

# AKM SERIES

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



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## 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.

F<sub>cn</sub> (Continuous force) = 108.4N ~ 6190.1N

F<sub>pk</sub> (Peak force) = 241.6N ~ 12884.3N



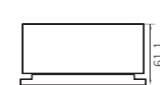
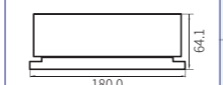
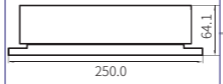
## Features

- ▶ 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 <sub>cn</sub> ) / ■ PeakForce (F <sub>pk</sub> ) <sup>①</sup>						Unit: N
			200	500	1000	2000	3500	5500	....
	AKM30-B1	112	● 108.4 / ■ 241.6						
	AKM30-B2	196	● 216.8 / ■ 483.2						
	AKM30-B4	364	● 433.6 / ■ 966.3						
	AKM50-B1	112	● 180.7 / ■ 402.6						
	AKM50-B2	196	● 361.3 / ■ 805.3						
	AKM50-B4	364	● 722.6 / ■ 1159.3						
	AKM100-B1	112	● 361.3 / ■ 805.3						
	AKM100-B2	196	● 722.6 / ■ 1159.3						
	AKM100-B4	364	● 1445.3 / ■ 3221.1						
	AKM150-B4	364	● 2027.0 / ■ 4831.6						
	AKM150-B8	700	● 3839.1 / ■ 9663.2						
	AKM200-B4	364	● 2539.6 / ■ 6442.2						
	AKM200-B8	700	● 4817.7 / ■ 12884.3						

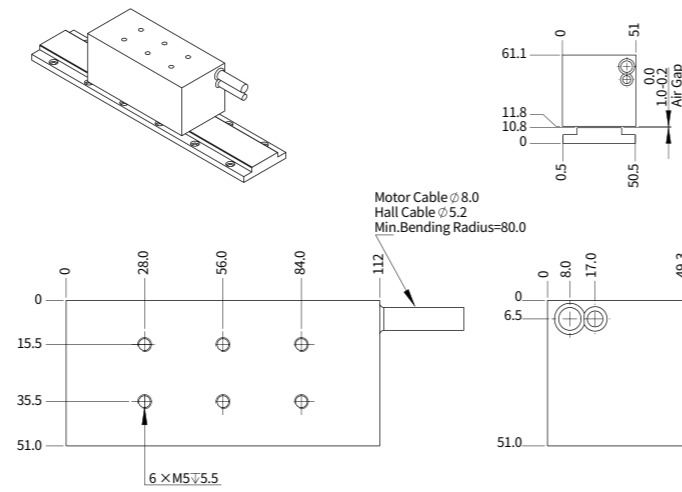
① Continuous force is measured under the condition of self-cooling. Please refer to the detail parameters table for the continuous force under the condition of water cooling.

## AKM30-B1

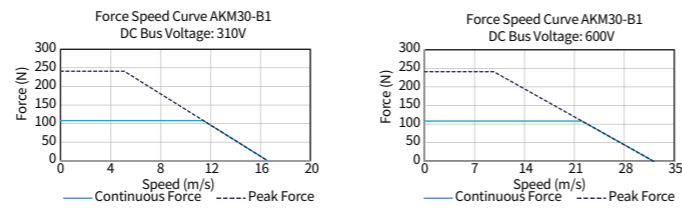
AKM30-B1			
<b>Performance Parameters</b>	Symbol	Unit	Series
Continuous Force (NC) @100°C	F <sub>cn</sub>	N	108.4
Peak Force	F <sub>pk</sub>	N	241.6
Force Constant ±10%	K <sub>f</sub>	N/Arms	23.0
Back EMF Constant ±10%	K <sub>e</sub>	Vpeak/(m/s)	18.7
Motor Constant @25°C	K <sub>m</sub>	N/Sqrt(W)	17.7
Resistance (L-L) 25°C ±10%	R <sub>25</sub>	Ω	1.1
Inductance (L-L) ±30%	L	mH	21.0
Electrical Time Constant	τ <sub>e</sub>	ms	18.8
Continuous Current (NC) @100°C	I <sub>cn</sub>	Arms	4.8
Peak Current	I <sub>pk</sub>	Arms	14.4
Continuous Power Dissipation (NC) @100°C	P <sub>cn</sub>	W	49.9
Max. Coil Temperature	t <sub>max</sub>	°C	100
Thermal Dissipation Constant (NC)	K <sub>thn</sub>	W/°C	0.7
Max. Bus Voltage	U <sub>bus</sub>	Vdc	600
Magnetic Period	T <sub>MN</sub>	mm	42
Attraction Force	F <sub>a</sub>	kN	0.4
<b>Mechanical Parameters</b>			
Coil Mass (NC)	m <sub>cn</sub>	kg	1.5
Coil Length (NC)	L <sub>cn</sub>	mm	112
Track Mass Per Meter	m <sub>track</sub>	kg	2.6
<b>Other Information</b>			
Insulation Class	Class B (130°C)		
Protection Grade	IP00		
Compliance with Global Standards	RoHS		
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.		

- Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment. Abbreviations: NC-Natural Cooling.
  - Resistance is measured by DC current with standard 0.5 m cable.
  - Inductance is measured by current frequency of 1 kHz.
- The contents of datasheet are subject to change without prior notice.

### Dimension



### Force-Speed Curve

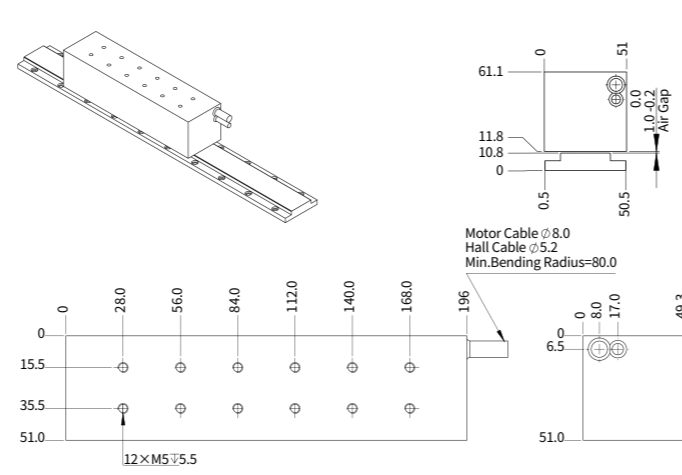


## AKM30-B2

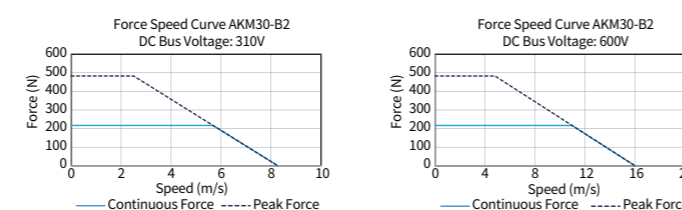
AKM30-B2			
<b>Performance Parameters</b>	Symbol	Unit	Series
Continuous Force (NC) @100°C	F <sub>cn</sub>	N	216.8
Peak Force	F <sub>pk</sub>	N	483.2
Force Constant ±10%	K <sub>f</sub>	N/Arms	45.9
Back EMF Constant ±10%	K <sub>e</sub>	Vpeak/(m/s)	37.5
Motor Constant @25°C	K <sub>m</sub>	N/Sqrt(W)	25.0
Resistance (L-L) 25°C ±10%	R <sub>25</sub>	Ω	2.2
Inductance (L-L) ±30%	L	mH	42.0
Electrical Time Constant	τ <sub>e</sub>	ms	18.8
Continuous Current (NC) @100°C	I <sub>cn</sub>	Arms	4.8
Peak Current	I <sub>pk</sub>	Arms	14.4
Continuous Power Dissipation (NC) @100°C	P <sub>cn</sub>	W	99.8
Max. Coil Temperature	t <sub>max</sub>	°C	100
Thermal Dissipation Constant (NC)	K <sub>thn</sub>	W/°C	1.3
Max. Bus Voltage	U <sub>bus</sub>	Vdc	600
Magnetic Period	T <sub>MN</sub>	mm	42
Attraction Force	F <sub>a</sub>	kN	0.8
<b>Mechanical Parameters</b>			
Coil Mass (NC)	m <sub>cn</sub>	kg	2.7
Coil Length (NC)	L <sub>cn</sub>	mm	196
Track Mass Per Meter	m <sub>track</sub>	kg	2.6
<b>Other Information</b>			
Insulation Class	Class B (130°C)		
Protection Grade	IP00		
Compliance with Global Standards	RoHS		
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.		

- Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment. Abbreviations: NC-Natural Cooling.
  - Resistance is measured by DC current with standard 0.5 m cable.
  - Inductance is measured by current frequency of 1 kHz.
- The contents of datasheet are subject to change without prior notice.

### Dimension



### Force-Speed Curve

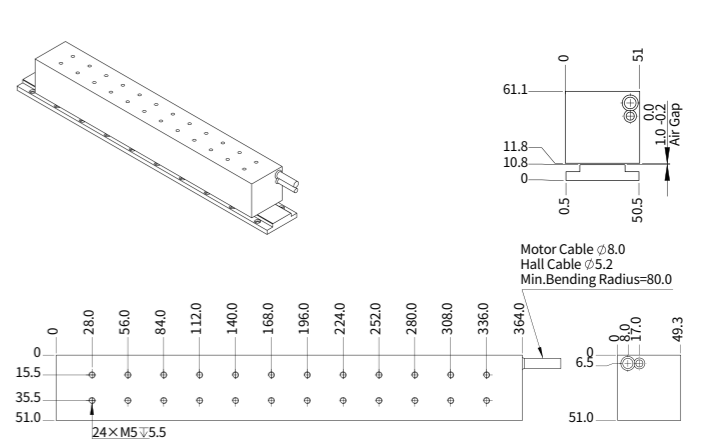


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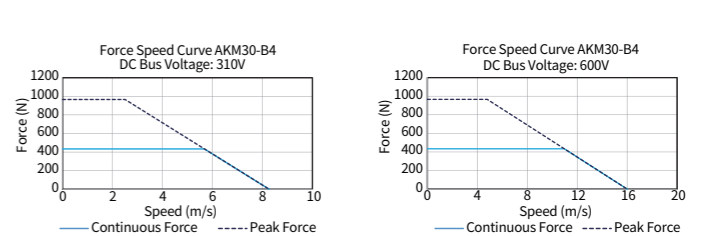
AKM30-B4			
<b>Performance Parameters</b>	Symbol	Unit	Parallel
Continuous Force (NC) @100°C	F <sub>cn</sub>	N	433.6
Peak Force	F <sub>pk</sub>	N	966.3
Force Constant ±10%	K <sub>f</sub>	N/Arms	45.9
Back EMF Constant ±10%	K <sub>e</sub>	Vpeak/(m/s)	37.5
Motor Constant @25°C	K <sub>m</sub>	N/Sqrt(W)	35.4
Resistance (L-L) 25°C ±10%	R <sub>25</sub>	Ω	1.1
Inductance (L-L) ±30%	L	mH	21.0
Electrical Time Constant	τ <sub>e</sub>	ms	18.8
Continuous Current (NC) @100°C	I <sub>cn</sub>	Arms	9.6
Peak Current	I <sub>pk</sub>	Arms	28.8
Continuous Power Dissipation (NC) @100°C	P <sub>cn</sub>	W	199.5
Max. Coil Temperature	t <sub>max</sub>	°C	100
Thermal Dissipation Constant (NC)	K <sub>thn</sub>	W/°C	2.7
Max. Bus Voltage	U <sub>bus</sub>	Vdc	600
Magnetic Period	T <sub>MN</sub>	mm	42
Attraction Force	F <sub>a</sub>	kN	1.6
<b>Mechanical Parameters</b>			
Coil Mass (NC)	m <sub>cn</sub>	kg	5.3
Coil Length (NC)	L <sub>cn</sub>	mm	364
Track Mass Per Meter	m <sub>track</sub>	kg	2.6
<b>Other Information</b>			
Insulation Class	Class B (130°C)		
Protection Grade	IP00		
Compliance with Global Standards	RoHS		
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.		

- Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment. Abbreviations: NC-Natural Cooling.
  - Resistance is measured by DC current with standard 0.5 m cable.
  - Inductance is measured by current frequency of 1 kHz.
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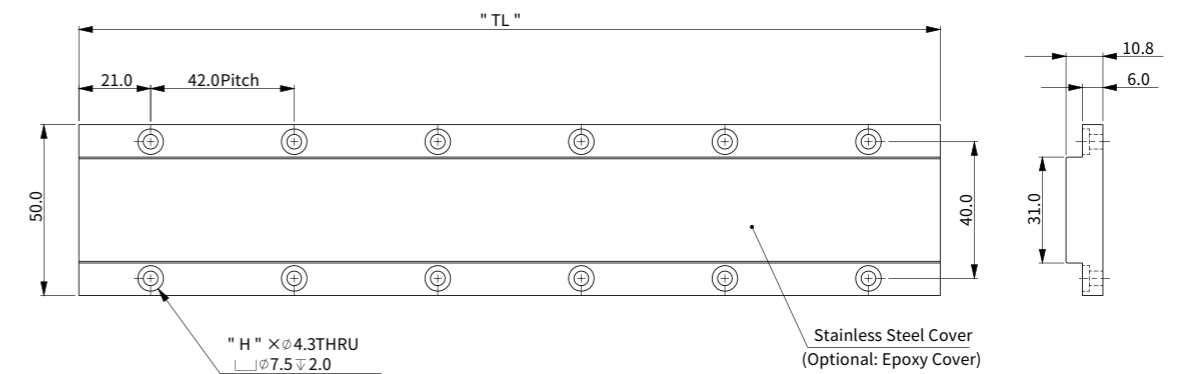
### Dimension



### Force-Speed Curve



## AKM30 Track



Magnet Track P/N:	Track Length "TL"	No. of Holes "H"
AKM30-TL168-S	168.0	8
AKM30-TL252-S	252.0	12
AKM30-TL420-S	420.0	20

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

Part Numbering

Motor Coil

AKM30-B2-J-NH-0.5-NFB

Model:

AKM30

Size:

B1 / B2 / B4

Thermal Sensor:

J=Thermostat(standard) / K=PT100(RTD)  
(Contact us for other thermal sensor)

- NH = Without Built-in Hall Sensor but with Thermal Sensor
- HF = With Built-in hall sensor & hall cable comes with flying leads (Standard)
- NFB = No ferrite bead
- FB = Ferrite bead

Motor Cable Option:

NFB / FB

Cable Length (m):

0.5 / 3.0  
(Contact us for other lengths)

Hall Cable Option:

NH / HF

Motor Track

AKM30-TL420-S

Model:

AKM30

- S=Stainless steel cover
- E=Epoxy cover

Cover Type:

S / E

Track Length:

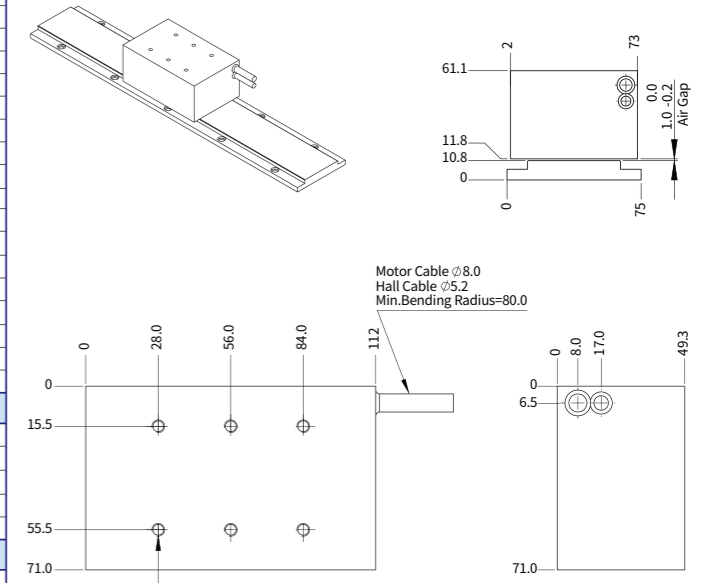
TL168 / TL252 / TL420

AKM50-B1

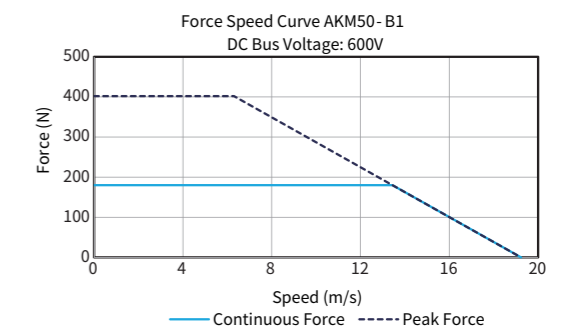
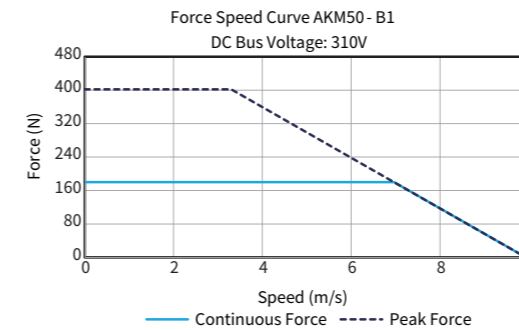
AKM50-B1			
Performance Parameters	Symbol	Unit	Series
Continuous Force (NC) @100°C	F <sub>cn</sub>	N	180.7
Continuous Force (WC) @100°C	F <sub>cw</sub>	N	-
Peak Force	F <sub>pk</sub>	N	402.6
Force Constant ±10%	K <sub>f</sub>	N/Arms	38.3
Back EMF Constant ±10%	K <sub>e</sub>	Vpeak/(m/s)	31.2
Motor Constant @25°C	K <sub>m</sub>	N/Sqrt(W)	26.4
Resistance (L-L) 25°C ±10%	R <sub>25</sub>	Ω	1.4
Inductance (L-L) ±30%	L	mH	31.8
Electrical Time Constant	τ <sub>e</sub>	ms	22.7
Continuous Current (NC) @100°C	I <sub>cn</sub>	Arms	4.8
Continuous Current (WC) @100°C	I <sub>cw</sub>	Arms	-
Peak Current	I <sub>pk</sub>	Arms	14.4
Continuous Power Dissipation (NC) @100°C	P <sub>cn</sub>	W	62.4
Continuous Power Dissipation (WC) @100°C	P <sub>cw</sub>	W	-
Max. Coil Temperature	t <sub>max</sub>	°C	100
Thermal Dissipation Constant (NC)	K <sub>thn</sub>	W/°C	0.8
Thermal Dissipation Constant (WC)	K <sub>thw</sub>	W/°C	-
Max. Bus Voltage	U <sub>bus</sub>	Vdc	600
Magnetic Period	τ <sub>M</sub>	mm	42.0
Attraction Force	F <sub>a</sub>	kN	0.7
Mechanical Parameters			
Coil Mass (NC)	m <sub>cn</sub>	kg	2.2
Coil Mass (WC)	m <sub>cw</sub>	kg	-
Coil Length (NC)	L <sub>cn</sub>	mm	112
Coil Length (WC)	L <sub>cw</sub>	mm	-
Track Mass Per Meter	m <sub>track</sub>	kg	4.8
Other Information			
Insulation Class	Class B (130°C)		
Protection Grade	IP00		
Compliance with Global Standards	RoHS		
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.		

- Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment. Abbreviations: NC-Natural Cooling, WC-Water Cooling.
  - Resistance is measured by DC current with standard 0.5 m cable.
  - Inductance is measured by current frequency of 1 kHz.
- The contents of datasheet are subject to change without prior notice.

Dimension



Force-Speed Curve

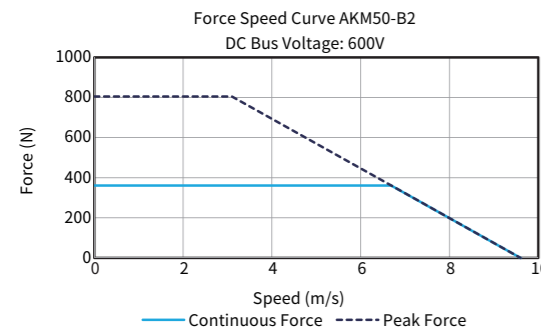
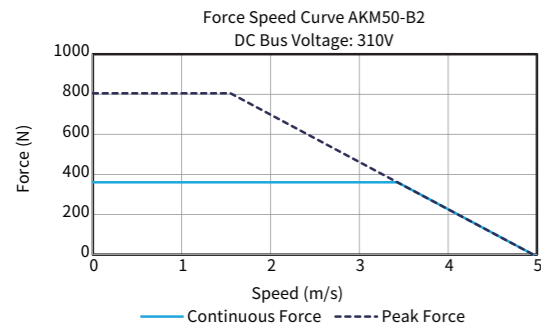


AKM50-B2

AKM50-B2			
Performance Parameters	Symbol	Unit	Series
Continuous Force (NC) @100°C	F <sub>cn</sub>	N	361.3
Continuous Force (WC) @100°C	F <sub>cw</sub>	N	579.6
Peak Force	F <sub>pk</sub>	N	805.3
Force Constant ±10%	K <sub>f</sub>	N/Arms	76.5
Back EMF Constant ±10%	K <sub>e</sub>	Vpeak/(m/s)	62.5
Motor Constant @25°C	K <sub>m</sub>	N/Sqrt(W)	37.3
Resistance (L-L) 25°C ±10%	R <sub>25</sub>	Ω	2.8
Inductance (L-L) ±30%	L	mH	63.6
Electrical Time Constant	τ <sub>e</sub>	ms	22.7
Continuous Current (NC) @100°C	I <sub>cn</sub>	Arms	4.8
Continuous Current (WC) @100°C	I <sub>cw</sub>	Arms	8.2
Peak Current	I <sub>pk</sub>	Arms	14.4
Continuous Power Dissipation (NC) @100°C	P <sub>cn</sub>	W	124.7
Continuous Power Dissipation (WC) @100°C	P <sub>cw</sub>	W	364.0
Max. Coil Temperature	t <sub>max</sub>	°C	100
Thermal Dissipation Constant (NC)	K <sub>thn</sub>	W/°C	1.7
Thermal Dissipation Constant (WC)	K <sub>thw</sub>	W/°C	4.9
Max. Bus Voltage	U <sub>bus</sub>	Vdc	600
Magnetic Period	τ <sub>NN</sub>	mm	42.0
Attraction Force	F <sub>a</sub>	kN	1.3
Mechanical Parameters			
Coil Mass (NC)	m <sub>cn</sub>	kg	4.1
Coil Mass (WC)	m <sub>cw</sub>	kg	4.9
Coil Length (NC)	L <sub>cn</sub>	mm	196
Coil Length (WC)	L <sub>cw</sub>	mm	234
Track Mass Per Meter	m <sub>track</sub>	kg	4.8
Other Information			
Insulation Class	Class B (130°C)		
Protection Grade	IP00		
Compliance with Global Standards	RoHS		
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.		

