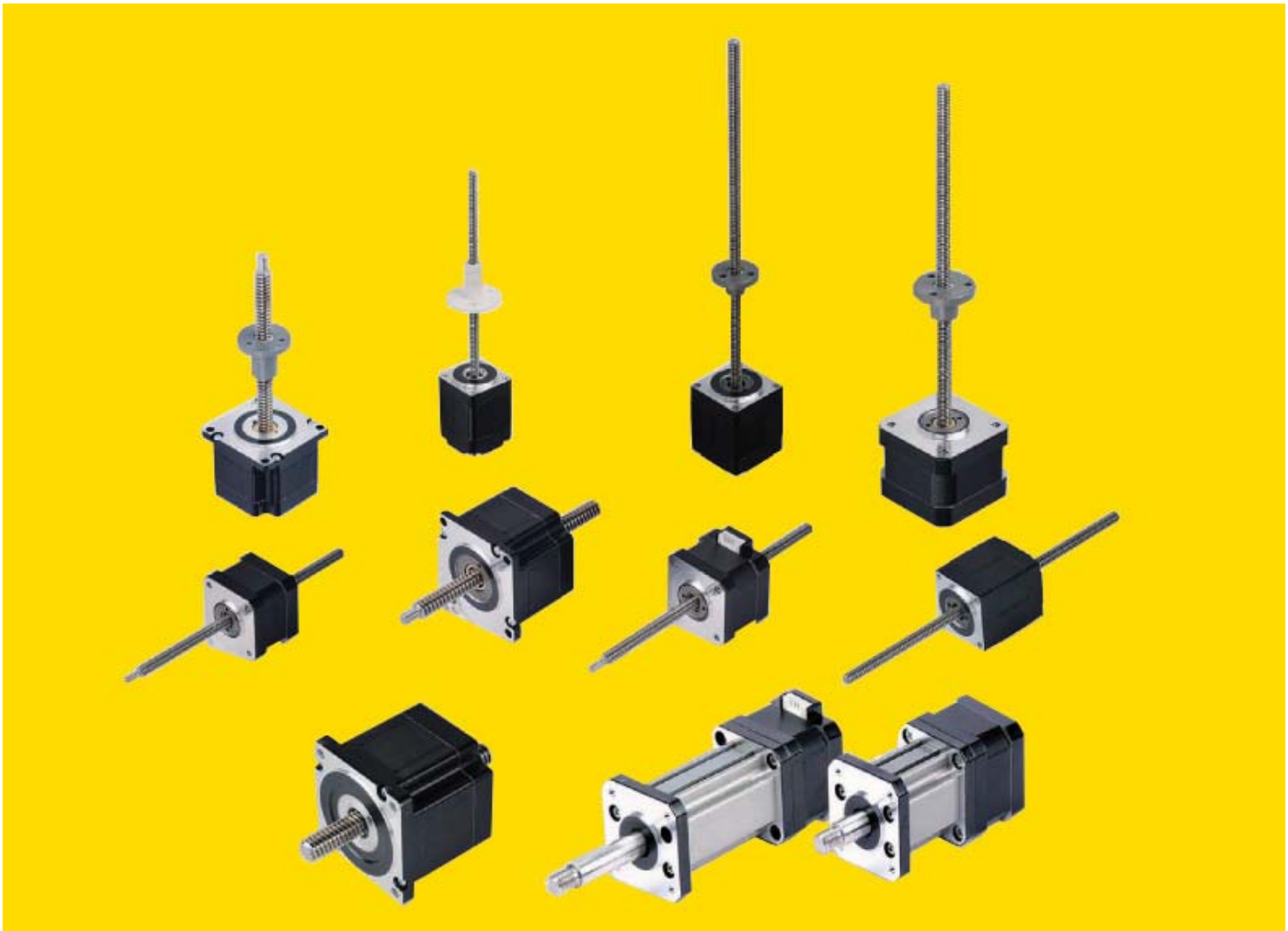
Ezi-LinearStep®

Precision Hybrid Stepper Linear Actuators

- Durable Compact Linear Actuator
- Precision Hybrid Stepper Motor Drive
- High Precision of Positioning
- High Speed of Linear Motion
- Easy to Use



FASTECH

FASTECH

FASTECH PRECISION HYBRID STEPPER LINEAR ACTUATORS

TABLE OF CONTENTS

Technology Overview of Linear Systems 3
An Explanation of the basics 4
Basic Specifications of Fastech ' Linear Systems 10
Product Selection Considerations 11
Product selection system 12
Motor lead screw code schedule 13
Motor size with available lead screw list 14
SIZE 8 · 20 mm Hybrid stepper motor linear actuators 15
SIZE 11 · 28 mm Hybrid stepper motor linear actuators 17
SIZE 14 · 35 mm Hybrid stepper motor linear actuators 19
SIZE 17 · 42mm Hybrid stepper motor linear actuators 22
SIZE 23 · 57mm Hybrid stepper motor linear actuators 25
SIZE 34 · 86mm Hybrid stepper motor linear actuators 28
Warranty 30
Glossary 31

● TECHNOLOGY OVERVIEW

One of the most common methods of moving a load from point A to point B is through linear translation of a motor by a mechanical lead screw and nut. This section is here to assist and refresh your understanding of the basic principles of lead screw technology prior to selecting the system that is the best for your applica-tion. Please also utilize the reference glossary at the end of the catalog to support your understanding as well.

Some basic design considerations are as follows :

1. What is the load of your system?
2. what is the required speed to go from point A to point B?
3. What is the distance you need to travel?
4. What is the required time to move from point A to point B?
5. What accuracy does your application require?
6. What repeatability does your application require?
7. Horizontal vs vertical orientation?

● An Explanation of the basics

LEADS VS PITCH

Pitch is the axial distance between threads. Pitch is equal to lead in a single start screw. Unless otherwise noted, all lead screws in this catalog are single start.
Lead is the axial distance the nut advances on one revolution of the screw. Throughout this catalog, lead will be the term used for specifying a screw as it is the linear distance travelled for one revolution of the screw. The larger the lead, the more linear distance travelled per one revolution of the screw.

LOAD

Typically quanti fied as either lbs or Kg to move or pounds force (lbsF) or KgF for thrust.

VELOCITY(V)

Typically quanti fied as either inches/second (mm/sec) required for your application.

DISTANCE

Typically quanti fied as either inches or mm, is the required move distance.

TIME(t)

Typically quanti fied in seconds. Time period required for a given distance defines the velocity, acceleration (A), and deceleration needed to reach commanded position.

HORIZONTAL OR VERTICAL APPLICATION

Vertical orientation applications add the potential problem of backdriving when power to the motor is off and without an installed brake. Vertical applications also have an additional gravity factor that must be part of the load/force calculation.

ACCURACY OF SCREW

Specified as a measurement over a given length of the screw. For example: 0.0006 in per inch. Lead accuracy is the difference between the actual distance travelled versus the theoretical distance travelled based on the lead. For example: A screw with a 0.5 inch lead and 0.004 inch per foot lead accuracy rotated 24 times theoretically moves the nut 12 inches.
However, with a lead accuracy of 0.004 inch per foot, actual travel could be from 11.996 to 12.004 inches.

TOTAL INDICATED RUNOUT

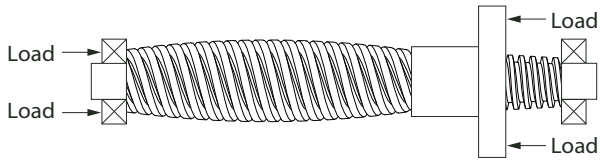
The amount of wobble around the centerline of the screw.

REPEATIBILITY

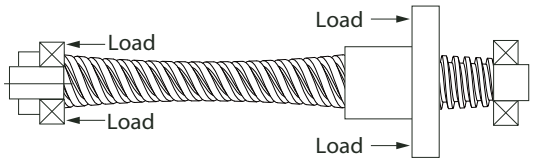
Most motion applications put the most significance on the repeatability (vs accuracy of screw) of a system to reach the same commanded position over and over again. For example: A repeatability of ± 0.005 inch means that after repeated commands to reach the same target position, the linear error will be no more than ± 0.005 inch.

TENSION OR COMPRESSION LOADING

A load that tends to stretch the screw is called a tension load.
A load that tends to squeeze or compress the screw is called a compression load.
Depending on the size of the load, designing the screw in tension utilizes the axial strength of the screw versus column loading.



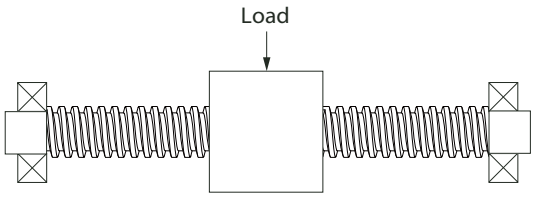
Compression Loading



Tension Loading

RADIAL LOAD

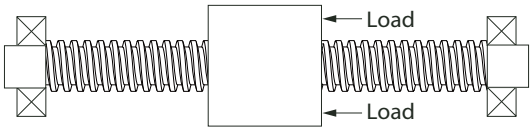
A load perpendicular to the screw.
This is not recommended unless additional mechanical support such as a linear guide is used.



Radial Loading
(Avoid Minimize)

AXIAL LOAD

A load that exerted at the center line of the lead screw.



Axial Center Loading
(best)

STATIC LOAD

The maximum thrust load, including shock load, that should be applied to a non-moving screw.

DYNAMIC LOAD

The maximum recommended thrust load which should be applied to the screw while in motion.

BACKDRIVING

Backdriving is the result of the load pushing axially on the screw or nut to create rotary motion. Generally, a nut with an effi ciency greater than 50% will have a tendency to backdrive. Selecting a lead screw with an effi ciency below 35% may prevent backdriving. The smaller lead, the less chance for back-driving or free wheeling. Vertical application are more prone to backdriving due to gravity.

TORQUE

The required motor torque to drive just the lead screw assembly is the total of:

1. Inertial Torque
2. Drag Torque
3. Torque to move load

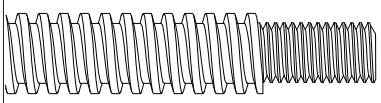
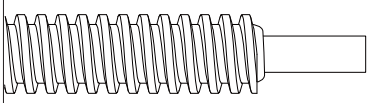
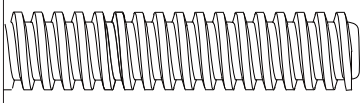
Drag Torque = Friction of the nut and screw in motion

LUBRICATION

The nut material contains a self-lubricating material that eliminates the need for adding a lubricant to the system. The Te on coated screw option also lowers friction and extends life of the system.

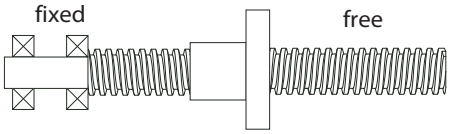
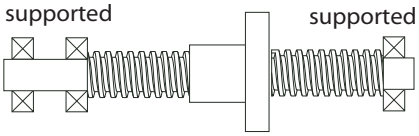
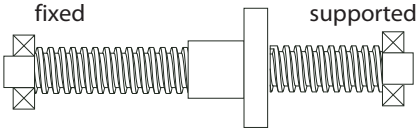
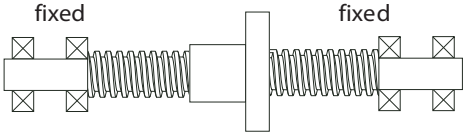
END MACHINING OF THE SCREW

Standard metric or English options are available as well as custom requirements.

	Threaded end	Metric end: M4 x 0.7 mm thread to within 0.03" /0.76 mm of shoulder	UNC end: #8-32 UNC-2A thread to within 0.03" /0.76 mm of shoulder
	Smooth end	Ø 0.1967" ± 0.001 Ø 5 mm ± 0.003	
	None	-	

FIXITY

The performance (speed and effi ciency) of the screw system is affected by how the screw ends are attached and supported.

screw Dia. (in)	screw dia. (mm)	Lead (in)	Lead (mm)
	Less Rigid	32	25
	Rigid	1.00	1.00
	More Rigid	1.55	2.00
	Most Rigid	2.24	4.00

COLUMN STRENGTH

When a screw is loaded in compression its limit of elastic stability can be exeeded and the screw will fail through bending or buckling.

CRITICAL SPEED

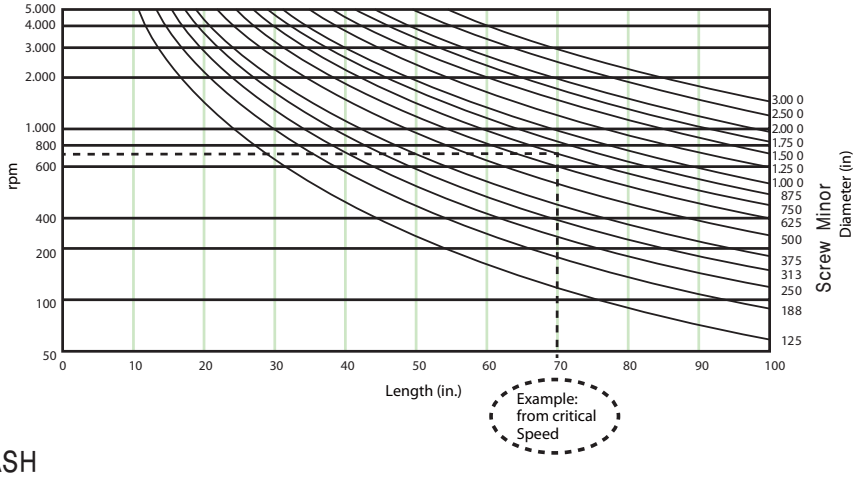
Critical speed is the rotational speed of the screw at which the first harmonic of resonance is reached due to defection of the screw.
A system will vibrate and become unstable at these speeds.

Several variables affect the speed at which a system will reach critical speed:

1. The lead of the screw
2. The rotational speed
3. End fixity
4. The thrust load
4. Diameter of the screw
6. Tension or compression loading

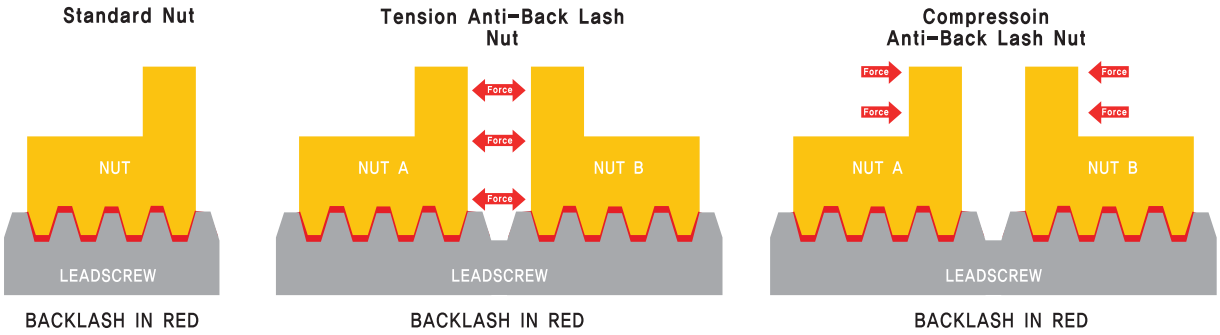
For example the following chart shows that for a screw with a fiameter of 3/4 inch and 70 inch length, the threshold for critical speed os 700 RPM.

