DINGS'

Chang Zhou DINGS' Electrical & Mechanical Co., Ltd

Precision Hybrid Stepper Linear Actuators



WHO IS DINGS'?

DINGS' is a premier supplier of Linear Motion Systems. Based in the greater Shanghai, China area, we manufacture quality lead screw and step motor systems used to solve motion applications in industries from medical, lab automation, packaging, electronic assembly, and other special machines throughout the world.

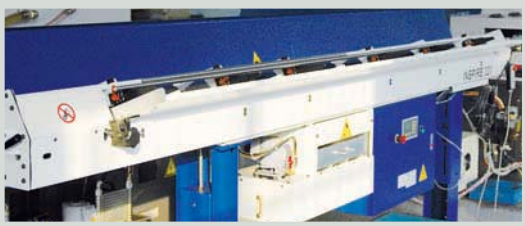
Shanghai Skyline

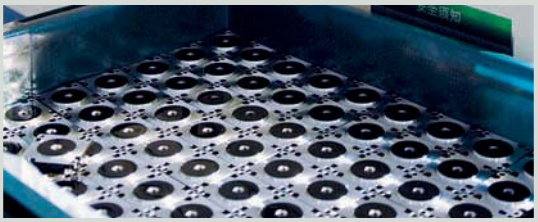
Our value proposition is a QUALITY product at very COMPETITIVE PRICING.

We have company representation in the United States, Canada and Europe.

Please view our website at
www.dingsmotion.com
for the latest information on new products.

Contact our local Distributor and the Technical Support as noted on the back of this catalog.

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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 best for your application. 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. There may be more than one thread „strand" on a single screw. These are called starts. Multiple start lead screws are usually more stable and efficient at power transmission.
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 quantified as either lbs OR kg to move or pounds force (lbsF) or kgF for thrust.

VELOCITY (V)

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

DISTANCE

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

TIME (t)

Typically quantified 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

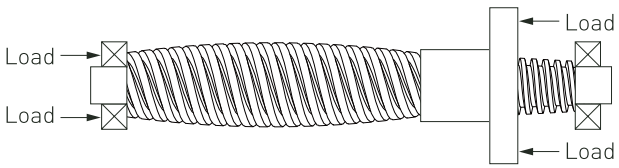
The amount of „wobble" around the centerline of the screw.

REPEATIBILITY

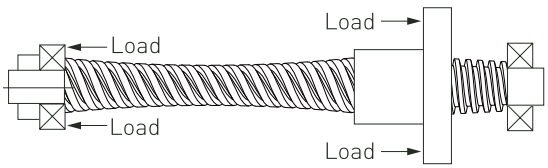
Most motion applications put the most significance on the repeatability (vs accuracy of screw) of a system to reach the same commanded position over and over again. For example: A repeatability of ± .005 inch means that after repeated commands to reach the same target position, the linear error will be no more than ± .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.



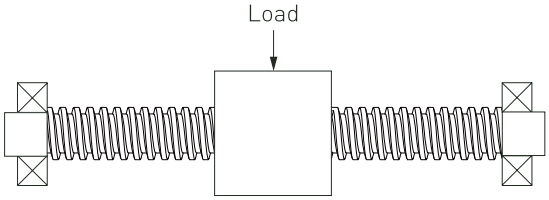
Compression Loading



Tension Loading

RADIAL LOAD

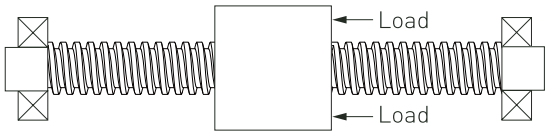
A load perpendicular to the screw.
This is not recommended unless additional mechanical support such as a linear guide is used.



Radial Loading
(Avoid or 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 efficiency greater than 50% will have a tendency to backdrive. Selecting a lead screw with an efficiency below 35% may prevent backdriving. The smaller the lead, the less chance for backdriving 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

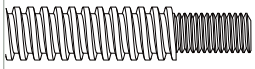
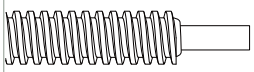
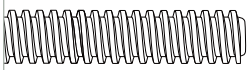
Drag Torque = Friction of the nut and screw in motion

LUBRICATION

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

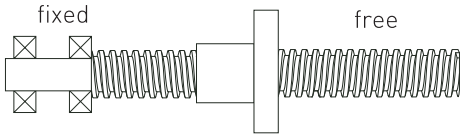
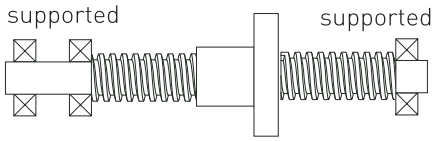
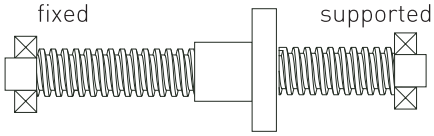
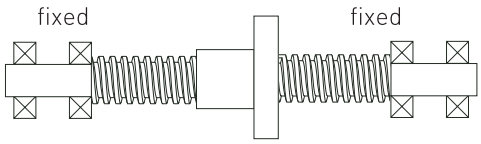
END MACHINING OF THE SCREW

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 ± 0.025	
 None	—	

FIXITY

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

Type of End Fixity	Relative Rigidity	Critical Speed Factor	Critical Load Factor
	Less Rigid	32	25
	Rigid	1.0	1.0
	More Rigid	1.55	2.0
	Most Rigid	2.24	4.0

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

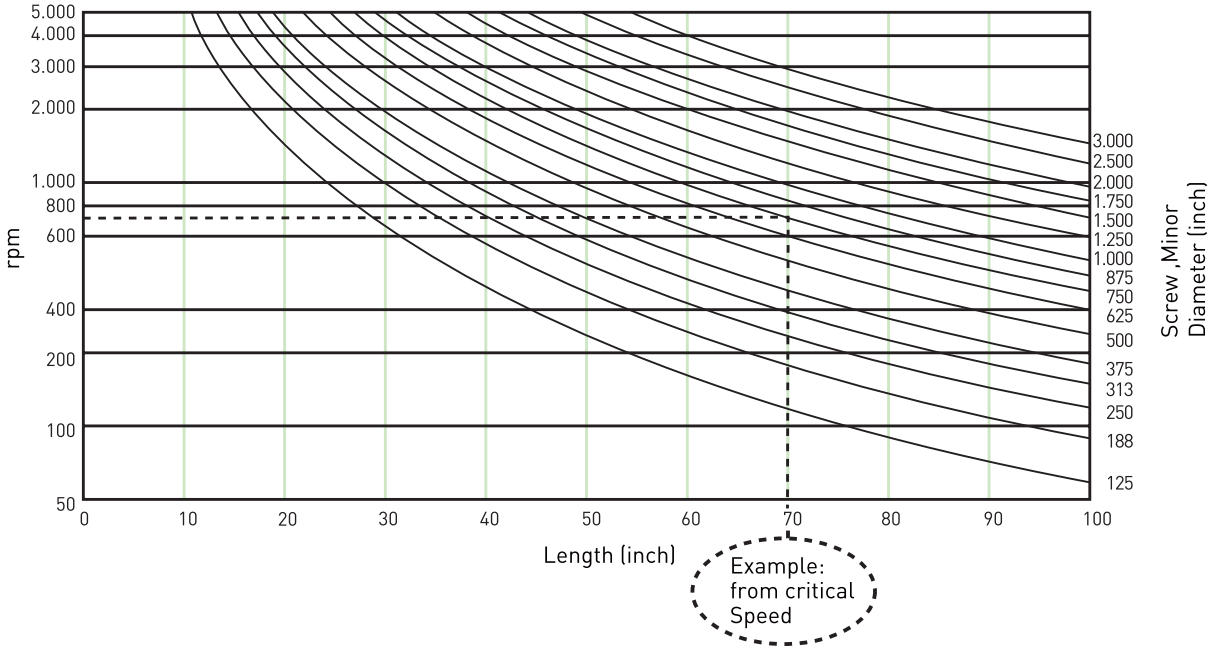
Critical speed is the rotational speed of the screw at which the first harmonic of resonance is reached due to deflection of the screw.
A system will vibrate and become unstable at these speeds.

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
5. Diameter of the screw
6. Tension or compression loading

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

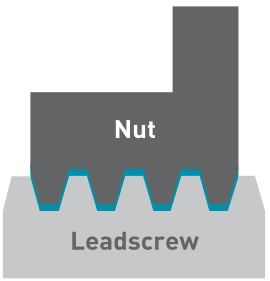
CRITICAL ROTATION SPEED (RPM) VS. UNSUPPORTED SCREW LENGTH FOR VARIOUS SCREW DIAMETERS (INCH)



BACKLASH

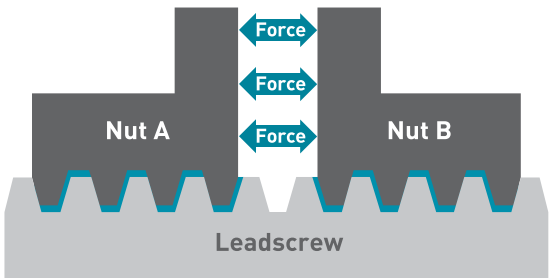
Backlash is the relative axial movement between a screw and nut at standstill. It is normal for backlash to increase with wear over time. Blacklash compensation or correction can be accomplished through the application of an anti-backlash nut. Backlash is usually only a concern with bi-directional positioning.

