

AKMH™ Stainless Steel Washdown Motor

Selection Guide



with AKD® Family Servo Drive Systems

KOLLMORGEN

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.

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 Altra Industrial Motion. A key driver in the growth of all Altra divisions is the Altra 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.

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Table of Contents

▶ AKMH™ Stainless Steel Washdown Motors	4
▶ AKMH™ Design Features	6
▶ AKMH Drawings and Performance Data	
AKMH2x	8
AKMH3x	12
AKMH4x	16
AKMH5x	20
AKMH6x	24
▶ Connector Options	28
▶ AKMH™ Technical Guide	30
▶ AKMH™ Hygienic Design Guide	34
▶ Brake Option	35
▶ Cable Options	36
▶ AKMH™ Cable Lookup Tables	40
▶ AKMH™ Connector Pinouts	43
▶ AKMH™ Model Nomenclature	44
▶ AKMH™ Co-Engineered Solutions	46
▶ Universal Drive Solutions for Food, Beverage, and Pharmaceutical Industries	47
▶ AKD Family Servo Drives	48
AKD®2G Servo Drive	
AKD® Servo Drive	
▶ AKD Family Servo Drive Nomenclature	56
▶ Kollmorgen Solutions	59
Automation and Motion Control	
Self-help Tools	

AKMH™ Stainless Steel Washdown Motors

Designed for Fast Cleaning and Increased Uptime. The AKMH stainless steel motor is designed to meet the standards for IP69K and EHEDG and is built with FDA approved, food-grade materials. The careful elimination of flat surfaces, cracks, and crevices prevents the build-up of foreign material and bacteria. The AKMH housing and cable can endure daily wash-downs with high pressure, high temperature, and caustic chemicals. The robust design means that guards and covers are not required to protect the motor from harsh cleaning regimens. These AKMH features constitute quicker cleaning, more reliable machine performance and the increase of OEE for the entire manufacturing line.

Reduced Recall Risk. The Food Modernization Safety Act (FMSA) gives the US federal government the ability to shut down facilities, recall food products, and levy stiff fines to ensure public safety in regards to food manufacturing. The AKMH is designed to meet the toughest hygienic requirements in the industry in order to reduce the possibility of food borne illnesses and costly recalls.

Bottom Line. With 19 standard motor sizes, multiple standard windings, feedback options and vast Co-Engineering possibilities, the AKMH motor can be a great fit for diverse applications in industries such as food & beverage and pharmaceutical. Kollmorgen's AKMH environmental solutions help maintain the highest standard of machine cleanliness and increase OEE by reducing the risk of potentially devastating supplier/government recalls.





The Benefits of AKMH™ Motors

- » Increase your machine's Overall Equipment Effectiveness (OEE) with water and chemical resistant designs that maximize motor **reliability**
 - » Reduce your machine's total cost of ownership with shortened cleaning times and improved **durability**
 - » Enhance the value of your machine by **lowering** your customer's **risk of recall** through the superior hygienic design of AKMH
 - » IP69K certification of motor and cable inside the washdown environment
 - » Unique design technique to eliminate condensation
 - » FDA Approved, food-grade O-ring seals
 - » All exposed surfaces are 316L or DIN 1.4404 Stainless Steel; superior to 303/304 for corrosion resistance
 - » Round design with no nooks or crannies
 - » Sloped rear cover and connector mounting surface to eliminate puddling, even in vertical mounting
 - » No external hardware (no bolts, washers, or screws) to trap soil or pathogens or fall into food
 - » Smooth surface meeting EHEDG criteria, promotes rapid cleaning and no harboring of pathogens
 - » FDA Approved, food-grade bearing lube
 - » FDA Approved, food-grade shaft seal
 - » Cable designed to eliminate the need for conduit
 - » Hygienic, IP69K shaft seal includes special shaft treatment for long life
 - » No protective covers needed for washdown; no secondary cleaning disassembly required
 - » FDA approved, food-grade tubing option for applications where the cable is in a food zone
 - » Washdown cable(s) for increased reliability, faster cleaning, and fewer places to harbor pathogens
 - » Hygienic marking method eliminates harboring of pathogens
 - » Unique vented tube or connector design that equalizes pressure when temperature drops; e.g., during wash-down
-
- » **Highly configurable** motor selection means an optimal fit for your machine and less time needed to find the right mechanical components
 - » Innovative design features **reduce** associated **cost and time** of installation.
 - » Industry leading configurability for **optimized performance**
 - » 19 frame/stack length options
 - » Windings designed for optimized machine performance
 - » Cables designed for direct connection to AKD2G and AKD servo drives (plug & play)
 - » Cables designed to meet NFPA 79 without the need for additional thermal overload protection
 - » Standard configurable cable lengths to 15 meters; no intermediate junction boxes needed
 - » Face and flange mounts available in both IEC and NEMA standards
 - » Brake option
 - » Multi-turn absolute feedback option; single-turn absolute feedback standard
 - » Additional feedback options available for retrofitting fielded motors with non-Kollmorgen drives
 - » Single and dual cable options for use with non-Kollmorgen drives
 - » UL/CE/RoHS/IP69K/BISSC/NSF/USDA/EAC certifications
 - » Designed to EHEDG guidelines

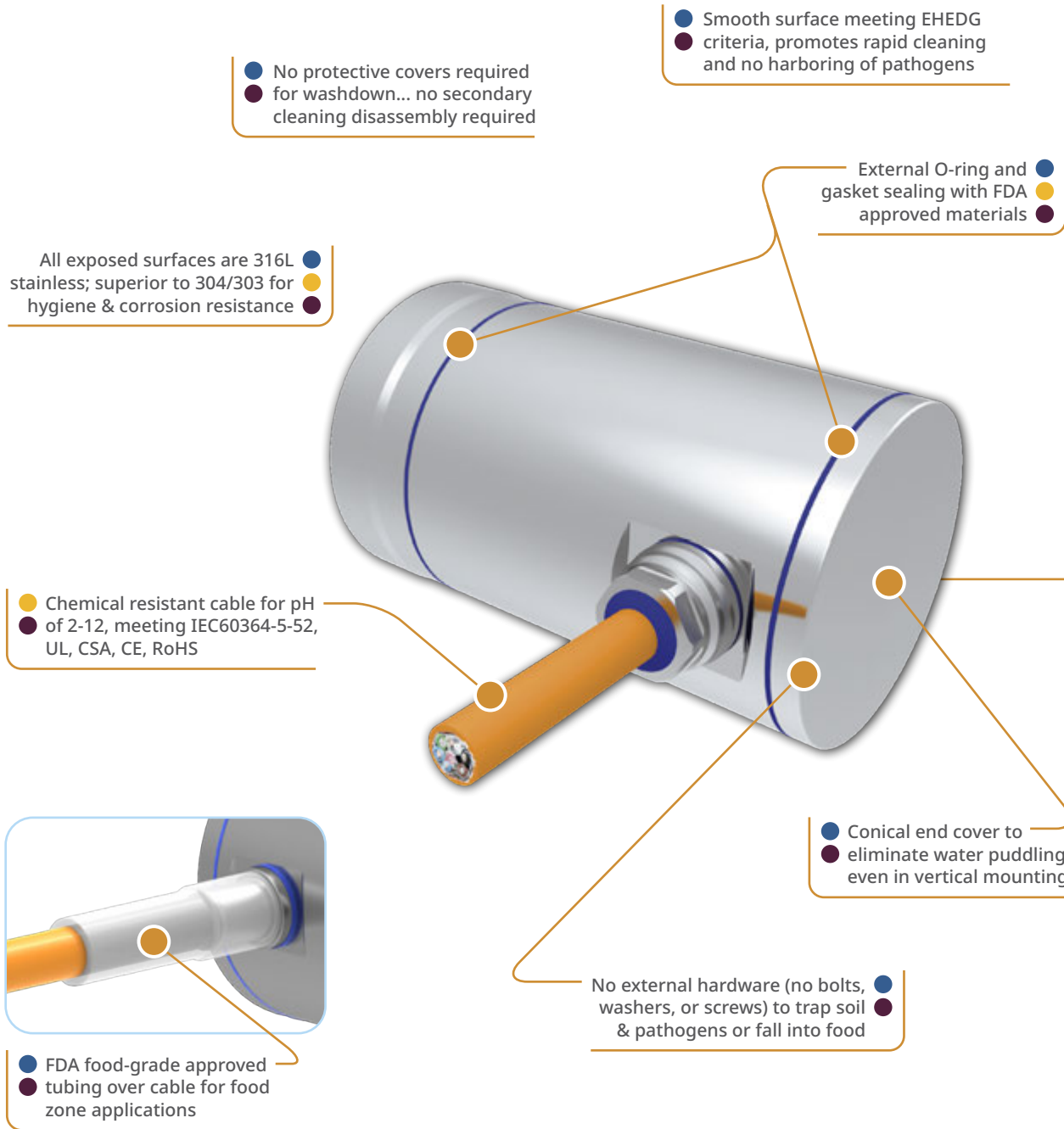
Specify only Kollmorgen AKMH systems to ensure:

- » Reduced risk of food recall
- » Reduced cleaning time, higher OEE
- » Highest reliability and durability

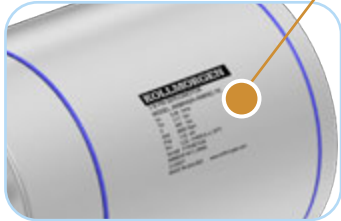
AKMH™ Design Features

The key benefits of AKMH hygienic design features:

- Reduces risk of food recall
- Increases reliability in wash-down applications
- Reduces cleaning time: higher OEE

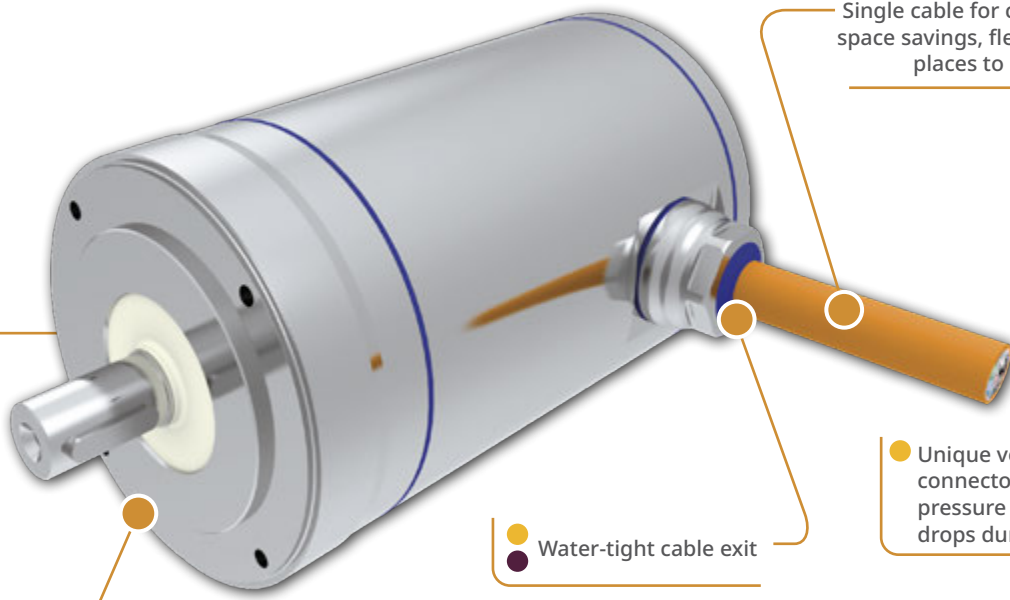


- Hygienic marking
- method eliminates
- harboring of pathogens



- Unique vented tube or connector design equalizes pressure
- in and outside the motor to prevent condensation inside
- the housing during changes of temperature

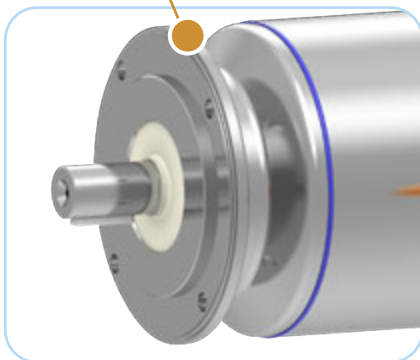
- Single cable for cable cost savings, space savings, flexibility, and fewer places to harbor pathogens



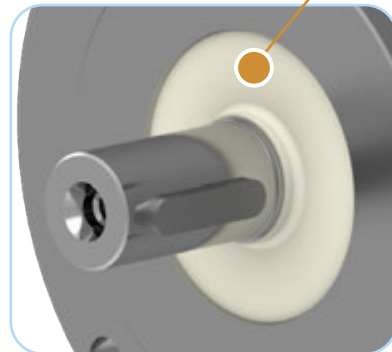
- Water-tight cable exit

- Unique vented tube or connector design that equalizes pressure when temperature drops during wash-down

- Face Mount for most hygienic design, Flange Mount option for easy mounting



- Hygienic, IP69K shaft seal, special shaft treatment for long life



AKMH2x Performance Data

AKMH2x Performance Data – Up to 640 Vdc*

Parameters	Tol	Symbol	Units	AKMH21			AKMH22			AKMH23			AKMH24		
				C	E	G	C	E	G	D	E	F	D	E	F
Max Rated DC Bus Voltage	Max	V _{bus}	Vdc	640	160	160	640	320	160	640	320	320	640	320	320
Continuous Torque (Stall) for ΔT winding = 100°C ①②④	Nom	T _{CS}	Nm	0.31	0.36	0.37	0.61	0.65	0.64	0.85	0.90	0.88	1.10	1.15	1.12
			lb-in	2.7	3.2	3.3	5.4	5.8	5.7	7.5	8.0	7.8	9.7	10.2	9.9
Continuous Current (Stall) for ΔT winding = 100°C ①②④	Nom	I _{CS}	A _{rms}	1.37	2.67	4.10	1.19	2.32	3.98	1.88	2.39	3.63	1.96	2.52	3.42
Continuous Torque (Stall) for ΔT winding = 60°C ②④	Nom	T _{CS}	Nm	0.25	0.29	0.30	0.49	0.52	0.51	0.68	0.72	0.70	0.88	0.92	0.90
			lb-in	2.2	2.5	2.6	4.3	4.6	4.5	6.0	6.4	6.2	7.8	8.1	7.9
Max Mechanical Speed ⑤	Nom	N _{max}	rpm	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000
Peak Torque ①②④	Nom	T _p	Nm	1.76	1.81	1.83	3.16	3.23	3.27	4.37	4.43	4.46	5.35	5.36	5.39
			lb-in	15.6	16.0	16.2	28.0	28.6	28.9	38.7	39.2	39.5	47.3	47.4	47.7
Peak Current ⑩	Nom	I _p	A _{rms}	6.32	12.44	19.48	5.56	10.92	19.28	8.76	11.12	17.24	8.84	11.16	15.56
Rated Torque (speed) ①②④	160 Vdc	T _{rtd}	Nm	0.33	0.26	-	0.63	0.61	0.47	0.87	0.86	0.78	1.10	1.10	1.04
			lb-in	2.9	2.3	-	5.6	5.4	4.2	7.7	7.6	6.9	9.7	9.7	9.2
Rated Speed	160 Vdc	N _{rtd}	rpm	2500	7000	-	1000	3500	7000	1500	2500	4500	1500	2000	3000
Rated Power (speed) ①②④	160 Vdc	P _{rtd}	kW	0.09	0.19	-	0.07	0.22	0.34	0.14	0.23	0.37	0.17	0.23	0.33
			Hp	0.12	0.26	-	0.09	0.30	0.46	0.18	0.30	0.49	0.23	0.31	0.44
Rated Torque (speed) ①②④	320 Vdc	T _{rtd}	Nm	0.22	-	-	0.58	0.60	-	0.73	0.66	0.48	0.97	0.88	0.53
			lb-in	1.9	-	-	5.1	5.3	-	6.5	5.8	4.2	8.6	7.8	4.7
Rated Speed	320 Vdc	N _{rtd}	rpm	8000	-	-	3500	3500	-	5000	6500	8000	4000	5500	8000
Rated Power (speed) ①②④	320 Vdc	P _{rtd}	kW	0.18	-	-	0.21	0.22	-	0.38	0.45	0.40	0.41	0.51	0.44
			Hp	0.25	-	-	0.28	0.29	-	0.51	0.60	0.54	0.54	0.68	0.60
Rated Torque (speed) ①②④	560 Vdc	T _{rtd}	Nm	0.21	-	-	0.41	-	-	0.49	-	-	0.52	-	-
			lb-in	1.9	-	-	3.6	-	-	4.3	-	-	4.6	-	-
Rated Speed	560 Vdc	N _{rtd}	rpm	8000	-	-	8000	-	-	8000	-	-	8000	-	-
Rated Power (speed) ①②④	560 Vdc	P _{rtd}	kW	0.18	-	-	0.34	-	-	0.41	-	-	0.44	-	-
			Hp	0.24	-	-	0.46	-	-	0.55	-	-	0.58	-	-
Rated Torque (speed) ①②④	640 Vdc	T _{rtd}	Nm	0.21	-	-	0.40	-	-	0.46	-	-	0.47	-	-
			lb-in	1.9	-	-	3.5	-	-	4.1	-	-	4.2	-	-
Rated Speed	640 Vdc	N _{rtd}	rpm	8000	-	-	8000	-	-	8000	-	-	8000	-	-
Rated Power (speed) ①②④	640 Vdc	P _{rtd}	kW	0.18	-	-	0.34	-	-	0.39	-	-	0.39	-	-
			Hp	0.24	-	-	0.45	-	-	0.52	-	-	0.53	-	-

See following page for notes.

AKMH2x Performance Data – Up to 640 Vdc (Continued)*

Parameters	Tol	Symbol	Units	AKMH21			AKMH22			AKMH23			AKMH24		
				C	E	G	C	E	G	D	E	F	D	E	F
Torque Constant ①	±10%	K _t	Nm/A _{rms}	0.26	0.15	0.10	0.56	0.30	0.17	0.49	0.40	0.26	0.60	0.48	0.35
			lb-in/A _{rms}	2.3	1.4	0.9	4.9	2.7	1.5	4.3	3.6	2.3	5.3	4.3	3.1
Back EMF Constant ②	±10%	K _e	V _{rms} /krpm	19.5	10.2	6.6	39.0	20.4	11.7	33.8	27	17.6	40.8	32.4	23.4
Motor Constant ①	Nom	K _m	N-m/√W	0.06	0.07	0.07	0.10	0.11	0.11	0.13	0.14	0.14	0.16	0.17	0.16
			lb-in/√W	0.52	0.60	0.61	0.90	0.96	0.94	1.18	1.24	1.22	1.43	1.50	1.46
Resistance (line-line) ⑥⑦	±10%	R _m	ohm	13.0	3.44	1.46	20.0	5.24	1.79	8.79	5.46	2.36	9.04	5.46	2.96
Inductance (line-line)		L	mH	19.0	5.2	2.18	35.5	9.7	3.19	17.29	11.07	4.68	18.72	11.81	6.16
Inertia (includes Resolver feedback) ③	±10%	J _m	kg-cm ²	0.11			0.16			0.22			0.27		
			lb-in-s ²	9.5E-05			1.4E-04			1.9E-04			2.4E-04		
Optional Brake Inertia (additional)	±10%	J _m	kg-cm ²	0.012			0.012			0.012			0.012		
			lb-in-s ²	1.1E-05			1.1E-05			1.1E-05			1.1E-05		
Weight ⑧⑨		W	kg	3.6			4.1			4.6			5.1		
			lb	7.9			9.0			10.1			11.2		
Static Friction ①		T _f	Nm	0.048			0.055			0.062			0.069		
			lb-in	0.42			0.49			0.55			0.61		
Viscous Damping ①		K _{dv}	Nm/krpm	0.005			0.005			0.005			0.006		
			lb-in/krpm	0.041			0.043			0.046			0.049		
Thermal Time Constant		TCT	minutes	29			32			34			37		
Thermal Resistance		R _{thw-a}	°C/W	1.96			1.69			1.53			1.37		
Pole Pairs				3			3			3			3		
Heat Sink Size				10"x10"x0.25" Aluminum Plate			10"x10"x0.25" Aluminum Plate			10"x10"x0.25" Aluminum Plate			10"x10"x0.25" Aluminum Plate		

Notes:

- ① Motor winding temperature rise, ΔT=100°C, at 25°C ambient.
- ② All data referenced to sinusoidal commutation.
- ③ Add holding brake if applicable for total inertia.
- ④ Motor with 115°C rated feedback and standard heat sink.
- ⑤ May be limited at some values of V_{bus}.
- ⑥ Measured at 25°C.
- ⑦ Resistance is measured with 1 meter of cable.
- ⑧ Face mount adds 0.4 kg [0.88 lbs]
- ⑨ Brake options adds 0.5 kg [1.1 lbs] and reduces continuous torque by 10% and rated torque by 27%
- ⑩ Derived from Cont. Current (Stall, ΔT wdg. = 100°C) of equivalent AKM

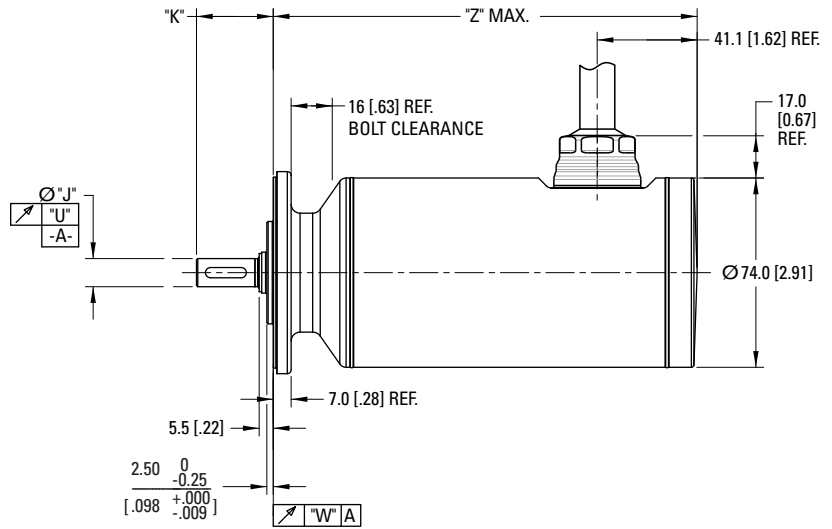
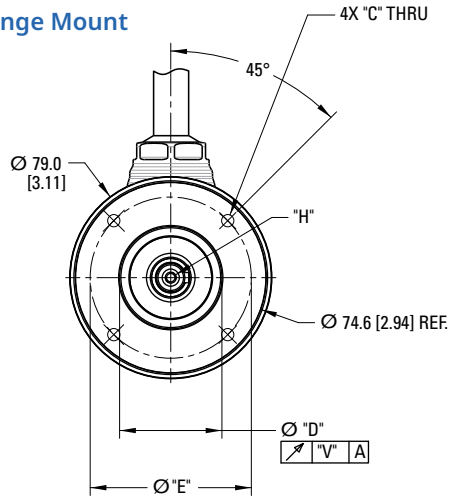
* Motor performance across the entire speed range varies depending on selection of feedback device and holding brake. Use the Performance Curve Generator on the Kollmorgen AKMH Product Page (<http://www.kollmorgen.com/en-us/products/motors/servo/akmh-series/stainless-steel-akmh-series/>) to generate specific rated speed/torque curves for a given configuration.

*Complete AKMH series model nomenclature can be found on page 44.

