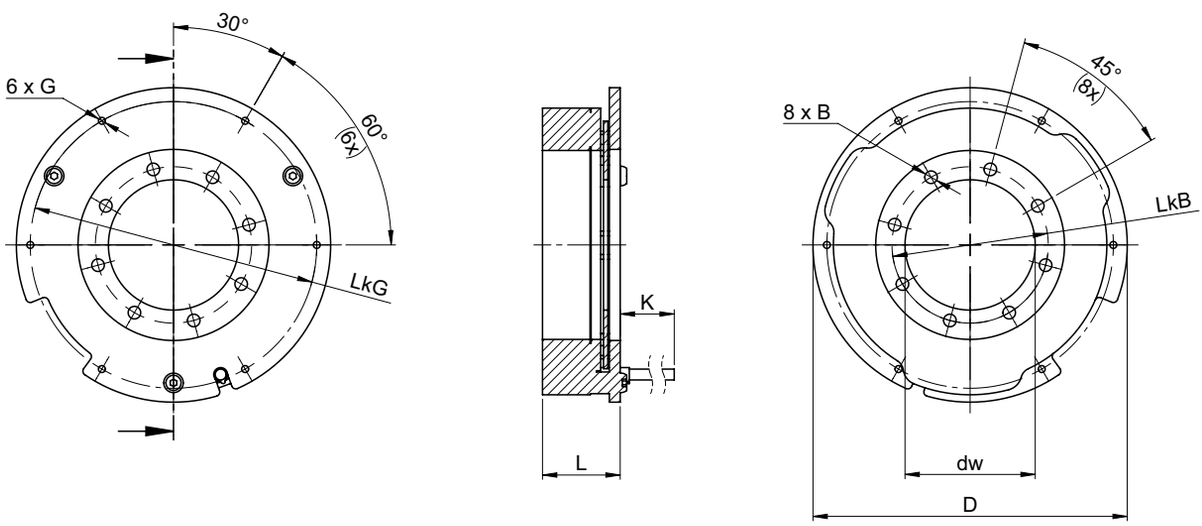
ELECTRICAL DATA

	50-RSV50	70-RSV60	85-RSV80	115-RSV100
Rated voltage $U_{B,r}$* [V]	8	8	8	8
Rated current $I_{B,r}$* [A]	0.31	0.46	0.63	1.20
Thermal losses $P_{B,L}$ at $U_{B,r}$ [W]	2.6	3.7	5.0	9.8
Overexcitation voltage $U_{B,o}$* [V]	24	24	24	24
Overexcitation current $I_{B,o}$* [A]	0.94	1.37	1.90	3.70
Thermal losses $P_{B,o}$ at $U_{B,o}$ [W]	23.4	33.4	45.0	88.2
Overecitation time $t_{B,o}$ [ms]	40	40	40	100
Coil resistance R_B [Ω]	25.48	17.52	12.70	6.50

* Adaption of voltage level can be realized on request.

DIMENSIONS

	50-RSV50	70-RSV60	85-RSV80	115-RSV100
Brake diameter D [mm]	53.4	72.4	88.4	118.4
Brake length L [mm]	15.9	17.9	17.9	26.0
Hollow-shaft diameter dw [mm]	20	30	40	60
Pitch circle diameter LkG/LkB [mm]	49/25	66/36	80/46	108/67
Mounting thread G/Hole B [mm]	M2/2.4	M2.5/2.9	M2.5/2.9	M3/3.4
Cable length K [mm]	250	250	250	250



Driving tomorrow's technology today
TQ-RoboDrive, a brand of the TQ Group

The TQ Group is one of Germany's leading providers of electronics solutions and electrical engineering and manufacturing services with over 1,700 employees at 15 offices worldwide.

TQ works with a broad spectrum of businesses, from start-ups to established companies, to enable them to find answers to the technological issues they face. In so doing, we are helping define future growth in industries ranging from energy, medical technology and aerospace to logistics, building automation and robotics.

