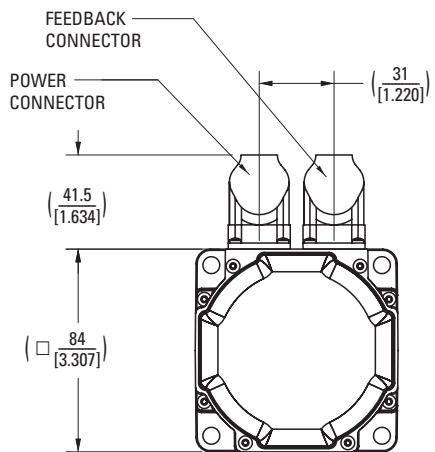
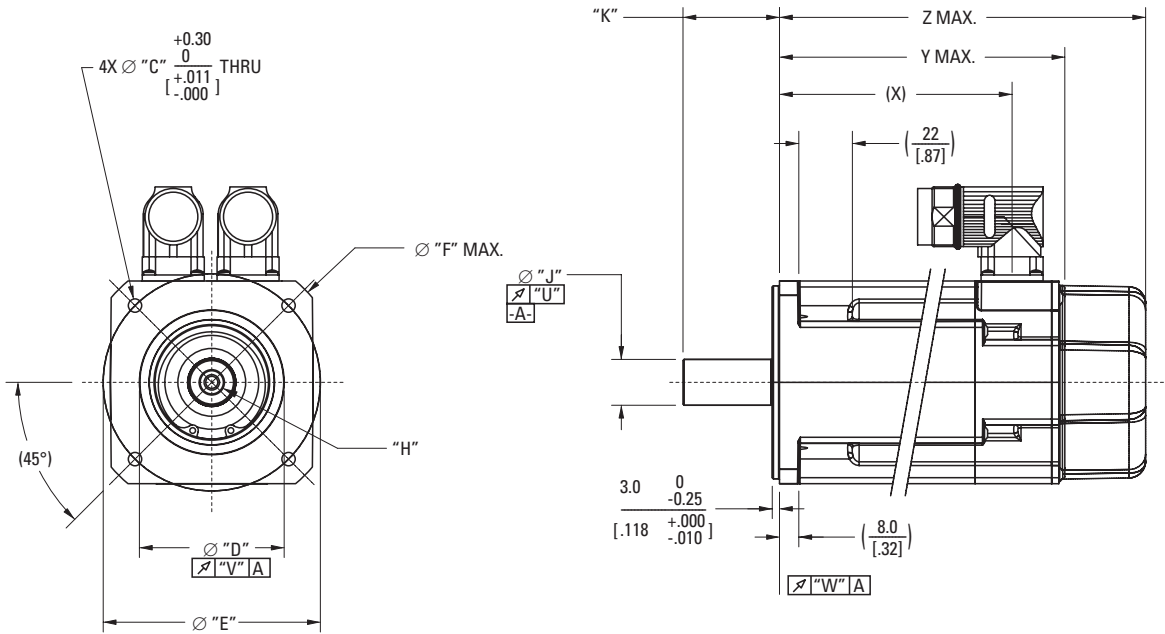
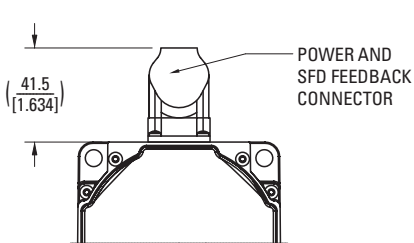
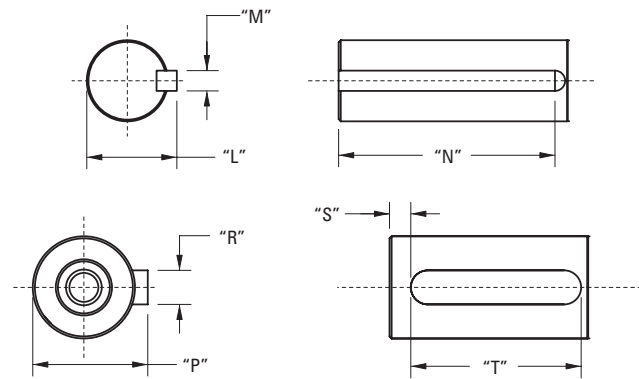