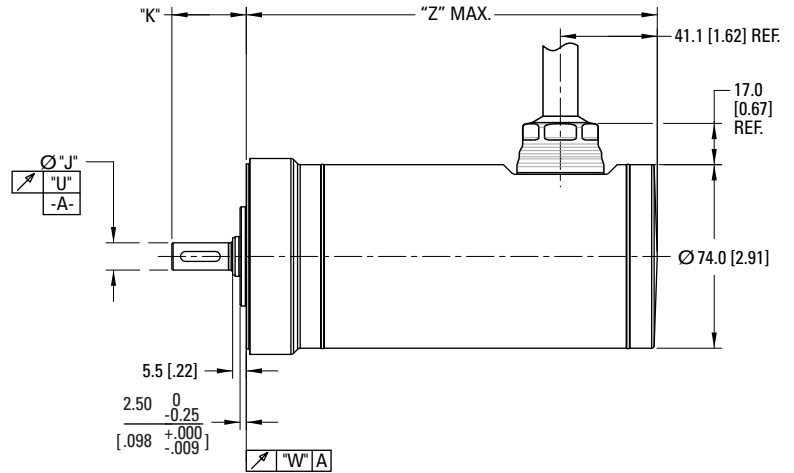
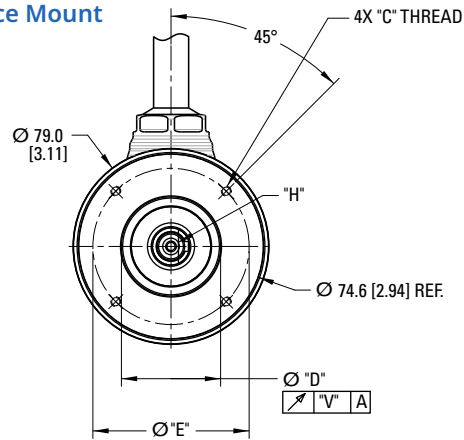
AKMH2x Outline Drawings

AKMH2x Frame

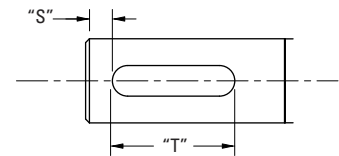
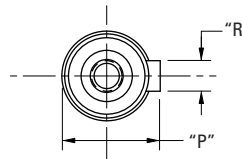
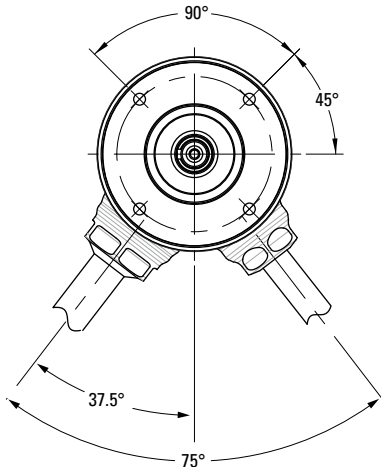
Flange Mount



Face Mount



Dual Cable Option for Third Party Drives



Dimensions are in mm [inches].

Outline drawings and dimensions for mounted connector options H- and P- can be found on page 28.

AKMH2x Dimension Data

AKMH 2 2 C - AN K N CA 1 K*
 Motor Series Frame Size Stack Length Winding Mount/Shaft Connection Brake Feedback Cable Length Seal

AKMH2x Dimension Data

Flange/Shaft Configuration									
Code	Mount Type	Standard	Shaft	Hole Diameter "C"	Pilot Dia. "D"	Bolt Circle Dia. "E"	"H"	Shaft Dia. "J"	Shaft Length "K"
AC	Flange	Metric	Closed Keyway	4.80 [0.189]	40 [1.57]	63 [2.480]	D M4 DIN 332	11 [0.4331]	30.0 [1.18]
AN	Flange	Metric	Smooth	4.80 [0.189]	40 [1.57]	63 [2.480]	D M4 DIN 332	11 [0.4331]	30.0 [1.18]
BN	Flange	NEMA 23	Smooth	5.10 [0.201]	38.10 [1.50]	66.68 [2.625]	-	9.525 [0.3750]	31.8 [1.25]
CC	Face	Metric	Closed Keyway	M4 x 0.7 x 7.92 [0.312]	40 [1.57]	63 [2.480]	D M4 DIN 332	11 [0.4331]	30.0 [1.18]
CN	Face	Metric	Smooth	M4 x 0.7 x 7.92 [0.312]	40 [1.57]	63 [2.480]	D M4 DIN 332	11 [0.4331]	30.0 [1.18]
DN	Face	NEMA 23	Smooth	UNC 10-24 x 9.69 [0.382]	38.10 [1.50]	66.68 [2.625]	-	9.525 [0.3750]	31.8 [1.25]

Code	Shaft Dia. w/ Key "P"	Key Width "R"	"S"	Key Length "T"	"U"	"V"	"W"
AC	12.5 [0.492]	4 [0.157]	3.50 [0.138]	16 [0.630]	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]
BN	-	-	-	-	0.035 [0.0013]	0.080 [0.0031]	0.080 [0.0031]
CC	12.5 [0.492]	4 [0.157]	3.50 [0.138]	16 [0.630]	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]
DN	-	-	-	-	0.035 [0.0013]	0.080 [0.0031]	0.080 [0.0031]

Z MAX				
MODEL	SFD/Resolver/SFD3/Comcoder W/O Brake	SFD/Resolver/SFD3/Comcoder W/ Brake	Hiperface/EnDat/Hiperface DSL W/O Brake	Hiperface/EnDat/Hiperface DSL W/ Brake
AKMH21	167.2 [6.58]	201.2 [7.92]	180.2 [7.09]	214.2 [8.43]
AKMH22	186.2 [7.33]	220.2 [8.67]	199.2 [7.84]	233.2 [9.18]
AKMH23	205.2 [8.08]	239.2 [9.42]	218.2 [8.59]	252.2 [9.93]
AKMH24	224.2 [8.83]	258.2 [10.17]	237.2 [9.34]	271.2 [10.68]

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

*Complete AKMH series model nomenclature can be found on page 44.

AKMH3x Performance Data

AKMH3x Performance Data – Up to 640 Vdc*

Parameters	Tol	Symbol	Units	AKMH31			AKMH32			AKMH33		
				C	E	H	C	E	H	C	E	H
Max Rated DC Bus Voltage	Max	V _{bus}	Vdc	640	320	160	640	640	320	640	640	320
Continuous Torque (Stall) for ΔT winding = 100°C ①②④	Nom	T _{CS}	Nm	0.91	0.96	0.99	1.68	1.69	1.77	2.46	2.51	2.6
			lb-in	8.1	8.5	8.8	14.9	15.0	15.7	21.8	22.2	23.0
Continuous Current (Stall) for ΔT winding = 100°C ①②④	Nom	I _{CS}	A _{rms}	1.24	2.64	5.04	1.3	2.49	4.81	1.37	2.34	5.00
Continuous Torque (Stall) for ΔT winding = 60°C ②④	Nom	T _{CS}	Nm	0.73	0.77	0.79	1.34	1.35	1.42	1.97	2.01	2.08
			lb-in	6.4	6.8	7.0	11.9	12.0	12.5	17.4	17.8	18.4
Max Mechanical Speed ⑤	Nom	N _{max}	rpm	8000	8000	8000	8000	8000	8000	8000	8000	8000
Peak Torque ①②④	Nom	T _p	Nm	3.76	3.88	3.95	6.92	7.06	7.21	9.94	10.19	10.43
			lb-in	33.3	34.3	35.0	61.2	62.5	63.8	88.0	90.2	92.3
Peak Current ⑩	Nom	I _p	A _{rms}	5.48	12.0	23.4	5.76	11.28	22.00	5.88	10.32	22.48
Rated Torque (speed) ①②④	160 Vdc	T _{rtd}	Nm	-	0.91	0.71	-	-	1.61	-	-	2.41
			lb-in	-	8.1	6.3	-	-	14.2	-	-	21.3
Rated Speed	160 Vdc	N _{rtd}	rpm	-	2500	6000	-	-	3000	-	-	2500
Rated Power (speed) ①②④	160 Vdc	P _{rtd}	kW	-	0.24	0.45	-	-	0.51	-	-	0.63
			Hp	-	0.32	0.60	-	-	0.68	-	-	0.85
Rated Torque (speed) ①②④	320 Vdc	T _{rtd}	Nm	0.86	0.68	-	1.62	1.53	0.71	2.42	2.38	1.56
			lb-in	7.6	6.0	-	14.34	13.5	6.3	21.4	21.1	13.8
Rated Speed	320 Vdc	N _{rtd}	rpm	2500	6000	-	1500	3500	7000	1000	2000	5500
Rated Power (speed) ①②④	320 Vdc	P _{rtd}	kW	0.23	0.43	-	0.25	0.56	0.52	0.25	0.50	0.90
			Hp	0.30	0.57	-	0.34	0.75	0.70	0.34	0.67	1.20
Rated Torque (speed) ①②④	560 Vdc	T _{rtd}	Nm	0.72	-	-	1.47	0.71	-	2.29	1.85	-
			lb-in	6.4	-	-	13.01	6.3	-	20.3	16.4	-
Rated Speed	560 Vdc	N _{rtd}	rpm	5000	-	-	3000	7000	-	2000	4500	-
Rated Power (speed) ①②④	560 Vdc	P _{rtd}	kW	0.38	-	-	0.46	0.52	-	0.48	0.87	-
			Hp	0.51	-	-	0.62	0.70	-	0.64	1.17	-
Rated Torque (speed) ①②④	640 Vdc	T _{rtd}	Nm	0.65	-	-	1.41	0.22	-	2.22	1.68	-
			lb-in	5.8	-	-	12.48	1.9	-	19.6	14.9	-
Rated Speed	640 Vdc	N _{rtd}	rpm	6000	-	-	3500	8000	-	2500	5000	-
Rated Power (speed) ①②④	640 Vdc	P _{rtd}	kW	0.41	-	-	0.52	0.18	-	0.58	0.88	-
			Hp	0.55	-	-	0.69	0.25	-	0.78	1.18	-

See following page for notes.

AKMH3x Performance Data – Up to 640 Vdc (Continued)*

Parameters	Tol	Symbol	Units	AKMH31			AKMH32			AKMH33		
				C	E	H	C	E	H	C	E	H
Torque Constant ①	±10%	K _t	Nm/A _{rms}	0.76	0.38	0.20	1.32	0.69	0.38	1.83	1.09	0.53
			lb-in/A _{rms}	6.7	3.3	1.8	11.7	6.1	3.3	16.2	9.7	4.7
Back EMF Constant ⑥	±10%	K _e	V _{rms} /krpm	54.5	26.1	13.7	89.8	47.1	24.8	120.0	70.6	33.4
Motor Constant ①	Nom	K _m	N-m/√W	0.13	0.14	0.14	0.22	0.23	0.23	0.29	0.30	0.31
			lb-in/√W	1.19	1.25	1.28	2.0	1.99	2.08	2.56	2.63	2.72
Resistance (line-line) ⑥	±10%	R _m	ohm	21.4	4.76	1.31	23.8	6.3	1.7	26.6	9.0	2.0
Inductance (line-line)		L	mH	37.6	8.6	2.37	46.5	12.8	3.6	53.6	18.5	4.1
Inertia (includes Resolver feedback) ③	±10%	J _m	kg-cm ²	0.33			0.59			0.85		
			lb-in-s ²	2.9E-04			5.2E-04			7.5E-04		
Optional Brake Inertia (additional)	±10%	J _m	kg-cm ²	0.012			0.012			0.012		
			lb-in-s ²	1.1E-05			1.1E-05			1.1E-05		
Weight ⑩		W	kg	4.1			5.0			5.9		
			lb	9.0			11.0			13.0		
Static Friction ①		T _f	Nm	0.033			0.039			0.045		
			lb-in	0.29			0.35			0.40		
Viscous Damping ①		K _{dv}	Nm/krpm	0.004			0.007			0.010		
			lb-in/krpm	0.031			0.059			0.089		
Thermal Time Constant		TCT	minutes	24			32			40		
Thermal Resistance		R _{thw-a}	°C/W	1.41			1.18			0.96		
Pole Pairs				4			4			4		
Heat Sink Size				10"x10"x0.25" Aluminum Plate			10"x10"x0.25" Aluminum Plate			10"x10"x0.25" Aluminum Plate		

Notes:

- ① Motor winding temperature rise, ΔT=100°C, at 25°C ambient.
- ② All data referenced to sinusoidal commutation.
- ③ Add holding brake if applicable for total inertia.
- ④ Motor with 115°C rated feedback and standard heat sink.
- ⑤ May be limited at some values of V_{bus}.
- ⑥ Measured at 25°C.
- ⑦ Resistance is measured with 1 meter of cable.
- ⑧ Face mount adds 0.4 kg [0.88 lbs]
- ⑨ Brake options adds 0.7 kg [1.54 lbs] and reduces continuous torque by 6% and rated torque by 25%
- ⑩ Derived from Cont. Current (Stall, ΔT wdg. = 100°C) of equivalent AKM

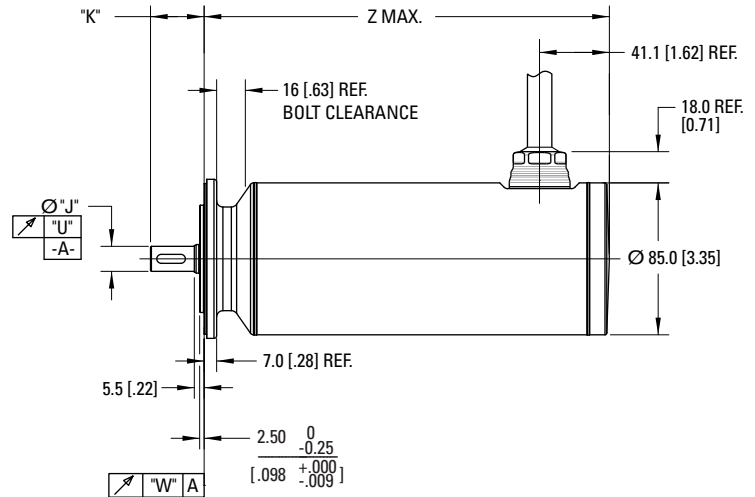
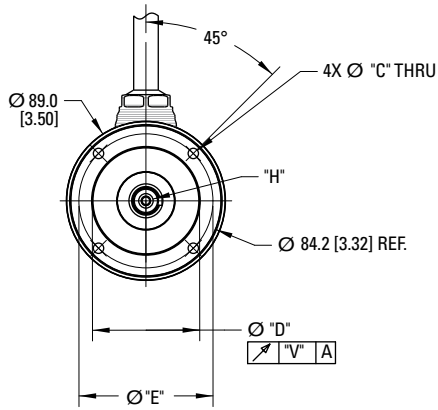
* Motor performance across the entire speed range varies depending on selection of feedback device and holding brake. Use the Performance Curve Generator on the Kollmorgen AKMH Product Page (<http://www.kollmorgen.com/en-us/products/motors/servo/akmh-series/stainless-steel-akmh-series/>) to generate specific rated speed/torque curves for a given configuration.

*Complete AKMH series model nomenclature can be found on page 44.

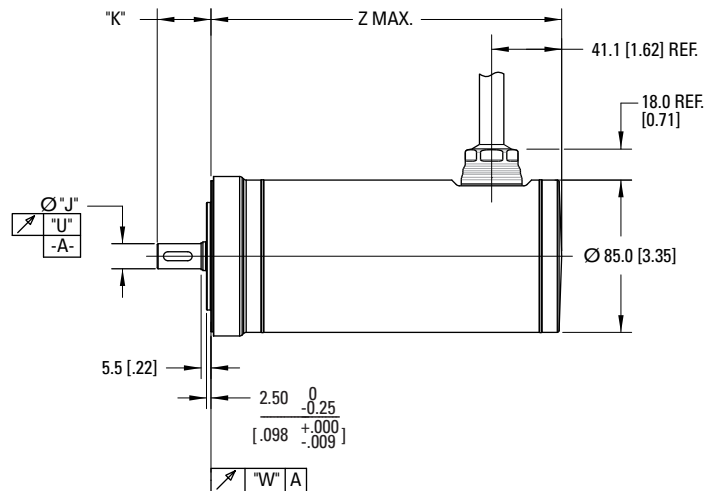
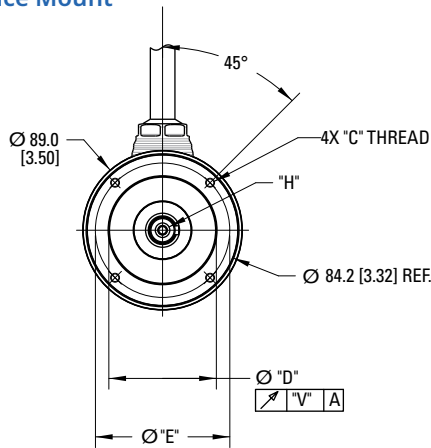
AKMH3x Outline Drawings

AKMH3x Frame

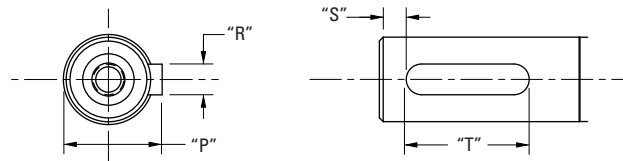
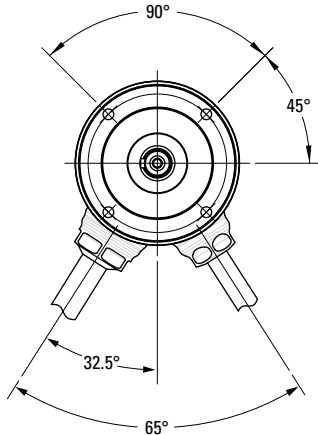
Flange Mount



Face Mount



Dual Cable Option for Third Party Drives



Dimensions are in mm [inches].

Outline drawings and dimensions for mounted connector options D- and H- can be found on page 28.

AKMH3x Dimension Data

AKMH 3 2 C - AN K N CA 1 K*
 Motor Series Frame Size Stack Length Winding Mount/Shaft Connection Brake Feedback Cable Length Seal

AKMH3x Dimension Data

Flange/Shaft Configuration									
Code	Mount Type	Standard	Shaft	Hole Diameter "C"	Pilot Dia. "D"	Bolt Circle Dia. "E"	"H"	Shaft Dia. "J"	Shaft Length "K"
AC	Flange	IEC 75	Closed Keyway	5.80 [0.228]	60 [2.362]	75 [2.953]	D M5 DIN 332	14 [0.5512]	30.0 [1.181]
AN	Flange	IEC 75	Smooth	5.80 [0.228]	60 [2.362]	75 [2.953]	D M5 DIN 332	14 [0.5512]	30.0 [1.181]
CC	Face	IEC 75	Closed Keyway	M5 x 0.8 x 10.0 [0.39]	60 [2.362]	75 [2.953]	D M5 DIN 332	14 [0.5512]	30.0 [1.181]
CN	Face	IEC 75	Smooth	M5 x 0.8 x 10.0 [0.39]	60 [2.362]	75 [2.953]	D M5 DIN 332	14 [0.5512]	30.0 [1.181]

Code	Shaft Dia. w/ Key "P"	Key Width "R"	"S"	Key Length "T"	"U"	"V"	"W"
AC	16 [0.630]	5 [0.197]	3.50 [0.0138]	16 [0.630]	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	16 [0.630]	5 [0.197]	3.50 [0.0138]	16 [0.630]	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]

Z MAX				
MODEL	SFD/Resolver/SFD3/Comcoder W/O Brake	SFD/Resolver/SFD3/Comcoder W/ Brake	Hiperface/EnDat/Hiperface DSL W/O Brake	Hiperface/EnDat/Hiperface DSL W/ Brake
AKMH31	166.5 [6.56]	198.02 [7.80]	182.5 [7.19]	214.0 [8.43]
AKMH32	197.5 [7.78]	229.0 [9.02]	213.5 [8.41]	245.0 [9.65]
AKMH33	228.5 [9.00]	260.0 [10.24]	244.5 [9.63]	276.0 [10.87]

Note 1: Dimensions are in mm [inches].

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

*Complete AKMH series model nomenclature can be found on page 44.

AKMH4x Performance Data

AKMH4x Performance Data – Up to 640 Vdc*

Parameters	Tol	Sym	Units	AKMH41			AKMH42				AKMH43			AKMH44		
				C	E	H	C	E	H	J	E	H	L	E	H	K
Max Rated DC Bus Voltage	Max	V _{bus}	Vdc	640	640	320	640	640	640	320	640	640	320	640	640	320
Continuous Torque (Stall) for ΔT winding = 100°C ①②④	Nom	T _{CS}	Nm	1.77	1.75	1.83	3.15	3.12	3.15	3.37	4.38	4.55	4.02	5.41	5.4	5.42
			lb-in	15.7	15.5	16.2	27.9	27.6	27.9	29.8	38.8	40.3	35.6	47.9	47.8	48.0
Continuous Current (Stall) for ΔT winding = 100°C ①②④	Nom	I _{CS}	A _{rms}	1.46	2.73	5.34	1.41	2.64	5.64	8.11	2.61	5.22	9.92	2.70	5.23	9.41
Continuous Torque (Stall) for ΔT winding = 60°C ②④	Nom	T _{CS}	Nm	1.42	1.40	1.46	2.52	2.50	2.52	2.70	3.50	3.64	3.22	4.33	4.32	4.34
			lb-in	12.5	12.4	13.0	22.3	22.1	22.3	23.9	31.0	32.2	28.5	38.3	38.2	38.4
Max Mechanical Speed ⑤	Nom	N _{max}	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000
Peak Torque ①②④	Nom	T _p	Nm	5.75	5.84	5.92	10.62	10.79	11.04	11.08	15.50	15.65	15.58	19.77	19.73	19.75
			lb-in	50.9	51.7	52.4	94.0	95.5	97.7	98.1	137.2	138.5	137.9	175.0	174.6	174.8
Peak Current ⑩	Nom	I _p	A _{rms}	5.84	11.4	22.4	5.60	10.96	24.00	33.60	11.04	21.60	44.80	11.60	22.40	40.40
Rated Torque (speed) ①②④		T _{rtd}	Nm	-	1.77	1.71	-	-	3.15	3.02	-	-	3.48	-	-	4.96
			lb-in	-	15.7	15.1	-	-	27.9	26.7	-	-	30.8	-	-	43.9
Rated Speed		N _{rtd}	rpm	-	1500	3000	-	-	2000	3000	-	-	3000	-	-	2000
Rated Power (speed) ①②④		P _{rtd}	kW	-	0.28	0.54	-	-	0.66	0.95	-	-	1.09	-	-	1.04
			Hp	-	0.37	0.72	-	-	0.88	1.27	-	-	1.47	-	-	1.39
Rated Torque (speed) ①②④		T _{rtd}	Nm	1.73	1.64	1.29	-	2.97	2.40	1.27	4.25	3.94	0.45	5.29	4.72	1.83
			lb-in	15.3	14.5	11.4	-	26.3	21.2	11.2	37.6	34.9	4.0	46.8	41.8	16.2
Rated Speed		N _{rtd}	rpm	1500	3000	6000	-	2000	4500	6000	1500	3000	5500	1000	2500	5000
Rated Power (speed) ①②④		P _{rtd}	kW	0.27	0.52	0.81	-	0.62	1.13	0.80	0.67	1.24	0.26	0.55	1.24	0.96
			Hp	0.36	0.69	1.09	-	0.83	1.52	1.07	0.89	1.66	0.35	0.74	1.66	1.28
Rated Torque (speed) ①②④		T _{rtd}	Nm	1.61	1.26	-	3.02	2.60	0.82	-	3.89	0.12	-	4.83	1.96	-
			lb-in	14.2	11.2	-	26.7	23.0	7.3	-	34.4	1.1	-	42.7	17.3	-
Rated Speed		N _{rtd}	rpm	3000	6000	-	1500	3500	6000	-	2500	6000	-	2000	5000	-
Rated Power (speed) ①②④		P _{rtd}	kW	0.51	0.79	-	0.47	0.95	0.52	-	1.02	0.08	-	1.01	1.03	-
			Hp	0.68	1.06	-	0.64	1.28	0.69	-	1.37	0.10	-	1.36	1.38	-
Rated Torque (speed) ①②④		T _{rtd}	Nm	1.56	1.22	-	2.94	2.43	0.46	-	3.65	0.82	-	4.56	1.27	-
			lb-in	13.8	10.8	-	26.0	21.5	4.1	-	32.3	7.3	-	40.4	11.2	-
Rated Speed		N _{rtd}	rpm	3500	6000	-	2000	4000	6000	-	3000	5500	-	2500	5000	-
Rated Power (speed) ①②④		P _{rtd}	kW	0.57	0.77	-	0.62	1.02	0.29	-	1.15	0.47	-	1.19	0.66	-
			Hp	0.77	1.03	-	0.83	1.36	0.39	-	1.54	0.63	-	1.60	0.89	-

See following page for notes.

