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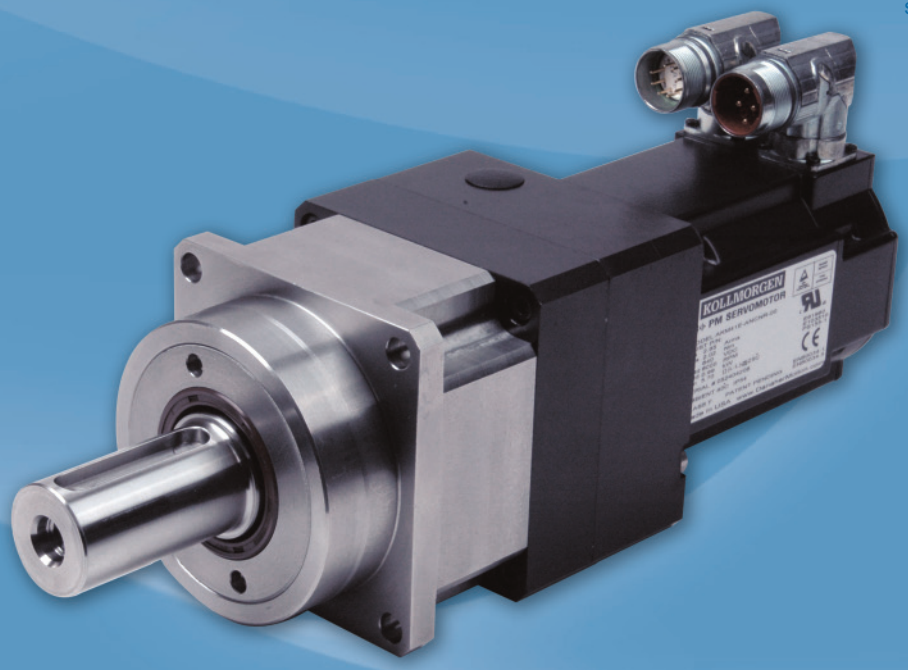

AKM Gearmotor Selection Guide

DANAHER MOTION

*Helping you build a better machine, **faster.***

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DANAHER MOTION

Helping you build a better machine, ***faster.***

Danaher Motion - Helping you build a better machine, faster

Danaher Corporation combined over 30 industry-leading brands such as Kollmorgen, Thomson, Dover, Pacific Scientific, Portescap, Neff, Seidel and Bautz to establish a customer-focused motion control manufacturing company called Danaher Motion. We offer this powerful set of integrated motion control technologies under the Danaher Motion and Thomson brand names. We are a $1B+ global motion control leader, unique in our ability to marshal decades of application experience and technical innovation to help you build better machines, faster.

Danaher Motion defines high standards of quality, innovation and technology. We enable improved machine performance and reliability while controlling costs. Our global manufacturing footprint, rapid customization and prototyping capabilities drive quick lead times. Unmatched application experience and design expertise empowers you to commission machines faster.

Consider your options in today's market for a motion control partner. Select Danaher Motion and join a team with 6100 employees, over 60 years of application experience and 2000+ distributor locations around the globe. Danaher Motion serves industries as diverse as semiconductor, aerospace and defense, electric vehicle systems, packaging, printing, medical and robotics. We offer an unparalleled depth and breadth of motion control product solutions through a worldwide service and support infrastructure, field service engineers and support teams available when and where you need them.

The Danaher Business System - Building sustainable competitive advantage into your business

The Danaher Business System (DBS) was established to increase the value we bring to customers. It is a mature and successful set of tools we use daily to continually improve manufacturing operations and product development processes. DBS is based on the principles of Kaizen which continuously and aggressively eliminate waste in every aspect of our business. DBS focuses the entire organization on achieving breakthrough results that create competitive advantages in quality, delivery and performance – advantages that are passed on to you. Through these advantages Danaher Motion is able to provide you faster times to market as well as unsurpassed product selection, service, reliability and productivity.

Local Support Around the Globe

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Table of Contents

Danaher Motion Introduction 4-5

AKM Gearmotors 6-7

AKM Brushless Servomotors 8

Danaher Motion Micron Gearhead 9

Standard Line 10-11
- Standard Line AKM2x 12
- Standard Line AKM3x 13
- Standard Line AKM4x 14
- Standard Line AKM5x 15
- Standard Line AKM6x 16

Precision Line 18-19
- Precision Line AKM2x 20
- Precision Line AKM3x 21
- Precision Line AKM4x 22
- Precision Line AKM5x 23
- Precision Line AKM6x 24

Compatible Drive Products 26

AKM Gearmotor Part Number System 27

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New Name, Established Brands

Danaher Motion's wide range of motion control systems and components offer customers an unprecedented choice in selecting the right solution for their particular application requirements. Our product innovations have been improving the efficiency and productivity of complex manufacturing operations for over 60 years through trusted brand names such as Dover, Kollmorgen, Pacific Scientific, Portescap and Thomson in industries as diverse as semiconductor, aerospace and defense, mobile-off-highway, packaging, medical and robotics.

Danaher Motion's growing family of leading motion control products tells only half the story. With a worldwide service and support infrastructure, our field service engineers and support teams are available when you need them. It is part of the Danaher Corporation's unrelenting focus on you, our customer. That's why more and more design engineers are turning to Danaher Motion to meet their motion control requirements.

Danaher Motion AKM Motors and Drives- Choice Without Compromise

Our new AKM servo motors and drives from Danaher Motion give you unprecedented choice and flexibility from a wide range of standard products so you can select the best servo motor and drive combination optimized for your specifications. Now, selecting the right motion control products has never been easier. Pick from thousands of servo motor/drive combinations outlined in this catalog or go to our Web site to find the best solution for your application. Standard Danaher Motion AKM servo motors and drives offer the best of both worlds – the exact specifications of a custom solution with the faster delivery times and lower cost of a standard catalog product. For your truly unique motion control applications, work with our engineering support team to customize a solution for your machine design. Either way, standard product or customized, you choose the motion control solution that meets your exact requirements.

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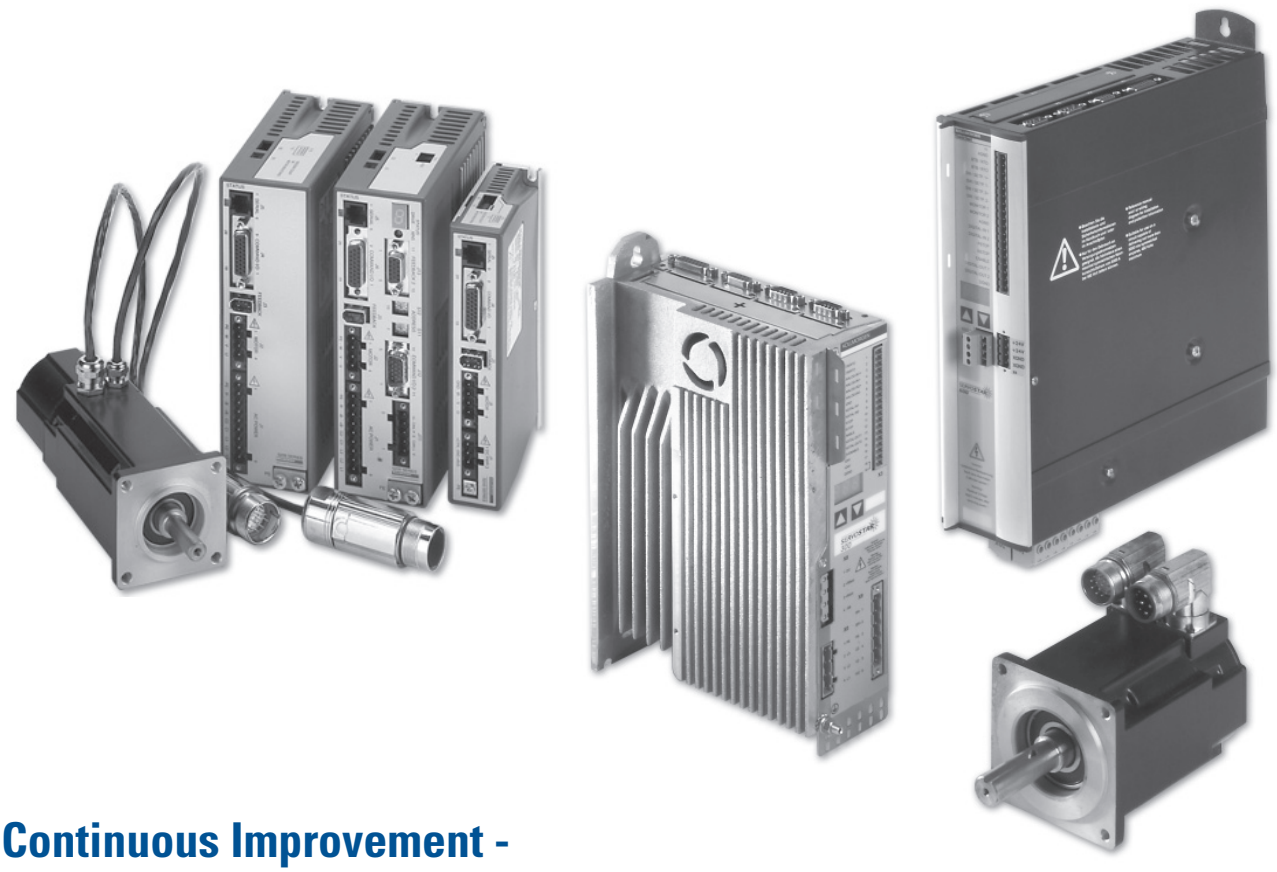

Continuous Improvement - It's the Danaher Motion Way

At Danaher Motion we are passionate about continually improving our operations to bring increasing value to our customers. The Danaher Business System (DBS) helps us improve the efficiency of our manufacturing and product development processes. DBS is a team-based approach based on the principles of Kaizen that lets us continuously and aggressively eliminate waste in every aspect of our business operations. The DBS focuses our entire organization on achieving breakthrough results that create competitive advantage in quality, delivery and performance - advantages that we pass on to you, our customer.

Whatever your motion control requirements may be, Danaher Motion has a solution that is right for you. Our unsurpassed product selection and service means faster time to market, higher reliability and increased productivity. Let the experts at Danaher Motion put a world of motion control solutions at your fingertips.

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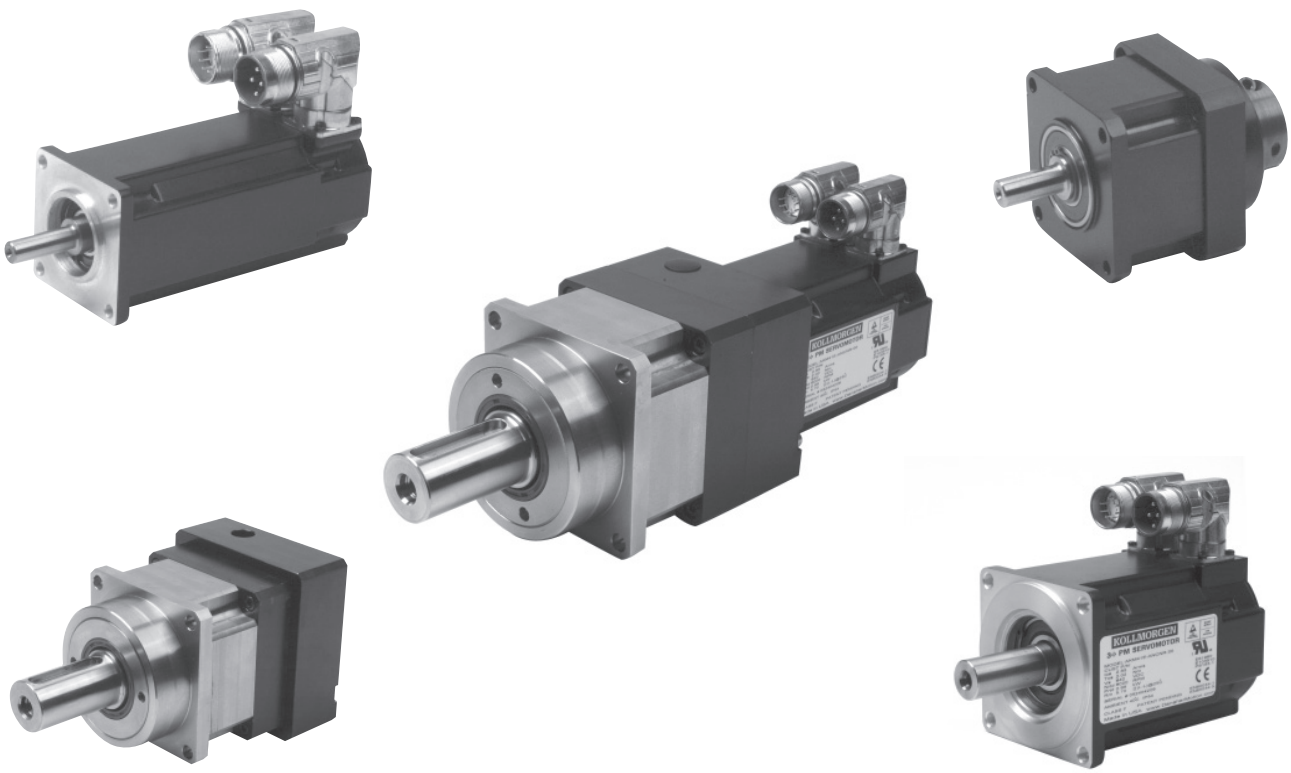
AKM Gearmotors, the new standard in performance, reliability and convenience.

