







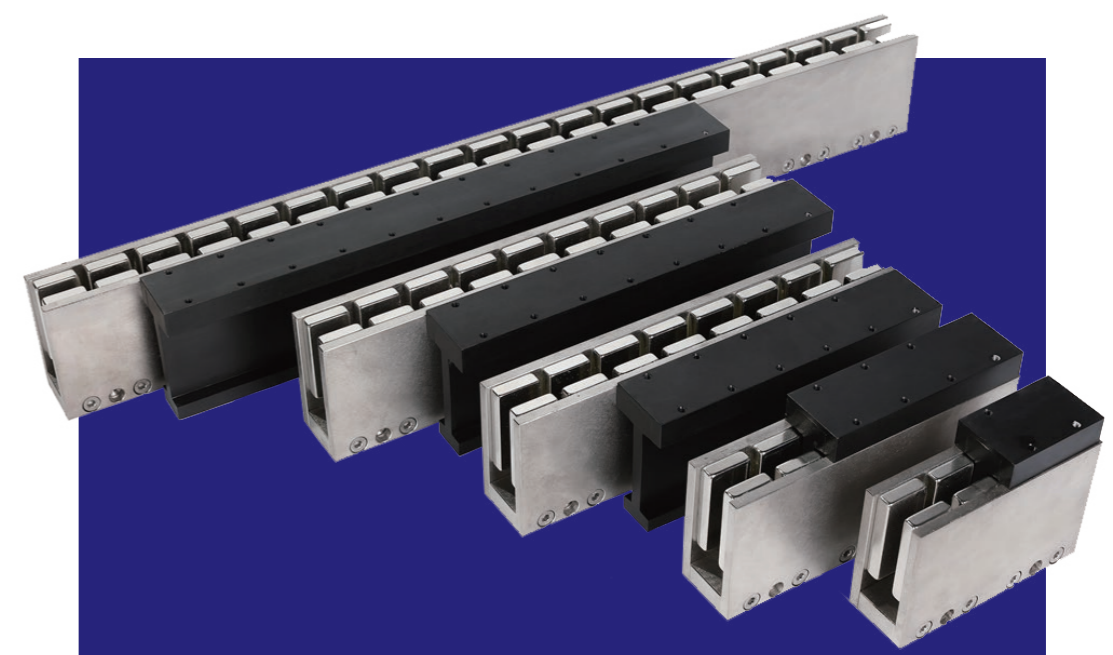
			Peak Force (Fpk)							
Product Type			10N	100N	500N	1000N	5000N	10000N	15000N	20000N
Ironless Technology	 AUM 1,2,3,4,5,6		[Bar chart showing force range from 10N to 20000N]							
	 AWM 1,2,3,4,5		[Bar chart showing force range from 10N to 20000N]							
	 ACR 240,335,820,1525		[Bar chart showing force range from 10N to 20000N]							
Iron Core Technology	 AJM 30,50,80,100		[Bar chart showing force range from 10N to 20000N]							
	 AQM 8,24,30,50,80		[Bar chart showing force range from 10N to 20000N]							
	 AKM 30,50,100,150,200		[Bar chart showing force range from 10N to 20000N]							

Flexible structure design contributes to excellent and simple high-precision control system:

- Multi-carriage structure
- Optional moving track design instead of moving coil, eliminating cable management and potential cable damage
- Multiple coils can be connected in series or parallel to generate higher force and faster speed while maintaining compact size

Please contact our Sales engineers for more details ([enquiries@motioncontrolproducts.com](mailto:enquiries@motioncontrolproducts.com))

**Applications & Industries:** electronics, semiconductor, solar energy, lithium battery, PCB, FPD, HDD, LED, lathe, vehicle electronics, packaging, printing, optics, biomedical and many more.



# AUM SERIES

- ▶ Ironless technology
- ▶ Zero cogging force
- ▶ Patented technology
- ▶ Small electrical and mechanical constant
- ▶ High continuous force and peak force

UK & Ireland Official Distributor



11-15 Francis Avenue, Bournemouth,  
Dorset UK BH11 8NX  
Tel.: (+44) 01202 599922  
[enquiries@motioncontrolproducts.com](mailto:enquiries@motioncontrolproducts.com)  
[www.motioncontrolproducts.com](http://www.motioncontrolproducts.com)

## Introduction

AUM series Ironless DC brushless linear motors are compact in size but high in force density, achieving larger thrust force.

F<sub>cn</sub> (Continuous force) = 3N ~ 2340N

F<sub>pk</sub> (Peak force) = 11.9N ~ 16200N

## Applications

Applicable to point-to-point micron/nanometer level positioning; unlimited travel stroke with top speed of 5m/s or faster; low velocity ripple during both fast and low speed scanning; precise force control with fine resolution.

Applications & Industries: high speed and precision machines for positioning, motion profile tracking, velocity controlling used in front-end & back-end wafer handling and inspection, photovoltaic and lithium battery systems, glass and LCD applications, biomedical equipment, printing machines, and laser processing machines.

## Features

- ▶ Ironless technology and no cogging force
- ▶ High continuous and peak force
- ▶ Optional hall sensors
- ▶ High motor constant
- ▶ Wide range of forces and sizes to choose from
- ▶ Optional air cooling and water cooling configurations

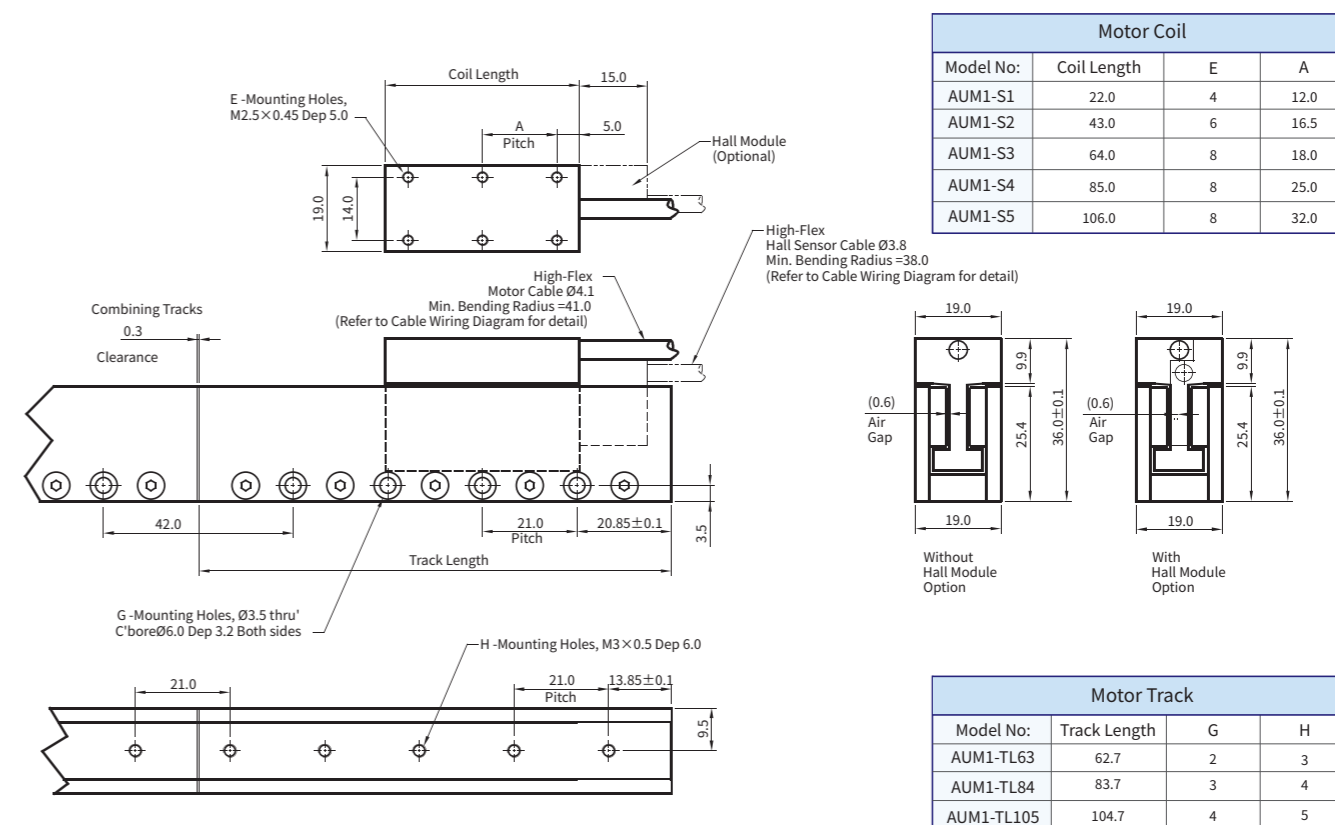
Model	Coil Length (mm)	Continuous Force (F <sub>cn</sub> ) / Peak Force (F <sub>pk</sub> )								Unit: N
		10	50	100	500	1000	1500	2000	...	
AUM1-S1 to AUM1-S5	22	3.0	11.9							
	43	6.0	23.8							
	64	8.9	35.7							
	85	11.9	47.6							
	106	14.9	59.5							
AUM2-S1 to AUM2-S8	31	8.8	44							
	61	17.6	88							
	91	26.4	132							
	121	35.2	176							
	241	70.4	352							
AUM3-S1 to AUM3-S6	61	28	144							
	121	57	289							
	181	85	433							
	241	113	578							
	361	170	867							
AUM4-S1 to AUM4-S8	61	55	312							
	121	110	624							
	181	166	936							
	241	221	1248							
	301	276	1560							
	361	331	1872							
	481	442	2496							
AUM5-S1 to AUM5-S12-V107	85	98	707							
	169	197	1415							
	253	295	2112							
	337	393	2830							
	421	491	3537							
	505	590	4244							
	673	786	5659							
	757	884	6367							
	841	983	7078							
	1009	1179	8489							
AUM6-P5-S4 to AUM6-P8-S12	337	780	5400							
	505	1170	8100							
	673	1560	10800							
	757	1755	12150							
	841	1950	13500							
	1009	2340	16200							

