DINGS

GENERAL CATALOG

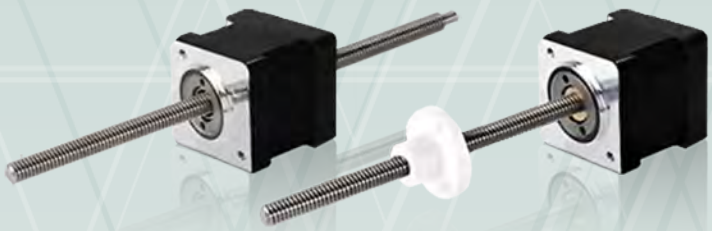
DINGS'

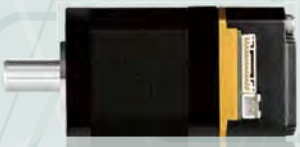
Precision Motion Specialist

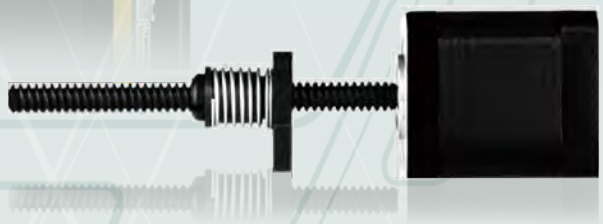
GENERAL CATALOG

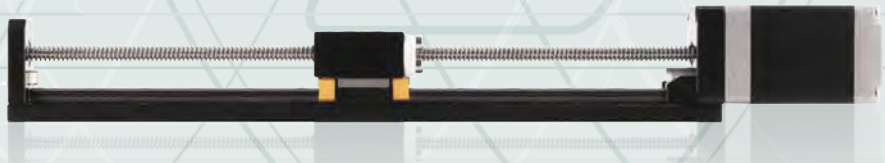
PRODUCTS 2022

- Stepper Lead Screw Linear Actuator
- Stepper Ball ScrewLinear Actuator
- PM Stepper Linear Actuator
- Hybrid Rotary Stepper Motor
- Hollow Shaft Stepper Motor
- Brushless DC Motor
- Slotless Brushless DC Motor
- DLM Series
- Gripper
- Voice Coil Motor
- Motion Controller
- Customization Options









2022
2023

ver.4.2

Jiangsu DINGS' Intelligent Control Technology Co., Ltd.

DINGS
Precision Motion Specialist



Welcome to
Jiangsu DINGS' Intelligent Control Technology Co., Ltd.

Since its establishment in 2008, DINGS' has provided precision stepper motor and Brushless DC motor based precision motion control products with excellent capabilities in the industry, offering quality electromechanical solutions for a global market with business philosophy, "Quality comes from responsibility, details determine success or failure".
DINGS' products are widely used in medical diagnostic equipment, life science instruments, laboratory automation, robotics, fluid control, semiconductor and precision electronics production equipment, and various industrial automation equipment.

DINGS' is headquartered in Changzhou Jiangsu, China, with branches in California, USA and South Korea, and technical service center in Germany.

DINGS' adopts the ISO9001 quality system, with products being fully RoHS compliant.

Please visit to our website.

www.dingsmotion.com

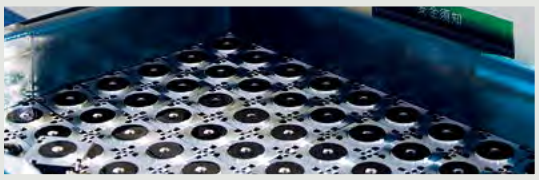
Or contact DINGS' local sales representative and technical support for additional information.

LLOYD'S REGISTER QUALITY ASSURANCE · ISO9001
UKAS MANAGEMENT SYSTEMS 001

CE

RoHS compliant




Product Warranty Statement

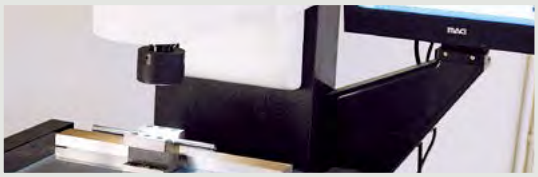
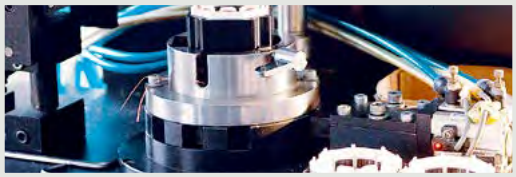
DINGS' provides product quality certificates during shipping, and customers are to inspect product according to technical drawings and/or related requirements.

DINGS's product warranty period is 2 years, calculated from delivery date, and customers are to refer to the product manual for proper storage and usage of the product.

During the service life or warranty period, if our products are damaged or do not work properly due to quality problems, DINGS' provides no-charge repairs.

The following conditions do not belong to the scope of free maintenance:

1. When the validity period has been exceeded (In the case of loss of nameplate or artificial damage, it is considered to have exceeded the validity period)
2. Damage caused by improper usage
3. Man-made dismantling
4. Products that have been disassembled or repaired, but not by a DINGS' accredited representative
5. Failure caused by irresistible factors such as natural disasters

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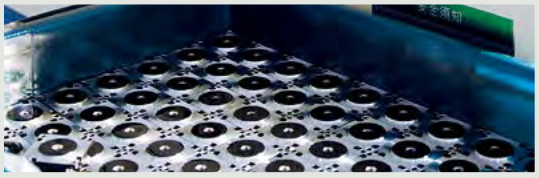
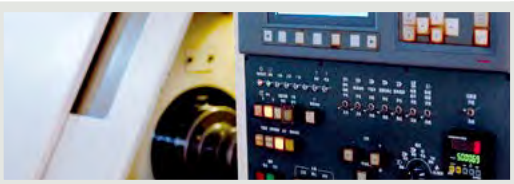
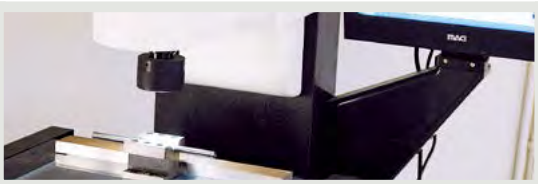
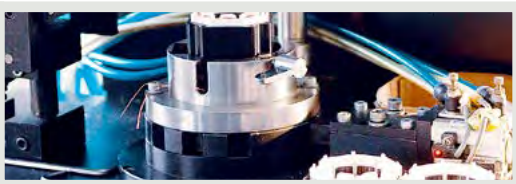






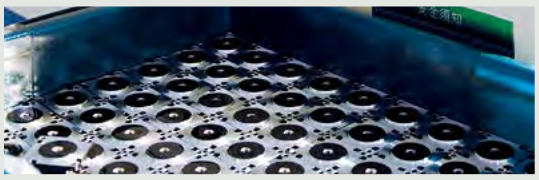
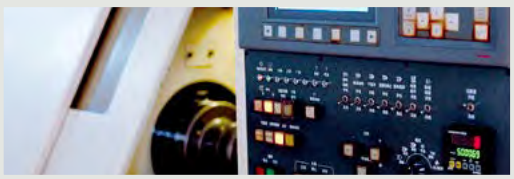
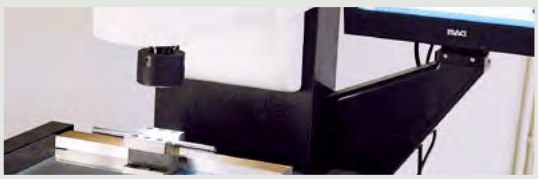
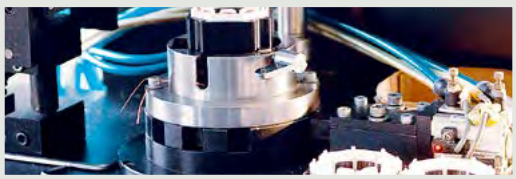




TABLE OF CONTENTS

A Lead Screw Linear Actuator

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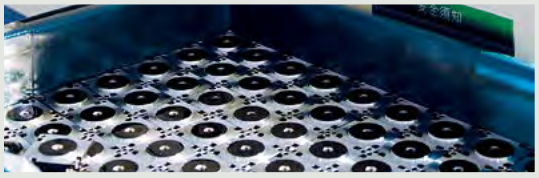
B Hybrid Rotary Stepper Motor

C Hollow Shaft Stepper Motor

D Brushless DC Motor



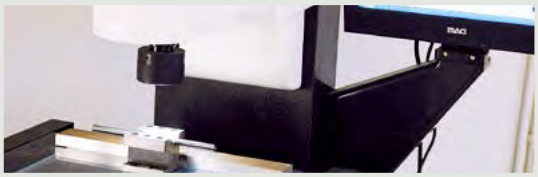
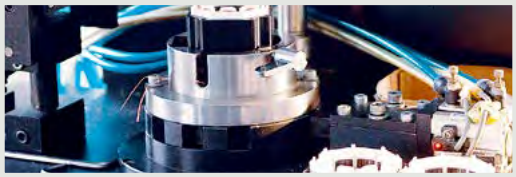

E Slotless Brushless DC Motor

F DLM Series

G Gripper

H Voice Coil Motor

I Motion Controller

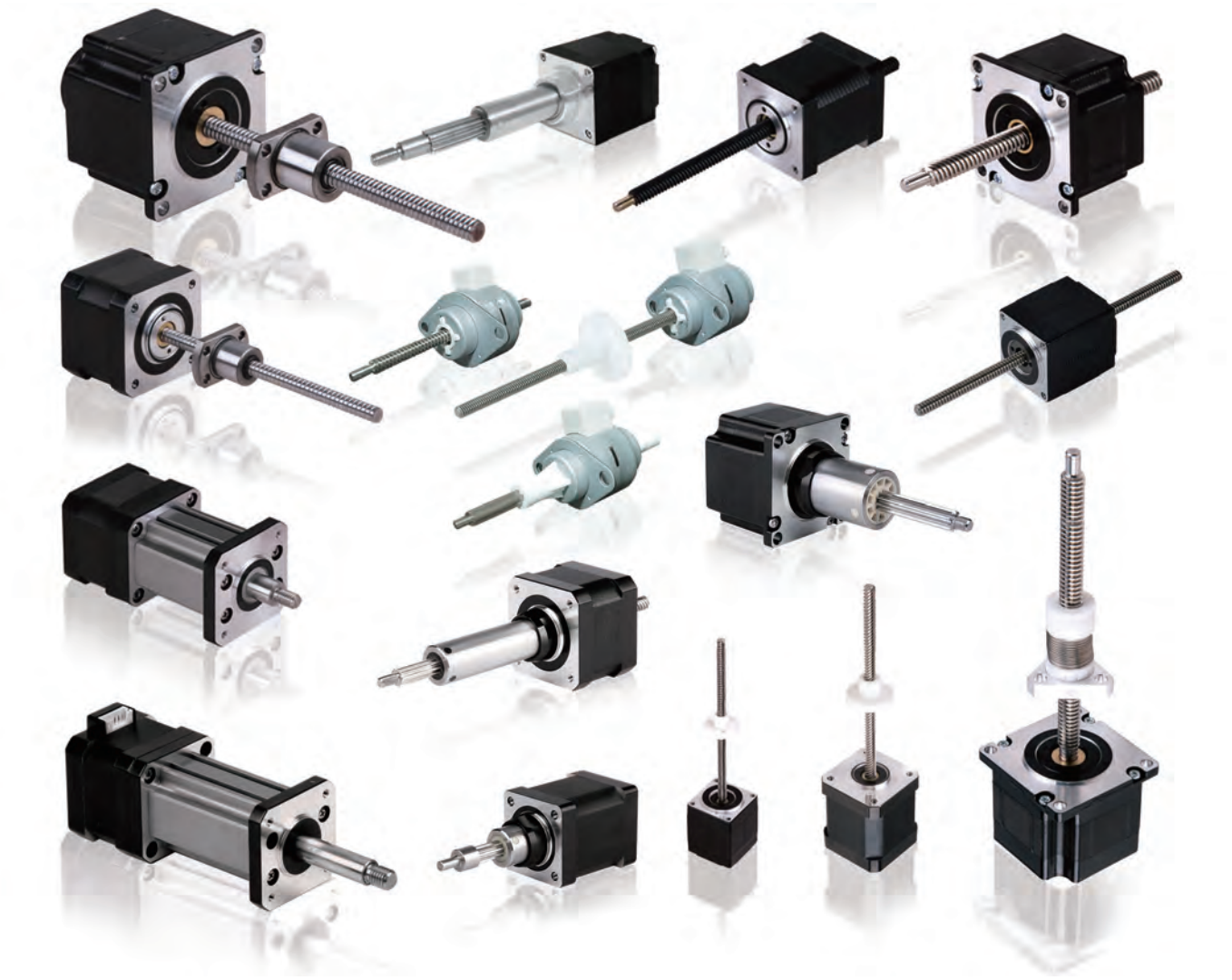




A Lead Screw Linear Actuator

DINGS' offers a unique line of Lead Screw Linear Actuators that open new avenues for equipment designers that require high performance and endurance in a small package.

The various products convert the rotational movement of a stepper motor to linear motion, with the use of a lead screw and an engineered thermoplastic nut (Delrin). This allows linear actuators to provide quiet, efficient, durable and cost effective linear motion solutions.

These linear actuators are ideal for applications that require a combination of precise positioning, rapid motion and long life. The available stroke length is within 1000mm, minimum travel step resolution 0.0015mm, max thrust can over than 240kgs. Typical applications include X-Y tables, medical equipment, semiconductor handling, telecommunications equipment, valve control, and numerous other uses. Variety of customizations are available upon request, such as screw length, custom designed nuts, anti-backlash nut, safety brake, encoder and others.

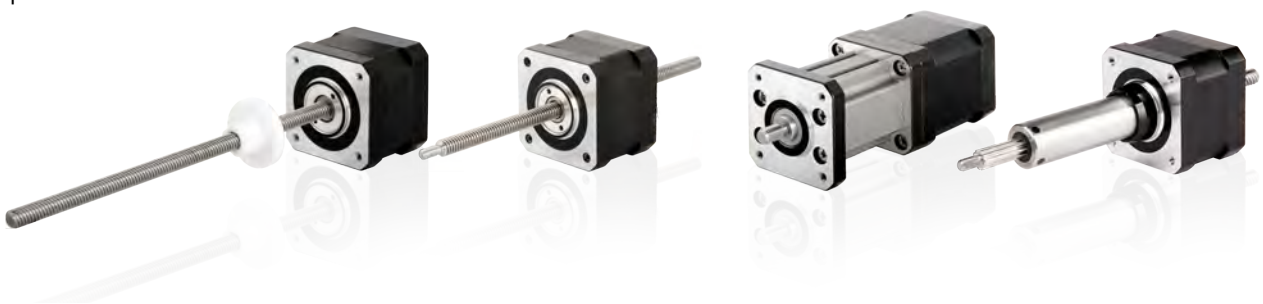


Stepper Lead Screw Linear Actuator

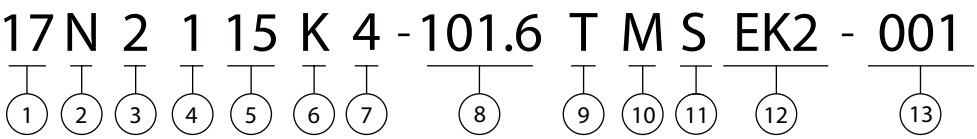
DINGS' Stepper Lead Screw Linear Actuators come in eight sizes, ranging from a square frame 14 mm (NEMA 6) to 86 mm (NEMA 34).

There are four form factors available – External, Non-Captive, Electric Cylinder (Captive) and Kaptive.

DINGS' provides over 20 different travels/step of lead screws ranging from 0.00006 inch [.0015mm] to 0.005 inch [.127mm]. Micro-stepping can be used for finer resolution and various step motor angle options are available. Max. 2,400N linear thrust force can be generated and brake / teflon coating / encoder / manual knob options also can be chosen.



Part Number Construction



(1) Motor Size

CODE	6	8	11	14	17	23	24	34
MOTOR SIZE (mm)	14	20	28	35	42	57	60	86

(2) Linear Actuator Type
- E = External Linear Actuator
- N = Non-captive Linear Actuator
- C = Electric Cylinder (Captive) Linear Actuator
- K = Kaptive Linear Actuator

(3) Step Angle
- 2 = 2 Phase with 1.8°
- 4 = 2 Phase with 0.9°
- 3 = 3 Phase with 1.2°
- 5 = 5 Phase with 0.72°

(4) Motor Length / Stack
- 1 = Single Stack
- 2 = Double Stack

(5) Rated Current/Phase
- XX = X.X (A)/Phase

(6) Lead Screw Code

(7) Number of Lead Wires
- 4 = 4 Flying Leads
- 6 = 6 Flying Leads
- 8 = 8 Flying Leads

(8) Lead Screw Length / Stroke
- XXX = XXX mm Lead screw length [For External Linear / Non-Captive Linear]
- XXX = X.XX inch Stroke [For Electric Cylinder (Captive) / Kaptive Linear]

(9) Lead Screw Surface Treatment
- T = Teflon Coating
- S = Standard (No Teflon Coating)

Note : For small pitch lead screw, Teflon coating is not recommended. (If screw pitch is less than 1mm)

(10) End Machining
- M = Metric
- U = UNC
- S = Smooth
- C = Customize
- N = None

(11) Nut Style
- S = Standard Flange Nut
- A = Anti-Backlash Nut
- C = Customized Nut

(12) Encoder Option
- EKX, KPLX = Encoder [XX = Encoder Code]
- P = Manual Knob
- B = Brake
- X = Rear Shaft
- R = Encoder Ready (Hole and Shaft)
- C = Customize
- N = None

(13) Customer Sequence Number

EXAMPLE

Part Number	17N2115K4-101.6TMSEK22
Description	NEMA 17 Non-captive Linear Actuator 2 Phase with 1.8 Degree Step Angle Single Stack 1.5A/Phase “K” Lead (0.1”/2.54mm lead) 4 Flying Leads Screw Length: 101.6mm Teflon Coated Screw Metric End Machining Standard Nut EK2 Encoder with Single Output, 192 lines

Lead Screw Code Selection

Lead Code	1.8 Degree Motor Travel per Step inch (mm)	Motor Size (mm)							
		14/20	28		35/42		57/60		86
		Screw Dia. inch (mm)							
		Φ3.5	Φ4.77	Φ5.56	Φ6.35	Φ8	Φ9.525	Φ10	Φ15.875
		(0.138")	(0.188")	(0.218")	(0.25")	(0.315")	(0.375")	(0.394")	(0.625")
AL	0.000063″ (0.001588)		0.0125″ (0.3175)						
AA	0.00012″ (0.003048)	0.024″ (0.6096)			0.024″ (0.6096)				
A	0.000125″ (0.003175)		0.025″ (0.635)				0.025″ (0.635)		
B	0.00024″ (0.006096)	0.048″ (1.2192)			0.048″ (1.2192)				
D	0.00025″ (0.00635)		0.05″ (1.27)		0.05″ (1.27)		0.05″ (1.27)		
F	0.0003125″ (0.0079375)				0.0625″ (1.5875)		0.0625″ (1.5875)		
H	0.000415″ (0.010583)						0.083″ (2.1167)		
J	0.00048″ (0.012192)			0.096″ (2.4384)	0.096″ (2.4384)				
K	0.0005″ (0.0127)		0.1″ (2.54)		0.1″ (2.54)		0.1″ (2.54)		0.1″ (2.54)
L	0.000625″ (0.015875)				0.125″ (3.175)		0.125″ (3.175)		0.125″ (3.175)
P	0.000835″ (0.021167)						0.167″ (4.2333)		
Q	0.00096″ (0.024384)			0.192″ (4.8768)	0.192″ (4.8768)				
R	0.001″ (0.0254)		0.2″ (5.08)		0.2″ (5.08)		0.2″ (5.08)		0.2″ (5.08)
S	0.00125″ (0.03175)				0.25″ (6.35)		0.25″ (6.35)		0.25″ (6.35)
U	0.0016665″ (0.042333)				0.3333″ (8.4667)				
V	0.001875″ (0.047625)						0.375″ (9.525)		
W	0.00192″ (0.048768)				0.384″ (9.7536)		0.384″ (9.7536)		
X	0.002″ (0.0508)		0.4″ (10.16)				0.4″ (10.16)		
Y	0.0025″ (0.0635)				0.5″ (12.7)		0.5″ (12.7)		0.5″ (12.7)
Z	0.005″ (0.127)				1.0″ (25.4)		1.0″ (25.4)		1.0″ (25.4)
AF	0.000059″ (0.0015)	0.0118″ (0.3)							
AB	0.000197″ (0.005)	0.0394″ (1.0)			0.0394″ (1.0)				
G	0.000394″ (0.01)	0.0787″ (2.0)				0.0787″ (2.0)		0.0787″ (2.0)	
M	0.000787″ (0.02)	0.1575″ (4.0)				0.1575″ (4.0)			
T	0.001575″ (0.04)	0.3150″ (8.0)				0.3150″ (8.0)			

Product Selection Guide

To reduce complexity and cost of a design, it is important to accurately size a motor/lead screw combination. Belows are a few simple steps in selecting the necessary compotents for a given application.

STEP 1 –CHOOSING A MOTOR SIZE (FORCE REQUIREMENTS)

Here is a general overview of the output thrust vs. motor size:

	Motor Sizes (mm)	Max Thrust (N)	Recommended Load Limit (N)
Lead Screw Linear Actuators	14	19	15
	20	70	45
	28	150	140
	35	300	230
	42	600	230
	57	1300	910
	60	1560	910
	86	2400	2270

STEP 2 – CHOOSING A SCREW LEAD (FORCE AND SPEED REQUIREMENTS)

After estimating the required thrust and choosing a motor size that may fit your application, the speed and acceleration of the load must be considered and evaluated to choose an appropriate screw lead.

Due to the nature of lead screws, the output speed and output thrust achievable by a motor/lead screw combination are two proportional. (i.e.,increasing the required thrust will lower the achievable speed for a motor/lead screw combination). Therefore, the maximum output force of a system is lowered for applications that requires higher speed.

For complete motor/lead screw selection data, please refer to the speed vs thrust curves for each motor size.

Although these two steps provide a solid foundation in motor/lead screw selection, other variables must also be considered:

- Duty Cycle
- Desired Life of a System
- Environmental Considerations
- Positional Repeatability
- Acceptable Backlash
- Acceleration/Deceleration
- Driver Specifications
- Vertical or Horizontal

Because of the numerous variables involved in motor selection, it is highly recommended for users to proceed with physical testing to accurately determine the motor/lead screw combination required for a given application.

NOTE : Although this section aims to provide a rough guide line to select a motor/lead screw combination that best fits an application, we recommend to contact our application engineering staff or sales representatives for further assistance with the motor selection process.

FOR MORE INFOMATION, CONTACT YOUR LOCAL DINGS' REPRESENTATIVE (www.dingsmotion.com)

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.

Some basic design consideration are as follows:

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

A. External Linear B. Non-captive

C. Electric Cylinder (Captive) D. Kaptive

TERMINOLOGY

LINEAR ACTUATOR TYPES

LEAD

Lead is the axial distance the nut advances on one revolution of the screw. Throughout this catalog, lead will be the term used for revolution a screw as it is the linear distance traveled for one revolution of the screw. The larger the lead, the more linear distance traveled per one revolution of the screw. Lead = Pitch x screw start.

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.

ACCURACY OF SCREW

Specified as a measurement over a given length of the screw. For example: 0.004 inch per foot. Lead accuracy is the difference between the actual distance traveled versus the theoretical distance traveled 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.

POSITION TOLERANCE

The approach value between actual distance traveled vs theoretical distance traveled.

REPEATABILITY

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.

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 application also have an additional gravity factor that must be part of the load/force calculation.

TOTAL INDICATED RUNOUT

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

VIBRATION AND NOISE

The hybrid stepper motor's resonance will be occurred when pulse is up to 200PPS. Try starting your acceleration ramp at above these levels. Micro-stepping will also help through these ranges.

Technology Overview

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

- **DRIVER**
  Stepper motors require some external electrical components in order to run. These components typically include a power supply, logic sequencer, switching components and a clock pulse source to determine the step rate. Many commercially available drives have integrated these components into a complete package. Some basic drive units have only the final power stage without the controller electronics to generate the proper step sequencing.

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

- **HOLDING TORQUE**
  When motor is static and rated current is applied to two phase, the stator's holding ability to the rotor.

- **ROTOR INERTIA**
  Moment matters when accelerate or decelerate.

- **TRAVEL PER STEP**
  The linear travel movement of one full step of the motor.

- **TEMPERATURE RISING**
  Motor body's temperature rising after certain periods running and heat exchange with the ambient.

- **RESPONSE PER STEP**
  Times takes to complete one step.

- **STEP**
  Characteristics of stepper motor that the rotor moves step by step as the stator commutates phase by phase.

- **STEP ANGLE**
  Angular movement of every step.

- **PULL OUT TORQUE**
  Under certain drive condition (frequency and current), the max load that the motor can drag until missing step.

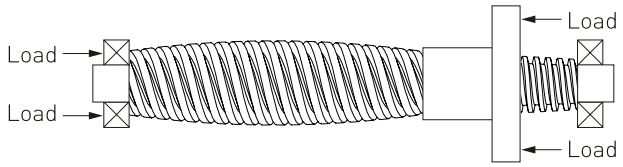
- **PULL IN TORQUE**
  When couples and accelerates, the max load torque (including frictions) that the motor can bear and start.

- **EFFICIENCY**
  The ability of a mechanical system to translate an input to an equal output.

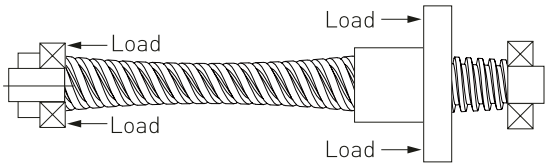
- **RESOLUTION**
  Incremental linear distance the actuator's (motor) output shaft will move per input pulse.

- **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.



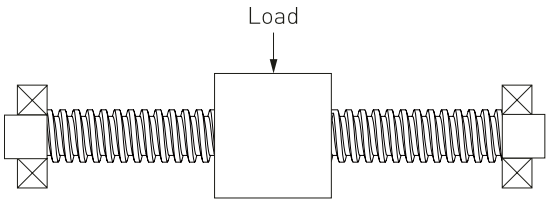
Compression Loading



Tension Loading

- **RADIAL LOAD**

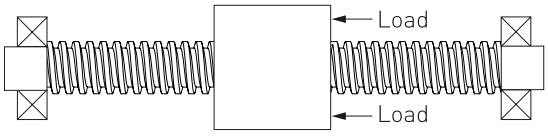
  A load perpendicular to the screw.
  This is not recommended unless additional mechanical support such as a linear guide is used.



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 is more prone to backdriving due to gravity.

- **TORQUE**

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

  1. Inertia Torque
  2. Drag Torque (friction of the nut and screw in motion)
  3. Torque to move load

- **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

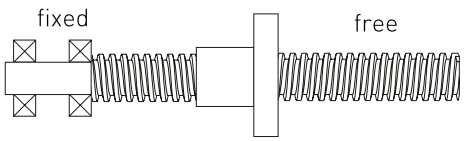
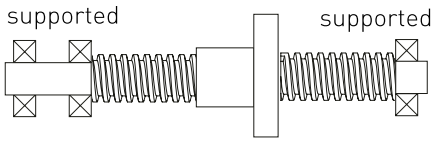
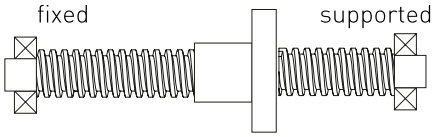
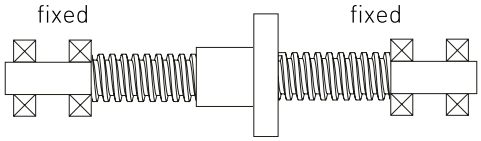
- **END MACHINING OF THE SCREW (Please refer to A-49)**

  Standard metric or English option are available. Custom end machining specifications are also available on request.
  Please contact your local DINGS' representative.

Technology Overview

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 Regidity	Critical Speed Factor	Critical Load Factor
	Less Rigid	0.32	0.25
	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 exceeded and the screw will fail due to bending or buckling.

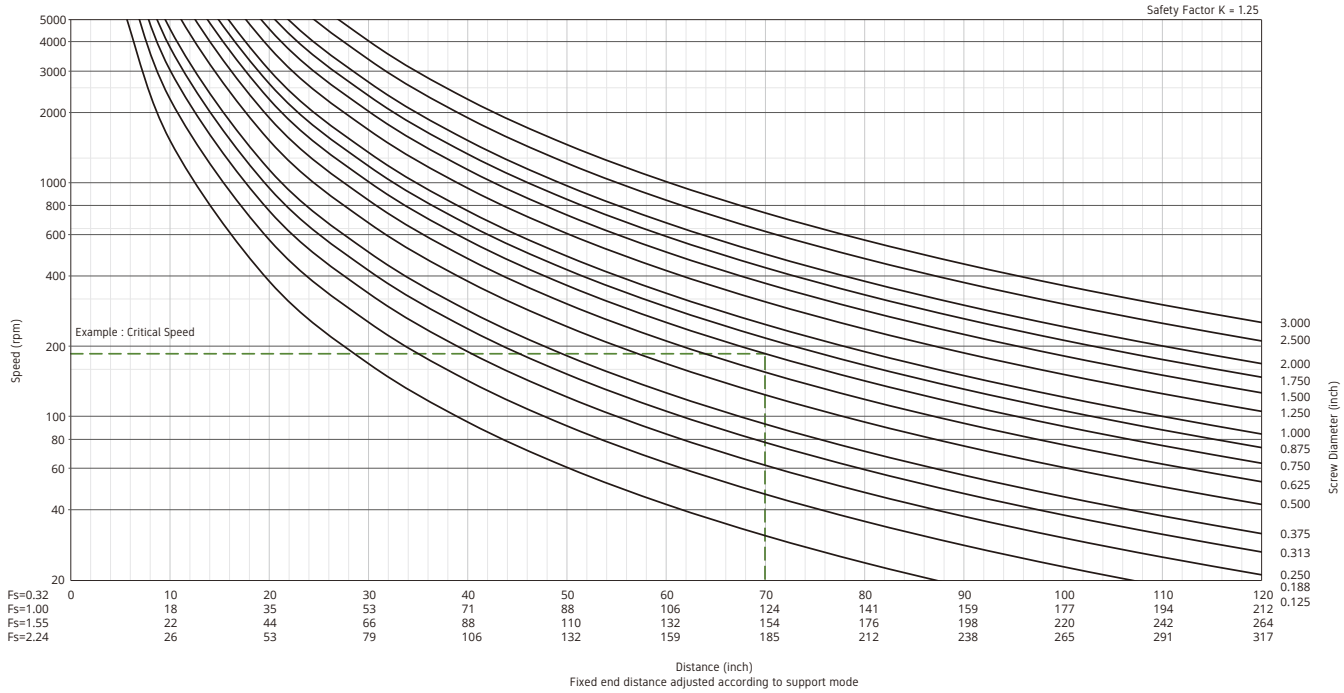
CRITICAL SPEED

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 how quickly the system will reach critical speed:

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

An example in the figure, it shows the screw rod with a diameter of 19.05mm (0.75inch) and a length of 1778mm (70inch) has a safety factor of K = 1.25,
And under the fixed mode of FS = 0.32, the critical speed is 187rpm

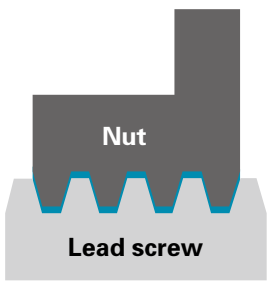
CRITICAL ROTATION SPEED (RPM) VS. UNSUPPORTED SCREW LENGTH FOR VARIOUS SCREW DIAMETERS (INCH)



BACKLASH

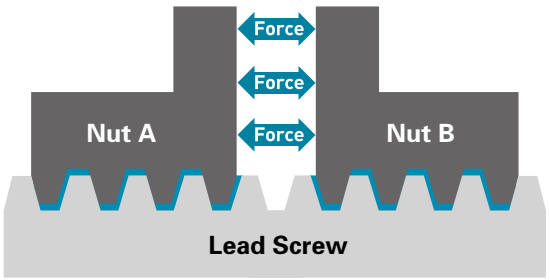
Backlash is the relative axial movement between a screw and nut at standstill. It is normal for backlash to increase with wear over time. Backlash compensation or correction can be accomplished through the application or an anti-backlash nut. Backlash is usually only a concern with bi-directional positioning.

Standard Nut



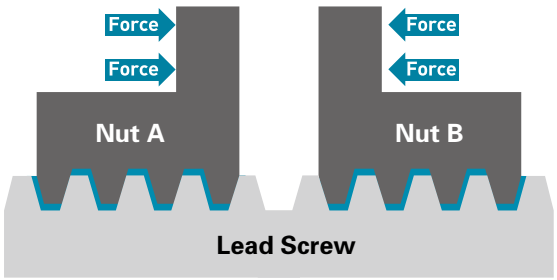
BACKLASH IN BLUE

Tension Anti-Backlash Nut



BACKLASH IN BLUE

Compression Anti-Backlash Nut

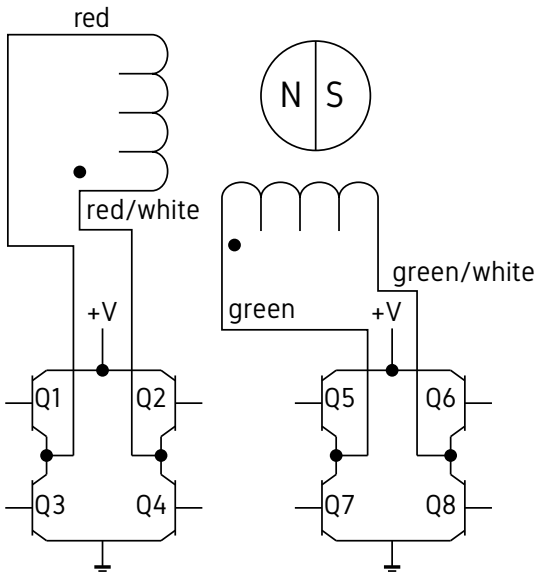


BACKLASH IN BLUE

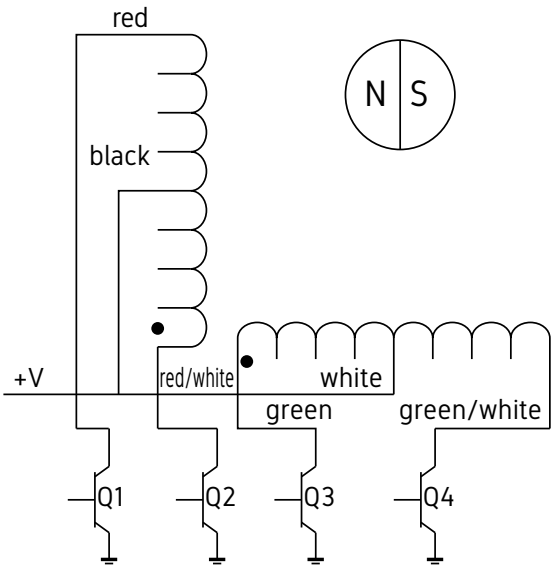
Technology Overview

STEPPING SEQUENCE

BIPOLAR



UNIPOLAR



Bipolar	Q2-Q3	Q1-Q4	Q6-Q7	Q5-Q8
Unipolar	Q1	Q2	Q3	Q4
Step				
1	ON	Off	ON	Off
2	Off	ON	ON	Off
3	Off	ON	Off	ON
4	ON	Off	Off	ON
5	ON	Off	ON	Off

←extend CW

→retract CCW →

General Specifications

All reference to lead screws in this catalog have the following characterisitics

Lead Screw Material	303 Stainless precision cold rolled steel
Screw Coating	Standard lead screws are coated with a thin layer of grease. Teflon coating is optional.
Standard Screw Accuracy (Lead Accuracy)	0.0071 inch/foot (0.18mm/300mm)
Screw Straightnes	0.15mm/300 mm
Screw Efficiency	From 35% to 85% dependent on lead. Also depends on the usage of an anti backlash nut with screw. The larger lead, higher efficiency of the screw.
Operating Temperature	-20°C to 50°C
Storage Temperature	-20°C to 100°C , keep in dry : humidity less than 75%, clean without corrosion
Screw Backlash	Generally around 0.01~0.1mm
System Backlash	Includes screw, motor, and attached mechanics. This will be the sum of all backlash in customer's motion axis.
Nut Material	POM/PBT with Self-Lubricating material.
Wear Life of Screw and Nut	Depending on the load, speed, and environment, it is typically millions of cycles.

NOTE: DINGS' linear system 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.

FOR MORE INFOMATION, CONTACT YOUR LOCAL
DINGS' REPRESENTATIVE (SEE THE BACK COVER)

Size 6 (14mm) Series

Size 6 [14mm] Stepper Lead Screw Linear Actuator occupies a mounting footprint of 14mm square and provides 19N of Max. thrust force.

