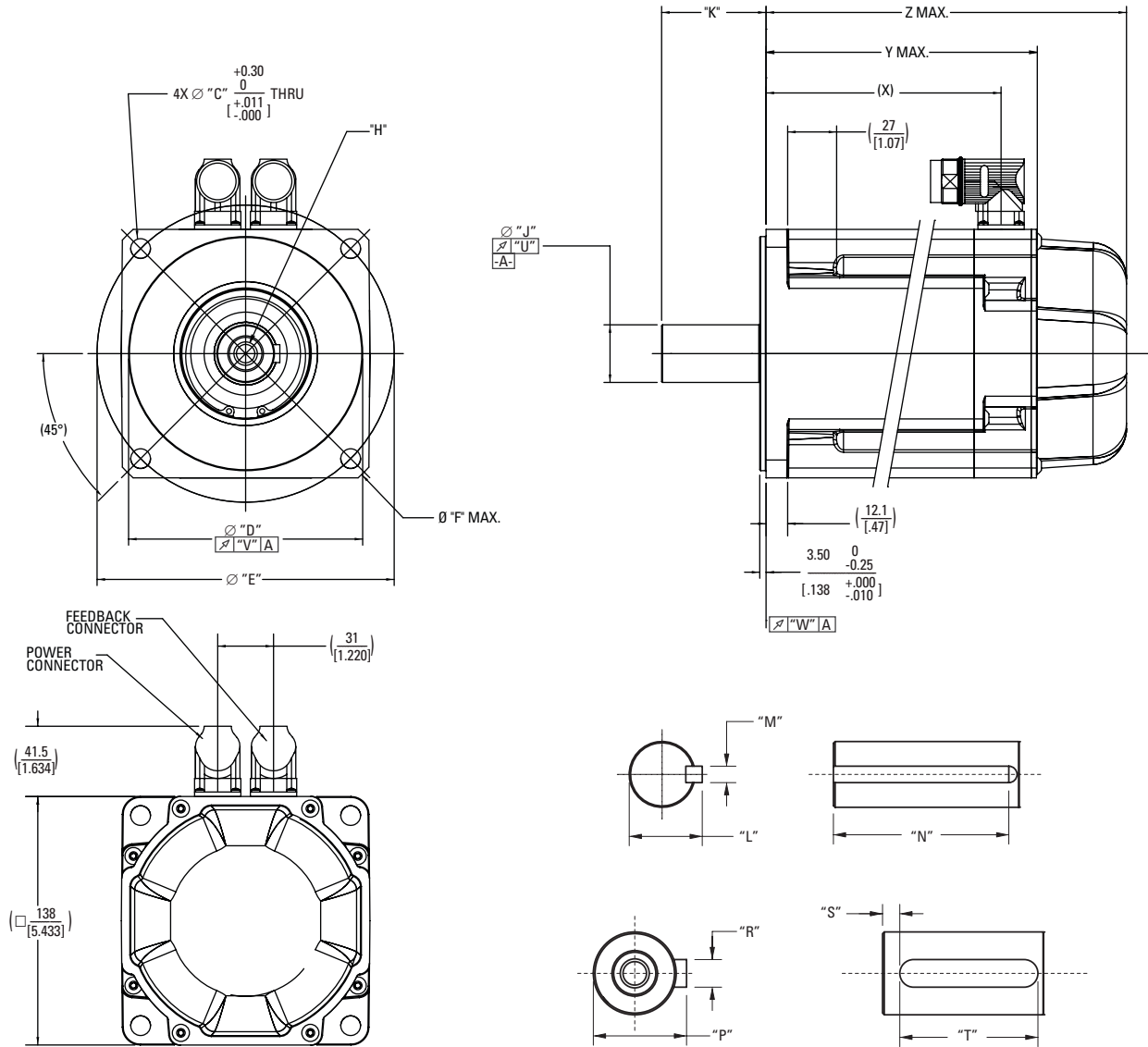


AKM6x Outline Drawings

AKM6X OUTLINE DRAWINGS

AKM6x Frame



AKM6x Dimension Data

AKM6x Dimension Data

Mounting Code	"C"	"D"	"E"	"F"	"H"	"J"	"K"	"L"
AC	11.00 [.433]	130 ^{+0.014} _{-0.011} [5.1181] j6	165.00 [6.496]	–	D M12 DIN 332	32 ^{+0.018} _{+0.002} [1.2598] k6	58 [2.28]	–
AN	11.00 [.433]	130 ^{+0.014} _{-0.011} [5.1181] j6	165.00 [6.496]	–	D M12 DIN 332	32 ^{+0.018} _{+0.002} [1.2598] k6	58 [2.28]	–
GC	11.00 [.433]	130 ^{+0.014} _{-0.011} [5.1181] j6	165.00 [6.496]	–	D M8 DIN 332	24 ^{+0.015} _{+0.002} [.9449] k6	50 [1.97]	–
GN	11.00 [.433]	130 ^{+0.014} _{-0.011} [5.1181] j6	165.00 [6.496]	–	D M8 DIN 332	24 ^{+0.015} _{+0.002} [.9449] k6	50 [1.97]	–
KK	9.00 [.354]	110 ⁰ _{-0.035} [4.3307] h7	145.00 [5.709]	165 [6.496]	–	28 ⁺⁰ _{+0.013} [1.1024] h6	60 [2.36]	31 ⁰ _{-0.29} [1.220] +0.000 -.011
LK	3/18 - 16 UNC-2B	114.3 ⁰ _{-0.076} [4.5000] +0.000 -.0030	149.225 [5.875]	165 [6.496]	–	28.580 ⁰ _{+0.013} [1.1250] +0.000 +.0005	69.85 [2.75]	31.39 ⁰ _{-0.43} [1.236] +0.000 -.017

Mounting Code	"M"	"N"	"P"	"R"	"S"	"T"	"U"	"V"	"W"