## AUM1

	Symbol	Unit	AUM1-S1	AUM1-S2	AUM1-S3	AUM1-S4	AUM1-S5
<b>Performance Parameters</b>							
Continuous Force (NC) @100°C	F <sub>cn</sub>	N	3.0	6.0	8.9	11.9	14.9
Peak Force	F <sub>pk</sub>	N	11.9	23.8	35.7	47.6	59.5
Force Constant ±10%	K <sub>f</sub>	N/Arms	1.75	3.50	5.25	7.00	8.75
Back EMF Constant ±10%	K <sub>e</sub>	Vpeak/(m/s)	1.4	2.9	4.3	5.7	7.1
Motor Constant @25°C	K <sub>m</sub>	N/Sqrt(W)	1.4	1.9	2.4	2.8	3.1
Resistance (L-L) 25°C ±10%	R <sub>25</sub>	Ω	1.11	2.18	3.18	4.18	5.18
Inductance (L-L) ±40%	L	mH	0.15	0.30	0.44	0.59	0.72
Electrical Time Constant	τ <sub>e</sub>	ms	0.14	0.14	0.14	0.14	0.14
Continuous Current (NC) @100°C	I <sub>cn</sub>	Arms	1.7	1.7	1.7	1.7	1.7
Peak Current	I <sub>pk</sub>	Arms	6.8	6.8	6.8	6.8	6.8
Continuous Power Dissipation (NC) @100°C	P <sub>cn</sub>	W	6.20	12.18	17.77	23.32	28.94
Max. Coil Temperature	t <sub>max</sub>	°C	100	100	100	100	100
Thermal Dissipation Constant (NC)	K <sub>thn</sub>	W/°C	0.1	0.2	0.2	0.3	0.4
Max. Bus Voltage	U <sub>bus</sub>	Vdc	330	330	330	330	330
Magnetic Period	τ <sub>M</sub>	mm	21.0	21.0	21.0	21.0	21.0
Attraction Force	F <sub>a</sub>	kN	0	0	0	0	0
<b>Mechanical Parameters</b>							
Coil Mass (NC)	m <sub>cn</sub>	kg	0.03	0.05	0.08	0.10	0.13
Coil Length (NC)	L <sub>cn</sub>	mm	22.0	43.0	64.0	85.0	106.0
Track Mass Per Meter	m <sub>track</sub>	kg/m	2.37	2.37	2.37	2.37	2.37
<b>Other Information</b>							
Insulation Class	Class B (130°C)						
Protection Grade	IP00						
Compliance with Global Standards	RoHS, CE						
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.						

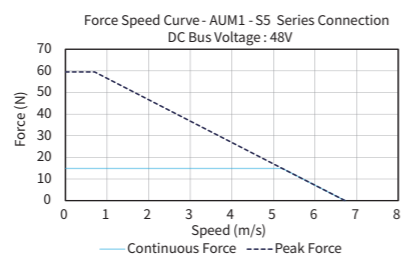
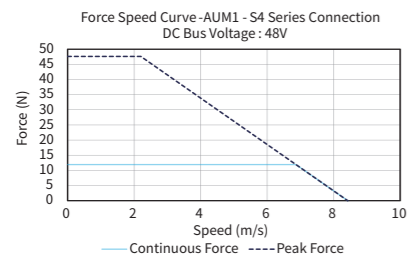
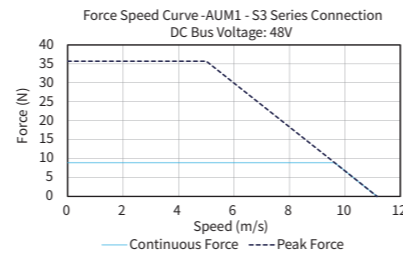
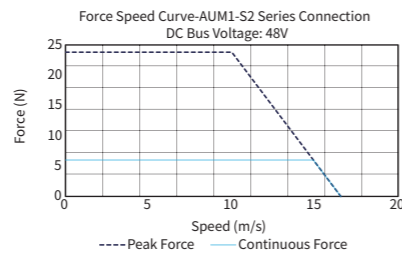
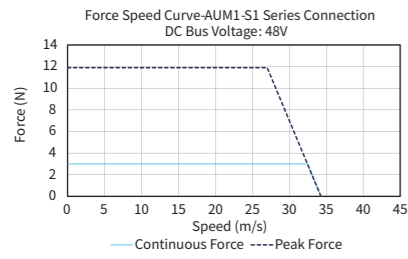
- ① Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment. Abbreviations: NC-Natural Cooling, AC-Air Cooling, WC-Water Cooling.
- ② Resistance is measured by DC current with standard 0.5 m cable.
- ③ Inductance is measured by current frequency of 1 kHz. The variation range of AUM inductance is ±40% because three phase inductances are different. The value in the catalog is the average between the maximum and minimum values. For each phase, the variation range is ±20%. The contents of datasheet are subject to change without prior notice.

## Dimension



① No hall sensor.  
② 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 air cooling or water cooling.

Force-Speed Curve



Part Numbering

Motor Coil

**AUM1-S-S3-HF-0.5-FB**

Motor:  
AUM1

Connection:  
S=Series

Size:  
S1/S2/S3/S4/S5

Motor Cable Options:  
FB/NFB

Cable Length (m):  
0.5/3.0

Hall Cable Option:  
NH/HF

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

Motor Track

**AUM1-TL63**

Model:  
AUM1

Track Length:  
TL63/TL84/TL105

AUM2

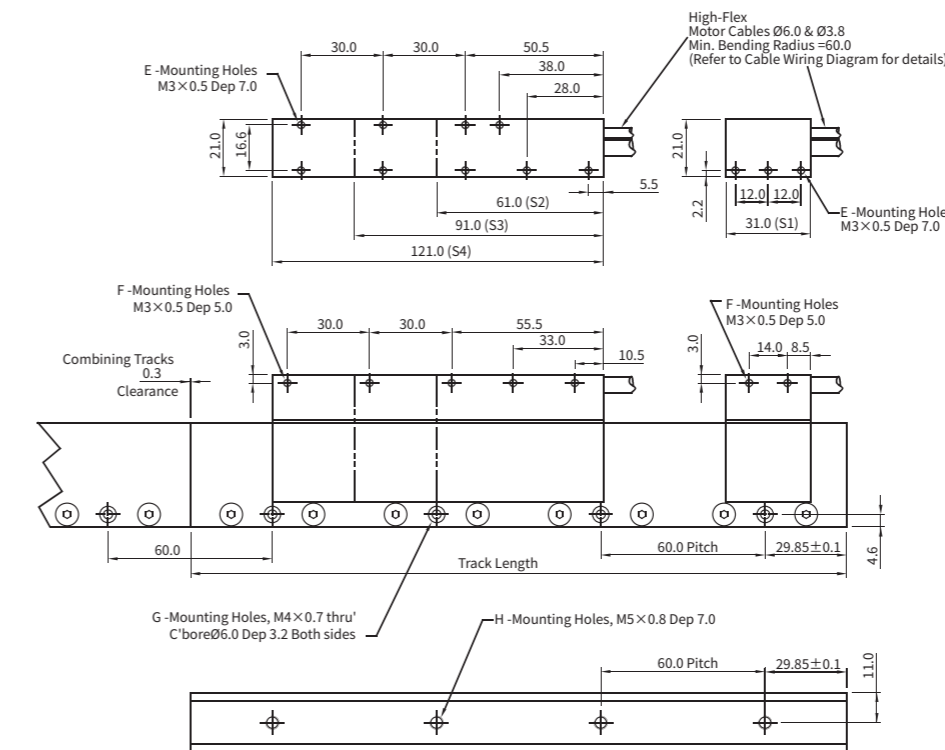
			AUM2-S1	AUM2-S2	AUM2-S3	AUM2-S4	AUM2-S8
<b>Performance Parameters</b>			Series	Series	Parallel	Series	Parallel
Continuous Force (NC) @100°C <sup>①</sup>	F <sub>cn</sub>	N	8.8	17.6	17.6	26.4	26.6
Peak Force	F <sub>pk</sub>	N	44.0	88.0	88.0	132.0	132.8
Force Constant ±10%	K <sub>f</sub>	N/Arms	5.5	11.0	5.5	16.5	8.3
Back EMF Constant ±10%	K <sub>e</sub>	Vpeak/(m/s)	4.5	9.0	4.5	13.5	6.8
Motor Constant @25°C	K <sub>m</sub>	N/Sqrt(W)	2.5	3.6	3.4	4.4	4.5
Resistance (L-L) 25°C ±10% <sup>②</sup>	R <sub>25</sub>	Ω	3.15	6.30	1.79	9.57	2.26
Inductance (L-L) ±40% <sup>③</sup>	L	mH	1.04	1.96	0.51	2.94	0.73
Electrical Time Constant	τ <sub>e</sub>	ms	0.33	0.31	0.29	0.31	0.32
Continuous Current (NC) @100°C <sup>①</sup>	I <sub>cn</sub>	Arms	1.6	1.6	3.2	1.6	3.2
Peak Current	I <sub>pk</sub>	Arms	8.0	8.0	16.0	8.0	16.0
Continuous Power Dissipation (NC) @100°C <sup>①</sup>	P <sub>cn</sub>	W	15.6	31.2	35.4	47.4	44.7
Max. Coil Temperature	t <sub>max</sub>	°C	100	100	100	100	100
Thermal Dissipation Constant (NC) <sup>①</sup>	K <sub>thn</sub>	W/°C	0.2	0.4	0.5	0.6	0.6
Max. Bus Voltage	U <sub>bus</sub>	V <sub>dc</sub>	330	330	330	330	330
Magnetic Period	τ <sub>WN</sub>	mm	30.0	30.0	30.0	30.0	30.0
Attraction Force	F <sub>a</sub>	kN	0	0	0	0	0
<b>Mechanical Parameters</b>							
Coil Mass (NC)	m <sub>cn</sub>	kg	0.06	0.12	0.12	0.18	0.18
Coil Length (NC)	L <sub>cn</sub>	mm	31.0	61.0	61.0	91.0	91.0
Track Mass Per Meter	m <sub>track</sub>	kg/m	3.90	3.90	3.90	3.90	3.90

Other Information

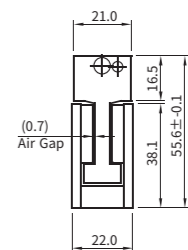
Insulation Class	Class B (130°C)	
Protection Grade	IP00	
Compliance with Global Standards	RoHS, CE	
Ambient Temperature	Operation	0°C to 40°C (non-freezing)
	Storage	-15°C to 70°C (non-freezing)
Ambient Humidity	Operation	10%RH to 80%RH (non-condensing)
	Storage	10%RH to 90%RH (non-condensing)
Recommended 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, AC-Air 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 variation range of AUM inductance is ±40% because three phase inductances are different. The value in the catalog is the average between the maximum and minimum values. For each phase, the variation range is ±20%. The contents of datasheet are subject to change without prior notice.