Motor Characteristics

Motor	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Weight (g)	Lead Wire No.	Motor Length (mm)
6-2103	6.6	0.3	22	3.6	50	4	30

Note : Motor Insulation Class B, Motor Temperature Rise 80°C, Ambient Temperature -20°C~50°C

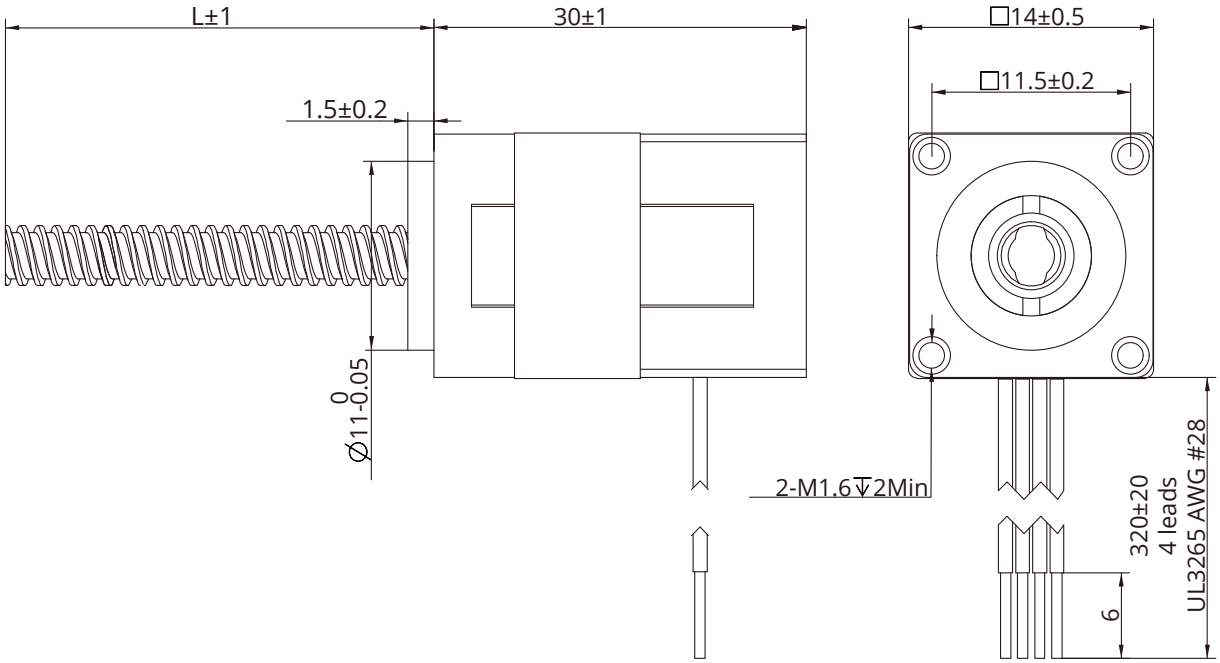
Available Lead Screw and Travel per Step

Screw Dia. (inch)	Screw Dia. (mm)	Lead (inch)	Lead (mm)	Lead Code	Travel Per Step @ 1.8 ° (mm)*
0.138	3.5	0.0118	0.3	AF	0.0015
0.138	3.5	0.024	0.6096	AA	0.003048
0.138	3.24	0.0394	1	AB	0.005
0.138	3.5	0.048	1.2192	B	0.006096
0.138	3.5	0.0787	2	G	0.01
0.138	3.5	0.1575	4	M	0.02
0.138	3.5	0.315	8	T	0.04

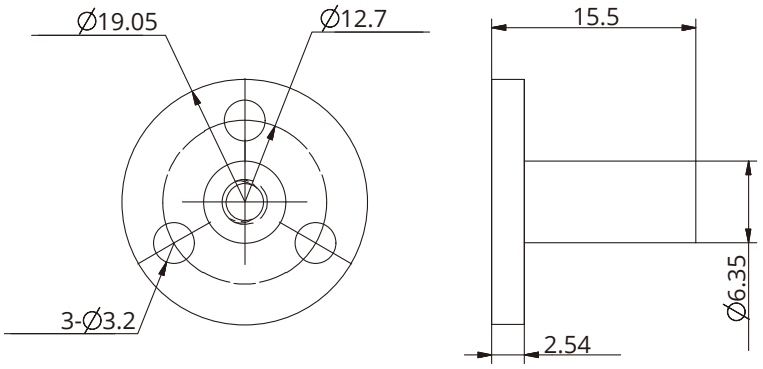
* Motor wiring and screw lead could be customized according to customer's request

* Value Truncated

Dimensional Drawings



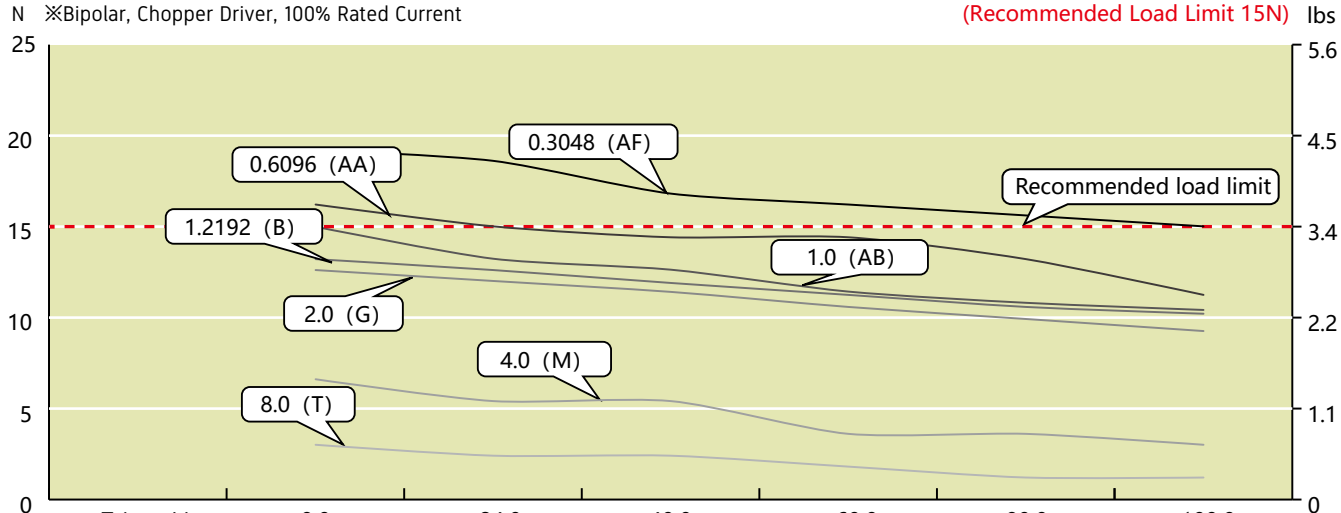
Note : All drawings are 1st Angle Projection - ISO Compliant (3D models available)



Nut Dimension

Speed Thrust Curves

Size 6 Single Stack Speed Thrust Curves



T (mm/s)	8.0	24.0	40.0	60.0	80.0	100.0
M (mm/s)	4.0	12.0	20.0	30.0	40.0	50.0
G (mm/s)	2.0	6.0	10.0	15.0	20.0	25.0
B (mm/s)	1.2	3.7	6.1	9.1	12.2	15.2
AA (mm/s)	0.6	1.8	3.0	4.6	6.1	7.6
AF (mm/s)	0.3	0.9	1.5	2.3	3.0	3.8
RPM r/min	60	180	360	450	600	750
PPS	200	600	1000	1500	2000	2500

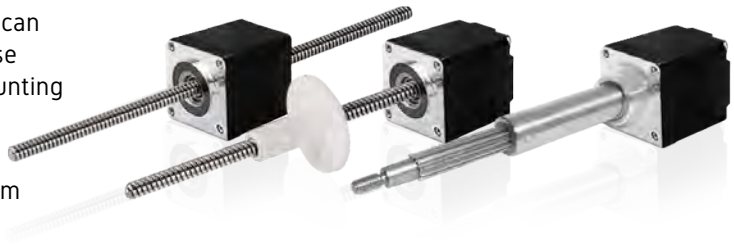
TEST CONDITION

Testing Voltage: 24Vdc, Driver Model: DS-OLS2-FPD bipolar, chopper driver at rated current (rms). Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

Size 8 (20mm) Series

Size 8 [20mm] Stepper Lead Screw Linear Actuator unit can be integrated into various applications to provide precise linear positioning while occupying less than 1 in² of mounting footprint and providing up to 45N of continuous thrust.

Size 8 Stepper Lead Screw Linear Actuator has three form factors available - External, Non-captive and Kaptive.



Motor Characteristics

Motor	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Weight (g)	Lead Wire No.	Motor Length (mm)
8-2105	2.5	0.5	5.1	1.5	51	4	27.2
8-2205	4.4	0.5	8.8	2.7	74	4	38.1

Notes: Motor insulation Class B, Motor temperature rise 80℃, Ambient temperature -20°C~50°C

Available Lead Screw and Travel per Step

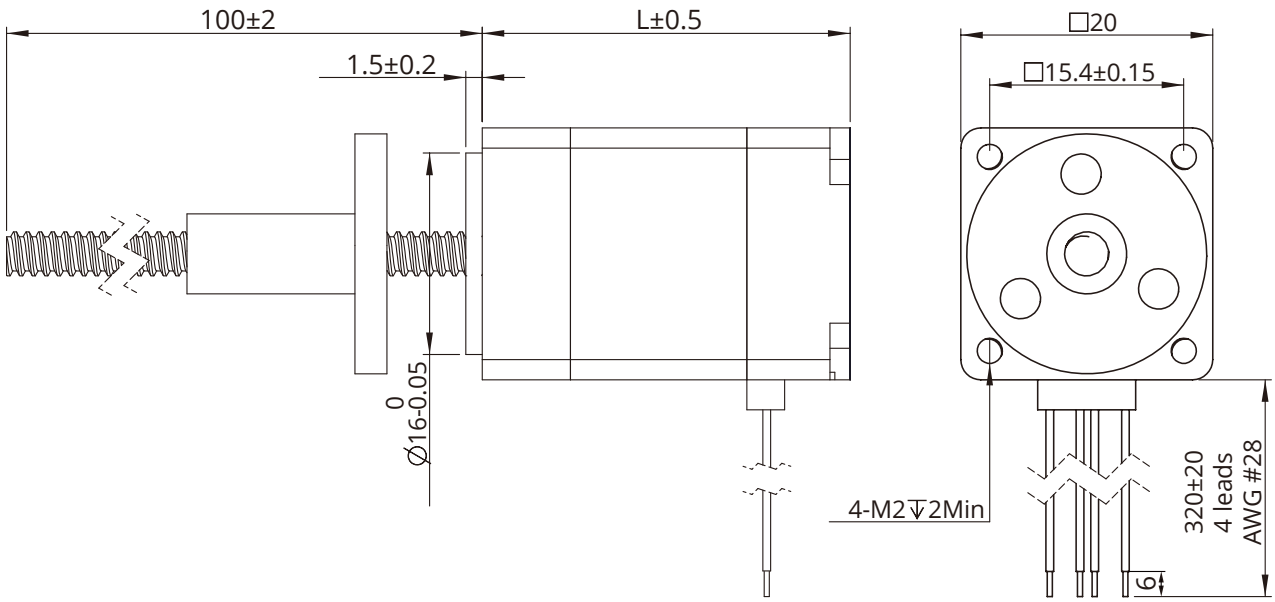
Screw Dia. (inch)	Screw Dia. (mm)	Lead (inch)	Lead (mm)	Lead Code	Travel Per Step @ 1.8 deg (mm)*
0.138	3.5	0.0118	0.3	AF	0.0015
0.138	3.5	0.024	0.6096	AA	0.003048
0.138	3.24	0.0394	1.0	AB	0.005
0.138	3.5	0.048	1.2192	B	0.0061
0.138	3.5	0.0787	2.0	G	0.01
0.138	3.5	0.1575	4.0	M	0.02
0.138	3.5	0.315	8.0	T	0.04

*Motor wiring and screw lead could be customized according to customer's request

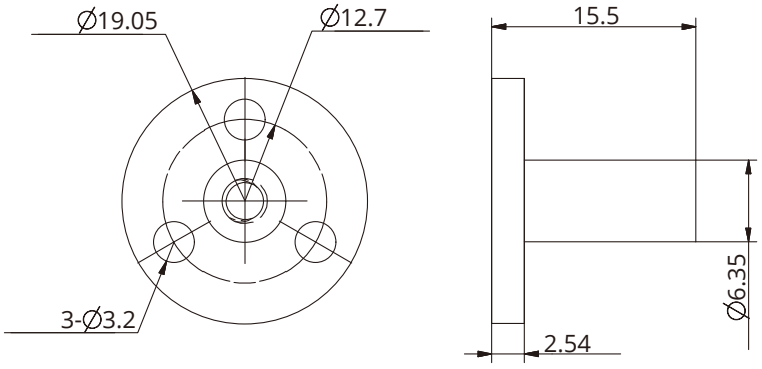
*Value truncated

Dimensional Drawings

External Actuator

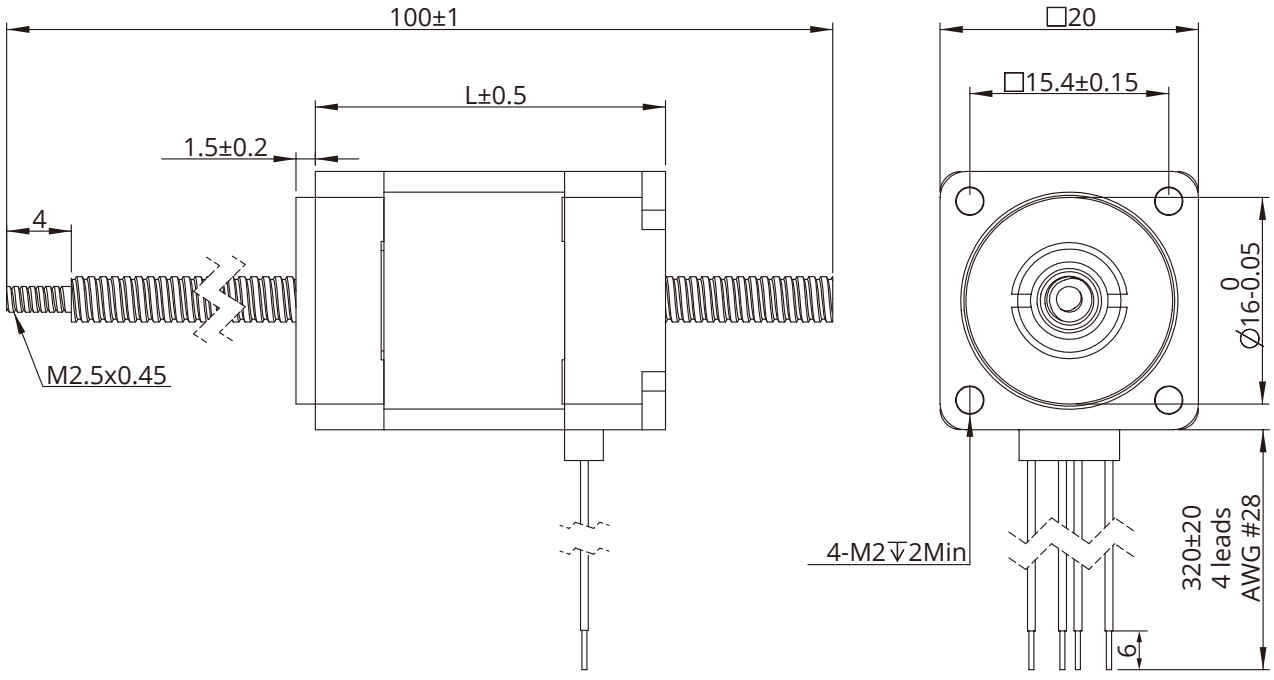


NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).



Nut Dimension

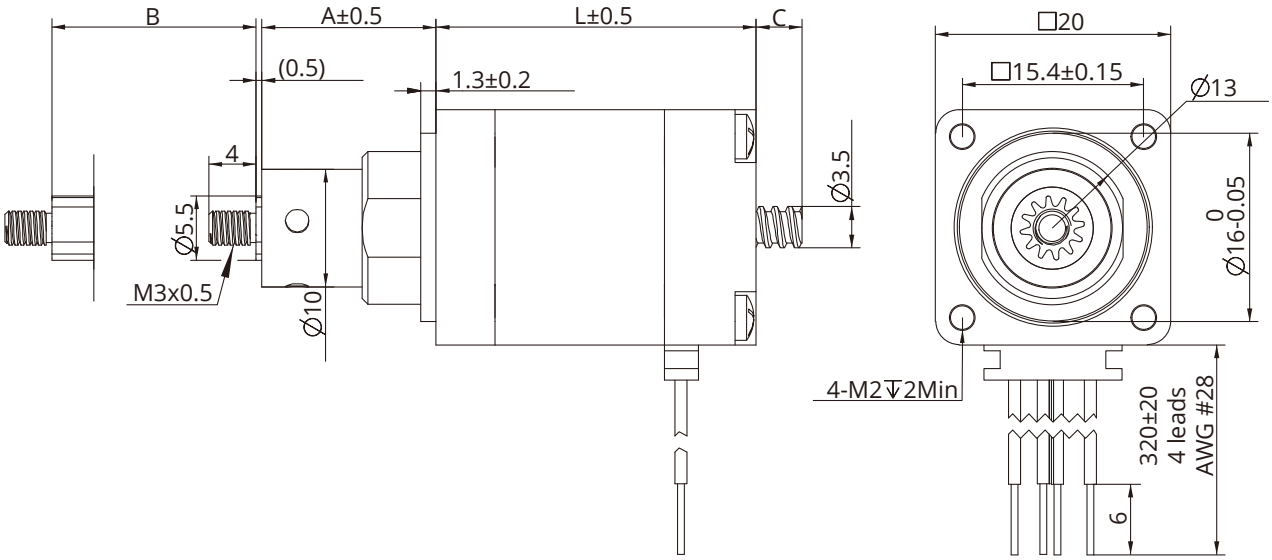
Non-Captive Actuator



NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

Size 8 (20mm) Series

Kaptive Actuator



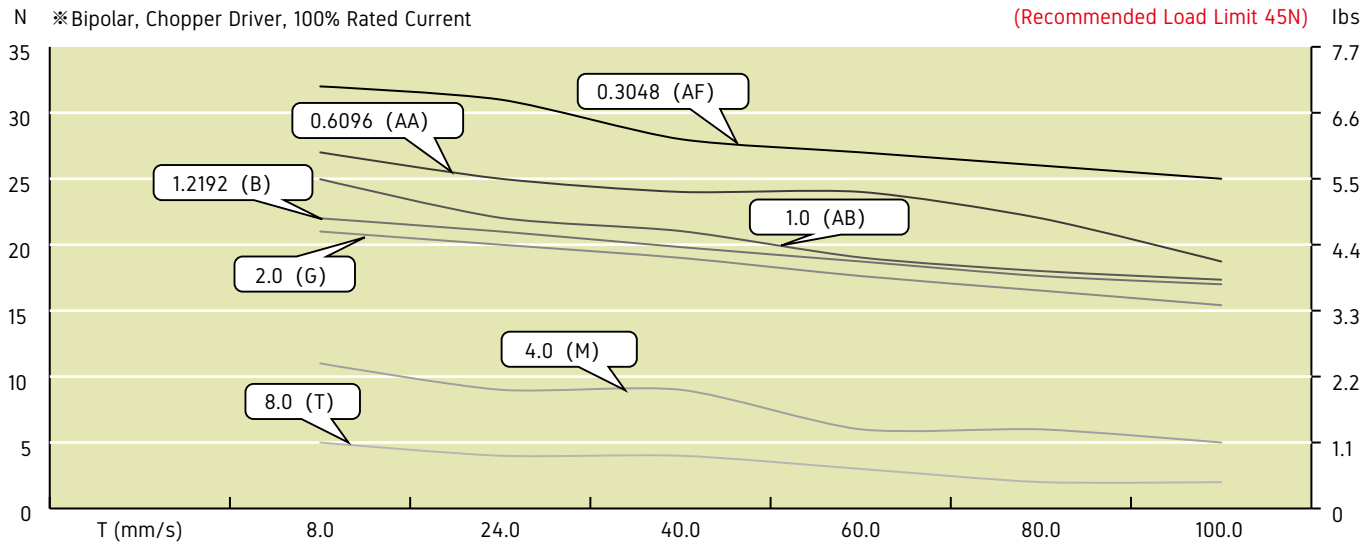
Stroke Specification

Size A (mm)	Stroke B (mm)	C (mm)	
		L=27.2	L=38.1
11.20	9.00	1	0
14.90	12.70	5	0
21.10	19.05	11	0
27.60	25.40	17	6
34.00	31.80	24	13
40.30	38.10	30	19

NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

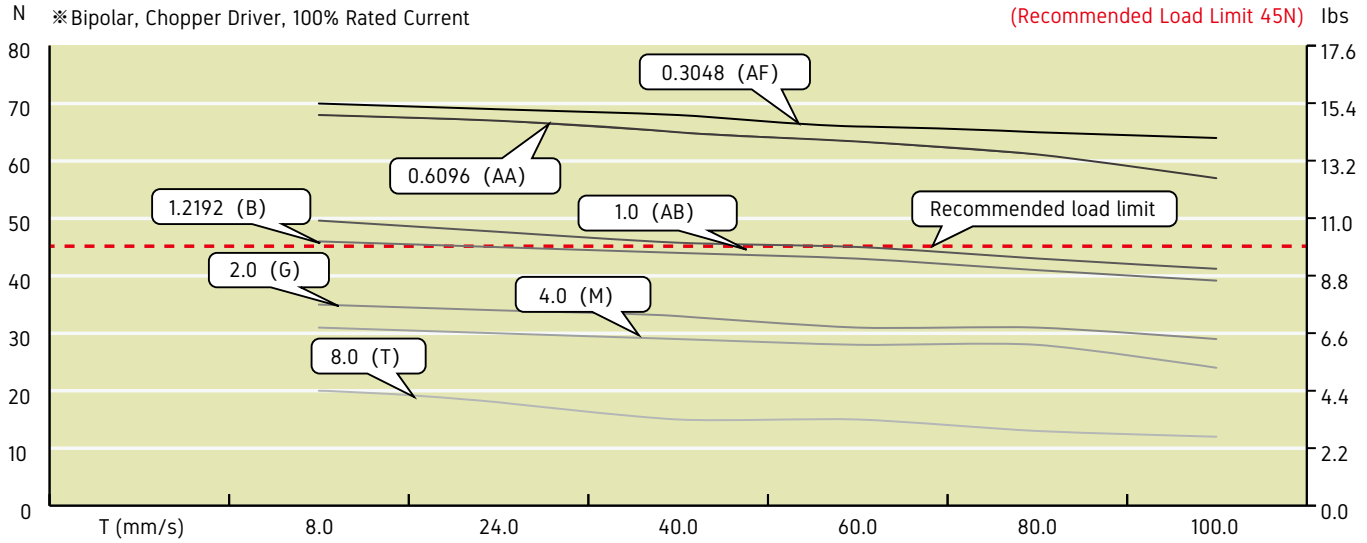
Speed Thrust Curves

Size 8 Single Stack Speed Thrust Curves



T (mm/s)	8.0	24.0	40.0	60.0	80.0	100.0
M (mm/s)	4.0	12.0	20.0	30.0	40.0	50.0
G (mm/s)	2.0	6.0	10.0	15.0	20.0	25.0
B (mm/s)	1.2	3.7	6.1	9.1	12.2	15.2
AB (mm/s)	1.0	3.0	5.0	7.5	10.0	12.5
AA (mm/s)	0.6	1.8	3.1	4.6	6.1	7.6
AF (mm/s)	0.3	0.9	1.5	2.3	3.0	3.8
RPM r/min	60	180	300	450	600	750
PPS	200	600	1000	1500	2000	2500

Size 8 Double Stack Speed Thrust Curves



T (mm/s)	8.0	24.0	40.0	60.0	80.0	100.0
M (mm/s)	4.0	12.0	20.0	30.0	40.0	50.0
G (mm/s)	2.0	6.0	10.0	15.0	20.0	25.0
B (mm/s)	1.2	3.7	6.1	9.1	12.2	15.2
AB (mm/s)	1.0	3.0	5.0	7.5	10.0	12.5
AA (mm/s)	0.6	1.8	3.0	4.6	6.1	7.6
AF (mm/s)	0.3	0.9	1.5	2.3	3.0	3.8
RPM r/min	60	180	300	450	600	750
PPS	200	600	1000	1500	2000	2500

TEST CONDITION

Testing Voltage: 24Vdc, Driver Model: DS-OLS2-FPD bipolar, chopper driver at rated current (rms). Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

Size 11 (28mm) Series

Size 11 [28mm] Stepper Lead Screw Linear Actuator occupies a mounting footprint of slightly above 1 in^2 and provides over 140N of continuous thrust, over 3x as that of the size 8.
Size 11 Stepper Lead Screw Linear Actuator has four form factors available - External, Non-captive, Electric Cylinder (Captive) and Kaptive.

Motor Characteristics

Motor	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Weight (g)	Lead Wire No.	Motor Length (mm)
11-2105	4.55	0.5	9.1	6.0	117	4	33.35
11-2110	2.1	1.0	2.1	1.5	117	4	33.35
11-2209	3.9	0.95	4.1	4.0	173	4	45
11-2216	2.4	1.6	1.5	1.3	173	4	45

Notes: Motor Insulation Class B, Motor Temperature Rise 80°C, Ambient Temperature -20°C~50°C

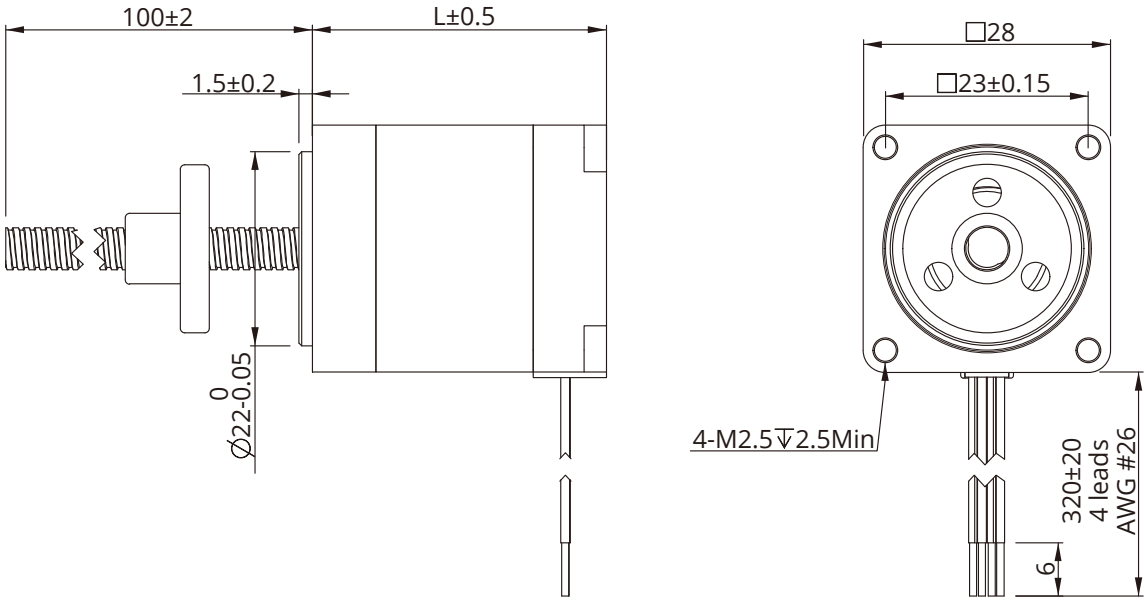
Available Lead Screw and Travel per Step

Screw Dia. (inch)	Screw Dia. (mm)	Lead (inch)	Lead (mm)	Lead Code	Travel Per Step @ 1.8 deg (mm)*
0.188	4.77	0.0125	0.3175	AL	0.0016
0.188	4.77	0.025	0.635	A	0.0032
0.188	4.77	0.05	1.27	D	0.0063
0.218	5.56	0.096	2.4384	J*	0.0122
0.188	4.77	0.1	2.54	K	0.0127
0.218	5.56	0.192	4.8768	Q*	0.0244
0.188	4.77	0.2	5.08	R	0.0254
0.188	4.77	0.4	10.16	X	0.0508

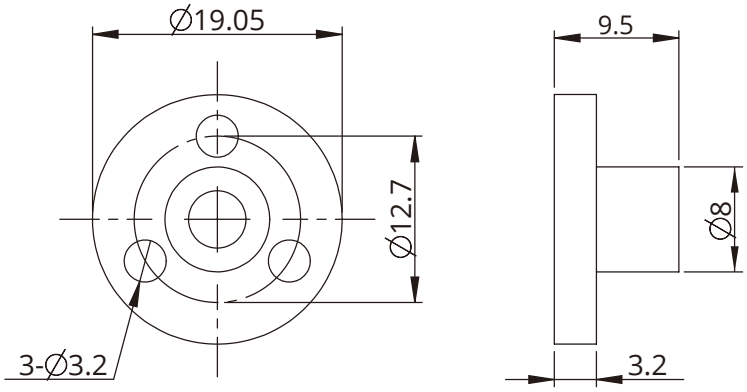
* Motor wiring and screw lead could be customized according to customer's request
*Value truncated
* 5.56mm diameter screw only can be applied in External Type

Dimensional Drawings

External Actuator

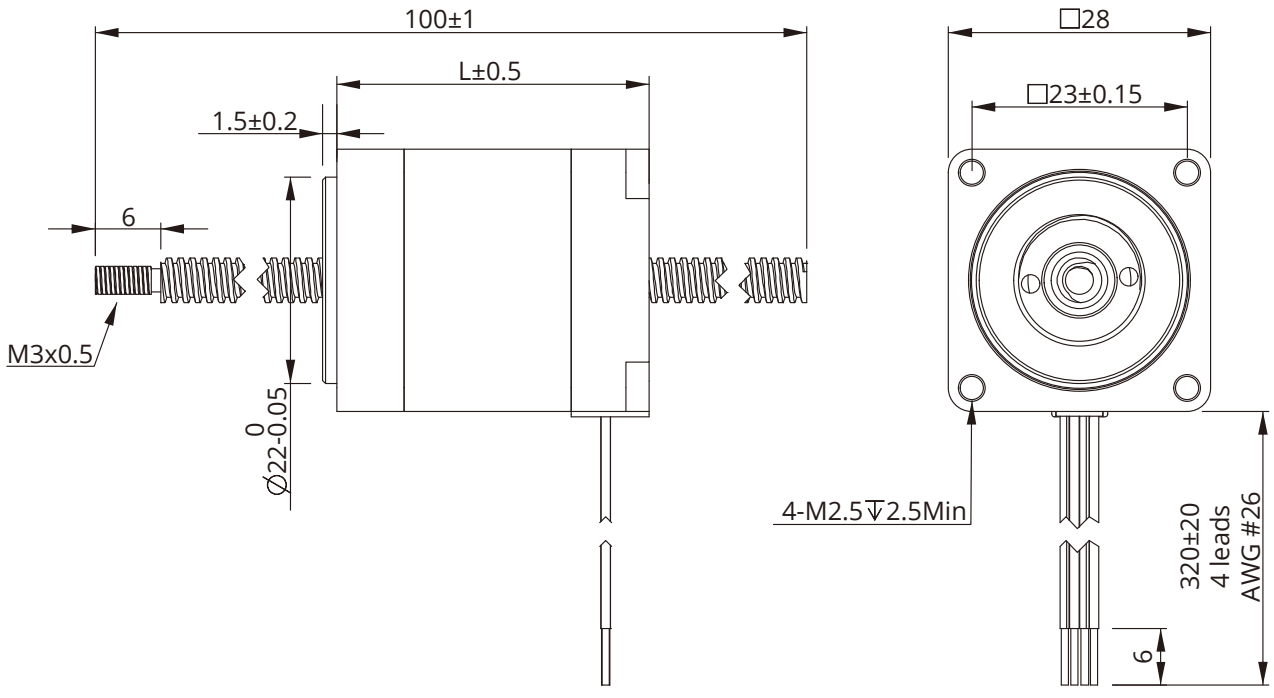


NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).



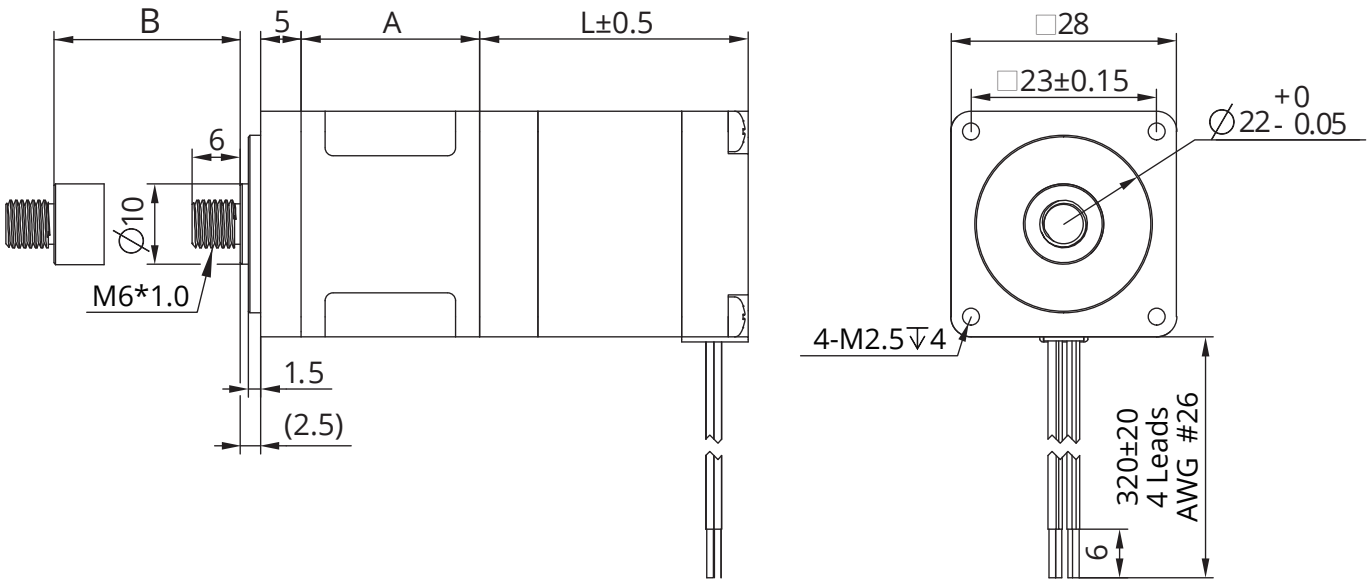
Nut Dimension

Non-Captive Actuator



Size 11 (28mm) Series

Electric Cylinder (Captive) Actuator



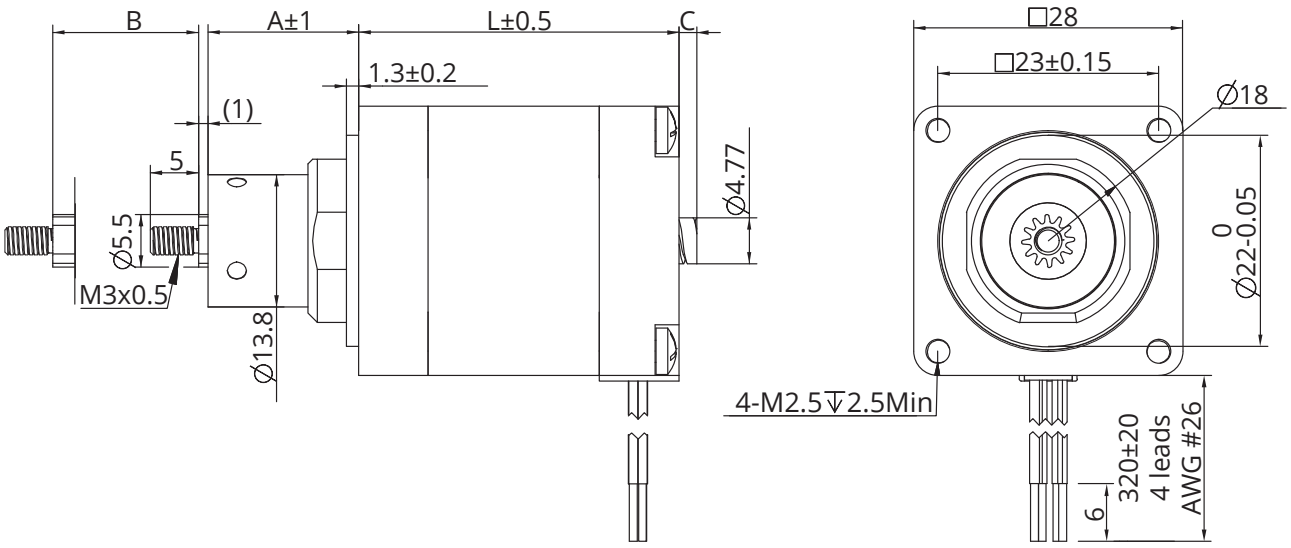
-

- Stroke Specification

Size A (mm)	Stroke B (mm)	L (mm)	
22.20	12.70	Single Stack Motor 33.35	Double Stack Motor 45
28.55	19.05		
34.90	25.40		
41.30	31.80		
47.60	38.10		
60.30	50.80		
73.00	63.50		

NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

Kaptive Actuator



- Stroke Specification

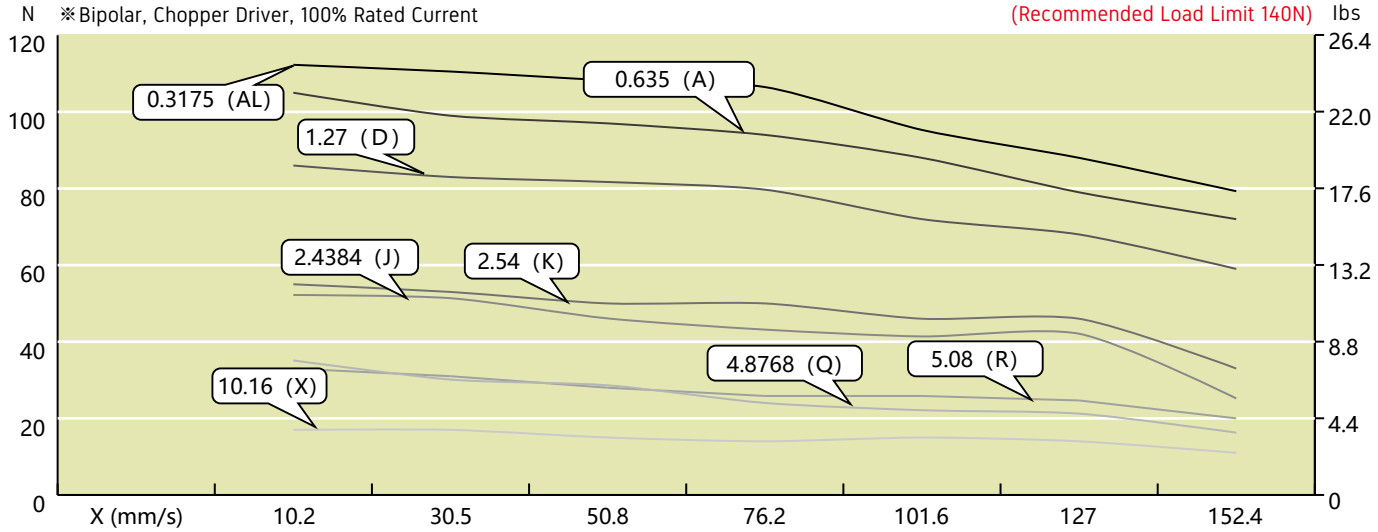
Size A (mm)	Stroke B (mm)	C (mm)	
		L=33.35	L=45
15.70	12.70	1.0	0.0
22.10	19.05	7.4	0.0
28.40	25.40	13.7	4.0
34.80	31.80	20.1	10.4
41.10	38.10	26.4	16.8
53.80	50.80	39.0	29.4
66.50	63.50	52.7	42.1

NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

Size 11 (28mm) Series

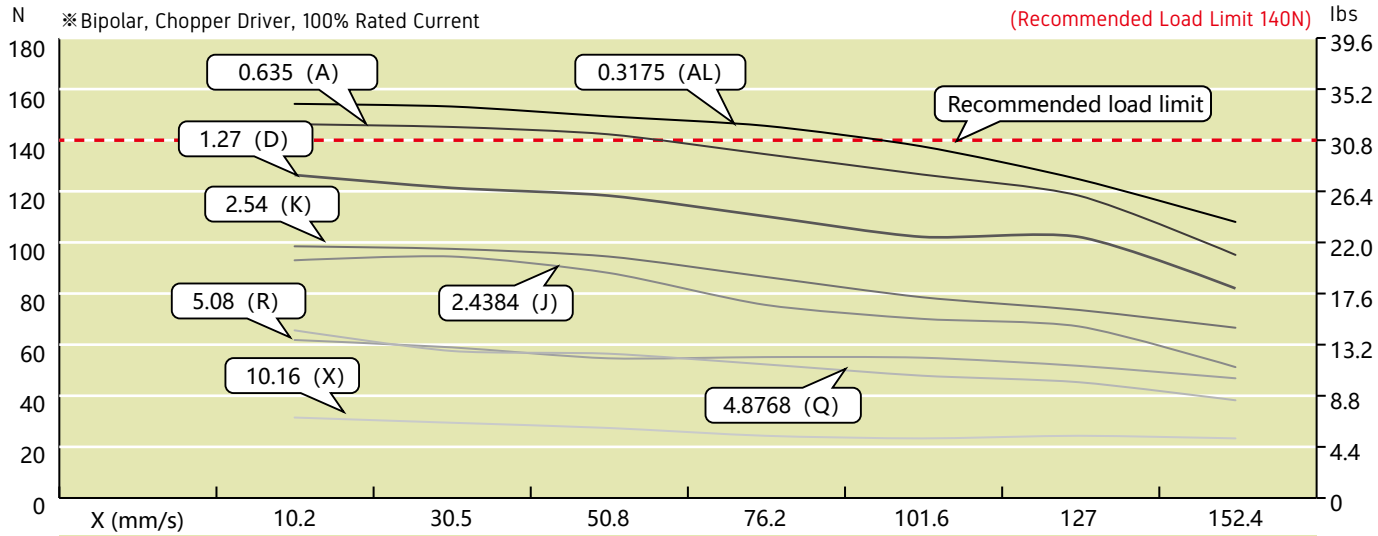
Speed Thrust Curves

Size 11 Single Stack Speed Thrust Curves



X (mm/s)	10.2	30.5	50.8	76.2	101.6	127	152.4
R (mm/s)	5.1	15.2	25.4	38.1	50.8	63.5	76.2
Q (mm/s)	4.9	14.6	24.4	36.6	48.8	61.0	73.2
K (mm/s)	2.5	7.6	12.7	19.1	25.4	31.8	38.1
J (mm/s)	2.4	7.3	12.2	18.3	24.4	30.5	36.6
D (mm/s)	1.3	3.8	6.4	9.5	12.7	15.9	19.1
A (mm/s)	0.6	1.9	3.2	4.8	6.4	7.9	9.5
AL (mm/s)	0.3	1.0	1.6	2.4	3.2	4.0	9.5
RPM r/min	60	180	300	450	600	750	900
PPS	200	600	1000	1500	2000	2500	3000

Size 11 Double Stack Speed Thrust Curves



X (mm/s)	10.2	30.5	50.8	76.2	101.6	127	152.4
R (mm/s)	5.1	15.2	25.4	38.1	50.8	63.5	76.2
Q (mm/s)	4.9	14.6	24.4	36.6	48.8	61.0	73.2
K (mm/s)	2.5	7.6	12.7	19.1	25.4	31.8	38.1
J (mm/s)	2.4	7.3	12.2	18.3	24.4	30.5	36.6
D (mm/s)	1.3	3.8	6.3	9.5	12.7	15.9	19.1
A (mm/s)	0.6	1.9	3.2	4.8	6.4	7.9	9.5
AL (mm/s)	0.3	1.0	1.6	2.4	3.2	4.0	4.8
RPM r/min	60	180	300	450	600	750	900
PPS	200	600	1000	1500	2000	2500	3000

TEST CONDITION

Testing Voltage: 24Vdc, Driver Model: DS-OLS2-FPD bipolar, chopper driver at rated current (rms). Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

Size 14 (35mm) Series

Size 14 [35mm] Stepper Lead Screw Linear Actuator is widely used for linear movement applications, providing up to 230N of continuous thrust.

Size 14 Stepper Lead Screw Linear Actuator has four form factors available - External, Non-Captive, Electric Cylinder (Captive) and Kaptive.

Motor Characteristics

Motor	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Weight (g)	Lead Wire No.	Motor Length (mm)
14-2105	6.6	0.5	13.2	14.0	189	4	33.6
14-2110	3.5	1.0	3.5	3.6	189	4	33.6
14-2115	2.7	1.5	1.8	1.9	189	4	33.6
14-2205	12.0	0.5	24.0	29.0	210	4	45.6
14-2210	6.0	1.0	6.0	7.2	210	4	45.6
14-2215	4.0	1.5	2.7	3.2	210	4	45.6

NOTE : Motor Insulation Class B, Motor Temperature Rise 80°C, Ambient Temperature -20°C~ 50°C

Available Lead Screw and Travel per Step

Screw Dia. (inch)	Screw Dia. (mm)	Lead (inch)	Lead (mm)	Lead Code	Travel Per Step @ 1.8 deg (mm)*	Travel Per Step @ 0.9 deg (mm)*
0.25	6.35	0.024	0.6096	AA	0.003	0.0015
0.25	6.35	0.0394	1.0	AB	0.005	0.0025
0.25	6.35	0.048	1.2192	B	0.006	0.003
0.25	6.35	0.05	1.27	D	0.0064	0.0032
0.25	6.35	0.0625	1.5875	F	0.0079	0.004
0.25	6.35	0.096	2.4384	J	0.0122	0.0061
0.25	6.35	0.1	2.54	K*	0.0127	0.0064
0.25	6.35	0.125	3.175	L*	0.0159	0.0079
0.25	6.35	0.192	4.8768	Q	0.024	0.0122
0.375	6.35	0.2	5.08	R*	0.0254	0.0127
0.25	6.35	0.25	6.35	S*	0.0318	0.0159
0.25	6.35	0.3333	8.4667	U	0.0423	0.0212
0.25	6.35	0.384	9.7536	W*	0.0488	0.0244
0.25	6.35	0.5	12.7	Y*	0.0635	0.0318
0.25	6.35	1.0	25.4	Z*	0.127	0.0635
0.31	8.00	0.1575	4.0	M	0.02	0.01
0.31	8.00	0.315	8.0	T	0.04	0.02
0.31	8.00	0.0787	2.0	G	0.01	0.005

* External Lead Screw Linear Actuator can be structured with ϕ8/ϕ9.525mm diameter of screw.

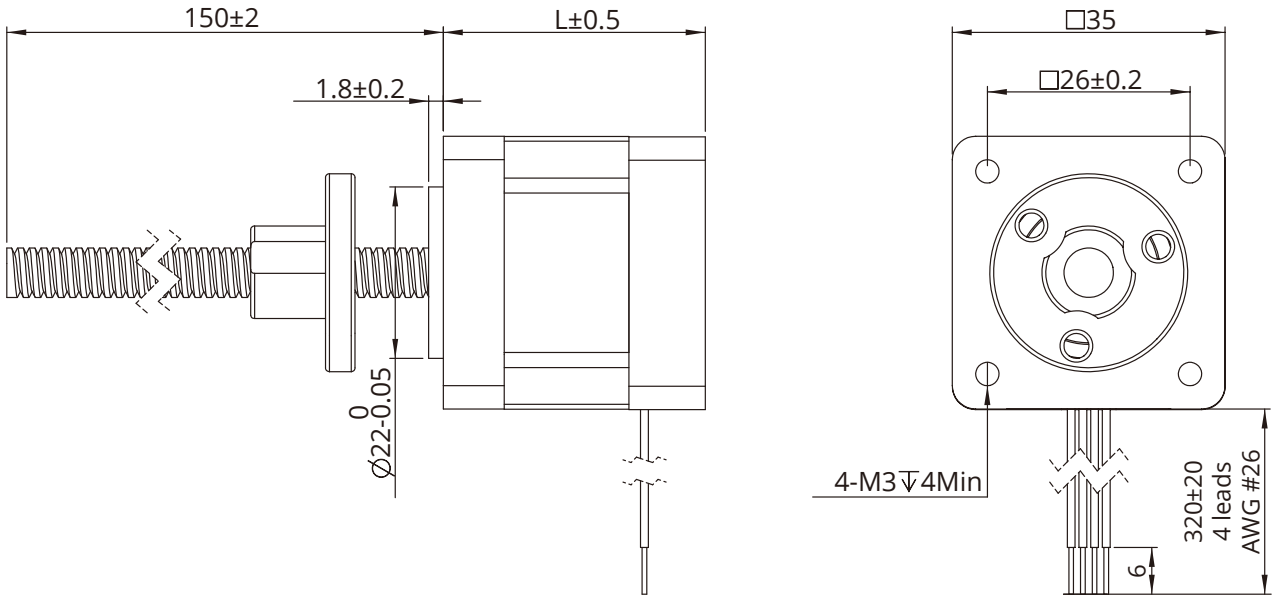
*Value truncated

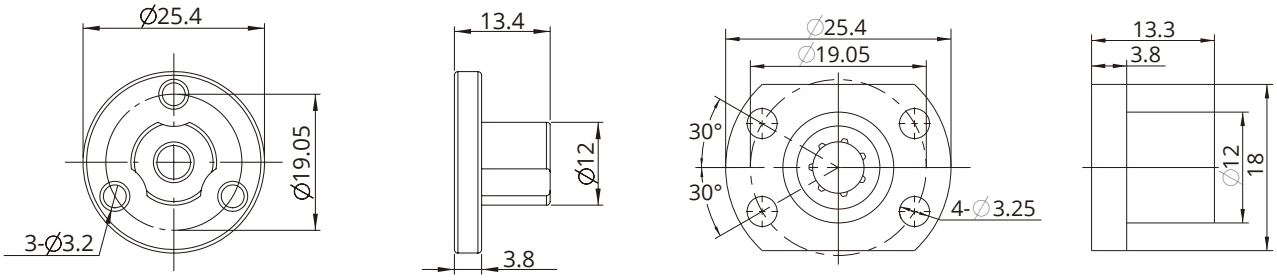
* 9.525mm diameter screw can be applied in External Type.

Size 14 (35mm) Series

Dimensional Drawings

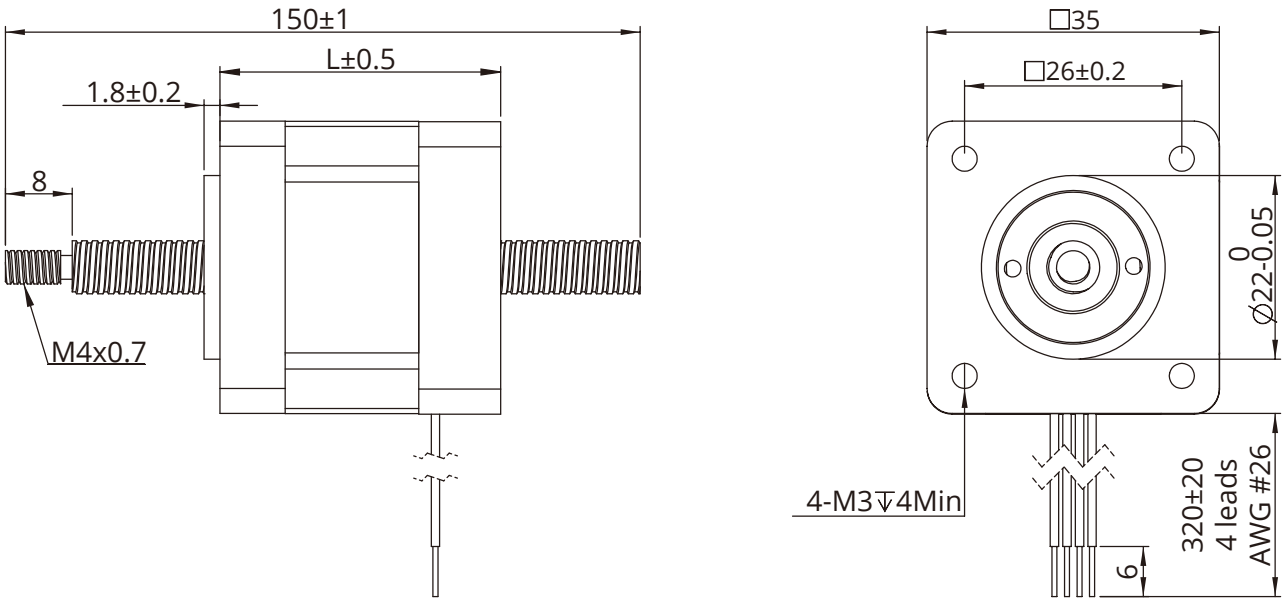
External Actuator





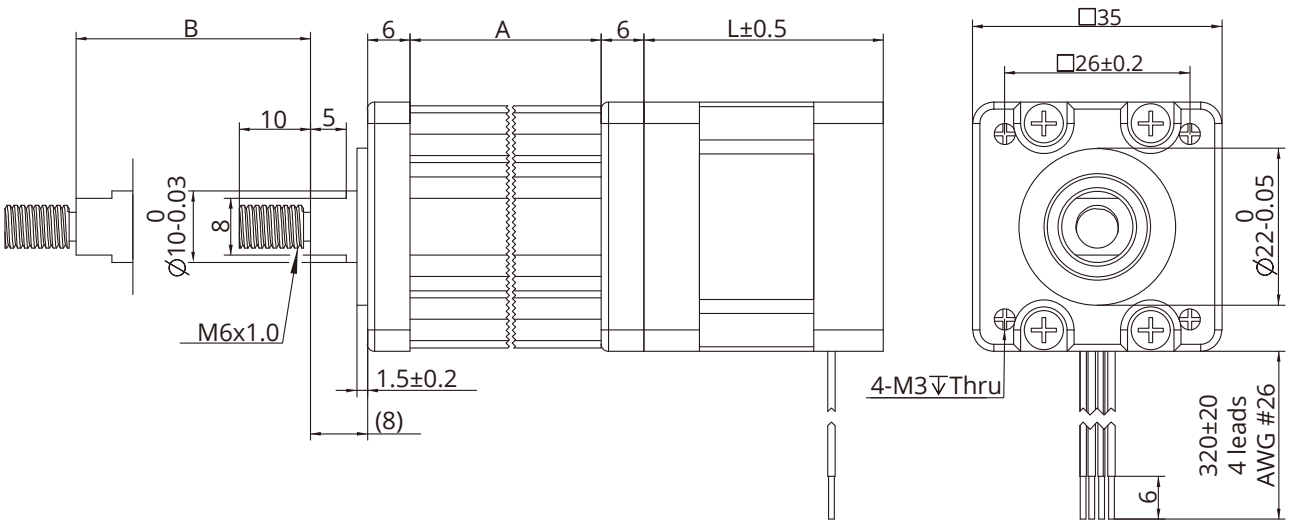
Nut Dimension

Non-Captive Actuator



NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

Electric Cylinder (Captive) Actuator



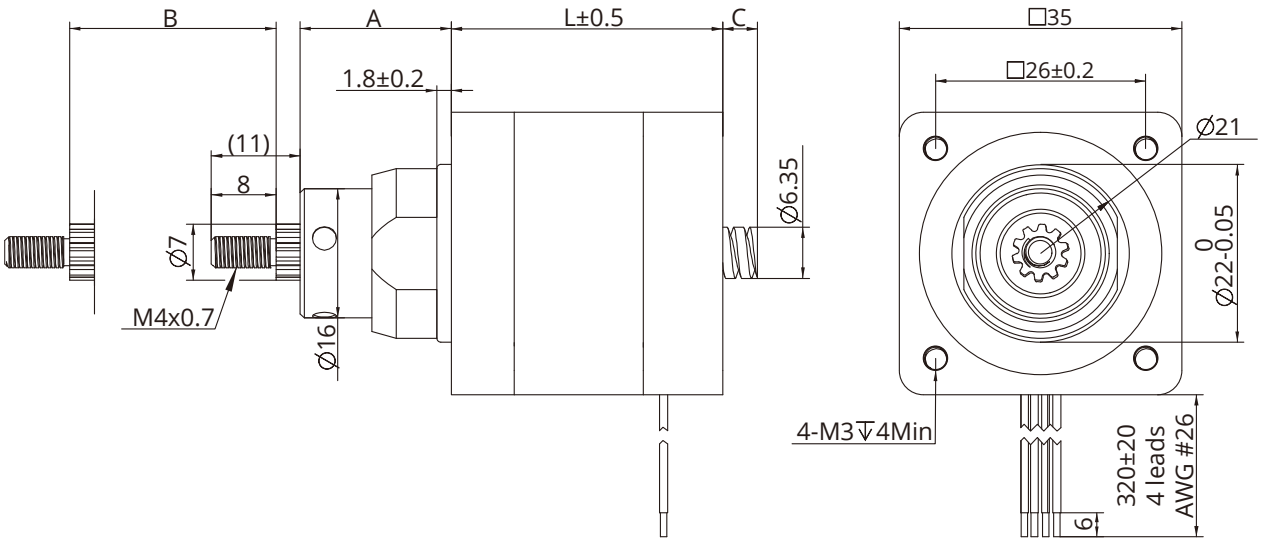
Stroke Specification

Size A (mm)	Stroke B (mm)	L (mm)	
35.70	12.70	Single Stack Motor 33.6	Double Stack Motor 45.6
42.05	19.05		
48.40	25.40		
54.80	31.80		
61.10	38.10		
73.80	50.80		
86.50	63.50		

NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

Size 14 (35mm) Series

Kaptive Actuator



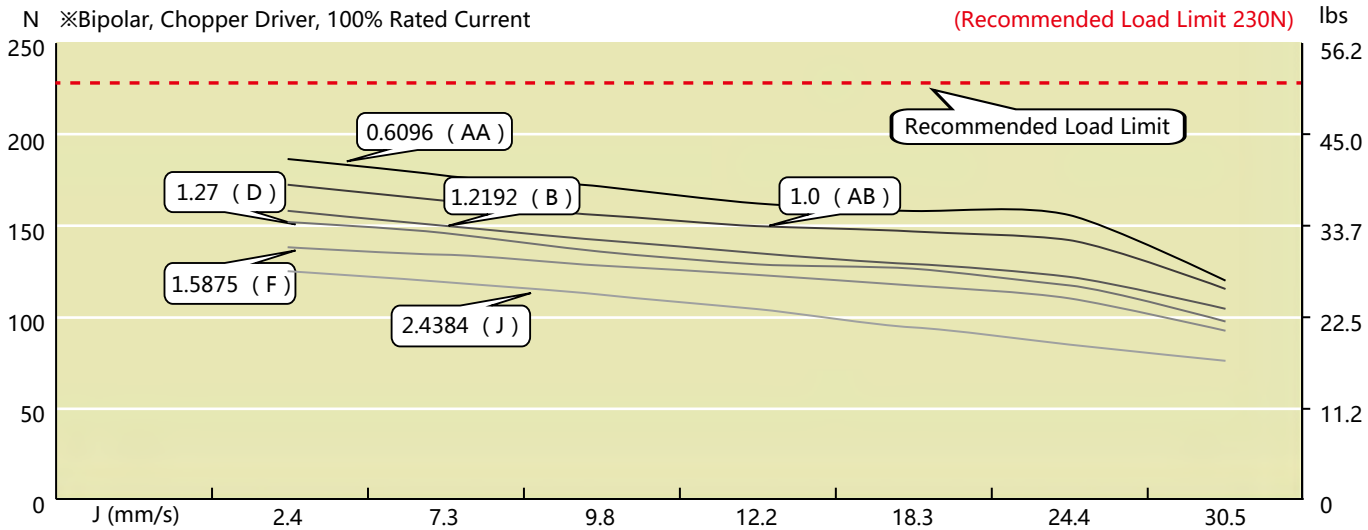
- **Stroke Specification**

Size A (mm)	Stroke B (mm)	C (mm)	
		L=33.6	L=45.6
18.70	12.70	4.30	1.30
25.05	19.05	10.65	7.65
31.40	25.40	17.00	14.00
37.75	31.75	23.35	20.35
44.10	38.10	29.70	26.70
56.80	50.80	42.40	39.40
69.50	63.50	55.10	52.10

NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

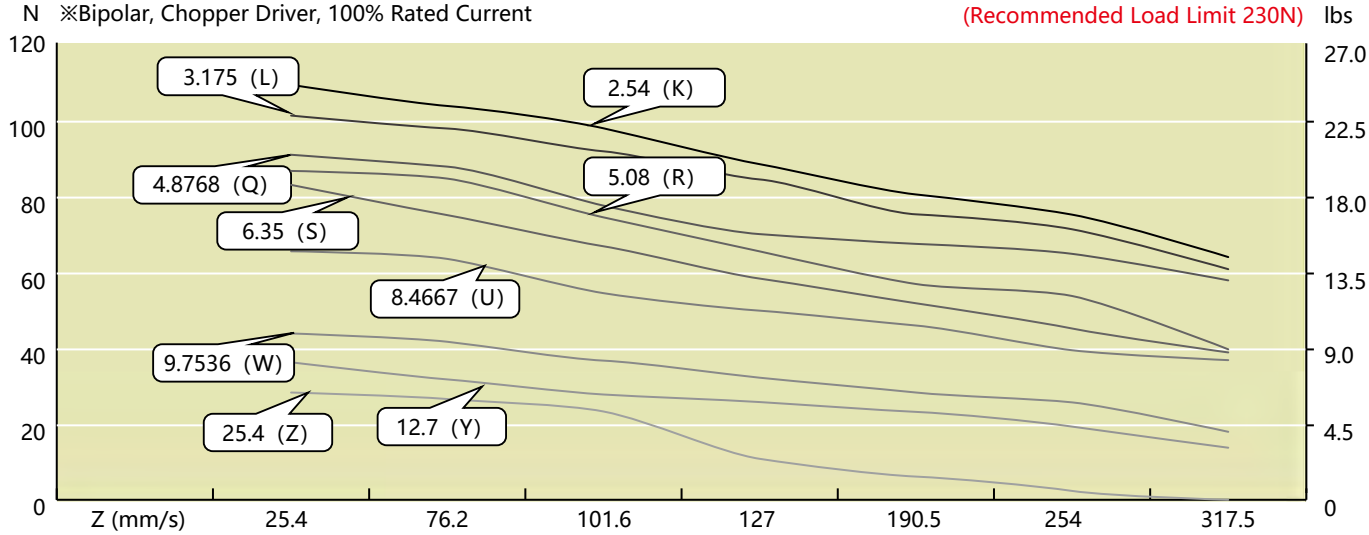
Speed Thrust Curves

Size 14 Single Stack Speed Thrust Curves



J (mm/s)	2.4	7.3	9.8	12.2	18.3	24.4	30.5
F (mm/s)	1.6	4.8	6.4	7.9	11.9	15.9	19.8
D (mm/s)	1.3	3.8	5.1	6.4	9.5	12.7	15.9
B (mm/s)	1.2	3.7	4.9	6.1	9.1	12.2	15.2
AB (mm/s)	1.0	3.0	4.0	5.0	7.5	10.0	12.5
AA (mm/s)	0.6	1.8	2.4	3.0	4.6	6.1	7.6
RPM r/min	60	180	240	300	450	600	750
PPS	200	600	800	1000	1500	2000	2500

Size 14 Single Stack Speed Thrust Curves



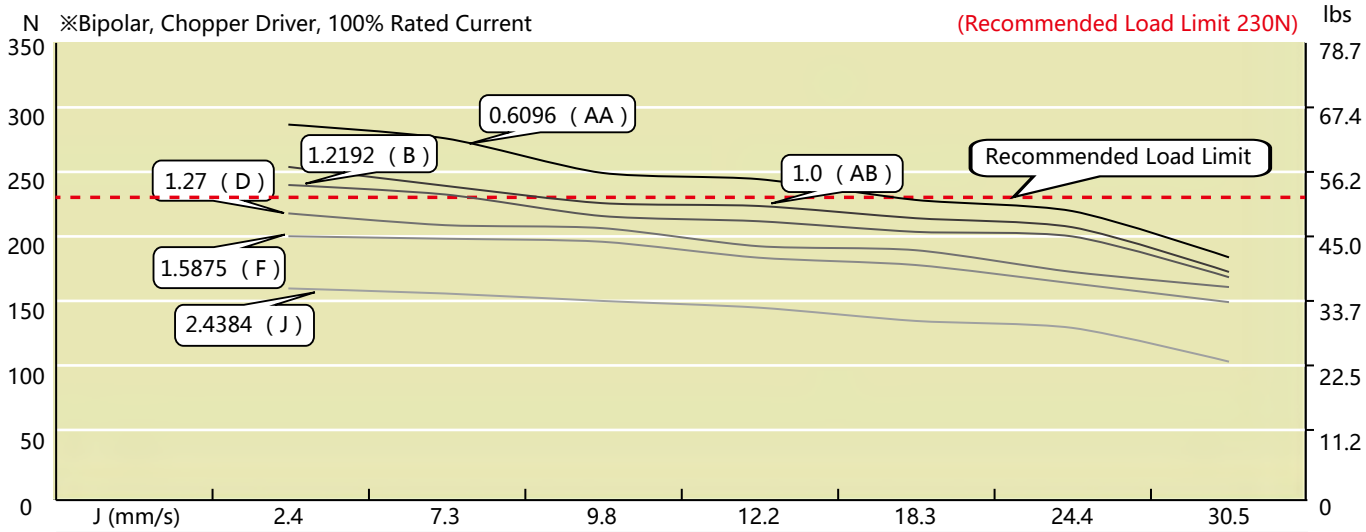
Z (mm/s)	25.4	76.2	101.6	127	190.5	254	317.5
Y (mm/s)	12.7	38.1	50.8	63.5	95.3	127.0	158.8
W (mm/s)	9.8	29.3	39.0	48.8	73.2	97.5	121.9
U (mm/s)	8.4667	25.4	25.4	42.3	63.5	84.7	105.8
S (mm/s)	6.35	19.1	25.4	31.8	47.6	63.5	79.4
R (mm/s)	5.08	15.2	20.3	25.4	38.1	50.8	63.5
Q (mm/s)	4.877	14.6	19.5	24.4	36.6	48.8	61.0
L (mm/s)	3.175	9.5	12.7	15.9	23.8	31.8	39.7
K (mm/s)	2.546	7.6	10.2	12.7	19.1	25.4	31.8
RPM r/min	60	180	240	300	450	600	750
PPS	200	600	800	1000	1500	2000	2500

TEST CONDITION

Testing Voltage: 24Vdc, Driver Model: DS-OLS2-FPD bipolar, chopper driver at rated current (rms). Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

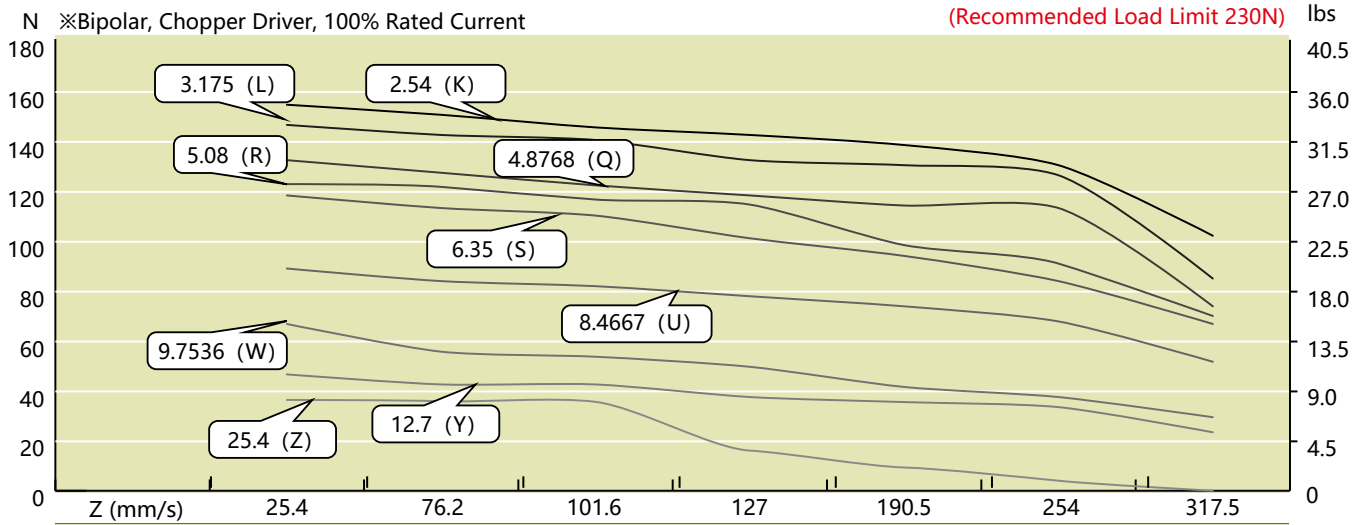
Size 14 (35mm) Series

Size 14 Double Stack Speed Thrust Curves



J (mm/s)	2.4	7.3	9.8	12.2	18.3	24.4	30.5
F (mm/s)	1.6	4.8	6.4	7.9	11.9	15.9	19.8
D (mm/s)	1.3	3.8	5.1	6.4	9.5	12.7	15.9
B (mm/s)	1.2	3.7	4.9	6.1	9.1	12.2	15.2
AB (mm/s)	1.0	3.0	4.0	5.0	7.5	10.0	12.5
AA (mm/s)	0.6	1.8	2.4	3.0	4.6	6.1	7.6
RPM r/min	60	180	240	300	450	600	750
PPS	200	600	800	1000	1500	2000	2500

Size 14 Double Stack Speed Thrust Curves



Z (mm/s)	25.4	76.2	101.6	127	190.5	254	317.5
Y (mm/s)	12.7	38.1	50.8	63.5	95.3	127.0	158.8
W (mm/s)	9.8	29.3	39.0	48.8	73.2	97.5	121.9
U (mm/s)	8.5	25.4	25.4	42.3	63.5	84.7	105.8
S (mm/s)	6.4	19.1	25.4	31.8	47.6	63.5	79.4
R (mm/s)	5.1	15.2	20.3	25.4	38.1	50.8	63.5
Q (mm/s)	4.9	14.6	19.5	24.4	36.6	48.8	61.0
L (mm/s)	3.2	9.5	12.7	15.9	23.8	31.8	39.7
K (mm/s)	2.5	7.6	10.2	12.7	19.1	25.4	31.8
RPM r/min	60	180	240	300	450	600	750
PPS	200	600	800	1000	1500	2000	2500

TEST CONDITION

Testing Voltage: 24Vdc, Driver Model: DS-OLS2-FPD bipolar, chopper driver at rated current (rms). Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

Size 17 (42mm) Series

Size 17 [42mm] Stepper Lead Screw Linear Actuator is widely used for linear movement applications, providing up to 330N of continuous thrust.

Size 17 Stepper Lead Screw Linear Actuator has four form factors available - External, Non-Captive, Electric Cylinder (Captive) and Kaptive.

Motor Characteristics

Motor	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Weight (g)	Lead Wire No.	Motor Length (mm)
17-2105	7.2	0.5	14.4	19.8	254	4	34.1
17-2110	3.8	1.0	3.8	5.0	254	4	34.1
17-2115	2.85	1.5	1.9	2.2	254	4	34.1
17-2205	11.0	0.5	22.0	46.0	386	4	48.1
17-2212	4.5	1.2	3.8	8.0	386	4	48.1
17-2225	2.5	2.5	1.0	1.8	386	4	48.1

NOTE : Motor Insulation Class B, Motor Temperature Rise 80°C, Ambient Temperature -20°C~50°C

Available Lead Screw and Travel per Step

Screw Dia. (inch)	Screw Dia. (mm)	Lead (inch)	Lead (mm)	Lead Code	Travel Per Step @ 1.8 deg (mm)*	Travel Per Step @ 0.9 deg (mm)*
0.25	6.35	0.024	0.6096	AA	0.003	0.0015
0.25	6.35	0.0394	1.0	AB	0.005	0.0025
0.25	6.35	0.048	1.2192	B	0.006	0.003
0.25	6.35	0.05	1.27	D	0.0064	0.0032
0.25	6.35	0.0625	1.5875	F	0.0079	0.004
0.25	6.35	0.096	2.4384	J	0.0122	0.0061
0.25	6.35	0.1	2.54	K*	0.0127	0.0064
0.25	6.35	0.125	3.175	L*	0.0159	0.0079
0.25	6.35	0.192	4.8768	Q	0.024	0.0122
0.375	6.35	0.2	5.08	R*	0.0254	0.0127
0.25	6.35	0.25	6.35	S*	0.0318	0.0159
0.25	6.35	0.3333	8.4667	U	0.0423	0.0212
0.25	6.35	0.384	9.7536	W*	0.0488	0.0244
0.25	6.35	0.5	12.7	Y*	0.0635	0.0318
0.25	6.35	1.0	25.4	Z*	0.127	0.0635
0.31	8.00	0.1575	4.0	M	0.02	0.01
0.31	8.00	0.315	8.0	T	0.04	0.02
0.31	8.00	0.0787	2.0	G	0.01	0.005

*External Lead Screw Linear Actuator can be structured with ϕ9.525mm diameter of screw.

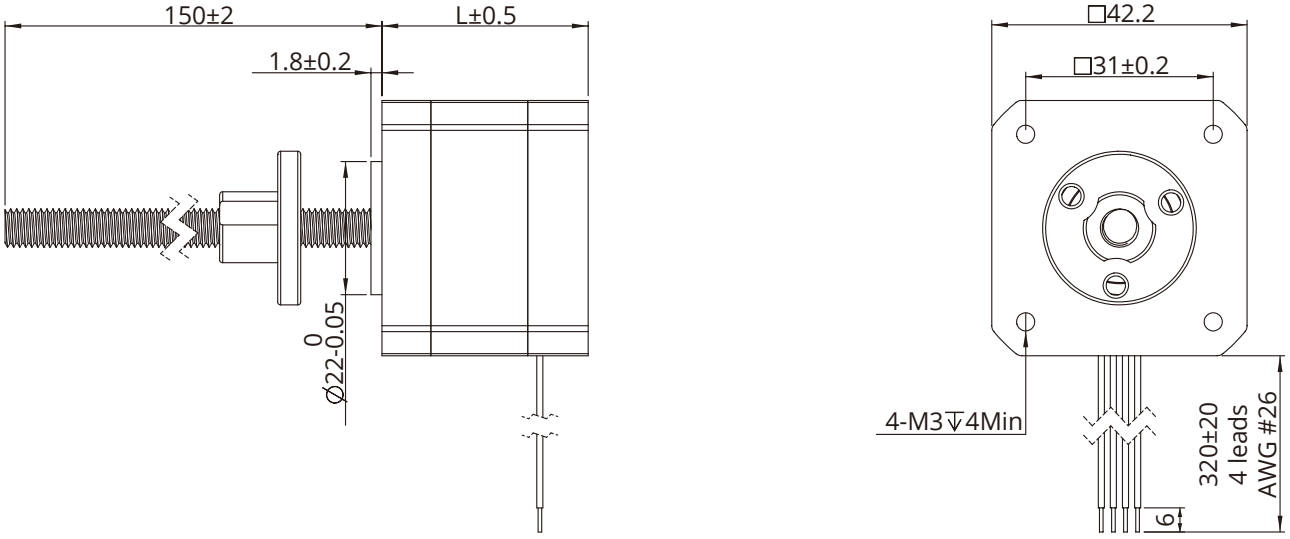
*Value truncated

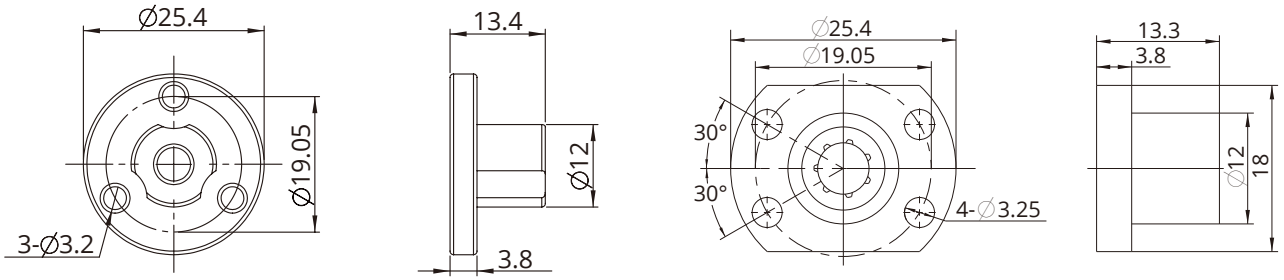
*9.525mm diameter screw can be applied in External Type.

