MOONS'
moving in better ways

Linear Motion Product General Catalogue

L Series Linear Step Motors

Ball Screw Linear Motors

Linear Slides

Miniature Linear Actuators

Stepper Drivers

Milestones

APR. 2023	MOONS' INDUSTRIES (UK), LIMITED was established in Reading,UK.
SEP. 2022	Successful Launch and Operation of MOONS' （Taicang ）Intelligent Industry Zone
JUL. 2021	AMP's New Corporate Headquarters relocated from Watsonville to Morgan Hill
FEB. 2020	MOONS' Intelligent motion system India Private Limited was established in Pune.India
MAR. 2019	MOONS' Electric acquired Technosoft Motion AG
MAR. 2018	MOONS' Electric acquired Changzhou Yunkong Electronic CO., LTD.
JUL. 2017	Investment agreement of MOONS'(Taicang) Intelligent Industry Zone offically signed
MAY. 2017	AMP & MOONS' Automation (Germany) GmbH was officially registered in Frankfurt, Germany
MAY. 2017	MOONS' listed on the Shanghai Stock Exchange(Stock Code 603728)
JUN. 2015	MOONS' acquired LIN ENGINEERING
MAY. 2015	MOONS' Electric and PBC Linear officially established Joint Venture
JUN. 2014	MOONS' acquired Applied Motion Products
OCT. 2013	MOONS' Industries Japan was established in Yokohama
JUN. 2010	MOONS' Industries (South-East Asia) Pte Ltd. was established in Singapore
SEP. 2009	MOONS' Industries (Europe) S.R.L was established in Milan, Italy
FEB. 2007	MOONS' established joint venture with Applied Motion Products and a driver company was set up
MAY. 2006	MOONS' new facility was built and factory relocation was completed
JAN. 2005	First LED Driver was introduced to the market
DEC. 2000	MOONS' Industries (America), Inc. was established in Chicago, USA
OCT. 2000	MOONS' Power Supply Factory was set up and production started
APR. 1998	MOONS' International Trading Company was established
FEB. 1998	MOONS' Motor Factory was set up and HB Stepper Motor production started
FEB. 1994	MOONS' was founded

Catalogue

L Series Linear Step Motors

L Series Linear Step Motors

MOONS‘ lead screw motor products are designed based on the know-how technology of hybrid step motors and expertise in the design and development, manufacturing and experience in marketing of hybrid stepper motors. Made by high quality screws and nut, the L Series lead screw motor provide high torque, high precision and different configurations to fit the application needs of designers.

- 3 structure types available
- 5 frame sizes: NEMA08/11/14/17/23
- Each frame size has multiple motor length options
- Integrate any lead screw and nut from MOONS’
- Standardized product models for quick response

MOONS' offers customized services for its customers. We are committed to innovative product design and technological advances to provide our customers with more optimized motion control solutions.

Structure Types

External Nut - Leadscrew Shaft

Non-Captive Shaft

Linear Captive Shaft

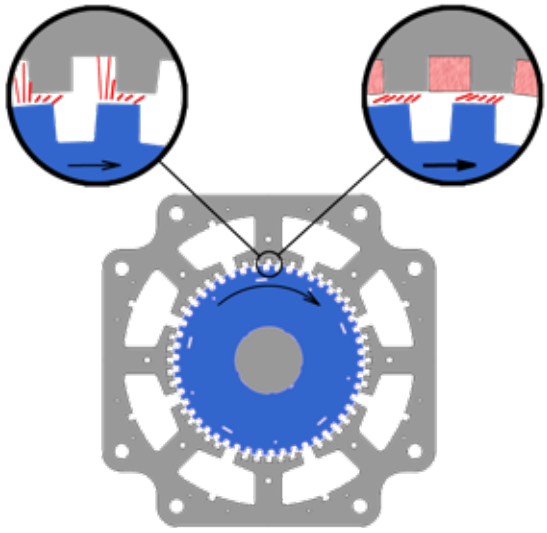
MOONS' Technology

PowerPlus Technology

MOONS' PowerPlus technology provides 25% to 40% more torque across the entire speed range of the motor. The increased torque is a result of higher motor efficiency, and is available without increasing the drive voltage or current.

Conventional Motor

Some of the torque producing magnetic flux that links the rotor to the stator is outside the stator teeth. This stray flux adds little to motor torque.



PowerPlus Technology

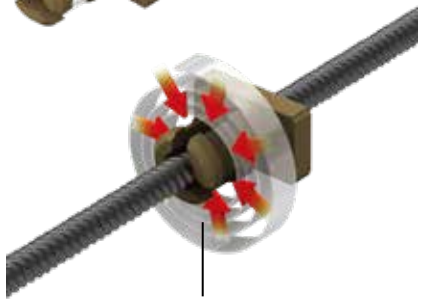
Magnets placed between the stator teeth redirect most of the stray magnetic flux into the stator teeth. This produces additional torque with the same input power.

Constant Force Technology

Constant Force™ Anti-Backlash Nut

Constant Force Technology™ utilizes a constant force spring to apply a uniform pressure to the nut at all stages of motion profile, enabling a wider range of lead screw applications.

- Greater consistency and resistance to backlash
- Configurable for various torque requirements
- Contant Force™ anti-backlash feature
- Made by polymer materials,self-lubricating and maintenance free.



Pending Constant Force Technology nut provides consistent anti-backlash operation

Integrated solution

MOONS' has provided multiple integrated solutions to fit the application needs of designers, such as: encoder integrated type, brake integrated type and step-servo type (drive, encoder, controller and lead screw motor integrated).

Encoder Integrated Type

Brake Integrated Type

Step-servo Type

LE : External Nut Type

LE series(External Nut Type)is a type of linear step motor which makes a lead screw integrated with the motor to become the motor shaft and the nut is on the motor of the motor and linked to the drive mechanism . As the motor rotates, the nut moves linearly along the lead screw. Standard nut or anti-backlash nut could both be applied. Screw lengths are usually designed as standard length or customized length according to the application requirements.

- 5 frame sizes: NEMA08/11/14/17/23
- Each frame size has multiple motor length options and current options
- Integrate any lead screw and nut from MOONS'
- Standard or anti-backlash nut option
- Standardized product models for quick response

This series has multiple choices and combinations of motors and screw nuts,providing customers with more stable and reliable linear motion solutions to meet their application requirements.

■ Numbering System

LE	174S	–	T0808	–	100	–	AR1	–	S	–	XXX
①	②		③		④		⑤		⑥		⑦
Series	Motor type		Lead screw type		Screw length (mm)		Nut type		Customized Code S=Screw End Machining		Rated Current XXX=X.XX(A)

LE Series Configuration Table (Metric Screw)

Nominal Diameter (mm)	Lead (mm)	Lead Screw Code	LE080K	LE081K	LE081S	LE111S	LE113S	LE115S
3.5	1	M3501	◎	◎	◎			
5	0.8	M05008				◎	◎	◎
	1	T0501				◎	◎	◎
6	1	W0601				◎	◎	◎
	2	M0602				◎	◎	◎
6.5	3	T6503				◎	◎	◎
8	1	T0801						
	1.25	T08012						
	2	T0802						
	3	T0803						
	4	T0804						
	5	T0805						
	8	T0808						
	12	T0812						
	20	T0820						
10	1	M1001						
	2	M1002						
	4	M1004						
	10.5	T10105						
12	2	T1202						
	6	T1206						
14	4	T1404						

Note: 1.Marked with " ◎ " is available,for more configurations please contact with MOONS'.
2.The table shown is standard leadscrew options,for PTFE Coating screw please contact with MOONS'.

	Motor Options										
	LE141A	LE141S	LE143S	LE174A	LE174S	LE172S	LE176S	LE23 4S	LE238S	LE23AS	LE23ASP
	◎	◎	◎								
	◎	◎	◎								
	◎	◎	◎								
	◎	◎	◎	◎	◎	◎	◎				
	◎	◎	◎	◎	◎	◎	◎				
	◎	◎	◎	◎	◎	◎	◎				
	◎	◎	◎	◎	◎	◎	◎				
	◎	◎	◎	◎	◎	◎	◎				
	◎	◎	◎	◎	◎	◎	◎				
	◎	◎	◎	◎	◎	◎	◎				
				◎	◎	◎	◎	◎	◎	◎	◎
				◎	◎	◎	◎	◎	◎	◎	◎
				◎	◎	◎	◎	◎	◎	◎	◎
				◎	◎	◎	◎	◎	◎	◎	◎
								◎	◎	◎	◎
								◎	◎	◎	◎
								◎	◎	◎	◎

LE Series Configuration Table (Inch Screw)

Nominal Diameter		Lead	Lead Screw Code							
inch	mm	inch		LE080K	LE081K	LE081S	LE111S	LE113S	LE115S	
0.138	3.51	0.024	E03006	◎	◎	◎				
		0.048	E03012	◎	◎	◎				
		0.096	E03024	◎	◎	◎				
0.188	4.78	1/40	E04006	◎	◎	◎	◎	◎	◎	
		1/20	E04012	◎	◎	◎	◎	◎	◎	
		1/10	E04025	◎	◎	◎	◎	◎	◎	
0.218	5.54	0.024	E05006				◎	◎	◎	
		0.048	E05012				◎	◎	◎	
		0.192	E05048				◎	◎	◎	
0.25	6.35	0.024	E06006				◎	◎	◎	
		1/32	E06008				◎	◎	◎	
		0.05	E06012				◎	◎	◎	
		1/16	E06016				◎	◎	◎	
		0.096	E06024				◎	◎	◎	
		1/8	E06032				◎	◎	◎	
		1/4	E06063				◎	◎	◎	
		0.333	E06085				◎	◎	◎	
		1/2	E06127				◎	◎	◎	
0.375	9.53	1/16	E09015							
		1/10	E09025							
		1/5	E09050							
		2/5	E09102							
0.472	11.99	1	E12254							
0.625	15.875	1/10	E15025							

Note: 1.Marked with " ◎ " is available,for more configurations please contact with MOONS'.
2.The table shown is standard leadscrew options,for PTFE Coating screw please contact with MOONS'.
3. 1 inch=25.4 mm

Motor Options											
	LE141A	LE141S	LE143S	LE174A	LE174S	LE172S	LE176S	LE234S	LE238S	LE23AS	LE23ASP
	◎	◎	◎	◎	◎	◎	◎				
	◎	◎	◎	◎	◎	◎	◎				
	◎	◎	◎	◎	◎	◎	◎				
	◎	◎	◎	◎	◎	◎	◎				
	◎	◎	◎	◎	◎	◎	◎				
	◎	◎	◎	◎	◎	◎	◎				
	◎	◎	◎	◎	◎	◎	◎				
	◎	◎	◎	◎	◎	◎	◎				
	◎	◎	◎	◎	◎	◎	◎				
				◎	◎	◎	◎	◎	◎	◎	◎
				◎	◎	◎	◎	◎	◎	◎	◎
				◎	◎	◎	◎	◎	◎	◎	◎
				◎	◎	◎	◎	◎	◎	◎	◎
								◎	◎	◎	◎
								◎	◎	◎	◎

LE Series Standard Models for stock

Size (mm)	Motor Series		Lead Screw Options		Screw Length Options		Nut Options		End Machining Code		Rated Current Options	Page
20X20	LE080K	-	E03006 E04025	-	30,40,50,60,70,80,90,100, 110,120, 130,140,150	-	AR0	-	S	-	040	P15
	LE081K	-	E03006 E04025		30,40,50,60,70,80,90,100, 110,120, 130,140,150	-	AR0	-	S	-	040	
28X28	LE111S	-	W0601 T6503 E06063 E06127	-	50,60,70,80,90,100,110, 120,130,140,150,160,170, 180,190,200	-	AR1	-	S	-	050,100	P18
	LE115S	-	W0601 T6503 E06063 E06127	-	50,60,70,80,90,100,110, 120,130,140,150,160,170, 180,190,200	-	AR1	-	S	-	100	
35X35	LE141S	-	W0601 T6503 E06063 E06127	-	50,60,70,80,90,100, 110, 120,130,140,150,160,170, 180,190,200	-	AR1	-	S	-	100	P22
	LE143S	-	W0601 T6503 E06063 E06127	-	50,60,70,80,90,100,110, 120,130,140,150,160,170, 180,190,200	-	AR1	-	S	-	050,150	
42X42	LE174S	-	T08012 T0804 T0808	-	50,60,75,90,100,110,125,140,150,160,175, 190,200,210,225,240,250,260,275,290,300	-	AR3	-	S	-	065,150	P26
	LE172S	-	T08012 T0804 T0808	-	50,60,75,90,100,110,125,140,150,160,175, 190,200,210,225,240,250,260,275,290,300	-	AR3	-	S	-	100,200	
	LE176S	-	T08012 T0804 T0808 T10105	-	50,60,75,90,100,110,125,140,150,160,175, 190,200,210,225,240,250,260,275,290,300	-	AR3 AR2	-	S	-	100,200	
57X57	LE234S	-	T1202 T1206 T10105 E12254	-	100,125,150,175,200,225,250, 275,300,325,350,375,400	-	AR2 AR6	-	S	-	210	P31
	LE238S	-	T1202 T1206 T10105 E12254	-	100,125,150,175,200,225,250, 275,300,325,350,375,400	-	AR2 AR6	-	S	-	220	
	LE23AS	-	T1202 T1206 T10105 E12254	-	100,125,150,175,200,225,250, 275,300,325,350,375,400	-	AR2 AR6	-	S	-	150,300	

Order sample

① Select configuration codes

Motor Series		Lead Screw Options		Screw Length Options		Nut Options		End Machining Code		Rated Current Options
LE111S	-	W0601	-	50,60,70,80,90,100,110,120,130, 140,150,160,170,180,190,200	-	AR1	-	S	-	050, 100

② Determine the order Models

LE111S - W0601 - 100 - AR1 - S - 050

In addition to the standard order Models, we also provide a wealth of customized configuration options, for more information please contact the factory.

LE08 Series

Phases	2
Step Accuracy	±5%
Approvals	RoHS
Insulation Class	B(130°C)
Operating Temp.	0°C~+50°C

Ordering Information

LE 08 0K − E03006 − 100 − AR0 − 0 − XXX

Lead Screw Motor Type Code

Code	Structure Type
LE	External Nut Type

Frame Size Code

Code	Frame Size
08	20mm

Motor Body Length Code

Code	Motor Body Length Max(mm)	Step Angle (°)
0K	21.3	1.8
1K	28.3	
1B	30	
1S	30	

Lead Screw Type Code

Code	Nominal Diameter (mm)	Lead (mm)	Travel(mm)
			Travel Per1.8°
M3501	3.5	1	0.005

Code	Nominal Diameter		Lead	Travel(mm)
	inch	mm	inch	Travel Per1.8°
E03006	0.138	3.51	0.024	0.0030*
E03012			0.048	0.0061*
E03024			0.096	0.0122*
E04006	0.188	4.78	1/40	0.0032*
E04012			1/20	0.0064*
E04025			1/10	0.0127*

The number with * is abbreviated.

Rated Current Code

XXX=X.XX(A)

Special Custom Type Code

Code	Custom Type
0	No end machining
S	Lead Screw End Machining
E	Add Encoder
XX	Other Special Custom Type

Nut Type Code

Code	Nut Type
AR0	Round Standard Nut
BR0	Round Anti-Backlash Nut
AT0	Triangular Standard Nut
BT0	Triangular Anti-Backlash Nut
CN	Custom Made Nut

The length of the screw Lx

###	Provided in 1 mm increments

Note:Choosing the standard order models can get the sample quickly, please see P14 for standard models.

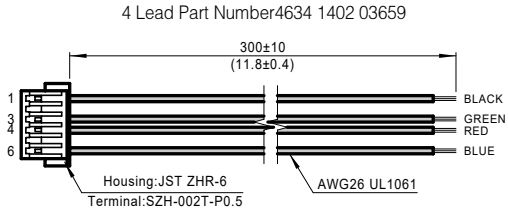
LE08 Series

Motor Technical Parameters

Motor Type Code	Motor Body Length (mm)	Step Angle (°)	Electrical Connection	Rated Current (Amps)
LE080K	21.3	1.8	Leads	0.4
LE081K	28.3		Leads	0.4
LE081B	30		Plug In Connector	0.5
LE081S	30		Plug In Connector	0.5

Note: Please see P168-P175 for recommended driver selection.

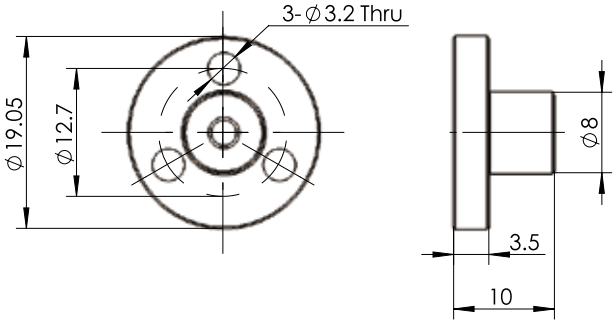
Mating Connector With Leads(Only used for LE081S and LE081B)



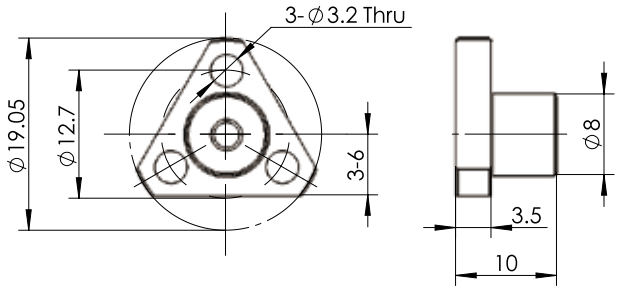
Nut Type

UNIT:mm

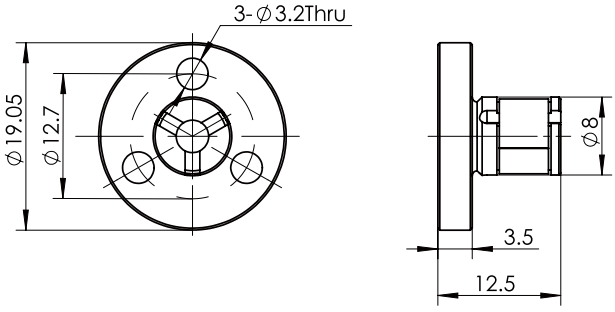
Round Standard Nut AR0



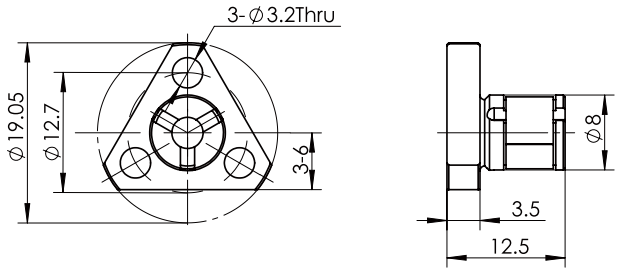
Triangular Standard Nut AT0



Round Anti-Backlash Nut BR0



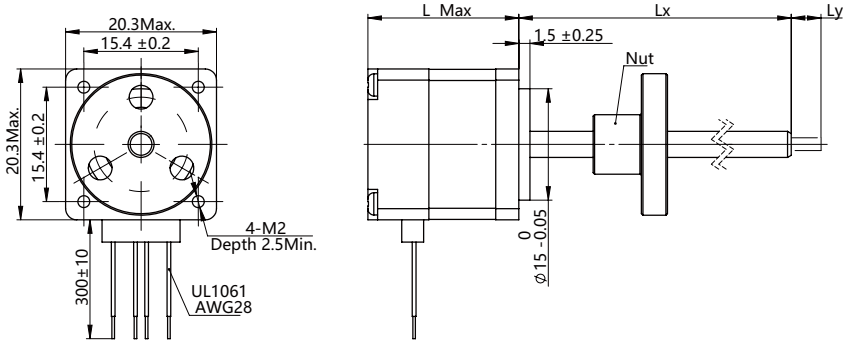
Triangular Anti-Backlash Nut BT0



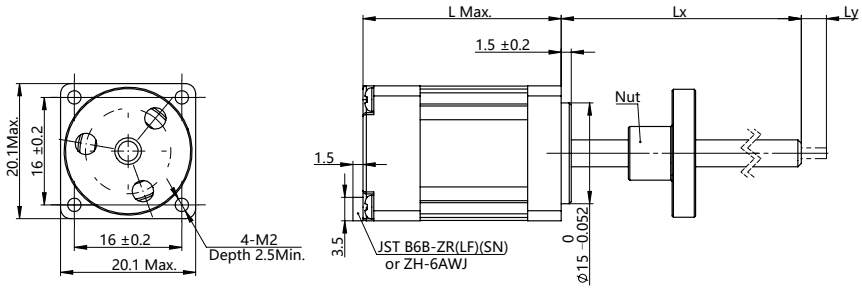
LE08 Series

Dimensional Information

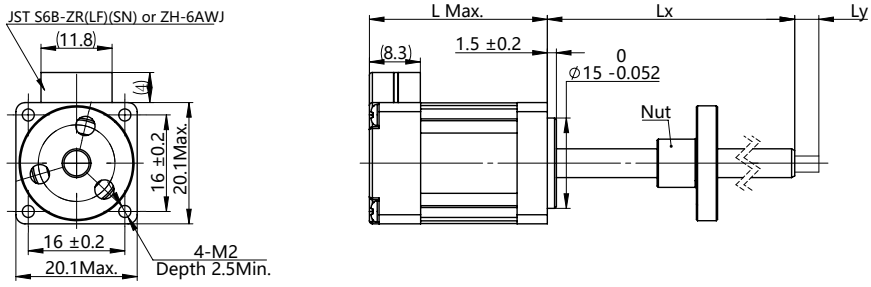
UNIT:mm



Motor Type	Dimension"L"
LE080K	21.3
LE081K	28.3

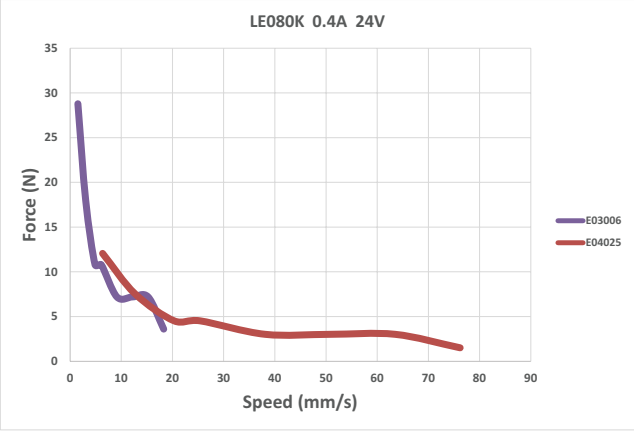


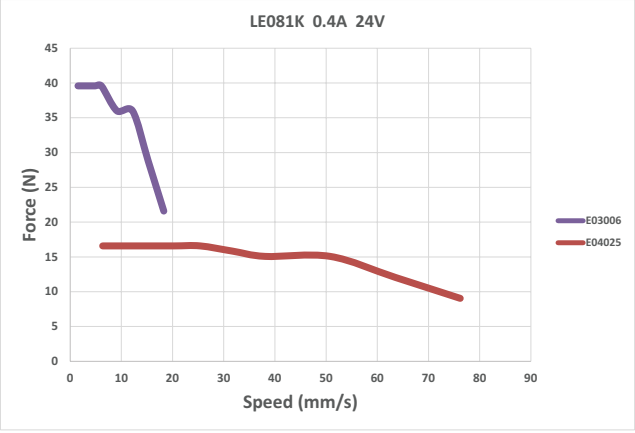
Motor Type	Dimension"L"
LE081B	30



Motor Type	Dimension"L"
LE081S	30

Speed - Force Reference Curve





Note:
Curve allowance: The curve is calculated according to the theory. In practice, due to the theoretical calculation deviation, machining deviation, load inertia, mechanical friction loss, installation concentricity deviation, etc., it is generally recommended to preserve 50% allowance.

LE11 Series

Phases	2
Step Accuracy	±5%
Approvals	RoHS
Insulation Class	B(130°C)
Operating Temp.	0°C~+50°C

■ Ordering Information

LE 11 1S − W0601 − 100 − AR1 − 0 − XXX

Lead Screw Motor Type Code

Code	Structure Type
LE	External Nut Type

Frame Size Code

Code	Frame Size
11	28mm

Motor Body Length Code

Code	Motor Body Length Max(mm)	Step Angle (°)
1S	32	1.8
3S	41	
5S	52	

Lead Screw Type Code

Code	Nominal Diameter (mm)	Lead (mm)	Travel(mm) Travel Per1.8°
M05008	5	0.8	0.004
T0501		1	0.005
W0601	6	1	0.005
M0602		2	0.01
T6503	6.5	3	0.015

Code	Nominal Diameter inch	Nominal Diameter mm	Lead inch	Travel(mm) Travel Per1.8°
E04006	0.188	4.78	1/40	0.0032*
E04012			1/20	0.0064*
E04025			1/10	0.0127*
E05006	0.218	5.54	0.024	0.0030*
E05012			0.048	0.0061*
E05048			0.192	0.0244*
E06006	0.25	6.35	0.024	0.0030*
E06008			1/32	0.0039*
E06012			0.05	0.0064*
E06016			1/16	0.0080*
E06024			0.096	0.0122*
E06032			1/8	0.0159*
E06063			1/4	0.0318*
E06085			0.333	0.0423*
E06127			1/2	0.0635

The number with * is abbreviated.

Rated Current Code

XXX=X.XX(A)

Special Custom Type Code

Code	Custom Type
0	No end machining
S	Lead Screw End Machining
B	Add Brake
E	Add Encoder
XX	Other Special Custom Type

Nut Type Code

Code	Nut Type	Mating Lead Screw
AR0	Round Standard Nut	E04006 E04012 E04025 M05008 T0501
BR0	Round Anti-Backlash Nut	
AT0	Triangular Standard Nut	
BT0	Triangular Anti-Backlash Nut	
AR1	Round Standard Nut	E05006 E05012 E05048 E06006 E06008 E06012 E06016 E06024 E06032 E06063 E06085 E06127 W0601 M0602 T6503
BR1	Round Anti-Backlash Nut	
AT1	Triangular Standard Nut	
BT1	Triangular Anti-Backlash Nut	
CN	Custom Made Nut	

The length of the screw Lx

###	Provided in 1 mm increments

Note:Choosing the standard order models can get the sample quickly, please see P14 for standard models.

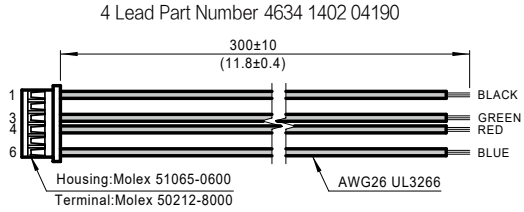
LE11 Series

■ Motor Technical Parameters

Motor Type Code	Motor Body Length (mm)	Step Angle (°)	Electrical Connection	Rated Current (Amps)
LE111S	32	1.8	Plug In Connector	0.5
				0.67
				1
LE113S	41		Plug In Connector	0.95
LE115S	52		Plug In Connector	1

Note: Please see P168-P175 for recommended driver selection.

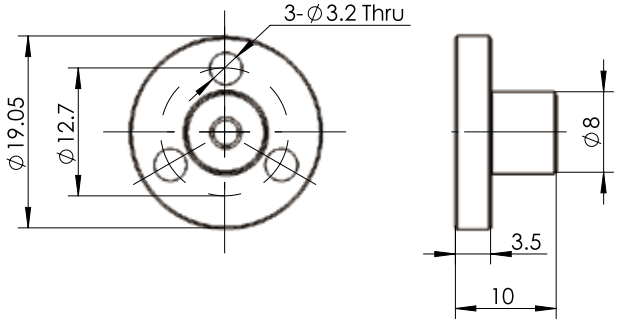
■ Mating Connector With Leads



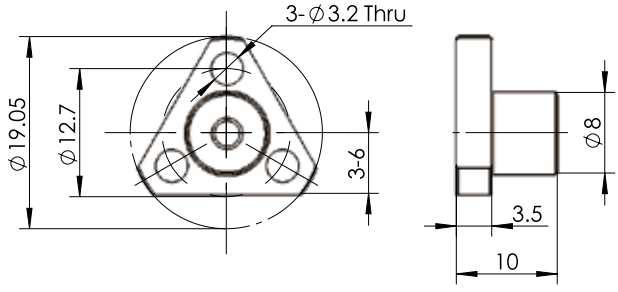
■ Nut Type

UNIT:mm

Round Standard Nut AR0

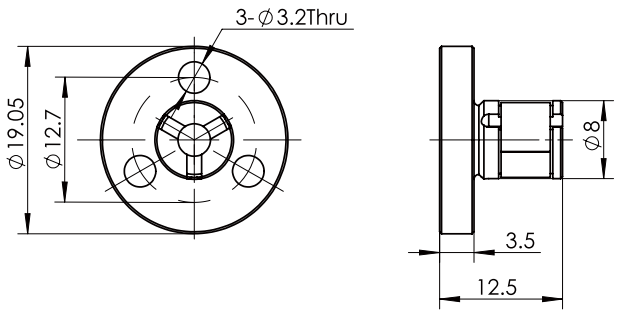


Triangular Standard Nut AT0

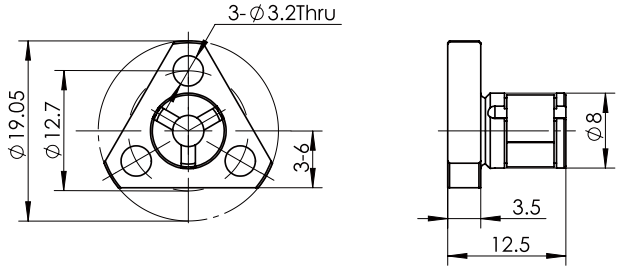


LE11 Series

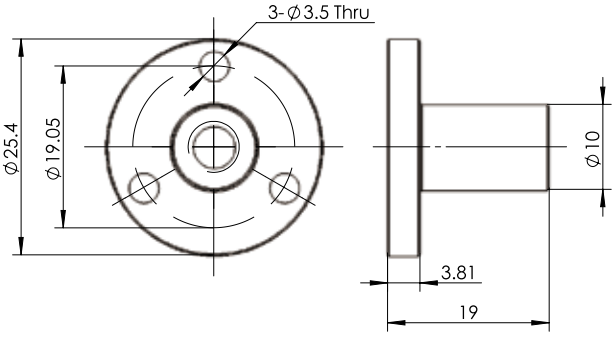
Round Anti-Backlash Nut BR0



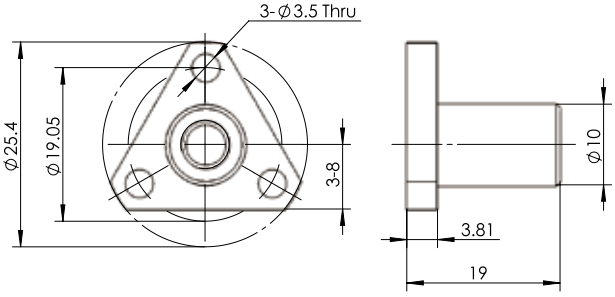
Triangular Anti-Backlash Nut BT0



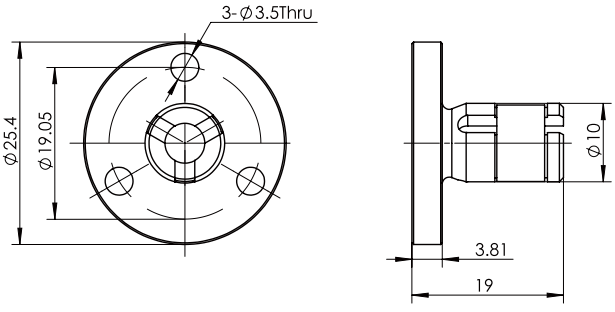
Round Standard Nut AR1



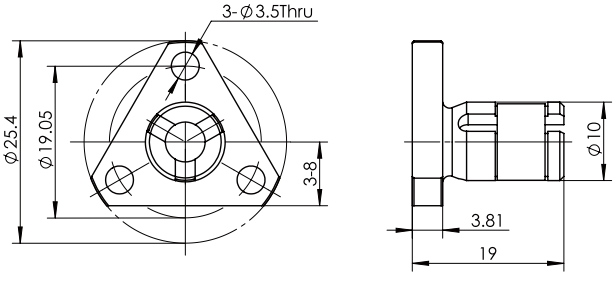
Triangular Standard Nut AT1



Round Anti-Backlash Nut BR1



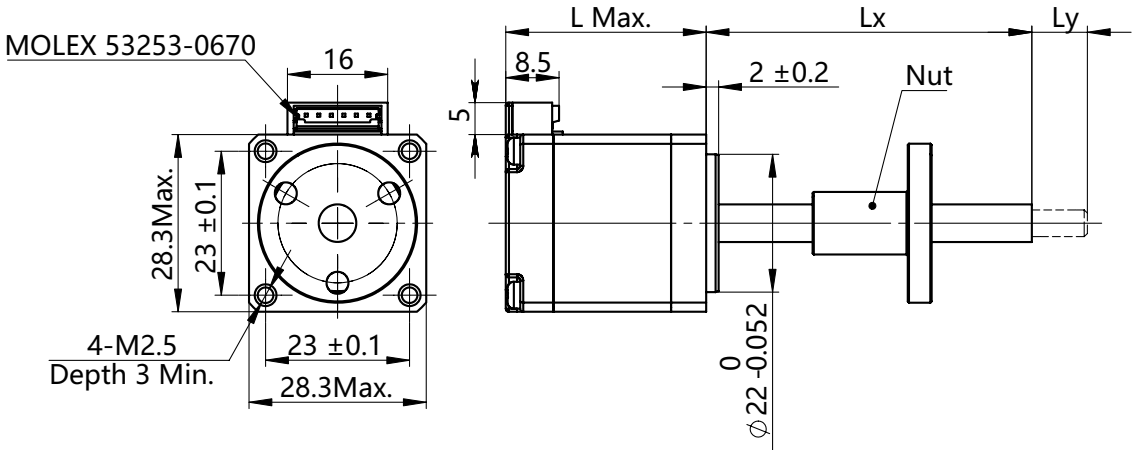
Triangular Anti-Backlash Nut BT1



LE11 Series

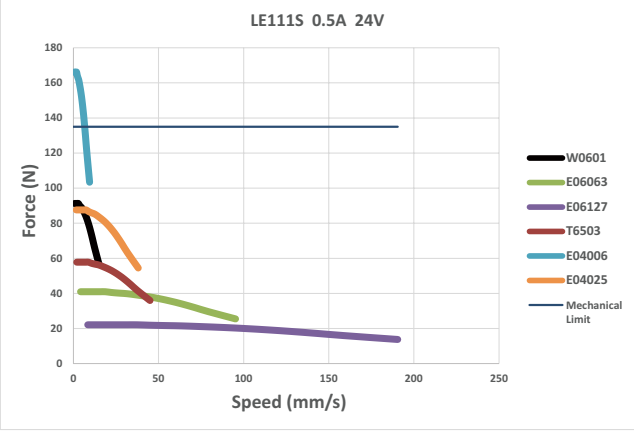
Dimensional Information

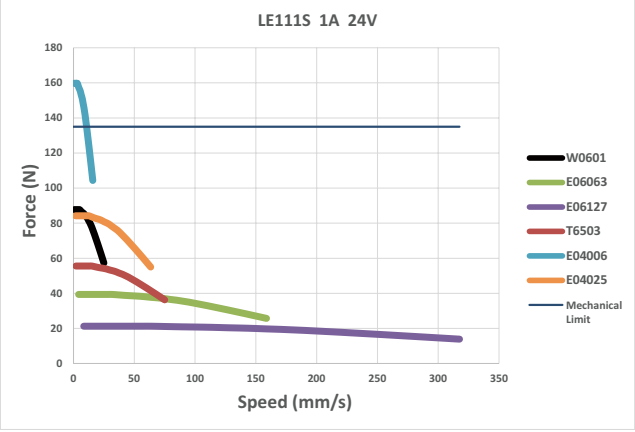
UNIT:mm

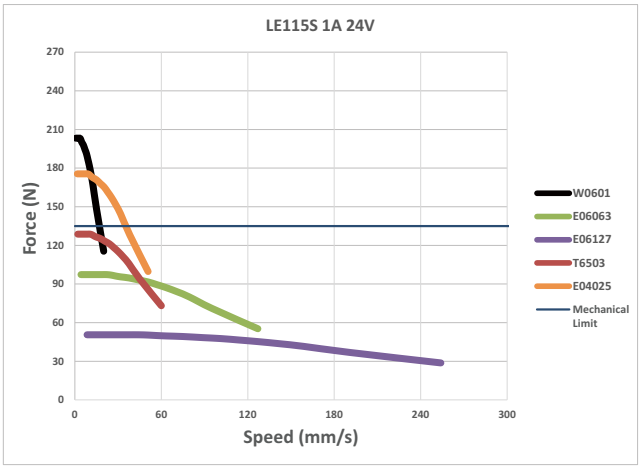


Motor Type	Dimension"L"
LE111S	32
LE113S	41
LE115S	52

Speed - Force Reference Curve







Note:

1.Mechanical Limit Definition:
Since the motor output may exceed the force which the bearing can bear, so we take the motor bearing limit as the mechanical limit. However, linear motor fatigue and resultant life are determined by each customer's unique application. Load, speed, frequency, temperature, stability of guidance mechanism, etc., should all be considered before choosing a linear motor.

2.Curve allowance: The curve is calculated according to the theory. In practice, due to the theoretical calculation deviation, machining deviation, load inertia, mechanical friction loss, installation concentricity deviation, etc., it is generally recommended to preserve 50% allowance.

LE14 Series

Phases	2
Step Accuracy	±5%
Approvals	RoHS
Operating Temp.	0°C~+50°C
Insulation Class	B(130°C)

■ Ordering Information

LE 14 1S − W0601 − 100 − AR1 − 0 − XXX

Lead Screw Motor Type Code

Code	Structure Type
LE	External Nut Type

Frame Size Code

Code	Frame Size
14	35mm

Motor Body Length Code

Code	Motor Body Length Max(mm)	Step Angle (°)
1A	28	0.9
1S	27	1.8
3S	35	

Lead Screw Type Code

Code	Nominal Diameter (mm)	Lead (mm)	Travel(mm)	
			Travel Per0.9°	Travel Per1.8°
W0601	6	1	0.0025	0.005
M0602		2	0.005	0.01
T6503	6.5	3	0.0075	0.015
T0801	8	1	0.0025	0.005
T08012		1.25	0.0031*	0.0062*
T0802		2	0.005	0.01
T0803		3	0.0075	0.015
T0804		4	0.01	0.02
T0805		5	0.0125	0.025
T0808		8	0.02	0.04
T0812		12	0.03	0.06
T0820		20	0.05	0.1

Code	Nominal Diameter		Lead	Travel(mm)	
	inch	mm	inch	Travel Per0.9°	Travel Per1.8°
E06006	0.25	6.35	0.024	0.0015*	0.0030*
E06008			1/32	0.0020*	0.0039*
E06012			0.05	0.0032*	0.0064*
E06016			1/16	0.0040*	0.0080*
E06024			0.096	0.0061*	0.0122*
E06032			1/8	0.0079*	0.0159*
E06063			1/4	0.0159*	0.0318*
E06085			0.333	0.0211*	0.0423*
E06127			1/2	0.0318	0.0635

The number with * is abbreviated.

Rated Current Code

XXX=X.XX(A)

Special Custom Type Code

Code	Custom Type
0	No end machining
S	Lead Screw End Machining
B	Add Brake
E	Add Encoder
XX	Other Special Custom Type

Nut Type Code

Code	Nut Type	Mating Lead Screw	
AR1	Round Standard Nut	E06006 E06008 E06012 E06016 E06024 E06032 E06063	E06085 E06127 W0601 M0602 T6503
BR1	Round Anti-Backlash Nut		
AT1	Triangular Standard Nut		
BT1	Triangular Anti-Backlash Nut		
AR3	Round Standard Nut	T0801 T08012 T0802 T0803 T0804	T0805 T0808 T0812 T0820
BR3	Round Anti-Backlash Nut		
AT3	Triangular Standard Nut		
BT3	Triangular Anti-Backlash Nut		
CN	Custom Made Nut		

The length of the screw Lx

###	Provided in 1 mm increments

Note:Choosing the standard order models can get the sample quickly, please see P14 for standard models.

LE14 Series

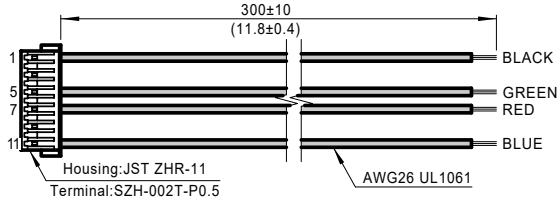
■ Motor Technical Parameters

Motor Type Code	Motor Body Length (mm)	Step Angle (°)	Electrical Connection	Rated Current (Amps)
LE141A	28	0.9	Plug In Connector	0.6
LE141S	27	1.8	Plug In Connector	0.7
				1
LE143S	35		Plug In Connector	0.5
				0.75
				1
				1.5

Note: Please see P168-P175 for recommended driver selection.

■ Mating Connector With Leads

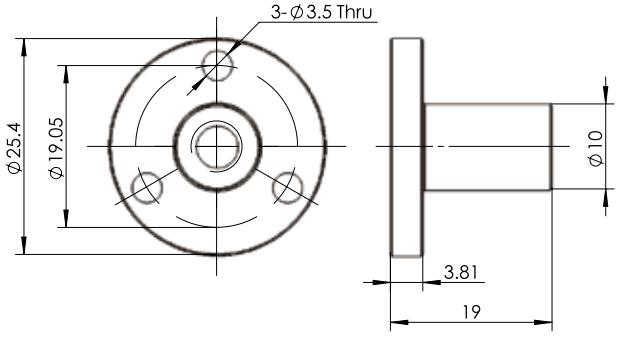
4 Lead Part Number 4634 1402 04581



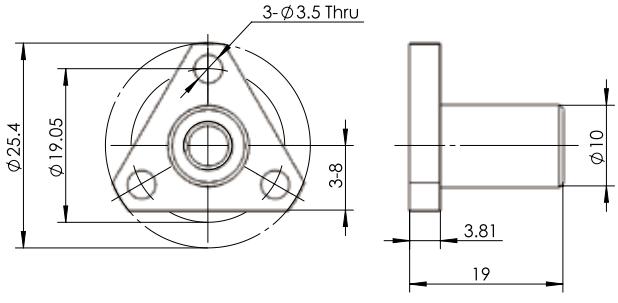
■ Nut Type

UNIT:mm

Round Standard Nut AR1

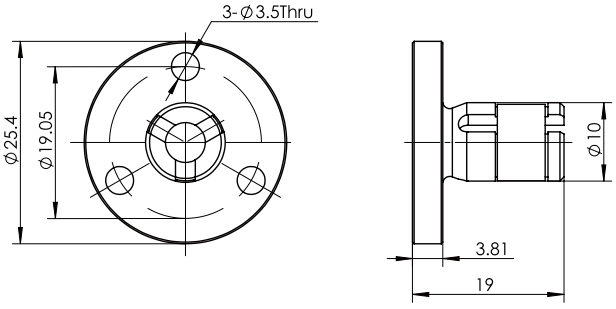


Triangular Standard Nut AT1

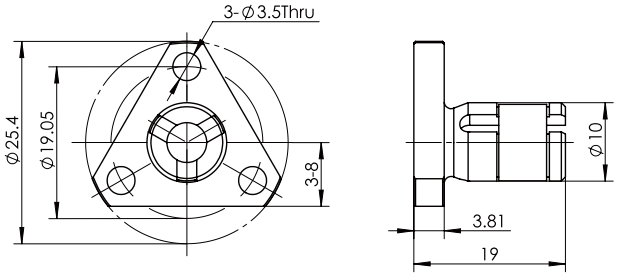


LE14 Series

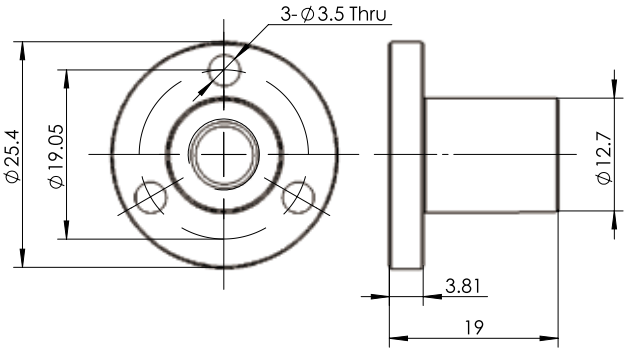
Round Anti-Backlash Nut BR1



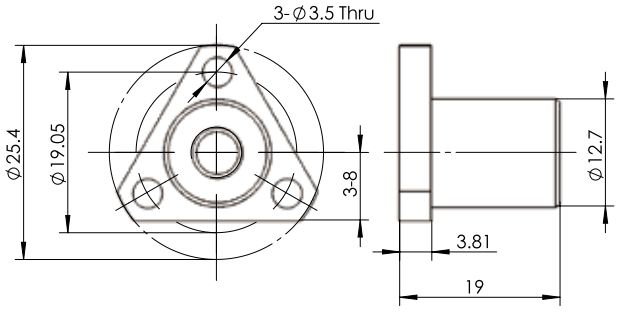
Triangular Anti-Backlash Nut BT1



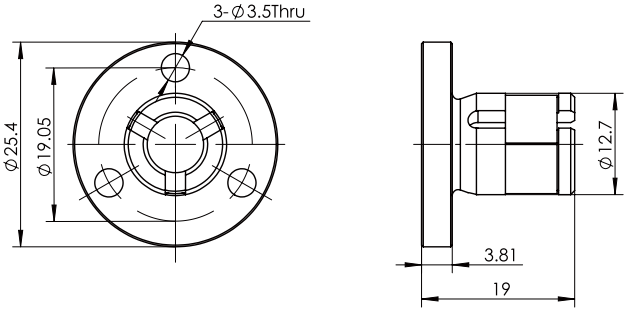
Round Standard Nut AR3



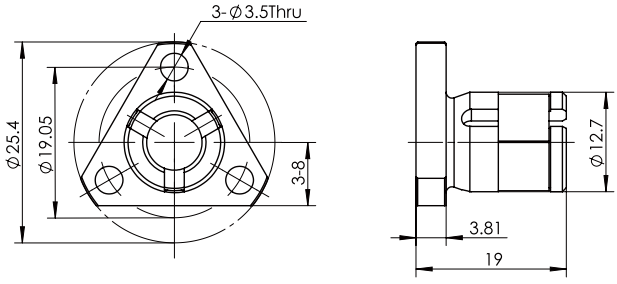
Triangular Standard Nut AT3



Round Anti-Backlash Nut BR3



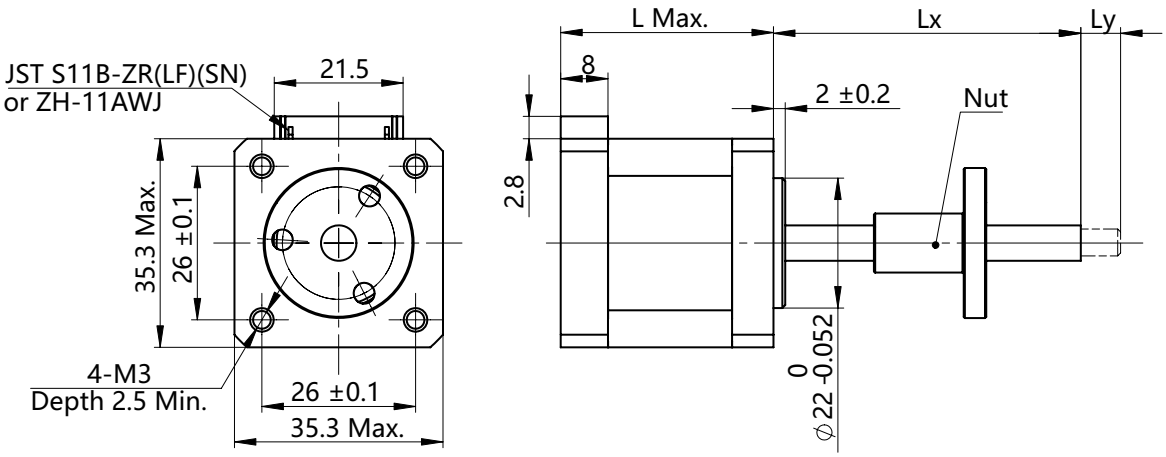
Triangular Anti-Backlash Nut BT3



LE14 Series

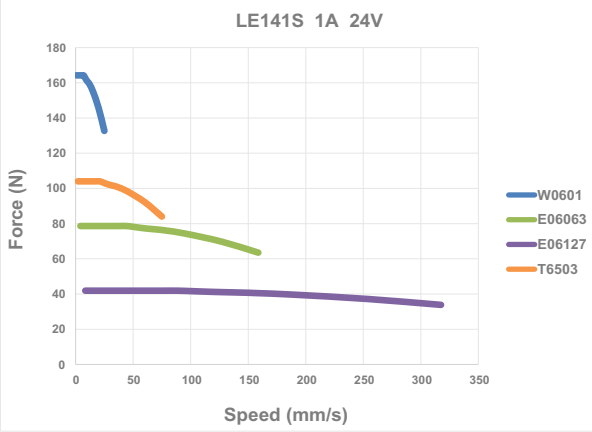
■ Dimensional Information

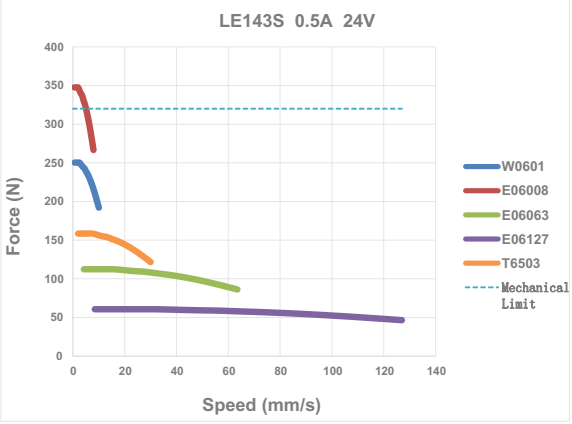
UNIT:mm

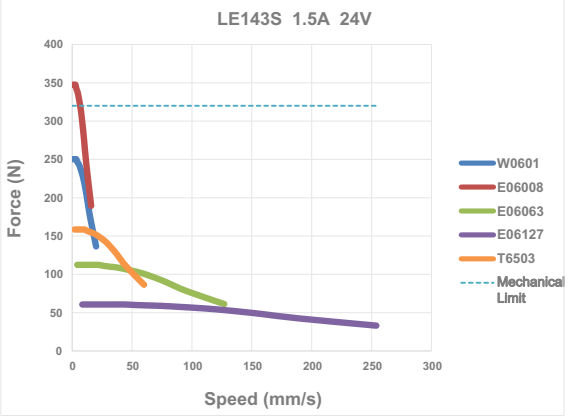


Motor Type	Dimension"L"
LE141A	28
LE141S	27
LE143S	35

■ Speed - Force Reference Curve







Note:

1.Mechanical Limit Definition:
Since the motor output may exceed the force which the bearing can bear, so we take the motor bearing limit as the mechanical limit. However, linear motor fatigue and resultant life are determined by each customer's unique application. Load, speed, frequency, temperature, stability of guidance mechanism, etc., should all be considered before choosing a linear motor.

2.Curve allowance: The curve is calculated according to the theory. In practice, due to the theoretical calculation deviation, machining deviation, load inertia, mechanical friction loss, installation concentricity deviation, etc., it is generally recommended to preserve 50% allowance.

LE17 Series

Phases	2
Step Accuracy	±5%
Approvals	RoHS
Operating Temp.	0°C~+50°C
Insulation Class	B(130°C)

■ Ordering Information

LE 17 2S – T0801 – 100 – AR1 – 0 – XXX

Lead Screw Motor Type Code

Code	Structure Type
LE	External Nut Type

Frame Size Code

Code	Frame Size
17	42mm

Motor Body Length Code

Code	Motor Body Length Max(mm)	Step Angle (°)
4A	34	0.9
7S	20	1.8
4S	34	
2S	40	
6S	48	

Lead Screw Type Code

Code	Nominal Diameter (mm)	Lead (mm)	Travel(mm)	
			Travel Per0.9°	Travel Per1.8°
T0801	8	1	0.0025	0.005
T08012		1 .25	0.0031*	0.0062*
T0802		2	0.005	0.01
T0803		3	0.0075	0.015
T0804		4	0.01	0.02
T0805		5	0.0125	0.025
T0808		8	0.02	0.04
T0812		12	0.03	0.06
T0820		20	0.05	0.1
M1001	10	1	0.0025	0.005
M1002		2	0.005	0.01
M1004		4	0.01	0.02
T10105		10.50	0.02625	0.0525

Code	Nominal Diameter		Lead	Travel(mm)	
	inch	mm	inch	Travel Per0.9°	Travel Per1.8°
E06006	0.25	6.35	0.024	0.0015*	0.0030*
E06008			1/32	0.0020*	0.0039*
E06012			0.05	0.0032*	0.0064*
E06016			1/16	0.0040*	0.0080*
E06024			0.096	0.0061*	0.0122*
E06032			1/8	0.0079*	0.0159*
E06063			0.250	0.0159*	0.0318*
E06085			0.333	0.0211*	0.0423*
E06127			1/2	0.0318	0.0635
E09015	0.375	9.53	1/16	0.0040*	0.0079*
E09025			1/10	0.0064	0.0127
E09050			1/5	0.0127	0.0254
E09102			2/5	0.0254*	0.0508*

The number with * is abbreviated.

Rated Current Code

XXX=X.XX(A)

Special Custom Type Code

Code	Custom Type
0	No end machining
S	Lead Screw End Machining
B	Add Brake
E	Add Encoder
XX	Other Special Custom Type

Nut Type Code

Code	Nut Type	Mating Lead Screw	
AR1	Round Standard Nut	E06006 E06008 E06012 E06016 E06024 E06032	E06063 E06085 E06127
BR1	Round Anti-Backlash Nut		
AT1	Triangular Standard Nut		
BT1	Triangular Anti-Backlash Nut		
AR2	Round Standard Nut	E09015 E09025 E09050 E09102	M1001 M1002 M1004 T10105
BR2	Round Anti-Backlash Nut		
AT2	Triangular Standard Nut		
BT2	Triangular Anti-Backlash Nut		
AR3	Round Standard Nut	T0801 T08012 T0802 T0803 T0804 T0805	T0808 T0812 T0820
BR3	Round Anti-Backlash Nut		
AT3	Triangular Standard Nut		
BT3	Triangular Anti-Backlash Nut		
CN	Custom Made Nut		

The length of the screw Lx

###	Provided in 1 mm increments

Note:Choosing the standard order models can get the sample quickly, please see P14 for standard models.

LE17 Series

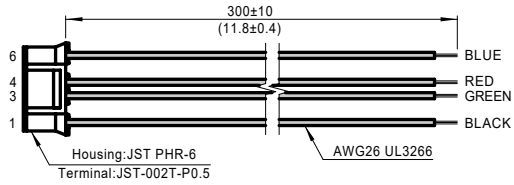
Motor Technical Parameters

Motor Type Code	Motor Body Length (mm)	Step Angle (°)	Electrical Connection	Rated Current (Amps)
LE174A	34	0.9	Plug In Connector	0.7
LE177S	20	1.8	Leads	1
LE174S	34	1.8	Plug In Connector	0.65
				1
				1.5
LE172S	40		Plug In Connector	1
				1.5
				2
LE176S	48		Plug In Connector	1
				1.5
				2

Note: Please see P168-P175 for recommended driver selection.