Dimension

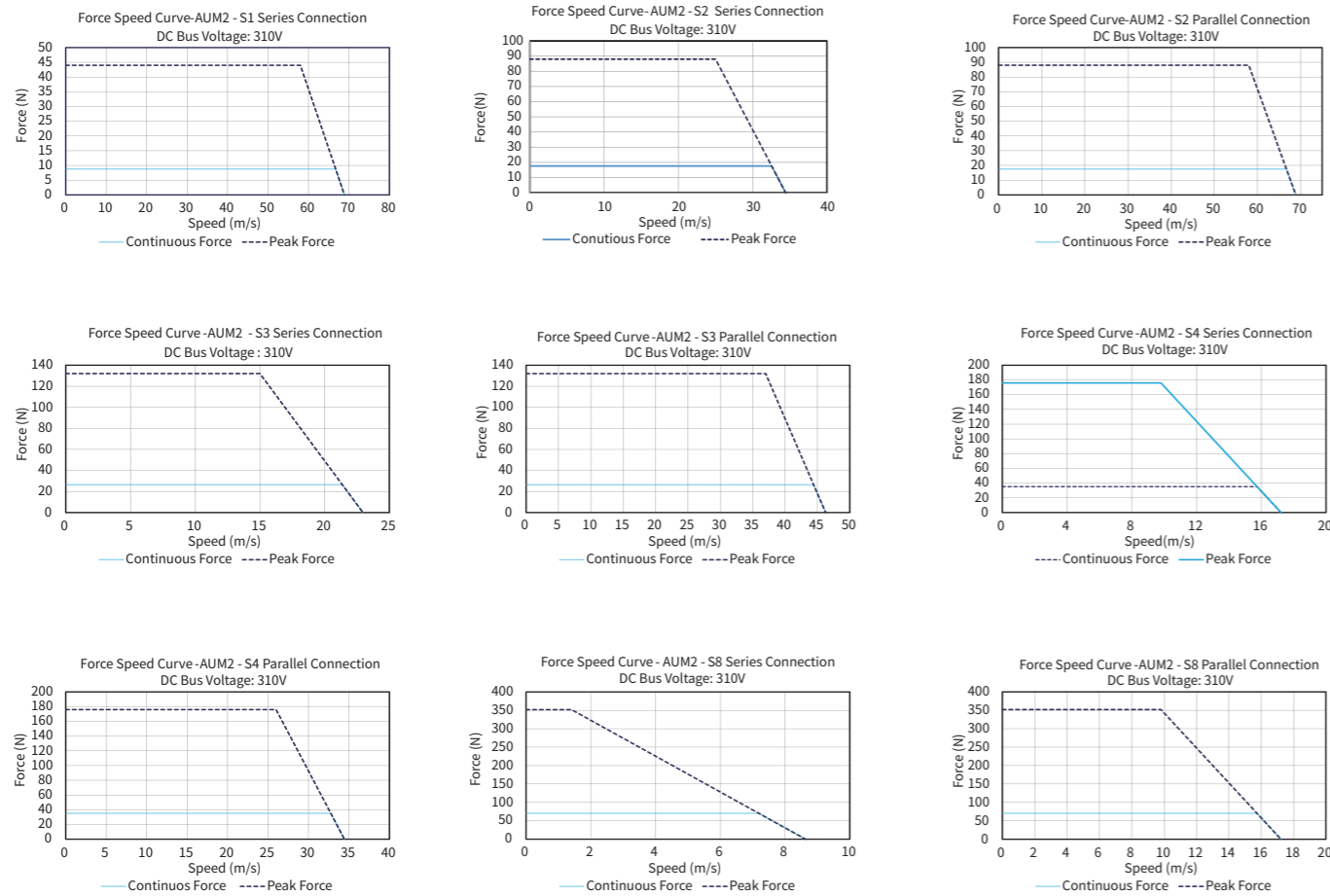


Motor Coil			
Model No:	Coil Length	E	F
AUM2-S1	31.0	3	2
AUM2-S2	61.0	5	5
AUM2-S3	91.0	7	7
AUM2-S4	121.0	9	9
AUM2-S8	241.0	17	17



Motor Track			
Model No:	Track Length	G	H
AUM2-TL120	119.7	2	2
AUM2-TL180	179.7	3	3
AUM2-TL240	239.7	4	4
AUM2-TL300	299.7	5	5

Force-Speed Curve



Part Numbering

Motor Coil

**AUM2-S-S3-K-HF-0.5-FB**

Motor: **AUM2**

Connection: **S=Series / P=Parallel**

Size: **S1 / S2 / S3 / S4 / S8**

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

Motor Cable Options: **FB / NFB**

Cable Length (m): **0.5 / 3.0**

Hall Cable Option: **NH / HF**

Thermal Sensor: **K=PT100(RTD)**

Motor Track

**AUM2-TL120**

Model: **AUM2**

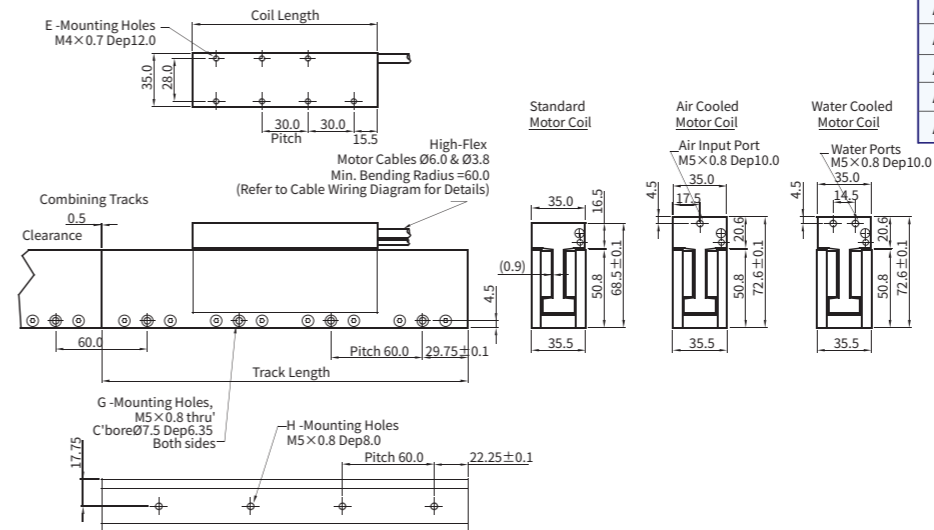
Track Length: **TL120 / TL180 / TL240 / TL300**

AUM3

Performance Parameters	Symbol	Unit	AUM3-S1	AUM3-S2	AUM3-S3	AUM3-S4	AUM3-S6				
			Series	Series	Parallel	Series	Parallel	Series	Parallel		
Continuous Force (NC) @100°C	F <sub>cn</sub>	N	28	57	57	85	85	113	113	170	170
Continuous Force (AC) @100°C	F <sub>ca</sub>	N	34	68	68	102	102	136	136	203	203
Continuous Force (WC) @100°C	F <sub>cw</sub>	N	37	73	73	110	110	147	147	220	220
Peak Force	F <sub>pk</sub>	N	144	289	289	433	433	578	578	867	867
Force Constant ±10%	K <sub>f</sub>	N/Arms	15.7	31.4	15.7	47.1	23.6	62.8	31.4	94.2	47.1
Back EMF Constant ±10%	K <sub>e</sub>	Vpeak/(m/s)	12.8	25.6	12.8	38.5	19.2	51.3	25.6	76.9	38.5
Motor Constant @25°C	K <sub>m</sub>	N/Sqrt(W)	5.8	8.4	8.0	10.3	9.9	11.9	11.6	13.9	14.7
Resistance (L-L) @25°C ±10%	R <sub>zs</sub>	Ω	4.95	9.22	2.57	13.92	3.74	18.62	4.92	30.42	6.87
Inductance (L-L) ±40%	L	mH	3.13	6.26	1.57	9.53	2.38	12.90	3.36	19.50	4.70
Electrical Time Constant	T <sub>e</sub>	ms	0.63	0.68	0.61	0.68	0.64	0.69	0.68	0.64	0.68
Continuous Current (NC) @100°C	I <sub>cn</sub>	Arms	1.8	1.8	3.6	1.8	3.6	1.8	3.6	1.8	3.6
Continuous Current (AC) @100°C	I <sub>ca</sub>	Arms	2.2	2.2	4.3	2.2	4.3	2.2	4.3	2.2	4.3
Continuous Current (WC) @100°C	I <sub>cw</sub>	Arms	2.3	2.3	4.7	2.3	4.7	2.3	4.7	2.3	4.7
Peak Current	I <sub>pk</sub>	Arms	9.2	9.2	18.4	9.2	18.4	9.2	18.4	9.2	18.4
Continuous Power Dissipation (NC) @100°C	P <sub>cn</sub>	W	31.0	57.8	64.3	87.2	93.6	116.6	123.3	190.5	172.2
Continuous Power Dissipation (AC) @100°C	P <sub>ca</sub>	W	44.6	83.2	92.6	125.6	134.8	168.0	177.6	274.4	247.9
Continuous Power Dissipation (WC) @100°C	P <sub>cw</sub>	W	52.4	97.6	108.7	147.4	158.2	197.1	208.4	322.0	291.0
Max. Coil Temperature	T <sub>max</sub>	°C	100	100	100	100	100	100	100	100	100
Thermal Dissipation Constant (NC)	K <sub>thn</sub>	W/°C	0.4	0.8	0.9	1.2	1.2	1.6	1.6	2.5	2.3
Thermal Dissipation Constant (AC)	K <sub>tha</sub>	W/°C	0.6	1.1	1.2	1.7	1.8	2.2	2.4	3.7	3.3
Thermal Dissipation Constant (WC)	K <sub>thw</sub>	W/°C	0.7	1.3	1.4	2.0	2.1	2.6	2.8	4.3	3.9
Max. Bus Voltage	U <sub>bus</sub>	Vdc	330	330	330	330	330	330	330	330	330
Magnetic Period	T <sub>MN</sub>	mm	60	60	60	60	60	60	60	60	60
Attraction Force	F <sub>a</sub>	kN	0	0	0	0	0	0	0	0	0
<b>Mechanical Parameters</b>											
Coil Mass (NC)	m <sub>cn</sub>	kg	0.22	0.45	0.45	0.68	0.68	0.91	0.91	1.37	1.37
Coil Length (NC)	L <sub>cn</sub>	mm	61.0	121.0	121.0	181.0	181.0	241.0	241.0	361.0	361.0
Coil Length (AC)	L <sub>ca</sub>	mm	61.0	121.0	121.0	181.0	181.0	241.0	241.0	361.0	361.0
Coil Length (WC)	L <sub>cw</sub>	mm	61.0	121.0	121.0	181.0	181.0	241.0	241.0	361.0	361.0
Track Mass Per Meter	m <sub>track</sub>	kg/m	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33
<b>Other Information</b>											
Insulation Class	Class B (130°C)										
Protection Grade	IP00										
Compliance with Global Standards	RoHS, CE										
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, AC-Air 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 variation range of AUM inductance is ±40% because three phase inductances are different. The value in the catalog is the average between the maximum and minimum values. For each phase, the variation range is ±20%. The contents of datasheet are subject to change without prior notice.