Size 17 (42mm) Series

Dimensional Drawings

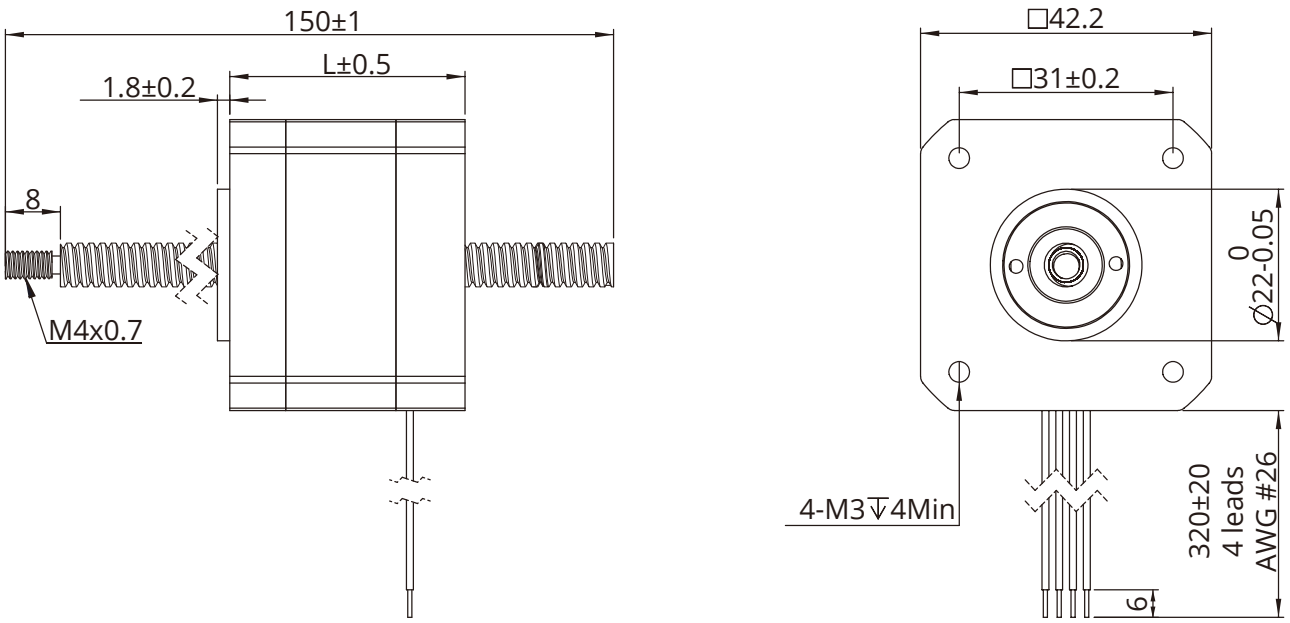
External Actuator





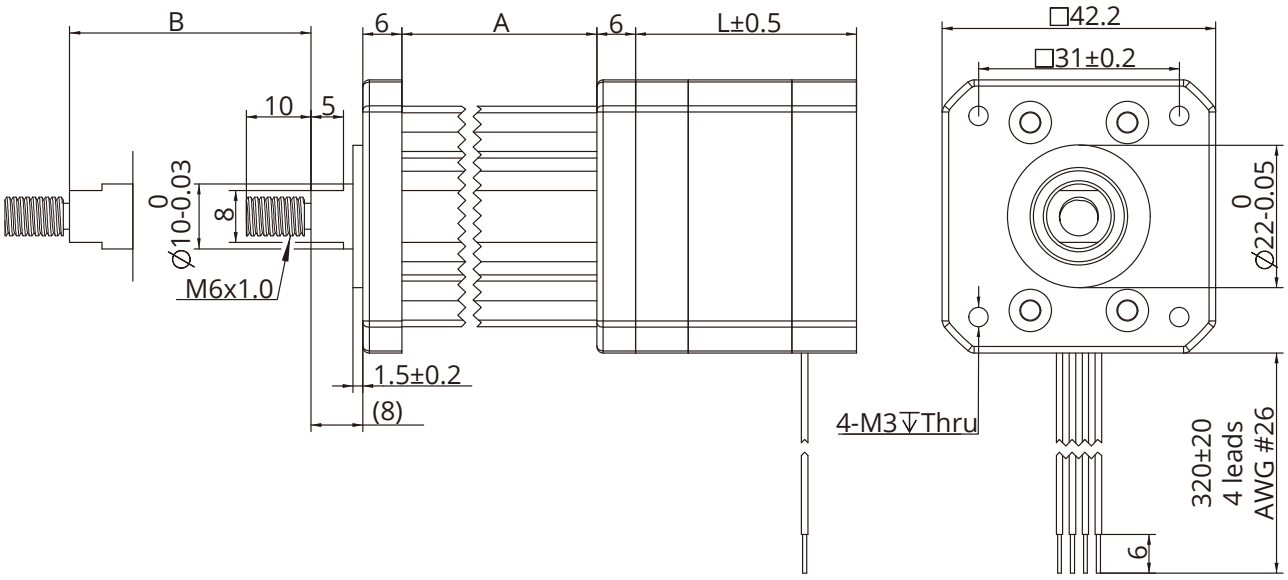
Nut Dimension

Non-Captive Actuator



NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

Electric Cylinder (Captive) Actuator



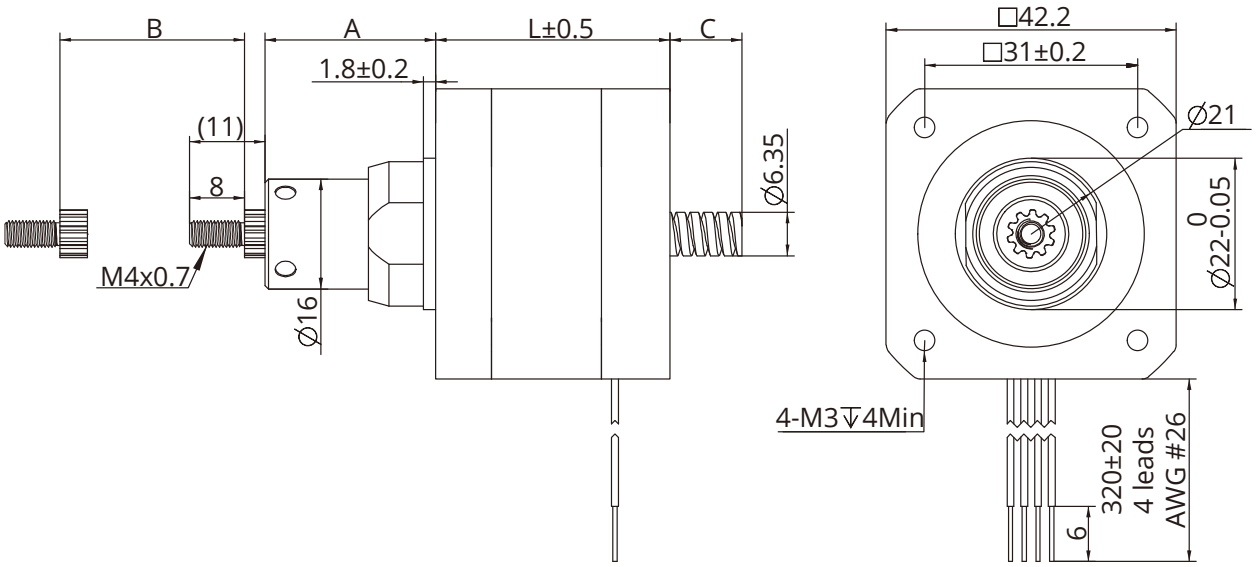
Stroke Specification

Size A (mm)	Stroke B (mm)	L (mm)	
35.70	12.70	Single Stack Motor 34.1	Double Stack Motor 48.1
42.05	19.05		
48.40	25.40		
54.80	31.80		
61.10	38.10		
73.80	50.80		
86.50	63.50		

NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

Size 17 (42mm) Series

Kaptive Actuator



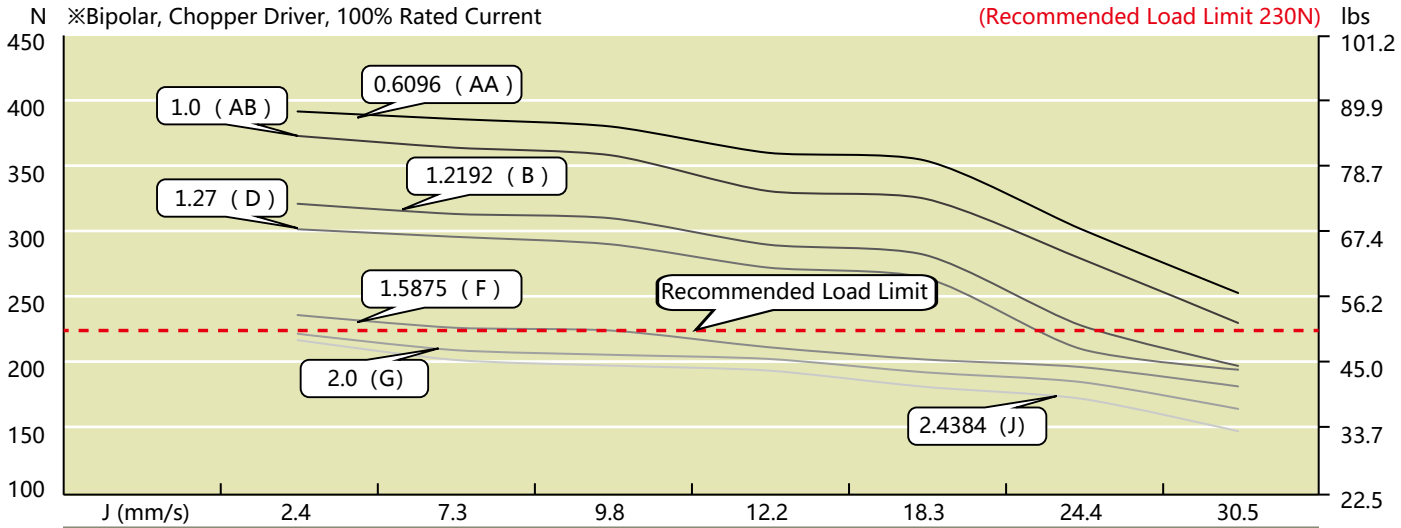
- **Stroke Specification**

Size A (mm)	Stroke B (mm)	C (mm)	
		Single Stack Motor L=34.1	Double Stack Motor L=48.1
18.50	12.70	4.10	0.00
24.85	19.05	10.45	5.45
31.20	25.40	16.80	11.80
37.55	31.75	23.15	18.15
43.90	38.10	29.50	24.50
56.60	50.80	42.20	37.20
69.30	63.50	54.90	49.90

NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

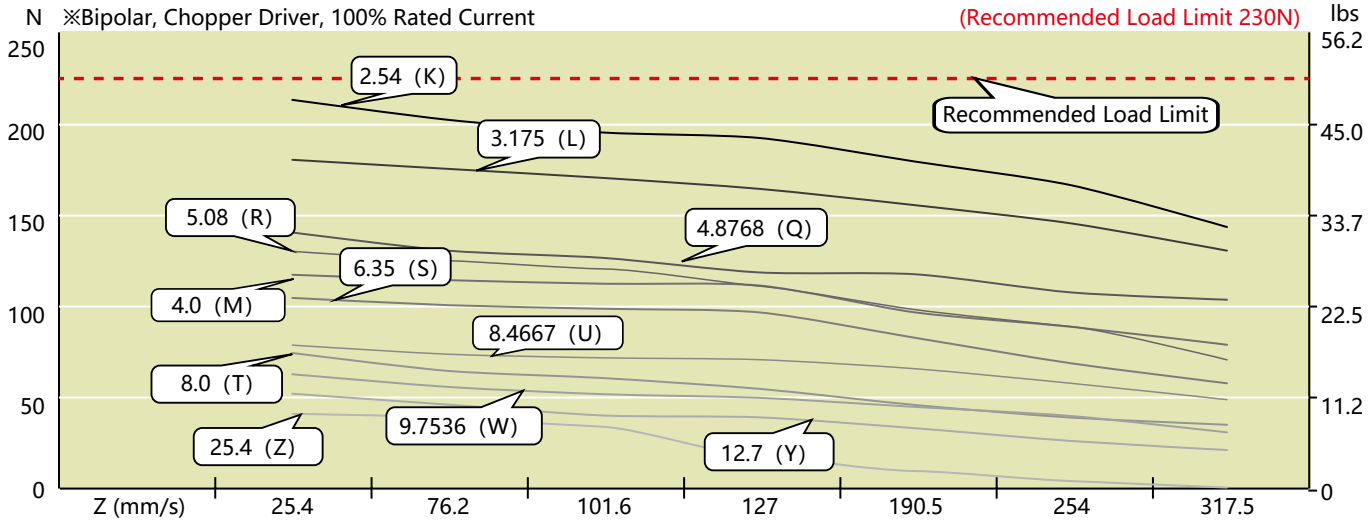
Speed Thrust Curves

Size 17 Single Stack Speed Thrust Curves



J (mm/s)	2.4	7.3	9.8	12.2	18.3	24.4	30.5
G (mm/s)	2.0	6.0	8.0	10.0	15.0	20.0	25.0
F (mm/s)	1.6	4.8	6.4	7.9	11.9	15.9	19.8
D (mm/s)	1.3	3.8	5.1	6.4	9.5	12.7	15.9
B (mm/s)	1.2	3.7	4.9	6.1	9.1	12.2	15.24
AB (mm/s)	1.0	3.0	4.0	5.0	7.5	10.0	12.5
AA (mm/s)	0.6	1.8	2.4	3.0	4.6	6.1	7.6
RPM r/min	60	180	240	300	450	600	750
PPS	200	600	800	1000	1500	2000	2500

Size 17 Single Stack Speed Thrust Curves



Z (mm/s)	25.4	76.2	101.6	127	190.5	254	317.5
Y (mm/s)	12.7	38.1	50.8	63.5	95.3	127	158.8
W (mm/s)	9.8	29.3	39.0	48.8	73.2	97.5	121.9
U (mm/s)	8.5	25.4	33.9	42.3	63.5	84.7	105.8
T (mm/s)	8.0	24.0	32.0	40.0	60.0	80.0	100.0
S (mm/s)	6.4	19.1	25.4	31.8	47.6	63.5	79.4
R (mm/s)	5.1	15.2	20.3	25.4	38.1	50.8	63.5
Q (mm/s)	4.9	14.6	19.5	24.4	36.6	48.8	61.0
M (mm/s)	4.0	12.0	16.0	20.0	30.0	40.0	50.0
L (mm/s)	3.2	9.5	12.7	15.9	23.8	31.8	39.7
K (mm/s)	2.5	7.6	10.2	12.7	19.1	25.4	31.8
RPM r/min	60	180	240	300	450	600	750
PPS	200	600	800	1000	1500	2000	2500

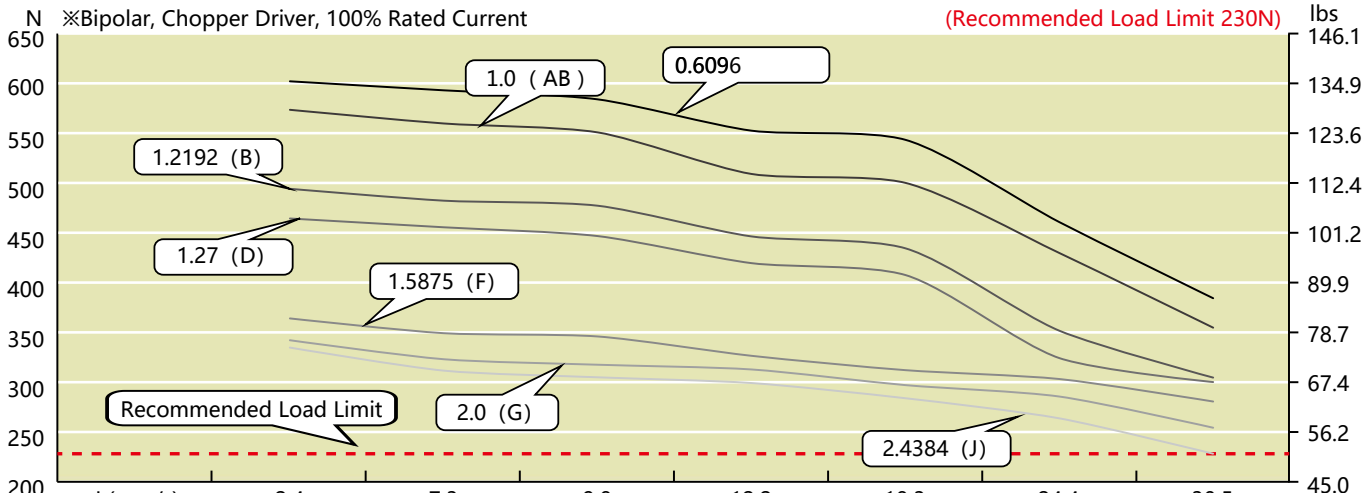
*T, M Lead is Φ8mm diameter lead screw

TEST CONDITION

Testing Voltage: 24Vdc, Driver Model: DS-OLS2-FPD bipolar, chopper driver at rated current (rms). Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

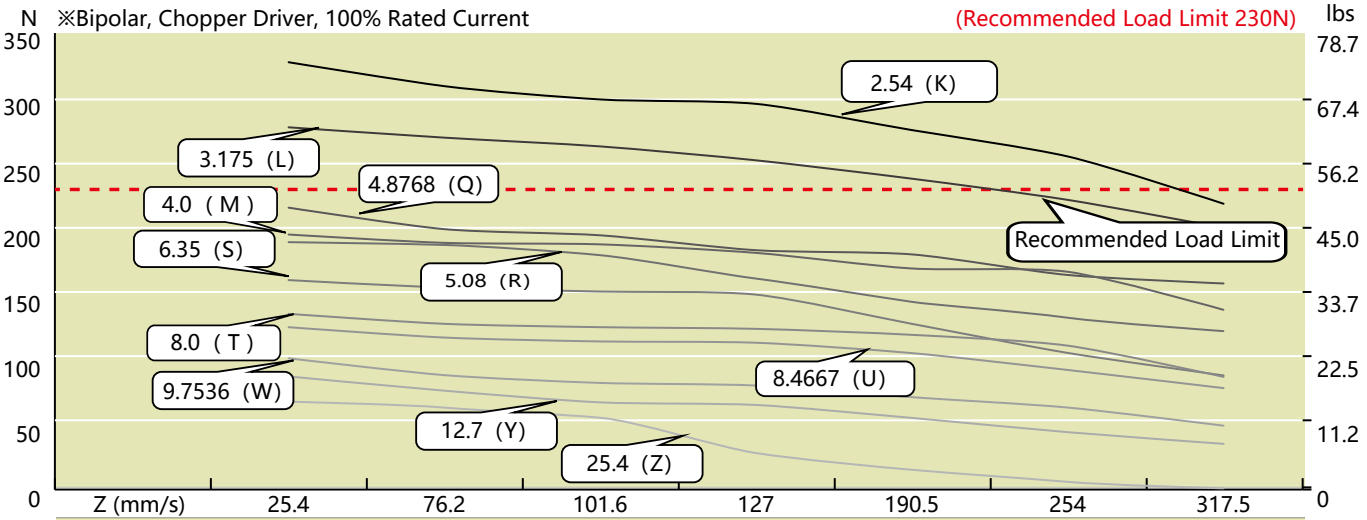
Size 17 (42mm) Series

Size 17 Double Stack Speed Thrust Curves



J (mm/s)	2.4	7.3	9.8	12.2	18.3	24.4	30.5
G (mm/s)	2.0	6.0	8.0	10.0	15.0	20.0	25.0
F (mm/s)	1.6	4.8	6.4	7.9	11.9	15.9	19.8
D (mm/s)	1.3	3.8	5.1	6.4	9.5	12.7	15.9
B (mm/s)	1.2	3.7	4.9	6.1	9.1	12.2	15.2
AB (mm/s)	1.0	3.0	4.0	5.0	7.5	10.0	12.5
AA (mm/s)	0.6	1.8	2.4	3.0	4.6	6.1	7.6
RPM r/min	60	180	240	300	450	600	750
PPS	200	600	800	1000	1500	2000	2500

Size 17 Double Stack Speed Thrust Curves



Z (mm/s)	25.4	76.2	101.6	127	190.5	254	317.5
Y (mm/s)	12.7	38.1	50.8	63.5	95.3	127.0	158.8
W (mm/s)	9.8	29.3	39.0	48.8	73.2	97.5	121.9
U (mm/s)	8.5	25.4	33.9	42.3	63.5	84.7	105.8
T (mm/s)	8.0	24.0	32.0	40.0	60.0	80.0	100.0
S (mm/s)	6.4	19.1	25.4	31.8	47.6	63.5	79.4
R (mm/s)	5.1	15.2	20.3	25.4	38.1	50.8	63.5
Q (mm/s)	4.9	14.6	19.5	24.4	36.6	48.8	61.0
M (mm/s)	4.0	12.0	16.0	20.0	30.0	40.0	50.0
L (mm/s)	3.2	9.5	12.7	15.9	23.8	31.8	39.7
K (mm/s)	2.5	7.6	10.2	12.7	19.1	25.4	31.8
RPM r/min	60	180	240	300	450	600	750
PPS	200	600	800	1000	1500	2000	2500

*T, M Lead is Φ8mm diameter lead screw

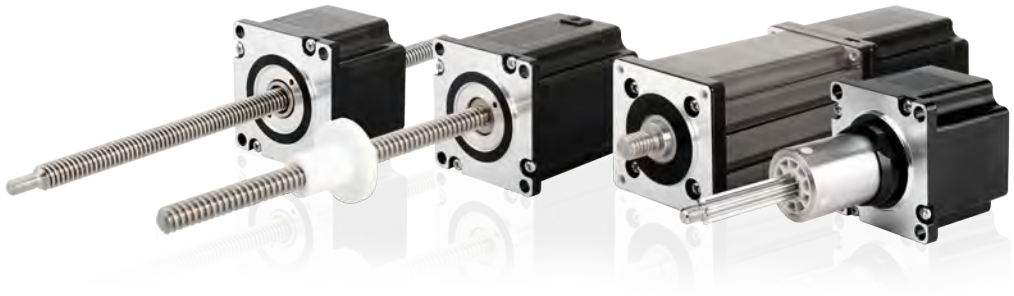
TEST CONDITION

Testing Voltage: 24Vdc, Driver Model: DS-OLS2-FPD bipolar, chopper driver at rated current (rms). Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

Size 23 (57mm) Series

Size 23 [57mm] Stepper Lead Screw Linear Actuator provides high performance, a longer working cycle, and is capable of 910N.

Size 23 Stepper Lead Screw Linear Actuator has four form factors available - External, Non-Captive, Electric Cylinder (Captive) and Kaptive.



Motor Characteristics

Motor	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Weight (g)	Lead Wire No.	Motor Length (mm)
23-2110	6.4	1.0	6.4	16.4	585	4	45
23-2120	3.5	2.0	1.75	4.1	585	4	45
23-2130	2.4	3.0	0.8	1.7	585	4	45
23-2210	11.5	1.0	11.5	32.0	880	4	65
23-2225	5.0	2.5	2.0	5.2	880	4	65
23-2240	2.8	4.0	0.7	2.0	880	4	65

NOTE : Motor Insulation Class B, Motor Temperature Rise 80°C, Ambient Temperature -20°C~ 50°C

Available Lead Screwand Travel per Step

Screw Dia. (inch)	Screw Dia. (mm)	Lead (inch)	Lead (mm)	Lead Code	Travel Per Step @ 1.8 deg (mm)*	Travel Per Step @ 0.9 deg (mm)*
0.394	10.000	0.079	2.0	G	0.01	0.005
0.375	9.525	0.025	0.635	A	0.0032	0.0016
0.375	9.525	0.05	1.27	D	0.0064	0.0032
0.375	9.525	0.0625	1.5875	F	0.0079	0.004
0.375	9.525	0.083	2.1167	H	0.0106	0.0053
0.375	9.525	0.1	2.54	K	0.0127	0.0064
0.375	9.525	0.125	3.175	L	0.0159	0.0079
0.375	9.525	0.167	4.2333	P	0.0212	0.0106
0.375	9.525	0.2	5.08	R	0.0254	0.0127
0.375	9.525	0.25	6.35	S	0.0318	0.0159
0.375	9.525	0.375	9.525	V	0.0476	0.0238
0.375	9.525	0.384	9.7536	W	0.0488	0.0244
0.375	9.525	0.4	10.16	X	0.0508	0.0254
0.375	9.525	0.5	12.7	Y	0.0635	0.0318
0.375	9.525	1.0	25.4	Z	0.127	0.0635

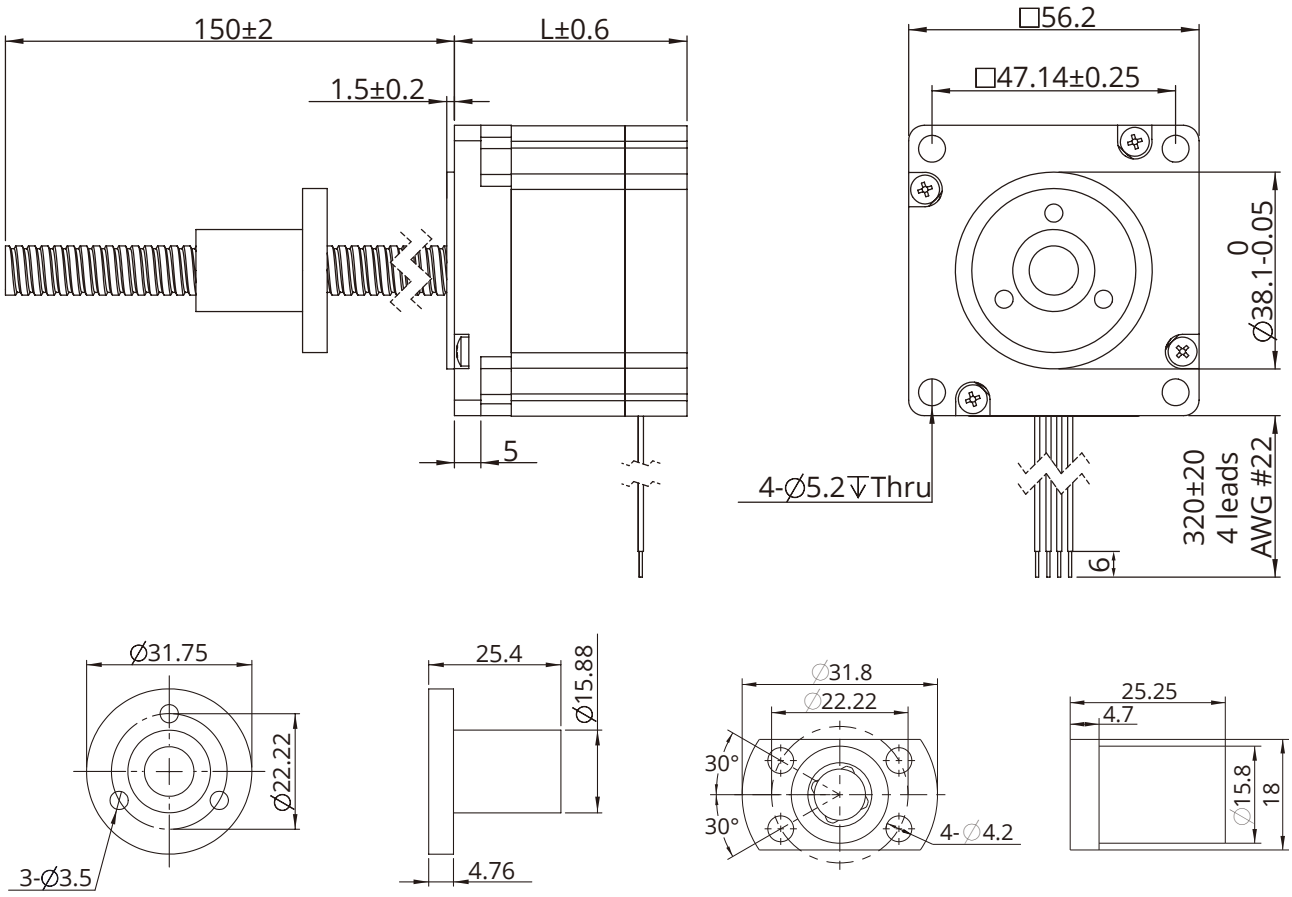
*Value truncated

* External Lead Screw Linear Actuator can be structured with ϕ15.875mm diameter of screw.
* Motor winding parameters and screw length can be customized according to customer requirements.

Size 23 (57mm) Series

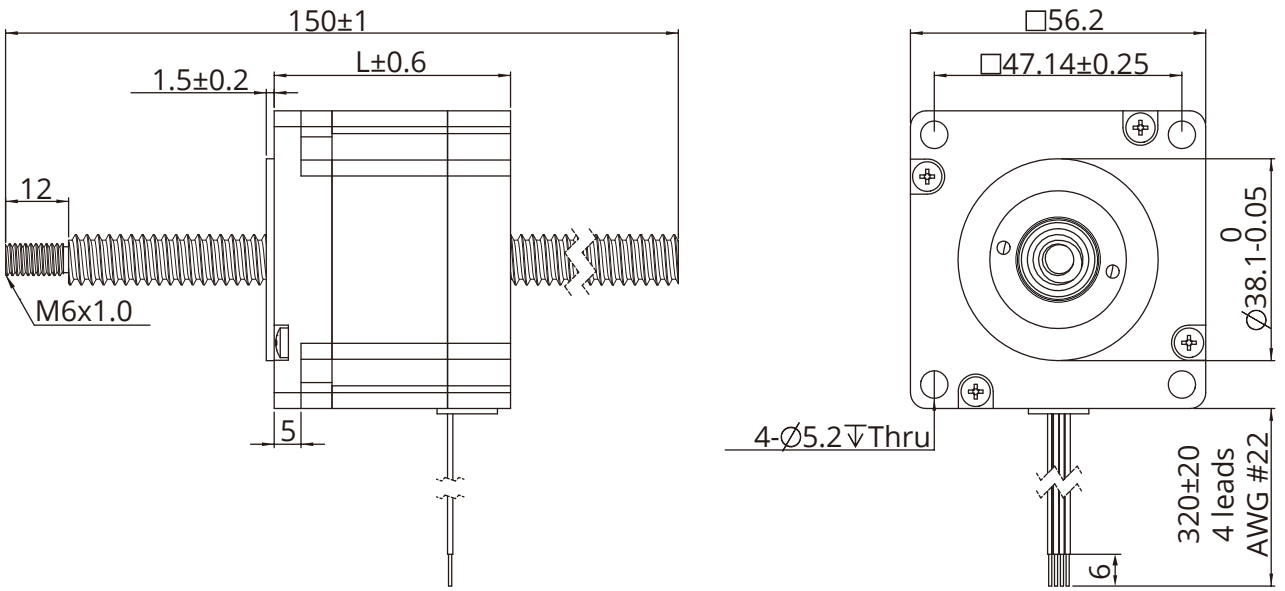
Dimensional Drawings

External Actuator



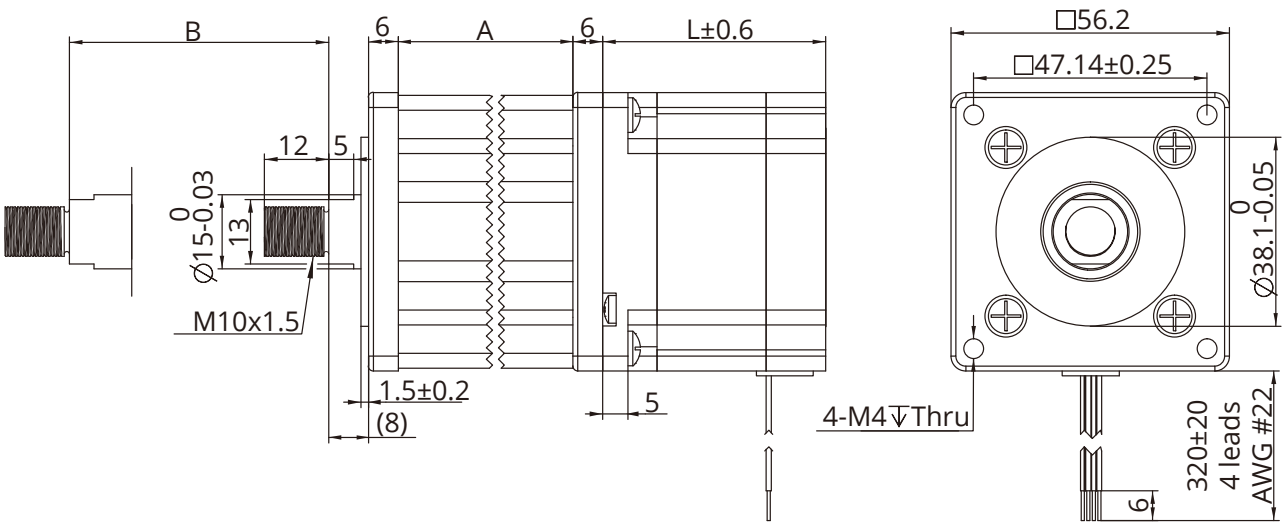
Nut Dimension

Non-Captive Actuator



NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

Electric Cylinder (Captive) Actuator



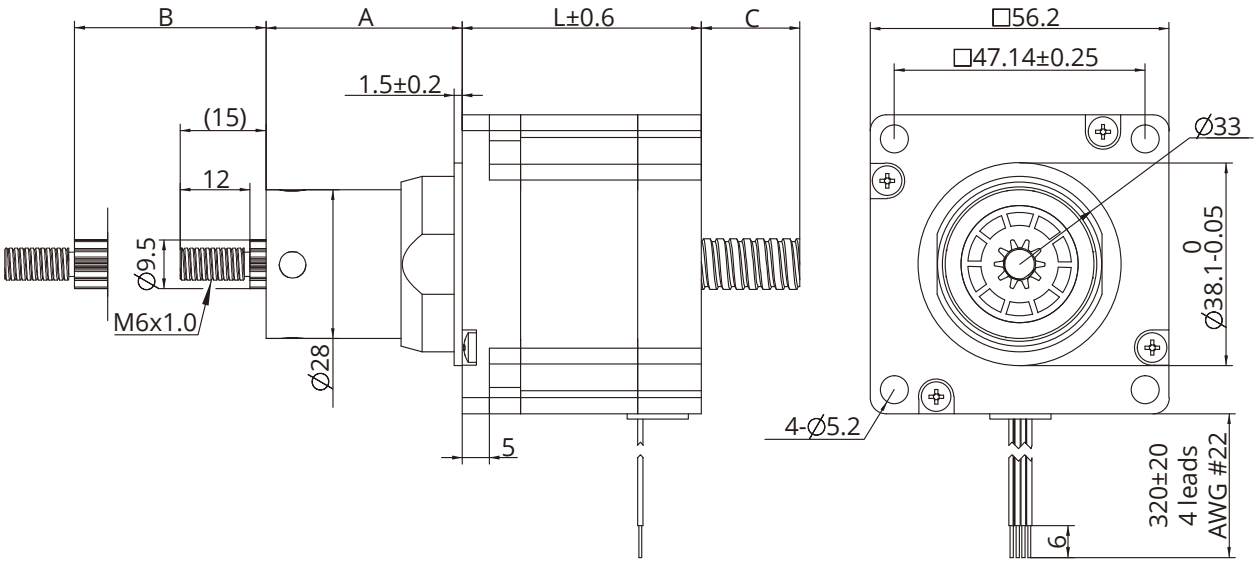
- **Stroke Specification**

Size A (mm)	Stroke B (mm)	L (mm)	
45.70	12.70	Single Stack Motor 45	Double Stack Motor 65
52.05	19.05		
58.40	25.40		
64.80	31.80		
71.10	38.10		
83.80	50.80		
96.50	63.50		

NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

Size 23 (57mm) Series

Kaptive Actuator



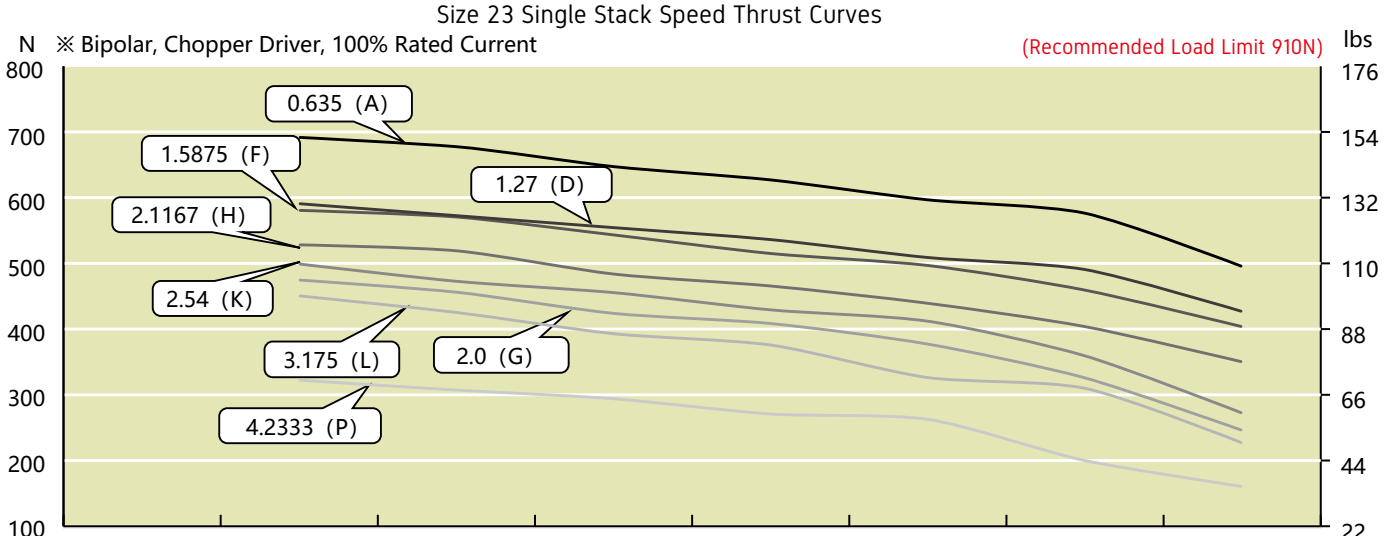
- **Stroke Specification**

Size A (mm)	Stroke B (mm)	C (mm)	
		L=45	L=65
24.20	12.70	5.80	0.00
30.55	19.05	12.15	2.15
36.90	25.40	18.50	8.50
43.25	31.75	24.85	14.85
49.60	38.10	31.20	21.20
62.30	50.80	43.90	33.90
75.00	63.50	56.60	46.60

NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

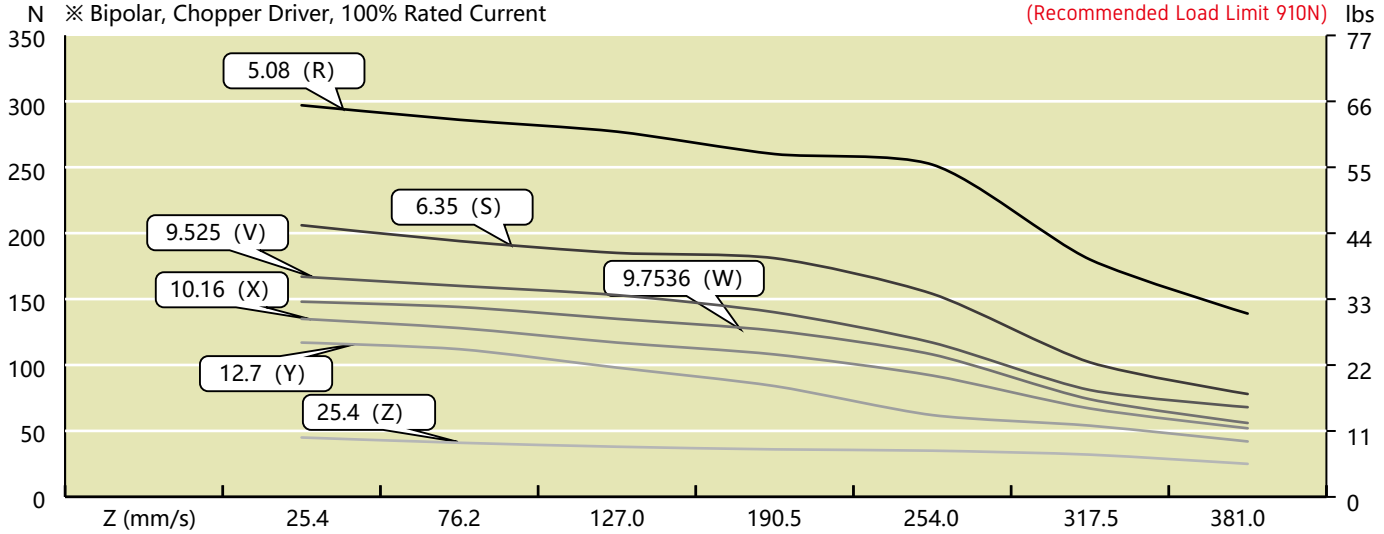
Speed Thrust Curves

Size 23 Single Stack Speed Thrust Curves



P (mm/s)	4.2	12.7	21.2	31.7	42.3	53.0	63.5
L (mm/s)	3.2	9.5	15.9	23.8	31.8	39.7	47.6
K (mm/s)	2.5	7.6	12.7	19.1	25.4	31.8	38.1
H (mm/s)	2.1	6.4	10.6	15.9	21.2	26.5	31.8
G (mm/s)	2.0	6.0	10.0	15.0	20.0	25.0	30.0
F (mm/s)	1.6	4.8	7.9	11.9	15.9	19.8	23.8
D (mm/s)	1.3	3.8	6.4	9.5	12.7	15.9	19.1
A (mm/s)	0.6	1.8	3.0	4.6	6.1	7.6	9.1
RPM r/min	60	180	300	450	600	750	900
PPS	200	600	1000	1500	2000	2500	3000

Size 23 Single Stack Speed Thrust Curves

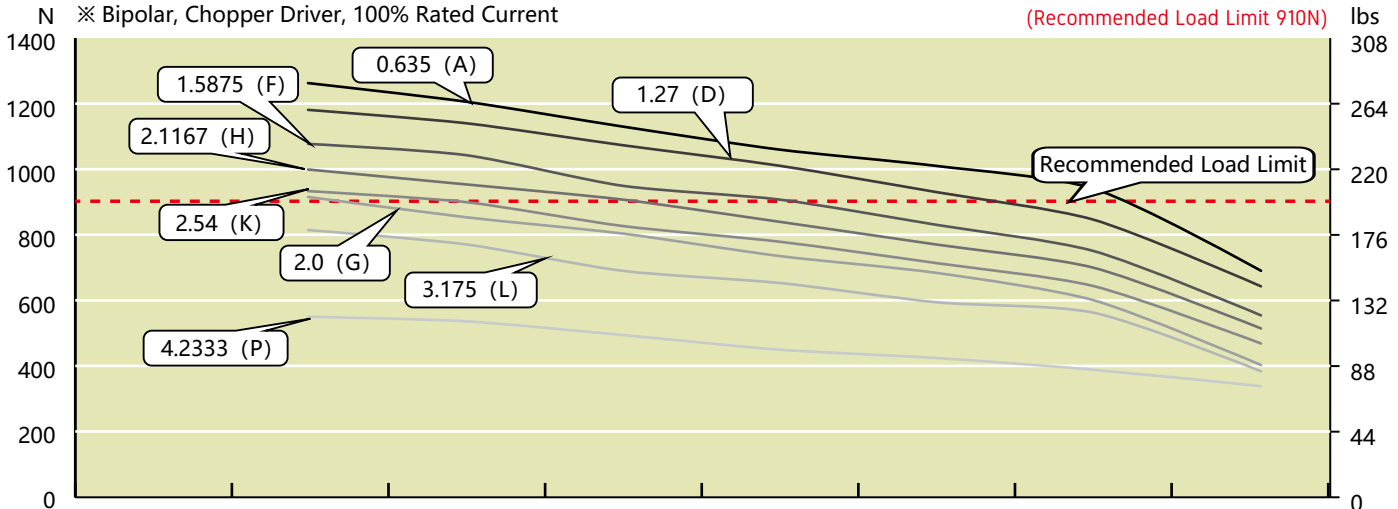


Z (mm/s)	25.4	76.2	127.0	190.5	254.0	317.5	381.0
Y (mm/s)	12.7	38.1	63.5	95.3	127.0	158.8	190.5
X (mm/s)	10.2	30.5	50.8	76.2	101.6	127.0	152.4
W (mm/s)	9.8	29.3	48.8	73.2	97.5	121.9	146.3
V (mm/s)	9.5	28.6	47.6	71.4	95.3	119.1	142.9
S (mm/s)	6.4	19.1	31.8	47.6	63.5	79.4	95.3
R (mm/s)	5.1	15.2	25.4	38.1	50.8	63.5	76.2
RPM r/min	60	180	300	450	600	750	900
PPS	200	600	1000	1500	2000	2500	3000

TEST CONDITION:
Testing Voltage: 40Vdc, Driver Model: DS-OLS4-FPD bipolar, chopper driver at rated current (rms). Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

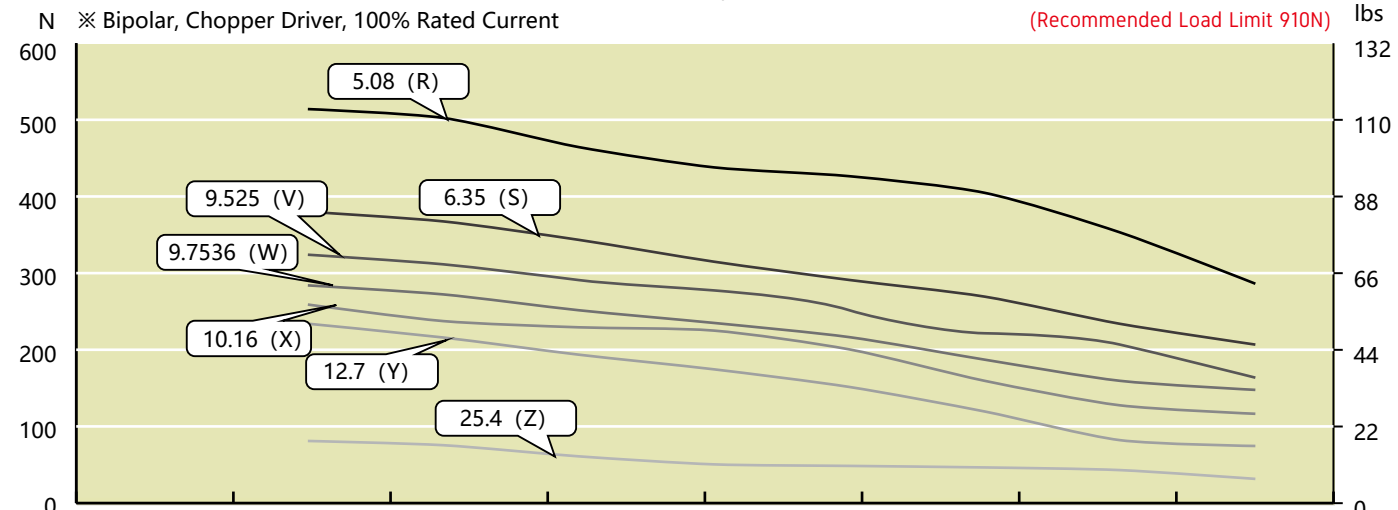
Size 23 (57mm) Series

Size 23 Double Stack Speed Thrust Curves



P (mm/s)	4.2	12.7	21.2	31.8	42.4	53.0	63.5
L (mm/s)	3.2	9.5	15.9	23.8	31.8	39.7	47.6
K (mm/s)	2.5	7.6	12.7	19.1	25.4	31.8	38.1
H (mm/s)	2.1	6.4	10.6	15.9	21.2	26.5	31.8
G (mm/s)	2.0	6.0	10.0	15.0	20.0	25.0	30.0
F (mm/s)	1.6	4.8	7.9	11.9	15.9	19.8	23.8
D (mm/s)	1.3	3.8	6.4	9.5	12.7	15.9	19.1
A (mm/s)	0.6	1.8	3.0	4.6	6.1	7.6	9.1
RPM r/min	60	180	300	450	600	750	900
PPS	200	600	1000	1500	2000	2500	3000

Size 23 Double Stack Speed Thrust Curves



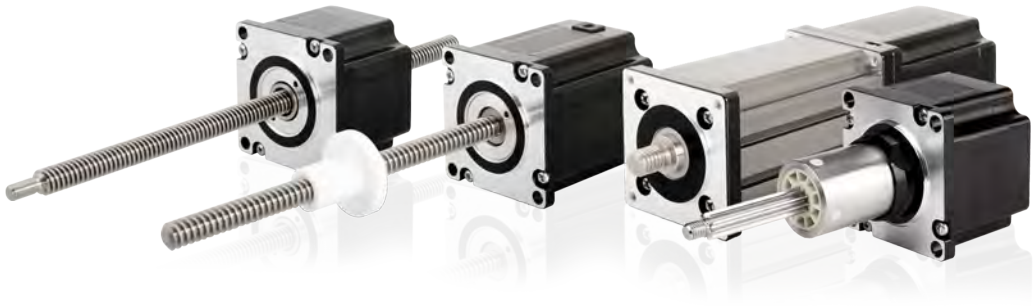
Z (mm/s)	25.4	76.2	127.0	190.5	254.0	317.5	381.0
Y (mm/s)	12.7	38.1	63.5	95.3	127.0	158.8	190.5
X (mm/s)	10.2	30.5	50.8	76.2	101.6	127.0	152.4
W (mm/s)	9.8	29.3	48.8	73.2	97.5	121.9	146.3
V (mm/s)	9.5	28.6	47.6	71.4	95.3	119.1	142.9
S (mm/s)	6.4	19.1	31.8	47.6	63.5	79.4	95.3
R (mm/s)	5.1	15.2	25.4	38.1	50.8	63.5	76.2
RPM r/min	60	180	300	450	600	750	900
PPS	200	600	1000	1500	2000	2500	3000

TEST CONDITION
Testing Voltage: 40Vdc, Driver Model: DS-OLS4-FPD bipolar, chopper driver at rated current (rms). Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

Size 24 (60mm) Series

Size 24 [60mm] Stepper Lead Screw Linear Actuator provides high performance, a longer working cycle, and is capable of 1050N.

Size 24 Stepper Lead Screw Linear Actuator has four form factors available - External, Non-Captive, Electric Cylinder (Captive) and Kaptive.



Motor Characteristics

Motor	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Weight (g)	Lead Wire No.	Motor Length (mm)
24-2120	3.0	2	1.5	3.9	680	4	47
24-2130	1.8	3	0.6	1.6	680	4	47
24-2140	1.6	4	0.4	0.9	680	4	47
24-2230	3.0	3	1.0	3.4	1080	4	68.3
24-2240	2.4	4	0.6	1.9	1080	4	68.3
24-2250	1.5	5	0.3	1.2	1080	4	68.3

NOTE : Motor Insulation Class B, Motor Temperature Rise 80°C, Ambient Temperature -20°C~ 50°C

Available Lead Screw and Travel per Step

Screw Dia. (inch)	Screw Dia. (mm)	Lead (inch)	Lead (mm)	Lead Code	Travel Per Step @ 1.8 deg (mm)*	Travel Per Step @ 0.9 deg (mm)*
0.394	10.000	0.079	2.0	G	0.01	0.005
0.375	9.525	0.025	0.635	A	0.0032	0.0016
0.375	9.525	0.05	1.27	D	0.0064	0.0032
0.375	9.525	0.0625	1.5875	F	0.0079	0.004
0.375	9.525	0.083	2.1167	H	0.0106	0.0053
0.375	9.525	0.1	2.54	K	0.0127	0.0064
0.375	9.525	0.125	3.175	L	0.0159	0.0079
0.375	9.525	0.167	4.2333	P	0.0212	0.0106
0.375	9.525	0.2	5.08	R	0.0254	0.0127
0.375	9.525	0.25	6.35	S	0.0318	0.0159
0.375	9.525	0.375	9.525	V	0.0476	0.0238
0.375	9.525	0.384	9.7536	W	0.0488	0.0244
0.375	9.525	0.4	10.16	X	0.0508	0.0254
0.375	9.525	0.5	12.7	Y	0.0635	0.0318
0.375	9.525	1.0	25.4	Z	0.127	0.0635

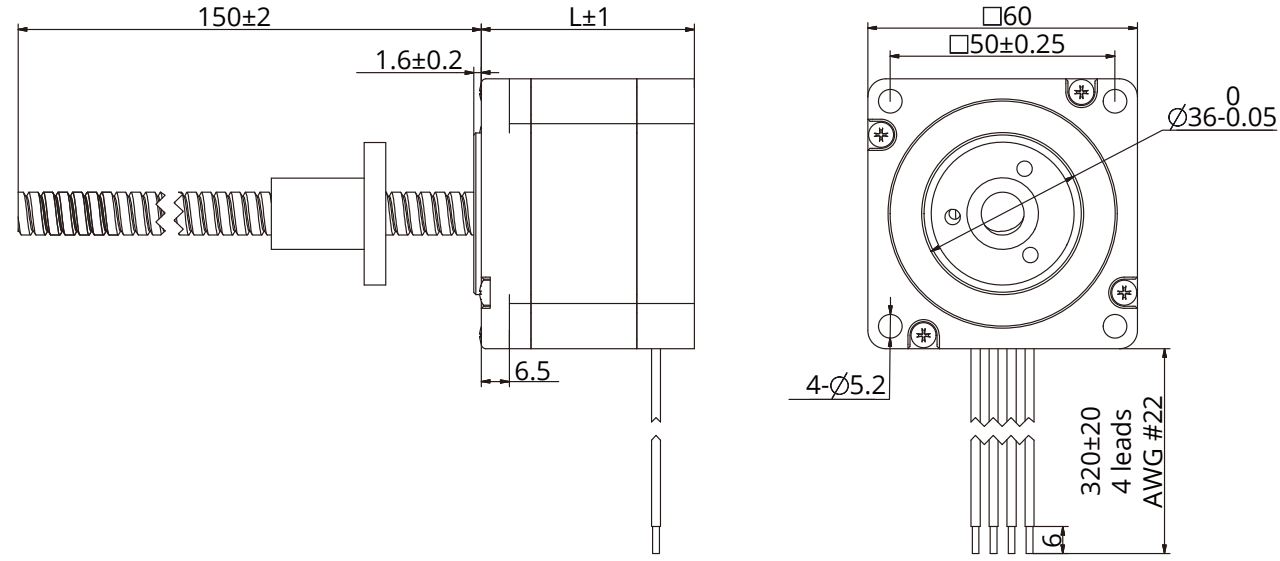
*Value truncated

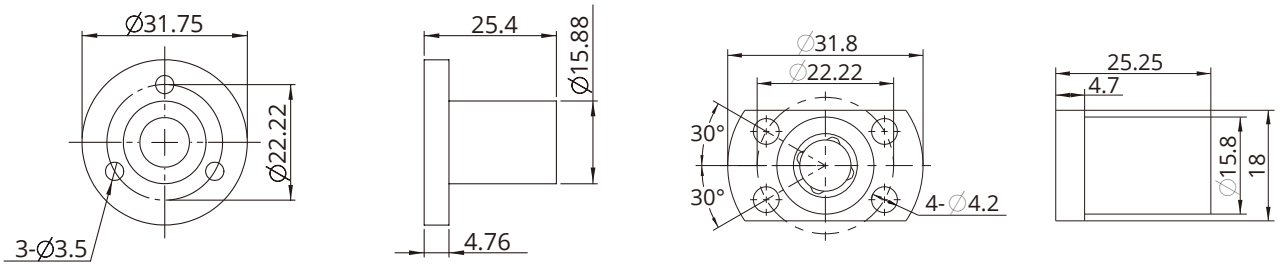
* External Lead Screw Linear Actuator can be structured with ϕ15.875mm diameter of screw.
* Motor winding parameters and screw length can be customized according to customer requirements.

Size 24 (60mm) Series

Dimensional Drawings

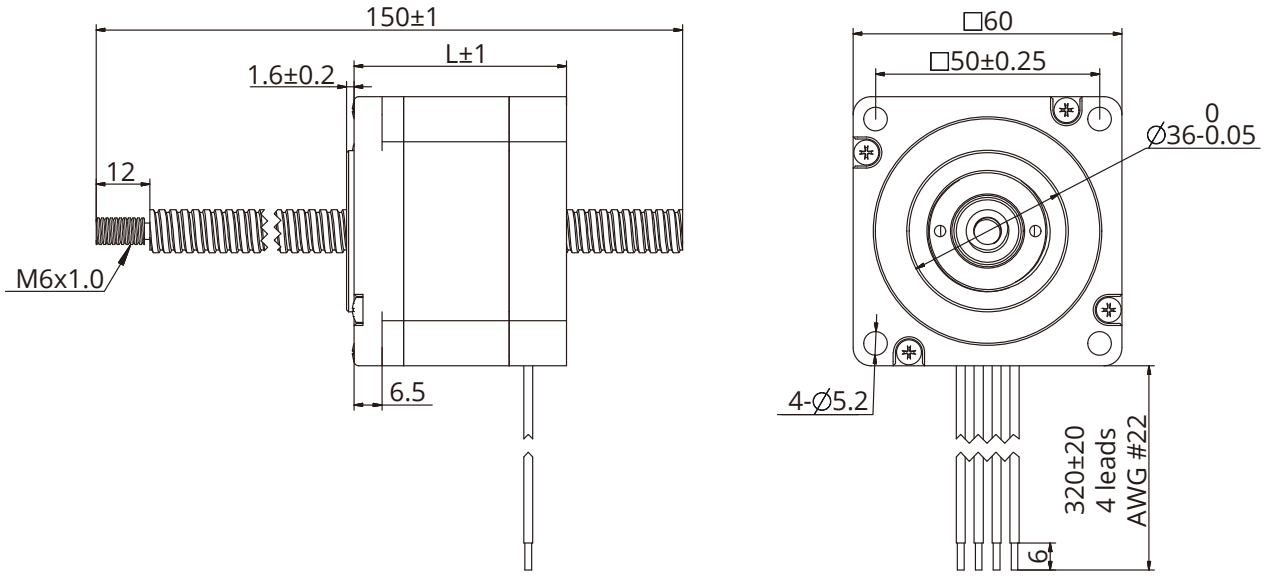
External Actuator





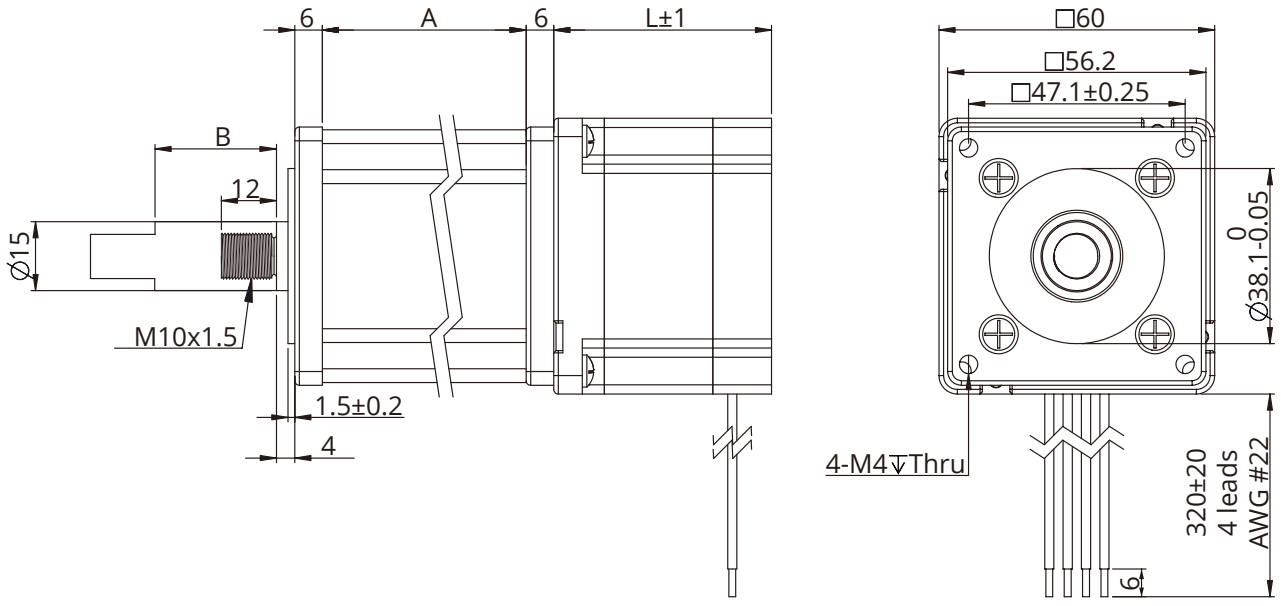
Nut Dimension

Non-Captive Actuator



NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

Electric Cylinder (Captive) Actuator



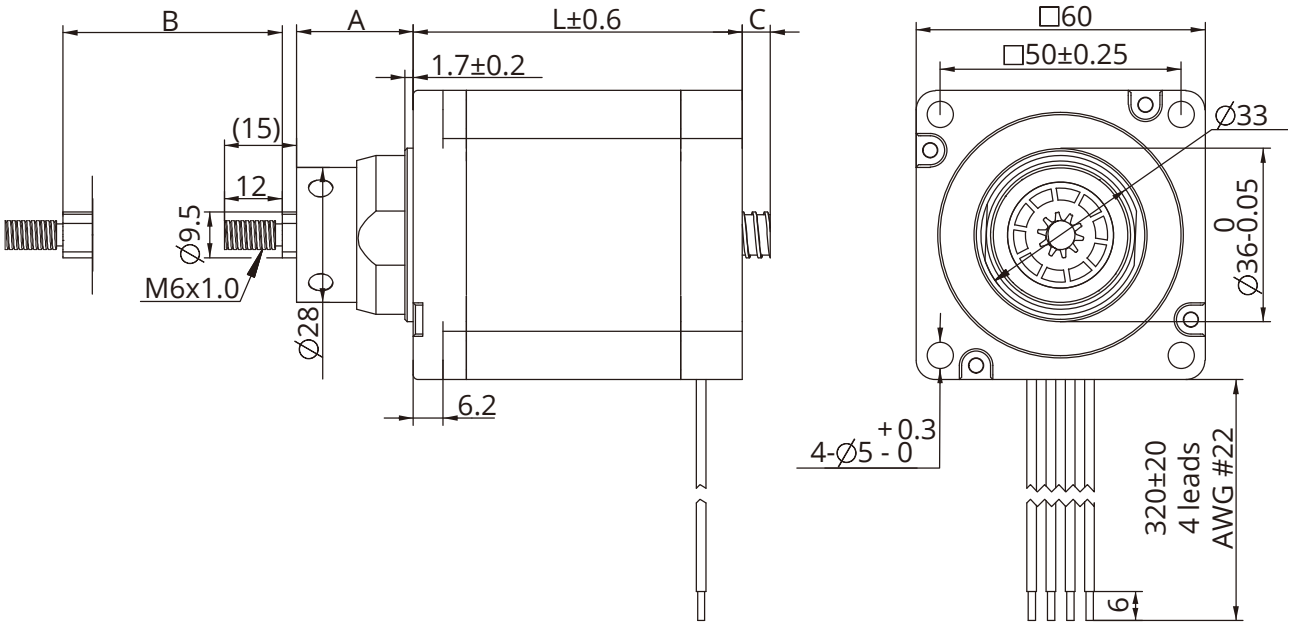
Stroke Specification

Size A (mm)	Stroke B (mm)	L (mm)	
45.70	12.70	Single Stack Motor 47	Double Stack Motor 68.3
52.05	19.05		
58.40	25.40		
64.80	31.80		
71.10	38.10		
83.80	50.80		
96.50	63.50		

NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

Size 24 (60mm) Series

Kaptive Actuator



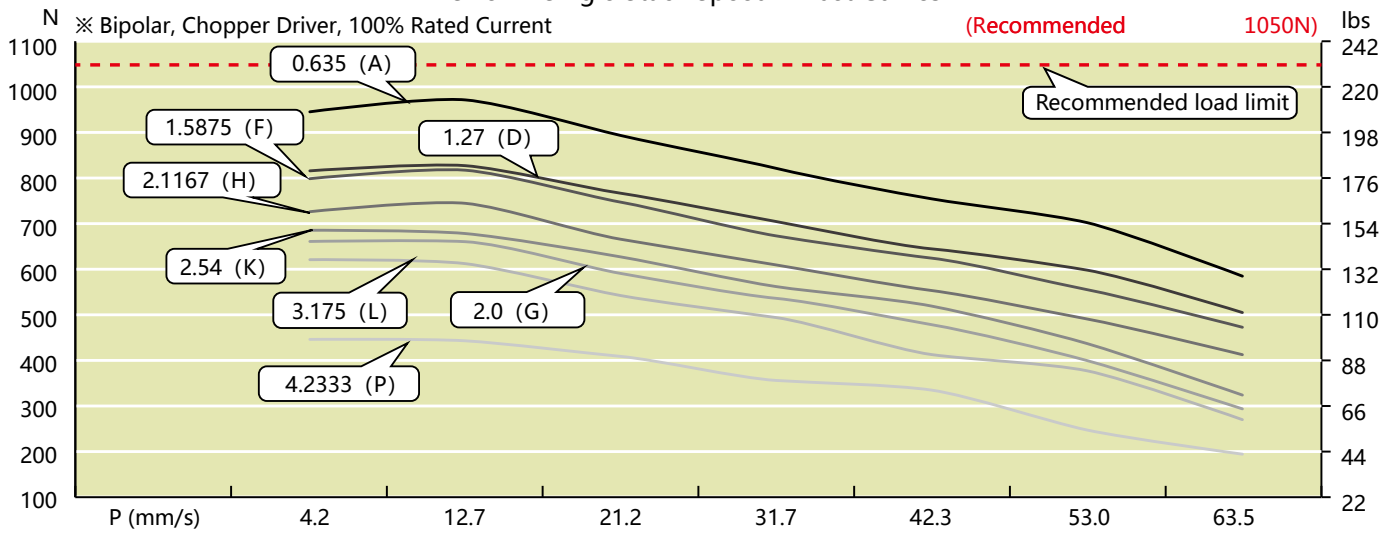
- **Stroke Specification**

Size A (mm)	Stroke B (mm)	C (mm)	
		L=47	L=68.3
24.20	12.70	5.80	0.00
30.55	19.05	12.15	2.15
36.90	25.40	18.50	8.50
43.25	31.80	24.85	14.85
49.60	38.10	31.20	21.20
62.30	50.80	43.90	33.90
75.00	63.50	56.60	46.60

NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

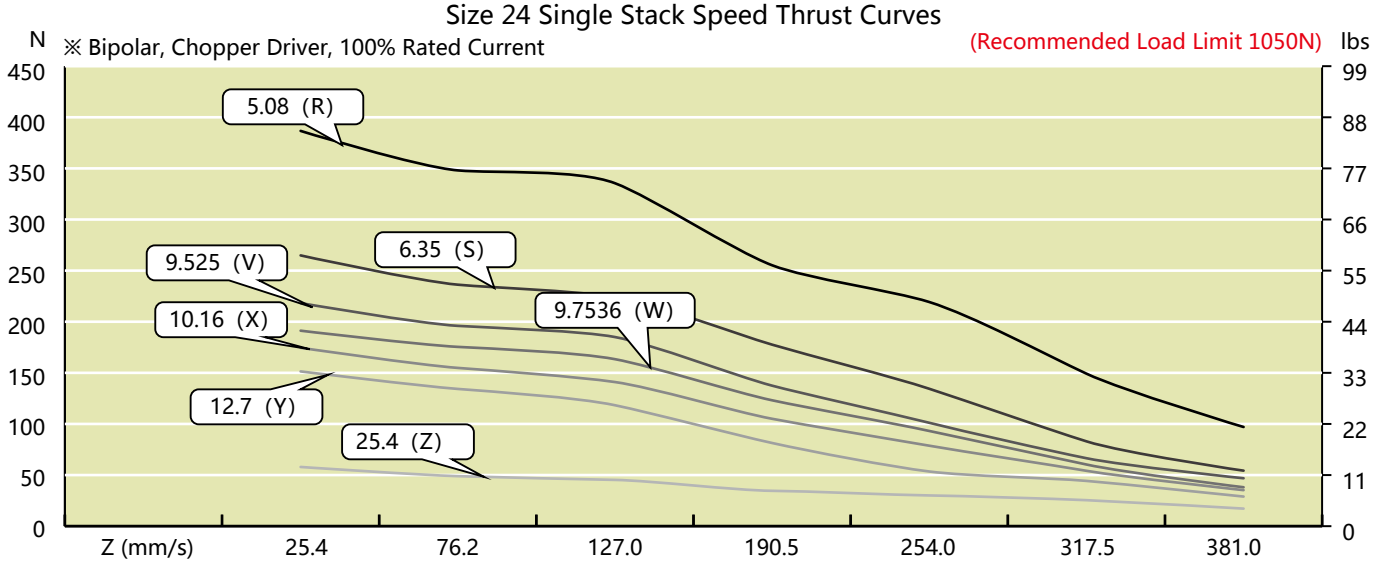
Speed Thrust Curves

Size 24 Single Stack Speed Thrust Curves



P (mm/s)	4.2	12.7	21.2	31.7	42.3	53.0	63.5
L (mm/s)	3.2	9.5	15.9	23.8	31.8	39.7	47.6
K (mm/s)	2.5	7.6	12.7	19.1	25.4	31.8	38.1
H (mm/s)	2.1	6.4	10.6	15.9	21.2	26.5	31.8
G (mm/s)	2.0	6.0	10.0	15.0	20.0	25.0	30.0
F (mm/s)	1.6	4.8	7.9	11.9	15.9	19.8	23.8
D (mm/s)	1.3	3.8	6.4	9.5	12.7	15.9	19.1
A (mm/s)	0.6	1.8	3.0	4.6	6.1	7.6	9.1
RPM r/min	60	180	300	450	600	750	900
PPS	200	600	1000	1500	2000	2500	3000

Size 24 Single Stack Speed Thrust Curves



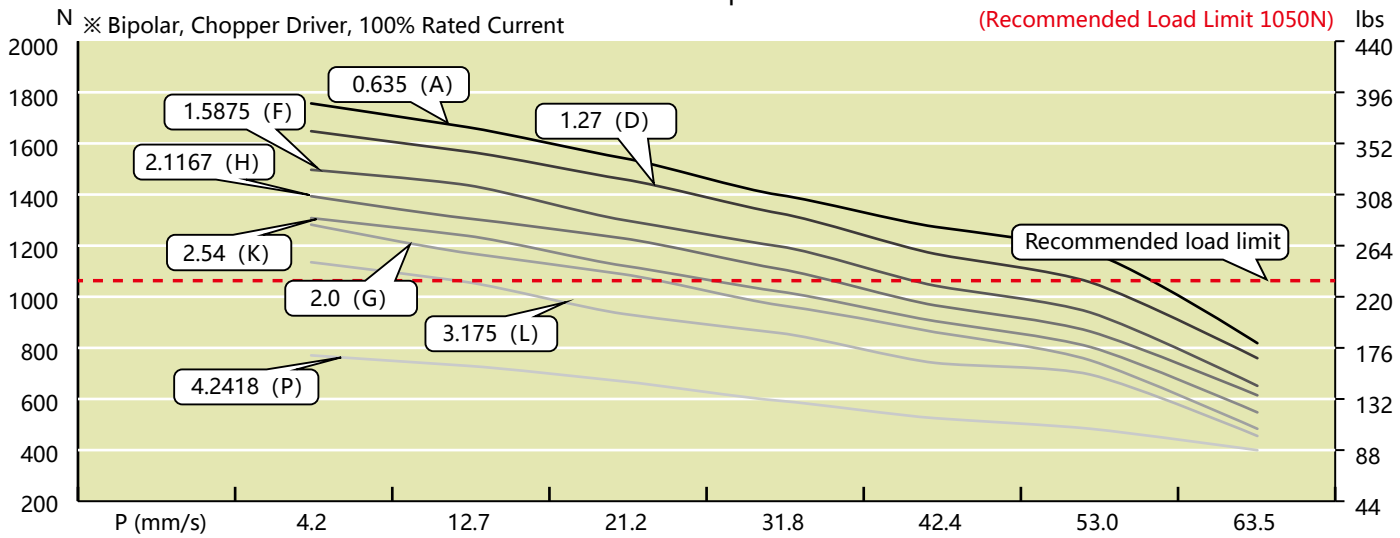
Z (mm/s)	25.4	76.2	127.0	190.5	254.0	317.5	381.0
Y (mm/s)	12.7	38.1	63.5	95.3	127.0	158.8	190.5
X (mm/s)	10.2	30.5	50.8	76.2	101.6	127.0	152.4
W (mm/s)	9.8	29.3	48.8	73.2	97.5	121.9	146.3
V (mm/s)	9.5	28.6	47.6	71.4	95.3	119.1	142.9
S (mm/s)	6.4	19.1	31.8	47.6	63.5	79.4	95.3
R (mm/s)	5.1	15.2	25.4	38.1	50.8	63.5	76.2
RPM r/min	60	180	300	450	600	750	900
PPS	200	600	1000	1500	2000	2500	3000

TEST CONDITION

Testing Voltage: 40Vdc, Driver Model: DS-OLS4-FPD bipolar, chopper driver at rated current (rms). Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

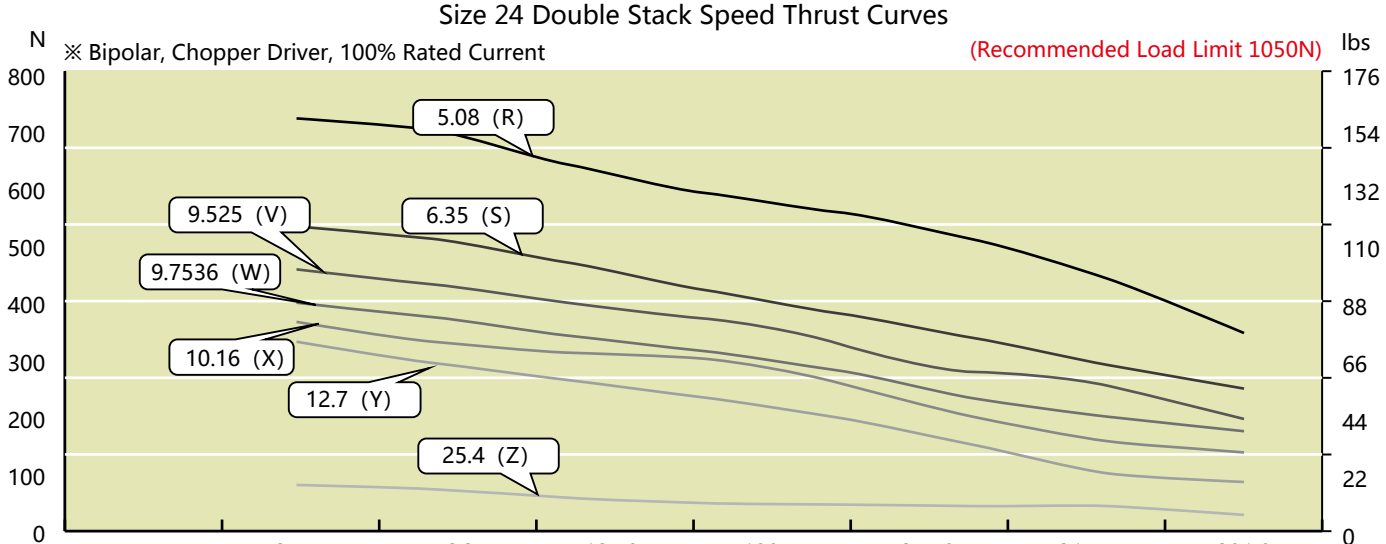
Size 24 (60mm) Series

Size 24 Double Stack Speed Thrust Curves



P (mm/s)	4.2	12.7	21.2	31.8	42.4	53.0	63.5
L (mm/s)	3.2	9.5	15.9	23.8	31.8	39.7	47.6
K (mm/s)	2.5	7.6	12.7	19.1	25.4	31.8	38.1
H (mm/s)	2.1	6.4	10.6	15.9	21.2	26.5	31.8
G (mm/s)	2.0	6.0	10.0	15.0	20.0	25.0	30.0
F (mm/s)	1.6	4.8	7.9	11.9	15.9	19.8	23.8
D (mm/s)	1.3	3.8	6.4	9.5	12.7	15.9	19.1
A (mm/s)	0.6	1.8	3.0	4.6	6.1	7.6	9.1
RPM r/min	60	180	300	450	600	750	900
PPS	200	600	1000	1500	2000	2500	3000

Size 24 Double Stack Speed Thrust Curves



Z (mm/s)	25.4	76.2	127.0	190.5	254.0	317.5	381.0
Y (mm/s)	12.7	38.1	63.5	95.3	127.0	158.8	190.5
X (mm/s)	10.2	30.5	50.8	76.2	101.6	127.0	152.4
W (mm/s)	9.8	29.3	48.8	73.2	97.5	121.9	146.3
V (mm/s)	9.5	28.6	47.6	71.4	95.3	119.1	142.9
S (mm/s)	6.4	19.1	31.8	47.6	63.5	79.4	95.3
R (mm/s)	5.1	15.2	25.4	38.1	50.8	63.5	76.2
RPM r/min	60	180	300	450	600	750	900
PPS	200	600	1000	1500	2000	2500	3000

TEST CONDITION:

Testing Voltage: 40Vdc, Driver Model: DS-OLS4-FPD bipolar, chopper driver at rated current (rms). Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

Size 34 (86mm) Series

Size 34 [86mm] Stepper Lead Screw Linear Actuator is our biggest in size, and can provide up to 2270N of continuous thrust.