AKM4x Outline Drawings

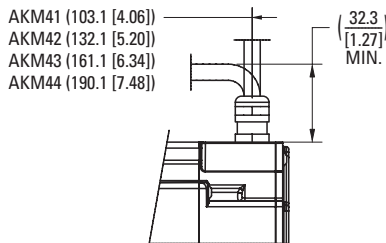
AKM4x Frame



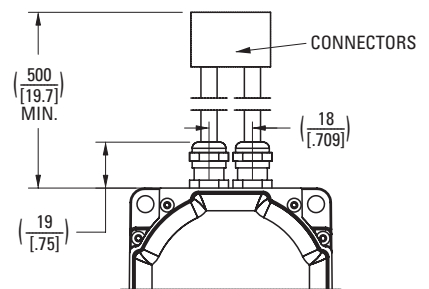
SHOWN WITH "C" CONNECTOR OPTION



SHOWN WITH "D" CONNECTOR OPTION



SHOWN WITH "M" OR "P" CONNECTOR OPTION



AKM4x Dimension Data

AKM4x Dimension Data

Mounting Code	"C"	"D"	"E"	"F"	"H"	"J"	"K"	"L"
AC	7 [.276]	80 ^{+0.012} _{-0.007} [3.1496] j6 ^{+0.004} _{-0.002}	100 [3.937]	–	D M6 DIN 332	19 ^{+0.015} _{+0.002} [.7480] k6 ^{+0.006} _{+0.001}	40.0 [1.57]	–
AN	7 [.276]	80 ^{+0.012} _{-0.007} [3.1496] j6 ^{+0.004} _{-0.002}	100 [3.937]	–	D M6 DIN 332	19 ^{+0.015} _{+0.002} [.7480] k6 ^{+0.006} _{+0.001}	40.0 [1.57]	–
BK	5.54 [.218]	73.025 ⁰ [2.8750] j6 ^{+0.000} _{-0.020}	98.43 [3.875]	–	–	15.875 ⁰ [.6250] k6 ^{+0.013} _{+0.000} ^{+0.006} _{-0.005}	52.40 ± 0.79 [2.063 ± .031]	17.92 ⁰ [.706] k6 ^{-0.43} _{+0.000} ^{+0.000} _{-0.017}
CC	5.54 [.218]	60 ^{+0.012} _{-0.007} [2.3622] j6 ^{+0.004} _{-0.002}	90 [3.543]	109 [4.291]	D M6 DIN 332	19 ^{+0.015} _{+0.002} [.7480] k6 ^{+0.006} _{+0.001}	40.0 [1.57]	–
CN	5.54 [.218]	60 ^{+0.012} _{-0.007} [2.3622] j6 ^{+0.004} _{-0.002}	90 [3.543]	109 [4.291]	D M6 DIN 332	19 ^{+0.015} _{+0.002} [.7480] k6 ^{+0.006} _{+0.001}	40.0 [1.57]	–
EK	5.54 [.218]	73.025 ⁰ [2.8750] j6 ^{+0.000} _{-0.020}	98.43 [3.875]	–	–	12.700 ⁰ [.5000] k6 ^{+0.013} _{+0.000} ^{+0.005} _{-0.005}	31.75 ± 0.25 [1.250 ± .010]	14.09 ⁰ [.555] k6 ^{-0.43} _{+0.000} ^{+0.000} _{-0.017}
GC	7 [.276]	80 ^{+0.012} _{-0.007} [3.1496] j6 ^{+0.004} _{-0.002}	100 [3.937]	–	D M6 DIN 332	14 ^{+0.012} _{+0.001} [.5512] k6 ^{+0.005} _{+0.000}	30 [1.18]	–
GN	7 [.276]	80 ^{+0.012} _{-0.007} [3.1496] j6 ^{+0.004} _{-0.002}	100 [3.937]	–	D M6 DIN 332	14 ^{+0.012} _{+0.001} [.5512] k6 ^{+0.005} _{+0.000}	30 [1.18]	–
HC	5.54 [.218]	60 ^{+0.012} _{-0.007} [2.3622] j6 ^{+0.004} _{-0.002}	90 [3.543]	109 [4.291]	D M6 DIN 332	14 ^{+0.012} _{+0.001} [.5512] k6 ^{+0.005} _{+0.000}	30 [1.18]	–
HN	5.54 [.218]	60 ^{+0.012} _{-0.007} [2.3622] j6 ^{+0.004} _{-0.002}	90 [3.543]	109 [4.291]	D M6 DIN 332	14 ^{+0.012} _{+0.001} [.5512] k6 ^{+0.005} _{+0.000}	30 [1.18]	–
KK	7 [.276]	70 ⁺⁰ [2.7559] h7 ^{-0.03} _{+0.000} ^{+0.000} _{-0.012}	90 [3.543]	109 [4.291]	–	16 ⁺⁰ [.6299] h6 ^{+0.011} _{+0.000} ^{+0.000} _{+0.004}	40.0 [1.57]	–

