

AKM SERIES

- ▶ Iron core technology
- ▶ Low cogging force
- ▶ Integrated with hall sensors
- ▶ High force and stiffness

EN-26.3.1

Introduction

Iron Core AKM series linear motors provide the highest force for the smallest package size. This series also has a wide range of sizes and optional water-cooling configurations which are ideal for aggressive higher force and duty cycle applications.

Continuous Force F_{cn} = 108.4N ~ 6190.1N

Peak Force F_{pk} = 241.6N ~ 12884.3N



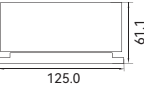
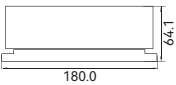
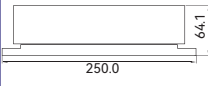
Features

- ▶ Iron core technology and low cogging force
- ▶ High continuous and peak force
- ▶ Optional hall sensors
- ▶ High motor constant
- ▶ Multiple coil lengths to select

Applications

Applicable to point-to-point micron meter level positioning; unlimited travel stroke with top speed of 5m/s or faster (stroke of 100m or longer).

Applications & Industries: high speed positioning systems for product handling in semiconductor, photovoltaic and lithium battery, glass and LCD applications, as well as machining centers, industrial printing machines, laser processing machines with demanding precision and motion control requirements.

	Series	Coil Length (mm)	● Continuous Force (F_{cn}) / ■ PeakForce (F_{pk}) ^① Unit: N						
			200	500	1500	2500	4500	6500
	AKM30-B1	112	● 108.4 / ■ 241.6						
	AKM30-B2	196		● 216.8 / ■ 483.2					
	AKM30-B3	280		● 325.2 / ■ 724.7					
	AKM30-B4	364		● 433.6 / ■ 966.3					
	AKM50-B1	112	● 180.7 / ■ 402.6						
	AKM50-B2	196		● 361.3 / ■ 805.3					
	AKM50-W-B2	234		● 579.6 / ■ 805.3					
	AKM50-B3	280		● 542.0 / ■ 1207.9					
	AKM50-B4	364			● 722.6 / ■ 1610.5				
	AKM50-W-B4	402			● 1159.3 / ■ 1610.3				
	AKM50-B6	532			● 1029.8 / ■ 2415.8				
	AKM100-B1	112		● 361.3 / ■ 805.3					
	AKM100-B2	196		● 722.6 / ■ 1610.5					
	AKM100-W-B2	236			● 1159.3 / ■ 1610.3				
	AKM100-B3	280			● 1084 / ■ 2416				
	AKM100-B4	364			● 1445.3 / ■ 3221.1				
	AKM100-W-B4	404			● 1947.3 / ■ 3221.1				
	AKM100-B6	532			● 2059.6 / ■ 4348.5				
	AKM150-B4	364				● 2027.0 / ■ 4831.6			
	AKM150-W-B4	404				● 2738.4 / ■ 4831.6			
	AKM150-B8	700				● 3839.1 / ■ 9663.2			
	AKM150-W-B8	786				● 5216.1 / ■ 9963.2			
	AKM200-B4	364				● 2539.6 / ■ 6442.2			
	AKM200-W-B4	404				● 3249.8 / ■ 6442.2			
	AKM200-B8	700				● 4817.7 / ■ 12884.3			
	AKM200-W-B8	786				● 6190.1 / ■ 12884.3			

① Continuous force is measured under the condition of self-cooling. Please refer to the detail parameters table for the continuous force under the condition of water cooling.

AKM30-N

Introduction Sizing Guide Frequently Asked Questions Linear Motors Voice Coil Motors Direct Drive Rotary Motors Magnet Spring Motion Control of Gantry Stages Akribis systems

			AKM30-B1	AKM30-B2	AKM30-B3	AKM30-B4
Performance Parameters						
Continuous Force (NC) @100°C ^①	Symbol	Unit	Series	Series	Series	Parallel
	F_{cn}	N	108.4	216.8	325.2	433.6
Peak Force	F_{pk}	N	241.6	483.2	724.7	966.3
Force Constant ±10%	K_f	N/Arms	23.0	45.9	23.0	45.9
Back EMF Constant ±10%	K_e	Vpeak/(m/s)	18.7	37.5	18.7	37.5
Motor Constant @25°C	K_m	N/Sqrt(W)	17.7	25.0	30.7	35.4
Resistance (L-L) 25°C ±10% ^②	R_{25}	Ω	1.1	2.2	0.4	1.1
Inductance (L-L) ±30% ^③	L	mH	21.0	42.0	7.0	21.0
Electrical Time Constant	τ_e	ms	18.8	18.8	18.8	18.8
Continuous Current (NC) @100°C ^①	I_{cn}	Arms	4.8	4.8	14.4	9.6
Peak Current	I_{pk}	Arms	14.4	14.4	43.2	28.8
Continuous Power Dissipation (NC) @100°C ^①	P_{cn}	W	49.9	99.8	149.7	199.5
Max. Coil Temperature	t_{max}	°C	100	100	100	100
Thermal Dissipation Constant (NC) ^①	K_{thn}	W/°C	0.7	1.3	2.0	2.7
Max. Bus Voltage	U_{bus}	Vdc	600	600	600	600
Magnetic Period	τ_{NN}	mm	42	42	42	42
Attraction Force	F_a	kN	0.4	0.8	1.2	1.6
Mechanical Parameters						
Coil Mass (NC)	m_{cn}	kg	1.5	2.7	3.9	5.3
Coil Length (NC)	L_{cn}	mm	112	196	280	364
Track Mass Per Meter	m_{track}	kg/m	2.6	2.6	2.6	2.6
Other Information						
Insulation Class	Class B (130°C)					
Protection Grade	IP00					
Compliance with Global Standards	RoHS, CE, UL(option)					
Ambient Temperature	Operation	0°C to 40°C (non-freezing)				
	Storage	-15°C to 70°C (non-freezing)				
Ambient Humidity	Operation	10%RH to 80%RH (non-condensing)				
	Storage	10%RH to 90%RH (non-condensing)				
Recommended Ambience	Indoor (no direct sunlight); No corrosive gas, inflammable gas, oil mist or dust.					

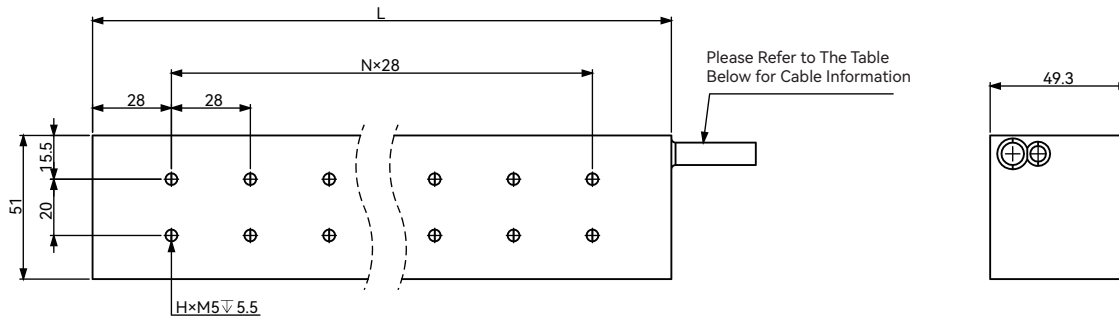
① Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
Abbreviations: NC-Natural Cooling.

② Resistance is measured by DC current with standard 0.5 m cable.

③ Inductance is measured by current frequency of 1 kHz.

The contents of datasheet are subject to change without prior notice.

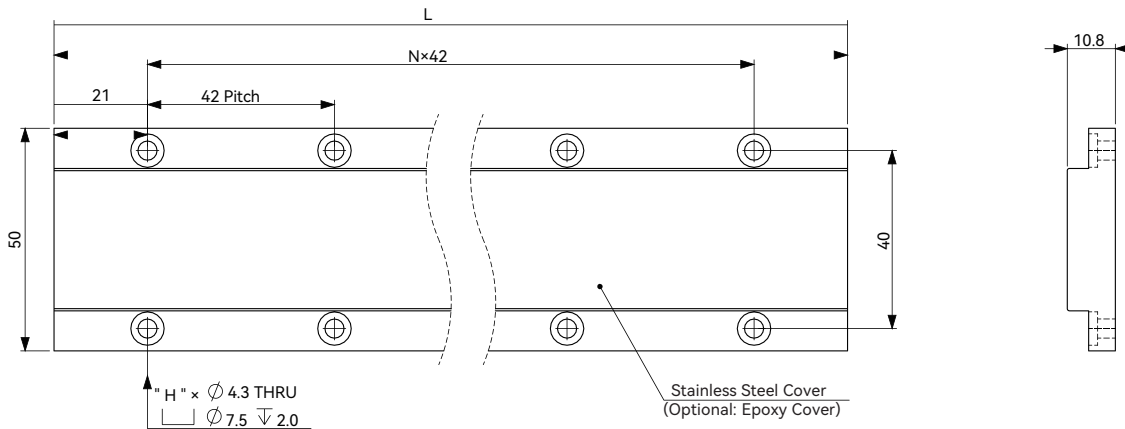
Dimension



Coil Size	L	N	H
AKM30-B1	112	2	6
AKM30-B2	196	5	12
AKM30-B3	280	8	18
AKM30-B4	280	11	24

Motor Model	Motor Cable			Hall Cable		
	Outer Diameter	Minimum Bend Radius (Mobile cables)	Minimum Bend Radius (Fixed cable)	Outer Diameter	Minimum Bend Radius (Mobile cables)	Minimum Bend Radius (Fixed cable)
AKM30-B1	8	80	40	5.2	52	26
AKM30-B2						
AKM30-B3						
AKM30-B4						

