



# TG drives

## *Servomotors*



***TGH and TGT***  
*AC synchronous servomotors*



# TG drives

## Production and delivery of servodrives and control systems.

The Czech company TG Drives offers servodrives since 1995 for machines and equipments in industrial automation. The range of service of our technicians and programmers includes design, optimization including custom solutions, programming, configuring and start up. Servodrives and control systems from TG Drives are used in the cutting tables, CNC machines and machining centers, automotive, rubber, food, glass and construction industries.

## Easy solution of every motion

### 1. Servomotors

- ◆ TGN, TGH, TGS and TGT synchronous servomotors with permanent magnets

### 2. Digital servoamplifiers

- ◆ AKD digital servoamplifiers
- ◆ TGA300 digital servoamplifiers
- ◆ S400, S600 and S700 digital servoamplifiers
- ◆ TGA-24 and TGA-48 digital servoamplifiers
- ◆ TGZ digital servoamplifiers

### 3. Precision mechanical systems

- ◆ EXLAR linear actuators
- ◆ DRIVESPIN precision rotary actuators
- ◆ TWINSPIN cycloidal reducers
- ◆ high precision planetary reducers

### 4. TG Motion control system

- ◆ Universal PC based control system

### 5. Industrial PCs and operator terminals

- ◆ ASEM panel and standard industrial PCs
- ◆ ASEM and ESA operator terminals

### Our services

- ◆ Design and optimization of servodrives.
- ◆ Design of control system.
- ◆ Programming.
- ◆ Start up.
- ◆ Customer service.



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# TGT synchronous servomotors

The TGT series AC synchronous servomotors are characterized by: low inertia, small dimensions, high dynamics, high adaptability and reliability. The TGT servomotor series have features for wide purpose applications. The winding is designed for sinusoidal current and voltage. The servomotors have permanent neodymium magnets in the rotor. The groove bevel in the stator and segment alignments of magnets on the rotor decrease the torque pulsations.

TGT series is produced in 8 sizes with torque range 0,1–115 Nm.



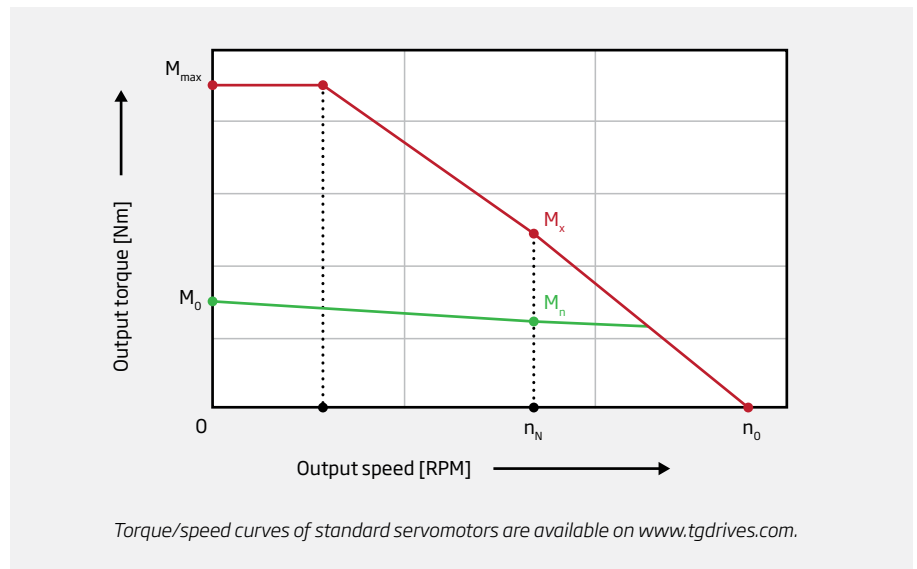
## Torque/speed curves

Torque/speed curves show the dependence of torque on speed of servomotor. Below is shown an overview of the basic variables, which is the dependence given by:

**$M_0$  – Stall torque (Nm)** is the maximum torque the motor is able to generate continuously with all phases equally sharing the load. The speed of the motor is higher then zero. The stall torque is temperature and cooling conditions dependent. The value is given for a coil temperature of 150 °C, an ambient temperature of 40 °C.

**$n_N$  – Nominal speed (min<sup>-1</sup>)** is the speed in the selected operating point, the motor produces rated torque  $M_N$ .

**$M_N$  – Nominal torque (Nm)** is the torque (derived from the moment  $M_0$ ) acting on the shaft of the motor indefinitely at rated speed  $n_N$ . Its value depends on the temperature and the total amount of dissipated power losses. The value is given for a coil temperature of 150 °C, an ambient temperature of 40 °C and defined cooling conditions. It is necessary to ensure sufficient heat dissipation – dimensions of flange for motor mounting must be at least 2,5-times the motor frame dimensions (3,5-times for motors size 2) or the surface temperature of this flange must be less than 65 °C.



**$n_0$  – Max. speed (min<sup>-1</sup>)** is the maximum allowed speed of the rotor with no load.

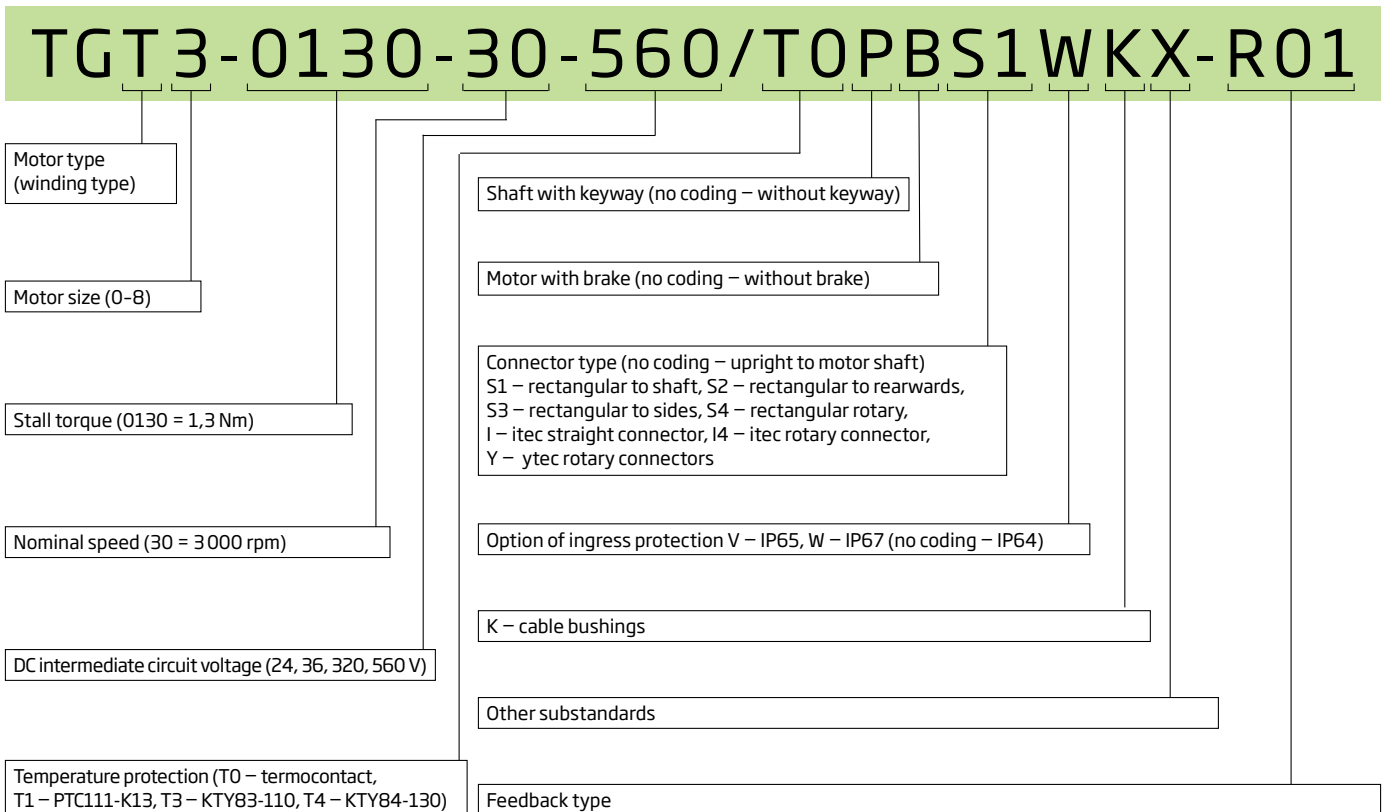
**$M_{max}$  – Peak torque (Nm)** is the maximum torque the motor is able to generate. This torque is reached when the peak current  $I_{max}$  is applied to the motor. The value for  $I_{max}$  is provided at a temperature that ensures the magnets of the rotor will not become demagnetized. The maximum allowable time for application of the peak current will be dependent on the initial winding

temperature. Typically this time does not exceed few seconds. The peak torque is given for a maximum magnet temperature of 80 °C (risk of demagnetization).

**$M_x$  – Peak torque at rated speed (Nm)** is the maximum torque the motor is able to generate at rated speed  $n_N$ .

All the above values of voltages and currents, unless stated otherwise, their sizes correspond to effective values (RMS).

## Coding example



## Technical data

TGT servomotors are produced for different DC-bus voltages (24 V, 36 V, 48 V, 320 V, 560 V) and for different nominal speed (500, 1 000, 1 500, 2 000, 3 000, 4 500 rpm). The catalogue includes motors with nominal speed 3 000 rpm (except TGT1, TGT2 and TGT3 – 6 000 rpm) and DC-bus voltage 24 V or 36 V, 320 V and 560 V. We can send you technical parameters of motors designed for other DC-bus or speed on demand.

- ◆ **Design:** flange, B5
- ◆ **Colour:** matt black
- ◆ **Bearings:** closed ball-bearings with grease
- ◆ **Protection:** IP64 (IP54 as shaft motor part), as an option IP67 including shaft protection
- ◆ **Insulation class:** F
- ◆ **Cooling:** convection (type A)
- ◆ **Temperature:** according to the ČSN EN 60034, rise of temperature  $T = 110^{\circ}\text{C}$ , ambient temperature  $T = 40^{\circ}\text{C}$
- ◆ **Load cycle:** continual (S1)
- ◆ **Electrical connection:** connectors, connectors counterparts or cable bushings

### Temperature protection

The temperature of the winding is monitored by sensors in the stator windings. The temperature is then signaled via an electrically isolated contact (thermo contact or posistor). The sensors are set so that the winding temperature does not exceed  $150^{\circ}\text{C}$ . The type of temperature protection should be specified.

### Holding Brake

The motor can be delivered with or without a built-in electromagnetic holding brake. The brake is not intended for the positioning. The purpose of the brake is to lock the motor in zero speed.

- ◆ **Supply voltage:** 24 VDC  $-0\% +10\%$
- ◆ **Location:** at shaft motor part.

## Feedback types

The flexible design of servomotors allows different feedback sensor mounting. The most frequent types are:

**Resolver** is a brushless electric appliance, used for rotor position measuring and for commutation angle derivation. Resolver is commonly used as a position and angle speed sensor in regulation circuits of servoamplifiers.

**EnDat** is high resolution encoder with a data channel. The absolute position is sent through a fast serial interface. The sinus-cosine shape of the incremental signals (1 Vpp) provides highly accurate positioning (100 000 inc/rev). The EnDat sensor could be single-turn or multi-turn (4 096 turns).

R - Resolvers		Motor size
–	2-pole resolver size 15, standard for TGN, TGH, TGT	2-8
–	2-pole resolver size 8, standard for TGH0	0
–	2-pole resolver size 10, standard for TGT1 and TGS1	1
R02	6-pole resolver size 15	2-8
R03	2-pole resolver size 21	4-8
R04	6-pole resolver size 21	4-8
R05	10-pole resolver size 21	4-8

H - Heidenhain (EnDat)		Motor size
H01	Heidenhain ECN1313 (EnDat 2.1), single-turn, 2 048 imp./rev. + 1 Vpp	3-8
H02	Heidenhain EQN1325 (EnDat 2.1), multi-turn, 2 048 imp./rev. + 1 Vpp	3-8
H03	Heidenhain ECN1113 (EnDat 2.1), single-turn, 512 imp./rev. + 1 Vpp	2
H04	Heidenhain EQN1125 (EnDat 2.1), multi-turn, 512 imp./rev. + 1 Vpp	2
H05	Heidenhain ERN1387 (1 Vpp), 2 048 imp./rev. + 1 Vpp	3-8
H06	Heidenhain ERN1185 (1 Vpp), 2 048 imp./rev. + 1 Vpp	2-5
H07	Heidenhain EQI1130 (EnDat 2.1), multi-turn, 18 + 12 bits	2-5
H08	Heidenhain ECI1118 (EnDat 2.2), single-turn, 18 bits	2-5
H09	Heidenhain ECN1325 (EnDat 2.2), single-turn, 25 bits	3-8
H10	Heidenhain EQN1337 (EnDat 2.2), multi-turn, 25 + 12 bits	3-8
H11	Heidenhain EQI1331 (EnDat 2.1), multi-turn, 19 + 12 bits	3-8

Q - Others		Motor size
Q01	Hengstler F10 (Comcoder), 1 024 imp./rev. + Hall	1-4
Q02	Hengstler F10 (Comcoder), 2 048 imp./rev. + Hall	1-4
Q03	Hengstler F14 (Comcoder), 4 096 imp./rev. + Hall	3-5
Q04	Hengstler AD34ST (BISS), single-turn, 12 bits, 2 048 imp./rev.	3-5
Q05	Hengstler AD34MT (BISS), multi-turn, 12 bits, 2 048 imp./rev.	3-5

**EnDat 2.2** is digital version of encoder. The absolute position is sent, no analog signals are transmitted. EnDat 2.2 sensors are available with resolution up to 25 bits per turn.