Dimension

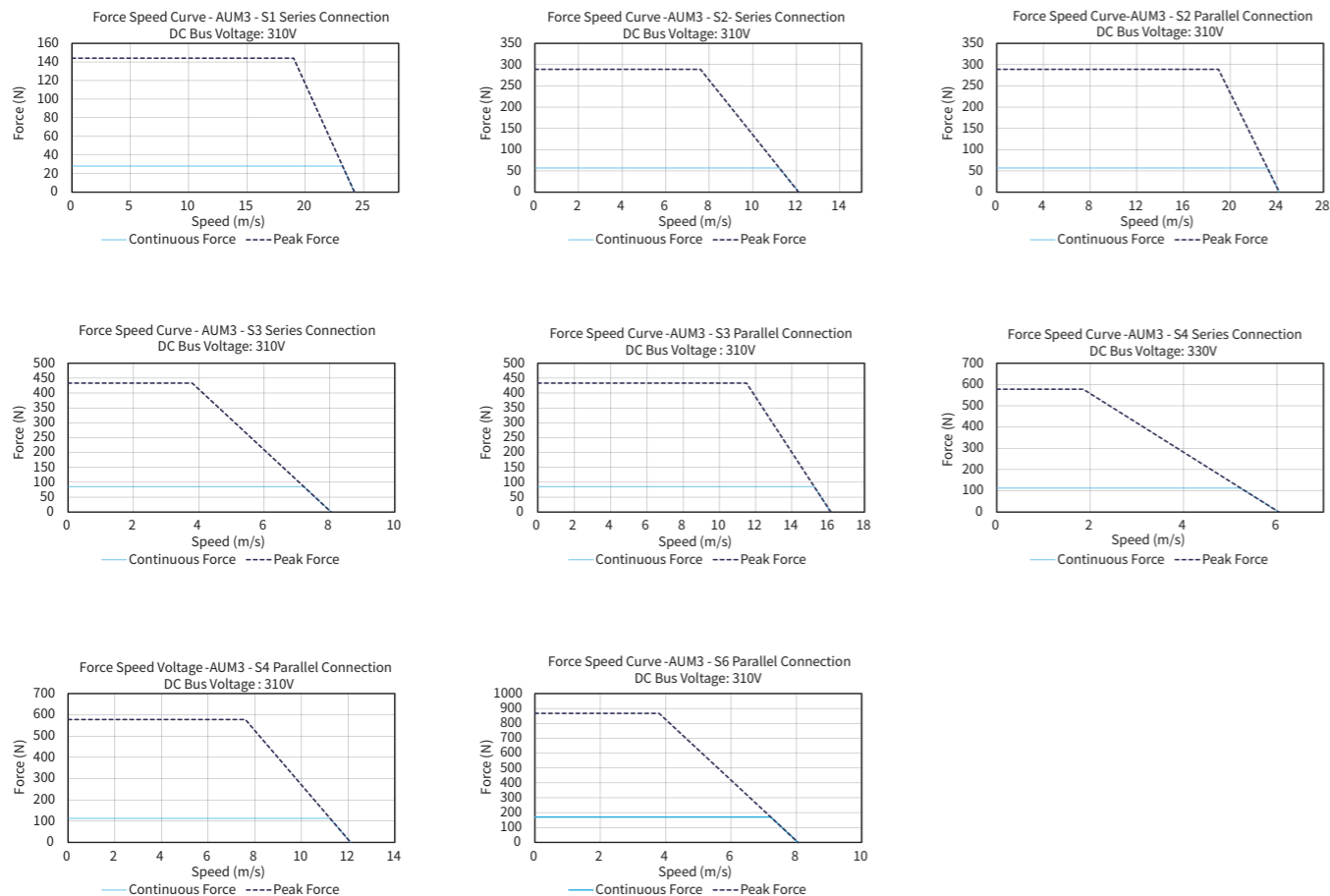


Model No. 1	Coil Length	E
AUM3-S1	61.0	3
AUM3-S2	121.0	7
AUM3-S3	181.0	11
AUM3-S4	241.0	15
AUM3-S6	361.0	23

1 For air or water cooled models, Coil Length and E are the same as the standard model.



Force-Speed Curve



Part Numbering

Motor Coil

**AUM3-S-S3-K-HF-0.5-FB**

Motor: **AUM3**

Cooling Option:  
(Blank)=Natural Convection  
A=Air Cooled / W=Water Cooled

Connection:  
S=Series / P=Parallel

Size:  
S1 / S2 / S3 / S4 / S6

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

Motor Cable Options:  
FB / NFB

Cable Length (m):  
0.5 / 3.0

Hall Cable Option:  
NH / HF

Thermal Sensor:  
J=Thermostat(standard) / K=PT100(RTD)

Motor Track

**AUM3-TL120**

Model: **AUM3**

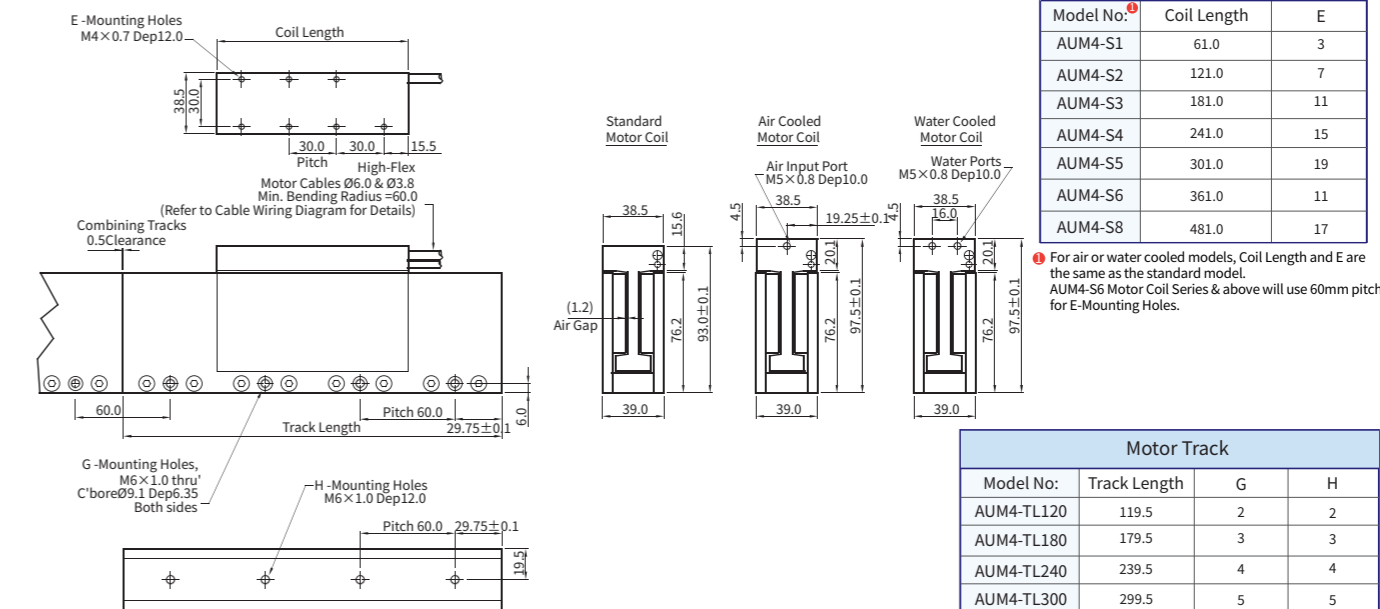
Track Length:  
TL120 / TL180 / TL240 / TL300 / TL600

