Shenzhen Jinwangda Electromechanical Co., Ltd
AKD Industrial Robot (Shenzhen) Co., Ltd
Jinwangda Electromechanical (Jiangsu) Co., Ltd
Jinwangda Precision Technology (Tianjin) Co., Ltd

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Official website　WeChat Official Account　Module Life Verification　3D Model Selection Website

AKD 5 LINEAR MOTOR LINEAR MOTOR MODULE TORQUE MOTOR DRIVE / ENCODER

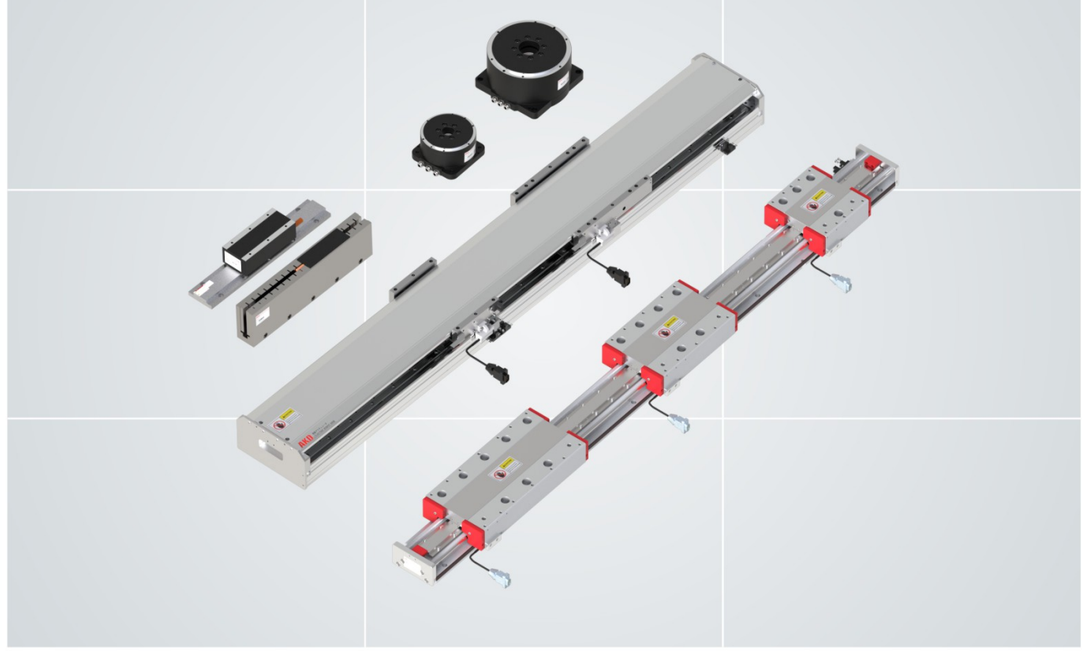
5

AKD®

Integrated service provider for automation core components

Linear motion products

LINEAR MOTOR
LINEAR MOTOR MODULE
TORQUE MOTOR
DRIVE / ENCODER



Company Profile

Shenzhen Jinwangda Electromechanical Co., Ltd. (brand AKD) was established in 2009. We are a national high-tech enterprise dedicated to the research and development, production, and sales of high-end automation core components, as well as a specialized and innovative technology enterprise in Guangdong Province.

Main products: Precision linear guides, precision ball screws, precision planetary roller screws, precision reducers, KKR steel-based modules, GTHA embedded aluminum-based modules, KTH/KTB/KCH/KCB series aluminum-based modules, KDG/KDA/KY series electric cylinders, linear motors, DD motors, hollow rotary tables, screws and support seats, etc.

Application fields: Semiconductor, 3C electronics, new energy, LCD/LED panels, medical, machine tools, humanoid robots, and other high-end automation industries.

Management System: IS09001 Quality Management System.

Intellectual Property: The company has 8 invention patents, 33 utility model patents, 29 appearance patents, and 11 software copyrights.

Product certification: CE, ROHS.

AKD always adheres to the values of pragmatism and innovation, and the development concept of trust and persistence; Dedicated to building a well-known brand in the field of high-end automation core components, gradually achieving the internationalization of AKD brand. Through decades of continuous efforts and focus, AKD's revenue has always maintained a steady growth trend, with a wide range of market applications, creating a double good reputation for both brand and product, and winning unanimous recognition from peers and customers.

Mission:
Make industrial design more precise and easy to operate.

Vision:
Become a cost-effective and long-term reliable partner for customers!
Become a leading brand in automation core components.

Core values:
Pragmatic and innovative.

- National High-Tech Enterprise
- Shenzhen High-Tech Enterprise
- Guangdong SRDI Enterprise
- Partner Unit of Robotics Technology and the State Key Laboratory

Accuracy
Precision, pursuit of precision

Kind
Treat customers, employees, and shareholders with sincerity and friendliness

Design
Design, originality, and innovation

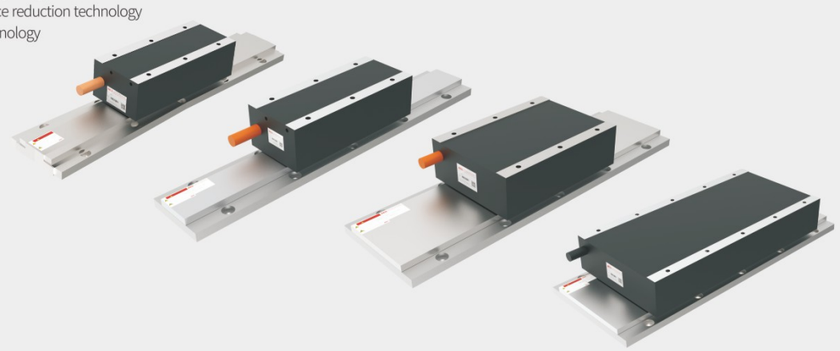
AK2 Series

Iron-core Linear Motor

With iron-core technology, Ultra-low cogging force, High acceleration, High speed

CONTENTS

- Large overall dimensions and high thrust, Iron core for enhanced magnetic field strength
- Iron core with cogging force reduction technology
- Suitable for high dynamic performance applications
- Multi-winding design
- Cogging force reduction technology
- Potting technology



Application Scenarios:

Used in wafer inspection systems, stamping, laser cutting or welding, chip mounters, flip chip die bonders, wire bonders, PCB drilling machines, PCB testers, flat panel displays, medical equipment, and general automation systems.

Ordering Method

AK2 - H25 - 1 - S - 3M

- **Motor Type**: Iron-core Linear Motor
- **Series Code**
- **Number of Coils**
- **Winding code**: SP, BP
- **Cable Length**: Blank: Default cable length of 0.5m; 3m: Moving coil cable length of 3m

Coil Naming Rule

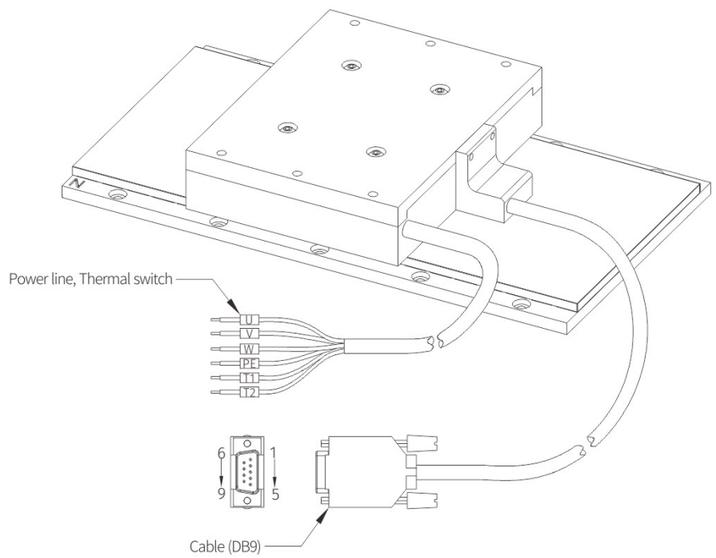
AK2 - H25 - 150MNS

- **Motor Type**
- **Magnetic Rail Width Code**
- **Magnetic Rail Length (Unit: mm)**: 150, 200, 250

Motor wiring diagram

Cable (DB9)		
Pin.	Definition	Color
1	5V	Brown
2	0V	Blue
3	A	Orange
4	B	Purple
5	C	Black
6	-	-
7	-	-
8	-	-
9	-	-

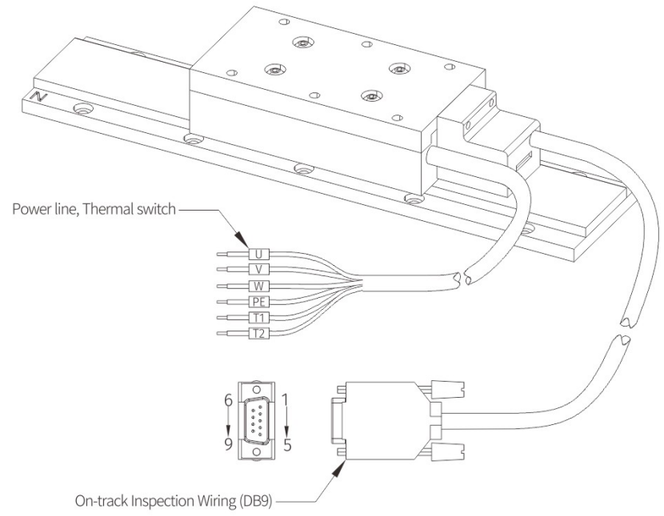
Power line, Thermal switch		
Pin.	Definition	Color
Terminal crimping	U	Brown
Terminal crimping	V	Blue
Terminal crimping	W	Purple
Terminal crimping	PE	Green
Terminal crimping	T1	Brown (thin)
Terminal crimping	T2	Blue (thin)



On-track Inspection Wiring Diagram

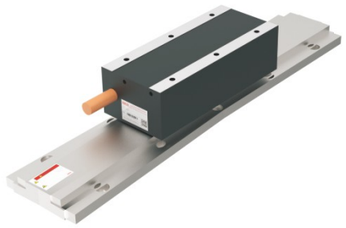
On-track Inspection Wiring (DB9)		
Pin.	Definition	Color
1	0V	Black
2	A+	Brown
3	Z+	Yellow
4	B+	Blue
5	5V	Red
6	A-	Gray
7	Z-	Green
8	B-	White
9	Shielded	-

Power line, Thermal switch		
Pin.	Definition	Color
Terminal crimping	U	Brown
Terminal crimping	V	Blue
Terminal crimping	W	Purple
Terminal crimping	PE	Green
Terminal crimping	T1	Brown (thin)
Terminal crimping	T2	Blue (thin)



AK2-H25 Iron-core Linear Motor

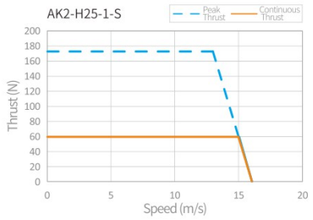
KDH14 Series Module

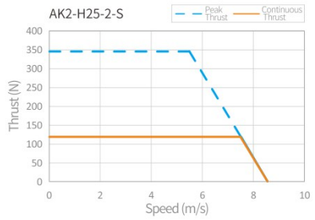


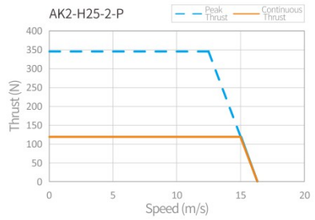
Parameter Table

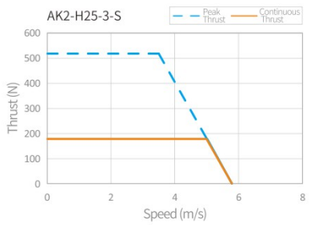
Motor Type	Unit	AK2-H25-1	AK2-H25-2		AK2-H25-3	
Winding code		S	S	P	S	T
Performance Parameters						
Peak Thrust	N	234	468	468	702	702
Continuous Thrust	N	81	162	162	243	243
Maximum Power	W	2249	1903	4325	1817	5969
Continuous Power	W	900	900	1800	900	2700
Forward Attraction Force	N	376	758	758	1137	1137
Electrical Characteristics						
Peak Current	Arms	10.40	10.40	22.80	10.40	30.00
Continuous Current	Arms	3.40	3.40	6.80	3.40	10.00
Back EMF Constant	Vpeak/(M/S)	20.42	42.72	20.42	66.71	20.42
Single-Phase Resistance	Ω	2.50	4.90	1.70	7.47	0.60
Single-Phase Inductance	Mh	15.53	29.84	7.90	43.77	2.79
Motor Constant	N/Arms	22.85	45.70	22.85	68.56	22.85
Time Constant	ms	6.21	6.09	4.65	5.90	4.57
Maximum Coil Temperature	°C	130	130	130	130	130
Maximum Allowable Voltage	VDC	310	310	310	310	310
Mechanical Characteristics						
Mover Length	mm	105	193	193	280	280
Armature Weight	Kg	0.65	1.25	1.25	1.8	1.8
Stator Weight	kg/m	2.8	2.8	2.8	2.8	2.8
Electromagnetic Cycle	mm	25	25	25	25	25

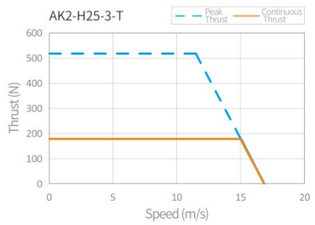
Torque diagram











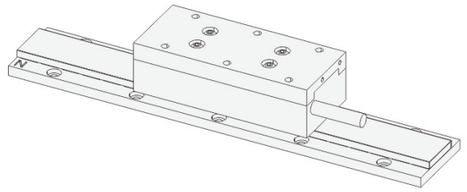
AKD®

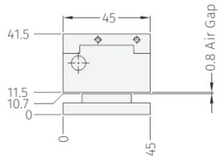
AK2-H25 Iron-core Linear Motor

KDH14 Series Module

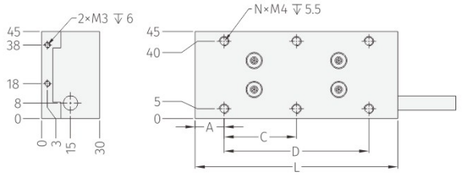
Dimension

Dimensions



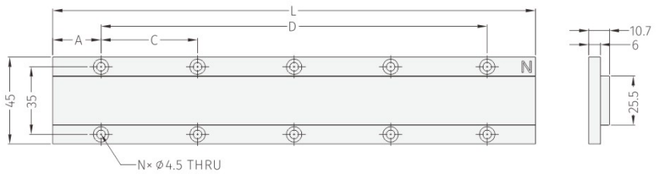


Coil Dimensions



Dimensions	AK2-H25-1	AK2-H25-2	AK2-H25-3
A	15	16.5	20
C	37.5	40	40
D	75	160	240
L	105	193	280
N	6	10	14

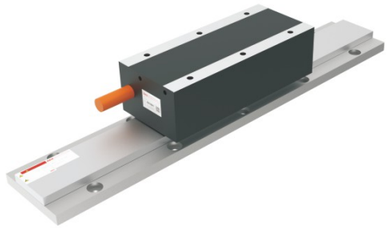
Magnetic Rail Dimensions



Dimensions	AK2-H25-150MNS	AK2-H25-200MNS	AK2-H25-250MNS
A	25	25	25
C	50	50	50
D	100	150	200
L	150	200	250
N	6	8	10

AK2-H55 Iron-core Linear Motor

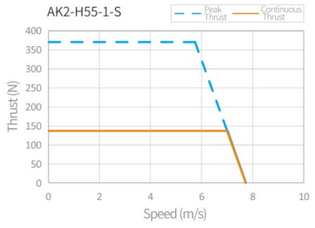
KDH17 Series Module

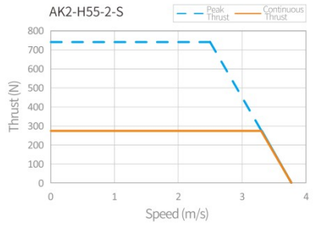


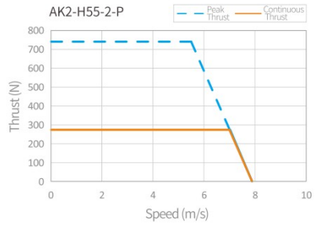
Parameter Table

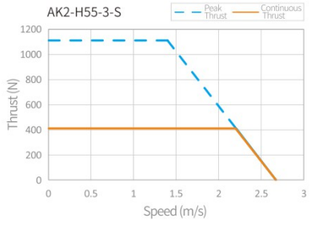
Motor Type	Unit	AK2-H55-1	AK2-H55-2		AK2-H55-3	
Winding code		S	S	P	S	T
Performance Parameters						
Peak Thrust	N	501	1002	1002	1503	1503
Continuous Thrust	N	186	372	372	558	558
Maximum Power	W	2133	1855	4081	1558	5843
Continuous Power	W	966	911	1932	911	2898
Forward Attraction Force	N	640	1280	1280	1920	1920
Electrical Characteristics						
Peak Current	Arms	10.40	10.40	22.80	10.40	30.00
Continuous Current	Arms	3.40	3.40	6.40	3.40	10.00
Back EMF Constant	Vpeak/(M/S)	51.23	92.88	51.23	147.51	51.23
Single-Phase Resistance	Ω	5.20	7.20	1.80	13.13	1.31
Single-Phase Inductance	Mh	30.02	59.67	11.93	88.72	5.30
Motor Constant	N/Arms	54.04	108.42	54.04	162.12	54.04
Time Constant	ms	5.77	8.29	6.62	5.19	5.19
Maximum Coil Temperature	°C	130	130	130	130	130
Maximum Allowable Voltage	VDC	310	310	310	310	310
Mechanical Characteristics						
Mover Length	mm	105	193	193	280	280
Armature Weight	Kg	1.2	2.2	2.2	3.3	3.3
Stator Weight	kg/m	5.1	5.1	5.1	5.1	5.1
Electromagnetic Cycle	mm	25	25	25	25	25

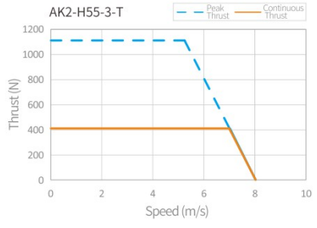
Torque diagram











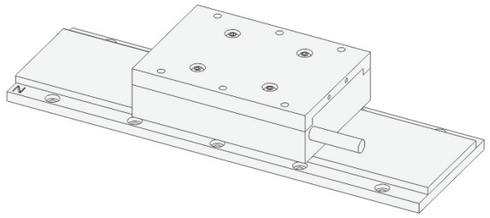
AKD®

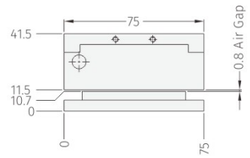
AK2-H55 Iron-core Linear Motor

KDH17 Series Module

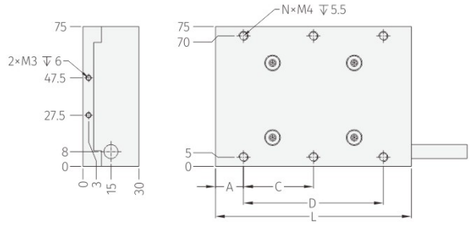
Dimension

Dimensions



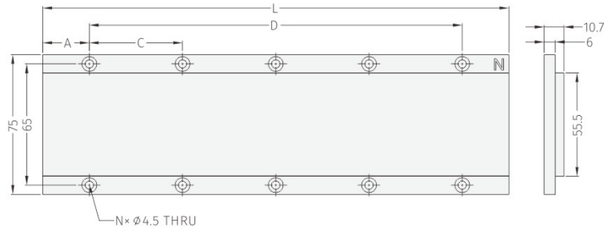


Coil Dimensions

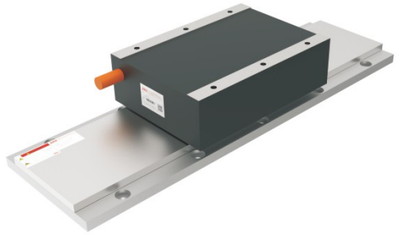


Dimensions	AK2-H55-1	AK2-H55-2	AK2-H55-3
A	15	16.5	20
C	37.5	40	40
D	75	160	240
L	105	193	280
N	6	10	14

Magnetic Rail Dimensions



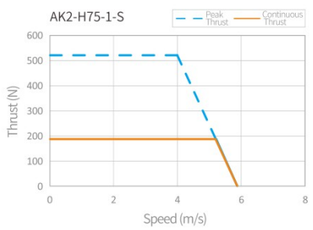
Dimensions	AK2-H55-150MNS	AK2-H55-200MNS	AK2-H55-250MNS
A	25	25	25
C	50	50	50
D	100	150	200
L	150	200	250
N	6	8	10

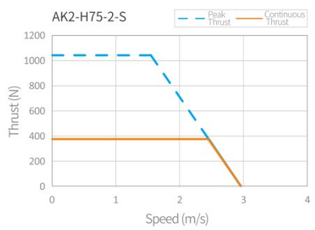


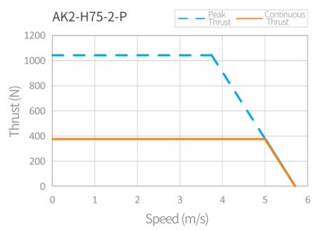
Parameter Table

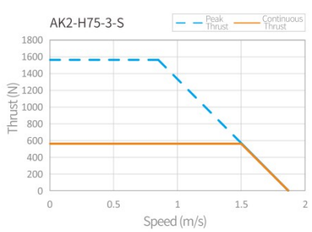
Motor Type	Unit	AK2-H75-1	AK2-H75-2		AK2-H75-3	
Winding code		S	S	P	S	T
Performance Parameters						
Peak Thrust	N	704	1408	1408	2112	2112
Continuous Thrust	N	255	510	510	765	765
Maximum Power	W	2088	1618	3915	1331	5951
Continuous Power	W	983	926	1890	851	2835
Forward Attraction Force	N	873	1746	1746	2619	2619
Electrical Characteristics						
Peak Current	Arms	10.40	10.40	20.80	10.40	30.00
Continuous Current	Arms	3.40	3.40	6.40	3.40	10.00
Back EMF Constant	Vpeak/(M/S)	67.18	134.56	67.18	201.69	67.18
Single-Phase Resistance	Ω	73.89	147.78	73.89	221.67	73.89
Single-Phase Inductance	Mh	5.60	10.90	2.50	16.17	2.10
Motor Constant	N/Arms	38.94	77.94	11.62	115.62	12.90
Time Constant	ms	6.95	7.15	5.40	5.11	5.11
Maximum Coil Temperature	°C	130	130	130	130	130
Maximum Allowable Voltage	VDC	310	310	310	310	310
Mechanical Characteristics						
Mover Length	mm	105	193	193	280	280
Armature Weight	Kg	1.58	2.92	2.92	4.25	4.25
Stator Weight	kg/m	6.6	6.6	6.6	6.6	6.6
Electromagnetic Cycle	mm	25	25	25	25	25

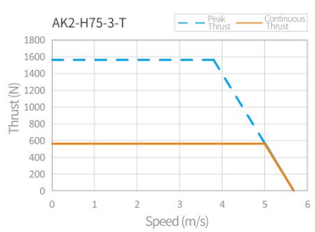
Torque diagram





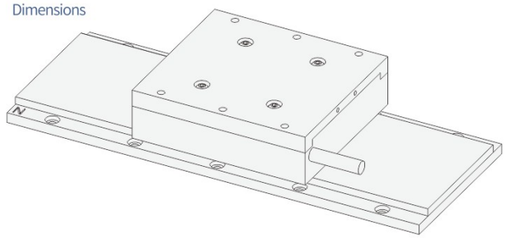


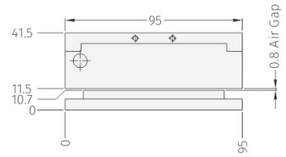




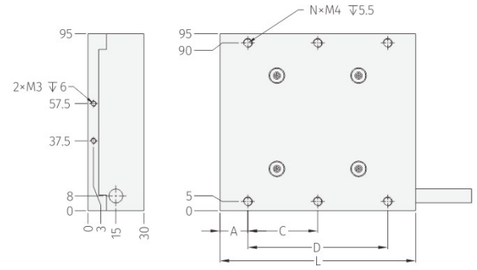
Dimension

Dimensions



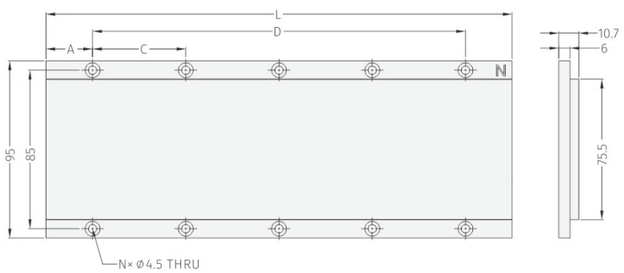


Coil Dimensions



Dimensions	AK2-H75-1	AK2-H75-2	AK2-H75-3
A	15	16.5	20
C	37.5	40	40
D	75	160	240
L	105	193	280
N	6	10	14

Magnetic Rail Dimensions



Dimensions	AK2-H75-150MNS	AK2-H75-200MNS	AK2-H75-250MNS
A	25	25	25
C	50	50	50
D	100	150	200
L	150	200	250
N	6	8	10

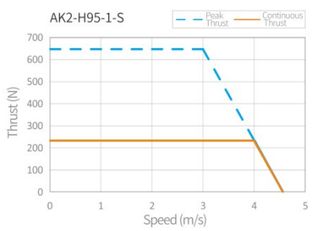
AK2-H95 Iron-core Linear Motor

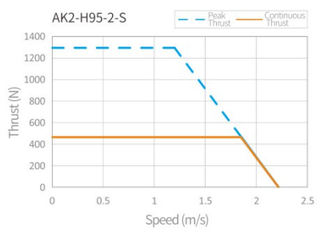
KDH27/30 Series Module

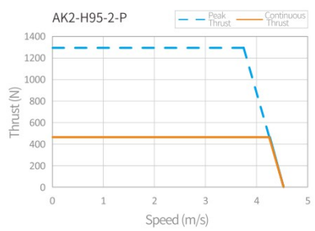
Parameter Table

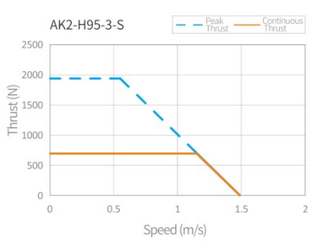
Motor Type	Unit	AK2-H95-1	AK2-H95-2		AK2-H95-3	
Winding code		S	S	P	S	T
Performance Parameters						
Peak Thrust	N	648	1296	1296	1944	1944
Continuous Thrust	N	234	468	468	702	702
Maximum Power	W	1944	1555	4860	1069	5832
Continuous Power	W	936	866	1989	807	2808
Forward Attraction Force	N	1105	2210	2210	3315	3315
Electrical Characteristics						
Peak Current	Arms	10.3	10.3	10.3	10.3	30.87
Continuous Current	Arms	3.22	3.22	3.22	3.2	9.66
Back EMF Constant	N/Arms	72.02	144.04	72.02	216.06	72.02
Back EMF Constant	Vpeak/ (m/s)	63.56	127.12	63.56	190.68	63.56
Single-Phase Resistance	Ohms	5.2	10.2	2.1	15.5	1.4
Single-Phase Inductance	mH	27.61	56.64	13.9	85.55	9.27
Time Constant	ms	5.36	5.57	6.62	5.51	6.62
Motor Constant	N/Sqrt (W)	28.95	40.95	40.95	50.15	50.15
Maximum Coil Temperature	°C	130	130	130	130	130
Maximum Allowable Voltage	VDC	310	310	310	310	310
Mechanical Characteristics						
Mover Length		105	193	193	280	280
Armature Weight		1.8	3.4	3.4	4.8	4.6
Stator Weight		8.2	8.2	8.2	8.2	8.2
Electromagnetic Cycle		25	25	25	25	25

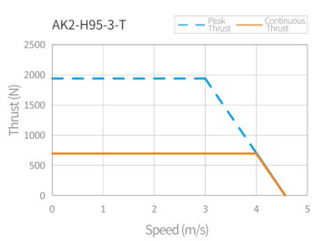
Torque diagram









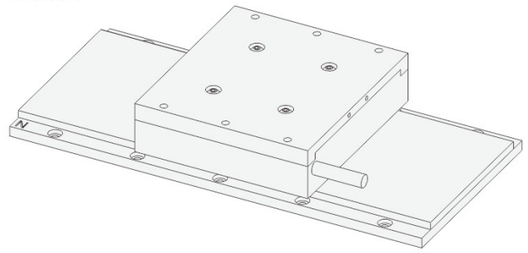


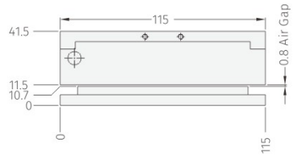
AK2-H95 Iron-core Linear Motor

KDH27/30 Series Module

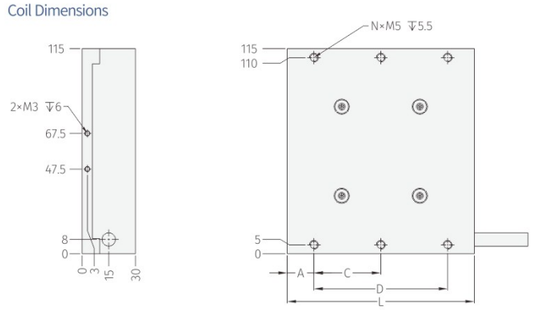
Dimension

Dimensions



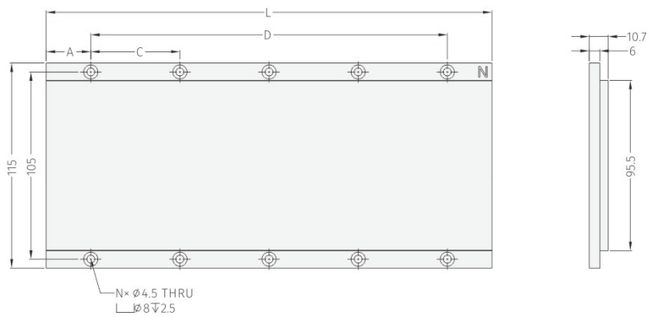


Coil Dimensions



Dimensions	AK2-H95-1	AK2-H95-2	AK2-H95-3
A	15	16.5	20
C	37.5	40	40
D	75	160	240
L	105	193	280
N	6	10	14

Magnetic Rail Dimensions

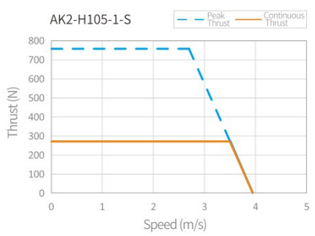


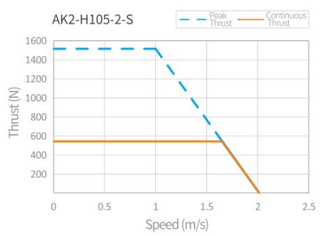
Dimensions	AK2-H95-150MNS	AK2-H95-200MNS	AK2-H95-250MNS
A	25	25	25
C	50	50	50
D	100	150	200
L	150	200	250
N	6	8	10

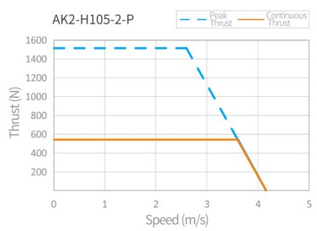
Parameter Table

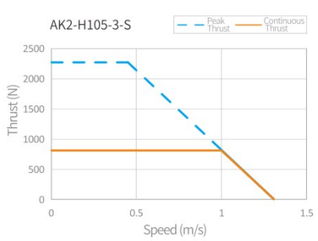
Motor Type	Unit	AK2-H105-1	AK2-H105-2		AK2-H105-3	
Winding code		S	S	P	S	T
Performance Parameters						
Peak Thrust	N	759	1518	1518	2277	2277
Continuous Thrust	N	273	546	546	819	819
Maximum Power	W	2049	1518	3947	1025	6034
Continuous Power	W	956	901	1966	819	2867
Forward Attraction Force	N	1221	2442	2442	3663	3663
Electrical Characteristics						
Peak Current	Arms	10.28	10.28	20.56	10.28	30.84
Continuous Current	Arms	3.38	3.38	6.76	3.38	10.14
Back EMF Constant	N/Arms	79.59	159.18	79.59	238.77	79.59
Back EMF Constant	Vpeak/ (m/s)	70.25	140.50	70.25	210.75	70.25
Single-Phase Resistance	Ohms	5.8	11.4	2.9	16.9	1.9
Single-Phase Inductance	mH	31.46	63.14	15.73	93.55	10.38
Time Constant	ms	5.47	5.52	5.46	5.53	5.55
Motor Constant	N/Sqrt (W)	27.50	33.89	33.89	47.64	47.64
Maximum Coil Temperature	°C	130	130	130	130	130
Maximum Allowable Voltage	VDC	310	310	310	310	310
Mechanical Characteristics						
Mover Length	mm	105	193	193	280	280
Armature Weight	Kg	2	4.3	4.3	5.9	5.9
Stator Weight	Kg/m	8.9	8.9	8.9	8.9	8.9
Electromagnetic Cycle	mm	25	25	25	25	25

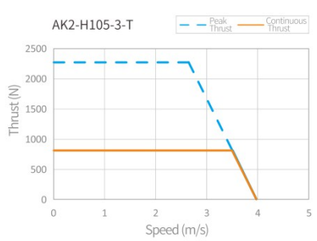
Torque diagram





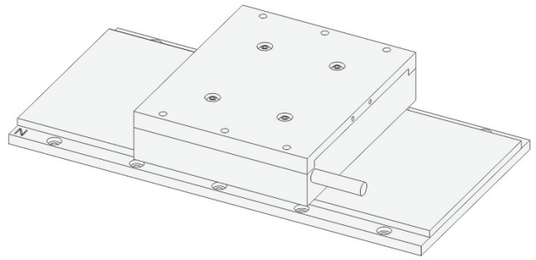


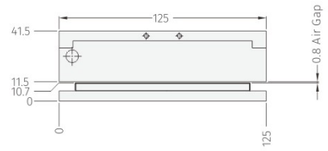




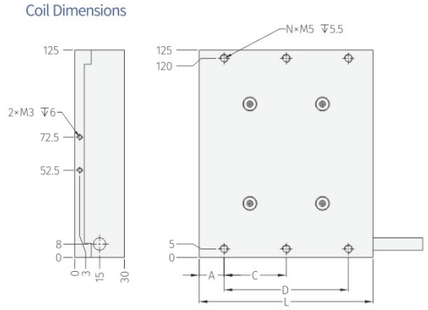
Dimension

Dimensions



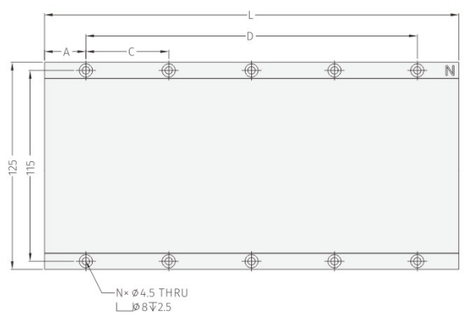


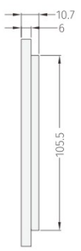
Coil Dimensions



Dimensions	AK2-H105-1	AK2-H105-2	AK2-H105-3
A	15	16.5	20
C	37.5	40	40
D	75	160	240
L	105	193	280
N	6	10	14

Magnetic Rail Dimensions





Dimensions	AK2-H105-150MNS	AK2-H105-200MNS	AK2-H105-250MNS
A	25	25	25
C	50	50	50
D	100	150	200
L	150	200	250
N	6	8	10

KFW2 Series

Iron-core Linear Motor

With iron-core technology, Ultra-low cogging force, High acceleration, High speed

CONTENTS

- Iron-core technology
- Ultra-low cogging
- High acceleration
- High speed

Linear motion | Horizontal plane 2 | Angle | Rotation | Up/down and rotation

Rules of coil order number

KFW2 - 30 A 120 A

Linear motor

Coil width

Symbol	Specification
30	30mm
45	45mm
90	90mm
1D	135mm

Supply voltage

Symbol	Specification
A	AC200V

Mover Length

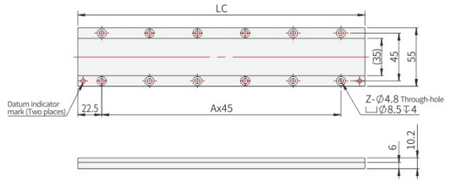
Symbol	Specification
120	125mm
230	230mm

Winding code

Standard winding "No mark"
A、B、C

Note:
*The default outgoing wire length is 0.5 meters. The model for the power cable extension is AL-DFN***.
*For details about water-cooled models, please consult AKD.

Stator dimensions



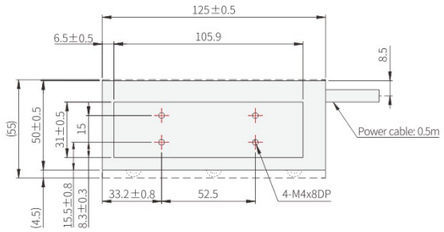
Stator name：KFW030-L80、KFW030-L270

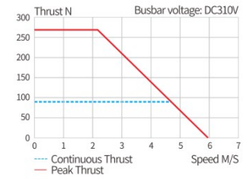
Stator model	LC	A	Magnetic pitch	Mass
Unit	mm	pcs	mm	kg/m
KFW030-L180	180	3	30	3.4
KFW030-L270	270	5	30	3.4

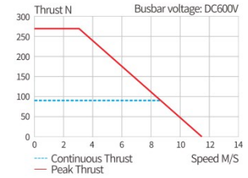
*Please consult our business personnel when special length is required.

• KFW2-30A120 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN16-L*-T01

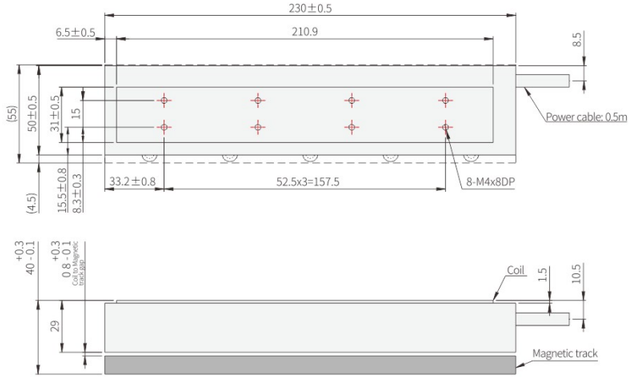


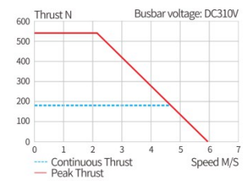


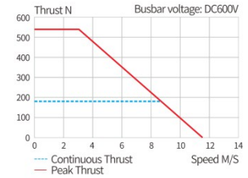


• KFW2-30A230 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN16-L*-T01







Performance Parameters	Continuous thrust	Peak thrust	Continuous current	Peak current	Thrust constant ±10%	Constant of reverse electromotive force ±10%	Motor constant ±10%	Resistance ±10%	Inductance ±30%	Electrical time constant	Rated power	Max. allowable voltage	Heat dissipation constant	Magnetic attraction	Coil weight	Max. temperature
Unit	N	N	A	A	N/A	V/m/s	N/√W	Ohm	mH	ms	W	Vdc	W/°C	KN	Kg	°C
KFW2-30A120	90	270	1.5	5.2	64.5	52	17	10.3	61.3	6	35	600	0.5	0.7	0.9	100
KFW2-30A230	180	540	2.9	10.4	64.5	52	24	5.2	32.6	6.3	65	600	0.9	1.3	1.7	100

*1.Measurement room temperature is 25°C, depending on the cooling environment.
*2.DC current is used for resistance measurement, including 0.5m standard cable.
*3.Inductance measurement frequency 1kHz.
*4.Relevant parameter specifications are subject to changes with out a prior notice.

- Iron-core technology
- Ultra-low cogging
- High acceleration
- High speed

Linear motion | Horizontal plane Z | Angle | Rotation | Up/down and rotation

Rules of coil order number

KFW2 - 45 A 200 A

Linear motor

Coil width

Symbol	Specification
30	30mm
45	45mm
90	90mm
1D	135mm

Supply voltage

Symbol	Specification
A	AC200V

Mover Length

Symbol	Specification
200	205mm
560	563mm

Winding code

Standard winding "No mark"

A、B、C

Note:
*The default outgoing wire length is 0.5 meters. The model for the power cable extension is AL-DFN***.
*For details about water-cooled models, please consult AKD.

Stator dimensions

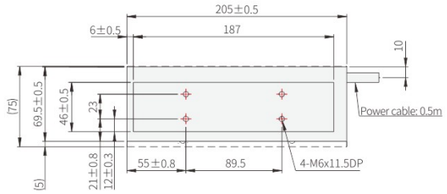
*Please consult our business personnel when special length is required.

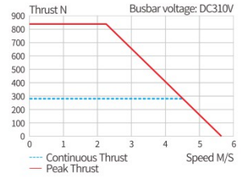
Stator name：KFW045-L204、KFW045-L306

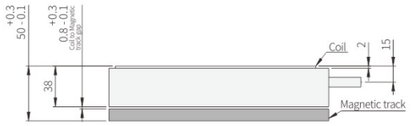
Stator model	LC	A	Magnetic pitch	Mass
Unit	mm	pcs	mm	kg/m
KFW045-L204	204	1	51	4.9
KFW045-L306	306	2	51	4.9

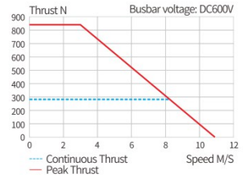
• KFW2-45A200 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN20-L*-T01



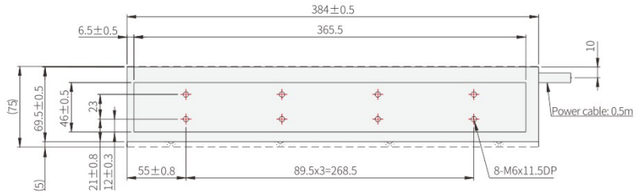


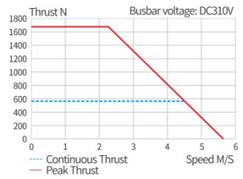


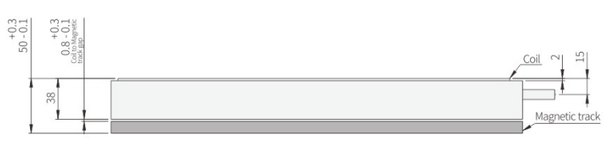


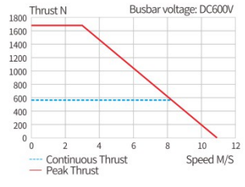
• KFW2-45A380 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN20-L*-T01









Performance Parameters	Continuous thrust	Peak thrust	Continuous current	Peak current	Thrust constant ±10%	Constant of reverse electromotive force ±10%	Motor constant ±10%	Resistance ±10%	Inductance ±30%	Electrical time constant	Rated power	Max. allowable voltage	Heat dissipation constant	Magnetic attraction	Coil weight	Max. temperature
Unit	N	N	A	A	N/A	V/m/s	N/√W	Ohm	mH	ms	W	Vdc	W/°C	KN	Kg	°C
KFW2-45A200	280	840	4.4	16.4	67.5	55	37	2.9	36.2	12.5	84	600	1.1	2.1	2.9	100
KFW2-45A380	560	1680	8.8	32.8	67.5	55	52	1.5	17.1	11.8	168	600	2.2	4.3	5.6	100

*1.Measurement room temperature is 25°C, depending on the cooling environment.
*2.DC current is used for resistance measurement, including 0.5m standard cable.
*3.Inductance measurement frequency 1kHz.
*4.Relevant parameter specifications are subject to changes with out a prior notice.

- Iron-core technology
- Ultra-low cogging
- High acceleration
- High speed

Linear motion | Horizontal plane 2 | Angle | Rotation | Up/down and rotation

Rules of coil order number

KFW2 - 90 A 200 A

Linear motor

Coil width

Symbol	Specification
30	30mm
45	45mm
90	90mm
1D	135mm

Supply voltage

Symbol	Specification
A	AC200V

Mover Length

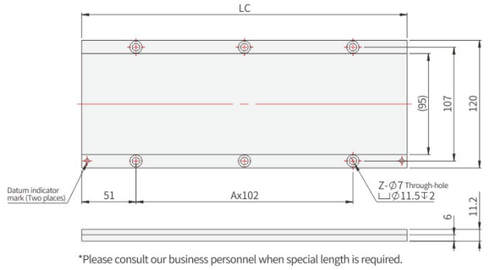
Symbol	Specification
200	205mm
380	384mm
560	563mm

Winding code

Standard winding "No mark"
A、B、C

Note:
*The default outgoing wire length is 0.5 meters. The model for the power cable extension is AL-DFN***.
*For details about water-cooled models, please consult AKD.

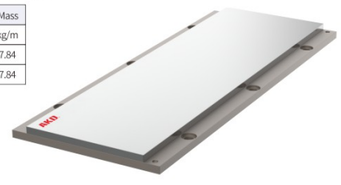
Stator dimensions



*Please consult our business personnel when special length is required.

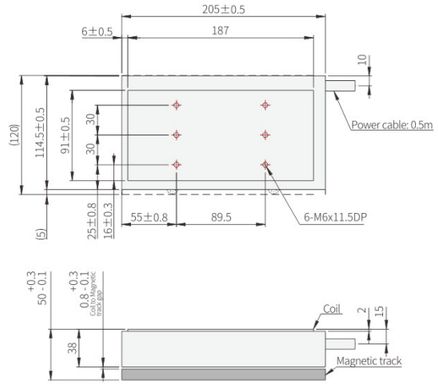
Stator name：KFW090-L204、KFW090-L306

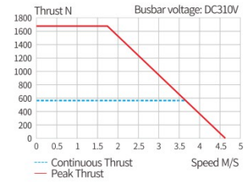
Stator model	LC	A	Magnetic pitch	Mass
Unit	mm	pcs	mm	kg/m
KFW090-L204	204	1	51	7.84
KFW090-L306	306	2	51	7.84

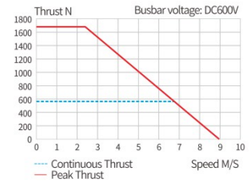


• KFW2-90A200 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN20-L*-T01

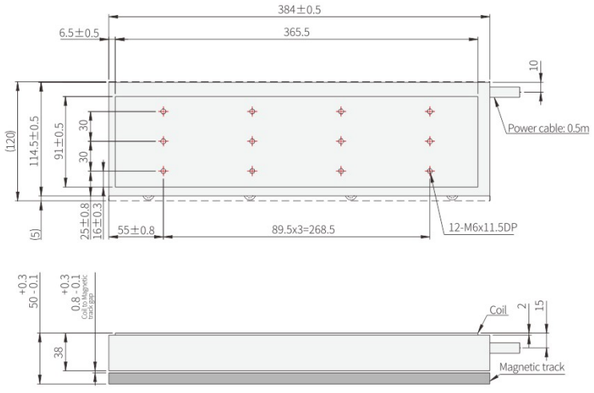


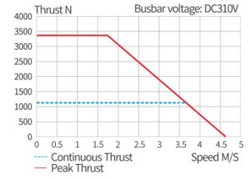


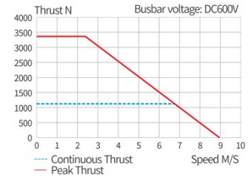


• KFW2-90A380 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN20-L*-T02



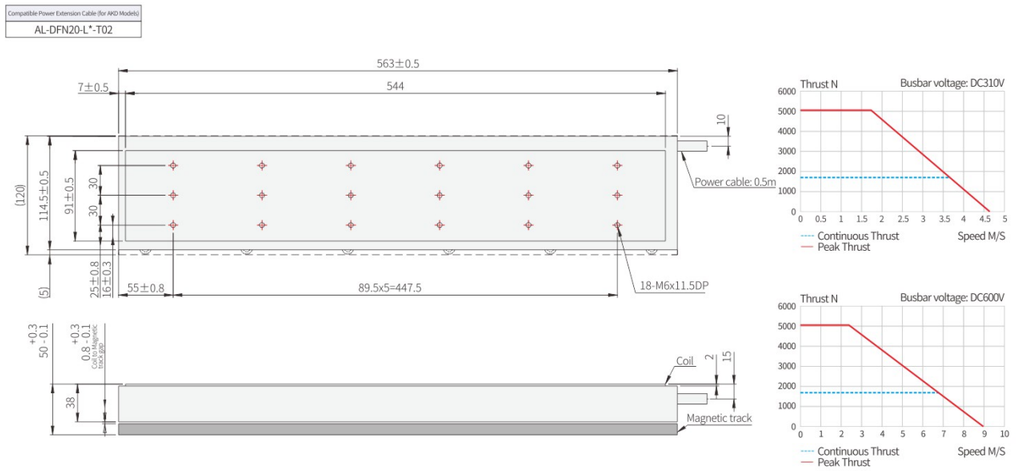




Performance Parameters	Continuous thrust	Peak thrust	Continuous current	Peak current	Thrust constant ±10%	Constant of reverse electromotive force ±10%	Motor constant ±10%	Resistance ±10%	Inductance ±30%	Electrical time constant	Rated power	Max. allowable voltage	Heat dissipation constant	Magnetic attraction	Coil weight	Max. temperature
Unit	N	N	A	A	N/A	V/m/s	N/√W	Ohm	mH	ms	W	Vdc	W/°C	KN	Kg	°C
KFW2-90A200	560	1680	7.2	27.0	82	67	58	1.9	24.3	12.8	148	600	2.0	4.3	5.4	100
KFW2-90A380	1120	3360	14.4	54.0	82	67	82	1.0	12.2	12.8	296	600	3.9	8.5	10.1	100

*1.Measurement room temperature is 25°C, depending on the cooling environment.
*2.DC current is used for resistance measurement, including 0.5m standard cable.
*3.Inductance measurement frequency 1kHz.
*4.Relevant parameter specifications are subject to changes with out a prior notice.

