AKME Hazardous Location Servo Motor

Three-Phase AC Permanent Magnet Servo Motor

Selection Guide

KOLLMORGEN

A REGAL REXNORD BRAND

Kollmorgen: Your Partner, In Motion.

Every solution comes from a real understanding of the challenges facing machine designers and users.

Innovators consistently rate Kollmorgen as one of their best motion systems manufacturing partners. Whether you are looking for classic servo motors, direct-drive servo motors, stepper motors, drives & amplifiers, gearing, actuation, or multi-axis motion controllers, Kollmorgen is one of the few companies in the world that actually designs and manufactures all of these products.

Our customers are leaders in many industries such as Aerospace & Defense, Printing, Packaging & Converting, Food & Beverage Processing, Medical Imaging, In Vitro Diagnostics & Laboratory Automation, Pharmaceutical Manufacturing, Material Forming and Cutting, Oil & Gas, and Robotics. Kollmorgen is also a leader in Warehouse Automation, including complete AGV systems, software, awareness and autonomy.

Our Automation Solutions can be found on Mars and in space, ships and submarines, O&G drilling and metrology, surgical robots and laser eye surgery, even inside artificial hearts. These are just a few applications that demand high-performance and high-quality while satisfying their specific needs.

Because motion matters, it's our focus: Motion can distinctly differentiate a specific machine and deliver a marketplace advantage by increasing its performance and dramatically improving Overall Equipment Effectiveness (OEE).

High-performance motion can make your customer's machine more reliable and energy-efficient, enhance accuracy and improve operator safety. Motion also represents endless possibilities for innovation.

We've always understood this potential, and thus have kept motion at our core and in our Vision, Mission & Values, relentlessly developing products that offer precise control of torque, velocity and position accuracy in machines that rely on complex motion.

KOLLMORGEN
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Removing the Barriers of Design, Sourcing, and Time

At Kollmorgen, we know that OEM engineers can achieve a lot more when obstacles aren't in the way. So, we clear obstacles in three important ways:

Integrating Standard and Custom Products

The optimal solution is often not clear-cut. Our application expertise allows us to modify standard products or develop totally custom solutions across our whole product portfolio so that designs can take flight.

Providing Motion Solutions, Not Just Components

As companies reduce their supplier base and focus their engineering manpower on the product design, they need a total system supplier with a wide range of integrated solutions. Kollmorgen offers complete solutions as well as motion subsystems that combine programming software, engineering services and best-in-class motion components.

Global Footprint

With direct sales, engineering support, manufacturing facilities, and distributors spanning the Americas, Europe, the Middle East, and Asia, we're close to OEMs worldwide. Our proximity helps speed delivery and lend support where and when they're needed.

Financial and Operational Stability

Kollmorgen is part of Regal Rexnord. A key driver in the growth of all Regal Rexnord segments is the Regal Rexnord Business System, which relies on the principle of "kaizen" – or continuous improvement. Using world-class tools, cross-disciplinary teams of exceptional people evaluate processes and develop plans that result in superior performance.

Kollmorgen: Your partner. In Motion.

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AKME Hazardous Location Servo Motors

AKME servo motors are built on the proven performance of the AKM servo motor platform, with additional design features to achieve ATEX and IECEx certification for operation in gas Zone 2 and dust Zone 22 hazardous locations.

To suit a wide range of applications, these motors are available in frame sizes 2–7 to work with drives powered by 48 or 75 Vdc, 120, 240 or 400 Vac., speeds up to 5,000 rpm and with a complete selection of absolute feedback positioning devices.

Matched with Kollmorgen AKD, AKD2G and Kollmorgen Essentials™(KED) servo drives, AKME servo motors deliver optimum torque density, responsiveness and precision in a complete, feature-rich motion solution for locations that may occasionally be exposed to ignitable gases or dusts.

The Benefits of AKME Servo Motors

Certified for Hazardous Environments

- Earned ATEX certification under the European Union safety standard for equipment used in potentially explosive environments, including gas Zone 2 and dust Zone 22 locations
- Earned IECEx certification under the global standard that ensures the safety of equipment and personnel in explosive atmospheres, as established by the International Electrotechnical Commission (IEC)
- Meets IP64 under rigorous testing standards in the case of hazardous, or explosive events, and includes IP67 rated connectors and shaft seals for more robust protection in operational environments

Compact, Versatile Performance

- Industry-leading motor power density
- Available in frame sizes 2 to 7 with the most compact design
- Works with AKD, AKD2G and Essentials (KED) servo drives at 48 or 75 Vdc, 120, 240 or 400 Vac, and speeds up to 5,000 rpm
- Supports a wide range of feedback options, including resolver, SFD-M, ComCoder, EnDat, Hiperface and BiSS B options

Ease-of-Use and Faster Commissioning

- Plug-and-play motor recognition drive commissioning
- Reduce cycle time and sensor-and-wiring costs by eliminating traditional homing methods
- Reduction in set-up time for each servo system

	ATEX	IECEx
Marking	II 3G Ex ec mc IIC T4 Gc II 3D Ex tc IIIC T130°C Dc	Ex ec mc IIC T4 Gc Ex tc IIIC T130°C Dc
Conformance	ATEX 2014/34/EU Directive	
	EN IEC 60079-0:2018 (Explosive atmospheres - Part 0: Equipment - General requirements)	IEC 60079-0:2017 (Explosive atmospheres - Part 0: Equipment - General requirements)
	EN IEC 60079-7:2015/A1:2018 (Explosive atmospheres - Part 7: Equipment protection by increased safety 'e')	IEC 60079-7:2015/A1:2017 (Explosive atmospheres - Part 7: Equipment protection by increased safety 'e')
	EN 60079-18:2015/A1:2017 (Explosive atmospheres - Part 18: Equipment protection by encapsulation “m”)	IEC 60079-18:2017 (Explosive atmospheres - Part 18: Equipment protection by encapsulation “m”)
	EN IEC 60079-31:2024 (Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure 't')	IEC 60079-31:2022 (Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure 't')

AKME Hazardous Location Servo Motors

AKME Motors Offer Extremely High Torque Density and High Acceleration

The AKME high-performance motor series offers a wide range of mounting, connectivity, feedback and other options. These motors offer superb flexibility to meet application needs with:

- 6 frame sizes (58 to 188 mm)
- 22 frame-stack length combinations
- More than 110 standard windings

Features

Torque: AKME2-7 Maximum Continuous
0.38 to 51.75 Nm continuous torque (3.4 to 458 lb-in) in 22 frame/stack combinations. Specific torques are often available from multiple frame sizes to optimize mounting and inertia matching capabilities.

Speed
Speeds up to 5000 rpm meet high speed application requirements. Windings tailored to lower speeds are also available.

Voltage
AKME motors can be applied to all standard global voltages. Windings are specifically tailored to work with drives powered by 48 or 75 Vdc, 120, 240, or 400 Vac.

Mounting
Multiple mounting standards are available to meet common European, North American, and Japanese standards.

Feedback
AKME motors include resolver, encoder (commutating), Sine-Absolute encoder or SFD-M (Smart Feedback Device - Multi-turn) feedback options to meet specific application requirements.

Smoothness
Smooth performance results from low-cog, low-harmonic distortion magnetic designs.

Connectivity
Rotatable IP67 connectors provide flexibility. Single connectors/plugs (combined power and feedback) are also available to minimize motor and cable cost (SFD-M and HDSL feedbacks only).

Thermal
Windings are rated conservatively at 95°C rise over a 40°C ambient while using 155°C (class F) insulation materials. Motors meet applicable ATEX, IECEx and CE requirements and include PT1000 RTD linear thermal sensors.

Additional Options:

» Holding Brakes
» Feedback devices
» Shaft and mounting variations
» Connectivity

AKME Hazardous Location Classification

AKME motors are purpose-built for Zone 2 and Zone 22 applications, as indicated in blue. For applications requiring a higher risk classification, as indicated in gray, consult a Kollmorgen expert — we offer a broad range of motors for hazardous locations.

			AKME Series Support
Hazard	Continuous	Intermittent	Under Abnormal Conditions
Definition	Explosive atmospheres present continuously, for long periods or frequently	Explosive atmospheres are likely to occur during normal operations	Explosive atmospheres are unlikely to occur or present only infrequently and for a short period only
Gas, Vapors	Zone 0	Zone 1	Zone 2
Dust	Zone 20	Zone 21	Zone 22
Category	1 Very high level of protection	2 High level of protection	3 Enhanced level of protection

ATEX Gas Atmosphere

AKME Marking Description: II 3G Ex ec mc IIC T4 Gc

Equipment Group	Equipment Category	Surrounding atmosphere	Explosion Protection	Type of Protection	Equipment grouping	Sub Group	Temperature class	Equipment Protection Level
II	3	G	Ex	ec mc	II	C	T4	Gc
I Mine	M1 Very high level of protection	G Gas/Vapor	Protection against explosions	db Flameproof	I Mine	Methane	T6 85°C	Ma Very high level of protection
	M2 High level of protection			ec Increased Safety			T5 100°C	Mb High level of protection
II Surface	1 Very high level of protection			ic Intrinsic Safety	II Explosive gas atmosphere other than mines	C Hydrogen Acetylene	T4 135°C	Ga Very high level of protection
	2 High level of protection			mc Encapsulation			T3 200°C	Gb High level of protection
	3 Enhanced level of protection			o Oil Immersion pz Pressurized Enclosure		B Ethylene	T2 300°C	Gc Enhanced level of protection
						A Propane	T1 450°C	

Indicates AKME rating

ATEX Dust Atmosphere

AKME Marking Description: II 3D Ex tc IIIC T130°C Dc

Equipment Group	Equipment Category	Surrounding atmosphere	Explosion Protection	Type of Protection	Equipment grouping	Sub Group	Temperature Class	Equipment Protection Level
II	3	D	Ex	tc	III	C	T130°C	Dc
I Mine	M1 Very high level of protection	D Dust	Protection against explosions	tc Enclosure	III Explosive dust atmosphere other than mines	C Conductive dust	T6 85°C	Ma Very high level of protection
	M2 High level of protection						T5 100°C	Mb High level of protection
II Surface	1 Very high level of protection					B Non-conductive dust	T130°C T4 135°C	Da Very high level of protection
	2 High level of protection						T3 200°C	Db High level of protection
	3 Enhanced level of protection					A Combustible flying	T2 300°C	Dc Enhanced level of protection
							T1 450°C	

Indicates AKME rating

AKME Hazardous Location Servo Motors

Offering a broad power range along with explosion protection

Kollmorgen AKME Servo Motor Frame Size General Specifications

AKME2
Flange: NEMA 23 / 58 mm
Power: 0.08 - 0.62 kW
Max Rated Speed: 5000 RPM
Stacks: 4

AKME3
Flange: 70 mm
Power: 0.09 - 1.16kW
Max Rated Speed: 5000 RPM
Stacks: 3

AKME4
Flange: NEMA 34 / 84 mm
Power: 0.20- 1.53 kW
Max Rated Speed: 4500 RPM
Stacks: 4

AKME5
Flange: NEMA 42 / 108 mm
Power: 0.52 - 3.49 kW
Max Rated Speed: 3500 RPM
Stacks: 4

AKME6
Flange: 138 mm
Power: 1.01 - 4.79 kW
Max Rated Speed: 2500 RPM
Stacks: 4

AKME7
Flange: 188 mm
Power: 3.79 - 7.64 kW
Max Rated Speed: 2500 RPM
Stacks: 3

Kollmorgen AKME Configurable Servo Motor Features

ATEX IECEx CE

AKME Model Nomenclature

AKME Hazardous Location Servo Motor

AKME 5 3 G – A C 9 2 CB 01

AKME Series

Flange Size

2	58 mm
3	70 mm
4	84 mm
5	108 mm
6	138 mm
7	188 mm

Rotor Stack Length

		AKMEx Availability					
		2	3	4	5	6	7
1	1 stack	•	•	•	•		
2	2 stacks	•	•	•	•	•	•
3	3 stacks	•	•	•	•	•	•
4	4 stacks	•		•	•	•	•
5	5 stacks					•	

Winding Type

B C D E F G H J K L M N P Q

Mount

A	IEC with tolerance N
B	NEMA
C	Alternative IEC standard
D	Other standard
E	NEMA mount
G	Alternative IEC standard
H	Alternative IEC standard
K	Alternative NEMA mount
S	Special

Shaft

C	Keyway
K	Open keyway
N	Smooth shaft
S	Special

Base Model	Mount-Shaft Availability																			
	AC	AK	AN	BK	BN	CC	CK	CN	DC	DK	DN	EF	EK	EN	GC	GN	HC	HN	KK	LK
AKME2	•		•		•		•		•		•	•		•						
AKME3	•		•			•		•							•	•				
AKME4	•		•	•		•		•					•		•	•	•	•	•	
AKME5	•		•	•		•		•		•			•		•	•	•	•		
AKME6	•		•												•	•			•	•
AKME7	•		•												•	•			•	

Customization/Seal

01	ATEX Standard motor with shaft seal
0X	ATEX Customized motor

Feedback Device

Hybrid Single-Cable Options

CB	SFD-M (AKME 2-6)
GU	HIPERFACE DSL ■Safety Capable (AKME 2-6)

Dual-Cable Options

2-	Comcoder 2048 Lines (AKME 2-7)
AA	BiSS B Single-turn (AKME 2-7)
AB	BiSS B Multi-turn (AKME 2-7)
DA	EnDAT 2.2/01 Single-turn (AKME 2-7)
DB	EnDAT 2.2/01 Multi-turn (AKME 2-7)
GJ	HIPERFACE Single-turn (AKME 2-7)
GK	HIPERFACE Multi-turn (AKME 2-7)
R-	Resolver (AKME 2-7)
S-	Special

Brake

2	24 V holding brake
N	Without brake

Connectors

4	Dual 90° M23 connectors, motor-mounted (AKME 2-7, except AKME7 > 20 A)
9	Single 90° hybrid connector, motor-mounted (AKME2-6)
W	Dual 90° M40 connector and M23 feedback connector, motor-mounted (AKME7 > 20 A)

AKME Tested with Kollmorgen Drives

The AKME performance data and curves in this guide were acquired using Kollmorgen's family of servo drives. Please go to https://www.kollmorgen.com/en-us/products/drives/servo/servo-drives or contact Kollmorgen Customer Support for detailed specifications and to learn how pairing them with the AKME servo motor can optimized system peformance.

ATEX IECEx

To maintain compliance, the maximun short-circuit current allowed is 300A.

AKD® Product Family

Parameter	AKD2G	AKD	AKD BASIC	AKD PDMM	Essentials Drive
Base I/O	12 digital 2 analog	11 digital 2 analog	11 digital 2 analog	17 digital 2 analog	4 digital inputs 2 digital outputs
Expansion I/O[1]	8 digital 2 analog *Drive size is the same	No	20 digital 2 analog *adds 30 mm to the drive width for drives up to 12A	Up to 1000+ remote I/O via EtherCAT	No
Safe I/O	2 digital inputs for Safey option 1 4 digital inputs for SafeMotion options	No	No	No	No
SafeMotion[2]	Yes	STO only	STO only	STO only	STO only
Optimized for single cable[3]	Yes	No	No	No	Yes
Continuous current limit[4]	24A	48A	48A	48A	12A
Connectivity[5]	Analog, EtherCAT, CANopen, Profinet IRT, Ethernet/IP CIP Sync, TCP/IP, Modbus/TCP	Analog, EtherCAT, CANopen, Profinet RT, Ethernet/IP, TCP/IP, Modbus/TCP	Analog	EtherCAT, CANopen, Profinet RT, Ethernet/IP, TCP/IP, Modbus/TCP	EtherCAT, Profinet RT, Ethernet/IP CIP Sync
Axis Configuration	single or dual	single	single	single	single
Drive-resident controller	No	No	No	Yes	No
Programmability	parameterized, 2 axes control loops, actlon table	parameterized	parameterized, BASIC programmable	parameterized, IEC 61131-3 via PLCo-pen or Pipe Network	parameterized
Graphical Display	160x128-pixel display	2 digit LED	2 digit LED	3 digit LED	Status LED
Removeable Memory[6]	Yes	No	Yes	Yes	No
System Architecture	Centralized	Centralized	Centralized	Centralized	Centralized
IP Rating	IP20	IP20	IP20	IP20	IP20

Notes:
1: Add EtherCAT multi-axis master, PCMM, to the drive family to enable remote I/O expansion via EtherCAT. PCMM controller functionality is built into the PDMM
2: SafeMotion includes FSoE, STO, SS1, SS2, SOS, SDB, SBC/SBT, SLS, SSR, SSM, SDI, SAR, SLA, SLI, SLP, SCA up to SIL3 / PLe
3: Single cable optimized means one single cable for power & motor feedback with 1 connector at motor end and 1 connector at drive end
4: Higher power variants under development in some models. Consult factory for availability.
5: Consult factory on connectivity options for AKD2G.
6: Optional integrated SD card for easy backup and drive cloning

AKME2x Series Motor Specifications

ATEX IECEx To maintain compliance, the rated torque, speed, and power used cannot exceed the limits set in the Certificate of Conformity Annex.

AKME2x Performance Data – Up to 400 Vac (560 Vdc Bus) voltage

					AKME21				AKME22				AKME23				AKME24			
Parameters	Tol	Symbol	Units	C	E	G	J	C	E	G	H	C	D	E	F	C	D	E	F
Max Rated Voltage ⑪	Max	–	Vac	240	120	-	-	400	240	120	120	400	400	240	240	400	400	240	240
			Vdc	320	160	75	75	560	320	160	160	560	560	320	320	560	560	320	320
Continuous Torque for ΔT winding = 95°C ①②⑦⑧⑨	Nom	T_{cs}	Nm	0.42	0.44	0.44	0.38	0.78	0.8	0.81	0.82	1.06	1.08	1.09	1.11	1.30	1.33	1.33	1.34
			lb-in	3.72	3.89	3.89	3.36	6.9	7.1	7.2	7.3	9.4	9.6	9.6	9.8	11.5	11.8	11.8	11.9
Continuous Current for ΔT winding = 95°C ①②⑦⑧⑨	Nom	I_{cs}	A_{rms}	1.55	3.05	4.78	6.97	1.36	2.68	4.73	5.28	1.38	2.15	2.71	4.23	1.39	2.17	2.73	3.81
Continuous Torque for ΔT winding = 60°C ②	Nom	T_{cs}	Nm	0.336	0.352	0.352	0.304	0.62	0.64	0.65	0.66	0.85	0.86	0.87	0.89	1.04	1.06	1.06	1.07
			lb-in	2.97	3.12	3.12	2.69	5.5	5.7	5.8	5.8	7.5	7.6	7.7	7.9	9.2	9.4	9.4	9.5
Max Mechanical Speed ⑤⑭	Nom	N_{max}	rpm	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000
Peak Torque ①②	Nom	T_p	Nm	1.42	1.45	1.47	1.33	2.68	2.73	2.75	2.76	3.77	3.79	3.81	3.84	4.68	4.76	4.75	4.77
			lb-in	12.6	12.8	13.0	11.8	23.7	24.2	24.3	24.4	33.4	33.5	33.7	34.0	41.4	42.1	42.0	42.2
Peak Current	Nom	I_p	A_{rms}	6.3	12.5	19.6	28.5	5.6	11.0	19.4	21.7	5.7	8.8	11.1	17.3	5.7	8.9	11.2	15.6
48 Vdc	Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	-	-	-	0.33	-	-	-	0.79	-	-	-	-	-	-	-	-
				lb-in	-	-	-	2.92	-	-	-	7.0	-	-	-	-	-	-	-	-
	Rated Speed		N_{rtd}	rpm	-	-	-	4500	-	-	-	1500	-	-	-	-	-	-	-	-
	Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	-	-	-	0.16	-	-	-	0.12	-	-	-	-	-	-	-	-
				Hp	-	-	-	0.215	-	-	-	0.16	-	-	-	-	-	-	-	-
75 Vdc	Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	-	0.41	0.40	0.33	-	0.79	0.77	0.76	-	-	-	1.07	-	-	-	1.31
				lb-in	-	3.63	3.54	2.92	-	7.0	6.8	6.70	-	-	-	9.5	-	-	-	11.6
	Rated Speed		N_{rtd}	rpm	-	2000	4000	5000	-	1000	2500	3000	-	-	-	1500	-	-	-	1000
	Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	-	0.09	0.170	0.17	-	0.08	0.2	0.24	-	-	-	0.17	-	-	-	0.14
				Hp	-	0.12	0.23	0.23	-	0.11	0.27	0.32	-	-	-	0.23	-	-	-	0.19
120 Vac (160 Vdc)	Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	0.40	0.38	-	-	0.76	0.74	0.71	-	1.04	1.05	1.03	0.99	-	1.28	1.27	1.25
				lb-in	3.54	3.36	-	-	6.7	6.6	6.3	-	9.2	9.3	9.1	8.8	-	11.3	11.2	11.1
	Rated Speed		N_{rtd}	rpm	2500	5000	-	-	1000	3500	5000	-	1000	1500	2500	4500	-	1500	2000	3000
	Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	0.100	0.2	-	-	0.08	0.27	0.37	-	0.11	0.16	0.27	0.47	-	0.20	0.27	0.39
				Hp	0.134	0.27	-	-	0.11	0.36	0.50	-	0.15	0.21	0.36	0.63	-	0.27	0.36	0.52
240 Vac (320 Vdc)	Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	0.370	-	-	-	0.71	0.7	-	-	1.00	0.95	0.96	0.97	1.24	1.20	1.17	1.19
				lb-in	3.27	-	-	-	6.3	6.20	-	-	8.9	8.4	8.5	8.6	11.0	10.6	10.4	10.5
	Rated Speed		N_{rtd}	rpm	5000	-	-	-	3500	5000	-	-	2500	5000	5000	5000	2000	4000	5000	5000
	Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	0.190	-	-	-	0.27	0.37	-	-	0.26	0.50	0.5	0.51	0.26	0.50	0.61	0.62
				Hp	0.255	-	-	-	0.36	0.50	-	-	0.35	0.67	0.67	0.68	0.35	0.67	0.82	0.83
400 Vac (560 Vdc)	Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	-	-	-	-	0.70	-	-	-	0.93	0.95	-	-	1.17	1.17	-	-
				lb-in	-	-	-	-	6.2	-	-	-	8.2	8.4	-	-	10.4	10.4	-	-
	Rated Speed		N_{rtd}	rpm	-	-	-	-	5000	-	-	-	5000	5000	-	-	4500	5000	-	-
	Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	-	-	-	-	0.37	-	-	-	0.49	0.50	-	-	0.55	0.61	-	-
				Hp	-	-	-	-	0.50	-	-	-	0.66	0.67	-	-	0.74	0.82	-	-

See following page for notes.

AKME2x Motor Parameters

				AKME21				AKME22				AKME23				AKME24			
Parameters	Tol	Symbol	Units	C	E	G	J	C	E	G	H	C	D	E	F	C	D	E	F
Torque Constant ①	±10%	K_t	Nm/A_{rms}	0.300	0.160	0.100	0.061	0.61	0.320	0.180	0.163	0.8	0.52	0.42	0.270	0.97	0.63	0.5	0.360
			$lb\text{-}in/A_{rms}$	2.70	1.4	0.9	0.54	5.4	2.8	1.6	1.44	7.1	4.6	3.7	2.4	8.6	5.6	4.4	3.2
Back EMF Constant ⑥	±10%	K_e	$V_{rms}/krpm$	19.5	10.2	6.6	3.9	39	20.4	11.7	10.5	51.8	33.8	27	17.6	62.4	40.8	32.5	23.4
Motor Constant	Nom	K_m	$N\text{-}m/\sqrt{W}$	0.068	0.071	0.068	0.060	0.111	0.114	0.11	0.112	0.142	0.143	0.147	0.144	0.175	0.171	0.175	0.171
			$lb\text{-}in/\sqrt{W}$	0.601	0.625	0.602	0.53	0.986	1.01	0.98	0.99	1.26	1.27	1.3	1.28	1.55	1.52	1.55	1.52
Resistance (line-line) ⑥	±10%	R_m	ohm	13	3.42	1.44	0.68	20	5.2	1.77	1.4	21.2	8.8	5.4	2.34	20.4	9	5.4	2.94
Inductance (line-line)		L	mH	19	5.2	2.18	0.76	35.5	9.7	3.19	2.57	40.7	17.3	11.1	4.68	43.8	18.7	11.8	6.16
Inertia (includes Resolver feedback) ③	±10%	J_m	$kg\text{-}cm^2$	0.11				0.16				0.22				0.27			
			$lb\text{-}in\text{-}s^2$	9.50E-05				1.40E-04				1.90E-04				2.40E-04			
Optional Brake Inertia (additional) ⑱	±10%	J_m	$kg\text{-}cm^2$	0.013				0.013				0.013				0.013			
			$lb\text{-}in\text{-}s^2$	1.20E-05				1.20E-05				1.20E-05				1.20E-05			
Weight (w/o brake) ⑩		W	kg	0.82				1.1				1.38				1.66			
			lb	1.8				2.4				3				3.7			
Static Friction ①		T_f	Nm	0.049				0.052				0.054				0.057			
			lb-in	0.43				0.45				0.47				0.5			
Viscous Damping ①		K_{dv}	Nm/krpm	0.0046				0.0055				0.0065				0.0074			
			lb-in/krpm	0.04				0.05				0.06				0.07			
Thermal Time Constant		TCT	minutes	8				9				10				11			
Thermal Resistance		$R_{thw\text{-}a}$	°C/W	1.43				1.19				1.1				1.07			
Operating Ambient Temperature Range ⑫⑱			°C	5 to 40				5 to 40				5 to 40				5 to 40			
Pole Pairs				3				3				3				3			
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			

Additional windings may exist. Please contact Kollmorgen Customer Support for further information or to request custom winding options for your application requirements.

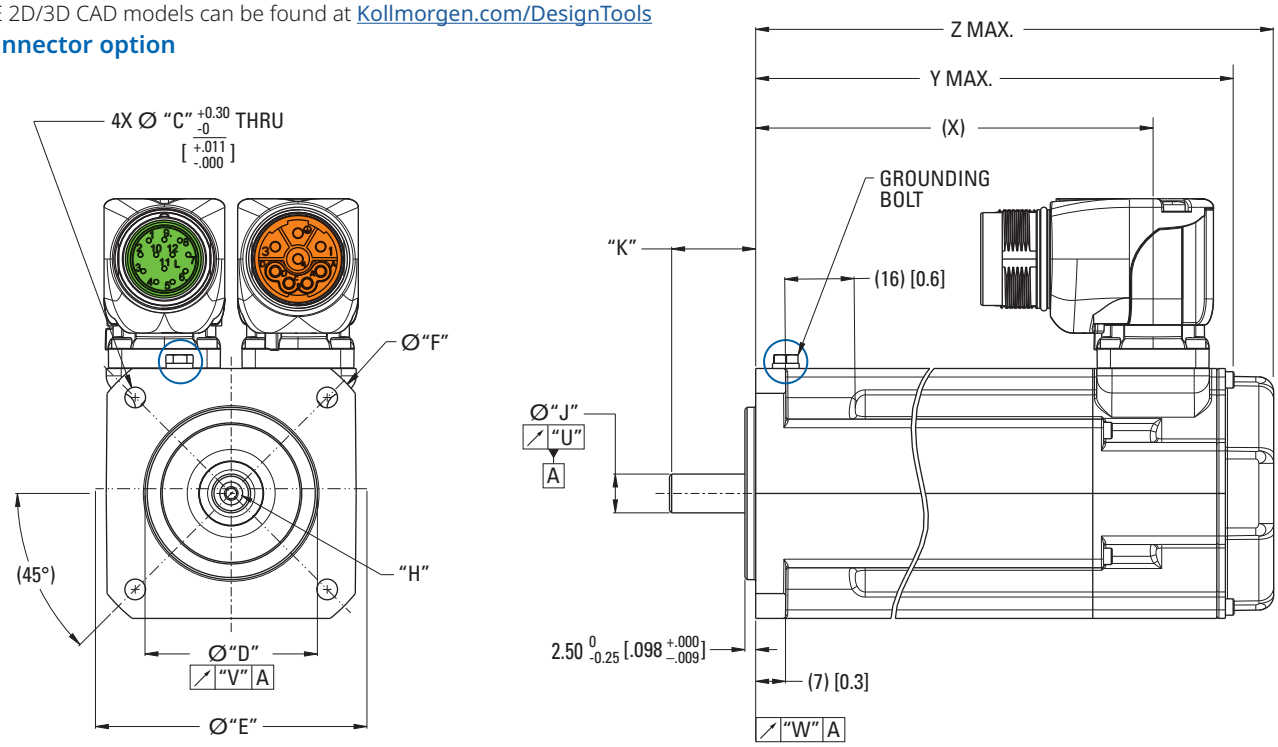
Notes:
① Motor winding temperature rise, ΔT=95°C, at 40°C ambient.
② All data referenced to sinusoidal commutation.
③ Add brake inertia if applicable for total inertia.
④ Motor with standard heat sink.
⑤ May be limited at some values of Vbus.
⑥ Measured at 25°C.
⑦ Brake option reduces continuous torque ratings by:
AKME21 = 0.00 AKME22 = 0.01 Nm AKME23 = 0.02 Nm AKME24 = 0.05 Nm
⑧ For non-resolver feedback options: no continuous torque reduction.
⑨ Motors with non-resolver feedback and brake option, reduce continuous torque by:
AKME21 = 0.00 AKME22 = 0.02 Nm AKME23 = 0.05 Nm AKME24 = 0.12 Nm
⑩ Brake option increases weight by 0.27 kg (0.6 lb).
⑪ Motors can be operated up to 400 Vac. For performances curves at voltages, listed or unlisted, please use our online Performance Curve Generator Tool.
⑫ Brake option will operate in this range in a non-condensing environment. See the Brake Option section for more information.
⑱ The applied holding brake voltage must be limited to 17 V to maintain ATEX/IECEx T4 temperature class compliance.
⑭ For AKME2 the maximum speed is limited up to 5000 rpm.