Combining the industry-leading torque density from AKM servomotors with the proven performance of Micron TRUE planetary gearheads produces a single factory integrated solution. Built for high torque applications, AKM gearmotors offer the precision and performance required by the most demanding motion control environments.

- Easy selection of factory tested combinations, no matching of motor and gearhead required
- Single unit design for quick delivery of ready-to-mount system units
- Factory integrated and tested design eliminates assembly errors
- Save assembly time and get machines up and running faster
- Gain valuable machine space with the highest torque density gearmotors available



Motion Control Applications

- Converting
- Printing
- Semi-conductor water fabrication
- Coating and film processing
- High speed electronic assembly
- Injection Molding
- Packaging
- Pedestal azimuth and elevation

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AKM Gearmotors

For high-torque applications, Danaher Motion's performance gearmotor solutions offer incredible value. AKM servomotors attached to Micron TRUE Planetary gearheads create the industry leading system that sets the standard for torque value and performance.

AKM Series Brushless Gearmotor

World Class Performance delivered

Typical Issues	AKM Gearmotor Solution
Project planning and multiple lead times	Let Danaher Motion solve your system needs within the standard lead-time of the motor. One system solution with one lead-time.
Single source your system solution	Danaher Motion provides a breadth of gearmotor systems with one Part Number to order and maintain.
High demand applications with torque limiting systems' speed performance	AKM's broad torque band allows higher speeds to be realized while providing precision speed regulation at the gearmotor output shaft.
Design of mounting / alignment hardware	AKM gearmotors offer one component to mount without the need for managing adapters between the motor and gearbox.
Imperfect alignment of gearbox and motor causes reduced performance and premature failure	Danaher Motion's AKM gearmotor eliminates alignment issues by combining, testing and qualifying each system at the factory.
Compliance in motor mounting to the load	AKM servomotors feature high motor-dynamics that are optimized through the torsional stiffness of the Micron TRUE gearhead.
Servo tuning difficulty due to backlash and compliance of gearbox	Micron TRUE planetary gearheads offer industry-leading accuracy (low backlash).
Increased backlash due to wearing gears	Micron TRUE planetary gearheads offer 100% load sharing over the hardened gears.
Motor bearing failure due to radial loading	Micron TRUE planetary gearheads resultant force on motor bearing is zero!
Gearbox lubrication and maintenance	Micron TRUE gearheads are designed to self-lubricate.

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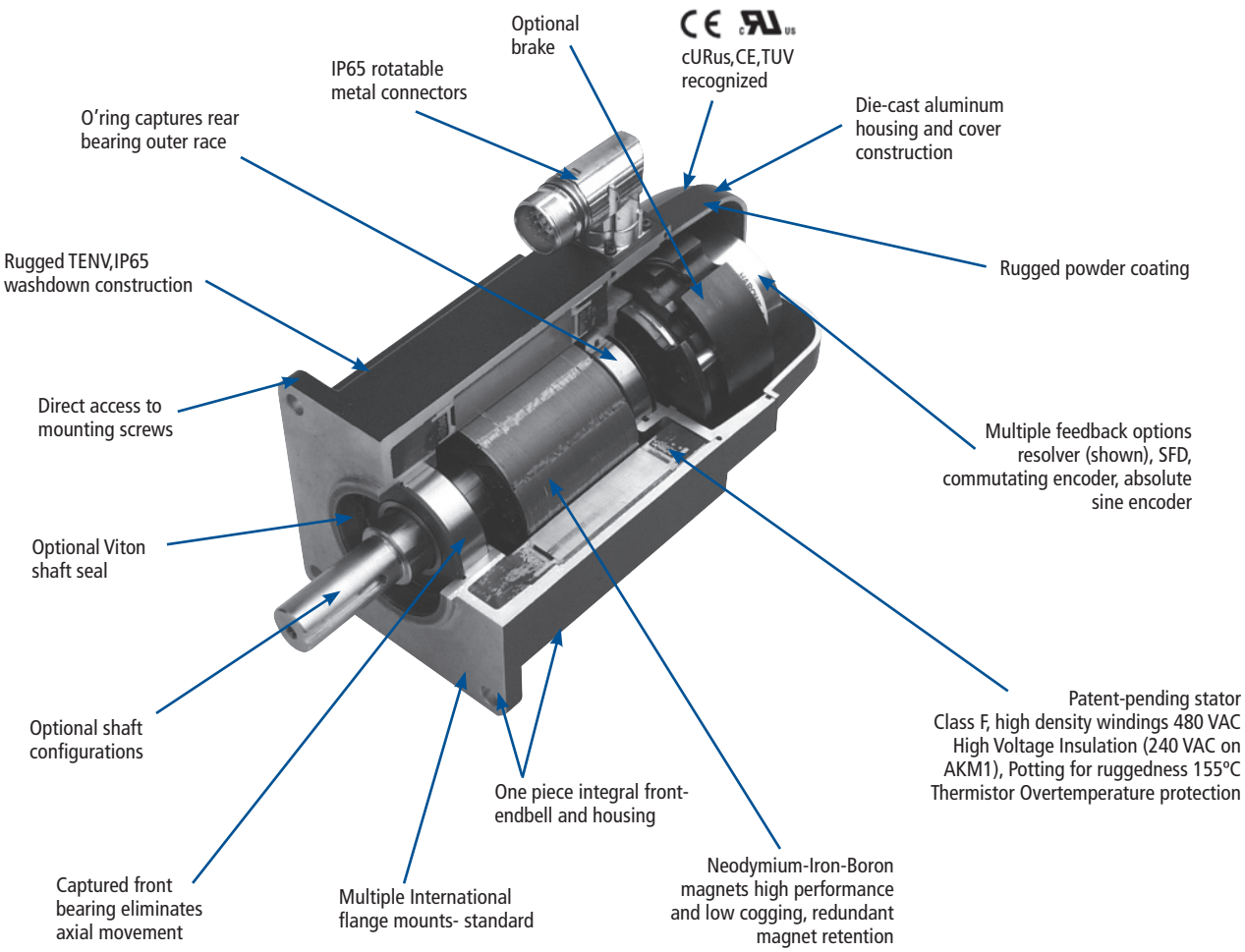
Danaher Motion AKM Brushless Servomotors

The Danaher Motion AKM servomotors provide an unprecedented choice and flexibility from a wide range of standard products so you can select the best servo motor optimized for your application requirements. AKM servomotors offer the best of both worlds – the exact specifications of a custom solution with the faster delivery times and lower cost of a standard catalog product.

AKM Brushless Servomotors

- Best in class torque density with wide variety of stack/frame combinations
- Gearmotors available in 19 different frame/stack combinations
- Low-cog, low-harmonic distortion electro magnetic design
- More than 14 feedback variations of: resolver, SFD, commutating encoder, absolute sine encoders (single-turn and multi-turn) in the standard offering
- Single piece flow manufacturing providing faster delivery times on any arrangement of options
- Optional Teflon shaft seal (Motor Only)



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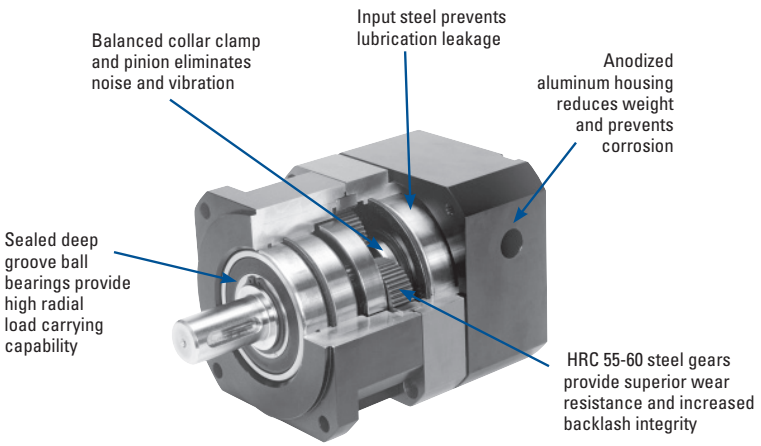
Danaher Motion Gearhead

Danaher Motion offers the largest selection of TRUE planetary gearheads in the world. The gearmotor product line includes both the NemaTRUE and the ValueTRUE gearheads, ranging in frame size from 60 mm to 142 mm and ratios from 3:1 to 25:1. Danaher Motion's Helical Crowned TRUE Planetary design is industry leading in smoothness, torque and precision.

Standard Line featuring NemaTRUE Gearheads

The new Standard Line AKM Gearmotor sets the standard in torque per dollar and performance. Offered in ratios from 3:1 to 25:1, the Standard Line features the NemaTRUE planetary gearhead with its high precision 13 arc minutes of backlash.

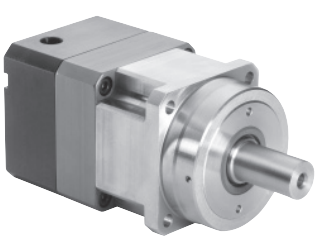
- True Planetary Gearing Design
- Standard with Micron's RediMount system
- 4 Available Frame Sizes
- High Precision: 13 arc-min of backlash
- High Torque Capacity: Up to 5860 lb-in
- High Radial Load Capacity: Up to 2000 lb
- Ratio Availability: 3:1 to 25:1

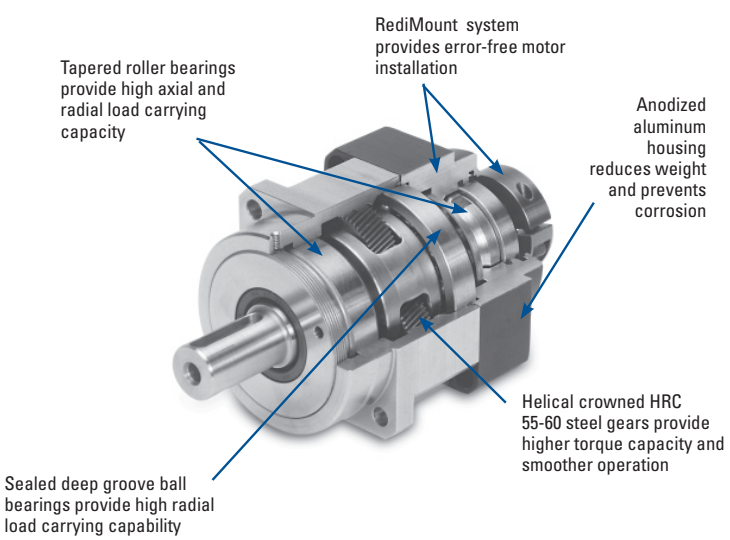


Precision Line featuring ValueTRUE Gearheads

The new Precision Line AKM Gearmotor raises the bar in performance and precision. For your most demanding applications, the Precision Line features the ValueTRUE planetary gearhead with its ultra-high precision 4 arc minutes of backlash.