**Comcoder** is a combined incremental encoder. An absolute position is given through the commutation signals of three Halls. The incremental signals (5V TTL) provides accurate positioning.

**BISS** is high resolution encoder with BISS interface and sinus-cosine shape of the incremental signals (1 Vpp).

**Hiperface** is - like EnDat - a high resolution encoder with a data channel. The absolute position is sent through a fast serial interface. The sinus-cosine shape of the incremental signals (1 Vpp) provides highly accurate positioning (100 000 inc/rev). The sensor could be single-turn or multi-turn (4 096 turns).

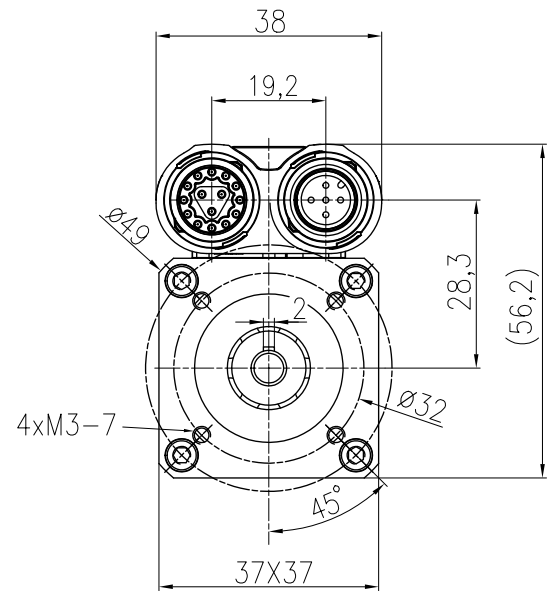
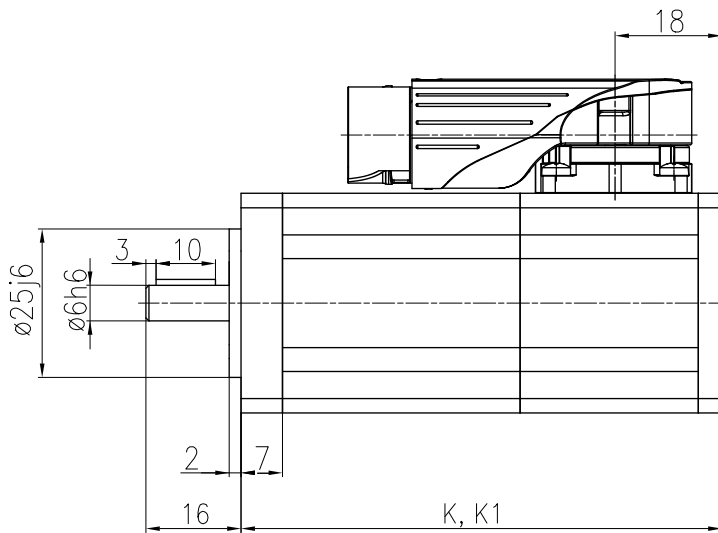
**Hiperface DSL** is digital version of encoder. The absolute position is sent, no analog signals are transmitted. Hiperface DSL sensors are available with resolution up to 20 bits per turn. This encoder type is intended for servodrives with one integrated connector.

S - Sick (Hiperface, HDSSL)		Motor size
S01	Sick EKS36 (HDSSL), single-turn, 17 bits	2-7
S02	Sick EKM36 (HDSSL), multi-turn, 17 bits	2-7
S03	Sick EKS36 (HDSSL), single-turn, 18 bits	2-7
S04	Sick EKM36 (HDSSL), multi-turn, 18 bits	2-7
S05	Sick EKS36 (HDSSL), single-turn, 20 bits	2-7
S06	Sick EKM36 (HDSSL), multi-turn, 20 bits	2-7
S21	Sick SRS50 (Hiperface), single-turn, 1 024 imp./rev.	3-8
S22	Sick SRM50 (Hiperface), multi-turn, 1 024 imp./rev.	3-8
S23	Sick SKS36 (Hiperface), single-turn, 128 imp./rev.	3-5
S24	Sick SKM36 (Hiperface), multi-turn, 128 imp./rev.	3-5
S25	Sick SEK34 (Hiperface), single-turn, 16 imp./rev.	1
S26	Sick SEL34 (Hiperface), multi-turn, 16 imp./rev.	1
S27	Sick SEK37 (Hiperface), single-turn, 16 imp./rev.	2-5
S28	Sick SEL37 (Hiperface), multi-turn, 16 imp./rev.	2-5
S29	Sick SEK52 (Hiperface), single-turn, 16 imp./rev.	4-5
S30	Sick SEL52 (Hiperface), multi-turn, 16 imp./rev.	4-5
S31	Sick SEK90 (Hiperface), single-turn, 64 imp./rev.	hollow shaft
S32	Sick SEK160 (Hiperface), single-turn, 128 imp./rev.	hollow shaft
S33	Sick SEK260 (Hiperface), single-turn, 256 imp./rev.	hollow shaft

Other types of feedback sensors on request.

# TGT1 servomotors 0.1–0.2 Nm

Magnets - Nd-Fe-B			24 VDC			320 VDC			560 VDC		
			TGT1-0010	TGT1-0020	TGT1-0030	TGT1-0010	TGT1-0020	TGT1-0030	TGT1-0010	TGT1-0020	TGT1-0026
Stall torque	$M_0$	Nm	0.1	0.2	0.3	0.1	0.2	0.3	0.1	0.2	0.26
Stall current	$I_0$	A	4.32	7.1	8.1	0.58	0.97	0.95	0.47	0.4	0.75
Nominal torque	$M_N$	Nm	0.09	0.18	0.29	0.09	0.18	0.27	0.09	0.15	0.25
Nominal speed	$n_N$	min. <sup>-1</sup>	6000	6000	4000	6000	6000	6000	6000	6000	6000
Nominal power	$P_N$	W	57	114	121	57	114	169	57	114	157
Nominal current	$I_N$	A	4.26	6.88	8.1	0.56	0.92	0.89	0.48	0.38	0.75
Peak torque	$M_{max}$	Nm	0.38	0.8	1.2	0.4	0.8	1.2	0.36	0.68	1.0
Peak current	$I_{max}$	A	17.4	30.9	35	2.5	4.2	4.1	2.1	1.7	3.2
Max. speed mech.	$n_{max}$	min. <sup>-1</sup>	12000	12000	12000	12000	12000	12000	12000	12000	12000
Torque constant	$K_M$	Nm/A	0.02	0.03	0.04	0.17	0.21	0.31	0.18	0.42	0.35
Voltage constant	$K_E$	V/1000min. <sup>-1</sup>	1.4	1.7	2.2	10.5	12.5	19	11	25.5	21.0
Resistance 2 ph.	$R_{2Ph}$	$\Omega$	0.71	0.34	0.32	38.9	18.9	22.9	53	88	34.9
Inductance 2 ph.	$L_{2Ph}$	mH	0.12	0.08	0.09	6.5	4.5	6.5	7.1	18.6	7.8
Inertia	$J$	kgcm <sup>2</sup>	0.06	0.08	0.10	0.06	0.08	0.10	0.06	0.08	0.10
Mass w/o brake	$m$	kg	0.37	0.45	0.53	0.37	0.45	0.53	0.37	0.45	0.53
Mass with brake	$m_{Br}$	kg	0.5	0.58	0.66	0.5	0.6	0.66	0.5	0.6	0.66
Brake torque	$M_{Br}$	Nm	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4



## Dimensions

Type	K (Resolver)	K1 (Resolver + brake)
TGT1-0010	81 mm	111 mm
TGT1-0020	96 mm	126 mm
TGT1-0030	111 mm	141 mm

Length of motor with other feedback sensor can be different (depends on type of feedback sensor).

## Options

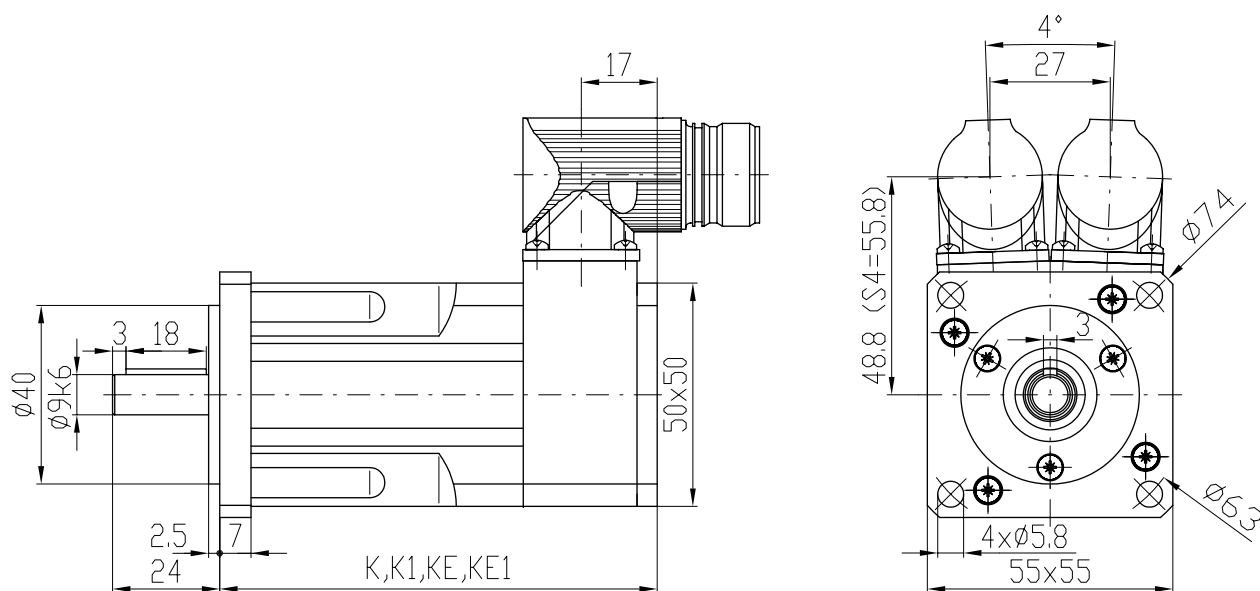
We are offering the possibility of design changes on the servomotor including:

- ◆ change of shape or dimensions of front flange
- ◆ change of output shaft dimensions
- ◆ sealed version – up to IP67 including shaft protection (different length of motor)
- ◆ change for other DC-bus voltage or speed
- ◆ other feedback types (please see page 3)
- ◆ other specialities



# TGT2 servomotors 0.2–0.8 Nm

Magnets - Nd-Fe-B			36 VDC			320 VDC			560 VDC		
			TGT2-0040	TGT2-0060	TGT2-0080	TGT2-0040	TGT2-0060	TGT2-0080	TGT2-0040	TGT2-0060	TGT2-0080
Stall torque	$M_0$	Nm	0.4	0.6	0.8	0.4	0.6	0.8	0.4	0.6	0.8
Stall current	$I_0$	A	6.2	6.3	7.9	1.1	1.54	1.97	0.67	0.93	1.15
Nominal torque	$M_N$	Nm	0.37	0.53	0.77	0.35	0.53	0.68	0.35	0.53	0.68
Nominal speed	$n_N$	min. <sup>-1</sup>	4000	3000	2500	6000	6000	6000	6000	6000	6000
Nominal power	$P_N$	W	154	166	198	220	333	428	220	333	428
Nominal current	$I_N$	A	6.1	6.2	7.95	1.02	1.43	1.78	0.62	0.86	1.05
Peak torque	$M_{max}$	Nm	1.6	2.4	3.2	1.6	2.4	3.2	1.6	2.4	3.2
Peak current	$I_{max}$	A	27	27	34	4.7	6.6	8.5	2.9	4	5
Max. speed mech.	$n_{max}$	min. <sup>-1</sup>	12000	12000	12000	12000	12000	12000	12000	12000	12000
Torque constant	$K_M$	Nm/A	0.06	0.1	0.1	0.36	0.39	0.41	0.6	0.65	0.69
Voltage constant	$K_E$	V/1000 min. <sup>-1</sup>	3.9	5.8	6.1	22	23.5	25.5	36	39	43.5
Resistance 2 ph.	$R_{2Ph}$	$\Omega$	0.54	0.67	0.48	19.6	12.4	9.1	50	32	24.5
Inductance 2 ph.	$L_{2Ph}$	mH	0.45	0.64	0.5	15.7	11.4	9	40	29	25
Inertia	$J$	kgcm <sup>2</sup>	0.08	0.11	0.13	0.08	0.11	0.13	0.08	0.11	0.13
Mass w/o brake	$m$	kg	1.1	1.21	1.36	1.1	1.21	1.36	1.1	1.21	1.36
Mass with brake	$m_{Br}$	kg	1.3	1.4	1.6	1.3	1.4	1.6	1.3	1.4	1.6
Brake torque	$M_{Br}$	Nm	2	2	2	2	2	2	2	2	2



## Dimensions

Type	K (Resolver)	K1 (Resolver + brake)	KE (EnDAT)	KE1 (EnDAT + brake)
TGT2-0040	113 mm	146 mm	157 mm	190 mm
TGT2-0060	128 mm	161 mm	172 mm	205 mm
TGT2-0080	143 mm	176 mm	187 mm	220 mm

Length of motor with other feedback sensor can be different (depends on type of feedback sensor).