• KFW2-90A560 Dimensional parameters



Performance Parameters	Continuous thrust	Peak thrust	Continuous current	Peak current	Thrust constant ±10%	Constant of reverse electromotive force ±10%	Motor constant ±10%	Resistance ±10%	Inductance ±30%	Electrical time constant	Rated power	Max. allowable voltage	Heat dissipation constant	Magnetic attraction	Coil weight	Max. temperature
Unit	N	N	A	A	N/A	V/m/s	N/√W	Ohm	mH	ms	W	Vdc	W/°C	KN	Kg	°C
KFW2-90A560	1680	5040	21.6	81.0	82	67	101	0.6	8.1	12.8	443	600	5.9	12.7	14.9	100

*1.Measurement room temperature is 25°C, depending on the cooling environment.
*2.DC current is used for resistance measurement, including 0.5m standard cable.
*3.Inductance measurement frequency 1kHz.
*4.Relevant parameter specifications are subject to changes with out a prior notice.

MEMO

- Iron-core technology
- Ultra-low cogging
- High acceleration
- High speed

Linear motion | Horizontal plane Z | Angle | Rotation | Up/down and rotation

Rules of coil order number

KFW2 - 1D A 380 A

Linear motor

Coil width

Symbol	Specification
30	30mm
45	45mm
90	90mm
1D	135mm

Supply voltage

Symbol	Specification
A	AC200V

Mover Length

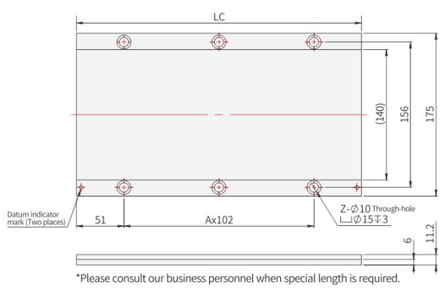
Symbol	Specification
380	384mm
560	563mm

Winding code

Standard winding "No mark"
A、B、C

Note:
*The default outgoing wire length is 0.5 meters. The model for the power cable extension is AL-DFN***.
*For details about water-cooled models, please consult AKD.

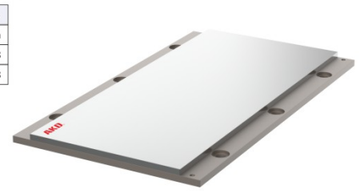
Stator dimensions



*Please consult our business personnel when special length is required.

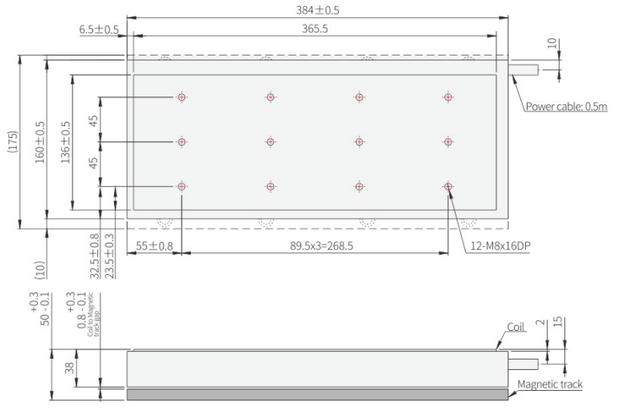
Stator name：KFW1D-L204、KFW1D-L306

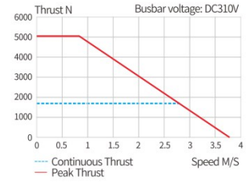
Stator model	LC	A	Magnetic pitch	Mass
Unit	mm	pcs	mm	kg/m
KFW1D-L204	204	1	51	11.43
KFW1D-L306	306	2	51	11.43

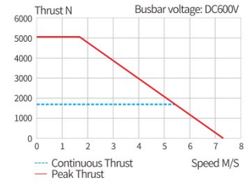


• KFW2-1DA380 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN20-L*-T02

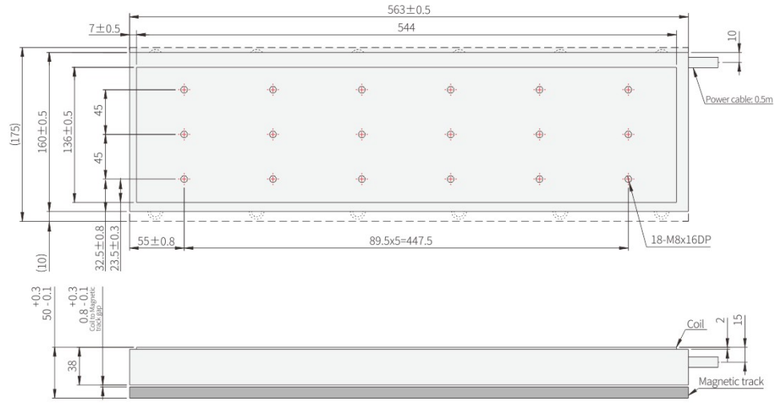


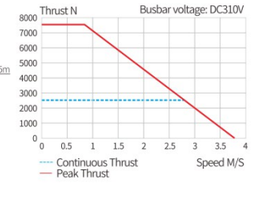


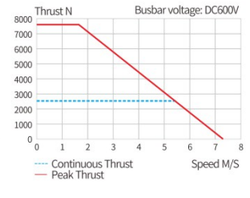


• KFW2-1DA560 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN20-L*-T02







Performance Parameters	Continuous thrust	Peak thrust	Continuous current	Peak current	Thrust constant ±10%	Constant of reverse electromotive force ±10%	Motor constant ±10%	Resistance ±10%	Inductance ±30%	Electrical time constant	Rated power	Max. allowable voltage	Heat dissipation constant	Magnetic attraction	Coil weight	Max. temperature
Unit	N	N	A	A	N/A	V/m/s	N/√W	Ohm	mH	ms	W	Vdc	W/°C	KN	Kg	°C
KFW2-1DA380	1680	5040	14.4	54.0	123	82	105	1.4	17.3	12.4	436	600	5.8	12.7	14.6	100
KFW2-1DA560	2520	7560	21.6	81.0	123	82	129	0.9	11.5	12.4	653	600	8.7	19	21.6	100

*1.Measurement room temperature is 25°C, depending on the cooling environment.
*2.DC current is used for resistance measurement, including 0.5m standard cable.
*3.Inductance measurement frequency 1kHz.
*4.Relevant parameter specifications are subject to changes with out a prior notice.

KJM Series

Iron-core Linear Motor

With iron-core technology, Low cogging force, High acceleration, Compact size

CONTENTS

- Iron-core technology
- Ultra-low cogging
- High acceleration
- High speed

Linear motion | Horizontal plane Z | Angle | Rotation | Up/down and rotation

Rules of coil order number

KJM30 - B2 - 0.5

Motor model

Coil Length

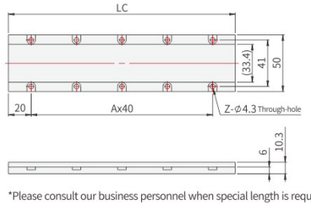
B1
B2
B4

Cable Length(m)

0.5 “Default”
3.0

Note:
*The default outgoing wire length is 0.5 meters. The model for the power cable extension is AL-DFN***.
*Motor Connector (Male)： 16M-4K

Stator dimensions



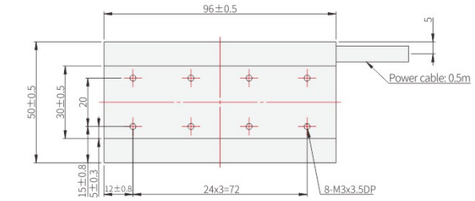
*Please consult our business personnel when special length is required.

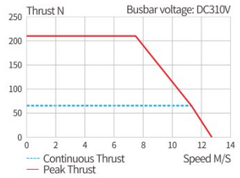
Stator name：KJM030-L80、KJM030-L200

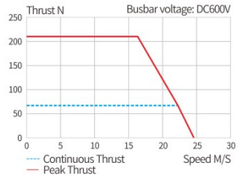
Stator model	LC	A	Magnetic pitch	Mass
Unit	mm	pcs	mm	kg/m
KJM030-L80	80	1	20	3.25
KJM030-L200	200	4	20	3.25

• KJM30-B2 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN16-L*-T01

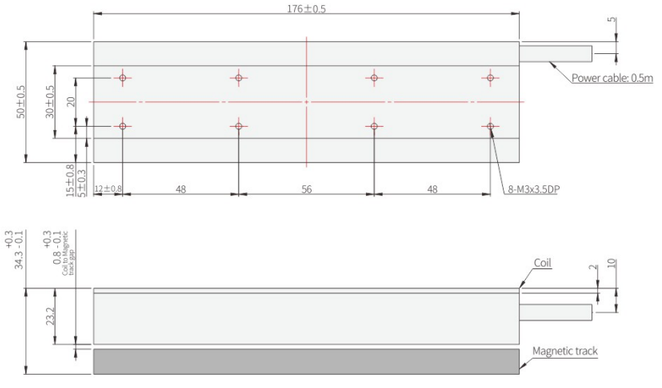


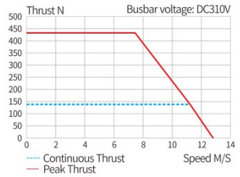


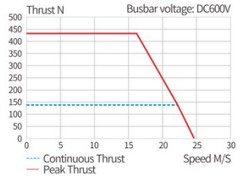


• KJM30-B4 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN16-L*-T01







Performance Parameters	Continuous thrust	Peak thrust	Continuous current	Peak current	Thrust constant ±10%	Constant of reverse electromotive force ±10%	Motor constant ±10%	Resistance ±10%	Inductance ±30%	Electrical time constant	Rated power	Max. allowable voltage	Heat dissipation constant	Magnetic attraction	Coil weight	Max. temperature
Unit	N	N	A	A	N/A	V/m/s	N/√W	Ohm	mH	ms	W	Vdc	W/°C	KN	Kg	°C
KJM30-B2	68.1	215	2.3	9	29.6	24.2	12.2	3.9	16.5	4.2	30.9	600	0.4	0.4	0.7	100
KJM30-B4	136.2	430	4.6	18	29.6	24.2	17.1	2	8.2	4.2	63.5	600	0.8	0.8	1.3	100

*1.Measurement room temperature is 25°C, depending on the cooling environment.
*2.DC current is used for resistance measurement, including 0.5m standard cable.
*3.Inductance measurement frequency 1kHz.
*4.Relevant parameter specifications are subject to changes with out a prior notice.

- Iron-core technology
- Ultra-low cogging
- High acceleration
- High speed

Linear motion | Horizontal plane Z | Angle | Rotation | Up/down and rotation

Rules of coil order number

KJM50 - B2 - 0.5

Motor model

Coil Length

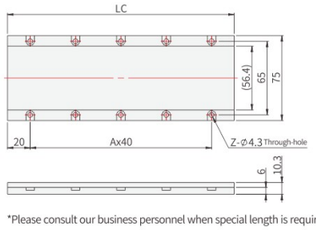
B1
B2
B4

Cable Length(m)

0.5 “Default”
3.0

Note:
*The default outgoing wire length is 0.5 meters. The model for the power cable extension is AL-DFN***.
*Motor Connector (Male)： 16M-4K

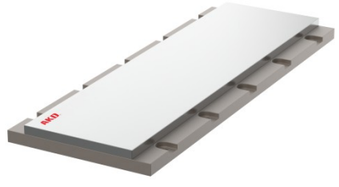
Stator dimensions



*Please consult our business personnel when special length is required.

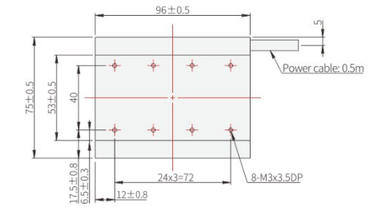
Stator name：KJM050-L80、KJM050-L200

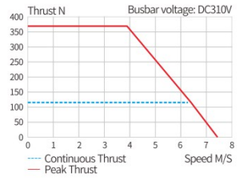
Stator model	LC	A	Magnetic pitch	Mass
Unit	mm	pcs	mm	kg/m
KJM050-L80	80	1	20	4.88
KJM050-L200	200	4	20	4.88

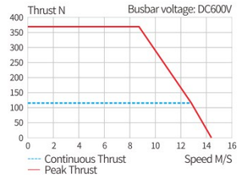


• KJM50-B2 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN16-L*-T01

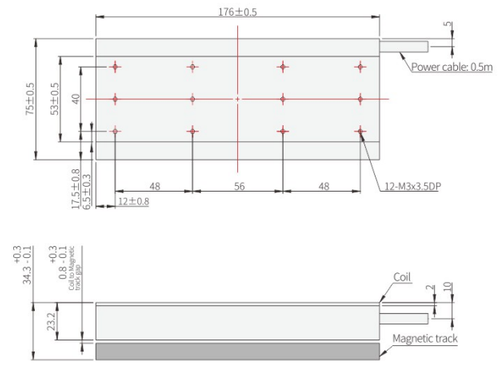


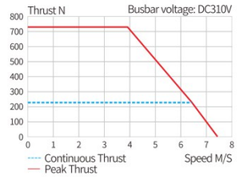


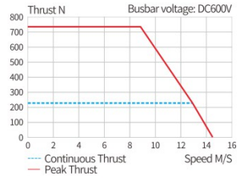


• KJM50-B4 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN16-L*-T01







Performance Parameters	Continuous thrust	Peak thrust	Continuous current	Peak current	Thrust constant ±10%	Constant of reverse electromotive force ±10%	Motor constant ±10%	Resistance ±10%	Inductance ±30%	Electrical time constant	Rated power	Max. allowable voltage	Heat dissipation constant	Magnetic attraction	Coil weight	Max. temperature
Unit	N	N	A	A	N/A	V/m/s	N/√W	Ohm	mH	ms	W	Vdc	W/°C	KN	Kg	°C
KJM50-B2	117.1	370	2.3	9	50.9	41.5	17.0	6	25.9	4.3	47.6	600	0.6	0.7	1.2	100
KJM50-B4	234.1	740	4.6	18	50.9	41.5	23.6	3.1	13	4.3	98.4	600	1.3	1.3	2.4	100

*1.Measurement room temperature is 25°C, depending on the cooling environment.
*2.DC current is used for resistance measurement, including 0.5m standard cable.
*3.Inductance measurement frequency 1kHz.
*4.Relevant parameter specifications are subject to changes with out a prior notice.

- Iron-core technology
- Ultra-low cogging
- High acceleration
- High speed

Linear motion | Horizontal plane 2 | Angle | Rotation | Up/down and rotation

Rules of coil order number

KJM80 - B2 - 0.5

Motor model

Coil Length

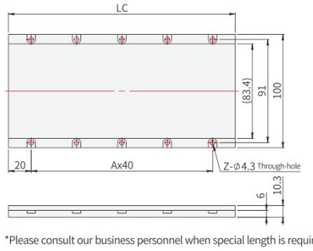
B1
B2
B4

Cable Length(m)

0.5 “Default”
3.0

Note:
*The default outgoing wire length is 0.5 meters. The model for the power cable extension is AL-DFN***.
*Motor Connector (Male)： 16M-4K

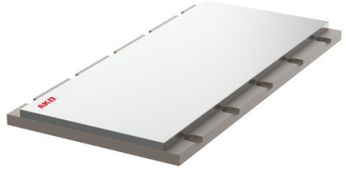
Stator dimensions



*Please consult our business personnel when special length is required.

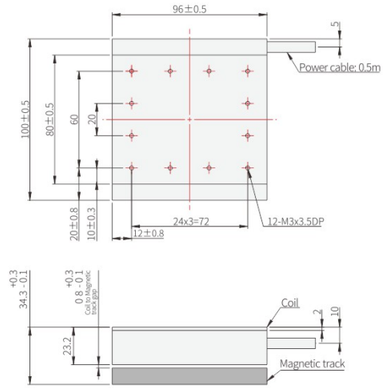
Stator name：KJM080-L80、KJM080-L200

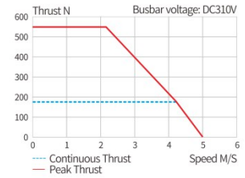
Stator model	LC	A	Magnetic pitch	Mass
Unit	mm	pcs	mm	kg/m
KJM080-L80	80	1	20	6.5
KJM080-L200	200	4	20	6.5

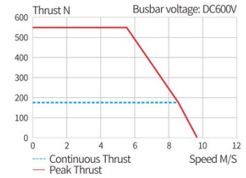


• KJM80-B2 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN16-L*-T01

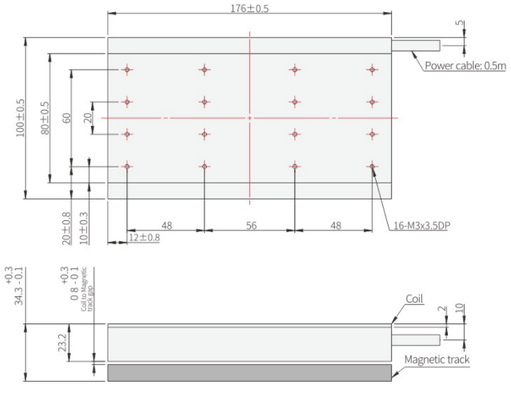


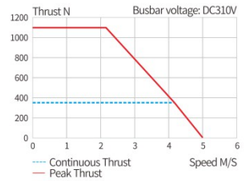


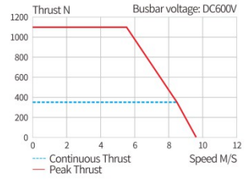


• KJM80-B4 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN16-L*-T01



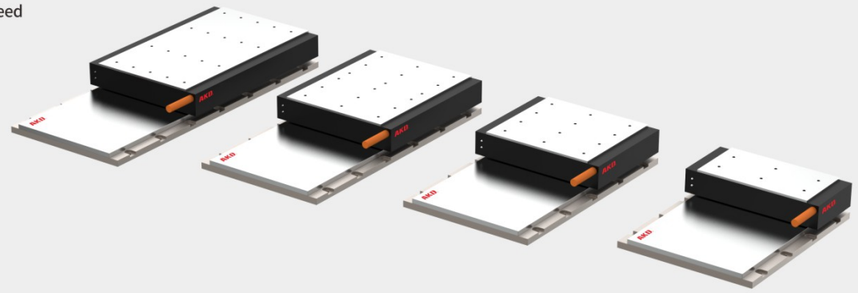




Performance Parameters	Continuous thrust	Peak thrust	Continuous current	Peak current	Thrust constant ±10%	Constant of reverse electromotive force ±10%	Motor constant ±10%	Resistance ±10%	Inductance ±30%	Electrical time constant	Rated power	Max. allowable voltage	Heat dissipation constant	Magnetic attraction	Coil weight	Max. temperature
Unit	N	N	A	A	N/A	V/m/s	N/√W	Ohm	mH	ms	W	Vdc	W/°C	KN	Kg	°C
KJM80-B2	174.6	550	2.3	9	75.9	61.9	21.4	8.4	37.3	4.4	66.7	600	0.9	1.0	1.9	100
KJM80-B4	349.1	1100	4.6	18	75.9	61.9	30.2	4.2	18.6	4.4	133.3	600	1.8	1.9	3.8	100

*1.Measurement room temperature is 25°C, depending on the cooling environment.
*2.DC current is used for resistance measurement, including 0.5m standard cable.
*3.Inductance measurement frequency 1kHz.
*4.Relevant parameter specifications are subject to changes with out a prior notice.

- Iron-core technology
- Ultra-low cogging
- High acceleration
- High speed



Linear motion | Horizontal plane Z | Angle | Rotation | Up/down and rotation

Rules of coil order number

KJM100 - B2 - 0.5

Motor model

Coil Length

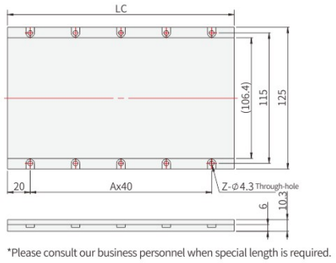
B1
B2
B4

Cable Length(m)

0.5 "Default"
3.0

Note:
*The default outgoing wire length is 0.5 meters. The model for the power cable extension is AL-DFN***.
*Motor Connector (Male): 16M-4K

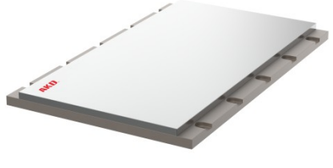
Stator dimensions



*Please consult our business personnel when special length is required.

Stator name: MJM100-L80、MJM100-L200

Stator model	LC	A	Magnetic pitch	Mass
Unit	mm	pcs	mm	kg/m
KJM100-L80	80	1	20	8.13
KJM100-L200	200	4	20	8.13

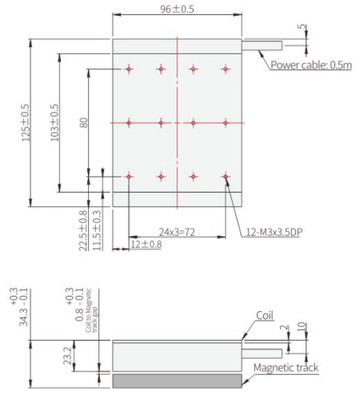


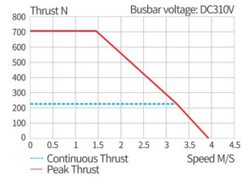
AKD

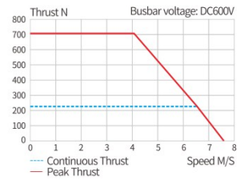
KJM100 Iron-core Linear Motor

• KJM100-B2 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN16-L*-T01

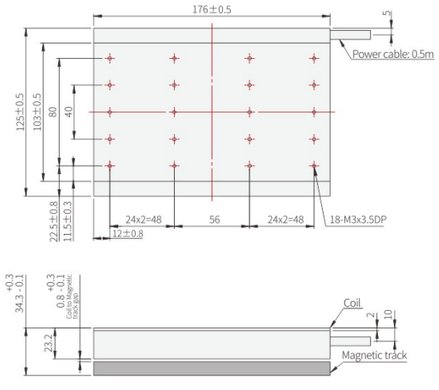


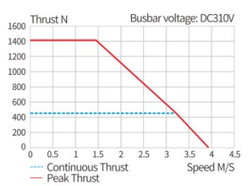


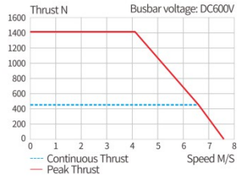


• KJM100-B4 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN16-L*-T01







Performance Parameters	Continuous thrust	Peak thrust	Continuous current	Peak current	Thrust constant ±10%	Constant of reverse electromotive force ±10%	Motor constant ±10%	Resistance ±10%	Inductance ±30%	Electrical time constant	Rated power	Max. allowable voltage	Heat dissipation constant	Magnetic attraction	Coil weight	Max. temperature
Unit	N	N	A	A	N/A	V/m/s	N/√W	Ohm	mH	ms	W	Vdc	W/°C	KN	Kg	°C
KJM100-B2	223.3	704	2.3	9	97.1	79.3	24.7	10.3	47.2	4.6	81.7	600	1.1	1.2	2.3	100
KJM100-B4	446.7	1410	4.6	18	97.1	79.3	34.8	5.2	23.6	4.6	165.0	600	2.2	2.5	4.7	100

*1.Measurement room temperature is 25°C, depending on the cooling environment.
*2.DC current is used for resistance measurement, including 0.5m standard cable.
*3.Inductance measurement frequency 1kHz.
*4.Relevant parameter specifications are subject to changes with out a prior notice.

KKM Series

Iron-core Linear Motor

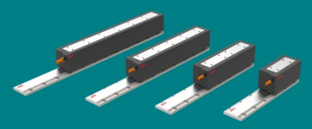
With iron-core technology, Ultra-low cogging force, High thrust, High rigidity

CONTENTS

KKM030 Continuous Thrust：105N~421N
Peak Thrust：238N~948N

Mover Width：030: 51mm / 050: 71mm / 100: 121mm / 150: 171mm / 200: 221mm
Mover Length：A: 112mm / B: 196mm / D: 364mm

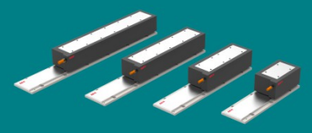
Width of stator：030: 50mm
Length of stator：L168: 168mm / L252: 252mm



KKM050 Continuous Thrust：176N~701N
Peak Thrust：396N~1581N

Mover Width：030: 51mm / 050: 71mm / 100: 121mm / 150: 171mm / 200: 221mm
Mover Length：A: 112mm / B: 196mm / D: 364mm

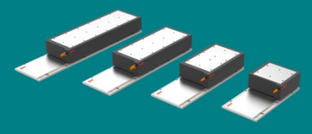
Width of stator：050: 75mm
Length of stator：L168: 168mm / L252: 252mm



KKM100 Continuous Thrust：354N~1416N
Peak Thrust：799N~3195N

Mover Width：030: 51mm / 050: 71mm / 100: 121mm / 150: 171mm / 200: 221mm
Mover Length：A: 112mm / B: 196mm / D: 364mm

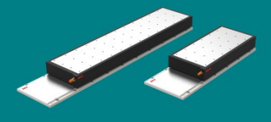
Width of stator：100: 125mm
Length of stator：L168: 168mm / L252: 252mm



KKM150 Continuous Thrust：2146N~4293N
Peak Thrust：4777N~9553N

Mover Width：030: 51mm / 050: 71mm / 100: 121mm / 150: 171mm / 200: 221mm
Mover Length：D: 364mm / H: 700mm

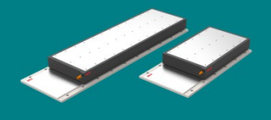
Width of stator：150: 180mm
Length of stator：L168: 168mm / L252: 252mm



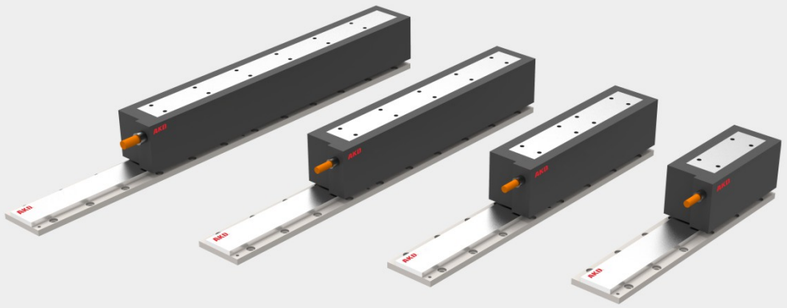
KKM200 Continuous Thrust：2862N~5722N
Peak Thrust：6368N~12736N

Mover Width：030: 51mm / 050: 71mm / 100: 121mm / 150: 171mm / 200: 221mm
Mover Length：D: 364mm / H: 700mm

Width of stator：200: 250mm
Length of stator：L168: 168mm / L252: 252mm



- Iron-core technology
- Ultra-low cogging
- High thrust
- High rigidity



Linear motion | Horizontal plane Z | Angle | Rotation | Up/down and rotation

Rules of coil order number

KKM30 - B2 - 0.5

Motor model

Coil Length

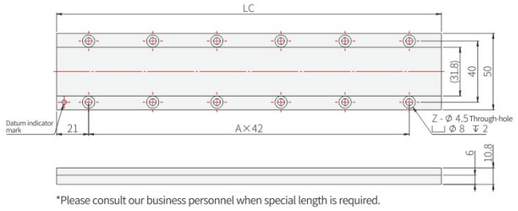
B1
B2
B4

Cable Length(m)

0.5 "Default"
3.0

Note:
*Compatible Power Extension Cable: D-FN16-Lxx-T01.
*Motor Connector (Male): 16M-4K

Stator dimensions



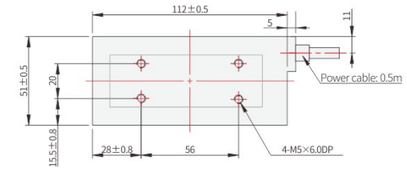
*Please consult our business personnel when special length is required.

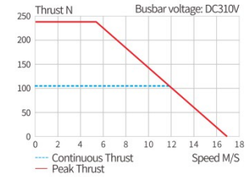
Stator name：KKM030-L168、KKM030-L252

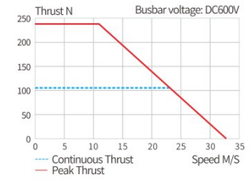
Stator model	LC	A	Magnetic pitch	Mass
Unit	mm	pcs	mm	kg/m
KKM030-L168	168	3	42	3.2
KKM030-L252	252	5	42	3.2

• KKM30-B1 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN20-L*-T01

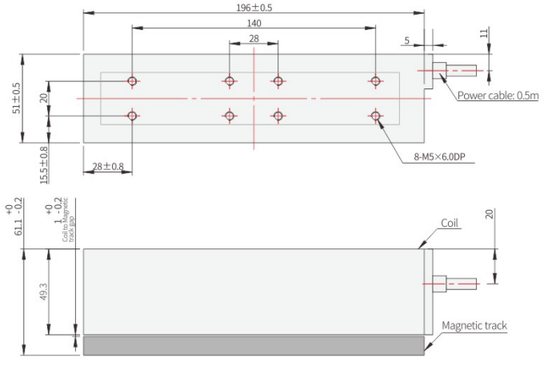


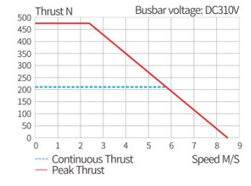


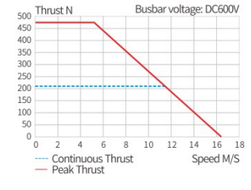


• KKM30-B2 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN20-L*-T01







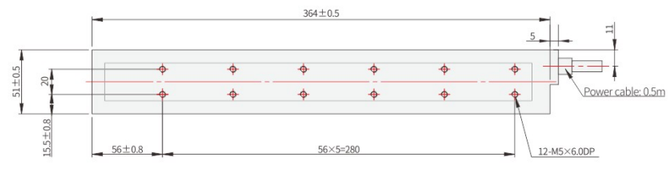
Performance Parameters	Continuous thrust	Peak thrust	Continuous current	Peak current	Thrust constant ±10%	Constant of reverse electromotive force ±10%	Motor constant ±10%	Resistance ±10%	Inductance ±30%	Electrical time constant	Rated power	Max. allowable voltage	Heat dissipation constant	Magnetic attraction	Coil weight	Max. temperature
Unit	N	N	A	A	N/A	V/m/s	N/√W	Ohm	mH	ms	W	Vdc	W/°C	KN	Kg	°C
KKM30-B1	105	238	4.8	14.4	22.3	18.3	17.9	1.1	21	18.8	38	600	0.5	0.4	1.6	100
KKM30-B2	210	474	4.8	14.4	44.5	36.5	25.3	2.2	42	18.8	76	600	1	0.8	2.8	100

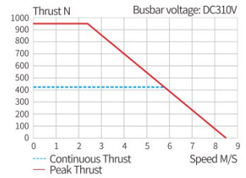
*1.Measurement room temperature is 25°C, depending on the cooling environment.
*2.DC current is used for resistance measurement, including 0.5m standard cable.
*3.Inductance measurement frequency 1kHz.
*4.Relevant parameter specifications are subject to changes with out a prior notice.

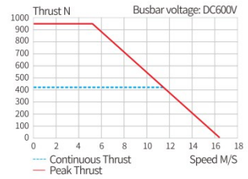
KKM030 Iron-core Linear Motor

• KKM30-B4 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN20-L*-T01







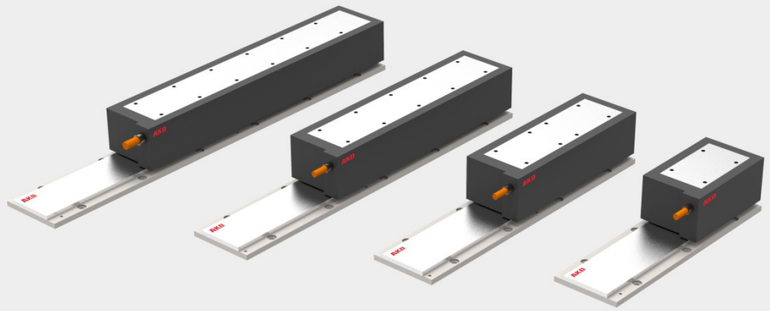
Performance Parameters	Continuous thrust	Peak thrust	Continuous current	Peak current	Thrust constant ±10%	Constant of reverse electromotive force ±10%	Motor constant ±10%	Resistance ±10%	Inductance ±30%	Electrical time constant	Rated power	Max. allowable voltage	Heat dissipation constant	Magnetic attraction	Coil weight	Max. temperature
Unit	N	N	A	A	N/A	V/m/s	N/√W	Ohm	mH	ms	W	Vdc	W/°C	KN	Kg	°C
KKM30-B4	421	948	9.6	28.8	44.5	36.5	35.7	1.1	21	18.8	152	600	2	1.6	5.4	100

*1.Measurement room temperature is 25°C, depending on the cooling environment.
*2.DC current is used for resistance measurement, including 0.5m standard cable.
*3.Inductance measurement frequency 1kHz.
*4.Relevant parameter specifications are subject to changes with out a prior notice.

AKD®

MEMO

- Iron-core technology
- Ultra-low cogging
- High thrust
- High rigidity



Linear motion | Horizontal plane Z | Angle | Rotation | Up/down and rotation

Rules of coil order number

KKM50 - B2 - 0.5

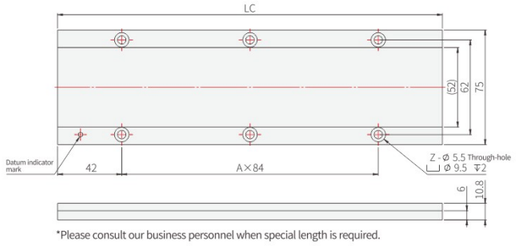
Motor model

Coil Length
B1
B2
B4

Cable Length(m)
0.5 “Default”
3.0

Note:
*Compatible Power Extension Cable: D-FN16-Lxx-T01.
*Motor Connector (Male)： 16M-4K

Stator dimensions



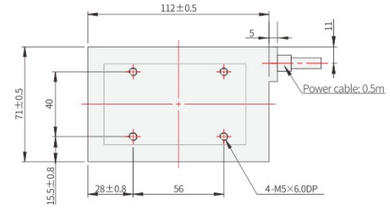
*Please consult our business personnel when special length is required.

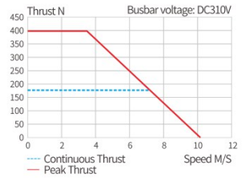
Stator name：KKM050-L168、KKM050-L252

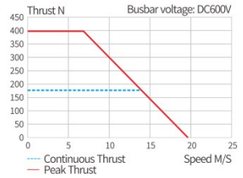
Stator model	LC	A	Magnetic pitch	Mass
Unit	mm	pcs	mm	kg/m
KKM050-L168	168	1	42	5
KKM050-L252	252	2	42	5

• KKM50-B1 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN20-L*-T01

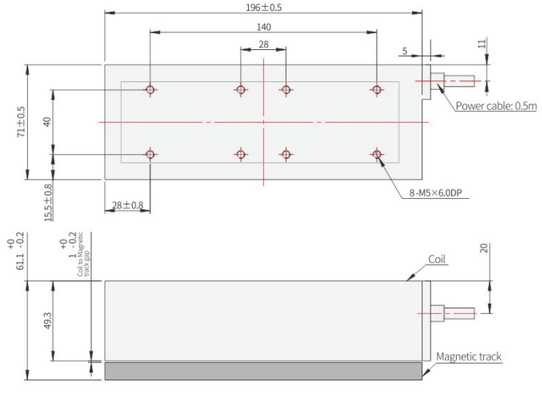


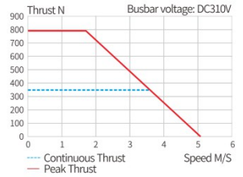


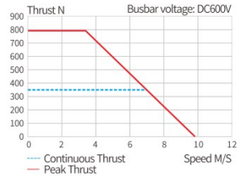


• KKM50-B2 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN20-L*-T01







Performance Parameters	Continuous thrust	Peak thrust	Continuous current	Peak current	Thrust constant ±10%	Constant of reverse electromotive force ±10%	Motor constant ±10%	Resistance ±10%	Inductance ±30%	Electrical time constant	Rated power	Max. allowable voltage	Heat dissipation constant	Magnetic attraction	Coil weight	Max. temperature
Unit	N	N	A	A	N/A	V/m/s	N/√W	Ohm	mH	ms	W	Vdc	W/°C	KN	Kg	°C
KKM50-B1	176	396	4.8	14.4	37.2	30.5	26.4	1.4	31.8	22.6	48	600	0.6	0.7	2.3	100
KKM50-B2	350	791	4.8	14.4	74.2	60.9	37.3	2.8	63.7	22.6	97	600	1.3	1.3	4.2	100

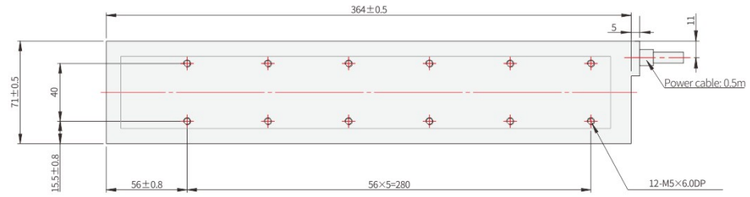
*1.Measurement room temperature is 25°C, depending on the cooling environment.
*2.DC current is used for resistance measurement, including 0.5m standard cable.
*3.Inductance measurement frequency 1kHz.
*4.Relevant parameter specifications are subject to changes with out a prior notice.

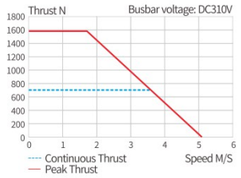
KKM050 Iron-core Linear Motor

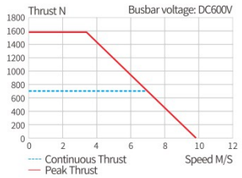
• KKM50-B4 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)

AL-DFN20-L*-T01





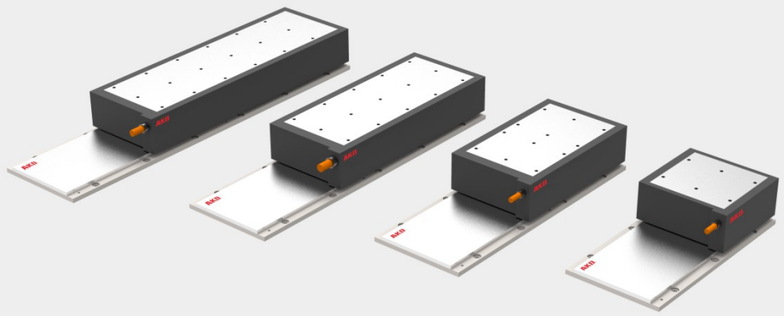


Performance Parameters	Continuous thrust	Peak thrust	Continuous current	Peak current	Thrust constant ±10%	Constant of reverse electromotive force ±10%	Motor constant ±10%	Resistance ±10%	Inductance ±30%	Electrical time constant	Rated power	Max. allowable voltage	Heat dissipation constant	Magnetic attraction	Coil weight	Max. temperature
Unit	N	N	A	A	N/A	V/m/s	N/√W	Ohm	mH	ms	W	Vdc	W/°C	KN	Kg	°C
KKM50-B4	701	1581	9.6	28.8	74.2	60.9	52.8	1.4	31.8	22.6	194	600	2.6	3.3	8.0	100

*1.Measurement room temperature is 25°C, depending on the cooling environment.
*2.DC current is used for resistance measurement, including 0.5m standard cable.
*3.Inductance measurement frequency 1kHz.
*4.Relevant parameter specifications are subject to changes with out a prior notice.

MEMO

- Iron-core technology
- Ultra-low cogging
- High thrust
- High rigidity



Linear motion | Horizontal plane Z | Angle | Rotation | Up/down and rotation

Rules of coil order number

KKM100 - B2 - 0.5

Motor model

Coil Length

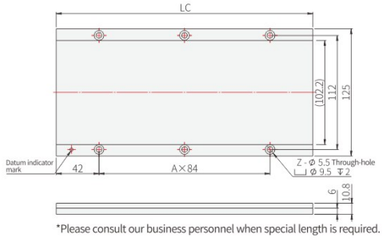
B1
B2
B3
B4

Cable Length(m)

0.5 “Default”
3.0

Note:
*Compatible Power Extension Cable: D-FN16-Lxx-T01.
*Motor Connector (Male)： 16M-4K

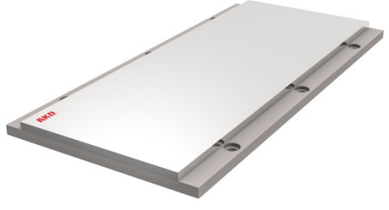
Stator dimensions



*Please consult our business personnel when special length is required.

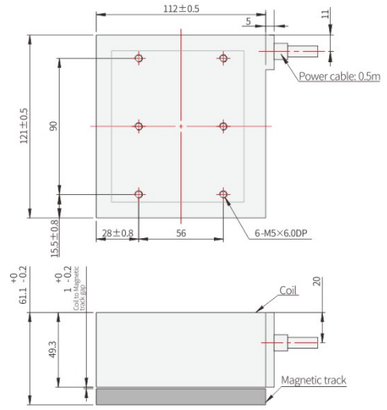
Stator name：KKM100-L168、KKM100-L252

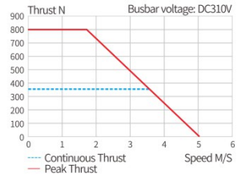
Stator model	LC	A	Magnetic pitch	Mass
Unit	mm	pcs	mm	kg/m
KKM100-L168	168	1	42	8.9
KKM100-L252	252	2	42	8.9

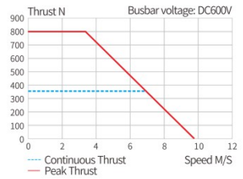


• KKM100-B1 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN20-L*-T01

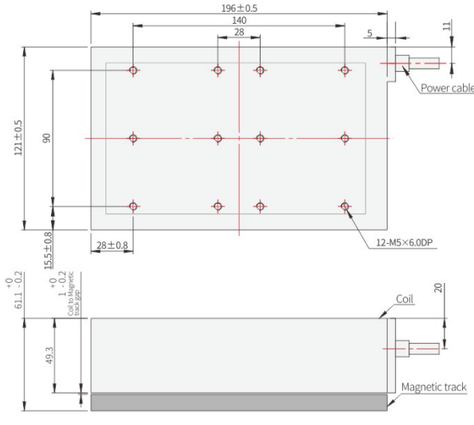


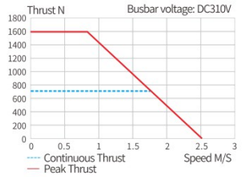


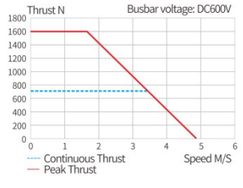


• KKM100-B2 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN20-L*-T02





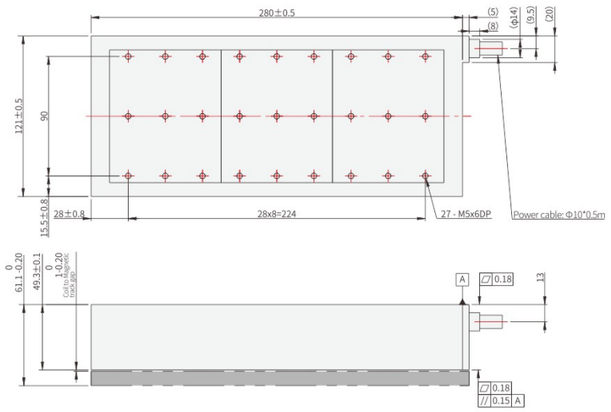


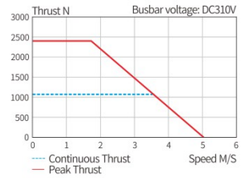
Performance Parameters	Continuous thrust	Peak thrust	Continuous current	Peak current	Thrust constant ±10%	Constant of reverse electromotive force ±10%	Motor constant ±10%	Resistance ±10%	Inductance ±30%	Electrical time constant	Rated power	Max. allowable voltage	Heat dissipation constant	Magnetic attraction	Coil weight	Max. temperature
Unit	N	N	A	A	N/A	V/m/s	N/√W	Ohm	mH	ms	W	Vdc	W/°C	KN	Kg	°C
KKM100-B1	354	799	4.8	14.4	75	61.5	41.2	2.3	58	25.2	79	600	1.1	1.3	4.1	100
KKM100-B2	708	1597	4.8	14.4	149.9	123	58.2	4.6	116	25.2	159	600	2.1	2.7	7.2	100

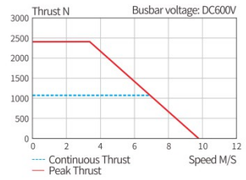
*1.Measurement room temperature is 25°C, depending on the cooling environment.
*2.DC current is used for resistance measurement, including 0.5m standard cable.
*3.Inductance measurement frequency 1kHz.
*4.Relevant parameter specifications are subject to changes with out a prior notice.

• KKM100-B3 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN20-L*-T02

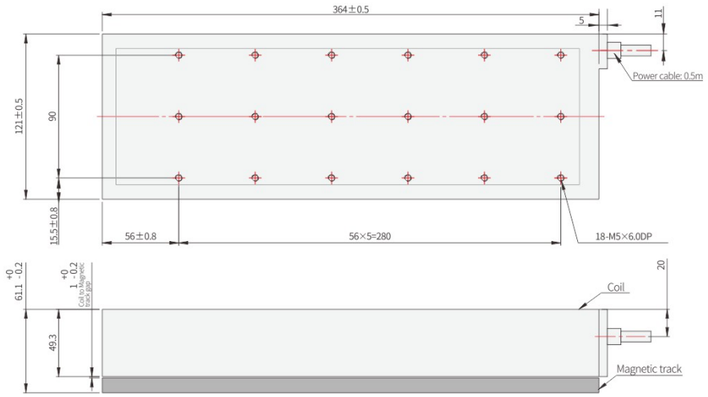


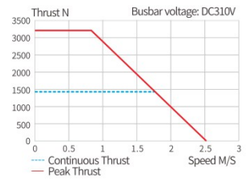


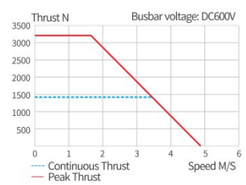


• KKM100-B4 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN20-L*-T02





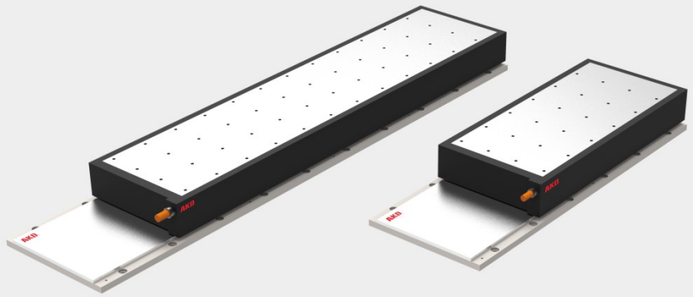


Performance Parameters	Continuous thrust	Peak thrust	Continuous current	Peak current	Thrust constant ±10%	Constant of reverse electromotive force ±10%	Motor constant ±10%	Resistance ±10%	Inductance ±30%	Electrical time constant	Rated power	Max. allowable voltage	Heat dissipation constant	Magnetic attraction	Coil weight	Max. temperature
Unit	N	N	A	A	N/A	V/m/s	N/√W	Ohm	mH	ms	W	Vdc	W/°C	KN	Kg	°C
KKM100-B3	1063	2398	14.4	43.2	75	61.5	67.3	0.8	19.3	25.2	249	600	3.3	3.9	10.4	100
KKM100-B4	1416	3195	9.6	28.8	149.9	123	82.4	2.3	58	25.2	318	600	4.2	5.4	13.6	100

*1.Measurement room temperature is 25°C, depending on the cooling environment.
*2.DC current is used for resistance measurement, including 0.5m standard cable.
*3.Inductance measurement frequency 1kHz.
*4.Relevant parameter specifications are subject to changes with out a prior notice.

MEMO

- Iron-core technology
- Ultra-low cogging
- High thrust
- High rigidity



Linear motion | Horizontal plane Z | Angle | Rotation | Up/down and rotation

Rules of coil order number

KKM150 - B2 - 0.5

Motor model

Coil Length

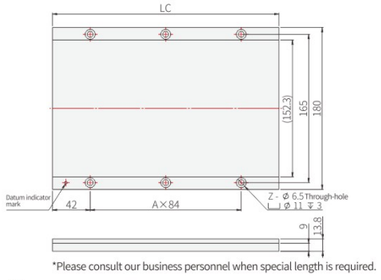
B1
B2
B4

Cable Length(m)

0.5 "Default"
3.0

Note:
*Compatible Power Extension Cable: D-FN16-Lxx-T01.
*Motor Connector (Male): 16M-4K

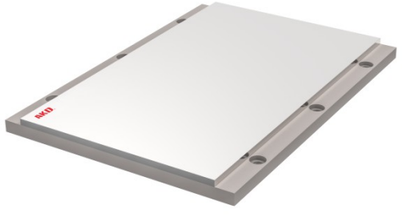
Stator dimensions



*Please consult our business personnel when special length is required.