Size 34 Stepper Lead Screw Linear Actuator has two form factors available - External and Non-Captive.

MotorCharacteristics

Motor	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Weight (g)	Lead Wire No.	Motor Length (mm)
34-2113	12.0	1.3	9.2	71.0	2370	4	76
34-2130	5.7	3.0	1.9	15.0	2370	4	76
34-2155	2.85	5.5	0.52	4.5	2370	4	76

NOTE：Motor Insulation Class B, Motor Temperature Rise 80°C, Ambient Temperature -20°C~ 50°C

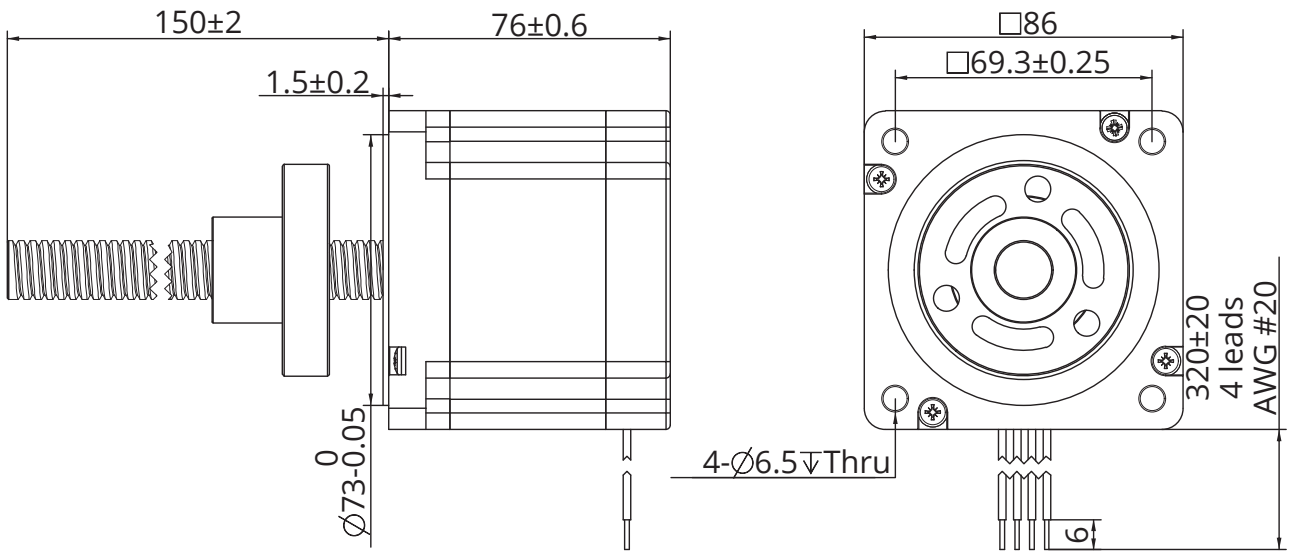
Available Lead Screw and Travel per Step

Screw Dia. (inch)	Screw Dia. (mm)	Lead (inch)	Lead (mm)	Lead Code	Travel Per Step @ 1.8 deg (mm)*	Travel Per Step @ 0.9 deg (mm)*
0.625	15.875	0.1	2.54	K	0.0127	0.0064
0.625	15.875	0.125	3.175	L	0.0159	0.0079
0.625	15.875	0.2	5.08	R	0.0254	0.0127
0.625	15.875	0.25	6.35	S	0.0318	0.0159
0.625	15.875	0.5	12.7	Y	0.0635	0.0318
0.625	15.875	1.0	25.4	Z	0.127	0.0635

* Motor winding parameters and screw length can be customized according to customer requirements *Value truncated

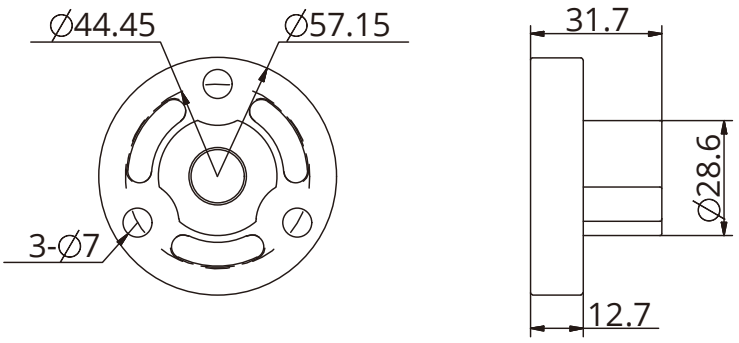
Dimensional Drawings

External Actuator



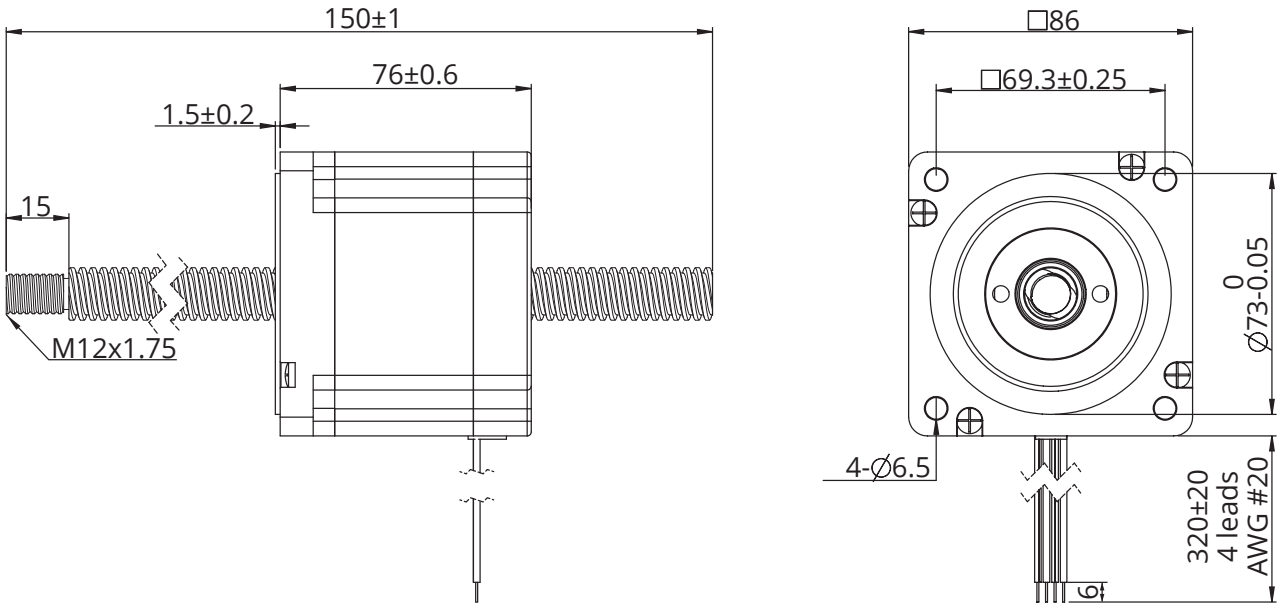
NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

Size 34 (86mm) Series



Nut Dimension

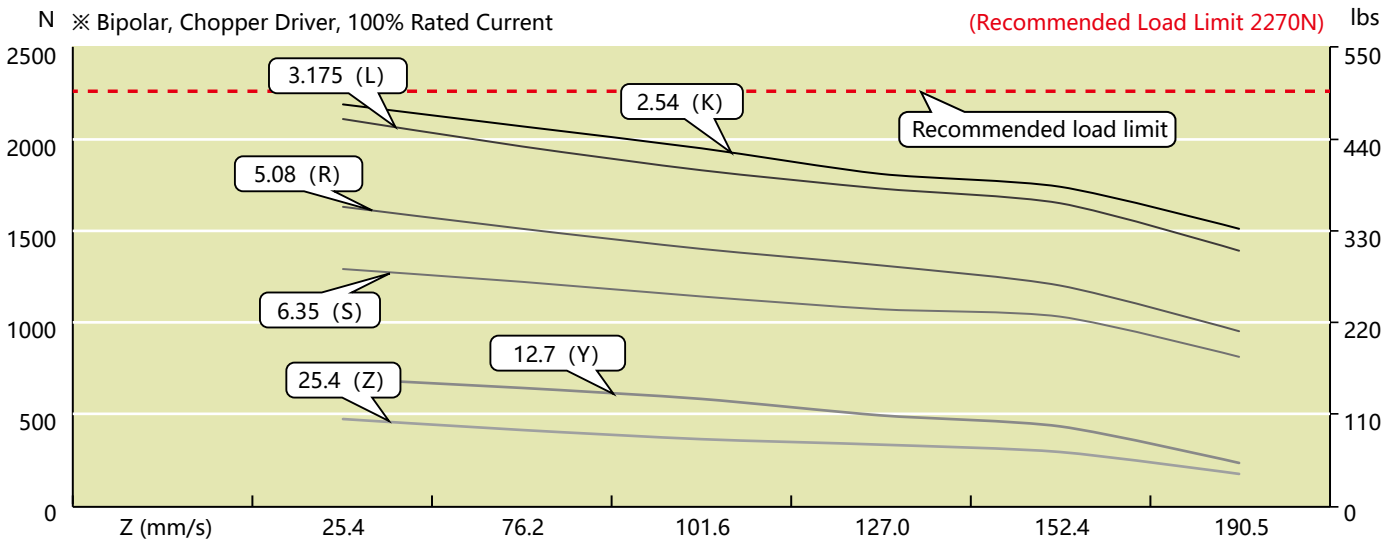
Non-Captive Actuator



NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

Speed Thrust Curves

Size 34 Single Stack Speed Thrust Curves



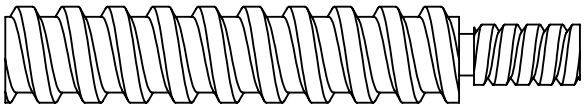
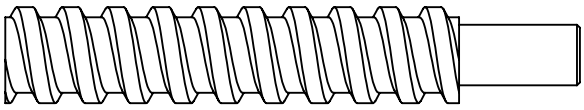
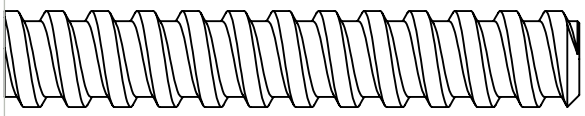
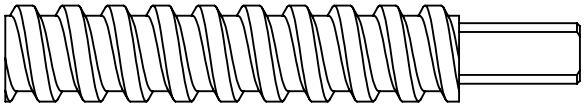
Z (mm/s)	25.4	76.2	101.6	127.0	152.4	190.5
Y (mm/s)	12.7	38.1	50.8	63.5	76.2	95.3
S (mm/s)	6.4	19.1	25.4	31.8	38.1	47.6
R (mm/s)	5.1	15.2	20.3	25.4	30.5	38.1
L (mm/s)	3.2	9.5	12.7	15.9	19.1	23.8
K (mm/s)	2.5	7.6	10.2	12.7	15.2	19.1
RPM r/min	60	180	240	300	360	450
PPS	200	600	800	1000	1200	1500

TEST CONDITION

Testing Voltage: 40Vdc, Driver Model: DS-OLS8-FPD bipolar, chopper driver at rated current (rms). Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

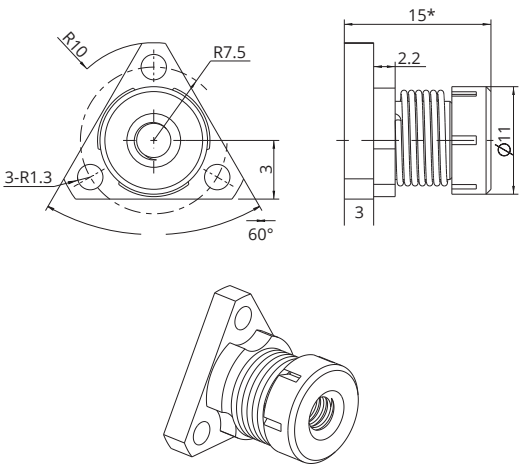
Accessories and Options

Screw End Machining

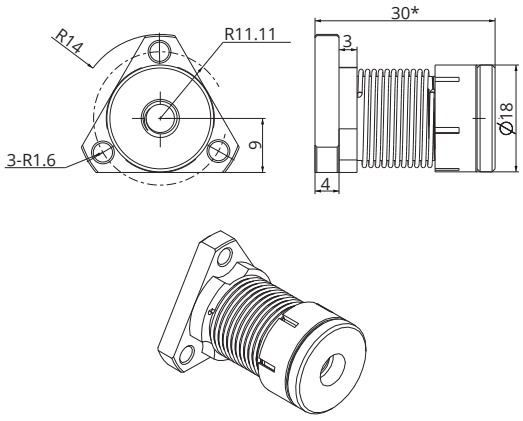
	Threaded End	Screw end machining depends on screw diameter. For customized screw end machining are available, please contact DINGS' representatives for more details.
	Smooth End	
	None	
	Customized	

External Actuator Anti-Backlash Nut

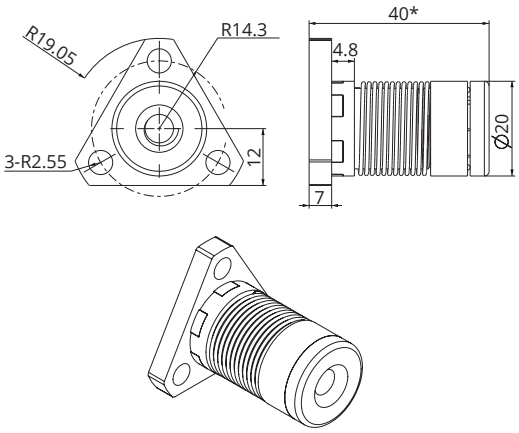
- Torsion Spring Anti-Backlash Nut



Size 8 (20mm) & Size 11 (28mm)

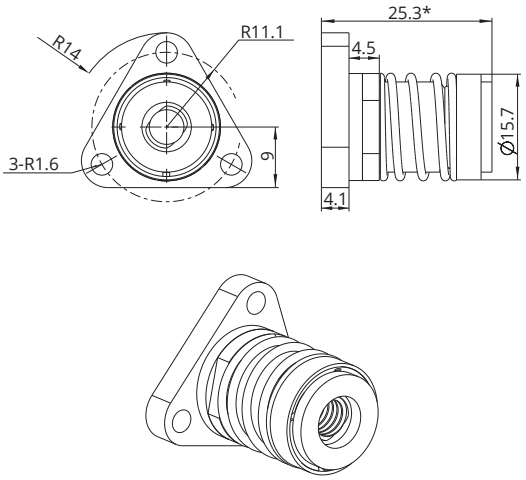


Size 14 (35mm) & Size 17 (42mm)

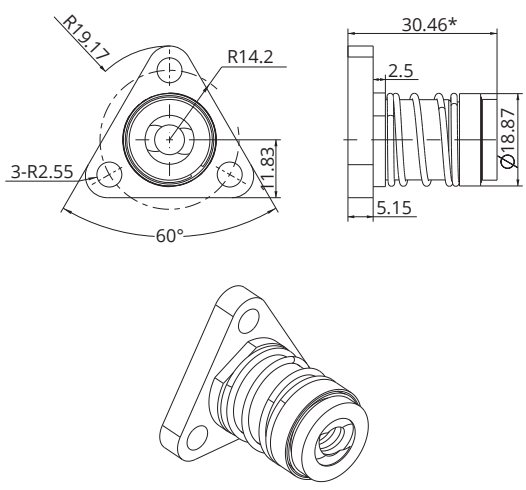


Size 23 (57mm)

- Compression Spring Anti-Backlash Nut



Size 14 (35mm) & Size 17 (42mm)

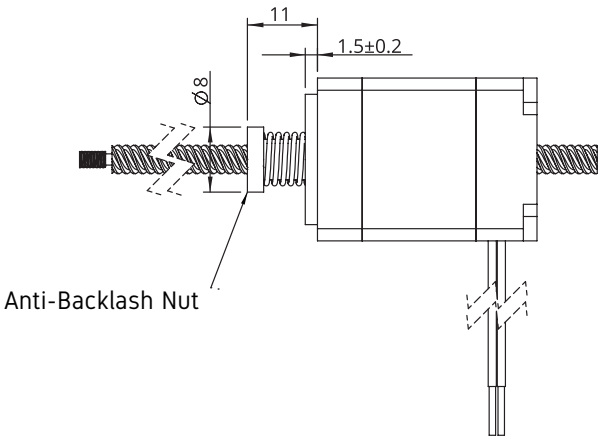


Size 23 (57mm)

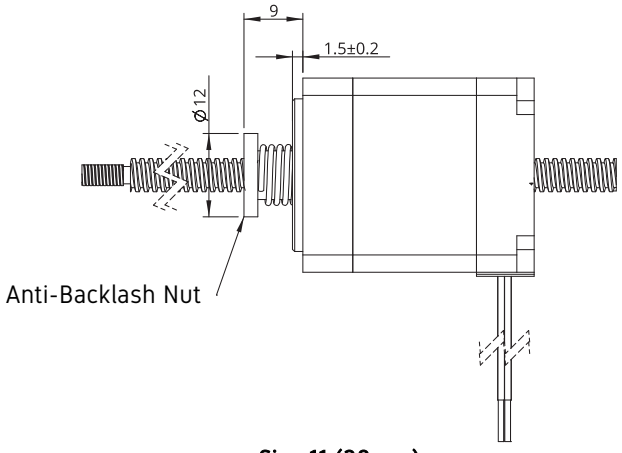
*** According to different screw lead code selection, length of Anti-Backlash nut can be changed**

Accessories and Options

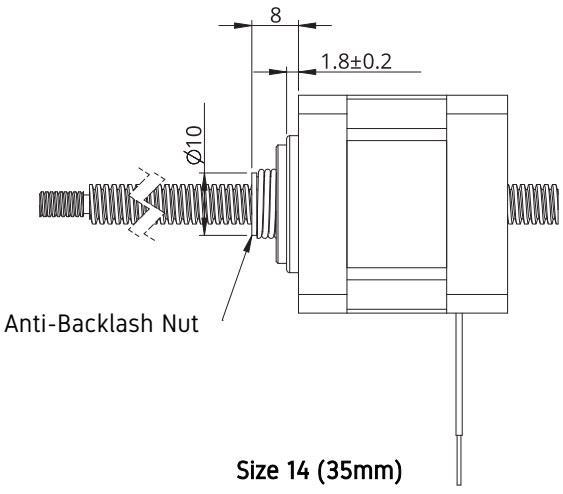
Non-Captive Actuator Anti-Backlash Nut



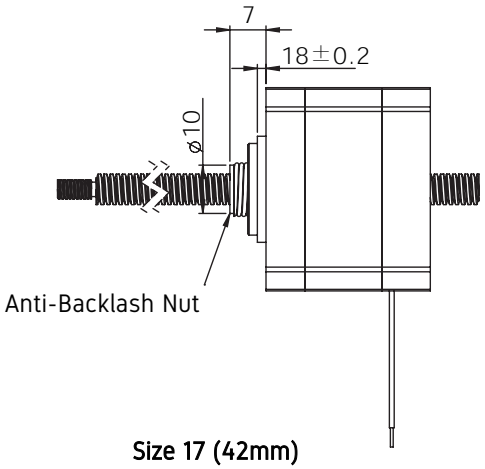
Size 8 (20mm)



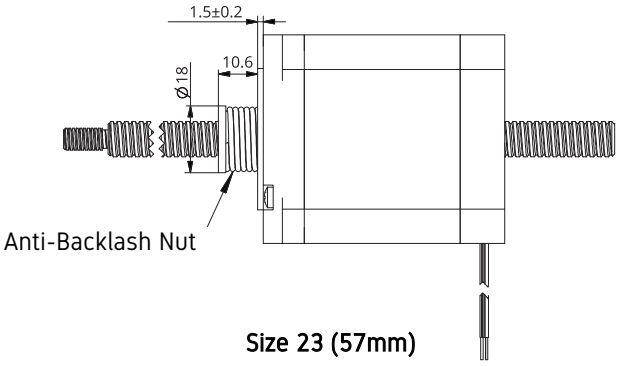
Size 11 (28mm)



Size 14 (35mm)

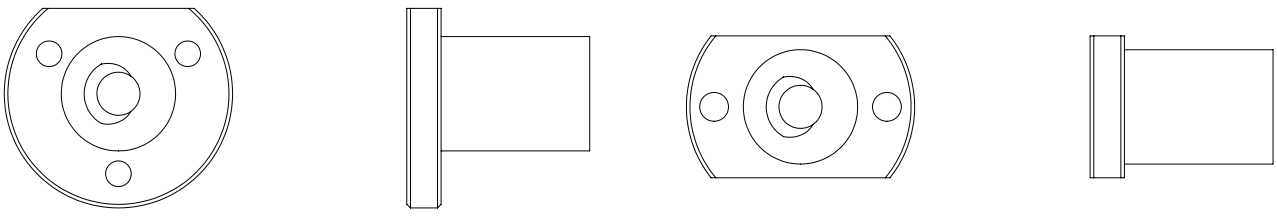


Size 17 (42mm)

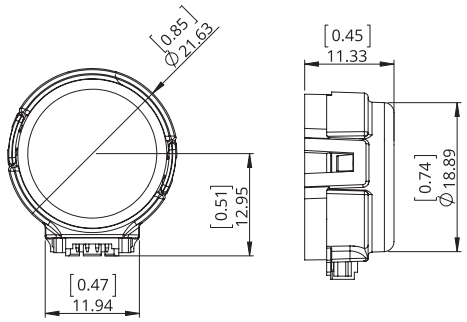


Size 23 (57mm)

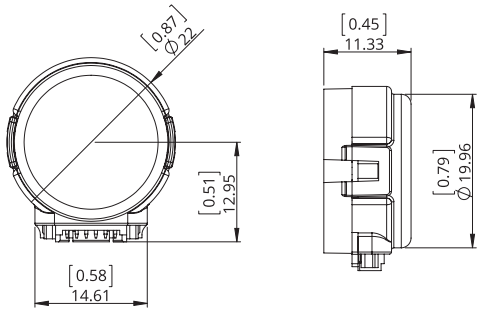
Customized Nut



Encoder



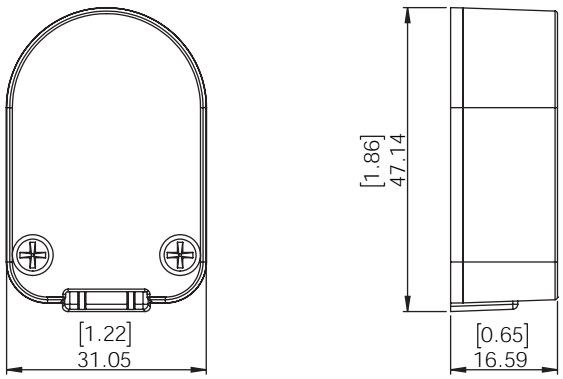
EK1 Encoder – single ended output



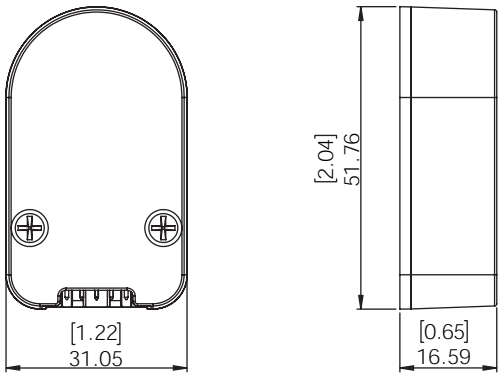
EK1 Encoder – differential output

- **EK1 Encoder (Used for Size 8, 11, 14, 17 Motor)** *No Index

Resolution(CPR)	100	108	120	125	128	200	250	256	300	360	400	500	1000	512	720	800
Single ended output	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Differential output	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P



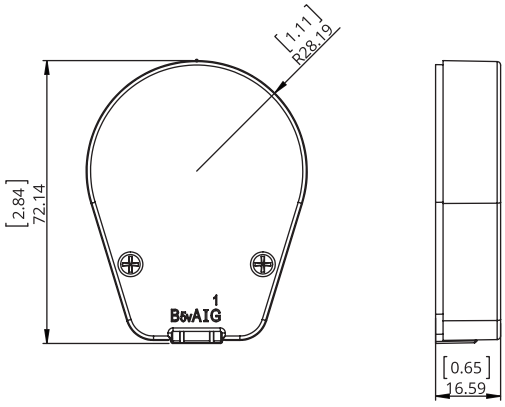
EK2 Encoder – single ended output



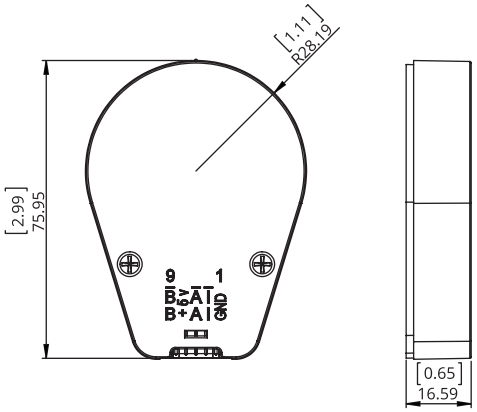
EK2 Encoder – differential output

- **EK2 Encoder (Used for Size 11, 14, 17, 23, 24 Motor)** *Index / No Index

Resolution(CPR)	50	100	192	200	250	256	360	400	500	720	900	1000	1250	2000	2500	4000	5000
Single ended output	0	1	2	3	4	5	6	7	8	9	10	11	12				
Differential output	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q



EK3 Encoder – single ended output

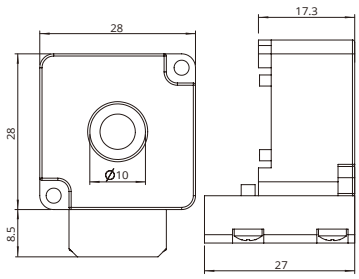


EK3 Encoder – differential output

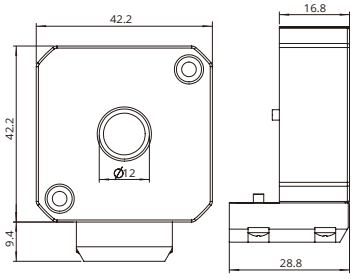
- **EK3 Encoder (Used for Size 23, 24, 34 Motor)** *Index / No Index

Resolution(CPR)	64	100	200	500	1000	1800	2000	2500	3600	4000	5000	7200	8000	10000
Single ended output	0	1	2	3	4	5	6	7	8					
Differential output		A	B	C	D	E	F	G	H	I	J	K	L	M

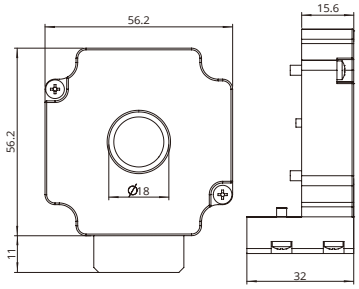
Accessories and Options



EK4 Encoder 11



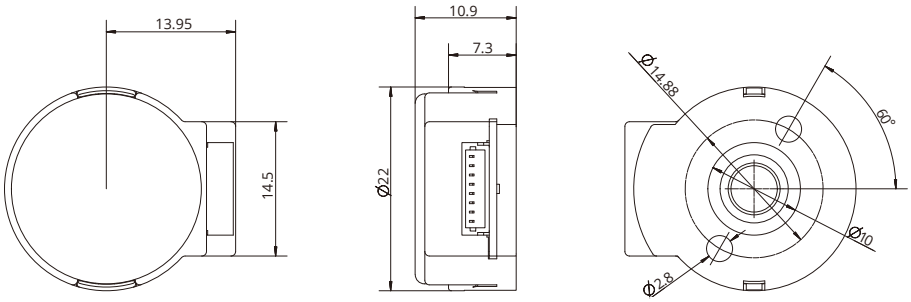
EK4 Encoder 17



EK4 Encoder 23

- **EK4 Encoder (Used for Size 11, 17, 23 External drive, Hollow, Rotary Motor)** * Index, Differential Shielded Cable

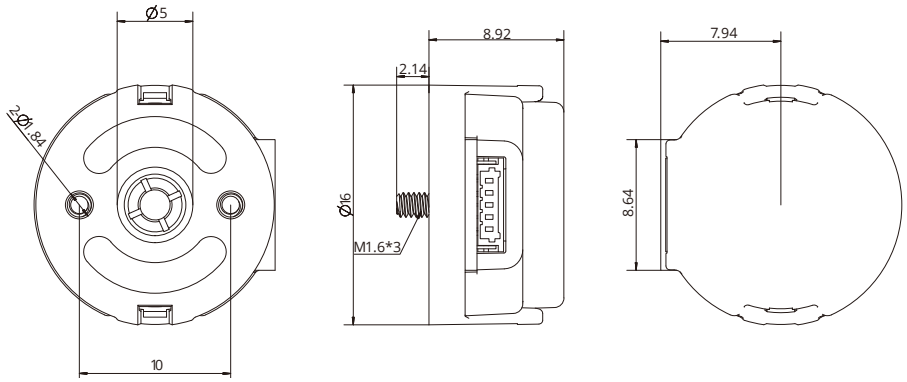
Resolution(CPR)	625	800	1000	1250	1600	2000	2500	3200	4000
Single ended output	-	-	-	-	-	-	-	-	-
Differential output	-	-	C	-	-	-	-	-	-



EK5 Encoder – differential output

- **EK5 Encoder (Used for Size 8, 11, 17 Motor)** * Index

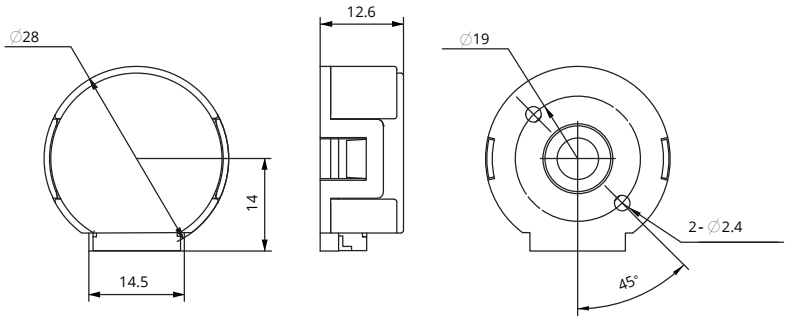
Resolution(CPR)	360	500	512	1000	1024	2000	2048
Single ended output	0	1	2	3	4	5	6
Differential output	A	B	C	D	E	F	G



EK6 Encoder – single ended output

- **EK6 Encoder (Used for Size 6 Motor)**

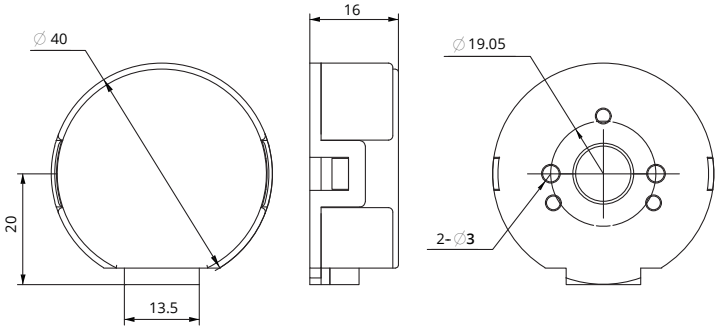
Resolution[CPR]	250	256	500	512	1000	1024	2000	2048	4000	4096
Single ended output	0	1	2	3	4	5	6	7	8	9



KPL 28 Encoder

- **KPL 28 Encoder (Used for Size 8, 11, 14, 17 Motor)** *Index

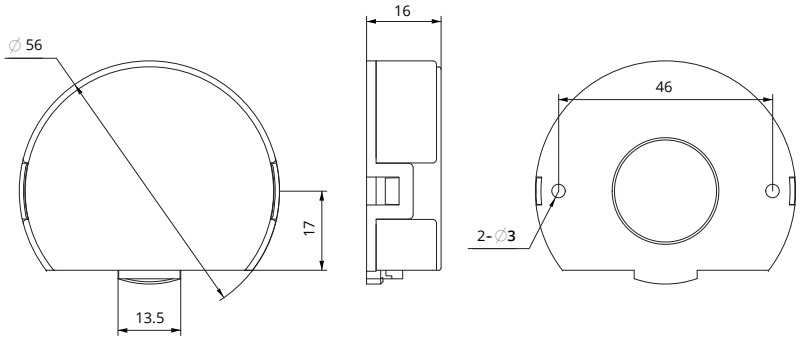
Resolution(CPR)	400	500	1000	2000
Single ended output	0	1	3	6
Differential output	A	B	D	G



KPL 40 Encoder

- **KPL 40 Encoder (Used for Size 14, 17 Motor)** * Index

Resolution(CPR)	400	800	1000	1250	1600	2000	2500	3200	4000
Single ended output	0	2	3	4	5	6	7	8	9
Differential output	A	C	D	E	F	G	H	I	J



KPL 56 Encoder

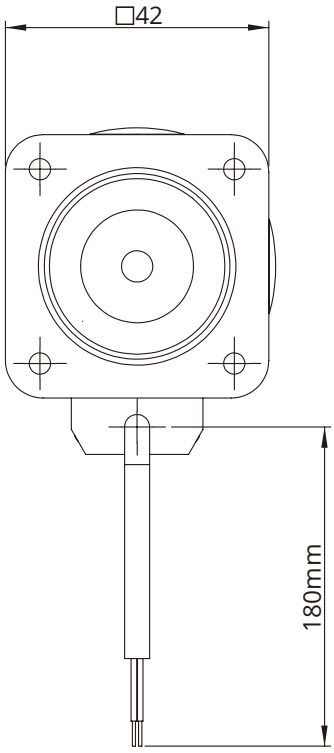
- **KPL 56 Encoder (Used for Size 14, 17, 23, 24 Motor)** * Index