AKME2x Series Motor Specifications

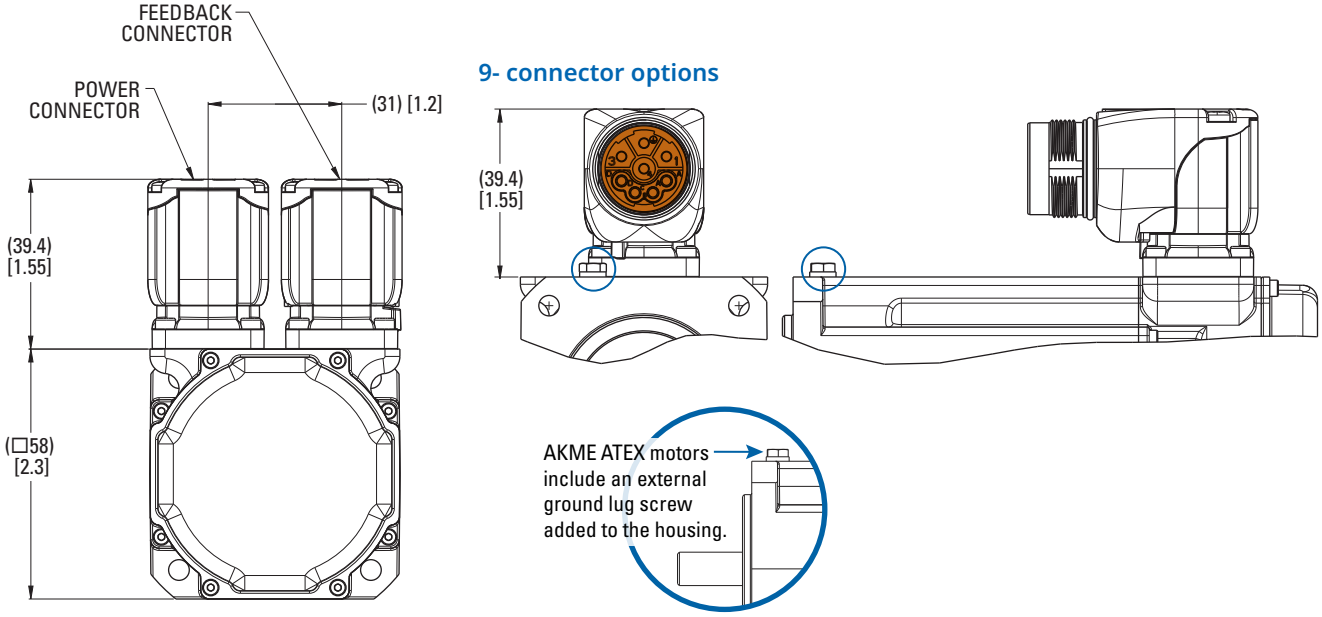
AKME2x Frame Dimensional Drawings

AKME 2D/3D CAD models can be found at Kollmorgen.com/DesignTools

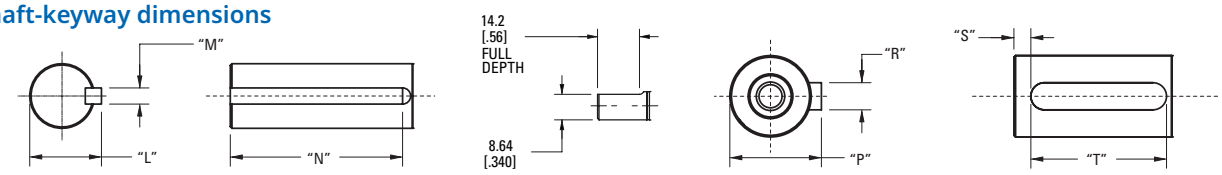
4- connector option



9- connector options



Shaft-keyway dimensions



Dimensional data tables for callouts are located on the following page.

AKME2x Frame Dimensional Data

AKME2x Mounting Flange-Shaft Dimensional Data

Mounting Flange-Shaft	Hole Diameter "C"	Pilot Diameter "D"	Bolt Circle Dia. "E"	"F"	"H"	Shaft Diameter "J"	Shaft Length "K"	Shaft Dia. w/ Key "L"
AC	4.80 [0.189]	40 [1.5748]	63 [2.480]	74 [2.913]	D M3 DIN 332	9 [0.3543]	20.0 [0.79]	–
AN	4.80 [0.189]	40 [1.5748]	63 [2.480]	74 [2.913]	D M3 DIN 332	9 [0.3543]	20.0 [0.79]	–
BN	5.10 [0.201]	38.10 [1.500]	66.68 [2.625]	–	–	9.525 [0.3750]	31.75[1.250]	–
CK	5.80 [0.228]	50 [1.9685]	70 [2.756]	_	_	14 [0.5512]	30.0 [1.181]	16 [0.630]
DC	5.80 [0.228]	40 [1.5748]	65 [2.559]	_	D M3 DIN 332	9 [0.3543]	20.0 [0.79]	–
DN	5.80 [0.228]	40 [1.5748]	65 [2.559]	–	D M3 DIN 332	9 [0.3543]	20.0 [0.79]	–
EN & EF	5.10 [0.201]	38.10 [1.500]	66.68 [2.625]	–	–	9.525 [0.3750]	20.57 [0.810]	–

Mounting Flange-Shaft	Key Width "M"	Key Length "N"	Shaft Dia. w/ Key "P"	Key Width "R"	"S"	Key Length "T"	"U"	"V"	"W"
AC	–	–	10.2 [0.402]	3 [0.1181]	300 [0.118]	12 [0.472]	0.030 [0.0011]	0.060 [0.0023]	0.060 [0.0023]
AN	–	–	–	–	–	–	0.030 [0.0011]	0.060 [0.0023]	0.060 [0.0023]
BN	–	–	–	–	–	–	0.051 [0.0020]	0.10 [0.004]	0.10 [0.004]
CK	5 [0.197]	20 [0.787]	–	–	–	–	0.035 [0.0013]	0.080 [0.0031]	0.080 [0.0031]
DC	–	–	10.2 [0.402]	3 [0.1181]	300 [0.118]	12 [0.472]	0.030 [0.0011]	0.060 [0.0023]	0.060 [0.0023]
DN	–	–	–	–	–	–	0.030 [0.0011]	0.060 [0.0023]	0.060 [0.0023]
EN & EF	–	–	–	–	–	–	0.051 [0.0020]	0.10 [0.004]	0.10 [0.004]

AKME2x Motor Length Dimensional Data

	No Brake (N)		
	X	Y MAX	Z MAX
Feedback Option	R, 2-, Ax, Dx, Gx, CB	R, 2-, Ax, Dx, CB	Gx
AKME21	76.1 [3]	95.4 [3.76]	113.4 [4.46]
AKME22	95.1 [3.74]	114.4 [4.5]	132.4 [5.21]
AKME23	114.1 [4.49]	133.4 [5.25]	151.4 [5.96]
AKME24	133.1 [5.24]	152.4 [6]	170.4 [6.71]

	Brake (2)		
	X	Z MAX	
Feedback Option	R, 2-, Ax, Dx, Gx, CB	R, 2-, Ax, Dx, CB	Gx
AKME21	76.1 [3]	129.5 [5.1]	147.1 [5.79]
AKME22	95.1 [3.74]	148.5 [5.85]	166.1 [6.54]
AKME23	114.1 [4.49]	167.5 [6.59]	185.1 [7.29]
AKME24	133.1 [5.24]	186.5 [7.34]	204.1 [8.04]

Note 1: Dimensions are in mm [inches].
Note 2: Product designed in metric. English conversions provided for reference only.

Related Resources:
Feedback Options and Specifications
Connector Options and Pinouts
Brake Option

AKME3x Series Motor Specifications

ATEX IECEx To maintain compliance, the rated torque, speed, and power used cannot exceed the limits set in the Certificate of Conformity Annex.

AKME3x Performance Data – Up to 400 Vac (560 Vdc Bus) voltage

					AKME31				AKME32				AKME33		
	Parameters	Tol	Symbol	Units	C	E	H	K	C	D	E	H	C	E	H
	Max Rated Voltage ⑪	Max	–	Vac	400	240	120	120	400	400	400	240	400	400	240
				Vdc	560	320	160	160	560	560	560	320	560	560	320
	Continuous Torque for ΔT winding = 95°C ①②⑦⑧⑨	Nom	T_{cs}	Nm	1.08	1.13	1.16	1.18	1.90	1.94	1.96	2.01	2.62	2.70	2.76
				lb-in	9.6	10.0	10.3	10.4	16.8	17.2	17.3	17.8	23.2	23.9	24.4
	Continuous Current for ΔT winding = 95°C ①②⑦⑧⑨	Nom	I_{cs}	A_{rms}	1.33	2.90	5.68	8.81	1.40	2.17	2.74	5.34	1.43	2.51	5.42
	Continuous Torque for ΔT winding = 60°C ②	Nom	T_{cs}	Nm	0.86	0.90	0.93	0.94	1.52	1.55	1.57	1.61	2.10	2.16	2.21
				lb-in	7.6	8.0	8.2	8.3	13.5	13.7	13.9	14.2	18.6	19.1	19.6
	Max Mechanical Speed ⑤⑭	Nom	N_{max}	rpm	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000
	Peak Torque ①②	Nom	T_p	Nm	3.83	3.95	4.01	4.06	6.87	7.01	7.07	7.21	9.71	9.91	10.09
				lb-in	33.9	35.0	35.5	35.9	61	62	63	64	86	88	89
	Peak Current	Nom	I_p	A_{rms}	5.5	12.0	23.4	36.3	5.7	8.9	11.3	22.0	5.9	10.3	22.3
48 Vdc	Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	-	-	-	1.15	-	-	-	-	-	-	-
				lb-in	-	-	-	10.2	-	-	-	-	-	-	-
	Rated Speed		N_{rtd}	rpm	-	-	-	2000	-	-	-	-	-	-	-
	Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	-	-	-	0.24	-	-	-	-	-	-	-
				Hp	-	-	-	0.32	-	-	-	-	-	-	-
75 Vdc	Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	-	1.12	1.13	1.11	-	-	-	1.96	-	-	2.69
				lb-in	-	9.9	10.0	9.8	-	-	-	17.3	-	-	23.8
	Rated Speed		N_{rtd}	rpm	-	750	2000	3500	-	-	-	1200	-	-	800
	Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	-	0.09	0.24	0.41	-	-	-	0.25	-	-	0.23
				Hp	-	0.12	0.32	0.55	-	-	-	0.34	-	-	0.31
120 Vac (160 Vdc)	Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	-	1.10	0.99	1.01	-	1.91	1.92	1.87	-	-	2.53
				lb-in	-	9.7	8.8	8.90	-	16.9	17.0	16.5	-	-	22.4
	Rated Speed		N_{rtd}	rpm	-	2500	5000	5000	-	1000	1000	3000	-	-	2500
	Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	-	0.29	0.52	0.53	-	0.20	0.20	0.59	-	-	0.66
				Hp	-	0.39	0.70	0.71	-	0.27	0.27	0.79	-	-	0.89
240 Vac (320 Vdc)	Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	1.05	0.96	-	-	1.85	1.83	1.82	1.68	2.55	2.53	2.21
				lb-in	9.3	8.5	-	-	16.4	16.2	16.1	14.9	22.6	22.4	19.6
	Rated Speed		N_{rtd}	rpm	2500	5000	-	-	1500	2500	3000	5000	1000	2000	5000
	Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	0.27	0.50	-	-	0.29	0.48	0.57	0.88	0.27	0.53	1.16
				Hp	0.36	0.67	-	-	0.39	0.64	0.76	1.18	0.36	0.71	1.56
400 Vac (560 Vdc)	Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	0.92	-	-	-	1.76	1.62	1.63	-	2.45	2.23	-
				lb-in	8.1	-	-	-	15.6	14.3	14.4	-	21.7	19.7	-
	Rated Speed		N_{rtd}	rpm	5000	-	-	-	3000	5000	5000	-	2000	4500	-
	Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	0.48	-	-	-	0.55	0.85	0.85	-	0.51	1.05	-
				Hp	0.64	-	-	-	0.74	1.14	1.14	-	0.68	1.41	-

See following page for notes.

AKME3x Motor Parameters

				AKME31				AKME32				AKME33		
Parameters	Tol	Symbol	Units	C	E	H	K	C	D	E	H	C	E	H
Torque Constant ①	±10%	K_t	Nm/A_{rms}	0.85	0.41	0.21	0.14	1.4	0.92	0.73	0.39	1.86	1.1	0.52
			$lb\text{-}in/A_{rms}$	7.5	3.6	1.9	1.24	12.4	8.1	6.5	3.5	16.5	9.7	4.6
Back EMF Constant ⑥	±10%	K_e	$V_{rms}/krpm$	54.5	26.1	13.7	8.98	89.8	59	47.1	24.8	120	70.6	33.4
Motor Constant	Nom	K_m	N-m/√W	0.15	0.154	0.151	0.156	0.235	0.232	0.237	0.245	0.295	0.299	0.303
			lb-in/√W	1.33	1.36	1.34	0.75	2.08	2.05	2.1	2.17	2.61	2.65	2.68
Resistance (line-line) ⑥	±10%	R_m	ohm	21.4	4.74	1.29	0.54	23.8	9.7	6.3	1.69	26.6	9	1.96
Inductance (line-line)		L	mH	37.5	8.6	2.4	1.02	46.5	20.1	12.8	3.5	53.6	18.5	4.1
Inertia (includes Resolver feedback) ③	±10%	J_m	$kg\text{-}cm^2$	0.33				0.59				0.85		
			$lb\text{-}in\text{-}s^2$	2.90E-04				5.20E-04				7.50E-04		
Optional Brake Inertia (additional) ⑬	±10%	J_m	$kg\text{-}cm^2$	0.014				0.014				0.014		
			$lb\text{-}in\text{-}s^2$	1.20E-05				1.20E-05				1.20E-05		
Weight (w/o brake) ⑩		W	kg	1.55				2.23				2.9		
			lb	3.4				4.9				6.4		
Static Friction ①		T_f	Nm	0.061				0.067				0.073		
			lb-in	0.53				0.59				0.64		
Viscous Damping ①		K_{dv}	Nm/krpm	0.002				0.003				0.004		
			lb-in/krpm	0.02				0.03				0.04		
Thermal Time Constant		TCT	minutes	14				17				20		
Thermal Resistance		$R_{thw\text{-}a}$	°C/W	1.11				0.92				0.78		
Operating Ambient Temperature Range ⑫⑬			°C	5 to 40				5 to 40				5 to 40		
Pole Pairs				4				4				4		
Heat Sink Size				10″x10″x1/4″ Aluminum Plate				10″x10″x1/4″ Aluminum Plate				10″x10″x1/4″ Aluminum Plate		

Additional windings may exist. Please contact Kollmorgen Customer Support for further information or to request custom winding options for your application requirements.

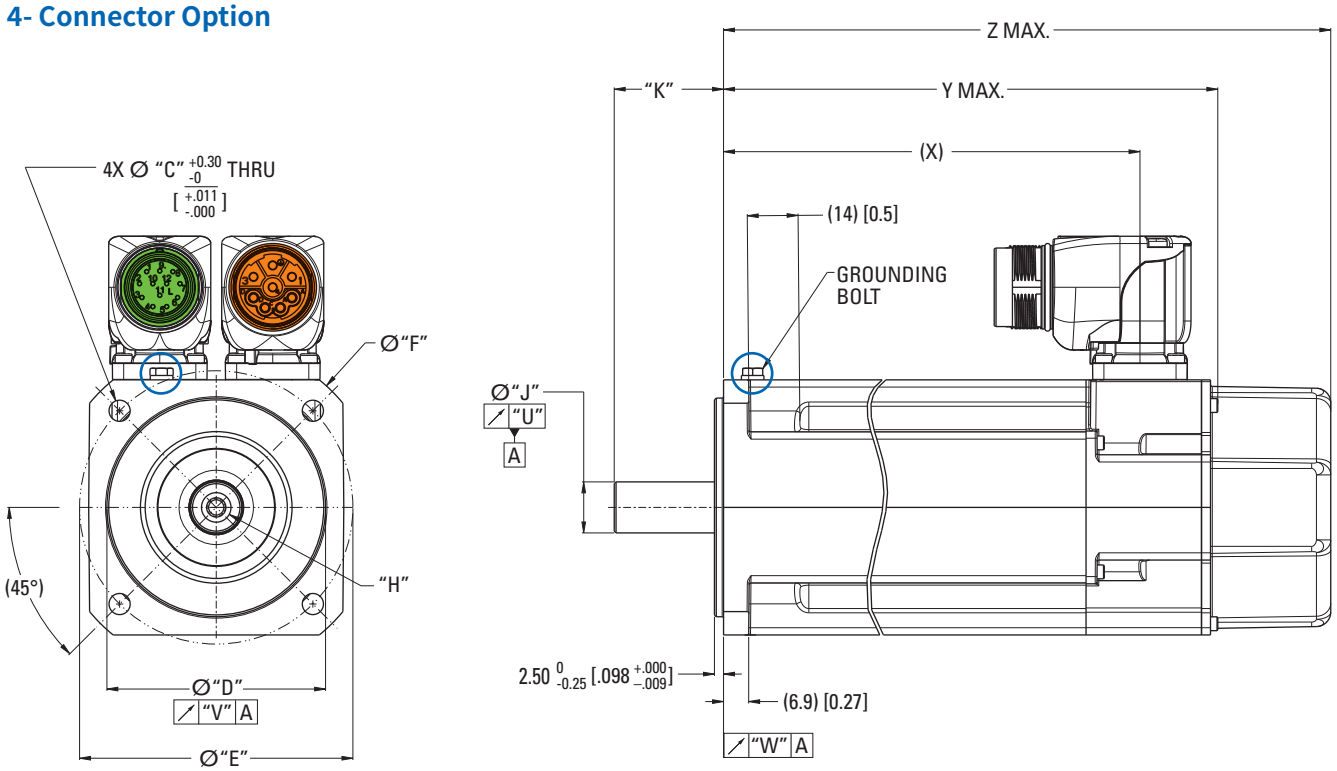
Notes:

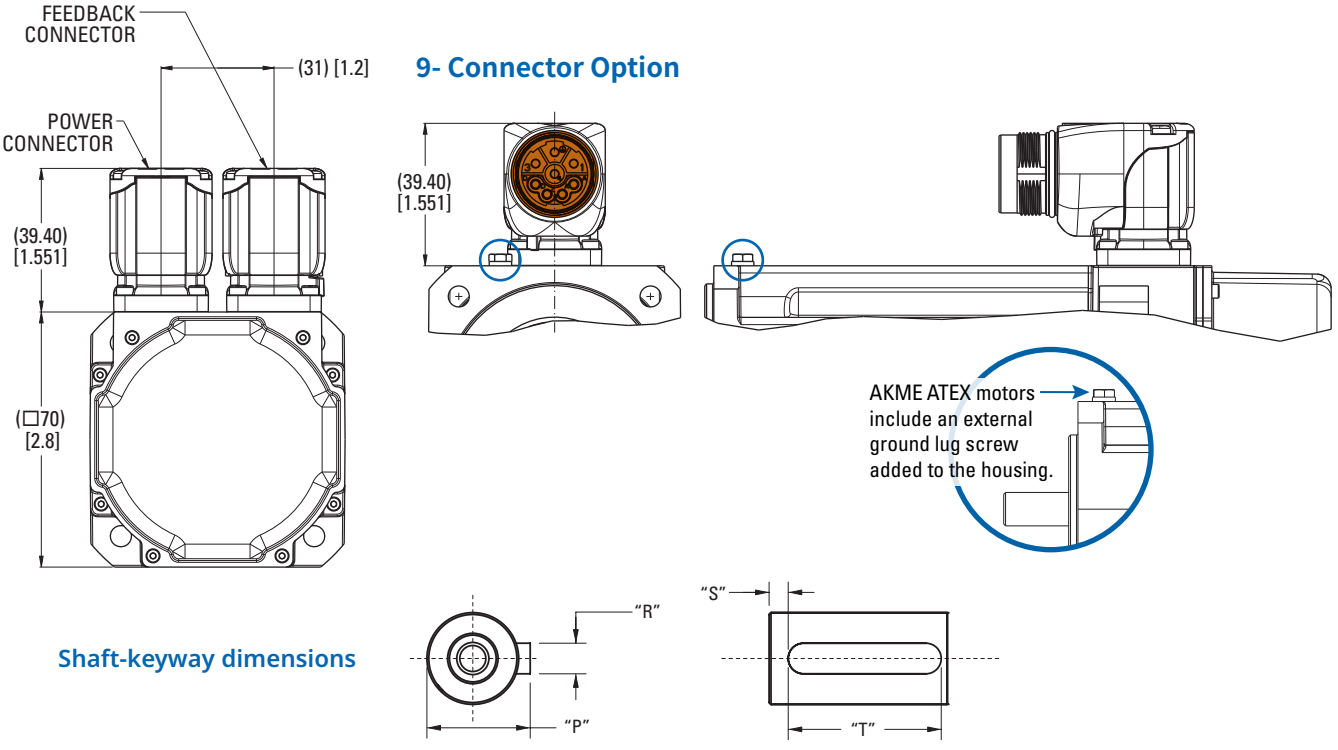
① Motor winding temperature rise, ΔT=95°C, at 40°C ambient.
② All data referenced to sinusoidal commutation.
③ Add parking brake if applicable for total inertia.
④ Motor with standard heat sink.
⑤ May be limited at some values of Vbus.
⑥ Measured at 25°C.
⑦ Brake option reduces continuous torque ratings by:
AKME31 = 0.0 Nm AKME32 = 0.05 Nm AKME33 = 0.1 Nm
⑧ For non-resolver feedback options: no continuous torque reduction.
⑨ Motors with non-resolver feedback and brake option, reduce continuous torque by:
AKME31 = 0.0 Nm AKME32 = 0.1 Nm AKME33 = 0.2 Nm
⑩ Brake option increases weight by 0.36 kg (0.79 lb).
⑪ Motors can be operated up to 400 Vac. For performances curves at voltages, listed or unlisted, please use our online Performance Curve Generator Tool.
⑫ Brake option will operate in this range in a non-condensing environment. See the Brake Option section for more information.
⑬ The applied holding brake voltage must be limited to 17 V to maintain ATEX/IECEx T4 temperature class compliance.
⑭ For AKME3 the maximum speed is limited up to 5000 rpm.

AKME3x Series Motor Specifications

AKME3x Frame Dimensional Drawings

4- Connector Option





Shaft-keyway dimensions

Dimensional data tables for callouts are located on the following page.

AKME3x Frame Dimensional Data

AKME3x Mounting Flange-Shaft Dimensional Data

Mounting Flange-Shaft	Hole Diameter "C"	Pilot Diameter "D"	Bolt Circle Dia. "E"	"F"	"H"	Shaft Diameter "J"	Shaft Length "K"	Shaft Dia. w/ Key "P"
AC	5.80 [0.228]	60 [2.3622]	75 [2.953]	90 [3.543]	D M5 DIN 332	14 [0.5512]	30.0 [1.181]	16 [0.630]
AN	5.80 [0.228]	60 [2.3622]	75 [2.953]	90 [3.543]	D M5 DIN 332	14 [0.5512]	30.0 [1.181]	–
CC	5.80 [0.228]	60 [2.3622]	85 [3.346]	–	D M5 DIN 332	14 [0.5512]	30.0 [1.181]	16 [0.630]
CN	5.80 [0.228]	60 [2.3622]	85 [3.346]	–	D M5 DIN 332	14 [0.5512]	30.0 [1.181]	–
GC	5.80 [0.228]	60 [2.3622]	75 [2.953]	90 [3.543]	D M5 DIN 332	11[0.4331]	23 [0.906]	12.5 [0.492]
GN	5.80 [0.228]	60 [2.3622]	75 [2.953]	90 [3.543]	D M5 DIN 332	11 [0.4331]	23 [0.906]	–

Mounting Flange-Shaft	Key Width "R"	"S"	Key Length "T"	"U"	"V"	"W"
AC	5 [0.197]	5.00 [1.97]	20 [0.787]	0.035 [0.0013]	0.080 [0.0031]	0.080 [0.0031]
AN	–	–	–	0.035 [0.0013]	0.080 [0.0031]	0.080 [0.0031]
CC	5 [0.197]	5.00 [1.97]	20 [0.787]	0.035 [0.0013]	0.080 [0.0031]	0.080 [0.0031]
CN	–	–	–	0.035 [0.0013]	0.080 [0.0031]	0.080 [0.0031]
GC	4 [0.157]	3.5 [0.138]	16 [0.630]	0.035 [0.0013]	0.080 [0.0031]	0.080 [0.0031]
GN	–	–	–	0.035 [0.0013]	0.080 [0.0031]	0.080 [0.0031]

AKME3x Motor Length Dimensional Data

	No Brake (N)		
	X	Y MAX	Z MAX
Feedback Option	R, 2-, Ax, Dx, Gx, CB	R, 2-, Ax, Dx, CB	Gx
AKME31	87.9 [3.46]	109.8 [4.32]	125.3 [4.93]
AKME32	118.9 [4.68]	140.8 [5.54]	156.3 [6.15]
AKME33	149.9 [5.9]	171.8 [6.76]	187.3 [7.37]

	Brake (2)		
	X	Z MAX	
Feedback Option	R, 2-, Ax, Dx, Gx, CB	R, 2-, Ax, Dx, CB	Gx
AKME31	87.9 [3.46]	141.3 [5.56]	159.3 [6.27]
AKME32	118.9 [4.68]	172.3 [6.78]	190.3 [7.49]
AKME33	149.9 [5.9]	203.3 [8]	221.3 [8.71]

Note 1: Dimensions are in mm [inches].
Note 2: Product designed in metric. English conversions provided for reference only.

Related Resources:
Feedback Options and Specifications
Connector Options and Pinouts
Brake Option

AKME4x Series Motor Specifications

ATEX IECEx To maintain compliance, the rated torque, speed, and power used cannot exceed the limits set in the Certificate of Conformity Annex.