AUM4

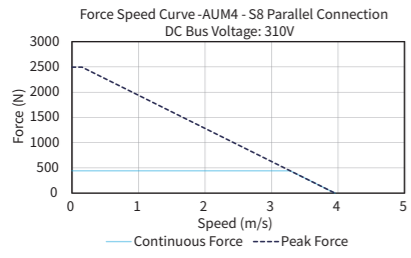
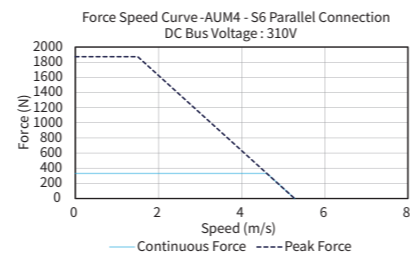
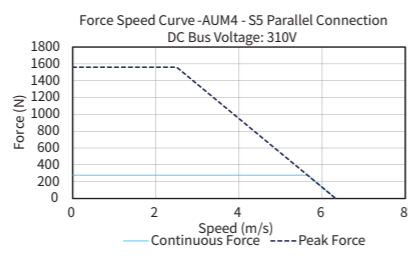
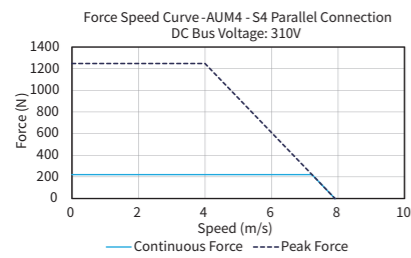
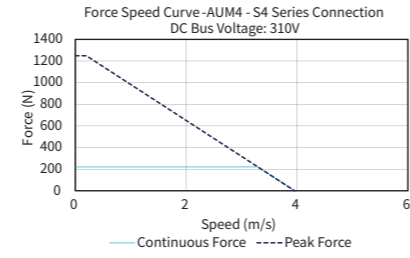
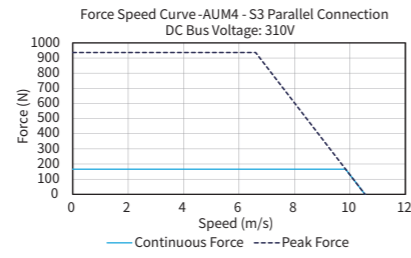
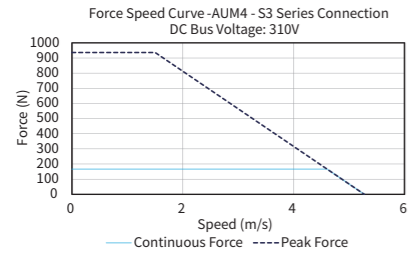
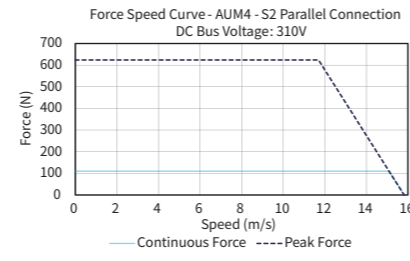
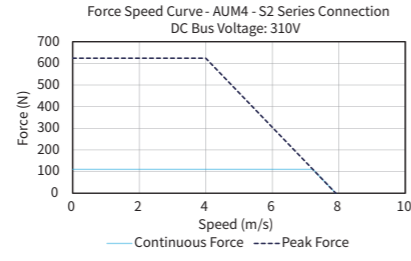
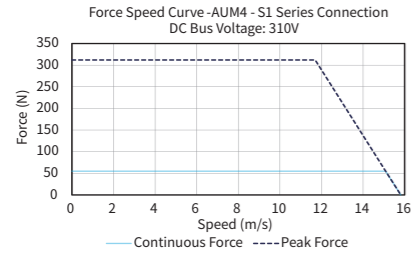
			AUM4-S1	AUM4-S2	AUM4-S3	AUM4-S4	AUM4-S5	AUM4-S6	AUM4-S8
<b>Performance Parameters</b>			Series	Series	Parallel	Series	Parallel	Parallel	Parallel
Continuous Force (NC) @100°C	F <sub>cn</sub>	N	55	110	110	166	166	221	221
Continuous Force (AC) @100°C	F <sub>ca</sub>	N	66	132	132	199	199	265	265
Continuous Force (WC) @100°C	F <sub>cw</sub>	N	72	144	144	215	215	287	287
Peak Force	F <sub>pk</sub>	N	312	624	624	936	936	1248	1248
Force Constant ±10%	K <sub>f</sub>	N/Arms	24.0	48.0	24.0	72.0	36.0	96.0	48.0
Back EMF Constant ±10%	K <sub>e</sub>	Vpeak/(m/s)	19.6	39.2	19.6	58.8	29.4	78.4	39.2
Motor Constant @25°C	K <sub>m</sub>	N/Sqrt(W)	9.3	13.0	12.7	15.9	15.7	18.4	18.6
Resistance (L-L) @25°C ±10%	R <sub>25</sub>	Ω	4.42	9.02	2.37	13.62	3.52	18.22	4.42
Inductance (L-L) ±40%	L	mH	3.50	7.00	1.82	10.50	2.65	14.00	3.48
Electrical Time Constant	τ <sub>e</sub>	ms	0.79	0.78	0.77	0.77	0.75	0.77	0.79
Continuous Current (NC) @100°C	I <sub>cn</sub>	Arms	2.3	2.3	4.6	2.3	4.6	2.3	4.6
Continuous Current (AC) @100°C	I <sub>ca</sub>	Arms	2.8	2.8	5.5	2.8	5.5	2.8	5.5
Continuous Current (WC) @100°C	I <sub>cw</sub>	Arms	3.0	3.0	6.0	3.0	6.0	3.0	6.0
Peak Current	I <sub>pk</sub>	Arms	13.0	13.0	26.0	13.0	26.0	13.0	26.0
Continuous Power Dissipation (NC) @100°C	P <sub>cn</sub>	W	45	92	97	139	144	186	181
Continuous Power Dissipation (AC) @100°C	P <sub>ca</sub>	W	65	133	139	201	207	268	260
Continuous Power Dissipation (WC) @100°C	P <sub>cw</sub>	W	76	156	164	235	243	315	306
Max. Coil Temperature	t <sub>max</sub>	°C	100	100	100	100	100	100	100
Thermal Dissipation Constant (NC)	K <sub>thn</sub>	W/°C	0.6	1.2	1.3	1.9	1.9	2.5	2.4
Thermal Dissipation Constant (AC)	K <sub>tha</sub>	W/°C	0.9	1.8	1.9	2.7	2.8	3.6	3.5
Thermal Dissipation Constant (WC)	K <sub>thw</sub>	W/°C	1.0	2.1	2.2	3.1	3.2	4.2	4.1
Max. Bus Voltage	U <sub>bus</sub>	Vdc	330	330	330	330	330	330	330
Magnetic Period	T <sub>M</sub>	mm	60	60	60	60	60	60	60
Attraction Force	F <sub>a</sub>	kN	0	0	0	0	0	0	0
<b>Mechanical Parameters</b>									
Coil Mass (NC)	m <sub>cn</sub>	kg	0.28	0.56	0.56	0.89	0.89	1.19	1.19
Coil Length (NC)	L <sub>cn</sub>	mm	61.0	121.0	121.0	181.0	181.0	241.0	241.0
Coil Length (AC)	L <sub>ca</sub>	mm	61.0	121.0	121.0	181.0	181.0	241.0	241.0
Coil Length (WC)	L <sub>cw</sub>	mm	61.0	121.0	121.0	181.0	181.0	241.0	241.0
Track Mass Per Meter	m <sub>track</sub>	kg/m	14.75	14.75	14.75	14.75	14.75	14.75	14.75
<b>Other Information</b>			Class B (130°C)						
Insulation Class			IP00						
Protection Grade			RoHS, CE						
Compliance with Global Standards			0°C to 40°C (non-freezing)						
Ambient Temperature			-15°C to 70°C (non-freezing)						
Storage			10%RH to 80%RH (non-condensing)						
Ambient Humidity			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, AC-Air 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 variation range of AUM inductance is ±40% because three phase inductances are different. The value in the catalog is the average between the maximum and minimum values. For each phase, the variation range is ±20%. The contents of datasheet are subject to change without prior notice.

