

AC BRUSHLESS SERVOMOTORS - M5.4x



M5 - Brushless Servomotors are AC PM Synchronous servomotors. They have been designed using latest generation of magnets and construction techniques to provide very high performance, low cogging and torque ripple. They can be supplied with resolver or Incremental / absolute encoder.

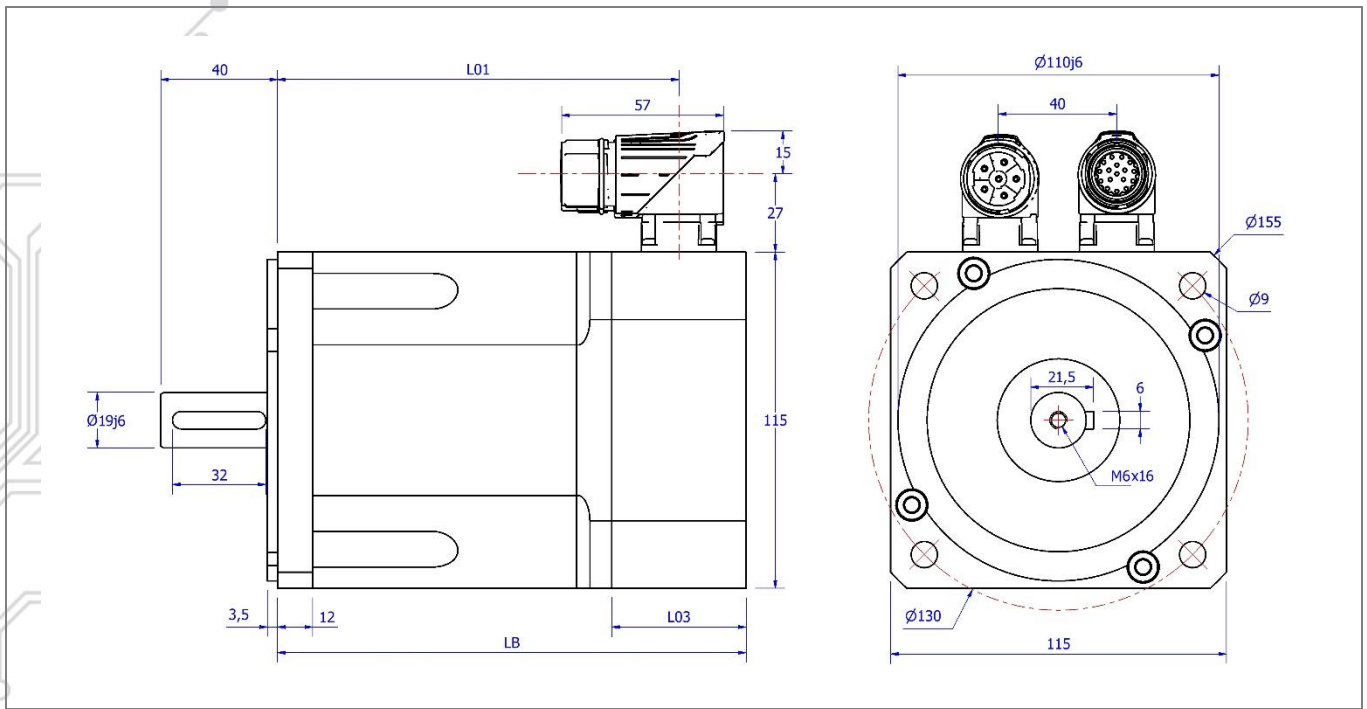
Their main characteristics are:

- Frame size 115mm
- Rare earth magnets for high performance
- 8 pole construction for high torque density
- Low cogging and torque ripple
- Sinusoidal back EMF
- Integrated PTC thermal protection
- Rotatable connectors
- Compact design
- High IP rating
- Smooth finish