Mating Connector With Leads

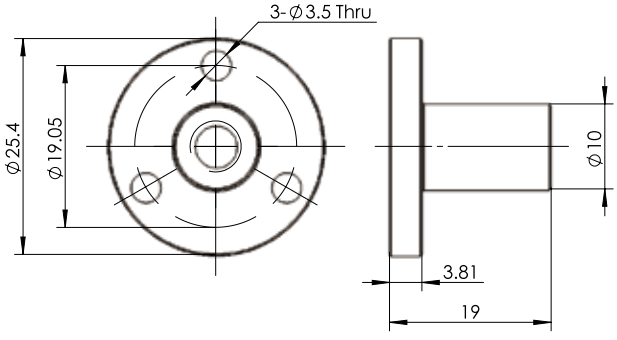
4 Lead Part Number 4634 1402 00723



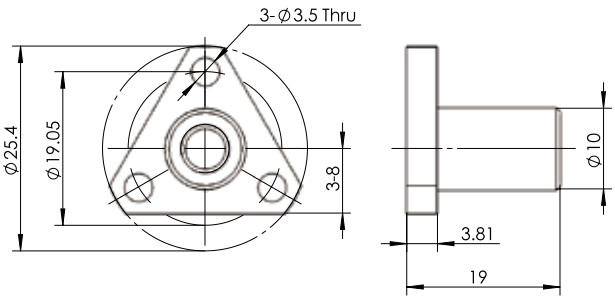
Nut Type

UNIT:mm

Round Standard Nut AR1

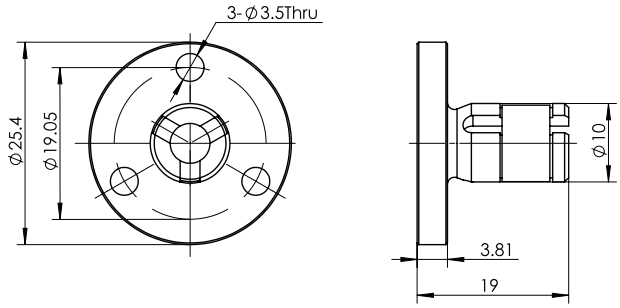


Triangular Standard Nut AT1

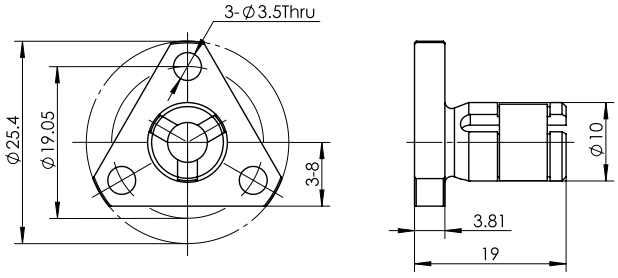


LE17 Series

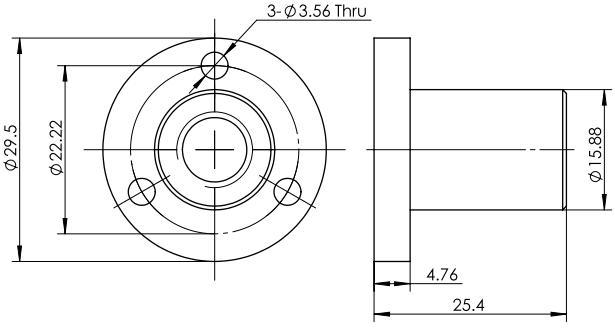
Round Anti-Backlash Nut BR1



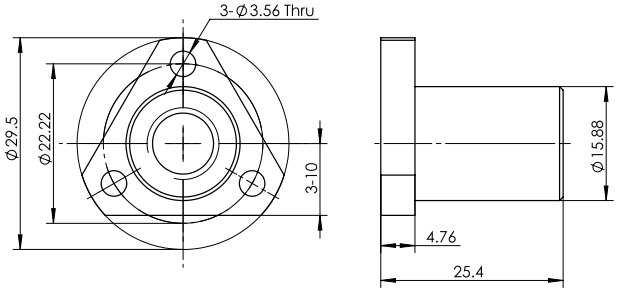
Triangular Anti-Backlash Nut BT1



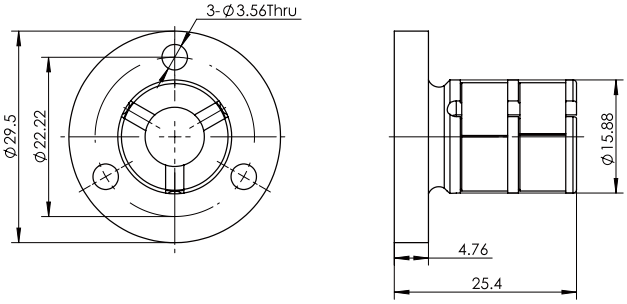
Round Standard Nut AR2



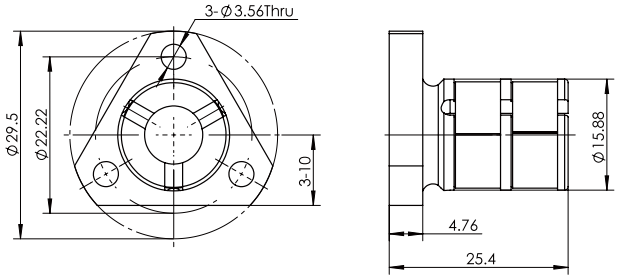
Triangular Standard Nut AT2



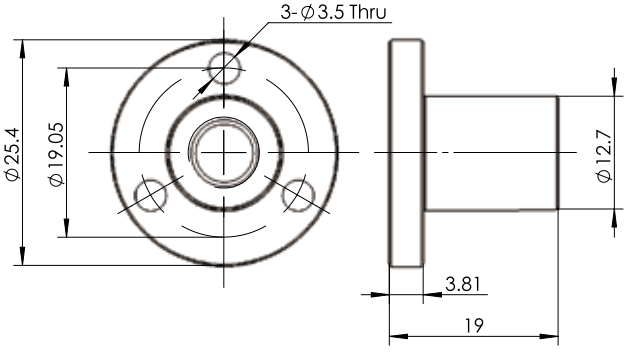
Round Anti-Backlash Nut BR2



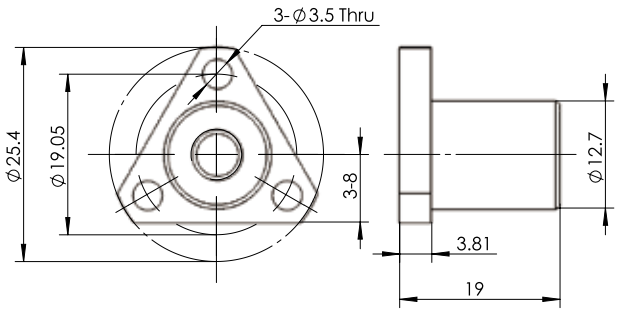
Triangular Anti-Backlash Nut BT2



Round Standard Nut AR3

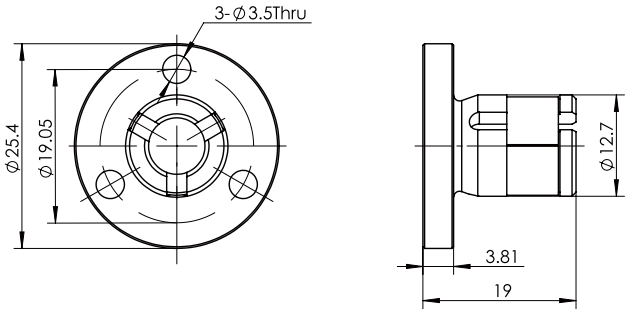


Triangular Standard Nut AT3

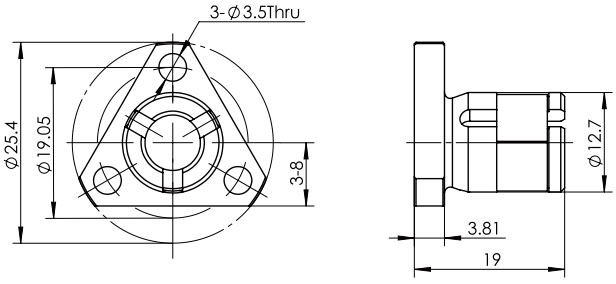


LE17 Series

Round Anti-Backlash Nut BR3

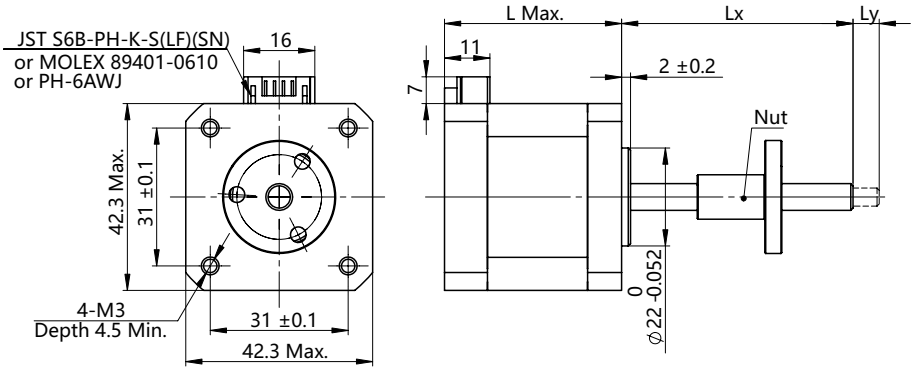


Triangular Anti-Backlash Nut BT3

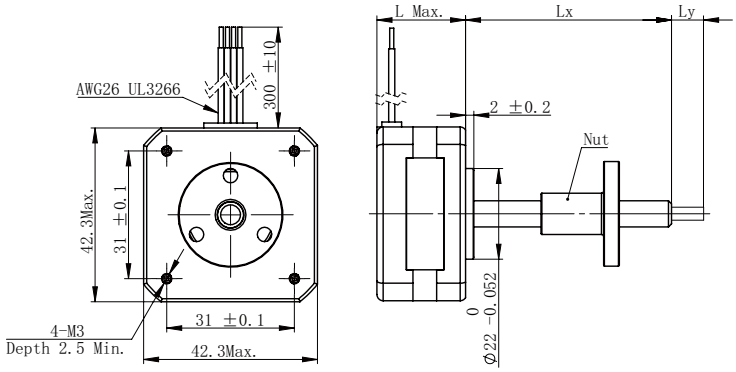


■ Dimensional Information

UNIT:mm



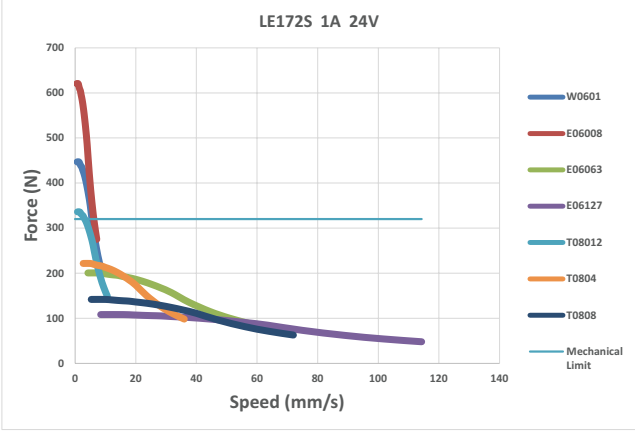
Motor Type	Dimension"L"
LE174A	34
LE174S	34
LE172S	40
LE176S	48

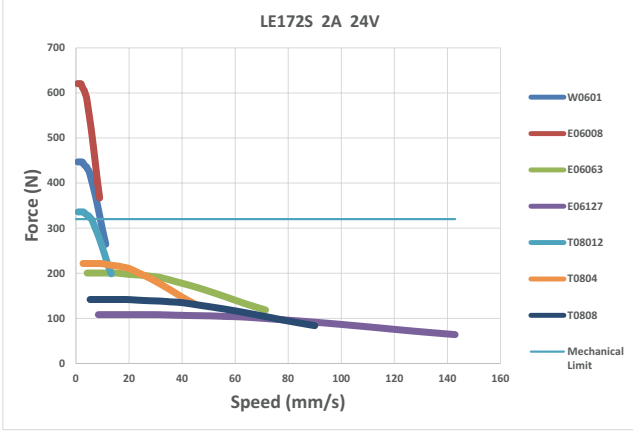


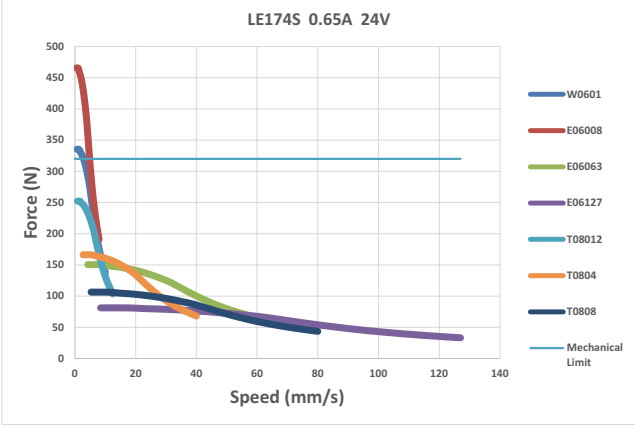
Motor Type	Dimension"L"
LE177S	20

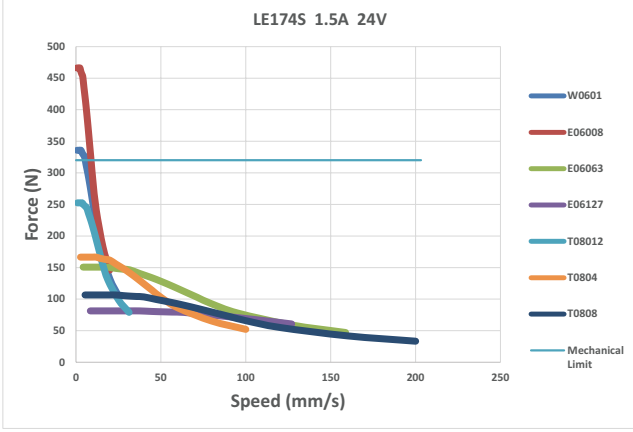
LE17 Series

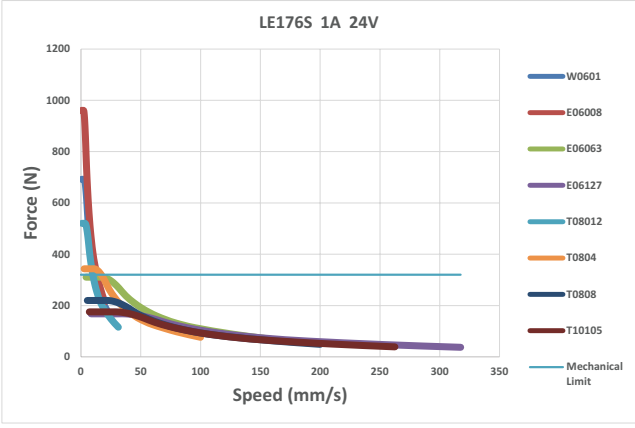
■ Speed - Force Reference Curve

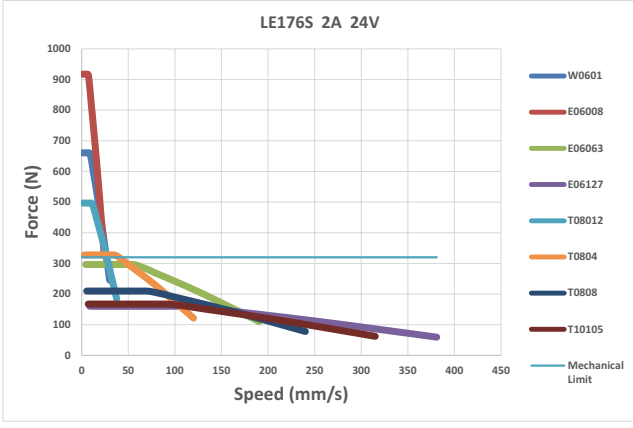












Note:
1.Mechanical Limit Definition:
Since the motor output may exceed the force which the bearing can bear, so we take the motor bearing limit as the mechanical limit. However, linear motor fatigue and resultant life are determined by each customer's unique application. Load, speed, frequency, temperature, stability of guidance mechanism, etc., should all be considered before choosing a linear motor.
2.Curve allowance: The curve is calculated according to the theory. In practice, due to the theoretical calculation deviation, machining deviation, load inertia, mechanical friction loss, installation concentricity deviation, etc., it is generally recommended to preserve 50% allowance.

LE23 Series

Phases	2
Step Accuracy	±5%
Approvals	RoHS
Operating Temp.	0°C~+50°C
Insulation Class	B(130°C)

Ordering Information

LE 23 8S – T1202 – 100 – AR6 – 0 – XXX

Lead Screw Motor Type Code

Code	Structure Type
LE	External Nut Type
LEP	External Nut Type (Power Plus)

Frame Size Code

Code	Frame Size
23	57mm

Motor Body Length Code

Code	Motor Body Length Max(mm)	Step Angle (°)
4S	45	1.8
8S	57	
AS	79	

Lead Screw Type Code

Code	Nominal Diameter (mm)	Lead (mm)	Travel(mm) Travel Per1.8°
M1001	10	1	0.005
M1002		2	0.01
M1004		4	0.02
T10105		10.5	0.0525*
T1202	12	2	0.01
T1206		6	0.03
T1404	14	4	0.02

Code	Nominal Diameter inch	Nominal Diameter mm	Lead inch	Travel(mm) Travel Per1.8°
E09015	0.375	9.53	1/16	0.0079*
E09025			1/10	0.0127
E09050			1/5	0.0254
E09102			2/5	0.0508*
E12254	0.472	11.99	1	0.1270
E15025	0.625	15.875	0.1	0.0127

The number with * is abbreviated.

Rated Current Code

XXX=X.XX(A)

Special Custom Type Code

Code	Custom Type
0	No end machining
S	Lead Screw End Machining
B	Add Brake
E	Add Encoder
XX	Other Special Custom Type

Nut Type Code

Code	Nut Type	Mating Lead Screw
AR2	Round Standard Nut	E09015 M1001 E09025 M1002 E09050 M1004 E09102 T10105
BR2	Round Anti-Backlash Nut	
AT2	Triangular Standard Nut	
BT2	Triangular Anti-Backlash Nut	
AR6	Round Standard Nut	T1202 T1206 T1404 E12254 E15025
BR4	Round Anti-Backlash Nut	
AT6	Triangular Standard Nut	
BT4	Triangular Anti-Backlash Nut	
CN	Custom Made Nut	

The length of the screw Lx

###	Provided in 1 mm increments

Note:Choosing the standard order models can get the sample quickly, please see P14 for standard models.

LE23 Series

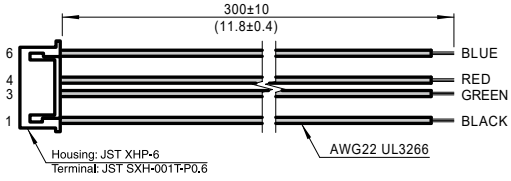
Motor Technical Parameters

Motor Type Code	Motor Body Length (mm)	Step Angle (°)	Electrical Connection	Rated Current (Amps)
LE234S	45	1.8	Plug In Connector	1.5
				2.1
LE238S	57		Plug In Connector	1.5
				2.2
LE23AS	79		Plug In Connector	1.5
				3
LEP23AS (Power Plus)	79		Plug In Connector	3

Note: Please see P168-P175 for recommended driver selection.

Mating Connector With Leads

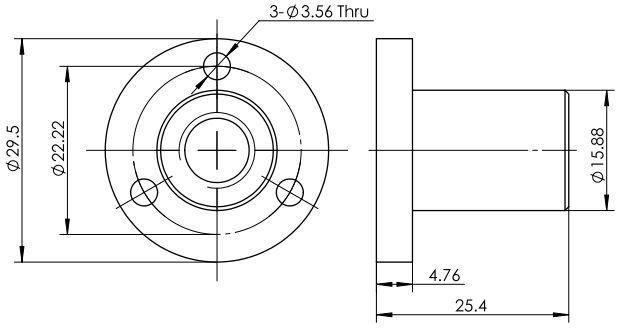
4 Lead Part Number 4634 1402 01891



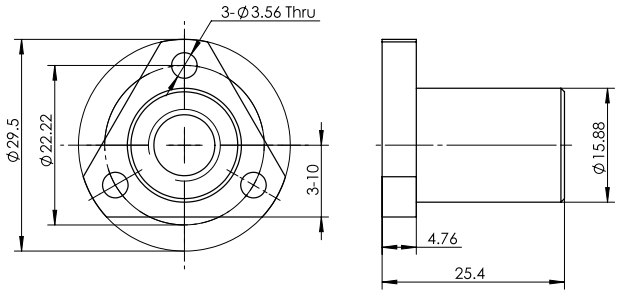
Nut Type

UNIT:mm

Round Standard Nut AR2

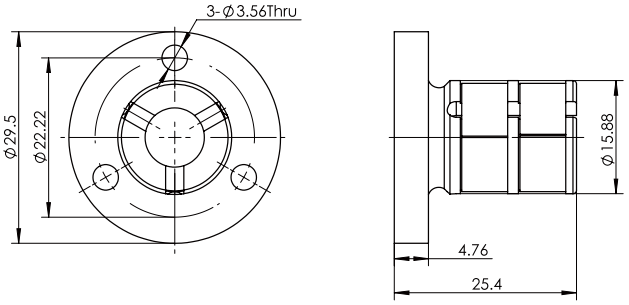


Triangular Standard Nut AT2

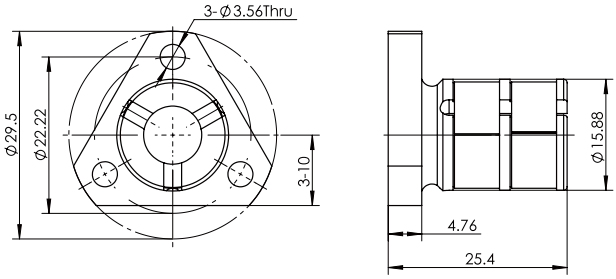


LE23 Series

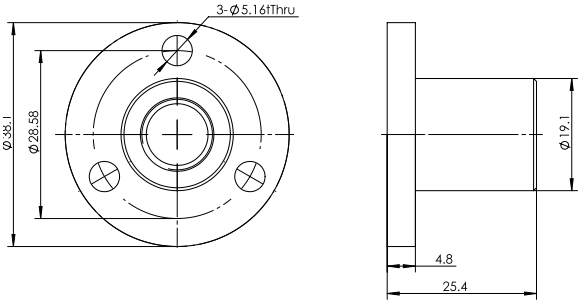
Round Anti-Backlash Nut BR2



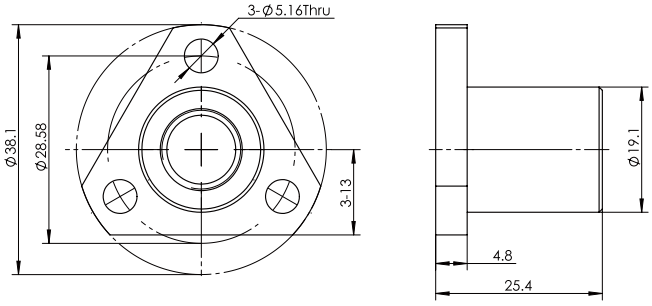
Triangular Anti-Backlash Nut BT2



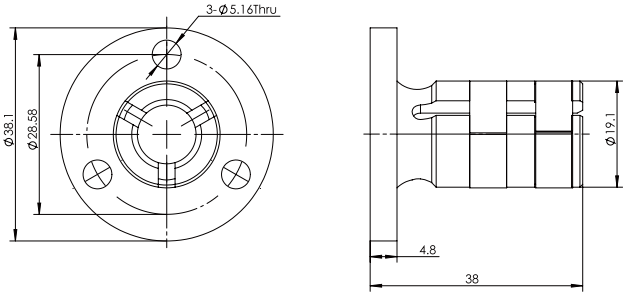
Round Standard Nut AR6



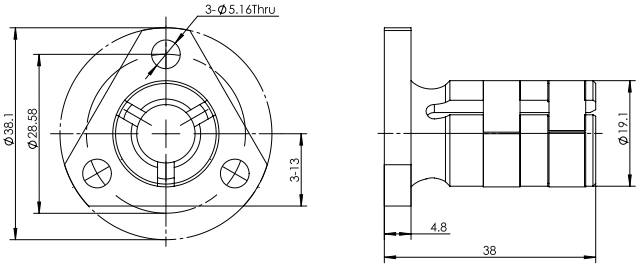
Triangular Standard Nut AT6



Round Anti-Backlash Nut BR4



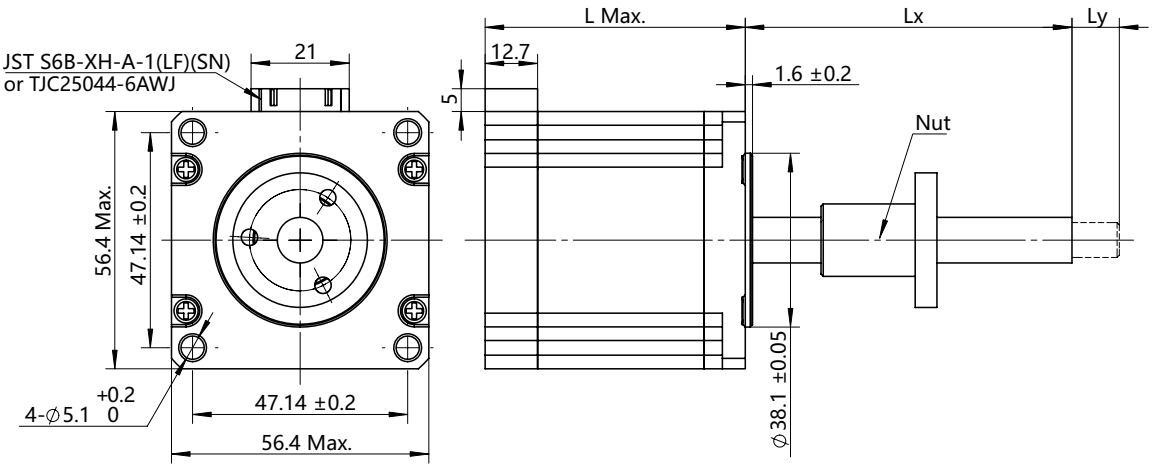
Triangular Anti-Backlash Nut BT4



LE23 Series

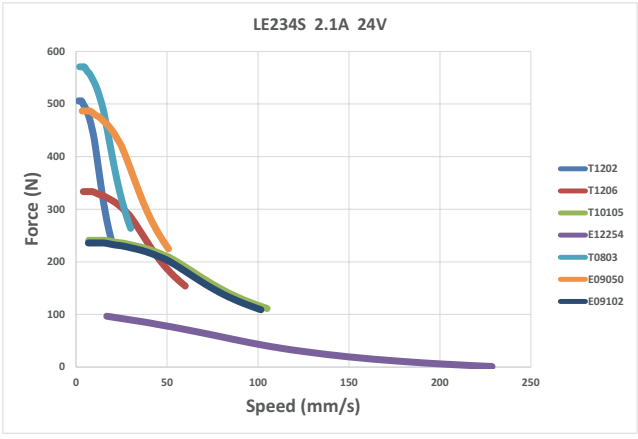
Dimensional Information

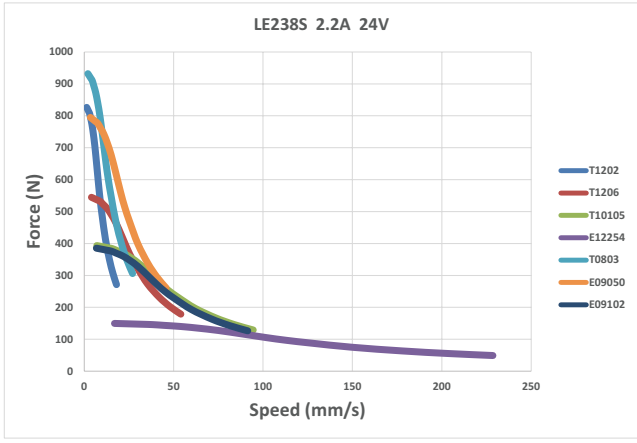
UNIT:mm

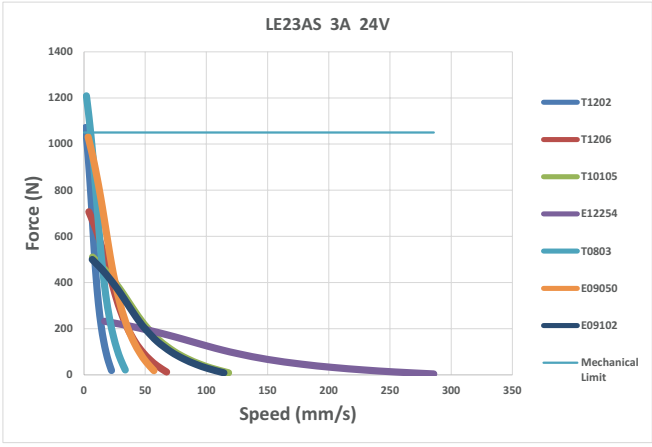


Motor Type	Dimension"L"	Note
LE234S	45	Standard
LE238S	57	Standard
LE23AS	79	Standard
LE23ASP	79	Power Plus

Speed - Force Reference Curve







Note:

1.Mechanical Limit Definition:
Since the motor output may exceed the force which the bearing can bear, so we take the motor bearing limit as the mechanical limit. However, linear motor fatigue and resultant life are determined by each customer's unique application. Load, speed, frequency, temperature, stability of guidance mechanism, etc., should all be considered before choosing a linear motor.

2.Curve allowance: The curve is calculated according to the theory. In practice, due to the theoretical calculation deviation, machining deviation, load inertia, mechanical friction loss, installation concentricity deviation, etc., it is generally recommended to preserve 50% allowance.

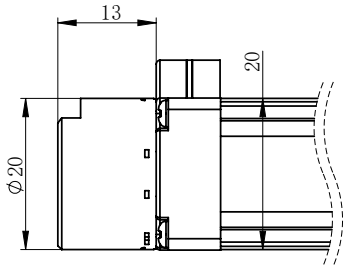
Encoder Options - Suitable for applications that requiring feedback

Parameter

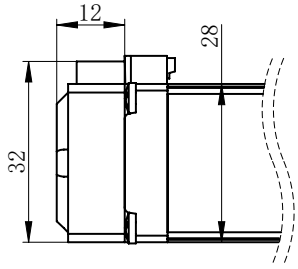
Mating Motor	Supply Voltage (VDC)			PPR	Output	
	Min.	Typ.	Max.			
LE08/11/14/17/23	4.5	5	5.5	1000	Single-ended Electrical	Differential Electrical

Dimensional Information

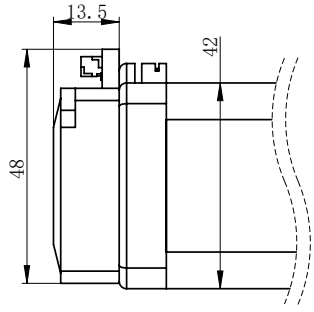
Unit: mm



The encoder mating LE08



The encoder mating LE11/14



The encoder mating LE17/23

Pin-out

The encoder mating LE08

JST SM09B-SRSS-TB									
Pin	1	2	3	4	5	6	7	8	9
Description	+5V	GND	A+	A-	Z+	Z-	/	B+	B-
Color	Red	Black	White	Yellow	Orange	Grey	/	Green	Blue

The encoder mating LE11/14/17/23

JST SM10B-GHS-TB										
Pin	1	2	3	4	5	6	7	8	9	10
Description	/	A-	A+	B-	B+	Z-	Z+	GND	+5V	/
Color	/	Yellow	White	Blue	Green	Grey	Orange	Black	Red	/

Brake Options

■ Parameter

Mating Motor	Supply Voltage (VDC)	Braking Torque (N·M)	Power (W)	Reaction Time (ms)	Insulation Grade
LE11	24	0.3	4.8	15	B
LE14	24	0.3	4.8	15	B
LE17	24	1.2	4.5	50	B
LE23	24	2.5	4.5	50	B

Note:
1. All the brakes with 280mm leads.
2. 12 VDC brake options are available, please consult our technical department for further information.

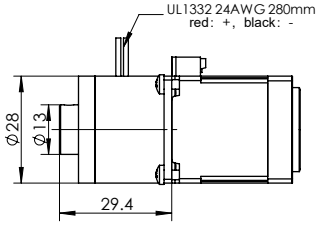
LE11 with brake

LE17 with brake

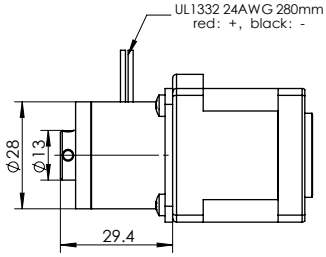
LE23 with brake

■ Dimensional Information

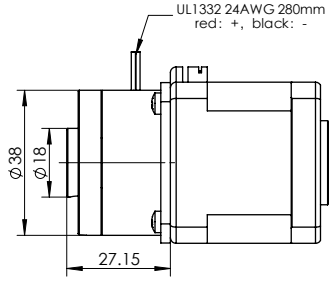
Unit: mm



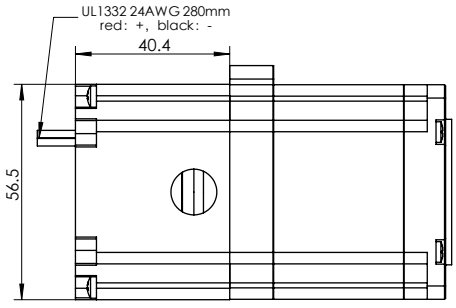
The brake mating LE11



The brake mating LE14



The brake mating LE17



The brake mating LE23

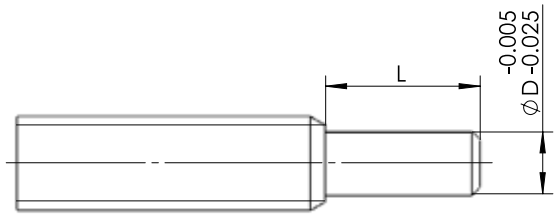
Optional Construction & Modifications

MOONS' has provided multiple custom design to fit the application needs of designers.
Typical product customization includes:

- Lead screws: screws length, screw end machining and so on.
- Nut: basic style, materials, lengths, mounting and so on.

Note:The choice of a standard screw can ensure the progress of the customer's design project.

■ Lead screw End Machining



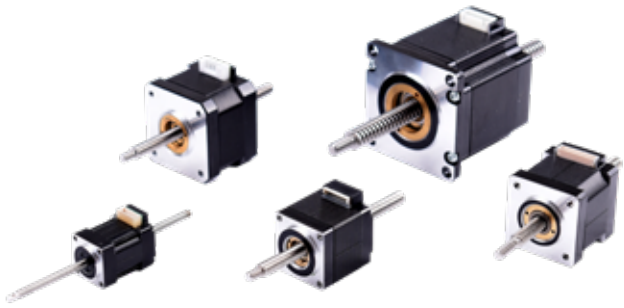
Lead Screw Nominal Diameter (mm)	Dimension	
	D(mm)	L(mm)
3~5	2.5	2.5
5.5~6.5	4	5
8~10	6	6
11~12	8	8
14	10	10

LN: Non-captive Type

LN series (Non-captive Type) is a type of linear step motor which makes a nut integrated with the motor, and the lead screw passes through the center on the motor. The motor can be fixed so that the screw moves in and out of the motor, or the leadscrew can be fixed so that the motor moves along the lead screw.

- 5 frame sizes: NEMA08/11/14/17/23
- Each frame size has multiple motor length options
- Standardized product models for quick response

The series lead screw motors provide high torque, high precision, and high efficiency to fit the application needs of designers. The combination of lead screw motor styles, sizes, lead-screws and nuts, gives the freedom to use motors of different form factors to exactly fit in the application. And, it provides the best performance with any drive and power supply.



■ Numbering System

LN	174S	–	E06008	–	100	–	S	–	XXX
①	②		③		④		⑤		⑥
Series	Motor type		Lead screw type		Screw length (mm)		Customized Code S=Screw End Machining		Rated Current XXX=X.XX(A)

LN Series Configuration Table (Metric Screw)

Nominal Diameter (mm)	Lead (mm)	Lead Screw Code	Motor Options							
			LN081S	LN143S	LN174S	LN172S	LN176S	LN234S	LN238S	LN23AS
3.5	1	M3501	◎							
6	1	W0601		◎	◎	◎	◎			
	2	M0602		◎	◎	◎	◎			
6.5	3	T6503		◎	◎	◎	◎			
8	1	T0801						◎	◎	◎
	1.25	T08012						◎	◎	◎
	2	T0802						◎	◎	◎
	3	T0803						◎	◎	◎
	4	T0804						◎	◎	◎
	5	T0805						◎	◎	◎
	8	T0808						◎	◎	◎
	12	T0812						◎	◎	◎
	20	T0820						◎	◎	◎

Note: 1.Marked with " ◎ " is available,for more configurations please contact with MOONS'.
2.The table shown is standard leadscrew options,for PTFE Coating screw please contact with MOONS'.

LN Series Configuration Table (Inch Screw)

Nominal Diameter		Lead	Lead Screw Code	Motor Options								
inch	mm	inch		LN081S	LN111S	LN143S	LN174S	LN172S	LN176S	LN234S	LN238S	LN23AS
0.138	3.51	0.024	E03006	◎								
		0.048	E03012	◎								
		0.096	E03024	◎								
0.188	4.78	1/40	E04006		◎							
		1/20	E04012		◎							
		1/10	E04025		◎							
0.218	5.54	0.024	E05006			◎	◎	◎	◎			
		0.048	E05012			◎	◎	◎	◎			
		0.192	E05048			◎	◎	◎	◎			
0.25	6.35	0.024	E06006			◎	◎	◎	◎			
		1/32	E06008			◎	◎	◎	◎			
		0.05	E06012			◎	◎	◎	◎			
		1/16	E06016			◎	◎	◎	◎			
		0.096	E06024			◎	◎	◎	◎			
		1/8	E06032			◎	◎	◎	◎			
		1/4	E06063			◎	◎	◎	◎			
		0.333	E06085			◎	◎	◎	◎			
		1/2	E06127			◎	◎	◎	◎			
0.375	9.53	1/16	E09015							◎	◎	◎
		1/10	E09025							◎	◎	◎
		1/5	E09050							◎	◎	◎
		2/5	E09102							◎	◎	◎

Note: 1.Marked with " ◎ " is available,for more configurations please contact with MOONS'.
2.The table shown is standard leadscrew options,for PTFE Coating screw please contact with MOONS'.
3. 1 inch=25.4 mm

LN Series Standard Models for stock

Size (mm)	Motor Series		Lead Screw Options Code		Screw Length Options		End Machining Code		Rated Current Options	Page
20X20	LN081S	-	E03006 E03024	-	70,80,90,100,110,125	-	S	-	050	P42
28X28	LN111S	-	E04006 E04025	-	70,80,90,100,110,125,150,180	-	S	-	050,067,100	P44
35X35	LN143S	-	W0601 E06008 E06063 E06127	-	70,80,100,125,150	-	S	-	050,100,150	P46
42X42	LN174S	-	W0601 E06008 E06063 E06127	-	80,90,100,110,125,155, 170,180,210,250,300	-	S	-	065,100,150	P48
	LN172S	-	W0601 E06008 E06063 E06127	-	80,90,100,110,125,155, 170,180,210,250,300	-	S	-	100,150,200	
	LN176S	-	W0601 E06008 E06063 E06127	-	80,90,100,110,125,155, 170,180,210,250,300	-	S	-	100,200	
57X57	LN234S	-	T0803 E09050 E09102	-	100,155,180,210,250, 300,350,400	-	S	-	150,210	P51
	LN238S	-	T0803 E09050 E09102	-	100,155,180,210,250, 300,350,400	-	S	-	220	
	LN23AS	-	T0803 E09050 E09102	-	100,155,180,210,250, 300,350,400	-	S	-	300	

Order sample

① Select configuration codes

Motor Series		Lead Screw Options		Screw Length Options		End Machining Code		Rated Current Options
LN111S	-	E04006	-	70,80,90,100,110,125,150,180	-	S	-	050,067,100

② Determine the order Models

LN111S - E04006 - 100 - S - 067

In addition to the standard number, we also provide a wealth of customized configuration options, for more information please contact the factory.

LN08 Series

Phases	2
Step Accuracy	±5%
Approvals	RoHS
Operating Temp.	0°C~+50°C
Insulation Class	B(130°C)

■ Ordering Information

LN 08 1S - E03006 - 100 - S - XXX

Lead Screw Motor Type Code

Code	Structure Type
LN	Non-captive Shaft

Frame Size Code

Code	Frame Size
08	20mm

Motor Body Length Code

Code	Motor Body Length Max(mm)	Step Angle (°)
1S	30	1.8

Lead Screw Type Code

Code	Nominal Diameter (mm)	Lead (mm)	Travel(mm) Travel Per1.8°
M3501	3.5	1	0.005

Code	Nominal Diameter inch	Nominal Diameter mm	Lead inch	Travel(mm) Travel Per1.8°
E03006	0.138	3.51	0.024	0.0030*
E03012			0.048	0.0061*
E03024			0.096	0.0122*

The number with * is abbreviated.

The length of the screw Lx

###	Provided in 1 mm increments

Special Custom Type Code

Code	Custom Type
0	No end machining
S	Lead Screw End Machining
XX	Other Special Custom Type

Rated Current Code

XXX=X.XX(A)

Note:Choosing the standard order models can get the sample quickly, please see P41 for standard models.

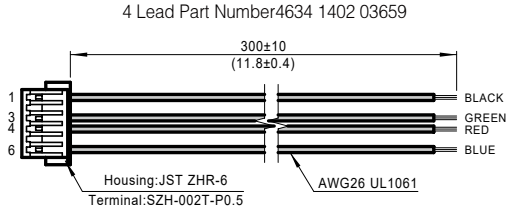
LN08 Series

Motor Technical Parameters

Motor Type Code	Motor Body Length (mm)	Step Angle (°)	Electrical Connection	Rated Current (Amps)
LN081S	30	1.8	Plug In Connector	0.5

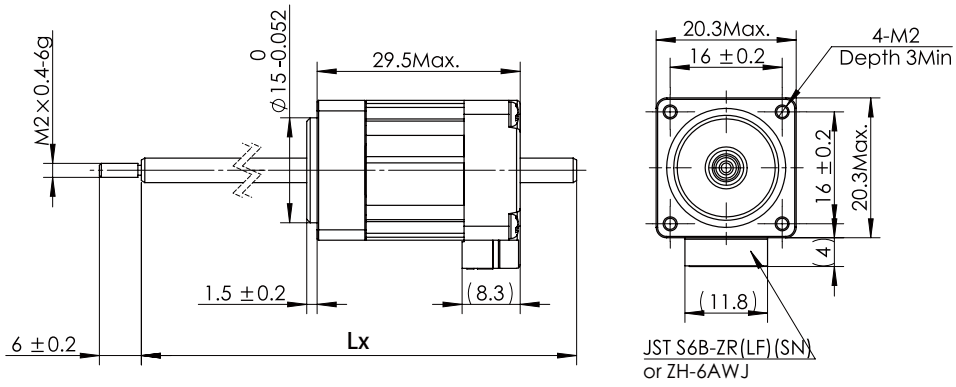
Note: Please see P168-P175 for recommended driver selection.

Mating Connector With Leads

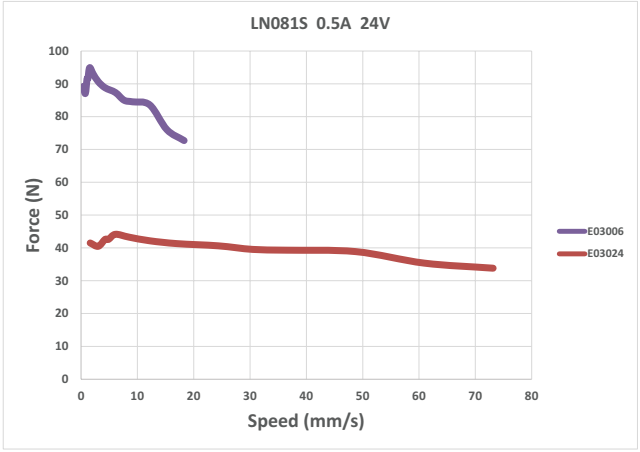


Dimensional Information

UNIT:mm



Speed - Force Reference Curve



Note:
Curve allowance: The curve is calculated according to the theory. In practice, due to the theoretical calculation deviation, machining deviation, load inertia, mechanical friction loss, installation concentricity deviation, etc., it is generally recommended to preserve 50% allowance.

LN11 Series

Phases	2
Step Accuracy	±5%
Approvals	RoHS
Operating Temp.	0°C~+50°C
Insulation Class	B(130°C)

Ordering Information

LN 11 1S - E04006 - 100 - S - XXX

Lead Screw Motor Type Code

Code	Structure Type
LN	Non-captive Shaft

Frame Size Code

Code	Frame Size
11	28mm

Motor Body Length Code

Code	Motor Body Length Max(mm)	Step Angle (°)
1S	32	1.8

Lead Screw Type Code

Code	Nominal Diameter		Lead	Travel(mm)
	inch	mm	inch	Travel Per1.8°
E04006	0.188	4.78	1/40	0.0032*
E04012			0.050	0.0064*
E04025			1/10	0.0127*

The number with * is abbreviated.

Rated Current Code

XXX=X.XX(A)

Special Custom Type Code

Code	Custom Type
0	No end machining
S	Lead Screw End Machining
XX	Other Special Custom Type

The length of the screw Lx

###	Provided in 1 mm increments

Note:Choosing the standard order models can get the sample quickly, please see P41 for standard models.

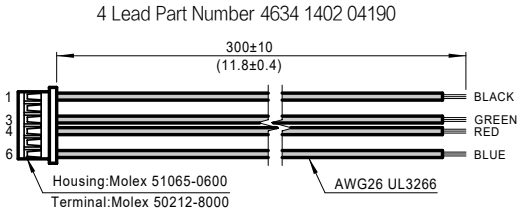
LN11 Series

Motor Technical Parameters

Motor Type Code	Motor Body Length (mm)	Step Angle (°)	Electrical Connection	Rated Current (Amps)
LN111S	32	1.8	Plug In Connector	0.67
				1

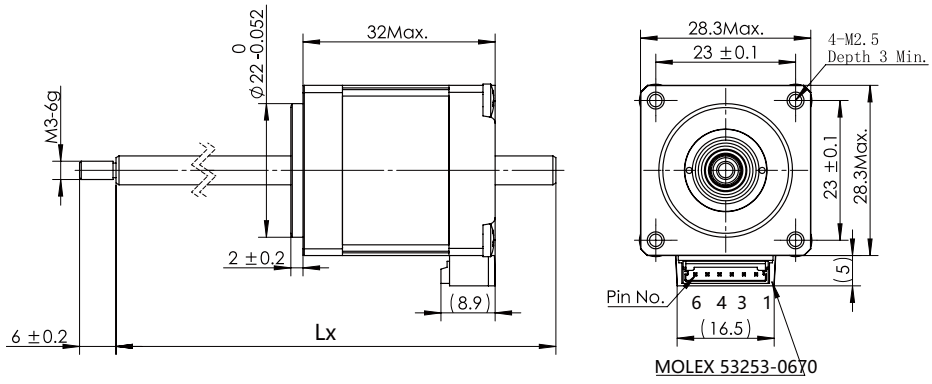
Note: Please see P168-P175 for recommended driver selection.

Mating Connector With Leads

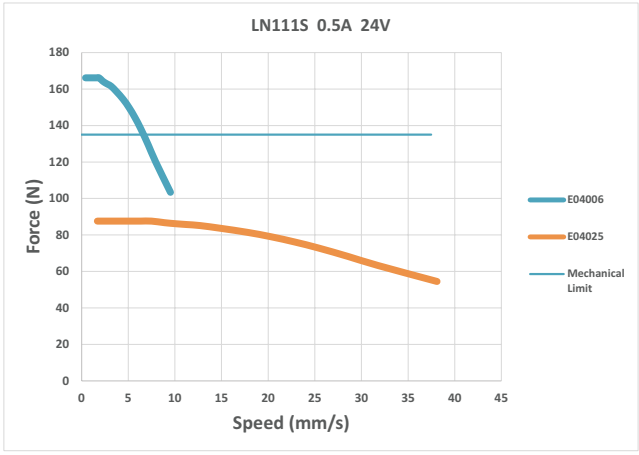


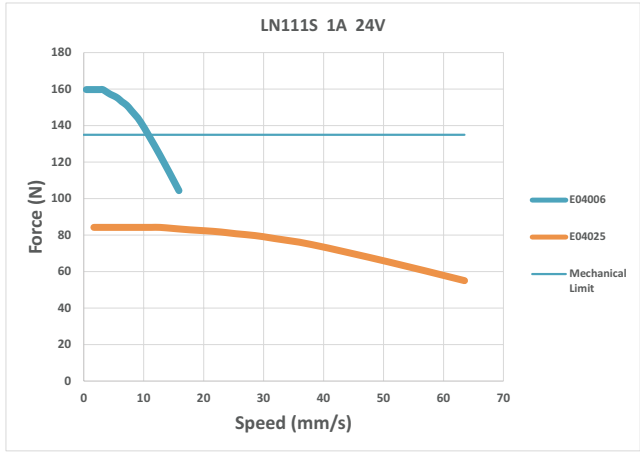
Dimensional Information

UNIT:mm



Speed - Force Reference Curve





Note:
1.Mechanical Limit Definition:Since the motor output may exceed the force which the bearing can bear, so we take the motor bearing limit as the mechanical limit. However, linear motor fatigue and resultant life are determined by each customer's unique application. Load, speed, frequency, temperature, stability of guidance mechanism, etc., should all be considered before choosing a linear motor.
2.Curve allowance: The curve is calculated according to the theory. In practice, due to the theoretical calculation deviation, machining deviation, load inertia, mechanical friction loss, installation concentricity deviation, etc., it is generally recommended to preserve 50% allowance.

LN14 Series

Phases	2
Step Accuracy	±5%
Approvals	RoHS
Operating Temp.	0°C~+50°C
Insulation Class	B(130°C)

Ordering Information

LN 14 3S - W0601 - 100 - S - XXX

Lead Screw Motor Type Code

Code	Structure Type
LN	Non-captive Shaft

Frame Size Code

Code	Frame Size
14	35mm

Motor Body Length Code

Code	Motor Body Length Max(mm)	Step Angle (°)
3S	35	1.8

Lead Screw Type Code

Code	Nominal Diameter (mm)	Lead (mm)	Travel(mm) Travel Per1.8°
W0601	6	1	0.005
M0602		2	0.01

Code	Nominal Diameter inch	Nominal Diameter mm	Lead inch	Travel(mm) Travel Per1.8°
E05006	0.218	5.54	0.024	0.0030*
E05012			0.048	0.0061*
E05048			0.192	0.0244*
E06006	0.25	6.35	0.024	0.0030*
E06008			1/32	0.0039*
E06012			0.05	0.0064*
E06016			1/16	0.0080*
E06024			0.096	0.0122*
E06032			1/8	0.0159*
E06063			1/4	0.0318*
E06085			0.333	0.0423*
E06127			1/2	0.0635

The number with * is abbreviated.

Rated Current Code

XXX=X.XX(A)

Special Custom Type Code

Code	Custom Type
0	No end machining
S	Lead Screw End Machining
XX	Other Special Custom Type

The length of the screw Lx

###	Provided in 1 mm increments

Note:Choosing the standard order models can get the sample quickly, please see P41 for standard models.

LN14 Series

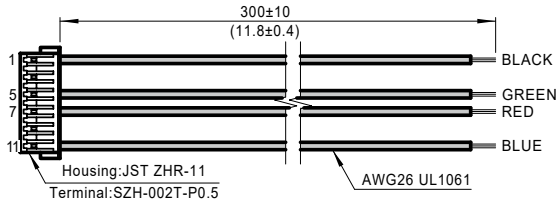
Motor Technical Parameters

Motor Type Code	Motor Body Length (mm)	Step Angle (°)	Electrical Connection	Rated Current (Amps)
LN143S	35	1.8	Plug In Connector	0.5
				1
				1.5

Note: Please see P168-P175 for recommended driver selection.

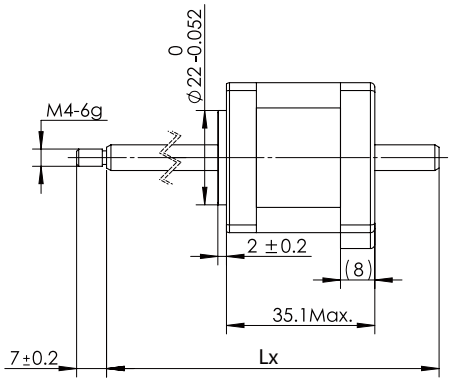
Mating Connector With Leads

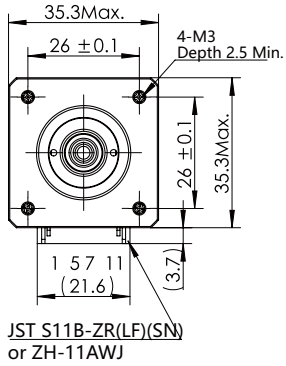
4 Lead Part Number 4634 1402 04581



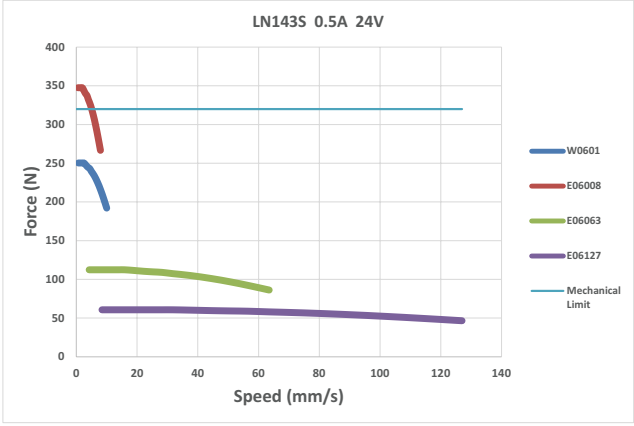
Dimensional Information

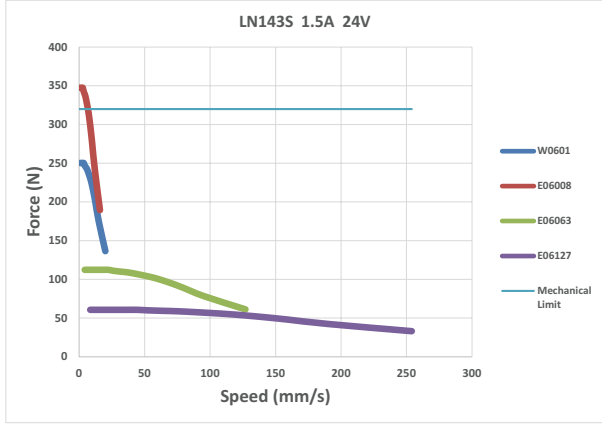
UNIT:mm





Speed - Force Reference Curve





Note:
1.Mechanical Limit Definition:Since the motor output may exceed the force which the bearing can bear, so we take the motor bearing limit as the mechanical limit. However, linear motor fatigue and resultant life are determined by each customer's unique application. Load, speed, frequency, temperature, stability of guidance mechanism, etc., should all be considered before choosing a linear motor.
2.Curve allowance: The curve is calculated according to the theory. In practice, due to the theoretical calculation deviation, machining deviation, load inertia, mechanical friction loss, installation concentricity deviation, etc., it is generally recommended to preserve 50% allowance.

LN17 Series

Phases	2
Step Accuracy	±5%
Approvals	RoHS
Operating Temp.	0°C~+50°C
Insulation Class	B(130°C)

■ Ordering Information

LN 17 2S - M0602 - 100 - S - XXX

Lead Screw Motor Type Code

Code	Structure Type
LN	Non-captive Shaft

Frame Size Code

Code	Frame Size
17	42mm

Motor Body Length Code

Code	Motor Body Length Max(mm)	Step Angle (°)
4S	34	1.8
2S	40	
6S	48	

Lead Screw Type Code

Code	Nominal Diameter (mm)	Lead (mm)	Travel(mm) Travel Per1.8°
W0601	6	1	0.005
M0602		2	0.01

Code	Nominal Diameter		Lead	Travel(mm)
	inch	mm	inch	Travel Per1.8°
E05006	0.218	5.54	0.024	0.0030*
E05012			0.048	0.0061*
E05048			0.192	0.0244*
E06006	0.25	6.35	0.024	0.0030*
E06008			1/32	0.0039*
E06012			0.05	0.0064*
E06016			1/16	0.0080*
E06024			0.096	0.0122*
E06032			1/8	0.0159*
E06063			1/4	0.0318*
E06085			0.333	0.0423*
E06127			1/2	0.0635

The number with * is abbreviated.

Rated Current Code

XXX=X.XX(A)

Special Custom Type Code

Code	Custom Type
0	No end machining
S	Lead Screw End Machining
XX	Other Special Custom Type

The length of the screw Lx

###	Provided in 1 mm increments

Note:Choosing the standard order models can get the sample quickly, please see P41 for standard models.

LN17 Series

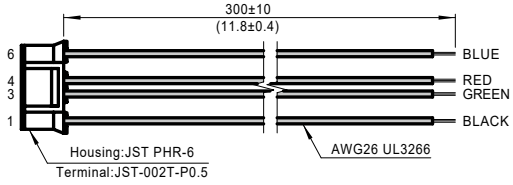
Motor Technical Parameters

Motor Type Code	Motor Body Length (mm)	Step Angle (°)	Electrical Connection	Rated Current (Amps)
LN174S	34	1.8	Plug In Connector	0.65
				1
				1.5
LN172S	40	1.8	Plug In Connector	1
				1.5
				2
LN176S	48	1.8	Plug In Connector	1
				2

Note: Please see P168-P175 for recommended driver selection.

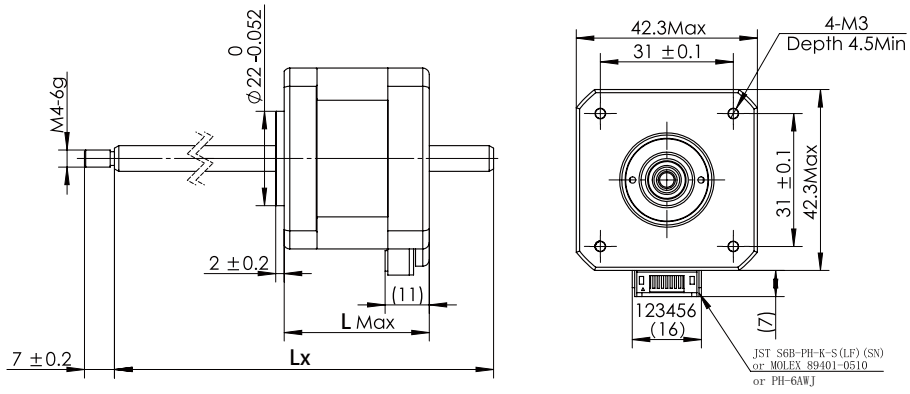
Mating Connector With Leads

4 Lead Part Number 4634 1402 00723



Dimensional Information

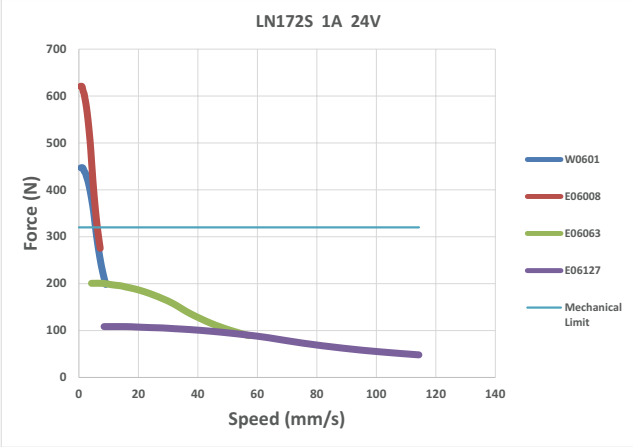
UNIT:mm

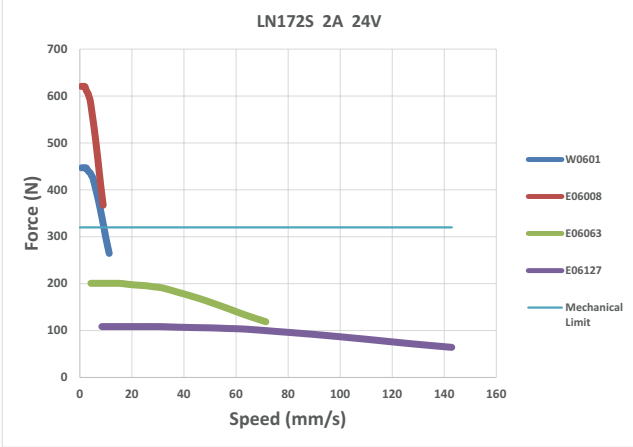


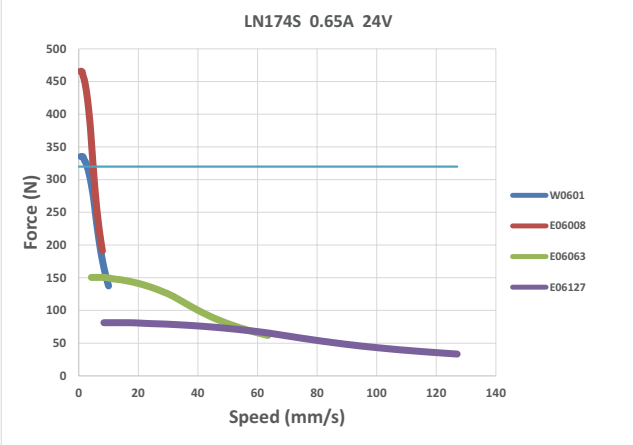
Motor Type	Dimension"L"
LN174S	34
LN172S	40
LN176S	48

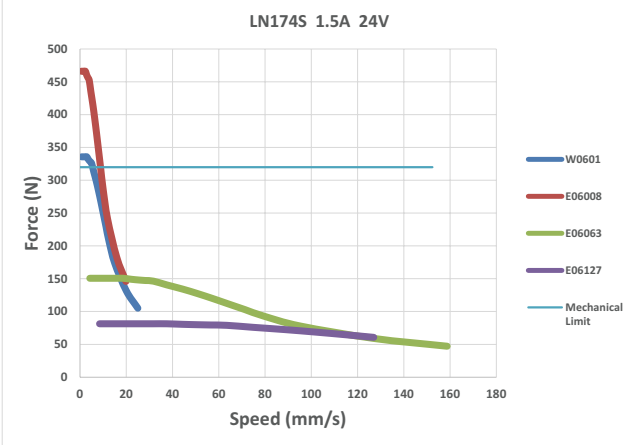
LN17 Series

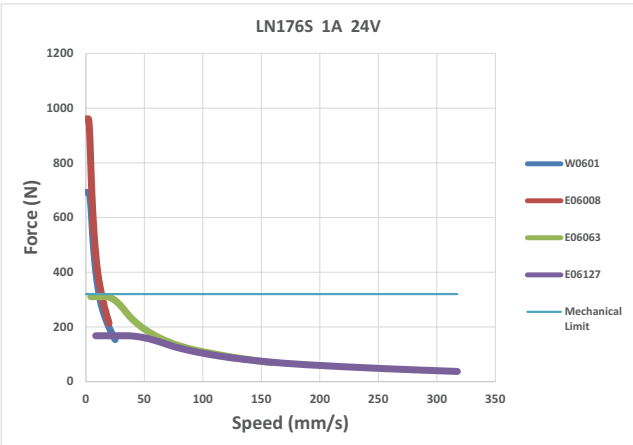
■ Speed - Force Reference Curve

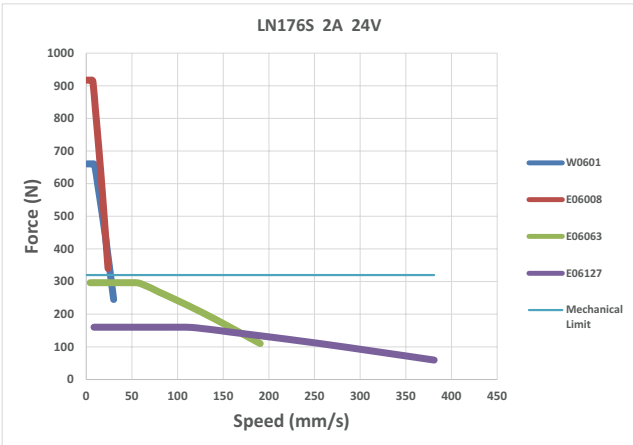












Note:
1.Mechanical Limit Definition:Since the motor output may exceed the force which the bearing can bear, so we take the motor bearing limit as the mechanical limit. However, linear motor fatigue and resultant life are determined by each customer's unique application. Load, speed, frequency, temperature, stability of guidance mechanism, etc., should all be considered before choosing a linear motor.
2.Curve allowance: The curve is calculated according to the theory. In practice, due to the theoretical calculation deviation, machining deviation, load inertia, mechanical friction loss, installation concentricity deviation, etc., it is generally recommended to preserve 50% allowance.

LN23 Series

Phases	2
Step Accuracy	±5%
Approvals	RoHS
Operating Temp.	0°C~+50°C
Insulation Class	B(130°C)

■ Ordering Information

LN 23 8S – T0802 – 100 – S – XXX

Lead Screw Motor Type Code

Code	Structure Type
LN	Non-captive Shaft

Frame Size Code

Code	Frame Size
23	57mm

Motor Body Length Code

Code	Motor Body Length Max(mm)	Step Angle (°)
4S	45	1.8
8S	57	
AS*	79	

Lead Screw Type Code

Code	Nominal Diameter (mm)	Lead (mm)	Travel(mm) Travel Per1.8°
T0801	8	1	0.005
T08012		1.25	0.0062*
T0802		2	0.01
T0803		3	0.015
T0804		4	0.02
T0805		5	0.025
T0808		8	0.04
T0812		12	0.06
T0820		20	0.1

Code	Nominal Diameter		Lead	Travel(mm)
	inch	mm	inch	Travel Per1.8°
E09015	0.375	9.53	1/16	0.0079*
E09025			1/10	0.0127
E09050			1/5	0.0254
E09102			2/5	0.0508*

The number with * is abbreviated.

Rated Current Code

XXX=X.XX(A)

Special Custom Type Code

Code	Custom Type
0	No end machining
S	Lead Screw End Machining
XX	Other Special Custom Type

The length of the screw Lx

###	Provided in 1 mm increments

Note:Choosing the standard order models can get the sample quickly, please see P41 for standard models.

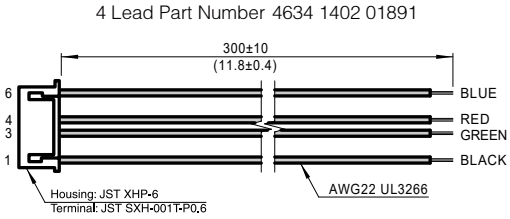
LN23 Series

Motor Technical Parameters

Motor Type Code	Motor Body Length (mm)	Step Angle (°)	Electrical Connection	Rated Current (Amps)
LN234S	45	1.8	Plug In Connector	1.5
				2.1
LN238S	57	1.8	Plug In Connector	1.5
				2.2
LN23AS	79	1.8	Plug In Connector	1.5
				3

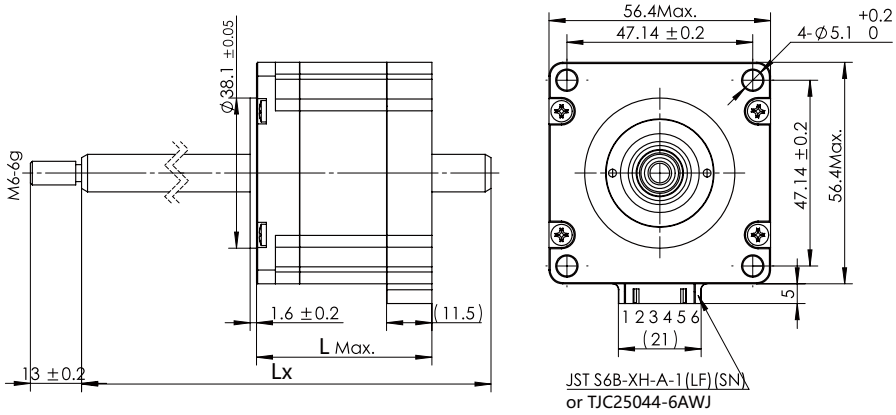
Note: Please see P168-P175 for recommended driver selection.

Mating Connector With Leads



Dimensional Information

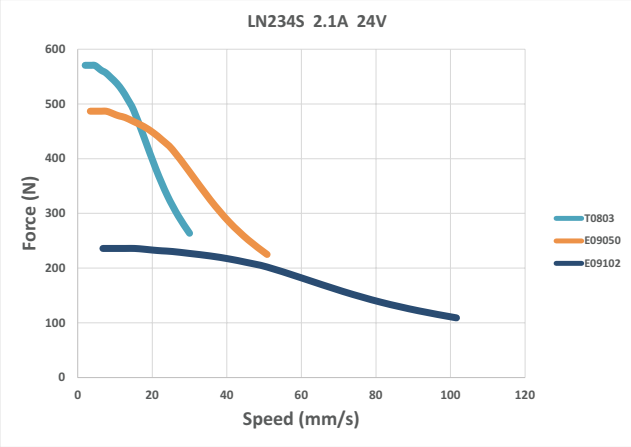
UNIT:mm

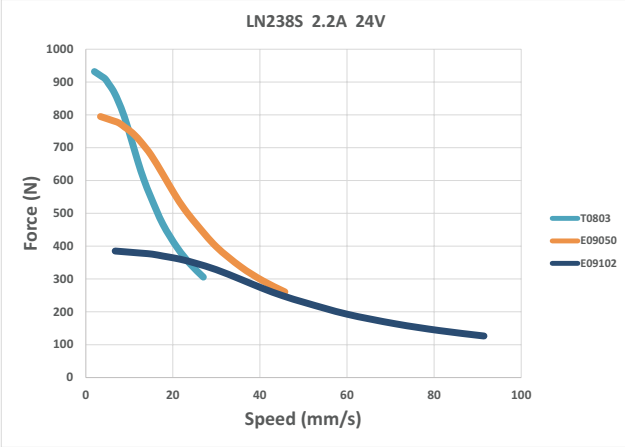


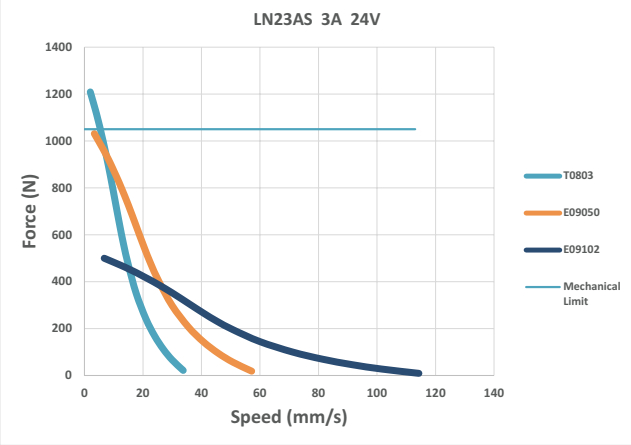
Motor Type	Dimension"L"
LN234S	45
LN238S	57
LN23AS	79

LN23 Series

■ Speed - Force Reference Curve







Note:

1.Mechanical Limit Definition:Since the motor output may exceed the force which the bearing can bear, so we take the motor bearing limit as the mechanical limit. However, linear motor fatigue and resultant life are determined by each customer's unique application. Load, speed, frequency, temperature, stability of guidance mechanism, etc., should all be considered before choosing a linear motor.