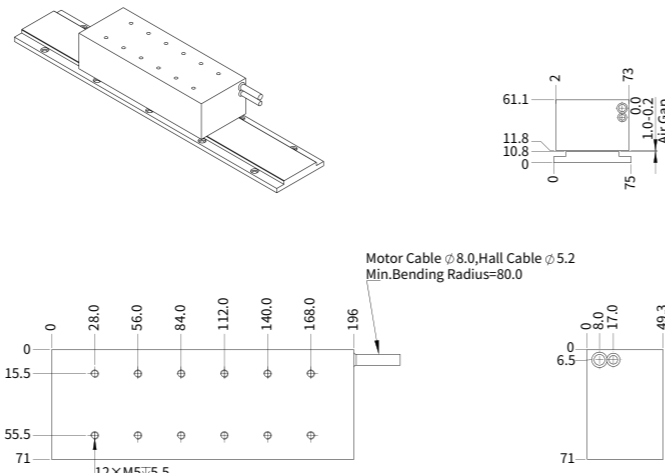
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  - Resistance is measured by DC current with standard 0.5 m cable.
  - Inductance is measured by current frequency of 1 kHz.
- The contents of datasheet are subject to change without prior notice.

Force-Speed Curve

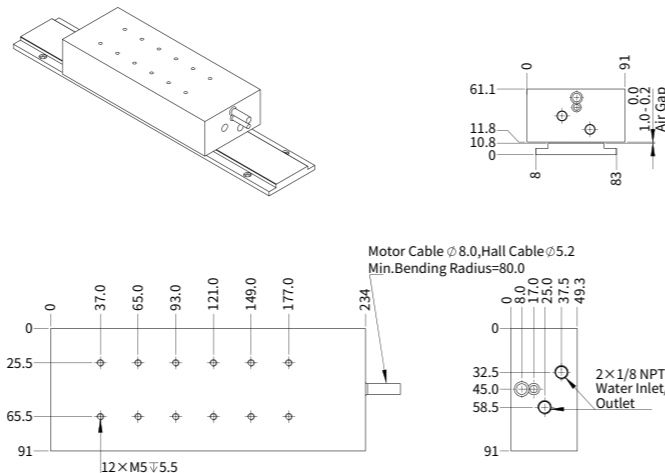


Dimension

AKM50-B2



AKM50-W-B2

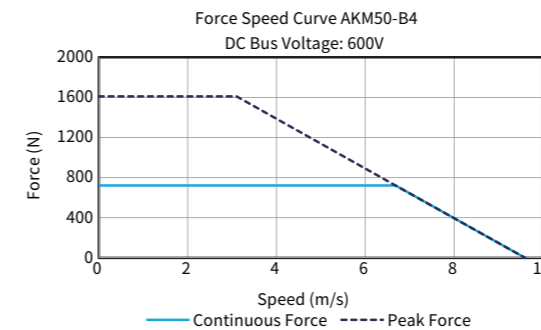
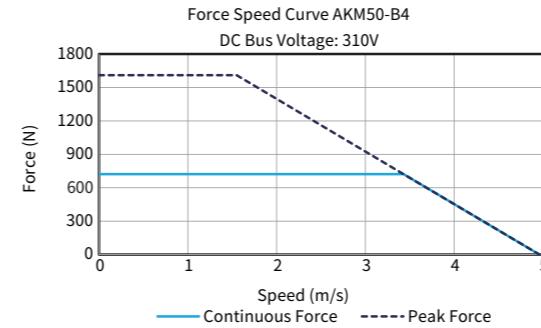


AKM50-B4

AKM50-B4			
Performance Parameters	Symbol	Unit	Parallel
Continuous Force (NC) @100°C	F <sub>cn</sub>	N	722.6
Continuous Force (WC) @100°C	F <sub>cw</sub>	N	1159.3
Peak Force	F <sub>pk</sub>	N	1610.5
Force Constant ±10%	K <sub>f</sub>	N/Arms	76.5
Back EMF Constant ±10%	K <sub>e</sub>	Vpeak/(m/s)	62.5
Motor Constant @25°C	K <sub>m</sub>	N/Sqrt(W)	52.8
Resistance (L-L) 25°C ±10%	R <sub>25</sub>	Ω	1.4
Inductance (L-L) ±30%	L	mH	31.8
Electrical Time Constant	τ <sub>e</sub>	ms	22.7
Continuous Current (NC) @100°C	I <sub>cn</sub>	Arms	9.6
Continuous Current (WC) @100°C	I <sub>cw</sub>	Arms	16.4
Peak Current	I <sub>pk</sub>	Arms	28.8
Continuous Power Dissipation (NC) @100°C	P <sub>cn</sub>	W	249.4
Continuous Power Dissipation (WC) @100°C	P <sub>cw</sub>	W	727.9
Max. Coil Temperature	t <sub>max</sub>	°C	100
Thermal Dissipation Constant (NC)	K <sub>thn</sub>	W/°C	3.3
Thermal Dissipation Constant (WC)	K <sub>thw</sub>	W/°C	9.7
Max. Bus Voltage	U <sub>bus</sub>	Vdc	600
Magnetic Period	τ <sub>NN</sub>	mm	42.0
Attraction Force	F <sub>a</sub>	kN	2.7
Mechanical Parameters			
Coil Mass (NC)	m <sub>cn</sub>	kg	7.9
Coil Mass (WC)	m <sub>cw</sub>	kg	9.1
Coil Length (NC)	L <sub>cn</sub>	mm	364
Coil Length (WC)	L <sub>cw</sub>	mm	402
Track Mass Per Meter	m <sub>track</sub>	kg	4.8
Other Information			
Insulation Class	Class B (130°C)		
Protection Grade	IP00		
Compliance with Global Standards	RoHS		
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.		

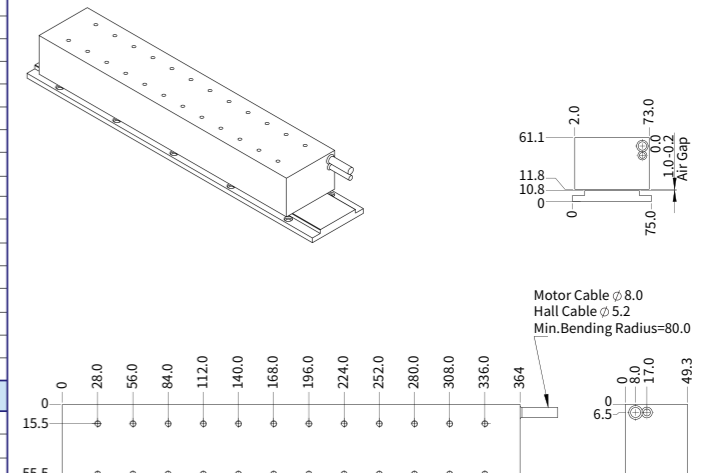
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  - Resistance is measured by DC current with standard 0.5 m cable.
  - Inductance is measured by current frequency of 1 kHz.
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Force-Speed Curve

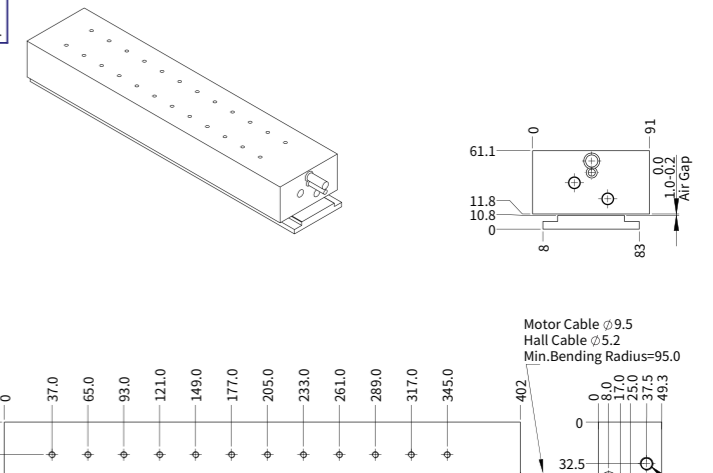


Dimension

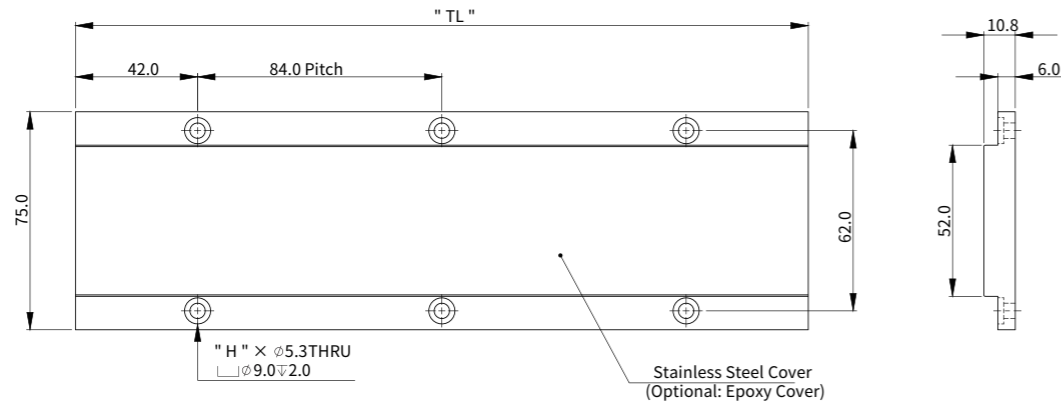
AKM50-B4



AKM50-W-B4



AKM50 Track



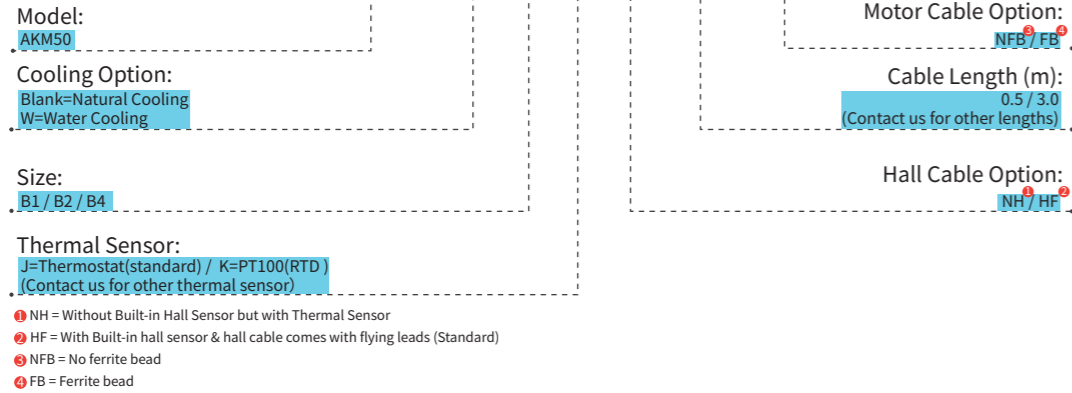
Magnet Track P / N:	Track Length "TL"	No. of Holes "H"
AKM50-TL168-S	168.0	4
AKM50-TL252-S	252.0	6
AKM50-TL420-S	420.0	10