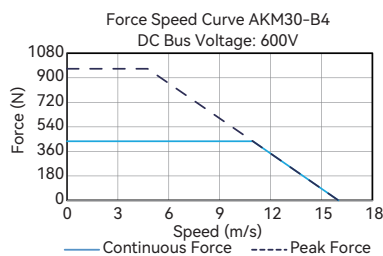
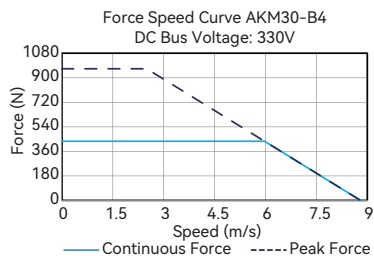
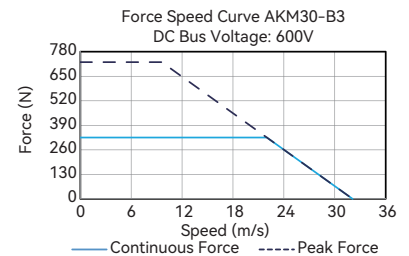
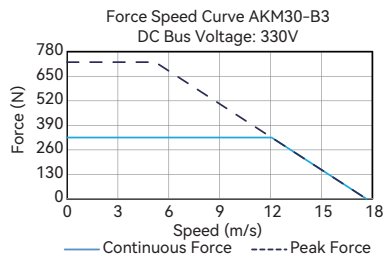
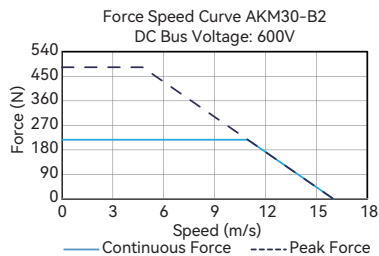
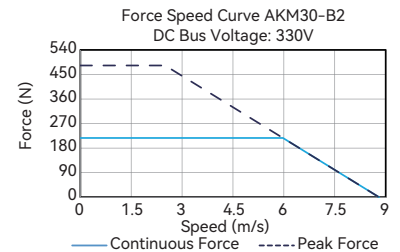
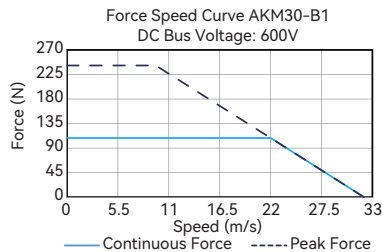
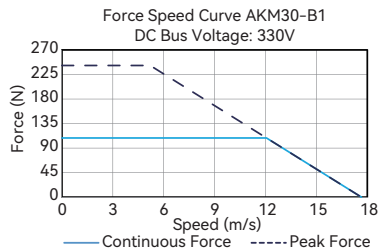
AKM30 Track



Magnet Track	L	N	H
AKM30-TL168-S	168	3	8
AKM30-TL252-S	252	5	12
AKM30-TL420-S	420	9	20

For epoxy cover option, change "S" to "E". (e.g. AKM30-TL168-E)

Force-Speed Curve



Part Numbering

Introduction | Sizing Guide | Frequently Asked Questions | Linear Motors | Voice Coil Motors | Direct Drive Rotary Motors | Magnet Spring | Motion Control of Gantry Stages

Motor Coil

AKM30-B2-J-NH-0.5-FB-0UA

Motor Model:
AKM30

Coil Length:
B1 / B2 / B3 / B4

Thermal Sensor:
J / K

- ① J = Thermostat(standard)
- ② K = PT100(RTD)
- ③ H9D = With Built-in Hall Sensor C/W 9-Pins D-Sub Connector
- ④ NH = Without Built-in Hall Sensor C/W Flying Leads
- ⑤ FB = With Ferrite Bead C/W Flying Leads
- ⑥ 9W4M = Without Ferrite Bead C/W D-Sub 9W4 Male Connector
- ⑦ NFB = Without Ferrite Bead C/W Flying Leads
- ⑧ (Blank) = Standard Model
- ⑨ 0UA = UL-certified Model, Only Valid for Natural Cooling Type and Power Cable=NFB Options

Design Control Code:
(Blank) / 0UA

Power Cable:
FB / 9W4M / NFB

Cable Length (m):
0.5 / 3.0

Sensor Cable:
H9D / NH

Motor Track

AKM30-TL420-S

Motor Model:
AKM30

- ① S = Stainless steel cover
- ② E = Epoxy cover

Track Type and Cover:
S / E

Track Length:
TL168 / TL252 / TL420

AKM50-N

			AKM50-B1	AKM50-B2	AKM50-B3	AKM50-B4	AKM50-B6
Performance Parameters			Series	Series	Parallel	Parallel	Parallel
Continuous Force (NC) @100°C ①	F_{cn}	N	180.7	361.3	542.0	722.6	1029.8
Peak Force	F_{pk}	N	402.6	805.3	1207.9	1610.5	2415.8
Force Constant ±10%	K_f	N/Arms	38.3	76.5	38.3	76.5	76.5
Back EMF Constant ±10%	K_e	Vpeak/(m/s)	31.2	62.5	31.2	62.5	62.5
Motor Constant @25°C	K_m	N/Sqrt(W)	26.4	37.3	45.7	52.8	64.7
Resistance (L-L) 25°C ±10% ②	R_{25}	Ω	1.4	2.8	0.5	1.4	0.9
Inductance (L-L) ±30% ③	L	mH	31.8	63.6	10.6	31.8	21.2
Electrical Time Constant	τ_e	ms	22.7	22.7	22.7	22.7	22.7
Continuous Current (NC) @100°C ①	I_{cn}	Arms	4.8	4.8	14.4	9.6	13.7
Peak Current	I_{pk}	Arms	14.4	14.4	43.2	28.8	43.2
Continuous Power Dissipation (NC) @100°C ①	P_{cn}	W	62.4	124.7	187.1	249.4	337.7
Max. Coil Temperature	t_{max}	°C	100	100	100	100	100
Thermal Dissipation Constant (NC) ①	K_{thn}	W/°C	0.8	1.7	2.5	3.3	4.5
Max. Bus Voltage	U_{bus}	Vdc	600	600	600	600	600
Magnetic Period	τ_{NN}	mm	42.0	42.0	42.0	42.0	42.0
Attraction Force	F_a	kN	0.7	1.3	2.1	2.7	4.2
Mechanical Parameters							
Coil Mass (NC)	m_{cn}	kg	2.2	4.1	6.5	7.9	11.7
Coil Length (NC)	L_{cn}	mm	112	196	280	364	532
Track Mass Per Meter	m_{track}	kg/m	4.8	4.8	4.8	4.8	4.8
Other Information							
Insulation Class	Class B (130°C)						
Protection Grade	IP00						
Compliance with Global Standards	RoHS, CE, UL(option)						
Ambient Temperature	Operation	0°C to 40°C (non-freezing)					
	Storage	-15°C to 70°C (non-freezing)					
Ambient Humidity	Operation	10%RH to 80%RH (non-condensing)					
	Storage	10%RH to 90%RH (non-condensing)					
Recommended Ambience	Indoor (no direct sunlight); No corrosive gas, inflammable gas, oil mist or dust.						

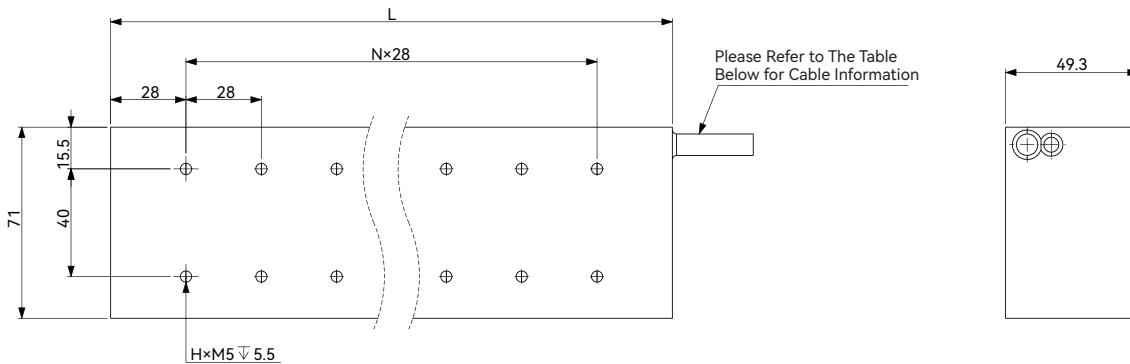
① Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
Abbreviations: NC-Natural Cooling.

② Resistance is measured by DC current with standard 0.5 m cable.

③ Inductance is measured by current frequency of 1 kHz.