AKME41-42 Performance Data – Up to 400 Vac (560 Vdc Bus) voltage

					AKME41			AKME42				
	Parameters	Tol	Sym	Units	C	E	H	C	E	G	H	J
	Max Rated Voltage ⑪	Max	–	Vac	400	400	240	400	400	400	120	240
				Vdc	560	560	320	560	560	560	160	320
	Continuous Torque for ΔT winding = 95°C ①②⑦⑧⑨	Nom	T_{cs}	Nm	1.84	1.90	1.94	3.20	3.28	3.38	3.41	3.44
				lb-in	16.3	16.8	17.2	28.3	29.0	29.9	30.2	30.4
	Continuous Current for ΔT winding = 95°C ①②⑦⑧⑨	Nom	I_{cs}	A_{rms}	1.42	2.78	5.45	1.37	2.67	4.68	5.9	8.2
	Continuous Torque for ΔT winding = 60°C ②	Nom	T_{cs}	Nm	1.47	1.52	1.55	2.56	2.62	2.70	2.73	2.75
				lb-in	13.0	13.5	13.7	22.70	23.2	23.9	24.2	24.3
	Max Mechanical Speed ⑤	Nom	N_{max}	rpm	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
	Peak Torque ①②	Nom	T_p	Nm	6.1	6.2	6.3	11.0	11.2	11.40	11.5	11.6
				lb-in	54	55	56	97	99	101	102	103
	Peak Current	Nom	I_p	A_{rms}	5.8	11.4	22.4	5.6	11.0	19.2	24.0	33.7
75 Vdc	Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	-	-	1.87	-	-	-	-	3.25
				lb-in	-	-	16.5	-	-	-	-	28.8
	Rated Speed		N_{rtd}	rpm	-	-	1,000	-	-	-	-	1,000
	Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	-	-	0.20	-	-	-	-	0.34
				Hp	-	-	0.27	-	-	-	-	0.46
120 Vac (160 Vdc)	Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	-	1.82	1.74	-	-	3.10	3.05	2.88
				lb-in	-	16.1	15.4	-	-	27.4	27.0	25.5
	Rated Speed		N_{rtd}	rpm	-	1,200	3,000	-	-	1,500	2,000	3,000
	Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	-	0.23	0.55	-	-	0.49	0.64	0.90
				Hp	-	0.31	0.74	-	-	0.65	0.86	1.21
240 Vac (320 Vdc)	Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	1.76	1.70	1.64	-	2.97	2.73	-	2.57
				lb-in	15.6	15	14.5	-	26.3	24.2	-	22.7
	Rated Speed		N_{rtd}	rpm	1,200	3,000	4,500	-	1,800	3,500	-	4,500
	Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	0.22	0.53	0.77	-	0.56	1.00	-	1.21
				Hp	0.30	0.71	1.04	-	0.75	1.34	-	1.62
400 Vac (560 Vdc)	Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	1.64	1.60	-	2.94	2.65	2.52	-	-
				lb-in	14.5	14.2	-	26.0	23.5	22.3	-	-
	Rated Speed		N_{rtd}	rpm	3,000	4,500	-	1,500	3,500	4,500	-	-
	Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	0.52	0.75	-	0.46	0.97	1.19	-	-
				Hp	0.70	1.01	-	0.62	1.30	1.59	-	-

See following page for notes.

AKME41-42 Motor Parameters

				AKME41			AKME42				
Parameters	Tol	Sym	Units	C	E	H	C	E	G	H	J
Torque Constant ①	±10%	K_t	Nm/A_{rms}	1.34	0.71	0.37	2.39	1.26	0.74	0.59	0.43
			$lb\text{-}in/A_{rms}$	11.9	6.3	3.3	21.2	11.2	6.5	5.2	3.8
Back EMF Constant ⑥	±10%	K_e	$V_{rms}/krpm$	86.3	45.6	23.7	154	80.9	47.5	38.3	27.5
Motor Constant	Nom	K_m	N-m/√W	0.237	0.236	0.242	0.374	0.369	0.381	0.375	0.393
			lb-in/√W	2.1	2.09	2.14	3.31	3.26	3.37	3.31	3.47
Resistance (line-line) ⑥	±10%	R_m	ohm	21.3	6	1.56	27.5	7.5	2.51	1.65	0.8
Inductance (line-line)		L	mH	66.1	18.4	5	97.4	26.8	9.2	6	3.1
Inertia (includes Resolver feedback) ③	±10%	J_m	$kg\text{-}cm^2$	0.81			1.5				
			$lb\text{-}in\text{-}s^2$	7.20E-04			1.30E-03				
Optional Brake Inertia (additional) ⑬	±10%	J_m	$kg\text{-}cm^2$	0.058			0.058				
			$lb\text{-}in\text{-}s^2$	5.10E-05			5.10E-05				
Weight (w/o brake) ⑩		W	kg	2.44			3.39				
			lb	5.4			7.5				
Static Friction ①		T_f	Nm	0.085			0.097				
			lb-in	0.75			0.86				
Viscous Damping ①		K_{dv}	Nm/krpm	0.009			0.013				
			lb-in/krpm	0.08			0.12				
Thermal Time Constant		TCT	minutes	13			17				
Thermal Resistance		$R_{thw\text{-}a}$	°C/W	0.97			0.8				
Operating Ambient Temperature Range ⑫⑬			°C	5 to 40			5 to 40				
Pole Pairs				5			5				
Heat Sink Size				10"x10"x1/4" Aluminum Plate			10"x10"x1/4" Aluminum Plate				

Additional windings may exist. Please contact Kollmorgen Customer Support for further information or to request custom winding options for your application requirements.

Notes:
① Motor winding temperature rise, ΔT=95°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 motor option reduces continuous torque ratings by 0.12 Nm.
⑧ Non-Resolver feedback options reduces continuous ratings by:
AKME41 = 0.1 Nm AKME42 = 0.1 Nm AKME43 = 0.2 Nm AKME44 = 0.3 Nm
⑨ Motors with non-resolver feedback and brake option, reduce continuous torque by:
AKME41 = 0.22 Nm AKME42 = 0.36 Nm AKME43 = 0.55 Nm AKME44 = 0.76 Nm
⑩ Brake option increases weight by 0.69 kg (1.52 lb).
⑪ Motors can be operated up to 400 Vac. For performances curves at voltages, listed or unlisted, please use our online Performance Curve Generator Tool.
⑫ Brake option will operate in this range in a non-condensing environment. See the Brake Option section for more information.
⑬ The applied holding brake voltage must be limited to 17 V to maintain ATEX/IECEx T4 temperature class compliance.
⑭ For AKME4 the maximum speed is limited up to 4500 rpm.

AKME4x Series Motor Specifications

ATEX IECEx To maintain compliance, the rated torque, speed, and power used cannot exceed the limits set in the Certificate of Conformity Annex.

AKME43-44 Performance Data – Up to 400 Vac (560 Vdc Bus) voltage

					AKME43					AKME44				
	Parameters	Tol	Sym	Units	E	G	H	K	L	E	G	H	J	K
	Max Rated Voltage ⑪	Max	–	Vac	400	400	400	240	240	400	400	400	400	240
				Vdc	560	560	560	320	320	560	560	560	560	320
	Continuous Torque for ΔT winding = 95°C ①②⑦⑧⑨	Nom	T_{cs}	Nm	4.56	4.64	4.66	4.74	4.57	5.6	5.7	5.7	5.8	5.7
				lb-in	40.4	41.1	41.2	41.9	40.4	49.6	51	51	52	50
	Continuous Current for ΔT winding = 95°C ①②⑦⑧⑨	Nom	I_{cs}	A_{rms}	2.69	4.74	5.3	9.3	10.9	2.78	4.87	5.5	8.6	9.8
	Continuous Torque for ΔT winding = 60°C ②	Nom	T_{cs}	Nm	3.65	3.71	3.73	3.79	3.66	4.49	4.58	4.57	4.64	4.56
				lb-in	32.3	32.8	33.0	33.5	32.4	39.7	40.5	40.4	41.1	40.4
	Max Mechanical Speed ⑤	Nom	N_{max}	rpm	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
	Peak Torque ①②	Nom	T_p	Nm	15.8	16.1	16.1	16.3	15.9	19.9	20.2	20.2	20.4	20.1
				lb-in	140	142	142	144	141	176	179	179	181	178
	Peak Current	Nom	I_p	A_{rms}	11.0	19.5	21.8	38.3	44.6	11.4	20.00	22.5	35.2	40.4
75 Vdc	Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	-	-	-	4.59	4.25	-	-	-	5.56	5.22
				lb-in	-	-	-	40.6	37.6	-	-	-	49.2	46.2
	Rated Speed		N_{rtd}	rpm	-	-	-	500	1,000	-	-	-	500	1,000
	Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	-	-	-	0.24	0.45	-	-	-	0.29	0.55
				Hp	-	-	-	0.32	0.60	-	-	-	0.39	0.74
120 Vac (160 Vdc)	Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	-	4.31	4.17	3.89	3.59	-	5.5	5.23	4.78	4.68
				lb-in	-	38.1	36.9	34.4	31.8	-	48.7	46.3	42.3	41.4
	Rated Speed		N_{rtd}	rpm	-	1,000	1,500	2,500	3,000	-	500	1,000	2,000	2,000
	Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	-	0.45	0.66	1.02	1.13	-	0.29	0.55	1.00	0.98
				Hp	-	0.61	0.87	1.37	1.52	-	0.38	0.74	1.34	1.31
240 Vac (320 Vdc)	Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	4.08	3.80	3.66	3.07	2.96	5.0	4.70	4.43	3.55	3.17
				lb-in	36.12	33.6	32.4	27.2	26.2	44.3	41.6	39.2	31.4	28.1
	Rated Speed		N_{rtd}	rpm	1,500	2,500	3,000	4,500	4,500	1,200	2,000	2,500	4,000	4,500
	Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	0.64	0.99	1.15	1.45	1.39	0.63	0.98	1.16	1.49	1.49
				Hp	0.86	1.33	1.54	1.94	1.86	0.84	1.31	1.56	2.00	2.00
400 Vac (560 Vdc)	Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	3.74	3.01	3.03	-	-	4.61	3.19	3.18	3.24	-
				lb-in	33.11	26.6	26.8	-	-	40.8	28.2	28.1	28.7	-
	Rated Speed		N_{rtd}	rpm	2,500	4,500	4,500	-	-	2,000	4,500	4,500	4,500	-
	Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	0.98	1.42	1.43	-	-	0.97	1.50	1.50	1.53	-
				Hp	1.31	1.90	1.92	-	-	1.3	2.01	2.01	2.05	-

See following page for notes.

AKME43-44 Motor Parameters

				AKME43					AKME44				
Parameters	Tol	Sym	Units	E	G	H	K	L	E	G	H	J	K
Torque Constant ①	±10%	K_t	Nm/A_{rms}	1.72	0.99	0.89	0.52	0.43	2.04	1.2	1.06	0.69	0.59
			$lb\text{-}in/A_{rms}$	15.2	8.8	7.9	4.6	3.8	18.1	10.6	9.4	6.1	5.2
Back EMF Constant ⑥	±10%	K_e	$V_{rms}/krpm$	111	63.9	57.4	33.2	27.5	132	77	68	44.2	37.8
Motor Constant	Nom	K_m	$N\text{-}m/\sqrt{W}$	0.479	0.482	0.501	0.494	0.465	0.567	0.567	0.58	0.581	0.567
			$lb\text{-}in/\sqrt{W}$	4.24	4.29	4.44	4.37	4.12	5.01	5.03	5.13	5.14	5.1
Resistance (line-line) ⑥	±10%	R_m	ohm	8.61	2.81	2.2	0.74	0.57	8.64	2.8	2.23	0.94	0.68
Inductance (line-line)		L	mH	32.6	10.8	8.8	2.9	2	33.9	11.5	9.1	3.8	2.8
Inertia (includes Resolver feedback) ③	±10%	J_m	$kg\text{-}cm^2$	2.1					2.7				
			$lb\text{-}in\text{-}s^2$	1.80E-03					2.40E-03				
Optional Brake Inertia (additional) ⑬	±10%	J_m	$kg\text{-}cm^2$	0.058					0.058				
			$lb\text{-}in\text{-}s^2$	5.10E-05					5.10E-05				
Weight (w/o brake) ⑩		W	kg	4.35					5.3				
			lb	9.6					11.7				
Static Friction ①		T_f	Nm	0.109					0.121				
			lb-in	0.97					1.07				
Viscous Damping ①		K_{dv}	Nm/krpm	0.017					0.021				
			lb-in/krpm	0.15					0.19				
Thermal Time Constant		TCT	minutes	20					24				
Thermal Resistance		$R_{thw\text{-}a}$	°C/W	0.7					0.65				
Operating Ambient Temperature Range ⑫⑬			°C	5 to 40					5 to 40				
Pole Pairs				5					5				
Heat Sink Size				10"x10"x1/4" Aluminum Plate					10"x10"x1/4" Aluminum Plate				

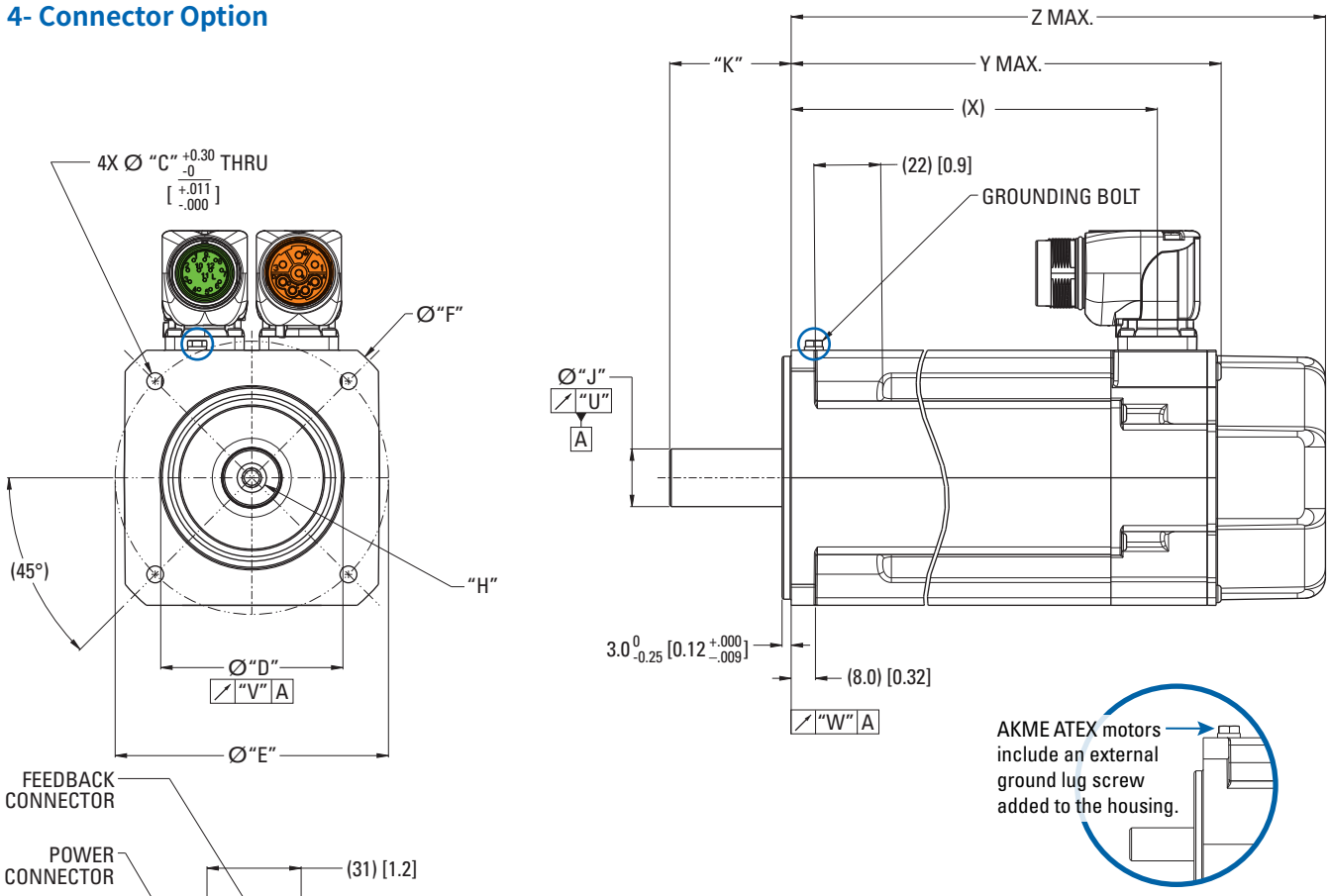
Additional windings may exist. Please contact Kollmorgen Customer Support for further information or to request custom winding options for your application requirements.

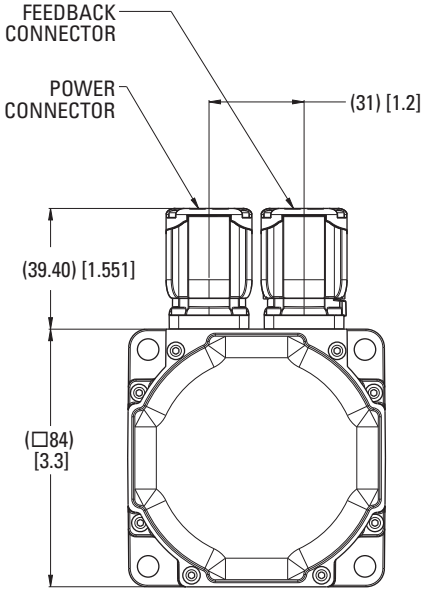
Notes:
① Motor winding temperature rise, ΔT=95°C, at 40°C ambient.
② All data referenced to sinusoidal commutation.
③ Add parking brake if applicable for total inertia.
④ Motor with standard heat sink.
⑤ May be limited at some values of Vbus.
⑥ Measured at 25°C.
⑦ Brake motor option reduces continuous torque ratings by 0.12 Nm.
⑧ Non-Resolver feedback options reduces continuous ratings by:
AKME41 = 0.1 Nm AKME42 = 0.1 Nm AKME43 = 0.2 Nm AKME44 = 0.3 Nm
⑨ Motors with non-resolver feedback and brake option, reduce continuous torque by:
AKME41 = 0.22 Nm AKME42 = 0.36 Nm AKME43 = 0.55 Nm AKME44 = 0.76 Nm
⑩ Brake option increases weight by 0.69 kg (1.52 lb).
⑪ Motors can be operated up to 400 Vac. For performances curves at voltages, listed or unlisted, please use our online Performance Curve Generator Tool.
⑫ Brake option will operate in this range in a non-condensing environment. See the Brake Option section for more information.
⑬ The applied holding brake voltage must be limited to 17 V to maintain ATEX/IECEx T4 temperature class compliance.
⑭ For AKME4 the maximum speed is limited up to 4500 rpm.

AKME4x Series Motor Specifications

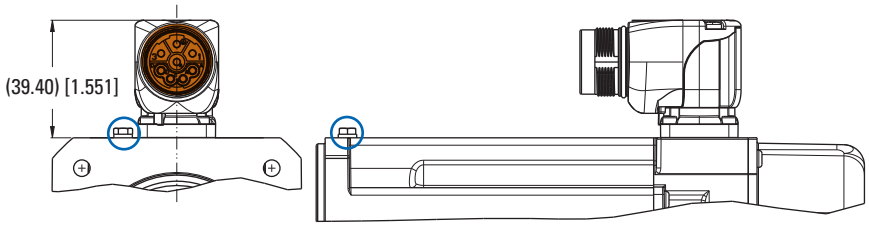
AKME4x Frame Dimensional Drawings

4- Connector Option

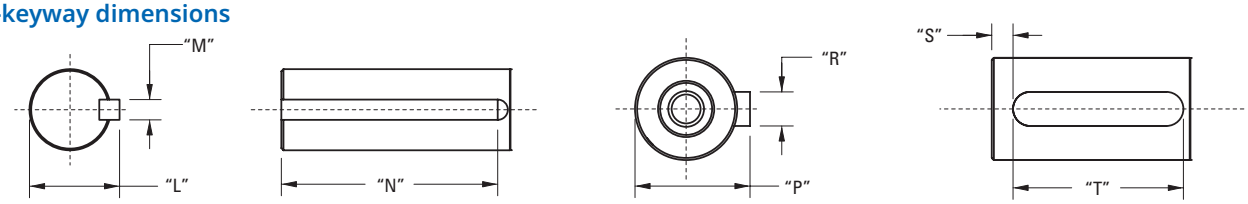




9- Connector Option



Shaft-keyway dimensions



Dimensional data tables for callouts are located on the following page.

AKME4x Frame Dimensional Data

AKME4x Mounting Flange-Shaft Dimensional Data

Mounting Flange-Shaft	Hole Diameter "C"	Pilot Diameter "D"	Bolt Circle Dia. "E"	"F"	"H"	Shaft Diameter "J"	Shaft Length "K"	Shaft Dia. w/ Key "L"
AC	7 [0.276]	80 [3.1496]	100 [3.937]	–	D M5 DIN 332	19 [0.7480]	40.0 [1.57]	–
AN	7 0[0.276]	80 [3.1496]	100 [3.937]	–	D M5 DIN 332	19 [0.7480]	40.0 [1.57]	–
BK	5.54 [0.218]	73.025 [2.8750]	98.43 [3.875]	–	–	15.875 [0.6250]	52.40 [2.063]	17.92 [0.706]
CC	5.54 [0.218]	60 [2.3622]	90 [3.543]	109 [4.291]	D M5 DIN 332	19 [0.7480]	40.0 [1.57]	–
CN	5.54 [0.218]	60 [2.3622]	90 [3.543]	109 [4.291]	D M5 DIN 332	19 [0.7480]	40.0 [1.57]	–
EK	5.54 [0.218]	73.025 [2.8750]	98.43 [3.875]	–	–	12.7 [0.5000]	31.75 [1.250]	14.09 [0.555]
GC	7 [0.276]	80 [3.1496]	100 [3.937]	–	D M5 DIN 332	14 [0.5512]	30 [1.18]	–
GN	7 [0.276]	80 [3.1496]	100 [3.937]	–	D M5 DIN 332	14 [0.5512]	30 [1.18]	–
HC	5.54 [0.218]	60 [2.3622]	90 [3.543]	109 [4.291]	D M5 DIN 332	14 [0.5512]	30 [1.18]	–
HN	5.54 [0.218]	60 [2.3622]	90 [3.543]	109 [4.291]	D M5 DIN 332	14 [0.5512]	30 [1.18]	–
KK	7 [0.276]	70 [2.7559]	90 [3.543]	109 [4.291]	–	16 [0.6299]	40.0 [1.57]	–

Mounting Flange-Shaft	Key Width "M"	Key Length "N"	Shaft Dia. w/ Key "P"	Key Width "R"	"S"	Key Length "T"	"U"	"V"	"W"
AC	–	–	21.5 [0.846]	6 [0.236]	4.00 [1.57]	32 [1.260]	0.040 [0.0015]	0.080 [0.0031]	0.080 [0.0031]
AN	–	–	–	–	–	–	0.040 [0.0015]	0.080 [0.0031]	0.080 [0.0031]
BK	4.762 [0.1875]	34.93 [1.375]	–	–	–	–	0.051 [0.0020]	0.10 [0.004]	0.10 [0.004]
CC	–	–	21.5 [0.846]	6 [0.236]	4.00 [1.57]	32 [1.260]	0.040 [0.0015]	0.080 [0.0031]	0.080 [0.0031]
CN	–	–	–	–	–	–	0.040 [0.0015]	0.080 [0.0031]	0.080 [0.0031]
EK	3.175 [0.1250]	19.05 [0.750]	–	–	–	–	0.051 [0.0020]	0.10 [0.004]	0.10 [0.004]
GC	–	–	16 [0.630]	5 [0.197]	6.00 [0.236]	20 [0.787]	0.040 [0.0015]	0.080 [0.0031]	0.080 [0.0031]
GN	–	–	–	–	–	–	0.040 [0.0015]	0.080 [0.0031]	0.080 [0.0031]
HC	–	–	16 [0.630]	5 [0.197]	6.00 [0.236]	20 [0.787]	0.040 [0.0015]	0.080 [0.0031]	0.080 [0.0031]
HN	–	–	–	–	–	–	0.040 [0.0015]	0.080 [0.0031]	0.080 [0.0031]
KK	5 [0.197]	30 [1.811]	–	–	–	–	0.051 [0.0020]	0.008 [0.0031]	0.008 [0.0031]

AKME4x Motor Length Dimensional Data

	No Brake (N)		
	X	Y MAX	Z MAX
Feedback Option	R, 2-, Ax, Dx, Gx, CB	R, 2-, Ax, Dx, CB	Gx
AKME41	96.4 [3.8]	118.8 [4.68]	136.8 [5.39]
AKME42	125.4 [4.94]	147.8 [5.82]	165.8 [6.53]
AKME43	154.4 [6.08]	176.8 [6.96]	194.8 [7.67]
AKME44	183.4 [7.22]	205.8 [8.1]	223.8 [8.81]

	Brake (2)		
	X	Z MAX	
Feedback Option	R, 2-, Ax, Dx, Gx, CB	R, 2-, Ax, Dx, CB	Gx
AKME41	96.4 [3.8]	152.3 [6]	170.3 [6.7]
AKME42	125.4 [4.94]	181.3 [7.14]	199.3 [7.85]
AKME43	154.4 [6.08]	210.3 [8.28]	228.3 [8.99]
AKME43	183.4 [7.22]	239.3 [9.42]	257.3 [10.13]

Note 1: Dimensions are in mm [inches].
Note 2: Product designed in metric. English conversions provided for reference only.

Related Resources:

Feedback Options and Specifications
Connector Options and Pinouts
Brake Option

AKME5x Series Motor Specifications

ATEX IECEx To maintain compliance, the rated torque, speed, and power used cannot exceed the limits set in the Certificate of Conformity Annex.

AKME51-52 Performance Data – Up to 400 Vac (560 Vdc Bus) voltage

					AKME51					AKME52				
	Parameters	Tol	Sym	Units	E	G	H	K	L	E	G	H	K	L
	Max Rated Voltage ⑫	Max	–	Vac	400	400	400	240	120	400	400	400	240	240
				Vdc	560	560	560	320	160	560	560	560	320	320
	Continuous Torque for ΔT winding = 95°C ①②⑦⑧⑨	Nom	T_{cs}	Nm	4.47	4.54	4.57	4.67	4.67	8.0	8.1	8.19	8.3	8.4
				lb-in	39.6	40.2	40.4	41.3	41.3	71	72	72.5	74	74
	Continuous Current for ΔT winding = 95°C ①②⑦⑧⑨	Nom	I_{cs}	A_{rms}	2.68	4.73	5.9	9.2	11.6	2.92	4.61	5.78	9.1	11.3
	Continuous Torque for ΔT winding = 60°C ②	Nom	T_{cs}	Nm	3.58	3.63	3.66	3.74	3.74	6.4	6.5	6.8	6.6	6.7
				lb-in	31.7	32.1	32.4	33.1	33.1	57	58	60	58	59
	Max Mechanical Speed ⑤⑮	Nom	N_{max}	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000
	Peak Torque ①②	Nom	T_p	Nm	11.5	11.6	11.6	11.8	11.9	21.2	21.3	21.6	21.8	21.8
				lb-in	102	103	103	104	105	188	189	191	193	193
	Peak Current	Nom	I_p	A_{rms}	8.2	14.5	18.0	28.2	35.7	9.0	14.1	17.7	27.9	34.8
75 Vdc	Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	-	-	-	-	4.26	-	-	-	-	-
				lb-in	-	-	-	-	37.7	-	-	-	-	-
	Rated Speed		N_{rtd}	rpm	-	-	-	-	1500	-	-	-	-	-
	Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	-	-	-	-	0.67	-	-	-	-	-
				Hp	-	-	-	-	0.90	-	-	-	-	-
120 Vac (160 Vdc)	Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	-	-	-	3.89	3.69	-	-	7.7	-	7.6
				lb-in	-	-	-	34.4	32.7	-	-	68	-	67
	Rated Speed		N_{rtd}	rpm	-	-	-	2500	3000	-	-	1000	-	1500
	Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	-	-	-	1.02	1.16	-	-	0.8	-	1.19
				Hp	-	-	-	1.37	1.56	-	-	1.07	-	1.60
240 Vac (320 Vdc)	Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	4.16	3.78	3.61	3.42	-	-	7.4	7.2	6.44	6.0
				lb-in	36.8	33.5	31.9	30.3	-	-	65	64	57	53
	Rated Speed		N_{rtd}	rpm	1200	2500	3000	3500	-	-	1500	1800	3000	3500
	Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	0.52	0.99	1.13	1.25	-	-	1.16	1.36	2.02	2.20
				Hp	0.70	1.33	1.52	1.68	-	-	1.56	1.82	2.71	2.95
400 Vac (560 Vdc)	Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	3.73	3.33	-	-	-	7.3	6.7	5.9	-	-
				lb-in	33.0	29.5	-	-	-	64	59	52	-	-
	Rated Speed		N_{rtd}	rpm	2500	3500	-	-	-	1500	2500	3500	-	-
	Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	0.98	1.22	-	-	-	1.15	1.75	2.16	-	-
				Hp	1.31	1.64	-	-	-	1.54	2.35	2.90	-	-

See following page for notes.