2.Curve allowance: The curve is calculated according to the theory. In practice, due to the theoretical calculation deviation, machining deviation, load inertia, mechanical friction loss, installation concentricity deviation, etc., it is generally recommended to preserve 50% allowance.

LC:Captive Type

LC series (Captive Type) is a type of linear step motor which makes the nut integrate with the motor rotor. There is a Screw shaft on the motor driving the plunger forward and backward. The plunger is supported by a housing that is part of the motor. This construction allows the plunger to move forward and backward autonomously. No other separate auxiliary action on the screw and nut is required.

- 5 frame sizes: NEMA08/11/14/17/23
- Each frame size has multiple motor length options and current options
- Integrate any lead screw and nut from MOONS'

This product is compact in constructure and practical and easy to operate, which can help customers to quickly build linear drive mechanisms.

■ Numbering System

LC	174S	-	E06008	-	25	-	S	-	XXX
①	②		③		④		⑤		⑥
Series	Motor type		Lead screw type		Stroke Code 25.4(mm)		Customized Code S=Screw End Machining		Rated Current XXX=X.XX(A)

LC Series Configuration Table (Inch Screw)

Nominal Diameter		Lead	Lead Screw Code	Motor Options								
inch	mm	inch		LC081S	LC111S	LC143S	LC174S	LC172S	LC176S	LC234S	LC238S	LC23AS
0.138	3.51	0.024	E03006	◎								
		0.048	E03012	◎								
		0.096	E03024	◎								
0.188	4.78	1/40	E04006		◎							
		1/20	E04012		◎							
		1/10	E04025		◎							
0.218	5.54	0.024	E05006			◎	◎	◎	◎			
		0.048	E05012			◎	◎	◎	◎			
		0.192	E05048			◎	◎	◎	◎			
0.25	6.35	0.024	E06006			◎	◎	◎	◎			
		1/32	E06008			◎	◎	◎	◎			
		0.05	E06012			◎	◎	◎	◎			
		1/16	E06016			◎	◎	◎	◎			
		0.096	E06024			◎	◎	◎	◎			
		1/8	E06032			◎	◎	◎	◎			
		1/4	E06063			◎	◎	◎	◎			
		0.333	E06085			◎	◎	◎	◎			
		1/2	E06127			◎	◎	◎	◎			
0.375	9.53	1/16	E09015							◎	◎	◎
		1/10	E09025							◎	◎	◎
		1/5	E09050							◎	◎	◎
		2/5	E09102							◎	◎	◎

Note: 1.Marked with " ◎ " is available,for more configurations please contact with MOONS'.
2.The table shown is standard leadscrew options,for PTFE Coating screw please contact with MOONS'.
3. 1 inch=25.4 mm

LC Series Standard Models for stock

Size (mm)	Motor Series		Lead Screw Options		Stroke Options		End Machining Code		Rated Current Options	Page
20X20	LC081S	-	E03006 E03024	-	25	-	S	-	050	P57
28X28	LC111S	-	E04006 E04025	-	12,25,38	-	S	-	050,067,100	P59
35X35	LC143S	-	E06008 E06063 E06127	-	25	-	S	-	050,100,150	P61
42X42	LC174S	-	E06008 E06063 E06127	-	25	-	S	-	065,100,150	P63
	LC172S	-	E06008 E06063 E06127	-	25	-	S	-	100,150,200	
	LC176S	-	E06008 E06063 E06127	-	25	-	S	-	100,200	
57X57	LC234S	-	E09025 E09050 E09102	-	25	-	S	-	150,210	P66
	LC238S	-	E09025 E09050 E09102	-	25	-	S	-	220	
	LC23AS	-	E09025 E09050 E09102	-	25	-	S	-	300	

Order sample

① Select configuration codes

Motor Series		Lead Screw Options		Stroke Options		End Machining Code		Rated Current Options
LC111S	-	E04006	-	12,25,38	-	S	-	050,067,100

② Determine the order Models

LC111S - E04006 - 25 - S - 067

In addition to the standard number, we also provide a wealth of customized configuration options, for more information please contact the factory.

LC08 Series

Phases	2
Step Accuracy	±5%
Approvals	RoHS
Operating Temp.	0°C~+50°C
Insulation Class	B(130°C)

Ordering Information

LC 08 1S – E03006 – 25 – S – XXX

Lead Screw Motor Type Code

Code	Structure Type
LC	Captive Shaft

Frame Size Code

Code	Frame Size
08	20mm

Motor Body Length Code

Code	Motor Body Length Max(mm)	Step Angle (°)
1S	30	1.8

Lead Screw Type Code

Code	Nominal Diameter		Lead	Travel(mm)
	inch	mm	inch	Travel Per1.8°
E03006	0.138	3.51	0.024	0.0030*
E03012			0.048	0.0061*
E03024			0.096	0.0122*

The number with * is abbreviated.

Rated Current Code

XXX=X.XX(A)

Special Custom Type Code

Code	Custom Type
S	Lead Screw End Machining
XX	Other Special Custom Type

Stroke Code

Code	Stroke(mm)
25	25.4

Note:Choosing the standard order models can get the sample quickly, please see P56 for standard models.

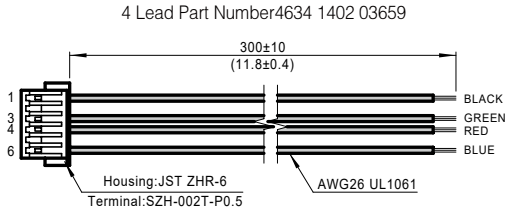
Motor Technical Parameters

Motor Type Code	Motor Body Length (mm)	Step Angle (°)	Electrical Connection	Rated Current (Amps)
LC081S	30	1.8	Plug In Connector	0.5

Note: Please see P168-P175 for recommended driver selection.

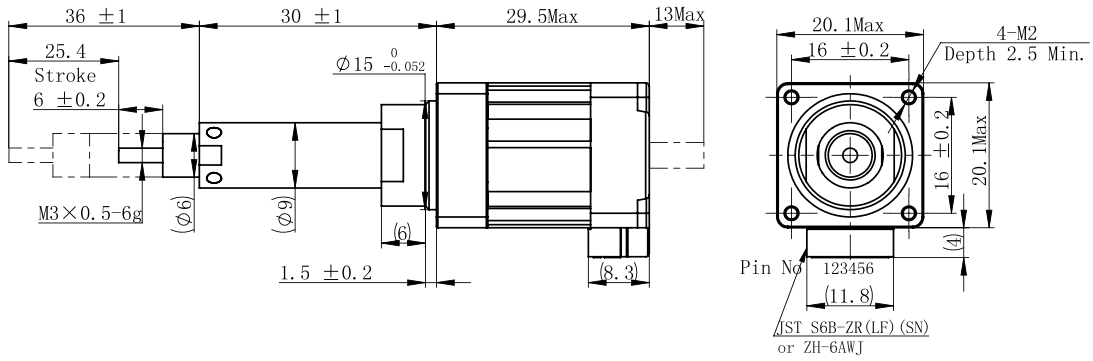
LC08 Series

Mating Connector With Leads

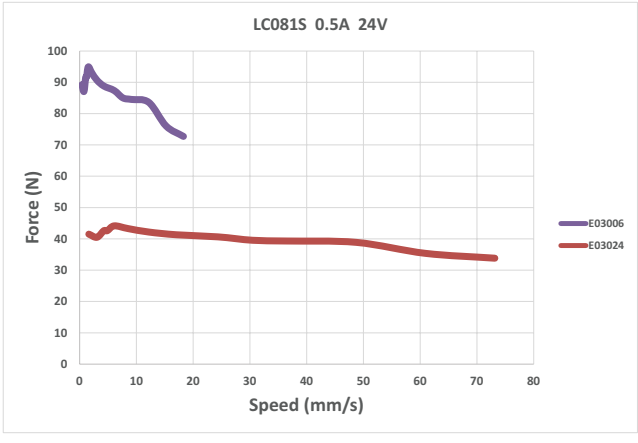


Dimensional Information

UNIT:mm



Speed - Force Reference Curve



Note:
Curve allowance: The curve is calculated according to the theory. In practice, due to the theoretical calculation deviation, machining deviation, load inertia, mechanical friction loss, installation concentricity deviation, etc., it is generally recommended to preserve 50% allowance.

LC11 Series

Phases	2
Step Accuracy	±5%
Approvals	RoHS
Operating Temp.	0°C~+50°C
Insulation Class	B(130°C)

Ordering Information

LC 11 1S – E04006 – 25 – S – XXX

Lead Screw Motor Type Code

Code	Structure Type
LC	Captive Shaft

Frame Size Code

Code	Frame Size
11	28mm

Motor Body Length Code

Code	Motor Body Length Max(mm)	Step Angle (°)
1S	32	1.8

Lead Screw Type Code

Code	Nominal Diameter		Lead	Travel(mm)
	inch	mm	inch	Travel Per1.8°
E04006	0.188	4.78	1/40	0.0032*
E04012			1/20	0.0064*
E04025			1/10	0.0127*

The number with * is abbreviated.

Rated Current Code

XXX=X.XX(A)

Special Custom Type Code

Code	Custom Type
S	Lead Screw End Machining
XX	Other Special Custom Type

Stroke Code

Code	Stroke(mm)
12	12.7
25	25.4
38	38.1

Note:Choosing the standard order models can get the sample quickly, please see P56 for standard models.

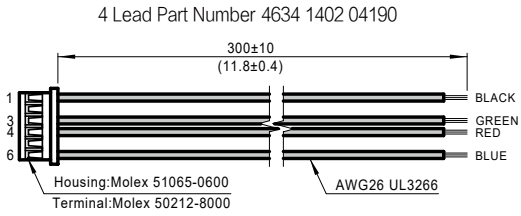
Motor Technical Parameters

Motor Type Code	Motor Body Length (mm)	Step Angle (°)	Electrical Connection	Rated Current (Amps)
LC111S	32	1.8	Plug In Connector	0.67
				1

Note: Please see P168-P175 for recommended driver selection.

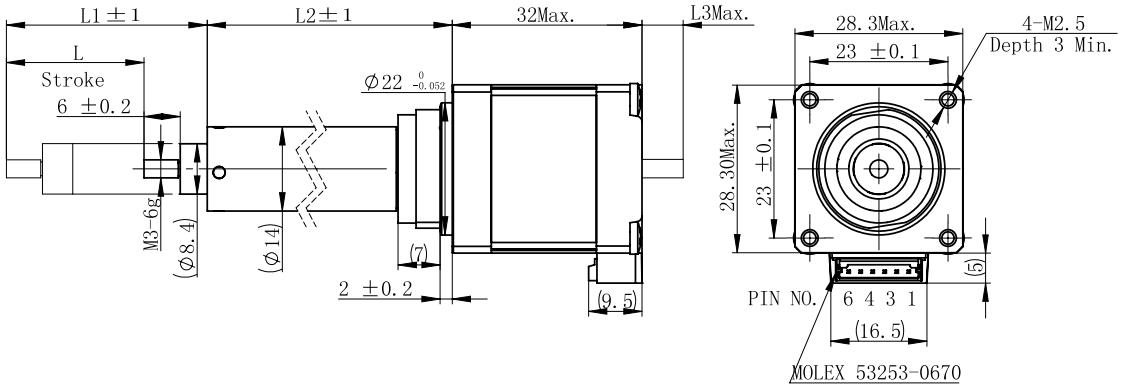
LC11 Series

Mating Connector With Leads



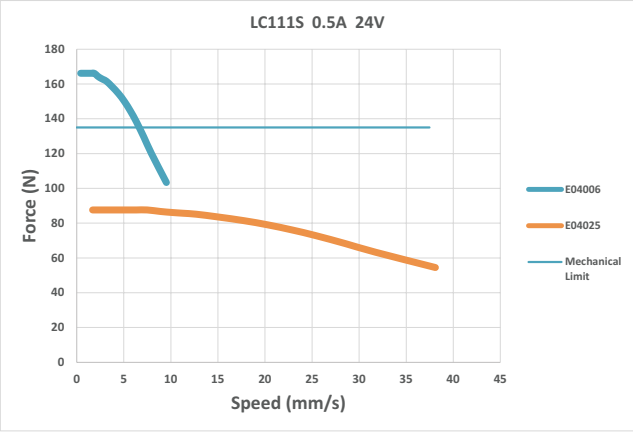
Dimensional Information

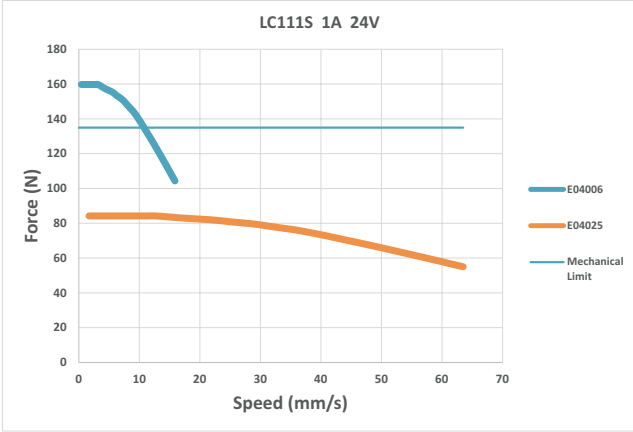
UNIT:mm



Standard stroke (mm)	L(mm)	L1(mm)	L2(mm)	L3(mm)
12.7	12.7	22	18	1
25.4	25.4	35	30.5	15
38.1	38.1	47	43	27

Speed - Force Reference Curve





Note:
1.Mechanical Limit Definition:Since the motor output may exceed the force which the bearing can bear, so we take the motor bearing limit as the mechanical limit. However, linear motor fatigue and resultant life are determined by each customer's unique application. Load, speed, frequency, temperature, stability of guidance mechanism, etc., should all be considered before choosing a linear motor.
2.Curve allowance: The curve is calculated according to the theory. In practice, due to the theoretical calculation deviation, machining deviation, load inertia, mechanical friction loss, installation concentricity deviation, etc., it is generally recommended to preserve 50% allowance.

LC14 Series

Phases	2
Step Accuracy	±5%
Approvals	RoHS
Operating Temp.	0°C~+50°C
Insulation Class	B(130°C)

Ordering Information

LC 14 3S - E05006 - 25 - S - XXX

Lead Screw Motor Type Code

Code	Structure Type
LC	Captive Shaft

Frame Size Code

Code	Frame Size
14	35mm

Motor Body Length Code

Code	Motor Body Length Max(mm)	Step Angle (°)
3S	35	1.8

Lead Screw Type Code

Code	Nominal Diameter		Lead	Travel(mm)
	inch	mm	inch	Travel Per1.8°
E05006	0.218	5.54	0.024	0.0030*
E05012			0.048	0.0061*
E05048			0.192	0.0244*
E06006	0.25	6.35	0.024	0.0030*
E06008			1/32	0.0039*
E06012			0.05	0.0064*
E06016			1/16	0.0080*
E06024			0.096	0.0122*
E06032			1/8	0.0159*
E06063			1/4	0.0318*
E06085			0.333	0.0423*
E06127			1/2	0.0635

The number with * is abbreviated.

Rated Current Code

XXX=X.XX(A)

Special Custom Type Code

Code	Custom Type
S	Lead Screw End Machining
XX	Other Special Custom Type

Stroke Code

Code	Stroke(mm)
25	25.4

Note:Choosing the standard order models can get the sample quickly, please see P56 for standard models.

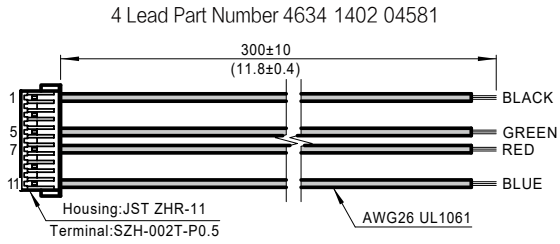
Motor Technical Parameters

Motor Type Code	Motor Body Length (mm)	Step Angle (°)	Electrical Connection	Rated Current (Amps)
LC143S	35	1.8	Plug In Connector	0.5
				1
				1.5

Note: Please see P168-P175 for recommended driver selection.

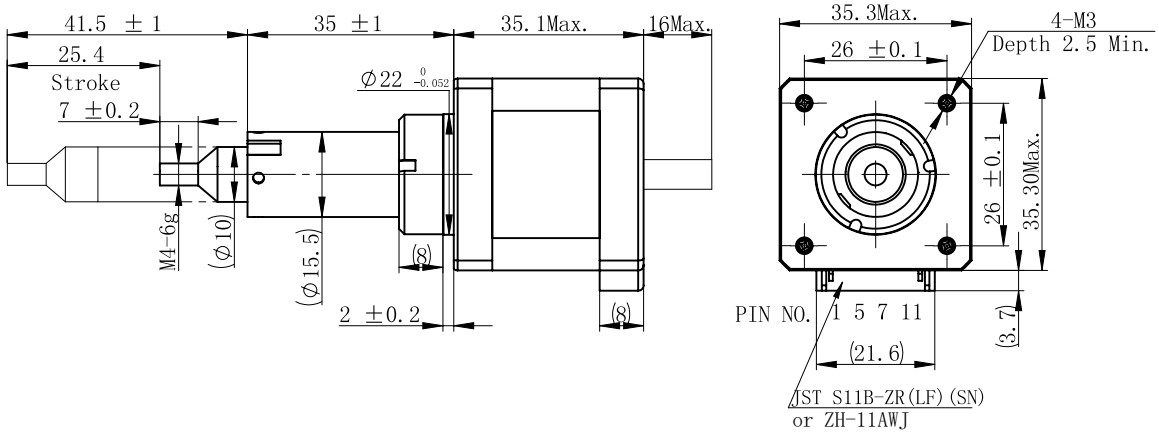
LC14 Series

Mating Connector With Leads

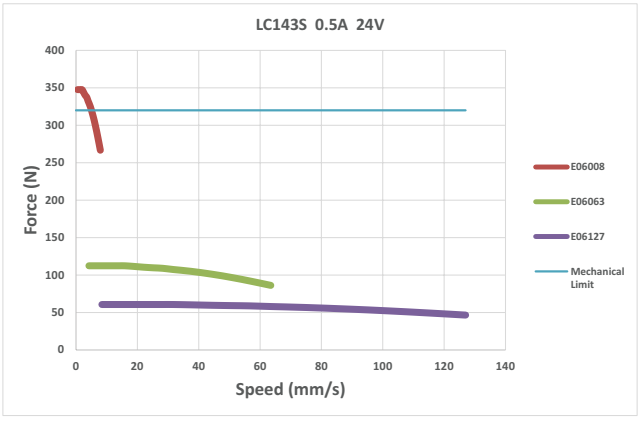


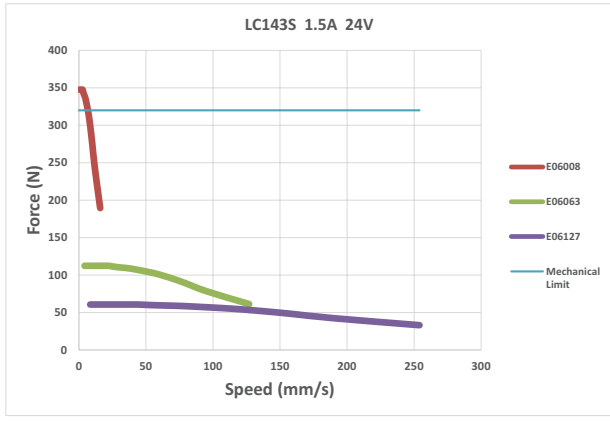
Dimensional Information

UNIT:mm



Speed - Force Reference Curve





Note:
1.Mechanical Limit Definition:Since the motor output may exceed the force which the bearing can bear, so we take the motor bearing limit as the mechanical limit. However, linear motor fatigue and resultant life are determined by each customer's unique application. Load, speed, frequency, temperature, stability of guidance mechanism, etc., should all be considered before choosing a linear motor.
2.Curve allowance: The curve is calculated according to the theory. In practice, due to the theoretical calculation deviation, machining deviation, load inertia, mechanical friction loss, installation concentricity deviation, etc., it is generally recommended to preserve 50% allowance.

LC17 Series

Phases	2
Step Accuracy	±5%
Approvals	RoHS
Operating Temp.	0°C~+50°C
Insulation Class	B(130°C)

Ordering Information

LC 17 2S − E05006 − 25 − S − XXX

Lead Screw Motor Type Code

Code	Structure Type
LC	Captive Shaft

Frame Size Code

Code	Frame Size
17	42mm

Motor Body Length Code

Code	Motor Body Length Max(mm)	Step Angle (°)
4S	34	1.8
2S	40	
6S	48	

Lead Screw Type Code

Code	Nominal Diameter		Lead	Travel(mm)
	inch	mm	inch	Travel Per1.8°
E05006	0.218	5.54	0.024	0.0030*
E05012			0.048	0.0061*
E05048			0.192	0.0244*
E06006	0.25	6.35	0.024	0.0030*
E06008			1/32	0.0039*
E06012			0.05	0.0064*
E06016			1/16	0.0080*
E06024			0.096	0.0122*
E06032			1/8	0.0159*
E06063			1/4	0.0318*
E06085			0.333	0.0423*
E06127			1/2	0.0635

The number with * is abbreviated.

Rated Current Code

XXX=X.XX(A)

Special Custom Type Code

Code	Custom Type
S	Lead Screw End Machining
XX	Other Special Custom Type

Stroke Code

Code	Stroke(mm)
25	25.4

Note:Choosing the standard order models can get the sample quickly, please see P56 for standard models.

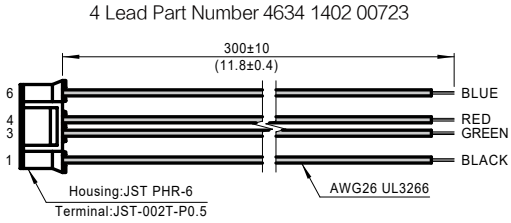
LC17 Series

Motor Technical Parameters

Motor Type Code	Motor Body Length (mm)	Step Angle (°)	Electrical Connection	Rated Current (Amps)
LC174S	34	1.8	Plug In Connector	0.65
				1
				1.5
LC172S	40	1.8	Plug In Connector	1
				1.5
				2
LC176S	48	1.8	Plug In Connector	1
				2

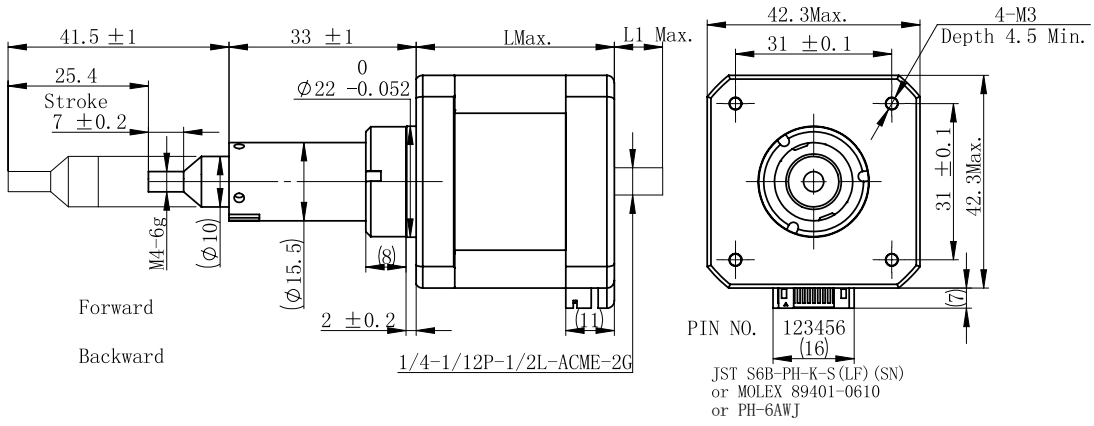
Note: Please see P168-P175 for recommended driver selection.

Mating Connector With Leads



Dimensional Information

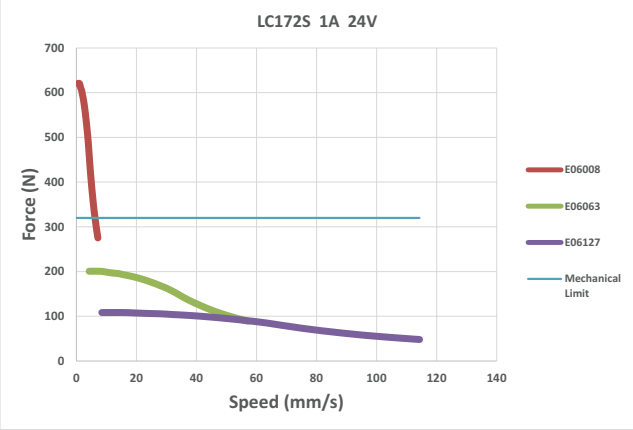
UNIT:mm

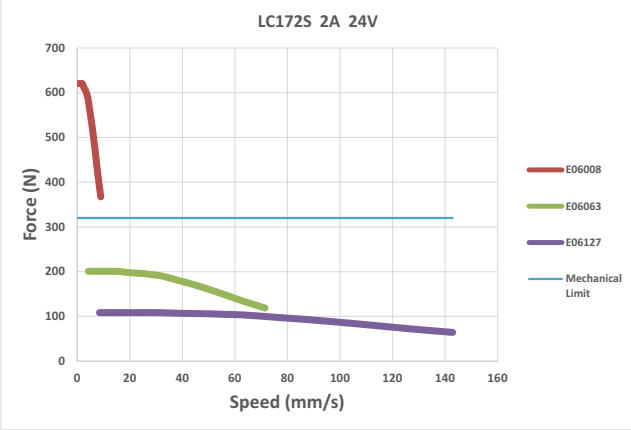


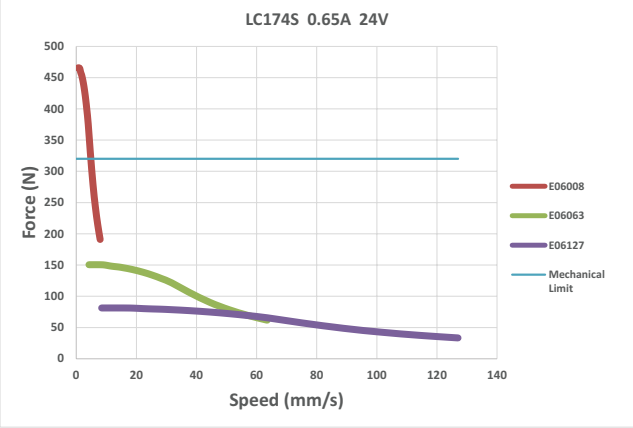
Motor Type	L(mm)	L1(mm)
LC174S	34	18
LC172S	40	13
LC176S	48	4

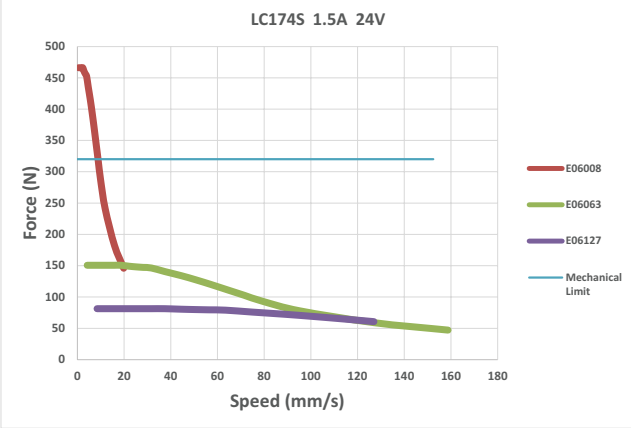
LC17 Series

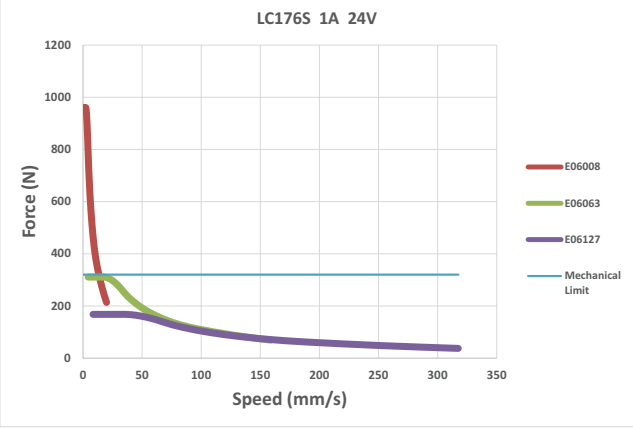
■ Speed - Force Reference Curve

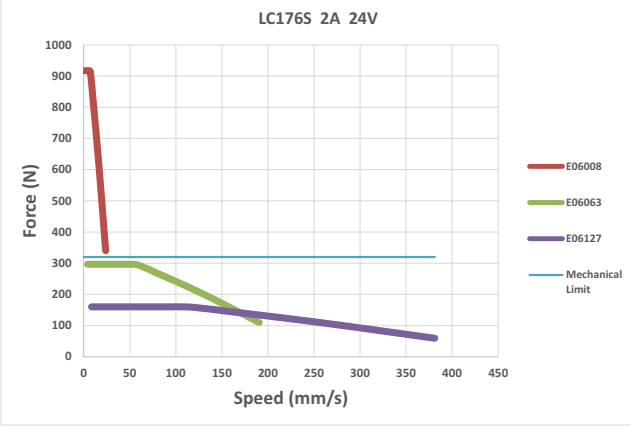












Note:
1.Mechanical Limit Definition:Since the motor output may exceed the force which the bearing can bear, so we take the motor bearing limit as the mechanical limit. However, linear motor fatigue and resultant life are determined by each customer's unique application. Load, speed, frequency, temperature, stability of guidance mechanism, etc., should all be considered before choosing a linear motor.
2.Curve allowance: The curve is calculated according to the theory. In practice, due to the theoretical calculation deviation, machining deviation, load inertia, mechanical friction loss, installation concentricity deviation, etc., it is generally recommended to preserve 50% allowance.

LC23 Series

Phases	2
Step Accuracy	±5%
Approvals	RoHS
Operating Temp.	0°C~+50°C
Insulation Class	B(130°C)

■ Ordering Information

LC 23 8S – E09050 – 25 – S – XXX

Lead Screw Motor Type Code

Code	Structure Type
LC	Captive Shaft

Frame Size Code

Code	Frame Size
23	57mm

Motor Body Length Code

Code	Motor Body Length Max(mm)	Step Angle (°)
4S	45	1.8
8S	57	
AS	79	

Lead Screw Type Code

Code	Nominal Diameter		Lead	Travel(mm)
	inch	mm	inch	Travel Per1.8°
E09015	0.375	9.53	1/16	0.0079*
E09025			1/10	0.0127
E09050			1/5	0.0254
E09102			2/5	0.0508*

The number with * is abbreviated.

Rated Current Code

XXX=X.XX(A)

Special Custom Type Code

Code	Custom Type
S	Lead Screw End Machining
XX	Other Special Custom Type

Stroke Code

Code	Stroke(mm)
25	25.4

Note:Choosing the standard order models can get the sample quickly, please see P56 for standard models.

LC23 Series

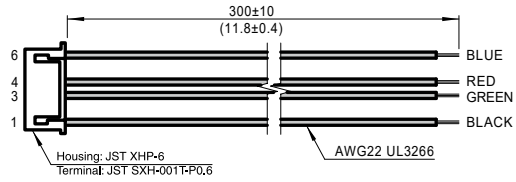
Motor Technical Parameters

Motor Type Code	Motor Body Length (mm)	Step Angle (°)	Electrical Connection	Rated Current (Amps)
LC234S	45	1.8	Plug In Connector	1.5
				2.1
LC238S	57	1.8	Plug In Connector	1.5
				2.2
LC23AS	79	1.8	Plug In Connector	1.5
				3

Note: Please see P168-P175 for recommended driver selection.

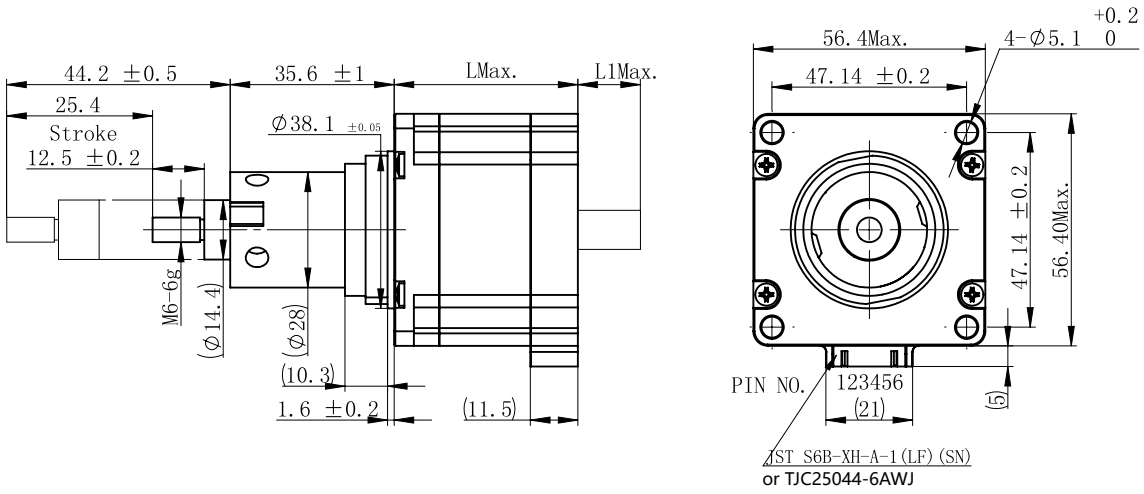
Mating Connector With Leads

4 Lead Part Number 4634 1402 01891



Dimensional Information

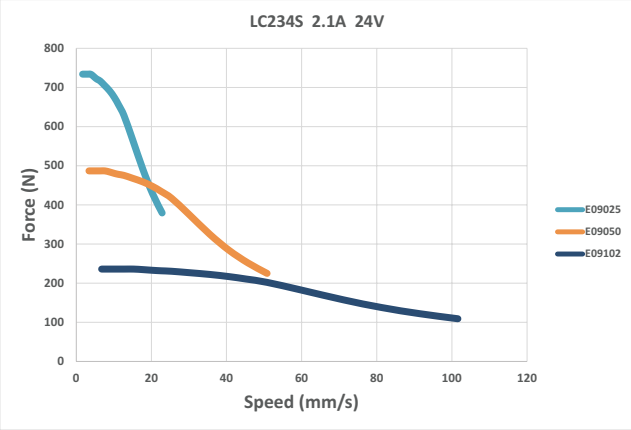
UNIT:mm

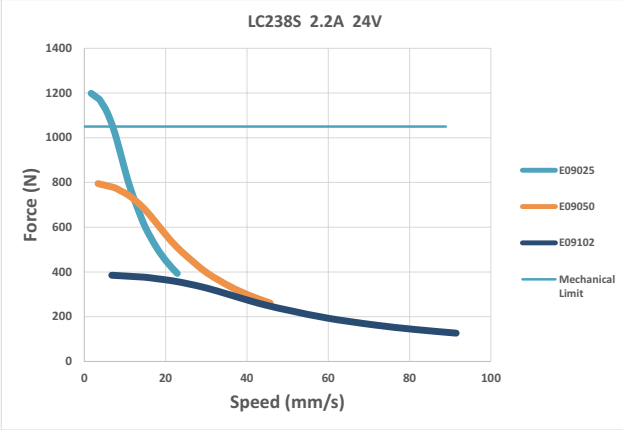


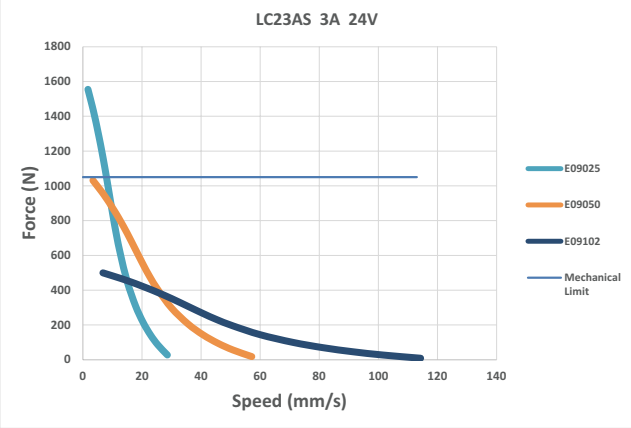
Motor Type	L(mm)	L1(mm)
LC234S	45	13
LC238S	57	1
LC23AS	79	0

LC23 Series

■ Speed - Force Reference Curve







Note:

1.Mechanical Limit Definition:Since the motor output may exceed the force which the bearing can bear, so we take the motor bearing limit as the mechanical limit. However, linear motor fatigue and resultant life are determined by each customer's unique application. Load, speed, frequency, temperature, stability of guidance mechanism, etc., should all be considered before choosing a linear motor.

2.Curve allowance: The curve is calculated according to the theory. In practice, due to the theoretical calculation deviation, machining deviation, load inertia, mechanical friction loss, installation concentricity deviation, etc., it is generally recommended to preserve 50% allowance.

Ball Screw Linear Motors

Ball Screw Linear Motors

MOONS‘ BE Series products motor products are designed based on the know-how technology of hybrid step motors and expertise in the design and development, manufacturing and experience in marketing of hybrid stepper motors. Made by high quality screws and nut, the BE Series products provide high torque, high precision and different configurations to fit the application needs of designers.

- Multiple structure types available
- Each frame size has multiple motor length options
- Integrate any lead screw and nut from MOONS’
- Standardized product models for quick response

MOONS' offers customized services for its customers. We are committed to innovative product design and technological advances to provide our customers with more optimized motion control solutions.

■ Features of BE Series

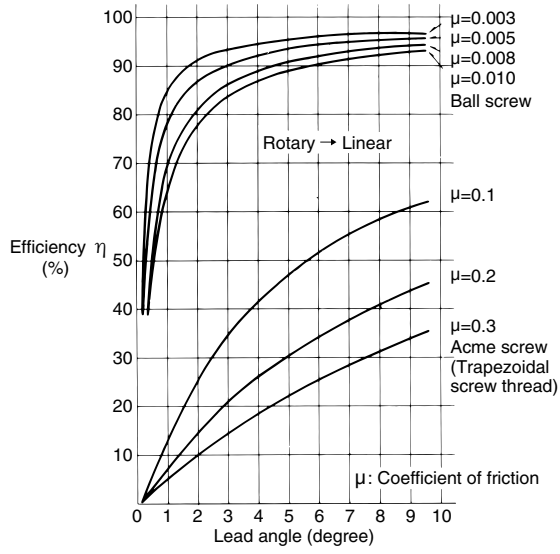
High mechanical efficiency

The Ball linear stepper motors are equipped with ball screw drives with an efficiency of over 90%. The torque required to convert rotary motion into linear motion is only 1/3 or even less than that of a lead screw.

Efficiency of ball screws(Rotary → Linear)

Normal operation: $P=\frac{2\pi\eta_1 \times T}{\ell}$

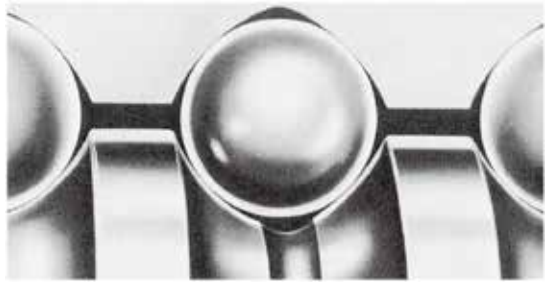
T=Load torque kgf x
P=Axial external load
ℓ=lead cm
η_1= Efficiency of ball



Mechanical efficiency of ball screws

Small axial clearance, High accuracy,High rigidity

The Ball screws of BE Series adopt a gothic-arch groove profile,and its axial clearance is extremely small and the nut can run easily and smoothly. If appropriate preload is added, the axial clearance can be reduced and the rigidity of the ball screw increased at the same time.



Ball screw groove profile

Ball Screw Linear Motors

Ball screw direct-connect motor

The BE Series connects the ball screw directly to the motor, eliminating the need for a coupling, and is compact and versatile.

High hardness, Excellent durability

The Ball screw configured for this product have sufficient hardness to ensure its excellent durability. The surface hardness of the steel used is generally controlled at HRC 58 degrees or higher.

■ Application Information

Application Scenarios

The transmission type of this series is ball-screw drive, so using in high operating frequency and high repetition accuracy application is recommended.

Instructions for Vertical Installation

When the products are installed vertically, if the device suddenly loses power,the load may slide freely and cause injury to equipment or personnel owing to the low friction resistance of the ball screw.Therefore, when the products are used vertically, consideration should be given to adding brakes.

Repeatability

The precision grade of ball-screw used in this product is C7,and the repetition accuracy is ±0.01mm by the runtime.For higher precision products, please contact the factory.

Speed

Please refer to the specific series for the running speed of this product:
B Series Linear Step Motors, the recommended motor rotate speed is not greater than 10rps.
Linear Intelligent Motors, the recommended motor rotate speed is not greater than 50rps.

Operating Environment

Recommended working condition:temperature range 0~50°C, under dry and clean conditions.
If you need to use the product in special environment , please contact the factory.

■ Instruction for use

lubrication

This product needs to be lubricated (oil or grease) on the surface of the screw when in use. Poor lubrication will lead to increased frictional losses, which may result in failure or shortened life, etc.
Grease has been applied to the lead screw before deliver. If grease is not needed, please contact the factory in advance.
(The reference grease: the base oil is synthetic oil, and the consistency grade is No. 2 lithium-based grease)

Ball Screw Linear Motors

Inspection and supply of lubricants

Please check the lubricant after 2-3 months of operation. If dirt is evident, it is recommended to wipe off the old lubricant and apply a new one. Subsequent checks and refills are usually carried out at intervals of one year, but this may vary depending on the operating environment, so please set the interval appropriately.

Attention to dust and corrosion prevention

Please use the product in a clean environment to prevent rubbish and foreign objects from being mixed with the product. If there is dirt or foreign matter adhering to the product, it may cause poor operation. Do not use the product in corrosive conditions, as this may lead to corrosion of the ball screw and poor operation.

Preventing dropping

Due to the low coefficient of friction of the ball screw, it is necessary to prevent the nut from dropping due to its own weight during the installation or dismantling of the product.

Do not disassemble a nut

As the ball screw nut is detached from the screw, there is a risk that the ball will detach from the ball circulation system, thereby damaging the slewing parts. Therefore, please do not disassemble the nut yourself. If the nut becomes detached from the screw during use, to avoid damage to the screw and further damage, please do not install it yourself and contact the factory promptly.

Pay careful attention to mounting accuracy

Misalignment or poor perpendicularity between the ball screw, bearing, guide and nut mount can cause twisting and distortion of the ball screw, which may result in poor operation, noise, vibration and shortened life.

Eccentric load

Ball screw is a kind of mechanical element which produces axial thrust. Its structure can not bear radial and torque load, otherwise it will lead to screw bending and life shortening. The misalignment between the motor and the nut mount can also cause eccentric load.

Rocking motion

When the ball screw repeats the short-stroke and positive inversion, the dynamic torque tends to increase gradually due to the mutual extrusion of the balls. This problem can be solved by using the whole stroke at regular intervals.

Storage and Safekeeping

Please keep the packaging of our shipments horizontal, do not open the inner packaging, avoid high and low temperatures and take care to keep the environment dry. If the product is left for a long time, the lubricant on the surface of the screw may evaporate and condense. For this reason,it is recommended that the time period does not exceed three months.

BE Series Linear Step Motors

BE series (External Nut Type) is a type of linear step motor which makes ball screw integrated with the motor to become the motor shaft and the ball nut is on the external of the motor and linked to the drive mechanism . As the motor rotates, the nut moves linearly along the lead screw. And with its high-precision ball screw the BE series is suitable for applications requiring high frequency of movement and repeatability.

- 5 frame sizes: NEMA08/11/14/17/23
- Each frame size has multiple motor length options and current options
- Integrate any lead screw and nut form MOONS'

This series has multiple choices and combinations of motors and screw nuts providing customers with more stable and reliable linear motion solutions to meet their application requirements.

■ Numbering System

BE	141S	–	B0801	–	100	–	AK1	–	0	–	XXX
①	②		③		④		⑤		⑥		⑦
Series	Motor type		Lead screw type		Screw length (mm)		Nut type		Customized Code S=Screw End Machining		Rated Current XXX=X.XX(A)

Configuration Table

Nominal Diameter (mm)	Lead (mm)	Lead screw type	Motor Options																
			BE080K	BE081K	BE081B	BE081S	BE111S	BE113S	BE115S	BE141A	BE141S	BE143S	BE174A	BE174S	BE172S	BE176S	BE234S	BE238S	BE23AS	BE23ASP
4	1	B0401	◎	◎	◎	◎														
6	1	B0601					◎	◎	◎											
6	2	B0602					◎	◎	◎											
6	6	B0606					◎	◎	◎											
8	1	B0801								◎	◎	◎	◎	◎	◎	◎				
8	2	B0802								◎	◎	◎	◎	◎	◎	◎				
8	2.5	B08025								◎	◎	◎	◎	◎	◎	◎				
8	5	B0805								◎	◎	◎	◎	◎	◎	◎				
8	8	B0808								◎	◎	◎	◎	◎	◎	◎				
10	2	B1002											◎	◎	◎	◎	◎	◎	◎	◎
10	4	B1004											◎	◎	◎	◎	◎	◎	◎	◎
10	5	B1005											◎	◎	◎	◎	◎	◎	◎	◎
10	10	B1010											◎	◎	◎	◎	◎	◎	◎	◎
12	2	B1202															◎	◎	◎	◎
12	5	B1205															◎	◎	◎	◎
12	10	B1210															◎	◎	◎	◎

Note:Only marked with " ◎ " is available,for more configurations please contact with MOONS'.

BE Series Standard Models for stock

Size (mm)	Motor Series		Lead Screw Options		Screw Length Options		Nut Options		End Machining Code		Rated Current Options	Page
28X28	BE111S	-	B0601	-	50,75,100,125,150	-	AK1	-	0, S	-	100	P79
			B0602	-		-	FF1	-				
			B0606	-		-	FF1	-				
35X35	BE143S	-	B0801	-	75,100,125,150,175, 200,225,250	-	AK1	-	0, S	-	150	P82
			B0802	-								
			B0805	-		-	FF1	-				
			B0808	-								
42X42	BE172S	-	B0801	-	75,100,125,150,175, 200,225,250	-	AK1	-	0, S	-	200	P85
			B0802	-								
			B0805	-		-	FF1	-				
			B0808	-								
	BE176S	-	B0801	-	75,100,125,150,175, 200,225,250	-	AK1	-	0, S	-	200	
			B0802	-								
			B0805	-		-	FF1	-				
			B0808	-								
57X57	BE238S	-	B1002	-	100,125,150,175,200, 225,250,275,300	-	AK1	-	0, S	-	220	P89
			B1004	-		-	AK2	-				
			B1010	-		-	FF1	-				

Note: Screw length < 150mm,no end machining; Screw length≥150mm,standard end machining.
no end machining code"0", standard end machining code"S".

Order sample

① Select configuration codes

Motor Series		Lead Code		Screw Length Options		Nut Type Code		End Machining Code		Rated Current Options
BE111S	-	B0601	-	50,75,100,125,150	-	AK1	-	0, S	-	100

② Determine the order Models

BE111S - B0601 - 100 - AK1 - 0 - 100

In addition to the standard number, we also provide a wealth of customized configuration options, for more information please contact the factory.

BE08 Series

Phases	2
Step Accuracy	±5%
Approvals	RoHS
Operating Temp.	0°C~+50°C
Insulation Class	B(130°C)

Ordering Information

BE 08 1S − B0401 − 100 − GF1 − 0 − XXX

Lead Screw Motor Type Code

Code	Structure Type
BE	External Nut Type

Frame Size Code

Code	Frame Size
08	20mm

Motor Body Length Code

Code	Motor Body Length Max(mm)	Step Angle (°)
0K	21.3	1.8
1K	28.3	1.8
1B	29.5	1.8
1S	29.5	1.8

Lead Screw Type Code

Code	Nominal Diameter(mm)	Lead (mm)	Travel(mm) Travel Per1.8°
B0401	4	1	0.005

Note:Choosing the standard order models can get the sample quickly, please see P75 for standard models.

Rated Current Code

XXX=X.XX(A)

Special Custom Type Code

Code	Custom Type
0	No end machining
S	Lead Screw End Machining
E	Add Encoder
XX	Other Special Custom Type

Mating Nut Code

Code		Mating Lead Screw
GF	1	B0401

The length of the screw Lx

###	Provided in 1 mm increments

*The limit length of OD φ4 screw is 100mm, Please contact the factory if the length of your customized product screw exceeds the limit length.

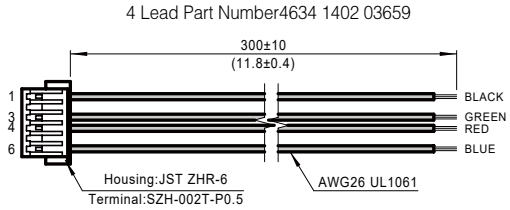
Motor Technical Parameters

Motor Type Code	Motor Body Length (mm)	Step Angle (°)	Electrical Connection	Rated Current (Amps)
BE080K	21.3	1.8°	Leads	0.28
BE081K	28.3	1.8°	Leads	0.28
BE081B	29.5	1.8°	Plug In Connector	0.5
BE081S	29.5	1.8°	Plug In Connector	0.5

Note: Please see P168-P175 for recommended driver selection.

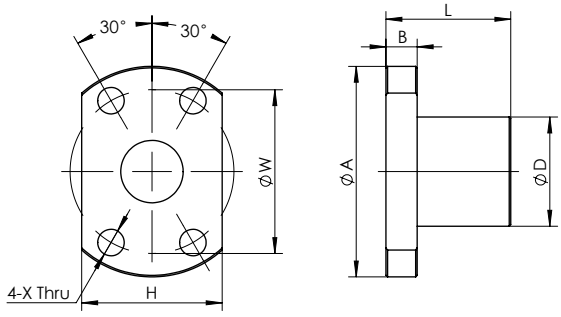
BE08 Series

■ Mating Connector With Leads(Only used for BE081S and BE081B)



■ Nut Type

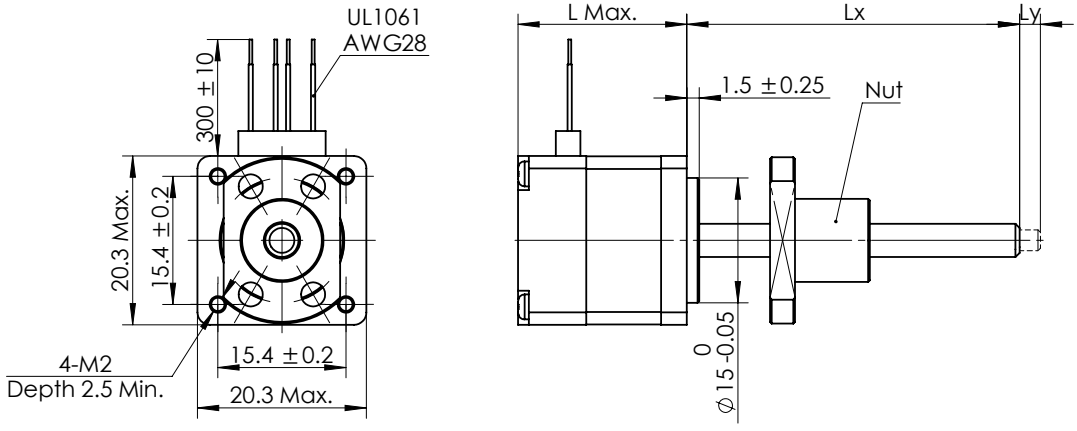
UNIT:mm



Lead Screw Code	Nut Code		D	A	B	L	W	H	X
B0401	GF	1	10	20	3	12	15	14	2.9

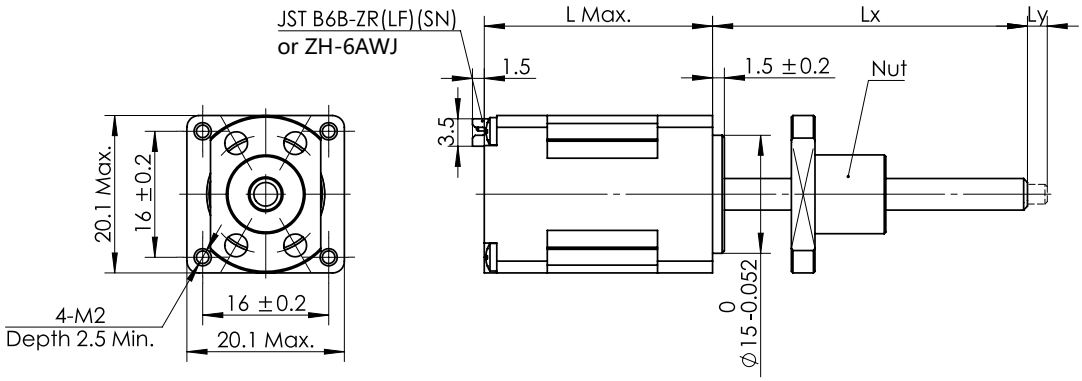
■ Dimensional Information

UNIT:mm

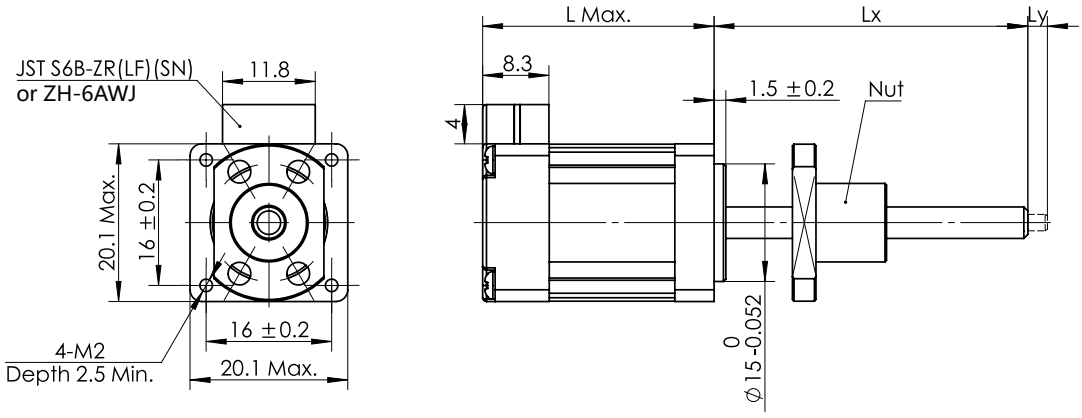


Motor Type	Dimension"L"
BE080K	21.3
BE081K	28.3

BE08 Series

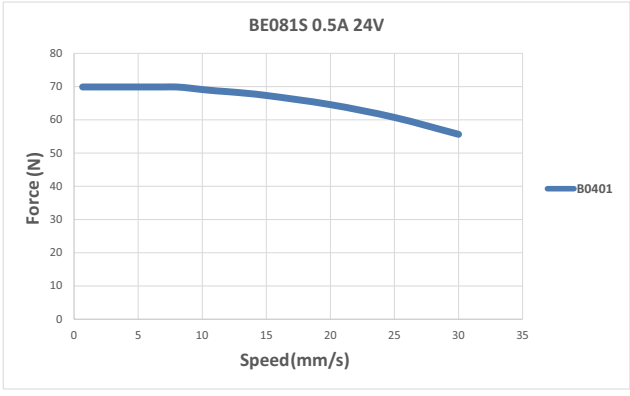


Motor Type	Dimension"L"
BE081B	29.5



Motor Type	Dimension"L"
BE081S	29.5

■ Speed - Force Reference Curve



Note:
Curve allowance: The curve is calculated according to the theory. In practice, due to the theoretical calculation deviation, machining deviation, load inertia, mechanical friction loss, installation concentricity deviation, etc., it is generally recommended to preserve 50% allowance.

BE11 Series

Phases	2
Step Accuracy	±5%
Approvals	RoHS
Operating Temp.	0°C~+50°C
Insulation Class	B(130°C)

Ordering Information

BE 11 1S − B0601 − 100 − AK1 − 0 − XXX

Lead Screw Motor Type Code

Code	Structure Type
BE	External Nut Type

Frame Size Code

Code	Frame Size
11	28mm

Motor Body Length Code

Code	Motor Body Length Max(mm)	Step Angle (°)
1S	32	1.8
3S	41	
5S	52	

Lead Screw Type Code

Code	Nominal Diameter (mm)	Lead (mm)	Travel(mm) Travel Per1.8°
B0601	6	1	0.005
B0602	6	2	0.01
B0606	6	6	0.03

Note:Choosing the standard order models can get the sample quickly, please see P75 for standard models.

Rated Current Code

XXX=X.XX(A)

Special Custom Type Code

Code	Custom Type
0	No end machining
S	Lead Screw End Machining
B	Add Brake
E	Add Encoder
XX	Other Special Custom Type

Mating Nut Code

Code		Mating Lead Screw
AK	1	B0601
FF	1	B0602
FF	2	
FF	1	B0606

The length of the screw Lx

###	Provided in 1 mm increments

*The limit length of OD φ6 screw is 260mm, Please contact the factory if the length of your customized product screw exceeds the limit length.

Motor Technical Parameters

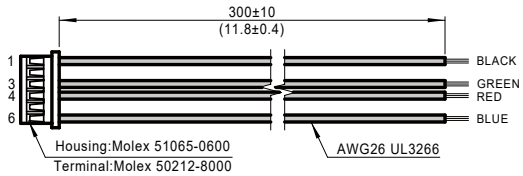
Motor Type Code	Motor Body Length (mm)	Step Angle (°)	Electrical Connection	Rated Current (Amps)
BE111S	32	1.8	Plug In Connector	0.5
				0.67
				1
BE113S	41		Plug In Connector	0.95
BE115S	52		Plug In Connector	1

Note: Please see P168-P175 for recommended driver selection.

BE11 Series

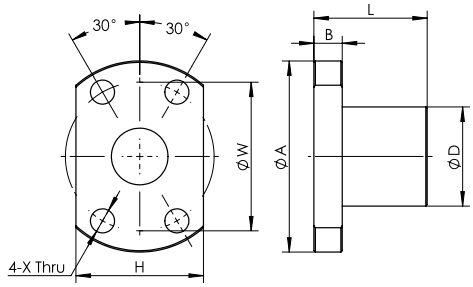
■ Mating Connector With Leads

4 Lead Part Number 4634 1402 04190



■ Nut Type

UNIT:mm

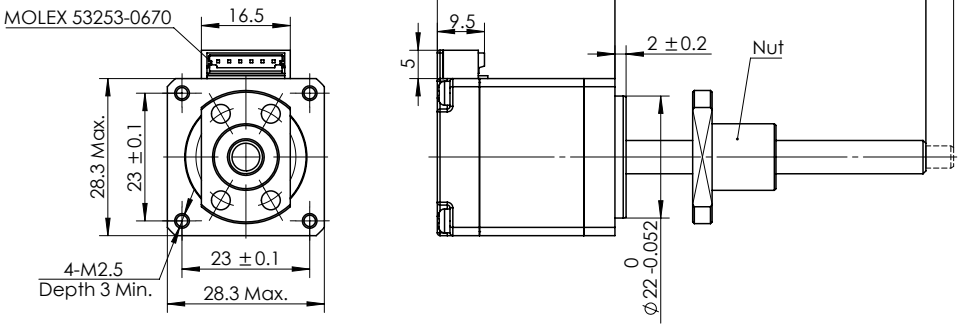


AK1/FF1

Lead Screw Code	Nut Code		D	A	B	L	W	H	X
B0601	AK	1	12	24	3.5	15	18	16	3.4
B0602	FF	1	12	24	4	17	18	16	3.4
	FF	2	15	28	4	17	22	19	3.4
B0606	FF	1	12	24	4	22	18	16	3.4

■ Dimensional Information

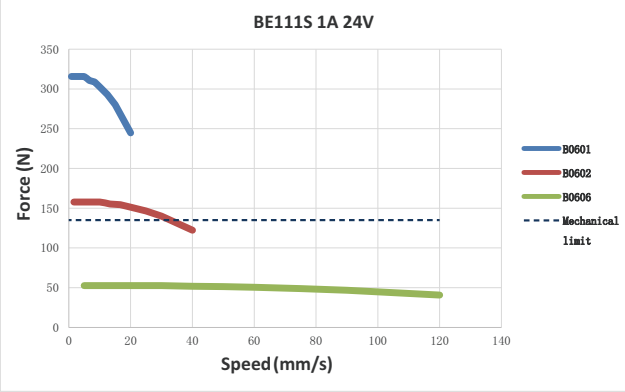
UNIT:mm

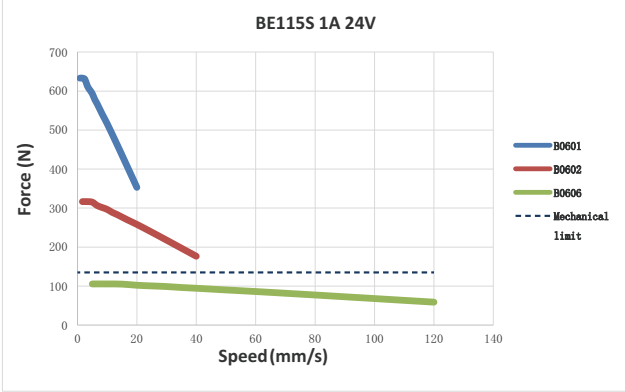


Motor Type	Dimension"L"
BE111S	32
BE113S	41
BE115S	52

BE11 Series

Speed - Force Reference Curve





Note:

1.Mechanical Limit Definition:
Since the motor output may exceed the force which the bearing can bear, so we take the motor bearing limit as the mechanical limit. However, linear motor fatigue and resultant life are determined by each customer's unique application. Load, speed, frequency, temperature, stability of guidance mechanism, etc., should all be considered before choosing a linear motor.

2.Curve allowance:
The curve is calculated according to the theory. In practice, due to the theoretical calculation deviation, machining deviation, load inertia, mechanical friction loss, installation concentricity deviation, etc., it is generally recommended to preserve 50% allowance.

BE14 Series

Phases	2
Step Accuracy	±5%
Approvals	RoHS
Operating Temp.	0°C~+50°C
Insulation Class	B(130°C)

■ Ordering Information

BE 14 1S − B0801 − 100 − AK1 − 0 − XXX

Lead Screw Motor Type Code

Code	Structure Type
BE	External Nut Type

Frame Size Code

Code	Frame Size
14	35mm

Motor Body Length Code

Code	Motor Body Length Max(mm)	Step Angle (°)
1A	28	0.9
1S	27.3	1.8
3S	35.3	1.8

Lead Screw Type Code

Code	Nominal Diameter(mm)	Lead (mm)	Travel(mm)	
			Travel Per 0.9°	Travel Per 1.8°
B0801	8	1	0.0025	0.005
B0802	8	2	0.005	0.01
B08025	8	2.5	0.00625	0.0125
B0805	8	5	0.0125	0.025
B0808	8	8	0.02	0.04

Note:Choosing the standard order models can get the sample quickly, please see P75 for standard models.

Rated Current Code

XXX=X.XX(A)

Special Custom Type Code

Code	Custom Type
0	No end machining
S	Lead Screw End Machining
B	Add Brake
E	Add Encoder
XX	Other Special Custom Type

Mating Nut Code

Code		Mating Lead Screw
AK	1	B0801
		B0802
		B08025
FF	1	B0805
FF	1	B0808

The length of the screw Lx

###	Provided in 1 mm increments

*The limit length of OD φ8 screw is 360mm, Please contact the factory if the length of your customized product screw exceeds the limit length.

