不负重任
每一位客户值得尊重和感恩 每一笔订单都是信任与托付
求真·务实
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Frameless Torque Motor

Professional Special Motor Manufacturer



THE SPECIAL MOTOR IS AUTONOMOUS AND CONTROLLABLE

Motors can be customized to meet customer requirements

Jiangsu Wheatstone Electrical Technology Co. Ltd.

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Company Profile

With two decades of deep engagement in industrial automation, Jiangsu Wheatstone Electrical Technology Co., Ltd. has developed into a national high-tech enterprise integrating R&D, production and sales. Leveraging our two smart manufacturing bases in Wuxi and Changzhou, and supported by intelligent management systems such as ERP, CRM and MES, we have built a digital production system and established a three-in-one industrial structure of "special motors + intelligent testing + process integration", delivering special motor system solutions:

Explosion-Proof Motor Series

Explosion-proof servo motors / explosion-proof stepper motors / mining explosion-proof integrated servo motors

Special Environment Adaptation

Radiation-resistant, high/low-temperature vacuum motors; nuclear-industry motors

Military Customized Products

Special equipment motors meeting the GJB national military standard system

Intelligent Testing & Integration

Laboratory motor testing equipment systems

System engineering design and manufacturing based on motors

Global Access Certifications

International explosion protection: IECEx / ATEX / China Explosion-proof CCC

Industry-specific: CCS classification society certification / coal mine safety certification (Class I)

Environmental adaptability: CE / dust explosion protection (Class III) / gas explosion protection (Class II)





Wheatstone

Frameless Torque Motor Series

52	WK	X	100	30	XXV	26	40	XX	Z
1	2	3	4	5	6	7	8	9	10

No.	Item	Detailed Description
1	Motor Frame Size	40 = Outer diameter Ø40mm 52 = Outer diameter Ø52mm 57 = Outer diameter Ø57mm 72 = Outer diameter Ø72mm 90 = Outer diameter Ø90mm 250 = Outer diameter Ø250mm
2	Motor Type	WK indicates the motor is a frameless torque motor
3	Feedback Element (Encoder)	M = Incremental encoder X = Resolver J = Absolute encoder H = Hall sensor (For encoder details, please refer to the ordering code)
4	Torque	Indicates the rated torque of the motor; the value is three digits × 0.1, unit: Nm Note: For torque ≥100Nm, the value is a two-digit number plus a letter A; e.g., 10A means 100Nm
5	Speed	Indicates the rated speed of the motor; the value is two digits × 100, unit: rpm (Speed can be customized upon request)
6	Voltage	AC: 220VAC 380VAC 660VAC 1140VAC DC: 96VDC 72VDC 48VDC 36VDC 24VDC (Voltage can be customized upon request)
7	Inner Diameter	26 = Inner diameter Ø26mm
8	Core Height	40 = Core thickness 40mm
9	Additional Description	Omit if there is no additional description
10	Vacuum Level	Z1 = Low vacuum: 10^{5} ~ 10^{2} Pa, Z2 = Medium vacuum: 10^{2} ~ 10^{-1} Pa Z3 = High vacuum: 10^{-1} ~ 10^{-5} Pa, Z4 = Ultra-high vacuum: $<10^{-5}$ Pa

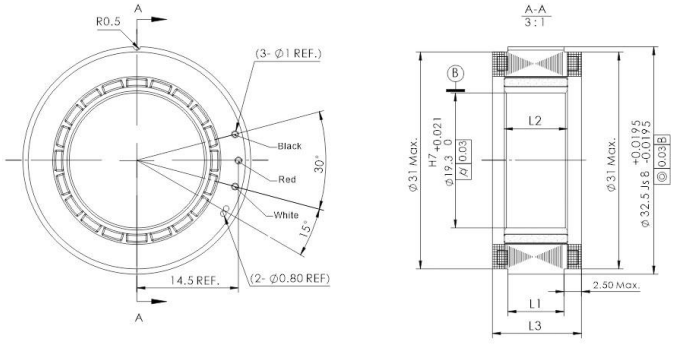
Z = vacuum-compatible motor;
Without Z = standard frameless motor.