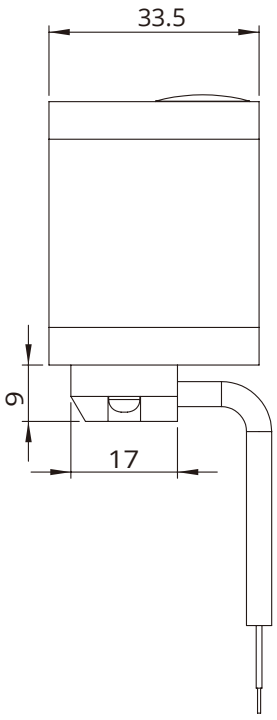
Resolution(CPR)	400	800	1000	1250	1600	2000	2500	3200	4000
Single ended output	0	2	3	4	5	6	7	8	9
Differential output	A	C	D	E	F	G	H	I	J

Accessories and Options

Power OFF Brake

Power Off Brake 0.5 N·m (Available for size 17 motor)

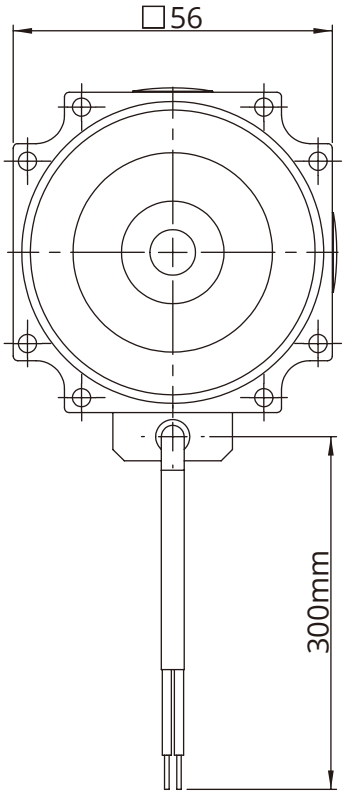


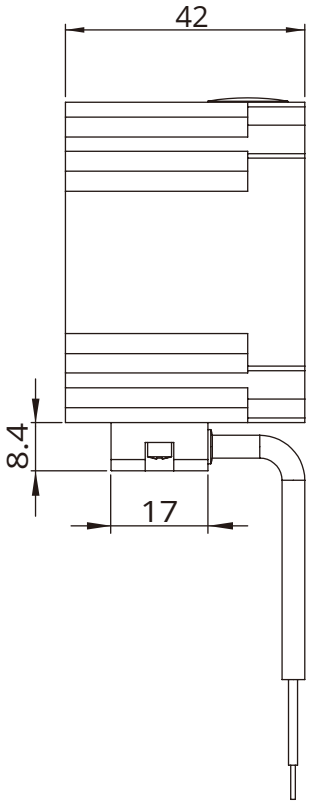


Parameter

1. Rated Voltage: DC24V ± 5%
2. Resistance: 297Ω ± 5%
3. Power consumption: 2W
4. Hold Torque: >0.5N·m
5. Insulation Class B
6. Insulation Resistance: >100Mohm (DC500V)
7. Dielectrical Strength: 1000VAC for 1 sec
8. Retraction time: 50ms
9. Release time: 30ms
10. Gyration gap: <1°
11. Emergency brake time : 200 times
12. Lifetime: >2,000,000 times
13. Noise Level: <60db

- **Power Off Brake 2.3 N·m (Available for size 23 motor)**



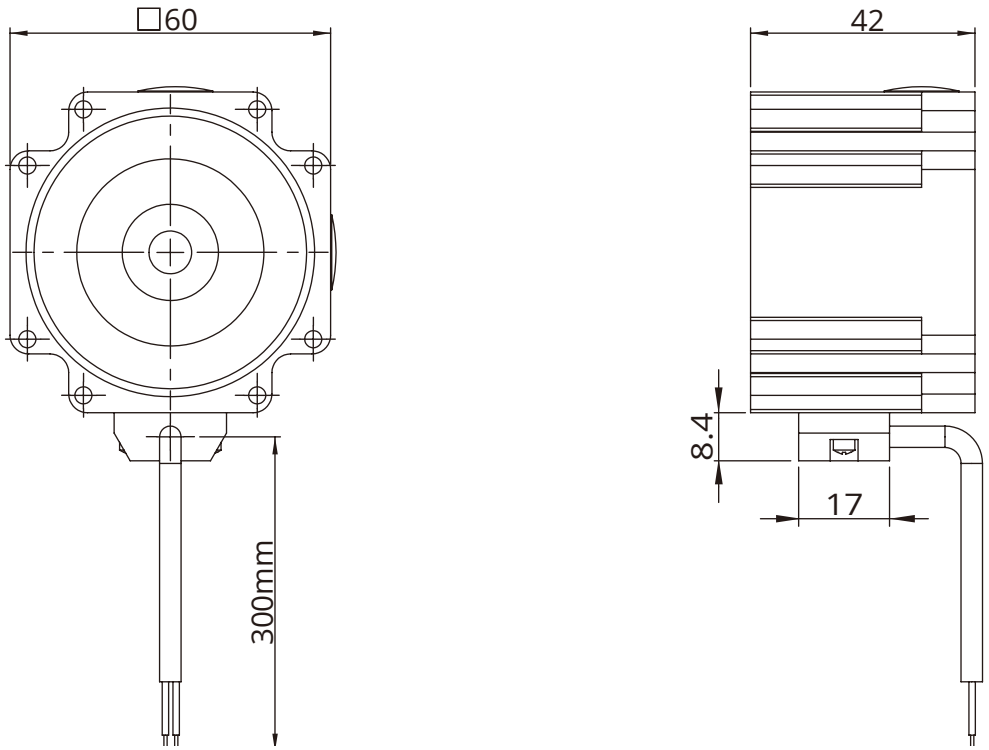


- **Parameter**

1. Rated Voltage: DC24V ± 5%
2. Resistance: 140Ω ± 5%
3. Power consumption: 4.5W
4. Hold Torque: >2.3N·m
5. Insulation Class B
6. Insulation Resistance: >100Mohm (DC500V)
7. Dielectrical Strength: 1000VAC for 1 sec
8. Retraction time: 50ms
9. Release time: 30ms
10. Gyration gap: <1°
11. Emergency brake time : 200 times
12. Lifetime: >2,000,000 times
13. Noise Level: <60db

Accessories and Options

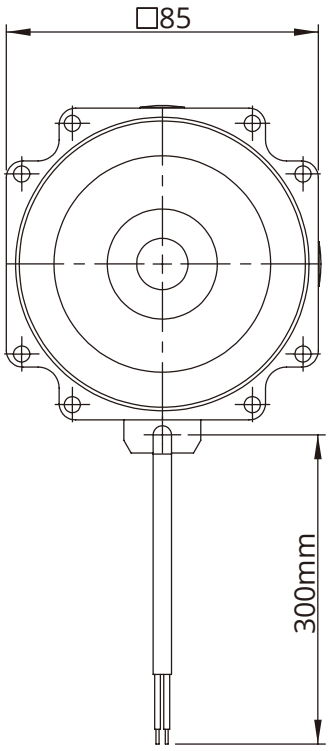
Power Off Brake 2.3 N·m (Available for size 24 motor)

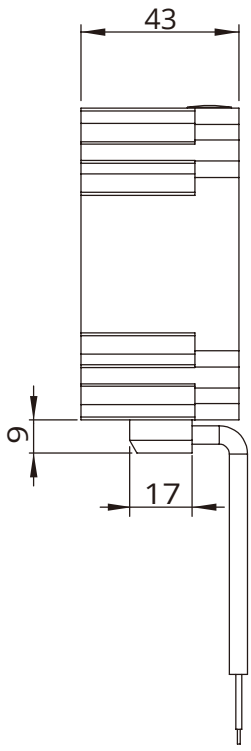


Parameter

1. Rated Voltage: DC24V ± 5%
2. Resistance: 140Ω ± 5%
3. Power consumption: 4.5W
4. Hold Torque: >2.3N·m
5. Insulation Class B
6. Insulation Resistance: >100Mohm (DC500V)
7. Dielectrical Strength: 1000VAC for 1 sec
8. Retraction time: 50ms
9. Release time: 30ms
10. Gyration gap: <1°
11. Emergency brake time : 200 times
12. Lifetime: >2,000,000 times
13. Noise Level: <60db

Power Off Brake 5.0 N·m (Available for size 34 motor)

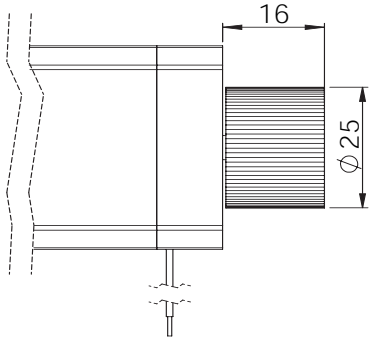




Parameter

1. Rated Voltage: DC24V ± 5%
2. Resistance: 80Ω ± 5%
3. Power consumption: 6W
4. Hold Torque: >5N·m
5. Insulation Class B
6. Insulation Resistance: >100Mohm (DC500V)
7. Dielectrical Strength: 1000VAC for 1 sec
8. Retraction time: 50ms
9. Release time: 30ms
10. Gyration gap: <1°
11. Emergency brake time : 200 times
12. Lifetime: >2,000,000 times
13. Noise Level: <60db

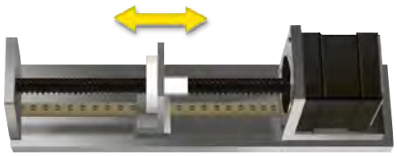
Manual Knob



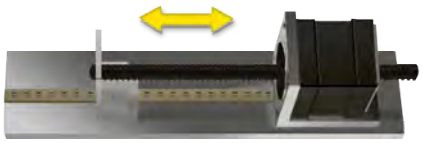
Installation Guide

NOTES:

1. Linear Stepper Motor + Linear Guide

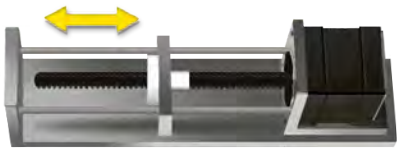


External Lead Screw Linear Actuator + Linear Guide



Non-captive Lead Screw Linear Actuator + Linear Guide

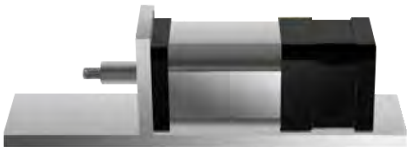
2. Linear Stepper Motor + Guided Rod



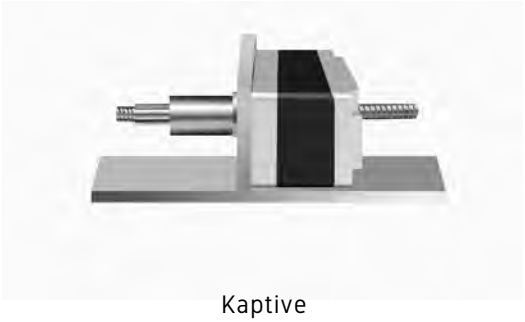
External Lead Screw Linear Actuator + Guided Rod

Non-Captive Lead Screw Linear Actuator + Guided Rod

3. Electric Cylinder (Captive) / Kaptive Lead Screw Linear Actuator Mounted to Load Directly



Electric Cylinder (Captive)

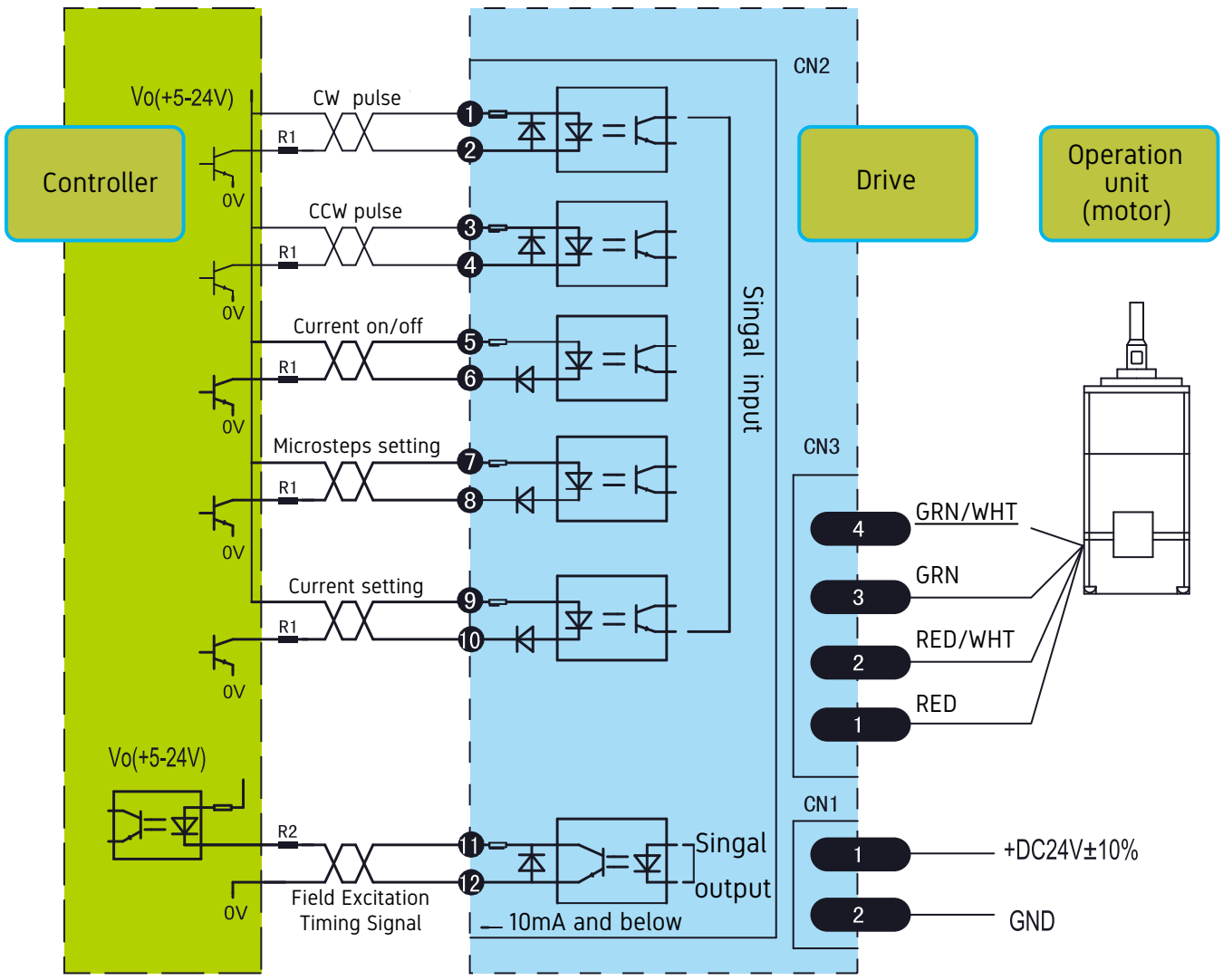


Kaptive

Warnings

1) Do not dismantle the motor in any case.
2) Do not apply radial force to the screw. Do not lift, hang, push or pull the screw during usage or transport.
3) Do not add any lubrication to the nut and screw. Protect the grease from being wiped off and no other grease shall be used except those from DINGS'.
4) Measures should be taken to protect the lead screw surface from dust.
5) Do not drop the motor or screw.
6) Do not apply force or tension to the lead wire.
7) When using a chopper driver, please set the current (RMS) to the rated current of the motor. Overdriving is not recommended, as it could overheat the motor and cause the winding insulation to melt/burn.
8) Operate in ambient temperatures between -20°C to +50°C.
9) To maximize life of the system, actual load should be lower than 50% of the recommended load limit. Avoid hitting mechanical hard stops of the system.
10) Storage conditions: Ambient temperature and pressure, relative humidity <75%, clean, noncorrosive environment.

Typical Electrical Connecti



External Nut Strength

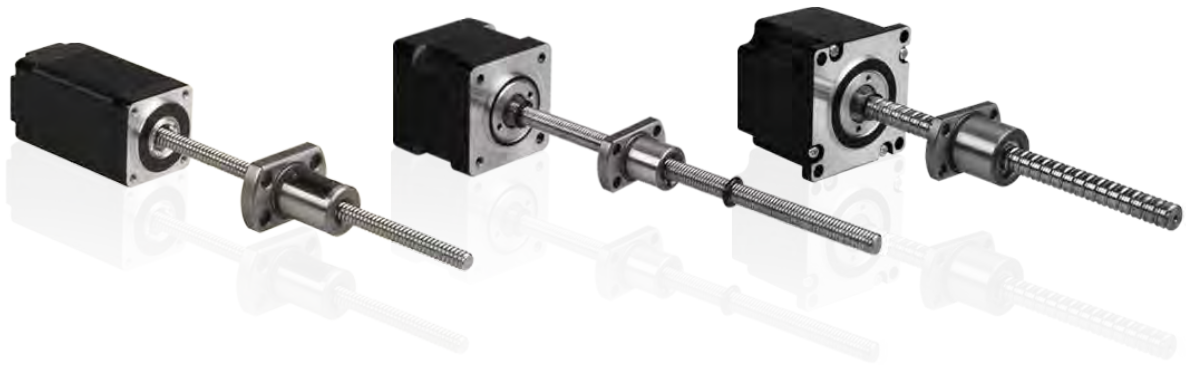
Item	Motor Size	Anti-Backlash Nut	Standard Nut	Triangle/Trimming-cut Nut	Mounting Hole Dimension	Recommended Screw Size Customer Used
		Installation Torque/Max.	Installation Torque/Max.	Installation Torque/Max.		
1	14mm	0.8kgf.cm	1.0kgf.cm		Ø2.6/Ø3.2	M2.5 or M3 and smaller
2	20mm	0.8kgf.cm	1.0kgf.cm		Ø2.6/Ø3.2	M2.5 or M3 and smaller
3	28mm	0.8kgf.cm	4.0kgf.cm		Ø2.6/Ø3.2	M2.5 or M3 and smaller
4	35/42mm	4.0kgf.cm	5.5kgf.cm	5.5kgf.cm	Ø3.2	M3 and smaller
5	57/60mm	6.0kgf.cm	6.0kgf.cm		Ø3.5/Ø5.1	M3 or M5 and smaller
6	86mm			18kgf.cm	Ø7.0/Ø8.0	M6 and smaller

Trouble Shooting

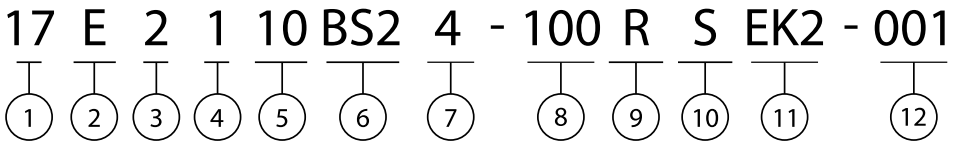
Common Failure	Cause Analysis	Processing Methods
Motor not Running	Poor Connection	Re-connection
	Driver Alarm	Power Off and Re-boot after checking
	Actuator Stuck	Remove load, ensure actuator operates smoothly without load
	Motor winding or insulation damaged	Contact DINGS' for maintenance
Abnormal Operation After Starting Up	Resonance	Enhance microsteps to change travel speed
	Lead Screw Bend	Contact DINGS' for maintenance
	Phase Loss	Contact DINGS' for maintenance
Vibration, Noise	Low-Frequency Vibration	Adjust driver microsteps to change travel speed to avoid resonance
	Phase Loss	Contact DINGS' for maintenance
Abnormal Heating	Over Current	Regulate current value to achieve proper rating range
	Over Supply-voltage	Reduce supply-voltage
	Extended period of holding	The holding current should be halved or adjusted to smaller value
Step Loss	Overload on the Load Side	Reduce load or re-selection
	No frequency raising or lowering when programming	When motor starts, it needs to be accelerated from low to high
Insufficient Thrust	Driver Failure	Repair or replace driver
	Load is too high	Reduce load or resize actuator
	Damaged Nut	Contact DINGS' for maintenance
Lead Screw Bend or Runout at the End of Lead Screw	Damage in Transportation or Improper Installation or Improper Operation	Contact DINGS' for maintenance
Other Failures		Contact DINGS' for maintenance

Stepper Ball Screw Linear Actuator

DINGS' External Ball Screw Linear Actuators come in 6 standard sizes, from 14mm to 57mm.
From 0.005mm/step to 0.1mm/step, with variety of resolution options available.
Maximum thrust can reach 1600N. Encoder options available.



Part Number Construction



① Motor Size

CODE	06	08	11	14	17	23
MOTOR SIZE (mm)	14	20	28	35	42	57

② Motor Type
E = External Linear

③ Actuator Step Angle
2 = 2 Phase with 1.8°
4 = 2 Phase with 0.9°

④ Motor Length/Stack
1 = Single stack
2 = Double stack

⑤ Rated Current/Phase
10 = 1.0A

⑥ Ball Screw Code
BS2 = 2mm

⑦ Number of Lead Wires
4 = 4 flying lead wire
6 = 6 flying lead wire

⑧ Ball Screw Length
100 = 100mm Thread

⑨ Direction
R = right

⑩ End Machining
N = None
S = Smooth
C = Customer design

⑪ Optional Accessories
EKX, KPLX = Encoder [XX = Encoder Code]
P = Manual Knob
B = Brake
X = Rear shaft
R = Encoder Ready
C = Customize
N = none

⑫ Customer Sequence Number

Example

Part number 17E2110BS24-100RSEK22-001

Description
Size 17 Ball screw linear actuator
2 phase with 1.8° step angle
Single stack
1.0A / Phase
Ball screw lead 2mm
4 flying lead wire
Screw length:100mm
Right thread direction
Smooth screw end
EK2 Encoder with Single Output 192 lines

Stepper Ball Screw Lead Code Selection

Stepper Ball Screw Lead Code Table

Motor size	14	20	28		35		42		57	
Diameter / Lead	Φ4	Φ4	Φ5	Φ6	Φ6	Φ8	Φ6	Φ8	Φ10	Φ12
1.0 mm	*	*		*	*	*	*	*		
2.0 mm	*	*		*	*	*	*	*	*	*
2.5 mm						*		*		
4.0 mm			*						*	
5.0 mm						*		*	*	
6.0 mm				*	*		*			
8.0 mm						*		*		
10.0 mm				*	*	*	*	*	*	*
12.0 mm						*		*		
15.0 mm									*	
20.0 mm									*	

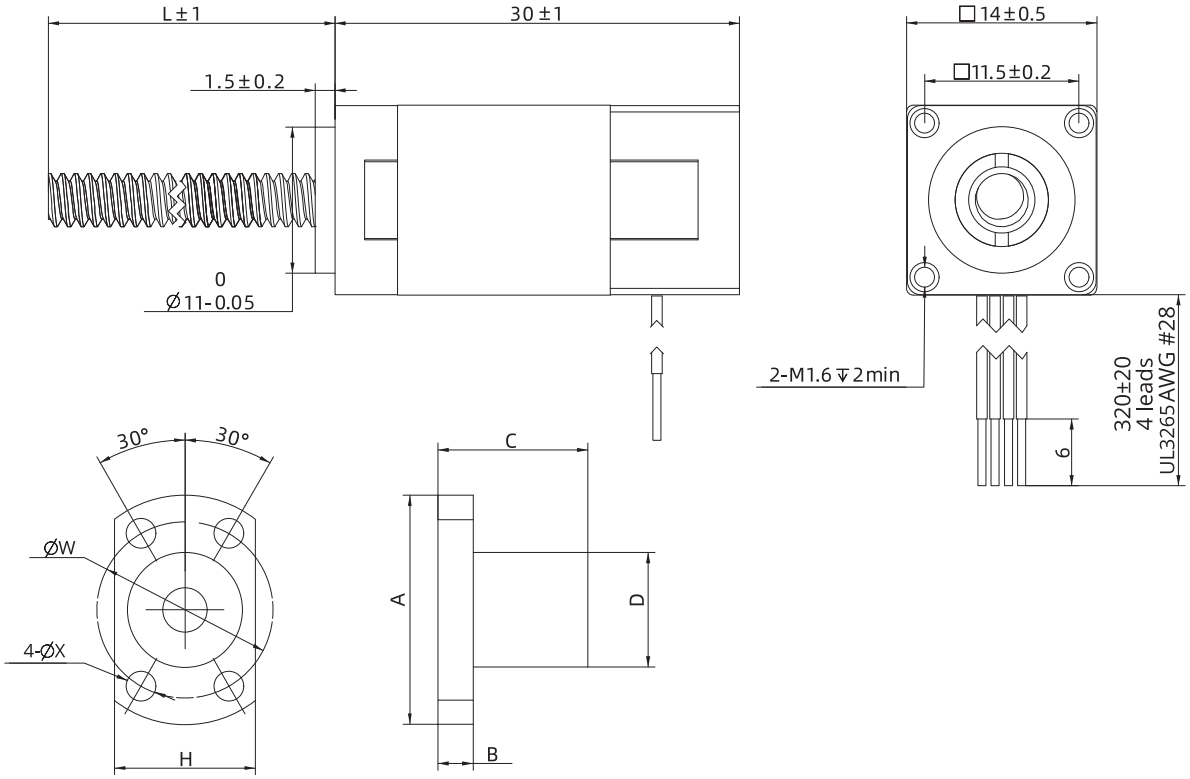
* Ball screw available for specific motor size

Size 6 (14mm) Series

Motor Characteristics

Motor No.	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Lead Wire No.	Motor Length (mm)
6E2103	6.6	0.3	22.0	3.6	4	30

Dimensional Drawings



Stepper Ball Screw Specification

Ball Screw Type	0401 (1mm/rev)	0402 (2mm/rev)
Ball Size	Φ0.8	Φ0.8
Number of thread	1	1
Thread direction	Right	
Shaft root dia.	Φ3.3	Φ3.3
Number of circuit	3.7×1	2.7×1
Shaft, nut material	SCM415H	
Surface hardness	HRC58~62	
Anti-rust treatment	Anti-rust oil	
Grade	C7	

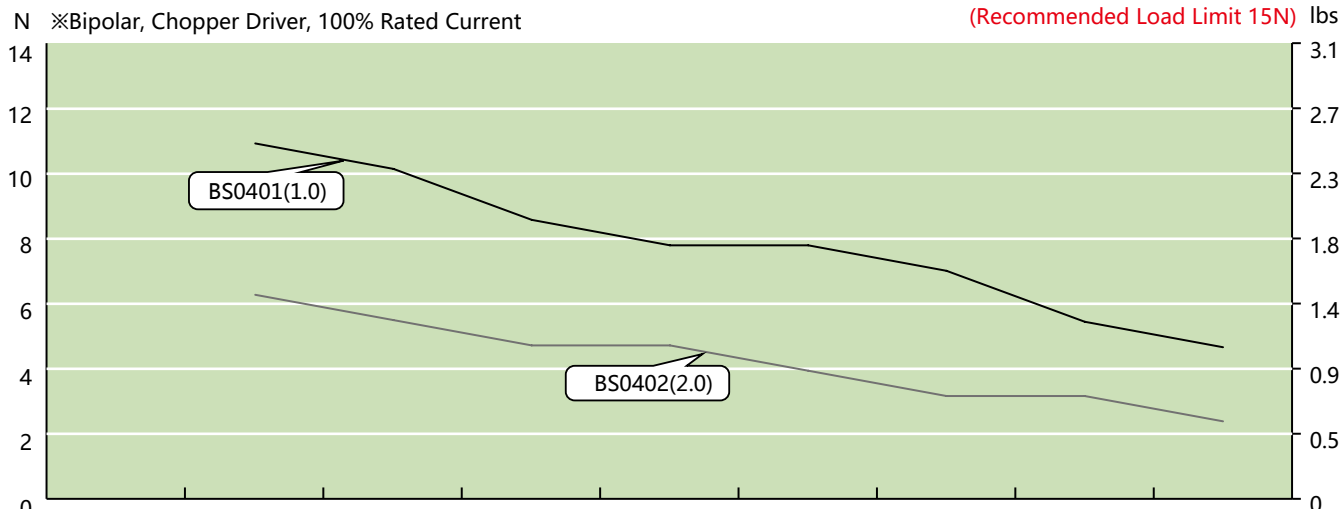
Nut Size	A	B	C	D	H	W	X	Position accuracy	Total run out	Axial play	Dynamic load (N)	Static load (N)
BS0401	23	4	17	11	15	17	3.4	±0.05	0.12	≤0.03	560	790
BS0402	23	4	19	11	15	17	3.4	±0.05	0.12	≤0.03	420	570

* The unit of Position accuracy, Total run out and Axial play is [mm].

NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

Speed Thrust Curves

Size 6 Single Stack Speed Thrust Curves



BS0402(mm/s)	2	4	5	10	20	30	40	50
BS0401(mm/s)	1	2	2.5	5	10	15	20	25
RPM r/min	60	120	150	300	600	900	1200	1500
PPS	200	400	500	1000	2000	3000	4000	5000

TEST CONDITION

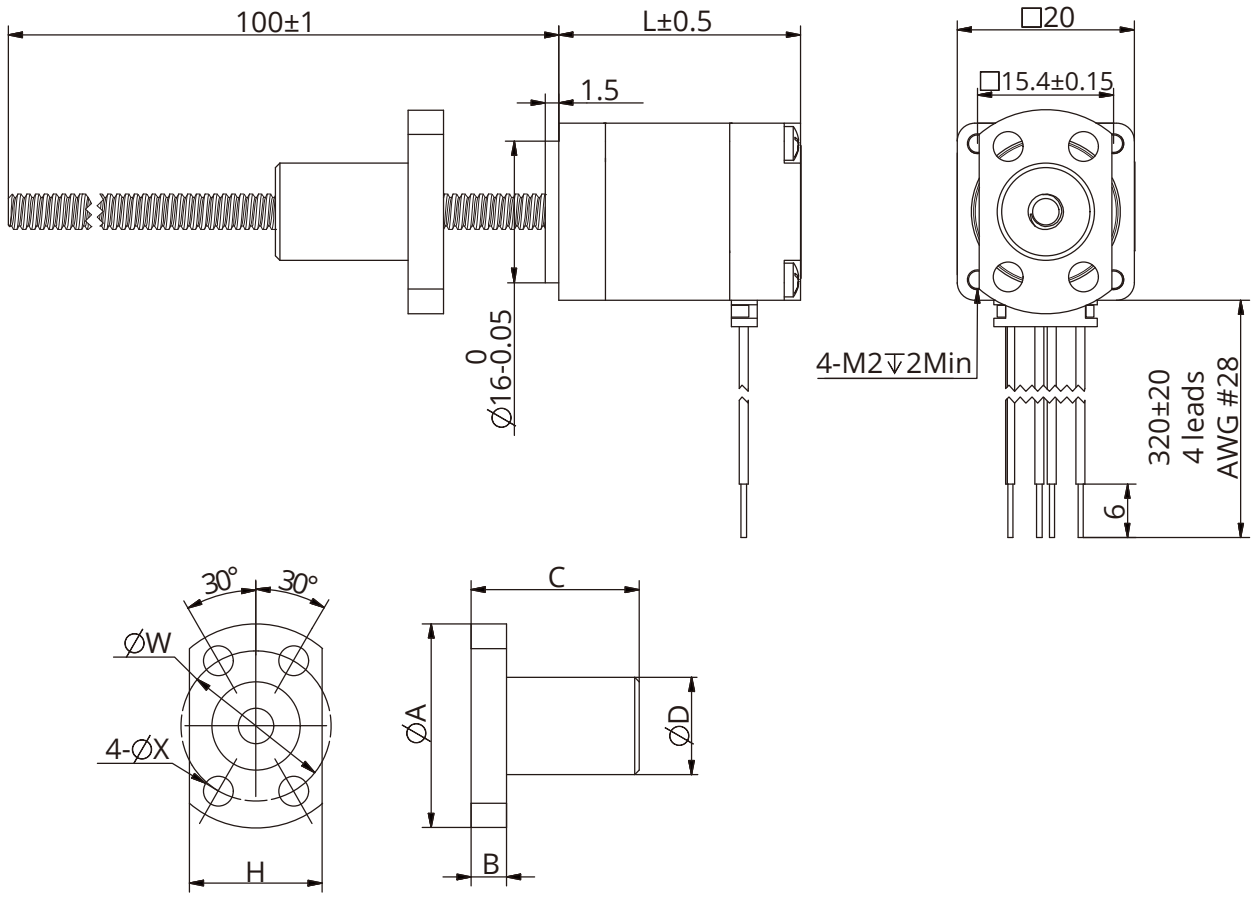
Testing Voltage: 24Vdc, Driver Model: DS-OLS2-FPD bipolar, chopper driver at rated current (rms). Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

Size 8 (20mm) Series

Motor Characteristics

Motor No.	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Lead Wire No.	Motor Length (mm)
8E2105	2.55	0.5	5.1	1.5	4	27.2
8E2205	4.4	0.5	8.8	2.7	4	38.1

Dimensional Drawings



NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

Stepper Ball Screw Specification

Ball Screw Type	0401 (1mm/rev)	0402 (2mm/rev)
Ball Size	Φ0.8	Φ0.8
Number of thread	1	1
Thread direction	Right	
Shaft root dia.	Φ3.3	Φ3.3
Number of circuit	3.7×1	2.7×1
Shaft, nut material	SCM415H	
Surface hardness	HRC58~62	
Anti-rust treatment	Anti-rust oil	
Grade	C7	

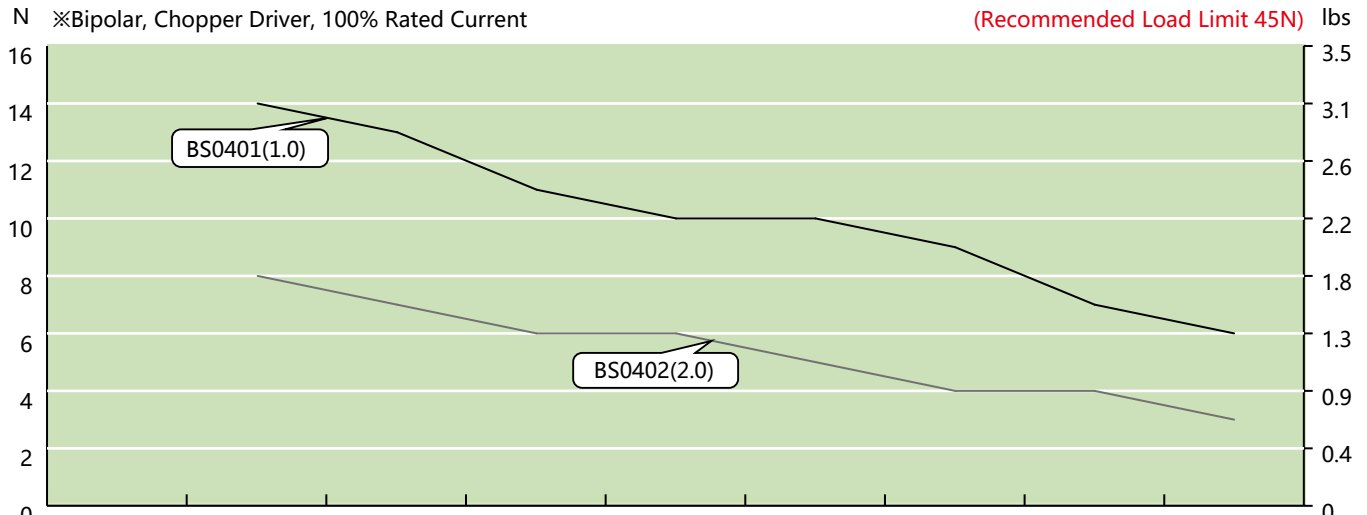
Nut Size	A	B	C	D	H	W	X	Position accuracy	Total run out	Axial play	Dynamic load (N)	Static load (N)
BS0401	23	4	17	11	15	17	3.4	±0.05	0.12	≤0.03	560	790
BS0402	23	4	19	11	15	17	3.4	±0.05	0.12	≤0.03	420	570

* The unit of Position accuracy, Total run out and Axial play is [mm].