Standard Nut



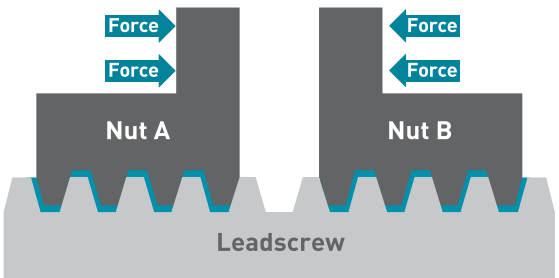
BACKLASH IN BLUE

Tension Anti-Back Lash Nut



BACKLASH IN BLUE

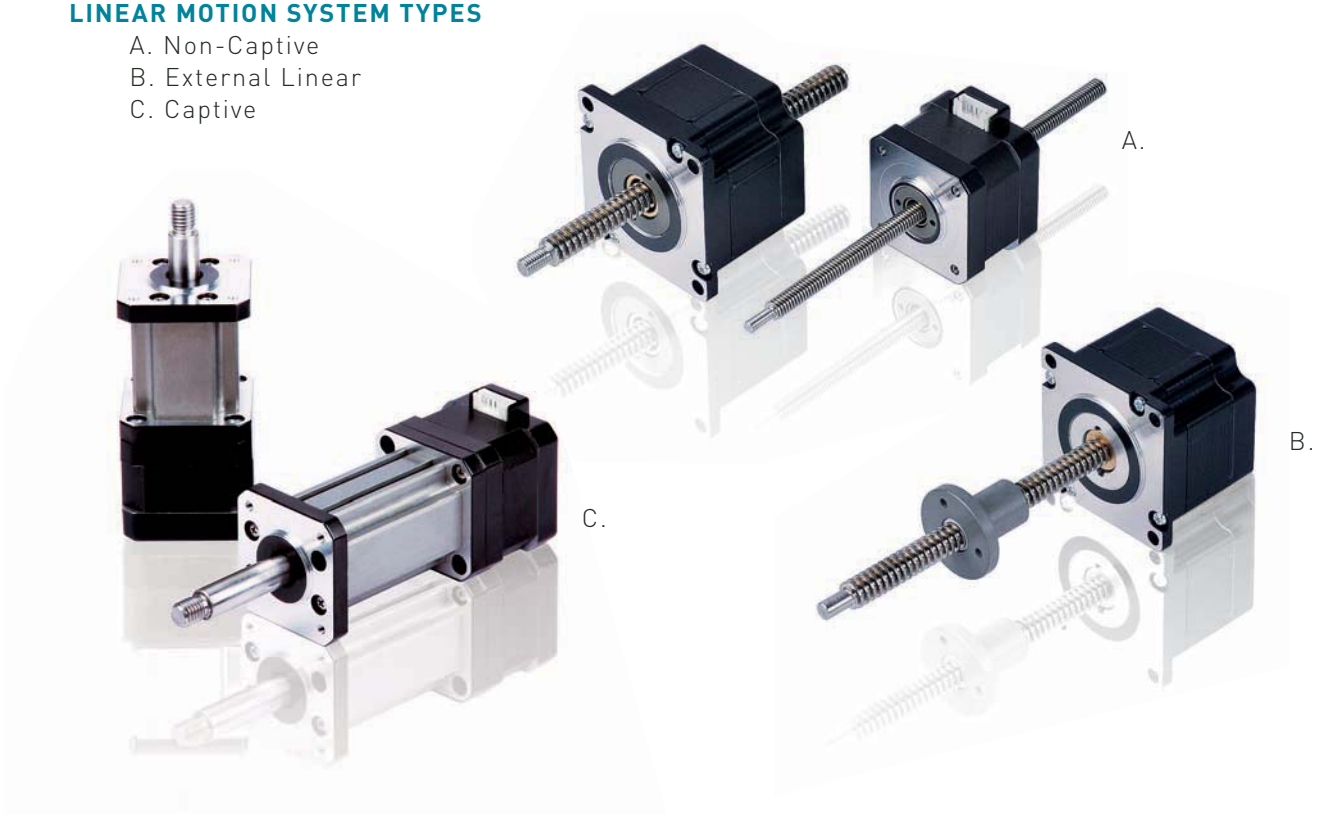
Compression Anti-Back Lash Nut



BACKLASH IN BLUE

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?

DINGS' linear motion systems are designed to operate in dry and non-corrosive environments. The standard product does not have an 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. Detent or holding torque requirements?
4. Physical size restrictions?
5. What type of driver (amplifier) are you using?

Basic Specifications of DINGS' Linear Systems

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
Screw Coating	Teflon coating is optional
DINGS' 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/foot, 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	-10 °C to +50 °C
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: DINGS' 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, tradeoffs 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 follow charts and linear motor sections, you can select your specific part number.

WARRANTY

Twenty Four month limited warranty

FIRST YEAR Full Replacement
SECOND YEAR Parts Replacement

Seller warrants its products dilivered hereunder to conform to stated specifications 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.

DISCLAIMER:

The information in this catalog has been carefully checked and is believed to be accurate; however no responsibility is assumed for inaccuracies.

DINGS' reserves the right to make changes without further notice to any products herein to improve reliability, function, or design.

DINGS' 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 life or injury.

Product Selection System

17 E 2 035 K 4 - 057 - 001

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

Options Defined

① Nema Motor Size:

Nema Code	8	11	14	17	23	34
Motor Size (mm)	20	28	35	42	57	86

② Leadscrew 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 Table)

⑥ Number of Lead Wires
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 flying leads as only option.

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

⑧ Reserved for customer version (001 is default)

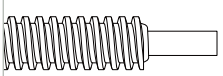
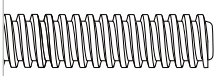
Lead Screw length
Non-Captive and External Linear – specify length of screw
Captive version – specify stroke length
(See sections on Nema 14, 17, and 23)

Note:
Unless specified differently all screws are as follows:
1. Right hand screw threads
2. Standard lubrication on leadscrew
3. No teflon coating

Custom Leadscrew and Motor specifications welcome

END MACHINING OF THE SCREW

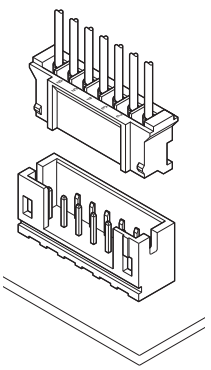
Standard metric or English options are available as well as custom requirements.

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 ± 0.025	
None 	–	

For volume OEM applications only.

JST Connector
Nema 8 and 11
S6B-ZR-3.4
Mating connector,
ZHR-6

JST Connector
Nema 14 and 17
S6B-PH-K-S
Mating connector,
PHR-6



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")	6.35 (0.25")	6.35 (0.25")	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")		1.27 (0.05")	1.27 (0.05")	1.27 (0.05")	1.27 (0.05")	
F	0.008 (0.000315")			1.6002 (0.063")	1.6002 (0.063")	1.6002 (0.063")	
G	0.01 (0.000395")	2.0 (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")		2.54 (0.1")	2.54 (0.1")	2.54 (0.1")	2.54 (0.1")	2.54 (0.1")
L	0.015875 (0.000625")					3.175 (0.125")	3.175 (0.125")
M	0.02 (0.00079")	4.0 (0.158")					
P	0.021209 (0.000835")					4.2418 (0.167")	
Q	0.024384 (0.00096")			4.8768 (0.192")	4.8768 (0.192")		
R	0.0254 (0.001")		5.08 (0.2")			5.08 (0.2")	5.08 (0.2")
S	0.03175 (0.00125")			6.35 (0.25")	6.35 (0.25")	6.35 (0.25")	6.35 (0.25")
T	0.04 (0.001575")	8.0 (0.315")					
U	0.042291 (0.001665")			8.382 (0.33")	8.382 (0.33")		
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")		10.16 (0.4")				
Y	0.0635 (0.0025")			12.7 (0.5")	12.7 (0.5")	12.7 (0.5")	12.7 (0.5")
Z	0.127 (0.005")					25.4 (1.0")	25.4 (1.0")
AA	0.003048 (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)	Travel per Step (mm)*
Nema 8	20x20	0.138	3.5052	0.024	0.6096	0.003
Nema 8	20x20	0.138	3.5052	0.048	1.2192	0.0061
Nema 8	20x20	0.138	3.5052	0.079	2.0	0.01
Nema 8	20x20	0.138	3.5052	0.158	4.0	0.02
Nema 8	20x20	0.138	3.5052	0.315	8.0	0.04
Nema 11	28x28	0.188	4.7752	0.025	0.635	0.0031
Nema 11	28x28	0.188	4.7752	0.05	1.27	0.0063
Nema 11	28x28	0.188	4.7752	0.1	2.54	0.0127
Nema 11	28x28	0.188	4.7752	0.2	5.08	0.0254
Nema 11	28x28	0.188	4.7752	0.4	10.16	0.0508
Nema 14/17	35x35/42x42	0.25	6.35	0.024	0.6096	0.003
Nema 14/17	35x35/42x42	0.25	6.35	0.05	1.27	0.0064
Nema 14/17	35x35/42x42	0.25	6.35	0.063	1.6002	0.008
Nema 14/17	35x35/42x42	0.25	6.35	0.096	2.4384	0.0122
Nema 14/17	35x35/42x42	0.25	6.35	0.1	2.54	0.0127
Nema 14/17	35x35/42x42	0.25	6.35	0.192	4.8768	0.0244
Nema 14/17	35x35/42x42	0.25	6.35	0.25	6.35	0.0318
Nema 14/17	35x35/42x42	0.25	6.35	0.33	8.382	0.0419
Nema 14/17	35x35/42x42	0.25	6.35	0.384	9.7536	0.0488
Nema 14/17	35x35/42x42	0.25	6.35	0.5	12.7	0.0635
** Nema 23	57x57	0.375	9.525	0.025	0.635	0.0032
Nema 23	57x57	0.375	9.525	0.05	1.27	0.0064
Nema 23	57x57	0.375	9.525	0.063	1.6002	0.008
Nema 23	57x57	0.375	9.525	0.083	2.1082	0.0105
Nema 23	57x57	0.375	9.525	0.1	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	0.2	5.08	0.0254
Nema 23	57x57	0.375	9.525	0.25	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	0.5	12.7	0.0635
Nema 23	57x57	0.375	9.525	1.0	25.4	0.127
Nema 34	87x87	0.625	15.875	0.1	2.54	0.0127
Nema 34	87x87	0.625	15.875	0.125	3.175	0.0159
Nema 34	87x87	0.625	15.875	0.2	5.08	0.0254
Nema 34	87x87	0.625	15.875	0.25	6.35	0.0318
Nema 34	87x87	0.625	15.875	0.5	12.7	0.0635
Nema 34	87x87	0.625	15.875	1.0	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. ** Nema 17 is also available with 0.375 inch DIA screw in External Shaft only.

SIZE 8 · 20 mm
Hybrid Stepper Motor Linear Actuators

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

Motor Characteristics
Please consult your authorized sales representative for custom products.

Motor Type	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Lead Wire No.	Motor Length (mm)
8-2030-4-050	2.5	0.5	5.0	1.2	4	30
8-2040-4-050	4.4	0.5	8.8	2.7	4	40

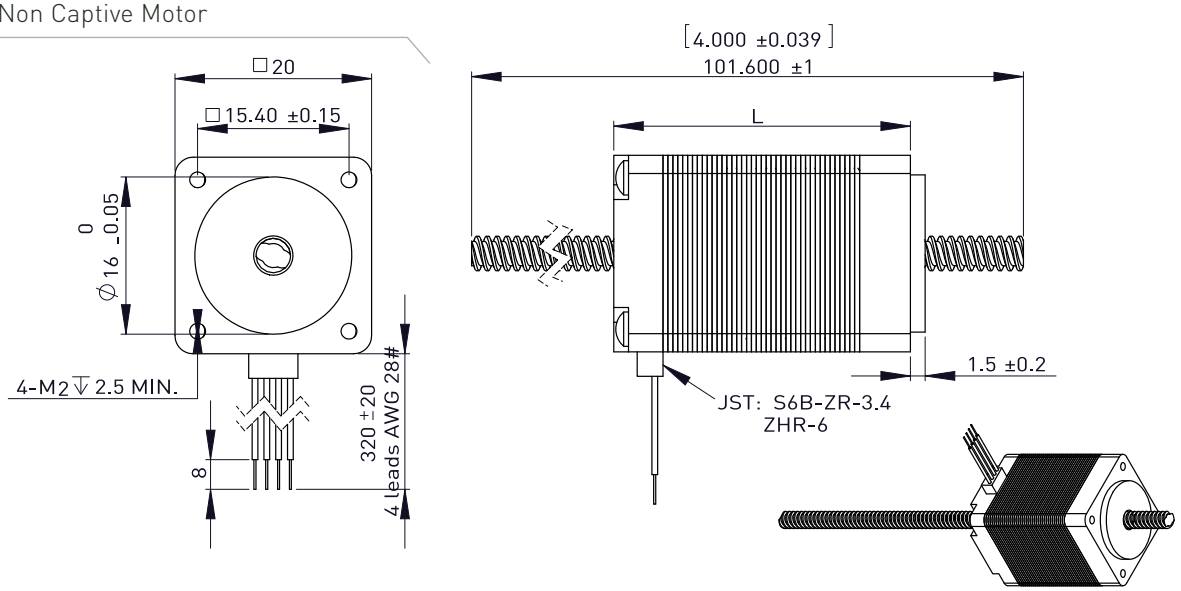
For example 8-2030-4-050: 8 = Nema 8 motor, 2030 = single stack motor, 4 = 4 lead, 050 = 0.5 A

Available Lead Screws and Travel per Step
Please consult your authorized sales representative for custom products.