- Helical Crowned True Planetary Gearing
- Standard with Micron's RediMount system
- 4 Available Frame Sizes
- Ultra Precision: 4 arc-min of backlash
- High Torque Capacity: 8280 lb-in
- High Radial Load Capacity: Up to 10,000 lb
- Ratio Availability: 4:1 to 25:1





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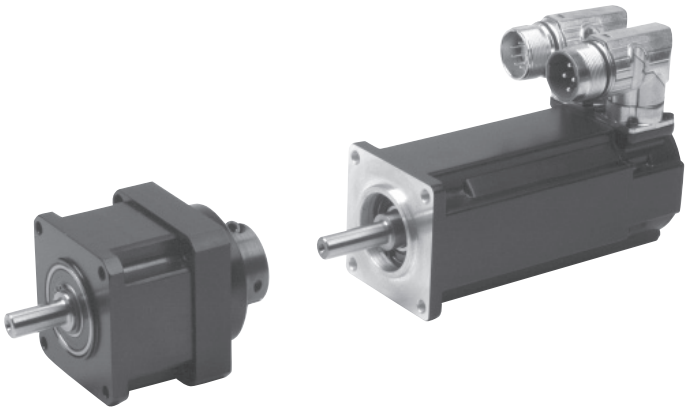
Standard Line

Specifications

- Up to 662 Nm of peak torque
- 13 arc-min of backlash (1 stage)
- 15 arc-min of backlash (2 stage)

Value

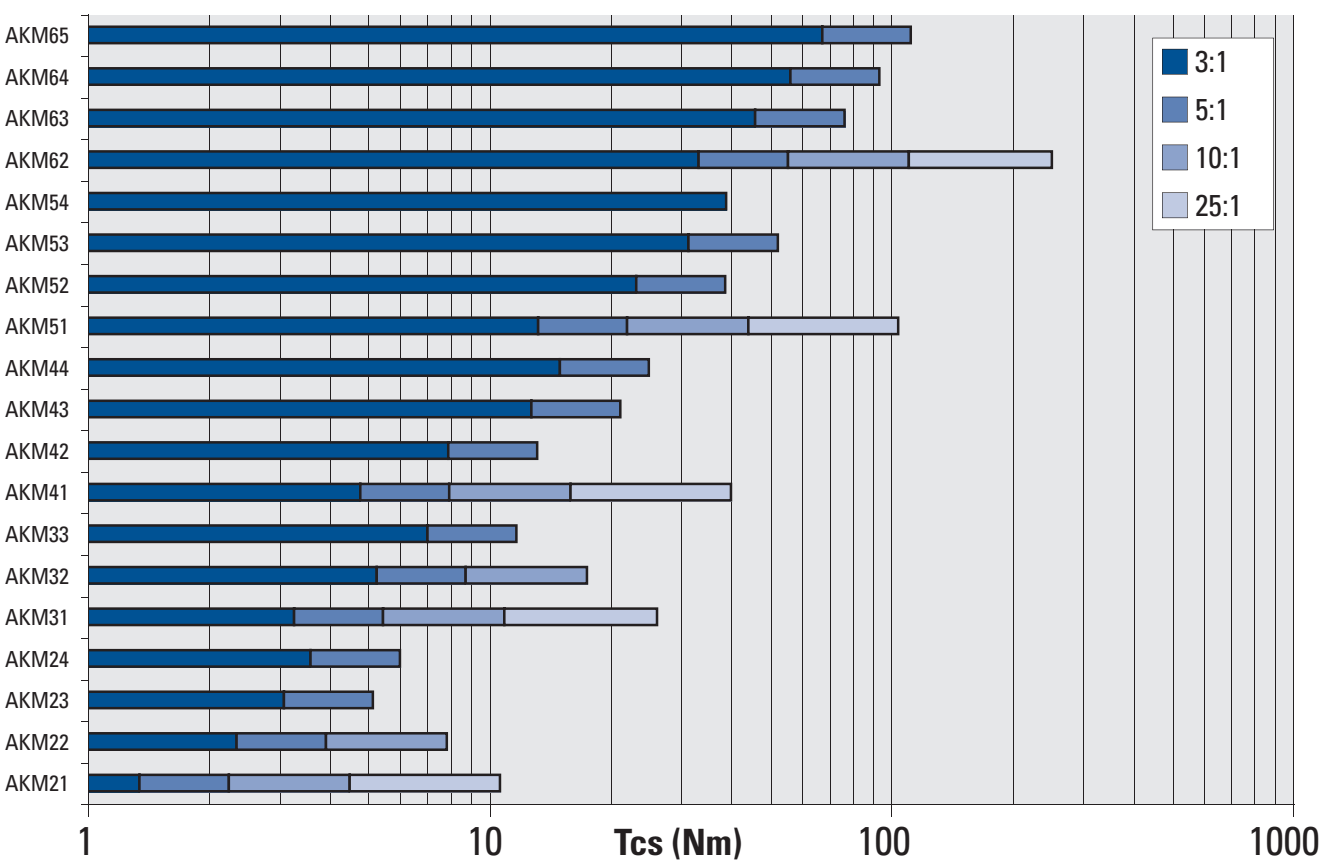
- Reliable performance at a competitive price point
- No additional price adder for assembly of components



All the benefits of a gearmotor system at an economical price

- Inertia matching for large load inertias
- Torque increases through speed reduction
- "Lubed For Life" gearbox without leaking or messy maintenance

Standard Line Continuous Torque



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Performance Data - Standard Line

Model	Max Supply Voltage	Tcs		Tp		Min. Gearmotor Inertia		Max. Gearmotor Inertia	
	3Ø VAC	Nm	lb-in	Nm	lb-in	Kg-m²	lb-in-s²	Kg-m²	lb-in-s²
AKM21	480	10.6	94.0	32.1	284	5.64E-04	4.99E-03	3.54E-02	3.14E-01
AKM22	480	7.9	69.5	25.1	222	6.13E-04	5.42E-03	6.01E-03	5.32E-02
AKM23	480	5.1	45.5	17.5	155	6.62E-04	5.86E-03	1.69E-03	1.50E-02
AKM24	480	6.0	53.0	21.7	192	7.11E-04	6.29E-03	1.83E-03	1.62E-02
AKM31	480	26.1	231	86.3	764	2.30E-03	2.03E-02	1.31E-01	1.16E+00
AKM32	480	17.5	155	65.3	578	2.53E-03	2.24E-02	2.22E-02	1.96E-01
AKM33	480	11.7	104	46.0	407	2.76E-03	2.45E-02	6.53E-03	5.78E-02
AKM41	480	40.0	354	135	1200	2.73E-03	2.41E-02	1.61E-01	1.43E+00
AKM42	480	13.2	117	52.2	462	3.30E-03	2.92E-02	8.02E-03	7.10E-02
AKM43	480	21.2	188	73.3	649	3.88E-03	3.43E-02	9.62E-03	8.52E-02
AKM44	480	25.0	221	91.8	813	4.46E-03	3.94E-02	1.12E-02	9.94E-02
AKM51	480	104	922	255	2260	7.03E-03	6.22E-02	3.95E-01	3.50E+00
AKM52	480	38.7	343	98.6	872	9.55E-03	8.45E-02	2.27E-02	2.01E-01
AKM53	480	52.2	462	135	1200	1.22E-02	1.08E-01	3.00E-02	2.66E-01
AKM54	480	38.9	344	104	918	1.47E-02	1.30E-01	1.47E-02	1.30E-01
AKM62	480	251	2230	646	5720	3.61E-02	3.19E-01	1.98E+00	1.75E+01
AKM63	480	76.5	677	194	1710	4.27E-02	3.78E-01	9.72E-02	8.61E-01
AKM64	480	93.6	828	243	2150	4.93E-02	4.37E-01	1.16E-01	1.02E+00
AKM65	480	112.0	991	293	2600	5.69E-02	5.03E-01	1.37E-01	1.21E+00

Note: Performance data is based on sinusoidal current commutation using a Danaher Motion drive. System selection should be determined using Danaher Motion's MOTIONEERING® system sizing software. Over 1500 AKM gearmotor systems are available for selection. See more details on page 17.

Model	Maximum Accel Torque for Ratio:							
	3		5		10		25	
	Nm	lb-in	Nm	lb-in	Nm	lb-in	Nm	lb-in
AKM21	8.10	71.7	8.91	78.9	5.94	52.6	14.4	127
AKM22	8.10	71.7	8.91	78.9	5.94	52.6	-	-
AKM23	8.10	71.7	8.91	78.9	-	-	-	-
AKM24	8.10	71.7	8.91	78.9	-	-	-	-
AKM31	32.6	288	40.7	360	21.6	191	60.5	535
AKM32	32.6	288	40.7	360	21.6	191	-	-
AKM33	32.6	288	40.7	360	-	-	-	-
AKM41	32.6	288	40.7	360	21.6	191	60.5	535
AKM42	32.6	288	40.7	360	-	-	-	-
AKM43	32.6	288	40.7	360	-	-	-	-
AKM44	32.6	288	40.7	360	-	-	-	-
AKM51	60.4	535	40.7	360	41.9	371	107	945
AKM52	60.4	535	40.7	360	-	-	-	-
AKM53	60.4	535	40.7	360	-	-	-	-
AKM54	60.4	535	-	-	-	-	-	-
AKM62	199	1760	219	1940	153	1350	346	3060
AKM63	199	1760	219	1940	-	-	-	-
AKM64	199	1760	219	1940	-	-	-	-
AKM65	199	1760	219	1940	-	-	-	-

• If no value is given, then the system combination must be purchased separately, and is not part of the gearmotor standard offer.

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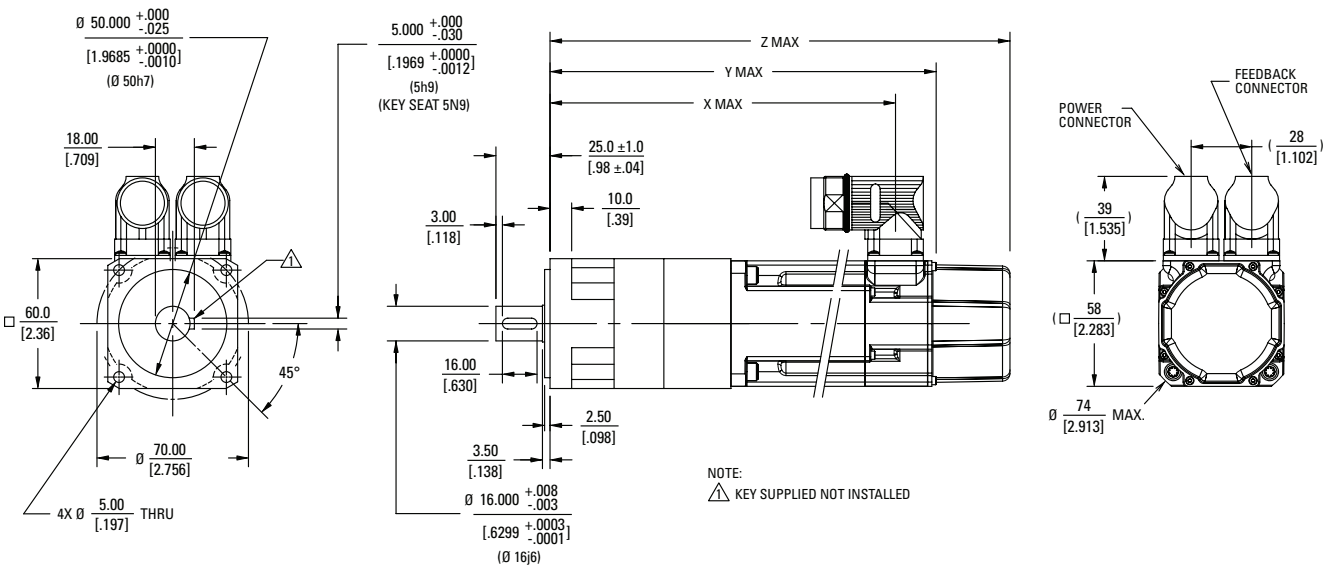
Outline - Standard Line AKM2x



• Refer to the AKM Selection Guide for details about other connector options and feedback availability.