## Options

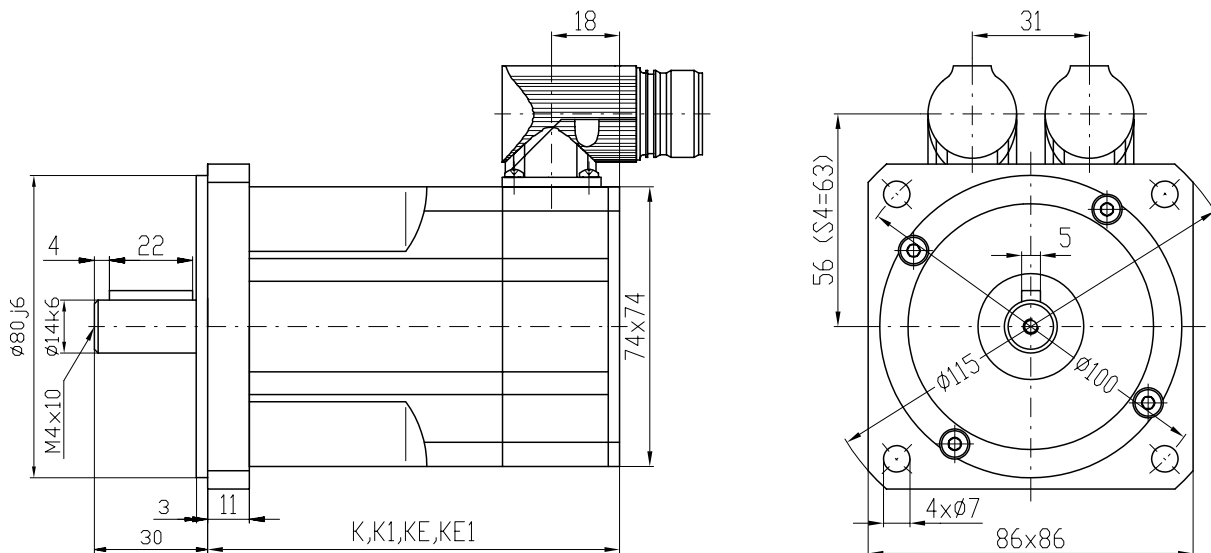
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- ◆ change of output shaft dimensions
- ◆ sealed version – up to IP67 including shaft protection (different length of motor)
- ◆ change for other DC-bus voltage or speed
- ◆ other feedback types (please see page 3)
- ◆ other specialities



# TGT3 servomotors 0.65–3 Nm

Magnets - Nd-Fe-B			36 VDC		320 VDC					560 VDC				
			TGT3-0065	TGT3-0130	TGT3-0065	TGT3-0130	TGT3-0190	TGT3-0250	TGT3-0300	TGT3-0065	TGT3-0130	TGT3-0190	TGT3-0250	TGT3-0300
Stall torque	$M_0$	Nm	0.65	1.3	0.65	1.3	1.9	2.5	3	0.65	1.3	1.9	2.5	3
Stall current	$I_0$	A	8.5	8.4	1.75	2.9	4.3	3	3.5	0.91	1.67	2.5	1.8	2.1
Nominal torque	$M_N$	Nm	0.62	1.15	0.55	1	1.35	2.2	2.5	0.55	1	1.35	2.2	2.5
Nominal speed	$n_N$	min. <sup>-1</sup>	2000	1500	6000	6000	6000	3000	3000	6000	6000	6000	3000	3000
Nominal power	$P_N$	W	129	180	346	629	849	692	786	346	629	849	692	786
Nominal current	$I_N$	A	8.64	8.55	1.59	2.4	3.3	2.7	3	0.83	1.4	1.9	1.62	1.82
Peak torque	$M_{max}$	Nm	2	5.2	2.6	5.2	7.6	10	12	2.6	5.2	7.6	10	12
Peak current	$I_{max}$	A	37	36	7.5	12.5	18.6	13	15	3.9	7.2	10.7	7.7	9
Max. speed mech.	$n_{max}$	min. <sup>-1</sup>	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000
Torque constant	$K_M$	Nm/A	0.08	0.15	0.37	0.45	0.44	0.83	0.86	0.71	0.78	0.76	1.39	1.44
Voltage constant	$K_E$	V/1000 min. <sup>-1</sup>	4.6	9.4	22.5	27	26.5	50	52	43	47	46	84	87
Resistance 2 ph.	$R_{2Ph}$	$\Omega$	0.44	0.5	9.7	4.2	2.3	5.4	4.1	37.6	12.7	6.7	15	11.6
Inductance 2 ph.	$L_{2Ph}$	mH	0.5	0.85	12.5	7.2	4.3	11.7	9.4	45	21.5	13.1	31.4	26.7
Inertia	$J$	kgcm <sup>2</sup>	0.5	0.65	0.5	0.65	0.92	1.4	1.5	0.5	0.65	0.92	1.4	1.5
Mass w/o brake	$m$	kg	1.75	2.25	1.75	2.25	2.7	3.2	3.65	1.75	2.25	2.7	3.2	3.65
Mass with brake	$m_{Br}$	kg	2.3	2.8	2.3	2.8	3.25	3.75	4.2	2.3	2.8	3.25	3.75	4.2
Brake torque	$M_{Br}$	Nm	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5



## Dimensions

Type	K (Resolver)	K1 (Resolver + brake)	KE (EnDAT)	KE1 (EnDAT + brake)
TGT3-0065	115 mm	148 mm	150 mm	183 mm
TGT3-0130	133 mm	166 mm	168 mm	201 mm
TGT3-0190	151 mm	184 mm	186 mm	219 mm
TGT3-0250	169 mm	202 mm	204 mm	237 mm
TGT3-0300	187 mm	220 mm	222 mm	255 mm

Length of motor with other feedback sensor can be different (depends on type of feedback sensor).

## Options

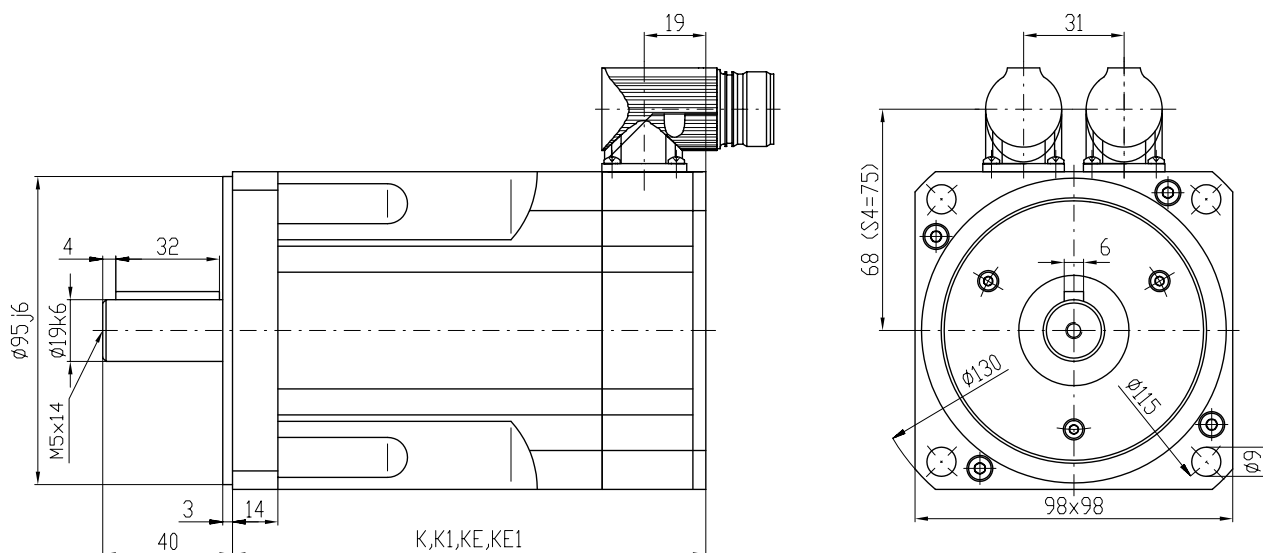
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- ◆ other specialities



# TGT4 servomotors 2.6–9.5 Nm

Magnets - Nd-Fe-B			560 VDC				
			TGT4-0260	TGT4-0390	TGT4-0530	TGT4-0750	TGT4-0950
Stall torque	$M_0$	Nm	2.6	3.9	5.3	7.5	9.5
Stall current	$I_0$	A	1.92	2.9	4.1	4.8	6.6
Nominal torque	$M_N$	Nm	2.3	3.3	4.6	6.4	8.5
Nominal speed	$n_N$	min. <sup>-1</sup>	3000	3000	3000	3000	3000
Nominal power	$P_N$	W	723	1037	1446	2011	2671
Nominal current	$I_N$	A	1.85	2.6	3.8	4.4	6.2
Peak torque	$M_{max}$	Nm	10.4	15.6	21	30	38
Peak current	$I_{max}$	A	11.5	17.3	25	29	40
Max. speed mech.	$n_{max}$	min. <sup>-1</sup>	12000	12000	12000	12000	12000
Torque constant	$K_M$	Nm/A	1.36	1.36	1.29	1.55	1.44
Voltage constant	$K_E$	V/1000 min. <sup>-1</sup>	82	82	82	94	87
Resistance 2 ph.	$R_{2ph}$	$\Omega$	9.6	6.3	4.2	3	1.65
Inductance 2 ph.	$L_{2ph}$	mH	41.5	33.1	24	19.2	11
Inertia	J	kgcm <sup>2</sup>	1.9	2.3	2.7	4.2	6.1
Mass w/o brake	m	kg	4.5	5.1	5.6	7.7	10.5
Mass with brake	$m_{Br}$	kg	5.4	6	6.5	8.7	11.4
Brake torque	$M_{Br}$	Nm	9	9	9	9	9



## Dimensions

Type	K (Resolver)	K1 (Resolver + brake)	KE (EnDAT)	KE1 (EnDAT + brake)
TGT4-0260	148 mm	180 mm	183 mm	215 mm
TGT4-0390	163 mm	195 mm	198 mm	230 mm
TGT4-0530	178 mm	210 mm	213 mm	245 mm
TGT4-0750	223 mm	255 mm	258 mm	290 mm
TGT4-0950	276 mm	308 mm	313 mm	345 mm

Length of motor with other feedback sensor can be different (depends on type of feedback sensor).