Motors can be customized to meet customer requirements

OD 32mm Small Frameless Torque Motor

Motor OD: 32mm



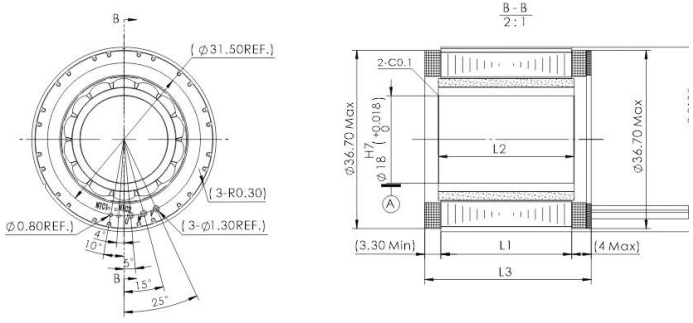


Model		32WK-□00750-24V-19-7	32WK-□00750-48V-19-7
DC Voltage (VDC)		24	48
Rated Power (W)		36.65	36.65
Rated Torque (N.m)		0.07	0.07
Max. Torque (N.m)		0.2	0.2
Rated Current (A)		1.9	1.2
Max. Current (A)		3.8	3.6
Rated Speed (rpm)		5000	5000
Max. Speed (rpm)		5500	6500
Torque Constant (Nm/A)		0.04	0.04
Rotor Inertia (kg.cm²)		0.008	0.019
Back EMF Constant (V/Krpm)		2.8	4.95
Line Resistance (ohms@20°C)		1.23	3.8
Line Inductance (mH)		0.4	0.625
Pole Pairs (2P)		10	10
Weight (kg)		0.05	0.05
Cogging Torque (mN.m)		2.1 (Ref.)	2.1 (Ref.)
Dimensions (mm)	L1 (Core Height)	7	7
	L2 (Rotor Height)	9	9
	L3 (Overall Height)	12.7	12.7

OD 38mm Small Frameless Torque Motor

Motor OD: 38mm

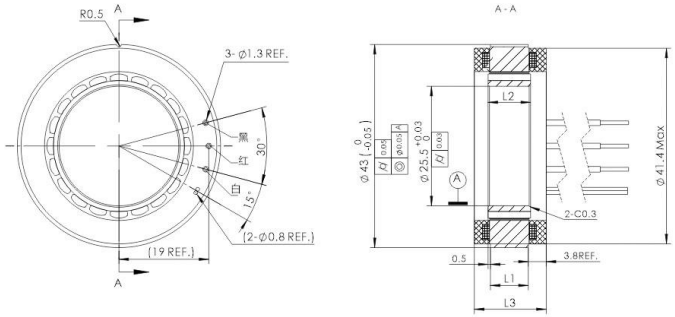




Model		38WK-□00130-48V-18-9	38WK-□00230-48V-18-16	32WK-□00750-48V-19-7
DC Voltage (VDC)		48	48	48
Rated Power (W)		31.4	62.8	128
Rated Torque (Nm)		0.1	0.2	0.35
Max. Torque (Nm)		0.3	0.6	1.05
Rated Current (A)		2.2	3.9	5
Max. Current (A)		6.6	11.7	15
Rated Speed (rpm)		3000	3000	3500
No-Load Speed (rpm)		4500	4500	4500
Torque Constant (Nm/A)		0.045	0.051	0.07
Rotor Inertia (kg.cm²)		0.018	0.032	0.053
Back EMF Constant (V/KRPM)		3.2	3.4	4.5
Line Resistance (ohms@20°C)		1.35	0.7	0.73
Line Inductance (mH)		0.75	0.4	0.49
Pole Pairs (2P)		7	7	7
Weight (g)		60	100	165
Cogging Torque (mN.m)		8 (Ref.)	15 (Ref.)	16 (Ref.)
Dimensions (mm)	L1 (Core Height)	9	16	27
	L2 (Rotor Height)	10	17	28
	L3 (Overall Height)	15.5	22.6	34.6