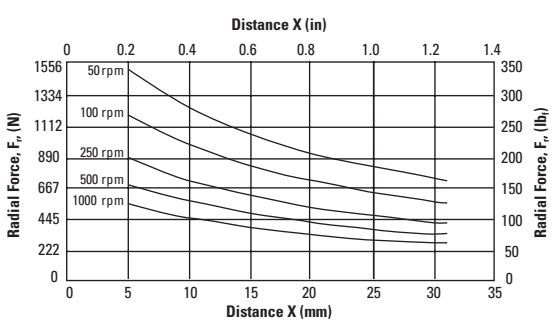
	"Y" Max. (non-brake)		"Z" Max. (with brake)		"X" Max.	
Model/Ratio	3:1 to 10:1	25:1	3:1 to 10:1	25:1	3:1 to 10:1	25:1
AKM21x	179.0 (7.05)	196.5 (7.74)	213.1 (8.39)	230.6 (9.08)	159.7 (6.29)	177.2 (6.98)
AKM22x	198.0 (7.80)	-	232.1 (9.14)	-	178.7 (7.04)	-
AKM23x	217.0 (8.54)	-	251.1 (9.89)	-	197.7 (7.78)	-
AKM24x	236.0 (9.29)	-	270.1 (10.6)	-	216.7 (8.53)	-

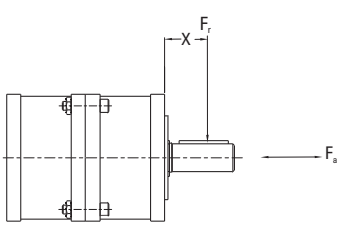
• Dimensions are in mm (inches)
• Product designed in metric
• English conversions provided for reference only

Radial and Axial Load Ratings

This graph displays the allowable radial load at a given distance (X) from the mounting surface based on an L_{10} life of 20,000 hours for the mean output speed n_{mout}.

Allowable axial load
F_a = 310 lb_f (1379 N)
at 250 rpm





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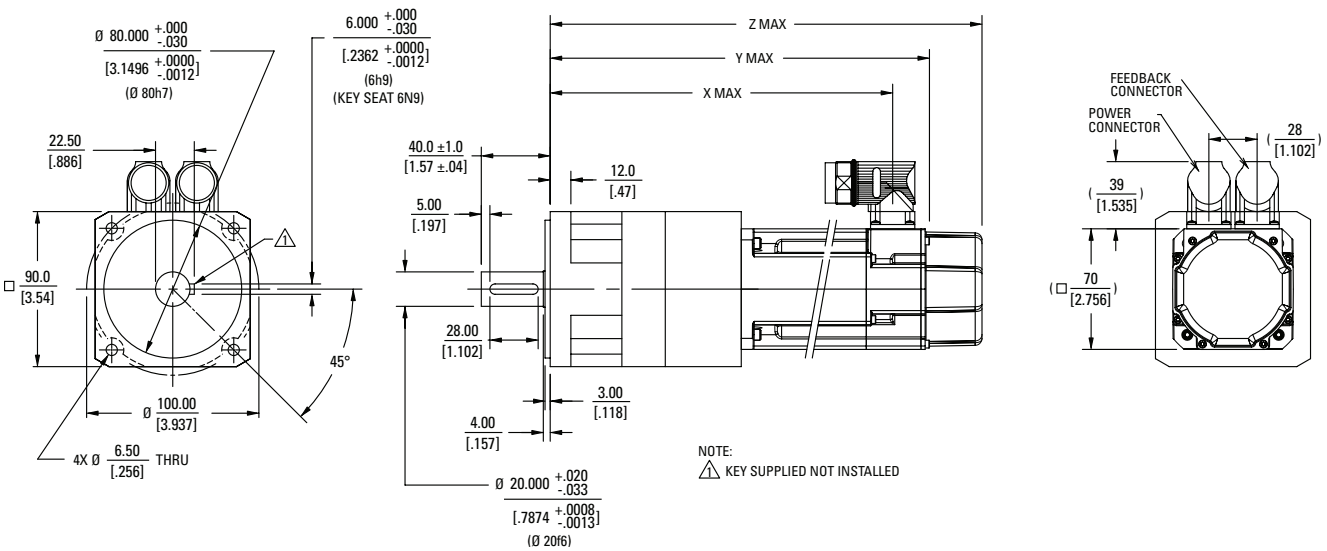
Outline - Standard Line AKM3x



• Refer to the AKM Selection Guide for details about other connector options and feedback availability.

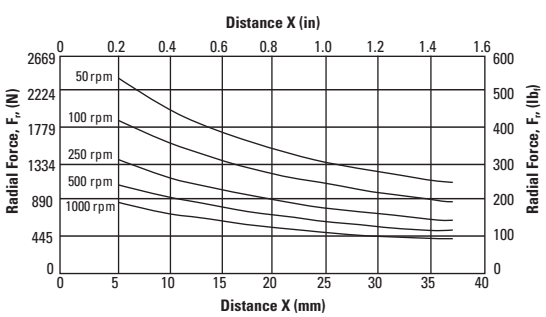
	"Y" Max. (non-brake)		"Z" Max. (with brake)		"X" Max.	
Model/Ratio	3:1 to 10:1	25:1	3:1 to 10:1	25:1	3:1 to 10:1	25:1
AKM31x	220.7 (8.69)	243.6 (9.59)	251.2 (9.89)	274.1 (10.8)	198.8 (7.83)	221.7 (8.73)
AKM32x	251.7 (9.91)	-	282.2 (11.1)	-	229.8 (9.05)	-
AKM33x	282.7 (11.1)	-	313.2 (12.3)	-	260.8 (10.3)	-

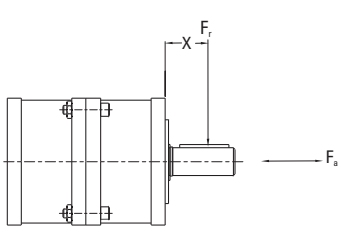
• Dimensions are in mm (inches)
• Product designed in metric
• English conversions provided for reference only

Radial and Axial Load Ratings

This graph displays the allowable radial load at a given distance (X) from the mounting surface based on an L_{10} life of 20,000 hours for the mean output speed n_{mout}.

Allowable axial load
F_a = 510 lb_f (2269 N)
at 250 rpm





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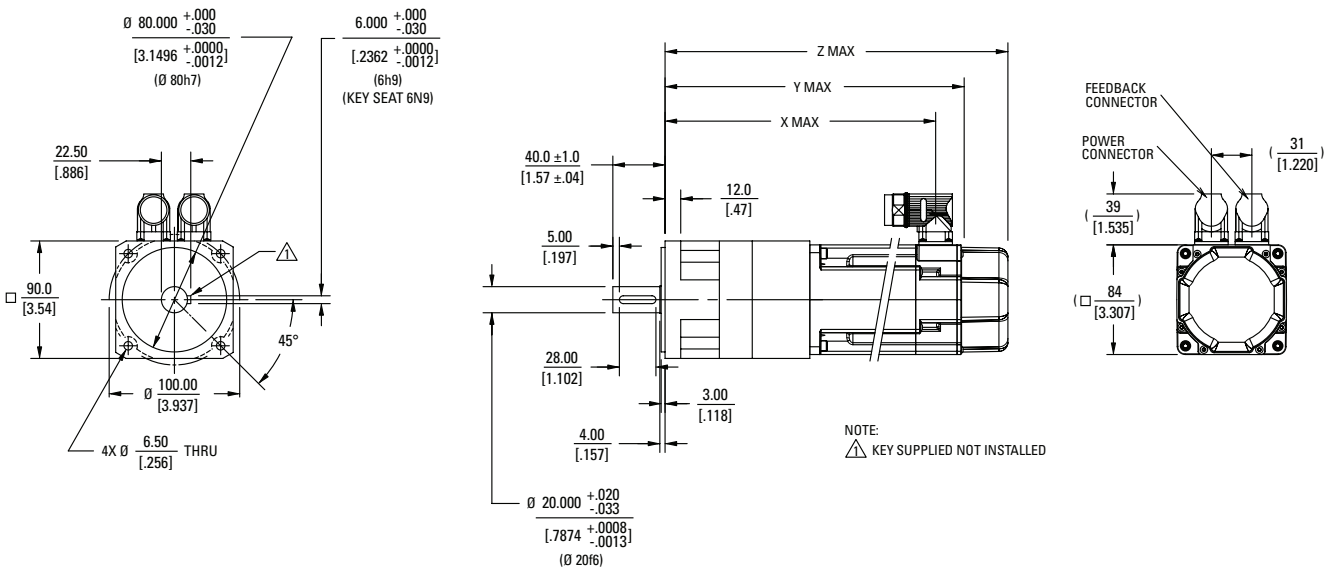
Outline - Standard Line AKM4x



- Refer to the AKM Selection Guide for details about other connector options and feedback availability.

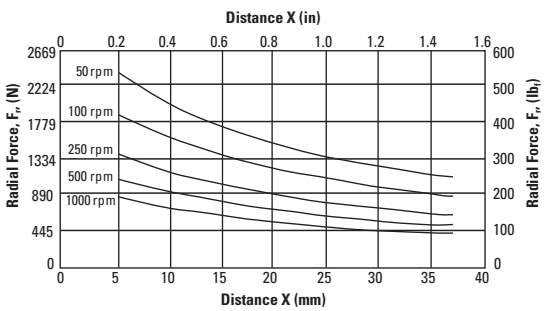
	"Y" Max. (non-brake)		"Z" Max. (with brake)		"X" Max.	
Model/Ratio	3:1 to 10:1	25:1	3:1 to 10:1	25:1	3:1 to 10:1 :	25:1
AKM41x	229.7 (9.04)	252.6 (9.94)	263.2 (10.4)	286.1 (11.3)	207.3 (8.16)	230.2 (9.06)
AKM42x	258.7 (10.2)	-	292.2 (11.5)	-	236.3 (9.30)	-
AKM43x	287.7 (11.3)	-	321.2 (12.6)	-	265.3 (10.4)	-
AKM44x	316.7 (12.5)	-	350.2 (13.8)		294.3 (11.6)	

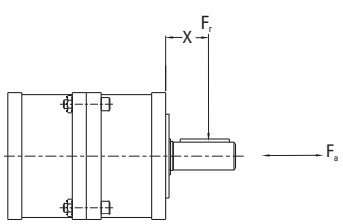
- Dimensions are in mm (inches)
- Product designed in metric
- English conversions provided for reference only

Radial and Axial Load Ratings

This graph displays the allowable radial load at a given distance (X) from the mounting surface based on an L_{10} life of 20,000 hours for the mean output speed n_{mout}.