## Options

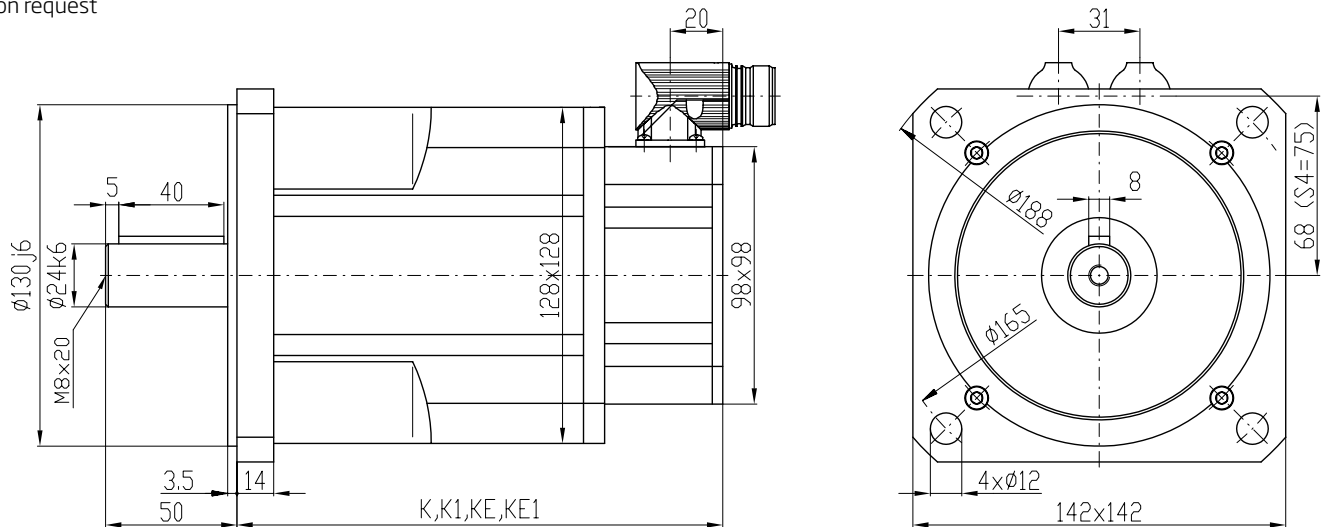
We are offering the possibility of design changes on the servomotor including:

- ◆ change of shape or dimensions of front flange
- ◆ change of output shaft dimensions
- ◆ sealed version – up to IP67 including shaft protection (different length of motor)
- ◆ change for other DC-bus voltage or speed
- ◆ other feedback types (please see page 3)
- ◆ other specialities

# TGT5 servomotors 4.3–22 Nm

Magnets - Nd-Fe-B			560 VDC					
			TGT5-0430	TGT5-0660	TGT5-1050	TGT5-1350	TGT5-1700	TGT5-2200
Stall torque	$M_0$	Nm	4.3	6.6	10.5	13.5	17	22
Stall current	$I_0$	A	4.1	4.5	7.3	11.2	11.4	16.4
Nominal torque	$M_N$	Nm	3.9	5.7	8.8	11	14	17
Nominal speed	$n_N$	min. <sup>-1</sup>	3000	3000	3000	3000	3000	3000
Nominal power	$P_N$	W	1226	1791	2765	3456	4398	5341
Nominal current	$I_N$	A	3.9	4	6.3	9.5	10	13
Peak torque	$M_{max}$	Nm	12.9	19.8	32	41	51	66
Peak current	$I_{max}$	A	20	23	36	56	57	82
Max. speed mech.	$n_{max}$	min. <sup>-1</sup>	9000	9000	9000	9000	9000	9000
Torque constant	$K_M$	Nm/A	1.06	1.46	1.44	1.21	1.49	1.34
Voltage constant	$K_E$	V/1000 min. <sup>-1</sup>	64	88	87	73	90	81
Resistance 2 ph.	$R_{2Ph}$	$\Omega$	4.2	4.2	1.7	0.95	0.95	0.54
Inductance 2 ph.	$L_{2Ph}$	mH	24.6	27.8	15.2	9	10	5.9
Inertia	$J$	kgcm <sup>2</sup>	2.9	5.9	8.1	9.1	11.3	13.1
Mass w/o brake	$m$	kg	8.8	9.5	12	13.2	15.7	18.2
Mass with brake	$m_{Br}$	kg	9.1	9.1	10.9	12.3	15.1	15.1
Brake torque	$M_{Br}$	Nm	18 (36*)	18 (36*)	18 (36*)	18 (36*)	18 (36*)	18 (36*)

\* on request



## Dimensions

Type	K (Resolver)	K1 (Resolver + brake)	KE (EnDAT)	KE1 (EnDAT + brake)
TGT5-0430	169 mm	212 mm	173 mm	209 mm
TGT5-0660	186 mm	229 mm	205 mm	248 mm
TGT5-1050	220 mm	263 mm	239 mm	282 mm
TGT5-1350	237 mm	280 mm	256 mm	299 mm
TGT5-1700	271 mm	314 mm	290 mm	333 mm
TGT5-2200	305 mm	348 mm	324 mm	367 mm

Length of motor with other feedback sensor can be different (depends on type of feedback sensor).

## Options

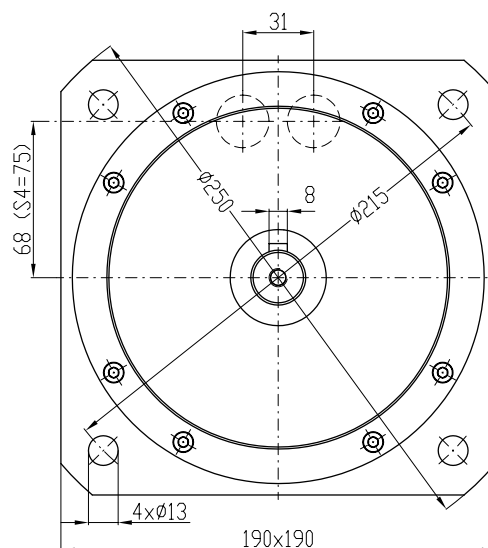
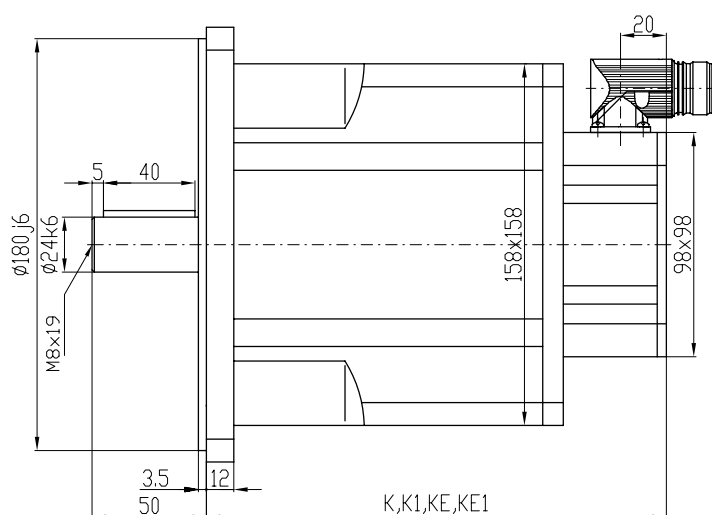
We are offering the possibility of design changes on the servomotor including:

- ◆ change of shape or dimensions of front flange
- ◆ change of output shaft dimensions
- ◆ sealed version – up to IP67 including shaft protection (different length of motor)
- ◆ change for other DC-bus voltage or speed
- ◆ other feedback types (please see page 3)
- ◆ other specialities



# TGT6 servomotors 7–29 Nm

Magnets - Nd-Fe-B			560 VDC				
			TGT6-0700	TGT6-1350	TGT6-1900	TGT6-2200	TGT6-2900
Stall torque	$M_0$	Nm	7	13.5	19	22	29
Stall current	$I_0$	A	6.1	8.2	13.8	14.6	17.2
Nominal torque	$M_N$	Nm	6	13	17	19	24
Nominal speed	$n_N$	min. <sup>-1</sup>	3000	3000	3000	3000	3000
Nominal power	$P_N$	W	1885	4084	5341	5969	7540
Nominal current	$I_N$	A	5.8	8.2	12.8	13.1	14.7
Peak torque	$M_{max}$	Nm	21	41	57	66	87
Peak current	$I_{max}$	A	26	35	59	62	73
Max. speed mech.	$n_{max}$	min. <sup>-1</sup>	6000	6000	6000	6000	6000
Torque constant	$K_M$	Nm/A	1.14	1.65	1.37	1.51	1.69
Voltage constant	$K_E$	V/1000 min. <sup>-1</sup>	69	100	83	91	102
Resistance 2 ph.	$R_{2Ph}$	$\Omega$	1.83	1.1	0.42	0.41	0.31
Inductance 2 ph.	$L_{2Ph}$	mH	16.3	14.6	6.3	6.4	5.6
Inertia	$J$	kgcm <sup>2</sup>	7.8	13.1	18.7	22	33
Mass w/o brake	$m$	kg	9.7	13.9	18.2	20.3	26.7
Mass with brake	$m_{Br}$	kg	12.7	17.9	21.2	23.3	29.7
Brake torque	$M_{Br}$	Nm	36	36	36	36	36



## Dimensions

Type	K (Resolver)	K1 (Resolver + brake)	KE (EnDAT)	KE1 (EnDAT + brake)
TGT6-0700	169 mm	212 mm	177 mm	230 mm
TGT6-1350	186 mm	229 mm	221 mm	274 mm
TGT6-1900	220 mm	263 mm	255 mm	308 mm
TGT6-2200	237 mm	280 mm	272 mm	325 mm
TGT6-2900	271 mm	314 mm	330 mm	383 mm

Length of motor with other feedback sensor can be different (depends on type of feedback sensor).

## Options

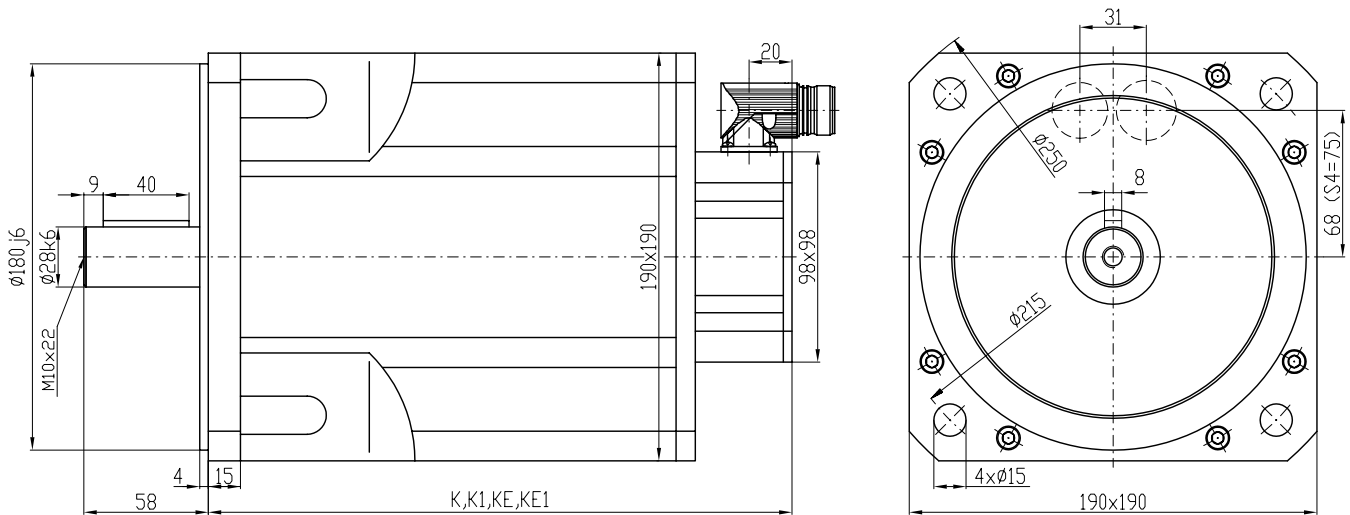
We are offering the possibility of design changes on the servomotor including:

- ◆ change of shape or dimensions of front flange
- ◆ change of output shaft dimensions
- ◆ sealed version – up to IP67 including shaft protection (different length of motor)
- ◆ change for other DC-bus voltage or speed
- ◆ other feedback types (please see page 3)
- ◆ other specialities



# TGT7 servomotors 8.5–40 Nm

Magnets Nd-Fe-B			560 VDC					
			TGT7-0850	TGT7-1250	TGT7-1850	TGT7-2700	TGT7-3200	TGT7-4000
Stall torque	$M_0$	Nm	8.5	12.5	18.5	26	32	40
Stall current	$I_0$	A	5.9	8	11	16	20.8	24.7
Nominal torque	$M_N$	Nm	6.5	10.5	14	21	23	26
Nominal speed	$n_N$	min. <sup>-1</sup>	3000	3000	3000	3000	3000	3000
Nominal power	$P_N$	W	2042	3299	4398	6597	7226	8168
Nominal current	$I_N$	A	5	7.3	9.1	13.5	16.4	17.9
Peak torque	$M_{max}$	Nm	26	38	56	81	96	120
Peak current	$I_{max}$	A	23	31	43	62	81	96
Max. speed mech.	$n_{max}$	min. <sup>-1</sup>	6000	6000	6000	6000	6000	6000
Torque constant	$K_M$	Nm/A	1.44	1.57	1.69	1.69	1.54	1.62
Voltage constant	$K_E$	V/1000 min. <sup>-1</sup>	87	95	102	102	93	98
Resistance 2 ph.	$R_{2Ph}$	$\Omega$	1.92	1.14	0.82	0.43	0.29	0.23
Inductance 2 ph.	$L_{2Ph}$	mH	20.5	14.1	12.1	7.5	5.3	4.5
Inertia	$J$	kgcm <sup>2</sup>	23.5	26.7	29.8	36.1	39.2	45.5
Mass w/o brake	$m$	kg	12.4	15.1	17.9	23.5	26	31.5
Mass with brake	$m_{Br}$	kg	15.4	18.1	20.9	26.5	29	34.5
Brake torque	$M_{Br}$	Nm	36	36	36	36	36	36



## Dimensions

Type	K (Resolver)	K1 (Resolver + brake)	KE (EnDAT)	KE1 (EnDAT + brake)
TGT7-0850	168 mm	222 mm	188 mm	242 mm
TGT7-1250	183 mm	237 mm	203 mm	257 mm
TGT7-1850	198 mm	252 mm	218 mm	272 mm
TGT7-2700	242 mm	296 mm	262 mm	316 mm
TGT7-3200	257 mm	326 mm	277 mm	331 mm
TGT7-4000	287 mm	356 mm	307 mm	361 mm

Length of motor with other feedback sensor can be different (depends on type of feedback sensor).