MODEL	(X)	Y MAX	Z MAX (W/ BRAKE)
AKM41	96.4 [3.80]	118.8 [4.68]	152.3 [6.00]
AKM42	125.4 [4.94]	147.8 [5.82]	181.3 [7.14]
AKM43	154.4 [6.08]	176.8 [6.96]	210.3 [8.28]
AKM44	183.4 [7.22]	205.8 [8.10]	239.3 [9.42]

Note 1: Dimensions are in mm [inches].

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

AKM4x Dimension Data

Mounting Code	"M"	"N"	"P"	"R"	"S"	"T"	"U"	"V"	"W"
AC	–	–	21.5 ⁰ -0.13 +0.00 [.846 -0.005]	6 ⁰ -0.03 +0.00 [.236 -0.001] N9	4.00 [1.57]	32 ⁰ -0.30 +0.00 [1.260 -0.012]	0.040 [.0015]	0.080 [.0031]	0.080 [.0031]
AN	–	–	–	–	–	–	0.040 [.0015]	0.080 [.0031]	0.080 [.0031]
BK	4.762 ⁰ -0.050 +0.000 [.1875 -0.0020]	34.93 ± 0.25 [1.375 ± .010]	–	–	–	–	0.051 [.0020]	0.10 [.004]	0.10 [.004]
CC	–	–	21.5 ⁰ -0.13 +0.00 [.846 -0.005]	6 ⁰ -0.03 +0.00 [.236 -0.001] N9	4.00 [1.57]	32 ⁰ -0.30 +0.00 [1.260 -0.012]	0.040 [.0015]	0.080 [.0031]	0.080 [.0031]
CN	–	–	–	–	–	–	0.040 [.0015]	0.080 [.0031]	0.080 [.0031]
EK	3.175 ⁰ -0.050 +0.000 [.1250 -0.0020]	19.05 ± 0.25 [.750 ± .010]	–	–	–	–	0.051 [.0020]	0.10 [.004]	0.10 [.004]
GC	–	–	16 ⁰ -0.13 +0.00 [.630 -0.005]	5 ⁰ -0.03 +0.00 [.197 -0.001] N9	6.00 [.236]	20 ⁰ -0.20 +0.00 [.787 -0.008]	0.040 [.0015]	0.080 [.0031]	0.080 [.0031]
GN	–	–	–	–	–	–	0.040 [.0015]	0.080 [.0031]	0.080 [.0031]
HC	–	–	16 ⁰ -0.13 +0.00 [.630 -0.005]	5 ⁰ -0.03 +0.00 [.197 -0.001] N9	6.00 [.236]	20 ⁰ -0.20 +0.00 [.787 -0.008]	0.040 [.0015]	0.080 [.0031]	0.080 [.0031]
HN	–	–	–	–	–	–	0.040 [.0015]	0.080 [.0031]	0.080 [.0031]
KK	5 ⁰ -0.03 +0.000 [.197 -0.001]	30 ⁰ -0.20 +0.00 [1.181 -0.008]	–	–	–	–	0.051 [.0020]	0.008 [.0031]	0.008 [.0031]