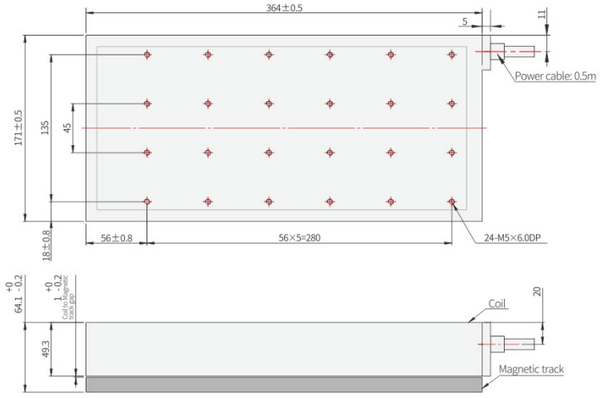
Stator name: KKM150-L168、KKM150-L252

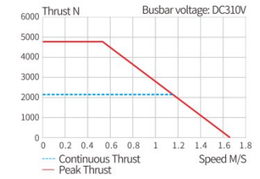
Stator model	LC	A	Magnetic pitch	Mass
Unit	mm	pcs	mm	kg/m
KKM150-L168	168	1	42	17.4
KKM150-L252	252	2	42	17.4

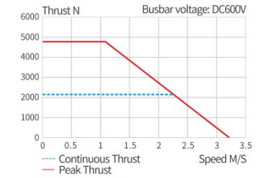


• KKM150-B4 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN20-L*-T01

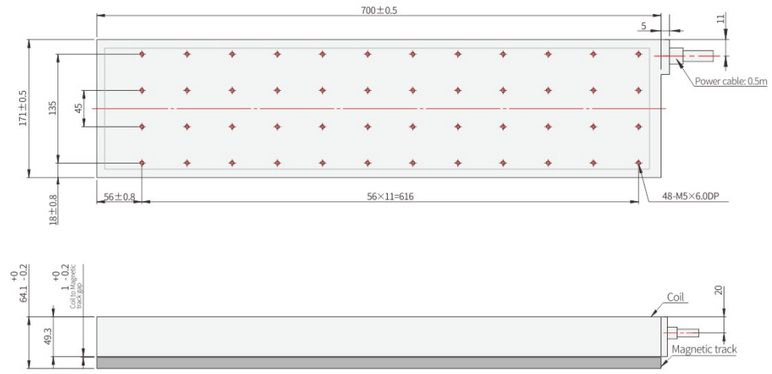


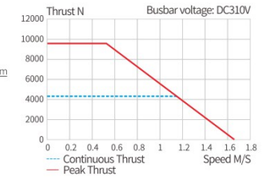


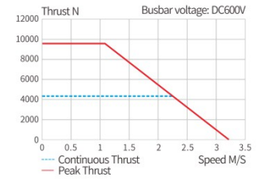


• KKM150-B8 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN20-L*-T02



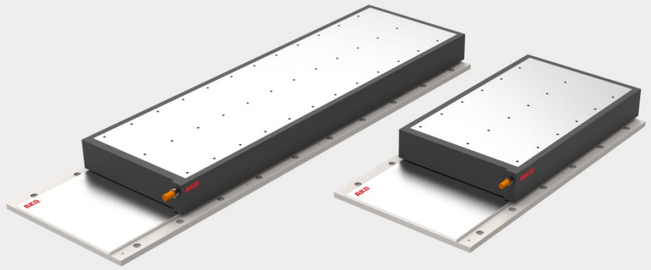




Performance Parameters	Continuous thrust	Peak thrust	Continuous current	Peak current	Thrust constant ±10%	Constant of reverse electromotive force ±10%	Motor constant ±10%	Resistance ±10%	Inductance ±30%	Electrical time constant	Rated power	Max. allowable voltage	Heat dissipation constant	Magnetic attraction	Coil weight	Max. temperature
Unit	N	N	A	A	N/A	V/m/s	N/√W	Ohm	mH	ms	W	Vdc	W/°C	KN	Kg	°C
KKM150-B4	2146	4777	9.6	28.8	227.2	186.4	104.7	3.2	80.5	25.2	442	600	5.9	8	20.3	100
KKM150-B8	4293	9553	19.2	57.6	227.2	186.4	148.1	1.6	40.3	25.2	885	600	11.8	16	39.5	100

*1.Measurement room temperature is 25°C, depending on the cooling environment.
*2.DC current is used for resistance measurement, including 0.5m standard cable.
*3.Inductance measurement frequency 1kHz.
*4.Relevant parameter specifications are subject to changes with out a prior notice.

- Iron-core technology
- Ultra-low cogging
- High thrust
- High rigidity



Linear motion | Horizontal plane Z | Angle | Rotation | Up/down and rotation

Rules of coil order number

KKM200 - B8 - 0.5

Motor model

Coil Length

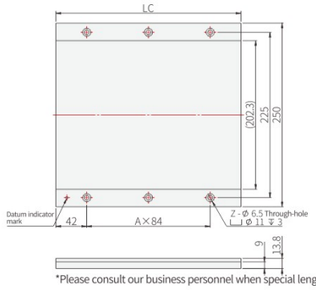
B4
B8

Cable Length(m)

0.5 “Default”
3.0

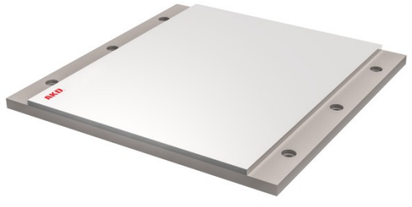
Note:
*Compatible Power Extension Cable: D-FN16-Lxx-T01.
*Motor Connector (Male)： 16M-4K

Stator dimensions



Stator name：KKM200-L168、KKM150-L252

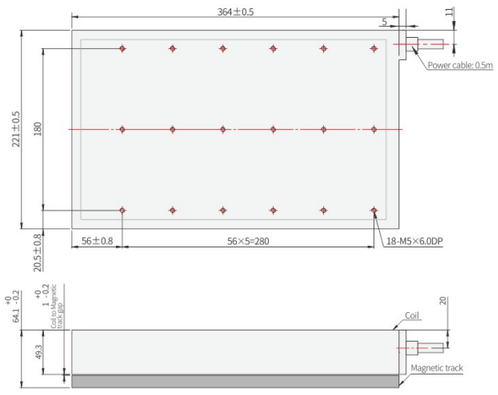
Stator model	LC	A	Magnetic pitch	Mass
Unit	mm	pcs	mm	kg/m
KKM200-L168	168	1	42	23.9
KKM200-L252	252	2	42	23.9

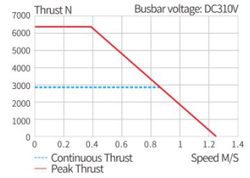


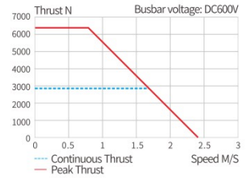
*Please consult our business personnel when special length is required.

• KKM200-B4 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN20-L*-T01

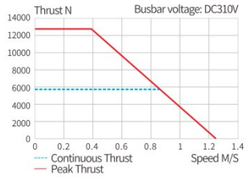


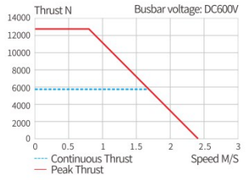




• KKM200-B8 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN20-L*-T02





Performance Parameters	Continuous thrust	Peak thrust	Continuous current	Peak current	Thrust constant ±10%	Constant of reverse electromotive force ±10%	Motor constant ±10%	Resistance ±10%	Inductance ±30%	Electrical time constant	Rated power	Max. allowable voltage	Heat dissipation constant	Magnetic attraction	Coil weight	Max. temperature
Unit	N	N	A	A	N/A	V/m/s	N/√W	Ohm	mH	ms	W	Vdc	W/°C	KN	Kg	°C
KKM200-B4	2862	6368	9.6	28.8	302.9	248.5	124.9	4.0	103	25.8	553	600	7.4	10.7	26.6	100
KKM200-B8	5722	12736	19.2	57.6	302.9	248.5	176.7	2.0	51.5	25.8	1106	600	14.7	21.4	51.7	100

*1.Measurement room temperature is 25°C, depending on the cooling environment.
*2.DC current is used for resistance measurement, including 0.5m standard cable.
*3.Inductance measurement frequency 1kHz.
*4.Relevant parameter specifications are subject to changes with out a prior notice.

KUM Series

Ironless Linear Motor

High thrust density, low temperature rise.
Good dynamic curve motion.
No magnetic attraction, no cogging force.

CONTENTS

KUM2

Continuous Thrust：25.5N~51N
Peak Thrust：127.6N~255.2N

Mover Length：B: 91mm / D: 151mm
Length of stator：L120: 119.7mm / L180: 179.7mm

KUM3

Continuous Thrust：64.2N~128.3
Peak Thrust：279N~558N

Mover Length：B: 121mm / D: 241mm
Length of stator：L120: 119.5mm / L180: 179.5mm

KUM4

Continuous Thrust：119.8N~239.5N
Peak Thrust：676.9N~1353.7N

Mover Length：B: 121mm / D: 241mm
Length of stator：L120: 119.5mm / L180: 179.5mm

KUM5

Continuous Thrust：205.5N~411.0
Peak Thrust：1479.6N~2959.2N

Mover Length：B: 169mm / D: 337mm
Length of stator：L168: 167.5mm / L252: 251.5mm

- With coreless technology
- Compact size, Applicability to vertical-axis
- Keep great curvilinear motion

Linear motion | Horizontal plane 2 | Angle | Rotation | Up/down and rotation | CE | RoHS

Rules of coil order number

KUM2 - S - S3 - 0.5

Motor model

Winding code

S	SP
P	BP

Coil Length

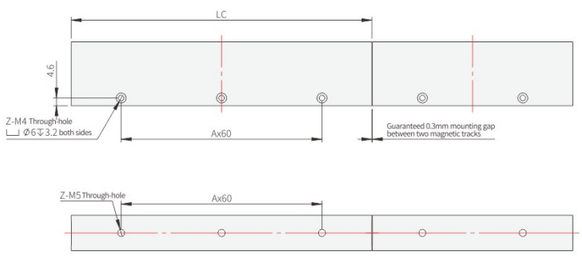
S3
S6

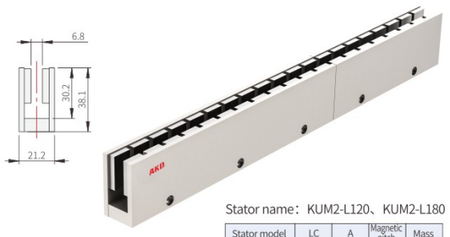
Cable Length(m)

0.5 "Default"
3.0

Note:
*Compatible Power Extension Cable: D-FN16-Lxx-T01.
*Motor Connector (Male)： 16M-4K

Stator dimensions





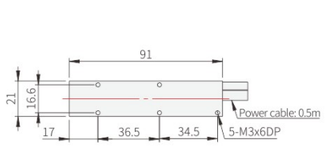
Stator name：KUM2-L120、KUM2-L180

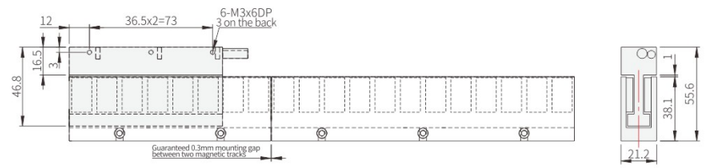
Stator model	LC	A	Magnetic pitch	Mass
Unit	mm	pcs	mm	kg/m
KUM2-L120	120	1	30	3.9
KUM2-L180	180	2	30	3.9

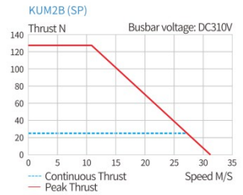
*Please consult our business personnel when special length is required.

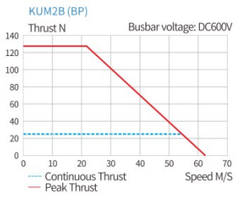
• KUM2-S3 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN16-L*-T01



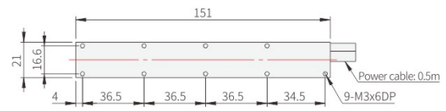


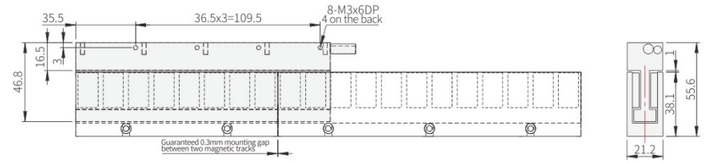


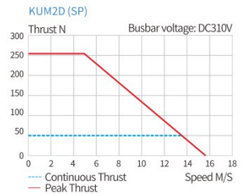


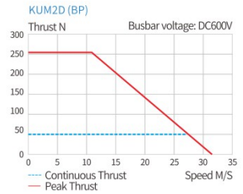
• KUM2-S6 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN16-L*-T01









Performance Parameters		Continuous thrust	Peak thrust	Continuous current	Peak current	Thrust constant ±10%	Constant of reverse electromotive force ±10%	Motor constant ±10%	Resistance ±10%	Inductance ±30%	Electrical time constant	Rated power	Max. allowable voltage	Heat dissipation constant	Magnetic attraction	Coil weight	Max. temperature
Unit		N	N	A	A	N/A	V/m/s	N/√W	Ohm	mH	ms	W	Vdc	W/°C	KN	Kg	°C
KUM2-S3	SP	25.5	127.6	2.1	10.5	12.15	9.91	4.5	7.15	1.59	0.22	31.5	310	0.42	0	0.16	120
	BP			4.2	21	6.08	4.96		1.79	0.40							
KUM2-S6	SP	51	255.2	2.1	10.5	24.3	19.83	6.4	14.30	3.18	0.22	63.10	310	0.84	0	0.27	120
	BP			4.2	21	12.5	9.91		3.58	0.80							

*1.Measurement room temperature is 25°C, depending on the cooling environment.
*2.DC current is used for resistance measurement, including 0.5m standard cable.
*3.Inductance measurement frequency 1kHz.
*4.Relevant parameter specifications are subject to changes with out a prior notice.

- With coreless technology
- Compact size, Applicability to vertical-axis
- Keep great curvilinear motion

Linear motion | Horizontal plane Z | Angle | Rotation | Up/down and rotation | CE | RoHS

Rules of coil order number

KUM3 - S - S3 - 0.5

Motor model

S	SP
P	BP

Coil Length

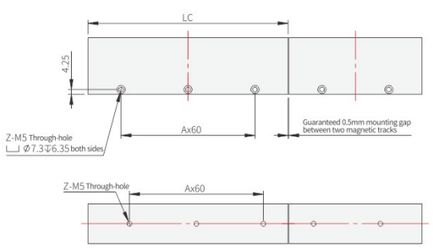
S2
S4

Cable Length(m)

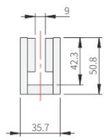
0.5 "Default"
3.0

Note:
*Compatible Power Extension Cable: D-FN16-Lxx-T01.
*Motor Connector (Male): 16M-4K

Stator dimensions



*Please consult our business personnel when special length is required.

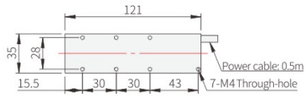


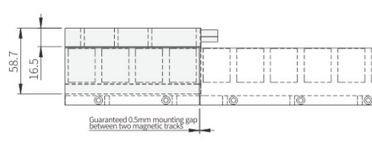
Stator name：KUM3-L120、KUM3-L180

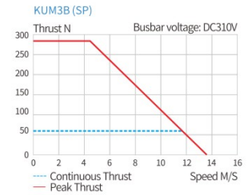
Stator model	LC	A	Magnetic pitch	Mass
Unit	mm	pcs	mm	kg/m
KUM3-L120	120	1	60	9.1
KUM3-L180	180	2	60	9.1

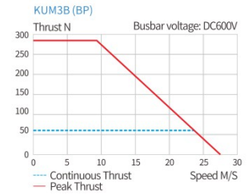
• KUM3-S2 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN16-L*-T01



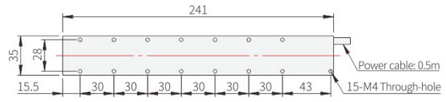


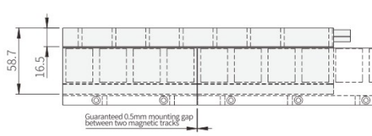


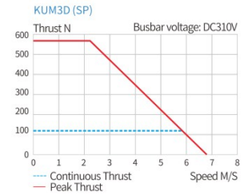


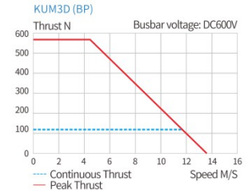
• KUM3-S4 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN16-L*-T01









Performance Parameters		Continuous thrust	Peak thrust	Continuous current	Peak current	Thrust constant ±10%	Constant of reverse electromotive force ±10%	Motor constant ±10%	Resistance ±10%	Inductance ±30%	Electrical time constant	Rated power	Max. allowable voltage	Heat dissipation constant	Magnetic attraction	Coil weight	Max. temperature
Unit		N	N	A	A	N/A	V/m/s	N/√W	Ohm	mH	ms	W	Vdc	W/°C	KN	Kg	°C
KUM3-S2	SP	64.2	279	2.3	10	27.9	22.8	11	6.39	4.10	0.64	33.8	310	0.45	0	0.42	120
	BP			4.6	20	14	11.4		1.60	1.03							
KUM3-S4	SP	128.3	558	2.3	10	55.8	45.5	15.6	12.78	8.20	0.64	67.6	310	0.90	0	0.84	120
	BP			4.6	20	27.9	22.8		3.20	2.05							

*1.Measurement room temperature is 25°C, depending on the cooling environment.
*2.DC current is used for resistance measurement, including 0.5m standard cable.
*3.Inductance measurement frequency 1kHz.
*4.Relevant parameter specifications are subject to changes with out a prior notice.

- With coreless technology
- Compact size, Applicability to vertical-axis
- Keep great curvilinear motion

Linear motion | Horizontal plane 2 | Angle | Rotation | Up/down and rotation | CE | RoHS

Rules of coil order number

KUM4 - S - S3 - 0.5

Motor model

S	SP
P	BP

Coil Length

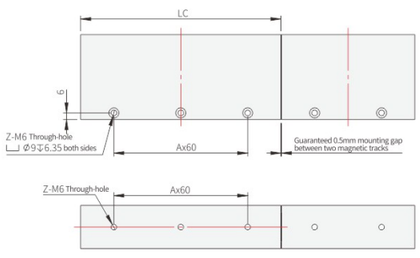
S2
S4

Cable Length(m)

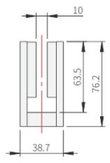
0.5 "Default"
3.0

Note:
*Compatible Power Extension Cable: D-FN16-Lxx-T01.
*Motor Connector (Male)： 16M-4K

Stator dimensions



*Please consult our business personnel when special length is required.

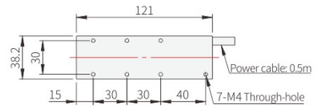


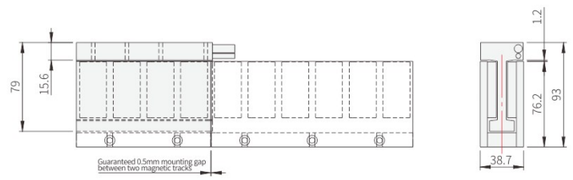
Stator name：KUM4-L120、KUM4-L180

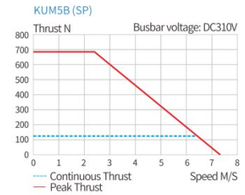
Stator model	LC	A	Magnetic pitch	Mass
Unit	mm	pcs	mm	kg/m
KUM4-L120	120	1	60	15.2
KUM4-L180	180	2	60	15.2

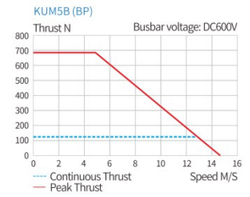
• KUM4-S2 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN16-L*-T01



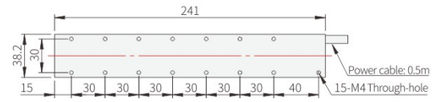


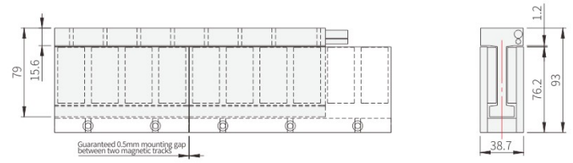


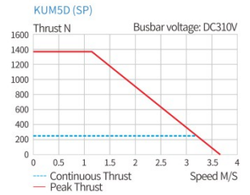


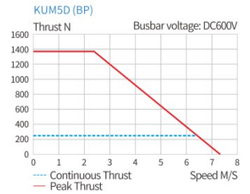
• KUM4-S4 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN16-L*-T01









Performance Parameters		Continuous thrust	Peak thrust	Continuous current	Peak current	Thrust constant ±10%	Constant of reverse electromotive force ±10%	Motor constant ±10%	Resistance ±10%	Inductance ±30%	Electrical time constant	Rated power	Max. allowable voltage	Heat dissipation constant	Magnetic attraction	Coil weight	Max. temperature
Unit		N	N	A	A	N/A	V/m/s	N/√W	Ohm	mH	ms	W	Vdc	W/°C	KN	Kg	°C
KUM4-S2	SP	119.8	676.9	2.3	13	52.07	42.5	17.1	9.27	6.53	0.71	49.0	310	0.65	0	0.54	120
	BP			4.6	26	26	21.2		2.32	1.63							
KUM4-S4	SP	239.5	1353.7	2.3	13	104.1	85	24.2	18.53	13.07	0.71	98.0	310	1.30	0	1.08	120
	BP			4.6	26	52.07	42.5		4.63	3.27							

*1.Measurement room temperature is 25°C, depending on the cooling environment.
*2.DC current is used for resistance measurement, including 0.5m standard cable.
*3.Inductance measurement frequency 1kHz.
*4.Relevant parameter specifications are subject to changes with out a prior notice.

- With coreless technology
- Compact size, Applicability to vertical-axis
- Keep great curvilinear motion

Linear motion | Horizontal plane Z | Angle | Rotation | Up/down and rotation | CE | RoHS

Rules of coil order number

KUM5 - S - S3 - 0.5

Motor model

S	SP
P	BP

Coil Length

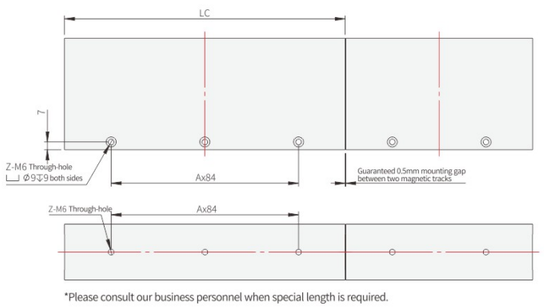
S2
S4

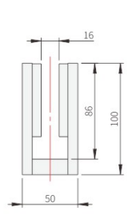
Cable Length(m)

0.5 "Default"
3.0

Note:
*Compatible Power Extension Cable: D-FN16-Lxx-T01.
*Motor Connector (Male)： 16M-4K

Stator dimensions





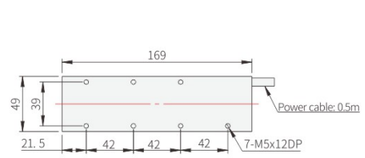
Stator name：KUM5-L168、KUM5-L252

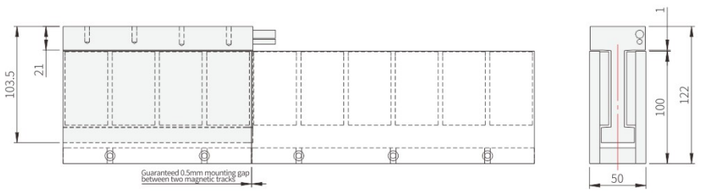
Stator model	LC	A	Magnetic pitch	Mass
Unit	mm	pcs	mm	kg/m
KUM5-L168	168	1	84	24.9
KUM5-L252	252	2	84	24.9

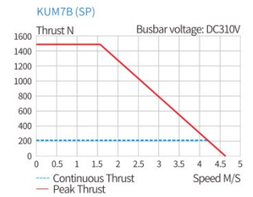
*Please consult our business personnel when special length is required.

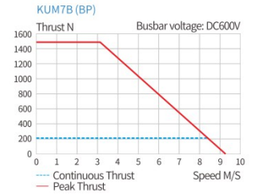
• KUM5-S2 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN16-L*-T01



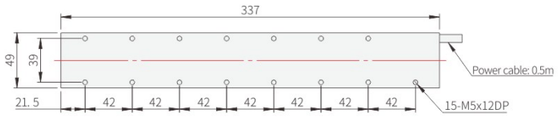


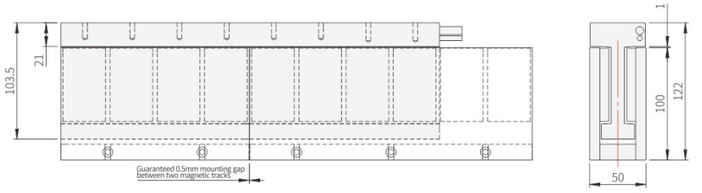


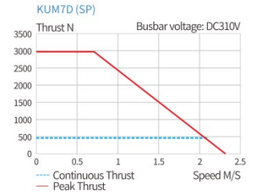


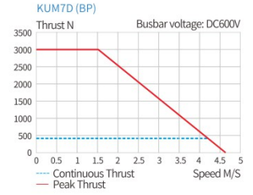
• KUM5-S4 Dimensional parameters

Compatible Power Extension Cable (for AKD Models)
AL-DFN16-L*-T01









Performance Parameters		Continuous thrust	Peak thrust	Continuous current	Peak current	Thrust constant ±10%	Constant of reverse electromotive force ±10%	Motor constant ±10%	Resistance ±10%	Inductance ±30%	Electrical time constant	Rated power	Max. allowable voltage	Heat dissipation constant	Magnetic attraction	Coil weight	Max. temperature
Unit		N	N	A	A	N/A	V/m/s	N/√ W	Ohm	mH	ms	W	Vdc	W/°C	KN	Kg	°C
KUM5-S2	SP	205.5	1479.6	2.5	18	82.2	67.1	28	8.60	16.90	2.0	53.8	310	0.72	0	1.42	120
	BP			5	36	41.1	33.5		2.20	4.20							
KUM5-S4	SP	411.0	2959.2	2.5	18	164.4	134.2	39.6	17.20	33.70	2.0	107.5	310	1.43	0	2.75	120
	BP			5	36	82.2	67.1		4.30	8.40							

*1.Measurement room temperature is 25°C, depending on the cooling environment.
*2.DC current is used for resistance measurement, including 0.5m standard cable.
*3.Inductance measurement frequency 1kHz.
*4.Relevant parameter specifications are subject to changes with out a prior notice.

AKD.

KDR/KDH Series

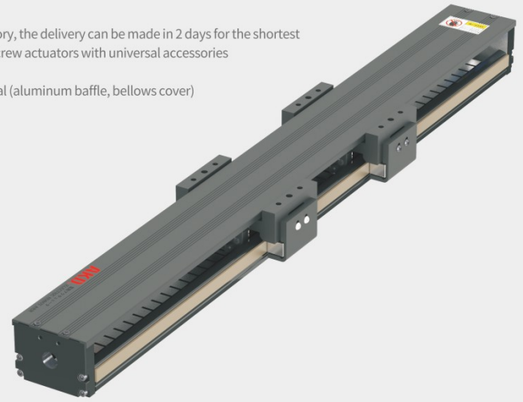
Linear Motor Module

With iron-core technology, Ultra-low cogging force, High acceleration, High speed

KDR60	Continuous Thrust：25N~66N Peak Thrust：56N~154N	
KDR86	Continuous Thrust：87N~120N Peak Thrust：154N~260N	
KDH14	Continuous Thrust：81N~243N Peak Thrust：234N~702N	
KDH17	Continuous Thrust：186N~558N Peak Thrust：501N~1503N	
KDH22	Continuous Thrust：510N~765N Peak Thrust：1408N~2112N	

KDR60 Compact steel-based linear motor actuator

- Steel-based seat design, high rigidity
- Compact structure
- Standardized models, sufficient inventory, the delivery can be made in 2 days for the shortest
- It can seamlessly replace KKR, KK, KR screw actuators with universal accessories
- Easy maintenance
- Various protection methods are optional (aluminum baffle, bellows cover)



With bellows protection and the same installation size, the effective stroke is shortened

Ordering Method

KDR60 P-400 A1B2-C-Y3-S300-XXXX-AL3M-D123

Model

Track length: 150~700mm

Total effective stroke

Position feedback configuration

No	AKD incremental magnetic scale and read head are by default
XXXX	Specific manufacturer grating scale and read head model

Special Order No.

Customization symbol

P	Precision-level
PD	Customized Precision-level

Rotor type and quantity

A	Low-thrust rotor
B	High-thrust rotor
1、2 ...	Corresponding number of rotors

Protection configuration

C	Aluminum profile cover
B	Bellows cover

Sensor type and quantity

Y	674 Sensor
3	Sensor quantity: 3

Direct lead length of rotor

No	It is 0.3 by default (the extension line is to be prepared separately)
AL3M	Direct lead length of rotor: 3m
AL5M	Direct lead length of rotor: 5m
...	...

Note

1. The room temperature for motor parameter measurement is 25°C, and the specific use depends on the heat dissipation environment.
2. The accuracy number is used for API laser interferometer with the measuring stroke of 500 mm.
3. DC motor is adopted for resistance measurement, including a 0.3m standard cable.
4. Inductance measurement frequency: 1kHz.
5. The weight of actuator mass includes parts such as motor, slider, fixed platform, encoder, etc.
6. Unmarked tolerance: ±0.1 mm
7. Load/speed parameters, test pause time: 0.5s, stroke: 300mm, it is the theoretical value when placed horizontally, and for reference only. The actual load is affected by factors such as movement speed, acceleration, friction, installation environment and motor thrust.
8. The rated load is the load data under the acceleration of 1 m/s and 0.5 g.
9. The relevant parameter regulations are subject to change without prior notice.

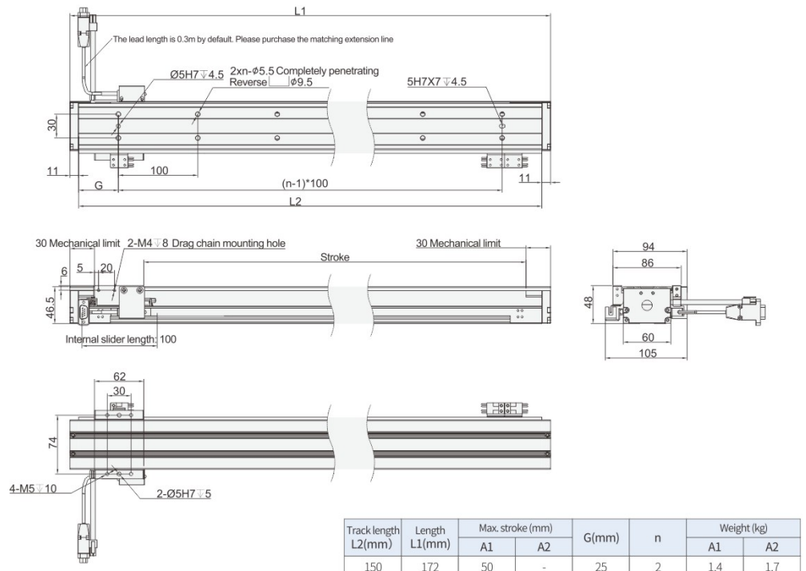
KDR60A Compact steel-based linear motor actuator

Performance parameters	
Repeatability Accuracy	±2μm/300mm
Maximum acceleration	2 g
Rated speed	2 m/s

Motor spec.	
Peak current	11.3 Arms
Persistent current	2.8 Arms
Peak thrust	56N
Continuous thrust	25N
Motor force constant	9.6 N/Arms
Interphase resistance	1.32 Ω
Interphase inductance	2.4 mH
Pole pitch	20 mm

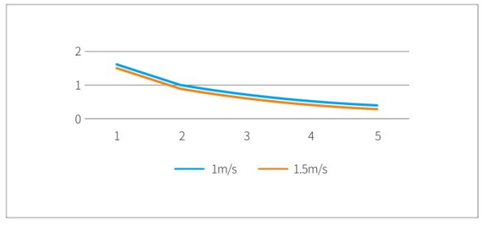
Machinery specifications	
Length of actuator mass	100 mm
Mass of actuator mass	0.3 kg
Rated Duty	4kg

The rated load value is the load data under the acceleration of 1 m/s and 0.5 g



Track length L2(mm)	Length L1(mm)	Max. stroke (mm) A1	Max. stroke (mm) A2	G(mm)	n	Weight (kg) A1	Weight (kg) A2
150	172	50	-	25	2	1.4	1.7
200	222	100	-	50	2	1.6	1.9
300	322	200	100	50	3	2.1	2.4
400	422	300	200	50	4	2.6	2.9
500	522	400	300	50	5	3.1	3.4
600	622	500	400	50	6	3.6	3.9
700	722	600	500	50	7	4.2	4.5

Load acceleration curve



KDR60A Motor load quick model selection

Load	1m/s	1.5m/s
1	1.6g	1.5g
2	1g	0.9g
3	0.7g	0.6g

KDR60A motor is adapted to a 400W servo driver, and AKD provides the following models of drivers.

Driver brand	Pulse model	Bus model	Matching encoder extension line	Matching power extension line
AKD	KA1-MC-ZJ3LDO	KA1-ZX-ZJ3LDO	ALFC-B-3M/5M/8M-TY	AL-D05-3M/5M/8M (The length of encoder extension line and the power extension line need to be the same)
GOOGOL	CDHD2S-0032AAP1	CDHD2S-0032AEC2	ALGC-B-3M/5M/8M-TY	
Servotronix economical model	GSLD-0032AAP1	GSLD-0032AEC2-A	ALGSLD-B-3M/5M/8M-TY	

AKD linear motors are compatible with most brands and models of drivers on the market. For more information about the use and purchase of other brands of drivers, please consult AKD sales engineers for details.

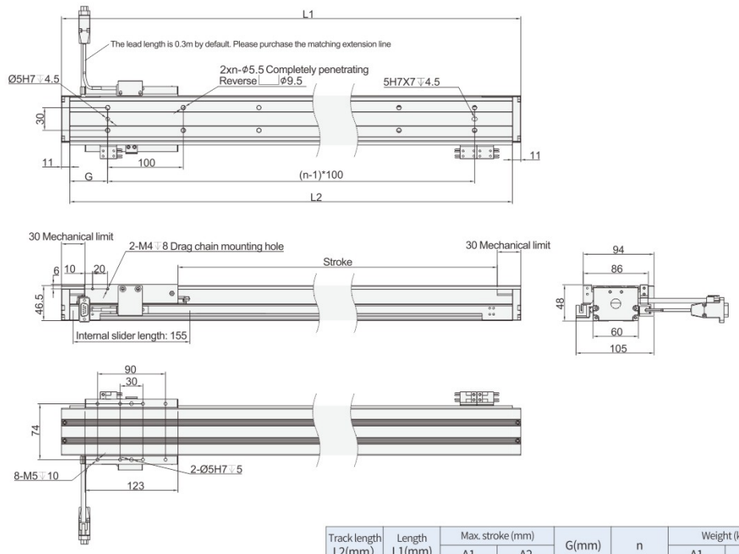
KDR60B Compact steel-based linear motor actuator

Performance parameters	
Repeatability Accuracy	±2μm/300mm
Maximum acceleration	2 g
Rated speed	2 m/s

Motor spec.	
Peak current	11.3Arms
Persistent current	2.6Arms
Peak thrust	154N
Continuous thrust	66N
Motor force constant	30N/Arms
Interphase resistance	3.1Ω
Interphase inductance	5.1mH
Pole pitch	20mm

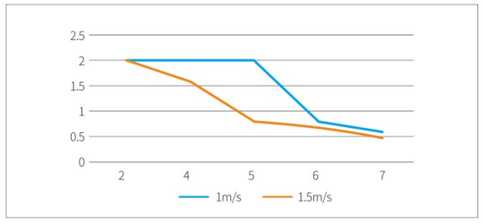
Machinery specifications	
Length of actuator mass	155 mm
Mass of actuator mass	0.6 kg
Rated Duty	9kg

The rated load value is the load data under the acceleration of 1 m/s and 0.5 g



Track length L2(mm)	Length L1(mm)	Max. stroke (mm) A1	Max. stroke (mm) A2	G(mm)	n	Weight (kg) A1	Weight (kg) A2
200	222	40	-	50	2	2.2	-
300	322	140	-	50	3	2.7	-
400	422	240	85	50	4	3.2	3.9
500	522	340	185	50	5	3.7	4.4
600	622	440	285	50	6	4.2	4.9
700	722	540	385	50	7	4.7	5.4

Load acceleration curve



KDR60B Motor load quick model selection

Load	1m/s	1.5m/s
2kg	2g	2g
4kg	2g	1.6g
5kg	2g	0.8g
6kg	0.8g	0.7g
7kg	0.6g	0.5g

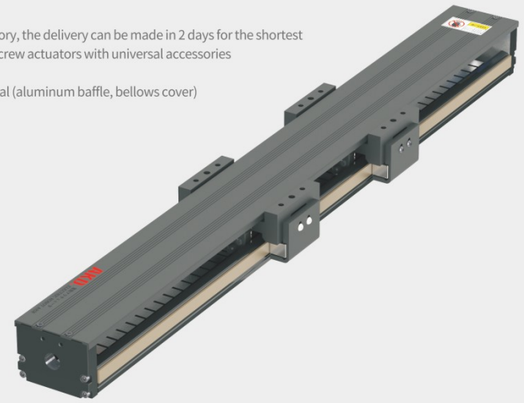
KDR60B motor is adapted to a 400W servo driver, and AKD provides the following models of drivers.

Driver brand	Pulse model	Bus model	Matching encoder extension line	Matching power extension line
AKD	KA1-MC-ZJ3LDO	KA1-ZX-ZJ3LDO	ALFC-B-3M/5M/8M-TY	AL-D05-3M/5M/8M (The length of encoder extension line and the power extension line need to be the same)
GOOGOL	CDHD2S-0032AAP1	CDHD2S-0032AEC2	ALGC-B-3M/5M/8M-TY	
Servotronix economical model	GSLD-0032AAP1	GSLD-0032AEC2-A	ALGSLD-B-3M/5M/8M-TY	

AKD linear motors are compatible with most brands and models of drivers on the market. For more information about the use and purchase of other brands of drivers, please consult AKD sales engineers for details.

KDR86 Compact steel-based linear motor actuator

- Steel-based seat design, high rigidity
- Compact structure
- Standardized models, sufficient inventory, the delivery can be made in 2 days for the shortest
- It can seamlessly replace KKR, KK, KR screw actuators with universal accessories
- Easy maintenance
- Various protection methods are optional (aluminum baffle, bellows cover)



With bellows protection and the same installation size, the effective stroke is shortened

Ordering Method

KDR86 P-400 A1B2-C-Y3-S300-XXXX-AL3M-D123

Model

Track length: 340~1040mm

Total effective stroke

Position feedback configuration

No	AKD incremental magnetic scale and read head are by default
XXXX	Specific manufacturer grating scale and read head model

Special Order No.

Customization symbol

P	Precision-level
PD	Customized Precision-level

Rotor type and quantity

A	Low-thrust rotor
B	High-thrust rotor
1、2 ...	Corresponding number of rotors

Protection configuration

C	Aluminum profile cover
B	Bellows cover

Sensor type and quantity

Y	674 Sensor
3	Sensor quantity: 3

Direct lead length of rotor

No	It is 0.3 by default (the extension line is to be prepared separately)
AL3M	Direct lead length of rotor: 3m
AL5M	Direct lead length of rotor: 5m
...	...

Note

1. The room temperature for motor parameter measurement is 25°C, and the specific use depends on the heat dissipation environment.
2. The accuracy number is used for API laser interferometer with the measuring stroke of 500 mm.
3. DC motor is adopted for resistance measurement, including a 0.3m standard cable.
4. Inductance measurement frequency: 1kHz.
5. The weight of actuator mass includes parts such as motor, slider, fixed platform, encoder, etc.
6. Unmarked tolerance: ±0.1 mm
7. Load/speed parameters, test pause time: 0.5s, stroke: 300mm, it is the theoretical value when placed horizontally, and for reference only. The actual load is affected by factors such as movement speed, acceleration, friction, installation environment and motor thrust.
8. The rated load is the load data under the acceleration of 1 m/s and 0.5 g.
9. The relevant parameter regulations are subject to change without prior notice.

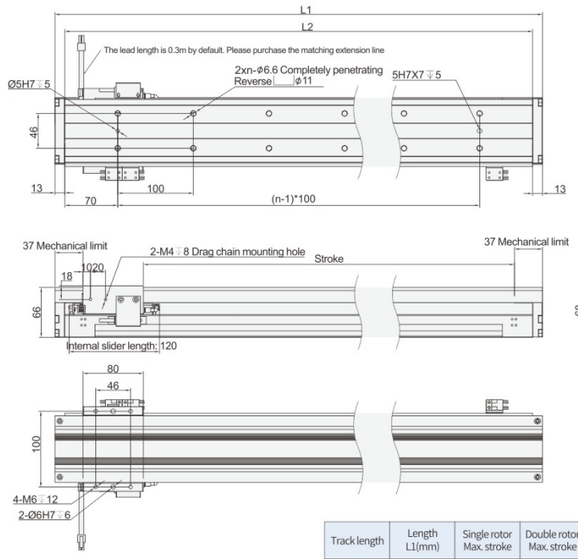
KDR86A Compact steel-based linear motor actuator

Performance parameters	
Repeatability Accuracy	±2μm/300mm
Maximum acceleration	2 g
Rated speed	2 m/s

Motor spec.	
Peak current	12Arms
Persistent current	2.5 Arms
Peak thrust	154N
Continuous thrust	87N
Motor force constant	34.6 N/Arms
Interphase resistance	4.6 Ω
Interphase inductance	18 mH
Pole pitch	20 mm

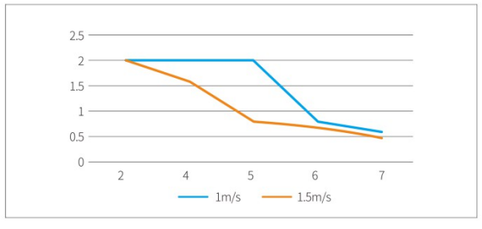
Machinery specifications	
Length of actuator mass	120mm
Mass of actuator mass	1 kg
Rated Duty	12kg

The rated load value is the load data under the acceleration of 1 m/s and 0.5 g



Track length	Length L1(mm)	Single rotor Max. stroke	Double rotor Max. stroke	n	Single rotor Weight (kg)	Double rotor Weight (kg)
340	366	210	90	3	4.9	6
440	466	310	190	4	5.9	6.8
540	566	410	290	5	6.9	8
640	666	510	390	6	8	9.2
740	766	610	490	7	9	10.1
840	866	710	590	8	10	11.1
940	966	810	690	9	11.1	12.2
1040	1066	910	790	10	12.1	13.3

Load acceleration curve



KDR86A Motor load quick model selection

Load	1m/s	1.5m/s
3kg	2g	2g
4kg	2g	1.8g
5kg	1.6g	1.4g
6kg	1.5g	1.3g
7kg	1.3g	1g
8kg	1.1g	0.9g
9kg	0.9g	0.6g

KDR86A motor is adapted to a 400W servo driver, and AKD provides the following models of drivers.

Driver brand	Pulse model	Bus model	Matching encoder extension line	Matching power extension line
AKD	KA1-MC-ZJ3LDO	KA1-ZX-ZJ3LDO	ALFC-B-3M/5M/8M-TY	AL-D05-3M/5M/8M (The length of encoder extension line and the power extension line need to be the same)
GOOGOL	CDHD2S-0032AAP1	CDHD2S-0032AEC2	ALGC-B-3M/5M/8M-TY	
Servotronix economical model	GSLD-0032AAP1	GSLD-0032AEC2-A	ALGSLD-B-3M/5M/8M-TY	

AKD linear motors are compatible with most brands and models of drivers on the market. For more information about the use and purchase of other brands of drivers, please consult AKD sales engineers for details.

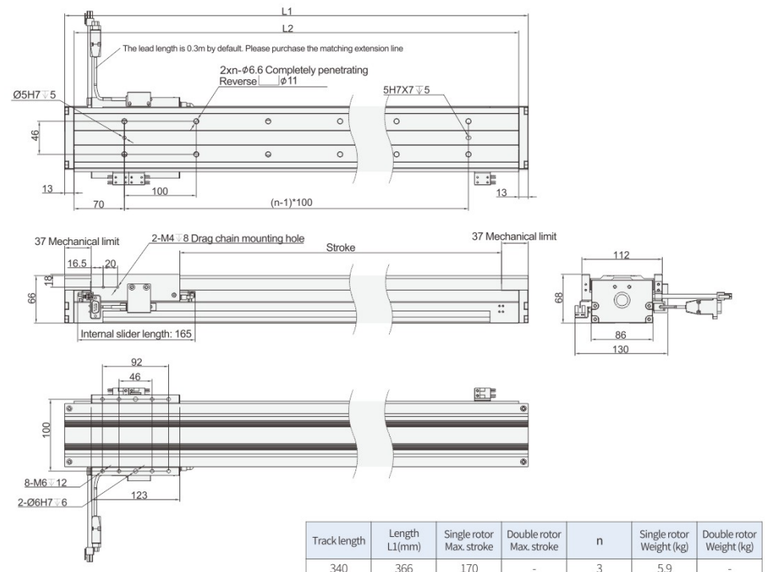
KDR86B Compact steel-based linear motor actuator

Performance parameters	
Repeatability Accuracy	±2μm/300mm
Maximum acceleration	2 g
Rated speed	2 m/s

Motor spec.	
Peak current	12 Arms
Persistent current	2.Arms
Peak thrust	260N
Continuous thrust	120N
Motor force constant	51.5N/Arms
Interphase resistance	6.7 Ω
Interphase inductance	21.2 mH
Pole pitch	20 mm

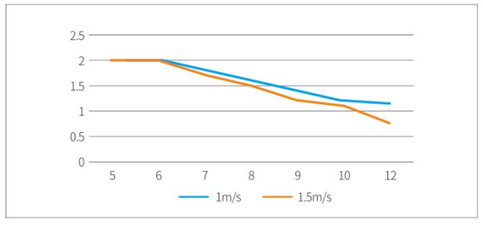
Machinery specifications	
Length of actuator mass	165 mm
Mass of actuator mass	1.5kg
Rated Duty	20kg

The rated load value is the load data under the acceleration of 1 m/s and 0.5 g



Track length	Length L1(mm)	Single rotor Max. stroke	Double rotor Max. stroke	n	Single rotor Weight (kg)	Double rotor Weight (kg)
340	366	170	-	3	5.9	-
440	466	270	105	4	7	8.5
540	566	370	205	5	8	9.4
640	666	470	305	6	9	10.5
740	766	570	405	7	10.1	11.6
840	866	670	505	8	11.1	12.5
940	966	770	605	9	12.1	13.4
1040	1066	870	705	10	13.1	14.6

Load acceleration curve



KDR86B Motor load quick model selection

负载	1m/s	1.5m/s
5kg	2g	2g
6kg	2g	2g
7kg	1.8g	1.7g
8kg	1.6g	1.5g
9kg	1.4g	1.2g
10kg	1.2g	1.1g
12kg	1.15	0.75

KDR86B motor is adapted to a 400W servo driver, and AKD provides the following models of drivers.

Driver brand	Pulse model	Bus model	Matching encoder extension line	Matching power extension line
AKD	KA1-MC-ZJ6LDO	KA1-ZX-ZJ6LDO	ALFC-B-3M/5M/8M-TY	AL-D05-3M/5M/8M (The length of encoder extension line and the power extension line need to be the same)
GOOGOL	CDHD2S-4D52AAP1	CDHD2S-4D52AEC2	ALGC-B-3M/5M/8M-TY	
Servotronix economical model	GSLD-0062AAP1	GSLD-0062AEC2-A	ALGSLD-B-3M/5M/8M-TY	

AKD linear motors are compatible with most brands and models of drivers on the market. For more information about the use and purchase of other brands of drivers, please consult AKD sales engineers for details.

KDH14 General purpose linear motor actuator

- The optional range is 60-1566 N, and covers the common industrial applications
- Aviation aluminum profile base is featured by lightweight and low deformation modulus
- Ultra-long stroke
- Replace the screw actuator without changing the design
- Various protection methods are optional

With bellows protection and the same installation size, the effective stroke is shortened for 30%

Ordering Method

KDH14 P-400 A1B2-C-Y3-S300-XXXX-AL3M-D123

Model

Track length

200~4000mm (can be spliced for longer travel) (50mm spacing)

Customization symbol

P	Precision-level
PD	Customized Precision-level

Rotor type and quantity

A	Low-thrust rotor
B	High-thrust rotor
1、2...	Corresponding number of rotors

Protection configuration

C	Aluminum profile cover
G	Steel strap cover
B	Bellows cover

Total effective stroke

Sensor type and quantity

Y	674 Sensor
3	Sensor quantity: 3

Position feedback configuration

No	AKD incremental magnetic scale and read head are by default
XXXX	Specific manufacturer grating scale and read head model

Direct lead length of rotor

No	It is 0.3 by default (the extension line is to be prepared separately)
AL3M	Direct lead length of rotor: 3m
AL5M	Direct lead length of rotor: 5m
...	...

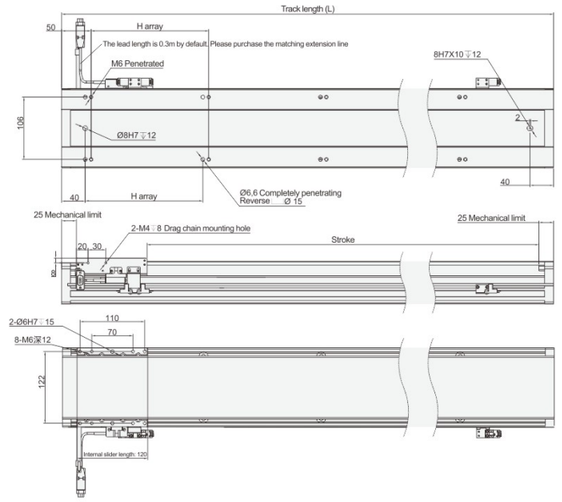
Special Order No.

Note

1. The room temperature for motor parameter measurement is 25°C, and the specific use depends on the heat dissipation environment.
2. The accuracy number is used for API laser interferometer with the measuring stroke of 500 mm.
3. DC motor is adopted for resistance measurement, including a 0.3m standard cable.
4. Inductance measurement frequency: 1kHz.
5. The weight of actuator mass includes parts such as motor, slider, fixed platform, encoder, etc.
6. Unmarked tolerance: ±0.1 mm
7. Load/speed parameters, test pause time: 0.5s, stroke: 500mm, it is the theoretical value when placed horizontally, and for reference only. The actual load is affected by factors such as movement speed, acceleration, friction, installation environment and motor thrust.
8. The rated load is the load data under the acceleration of 1 m/s and 0.5 g.
9. The relevant parameter regulations are subject to change without prior notice.