Screw Dia. (inch)	Screw Dia. (mm)	Lead (inch)	Lead (mm)	Lead Code	Travel Per Step (mm)*
0.138	3.5052	0.024	0.6096	AA	0.003
0.138	3.5052	0.048	1.2192	B	0.0061
0.138	3.5052	0.079	2.0	G	0.01
0.138	3.5052	0.158	4.0	M	0.02
0.138	3.5052	0.315	8.0	T	0.04

* values truncated

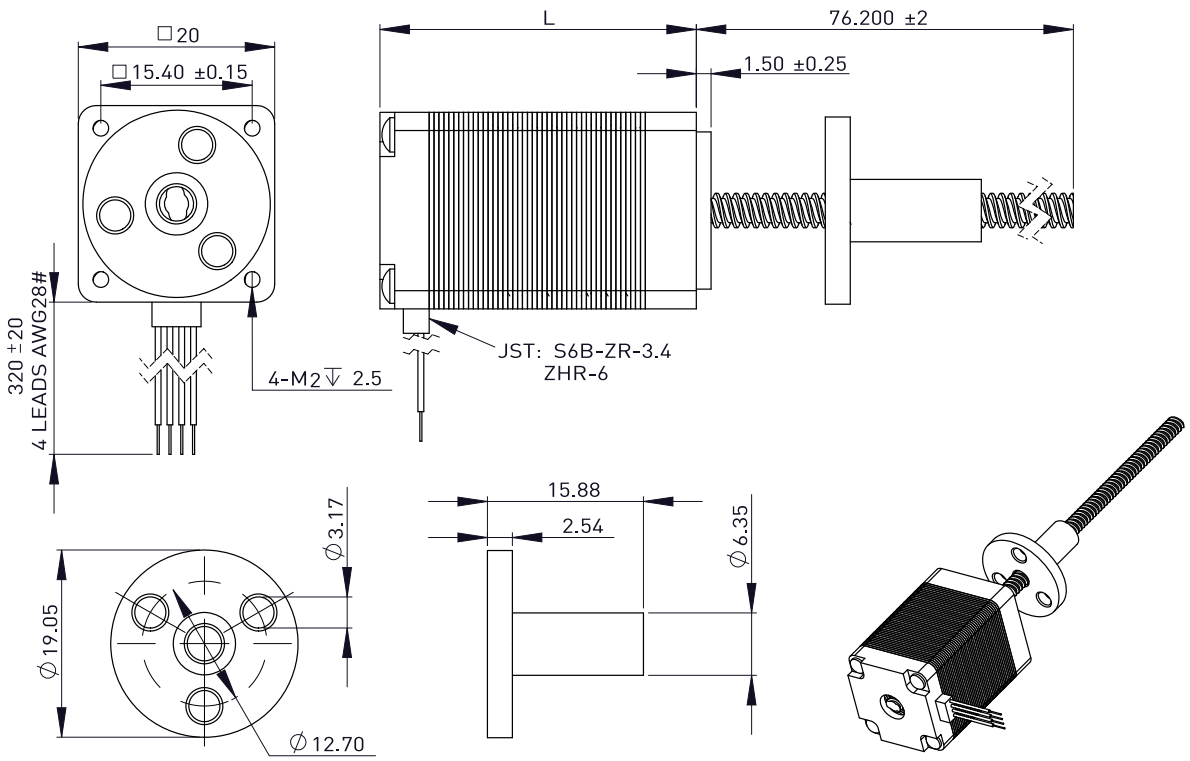
Dimension (mm) · Size 8 · 20 mm:
Non Captive Motor



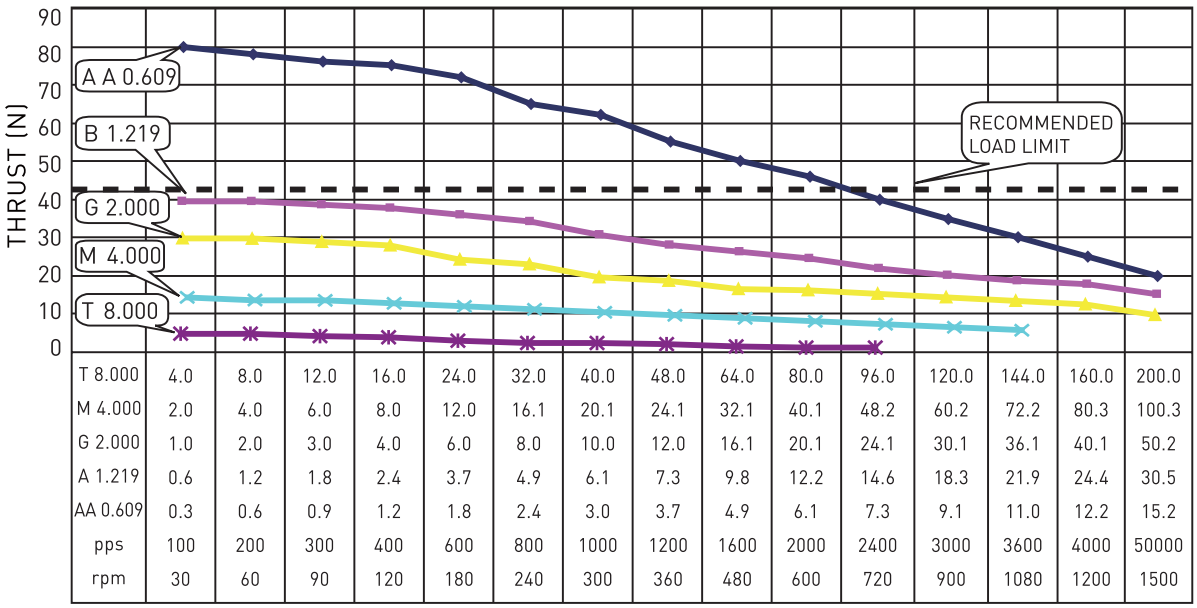
Note: All drawings are First Angle Projection – ISO Standard

Solid Works 3D models available

External Shaft Motor · Size 8 · 20 mm:



Size 8-2030-050 THRUST CURVE 40 VDC, CHOPPER DRIVER *



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)

* For performance of 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 Characteristics

Please consult your authorized sales representative for custom products.

Motor Type	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Lead Wire No.	Motor Length (mm)
11-2034-4-050	4.5	0.5	9.1	6.0	4	34
11-2034-4-100	2.2	1.0	2.2	1.5	4	34
11-2045-4-095	3.9	0.95	4.1	4.0	4	45

For example 11-2034-4-050: 11 = Nema 11 motor, 2034 = single stack motor, 4 = 4 lead, 050 = 0.5 A

Available Lead Screws and Travel per Step

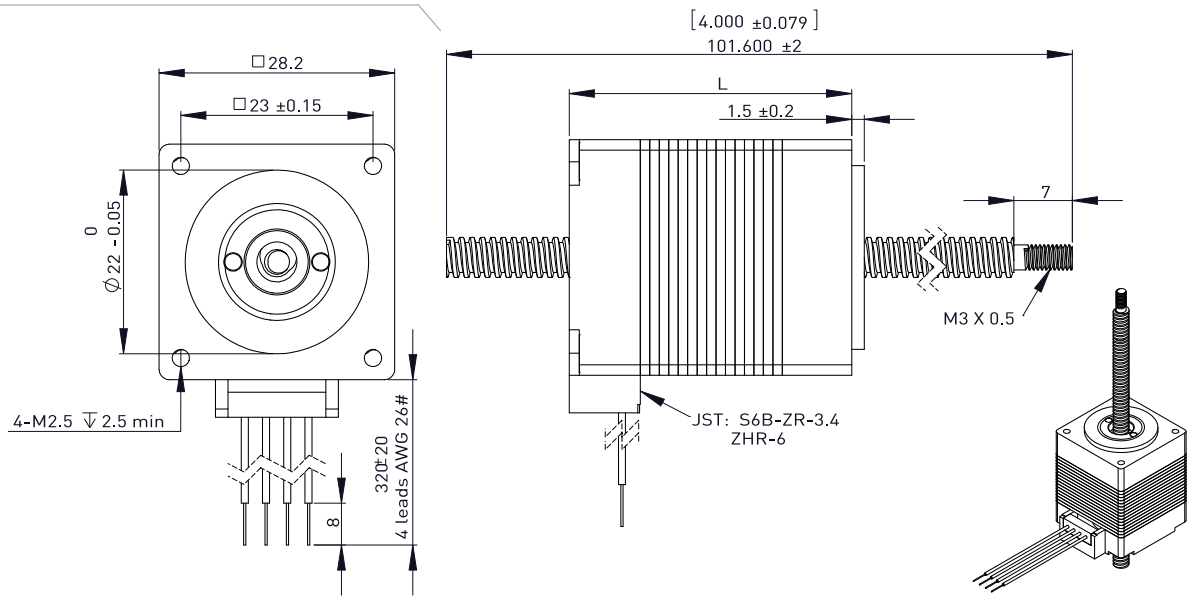
Please consult your authorized sales representative for custom products.