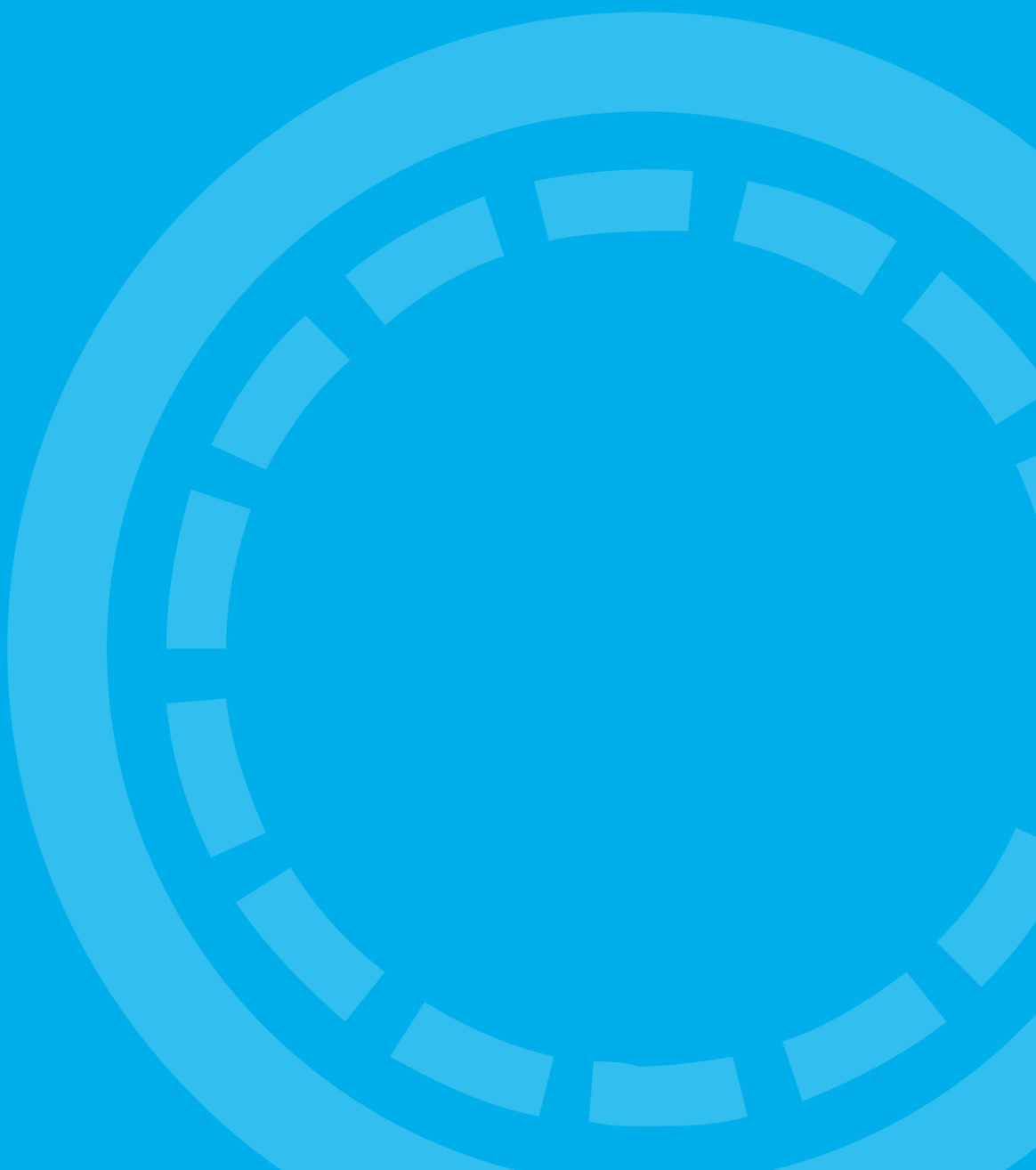
High-performance servo motors from TQ-RoboDrive boast market-leading torque density, unsurpassed precision and excellent overload capability in an exceptionally compact design. They are ideal for demanding applications in the field of industrial and collaborative robotics.

All TQ-RoboDrive products are available with custom-fitted safety brakes and absolute encoders. In addition, TQ offers development expertise, engineering services and detailed documentation to enable customer-specific solutions optimized for size, thermal properties and other requirements.

Learn more at:
tq-group.com/en/products/tq-robodrive/

Notes

Notes



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