KDH14A General purpose linear motor actuator

KDH14P- Track length A Number of rotors - CY Number of sensors - S Stroke



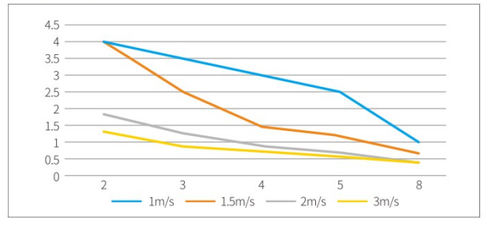
Spacing of Bottom Mounting Holes	
Track length (L)	H (Array)
300	220
350	220
400	100
450	100
500 (50 Pitch)	200

Track length (mm)	Stroke (mm)	Mass (kg)	Double rotor Stroke(mm)	Double rotor Mass(kg)
200	30	3.7	-	-
250	80	4.25	-	-
300	130	4.8	-	-
350	180	5.35	-	-
400	230	5.9	100	7.7
450	280	6.45	150	8.25
500	330	7	200	8.8
550	380	7.55	250	9.35
600	430	8.1	300	9.9
650	480	8.65	350	10.45
700	530	9.2	400	11
750	580	9.75	450	11.55
800	630	10.3	500	12.1
850	680	10.85	550	12.65
900	730	11.4	600	13.2
950	780	11.95	650	13.75
1000	830	12.5	700	14.3
1100	930	13.6	800	15.4
1200	1030	14.7	900	16.5
1300	1130	15.8	1000	17.6
1400	1230	16.9	1100	18.7
1500	1330	18	1200	19.8
1600	1430	19.1	1300	20.9
1700	1530	20.2	1400	22
1800	1630	21.3	1500	23.1
1900	1730	22.4	1600	24.2
2000	1830	23.5	1700	25.3
2100	1930	24.6	1800	26.4
2200	2030	25.7	1900	27.5
2300	2130	26.8	2000	28.6
2400	2230	27.9	2100	29.7
2500	2330	29	2200	30.8
2600	2430	30.1	2300	31.9
2700	2530	31.2	2400	33
2800	2630	32.3	2500	34.1
2900	2730	33.4	2600	35.2
3000	2830	34.5	2700	36.3

Motor spec.		
Peak thrust	N	234.00
Continuous thrust	N	81.00
Peak current	Arms	10.40
Persistent current	Arms	3.40
Back EMF Constant	Vpeak/(M/S)	20.42
Motor force constant	N/Arms	22.85
Interphase resistance	Ω	2.50
Interphase inductance	Mh	15.53
Time Constant	ms	4.91
Maximum Allowable Voltage	VDC	310.00
Magnetic Attraction Force	N	376.00
Pole pitch	mm	25

Machinery specifications		
Length of actuator mass	mm	120
Number of sliders	Pcs	4
Repeatability Accuracy	Magnetic scale	±5μm/1000mm
	Optical scale	±2μm/1000mm
Mass of actuator mass	Kg	1.9

Load acceleration curve



KDH14-A Motor load quick model selection

Load	1m/s	1.5m/s	2m/s	3m/s
2kg	4g	4g	1.85g	1.3g
3kg	3.5g	2.5g	1.25g	0.9g
4kg	3g	1.5g	0.9g	0.75g
5kg	2g	1.2g	0.7g	0.6g
8kg	1g	0.7g	0.4g	0.38g

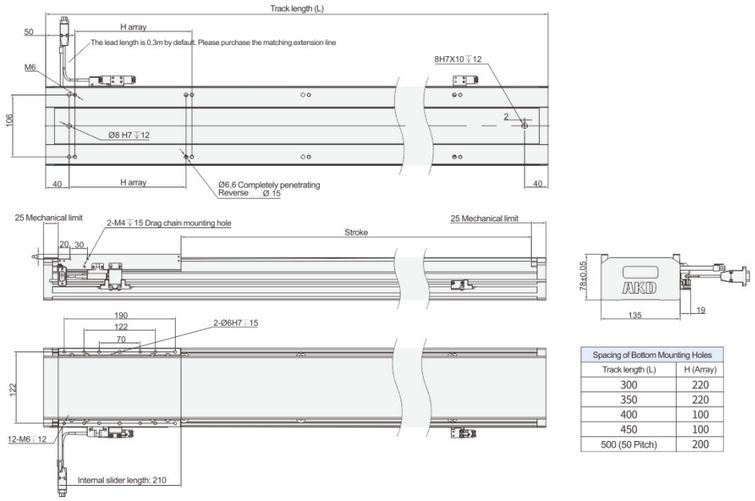
KDH14-A motor is adapted to a 400W servo driver, and AKD provides the following models of drivers.

Driver brand	Pulse model	Bus model	Matching encoder extension line	Matching power extension line
AKD	KA1-MC-ZJ3LDO	KA1-ZX-ZJ3LDO	ALFC-B-3M/5M/8M-TY	AL-D05-3M/5M/8M (The length of encoder extension line and the power extension line need to be the same)
GOOGOL	CDHD2S-0032AAP1	CDHD2S-0032AEC2	ALGC-B-3M/5M/8M-TY	
Servotronix economical model	GSLD-0032AAP1	GSLD-0032AEC2-A	ALGSLD-B-3M/5M/8M-TY	

AKD linear motors are compatible with most brands and models of drivers on the market. For more information about the use and purchase of other brands of drivers, please consult AKD sales engineers for details.

KDH14B General purpose linear motor actuator

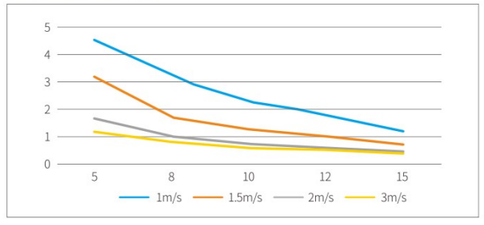
KDH14P- [Track length] A [Number of rotors] - CY [Number of sensors] - S [Stroke]



Spacing of Bottom Mounting Holes	
Track length (L)	H (Array)
300	220
350	220
400	100
450	100
500 (50 Pitch)	200

Track length (mm)	Stroke (mm)	Mass (kg)	Double rotor Stroke(mm)	Double rotor Mass(kg)
300	40	5.5	-	-
350	90	6.05	-	-
400	140	6.6	-	-
450	190	7.15	-	-
500	240	7.7	-	-
550	290	8.25	-	-
600	340	8.8	120	11.4
650	390	9.35	170	11.95
700	440	9.9	220	12.5
750	490	10.45	270	13.05
800	540	11	320	13.6
850	590	11.55	370	14.15
900	640	12.1	420	14.7
950	690	12.65	470	15.25
1000	740	13.2	520	15.8
1100	840	14.3	620	16.9
1200	940	15.4	720	18
1300	1040	16.5	820	19.1
1400	1140	17.6	920	20.2
1500	1240	18.7	1020	21.3
1600	1340	19.8	1120	22.4
1700	1440	20.9	1220	23.5
1800	1540	22	1320	24.6
1900	1640	23.1	1420	25.7
2000	1740	24.2	1520	26.8
2100	1840	25.3	1620	27.9
2200	1940	26.4	1720	29
2300	2040	27.5	1820	30.1
2400	2140	28.6	1920	31.2
2500	2240	29.7	2020	32.3
2600	2340	30.8	2120	33.4
2700	2440	31.9	2220	34.5
2800	2540	33	2320	35.6
2900	2640	34.1	2420	36.7
3000	2740	35.2	2520	37.8

Load acceleration curve



Motor spec.		
Peak thrust	N	468.00
Continuous thrust	N	162.00
Peak current	Arms	10.40
Persistent current	Arms	3.40
Back EMF Constant	Vpeak/(M/S)	42.72
Motor force constant	N/Arms	45.70
Interphase resistance	Ω	4.90
Interphase inductance	Mh	29.84
Time Constant	ms	4.94
Maximum Allowable Voltage	VDC	310.00
Magnetic Attraction Force	N	758.00
Pole pitch	mm	25

Machinery specifications		
Length of actuator mass	mm	210
Number of sliders	Pcs	4
Repeatability Accuracy	Magnetic scale	±5μm/1000mm
	Optical scale	±2μm/1000mm
Mass of actuator mass	Kg	2.6

KDH14-B Motor load quick model selection

Load	1m/s	1.5m/s	2m/s	3m/s
5kg	4g	3.2g	1.7g	1.2g
8kg	3.2g	1.7g	1g	0.8g
10kg	2.3g	1.3g	0.75g	0.6g
12kg	1.8g	1g	0.6g	0.5g
15kg	1.2g	0.75g	0.5g	0.4g

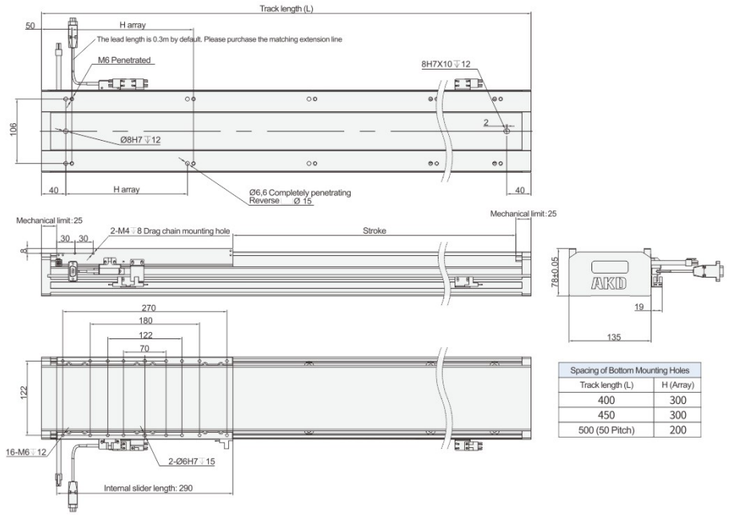
KDH14-B motor is adapted to a 750W servo driver, and AKD provides the following models of drivers.

Driver brand	Pulse model	Bus model	Matching encoder extension line	Matching power extension line
AKD	KA1-MC-ZJ6LDO	KA1-ZX-ZJ6LDO	ALFC-B-3M/5M/8M-TY	AL-D05-3M/5M/8M (The length of encoder extension line and the power extension line need to be the same)
GOOGOL	CDHD2S-4D52AAP1	CDHD2S-4D52AEC2	ALGC-B-3M/5M/8M-TY	
Servotronix economical model	GSLD-0062AAP1	GSLD-0062AEC2-A	ALGSLD-B-3M/5M/8M-TY	

AKD linear motors are compatible with most brands and models of drivers on the market. For more information about the use and purchase of other brands of drivers, please consult AKD sales engineers for details.

KDH14C General purpose linear motor actuator

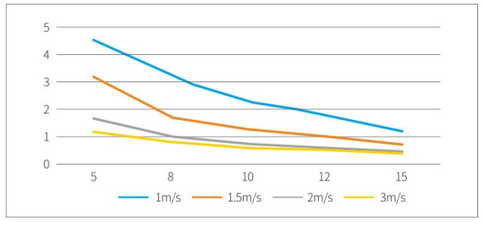
KDH14P- [Track length] A [Number of rotors] - CY [Number of sensors] - S [Stroke]



Spacing of Bottom Mounting Holes	
Track length (L)	H (Array)
400	300
450	300
500 (50 Pitch)	200

Track length (mm)	Stroke (mm)	Mass (kg)	Double rotor Stroke(mm)	Double rotor Mass(kg)
400	60	7.8	-	-
450	110	8.35	-	-
500	160	8.9	-	-
550	210	9.45	-	-
600	260	10		
650	310	10.55		
700	360	11.1	60	14.9
750	410	11.65	110	15.45
800	460	12.2	160	16
850	510	12.75	210	16.55
900	560	13.3	260	17.1
950	610	13.85	310	17.65
1000	660	14.4	360	18.2
1100	760	15.5	460	19.3
1200	860	16.6	560	20.4
1300	960	17.7	660	21.5
1400	1060	18.8	760	22.6
1500	1160	19.9	860	23.7
1600	1260	21	960	24.8
1700	1360	22.1	1060	25.9
1800	1460	23.2	1160	27
1900	1560	24.3	1260	28.1
2000	1660	25.4	1360	29.2
2100	1760	26.5	1460	30.3
2200	1860	27.6	1560	31.4
2300	1960	28.7	1660	32.5
2400	2060	29.8	1760	33.6
2500	2160	30.9	1860	34.7
2600	2260	32	1960	35.8
2700	2360	33.1	2060	36.9
2800	2460	34.2	2160	38
2900	2560	35.3	2260	39.1
3000	2660	36.4	2360	40.2

Load acceleration curve



Motor spec.		
Peak thrust	N	702.00
Continuous thrust	N	243.00
Peak current	Arms	10.40
Persistent current	Arms	3.40
Back EMF Constant	Vpeak/(M/S)	66.71
Motor force constant	N/Arms	68.56
Interphase resistance	Ω	7.47
Interphase inductance	Mh	43.77
Time Constant	ms	4.99
Maximum Allowable Voltage	VDC	310.00
Magnetic Attraction Force	N	1137.00
Pole pitch	mm	25

Machinery specifications		
Length of actuator mass	mm	290
Number of sliders	Pcs	6
Repeatability Accuracy	Magnetic scale	±5μm/1000mm
	Optical scale	±2μm/1000mm
Mass of actuator mass	Kg	3.8

KDH14-C Motor load quick model selection

Load	1m/s	1.5m/s	2m/s	3m/s
5kg	4g	4g	2.8g	2.2g
8kg	3.5g	2.8g	2g	1.2g
10kg	2.9g	2.1g	1.3g	0.9g
15kg	1.8g	1.1g	0.8g	0.6g
20kg	1g	0.6g	0.5g	0.4g
25kg	0.75g	0.48g	0.35g	0.32g
30kg	0.5g	0.40g	0.32g	0.3g

KDH14-C motor is adapted to a 750W servo driver, and AKD provides the following models of drivers.

Driver brand	Pulse model	Bus model	Matching encoder extension line	Matching power extension line
AKD	KA1-MC-ZJ6LDO	KA1-ZX-ZJ6LDO	ALFC-B-3M/5M/8M-TY	AL-D05-3M/5M/8M (The length of encoder extension line and the power extension line need to be the same)
GOOGOL	CDHD2S-4D52AAP1	CDHD2S-4D52AEC2	ALGC-B-3M/5M/8M-TY	
Servotronix economical model	GSLD-0062AAP1	GSLD-0062AEC2-A	ALGSLD-B-3M/5M/8M-TY	

AKD linear motors are compatible with most brands and models of drivers on the market. For more information about the use and purchase of other brands of drivers, please consult AKD sales engineers for details.

KDH17 General purpose linear motor actuator

- The optional range is 60-1566 N, and covers the common industrial applications
- Aviation aluminum profile base is featured by lightweight and low deformation modulus
- Ultra-long stroke
- Replace the screw actuator without changing the design
- Various protection methods are optional

With bellows protection and the same installation size, the effective stroke is shortened for 30%

Ordering Method

KDH17 P-400 A1B2-C-Y3-S300-XXXX-AL3M-D123

- KDH17: Model
- 400: Track length
- S300: Total effective stroke
- D123: Special Order No.

Track length

200~4000mm (can be spliced for longer travel) (50mm spacing)

Position feedback configuration

No	AKD incremental magnetic scale and read head are by default
XXXX	Specific manufacturer grating scale and read head model

Customization symbol

P	Precision-level
PD	Customized Precision-level

Rotor type and quantity

A	Low-thrust rotor
B	High-thrust rotor
1、2...	Corresponding number of rotors

Protection configuration

C	Aluminum profile cover
G	Steel strap cover
B	Bellows cover

Sensor type and quantity

Y	674 Sensor
3	Sensor quantity: 3

Direct lead length of rotor

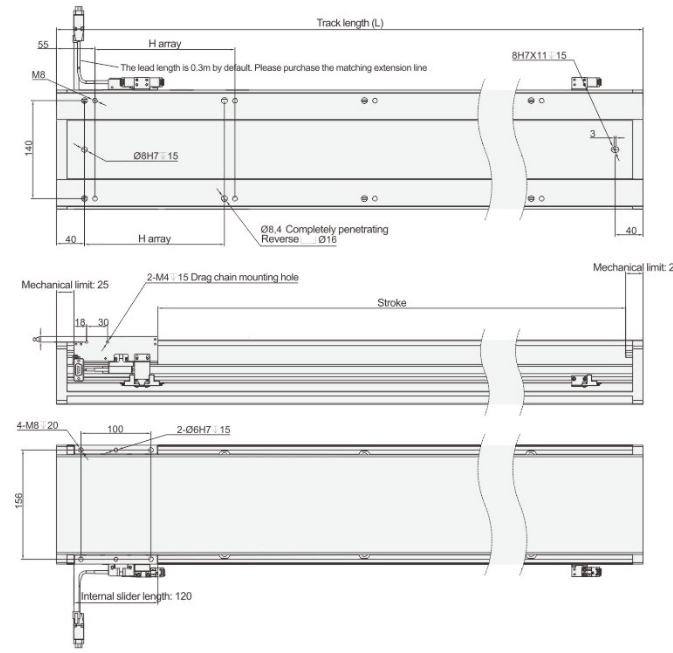
No	It is 0.3 by default (the extension line is to be prepared separately)
AL3M	Direct lead length of rotor: 3m
AL5M	Direct lead length of rotor: 5m
...	...

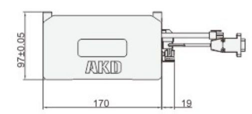
Note

1. The room temperature for motor parameter measurement is 25°C, and the specific use depends on the heat dissipation environment.
2. The accuracy number is used for API laser interferometer with the measuring stroke of 500 mm.
3. DC motor is adopted for resistance measurement, including a 0.3m standard cable.
4. Inductance measurement frequency: 1kHz.
5. The weight of actuator mass includes parts such as motor, slider, fixed platform, encoder, etc.
6. Unmarked tolerance: ±0.1 mm
7. Load/speed parameters, test pause time: 0.5s, stroke: 500mm, it is the theoretical value when placed horizontally, and for reference only. The actual load is affected by factors such as movement speed, acceleration, friction, installation environment and motor thrust.
8. The rated load is the load data under the acceleration of 1 m/s and 0.5 g.
9. The relevant parameter regulations are subject to change without prior notice.

KDH17A General purpose linear motor actuator

KDH17P - [Track length] A [Number of rotors] - CY [Number of sensors] - S [Stroke]





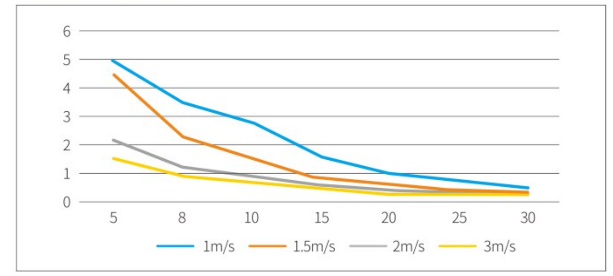
Spacing of Bottom Mounting Holes	
Track length (L)	H (Array)
300	220
350	220
400	100
450	100
500 (50 Pitch)	200

Track length (mm)	Stroke (mm)	Mass (kg)	Double rotor Stroke(mm)	Double rotor Mass(kg)
200	30	4.7	-	-
250	80	5.55	-	-
300	130	6.4	-	-
350	180	7.25	-	-
400	230	8.1	100	10.9
450	280	8.95	150	11.75
500	330	9.8	200	12.6
550	380	10.65	250	13.45
600	430	11.5	300	14.3
650	480	12.35	350	15.15
700	530	13.2	400	16
750	580	14.05	450	16.85
800	630	14.9	500	17.7
850	680	15.75	550	18.55
900	730	16.6	600	19.4
950	780	17.45	650	20.25
1000	830	18.3	700	21.1
1100	930	20	800	22.8
1200	1030	21.7	900	24.5
1300	1130	23.4	1000	26.2
1400	1230	25.1	1100	27.9
1500	1330	26.8	1200	29.6
1600	1430	28.5	1300	31.3
1700	1530	30.2	1400	33
1800	1630	31.9	1500	34.7
1900	1730	33.6	1600	36.4
2000	1830	35.3	1700	38.1
2100	1930	37	1800	39.8
2200	2030	38.7	1900	41.5
2300	2130	40.4	2000	43.2
2400	2230	42.1	2100	44.9
2500	2330	43.8	2200	46.6
2600	2430	45.5	2300	48.3
2700	2530	47.2	2400	50
2800	2630	48.9	2500	51.7
2900	2730	50.6	2600	53.4
3000	2830	52.3	2700	55.1

Motor spec.		
Peak thrust	N	501.00
Continuous thrust	N	186.00
Peak current	Arms	10.40
Persistent current	Arms	3.40
Back EMF Constant	Vpeak/(M/S)	51.23
Motor force constant	N/Arms	54.04
Interphase resistance	Ω	5.20
Interphase inductance	Mh	30.02
Time Constant	ms	5.77
Maximum Allowable Voltage	VDC	310.00
Magnetic Attraction Force	N	640.00
Pole pitch	mm	25

Machinery specifications		
Length of actuator mass	mm	120
Number of sliders	Pcs	4
Repeatability Accuracy	Magnetic scale	±5μm/1000mm
	Optical scale	±2μm/1000mm
Mass of actuator mass	Kg	2.8

Load acceleration curve



KDH17-A Motor load quick model selection

Load	1m/s	1.5m/s	2m/s	3m/s
5kg	4g	4g	2.2g	1.55g
8kg	3.5g	2.3g	1.25g	0.95g
10kg	2.8g	1.5g	0.95g	0.75g
15kg	1.6g	0.85g	0.6g	0.5g
20kg	1g	0.65g	0.43g	0.35g
25kg	0.7g	0.45g	0.34g	0.3g
30kg	0.5g	0.35g	0.28g	0.25g

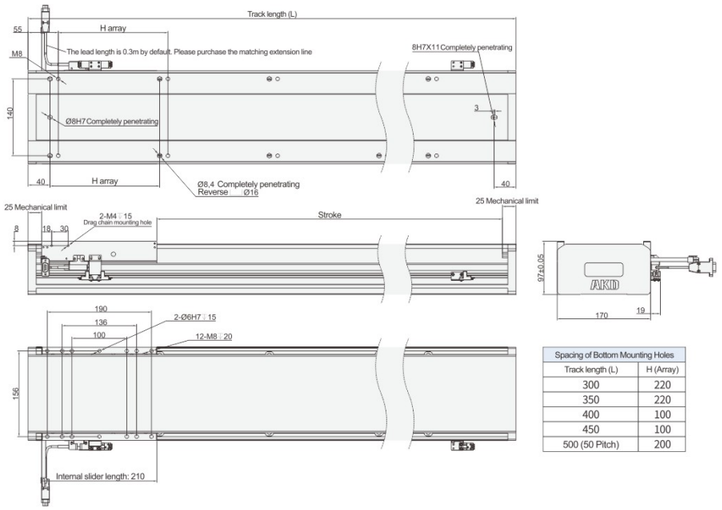
KDH17-A motor is adapted to a 750W servo driver, and AKD provides the following models of drivers.

Driver brand	Pulse model	Bus model	Matching encoder extension line	Matching power extension line
AKD	KA1-MC-ZJ6LDO	KA1-ZX-ZJ6LDO	ALFC-B-3M/5M/8M-TY	AL-D05-3M/5M/8M (The length of encoder extension line and the power extension line need to be the same)
GOOGOL	CDHD2S-4D52AAP1	CDHD2S-4D52AEC2	ALGC-B-3M/5M/8M-TY	
Servotronix economical model	GSLD-0062AAP1	GSLD-0062AEC2-A	ALGSLD-B-3M/5M/8M-TY	

AKD linear motors are compatible with most brands and models of drivers on the market. For more information about the use and purchase of other brands of drivers, please consult AKD sales engineers for details.

KDH17B General purpose linear motor actuator

KDH17P- [Track length] A [Number of rotors] - CY [Number of sensors] - S [Stroke]



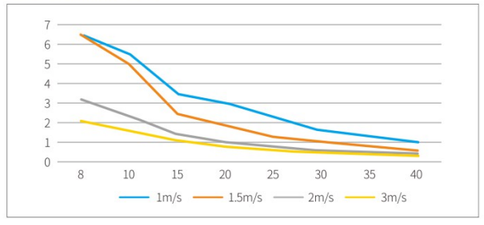
Spacing of Bottom Mounting Holes	
Track length (L)	H (Array)
300	220
350	220
400	100
450	100
500 (50 Pitch)	200

Track length (mm)	Stroke (mm)	Mass (kg)	Double rotor Stroke(mm)	Double rotor Mass(kg)
300	40	7.7	-	-
350	90	8.55	-	-
400	140	9.4	-	-
450	190	10.25	-	-
500	240	11.1	-	-
550	290	11.95	-	-
600	340	12.8	120	16.9
650	390	13.65	170	17.75
700	440	14.5	220	18.6
750	490	15.35	270	19.45
800	540	16.2	320	20.3
850	590	17.05	370	21.15
900	640	17.9	420	22
950	690	18.75	470	22.85
1000	740	19.6	520	23.7
1100	840	21.3	620	25.4
1200	940	23	720	27.1
1300	1040	24.7	820	28.8
1400	1140	26.4	920	30.5
1500	1240	28.1	1020	32.2
1600	1340	29.8	1120	33.9
1700	1440	31.5	1220	35.6
1800	1540	33.2	1320	37.3
1900	1640	34.9	1420	39
2000	1740	36.6	1520	40.7
2100	1840	38.3	1620	42.4
2200	1940	40	1720	44.1
2300	2040	41.7	1820	45.8
2400	2140	43.4	1920	47.5
2500	2240	45.1	2020	49.2
2600	2340	46.8	2120	50.9
2700	2440	48.5	2220	52.6
2800	2540	50.2	2320	54.3
2900	2640	51.9	2420	56
3000	2740	53.6	2520	57.7

Motor spec.		
Peak thrust	N	1002.00
Continuous thrust	N	372.00
Peak current	Arms	10.40
Persistent current	Arms	3.40
Back EMF Constant	Vpeak/(M/S)	92.88
Motor force constant	N/Arms	108.42
Interphase resistance	Ω	7.20
Interphase inductance	Mh	59.67
Time Constant	ms	5.08
Maximum Allowable Voltage	VDC	310.00
Magnetic Attraction Force	N	1280.00
Pole pitch	mm	25

Machinery specifications		
Length of actuator mass	mm	210
Number of sliders	Pcs	4
Repeatability Accuracy	Magnetic scale	±5μm/1000mm
	Optical scale	±2μm/1000mm
Mass of actuator mass	Kg	4.1

Load acceleration curve



KDH17-B Motor load quick model selection

Load	1m/s	1.5m/s	2m/s	3m/s
8kg	4g	4g	3.2g	2.1g
10kg	4g	4g	2.4g	1.6g
15kg	3.5g	2.5g	1.4g	1.1g
20kg	3g	1.8g	1g	0.8g
25kg	2.3g	1.3g	0.75g	0.6g
30kg	1.6g	1g	0.6g	0.5g
35kg	1.3g	0.8g	0.5g	0.45g
40kg	1g	0.6g	0.45g	0.35g

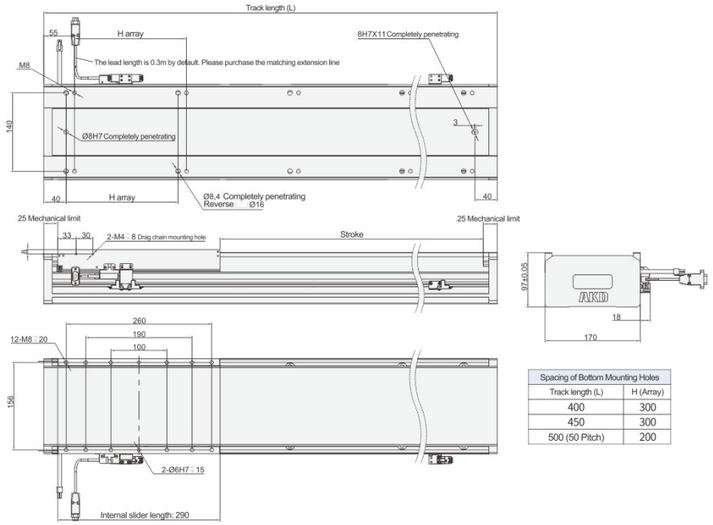
KDH17-B motor is adapted to a 750W servo driver, and AKD provides the following models of drivers.

Driver brand	Pulse model	Bus model	Matching encoder extension line	Matching power extension line
AKD	KA1-MC-ZJ6LDO	KA1-ZX-ZJ6LDO	ALFC-B-3M/5M/8M-TY	AL-D05-3M/5M/8M (The length of encoder extension line and the power extension line need to be the same)
GOOGOL	CDHD2S-4D52AAP1	CDHD2S-4D52AEC2	ALGC-B-3M/5M/8M-TY	
Servotronix economical model	GSLD-0062AAP1	GSLD-0062AEC2-A	ALGSLD-B-3M/5M/8M-TY	

AKD linear motors are compatible with most brands and models of drivers on the market. For more information about the use and purchase of other brands of drivers, please consult AKD sales engineers for details.

KDH17C General purpose linear motor actuator

KDH17P- [Track length] A [Number of rotors] - CY [Number of sensors] - S [Stroke]



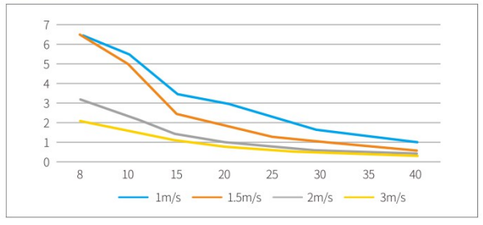
Spacing of Bottom Mounting Holes	
Track length (L)	H (Array)
400	300
450	300
500 (50 Pitch)	200

Track length (mm)	Stroke (mm)	Mass (kg)	Double rotor Stroke(mm)	Double rotor Mass(kg)
400	60	10.9	-	-
450	110	11.75	-	-
500	160	12.6	-	-
550	210	13.45	-	-
600	260	14.3		
650	310	15.15		
700	360	16	60	21.6
750	410	16.85	110	22.45
800	460	17.7	160	23.3
850	510	18.55	210	24.15
900	560	19.4	260	25
950	610	20.25	310	25.85
1000	660	21.1	360	26.7
1100	760	22.8	460	28.4
1200	860	24.5	560	30.1
1300	960	26.2	660	31.8
1400	1060	27.9	760	33.5
1500	1160	29.6	860	35.2
1600	1260	31.3	960	36.9
1700	1360	33	1060	38.6
1800	1460	34.7	1160	40.3
1900	1560	36.4	1260	42
2000	1660	38.1	1360	43.7
2100	1760	39.8	1460	45.4
2200	1860	41.5	1560	47.1
2300	1960	43.2	1660	48.8
2400	2060	44.9	1760	50.5
2500	2160	46.6	1860	52.2
2600	2260	48.3	1960	53.9
2700	2360	50	2060	55.6
2800	2460	51.7	2160	57.3
2900	2560	53.4	2260	59
3000	2660	55.1	2360	60.7

Motor spec.		
Peak thrust	N	1503.00
Continuous thrust	N	558.00
Peak current	Arms	10.40
Persistent current	Arms	3.40
Back EMF Constant	Vpeak/(M/S)	147.51
Motor force constant	N/Arms	162.12
Interphase resistance	Ω	13.13
Interphase inductance	Mh	88.72
Time Constant	ms	5.19
Maximum Allowable Voltage	VDC	310.00
Magnetic Attraction Force	N	1920.00
Pole pitch	mm	25

Machinery specifications		
Length of actuator mass	mm	290
Number of sliders	Pcs	6
Repeatability Accuracy	Magnetic scale	±5μm/1000mm
	Optical scale	±2μm/1000mm
Mass of actuator mass	Kg	5.6

Load acceleration curve



KDH17-C Motor load quick model selection

Load	1m/s	1.5m/s	2m/s	3m/s
8	4g	4g	4g	3.5g
10	4g	4g	4g	3g
15	4g	3.6g	2.5g	1.8g
20	4g	1.9g	1.7g	1.3g
25	3.6g	1.5g	1.3g	1.1g
30	3.2g	1.4g	1.1g	0.9g
35	2.7g	2.2g	0.9g	0.7g
40	2.3g	2.1g	0.7g	0.6g
45	2g	1.8g	0.6g	0.5g
50	1.8g	1.3g	0.55g	0.42g

KDH17-C motor is adapted to a 1000W servo driver, and AKD provides the following models of drivers.

Driver brand	Pulse model	Bus model	Matching encoder extension line	Matching power extension line
AKD	KA1-MC-ZJ6LDO	KA1-ZX-ZJ6LDO	ALFC-B-3M/5M/8M-TY	AL-D75-3M/5M/8M (The length of encoder extension line and the power extension line need to be the same)
GOOGOL	CDHD2S-0062AAP1	CDHD2S-0062AEC2	ALGC-B-3M/5M/8M-TY	
Servotronix economical model	GSLD-0062AAP1	GSLD-0062AEC2-A	ALGSLD-B-3M/5M/8M-TY	

AKD linear motors are compatible with most brands and models of drivers on the market. For more information about the use and purchase of other brands of drivers, please consult AKD sales engineers for details.

KDH22 General purpose linear motor actuator

- The optional range is 60-1566 N, and covers the common industrial applications
- Aviation aluminum profile base is featured by lightweight and low deformation modulus
- Ultra-long stroke
- Replace the screw actuator without changing the design
- Various protection methods are optional

With bellows protection and the same installation size, the effective stroke is shortened for 30%

Ordering Method

KDH22 P-400 A1B2-C-Y3-S300-XXXX-AL3M-D123

Model

Track length

200~4000mm
(can be spliced for longer travel) (50mm spacing)

Customization symbol

P	Precision-level
PD	Customized Precision-level

Rotor type and quantity

A	Low-thrust rotor
B	High-thrust rotor
1、2 ...	Corresponding number of rotors

Protection configuration

C	Aluminum profile cover
G	Steel strap cover
B	Bellows cover

Total effective stroke

Sensor type and quantity

Y	674 Sensor
3	Sensor quantity: 3

Position feedback configuration

No	AKD incremental magnetic scale and read head are by default
XXXX	Specific manufacturer grating scale and read head model

Direct lead length of rotor

No	It is 0.3 by default (the extension line is to be prepared separately)
AL3M	Direct lead length of rotor: 3m
AL5M	Direct lead length of rotor: 5m
...	...

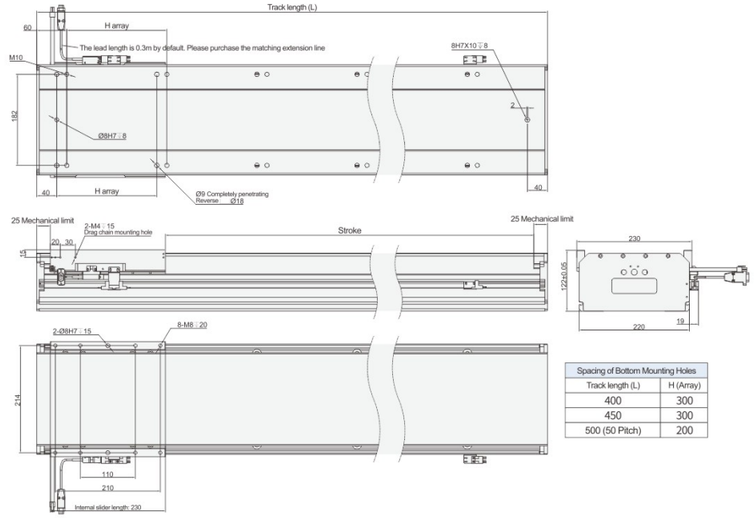
Special Order No.

Note

1. The room temperature for motor parameter measurement is 25°C, and the specific use depends on the heat dissipation environment.
2. The accuracy number is used for API laser interferometer with the measuring stroke of 500 mm.
3. DC motor is adopted for resistance measurement, including a 0.3m standard cable.
4. Inductance measurement frequency: 1kHz.
5. The weight of actuator mass includes parts such as motor, slider, fixed platform, encoder, etc.
6. Unmarked tolerance: ±0.1 mm
7. Load/speed parameters, test pause time: 0.5s, stroke: 500mm, it is the theoretical value when placed horizontally, and for reference only. The actual load is affected by factors such as movement speed, acceleration, friction, installation environment and motor thrust.
8. The rated load is the load data under the acceleration of 1 m/s and 0.5 g.
9. The relevant parameter regulations are subject to change without prior notice.

KDH22A General purpose linear motor actuator

KDH22P- Track length A Number of rotors - CY Number of sensors - S Stroke



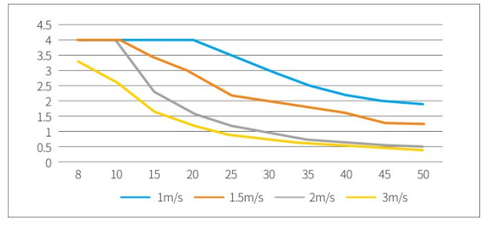
Spacing of Bottom Mounting Holes	
Track length (L)	H (Array)
400	300
450	300
500 (50 Pitch)	200

Track length (mm)	Stroke (mm)	Mass (kg)	Double rotor Stroke(mm)	Double rotor Mass(kg)
400	120	18.5	-	-
450	170	19.75	-	-
500	220	21	-	-
550	270	22.25	-	-
600	320	23.5	80	29
650	370	24.75	130	30.25
700	420	26	180	31.5
750	470	27.25	230	32.75
800	520	28.5	280	34
850	570	29.75	330	35.25
900	620	31	380	36.5
950	670	32.25	430	37.75
1000	720	33.5	480	39
1100	820	36	580	41.5
1200	920	38.5	680	44
1300	1020	41	780	46.5
1400	1120	43.5	880	49
1500	1220	46	980	51.5
1600	1320	48.5	1080	54
1700	1420	51	1180	56.5
1800	1520	53.5	1280	59
1900	1620	56	1380	61.5
2000	1720	58.5	1480	64
2100	1820	61	1580	66.5
2200	1920	63.5	1680	69
2300	2020	66	1780	71.5
2400	2120	68.5	1880	74
2500	2220	71	1980	76.5
2600	2320	73.5	2080	79
2700	2420	76	2180	81.5
2800	2520	78.5	2280	84
2900	2620	81	2380	86.5
3000	2720	83.5	2480	89

Motor spec.		
Peak thrust	N	1408.00
Continuous thrust	N	510.00
Peak current	Arms	10.40
Persistent current	Arms	3.40
Back EMF Constant	Vpeak/(M/S)	134.56
Motor force constant	N/Arms	147.78
Interphase resistance	Ω	10.90
Interphase inductance	Mh	77.94
Time Constant	ms	5.40
Maximum Allowable Voltage	VDC	310.00
Magnetic Attraction Force	N	1746.00
Pole pitch	mm	25

Machinery specifications		
Length of actuator mass	mm	230
Number of sliders	Pcs	4
Repeatability Accuracy	Magnetic scale	±5μm/1000mm
	Optical scale	±2μm/1000mm
Mass of actuator mass	Kg	5.5

Load acceleration curve



KDH22-A Motor load quick model selection

Load	1m/s	1.5m/s	2m/s	3m/s
8	4g	4g	4g	3.3g
10	4g	4g	4g	2.6g
15	4g	3.4g	2.3g	1.65g
20	4g	1.6g	1.6g	1.2g
25	3.5g	1.3g	1.2g	0.9g
30	3g	1.25g	0.95g	0.75g
35	2.5g	2.9g	0.75g	0.65g
40	2.2g	2.2g	0.65g	0.55g
45	2g	2g	0.55g	0.45g
50	1.9g	1.8g	0.5g	0.4g

KDH22-A motor is adapted to a 1000W servo driver, and AKD provides the following models of drivers.

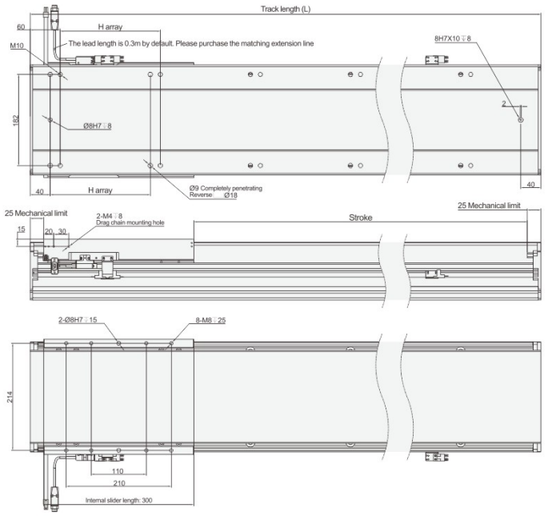
The above are the parameters for motor series connection. For speeds exceeding 2m/s, the motor should be connected in parallel, with a current twice that of the series connection and the same thrust. The drive should be selected according to the current of 1500W

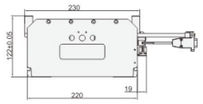
Driver brand	Pulse model	Bus model	Matching encoder extension line	Matching power extension line
AKD	KA1-MC-ZJ6LDO	KA1-ZX-ZJ6LDO	ALFC-B-3M/5M/8M-TY	AL-D75-3M/5M/8M (The length of encoder extension line and the power extension line need to be the same)
GOOGOL	CDHD2S-0062AAP1	CDHD2S-0062AEC2	ALGC-B-3M/5M/8M-TY	
Servotronix economical model	GSLD-0062AAP1	GSLD-0062AEC2-A	ALGSLD-B-3M/5M/8M-TY	

AKD linear motors are compatible with most brands and models of drivers on the market. For more information about the use and purchase of other brands of drivers, please consult AKD sales engineers for details.

KDH22B General purpose linear motor actuator

KDH22P - [Track length] A [Number of rotors] - CY [Number of sensors] - S [Stroke]





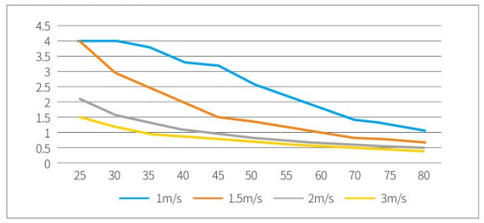
Spacing of Bottom Mounting Holes	
Track length (L)	H (Array)
400	300
450	300
500 (50 Pitch)	200

Track length (mm)	Stroke (mm)	Mass (kg)	Double rotor Stroke(mm)	Double rotor Mass(kg)
400	50	20.6	-	-
450	100	21.85	-	-
500	150	23.1	-	-
550	200	24.35	-	-
600	250	25.6	-	-
650	300	26.85	-	-
700	350	28.1	40	35.7
750	400	29.35	90	36.95
800	450	30.6	140	38.2
850	500	31.85	190	39.45
900	550	33.1	240	40.7
950	600	34.35	290	41.95
1000	650	35.6	340	43.2
1100	750	38.1	440	45.7
1200	850	40.6	540	48.2
1300	950	43.1	640	50.7
1400	1050	45.6	740	53.2
1500	1150	48.1	840	55.7
1600	1250	50.6	940	58.2
1700	1350	53.1	1040	60.7
1800	1450	55.6	1140	63.2
1900	1550	58.1	1240	65.7
2000	1650	60.6	1340	68.2
2100	1750	63.1	1440	70.7
2200	1850	65.6	1540	73.2
2300	1950	68.1	1640	75.7
2400	2050	70.6	1740	78.2
2500	2150	73.1	1840	80.7
2600	2250	75.6	1940	83.2
2700	2350	78.1	2040	85.7
2800	2450	80.6	2140	88.2
2900	2550	83.1	2240	90.7
3000	2650	85.6	2340	93.2

Motor spec.		
Peak thrust	N	2112.00
Continuous thrust	N	765.00
Peak current	Arms	10.40
Persistent current	Arms	3.40
Back EMF Constant	Vpeak/(M/S)	201.69
Motor force constant	N/Arms	221.67
Interphase resistance	Ω	16.17
Interphase inductance	Mh	115.62
Time Constant	ms	5.11
Maximum Allowable Voltage	VDC	310.00
Magnetic Attraction Force	N	2619.00
Pole pitch	mm	25

Machinery specifications		
Length of actuator mass	mm	300
Number of sliders	Pcs	6
Repeatability Accuracy	Magnetic scale	±5μm/1000mm
	Optical scale	±2μm/1000mm
Mass of actuator mass	Kg	7.6

Load acceleration curve



KDH22-B Motor load quick model selection

Load	1m/s	1.5m/s	2m/s	3m/s
25	4g	4g	2.1g	1.5g
30	4g	3g	1.6g	1.2g
35	3.8g	2.5g	1.3g	1g
40	3.3g	2g	1.1g	0.89g
45	3.2g	1.5g	0.95g	0.78g
50	2.6g	1.4g	0.85g	0.69g
55	2.2g	1.2g	0.75g	0.63g
60	1.8g	1g	0.65g	0.57g
70	1.4g	0.85g	0.55g	0.48g
75	1.3g	0.8g	0.5g	0.45g

KDH22-B motor is adapted to a 1000W servo driver, and AKD provides the following models of drivers.

The above are the parameters for motor series connection. For speeds exceeding 2m/s, the motor should be connected in parallel, with a current twice that of the series connection and the same thrust. The drive should be selected according to the current of 1500W

Driver brand	Pulse model	Bus model	Matching encoder extension line	Matching power extension line
AKD	KA1-MC-ZJ6LDO	KA1-ZX-ZJ6LDO	ALFC-B-3M/5M/8M-TY	AL-D75-3M/5M/8M (The length of encoder extension line and the power extension line need to be the same)
GOOGOL	CDHD2S-0062AAP1	CDHD2S-0062AEC2	ALGC-B-3M/5M/8M-TY	
Servotronix economical model	GSLD-0062AAP1	GSLD-0062AEC2-A	ALGSLD-B-3M/5M/8M-TY	

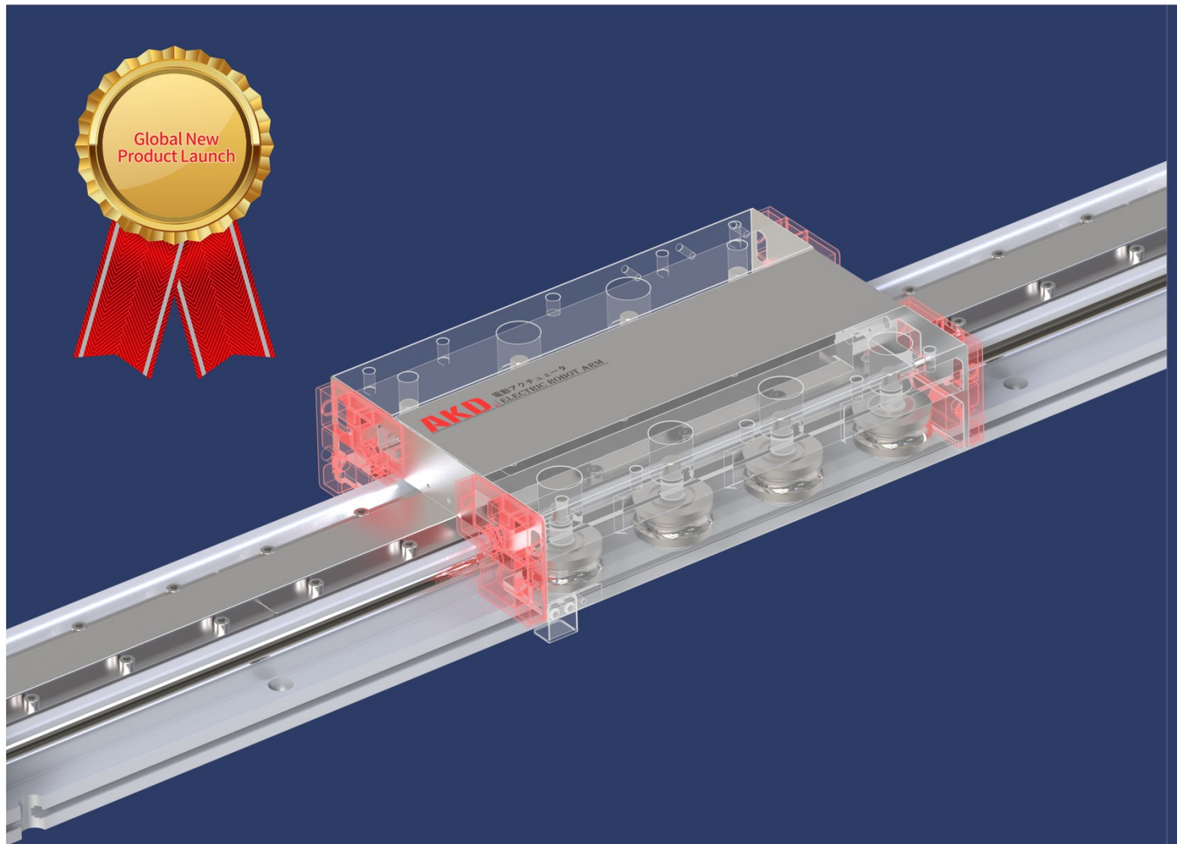
AKD linear motors are compatible with most brands and models of drivers on the market. For more information about the use and purchase of other brands of drivers, please consult AKD sales engineers for details.

AKD

MEMO

TFL Series

Silent Linear Motor Module



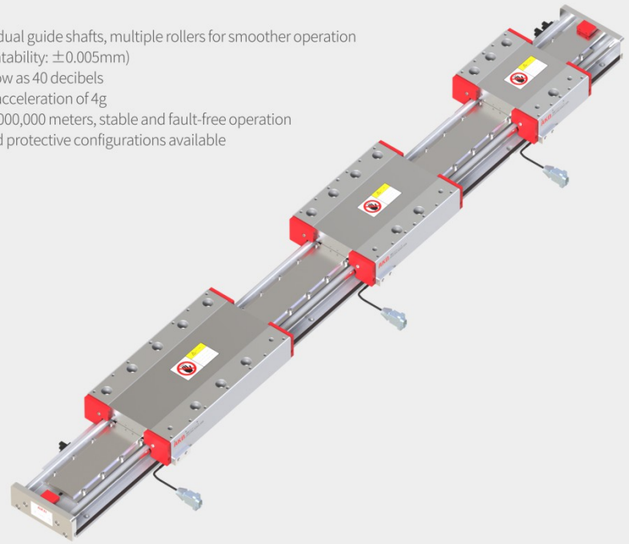
Innovative Patent Product

*Unique tourbillon design, dual guide shafts, multiple rollers for smoother operation
*Ultra-high precision (repeatability: ±0.005mm)
*Ultra-quiet operation, as low as 40 decibels
*Maximum speed of 6m/s, acceleration of 4g
*Endurance tested over 10,000,000 meters, stable and fault-free operation
*Multiple thrust options and protective configurations available
*Maximum thrust of 1503N

TFL Series			TFL*H Series (with cover plate)
TFL105-A	Continuous Thrust：81N	Peak Thrust：234N	TFL105H-A
TFL105-B	Continuous Thrust：162N	Peak Thrust：468N	TFL105H-B
TFL105-C	Continuous Thrust：243N	Peak Thrust：702N	TFL105H-C
TFL135-A	Continuous Thrust：186N	Peak Thrust：501N	TFL135H-A
TFL135-B	Continuous Thrust：372N	Peak Thrust：1002N	TFL135H-B
TFL135-C	Continuous Thrust：558N	Peak Thrust：1503N	TFL135H-C

Silent Linear Motor Module, Does not support cantilever with center of gravity beyond 300mm.

