

AC BRUSHLESS SERVOMOTORS - M5.0x



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.

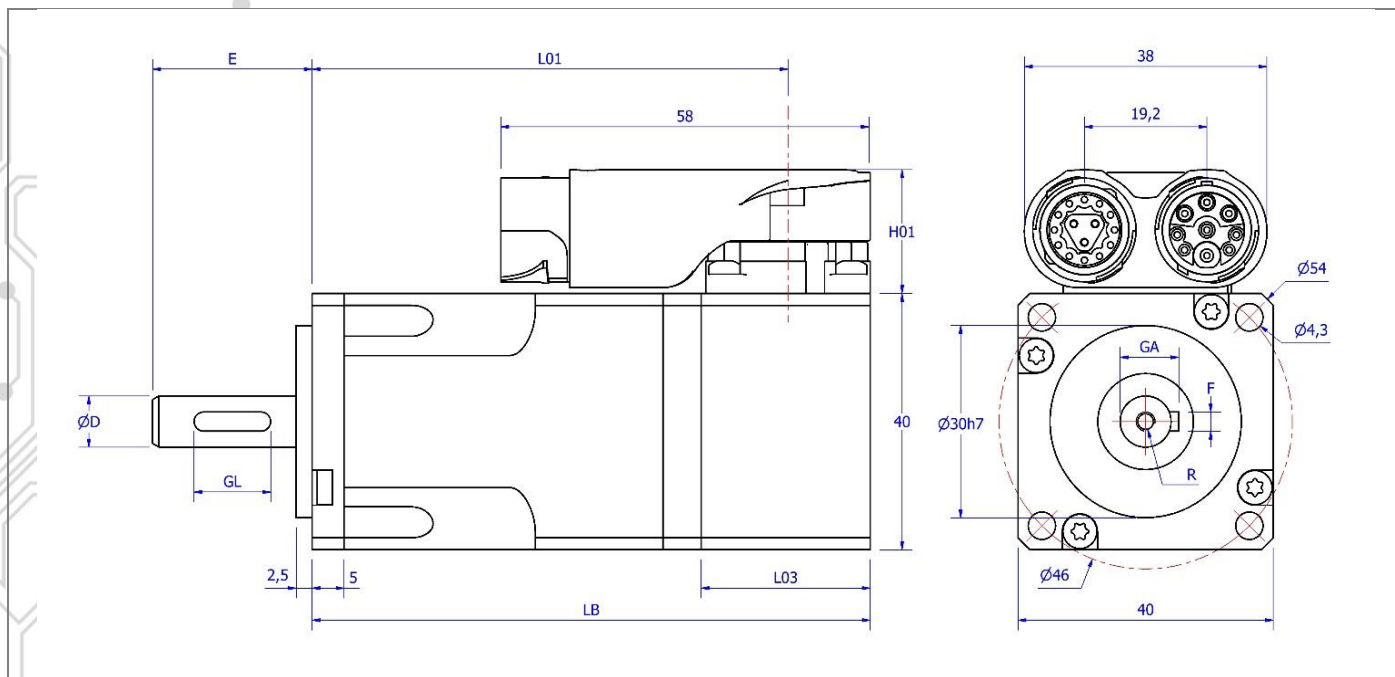
Their main characteristics are:

- Frame size 40mm
- 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 | M5.04 | | M5.05 | |
|---------------------------------|------------------|--------------------|-------------|-------|-------------|------|
| | | UM | 1 | 3 | 1 | 3 |
| Stall Torque | M ₀ | Nm | 0,19 | | 0,38 | |
| Maximum Torque | M _{pk} | Nm | 0,6 | 0,6 | 1,3 | 1,3 |
| Stall Current | I ₀ | A | 0,78 | 1,52 | 1,2 | 3 |
| Peak current | I _{pk} | A | 3,12 | 6,08 | 4,8 | 12 |
| Maximum mechanical revs | N _{mec} | min-1 | 8500 | | 8500 | |
| Maximum revs @ 230Vac | N _{MAX} | min ⁻¹ | 8000 | - | 8000 | - |
| Maximum revs @ 50Vac | N _{MAX} | min ⁻¹ | - | 3600 | - | 4100 |
| Voltage constant | K _E | V/krpm | 14,7 | 7,4 | 19 | 7,7 |
| Torque constant | K _T | Nm/A | 0,25 | 0,122 | 0,32 | 0,13 |
| Rotor Inertia | J _R | kg cm ² | 0,037 | | 0,061 | |
| Resist. @ 20°C | R _{U-V} | Ohm | 27 | 6,8 | 14 | 2,4 |
| Induct. @ 1 kHz | L _{U-V} | mH | 11 | 2,6 | 7,9 | 1,25 |
| Mass | m | kg | 0,53 | | 0,68 | |



Dimensions in mm

Tab. 2

| Feedback device | EQ1130 | | | | TTL 1024ppr, Resolver | | | | EKS36 | | | |
|--------------------|--------|-----|-----|------|-----------------------|-------|------|------|-------|-----|-----|------|
| Dimension | LB | L01 | L03 | H01 | LB | L01 | L03 | H01 | LB | L01 | L03 | H01 |
| M5.04 | 91 | 78 | 30 | 25,5 | 87,5 | 74,5 | 26,5 | 19,4 | 104 | 91 | 43 | 25,5 |
| M5.05 | 109 | 96 | | | 105,5 | 92,5 | | | 122 | 109 | | |
| M5.04 Brake | 123 | 110 | | | 119,5 | 106,5 | | 136 | 123 | | | |
| M5.05 Brake | 141 | 128 | | | 137,5 | 124,5 | | | | 154 | | |

Dimensions in mm

Tab. 3

| Shaft | Dimension |
|-------|-----------|
| D | 8h6 |
| E | 25 |
| GL | 12 |
| GA | 9,2 |
| F | 3 |
| R | M3 x 8 |

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 ΔT=100K on the windings when fitted on an aluminium plate with dimensions 254 x 254 x 8mm

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 | 0 | 5 | 1 | 0 | 9 | D | x | x |

| | |
|-------------|--------------------|
| POS. | DESCRIPTION |
|-------------|--------------------|

- | | |
|-------|--|
| 1-3 | Product M= PM synchronous motor, self-cooled |
| 4 | Motor type Series 5 |
| 5 | Motor Size Size 0 |
| 6 | Motor length 4 = Mo 0,19 Nm 5 = Mo 0,38 Nm |
| 7 | Voltage 1 = Winding code 1 3 = Winding code 3 |
| 8 | Holding brake 0 = No brake 1 = Brake 24VDC – 6 W - Mb = 0,4 Nm - Jb = 0,019 kgcm ² - mb = 0.085 kg |
| 9 | Feedback 0 = Sensor-less 1 = Heidenhain encoder EQI1130 absolute multi-turn 12+18 bit EnDat 5 = Magnetic Encoder 1024 ppr LD 5V with Hall sensors 9 = Resolver size 10 2p 7V 10KHz W = Sick encoder EKS36 Hiperface DSL Single-turn no SIL 17bit Y = Sick encoder EKM36 Hiperface DSL Multi-turn no SIL 17bit |
| 10 | Connection type B = 90° rotatable connector M15 I-tec single 9 pin (DSL Hiperface) D = 90° rotatable connector M15 Y-tec 9 pin power and 12+3 pin feedback |
| 11-12 | Special version 66 = IP65 Shaft Protection 90 = Thermal protection PT1000 |



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