Screw Dia. (inch)	Screw Dia. (mm)	Lead (inch)	Lead (mm)	Travel Per Step (mm)*
0.188	4.7752	0.025	0.635	0.0032
0.188	4.7752	0.05	1.27	0.0063
0.188	4.7752	0.1	2.54	0.0127
0.188	4.7752	0.2	5.08	0.0254
0.188	4.7752	0.4	10.16	0.0508

* values truncated

Dimension (mm) · Size 11 · 28 mm:

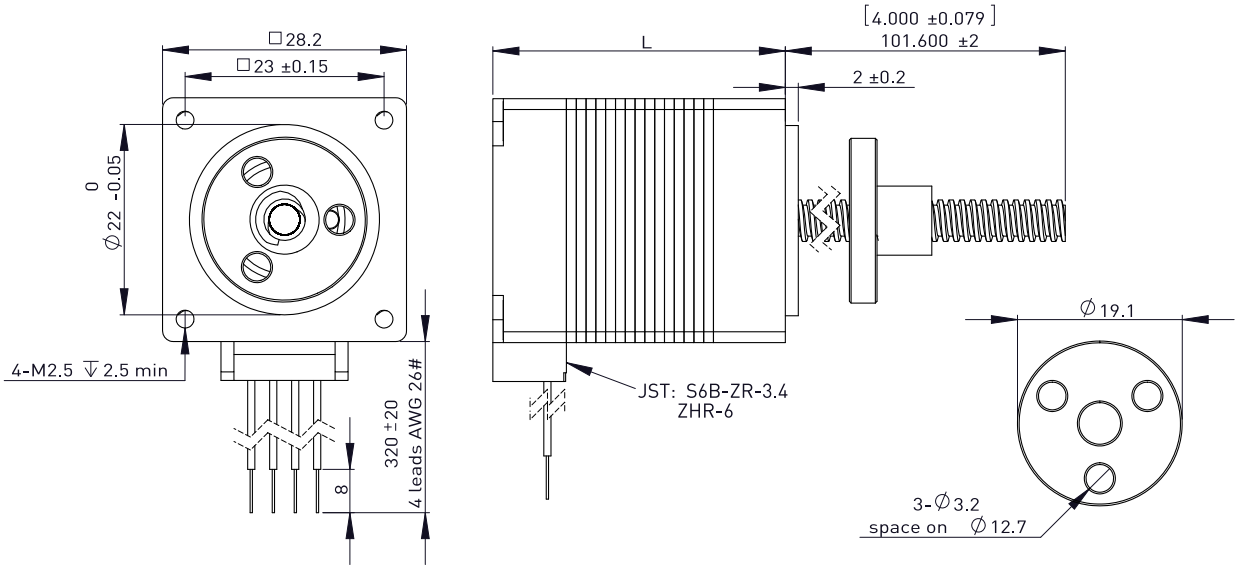
Non Captive Motor



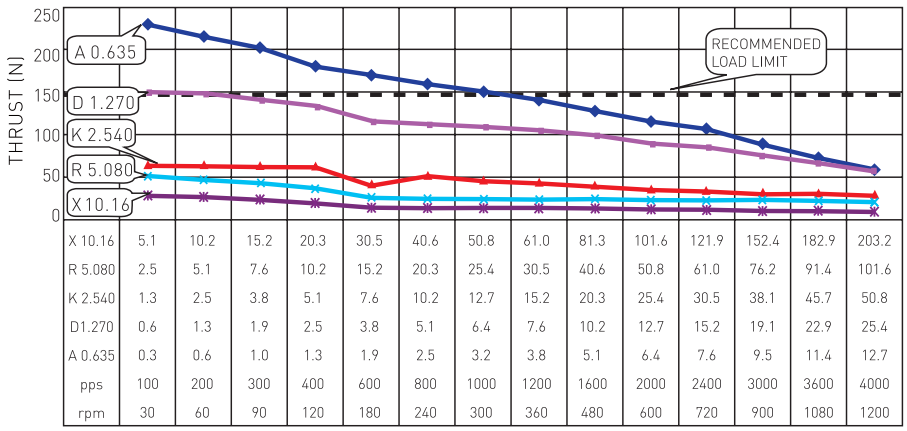
Note: All drawings are First Angle Projection – ISO Standard

Solid Works 3D models available

External Motor · Size 11 · 28 mm:

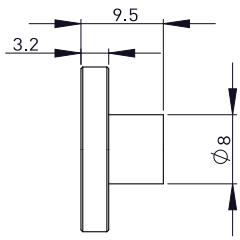


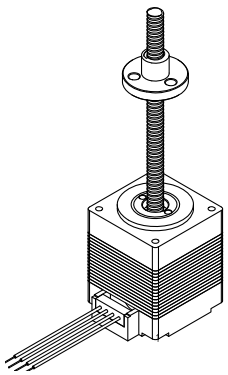
Size 11-2034-050 THRUST CURVE 40 VDC, CHOPPER DRIVER *



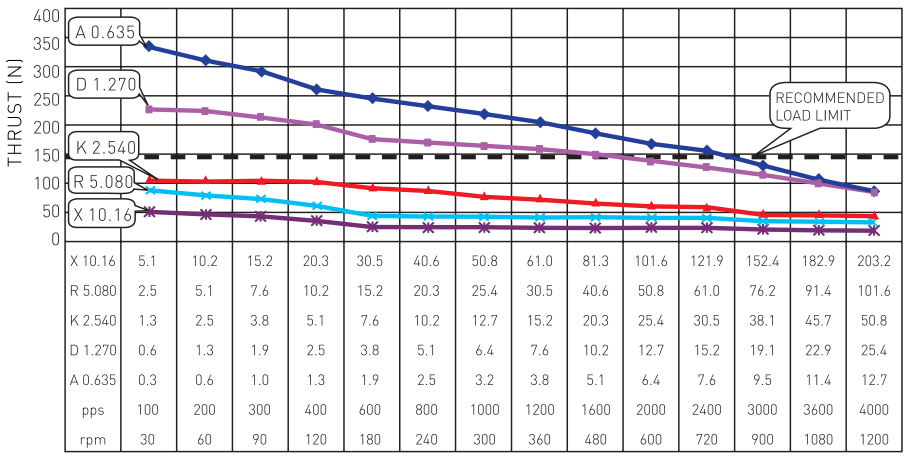
X 10.16	5.1	10.2	15.2	20.3	30.5	40.6	50.8	61.0	81.3	101.6	121.9	152.4	182.9	203.2
R 5.080	2.5	5.1	7.6	10.2	15.2	20.3	25.4	30.5	40.6	50.8	61.0	76.2	91.4	101.6
K 2.540	1.3	2.5	3.8	5.1	7.6	10.2	12.7	15.2	20.3	25.4	30.5	38.1	45.7	50.8
D1.270	0.6	1.3	1.9	2.5	3.8	5.1	6.4	7.6	10.2	12.7	15.2	19.1	22.9	25.4
A 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 40 VDC, CHOPPER DRIVER *



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)

* For performance of other motor windings, please consult your local representative.

SIZE 14 · 35 mm
Hybrid Stepper Motor Linear Actuators

Available travel per step from 0.003 mm to 0.0635 mm

Motor Characteristics
Please consult your authorized sales representative for custom products.

Motor Type	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Lead Wire No.	Motor Length (mm)
14-2035-4-050	6.6	0.5	13.2	14.0	4	35
14-2035-4-100	3.3	1.0	3.3	3.6	4	35
14-2035-4-150	2.2	1.5	1.5	1.6	4	35
14-2047-4-050	12.0	0.5	24.0	29.0	4	47
14-2047-4-100	6.0	1.0	6.0	7.2	4	47
14-2047-4-150	4.0	1.5	2.7	1.8	4	47

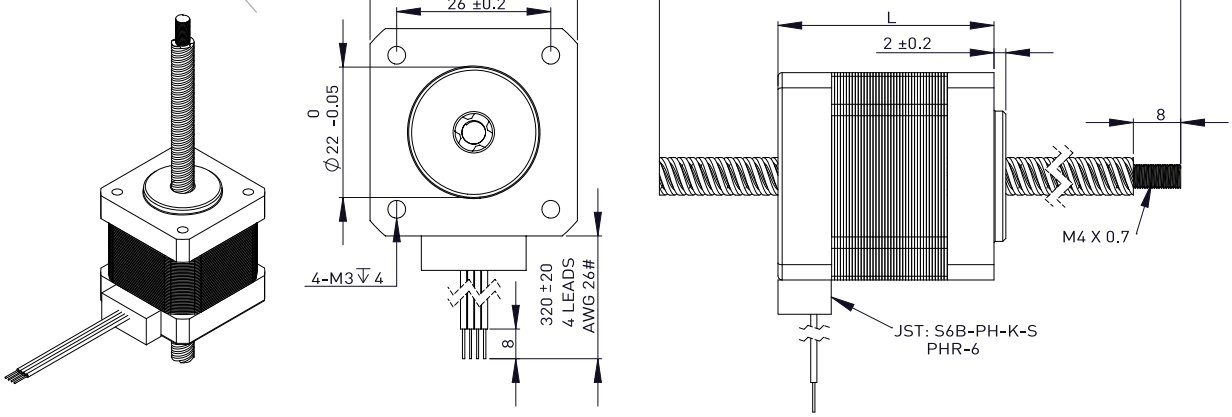
For example 14-2035-4-050: 14 = Nema 14 motor, 2035 = single stack motor, 4 = 4 lead motor, 050 = 0.5 A

Available Lead Screws and Travel per Step
Please consult your authorized sales representative for custom products.

Screw Dia. (inch)	Screw Dia. (mm)	Lead (inch)	Travel Per Step @ 1.8 deg (mm)	Travel Per Step @ 0.9 deg (mm)*
0.25	6.35	0.024	0.003	0.0015
0.25	6.35	0.048	0.006	0.003
0.25	6.35	0.05	0.006	0.0032
0.25	6.35	0.063	0.008	0.004
0.25	6.35	0.096	0.012	0.0061
0.25	6.35	0.1	0.012	0.0064
0.25	6.35	0.192	0.024	0.0122
0.25	6.35	0.25	0.031	0.0159
0.25	6.35	0.33	0.041	0.021
0.25	6.35	0.5	0.0635	0.03175

* values truncated

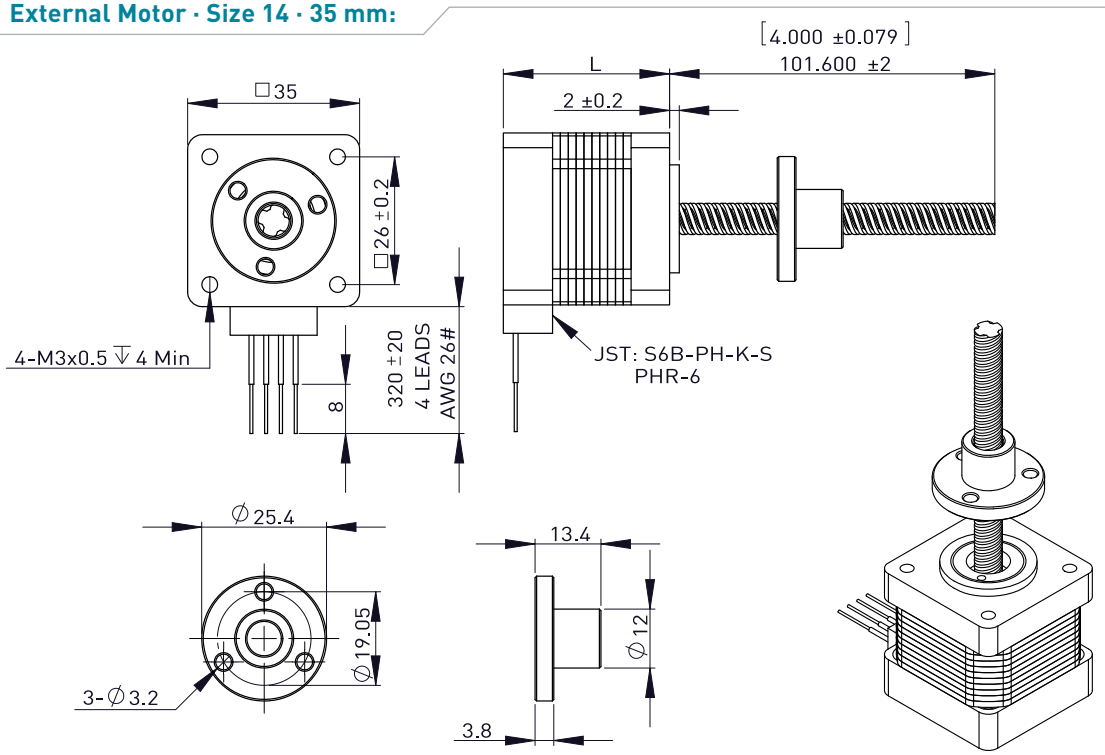
Dimension (mm) · Size 14 · 35 mm:
Non Captive Motor