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

Part Numbering

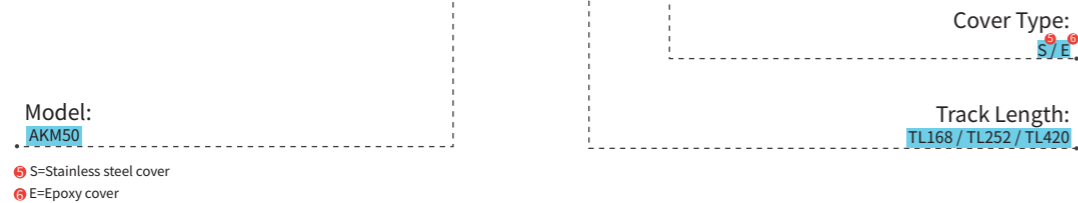
Motor Coil

**AKM50-W-B2-J-NH-0.5-NFB**



Motor Track

**AKM50-TL420-S**

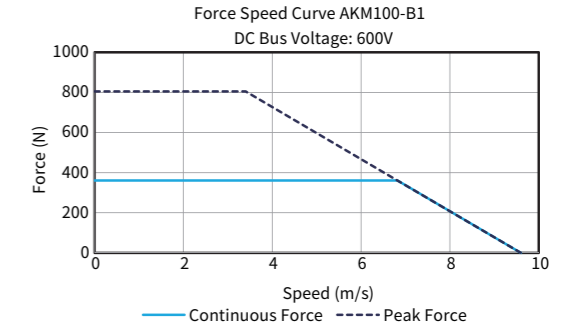
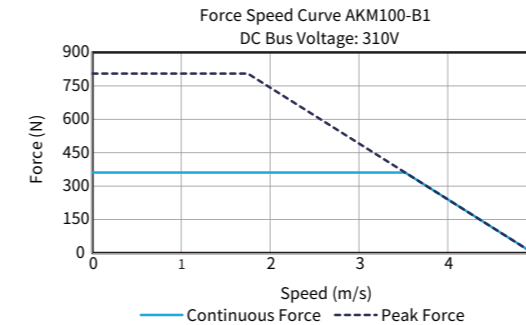


AKM100-B1

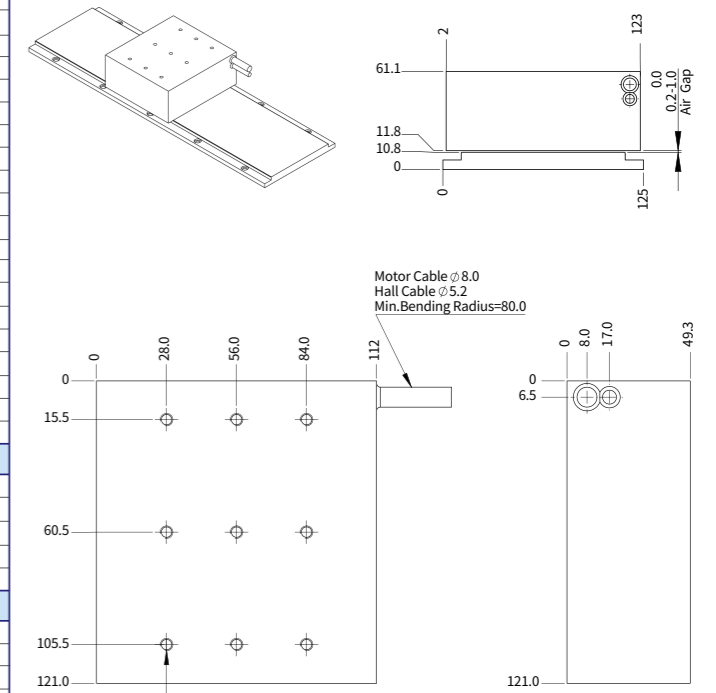
AKM100-B1			
Performance Parameters	Symbol	Unit	Series
Continuous Force (NC) @100°C	F <sub>cn</sub>	N	361.3
Continuous Force (WC) @100°C	F <sub>cw</sub>	N	-
Peak Force	F <sub>pk</sub>	N	805.3
Force Constant ±10%	K <sub>f</sub>	N/Arms	76.5
Back EMF Constant ±10%	K <sub>e</sub>	Vpeak/(m/s)	62.5
Motor Constant @25°C	K <sub>m</sub>	N/Sqrt(W)	41.2
Resistance (L-L) 25°C ±10%	R <sub>25</sub>	Ω	2.3
Inductance (L-L) ±30%	L	mH	58.0
Electrical Time Constant	τ <sub>e</sub>	ms	25.2
Continuous Current (NC) @100°C	I <sub>cn</sub>	Arms	4.8
Continuous Current (WC) @100°C	I <sub>cw</sub>	Arms	-
Peak Current	I <sub>pk</sub>	Arms	14.4
Continuous Power Dissipation (NC) @100°C	P <sub>cn</sub>	W	102.4
Continuous Power Dissipation (WC) @100°C	P <sub>cw</sub>	W	-
Max. Coil Temperature	t <sub>max</sub>	°C	100
Thermal Dissipation Constant (NC)	K <sub>thn</sub>	W/°C	1.4
Thermal Dissipation Constant (WC)	K <sub>thw</sub>	W/°C	-
Max. Bus Voltage	U <sub>bus</sub>	Vdc	600
Magnetic Period	τ <sub>mn</sub>	mm	42
Attraction Force	F <sub>a</sub>	kN	1.3
Mechanical Parameters			
Coil Mass (NC)	m <sub>cn</sub>	kg	4.0
Coil Mass (WC)	m <sub>cw</sub>	kg	-
Coil Length (NC)	L <sub>cn</sub>	mm	112
Coil Length (WC)	L <sub>cw</sub>	mm	-
Track Mass Per Meter	m <sub>track</sub>	kg	8.6
Other Information			
Insulation Class	Class B (130°C)		
Protection Grade	IP00		
Compliance with Global Standards	RoHS		
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, 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.  
 The contents of datasheet are subject to change without prior notice.

Force-Speed Curve



Dimension



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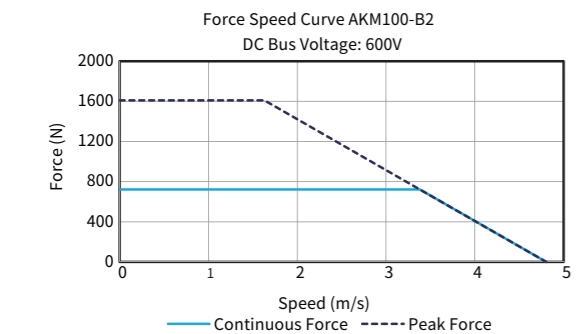
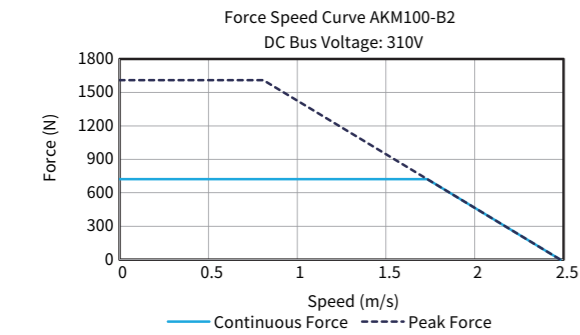
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AKM100-B2

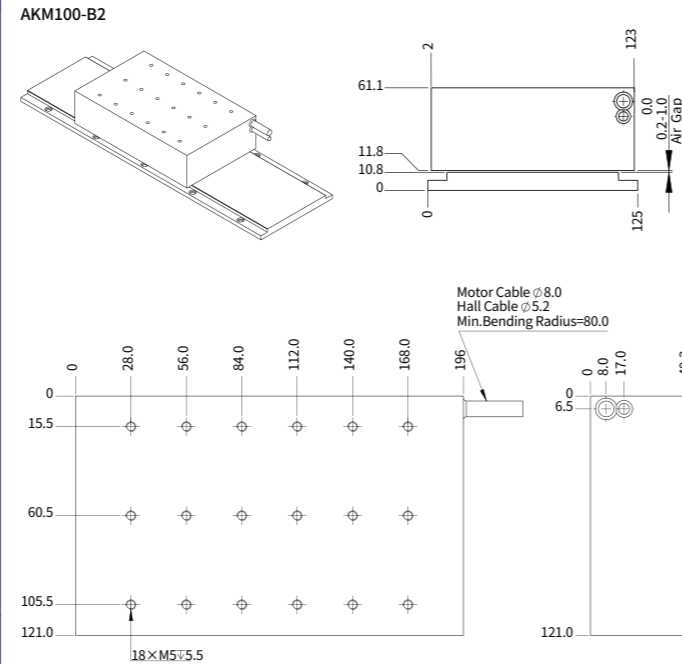
AKM100-B2			
Performance Parameters	Symbol	Unit	Series
Continuous Force (NC) @100°C	F <sub>cn</sub>	N	722.6
Continuous Force (WC) @100°C	F <sub>cw</sub>	N	1159.3
Peak Force	F <sub>pk</sub>	N	1610.5
Force Constant ±10%	K <sub>f</sub>	N/Arms	153.0
Back EMF Constant ±10%	K <sub>e</sub>	Vpeak/(m/s)	124.9
Motor Constant @25°C	K <sub>m</sub>	N/Sqrt(W)	58.2
Resistance (L-L) 25°C ±10%	R <sub>25</sub>	Ω	4.6
Inductance (L-L) ±30%	L	mH	116.0
Electrical Time Constant	τ <sub>e</sub>	ms	25.2
Continuous Current (NC) @100°C	I <sub>cn</sub>	Arms	4.8
Continuous Current (WC) @100°C	I <sub>cw</sub>	Arms	8.2
Peak Current	I <sub>pk</sub>	Arms	14.4
Continuous Power Dissipation (NC) @100°C	P <sub>cn</sub>	W	204.9
Continuous Power Dissipation (WC) @100°C	P <sub>cw</sub>	W	597.9
Max. Coil Temperature	t <sub>max</sub>	°C	100
Thermal Dissipation Constant (NC)	K <sub>thn</sub>	W/°C	2.7
Thermal Dissipation Constant (WC)	K <sub>thw</sub>	W/°C	8.0
Max. Bus Voltage	U <sub>bus</sub>	Vdc	600
Magnetic Period	τ <sub>NN</sub>	mm	42
Attraction Force	F <sub>a</sub>	kN	2.7
Mechanical Parameters			
Coil Mass (NC)	m <sub>cn</sub>	kg	7.0
Coil Mass (WC)	m <sub>cw</sub>	kg	8.5
Coil Length (NC)	L <sub>cn</sub>	mm	196
Coil Length (WC)	L <sub>cw</sub>	mm	236
Track Mass Per Meter	m <sub>track</sub>	kg	8.6
Other Information			
Insulation Class	Class B (130°C)		
Protection Grade	IP00		
Compliance with Global Standards	RoHS		
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.		

- Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment. Abbreviations: NC-Natural Cooling, WC-Water Cooling.
  - Resistance is measured by DC current with standard 0.5 m cable.
  - Inductance is measured by current frequency of 1 kHz.
- The contents of datasheet are subject to change without prior notice.

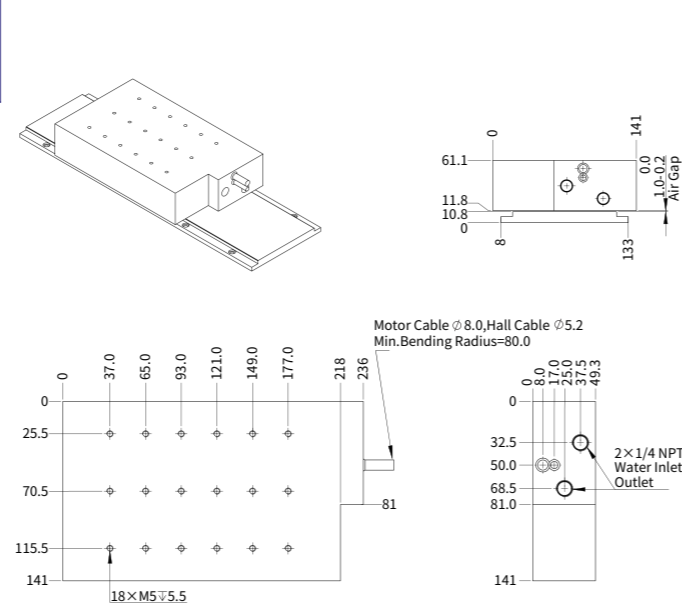
Force-Speed Curve



Dimension



AKM100-W-B2

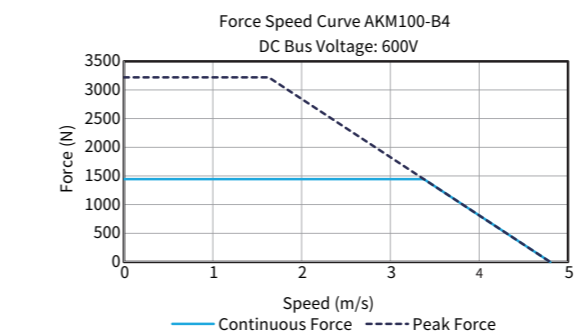
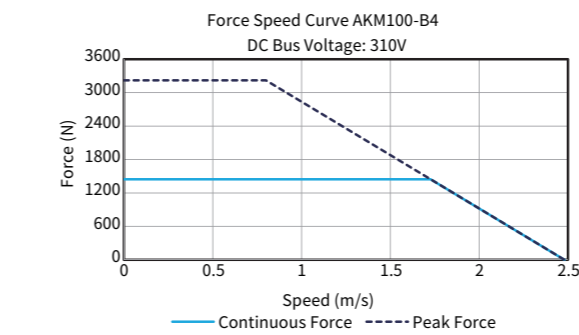


AKM100-B4

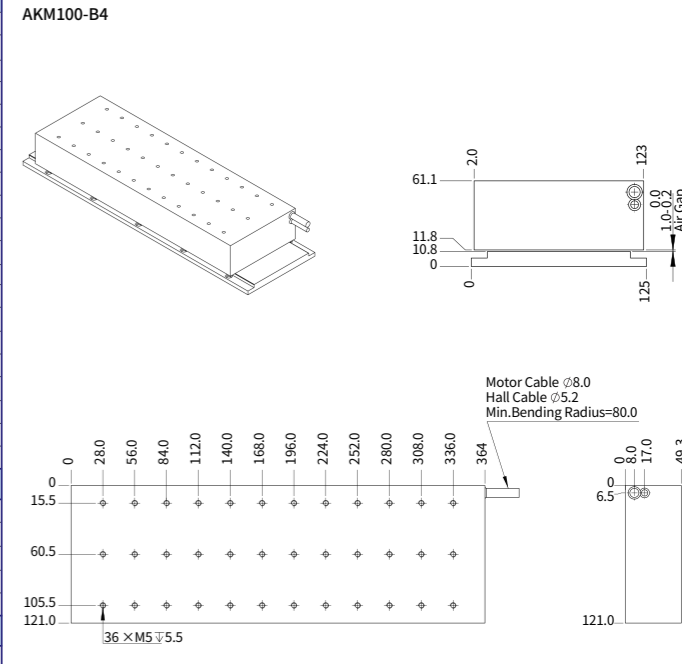
AKM100-B4			
Performance Parameters	Symbol	Unit	Parallel
Continuous Force (NC) @100°C	F <sub>cn</sub>	N	1445.3
Continuous Force (WC) @100°C	F <sub>cw</sub>	N	1947.3
Peak Force	F <sub>pk</sub>	N	3221.1
Force Constant ±10%	K <sub>f</sub>	N/Arms	153.0
Back EMF Constant ±10%	K <sub>e</sub>	Vpeak/(m/s)	124.9
Motor Constant @25°C	K <sub>m</sub>	N/Sqrt(W)	82.4
Resistance (L-L) 25°C ±10%	R <sub>25</sub>	Ω	2.3
Inductance (L-L) ±30%	L	mH	58.0
Electrical Time Constant	τ <sub>e</sub>	ms	25.2
Continuous Current (NC) @100°C	I <sub>cn</sub>	Arms	9.6
Continuous Current (WC) @100°C	I <sub>cw</sub>	Arms	13.4
Peak Current	I <sub>pk</sub>	Arms	28.8
Continuous Power Dissipation (NC) @100°C	P <sub>cn</sub>	W	409.8
Continuous Power Dissipation (WC) @100°C	P <sub>cw</sub>	W	803.1
Max. Coil Temperature	t <sub>max</sub>	°C	100
Thermal Dissipation Constant (NC)	K <sub>thn</sub>	W/°C	5.5
Thermal Dissipation Constant (WC)	K <sub>thw</sub>	W/°C	10.7
Max. Bus Voltage	U <sub>bus</sub>	Vdc	600
Magnetic Period	τ <sub>NN</sub>	mm	42
Attraction Force	F <sub>a</sub>	kN	5.4
Mechanical Parameters			
Coil Mass (NC)	m <sub>cn</sub>	kg	13.5
Coil Mass (WC)	m <sub>cw</sub>	kg	15.8
Coil Length (NC)	L <sub>cn</sub>	mm	364
Coil Length (WC)	L <sub>cw</sub>	mm	404
Track Mass Per Meter	m <sub>track</sub>	kg	8.6
Other Information			
Insulation Class	Class B (130°C)		
Protection Grade	IP00		
Compliance with Global Standards	RoHS		
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.		

- Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment. Abbreviations: NC-Natural Cooling, WC-Water Cooling.
  - Resistance is measured by DC current with standard 0.5 m cable.
  - Inductance is measured by current frequency of 1 kHz.
- The contents of datasheet are subject to change without prior notice.

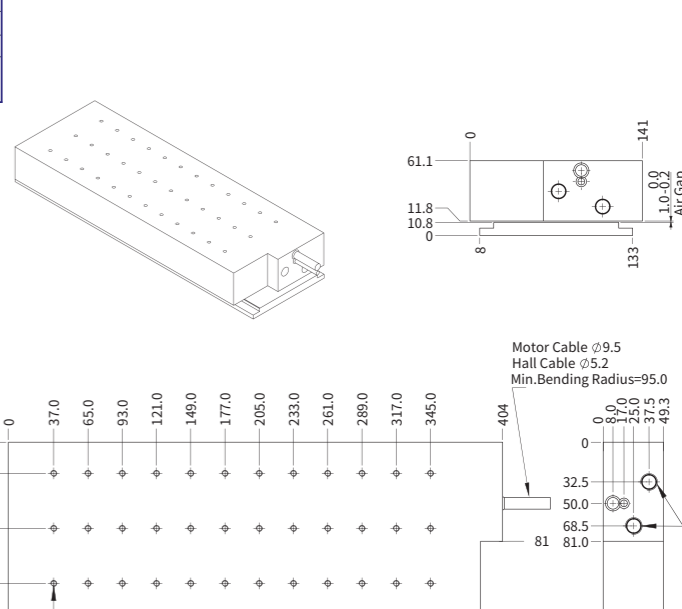
Force-Speed Curve



Dimension



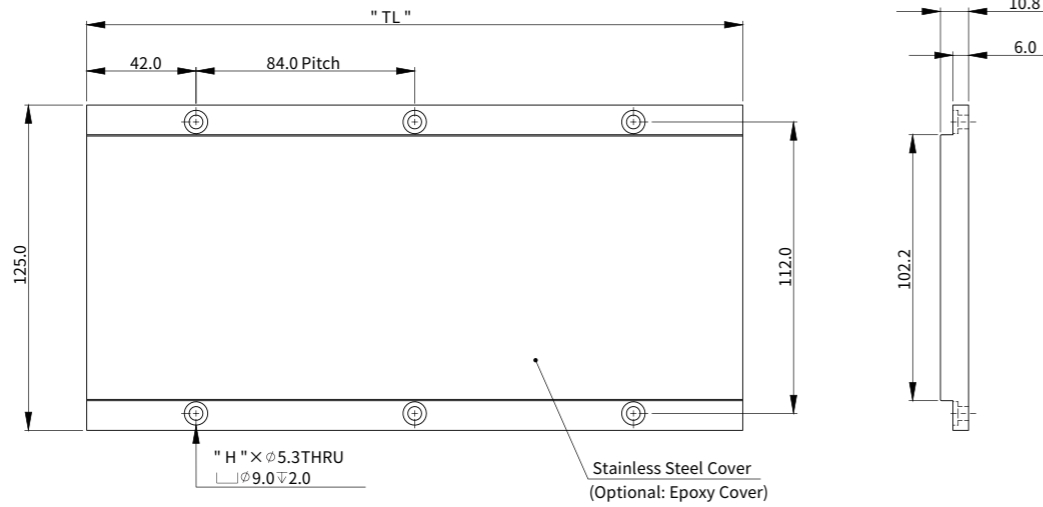
AKM100-W-B4



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AKM100 Track



Magnet Track P / N:	Track Length "TL"	No. of Holes "H"
AKM100-TL168-S	168.0	4
AKM100-TL252-S	252.0	6
AKM100-TL420-S	420.0	10

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

Stainless Steel Cover (Optional: Epoxy Cover)

Part Numbering

Motor Coil

**AKM100-W-B2-J-NH-0.5-NFB**

Model: **AKM100**

Cooling Option: **Blank=Natural Cooling W=Water Cooling**

Size: **B1/B2/B4**

Thermal Sensor: **J=Thermostat(standard) / K=PT100(RTD)** (Contact us for other thermal sensor)

Motor Cable Option: **NFB/FB**

Cable Length (m): **0.5 / 3.0** (Contact us for other lengths)

Hall Cable Option: **NH/HF**

① NH = Without Built-in Hall Sensor but with Thermal Sensor  
 ② HF = With Built-in hall sensor & hall cable comes with flying leads (Standard)  
 ③ NFB = No ferrite bead  
 ④ FB = Ferrite bead

