



Permanent Magnet Synchronous Frameless Slotless Motor

KMXO-362-015-40-48 A

Permanent Magnet Synchronous
Slotless Torque Motor
KMXO Series

Winding
configuration

DC Bus
Voltage

Pole number

Active length

Outer diameter

ICPE

313 Splaiul Unirii

030138, București, România

tel./ fax +40213467233

email servo@icpe.ro

web <http://www.icpe.ro/>



Product Description

The frameless, slotless motor of KMXO-362-015 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-362-015-40-48A Specifications

Motor parameter KMXO-362-015-40-48A	Symbol	Units	Value	Tolerances
Peak torque 1)	T_p	Nm	22	$\pm 10\%$
Peak current	I_p	A_{rms}	12	$\pm 10\%$
Continuous stall torque 2)	T_o	Nm	15	$\pm 10\%$
Continuous stall current *	I_o	A_{rms}	7.2	$\pm 10\%$
Nominal speed	N	rpm	90	-
Maximum output speed	N_{Max}	rpm	280	$\pm 10\%$
Continuous nominal power	P_n	W	141	-
Continuous nominal torque	T_n	Nm	15	$\pm 10\%$
Continuous nominal current	I_n	A_{rms}	7.2	-
Motor torque constant	K_t	Nm/A_{rms}	2.1	$\pm 10\%$
Number of poles	$2p$	-	40	-
Thermal resistance	t_r	$^{\circ}C/W$	0.7	$\pm 10\%$
Voltage constant	K_e	$V_{peak}/krpm$	182	$\pm 10\%$
Voltage constant	K_e	$V_{rms}/krpm$	128.7	$\pm 10\%$
DC bus Voltage **	U	V_{DC}	48	$\pm 10\%$
Resistance (L-L)	R_m	Ω	1.5	$\pm 10\%$
Inductance (L-L)	L_m	mH	1.3	$\pm 20\%$
Cogging torque	T_f	$mNm\ peak$	0	$\pm 10\%$
Moment of inertia (frameless)	J	$Kg\ cm^2$	334	$\pm 10\%$
Weight (frameless)	W	Kg	2.3	$\pm 10\%$
Phase connection	-	-	Y	-
Number of phases	-	-	3	-
Insulation class	-	-	F	-
Thermistor type	-	-	No	-
Terminal cross section	-	AWG	18	-
Terminal cross section	-	mm^2	1	-
Stator outer diameter	-	mm	362	e9
Rotor inner diameter	-	mm	322	H7
Total length	-	mm	50	-

*, ** 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 $40\ ^{\circ}C$



Torque motor KMXO-362-015-40-48A Performance Data Graph