CRITICAL ROTATION SPEED (RPM) VS. UNSUPPORTED SCREW LENGTH FOR VARIOUS SCREW DIAMETERS (IN.)



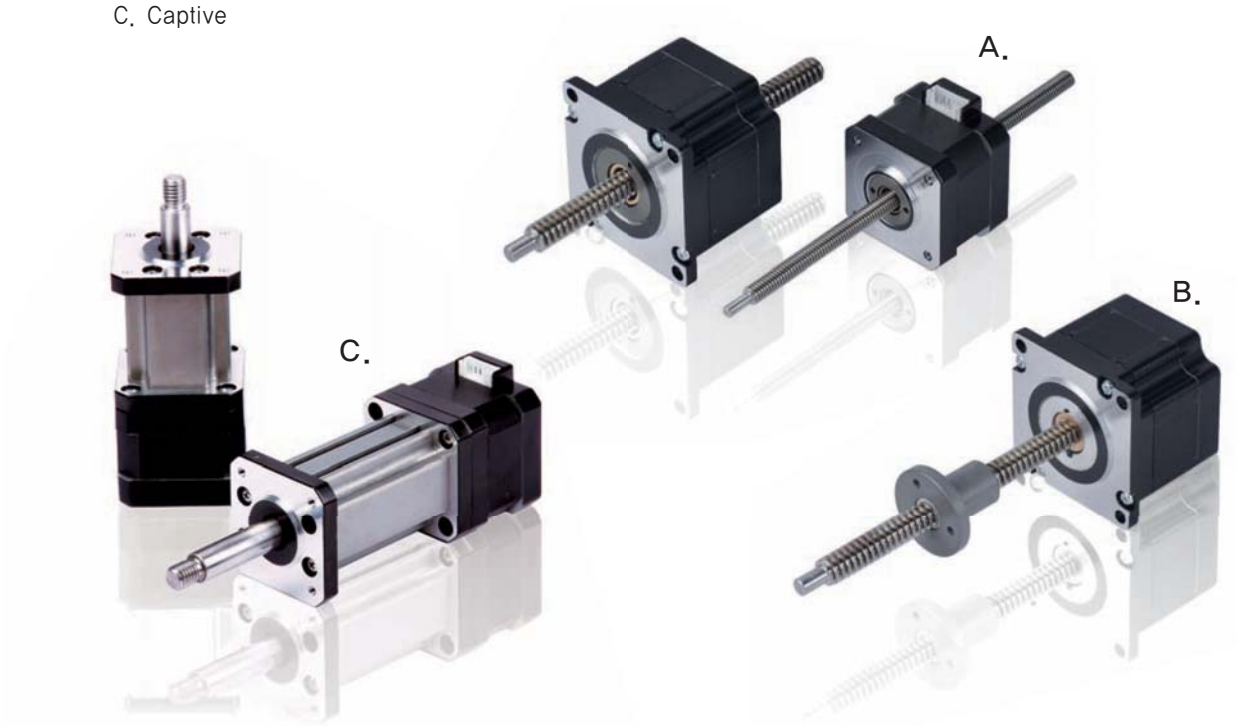
BACKLASH

Backlash is the relative axial movement between a screw an nut at standstill.
It is normal for backlash to increase with wear over time. Blacklash compensation or correction can be accomplished through the application of an anti-backlash nut. Backlash is usually only concern with bi-directional positioning.



LINEAR MOTION SYSTEM TYPES

A. Non–Captive
B. External Linear
C. Captive



WHY CHOOSE ONE FORM FACTOR OVER THE OTHER?

1. What is the best mechanical fit for your application?
2. How do you plan to attach the screw?
3. Is rotation of the screw acceptable?
4. Does your application require an encoder or brake?
5. What is the stroke of your application?

WHAT ENVIRONMENTAL CONSIDERATIONS DO YOU HAVE?

Fastech linear motion systems are designed to operate in dry and non–corrosive environments.
There is no IP rating. Operating the linear systems in dirty or corrosive environments will significantly reduce product life.

TEMPERATURE

Very high or low temperatures may cause significant changes in the nut fit or drag torque.

MAXIMUM DYNAMIC LOAD

Each Nema frame size motor has a mechanical load maximum that should not be exeeded.
See Speed/Torque curves for the individual frame sizes.

MOTOR SELECTION

In order to select the right motor combination with the lead screw several factors should be considered:

1. How much torque is required?
2. What is the desired step angle?
3. Detend or holding torque requirements?
4. Physical size restrictions?
5. What type of driver (amplifier) are you using?

LEAD SCREW MATERIAL

Unless otherwise noted, all reference to lead screws in this catalog have the following characteristics:

Lead screw material	303 Stainless precision cold rolled steel
Numer of Starts	Single start acme thread (This refers to the number of independent threads on the screw shaft) Note: Contact your local technical distributor for multi-start availability
Screw Coating	Tefion coating is optional

Fastech linear actuator screws are manufactured by a precision rolling process

Standard screw accuracy (Lead accuracy)	0.0006 in/inch
Screw repeatability	± .006 inch
System repeatability (Motor and Screw)	Nominally the same as screw repeatability, motor variance adds ± 6 micro steps.
Screw straightness	.003 in/footm, measured as Total Indicated Runout (TIR) All screws are carefully checked for straightness before shipment.
Screw Efficiency	From 35% to 85% dependent on lead Also depends on the usage of an anti-backlash nut with screw. The larger the lead, the higher the efficiency of the screw.
Operating temperature	32 F to 200° F
Screw backlash	Depends on lead (nominally ± .005 in)
System backlash	Includes screw, motor and attached mechanics This will be the sum of all the backlash in your motion axis.
Nut Material	Polyacetal with lubricating additive Standard is a free-wheeling nut. [Anti-backlash version is available]
Wear life of screw and nut	Depends on load, speed, duty cycle and environmental factors [typically〉 5 million cycles]
Note	Fastech linear systems are manufactured from high quality materials. Because of the variable effects of friction, lubrication and cleanliness, an exact life cannot be predicted for a given application.

● Product Selection Considerations

There are many inter-related variables to consider when selecting the right linear motion system for your application. Your load and speed requirements will determine other variables such as the size of motor, the lead of the screw and ultimately the voltage and current requirements of your electronic motor driver. Depending on your application, trade-offs can be made with many variables as your finalize the system that will meet your performance, form factor and cost specifications.

SELECTION

Quantify these basic variables first :

1. Load that you need to move (or push - Thrust)
2. Velocity
3. Distance to travel (Stroke)
4. Time required to move from point A to point B (Acceleration required)
5. Torque requirements of your entire system
6. How much backlash is acceptable in your system?
7. What is the required positional repeatability?
8. Is this a Vertical or Horizontal orientation?

Using the PRODUCT SELECTION SYSTEM along with the associated Nema motor frame size pages in the next sections, you will then be able to drill down to specific c part numbers for both the lead screw and the associated step motor. The linear system is ordered as two part numbers.

Note

A linear ststem must be ordered as two part numbers.

● Product selection system

LEAD SCREW SPECIFICATION

L S G R-6 K-0150-N- 001

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① L-means Lead screw Assemble.

② Nut Style (Only for External Linear Version)
S = Leadscrew only (Non-Captive and Cap tive versions)
N = Standard free-wheeling nut
A = Antibacklash nut

③ Lubrication
G = standard grease
S = Leadscrew without grease
T = Tefi on coated screw

④ Thread direction: R means Rotate right,
L means Rotate left,
B means Rotate right+ Rotate left,
C means customer code.

⑤ Lead Screw Diameter
3 = 3.505 mm (Nema Size 8 motor)
4 = 4.775 mm (Nema Size 11 motor)
6 = 6.350 mm (Nema Size 14 and 17 motor)
7 = 9.525 mm (Nema Size 17 motor)
9 = 9.525 mm (Nema Size 23 motor)

⑥Lead Code (Travel per Rev and Full Step)
Reference motor lead screw code schedule (page 12)

⑦ Lead screw length: 0150 = 150 mm.
⑧ End Machining Option (Customs available)
A = Metric (see page 6 for specs)
B = UNC (see page 6 for specs)
S = Smooth (see page 6 for specs)
N = None

⑨ Reserved for custom version (001 is default)
Custom Leadscrew and Motor specifi cations welcome

MOTOR SPECIFICATION

17 E 2 035 K 4 - 057 - 001

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Nema Motor size

Code	8	11	14	17	23	34
motor size	20	28	35	42	57	86

② eadscrew Shaft Style
N = Non-Captive Linear
E = External Linear
C = Captive Linear

③ Motor step angle:
2 = 2-Phase with 1.8 degree step angle
4 = 2-Phase with 0.9 degree step angle
3 = 3-Phase with 1.2 degree step angle
5 = 5-Phase with 0.72 degree step angle

④ Motor length: Choice of single or double stack motor 035 = 35 mm (See selection associated with each Nema size)

⑤ Motor internal leadscrew Lead Code
(see page 12)
Note: Must match leadscrew selected

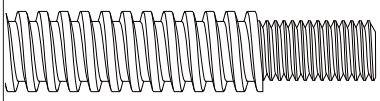
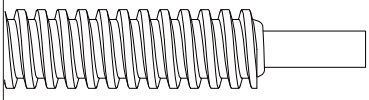
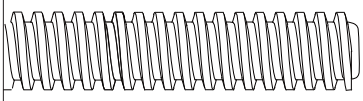
⑥ Number of Lead Wires
(See JST Connector Detail Below)
C4 = 4 position connector option
C6 = 6 position connector option
4 = Qty 4 Flying Leads
6 = Qty 6 Flying Leads
8 = Qty 8 Flying Leads
Note: Nema 8 to Nema 17 motors have JST connector option. Nema 23 and Nema 34 motors have fiying leads as only option

⑦ Motor rated current per phase
057 = 0.57 Amps/phase (See selection associ ated with each Nema size)

⑧ Reserved for customer version (001 is default)

END MACHINING OF THE SCREW

Standard metric or English options are available as well as custom requirements.

	Threaded end	Metric end: M4 x 0.7 mm thread to within 0.03" /0.76 mm of shoulder	UNC end: #8-32 UNC-2A thread to within 0.03" /0.76 mm of shoulder
	Smooth end	Ø 0.1967" ± 0.001 Ø 5 mm ± 0.003	
	None	-	

Motor lead screw code schedule

lead code	travel per step mm (inch)	size 8	size 11	size 14	size 17	size 23	size 34
		screw dia. mm (inch)					
		3.5052 (0.128")	4.775 (0.188")	6.350 (0.250")	6.350 (0.250")	9.525 (0.375")	15.875 (0.625")
		screw lead mm (inch)					
A	0.003175 (0.000125")		0.635 (0.025")			0.635 (0.025")	
B	0.006096 (0.00024")	1.2192 (0.048")		1.2192 (0.048")	1.2192 (0.048")		
D	0.00635 (0.00025")		1.270 (0.050")	1.270 (0.050")	1.270 (0.050")	1.270 (0.050")	
F	0.008 (0.000315")			1.6002 (0.063")	1.6002 (0.063")	1.6002 (0.063")	
G	0.01 (0.000395")	2.000 (0.079")					
H	0.010541 (0.000415")					2.1082 (0.083")	
J	0.012192 (0.00048")			2.4384 (0.096")	2.4384 0.096")		
K	0.0127 (0.0005")		2.540 (0.100")	2.540 (0.100")	2.540 0.100")	2.540 0.100")	2.540 0.100")
L	0.015875 (0.000625")					3.175 0.125")	3.175 0.125")
M	0.02 (0.00079")	4.000 (0.158")					
P	0.021209 (0.000835")			4.8768 (0.192")	4.8768 0.192")		
Q	0.024384 (0.00069")			4.8768 (0.192")	4.8768 0.192")		
R	0.0254 (0.001")		5.080 (0.200")			5.080 0.200")	5.080 0.200")
S	0.03175 (0.00125")			6.350 (0.250")	6.350 0.250")	6.350 0.250")	6.350 0.250
T	0.04 (0.001575")	8.000 (0.315")					
U	0.042291 (0.001575")			8.382 (0.330")	8.382 (0.330")		
V	0.047625 (0.001875")					9.525 (0.375")	
W	0.048768 (0.00192")			9.7536 (0.384")	9.7536 (0.384")	9.7536 (0.384")	
X	0.0508 (0.002")		10.160 (0.400")				
Y	0.0635 (0.0025")					12.700 (0.500")	
Z	0.172 (0.005")					25.400 (1.000")	25.400 (1.000")
AA	0.0003048 (0.00012")	0.6096 (0.024")		0.6096 (0.024")	0.6096 (0.024")		