*Unique tourbillon design, dual guide shafts, multiple rollers for smoother operation
*Ultra-high precision (repeatability: ±0.005mm)
*Ultra-quiet operation, as low as 40 decibels
*Maximum speed of 6m/s, acceleration of 4g
*Endurance tested over 10,000,000 meters, stable and fault-free operation
*Multiple thrust options and protective configurations available
*Maximum thrust of 1503N



Ordering Method

TFL105 - 400 A 1 - Y1 - S000 - ZL/JD-**

Model	Rail/Module Total Length	Mover Type	Mover Quantity	Quantity of 674 Sensors	Stroke	Special Order No.
TFL 105	Please refer to individual motor specifications	A Low Thrust	1 1 Single Mover	0 Without Sensor	Calculated based on guide rail length and mover quantity	ZL Incremental Magnetic Scale
TFL 135		B High Thrust	2 2 Single Mover	1 1 Sensor		JD Absolute Magnetic Scale
		C High Thrust	3 3 Single Mover	2 2 Sensor		
				3 3 Sensor		

1. The AKD linear motor is equipped by default with a magnetic grating encoder with a resolution of 1μm. If a special model is required, please note the readhead model at the end of the part number.
2. The AKD linear motor is equipped by default with an AKD photoelectric sensor.
3. The default cable length for the AKD linear motor is 0.3m. Please configure extension cables as needed. If a specific cable length is required, please indicate the direct motor cable length at the end of the part number.

Encoder Cable Naming Rules

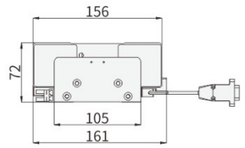
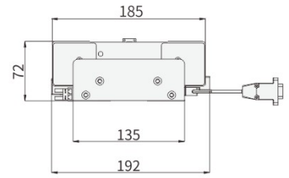
AL FC - B - *M - 000

- AL — AKD Cable Codes
- FC — FC-AKD Driver KA1 Series; GC-CDHD; CDHD2S/GSHD Series; GSLD-Servotronix economical model GSLD Series
- B — Encoder Cables
- *M — Length Selection 3/5/8/10/12
- 000 — Special model readheads (e.g., the suffix MC13 indicates the MC13 series absolute encoder)
  - TY- AKD Incremental ALS2
  - TY- Tianxian Incremental LMD200
  - TY- Tianxian Absolute FMG3000
  - TY- Renishaw Incremental Grating RGH200/RGH24 with DB9
  - TY- Rongshu Grating RU2-M Wire Sequence
  - TY- Rongshu Grating D2

Power Cable Naming Rules

AL D05 - *M

- AL — AKD Cable Codes
- D05 — D05 - 0.5 sq.mm cable (Applicable for currents up to 6A); D75 - 0.75 sq.mm cable (Applicable for currents 6.1A to 10A); D10 - 1 sq.mm cable (Applicable for currents above 12A)
- *M — Length Selection 3/5/8/10/12

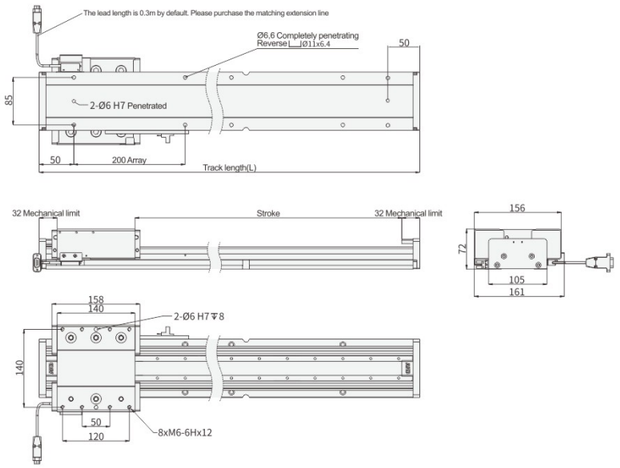
Product Series	Thrust	Cross-sectional Dimensions	Slider Length
TFL105-A	Continuous Thrust：81N		158
	Peak Thrust：234N		
TFL105-B	Continuous Thrust：162N		248
	Peak Thrust：468N		
TFL105-C	Continuous Thrust：243N		338
	Peak Thrust：702N		
TFL135-A	Continuous Thrust：186N		158
	Peak Thrust：501N		
TFL135-B	Continuous Thrust：372N		248
	Peak Thrust：1002N		
TFL135-C	Continuous Thrust：558N		338
	Peak Thrust：1503N		

Pay attention to

1.Motor parameters are measured at an ambient temperature of 25℃. Actual performance depends on the heat dissipation conditions in use.
2.Resistance is measured using a DC motor, including the 0.3-meter standard cable.
3.Inductance is measured at a frequency of 1 kHz.
4.The sliding body weight includes the mass of the motor, slider, mounting platform, encoder, and other components.
5.Unless otherwise specified, the tolerance is ±0.1 mm.
7.Load/speed parameters are theoretical values for horizontal placement, tested with a 0.5s dwell time over a 500mm travel distance, and are for reference only. Actual load capacity is influenced by speed, acceleration, friction, installation conditions, motor thrust, and other factors.
8.The Tourbillon TFL series linear motor modules are equipped with AKD roller guides, magnetic scales, and photoelectric sensors as standard. For other configurations, please contact a sales engineer.
9.The company reserves the right to change relevant parameters without prior notice.

TFL105-A Silent Linear Motor Module

TFL105 - [Track length] A [Number of rotors] - Y [Number of sensors] - S [Stroke]

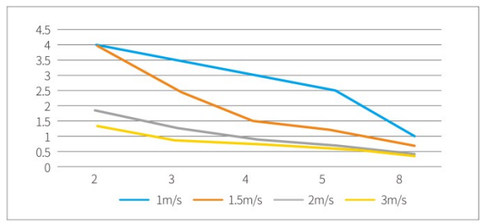


Performance parameters	
Repeatability Accuracy	±5μm/500mm

Motor spec.	
Peak current	10.4 Arms
Persistent current	3.2Arms
Peak thrust	234N
Continuous thrust	81 N
Motor force constant	22.85N/Arms
Interphase resistance	2.5 Ω
Interphase inductance	15.53 Mh
Pole pitch	25 mm

Machinery specifications	
Length of actuator mass	158 mm
Mass of actuator mass	2.5 kg

Load acceleration curve



TFL105-A Motor load quick model selection

Load	1m/s	1.5m/s	2m/s	3m/s
2kg	4g	4g	1.85g	1.3g
3kg	3.5g	2.5g	1.25g	0.9g
4kg	3g	1.5g	0.9g	0.75g
5kg	2g	1.2g	0.7g	0.6g
8kg	1g	0.7g	0.4g	0.38g

Track length (mm)	Stroke (mm)	Mass (kg)	Double rotor Stroke(mm)	Double rotor Mass(kg)
400	195	6	25	8.5
450	245	6.45	75	8.95
500	295	6.9	125	9.4
550	345	7.35	175	9.85
600	395	7.8	225	10.3
650	445	8.25	275	10.75
700	495	8.7	325	11.2
750	545	9.15	375	11.65
800	595	9.6	425	12.1
850	645	10.05	475	12.55
900	695	10.5	525	13
950	745	10.95	575	13.45
1000	795	11.4	625	13.9
1100	895	12.3	725	14.8
1200	995	13.2	825	15.7
1300	1095	14.1	925	16.6
1400	1195	15	1025	17.5
1500	1295	15.9	1125	18.4
1600	1395	16.8	1225	19.3
1700	1495	17.7	1325	20.2
1800	1595	18.6	1425	21.1
1900	1695	19.5	1525	22
2000	1795	20.4	1625	22.9
2100	1895	21.3	1725	23.8
2200	1995	22.2	1825	24.7
2300	2095	23.1	1925	25.6
2400	2195	24	2025	26.5
2500	2295	24.9	2125	27.4
2600	2395	25.8	2225	28.3
2700	2495	26.7	2325	29.2
2800	2595	27.6	2425	30.1
2900	2695	28.5	2525	31
3000	2795	29.4	2625	31.9
3100	2895	30.3	2725	32.8
3200	2995	31.2	2825	33.7
3300	3095	32.1	2925	34.6
3400	3195	33	3025	35.5
3500	3295	33.9	3125	36.4
3600	3395	34.8	3225	37.3
3700	3495	35.7	3325	38.2
3800	3595	36.6	3425	39.1
3900	3695	37.5	3525	40
4000	3795	38.4	3625	40.9

1. The travel distance can be extended to greater lengths.
2. Scan the QR code on the cover to download the 3D model from the official website.

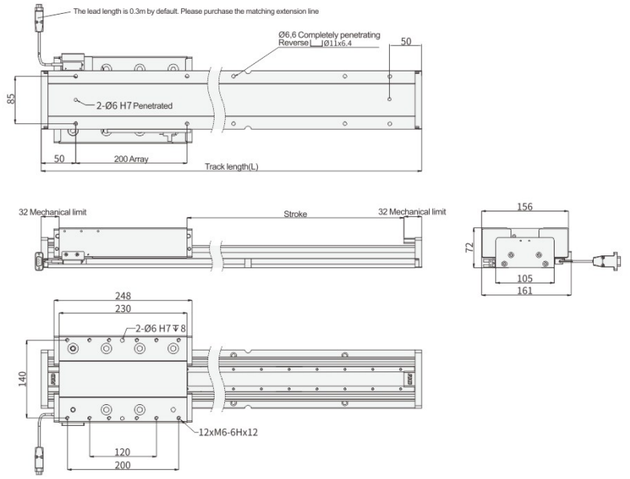
TFL105-A motor is adapted to a 750W servo driver, and AKD provides the following models of drivers.

Driver brand	Pulse model	Bus model	Matching encoder extension line	Matching power extension line
AKD	KA1-MC-ZJ6LD0	KA1-ZX-ZJ6LD0	ALFC-B-3M/5M/8M-TY	AL-D75-3M/5M/8M (The length of encoder extension line and the power extension line need to be the same)
Servotronix economical model	GSLD-0062AAP1	GSLD-0062AEC2-A	ALGSLD-B-3M/5M/8M-TY	

AKD linear motors are compatible with most brands and models of drivers on the market. For more information about the use and purchase of other brands of drivers, please consult AKD sales engineers for details.

TFL105-B Silent Linear Motor Module

TFL105 - [Track length] B [Number of rotors] - Y [Number of sensors] - S [Stroke]

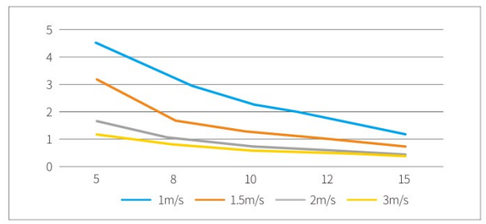


Performance parameters	
Repeatability Accuracy	±5μm/500mm

Motor spec.	
Peak current	10.4Arms
Persistent current	3.2Arms
Peak thrust	468N
Continuous thrust	162N
Motor force constant	45.7N/Arms
Interphase resistance	4.9Ω
Interphase inductance	29.84Mh
Pole pitch	25mm

Machinery specifications	
Length of actuator mass	248mm
Mass of actuator mass	4kg

Load acceleration curve



TFL105-B Motor load quick model selection

Load	1m/s	1.5m/s	2m/s	3m/s
5kg	4g	3.2g	1.7g	1.2g
8kg	3.2g	1.7g	1g	0.8g
10kg	2.3g	1.3g	0.75g	0.6g
12kg	1.8g	1g	0.6g	0.5g
15kg	1.2g	0.75g	0.5g	0.4g

Track length (mm)	Stroke (mm)	Mass (kg)	Double rotor Stroke(mm)	Double rotor Mass(kg)
400	105	7.5		
450	155	7.95		
500	205	8.4		
550	255	8.85		
600	305	9.3	45	13.3
650	355	9.75	95	13.75
700	405	10.2	145	14.2
750	455	10.65	195	14.65
800	505	11.1	245	15.1
850	555	11.55	295	15.55
900	605	12	345	16
950	655	12.45	395	16.45
1000	705	12.9	445	16.9
1100	805	13.8	545	17.8
1200	905	14.7	645	18.7
1300	1005	15.6	745	19.6
1400	1105	16.5	845	20.5
1500	1205	17.4	945	21.4
1600	1305	18.3	1045	22.3
1700	1405	19.2	1145	23.2
1800	1505	20.1	1245	24.1
1900	1605	21	1345	25
2000	1705	21.9	1445	25.9
2100	1805	22.8	1545	26.8
2200	1905	23.7	1645	27.7
2300	2005	24.6	1745	28.6
2400	2105	25.5	1845	29.5
2500	2205	26.4	1945	30.4
2600	2305	27.3	2045	31.3
2700	2405	28.2	2145	32.2
2800	2505	29.1	2245	33.1
2900	2605	30	2345	34
3000	2705	30.9	2445	34.9
3100	2805	31.8	2545	35.8
3200	2905	32.7	2645	36.7
3300	3005	33.6	2745	37.6
3400	3105	34.5	2845	38.5
3500	3205	35.4	2945	39.4
3600	3305	36.3	3045	40.3
3700	3405	37.2	3145	41.2
3800	3505	38.1	3245	42.1
3900	3605	39	3345	43
4000	3705	39.9	3445	43.9

1. The travel distance can be extended to greater lengths.
2. Scan the QR code on the cover to download the 3D model from the official website.

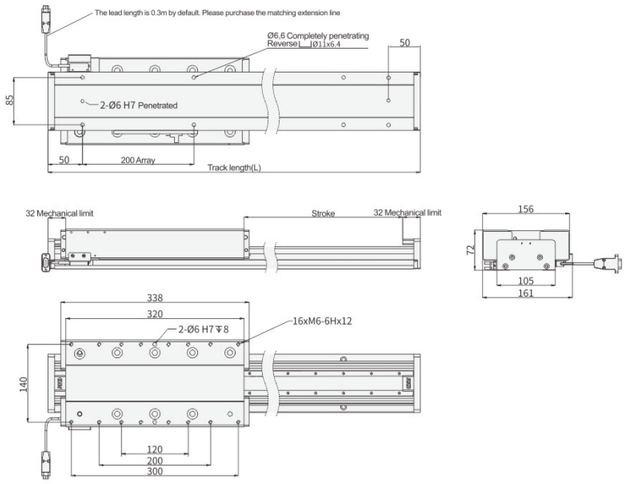
TFL105-B motor is adapted to a 750W servo driver, and AKD provides the following models of drivers.

Driver brand	Pulse model	Bus model	Matching encoder extension line	Matching power extension line
AKD	KA1-MC-ZJ6LD0	KA1-ZX-ZJ6LD0	ALFC-B-3M/5M/8M-TY	AL-D75-3M/5M/8M (The length of encoder extension line and the power extension line need to be the same)
Servotronix economical model	GSLD-0062AAP1	GSLD-0062AEC2-A	ALGSLD-B-3M/5M/8M-TY	

AKD linear motors are compatible with most brands and models of drivers on the market. For more information about the use and purchase of other brands of drivers, please consult AKD sales engineers for details.

TFL105-C Silent Linear Motor Module

TFL105 - [Track length] C [Number of rotors] - Y [Number of sensors] - S [Stroke]

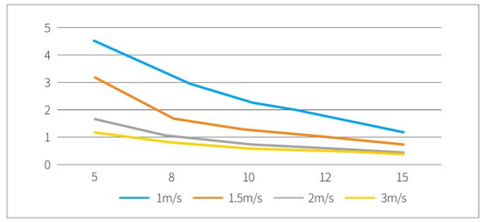


Performance parameters	
Repeatability Accuracy	±5μm/500mm

Motor spec.	
Peak current	10.4Arms
Persistent current	3.2Arms
Peak thrust	702N
Continuous thrust	243N
Motor force constant	68.56N/Arms
Interphase resistance	7.47 Ω
Interphase inductance	43.77 Mh
Pole pitch	25mm

Machinery specifications	
Length of actuator mass	338mm
Mass of actuator mass	5.6kg

Load acceleration curve



TFL105-C Motor load quick model selection

Load	1m/s	1.5m/s	2m/s	3m/s
5kg	4g	4g	2.8g	2.2g
8kg	3.5g	2.8g	2g	1.2g
10kg	2.9g	2.1g	1.3g	0.9g
15kg	1.8g	1.1g	0.8g	0.6g
20kg	1g	0.6g	0.5g	0.4g
25kg	0.75g	0.48g	0.35g	0.32g
30kg	0.5g	0.4g	0.32g	0.3g

Track length (mm)	Stroke (mm)	Mass (kg)	Double rotor Stroke(mm)	Double rotor Mass(kg)
400	15	9		
450	65	9.45		
500	115	9.9		
550	165	10.35		
600	215	10.8		
650	265	11.25		
700	315	11.7		
750	365	12.15	15	17.65
800	415	12.6	65	18.1
850	465	13.05	115	18.55
900	515	13.5	165	19
950	565	13.95	215	19.45
1000	615	14.4	265	19.9
1100	715	15.3	365	20.8
1200	815	16.2	465	21.7
1300	915	17.1	565	22.6
1400	1015	18	665	23.5
1500	1115	18.9	765	24.4
1600	1215	19.8	865	25.3
1700	1315	20.7	965	26.2
1800	1415	21.6	1065	27.1
1900	1515	22.5	1165	28
2000	1615	23.4	1265	28.9
2100	1715	24.3	1365	29.8
2200	1815	25.2	1465	30.7
2300	1915	26.1	1565	31.6
2400	2015	27	1665	32.5
2500	2115	27.9	1765	33.4
2600	2215	28.8	1865	34.3
2700	2315	29.7	1965	35.2
2800	2415	30.6	2065	36.1
2900	2515	31.5	2165	37
3000	2615	32.4	2265	37.9
3100	2715	33.3	2365	38.8
3200	2815	34.2	2465	39.7
3300	2915	35.1	2565	40.6
3400	3015	36	2665	41.5
3500	3115	36.9	2765	42.4
3600	3215	37.8	2865	43.3
3700	3315	38.7	2965	44.2
3800	3415	39.6	3065	45.1
3900	3515	40.5	3165	46
4000	3615	41.4	3265	46.9

1. The travel distance can be extended to greater lengths.
2. Scan the QR code on the cover to download the 3D model from the official website.

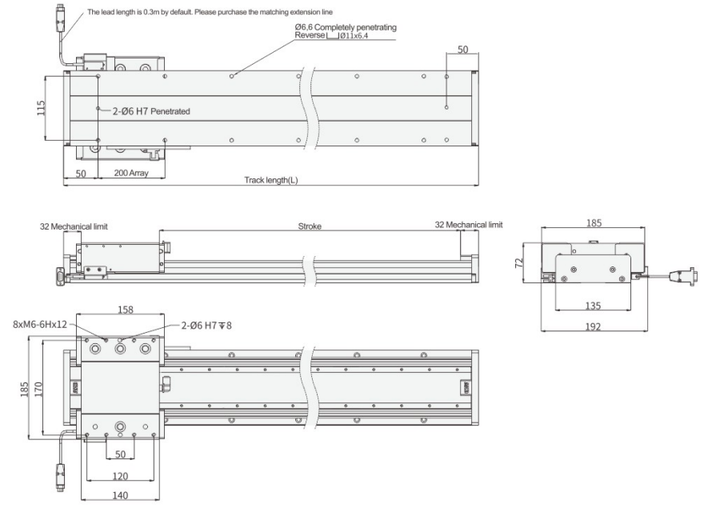
TFL105-C motor is adapted to a 750W servo driver, and AKD provides the following models of drivers.

Driver brand	Pulse model	Bus model	Matching encoder extension line	Matching power extension line
AKD	KA1-MC-ZJ6LD0	KA1-ZX-ZJ6LD0	ALFC-B-3M/5M/8M-TY	AL-D75-3M/5M/8M (The length of encoder extension line and the power extension line need to be the same)
Servotronix economical model	GSLD-0062AAP1	GSLD-0062AEC2-A	ALGSLD-B-3M/5M/8M-TY	

AKD linear motors are compatible with most brands and models of drivers on the market. For more information about the use and purchase of other brands of drivers, please consult AKD sales engineers for details.

TFL135-A Silent Linear Motor Module

TFL135 - [Track length] A [Number of rotors] - Y [Number of sensors] - S [Stroke]

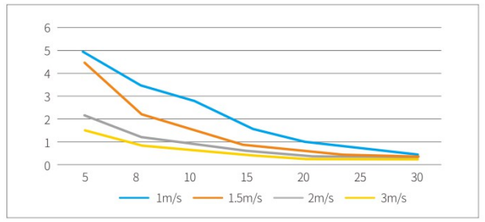


Performance parameters	
Repeatability Accuracy	±5μm/500mm

Motor spec.	
Peak current	10.4Arms
Persistent current	3.2 Arms
Peak thrust	501N
Continuous thrust	186 N
Motor force constant	54.05 N/Arms
Interphase resistance	5.20Ω
Interphase inductance	30.02 Mh
Pole pitch	25 mm

Machinery specifications	
Length of actuator mass	158mm
Mass of actuator mass	4.1kg

Load acceleration curve



TFL135-A Motor load quick model selection

Load	1m/s	1.5m/s	2m/s	3m/s
5kg	4g	4g	2.2g	1.55g
8kg	3.5g	2.3g	1.25g	0.95g
10kg	2.8g	1.5g	0.95g	0.75g
15kg	1.6g	0.85g	0.6g	0.5g
20kg	1g	0.65g	0.43g	0.35g
25kg	0.7g	0.45g	0.34g	0.3g
30kg	0.5g	0.35g	0.28g	0.25g

Track length (mm)	Stroke (mm)	Mass (kg)	Double rotor Stroke(mm)	Double rotor Mass(kg)
400	195	7.7	25	10.7
450	245	8.3	75	11.3
500	295	8.9	125	11.9
550	345	9.5	175	12.5
600	395	10.1	225	13.1
650	445	10.7	275	13.7
700	495	11.3	325	14.3
750	545	11.9	375	14.9
800	595	12.5	425	15.5
850	645	13.1	475	16.1
900	695	13.7	525	16.7
950	745	14.3	575	17.3
1000	795	14.9	625	17.9
1100	895	16.1	725	19.1
1200	995	17.3	825	20.3
1300	1095	18.5	925	21.5
1400	1195	19.7	1025	22.7
1500	1295	20.9	1125	23.9
1600	1395	22.1	1225	25.1
1700	1495	23.3	1325	26.3
1800	1595	24.5	1425	27.5
1900	1695	25.7	1525	28.7
2000	1795	26.9	1625	29.9
2100	1895	28.1	1725	31.1
2200	1995	29.3	1825	32.3
2300	2095	30.5	1925	33.5
2400	2195	31.7	2025	34.7
2500	2295	32.9	2125	35.9
2600	2395	34.1	2225	37.1
2700	2495	35.3	2325	38.3
2800	2595	36.5	2425	39.5
2900	2695	37.7	2525	40.7
3000	2795	38.9	2625	41.9
3100	2895	40.1	2725	43.1
3200	2995	41.3	2825	44.3
3300	3095	42.5	2925	45.5
3400	3195	43.7	3025	46.7
3500	3295	44.9	3125	47.9
3600	3395	46.1	3225	49.1
3700	3495	47.3	3325	50.3
3800	3595	48.5	3425	51.5
3900	3695	49.7	3525	52.7
4000	3795	50.9	3625	53.9

1. The travel distance can be extended to greater lengths.
2. Scan the QR code on the cover to download the 3D model from the official website.

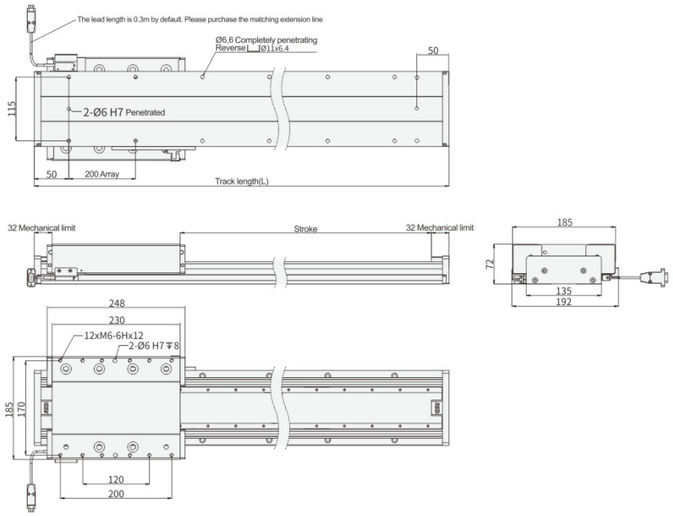
TFL135-A motor is adapted to a 750W servo driver, and AKD provides the following models of drivers.

Driver brand	Pulse model	Bus model	Matching encoder extension line	Matching power extension line
AKD	KA1-MC-ZJ6LD0	KA1-ZX-ZJ6LD0	ALFC-B-3M/5M/8M-TY	AL-D75-3M/5M/8M (The length of encoder extension line and the power extension line need to be the same)
Servotronix economical model	GSLD-0062AAP1	GSLD-0062AEC2-A	ALGSLD-B-3M/5M/8M-TY	

AKD linear motors are compatible with most brands and models of drivers on the market. For more information about the use and purchase of other brands of drivers, please consult AKD sales engineers for details.

TFL135-B Silent Linear Motor Module

TFL135 - [Track length] B [Number of rotors] - Y [Number of sensors] - S [Stroke]

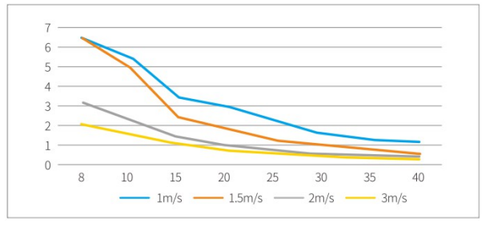


Performance parameters	
Repeatability Accuracy	±5μm/500mm

Motor spec.	
Peak current	10.4 Arms
Persistent current	3.2 Arms
Peak thrust	1002 N
Continuous thrust	372 N
Motor force constant	162.12 N/Arms
Interphase resistance	13.13 Ω
Interphase inductance	88.72 Mh
Pole pitch	25 mm

Machinery specifications	
Length of actuator mass	248 mm
Mass of actuator mass	5.5 kg

Load acceleration curve



TFL135-B Motor load quick model selection

Load	1m/s	1.5m/s	2m/s	3m/s
8kg	4g	4g	3.2g	2.1g
10kg	4g	4g	2.4g	1.6g
15kg	3.5g	2.5g	1.4g	1.1g
20kg	3g	1.8g	1g	0.8g
25kg	2.3g	1.3g	0.75g	0.6g
30kg	1.6g	1g	0.6g	0.5g
35kg	1.3g	0.8g	0.5g	0.45g
40kg	1g	0.6g	0.45g	0.35g

Track length (mm)	Stroke (mm)	Mass (kg)	Double rotor Stroke(mm)	Double rotor Mass(kg)
400	105	9.7		
450	155	10.3		
500	205	10.9		
550	255	11.5		
600	305	12.1	45	17.1
650	355	12.7	95	17.7
700	405	13.3	145	18.3
750	455	13.9	195	18.9
800	505	14.5	245	19.5
850	555	15.1	295	20.1
900	605	15.7	345	20.7
950	655	16.3	395	21.3
1000	705	16.9	445	21.9
1100	805	18.1	545	23.1
1200	905	19.3	645	24.3
1300	1005	20.5	745	25.5
1400	1105	21.7	845	26.7
1500	1205	22.9	945	27.9
1600	1305	24.1	1045	29.1
1700	1405	25.3	1145	30.3
1800	1505	26.5	1245	31.5
1900	1605	27.7	1345	32.7
2000	1705	28.9	1445	33.9
2100	1805	30.1	1545	35.1
2200	1905	31.3	1645	36.3
2300	2005	32.5	1745	37.5
2400	2105	33.7	1845	38.7
2500	2205	34.9	1945	39.9
2600	2305	36.1	2045	41.1
2700	2405	37.3	2145	42.3
2800	2505	38.5	2245	43.5
2900	2605	39.7	2345	44.7
3000	2705	40.9	2445	45.9
3100	2805	42.1	2545	47.1
3200	2905	43.3	2645	48.3
3300	3005	44.5	2745	49.5
3400	3105	45.7	2845	50.7
3500	3205	46.9	2945	51.9
3600	3305	48.1	3045	53.1
3700	3405	49.3	3145	54.3
3800	3505	50.5	3245	55.5
3900	3605	51.7	3345	56.7
4000	3705	52.9	3445	57.9

1. The travel distance can be extended to greater lengths.
2. Scan the QR code on the cover to download the 3D model from the official website.

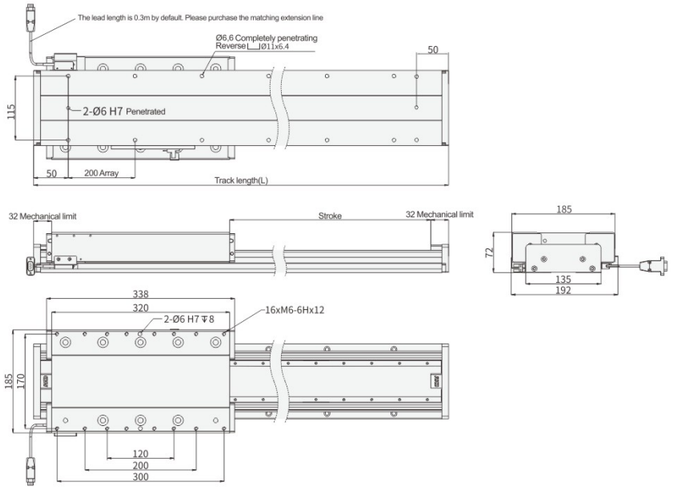
TFL135-B motor is adapted to a 750W servo driver, and AKD provides the following models of drivers.

Driver brand	Pulse model	Bus model	Matching encoder extension line	Matching power extension line
AKD	KA1-MC-ZJ6LD0	KA1-ZX-ZJ6LD0	ALFC-B-3M/5M/8M-TY	AL-D75-3M/5M/8M (The length of encoder extension line and the power extension line need to be the same)
Servotronix economical model	GSLD-0062AAP1	GSLD-0062AEC2-A	ALGSLD-B-3M/5M/8M-TY	

AKD linear motors are compatible with most brands and models of drivers on the market. For more information about the use and purchase of other brands of drivers, please consult AKD sales engineers for details.

TFL135-C Silent Linear Motor Module

TFL135 - [Track length] C [Number of rotors] - Y [Number of sensors] - S [Stroke]

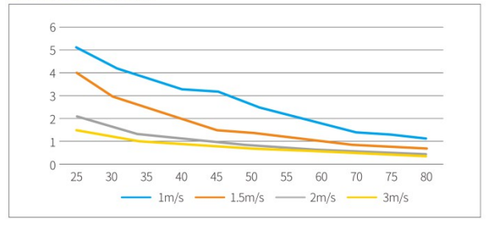


Performance parameters	
Repeatability Accuracy	±5μm/500mm

Motor spec.	
Peak current	10.4Arms
Persistent current	3.2Arms
Peak thrust	1503N
Continuous thrust	558N
Motor force constant	162.12N/Arms
Interphase resistance	13.13 Ω
Interphase inductance	88.72Mh
Pole pitch	25 mm

Machinery specifications	
Length of actuator mass	338 mm
Mass of actuator mass	7.6 kg

Load acceleration curve



TFL135-C Motor load quick model selection

Load	1m/s	1.5m/s	2m/s	3m/s
25kg	5.1g	4g	2.1g	1.5g
30kg	4.3g	3g	1.6g	1.2g
35kg	3.8g	2.5g	1.3g	1g
40kg	3.3g	2g	1.1g	0.89g
45kg	3.2g	1.5g	0.95g	0.78g
50kg	2.6g	1.4g	0.85g	0.69g
55kg	2.2g	1.2g	0.75g	0.63g
60kg	1.8g	1g	0.65g	0.57g
70kg	1.4g	0.85g	0.55g	0.48g
75kg	1.3g	0.8g	0.5g	0.45g

Track length (mm)	Stroke (mm)	Mass (kg)	Double rotor Stroke(mm)	Double rotor Mass(kg)
400	15	11.6		
450	65	12.2		
500	115	12.8		
550	165	13.4		
600	215	14		
650	265	14.6		
700	315	15.2		
750	365	15.8	15	22.8
800	415	16.4	65	23.4
850	465	17	115	24
900	515	17.6	165	24.6
950	565	18.2	215	25.2
1000	615	18.8	265	25.8
1100	715	20	365	27
1200	815	21.2	465	28.2
1300	915	22.4	565	29.4
1400	1015	23.6	665	30.6
1500	1115	24.8	765	31.8
1600	1215	26	865	33
1700	1315	27.2	965	34.2
1800	1415	28.4	1065	35.4
1900	1515	29.6	1165	36.6
2000	1615	30.8	1265	37.8
2100	1715	32	1365	39
2200	1815	33.2	1465	40.2
2300	1915	34.4	1565	41.4
2400	2015	35.6	1665	42.6
2500	2115	36.8	1765	43.8
2600	2215	38	1865	45
2700	2315	39.2	1965	46.2
2800	2415	40.4	2065	47.4
2900	2515	41.6	2165	48.6
3000	2615	42.8	2265	49.8
3100	2715	44	2365	51
3200	2815	45.2	2465	52.2
3300	2915	46.4	2565	53.4
3400	3015	47.6	2665	54.6
3500	3115	48.8	2765	55.8
3600	3215	50	2865	57
3700	3315	51.2	2965	58.2
3800	3415	52.4	3065	59.4
3900	3515	53.6	3165	60.6
4000	3615	54.8	3265	61.8

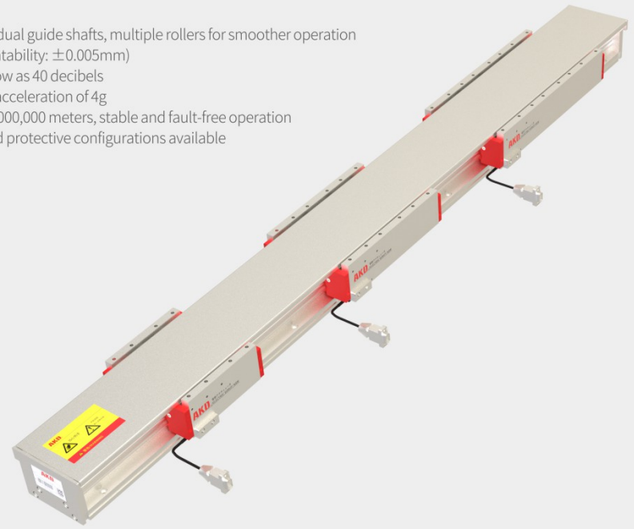
1. The travel distance can be extended to greater lengths.
2. Scan the QR code on the cover to download the 3D model from the official website.

TFL135-C motor is adapted to a 750W servo driver, and AKD provides the following models of drivers.

Driver brand	Pulse model	Bus model	Matching encoder extension line	Matching power extension line
AKD	KA1-MC-ZJ6LD0	KA1-ZX-ZJ6LD0	ALFC-B-3M/5M/8M-TY	AL-D75-3M/5M/8M (The length of encoder extension line and the power extension line need to be the same)
Servotronix economical model	GSLD-0062AAP1	GSLD-0062AEC2-A	ALGSLD-B-3M/5M/8M-TY	

AKD linear motors are compatible with most brands and models of drivers on the market. For more information about the use and purchase of other brands of drivers, please consult AKD sales engineers for details.

*Unique tourbillon design, dual guide shafts, multiple rollers for smoother operation
*Ultra-high precision (repeatability: ±0.005mm)
*Ultra-quiet operation, as low as 40 decibels
*Maximum speed of 6m/s, acceleration of 4g
*Endurance tested over 10,000,000 meters, stable and fault-free operation
*Multiple thrust options and protective configurations available
*Maximum thrust of 1503N



型號表示方式 Ordering Method

TFL105H - 400 A 1 - Y1 - S000 - ZL/JD-**

Model	Rail/Module Total Length	Mover Type	Mover Quantity	Quantity of 674 Sensors	Stroke	Special Order No.
TFL 105H	Please refer to individual motor specifications	A Low Thrust	1 1 Single Mover	0 Without Sensor	Calculated based on guide rail length and mover quantity	ZL Incremental Magnetic Scale
TFL 135H		B High Thrust	2 2 Single Mover	1 1 Sensor		JD Absolute Magnetic Scale
		C High Thrust	3 3 Single Mover	2 2 Sensor		
				3 3 Sensor		

1. The AKD linear motor is equipped by default with a magnetic grating encoder with a resolution of 1μm. If a special model is required, please note the readhead model at the end of the part number.
2. The AKD linear motor is equipped by default with an AKD photoelectric sensor.
3. The default cable length for the AKD linear motor is 0.3m. Please configure extension cables as needed. If a specific cable length is required, please indicate the direct motor cable length at the end of the part number.

Encoder Cable Naming Rules

AL FC - B - *M - 000

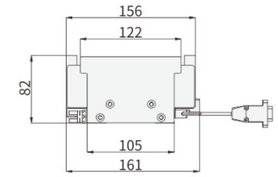
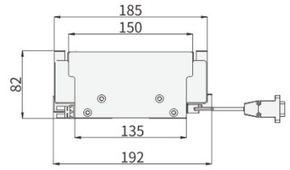
- AL — AKD Cable Codes
- FC — FC-AKD Driver KA1 Series; GC-CDHD; CDHD2S/GSHD Series; GSLD-Servotronix economical model GSLD Series
- B — Encoder Cables
- *M — Length Selection 3/5/8/10/12
- 000 — TY-
  - AKD Incremental ALS2
  - Tianxian Incremental LMD200
  - Tianxian Absolute FMG3000
  - Renishaw Incremental Grating RGH200/RGH24 with DB9
  - Rongshu Grating RU2-M Wire Sequence
  - Rongshu Grating D2

  Special model readheads (e.g., the suffix MC13 indicates the MC13 series absolute encoder)

Power Cable Naming Rules

AL D05 - *M

- AL — AKD Cable Codes
- D05 — D05 - 0.5 sq.mm cable (Applicable for currents up to 6A); D75 - 0.75 sq.mm cable (Applicable for currents 6.1A to 10A); D10 - 1 sq.mm cable (Applicable for currents above 12A)
- *M — Length Selection 3/5/8/10/12

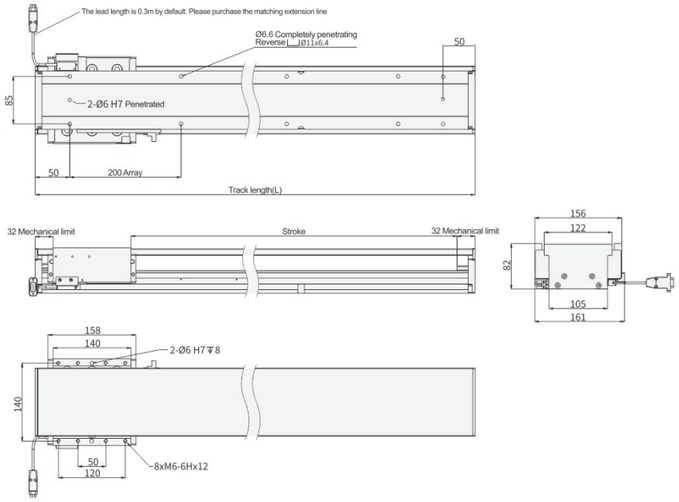
Product Series	Thrust	Cross-sectional Dimensions	Slider Length
TFL105H-A (With cover plate)	Continuous Thrust：81N		158
	Peak Thrust：234N		
TFL105H-B (With cover plate)	Continuous Thrust：162N		248
	Peak Thrust：468N		
TFL105H-C (With cover plate)	Continuous Thrust：243N		338
	Peak Thrust：702N		
TFL135H-A (With cover plate)	Continuous Thrust：186N		158
	Peak Thrust：501N		
TFL135H-B (With cover plate)	Continuous Thrust：372N		248
	Peak Thrust：1002N		
TFL135H-C (With cover plate)	Continuous Thrust：558N		338
	Peak Thrust：1503N		

Pay attention to

1.Motor parameters are measured at an ambient temperature of 25°C. Actual performance depends on the heat dissipation conditions in use.
2.Resistance is measured using a DC motor, including the 0.3-meter standard cable.
3.Inductance is measured at a frequency of 1 kHz.
4.The sliding body weight includes the mass of the motor, slider, mounting platform, encoder, and other components.
5.Unless otherwise specified, the tolerance is ±0.1 mm.
7.Load/speed parameters are theoretical values for horizontal placement, tested with a 0.5s dwell time over a 500mm travel distance, and are for reference only. Actual load capacity is influenced by speed, acceleration, friction, installation conditions, motor thrust, and other factors.
8.The Tourbillon TFL series linear motor modules are equipped with AKD roller guides, magnetic scales, and photoelectric sensors as standard. For other configurations, please contact a sales engineer.
9.The company reserves the right to change relevant parameters without prior notice.

TFL105H-A With cover plate Silent Linear Motor Module

TFL105H - Track length A Number of rotors - Y Number of sensors - S Stroke

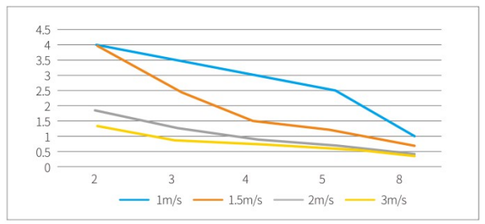


Performance parameters	
Repeatability Accuracy	±5μm/500mm

Motor spec.	
Peak current	10.4 Arms
Persistent current	3.2Arms
Peak thrust	234N
Continuous thrust	81 N
Motor force constant	22.85N/Arms
Interphase resistance	2.5 Ω
Interphase inductance	15.53 Mh
Pole pitch	25 mm

Machinery specifications	
Length of actuator mass	158 mm
Mass of actuator mass	2.5 kg

Load acceleration curve



TFL105H-A Motor load quick model selection

Load	1m/s	1.5m/s	2m/s	3m/s
2kg	4g	4g	1.85g	1.3g
3kg	3.5g	2.5g	1.25g	0.9g
4kg	3g	1.5g	0.9g	0.75g
5kg	2g	1.2g	0.7g	0.6g
8kg	1g	0.7g	0.4g	0.38g

Track length (mm)	Stroke (mm)	Mass (kg)	Double rotor Stroke(mm)	Double rotor Mass(kg)
400	195	6.4	25	8.9
450	245	6.9	75	9.4
500	295	7.4	125	9.9
550	345	7.9	175	10.4
600	395	8.4	225	10.9
650	445	8.9	275	11.4
700	495	9.4	325	11.9
750	545	9.9	375	12.4
800	595	10.4	425	12.9
850	645	10.9	475	13.4
900	695	11.4	525	13.9
950	745	11.9	575	14.4
1000	795	12.4	625	14.9
1100	895	13.4	725	15.9
1200	995	14.4	825	16.9
1300	1095	15.4	925	17.9
1400	1195	16.4	1025	18.9
1500	1295	17.4	1125	19.9
1600	1395	18.4	1225	20.9
1700	1495	19.4	1325	21.9
1800	1595	20.4	1425	22.9
1900	1695	21.4	1525	23.9
2000	1795	22.4	1625	24.9
2100	1895	23.4	1725	25.9
2200	1995	24.4	1825	26.9
2300	2095	25.4	1925	27.9
2400	2195	26.4	2025	28.9
2500	2295	27.4	2125	29.9
2600	2395	28.4	2225	30.9
2700	2495	29.4	2325	31.9
2800	2595	30.4	2425	32.9
2900	2695	31.4	2525	33.9
3000	2795	32.4	2625	34.9
3100	2895	33.4	2725	35.9
3200	2995	34.4	2825	36.9
3300	3095	35.4	2925	37.9
3400	3195	36.4	3025	38.9
3500	3295	37.4	3125	39.9
3600	3395	38.4	3225	40.9
3700	3495	39.4	3325	41.9
3800	3595	40.4	3425	42.9
3900	3695	41.4	3525	43.9
4000	3795	42.4	3625	44.9

1. The travel distance can be extended to greater lengths.
2. Scan the QR code on the cover to download the 3D model from the official website.

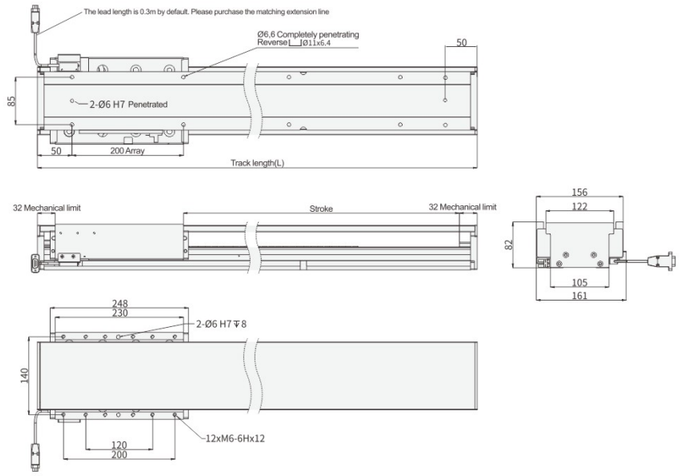
TFL105H-A motor is adapted to a 750W servo driver, and AKD provides the following models of drivers.

Driver brand	Pulse model	Bus model	Matching encoder extension line	Matching power extension line
AKD	KA1-MC-ZJ6LD0	KA1-ZX-ZJ6LD0	ALFC-B-3M/5M/8M-TY	AL-D75-3M/5M/8M (The length of encoder extension line and the power extension line need to be the same)
Servotronix economical model	GSLD-0062AAP1	GSLD-0062AEC2-A	ALGSLD-B-3M/5M/8M-TY	

AKD linear motors are compatible with most brands and models of drivers on the market. For more information about the use and purchase of other brands of drivers, please consult AKD sales engineers for details.

TFL105H-B With cover plate Silent Linear Motor Module

TFL105H - Track length B Number of rotors - Y Number of sensors - S Stroke

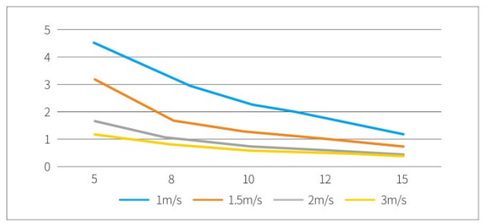


Performance parameters	
Repeatability Accuracy	±5μm/500mm

Motor spec.	
Peak current	10.4Arms
Persistent current	3.2Arms
Peak thrust	468N
Continuous thrust	162N
Motor force constant	45.7N/Arms
Interphase resistance	4.9Ω
Interphase inductance	29.84Mh
Pole pitch	25mm

Machinery specifications	
Length of actuator mass	248mm
Mass of actuator mass	4kg

Load acceleration curve



TFL105H-B Motor load quick model selection

Load	1m/s	1.5m/s	2m/s	3m/s
5kg	4g	3.2g	1.7g	1.2g
8kg	3.2g	1.7g	1g	0.8g
10kg	2.3g	1.3g	0.75g	0.6g
12kg	1.8g	1g	0.6g	0.5g
15kg	1.2g	0.75g	0.5g	0.4g

Track length (mm)	Stroke (mm)	Mass (kg)	Double rotor Stroke(mm)	Double rotor Mass(kg)
400	105	7.9		
450	155	8.4		
500	205	8.9		
550	255	9.4		
600	305	9.9	45	13.9
650	355	10.4	95	14.4
700	405	10.9	145	14.9
750	455	11.4	195	15.4
800	505	11.9	245	15.9
850	555	12.4	295	16.4
900	605	12.9	345	16.9
950	655	13.4	395	17.4
1000	705	13.9	445	17.9
1100	805	14.9	545	18.9
1200	905	15.9	645	19.9
1300	1005	16.9	745	20.9
1400	1105	17.9	845	21.9
1500	1205	18.9	945	22.9
1600	1305	19.9	1045	23.9
1700	1405	20.9	1145	24.9
1800	1505	21.9	1245	25.9
1900	1605	22.9	1345	26.9
2000	1705	23.9	1445	27.9
2100	1805	24.9	1545	28.9
2200	1905	25.9	1645	29.9
2300	2005	26.9	1745	30.9
2400	2105	27.9	1845	31.9
2500	2205	28.9	1945	32.9
2600	2305	29.9	2045	33.9
2700	2405	30.9	2145	34.9
2800	2505	31.9	2245	35.9
2900	2605	32.9	2345	36.9
3000	2705	33.9	2445	37.9
3100	2805	34.9	2545	38.9
3200	2905	35.9	2645	39.9
3300	3005	36.9	2745	40.9
3400	3105	37.9	2845	41.9
3500	3205	38.9	2945	42.9
3600	3305	39.9	3045	43.9
3700	3405	40.9	3145	44.9
3800	3505	41.9	3245	45.9
3900	3605	42.9	3345	46.9
4000	3705	43.9	3445	47.9

1. The travel distance can be extended to greater lengths.
2. Scan the QR code on the cover to download the 3D model from the official website.

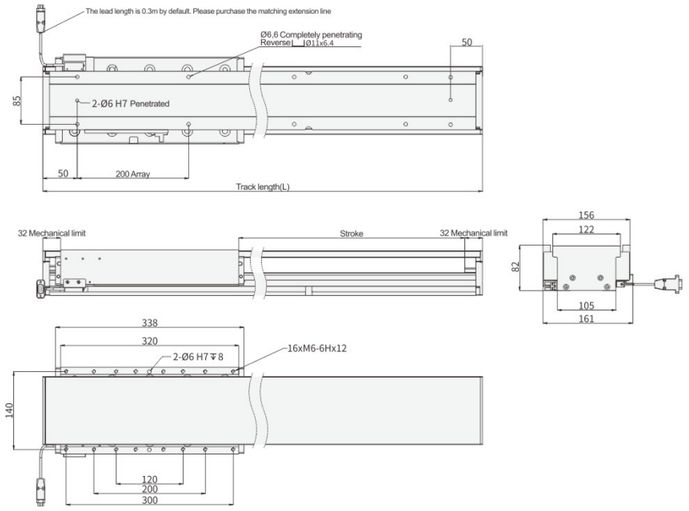
TFL105H-B motor is adapted to a 750W servo driver, and AKD provides the following models of drivers.

