



Permanent Magnet Synchronous Frameless Slotless Motor

KMXO-165-025-40-48 A

Permanent Magnet Synchronous
Slotless Torque Motor
KMXO Series

Winding
configuration

DC Bus
Voltage

Pole number

Active length

Outer diameter

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Product Description

The frameless, slotless motor of KMXO-165-025 is a high performance brushless synchronous motor excited by rare earth permanent magnets located on the rotor. This motor is delivered as frameless kit (rotor and stator sets) and was optimized for increased torque density, zero cogging torque, compact design at minimal cost.

The stator core consists of a ring made of laminated steel. Due to the slotless configuration, the three phase star connected winding is placed in the airgap between stator core and permanent magnets. The winding is encapsulated in epoxy resin. The rotor consists of a magnetic steel ring on which there are placed high energy permanent magnets. This motor was designed to offer very low torque ripple combined with zero cogging torque.

This slotless, frameless kit motor can be use as direct drive motor providing the advantages of lower cost, increased reliability and improved performance. This motor can be customized in order to be easily adapted to a wide range of applications. The winding can be customized for different bus voltage values.

Features

- Zero cogging torque
- Designed to be compact, high performance and cost effective
- Very low torque ripple
- Smooth operation
- Allow direct coupling with the payload, eliminating parts of mechanical transmission
- Maintenance free
- High energy NdFeB magnets maximize torque density
- Customized winding for different desired voltage

Applications

- Machine tools
- Laser scanning and printing
- Motion simulators
- Rotary stage
- Robots
- Defense mechanisms



Torque motor KMXO-165-025-40-48A Specifications

Motor parameter KMXO-165-025-40-48A	Symbol	Units	Value	Tolerances
Peak torque 1)	T_p	<i>Nm</i>	9.5	±10%
Peak current	I_p	<i>A_{rms}</i>	9.8	±10%
Continuous stall torque 2)	T_o	<i>Nm</i>	3	±10%
Continuous stall current *	I_o	<i>A_{rms}</i>	3.1	±10%
Nominal speed	N	<i>rpm</i>	60	-
Maximum output speed	N_{Max}	<i>rpm</i>	100	±10%
Continuous nominal power	P_n	<i>W</i>	19	-
Continuous nominal torque	T_n	<i>Nm</i>	3	±10%
Continuous nominal current	I_n	<i>A_{rms}</i>	3.1	-
Motor torque constant	K_t	<i>Nm/A_{rms}</i>	0.97	±10%
Number of poles	2p	-	40	-
Thermal resistance	t_r	<i>°C/W</i>	1.6	±10%
Voltage constant	K_e	<i>V_{peak}/krpm</i>	81.7	±10%
Voltage constant	K_e	<i>V_{rms}/krpm</i>	57.8	±10%
DC bus Voltage **	U	<i>V_{DC}</i>	48	±10%
Resistance (L-L)	R_m	<i>Ω</i>	3.1	±10%
Inductance (L-L)	L_m	<i>mH</i>	0.8	±20%
Cogging torque	T_f	<i>mNm peak</i>	0	±10%
Moment of inertia (frameless)	J	<i>Kg cm²</i>	28.00	±10%
Weight (frameless)	W	<i>Kg</i>	1	±10%
Phase connection	-	-	Y	-
Number of phases	-	-	3	-
Insulation class	-	-	F	-
Thermistor type	-	-	No	-
Terminal cross section	-	<i>AWG</i>	-	-
Terminal cross section	-	<i>mm²</i>	-	-
Stator outer diameter	-	<i>mm</i>	165	e9
Rotor inner diameter	-	<i>mm</i>	139	H7
Total length	-	<i>mm</i>	40	-

*, ** More voltage and current values available on request

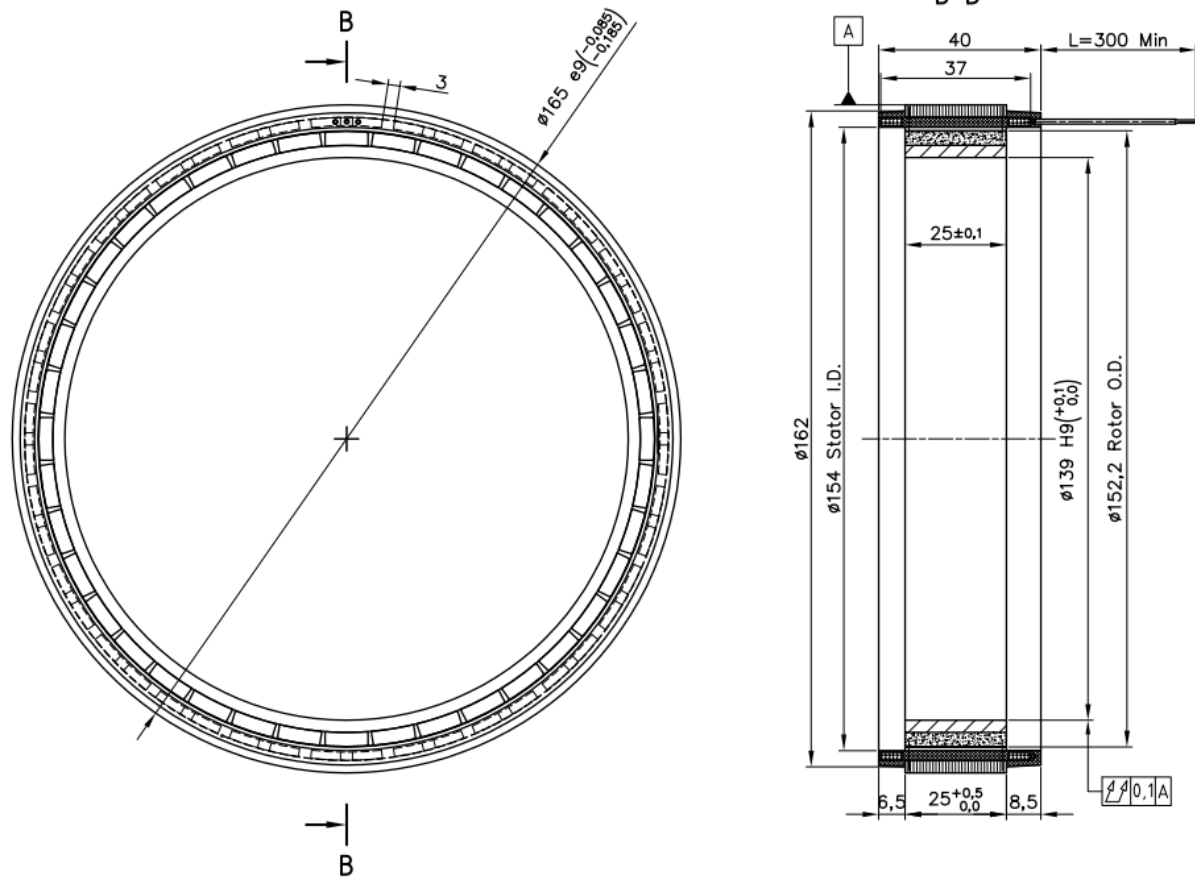
1) Peak torque for ms.

2) Motor mounted on a metallic flange with an area equal to twice the cross section of the housing

Ambient temperature 40 °C



Torque motor KMXO-165-025-40-48A Dimensions



* Dimension in mm

** Different stack length available on request



Torque motor KMXO-165-025-40-48A Performance Data Graph

