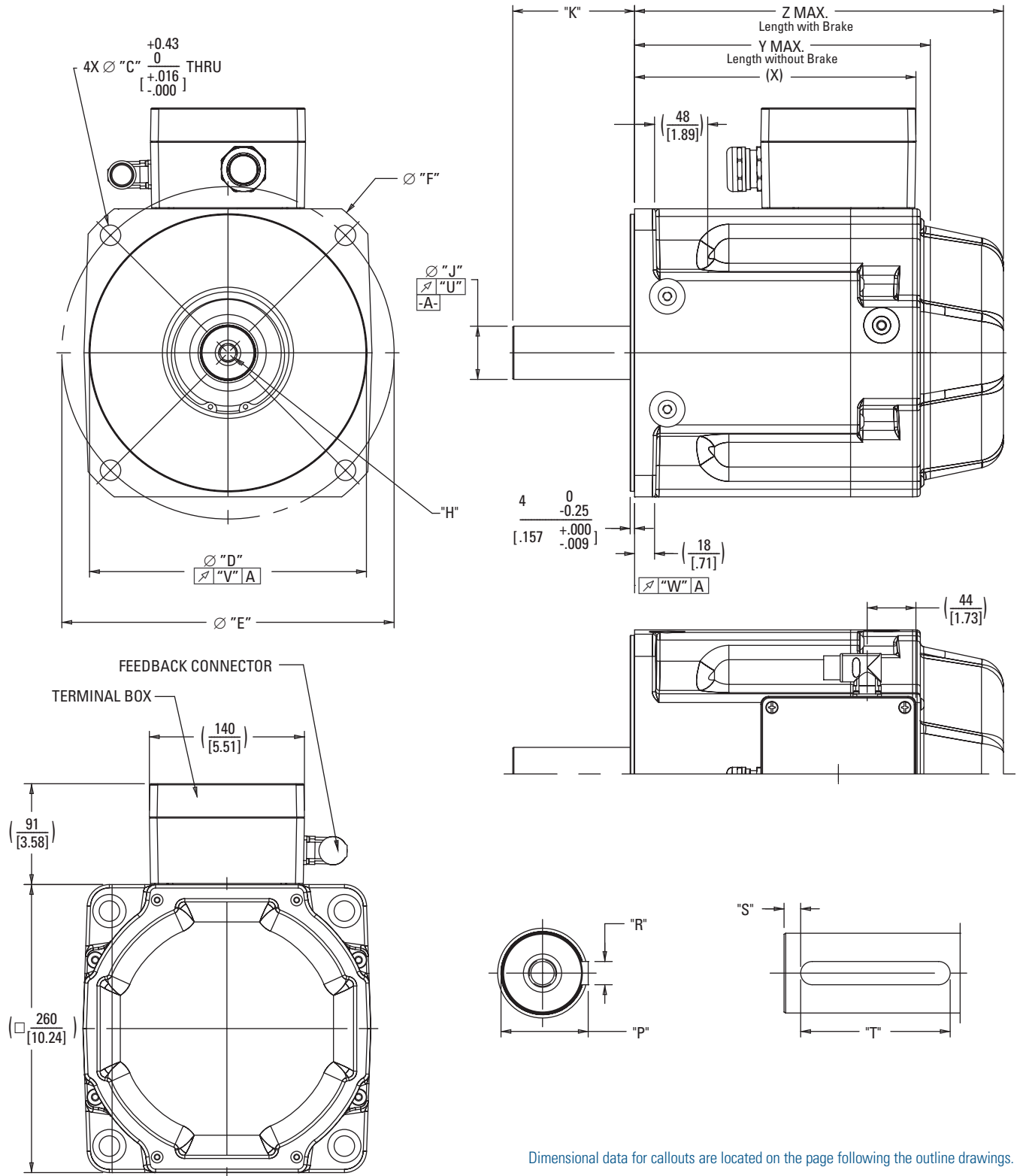


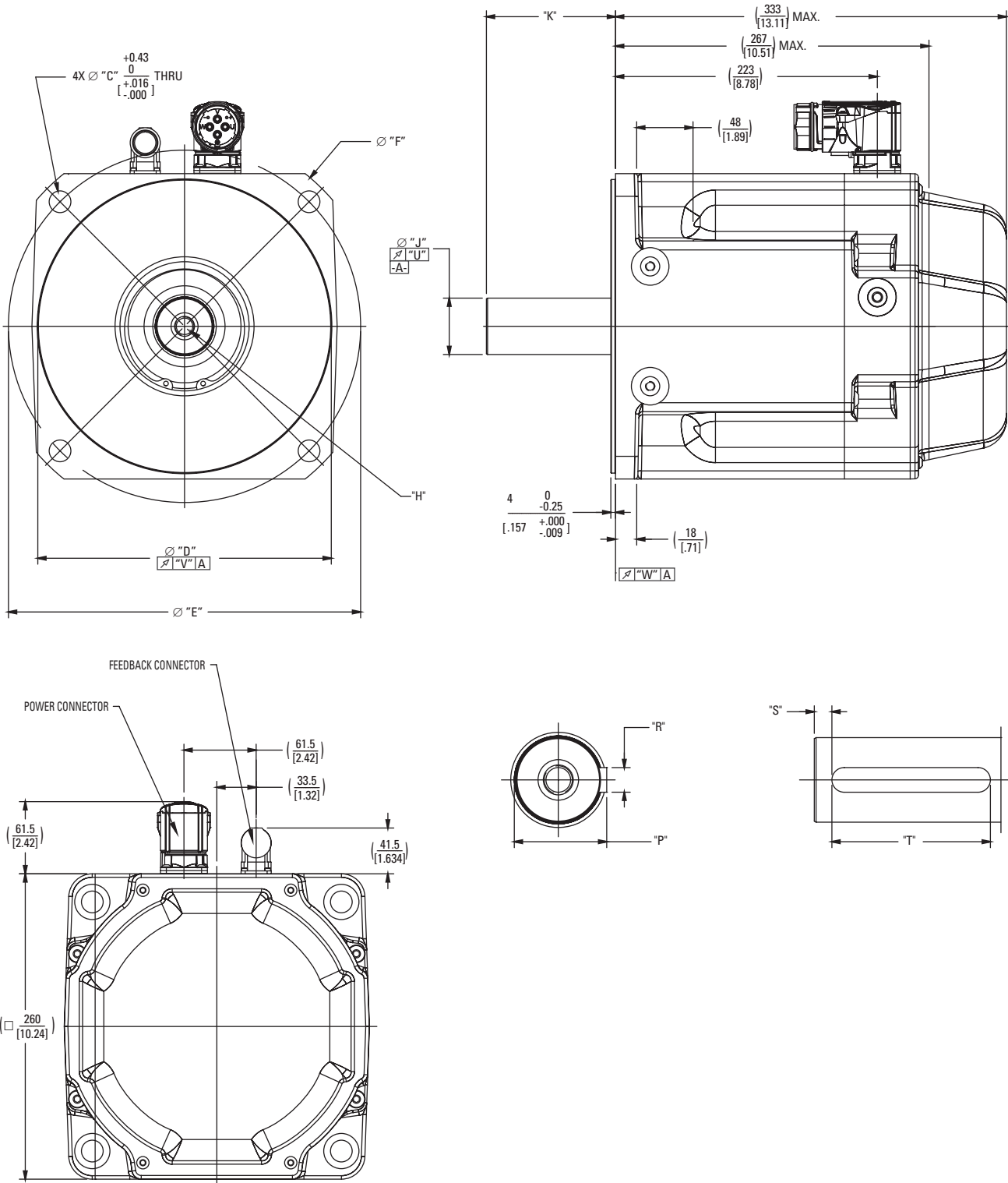
AKM8x Outline Drawings

AKM8x Frame with Terminal Box



Dimensional data for callouts are located on the page following the outline drawings.

AKM82 Frame with Rotatable IP65 Connectors



Dimensional data for callouts are located on the following page.