AC	–	–	35 ⁰ _{-0.29} [1.378] +0.000 -.001	10 ⁰ _{-0.036} [.3937] +0.000 -.0014 N9	5.00 [.197]	45 ⁰ _{-0.30} [1.772] +0.000 -.012	0.050 [.0019]	0.100 [.0039]	0.100 [.0039]
AN	–	–	–	–	–	–	0.050 [.0019]	0.100 [.0039]	0.100 [.0039]
GC	–	–	27 ⁰ _{-0.29} [1.063] +0.000 -.001	8 ⁰ _{-0.036} [.3150] +0.000 -.0014 N9	5.00 [.197]	40 ⁰ _{-0.30} [1.575] +0.000 -.012	0.050 [.0019]	0.100 [.0039]	0.100 [.0039]
GN	–	–	–	–	–	–	0.050 [.0019]	0.100 [.0039]	0.100 [.0039]
KK	8 ⁰ _{-0.036} [.3150] +0.000 -.0014	50 ⁰ _{-0.30} [1.969] +0.000 -.12	–	–	–	–	0.050 [.0019]	0.100 [.0039]	0.100 [.0039]
LK	6.35 ⁰ _{-0.05} [2.75] +0.000 -.002	38.1 ± 0.25 [1.500 ± .010]	–	–	–	–	0.050 [.0019]	0.100 [.0039]	0.100 [.0039]

MODEL	Z MAX SINE ENCODER (NO BRAKE)	Z MAX SINE ENCODER (W/ BRAKE)	(X)	Y MAX	Z MAX (W/ BRAKE)
AKM62	172.2 [6.78]	218.7 [8.85]	130.5 [5.14]	153.7 [6.05]	200.7 [7.90]
AKM63	197.2 [7.76]	224.7 [9.63]	155.5 [6.12]	178.7 [7.04]	225.7 [8.89]
AKM64	222.2 [8.75]	268.7 [10.62]	180.5 [7.11]	203.7 [8.02]	250.7 [9.87]
AKM65	247.2 [9.73]	294.7 [11.60]	205.5 [8.09]	228.7 [9.00]	275.7 [10.85]

Note 1: Dimensions are in mm [inches].

Note 2: Product designed in metric. English conversions provided for reference only.