■ Motor Technical Parameters

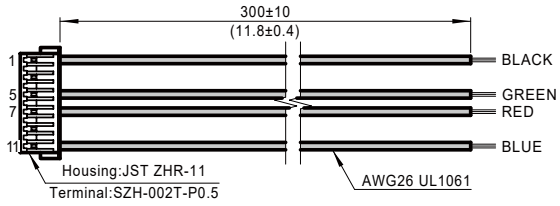
Motor Type Code	Motor Body Length (mm)	Step Angle (°)	Electrical Connection	Rated Current (Amps)
BE141A	28	0.9	Plug In Connector	0.6
BE141S	27.3	1.8	Plug In Connector	0.7
				1
BE143S	35.3		Plug In Connector	0.5
				0.75
				1
				1.5

Note: Please see P168-P175 for recommended driver selection.

BE14 Series

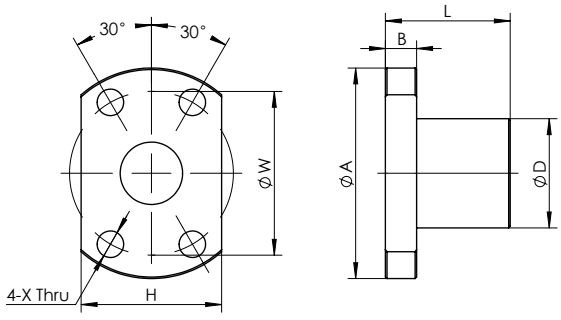
■ Mating Connector With Leads

4 Lead Part Number 4634 1402 04581



■ Nut Type

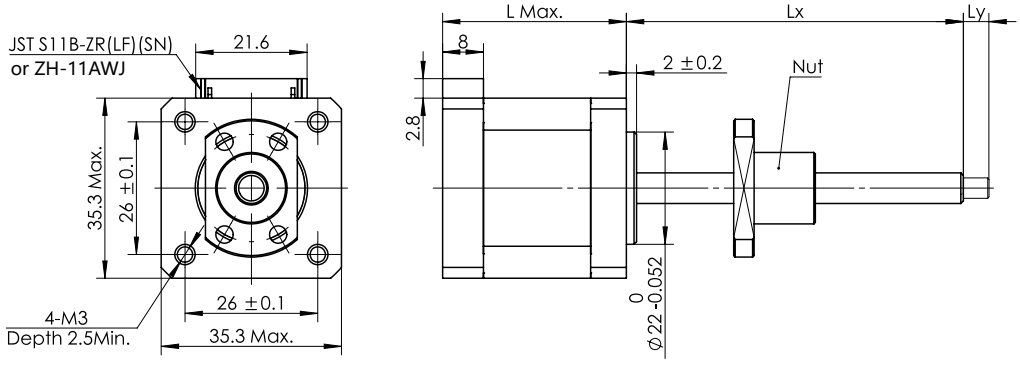
UNIT:mm



Lead Screw Code	Nut Code		D	A	B	L	W	H	X
B0801	AK	1	14	27	4	16	21	18	3.4
B0802	AK	1	14	27	4	18	21	18	3.4
B08025	AK	1	16	29	4	26	23	20	3.4
B0805	FF	1	18	31	4	28	25	20	3.4
B0808	FF	1	18	31	4	28	25	20	3.4

■ Dimensional Information

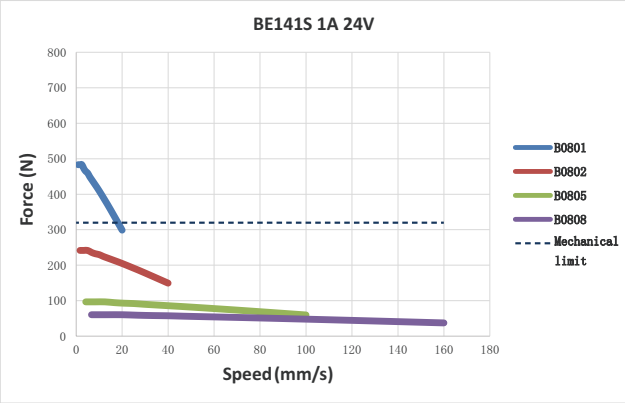
UNIT:mm

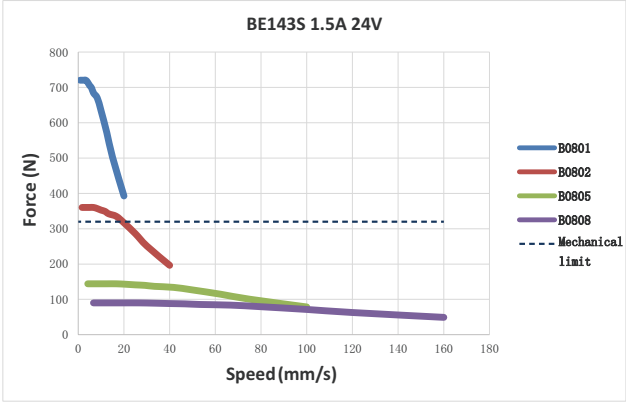


Motor Type	Dimension"L"
BE141A	28
BE141S	27.3
BE143S	35.3

BE14 Series

■ Speed - Force Reference Curve





Note:

1.Mechanical Limit Definition:
Since the motor output may exceed the force which the bearing can bear, so we take the motor bearing limit as the mechanical limit. However, linear motor fatigue and resultant life are determined by each customer's unique application. Load, speed, frequency, temperature, stability of guidance mechanism, etc., should all be considered before choosing a linear motor.

2.Curve allowance:
The curve is calculated according to the theory. In practice, due to the theoretical calculation deviation, machining deviation, load inertia, mechanical friction loss, installation concentricity deviation, etc., it is generally recommended to preserve 50% allowance.

BE17 Series

Phases	2
Step Accuracy	±5%
Approvals	RoHS
Operating Temp.	0°C~+50°C
Insulation Class	B(130°C)

Ordering Information

BE 17 4S − B0801 − 100 − AK1 − 0 − XXX

Lead Screw Motor Type Code

Code	Structure Type
BE	External Nut Type

Frame Size Code

Code	Frame Size
17	42mm

Motor Body Length Code

Code	Motor Body Length Max(mm)	Step Angle (°)
4A	34.3	0.9
4S	34.3	1.8
2S	39.8	
6S	48.3	

Lead Screw Type Code

Code	Nominal Diameter(mm)	Lead (mm)	Travel(mm)	
			Travel Per0.9°	Travel Per1.8°
B0801	8	1	0.0025	0.005
B0802	8	2	0.05	0.01
B08025	8	2.5	0.00625	0.0125
B0805	8	5	0.0125	0.025
B0808	8	8	0.02	0.04
B1002	10	2	0.005	0.01
B1004	10	4	0.01	0.02
B1005	10	5	0.0125	0.025
B1010	10	10	0.025	0.05

The length of the screw Lx

###	Provided in 1 mm increments

*The limit length of OD φ8 screw is 360mm, and the limit length of OD φ10 screw is 400 mm.Please contact the factory if the length of your customized product screw exceeds the limit length.

Mating Nut Code

Code		Mating Lead Screw
AK	1	B0801
		B0802
		B08025
		B1002
	2	B1004
FF	1	B0805
		B0808
		B1005
		B1010

Special Custom Type Code

Code	Custom Type
0	No end machining
S	Lead Screw End Machining
B	Add Brake
E	Add Encoder
XX	Other Special Custom Type

Rated Current Code

XXX=X.XX(A)

Note:Choosing the standard order models can get the sample quickly, please see P75 for standard models.

BE17 Series

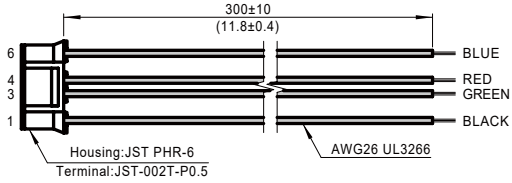
Motor Technical Parameters

Motor Type Code	Motor Body Length (mm)	Step Angle (°)	Electrical Connection	Rated Current (Amps)
BE174A	34.3	0.9	Plug In Connector	0.7
BE174S	34.3	1.8	Plug In Connector	0.65
				1
				1.5
BE172S	39.8		Plug In Connector	1
				1.5
				2
BE176S	48.3		Plug In Connector	1
				1.5
				2

Note: Please see P168-P175 for recommended driver selection.

Mating Connector With Leads

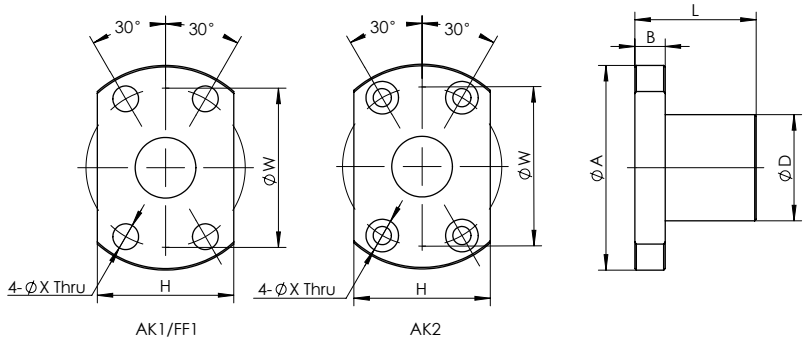
4 Lead Part Number 4634 1402 00723



BE17 Series

■ Nut Type

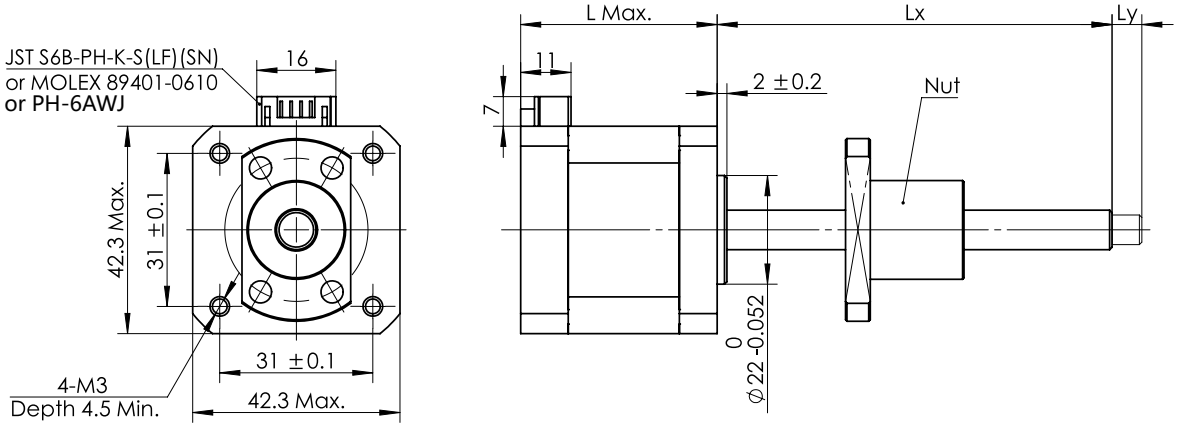
UNIT:mm



Lead Screw Code	Nut Code		D	A	B	L	W	H	X	Y	Z
B0801	AK	1	14	27	4	16	21	18	3.4	-	-
B0802	AK	1	14	27	4	18	21	18	3.4	-	-
B08025	AK	1	16	29	4	26	23	20	3.4	-	-
B0805	FF	1	18	31	4	28	25	20	3.4	-	-
B0808	FF	1	18	31	4	28	25	20	3.4	-	-
B1002	AK	1	18	35	5	28	27	22	4.5	-	-
B1004	AK	2	26	46	10	34	36	28	4.5	8	4.5
B1005	FF	1	22	41	10	32	31	25	4.5	-	-
B1010	FF	1	22	41	10	36	31	25	4.5	-	-

■ Dimensional Information

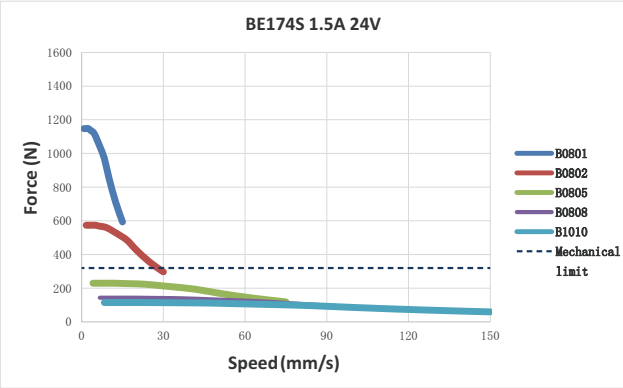
UNIT:mm

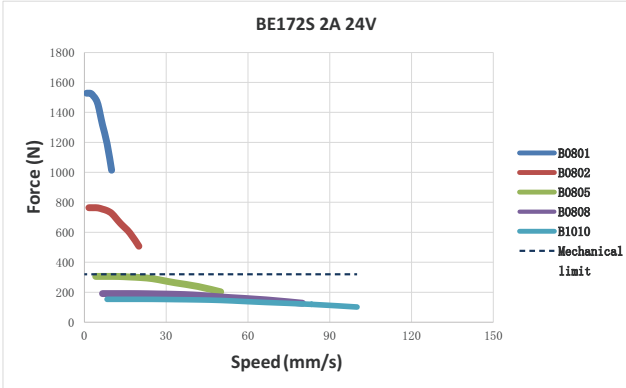


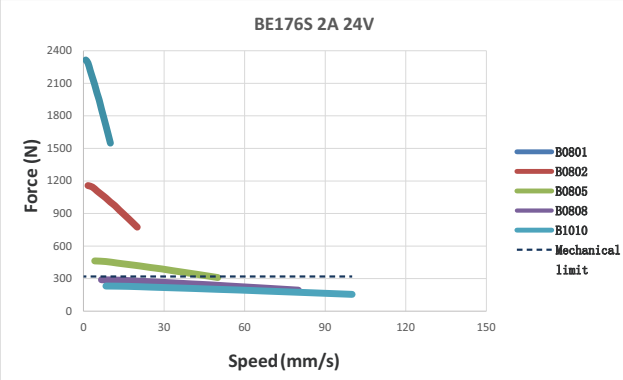
Motor Type	Dimension"L"
BE174A	34.3
BE174S	34.3
BE172S	39.8
BE176S	48.3

BE17 Series

Speed - Force Reference Curve







Note:

1.Mechanical Limit Definition:
Since the motor output may exceed the force which the bearing can bear, so we take the motor bearing limit as the mechanical limit. However, linear motor fatigue and resultant life are determined by each customer's unique application. Load, speed, frequency, temperature, stability of guidance mechanism, etc., should all be considered before choosing a linear motor.

2.Curve allowance:
The curve is calculated according to the theory. In practice, due to the theoretical calculation deviation, machining deviation, load inertia, mechanical friction loss, installation concentricity deviation, etc., it is generally recommended to preserve 50% allowance.

BE23 Series

Phases	2
Step Accuracy	±5%
Approvals	RoHS
Operating Temp.	0°C~+50°C
Insulation Class	B(130°C)

■ Ordering Information

BE 23 8S − B1002 − 100 − AK1 − 0 − XXX

Lead Screw Motor Type Code

Code	Structure Type
BE	External Nut Type
BEP	External Nut Type (Power Plus)

Frame Size Code

Code	Frame Size
23	57mm

Motor Body Length Code

Code	Motor Body Length Max(mm)	Step Angle (°)
4S	45	1.8
8S	57	
AS	79	

Lead Screw Type Code

Code	Nominal Diameter(mm)	Lead (mm)	Travel(mm) Travel Per1.8°
B1002	10	2	0.01
B1004	10	4	0.02
B1005	10	5	0.025
B1010	10	10	0.05
B1202	12	2	0.01
B1205	12	5	0.025
B1210	12	10	0.05

The length of the screw Lx

###	Provided in 1 mm increments

*The limit length of OD φ10 screw is 400mm, and the limit length of OD φ12 screw is 480 mm.Please contact the factory if the length of your customized product screw exceeds the limit length.

Mating Nut Code

Code		Mating Lead Screw
AK	1	B1002
		B1202
	2	B1004
FF	1	B1005
		B1010
AA	3	B1205
AV	2	B1210

Special Custom Type Code

Code	Custom Type
0	No end machining
S	Lead Screw End Machining
B	Add Brake
E	Add Encoder
XX	Other Special Custom Type

Rated Current Code

XXX=X.XX(A)

Note:Choosing the standard order models can get the sample quickly, please see P75 for standard models.

BE23 Series

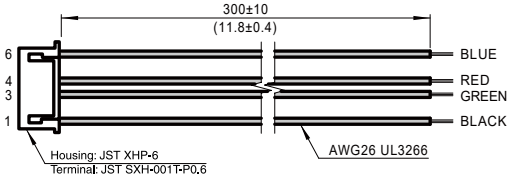
Motor Technical Parameters

Motor Type Code	Motor Body Length (mm)	Step Angle (°)	Electrical Connection	Rated Current (Amps)
BE234S	45	1.8	Plug In Connector	1.5
				2.1
BE238S	57		Plug In Connector	1.5
				2.2
BE23AS	79		Plug In Connector	1.5
				3
BEP23AS (Power Plus)	79		Plug In Connector	3

Note: Please see P168-P175 for recommended driver selection.

Mating Connector With Leads

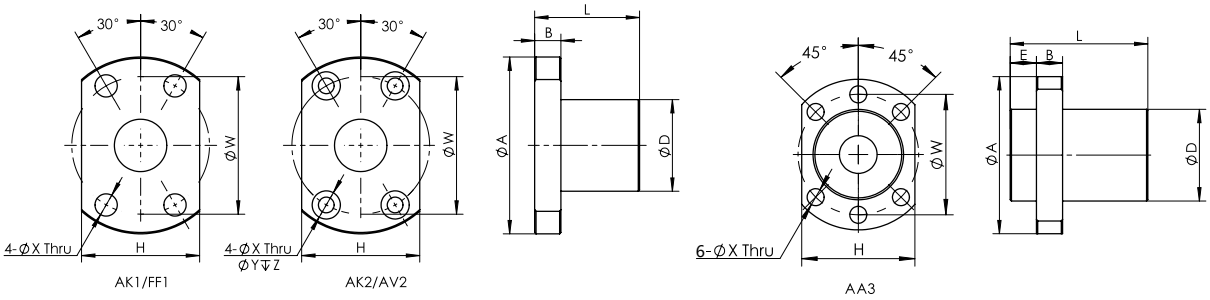
4 Lead Part Number 4634 1402 01891



BE23 Series

Nut Type

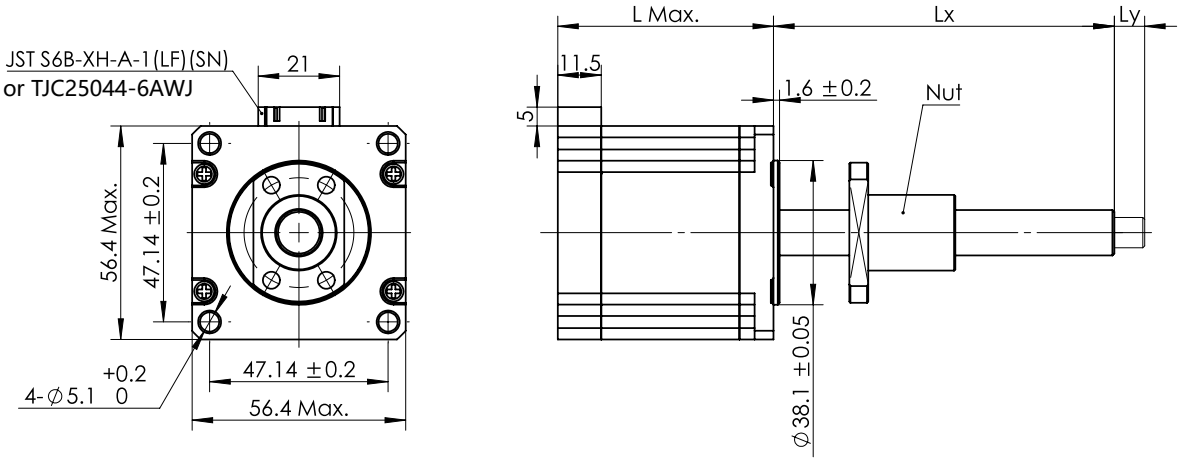
UNIT:mm



Lead Screw Code	Nut Code		D	A	E	B	L	W	H	X	Y	Z
B1002	AK	1	18	35	-	5	28	27	22	4.5	-	-
B1004	AK	2	26	46	-	10	34	36	28	4.5	8	4.5
B1005	FF	1	22	41	-	10	32	31	25	4.5	-	-
B1010	FF	1	22	41	-	10	36	31	25	4.5	-	-
B1202	AK	1	20	37	-	5	28	29	24	4.5	-	-
B1205	AA	3	24	40	5	10	30	32	30	4.5	-	-
B1210	AV	2	30	50	-	10	53	40	32	4.5	8	4.5

Dimensional Information

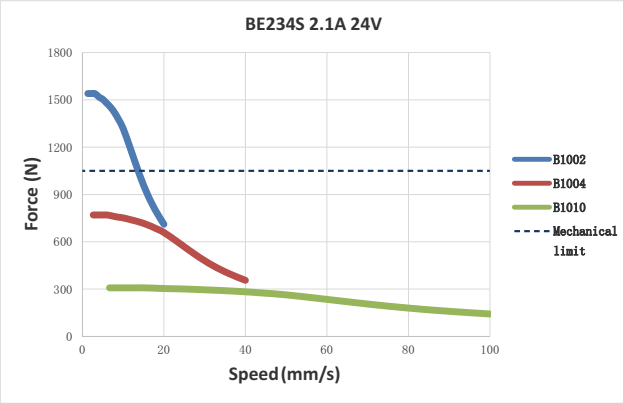
UNIT:mm

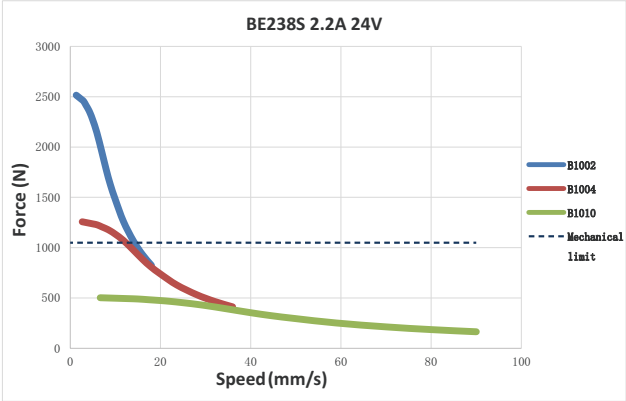


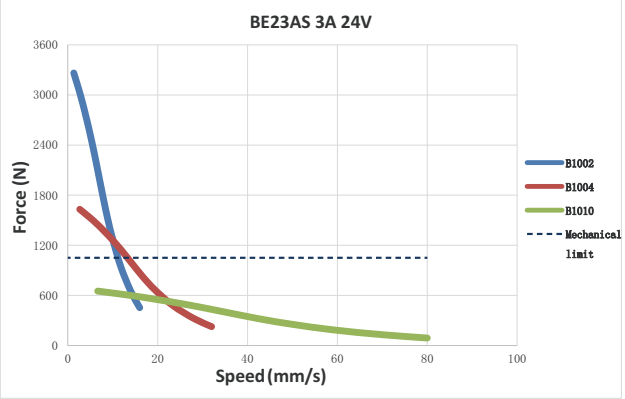
Motor Type	Dimension"L"	Note
BE234S	45	Standard
BE238S	57	Standard
BE23AS	79	Standard
BE23ASP	79	Power Plus

BE23 Series

Speed - Force Reference Curve







Note:

1.Mechanical Limit Definition:
Since the motor output may exceed the force which the bearing can bear, so we take the motor bearing limit as the mechanical limit. However, linear motor fatigue and resultant life are determined by each customer's unique application. Load, speed, frequency, temperature, stability of guidance mechanism, etc., should all be considered before choosing a linear motor.

2.Curve allowance:
The curve is calculated according to the theory. In practice, due to the theoretical calculation deviation, machining deviation, load inertia, mechanical friction loss, installation concentricity deviation, etc., it is generally recommended to preserve 50% allowance.

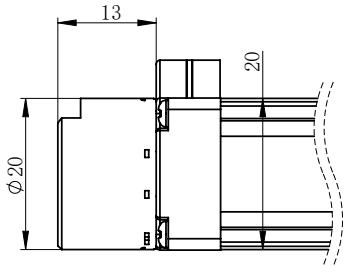
Encoder Options - Suitable for applications that requiring feedback

Parameter

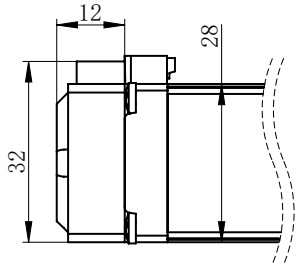
Mating Motor	Supply Voltage (VDC)			PPR	Output	
	Min.	Typ.	Max.			
BE08/11/14/17/23	4.5	5	5.5	1000	Single-ended Electrical	Differential Electrical

Dimensional Information

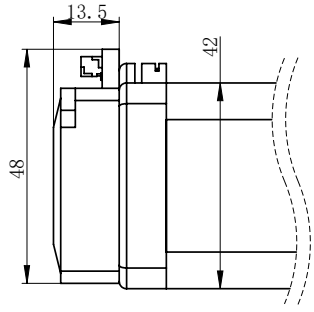
Unit: mm



The encoder mating BE08



The encoder mating BE11/14



The encoder mating BE17/23

Pin-out

The encoder mating BE08

JST SM09B-SRSS-TB									
Pin	1	2	3	4	5	6	7	8	9
Description	+5V	GND	A+	A-	Z+	Z-	/	B+	B-
Color	Red	Black	White	Yellow	Orange	Grey	/	Green	Blue

The encoder mating BE11/14/17/23

JST SM10B-GHS-TB										
Pin	1	2	3	4	5	6	7	8	9	10
Description	/	A-	A+	B-	B+	Z-	Z+	GND	+5V	/
Color	/	Yellow	White	Blue	Green	Grey	Orange	Black	Red	/

Brake Options

■ Parameter

Mating Motor	Supply Voltage (VDC)	Braking Torque (N·M)	Power (W)	Reaction Time (ms)	Insulation Grade
BE11	24	0.3	4.8	15	B
BE14	24	0.3	4.8	15	B
BE17	24	1.2	4.5	50	B
BE23	24	2.5	4.5	50	B

Note:
1. All the brakes with 280mm leads.
2. 12 VDC brake options are available, please consult our technical department for further information.

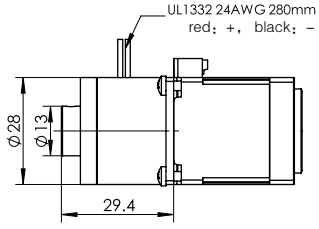
BE11 with brake

BE17 with brake

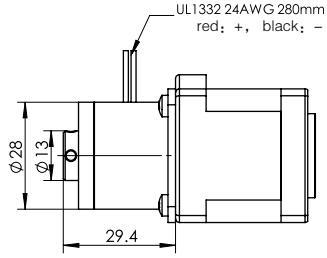
BE23 with brake

■ Dimensional Information

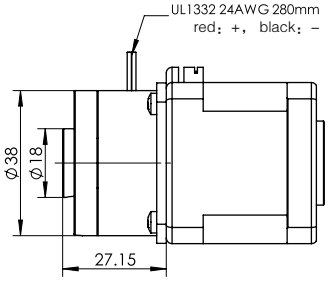
Unit: mm



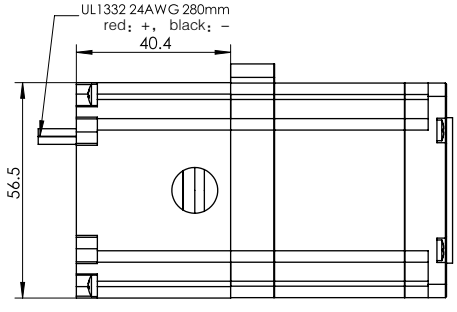
The brake mating BE11



The brake mating BE14



The brake mating BE17



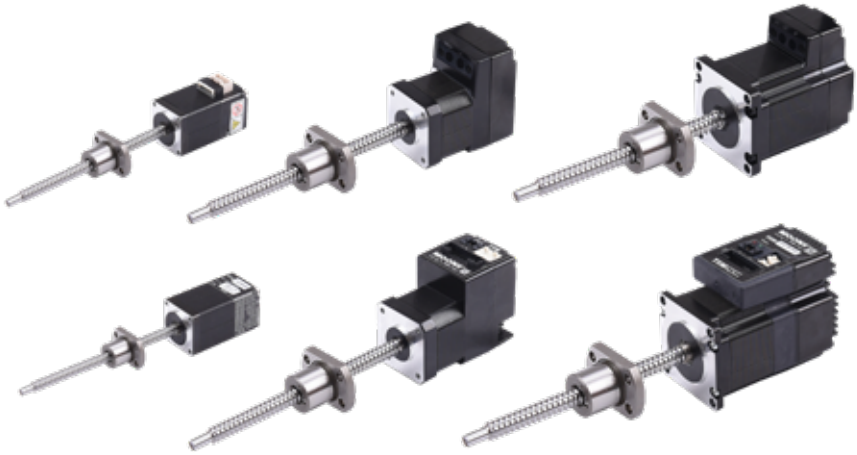
The brake mating BE23

Linear Intelligent Motors - Mating ball screws

MOONS' incorporates servo control technology into stepper motors to design an all-in-one motion control terminal with new superior performance. Intelligent linear stepper motor is a solution that combines all functions of ball screw, motor, driver, encoder, and controller in one unit. It is divided into different combinations of drives: TSM (drive integrated type) & AM series (drive split type). Compared with general open-loop linear stepper motors, TSM series & AM series run more efficiently, more reliably and more intelligently.

- 4 frame sizes: NEMA11,14,17,23
- Each frame size has multiple motor length options
- Standardized product models for quick response

MOONS' offers customized services for its customers. We are committed to innovative product design and technological advances to provide our customers with more optimized motion control solutions.



Numbering System

TSM23Q−2RG	−	B1002	−	100	−	AK1	−	0	−	XXX
①		②		③		④		⑤		⑥
Motor type		Lead screw type		Screw length (mm)		Nut type		Customized Code S=Screw End Machining		Rated Current XXX=X.XX(A)

Linear Intelligent Motors - Mating ball screws

Features

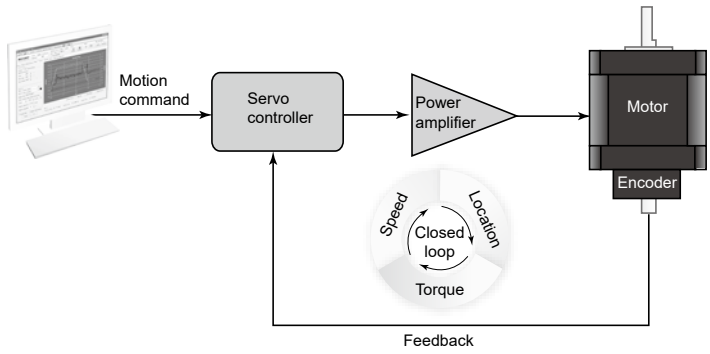
Closed-loop Step-Servo mode

• Precisely position and velocity control can match the harsh applications.

• Highly robust servo control accommodates a wide range of inertial loads and friction load changes.

• The TSM17/23 achieve precise positioning to within ±1 count (0.018°) using a high resolution (20000 counts/rev) encoder.

• The TSM11 achieves precise positioning to within ±1 count (0.2°) using a high resolution (4096 counts/rev) encoder.



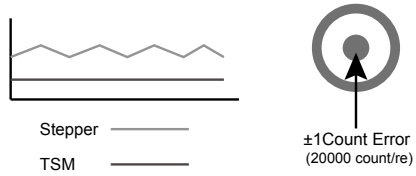
Smooth & Accurate

• Space vector current control with a high resolution encoder gives smooth and quiet operation, especially at low speeds.

--A feature not found with traditional stepper motors.

• High stiffness due to the nature of the stepping motor combined with the highly responsive servo control.

--Accurate position control both while running and static positioning.

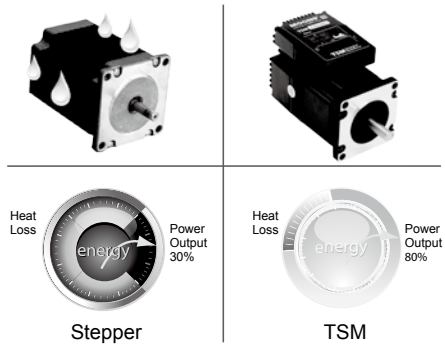


Low Heating / High Efficiency

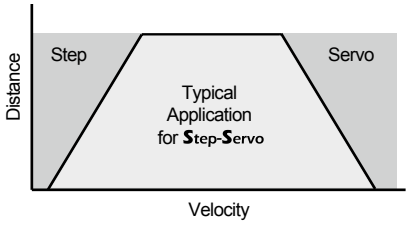
• The TSM uses only the current required by the application, generating minimum heat output.

• When the motor is not moving, the current can be nearly zero resulting in extremely low heat output.

• Being able to use almost 100% of the available torque allows for more efficient operation and may allow a smaller motor size.



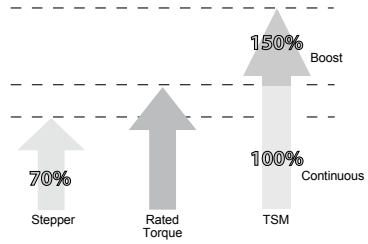
Fast Response



When performing fast point-to-point moves, the high torque output and advanced servo control provides a very responsive system far exceeding what can be done with a conventional stepper system.

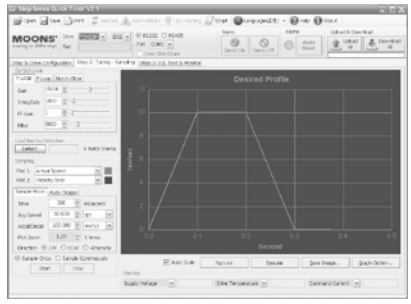
Linear Intelligent Motors - Mating ball screws

High Torque



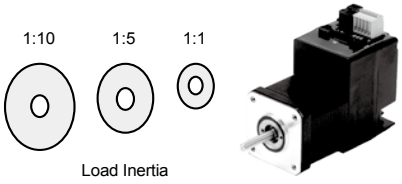
• Because the TSM operates in full servo mode, all the available torque of the motor can be used.
• The motor can provide as much as 50% more torque in many applications. High torque capability often eliminates the need for gear reduction.
• Boost torque capability can provide as much as 50% more torque for short, quick moves.

Motion Monitoring



• For applications where extreme real-time motion is critical, the Step-Servo Quick Tuner provides a simple and practical tool for monitoring actual motion trajectories.
• It can be used to monitor common metrics such as actual velocity and position error to assess the current actual performance of the system.
• An interactive monitoring and tuning interface provides the fastest possible performance output.

Easy Tuning



• Pre-defined tuning parameters quickly allow maximum control performance and stability.
• A selection list provides an easy method to achieve the desired level of control.
• In most cases NO extra manual tuning is required.

Key Enhancement

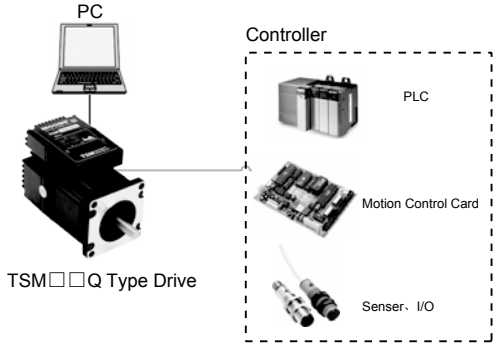
• A/B/Z differential encoder signal output supported for P type (TSM17/23 only)
• Automatic load inertia detection
• Multiple homing features for S/Q types
• Software limit for S/Q types

Built-in programmable motion controller(Includes Modbus/RTU Type)

Run stand-alone with sophisticated and functional programs. Commands for controlling motion, inputs & outputs, drive configuration and status, as well as math operations, register manipulation, and multi-tasking.

Main Features

• Stand-alone operation plus Serial host control
• Math operations
• Register manipulation
• Multi-tasking
• Includes all features of S type
• Modbus/RTU network, up to 32 axes per channel



Configuration Table

Nominal Diameter (mm)	Lead (mm)	Lead screw type	Motor Options			
			TSM11/AM11	AM14	TSM17/AM17	TSM23/AM23
6	1	B0601	◎			
6	2	B0602	◎			
6	6	B0606	◎			
8	1	B0801		◎	◎	
8	2	B0802		◎	◎	
8	2.5	B08025		◎	◎	
8	5	B0805		◎	◎	
8	8	B0808		◎	◎	
10	2	B1002			◎	◎
10	4	B1004			◎	◎
10	5	B1005			◎	◎
10	10	B1010			◎	◎
12	2	B1202				◎
12	5	B1205				◎
12	10	B1210				◎

Note:Only marked with " ◎ " is available,for more configurations please contact with MOONS'.

TSM/AM Series Standard Models for stock

Size (mm)	Motor Series		Lead Screw Options		Screw Length Options		Nut Options		End Machining Code	Page
28X28	TSM11Q-2RM	-	B0601	-	55,65,75,90,105,115, 130,150,170,190,210, 230,255	-	AK1	-	0, S	P100
			B0602			-	FF1	-		
			B0606							
	AM11RS2DMA	-	B0601	-	55,65,75,90,105,115, 130,150,170,190,210, 230,255	-	AK1	-	0, S	
			B0602			-	FF1	-		
			B0606							
42X42	TSM17Q-2RG	-	B0801	-	65,75,90,95,105,120, 135,150,165,185,205, 230,265,290,320,355	-	AK1	-	0, S	P106
			B0802							
			B0805			-	FF1	-		
			B0808							
	AM17RS2DMA	-	B0801	-	65,75,90,95,105,120, 135,150,165,185,205, 230,265,290,320,355	-	AK1	-	0, S	
			B0802							
			B0805			-	FF1	-		
			B0808							
57X57	TSM23Q-2RG	-	B1002	-	105,120,140,155,165, 180,200, 225,250,285, 320,375,395	-	AK1	-	0, S	P110
			B1004			-	AK2	-		
			B1010			-	FF1	-		
	AM23RS2DMA	-	B1002	-	105,120,140,155,165, 180,200, 225,250,285, 320,375,395	-	AK1	-	0, S	
			B1004			-	AK2	-		
			B1010			-	FF1	-		

Note: Nominal diameter 6mm,Screw length ＜ 115mm,no end machining; Screw length ≥115mm,standard end machining.
Nominal diameter 8mm,Screw length ＜ 165mm,no end machining; Screw length ≥165mm,standard end machining.
Nominal diameter10mm,Screw length ＜ 200mm,no end machining; Screw length ≥200mm,standard end machining.
no end machining code"0", standard end machining code"S".

Order sample

① Select configuration codes

Motor Series		Lead Screw Options		Screw Length Options		Nut Options		End Machining Code
TSM11Q-2RM	-	B0601	-	55,65,75,90,105,115,130, 150,170,190,210,230,255	-	AK1	-	0, S

② Determine the order Models

TSM11Q-2RM - B0601 - 105 - AK1 - 0

In addition to the standard order Models, we also provide a wealth of customized configuration options, for more information please contact the factory.

TSM11/AM11 Series

Phases	2
Step Accuracy	±5%
Approvals	RoHS
Operating Temp.	0°C~+50°C
Insulation Class	B(130°C)

Ordering Information

TSM11Q-2RM - B0601 - 55 - AK1 - 0

Motor Series

Code	Motor Type Code
TSM11Q-2RM	Drive integrated
AM11RS2DMA	Drive divided

Lead Screw Type Code

Code	Nominal Diameter (mm)	Lead (mm)	Travel(mm) Travel Per1.8°
B0601	6	1	0.005
B0602	6	2	0.01
B0606	6	6	0.03

The length of the screw Lx

###	**Provided in 1 mm increments**

*The limit length of OD ϕ6 screw is 260mm, Please contact the factory if the length of your customized product screw exceeds the limit length.

Special Custom Type Code

Code	Custom Type
0	No end machining
S	Lead Screw End Machining
XX	Other Special Custom Type

Mating Nut Code

Code		Mating Lead Screw
AK	1	B0601
FF	1	B0602
FF	2	
FF	1	B0606

Note:Choosing the standard order models can get the sample quickly, please see P99 for standard models.

Electrical Specifications

	Control Command	Pulse Command Type	Max. pulse input frequency	Digital Input Number	Digital Output Number	Analog Input Number	Encoder Feedback Output	Digital Input Specifications	Digital Output Specifications
TSM11Q-2RM	Pulse Command SCL Motion control Command, Q program, Modbus/RTU Communication Control	Pulse+Direction CW/CCW Double-pulse, A/B differential pulse	2MHz, Min.Pulse Width=250ns	4	2	-	-	5-24VDC	30VDC /100mA
	Input Power			**Protect Power**			**Communication Interface**	**Communication Protocol**	
	Rated voltage 24VDC, Min/Max voltage 15-30VDC			Overvoltage、Undervoltage、Overheated、Motor winding short circuit(phase to phase and ground)			RS-485 4-wire	Modbus/RTU or SCL	

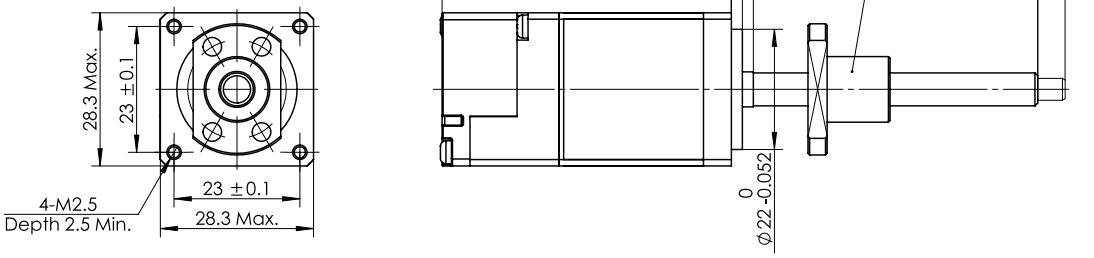
Note: 1. The above electrical spec is only used for TSM series, AM series mating drivers refer to P176-P198.

2.TSM series motor operation and control instructions,please see P114-P120.

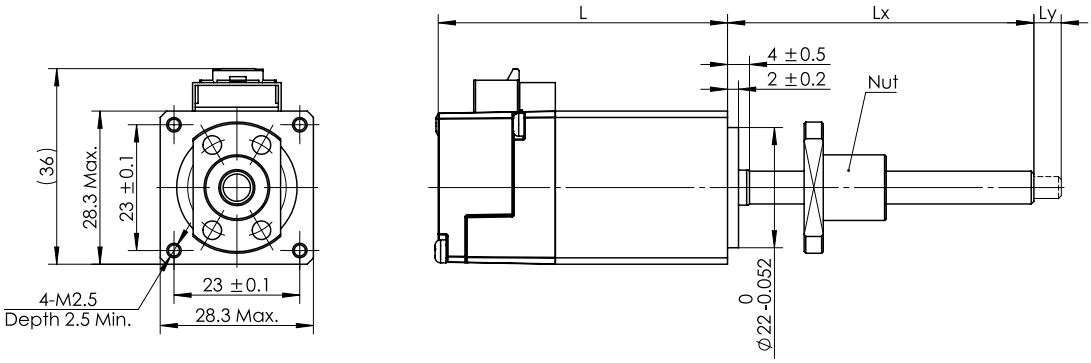
TSM11/AM11 Series

■ Dimensional Information

UNIT:mm

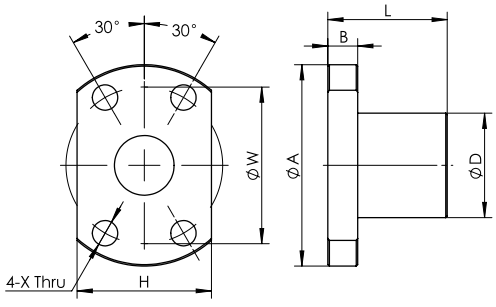


Motor Type	Dimension"L"
TSM11Q-2RM	52.9



Motor Type	Dimension"L"
AM11RS2DMA	52.9

Nut Type

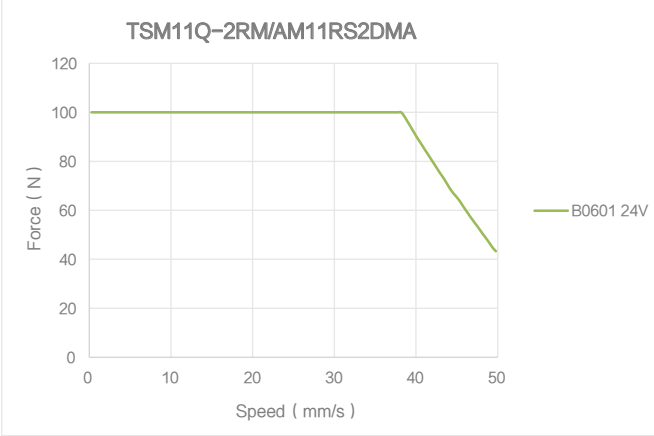


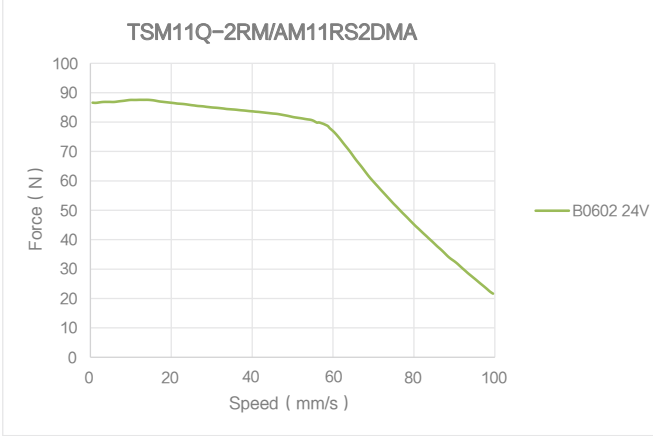
AK1/FF1

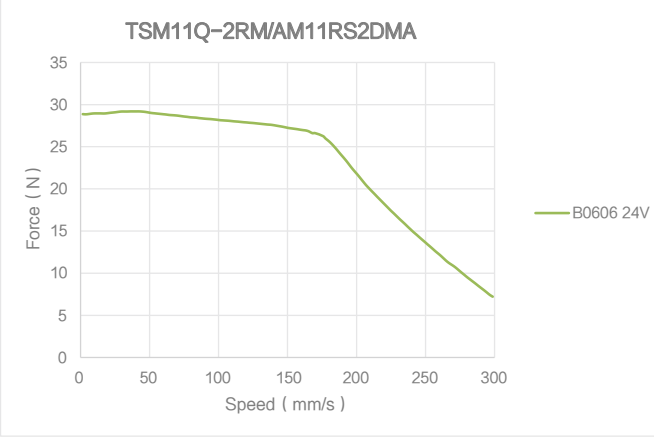
Lead Screw Code	Nut Code		D	A	B	L	W	H	X
B0601	AK	1	12	24	3.5	15	18	16	3.4
B0602	FF	1	12	24	4	17	18	16	3.4
	FF	2	15	28	4	17	22	19	3.4
B0606	FF	1	12	24	4	22	18	16	3.4

TSM11/AM11 Series

Speed - Force Reference Curve







AM14 Series

Phases	2
Step Accuracy	±5%
Approvals	RoHS
Operating Temp.	0°C~+50°C
Insulation Class	B(130°C)

Ordering Information

AM14RS1DMA – B0801 – 90 – AK1 – 0

Motor Series

Code	Motor Type Code
AM14RS1DMA	Drive divided

Lead Screw Type Code

Code	Nominal Diameter (mm)	Lead (mm)	Travel(mm) Travel Per1.8°
B0801	8	1	0.005
B0802	8	2	0.01
B08025	8	2.5	0.0125
B0805	8	5	0.025
B0808	8	8	0.04

The length of the screw Lx

###	Provided in 1 mm increments

*The limit length of OD ϕ8 screw is 360mm, Please contact the factory if the length of your customized product screw exceeds the limit length.

Special Custom Type Code

Code	Custom Type
0	No end machining
S	Lead Screw End Machining
XX	Other Special Custom Type

Mating Nut Code

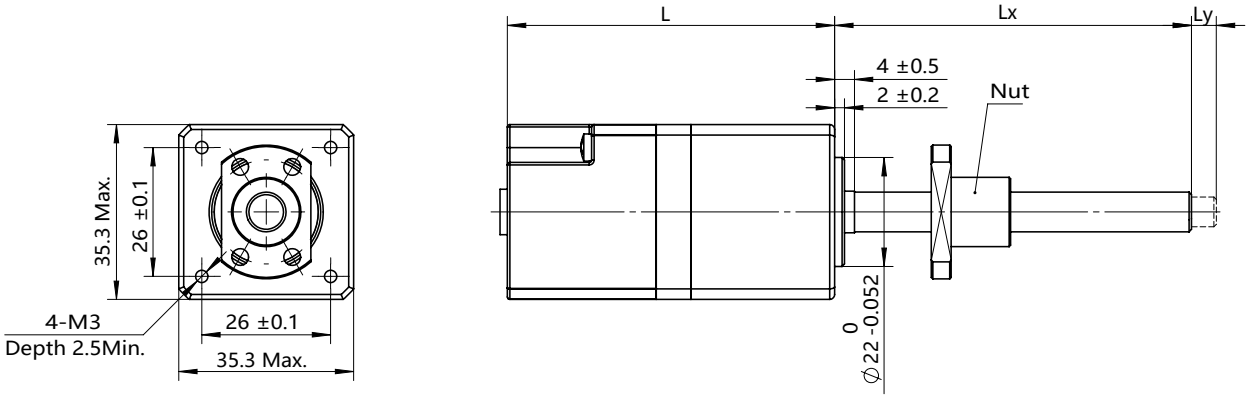
Code		Mating Lead Screw
AK	1	B0801
		B0802
		B08025
FF	1	B0805
		B0808

Note: AM series mating drivers refer to P176-P198.

AM14 Series

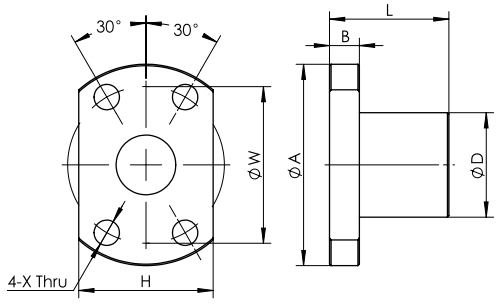
Dimensional Information

UNIT:mm



Motor Type	Dimension"L"
AM14RS1DMA	69

Nut Type

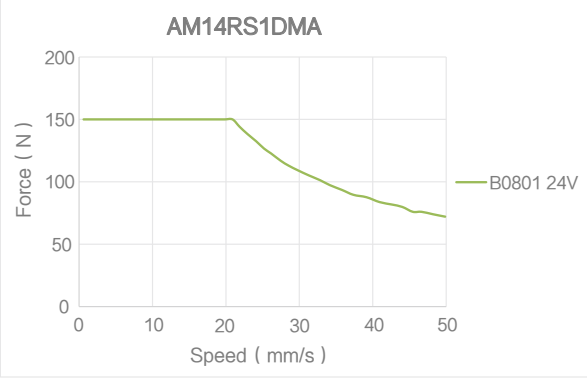


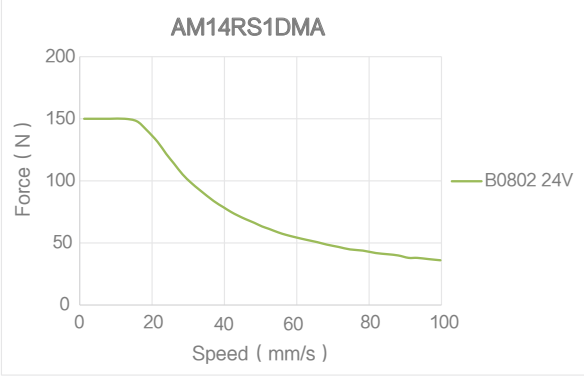
AK1/FF1

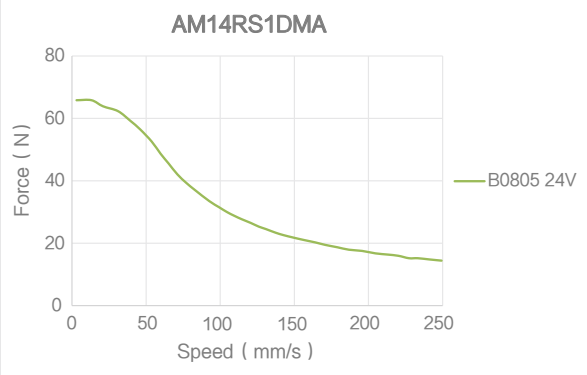
Lead Screw Code	Nut Code		D	A	B	L	W	H	X
B0801	AK	1	14	27	4	16	21	18	3.4
B0802	AK	1	14	27	4	18	21	18	3.4
B08025	AK	1	16	29	4	26	23	20	3.4
B0805	FF	1	18	31	4	28	25	20	3.4
B0808	FF	1	18	31	4	28	25	20	3.4

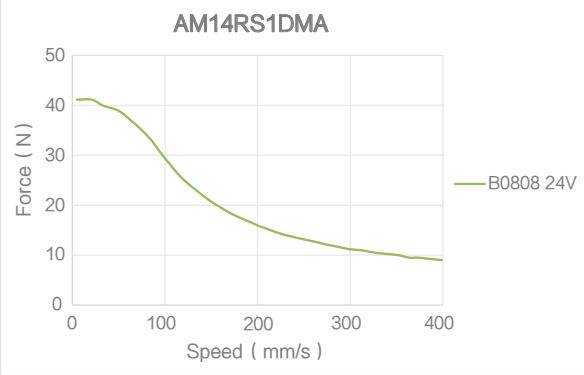
AM14 Series

Speed - Force Reference Curve









TSM17/AM17 Series

Phases	2
Step Accuracy	±5%
Approvals	RoHS
Operating Temp.	0°C~+50°C
Insulation Class	B(130°C)

Ordering Information

TSM17Q-2RG – B0801 – 90 – AK1 – 0

Motor Series

Code	Motor Type Code
TSM17Q-2RG	Drive integrated
AM17RS2DMA	Drive divided

Lead Screw Type Code

Code	Nominal Diameter (mm)	Lead (mm)	Travel(mm) Travel Per1.8°
B0801	8	1	0.005
B0802	8	2	0.01
B08025	8	2.5	0.0125
B0805	8	5	0.025
B0808	8	8	0.04
B1002	10	2	0.01
B1004	10	4	0.02
B1005	10	5	0.025
B1010	10	10	0.05

The length of the screw Lx

###	Provided in 1 mm increments

*The limit length of OD φ8 screw is 360mm, and the limit length of OD φ10 screw is 400 mm.Please contact the factory if the length of your customized product screw exceeds the limit length.

Special Custom Type Code

Code	Custom Type
0	No end machining
S	Lead Screw End Machining
XX	Other Special Custom Type

Mating Nut Code

Code		Mating Lead Screw
AK	1	B0801
		B0802
		B08025
		B1002
	2	B1004
FF	1	B0805
		B0808
		B1005
		B1010

Note:Choosing the standard order models can get the sample quickly, please see P99 for standard models.

TSM17/AM17 Series

■ Electrical Specifications

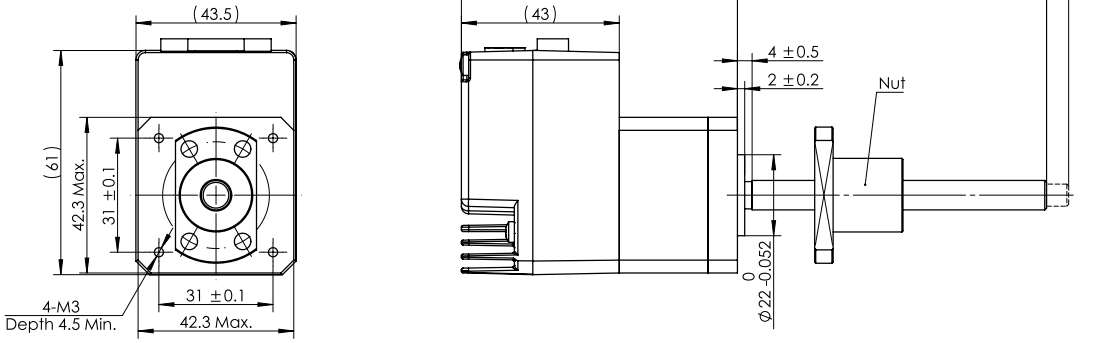
	Control Command	Pulse Command Type	Max. pulse input frequency	Digital Input Number	Digital Output Number	Analog Input Number	Encoder Feedback Output	Digital Input Specifications	Digital Output Specifications
TSM17Q-2RG	Pulse Command Analog command, SCL Motion control Command, Q program, Modbus/RTU Communication Control	Pulse+Direction CW/CCW Double-pulse, A/B differential pulse	2MHz, Min.Pulse Width=250ns	8	4	1	-	5-24VDC	30VDC /100mA
	Analog input specification	**Input Power**		**Protect Power**			**Communication Interface**	**Communication Protocol**	
	0-5VDC, Analog input resolution:12bits	12-48VDC		Overvoltage、Undervoltage、Overheated、Motor winding short circuit(phase to phase and ground)			RS-485	Modbus/RTU or SCL	

Note: 1. The above electrical spec is only used for TSM series, AM series mating drivers refer to P176-P198.

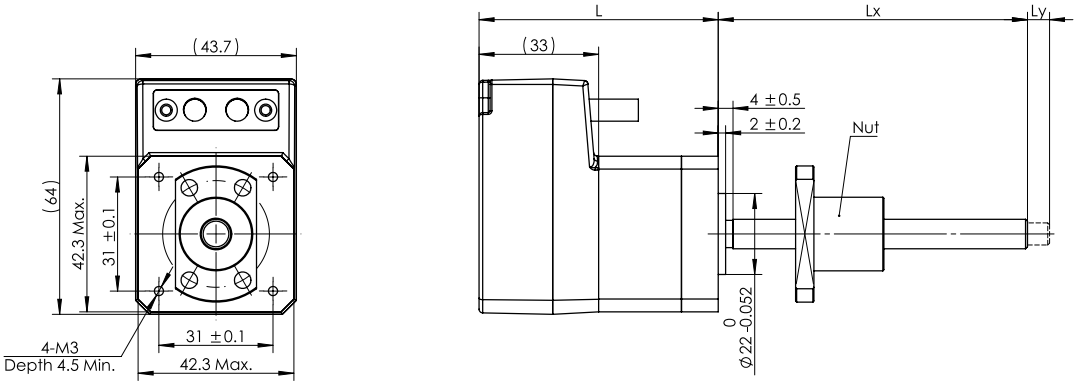
2.TSM series motor operation and control instructions,please see P114-P120.