● Motor size with available lead screw list

Motor size	(mm)	Screw Dia (inch)	Screw Dia (mm)	Lead (inch)	Lead (mm)	Traver per step (mm)*
Nema 8	20x20	0.138	3.5052	0.024	0.6096	0.0030
Nema 8	20x20	0.138	3.5052	0.048	1.2192	0.0061
Nema 8	20x20	0.138	3.5052	0.079	2.00	0.01
Nema 8	20x20	0.138	3.5052	0.158	4.00	0.02
Nema 8	20x20	0.138	3.5052	0.315	8.00	0.04
Nema 11	28x28	0.188	4.7752	0.025	0.635	0.0031
Nema 11	28x28	0.188	4.7752	0.050	1.27	0.0063
Nema 11	28x28	0.188	4.7752	0.100	2.54	0.0127
Nema 11	28x28	0.188	4.7752	0.200	5.08	0.0254
Nema 11	28x28	0.188	4.7752	0.400	10.16	0.0508
Nema 14/17	35x35/42x42	0.250	6.35	0.024	0.6096	0.0030
Nema 14/17	35x35/42x42	0.250	6.35	0.050	1.27	0.0065
Nema 14/17	35x35/42x42	0.250	6.35	00.063	1.6002	0.0080
Nema 14/17	35x35/42x42	0.250	6.35	0.096	2.4384	0.0122
Nema 14/17	35x35/42x42	0.250	6.35	0.100	2.54	0.0127
Nema 14/17	35x35/42x42	0.250	6.35	0.192	4.8768	0.0244
Nema 14/17	35x35/42x42	0.250	6.35	0.250	6.35	0.0318
Nema 14/17	35x35/42x42	0.250	6.35	0.330	8.382	0.0419
Nema 14/17	35x35/42x42	0.250	6.35	0.384	9.7536	0.0488
Nema 23	57x57	0.375	9.525	0.025	0.635	0.0032
Nema 23	57x57	0.375	9.525	0.050	1.27	0.0064
Nema 23	57x57	0.375	9.525	0.063	1.6002	0.0080
Nema 23	57x57	0.375	9.525	0.083	2.1082	0.0105
Nema 23	57x57	0.375	9.525	0.100	2.54	0.0127
Nema 23	57x57	0.375	9.525	0.125	3.175	0.0159
Nema 23	57x57	0.375	9.525	0.167	4.2418	0.0212
Nema 23	57x57	0.375	9.525	0.200	5.08	0.0254
Nema 23	57x57	0.375	9.525	0.250	6.35	0.0318
Nema 23	57x57	0.375	9.525	0.375	9.525	0.0476
Nema 23	57x57	0.375	9.525	0.384	9.7536	0.0488
Nema 23	57x57	0.375	9.525	0.500	12.7	0.0635
Nema 23	57x57	0.375	9.525	1.000	25.4	0.127
Nema 34	87x87	0.625	15.875	0.100	2.54	0.0127
Nema 34	87x87	0.625	15.875	0.125	3.175	0.0159
Nema 34	87x87	0.625	15.875	0.200	5.08	0.0254
Nema 34	87x87	0.625	15.875	0.250	6.35	0.0318
Nema 34	87x87	0.625	15.875	1.000	25.4	0.127

* values truncated

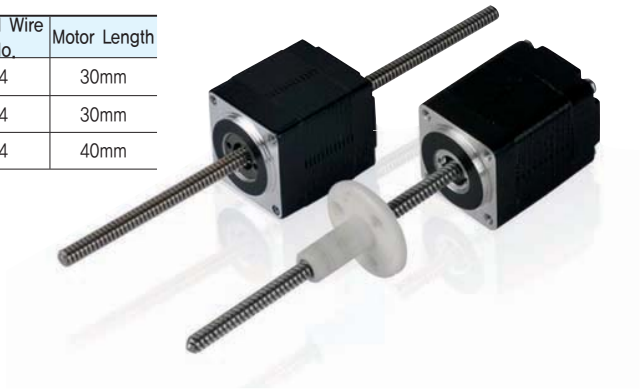
Note : External shaft version has more options than shown in the above list. Please contact company for details.
Travel per step is based on a 2 phases 1.8 ° step angle motor. The travel per step will vary with
0.9 degree, 3 phases or 5 phases motors.

● SIZE 8 · 20 mm Hybrid stepper motor linear actuators

Available travel per step: 0.0030 mm, 0.006 mm, 0.01 mm, 0.02mm, 0.04 mm

Motor type	Current/Phase	Res./Phase	Inductance	Lead Wire No.	Motor Length
8-2030-4-030	0.3A	20 Ω +/-10%	5.0 mH +/-20%	4	30mm
8-2030-4-050	0.5A	5 Ω +/-10%	1.5 mH +/-20%	4	30mm
8-2040-4-060	0.6A	10 Ω +/-10%	5.5 mH +/-20%	4	40mm

Motor characteristics Not limited as the list.
please consult factory for custom specifi cation.

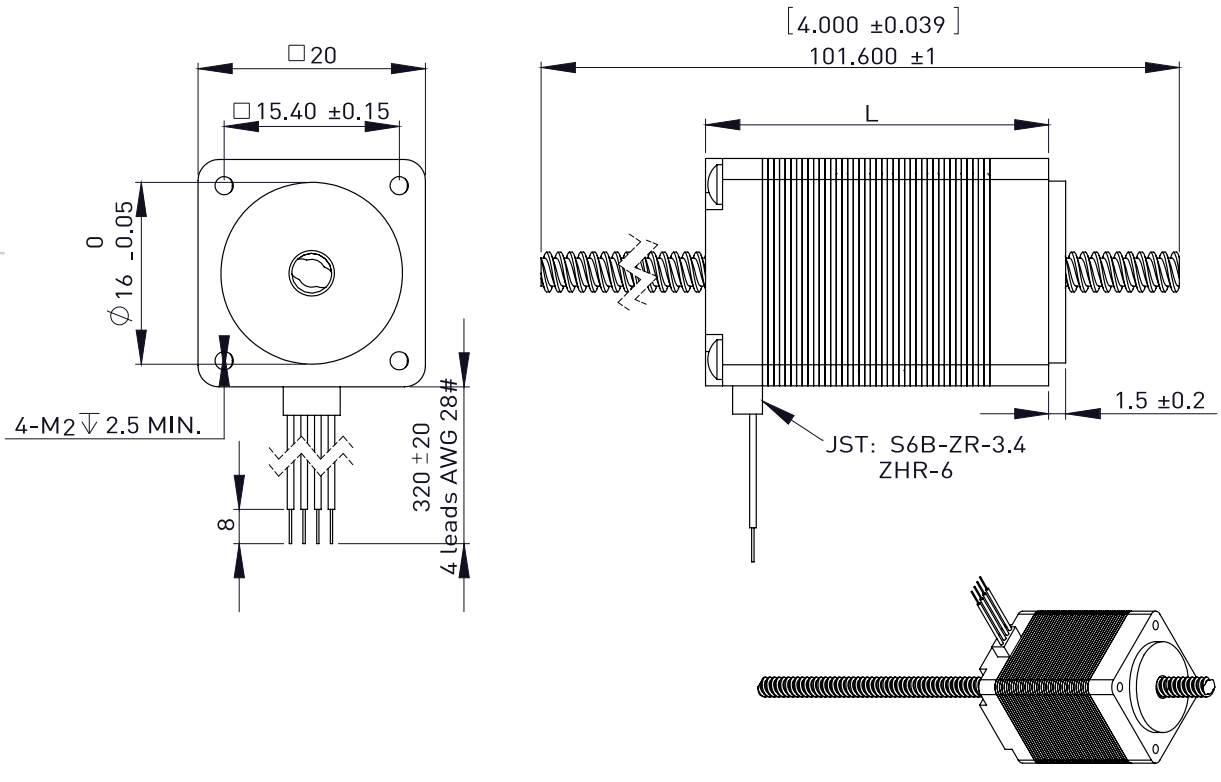


Screw Dia. (in.)	Screw Dia. (mm)	Lead (in.)	Lead (mm)	Lead Code	Travel per step (mm)*
0.138	3.5052	0.024	0.6096	AA	0.0030
0.138	3.5052	0.048	1.2192	B	0.0061
0.138	3.5052	0.079	2	G	0.01
0.138	3.5052	0.158	4	M	0.02
0.138	3.5052	0.315	8	T	0.04

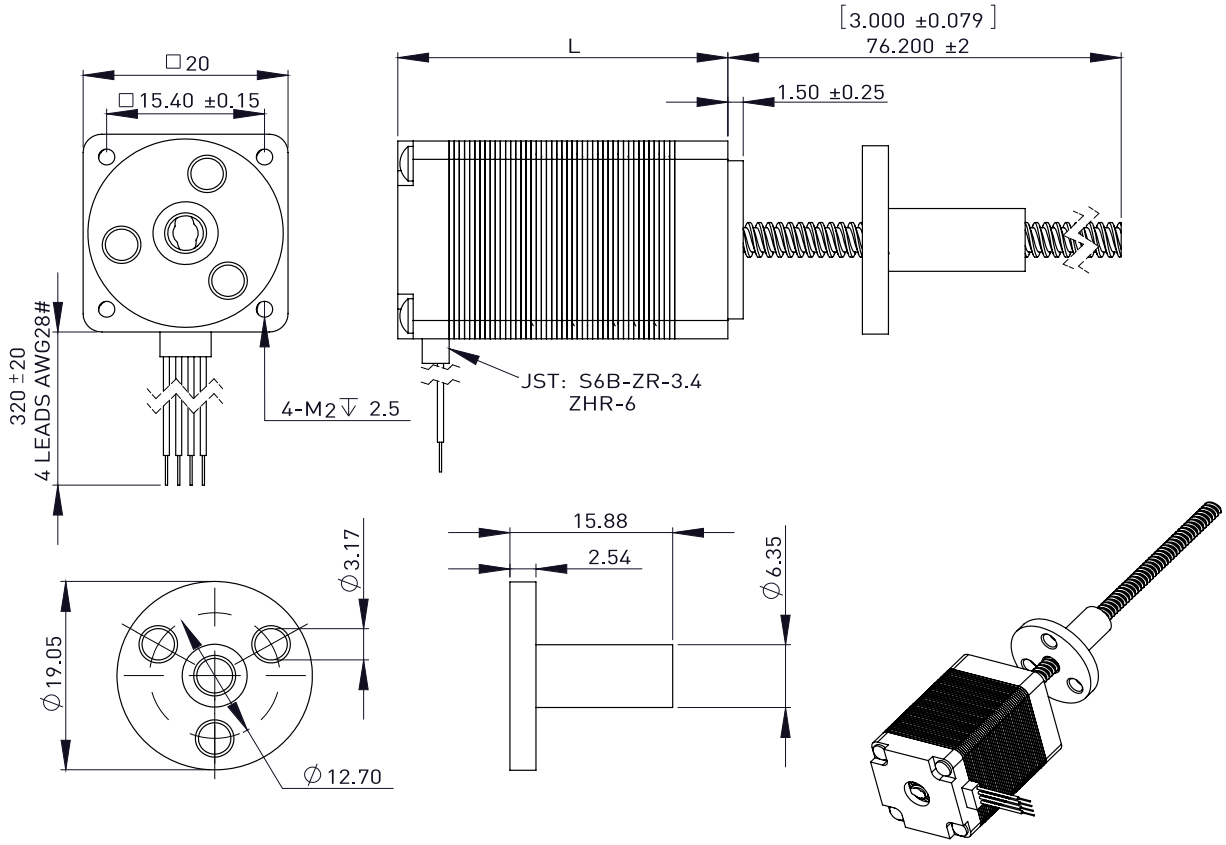
* values truncated

Available lead screws and travel per step Please consult factory for custom specifi cation.

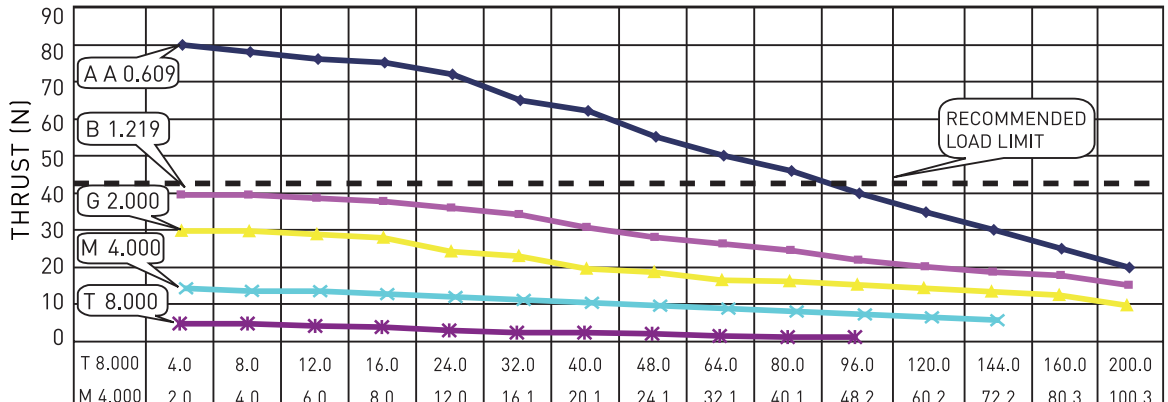
Dimension (mm) :
Non captive Motor



● External shaft motor



Size 8-2030-050 THRUST CURVE 40VDC, CHOPPER DRIVE



T 8.000	4.0	8.0	12.0	16.0	24.0	32.0	40.0	48.0	64.0	80.0	96.0	120.0	144.0	160.0	200.0
M 4.000	2.0	4.0	6.0	8.0	12.0	16.1	20.1	24.1	32.1	40.1	48.2	60.2	72.2	80.3	100.3
G 2.000	1.0	2.0	3.0	4.0	6.0	8.0	10.0	12.0	16.1	20.1	24.1	30.1	36.1	40.1	50.2
A 1.219	0.6	1.2	1.8	2.4	3.7	4.9	6.1	7.3	9.8	12.2	14.6	18.3	21.9	24.4	30.5
AA 0.609	0.3	0.6	0.9	1.2	1.8	2.4	3.0	3.7	4.9	6.1	7.3	9.1	11.0	12.2	15.2
pps	100	200	300	400	600	800	1000	1200	1600	2000	2400	3000	3600	4000	50000
rpm	30	60	90	120	180	240	300	360	480	600	720	900	1080	1200	1500

LINEAR SPEED (mm/s), PULSE SPEED (pps), ROTARY SPEED (rpm)

* Thrust/Speed surves are based on single stack motor with 0.3A/phase, 40V chopper drive.
For performance of double stack and other motor windings, please consult your local representative.

●SIZE 11 · 28 mm Hybrid stepper motor linear actuators

Available travel per step from 0.003175 mm to 0.0508 mm

Motor type	Current/Phase	Res./Phase	Inductance	Lead Wire No.	Motor Length
11-2034-4-020	0.20A	68 Ω +/-10%	39 mH +/-20%	4	34mm
11-2034-4-050	0.50A	10 Ω +/-10%	6 mH +/-20%	4	34mm
11-2034-4-100	1.00A	2.1 Ω +/-10%	1.5 mH +/-20%	4	34mm
11-2034-4-067	0.67A	6.8 Ω +/-10%	4.9 mH +/-20%	4	45mm
11-2034-4-095	0.95A	3.2 Ω +/-10%	5.0 mH +/-20%	4	45mm
11-2034-4-200	2.00A	1.1 Ω +/-10%	1.1 mH +/-20%	4	45mm

Motor characteristics Not limited as the list.
please consult factory for custom specifi cation.