AKM4x Performance Data

AKM4x Performance Data – Up to 640 Vdc

				AKM41			AKM42				AKM43			AKM44		
Parameters	Tol	Sym	Units	C	E	H	C	E	G	J	E	H	L	E	H	J
Max Rated DC Bus Voltage	Max	Vbus	Vdc	640	640	320	640	640	640	320	640	640	320	640	640	640
Continuous Torque (Stall) for ΔT winding = 100°C ①②⑦⑧⑨	Nom	T_{CS}	Nm	1.95	2.02	2.06	3.35	3.42	3.53	3.56	4.70	4.82	4.73	5.76	5.89	6.00
			lb-in	17.3	17.9	18.2	29.6	30.3	31.2	31.5	41.6	42.7	41.9	51.0	52.1	53.1
Continuous Current (Stall) for ΔT winding = 100°C ①②⑦⑧⑨	Nom	I_{CS}	A_{RMS}	1.46	2.85	5.60	1.40	2.74	4.80	8.40	2.76	5.4	11.2	2.9	5.6	8.8
Continuous Torque (Stall) for ΔT winding = 60°C ②	Nom	T_{CS}	Nm	1.56	1.62	1.65	2.68	2.74	2.82	2.85	3.76	3.86	3.78	4.61	4.71	4.80
			lb-in	13.8	14.3	14.6	23.7	24.2	25.0	25.2	33.3	34.2	33.5	40.8	41.7	42.5
Max Mechanical Speed ⑤	Nom	N_{max}	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000
Peak Torque ①②	Nom	T_p	Nm	6.12	6.28	6.36	11.1	11.3	11.5	11.6	15.9	16.1	16.0	19.9	20.2	20.4
			lb-in	54.2	55.6	56.3	98.2	99.7	102	103	141	142	142	176	179	181
Peak Current	Nom	I_p	A_{RMS}	5.8	11.4	22.4	5.60	11.0	19.2	33.7	11.0	21.6	44.6	11.4	22.4	35.2
Rated Torque (speed) ①②⑦⑧⑨⑩		T_{Rtd}	Nm	-	-	1.99	-	-	-	-	-	-	-	-	-	-
			lb-in	-	-	17.6	-	-	-	-	-	-	-	-	-	-
Rated Speed		N_{Rtd}	rpm	-	-	1000	-	-	-	-	-	-	-	-	-	-
Rated Power (speed) ①②⑦⑧⑨		P_{Rtd}	kW	-	-	0.21	-	-	-	-	-	-	-	-	-	-
			Hp	-	-	0.28	-	-	-	-	-	-	-	-	-	-
Rated Torque (speed) ①②⑦⑧⑨⑩		T_{Rtd}	Nm	-	1.94	1.86	-	-	-	3.03	-	4.46	3.78	-	5.44	-
			lb-in	-	17.2	16.5	-	-	-	26.8	-	39.4	33.5	-	48.2	-
Rated Speed		N_{Rtd}	rpm	-	1200	3000	-	-	-	3000	-	1200	3000	-	1000	-
Rated Power (speed) ①②⑦⑧⑨		P_{Rtd}	kW	-	0.24	0.58	-	-	-	0.95	-	0.56	1.19	-	0.57	-
			Hp	-	0.33	0.78	-	-	-	1.28	-	0.75	1.59	-	0.76	-
Rated Torque (speed) ①②⑦⑧⑨⑩		T_{Rtd}	Nm	1.88	1.82	1.62	-	3.12	2.90	2.38	4.24	3.86	2.53	5.22	4.66	3.84
			lb-in	16.6	16.1	14.3	-	27.6	25.7	21.1	37.5	34.2	22.4	46.2	41.2	34.0
Rated Speed		N_{Rtd}	rpm	1200	3000	6000	-	1800	3500	6000	1500	3000	6000	1200	2500	4000
Rated Power (speed) ①②⑦⑧⑨		P_{Rtd}	kW	0.24	0.57	1.02	-	0.59	1.06	1.50	0.67	1.21	1.59	0.66	1.22	1.61
			Hp	0.32	0.77	1.36	-	0.79	1.42	2.00	0.89	1.63	2.13	0.88	1.64	2.16
Rated Torque (speed) ①②⑦⑧⑨⑩		T_{Rtd}	Nm	1.77	1.58	-	3.10	2.81	2.35	-	3.92	2.81	-	4.80	3.48	2.75
			lb-in	15.7	14.0	-	27.4	24.9	20.8	-	34.7	24.9	-	42.5	30.8	24.3
Rated Speed		N_{Rtd}	rpm	3000	6000	-	1500	3500	6000	-	2500	5500	-	2000	4500	6000
Rated Power (speed) ①②⑦⑧⑨		P_{Rtd}	kW	0.56	0.99	-	0.49	1.03	1.48	-	1.03	1.62	-	1.01	1.64	1.73
			Hp	0.75	1.33	-	0.65	1.38	1.98	-	1.38	2.17	-	1.35	2.20	2.32
Rated Torque (speed) ①②⑦⑧⑨⑩		T_{Rtd}	Nm	1.74	1.58	-	3.02	2.72	2.35	-	3.76	2.58	-	4.56	2.93	2.75
			lb-in	15.4	14.0	-	26.7	24.1	20.8	-	33.3	22.8	-	40.4	26.0	24.3
Rated Speed		N_{Rtd}	rpm	3500	6000	-	2000	4000	6000	-	3000	6000	-	2500	5500	6000
Rated Power (speed) ①②⑦⑧⑨		P_{Rtd}	kW	0.64	0.99	-	0.63	1.14	1.48	-	1.18	1.62	-	1.19	1.69	1.73
			Hp	0.85	1.33	-	0.85	1.53	1.98	-	1.58	2.17	-	1.60	2.27	2.32