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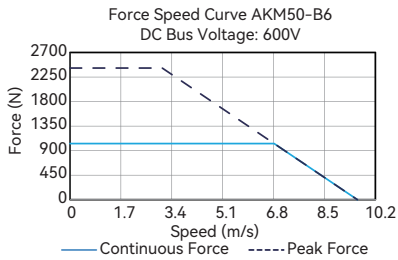
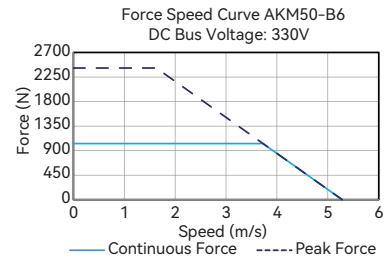
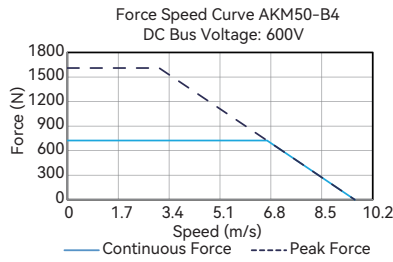
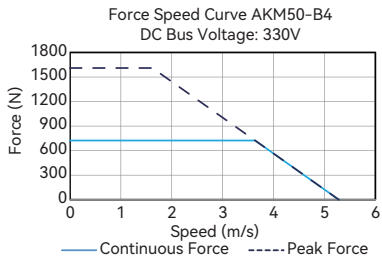
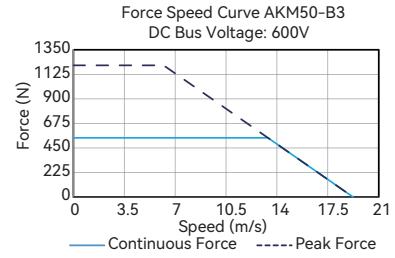
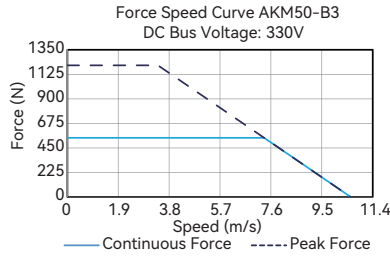
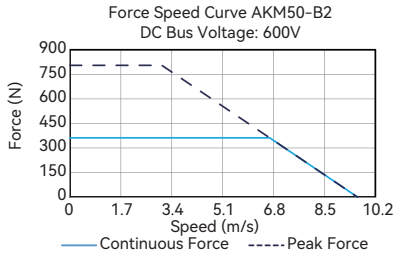
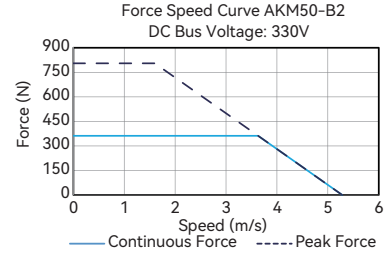
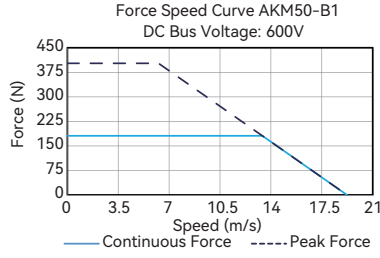
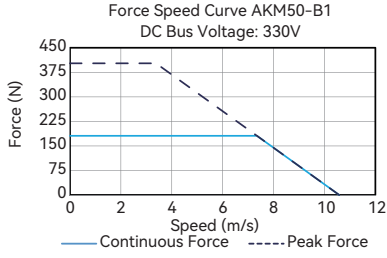
Dimension



Coil Size	L	N	H
AKM50-B1	112	2	6
AKM50-B2	196	5	12
AKM50-B3	280	8	18
AKM50-B4	364	11	24
AKM50-B6	532	17	36

Motor Model	Motor Cable			Hall Cable		
	Outer Diameter	Minimum Bend Radius (Mobile cables)	Minimum Bend Radius (Fixed cable)	Outer Diameter	Minimum Bend Radius (Mobile cables)	Minimum Bend Radius (Fixed cable)
AKM50-B1	8	80	40	5.2	52	26
AKM50-B2						
AKM50-B3						
AKM50-B4						
AKM50-B6						

Force-Speed Curve

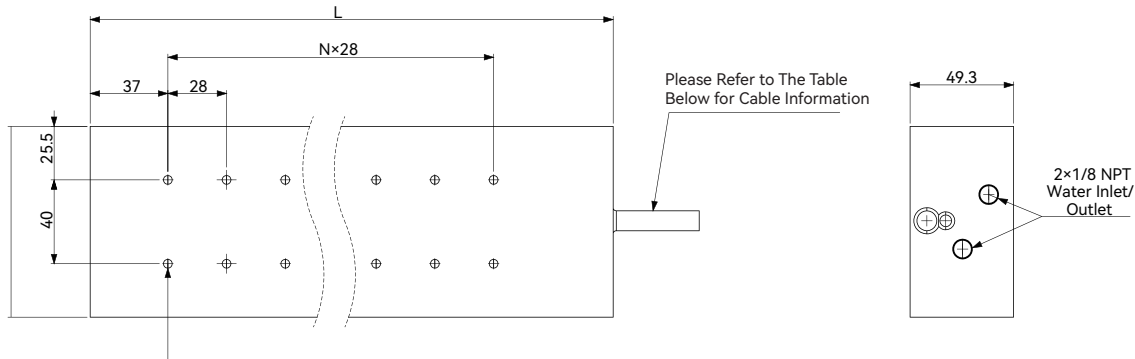


AKM50-W

			AKM50-W-B2	AKM50-W-B4
Performance Parameters				
Continuous Force (WC) @100°C ^{①④}	F _{cw}	N	579.6	1159.3
Peak Force	F _{pk}	N	805.3	1610.5
Force Constant ±10%	K _f	N/Arms	76.5	76.5
Back EMF Constant ±10%	K _e	Vpeak/(m/s)	62.5	62.5
Motor Constant @25°C	K _m	N/Sqrt(W)	37.3	52.8
Resistance (L-L) 25°C ±10% ^②	R ₂₅	Ω	2.8	1.4
Inductance (L-L) ±30% ^③	L	mH	63.6	31.8
Electrical Time Constant	τ _e	ms	22.7	22.7
Continuous Current (WC) @100°C ^{①④}	I _{cw}	Arms	8.2	16.4
Peak Current	I _{pk}	Arms	14.4	28.8
Continuous Power Dissipation (WC) @100°C ^{①④}	P _{cw}	W	364.0	727.9
Max. Coil Temperature	t _{max}	°C	100	100
Thermal Dissipation Constant (WC) ^{①④}	K _{thw}	W/°C	4.9	9.7
Max. Bus Voltage	U _{bus}	Vdc	600	600
Magnetic Period	τ _{NN}	mm	42.0	42.0
Attraction Force	F _a	kN	1.3	2.7
Mechanical Parameters				
Coil Mass (WC)	m _{cw}	kg	4.9	9.1
Coil Length (WC)	L _{cw}	mm	234	402
Track Mass Per Meter	m _{track}	kg/m	4.8	4.8
Other Information				
Insulation Class	Class B (130°C)			
Protection Grade	IP00			
Compliance with Global Standards	RoHS, CE, UL(option)			
Ambient Temperature	Operation	0°C to 40°C (non-freezing)		
	Storage	-15°C to 70°C (non-freezing)		
Ambient Humidity	Operation	10%RH to 80%RH (non-condensing)		
	Storage	10%RH to 90%RH (non-condensing)		
Recommended Ambience	Indoor (no direct sunlight); No corrosive gas, inflammable gas, oil mist or dust.			

- ① Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
Abbreviations:WC-Water Cooling.
 - ② Resistance is measured by DC current with standard 0.5 m cable.
 - ③ Inductance is measured by current frequency of 1 kHz.
 - ④ Water cooling test conditions: the inlet water temperature of motor is 20°C, and the flow rate is 10 L/min.
- The contents of datasheet are subject to change without prior notice.

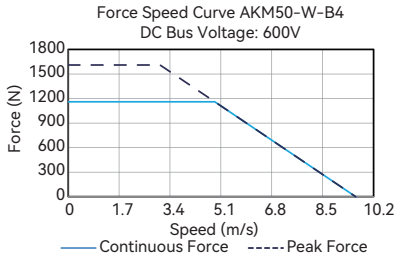
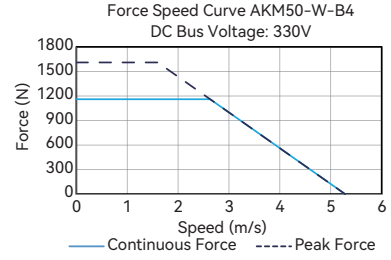
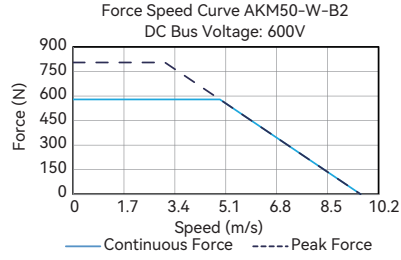
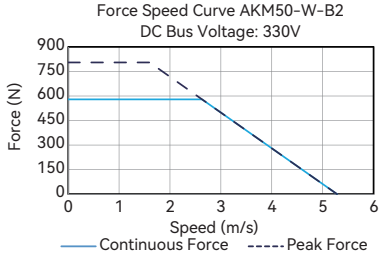
Dimension



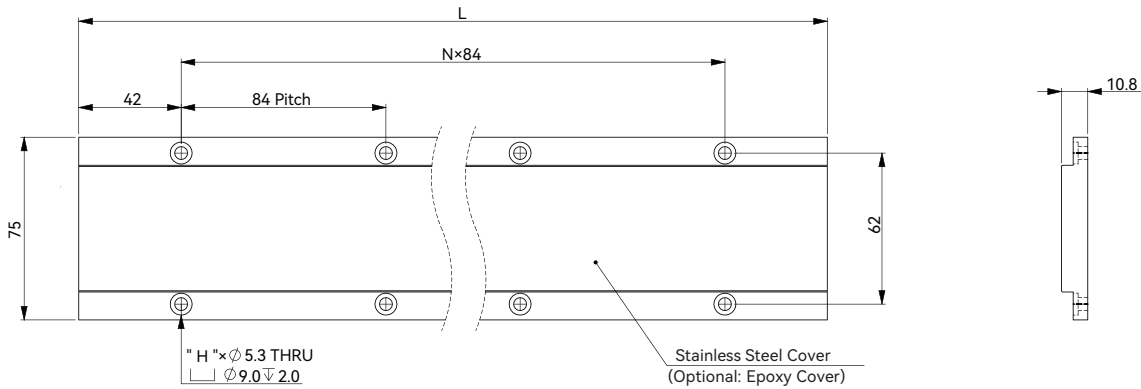
Coil Size	L	N	H
AKM50-W-B2	234	5	12
AKM50-W-B4	402	11	24