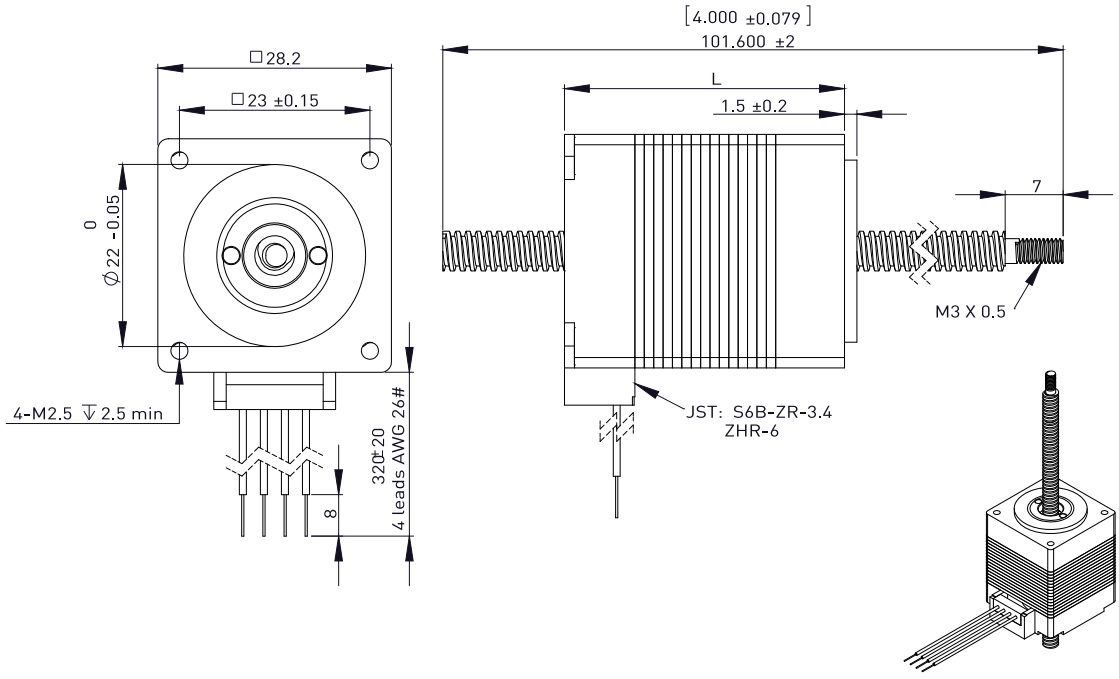


Screw Dia.(in.)	Screw Dia.(mm)	Lead (in.)	Lead (mm)	Travel per step (mm)*
0.188	4.7752	0.025	0.635	0.0032
0.188	4.7752	0.050	1.27	0.0063
0.188	4.7752	0.100	2.54	0.0127
0.188	4.7752	0.200	5.08	0.0254
0.188	4.7752	0.400	10.16	0.0508

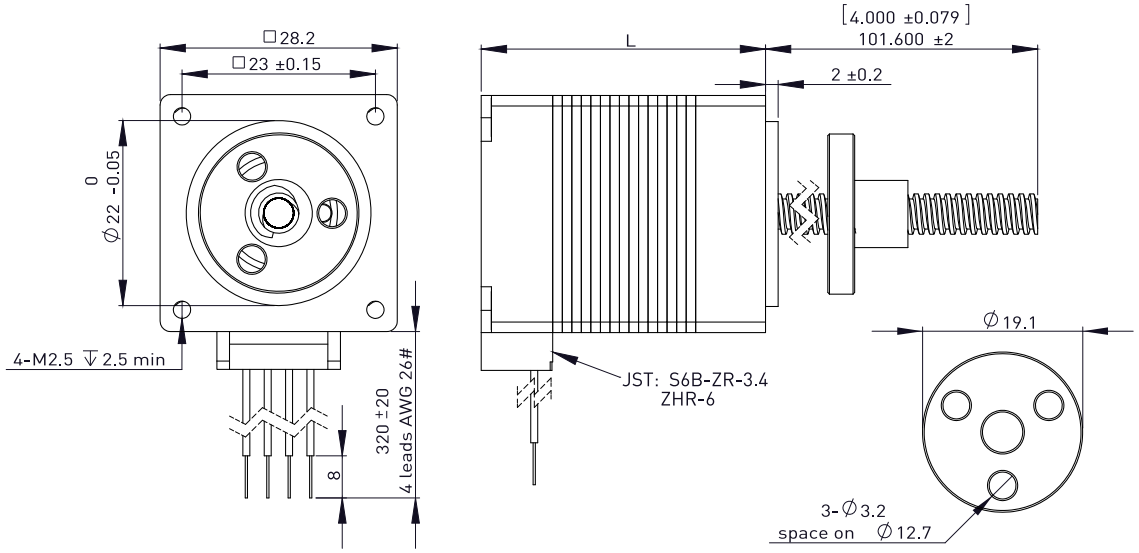
* values truncated

Available lead screws and travel per step Please consult factory for custom specification.

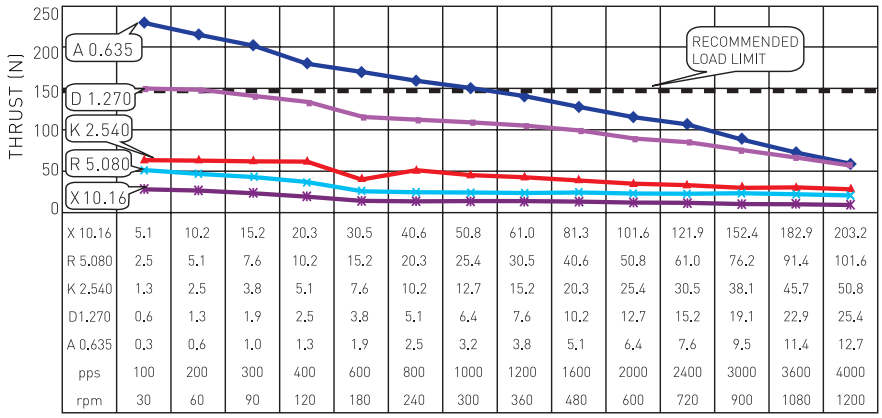
Dimension (mm) :
Non captive Motor



External shaft motor

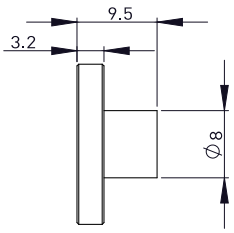


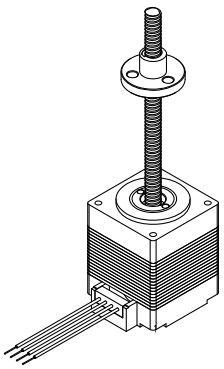
Size 11-2034-050 THRUST CURVE 40VDC, CHOPPER DRIVE



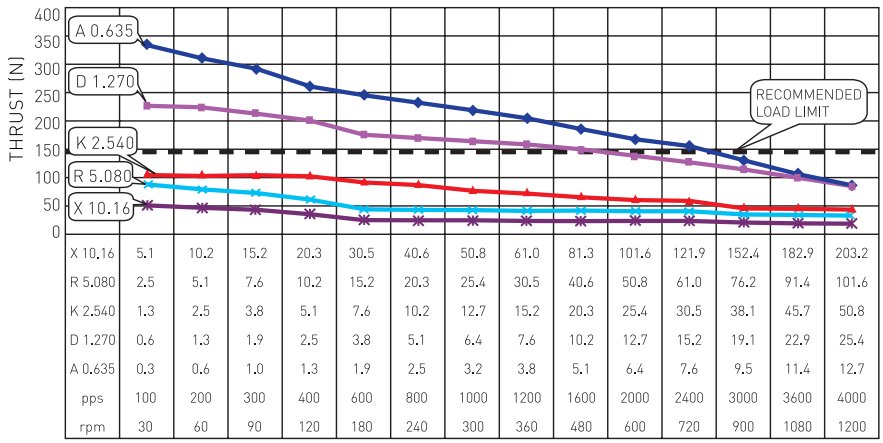
X 10.16	5.1	10.2	15.2	20.3	30.5	40.6	50.8	61.0	81.3	101.6	121.9	152.4	182.9	203.2
R 5.080	2.5	5.1	7.6	10.2	15.2	20.3	25.4	30.5	40.6	50.8	61.0	76.2	91.4	101.6
K 2.540	1.3	2.5	3.8	5.1	7.6	10.2	12.7	15.2	20.3	25.4	30.5	38.1	45.7	50.8
D1.270	0.6	1.3	1.9	2.5	3.8	5.1	6.4	7.6	10.2	12.7	15.2	19.1	22.9	25.4
A 0.635	0.3	0.6	1.0	1.3	1.9	2.5	3.2	3.8	5.1	6.4	7.6	9.5	11.4	12.7
pps	100	200	300	400	600	800	1000	1200	1600	2000	2400	3000	3600	4000
rpm	30	60	90	120	180	240	300	360	480	600	720	900	1080	1200

LINEAR SPEED (mm/s), PULSE SPEED (pps), ROTARY SPEED (rpm)





Size 11-2045-095 THRUST CURVE 40VDC, CHOPPER DRIVE



X 10.16	5.1	10.2	15.2	20.3	30.5	40.6	50.8	61.0	81.3	101.6	121.9	152.4	182.9	203.2
R 5.080	2.5	5.1	7.6	10.2	15.2	20.3	25.4	30.5	40.6	50.8	61.0	76.2	91.4	101.6
K 2.540	1.3	2.5	3.8	5.1	7.6	10.2	12.7	15.2	20.3	25.4	30.5	38.1	45.7	50.8
D 1.270	0.6	1.3	1.9	2.5	3.8	5.1	6.4	7.6	10.2	12.7	15.2	19.1	22.9	25.4
A 0.635	0.3	0.6	1.0	1.3	1.9	2.5	3.2	3.8	5.1	6.4	7.6	9.5	11.4	12.7
pps	100	200	300	400	600	800	1000	1200	1600	2000	2400	3000	3600	4000
rpm	30	60	90	120	180	240	300	360	480	600	720	900	1080	1200

LINEAR SPEED (mm/s), PULSE SPEED (pps), ROTARY SPEED (rpm)

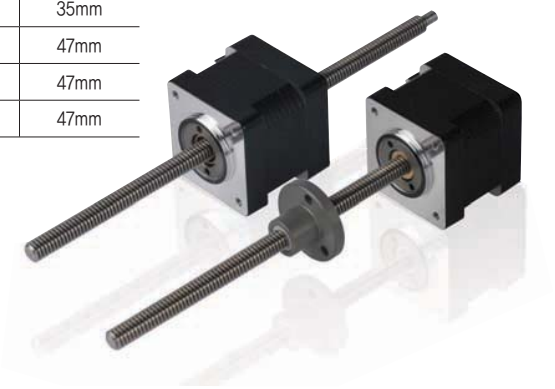
* The left curves are based on single stack motor with0.3A/ phase, 40V chopper drive. The performance of double stack and other winding motors please consult.

● SIZE 14 · 35 mm Hybrid stepper motor linear actuators

Available travel per step from 0.003 mm to 0.048768 mm

Motor type	Current/Phase	Res./Phase	Inductance	Lead Wire No.	Motor Length
14-2035-4-050	0.5A	14 Ω +/-10%	20 mH +/-20%	4	35mm
14-2035-4-100	1.0A	3.5 Ω +/-10%	4 mH +/-20%	4	35mm
14-2035-4-150	1.5A	1.5 Ω +/-10%	2.0 mH +/-20%	4	35mm
14-2035-4-050	0.5A	28 Ω +/-10%	40 mH +/-20%	4	47mm
14-2035-4-100	1.0A	5.5 Ω +/-10%	7.6 mH +/-20%	4	47mm
14-2035-4-200	2.0A	1.2 Ω +/-10%	1.95 mH +/-20%	4	47mm

Motor characteristics Not limited as the list.
please consult factory for custom specifi cation.

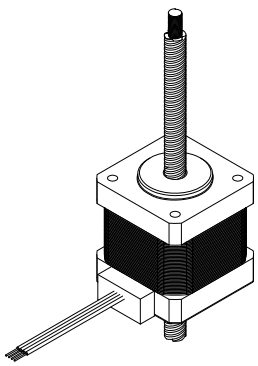


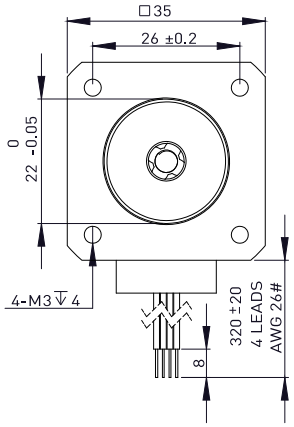
Screw Dia.(in.)	Screw Dia.(mm)	Lead (in.)	Travel per step @1.8 deg (mm)	Travel per step @ 0.9 deg (mm)*
0.250	6.35	0.024	0.003	0.0015
0.250	6.35	0.048	0.006	0.0030
0.250	6.35	0.050	0.006	0.0032
0.250	6.35	0.063	0.008	0.0040
0.250	6.35	0.096	0.012	0.0061
0.250	6.35	0.100	0.012	0.0064
0.250	6.35	0.192	0.024	0.0122
0.250	6.35	0.250	0.031	0.0159
0.250	6.35	0.330	0.041	0.0210
0.250	6.35	0.384	0.048	0.0244

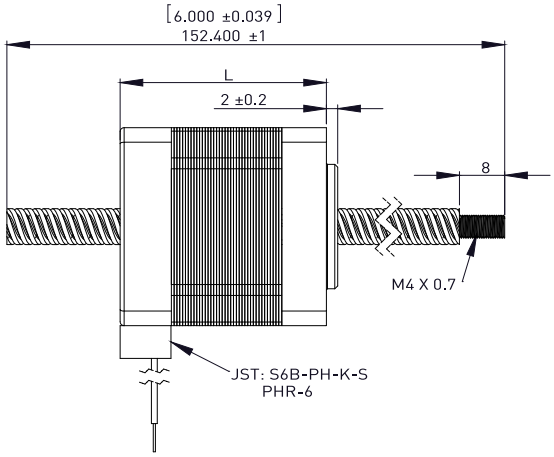
* values truncated

Available lead screws and travel per step Please consult factory for custom specifi cation.