Dimension

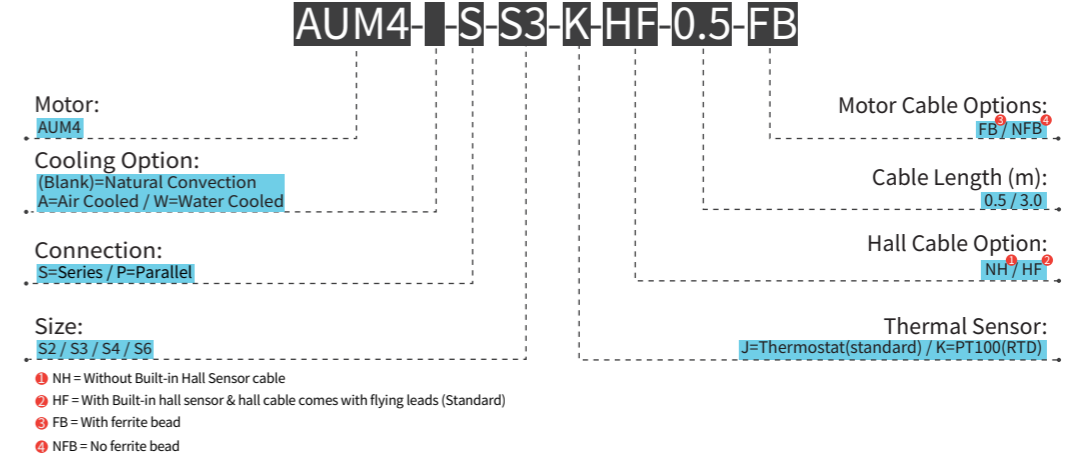


Force-Speed Curve



Part Numbering

Motor Coil



Motor Track

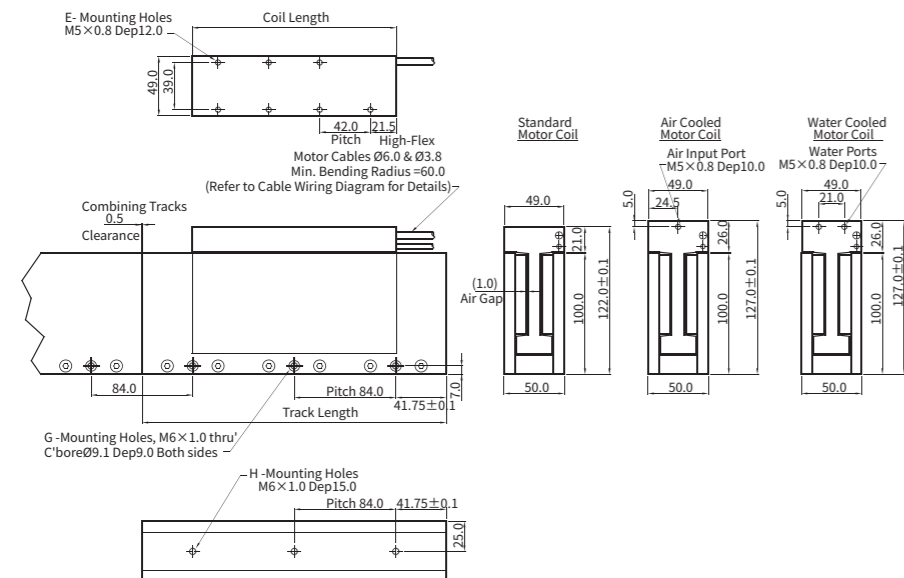


AUM5

			AUM5-S1	AUM5-S2	AUM5-S3	AUM5-S4	AUM5-S5	AUM5-S6	AUM5-S8 -V107	AUM5-S9 -V80	AUM5-S10 -V107	AUM5-S12 -V107	
<b>Performance Parameters</b>													
Continuous Force (NC) @100°C	F <sub>cn</sub>	N	98	197	197	295	295	393	491	590	786	884	983
Continuous Force (AC) @100°C	F <sub>ca</sub>	N	118	236	236	354	354	472	472	590	707	-	-
Continuous Force (WC) @100°C	F <sub>cw</sub>	N	128	255	255	383	383	511	511	639	766	-	-
Peak Force	F <sub>pk</sub>	N	707	1415	1415	2122	2122	2830	2830	3537	4244	5659	6367
Force Constant ±10%	K <sub>f</sub>	N/Arms	39.3	78.6	39.3	117.9	59.0	157.2	78.6	98.3	117.9	78.6	117.9
Back EMF Constant ±10%	K <sub>e</sub>	Vpeak/(m/s)	32.1	64.2	32.1	96.3	48.1	128.4	64.2	80.2	96.3	64.2	96.3
Motor Constant @25°C	K <sub>m</sub>	N/Sqrt(W)	16.0	22.4	21.9	27.8	27.1	31.5	32.0	35.6	38.9	46.3	48.0
Resistance (L-L) @25°C ±10%	R <sub>25</sub>	Ω	4.02	8.22	2.15	12.02	3.15	16.62	4.02	5.07	6.12	1.92	4.02
Inductance (L-L) ±40%	L	mH	6.50	13.00	3.25	18.97	4.73	26.00	6.25	8.13	9.75	3.25	6.50
Electrical Time Constant	τ <sub>e</sub>	ms	1.62	1.58	1.51	1.58	1.50	1.56	1.55	1.60	1.59	1.69	1.62
Continuous Current (NC) @100°C	I <sub>cn</sub>	Arms	2.5	2.5	5.0	2.5	5.0	2.5	5.0	5.0	10.0	10.0	10.0
Continuous Current (AC) @100°C	I <sub>ca</sub>	Arms	3.0	3.0	6.0	3.0	6.0	3.0	6.0	6.0	6.0	-	-
Continuous Current (WC) @100°C	I <sub>cw</sub>	Arms	3.3	3.3	6.5	3.3	6.5	3.3	6.5	6.5	6.5	-	-
Peak Current	I <sub>pk</sub>	Arms	18.0	18.0	36.0	18.0	36.0	18.0	36.0	36.0	42.0	54.0	72.0
Continuous Power Dissipation (NC) @100°C	P <sub>cn</sub>	W	49	99	104	145	152	201	194	245	296	372	437
Continuous Power Dissipation (AC) @100°C	P <sub>ca</sub>	W	70	143	149	209	219	289	280	353	426	0	0
Continuous Power Dissipation (WC) @100°C	P <sub>cw</sub>	W	82	168	175	245	257	339	328	414	500	0	0
Max. Coil Temperature	t <sub>max</sub>	°C	100	100	100	100	100	100	100	100	100	100	100
Thermal Dissipation Constant (NC)	K <sub>thn</sub>	W/°C	0.6	1.3	1.4	1.9	2.0	2.7	2.6	3.3	3.9	5.0	5.8
Thermal Dissipation Constant (AC)	K <sub>thca</sub>	W/°C	0.9	1.9	2.0	2.8	2.9	3.9	3.7	4.7	5.7	-	-
Thermal Dissipation Constant (WC)	K <sub>thcw</sub>	W/°C	1.1	2.2	2.3	3.3	3.4	4.5	4.4	5.5	6.7	-	-
Max. Bus Voltage	U <sub>bus</sub>	Vdc	330	330	330	330	330	330	330	330	330	330	330
Magnetic Period	T <sub>NN</sub>	mm	84	84	84	84	84	84	84	84	84	84	84
Attraction Force	F <sub>a</sub>	kN	0	0	0	0	0	0	0	0	0	0	0
<b>Mechanical Parameters</b>													
Coil Mass (NC)	m <sub>cn</sub>	kg	0.73	1.45	1.45	2.16	2.16	2.88	2.88	3.60	4.32	5.73	6.53
Coil Length (NC)	L <sub>cn</sub>	mm	85.0	169.0	169.0	253.0	253.0	337.0	337.0	421.0	505.0	673.0	757.0
Coil Length (AC)	L <sub>ca</sub>	mm	85.0	169.0	169.0	253.0	253.0	337.0	337.0	421.0	505.0	-	-
Coil Length (WC)	L <sub>cw</sub>	mm	85.0	169.0	169.0	253.0	253.0	337.0	337.0	421.0	505.0	-	-
Track Mass Per Meter	m <sub>track</sub>	kg/m	35.50	35.50	35.50	35.50	35.50	35.50	35.50	35.50	35.50	35.50	35.50
<b>Other Information</b>													
Insulation Class	Class B (130°C)												
Protection Grade	IP00												
Compliance with Global Standards	RoHS, CE												
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, AC-Air 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 variation range of AUM inductance is ±40% because three phase inductances are different. The value in the catalog is the average between the maximum and minimum values. For each phase, the variation range is ±20%.
- The contents of datasheet are subject to change without prior notice.

Dimension

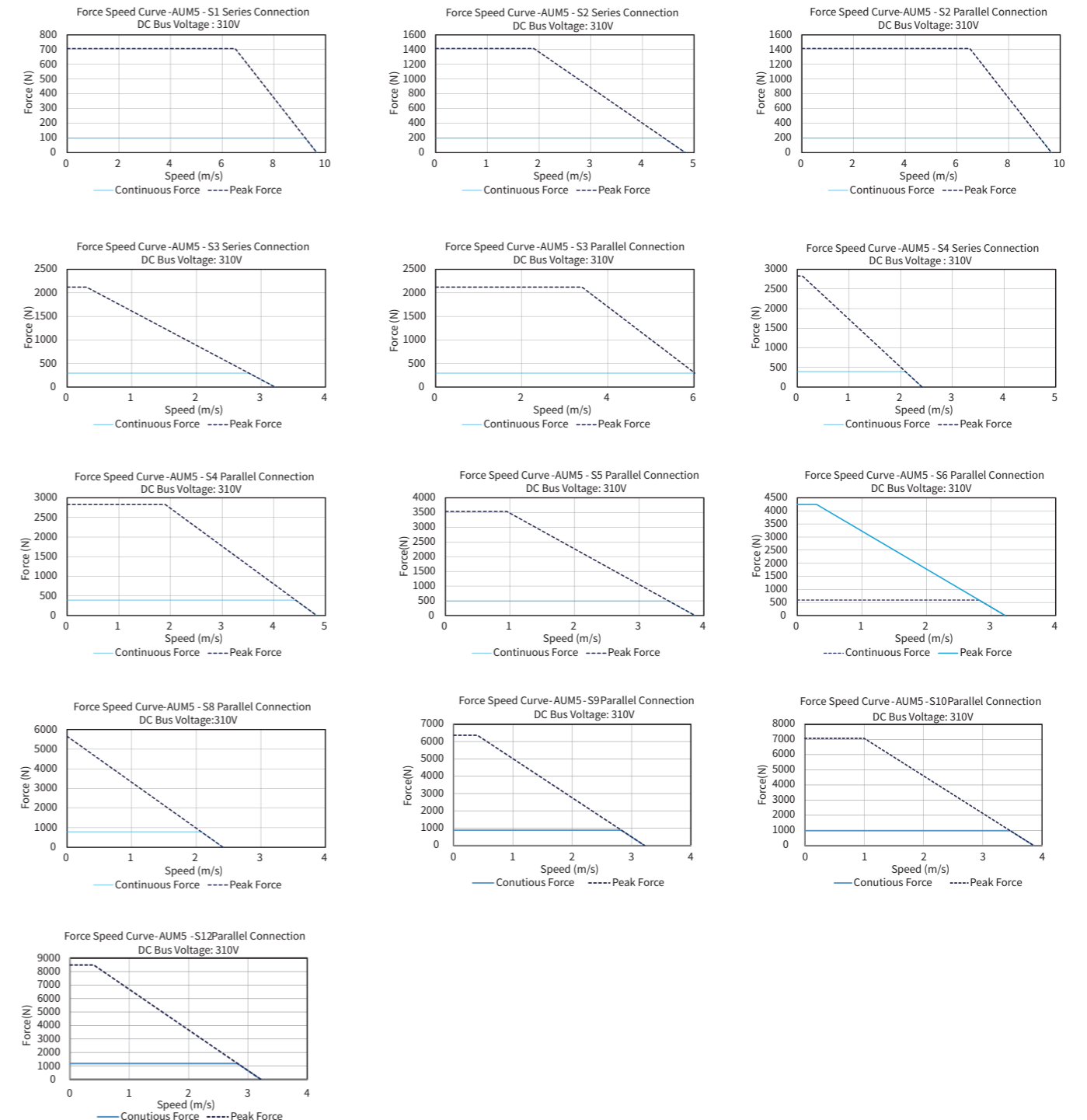


Motor Coil		
Model No.	Coil Length	E
AUM5-S2	169.0	7
AUM5-S3	253.0	11
AUM5-S4	337.0	15
AUM5-S5	421.0	19
AUM5-S6	505.0	23
AUM5-P5-S8-V107	673.0	8
AUM5-P7-S9-V80	757.0	9
AUM5-P5-S10-V107	841.0	10
AUM5-P5-S12-V107	1009.0	12

For air or water cooled models, Coil Length and E are the same as the standard model.