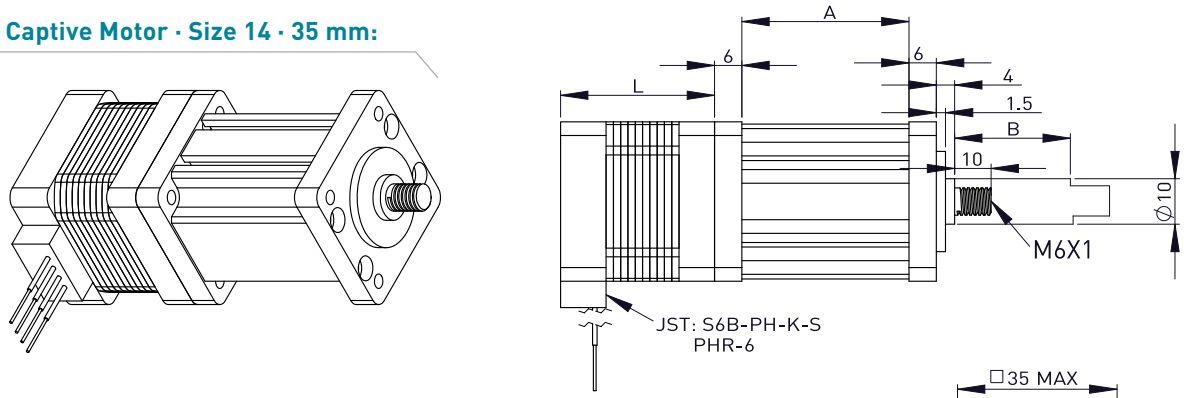
Note: All drawings are First Angle Projection – ISO Standard

Solid Works 3D models available

External Motor · Size 14 · 35 mm:

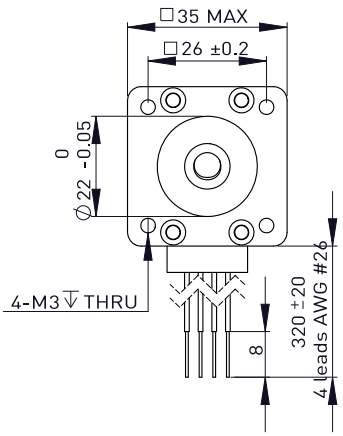


Captive Motor · Size 14 · 35 mm:



Please consult your authorized sales representative for custom products.

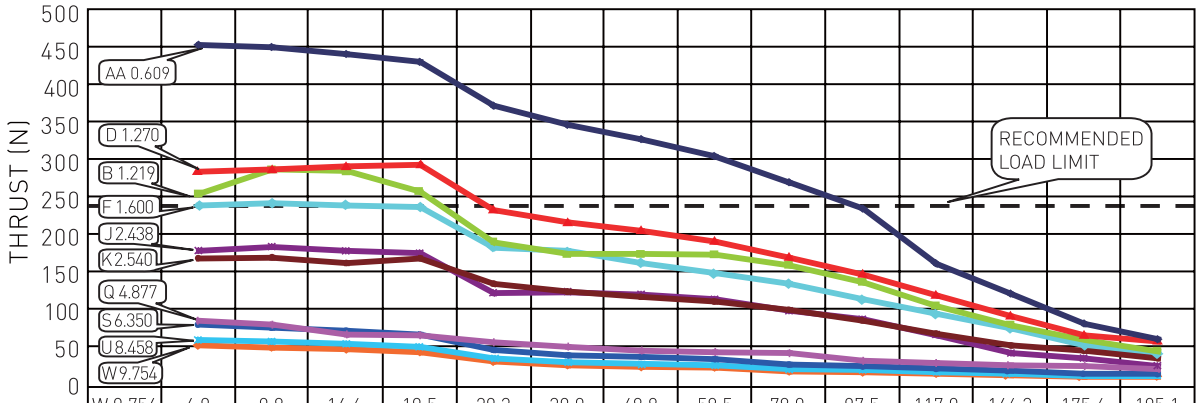
Stroke B inch (mm)	Dimension A (mm)	Dimension L (mm)	
0.5 (12.7)	36.7	Single stack motor 35 mm	Double stack motor 49 mm
0.75 (19.05)	43.05		
1.0 (25.4)	49.4		
1.25 (31.8)	55.8		
1.5 (38.1)	62.1		
2.0 (50.8)	74.8		
2.5 (63.5)	87.5		



Note: All drawings are First Angle Projection – ISO Standard

Solid Works 3D models available

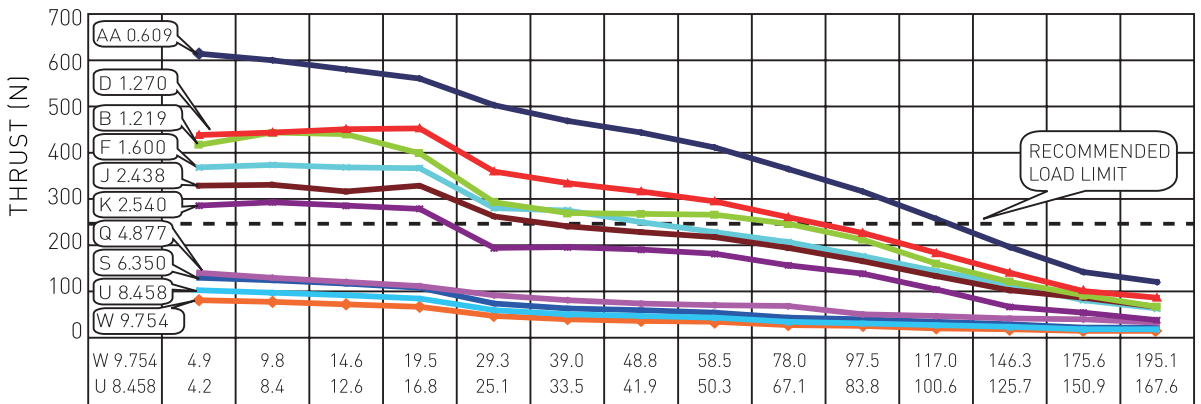
Size 14-2035-050 THRUST CURVE 40 VDC, CHOPPER DRIVER *



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 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	7.5	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)

* For performance of 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 Characteristics
Please consult your authorized sales representative for custom products.

Motor Type	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Lead Wire No.	Motor Length (mm)
17-2035-4-050	7.2	0.5	14.4	19.8	4	35
17-2035-4-100	3.6	1.0	3.6	5.0	4	35
17-2035-4-150	2.4	1.5	1.6	2.2	4	35
17-2049-4-050	11.0	0.5	22.0	46.0	4	49
17-2049-4-120	4.5	1.2	3.8	8.0	4	49
17-2049-4-250	2.2	2.5	0.87	1.8	4	49

For example 17-2035-4-050: 17 = Nema 17 motor, 2035 = single stack motor, 4 = 4 lead, 050 = 0.5 A

Available Lead Screws and Travel per Step
Please consult your authorized sales representative for custom products.

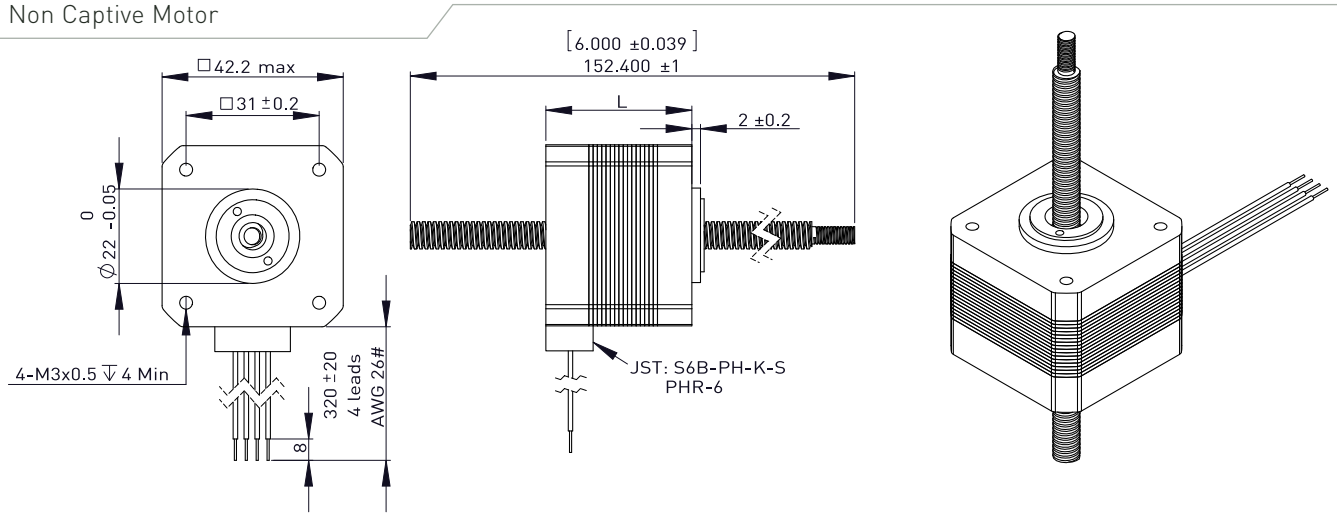
Screw Dia. (inch)	Screw Dia. (mm)	Lead (inch)	Lead (mm)	Travel Per Step @ 1.8 deg (mm)	Travel Per Step @ 0.9 deg (mm)*
0.25	6.35	0.024	0.6096	0.003	0.0015
0.25	6.35	0.048	1.2192	0.006	0.003
0.25	6.35	0.05	1.27	0.006	0.0032
0.25	6.35	0.063	1.6002	0.008	0.004
0.25	6.35	0.096	2.4384	0.012	0.0061
0.25	6.35	0.1	2.54	0.012	0.0064
0.25	6.35	0.192	4.8768	0.024	0.0122
0.25	6.35	0.25	6.35	0.031	0.0159
0.25	6.35	0.33	8.382	0.041	0.021
0.25	6.35	0.384	9.7536	0.048	0.0244
0.25	6.35	0.5	12.7	0.0635	0.03175
0.375	9.525	0.025	0.635	0.003	0.0016
0.375	9.525	0.05	1.27	0.006	0.0032
0.375	9.525	0.063	1.6002	0.008	0.004
0.375	9.525	0.083	2.1082	0.01	0.0053
0.375	9.525	0.1	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	0.2	5.08	0.025	0.0127
0.375	9.525	0.25	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	0.5	12.7	0.063	0.0318
0.375	9.525	1.0	25.4	0.127	0.0635