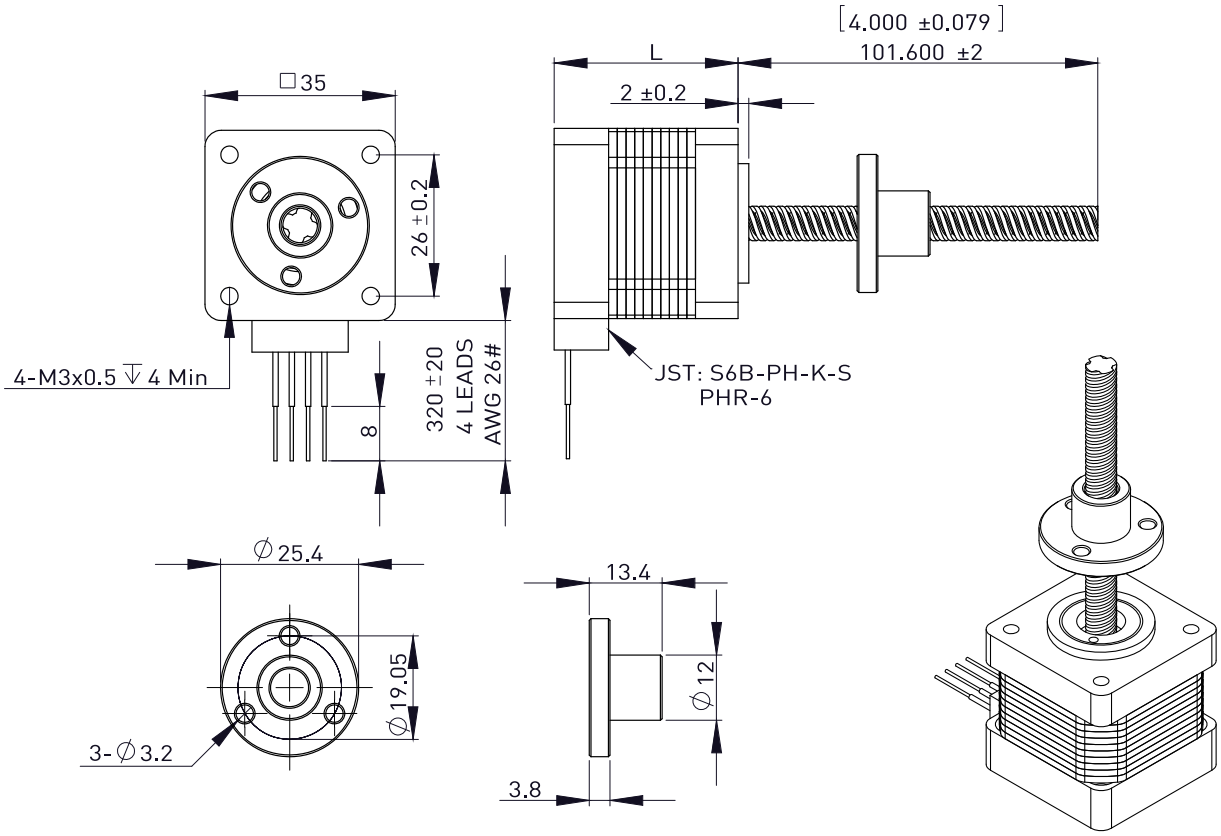
Dimension (mm):
Non captive motor



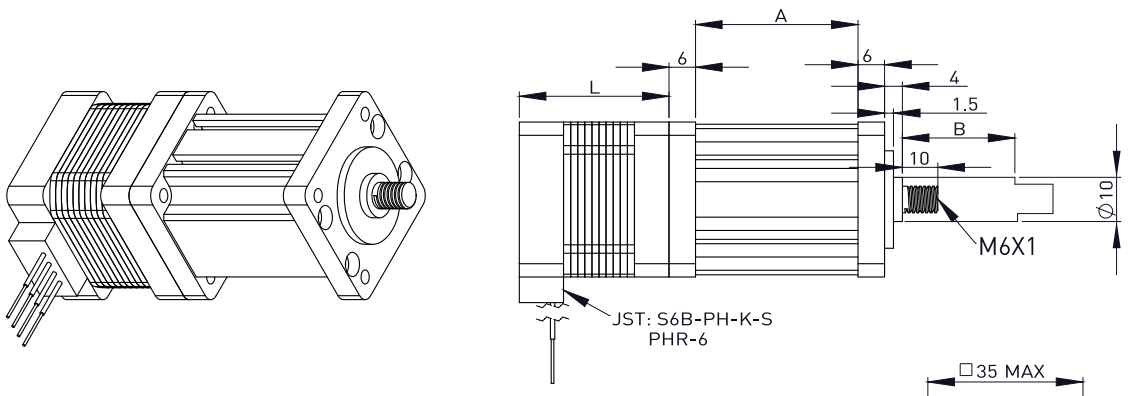




● External motor

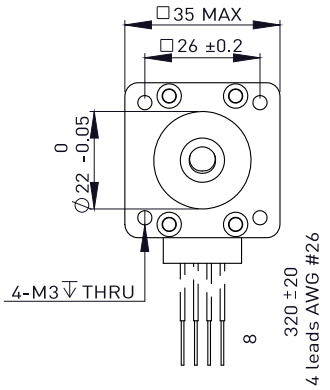


● Captive motor

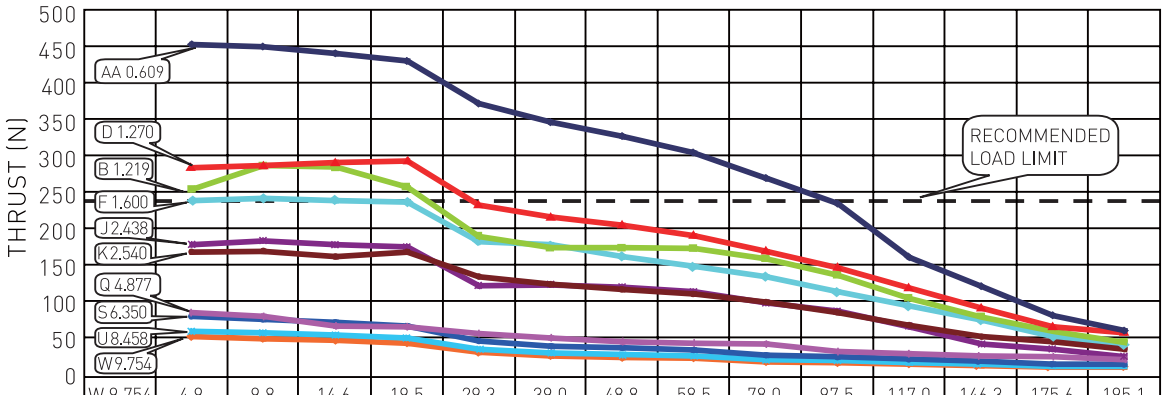


Stroke B inch (mm)		Dimension (mm)	Dimension L (mm)	
0.5	(12.7)	36.7	Single stack motor 35 mm	Double stack motor 49 mm
0.75	(19.05)	43.05		
1.0	(25.4)	49.4		
1.25	(31.8)	55.8		
1.5	(38.1)	62.1		
2.0	(50.8)	74.8		
2.5	(63.5)	87.5		

Please consult factory for custom specification.



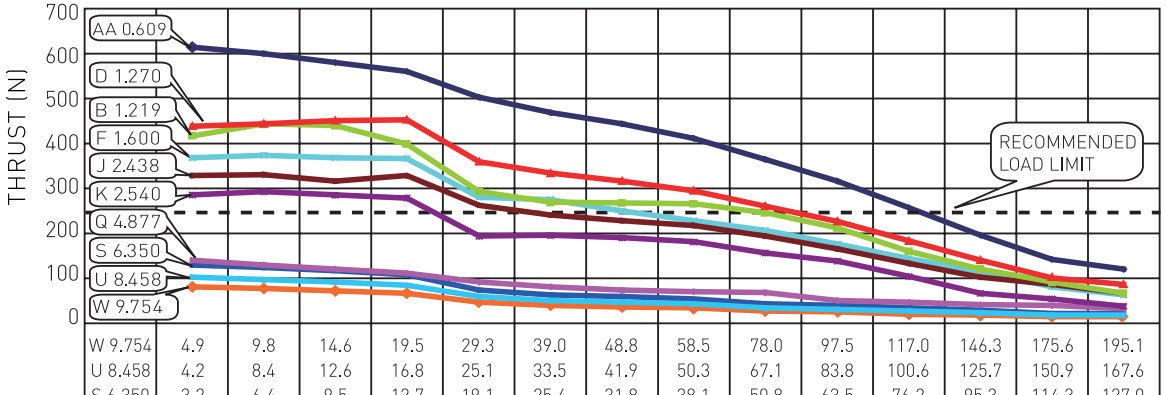
Size 14–2035–050 THRUST CURVE 40 VDC, CHOPPER DRIVER



W 9.754	4.9	9.8	14.6	19.5	29.3	39.0	48.8	58.5	78.0	97.5	117.0	146.3	175.6	195.1
U 8.458	4.2	8.4	12.6	16.8	25.1	33.5	41.9	50.3	67.1	83.8	100.6	125.7	150.9	167.6
S 6.350	3.2	6.4	9.5	12.7	19.1	25.4	31.8	38.1	50.8	63.5	76.2	95.3	114.3	127.0
Q 4.877	2.4	4.9	7.3	9.8	14.6	19.5	24.4	29.3	39.0	48.8	58.5	73.2	87.8	97.5
K 2.540	1.3	2.5	3.8	5.1	7.6	10.2	12.7	15.2	20.3	25.4	30.5	38.1	45.7	50.8
J 2.438	1.2	2.4	3.7	4.9	7.3	9.8	12.2	14.6	19.5	24.4	29.3	36.6	43.9	48.8
F 1.600	0.8	1.6	2.4	3.2	4.8	6.4	8.0	9.6	12.8	16.0	19.2	24.0	28.8	32.0
D 1.270	0.6	1.3	1.9	2.5	3.8	5.1	6.4	7.6	10.2	12.7	15.2	19.1	22.9	25.4
B 1.219	0.6	1.2	1.8	2.4	3.7	4.9	6.1	7.3	9.8	12.2	14.6	18.3	21.9	24.4
AA 0.609	0.3	0.6	0.9	1.2	1.8	2.4	3.0	3.7	4.9	6.1	7.3	9.1	11.0	12.2
pps	100	200	300	400	600	800	1000	1200	1600	2000	2400	3000	3600	4000
rpm	30	60	90	120	180	240	300	360	480	600	720	900	1080	1200

LINEAR SPEED (mm/s), PULSE SPEED (pps), ROTARY SPEED (rpm)

Size 14–2047–100 TH RUST CURVE 40 VDC, CHOPPER DRIVER



W 9.754	4.9	9.8	14.6	19.5	29.3	39.0	48.8	58.5	78.0	97.5	117.0	146.3	175.6	195.1
U 8.458	4.2	8.4	12.6	16.8	25.1	33.5	41.9	50.3	67.1	83.8	100.6	125.7	150.9	167.6
S 6.350	3.2	6.4	9.5	12.7	19.1	25.4	31.8	38.1	50.8	63.5	76.2	95.3	114.3	127.0
Q 4.877	2.4	4.9	7.3	9.8	14.6	19.5	24.4	29.3	39.0	48.8	58.5	73.2	87.8	97.5
K 2.540	1.3	2.5	3.8	5.1	7.6	10.2	12.7	15.2	20.3	25.4	30.5	38.1	45.7	50.8
J 2.438	1.2	2.4	3.7	4.9	7.3	9.8	12.2	14.6	19.5	24.4	29.3	36.6	43.9	48.8
F 1.600	0.8	1.6	2.4	3.2	4.8	6.4	8.0	9.6	12.8	16.0	19.2	24.0	28.8	32.0
D 1.270	0.6	1.3	1.9	2.5	3.8	5.1	6.4	7.6	10.2	12.7	15.2	19.1	22.9	25.4
B 1.219	0.6	1.2	1.8	2.4	3.7	4.9	6.1	7.3	9.8	12.2	14.6	18.3	21.9	24.4
AA 0.609	0.3	0.6	0.9	1.2	1.8	2.4	3.0	3.7	4.9	6.1	7.5	9.1	11.0	12.2
pps	100	200	300	400	600	800	1000	1200	1600	2000	2400	3000	3600	4000
rpm	30	60	90	120	180	240	300	360	480	600	720	900	1080	1200

LINEAR SPEED (mm/s), PULSE SPEED (pps), ROTARY SPEED (rpm)

* Thrust/Speed surves are based on single stack motor with 0.3A/phase, 40V chopper drive.
For performance of double stack and other motor windings, please consult your local representative.

● SIZE 17 · 42 mm Hybrid stepper motor linear actuators

Available travel per step from 0.003 mm to 0.127 mm

Motor type	Current/Phase	Res./Phase	Inductance	Lead Wire No.	Motor Length
17-2035-4-050	0.5A	16 Ω +/-10%	23 mH +/-20%	4	35mm
17-2035-4-100	1.0A	4.2 Ω +/-10%	6 mH +/-20%	4	35mm
17-2035-4-150	1.5A	1.8 Ω +/-10%	3 mH +/-20%	4	35mm
17-2035-4-050	0.5A	23 Ω +/-10%	50 mH +/-20%	4	49mm
17-2035-4-120	1.2A	3.5 Ω +/-10%	9 mH +/-20%	4	49mm
17-2035-4-250	2.5A	1.0 Ω +/-10%	1.5 mH +/-20%	4	49mm

Motor characteristics Not limited as the list.
please consult factory for custom specifi cation.