## Options

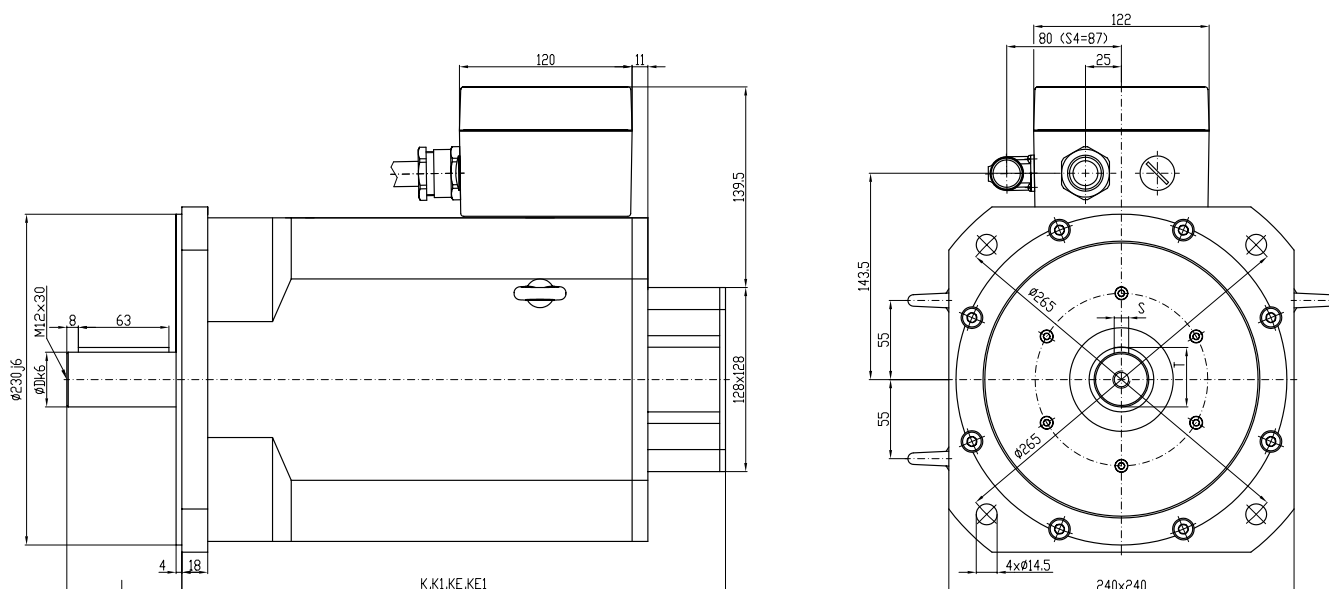
We are offering the possibility of design changes on the servomotor including:

- ◆ change of shape or dimensions of front flange
- ◆ change of output shaft dimensions
- ◆ sealed version – up to IP67 including shaft protection (different length of motor)
- ◆ change for other DC-bus voltage or speed
- ◆ other feedback types (please see page 3)
- ◆ other specialities



# TGT8 servomotors 40–115 Nm

Magnets - Nd-Fe-B			560 VDC			
			TGT8-400	TGT8-680	TGT8-930	TGT8-1150
Stall torque	$M_0$	Nm	40	68	93	115
Stall current	$I_0$	A	16.7	25.4	33.1	42.1
Nominal torque	$M_N$	Nm	34	56	70	85
Nominal speed	$n_N$	min. <sup>-1</sup>	2000	2000	2000	2000
Nominal power	$P_N$	W	7121	11728	14660	17802
Nominal current	$I_N$	A	15.3	22	25.3	32.4
Peak torque	$M_{max}$	Nm	120	204	279	345
Peak current	$I_{max}$	A	65	99	129	164
Max. speed mech.	$n_{max}$	min. <sup>-1</sup>	3600	3600	3600	3600
Torque constant	$K_M$	Nm/A	2.4	2.7	2.8	2.7
Voltage constant	$K_E$	V/1000 min. <sup>-1</sup>	145	162	170	165
Resistance 2 ph.	$R_{2Ph}$	$\Omega$	0.41	0.24	0.15	0.11
Inductance 2 ph.	$L_{2Ph}$	mH	9.8	6.3	4.8	3.4
Inertia	$J$	kgcm <sup>2</sup>	76	114	153	190
Mass w/o brake	$m$	kg	41	56	73	89
Mass with brake	$m_{br}$	kg	51	66	83	99
Brake torque	$M_{br}$	Nm	145	145	145	145



## Dimensions

Type	$\varnothing D$	L	S	T	K (Resolver)	K1 (Resolver + brake)	KE (EnDAT)	KE1 (EnDAT + brake)
TGT8-400	38 mm	80 mm	10 mm	41.3 mm	310 mm	378 mm	322 mm	390 mm
TGT8-680	38 mm	80 mm	10 mm	41.3 mm	378 mm	446 mm	390 mm	458 mm
TGT8-930	42 mm	110 mm	12 mm	45.1 mm	446 mm	514 mm	458 mm	526 mm
TGT8-1150	42 mm	110 mm	12 mm	45.1 mm	514 mm	582 mm	526 mm	294 mm

Length of motor with other feedback sensor can be different (depends on type of feedback sensor).

## Options

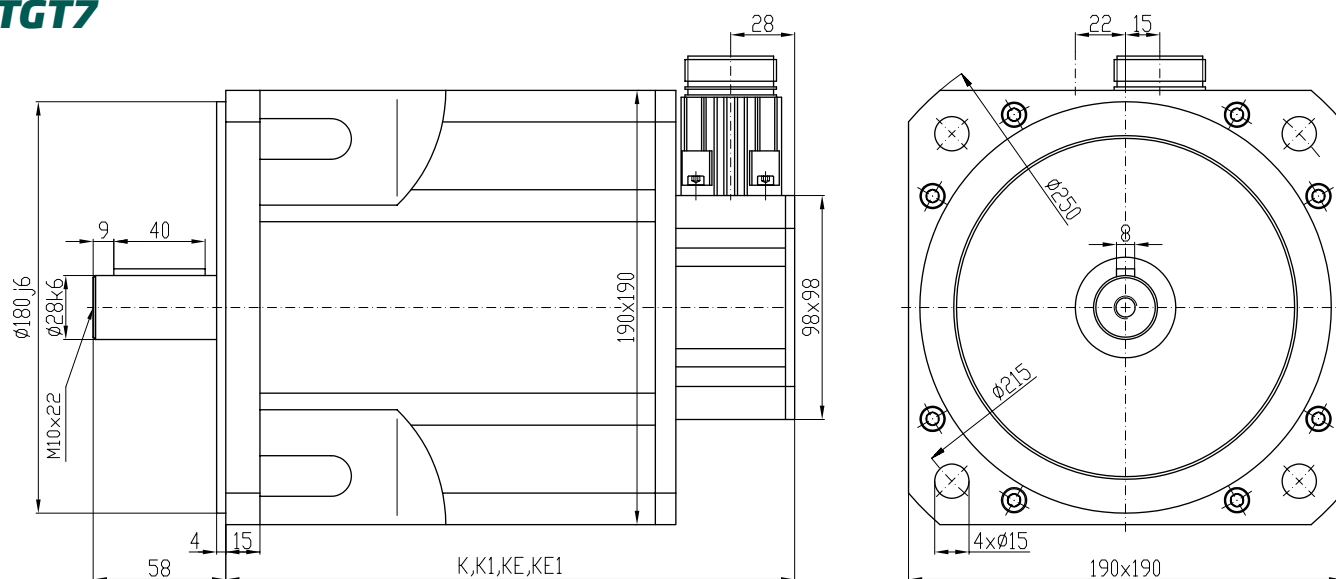
We are offering the possibility of design changes on the servomotor including:

- ◆ change of shape or dimensions of front flange
- ◆ change of output shaft dimensions
- ◆ sealed version – up to IP67 including shaft protection (different length of motor)
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- ◆ other feedback types (please see page 3)
- ◆ other specialities



# Dimensions of motors with connector size 1,5

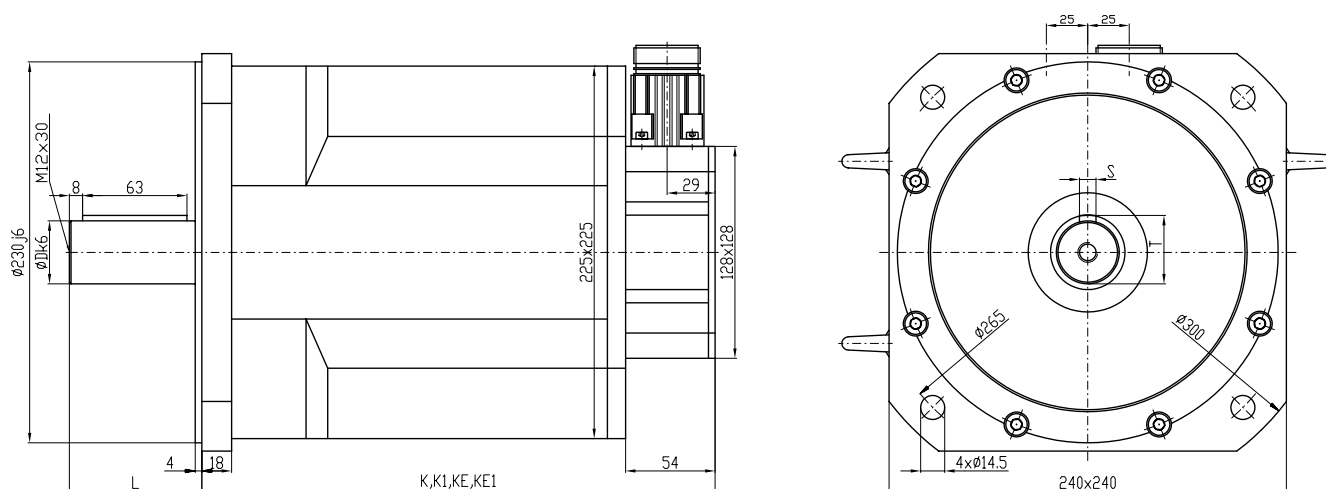
## TGT7



Type	K (Resolver)	K1 (Resolver + brake)	KE (EnDAT)	KE1 (EnDAT + brake)
TGT7-0850	189 mm	243 mm	202 mm	256 mm
TGT7-1250	204 mm	258 mm	217 mm	271 mm
TGT7-1850	219 mm	273 mm	232 mm	286 mm
TGT7-2700	249 mm	303 mm	262 mm	316 mm
TGT7-3200	264 mm	318 mm	277 mm	331 mm
TGT7-4000	294 mm	348 mm	307 mm	361 mm

Length of motor with other feedback sensor can be different (depends on type of feedback sensor).

## TGT8



Measures according to the table in the previous page.

# TGH synchronous servomotors

In order to satisfy the growing need for smaller servomotors and their low speed operation we have developed a new series of servomotors "Segment servomotors TGH".

The name "Segment servomotors" is derived from the design of the stator. While standard servomotor winding is inserted to the completed stator, the segment servomotors have phases wound around the segments.

The stator is completed from the segments. The segment composition of the stator pack allows every segment (pole-phase) of winding to be reeled up separately. This allows denser winding resulting in a higher density magnetic field generated by the stator. In addition the end turns are shorter. Both the increasing of winding filling and the shortening of end turns effects the total shortening of the pack by 40–50%.

The servomotor series TGH is 20–30% shorter in total length compared to the TGT servomotors with the same torque.



## Range

We offer servomotors TGH0, TGH2, TGH3, TGH4 and TGH5 size with torque a range of 0,03-25 Nm.