AKMH4x Performance Data – Up to 640 Vdc (Continued)*

Parameters	Tol	Sym	Units	AKMH41			AKMH42				AKMH43			AKMH44		
				C	E	H	C	E	H	J	E	H	L	E	H	K
Torque Constant ①	±10%	K _t	Nm/A _{rms}	1.25	0.66	0.35	2.28	1.21	0.57	0.42	1.71	0.89	0.41	2.04	1.05	0.59
			lb-in/A _{rms}	11.1	5.9	3.1	20.2	10.7	5.0	3.8	15.1	7.8	3.7	18.0	9.3	5.2
Back EMF Constant ②	±10%	K _e	V _{rms} /krpm	86.3	45.6	23.7	154.3	80.9	38.3	27.5	110.8	57.4	27.5	131.6	68.0	37.8
Motor Constant	Nom	K _m	N-m/√W	0.22	0.22	0.23	0.36	0.35	0.36	0.38	0.47	0.50	0.44	0.57	0.57	0.57
			lb-in/√W	1.96	1.95	2.03	3.14	3.12	3.19	3.38	4.20	4.40	3.92	5.00	5.06	5.06
Resistance (line-line) ③	±10%	R _m	ohm	21.3	6.04	1.58	27.5	7.8	1.7	0.8	8.6	2.1	0.6	8.7	2.3	0.7
Inductance (line-line)		L	mH	66.1	18.4	5.00	97.4	26.9	6.0	3.1	32.6	8.8	2.0	34.0	9.1	2.8
Inertia (includes Resolver feedback) ④	±10%	J _m	kg-cm ²	0.81			1.45			2.09			2.73			
			lb-in-s ²	7.2E-04			1.3E-03			1.8E-03			2.4E-03			
Optional Brake Inertia (additional)	±10%	J _m	kg-cm ²	0.068			0.068			0.068			0.068			
			lb-in-s ²	6.0E-05			6.0E-05			6.0E-05			6.0E-05			
Weight ⑤⑥		W	kg	6.1			7.4			8.8			10.2			
			lb	13.4			16.3			19.4			22.5			
Static Friction ⑦		T _f	Nm	0.057			0.068			0.080			0.091			
			lb-in	0.50			0.60			0.71			0.81			
Viscous Damping ⑧		K _{dv}	Nm/krpm	0.009			0.014			0.019			0.024			
			lb-in/krpm	0.080			0.124			0.168			0.212			
Thermal Time Constant		TCT	minutes	40			51			63			74			
Thermal Resistance		R _{thw-a}	°C/W	1.05			0.87			0.80			0.73			
Pole Pairs				5			5			5			5			
Heat Sink Size				10"x10"x0.25" Aluminum Plate			10"x10"x0.25" Aluminum Plate			10"x10"x0.25" Aluminum Plate			10"x10"x0.25" Aluminum Plate			

Notes:

- ① Motor winding temperature rise, ΔT=100°C, at 25°C ambient.
- ② All data referenced to sinusoidal commutation.
- ③ Add holding brake if applicable for total inertia.
- ④ Motor with 115°C rated feedback and standard heat sink.
- ⑤ May be limited at some values of V_{bus}.
- ⑥ Measured at 25°C.
- ⑦ Resistance is measured with 1 meter of cable.
- ⑧ Face mount adds 0.8 kg [1.76 lbs]
- ⑨ Brake options adds 1.14 kg [2.51 lbs] and reduces continuous torque by 9% and rated torque by 30%
- ⑩ Derived from Cont. Current (Stall, ΔT wdg. = 100°C) of equivalent AKM

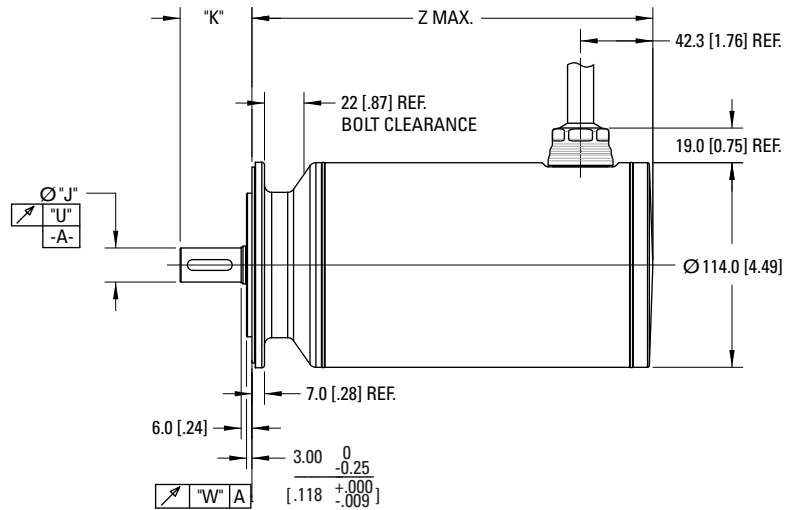
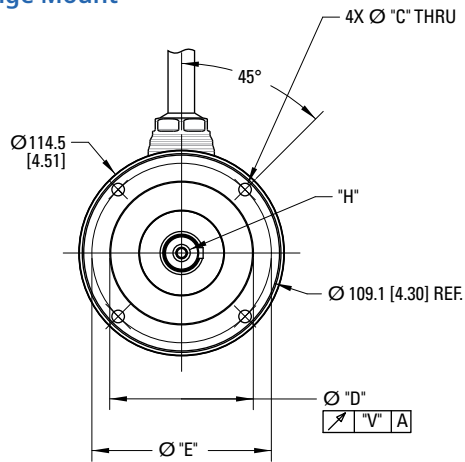
* Motor performance across the entire speed range varies depending on selection of feedback device and holding brake. Use the Performance Curve Generator on the Kollmorgen AKMH Product Page (<http://www.kollmorgen.com/en-us/products/motors/servo/akmh-series/stainless-steel-akmh-series/>) to generate specific rated speed/torque curves for a given configuration.

*Complete AKMH series model nomenclature can be found on page 44.

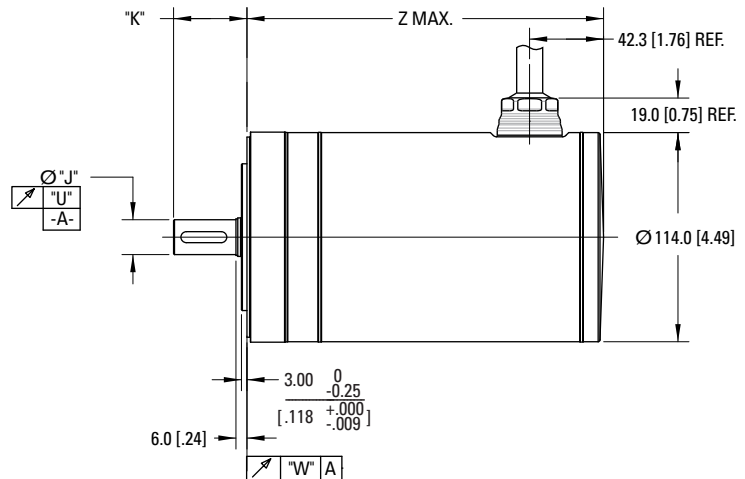
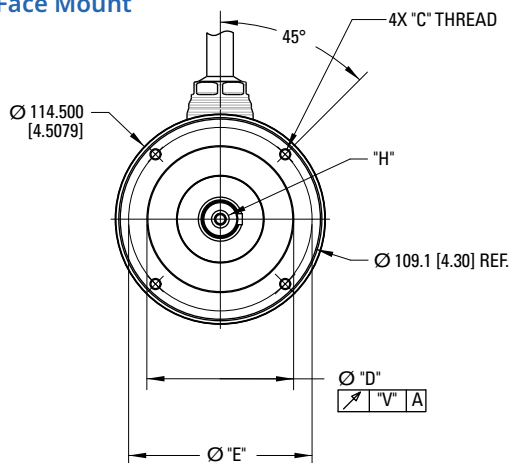
AKMH4x Outline Drawings

AKMH4x Frame

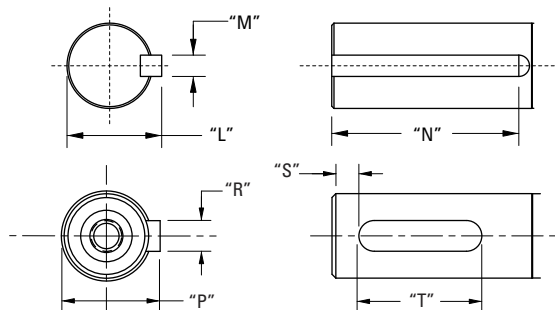
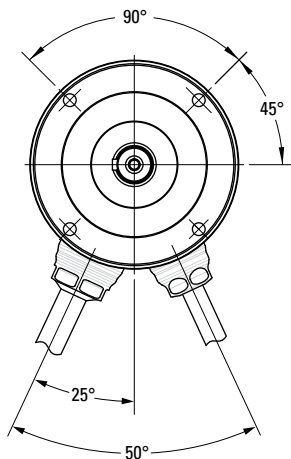
Flange Mount



Face Mount



Dual Cable Option for Third Party Drives



Dimensions are in mm [inches].

Outline drawings and dimensions for mounted connector options A- and D- can be found on page 28.

AKMH4x Dimension Data

AKMH 4 2 C - AN K N CA 1 K*
 Motor Series Frame Size Stack Length Winding Mount/Shaft Connection Brake Feedback Cable Length Seal

AKMH4x Dimension Data

Flange/Shaft Configuration										
Code	Mount Type	Standard	Shaft	Hole Diameter "C"	Pilot Dia. "D"	Bolt Circle dia. "E"	"H"	Shaft Dia. "J"	Shaft Length "K"	Shaft Dia. w/ Key "L"
AC	Flange	IEC 100	Closed Keyway	7 [0.276]	80 [3.1496]	100 [3.937]	D M6 DIN 332	19 [0.7480]	40.0 [1.57]	-
AN	Flange	IEC 100	Smooth	7 [0.276]	80 [3.1496]	100 [3.937]	D M6 DIN 332	19 [0.7480]	40.0 [1.57]	-
BK	Flange	NEMA 42	Open Keyway	6.91 [0.272]	73.025 [2.8750]	98.43 [3.875]	-	15.875 [0.6250]	52.40 [2.06]	17.92 [0.706]
BN	Flange	NEMA 42	Smooth	6.91 [0.272]	73.025 [2.8750]	98.43 [3.875]	-	15.875 [0.6250]	52.40 [2.06]	-
CC	Face	IEC 100	Closed Keyway	M6 x 1 x 12 [0.472]	80 [3.1496]	100 [3.937]	D M6 DIN 332	19 [0.7480]	40.0 [1.57]	-
CN	Face	IEC 100	Smooth	M6 x 1 x 12 [0.472]	80 [3.1496]	100 [3.937]	D M6 DIN 332	19 [0.7480]	40.0 [1.57]	-
DK	Face	NEMA 42	Open Keyway	UNC 1/4 - 20 x 12.3 [0.484]	73.025 [2.8750]	98.43 [3.875]	-	15.875 [0.6250]	52.40 [2.06]	17.92 [0.706]
DN	Face	NEMA 42	Smooth	UNC 1/4 - 20 x 12.3 [0.484]	73.025 [2.8750]	98.43 [3.875]	-	15.875 [0.6250]	52.40 [2.06]	-
EK	Face	NEMA 42	Open Keyway	M6 x 1 x 12 [0.472]	80 [3.1496]	100 [3.937]	D M5 DIN 332	16 [0.6299]	40.0 [1.57]	18.0 [0.709]
EN	Face	NEMA 42	Smooth	M6 x 1 x 12 [0.472]	80 [3.1496]	100 [3.937]	D M5 DIN 332	16 [0.6299]	40.0 [1.57]	-
LK	Face	NEMA 56	Open Keyway	UNC 3/8 - 16 x 19.1 [0.75]	114.30 [4.5000]	149.23 [5.875]	-	15.862 [0.6245]	50.8 [2.00]	17.89 [0.704]

Code	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]	25 [0.984]	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]	0.080 [0.0031]
BN	-	-	-	-	-	-	0.051 [0.0020]	0.10 [0.004]	0.080 [0.0031]
CC	-	-	21.5 [0.846]	6 [0.236]	4.00 [1.57]	25 [0.984]	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	4.762 [0.1875]	34.93 [1.375]	-	-	-	-	0.051 [0.0020]	0.10 [0.004]	0.080 [0.0031]
DN	-	-	-	-	-	-	0.051 [0.0020]	0.10 [0.004]	0.080 [0.0031]
EK	5.00 [0.197]	30.00 [1.181]	-	-	-	-	0.040 [0.0015]	0.080 [0.0031]	0.080 [0.0031]
EN	-	-	-	-	-	-	0.040 [0.0015]	0.080 [0.0031]	0.080 [0.0031]
LK	4.762 [0.1875]	34.93 [1.375]	-	-	-	-	0.051 [0.0020]	0.10 [0.004]	0.080 [0.0031]

Z MAX				
MODEL	SFD/Resolver/SFD3/Comcoder W/O Brake	SFD/Resolver/SFD3/Comcoder W/ Brake	Hiperface/EnDat/Hiperface DSL W/O Brake	Hiperface/EnDat/Hiperface DSL W/ Brake
AKMH41	166.7 [6.56]	201.0 [7.91]	182.7 [7.19]	217.0 [8.54]
AKMH42	195.7 [7.70]	230.0 [9.06]	211.7 [8.33]	246.0 [9.69]
AKMH43	224.7 [8.85]	259.0 [10.20]	240.7 [9.48]	275.0 [10.83]
AKMH44	253.7 [9.99]	288.0 [11.34]	269.7 [10.62]	304.0 [11.97]

Note 1: Dimensions are in mm [inches].

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

*Complete AKMH series model nomenclature can be found on page 44.

AKMH5x Performance Data

AKMH5x Performance Data – Up to 640 Vdc*

Parameters	Tol	Sym	Units	AKMH51			AKMH52				AKMH53			AKMH54		
				E	H	L	E	H	L	M	H	L	P	H	L	P
Max Rated DC Bus Voltage	Max	Vbus	Vdc	640	640	320	640	640	640	320	640	640	320	640	560	320
Continuous Torque (Stall) for ΔT winding = 100°C ①②④	Nom	T _{CS}	Nm	3.92	3.8	3.89	6.69	6.72	6.66	6.7	9.45	8.99	8.3	13.21	12.1	11.83
			lb-in	34.7	33.6	34.4	59.2	59.5	58.9	59.3	83.6	79.6	73.5	116.9	107.1	104.7
Continuous Current (Stall) for ΔT winding = 100°C ①②④	Nom	I _{CS}	A _{RMS}	2.61	5.45	10.58	2.68	5.17	9.87	11.15	5.92	10.09	15.66	5.30	11.29	16.58
Continuous Torque (Stall) for ΔT winding = 60°C ②④	Nom	T _{CS}	Nm	3.14	3.04	3.11	5.35	5.38	5.33	5.36	7.56	7.19	6.64	10.57	9.68	9.46
			lb-in	27.8	26.9	27.5	47.4	47.6	47.2	47.4	66.9	63.6	58.8	93.5	85.7	83.8
Max Mechanical Speed ⑤	Nom	N _{max}	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000
Peak Torque ①②④	Nom	T _p	Nm	10.09	10.17	10.33	18.79	19.01	19.30	19.20	26.74	26.95	26.56	35.62	35.65	36.08
			lb-in	89.3	90.0	91.4	166.3	168.2	170.8	169.9	236.6	238.5	235.1	315.2	315.5	319.3
Peak Current ⑩	Nom	I _p	A _{RMS}	8.25	18.00	35.70	8.97	17.70	34.80	39.30	19.80	35.40	57.30	16.50	37.50	58.80
Rated Torque (speed) ①②④		T _{rtd}	Nm	-	-	3.54	-	-	-	-	-	-	-	-	-	-
			lb-in	-	-	31.3	-	-	-	-	-	-	-	-	-	-
Rated Speed		N _{rtd}	rpm	-	-	3000	-	-	-	-	-	-	-	-	-	-
Rated Power (speed) ①②④		P _{rtd}	kW	-	-	1.11	-	-	-	-	-	-	-	-	-	-
			Hp	-	-	1.49	-	-	-	-	-	-	-	-	-	-
Rated Torque (speed) ①②④		T _{rtd}	Nm	3.83	3.44	2.16	-	6.54	5.30	3.76	-	6.83	3.66	12.88	9.74	7.19
			lb-in	33.9	30.4	19.1	-	57.9	46.9	33.3	-	60.4	32.4	114.0	86.2	63.6
Rated Speed		N _{rtd}	rpm	1500	3000	5500	-	1500	3500	4500	-	3000	3500	1000	2500	3000
Rated Power (speed) ①②④		P _{rtd}	kW	0.60	1.08	1.24	-	1.03	1.94	1.77	-	2.15	1.34	1.35	2.55	2.26
			Hp	0.81	1.45	1.67	-	1.38	2.60	2.38	-	2.88	1.80	1.81	3.42	3.03
Rated Torque (speed) ①②④		T _{rtd}	Nm	3.58	2.20	-	6.41	5.22	2.46	-	6.95	3.62	-	11.45	6.76	-
			lb-in	31.7	19.5	-	56.7	46.2	21.8	-	61.5	32.0	-	101.3	59.8	-
Rated Speed		N _{rtd}	rpm	2500	5500	-	1500	3500	4500	-	3000	3500	-	2000	3000	-
Rated Power (speed) ①②④		P _{rtd}	kW	0.94	1.27	-	1.01	1.91	1.16	-	2.18	1.33	-	2.40	2.12	-
			Hp	1.26	1.70	-	1.35	2.56	1.55	-	2.93	1.78	-	3.21	2.85	-
Rated Torque (speed) ①②④		T _{rtd}	Nm	3.44	2.05	-	6.22	4.54	1.27	-	5.99	2.29	-	11.26	-	-
			lb-in	30.4	18.1	-	55.0	40.2	11.2	-	53.0	20.3	-	99.7	-	-
Rated Speed		N _{rtd}	rpm	3000	5500	-	2000	4000	4500	-	3500	3500	-	2000	-	-
Rated Power (speed) ①②④		P _{rtd}	kW	1.08	1.18	-	1.30	1.90	0.60	-	2.20	0.84	-	2.36	-	-
			Hp	1.45	1.58	-	1.75	2.55	0.80	-	2.94	1.13	-	3.16	-	-

See following page for notes.

AKMH5x Performance Data – Up to 640 Vdc (Continued)*

Parameters	Tol	Sym	Units	AKMH51			AKMH52				AKMH53			AKMH54		
				E	H	L	E	H	L	M	H	L	P	H	L	P
Torque Constant ①	±10%	K _t	Nm/A _{rms}	1.53	0.71	0.37	2.53	1.32	0.68	0.61	1.62	0.90	0.54	2.52	1.08	0.72
			lb-in/A _{rms}	13.5	6.3	3.3	22.4	11.7	6.1	5.4	14.3	8.0	4.8	22.3	9.6	6.4
Back EMF Constant ⑥	±10%	K _e	V _{rms} /krpm	110.0	51.3	26.6	179.4	92.7	48.3	42.4	112.0	63.6	38.4	165.6	72.9	47.3
Motor Constant ①	Nom	K _m	N-m/√W	0.42	0.41	0.42	0.69	0.70	0.70	0.70	0.91	0.87	0.80	1.15	1.07	1.04
			lb-in/√W	3.68	3.64	3.68	6.11	6.19	6.23	6.17	8.02	7.74	7.09	10.14	9.43	9.22
Resistance (line-line) ⑥	±10%	R _m	ohm	9.0	2.0	0.5	9.0	2.4	0.6	0.5	2.1	0.7	0.3	3.2	0.7	0.3
Inductance (line-line)		L	mH	36.6	7.9	2.1	44.7	11.9	3.2	2.5	11.4	3.6	1.3	18.3	3.6	1.5
Inertia (includes Resolver feedback) ③	±10%	J _m	kg-cm ²	3.42			6.22				9.12			11.90		
			lb-in-s ²	3.0E-03			5.5E-03				8.1E-03			1.1E-02		
Optional Brake Inertia (additional)	±10%	J _m	kg-cm ²	0.173			0.173				0.173			0.173		
			lb-in-s ²	1.5E-04			1.5E-04				1.5E-04			1.5E-04		
Weight ⑧⑨		W	kg	8.9			11.1				13.4			15.7		
			lb	19.6			24.5				29.5			34.6		
Static Friction ①		T _f	Nm	0.073			0.096				0.119			0.142		
			lb-in	0.65			0.85				1.05			1.26		
Viscous Damping ①		K _{dv}	Nm/krpm	0.014			0.023				0.033			0.042		
			lb-in/krpm	0.124			0.204				0.292			0.372		
Thermal Time Constant		TCT	minutes	46			58				69			80		
Thermal Resistance		R _{thw-a}	°C/W	0.77			0.73				0.62			0.51		
Pole Pairs				5			5				5			5		
Heat Sink Size				12"x12"x0.5" Aluminum Plate			12"x12"x0.5" Aluminum Plate				12"x12"x0.5" Aluminum Plate			12"x12"x0.5" Aluminum Plate		

Notes:

- ① Motor winding temperature rise, ΔT=100°C, at 25°C ambient.
- ② All data referenced to sinusoidal commutation.
- ③ Add holding brake if applicable for total inertia.
- ④ Motor with 115°C rated feedback and standard heat sink.
- ⑤ May be limited at some values of V_{bus}.
- ⑥ Measured at 25°C.
- ⑦ Resistance is measured with 1 meter of cable.
- ⑧ Face mount adds 1.5 kg [3.31 lbs]
- ⑨ Brake options adds 1.8 kg [3.97 lbs] and reduces continuous torque by 9% and rated torque by 45%
- ⑩ Derived from Cont. Current (Stall, ΔT wdg. = 100°C) of equivalent AKM

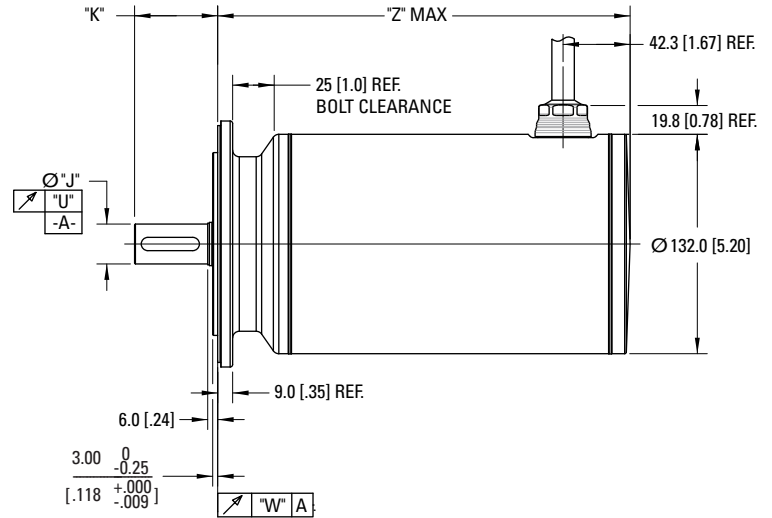
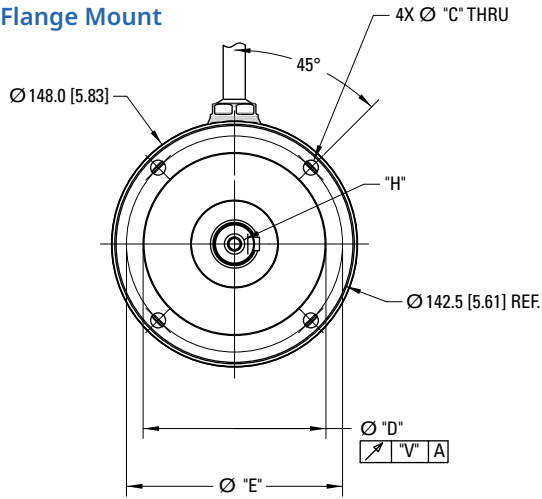
* Motor performance across the entire speed range varies depending on selection of feedback device and holding brake. Use the Performance Curve Generator on the Kollmorgen AKMH Product Page (<http://www.kollmorgen.com/en-us/products/motors/servo/akmh-series/stainless-steel-akmh-series/>) to generate specific rated speed/torque curves for a given configuration.