■ Dimensional Information

UNIT:mm



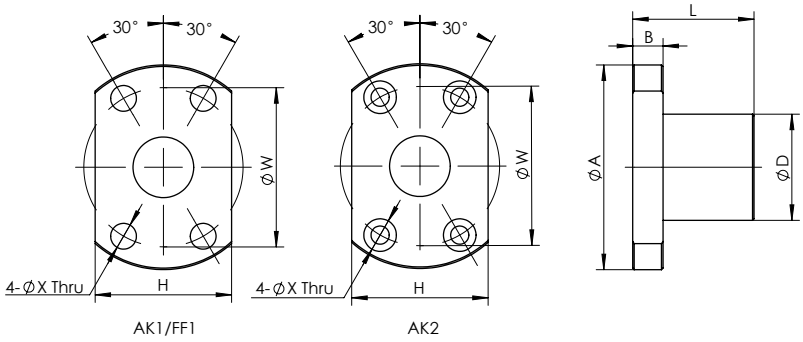
Motor Type	Dimension"L"
TSM17Q-2RG	75



Motor Type	Dimension"L"
AM17RS2DMA	65

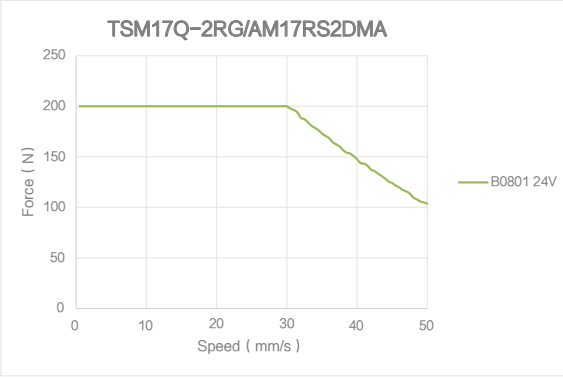
TSM17/AM17 Series

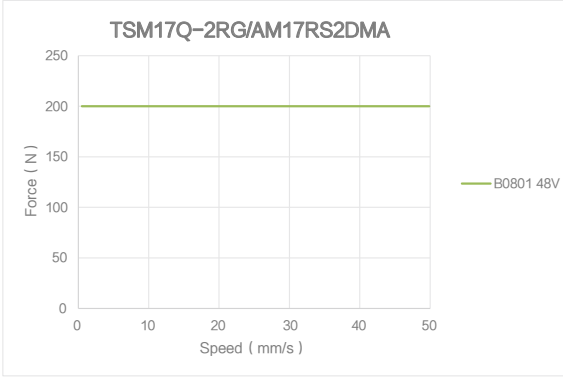
Nut Type

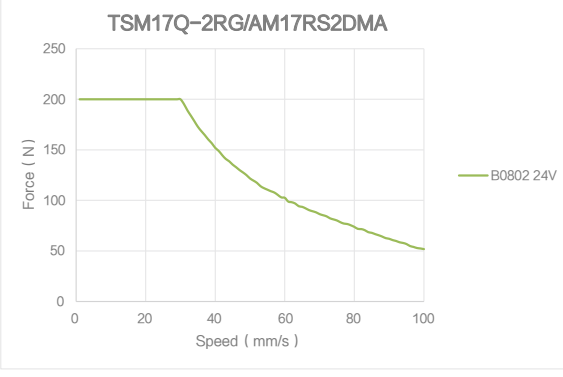


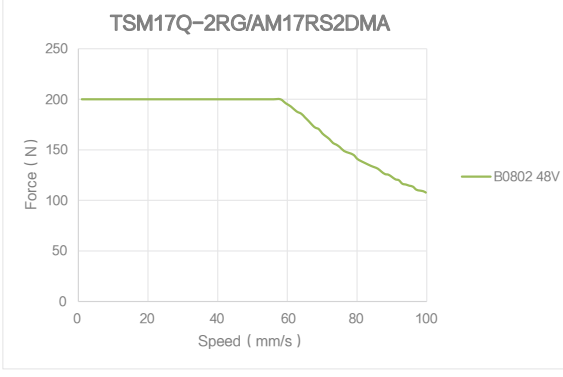
Lead Screw Code	Nut Code		D	A	B	L	W	H	X	Y	Z
B0801	AK	1	14	27	4	16	21	18	3.4	-	-
B0802	AK	1	14	27	4	18	21	18	3.4	-	-
B08025	AK	1	16	29	4	26	23	20	3.4	-	-
B0805	FF	1	18	31	4	28	25	20	3.4	-	-
B0808	FF	1	18	31	4	28	25	20	3.4	-	-
B1002	AK	1	18	35	5	28	27	22	4.5	-	-
B1004	AK	2	26	46	10	34	36	28	4.5	8	4.5
B1005	FF	1	22	41	10	32	31	25	4.5	-	-
B1010	FF	1	22	41	10	36	31	25	4.5	-	-

■ Speed - Force Reference Curve

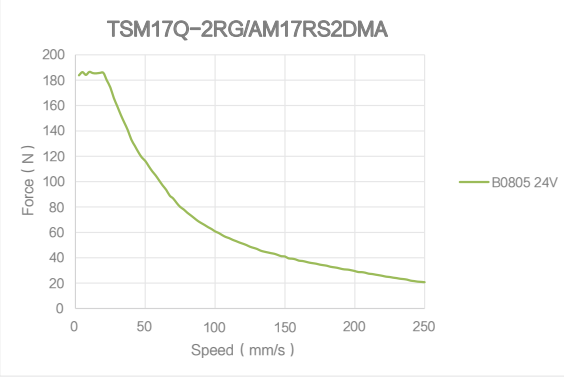


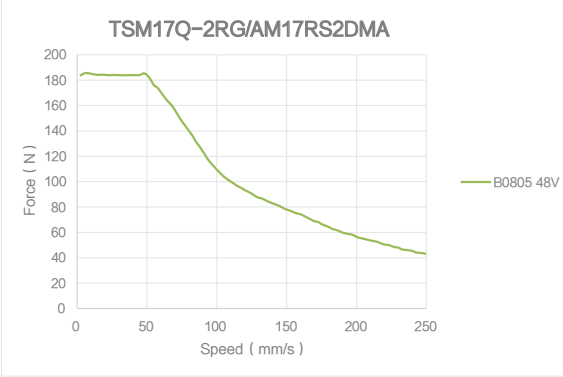


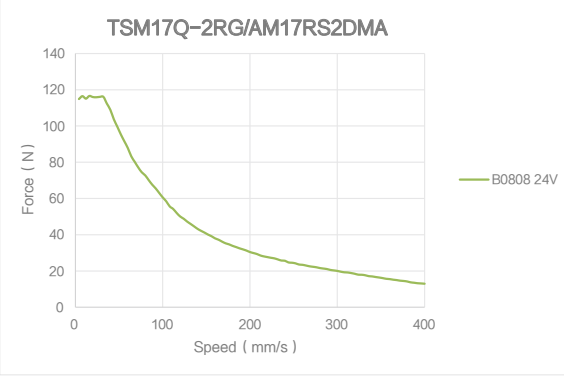


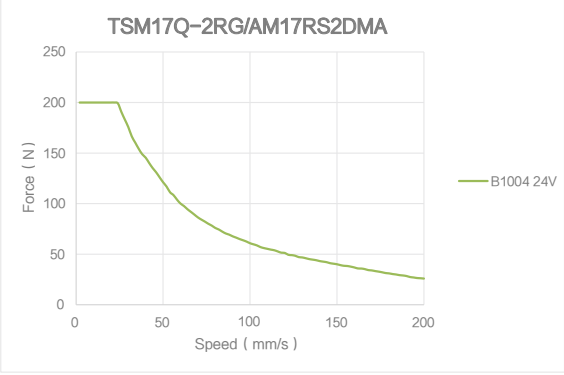


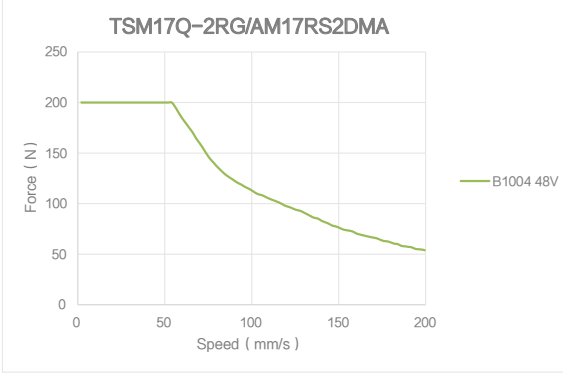
TSM17/AM17 Series

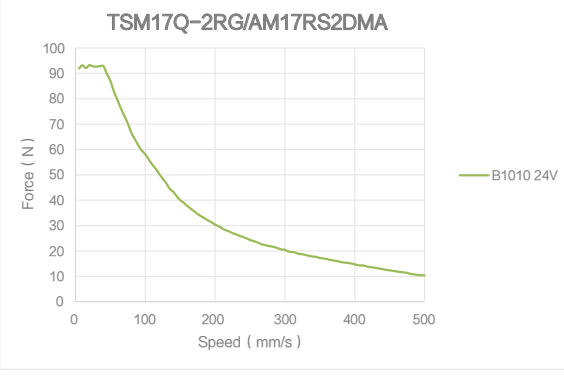


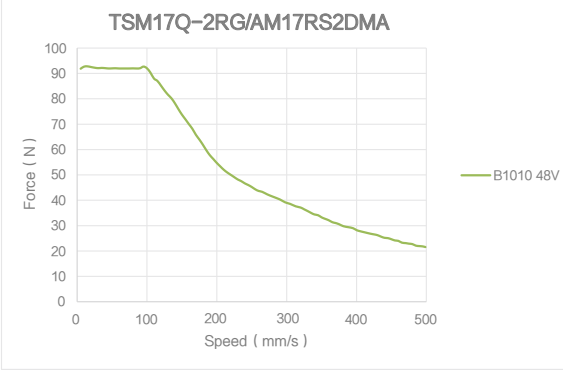












TSM23/AM23 Series

Phases	2
Step Accuracy	±5%
Approvals	RoHS
Operating Temp.	0°C~+50°C
Insulation Class	B(130°C)

Ordering Information

TSM23Q-2RG – B1002 – 165 – AK1 – 0

Motor Series

Code	Motor Type Code
TSM23Q-2RG	Drive integrated
AM23RS2DMA	Drive divided

Lead Screw Type Code

Code	Nominal Diameter (mm)	Lead (mm)	Travel(mm) Travel Per1.8°
B1002	10	2	0.01
B1004	10	4	0.02
B1005	10	5	0.025
B1010	10	10	0.05
B1202	12	2	0.01
B1205	12	5	0.025
B1210	12	10	0.05

The length of the screw Lx

###	Provided in 1 mm increments

*The limit length of OD φ10 screw is 400mm, and the limit length of OD φ12 screw is 480 mm.Please contact the factory if the length of your customized product screw exceeds the limit length.

Special Custom Type Code

Code	Custom Type
0	No end machining
S	Lead Screw End Machining
XX	Other Special Custom Type

Mating Nut Code

Code		Mating Lead Screw
AK	1	B1002
		B1202
	2	B1004
FF	1	B1005
		B1010
AA	3	B1205
AV	2	B1210

Note:Choosing the standard order models can get the sample quickly, please see P99 for standard models.

TSM23/AM23 Series

Electrical Specifications

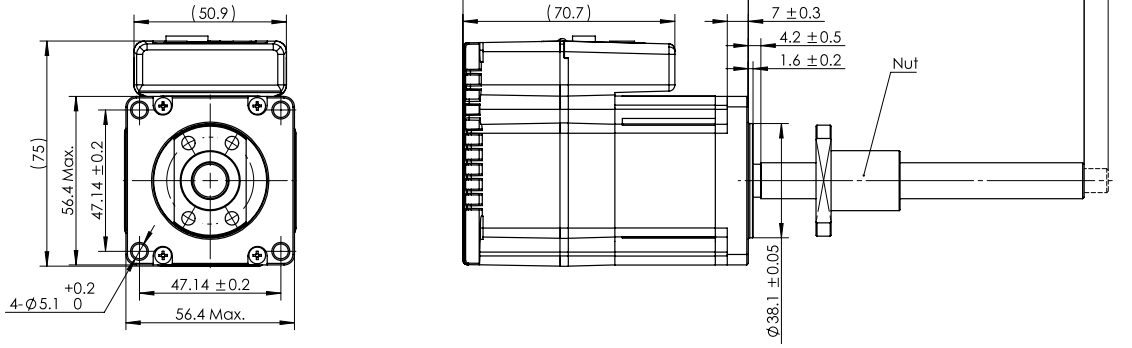
	Control Command	Pulse Command Type	Max. pulse input frequency	Digital Input Number	Digital Output Number	Analog Input Number	Encoder Feedback Output	Digital Input Specifications	Digital Output Specifications
TSM23Q-2RG	Pulse Command Analog command, SCL Motion control Command, Q program, Modbus/RTU Communication Control	Pulse+Direction CW/CCW Double-pulse, A/B differential pulse	2MHz, Min.Pulse Width=250ns	8	4	1	20000 pulse/cycle A/B/Z differential signal	5-24VDC	30VDC /100mA
	Analog input specification	**Input Power**		**Protect Power**			**Communication Interface**	**Communication Protocol**	
	0-5VDC, Analog input resolution:12bits	12-70VDC		Overvoltage、Undervoltage、Overheated、Motor winding short circuit(phase to phase and ground)			RS-485	Modbus/RTU or SCL	

Note: 1. The above electrical spec is only used for TSM series, AM series mating drivers refer to P176-P198.

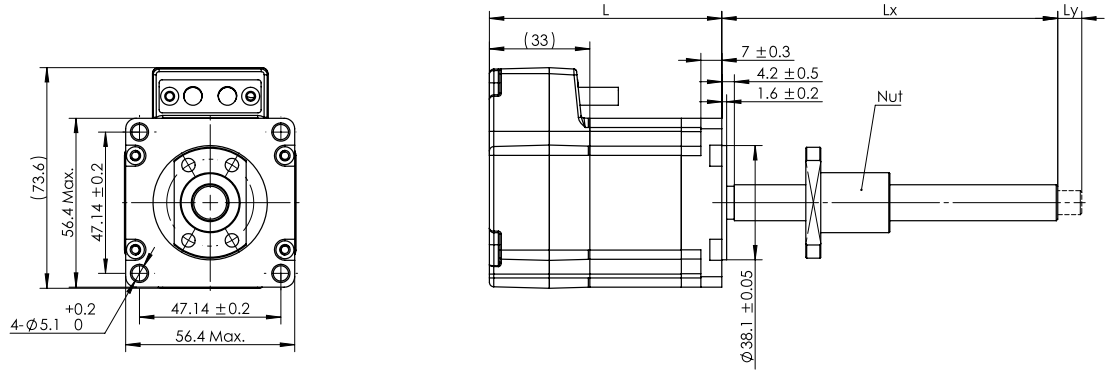
2.TSM series motor operation and control instructions,please see P114-P120.

Dimensional Information

UNIT:mm



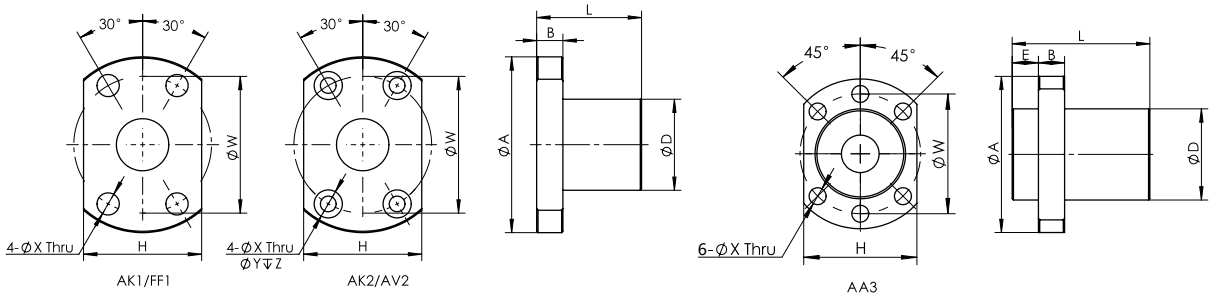
Motor Type	Dimension"L"
TSM23Q-2RG	95.2



Motor Type	Dimension"L"
AM23RS2DMA	77.5

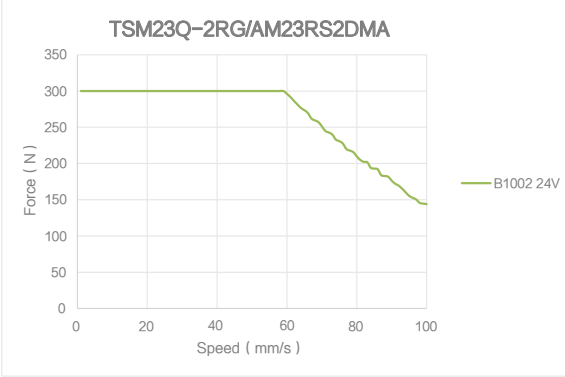
TSM23/AM23 Series

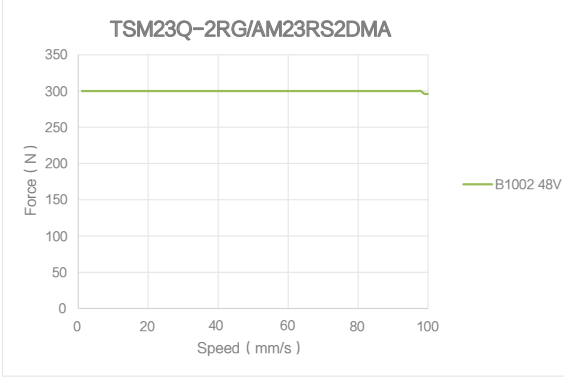
Nut Type

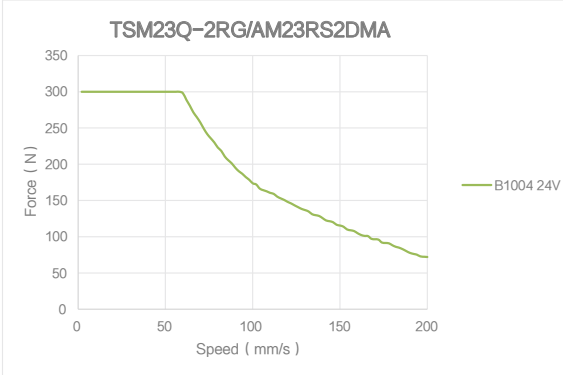


Lead Screw Code	Nut Code		D	A	E	B	L	W	H	X	Y	Z
B1002	AK	1	18	35	-	5	28	27	22	4.5	-	-
B1004	AK	2	26	46	-	10	34	36	28	4.5	8	4.5
B1005	FF	1	22	41	-	10	32	31	25	4.5	-	-
B1010	FF	1	22	41	-	10	36	31	25	4.5	-	-
B1202	AK	1	20	37	-	5	28	29	24	4.5	-	-
B1205	AA	3	24	40	5	10	30	32	30	4.5	-	-
B1210	AV	2	30	50	-	10	53	40	32	4.5	8	4.5

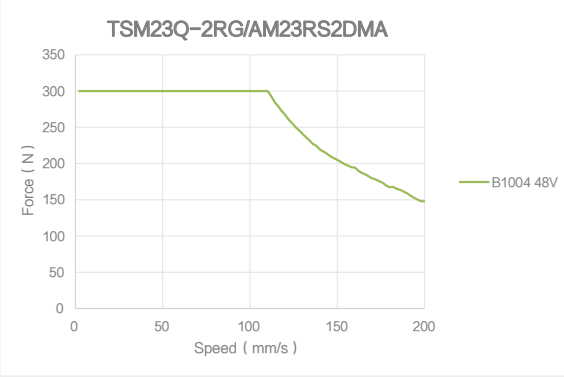
■ Speed - Force Reference Curve

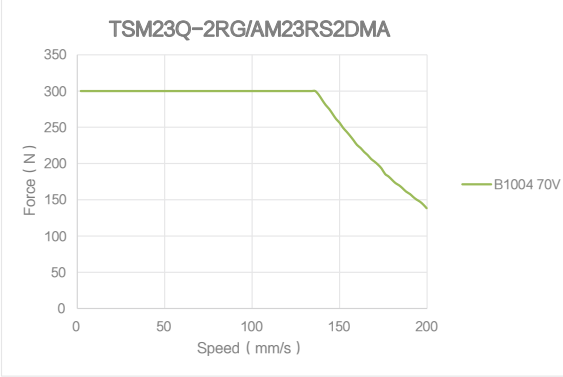


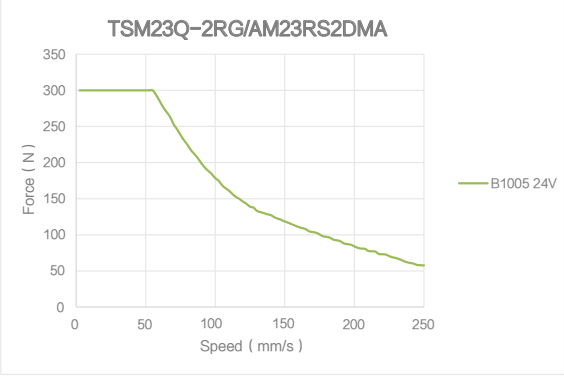


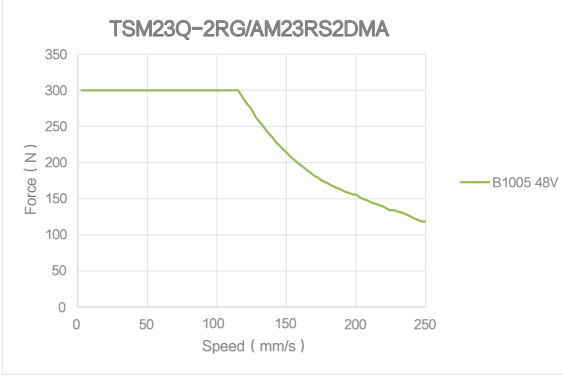


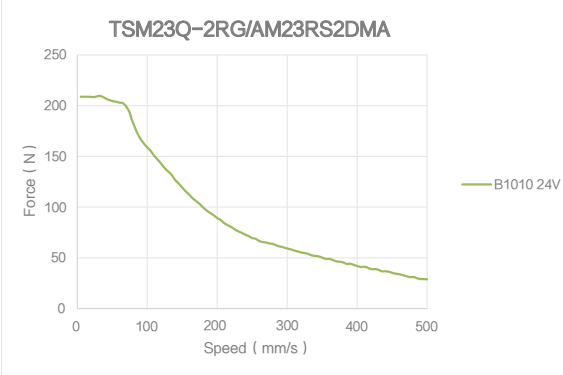
TSM23/AM23 Series









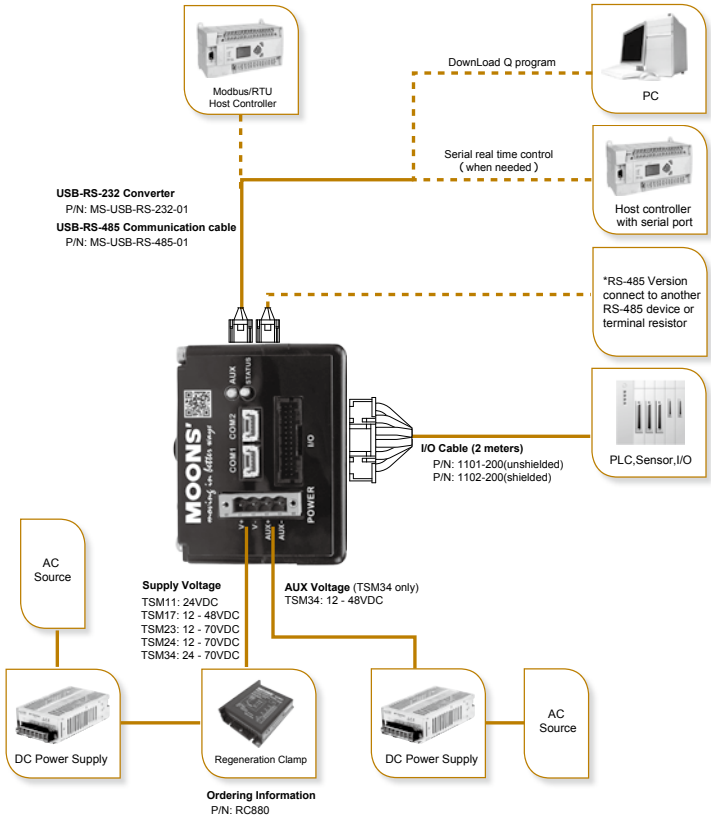


TSM Series Motors Operation And Control

Control Model

Interface	RS-485 or Modbus/RTU
Baud Rate(bps)	9600/19200/38400/57600/115200
Maximum Distance	Due to transmission baud rate
Maximum Connections	32 axes per channel
Communication Cable	Twisted Shielded Cable
Address Setting	Via Step-Servo Quick Tuner

System Configuration Diagram



Optional Accessories

P/N	Catagory	Technical Specification
RC880	Regenaration Clamp	80VDC Max. 50W
MS-USB-RS-232-01	USB Converter	USB to RS-232
MS-USB-RS-485-01	USB Converter	USB to RS-485
MS-USB-CAN-01	USB Converter	USB to CAN
1101-□□□	Cable	I/O cable, unshielded
1116-□□□	Cable	I/O cable, shielded
2101-150	Cable	RS-232 communication cable (P/Q type)
2113-150	Cable	RS-232 communication cable (C type)
2111-□□□	Cable	RS-485 Daisy Chain
2112-□□□	Cable	CANopen Daisy Chain
2012-030	Cable	CAT5e UTP 0.3m
2012-300	Cable	CAT5e UTP 3m
2013-030	Cable	CAT5e STP 0.3m
2013-300	Cable	CAT5e STP 3m

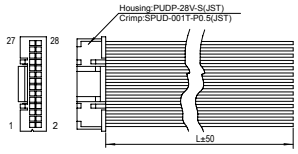
* □□□stands for length, unit:cm, ex.100 stands for 100cm.

TSM Series Motors Operation And Control

Leads spec

General Purpose I/O Cable(unshielded) (TSM17/23)

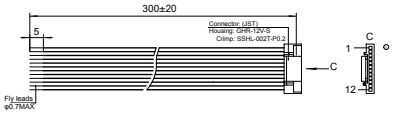
P/N	Length (L)
1101-100	1m
1101-200	2m
1101-500	5m



Pin No.	Assignment	Description	Color
1	X1+	High Speed Digital Input	BLU
2	X1-		BLU/WHT
3	X2+	High Speed Digital Input	YEL
4	X2-		YEL/WHT
5	X3	X3 Digital Input	GRN
6	X4	X4 Digital Input	ORG
7	X5	X5 Digital Input	GRY
8	X6	X6 Digital Input	PUR
9	XCOM	X Digital Input COM	WHT
10	+5V	+5V Analog Voltage	RED
11	AIN	Analog Input	BLU
12	GND	Analog Input Ground	BLK
13	X7+	X7 Digital Input	ORG
14	X7-		ORG/WHT
15	X8+	X8 Digital Input	GRN
16	X8-		GRN/WHT
17	Y1	Y1 Digital Output	BLU
18	Y2	Y2 Digital Output	YEL
19	Y3	Y3 Digital Output	BRN
20	YCOM	Y Output COM	BLK
21	Y4+	Y4 Digital Output	RED
22	Y4-		RED/WHT
23	Z+	Encoder Output Z (if applicable)	BLK
24	Z-		BLK/WHT
25	B+	Encoder Output B (if applicable)	GRN
26	B-		GRN/WHT
27	A+	Encoder Output A (if applicable)	ORG
28	A-		ORG/WHT

Power + Comm + I/O Cable (Flying leads,TSM11 only)

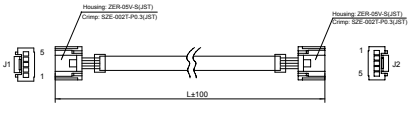
P/N	Length (L)
1109-030	0.3m



Pin No.	Assignment	Description	Color
1	Y2	Y2 Digital Output	PUR
2	Y1	Y1 Digital Output	ORN
3	X4	X4 Digital Input	WHT

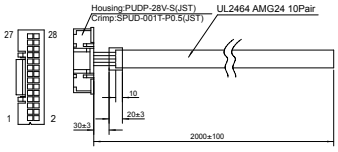
RS-485 Daisy Chain Communication Cable (TSM17/23)

P/N	Length (L)
2111-025	0.25m
2111-050	0.5m
2111-100	1m
2111-300	3m



General Purpose I/O Cable(shielded) (TSM17/23)

P/N	Length (L)
1116-100	1m
1116-200	2m
1116-300	3m
1116-500	5m



Pin No.	Assignment	Description	Color
1	X1+	High Speed Digital Input	BLU/WHT
2	X1-		BLU/BLK
3	X2+	High Speed Digital Input	GRN/WHT
4	X2-		GRN/BLK
5	X3	X3 Digital Input	BLU
6	X4	X4 Digital Input	PUR
7	X5	X5 Digital Input	YEL
8	X6	X6 Digital Input	GRN
9	XCOM	X Digital Input COM	ORG
10	+5V	+5V Analog Voltage	RED
11	AIN	Analog Input	WHT
12	GND	Analog Input Ground	BLK
13	X7+	X7 Digital Input	BRN/WHT
14	X7-		BRN/BLK
15	X8+	X8 Digital Input	GRY/WHT
16	X8-		GRY/BLK
17	Y1	Y1 Digital Output	BRN
18	Y2	Y2 Digital Output	GRY
19	Y3	Y3 Digital Output	PNK
20	YCOM	Y Output COM	YEL/GRN
21	Y4+	Y4 Digital Output	PUR/WHT
22	Y4-		PUR/BLK
23	Z+	Encoder Output Z (if applicable)	YEL/WHT
24	Z-		YEL/BLK
25	B+	Encoder Output B (if applicable)	ORG/WHT
26	B-		ORG/BLK
27	A+	Encoder Output A (if applicable)	RED/WHT
28	A-		RED/BLK

Pin No.	Assignment	Description	Color
4	X3	X3 Digital Input	BRN
5	X2	High Speed Digital Input	YEL
6	X1	High Speed Digital Input	GRY
7	RXD-	RS-422/485 Data Receive-	GRN/WHT
8	RXD+	RS-422/485 Data Receive+	GRN
9	TXD-	RS-422/485 Data Transmit-	BLU/WHT
10	TXD+	RS-422/485 Data Transmit+	BLU
11	V+	Power Supply +	RED
12	V-	Power GND	BLK

TSM Series Motors Operation And Control

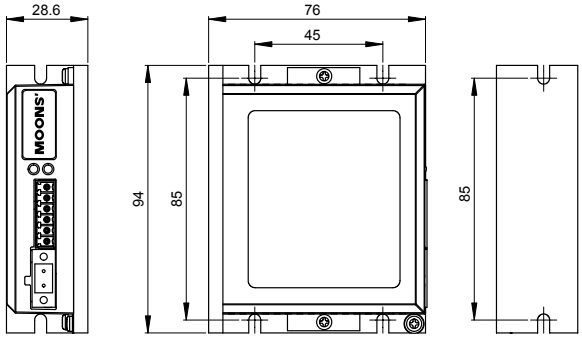
Regeneration Clamp

P/N: RC880

When using regulated power supply you may encounter a problem with regeneration. The kinetic energy caused by regeneration is transferred back to the power supply. This can trip the overvoltage protection of a switching power supply, causing it to shut down.

MOONS' offer the RC880 “regeneration clamp” to solve this problem. If in doubt, use an RC880 for your first installation. If the “regen” LED on the RC880 never flashes, you don’t need the clamp.

Dimensions(Unit:mm)



USB Converter

Model: MS-USB-RS-232-01
Description: USB-RS-232 converter

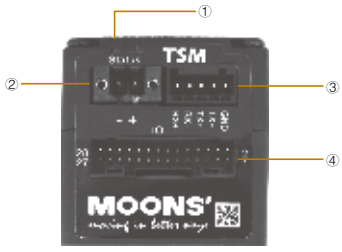
Model: MS-USB-RS-485-01
Description: USB-RS-485 converter

Model: MS-USB-CAN-01
Description: USB-CAN converter

TSM Series Motors Operation And Control

Connection and Operation(Q Controller Type)

Names and Functions of Parts

TSM17Q	TSM23Q
	

①LED Displays

Indication	Color	Function	When Activated
Operation	Green	Power on indication	When driver is powered up
Alarm	Red	Alarm indication	Flashes when in protection
Operation	Yellow	Auxiliary Power on indication	When AUX powered up

LED Error Codes

TSM uses red and green LEDs to indicate status. When the motor is enabled, the green LED flashes slowly. When the green LED is solid, the motor is disabled. Errors are indicated by combinations of red and green flashes as shown in Page of Alarm information.

Apart from the main power supply, TSM34 also has an auxiliary power input (AUX power) for keep alive function of the drive. When the main power supply is off, the AUX power will keep the logic power on, allowing the drive to remember its state data (motor position, etc.). This allows the motor to resume operation from its previous position without a homing routine when the main power is switched back on.

②Power Connector

TSM17/23

P/N: Weidmuller 1615780000

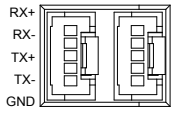
	Description
+	Power Supply +
-	Power Supply -

③ Communication Connector

TSM17/23Q(RS-485)

Housing P/N: JST ZER-05V-S
Crimp P/N: JST SZE-002T-P0.3

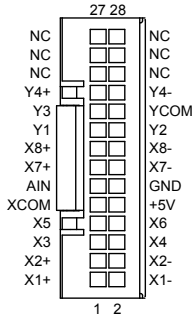
RS-485



Connector	Assignment
RX+	Receive+
RX-	Receive-
TX+	Transmit+
TX-	Transmit-
GND	GND

TSM Series Motors Operation And Control

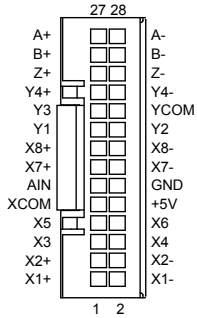
④TSM17Q I/O Signal Connector



Housing P/N: JST PUDP-28V-S
Crimp P/N: JST SPUD-001T-P0.5

Pin no.	Assignment	Description
1	X1+/STEP+	High Speed Digital Input
2	X1-/STEP-	
3	X2+/DIR+	High Speed Digital Input
4	X2-/DIR-	
5	X3	X3 Digital Input
6	X4	X4 Digital Input
7	X5	X5 Digital Input
8	X6	X6 Digital Input
9	XCOM	Digital Input COM
10	+5	+5V OUT 100mA max.
11	AIN	Analog Input
12	GND	Aanlog Ground
13	X7+	X7 Digital Input
14	X7-	
15	X8+	X8 Digital Input
16	X8-	
17	Y1	Y1 Digital Output
18	Y2	Y2 Digital Output
19	Y3	Y3 Digital Output
20	YCOM	Digital Output COM
21	Y4+	Y4 Digital Output
22	Y4-	
23	NC	N/C
24	NC	
25	NC	
26	NC	
27	NC	
28	NC	

TSM23Q I/O Signal Connector



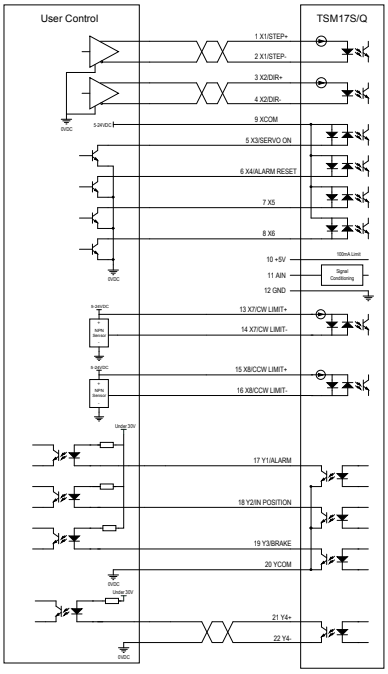
Housing P/N: JST PUDP-28V-S
Crimp P/N: JST SPUD-001T-P0.5

Pin no.	Assignment	Description
1	X1+/STEP+	High Speed Digital Input
2	X1-/STEP-	
3	X2+/DIR+	High Speed Digital Input
4	X2-/DIR-	
5	X3	X3 Digital Input
6	X4	X4 Digital Input
7	X5	X5 Digital Input
8	X6	X6 Digital Input
9	XCOM	Digital Input COM
10	+5	+5V OUT 100mA max.
11	AIN	Analog Input
12	GND	Aanlog Ground
13	X7+	X7 Digital Input
14	X7-	
15	X8+	X8 Digital Input
16	X8-	
17	Y1	Y1 Digital Output
18	Y2	Y2 Digital Output
19	Y3	Y3 Digital Output
20	YCOM	Digital Output COM
21	Y4+	Y4 Digital Output
22	Y4-	
23	Z+	Encoder Output Z
24	Z-	
25	B+	Encoder Output B
26	B-	
27	A+	Encoder Output A
28	A-	

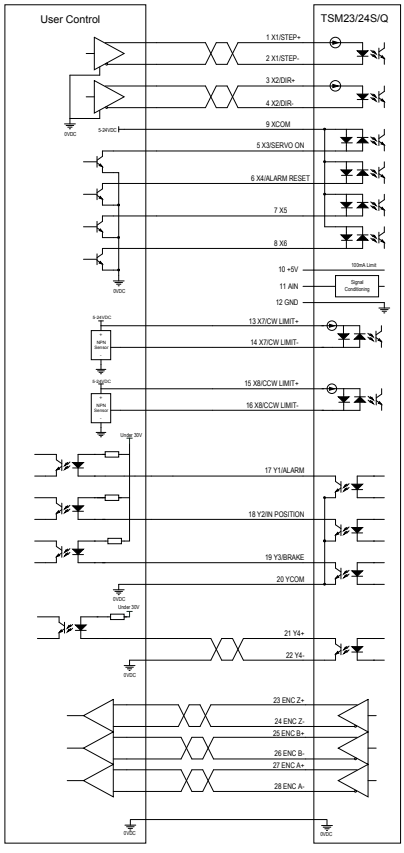
TSM Series Motors Operation And Control

Wiring Diagram

TSM17Q



TSM23Q



Description of Input/Output Signals

Input (output) "ON" indicates that the current is sent into the photocoupler (transistor) inside the driver. Input (output) "OFF" indicates that the current is not sent into the photocoupler (transistor) inside the driver. The input/output remains "OFF" if nothing is connected.

Circuit above shows when pulse input is line driver type

Pulse singal input range 5-24VDC

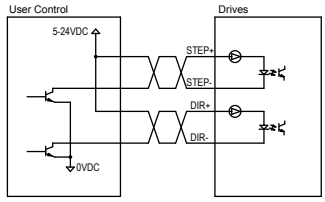
Digital singal input range 5-24VDC

Use a multi-core, twisted-pair shielded wire of AWG28 to 24 for the control input/output signal line, and keep wiring as short as possible

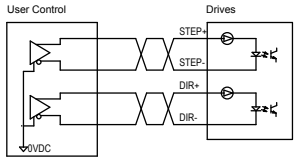
Provide safty distance between the control I/O signal lines and power lines

Pulse Input Circuit and Sample Connection

With Open Collector Output



With Line Driver Output



Pulse Input Mode

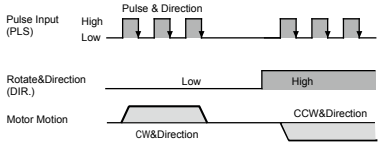
Pulse & Direction

When the Pulse input is turned ON while the DIR input is ON, the motor will rotate by one step in one direction.

When the Pulse input is turned ON while the DIR input is OFF, the motor will rotate by one step the other direction.

*Direction definition of DIR input can be configured via ***Step-Servo*** Quick Tuner.

The chart below shows motor configured as while the DIR input is ON, the motor will rotate by CW direction.

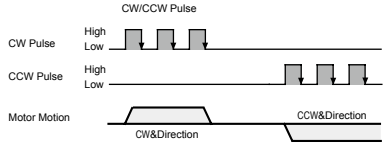


CW/CCW Pulse

When the X1 input is turned ON, the motor will rotate by one step in One direction. When the X2 input is turned ON, the motor will rotate by one step in the other direction.

*Direction definition can be configured via ***Step-Servo*** Quick Tuner.

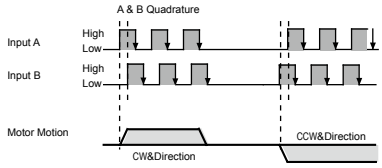
The chart below shows motor configured as while the X1 input is ON, the motor will rotate by one step in CW direction.



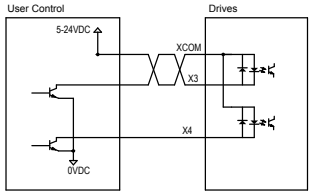
TSM Series Motors Operation And Control

A & B Quadrature

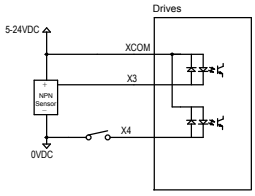
The motor will move according to signals that are fed to the drive from a two channel increamental master encoder.
Direction definition can be configured **Step-Servo** Quick Tuner.
Direction is determined via which channel leads the other.
The chart below shows motor configured as while X1 Leads X2, the motor will rotate by CW direction.



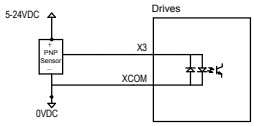
Digital Input Circuit and Sample Connection
With Open Collector Output



With NPN type Sensor



With PNP type Sensor



Servo ON Input

X3 can be configured as Enable signal to excite the motor.

Alarm Reset Input

X4 can be configured as Reset signal to clear the alarm and turns to normal stutus as Servo OFF.
Caution: Please make sure there's no error in system before you clear an Alarm.

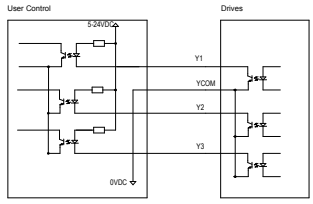
CW/CCW Limit Input

X7 can be configured as CW limit signal input, X8 can be configured as CCW limit signal input.
When either limit signal actives, motor will stop immediately and indicate an Alarm.(Unless motors works in Homing mode and defined otherwize)

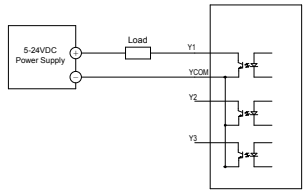
Connecting using Digital Outputs

Output Circuit and Sample Connection

Open Collector Output



Driving external load



Alarm Output

Y1 can be configured as signal output if a fault occurs, meanwhile the red LED will flash.

In Position Output

Y2 can be configured as signal output when position error less than a user-defined count value.

Moving Output

Y2 can be configured as signal output when motor is moving.

Brake Output

Y3 can be configured as signal output to release brake.

Timing Output

Y4 can be configured as Timing signal output, it will turn ON every time the motor output shaft rotates by 7.2°.50 pulses output with one rotation.

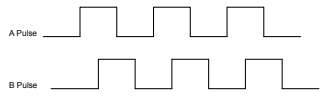
Tach Output

Y4 can be configured as Tach signal output, tach output produces pulses relative to the motor position with configurable resoluti on:100,200,400,800,1600.

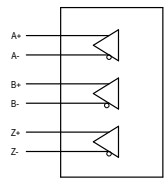
Encoder Output

Differential pulse output with channel A/B/Z
While motor rotates one revelotion, A-Phase/B Phase generate total 20,000 counts, Z-Phase generates one signal.
The B-Phase output has a 90° phase difference with respect to the A-Phase output. Phase A Leads B 90°while motor rotates by CW direction, phase B leads A 90°while motor rotates by CCW direction.

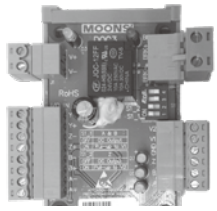
Pulse Output Signal Chart



Encoder Output Circuit



Note: If the controller cannot support differential signal input, you can choose the module that it can convert the differential signal into open-collector output.
Module part number: DOC3



Linear Slides

Linear Slides(Lead screws)

MOONS' Linear Slides are designed to fit the requirement of customer for compact structure. MOONS' has combined high performance linear stepper motors with precision ball guides to design and develop the MS series of linear modules, a series with excellent rigidity and precision. At the same time, the construction of the product is simple, the delivery period is short and the installation is easy. This product offers developers of machinery and equipment a linear motion solution that is more configurable, easier to operate and more consistent.

- 3 sizes motor options: NEMA11/14/17
- Each size of Linear Slides provides a variety of lead screw options
- The motor on each size of linear slides can be equipped with encoder or brake option

MOONS' is committed to providing its customers with integrated solutions of consistent and reliable quality. With its excellent product quality, high level of application technology and fast and flexible service, MOONS' helps its customers to reduce the period for new product development and the time for system integration (labor costs) during mass production, thus reducing overall costs.

MS28 Series

MS35 Series

MS42 Series

Guidance on the usage of the linear sliders

Operating Frequency

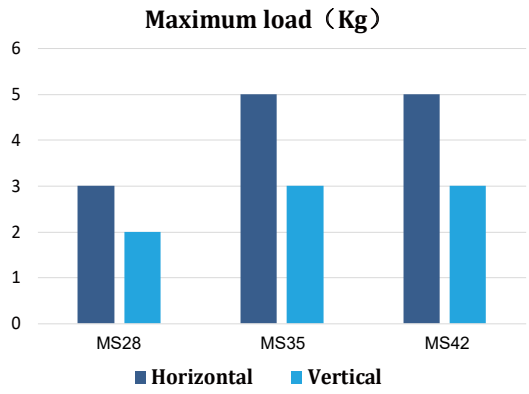
The transmission type of the linear sliders is sliding friction, so using the series in low operating frequency application is recommended. (Reference standard: 10 s/cycle, 8 h/day)

Instructions for Vertical Installation

When the slides are installed vertically, the slider may slip and cause damage to equipment or injury to personnel due to power failure. Therefore, self-locking force should be fully put into consideration when the slides are used vertically. If the self-locking force cannot overcome the free slip of the load, it would be necessary to add a brake.
For the sliders whose transmission type is sliding friction:
With a lead-to diameter ration less than 1:3, the slides are generally fully self-locking;
With a lead-to-diameter ratio of greater than 1:3, the slides have a certain self-locking force.
If you want to calculate the self-locking force, please contact the factory.

Application Scenarios

The structure of this series is simple, and the transmission type of the products is sliding friction. Its precision performances and impact resistance are not as good enough as ball screw type. The recommended maximum acceleration of the motor is less than 0.3 g. The maximum load is shown below.



The sliding friction between the nut and the lead screw would generate a certain extent dusts and debris. If you need to use the slides in dust-free environment, please contact the factory.

Repeatability

The slides have two nut options: standard nut or anti-backlash nut.
When using the standard nut,the repeatability of the slides is ±0.05mm.
When using the anti-backlash nut,the repeatability of the slides is ±0.02mm.
If you need precision products of better quality, please contact the factory.

Lubrication

Functions of grease: inhibit friction, reduce temperature rise, improve efficiency, eliminate noise, increase product life, etc.

Grease has been applied to the lead screw before deliver. Please contact the factory if the products don't need to be greased for special occasions.

(The reference grease: the base oil is synthetic oil, and the consistency grade is No.2 lithium-based grease.)

Operating Environment

Recommended Operating Environment:
Temperature range: 0-40℃,
Humidity 85% RH below (no condensation).
Acid-base free environment.
If you need to use the slides in special environment, please contact the factory.

Guidance on the usage of the linear sliders

Installation reference surface requirements

The installation reference surface must be ground or fine milling processing, in order to achieve the flatness of 0.05mm/m and surface roughness within Ra1.6, otherwise it may appear that the operation is not smooth, noise, jitter and other conditions.

Smoothness Checking

The module must be checked for smoothness after installation. When the motor is not energized, you can use a screwdriver or a torque meter with a single head inserted into the single slot on the end of the screw and turn the screw to check the rotational torque. Turn the screw to check the turning torque until the screw torque values are all close within the range of the slide travel. Since the slides would be greased before deliver,the user can use the module for the first time without greasing it again.

Electricity debugging

Please check the drive current carefully before running on power.

It is recommended that the drive current is set equal to or slightly less than the rated motor current. If the drive current is set too high, the motor may be burned out. If the drive current is set too low, the motor may not have enough torque and may lose steps or block the rotation. Please set a reasonable motor acceleration and deceleration speed (less than 0.3g is recommended). If the acceleration or deceleration is set too high, the motor may become blocked or lose steps.

Do not start the motor directly without setting the acceleration and deceleration.

Storage and Safekeeping

Please storage the slides horizontally and keep the environment dry.

The grease on the surface of the screw may evaporate and condense after long-term storage of the module, so it is recommended to store it for no more than three months.

MS Series Standard Models for stock

Size (mm)	Product series code		Motor Series code		Screw Nut Options		Effective stroke code		Standard code	Page
29X38	MS28	-	3D10T	-	LAB1 LAB2 LAC1 LAC2 LAE1 LAE2 LAH1 LAH2	-	30,60,90,120	-	0	P126
36X45	MS35	-	3C20T	-	LAB1 LAB2 LAC1 LAC2 LAE1 LAE2 LAH1 LAH2	-	50,100,150	-	0	P128
42X50	MS42	-	3A10T	-	LAR1 LAR2 LBH1 LBH2 LBX1 LBX2 LCG1 LCG2	-	50,100,150,200	-	0	P130

Order sample

① Select configuration codes

Product series code		Motor Series code		Screw the nut Configuration code		Effective stroke code		Standard code
MS28	-	3D10T	-	LAB1	-	30,60,90,120	-	0

② Determine the order Models

MS28 - 3D10T - LAB1 - 60 - 0

In addition to the standard number, we also provide a wealth of customized configuration options, for more information please contact the factory.

MS28 Series

- **Integrated design, Easy installation**
- **Small Size, Width 29mm**
- **Anti-Backlash technology, High repeatability**

Ordering Information

MS28 – 3D1 0 T – L AE 1 – XX – 0

Series Code

Code	Mating Motor
MS28	NEMA11

Motor Length Code

Code	Motor Body Length Max(mm)
3D1	32(LE111S)

Additional Options Code

Code	Additional Options
0	No additional
B	Brake
E	Encoder

The standard models have no additional options, any additional customization please contact the manufacturer.

Outlet Direction Code

Code	Outlet Direction
T	Top
B	Bottom
L	Left
R	Right

The standard outlet direction is from top side, any outlet direction customization please contact the manufacturer.

Lead Screw Type Code

Code	Lead Screw Type
L	Standard Leadscrews

Special Custom Type Code

Code	Custom Type
0	Standard Code
xx	Other Special Custom Type

For customization, please contact the manufacturer.

Stroke Options (mm)

###	Options: 30,60,90,120

The above is the standard optional itinerary, if you need to customize, please contact the manufacturer.

Nut Type Code

Code	Nut Type
1	Standard Nut
2	Anti-Backlash Nut

The standard configure is standard nut, any anti-backlash customization please contact the manufacturer.

Lead Code

Code	Lead (mm)
AH	1
AE	3
AB	6.35
AC	12.7

The above is the standard product optional lead, if you need to customize please contact the manufacturer.

Note:Choosing the standard order models can get the sample quickly, please see P125 for standard models.

Technical Parameters

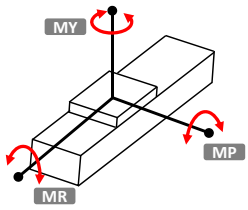
Product series	Max. Stroke (mm)	Guide wide (mm)	Repeat accuracy (mm)	Lead code	Lead (mm)	Maximum speed (mm/s)	Maximum load (kg) Motor:LE111S	
							Horizontal	Vertical
MS28	120	12	Standard nut: ±0.05 Anti-Backlash Nut: ±0.02	AH	1	10	3	2
				AE	3	30	3	2
				AB	6.35	63.5	1.8	1.2
				AC	12.7	127	1	0.6

Note: Please see P168-P175 for recommended driver selection.

MS28 Series

■ Torque Parameters

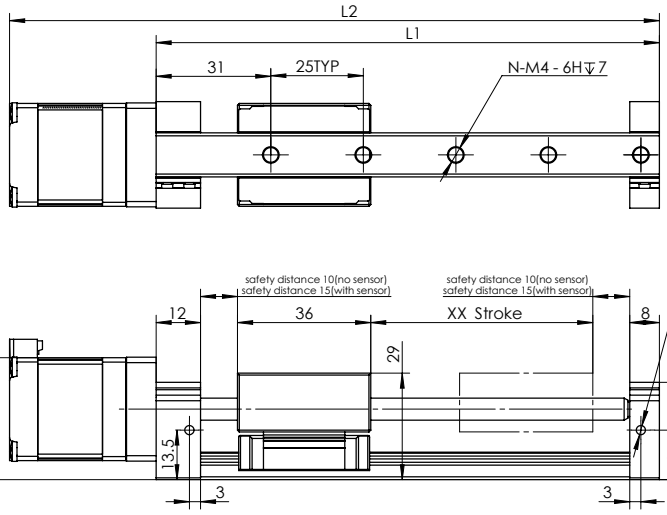
(UNIT:N·m)

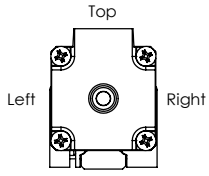


	Static moment	Dynamic moment
MY	2.7	1.9
MP	2.7	1.9
MR	5	3.6

■ Dimensional Information

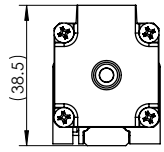
UNIT:mm

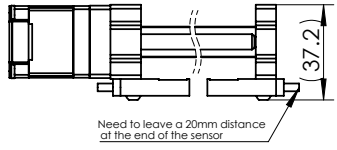




(Outlet Direction Definition)

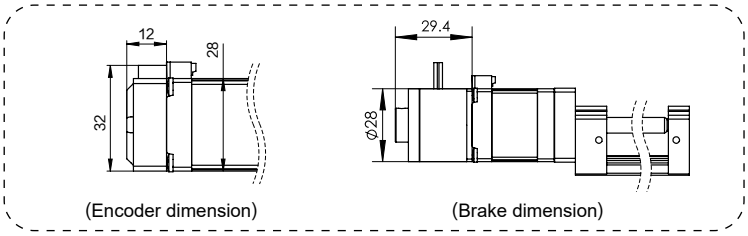
The default orientation of the standard is up.





(Sensor dimension)

The sensor is an optional part.
Please see P132 for order information.



(Encoder dimension) (Brake dimension)

Encoder/brake are additional options for manufactured motors, see P35-P36 for details.

Standard trip (mm)	30	60	90	120
N	3	5	6	7
L1(mm)	106	136	166	196
L2(mm)	145.6	175.6	205.6	235.6
Weight (KG)	0.2	0.27	0.35	0.42

Note: The standard does not have a sensor by default. The effective stroke should be reduced by 5mm when installing one sensor. A maximum of two sensors can be installed.

MS35 Series

- **Integrated design, Easy installation**
- **Small Size, Width 36mm**
- **Anti-Backlash technology, High repeatability**

Ordering Information

MS35 – 3C2 0 T – L AE 1 – XX – 0

Series Code

Code	Mating Motor
MS35	NEMA14

Motor Length Code

Code	Motor Body Length Max(mm)
3C2	36(LE143S)

Additional Options Code

Code	Additional Options
0	No additional
B	Brake
E	Encoder

The standard models have no additional options, any additional customization please contact the manufacturer.

Outlet Direction Code

Code	Outlet Direction
T	Top
B	Bottom
L	Left
R	Right

The standard outlet direction is from top side, any outlet direction customization please contact the manufacturer.

Lead Screw Type Code

Code	Lead Screw Type
L	Standard Leadscrews

Special Custom Type Code

Code	Custom Type
0	Standard Code
xx	Other Special Custom Type

For customization, please contact the manufacturer.

Stroke Options (mm)

###	Options: 50,100,150

The above is the standard optional itinerary, if you need to customize, please contact the manufacturer.

Nut Type Code

Code	Nut Type
1	Standard Nut
2	Anti-Backlash Nut

The standard configure is standard nut, any anti-backlash customization please contact the manufacturer.

Lead Code

Code	Lead (mm)
AH	1
AE	3
AB	6.35
AC	12.7

The above is the standard product optional lead, if you need to customize please contact the manufacturer.

Note:Choosing the standard order models can get the sample quickly, please see P125 for standard models.

Technical Parameters

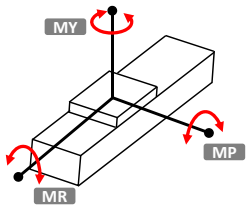
Product series	Max. Stroke (mm)	Guide wide (mm)	Repeat accuracy (mm)	Lead code	Lead (mm)	Maximum speed (mm/s)	Maximum load (kg) Motor:LE143S	
							Horizontal	Vertical
MS35	150	15	Standard nut: ±0.05 Anti-Backlash Nut: ±0.02	AH	1	10	5	3
				AE	3	30	5	3
				AB	6.35	63.5	4.5	3
				AC	12.7	127	2.4	1.6

Note: Please see P168-P175 for recommended driver selection.

MS35 Series

Torque Parameters

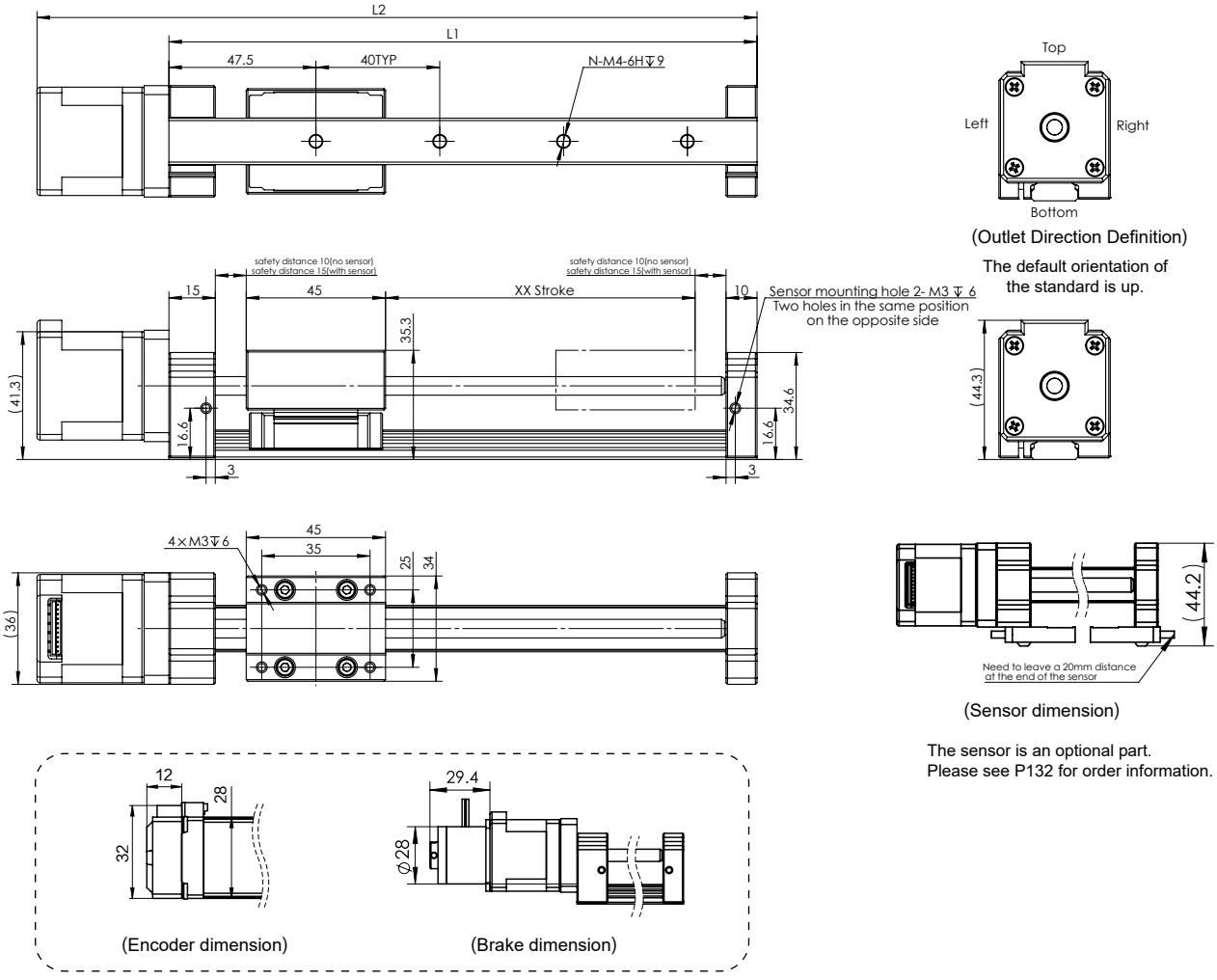
(UNIT:N·m)



	Static moment	Dynamic moment
MY	4.3	3.5
MP	4.3	3.5
MR	9	7.4

Dimensional Information

UNIT:mm



(Outlet Direction Definition)

The default orientation of the standard is up.

(Sensor dimension)

The sensor is an optional part.
Please see P132 for order information.

(Encoder dimension) (Brake dimension)

Encoder/brake are additional options for manufactured motors, see P35-P36 for details.

Standard trip (mm)	50	100	150
N	3	4	5
L1(mm)	140	190	240
L2(mm)	182.6	232.6	282.6
Weight (KG)	0.4	0.6	0.8

Note: The standard does not have a sensor by default. The effective stroke should be reduced by 5mm when installing one sensor. A maximum of two sensors can be installed.

MS42 Series

- **Integrated design, Easy installation**
- **Small Size, Width 42mm**
- **Anti-Backlash technology, High repeatability**

Ordering Information

MS42 – 3A1 0 T – L AR 1 – XX – 0

Series Code

Code	Mating Motor
MS42	NEMA17

Motor Length Code

Code	Motor Body Length Max(mm)
3A1	39.8(LE172S)

Additional Options Code

Code	Additional Options
0	No additional
B	Brake
E	Encoder

The standard models have no additional options, any additional customization please contact the manufacturer.

Outlet Direction Code

Code	Outlet Direction
T	Top
B	Bottom
L	Left
R	Right

The standard outlet direction is from top side, any outlet direction customization please contact the manufacturer.

Lead Screw Type Code

Code	Lead Screw Type
L	Standard Leadscrews

Special Custom Type Code

Code	Custom Type
0	Standard Code
xx	Other Special Custom Type

For customization, please contact the manufacturer.

Stroke Options (mm)

###	Options: 50,100,150

The above is the standard optional itinerary, if you need to customize, please contact the manufacturer.

Nut Type Code

Code	Nut Type
1	Standard Nut
2	Anti-Backlash Nut

The standard configure is standard nut, any anti-backlash customization please contact the manufacturer.

Lead Code

Code	Lead (mm)
CG	1.25
AR	4
BH	8
BX	10.5

The above is the standard product optional lead, if you need to customize please contact the manufacturer.

Note:Choosing the standard order models can get the sample quickly, please see P125 for standard models.

Technical Parameters

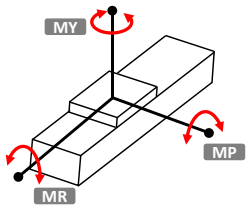
Product series	Max. Stroke (mm)	Guide wide (mm)	Repeat accuracy (mm)	Lead code	Lead (mm)	Maximum speed (mm/s)	Maximum load (kg) Motor:LE172S	
							Horizontal	Vertical
MS42	200	15	Standard nut: ±0.05 Anti-Backlash Nut: ± 0.02	CG	1.25	12.5	5	3
				AR	4	40	5	3
				BH	8	80	5	3
				BX	10.5	105	5	3

Note: Please see P168-P175 for recommended driver selection.

MS42 Series

Torque Parameters

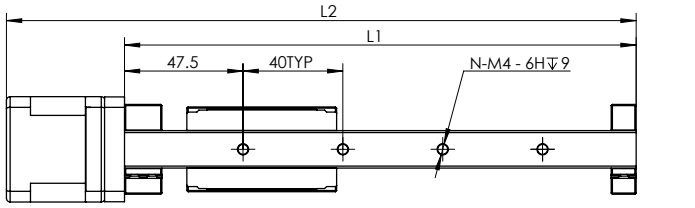
(UNIT:N·m)

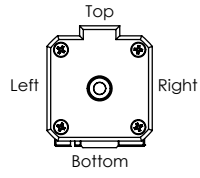


	Static moment	Dynamic moment
MY	11.5	8
MP	11.5	8
MR	14.7	10.2

Dimensional Information

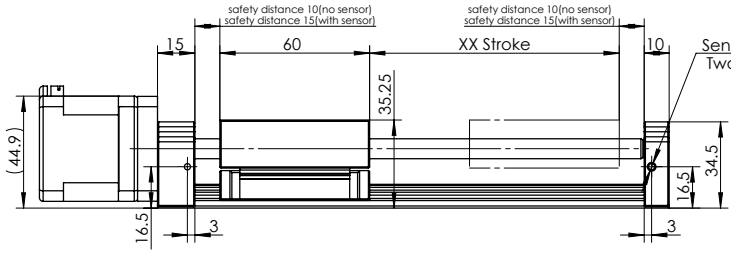
UNIT:mm

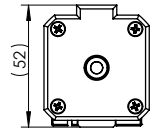


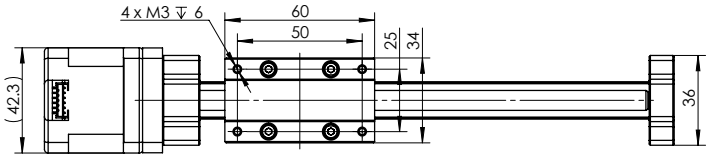


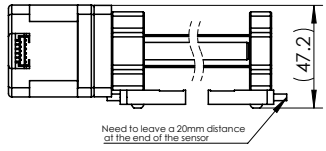
(Outlet Direction Definition)

The default orientation of the standard is up.



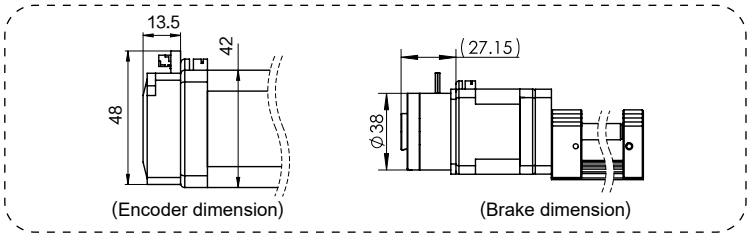






(Sensor dimension)

The sensor is an optional part.
Please see P132 for order information.



(Encoder dimension) (Brake dimension)

Encoder/brake are additional options for manufactured motors, see P35-P36 for details.

Standard trip (mm)	50	100	150	200
N	3	4	6	7
L1(mm)	155	205	255	305
L2(mm)	202.3	252.3	302.3	352.3
Weight (KG)	0.8	0.85	0.9	1

Note: The standard does not have a sensor by default. The effective stroke should be reduced by 5mm when installing one sensor. A maximum of two sensors can be installed.