Motor Track			
Model No.	Track Length	G	H
AUM5-TL168	167.5	2	2
AUM5-TL252	251.5	3	3
AUM5-TL420	419.5	5	5

Force-Speed Curve



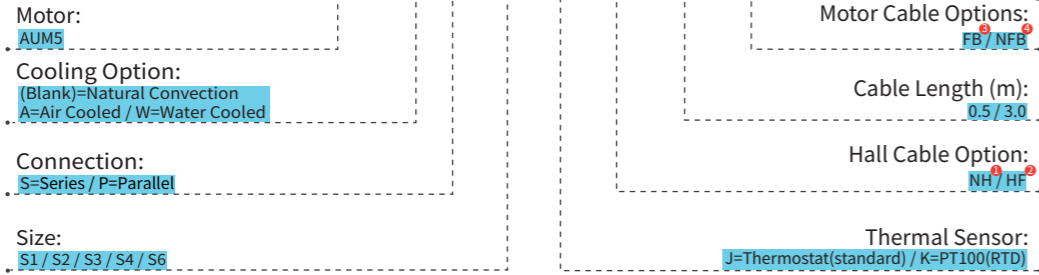
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Introduction Sizing Guide Frequently Asked Questions Linear Motors Voice Coil Motors Direct Drive Rotary Motors Motion Control of Gantry Stages Akribis systems

# Part Numbering

## Motor Coil

**AUM5-S-S3-K-HF-0.5-FB-**



- 1 NH = Without Built-in Hall Sensor cable
- 2 HF = With Built-in hall sensor & hall cable comes with flying leads (Standard)
- 3 FB = With ferrite bead
- 4 NFB = No ferrite bead
- 5 V80 = Only for AUM5-S8 and AUM5-S9
- 6 V107 = Only for AUM5-S10 & AUM5-S12

## Motor Track

**AUM5-TL168**

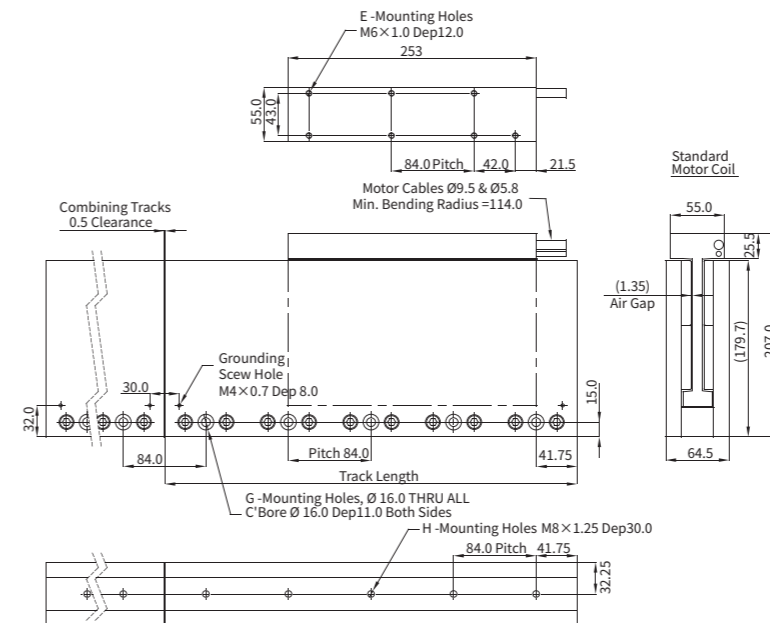


# AUM6

			AUM6-P5-S4	AUM6-P8-S6	AUM6-P5-S8	AUM6-P8-S9	AUM6-P7-S10	AUM6-P8-S12
<b>Performance Parameters</b>								
Continuous Force (NC) @100°C	F <sub>cn</sub>	N	780	1170	1560	1755	1950	2340
Peak Force	F <sub>pk</sub>	N	5400	8100	10800	12150	13500	16200
Force Constant ±10%	K <sub>f</sub>	N/Arms	75.0	75.0	150.0	112.5	150.0	150.0
Back EMF Constant ±10%	K <sub>e</sub>	Vpeak/(m/s)	61.2	61.2	122.5	91.9	122.5	122.5
Motor Constant @25°C	K <sub>m</sub>	N/Sqrt(W)	53.3	67.5	72.9	79.9	82.2	90.7
Resistance (L-L) @25°C ±10%	R <sub>25</sub>	Ω	1.32	0.82	2.82	1.32	2.22	1.82
Inductance (L-L) ±40%	L	mH	2.65	1.77	5.30	2.65	4.24	3.53
Electrical Time Constant	τ <sub>e</sub>	ms	2.00	2.15	1.88	2.00	1.91	1.94
Continuous Current (NC) @100°C	I <sub>cn</sub>	Arms	10.4	15.6	10.4	15.6	13.0	15.6
Peak Current	I <sub>pk</sub>	Arms	72.0	108.0	72.0	108.0	90.0	108.0
Continuous Power Dissipation (NC) @100°C	P <sub>cn</sub>	W	276	387	590	622	726	857
Max. Coil Temperature	t <sub>max</sub>	°C	100	100	100	100	100	100
Thermal Dissipation Constant (NC)	K <sub>thn</sub>	W/°C	3.7	5.2	7.9	8.3	9.7	11.4
Max. Bus Voltage	U <sub>bus</sub>	Vdc	330	330	330	330	330	330
Magnetic Period	T <sub>MN</sub>	mm	84	84	84	84	84	84
Attraction Force	F <sub>a</sub>	kN	0	0	0	0	0	0
<b>Mechanical Parameters</b>								
Coil Mass (NC)	m <sub>cn</sub>	kg	4.50	6.75	9.00	10.13	11.25	13.50
Coil Length (NC)	L <sub>cn</sub>	mm	337.0	505.0	673.0	757.0	841.0	1009.0
Track Mass Per Meter	m <sub>track</sub>	kg/m	66.67	66.67	66.67	66.67	66.67	66.67
<b>Other Information</b>								
Insulation Class	Class B (130°C)							
Protection Grade	IP00							
Compliance with Global Standards	RoHS, CE							
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, AC-Air 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 variation range of AUM inductance is ±40% because three phase inductances are different. The value in the catalog is the average between the maximum and minimum values. For each phase, the variation range is ±20%. The contents of datasheet are subject to change without prior notice.

## Dimension

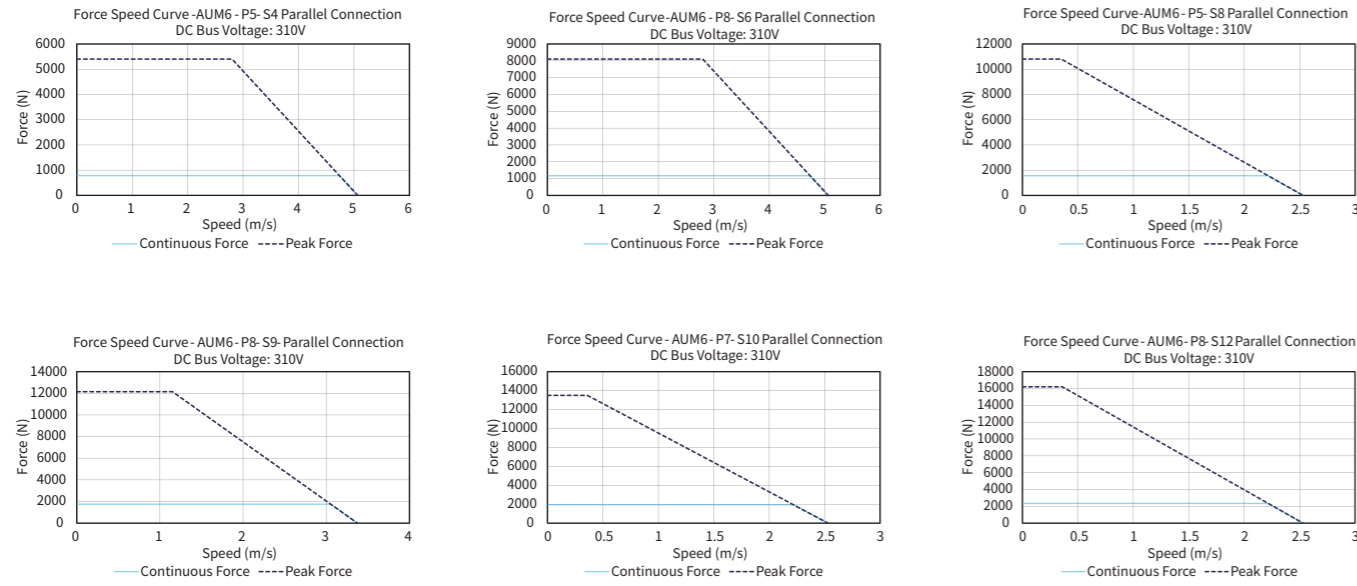


Model No:	Coil Length	E
AUM6-P5-S4	337.0	9
AUM6-P8-S6	505.0	13
AUM6-P5-S8	673.0	17
AUM6-P8-S9	757.0	19
AUM6-P7-S10	841.0	21
AUM6-P8-S12	1009.0	25