AKME51-52 Motor Parameters

				AKME51					AKME52					
Parameters	Tol	Sym	Units	E	G	H	K	L	E	G	H	K	L	M
Torque Constant ①	±10%	K_t	Nm/A_{rms}	1.71	0.99	0.79	0.52	0.41	2.78	1.79	1.44	0.93	0.75	0.66
			lb-in/A_{rms}	15.2	8.8	7	4.6	3.63	24.6	15.8	12.7	8.2	6.6	5.8
Back EMF Constant ⑥	±10%	K_e	V_{rms}/krpm	110	63.6	51.3	33.5	26.6	179	115	92.7	60.1	48.3	42.4
Motor Constant	Nom	K_m	N-m/√W	0.469	0.477	0.465	0.49	0.447	0.761	0.76	0.767	0.775	0.784	0.77
			lb-in/√W	4.15	4.24	4.12	4.35	3.96	6.73	6.71	6.79	6.83	6.94	6.81
Resistance (line-line) ⑥	±10%	R_m	ohm	9	2.87	1.85	0.75	0.49	9	3.7	2.35	0.96	0.61	0.49
Inductance (line-line)		L	mH	36.6	12.1	7.9	3.38	2.13	44.7	18.5	11.9	5	3.24	2.5
Inertia (includes Resolver feedback) ③	±10%	J_m	kg-cm²	3.4					6.2					
			lb-in-s²	3.00E-03					5.50E-03					
Optional Brake Inertia (additional) ⑭	±10%	J_m	kg-cm²	0.166					0.166					
			lb-in-s²	1.47E-04					1.47E-04					
Weight (w/o brake) ⑩		W	kg	4.2					5.8					
			lb	9.3					12.8					
Static Friction ①		T_f	Nm	0.152					0.17					
			lb-in	1.39					1.55					
Viscous Damping ①		K_{dv}	Nm/krpm	0.033					0.042					
			lb-in/krpm	0.29					0.37					
Thermal Time Constant		TCT	minutes	20					24					
Thermal Resistance		R_{thw-a}	°C/W	0.68					0.56					
Operating Ambient Temperature Range ⑬⑭			°C	5 to 40					5 to 40					
Pole Pairs				5					5					
Heat Sink Size				12″x12″x1/2″ Aluminum Plate					12″x12″x1/2″ Aluminum Plate					

Additional windings may exist. Please contact Kollmorgen Customer Support for further information or to request custom winding options for your application requirements.

Notes:
① Motor winding temperature rise, ΔT=95°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 reduces continuous torque ratings by:
AKME51 = 0.46 Nm AKME52 = 0.80 Nm AKME53 = 1.08 Nm AKME54 = 1.33 Nm
⑧ Non-Resolver feedback options reduce continuous torque ratings by:
AKME51 = 0.15 Nm AKME52 = 0.34 Nm AKME53 = 0.58 Nm AKME54 = 0.86 Nm
⑨ Motors with non-resolver feedback and brake option, reduce continuous torque by:
AKME51 = 0.46 Nm AKME52 = 0.80 Nm AKME53 = 1.08 Nm AKME54 = 1.33 Nm
⑩ Brake option increases weight by 1.23 kg (2.71 lb).
⑪ If compliance to UL 508 is required, then any winding above 16Arms/Phase continuous current rating, requires M40 "H" connector. Future UL60079 certification will provide guideance. Please contact Kollmorgen Customer Service for co-engineered solution evaluation.
⑫ Motors can be operated up to 400 Vac. For performances curves at voltages, listed or unlisted, please use our online Performance Curve Generator Tool.
⑬ Brake option will operate in this range in a non-condensing environment. See the Brake Option section for more information.
⑭ The applied holding brake voltage must be limited to 17 V to maintain ATEX/IECEx T4 temperature class compliance.
⑮ For AKME5 the maximum speed is limited up to 3500 rpm.

AKME5x Series Motor Specifications

ATEX IECEx To maintain compliance, the rated torque, speed, and power used cannot exceed the limits set in the Certificate of Conformity Annex.

AKME53-54 Performance Data – Up to 400 Vac (560 Vdc Bus) voltage

					AKME53							AKME54					
Parameters	Tol	Sym	Units	G	H	K	L	M	P⑪	Q⑪	G	H	K	L	N⑪	P⑪
Max Rated Voltage ⑫	Max	–	Vac	400	400	400	240	240	240	120	400	400	400	240	240	240
			Vdc	560	560	560	320	320	320	160	560	560	560	320	320	320
Continuous Torque for ΔT winding = 95°C ①②⑦⑧⑨	Nom	T_{cs}	Nm	11.0	11.2	11.2	11.3	11.0	11.0	11.2	13.8	13.8	14.1	13.7	13.7	14.0
			lb-in	97	99	99	100	97	98	99	122	122	125	121	121	124
Continuous Current for ΔT winding = 95°C ①②⑦⑧⑨	Nom	I_{cs}	A_{rms}	4.66	6.5	9.2	11.5	13.1	18.7	20.6	4.84	5.4	9.5	12.2	17.4	19.2
Continuous Torque for ΔT winding = 60°C ②	Nom	T_{cs}	Nm	8.8	9.0	9.0	9.0	8.8	8.8	9.0	11.0	11.0	11.3	11.0	11.0	11.5
			lb-in	78	80	80	80	78	78	80	97	97	100	97	97	99
Max Mechanical Speed ⑤⑮	Nom	N_{max}	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000
Peak Torque ①②	Nom	T_p	Nm	29.7	29.9	30.1	30.1	29.6	29.6	30.1	37.3	37.4	38.2	37.4	37.4	37.9
			lb-in	263	265	266	266	262	262	266	330	331	338	331	331	335
Peak Current	Nom	I_p	A_{rms}	14.4	19.8	28.2	35.4	40.2	57	63	14.7	16.5	29.1	37.5	53	58.8
75 Vdc: Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	-	-	-	-	-	-	10.5	-	-	-	-	-	13.3
			lb-in	-	-	-	-	-	-	93	-	-	-	-	-	117
75 Vdc: Rated Speed		N_{rtd}	rpm	-	-	-	-	-	-	1000	-	-	-	-	-	800
75 Vdc: Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	-	-	-	-	-	-	1.1	-	-	-	-	-	1.11
			Hp	-	-	-	-	-	-	1.48	-	-	-	-	-	1.49
120 Vac (160 Vdc): Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	-	-	-	-	-	-	9.2	-	-	-	-	-	11.9
			lb-in	-	-	-	-	-	-	81	-	-	-	-	-	105
120 Vac (160 Vdc): Rated Speed		N_{rtd}	rpm	-	-	-	-	-	-	2500	-	-	-	-	-	2000
120 Vac (160 Vdc): Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	-	-	-	-	-	-	2.41	-	-	-	-	-	2.49
			Hp	-	-	-	-	-	-	3.23	-	-	-	-	-	3.34
240 Vac (320 Vdc): Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	10.3	10.1	9.6	8.4	8.3	7.7	-	-	12.9	12.2	11.0	9.3	9.43
			lb-in	91	89	85	75	73	68	-	-	114	108	97	82	83
240 Vac (320 Vdc): Rated Speed		N_{rtd}	rpm	1000	1500	2000	3000	3000	3500	-	-	1000	1800	2500	3500	3500
240 Vac (320 Vdc): Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	1.08	1.59	2.01	2.64	2.59	2.80	-	-	1.35	2.30	2.88	3.41	3.46
			Hp	1.45	2.13	2.70	3.54	3.47	3.76	-	-	1.81	3.08	3.86	4.57	4.64
400 Vac (560 Vdc): Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	9.4	8.4	7.8	-	-	-	-	12.4	12.1	9.53	-	-	-
			lb-in	83	74	69	-	-	-	-	110	107	84	-	-	-
400 Vac (560 Vdc): Rated Speed		N_{rtd}	rpm	2000	3000	3500	-	-	-	-	1500	1800	3500	-	-	-
400 Vac (560 Vdc): Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	1.97	2.64	2.86	-	-	-	-	1.95	2.28	3.49	-	-	-
			Hp	2.64	3.54	3.83	-	-	-	-	2.61	3.06	4.68	-	-	-

See following page for notes.

AKME53-54 Motor Parameters

				AKME53							AKME54					
Parameters	Tol	Sym	Units	G	H	K	L	M	P	Q	G	H	K	L	N	P
Torque Constant ①	±10%	K_t	Nm/A_{rms}	2.39	1.74	1.24	0.99	0.85	0.6	0.55	2.87	2.58	1.51	1.13	0.79	0.73
			$lb\text{-}in/A_{rms}$	21.2	15.4	11	8.8	7.5	5.3	4.9	25.4	22.8	13.4	10	7	6.5
Back EMF Constant ⑥	±10%	K_e	$V_{rms}/krpm$	154	112	79.8	63.6	54.7	38.4	35.5	185	166	96.6	72.9	51.3	47.3
Motor Constant	Nom	K_m	N-m/√W	0.979	0.986	0.983	0.973	0.972	0.926	0.98	1.164	1.19	1.18	1.14	1.14	1.163
			lb-in/√W	8.67	8.73	8.72	8.61	8.57	8.19	8.76	10.31	10.5	10.4	10.1	10.1	10.21
Resistance (line-line) ⑥	±10%	R_m	ohm	3.97	2.1	1.06	0.69	0.51	0.28	0.21	4.08	3.2	1.08	0.65	0.33	0.27
Inductance (line-line)		L	mH	21.3	11.4	5.7	3.64	2.7	1.3	1.14	22.9	18.3	6.2	3.5	1.75	1.49
Inertia (includes Resolver feedback) ③	±10%	J_m	$kg\text{-}cm^2$	9.1							12					
			$lb\text{-}in\text{-}s^2$	8.10E-03							0.011					
Optional Brake Inertia (additional) ⑭	±10%	J_m	$kg\text{-}cm^2$	0.166							0.166					
			$lb\text{-}in\text{-}s^2$	1.47E-04							1.47E-04					
Weight (w/o brake) ⑩		W	kg	7.4							9					
			lb	16.3							19.8					
Static Friction ①		T_f	Nm	0.188							0.207					
			lb-in	1.71							1.88					
Viscous Damping ①		K_{dv}	Nm/krpm	0.052							0.061					
			lb-in/krpm	0.46							0.54					
Thermal Time Constant		TCT	minutes	28							31					
Thermal Resistance		$R_{thw\text{-}a}$	°C/W	0.5							0.45					
Operating Ambient Temperature Range ⑬⑭			°C	5 to 40							5 to 40					
Pole Pairs				5							5					
Heat Sink Size				12″x12″x1/2″ Aluminum Plate							12″x12″x1/2″ Aluminum Plate					

Additional windings may exist. Please contact Kollmorgen Customer Support for further information or to request custom winding options for your application requirements.

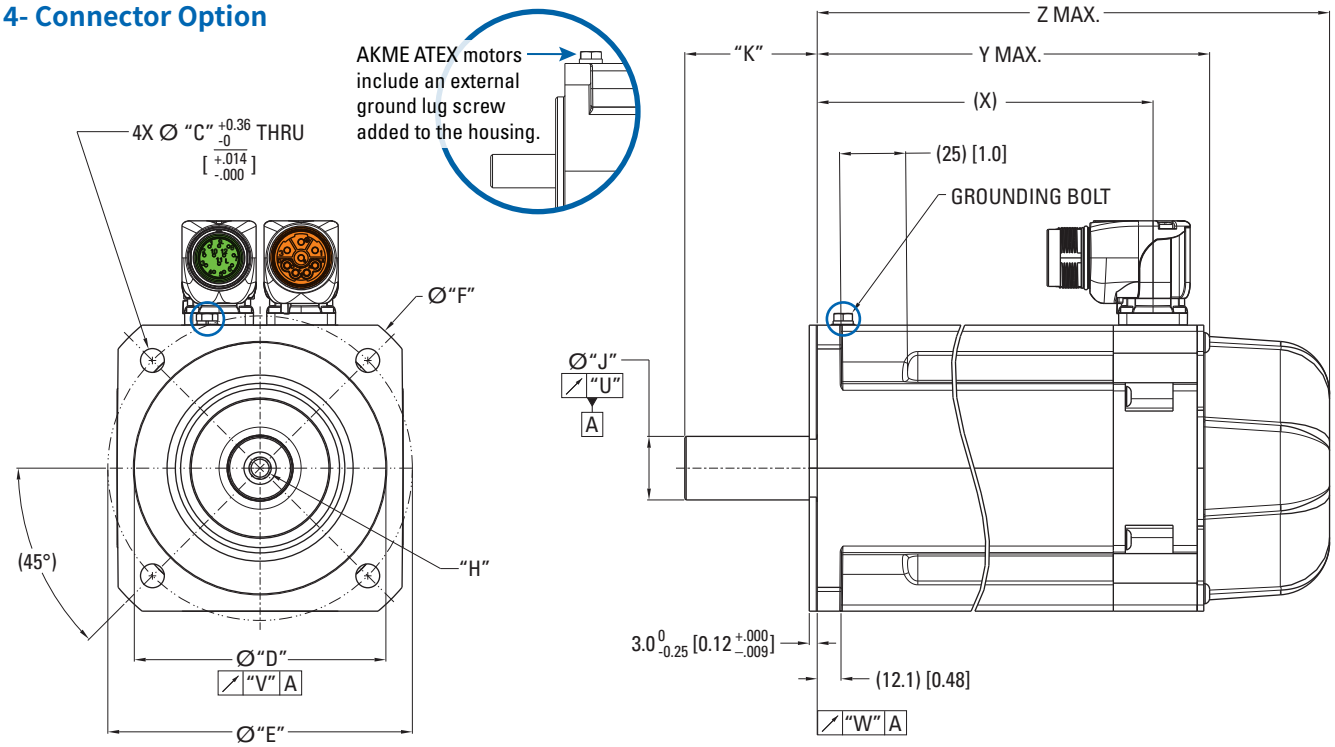
Notes:
① Motor winding temperature rise, ΔT=95°C, at 40°C ambient.
② All data referenced to sinusoidal commutation.
③ Add parking brake if applicable for total inertia.
④ Motor with standard heat sink.
⑤ May be limited at some values of Vbus.
⑥ Measured at 25°C.
⑦ Brake option reduces continuous torque ratings by:
AKME51 = 0.46 Nm AKME52 = 0.80 Nm AKME53 = 1.08 Nm AKME54 = 1.33 Nm
⑧ Non-Resolver feedback options reduce continuous torque ratings by:
AKME51 = 0.15 Nm AKME52 = 0.34 Nm AKME53 = 0.58 Nm AKME54 = 0.86 Nm
⑨ Motors with non-resolver feedback and brake option, reduce continuous torque by:
AKME51 = 0.46 Nm AKME52 = 0.80 Nm AKME53 = 1.08 Nm AKME54 = 1.33 Nm
⑩ Brake option increases weight by 1.23 kg (2.71 lb).
⑪ If compliance to UL 508 is required, then any winding above 16Arms/Phase continuous current rating, requires M40 "H" connector. Future UL60079 certification will provide guideance. Please contact Kollmorgen Customer Service for co-engineered solution evaluation.
⑫ Motors can be operated up to 400 Vac. For performances curves at voltages, listed or unlisted, please use our online Performance Curve Generator Tool.
⑬ Brake option will operate in this range in a non-condensing environment. See the Brake Option section for more information.
⑭ The applied holding brake voltage must be limited to 17 V to maintain ATEX/IECEx T4 temperature class compliance.
⑮ For AKME5 the maximum speed is limited up to 3500 rpm.

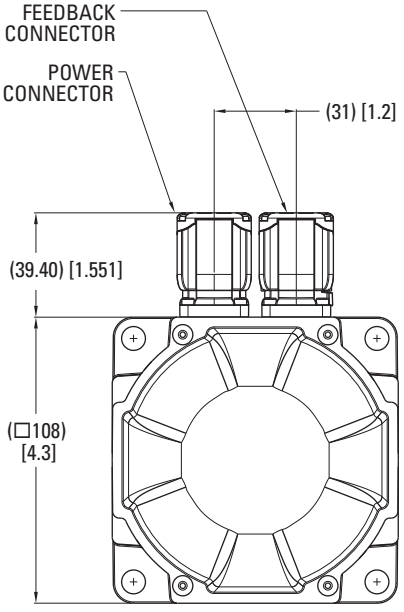
AKME5x Series Motor Specifications

AKME5x Frame Dimensional Drawings

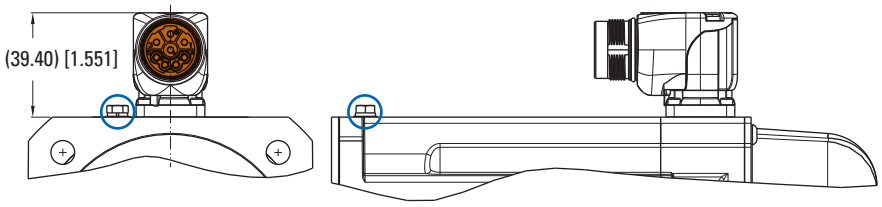
AKME 2D/3D CAD models can be found at Kollmorgen.com/DesignTools

4- Connector Option

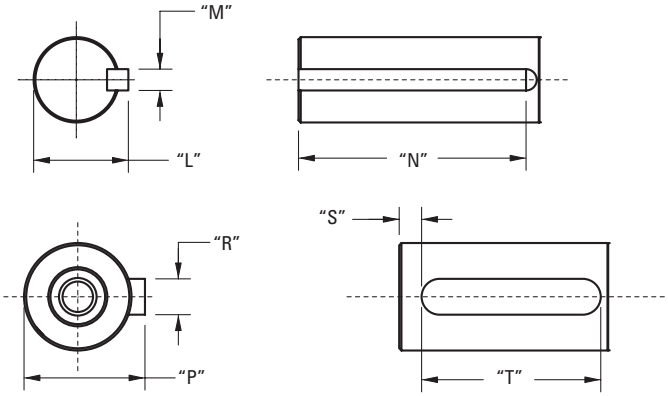




9- Connector Option



Shaft-keyway dimensions



Dimensional data tables for callouts are located on the following page.

AKME5x Frame Dimensional Data

AKME5x Mounting Flange-Shaft Dimensional Data

Mounting Flange-Shaft	Hole Diameter "C"	Pilot Diameter "D"	Bolt Circle Dia. "E"	"F"	"H"	Shaft Diameter "J"	Shaft Length "K"	Shaft Dia. w/ Key "L"
AC	9 [0.354]	110 [4.3307]	130 [5.118]	–	D M8 DIN 332	24 [0.9449]	50.0 [1.97]	–
AN	9 [0.354]	110 [4.3307]	130 [5.118]	–	D M8 DIN 332	24 [0.9449]	50.0 [1.97]	–
BK	8.33 [0.328]	55.563 [2.1874]	125.73 [4.950]	–	–	19.05 [0.7500]	57.15 [2.250]	21.15 [0.83]
CC	9 [0.354]	95 [3.7402]	115 [4.528]	140 [5.512]	D M8 DIN 332	24 [0.9449]	50.0 [1.97]	–
CN	9 [0.354]	95 [3.7402]	115 [4.528]	140 [5.512]	D M8 DIN 332	24 [0.9449]	50.0 [1.97]	–
DK	8.33 [0.328]	63.5 [2.500]	127 [5.000]	–	–	19.05 [0.7500]	57.15 [2.250]	21.15 [0.83]
EK	8.33 [0.328]	55.563 [2.1874]	125.73 [4.950]	–	–	15.875 [0.6250]	44.45 [1.750]	17.91 [0.705]
GC	9 [0.354]	110 [4.3307]	130 [5.118]	–	D M6 DIN 332	19 [0.7480]	40 [1.57]	–
GN	9 [0.354]	110 [4.3307]	130 [5.118]	–	D M6 DIN 332	19 [0.7480]	40.0 [1.57]	–
HC	9 [0.354]	95 [3.7402]	115 [4.528]	140 [5.512]	D M6 DIN 332	19 [0.7480]	40 [1.57]	–
HN	9 [0.354]	95 [3.7402]	115 [4.528]	140 [5.512]	D M6 DIN 332	19 [0.7480]	40.0 [1.57]	–

Mounting Flange-Shaft	Key Width "M"	Key Length "N"	Shaft Dia. w/ Key "P"	Key Width "R"	"S"	Key Length "T"	"U"	"V"	"W"
AC	–	–	27 [1.063]	8 [0.3150]	5.00 [0.197]	40 [1.575]	0.040 [0.0015]	0.100 [0.0039]	0.100 [0.0039]
AN	–	–	–	–	–	–	0.040 [0.0015]	0.100 [0.0039]	0.100 [0.0039]
BK	4.763 [0.1875	38.1 [1.500]	–	–	–	–	0.051 [0.0020]	0.10 [0.004]	0.10 [0.004]
CC	–	–	27 [1.063]	8 [0.3150]	5.00 [0.197]	40 [1.575]	0.040 [0.0015]	0.080 [0.0031]	0.080 [0.0031]
CN	–	–	–	–	–	–	0.040 [0.0015]	0.080 [0.0031]	0.080 [0.0031]
DK	4.763 [0.1875	34.93 [1.375]	–	–	–	–	0.051 [0.0020]	0.05 [0.002]	0.10 [0.004]
EK	4.763 [0.1875	38.1 [1.500]	–	–	–	–	0.051 [0.0020]	0.10 [0.004]	0.10 [0.004]
GC	–	–	21.5 [0.846]	6 [0.236]	4.00 [0.157]	32 [1.260]	0.040 [0.0015]	0.080 [0.0031]	0.080 [0.0031]
GN	–	–	–	–	–	–	–	–	–
HC	–	–	21.5 [0.846]	6 [0.236]	4.00 [0.157]	32 [1.260]	0.040 [0.0015]	0.080 [0.0031]	0.080 [0.0031]
HN	–	–	–	–	–	–	–	–	–

AKME5x Motor Length Dimensional Data

	No Brake (N)		
	X	Y MAX	Z MAX
Feedback Option	R, 2-, Ax, Dx, Gx, CB	R, 2-, CB	Ax, Dx, Gx
AKME51	105.3 [4.15]	127.5 [5.02]	146 [5.75]
AKME52	136.3 [5.37]	158.5 [6.24]	177 [6.97]
AKME53	167.3 [6.59]	189.5 [7.46]	208 [8.19]
AKME54	198.3 [7.81]	220.5 [8.68]	239 [9.41]

	Brake (2)		
	X	Z MAX	
Feedback Option	R, 2-, Ax, Dx, Gx, CB	R, 2-, CB	Ax, Dx, Gx
AKME51	105.3 [4.15]	172.5 [6.79]	189 [7.44]
AKME52	136.3 [5.37]	203.5 [8.01]	220 [8.66]
AKME53	167.3 [6.59]	234.5 [9.23]	251 [9.88]
AKME54	198.3 [7.81]	265.5 [10.45]	282 [11.1]

Note 1: Dimensions are in mm [inches].
Note 2: Product designed in metric. English conversions provided for reference only.

Related Resources:

Feedback Options and Specifications
Connector Options and Pinouts
Brake Option

AKME6x Series Motor Specifications

ATEX IECEx To maintain compliance, the rated torque, speed, and power used cannot exceed the limits set in the Certificate of Conformity Annex.

AKME62-63 Performance Data – Up to 400 Vac (560 Vdc Bus) voltage

					AKME62							AKME63						
Parameters	Tol	Sym	Units	G	H	K	L	M	P⑪	Q⑪	G	H	K	L	M	N⑪	Q⑪
Max Rated Voltage ⑫	Max	–	Vac	400	400	400	240	240	240	120	400	400	400	400	240	240	120
			Vdc	560	560	560	320	320	320	160	560	560	560	560	320	320	160
Continuous Torque for ΔT winding = 95°C ①②⑦⑧⑨	Nom	T_{cs}	Nm	11.4	11.5	11.7	11.7	11.7	11.8	11.5	15.9	16.0	16.2	16.3	16.5	16.4	16.1
			lb-in	101	102	104	103	104	104	102	141	142	143	144	146	145	143
Continuous Current for ΔT winding = 95°C ①②⑦⑧⑨	Nom	I_{cs}	A_{rms}	4.70	5.3	9.3	11.7	13.1	18.4	21.3	4.40	5.5	9.7	10.8	13.5	17.0	21.8
Continuous Torque for ΔT winding = 60°C ②	Nom	T_{cs}	Nm	9.1	9.2	9.4	9.3	9.4	9.4	9.2	12.7	12.8	13.0	13.0	13.2	13.1	12.9
			lb-in	81	81	83	82	83	83	81	112	113	115	115	117	116	114
Max Mechanical Speed ⑤⑮	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	29.5	29.5	30.0	29.9	30.0	30.1	29.6	41.6	41.9	42.3	42.4	42.8	42.7	42.1
			lb-in	261	261	266	265	266	266	262	368	371	374	375	379	378	373
Peak Current	Nom	I_p	A_{rms}	14.6	16.3	28.8	36.0	40.2	56	65	13.4	16.8	29.7	33.3	41.4	52	67
75 Vdc																	
Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	-	-		-	-	-	10.7	-	-	-	-	-	-	15.2
			lb-in	-	-		-	-	-	95	-	-	-	-	-	-	135
Rated Speed		N_{rtd}	rpm	-	-		-	-	-	1000	-	-	-	-	-	-	800
Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	-	-		-	-	-	1.12	-	-	-	-	-	-	1.27
			Hp	-	-	-	-	-	-	1.50			-	-	-	-	1.70
120 Vac (160 Vdc)																	
Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	-	-	-	-	10.4	10.0	9.3	-	-	-	-	15.2	14.4	13.4
			lb-in	-	-	-	-	92	89	82	-	-	-	-	135	127	119
Rated Speed		N_{rtd}	rpm	-	-	-	-	1500	2000	2500	-	-	-	-	1000	1500	2000
Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	-	-	-	-	1.63	2.09	2.43	-	-	-	-	1.59	2.26	2.81
			Hp	-	-	-	-	2.19	2.79	3.25	-	-	-	-	2.13	3.03	3.77
240 Vac (320 Vdc)																	
Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	-	10.7	9.8	9.4	9.5	9.53	-	-	-	14.2	13.9	13.7	13.0	-
			lb-in	-	95	87	83	84	84	-	-	-	126	123	121	115	-
Rated Speed		N_{rtd}	rpm	-	1000	2000	2500	2500	2500	-	-	-	1500	1800	2000	2500	-
Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	-	1.12	2.05	2.46	2.49	2.49	-	-	-	2.23	2.61	2.87	3.40	-
			Hp	-	1.50	2.75	3.30	3.34	3.35	-	-	-	2.99	3.50	3.85	4.56	-
400 Vac (560 Vdc)																	
Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	9.8	9.7	9.4	-	-	-	-	14.4	14.0	12.8	12.9	-	-	-
			lb-in	87	86	83	-	-	-	-	127	124	113	114	-	-	-
Rated Speed		N_{rtd}	rpm	1800	2000	2500	-	-	-	-	1200	1500	2500	2500	-	-	-
Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	1.85	2.03	2.46	-	-	-	-	1.81	2.20	3.35	3.38	-	-	-
			Hp	2.48	2.72	3.30	-	-	-	-	2.43	2.95	4.49	4.53	-	-	-

See following page for notes.