Motor Model	Motor Cable			Hall Cable		
	Outer Diameter	Minimum Bend Radius (Mobile cables)	Minimum Bend Radius (Fixed cable)	Outer Diameter	Minimum Bend Radius (Mobile cables)	Minimum Bend Radius (Fixed cable)
AKM50-W-B2	8	80	40	5.2	52	26
AKM50-W-B4	9.5	95	47.5			

Force-Speed Curve



AKM50 Track



Magnet Track	L	N	H
AKM50-TL168-S	168	1	4
AKM50-TL252-S	252	2	6
AKM50-TL420-S	420	4	10

For epoxy cover option, change "-S" to "-E". (e.g. AKM50-TL168-E)

Part Numbering

Motor Coil

AKM50-W-B2-J-NH-0.5-FB-0UA

Motor Model:

AKM50

Cooling Type:

Blank = Natural Cooling
W = Water Cooling

Coil Length:

B1 / B2 / B3 / B4 / B6

Thermal Sensor:

J / K

- ① J = Thermostat(standard)
- ② K = PT100(RTD)
- ③ H9D = With Built-in Hall Sensor C/W 9-Pins D-Sub Connector
- ④ NH = Without Built-in Hall Sensor C/W Flying Leads
- ⑤ FB = With Ferrite Bead C/W Flying Leads
- ⑥ 9W4M = Without Ferrite Bead C/W D-Sub 9W4 Male Connector
- ⑦ NFB = Without Ferrite Bead C/W Flying Leads
- ⑧ (Blank) = Standard Model
- ⑨ 0UA = UL-certified Model, Only Valid for Natural Cooling Type and Power Cable=NFB Options

Design Control Code:

(Blank) / 0UA

Power Cable:

FB / 9W4M / NFB

Cable Length (m):

0.5 / 3.0

Sensor Cable:

H9D / NH

Motor Track

AKM50-TL420-S

Motor Model:

AKM50

- ① S = Stainless steel cover
- ② E = Epoxy cover

Track Type and Cover:

S / E

Track Length:

TL168 / TL252 / TL420

AKM100-N

			AKM100-B1	AKM100-B2	AKM100-B3	AKM100-B4	AKM100-B6	
Performance Parameters			Series	Series	Parallel	Parallel	Parallel	
Continuous Force (NC) @100°C ^①	F _{cn}	N	361.3	722.6	1084	1445.3	2059.6	
Peak Force	F _{pk}	N	805.3	1610.5	2416	3221.1	4348.5	
Force Constant ±10%	K _f	N/Arms	76.5	153.0	77	153.0	153.0	
Back EMF Constant ±10%	K _e	Vpeak/(m/s)	62.5	124.9	62	124.9	124.9	
Motor Constant @25°C	K _m	N/Sqrt(W)	41.2	58.2	71	82.4	100.9	
Resistance (L-L) 25°C ±10% ^②	R ₂₅	Ω	2.3	4.6	0.8	2.3	1.5	
Inductance (L-L) ±30% ^③	L	mH	58.0	116.0	19	58.0	38.7	
Electrical Time Constant	τ _e	ms	25.2	25.2	25	25.2	25.2	
Continuous Current (NC) @100°C ^①	I _{cn}	Arms	4.8	4.8	14.4	9.6	13.7	
Peak Current	I _{pk}	Arms	14.4	14.4	43.2	28.8	38.9	
Continuous Power Dissipation (NC) @100°C ^①	P _{cn}	W	102.4	204.9	307	409.8	554.7	
Max. Coil Temperature	t _{max}	°C	100	100	100	100	130	
Thermal Dissipation Constant (NC) ^①	K _{thn}	W/°C	1.4	2.7	4.1	5.5	7.4	
Max. Bus Voltage	U _{bus}	Vdc	600	600	600	600	600	
Magnetic Period	T _{NN}	mm	42.0	42.0	42.0	42.0	42.0	
Attraction Force	F _a	kN	1.3	2.7	4.0	5.4	8.0	
Mechanical Parameters								
Coil Mass (NC)	m _{cn}	kg	4.0	7.0	10.2	13.5	20.5	
Coil Length (NC)	L _{cn}	mm	112	196	280	364	532	
Track Mass Per Meter	m _{track}	kg/m	8.6	8.6	8.6	8.6	8.6	
Other Information								
Insulation Class	Class B (130°C)							
Protection Grade	IP00							
Compliance with Global Standards	RoHS, CE, UL(option)							
Ambient Temperature	Operation	0°C to 40°C (non-freezing)						
	Storage	-15°C to 70°C (non-freezing)						
Ambient Humidity	Operation	10%RH to 80%RH (non-condensing)						
	Storage	10%RH to 90%RH (non-condensing)						
Recommended Ambience	Indoor (no direct sunlight); No corrosive gas, inflammable gas, oil mist or dust.							

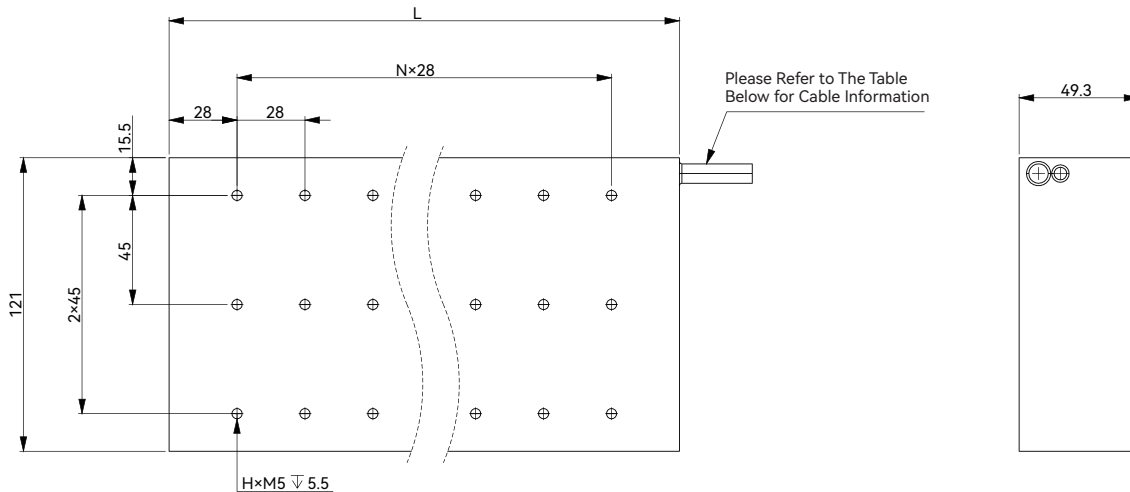
① Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
Abbreviations: NC-Natural Cooling.

② Resistance is measured by DC current with standard 0.5 m cable.

③ Inductance is measured by current frequency of 1 kHz.

The contents of datasheet are subject to change without prior notice.

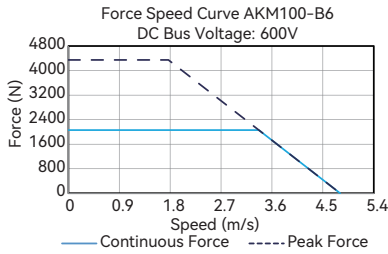
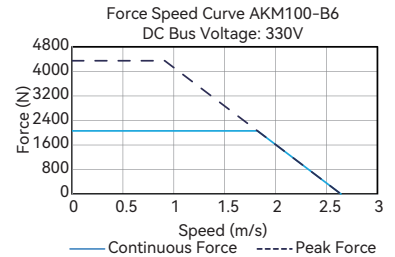
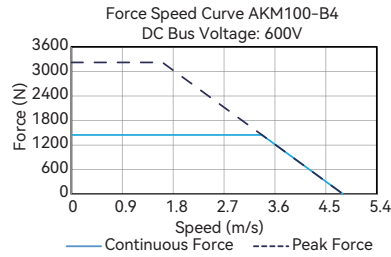
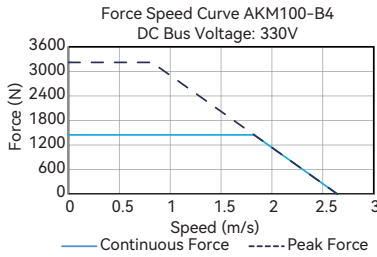
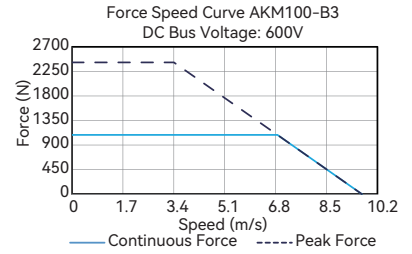
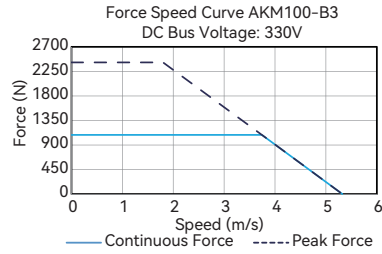
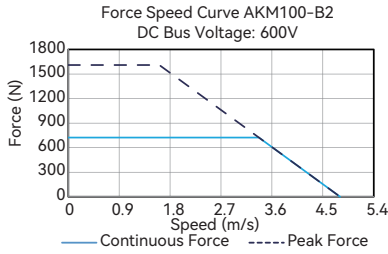
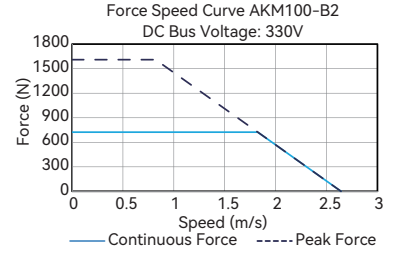
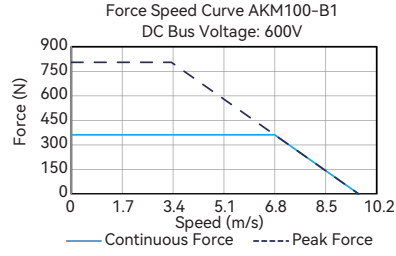
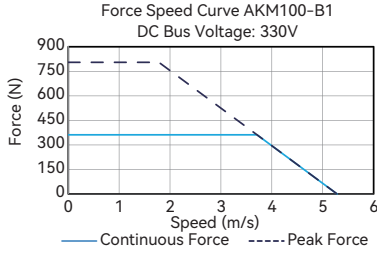
Dimension