*Complete AKMH series model nomenclature can be found on page 44.

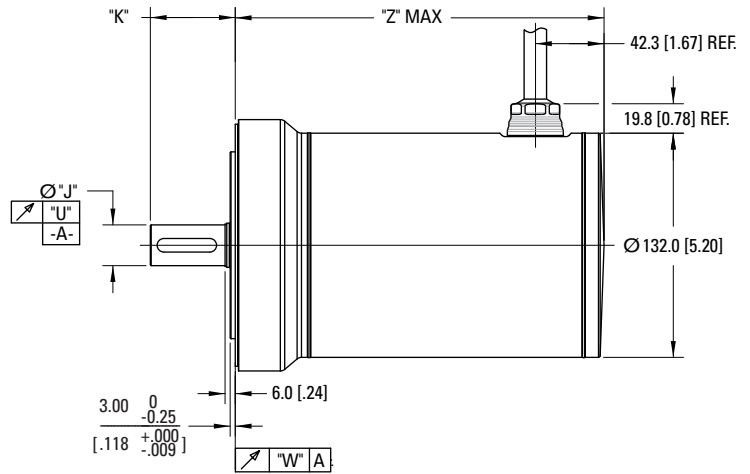
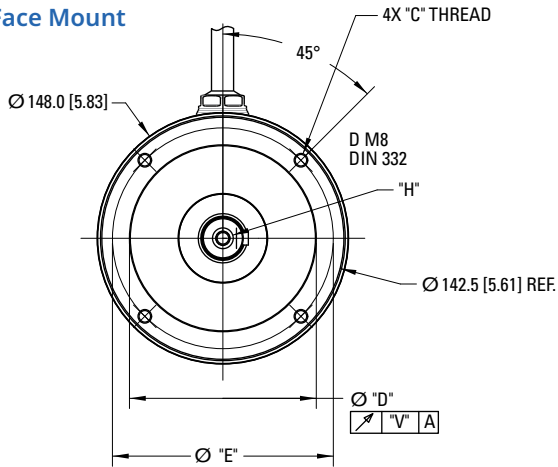
AKMH5x Outline Drawings

AKMH5x Frame

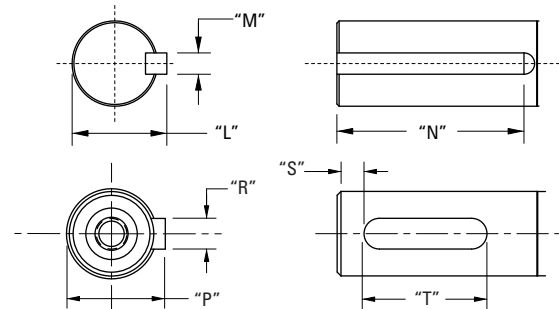
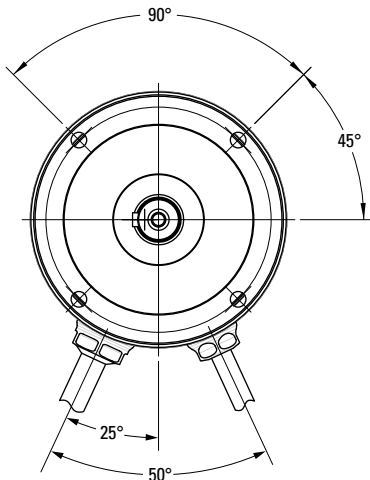
Flange Mount



Face Mount



Dual Cable Option for Third Party Drives



Dimensions are in mm [inches].

Outline drawings and dimensions for mounted connector options A- and D- can be found on page 28.

AKMH5x Dimension Data

AKMH 5 2 E - AN K N CA 1 K*

Motor Series Frame Size Stack Length Winding Mount/Shaft Connection Brake Feedback Cable Length Seal

AKMH5x Dimension Data

Flange/Shaft Configuration										
Code	Mount Type	Standard	Shaft	Hole Diameter "C"	Pilot Dia. "D"	Bolt Circle Dia. "E"	"H"	Shaft Dia. "J"	Shaft Length "K"	Shaft Dia. w/ Key "L"
AC	Flange	IEC 130	Closed Keyway	9 [0.354]	110 [4.3307]	130 [5.118]	D M8 DIN 332	24 [0.9449]	50.0 [1.97]	-
AN	Flange	IEC 130	Smooth	9 [0.354]	110 [4.3307]	130 [5.118]	D M8 DIN 332	24 [0.9449]	50.0 [1.97]	-
BK	Flange	NEMA 42	Open Keyway	10.08 [0.397]	55.560 [2.1874]	125.73 [4.950]	-	19.05 [0.7500]	57.15 [2.250]	21.15 [0.833]
BN	Flange	NEMA 42	Smooth	10.08 [0.397]	55.560 [2.1874]	125.73 [4.950]	-	19.05 [0.7500]	57.15 [2.250]	-
CC	Face	IEC 130	Closed Keyway	M8 x 1.25 x 16.8 [0.66]	110 [4.3307]	130 [5.118]	D M8 DIN 332	24 [0.9449]	50.0 [1.97]	-
CN	Face	IEC 130	Smooth	M8 x 1.25 x 16.8 [0.66]	110 [4.3307]	130 [5.118]	D M8 DIN 332	24 [0.9449]	50.0 [1.97]	-
DK	Face	NEMA 42	Open Keyway	UNC 3/8 - 16 x 19.05 [0.750]	55.563 [2.1874]	125.73 [4.950]	-	19.05 [0.7500]	57.15 [2.250]	21.15 [0.833]
DN	Face	NEMA 42	Smooth	UNC 3/8 - 16 x 19.05 [0.750]	55.563 [2.1874]	125.73 [4.950]	-	19.05 [0.7500]	57.15 [2.250]	-
EK	Face	NEMA 42	Open Keyway	M8 x 1.25 x 16.8 [0.66]	110 [4.3307]	130 [5.118]	D M8 DIN 332	24.00 [0.9449]	50.0 [1.97]	27.00 [1.063]
EN	Face	NEMA 42	Smooth	M8 x 1.25 x 16.8 [0.66]	110 [4.3307]	130 [5.118]	D M8 DIN 332	24.00 [0.9449]	50.0 [1.97]	-

Code	Key Width "M"	Keyway Length "N"	Shaft Dia. w/ Key "P"	Key Width "R"	"S"	Key Length "T"	"U"	"V"	"W"
AC	-	-	27 [1.063]	8 [0.3150]	4.00 [0.157]	35 [1.378]	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	4.762 [0.1875]	38.1 [1.500]	-	-	-	-	0.051 [0.0020]	0.100 [0.0039]	0.100 [0.0039]
BN	-	-	-	-	-	-	0.051 [0.0020]	0.100 [0.0039]	0.100 [0.0039]
CC	-	-	27 [1.063]	8 [0.3150]	4.00 [0.157]	35 [1.378]	0.040 [0.0015]	0.100 [0.0039]	0.100 [0.0039]
CN	-	-	-	-	-	-	0.040 [0.0015]	0.100 [0.0039]	0.100 [0.0039]
DK	4.762 [0.1875]	38.1 [1.500]	-	-	-	-	0.051 [0.0020]	0.100 [0.0039]	0.100 [0.0039]
DN	-	-	-	-	-	-	0.051 [0.0020]	0.100 [0.0039]	0.100 [0.0039]
EK	8.000 [0.3150]	36.00 [1.417]	-	-	-	-	0.040 [0.0015]	0.080 [0.0031]	0.080 [0.0031]
EN	-	-	-	-	-	-	0.040 [0.0015]	0.080 [0.0031]	0.080 [0.0031]

Z MAX				
MODEL	SFD/Resolver/SFD3/Comcoder W/O Brake	SFD/Resolver/SFD3/Comcoder W/ Brake	Hiperface/EnDat/Hiperface DSL W/O Brake	Hiperface/EnDat/Hiperface DSL W/ Brake
AKMH51	187.4 [7.38]	229.4 [9.03]	198.4 [7.81]	240.4 [9.46]
AKMH52	218.4 [8.60]	260.4 [10.25]	229.4 [9.03]	271.4 [10.69]
AKMH53	249.4 [9.82]	291.4 [11.47]	260.4 [10.25]	302.4 [11.91]
AKMH54	280.4 [11.04]	322.4 [12.69]	291.4 [11.47]	333.4 [13.13]

Note 1: Dimensions are in mm [inches].

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

*Complete AKMH series model nomenclature can be found on page 44.

AKMH6x Performance Data

AKMH6x Performance Data – Up to 640 Vdc*

Parameters	Tol	Sym	Units	AKMH62			AKMH63			AKMH64		AKMH65		
				H	L	M	H	L	M	K	L	K	L	M
Max Rated DC Bus Voltage	Max	V _{bus}	Vdc	640	640	640	640	640	640	640	640	640	640	640
Continuous Torque (Stall) for ΔT winding = 100°C ①②④	Nom	T _{CS}	Nm	10.6	10.1	10.3	14.6	14.1	14.2	18.0	17.9	21.4	21.5	21.1
			lb-in	93.8	89.4	91.2	129.2	124.8	125.7	159.3	158.4	189.4	190.3	186.7
Continuous Current (Stall) for ΔT winding = 100°C ①②④	Nom	I _{CS}	A _{rms}	5.32	11.05	12.53	5.42	10.23	12.59	8.74	11.87	9.33	11.44	12.57
Continuous Torque (Stall) for ΔT winding = 60°C ②④	Nom	T _{CS}	Nm	8.48	8.08	8.24	11.68	11.28	11.36	14.40	14.32	17.12	17.20	16.88
			lb-in	75.0	71.5	72.9	103.4	99.8	100.5	127.4	126.7	151.5	152.2	149.4
Max Mechanical Speed ⑤	Nom	N _{max}	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000
Peak Torque ①②④	Nom	T _p	Nm	32.24	33.03	33.13	44.73	45.29	46.02	55.79	56.46	65.87	66.72	66.63
			lb-in	285.3	292.3	293.2	395.9	400.8	407.3	493.7	499.7	582.9	590.5	589.7
Peak Current ⑩	Nom	I _p	A _{rms}	16.20	36.00	40.20	16.80	33.30	41.40	27.60	38.40	29.40	36.60	40.80
Rated Torque (speed) ①②④		T _{rtd}	Nm	-	-	-	-	-	-	-	-	-	-	-
			lb-in	-	-	-	-	-	-	-	-	-	-	-
Rated Speed		N _{rtd}	rpm	-	-	-	-	-	-	-	-	-	-	-
Rated Power (speed) ①②④		P _{rtd}	kW	-	-	-	-	-	-	-	-	-	-	-
			Hp	-	-	-	-	-	-	-	-	-	-	-
Rated Torque (speed) ①②④		T _{rtd}	Nm	10.14	8.33	7.82	-	12.47	12.47	17.34	16.57	20.65	20.01	19.64
			lb-in	89.7	73.7	69.2	-	110.4	110.4	153.5	146.6	182.8	177.1	173.8
Rated Speed		N _{rtd}	rpm	1000	2500	3000	-	2000	2000	1000	1500	1000	1500	1500
Rated Power (speed) ①②④		P _{rtd}	kW	1.06	2.18	2.46	-	2.61	2.61	1.82	2.60	2.16	3.14	3.09
			Hp	1.42	2.92	3.29	-	3.50	3.50	2.43	3.49	2.90	4.21	4.14
Rated Torque (speed) ①②④		T _{rtd}	Nm	9.15	3.77	3.22	13.30	9.81	4.76	15.40	12.19	18.40	16.97	14.63
			lb-in	81.0	33.4	28.5	117.7	86.8	42.1	136.3	107.9	162.8	150.2	129.5
Rated Speed		N _{rtd}	rpm	2000	4000	4000	1500	3000	4000	2000	3000	2000	2500	3000
Rated Power (speed) ①②④		P _{rtd}	kW	1.92	1.58	1.35	2.09	3.08	1.99	3.23	3.83	3.85	4.44	4.60
			Hp	2.57	2.12	1.81	2.80	4.13	2.67	4.32	5.13	5.17	5.96	6.16
Rated Torque (speed) ①②④		T _{rtd}	Nm	9.07	2.94	2.07	12.61	7.64	3.04	14.19	9.29	17.00	14.68	13.78
			lb-in	80.3	26.0	18.3	111.6	67.6	26.9	125.6	82.2	150.5	129.9	122.0
Rated Speed		N _{rtd}	rpm	2000	4000	4000	2000	3500	4000	2500	3500	2500	3000	3000
Rated Power (speed) ①②④		P _{rtd}	kW	1.90	1.23	0.87	2.64	2.80	1.27	3.71	3.40	4.45	4.61	4.33
			Hp	2.55	1.65	1.16	3.54	3.75	1.71	4.98	4.56	5.97	6.18	5.80

See following page for notes.

AKMH6x Performance Data – Up to 640 Vdc (Continued)*

Parameters	Tol	Sym	Units	AKMH62			AKMH63			AKMH64		AKMH65		
				H	L	M	H	L	M	K	L	K	L	M
Torque Constant ①	±10%	K _t	Nm/A _{rms}	2.03	0.93	0.84	2.73	1.40	1.15	2.09	1.53	2.32	1.90	1.70
			lb-in/A _{rms}	18.0	8.3	7.4	24.2	12.4	10.1	18.5	13.5	20.5	16.8	15.0
Back EMF Constant ②	±10%	K _e	V _{rms} /krpm	142.1	65.5	58.8	191.5	98.2	79.9	146.5	106.6	163.7	133.2	119.3
Motor Constant ①	Nom	K _m	N-m/√W	0.91	0.87	0.89	1.20	1.17	1.18	1.42	1.42	1.62	1.63	1.60
			lb-in/√W	8.05	7.73	7.89	10.64	10.32	10.43	12.61	12.58	14.32	14.40	14.17
Resistance (line-line) ⑥	±10%	R _m	ohm	3.3	0.8	0.6	3.5	1.0	0.6	1.4	0.8	1.4	0.9	0.8
Inductance (line-line)		L	mH	25.4	5.4	4.4	28.1	7.4	4.9	11.8	6.2	11.4	7.6	6.1
Inertia (includes Resolver feedback) ③	±10%	J _m	kg-cm ²	16.90			24.20			31.60		40.00		
			lb-in-s ²	1.5E-02			2.1E-02			2.8E-02		3.5E-02		
Optional Brake Inertia (additional)	±10%	J _m	kg-cm ²	0.610			0.610			0.610		0.610		
			lb-in-s ²	5.4E-04			5.4E-04			5.4E-04		5.4E-04		
Weight ⑧⑨		W	kg	19.6			23.1			26.7		30.2		
			lb	43.2			50.9			58.9		66.6		
Static Friction ①		T _f	Nm	0.204			0.218			0.232		0.246		
			lb-in	1.81			1.93			2.05		2.18		
Viscous Damping ①		K _{dv}	Nm/krpm	0.037			0.046			0.054		0.063		
			lb-in/krpm	0.327			0.407			0.478		0.558		
Thermal Time Constant		TCT	minutes	58			62			75		88		
Thermal Resistance		R _{thw-a}	°C/W	0.50			0.46			0.43		0.39		
Pole Pairs				5			5			5		5		
Heat Sink Size				18"x18"x0.5" Aluminum Plate			18"x18"x0.5" Aluminum Plate			18"x18"x0.5" Aluminum Plate		18"x18"x0.5" Aluminum Plate		

Notes:

- ① Motor winding temperature rise, ΔT=100°C, at 25°C ambient.
- ② All data referenced to sinusoidal commutation.
- ③ Add holding brake if applicable for total inertia.
- ④ Motor with 115°C rated feedback and standard heat sink.
- ⑤ May be limited at some values of V_{bus}.
- ⑥ Measured at 25°C.
- ⑦ Resistance is measured with 1 meter of cable.
- ⑧ Face mount adds 2.5 kg [5.51 lbs]
- ⑨ Brake options adds 3.4 kg [7.5 lbs] and reduces continuous torque by 6% and rated torque by 37%
- ⑩ Derived from Cont. Current (Stall, ΔT wdg. = 100°C) of equivalent AKM

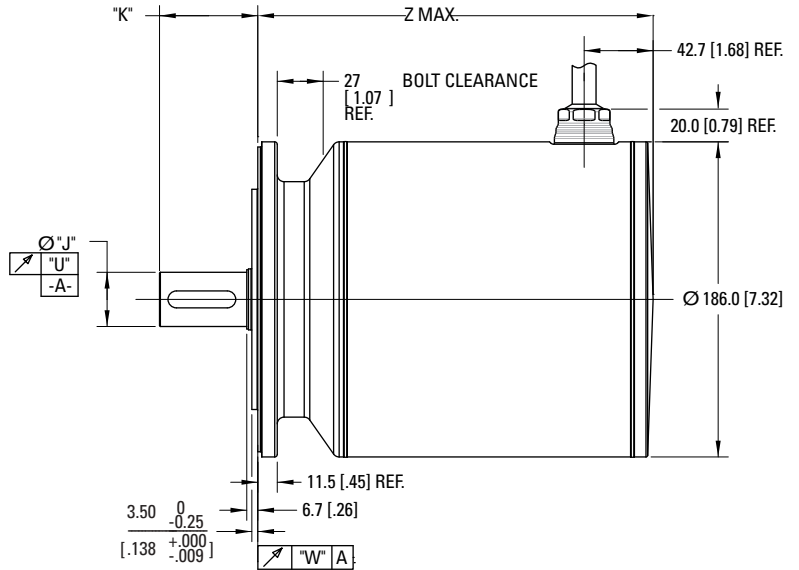
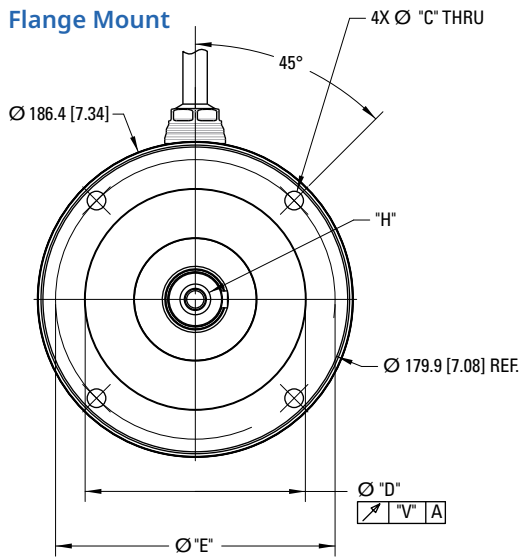
* Motor performance across the entire speed range varies depending on selection of feedback device and holding brake. Use the Performance Curve Generator on the Kollmorgen AKMH Product Page (<http://www.kollmorgen.com/en-us/products/motors/servo/akmh-series/stainless-steel-akmh-series/>) to generate specific rated speed/torque curves for a given configuration.

*Complete AKMH series model nomenclature can be found on page 44.

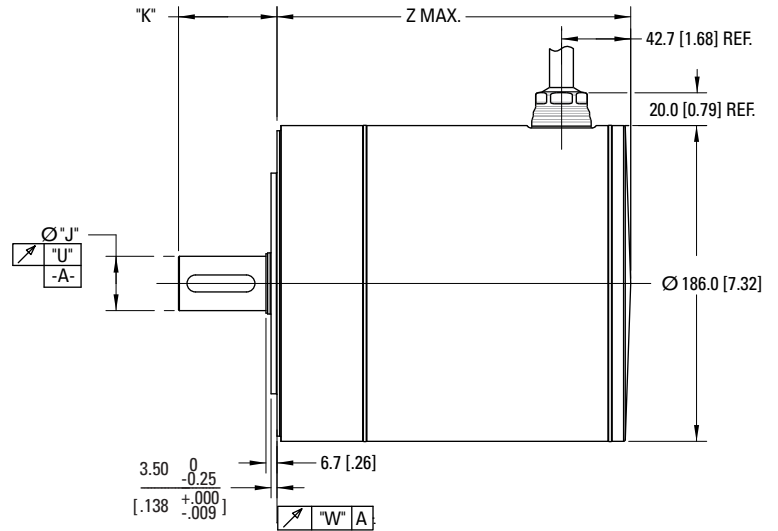
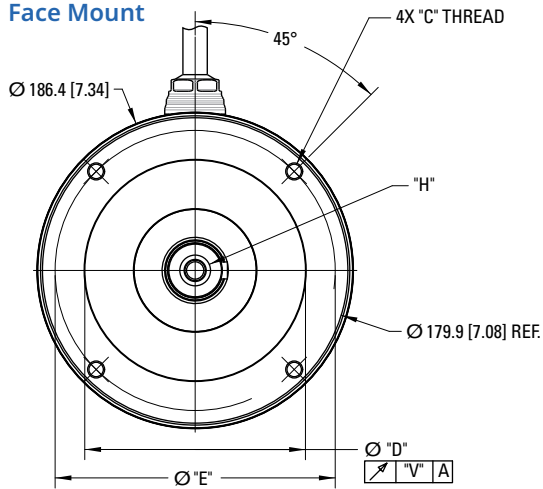
AKMH6x Outline Drawings

AKMH6x Frame

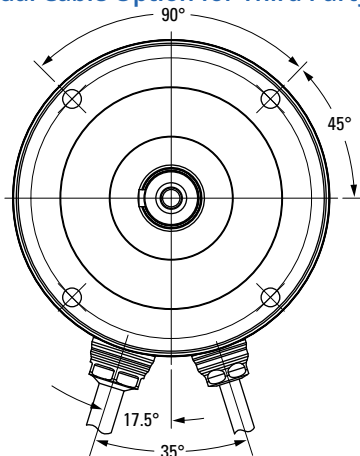
Flange Mount



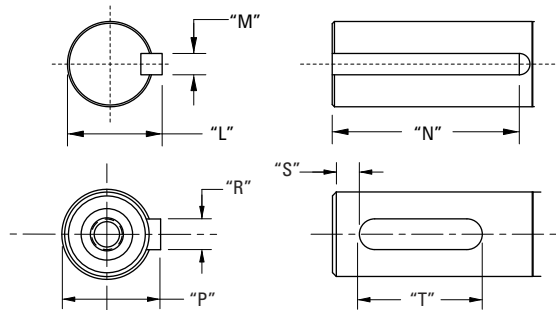
Face Mount



Dual Cable Option for Third Party Drives



Shaft-keyway dimensions



Dimensions are in mm [inches].

Outline drawings and dimensions for mounted connector options A- and D- can be found on page 28.