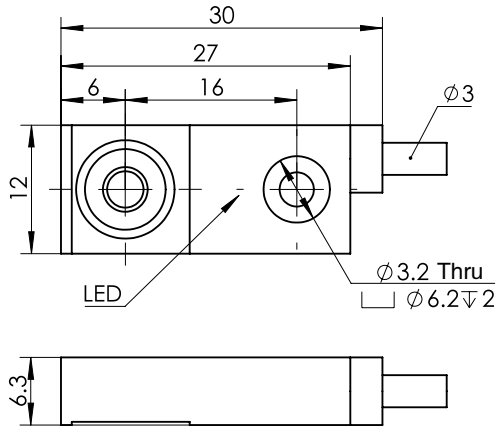
Sensor (order separately)

Parameters

Type	NPN output/PNP output	**Size**	6.5 X 12 X 27
Sensing range	4mm±10%	**Circuit protection**	Polarity protection,Short-circuit Protection
Pre-set distance	3.2mm	**Leakage current**	< 100uA
Range of backlash	1%~15% of detecting-distance	**Operation indicator**	red LED
Repeatability	< 5% of detecting-distance	**Cable**	Lead out type,standard leads 2m
Response frequency	1KHz	**Ambient temperature**	As using and preserving,-25℃ —70℃
Standard detector	12X12X1t , Q235A steel plate	**Ambient humidity**	As using and preserving,35~95% RH
Supply Voltage	DC12~24V Ripple,under(P-P)10%	**Vibration(endurance)**	10~50Hz amplitude,1.5mm X,Y,Z
Current consumption	< 10mA	**Voltage with standability**	1,000V AC for one min.,50/60Hz
Voltage effect	<3%	**Insulation resistance**	> 100MΩ(DC500V Meggern)
Load current	<100mA	**Protection**	IP67(IEC)
Residual voltage	< 2V (Load current 100mA,leads 2m)	**Enclosure**	PC

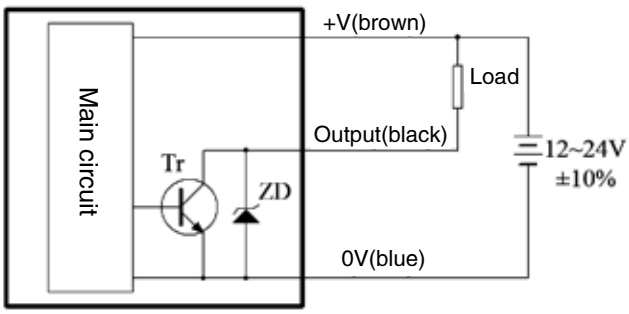
Dimensional Information

UNIT:mm

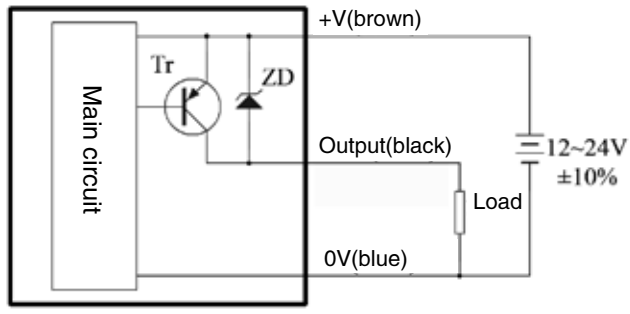


Wiring Diagram

NPN output



PNP output



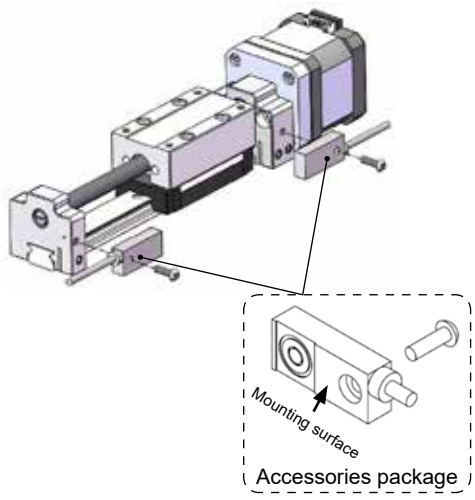
Sensor (order separately)

■ Installation instructions

● Installation tool:Hex Key Wrench(M3)

● Mounting

The sensor mounting holes have been reserved on the side of the linear module.
Please install the sensor according to the picture below:



■ Ordering model

Accessories package

Ordering model	Accessories	Matching products
PJB-SE12F04NO	NPN type sensor x1, M3 screw x1, M3 nut x1	MS series
PJB-SE12F04PO	PNP type sensor x1, M3 screw x1, M3 nut x1	MS series

Note: Please order the accessories package separately for sensors, and sensor need installation by customer.

Miniature Linear Actuators

MLA Series Miniature Linear Actuators

MOONS' MLA Series Miniature Linear Actuators are designed to fit the requirement of customer for compact structure. This series of products has the characteristics of small size, high efficiency, high rigidity and high precision. At the same time, the selection is simple, the transaction cycle is short, and the installation is easy. It provides linear motion solutions with richer configuration, more convenient operation and better product consistency for the mechanical equipment developers.

- Various configurations can meet the installation space requirements for different applications
- MLA28, MLA35& MLA42V series can be equipped with stepper servo motor to achieve closed-loop control
- MLA20,MLA28,MLA35 & MLA42V series can be equipped with stepper motors with brakes and encoders
- Each Actuator offers a wide range of threaded screw and roll resistance screw options

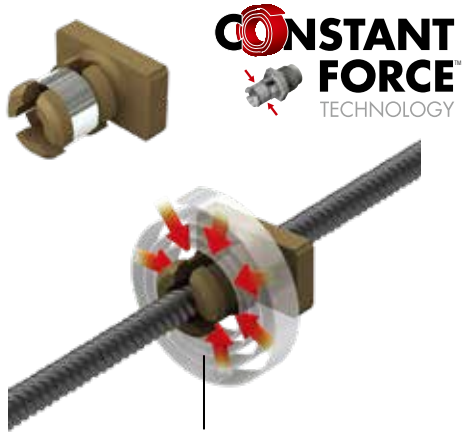
MOONS' is committed to providing its customers with integrated solutions of consistent and reliable quality. With its excellent product quality, high level of application technology and fast and flexible service, MOONS' helps its customers to reduce the period for new product development and the time for system integration (labor costs) during mass production, thus reducing overall costs.

Constant Force Technology

Constant Force™ Anti-Backlash Nut

An intuitive leap forward in nut design for lead screw applications,Constant Force Technology utilizes a constant force spring to apply a uniform pressure to the nut at all stages of the motion profile.

- Greater consistency and resistance to backlash
- Configurable for various torque requirements
- Patent pending self-adjusting anti-backlash feature
- Polymer nuts are self-lubricating and maintenance free



Patent pending Constant Force Technology nut provides consistent anti-backlash operation.

Standard Nut

- Excellent rigidity and vibration damping
- Made by polymer materials,self-lubricating and maintenance free

Integrated stepper servo technology

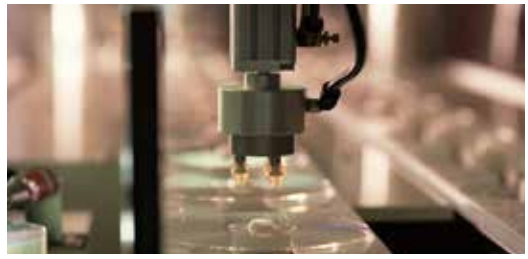
Integrated stepper servo technology innovatively integrates servo control technology into stepper motors, unprecedently creates an all-in-one motion control terminal with new and superior performance. MOONS' offers customers a solution that integrates motor, driver, encoder, and controller.

- Intelligent, built-in motion controller
- Bus control, multi-axis network communication
- Reinforced motor, excellent durability
- High efficiency, high precision, fast response
- Low vibration, low noise, low heat generation

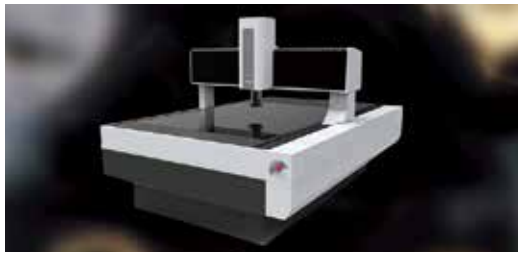
CANopen Modbus EtherNet/IP SCL Q Programmer

Applications

Medical Science



Factory Automation



Measuring Instrument

Biochemical Analysis

Photovoltaic Machining

Semiconductor Fabrication

MLA Series Standard Models for stock

Lead Screw Configurations

Size (mm)	Actuator Series		Motor Options		Screw Nut Options		Stroke Code		Standard Code	Page
22X27	MLA20	-	3E40T	-	LEC1,LEC2 LEA1,LEA2 LAM1,LAM2	-	10,20,35,60	-	0	P139
32X41	MLA28	-	2D10T	-	LAB1,LAB2 LAE1,LAE2 LAH1,LAH2	-	10,20,35,50,60,70,80, 90,100,110,120	-	00	P141
			2D20T		LAB1,LAB2 LAE1,LAE2 LAH1,LAH2					
			3D10T		LAB1,LAB2 LAE1,LAE2 LAH1,LAH2					
37X43	MLA35	-	2C20T	-	LAR1,LAR2 LBH1,LBH2 LCG1,LCG2	-	40,80,120,160	-	00	P145
			3C20T		LAR1,LAR2 LBH1,LBH2 LCG1,LCG2					
69X47	MLA42	-	3A10T	-	LCG1,LCG2 LBH1,LBH2 LAR1,LAR2	-	50,100,150	-	0	P148
61X57	MLA42V	-	3A10T	-	LCG1,LCG2 LAR1,LAR2 LBH1,LBH2	-	25,50,75,100, 125,150,175,200, 225,250,275,300	-	0	P150

Order sample

① Select configuration codes

Actuator Series		Motor Options		Screw Nut Options		Stroke Code		Standard Code
MLA28	-	3D10T	-	LAH1,LAH2	-	10,20,35,50,60,70,80, 90,100,110,120	-	00

② Determine the order Models

MLA28 - 3D10T - LAH1 - 60 - 00

In addition to the standard number, we also provide a wealth of customized configuration options, for more information please contact the factory.

MLA Series Standard Models for stock

■ Ball screw Configurations

Size (mm)	Actuator Series		Motor Options		Screw Nut Options		Stroke Code		Standard Code	Page
22X27	MLA20	-	3E40T	-	BAH3	-	10,20,35,60	-	0	P139
32X41	MLA28	-	2D10T	-	BAG3	-	10,20,35,50,60,70,80, 90,100,110,120	-	00	P141
					BBG3					
			2D20T		BAG3					
					BBG3					
			3D10T		BAG3					
					BBG3					
37X43	MLA35	-	2C20T	-	BAG3	-	40,80,120,160	-	00	P145
					BBG3					
			3C20T		BAG3					
					BBG3					
61X57	MLA42V	-	3A10T	-	BAG3	-	25,50,75,100,125, 150,175,200,225, 250,275,300	-	0	P150
					BAX3					
					BBH3					
					BAJ3					
			2A10T		BAG3					
					BAX3					
					BBH3					
					BAJ3					

Order sample

① Select configuration codes

Actuator Series		Motor Options		Screw Nut Options		Stroke Code		Standard Code
MLA28	-	3D10T	-	BAG3	-	10,20,35,50,60,70,80, 90,100,110,120	-	00

② Determine the order Models

MLA28 - 3D10T - BAG3 - 60 - 00

In addition to the standard number, we also provide a wealth of customized configuration options, for more information please contact the factory.

MLA20 Series

- **Integrated design, Easy installation**
- **Small size, Width 22mm**
- **Anti-Backlash technology, High precision**

■ Ordering Information

MLA20 − 3E3 0 T − L EC 1 − XX − 0

Actuator Series

Code	Mating Motor
MLA20	NEMA08

Motor Options

Code	Motor Body Length Max(mm)
3E3	29.5(Plug In Connector)
3E4	29.5(Plug In Connector)

Additional Options Code

Code	Additional Options
0	No Additional
E	Encoder

The standard models have no additional options,any additional customization please contact the manufacturer.

Outlet Direction Code

Code	Outlet Direction
T	Top
B	Bottom
L	Left
R	Right

The standard outlet direction is from top side, any outlet direction customization please contact the manufacturer.

Lead Screw Type Code

Code	Lead Screw Type
L	Lead screws
B	Ball screws

Special Custom Type Code

Code	Custom Type
0	Standard Code
XX	Special Custom Code

For customization, please contact the manufacturer.

Stroke Options(mm)

###	Options: 10,20,35,60

For customization, please contact the manufacturer.

Nut Type Code

Code	Nut Type	Mating Lead Screw
1	Standard Nut	Lead screws
2	Anti-Backlash Nut	
3	Standard Nut	Ball screws

Lead Code

Code	Lead (mm)	Lead Screw Type
EC	0.635	Lead screws
EA	1.27	
AM	2.54	
AH	1	Ball screws

The above is the standard optional lead, if you need to customize please contact the manufacturer.

Note:Choosing the standard order models can get the sample quickly, please see P137-P138 for standard models.

■ Technical Parameters

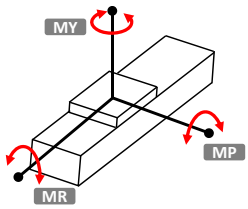
Actuator Series	Max. Stroke (mm)	Lead Screw Type	Repeat accuracy (mm)	Lead code	Lead (mm)	Max. speed (mm/s)	Maximum load (kg) Motor:LE081S	
							Horizontal	Vertical
MLA20	60	Lead screws	Standard nut: ±0.05 Anti-Backlash Nut: ±0.02	EC	0.635	7	2	1
				EA	1.27	13	2	1
				AM	2.54	26	1	0.5
		Ball screws	Standard Nut:±0.01	AH	1	10	2	1

Note: Please see P168-P175 for recommended driver selection.

MLA20 Series

■ Torque Parameters

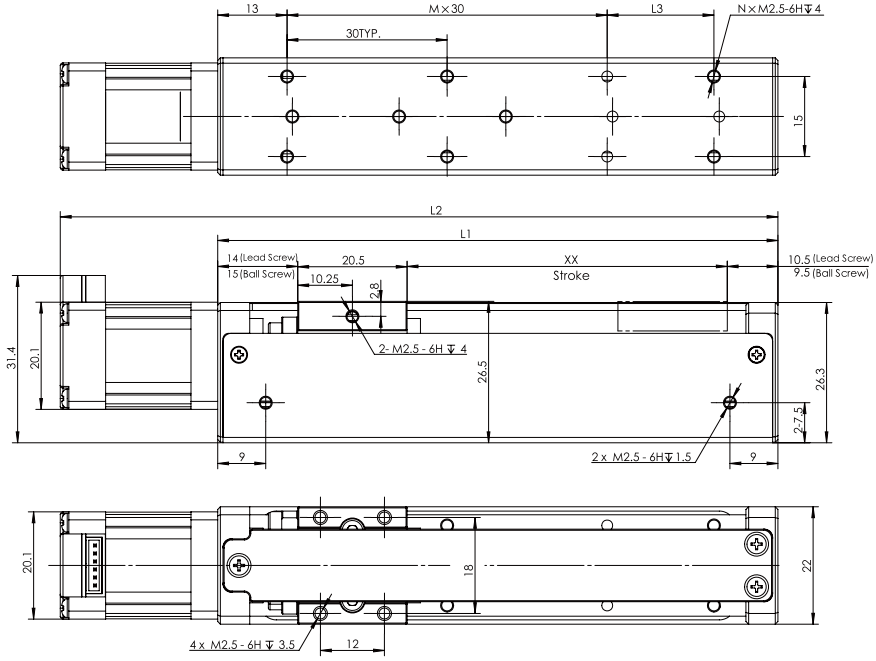
UNIT:N·m

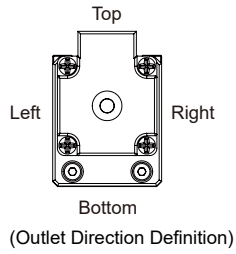


	Static moment	Dynamic moment
MY	0.5	0.3
MP	0.6	0.3
MR	1.5	0.9

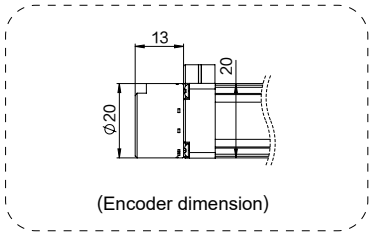
■ Dimensional Information

UNIT:mm





(Outlet Direction Definition)



(Encoder dimension)

Encoders are additional options for manufactured motors, see P153 for details.

Stroke	10	20	35	60
L1	55	65	80	105
L2	84.5	94.5	109.5	134.5
L3	30	10	25	20
M	0	1	1	2
N	4	6	6	8
Weight (KG)	0.09	0.13	0.18	0.28

MLA28 Series

- **Integrated design, Easy installation**
- **Small size, Width 32mm**
- **Lead Screw /Ball Screw options available**
- **Integrated Step-Servo options available**

Ordering Information

MLA28 – 3D1 0 T – L AE 1 – XX – 00

Actuator Series

Code	Mating Motor
MLA28	NEMA11

Motor Options

Code	Motor Body Length Max(mm)
3D1	32
2D1	53(Divided Step-Servo)
2D2	53(Integrated Step-Servo)

Additional Options Code

Code	Additional Options
0	No Additional
B	Brake
E	Encoder

The standard models have no additional options,any additional customization please contact the manufacturer.

Outlet Direction Code

Code	Outlet Direction
T	Top
B	Bottom
L	Left
R	Right

The standard outlet direction is from top side, any outlet direction customization please contact the manufacturer.

Lead Screw Type Code

Code	Lead Screw Type
L	Lead screws
B	Ball screws

Special Custom Type Code

Code	Custom Type
00	Standard Code
XX	Other Special Custom Type

For customization, please contact the manufacturer.

Stroke Options(mm)

###	Options: 10,20,35,50,60,70, 80,90,100,110,120

For customization, please contact the manufacturer.

Nut Type Code

Code	Nut Type	Mating Lead Screw
1	Standard Nut	Lead screws
2	Anti-Backlash Nut	
3	Standard Nut	Ball screws

Lead Code

Code	Lead (mm)	Lead Screw Type
AH	1	Lead screws
AE	3	
AB	6.35	
AG	2	Ball screws
BG	6	

The above is the standard product optional lead, if you need to customize please contact the manufacturer.

Note:Choosing the standard order models can get the sample quickly, please see P137-P138 for standard models.

Technical Parameters

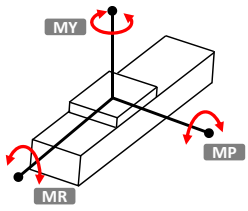
Actuator Series	Max. Stroke (mm)	Lead Screw Type	Repeat accuracy (mm)	Lead code	Lead (mm)	Max. speed (mm/s)	Max. load(kg) Motor:LE111S		Max. load(kg) Motor:TSM11Q-2RM and AM11RS2DMA	
							Horizontal	Vertical	Horizontal	Vertical
MLA28	120	Lead screws	Standard nut: ±0.05 Anti-Backlash Nut: ±0.02	AH	1	10	3	2	3	2
				AE	3	30	3	2	3	2
				AB	6.35	63.5	1.8	1.3	2	1.5
		Ball screws	Standard Nut: ±0.01	AG	2	20	3	2	3	2
				BG	6	60	3	1.4	3	2

Note: Please see P168-P175 for recommended driver selection.

MLA28 Series

Torque Parameters

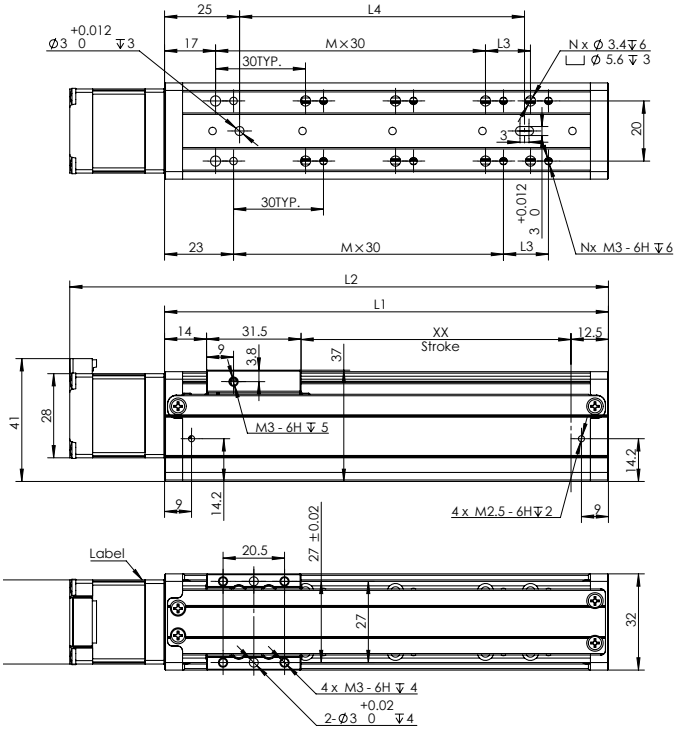
UNIT:N·m

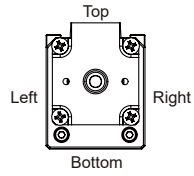


	Static moment	Dynamic moment
MY	1.4	0.9
MP	1.4	0.9
MR	3.1	2

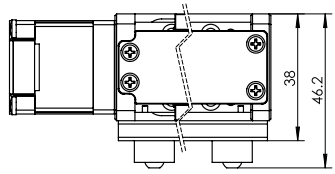
Dimensional Information (Open-loop stepper)

UNIT:mm



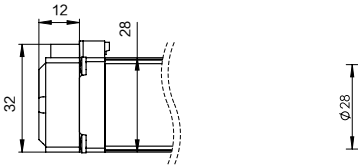


(Outlet Direction Definition)

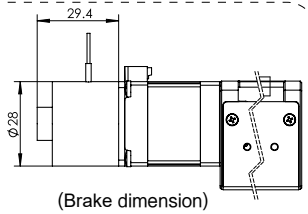


(Sensor dimension)

The sensor is an optional part. Please see P155-P157 for order information.



(Encoder dimension)



(Brake dimension)

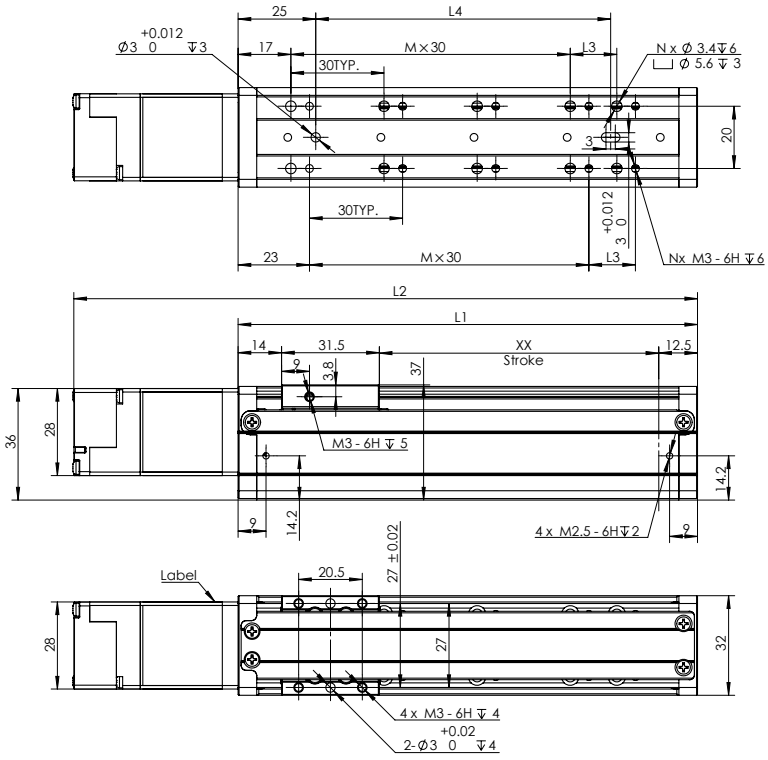
Encoder/brake are additional options for manufactured motors, see P153-P154 for details.

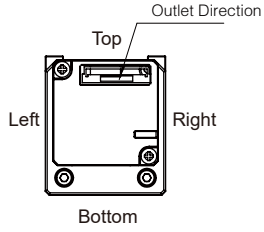
Stroke(mm)	10	20	35	50	60	70	80	90	100	110	120
L1(mm)	70	80	95	108	118	128	138	148	158	168	178
L2(mm)	102	112	127	140	150	160	170	180	190	200	210
L3(mm)	/	/	/	/	45	25	/	15	25	/	45
L4(mm)	30	40	35	65	65	75	90	95	105	120	125
M	1	1	2	2	1	2	3	3	3	4	3
N	4	4	6	6	6	8	8	10	10	10	10
Weight (KG)	0.3	0.34	0.38	0.42	0.45	0.47	0.5	0.53	0.55	0.58	0.6

MLA28 Series

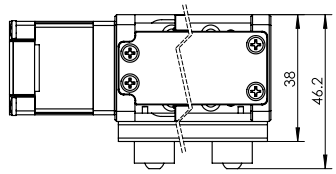
Dimensional Information (Integrated Step-Servo)

UNIT:mm





(Outlet Direction Definition)



(Sensor dimension)

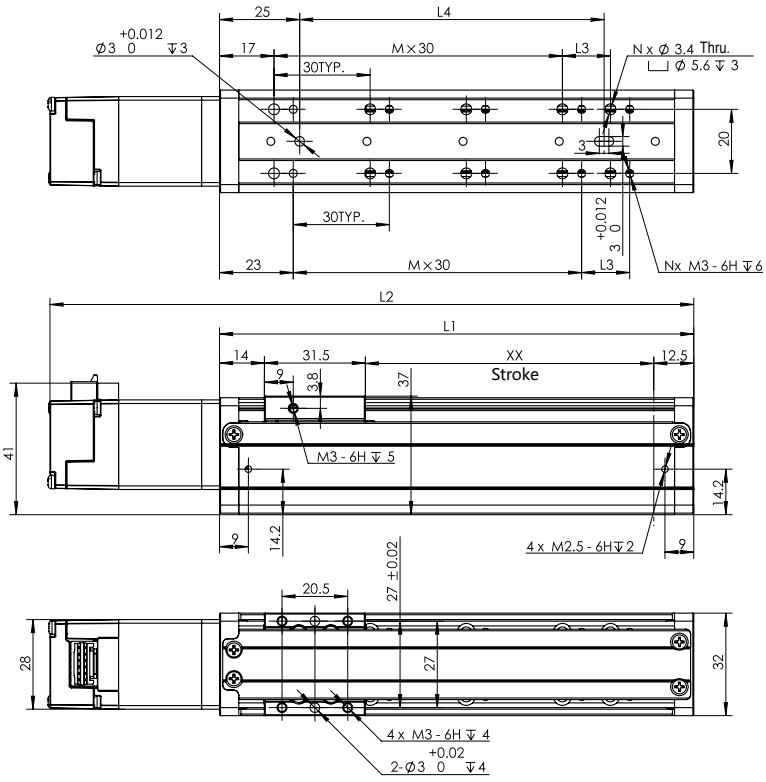
The sensor is an optional part. Please see P155-P157 for order information.

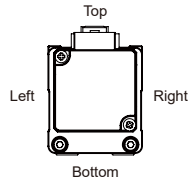
Stroke (mm)	10	20	35	50	60	70	80	90	100	110	120
L1(mm)	70	80	95	108	118	128	138	148	158	168	178
L2(mm)	123	133	148	161	171	181	191	201	211	221	231
L3(mm)	/	/	/	/	45	25	/	15	25	/	45
L4(mm)	30	40	35	65	65	75	90	95	105	120	125
M	1	1	2	2	1	2	3	3	3	4	3
N	4	4	6	6	6	8	8	10	10	10	10
Weight (KG)	0.38	0.42	0.46	0.5	0.53	0.55	0.58	0.61	0.63	0.66	0.68

MLA28 Series

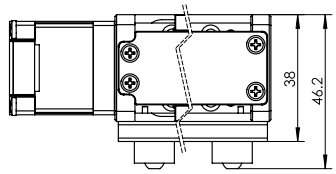
Dimensional Information(Divided Step-Servo)

UNIT:mm





(Outlet Direction Definition)



(Sensor dimension)

The sensor is an optional part. Please see P155-P157 for order information.

Stroke (mm)	10	20	35	50	60	70	80	90	100	110	120
L1(mm)	70	80	95	108	118	128	138	148	158	168	178
L2(mm)	123	133	148	161	171	181	191	201	211	221	231
L3(mm)	/	/	/	/	45	25	/	15	25	/	45
L4(mm)	30	40	35	65	65	75	90	95	105	120	125
M	1	1	2	2	1	2	3	3	3	4	3
N	4	4	6	6	6	8	8	10	10	10	10
Weight (KG)	0.38	0.42	0.46	0.5	0.53	0.55	0.58	0.61	0.63	0.66	0.68

MLA35 Series

- **Integrated design, Easy installation**
- **Small Size, Width 37mm**
- **Lead Screw /Ball Screw options available**

■ Ordering Information

MLA35 − 3C2 0 T − L AR 1 − XX − 00

Actuator Series

Code	Mating Motor
MLA35	NEMA14

Motor Options

Code	Motor Body Length Max(mm)
2C2	68(Divided Step-Servo)
3C2	36

Additional Options Code

Code	Additional Options
0	No Additional
B	Brake
E	Encoder

The standard models have no additional options,any additional customization please contact the manufacturer.

Outlet Direction Code

Code	Outlet Direction
T	Top
B	Bottom
L	Left
R	Right

The standard outlet direction is from top side, any outlet direction customization please contact the manufacturer.

Lead Screw Type Code

Code	Lead Screw Type
L	Lead screws
B	Ball screws

Special Custom Type Code

Code	Custom Type
00	Standard Code
XX	Other Special Custom Type

For customization, please contact the manufacturer.

Stroke Options(mm)

###	Options: 40,80,120,160

For customization, please contact the manufacturer.

Nut Type Code

Code	Nut Type	Mating Lead Screw
1	Standard Nut	Lead screws
2	Anti-Backlash Nut	
3	Standard Nut	Ball screws

Lead Code

Code	Lead (mm)	Lead Screw Type
CG	1.25	Lead screws
AR	4	
BH	8	
AG	2	Ball screws
BG	6	

The above is the standard product optional lead, if you need to customize please contact the manufacturer.

Note:Choosing the standard order models can get the sample quickly, please see P137-P138 for standard models.

■ Technical Parameters

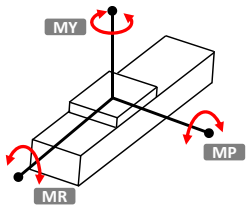
Actuator Series	Max. Stroke (mm)	Lead Screw Type	Repeat accuracy (mm)	Lead code	Lead (mm)	Max. speed (mm/s)	Max. load(kg) Motor:LE143S	
							Horizontal	Vertical
MLA35	160	Lead screws	Standard nut: ±0.05 Anti-Backlash Nut: ±0.02	CG	1.25	10	5	3
				AR	4	40	5	3
				BH	8	80	4.5	2.5
		Ball screws	Standard Nut: ±0.01	AG	2	20	5	3
				BG	6	60	5	3

Note: Please see P168-P175 for recommended driver selection.

MLA35 Series

Torque Parameters

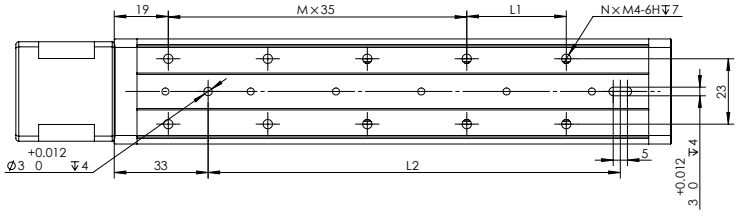
UNIT:N·m

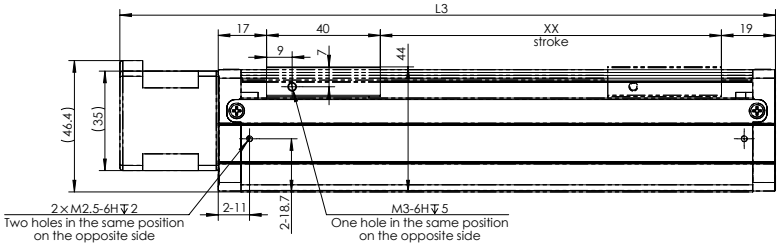


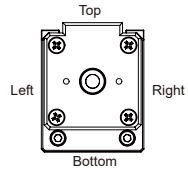
	Static moment	Dynamic moment
MY	3.7	2.4
MP	3.7	2.4
MR	8	5.2

Dimensional Information (Open-loop stepper)

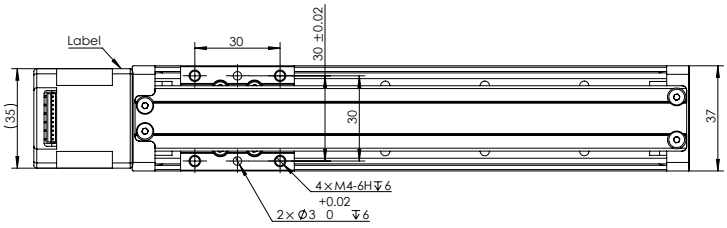
UNIT:mm

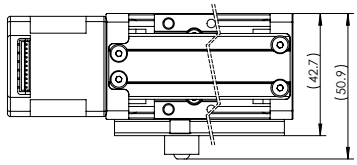






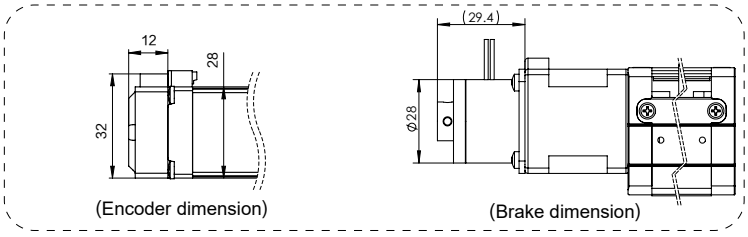
(Outlet Direction Definition)





(Sensor dimension)

The sensor is an optional part. Please see P155-P157 for order information.



(Encoder dimension) (Brake dimension)

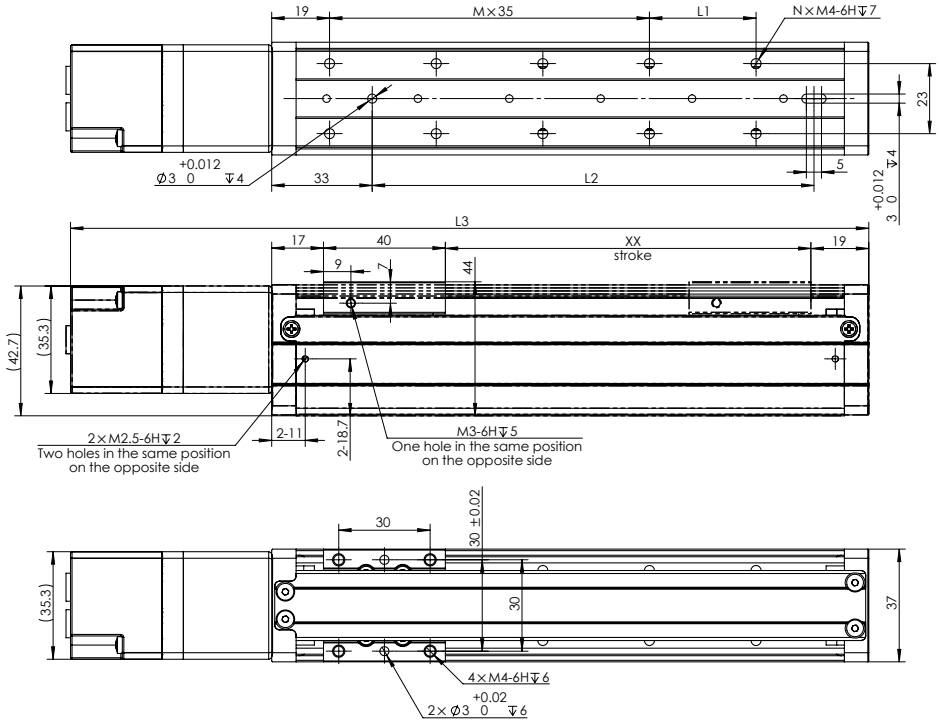
Encoder/brake are additional options for manufactured motors, see P153-P154 for details.

Stroke (mm)	40	80	120	160
L1(mm)	/	/	/	20
L2(mm)	60	95	145	180
L3(mm)	150.6	190.6	230.6	270.6
M	2	3	4	5
N	6	8	10	14
Weight (KG)	0.5	0.65	0.8	0.95

MLA35 Series

■ Dimensional Information (Divided Step-Servo)

UNIT:mm



Stroke (mm)	40	80	120	160
L1(mm)	/	/	/	20
L2(mm)	60	95	145	180
L3(mm)	182	222	262	302
M	2	3	4	5
N	6	8	10	14
Weight (KG)	0.53	0.68	0.83	0.98

MLA42 Series

- **Integrated design, Easy installation**
- **Small Size, Height 35.5mm**
- **Lead Screw /Ball Screw options available**

Ordering Information

MLA42 – 3A1 0 T – L AR 1 – XX – 0

Actuator Series

Code	Mating Motor
MLA42	NEMA17

Motor Options

Code	Motor Body Length Max(mm)
3A1	39.8

Additional Options Code

Code	Additional Options
0	No Additional
B	Brake
E	Encoder

The standard models have no additional options,any additional customization please contact the manufacturer.

Outlet Direction Code

Code	Outlet Direction
T	Top
B	Bottom
L	Left
R	Right

The standard outlet direction is from top side, any outlet direction customization please contact the manufacturer.

Lead Screw Type Code

Code	Lead Screw Type
L	Lead screws

Special Custom Type Code

Code	Custom Type
0	Standard Code
XX	Other Special Custom Type

For customization, please contact the manufacturer.

Stroke Options(mm)

###	Options: 50,100,150

For customization, please contact the manufacturer.

Nut Type Code

Code	Nut Type	Mating Lead Screw
1	Standard Nut	Lead screws
2	Anti-Backlash Nut	

Lead Code

Code	Lead (mm)	Lead Screw Type
CG	1.25	Lead screws
AR	4	
BH	8	

The above is the standard product optional lead, if you need to customize please contact the manufacturer.

Note:Choosing the standard order models can get the sample quickly, please see P137-P138 for standard models.

Technical Parameters

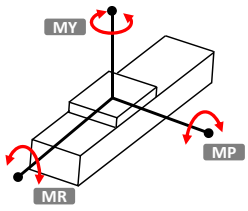
Actuator Series	Max. Stroke (mm)	Screw Type	Repeat accuracy (mm)	Lead code	Lead (mm)	Max. speed (mm/s)	Max. load(kg) Motor:LE172S	
							Horizontal	Vertical
MLA42	150	Lead screws	Standard nut: ±0.05 Anti-Backlash Nut: ±0.02	CG	1.25	13	5	3
				AR	4	40	5	3
				BH	8	80	5	3

Note: Please see P168-P175 for recommended driver selection.

MLA42 Series

Torque Parameters

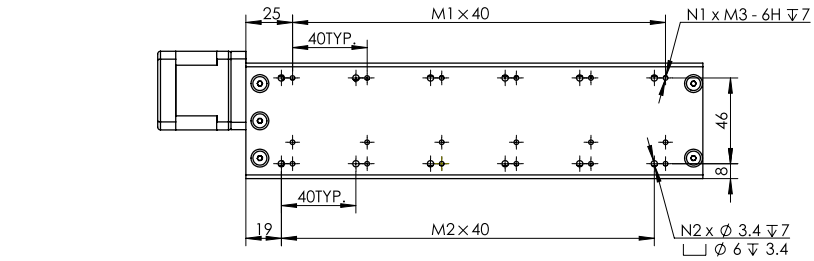
UNIT:N·m

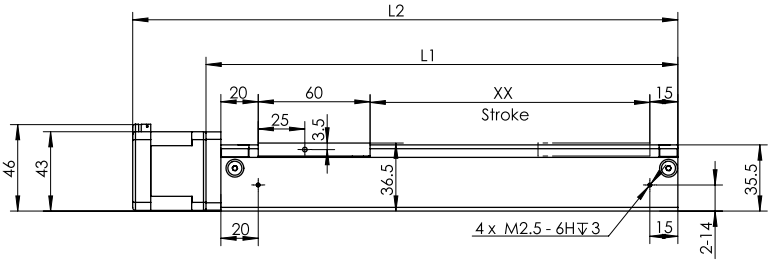


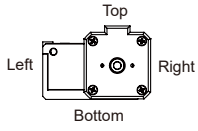
	Static moment	Dynamic moment
MY	8.2	5.7
MP	8.2	5.7
MR	10.5	7.3

Dimensional Information

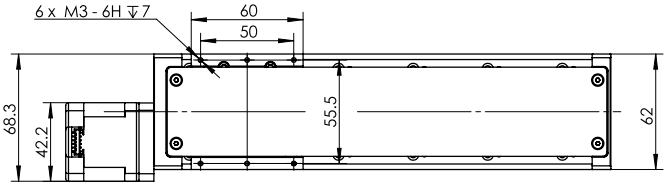
UNIT:mm

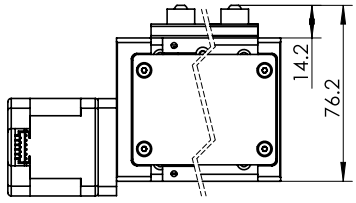






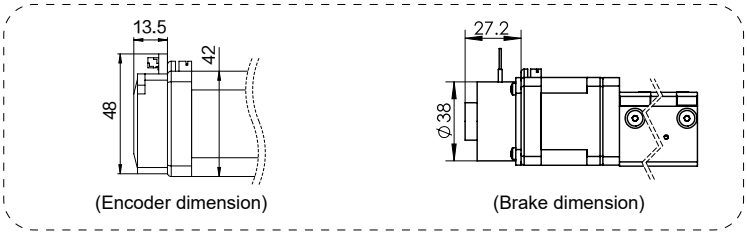
(Outlet Direction Definition)





(Sensor dimension)

The sensor is an optional part. Please see P155-P157 for order information.



(Encoder dimension) (Brake dimension)

Encoder/brake are additional options for manufactured motors, see P153-P154 for details.

Stroke	50	100	150
L1	145	195	245
L2	192	242	292
M1	2	3	5
N1	6	8	12
M2	2	4	5
N2	6	10	12
Weight(KG)	1	1.3	1.5

MLA42V Series

- **Integrated design, Easy installation**
- **Small Size, Width 47mm**
- **Lead Screw /Ball Screw options available**
- **Divided Step-Servo options available**

Ordering Information

MLA42V – 3A1 0 T – L AR 1 – XX – 0

Actuator Series

Code	Mating Motor
MLA42	NEMA17

Motor Options

Code	Motor Body Length Max(mm)
3A1	40
2A1	65(Divided Step-Servo)

Additional Options Code

Code	Additional Options
0	No Additional
B	Brake
E	Encoder

The standard models have no additional options,any additional customization please contact the manufacturer.

Outlet Direction Code

Code	Outlet Direction
T	Top
B	Bottom
L	Left
R	Right

The standard outlet direction is from top side, any outlet direction customization please contact the manufacturer.

Lead Screw Type Code

Code	Lead Screw Type
L	Lead screws
B	Ball screws

Special Custom Type Code

Code	Custom Type
0	Standard Code
XX	Other Special Custom Type

For customization, please contact the manufacturer.

Stroke Options(mm)

###	Options: 25,50,75,100,125,150, 175,200,225,250,275,300

For customization, please contact the manufacturer.

Nut Type Code

Code	Nut Type	Mating Lead Screw
1	Standard Nut	Lead screws
2	Anti-Backlash Nut	
3	Standard Nut	Ball screws

Lead Code

Code	Lead (mm)	Lead Screw Type
CG	1.25	Lead screws
AR	4	
BH	8	
AG	2	Ball screws
AX	5	
BH	8	
AJ	10	

The above is the standard product optional lead, if you need to customize please contact the manufacturer.

Note:Choosing the standard order models can get the sample quickly, please see P137-P138 for standard models.

Technical Parameters

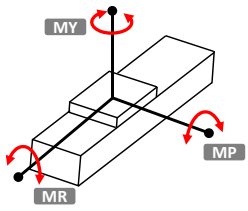
Actuator Series	Max. Stroke (mm)	Screw Type	Repeat accuracy (mm)	Lead code	Lead (mm)	Max. speed (mm/s)	Max. load(kg) LE172S		Max. load(kg) AM17RS2DMA	
							Horizontal	Vertical	Horizontal	Vertical
MLA42V	300	Ball screws	Standard Nut:±0.01	AG	2	20	10	7	10	7
				AX	5	50	10	3	10	5
				BH	8	80	5	2	6	4
				AJ	10	100	4	1.5	5	3
		Lead Screws	Standard Nut:±0.05 Anti-Backlash Nut:±0.02	CG	1.25	12	10	7	-	-
				AR	4	40	10	3	-	-
				BH	8	80	5	2	-	-

Note:Open-loop stepper Please see P168-P175 for recommended driver selection,Divided Step-Servo driver selection recommended P176-P198.

MLA42V Series

Torque Parameters

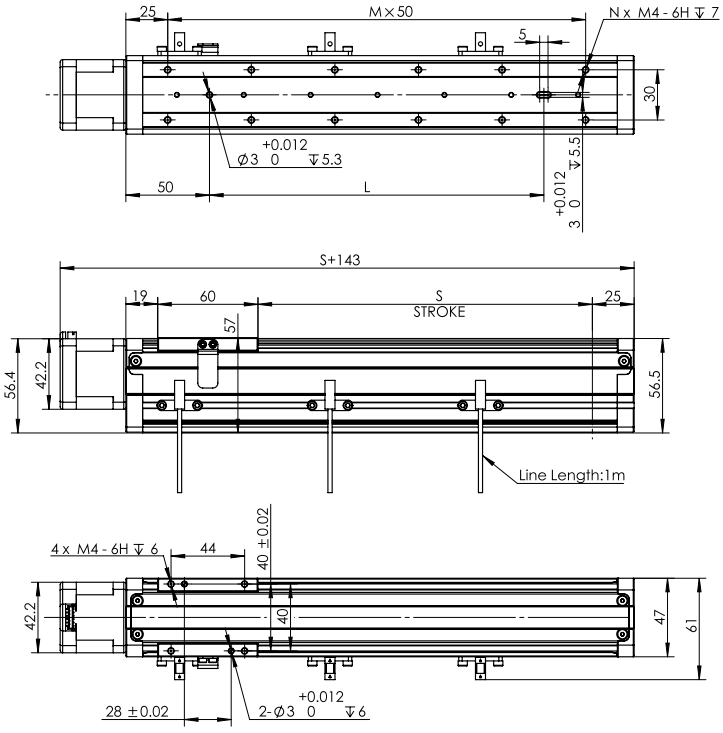
UNIT:N·m

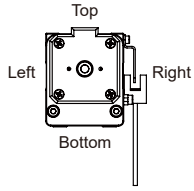


	Static moment	Dynamic moment
MY	11.5	8
MP	11.5	8
MR	14.7	10.2

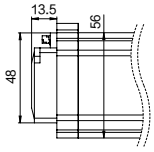
Dimensional Information(Open-loop stepper)

UNIT:mm

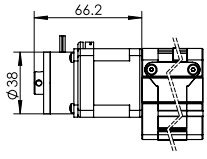




(Outlet Direction Definition)



(Encoder dimension)



(Brake dimension)

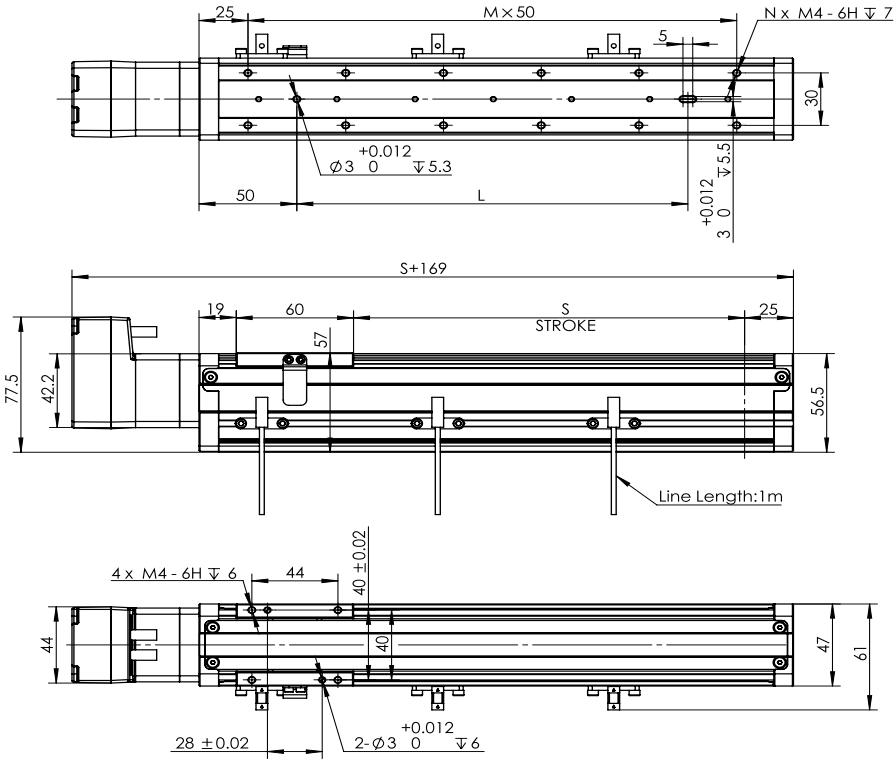
Encoder/brake are additional options for manufactured motors, see P153-P154 for details.

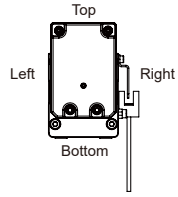
Stroke (mm)	25	50	75	100	125	150	175	200	225	250	275	300
L(mm)	50	75	90	120	150	160	190	200	235	240	285	320
M	1	2	2	3	3	4	4	5	5	6	6	7
N	4	6	6	8	8	10	10	12	12	14	14	16
Weight(Kg)	0.9	1	1.1	1.2	1.4	1.5	1.6	1.7	1.8	2	2.1	2.2

MLA42V Series

Dimensional Information (Divided Step-Servo)

UNIT:mm





(Outlet Direction Definition)

Stroke (mm)	25	50	75	100	125	150	175	200	225	250	275	300
L(mm)	50	75	90	120	150	160	190	200	235	240	285	320
M	1	2	2	3	3	4	4	5	5	6	6	7
N	4	6	6	8	8	10	10	12	12	14	14	16
Weight(Kg)	1	1.1	1.2	1.3	1.5	1.6	1.7	1.8	1.9	2.1	2.2	2.3

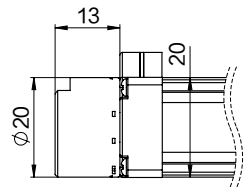
Encoder Options - Suitable for applications that requiring feedback

Parameter

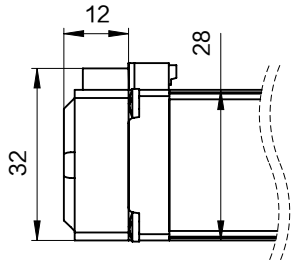
Mating Motor	Supply Voltage (VDC)			PPR	Output	
	Min.	Typ.	Max.			
MLA20/28/35/42/42V	4.5	5	5.5	1000	Single-ended Electrical	Differential Electrical

Dimensional Information

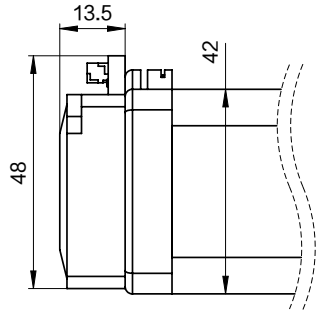
Unit: mm



The encoder mating MLA20



The encoder mating MLA28/35



The encoder mating MLA42/42V

Pin-out

The encoder mating MLA20

JST SM09B-SRSS-TB									
Pin	1	2	3	4	5	6	7	8	9
Description	+5V	GND	A+	A-	Z+	Z-	/	B+	B-
Color	Red	Black	White	Yellow	Orange	Grey	/	Green	Blue

The encoder mating MLA28/35/42/42V

JST SM10B-GHS-TB										
Pin	1	2	3	4	5	6	7	8	9	10
Description	/	A-	A+	B-	B+	Z-	Z+	GND	+5V	/
Color	/	Yellow	White	Blue	Green	Grey	Orange	Black	Red	/

Brake Options

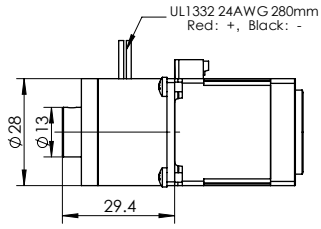
Parameter

Mating Actuator Series	Supply Voltage (VDC)	Braking Torque (N·M)	Power (W)	Reaction Time (ms)	Insulation Grade
MLA28	24	0.3	4.8	15	B
MLA35	24	0.3	4.8	15	B
MLA42	24	1.2	4.5	50	B
MLA42V	24	2.5	4.5	50	B

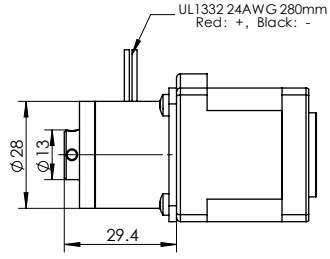
Note:
1. All the brakes with 280mm leads.
2. 12 VDC brake options are available, please consult our technical department for further information.

Dimensional Information

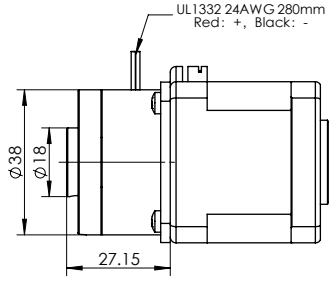
UNIT:mm



The brake mating MLA28



The brake mating MLA35



The brake mating MLA42/MLA42V

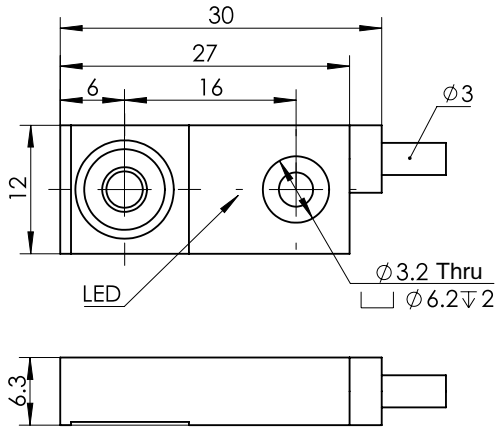
Sensor Options (order separately)

Parameters

Type	NPN output/PNP output	**Size**	6.5 X 12 X 27
Sensing range	4mm±10%	**Circuit protection**	Polarity protection,Short-circuit Protection
Pre-set distance	3.2mm	**Leakage current**	< 100uA
Range of backlash	1%~15% of detecting-distance	**Operation indicator**	red LED
Repeatability	< 5% of detecting-distance	**Cable**	Lead out type,standard leads 2m
Response frequency	1KHz	**Ambient temperature**	As using and preserving,-25℃ —70℃
Standard detector	12X12X1t , Q235A steel plate	**Ambient humidity**	As using and preserving,35~95% RH
Supply Voltage	DC12~24V Ripple,under(P-P)10%	**Vibration(endurance)**	10~50Hz amplitude,1.5mm X,Y,Z
Current consumption	< 10mA	**Voltage with standability**	1,000V AC for one min.,50/60Hz
Voltage effect	<3%	**Insulation resistance**	> 100MΩ(DC500V Meggern)
Load current	<100mA	**Protection**	IP67(IEC)
Residual voltage	< 2V (Load current 100mA,leads 2m)	**Enclosure**	PC

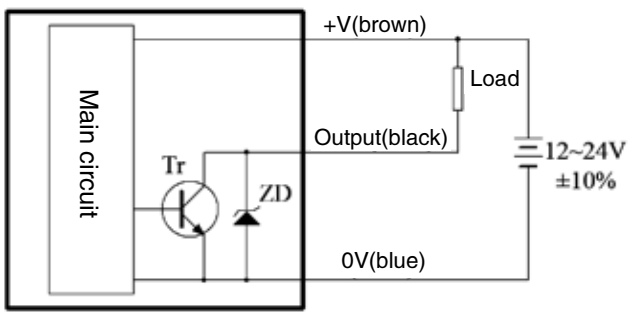
Dimensional Information

UNIT:mm

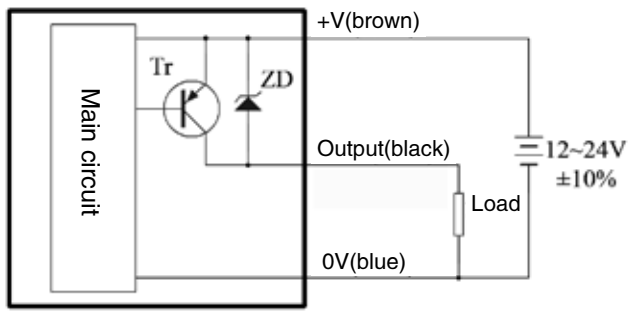


Wiring Diagram

NPN output



PNP output



Sensor Options (order separately)

■ Installation instructions

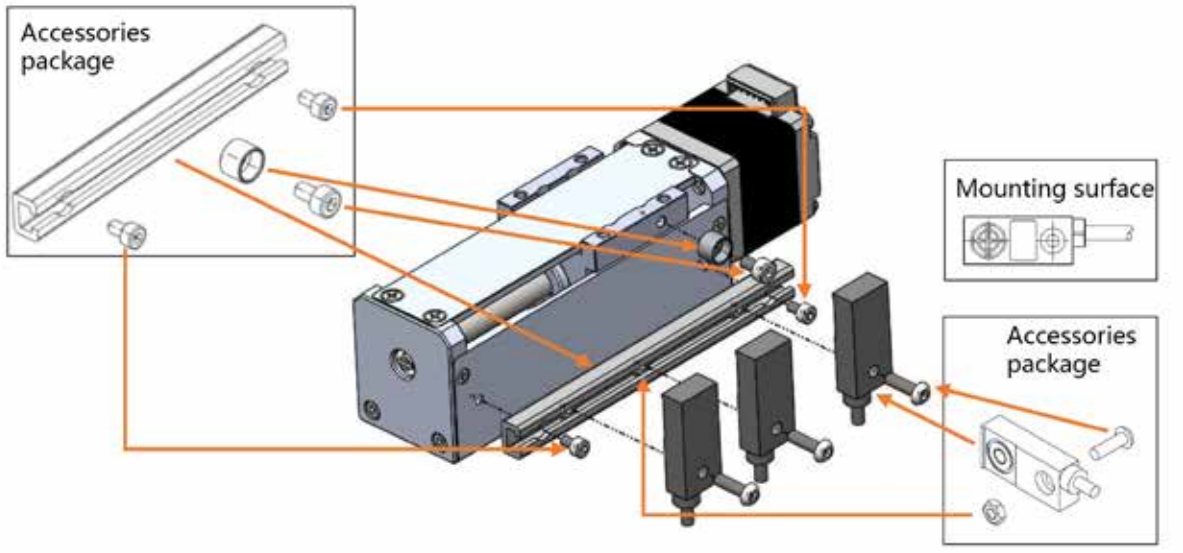
· Installation tool:
A box cutter
Hex Key Wrench(M3)
Multimeter

· Operating environment and storage conditions:
Accessories package operating temperature -20°C ~50°C, ice-free, humidity<85%,no condensation.
Accessories package storage temperature -20°C ~ 50°C, ice-free, humidity 35%<85%, no condensation.

Note: Please keep the package intact when storing for a long time.

· MLA Series
MLA Series is fixed to the side by sensor mounting rail, and the sensor is mounted on the sensor mounting rail, realizing multipoint limit(the actual position can be adjusted according to the needs).

Note: The symmetrical side of MLA series can be fitted with sensor mounting rail & sensor.



Sensor Options (order separately)

■ Ordering Information

Accessories package

Ordering Information	Accessories	Matching products
PJB-MLA28-CDG-10-0	4394000100313 Sensor mounting rail	MLA28Series Stroke10mm
PJB-MLA28-CDG-20-0	4394000101166 Sensor mounting rail	MLA28Series Stroke20mm
PJB-MLA28-CDG-35-0	4394000100314 Sensor mounting rail	MLA28Series Stroke35mm
PJB-MLA28-CDG-50-0	4394000101168 Sensor mounting rail	MLA28Series Stroke50mm
PJB-MLA28-CDG-60-0	4394000100315 Sensor mounting rail	MLA28Series Stroke60mm
PJB-MLA28-CDG-70-0	4394000101174 Sensor mounting rail	MLA28Series Stroke70mm
PJB-MLA28-CDG-80-0	4394000101175 Sensor mounting rail	MLA28Series Stroke80mm
PJB-MLA28-CDG-90-0	4394000100316 Sensor mounting rail	MLA28Series Stroke90mm
PJB-MLA28-CDG-100-0	4394000101148 Sensor mounting rail	MLA28Series Stroke100mm
PJB-MLA28-CDG-110-0	4394000101177 Sensor mounting rail	MLA28Series Stroke110mm
PJB-MLA28-CDG-120-0	4394000100533 Sensor mounting rail	MLA28Series Stroke120mm
PJB-MLA35-CDG-40-00	4394000101220 Sensor mounting rail	MLA35Series Stroke40mm
PJB-MLA35-CDG-80-00	4394000101221 Sensor mounting rail	MLA35Series Stroke80mm
PJB-MLA35-CDG-120-00	4394000101222 Sensor mounting rail	MLA35Series Stroke120mm
PJB-MLA35-CDG-160-00	4394000101223 Sensor mounting rail	MLA35Series Stroke160mm
PJB-MLA42-CDG-50-0	4394000100320 Sensor mounting rail	MLA42Series Stroke50mm
PJB-MLA42-CDG-100-0	4394000100321 Sensor mounting rail	MLA42Series Stroke100mm
PJB-MLA42-CDG-150-0	4394000100322 Sensor mounting rail	MLA42Series Stroke150mm

Ordering Information	Accessories	Matching products
PJB-SE12F04NO	4394000100324 Sensor (NPN)	MS/MLA Series
PJB-SE12F04PO	4394000100325 Sensor (PNP)	MS/MLA Series

Note: Please order the accessories package separately for sensors, and sensor need installation by customer.

MEA Series Miniature Linear Actuators

MOONS' MEA Series Miniature Linear Actuators adopts platform type structure, integrating penetrating screw motor and high precision ball track. This series of products has the characteristics of small size, high efficiency, high rigidity and high precision. At the same time, the selection is simple, the transaction cycle is short, and the installation is easy. It provides linear motion solutions with richer configuration, more convenient operation and better product consistency for the mechanical equipment developers.

- Highly integrated design for maximum space saving installation
- Built-in ball guide, no need for external guide
- Multi-directional configuration of threaded holes for easy mounting of workpieces
- Suitable for replacing platform type cylinders

MOONS' is committed to providing its customers with integrated solutions of consistent and reliable quality. With its excellent product quality, high level of application technology and fast and flexible service, MOONS' helps its customers to reduce the period for new product development and the time for system integration (labor costs) during mass production, thus reducing overall costs.

MEA28 Series

MEA42 Series

MEA Series Standard Models for stock

■ Ball screw Configurations

Actuator Series		Motor Options		Screw Nut Options		Stroke Code		Standard Code	Page
MEA28	-	2ARL,2ARR,2ARB 2TQL,2TQR,2TQB	-	BAH,BAG	-	30,40	-	00	P160
MEA42	-	2ARL,2ARR,2ARB 2TQL,2TQR,2TQB	-	BAG	-	40	-	00	P163
		2ARL,2ARR,2ARB 2TQL,2TQR,2TQB		BBG				00-N	

Order sample

① Select configuration codes

Actuator Series		Motor Options		Screw Nut Options		Stroke Code		Standard Code
MEA28	-	2ARL	-	BAH	-	30,40	-	00

② Determine the order Models

MEA28 - 2ARL - BAH - 30 - 00

In addition to the standard number, we also provide a wealth of customized configuration options, for more information please contact the factory.

MEA28 Series

- **Width:30mm**
- **Repeat accuracy:±0.01mm**
- **Integrated/Divided Step-Servo Motor options available**
- **Multi-communication options available**

Ordering Information

MEA28 – 2AR L – B AH – XX – 0

Actuator Series

Code	Mating Motor
MEA28	NEMA11

Motor Options

Code	Motor Type
2AR	AM11RS2DMA(Divided Step-Servo)
2TQ	TSM11Q-2RM(Integrated Step-Servo)

Outlet Direction Code

Code	Outlet Direction
L	Left
R	Right
B	Bottom

Lead Screw Type Code

Code	Lead Screw Type
B	Ball screws

Other Special Custom Type

Code	Custom Type
0	Standard Code
XX	Other Special Custom Type

For customization, please contact the manufacturer.