AKME62-63 Motor Parameters

				AKME62							AKME63						
Parameters	Tol	Sym	Units	G	H	K	L	M	P	Q	G	H	K	L	M	N	Q
Torque Constant ①	±10%	K_t	Nm/A_{rms}	2.47	2.21	1.27	1.03	0.92	0.66	0.55	3.7	2.98	1.71	1.52	1.24	0.98	0.75
			$lb\text{-}in/A_{rms}$	21.9	19.6	11.2	9.1	8.1	5.8	4.87	32.7	26.4	15.1	13.5	11	8.7	6.6
Back EMF Constant ⑥	±10%	K_e	$V_{rms}/krpm$	159	142	82.1	65.5	58.8	42.2	35.5	238	192	110	98.2	79.9	63.3	48.3
Motor Constant	Nom	K_m	N-m/√W	0.992	0.989	1.006	0.949	0.984	0.984	1	1.288	1.32	1.308	1.26	1.3	1.281	1.28
			lb-in/√W	8.8	8.75	8.88	8.4	8.71	8.65	8.85	11.38	11.7	11.55	11.2	11.5	11.37	11.3
Resistance (line-line) ⑥	±10%	R_m	ohm	4.13	3.3	1.08	0.71	0.57	0.3	0.24	5.5	3.43	1.14	0.94	0.61	0.39	0.23
Inductance (line-line)		L	mH	31.7	25.4	8.5	5.4	4.4	2.2	1.6	43.5	28.1	9.3	7.4	4.9	3.1	1.8
Inertia (includes Resolver feedback) ③	±10%	J_m	$kg\text{-}cm^2$	17							24						
			$lb\text{-}in\text{-}s^2$	0.015							0.021						
Optional Brake Inertia (additional) ⑭	±10%	J_m	$kg\text{-}cm^2$	0.668							0.668						
			$lb\text{-}in\text{-}s^2$	5.91E-04							5.91E-04						
Weight (w/o brake) ⑩		W	kg	8.9							11.1						
			lb	19.6							24.4						
Static Friction ①		T_f	Nm	0.3							0.35						
			lb-in	2.65							3.11						
Viscous Damping ①		K_{dv}	Nm/krpm	0.04							0.06						
			lb-in/krpm	0.35							0.53						
Thermal Time Constant		TCT	minutes	20							25						
Thermal Resistance		$R_{thw\text{-}a}$	°C/W	0.46							0.41						
Operating Ambient Temperature Range ⑬⑭			°C	5 to 40							5 to 40						
Pole Pairs				5							5						
Heat Sink Size				18"x18"x1/2" Aluminum Plate							18"x18"x1/2" Aluminum Plate						

Additional windings may exist. Please contact Kollmorgen Customer Support for further information or to request custom winding options for your application requirements.

Notes:
① Motor winding temperature rise, ΔT=95°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 reduces continuous torque ratings by:
AKME62 = 0.5 Nm AKME63 = 0.9 Nm AKME64 = 1.3 Nm AKME65 = 1.7 Nm
⑧ Non-Resolver feedback options reduce continuous torque ratings by:
AKME62 = 0.9 Nm AKME63 = 1.2 Nm AKME64 = 1.5 Nm AKME65 = 1.8 Nm
⑨ Motors with non-resolver feedback and brake option, reduce continuous torque by:
AKME62 = 1.6 Nm AKME63 = 2.4 Nm AKME64 = 3.1 Nm AKME65 = 4.0 Nm
⑩ Brake option increases weight by 2.19 kg (4.83 lb).
⑪ If compliance to UL 508 is required, then any winding above 16Arms/Phase continuous current rating, requires M40 "H" connector. Future UL60079 certification will provide guideance. Please contact Kollmorgen Customer Service for co-engineered solution evaluation.
⑫ Motors can be operated up to 400 Vac. For performances curves at voltages, listed or unlisted, please use our online Performance Curve Generator Tool.
⑬ Brake option will operate in this range in a non-condensing environment. See the Brake Option section for more information.
⑭ The applied holding brake voltage must be limited to 17 V to maintain ATEX/IECEx T4 temperature class compliance.
⑮ For AKME6 the maximum speed is limited up to 2500 rpm.

AKME6x Series Motor Specifications

ATEX IECEx To maintain compliance, the rated torque, speed, and power used cannot exceed the limits set in the Certificate of Conformity Annex.

AKME64-65 Performance Data – Up to 400 Vac (560 Vdc Bus) voltage

					AKME64				AKME65				
	Parameters	Tol	Sym	Units	K	L	P⑪	Q⑪	K	L	M	N⑪	P⑪
	Max Rated Voltage ⑪	Max	–	Vac	400	400	240	240	400	400	400	240	240
				Vdc	560	560	320	320	560	560	560	320	320
	Continuous Torque for ΔT winding = 95°C ①②⑦⑧⑨	Nom	T_{cs}	Nm	20.1	20.4	19.8	20.0	24.0	24.3	24.4	23.6	23.8
				lb-in	178	181	175	177	212	215	216	209	211
	Continuous Current for ΔT winding = 95°C ①②⑦⑧⑨	Nom	I_{cs}	A_{rms}	8.9	12.5	18.2	20.2	9.5	11.9	13.3	17.3	19.3
	Continuous Torque for ΔT winding = 60°C ②	Nom	T_{cs}	Nm	16.1	16.3	15.8	16.0	19.2	19.4	19.5	18.9	19.0
				lb-in	142	144	140	142	170	172	173	167	168
	Max Mechanical Speed ⑤⑮	Nom	N_{max}	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000
	Peak Torque ①②	Nom	T_p	Nm	53	54	53	53	64	65	65	63	64
				lb-in	471	477	469	469	566	575	575	558	566
	Peak Current	Nom	I_p	A_{rms}	27.5	38.4	56	62	29.4	36.6	40.9	53	59
75 Vdc	Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	-	-	-	19.3	-	-	-	-	-
				lb-in	-	-	-	170	-	-	-	-	-
	Rated Speed		N_{rtd}	rpm	-	-	-	500	-	-	-	-	-
	Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	-	-	-	1.01	-	-	-	-	-
				Hp	-	-	-	1.35	-	-	-	-	-
120 Vac (160 Vdc)	Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	-	-	18.2	17.3	-	-	-	21.6	21.8
				lb-in	-	-	161	153	-	-	-	191	193
	Rated Speed		N_{rtd}	rpm	-	-	1000	1500	-	-	-	1000	1000
	Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	-	-	1.91	2.72	-	-	-	2.26	2.28
				Hp	-	-	2.56	3.65	-	-	-	3.03	3.06
240 Vac (320 Vdc)	Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	18.2	17.7	15.2	15.4	22.0	21.6	21.1	19.0	18.1
				lb-in	161	157	135	136	195	191	187	168	160
	Rated Speed		N_{rtd}	rpm	1200	1500	2500	2500	1000	1300	1500	2000	2400
	Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	2.28	2.78	3.98	4.03	2.30	2.94	3.31	3.98	4.55
				Hp	3.06	3.73	5.34	5.4	3.08	3.94	4.44	5.34	6.1
400 Vac (560 Vdc)	Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	16.4	15.7	-	-	19.3	18.3	18.3	-	-
				lb-in	145	139	-	-	171	162	162	-	-
	Rated Speed		N_{rtd}	rpm	2000	2500	-	-	2000	2500	2500	-	-
	Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	3.43	4.11	-	-	4.04	4.79	4.79	-	-
				Hp	4.60	5.51	-	-	5.42	6.42	6.42	-	-

See following page for notes.

AKME64-65 Motor Parameters

				AKME64				AKME65				
Parameters	Tol	Sym	Units	K	L	P	Q	K	L	M	N	P
Torque Constant ①	±10%	K_t	Nm/A_{rms}	2.28	1.66	1.1	0.99	2.55	2.07	1.85	1.38	1.26
			$lb\text{-}in/A_{rms}$	20.2	14.7	9.7	8.8	22.6	18.3	16.4	12.2	11.2
Back EMF Constant ⑥	±10%	K_e	$V_{rms}/krpm$	147	107	71	0.64	164	133	119	88.8	80.5
Motor Constant	Nom	K_m	$N\text{-}m/\sqrt{W}$	1.57	1.57	1.497	1.44	1.785	1.81	1.77	1.718	1.75
			$lb\text{-}in/\sqrt{W}$	13.9	13.9	13.2	12.8	15.81	16	15.6	15.19	15.4
Resistance (line-line) ⑥	±10%	R_m	ohm	1.41	0.75	0.36	0.3	1.35	0.9	0.73	0.43	0.36
Inductance (line-line)		L	mH	11.8	6.2	2.8	1.9	11.4	7.6	6.1	3.4	2.8
Inertia (includes Resolver feedback) ③	±10%	J_m	$kg\text{-}cm^2$	32				40				
			$lb\text{-}in\text{-}s^2$	0.028				0.035				
Optional Brake Inertia (additional) ⑭	±10%	J_m	$kg\text{-}cm^2$	0.668				0.668				
			$lb\text{-}in\text{-}s^2$	5.91E-04				5.91E-04				
Weight (w/o brake) ⑩		W	kg	13.3				15.4				
			lb	29.3				33.9				
Static Friction ①		T_f	Nm	0.4				0.45				
			lb-in	3.51				4.01				
Viscous Damping ①		K_{dv}	Nm/krpm	0.08				0.1				
			lb-in/krpm	0.71				0.9				
Thermal Time Constant		TCT	minutes	30				35				
Thermal Resistance		$R_{thw\text{-}a}$	°C/W	0.38				0.35				
Operating Ambient Temperature Range ⑬⑭			°C	5 to 40				5 to 40				
Pole Pairs				5				5				
Heat Sink Size				18″x18″x1/2″ Aluminum Plate				18″x18″x1/2″ Aluminum Plate				

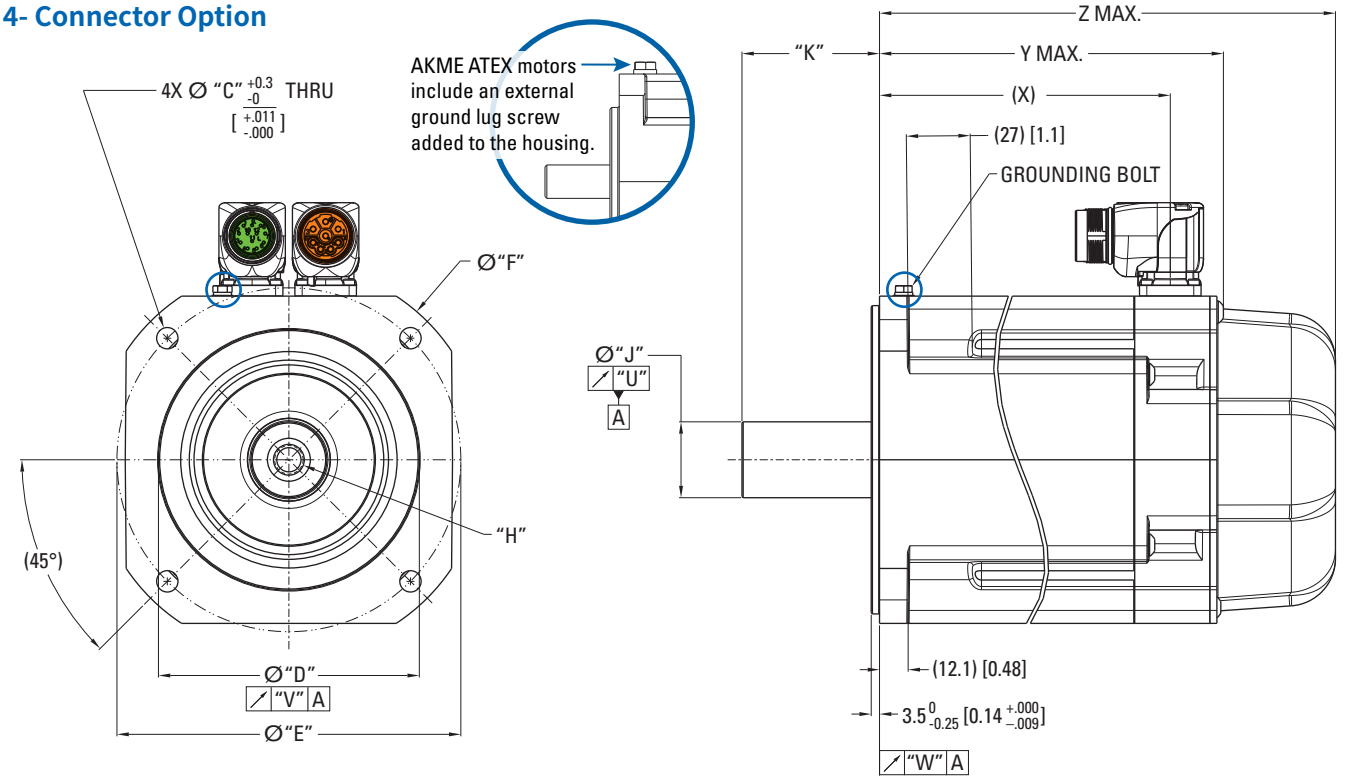
Additional windings may exist. Please contact Kollmorgen Customer Support for further information or to request custom winding options for your application requirements.

Notes:
① Motor winding temperature rise, ΔT=95°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 reduces continuous torque ratings by:
AKME62 = 0.5 Nm AKME63 = 0.9 Nm AKME64 = 1.3 Nm AKME65 = 1.7 Nm
⑧ Non-Resolver feedback options reduce continuous torque ratings by:
AKME62 = 0.9 Nm AKME63 = 1.2 Nm AKME64 = 1.5 Nm AKME65 = 1.8 Nm
⑨ Motors with non-resolver feedback and brake option, reduce continuous torque by:
AKME62 = 1.6 Nm AKME63 = 2.4 Nm AKME64 = 3.1 Nm AKME65 = 4.0 Nm
⑩ Brake option increases weight by 2.19 kg (4.83 lb).
⑪ If compliance to UL 508 is required, then any winding above 16Arms/Phase continuous current rating, requires M40 “H” connector. Future UL60079 certification will provide guideance. Please contact Kollmorgen Customer Service for co-engineered solution evaluation.
⑫ Motors can be operated up to 400 Vac. For performances curves at voltages, listed or unlisted, please use our online Performance Curve Generator Tool.
⑬ Brake option will operate in this range in a non-condensing environment. See the Brake Option section for more information.
⑭ The applied holding brake voltage must be limited to 17 V to maintain ATEX/IECEx T4 temperature class compliance.
⑮ For AKME6 the maximum speed is limited up to 2500 rpm.

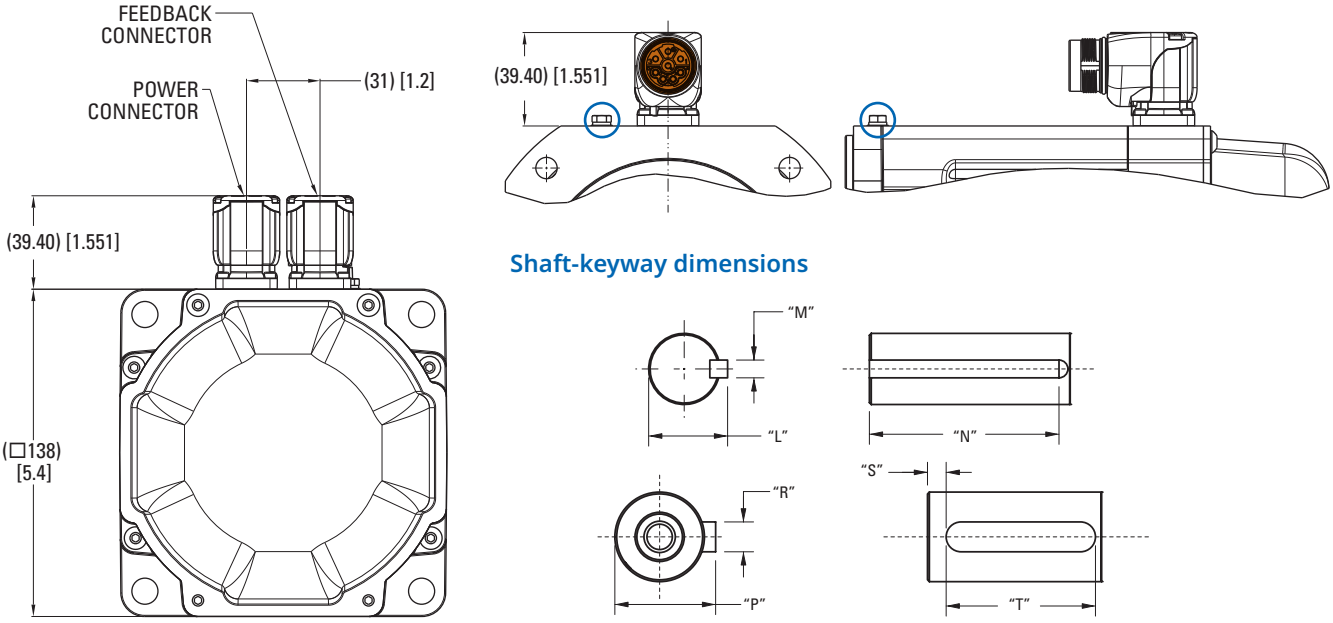
AKME6x Series Motor Specifications

AKME6x Frame Dimensional Drawings

4- Connector Option



9- Connector Option



Shaft-keyway dimensions

Dimensional data tables for callouts are located on the following page.

AKME6x Frame Dimensional Data

AKME6x Mounting Flange-Shaft Dimensional Data

Mounting Flange-Shaft	Hole Diameter "C"	Pilot Diameter "D"	Bolt Circle Dia. "E"	"F"	"H"	Shaft Diameter "J"	Shaft Length "K"	Shaft Dia. w/ Key "L"
AC	11.00 [0.433]	130 [5.1181]	165.00 [6.496]	–	D M12 DIN 332	32 [1.2598]	58 [2.28]	–
AN	11.00 [0.433]	130 [5.1181]	165.00 [6.496]	–	D M12 DIN 332	32 [1.2598]	58 [2.28]	–
GC	11.00 [0.433]	130 [5.1181]	165.00 [6.496]	–	D M8 DIN 332	24 [0.9449]	50 [1.97]	–
GN	11.00 [0.433]	130 [5.1181]	165.00 [6.496]	–	D M8 DIN 332	24 [0.9449]	50 [1.97]	–
KK	9.00 [0.354]	110 [4.3307]	145.00 [5.709]	165 [6.496]	–	28 [1.1024]	60 [2.36]	31 [1.220]
LK	3/18 - 16 UNC-2B	114.3 [4.5000]	149.225 [5.875]	165 [6.496]	–	28.580 [1.1250]	69.85 [2.75]	31.39 [1.236]

Mounting Flange-Shaft	Key Width "M"	Key Length "N"	Shaft Dia. w/ Key "P"	Key Width "R"	"S"	Key Length "T"	"U"	"V"	"W"
AC	–	–	35 [1.378]	10 [0.3937]	5.00 [0.197]	45 [1.772]	0.050 [0.0019]	0.100 [0.0039]	0.100 [0.0039]
AN	–	–	–	–	–	–	0.050 [0.0019]	0.100 [0.0039]	0.100 [0.0039]
GC	–	–	27 [1.063]	8 [0.3150]	5.00 [0.197]	40 [1.575]	0.050 [0.0019]	0.100 [0.0039]	0.100 [0.0039]
GN	–	–	–	–	–	–	0.050 [0.0019]	0.100 [0.0039]	0.100 [0.0039]
KK	8 [0.3150]	50 [1.969]	–	–	–	–	0.050 [0.0019]	0.100 [0.0039]	0.100 [0.0039]
LK	6.35 [2.75]	38.1 [1.500]	–	–	–	–	0.050 [0.0019]	0.100 [0.0039]	0.100 [0.0039]

AKME6x Motor Length Dimensional Data

	No Brake (N)		
	X	Y MAX	Z MAX
Feedback Option	R, 2-, Ax, Dx, Gx, CB	R, 2-, CB	Ax, Dx, Gx
AKME62	130.5 [5.14]	153.7 [6.05]	172.2 [6.78]
AKME63	155.5 [6.12]	178.7 [7.04]	197.2 [7.76]
AKME64	180.5 [7.11]	203.7 [8.02]	222.2 [8.75]
AKME65	205.5 [8.09]	228.7 [9]	247.2 [9.73]

	Brake (2)		
	X	Z MAX	
Feedback Option	R, 2-, Ax, Dx, Gx, CB	R, 2-, CB	Ax, Dx, Gx
AKME62	130.5 [5.14]	200.7 [7.9]	219.7 [8.65]
AKME63	155.5 [6.12]	225.7 [8.89]	244.7 [9.63]
AKME64	180.5 [7.11]	250.7 [9.87]	269.7 [10.62]
AKME65	205.5 [8.09]	275.7 [10.85]	294.7 [11.6]

Note 1: Dimensions are in mm [inches].
Note 2: Product designed in metric. English conversions provided for reference only.

Related Resources:
Feedback Options and Specifications
Connector Options and Pinouts
Brake Option

AKME7x Series Motor Specifications

ATEX IECEx To maintain compliance, the rated torque, speed, and power used cannot exceed the limits set in the Certificate of Conformity Annex.

AKME7x Performance Data – Up to 400 Vac (560 Vdc Bus) voltage

					AKME72					AKME73				AKME74		
	Parameters	Tol	Symbol	Units	K	L	M	P⑪	Q⑪	L	M	P⑪	Q⑪	L	P⑪	Q
	Max Rated Voltage ⑫	Max	–	Vac	400	400	400	400	240	400	400	400	400	400	400	400
				Vdc	560	560	560	560	320	560	560	560	560	560	560	560
	Continuous Torque for ΔT winding = 95°C ①②⑦⑧⑨	Nom	T_{cs}	Nm	29.0	29.2	29.2	28.7	28.7	41.0	41.0	40.4	40.4	52	51	51
				lb-in	256	258	258	254	254	363	362	357	358	458	452	451
	Continuous Current for ΔT winding = 95°C ①②⑦⑧⑨	Nom	I_{cs}	A_{rms}	9.0	11.3	12.7	18.3	22.9	11.8	13.3	19.0	24.0	12.6	18	25.5
	Continuous Torque for ΔT winding = 60°C ②	Nom	T_{cs}	Nm	23.2	23.4	23.4	23.0	23.0	32.8	32.8	32.3	32.3	41.6	40.8	40.8
				lb-in	205	207	207	204	204	290	290	286	286	368	361	361
	Max Mechanical Speed ⑤ ⑮	Nom	N_{max}	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000
	Peak Torque ①②	Nom	T_p	Nm	79	79	80	78.0	78	112	112	111	111	143	141	141
				lb-in	699	699	708	690	690	1000	991	982	982	1266	1248	1248
	Peak Current	Nom	I_p	A_{rms}	27.9	34.5	39.0	56	71	36.3	40.8	59	74	38.5	55	78
75 Vdc	Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	-	-	-	-	-	-	-	-	-	-	-	-
				lb-in	-	-	-	-	-	-	-	-	-	-	-	-
	Rated Speed		N_{rtd}	rpm	-	-	-	-	-	-	-	-	-	-	-	-
	Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	-	-	-	-	-	-	-	-	-	-	-	-
				Hp	-	-	-	-	-	-	-	-	-	-	-	-
120 Vac (160 Vdc)	Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	-	-	-	-	-	-	-	-	-	-	-	-
				lb-in	-	-	-	-	-	-	-	-	-	-	-	-
	Rated Speed		N_{rtd}	rpm	-	-	-	-	-	-	-	-	-	-	-	-
	Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	-	-	-	-	-	-	-	-	-	-	-	-
				Hp	-	-	-	-	-	-	-	-	-	-	-	-
240 Vac (320 Vdc)	Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	-	-	-	22.8	22.1	-	-	33.2	32.0	-	-	40.2
				lb-in	-	-	-	202	196	-	-	294	283	-	-	356
	Rated Speed		N_{rtd}	rpm	-	-	-	1800	2000	-	-	1300	1500	-	-	1300
	Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	-	-	-	4.30	4.63	-	-	4.52	5.0	-	-	5.47
				Hp	-	-	-	5.77	6.2	-	-	6.1	6.7	-	-	7.34
400 Vac (560 Vdc)	Rated Torque (speed) ①②⑦⑧⑨		T_{rtd}	Nm	24.1	23.2	22.6	20.6	-	33.1	32.4	26.7	26.2	42.2	35.5	29.2
				lb-in	213	205	200	182	-	293	287	236	232	373	314	258
	Rated Speed		N_{rtd}	rpm	1500	1800	2000	2500	-	1400	1500	2400	2500	1200	1800	2500
	Rated Power (speed) ①②⑦⑧⑨		P_{rtd}	kW	3.79	4.37	4.73	5.4	-	4.86	5.1	6.7	6.9	5.3	6.7	7.6
				Hp	5.08	5.86	6.34	7.2	-	6.5	6.8	9.0	9.2	7.1	9.0	10.2

See following page for notes.

AKME7x Motor Parameters

				AKME72					AKME73				AKME74		
Parameters	Tol	Symbol	Units	K	L	M	P	Q	L	M	P	Q	L	P	Q
Torque Constant ①	±10%	K_t	Nm/A_{rms}	3.23	2.62	2.33	1.58	1.26	3.49	3.11	2.13	1.69	4.14	2.84	2
			$lb\text{-}in/A_{rms}$	28.6	23.2	20.6	14	11.2	31	27.4	18.9	15	36.6	25.1	17.7
Back EMF Constant ⑥	±10%	K_e	$V_{rms}/krpm$	208	169	150	102	81	225	200	137	109	266	183	129
Motor Constant	Nom	K_m	N-m/√W	2.261	2.21	2.29	2.18	2.08	2.93	2.903	2.82	2.67	3.51	3.38	3.27
			lb-in/√W	20.02	19.6	20.25	19.3	18.4	25.9	25.66	25	23.6	31	29.9	28.9
Resistance (line-line) ⑥	±10%	R_m	ohm	1.36	0.92	0.69	0.35	0.23	0.95	0.76	0.38	0.25	0.93	0.47	0.24
Inductance (line-line)		L	mH	20.7	13.6	10.8	5	3.2	15.7	12.4	5.9	3.7	16.4	7.7	3.8
Inertia (includes Resolver feedback) ③	±10%	J_m	$kg\text{-}cm^2$	65					92				120		
			$lb\text{-}in\text{-}s^2$	0.057					0.082				0.11		
Optional Brake Inertia (additional) ⑭	±10%	J_m	$kg\text{-}cm^2$	1.589					1.589				1.589		
			$lb\text{-}in\text{-}s^2$	1.41E-03					1.41E-03				1.41E-03		
Weight (w/o brake) ⑩		W	kg	19.7					26.7				33.6		
			lb	43.4					58.8				74		
Static Friction ①		T_f	Nm	0.41					0.49				0.58		
			lb-in	3.61					4.31				5.11		
Viscous Damping ①		K_{dv}	Nm/krpm	0.06					0.13				0.2		
			lb-in/krpm	0.5					1.2				1.8		
Thermal Time Constant		TCT	minutes	46					53				60		
Thermal Resistance		$R_{thw\text{-}a}$	°C/W	0.39					0.33				0.3		
Operating Ambient Temperature Range ⑬⑭			°C	5 to 40					5 to 40				5 to 40		
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		

Additional windings may exist. Please contact Kollmorgen Customer Support for further information or to request custom winding options for your application requirements.