AKMH6x Dimension Data

AKMH 6 2 H - AN K N CA 1 K*

Motor Series Frame Size Stack Length Winding Mount/Shaft Connection Brake Feedback Cable Length Seal

AKMH6x Dimension Data

Flange/Shaft Configuration										
Mount Code	Mount Type	Standard	Shaft	Hole Diameter "C"	Pilot Dia. "D"	Bolt Circle Dia. "E"	"H"	Shaft Dia. "J"	Shaft Length "K"	Shaft Dia. w/ Key "L"
AC	Flange	IEC 165	Closed Keyway	11.00 [0.433]	130 [5.1181]	165.00 [6.496]	D M12 DIN 332	32 [1.2598]	58 [2.28]	-
AN	Flange	IEC 165	Smooth	11.00 [0.433]	130 [5.1181]	165.00 [6.496]	D M12 DIN 332	32 [1.2598]	58 [2.28]	-
CC	Face	IEC 165	Closed Keyway	M10 x 1.5 x 20.4 [0.80]	130 [5.1181]	165.00 [6.496]	D M12 DIN 332	32 [1.2598]	58 [2.28]	-
CN	Face	IEC 165	Smooth	M10 x 1.5 x 20.4 [0.80]	130 [5.1181]	165.00 [6.496]	D M12 DIN 332	32 [1.2598]	58 [2.28]	-
DK	Face	NEMA 56	Open Keyway	UNC 3/8 - 16 x 19.05 [0.750]	114.3 [4.5000]	149.23 [5.875]	-	28.580 [1.1250]	69.9 [2.75]	31.39 [1.236]
DN	Face	NEMA 56	Smooth	UNC 3/8 - 16 x 19.05 [0.750]	114.3 [4.5000]	149.23 [5.875]	-	28.580 [1.1250]	69.9 [2.75]	-
EK	Face	NEMA 56	Open Keyway	M10 x 1.5 x 20.4 [0.803]	130 [5.1181]	165.00 [6.496]	D M10 DIN 332	28.000 [1.1024]	60.0 [2.36]	31.000 [1.2205]
EN	Face	NEMA 56	Smooth	M10 x 1.5 x 20.4 [0.803]	130 [5.1181]	165.00 [6.496]	D M10 DIN 332	28.000 [1.1024]	60.0 [2.36]	-

Mount Code	Key Width "M"	Keyway 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]	40 [1.575]	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]
CC	-	-	35 [1.378]	10 [0.3937]	5.00 [0.197]	40 [1.575]	0.050 [0.0019]	0.100 [0.0039]	0.100 [0.0039]
CN	-	-	-	-	-	-	0.050 [0.0019]	0.100 [0.0039]	0.100 [0.0039]
DK	6.35 [0.2500]	38.10 [1.500]	-	-	-	-	0.050 [0.0019]	0.100 [0.0039]	0.100 [0.0039]
DN	-	-	-	-	-	-	0.050 [0.0019]	0.100 [0.0039]	0.100 [0.0039]
EK	8.00 [0.315]	45.00 [1.772]	-	-	-	-	0.050 [0.0019]	0.100 [0.0039]	0.100 [0.0039]
EN	-	-	-	-	-	-	0.050 [0.0019]	0.100 [0.0039]	0.100 [0.0039]

Z MAX				
MODEL	SFD/Resolver/SFD3/Comcoder W/O Brake	SFD/Resolver/SFD3/Comcoder W/ Brake	Hiperface/EnDat/Hiperface DSL W/O Brake	Hiperface/EnDat/Hiperface DSL W/ Brake
AKMH62	209.9 [8.26]	265.5 [10.10]	220.9 [8.70]	267.5 [10.53]
AKMH63	234.9 [9.25]	281.5 [11.08]	245.9 [9.68]	292.5 [11.52]
AKMH64	259.9 [10.23]	306.5 [12.07]	270.9 [10.67]	317.5 [12.50]
AKMH65	284.9 [11.22]	331.5 [13.05]	295.9 [11.65]	342.5 [13.48]

Note 1: Dimensions are in mm [inches].

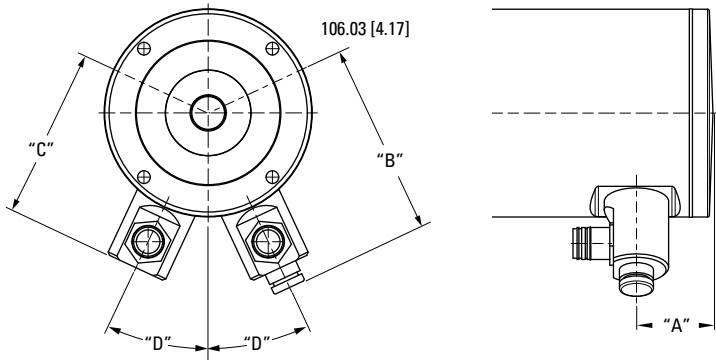
Note 2: Product designed in metric. English conversions provided for reference only.

*Complete AKMH series model nomenclature can be found on page 44.

Connector Options

AKMHxx Frame Mounted A-, D-, H-, P- Connector Dimensions

A- Connector

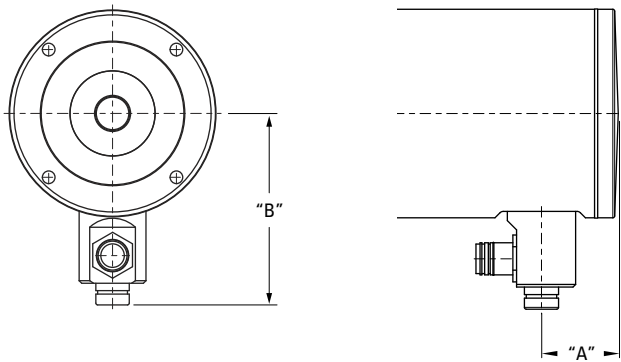


AKMHx	"A"	"B" Max.	"C" Max.	"D"
AKMH2	Contact Kollmorgen Customer Support for Co-Engineered Solutions			
AKMH3	Contact Kollmorgen Customer Support for Co-Engineered Solutions			
AKMH4	42.3 [1.67]	110.75 [4.36]	99.75 [3.93]	25 [0.98]
AKMH5	42.3 [1.67]	127.5 [5.02]	116.5 [4.59]	25 [0.98]
AKMH6	42.7 [1.68]	146.5 [5.77]	135.5 [5.33]	17.5 [0.69]



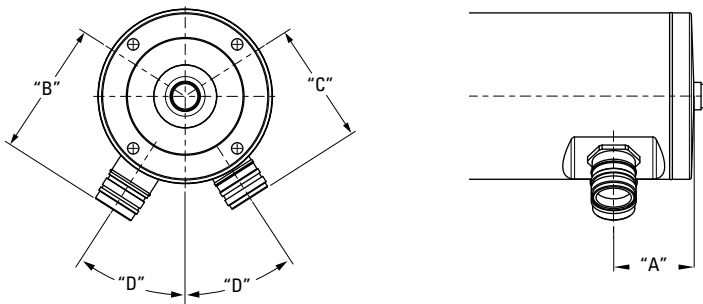
AKMH54H with D- Connector

D- Connector



AKMHx	"A"	"B" Max.
AKMH2	Contact Kollmorgen Customer Support	
AKMH3	41.1 [1.62]	98.0 [3.86]
AKMH4	42.3 [1.67]	110.75 [4.36]
AKMH5	42.3 [1.67]	127.5 [5.02]
AKMH6	42.7 [1.68]	146.5 [5.77]

H- Connector

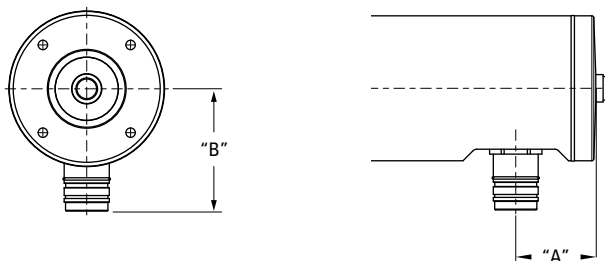


AKMHx	"A"	"B" Max.	"C" Max.	"D"
AKMH2	41.1 [1.62]	72.5 [2.85]	63.0 [2.48]	37.5 [1.48]
AKMH3	41.1 [1.62]	77.5 [3.05]	68.0 [2.68]	32.5 [1.28]
AKMH4	Contact Kollmorgen Customer Support for Co-Engineered Solutions			
AKMH5	Contact Kollmorgen Customer Support for Co-Engineered Solutions			
AKMH6	Contact Kollmorgen Customer Support for Co-Engineered Solutions			



Co-Engineered AKMH43H with P- Connector

P- Connector

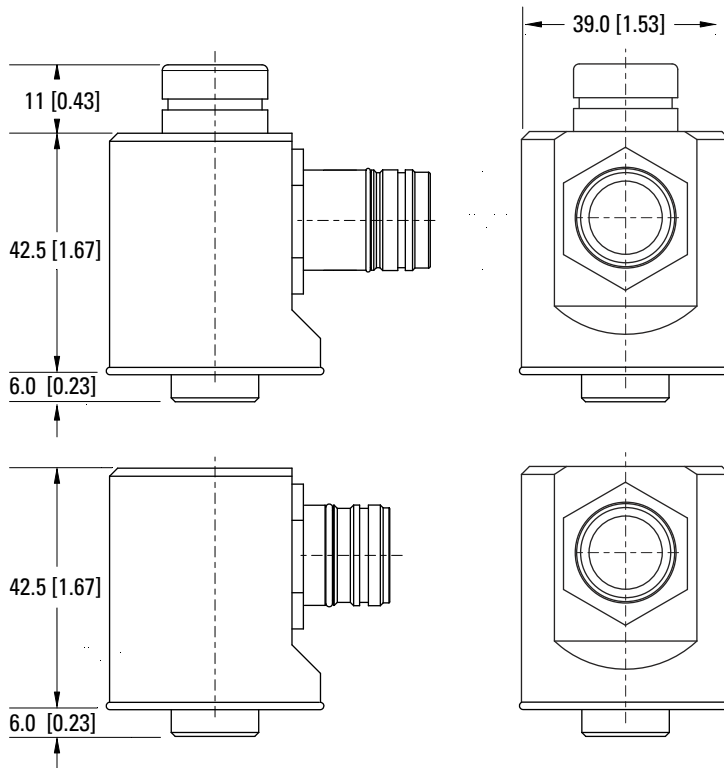


AKMHx	"A"	"B" Max.
AKMH2	41.1 [1.62]	72.5 [2.85]
AKMH3	Contact Kollmorgen Customer Support for Co-Engineered Solutions	
AKMH4	Contact Kollmorgen Customer Support for Co-Engineered Solutions	
AKMH5	Contact Kollmorgen Customer Support for Co-Engineered Solutions	
AKMH6	Contact Kollmorgen Customer Support for Co-Engineered Solutions	

Dimensions are in mm [inches].

AKMHxx Frame Mounted A- and D- Connector Detail

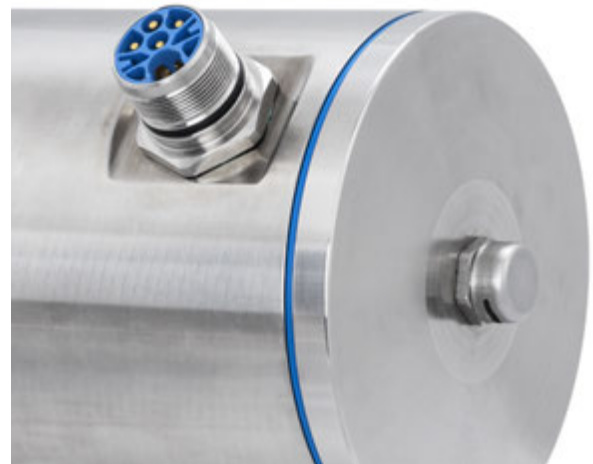
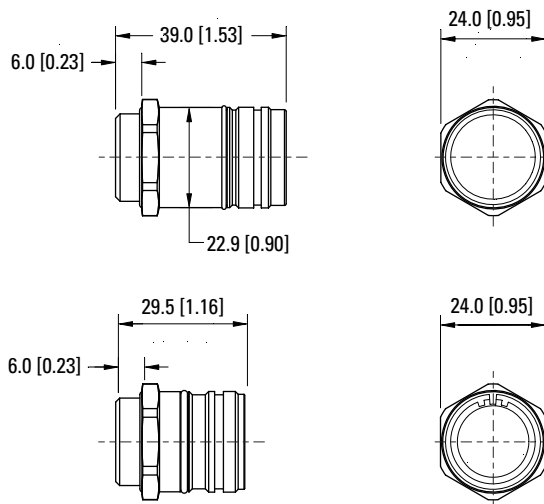
A-, D- Connector Detail



D- Connector

AKMHxx Frame Mounted H- and P- Connector Detail

H-, P- Connector Detail



P- Connector

Dimensions are in mm [inches].

I. General Technical Data

Ambient Temperature: 0...+25° C for site altitude up to 1000 m amsl (at rated values). It is vital to consult our applications department for ambient temperatures above 40° C and/or any enclosed environment.

Power De-rating: 1% / °C in range 40° C...50° C up to 1000 m amsl for site altitude above 1000 m amsl and 40° C (currents and torques)

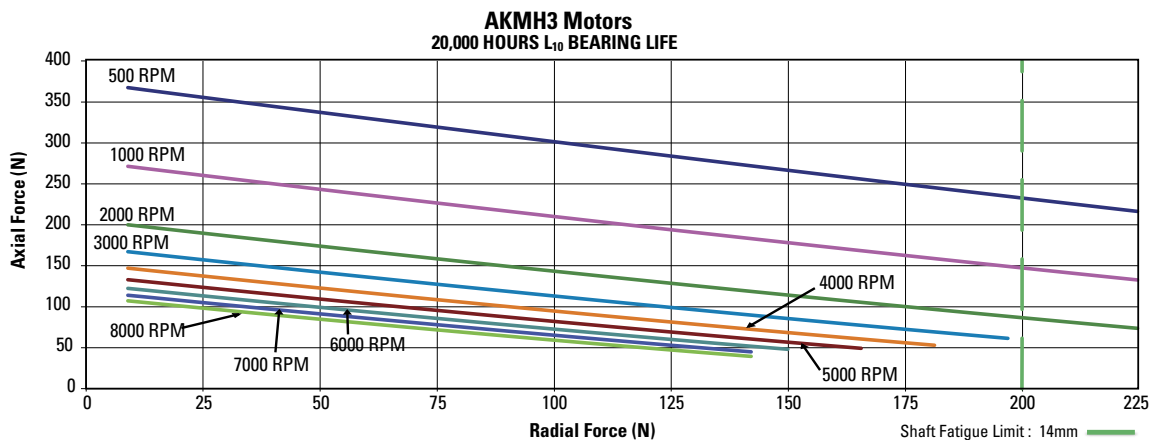
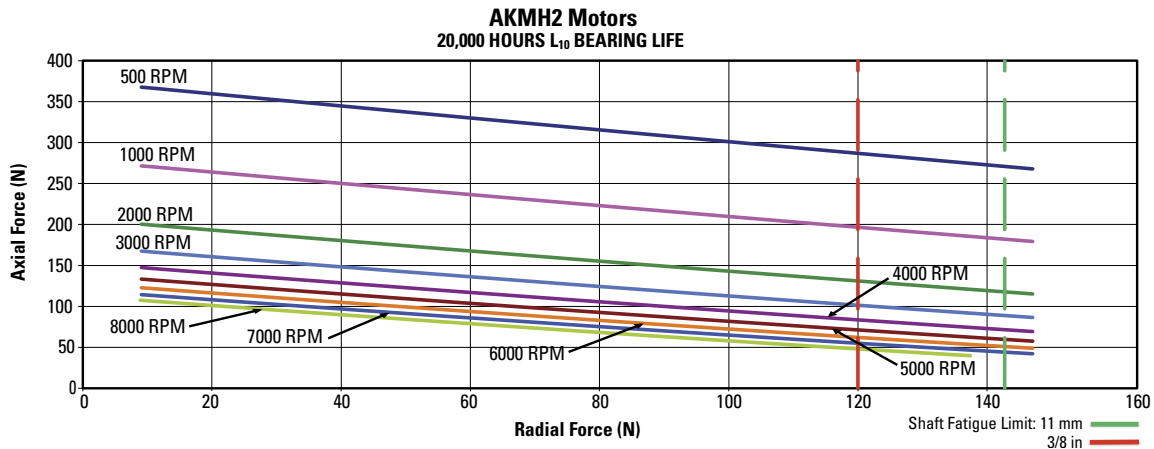
- » 6% up to 2000 m amsl
- » 17% up to 3000 m amsl
- » 30% up to 4000 m amsl
- » 55% up to 5000 m amsl

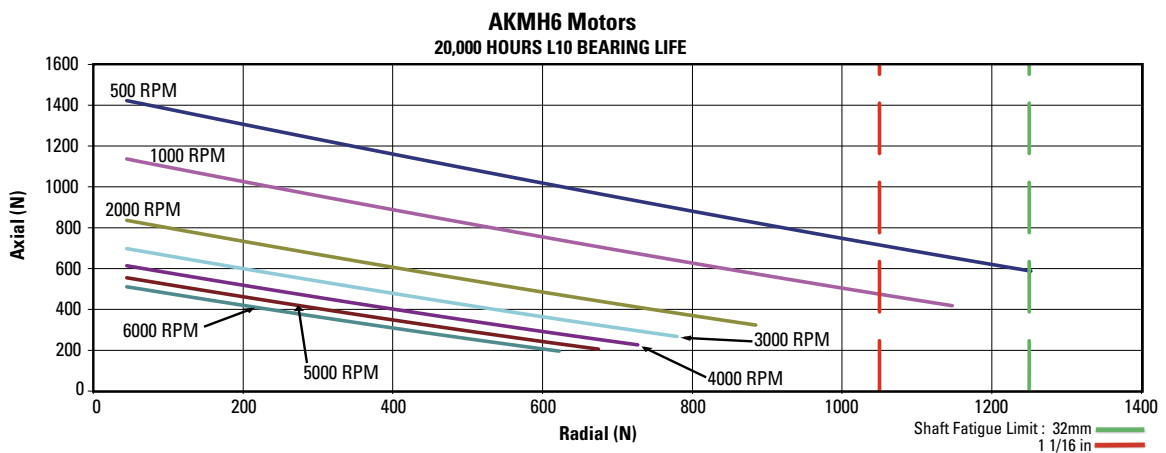
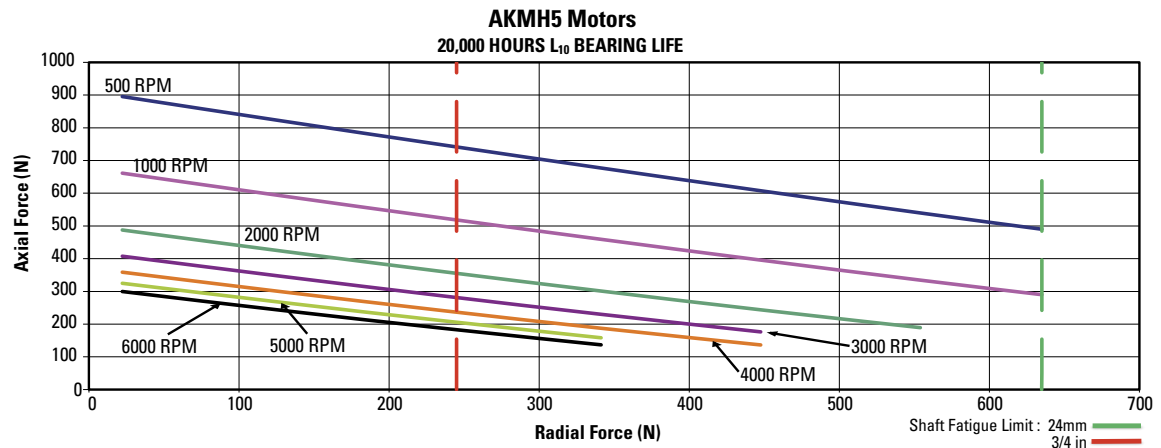
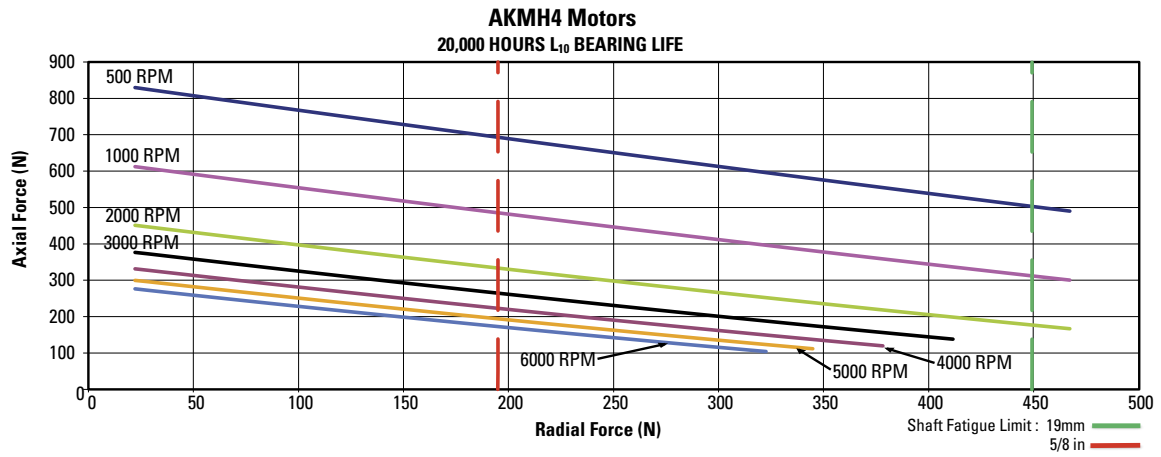
For site altitudes above 1000 m amsl, no de-rating with temperature reduction of 10° C / 1000 m

Temperature De-rating: If the application requires de-rating due to lower motor surface temperature, please contact our applications department.

Ball-bearing Life: ≥ 20,000 operating hours

II. L10 Bearing Fatigue





III. Shaft Loading

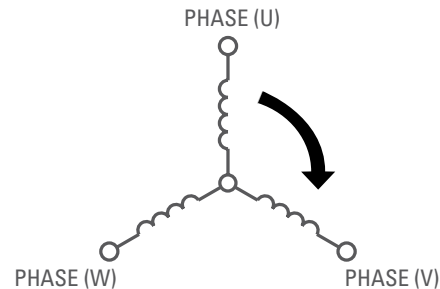
Motor	Max. Radial Force (N)	Max. Axial Force (N)
AKMH2xy-A / C	140	600
AKMH2xy-B / D	120	
AKMH3xy-A / C	200	600
AKMH4xy-A / C	450	1400
AKMH4xy-B / D	195	
AKMH5xy-A / C / G / H	635	1740
AKMH5xy-B / D	245	
AKMH6xy-A / C	1250	2200
AKMH6xy-D	1050	

The maximum radial load ratings reflect the following assumptions:

1. Motors are operated with peak torque of the longest stack length of the frame size.
2. Constant radial load on the end of the shaft for the smallest OD and longest standard shaft extension; excluding AKMH4X-CC which is rated at 240 N maximum radial force.
3. Infinite life with 99% reliability.
4. Safety factor = 2.

IV. Phasing Diagram - All Motors

- When the motor is rotated C.W. (viewed from drive shaft end), the following B_{emf} voltage waveforms result:
- Voltage phase-U, leads Voltage phase-V, by 120-degrees
- Voltage phase-V, leads Voltage phase-W, by 120-degrees
- Voltage phase-W, leads Voltage phase-U, by 120-degrees



Motor Winding Configuration

V. Protection Class

Shaft Seal	Flange Sealing	Protection Class
EPDM (K) or Viton (V)	O-Ring	IP69K

Protection class IP69K has been created for high pressure and high temperature cleaning according to DIN 40050-9. Code "6" (Dust tight. No ingress of dust.) defines the protection against solids. Code "9K" (Protected against close-range high pressure, high temperature spray downs.) defines the protection against liquids.

IP69K protection class is for static use only. This rating does not account for water present while the shaft is rotating. For applications that require sealing during rotation, please contact Kollmorgen Customer Support.

VI. Insulation Material

AKMH motors are insulation class F according to IEC 60085 (UL1446 class F).