Allowable axial load
F_a = 510 lb_f (2269 N)
at 250 rpm





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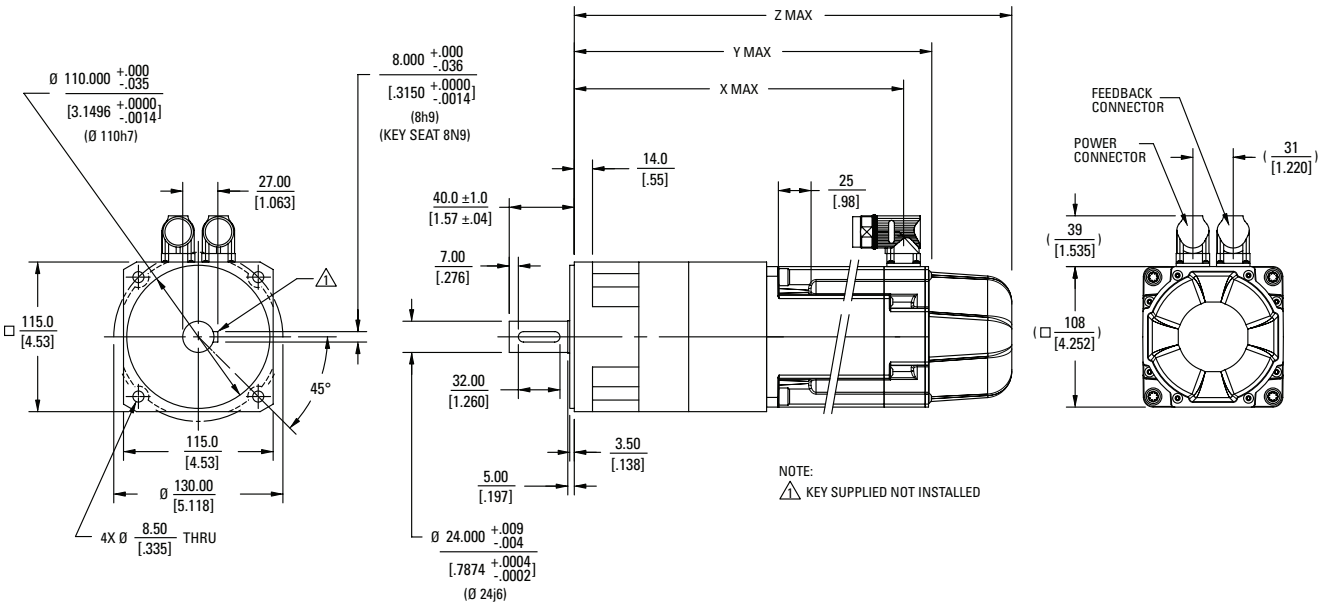
Outline - Standard Line AKM5x



- Refer to the AKM Selection Guide for details about other connector options and feedback availability.

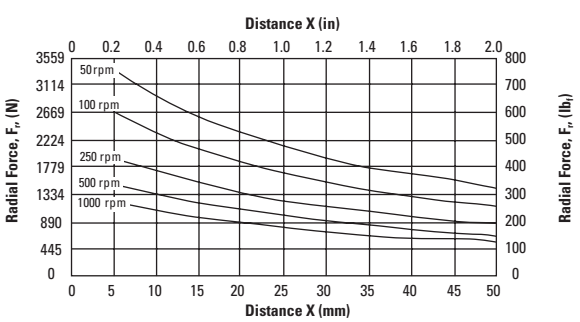
	Resolver, SFD, Incremental Encoder				Sine Encoder				Any	
	"Y" Max. (non-brake)		"Z" Max. (with brake)		"Y" Max. (non-brake)		"Z" Max. (with brake)		"X" Max.	
Model/Ratio	3:1 to 10:1	25:1	3:1 to 10:1	25:1	3:1 to 10:1 :	25:1	3:1 to 10:1	25:1	3:1 to 10:1	25:1
AKM51x	275.3 (10.8)	306.5 (12.1)	320.3 (12.6)	351.5 (13.8)	293.8 (11.6)	325.0 (12.8)	336.8 (13.3)	368.0 (14.5)	253.1 (9.96)	284.3 (11.2)
AKM52x	306.3 (12.1)	-	351.3 (13.8)	-	324.8 (12.8)	-	367.8 (14.5)	-	284.1 (11.2)	-
AKM53x	337.3 (13.1)	-	382.3 (15.1)	-	355.8 (14.0)	-	398.8 (15.7)	-	315.1 (12.4)	-
AKM54x	368.3 (14.5)	-	413.3 (16.3)	-	386.8(15.2)	-	429.8 (16.9)	-	346.1 (13.6)	-

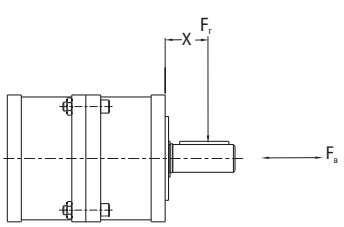
- Dimensions are in mm (inches)
- Product designed in metric
- English conversions provided for reference only

Radial and Axial Load Ratings

This graph displays the allowable radial load at a given distance (X) from the mounting surface based on an L_{10} life of 20,000 hours for the mean output speed n_{mout}.

Allowable axial load
F_a = 760 lb_f (3380 N)
at 250 rpm





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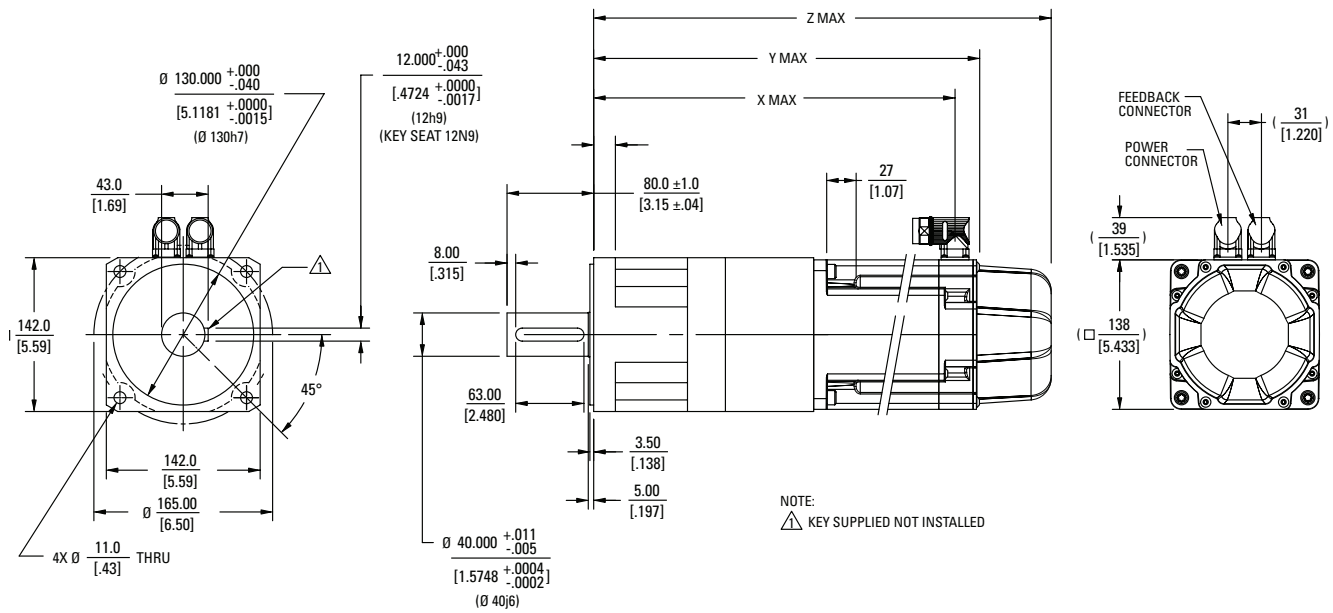
Outline - Standard Line AKM6x



- Refer to the AKM Selection Guide for details about other connector options and feedback availability.

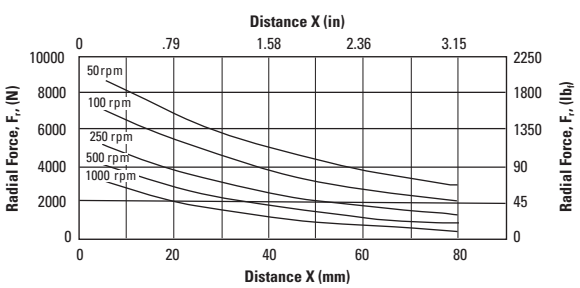
	Resolver, SFD, Incremental Encoder				Sine Encoder				Any	
	"Y" Max. (non-brake)		"Z" Max. (with brake)		"Y" Max. (non-brake)		"Z" Max. (with brake)		"X" Max.	
Model/Ratio	3:1 to 10:1	25:1	3:1 to 10:1	25:1	3:1 to 10:1 :	25:1	3:1 to 10:1	25:1	3:1 to 10:1	25:1
AKM62x	356.4 (14.0)	405.6 (16.0)	403.4 (15.9)	452.6 (17.8)	374.9 (14.8)	424.1 (16.7)	422.4 (16.6)	471.6 (18.6)	333.2 (13.1)	382.4 (15.1)
AKM63x	381.4 (15.0)	-	428.4 (16.9)	-	399.9 (15.7)	-	447.4 (17.6)	-	358.2 (14.1)	-
AKM64x	406.4 (16.0)	-	453.4 (17.9)	-	424.9 (16.7)	-	472.4 (18.6)	-	383.2 (15.1)	-
AKM65x	431.4 (17.0)	-	478.4 (18.8)	-	449.9 (17.7)	-	497.4 (19.6)	-	408.2 (16.1)	-

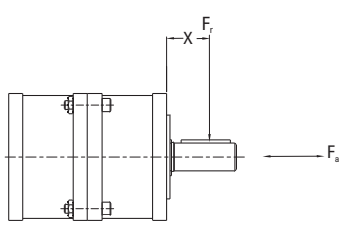
- Dimensions are in mm (inches)
- Product designed in metric
- English conversions provided for reference only

Radial and Axial Load Ratings

This graph displays the allowable radial load at a given distance (X) from the mounting surface based on an L_{10} life of 20,000 hours for the mean output speed n_{mout}.

Allowable axial load
F_a = 1790 lb_f (7960 N)
at 250 rpm





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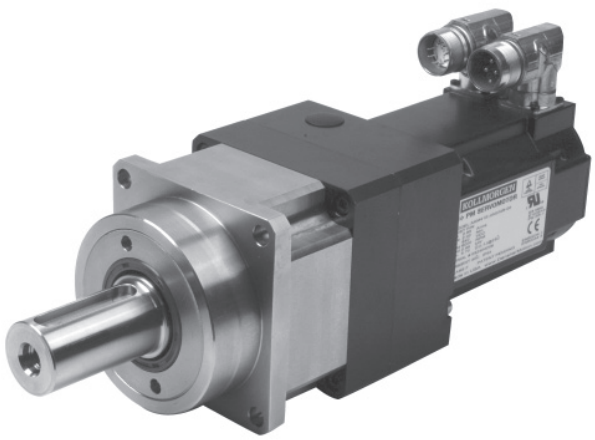
Precision Line