Motor Track

**AKM100-TL420-S**

Model: **AKM100**

Cover Type: **S/E**

Track Length: **TL168 / TL252 / TL420**

⑤ S=Stainless steel cover  
 ⑥ E=Epoxy cover

AKM150-B4

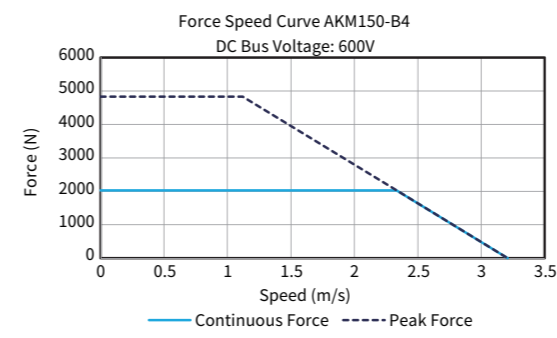
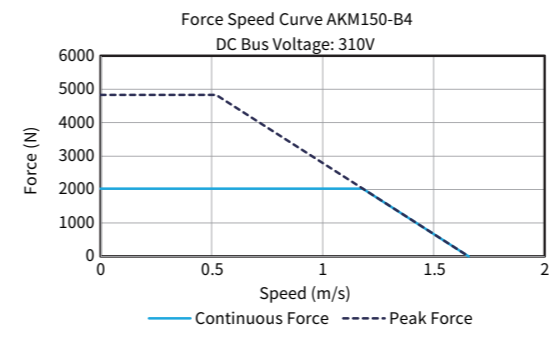
AKM150-B4			
Performance Parameters	Symbol	Unit	Parallel
Continuous Force (NC) @100°C	F <sub>cn</sub>	N	2027.0
Continuous Force (WC) @100°C	F <sub>cw</sub>	N	2738.4
Peak Force	F <sub>pk</sub>	N	4831.6
Force Constant ±10%	K <sub>f</sub>	N/Arms	229.5
Back EMF Constant ±10%	K <sub>e</sub>	Vpeak/(m/s)	187.4
Motor Constant @25°C	K <sub>m</sub>	N/Sqrt(W)	104.8
Resistance (L-L) 25°C ±10%	R <sub>25</sub>	Ω	3.2
Inductance (L-L) ±30%	L	mH	80.5
Electrical Time Constant	τ <sub>e</sub>	ms	25.2
Continuous Current (NC) @100°C	I <sub>cn</sub>	Arms	9.0
Continuous Current (WC) @100°C	I <sub>cw</sub>	Arms	12.6
Peak Current	I <sub>pk</sub>	Arms	28.8
Continuous Power Dissipation (NC) @100°C	P <sub>cn</sub>	W	498.4
Continuous Power Dissipation (WC) @100°C	P <sub>cw</sub>	W	982.1
Max. Coil Temperature	t <sub>max</sub>	°C	100
Thermal Dissipation Constant (NC)	K <sub>thn</sub>	W/°C	6.6
Thermal Dissipation Constant (WC)	K <sub>thw</sub>	W/°C	13.1
Max. Bus Voltage	U <sub>bus</sub>	Vdc	600
Magnetic Period	T <sub>MN</sub>	mm	42
Attraction Force	F <sub>a</sub>	kN	8.0

Mechanical Parameters			
Coil Mass (NC)	m <sub>cn</sub>	kg	20.2
Coil Mass (WC)	m <sub>cw</sub>	kg	22.3
Coil Length (NC)	L <sub>cn</sub>	mm	364
Coil Length (WC)	L <sub>cw</sub>	mm	404
Track Mass Per Meter	m <sub>track</sub>	kg	15.2

Other Information	
Insulation Class	Class B (130°C)
Protection Grade	IP00
Compliance with Global Standards	RoHS
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.

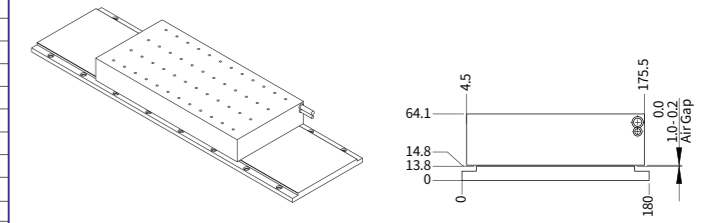
- ① Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment. Abbreviations: NC-Natural Cooling, WC-Water Cooling.
  - ② Resistance is measured by DC current with standard 0.5 m cable.
  - ③ Inductance is measured by current frequency of 1 kHz.
- The contents of datasheet are subject to change without prior notice.

Force-Speed Curve

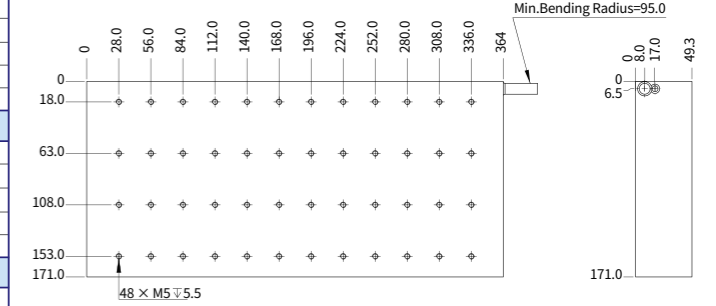


Dimension

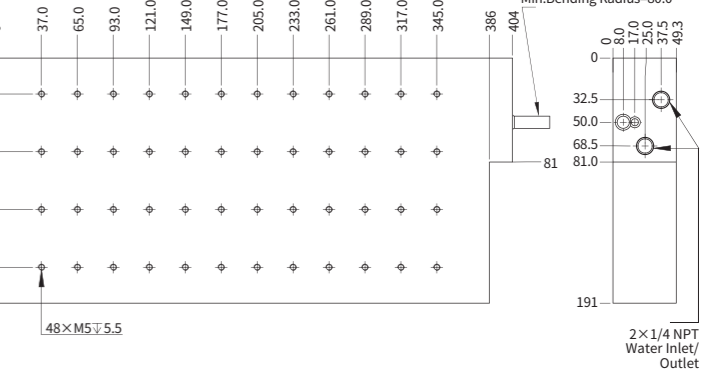
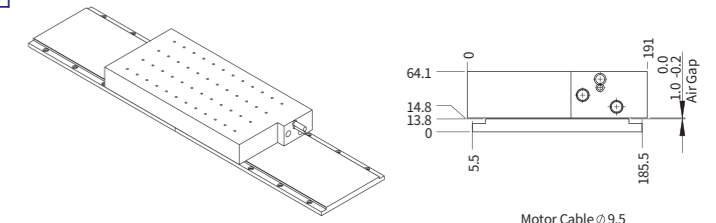
AKM150-B4



AKM150-W-B4



AKM150-W-B4



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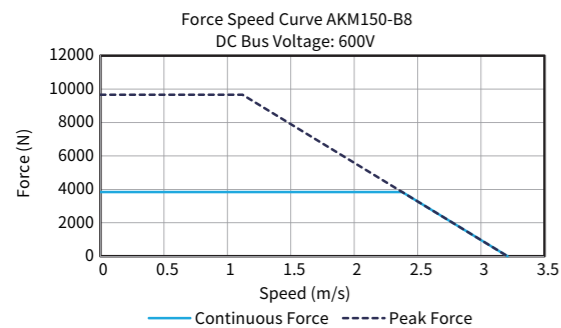
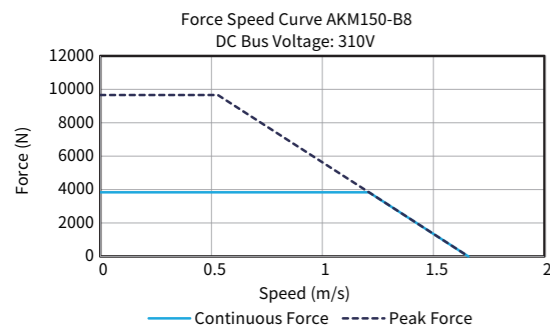
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AKM150-B8

AKM150-B8			
Performance Parameters	Symbol	Unit	Parallel
Continuous Force (NC) @100°C	F <sub>cn</sub>	N	3839.1
Continuous Force (WC) @100°C	F <sub>cw</sub>	N	5216.1
Peak Force	F <sub>pk</sub>	N	9663.2
Force Constant ±10%	K <sub>f</sub>	N/Arms	229.5
Back EMF Constant ±10%	K <sub>e</sub>	Vpeak/(m/s)	187.4
Motor Constant @25°C	K <sub>m</sub>	N/Sqrt(W)	148.1
Resistance (L-L) 25°C ±10%	R <sub>25</sub>	Ω	1.6
Inductance (L-L) ±30%	L	mH	40.3
Electrical Time Constant	τ <sub>e</sub>	ms	25.2
Continuous Current (NC) @100°C	I <sub>cn</sub>	Arms	17.0
Continuous Current (WC) @100°C	I <sub>cw</sub>	Arms	24.0
Peak Current	I <sub>pk</sub>	Arms	57.6
Continuous Power Dissipation (NC) @100°C	P <sub>cn</sub>	W	893.9
Continuous Power Dissipation (WC) @100°C	P <sub>cw</sub>	W	1781.6
Max. Coil Temperature	t <sub>max</sub>	°C	100
Thermal Dissipation Constant (NC)	K <sub>thn</sub>	W/°C	11.9
Thermal Dissipation Constant (WC)	K <sub>thw</sub>	W/°C	23.8
Max. Bus Voltage	U <sub>bus</sub>	Vdc	600
Magnetic Period	τ <sub>mn</sub>	mm	42
Attraction Force	F <sub>a</sub>	kN	16.0
Mechanical Parameters			
Coil Mass (NC)	m <sub>cn</sub>	kg	39.4
Coil Mass (WC)	m <sub>cw</sub>	kg	42.9
Coil Length (NC)	L <sub>cn</sub>	mm	700
Coil Length (WC)	L <sub>cw</sub>	mm	786
Track Mass Per Meter	m <sub>track</sub>	kg	15.2
Other Information			
Insulation Class	Class B (130°C)		
Protection Grade	IP00		
Compliance with Global Standards	RoHS		
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.		

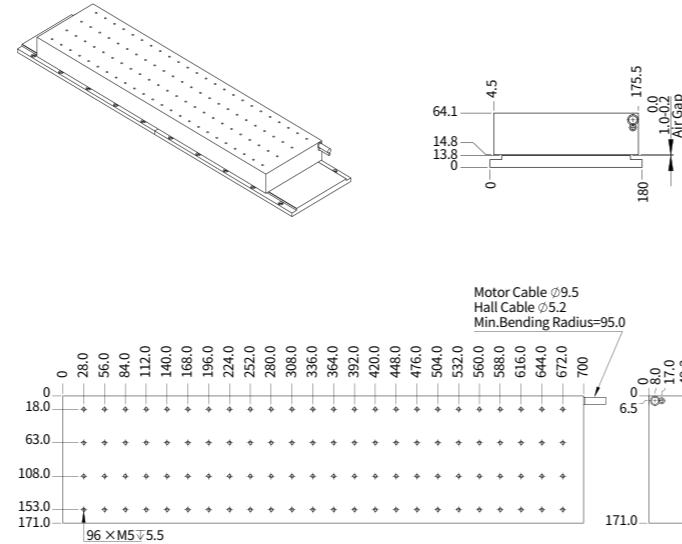
① Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.  
Abbreviations: NC-Natural Cooling, WC-Water Cooling.  
② Resistance is measured by DC current with standard 0.5 m cable.  
③ Inductance is measured by current frequency of 1 kHz.  
The contents of datasheet are subject to change without prior notice.