AKM6x Performance Data

AKM6x Performance Data – Up to 640 Vdc

				AKM62				AKM63				AKM64			AKM65		
Parameters	Tol	Sym	Units	H	L	M	Q	H	L	M	Q	K	L	Q	L	M	P
Max Rated DC Bus Voltage	Max	V _{bus}	Vdc	640	640	640	320	640	640	640	320	640	640	640	640	640	640
Continuous Torque (Stall) for ΔT winding = 100°C ①②⑦⑧⑨	Nom	T _{cs}	Nm	11.9	12.2	12.2	12.0	16.6	16.8	17.0	16.7	20.8	21.0	20.6	25	25.0	24.5
			lb-in	105	108	108	106	147	149	150	148	184	186	182	221	221	217
Continuous Current (Stall) for ΔT winding = 100°C ①②⑦⑧⑨	Nom	I _{cs}	A _{rms}	5.4	12.0	13.4	21.8	5.6	11.1	13.8	22.4	9.2	12.8	20.7	12.2	13.6	19.8
Continuous Torque (Stall) for ΔT winding = 60°C ②	Nom	T _{cs}	Nm	9.5	9.8	9.72	9.6	13.3	13.4	13.6	13.4	16.6	16.8	16	20	20.0	19.6
			lb-in	84	87	86.0	85	118	119	120	119	147	149	142	177	177	173
Max Mechanical Speed ⑤	Nom	N _{max}	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000
Peak Torque ①②	Nom	T _p	Nm	29.6	30.1	30.2	29.8	42.1	42.6	43.0	42.4	53.5	54.1	53.2	65.2	65.2	65.2
			lb-in	262	266	267	264	373	377	381	374	473	479	471	577	577	577
Peak Current	Nom	I _p	A _{rms}	16.2	36.0	40.3	65.4	16.8	33.3	41.4	67.2	27.5	38.4	62.1	36.6	40.9	59.4
75 Vdc Rated Torque (speed) ①②⑦⑧⑨⑩		T _{rtd}	Nm	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			lb-in	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75 Vdc Rated Speed		N _{rtd}	rpm	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75 Vdc Rated Power (speed) ①②⑦⑧⑨		P _{rtd}	kW	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Hp	-	-	-	-	-	-	-	-	-	-	-	-	-	-
160 Vdc Rated Torque (speed) ①②⑦⑧⑨⑩		T _{rtd}	Nm	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			lb-in	-	-	-	-	-	-	-	-	-	-	-	-	-	-
160 Vdc Rated Speed		N _{rtd}	rpm	-	-	-	-	-	-	-	-	-	-	-	-	-	-
160 Vdc Rated Power (speed) ①②⑦⑧⑨		P _{rtd}	kW	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Hp	-	-	-	-	-	-	-	-	-	-	-	-	-	-
320 Vdc Rated Torque (speed) ①②⑦⑧⑨⑩		T _{rtd}	Nm	10.8	10.0	9.50	6.5	-	14.2	14.3	11.9	18.8	18.4	15.3	22.4	21.9	19.1
			lb-in	99	89	84.1	58	-	126	127	105	166	163	135	198	194	169
320 Vdc Rated Speed		N _{rtd}	rpm	1000	2500	3000	5500	-	1500	2000	3500	1200	1500	3000	1300	1500	2400
320 Vdc Rated Power (speed) ①②⑦⑧⑨		P _{rtd}	kW	1.17	2.62	2.98	3.74	-	2.23	2.99	4.36	2.36	2.89	4.81	3.05	3.44	4.8
			Hp	1.57	3.51	4.00	5.02	-	2.99	4.01	5.85	3.17	3.87	6.45	4.09	4.61	6.44
560 Vdc Rated Torque (speed) ①②⑦⑧⑨⑩		T _{rtd}	Nm	10.2	7.42	5.70	-	14.6	12.9	11.3	-	17.2	15.6	10.7	19.2	18.8	14.9
			lb-in	90.3	65.7	50.4	-	129	114	100	-	152	138	95	170	166	132
560 Vdc Rated Speed		N _{rtd}	rpm	2000	5000	6000	-	1500	3000	4000	-	2000	3000	5000	2500	2700	4000
560 Vdc Rated Power (speed) ①②⑦⑧⑨		P _{rtd}	kW	2.14	3.89	3.58	-	2.29	4.05	4.73	-	3.60	4.90	5.6	5.03	5.32	6.24
			Hp	2.86	5.21	4.80	-	3.08	5.43	6.34	-	4.83	6.57	7.51	6.74	7.13	8.37
640 Vdc Rated Torque (speed) ①②⑦⑧⑨⑩		T _{rtd}	Nm	9.9	5.74	5.70	-	14.2	12.0	10.5	-	16.3	14.4	7.4	18.6	18.1	11.6
			lb-in	87.6	50.8	50.4	-	126	106	92.9	-	144	127	66	165	160	103
640 Vdc Rated Speed		N _{rtd}	rpm	2400	6000	6000	-	1800	3500	4500	-	2500	3500	6000	2800	3000	5000
640 Vdc Rated Power (speed) ①②⑦⑧⑨		P _{rtd}	kW	2.49	3.61	3.58	-	2.68	4.4	4.95	-	4.27	5.28	4.65	5.37	5.69	6.08
			Hp	3.34	4.84	4.80	-	3.59	5.90	6.63	-	5.72	7.07	6.23	7.2	7.62	8.14

See following page for notes.