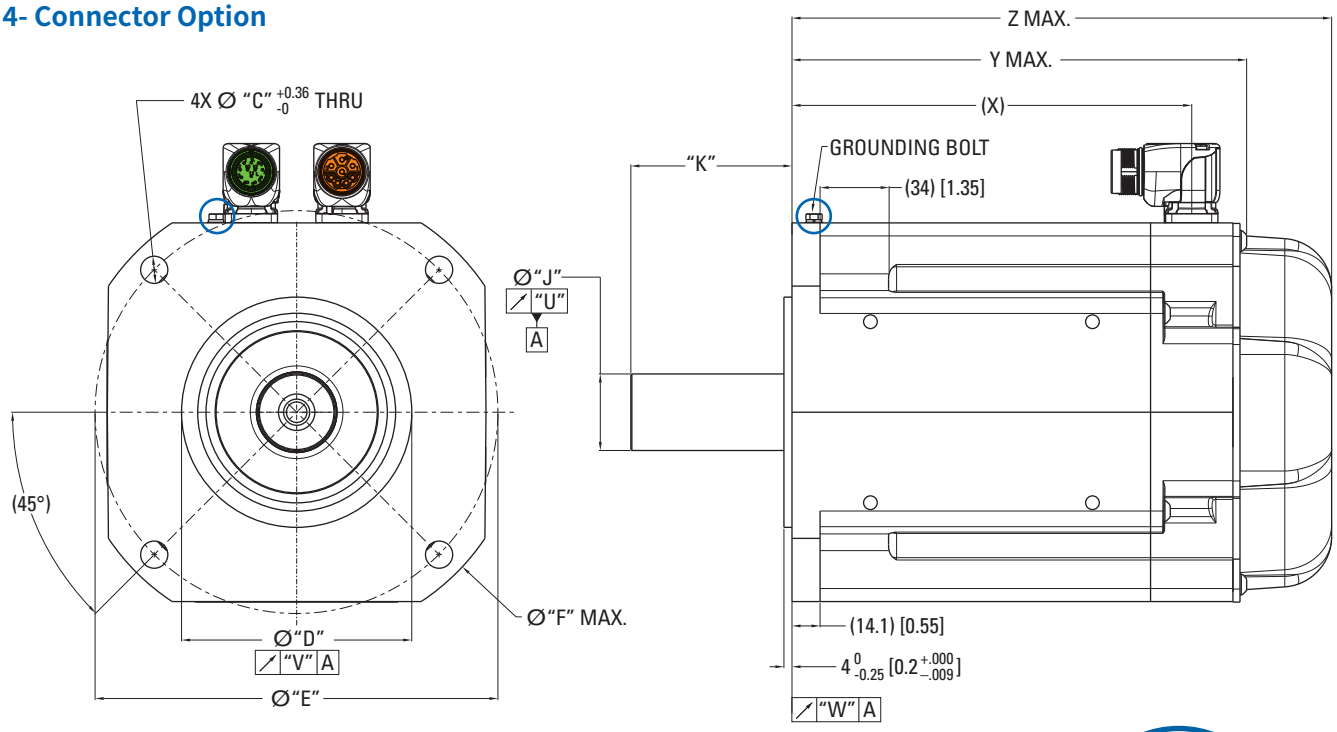
Notes:
① Motor winding temperature rise, ΔT=95°C, at 40°C ambient.
② All data referenced to sinusoidal commutation.
③ Add parking brake if applicable for total inertia.
④ Motor with standard heat sink.
⑤ May be limited at some values of Vbus.
⑥ Measured at 25°C.
⑦ Brake option reduces continuous torque ratings by 1 Nm.
⑧ Non-Resolver feedback options reduce continuous torque ratings by:
AKME72 = 2.0 Nm AKME73 = 2.7 Nm AKME74 = 3.4 Nm
⑨ Motors with non-resolver feedback and brake option, reduce continuous torque by:
AKME72 = 3.9 Nm AKME73 = 5.1 Nm AKME74 = 6.2 Nm
⑩ Brake option increases weight by 3.14 kg (6.92 lb).
⑪ If compliance to UL 508 is required, then any winding above 16 Arms/Phase continuous current rating, requires M40 "H" connector. Future UL60079 certification will provide guideance. Please contact Kollmorgen Customer Service for co-engineered solution evaluation.
⑫ Motors can be operated up to 400 Vac. For performances curves at voltages, listed or unlisted, please use our online Performance Curve Generator Tool.
⑬ Brake option will operate in this range in a non-condensing environment. See the Brake Option section for more information.
⑭ The applied holding brake voltage must be limited to 17 V to maintain ATEX/IECEx T4 temperature class compliance.
⑮ For AKME7 the maximum speed is limited up to 2500 rpm.

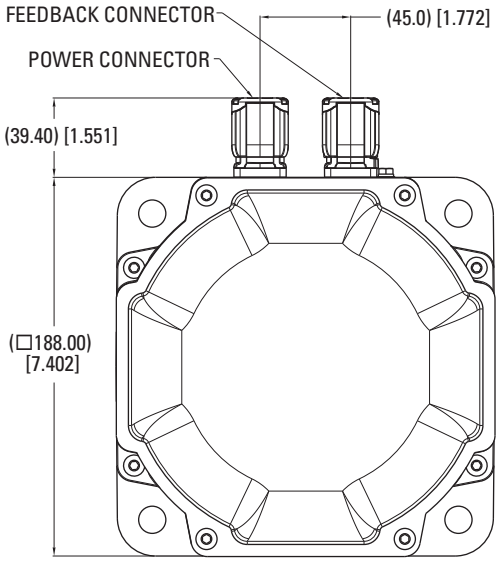
AKME7x Series Motor Specifications

AKME7x Frame Dimensional Drawings

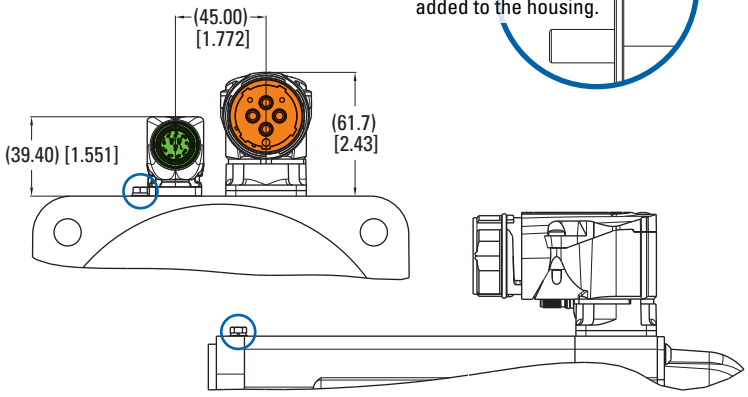
AKME 2D/3D CAD models can be found at Kollmorgen.com/DesignTools

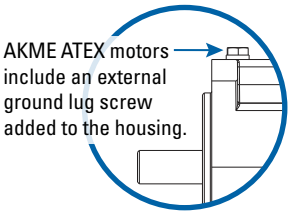
4- Connector Option



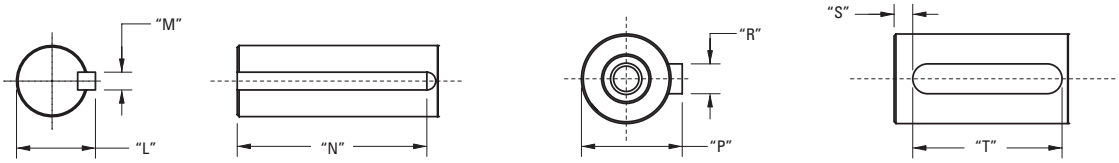


W- Connector Option





Shaft-keyway dimensions



Dimensional data tables for callouts are located on the following page.

AKME7x Frame Dimensional Data

AKME7x Mounting Flange-Shaft Dimensional Data

Mounting Flange-Shaft	Hole Diameter "C"	Pilot Diameter "D"	Bolt Circle Dia. "E"	"F"	"H"	Shaft Diameter "J"	Shaft Length "K"	Shaft Dia. w/ Key "L"
AC	13.50 [0.531]	180 [7.0866]	215.00 [8.465]	–	D M12 DIN 332	38 [1.496]	80 [3.15]	–
AN	13.50 [0.531]	180 [7.0866]	215.00 [8.465]	–	D M12 DIN 332	38 [1.496]	80 [3.15]	–
GC	13.50 [0.531]	180 [7.0866]	215.00 [8.465]	–	D M12 DIN 332	32 [1.5298]	58.5 [2.30]	–
GN	13.50 [0.531]	180 [7.0866]	215.00 [8.465]	–	D M12 DIN 332	32 [1.5298]	58.5 [2.30]	–
KK	13.50 [0.531]	114.3 [4.5000]	200 [7.874]	225 [8.858]	–	35 [1.3779]	79 [3.11]	38 [1.496]

Mounting Flange-Shaft	Key Width "M"	Key Length "N"	Shaft Dia. w/ Key "P"	Key Width "R"	"S"	Key Length "T"	"U"	"V"	"W"
AC	–	–	41 [1.614]	10 [0.3937]	5.00 [0.197]	70 [2.756]	0.050 [0.0019]	0.100 [0.0039]	0.100 [0.0039]
AN	–	–	–	–	–	–	0.050 [0.0019]	0.100 [0.0039]	0.100 [0.0039]
GC	–	–	35 [1.378]	108 [0.3937]	4 [0.157]	50 [1.969]	0.050 [0.0019]	0.100 [0.0039]	0.100 [0.0039]
GN	–	–	–	–	–	–	0.050 [0.0019]	0.100 [0.0039]	0.100 [0.0039]
KK	10 [0.3937]	70 [2.756]	–	–	–	–	0.050 [0.0019]	0.100 [0.0039]	0.100 [0.0039]

AKME7x Motor Length Dimensional Data

	No Brake (N)		
	X	Y MAX	Z MAX
Connector	C-, G-, H-	C-, G-, H-	C-, G-, H-
Feedback Option	R, 2-, Ax, Dx, GJ, GK, CB	R, 2-, CB	Ax, Dx, Gx
AKME72	164.5 [6.48]	192.5 [7.58]	201.7 [7.94]
AKME73	198.5 [7.81]	226.5 [8.92]	235.7 [9.28]
AKME74	232.5 [9.15]	260.5 [10.26]	269.7 [10.62]

	Brake (2)		
	X	Z MAX	
Connector	C-, G-, H-	C-, G-, H-	C-, G-, H-
Feedback Option	R, 2-, Ax, Dx, Gx, CB	R, 2-, CB	Ax, Dx, Gx
AKME72	164.5 [6.48]	234.5 [9.23]	253.3 [9.97]
AKME73	198.5 [7.81]	268.5 [10.57]	287.3 [11.31]
AKME74	232.5 [9.15]	302.5 [11.91]	321.3 [12.65]

Note 1: Dimensions are in mm [inches].
Note 2: Product designed in metric. English conversions provided for reference only.

Related Resources:
Feedback Options and Specifications
Connector Options and Pinouts
Brake Option

AKME Brake Option

The holding brake must only be used as a parking device to be ATEX / IECEx compliant .

Failsafe, Holding Brake

The holding brake is designed to provide static holding torque to the motor shaft with the brake coil de-energized. The brake must first be released (coil energized) prior to commanding motor rotation as determined by its drop-out time. The brake is intended for holding or "parking" of a stationary motor. It is not intended for dynamic braking. There should be absolutely no motion of the rotor when power is removed from the brake coil.

AKME Motor Brake Specifications

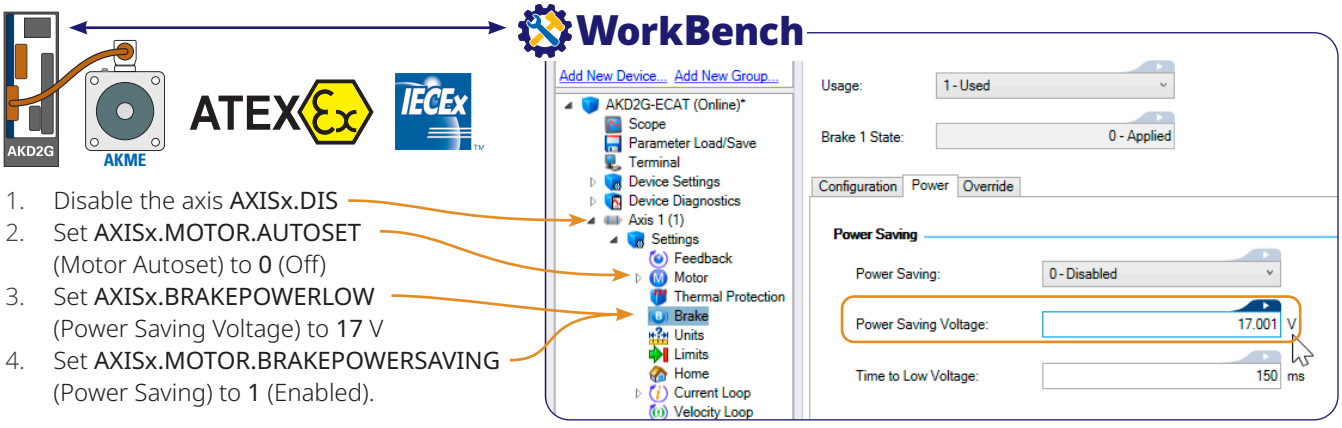
Motor Family	Minimum Static Torque @120° C		Weight		Power Consumption @24V, 20° C	Current @24V, 20° C	Inertia		Closing Time (engage)	Opening Time (release)	Backlash	
											Maximum	Typical
	Nm	lb-in	Kg	lb	Watts ±7%	ADC	kg-cm²	lb-in-sec²	msec	msec	deg.	deg.
AKME2	1.42	12.6	0.27	0.59	8.4	0.35	0.013	1.20E-05	36	45	1.01	0.46
AKME3	2.5	22.1	0.36	0.79	10.2	0.42	0.014	1.20E-05	20	50	1.01	0.46
AKME4	5.3	46.9	0.69	1.52	12.7	0.53	0.058	5.12E-05	30	75	0.81	0.37
AKME5	14.5	128	1.2	2.64	19.7	0.81	0.166	1.47E-04	30	115	0.71	0.31
AKME6	25	221	2.2	4.81	25.7	1.07	0.668	5.91E-04	40	155	0.51	0.24
AKME7	53	469	3.1	6.82	35.6	1.48	1.589	1.41E-03	70	170	0.44	0.20

Notes:
1. Contamination of the motor internal compartment by oil or other foreign materials will result in failure of the brake. Check the suitability of motor sealing for the working environment.
2. Operating Voltage: 24 Vdc ± 10%. The brake voltage must be limited to 17 V to maintain ATEX/IECEx T4 temperature class compliance.
3. Maximum backlash is calculated using worst-case tolerancing, and typical backlash is calculated using statistical tolerancing.
4. Brake Operating Temperature Range: -20° C to 120° C. Sub-zero temperatures present a freezing risk for condensation which could prevent correct brake operation.

Required Holding Brake Voltage for ATEX/IECEx Compliance

The applied holding brake voltage must be limited to 17 V to maintain ATEX/IECEx T4 temperature class compliance.

Setting the Holding Brake Voltage When Using an AKD2G Servo Drive with WorkBench



1. Disable the axis AXISx.DIS
2. Set AXISx.MOTOR.AUTOSET (Motor Autoset) to 0 (Off)
3. Set AXISx.BRAKEPOWERLOW (Power Saving Voltage) to 17 V
4. Set AXISx.MOTOR.BRAKEPOWERSAVING (Power Saving) to 1 (Enabled).

Setting the Holding Brake Voltage When Using AKD, Kollmorgen Essentials, or 3rd Party Drives

The holding brake power saving feature in WorkBench is only available with AKD2G servo drives. Please contact Kollmorgen Customer Support for solutions to reduce the brake voltage for all other AKME motor and drive configurations.

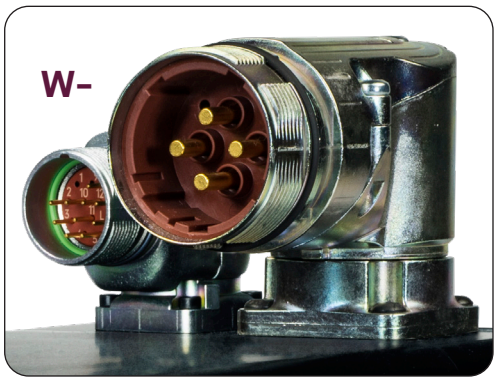
AKME Motor Connector Options

AKME Motor Connector Specifications

Connector Options

Code	Thermal Sensor*	Used with	IP Rating**	Connection type	Description
4	PT1000	AKME2-AKME7	IP67	2 threaded connectors, size 1.0 (M23)	Angled, rotatable, mounted on motor
9		AKME2-AKME6	IP67	1 threaded connector, size 1.0 (M23)	Angled, rotatable, mounted on motor
W		AKME7	IP67	1 feedback threaded connector, size 1.0 (M23) 1 power threaded connector, size 1.5 (M40)	Angled, rotatable, mounted on motor

*For Thermal Device Curves, reference see the Thermal Sensor Protective Devices page.
**IP ratings shown apply ONLY to the connector and the connector base/bushing on motor.

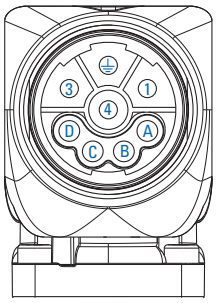


AKME Motor Connector Pinouts

Hybrid Single-Connector Option – Power + Feedback

9- Hybrid Connector Pinout

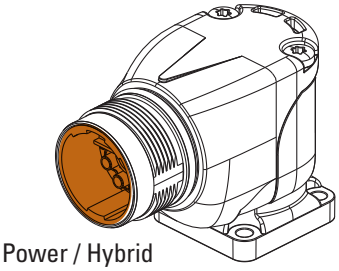
9- Connector Pinout – Hybrid combined power, brake, and SFD-M / HDSL feedback



PHOENIX
Power + SFD-M / HDSL Connector
P/N: 1620660
Mating Connector P/N: 1605617

Power + SFD-M / HDSL

Pin	Function
1	U
⏚	PE
3	W
4	V
A	Brake +
B	Brake –
C	SFD-M – / HDSL –
D	SFD-M + / HDSL +



9- Connector

AKME Motor Connector Pinouts

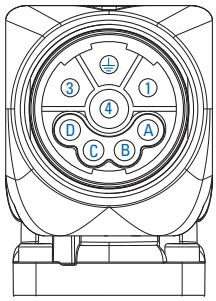
Dual-Connector Options – Power and Feedback

4- and W- Power Connector Pinouts

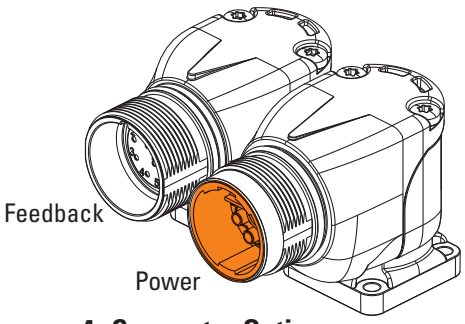
4- Power Connector Pinout

4- Connectors (AKME2-7 ≤20 A Only)

Pin	Function
1	U
‡	PE
3	W
4	V
A	Brake +
B	Brake -
C	N/C
D	N/C



PHOENIX
Power Connector
P/N: 1620660
Mating Connector P/N: 1605617

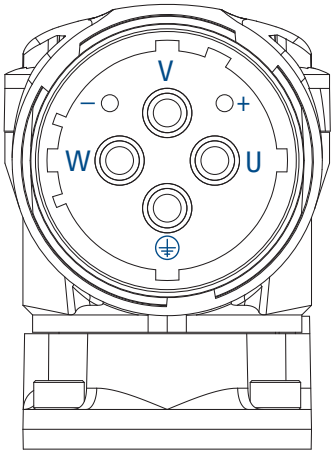


4- Connector Option

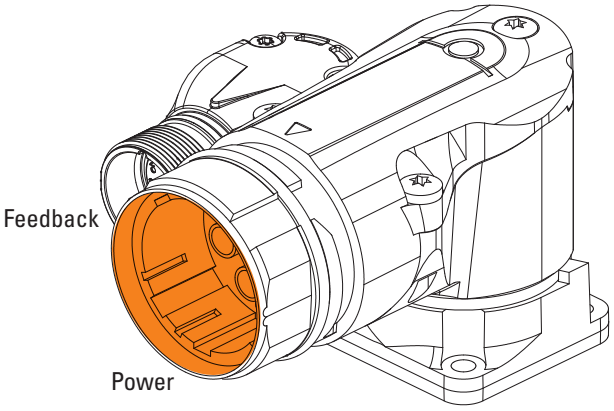
W- Power Connector Pinout

(AKME7xQ > 20 A Only)

Pin	Function
U	U
V	V
W	W
⏚	PE
+	Brake +
-	Brake -
1-2	N/C



INTERCONTEC
Power Connector
P/N: CEDE-270-NN-00-00-0051-000
Mating Connector P/N: CSTA-263-NN-00-26-0001-000

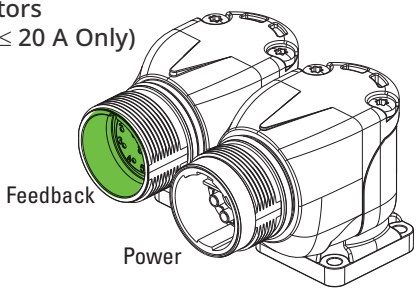


W- Connector Option

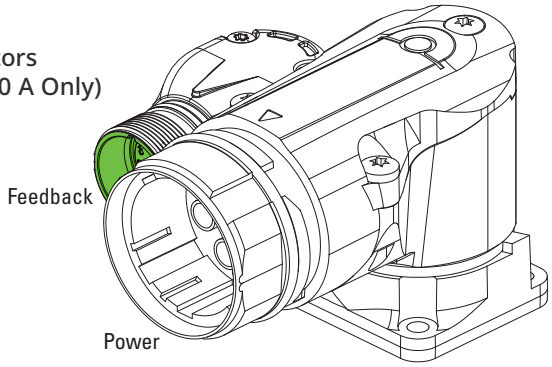
4- and W- Feedback Connector Pinouts

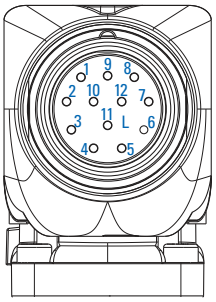
4- and W- Feedback Connector Pinouts

4- Connectors
(AKME2-7 ≤ 20 A Only)



W- Connectors
(AKME7 > 20 A Only)

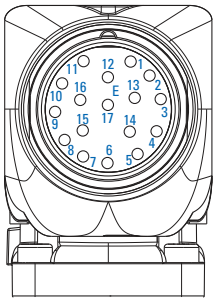




PHOENIX
12-pin Feedback Connector
P/N: 1607257
Mating Connector P/N: 1069313

Resolver

Pin	Function
1	N/C
2	PT1000 +
3	S4 COS –
4	S3 SIN –
5	R2 REF –
6	PT1000 –
7	S2 COS +
8	S1 SIN +
9	R1 REF +
10	N/C
11	N/C
12	N/C



PHOENIX
17-pin Feedback Connector
P/N: 1607328
Mating Connector P/N: 1619754

Commutating Encoder

Pin	Function
1	B +
2	B –
3	A +
4	A –
5	Z +
6	Z –
7	GND
8	PT1000 +
9	PT1000 –
10	Vcc
11	N/C
12	N/C
13	N/C
14	N/C
15	U
16	V
17	W

EnDat®/BiSS

Pin	Function
1	B –
2	GND
3	A –
4	Vcc
5	DATA +
6	N/C
7	PT1000 +
8	Clock +
9	B +
10	Un Sense (Common)
11	A +
12	Up Sense (VCC)
13	DATA –
14	PT1000 –
15	Clock –
16	N/C
17	N/C

HIPERFACE®Analog

Pin	Function
1	SIN +
2	GND
3	COS +
4	Vcc
5	DATA +
6	N/C
7	PT1000 +
8	N/C
9	REF SIN –
10	N/C
11	REF COS –
12	N/C
13	DATA –
14	PT1000 –
15	N/C
16	N/C
17	N/C

AKME Feedback Options

AKME Servo Motor Feedback Summary with AKD Family Servo Drives

Feedback Unit Options

■ Safety Capable

Code	Designation	AKME Frame Size	Single-Turn or Multi-Turn	Feedback Resolution: Device Resolution (Sin/Cos per Rev., Bits or Lines/Rev.)	Feedback Resolution: AKD Internal Resolution	Feedback Resolution: AKD2G Internal Resolution	Feedback Resolution: # of Absolute Revs.	Feedback Resolution: Accuracy (± arc-mins)
2-	Commutating Encoder	2-7	Single-turn	2048 Lines	8,192	8,192	None	1
AA	BiSS B Optical Sine Encoder	2-7	Single-turn	2048 Sin/Cos	27-Bits	32-Bits	1	0.6
AB		2-7	Multi-turn				4,096	
CB	SFD-M Smart Feedback Device, Multi-turn	2-6	Multi-turn	24-Bits	24-Bits	24-Bits	65,536	1
GU*	HIPERFACE DSL® Optical Encoder	2-6	Multi-turn	17-Bits	18-Bits	18-Bits	4,096	4
GJ	HIPERFACE Optical Sin/Cos Encoder	2-7	Single-turn	128 Sin/Cos	23-Bits	31-Bits	1	1.33
GK			Multi-turn				4,096	
DA	EnDat® 2.2/01 Optical Sine Encoder	2-4	Single-turn	512 Sin/Cos	25-Bits	32-Bits	1	1
		5-7		2048 Sin/Cos	27-Bits			0.333
DB		2-4	Multi-turn	512 Sin/Cos	25-Bits		4,096	1
		5-7		2048 Sin/Cos	27-Bits			0.333
R-	Resolver Inductive Encoder	2-4	Single-Turn	1 pole pair (16-Bits)	16-Bits	16-Bits	1	10
		5-7						9

* Sick HIPERFACE DSL® model EEM37-2KF0A017A. Please visit https://www.sick.com to download the latest safety data sheet.

AKME Feedback Option Motor Connector Availability

Feedback and Connector Availability

AKME2

Feedback Code	Connector Code 4	9
R-	•	
2-	•	
AA, AB	•	
CB		•
DA, DB	•	
GJ, GK	•	
GU		•

AKME3-6

Feedback Code	Connector Code 4	9
R-	•	
2-	•	
AA, AB	•	
CB		•
DA, DB	•	
GJ, GK	•	
GU		•

AKME7

Feedback Code	Connector Code 4	W*
R-	•	•
2-	•	•
AA, AB	•	•
DA, DB	•	•
GJ, GK	•	•

*AKME7 > 20 A Only

AKME Feedback Type Specifications

Kollmorgen Smart Feedback Device, Multi-turn (SFD-M) (CB)

The SFD-M Feedback uses a single motor cable, requiring just one cable between the drive and motor.

The feedback has both power and communication on a single wire pair, reducing overall wiring costs. SFD-M offers 24-bit absolute single-turn resolution, batteryless 16-bit (65,536) multi-turn absolute revolutions and an absolute angular accuracy of +/- 1 arc-min.

In addition, the device includes onboard memory for an electronic motor datasheet which enables device auto-recognition for faster setup and commissioning when paired with any Kollmorgen KED, AKD or AKD2G drive.

Angle Measurement:

Single-Turn Resolution: 2^{24} = 16,777,216 counts per rev
Multi-Turn Absolute Range: 2^{16} = 65,536 absolute revolutions* (batteryless)
Accuracy: < +/- 1 arc-min typical 25° C
< +/- 3 arc-min worst case
Electrical Noise: < 2^{-22} Rev rms at full bandwidth
Bandwidth: > 2 kHz at -3 dB
> 1 kHz at -45° phase lag
Max Continuous Speed: 10,000 RPM
Velocity Ripple: < 1% p-p (typical)
Velocity Noise: < 0.3 RPM rms at full bandwidth

Power Supply:

Input Voltage: 7 V - 12 V accepted (at motor terminals)
Input current maximum: 140 mA DC

Digital Communications:

Baud rate: 2.5 MBaud
Signaling: RS-485 differential using differential Manchester encoding
Update period: New position sample every 51.2 µs
Error detection: 5-bit CRC and running parity check

Environmental:

Feedback Operating Temperature: -40 to 120° C
Humidity: 10% to 90% non-condensing
Vibration Resistance: 30g (294 m/s^2) @ 55-2000 Hz (EN60068-2-6)
Shock Resistance: 100g (981 m/s^2) @ 6 ms (EN60068-2-27)

* When paired with AKD, this is limited to 4096 absolute revolutions (12-bits)

Resolver Options

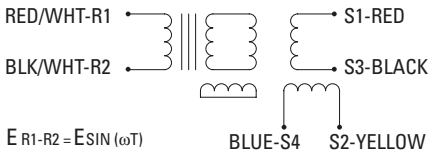
Resolver (R-)

Type		R- 1 Speed	
Frame Size		**AKME2-4**	**AKME5-7**
Input Voltage	V_{RMS}	8 (± 5%)	8 (± 5%)
	k Hz	8 (± 1%)	8 (± 1%)
Input Current Max.	mA	50	46
Transformation Ratio	N/A	0.5	0.5
Null Voltage	mV_{RMS}	30	30
Max. Error (pk-pk)	MINS.	20	18
Phase Shift	Degrees	0	0
Operating Temperature	°C	-55° to 155°	-55° to 155°
Rotor Inertia Max.	kg-cm^2	0.046	0.497
Vibration and Shock Resistance		High Vibration and Shock Resistance Please contact Kollmorgen Customer Support	

Resolver Alignment

With positive DC current into phase W and out of phase V (U floats), the resolver is aligned. ie. Voltage S1-S3 set to null and voltage S2-S4 max in phase with reference (R1-R2).