Force-Speed Curve

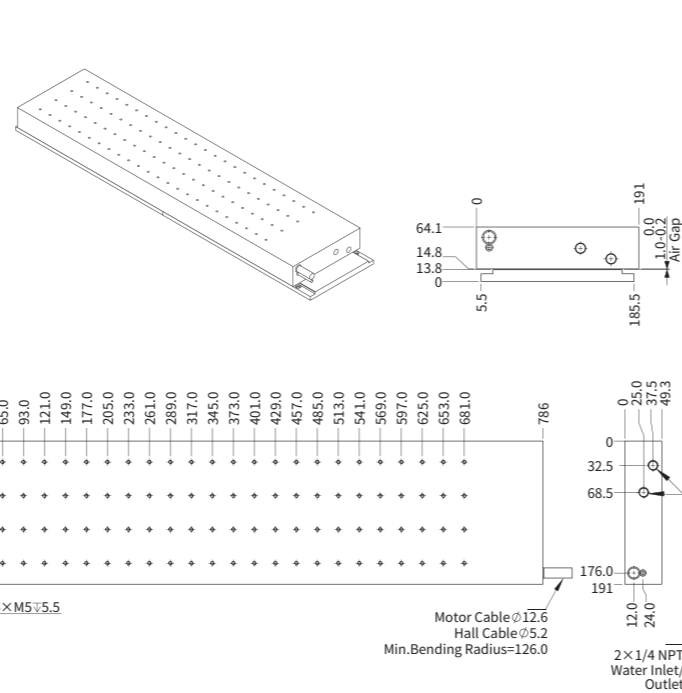


Dimension

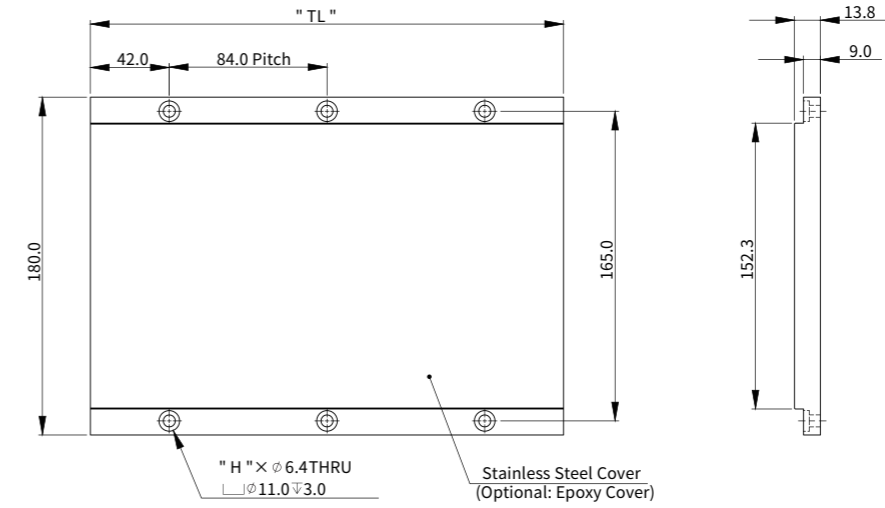
AKM150-B8



AKM150-W-B8



AKM150 Track



Magnet Track P / N:	Track Length "TL"	No. of Holes "H"
AKM150-TL168-S	168.0	4
AKM150-TL252-S	252.0	6
AKM150-TL420-S	420.0	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-NFB**

Model: AKM150

Cooling Option: Blank=Natural Cooling, W=Water Cooling

Size: B4/B8

Thermal Sensor: J=Thermostat(standard) / K=PT100(RTD) (Contact us for other thermal sensor)

Motor Cable Option: NFB/FB

Cable Length (m): 0.5/3.0 (Contact us for other lengths)

Hall Cable Option: NH/HF

- ① NH = Without Built-in Hall Sensor but with Thermal Sensor
- ② HF = With Built-in hall sensor & hall cable comes with flying leads (Standard)
- ③ NFB = No ferrite bead
- ④ FB = Ferrite bead

Motor Track

**AKM150-TL420-S**

Model: AKM150

Cover Type: S/E

Track Length: TL168 / TL252 / TL420

- ⑤ S=Stainless steel cover
- ⑥ E=Epoxy cover

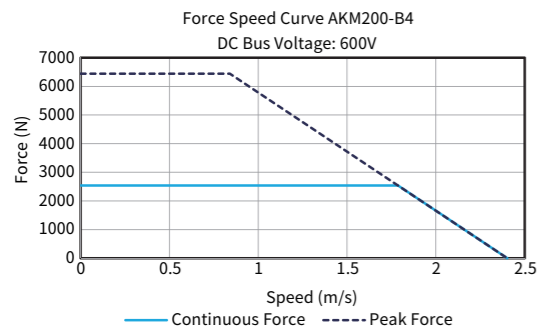
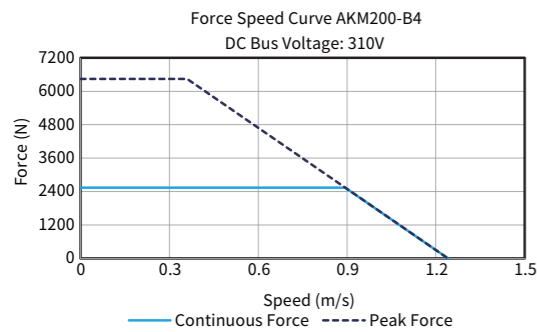


## AKM200-B4

AKM200-B4			
Performance Parameters	Symbol	Unit	Parallel
Continuous Force (NC) @100°C	F <sub>cn</sub>	N	2539.6
Continuous Force (WC) @100°C	F <sub>cw</sub>	N	3249.8
Peak Force	F <sub>pk</sub>	N	6442.2
Force Constant ±10%	K <sub>f</sub>	N/Arms	306.0
Back EMF Constant ±10%	K <sub>e</sub>	Vpeak/(m/s)	249.8
Motor Constant @25°C	K <sub>m</sub>	N/Sqrt(W)	124.9
Resistance (L-L) 25°C ±10%	R <sub>25</sub>	Ω	4.0
Inductance (L-L) ±30%	L	mH	103.0
Electrical Time Constant	τ <sub>e</sub>	ms	25.8
Continuous Current (NC) @100°C	I <sub>cn</sub>	Arms	8.4
Continuous Current (WC) @100°C	I <sub>cw</sub>	Arms	10.8
Peak Current	I <sub>pk</sub>	Arms	28.8
Continuous Power Dissipation (NC) @100°C	P <sub>cn</sub>	W	545.6
Continuous Power Dissipation (WC) @100°C	P <sub>cw</sub>	W	904.4
Max. Coil Temperature	t <sub>max</sub>	°C	100
Thermal Dissipation Constant (NC)	K <sub>thn</sub>	W/°C	7.3
Thermal Dissipation Constant (WC)	K <sub>thw</sub>	W/°C	12.1
Max. Bus Voltage	U <sub>bus</sub>	Vdc	600
Magnetic Period	T <sub>NN</sub>	mm	42
Attraction Force	F <sub>a</sub>	kN	10.7
Mechanical Parameters			
Coil Mass (NC)	m <sub>cn</sub>	kg	26.5
Coil Mass (WC)	m <sub>cw</sub>	kg	29.0
Coil Length (NC)	L <sub>cn</sub>	mm	364
Coil Length (WC)	L <sub>cw</sub>	mm	404
Track Mass Per Meter	m <sub>track</sub>	kg	22.4
Other Information			
Insulation Class	Class B (130°C)		
Protection Grade	IP00		
Compliance with Global Standards	RoHS		
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.		

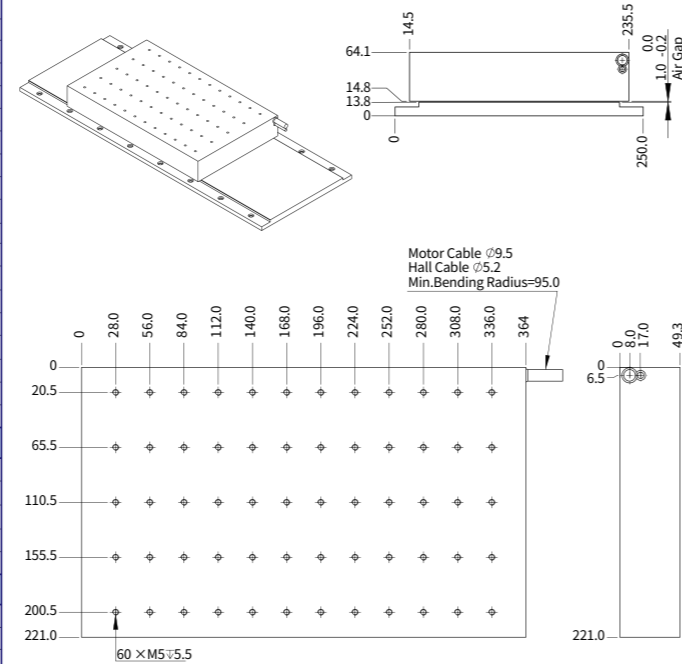
- Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment. Abbreviations: NC-Natural Cooling, WC-Water Cooling.
  - Resistance is measured by DC current with standard 0.5 m cable.
  - Inductance is measured by current frequency of 1 kHz.
- The contents of datasheet are subject to change without prior notice.

### Force-Speed Curve

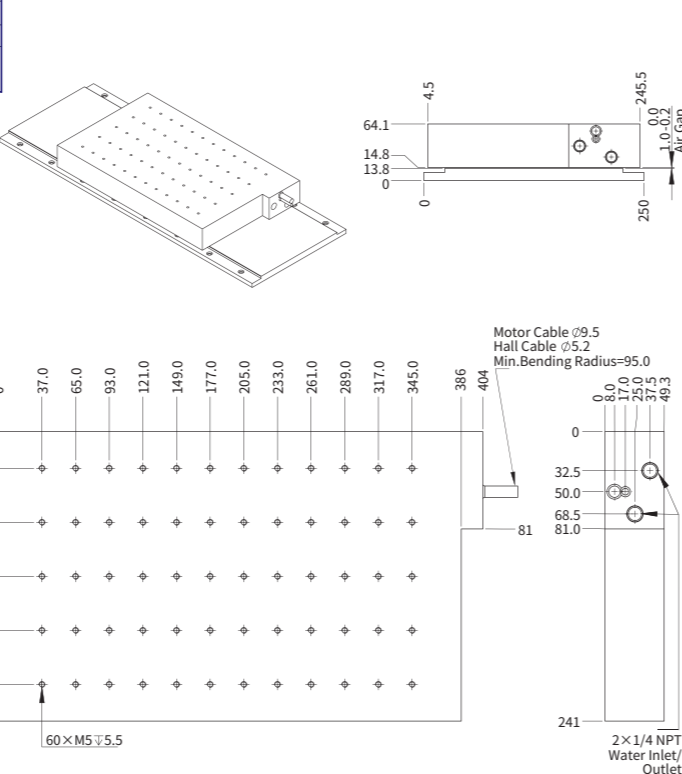


### Dimension

AKM200-B4



AKM200-W-B4

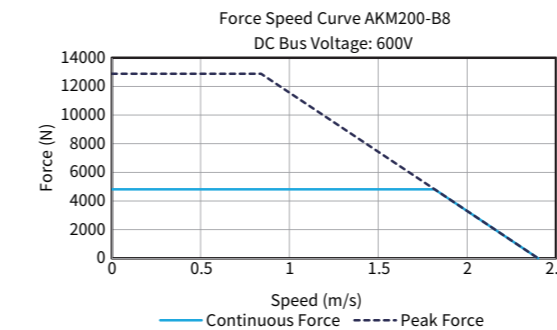
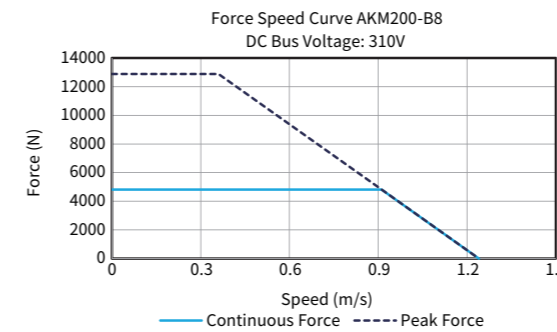