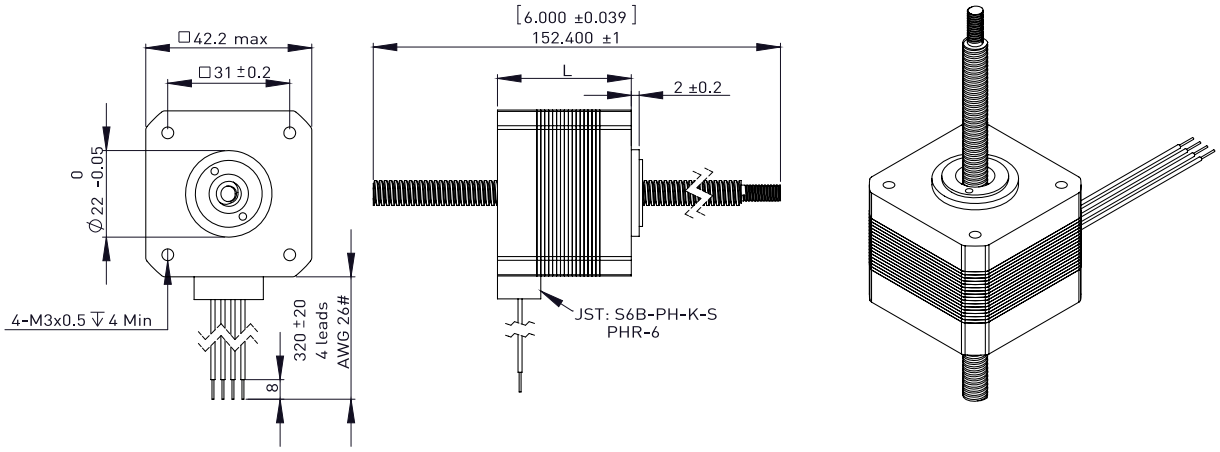
Screw Dia. (in.)	Screw Dia. (mm)	Lead (in.)	Lead (mm)	Travel per step @1.8 deg (mm)	Travel per step @ 0.9 deg (mm)*
0.250	6.35	0.024	0.6096	0.003	0.0015
0.250	6.35	0.048	1.2192	0.006	0.0030
0.250	6.35	0.050	1.27	0.006	0.0032
0.250	6.35	06063	1.6002	0.008	0.0040
0.250	6.35	0.096	2.4384	0.012	0.0061
0.250	6.35	0.100	2.54	0.012	0.0064
0.250	6.35	0.192	4.8768	0.024	0.0122
0.250	6.35	0.250	6.35	0.031	0.0159
0.250	6.35	0.330	8.382	0.041	0.0210
0.250	6.35	0.384	9.7536	0.048	0.0244
0.375	9.525	0.025	0.635	0.003	0.0016
0.375	9.525	0.050	1.27	0.006	0.0032
0.375	9.525	0.063	1.6002	0.008	0.0040
0.375	9.525	0.083	2.1082	0.010	0.0053
0.375	9.525	0.100	2.54	0.012	0.0064
0.375	9.525	0.125	3.175	0.015	0.0079
0.375	9.525	0.167	4.2418	0.021	0.0106
0.375	9.525	0.200	5.08	0.025	0.0127
0.375	9.525	0.250	6.35	0.031	0.0159
0.375	9.525	0.375	9.525	0.047	0.0238
0.375	9.525	0.384	9.7536	0.048	0.0244
0.375	9.525	0.500	12.7	0.063	0.0318
0.375	9.525	1.000	25.4	0.127	0.0635

* values truncated

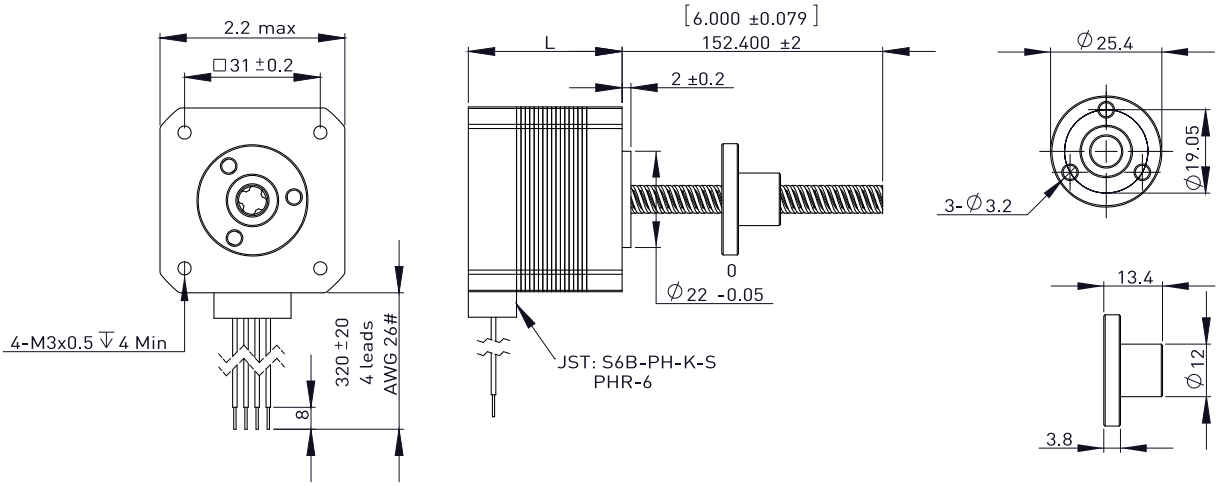
Available lead screws and travel per step Please consult factory for custom specifi cation

● SIZE 17 · 42 mm Hybrid stepper motor linear actuators

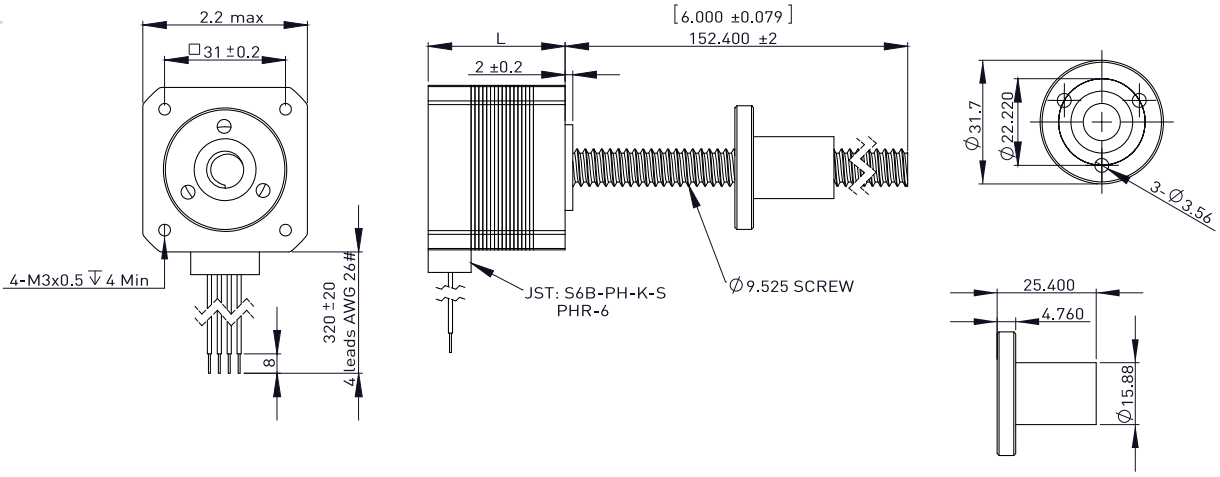
Dimension (mm) : Non captive motor



External motor



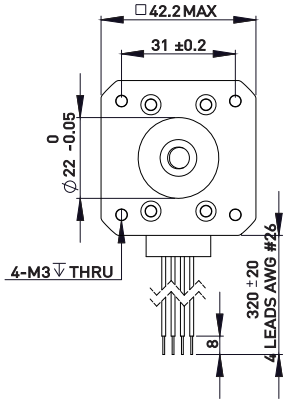
Dia. 9.525 mm Lead Screw



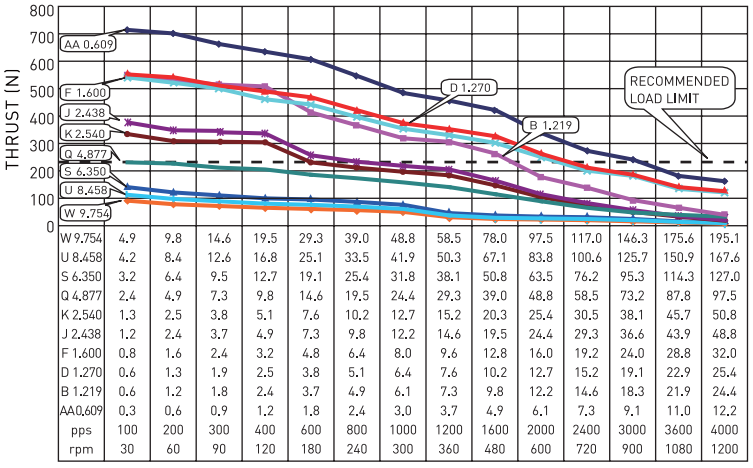
Captive motor · size 17 · 42mm

Stroke B inch (mm)		Dimension (mm)	Dimension L (mm)	
0.5	(12.7)	36.7	Single stack motor 35 mm	Double stack motor 49 mm
0.75	(19.05)	43.05		
1.0	(25.4)	49.4		
1.25	(31.8)	55.8		
1.5	(38.1)	62.1		
2.0	(50.8)	74.8		
2.5	(63.5)	87.5		

Please consult factory for custom specification.

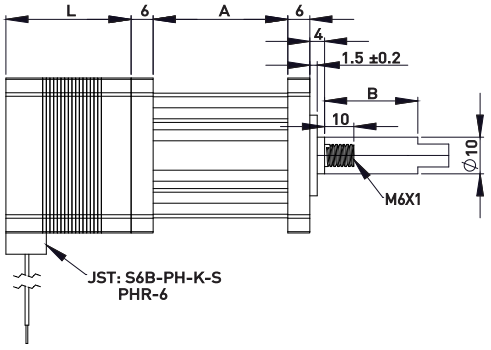


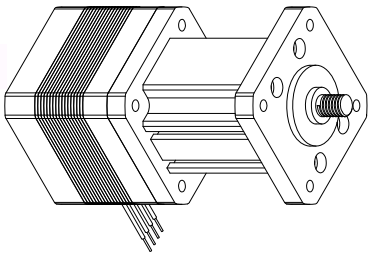
Size 17–2035–100 THRUST CURVE 40 VDC, CHOPPER DRIVER



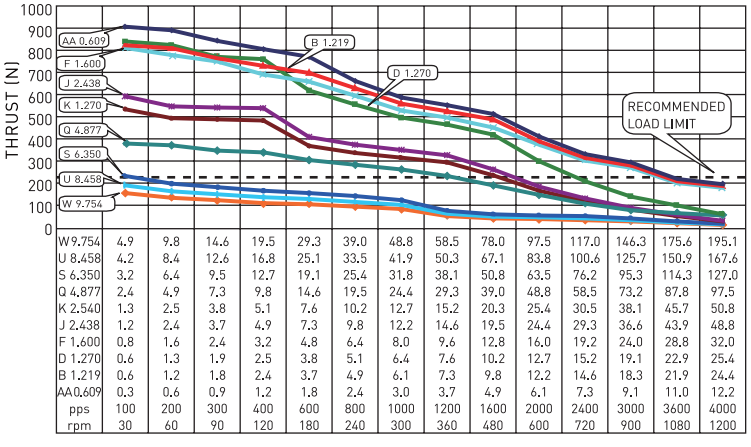
W 9.754	4.9	9.8	14.6	19.5	29.3	39.0	48.8	58.5	78.0	97.5	117.0	146.3	175.6	195.1
U 8.458	4.2	8.4	12.6	16.8	25.1	33.5	41.9	50.3	67.1	83.8	100.6	125.7	150.9	167.6
S 6.350	3.2	6.4	9.5	12.7	19.1	25.4	31.8	38.1	50.8	63.5	76.2	95.3	114.3	127.0
Q 4.877	2.4	4.9	7.3	9.8	14.6	19.5	24.4	29.3	39.0	48.8	58.5	73.2	87.8	97.5
K 2.540	1.3	2.5	3.8	5.1	7.6	10.2	12.7	15.2	20.3	25.4	30.5	38.1	45.7	50.8
J 2.438	1.2	2.4	3.7	4.9	7.3	9.8	12.2	14.6	19.5	24.4	29.3	36.6	43.9	48.8
F 1.600	0.8	1.6	2.4	3.2	4.8	6.4	8.0	9.6	12.8	16.0	19.2	24.0	28.8	32.0
D 1.270	0.6	1.3	1.9	2.5	3.8	5.1	6.4	7.6	10.2	12.7	15.2	19.1	22.9	25.4
B 1.219	0.6	1.2	1.8	2.4	3.7	4.9	6.1	7.3	9.8	12.2	14.6	18.3	21.9	24.4
AA0.609	0.3	0.6	0.9	1.2	1.8	2.4	3.0	3.7	4.9	6.1	7.3	9.1	11.0	12.2
pps	100	200	300	400	600	800	1000	1200	1600	2000	2400	3000	3600	4000
rpm	30	60	90	120	180	240	300	360	480	600	720	900	1080	1200

LINEAR SPEED (mm/s), PULSE SPEED (pps), ROTARY SPEED (rpm)





Size 17–2049–120 THRUST CURVE 40 VDC, CHOPPER DRIVER



W 9.754	4.9	9.8	14.6	19.5	29.3	39.0	48.8	58.5	78.0	97.5	117.0	146.3	175.6	195.1
U 8.458	4.2	8.4	12.6	16.8	25.1	33.5	41.9	50.3	67.1	83.8	100.6	125.7	150.9	167.6
S 6.350	3.2	6.4	9.5	12.7	19.1	25.4	31.8	38.1	50.8	63.5	76.2	95.3	114.3	127.0
Q 4.877	2.4	4.9	7.3	9.8	14.6	19.5	24.4	29.3	39.0	48.8	58.5	73.2	87.8	97.5
K 2.540	1.3	2.5	3.8	5.1	7.6	10.2	12.7	15.2	20.3	25.4	30.5	38.1	45.7	50.8
J 2.438	1.2	2.4	3.7	4.9	7.3	9.8	12.2	14.6	19.5	24.4	29.3	36.6	43.9	48.8
F 1.600	0.8	1.6	2.4	3.2	4.8	6.4	8.0	9.6	12.8	16.0	19.2	24.0	28.8	32.0
D 1.270	0.6	1.3	1.9	2.5	3.8	5.1	6.4	7.6	10.2	12.7	15.2	19.1	22.9	25.4
B 1.219	0.6	1.2	1.8	2.4	3.7	4.9	6.1	7.3	9.8	12.2	14.6	18.3	21.9	24.4
AA0.609	0.3	0.6	0.9	1.2	1.8	2.4	3.0	3.7	4.9	6.1	7.3	9.1	11.0	12.2
pps	100	200	300	400	600	800	1000	1200	1600	2000	2400	3000	3600	4000
rpm	30	60	90	120	180	240	300	360	480	600	720	900	1080	1200

LINEAR SPEED (mm/s), PULSE SPEED (pps), ROTARY SPEED (rpm)

* Thrust/Speed surves are based on single stack motor with 0.3A/phase, 40V chopper drive. For performance of double stack and other motor windings, please consult your local representative.

● SIZE 23 · 57 mm Hybrid stepper motor linear actuators

Available travel per step from 0.0016 mm to 0.127 mm,max. thrust force is up to 800 N.

Motor type	Current/Phase	Res./Phase	Inductance	Lead Wire No.	Motor Length
23-2047-4-100	1.0A	5.0 Ω +/-10%	15.7 mH +/-20%	4	47mm
23-2047-4-200	2.0A	1.4 Ω +/-10%	4.1 mH +/-20%	4	47mm
23-2047-4-300	3.0A	0.6 Ω +/-10%	1.9 mH +/-20%	4	47mm
23-2047-4-100	1.0A	12 Ω +/-10%	35 mH +/-20%	4	66mm
23-2047-4-250	2.5A	2.0 Ω +/-10%	7.6 mH +/-20%	4	66mm
23-2047-4-400	4.0A	0.7 Ω +/-10%	2.1 mH +/-20%	4	66mm

Motor characteristics Not limited as the list.
please consult factory for custom specifi cation.