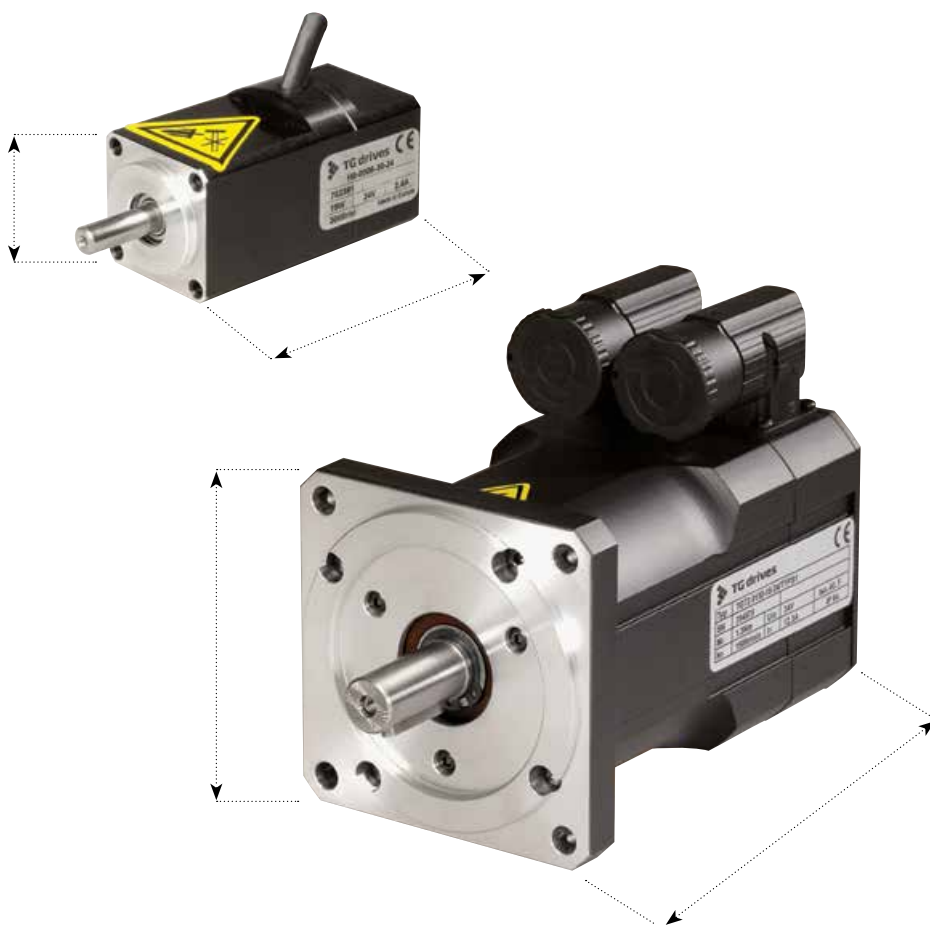
## Application

Segment motors TGH0 and TGH2 series have 6 poles, the TGH3-TGH5 series have 10-poles.

Optimal applications for these motors are operations requiring extremely low and steady speeds as well as small dimensions.

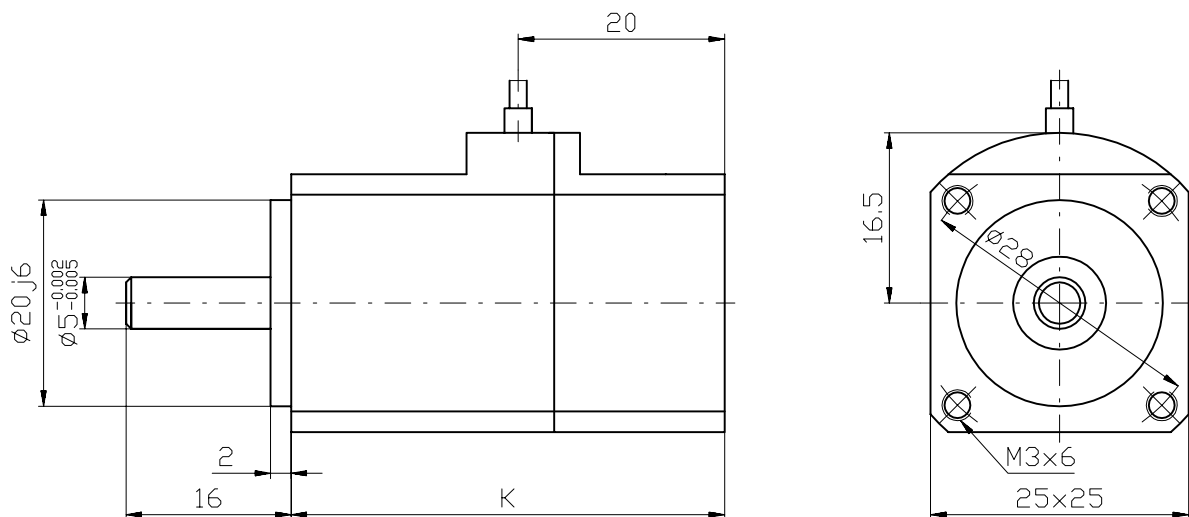
Likewise both TGT motors and TGH servomotors can be fitted with different feedback types. The standard sensor for common applications is the resolver. For very precise applications the encoders with EnDat or Hiperface interface are the most appropriate. The Comcoder could be mounted as well. See the description on page 1.

Like TGT motors the windings on TGH motors can be calculated to suit specific applications.



# TGHO servomotors 0.03–0.09 Nm

Magnets - Nd-Fe-B			24 VDC		
			TGHO-0003	TGHO-0006	TGHO-0009
Stall torque	$M_0$	Nm	0.03	0.06	0.09
Stall current	$I_0$	A	2.3	2.3	3
Nominal torque	$M_N$	Nm	0.03	0.06	0.09
Nominal speed	$n_N$	min. <sup>-1</sup>	4500	3000	3000
Nominal power	$P_N$	W	15	19	29
Nominal current	$I_N$	A	2.4	2.4	3.2
Peak torque	$M_{max}$	Nm	0.07	0.12	0.17
Peak current	$I_{max}$	A	5.1	4.6	5.6
Max. speed mech.	$n_{max}$	min. <sup>-1</sup>	12000	12000	12000
Torque constant	$K_M$	Nm/A	0.01	0.03	0.03
Voltage constant	$K_E$	V/1000 min. <sup>-1</sup>	0.8	1.6	1.8
Motor poles	2p	-	6	6	6
Resistance 2 ph.	$R_{2Ph}$	$\Omega$	2.4	2.6	2.4
Inductance 2 ph.	$L_{2Ph}$	mH	0.3	0.33	0.26
Inertia	J	kgcm <sup>2</sup>	0.02	0.04	0.05
Mass w/o brake	m	kg	0.1	0.2	0.3



## Dimensions

Type	K (Resolver)
TGHO-0003	42 mm
TGHO-0006	52 mm
TGHO-0009	62 mm

Length of motor with other feedback sensor can be different (depends on type of feedback sensor).

## Options

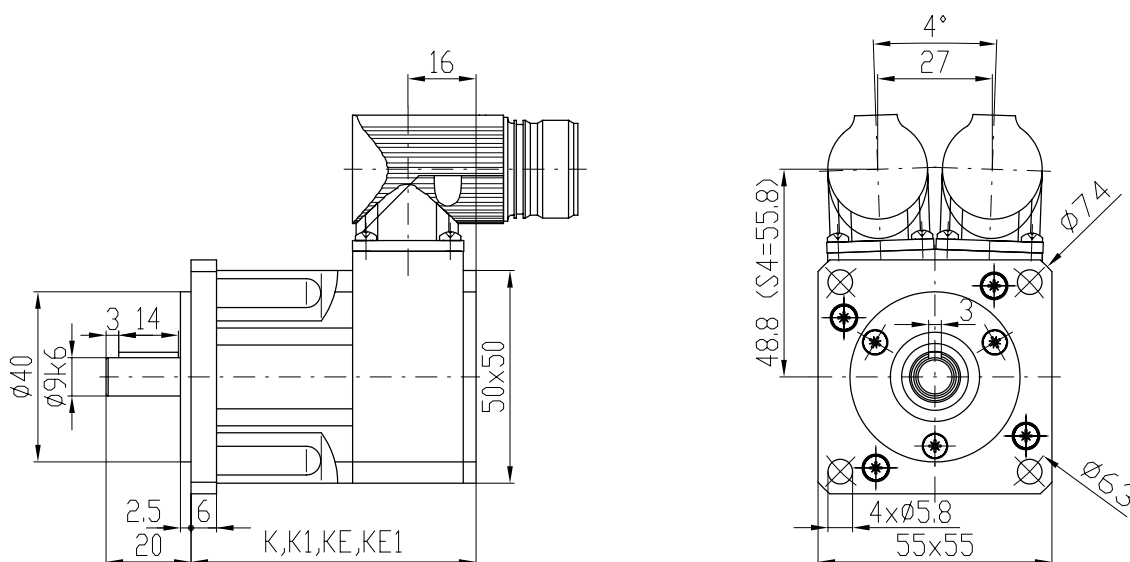
We are offering the possibility of design changes on the servomotor including:

- ◆ change of shape or dimensions of front flange
- ◆ change of output shaft dimensions
- ◆ sealed version – up to IP67 including shaft protection (different length of motor)
- ◆ change for other DC-bus voltage or speed
- ◆ other feedback types (please see page 3)
- ◆ other specialities



# TGH2 servomotors 0.25–0.9 Nm

Magnets Nd-Fe-B			36 VDC				320 VDC				560 VDC			
			TGH2-0025	TGH2-0050	TGH2-0070	TGH2-0090	TGH2-0025	TGH2-0050	TGH2-0070	TGH2-0090	TGH2-0025	TGH2-0050	TGH2-0070	TGH2-0090
Stall torque	$M_0$	Nm	0.26	0.53	0.74	0.95	0.26	0.53	0.74	0.95	0.26	0.53	0.74	0.95
Stall current	$I_0$	A	8.5	7.2	7.5	8	0.7	1.26	1.66	2.1	0.70	0.73	0.95	1.31
Nominal torque	$M_N$	Nm	0.24	0.49	0.7	0.93	0.24	0.45	0.67	0.84	0.24	0.45	0.67	0.84
Nominal speed	$n_N$	min. <sup>-1</sup>	4000	3000	2500	1500	4500	4500	4500	4500	4500	4500	4500	4500
Nominal power	$P_N$	W	100	153	183	146	114	213	316	396	114	213	316	396
Nominal current	$I_N$	A	8.3	6.86	7.33	8	0.68	1.11	1.55	1.9	0.68	0.65	0.89	1.19
Peak torque	$M_{max}$	Nm	1	2	2.8	3.6	1	2	2.8	3.6	1	2	2.8	3.6
Peak current	$I_{max}$	A	35	29	31	33	2.9	5.1	6.7	8.5	2.9	3	3.9	5.3
Max. speed mech.	$n_{max}$	min. <sup>-1</sup>	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000
Torque constant	$K_M$	Nm/A	0.03	0.07	0.1	0.12	0.37	0.42	0.45	0.45	0.37	0.73	0.78	0.73
Voltage constant	$K_E$	V/1000 min. <sup>-1</sup>	1.9	4.5	6	7.2	21	25.5	27	27.5	21	44	47	44
Motor poles	$2p$	-	6	6	6	6	6	6	6	6	6	6	6	6
Resistance 2 ph.	$R_{2ph}$	$\Omega$	0.27	0.52	0.56	0.58	33	17.4	11.5	8.41	35	51.3	37.9	21.56
Inductance 2 ph.	$L_{2ph}$	mH	0.47	1.1	1.32	1.47	62.2	36	27	21.9	62	109.1	83	55.5
Inertia	$J$	kgcm <sup>2</sup>	0.06	0.08	0.1	0.12	0.06	0.08	0.1	0.12	0.06	0.08	0.1	0.12
Mass w/o brake	$m$	kg	0.75	0.9	1.1	1.3	0.75	0.9	1.1	1.3	0.75	0.9	1.1	1.3
Mass with brake	$m_{Br}$	kg	0.95	1.1	1.3	1.5	0.95	1.1	1.3	1.5	0.95	1.1	1.3	1.5
Brake torque	$M_{Br}$	Nm	2	2	2	2	2	2	2	2	2	2	2	2



## Dimensions

Type	K (Resolver)	K1 (Resolver + brake)	KE (EnDAT)	KE1 (EnDAT + brake)
TGH2-0025	67 mm	105 mm	131 mm	166 mm
TGH2-0050	82 mm	120 mm	146 mm	181 mm
TGH2-0070	97 mm	135 mm	161 mm	196 mm
TGH2-0090	112 mm	150 mm	176 mm	211 mm

Length of motor with other feedback sensor can be different (depends on type of feedback sensor).