Model No:	Track Length	G	H
AUM6-TL168	167.5	2	2
AUM6-TL252	251.5	3	3
AUM6-TL420	419.5	5	5

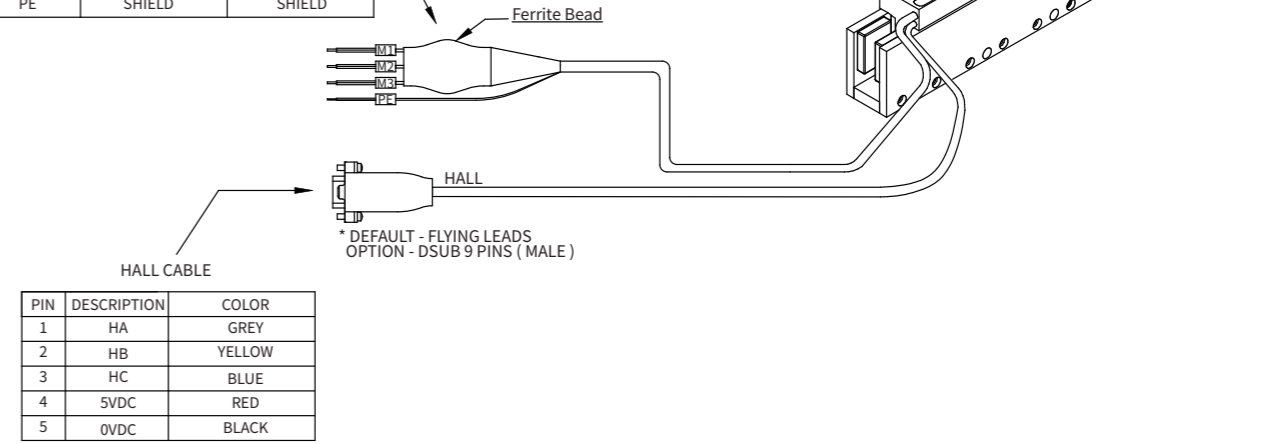


Force-Speed Curve



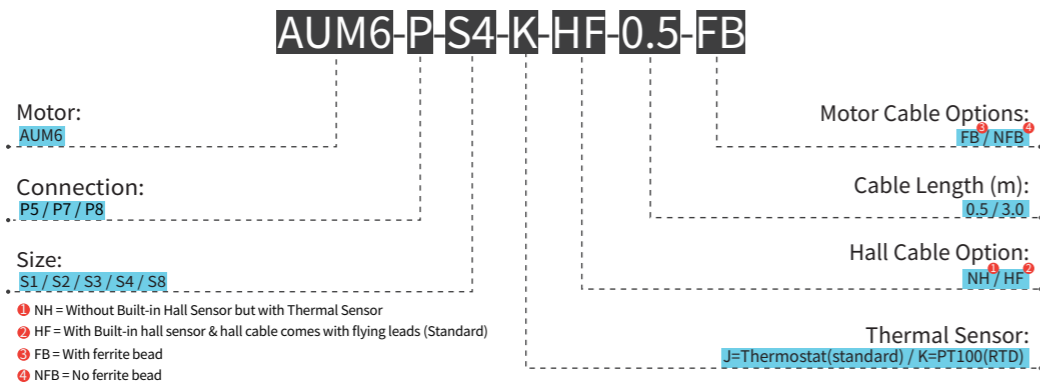
AUM1 Series Motor Cable Connection

MOTOR CABLE			
PIN	DESCRIPTION	NO FERRITE BEAD	FERRITE BEAD
-	M1	BROWN	YELLOW / GREY
-	M2	WHITE	BLUE / ORANGE
-	M3	GREEN	RED / GREEN
-	PE	SHIELD	SHIELD

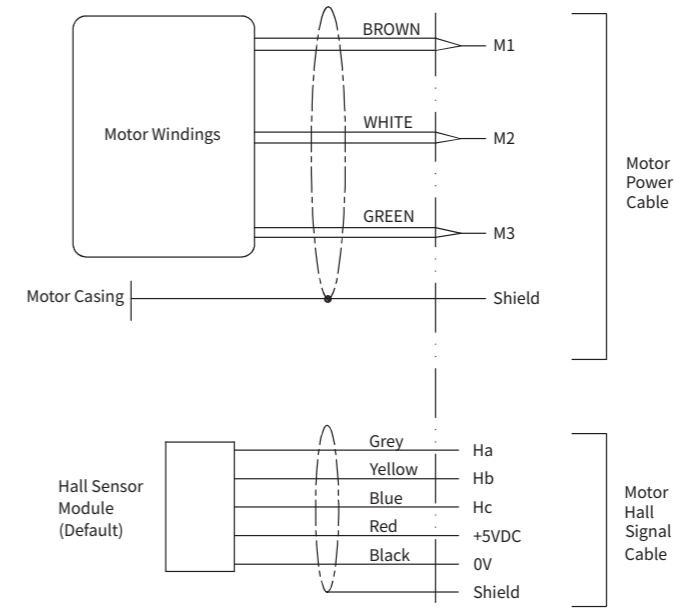


Part Numbering

Motor Coil

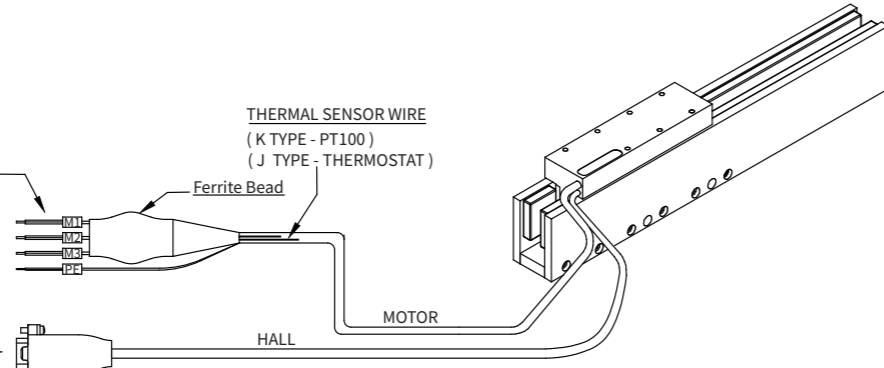


Motor Track



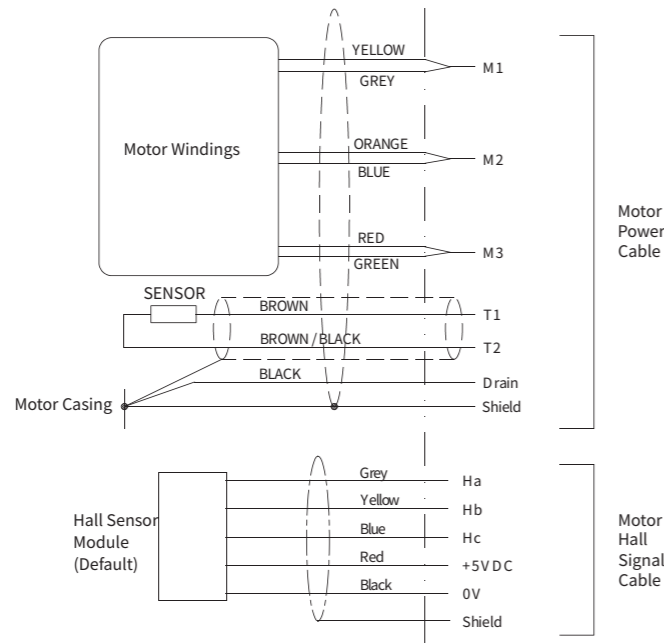
AUM2 / 3 / 4 / 5 Series Motor Cable Connection

MOTOR CABLE			
PIN	DESCRIPTION	NO FERRITE BEAD	FERRITE BEAD
-	M1	YELLOW / GREY	YELLOW / GREY
-	M2	BLUE / ORANGE	BLUE / ORANGE
-	M3	RED / GREEN	RED / GREEN
-	PE	YELLOW / GREEN	YELLOW / GREEN



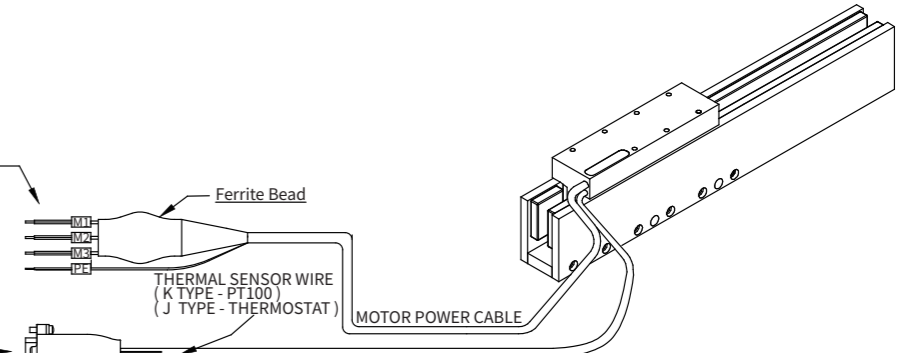
\* DEFAULT - FLYING LEADS  
OPTION - DSUB 9 PINS ( MALE )

HALL CABLE		
PIN	DESCRIPTION	COLOR
1	HA	GREY
2	HB	YELLOW
3	HC	BLUE
4	5VDC	RED
5	0VDC	BLACK



AUM6 Series Motor Cable Connection

MOTOR CABLE			
PIN	DESCRIPTION	COLOR	FERRITE BEAD
-	M1	BLACK1	BLACK1
-	M2	BLACK2	BLACK2
-	M3	BLACK3	BLACK3
-	PE	YELLOW / GREEN	YELLOW / GREEN



\* DEFAULT - FLYING LEADS  
OPTION - DSUB 9 PINS ( MALE )

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