Resolver Winding Configuration



$E_{R1-R2} = E_{SIN(\omega T)}$
$E_{S1-S3} = KE_{R1-R2} SIN\emptyset$
$E_{S2-S4} = KE_{R1-R2} COS\emptyset$

AKME Feedback Options

AKME Feedback Type Specifications

HIPERFACE Options

HIPERFACE DSL® Capacitive (GU)

Type		Multi-Turn "GU"
Frame Size		AKME 2-7
Number of Absolute Ascertainable Revolutions		4096
Supply Voltage Range	Vdc	7 to 12
Current Consumption	mA MAX.	150
Operating Temperature	°C MIN/MAX	-40/115
Inertia	kg-cm²	0.001
Output Interface		SICK HIPERFACE DSL®
Vibration Resistance – EN 60068-2-6	g [m/s²]	50 g [490 m/s²] – 10 to 2000 Hz
Shock Resistance – EN 60068-2-27	g [m/s²]	≤100 g [981 m/s²] – 6 ms
Manufacturer Product Type		EEM37-2KF0A017A*

Functional Safety Capable *Sick HIPERFACE DSL® model EEM37-2KF0A017A. Please visit https://www.sick.com to download the latest safety data sheet.

HIPERFACE Absolute Sin/Cos Encoder (GJ, GK)

Type		Single-Turn "GJ"	Multi-Turn "GK"
Frame Size		AKME 2-7	AKME 2-7
Sin/Cos period per revolution	-	128	128
Input Voltage	Vdc	7 to 12	7 to 12
Current Consumption	mA Typical	60	60
Feedback Operating Temperature	°C MIN./MAX.	-20/110	-20/110
Inertia	kg-cm²	0.0045	0.0045
Output Interface		Absolute Hiperface Sin/Cos Encoder	
Manufacturer Product Type		SKS36	SKM36

*GA/GB Feedbacks are "mapped" for ServoStar (Sxxx) Series drives
**GJ/GK Feedbacks are "mapped" for AKD/AKD2G Series drives.

AKME Feedback Type Specifications

Optical Sine Encoder Options

EnDat Optical (DA, DB)

Type		Single-Turn "DA"		Multi-Turn "DB"	
Frame Size		AKME 2-4	AKME 5-7	AKME 2-4	AKME 5-7
Cycles per Revolution (# of abs. revs.)	-	512 (1)	2048 (1)	512 (4096)	2048 (4096)
Input Voltage	Vdc	3.6 to 14	3.6 to 14	3.6 to 14	3.6 to 14
Current Consumption	mA Typical	85 (no load)	85 (no load)	105 (no load)	105 (no load)
Feedback Operating Temperature	°C MIN./MAX.	-40/115	-40/115	-40/115	-40/115
Inertia	kg-cm^2	0.04	0.026	0.04	0.026
Output Interface		HEIDENHAIN EnDat 2.2/01			
Manufacturer Product Type		ECN1113	ECN1313	EQN1125	EQN1325

Encoder Alignment: With positive DC current into phase W and out of phase V (U floats) the encoder is aligned to ±1 electrical degree.

BiSS Optical (AA, AB)

Type		Single-Turn "AA"		Multi-Turn "AB"	
Frame Size		AKME 2-4	AKME 5-7	AKME 2-4	AKME 5-7
Cycles per Revolution (# of abs. revs.)	-	2048 (1)	2048 (1)	2048 (4096)	2048 (4096)
Input Voltage	Vdc (tolerance)	5 (-5%/+10%)	5 (± 10%)	5 (-5%/+10%)	5 (± 10%)
Current Consumption	mA Typical	100 (without load)	100 (without load)	150 (without load)	100 (without load)
Feedback Operating Temperature	°C MIN./MAX.	-15/120	-15/120	-15/120	-15/120
Inertia	kg-cm^2	0.025	0.038	0.025	0.038
Output Interface		BiSS B			
Manufacturer Product Type		AD34	AD58	AD34	AD58

Encoder Alignment: With positive DC current into phase W and out of phase V (U floats) the encoder is aligned to ±1 electrical degree.

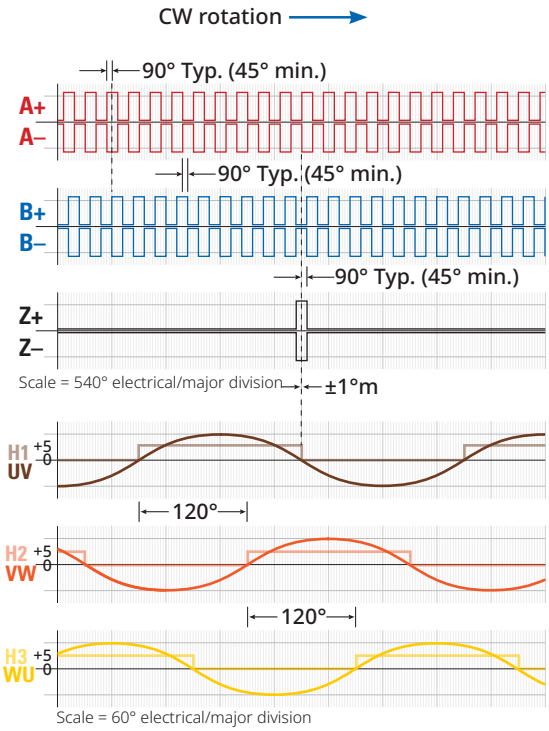
AKME Feedback Options

AKME Feedback Type Specifications

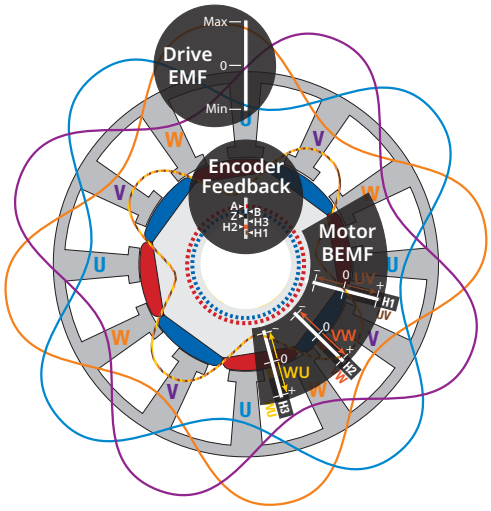
Commutating Encoder Option

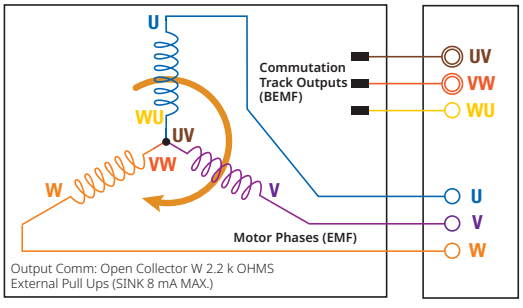
Commutating Encoder (2–)

Parameter	Units	2-
Frame Size		**AKME2-7**
Input Voltage	Vdc ±10%	5
Output Data	–	TTL Differential Line Driver (Sink/Source 20mA MAX.)
Line Count per revolution	–	2,048
Frequency Response	KHz	200
Max. Speed	RPM	12,000
Min. Edge Separation of Incremental Channel	°e MIN.	45
Index to U Comm Channel	–	±1°m Index Center to U Falling Edge
Index Pulse Width	–	Gated With B Low
Incremental Channel Accuracy	–	±1 Arc Min. Max. Edge to Edge
Max. Acceleration	Rad/s²	100,000
Feedback Operating Temperature	°C	-20 to 120
Storage Temperature	°C	-25 to 120



Max. Misalignment between rising edge of H1(V) & zero crossing of Uv ≤ 5° electrical.





AKME Cables

AKME Cable Properties

Test voltage	3 kVAC
Operating voltage	1000 VAC
Temperature range	-40°C/+90°C static/dynamic/storage
Minimum bending radius - dynamic	7.5xDia
Max. speed	300 m/min
Max. acceleration	50 m/s²
Max. torsion	30°/m
Max. number of cycles	5,000,000
Flame resistance	EN50265-1-2/IEC60332-1-2/UL VW-1/CSA FT1
Halogen free	EN50267-2-1/IEC60754-1
Hydrocarbons and oil resistance	UL1581/VDE0472 part 803 A/B

ATEX IECEx

Kollmorgen AKME cables and connectors are tested to insure complete ingress protection of IEC 60079-0.

AKME Cable Nomenclature

H2 – 12 – 015 – A1 – 00 – XXXX00

Cable Version

Cable Jacket Material – PUR

- F1 Mid-flex Feedback Cable PUR
- H2 Mid-flex Hybrid PUR with brake
- P2 Power Cable PUR with brake

Connector Type

If Feedback, connector type [connector type and pinout]

- 10 AKD, AKD2G, 15 Pin D-Sub, 45° angle, Resolver
- 12 AKD, AKD2G, 15 Pin D-Sub, 45 degree angle, EnDat® 2.1, BiSS B
- 14 AKD, AKD2G, 15 Pin D-sub, 45 degree angle, HIPERFACE®
- 20 AKD, AKD2G, 15 Pin D-sub, 45 degree angle, Comcoder, Sine Enc. w/ Halls

If Power or Hybrid drive connector type

- 11 AKD-x00306, -x00606 (Power and Hybrids with HDSL, SFD3/SFD-M)
- 12 AKD-x01206, -x02406 (Power and Hybrids with HDSL, SFD3/SFD-M)
  AKD-x00307, -x00607, -x01207, -x02407 (Power and Hybrids with HDSL, SFD3/SFD-M)
- 21 AKD2G-x00306, -x00606, -x01206
  AKD2G-x00307, -x00607, -x01207, -x02406, -x02407
- 51 KED MV3/6 (Hybrid with SFD-M/SFD-3 and HDSL)
- 52 KED MV12 (Hybrid with SFD-M/SFD-3 and HDSL)

Length (no less than 100 mm increments)

- xxxx00 Length in mm
  Standard lengths: 1 - 25 m
  VL offered in 3, 6, 9, 12m only w/o PLM approval
  Example:
  6 m cable = 006000
  25 m cable = 025000

Options

- 00 Standard Option Set
- XX Specials (excluding standard option set)

Motor Mating Connector Type

Hybrid / Power Connectors (#Pins)

- A7 AKM1G, AKME M40 SpeedTec (6)
- D1 AKME, M23 Phoenix

Feedback Connectors

- A4 AKME, M23 (12)
- A5 AKME, M23 (17)

Cable Type

If Feedback, type [cable construction, not pinout]

- FB2 8 Conductor
- FB4 16 Conductor
- FB6 10 Conductor

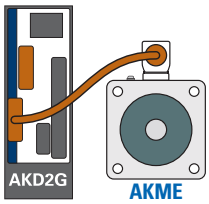
If Power or Hybrid drive connector type

- 010 1.0 mm²
- 015 1.5 mm²
- 025 2.5 mm²
- 040 4.0 mm²
- 060 6.0 mm² (power only)

AKME Cables

Hybrid Cable Options

AKME Motor to AKD®2G Drive Hybrid Cables



AKME Motor to AKD®2G Servo Drive Hybrid Cable Part Numbers

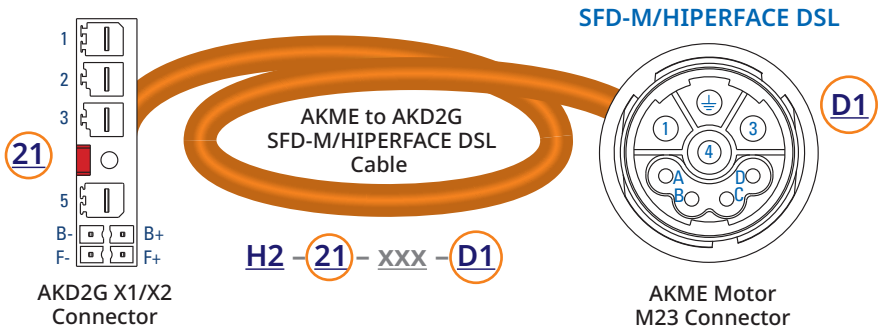
			All with Brake		
Drive	Motor Feedback	Motor Connector	Cross Section, mm²	Current Rating* (A)	Hybrid Cable
AKD2G	SFD-M (CB) HIPERFACE DSL (GU)	Single Hybrid, M23	1.5	13.1	H2-21-015-D1-00-XXXX00
			2.5	17.4	H2-21-025-D1-00-XXXX00
			4.0	23	H2-21-040-D1-00-XXXX00

* Current ratings used on a EN60204-12 standard

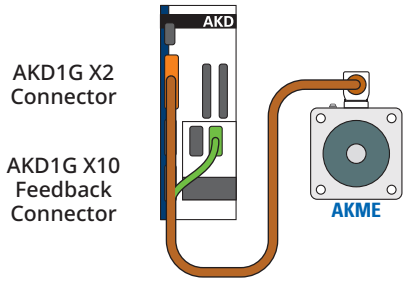
AKME to AKD®2G Hybrid Cable Pinouts

Power ± Brake + SFD-M/HDSL

AKD2G X1/X2	Function	AKME M23
1	Phase U	1
2	Phase V	3
3	Phase W	4
Retention Latch, Shield Screw		
5	PE	⏚
B+	Brake +	A
B–	Brake –	B
F+	SFD-M/HDSL+	C
F–	SFD-M/HDSL–	D



AKME Motor to AKD® Drive Hybrid Cables



AKME Motor to AKD® Drive Hybrid Cable Part Numbers

Drive	Motor Feedback	Motor Connector	All with Brake Cross Section, mm²	Current Rating* (A)	Hybrid Cable
AKD	SFD-M (CB) HIPERFACE DSL (GU)	Single Hybrid, M23	1.5	13.1	H2-11-015-D1-00-XXXX00
					H2-12-015-D1-00-XXXX00
			2.5	17.4	H2-12-025-D1-00-XXXX00
			4.0	23	H2-12-040-D1-00-XXXX00

* Current ratings used on a EN60204-1 standard

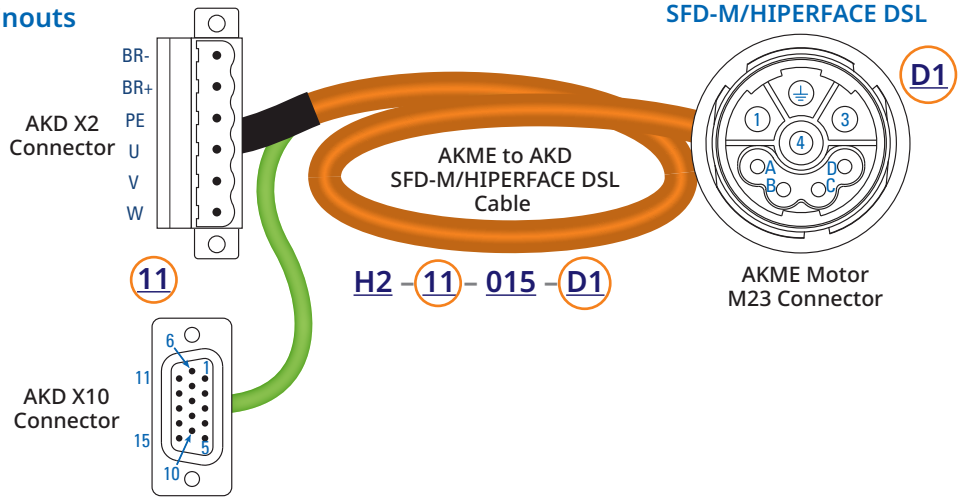
AKME to AKD® Power Cable Pinouts

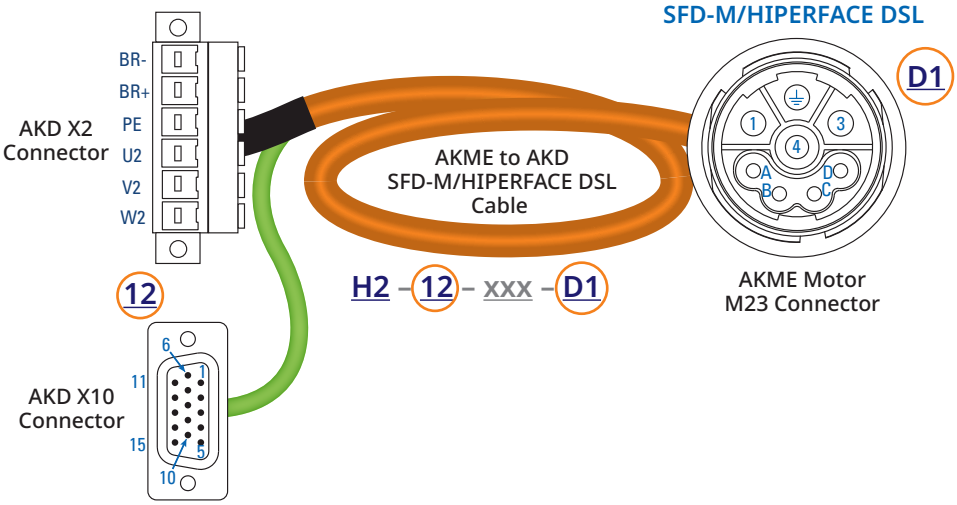
Power ± Brake

AKD X2	Function	AKME M23
BR–	Brake –	D
BR+	Brake +	C
PE	PE	⏚
U / U2	Phase U	1
V / V2	Phase V	3
W / W2	Phase W	4

SFD-M/HIPERFACE DSL

AKD X10	Function	AKME M23
6	SFD-M/HDSL+	A
7	SFD-M/HDSL–	B

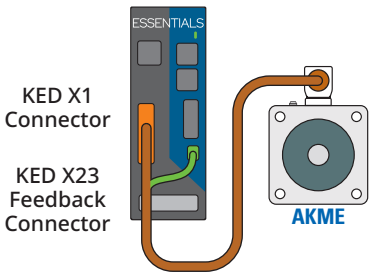




AKME Cables

Hybrid Cable Options

AKME Motor to Kollmorgen Essentials® Drive Hybrid Cables



AKME Motor to Kollmorgen Essentials Drive Hybrid Cable Part Numbers

Drive	Motor Feedback	Motor Connector	All with Brake: Cross Section, mm²	Current Rating* (A)	Hybrid Cable
KED-6V03S, 6V06S	SFD-M (CB)	Single Hybrid, M23	1.5	13.1	H2-51-015-D1-00-XXXX00
KED-6V12S, 7VXXS			1.5	13.1	H2-52-015-D1-00-XXXX00
			2.5	17.4	H2-52-025-D1-00-XXXX00

* Current ratings used on a EN60204-12 standard

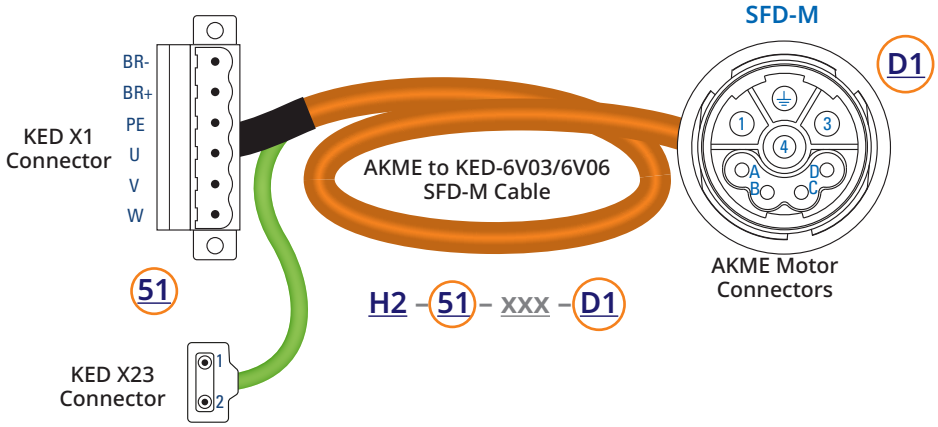
AKME to Kollmorgen Essentials Hybrid Cable Pinouts

Power ± Brake

KED X1	Function	AKME M23
BR-	Brake +	D
BR+	Brake –	A
PE	PE	⏚
U	Phase U	U
V	Phase V	V
W	Phase W	W

SFD-M Feedback

KED X23	Function	AKME M23
1	SFD-M –	C
2	SFD-M +	D

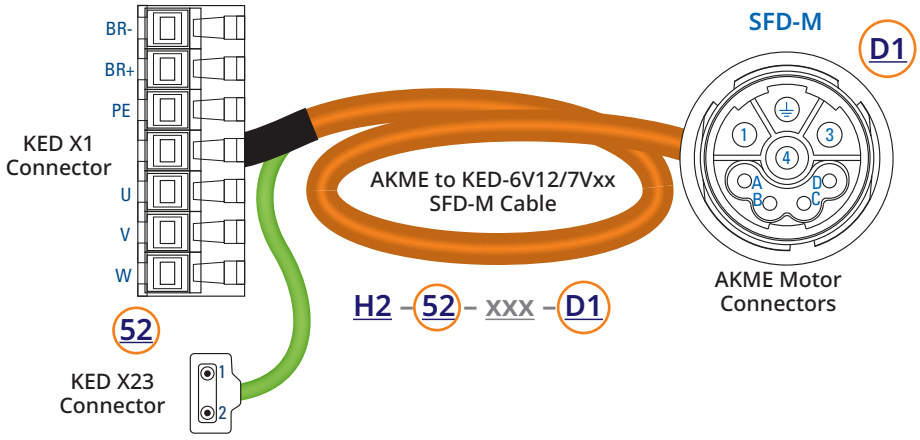


Power ± Brake

KED X1/X23	Function	AKME M23
BR-	Brake +	D
BR+	Brake –	A
PE	PE	⏚
Retention Latch		
U	Phase U	U
V	Phase V	V
W	Phase W	W

SFD-M Feedback

KED X23	Function	AKME M23
1	SFD-M –	C
2	SFD-M +	D

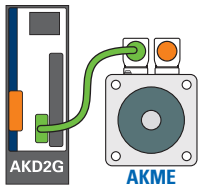


Dual Cable Options

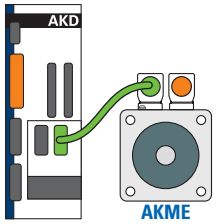
AKME Motor to AKD® / AKD®2G Drive Feedback Cables

AKME to AKD / AKD2G Feedback Cable Part Numbers

AKD2G X23 Connector



AKD X10 Connector



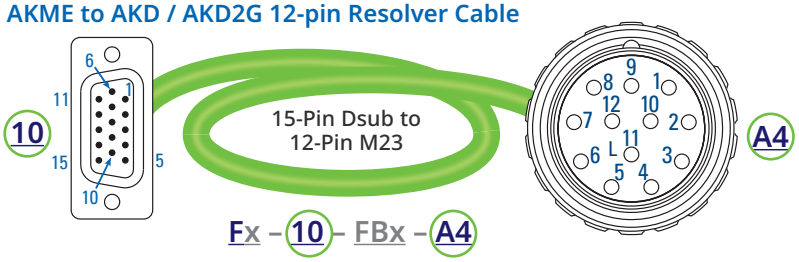
Drive	Feedback	Motor Connector	Pins	Feedback Cable
AKD AKD2G	Resolver	90° M23 Phoenix	12	F1-10-FB2-A4-00-xxxx00
	EnDAT / BiSS		17	F1-12-FB4-A5-00-xxxx00
	ComCoder			F1-20-FB4-A5-00-xxxx00
	HIPERFACE Analog			F1-14-FB6-A5-00-xxxx00

AKME to AKD / AKD2G 12-pin Resolver Cable Pinout

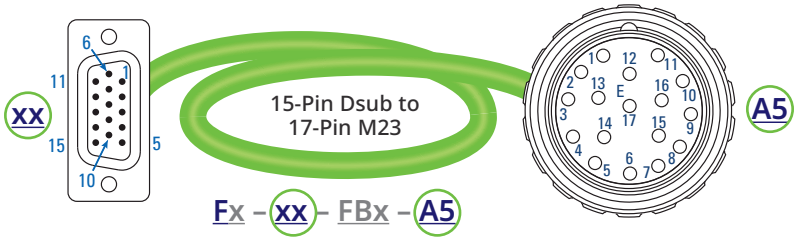
Resolver

Drive 15-pin Dsub	Function	AKME 12-pin M23
6	R1 Ref+	9
7	R2 Ref-	5
8	TC (+)	2
9	TC (-)	6
12	S1 SIN+	8
13	S3 SIN-	4
14	S2 COS+	7
15	S4 COS-	3

AKME to AKD / AKD2G 12-pin Resolver Cable



AKME to AKD / AKD2G 17-pin Feedback Cable



AKME to AKD / AKD2G 17-pin Feedback Cable Pinouts

EnDAT /BiSS

Drive 15-pin Dsub	Function	AKME 17-pin M23
1	–	–
2	CLK+	8
3	CLK-	15
4	SEN+	12
5	SEN-	10
6	DAT+	5
7	DAT-	13
8	TC+	7
9	TC–	14
10	+5 V	4
11	0 V	2
12	A+ SIN+	11
13	A- SIN–	3
14	B+ COS+	9
15	B– COS–	1

ComCoder

Drive 15-pin Dsub	Function	AKME 17-pin M23
1	±Hall U	15
2	±Hall V	16
3	±Hall W	17
4	–	–
5	–	–
6	Zero+	5
7	Zero–	6
8	TC+	8
9	TC–	9
10	+5 V	10
11	0V	7
12	A+	3
13	A–	4
14	B+	1
15	B–	2

HIPERFACE Analog

Drive 15-pin Dsub	Function	AKME 17-pin M23
1	–	–
2	–	–
3	–	–
4		–
5		–
6	DAT+	5
7	DAT-	13
8	TC+	7
9	TC–	14
10	+8-9 V	4
11	0 V	2
12	A+ SIN+	1
13	A- SIN–	9
14	B+ COS+	3
15	B– COS–	11

AKME Cables

Dual Cable Options

AKME Motor to AKD®2G Drive Power Cables

AKD2G X1/X2 Connector

AKME Motor to AKD2G Power Cable Part Numbers

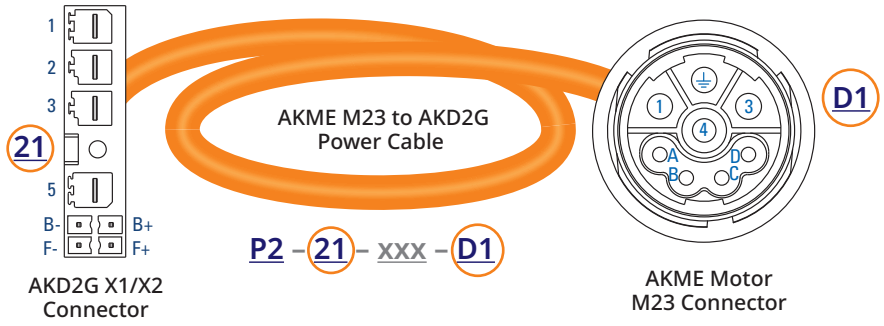
Drive	Motor Connector	All with Brake Cross Section, mm²	Current Rating* (A)	Power Cable
AKD2G	90° M23 Phoenix	1.5	13.1	P2-21-015-D1-00-XXXX00
		2.5	17.4	P2-21-025-D1-00-XXXX00
		4.0	23	P2-21-040-D1-00-XXXX00
	90° M40 SpeedTec			P2-21-040-A7-00-XXXX00
		6.0	30	P2-21-060-A7-00-XXXX00