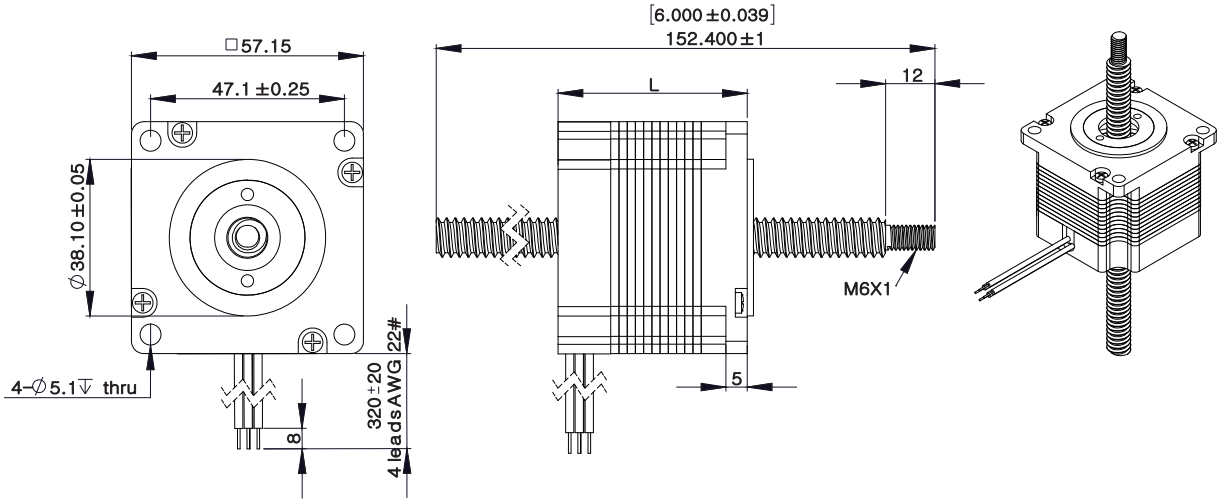
Screw Dia. (in.)	Screw Dia. (mm)	Lead (in.)	Lead (mm)	Travel per step @1.8 deg (mm)	Travel per step @ 0.9 deg (mm)*
0.375	9.525	0.025	0.635	0.003	0.0016
0.375	9.525	0.050	1.27	0.006	0.0032
0.375	9.525	0.063	1.6002	0.008	0.0040
0.375	9.525	0.083	2.1082	0.010	0.0053
0.375	9.525	0.100	2.54	0.012	0.0064
0.375	9.525	0.125	3.175	0.015	0.0079
0.375	9.525	0.167	4.2418	0.021	0.0106
0.375	9.525	0.200	5.08	0.025	0.0127
0.375	9.525	0.250	6.35	0.031	0.0159
0.375	9.525	0.375	9.525	0.047	0.0238
0.375	9.525	0.384	9.7536	0.048	0.0244
0.375	9.525	0.500	12.7	0.063	0.0318
0.375	9.525	1.000	25.4	0.127	0.0635
0.625	15.875	0.100	2.54	0.012	0.0060
0.625	15.875	0.125	3.175	0.015	0.0075
0.625	15.875	0.200	5.08	0.025	0.0125
0.625	15.875	0.250	6.35	0.031	0.0155
0.625	15.875	1.000	25.4	0.127	0.0635

* values truncated

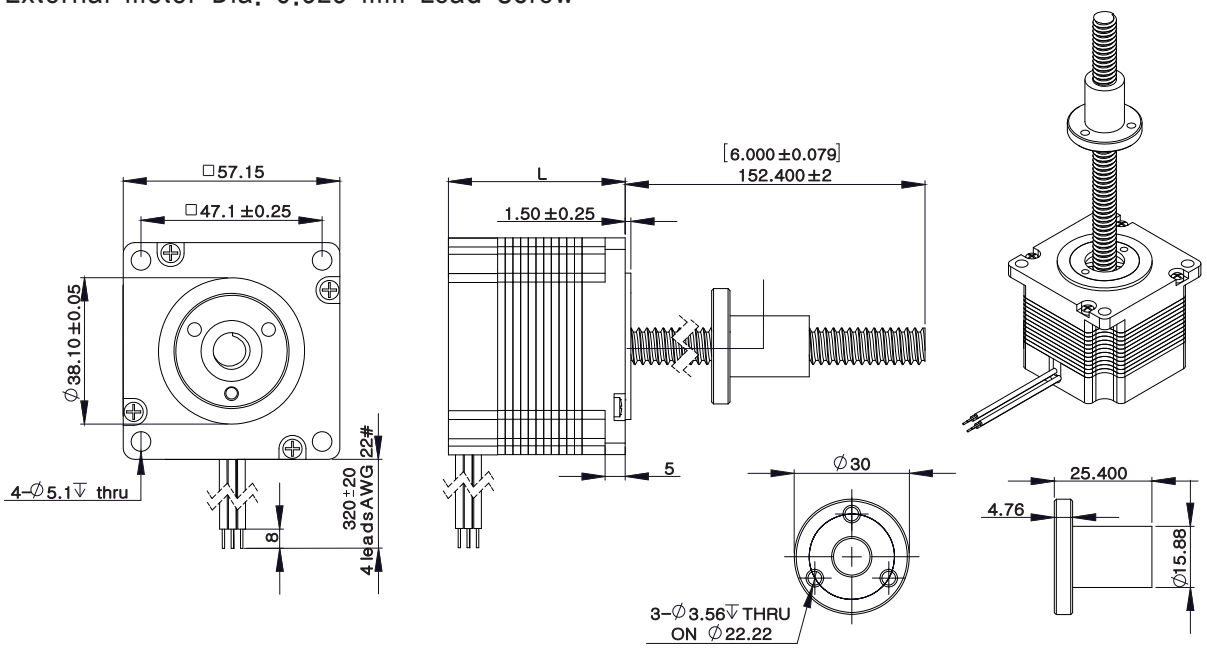
* All above screws can be used on external drive style,
Non captive style can only select dia. 9.525 mm screws.

Available lead screws and travel per step Please consult factory for custom specifi cation.

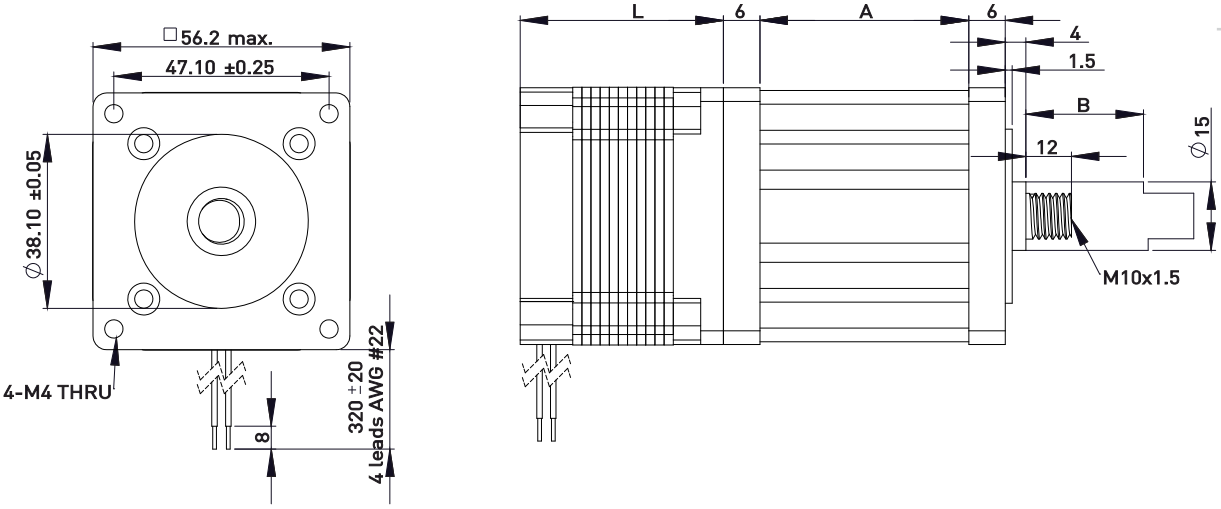
Dimension (mm)



External motor Dia. 9.525 mm Lead Screw



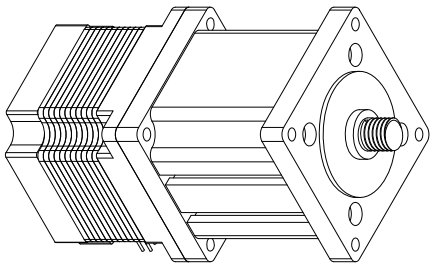
Dia. 15.875 mm Lead Scrw



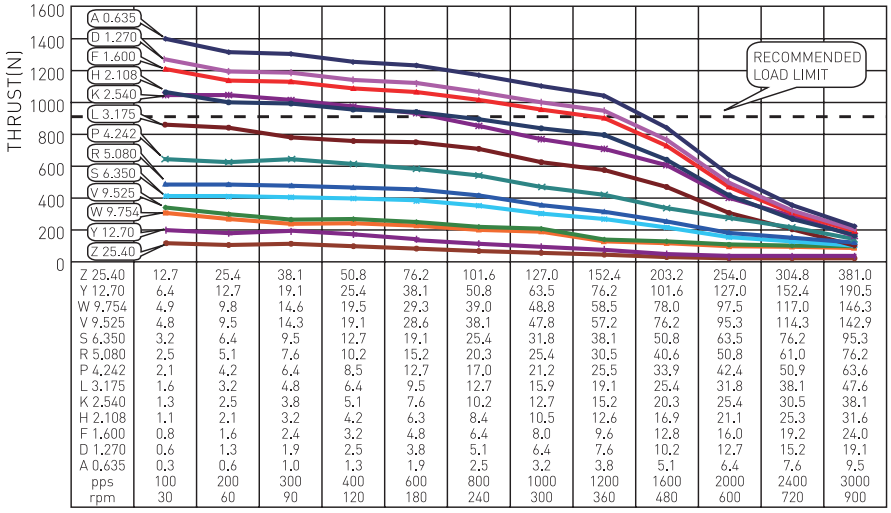
Captive motor

Stroke inch (mm)		Dimension (mm)	Dimension L(mm)	
0.5	(12.7)	45.7	Single stack motor 47 mm	Double stack motor 66 mm
0.75	(19.05)	52.05		
1.0	(25.4)	58.4		
1.25	(31.8)	64.8		
1.5	(38.1)	71.1		
2.0	(50.8)	83.8		
2.5	(63.5)	96.5		

Please consult factory for custom specifi cation



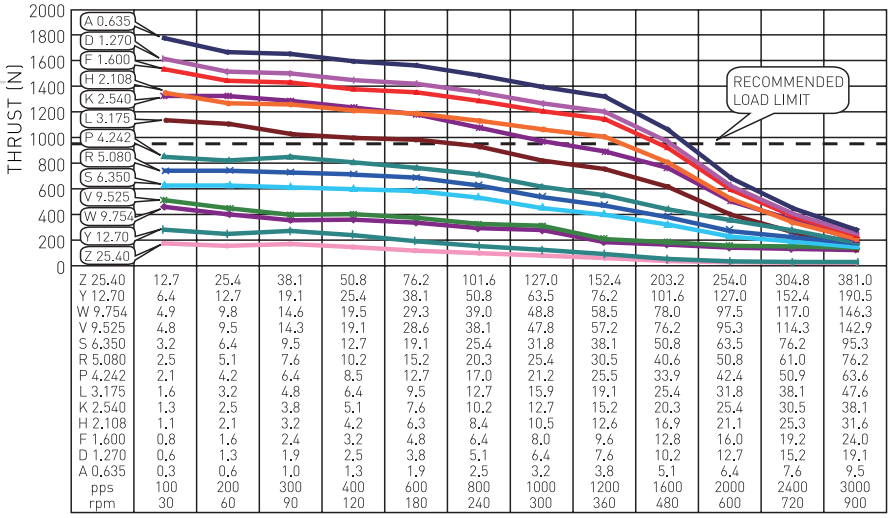
Size 23-2047-100 THRUST CURVE 40 VDC, CHOPPER DRIVER



Z 25.40	12.7	25.4	38.1	50.8	76.2	101.6	127.0	152.4	203.2	254.0	304.8	381.0
Y 12.70	6.4	12.7	19.1	25.4	38.1	50.8	63.5	76.2	101.6	127.0	152.4	190.5
W 9.754	4.9	9.8	14.6	19.5	29.3	39.0	48.8	58.5	78.0	97.5	117.0	146.3
V 9.525	4.8	9.5	14.3	19.1	28.6	38.1	47.8	57.2	76.2	95.3	114.3	142.9
S 6.350	3.2	6.4	9.5	12.7	19.1	25.4	31.8	38.1	50.8	63.5	76.2	95.3
R 5.080	2.5	5.1	7.6	10.2	15.2	20.3	25.4	30.5	40.6	50.8	61.0	76.2
P 4.242	2.1	4.2	6.4	8.5	12.7	17.0	21.2	25.5	33.9	42.4	50.9	63.6
L 3.175	1.6	3.2	4.8	6.4	9.5	12.7	15.9	19.1	25.4	31.8	38.1	47.6
K 2.540	1.3	2.5	3.8	5.1	7.6	10.2	12.7	15.2	20.3	25.4	30.5	38.1
H 2.108	1.1	2.1	3.2	4.2	6.3	8.4	10.5	12.6	16.9	21.1	25.3	31.6
F 1.600	0.8	1.6	2.4	3.2	4.8	6.4	8.0	9.6	12.8	16.0	19.2	24.0
D 1.270	0.6	1.3	1.9	2.5	3.8	5.1	6.4	7.6	10.2	12.7	15.2	19.1
A 0.635	0.3	0.6	1.0	1.3	1.9	2.5	3.2	3.8	5.1	6.4	7.6	9.5
pps	100	200	300	400	600	800	1000	1200	1600	2000	2400	3000
rpm	30	60	90	120	180	240	300	360	480	600	720	900

LINEAR SPEED (mm/s), PULSE SPEED (pps), ROTARY SPEED (rpm)

Size 23-2047-100 THRUST CURVE 40 VDC, CHOPPER DRIVER



Z 25.40	12.7	25.4	38.1	50.8	76.2	101.6	127.0	152.4	203.2	254.0	304.8	381.0
Y 12.70	6.4	12.7	19.1	25.4	38.1	50.8	63.5	76.2	101.6	127.0	152.4	190.5
W 9.754	4.9	9.8	14.6	19.5	29.3	39.0	48.8	58.5	78.0	97.5	117.0	146.3
V 9.525	4.8	9.5	14.3	19.1	28.6	38.1	47.8	57.2	76.2	95.3	114.3	142.9
S 6.350	3.2	6.4	9.5	12.7	19.1	25.4	31.8	38.1	50.8	63.5	76.2	95.3
R 5.080	2.5	5.1	7.6	10.2	15.2	20.3	25.4	30.5	40.6	50.8	61.0	76.2
P 4.242	2.1	4.2	6.4	8.5	12.7	17.0	21.2	25.5	33.9	42.4	50.9	63.6
L 3.175	1.6	3.2	4.8	6.4	9.5	12.7	15.9	19.1	25.4	31.8	38.1	47.6
K 2.540	1.3	2.5	3.8	5.1	7.6	10.2	12.7	15.2	20.3	25.4	30.5	38.1
H 2.108	1.1	2.1	3.2	4.2	6.3	8.4	10.5	12.6	16.9	21.1	25.3	31.6
F 1.600	0.8	1.6	2.4	3.2	4.8	6.4	8.0	9.6	12.8	16.0	19.2	24.0
D 1.270	0.6	1.3	1.9	2.5	3.8	5.1	6.4	7.6	10.2	12.7	15.2	19.1
A 0.635	0.3	0.6	1.0	1.3	1.9	2.5	3.2	3.8	5.1	6.4	7.6	9.5
pps	100	200	300	400	600	800	1000	1200	1600	2000	2400	3000
rpm	30	60	90	120	180	240	300	360	480	600	720	900

LINEAR SPEED (mm/s), PULSE SPEED (pps), ROTARY SPEED (rpm)

* Thrust/Speed surves are based on single stack motor with 0.3A/phase, 40V chopper drive. For performance of double stack and other motor windings, please consult your local representative.