## AKM200-B8

AKM200-B8			
Performance Parameters	Symbol	Unit	Parallel
Continuous Force (NC) @100°C	F <sub>cn</sub>	N	4817.7
Continuous Force (WC) @100°C	F <sub>cw</sub>	N	6190.1
Peak Force	F <sub>pk</sub>	N	12884.3
Force Constant ±10%	K <sub>f</sub>	N/Arms	306.0
Back EMF Constant ±10%	K <sub>e</sub>	Vpeak/(m/s)	249.8
Motor Constant @25°C	K <sub>m</sub>	N/Sqrt(W)	176.7
Resistance (L-L) 25°C ±10%	R <sub>25</sub>	Ω	2.0
Inductance (L-L) ±30%	L	mH	51.5
Electrical Time Constant	τ <sub>e</sub>	ms	25.8
Continuous Current (NC) @100°C	I <sub>cn</sub>	Arms	16.0
Continuous Current (WC) @100°C	I <sub>cw</sub>	Arms	20.6
Peak Current	I <sub>pk</sub>	Arms	57.6
Continuous Power Dissipation (NC) @100°C	P <sub>cn</sub>	W	989.8
Continuous Power Dissipation (WC) @100°C	P <sub>cw</sub>	W	1640.7
Max. Coil Temperature	t <sub>max</sub>	°C	100
Thermal Dissipation Constant (NC)	K <sub>thn</sub>	W/°C	13.2
Thermal Dissipation Constant (WC)	K <sub>thw</sub>	W/°C	21.9
Max. Bus Voltage	U <sub>bus</sub>	Vdc	600
Magnetic Period	T <sub>NN</sub>	mm	42
Attraction Force	F <sub>a</sub>	kN	21.4
Mechanical Parameters			
Coil Mass (NC)	m <sub>cn</sub>	kg	51.6
Coil Mass (WC)	m <sub>cw</sub>	kg	55.8
Coil Length (NC)	L <sub>cn</sub>	mm	700
Coil Length (WC)	L <sub>cw</sub>	mm	786
Track Mass Per Meter	m <sub>track</sub>	kg	22.4
Other Information			
Insulation Class	Class B (130°C)		
Protection Grade	IP00		
Compliance with Global Standards	RoHS		
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.		

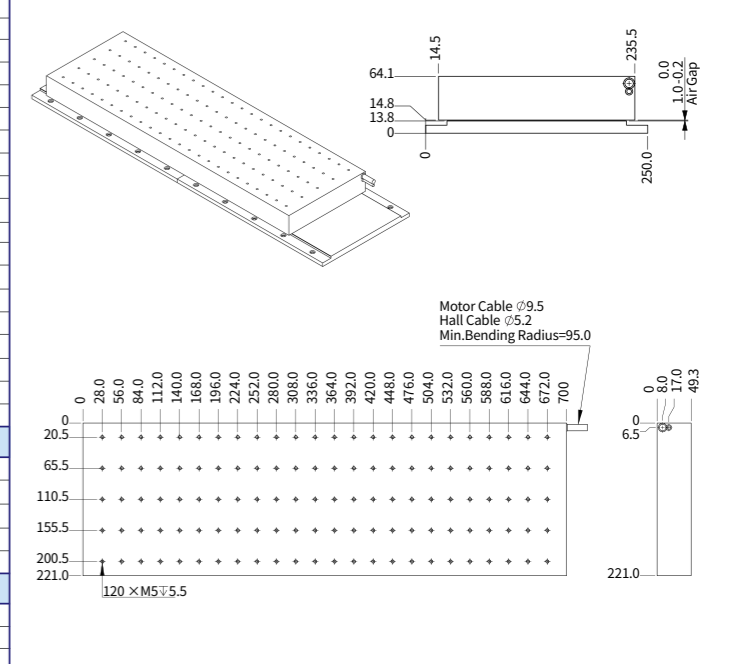
- Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment. Abbreviations: NC-Natural Cooling, WC-Water Cooling.
  - Resistance is measured by DC current with standard 0.5 m cable.
  - Inductance is measured by current frequency of 1 kHz.
- The contents of datasheet are subject to change without prior notice.

### Force-Speed Curve

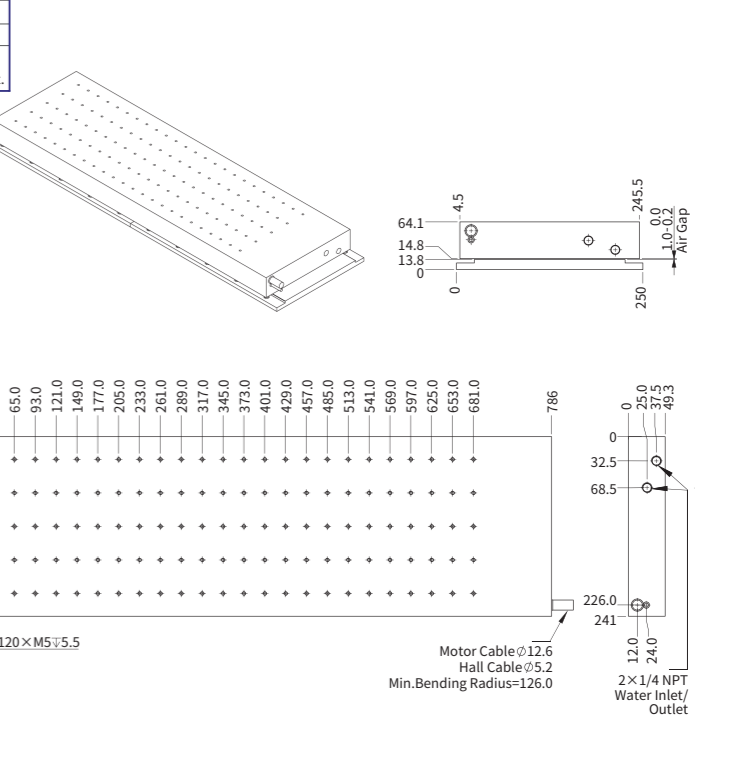


### Dimension

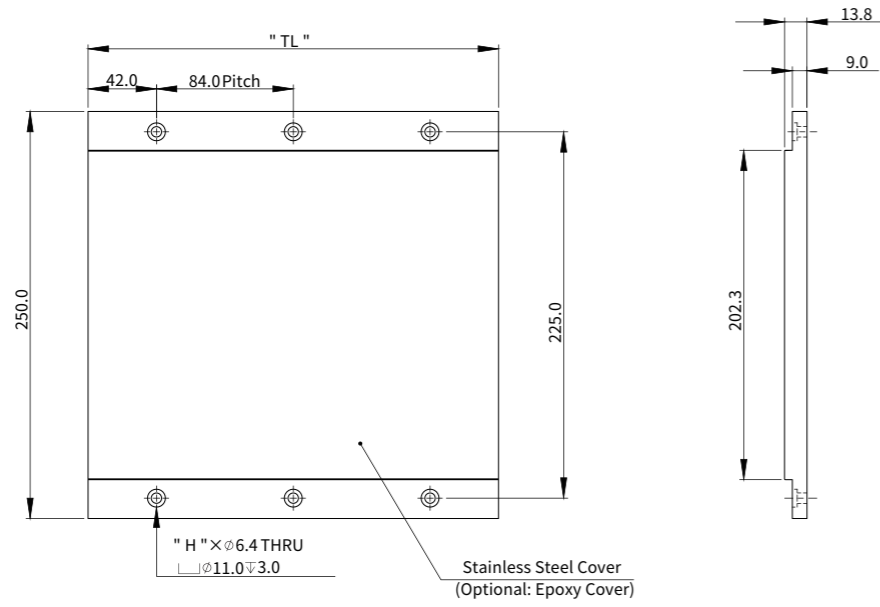
AKM200-B8



AKM200-W-B8



AKM200 Track



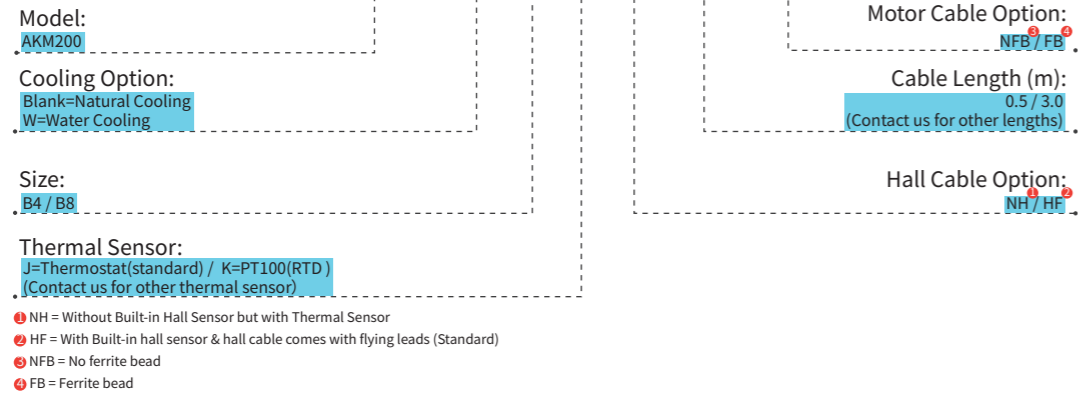
Magnet Track P / N:	Track Length "TL"	No. of Holes "H"
AKM200-TL168-S	168.0	4
AKM200-TL252-S	252.0	6
AKM200-TL420-S	420.0	10

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

Part Numbering

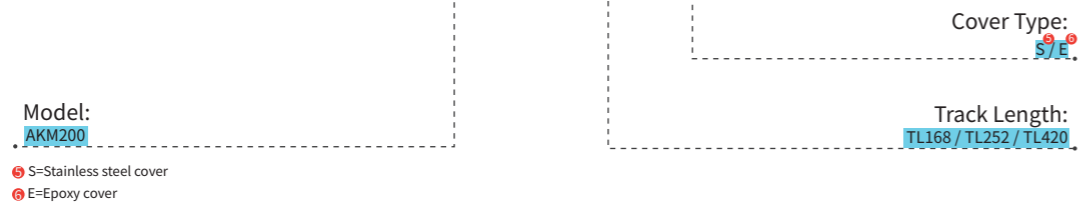
Motor Coil

**AKM200-W-B8-J-NH-0.5-NFB**



Motor Track

**AKM200-TL420-S**



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
6	T1	PINK
7	T2	BLUE