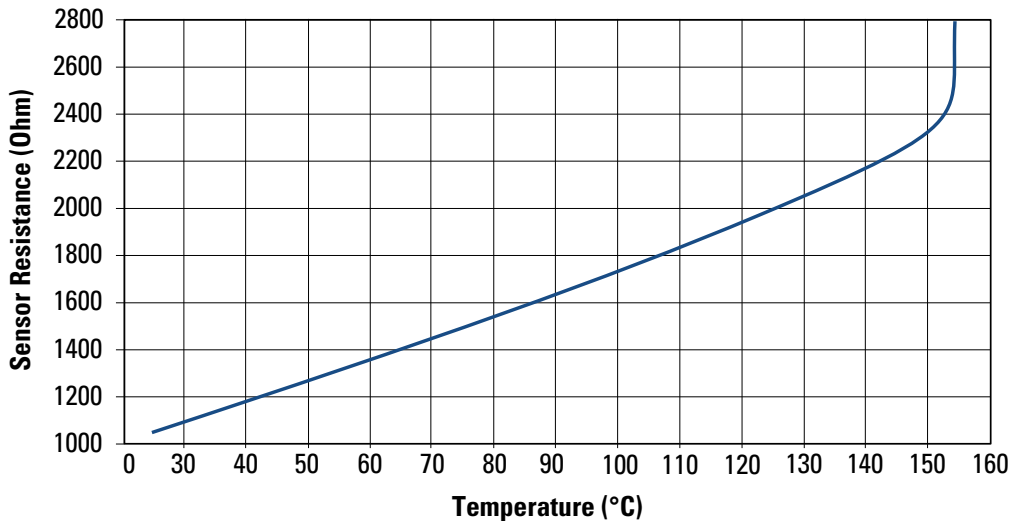
VII. Surface

The AKMH motor housing is made from 316L or 1.4404 stainless steel with surface roughness < 0.8 μm pursuant to EHEDG requirements.

II. Protective Device

AKMH motors are fitted with an electrically isolated temperature sensor (rated temperature $155^{\circ}\text{C} \pm 5\%$) and integrate into the motor temperature monitoring system (e.g. Kollmorgen's AKD). The standard motor option is equipped with a KTY83-110 equivalent thermal sensor and serially connected PTC thermistor, with a threshold limit setting of 2500 Ohms.

The standard sensor option is defined by following diagram:



Please note, these protection devices are for monitoring and protecting the motor during normal operation and when attempting to maximize operation—they should not be expected to provide protection against a short or other overload event.

IX. Vibration Class

Velocity [rpm]	Max. Rel. Vibration Displacement [μm]	Max. Run-out [μm]
≤ 1800	90	23
> 1800	65	16

AKMH motors are designed and manufactured to meet vibration class A (EN 60034-14). Hence, a defined speed range of 600 to 3600 rpm, with a frame size between 56 and 132 mm, means the permitted vibration is 1.6 mm/s.

AKMH™ Hygienic Design Guide

I. Hygienic Design

The Food and Drug Administration (FDA) is an agency of the United States Department of Health and Human Services. The FDA is responsible for protecting and promoting public health through the regulation and supervision of food safety, vaccines, biopharmaceuticals, blood transfusions, medical devices and other products.

The “European Hygienic Engineering and Design Group” (EHEDG) is a European-based non-government organization devoted to the advancement of hygienic design and food engineering. European legislation requires that handling, preparation, processing, packaging, etc. of food is done hygienically, with hygienic machinery in hygienic premises (the food hygiene directive, the machine directive and the food contact materials directive).

Certifications: UL, CE, RoHs, BISSC, NSF, USDA, FDA, EAC, designed to EHEDG guidelines, according to DIN EN ISO 14159 and DIN EN 1672-2

Surface: Stainless steel 316L/1.4404, roughness < 0.8 µm

Immunity: Against tested industrial cleaning agent, corrosion-proof

Degree of Protection: IP69K

Mounting Screw*: Stainless steel 316L/1.4404, sealant FDA 21 CFR 175.300

O-Ring: EPDM or Viton, FDA 21 CFR 177.2600

Shaft: Stainless steel 316L/1.4404

Rotary Shaft Seal: Mineral filled PTFE, single lip, mineral: FDA 21 CFR 175.300, PTFE: FDA 21 CFR 177.1500

Shaft Center Screw*: Stainless steel 1.4404, sealant FDA 21 CFR 175.300

Bearing Grease: Food-grade as per FDA 21 CFR 178.3570

Cable Gland: Stainless steel 1.4404, Silicone seal FDA 21 CFR 177.2600

Cable Tube: Silicone FDA 21 CFR 177.2600

Name Plate: Laser marked in housing

Size: AKMH2 to AKMH6

*Optional, included in the mounting kit

II. Tested properties with respect to cleaning agents

The testing lab of ECOLAB Deutschland GmbH tested the resistance of the external surfaces to the following industrial cleaning agents:

- » P3-topactive DES
- » P3-topax 66
- » P3-topax 12
- » P3-topax 990
- » P3-topax 56

In the process, the surfaces were immersed in the respective cleaning agent at 21°C temperature for 28 days. This corresponds to approx. 2,500 cleaning cycles with 15-minute contact each with the cleaning agent or 1,500 cleaning cycles with cleaning and subsequent disinfection. Due to the possible relaxation after each treatment in practice the chemical attack would be even lower.

Kollmorgen can only give a guarantee for the motor’s lifecycle if the tested cleansing agents are used. Contact Kollmorgen Customer Support for information on motor use with alternative cleaning agents.

Brake Option

Holding Brake

The holding brake is designed to provide motor shaft static holding torque with the brake coil de-energized. The brake must first be released (coil energized) prior to commanding motion as determined by its drop-out time. The optional brake is intended for stationary motor holding, or “parking,” and is NOT intended for dynamic braking (i.e. There should be absolutely no intended rotor motion when power is removed from the brake coil to physically engage brake.).

AKMH Motor Brake Specifications

Motor Family	Minimum Static Torque @120°C		Power Consumption @24V, 20°C	Current @24V, 20°C	Inertia		Closing Time (engage)	Opening Time (release)	Backlash	
	Nm	lb-in	Watts ±7%	ADC	kg-cm ²	lb-in-sec ²	msec	msec	Maximum deg.	Typical deg.
AKMH2	1.42	12.6	8.4	0.35	0.011	0.97E-05	36	35	1.01	0.46
AKMH3	2.5	22.1	10.1	0.42	0.011	0.97E-05	20	50	1.01	0.46
AKMH4	5.3	46.9	12.8	0.53	0.068	6.02E-05	30	75	0.81	0.37
AKMH5	14.5	128	19.5	0.82	0.173	1.53E-04	30	115	0.71	0.31
AKMH6	25	221	25.7	1.07	0.605	5.35E-04	40	155	0.51	0.24

Note 1: Operating Voltage: 24 Vdc ± 10%.

Note 2: Maximum backlash is calculated using worst-case tolerancing, and typical backlash is calculated using statistical tolerancing.

Cable Options



Integrated Cable Material Specifications and Characteristics

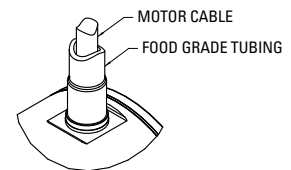
Specifications:

- » 600 Vac+ 105°C rated, Multi-conductor shielded composite cable
- » Four motor power, two brake with shield, two communication conductors with shield plus overall shield
- » Motor Power conductors are 14 or 12 AWG, meeting required standards of NFPA79 (Electrical standard for Industrial machinery), EN-60204-1 (Safety of Machinery-Electrical equipment of Machines), IEC 60364-5-52 (Wiring Systems) without the use of additional motor overload protection as required by motor rating
- » Communication channel, 110 ohm(± 10) nominal impedance, high speed digital communication device
- » Agency classifications: UL, CSA, CE, RoHS*
- » IP69K wash-down rated jacket material
- » Not food contact rated
- » **Cable Diameters:**
 - 0.595" for Hybrid Cable or Power Cable 12A and less motors (6" Bend radius)
 - 0.65" for Hybrid Cable or Power Cable above 12A, but less than 20A (6.5" Bend radius)
 - 0.46" for secondary feedback cable (4.6" Bend radius)
- » Bend radius limited to 10X diameter static, no dynamic rating
- » Exceeding the bend radius can potentially cause permanent damage to cable properties or premature failure
- » Color to RAL 2003 standard
- » Chemical resistance to most acids and bases within the PH range of 2 to 12
- » Not UV resistant

Tubing Specifications:

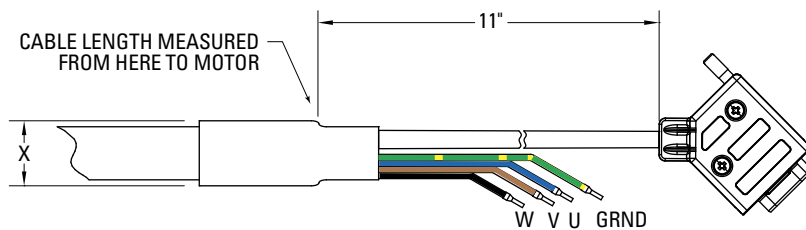
Optional food-grade tubing should be utilized where the motor cable is routed through a zone in which the cable could contact food. For standard offerings of food-grade tubing consider Connector and Cable Options: F, G, T and W for a single motor cable (i.e. hybrid motor and feedback cable) or Options: G, M and W for dual cables. The food-grade tubing is FDA approved material certified by the NSF 51 standard.

Food Grade Tubing Option



Hybrid Cable

Wire Size Chart	
Current	"X"
Hybrid Cable or Power Cable UP TO 12A	.700 in
Hybrid Cable or Power Cable 12A AND UP	.750 in
Secondary Feedback Cable	.600 in
Food Grade Tubing	1.0 in



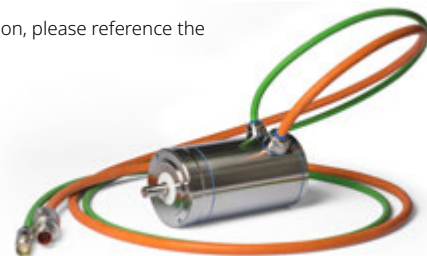
Connector housing can be unscrewed and removed in order to pass cable through bulkhead.

*(RoHS compliant materials to EU Directive 2002/95/EC)

Feedback Options

Option	Description	Feedback Model	Notes	Cable Connection Option	Brake Possible	Device Resolution (Sin/Cos per Rev, Bits or Lines/Rev.)	Accuracy, Arc-min (+/-)
2-	Comcoder	EPC260	2048 LPR	Dual Cable L, M, V, W, A (AKMH4-6), H (AKMH2-3), B, G	Yes	2048 Lines	1
CA	SFD3, Smart Feedback Device	Size 15	Single-Turn	Single Cable E, F, K, T, V, W, D (AKMH3-6), B, G, N, P (AKMH2)	Yes	24-Bits	8
DA	EnDat 2.2/01 Optical Sine Encoder	ECN1113	AKMH2-4 Single-Turn, Optical	Dual Cable L, M, V, W, A (AKMH4-6), H (AKMH2-3), B, G	Yes	512 Sin/Cos	1
		ECN1313	AKMH5-6 Single-Turn, Optical			2048 Sin/Cos	0.333
DB	EnDat 2.2/01 Optical Sine Encoder	EQN1125	AKMH2-4 Multi-Turn, Optical		Yes	512 Sin/Cos	1
		EQN1325	AKMH5-6 Multi-Turn, Optical			2048 Sin/Cos	0.333
GA	HIPERFACE Encoder	SKS36	Single-Turn, Optical	Dual Cable L, M, V, W, A (AKMH4-6), H (AKMH2-3), B, G	Yes	128 Sin/Cos	1.33
GB	HIPERFACE Encoder	SKM36	Multi-Turn, Optical		Yes	128 Sin/Cos	1.33
GE	HIPERFACE DSL Optical Encoder	EKS36	Single-Turn, Optical	Single Cable E, F, K, T, V, W, D (AKMH3-6), B, G, N, P (AKMH2)	Yes	18-Bits	1.33
GF	HIPERFACE DSL Optical Encoder	EKM36	Multi-Turn, Optical		Yes	18-Bits	1.33
LA	EnDat 2.1/01 Inductive Encoder	ECI1118	AKMH2-4 Single-Turn, Inductive	Dual Cable L, M, V, W, A (AKMH4-6), H (AKMH2-3), B, G	Yes	16 Lines	3
		ECI1319	AKMH5-6 Single-Turn, Inductive			32 Lines	4.67
LB	EnDat 2.1/01 Inductive Encoder	EQI1130	AKMH2-4 Multi-Turn, Inductive		Yes	16 Lines	3
		EQI1331	AKMH5-6 Multi-Turn, Inductive			32 Lines	4.67
R-	Resolver	Size 15	2 Poles	Dual Cable L, M, V, W, A (AKMH4-6), H (AKMH2-3), B, G	Yes	16-Bits	10
RA	HIPERFACE Encoder	SRS50-K21	AKMH4-6 Single-Turn, Optical, 7-12V, Programmed for Third Party Drives	Dual Cable V, W, A, R (all AKMH4-6 only)	Yes	1024 Sin/Cos	0.75
RB	HIPERFACE Encoder	SRM50-K21	AKMH4-6 Multi-Turn, Optical, 7-12V, Programmed for Third Party Drives		Yes	1024 Sin/Cos	0.75
RC	HIPERFACE Encoder	SRS50-S21	AKMH4-6 Single-Turn, Optical, 5V Programmed for Third Party Drives	Dual Cable V, W, A, R (all AKMH4-6 only)	Yes	1024 Sin/Cos	0.75
RD	HIPERFACE Encoder	SRM50-S21	AKMH4-6 Multi-Turn, Optical, 5V Programmed for Third Party Drives		Yes	1024 Sin/Cos	0.75
RE	HIPERFACE DSL Optical Encoder	EKS36	Single-Turn, Optical, Programmed for Third Party Drives	Single Cable V, W, D (AKMH3-6), R, C, P (AKMH2)	Yes	18-Bits	1.33
RF	HIPERFACE DSL Optical Encoder	EKM36	Multi-Turn, Optical, Programmed for Third Party Drives		Yes	18-Bits	1.33
RG	HIPERFACE DSL Optical Encoder	EKS36	Single-Turn, Optical, Programmed for Third Party Drives	Single Cable V, W, D (AKMH3-6), R, C, P (AKMH2)	Yes	18-Bits	1.33
RH	HIPERFACE DSL Optical Encoder	EKM36	Multi-Turn, Optical, Programmed for Third Party Drives		Yes	18-Bits	1.33

NOTE: Retrofitting a feedback is not possible. For a complete list of connector pinout information, please reference the Kollmorgen AKMH Installation Manual, Section 3.

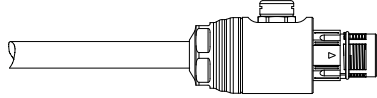
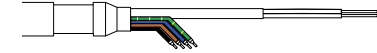
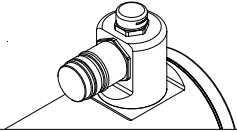
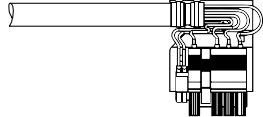
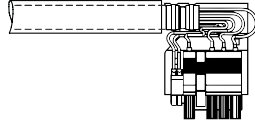
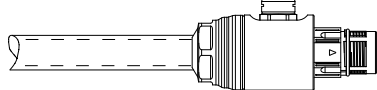
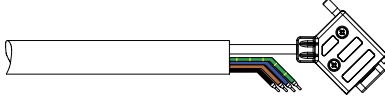
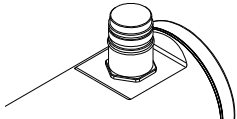
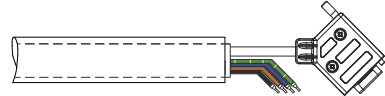
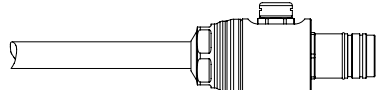
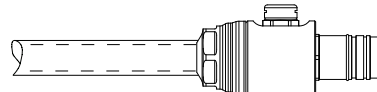


AKMH servo motor with dual cable connection option

Mounted Connector and Cable Options

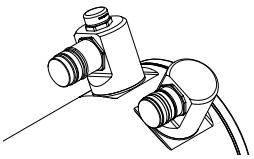
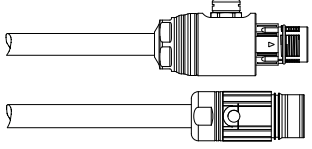
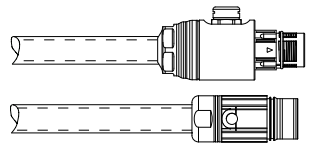
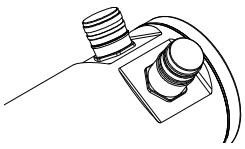
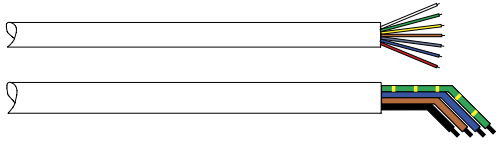
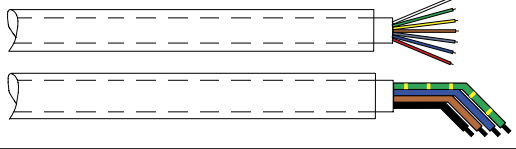
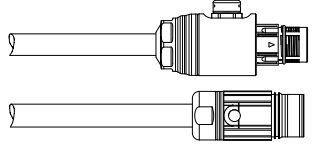
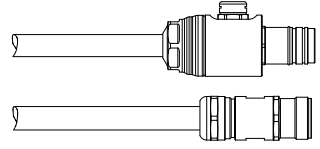
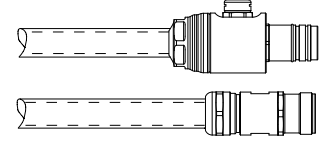
Single Mounted Connector and Cable Options Feedback: C-, CA, GE, GF, RE, RF, RG, RH

The single hybrid cable combines power and feedback signals in one cable.

CODE	DESCRIPTION	CABLE CONNECTION
B	Single hybrid cable with non-stainless steel vented connector with air pressure compensation. Vented connector is non-hygienic. Protection class IP67.	
C	Single hybrid cable prepared for third-party drives. Cable with flying power and feedback leads.	
D	Single motor mounted right angle IP69K connector	
E	Single hybrid cable with AKD2G connector.	
F	Single hybrid cable with AKD2G connector covered by food grade tubing.	
G	Single hybrid cable with non-stainless steel vented connector with air pressure compensation covered by food grade tubing. Vented connector is non-hygienic. Protection class IP67.	
K	Single hybrid cable with AKD connector. Cable is preconfigured for AKD-B/P/T/M. Cable comes with flying power leads and mounted feedback connector. Power leads have assembled metal ferrules, ready for connection to the AKD (see AKD installation manual).	
P	Single motor mounted straight IP69K connector	
T	Single hybrid cable with AKD connector covered by food grade tubing. Cable is preconfigured for AKDB/P/T/M. Cable comes with flying power leads and mounted feedback connector. Power leads have assembled metal ferrules, ready for connection to the AKD (see AKD installation manual).	
V	Single hybrid cable with stainless steel vented connector with air pressure compensation. Vented connector is non-hygienic. Protection class IP69K.	
W	Single hybrid cable with stainless steel vented connector with air pressure compensation covered by food grade tubing. Vented connector is non-hygienic. Protection class IP69K.	

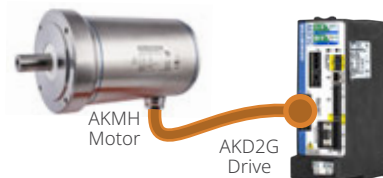
Dual Mounted Connector and Cable Options Feedback: 2-, R-, DA, DB, GA, GB, GG, GH, LA, LB, RA, RB, RC, RD

The dual cable option independently provides power and feedback signals, over separate cables.

CODE	DESCRIPTION	CABLE CONNECTION
A	Dual right angle motor mounted IP69K connectors	
B	Dual cable with non-stainless steel vented connector with air pressure compensation. Vented connector is non-hygienic. Protection class for both connectors IP67.	
G	Dual cable with non-stainless steel vented connector with air pressure compensation covered by food grade tubing. Vented connector is non-hygienic. Protection class for both connectors IP67.	
H	Dual straight motor mounted IP69K connector	
L	Dual cable with flying leads. Power and feedback cables only available as flying leads without ferrules.	
M	Dual cable with flying leads covered by food grade tubing. Power and feedback cables only available as flying leads without ferrules.	
R	Dual cable with non-stainless steel vented connector with air pressure compensation. Vented connector is non-hygienic. Protection class for both connectors IP67.	
V	Dual cable with stainless steel vented connector with air pressure compensation. Vented connector is non-hygienic. Protection class for both connectors IP69K.	
W	Dual cable with stainless steel vented connector with air pressure compensation covered by food grade tubing. Vented connector is non-hygienic. Protection class for both connectors IP69K.	

AKMH Cable Lookup Tables

Hybrid Single Cable Options



AKMH motor to AKD2G drive

Voltage (Vac)	Drive	Motor Feedback	Motor Connector	Current Rating	Hybrid Cable
120-240	AKD2G-6V03S	SFD3 (CA) Hiperface DSL (GE, GF)	Single Right Angle IP69K (D) Single Cable w/vented connector IP69K (V) Single Cable Covered by food grade tubing w/vented connector IP69K (W)	Arms < 15 A	H2-21-015-W5-00-XXXX00
	AKD2G-6V06S				
	AKD2G-6V12S				
	AKD2G-6V03D				
	AKD2G-6V06D				
240-480	AKD2G-7V03S				
	AKD2G-7V06S				
	AKD2G-7V12S				
	AKD2G-7V03D				
	AKD2G-7V06D				
120-240	AKD2G-6V03S	SFD3 (CA) Hiperface DSL (GE, GF)	Single Cable w/vented Speedtec connector IP67 (B) Single Cable Covered by food grade tubing w/vented Speedtec connector IP67 (G)	Arms < 15 A	H2-21-015-A5-00-XXXX00
	AKD2G-6V06S				
	AKD2G-6V12S				
	AKD2G-6V03D				
	AKD2G-6V06D				
240-480	AKD2G-7V03S				
	AKD2G-7V06S				
	AKD2G-7V12S				
	AKD2G-7V03D				
	AKD2G-7V06D				

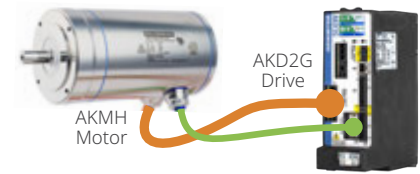
AKMH motor to AKD drive

Voltage (Vac)	Drive	Motor Feedback	Motor Connector	Current Rating	Hybrid Cable
120-240	AKD-x00306	SFD3 (CA) Hiperface DSL (GE, GF)	Single Right Angle IP69K (D) Single Cable w/vented connector IP69K (V)	Arms < 15 A	WCJ1A1-015-XXX-00
	AKD-x00606				WCJ2A1-015-XXX-00
240-480	AKD-x00307		Single Cable Covered by food grade tubing w/vented connector IP69K (W)	Arms < 20 A	WCJ2A1-025-XXX-00
	AKD-x00607				CCJ1A1-015-XXX-00
	AKD-x01207				
AKD-X02407	SFD3 (CA) Hiperface DSL (GE, GF)		Single Cable w/vented Speedtec connector IP67 (B) Single Cable Covered by food grade tubing w/vented Speedtec connector IP67 (G)	Arms < 15 A	CCJ2A1-015-XXX-00
120-240		AKD-x00306			Arms < 20 A
		240-480	AKD-x00606	Arms < 20 A	
AKD-x00307			CCJ2A1-025-XXX-00		
AKD-x00607					
AKD-x01207					

AKMH motor to select 3rd-party drives

Voltage (Vac)	Drive	Motor Feedback	Motor Connector	Current Rating	Hybrid Cable
120-480	Select 3rd-party Drives	RE- Single turn Hiperface DSL for select 480V Drives RF- Multi-turn Hiperface DSL for select 480V Drives RG- Single turn Hiperface DSL for select 240V Drives RH- Multi-turn Hiperface DSL for select 240V Drives	V- Cable mounted IP69K vented connector W- Cable mounted IP69K vented connector with food grade tubing P- Straight motor mounted IP69K connector D- Single motor mounted right angle IP69K connector	Arms < 20 A	968933-xx