Technical Data

Tab. 1

Description Winding code	Symbol	Motor	M5.41		M5.42		M5.43	
		UM	1	2	1	2	1	2
Stall Torque	M ₀	Nm	4		7,6		11,3	
Maximum Torque	M _{pk}	Nm	14	14	26	26	40	39
Stall Current	I ₀	A	4,4	2,5	7,8	4,7	11,9	7
Peak current	I _{pk}	A	18	10	31	19	47	28
Maximum mechanical revs	N _{mec}	min-1	6500		6500		6500	
Maximum revs @ 230Vac	N _{MAX}	min ⁻¹	3200	1800	3100	1800	3200	1800
Maximum revs @ 400Vac	N _{MAX}	min ⁻¹	6000	3000	5000	3000	5000	3000
Voltage constant	K _E	V/krpm	55	96	59	98	59	98
Torque constant	K _T	Nm/A	0,91	1,59	0,98	1,62	0,98	1,62
Rotor Inertia	J _R	kg cm ²	5		9,6		14	
Resist. @ 20°C	R _{U-V}	Ohm	2,3	6,9	0,95	2,7	0,5	1,5
Induct. @ 1 kHz	L _{U-V}	mH	5,6	16	2,9	7,5	1,6	4,9
Mass	m	kg	5,6		8,5		11,4	



Dimensions in mm

Tab. 2

Feedback device	EQI1130, TTL 2048ppr, Resolver, SEL52			SinCos, EKS36		
Dimension	LB	L01	L03	LB	L01	L03
M5.41	146,5	123,5	32	160,5	137,5	46
M5.42	186,5	163,5		200,5	177,5	
M5.43	226,5	203,5		240,5	217,5	
M5.41 Brake	195,5	172,5		209,5	186,5	
M5.42 Brake	235,5	212,5		249,5	226,5	
M5.43 Brake	275,5	232,5		289,5	246,5	

Dimensions in mm

Tab. 3

Shaft	Dimension	
D	19j6	24j6
E	40	50
GL	32	32
GA	21,5	27
F	6	8
R	M6 x 16	M6 x 16

Values in this catalogue are true for the following conditions:

- Max Temperature ambient 40° C
- Min temperature ambient 0 °C
- Max Altitude 1000 m (above sea level)
- Insulation class F (materials F & H)
- RMS values
- Insulation system conforms to UL
- IP65 enclosure protection with seal
- Motor Installation B5 – V5
- Cooling IC0041
- Typical tolerance value ±10%
- Continuous ratings apply with a rise of $\Delta T = 100K$ on the windings when fitted on an aluminium plate with dimensions 305 x 305 x 15mm

Producer reserves the right to amend the specification of this product without prior notification.

PART NUMBER COMPOSITION

1	2	3	4	5	6	7	8	9	10	11	12
-	-	M	5	4	2	2	0	4	7	x	x

POS.	DESCRIPTION
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- | | |
|-------|---|
| 1-3 | <p>Product
M= PM synchronous motor, self-cooled</p> |
| 4 | <p>Motor type
Series 5</p> |
| 5 | <p>Motor size
Size Four</p> |
| 6 | <p>Motor length
1 = Mo 4 Nm
2 = Mo 7,6 Nm
3 = Mo 11,3 Nm</p> |
| 7 | <p>Voltage
1 = Winding code 1
2 = Winding code 2</p> |
| 8 | <p>Holding brake
0 = Without brake
1 = With holding brake Mb = 18 Nm - 24W - 24 VDC PM - Jb = 3,6 kgcm² - mb = 1,1 kg</p> |
| 9 | <p>Feedback
0 = Sensor-less
1 = Heidenhain encoder EQI1130 enDat multi-turn
4 = Encoder 2048ppr TTL LD + hall sensors
6 = Encoder 4096ppr TTL LD + hall sensors
7 = Encoder 1Vpp + position sin-cos
9 = Resolver size 15 2p 7V 10KHz
G = Sick encoder SEL52 Hiperface multi-turn
W = Sick encoder EKS36 Hiperface DSL single-turn no SIL 17bit
Y = Sick encoder EKM36 Hiperface DSL multi-turn no SIL 17bit
Z = Sick encoder SKM36 Hiperface 128ppr multi-turn</p> |
| 10 | <p>Connection type
7 = M23 connectors 90° rotatable</p> |
| 11-12 | <p>Special version
24 = Shaft 24 x 50
26 = Shaft without key
66 = IP65 Shaft Protection
90 = Thermal protection PT1000</p> |



MOTORS & MOTION CONTROL

- **M5 BRUSHLESS SERVOMOTORS**
- **DSG SYNCHRONOUS PM GENERATORS**
- **RARE EARTH SC DC SERVOMOTORS**
- **DSW WATER-COOLED**
- **LOW-COST SOLUTIONS**
- **PLANETARY GEARS**
- **CUSTOMISED SOLUTIONS**
- **TORQUE MOTORS**
- **FRAMELESS SPINDLE MOTORS**



ISD : E220486