OD 43mm Frameless Direct-Drive DC Torque Motor, Motor OD: 43mm

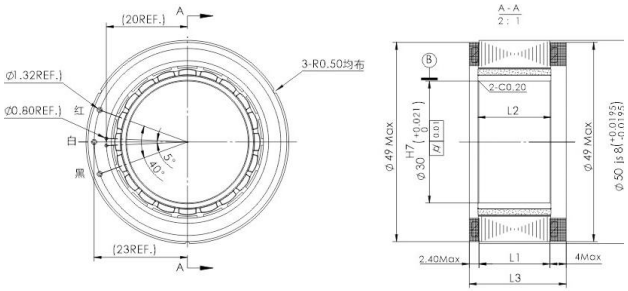




Model		43WK-□00242-48V-26-8
DC Voltage (VDC)		48
Rated Power (W)		71
Rated Torque (N.m)		0.16
Max. Torque (N.m)		0.48
Rated Current (A)		3.8
Max. Current (A)		9
Rated Speed (rpm)		4200
Max. Speed (rpm)		5000
Torque Constant (Nm/A)		0.05
Rotor Inertia (kg.cm²)		0.04
Back EMF Constant (V/Krpm)		5.5
Line Resistance (ohms@20°C)		2.5
Line Inductance (mH)		1.1
Pole Pairs (2P)		10
Weight (kg)		0.088
Cogging Torque (mN.m)		4.8 (Ref.)
Dimensions (mm)	L1 (Core Height)	8
	L2 (Rotor Height)	9
	L3 (Overall Height)	15.2

OD 50mm Frameless Direct-Drive DC Torque Motor, Motor OD: 50mm



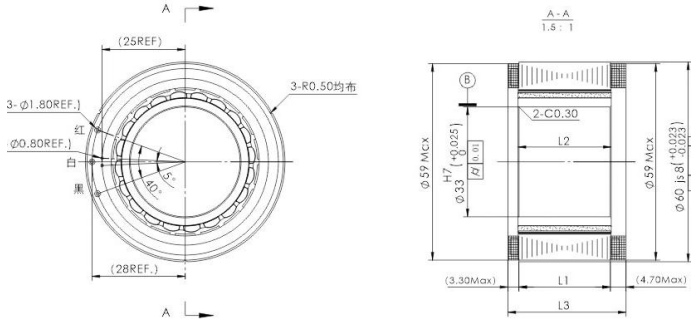


Model		50WK-□00330-48V-30-14	50WK-□00530-48V-30-18	50WK-□00730-48V-30-30
DC Voltage (VDC)		48	48	48
Rated Power (W)		85	141	220
Rated Torque (Nm)		0.27	0.45	0.7
Max. Torque (Nm)		0.8	1.35	2.1
Rated Current (A)		2.5	4	5.8
Max. Current (A)		7.5	12	17.5
Rated Speed (rpm)		3000	3000	3000
No-Load Speed (rpm)		4500	4500	4500
Torque Constant (Nm/A)		0.108	0.113	0.12
Rotor Inertia (kg.cm²)		0.076	0.098	0.163
Back EMF Constant (V/KRPM)		7.5	7.5	7.5
Line Resistance (ohms@20°C)		1.4	0.9	0.45
Line Inductance (mH)		0.74	0.55	0.35
Pole Pairs (2P)		10	10	10
Weight (g)		120	157	266
Cogging Torque (mN.m)		8.1 (Ref.)	13.5 (Ref.)	21 (Ref.)
Dimensions (mm)	L1 (Core Height)	13.5	17.5	29.5
	L2 (Rotor Height)	14	18	30
	L3 (Overall Height)	19.9	24.6	37.9

OD 60mm Hollow Frameless Motor

Motor OD: 60mm



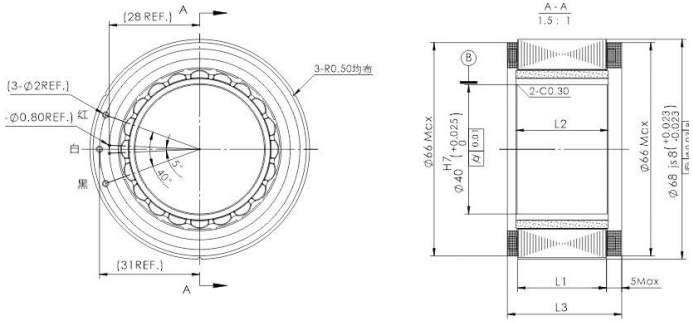


Model		60WK-□00530-48V-33-10	60WK-□00630-48V-33-15	60WK-□01030-48V-33-28
DC Voltage (VDC)		48	48	48
Rated Power (W)		141.5	188.5	314
Rated Torque (Nm)		0.45	0.6	1
Max. Torque (Nm)		1.35	1.8	3
Rated Current (A)		5	6.5	8
Max. Current (A)		15	19.5	24
Rated Speed (rpm)		3000	3000	3000
No-Load Speed (rpm)		4500	4500	4500
Torque Constant (Nm/A)		0.09	0.0923	0.125
Rotor Inertia (kg.cm²)		0.139	0.198	0.372
Back EMF Constant (V/KRPM)		6.2	6.7	8.1
Line Resistance (ohms@20°C)		0.54	0.41	0.26
Line Inductance (mH)		0.4	0.4	0.26
Pole Pairs (2P)		10	10	10
Weight (g)		150	200	350
Cogging Torque (mN.m)		13 (Ref.)	17 (Ref.)	30 (Ref.)
Dimensions (mm)	L1 (Core Height)	10	14.5	27.5
	L2 (Rotor Height)	10.5	15	28
	L3 (Overall Height)	17.9	22.5	35.8