Note: 0.375 DIA shaft only available with external shaft

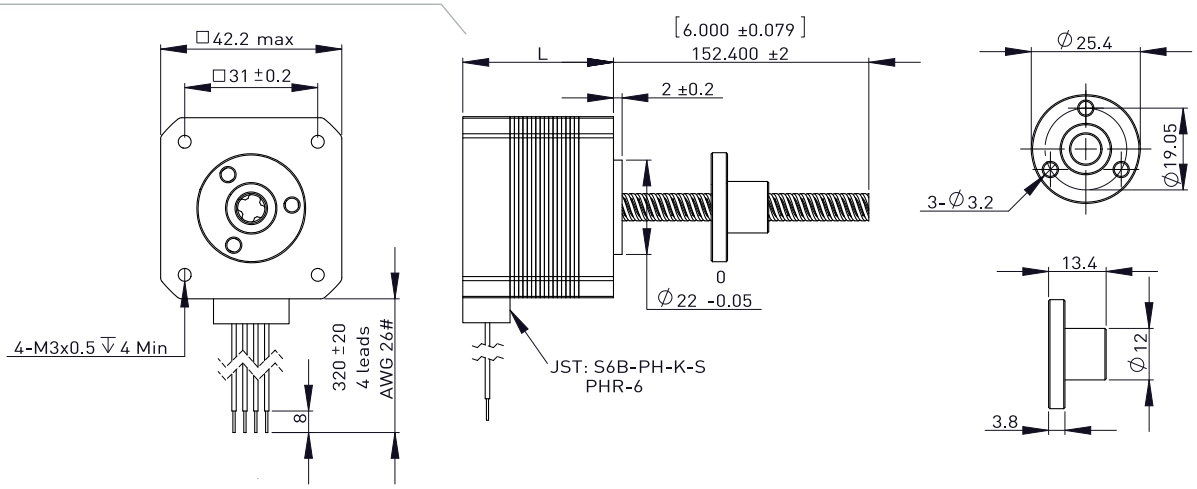
* values truncated

Dimension (mm) · Size 17 · 42 mm:

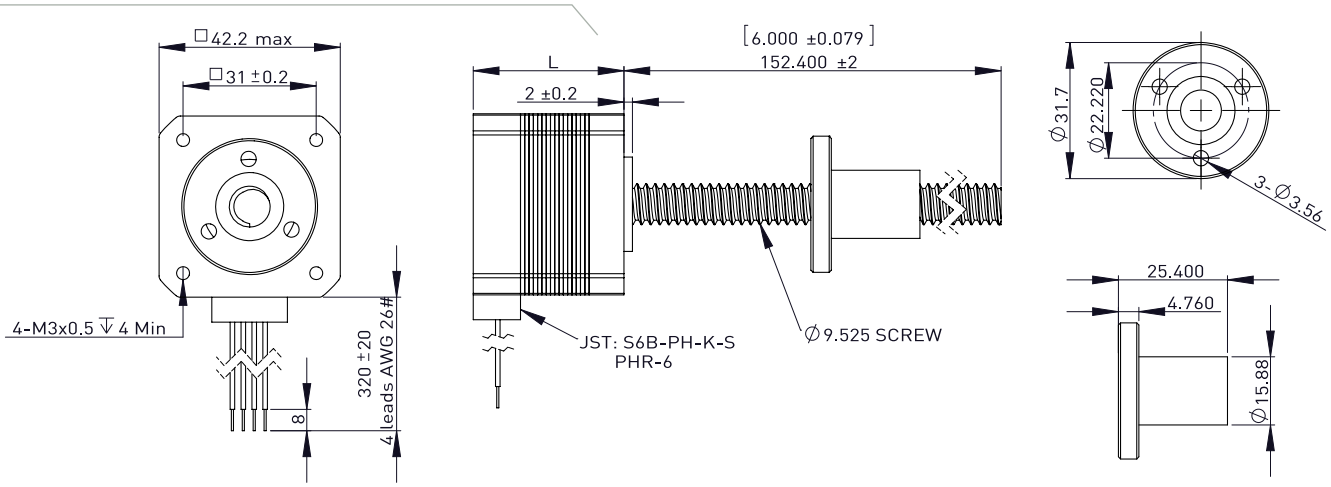
Non Captive Motor



External Motor · Size 17 · 42 mm:



Dia. 9.525 mm Lead Screw · Size 17 · 42 mm:



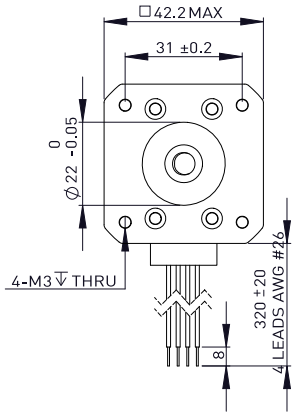
Note: All drawings are First Angle Projection – ISO Standard

Solid Works 3D models available

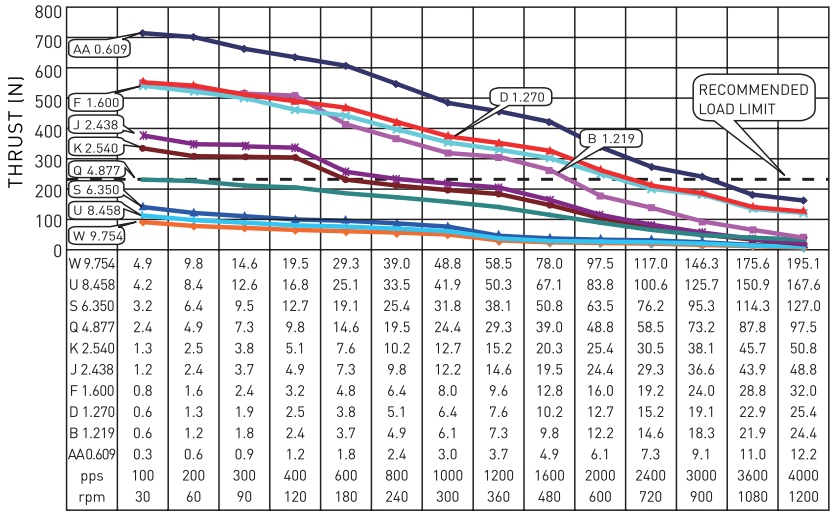
Captive Motor · Size 17 · 42 mm:

Please consult your authorized sales representative for custom products.

Stroke B inch (mm)	Dimension A (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		

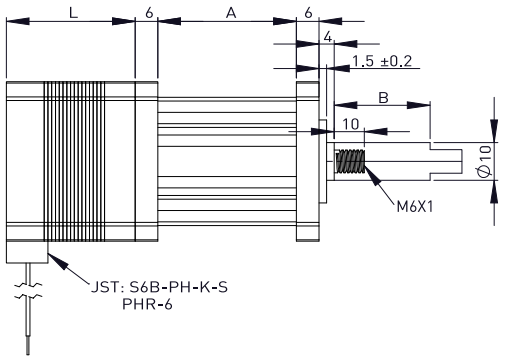


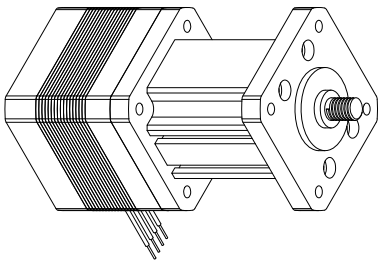
Size 17-2035-100 THRUST CURVE 40 VDC, CHOPPER DRIVER *



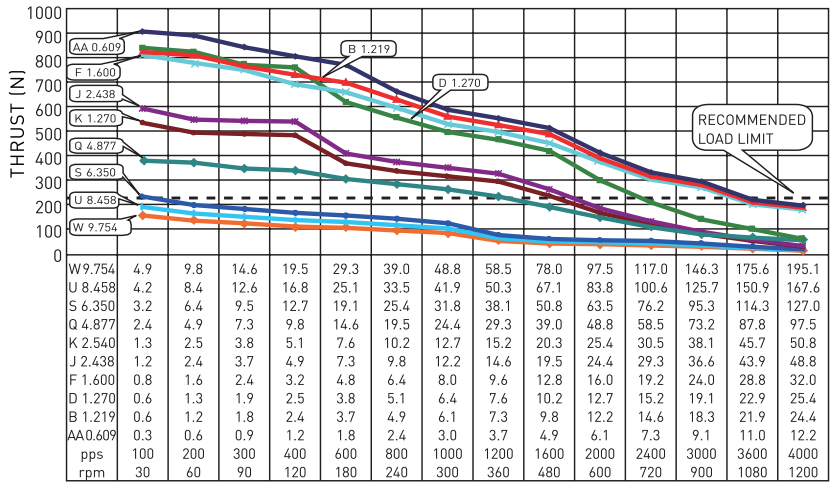
W 9.754	4.9	9.8	14.6	19.5	29.3	39.0	48.8	58.5	78.0	97.5	117.0	146.3	175.6	195.1
U 8.458	4.2	8.4	12.6	16.8	25.1	33.5	41.9	50.3	67.1	83.8	100.6	125.7	150.9	167.6
S 6.350	3.2	6.4	9.5	12.7	19.1	25.4	31.8	38.1	50.8	63.5	76.2	95.3	114.3	127.0
Q 4.877	2.4	4.9	7.3	9.8	14.6	19.5	24.4	29.3	39.0	48.8	58.5	73.2	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 *

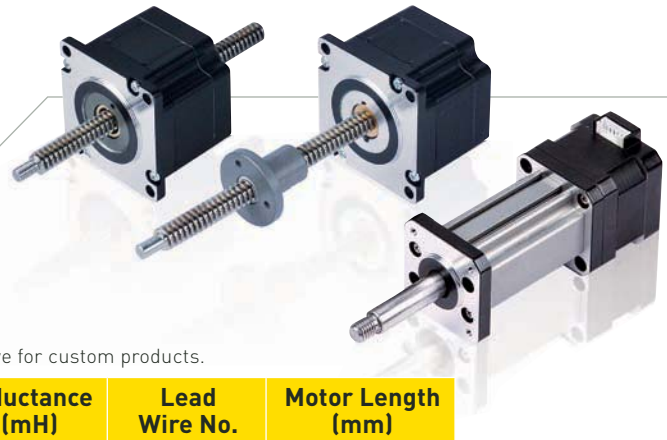


W 9.754	4.9	9.8	14.6	19.5	29.3	39.0	48.8	58.5	78.0	97.5	117.0	146.3	175.6	195.1
U 8.458	4.2	8.4	12.6	16.8	25.1	33.5	41.9	50.3	67.1	83.8	100.6	125.7	150.9	167.6
S 6.350	3.2	6.4	9.5	12.7	19.1	25.4	31.8	38.1	50.8	63.5	76.2	95.3	114.3	127.0
Q 4.877	2.4	4.9	7.3	9.8	14.6	19.5	24.4	29.3	39.0	48.8	58.5	73.2	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)

* For performance of 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 Characteristics
Please consult your authorized sales representative for custom products.