AKM8x Dimension Data

AKM8x Dimension Data

Mounting Code	"C"	"D"	"E"	"F"	"H"	"J"	"K"	"P"	"R"	"S"	"T"	"U"	"V"	"W"	
AC	18.5 [.728]	250 ^{+0.016} -0.013 j6 [9.8425 +0.0006 -0.0005]	300 [11.811]	-	D M16 DIN 332	48 ^{+0.018} +0.002 +0.007 k6 [1.8898 +0.0001]	110 [4.33]	51.5 ⁰ -0.29 +0.000 -0.011 [2.028 -0.011]	14 ⁰ -0.043 +0.000 -0.016 h9 [.5512 -0.016]	10 [.394]	90 ⁰ -0.50 +0.000 -0.019 [3.543 +0.000 -0.019]	0.050 [.0019]	0.125 [.0049]	0.125 [.0049]	
AN	18.5 [.728]	250 ^{+0.016} -0.013 j6 [9.8425 +0.0006 -0.0005]	300 [11.811]	-	D M16 DIN 332	48 ^{+0.018} +0.002 +0.007 k6 [1.8898 +0.0001]	110 [4.33]	-	-	-	-	0.050 [.0019]	0.125 [.0049]	0.125 [.0049]	
CC	14.5 [.571]	230 ^{+0.016} -0.013 j6 9.055 [9.8425 +0.0006 -0.0005]	265 [10.433]	300 [11.811]	D M16 DIN 332	48 ^{+0.018} +0.002 +0.007 k6 [1.8898 +0.0001]	110 [4.33]	51.5 ⁰ -0.29 +0.000 -0.011 [2.028 -0.011]	14 ⁰ -0.043 +0.000 -0.016 h9 [.5512 -0.016]	10 [.394]	90 ⁰ -0.50 +0.000 -0.019 [3.543 +0.000 -0.019]	0.050 [.0019]	0.100 [.0039]	0.100 [.0039]	
CN	14.5 [.571]	230 ^{+0.016} -0.013 j6 9.055 [9.8425 +0.0006 -0.0005]	265 [10.433]	300 [11.811]	D M16 DIN 332	48 ^{+0.018} +0.002 +0.007 k6 [1.8898 +0.0001]	82 [3.228]	-	-	-	-	0.050 [.0019]	0.100 [.0039]	0.100 [.0039]	
HC	14.5 [.571]	230 ^{-0.013} +0.006 j6 9.055 [9.8425 +0.0006 -0.0005]	265 [10.433]	300 [11.811]	D M16 DIN 332	42 ^{+0.018} +0.002 +0.007 k6 [1.6535 +0.0001]	82 [3.228]	45 ⁰ -0.29 +0.000 -0.011 [1.7772 -0.011]	12 ⁰ -0.043 +0.000 -0.016 h9 [.5512 -0.016]	8 [.315]	63 ⁰ -0.50 +0.000 -0.019 [2.480 +0.000 -0.019]	0.050 [.0019]	0.100 [.0039]	0.100 [.0039]	
HN	14.5 [.571]	230 ^{+0.016} -0.013 j6 9.055 [9.8425 +0.0006 -0.0005]	265 [10.433]	300 [11.811]	D M16 DIN 332	42 ^{+0.018} +0.002 +0.007 k6 [1.6535 +0.0001]	82 [3.228]	-	-	-	-	0.050 [.0019]	0.100 [.0039]	0.100 [.0039]	