Effective Stroke Code(mm)

###	Options:30,40

For customization, please contact the manufacturer.

Lead Code

Code	Lead (mm)
AH	1mm
AG	2mm

*For order,please contact the manufacturer to confirm the specific configuration and model,which shall be subject to the final drawings provided by the factory.

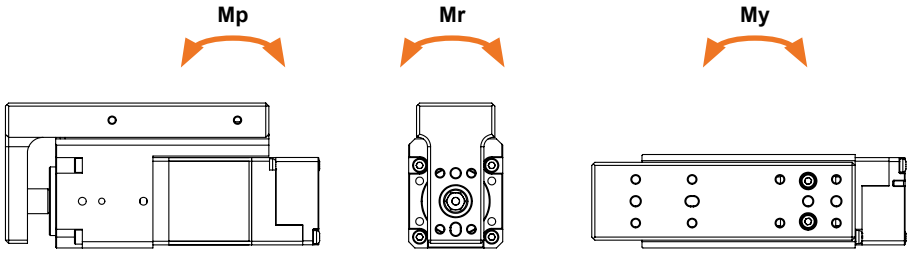
Technical Parameters

Actuator Series	Screw Type	Lead code	Lead (mm)	Max. speed (mm/s)	Max. acceleration (m/s^2)	Max. load mass(kg)		Max. thrust (N)	Repeatability(mm)	Idling value(mm)	Effective stroke (mm)
						Horizontal	Vertical				
MEA28	Ball screws	AH	1	50	0.2	2	1	100	±0.01	0.05	30,40
		AG	2	100		1	0.5	50			

MEA28 Series

Torque Parameters

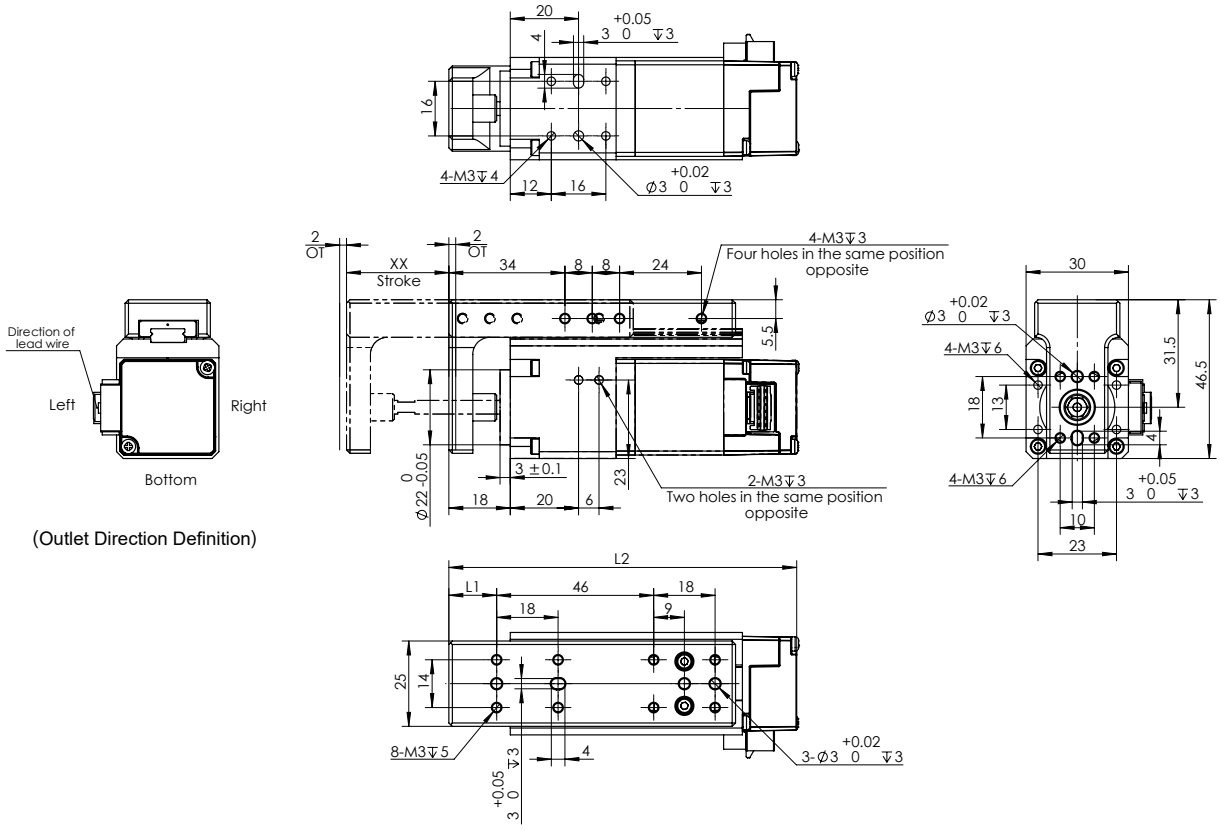
UNIT:N•m



	Static moment	Dynamic moment
MY	0.8	0.4
MP	1	0.56
MR	1.9	1

Dimensional Information (Divided Step-Servo)

UNIT:mm

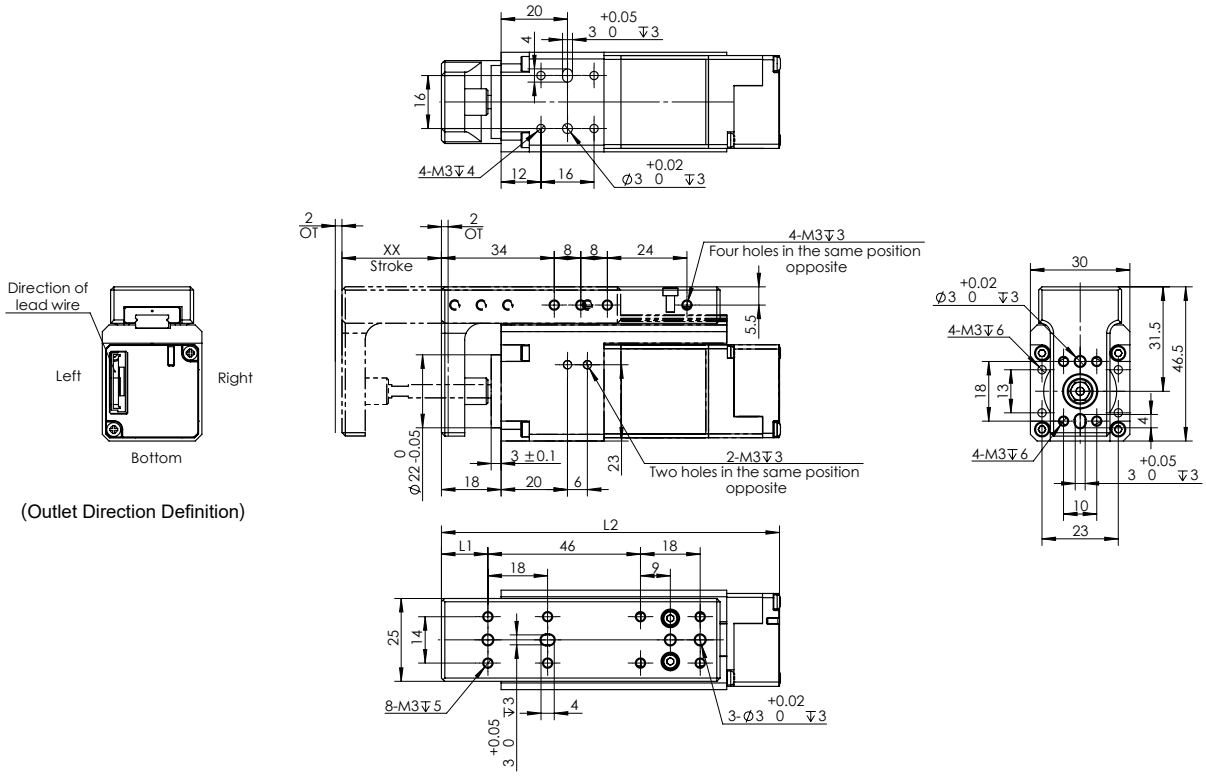


Stroke(mm)	30	40
L1(mm)	14	24
L2(mm)	102	102
Weight(kg)	0.35	0.38

MEA28 Series

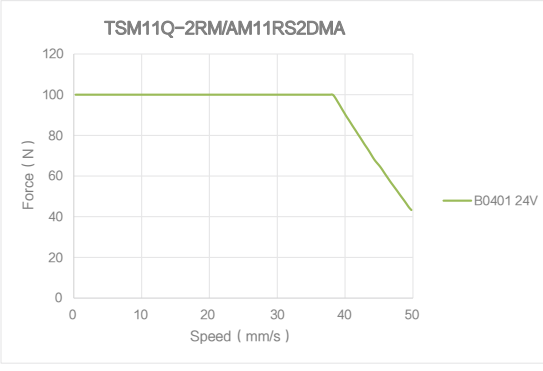
Dimensional Information (Integrated Step-Servo)

UNIT:mm



Stroke(mm)	30	40
L1(mm)	14	24
L2(mm)	102	102
Weight(kg)	0.35	0.38

Speed - Force Reference Curve



MEA42 Series

- **Width:65mm**
- **Repeat accuracy:±0.01mm**
- **Integrated/Divided Step-Servo Motor options available**
- **Multi-communication options available**

■ Ordering Information

MEA42 – 2AR L – B AG – XX – 0

Actuator Series

Code	Mating Motor
MEA42	NEMA17

Motor Options

Code	Motor Type
2AR	AM17RS2DMA(Divided Step-Servo)
2TQ	TSM17Q-2RG(Integrated Step-Servo)
2ASB	AM17SS2DGA-N-B(Divided Step-Servo,with brake)

Outlet Direction Code

Code	Outlet Direction
L	Left
R	Right
B	Bottom

Lead Screw Type Code

Code	Lead Screw Type
B	Ball screws

Other Special Custom Type

Code	Custom Type
0	Standard Code
XX	Other Special Custom Type

For customization, please contact the manufacturer.

Effective Stroke Code(mm)

###	Options: 40

For customization, please contact the manufacturer.

Lead Code

Code	Lead (mm)
AG	2mm
BG	6mm

*For order,please contact the manufacturer to confirm the specific configuration and model,which shall be subject to the final drawings provided by the factory.

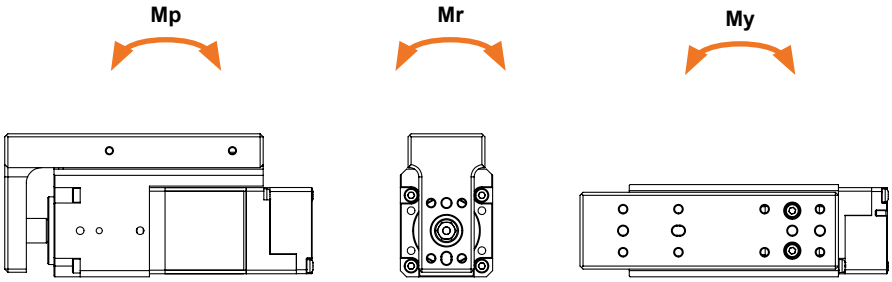
■ Technical Parameters

Actuator Series	Screw Type	Lead code	Lead (mm)	Max. speed (mm/s)	Max. acceleration (m/s^2)	Max. load mass(kg)		Max. thrust (N)	Repeatability(mm)	Idling value(mm)	Effective stroke (mm)
						Horizontal	Vertical				
MEA42	Ball screws	AG	2	60	0.3	5	1.5	150	±0.01	0.05	40
		BG	6	180		1.6	0.5	50			

MEA42 Series

Torque Parameters

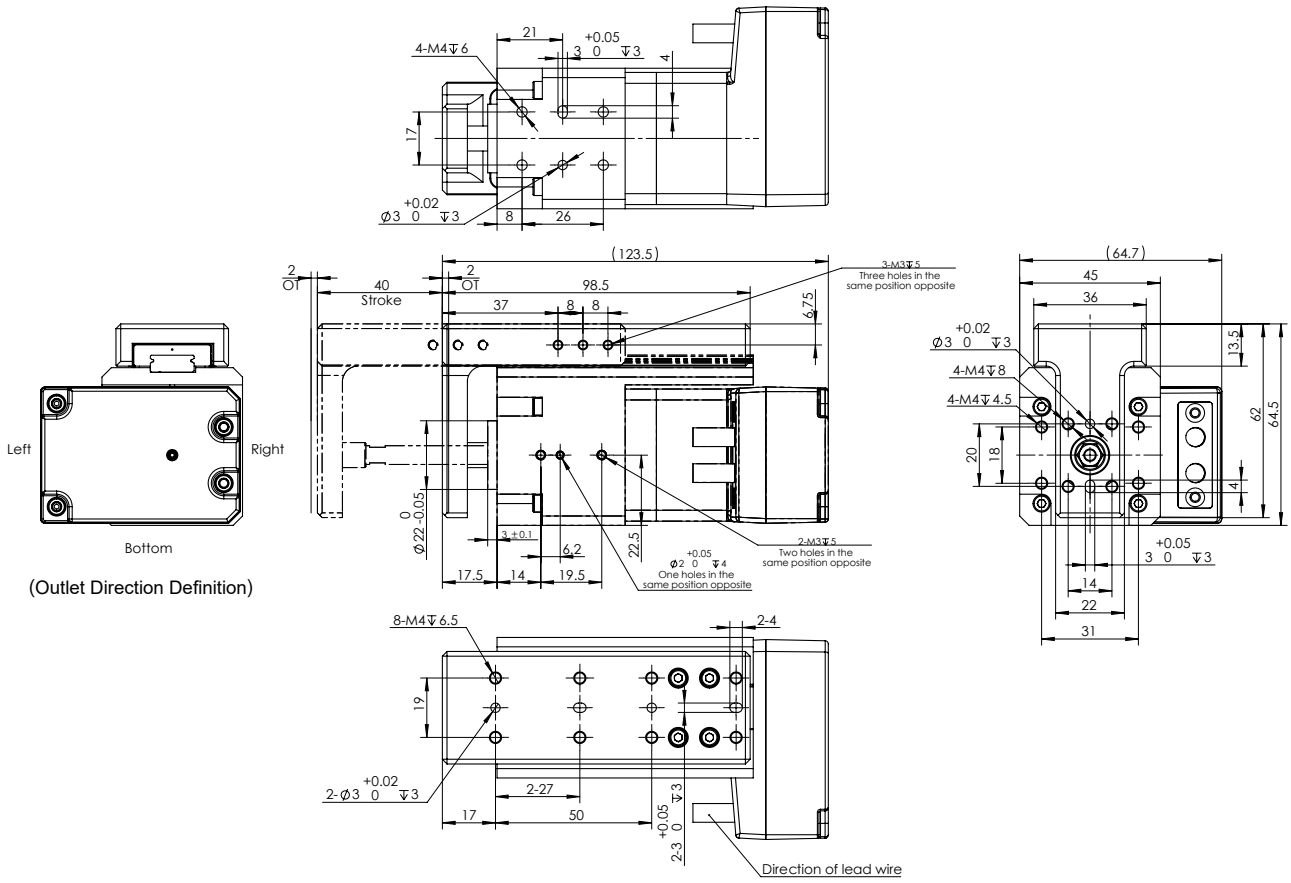
UNIT:N•m



	Static moment	Dynamic moment
MY	2.1	1.3
MP	2.5	1.5
MR	5	3.1

Dimensional Information (Divided Step-Servo)

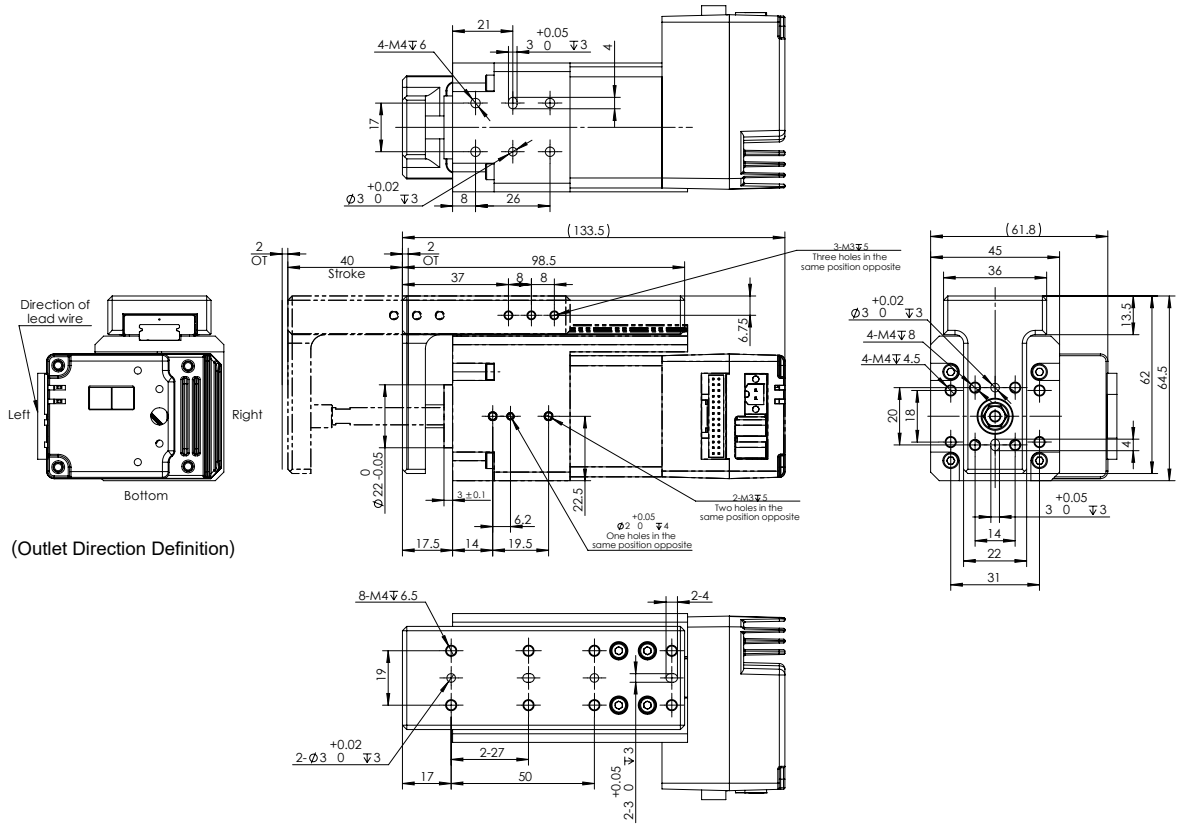
UNIT:mm



MEA42 Series

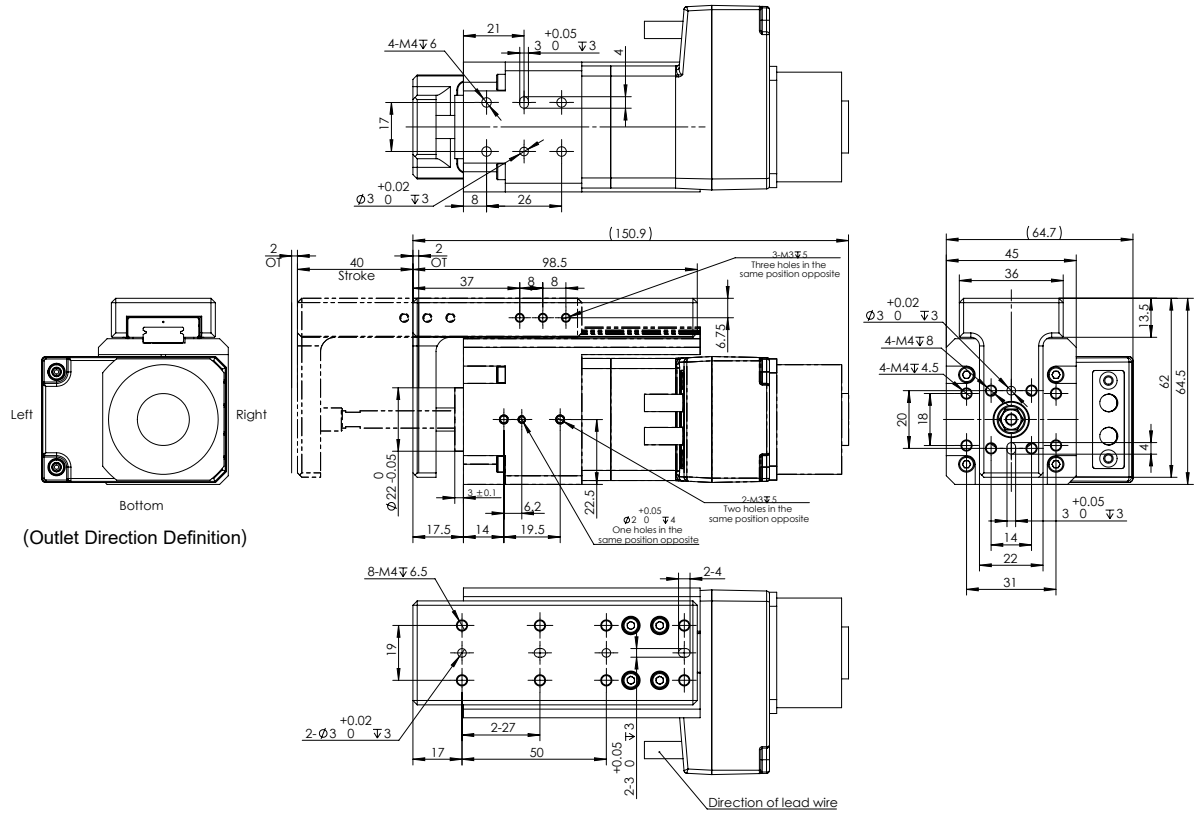
Dimensional Information (Integrated Step-Servo)

UNIT:mm



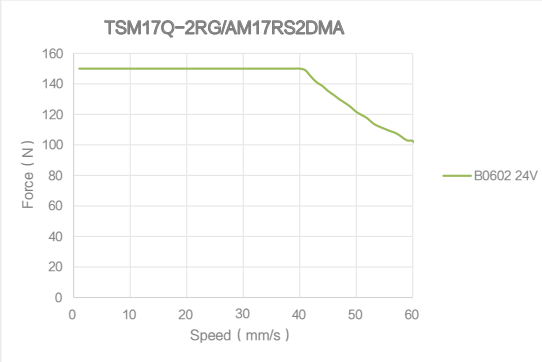
Dimensional Information (Divided Step-Servo,with brake)

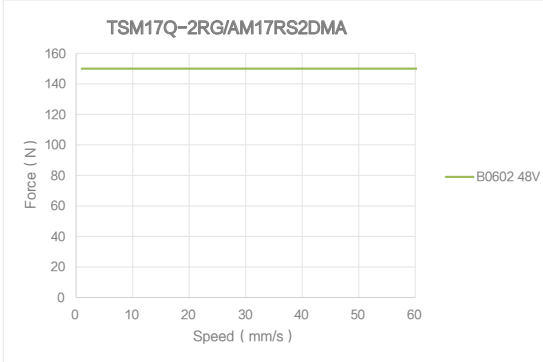
UNIT:mm

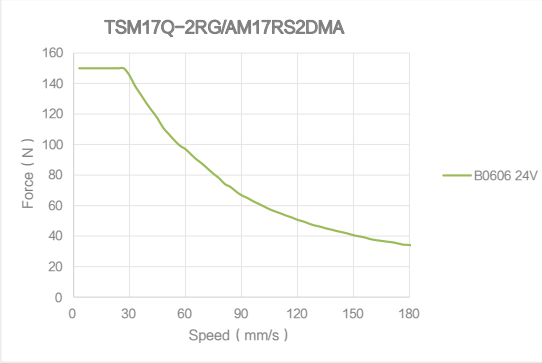


MEA42 Series

■ Speed - Force Reference Curve







Stepper Drivers

DC Input Stepper Drive-SR Series

SR Series Drives

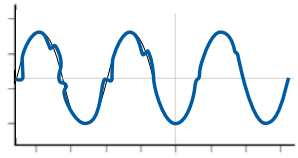
The SR series are compact, powerful, digital stepper drives feature advanced microstepping performance and sophisticated current control.All drive setup is done via dip or rotary switches.

- **Advanced Current Control**
- **Anti-Resonance**
- **Torque Ripple Smoothing**
- **Microstep Emulation**
- **Self Test**

Features

Anti-Resonance

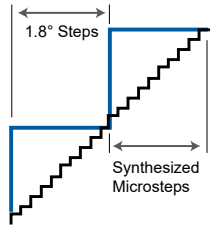
Step motor systems have a natural tendency to resonate at certain speeds. The SR drives automatically calculate the system's natural frequency and apply damping to the control algorithm. This greatly improves midrange stability, allows higher speeds and greater torque utilization, and also improves settling times.



Provides better motor performance and higher speeds

Microstep Emulation

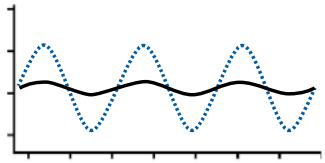
With Microstep Emulation, low resolution systems can still provide smooth motion. The drive can take low resolution step pulses and create fine resolution motion.



Delivers smoother motion in any application

Torque Ripple Smoothing

All step motors have an inherent low speed torque ripple that can affect the motion profile of the motor. By analyzing this torque ripple the system can apply a negative harmonic to counter this effect. This gives the motor much smoother motion at low speed.



Produces smoother motion at low speeds

Command Signal Smoothing

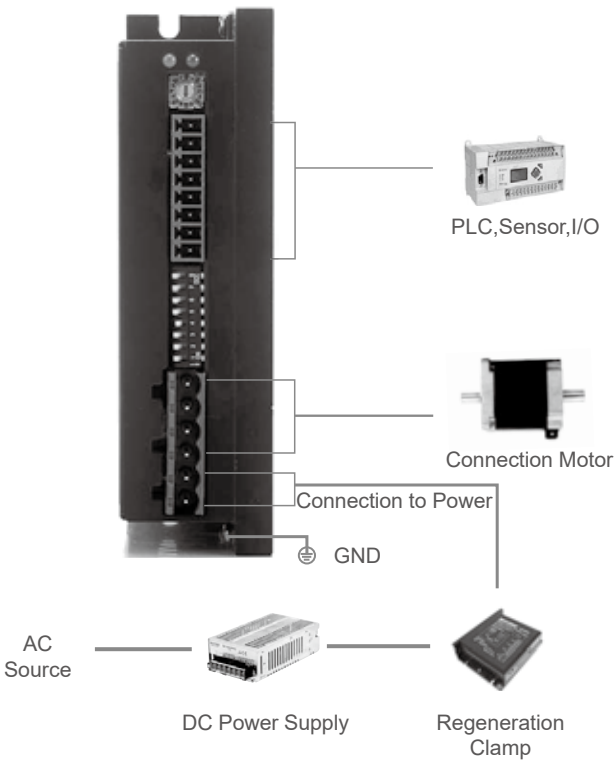
Command Signal smoothing can soften the effect of immediate changes in velocity and direction, making the motion of the motor less jerky. An added advantage is that it can reduce the wear on mechanical components.

Improves overall system performance

Auto Setup & Self Test

At start-up the drive measures motor parameters, including the resistance and inductance, then uses this information to optimize system performance. The drive can also detect open and short circuits.

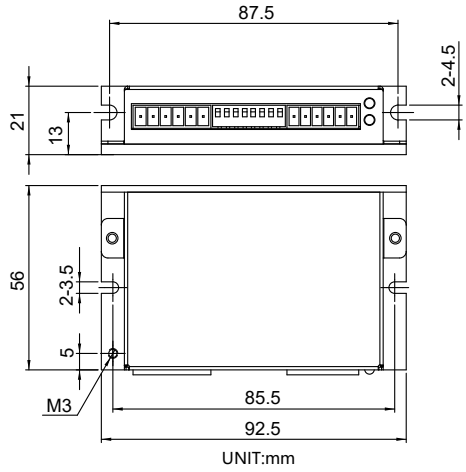
System Configuration



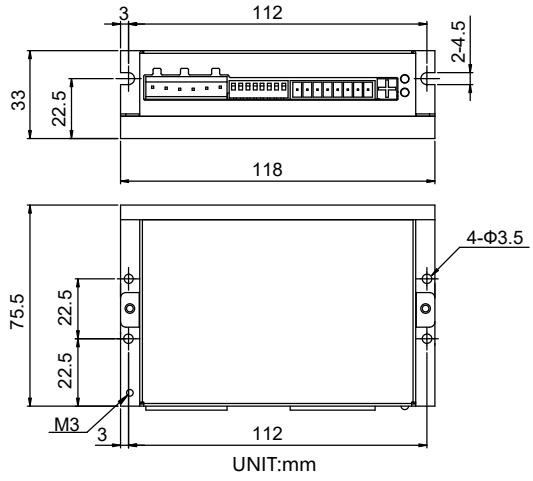
Dimensional Information

UNIT:mm

SR2−Plus



SR4/8−Plus



Numbering System

SR 2 - PLUS

Series	Max.Current	
	2=2.2A Max.	Blank=Standard
	3=3.0A Max.	Plus=Enhanced
	4=4.5A Max.	Mini=Compact
	8=7.8A Max.	

Ordering Information

Model	Current	Voltage	Microstep Selection	Current Selection
SR2-Plus	0.3-2.2A	12-48VDC	16	8
SR3-mini	0.4-3.0A	12-48VDC	16	8
SR4-Plus	1.0-4.5A	24-48VDC	16	8
SR8-Plus	2.4-7.8A	24-75VDC	16	8

Drive Specifications

Specification	
Speed Range	Up to 3000RPM
Operating Temperature	0 - 40℃
Ambient Humidity	90% or less(non-condensing)
Vibration Resistance	5.9m/s^2 maximum
Storage Temperature	-10 - 70℃
Heat Sinking Method	Natural cooling or fan-forced cooling
Atmosphere	Avoid dust, oily mist and corrosive air
Mass	SR2-Plus/SR3-mini: Approx. 120g
	SR4/8-Plus: Approx. 310g
Certification	RoHS , CE (EMC): EN 61800-3:2004
Features	
Idle Current	Automatic idle current reduction to reduce heat after motor stops moving for 1 second Dip switch selectable 50% or 90%
Anti-Resonance	Raises the system-damping ratio to eliminate midrange instability and allow stable operation throughout the speed range of the motor, dip switch selectable load inertia
Control Mode	Pulse input control Step&Dir
Inupt Signal Filter	Digital filters prevent position error from electrical noise on command signals, Dip switch selectable 2MHz or 150KHz
Microstep Emulation	Switch selectable microstep emulation provides smoother, more reliable motion
Motor Database	Rotary switch easily selects from many popular motors
Self Test	Switch selectable automatic self test, while self test, drive will rotate the motor back and forth, two turns in each direction
Fault output	Optically isolated,30VDC max, 100mA max

Electrical Specifications

SR2-Plus

Parameter	Min.	Typical	Max.	UNIT
Power Supply	12	-	42	VDC
Output Current (Peak)	0.3	-	2.2	Amps
Cost current of digital input signal	6	10	15	mA
Step Frequency	2	-	2M	Hz
STEP minimum pulse width	250	-	-	ns
DIR minimum pulse width	80	-	-	us
Under Voltage Protection	-	10	-	VDC
Over Voltage Protection	-	52	-	VDC
Input Signal Voltage	4	-	28	VDC
Initialization time	-	-	2.5	S
OUT maximum output current	-	-	100	mA
OUT maximum voltage	-	-	30	VDC

SR3-mini

Parameter	Min.	Typical	Max.	UNIT
Power Supply	12	-	48	VDC
Output Current (Peak)	0.4	-	3	Amps
Cost current of digital input signal	6	10	15	mA
Step Frequency	2	-	500K	Hz
STEP minimum pulse width	1000	-	-	ns
DIR minimum pulse width	80	-	-	us
Under Voltage Protection	-	10	-	VDC
Over Voltage Protection	-	53	-	VDC
Input Signal Voltage	4	-	28	VDC
Initialization time	-	-	2.5	S

SR4-Plus

Parameter	Min.	Typical	Max.	UNIT
Power Supply	24	-	48	VDC
Output Current (Peak)	1	-	4.5	Amps
Cost current of digital input signal	6	10	15	mA
Step Frequency	2	-	2M	Hz
STEP minimum pulse width	250	-	-	ns
DIR minimum pulse width	80	-	-	us
Under Voltage Protection	-	20	-	VDC
Over Voltage Protection	-	60	-	VDC
Input Signal Voltage	4	-	28	VDC
Initialization time	-	-	2.5	S
OUT maximum output current	-	-	100	mA
OUT maximum voltage	-	-	30	VDC

SR8-Plus

Parameter	Min.	Typical	Max.	UNIT
Power Supply	24	-	75	VDC
Output Current (Peak)	2.4	-	7.8	Amps
Cost current of digital input signal	6	10	15	mA
Step Frequency	2	-	2M	Hz
STEP minimum pulse width	250	-	-	ns
DIR minimum pulse width	80	-	-	us
Under Voltage Protection	-	20	-	VDC
Over Voltage Protection	-	85	-	VDC
Input Signal Voltage	4	-	28	VDC
Initialization time	-	-	2.5	S
OUT maximum output current	-	-	100	mA
OUT maximum voltage	-	-	30	VDC

DC Input Intelligent Fieldbus Control Stepper Driver-STF Series

STF Series Drives

The STF series are high performance fieldbus control stepper drive which also integrates with built-in motion controller. The drives can be controlled by SCL, Modbus,CANopen, eSCL, EtherNet/IP or EtherCAT in real time. Motion profiles can also be programmed and stored in drives(Q Program) and then be triggered by fieldbus commands.

- **Compact size**
- **Anti resonance**
- **Advanced current control**
- **Torque ripple smoothing**

■ Feature

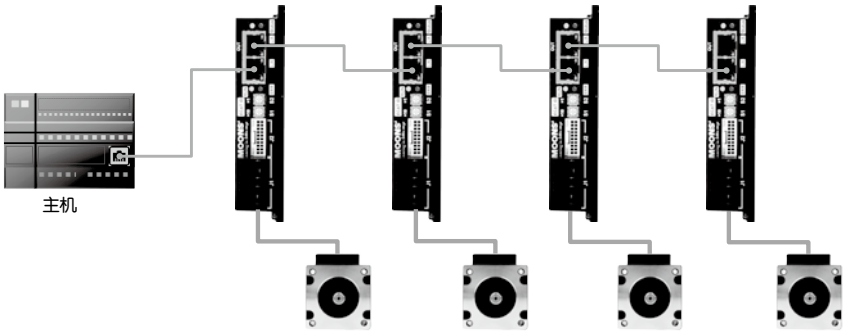
Host Control

- Accepts commands from host PC or PLC
- Real time control
- Multi-axes capable

CANopen (112-axis max) Modbus SCL RS-485/422 (32-axis max) EtherCAT EtherNet/IP eSCL

Stand Alone Programmable

- Stored program execution
- Multi-tasking
- Conditional processing
- Math functions
- Data registers



Safe & convenient

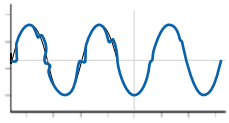
- Support communication and motor power cables disconnected protection
—— Make equipments more safer
- Support on-line configuration by fieldbus
—— Make operation more convenient

Rich and flexible I/O

- 8 Digital Inputs, 4 Digital Outputs
—— Support for more feature settings
- Dual Port RJ45 Bus Conmmunication Control
—— Support daisy chain connection

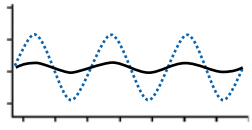
Anti-Resonance

Step motor systems have a natural tendency to resonate at certain speeds.The STF drives automatically calculate the system's natural frequency and apply damping to the control algorithm. This greatly improves midrange stability, allows higher speeds and greater torque utilization, and also improves settling times.
Provides better motor performance and higher speeds



Torque Ripple Smoothing

All step motors have an inherent low speed torque ripple that can affect the motion profile of the motor. By analyzing this torque ripple the system can apply a negative harmonic to counter this effect. This gives the motor much smoother motion at low speed.
Produces smoother motion at low speed running

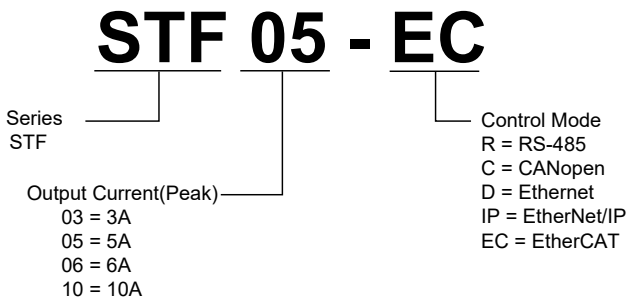


Auto Setup & Self Test

At start-up the drive measures motor parameters, including the resistance and inductance, then uses this information to optimize the system performance. The drive can also detect open and short circuits.

DC Input Intelligent Fieldbus Control Stepper Driver-STF Series

Numbering System



Ordering Information

Model	Current	Voltage	RS-485	Modbus/RTU	CANopen	Q Program
STF03-R	0.1 - 3.0 A	12 - 48 VDC	√	√		√
STF05-R	0.1 - 5.0 A	24 - 48 VDC	√	√		√
STF06-R	0.1 - 6.0 A	12 - 48 VDC	√	√		√
STF10-R	0.1 - 10.0 A	24 - 70 VDC	√	√		√
STF03-C	0.1 - 3.0 A	12 - 48 VDC			√	√
STF05-C	0.1 - 5.0 A	24 - 48 VDC			√	√
STF06-C	0.1 - 6.0 A	12 - 48 VDC			√	√
STF10-C	0.1 - 10.0 A	24 - 70 VDC			√	√

Model	Current	Voltage	Ethernet	Modbus/TCP	EtherNet/IP	EtherCAT	Q Program
STF03-D	0.1 - 3.0 A	12 - 48 VDC	√	√			√
STF05-D	0.1 - 5.0 A	24 - 48 VDC	√	√			√
STF06-D	0.1 - 6.0 A	12 - 48 VDC	√	√			√
STF10-D	0.1 - 10.0 A	24 - 70 VDC	√	√			√
STF03-IP	0.1 - 3.0 A	12 - 48 VDC	√		√		√
STF05-IP	0.1 - 5.0 A	24 - 48 VDC	√		√		√
STF06-IP	0.1 - 6.0 A	12 - 48 VDC	√		√		√
STF10-IP	0.1 - 10.0 A	24 - 70 VDC	√		√		√
STF03-EC	0.1 - 3.0 A	12 - 48 VDC				√	√
STF05-EC	0.1 - 5.0 A	24 - 48 VDC				√	√
STF06-EC	0.1 - 6.0 A	12 - 48 VDC				√	√
STF10-EC	0.1 - 10.0 A	24 - 70 VDC				√	√

DC Input Intelligent Fieldbus Control Stepper Driver-STF Series

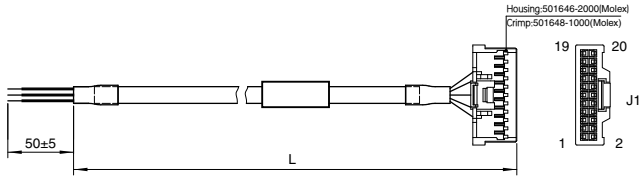
■ Drive Specifications

Power Amplifier	
Amplifier Type	Dual H-Bridge, 4 Quadrant
Current Control	PWM at 20 KHz
Output Current	STF03: 0.1 - 3.0A/phase (peak-of-sine) in 0.01 amp increments
	STF05: 0.1 - 5.0A/phase (peak-of-sine) in 0.01 amp increments
	STF06: 0.1 - 6.0A/phase (peak-of-sine) in 0.01 amp increments
	STF10: 0.1 - 10.0A/phase (peak-of-sine) in 0.01 amp increments
Input Voltage Range	STF03:12 - 48VDC
	STF05:24 - 48VDC
	STF06:12 - 48VDC
	STF10:24 - 70VDC
Maximum Input Voltage Range	STF03:11 - 53VDC
	STF05:18 - 53VDC
	STF06:11 - 53VDC
	STF10:18 - 75VDC
Protection	Over voltage, under voltage, over temp, over current, open winding, communication cable disconnection
Idle Current Reduction	Reduction range of 0 - 90% of running current after a delay selectable in milliseconds
Controller	
Anti-Resonance	Raises the system-damping ratio to eliminate midrange instability and allow stable operation throughout the speed range of the motor
Torque Ripple Smoothing	Allows for fine adjustment of phase current waveform harmonic content to reduce low-speed torque ripple in the range of 0.25 to 1.5 rps
Auto Test & Auto Setup	Auto test and setup at power on (ie. motor resistance and Inductance) to optimize your system performance.
Non-Volatile Storage	Configurations are saved in FLASH memory on-board the DSP
Operation Mode	-R Type: SCL, Q, Modbus/RTU
	-C Type: CANopen (CiA301 and CiA402 protocol). Q program can also be triggered via CANopen Command
	-D Type: eSCL, Q, Modbus/TCP
	-IP Type: EtherNet/IP, Q program also can be triggered via EtherNet/IP Command
	-EC Type: EtherCAT (CoE) with full support of CiA402, Support PP, PV, CSP&HM mode and Q mode
Digital Input	8 digital inputs
	X1, X2: Optically isolated, differential, 5-24VDC for high level voltage, minimum pulse width = 250ns, maximum pulse frequency = 2MHz
	X3, X4: Optically isolated, differential, 5-24VDC for high level voltage, minimum pulse width = 100μs, maximum pulse frequency = 5KHz
	X5 ~ X8: Optically isolated, single-ended, 5-24VDC for high level voltage, minimum pulse width = 100μs, maximum pulse frequency = 5KHz
Digital Output	4 digital outputs Y1 ~ Y4: Optically isolated, maximum voltage 30V, maximum sinking or sourcing current 100mA
Communication Port	-R Type: Dual port RS-485 (RJ45 connector)
	-C Type: Dual port CANopen (RJ45 connector) RS-232 included
	-D Type: Dual port Ethernet (RJ45 connector)
	-IP Type: Dual port Ethernet (RJ45 connector)
	-EC Type: Dual port Ethernet(RJ45 connector)and RS-232(RS-232 serial port for configuration)
Physical	
Ambient Temperature	0 - 40°C when mounted to a suitable heat sink
Humidity	90% non-condensing
Mass	STF03: 0.36kg
	STF05: 0.4kg
	STF06: 0.36kg
	STF10: 0.4kg

DC Input Intelligent Fieldbus Control Stepper Driver-STF Series

I/O Cable

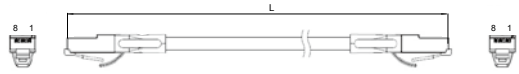
P/N	Length (L)
1015-030	0.3m
1015-100	1m
1015-200	2m



Pin No.	Assignment	Description	Color	Pin No.	Assignment	Description	Color
1	X1+	X1 Digital Input	Blue/White	11	X7	X7 Digital Input	Yellow
2	X1-		Blue/Black	12	X8	X8 Digital Input	Green
3	X2+	X2 Digital Input	Green/White	13	SHIELD	Shield	Shield
4	X2-		Green/Black	14	XCOM	X5-X8 Digital Input COM	Red
5	X3+	X3 Digital Input	Yellow/White	15	Y1	Y1 Digital Output	Brown
6	X3-		Yellow/Black	16	Y2	Y2 Digital Output	Gray
7	X4+	X4 Digital Input	Orange/White	17	Y3	Y3 Digital Output	White
8	X4-		Orange/Black	18	YCOM	Y1-Y3 Digital Output COM	Black
9	X5	X5 Digital Input	Blue	19	Y4+	Y4 Digital Output	Purple/White
10	X6	X6 Digital Input	Purple	20	Y4-		Purple/Black

Bus Communication Daisy Chain Cable

Common Type	Shielded Type	Length (L)
2012-030 *	2013-030	0.3m
2012-300	2013-300	3m



* 2012-030 is included in the drive package.

RC-880 Regeneration Clamp

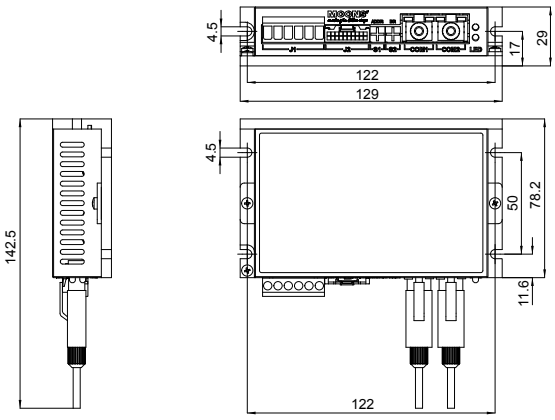
RC-880 can clamp the regeneration and prevent the power supply and/or drive being damaged or destroyed. Connect the RC-880 between the power supply and the drive.
Max. Supply Voltage: 80V
Max. Output Current: 8A(rms)
Continuous Power: 50W

DC Input Intelligent Fieldbus Control Stepper Driver-STF Series

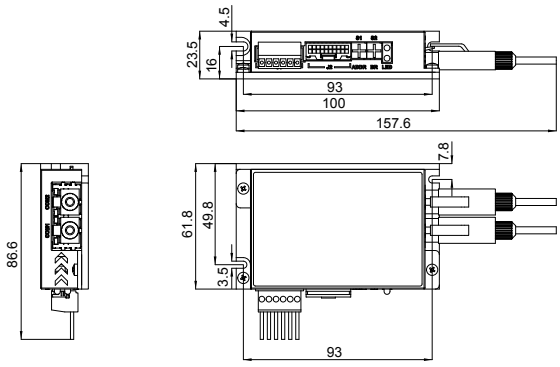
■ Ordering Information

UNIT:mm

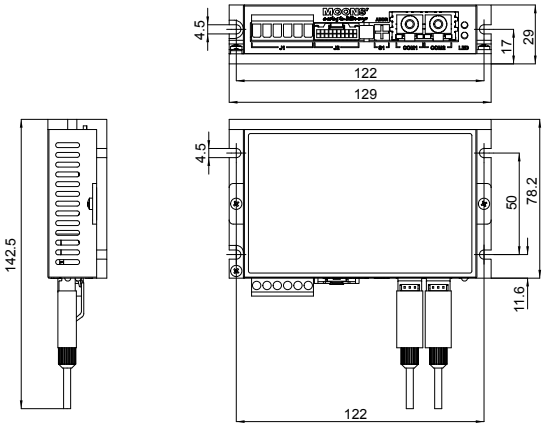
STF05/10-R, STF05/10-C



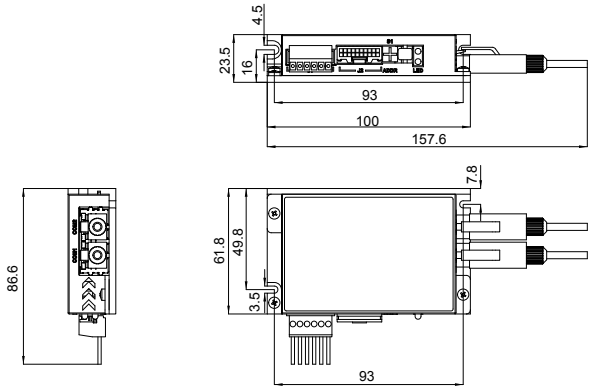
STF03/06-R, STF03/06-C



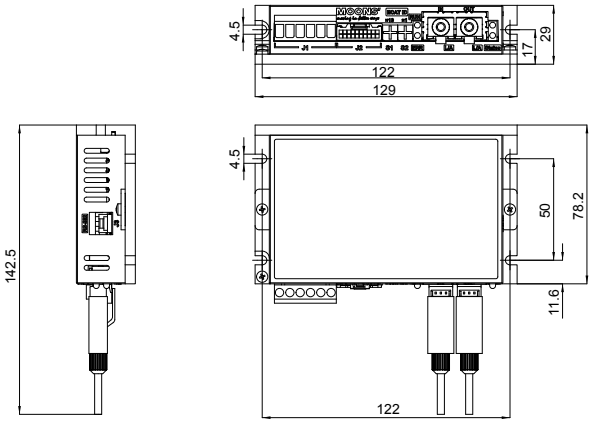
STF05/10-D, STF05/10-IP



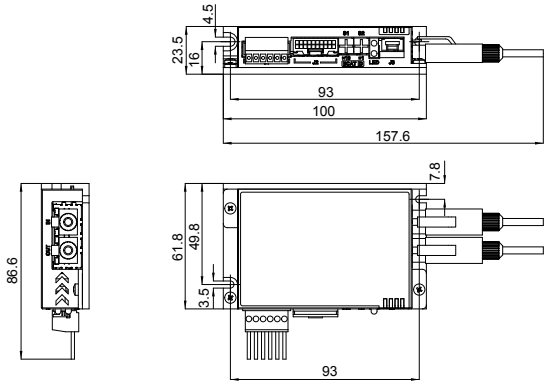
STF03/06-D, STF03/06-IP



STF05/10-EC



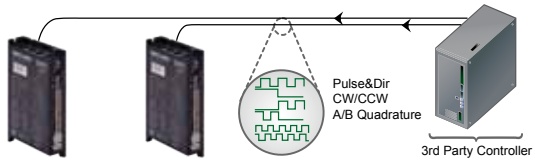
STF03/06-EC



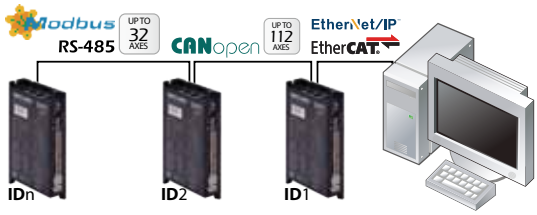
SSDC Step-Servo System(Mating AM Series Motors)

The SSDC series is a high performance, intelligent Step-Servo system with multi-axes field bus control. Enhancing a stepper motor with servo technology has created a product with exceptional features and broad capability. It supports pulse/direction control, analog control and multiple field bus controls such as Modbus, CANopen, SCL/eSCL commands, EtherNet/IP and EtherCAT protocol. And the SSDC series also supports the stand alone function(Q programmer) called by field bus control.

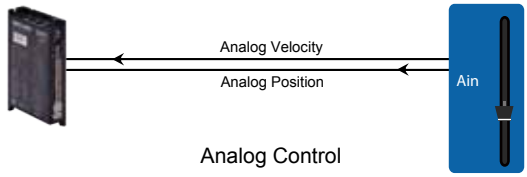
Multi-functional Capability



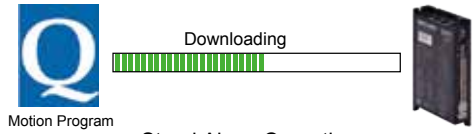
Pulse Control



Muti-Axis Network



Analog Control



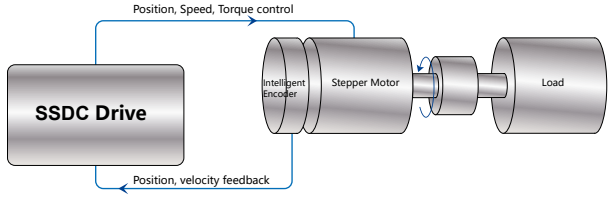
Stand Alone Operation

Closed-Loop Control

The step-servo motor has a built-in high-resolution encoder, which provides accurate position accuracy. In order to adapt to different applications, two kinds of high-resolution encoders(20000 counts/rev,4096 counts/rev)can be selected, and support multiple closed-loop control modes.

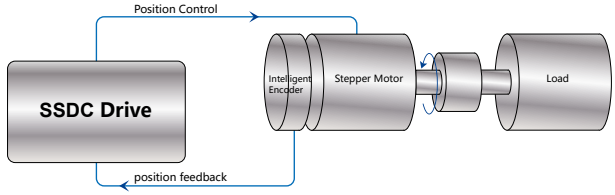
- Closed-loop Step-Servo mode

  Position, velocity and current closed loop control. Precisely position and velocity control can match the harsh applications. Adjust the current in real time according to the actual load situation.Highly robust servo control accommodates a wide range of inertial loads and friction load changes.



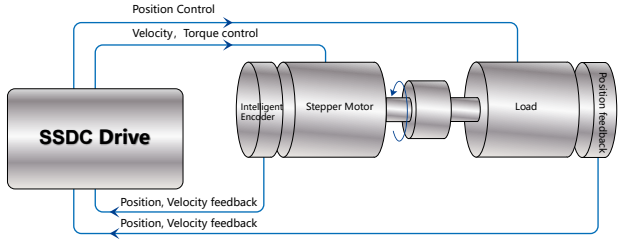
- Closed-loop Step mode NEW

  Position Closed-loop control. No tuning, no vibration, stall prevention.
  This mode is suitable for some special applications where the vibration is particularly demanding, such as vision systems, nano-technology, semiconductor manufacturing, ink jet printers, and so on.



- Full Closed-loop mode - 2-way feedback NEW

  Support 2-way feedback, one way connect to the motor encoder position feedback, the other way connect to the load side position feedback, to avoid the position error caused by the mechanical error of the transmission mechanism, to achieve more precisely position control. Load side feedback support: single-ended or differential incremental encoder, scale.



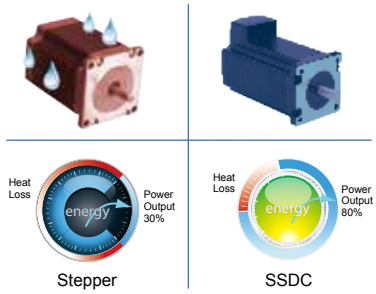
SSDC Step-Servo System(Mating AM Series Motors)

Safe & Convenient

- Support communication and motor power cables disconnection protection - **Make equipments safer** NEW
- Support on-line configuration by fieldbus - **Make operation more convenient** NEW

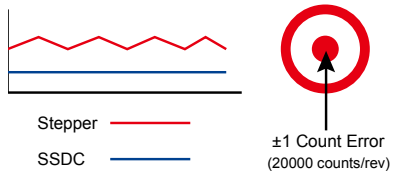
Low Heating / High Efficiency

- The SSDC uses only the current required by the application, generating minimum heat output.
- When the motor is not moving, the current can be nearly zero resulting in extremely low heat output.
- Being able to use almost 100% of the available torque allows for more efficient operation and may allow a smaller motor size.



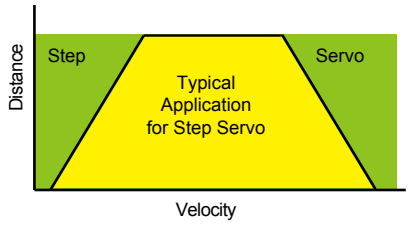
Smooth & Accurate

- Space vector current control with a high resolution encoder gives smooth and quiet operation, especially at low speeds - a feature not found with traditional stepper motors.
- High stiffness due to the nature of the stepper motor combined with the highly responsive servo control results in accurate position control both while running and when standing still.



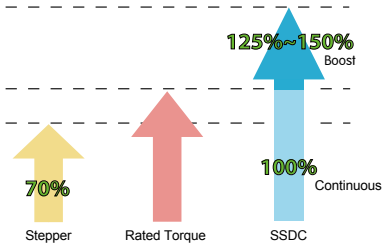
Fast Response

- When performing fast point-to-point moves, the high torque output and advanced servo control provides a very responsive system far exceeding what can be done with a conventional stepper system



High Torque

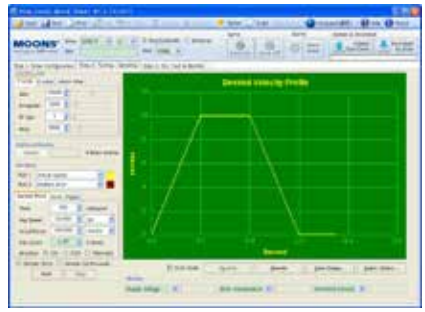
- Because the TSM operates in full servo mode, all the available torque of the motor can be used. The motor can provide as much as 50% more torque in many applications.
- High torque capability often eliminates the need for gear reduction.
- Boost torque capability can provide as much as 50% more torque for short, quick moves.



SSDC Step-Servo System(Mating AM Series Motors)

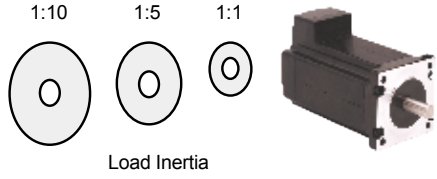
Motion Monitoring

- For applications where extreme real-time motion is critical, the Step-Servo Quick Tuner provides a simple and practical tool for monitoring actual motion trajectories.
- It can be used to monitor common metrics such as actual velocity and position error to assess the current actual performance of the system.
- An interactive monitoring and tuning interface provides the fastest possible performance output.



Easy Tuning

- Pre-defined tuning parameters quickly allow Max. control performance and stability.
- A selection list provides an easy method to achieve the desired level of control.
- In most cases NO extra manual tuning is required.
- There is no need to do tuning in closed- step mode.