Motor Type	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Lead Wire No.	Motor Length (mm)
23-2047-4-100	6.4	1.0	6.4	16.4	4	47
23-2047-4-200	3.2	2.0	1.6	4.1	4	47
23-2047-4-300	2.1	3.0	0.7	1.7	4	47
23-2066-4-100	10.8	1.0	10.8	32.0	4	66
23-2066-4-250	4.2	2.5	1.7	5.2	4	66
23-2066-4-400	2.4	4.0	0.65	2.0	4	66

For example 23-2047-4-100: 23 = Nema 23 motor, 2047 = single stack motor, 4 = 4 lead motor, 100 = 1.0 A

Available Lead Screws and Travel per Step
Please consult your authorized sales representative for custom products.

Screw Dia. (inch)	Screw Dia. (mm)	Lead (inch)	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	0.05	1.27	0.006	0.0032
0.375	9.525	0.063	1.6002	0.008	0.004
0.375	9.525	0.083	2.1082	0.01	0.0053
0.375	9.525	0.1	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	0.2	5.08	0.025	0.0127
0.375	9.525	0.25	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	0.5	12.7	0.063	0.0318
0.375	9.525	1.0	25.4	0.127	0.0635
0.625	15.875	0.1	2.54	0.012	0.006
0.625	15.875	0.125	3.175	0.015	0.0075
0.625	15.875	0.2	5.08	0.025	0.0125
0.625	15.875	0.25	6.35	0.031	0.0155
0.625	15.875	1.0	25.4	0.127	0.0635

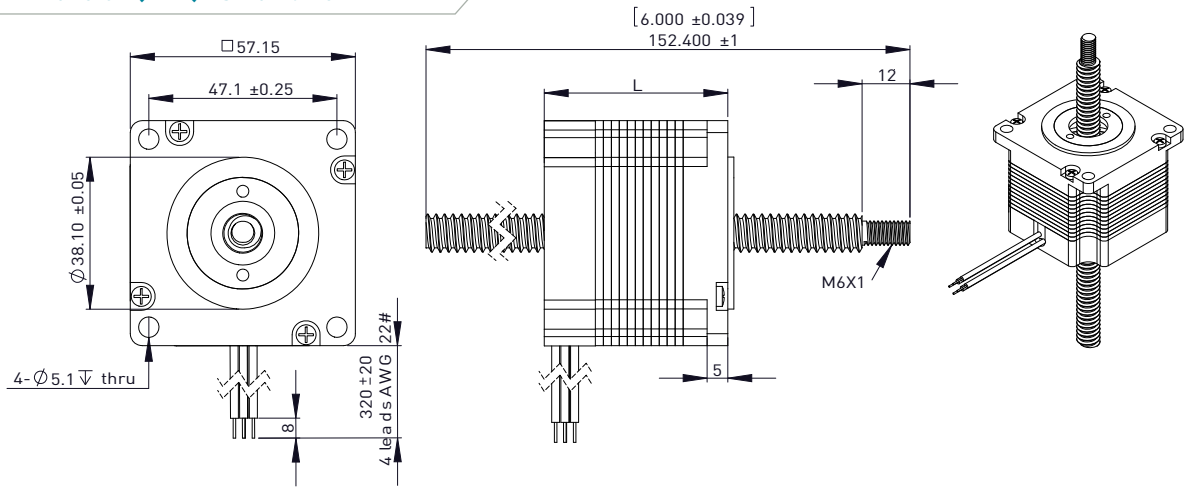
Note: All above screws can be used on external drive style.
Non captive style can only select dia. 9.525 mm screws.
15.875 DIA screws only for External shafts.

* values truncated

Note: All drawings are First Angle Projection – ISO Standard

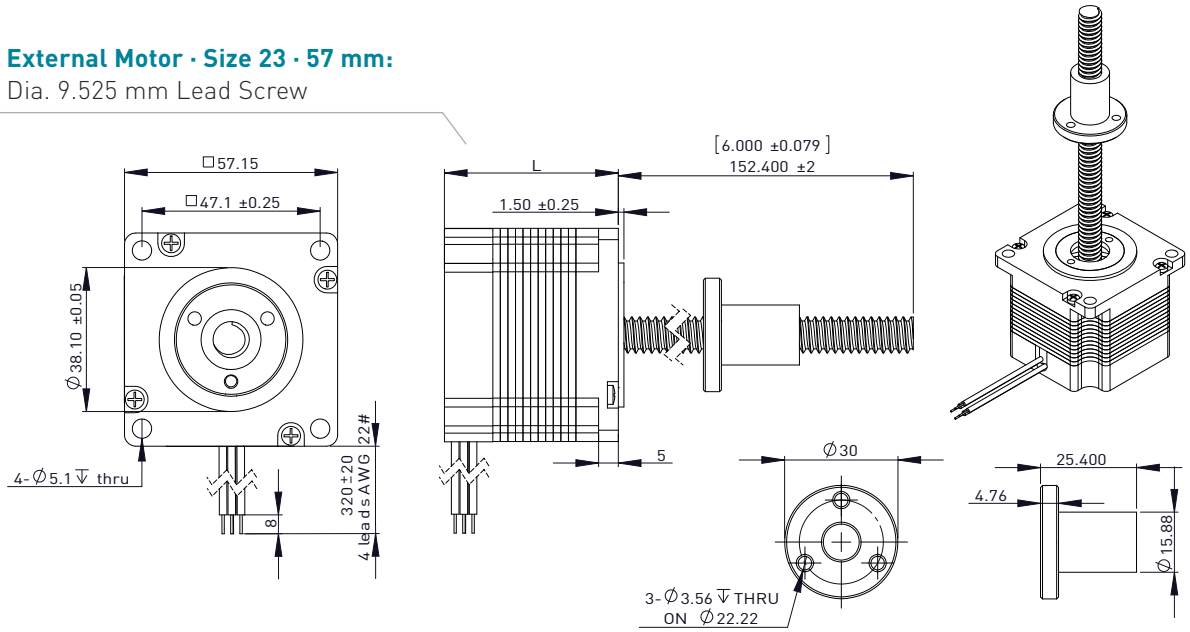
Solid Works 3D models available

Dimension (mm) · Size 23 · 57 mm:

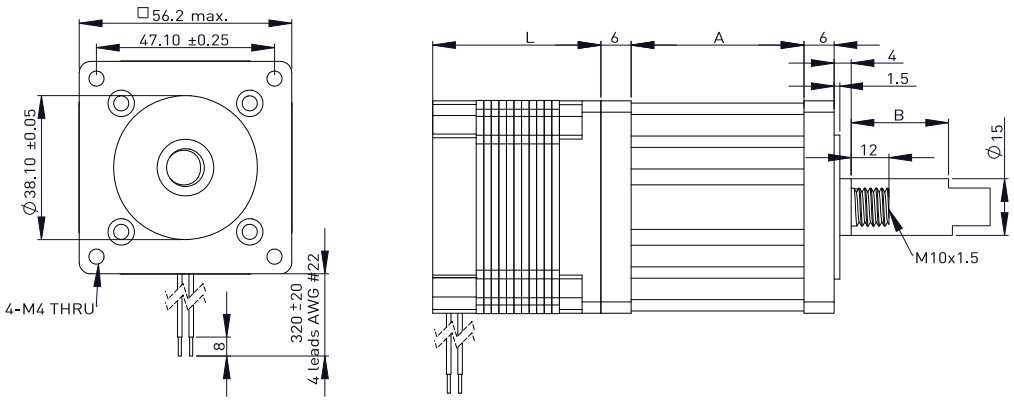


External Motor · Size 23 · 57 mm:

Dia. 9.525 mm Lead Screw



Captive Motor · Size 23 · 57 mm:



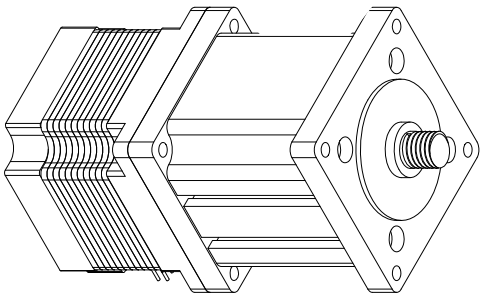
Note: All drawings are First Angle Projection – ISO Standard

Solid Works 3D models available

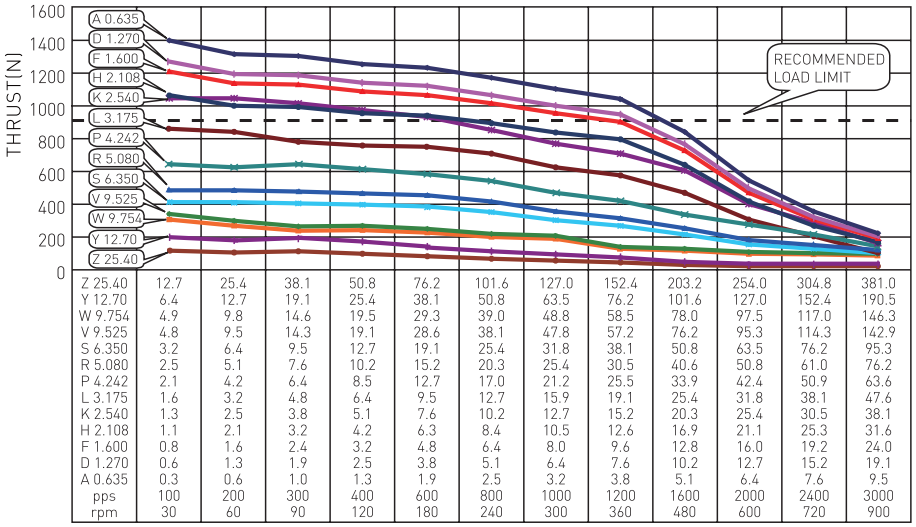
Captive Motor · Size 23 · 57 mm:

Please consult your authorized sales representative for custom products.