● SIZE 34 · 86 mm Hybrid stepper motor linear actuators

Available travel per step from 0.00508 mm to 0.127 mm

Motor type	Current/Phase	Res./Phase	Inductance	Lead Wire No.	Motor Length
34-208-4-130	1.3A	9.2 Ω +/-10%	51 mH +/-20%	4	80mm
34-208-4-130	3.0A	1.6 Ω +/-10%	8.8 mH +/-20%	4	80mm
34-208-4-130	5.5A	0.52 Ω +/-10%	2.9 mH +/-20%	4	80mm

Motor characteristics Not limited as the list.
please consult factory for custom specifi cation.

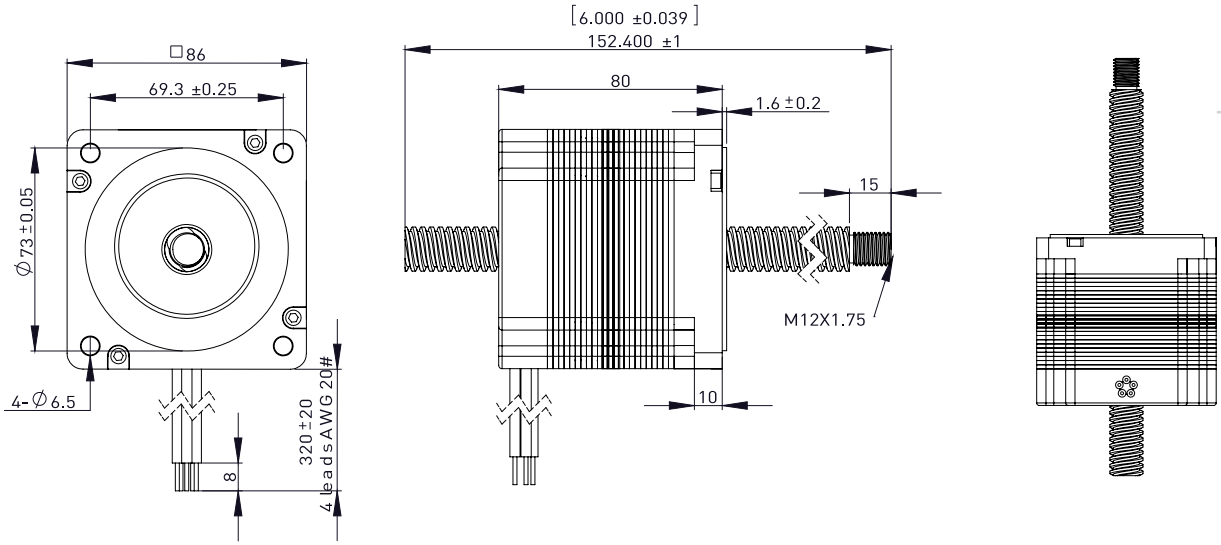


Screw Dia. (in.)	Screw Dia. (mm)	Lead (in.)	Lead (mm)	Travel per step @1.8 deg (mm)	Travel per step @ 0.9 deg (mm)*
0.625	15.875	0.100	2.54	0.012	0.0051
0.625	15.875	0.125	3.175	0.015	0.0064
0.625	15.875	0.200	5.08	0.025	0.0102
0.625	15.875	0.250	6.35	0.031	0.0127
0.625	15.875	1.000	25.4	0.127	0.0508

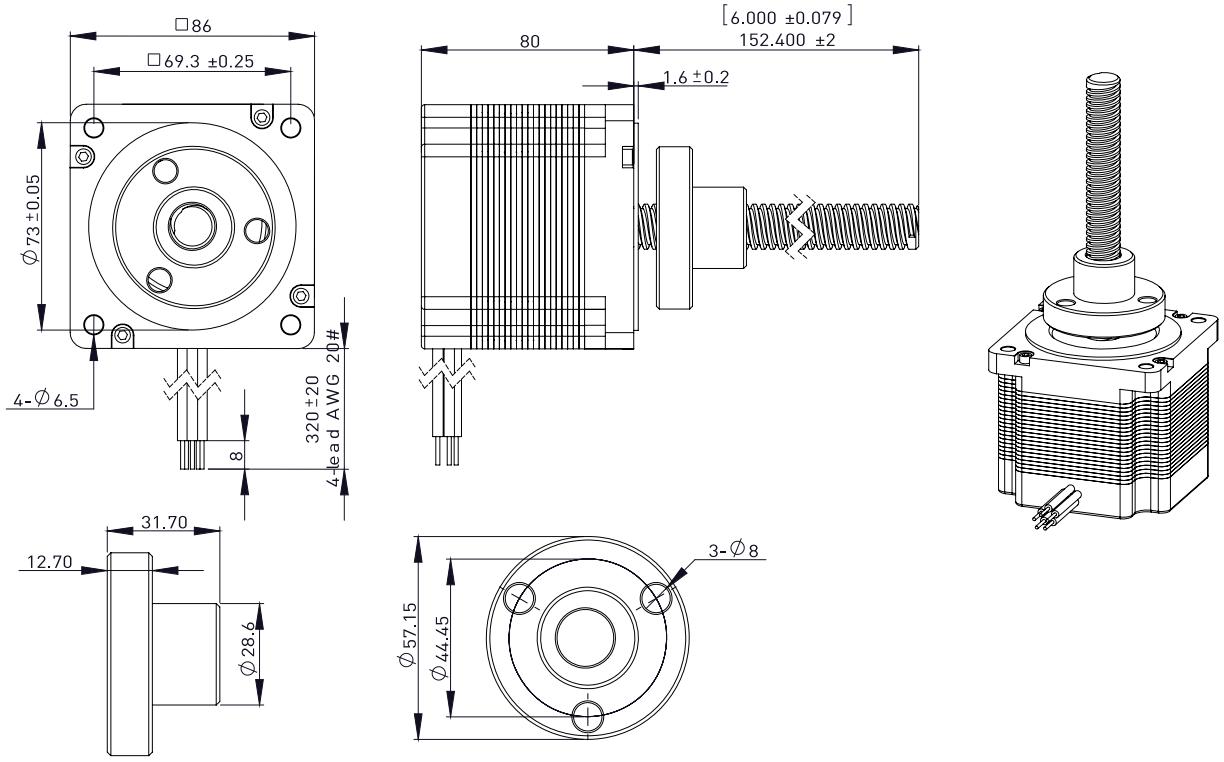
* values truncated

Available lead screws and travel per step Please consult factory for custom specifi cation

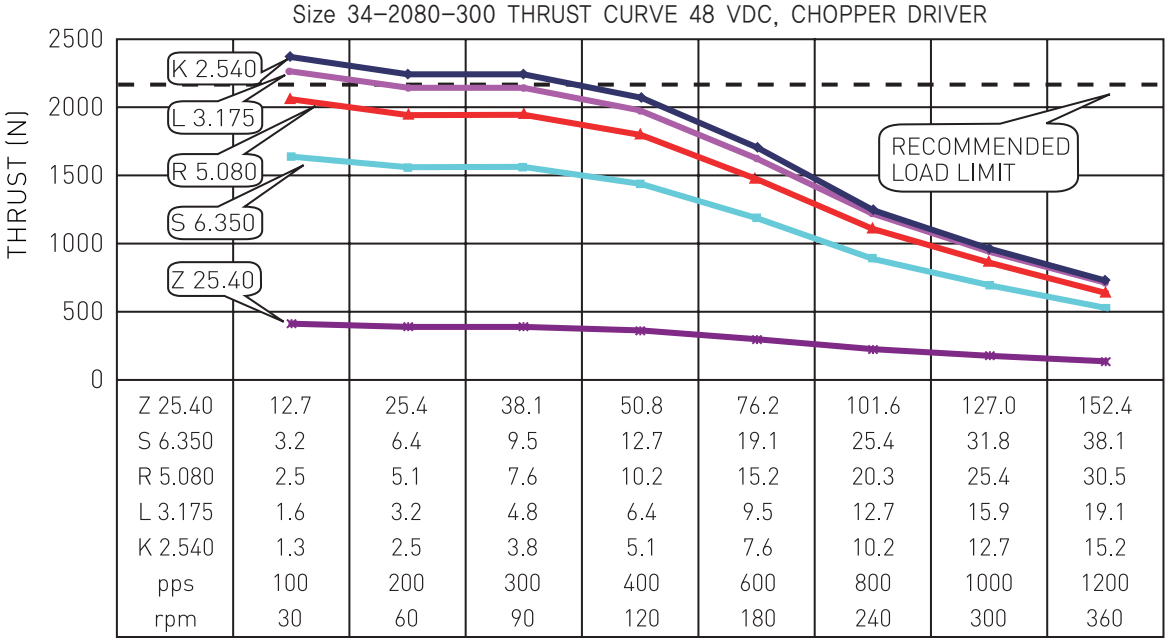
Dimension (mm):
Non captive motor



External motor



Size 34-2080-300 THRUST CURVE 48 VDC, CHOPPER DRIVER



Z 25.40	12.7	25.4	38.1	50.8	76.2	101.6	127.0	152.4
S 6.350	3.2	6.4	9.5	12.7	19.1	25.4	31.8	38.1
R 5.080	2.5	5.1	7.6	10.2	15.2	20.3	25.4	30.5
L 3.175	1.6	3.2	4.8	6.4	9.5	12.7	15.9	19.1
K 2.540	1.3	2.5	3.8	5.1	7.6	10.2	12.7	15.2
pps	100	200	300	400	600	800	1000	1200
rpm	30	60	90	120	180	240	300	360

LINEAR SPEED (mm/s), PULSE SPEED (pps), ROTARY SPEED (rpm) (rpm)

* Thrust/Speed surves are based on single stack motor with 0.3A/phase, 40V chopper drive.
For performance of double stack and other motor windings, please consult your local representative.

WARRANTY

Twenty Four month Limited warranty

First year Full Replacement
Secind Parts Replacement

Seller warrants its products dilivered hereunder to conform to stated specifi cations and to be free from defects in materials and workmanship. This warranty shall not apply to any product which shall have been improperly installed or subjected to misuse or neglect or which has been repaired or altered expect by seller 's accredited representative, nor to any product which has been subjected to accident.

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Fastech does not recommend the use of its products in life support or aircraft applications wherein a failure or malfunction of the product may directly threaten fife or injury.

GLOSSARY

ACCURACY	The difference between the actual distance travelled versus the theoretical distance travelled based on the lead
AXIAL LOAD	A load that is exerted at the center line of the screw
BACKDRIVING	Freewheeling of the nut and screw as a result of the load pushing axially on the screw
BACKLASH	The relative axial movement between the screw and nut
CHOPPER DRIVE	A constant current drive is usually bipolar. The chopper drive gets its name from the technique of rapidly switching the power on and off to control motor current. A chopper drive allows a step motor to maintain greater torque of force at higher speeds.
COLUMN STRENGTH	The ability of a screw to withstand a load in compression
CRITICAL SPEED	The rotational speed of the screw at which the first harmonic of resonance is reached
DRAG TORQUE	The amount of torque to overcome the friction of a system
DYNAMIC LOAD	Load applied to the screw while in motion
EFFICIENCY	The ability of a mechanical system to translate an input to an equal output
FIXITY (END)	The method by which the ends of the screw secured or supported
LEAD	The linear travel at one revolution of the screw
LEFT HAND THREAD	Counter clockwise rotation
PITCH	The axial distance between threads
RADIAL LOAD	A load exerted at 90 degrees or perpendicular to a screw
REPEATIBILITY	The capability of a screw and nut system to reach the same commanded position continously
RESOLUTION	Incremental linear distance the actuator's (motor) output shaft will move per input pulse
RESONANCE	Vibration occuring when a system is a mechanical system is in an unstable range
RIGHT HAND THREAD	Clockwise rotation
SIDELOADING	Same as a radial load (very undesirable)
STATIC LOAD	Load applied to the screw at standstill
STRAIGHTNESS	Linear uniformity of a screw
TOTAL INDICATED RUNOUT	A measurement of the amount of straightness of a screw
TRAVEL PER STEP	Linear translation of one full step of the motor

MEMO

FASTECH Ezi-STEP

FASTECH

FASTECH Co., Ltd.

Rm #1202, Bucheon Technopark 401 Dong, Yakdea-dong,
Wonmi-Gu, Bucheon-si, Gyeonggi-do, Rep. Of Korea (Zip)420-734
TEL : 82-32-234-6300,6301 FAX : 82-32-234-6302
E-mail : daniel@fastech.co.kr website: www.fastech.co.kr

FASTECH AMERICA LLC

811 E Plano Parkway, Suite 110A, Plano, TX 75074 USA
Toll Free: 877-905-4428 972-218-0210
Email: support@fastechamerica.com
website: www.fastechamerica.com

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