OD 68mm Frameless Torque Motor

Motor OD: 68mm

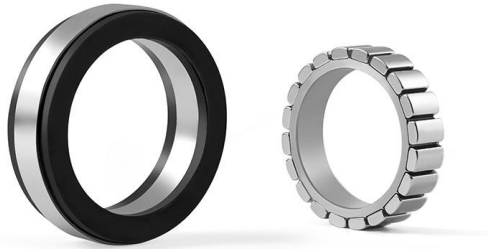


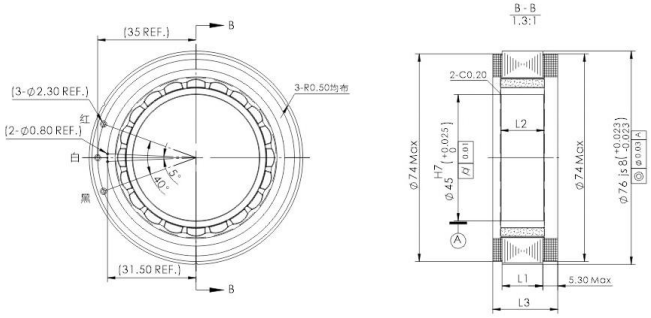


Model	68WK-□00730-48V-40-10	68WK-□00930-48V-40-15	68WK-□01630-48V-40-28
DC Voltage (VDC)	48	48	48
Rated Power (W)	204	270	487
Rated Torque (Nm)	0.65	0.86	1.55
Max. Torque (Nm)	1.95	2.5	4.65
Rated Current (A)	6.3	8	12
Max. Current (A)	18.9	24	36
Rated Speed (rpm)	3000	3000	3000
No-Load Speed (rpm)	4500	4500	4500
Torque Constant (Nm/A)	0.103	0.1075	0.129
Rotor Inertia (kg.cm²)	0.262	0.37	0.68
Back EMF Constant (V/KRPM)	6.5	7	8
Line Resistance (ohms@20°C)	0.55	0.35	0.18
Line Inductance (mH)	0.4	0.3	0.2
Pole Pairs (2P)	10	10	10
Weight (g)	197	266	474
Cogging Torque (mN.m)	20 (Ref.)	26 (Ref.)	48 (Ref.)
L1 (Core	10	14.5	27.5

OD 76mm Frameless Direct-Drive Torque Motor

Motor OD: 76mm



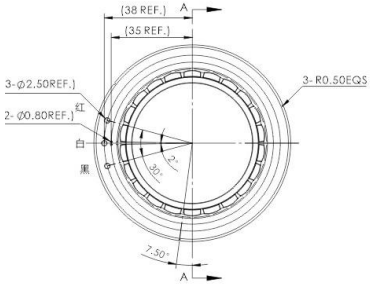


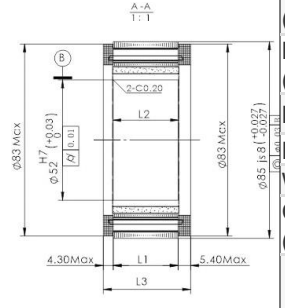
Model		76WK-□00930-48V-45-10	76WK-□01330-48V-45-15	76WK-□02030-48V-45-28
DC Voltage (VDC)		48	48	48
Rated Power (W)		282.7	392.7	660
Rated Torque (Nm)		0.9	1.25	2.1
Max. Torque (Nm)		2.7	3.75	6.3
Rated Current (A)		8.2	10.5	16
Max. Current (A)		24.5	31.5	48
Rated Speed (rpm)		3000	3000	3000
No-Load Speed (rpm)		4500	4500	4500
Torque Constant (Nm/A)		0.11	0.119	0.115
Rotor Inertia (kg.cm²)		0.4	0.675	1.037
Back EMF Constant (V/KRPM)		7	7.5	8.5
Line Resistance (ohms@20°C)		0.36	0.22	0.11
Line Inductance (mH)		0.3	0.24	0.12
Pole Pairs (2P)		10	10	10
Weight (g)		260	350	580
Cogging Torque (mN.m)		18 (Ref.)	40 (Ref.)	67 (Ref.)
Dimensions (mm	L1 (Core Height)	10	14.5	27.5
	L2 (Rotor Height)	11	15.5	28.5
	L3 (Overall Height)	18.9	23.6	36.7