Specifications

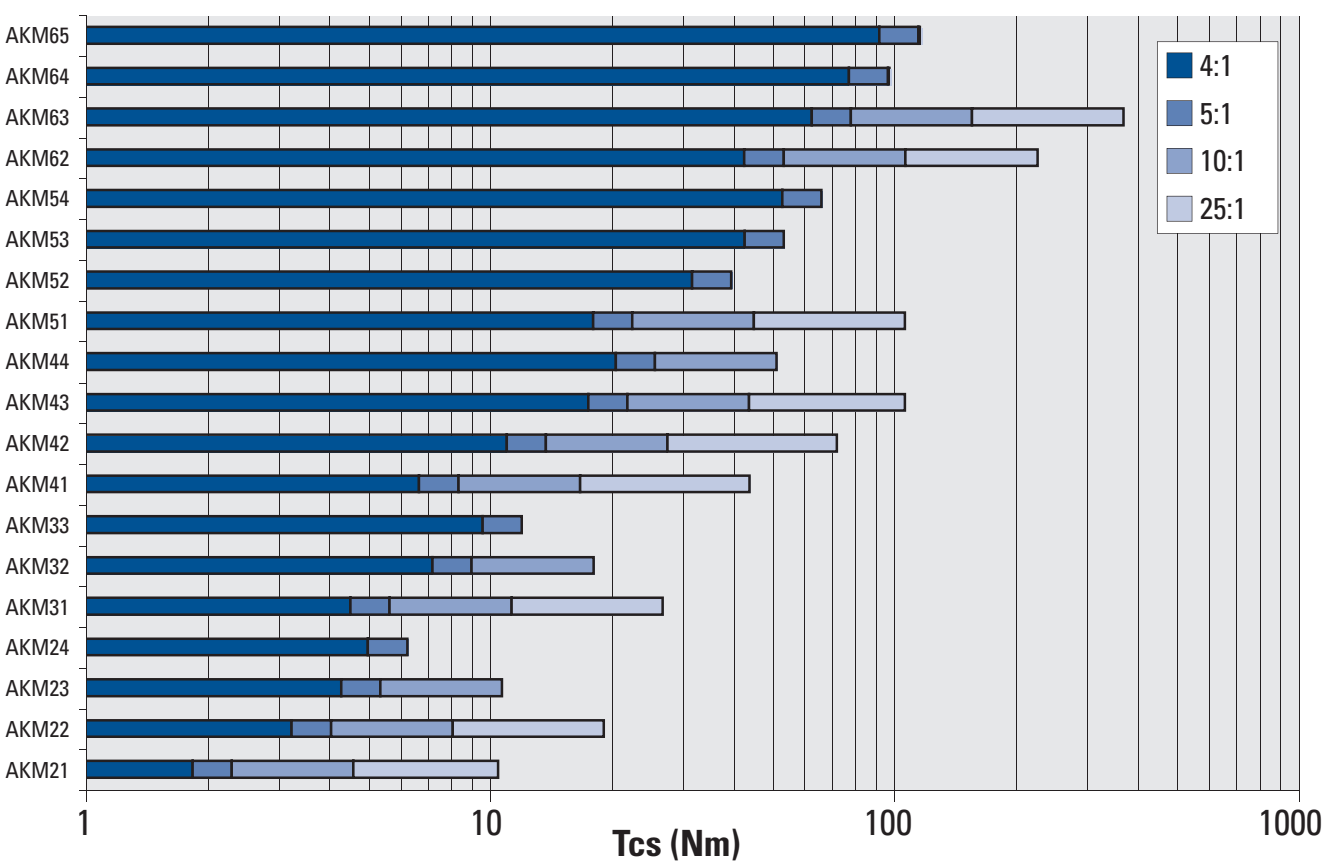
- Up to 935 Nm of peak torque
- 4 arc-min of backlash (1 stage)
- 5 arc-min of backlash (2 stage)
- Helical cut gears
- Double supported planet pins for ruggedness

Value

- Premium torque capacity and precision at a competitive price point
- No additional price adder for assembly of components

For applications with higher dynamic or accuracy needs

Precision Line Continuous Torque



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Performance Data - Precision Line

Model	Max Supply Voltage	Tcs		Tp		Min. Gearmotor Inertia		Max. Gearmotor Inertia	
	3Ø VAC	Nm	lb-in	Nm	lb-in	Kg-m²	lb-in-s²	Kg-m²	lb-in-s²
AKM21	480	10.5	92.7	32.8	291	4.91E-04	4.35E-03	1.67E-02	1.48E-01
AKM22	480	19.1	169	60.7	537	5.78E-04	5.11E-03	2.01E-02	1.78E-01
AKM23	480	10.7	94.9	35.7	316	6.66E-04	5.89E-03	3.16E-03	2.80E-02
AKM24	480	6.2	55.3	22.2	196	7.52E-04	6.66E-03	1.00E-03	8.85E-03
AKM31	480	26.8	237	88.3	782	1.26E-03	1.12E-02	4.00E-02	3.54E-01
AKM32	480	18.1	160	66.8	591	1.68E-03	1.49E-02	8.60E-03	7.61E-02
AKM33	480	12.0	106	47.0	416	2.10E-03	1.86E-02	3.07E-03	2.72E-02
AKM41	480	43.9	388	138	1220	3.82E-03	3.38E-02	1.19E-01	1.06E+00
AKM42	480	72.2	639	252	2230	4.85E-03	4.29E-02	1.59E-01	1.41E+00
AKM43	480	107	943	355	3140	5.87E-03	5.20E-02	1.99E-01	1.76E+00
AKM44	480	51.3	454	188	1660	6.90E-03	6.10E-02	3.63E-02	3.21E-01
AKM51	480	107	943	261	2310	8.00E-03	7.08E-02	2.82E-01	2.50E+00
AKM52	480	39.6	350	101	892	1.25E-02	1.10E-01	1.90E-02	1.68E-01
AKM53	480	53.4	472	138	1230	1.71E-02	1.52E-01	2.62E-02	2.32E-01
AKM54	480	66.2	586	177	1560	2.16E-02	1.91E-01	3.32E-02	2.94E-01
AKM62	480	226	2010	661	5850	3.75E-02	3.32E-01	1.31E+00	1.16E+01
AKM63	480	370	1050	935	8280	4.91E-02	4.35E-01	1.77E+00	1.56E+01
AKM64	480	96.6	855	249	2200	6.10E-02	5.40E-01	9.16E-02	8.10E-01
AKM65	480	115	1020	300	2660	7.44E-02	6.59E-01	1.13E-01	9.96E-01

Note: Performance data is based on sinusoidal current commutation using a Danaher Motion drive. System selection should be determined using Danaher Motion's MOTIONEERING® system sizing software. Over 1500 AKM gearmotor systems are available for selection. See more details on page 25.

Model	Maximum Accel Torque for Ratio:							
	4		5		10		25	
	Nm	lb-in	Nm	lb-in	Nm	lb-in	Nm	lb-in
AKM21	60.0	531	60.0	531	32.9	291	70.0	620
AKM22	60.0	531	60.0	531	32.9	291	70.0	620
AKM23	60.0	531	60.0	531	32.9	291	-	-
AKM24	60.0	531	60.0	531	-	-	-	-
AKM31	113	999	111	986	58.6	518	126	113
AKM32	113	999	111	986	58.6	518	-	-
AKM33	113	999	111	986	-	-	-	-
AKM41	301	2670	303	2680	170	1500	370	3270
AKM42	301	2670	303	2680	170	1500	370	3270
AKM43	301	2670	303	2680	170	1500	370	3270
AKM44	301	2670	303	2680	170	1500	-	-
AKM51	301	2670	303	2680	170	1500	370	3270
AKM52	301	2670	303	2680	-	-	-	-
AKM53	301	2670	303	2680	-	-	-	-
AKM54	301	2670	303	2680	-	-	-	-
AKM62	719	6360	720	6370	404	3580	867	7670
AKM63	719	6360	720	6370	404	3580	867	7670
AKM64	719	6360	720	6370	-	-	-	-
AKM65	719	6360	720	6370	-	-	-	-

• If no value is given, then the system combination must be purchased separately, and is not part of the gearmotor standard offer.

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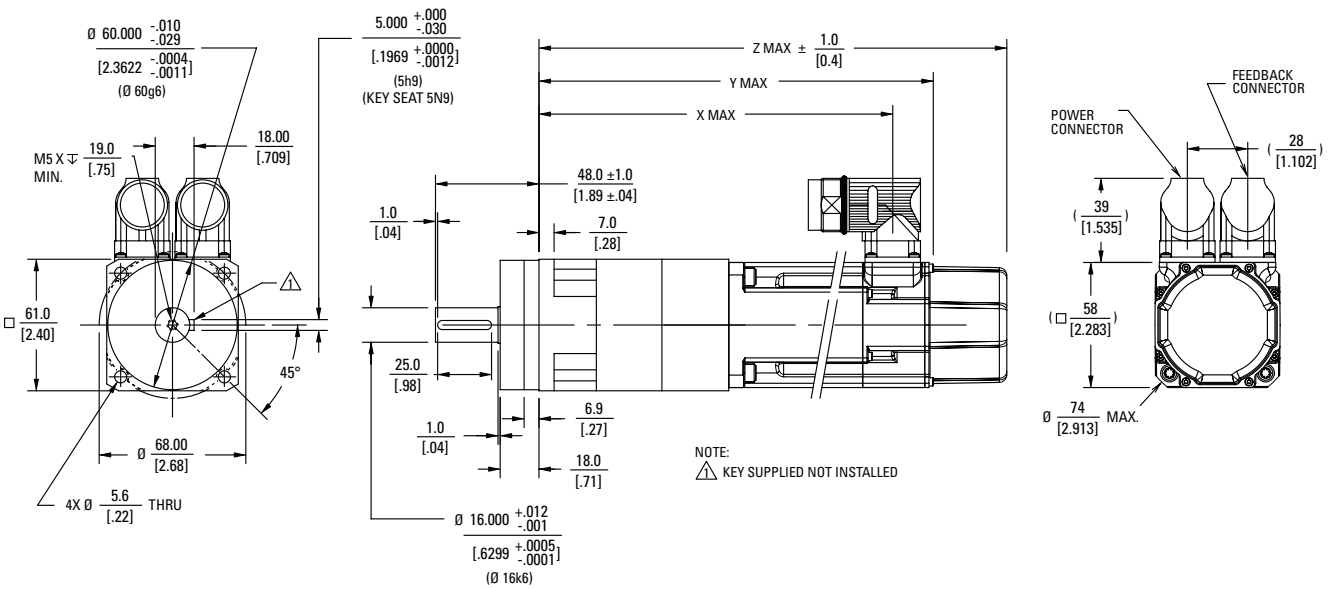
Outline - Precision Line AKM2x



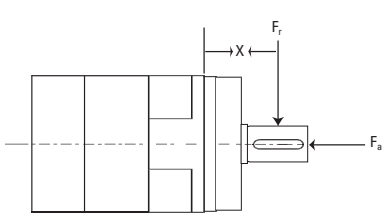
- Refer to the AKM Selection Guide for details about other connector options and feedback availability.

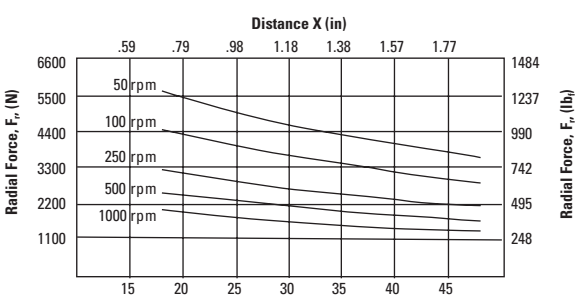
	"Y" Max. (non-brake)		"Z" Max. (with brake)		"X" Max.	
Model/Ratio	4:1 to 10:1	25:1	4:1 to 10:1	25:1	4:1 to 10:1	25:1
AKM21x	183.4 (7.22)	231.8 (9.13)	217.5 (8.56)	265.9 (10.5)	164.1 (6.46)	212.5 (8.37)
AKM22x	202.4 (7.97)	-	236.5 (9.31)	-	183.1 (7.21)	-
AKM23x	221.4 (8.72)	-	255.5 (10.1)	-	202.1 (7.96)	-
AKM24x	240.4 (9.46)	-	274.5 (10.8)	-	221.1 (8.70)	-

- Dimensions are in mm (inches)
- Product designed in metric
- English conversions provided for reference only

Radial and Axial Load Ratings

This graph displays the allowable radial load at a given distance (X) from the mounting surface based on an L_{10} life of 20,000 hours for the mean output speed n_{mout}.