GC	18.5 [.728]	250 ^{+0.016} -0.013 j6 [9.8425 +0.0006 -0.0005]	300 [11.811]	-	D M16 DIN 332	48 ^{+0.018} +0.002 +0.007 k6 [1.8898 +0.0001]	82 [3.228]	51.5 ⁰ -0.29 +0.000 -0.011 [2.028 -0.011]	14 ⁰ -0.043 +0.000 -0.016 h9 [.5512 -0.016]	8 [.315]	63 ⁰ -0.50 +0.000 -0.019 [2.480 +0.000 -0.019]	0.050 [.0019]	0.125 [.0049]	0.125 [.0049]	
GN	18.5 [.728]	250 ^{+0.016} -0.013 j6 [9.8425 +0.0006 -0.0005]	300 [11.811]	-	D M16 DIN 332	48 ^{+0.018} +0.002 +0.007 k6 [1.8898 +0.0001]	82 [3.228]	-	-	-	-	0.050 [.0019]	0.125 [.0049]	0.125 [.0049]	
REINFORCED BEARINGS	MC	18.5 [.728]	250 ^{+0.016} -0.013 j6 [9.8425 +0.0006 -0.0005]	300 [11.811]	-	D M16 DIN 332	48 ^{+0.018} +0.002 +0.007 k6 [1.8898 +0.0001]	110 [4.33]	51.5 ⁰ -0.29 +0.000 -0.011 [2.028 -0.011]	14 ⁰ -0.043 +0.000 -0.016 h9 [.5512 -0.016]	10 [.394]	90 ⁰ -0.50 +0.000 -0.019 [3.543 +0.000 -0.019]	0.050 [.0019]	0.125 [.0049]	0.125 [.0049]
	MN	18.5 [.728]	250 ^{+0.016} -0.013 j6 [9.8425 +0.0006 -0.0005]	300 [11.811]	-	D M16 DIN 332	48 ^{+0.018} +0.002 +0.007 k6 [1.8898 +0.0001]	110 [4.33]	-	-	-	-	0.050 [.0019]	0.125 [.0049]	0.125 [.0049]
	TC	14.5 [.571]	230 ^{+0.016} -0.013 j6 9.055 [9.8425 +0.0006 -0.0005]	265 [10.433]	300 [11.811]	D M16 DIN 332	48 ^{+0.018} +0.002 +0.007 k6 [1.8898 +0.0001]	110 [4.33]	51.5 ⁰ -0.29 +0.000 -0.011 [2.028 -0.011]	14 ⁰ -0.043 +0.000 -0.016 h9 [.5512 -0.016]	10 [.394]	90 ⁰ -0.50 +0.000 -0.019 [3.543 +0.000 -0.019]	0.050 [.0019]	0.100 [.0039]	0.100 [.0039]
	TN	14.5 [.571]	230 ^{+0.016} -0.013 j6 9.055 [9.8425 +0.0006 -0.0005]	265 [10.433]	300 [11.811]	D M16 DIN 332	48 ^{+0.018} +0.002 +0.007 k6 [1.8898 +0.0001]	110 [4.33]	-	-	-	-	0.050 [.0019]	0.100 [.0039]	0.100 [.0039]