OD 85mm Brushless DC Frameless Torque Motor

Motor OD: 85mm



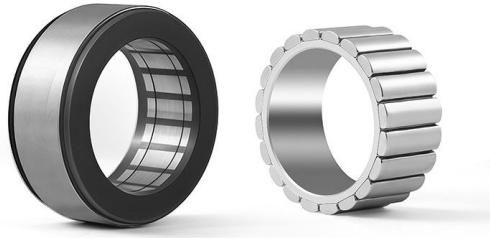


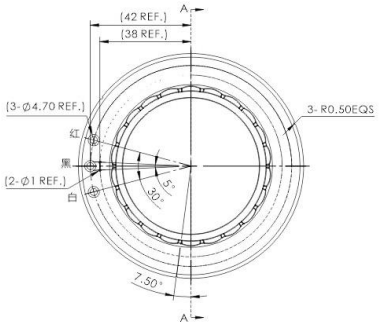


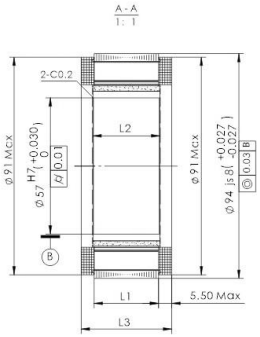
Model		85WK-□01230-48V-52-11	85WK-□01730-48V-52-15	85WK-□02730-48V-52-28
DC Voltage (VDC)		48	48	48
Rated Power (W)		380	518	848
Rated Torque (N.m)		1.21	1.65	2.7
Max. Torque (N.m)		3.6	4.95	8.1
Rated Current (A)		10.5	13	23.5
Max. Current (A)		30	39	40.5
Rated Speed (rpm)		3000	3000	3000
No-Load Speed (rpm)		4500	4500	4500
Torque Constant (Nm/A)		0.121	0.127	0.115
Rotor Inertia (kg.cm²)		0.61	0.859	1.581
Back EMF Constant (Vrms/KRPM)		7.5	7.5	7.3
Line Resistance (ohms@20°C)		0.26	0.17	0.188
Line Inductance (mH)		0.2	0.16	0.22
Pole Pairs (2P)		11	11	11
Weight (g)		306	414	736
Cogging Torque (mN.m)		36.3 (Ref.)	49.5 (Ref.)	81 (Ref.)
Dimensions (mm)	L1 (Core Height)	10.5	15	28
	L2 (Rotor Height)	11	15.5	28.5
	L3 (Overall Height)	19.6	23.9	37.7

OD 94mm High-Torque Frameless Motor

Motor OD: 94mm





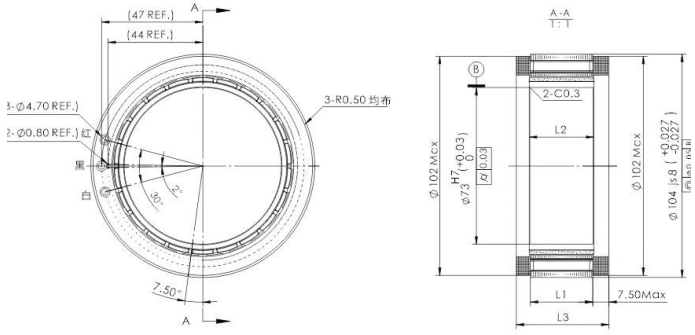


Model		94WK-□01630-48V-57-10	94WK-□02030-48V-57-15	94WK-□03730-48V-57-27
DC Voltage (VDC)		48	48	48
Rated Power (W)		502.6	660	1162
Rated Torque (Nm)		1.6	2.1	3.7
Max. Torque (Nm)		4.8	6.3	9
Rated Current (Arms)		12.5	16.5	28
Max. Current (Arms)		37.5	49.5	70
Rated Speed (rpm)		3000	3000	3000
No-Load Speed (rpm)		4500	4500	4500
Torque Constant (Nm/A)		0.128	0.127	0.132
Rotor Inertia (kg.cm²)		0.71	1	1.808
Back EMF Constant (V/KRPM)		7.5	7.5	8.3
Line Resistance (ohms@20°C)		0.193	0.113	0.055
Line Inductance (mH)		0.7	0.5	0.3
Pole Pairs (2P)		11	11	11
Weight (g)		382	522	930
Cogging Torque (mN.m)		48 (Ref.)	63 (Ref.)	111 (Ref.)
Dimensions (mm)	L1 (Core Height)	10	14.5	27
	L2 (Rotor Height)	11	15.5	28
	L3 (Overall Height)	19.9	24.5	37.9