## Options

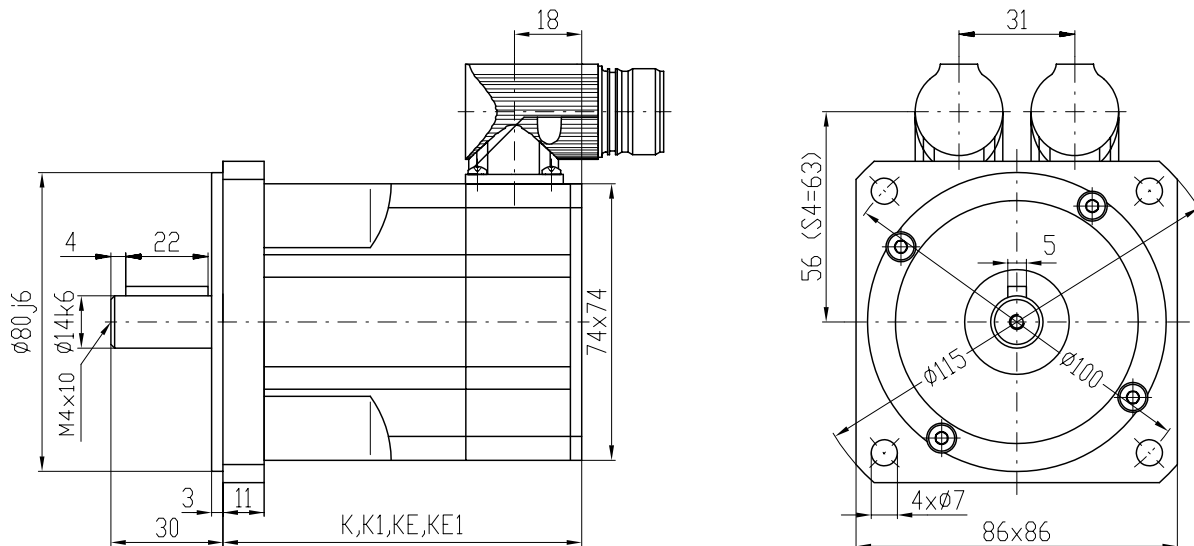
We are offering the possibility of design changes on the servomotor including:

- ◆ change of shape or dimensions of front flange
- ◆ change of output shaft dimensions
- ◆ sealed version – up to IP67 including shaft protection (different length of motor)
- ◆ change for other DC-bus voltage or speed
- ◆ other feedback types (please see page 3)
- ◆ other specialities



# TGH3 servomotors 0.8–3.5 Nm

Magnets Nd-Fe-B			36 VDC		320 VDC				560 VDC			
			TGH3-0080	TGH3-0160	TGH3-0080	TGH3-0160	TGH3-0270	TGH3-0350	TGH3-0080	TGH3-0160	TGH3-0270	TGH3-0350
Stall torque	$M_0$	Nm	0.95	1.9	0.95	1.9	3.25	4.2	0.95	1.9	3.25	4.2
Stall current	$I_0$	A	7.6	10	1.47	2.77	4.27	4.79	1.32	1.66	2.43	2.95
Nominal torque	$M_N$	Nm	0.9	1.75	0.86	1.6	2.9	3.1	0.7	1.4	2.9	3.1
Nominal speed	$n_N$	min. <sup>-1</sup>	1500	1000	3000	3000	3000	3000	3000	3000	3000	3000
Nominal power	$P_N$	W	141	183	271	503	911	974	220	440	911	974
Nominal current	$I_N$	A	7.6	9.7	1.43	2.43	3.96	3.71	1.28	1.46	2.25	2.28
Peak torque	$M_{max}$	Nm	2.4	5.2	2.4	5.2	9.5	12.25	2.4	5.2	9.5	12.25
Peak current	$I_{max}$	A	27.9	40	5.4	11.1	18.6	21	4.9	6.7	10.6	12.9
Max. speed mech.	$n_{max}$	min. <sup>-1</sup>	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000
Torque constant	$K_M$	Nm/A	0.13	0.19	0.65	0.69	0.76	0.88	0.72	1.14	1.34	1.42
Voltage constant	$K_E$	V/1000 min. <sup>-1</sup>	7.6	11.5	39	41.5	46	53	43.5	69	81	86
Motor poles	2p	-	10	10	10	10	10	10	10	10	10	10
Resistance 2 ph.	$R_{2Ph}$	$\Omega$	0.39	0.31	9.9	4	2.2	1.77	12	11.63	6.5	4.59
Inductance 2 ph.	$L_{2Ph}$	mH	1.1	1.1	28.4	14.2	9.3	7.6	35.3	39	28.8	20
Inertia	J	kgcm <sup>2</sup>	0.5	0.7	0.5	0.7	1.1	1.5	0.5	0.7	1.1	1.5
Mass w/o brake	m	kg	1.5	2.1	1.5	2.1	3.2	4.3	1.5	2.1	3.2	4.3
Mass with brake	$m_{Br}$	kg	2	2.6	2	2.6	3.7	4.8	2	2.6	3.7	4.8
Brake torque	$M_{Br}$	Nm	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5



## Dimensions

Type	K (Resolver)	K1 (Resolver + brake)	KE (EnDAT)	KE1 (EnDAT + brake)
TGH3-0080	95 mm	140 mm	137 mm	179 mm
TGH3-0160	113 mm	158 mm	155 mm	197 mm
TGH3-0270	149 mm	194 mm	191 mm	233 mm
TGH3-0350	186 mm	228 mm	227 mm	269 mm

Length of motor with other feedback sensor can be different (depends on type of feedback sensor).

## Options

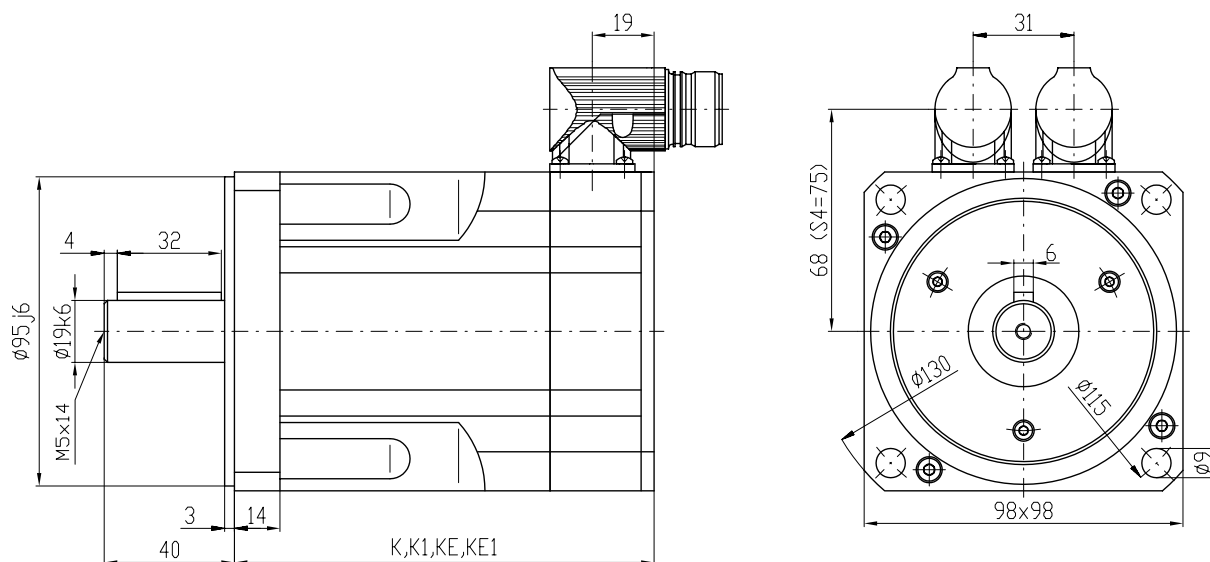
We are offering the possibility of design changes on the servomotor including:

- ◆ change of shape or dimensions of front flange
- ◆ change of output shaft dimensions
- ◆ sealed version – up to IP67 including shaft protection (different length of motor)
- ◆ change for other DC-bus voltage or speed
- ◆ other feedback types (please see page 3)
- ◆ other specialities



# TGH4 servomotors 3.7–7.8 Nm

Magnets Nd-Fe-B			320 VDC			560 VDC		
			TGH4-0370	TGH4-0570	TGH4-0780	TGH4-0370	TGH4-0570	TGH4-0780
Stall torque	$M_0$	Nm	4	6.3	8.6	4	6.3	8.6
Stall current	$I_0$	A	6	9.2	11.2	3.4	4.8	6.4
Nominal torque	$M_N$	Nm	3.2	4.6	6.1	3.2	4.6	6.1
Nominal speed	$n_N$	min. <sup>-1</sup>	3000	3000	3000	3000	3000	3000
Nominal power	$P_N$	W	1006	1446	1917	1006	1446	1917
Nominal current	$I_N$	A	5	7	8.3	2.8	3.64	4.76
Peak torque	$M_{max}$	Nm	11.1	18.5	27	11.1	18.5	27
Peak current	$I_{max}$	A	24	40	53.2	13.6	21	31
Max. speed mech.	$n_{max}$	min. <sup>-1</sup>	9000	9000	6000	9000	9000	6000
Torque constant	$K_M$	Nm/A	0.67	0.69	0.77	1.19	1.32	1.34
Voltage constant	$K_E$	V/1000 min. <sup>-1</sup>	40.5	41.5	46.5	72	80	81
Motor poles	2p	-	10	10	10	10	10	10
Resistance 2 ph.	$R_{2ph}$	$\Omega$	1.24	0.7	0.59	4	2.7	1.81
Inductance 2 ph.	$L_{2ph}$	mH	10.6	6.9	6.2	34	25.5	18.6
Inertia	J	kgcm <sup>2</sup>	1.7	2.6	3.5	1.7	2.6	3.5
Mass w/o brake	m	kg	4.3	5.5	6.7	4.3	5.5	6.7
Mass with brake	$m_{br}$	kg	5.2	6.4	7.6	5.2	6.4	7.6
Brake torque	$M_{br}$	Nm	9	9	9	9	9	9



## Dimensions

Type	K (Resolver)	K1 (Resolver + brake)	KE (EnDAT)	KE1 (EnDAT + brake)
TGH4-0370	129 mm	172 mm	166 mm	207 mm
TGH4-0570	159 mm	202 mm	196 mm	237 mm
TGH4-0780	186 mm	232 mm	226 mm	267 mm

Length of motor with other feedback sensor can be different (depends on type of feedback sensor).

## Options

We are offering the possibility of design changes on the servomotor including:

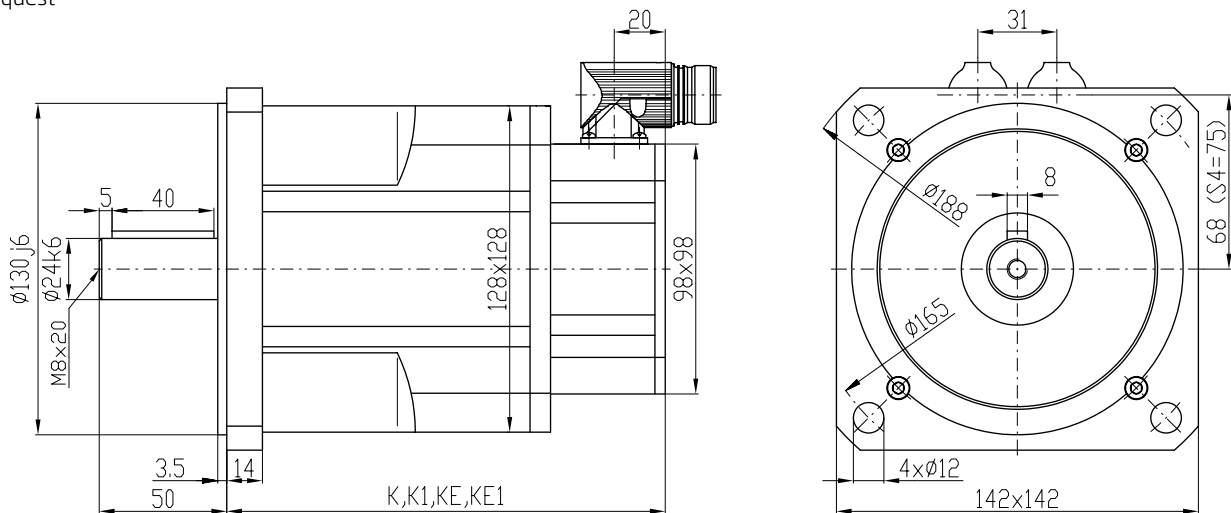
- ◆ change of shape or dimensions of front flange
- ◆ change of output shaft dimensions
- ◆ sealed version – up to IP67 including shaft protection (different length of motor)
- ◆ change for other DC-bus voltage or speed
- ◆ other feedback types (please see page 3)
- ◆ other specialities