Dual Cable Options



AKMH motor to AKD2G drive

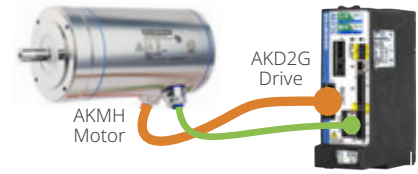
Motor Feedback	Motor Connector	PUR / PVC Jacket	Brake Option	Current Rating	Power Cable	Feedback Cable
B- IP67 non-stainless steel Speedtec vented connector	2- 2048 Line commutating encoder	PVC	brake	Arms < 15 A	P6-21-015-A5-00-XXXX00	F5-20-FB4-A3-00-XXXX00
			no brake		P5-21-015-A5-00-XXXX00	
		PUR	brake		P2-21-015-A5-00-XXXX00	F1-20-FB4-A3-00-XXXX00
			no brake		P1-21-015-A5-00-XXXX00	
	DA- Single turn Endat optical encoder DB- Multi-turn Endat optical encoder LA- Single turn Endat inductive encoder LB- Multi-turn Endat inductive encoder	PVC	brake	Arms < 15 A	P6-21-015-A5-00-XXXX00	F5-12-FB4-A3-00-XXXX00
			no brake		P5-21-015-A5-00-XXXX00	
		PUR	brake		P2-21-015-A5-00-XXXX00	F1-12-FB4-A3-00-XXXX00
			no brake		P1-21-015-A5-00-XXXX00	
G- IP67 non-stainless steel Speedtec vented connector with food grade tubing	GJ- Single turn absolute Hiperface encoder	PVC	brake	Arms < 15 A	P6-21-015-A5-00-XXXX00	F5-14-FB6-A3-00-XXXX00
			no brake		P5-21-015-A5-00-XXXX00	
	GK- Multi-turn absolute Hiperface encoder	PUR	brake		P2-21-015-A5-00-XXXX00	F1-14-FB6-A3-00-XXXX00
			no brake		P1-21-015-A5-00-XXXX00	
R- Resolver	PVC	brake	Arms < 15 A	P6-21-015-A5-00-XXXX00	F5-10-FB2-A2-00-XXXX00	
		no brake		P5-21-015-A5-00-XXXX00		
	PUR	brake		P2-21-015-A5-00-XXXX00	F1-10-FB2-A2-00-XXXX00	
		no brake		P1-21-015-A5-00-XXXX00		

AKMH motor to AKD drive

Voltage (Vac)	Motor Feedback	Motor Connector	Drive	Brake Option	Current Rating	Power Cable	Feedback Cable
120-240	2- 2048 line commutating encoder	A- Dual right angle motor connectors	AKD-x00306	brake	Arms < 15 A	WM01A1-015-XXX-XX	WFC0A1-002-XXX-XX
240-480			AKD-x00606	no brake		WM11A1-015-XXX-XX	
			AKD-x00307	brake		WM12A1-015-XXX-XX	
			AKD-x00607	no brake		WM12A1-015-XXX-XX	
			AKD-X02407	no brake		WM12A1-015-XXX-XX	
120-240			DA- Single turn Endat optical encoder	V-Dual cables fitted with IP69K stainless steel vented connector		AKD-x00306	
240-180	DB- Multi-turn Endat optical encoder	AKD-x00606	no brake		WM11A1-015-XXX-XX		
	LA- Single turn Endat inductive encoder	AKD-x00307	brake		WM12A1-015-XXX-XX		
	LB-multi turn Endat inductive encoder	AKD-x00607	no brake		WM12A1-015-XXX-XX		
	AKD-X02407	no brake	WM12A1-015-XXX-XX				
120-240	R- Resolver	W- Dual cables fitted with IP69K stainless steel vented connector covered with food grade tubing	AKD-x00306		brake	Arms < 15 A	WM01A1-015-XXX-XX
240-480			AKD-x00606	no brake	WM11A1-015-XXX-XX		
			AKD-x00307	brake	WM12A1-015-XXX-XX		
			AKD-x00607	no brake	WM12A1-015-XXX-XX		
			AKD-X02407	no brake	WM12A1-015-XXX-XX		

AKMH Cable Lookup Tables

Dual Cable Options



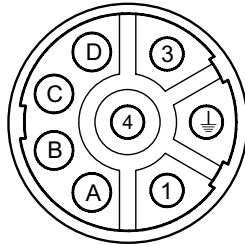
Dual Cable Non-Stainless Steel IP67 Options

Value Line or Flex Line Cable	Motor Feedback	Motor Connector	Brake Option	Current Rating	Power Cable	Feedback Cable	
Flex Line	2- 2048 line commutating encoder	B- IP67 Speedtec Vented Connector	Brake	<12 Arms	CP-507CDAN-XX-X	CF-CB7374N-XX-X	
			No Brake		CP-507CCAN-XX-X		
			Brake	12-20 Arms	CP-507DDAN-XX-X		
			No Brake		CP-507DCAN-XX-X		
Flex Line	DA- Single turn Endat optical encoder DB- Multi-turn Endat optical encoder LA- Single turn Endat inductive encoder LB-multi turn Endat inductive encoder		G- IP67 Speedtec Vented Connector with Food Grade Tubing	Brake	<12 Arms	CP-507CDAN-XX-X	CF-SB7374N-XX-X
				No Brake		CP-507CCAN-XX-X	
				Brake	12-20 Arms	CP-507DDAN-XX-X	
				No Brake		CP-507DCAN-XX-X	
Value Line		G- IP67 Speedtec Vented Connector with Food Grade Tubing		Brake	<12 Arms	VP-508CFAN-XX	VF-SB4474N-XX
				No Brake		VP-508CEAN-XX	
				Brake	12-20 Arms	VP-508DFAN-XX	
				No Brake		VP-508DEAN-XX	
Flex Line	GJ- Single turn Hiperface encoder GK- multi-turn Hiperface encoder		G- IP67 Speedtec Vented Connector with Food Grade Tubing	Brake	<12 Arms	CP-507CDAN-XX-X	CFH0A1-002-XXX-XX
				No Brake		CP-507CCAN-XX-X	
				Brake	12-20 Arms	CP-507DDAN-XX-X	
				No Brake		CP-507DCAN-XX-X	
Flex Line	R- Resolver	G- IP67 Speedtec Vented Connector with Food Grade Tubing		Brake	<12 Arms	CP-507CDAN-XX-X	CF-RA2574N-XX-X
				No Brake		CP-507CCAN-XX-X	
				Brake	12-20 Arms	CP-507DDAN-XX-X	
				No Brake		CP-507DCAN-XX-X	
Value Line			G- IP67 Speedtec Vented Connector with Food Grade Tubing	Brake	<12 Arms	VP-508CFAN-XX	VF-RA2474N-XX
				No Brake		VP-508CEAN-XX	
				Brake	12-20 Arms	VP-508DFAN-XX	
				No Brake		VP-508CEAN-XX	

AKMH Connector Pinouts

Hybrid Cable Connector Pinouts – B-, D-, G-, V-, W-

Combined Power & Feedback Pinout

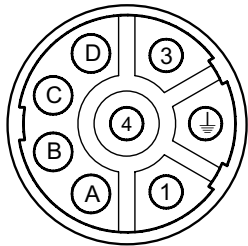


Power + SFD3 / DSL

Pin	Function
1	U
⊕	PE
3	W
4	V
A	Brake +
B	Brake -
C	SFD - / DSL -
D	SFD + / DSL +

Dual Cable Connector Pinouts – A-, B-, G-, R-, V-, W-

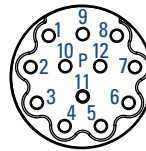
Power Connector Pinout



Power

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

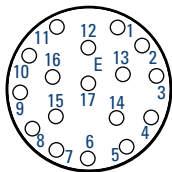
12-pin Feedback Connector Pinout



Resolver

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

17-pin Feedback Connector Pinout



Commutating Encoder

Pin	Function
1	B
2	\bar{B}
3	A
4	\bar{A}
5	Z
6	\bar{Z}
7	GND
8	Thermal Sensor +
9	Thermal Sensor -
10	Vcc
11	N/C
12	N/C
13	N/C
14	N/C
15	U
16	V
17	W

EnDat[®]/BiSS

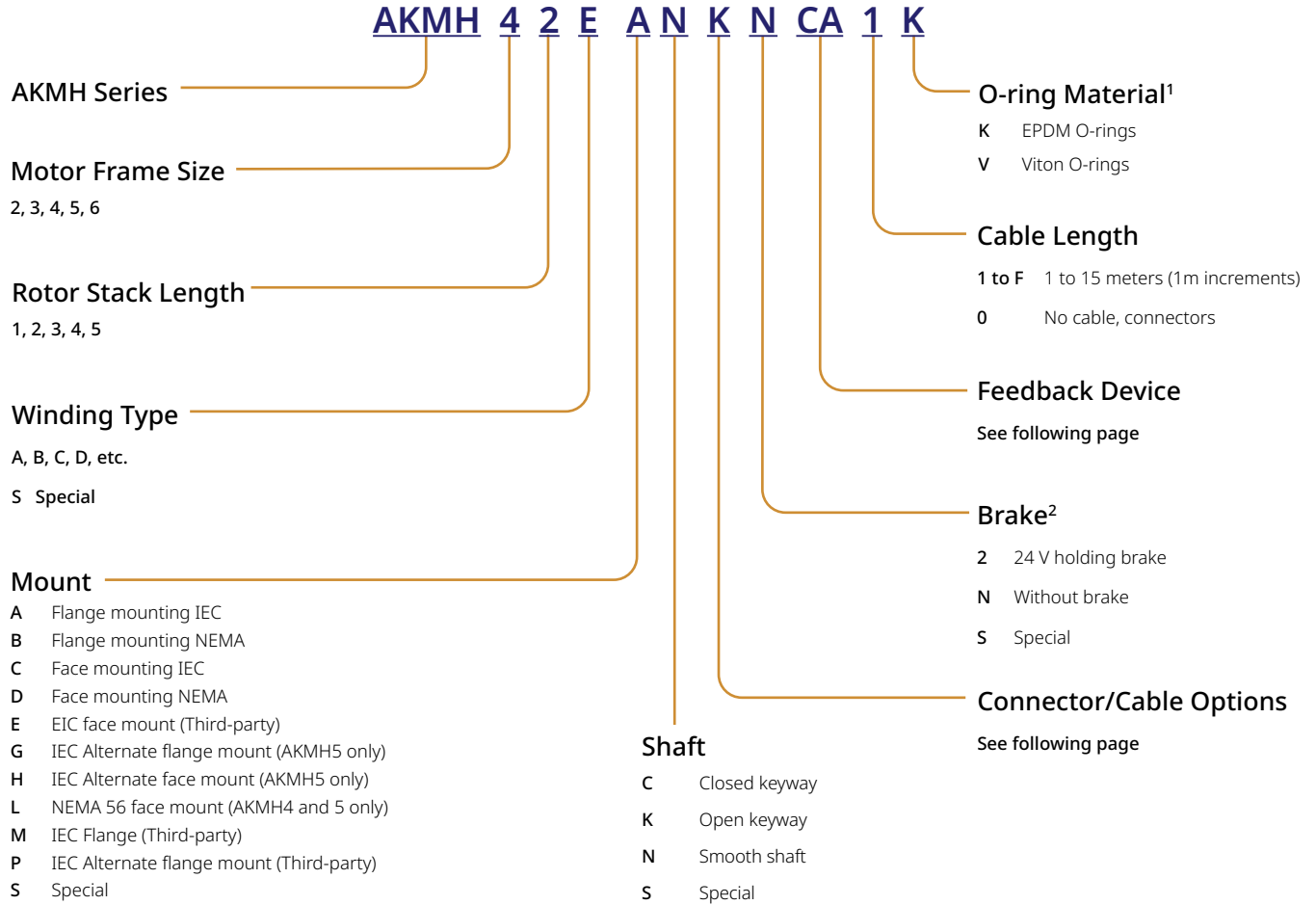
Pin	Function
1	B -
2	GND
3	A -
4	Vcc
5	DATA
6	N/C
7	Thermal Sensor +
8	Clock
9	B +
10	Un Sense (Common)
11	A +
12	Up Sense (VCC)
13	\bar{DATA}
14	Thermal Sensor -
15	Clock
16	N/C
17	N/C

HIPERFACE[®] Analog

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

AKMH Servo Motor Nomenclature

AKMH™ Brushless Servo Motor



Note: LK mount requires 2 weeks additional lead time for the first product order.
Note: Ex mounts are only available if Rx feedback devices are selected.

Mount-Shaft Availability

Base Model	Mount-Shaft										
	AC	AN	BK	BN	CC	CN	DK	DN	EK	EN	LK
AKMH2x	•	•		•	•	•		•			
AKMH3x	•	•		•	•						
AKMH4x	•	•	•	•	•	•	•	•	•	•	•
AKMH5x	•	•	•	•	•	•	•	•	•	•	
AKMH6x	•	•			•	•	•	•	•	•	

1. While both EPDM and Viton materials are resistant to most chemicals commonly found in food & beverage processing, Viton O-ring is recommended for applications with fluids and solids such as fish oil, animal fat, peanut butter and peanut oil.
2. C- feedback is not available with brake.

Connector/Cable Options

Single Cable

K¹	Cable gland w/ drive end connectors for AKD (Power is ferruled flying leads and feedback terminated into D-Sub)
T¹	Tubing over cable w/ drive end connectors for AKD
E	Cable gland w/ drive d\end connectors for AKD2G
F	Tubing over cable w/ drive end connectors for AKD2G
V²	Vented connector
N³	AKD-N connector
W²	Tubing to vented connector
B⁴	Cable to vented Speedtec ready connector
G⁴	Tubing to vented Speedtec ready connector
R⁵	Third-party mating connectors
C	Flying Leads (third-party drive ready, no d-sub)

Dual Cables

V²	Vented connector
W²	Tubing to vented connector
B⁴	Cable to vented Speedtec ready connector
G⁴	Tubing to vented Speedtec ready connector
R⁵	Mating connectors for third-party drives
L	Flying leads (2 cable only)
M	Tubing w/ flying leads (2 cable only)

Right-angle Connectors

D	Single connector (size 3-6)
A	Dual connectors (size 4-6)

Straight Connectors

H	Dual connectors (size 2-3)
P	Single connector (size 2 only)

Notes:

- Single cable for power and feedback when SFD, SFD3 or DSL is chosen. Not available with other feedback options.
- The single cable is terminated in a vented connector if SFD, SFD3, or DSL is chosen. If one of the other feedback devices is chosen then the power cable is terminated in a vented connector, while the feedback cable is terminated in a standard connector. Both options provide IP69K rated stainless steel connectors.
- Single cable for power and feedback when SFD3 or DSL is chosen. Cable is terminated for direct connection to AKD-N with a nickel plated zinc connector. The connector is vented. Not available with other feedback options.
- The single cable is terminated in a vented connector if SFD, SFD3, or DSL is chosen. If one of the other feedback devices is chosen then the power cable is terminated in a Vented connector, while the feedback cable is terminated in a standard connector. Both options provide IP67 rated nickel plated zinc connectors.
- This connector option is available for only the RA, RB, RC, RD, RE, RF, RG, and RH feedback options. There will be a vented connector on the power cable and a standard connector on the feedback cable. Both connectors will be Nickel plated zinc and IP67 rated.

Feedback Device

C-	SFD2 (C- is not available with brake)	DA	EnDat 2.1 Sine Encoder (ST)
CA	Smart Feedback Device (SFD3)	DB	EnDat 2.1 Sine Encoder (MT)
GA	Hiperface SKS36 (ST) mapped for Servostar	RA*	Hiperface SRS50 (ST) 7-12V mapped for third-part drives (460V)
GB	Hiperface SKM36 (MT) mapped for Servostar	RB*	Hiperface SRM50 (MT) 7-12V mapped for third-part drives (460V)
GE	Hiperface DSL (ST)	RC*	Hiperface SRS50 (ST) 5V mapped for third-part drives (230V)
GF	Hiperface DSL (MT)	RD*	Hiperface SRM50 (MT) 5V mapped for third-part drives (230V)
GJ	Hiperface SKS36 (ST) mapped for AKD, mech. aligned to KM zero	RE	DSL (ST) mapped for third-part drives, 480V
GK	Hiperface SKM36 (MT) mapped for AKD, mech. aligned to KM zero	RF	DSL (MT) mapped for third-part drives, 480V
R-	Resolver	RG	DSL (ST) mapped for third-part drives, 240V
2-	2048 line encoder	RH	DSL (MT) mapped for third-part drives, 240V
LA	Inductive EnDat 2.1 Sine Encoder (ST)		
LB	Inductive EnDat 2.1 Sine Encoder (MT)		

Note: RA/RB/RC/RD are available as standard on AKMH size 4-6 only

Feedback and Connection Availability – AKMH(x) frame size (2-6)

Feedback Device	Cable Connection																
	E	F	K	T	L	M	V	W	D	P	A	H	R	C	B	G	N
C-, CA, GE, GF	2-6	2-6	2-6	2-6			2-6	2-6	3-6	2					2-6	2-6	2-6
2-, R-					2-6	2-6	2-6	2-6			4-6	2-3			2-6	2-6	
DA, DB					2-6	2-6	2-6	2-6			4-6	2-3			2-6	2-6	
GA, GB					2-6	2-6	2-6	2-6			4-6	2-3			2-6	2-6	
GJ, GK					2-6	2-6	2-6	2-6			4-6	2-3			2-6	2-6	
LA, LB					2-6	2-6	2-6	2-6			4-6	2-3			2-6	2-6	
RA, RB, RC, RD							4-6	4-6			4-6		4-6				
RE, RF, RG, RH							2-6	2-6	3-6	2			2-6	2-6			

AKMH™ Co-Engineered Solutions

With modified and custom AKMH solutions, you can rely on decades of Kollmorgen expertise to solve your motion challenges and help your machine stand out from the crowd.



Modified Standard

Because our application expertise runs deep and our product portfolio is so broad, we can take any standard product and modify to different degrees to suit your specific needs – without significant sacrifice of lead time or cost. This approach ensures quality, performance and reliability by leveraging our proven track record.

Kollmorgen application engineers have a great deal of experience helping OEM engineers achieve their objectives. Typical motor modifications include: shaft, housing, winding, feedback type, mounting and connectors.

Project Management

We follow a structured development process from initial concept to volume production. This enables us to provide a complete solution from design to implementation.

Our skilled engineering team is assigned to each project and ensures a high quality product designed and delivered on time, successfully taking the prototype to full production.

- Dedicated Resources & Equipment
- Real Time Customer Collaboration
- Validation of Performance, Cost & Manufacturability Before Volume Production

Customer Visibility Throughout the Entire Process

A communicative and proactive approach keeps you updated and aware of what is required throughout, what it will cost, and what to expect for design testing.

This not only puts you in charge of approving any modifications before installation, but ensures the product is up and running quickly, with minimal development time and maximum value.

Engineering Excellence

What really sets us apart is our engineering expertise. With over 50 years of successfully designing custom motors, we are able to quickly assess, design and implement a solution that meets your needs.

Our engineering team has decades of experience in motor design, which means they have designed solutions for almost every unique and challenging situation. Their insightfulness and expertise will guide you through the development and implementation of an optimized motor solution.

We rely on the most advanced simulation tools to deliver the best products, designed to withstand the most unique and challenging environments.

Why You Should Partner with Kollmorgen

- Experienced application engineers help define a customer's needs and identify the optimal Kollmorgen products and technologies
- Products optimized or developed by cross-functional teams to meet customer needs
- Rapid prototyping
- Smooth transition from prototype designs to sustainable and cost effective manufacturing
- Industry-proven quality, performance, and delivery
- Proven technology building blocks mitigate risks of customization

Contact Kollmorgen Customer Support today to discuss our design capabilities for a modified and co-engineered AKMH solution to meet your specific needs.

Universal Drive Solutions for Food, Beverage, and Pharmaceutical Industries

Motors from Kollmorgen provide the perfect mix of performance and hygiene

The Kollmorgen modular system includes a wide range of motors with carefully graduated performance data, a variety of connection options, and feedback devices. With more than 500,000 standard motor designs, you will definitely find a suitable motor to meet your requirements. Meeting the strict legal regulations and the customers' requests for innovative yet cost-effective drive solutions always poses a challenge to the mechanical engineer. Drive solutions from Kollmorgen provide the perfect mix of hygiene and performance data for applications in normal and difficult operating environments, as well as for hygienic drives. Kollmorgen has invested more than 50 years of experience in the AKM2G, AKM, AKM Washdown, AKM Washdown Food and AKMH stainless steel motor ranges that prove themselves on a daily basis in the testing conditions of the food, beverage, and pharmaceutical industries.



	AKM2G	AKM	AKM Washdown	AKM Washdown Food	AKMH
Area of application	Dry area	Dry area	Wet area	Wet area	Wet area, hygienic
Suitable for high-pressure and high-temperature cleaning			Limited	Limited	X
Round stainless steel housing					X
Stainless Steel Shaft	X	X	X	X	X
FDA-compliant, coating suitable for use with food products				X	Stainless Steel Housing
Needle Printed Nameplate			X	X	
Laser cut rating plate					X
EHEDG compliant					X
FDA-compliant bearing grease and rotary shaft seal				X	X
Protection class	Up to IP65	Up to IP65	IP67	IP67	IP69K
Certifications	CE, UL, cUL, RoHS, GOST-R	CE, UL, cUL, RoHS, GOST-R	CE, UL, cUL, RoHS, GOST-R	"CE, UL, cUL, RoHS, GOST-R, FDA non-migration"	CE, UL, RoHS, NSF/ANSI169, FDA, USDA
Frame Sizes	2 - 7	1 - 8	2 - 6	2 - 6	2 - 6
Continuous Stall Torque (Nm)	0.64 - 72	0.19 - 180	0.48 - 24.5	0.48 - 24.5	0.4 - 22
Feedback options	SFD3, Comcoder, BiSS, EnDat, Hiperface, resolver	SFD3, Comcoder, BiSS, EnDat, Hiperface, resolver	SFD3, Comcoder, BiSS, EnDat, Hiperface, resolver	SFD3, Comcoder, BiSS, EnDat, Hiperface, resolver	SFD3, Comcoder, EnDat, Hiperface, resolver
Optional Holding Brake	X	X	X	X	X
Optional single cable connection	X	X	X	X	Standard
Relative Price	\$	\$	\$+	\$++	\$\$

▶ AKD[®] 2G Servo Drive

The newest member of the AKD family is our most powerful yet.

Along with increased power, the AKD2G is simplified and includes integrated SafeMotion™ that increases Ease-of-Use.

The new AKD2G servo drive introduces the Kollmorgen Servo on a Chip™: A powerful compute engine that can control two axes simultaneously and up to 28 I/O. While we were at it, we streamlined the design by optimizing the AKD2G for single-cable motors.





The Benefits of AKD[®]2G Servo Drives

Flexible

- » One and two axis variants available
- » Modular design allows the user to specify only the features needed
- » Supports a variety of feedback devices. SFD3 & HIPERFACE[®] DSL standard; optional feedbacks include EnDat, BiSS, Analog Sine/Cos encoder, incremental encoder, resolver and more
- » Multiple bus choices for system optimization, including EtherCAT[®] & FSoE, CANopen[®], PROFINET[®] IRT and Ethernet/IP[™]
- » Over-voltage, current, and temperature detection provided for added dependability
- » Optional SafeMotion Monitor[™] (SMM[™]), up to SIL3/PLe
- » Dual-channel STO for each axis (up to SIL3/PLe)
- » Optionally available with coated PCBA
- » Industry-leading power density for greater flexibility in mounting
 - Fits into a 10 inch [25.4 cm] deep control panel

Easy to Use

- » Plug-and-play compatibility with Kollmorgen controls and motors
- » WorkBench GUI, acclaimed for customer experience and usability
- » Hybrid motor-power connector is optimized for single-cable motors; No adaptors, no D-sub, no splitters
- » Cage-clamp spring terminal connectors on I/O allow for fast and easy installation
- » Optically isolated I/O reduces noise and eliminates need for additional hardware

Fast

- » Accommodates changing load conditions immediately:
 - Current loop updates in 1.28 μ s, nearly 50x the speed of our nearest competitors
 - Velocity and position loops lead the market at 62.5 μ s and 125 μ s, respectively
 - » Servo on a Chip[™] includes dual-core ARM[™] A9, 800 MHz μ P, 1.5 M gates
 - » AI-based auto-tuning with a click of a button gets you started quickly
 - » Wizard-based tuning uses advanced Bode plot tool to help you efficiently manual-tune when desired
 - » Fast data acquisition with TCP/IP Ethernet service channel
-

AKD[®] 2G Servo Drive

AKD2G Means Unparalleled Connectivity

Base Model

The base model of Kollmorgen's AKD2G includes all of the performance described previously, and is optimized to interface to a single-connector motor with Kollmorgen's Smart Feedback or HIPERFACE[®] DSL. It also offers 16 I/O, 160x128-pixel graphical display, removable SD card, and your choice of motionbusses.