OD 104mm Frameless Direct-Drive Torque Motor

Motor OD: 104mm



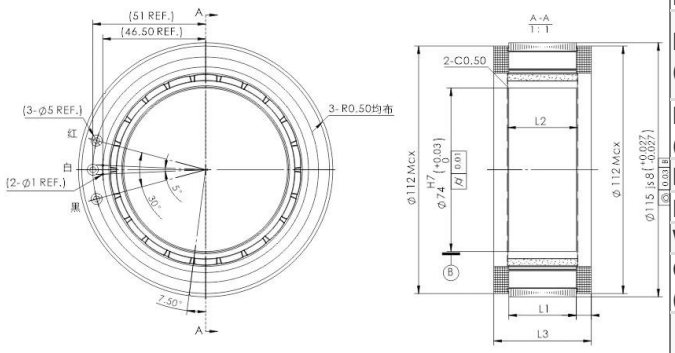


Model		104WK-□02330-48V-73-14	104WK-□04430-48V-73-29
DC Voltage (VDC)		48	48
Rated Power (W)		722.5	1382.3
Rated Torque (N.m)		2.3	4.4
Max. Torque (N.m)		6.9	13.2
Rated Current (A)		18.5	33.5
Max. Current (A)		55.5	100
Rated Speed (rpm)		3000	3000
Max. Speed (rpm)		4000	4000
Torque Constant (Nm/A)		0.124	0.131
Rotor Inertia (kg.cm²)		1.844	3.694
Back EMF Constant (V/Krpm)		7.5	8.5
Line Resistance (ohms@20°C)		0.1	0.04
Line Inductance (mH)		0.08	0.05
Pole Pairs (2P)		11	11
Weight (kg)		0.52	0.9
Cogging Torque (mN.m)		69	132
Dimensions (mm)	L1 (Core Height)	14	29
	L2 (Rotor Height)	15	30
	L3 (Overall Height)	28	43

OD 115mm Frameless Direct-Drive Torque Motor

Motor OD: 115mm



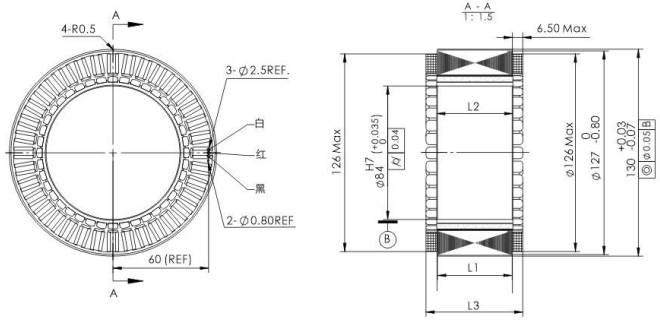


Model		115WK-□03025-48V-74-14	115WK-□04025-48V-74-18	115WK-□06020-48V-74-31
DC Voltage (VDC)		48	48	48
Rated Power (W)		785.4	1021	1597
Rated Torque (N.m)		3	3.9	6.1
Max. Torque (N.m)		9	11.7	18
Rated Current (A)		20.5	25	41
Max. Current (A)		60	75	120
Rated Speed (rpm)		2500	2500	2000
Max. Speed (rpm)		3200	3200	3200
Torque Constant (Nm/A)		0.146	0.156	0.148
Rotor Inertia (kg.cm²)		2.71	3.376	5.764
Back EMF Constant (V/Krpm)		8.5	9	9
Line Resistance (ohms@20°C)		0.075	0.06	0.03
Line Inductance (mH)		0.08	0.08	0.04
Pole Pairs (2P)		11	11	11
Weight (kg)		0.655	0.85	1.45
Cogging Torque (mN.m)		90	117	183
Dimensions (mm)	L1 (Core Height)	14	17.5	30.5
	L2 (Rotor Height)	15	18.5	31.5
	L3 (Overall Height)	26.6	30.9	44.1

OD 130mm Frameless Torque Motor (Frameless Direct-Drive Torque Motor)

