



leaderdrive®

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苏州绿的谐波传动科技股份有限公司

Leader Harmonious Drive Systems Co.,Ltd

KMF Frameless Direct Drive Torque Motor
Product Introduction Manual



KMF series frameless torque motors



KMF series frameless torque motors

Main features

- KMF series frameless torque motor, which consists of stator and winding, high performance NdFeB rotor and Hall sensing circuit, can be used very flexibly and save application space, which makes it easy to realize reliable and tight system design.
- High torque density. The rated torque of the frameless torque motor with a stator stack thickness of 20 mm only and frame diameter of 145 mm is greater than 4 N·m and the maximum torque is greater than 11 N·m.
- Ultra-low cogging torque ensures extremely low torque ripple at a low speed to realize low noise and precise rotation.
- 60 mm~145 mm frameworks and 220 VAC and 48 VDC voltages are optional.
- Hall sensor is set inside to provide output of feedback signal.
- Grade H insulation makes the product applicable to high temperature operation (155°C at most).
- Carbon fiber casing protects the high speed operation of rotor.

Application areas

The products are widely used in such fields as robots, electronic and semiconductor equipment, 3C equipment, precision cloud platform, precision CNC machine tools, precision laser processing equipment, optical detection, logistics equipment, carving machine, medical device, robot and special mechanical arm and Aerospace equipment.

Model

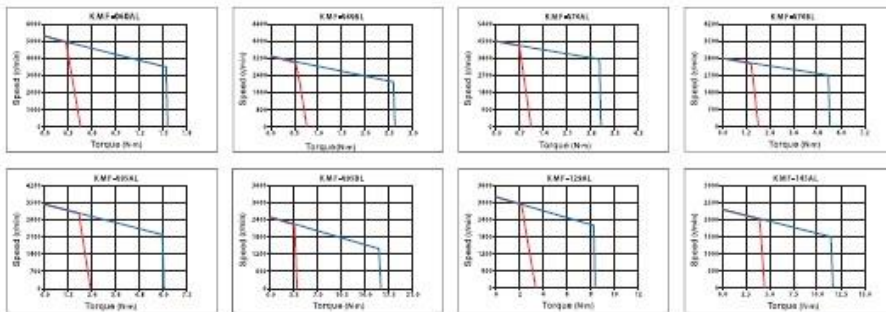
KMF	—	076	A	L	N	N
①		②	③	④	⑤	⑥

- ① Series
KMF: frameless torque motors
- ② Frame sizes
060: frame diameter 60mm
076: frame diameter 76mm
095: frame diameter 95mm
129: frame diameter 129mm
145: frame diameter 145mm
- ③ Stator length
A: default standard length
B: extended length
- ④ Voltage
M: 220VAC
L: 48VDC
- ⑤ Sensor
N: without hall sensor
H: with hall sensor
- ⑥ Other options
N: default no options

The specifications of KMF series frameless torque motors

Designed voltage		DC bus voltage 48VDC							
Model KMF-		060AL	060BL	076AL	076BL	095AL	095BL	129AL	145AL
Rated power	W	130	160	290	350	500	560	600	750
Speed at rated power	RPM	4200	2800	3900	2200	2600	1800	2400	1700
Continuous stall torque	N·m	0.459	0.774	1.032	1.82	2.33	3.98	3.343	4.479
Continuous current	Arms	5.06	6.2	8.96	9.87	14.8	16.31	18.96	23.71
Peak stall torque	N·m	1.56	2.63	3.1	5.46	6.06	9.57	8.36	11.65
Peak current	Arms	16.7	19.85	30.27	33.18	44.4	47.81	48.3	54.62
Torque constant	N·m/Arms	0.081	0.152	0.109	0.184	0.141	0.218	0.176	0.232
Back EMF	Vrms/kRPM	6.32	10.03	7.98	12.06	10.57	14.89	12.05	17.48
Phase resistance	Ohms	0.275	0.204	0.262	0.196	0.239	0.179	0.186	0.139
Phase inductance	mH	0.352	0.275	0.313	0.244	0.282	0.219	0.265	0.207
Cogging torque	N·m	0.0012	0.0021	0.0034	0.0056	0.0088	0.0092	0.0094	0.0099
Inertia moment	×10 ⁻⁴ kg·m ²	0.15	0.26	0.32	0.58	1.14	1.93	1.78	2.32
Mass	kg	0.155	0.289	0.302	0.553	0.578	1.035	1.123	1.612
Number of motor poles		16							
Motor insulation		Heat-resistant class: F (155 °C)							
		Insulation resistance: more than 200M Ω (DC500V)							
		Dielectric strength: AC1500V (1 minute)							

T-n curves of KMF series frameless torque motor



The specifications of KMF series frameless torque motors

Designed voltage		220VAC							
Model KMF-		060AM	060BM	076AM	076BM	095AM	095BM	129AM	145AM
Rated power	W	130	160	290	350	500	550	600	750
Speed at rated power	RPM	4500	3100	4200	2500	2900	1900	2800	2100
Continuous stall torque	N·m	0.459	0.774	1.032	1.82	2.33	3.903	3.343	4.479
Continuous current	Arms	1.69	2.07	2.99	3.29	4.93	5.153	6.32	7.9
Peak stall torque	N·m	1.61	2.71	3.3	5.82	6.99	11.71	10.03	13.44
Peak current	Arms	5.92	7.25	9.57	10.53	14.79	15.46	18.96	23.7
Torque constant	N·m/Arms	0.392	0.354	0.504	0.491	0.794	0.734	0.898	0.892
Back EMF	Vrms/kRPM	23.85	37.81	30.66	45.46	40.84	53.52	44.29	50.87
Phase resistance	Ohms	4.311	3.233	2.135	1.601	1.779	1.267	1.438	1.024
Phase inductance	mH	5.256	3.942	3.869	2.902	3.376	2.495	3.165	3.026
Cogging torque	N·m	0.001	0.0021	0.0027	0.0055	0.0097	0.0098	0.0094	0.0097
Inertia moment	×10 ⁻⁴ kg·m ²	0.15	0.26	0.32	0.58	1.14	1.96	1.78	2.32
Mass	kg	0.155	0.289	0.302	0.553	0.578	1.024	1.123	1.612
Number of motor poles		16							
Motor insulation		Heat-resistant class: F (155 °C)							
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T-n curves of KMF series frameless torque motor