AKM6x Performance Data – Up to 640 Vdc (Continued)

Parameters	Tol	Sym	Units	AKM62				AKM63				AKM64			AKM65		
				H	L	M	Q	H	L	M	Q	K	L	Q	L	M	P
Torque Constant ①	±10%	K_t	Nm/Arms	2.2	1.0	0.91	0.60	3.00	1.5	1.24	0.75	2.28	1.66	1.0	2.1	1.85	1.3
			lb-in/Arms	19.5	8.85	8.1	5.3	26.6	13.3	11.0	7.1	20.2	14.7	8.85	18.6	16.4	11.5
Back EMF Constant ⑥	±10%	K_e	V/krpm	142	65.5	58.8	35.5	191.5	98.2	79.9	48.3	147	107	64.4	133	119	80.5
Motor Constant	Nom	K_m	N-m/√W	0.989	0.949	0.984	1.00	1.32	1.26	1.30	1.28	1.57	1.57	1.44	1.81	1.77	1.75
			lb-in/√W	8.75	8.40	8.71	8.85	11.7	11.2	11.5	11.3	13.9	13.9	12.8	16.0	15.6	15.4
Resistance (line-line) ⑥	±10%	R_m	ohm	3.3	0.74	0.57	0.24	3.43	0.94	0.61	0.23	1.41	0.75	0.32	0.90	0.73	0.37
Inductance (line-line)		L	mH	25.4	5.4	4.4	1.6	28.1	7.4	4.9	1.8	11.8	6.2	2.3	7.6	6.1	2.8
Inertia (includes Resolver feedback) ③	±10%	J_m	kg-cm ²	17				24				32			40		
			lb-in-s ²	0.015				0.021				0.028			0.035		
Optional Brake Inertia (additional)	±10%	J_m	kg-cm ²	0.61				0.61				0.61			0.61		
			lb-in-s ²	5.4E-04				5.4E-04				5.4E-04			5.4E-04		
Weight		W	kg	8.9				11.1				13.3			15.4		
			lb	19.6				24.4				29.3			33.9		
Static Friction ①⑩		T_f	Nm	0.05				0.1				0.15			0.2		
			lb-in	0.44				0.9				1.3			1.8		
Viscous Damping ①		K_{dv}	Nm/krpm	0.04				0.06				0.08			0.1		
			lb-in/krpm	0.35				0.53				0.71			0.9		
Thermal Time Constant		TCT	minutes	20				25				30			35		
Thermal Resistance		R_{thw-a}	°C/W	0.46				0.41				0.38			0.35		
Pole Pairs				5				5				5			5		
Heat Sink Size				18"x18"x1/2" Aluminum Plate				18"x18"x1/2" Aluminum Plate				18"x18"x1/2" Aluminum Plate			18"x18"x1/2" Aluminum Plate		

Notes:

- ① Motor winding temperature rise, $\Delta T=100^\circ\text{C}$, at 40°C ambient.
 ② All data referenced to sinusoidal commutation.
 ③ Add parking brake if applicable for total inertia.
 ④ Motor with standard heat sink.
 ⑤ May be limited at some values of V_{bus} .
 ⑥ Measured at 25°C .
 ⑦ Brake motor option reduces continuous torque ratings by:
 AKM62 = 0.5 Nm AKM63 = 0.9 Nm AKM64 = 1.3 Nm AKM65 = 1.7 Nm
 ⑧ Non-Resolver feedback options reduce continuous torque ratings by:
 AKM62 = 0.9 Nm AKM63 = 1.2 Nm AKM64 = 1.5 Nm AKM65 = 1.8 Nm
 ⑨ Motors with non-resolver feedback and brake option, reduce continuous torque by:
 AKM62 = 1.6 Nm AKM63 = 2.4 Nm AKM64 = 3.1 Nm AKM65 = 4.0 Nm
 ⑩ For motors with optional shaft seal, reduce torque shown by 0.25 Nm (2.21 lb-in), and increase T_f by the same amount.

Additional Notes: See system data beginning on page 14 for typical torque/speed performance.
 Additional windings can be found through our online Motioneering sizing and selection software tool. See page 73 for more information.