Driver brand	Pulse model	Bus model	Matching encoder extension line	Matching power extension line
AKD	KA1-MC-ZJ6LD0	KA1-ZX-ZJ6LD0	ALFC-B-3M/5M/8M-TY	AL-D75-3M/5M/8M (The length of encoder extension line and the power extension line need to be the same)
Servotronix economical model	GSLD-0062AAP1	GSLD-0062AEC2-A	ALGSLD-B-3M/5M/8M-TY	

AKD linear motors are compatible with most brands and models of drivers on the market. For more information about the use and purchase of other brands of drivers, please consult AKD sales engineers for details.

TFL105H-C With cover plate Silent Linear Motor Module

TFL105H - [Track length] C [Number of rotors] - Y [Number of sensors] - S [Stroke]



Track length (mm)	Stroke (mm)	Mass (kg)	Double rotor Stroke(mm)	Double rotor Mass(kg)
400	15	9		
450	65	9.5		
500	115	10		
550	165	10.5		
600	215	11		
650	265	11.5		
700	315	12		
750	365	12.5	15	18
800	415	13	65	18.5
850	465	13.5	115	19
900	515	14	165	19.5
950	565	14.5	215	20
1000	615	15	265	20.5
1100	715	16	365	21.5
1200	815	17	465	22.5
1300	915	18	565	23.5
1400	1015	19	665	24.5
1500	1115	20	765	25.5
1600	1215	21	865	26.5
1700	1315	22	965	27.5
1800	1415	23	1065	28.5
1900	1515	24	1165	29.5
2000	1615	25	1265	30.5
2100	1715	26	1365	31.5
2200	1815	27	1465	32.5
2300	1915	28	1565	33.5
2400	2015	29	1665	34.5
2500	2115	30	1765	35.5
2600	2215	31	1865	36.5
2700	2315	32	1965	37.5
2800	2415	33	2065	38.5
2900	2515	34	2165	39.5
3000	2615	35	2265	40.5
3100	2715	36	2365	41.5
3200	2815	37	2465	42.5
3300	2915	38	2565	43.5
3400	3015	39	2665	44.5
3500	3115	40	2765	45.5
3600	3215	41	2865	46.5
3700	3315	42	2965	47.5
3800	3415	43	3065	48.5
3900	3515	44	3165	49.5
4000	3615	45	3265	50.5

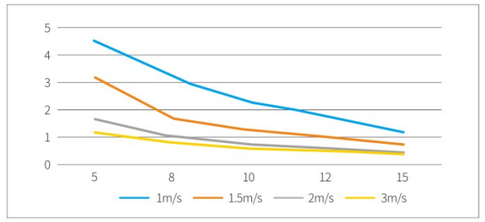
1. The travel distance can be extended to greater lengths.
2. Scan the QR code on the cover to download the 3D model from the official website.

Performance parameters	
Repeatability Accuracy	±5μm/500mm

Motor spec.	
Peak current	10.4Arms
Persistent current	3.2Arms
Peak thrust	702N
Continuous thrust	243N
Motor force constant	68.56N/Arms
Interphase resistance	7.47Ω
Interphase inductance	43.77 Mh
Pole pitch	25mm

Machinery specifications	
Length of actuator mass	338mm
Mass of actuator mass	5.6kg

Load acceleration curve



TFL105H-C Motor load quick model selection

Load	1m/s	1.5m/s	2m/s	3m/s
5kg	4g	4g	2.8g	2.2g
8kg	3.5g	2.8g	2g	1.2g
10kg	2.9g	2.1g	1.3g	0.9g
15kg	1.8g	1.1g	0.8g	0.6g
20kg	1g	0.6g	0.5g	0.4g
25kg	0.75g	0.48g	0.35g	0.32g
30kg	0.5g	0.4g	0.32g	0.3g

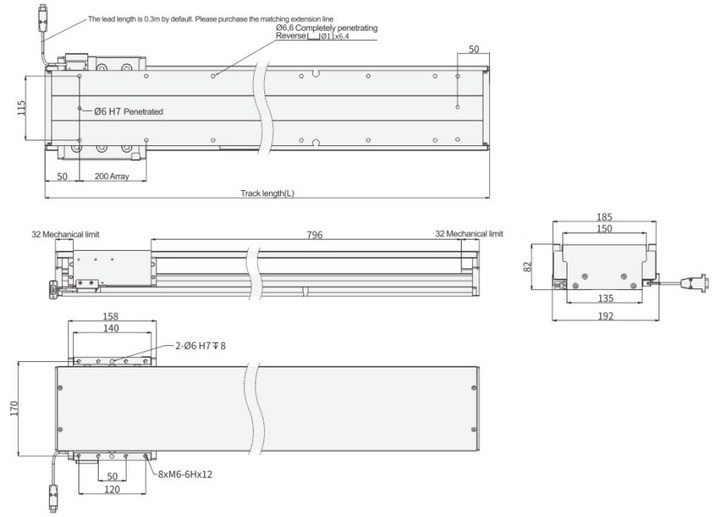
TFL105H-C motor is adapted to a 750W servo driver, and AKD provides the following models of drivers.

Driver brand	Pulse model	Bus model	Matching encoder extension line	Matching power extension line
AKD	KA1-MC-ZJ6LD0	KA1-ZX-ZJ6LD0	ALFC-B-3M/5M/8M-TY	AL-D75-3M/5M/8M (The length of encoder extension line and the power extension line need to be the same)
Servotronix economical model	GSLD-0062AAP1	GSLD-0062AEC2-A	ALGSLD-B-3M/5M/8M-TY	

AKD linear motors are compatible with most brands and models of drivers on the market. For more information about the use and purchase of other brands of drivers, please consult AKD sales engineers for details.

TFL135H-A With cover plate Silent Linear Motor Module

TFL135H - [Track length] A [Number of rotors] - Y [Number of sensors] - S [Stroke]



Track length (mm)	Stroke (mm)	Mass (kg)	Double rotor Stroke(mm)	Double rotor Mass(kg)
400	195	8.2	25	11.2
450	245	8.9	75	11.9
500	295	9.5	125	12.5
550	345	10.2	175	13.2
600	395	10.8	225	13.8
650	445	11.5	275	14.5
700	495	12.2	325	15.2
750	545	12.8	375	15.8
800	595	13.5	425	16.5
850	645	14.1	475	17.1
900	695	14.8	525	17.8
950	745	15.5	575	18.5
1000	795	16.1	625	19.1
1100	895	17.4	725	20.4
1200	995	18.8	825	21.8
1300	1095	20.1	925	23.1
1400	1195	21.4	1025	24.4
1500	1295	22.7	1125	25.7
1600	1395	24.0	1225	27.0
1700	1495	25.4	1325	28.4
1800	1595	26.7	1425	29.7
1900	1695	28.0	1525	31.0
2000	1795	29.3	1625	32.3
2100	1895	30.6	1725	33.6
2200	1995	32.0	1825	35.0
2300	2095	33.3	1925	36.3
2400	2195	34.6	2025	37.6
2500	2295	35.9	2125	38.9
2600	2395	37.2	2225	40.2
2700	2495	38.6	2325	41.6
2800	2595	39.9	2425	42.9
2900	2695	41.2	2525	44.2
3000	2795	42.5	2625	45.5
3100	2895	43.8	2725	46.8
3200	2995	45.2	2825	48.2
3300	3095	46.5	2925	49.5
3400	3195	47.8	3025	50.8
3500	3295	49.1	3125	52.1
3600	3395	50.4	3225	53.4
3700	3495	51.8	3325	54.8
3800	3595	53.1	3425	56.1
3900	3695	54.4	3525	57.4
4000	3795	55.7	3625	58.7

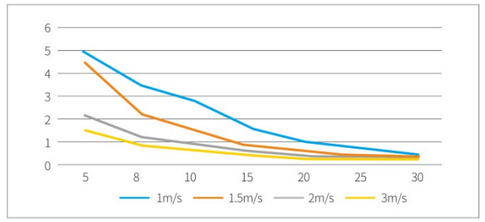
1. The travel distance can be extended to greater lengths.
2. Scan the QR code on the cover to download the 3D model from the official website.

Performance parameters	
Repeatability Accuracy	±5μm/500mm

Motor spec.	
Peak current	10.4Arms
Persistent current	3.2 Arms
Peak thrust	501N
Continuous thrust	186 N
Motor force constant	54.05 N/Arms
Interphase resistance	5.20Ω
Interphase inductance	30.02 Mh
Pole pitch	25 mm

Machinery specifications	
Length of actuator mass	158mm
Mass of actuator mass	4.1kg

Load acceleration curve



TFL135H-A Motor load quick model selection

Load	1m/s	1.5m/s	2m/s	3m/s
5kg	4g	4g	2.2g	1.55g
8kg	3.5g	2.3g	1.25g	0.95g
10kg	2.8g	1.5g	0.95g	0.75g
15kg	1.6g	0.85g	0.6g	0.5g
20kg	1g	0.65g	0.43g	0.35g
25kg	0.7g	0.45g	0.34g	0.3g
30kg	0.5g	0.35g	0.28g	0.25g

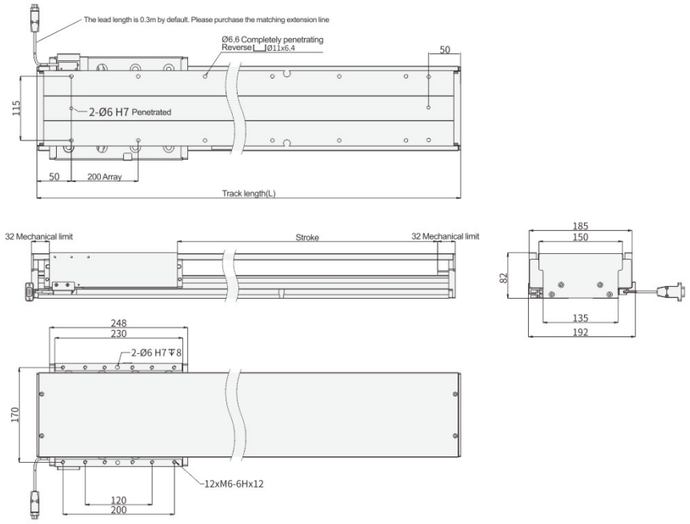
TFL135H-A motor is adapted to a 750W servo driver, and AKD provides the following models of drivers.

Driver brand	Pulse model	Bus model	Matching encoder extension line	Matching power extension line
AKD	KA1-MC-ZJ6LD0	KA1-ZX-ZJ6LD0	ALFC-B-3M/5M/8M-TY	AL-D75-3M/5M/8M (The length of encoder extension line and the power extension line need to be the same)
Servotronix economical model	GSLD-0062AAP1	GSLD-0062AEC2-A	ALGSLD-B-3M/5M/8M-TY	

AKD linear motors are compatible with most brands and models of drivers on the market. For more information about the use and purchase of other brands of drivers, please consult AKD sales engineers for details.

TFL135H-B With cover plate Silent Linear Motor Module

TFL135H - Track length B Number of rotors - Y Number of sensors - S Stroke



Track length (mm)	Stroke (mm)	Mass (kg)	Double rotor Stroke(mm)	Double rotor Mass(kg)
400	105	10.2		
450	155	10.9		
500	205	11.5		
550	255	12.2		
600	305	12.8	45	17.8
650	355	13.5	95	18.5
700	405	14.2	145	19.2
750	455	14.8	195	19.8
800	505	15.5	245	20.5
850	555	16.1	295	21.1
900	605	16.8	345	21.8
950	655	17.5	395	22.5
1000	705	18.1	445	23.1
1100	805	19.4	545	24.4
1200	905	20.8	645	25.8
1300	1005	22.1	745	27.1
1400	1105	23.4	845	28.4
1500	1205	24.7	945	29.7
1600	1305	26	1045	31
1700	1405	27.4	1145	32.4
1800	1505	28.7	1245	33.7
1900	1605	30	1345	35
2000	1705	31.3	1445	36.3
2100	1805	32.6	1545	37.6
2200	1905	34	1645	39
2300	2005	35.3	1745	40.3
2400	2105	36.6	1845	41.6
2500	2205	37.9	1945	42.9
2600	2305	39.2	2045	44.2
2700	2405	40.6	2145	45.5
2800	2505	41.9	2245	46.9
2900	2605	43.2	2345	48.2
3000	2705	44.5	2445	49.5
3100	2805	45.8	2545	50.8
3200	2905	47.2	2645	52.2
3300	3005	48.5	2745	53.5
3400	3105	49.8	2845	54.8
3500	3205	51.1	2945	56.1
3600	3305	52.4	3045	57.4
3700	3405	53.8	3145	58.8
3800	3505	55.1	3245	60.1
3900	3605	56.4	3345	61.4
4000	3705	57.7	3445	62.7

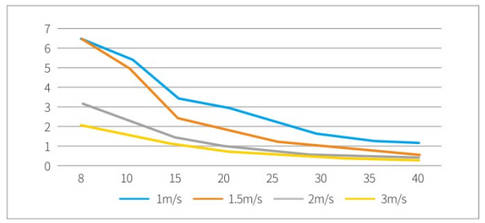
1. The travel distance can be extended to greater lengths.
2. Scan the QR code on the cover to download the 3D model from the official website.

Performance parameters	
Repeatability Accuracy	±5μm/500mm

Motor spec.	
Peak current	10.4 Arms
Persistent current	3.2 Arms
Peak thrust	1002 N
Continuous thrust	372 N
Motor force constant	162.12 N/Arms
Interphase resistance	13.13 Ω
Interphase inductance	88.72 Mh
Pole pitch	25 mm

Machinery specifications	
Length of actuator mass	248 mm
Mass of actuator mass	5.5 kg

Load acceleration curve



TFL135H-B Motor load quick model selection

Load	1m/s	1.5m/s	2m/s	3m/s
8kg	4g	4g	3.2g	2.1g
10kg	4g	4g	2.4g	1.6g
15kg	3.5g	2.5g	1.4g	1.1g
20kg	3g	1.8g	1g	0.8g
25kg	2.3g	1.3g	0.75g	0.6g
30kg	1.6g	1g	0.6g	0.5g
35kg	1.3g	0.8g	0.5g	0.45g
40kg	1g	0.6g	0.45g	0.35g

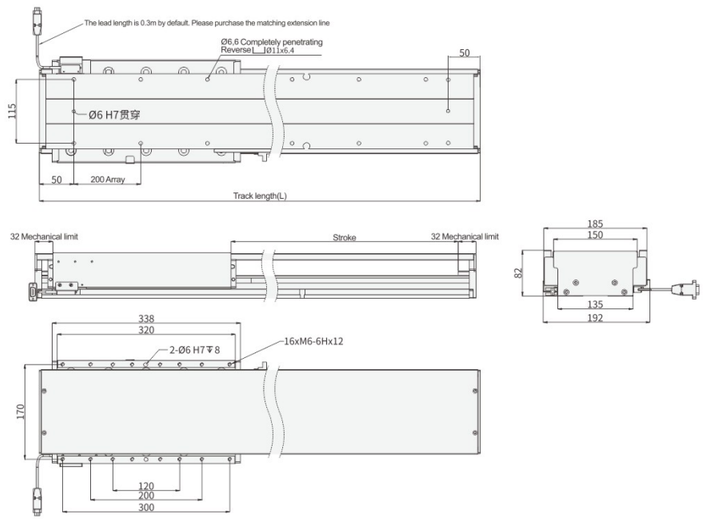
TFL135H-B motor is adapted to a 750W servo driver, and AKD provides the following models of drivers.

Driver brand	Pulse model	Bus model	Matching encoder extension line	Matching power extension line
AKD	KA1-MC-ZJ6LD0	KA1-ZX-ZJ6LD0	ALFC-B-3M/5M/8M-TY	AL-D75-3M/5M/8M (The length of encoder extension line and the power extension line need to be the same)
Servotronix economical model	GSLD-0062AAP1	GSLD-0062AEC2-A	ALGSLD-B-3M/5M/8M-TY	

AKD linear motors are compatible with most brands and models of drivers on the market. For more information about the use and purchase of other brands of drivers, please consult AKD sales engineers for details.

TFL135H-C With cover plate Silent Linear Motor Module

TFL135H - Track length C Number of rotors - Y Number of sensors - S Stroke



Track length (mm)	Stroke (mm)	Mass (kg)	Double rotor Stroke(mm)	Double rotor Mass(kg)
400	15	12.1		
450	65	12.8		
500	115	13.4		
550	165	14.1		
600	215	14.7		
650	265	15.4		
700	315	16.1		
750	365	16.7	15	23.7
800	415	17.4	65	24.4
850	465	18.0	115	25.0
900	515	18.7	165	25.7
950	565	19.4	215	26.4
1000	615	20.0	265	27.0
1100	715	21.3	365	28.3
1200	815	22.7	465	29.7
1300	915	24.0	565	31.0
1400	1015	25.3	665	32.3
1500	1115	26.6	765	33.6
1600	1215	27.9	865	34.9
1700	1315	29.3	965	36.3
1800	1415	30.6	1065	37.6
1900	1515	31.9	1165	38.9
2000	1615	33.2	1265	40.2
2100	1715	34.5	1365	41.5
2200	1815	35.9	1465	42.9
2300	1915	37.2	1565	44.2
2400	2015	38.5	1665	45.5
2500	2115	39.8	1765	46.8
2600	2215	41.1	1865	48.1
2700	2315	42.5	1965	49.5
2800	2415	43.8	2065	50.8
2900	2515	45.1	2165	52.1
3000	2615	46.4	2265	53.4
3100	2715	47.7	2365	54.7
3200	2815	49.1	2465	56.1
3300	2915	50.4	2565	57.4
3400	3015	51.7	2665	58.7
3500	3115	53.0	2765	60.0
3600	3215	54.3	2865	61.3
3700	3315	55.7	2965	62.7
3800	3415	57.0	3065	64.0
3900	3515	58.3	3165	65.3
4000	3615	59.6	3265	66.6

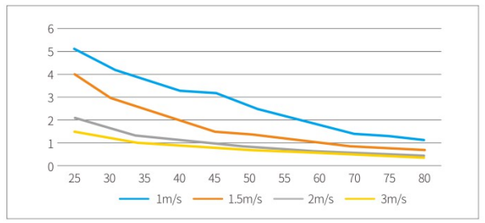
1. The travel distance can be extended to greater lengths.
2. Scan the QR code on the cover to download the 3D model from the official website.

Performance parameters	
Repeatability Accuracy	±5μm/500mm

Motor spec.	
Peak current	10.4Arms
Persistent current	3.2Arms
Peak thrust	1503N
Continuous thrust	558N
Motor force constant	162.12N/Arms
Interphase resistance	13.13 Ω
Interphase inductance	88.72Mh
Pole pitch	25 mm

Machinery specifications	
Length of actuator mass	338 mm
Mass of actuator mass	7.6 kg

Load acceleration curve



TFL135H-C Motor load quick model selection

Load	1m/s	1.5m/s	2m/s	3m/s
25kg	5.1g	4g	2.1g	1.5g
30kg	4.3g	3g	1.6g	1.2g
35kg	3.8g	2.5g	1.3g	1g
40kg	3.3g	2g	1.1g	0.89g
45kg	3.2g	1.5g	0.95g	0.78g
50kg	2.6g	1.4g	0.85g	0.69g
55kg	2.2g	1.2g	0.75g	0.63g
60kg	1.8g	1g	0.65g	0.57g
70kg	1.4g	0.85g	0.55g	0.48g
75kg	1.3g	0.8g	0.5g	0.45g

TFL135H-C motor is adapted to a 750W servo driver, and AKD provides the following models of drivers.

Driver brand	Pulse model	Bus model	Matching encoder extension line	Matching power extension line
AKD	KA1-MC-ZJ6LD0	KA1-ZX-ZJ6LD0	ALFC-B-3M/5M/8M-TY	AL-D75-3M/5M/8M (The length of encoder extension line and the power extension line need to be the same)
Servotronix economical model	GSLD-0062AAP1	GSLD-0062AEC2-A	ALGSLD-B-3M/5M/8M-TY	

AKD linear motors are compatible with most brands and models of drivers on the market. For more information about the use and purchase of other brands of drivers, please consult AKD sales engineers for details.

DDI / DDE Series

Torque Motor

CONTENTS

High Positioning Accuracy

Positioning accuracy before compensation: up to ±15 arcsec

Positioning accuracy after compensation: up to ±5 arcsec

External Rotor Motor

DDE112
Continuous current(N.m)：3~6
Peak current(N.m)：9~18

DDE118
Continuous current(N.m)：3
Peak current(N.m)：9

DDE120
Continuous current(N.m)：3.5
Peak current(N.m)：10.5

DDE140
Continuous current(N.m)：6~10.5
Peak current(N.m)：16~28

DDE163
Continuous current(N.m)：11.7
Peak current(N.m)：35

DDE170
Continuous current(N.m)：23.8~41.8
Peak current(N.m)：71~125

DDE224
Continuous current(N.m)：14.1~35
Peak current(N.m)：42.2~105

DDE263
Continuous current(N.m)：45~250
Peak current(N.m)：135~500

DDE325
Continuous current(N.m)：30
Peak current(N.m)：90

Internal Rotor Motor

DDI062
Continuous current(N.m)：0.5
Peak current(N.m)：1.5

DDI080
Continuous current(N.m)：0.9~1
Peak current(N.m)：2.7~3

DDI100
Continuous current(N.m)：1
Peak current(N.m)：3

DDI120
Continuous current(N.m)：3.5
Peak current(N.m)：11.3

DDI170
Continuous current(N.m)：5.4~17.4
Peak current(N.m)：16~52

DDI180
Continuous current(N.m)：14~40.1
Peak current(N.m)：42~120

DDI224
Continuous current(N.m)：9.9
Peak current(N.m)：19.8

DDI263
Continuous current(N.m)：50
Peak current(N.m)：150

DDI375
Continuous current(N.m)：250~375
Peak current(N.m)：670~1000

Smooth Operation, Precise Stopping

Repeatability of ±0.5 arcsec and absolute positioning accuracy of ±2 arcsec. With 67,108,864 pulses per revolution, this equates to an accuracy of 0.5 µm at the end of a 1000 mm long arm.

Energy Efficient, Low Heat Generation

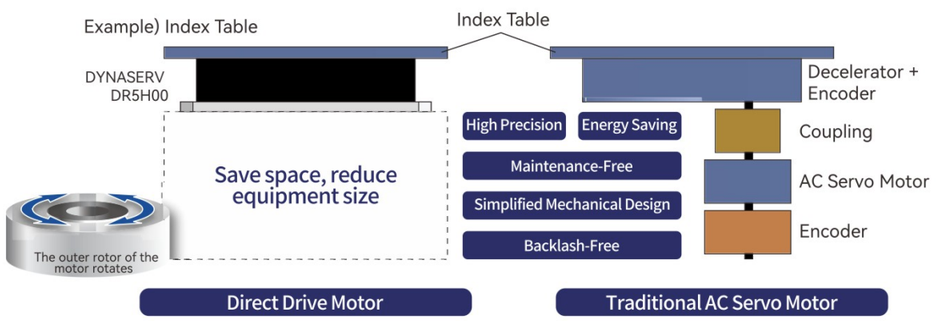
The hybrid magnetic circuit utilizes a bias magnetization method to generate high torque at low current, thereby reducing heat generation and saving energy.

Capable of Withstanding Sudden External Forces

I-PD control provides high rigidity, enabling the system to withstand sudden external forces.

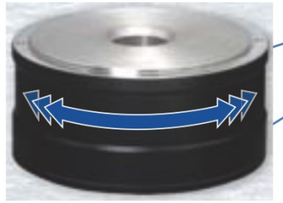
Why Use a Direct Drive Motor?

(Comparison with Traditional AC Servo Motors)



The integrated structure allows the load to be directly mounted on the installation surface of the DD motor, eliminating any accuracy loss from the motor to the worktable. This enhances the overall precision of the equipment. Since there is no mechanical structure like a gear reducer, there is no energy loss as seen with traditional AC servo systems. The direct drive method also makes it easy to change workstations through programming.

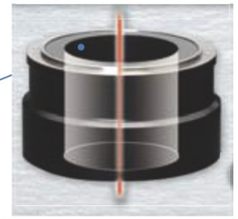
A direct-mount structure



This ensures consistent positioning accuracy across workstations. The direct-mount design also saves energy, as there is no energy loss caused by gears.

Motor with a conveniently large center through-hole

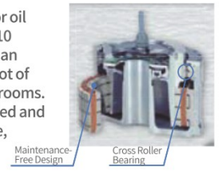
Large center through-hole
The large center through-hole allows cables, shafts, lasers, etc., to pass through.

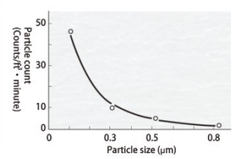


Large center through-hole Ø150 mm

Motor with Contamination-Free and Maintenance-Free Structure

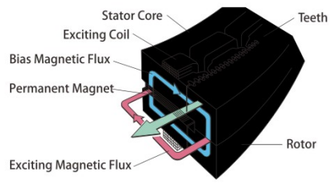
Cross roller bearings generate no dust or oil leakage. As a result, they achieve Class 10 cleanliness (where there are no more than 10 particles ⩾0.5µm in size per cubic foot of air). This makes them suitable for cleanrooms. Furthermore, the bearings are fully sealed and require absolutely no lubrication grease, thereby preventing contamination.





High-efficiency and energy-saving motor

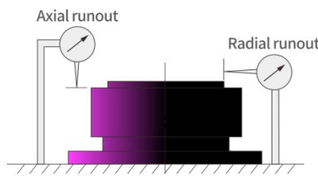
The hybrid magnetic circuit can generate high torque under low current conditions. Low heat generation is a key feature, which reduces cooling time and shortens the production cycle.



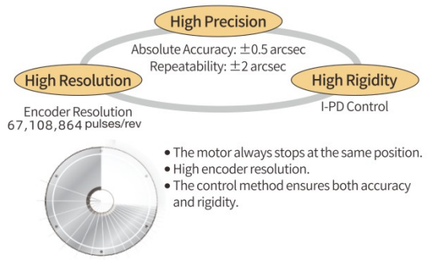
Low Axial and Radial Runout

Axial and radial runout can be selected as low as 5 micrometers.

Measuring the mechanical accuracy of the load mounting surface:



Reasons for Wide Adoption



- The motor always stops at the same position.
- High encoder resolution.
- The control method ensures both accuracy and rigidity.

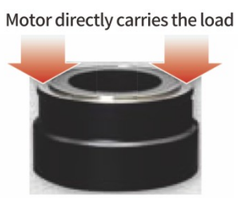
High precision, high resolution, high rigidity

The hybrid magnetic circuit delivers high efficiency and energy-saving performance. It features low heat emission, which helps reduce cycle times and enables sustained high-speed operation. Additionally, the I-PD control loop provides shorter settling times compared to competitors. These advantages contribute to improved productivity and higher product quality, which is why it is widely adopted in the semiconductor industry.

Efficient motors enhance productivity.

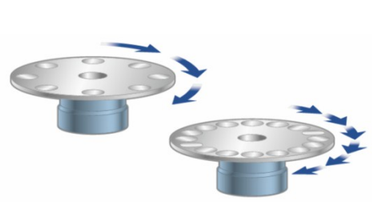
High-rigidity cross roller bearings offer high load-bearing capacity. During operation, they can withstand fluctuations in load (without the need for a supporting structure design).

Motor directly carries the load



Can withstand high loads

From a mechanical perspective, as there is no gear structure, the motion position can be easily adjusted through programming. In contrast, changing the position in a conventional gear structure requires altering the gear ratio.



Allows for flexible design mechanically

The built-in absolute encoder provides absolute positioning.

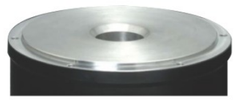
Absolute Encoder Type

The drive enhances motor control and operability. It features an auto-tuning function that automatically matches the moment of inertia and parameters. It also enables compatibility with field networks.

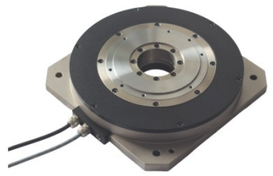
High-Performance Drive

Provides Positioning for Advanced Machines

High Precision
High Resolution Type
High Precision: Absolute Accuracy ±2 arc-sec
High Resolution: 67,108,864

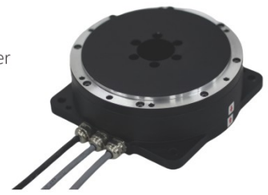


Flat Type
Minimum Height: 35mm



Large Center Through-Hole, High-Speed High Torque Type
Maximum Speed: 600 rpm
Maximum Torque: 3700 Nm

Absolute Encoder
Custom 32-bit Absolute Encoder



Professional Testing Equipment
Advanced Production Equipment
10+ Years of Technical Experience
100% Quality Full Inspection
CE Certification
Top-grade Core Components

Ordering Method

DDI xxx xxx Special Order No. Direct lead length of rotor

DDI External Rotor Motor
DDE Internal Rotor Motor

DD Motor Diameter

DD Motor Height

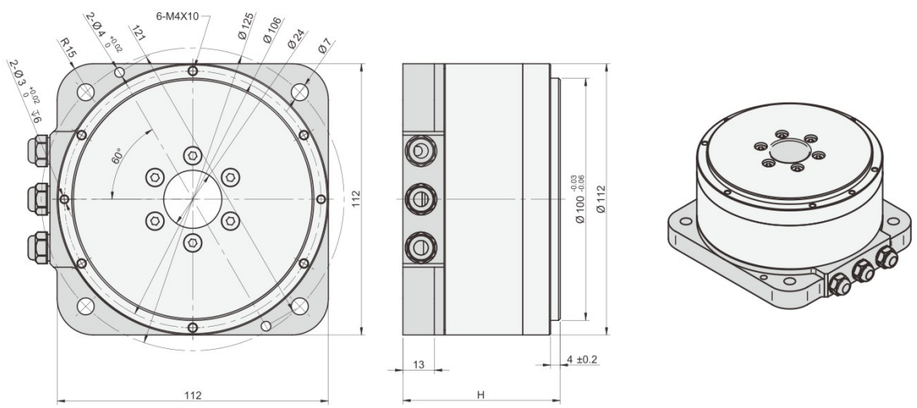
Default Configuration: 4m Extension Cable
Encoder Extension Cable: DF-ONSD1--A
(indicates the cable length in numbers)
Power Extension Cable: DP-05Q1--A
(indicates the cable length in numbers)

1.AKD defaults to using Renishaw grating encoders. For other requirements, please contact our engineers for customization.
2.Motor dimensions, wiring methods, and flange materials can be customized according to requirements.
3.For external cooling systems or braking systems, please contact our engineers for customization.

DDE112 Torque Motor

External Rotor Motor

Dimensional Installation Drawing



Default configuration includes a 4m extension cable. For extension cables of other lengths, please refer to P162 to select the appropriate length.

Parameter Table

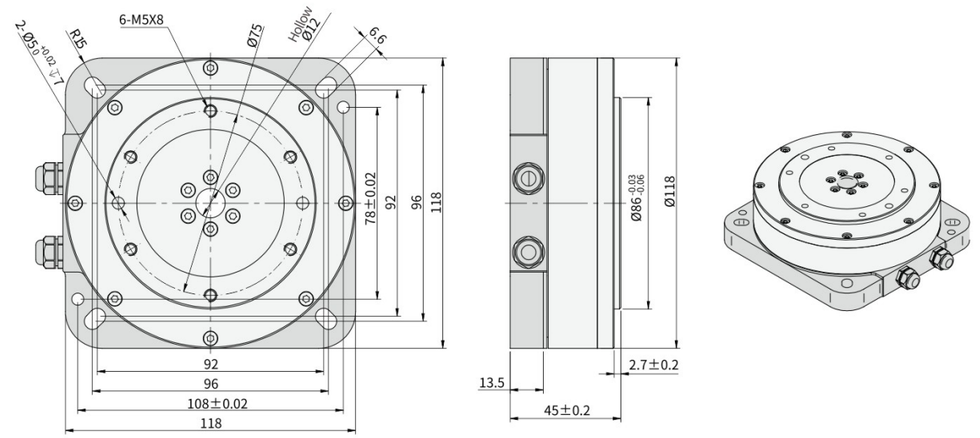
Parameter	Unit	DDE-112065	DDE-112095
Continuous torque	N.m	3.0	6.0
Continuous current	Arms	2.5	2.5
Peak torque	N.m	9	18
Peak current	Arms	7.5	7.5
Torque constant	Nm/Arms	1.2	2.4
Ohms	Ω(25°C)	2.2	4.2
mH	mH(25°C)	1.8	3.7
Poles		28	28
Constant of reverse electromotive force	Vrms/rad/s	1.0	2.0
Rated power	W(25°C)	26.3	50.1
Motor constant	Nm/√W	0.6	0.8
Rotational inertia	kg.m²	0.0026	0.0035
Motor weight	Kg	3.2	4.60
Rated speed	rpm	350	250
Positioning Accuracy	Arc sec	±20	±20
Repeatability	Arc sec	±1.5	±1.5
Resolution	sin/cos	819200	819200
Max. bus voltage	N	2500	2500
Max. radial load	N.m	20	20
Axial Runout	mm	0.005	0.005
Radial Runout	mm	0.005	0.005
Motor Height (H)	mm	65	95

Note: (General Specifications) Motor winding; insulation class: Class F; insulation withstand voltage: 60s @1500V; insulation resistance: >10MΩ (500V DC).

DDE118 Torque Motor

External Rotor Motor

Dimensional Installation Drawing



Default configuration includes a 4m extension cable. For extension cables of other lengths, please refer to P162 to select the appropriate length.

Parameter Table

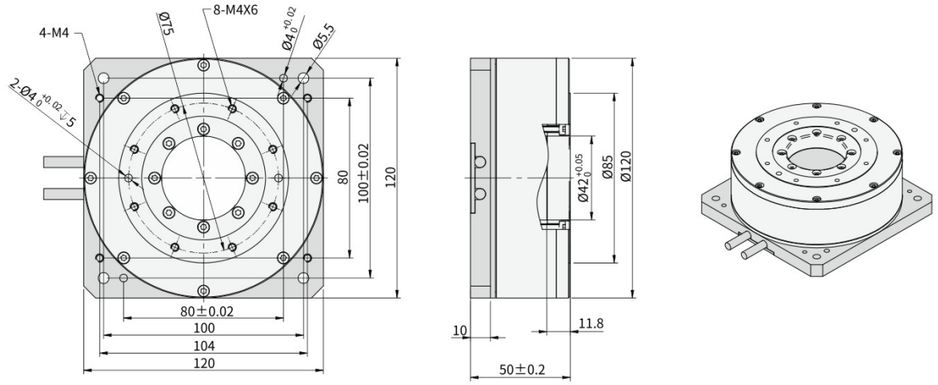
Parameter	Unit	DDE-118045
Continuous torque	N.m	3
Continuous current	Arms	2.5
Peak torque	N.m	9
Peak current	Arms	7.5
Torque constant	Nm/Arms	1.20
Ohms	Ω(25°C)	2.2
mH	mH(25°C)	1.8
Poles		28
Constant of reverse electromotive force	Vrms/rad/s	1
Rated power	W(25°C)	26.3
Motor constant	Nm/√W	0.60
Rotational inertia	kg.m²	0.0026
Motor weight	Kg	3.20
Rated speed	rpm	350
Positioning Accuracy	Arc sec	±25
Repeatability	Arc sec	±2.5
Resolution	sin/cos	500000
Max. bus voltage	N	1500
Max. radial load	N.m	5
Axial Runout	mm	0.005
Radial Runout	mm	0.005
Motor Height (H)	mm	45

Note: (General Specifications) Motor winding; insulation class: Class F; insulation withstand voltage: 60s @1500V; insulation resistance: >10MΩ (500V DC).

DDE120 Torque Motor

External Rotor Motor

Dimensional Installation Drawing



Default configuration includes a 4m extension cable. For extension cables of other lengths, please refer to P162 to select the appropriate length.

Parameter Table

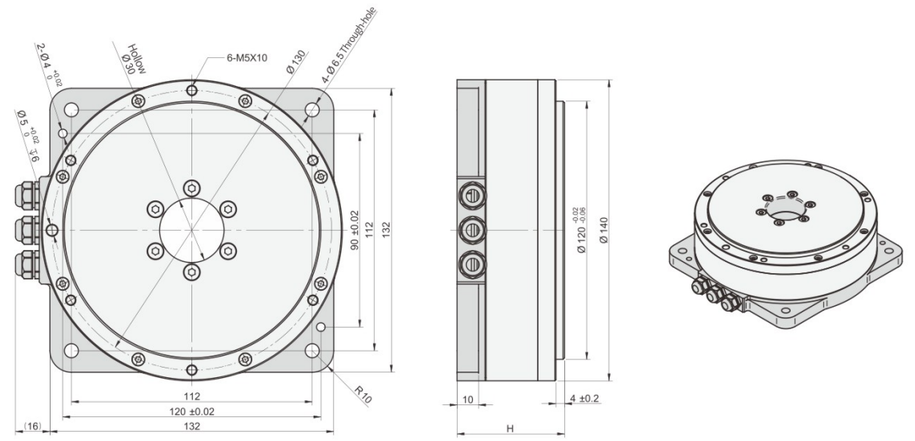
Parameter	Unit	DDE-120050
Continuous torque	N.m	3.5
Continuous current	Arms	2
Peak torque	N.m	10.5
Peak current	Arms	6
Torque constant	Nm/Arms	1.70
Ohms	Ω(25°C)	8.6
mH	mH(25°C)	4.1
Poles		28
Constant of reverse electromotive force	Vrms/rad/s	1.40
Rated power	W(25°C)	69.0
Motor constant	Nm/√W	0.40
Rotational inertia	kg.m²	0.002
Motor weight	Kg	1.80
Rated speed	rpm	350
Positioning Accuracy	Arc sec	±20
Repeatability	Arc sec	±1.5
Resolution	sin/cos	1174000
Max. bus voltage	N	500
Max. radial load	N.m	10
Axial Runout	mm	0.005
Radial Runout	mm	0.005
Motor Height (H)	mm	50

Note: (General Specifications) Motor winding; insulation class: Class F; insulation withstand voltage: 60s @1500V; insulation resistance: >10MΩ (500V DC).

DDE140 Torque Motor

External Rotor Motor

Dimensional Installation Drawing



Default configuration includes a 4m extension cable. For extension cables of other lengths, please refer to P162 to select the appropriate length.

Parameter Table

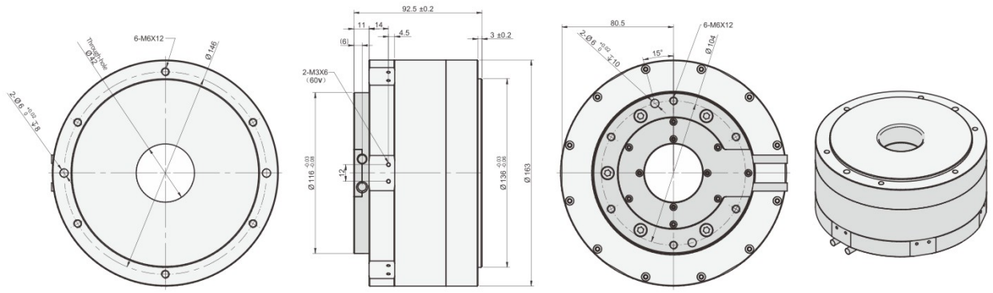
Parameter	Unit	DDE-140050	DDE-140080
Continuous torque	N.m	6.0	10.5
Continuous current	Arms	2.5	2.5
Peak torque	N.m	16	28
Peak current	Arms	7	7
Torque constant	Nm/Arms	2.4	4.2
Ohms	Ω(25°C)	3.7	5.9
mH	mH(25°C)	3.8	6
Poles		28	28
Constant of reverse electromotive force	Vrms/rad/s	2.0	3.4
Rated power	W(25°C)	44.2	70.4
Motor constant	Nm/√W	0.9	1.3
Rotational inertia	kg.m²	0.0045	0.0076
Motor weight	Kg	3.4	5.6
Rated speed	rpm	600	350
Positioning Accuracy	Arc sec	±20	±20
Repeatability	Arc sec	±1.5	±1.5
Resolution	sin/cos	819200	819200
Max. bus voltage	N	2500	2500
Max. radial load	N.m	20	20
Axial Runout	mm	0.005	0.005
Radial Runout	mm	0.005	0.005
Motor Height (H)	mm	50	80

Note: (General Specifications) Motor winding; insulation class: Class F; insulation withstand voltage: 60s @1500V; insulation resistance: >10MΩ (500V DC).

DDE163 Torque Motor

External Rotor Motor

Dimensional Installation Drawing



Default configuration includes a 4m extension cable. For extension cables of other lengths, please refer to P162 to select the appropriate length.

Parameter Table

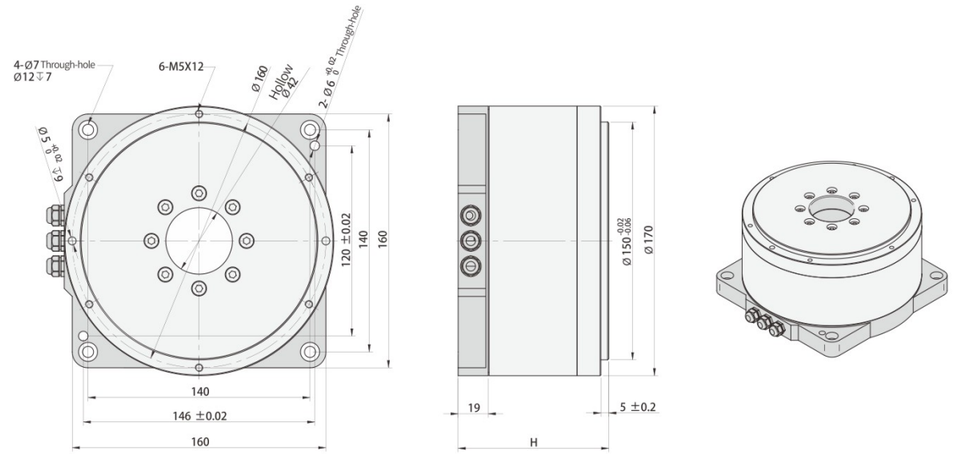
Parameter	Unit	DDE-163092
Continuous torque	N.m	11.7
Continuous current	Arms	3
Peak torque	N.m	35
Peak current	Arms	9
Torque constant	Nm/Arms	3.9
Ohms	Ω(25°C)	4.1
mH	mH(25°C)	5.0
Poles		40
Constant of reverse electromotive force	Vrms/rad/s	3.2
Rated power	W(25°C)	70.5
Motor constant	Nm/√W	1.4
Rotational inertia	kg.m²	0.016
Motor weight	Kg	7.1
Rated speed	rpm	200
Positioning Accuracy	Arc sec	±20
Repeatability	Arc sec	±1.5
Resolution	sin/cos	1174000
Max. bus voltage	N	6000
Max. radial load	N.m	60
Axial Runout	mm	0.002
Radial Runout	mm	0.002
Motor Height (H)	mm	92

Note: (General Specifications) Motor winding; insulation class: Class F; insulation withstand voltage: 60s @1500V; insulation resistance: >10MΩ (500V DC).

DDE170 Torque Motor

External Rotor Motor

Dimensional Installation Drawing



Default configuration includes a 4m extension cable. For extension cables of other lengths, please refer to P162 to select the appropriate length.

Parameter Table

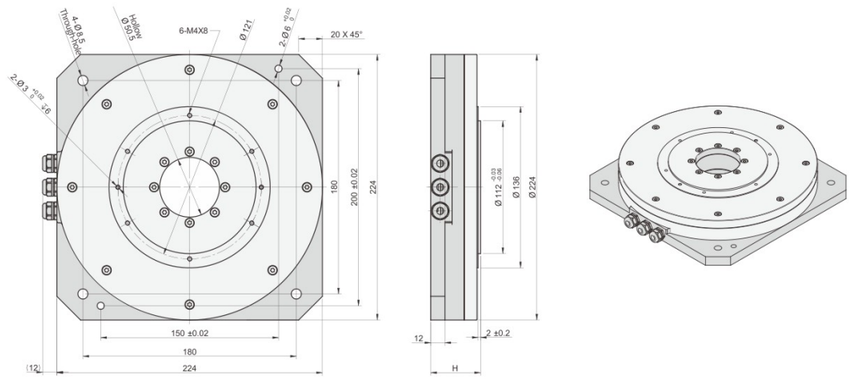
Parameter	Unit	DDE-170095	DDE-170125
Continuous torque	N.m	23.8	41.8
Continuous current	Arms	2.5	2.5
Peak torque	N.m	71	125
Peak current	Arms	7.5	7.5
Torque constant	Nm/Arms	9.5	16.7
Ohms	Ω(25°C)	9.4	14.4
mH	mH(25°C)	17.9	34.7
Poles		30	30
Constant of reverse electromotive force	Vrms/rad/s	7.8	13.6
Rated power	W(25°C)	112.2	171.9
Motor constant	Nm/√W	2.2	3.2
Rotational inertia	kg.m²	0.023	0.032
Motor weight	Kg	10.1	13.9
Rated speed	rpm	190	150
Positioning Accuracy	Arc sec	±20	±20
Repeatability	Arc sec	±1.5	±1.5
Resolution	sin/cos	1174000	1174000
Max. bus voltage	N	15000	15000
Max. radial load	N.m	150	150
Axial Runout	mm	0.005	0.005
Radial Runout	mm	0.005	0.005
Motor Height (H)	mm	95	125

Note: (General Specifications) Motor winding; insulation class: Class F; insulation withstand voltage: 60s @1500V; insulation resistance: >10MΩ (500V DC).

DDE224 Torque Motor

External Rotor Motor

Dimensional Installation Drawing



Default configuration includes a 4m extension cable. For extension cables of other lengths, please refer to P162 to select the appropriate length.

Parameter Table

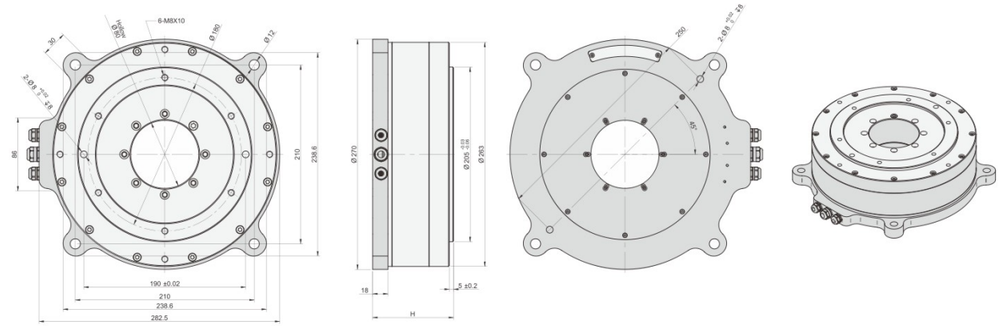
Parameter	Unit	DDE-224042	DDE-224062
Continuous torque	N.m	14.1	35.0
Continuous current	Arms	2.2	2.2
Peak torque	N.m	42.2	105.0
Peak current	Arms	6.6	6.6
Torque constant	Nm/Arms	6.4	15.7
Ohms	Ω(25°C)	7.5	13.8
mH	mH(25°C)	17.1	40.0
Poles		40	40
Constant of reverse electromotive force	Vrms/rad/s	5.2	12.8
Rated power	W(25°C)	69.3	127.5
Motor constant	Nm/√W	2.6	5.6
Rotational inertia	kg.m²	0.012	0.03
Motor weight	Kg	5.40	9.2
Rated speed	rpm	380	200
Positioning Accuracy	Arc sec	±20	±20
Repeatability	Arc sec	±1.5	±1.5
Resolution	sin/cos	1174000	1638400
Max. bus voltage	N	8000	10000
Max. radial load	N.m	80	100
Axial Runout	mm	0.005	0.005
Radial Runout	mm	0.005	0.005
Motor Height (H)	mm	42	62

Note: (General Specifications) Motor winding; insulation class: Class F; insulation withstand voltage: 60s @1500V; insulation resistance: >10MΩ (500V DC).

DDE263 Torque Motor

External Rotor Motor

Dimensional Installation Drawing



Default configuration includes a 4m extension cable. For extension cables of other lengths, please refer to P162 to select the appropriate length.

Parameter Table

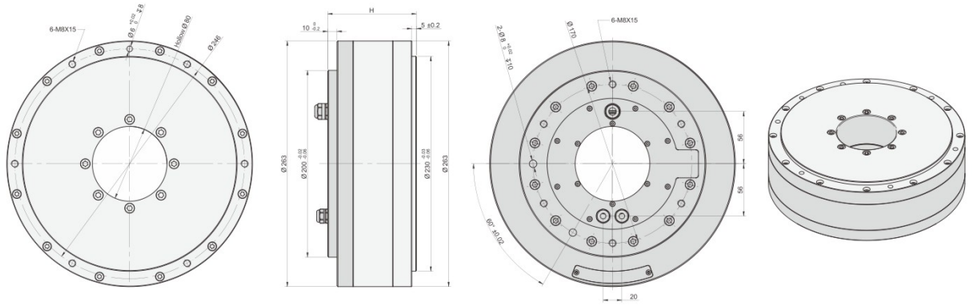
Parameter	Unit	DDE-263095	DDE-263109	DDE-263112
Continuous torque	N.m	45.0	95.0	95.0
Continuous current	Arms	7.1	7.1	7.1
Peak torque	N.m	135	190.0	190
Peak current	Arms	21.3	14.2	14.2
Torque constant	Nm/Arms	6.3	13.40	13.4
Ohms	Ω(25°C)	1.7	2.7	2.7
mH	mH(25°C)	5.0	8.3	8.3
Poles		40	40	40
Constant of reverse electromotive force	Vrms/rad/s	5.2	10.90	10.9
Rated power	W(25°C)	163.6	259.9	259.9
Motor constant	Nm/√W	7.9	3.00	3.0
Rotational inertia	kg.m²	0.079	0.1	0.13
Motor weight	Kg	19.3	24.40	33.50
Rated speed	rpm	200	150	150
Positioning Accuracy	Arc sec	±20	±20	±20
Repeatability	Arc sec	±1.5	±1.5	±1.5
Resolution	sin/cos	1638400	1638400	1638400
Max. bus voltage	N	40000	40000	40000
Max. radial load	N.m	400	400	400
Axial Runout	mm	0.005	0.005	0.005
Motor Height (H)	mm	95	109	112

Note: (General Specifications) Motor winding; insulation class: Class F; insulation withstand voltage: 60s @1500V; insulation resistance: >10MΩ (500V DC).