Coil Size	L	N	H
AKM100-B1	112	2	9
AKM100-B2	196	5	18
AKM100-B3	280	8	27
AKM100-B4	364	11	36
AKM100-B6	532	17	54

Motor Model	Motor Cable			Hall Cable		
	Outer Diameter	Minimum Bend Radius (Mobile cables)	Minimum Bend Radius (Fixed cable)	Outer Diameter	Minimum Bend Radius (Mobile cables)	Minimum Bend Radius (Fixed cable)
AKM100-B1	8	80	40	5.2	52	26
AKM100-B2						
AKM100-B3						
AKM100-B4						
AKM100-B6						

Force-Speed Curve

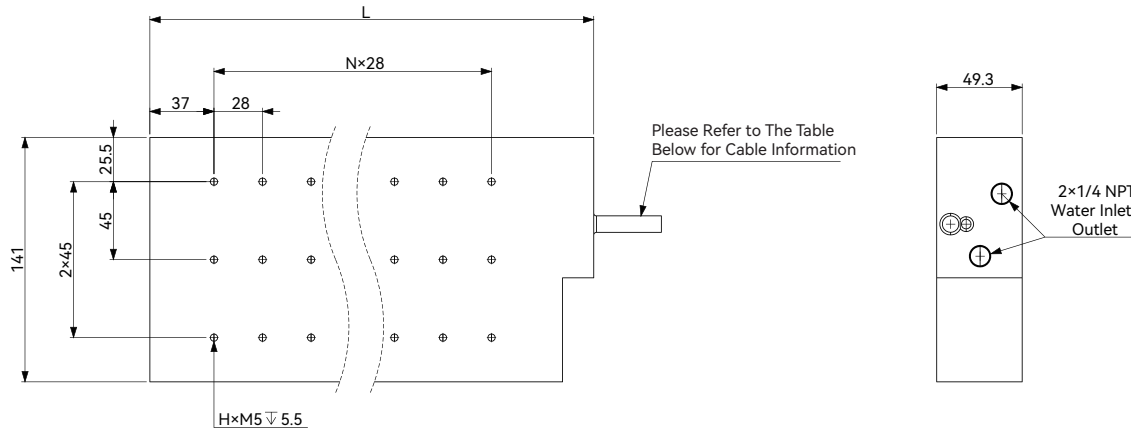


AKM100-W

			AKM100-W-B2	AKM100-W-B4
Performance Parameters		Symbol	Unit	Series
Continuous Force (WC) @100°C ①④	F_{cw}	N	1159.3	1947.3
Peak Force	F_{pk}	N	1610.5	3221.1
Force Constant $\pm 10\%$	K_f	N/Arms	153.0	153.0
Back EMF Constant $\pm 10\%$	K_e	Vpeak/(m/s)	124.9	124.9
Motor Constant @25°C	K_m	N/Sqrt(W)	58.2	82.4
Resistance (L-L) 25°C $\pm 10\%$ ②	R_{25}	Ω	4.6	2.3
Inductance (L-L) $\pm 30\%$ ③	L	mH	116.0	58.0
Electrical Time Constant	τ_e	ms	25.2	25.2
Continuous Current (WC) @100°C ①④	I_{cw}	Arms	8.2	13.4
Peak Current	I_{pk}	Arms	14.4	28.8
Continuous Power Dissipation (WC) @100°C ①④	P_{cw}	W	597.9	803.1
Max. Coil Temperature	t_{max}	°C	100	100
Thermal Dissipation Constant (WC) ①④	K_{thw}	W/°C	8.0	10.7
Max. Bus Voltage	U_{bus}	Vdc	600	600
Magnetic Period	τ_{NN}	mm	42	42
Attraction Force	F_a	kN	2.7	5.4
Mechanical Parameters				
Coil Mass (WC)	m_{cw}	kg	8.5	15.8
Coil Length (WC)	L_{cw}	mm	236	404
Track Mass Per Meter	m_{track}	kg/m	8.6	8.6
Other Information				
Insulation Class	Class B (130°C)			
Protection Grade	IP00			
Compliance with Global Standards	RoHS, CE, UL(option)			
Ambient Temperature	Operation	0°C to 40°C (non-freezing)		
	Storage	-15°C to 70°C (non-freezing)		
Ambient Humidity	Operation	10%RH to 80%RH (non-condensing)		
	Storage	10%RH to 90%RH (non-condensing)		
Recommended Ambience	Indoor (no direct sunlight); No corrosive gas, inflammable gas, oil mist or dust.			

- ① Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
Abbreviations: WC-Water Cooling.
- ② Resistance is measured by DC current with standard 0.5 m cable.
- ③ Inductance is measured by current frequency of 1 kHz.
- ④ Water cooling test conditions: the inlet water temperature of motor is 20°C, and the flow rate is 10 L/min.
- The contents of datasheet are subject to change without prior notice.

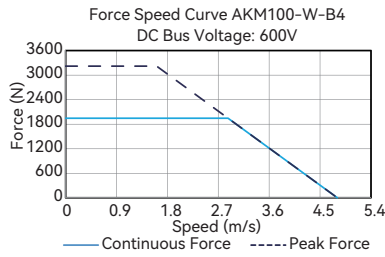
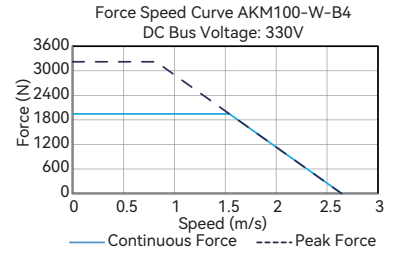
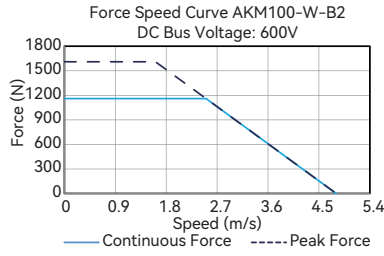
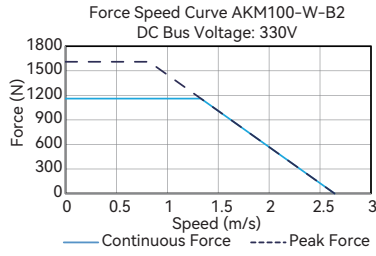
Dimension



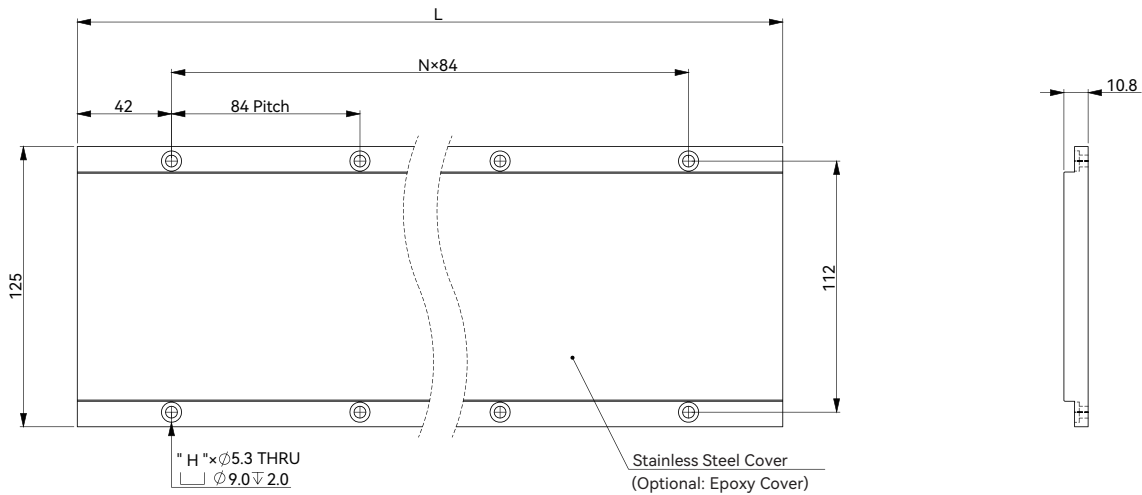
Coil Size	L	N	H
AKM100-W-B2	236	5	18
AKM100-W-B4	402	11	36