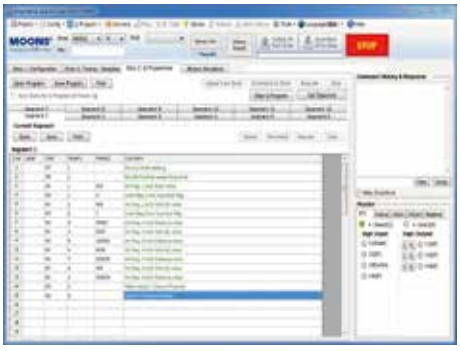


SSDC Step-Servo System(Mating AM Series Motors)

Software

Stepper Suite

- Friendly User Interface
- Easy setup within just three steps
- Driver setup and configuration
- Servo Tuning and Sampling
- Built-in Q programmer
- Motion testing and monitoring
- Write and save SCL command scripts
- Online help integrated
- Support all products in RSM/SSM/TSM/TXM/RS/SS/SSDCSeries and STF Stepper Driver

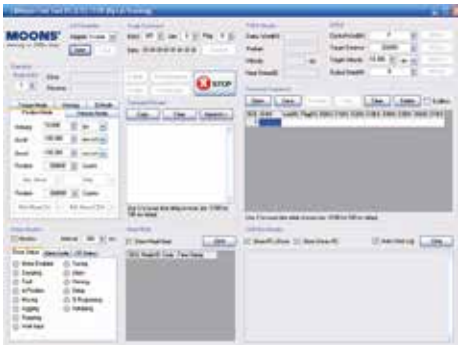


Bulit-in Q Programmer

- Single-axis motion control
- Stored program execution
- Multi-tasking
- Conditional processing
- Math functions
- Data registers
- Motion Profile simulation
- Online help integrated

RS485 Bus Utility

- Stream SCL commands from the command line
- Simple interface with powerful capability
- Easy setup with RS-485 for 32 axis network motion control
- Monitoring Status of I/O, driver, alarm and the other nine most
- Useful motion parameters
- Write and save SCL command scripts
- Online help integrated
- Supports all RS-485 drivers



CANopen Test Tool

- Friendly User Interface
- Multiple operation Mode Support
- Multi-Thread, High Performance
- CAN bus monitor and log function
- Kvaser/PEAK adapter support

FREE DOWNLOAD

Our software and user manual can be downloaded from our website:
www.moonsindustries.com

SSDC Step-Servo System(Mating AM Series Motors)

Numbering System

◇ Driver Numbering System

SSDC 03 - EC

- SSDC Series
- Output Current
  - 03 = 3A
  - 06 = 6A
  - 10 = 10A
- Control Option
  - A = RS-232
  - R = RS-485
  - C = CANopen
  - D = Ethernet
  - IP = EtherNet/IP
  - EC = EtherCAT
  - ECX = EtherCAT (NEW)

Motor Model	Recommended Drivers
AM11RS2DMA	SSDC03
AM17RS2DMA	SSDC03 or SSDC06
AM23RS2DMA	SSDC06 or SSDC10

Ordering Information

Model	Current	Voltage	RS-232	Modbus/RTU	RS-485	CANopen	Q Program
SSDC03-A	0.1-3.0A	12-48VDC	√	√			√
SSDC06-A	0.1-6.0A	24-70VDC	√	√			√
SSDC10-A	0.1-10.0A	24-70VDC	√	√			√
SSDC03-R	0.1-3.0A	12-48VDC		√	√		√
SSDC06-R	0.1-6.0A	24-70VDC		√	√		√
SSDC10-R	0.1-10.0A	24-70VDC		√	√		√
SSDC03-C	0.1-3.0A	12-48VDC				√	√
SSDC06-C	0.1-6.0A	24-70VDC				√	√
SSDC10-C	0.1-10.0A	24-70VDC				√	√

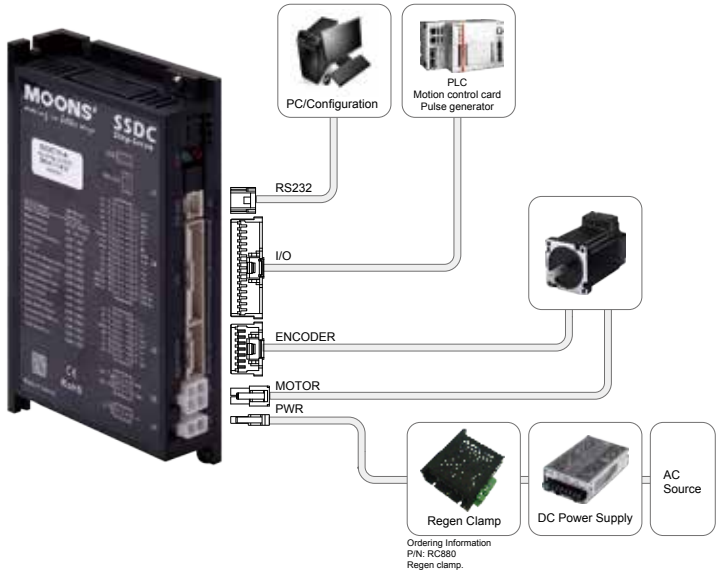
Model	Current	Voltage	Ethernet	Modbus/TCP	EtherNet/IP	EtherCAT	Q Program
SSDC03-D	0.1-3.0A	12-48VDC	√	√			√
SSDC06-D	0.1-6.0A	24-70VDC	√	√			√
SSDC10-D	0.1-10.0A	24-70VDC	√	√			√
SSDC03-IP	0.1-3.0A	12-48VDC	√	√	√		√
SSDC06-IP	0.1-6.0A	24-70VDC	√	√	√		√
SSDC10-IP	0.1-10.0A	24-70VDC	√	√	√		√
SSDC03-EC	0.1-3.0A	12-48VDC				√	√
SSDC06-EC	0.1-6.0A	24-70VDC				√	√
SSDC10-EC	0.1-10.0A	24-70VDC				√	√

SSDC Step-Servo System(Mating AM Series Motors)

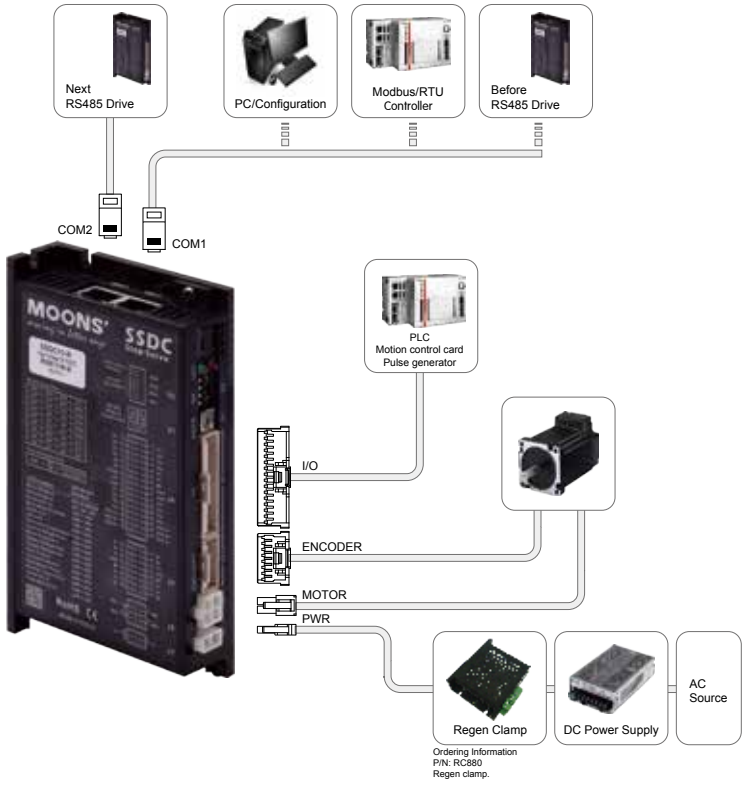
System Configuration

◇ SSDC-A, RS232 Communication type

- Support SCL command
- Accepts three types of pulse signal input as
- Pulse&Direction, CW/CCW and A/B Quadrature
- Stand alone(Q programmer)
- Analog control
- Modbus/RTU (single axis)



Modbus



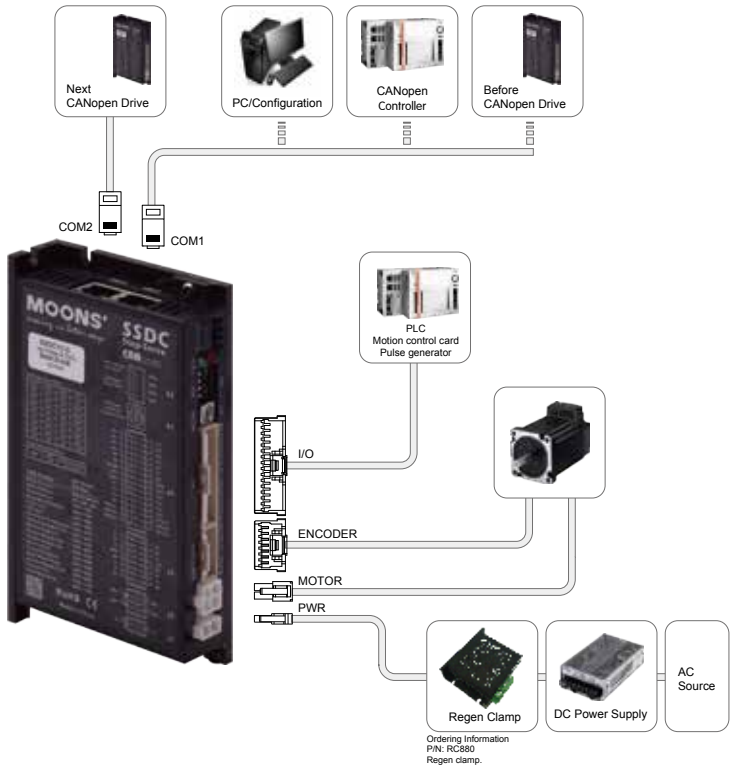
◇ SSDC-R, RS485 Communication type

- RS-485/422 field bus control
- Modbus/RTU (Multi-axes) network, up to 32 axes per channel
- Accepts three types of pulse signal input as
- Pulse&Direction, CW/CCW and A/B Quadrature
- Analog control
- Stand alone program (Q programmer)

SSDC Step-Servo System(Mating AM Series Motors)

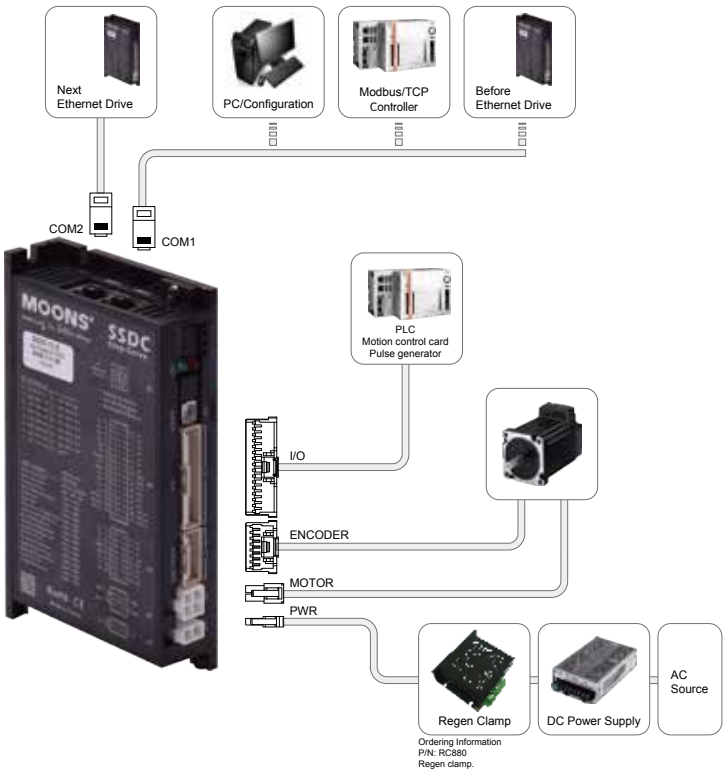
◇ SSDC-C, CANopen Communication type

- Operates on a CANopen communication network conforms to CiA301 and CiA402. It supports running stored Q programs via MOONS'-specific CANopen objects.
- Up to 112 axes per channel
- Analog control



◇ SSDC-D, Ethernet Communication type

- eSCL, Modbus/TCP protocol
- Stand alone(Q programmer)
- Analog control

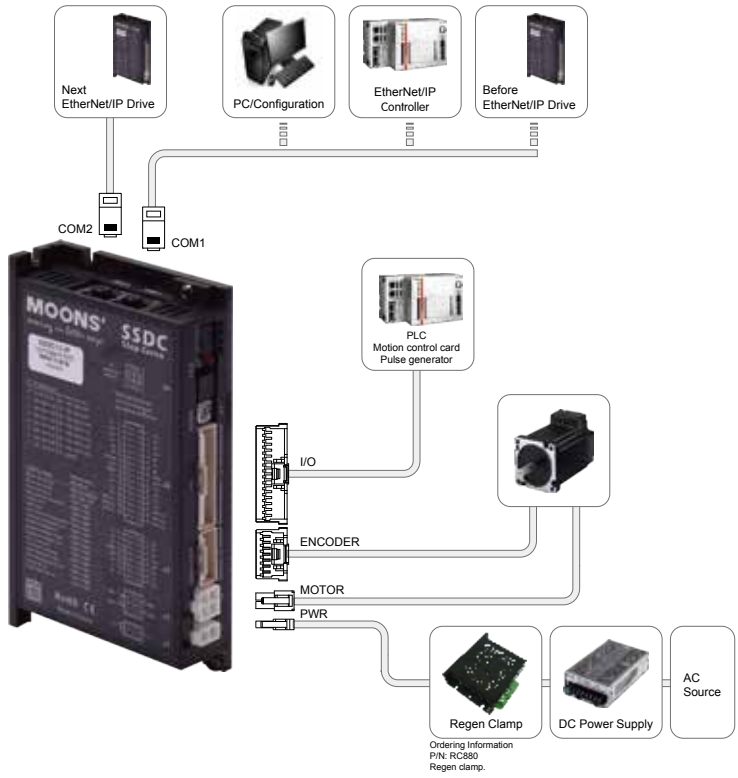


SSDC Step-Servo System(Mating AM Series Motors)

◇ SSDC-IP, Ethernet/IP Communication type

EtherNet/IP™

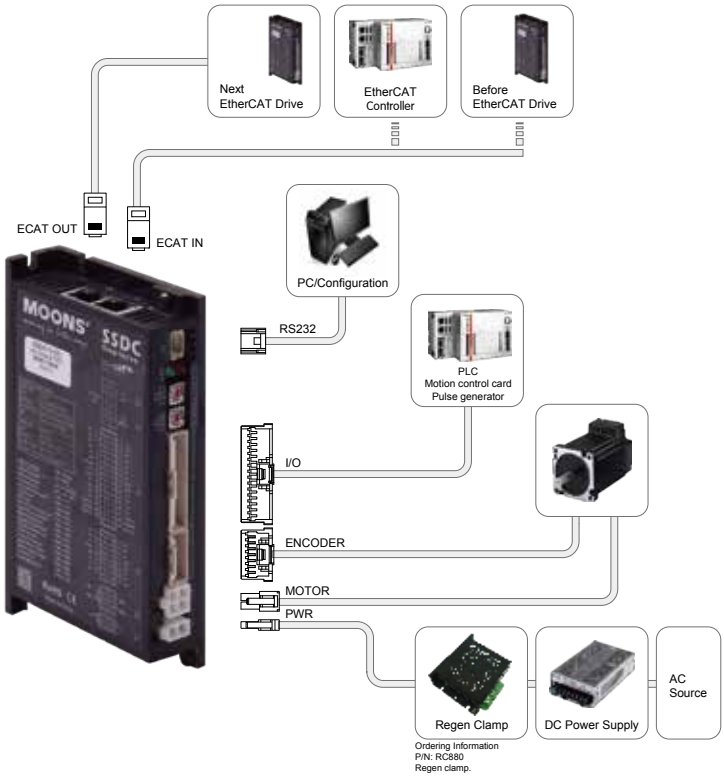
- EtherNet/IP protocol
- Stand alone(Q programmer)
- Analog control



EtherCAT®

◇ SSDC-EC, EtherCAT Communication type

- EtherCAT protocol, via CoE (conforms to CiA402).
- Stand alone(Q programmer)
- Analog control



SSDC Step-Servo System(Mating AM Series Motors)

Specifications

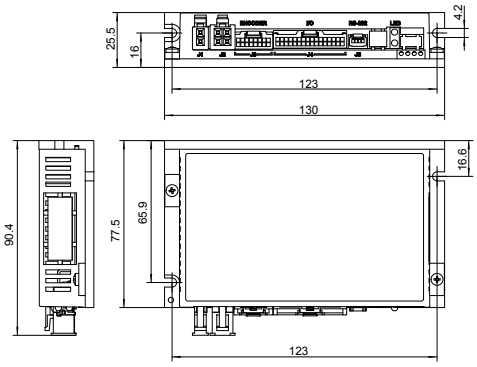
◇ Driver Specifications

Power Amplifier	
Amplifier Type	Dual H-Bridge, 4 Quadrant
Current Control	4 state PWM at 20 KHz
Output Current	SS03: Continuous Current 3A max, Boost Current 4A max (1.5s), current limitation auto set-up by attached motor SS06: Continuous Current 6A max, Boost Current 7.5A max (1.5s), current limitation auto set-up by attached motor SS05: Continuous Current 10A max, Boost Current 15A max (1.5s), current limitation auto set-up by attached motor
Power Supply	SSDC03: External nominal 12 - 48 volt DC power supply required, Absolute Max. input voltage range 10 - 53 VDC SSDC06: External nominal 24 - 70 volt DC power supply required, Absolute Max. input voltage range 18 - 75 VDC SSDC10: External nominal 24 - 70 volt DC power supply required, Absolute Max. input voltage range 18 - 75 VDC
Protection	Over-voltage, under-voltage, over-temp, motor/winding shorts (phase-to-phase, phase-to-ground)
Controller	
Electronic Gearing	Software selectable from 200 to 51200 steps/rev in increments of 2 steps/rev
Encoder Resolution	20000 counts/rev(for AM17/23/24/34SS-N motors)
	4096 counts/rev(for AM11/17/23/24/34RS motors)
Speed Range	Up to 3600rpm
Filters	Digital input noise filter, Analog input noise filter, Smoothing filter, PID filter, Notch filter
Non-Volatile Storage	Configurations are saved in FLASH memory on-board the DSP
Modes of Operation	-A type: SCL Mode, Q -R type: SCL Mode, Q, Modbus/RTU -C type: CANopen, via CiA301 & CiA402, Q -D type: Q, Modbus/TCP, eSCL -IP type: EtherNet/IP, Q -EC type: CoE(via CiA 402), PP, PV, PT, CSP, CSV and HM mode, Q
Digital Inputs	8 digital inputs X1, X2: Optically isolated, differential, 5-24VDC; Minimum pulse width = 250ns, Max. pulse frequency = 2MHz; X3, X4: Optically isolated, differential, 5-24VDC; Minimum pulse width = 100μs, Max. pulse frequency = 5KHz; X5 ~ X8: Optically isolated, differential, 5-24VDC; Minimum pulse width = 100μs, Max. pulse frequency = 5KHz;
Digital Outputs	4 digital outputs Y1 ~ Y4; Optically isolated, Open Collector, 30V/100 mA max, Max. pulse frequency = 10KHz
Analog Inputs	Two analog inputs Analog resolution: 12bit Each input can accept a signal range of 0 to 5 VDC, ±5 VDC, 0 to 10 VDC or ±10 VDC
Encoder Outputs	Differential encoder outputs (A±, B±, Z±), 26C31 line Driver, 20 mA sink or source max
+5V Output	4.8~5V, 100 mA max
Communication	-A type: RS-232(crimp type connector) -R type: Dual-port RS-285/422(RJ45 connector) -C type: Dual-port CANopen(RJ45 connector) with RS-232 -D type: Dual-port Ethernet(RJ45 connector) -IP type: Dual-port Ethernet(RJ45 connector) -EC type: Dual-port Ethernet(RJ45 connector) with RS-232 for configuration
Physical	
Ambient Temperature	0 to 40°C (32 to 104°F) when mounted to a suitable heatsink
Ambient Humidity	90% Max., non-condensing

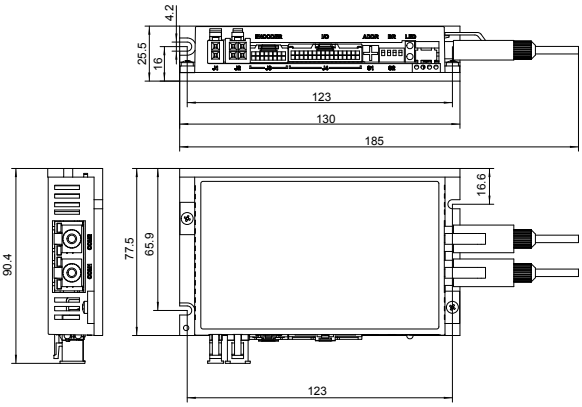
SSDC Step-Servo System(Mating AM Series Motors)

Driver Dimensions (Unit:mm)

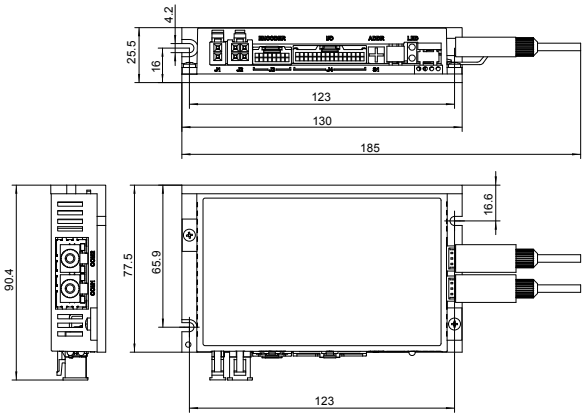
◇ SSDC03/06/10-A



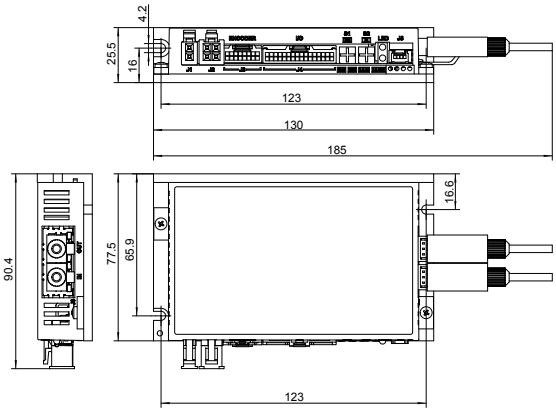
◇ SSDC03/06/10-R,SSDC03/06/10-C



◇ SSDC03/06/10-D,SSDC03/06/10-IP



◇ SSDC03/06/10-EC



SSDC Step-Servo System(Mating AM Series Motors)

Standard Accessories

◇ SSDC-EC Driver

Model	Qty	Catagory	Vendor	Description
1103-200	1	Cable	/	2m Power supply cable
39-01-3048	1	Housing	Molex	Motor connector housing (J2)
501646-1600	1	Housing	Molex	Encoder connector housing (J3)
501646-3200	1	Housing	Molex	I/O connector housing (J4)
39-00-0038	5	Crimp	Molex	Motor connector crimp
501648-1000	52	Crimp	Molex	Encoder & I/O connector crimp

◇ SSDC-R/C/D/IP Driver

Model	Qty	Catagory	Vendor	Description
1103-200	1	Cable	/	2m Power supply cable
2012-030	1	Cable	/	0.3m network cable
39-01-3048	1	Housing	Molex	Motor connector housing (J2)
501646-1600	1	Housing	Molex	Encoder connector housing (J3)
501646-3200	1	Housing	Molex	I/O connector housing (J4)
39-00-0038	5	Crimp	Molex	Motor connector crimp
501648-1000	52	Crimp	Molex	Encoder & I/O connector crimp

◇ SSDC-A Driver

Model	Qty	Catagory	Vendor	Description
1103-200	1	Cable	/	2m Power supply cable
2101-150	1	Cable	/	RS-232 configuration cable
39-01-3048	1	Housing	Molex	Motor connector housing (J2)
501646-1600	1	Housing	Molex	Encoder connector housing (J3)
501646-3200	1	Housing	Molex	I/O connector housing (J4)
39-00-0038	5	Crimp	Molex	Motor connector crimp
501648-1000	52	Crimp	Molex	Encoder & I/O connector crimp

◇ AM11RS Motor

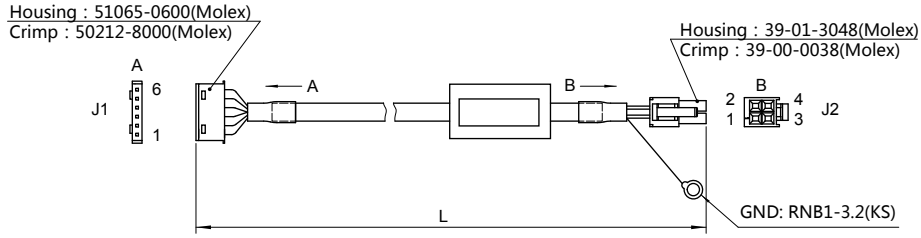
Model	Qty	Catagory	Vendor	Description
51065-0600	1	Housing	Molex	Motor connector housing
50212-8000	6	Crimp	Molex	Motor connector crimp
501646-1200	1	Housing	Molex	Encoder connector housing
501648-1000	15	Crimp	Molex	Encoder connector crimp

◇ AM14/17/23RS Motor

Model	Qty	Catagory	Vendor	Description
39-01-3049	1	Housing	Molex	Motor connector housing
39-00-0040	5	Crimp	Molex	Motor connector crimp
1-1903130-6	1	Housing	Tyco	Encoder connector housing
1903120-1	15	Crimp	Tyco	Encoder connector crimp

Optional Accessories (Sold separately)

◇ Extended motor cable(For AM11RS motor)

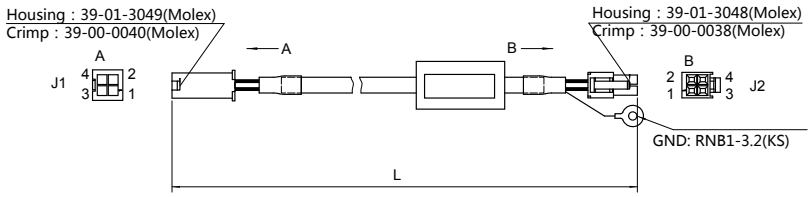


Model	Length(L)	Description
2109-100	1M	Standard type
2109-300	3M	Standard type
2109-500	5M	Standard type
2109-1000	10M	Standard type
2109-100-C02	1M	Flexbile type, 2 million times bends
2109-300-C02	3M	Flexbile type, 2 million times bends
2109-500-C02	5M	Flexbile type, 2 million times bends
2109-1000-C02	10M	Flexbile type, 2 million times bends

Wiring Diagram		
PIN (J1)	Color (Signal)	PIN (J2)
1	Blue(B-)	1
3	Red(B+)	2
4	Green(A-)	3
6	Black(A+)	4

SSDC Step-Servo System(Mating AM Series Motors)

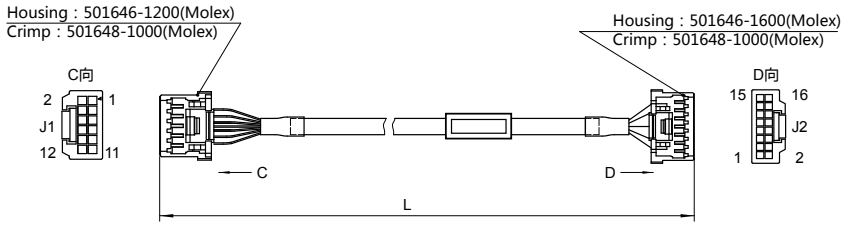
◇ Extended motor cable(For AM14/17/23RS motor)



Model	Length(L)	Description
2103-100	1M	Standard type
2103-300	3M	Standard type
2103-500	5M	Standard type
2103-1000	10M	Standard type
2128-100-C05	1M	Flexbile type, 5 million times bends
2128-300-C05	3M	Flexbile type, 5 million times bends
2128-500-C05	5M	Flexbile type, 5 million times bends
2128-1000-C05	10M	Flexbile type, 5 million times bends

Wiring Diagram		
PIN (J1)	Color (Signal)	PIN (J2)
1	Blue(B-)	1
2	Red(B+)	2
3	Green(A-)	3
4	Black(A+)	4

◇ Extended encoder cable(For AM11RS motor)

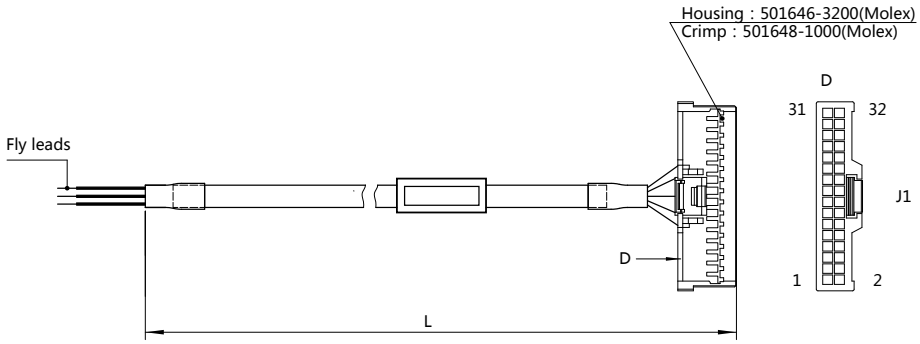


Model	Length(L)	Description
2118-100	1M	Standard type
2118-300	3M	Standard type
2118-500	5M	Standard type
2118-1000	10M	Standard type
2118-100-C02	1M	Flexbile type, 2 million times bends
2118-300-C02	3M	Flexbile type, 2 million times bends
2118-500-C02	5M	Flexbile type, 2 million times bends
2118-1000-C02	10M	Flexbile type, 2 million times bends

Wiring Diagram		
PIN (J1)	Color (Signal)	PIN (J2)
10	Blue(A+)	1
9	Blue/Black(A-)	2
8	Green(B+)	3
7	Green/Black(B-)	4
6	Yellow(Z+)	5
5	Yellow/Black(Z-)	6
3	Red(+5V)	7
4	Black(GND)	8
12	Shield	10
NC	Brown	NC
NC	Brown/Black	NC
NC	Gray	NC
NC	Gray/Black	NC
1	White(W+)	15
2	White/Black(W-)	16

SSDC Step-Servo System(Mating AM Series Motors)

◇ I/O Cable

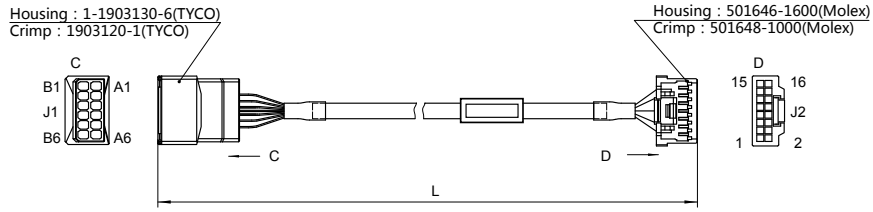


Model	Length(L)	Description
1117-100	1M	Shielded Type
1117-200	2M	Shielded Type

Wiring Diagram			
PIN (J1)	Color (Signal)	PIN (J1)	Color (Signal)
1	Blue/White(X1+)	17	NC
2	Blue/Black(X1-)	18	NC
3	Green/White(X2+)	19	Brown/White(Y1+)
4	GreenBlack(X2-)	20	Brown/Black(Y1-)
5	Red(X3+)	21	Gray/White(Y2+)
6	Orange(X3-)	22	Gray/Black(Y2-)
7	Blue(X4+)	23	Violet/White(Y3+)
8	Violet(X4-)	24	Violet/Black(Y3-)
9	Yellow(X5)	25	Pink(Y4+)
10	Green(X6)	26	Yellow/Green(Y4-)
11	Brown(X7)	27	Red/White(ENC A+)
12	Gray(X8)	28	Red/Black(ENC A-)
13	Shield	29	Orange/White(ENC B+)
14	White(XCOM)	30	Orange/Black(ENC B-)
15	Black(GND)	21	Yellow/White(ENC Z+)
16	NC	32	Yellow/Black(ENC Z-)

SSDC Step-Servo System(Mating AM Series Motors)

◇ Extended encoder cable(For AM14/17/23RS motor)



Model	Length(L)	Description
2116-100	1M	Standard type
2116-300	3M	Standard type
2116-500	5M	Standard type
2116-1000	10M	Standard type
2116-100-C05	1M	Flexbile type, 5 million times bends
2116-300-C05	3M	Flexbile type, 5 million times bends
2116-500-C05	5M	Flexbile type, 5 million times bends
2116-1000-C05	10M	Flexbile type, 5 million times bends

Wiring Diagram		
PIN (J1)	Color (Signal)	PIN (J2)
A6	Blue(A+)	1
B6	Blue/Black(A-)	2
A5	Green(B+)	3
B5	Green/Black(B-)	4
A4	Yellow(Z+)	5
B4	Yellow/Black(Z-)	6
A3	Red(+5V)	7
B3	Black(GND)	8
A1	Shield	10
NC	Brown	NC
NC	Brown/Black	NC
NC	Gray	NC
NC	Gray/Black	NC
A2	White(W+)	15
B2	White/Black(W-)	16

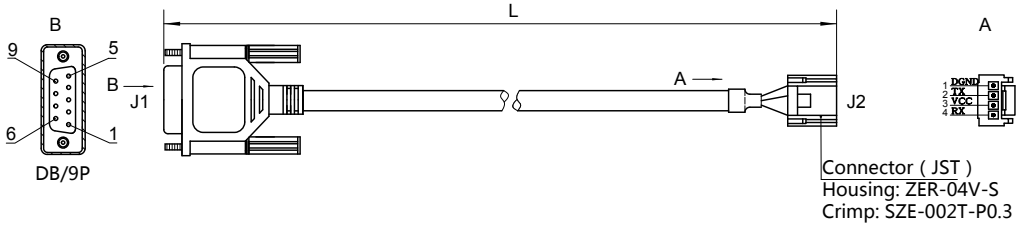
◇ Network Cable

Model	Length(L)	Description
2012-030*	0.3m	Standard type
2012-300	3m	Standard type
2013-030	0.3m	Shielded Type
2013-300	3m	Shielded Type

* 2012-030 is included in the driver package(except SSDC-A, SSDC-EC type).

◇ Configuration Cable

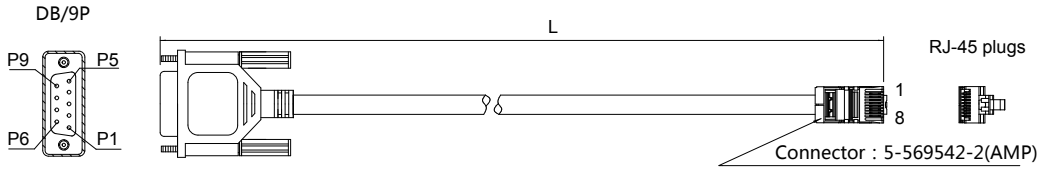
- SSDC-EC、SSDC-A configuration cable



Model	Length(L)	Description
2101-150	1.5m	Standard type

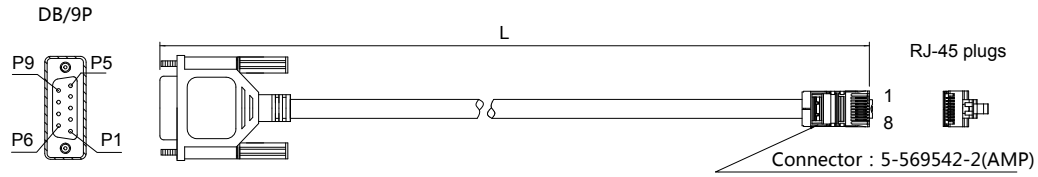
SSDC Step-Servo System(Mating AM Series Motors)

- SSDC-R Configuration cable



Model	Length(L)	Description
2102-150	1.5m	Standard type

- SSDC-C Configuration cable



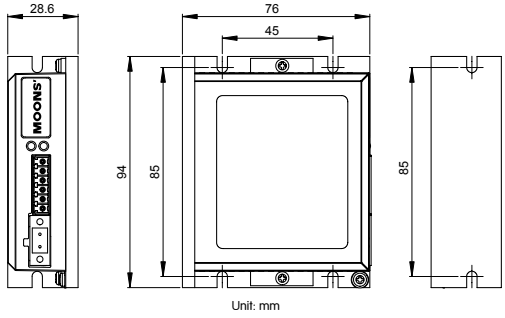
Model	Length(L)	Description
2019-150	1.5m	Standard type

◇ Regeneration Clamp

P/N:RC880

When using a regulated power supply you may encounter a problem with regeneration. The kinetic energy caused by regeneration is transferred back to the power supply. This can trip the over-voltage protection of a switching power supply, causing it to shut down.

MOONS' offers the RC880 "regeneration clamp"to solve this problem. If in doubt, use an RC880 for your first installation. If the "Regen" LED on the RC880 never flashes, you don't need the clamp.



◇ USB Converter

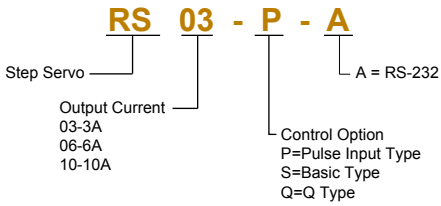
Model: MS-USB-RS232-01
Description: USB-RS232 Converter

Model: MS-USB-RS485-01
Description: USB-RS485 Converter

Model: MS-USB-CAN-01
Description: USB-CAN Converter

RS Series Drivers(Mating AM Series Motors)

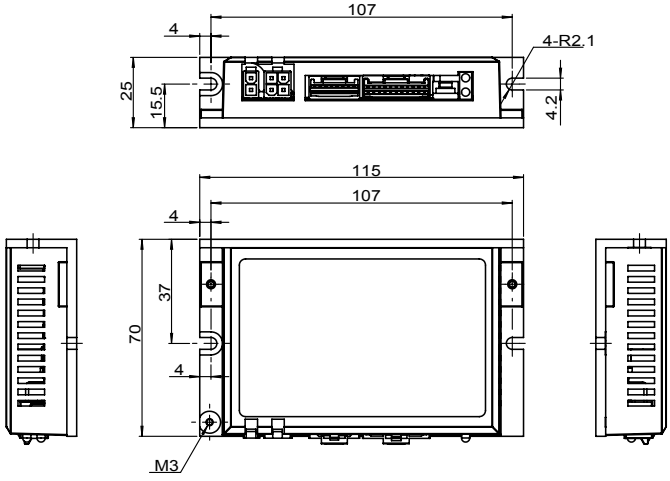
Ordering Information



Driver Type	Motor Type	Control
RS03-P-A	AM11RS2DMA	P Type Pulse Input Type RS-232 Communication 4 Digital Inputs 3 Digital Outputs Encoder Output
	AM17RS2DMA	
RS06-P-A	AM23RS2DMA	
RS03-S-A	AM11RS2DMA	S Type Basic Type RS-232 Communication 4 Digital Inputs 3 Digital Outputs
	AM17RS2DMA	
RS06-S-A	AM23RS2DMA	
RS03-Q-A	AM11RS2DMA	Q Type Programm Type RS-232 Communication 4 Digital Inputs 3 Digital Outputs
	AM17RS2DMA	
RS06-Q-A	AM23RS2DMA	

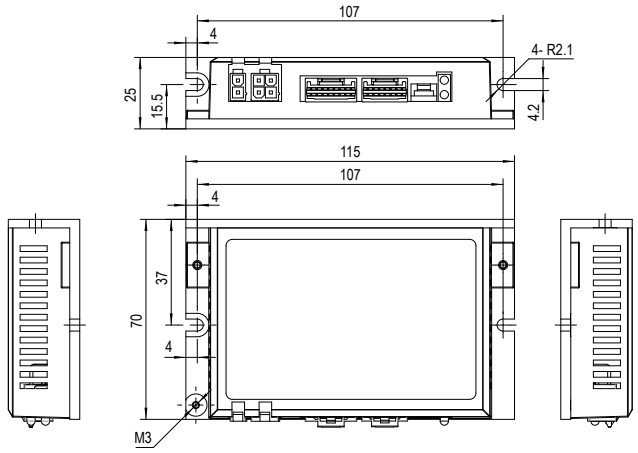
Driver Dimension

RS03/06/10-P



Model		
RS03-P-A	RS06-P-A	RS10-P-A

RS03/06/10-S/Q

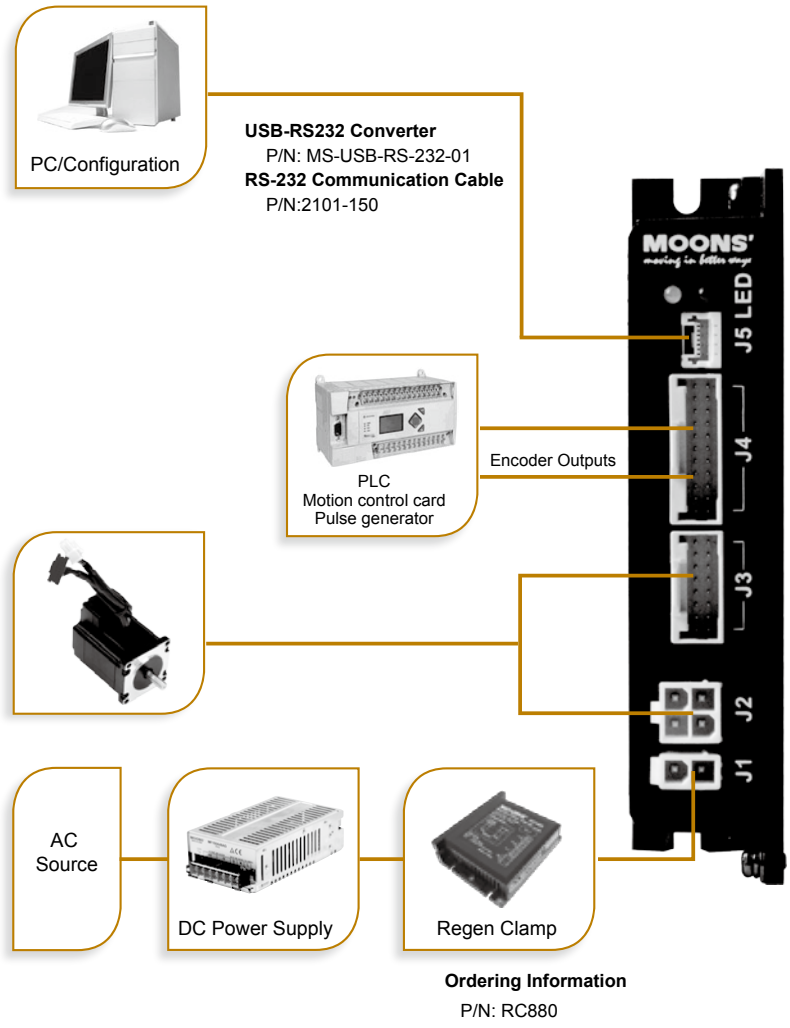


Model		
RS03-S-A	RS06-S-A	RS10-S-A
RS03-Q-A	RS06-Q-A	RS10-Q-A

RS Series Drivers(Mating AM Series Motors)

System configuration

-P Pulse input type



Standard Accessories

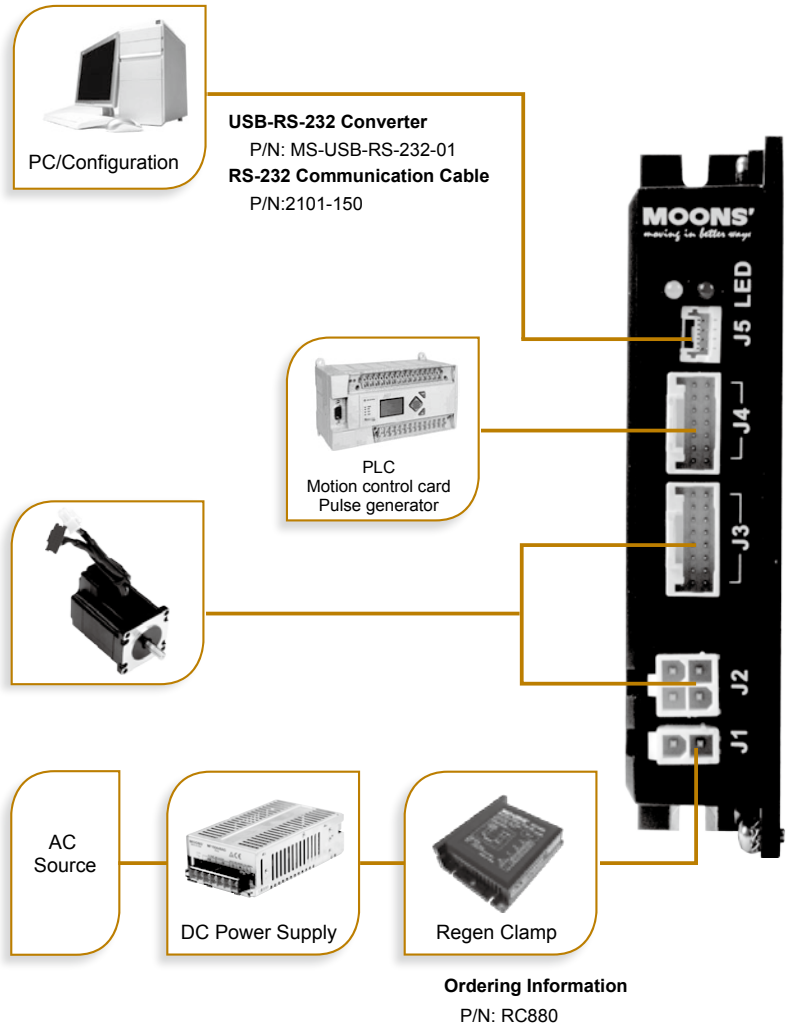
P/N	Catagory	Technical Specification
1103-200	Cable	Power Supply Cable, 2M
2101-150	Cable	RS-232 Communication Cable, 1.5M

Optional Accessories (Sold separately)

P/N	Catagory	Technical Specification
RC880	Regenaration Clamp	80VDC Max. 50W
MS-USB-RS-232-01	USB Converter	USB-RS-232
1108-□□□	Cable	RS-S/Q Standard I/O Cable, Shield
1115-□□□	Cable	RS-P Standard I/O Cable, Shield
2103-□□□	Cable	Motor Extension Cable for AM17/23/24RS motor
2109-□□□	Cable	Motor Extension Cable for AM11RS motor
2116-□□□	Cable	Encoder Extension Cable for AM17/23/24RS motor
2118-□□□	Cable	Encoder Extension Cable for AM11RS motor

RS Series Drivers(Mating AM Series Motors)

-S Basic type with serial communication



Ordering Information

P/N: RC880

Standard Accessories

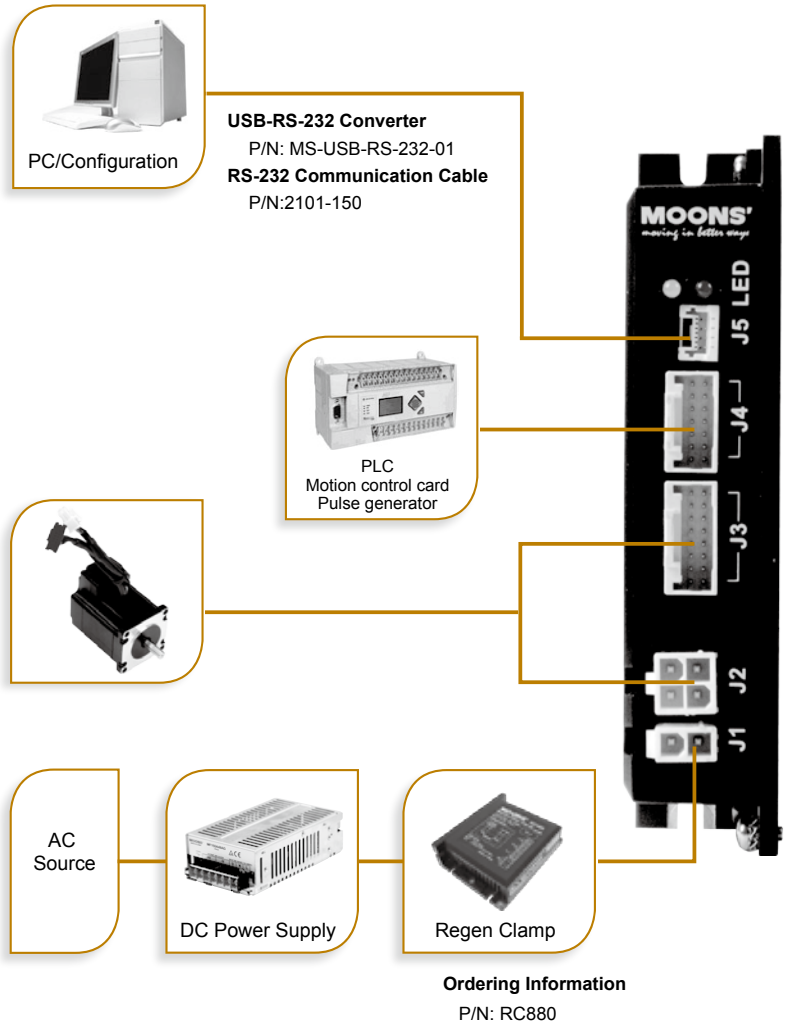
P/N	Catagory	Technical Specification
1103-200	Cable	Power Supply Cable, 2M
2101-150	Cable	RS-232 Communication Cable, 1.5M

Optional Accessories (Sold separately)

P/N	Catagory	Technical Specification
RC880	Regenaration Clamp	80VDC Max. 50W
MS-USB-RS-232-01	USB Converter	USB-RS-232
1108-□□□	Cable	RS-S/Q Standard I/O Cable, Shield
1115-□□□	Cable	RS-P Standard I/O Cable, Shield
2103-□□□	Cable	Motor Extension Cable for AM17/23/24RS motor
2109-□□□	Cable	Motor Extension Cable for AM11RS motor
2116-□□□	Cable	Encoder Extension Cable for AM17/23/24RS motor
2118-□□□	Cable	Encoder Extension Cable for AM11RS motor

RS Series Drivers(Mating AM Series Motors)

-Q Built-in programmable motion controller



Ordering Information

P/N: RC880

Standard Accessories

P/N	Catagory	Technical Specification
1103-200	Cable	Power Supply Cable, 2M
2101-150	Cable	RS-232 Communication Cable, 1.5M

Optional Accessories (Sold separately)

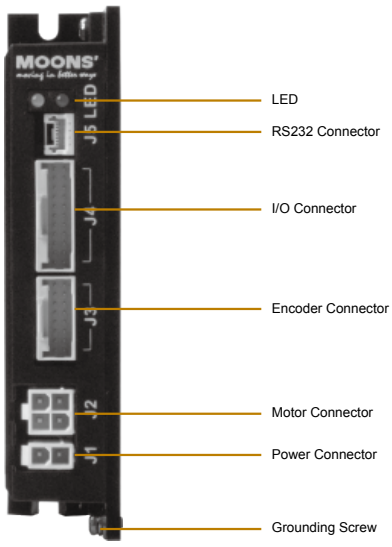
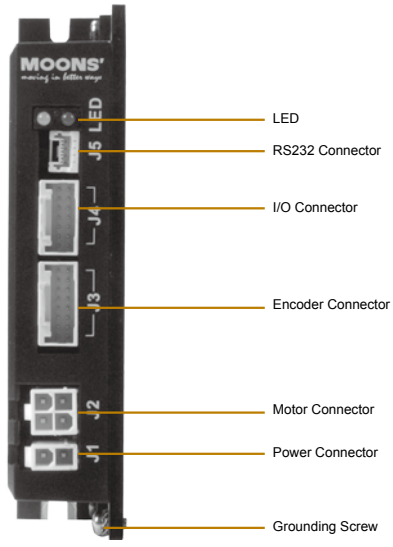
P/N	Catagory	Technical Specification
RC880	Regenaration Clamp	80VDC Max. 50W
MS-USB-RS-232-01	USB Converter	USB-RS-232
1108-□□□	Cable	RS-S/Q Standard I/O Cable, Shield
1115-□□□	Cable	RS-P Standard I/O Cable, Shield
2103-□□□	Cable	Motor Extension Cable for AM17/23/24RS motor
2109-□□□	Cable	Motor Extension Cable for AM11RS motor
2116-□□□	Cable	Encoder Extension Cable for AM17/23/24RS motor
2118-□□□	Cable	Encoder Extension Cable for AM11RS motor

RS Series Drivers(Mating AM Series Motors)

Driver Specifications

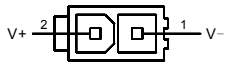
Power Amplifier	
Amplifier Type	Dual H-Bridge, 4 Quadrant
Current Control	4 state PWM at 20 KHz
Output Current	RS03: Continuous Current 3A max, Boost Current 4.0A max (1.5s), current limitation auto set-up by attached motor
	RS06: Continuous Current 6A max, Boost Current 7.5A max (1.5s), current limitation auto set-up by attached motor
	RS06: Continuous Current 10A max, Boost Current 12A max (1.5s), current limitation auto set-up by attached motor
Power Supply	External nominal 24 - 70 volt DC power supply required, Absolute Max. input voltage range 18 - 75 VDC
Protection	Over-voltage, under-voltage, over-temp, motor/winding shorts (phase-to-phase, phase-to-ground)
Controller	
Electronic Gearing	Software selectable from 200 to 51200 steps/rev in increments of 2 steps/rev
Filters	Digital input noise filter, Smoothing filter, PID filter, Notch filter
Non-Volatile Storage	Configurations are saved in FLASH memory on-board the DSP
Modes of Operation	P type: Position Mode(Pulse & Direction, CW & CCW Pulse, A/B Quadrature) S type: Position Mode(Pulse & Direction, CW & CCW Pulse, A/B Quadrature); Torque Mode, Velocity Mode, SCL Mode Q type: Position Mode(Pulse & Direction, CW & CCW Pulse, A/B Quadrature); Torque Mode, Velocity Mode, SCL Mode, Q Programming
Digital Inputs	P/S/Q type: X1/STEP, X2/DIR, Optically isolated, differential, 5-24VDC; Minimum pulse width = 250 ns, Max. pulse frequency = 2 MHz; X3,X4:optically isolated, single-ended, sinking or souring, 5-24VDC, minimum pulse width 50μs, Max. pulse frequency 10KHz;
Digital Outputs	P/S/Q type: Y1/Alarm, Y2/In Position, Y3/Brake; Optically isolated, 30V/100 mA max
Encoder Outputs	P type: Differential encoder outputs (AOUT±, BOUT±, ZOUT±), 26C31 line Driver, 20 mA sink or source max
Communication	RS-232
Physical	
Ambient Temperature	0 to 40°C (32 to 104°F) when mounted to a suitable heatsink
Ambient Humdity	90% Max., non-condensing
Mass	Approx 0.2 Kg

Connection and Operation

(P type)	(S type and Q type)
	

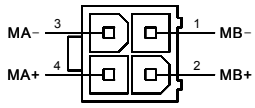
RS Series Drivers(Mating AM Series Motors)

Power Connector



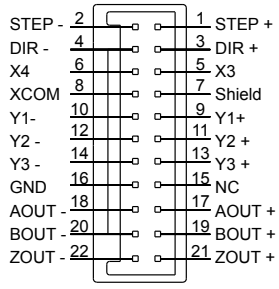
PIN	Description
1	Power Supply -
2	Power Supply +

Motor Connector



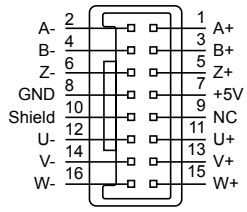
Pin.	Description
1	Motor Phase B-
2	Motor Phase B+
3	Motor Phase A-
4	Motor Phase A+

I/O Connector(-P Type)



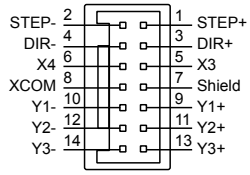
Pin.	Description
1 X1/STEP+	Digital Input 1/Step Input+
2 X1/STEP-	Digital Input 1/Step Input-
3 X2/DIR+	Digital Input 2/Direction Input+
4 X2/DIR-	Digital Input 2/Direction Input-
5 X3	Digital Input 3
6 X4	Digital Input 4
7 Shield	Shielded Ground
8 XCOM	Digital Input COM for X3, X4
9 Y1+	Digital Output 1+
10 Y1-	Digital Output 1-
11 Y2+	Digital Output 2+
12 Y2-	Digital Output 2-
13 Y3+	Digital Output 3+
14 Y3-	Digital Output 3-
15 NC	No Connection
16 GND	Digital Groud
17 AOUT+	Encoder Output A+
18 AOUT-	Encoder Output A-
19 BOUT+	Encoder Output B+
20 BOUT-	Encoder Output B-
21 ZOUT+	Encoder Output Z+
22 ZOUT-	Encoder Output Z-

Encoder Connector



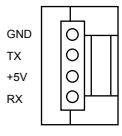
Pin.	Description
1	Encoder A+
2	Encoder A-
3	Encoder B+
4	Encoder B-
5	Encoder Z+
6	Encoder Z-
7	+5V Power Supply for Encoder
8	GND
9	NC
10	Earth GND
11	Encoder U+
12	Encoder U-
13	Encoder V+
14	Encoder V-
15	Encoder W+
16	Encoder W-

I/O Connector(-S/Q Type)



Pin.	Description
1 X1/STEP+	Digital Input 1/Step+
2 X1/STEP-	Digital Input 1/Step-
3 X2/DIR+	Digital Input 2/DIR+
4 X2/DIR-	Digital Input 2/DIR-
5 X3	Digital Input 3
6 X4	Digital Input 4
7 Shield	Shielded Ground
8 XCOM	Digital Input COM for X3, X4
9 Y1+	Digital Output 1+
10 Y1-	Digital Output 1-
11 Y2+	Digital Output 2+
12 Y2-	Digital Output 2-
13 Y3+	Digital Output 3+
14 Y3-	Digital Output 3-

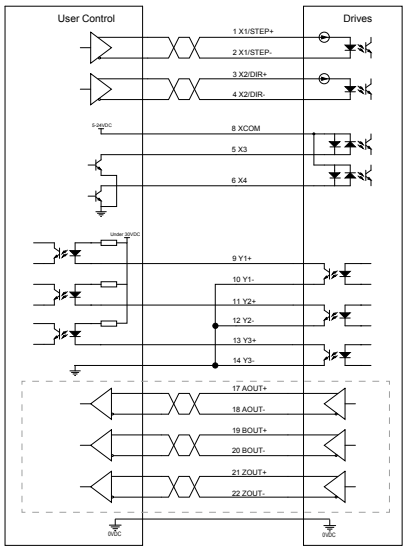
Communication Connector



Pin.	Description
GND	GND
TX	RS-232 Data transmit
+5V	+5V
RX	RS-232 Data receive

RS Series Drivers(Mating AM Series Motors)

Wiring Diagram



The encoder output function in the dashed box is only supported by P type

Description of Input/Output Signals

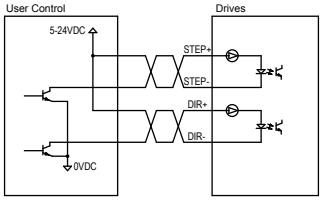
Input (Output) "ON" indicates that the current is flowing into or out of an input or output.

Input (Output) "OFF" indicates that there is no current flowing into or out of an input or output.

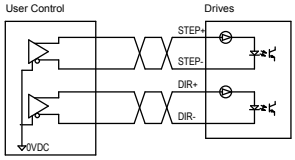
Circuit above shows when pulse input is line Driver type
Pulse signal input range 5-24VDC
Digital signal input range 5-24VDC
Use a multi-core, twisted-pair shielded wire of AWG28 to 24 for the control input/output signal line, and keep wiring as short as possible
Provide safety distance between the control I/O signal wires and power wires.

Pulse Input Circuit and Sample Connection

With Open Collector Output



With Line Driver Output



Pulse Input Mode

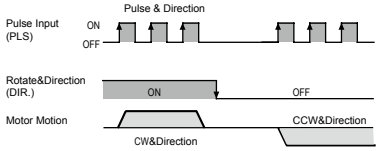
Pulse & Direction

When the Pulse input is turned ON while the DIR input is ON, the motor will rotate by one step in one direction.

When the Pulse input is turned ON while the DIR input is OFF, the motor will rotate by one step the other direction.

*Direction definition of DIR input can be configured via **Step-Servo** Quick Tuner.

The chart below shows motor configured as while the DIR input is ON, the motor will rotate by CW direction



CW/CCW Pulse

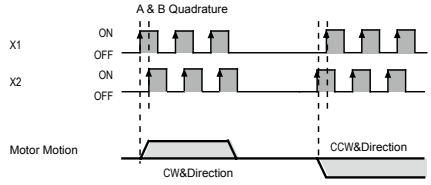
When the X1 input is turned ON, the motor will rotate by one step in one direction. When the X2 input is turned ON, the motor will rotate by one step in the other direction.

*Direction definition can be configured via **Step-Servo** Quick Tuner.

The chart below shows motor configured as while the X1 input is ON, the motor will rotate by one step in CW direction

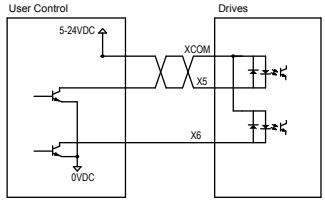
A & B Quadrature

The motor will move according to signals that are fed to the driver from a two channel increamental master encoder.Direction definition can be configured via **Step-Servo** Quick Tuner. Direction is determined via which channel leads the other. The chart below shows motor configured as while X1 Leads X2, the motor will rotate by CW direction.



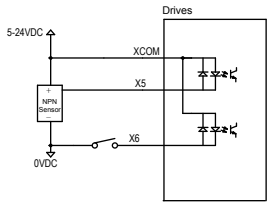
Digital Input Circuit and Sample Connection

With Open Collector Output

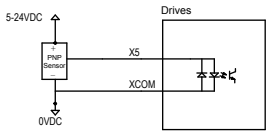


RS Series Drivers(Mating AM Series Motors)

With NPN type Sensor



With PNP type Sensor



Servo On Input

X3 can be configured as Enable signal to excite the motor.

Alarm Reset Input

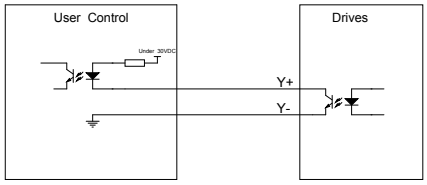
X4 can be configured as Reset signal to clear the alarm.

Caution: Please make sure there's no error in system before you clear an Alarm.

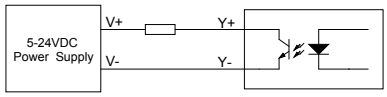
Connecting using Digital Outputs

Output Circuit and Sample Connection

Open Collector Output



Driving external load



Alarm Output

Y1 can be configured as signal output if a fault occurs, meanwhile the LED will display the error code.

In Position Output

Y2 or Y3 can be configured as signal output when position error is less than a user-defined count value.

Timing Output

Y2 can be configured as Timing signal output, it will turn ON every time the motor output shaft rotates by 7.2°, 50 pulses output with one rotation.

Tach Output

Y2 can be configured as Tach signal output. Tach output produces pulses relative to the motor position with configurable resolution: 100, 200, 400, 800, 1600.

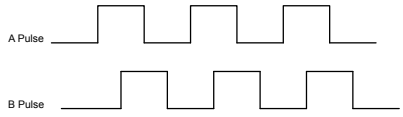
Encoder Output

Differential pulse output with channel A/B/Z

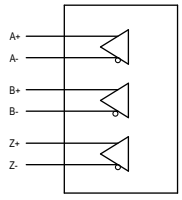
While motor rotates one revolution, A-Phase/B-Phase generate total 20,000 counts, Z-Phase generates one signal.

The B-Phase output has a 90°phase difference with respect to the A-Phase output. Phase A Leads B 90°while motor rotates by CW direction, phase B leads A 90°while motor rotates by CCW direction.

Pulse Output Signal Chart

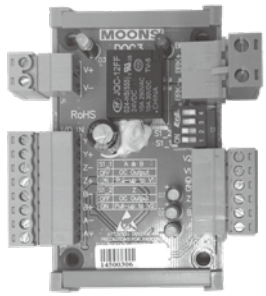


Encoder Output Circuit



Note: If the controller cannot support differential signal input, you can choose the module that it can convert the differential signal into open-collector output.

Module part number: DOC3



How To Get Samples Quickly

If you require a specific configuration, and wish for our engineering department to provide samples that meet your critical parameters, please fill out the application data sheet below and sent to MOONS' .

(E-mail:info@moons.com.cn)

Application info. of Linear Step Motors & Linear Slides

Customer Info.

Customer: _____ Contact Info.: _____

Project No.: _____ Telephone: _____

Project Info.

Products Category : ☐ Linear Step Motors ☐ Linear Slides ☐ Stepper Drive

Background: ☐ New Design ,Competitor: _____ ☐ Substitution Project ,Current State: _____

Quantity of samples: _____ EAU: _____ Pain: _____

Expected Delivery Time: _____ Target Price: _____ USD/EA

Design Info.

Installation: ☐ Horizontal ☐ Vertical

Driving Condition: Voltage : _____ V Current : _____ A

Thrust Force: _____ N Working Speed: _____ mm/s

Stroke: _____ mm Repeatability: ± _____ mm

Working Frequency: _____ cycles per hour, _____ hours per day.

Additional Options : ☐ Add Encoder ☐ Add Brake ☐ No additional

Environment : ☐ Indoor(Normal) ☐ Indoor(Dust-free) ☐ Medium or Heavy Dust ☐ Sticky Substance

☐ High Humidity ☐ Salt Spray ☐ High Temp. _____ ℃ ☐ Low Temp. _____℃

☐ Vacuum ☐ Others: _____

Industry

☐ Factory Automation ☐ Biochemical Analysis ☐ Medical Science ☐ 3D Printer ☐ Automatic Vending

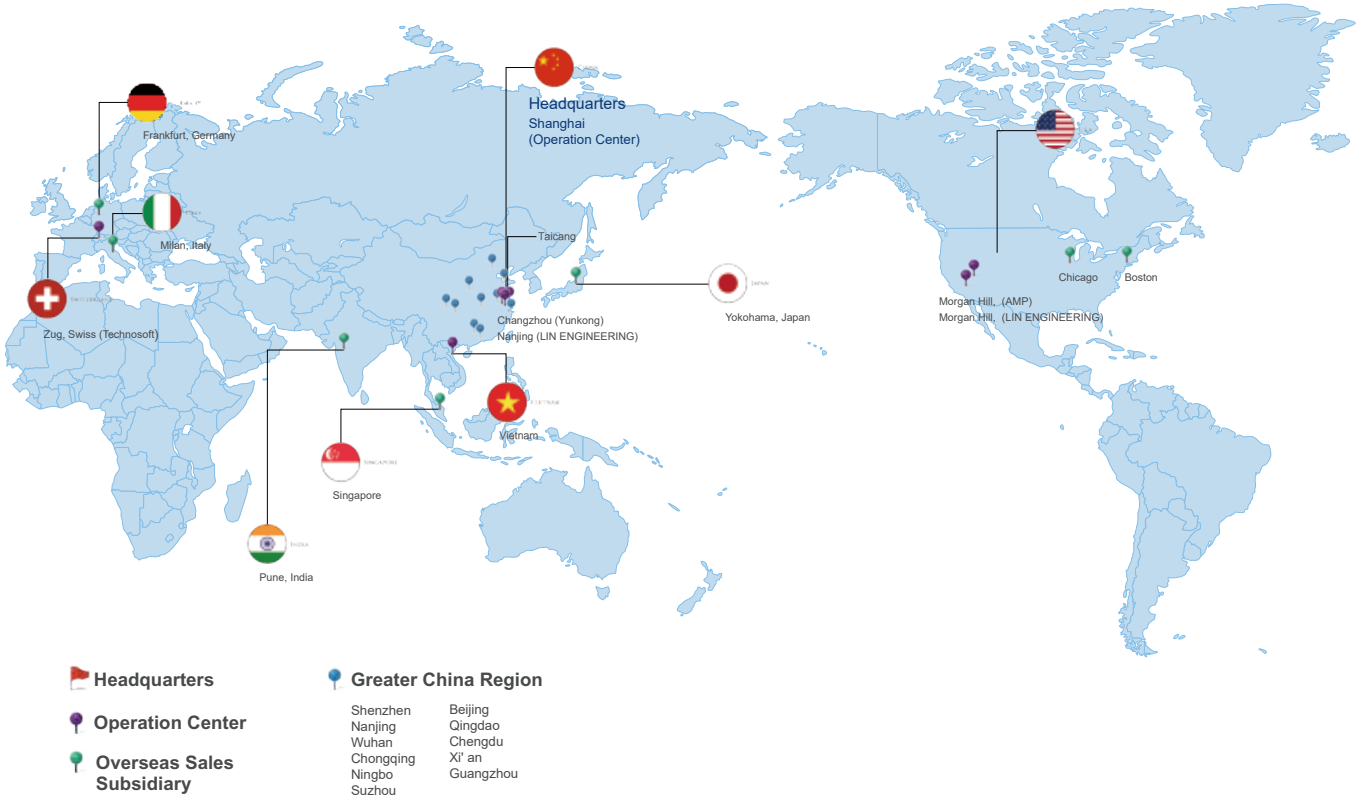
☐ Semiconductor Mfg. ☐ Lithium Battery Mfg. ☐ Photovoltaic Mfg. ☐ Electron Mfg. ☐ Measuring Instrument

☐ Coordinate Robot ☐ Packaging Equipment ☐ Others: _____

Application Description

(Please describe your application so we can ensure the best possible solution.)

Worldwide Service Map



MOONS' Business Philosophies

• Customer satisfaction

MOONS' aims to enhance customer satisfaction through the provision development of innovative solutions, manufacture of high quality products, on-time delivery and outstanding customer support.

• Employee satisfaction

MOONS' values and respects our employees' input and encourages them to grow together with the company. We have been working to develop tools and trainings to build a thriving culture of excellence internally to support the future growth of our employees and the company.

• Partnership

MOONS' strongly believes in a true integrated partnership between all partners in business including customers, distributors and all these in supply chain. As a result of this philosophy, we endeavor to provide the best value contribution to all partners, which can help our partners improve their competiveness to achieve the win-win situation.

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SHANGHAI PBC&MOONS' LINEAR TECHNOLOGY CO., LTD.