# TGH5 servomotors 10.5–25 Nm

Magnets Nd-Fe-B			320 VDC				560 VDC			
			TGH5-1050	TGH5-1350	TGH5-1700	TGH5-2500	TGH5-1050	TGH5-1350	TGH5-1700	TGH5-2500
Stall torque	$M_0$	Nm	11.6	14.9	18.7	27.3	11.6	14.9	18.7	27.3
Stall current	$I_0$	A	17.3	20.2	27.9	32.4	10.3	12.5	16.4	19
Nominal torque	$M_N$	Nm	8.4	10.9	14.3	21	8.7	10.1	14.3	21
Nominal speed	$n_N$	min. <sup>-1</sup>	3000	3000	3000	3000	3000	3000	3000	3000
Nominal power	$P_N$	W	2733	3425	4493	6597	2733	3173	4493	6597
Nominal current	$I_N$	A	13.2	15.6	22.4	25.4	7.85	9.64	13.1	14.9
Peak torque	$M_{max}$	Nm	31.5	40.5	68	75	31.5	40.5	68	75
Peak current	$I_{max}$	A	82.3	79.8	104.7	115.6	49	49	61	67.8
Max. speed mech.	$n_{max}$	min. <sup>-1</sup>	6000	6000	6000	6000	6000	6000	6000	6000
Torque constant	$K_M$	Nm/A	0.67	0.74	0.67	0.84	1.12	1.19	1.14	1.44
Voltage constant	$K_e$	V/1000 min. <sup>-1</sup>	40.5	44.5	42	51	68	72	71	87
Motor poles	2p	-	10	10	10	10	10	10	10	10
Resistance 2 ph.	$R_{2ph}$	$\Omega$	0.25	0.19	0.12	0.12	0.71	0.48	0.35	0.32
Inductance 2 ph.	$L_{2ph}$	mH	4	3.2	2.35	2.3	11.4	8.5	6.82	6.8
Inertia	J	kgcm <sup>2</sup>	6.8	8.25	11	15.3	6.8	8.25	11	15.3
Mass w/o brake	m	kg	9.5	10.8	13.5	18.5	9.5	10.8	13.5	18.5
Mass with brake	$m_{br}$	kg	11.5	12.8	15.5	20.5	11.5	12.8	15.5	20.5
Brake torque	$M_{br}$	Nm	18 (36*)	18 (36*)	18 (36*)	18 (36*)	18 (36*)	18 (36*)	18 (36*)	18 (36*)

\* on request



## Dimensions

Type	K (Resolver)	K1 (Resolver + brake)	KE (EnDAT)	KE1 (EnDAT + brake)
TGH5-1050	129 mm	172 mm	166 mm	207 mm
TGH5-1350	159 mm	202 mm	196 mm	237 mm
TGH5-1700	186 mm	232 mm	226 mm	267 mm
TGH5-2500	291 mm	342 mm	310 mm	361 mm

Length of motor with other feedback sensor can be different (depends on type of feedback sensor).

## Options

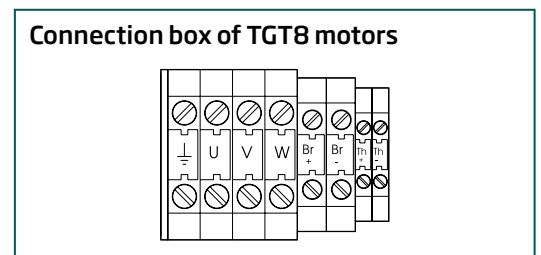
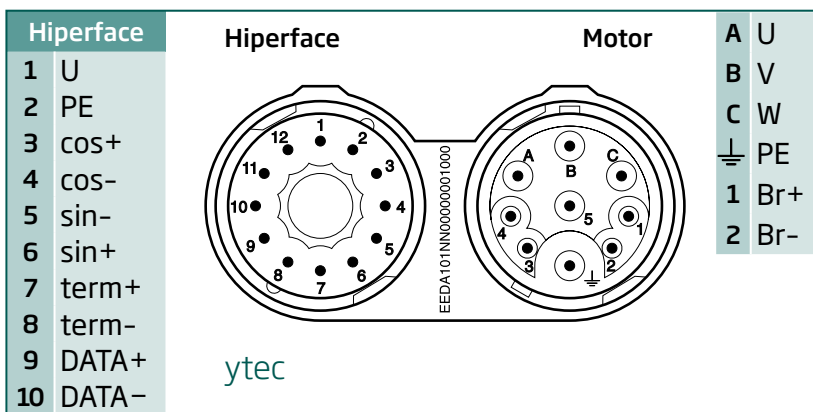
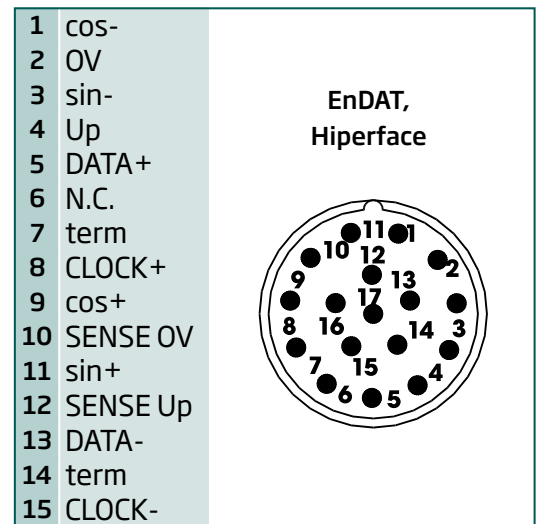
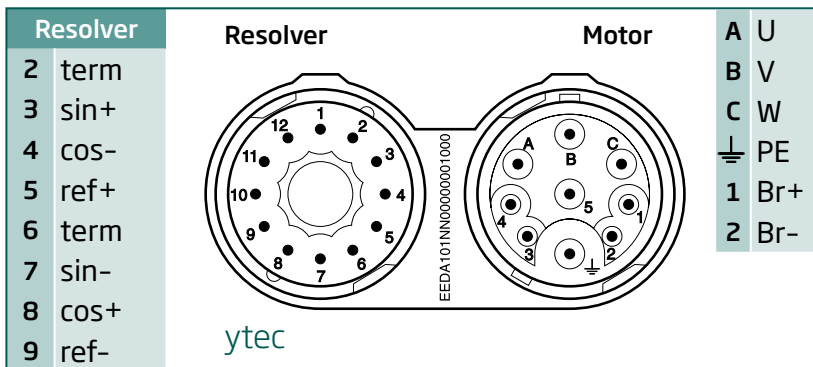
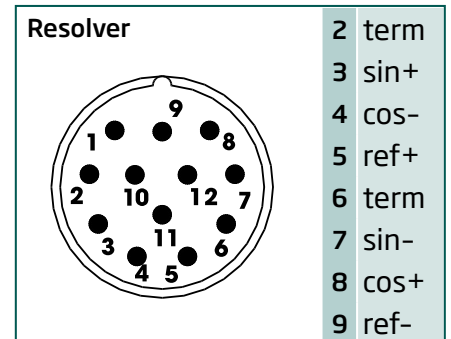
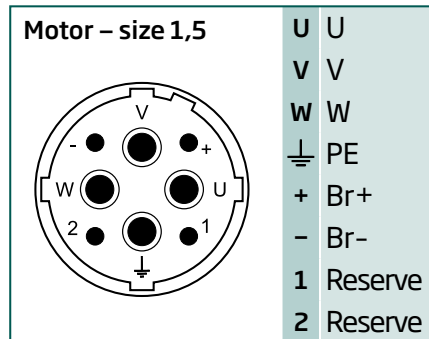
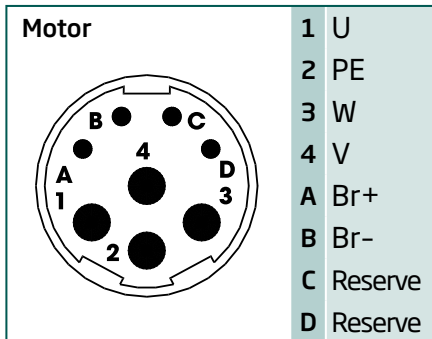
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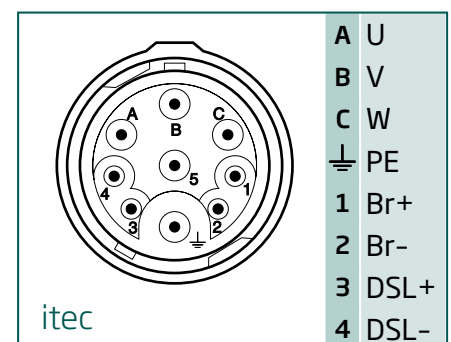
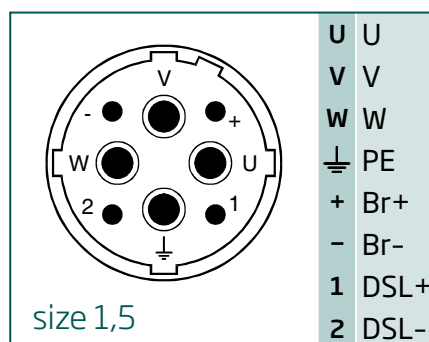
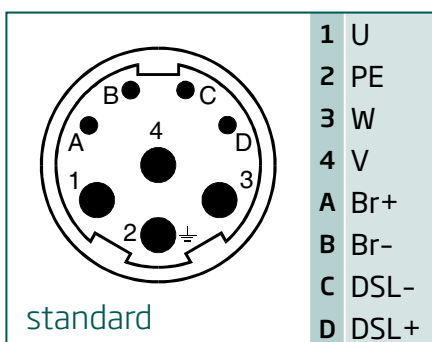


# Connections for motor connectors

## Standard servomotors

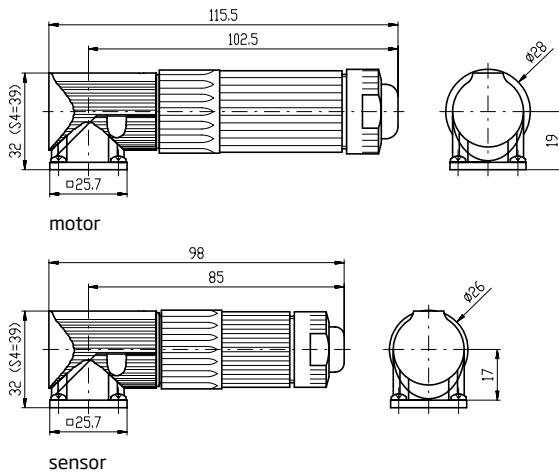


## Servomotors with one integrated connector

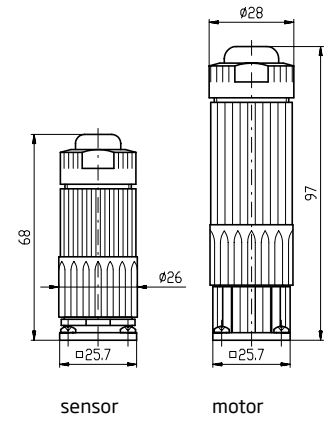


# Dimensions of connectors

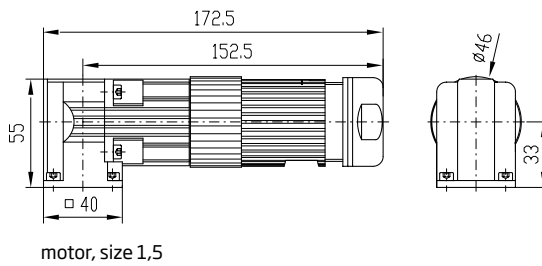
## Rectangular connectors (S1, S2, S3, S4)



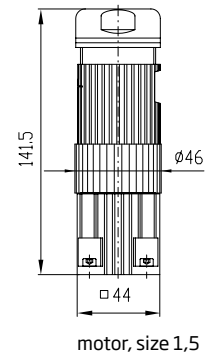
## Straight connectors



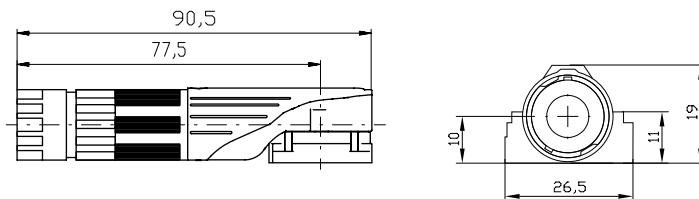
## Rectangular connectors (S2, S3) (size 1,5)



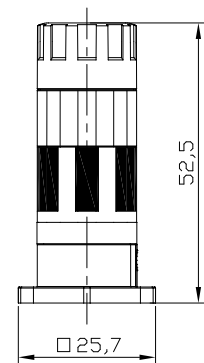
## Straight connectors (size 1,5)



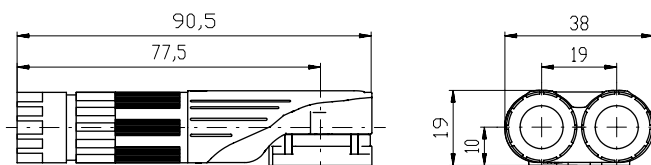
## Itec rotary connector (I4)



## Itec straight connector (I)



## Ytec rotary connectors (Y)





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