Speed (rpm)	Axial Load, F_a N (lb_f)
50	7198 (1618)
100	5710 (1284)
250	4208 (946)
500	3342 (751)
1000	2652 (596)

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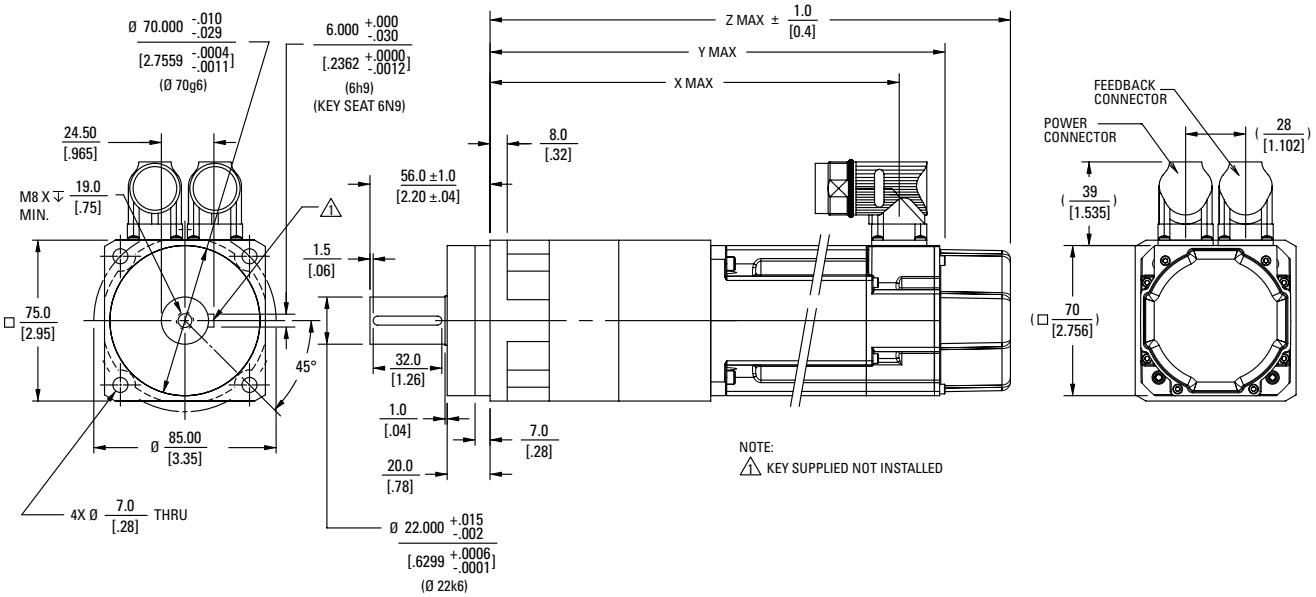
Outline - Precision Line AKM3x



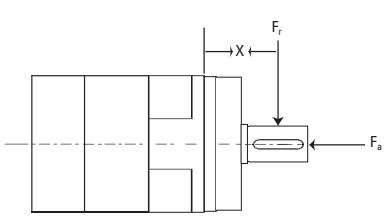
• Refer to the AKM Selection Guide for details about other connector options and feedback availability.

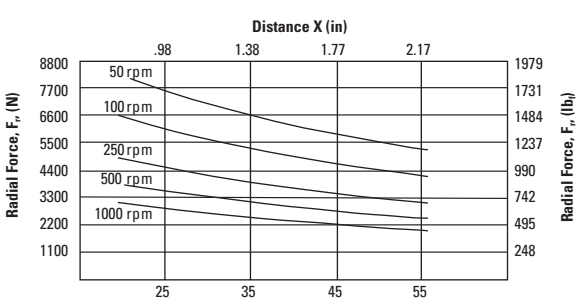
	"Y" Max. (non-brake)		"Z" Max. (with brake)		"X" Max.	
Model/Ratio	4:1 to 10:1	25:1	4:1 to 10:1	25:1	4:1 to 10:1	25:1
AKM31x	212.7 (8.37)	269.7 (10.6)	243.2 (9.57)	300.2 (11.8)	190.8 (7.51)	247.8 (9.76)
AKM32x	243.7 (9.59)	-	274.2 (10.8)	-	221.8 (8.73)	-
AKM33x	274.7 (10.8)	-	305.2 (12.0)	-	252.8 (9.95)	-

• Dimensions are in mm (inches)
• Product designed in metric
• English conversions provided for reference only

Radial and Axial Load Ratings

This graph displays the allowable radial load at a given distance (X) from the mounting surface based on an L_{10} life of 20,000 hours for the mean output speed n_{mout}.





Speed (rpm)	Axial Load, F_a N (lb_f)
50	9903 (2227)
100	7863 (1768)
250	5793 (1303)
500	4599 (1034)
1000	3650 (821)

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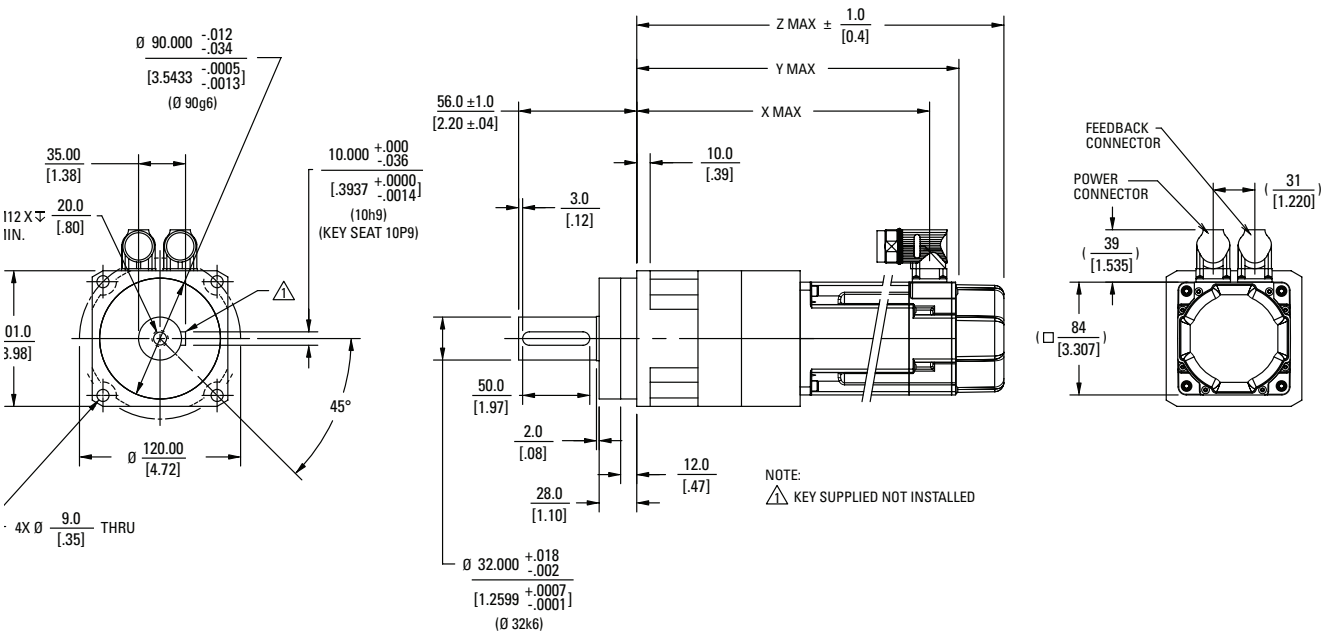
Outline - Precision Line AKM4x



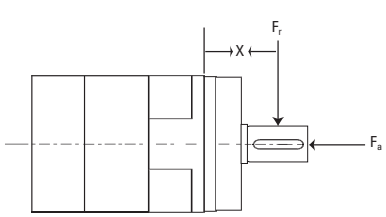
- Refer to the AKM Selection Guide for details about other connector options and feedback availability.

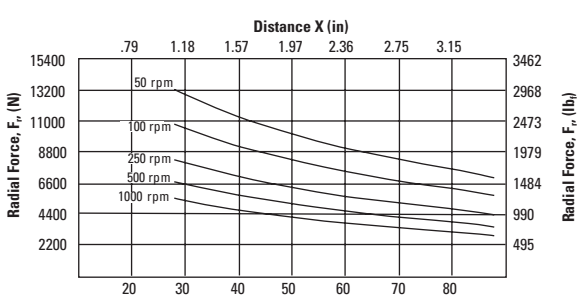
	"Y" Max. (non-brake)		"Z" Max. (with brake)		"X" Max.	
Model/Ratio	4:1 to 10:1	25:1	4:1 to 10:1	25:1	4:1 to 10:1	25:1
AKM41x	240.5 (9.47)	308.5 (12.1)	274.0 (10.8)	342.0 (13.5)	218.1 (8.59)	286.1 (11.3)
AKM42x	269.5 (10.6)	337.5 (13.3)	303.0 (11.9)	371.0 (14.6)	247.1 (9.73)	315.1 (12.4)
AKM43x	298.5 (11.8)	366.5 (14.4)	332.0 (13.1)	400.0 (15.7)	276.1 (10.9)	344.1 (13.5)
AKM44x	327.5 (12.9)	-	361.0 (14.2)	-	305.1 (12.0)	-

- Dimensions are in mm (inches)
- Product designed in metric
- English conversions provided for reference only

Radial and Axial Load Ratings

This graph displays the allowable radial load at a given distance (X) from the mounting surface based on an L_{10} life of 20,000 hours for the mean output speed n_{mout}.





Speed (rpm)	Axial Load, F_a N (lb_f)
50	13,675 (3075)
100	11,107 (2497)
250	8435 (1897)
500	6855 (1542)
1000	5568 (1252)

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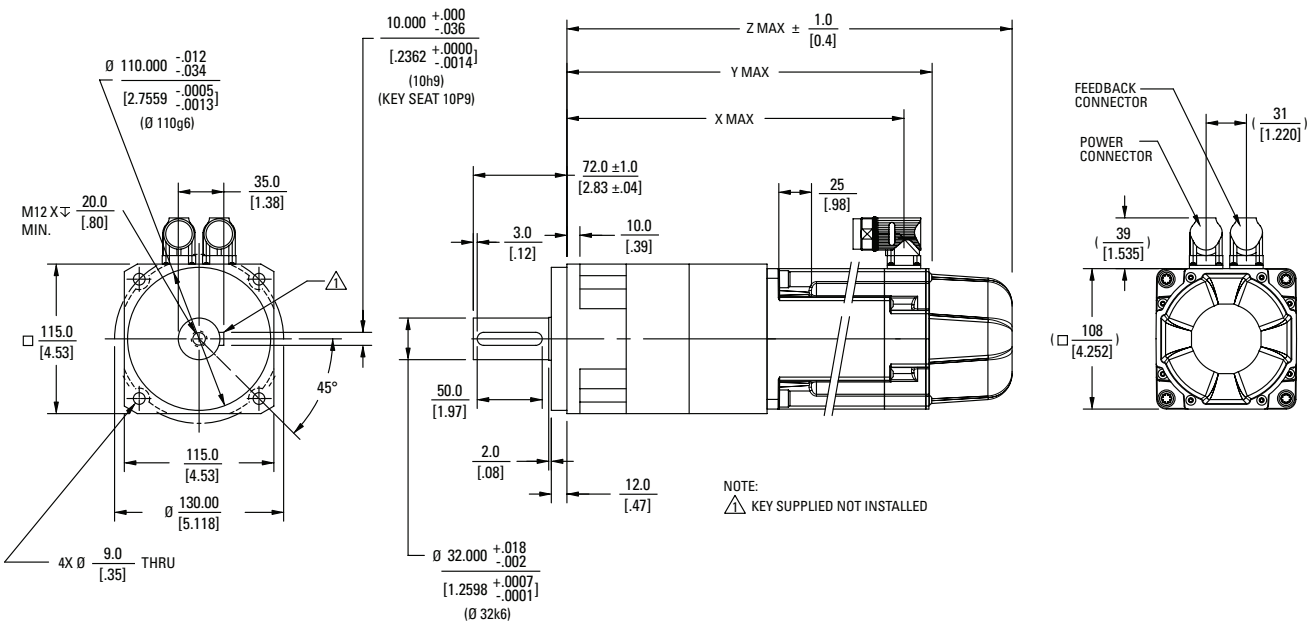


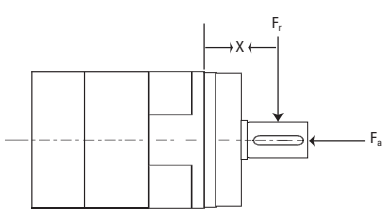
• Refer to the AKM Selection Guide for details about other connector options and feedback availability.