Stroke B inch (mm)	Dimension A (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		



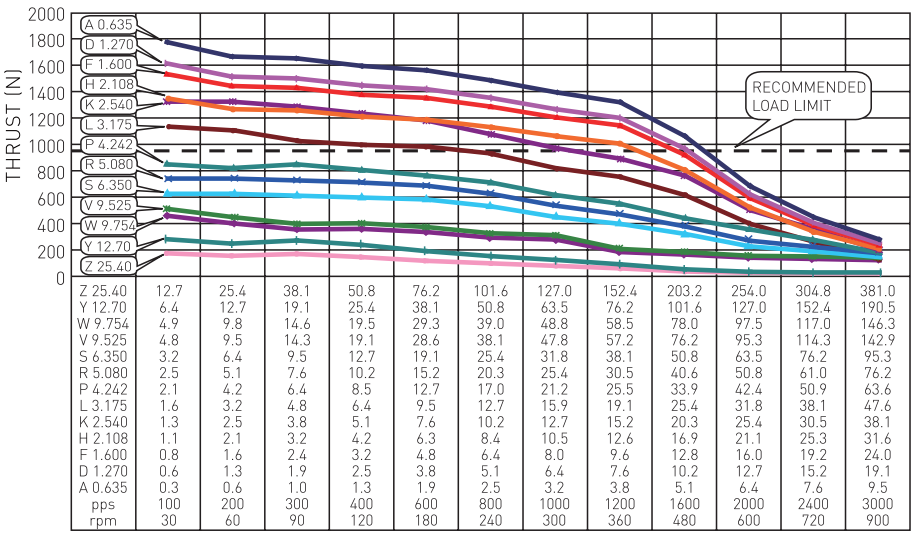
Size 23-2047-100 THRUST CURVE 40 VDC, CHOPPER DRIVER *



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 23-2066-250 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)

* For performance of 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 Characteristics Please consult your authorized sales representative for custom products.

Motor Type	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Lead Wire No.	Motor Length (mm)
34-2080-4-130	12.0	1.3	9.2	71.0	4	80
34-2080-4-300	5.1	3.0	1.7	15.0	4	80
34-2080-4-550	2.85	5.5	0.52	4.5	4	80

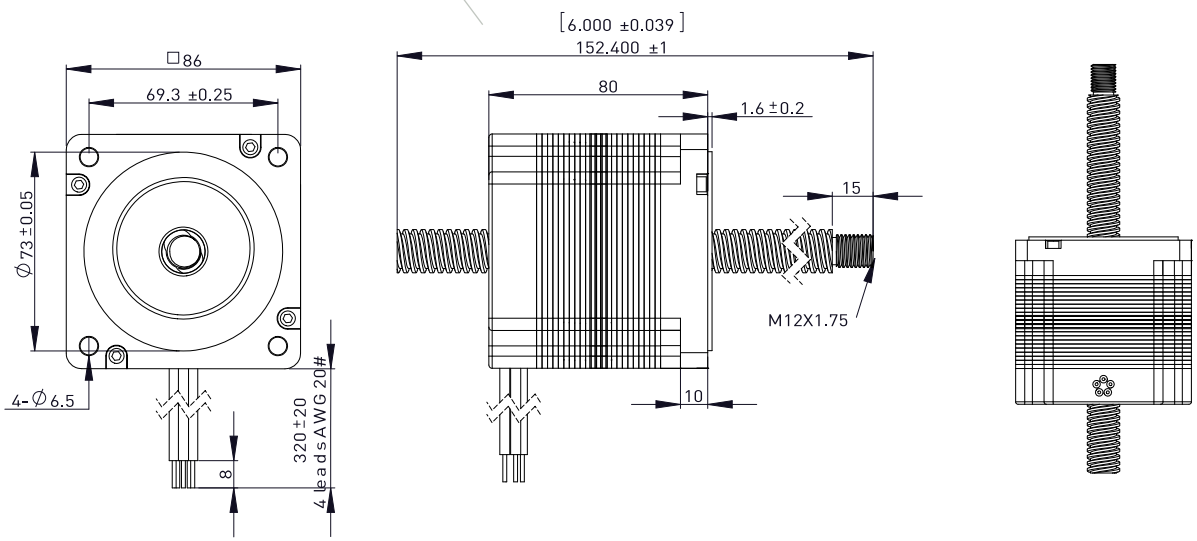
For example 34-2080-4-130: 34 = Nema 34 motor, 2080 = single stack motor, 4 = 4 lead, 130 = 1.3 A

Available Lead Screws and Travel per Step Please consult your authorized sales representative for custom products.

Screw Dia. (inch)	Screw Dia. (mm)	Lead (inch)	Lead (mm)	Travel Per Step @ 1.8 deg (mm)	Travel Per Step @ 0.9 deg (mm)*
0.625	15.875	0.1	2.54	0.012	0.0051
0.625	15.875	0.125	3.175	0.015	0.0064
0.625	15.875	0.2	5.08	0.025	0.0102
0.625	15.875	0.25	6.35	0.031	0.0127
0.625	15.875	0.5	12.7	0.0635	0.03175
0.625	15.875	1.0	25.4	0.127	0.0508

* values truncated

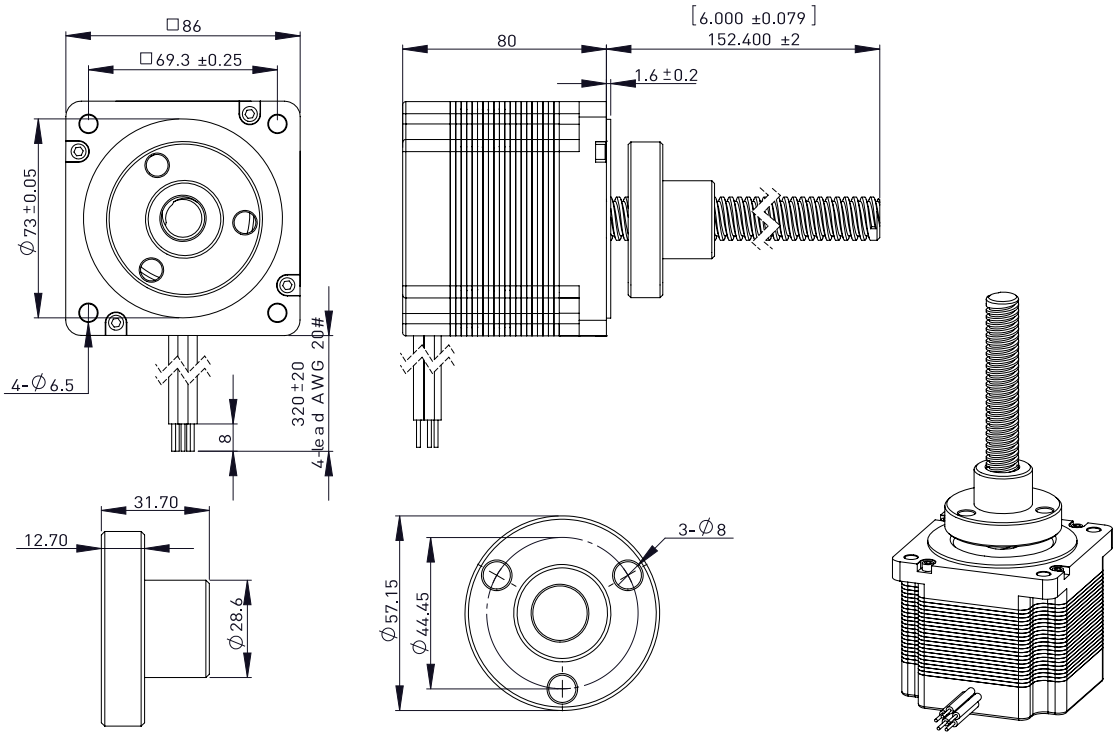
Dimension (mm) · Size 34 · 86 mm:
Non Captive Motor



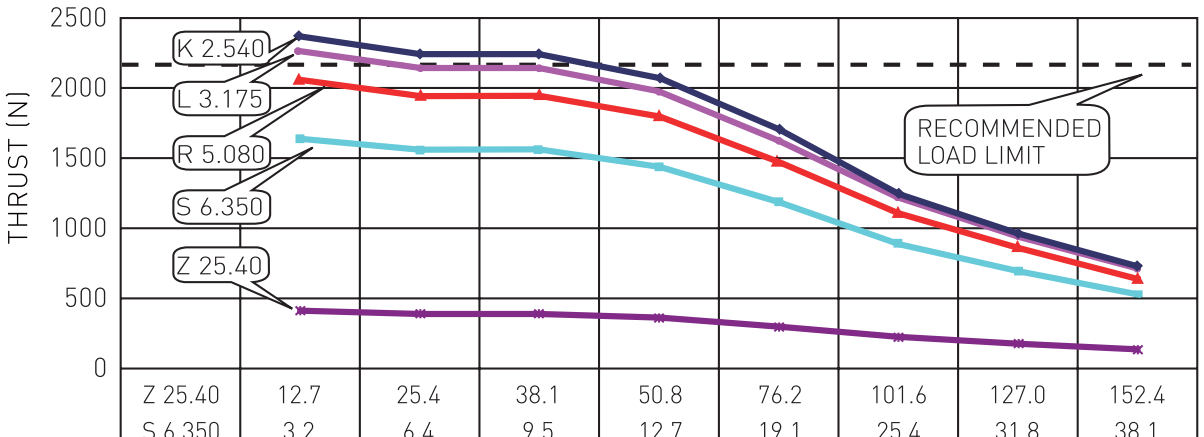
Note: All drawings are First Angle Projection – ISO Standard

Solid Works 3D models available

External Motor · Size 34 · 86 mm:



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)

* For performance of other motor windings, please consult your local representative.

Lead Screw only Specification

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

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① L = Leadscrew Assembly

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

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

④ Direction of Thread
R = Right hand thread
L = Left hand thread
B = Right and Left (Non-Captive version only)
C = Custom

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)
15 = 15.875 mm (Nema Size 34 motor)

⑥ Lead Code (Travel per Rev and Full Step)
Reference motor lead screw code schedule (page 13)

⑦ Lead Screw Length
0 150 = 150 mm

⑧ End Machining Option (Customs available)
A = Metric (see page 12)
B = UNC (see page 12)
S = Smooth (wsee page 12)
N = None

⑨ Reserved for custom version (001 is default)

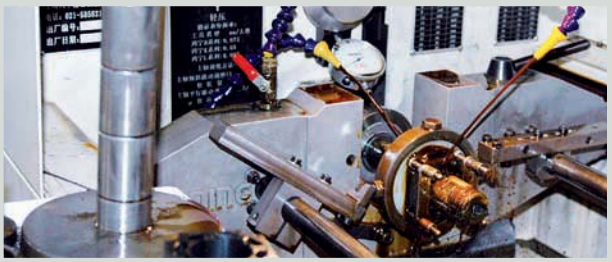
Screw End Machining Reference Page 12 for options

Note: Unless specified differently all screws are as follows:
1. Right hand screw threads
2. Standard lubrication on leadscrew
3. No teflon coating

Custom Leadscrew and Motor specifications welcome






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 an 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

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