* Current ratings used on a EN60204-1 standard

AKME to AKD2G Power Cable Pinouts

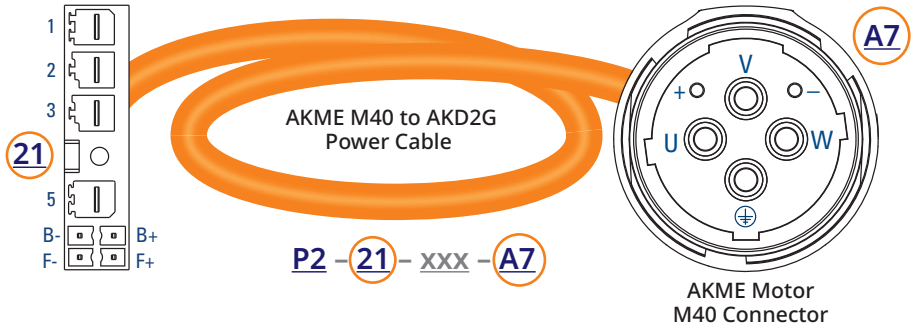
Power ± Brake

AKD2G X1/X2	Function	AKME M23
1	Phase U	1
2	Phase V	3
3	Phase W	4
Retention Latch, Shield Screw		
5	PE	⏚
B+	Brake +	A
B–	Brake –	B
F+	–	NC
F–	–	NC

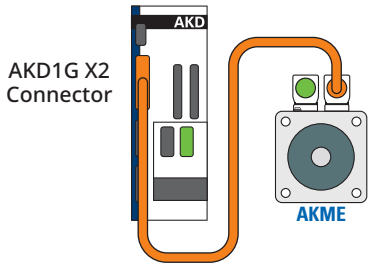


Power ± Brake

AKD2G X1/X2	Function	AKME M40
1	Phase U	U
2	Phase V	V
3	Phase W	W
Retention Latch, Shield Screw		
5	PE	⏚
B+	Brake +	+
B–	Brake –	–
F+	–	NC
F–	–	NC



AKME Motor to AKD® Drive Power Cables



AKME Motor to AKD® Drive Power Cable Part Numbers

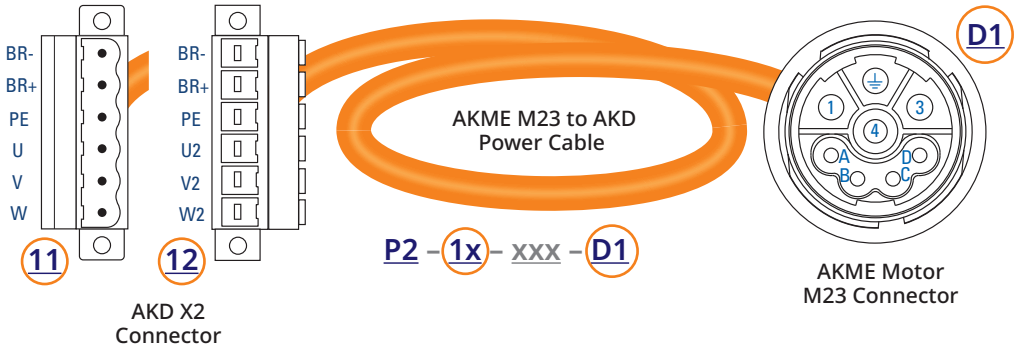
		All with Brake		
Drive	**Motor Connector**	**Cross Section, mm²**	**Current Rating* (A)**	**Power Cable**
AKD	90° M23 Phoenix	1.0	10	P2-11-010-D1-00-XXXX00
		1.5	13.1	P2-12-015-D1-00-XXXX00
		2.5	17.4	P2-12-025-D1-00-XXXX00
		4.0	23	P2-12-040-D1-00-XXXX00
	90° M40 SpeedTec			P2-12-040-A7-00-XXXX00
		6.0	30	P2-12-060-A7-00-XXXX00

* Current ratings used on a EN60204-12 standard

AKME to AKD® Power Cable Pinouts

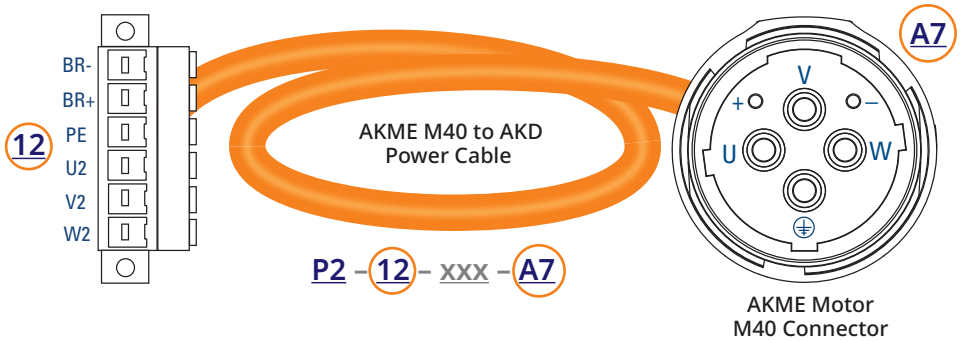
Power ± Brake

AKD X2	Function	AKME M23
BR–	Brake –	D
BR+	Brake +	C
PE	PE	⏚
U / U2	Phase U	1
V / V2	Phase V	3
W / W2	Phase W	4



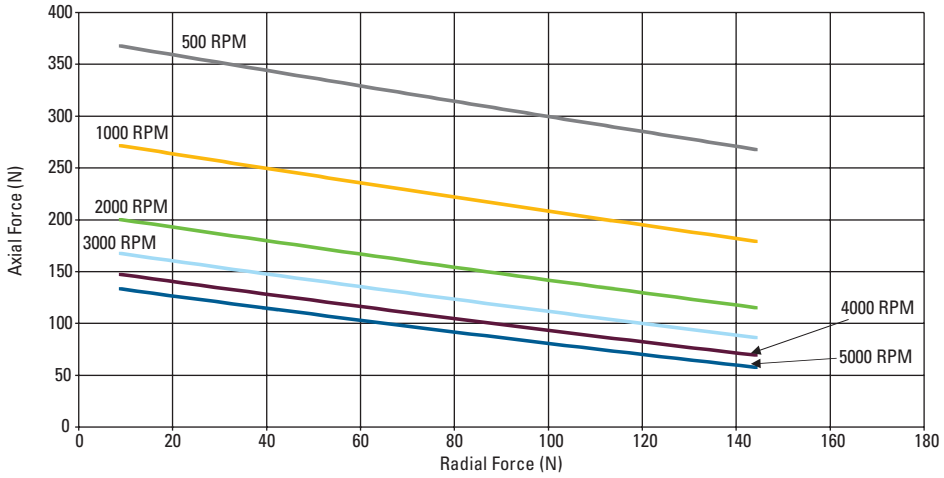
Power ± Brake

AKD X2	Function	AKME M40
BR–	Brake –	–
BR+	Brake +	+
PE	PE	⏚
U / U2	Phase U	U
V / V2	Phase V	V
W / W2	Phase W	W

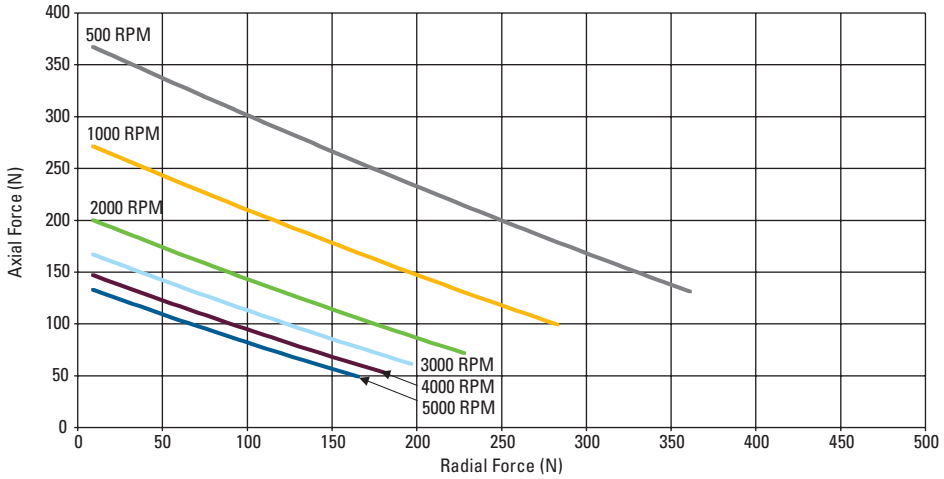


I. L10 Bearing Fatigue

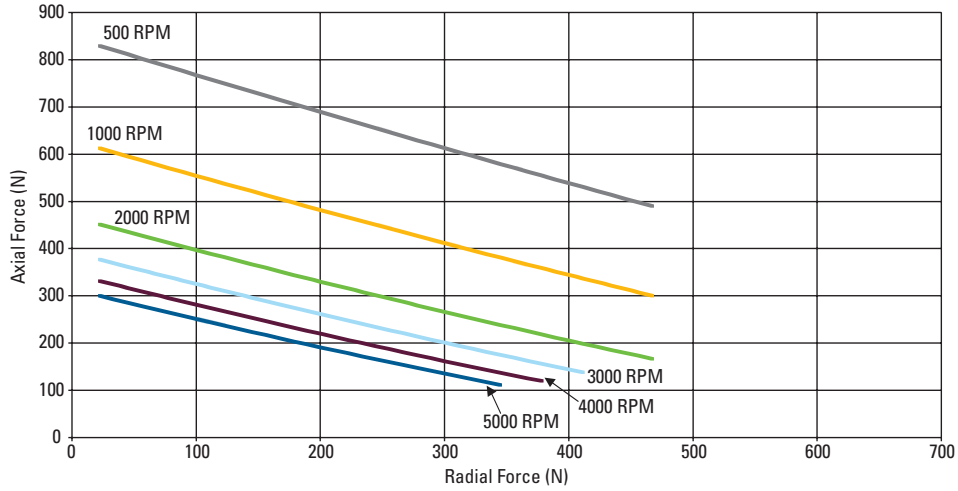
AKME2 MOTORS
20,000 HOURS L_{10} BEARING LIFE



AKME3 MOTORS
20,000 HOURS L_{10} BEARING LIFE

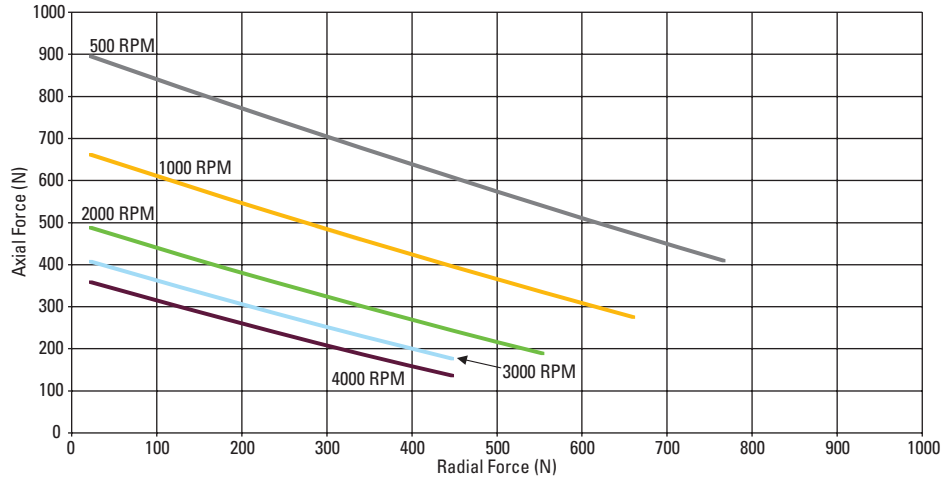


AKME4 MOTORS
20,000 HOURS L_{10} BEARING LIFE



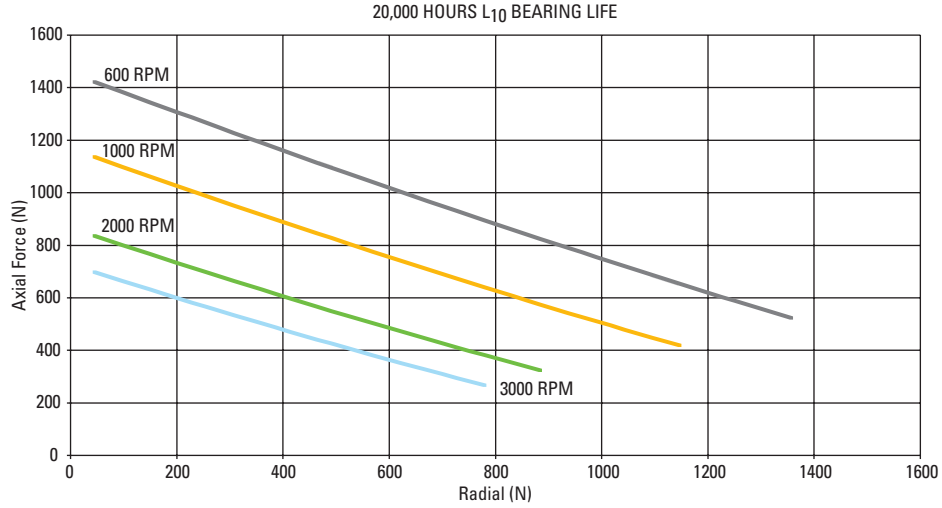
AKME5 MOTORS

20,000 HOURS L_{10} BEARING LIFE



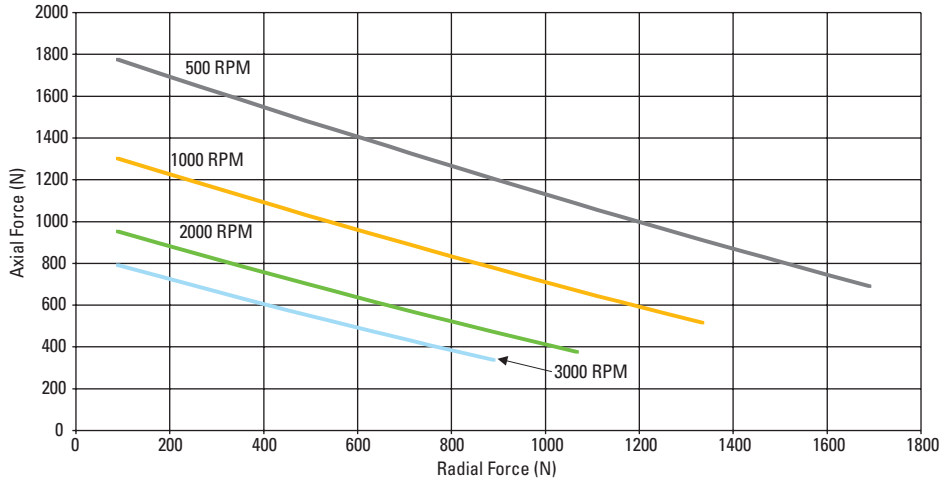
AKME6 MOTORS

20,000 HOURS L_{10} BEARING LIFE



AKME7 MOTORS

20,000 HOURS L_{10} BEARING LIFE



II. Shaft Loading

Motor	Max. Radial Force (N)	Max. Axial Force (N)
AKME2	150	600
AKME3	340	600
AKME4	500	1400
AKME5	830	1740
AKME6	1940	2200
AKME7	2300	3000

The maximum radial load ratings reflect the following assumptions:

1. Motors are operated with peak torque of the longest member of the frame size.
2. Fully reversed load applied to the end of the smallest diameter standard mounting shaft extension. Excluding AKME4xx-EK which is rated at 240 N max. radial force.
3. Infinite life with 99% reliability.
4. Safety factor = 2.

III. Teflon Shaft Seals

There is a normal break-in period for our Teflon® shaft seals. Best conditions during the break-in period would be at the operational temperature and speed that would be typical for the application.

During the break-in period, some "shedding" of Teflon material is normal. The debris is not a sign of seal deterioration or failure. The material "shed" should be reduced with usage.

Typically, a few hours at operational speed is enough to break-in the shaft seal.

IV. Thermal Sensor Protective Devices

The standard version of each motor is fitted with an electrically isolated PT1000 RTD Linear thermal sensor. The thermal sensor does not provide any protection against short, heavy overloading.

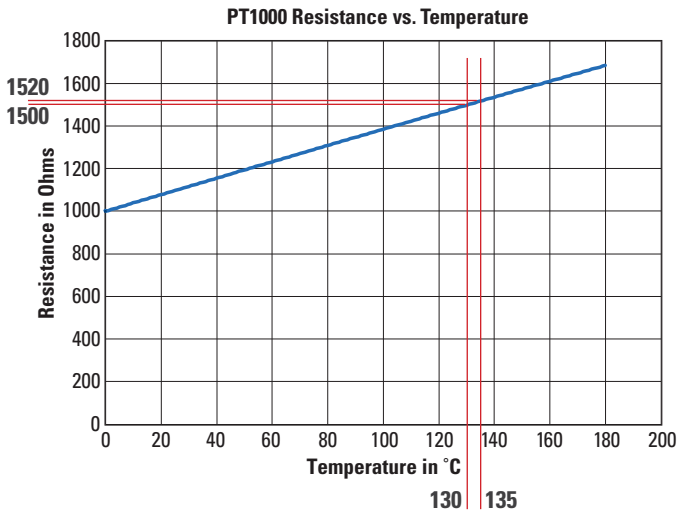
With digital feedback systems SFD-M (CB) and Hiperface DSL (GU), the temperature sensor status is transmitted digitally and evaluated in the drive.

Provided that our configured feedback cables are used, the sensor is integrated into the monitoring system of the digital servo amplifiers.

Thermal Device Options: Resistance vs. Temperature Graphs

Kollmorgen servo drives can directly interpret information from the motor thermal sensors to properly reflect the motor winding temperature. For other drives please refer to the graph Delta Between Motor Winding and Thermal Device on the following page.

Standard



In order to maintain T4/T130°C temperature classification, the PT1000 device resistance must be limited to a range of 1500 - 1520 Ω.

AKME servo motors are equiped with PT1000 thermal protectors and shall be connected to the motor control circuit in such a manner as to disconnect the power supply from the motor to prevent exceeding the specified temprature clas

V. Delta Between Motor Winding and Thermal Device

(Needed when AKME moters are used with 3rd-Party Drives)

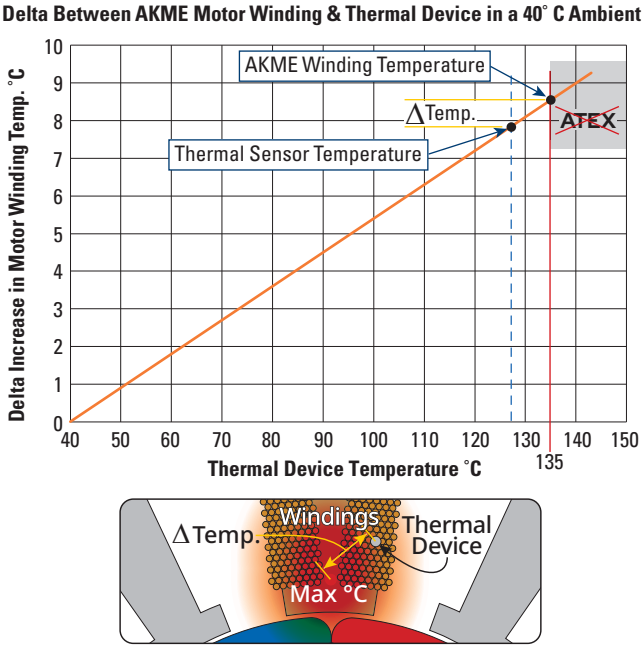
When using a drive other than Kollmorgen AKD, AKD2G, or Essentials, the difference (Delta Δ) in temperature between the value reported by the thermal sensor and the actual motor winding temperature will need to be calculated. This is necessary to insure proper operation and protection of the motor.

The provided graph shows the delta between the reported device temperature on the x axis and the motor winding temperature on the y axis and should be used to adjust the response of the system for the difference between the thermal sensors reported temperature and the actual motor winding temperature.

Examples:

With a thermal device temperature of 60°C, the winding temperature will be 1.8°C higher (61.8°C).

With a thermal device temperature of 126.4°C, the maximum winding temperature will be 8.6°C higher (135°C - ATEX Limit).

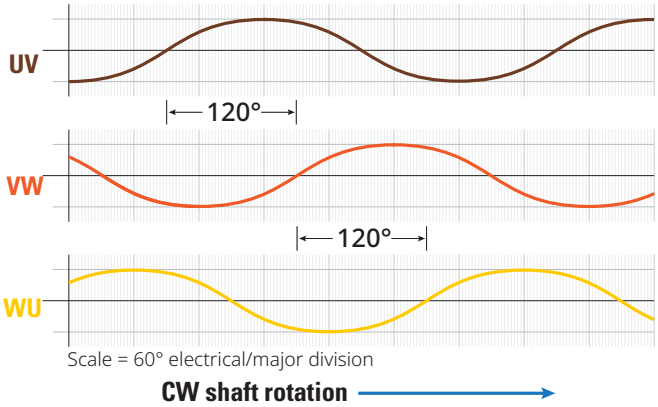


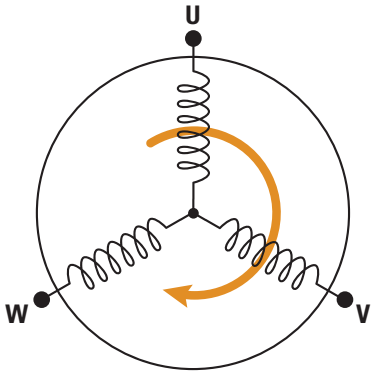
VI. Motor Phasing Diagram

When the motor is rotated clockwise (CW) as viewed from front shaft end, the following BEMF voltage waveforms result:

- Voltage phase-UV leads Voltage phase-VW by 120-degrees
- Voltage phase-VW leads Voltage phase-WU by 120-degrees
- Voltage phase-WU leads Voltage phase-UV by 120-degrees

BEMF Waveforms





Explosion Proof and Hazardous Location Motors

In the presence of combustible gases, dust, vapors, fibers or flyings, electrical equipment must be designed to eliminate or contain any potential ignition source such as arcing or excessive temperatures. Explosion proof motors are not designed to survive an external explosion, but instead to avoid the possibility of igniting a fire or explosion. They are certified to operate safely in specific hazardous locations as classified by IECEx (Europe/International), UL (North America), ATEX (Europe/International), or CSA (Canada).

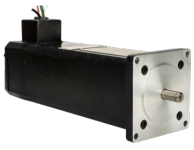
Design Criteria

Explosion proof or hazardous location motors are required in these and other industries:

- Mining
- Oil and natural gas refining
- Flour mills
- Grain elevators
- Textile mills
- Industrial paint booths

Hazardous locations are classified by the types of hazardous materials and how likely they are to be present in a particular area under normal operating conditions. To operate safely in locations where flammable materials are continually present (such as UL Class 1, Division 1 or ATEX Zone 0 and 1 locations), explosion proof motors must incorporate these key design features:

- The motor enclosure must be able to withstand and contain an internal explosion.
- Ignition sources such as flames and sparks must not be permitted to reach the external environment where they could cause an explosion.
- The surface temperature of the housing must never be hot enough to ignite combustible materials in the external environment, even under overload conditions or when the motor is insulated by a layer of hazardous dust. A temperature code (T-code) designates the maximum surface temperature range.
- A nameplate must be supplied with the motor clearly stating the explosion-proof rating and, as applicable, the T-code.





Motor Series	GoldLine EB/EBH	AKME	PMDC Explosion-Proof	Stepper MX	AC Synchronous X
Motor Type	Brushless, Servo	Brushless, Servo	Brush, Permanent Magnet DC	Brushless, Stepper	Brushless, AC Sychronous
Typical Motion Profile and Loading	Variable Speed, Dynamic Load	Variable Speed, Dynamic Load	Fixed Speed, Constant Load	Varaible Speed, Constant Load	Fixed Speed, Constant Load
Frame Sizes	4.49 " sq. to 8.91 " sq.	58-188 mm	NEMA 56C	NEMA 34 & 42	NEMA 42 & 66
Input Voltages	up to 480 VAC	48 or 75 Vdc, 120, 240 or 400 Vac	12, 24, 90 & 180 VDC	up to 240 VAC	120 & 240 VAC, 50/60 Hz
Drive/Amplifier Requirement	Yes	Yes	No	Yes	No
Torque Range	0.84 to 158 Nm	0.37 to 51.75 Nm	1.02 to 3.05 Nm	1.27 to 9.82 Nm	1.77 to 10.59 Nm
Speed Range	up to 7,500 rpm	up to 5,000 rpm	1750 rpm	up to 3,000 rpm	60/72 rpm
Certifications	**UL, File E120721** Class 1, Divisions 1&2, Groups C&D - or - **ATEX, File ITS12ATEX17548X** CE 0081 Ex II 2 G Ex d IIB T3 Gb -40°C Ta 40°C IECEx ETL 12.0006X	**TPS 25 ATEX 124440 0005 X** Gas, Zone 2: II 3G EX ec mc IIC T4 Gc Dust, Zone 22: II 3D EX tc IIIC T130°C Dc **IECEx TPS 25.0065X**	**UL, File E56538** Class 1, Divisions 1&2, Groups C&D Class 2, Division 1&2, Groups F&G Class 3, Divisions 1 & 2	**UL, File E120721 (MX9 Series)** **UL, File E32246 (MX11 Series)** Class 1, Divisions 1&2, Group D	**UL, File E32246** Class 1, Divisions 1&2, Group D

Kollmorgen offers explosion proof and hazardous location motors that meet the certification requirements of UL, ATEX, IECEx and/or CSA. If one of our explosion proof or hazardous location motor offerings does not meet the certification or performance requirements you need, contact us to discuss your specific application requirements. We can evaluate additional certifications for a product, or we can recommend a frameless motor solution for incorporation and certification in explosion proof or hazardous location systems of your own design.

Complete Motion and Automation Solutions

The highest performance and the right fit for any application.

AUTOMATION FOR AGVs & MOBILE ROBOTS

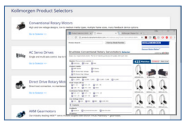
Control Panel • Vehicle Control • Navigation • Robotics

ACCESSORIES

Cables & Connectors • Shielding Solutions
Brake Resistors • Chokes & Filters

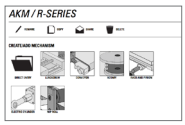
Learn more about our products.

Online Design Tools



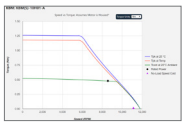
Product Selector

Quickly choose the ideal products for your application needs.



Motioneering®

Size your motion system based on application requirements and motion profiles.



Performance Curve Generator

Optimize housed and frameless motor windings based on power and environmental factors.

3D Models

Visualize products in 3D and download CAD files for use in your design.

Stepper Optimizer

Interactively choose the most efficient stepper solution for your application.

AKD2G Safe Dynamic Brake Calculator

Specify and size the right braking components while saving development time.

Learn more and try our design tools now.

More Expertise for a More Successful Machine

Our global engineering, service and support network provides deep knowledge of all the major industries that rely on advanced motion control and automation technology. We offer world-class engineering expertise, self-service design tools, personalized field service, and easy access to our design, application and manufacturing centers in strategic locations across the globe.

About Kollmorgen

Kollmorgen, a Regal Rexnord brand, has more than 100 years of motion experience, proven in the industry's highest-performing, most reliable motors, drives, linear actuators, AGV (Automated Guided Vehicle) control solutions, and automation control platforms. We deliver breakthrough solutions that combine exceptional performance, reliability and ease of use, giving machine builders an irrefutable marketplace advantage.

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