Motor OD: 130mm





Model		130WK-□05008-48V-84-14	130WK-□09005-48V-84-23	130WK-□18004-48V-84-47
DC Voltage (VDC)		48	48	48
Rated Power (W)		419.2	471.6	754.56
Rated Torque (N.m)		5	9	18
Max. Torque (N.m)		11	20	40
Rated Current (A)		18	21	30
Max. Current (A)		40	50	70
Rated Speed (rpm)		800	500	400
Max. Speed (rpm)		1400	1000	800
Torque Constant (Nm/A)		0.28	0.43	0.6
Rotor Inertia (kg.cm²)		2.5	3.5	10
Back EMF Constant (V/Krpm)		26.5	35.6	39.6
Line Resistance (ohms@20°C)		0.21	0.245	0.136
Line Inductance (mH)		0.59	0.72	0.422
Pole Pairs (2P)		20	20	20
Weight (g)		900	1300	2700
Cogging Torque (mN.m)		150 (Ref.)	270 (Ref.)	540 (Ref.)
Dimensions (mm)	L1 (Core Height)	14	23	47
	L2 (Rotor Height)	15	24	48
	L3 (Overall Height)	25.9	35.9	60.9

OD 130mm Frameless Torque Motor (Frameless Direct-Drive Torque Motor)

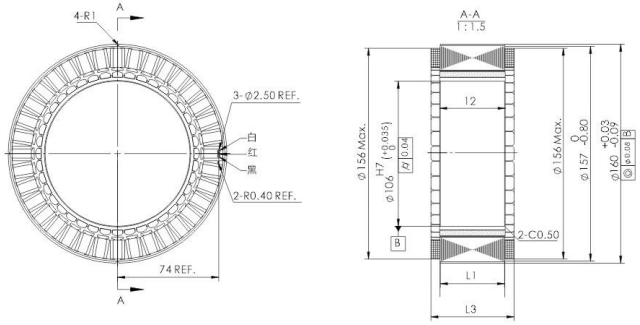
Motor OD: 130mm

Main Parameters		130WK-□05020-84-14	130WK-□09015-84-23	130WK-□18008-84-47
Voltage (VAC)		220	220	220
Rated Output Power (W)		1048	1414.8	1509.12
Rated Torque (N.m)		5	9	18
Peak Max. Torque (N.m)		11	20	40
Rated Current (A)		5.1	10	10
Peak Max. Current (A)		25	25	25
Rated Speed (rpm)		2000	1500	800
Max. Speed (rpm)		3000	2300	1200
Torque Constant (Nm/A)		1	0.9	1.8
Rotor Inertia (kg.cm²)		2.5	3.5	10
Back EMF Constant (V/Krpm)		76.2	73	140
Line Resistance (Ω)		1.98	0.87	1
Line Inductance (mH)		5.56	2.6	3.2
Pole Pairs (2P)		20	20	20
Weight (g)		900	1300	2700
Cogging Torque (mN.m)		150 (Ref.)	270 (Ref.)	540 (Ref.)
Dimensions (mm)	L1 (Core Height)	14	23	47
	L2 (Rotor Height)	15	24	48
	L3 (Overall Height)	25.9	35.9	60.9

OD 160mm Frameless Torque Motor (Frameless Direct-Drive Torque Motor)

Motor OD: 160mm





Model		160WK-□09005-48V-106-15	160WK-□15003-48V-106-23	160WK-□32002-48V-106-47
DC Voltage (VDC)		48	48	48
Rated Power (W)		471.6	471.6	670.72
Rated Torque (N.m)		9	15	32
Max. Torque (N.m)		20	32	66
Rated Current (A)		15	17	20
Max. Current (A)		35	38	45
Rated Speed (rpm)		500	300	200
Max. Speed (rpm)		800	600	400
Torque Constant (Nm/A)		0.6	0.88	1.6
Rotor Inertia (kg.cm²)		4.6	7	19
Back EMF Constant (V/Krpm)		42	61	84
Line Resistance (ohms@20°C)		0.18	0.26	0.16
Line Inductance (mH)		0.35	1.2	0.35
Pole Pairs (2P)		20	20	20
Weight (g)		1100	1600	3300
Cogging Torque (mN.m)		270 (Ref.)	450 (Ref.)	960 (Ref.)
Dimensions (mm)	L1 (Core Height)	15	23	47
	L2 (Rotor Height)	16.6	24.6	48.6
	L3 (Overall Height)	25.9	35.9	60.9