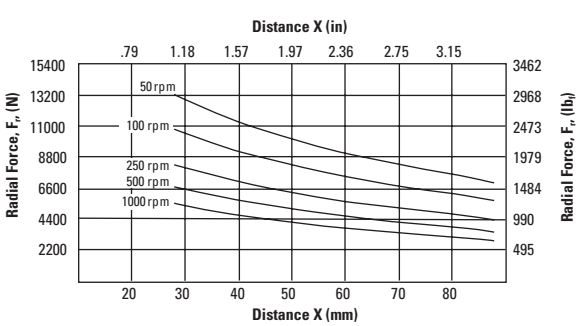
	Resolver, SFD, Incremental Encoder				Sine Encoder				Any	
	"Y" Max. (non-brake)		"Z" Max. (with brake)		"Y" Max. (non-brake)		"Z" Max. (with brake)		"X" Max.	
Model/Ratio	4:1 to 10:1	25:1	4:1 to 10:1	25:1	4:1 to 10:1 :	25:1	4:1 to 10:1	25:1	4:1 to 10:1	25:1
AKM51x	265.2 (10.4)	333.2 (13.1)	310.2 (12.2)	378.2 (14.9)	283.7 (11.2)	351.7 (13.8)	326.7 (12.9)	394.7 (15.5)	243 (9.57)	311 (12.2)
AKM52x	296.2 (11.7)	-	341.2 (13.4)	-	314.7 (12.4)	-	357.7 (14.1)	-	274 (10.8)	-
AKM53x	327.2 (12.9)	-	372.2 (14.7)	-	345.7 (13.6)	-	388.7 (15.3)	-	305 (12.0)	-
AKM54x	358.2 (14.1)	-	403.2 (15.9)	-	376.7 (14.8)	-	419.7 (16.5)	-	336 (13.2)	-

• Dimensions are in mm (inches)
• Product designed in metric
• English conversions provided for reference only

Radial and Axial Load Ratings

This graph displays the allowable radial load at a given distance (X) from the mounting surface based on an L_{10} life of 20,000 hours for the mean output speed n_{mout}.





Speed (rpm)	Axial Load, F_a N (lb_f)
50	13,675 (3075)
100	11,107 (2497)
250	8435 (1897)
500	6855 (1542)
1000	5568 (1252)

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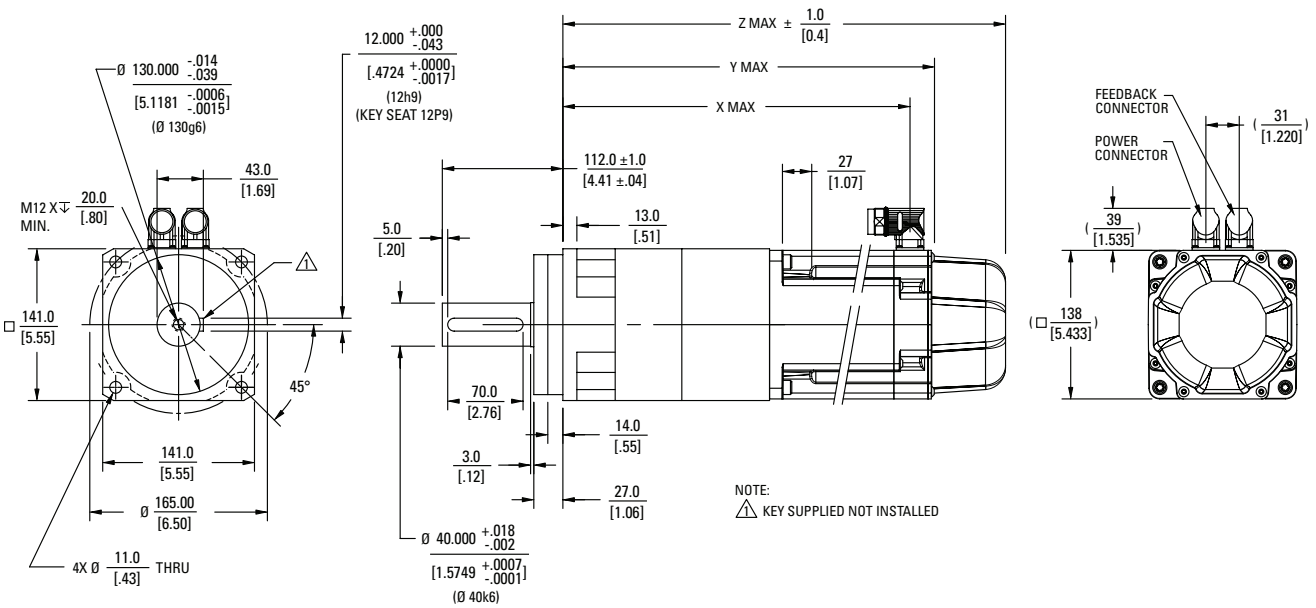
Outline - Precision Line AKM6x



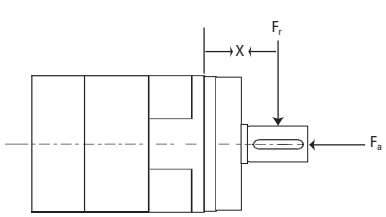
• Refer to the AKM Selection Guide for details about other connector options and feedback availability.

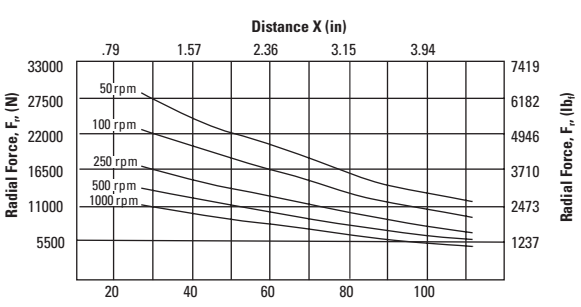
	Resolver, SFD, Incremental Encoder				Sine Encoder				Any	
	"Y" Max. (non-brake)		"Z" Max. (with brake)		"Y" Max. (non-brake)		"Z" Max. (with brake)		"X" Max.	
Model/Ratio	4:1 to 10:1	25:1	4:1 to 10:1	25:1	4:1 to 10:1 :	25:1	4:1 to 10:1	25:1	4:1 to 10:1	25:1
AKM62x	345.7 (13.6)	430.2 (16.9)	392.7 (15.5)	477.2 (18.8)	364.2 (14.3)	448.7 (17.7)	411.7 (16.2)	496.2 (19.5)	322.5 (12.7)	407.0 (16.0)
AKM63x	370.7 (14.6)	455.2 (17.9)	417.7 (16.4)	502.2 (19.8)	389.2 (15.3)	473.7 (18.6)	436.7 (17.2)	521.2 (20.5)	347.5 (13.7)	432.0 (17.0)
AKM64x	395.7 (15.6)	-	442.7 (17.4)	-	414.2 (16.3)	-	461.7 (18.2)	-	372.5 (14.7)	-
AKM65x	420.7 (16.6)	-	467.7 (18.4)	-	439.2 (17.3)	-	486.7 (19.2)	-	397.5 (15.6)	-

• Dimensions are in mm (inches)
• Product designed in metric
• English conversions provided for reference only

Radial and Axial Load Ratings

This graph displays the allowable radial load at a given distance (X) from the mounting surface based on an L_{10} life of 10,000 hours for the mean output speed n_{mout}.





Speed (rpm)	Axial Load, F_a N (lb_f)
50	25,374 (5705)
100	20,609 (4633)
250	15,657 (3520)
500	12,716 (2859)
1000	10,329 (2322)

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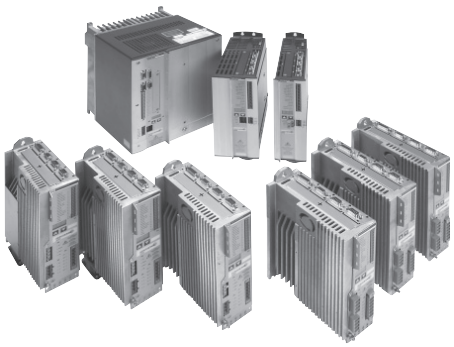
Compatible Drive Products



S200 Series

The S200 is the next generation micro servo drive from Danaher Motion. This compact, high performance drive family supports torque or velocity control in the base configuration. An option card is available to provide position loop closure with indexing, CANopen or DeviceNet support. It is available in AC and DC powered versions and mates with the new AKM servomotors series, which features a smart feedback device that in conjunction with the drive provides auto set-up and tuning which reduces installation time and cost, as well as startup time when the motor or drive is replaced.

Features
- Highest performance all digital servo in the industry
- Easy set up and tuning with Smart Feedback Device
- Optimized performance with AKM motors
- Fully Protected
- Rugged optically isolated I/O
- Meets CE and UL Requirements
- Full Digital Design
- Very compact footprint
- Choice of motor feedback options
- Torque and Velocity control standard
- Optional CANopen or DeviceNet Position Control
- Optional CANopen Support

S300 and S600 Series Drives

The S300 series is Danaher Motion's full feature, compact drive for 3-10 amp continuous applications. Utilizing the same design features as the established S600 family it offers users all the performance and compatibility of the larger S600 series in a smaller package and is available for 120 VAC and single phase input power applications.

The S600 series is a high performance, high power drive incorporating advanced features for three phase input applications on 208-480 VAC power systems. Available in 3 to 70 amp continuous ratings it provides coverage for a wide range of motors.

Both the S300 and S600 support the new AKM series servomotors as well as the GOLDLINE® DDR and PLATINUM® DDL series. The S600 also supports the GOLDLINE® XT and GOLDLINE® BH series of motors to meet the widest range of requirements.

All S300 and S600 drives support plug-in option cards for I/O expansion, DeviceNet, PROFIBUS, SERCOS and Single Axis Controller capability.

Features
- Fully Protected
- Meets CE and UL Requirements
- Full Digital Design
- Small footprint with built-in CE filters standard for 3-20 amp units
- Choice of motor feedback options
- Torque, Velocity and Position Control standard
- Optional DeviceNet, Profibus, SERCOS
- Optional Single-axis controller
- Standard built-in CANopen Support
- Motion Tasking tied to I/O support polling
- Advanced Setup software and onboard display with keypad

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AKM Part Number System

AKM Series Brushless Gearmotors

AKM 2 1 C - N 3 B N R- 00

AKM Series

Motor Frame Size
2, 3, 4, 5, 6

Rotor Stack Length
1, 2, 3, 4, 5

Winding Type
A, B, C, D, etc.
S = Special

Gearhead Type
N = Standard Line
V = Precision Line

Gearhead Ratio
3 = 3:1 (Standard Line Only)
4 = 4:1 (Precision Line Only)
5 = 5:1
A = 10:1
B = 25:1
Note: Not all ratios are available with all frame/stack/winding combinations

Connectors
B = Dual Motor-mounted rotatable IP65 connectors (AKM2 only)
C = 0.5 meter shielded cables w/ IP65 connectors (AKM 2)
= Motor-mounted rotatable IP65 connectors (AKM3, 4, 5, 6, 7)
D = Single motor-mounted rotatable IP65 connector
(AKM2, 3, 4 models with SFD and no brake)
M = 0.5 meter shielded cables w/ IP20 plugs
(AKM2, 3, 4 models less than 6 amps)
P = 0.5 meter shielded cables w/ single IP20 plug
(AKM2, 3, 4 models with SFD and no brake, less than 6 amps)
S = Special

Brake
2 = 24 VDC brake (AKM2, 3, 4, 5, 6 models)
N = No brake
S = Special

Feedback Device
1 - = 1024 PPR digital encoder w/ commutation
2 - = 2048 PPR digital encoder w/ commutation
C - = Smart feedback device (SFD)
(SFD available across family)
R - = Resolver
DA = Single-turn Absolute Sine Encoder
DB = Multi-turn Absolute Sine Encoder
ED = 500 PPR digital encoder w/ commutation
EE = 1000 PPR digital encoder w/ commutation
EF = 2000 PPR digital encoder w/ commutation
EG = 2500 PPR digital encoder w/ commutation
EM = 4096 PPR digital encoder w/ commutation
EH = 5000 PPR digital encoder w/ commutation
EN = 8192 PPR digital encoder w/ commutation
(AKM5, 6 models only)
EJ = 10,000 PPR digital encoder w/ commutation
(AKM5, 6 models only)

Customization / Seal
00 = Standard motor w/o shaft seal
01 = Standard motor w/ shaft seal