Motor Model	Motor Cable			Hall Cable		
	Outer Diameter	Minimum Bend Radius (Mobile cables)	Minimum Bend Radius (Fixed cable)	Outer Diameter	Minimum Bend Radius (Mobile cables)	Minimum Bend Radius (Fixed cable)
AKM100-W-B2	8	80	40	5.2	52	26
AKM100-W-B4	9.5	95	47.5			

Force-Speed Curve



AKM100 Track



Magnet Track	L	N	H
AKM100-TL168-S	168	1	4
AKM100-TL252-S	252	2	6
AKM100-TL420-S	420	4	10

For epoxy cover option, change "-S" to "-E". (e.g. AKM100-TL168-E)

Part Numbering

Motor Coil

AKM100-W-B2-J-NH-0.5-FB-0UA

Motor Model:

AKM100

Cooling Type:

Blank = Natural Cooling
W = Water Cooling

Coil Length:

B1 / B2 / B3 / B4 / B6

Thermal Sensor:

J / K

- ① J = Thermostat(standard)
- ② K = PT100(RTD)
- ③ H9D = With Built-in Hall Sensor C/W 9-Pins D-Sub Connector
- ④ NH = Without Built-in Hall Sensor C/W Flying Leads
- ⑤ FB = With Ferrite Bead C/W Flying Leads
- ⑥ 9W4M = Without Ferrite Bead C/W D-Sub 9W4 Male Connector
- ⑦ NFB = Without Ferrite Bead C/W Flying Leads
- ⑧ (Blank) = Standard Model
- ⑨ 0UA = UL-certified Model, Only Valid for Natural Cooling Type and Power Cable=NFB Options

Design Control Code:

(Blank) / 0UA

Power Cable:

FB / 9W4M / NFB

Cable Length (m):

0.5 / 3.0

Sensor Cable:

H9D / NH

Motor Track

AKM100-TL420-S

Motor Model:

AKM100

- ① S = Stainless steel cover
- ② E = Epoxy cover

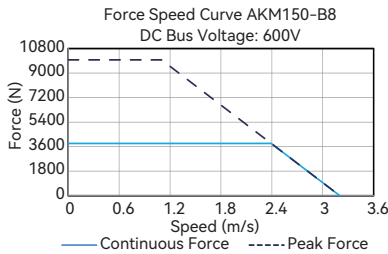
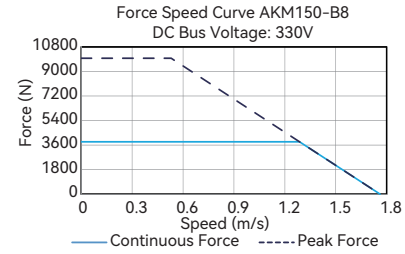
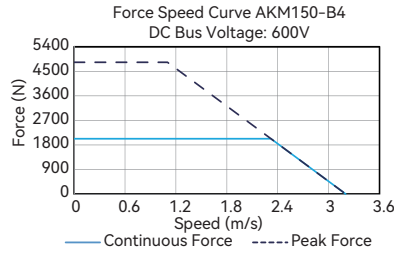
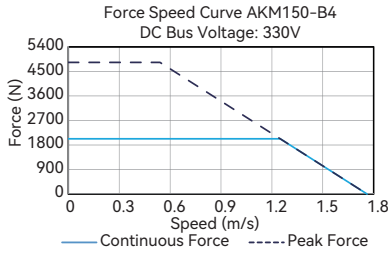
Track Type and Cover:

S / E

Track Length:

TL168 / TL252 / TL420

Force-Speed Curve

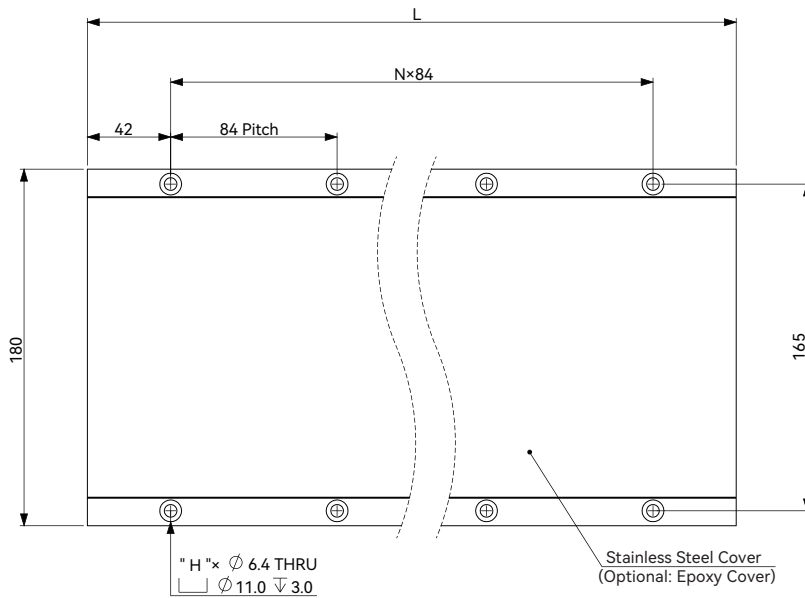


AKM150-W

			AKM150-W-B4	AKM150-W-B8
Performance Parameters			Parallel	Parallel
Continuous Force (WC) @100°C ①④	F_{cw}	N	2738.4	5216.1
Peak Force	F_{pk}	N	4831.6	9963.2
Force Constant ±10%	K_f	N/Arms	229.5	229.5
Back EMF Constant ±10%	K_e	Vpeak/(m/s)	187.4	187.4
Motor Constant @25°C	K_m	N/Sqrt(W)	104.8	148.1
Resistance (L-L) 25°C ±10% ②	R_{25}	Ω	3.2	1.6
Inductance (L-L) ±30% ③	L	mH	80.5	40.3
Electrical Time Constant	τ_e	ms	25.2	25.2
Continuous Current (WC) @100°C ①④	I_{cw}	Arms	12.6	24.0
Peak Current	I_{pk}	Arms	28.8	57.6
Continuous Power Dissipation (WC) @100°C ①④	P_{cw}	W	982.1	1781.6
Max. Coil Temperature	t_{max}	°C	100	100
Thermal Dissipation Constant (WC) ①④	K_{thw}	W/°C	13.1	23.8
Max. Bus Voltage	U_{bus}	Vdc	600	600
Magnetic Period	T_{NN}	mm	42.0	42.0
Attraction Force	F_a	kN	8.0	16.0
Mechanical Parameters				
Coil Mass (WC)	m_{cw}	kg	22.3	42.9
Coil Length (WC)	L_{cw}	mm	404	786
Track Mass Per Meter	m_{track}	kg/m	15.2	15.2
Other Information				
Insulation Class	Class B (130°C)			
Protection Grade	IP00			
Compliance with Global Standards	RoHS, CE, UL(option)			
Ambient Temperature	Operation	0°C to 40°C (non-freezing)		
	Storage	-15°C to 70°C (non-freezing)		
Ambient Humidity	Operation	10%RH to 80%RH (non-condensing)		
	Storage	10%RH to 90%RH (non-condensing)		
Recommended Ambience	Indoor (no direct sunlight); No corrosive gas, inflammable gas, oil mist or dust.			

- ① Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
Abbreviations:WC-Water Cooling.
- ② Resistance is measured by DC current with standard 0.5 m cable.
- ③ Inductance is measured by current frequency of 1 kHz.
- ④ Water cooling test conditions: the inlet water temperature of motor is 20°C, and the flow rate is 10 L/min.
- The contents of datasheet are subject to change without prior notice.

AKM150 Track



磁轨尺寸	L	N	H
AKM150-TL168-S	168	1	4
AKM150-TL252-S	252	2	6
AKM150-TL420-S	420	4	10

For epoxy cover option, change " -S " to " -E ". (e.g. AKM150-TL168-E)

Part Numbering

Motor Coil

AKM150-W-B4-J-NH-0.5-FB-0UA

Motor Model:

AKM150

Cooling Type:

Blank = Natural Cooling
 W = Water Cooling

Coil Length:

B4 / B8

Thermal Sensor:

J / K

- ① J = Thermostat(standard)
- ② K = PT100(RTD)
- ③ H9D = With Built-in Hall Sensor C/W 9-Pins D-Sub Connector
- ④ NH = Without Built-in Hall Sensor C/W Flying Leads
- ⑤ FB = With Ferrite Bead C/W Flying Leads
- ⑥ 9W4M = Without Ferrite Bead C/W D-Sub 9W4 Male Connector
- ⑦ NFB = Without Ferrite Bead C/W Flying Leads
- ⑧ (Blank) = Standard Model
- ⑨ 0UA = UL-certified Model, Only Valid for Natural Cooling Type and Power Cable=NFB Options

Design Control Code:

(Blank) / 0UA

Power Cable:
 FB / 9W4M / NFB

Cable Length (m):
 0.5 / 3.0

Sensor Cable:
 H9D / NH

Motor Track

AKM150-TL420-S

Motor Model:

AKM150

- ① S = Stainless steel cover
- ② E = Epoxy cover

Track Type and Cover:

S / E

Track Length:

TL168 / TL252 / TL420

AKM200-N

			AKM200-B4	AKM200-B8
Performance Parameters				
Continuous Force (NC) @100°C ①	Symbol	Unit	Parallel	Parallel
	F_{cn}	N	2539.6	4817.7
Peak Force	F_{pk}	N	6442.2	12884.3
Force Constant $\pm 10\%$	K_f	N/Arms	306.0	306.0
Back EMF Constant $\pm 10\%$	K_e	Vpeak/(m/s)	249.8	249.8
Motor Constant @25°C	K_m	N/Sqrt(W)	124.9	176.7
Resistance (L-L) 25°C $\pm 10\%$ ②	R_{25}	Ω	4.0	2.0
Inductance (L-L) $\pm 30\%$ ③	L	mH	103.0	51.5
Electrical Time Constant	τ_e	ms	25.8	25.8
Continuous Current (NC) @100°C ①	I_{cn}	Arms	8.4	16.0
Peak Current	I_{pk}	Arms	28.8	57.6
Continuous Power Dissipation (NC) @100°C ①	P_{cn}	W	545.6	989.8
Max. Coil Temperature	t_{max}	°C	100	100
Thermal Dissipation Constant (NC) ①	K_{thn}	W/°C	7.3	13.2
Max. Bus Voltage	U_{bus}	Vdc	600	600
Magnetic Period	T_{MN}	mm	42.0	42.0
Attraction Force	F_a	kN	10.7	21.4
Mechanical Parameters				
Coil Mass (NC)	m_{cn}	kg	26.5	51.6
Coil Length (NC)	L_{cn}	mm	364	700
Track Mass Per Meter	m_{track}	kg/m	22.4	22.4
Other Information				
Insulation Class	Class B (130°C)			
Protection Grade	IP00			
Compliance with Global Standards	RoHS, CE, UL(option)			
Ambient Temperature	Operation	0°C to 40°C (non-freezing)		
	Storage	-15°C to 70°C (non-freezing)		
Ambient Humidity	Operation	10%RH to 80%RH (non-condensing)		
	Storage	10%RH to 90%RH (non-condensing)		
Recommended Ambience	Indoor (no direct sunlight); No corrosive gas, inflammable gas, oil mist or dust.			

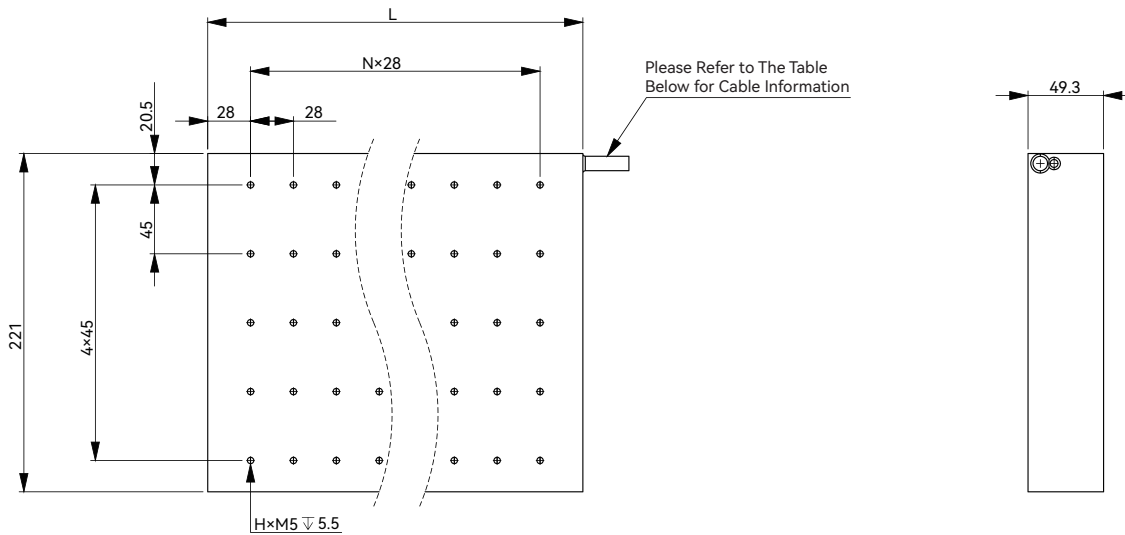
① Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
Abbreviations: NC-Natural Cooling.

② Resistance is measured by DC current with standard 0.5 m cable.

③ Inductance is measured by current frequency of 1 kHz.

The contents of datasheet are subject to change without prior notice.

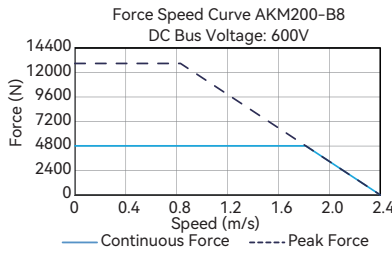
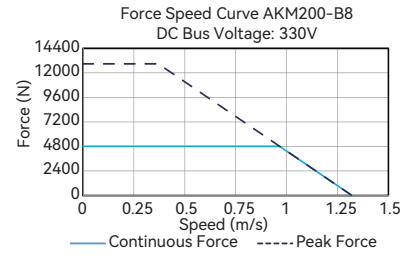
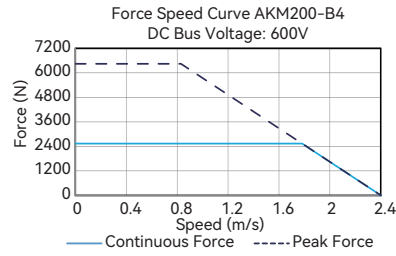
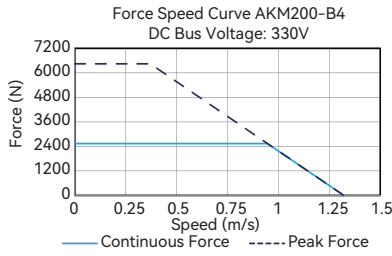
Dimension



Coil Size	L	N	H
AKM200-B4	364	11	60
AKM200-B8	700	23	120

Motor Model	Motor Cable			Hall Cable		
	Outer Diameter	Minimum Bend Radius (Mobile cables)	Minimum Bend Radius (Fixed cable)	Outer Diameter	Minimum Bend Radius (Mobile cables)	Minimum Bend Radius (Fixed cable)
AKM200-B4	9.5	95	47.5	5.2	52	26
AKM200-B8						

Force-Speed Curve



AKM200-W

			AKM200-W-B4	AKM200-W-B8	
Performance Parameters		Symbol	Unit	Parallel	Parallel
Continuous Force (WC) @100°C ^{①④}		F _{cw}	N	3249.8	6190.1
Peak Force		F _{pk}	N	6442.2	12884.3
Force Constant ±10%		K _f	N/Arms	306.0	306.0
Back EMF Constant ±10%		K _e	Vpeak/(m/s)	249.8	249.8
Motor Constant @25°C		K _m	N/Sqrt(W)	124.9	176.7
Resistance (L-L) 25°C ±10% ^②		R ₂₅	Ω	4.0	2.0
Inductance (L-L) ±30% ^③		L	mH	103.0	51.5
Electrical Time Constant		τ _e	ms	25.8	25.8
Continuous Current (WC) @100°C ^{①④}		I _{cw}	Arms	10.8	20.6
Peak Current		I _{pk}	Arms	28.8	57.6
Continuous Power Dissipation (WC) @100°C ^{①④}		P _{cw}	W	904.4	1640.7
Max. Coil Temperature		t _{max}	°C	100	100
Thermal Dissipation Constant (WC) ^{①④}		K _{thw}	W/°C	12.1	21.9
Max. Bus Voltage		U _{bus}	V _{dc}	600	600
Magnetic Period		τ _{NN}	mm	42.0	42.0
Attraction Force		F _a	kN	10.7	21.4
Mechanical Parameters					
Coil Mass (WC)		m _{cw}	kg	29.0	55.8
Coil Length (WC)		L _{cw}	mm	404	786
Track Mass Per Meter		m _{track}	kg/m	22.4	22.4
Other Information					
Insulation Class	Class B (130°C)				
Protection Grade	IP00				
Compliance with Global Standards	RoHS, CE, UL(option)				
Ambient Temperature	Operation	0°C to 40°C (non-freezing)			
	Storage	-15°C to 70°C (non-freezing)			
Ambient Humidity	Operation	10%RH to 80%RH (non-condensing)			
	Storage	10%RH to 90%RH (non-condensing)			
Recommended Ambience	Indoor (no direct sunlight); No corrosive gas, inflammable gas, oil mist or dust.				

① Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
Abbreviations:WC-Water Cooling.

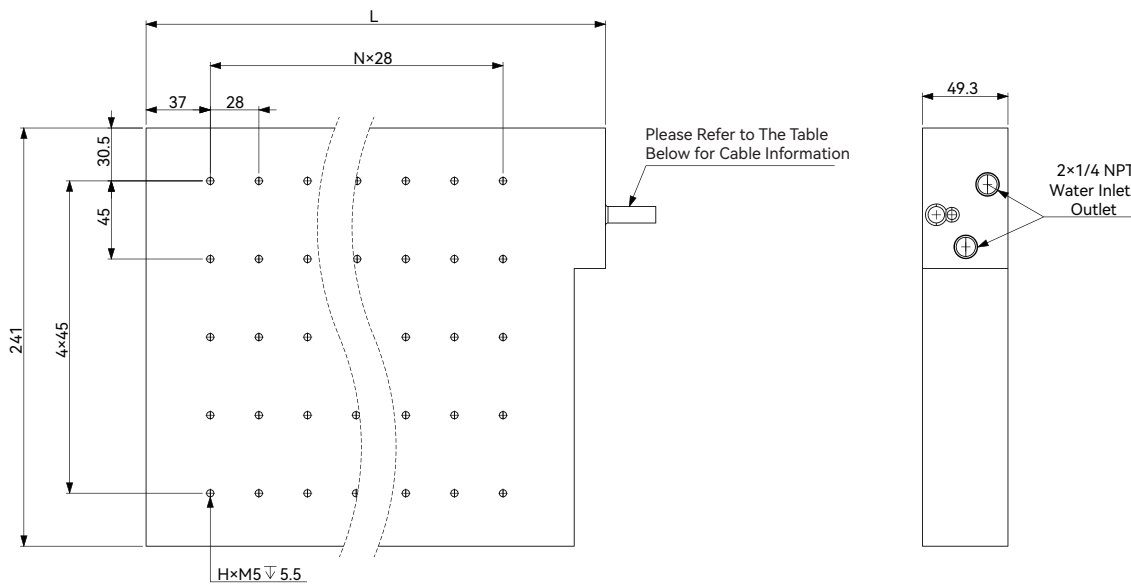
② Resistance is measured by DC current with standard 0.5 m cable.