OD 160mm Frameless Torque Motor (Frameless Direct-Drive Torque Motor)

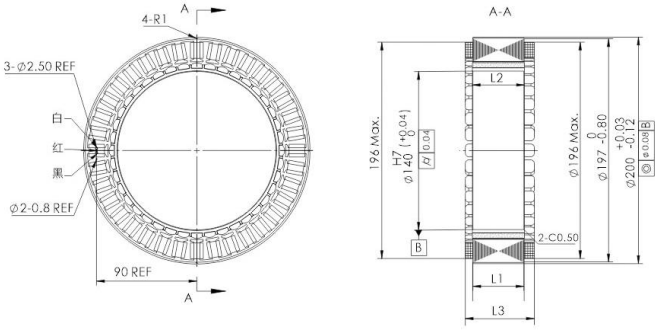
Motor OD: 160mm

Model		160WK-□09020-106-15	160WK-□15008-106-23	160WK-□32006-106-47
DC Voltage (VAC)		220	220	220
Rated Power (W)		1886.4	1257.6	2012.16
Rated Torque (N.m)		9	15	32
Max. Torque (N.m)		20	32	66
Rated Current (A)		10	10	10
Max. Current (A)		25	25	25
Rated Speed (rpm)		2000	800	600
Max. Speed (rpm)		3000	1500	1000
Torque Constant (Nm/A)		0.9	1.5	3.2
Rotor Inertia (kg.cm²)		4.6	7	20
Back EMF Constant (V/Krpm)		80	100	176
Line Resistance (ohms@20°C)		0.5	0.55	0.87
Line Inductance (mH)		1	1.2	1.79
Pole Pairs (2P)		20	20	20
Weight (g)		1100	1600	3300
Cogging Torque (mN.m)		270 (Ref.)	450 (Ref.)	1500 (Ref.)
Dimensions (mm)	L1 (Core Height)	15	23	47
	L2 (Rotor Height)	16.6	24.6	48.6
	L3 (Overall Height)	25.9	35.9	60.9

OD 200mm Frameless Torque Motor (Frameless Direct-Drive Torque Motor)

Motor OD: 200mm





Model		200WK-□13003-48V-140-11	200WK-□24002-48V-140-21	200WK-□50001-48V-140-45
DC Voltage (VDC)		48	48	48
Rated Power (W)		408.72	503.04	524
Rated Torque (N.m)		13	24	50
Max. Torque (N.m)		28	50	100
Rated Current (A)		14	18	18
Max. Current (A)		35	40	40
Rated Speed (rpm)		300	200	100
Max. Speed (rpm)		500	400	200
Torque Constant (Nm/A)		0.93	0.75	5
Rotor Inertia (kg.cm²)		15	28	60
Back EMF Constant (V/Krpm)		88	100	172.2
Line Resistance (ohms@20°C)		0.18	0.29	3.45
Line Inductance (mH)		0.35	1.79	0.51
Pole Pairs (2P)		20	20	20
Weight (g)		1700	2900	5500
Cogging Torque (mN.m)		390 (Ref.)	720 (Ref.)	1500 (Ref.)
Dimensions (mm)	L1 (Core Height)	11	21	45
	L2 (Rotor Height)	12	22	46
	L3 (Overall Height)	25.9	35.9	60.9

OD 200mm Frameless Torque Motor (Frameless Direct-Drive Torque Motor)

Motor OD: 200mm

Model		200WK-□13008-140-11	200WK-□24005-140-21	200WK-□50003-140-45
DC Voltage (VAC)		220	220	220
Rated Power (W)		1089.92	1257.6	1572
Rated Torque (N.m)		13	24	50
Max. Torque (N.m)		28	50	100
Rated Current (A)		10	10	10
Max. Current (A)		25	25	25
Rated Speed (rpm)		800	500	300
Max. Speed (rpm)		1200	800	500
Torque Constant (Nm/A)		1.3	2.4	5
Rotor Inertia (kg.cm²)		15	28	60
Back EMF Constant (V/Krpm)		166	200	716
Line Resistance (ohms@20°C)		0.72	0.8	4.61
Line Inductance (mH)		1.44	1.68	30
Pole Pairs (2P)		20	20	20
Weight (g)		1700	2900	5500
Cogging Torque (mN.m)		390 (Ref.)	720 (Ref.)	1500 (Ref.)
Dimensions (mm)	L1 (Core Height)	11	21	45
	L2 (Rotor Height)	12	22	46
	L3 (Overall Height)	25.9	35.9	60.9