DDE263 Torque Motor

External Rotor Motor

Dimensional Installation Drawing



Default configuration includes a 4m extension cable. For extension cables of other lengths, please refer to P162 to select the appropriate length.

Parameter Table

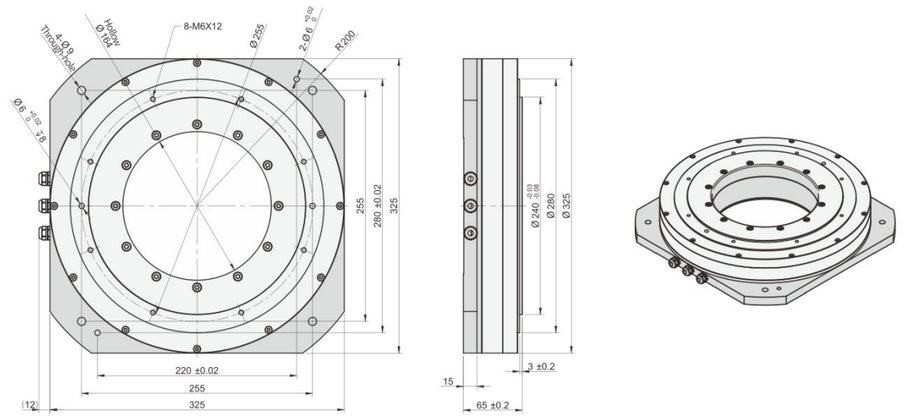
Parameter	Unit	DDE-263134	DDE-263138	DDE-263188
Continuous torque	N.m	150.0	150.0	250.0
Continuous current	Arms	7.1	7.1	7.1
Peak torque	N.m	300.0	300.0	500
Peak current	Arms	14.2	14.2	14.2
Torque constant	Nm/Arms	21.9	21.9	35.2
Ohms	Ω(25°C)	3.9	3.9	6.7
mH	mH(25°C)	13.4	13.4	22.8
Poles		40	40	40
Constant of reverse electromotive force	Vrms/rad/s	17.9	17.9	28.7
Rated power	W(25°C)	375.4	375.4	644.9
Motor constant	Nm/√W	7.9	7.9	7.9
Rotational inertia	kg.m²	0.15	0.15	0.21
Motor weight	Kg	32	32.50	49.10
Rated speed	rpm	120	120	100
Positioning Accuracy	Arc sec	±20	±20	±20
Repeatability	Arc sec	±1.5	±1.5	±1.5
Resolution	sin/cos	1638400	1638400	1638400
Max. bus voltage	N	40000	40000	40000
Max. radial load	N.m	400	400	400
Axial Runout	mm	0.005	0.005	0.005
Radial Runout	mm	0.005	0.005	0.005
Motor Height (H)	mm	134	138	188

Note: (General Specifications) Motor winding; insulation class: Class F; insulation withstand voltage: 60s @1500V; insulation resistance: >10MΩ (500V DC).

DDE325 Torque Motor

External Rotor Motor

Dimensional Installation Drawing



Default configuration includes a 4m extension cable. For extension cables of other lengths, please refer to P162 to select the appropriate length.

Parameter Table

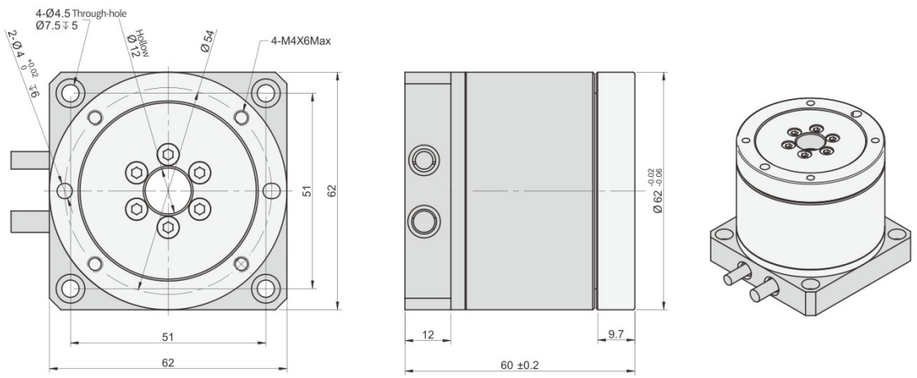
Parameter	Unit	DDE-325065
Continuous torque	N.m	30.0
Continuous current	Arms	1.1
Peak torque	N.m	90.0
Peak current	Arms	3.4
Torque constant	Nm/Arms	27.3
Ohms	Ω(25°C)	18.6
mH	mH(25°C)	42.4
Poles		50
Constant of reverse electromotive force	Vrms/rad/s	22.3
Rated power	W(25°C)	43.0
Motor constant	Nm/√W	4.6
Rotational inertia	kg.m²	0.12
Motor weight	Kg	15.50
Rated speed	rpm	120
Positioning Accuracy	Arc sec	±20
Repeatability	Arc sec	±1.5
Resolution	sin/cos	1638400
Max. bus voltage	N	50000
Max. radial load	N.m	300
Axial Runout	mm	0.008
Radial Runout	mm	0.008
Motor Height (H)	mm	65

Note: (General Specifications) Motor winding; insulation class: Class F; insulation withstand voltage: 60s @1500V; insulation resistance: >10MΩ (500V DC).

DDI062 Torque Motor

Internal Rotor Motor

Dimensional Installation Drawing



Default configuration includes a 4m extension cable. For extension cables of other lengths, please refer to P162 to select the appropriate length.

Parameter Table

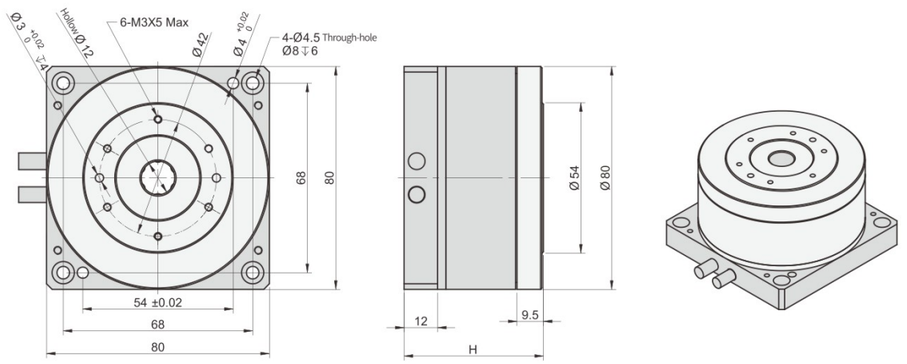
Parameter	Unit	DDI-062060
Continuous torque	N.m	0.5
Continuous current	Arms	2
Peak torque	N.m	1.5
Peak current	Arms	6
Torque constant	Nm/Arms	0.25
Ohms	Ω(25°C)	2.6
mH	mH(25°C)	1.7
Poles		14
Constant of reverse electromotive force	Vrms/rad/s	0.2
Rated power	W(25°C)	19.9
Motor constant	Nm/√W	0.1
Rotational inertia	kg.m²	6.5x10-5
Motor weight	Kg	0.65
Rated speed	rpm	600
Positioning Accuracy	Arc sec	±30
Repeatability	Arc sec	±1.5
Resolution	sin/cos	500000
Max. bus voltage	N	50
Max. radial load	N.m	/
Axial Runout	mm	0.03

Note: (General Specifications) Motor winding; insulation class: Class F; insulation withstand voltage: 60s @1500V; insulation resistance: >10MΩ (500V DC).

DDI080 Torque Motor

Internal Rotor Motor

Dimensional Installation Drawing



Default configuration includes a 4m extension cable. For extension cables of other lengths, please refer to P162 to select the appropriate length.

Parameter Table

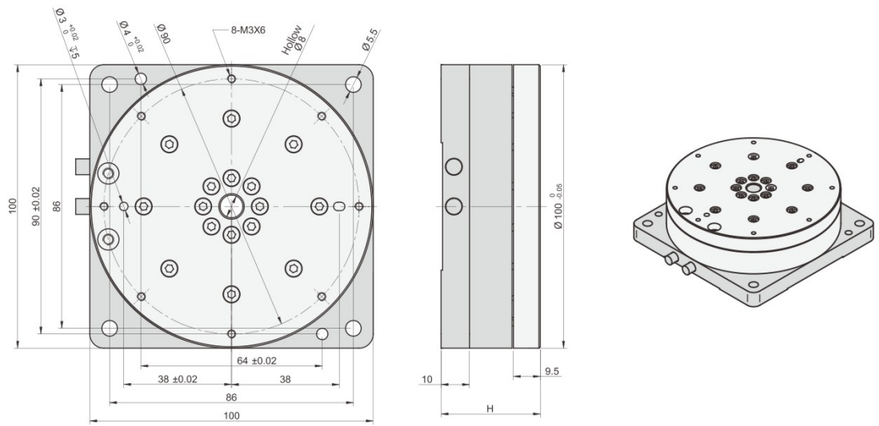
Parameter	Unit	DDI-080050	DDI-080067
Continuous torque	N.m	0.9	1
Continuous current	Arms	3.2	3.2
Peak torque	N.m	2.7	3
Peak current	Arms	9.6	9.6
Torque constant	Nm/Arms	0.28	0.31
Ohms	Ω(25°C)	1.3	1.5
mH	mH(25°C)	1.7	1.8
Poles		10	10
Constant of reverse electromotive force	Vrms/rad/s	0.2	0.26
Rated power	W(25°C)	25.4	29.3
Motor constant	Nm/√W	0.2	0.21
Rotational inertia	kg.m²	1.5x10 -4	2.2x10 -4
Motor weight	Kg	1.5	1.8
Rated speed	rpm	600	450
Positioning Accuracy	Arc sec	±50	±30
Repeatability	Arc sec	±2.5	±1.5
Resolution	sin/cos	500000	500000
Max. bus voltage	N	50	150
Max. radial load	N.m	/	10
Axial Runout	mm	0.01	0.01
Radial Runout	mm	0.01	0.01
Motor Height (H)	mm	50	67

Note: (General Specifications) Motor winding; insulation class: Class F; insulation withstand voltage: 60s @1500V; insulation resistance: >10MΩ (500V DC).

DDI100 Torque Motor

Internal Rotor Motor

Dimensional Installation Drawing



Default configuration includes a 4m extension cable. For extension cables of other lengths, please refer to P162 to select the appropriate length.

Parameter Table

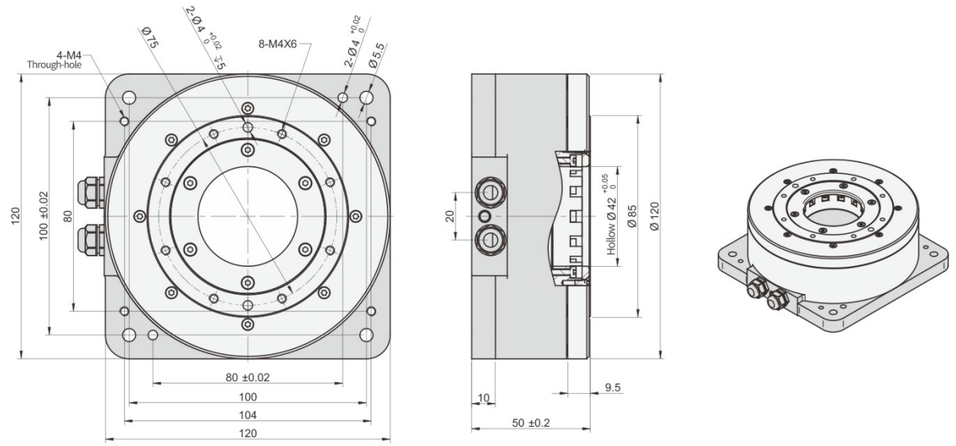
Parameter	Unit	DDI-100035
Continuous torque	N.m	1.0
Continuous current	Arms	1.5
Peak torque	N.m	3
Peak current	Arms	4.5
Torque constant	Nm/Arms	0.67
Ohms	Ω(25°C)	6.7
mH	mH(25°C)	5.2
Poles		20
Constant of reverse electromotive force	Vrms/rad/s	0.55
Rated power	W(25°C)	28.8
Motor constant	Nm/√W	0.2
Rotational inertia	kg.m²	4
Motor weight	Kg	1.1
Rated speed	rpm	350
Positioning Accuracy	Arc sec	±30
Repeatability	Arc sec	±1.5
Resolution	sin/cos	500000
Max. bus voltage	N	50
Max. radial load	N.m	/
Axial Runout	mm	0.02
Radial Runout	mm	0.02
Motor Height (H)	mm	35

Note: (General Specifications) Motor winding; insulation class: Class F; insulation withstand voltage: 60s @1500V; insulation resistance: >10MΩ (500V DC).

DDI120 Torque Motor

Internal Rotor Motor

Dimensional Installation Drawing



Default configuration includes a 4m extension cable. For extension cables of other lengths, please refer to P162 to select the appropriate length.

Parameter Table

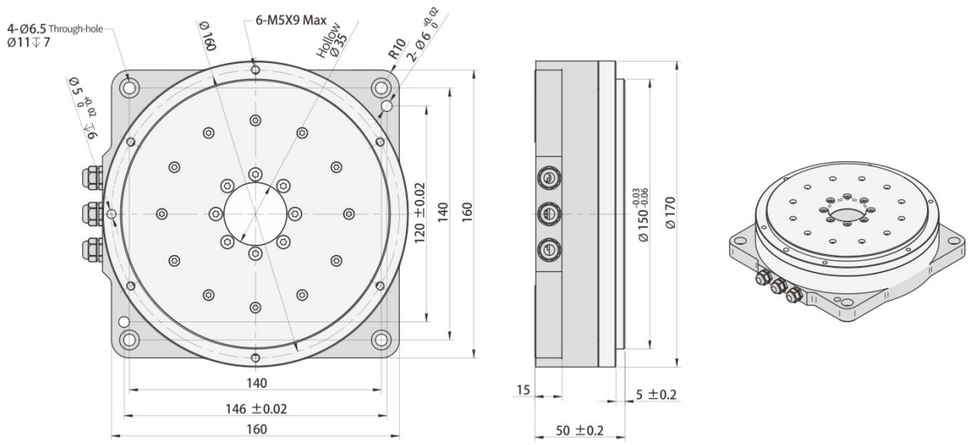
Parameter	Unit	DDI-120050
Continuous torque	N.m	3.5
Continuous current	Arms	1.3
Peak torque	N.m	11.3
Peak current	Arms	4.2
Torque constant	Nm/Arms	2.70
Ohms	Ω(25°C)	10.9
mH	mH(25°C)	8.4
Poles		20
Constant of reverse electromotive force	Vrms/rad/s	2.20
Rated power	W(25°C)	35.2
Motor constant	Nm/√W	0.60
Rotational inertia	kg.m²	0.0016
Motor weight	Kg	2.30
Rated speed	rpm	350
Positioning Accuracy	Arc sec	±25
Repeatability	Arc sec	±1.5
Resolution	sin/cos	1174000
Max. bus voltage	N	500
Max. radial load	N.m	10
Axial Runout	mm	0.005

Note: (General Specifications) Motor winding; insulation class: Class F; insulation withstand voltage: 60s @1500V; insulation resistance: >10MΩ (500V DC).

DDI170 Torque Motor

Internal Rotor Motor

Dimensional Installation Drawing



Default configuration includes a 4m extension cable. For extension cables of other lengths, please refer to P162 to select the appropriate length.

Parameter Table

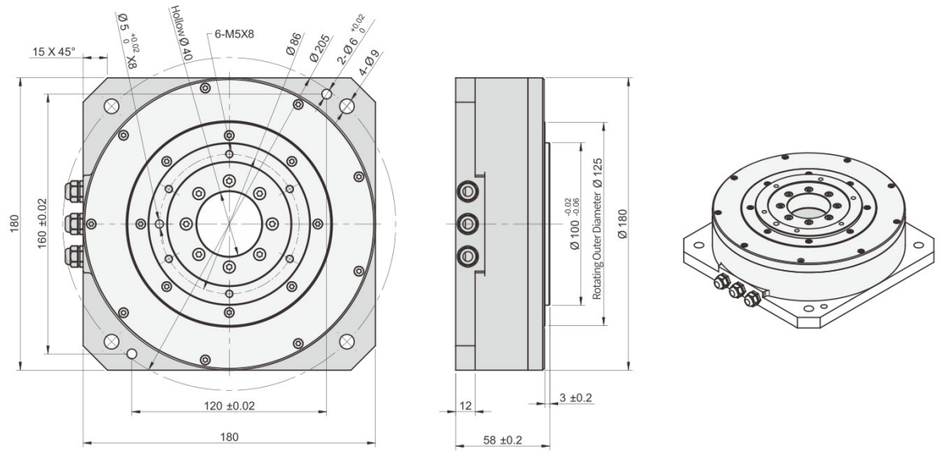
Parameter	Unit	DDI-170050	DDI-170095
Continuous torque	N.m	5.4	17.4
Continuous current	Arms	3	3
Peak torque	N.m	16	52
Peak current	Arms	9	9
Torque constant	Nm/Arms	1.8	5.80
Ohms	Ω(25°C)	6.9	9.7
mH	mH(25°C)	8.3	22.7
Poles		40	20
Constant of reverse electromotive force	Vrms/rad/s	1.5	4.70
Rated power	W(25°C)	118.6	166.7
Motor constant	Nm/√W	0.5	1.30
Rotational inertia	kg.m²	0.004	0.0062
Motor weight	Kg	3.9	6.80
Rated speed	rpm	500	120
Positioning Accuracy	Arc sec	±20	±20
Repeatability	Arc sec	±1.5	±1.5
Resolution	sin/cos	117400	819200
Max. bus voltage	N	2500	1500
Max. radial load	N.m	20	20
Axial Runout	mm	0.005	0.005
Radial Runout	mm	0.005	0.005
Motor Height (H)	mm	50	95

Note: (General Specifications) Motor winding; insulation class: Class F; insulation withstand voltage: 60s @1500V; insulation resistance: >10MΩ (500V DC).

DDI180 Torque Motor

Internal Rotor Motor

Dimensional Installation Drawing



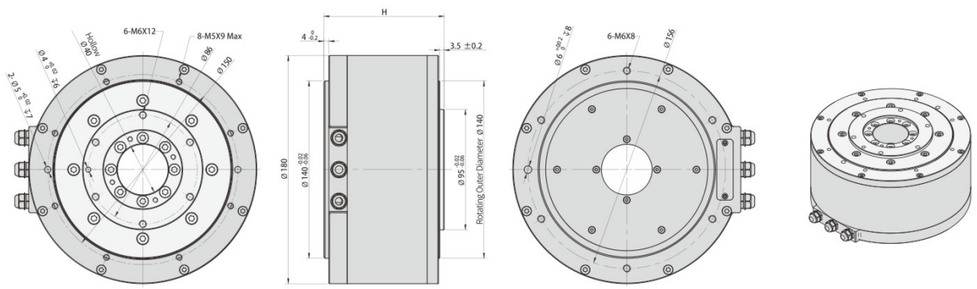
Default configuration includes a 4m extension cable. For extension cables of other lengths, please refer to P162 to select the appropriate length.

Parameter Table

Parameter	Unit	DDI-180055
Continuous torque	N.m	14.0
Continuous current	Arms	4.5
Peak torque	N.m	42
Peak current	Arms	13.5
Torque constant	Nm/Arms	3.1
Ohms	Ω(25°C)	3.5
mH	mH(25°C)	5.7
Poles		32
Constant of reverse electromotive force	Vrms/rad/s	2.5
Rated power	W(25°C)	135.3
Motor constant	Nm/√W	1.20
Rotational inertia	kg.m²	0.004
Motor weight	Kg	5.4
Rated speed	rpm	250
Positioning Accuracy	Arc sec	±20
Repeatability	Arc sec	±1.5
Resolution	sin/cos	1174000
Max. bus voltage	N	2500
Max. radial load	N.m	20
Axial Runout	mm	0.005
Radial Runout	mm	0.005
Motor Height (H)	mm	55

Note: (General Specifications) Motor winding; insulation class: Class F; insulation withstand voltage: 60s @1500V; insulation resistance: >10MΩ (500V DC).

Dimensional Installation Drawing



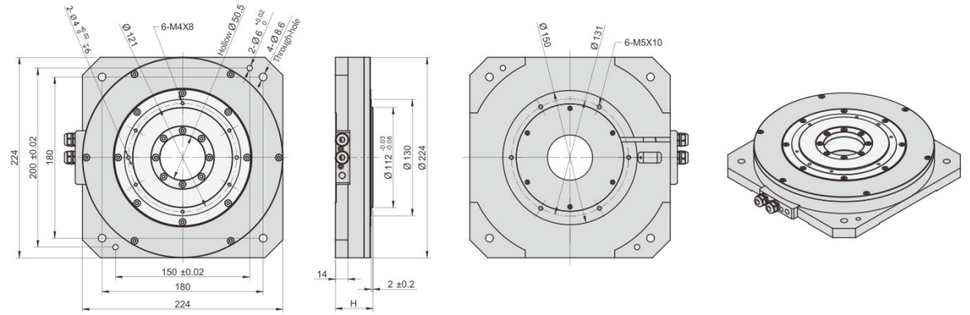
Default configuration includes a 4m extension cable. For extension cables of other lengths, please refer to P162 to select the appropriate length.

Parameter Table

Parameter	Unit	DDI-180095	DDI-180125
Continuous torque	N.m	25.2	40.1
Continuous current	Arms	4.5	4.5
Peak torque	N.m	76	120
Peak current	Arms	13.5	13.5
Torque constant	Nm/Arms	5.6	8.9
Ohms	Ω(25°C)	1.5	8
mH	mH(25°C)	2.6	15.8
Poles		32	32
Constant of reverse electromotive force	Vrms/rad/s	4.6	7.3
Rated power	W(25°C)	58.0	309.3
Motor constant	Nm/√W	3.3	2.3
Rotational inertia	kg.m²	0.0067	0.01
Motor weight	Kg	9.1	13
Rated speed	rpm	300	250
Positioning Accuracy	Arc sec	±20	±20
Repeatability	Arc sec	±1.5	±1.5
Resolution	sin/cos	1174000	1174000
Max. bus voltage	N	4000	2500
Max. radial load	N.m	40	20
Axial Runout	mm	0.005	0.005
Motor Height (H)	mm	95	128

Note: (General Specifications) Motor winding; insulation class: Class F; insulation withstand voltage: 60s @1500V; insulation resistance: >10MΩ (500V DC).

Dimensional Installation Drawing



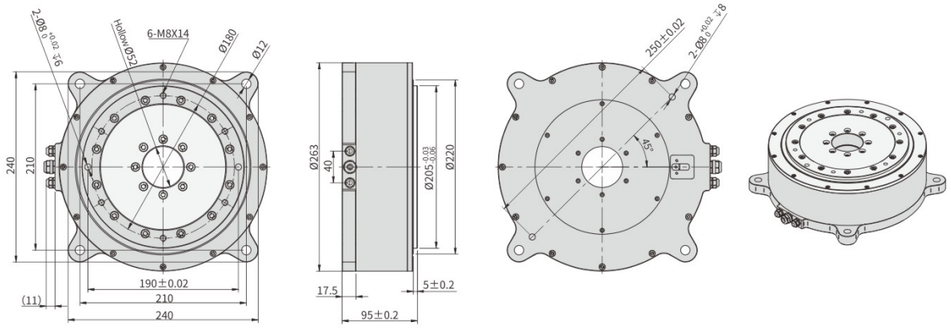
Default configuration includes a 4m extension cable. For extension cables of other lengths, please refer to P162 to select the appropriate length.

Parameter Table

Parameter	Unit	DDI-224042	DDI-224065
Continuous torque	N.m	9.9	19.8
Continuous current	Arms	2.3	2.3
Peak torque	N.m	30	60
Peak current	Arms	7	7
Torque constant	Nm/Arms	4.3	8.6
Ohms	Ω(25°C)	17.5	26.3
mH	mH(25°C)	50.4	78.8
Poles		40	40
Constant of reverse electromotive force	Vrms/rad/s	3.5	7.0
Rated power	W(25°C)	176.8	265.7
Motor constant	Nm/√W	0.7	1.2
Rotational inertia	kg.m²	0.0076	0.018
Motor weight	Kg	6.50	11.5
Rated speed	rpm	250	150
Positioning Accuracy	Arc sec	±20	±20
Repeatability	Arc sec	±1.5	±1.5
Resolution	sin/cos	1174000	1638400
Max. bus voltage	N	2500	2500
Max. radial load	N.m	20	20
Axial Runout	mm	0.005	0.005
Motor Height (H)	mm	42	65

Note: (General Specifications) Motor winding; insulation class: Class F; insulation withstand voltage: 60s @1500V; insulation resistance: >10MΩ (500V DC).

Dimensional Installation Drawing



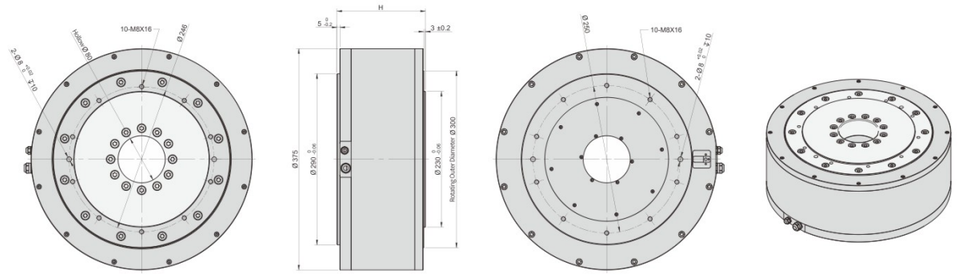
Default configuration includes a 4m extension cable. For extension cables of other lengths, please refer to P162 to select the appropriate length.

Parameter Table

Parameter	Unit	DDI-263095
Continuous torque	N.m	50
Continuous current	Arms	6
Peak torque	N.m	150
Peak current	Arms	18
Torque constant	Nm/Arms	8.30
Ohms	Ω(25°C)	7.1
mH	mH(25°C)	22.9
Poles		32
Constant of reverse electromotive force	Vrms/rad/s	6.80
Rated power	W(25°C)	488.1
Motor constant	Nm/√W	2.30
Rotational inertia	kg.m²	0.037
Motor weight	Kg	28.50
Rated speed	rpm	150
Positioning Accuracy	Arc sec	±15
Repeatability	Arc sec	±1.5
Resolution	sin/cos	1174000
Max. bus voltage	N	10000
Max. radial load	N.m	100
Axial Runout	mm	0.005
Radial Runout	mm	0.005
Motor Height (H)	mm	95

Note: (General Specifications) Motor winding; insulation class: Class F; insulation withstand voltage: 60s @1500V; insulation resistance: >10MΩ (500V DC).

Dimensional Installation Drawing



Default configuration includes a 4m extension cable. For extension cables of other lengths, please refer to P162 to select the appropriate length.

Parameter Table

Parameter	Unit	DDI-375150	DDI-375200
Continuous torque	N.m	250.0	375.0
Continuous current	Arms	5	5
Peak torque	N.m	670	1000
Peak current	Arms	15	15
Torque constant	Nm/Arms	50.0	75.0
Ohms	Ω(25°C)	7.7	11.5
mH	mH(25°C)	47	70.5
Poles		30	30
Constant of reverse electromotive force	Vrms/rad/s	40.8	61.2
Rated power	W(25°C)	367.6	549.0
Motor constant	Nm/√W	13.0	16.0
Rotational inertia	kg.m²	0.3	0.45
Motor weight	Kg	69	85
Rated speed	rpm	80	50
Positioning Accuracy	Arc sec	±30	±25
Repeatability	Arc sec	±2.5	±1.5
Resolution	sin/cos	1638400	1638400
Max. bus voltage	N	50	50
Max. radial load	N.m	2000	2000
Axial Runout	mm	0.01	0.01
Radial Runout	mm	0.01	0.01
Motor Height (H)	mm	150	200

Note: (General Specifications) Motor winding; insulation class: Class F; insulation withstand voltage: 60s @1500V; insulation resistance: >10MΩ (500V DC).

ARM Series

Voice Coil Motor

No cogging effect, high response, low-speed smooth motion.

ARM28-15
Continuous Thrust：70N
Peak Thrust：28.1N

ARM17-56
Continuous Thrust：87N
Peak Thrust：17.5N

ARM14-08
Continuous Thrust：44N
Peak Thrust：13.8N

ARM13-20
Continuous Thrust：57.9N
Peak Thrust：13.2N

ARM05-15
Continuous Thrust：27.4N
Peak Thrust：5.5N

ARM5514
Continuous Thrust：14.4N
Peak Thrust：67.5N

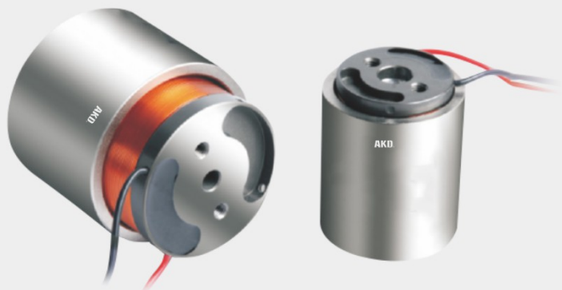
ARM6014
Continuous Thrust：14.4N
Peak Thrust：67.5N

ARM6520
Continuous Thrust：35.2N
Peak Thrust：165N

ARM10015
Continuous Thrust：96N
Peak Thrust：450N

ARM13515
Continuous Thrust：144N
Peak Thrust：675N

- No Cogging
- High Responsiveness
- Smooth Low-Speed Motion



Linear motion | Horizontal plane Z | Angle | Rotation | Up/down and rotation

Voice Coil Motor Characteristics

Direct drive, cogging-free, and backlash-free voice coil motor.

High response and broadband low-mass coil.

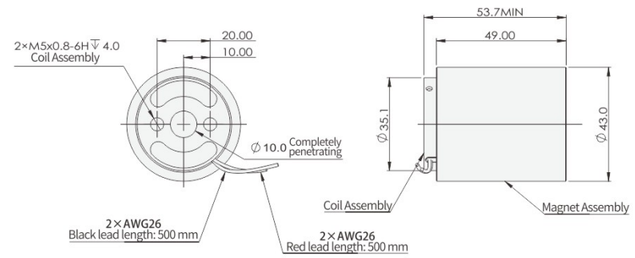
Independent motion between the coil and module (no wear).

Ultra-high-resolution-based smooth low-speed motion (based on feedback devices).

Ordering Method

ARM	28	-	15
Model	Thrust		Stroke

ARM28-15 Installation Drawing



ARM28-15

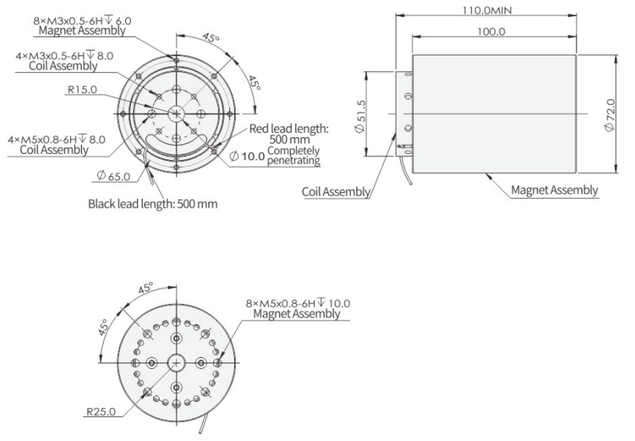
Performance Parameters

Motor model	Unit	Tolerance	ARM28-15
Resistance	Ω	±5%	6.8
Voltage	V	Standard Value	27.2
Peak current	A	Standard Value	4
Torque constant	N/A	±7.5%	17.7
Constant of reverse electromotive force	V/M/Ses	Standard Value	17.7
Inductance	MH	±15%	2.5

Motor Parameters

Motor Model	Unit	ARM28-15
Continuous Thrust	N	70
Continuous Thrust	N	28.1
Motor constant	N/√W	6.6
Electrical Time Constant	Milli-sec	0.37
Rated power	w	113
Total Stroke	mm	±7.6
Lateral Clearance	mm	0.5
Thermal Resistance	a/W	6.9
Maximum Allowable Coil Temperature	a	150
Coil Assembly Weight	g	80
Magnet Assembly Weight	g	390
Motor Weight	g	470

ARM17-56 Installation Drawing



ARM17-56

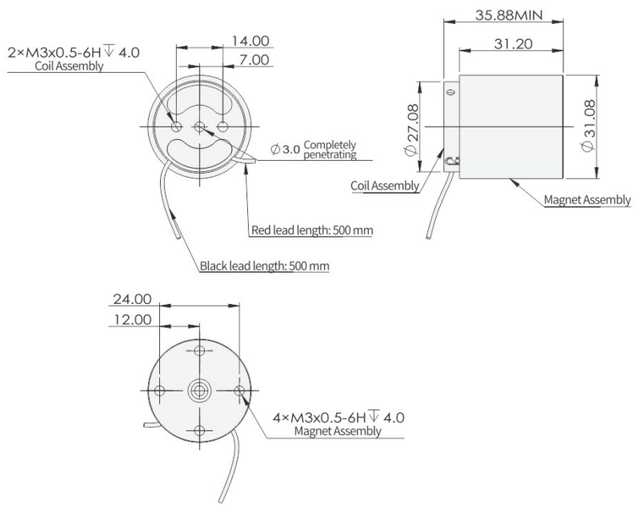
Performance Parameters

Motor model	Unit	Tolerance	ARM17-56
Resistance	Ω	±5%	5.9
Voltage	V	Standard Value	63.4
Peak current	A	Standard Value	10.6
Torque constant	N/A	±7.5%	8.2
Constant of reverse electromotive force	V/M/Ses	Standard Value	8.2
Inductance	MH	±15%	4.2

Motor Parameters

Motor Model	Unit	ARM17-56
Continuous Thrust	N	87
Continuous Thrust	N	17.5
Motor constant	N/√W	3.33
Electrical Time Constant	Milli-sec	0.71
Rated power	w	680
Total Stroke	mm	56.3
Lateral Clearance	mm	0.55
Thermal Resistance	a/W	4.5
Maximum Allowable Coil Temperature	a	150
Coil Assembly Weight	g	170
Magnet Assembly Weight	g	2580
Motor Weight	g	2750

ARM14-08 Installation Drawing



ARM14-08

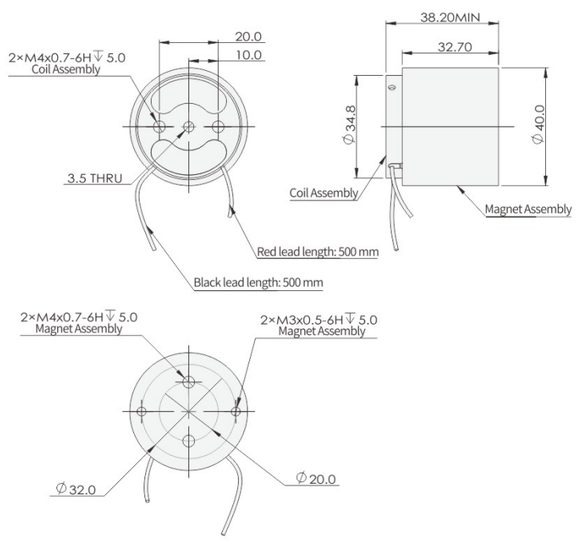
Performance Parameters

Motor model	Unit	Tolerance	ARM14-08
Resistance	Ω	±5%	2.9
Voltage	V	Standard Value	16.8
Peak current	A	Standard Value	5.8
Torque constant	N/A	±7.5%	7.6
Constant of reverse electromotive force	V/M/Ses	Standard Value	7.6
Inductance	MH	±15%	0.72

Motor Parameters

Motor Model	Unit	ARM14-08
Continuous Thrust	N	44
Continuous Thrust	N	13.8
Motor constant	N/√W	4.46
Electrical Time Constant	Milli-sec	0.25
Rated power	w	97.2
Total Stroke	mm	7.6
Lateral Clearance	mm	0.5
Thermal Resistance	a/W	13.1
Maximum Allowable Coil Temperature	a	150
Coil Assembly Weight	g	39
Magnet Assembly Weight	g	114
Motor Weight	g	153

ARM13-20 Installation Drawing



ARM13-20

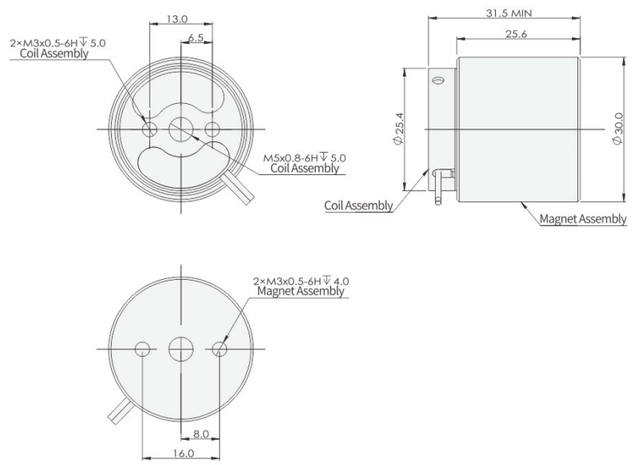
Performance Parameters

Motor model	Unit	Tolerance	ARM13-20
Resistance	Ω	±5%	11.2
Voltage	V	Standard Value	50.5
Peak current	A	Standard Value	4.5
Torque constant	N/A	±7.5%	12.86
Constant of reverse electromotive force	V/M/Ses	Standard Value	12.86
Inductance	MH	±15%	5.2

Motor Parameters

Motor Model	Unit	ARM13-20
Continuous Thrust	N	57.9
Continuous Thrust	N	13.2
Motor constant	N/√W	3.84
Electrical Time Constant	Milli-sec	0.46
Rated power	w	230
Total Stroke	mm	20
Lateral Clearance	mm	0.6
Thermal Resistance	a/W	10.4
Maximum Allowable Coil Temperature	a	155
Coil Assembly Weight	g	97
Magnet Assembly Weight	g	220
Motor Weight	g	317

ARM05-15 Installation Drawing



ARM05-15

Performance Parameters

Motor model	Unit	Tolerance	ARM05-15
Resistance	Ω	±5%	10.6
Voltage	V	Standard Value	42.5
Peak current	A	Standard Value	4
Torque constant	N/A	±7.5%	6.84
Constant of reverse electromotive force	V/M/Ses	Standard Value	6.84
Inductance	MH	±15%	2.6

Motor Parameters

Motor Model	Unit	ARM05-15
Continuous Thrust	N	27.4
Continuous Thrust	N	5.5
Motor constant	N/√W	2.1
Electrical Time Constant	Milli-sec	0.25
Rated power	w	170
Total Stroke	mm	15
Lateral Clearance	mm	0.5
Thermal Resistance	a/W	18.5
Maximum Allowable Coil Temperature	a	155
Coil Assembly Weight	g	27
Magnet Assembly Weight	g	98
Motor Weight	g	125

AKD

Voice Coil Motor

- Linear and limited angular motion
- Positioning accuracy up to 10nm

Linear motion | Horizontal plane Z | Angle | Rotation | Up/down and rotation

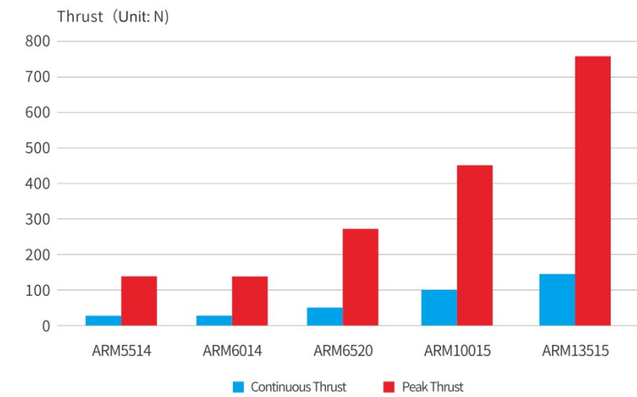
Voice Coil Motor Characteristics

A voice coil motor is a device that converts electrical energy into mechanical energy, enabling linear or limited angular motion. It generates controlled movement through the interaction between magnetic poles in a magnetic field, which is produced either by a permanent magnet or by an energized coil conductor. Since the voice coil motor is a non-commutation type power device, its positioning accuracy depends entirely on the feedback and control system, and is independent of the voice coil motor itself. With suitable positioning feedback and sensing devices, its positioning accuracy can easily reach 10nm, and acceleration can reach 300g (actual acceleration depends on the specific operating conditions of the load).

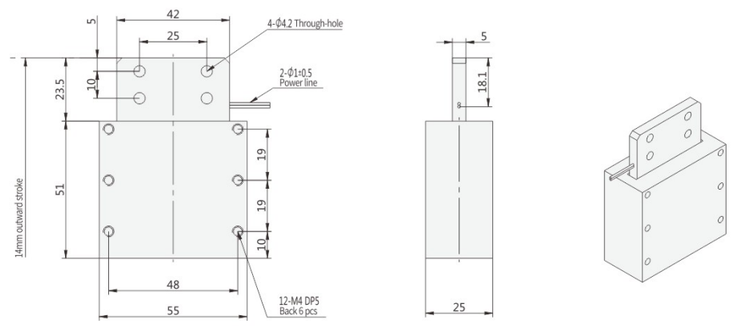
Ordering Method

ARM	5514	-	L05
Series	Model		Moving Coil Cable Length
ARM	5514: 70mm		L05: 0.5m
	6014: 48mm		*If lengths beyond the above are required, please consult our sales department.
	6520: 95mm		
	10015: 95mm		
	13515: 110mm		

Thrust

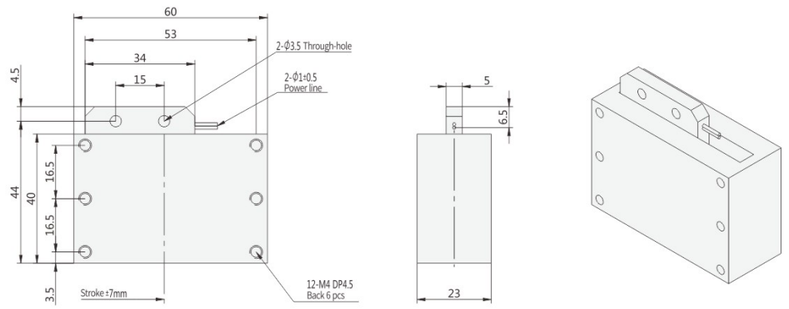


ARM5514 Voice Coil Motor Dimensional Drawing



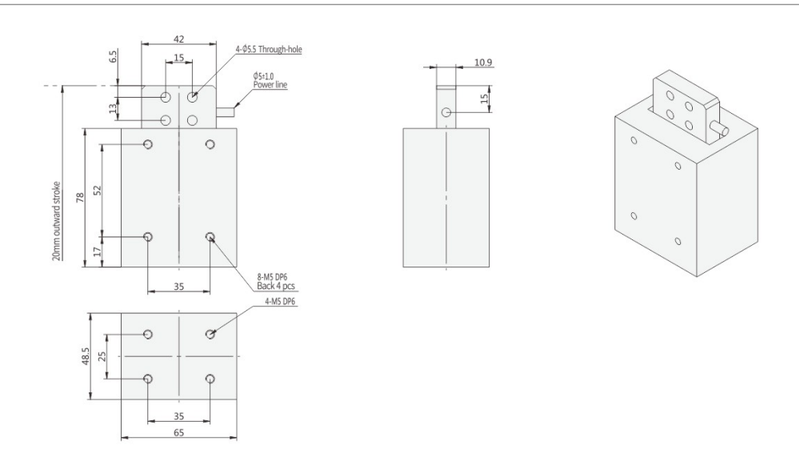
Motor model	Continuous thrust	Peak thrust	Continuous current	Peak current	Coil weight	Stator weight	Motor mtroke	Motor air gap	Thrust constant	Constant of reverse electromotive force	Motor constant	Resistance	Inductance	Rated power	Continuous power	Max. temperature
Unit	N	N	A	A	kg	kg	mm	mm	N/A	V/m/s	N/√W	Ohm	mH	W	W	°C
ARM5514	14.4	67.5	3.2	15	0.05	0.4	14	0.5	4.5	5.2	5.0	0.80	0.20	192.3	12.3	120

ARM6014 Voice Coil Motor Dimensional Drawing



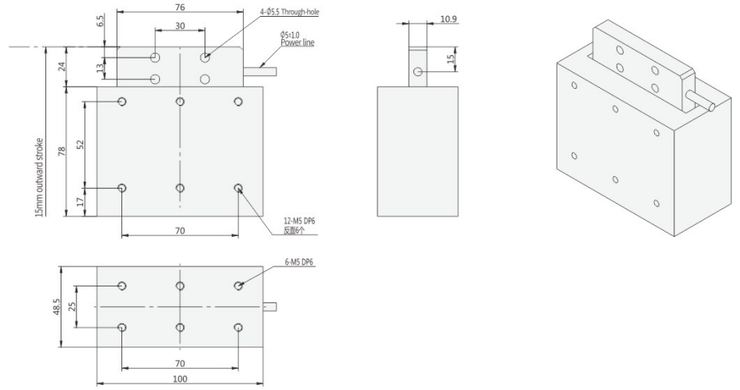
Motor model	Continuous thrust	Peak thrust	Continuous current	Peak current	Coil weight	Stator weight	Motor mtroke	Motor air gap	Thrust constant	Constant of reverse electromotive force	Motor constant	Resistance	Inductance	Rated power	Continuous power	Max. temperature
Unit	N	N	A	A	kg	kg	mm	mm	N/A	V/m/s	N/√W	Ohm	mH	W	W	℃
ARM6014	14.4	67.5	3.2	15	0.04	0.31	14	0.5	4.5	5.2	5.0	0.80	0.20	192.3	12.3	120

ARM6520 Voice Coil Motor Dimensional Drawing



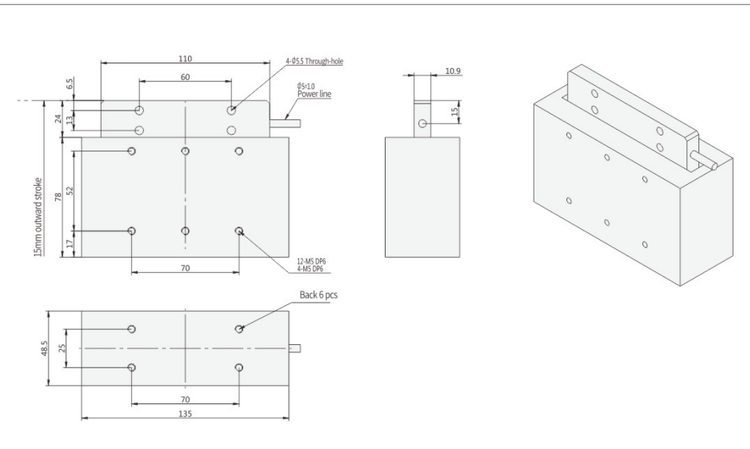
Motor model	Continuous thrust	Peak thrust	Continuous current	Peak current	Coil weight	Stator weight	Motor mtroke	Motor air gap	Thrust constant	Constant of reverse electromotive force	Motor constant	Resistance	Inductance	Rated power	Continuous power	Max. temperature
Unit	N	N	A	A	kg	kg	mm	mm	N/A	V/m/s	N/√W	Ohm	mH	W	W	℃
ARM6520	35.2	165	3.2	15	0.18	0.9	20	0.8	11.0	12.7	6.6	2.80	3.60	673.0	43	120

ARM10015 Voice Coil Motor Dimensional Drawing



Motor model	Continuous thrust	Peak thrust	Continuous current	Peak current	Coil weight	Stator weight	Motor mtroke	Motor air gap	Thrust constant	Constant of reverse electromotive force	Motor constant	Resistance	Inductance	Rated power	Continuous power	Max. temperature
Unit	N	N	A	A	kg	kg	mm	mm	N/A	V/m/s	N/√W	Ohm	mH	W	W	℃
ARM10015	96	450	3.2	15	0.31	1.8	15	0.8	30.0	34.5	11.2	5.10	6.80	1225.8	78.3	120

ARM13515 Voice Coil Motor Dimensional Drawing



Motor model	Continuous thrust	Peak thrust	Continuous current	Peak current	Coil weight	Stator weight	Motor mtroke	Motor air gap	Thrust constant	Constant of reverse electromotive force	Motor constant	Resistance	Inductance	Rated power	Continuous power	Max. temperature
Unit	N	N	A	A	kg	kg	mm	mm	N/A	V/m/s	N/√W	Ohm	mH	W	W	℃
ARM13515	144	675	3.2	15	0.40	2.6	15	0.8	45.0	51.8	16.8	7.20	9.60	1730.6	110.6	120

ARSM Series

Shaft-type Linear Motor

Low noise, high speed, high precision.