Extended I/O Variant

The extended I/O variant offers everything on the base model, plus I/O expansion. It adds additional 12 I/O for a total of 28 I/O. The option fit in the same package as the base model.

Two-cable feedback option

Needing support for non-single-cable feedback like EnDat, BiSS or incremental encoders? The two-cable feedback option adds a 15-pin SUB-D connector for dual cable feedback or dual-loop operation.

SafeMotion™ Monitor (SMM™)

The Extended I/O model is offered with the optional SMM. The SMM converts some of the I/O into "Safe" I/O, and allows the drive to interface safely to an FSoE master. Again, these options fit in the same package as the base model.



Dual-Axis AKD2G 480 Vac (shown with optional feedback and I/O expansion)

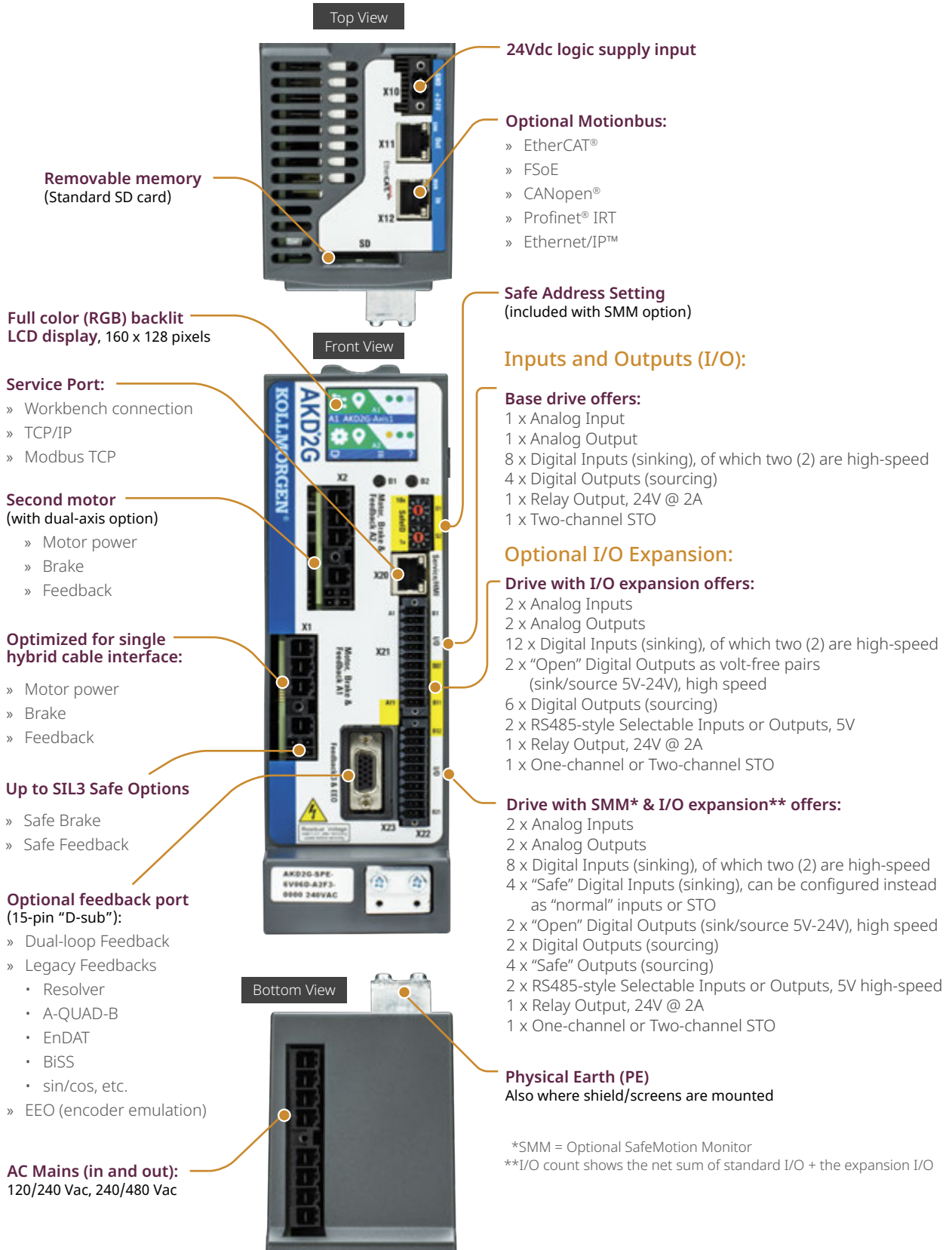
Dual-Axis AKD2G 240 Vac (shown with optional SMM, feedback and I/O expansion)



120/240 Vac	Continuous Current	Peak Current	Typical Shaft Power	Internal Regen		Height	Width	Depth	Depth w/ cable bend radius
	(Arms)	(Arms)	(kW)	(W)	(Ω)	mm (in)	mm (in)	mm (in)	mm (in)
AKD2G-SPx-6V03S	3	9	1	100	15	233 (9.15)	75 (2.95)	180 (7.09)	225 (8.86)
AKD2G-SPx-6V06S	6	18	2						
AKD2G-SPx-6V12S	12	30	4						
AKD2G-SPx-6V03D	3 & 3	9 & 9	1 & 1						
AKD2G-SPx-6V06D	6 & 6	18 & 18	2 & 2						

240/480 Vac	Continuous Current	Peak Current	Typical Shaft Power	Internal Regen		Height	Width	Depth	Depth w/ cable bend radius
	(Arms)	(Arms)	(kW)	(W)	(Ω)	mm (in)	mm (in)	mm (in)	mm (in)
AKD2G-SPx-7V03S	3	9	2	100	33	270 (10.6)	75 (2.95)	180 (7.09)	225 (8.86)
AKD2G-SPx-7V06S	6	18	4						
AKD2G-SPx-7V12S	12	30	8						
AKD2G-SPx-7V03D	3 & 3	9 & 9	2 & 2						
AKD2G-SPx-7V06D	6 & 6	18 & 18	4 & 4						

AKD2G Drive Connector Layout



*SMM = Optional SafeMotion Monitor
 **I/O count shows the net sum of standard I/O + the expansion I/O

▶ AKD[®] Servo Drive

Our AKD series is a complete range of Ethernet-based servo drives that are fast, feature-rich, flexible and integrate quickly and easily into any application.

AKD ensures plug-and-play commissioning for instant, seamless access to everything in your machine. And, no matter what your application demands, AKD offers industry-leading servo performance, communication options, and power levels, all in a smaller footprint

This robust, technologically advanced family of drives delivers optimized performance when paired with our best-in-class components, producing higher quality results at greater speeds and more uptime. With Kollmorgen servo components, we can help you increase your machine's overall equipment effectiveness (OEE) by 50%.





The Benefits of AKD® Servo Drives

Optimized Performance in Seconds

- » Auto-tuning is one of the best and fastest in the industry
 - » Automatically adjusts all gains, including observers
 - » Immediate and adaptive response to dynamic loads
 - » Precise control of all motor types
 - » Compensation for stiff and compliant transmission and couplings
-

Greater Throughput and Accuracy

- » Up to 27-bit-resolution feedback yields unmatched precision and excellent repeatability
 - » Very fast settling times result from a powerful dual processor system that executes industry-leading and patent pending servo algorithms with high resolution
 - » Advanced servo techniques such as high-order observer and bi-quad filters yield industry-leading machine performance
 - » Highest bandwidth torque-and-velocity loops. Fastest digital current loop in the market
-

Easy-to-use Graphical User Interface (GUI) for Faster Commissioning and Troubleshooting

- » Six-channel real-time software oscilloscope commissions and diagnoses quickly
 - » Multi-function Bode Plot allows users to quickly evaluate performance
 - » Auto-complete of programmable commands saves looking up parameter names
 - » One-click capture and sharing of program plots and parameter settings allow you to send machine performance data instantly
 - » Widest range of programming options in the industry
-

Flexible and Scalable to Meet any Application

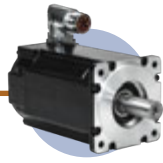
- » 3 to 48 Arms continuous current; 9 to 96 Arms peak
 - » Very high power density enables an extremely small package
 - » True plug-and-play with all standard Kollmorgen servo motors and actuators
 - » Supports a variety of single and multi-turn feedback devices – Smart Feedback Device (SFD/SFD3), EnDat 2.2, EnDat 2.1, BiSS, analog Sine/Cos encoder, incremental encoder, HIPERFACE®, and resolver
 - » Tightly integrated Ethernet motion buses without the need to add large hardware: EtherCAT®, SynqNet®, Modbus® TCP, EtherNet/IP™, PROFINET® RT, SERCOS® III, and CANopen®
 - » Scalable programmability from base torque-and-velocity through multi-axis master
-

AKD[®] Servo Drive

The AKD servo drive delivers cutting-edge technology and performance with one of the most compact footprints in the industry. These feature-rich drives provide a solution for nearly any application, from basic torque-and-velocity applications, to indexing, to multi-axis programmable motion with embedded Kollmorgen Automation Suite™. The versatile AKD sets the standard for power density and performance.



AKMH[™] Hygienic Stainless Steel Motors



AKM & AKM[®] 2G Servo Motors



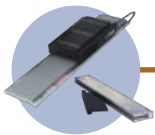
Frameless Brushless Direct Drive Motors



Cartridge DDR[®] Motors



Housed DDR[®] Motors



Direct Drive Linear Motors



Linear Actuators



Multi-Axis Precision Tables



AKD[®]-N Decentralized Servo Drive



AKD[®] Servo Drive



Control of axes with PCMM programmable multi-axis EtherCAT[®] master

Best-in-Class Components

AKD works seamlessly with Kollmorgen motors and actuators—well-known for quality, reliability, and performance.



General Specifications

120 / 240 Vac 1 & 3 Phase (85 -265 V)	Continuous Current (Arms)	Peak Current (Arms)	Drive Continuous Output Power Capacity (Watts)	Internal Regen (Watts) (Ohms)		Height mm (in)	Width mm (in)	Depth mm (in)	Depth with Cable Bend Radius mm (in)
AKD-x00306	3	9	1100	0	0	168 (6.61)	59 (2.32)	156 (6.14)	184 (7.24)
AKD-x00606	6	18	2000	0	0	168 (6.61)	59 (2.32)	156 (6.14)	184 (7.24)
AKD-x01206	12	30	4000	100	15	196 (7.72)	78 (3.07)	187 (7.36)	215 (8.46)
AKD-x02406	24	48	8000	200	8	247 (9.72)	100 (3.94)	228 (8.98)	265 (10.43)
240/480 Vac 3 Phase (187-528 V)	Continuous Current (Arms)	Peak Current (Arms)	Drive Continuous Output Power Capacity (Watts)	Internal Regen (Watts) (Ohms)		Height mm (in)	Width mm (in)	Depth mm (in)	Depth with Cable Bend Radius mm (in)
AKD-x00307	3	9	2000	100	33	256 (10.08)	70 (2.76)	185 (7.28)	221 (8.70)
AKD-x00607	6	18	4000	100	33	256 (10.08)	70 (2.76)	185 (7.28)	221 (8.70)
AKD-x01207	12	30	8000	100	33	256 (10.08)	70 (2.76)	185 (7.28)	221 (8.70)
AKD-x02407	24	48	16,000	200	23	306 (12.01)	105 (4.13)	228 (8.98)	264 (10.39)
AKD-x04807	48	96	35,000	-	-	385 (15.16)	185 (7.28)	225 (8.86)	260 (10.23)



AKD[®] Servo Drive Nomenclature

AKD[®] Servo Drive

AKD - B 003 06 - NB AN - 0000

AKD Series

Variants

0000 Standard

Version

- B Base drive
- C Central power supply for AKD-N (requires CB extension)
- N Decentralized drive (requires DB, DF, or DS extension)
- P Position indexer (motion tasking)
- T AKD BASIC Language Programmable drive (requires IC or NB extension)
- M Multi-axis Master Drive (requires M1 or MC extension option and EC connectivity option)

Connectivity*

Drive Version Availability

- | | | |
|----|--------------------------|------------|
| AN | Analog command | B, P, T |
| CN | CANopen [®] | P |
| EC | EtherCAT [®] | C, M, N, P |
| EI | EtherNet/IP [™] | P |
| PN | PROFINET [®] | P |
| SQ | SynqNet [®] | B |

*Motion Tasking is included as a free upgrade with CN, EC, EI and PN

Current Rating

- 003 3 Amp
- 006 6 Amp
- 010 10 kW (for AKD-C, this field refers to power)
- 012 12 Amp
- 024 24 Amp
- 048 48 Amp

Extension

- CB Without extension (AKD-C version only)
- DB Hybrid motor cable (AKD-N version only)
- DF Additional EtherCAT[®] port + feedback connector (AKD-N version only)
- DS Local STO + feedback connector (AKD-N version only)
- IC Expanded I/O version and SD card slot (AKD-T version only)
- M1 High performance multi-axis controller with industry-standard IEC 61131-3 PLC programming built-in
- MC Standard multi-axis controller
- NB Without extensions

Voltage

- 06 120/240 Vac 1Ø/3Ø (24 Amp drive: 240 Vac 3Ø only)
- 07 240/480 Vac 3Ø (Version C: 07 = 400/480 Vac 3Ø | Version N: 07 = 560/680 Vdc)

Note: Options shown in blue text are considered standard.

AKD[®] 2G Servo Drive Nomenclature

AKD[®]2G Servo Drive

AKD2G - S P E - 7V 06 S - A 1 F3 - 0000 - A

AKD2G Series

Connectors

A with connectors (except X1/X2 and X23)

Format

S Servo IP20

Customization

0000 Standard

A000 Coated PCBA

Drive Version

P Position Indexer with motion tasks

Options

00 Standard

F3 X23 (Feedback 3)

IO X22 (I/O)

DX X22 + X23

Connectivity Option

N Analog

E EtherCAT[®]

C CANopen[®]

P PROFINET[®] IRT

I Ethernet/IP[™]

Functional Safety

1 STO, dual channel (SIL2, PLd)

2 STO, SS1, SDB, SBC/SBT, FSoE (up to SIL3/PLe)

3 STO, SS1, SS2, SOS, SDB, SBC/SBT, SLS, SSR, SSM, SDI, SAR, SLA, SLI, SLP, SCA (up to SIL 3 / PLe)

Voltage

06 120/240 Vac 1Ø/3Ø

07 240/480 Vac 3Ø

Platform Revision

A MAP Revision A

Current Rating

003 3 Amp

006 6 Amp

012 12 Amp*

Options

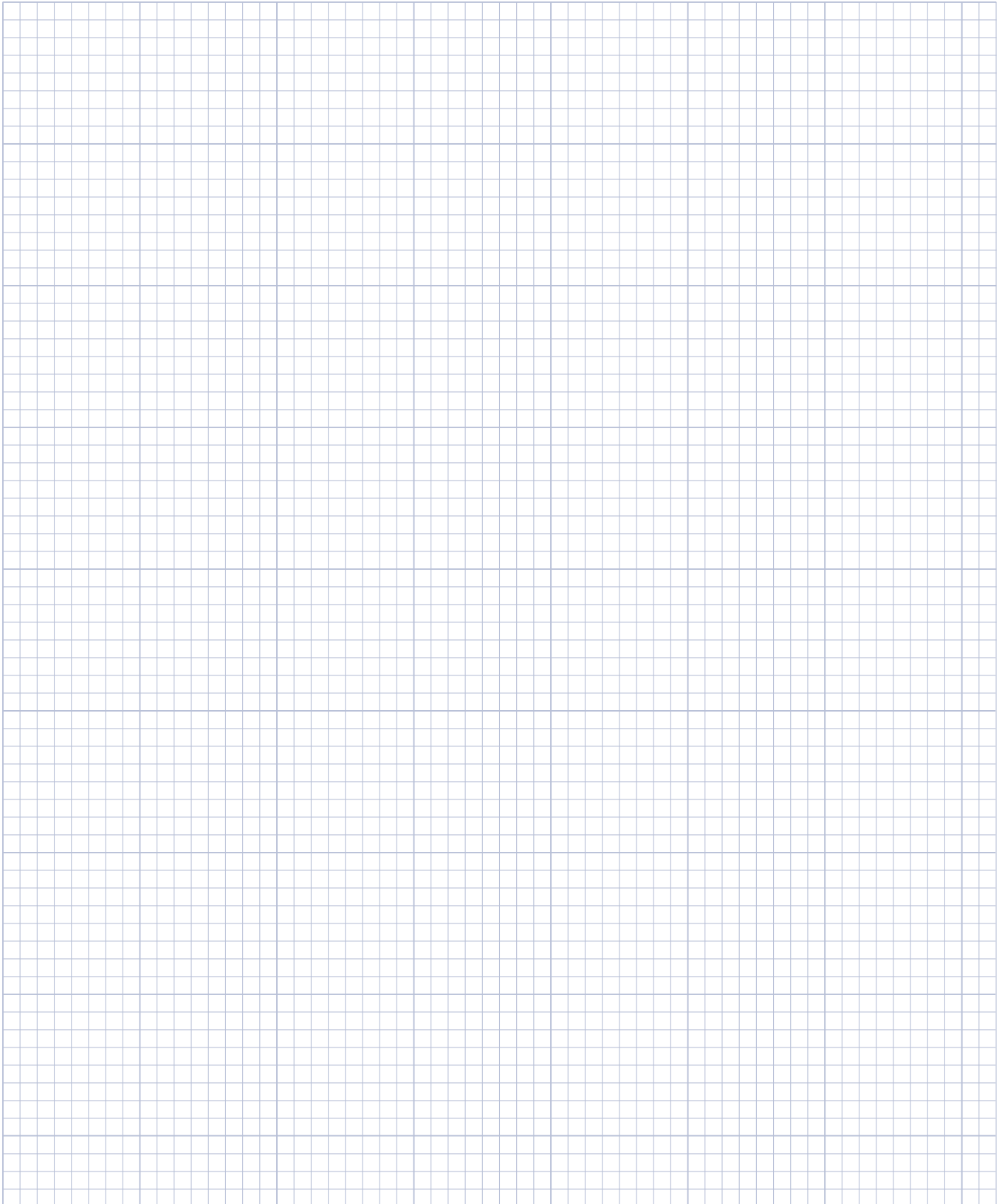
S Single Axis

D Dual Axis*

* 12 amp dual axis drives are not currently available.

Note: Options shown in blue text are considered standard.

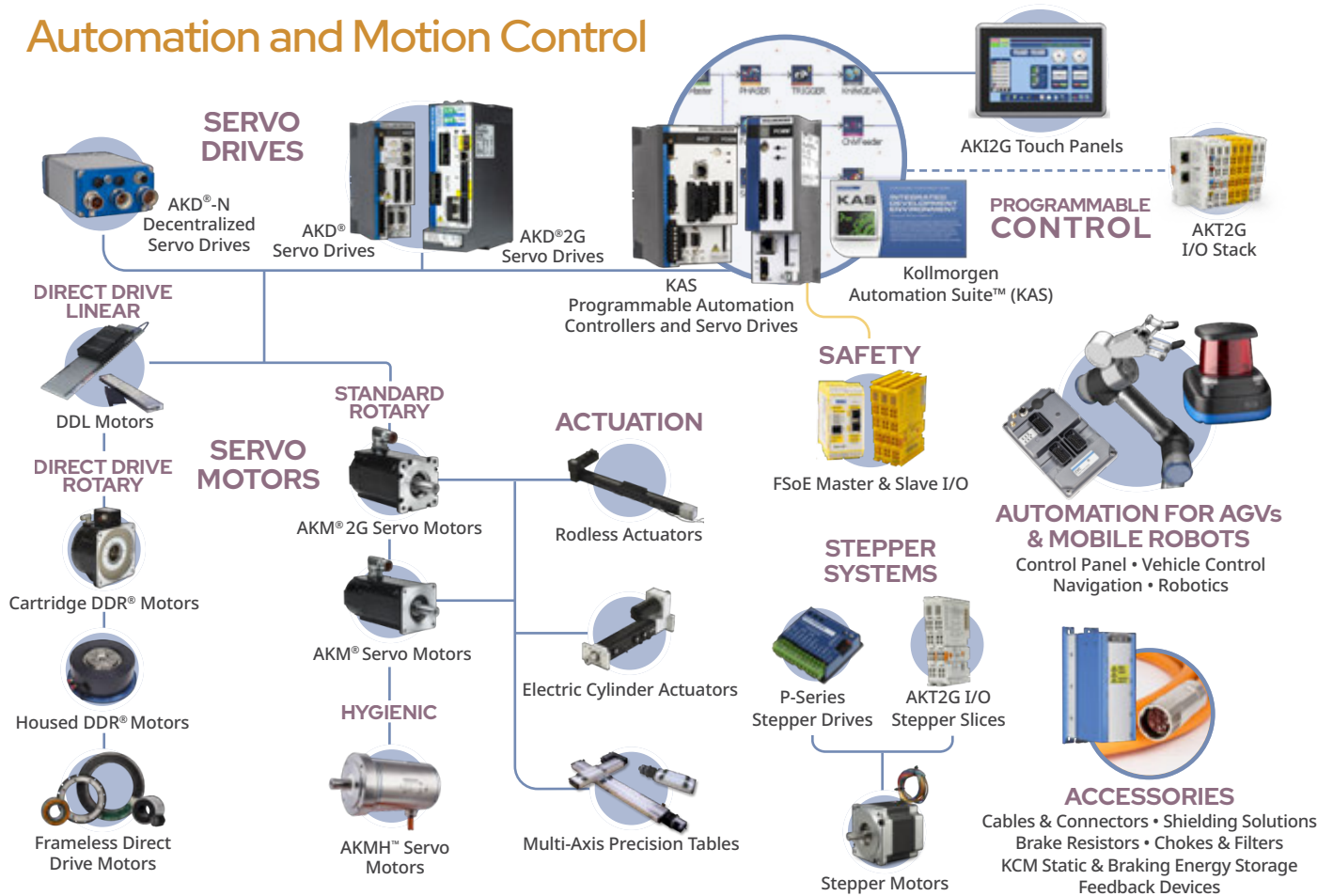
Notes



0.125 inch divisions

Kollmorgen Solutions

Automation and Motion Control



Self-Help Tools

Motioneering® Online



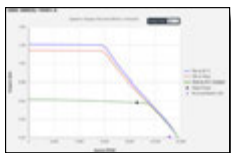
Size and select the right product for your application needs

Drawing Generator



Provides TBM/KBM/AKM 2D and 3D drawings in many popular formats

Performance Curve Generator



Optimize TBM/KBM/AKM windings using customer supplied environmental and drive information

Product Selector



Choose the right product for your application needs

Kollmorgen Developer Network



Find answers to many key technical questions or start your own session

Stepper Optimizer



Select the most efficient stepper solution for your application

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 has more than 70 years of motion experience, proven in the industry's highest-performing, most reliable motors, drives, linear actuators, gearheads, AGV control solutions and automation platforms. We deliver breakthrough solutions that are unmatched in performance, reliability and ease of use, giving machine builders an irrefutable marketplace advantage.

Kollmorgen is a brand of Altra Industrial Motion Corp. (NASDAQ: AIMC), a premier global designer and producer of a wide range of motion control and power transmission solutions. With engineered components and systems that provide the essential control of equipment speed, torque, positioning, and other functions, Altra products can be used in nearly any machine, process or application involving motion.

KOLLMORGEN

www.kollmorgen.com

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