③ Inductance is measured by current frequency of 1 kHz.

④ Water cooling test conditions: the inlet water temperature of motor is 20°C, and the flow rate is 10 L/min.

The contents of datasheet are subject to change without prior notice.

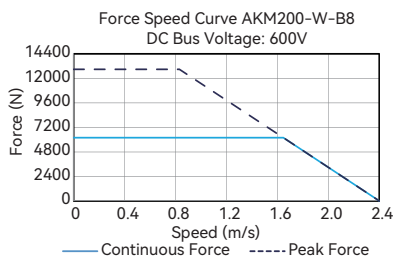
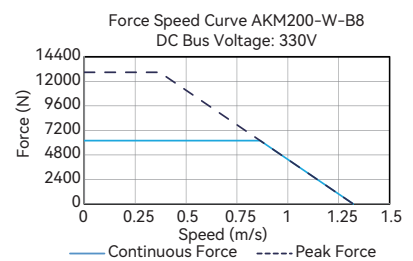
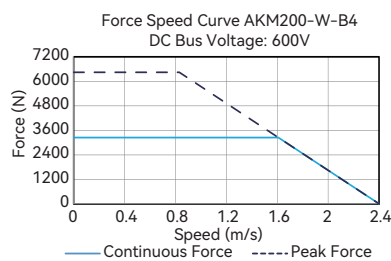
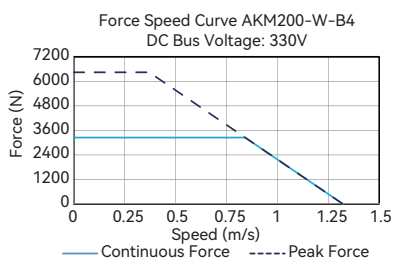
Dimension



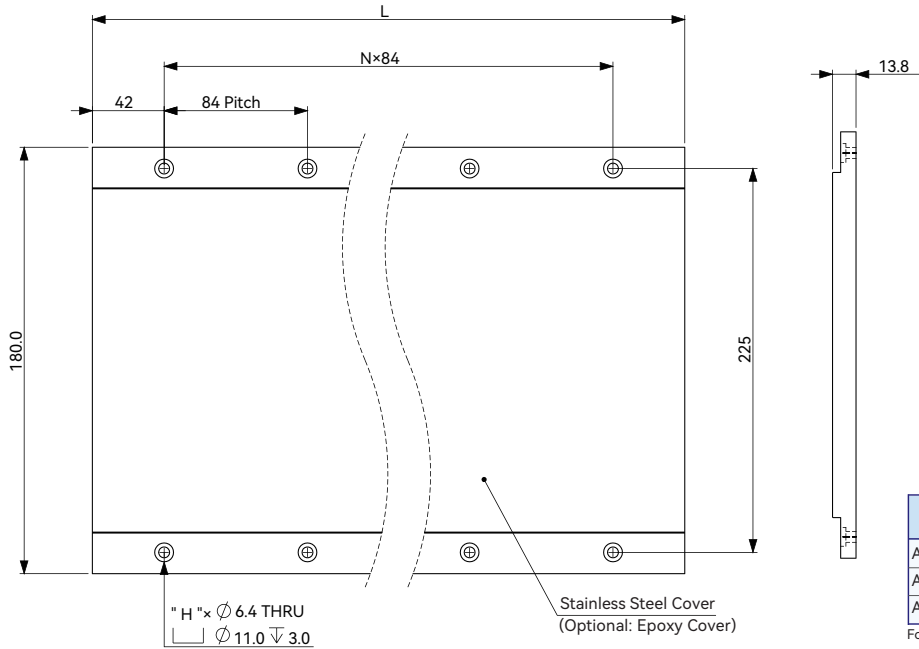
Coil Size	L	N	H
AKM200-W-B4	404	11	60
AKM200-W-B8	786	23	120

Motor Model	Motor Cable			Hall Cable		
	Outer Diameter	Minimum Bend Radius (Mobile cables)	Minimum Bend Radius (Fixed cable)	Outer Diameter	Minimum Bend Radius (Mobile cables)	Minimum Bend Radius (Fixed cable)
AKM200-W-B4	9.5	95	47.5	5.2	52	26
AKM200-W-B8	12.6	126	63			

Force-Speed Curve



AKM200 Track



Magnet Track	L	N	H
AKM200-TL168-S	168	1	4
AKM200-TL252-S	252	2	6
AKM200-TL420-S	420	4	10

For epoxy cover option, change " -S " to " -E ". (e.g. AKM200-TL168-E)

Part Numbering

Motor Coil

AKM200-W-B8-J-NH-0.5-FB-0UA

Motor Model:

AKM200

Cooling Type:

Blank = Natural Cooling
W = Water Cooling

Coil Length:

B4 / B8

Thermal Sensor:

J / K

- ① J = Thermostat(standard)
- ② K = PT100(RTD)
- ③ H9D = With Built-in Hall Sensor C/W 9-Pins D-Sub Connector
- ④ NH = Without Built-in Hall Sensor C/W Flying Leads
- ⑤ FB = With Ferrite Bead C/W Flying Leads
- ⑥ 9W4M = Without Ferrite Bead C/W D-Sub 9W4 Male Connector
- ⑦ NFB = Without Ferrite Bead C/W Flying Leads
- ⑧ (Blank) = Standard Model
- ⑨ 0UA = UL-certified Model, Only Valid for Natural Cooling Type and Power Cable=NFB Options

Design Control Code:

(Blank) / 0UA

Power Cable:

FB / 9W4M / NFB

Cable Length (m):

0.5 / 3.0

Sensor Cable:

H9D / NH

Motor Track

AKM200-TL420-S

Motor Model:

AKM200

- ⑩ S = Stainless steel cover
- ⑪ E = Epoxy cover

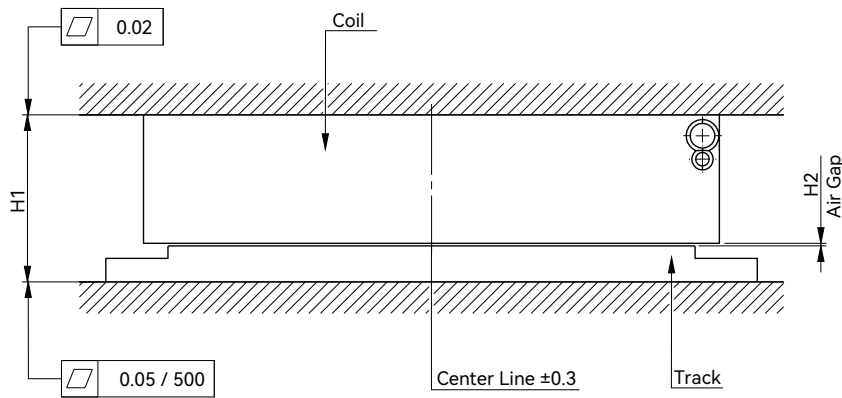
Track Type and Cover:

S / E

Track Length:

TL168 / TL252 / TL420

Motor Assembly Diagram

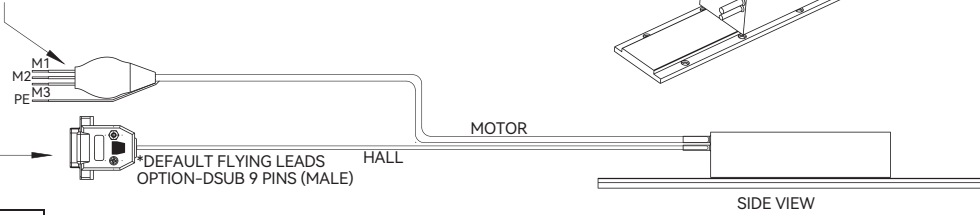


Installation Guide	Magnetic Track Adaptable	H1	H2
AKM30-Bx	AKM30-TLXXX-S	61.1(0,-0.1)	1.0(+0.2,-0.4)
AKM50-Bx	AKM50-TLXXX-S	61.1(0,-0.1)	1.0(+0.2,-0.4)
AKM50-W-Bx			
AKM100-Bx	AKM100-TLXXX-S	61.1(0,-0.1)	1.0(+0.2,-0.4)
AKM100-W-Bx			
AKM150-Bx	AKM150-TLXXX-S	64.1(0,-0.1)	1.0(+0.2,-0.4)
AKM150-W-Bx			
AKM200-Bx	AKM200-TLXXX-S	64.1(0,-0.1)	1.0(+0.2,-0.4)
AKM200-W-Bx			

Motor Cable Connection

MOTOR CABLE

PIN	DESCRIPTION	COLOR
-	M1	BLACK 1
-	M2	BLACK 2
-	M3	BLACK 3
-	PE	YELLOW / GREEN



HALL CABLE

PIN	DESCRIPTION	COLOR
1	HA	GREEN
2	HB	YELLOW
3	HC	GREY
4	5VDC	BROWN
5	0VDC	WHITE
8	T1	PINK
9	T2	BLUE