ARSM1602
连续推力：22.9N
峰值推力：127N

ARSM1603
连续推力：34.4N
峰值推力：191N

ARSM1604
连续推力：45.7N
峰值推力：254N

ARSM1605
连续推力：57.1N
峰值推力：317N

ARSM1606
连续推力：68.6N
峰值推力：381N

ARSM2502
连续推力：42.6N
峰值推力：199.5N

ARSM2503
连续推力：63.7N
峰值推力：298.5N

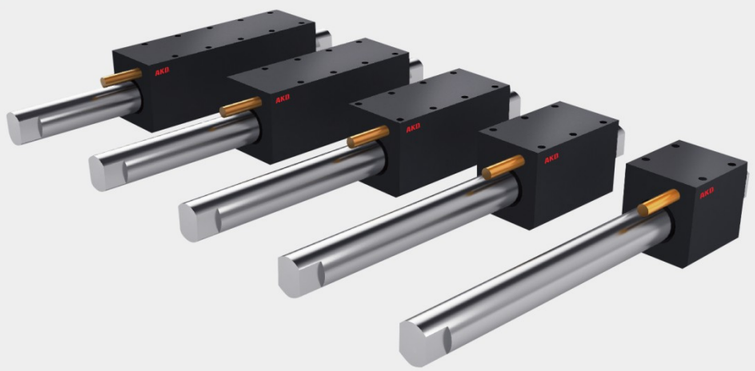
ARSM2504
连续推力：84.8N
峰值推力：397.5N

ARSM2505
连续推力：105.8N
峰值推力：496.5N

ARSM2506
连续推力：127.4N
峰值推力：597N

ARSM2507
连续推力：148.5N
峰值推力：696N

- Low noise,
- High speed
- High precision



Linear motion | Horizontal plane Z | Angle | Rotation | Up/down and rotation

Ordering Method

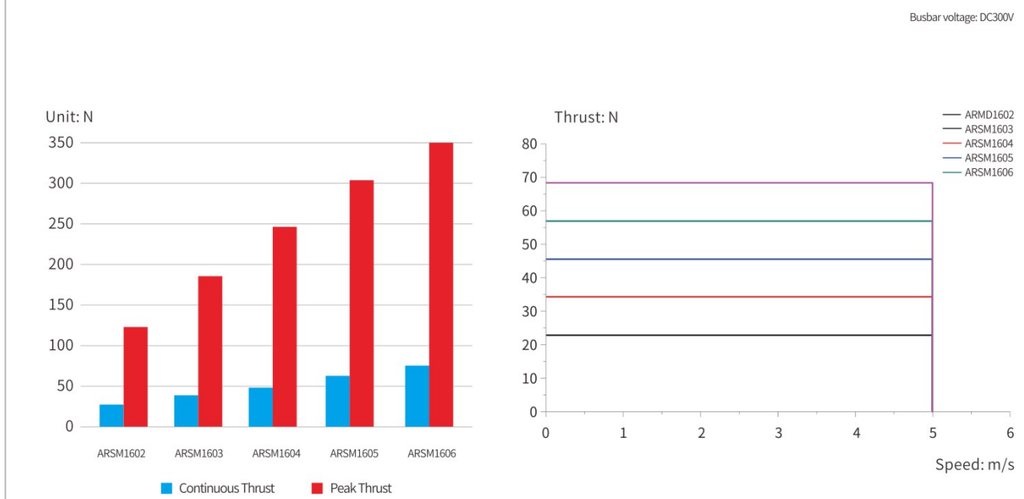
Moving Coil

ARSM	16	02	-	L05
Mover Series	Stator Diameter	Mover Length		Moving Coil Cable Length
ARSM		02: 35.8mm		L05: 0.5m
		03: 52.9mm		L30: 3.0m
		04: 70.0mm		L50: 5.0m
		05: 87.1mm		*Please consult our business personnel when special length is required.
		06: 104.2mm		

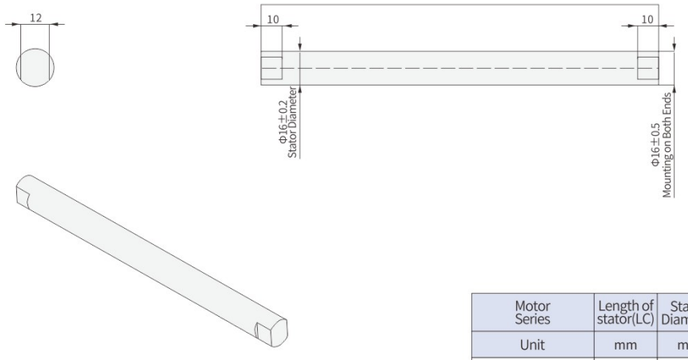
Stator Magnetic Track

ARSM16	-	M	-	A1
Stator Series		Magnet Assembly		Length of stator
				A1: 120mm
				A2: 188·4mm
				A3: 273·9mm
				A4: 359.4mm

Thrust / Speed



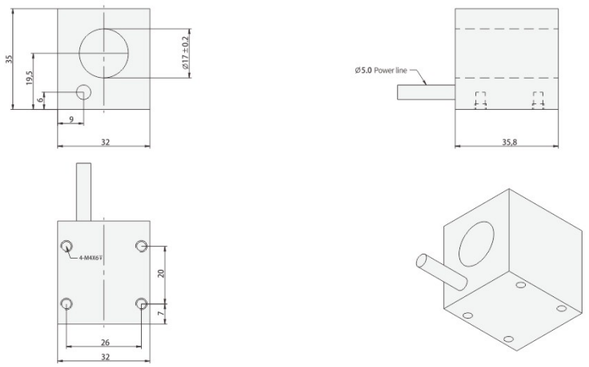
Stator Specifications



Motor Series	Length of stator(LC)	Stator Diameter	Pole Pitch	Stator weight
Unit	mm	mm	mm	mm
ARSM1600-M-A1	120	16	34.2	1.3
ARSM1600-M-A2	188.4	16	34.2	1.3
ARSM1600-M-A3	273.9	16	34.2	1.3
ARSM1600-M-A4	359.4	16	34.2	1.3

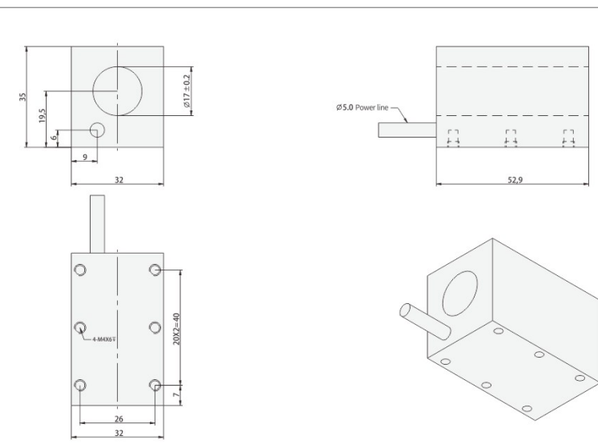
*Dimensions without specified tolerances shall be ±0.1 mm.
*Please consult our business personnel when special length is required.

ARSM1602 Linear Motor Dimension Drawing



Motor model	Continuous thrust	Peak thrust	Continuous current	Peak current	Coil weight	Motor Air Gap	Thrust constant	Constant of reverse electromotive force	Motor constant	Resistance	Inductance	Rated power	Continuous power	Max. temperature
Unit	N	N	A	A	kg	mm	N/A	V/m/s	N/√W	Ohm	mH	W	W	°C
ARSM1602	22.9	127	1.8	10	0.30	0.8	12.7	10.3	4.9	6.60	2.80	692.1	32.1	120

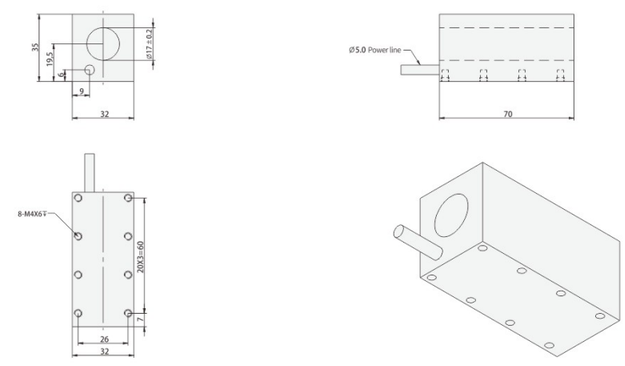
ARSM1603 Linear Motor Dimension Drawing



Motor model	Continuous thrust	Peak thrust	Continuous current	Peak current	Coil weight	Motor Air Gap	Thrust constant	Constant of reverse electromotive force	Motor constant	Resistance	Inductance	Rated power	Continuous power	Max. temperature
Unit	N	N	A	A	kg	mm	N/A	V/m/s	N/√W	Ohm	mH	W	W	°C
ARSM1603	34.4	191	1.8	10	0.40	0.8	19.1	15.5	6.1	9.90	4.10	1038.1	48.1	120

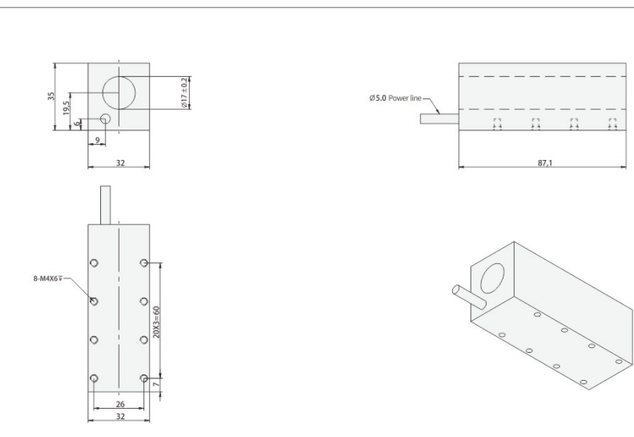
*The movers of the ARSM1600 series can be freely paired with the ARSM1600-M-A. *Dimensions without specified tolerances shall be ±0.1 mm. *Please consult our business personnel when special length is required.

ARSM1604 Linear Motor Dimension Drawing



Motor model	Continuous thrust	Peak thrust	Continuous current	Peak current	Coil weight	Motor Air Gap	Thrust constant	Constant of reverse electromotive force	Motor constant	Resistance	Inductance	Rated power	Continuous power	Max. temperature
Unit	N	N	A	A	kg	mm	N/A	V/m/s	N/√W	Ohm	mH	W	W	°C
ARSM1604	45.7	254	1.8	10	0.50	0.8	25.4	20.7	7.0	13.20	5.60	1384.2	64.2	120

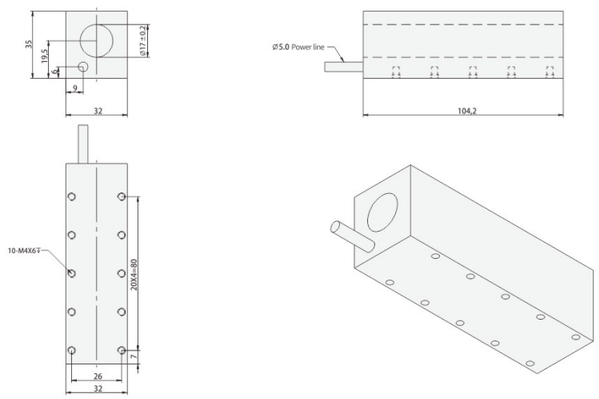
ARSM1605 Linear Motor Dimension Drawing



Motor model	Continuous thrust	Peak thrust	Continuous current	Peak current	Coil weight	Motor Air Gap	Thrust constant	Constant of reverse electromotive force	Motor constant	Resistance	Inductance	Rated power	Continuous power	Max. temperature
Unit	N	N	A	A	kg	mm	N/A	V/m/s	N/√W	Ohm	mH	W	W	°C
ARSM1605	57.1	317	1.8	10	0.60	0.8	31.7	25.8	7.8	16.50	6.90	1730.2	80.2	120

*The movers of the ARSM1600 series can be freely paired with the ARSM1600-M-A. *Dimensions without specified tolerances shall be ±0.1 mm. *Please consult our business personnel when special length is required.

ARSM1606 Linear Motor Dimension Drawing



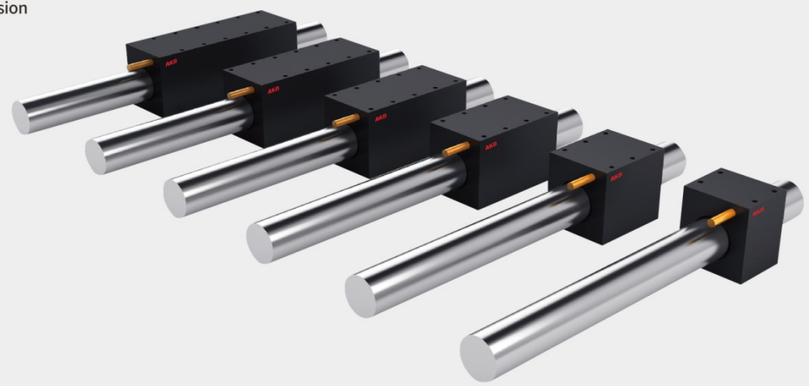
Motor model	Continuous thrust	Peak thrust	Continuous current	Peak current	Coil weight	Motor Air Gap	Thrust constant	Constant of reverse electromotive force	Motor constant	Resistance	Inductance	Rated power	Continuous power	Max. temperature
Unit	N	N	A	A	kg	mm	N/A	V/m/s	N/√W	Ohm	mH	W	W	℃
ARSM1606	68.6	381	1.8	10	0.70	0.8	38.1	31.0	8.6	19.80	8.30	2076.2	96.2	120

*The movers of the ARSM1600 series can be freely paired with the ARSM1600-M-A. *Dimensions without specified tolerances shall be ±0.1 mm. *Please consult our business personnel when special length is required.

*The movers of the ARSM1600 series can be freely paired with the ARSM1600-M-A. *Dimensions without specified tolerances shall be ±0.1 mm. *Please consult our business personnel when special length is required.

MEMO

- Low noise,
- High speed
- High precision



Linear motion | Horizontal plane Z | Angle | Rotation | Up/down and rotation

Ordering Method

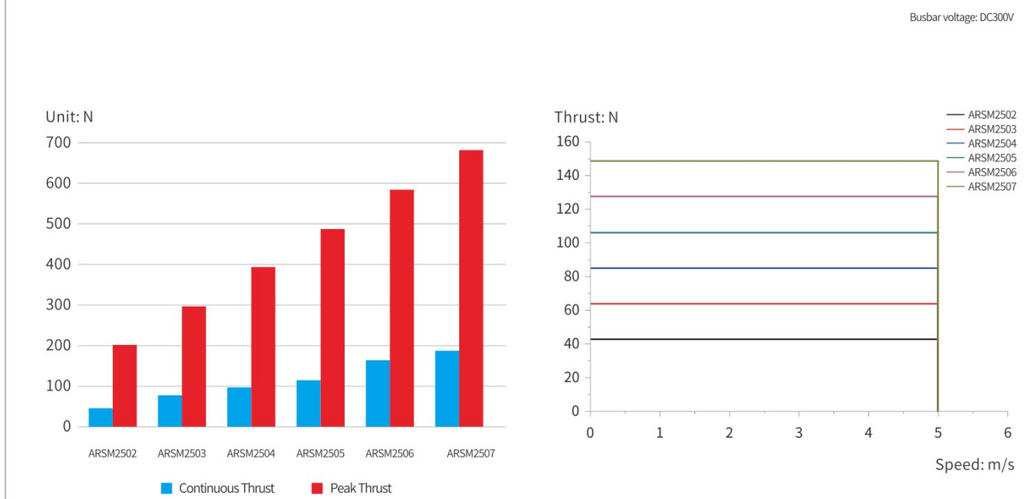
Moving Coil

ARSM	25	02	-	L05
Mover Series	Stator Diameter	Mover Length		Moving Coil Cable Length
ARSM		02: 38.2mm		L05: 0.5m
		03: 56.5mm		L30: 3.0m
		04: 74.8mm		L50: 5.0m
		05: 93.1mm		*Please consult our business personnel when special length is required.
		06: 111.4mm		
		07: 129.7mm		

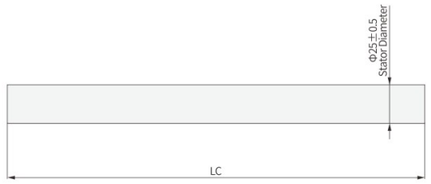
Stator Magnetic Track

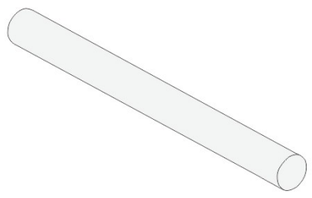
ARSM25	-	M	-	B1
Stator Series		Magnet Assembly		Length of stator
				B1: 127mm
				B2: 145.3mm
				B3: 163.6mm
				B4: 218.5mm
				B5: 273.4mm
				B6: 328.3mm
				B7: 383.2mm
				B8: 474.7mm
				B9: 566.2mm
				B10: 657.7mm
				B11: 749.2mm

Thrust / Speed



Stator Specifications

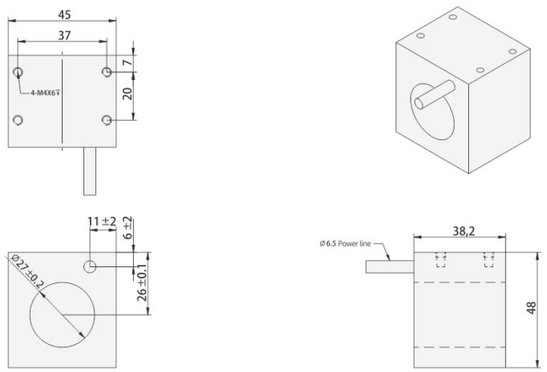




Motor Series	Length of stator(LC)	Stator Diameter	Pole Pitch	Stator weight
Unit	mm	mm	mm	mm
ARSM2500-M-B1	127.0	25	36.6	3.4
ARSM2500-M-B2	145.3	25	36.6	3.4
ARSM2500-M-B3	163.6	25	36.6	3.4
ARSM2500-M-B4	218.5	25	36.6	3.4
ARSM2500-M-B5	273.4	25	36.6	3.4
ARSM2500-M-B6	328.3	25	36.6	3.4
ARSM2500-M-B7	383.2	25	36.6	3.4
ARSM2500-M-B8	474.7	25	36.6	3.4
ARSM2500-M-B9	566.2	25	36.6	3.4
ARSM2500-M-B10	657.7	25	36.6	3.4
ARSM2500-M-B11	749.2	25	36.6	3.4

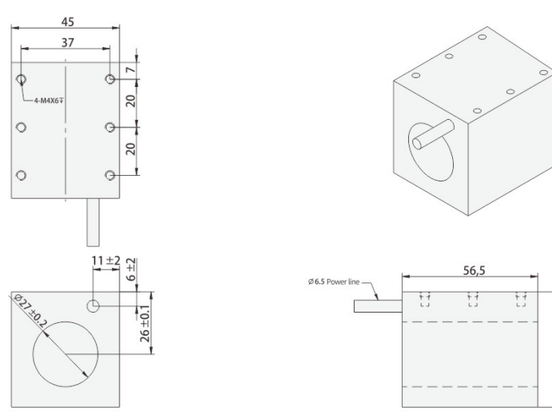
*Dimensions without specified tolerances shall be ±0.1 mm.
*Please consult our business personnel when special length is required.

ARSM2502 Linear Motor Dimension Drawing



Motor model	Continuous thrust	Peak thrust	Continuous current	Peak current	Coil weight	Motor Air Gap	Thrust constant	Constant of reverse electromotive force	Motor constant	Resistance	Inductance	Rated power	Continuous power	Max. temperature
Unit	N	N	A	A	kg	mm	N/A	V/m/s	N/√W	Ohm	mH	W	W	°C
ARSM2502	42.6	199.5	3.2	15	0.37	0.8	13.3	10.8	8.2	2.60	1.60	624.9	39.9	120

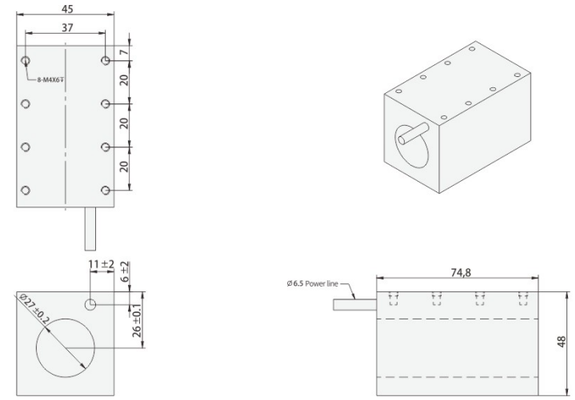
ARSM2503 Linear Motor Dimension Drawing



Motor model	Continuous thrust	Peak thrust	Continuous current	Peak current	Coil weight	Motor Air Gap	Thrust constant	Constant of reverse electromotive force	Motor constant	Resistance	Inductance	Rated power	Continuous power	Max. temperature
Unit	N	N	A	A	kg	mm	N/A	V/m/s	N/√W	Ohm	mH	W	W	°C
ARSM2503	63.7	298.5	3.2	15	0.53	0.8	19.9	16.2	10.1	3.90	2.50	937.1	59.9	120

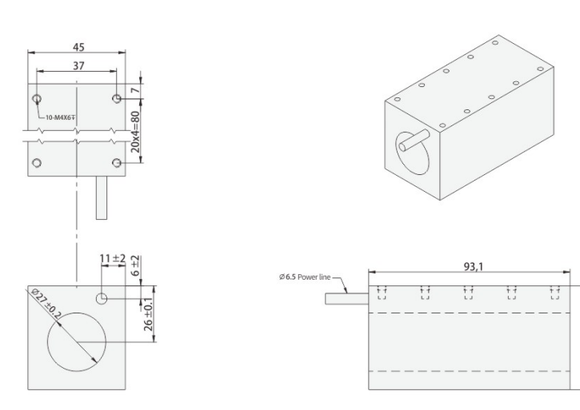
*The movers of the ARSM2500 series can be freely paired with the ARSM2500-M-A. *Dimensions without specified tolerances shall be ±0.1 mm. *Please consult our business personnel when special length is required.

ARSM2504 Linear Motor Dimension Drawing



Motor model	Continuous thrust	Peak thrust	Continuous current	Peak current	Coil weight	Motor Air Gap	Thrust constant	Constant of reverse electromotive force	Motor constant	Resistance	Inductance	Rated power	Continuous power	Max. temperature
Unit	N	N	A	A	kg	mm	N/A	V/m/s	N/√W	Ohm	mH	W	W	°C
ARSM2504	84.8	397.5	3.2	15	0.69	0.8	26.5	21.6	11.5	5.30	2.93	1273.9	81.4	120

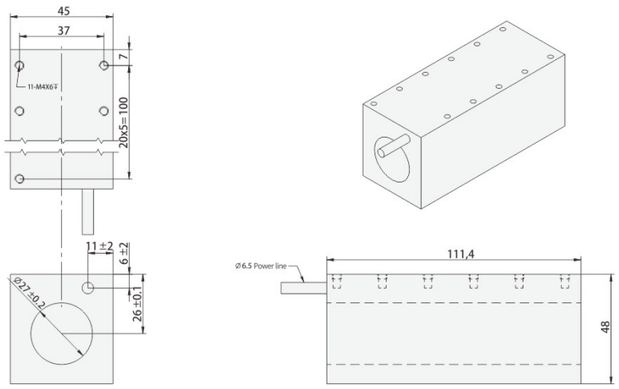
ARSM2505 Linear Motor Dimension Drawing



Motor model	Continuous thrust	Peak thrust	Continuous current	Peak current	Coil weight	Motor Air Gap	Thrust constant	Constant of reverse electromotive force	Motor constant	Resistance	Inductance	Rated power	Continuous power	Max. temperature
Unit	N	N	A	A	kg	mm	N/A	V/m/s	N/√W	Ohm	mH	W	W	°C
ARSM2505	105.8	496.5	3.2	15	0.88	0.8	33.1	26.9	12.9	9.60	4.40	1586.4	101.4	120

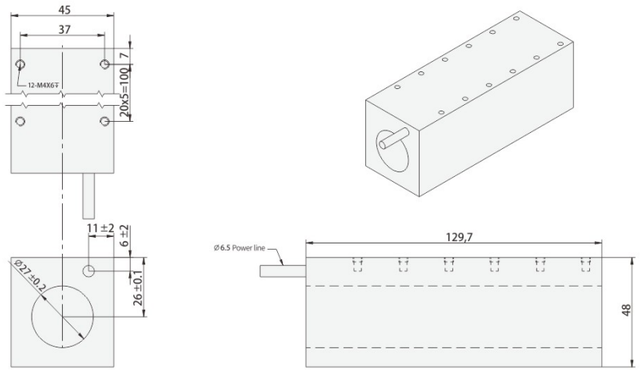
*The movers of the ARSM2500 series can be freely paired with the ARSM2500-M-A. *Dimensions without specified tolerances shall be ±0.1 mm. *Please consult our business personnel when special length is required.

ARSM2506 Linear Motor Dimension Drawing



Motor model	Continuous thrust	Peak thrust	Continuous current	Peak current	Coil weight	Motor Air Gap	Thrust constant	Constant of reverse electromotive force	Motor constant	Resistance	Inductance	Rated power	Continuous power	Max. temperature
Unit	N	N	A	A	kg	mm	N/A	V/m/s	N/√W	Ohm	mH	W	W	°C
ARSM2506	127.4	597	3.2	15	1.05	0.8	39.8	32.4	14.2	7.90	4.90	1898.8	121.3	120

ARSM2507 Linear Motor Dimension Drawing



Motor model	Continuous thrust	Peak thrust	Continuous current	Peak current	Coil weight	Motor Air Gap	Thrust constant	Constant of reverse electromotive force	Motor constant	Resistance	Inductance	Rated power	Continuous power	Max. temperature
Unit	N	N	A	A	kg	mm	N/A	V/m/s	N/√W	Ohm	mH	W	W	°C
ARSM2507	148.5	696	3.2	15	1.22	0.8	46.4	37.7	15.2	9.30	5.70	2235.3	142.8	120

*The movers of the ARSM2500 series can be freely paired with the ARSM2500-M-A. *Dimensions without specified tolerances shall be ±0.1 mm. *Please consult our business personnel when special length is required.

AKD
Shaft-type Linear Motor

MEMO

AKD Driver

Path	√
Compensation	√
Dual-drive Gantry	×
STO	×
Power-off Brake	√
Analog Signal (Pulse only)	√
Direct Drive Motor	√

Structural Dimensions	ZJ3LD0	ZJ6LD0	Notes
Model KA1-ZX/MC	003	006	
Driver Rated Input Current (Arms)	5.0	10.0	
Driver Rated Output Current (Arms)	3.0	6.0	
Driver Maximum Output Current (Arms)	9.0	18.0	
Main Circuit Power Supply	Single-phase 220 VAC ±10%, 50/60 Hz		(Note: All models support an external regenerative resistor.)
Regenerative Resistor Function	Regenerative resistor is not included as standard.	Standard configuration includes a 50 Ω / 50W regenerative resistor.	
Length (mm)	170	170	
Width (mm)	35	50	
Height (mm)	155	155	
Mounting Dimensions	2 holes of Φ5, with a hole spacing (pitch) of 23.5 mm x 161 mm.	2 holes of Φ5, with a hole spacing (pitch) of 28.5*161mm	

	3A	6A
Pulse Model	KA1-MC-ZJ3LD0(3A)	KA1-MC-ZJ6LD0(6A)
EtherCAT Bus Model	KA1-ZX-ZJ3LD0(3A)	KA1-ZX-ZJ6LD0(6A)

AKD Driver

Power Connector	Pin Number	Terminal Number	Terminal Function	Description
L1 1 L2 2 P 3 B 4 N 5 U 6 V 7 W 8 PE 9	1	L1	Main Power Input	Single-phase AC 200V-240V, -10% to +10%, 50/60Hz.
	2	L2		
	3	P	Regenerative Function	When using the regenerative function, connect to terminals P and B.
	4	B		
	5	N		
	6	U	Motor Drive	Connect to the servo motor's three-phase U, V, W terminals and the motor PE (Protective Earth) terminal.
	7	V		
	8	W		
	9	PE		

Pulse Model I/O Connector (DB44) Pinout - CN1			
Pin Number	Signal Name	Pin Number	Signal Name
1	DO4+	23	PBO-
2	DO3-	24	PZO-
3	DO3+	25	PBO+
4	DO2-	26	DO4-
5	DO2+	27	DO5-
6	DO1-	28	DO5+
7	DO1+	29	GND
8	DI4	30	DI8
9	DI1	31	DI7
10	DI2	32	DI6
11	DI_COM	33	DI5
12	-	34	DI3
13	PZO+	35	PULLHI
14	COM-	36	HPULSE-
15	-	37	SIGN+
16	GND	38	HPULSE+
17	+24V	39	SIGN-
18	AI2	40	HSIGN-
19	-	41	PULSE+
20	AI1	42	HSIGN+
21	PAO+	43	PULSE-
22	PAO-	44	OZOUT

Encoder Connector Pinout (1394-10P): CN2 for Pulse Model / CN4 for Bus Model		
Pin Number	Signal Name	
	ABZ	Communications-based Encoder
1	5V	5V
2	GND	GND
3	A+	-
4	A-	-
5	B+	-
6	B-	-
7	Z+	-
8	Z-	-
9	-	SD+
10	-	SD-

Bus Model I/O Connector (DB15) - CN3			
Pin Number	Signal Name	Pin Number	Signal Name
1	DO1+	9	DI2
2	DO2-	10	DI1
3	DO2+	11	DI5
4	DO3-	12	
5	DO3+	13	COM+
6	DO1-	14	COM-
7	DI4	15	+24V
8	DI3		

	Pin Number	Signal Name
MINI USB	1	VBUS
	2	D-
	3	D+
	4	ID
	5	GND

DSDH Series - Incremental Grating System

- Compact
- High Motion Speed
- Insensitive to Temperature Changes

CE RoHS

Ordering Method

Read Head

DSDH	04	A	X	05	A	–	01
Series	Grating Pitch	Output	Resolution	Cable Length	Terminal		Customization
DSDH: Linear Scale	08: 80μm 04: 40μm	A: ABZ	X: 1.0μm Z: 0.5μm	05: 0.5m 30: 3.0m	A: 9-pin D-sub male connector		*Standard Type No mark

Grating Scale

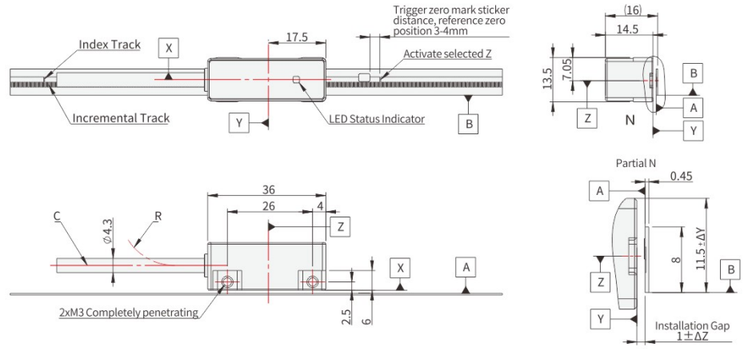
DSDH	04	–	L500	–	01
Series	Grating Pitch		Length		Customization
DSDH: Linear Scale	08: 80μm 04: 40μm		L500: 500mm		*Standard Type No mark

specifications

Read Head	DSDH Series
Output Type	RS-422 ABZ Differential Output
Supply Voltage	5V+10%，200mA（no load）
Maximum Response Speed	0.5μm：3m/s；1μm：5m/s
Allowable Operating Temperature	0°C ~ +65°C
Grating Scale Type	Linear Scale
Position Accuracy	±5μm/m（after 25°C position compensation）
Repeatability	±1μm/m（25°C）
Effective Measuring Length	10m
Thermal Expansion Coefficient	10.1±0.2μm/m/°C

Dimensional Drawing

DSDH Series



Z = Reference zero mark (adjacent 60mm between two zero marks on the grating scale)

C = Cable

R = Bending radius ⩾30mm

LED = Integrated RGB-LED status indicator

1.When the read head receives ⩾80% signal strength, the blue LED lights up.

2.When the read head detects the zero mark, the blue LED briefly turns off once.

3.A red LED lit or flashing indicates a read head fault.

Permissible position deviation of the read head relative to the grating reference surfaces A–B

ΔZ = ±0.2mm（Gap tolerance）

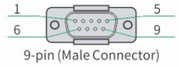
ΔY = ±0.2mm（Offset）

∠Z = ±1.00mrad ~ ±0.06°(Yaw angle)

∠Y = ±3.50mrad ~ ±0.20°(Pitch angle)

∠X = ±4.00mrad ~ ±0.23°(Roll angle)

Output Signal



9-pin (Male Connector)

ABZ	Pin No.	1	2	3	4	5	6	7	8	9	Housing
	Signal	0V	A+	Z+	B+	5V	A-	Z-	B-	–	Shield

Resolution	Models of AKD Grating Read Heads	uitable for AKD Grating Scale Models	Reference Mark Model	Grating Pitch
Digital（0.1um）	DSDH04AY05A-MS	DSDH04-Lxxxx-MS (2.1m - Dual-track, maximum length 2.1m)	Reference Mark Sticker	40um
Digital（0.5um）	DSDH04AZ05A-MS			
Digital（1um）	DSDH04AX05A-MS			
Analog	DSDH04AB05A-MS			
Digital（0.1um）	DSDH04AY05A-QT	DSDH04-Lxxxx-QT (2.1m - Single-track, maximum length 2.1m)	A-9653-0143	40um
Digital（0.5um）	DSDH04AZ05A-QT			
Digital（1um）	DSDH04AX05A-QT			

AKD Incremental Magnetic Scale Encoder

- High system accuracy and high repeatability;
- Aluminum alloy housing, secured with two M3 threaded holes;
- High resolution (magnetic pitch: 2 mm; minimum resolution up to 0.0305 μm);
- Industrial-standard digital signals (A+, A-, B+, B-, Z+, Z-), standard RS422 differential signals;
- A reference (Z) signal is generated periodically per magnetic pole pitch;
- Resistant to dust, wear, shock, vibration, and magnetic field interference;
- Read head cable: 5.0 ±0.1 mm in diameter, 8-wire shielded PUR (polyurethane) high-flex cable. The cable offers excellent flexibility, wear resistance, and interference immunity;
- This read head is the default configuration for AKD linear motors, supplied with a standard 0.3-meter cable. For other cable lengths, please contact sales.

Ordering Method

ALS 2 - R1 - 5V - 0.3m - DB9

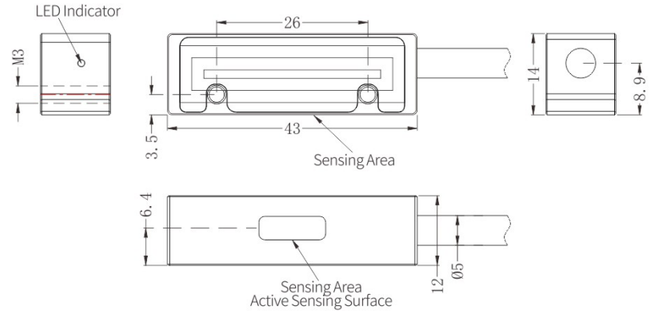
- **Series**
- **Pole Pitch**
  2: Grating Pitch 2 mm
- **Resolution**
  R05: 0.5μm
  R1: 1μm
- **Voltage**
  5: 5V
- **Cable Length**
  0.3m: 0.3m
  3m: 3m
  5m: 5m
- **Output Type**
  DB9
  DB15
  NC: Bare Wire

AKD Magnetic Scale Model (2+2 Pole Type): LS2-2

LS2 - 2 - L***

- **Series**
  Incremental Magnetic Linear Scale
- 2
- **Dimension (Length)**
  L1000: 1000mm

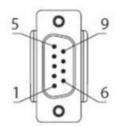
AKD Incremental Magnetic Scale Encoder



Model	ALS2-R1-5V-0.3m-DB9
Supply Voltage	5V+/-5%
Pole Pitch	2+2mm
Current	⩽40mA
Resolution	0.5μm/1μm
Repeatability	±1μm
Output Frequency	1000KHz
Speed	4m/s (Customizable per customer requirements)
Cable	8-core twisted pair shielded cable
Wiring Method	Default configuration: 0.3m cable with DB9 connector attached. Length is customizable.
Output Type	RS422
LED Indicator	Red / Green
Ingress Protection (IP) Rating	IP67
Operating Temperature	-20°C~70°C

Pinout

Signal	DB9 male connector (with 0.3m cable)	Cable Color	Cable Color Scheme 2	Direct plug-in GUC/Gotech SCSI 26-pin connector	AKD drive (SM-10P)	Direct plug-in for Panasonic drive (MUF-PK10K-X connector)
5V	5	Yellow	Red	11	1	1
0V	1	Yellow-Black	Gray	24	2	2
A+	2	White	White	1	3	5
A-	6	White-Black	Blue	14	4	6
B+	4	Gray	Brown	2	5	7
B-	8	Gray-Black	Yellow	15	6	8
Z+	3	Orange	Green	3	7	9
Z-	7	Orange-Black	Black	6	8	10
Shield	Enclosure	Shielded cable	Shielded cable	26	Enclosure	Enclosure



DB9 male connector

20pin - 20-pin SCSI connector

AKD drive SM-10P

Panasonic MUF-PK10K-X

- Features an absolute positioning, dual-track measurement system.
- Delivers high resolution and high accuracy.
- Incorporates a tricolor LED indicator for encoder status.
- Uses high-flexibility, braided shielded cable rated for 50 million bend cycles.

Ordering Method

MC 13 - 10 05 A - B

Series
Absolute Magnetic Encoder

Model Specifications
13: 13
08: 8
06: 6

Resolution
10: 1um
05: 0.5um

Cable Length
03: 0.3m
05: 0.5m
30: 3.0m

Connector
A: DB9 interface 1
C: Bare Wire

Protocol
B: BISS-C(Default)
S: SSI

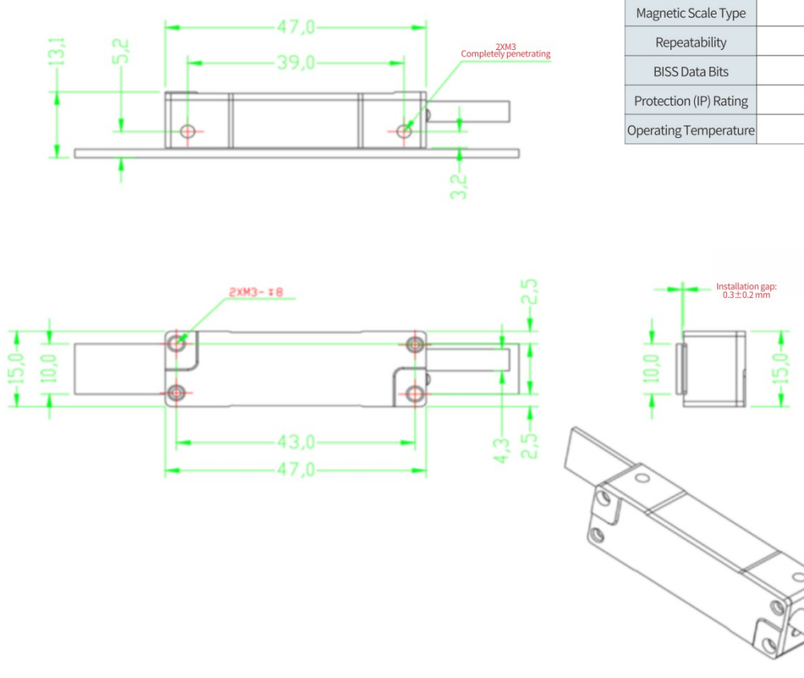
Magnetic scale Model： MC13-L1000

MC 13 - L1000

Series
Absolute Magnetic Linear Scale

Model Specifications, Maximum Length
13:(16.38m)
8：(0.512m)
6：(0.128m)

Magnetic Scale Length
L1000：1000mm
LXXX：XXXmm



Data Communication Protocol	Biss、SSI
Supply Voltage, Operating Current	5V (-5%/+10%), 150-200mA (Avg. 160mA, Peak 200mA)
Maximum Response Speed	1um:7m/s
Operating Temperature	0°C至65°C
Magnetic Scale Type	Linear Type
Repeatability	1-3um/m 25°C
BISS Data Bits	26bit/28bit
Protection (IP) Rating	IP67
Operating Temperature	-20°C-70°C

Indicator Status Codes

Indicator Status	Encoder Status
Green LED on	Encoder data and communication normal
Red LED on	Encoder self-test fault
Blue LED on	Encoder entered engineering mode
Green LED blinking	Encoder detected excessive position data error
Red LED blinking	Encoder detected magnetic strip abnormality
Blue LED blinking	Encoder temperature exceeds 75°C

Output Model

Pin	1	2	3	4	5	6	7	8	9
Wire Color	White	Green	Brown	Pink	Black	Yellow	Gray	Red	NC
BISS Protocol	0V	SLO+	RS485_A	MA+	5V	SLO-	RS485_B	MA-	NC
SSI Protocol	0V	DATA+	RS485_A	CLK+	5V	DATA-	RS485_B	CLK-	NC

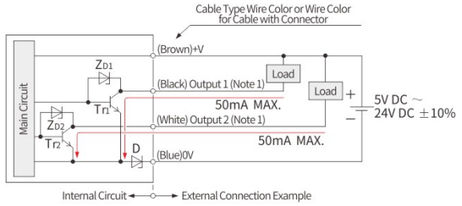
Photoelectric Sensor

AKD offers a variety of photoelectric sensor brands for customer selection. We recommend prioritizing AKD's own brand products, as we provide high cost-performance ratio, high quality, reliable, and stable products to accelerate your innovation!

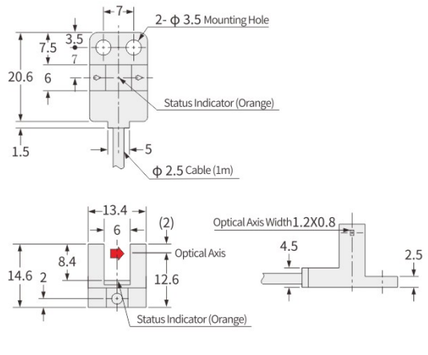
AKD Photoelectric Sensor: UX674-WRNPN (Default configuration in quotation)
Omron Photoelectric Sensor: EE-SX674-WR-NPN
Panasonic Photoelectric Sensor: PM-Y45-NPN

The external dimensions, wiring methods, and operating environments of all three brands are identical.

Colour	Terminal Configuration	Definition
Brown	1	5-24V
Black	2	Output 1: ON when light is received (Normally Open)
White	3	Output 2: ON when light is blocked (Normally Closed)
Blue	4	0V



• Dimensional Drawing



*During installation and operation, for your safety, please make sure to turn off the machine power and operate under the guidance of a qualified electrician.

Cable Wiring Table

Encoder Cable Naming Rules

AL FC - B - *M - 000

- AL: AKD Cable Codes
- FC: FC-AKD Driver KA1 Series; GC-CDHD; CDHD2S/GSHD Series; GSLD-Servotronix economical model GSLD Series
- B: Encoder Cables
- *M: Length Selection 3/5/8/10/12
- 000: Special model readheads (e.g., the suffix MC13 indicates the MC13 series absolute encoder)
  - TY- AKD Incremental ALS2; Tianxian Incremental LMD200; Tianxian Absolute FMG3000; Renishaw Incremental Grating RGH200/RGH24 with DB9; Rongshu Grating RU2-M Wire Sequence; Rongshu Grating D2

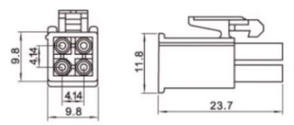
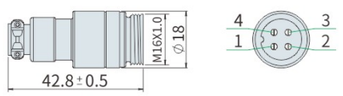
Power Cable Naming Rules

AL D05 - *M

- AL: AKD Cable Codes
- D05: D05 - 0.5 sq.mm cable (Applicable for currents up to 6A); D75 - 0.75 sq.mm cable (Applicable for currents 6.1A to 10A); D10 - 1 sq.mm cable (Applicable for currents above 12A)
- *M: Length Selection 3/5/8/10/12

Cable Model Table for Read Heads Matched with Common Drives

	AKD Incremental ALS2 Tianxian Incremental LMD200 Tianxian Absolute FMG3000 Renishaw Incremental Grating RGH200/RGH24 with DB9 Rongshu Grating RU2-M Wire Sequence Rongshu Grating D2	BISS-C Protocol Absolute Magnetic Scale AKD Absolute Magnetic Scale MC13 Absolute Magnetic Scale MC13
AKD Drive KA1 Series	ALFC-B-*M-TY	ALFC-B-*M-MC13
Servotronix CDHD, CDHD2S / Gotech GSHD	ALGC-B-*M-TY	
Servotronix CDHDE	ALCDHDE-B-*M-TY	Does not support absolute position feedback
Servotronix LDHD2	ALLDHD2-B-*M-TY	ALLDHD2-B-*M-MC13
GooGel GSLD Economy Series	ALGSLD-B-*M-TY	
Mitsubishi	ALSL-B-*M-TY	Supports only the Mitsubishi absolute position protocol
Fanyi	ALFY-B-*M-TY	ALFY-B-*M-MC13
ABB	ALABB-B-*M-TY	Does not support absolute position feedback
Inovance SV670/680	ALHCSV670-B-*M-TY	ALHCSV670-B-*M-MC13
Inovance SV520	ALSV520-B-*M-TY	ALSV520-B-*M-MC13
Panasonic A5 (quoted separately)	ALSX-B-*M-TY	ALSX-B-*M-MC13 Only the new drive models (direct plug) support BISS-C

Cable Terminal Model	Image	Wire Definition
AL-D05-*M Cable 4145 Terminal Connector, Male, P/N 172167-1		1-U 2-V 3-W 4-PE
AL-D75/10-*M Cable Weipu (or V.P.) WS16J4TQ Male Connector		1-U 2-V 3-W 4-PE

Driver and Cable Configuration Table

	Drive Replacement Table						Function Comparison					
		3A	4.5A	6A	8A	10A	Trajectory	Compensation	Gantry	STO	Analog Signal	DD
AKD Drive	Pulse Model	KA1-MC-ZJ3LDO(3A)	If 4.5A is not available, use 6A	KA1-MC-ZJ6LDO(6A)	8A	*	√	√	×	×	√	√
	EtherCAT Bus	KA1-ZX-ZJ3LDO(3A)	If 4.5A is not available, use 6A	KA1-ZX-ZJ6LDO(6A)	If 8A is not available, use HD5-10A	*					*	
AKD High-Performance Model HD5	Pulse Model	HD5-PL003S2SG	If 4.5A is not available, use 6A	HD5-PL006S2SG	If 8A is not available, use HD5-10A	HD5-PL010S2SG	√	√	√	√	√	√
	EtherCAT Bus	HD5-EL003S2SG	If 4.5A is not available, use 6A	HD5-EL006S2SG	If 8A is not available, use HD5-10A	HD5-EL010S2SG					*	
	PN Bus	HD5-FL003S2SG	If 4.5A is not available, use 6A	HD5-FL006S2SG	If 8A is not available, use HD5-10A	*	√	√	√	√	√	√
Servotronix 2nd Generation Upgrade CDHD2S	Pulse Model	CDHD2S-0032AAP1	CDHD2S-4D52AAP1	CDHD2S-0062AAP1	If 8A is not available, use HD5-10A	CDHD2S-0102AAP1	√	√	√	√	√	√
	EtherCAT Bus	CDHD2S-0032AEC2	CDHD2S-4D52AEC2	CDHD2S-0062AEC2	CDHD2S-0082AAP1	CDHD2S-0102AEC2					*	
Servotronix Economy Model CDHDE	Pulse Model	CDHDE-4D52AAP-RT	*	*	CDHD2S-0082AEC2	CDHDE-0102AAP	×	×	×	√	×	√
	EtherCAT Bus	CDHDE-4D52AEB	*	*	*	CDHDE-0102AEB					*	
GooGel Economy GSLD Series	Pulse Model	GSLD-0032AAP1(3A)	*	GSLD-0062AAP1(6A)	*	*	√	×	×	√	√	√
	EtherCAT Bus	GSLD-0032AEC2-A	*	GSLD-0062AEC2-(6A) GSLD-0062AEC2-S（STO）	*	*					*	
Panasonic A6		2.1-3.7A（400W）	3.4-6.4A（750W）	4.6-7.9A（1000W）	7.2-13.6A（1500W）	*						
	Pulse Model	MBDLN25SL	MCDLN35SL	MDDLN45SL	MDDLN55SL	*	√	×	×	√	√	√
		MBDLN25BL	MCDLN35BL	MDDLN45BL	MDDLN55BL	*					*	

AKD Linear Motor Power Cable Configuration Table

KDR/GDHA Series		KKR60A	KKR60B	KKR86A	KKR86B	
	Drive Current Used	3A	3A	3A	3A	Under normal operating conditions, 3A provides ⩾1.5g acceleration; use 4.5A configuration.
	Cable	AL-D05-*M	AL-D05-*M	AL-D05-*M	AL-D05-*M	AL-D75-*M
KDH14 Series TFL105 Series AK2-H25 Mover	Module	KDH14A	KDH14B		KDH14C	
	TFL	TFL-105-A	TFL-105-B		TFL-105-C	
	Mover	AK2-H25-1-S	AK2-H25-2-S	AK2-H25-2-P	AK2-H25-3-S	AK2-H25-3-P
	Maximum Speed	4m/s	2m/s	4m/s	1.8m/s	4m/s
	Motor Winding Selection	SP	SP	BP	SP	BP
	Drive Current Used	Under normal operating conditions, 3A provides ⩾1.5g acceleration; use 4.5A configuration.	4.5A	6A	4.5A	8A
	Cable	AL-D05-*M	AL-D05-*M	AL-D05-*M	AL-D05-*M	AL-D05-*M
KDH17 Series TFL135 Series AK2-H55 Series	Module	KDH17A	KDH17B		KDH17C	
	TFL135	TFL-135-A	TFL-135-B		TFL-135-C	
	Mover	AK2-H55-1-S	AK2-H55-2-S	AK2-H55-2-P	AK2-H55-3-S	AK2-H55-3-P
	Maximum Speed	4m/s	2m/s	4m/s	1.8m/s	4m/s
	Motor Winding Selection	SP	SP	BP	SP	BP
	Drive Current Used	4.5A	4.5A	6A	4.5A	8A
	Cable	AL-D05-*M	AL-D05-*M	AL-D05-*M	AL-D75-*M	AL-D75-*M
KDH22 Series AK2-H75 Mover	Module		KDH22A		KDH22B	
	Mover	AK2-H75-1-S	AK2-H75-2-S	AK2-H75-2-P	AK2-H75-3-S	AK2-H75-3-P
	TFL	Not have	Not have	Not have	Not have	Not have
	Maximum Speed	4m/s	1.8m/s	4m/s	1.8m/s	4m/s
	Motor Winding Selection	SP	SP	BP	SP	BP
	Drive Current Used	4.5A	4.5A	6A	4.5A	8A
	Cable	AL-D75-*M	AL-D75-*M	AL-D75-*M	AL-D75-*M	AL-D75-*M