See following page for notes.

AKM4x Performance Data – Up to 640 Vdc (Continued)

Parameters	Tol	Sym	Units	AKM41			AKM42				AKM43			AKM44		
				C	E	H	C	E	G	J	E	H	L	E	H	J
Torque Constant ①	±10%	K _t	Nm/A _{rms}	1.34	0.71	0.37	2.40	1.26	0.74	0.43	1.72	0.89	0.43	2.04	1.06	0.69
			lb-in/A _{rms}	11.9	6.3	3.3	21.2	11.2	6.5	3.8	15.2	7.9	3.8	18.1	9.4	6.1
Back EMF Constant ⑥	±10%	K _e	V/krpm	86.3	45.6	23.7	154	80.9	47.5	27.5	111	57.4	27.5	132	68.0	44.2
Motor Constant	Nom	K _m	N-m/√W	0.237	0.236	0.242	0.374	0.369	0.381	0.393	0.479	0.501	0.465	0.567	0.580	0.581
			lb-in/√W	2.10	2.09	2.14	3.31	3.26	3.37	3.47	4.24	4.44	4.12	5.01	5.13	5.14
Resistance (line-line) ⑥	±10%	R _m	ohm	21.3	6.02	1.56	27.5	7.78	2.51	0.8	8.61	2.1	0.57	8.64	2.23	0.94
Inductance (line-line)		L	mH	66.1	18.4	5.0	97.4	26.8	9.2	3.1	32.6	8.8	2.0	33.9	9.1	3.8
Inertia (includes Resolver feedback) ③	±10%	J _m	kg-cm ²	0.81			1.5				2.1			2.7		
			lb-in-s ²	7.2E-04			1.3E-03				1.8E-03			2.4E-03		
Optional Brake Inertia (additional)	±10%	J _m	kg-cm ²	0.068			0.068				0.068			0.068		
			lb-in-s ²	6.0E-05			6.0E-05				6.0E-05			6.0E-05		
Weight		W	kg	2.44			3.39				4.35			5.3		
			lb	5.4			7.5				9.6			11.7		
Static Friction ①⑩		T _f	Nm	0.014			0.026				0.038			0.05		
			lb-in	0.12			0.23				0.34			0.44		
Viscous Damping ①		K _{dv}	Nm/krpm	0.009			0.013				0.017			0.021		
			lb-in/krpm	0.08			0.12				0.15			0.19		
Thermal Time Constant		TCT	minutes	13			17				20			24		
Thermal Resistance		R _{thw-a}	°C/W	0.97			0.80				0.70			.65		
Pole Pairs				5			5				5			5		
Heat Sink Size				10"x10"x1/4" Aluminum Plate			10"x10"x1/4" Aluminum Plate				10"x10"x1/4" Aluminum Plate			10"x10"x1/4" Aluminum Plate		

Notes:

- ① Motor winding temperature rise, ΔT=100°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 0.12 Nm.
- ⑧ Non-Resolver feedback options reduces continuous ratings by:
AKM41 = 0.1 Nm AKM42 = 0.1 Nm AKM43 = 0.2 Nm AKM44 = 0.3 Nm
- ⑨ Motors with non-resolver feedback and brake option, reduce continuous torque by:
AKM41 = 0.22 Nm AKM42 = 0.36 Nm AKM43 = 0.55 Nm AKM44 = 0.76 Nm
- ⑩ For motors with optional shaft seal, reduce torque shown by 0.071 Nm (0.63 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.