MODEL	(X)	Y MAX (W/O Brake)	Z MAX (W/ BRAKE)
AKM82 "H" Connector	223.0 [8.78]	267.0 [10.51]	333.0 [13.11]
AKM82 "T" TERMINAL BOX	255.0 [10.04]	267.0 [10.51]	333.0 [13.11]
AKM83 "T" TERMINAL BOX	335.5 [13.21]	347.5 [13.68]	413.5 [16.25]
AKM84 "T" TERMINAL BOX	416.0 [16.38]	428.0 [16.85]	494.0 [19.45]

Note: Dimensions are in mm [inches]. Product designed in metric. English conversions provided for reference only.

AKM8x Performance Data

AKM8x Performance Data – Up to 640 Vdc

Parameters		Tol	Symbol	Units	AKM82T	AKM83T	AKM84T
Max Rated DC Bus Voltage		Max	V _{bus}	Vdc	640	640	640
Continuous Torque (Stall) for ΔT winding = 100°C ①②⑦⑧⑨		Nom	T _{cs}	Nm	75	130	180
				lb-in	664	1151	1593
Continuous Current (Stall) for ΔT winding = 100°C ①②⑦⑧⑨		Nom	I _{cs}	Arms	48	62	67
Continuous Torque (Stall) for ΔT winding = 60°C ②		Nom	T _{cs}	Nm	58.1	100	140
				lb-in	514	885	1239
Max Mechanical Speed ⑤		Nom	N _{max}	rpm	3000	3000	3000
Peak Torque ①②		Nom	T _p	Nm	210	456	668
				lb-in	1859	4036	5912
Peak Current		Nom	I _p	Arms	240	310	335
75 Vdc	Rated Torque (speed) ①②⑦⑧⑨⑩		T _{rtd}	Nm	-	-	-
				lb-in	-	-	-
	Rated Speed		N _{rtd}	rpm	-	-	-
Rated Power (speed) ①②⑦⑧⑨			P _{rtd}	kW	-	-	-
				Hp	-	-	-
160 Vdc	Rated Torque (speed) ①②⑦⑧⑨⑩		T _{rtd}	Nm	-	-	-
				lb-in	-	-	-
	Rated Speed		N _{rtd}	rpm	-	-	-
Rated Power (speed) ①②⑦⑧⑨			P _{rtd}	kW	-	-	-
				Hp	-	-	-
320 Vdc	Rated Torque (speed) ①②⑦⑧⑨⑩		T _{rtd}	Nm	-	-	-
				lb-in	-	-	-
	Rated Speed		N _{rtd}	rpm	-	-	-
Rated Power (speed) ①②⑦⑧⑨			P _{rtd}	kW	-	-	-
				Hp	-	-	-
560 Vdc	Rated Torque (speed) ①②⑦⑧⑨⑩		T _{rtd}	Nm	47.5	70	105
				lb-in	420	620	929
	Rated Speed		N _{rtd}	rpm	2500	2200	1800
Rated Power (speed) ①②⑦⑧⑨			P _{rtd}	kW	12.4	16.1	19.8
				Hp	16.65	21.62	26.58
640 Vdc	Rated Torque (speed) ①②⑦⑧⑨⑩		T _{rtd}	Nm	38	60	93
				lb-in	336	531	823
	Rated Speed		N _{rtd}	rpm	3000	2500	2000
Rated Power (speed) ①②⑦⑧⑨			P _{rtd}	kW	11.9	15.7	19.5
				Hp	16.0	21.0	26.1

See following page for notes.

AKM8x Performance Data

AKM8x Performance Data – Up to 640 Vdc (Continued)

Parameters	Tol	Symbol	Units	AKM82T	AKM83T	AKM84T
Torque Constant ①	±10%	K_t	Nm/A _{rms}	1.6	2.1	2.7
			lb-in/A _{rms}	14	19	23.8
Back EMF Constant ⑥	±10%	K_e	V/krpm	108	140	177
Motor Constant	Nom	K_m	N-m/√W	4.31	6.94	9.15
			lb-in/√W	38.1	61.4	81.0
Resistance (line-line) ⑥	±10%	R_m	ohm	0.092	0.061	0.058
Inductance (line-line)		L	mH	2.73	2.36	2.5
Inertia (includes Resolver feedback) ③		J_m	kg-cm ²	172	334	495
			lb-in-s ²	0.15	0.29	0.43
Optional Brake Inertia (additional)		J_m	kg-cm ²	5.53	5.53	5.53
			lb-in-s ²	4.90E-03	4.90E-03	4.90E-03
Weight		W	kg	49	73	97
			lb	107.8	160.6	213.4
Static Friction ①⑩		T_f	Nm	1.7	1.83	2.34
			lb-in	15.05	16.20	20.71
Viscous Damping ①		K_{dv}	Nm/krpm	0.35	0.95	1.6
			lb-in/krpm	3.10	8.41	14.16
Thermal Time Constant		TCT	minutes	71	94	116
Thermal Resistance		R_{thw-a}	°C/W	0.225	0.203	0.183
Pole Pairs				5	5	5
Heat Sink Size				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 Vbus.
- ⑥ Measured at 25°C .
- ⑦ Brake option decreases continuous torque by 6Nm
- ⑧ Brake option increases weight by 9 kg
- ⑨ Non-Resolver feedback options reduce continuous torque ratings by:
AKM82 = 9 Nm, AKM83 = 6 Nm, AKM84 = 18 Nm
- ⑩ Motor with non-resolver feedback and brake options reduce continuous torque ratings by:
AKM82 = 17 Nm, AKM83 = 16 Nm, AKM84 = 28 Nm

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.