Size 8 (20mm) Series

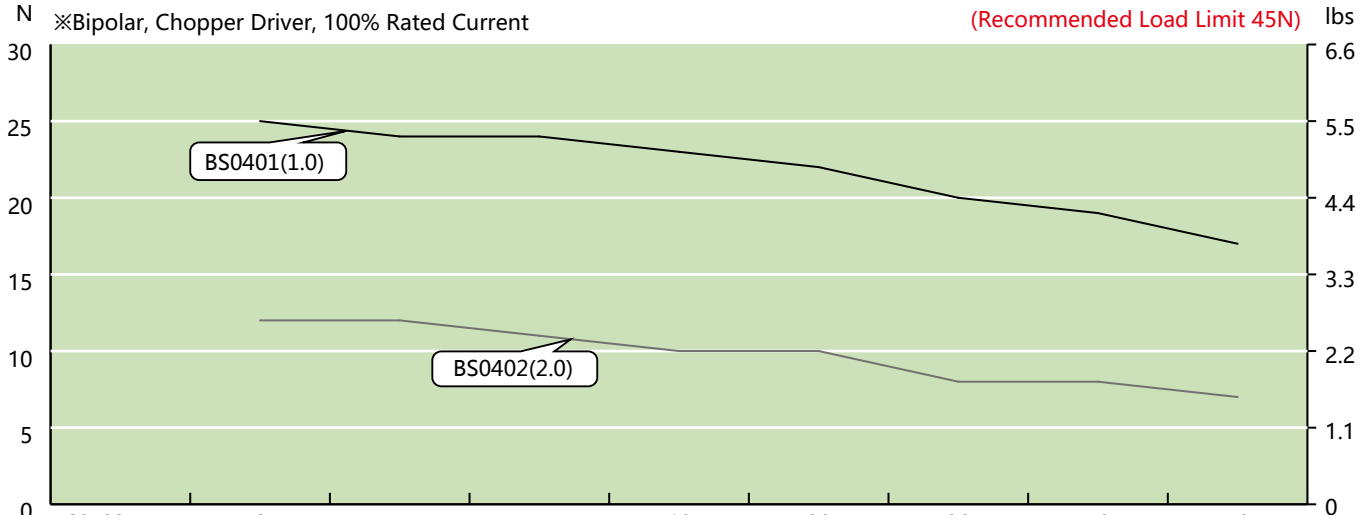
Speed Thrust Curves

Size 8 Single Stack Speed Thrust Curves



BS0402(mm/s)	2	4	5	10	20	30	40	50
BS0401(mm/s)	1	2	2.5	5	10	15	20	25
RPM r/min	60	120	150	300	600	900	1200	1500
PPS	200	400	500	1000	2000	3000	4000	5000

Size 8 Double Stack Speed Thrust Curves



BS0402(mm/s)	2	4	5	10	20	30	40	50
BS0401(mm/s)	1	2	2.5	5	10	15	20	25
RPM r/min	60	120	150	300	600	900	1200	1500
PPS	200	400	500	1000	2000	3000	4000	5000

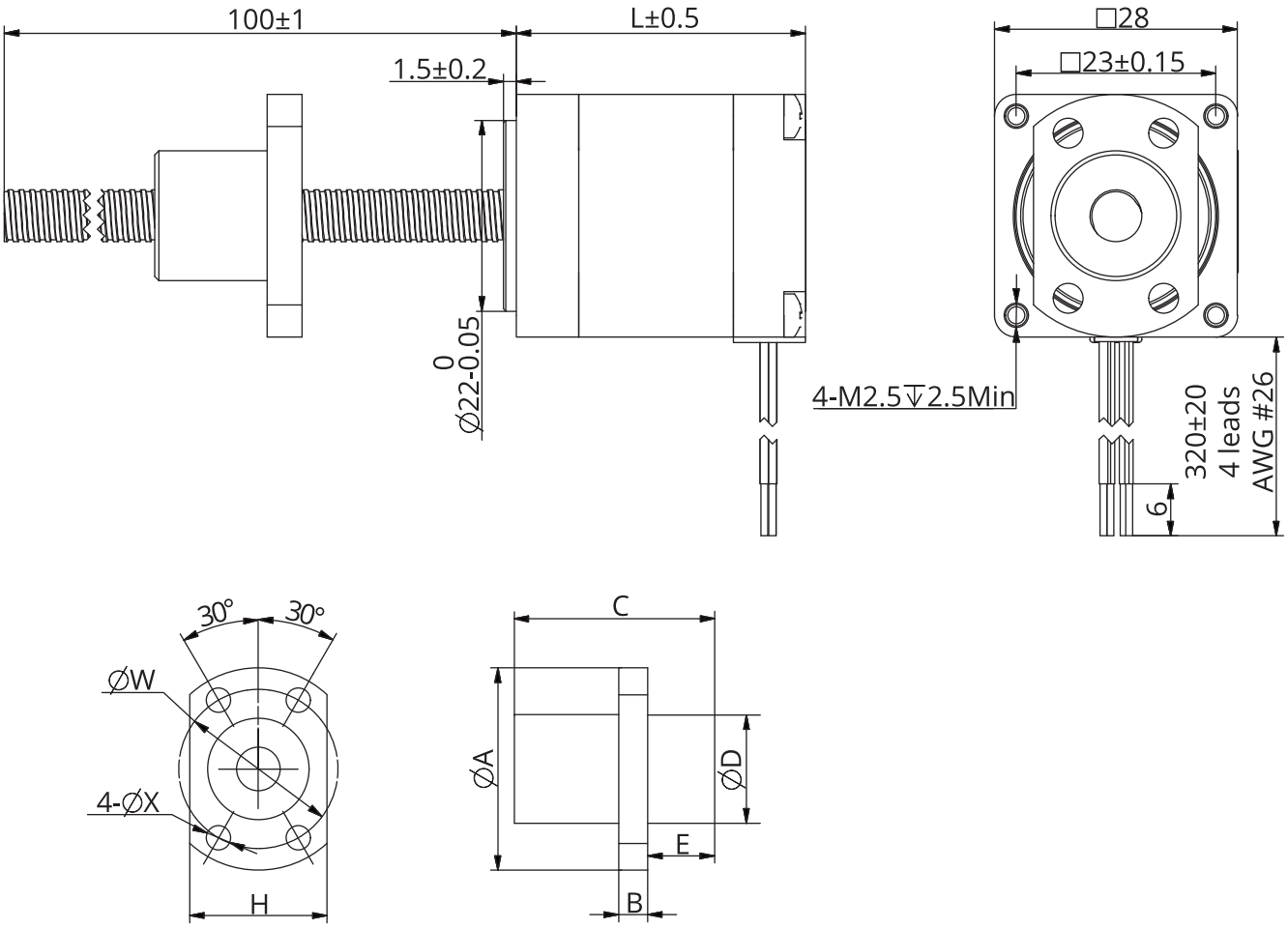
TEST CONDITION

Testing Voltage: 24Vdc, Driver Model: DS-OLS2-FPD bipolar, chopper driver at rated current (rms). Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

Motor Characteristics

Motor No.	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Lead Wire No.	Motor Length (mm)
11E2110	2.1	1.0	2.1	1.5	4	33.35
11E2209	3.9	0.95	4.1	4	4	45

Dimensional Drawings



NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

Size 11(28mm) Series

Stepper Ball Screw Specification

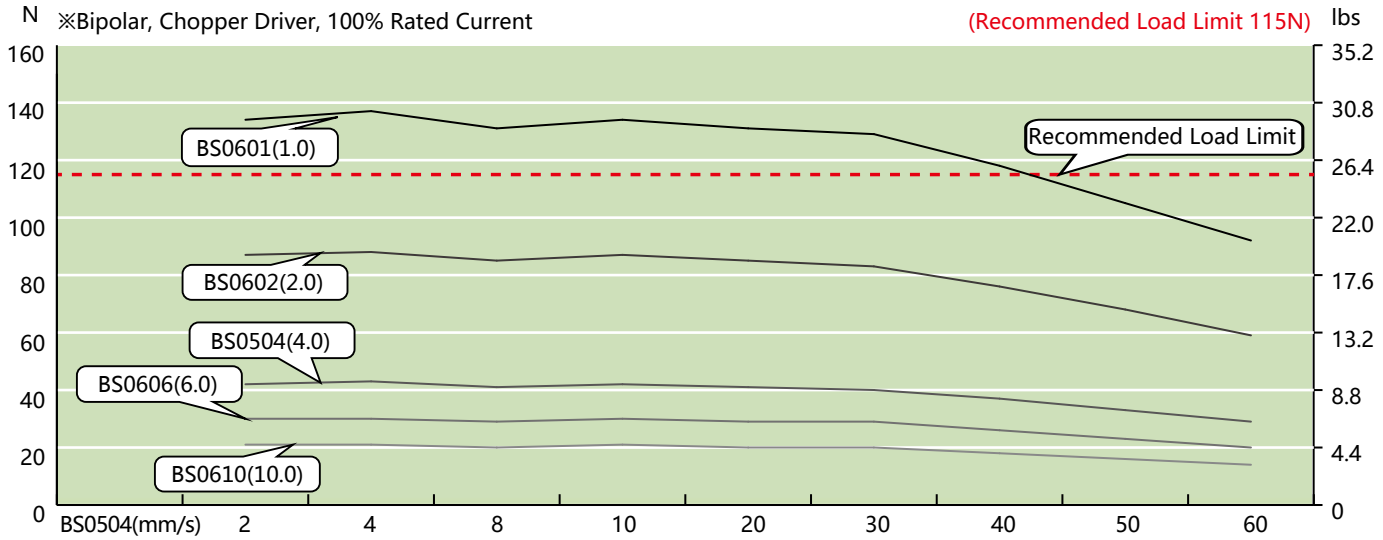
Ball screw type	0601 (1mm/rev)	0602 (2mm/rev)	0606 (6mm/rev)	0610 (10mm/rev)	0504(4mm/rev)
Ball size	Φ0.8	Φ0.8	Φ0.8	Φ1.2	Φ0.8
Number of thread	1	1	2	2	1
Thread direction	Right				
Shaft root dia.	Φ5.3	Φ5.1	Φ5.2	Φ5.0	Φ4.3
Number of circuit	3.7×1	2.7×1	1.6×2	1.2×2	2.7×1
Shaft, nut material	SCM415H				
Surface hardness	HRC58~62				
Anti-rust treatment	Anti-rust oil				
Grade	C7				

Nut size	A	B	C	D	H	W	X	E	Position accuracy	Total run out	Axial play	Dynamic load(N)	Static load(N)
BS0601	26	4	17	13	16	20	3.4		±0.05	0.12	≤0.03	680	1200
BS0602	28	4	17	15	19	22	3.4		±0.05	0.12	≤0.03	750	1450
BS0606	27	4	17	14	16	21	3.4	5	±0.05	0.12	≤0.03	870	1600
BS0610	27	4	23	14	16	21	3.4	7.5	±0.05	0.12	≤0.03	950	1650
BS0504	24	4	22	12	16	18	3.4		±0.05	0.12	≤0.03	470	720

* The unit of Position accuracy, Total run out and Axial play is [mm].

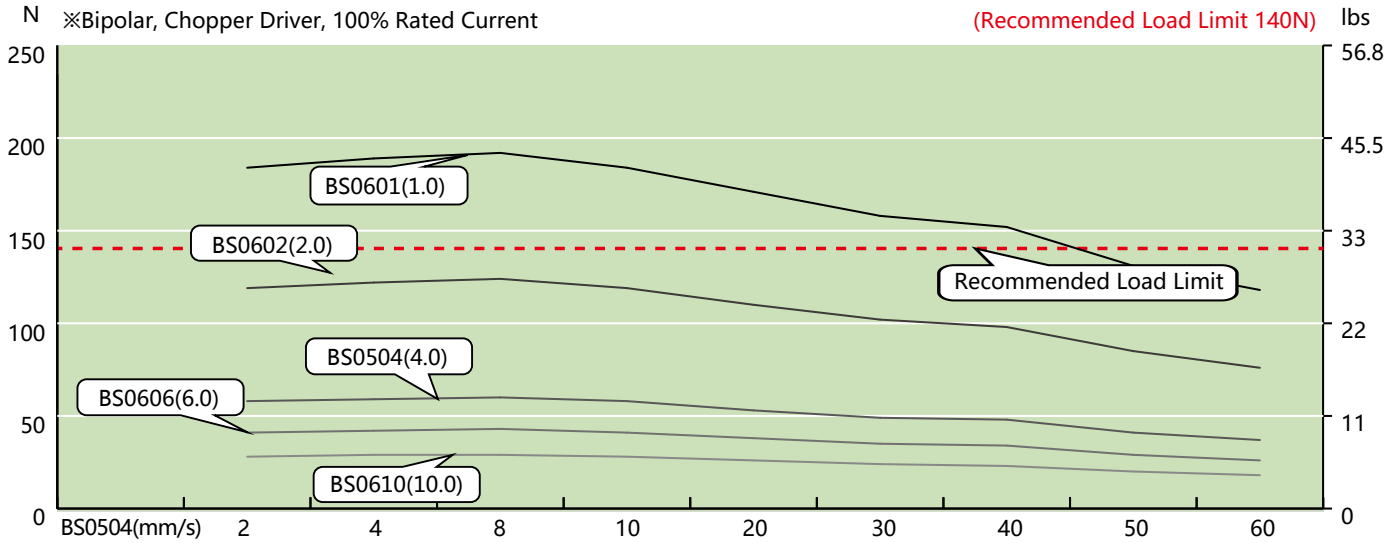
Speed Thrust Curves

Size 11 Single Stack Speed Thrust Curves



BS0504(mm/s)	2	4	8	10	20	30	40	50	60
BS0610(mm/s)	5	10	20	25	50	75	100	125	150
BS0606(mm/s)	3	6	12	15	30	45	60	75	90
BS0602(mm/s)	1	2	4	5	10	15	20	25	30
BS0601(mm/s)	0.5	1	2	2.5	5.0	7.5	10	12.5	15
RPM r/min	30	60	120	150	300	450	600	750	900
PPS	100	200	400	500	1000	1500	2000	2500	3000

Size 11 Double Stack Speed Thrust Curves



BS0504(mm/s)	2	4	8	10	20	30	40	50	60
BS0610(mm/s)	5	10	20	25	50	75	100	125	150
BS0606(mm/s)	3	6	12	15	30	45	60	75	90
BS0602(mm/s)	1	2	4	5	10	15	20	25	30
BS0601(mm/s)	0.5	1	2	2.5	5	7.5	10	12.5	15
RPM r/min	30	60	120	150	300	450	600	750	900
PPS	100	200	400	500	1000	1500	2000	2500	3000

TEST CONDITION

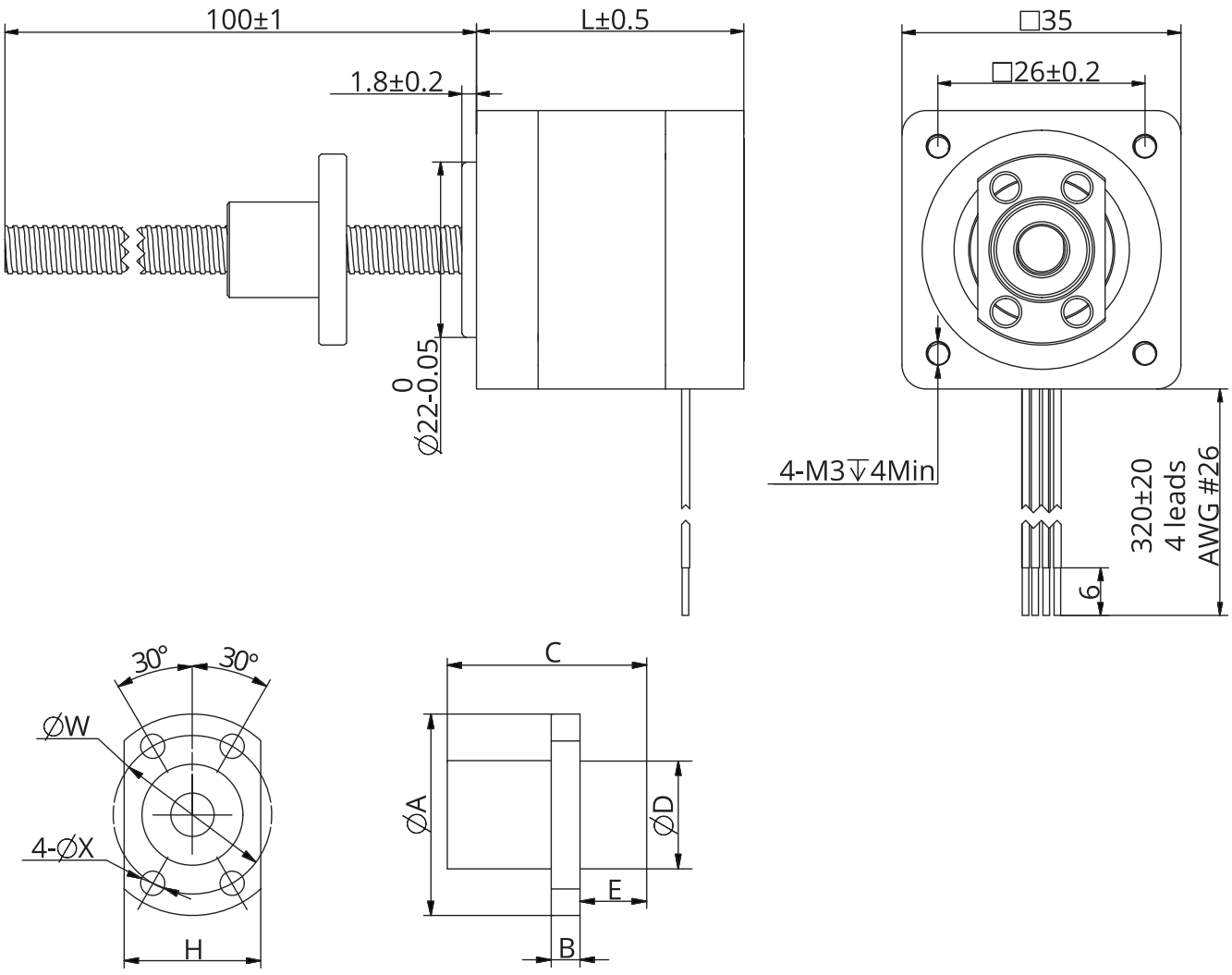
Testing Voltage: 24Vdc, Driver Model: DS-OLS2-FPD bipolar, chopper driver at rated current (rms). Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

Size 14 (35mm) Series

Motor Characteristics

Motor No.	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Lead Wire No.	Motor Length (mm)
14E2110	3.5	1.0	3.5	3.6	4	33.6
14E2115	2.7	1.5	1.8	1.9	4	33.6
14E2210	6.0	1.0	6.0	7.2	4	45.6
14E2215	4.0	1.5	2.7	3.2	4	45.6

Dimensional Drawings



NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

Stepper Ball Screw Specification

Ball screw type	0601 (1mm/rev)	0602 (2mm/rev)	0606 (6mm/rev)	0610 (10mm/rev)	0801 (1mm/rev)	0802 (2mm/rev)	0802.5 (2.5mm/rev)	0805 (5mm/rev)	0808 (8mm/rev)	0810 (10mm/rev)	0812 (12mm/rev)
Ball size	Φ0.8	Φ0.8	Φ0.8	Φ1.2	Φ0.8	Φ1.5875	Φ1.5875	Φ1.5875	Φ1.5875	Φ1.5875	Φ1.5875
Number of thread	1	1	2	2	1	1	1	1	2	2	2
Thread direction	Right										
Shaft root dia.	Φ5.3	Φ5.1	Φ5.2	Φ5.0	Φ7.3	Φ6.6	Φ6.3	Φ6.6	Φ6.7	Φ6.7	Φ6.7
Number of circuit	3.7×1	2.7×1	1.6×2	1.2×2	3.7×1	3.7×1	2.7×1	2.7×1	1.6×2	1.6×2	1.6×2
Shaft, nut material	SCM415H										
Surface hardness	HRC58~62										
Anti-rust treatment	Anti-rust oil										
Grade	C7										

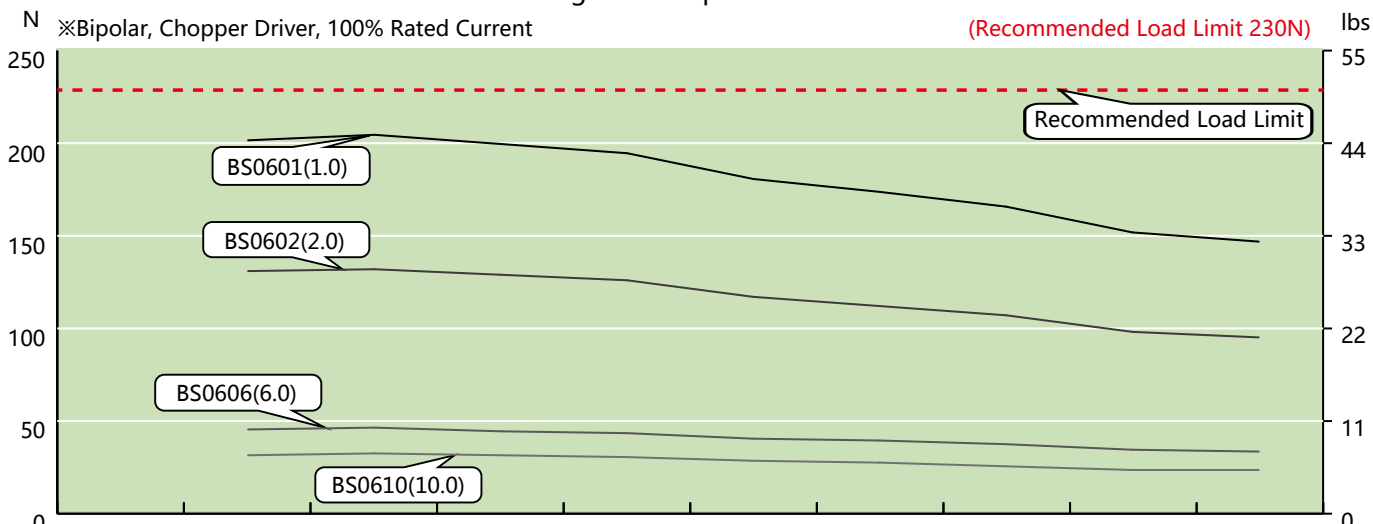
Nut size	A	B	C	D	H	W	X	E	Position accuracy	Total run out	Axial play	Dynamic load(N)	Static load(N)
BS0601	26	4	17	13	16	20	3.4		±0.05	0.12	≤0.03	680	1200
BS0602	28	4	17	15	19	22	3.4		±0.05	0.12	≤0.03	750	1450
BS0606	27	4	17	14	16	21	3.4	5	±0.05	0.12	≤0.03	870	1600
BS0610	27	4	23	14	16	21	3.4	7.5	±0.05	0.12	≤0.03	950	1650
BS0801	29	4	17	16	18	23	3.4		±0.05	0.12	≤0.03	780	1650
BS0802	37	5	24	20	22	29	4.5		±0.05	0.12	≤0.03	2400	4100
BS0802.5	29	4	16	16	18	23	3.4		±0.05	0.12	≤0.03	1850	3000
BS0805	31	4	28	18	20	25	3.4		±0.05	0.12	≤0.03	1850	3000
BS0808	31	4	20	18	20	25	3.4	6	±0.05	0.12	≤0.03	2200	3800
BS0810	31	4	20	18	20	25	3.4	7	±0.05	0.12	≤0.03	2200	3800
BS0812	31	4	24	18	20	25	3.4	6	±0.05	0.12	≤0.03	2200	3800

* The unit of Position accuracy, Total run out and Axial play is [mm].

Size 14 (35mm) Series

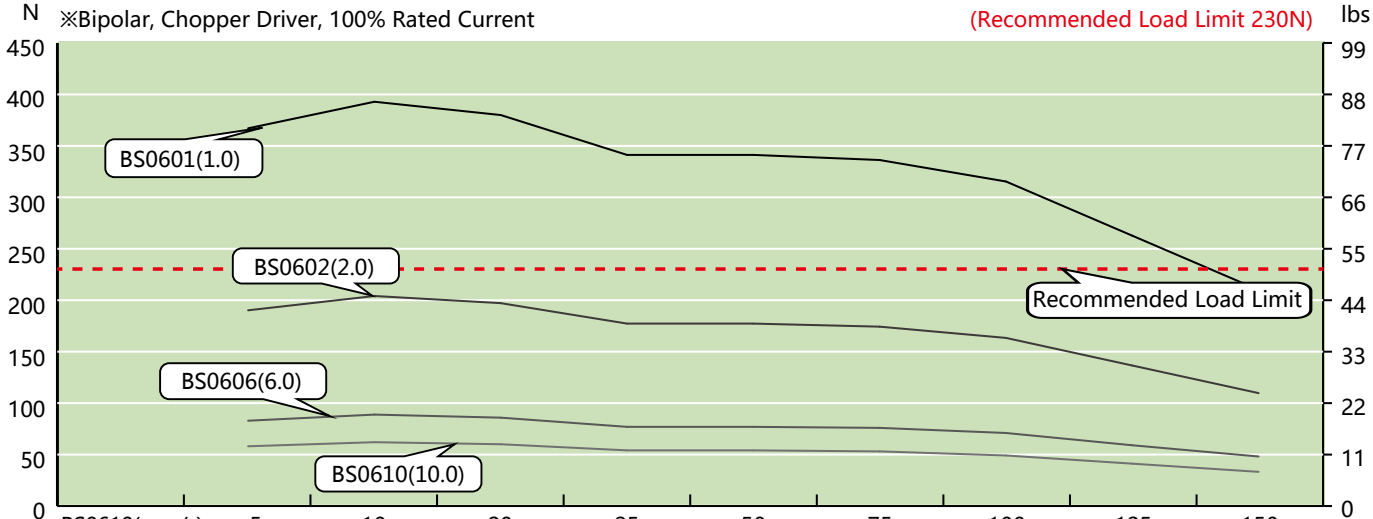
Speed Thrust Curves

Size 14 Single Stack Speed Thrust Curves



BS0610(mm/s)	5	10	20	25	50	75	100	125	150
BS0606(mm/s)	3	6	12	15	30	45	60	75	90
BS0602(mm/s)	1	2	4	5	10	15	20	25	30
BS0601(mm/s)	0.5	1	2	2.5	5	7.5	10	12.5	15
RPM r/min	30	60	120	150	300	450	600	750	900
PPS	100	200	400	500	1000	1500	2000	2500	3000

Size 14 Double Stack Speed Thrust Curves



BS0610(mm/s)	5	10	20	25	50	75	100	125	150
BS0606(mm/s)	3	6	12	15	30	45	60	75	90
BS0602(mm/s)	1	2	4	5	10	15	20	25	30
BS0601(mm/s)	0.5	1	2	2.5	5	7.5	10	12.5	15
RPM r/min	30	60	120	150	300	450	600	750	900
PPS	100	200	400	500	1000	1500	2000	2500	3000

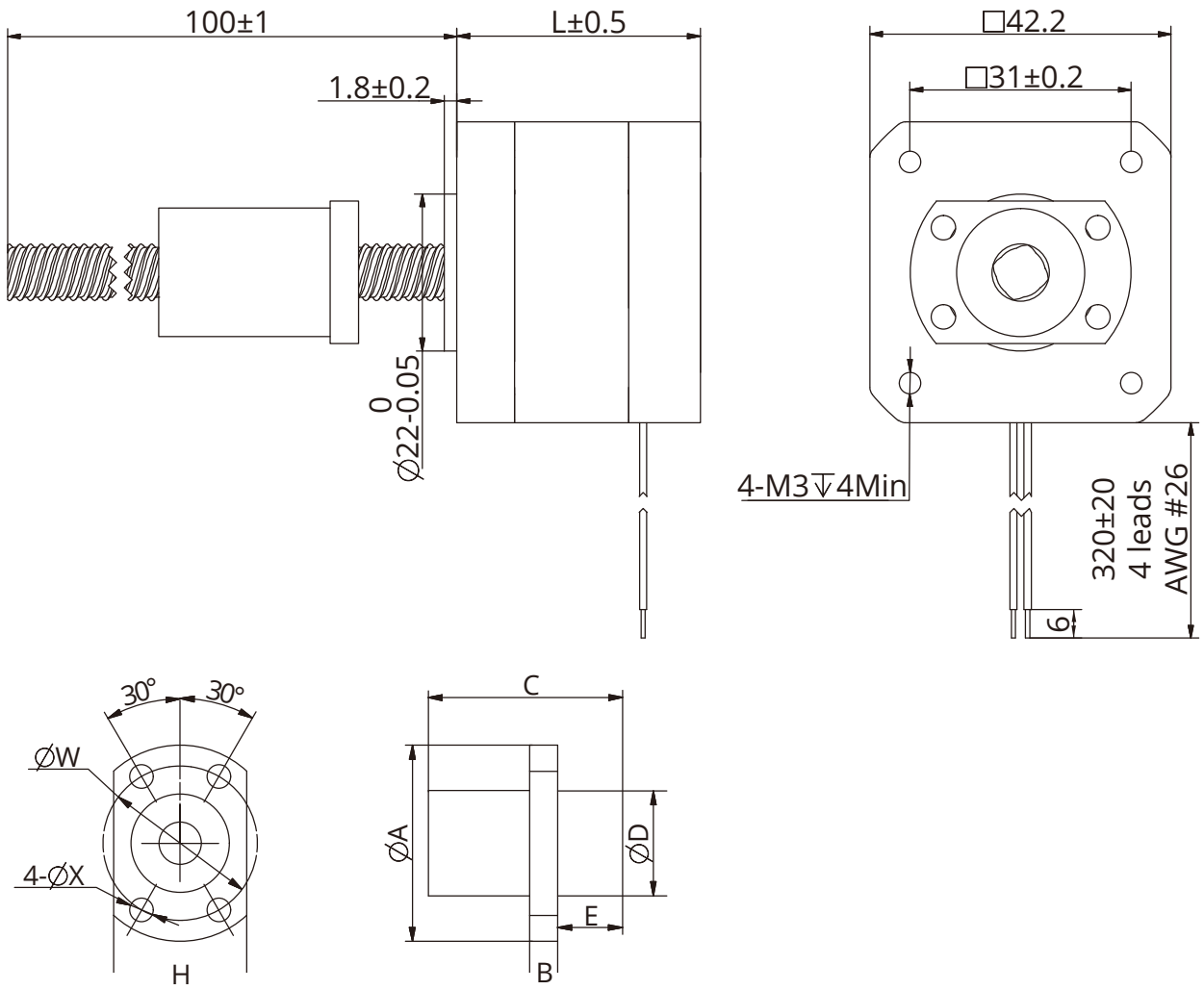
TEST CONDITION

Testing Voltage: 24Vdc, Driver Model: DS-OLS2-FPD bipolar, chopper driver at rated current (rms). Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

Motor Characteristics

Motor No.	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Lead Wire No.	Motor Length (mm)
17E2110	3.8	1.0	3.8	5.0	4	34.1
17E2115	2.78	1.5	1.85	2.2	4	34.1
17E2212	4.56	1.2	3.8	8.0	4	48.1
17E2225	2.5	2.5	1.0	1.8	4	48.1

Dimensional Drawings



NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

Size 17 (42mm) Series

Stepper Ball Screw Specification

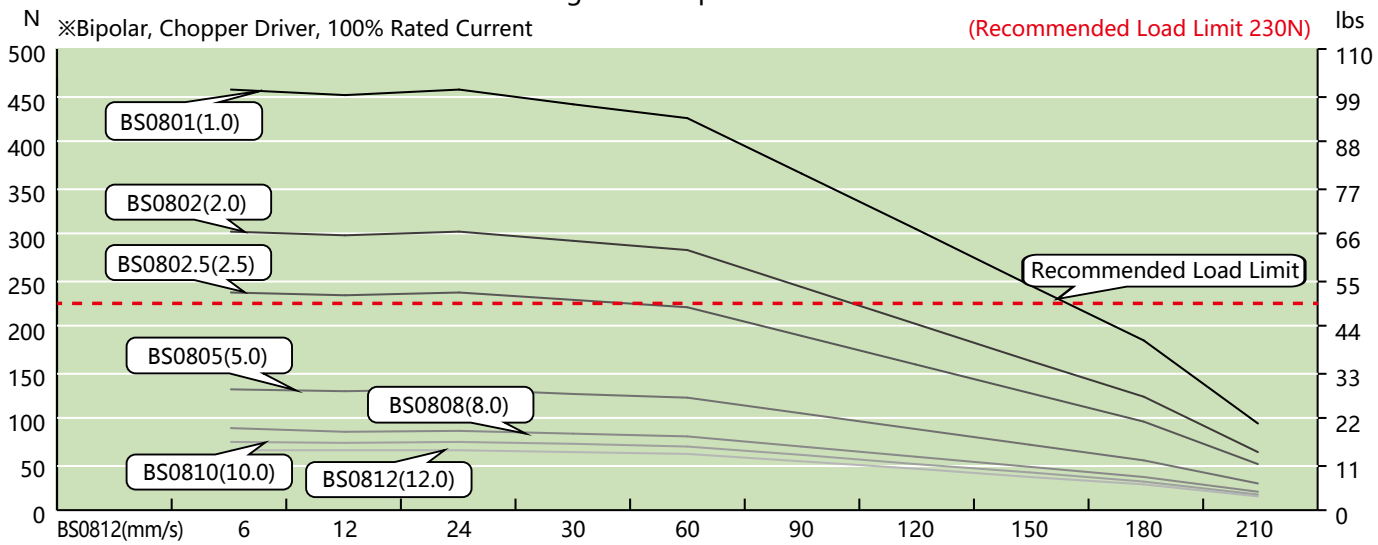
Ball screw type	0801 (1mm/rev)	0802 (2mm/rev)	0802.5 (2.5mm/rev)	0805 (5mm/rev)	0808 (8mm/rev)	0810 (10mm/rev)	0812 (12mm/rev)
Ball size	Φ0.8	Φ1.5875	Φ1.5875	Φ1.5875	Φ1.5875	Φ1.5875	Φ1.5875
Number of thread	1	1	1	1	2	2	2
Thread direction	Right						
Shaft root dia.	Φ7.3	Φ6.6	Φ6.3	Φ6.6	Φ6.7	Φ6.7	Φ6.7
Number of circuit	3.7×1	3.7×1	2.7×1	2.7×1	1.6×2	1.6×2	1.6×2
Shaft, nut material	SCM415H						
Surface hardness	HRC58~62						
Anti-rust treatment	Anti-rust oil						
Grade	C7						

Nut size	A	B	C	D	H	W	X	E	Position accuracy	Total run out	Axial play	Dynamic load(N)	Static load(N)
BS0801	29	4	17	16	18	23	3.4		±0.05	0.12	≤0.03	780	1650
BS0802	37	5	24	20	22	29	4.5		±0.05	0.12	≤0.03	2400	4100
BS0802.5	29	4	16	16	18	23	3.4		±0.05	0.12	≤0.03	1850	3000
BS0805	31	4	28	18	20	25	3.4		±0.05	0.12	≤0.03	1850	3000
BS0808	31	4	20	18	20	25	3.4	6	±0.05	0.12	≤0.03	2200	3800
BS0810	31	4	20	18	20	25	3.4	7	±0.05	0.12	≤0.03	2200	3800
BS0812	31	4	24	18	20	25	3.4	6	±0.05	0.12	≤0.03	2200	3800

* The unit of Position accuracy, Total run out and Axial play is [mm].

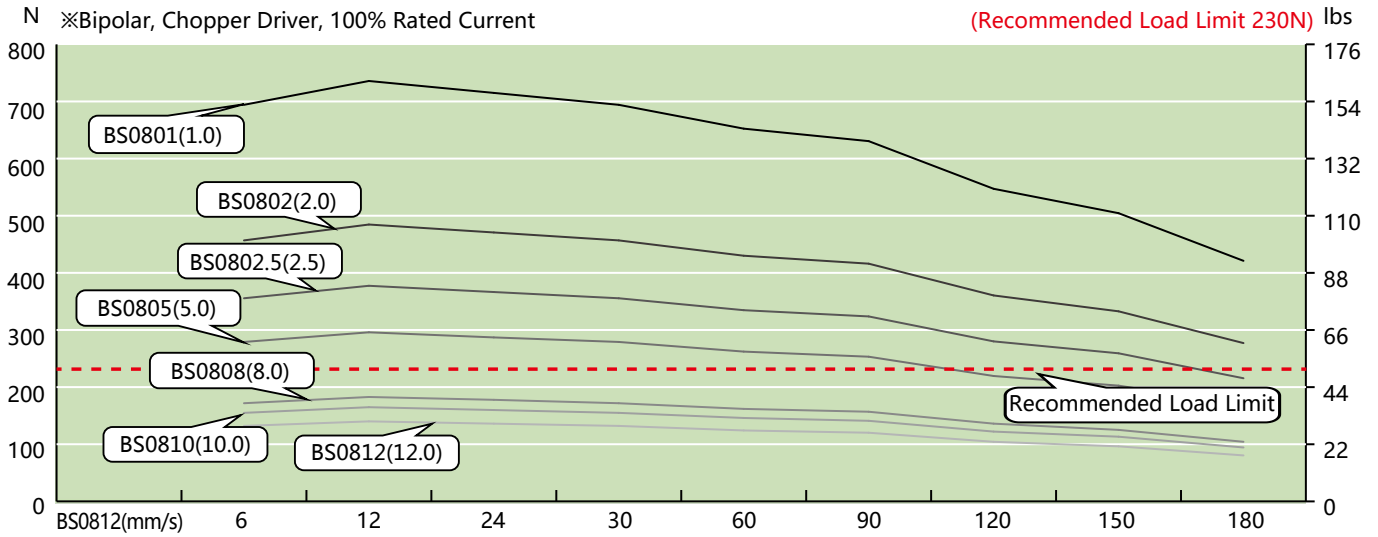
Speed Thrust Curves

Size 17 Single Stack Speed Thrust Curves



BS0812(mm/s)	6	12	24	30	60	90	120	150	180	210
BS0810(mm/s)	5	10	20	25	50	75	100	125	150	175
BS0808(mm/s)	4	8	16	20	40	60	80	100	120	140
BS0805(mm/s)	2.5	5	10	12.5	25	37.5	50	62.5	75	87.5
BS0802.5(mm/s)	1.25	2.5	5	6.25	12.5	18.75	25	31.25	37.5	43.75
BS0802(mm/s)	1	2	4	5	10	15	20	25	30	35
BS0801(mm/s)	0.5	1	2	2.5	5	7.5	10	12.5	15	17.5
RPM r/min	30	60	120	150	300	450	600	750	900	1050
PPS	100	200	400	500	1000	1500	2000	2500	3000	3500

Size 17 Double Stack Speed Thrust Curves



BS0812(mm/s)	6	12	24	30	60	90	120	150	180
BS0810(mm/s)	5	10	20	25	50	75	100	125	150
BS0808(mm/s)	4	8	16	20	40	60	80	100	120
BS0805(mm/s)	2.5	5	10	12.5	25	37.5	50	62.5	75
BS0802.5(mm/s)	1.3	2.5	5	6.3	12.5	18.8	25	31.3	37.5
BS0802(mm/s)	1	2	4	5	10	15	20	25	30
BS0801(mm/s)	0.5	1	2	2.5	5	7.5	10	12.5	15
RPM r/min	30	60	120	150	300	450	600	750	900
PPS	100	200	400	500	1000	1500	2000	2500	3000

TEST CONDITION

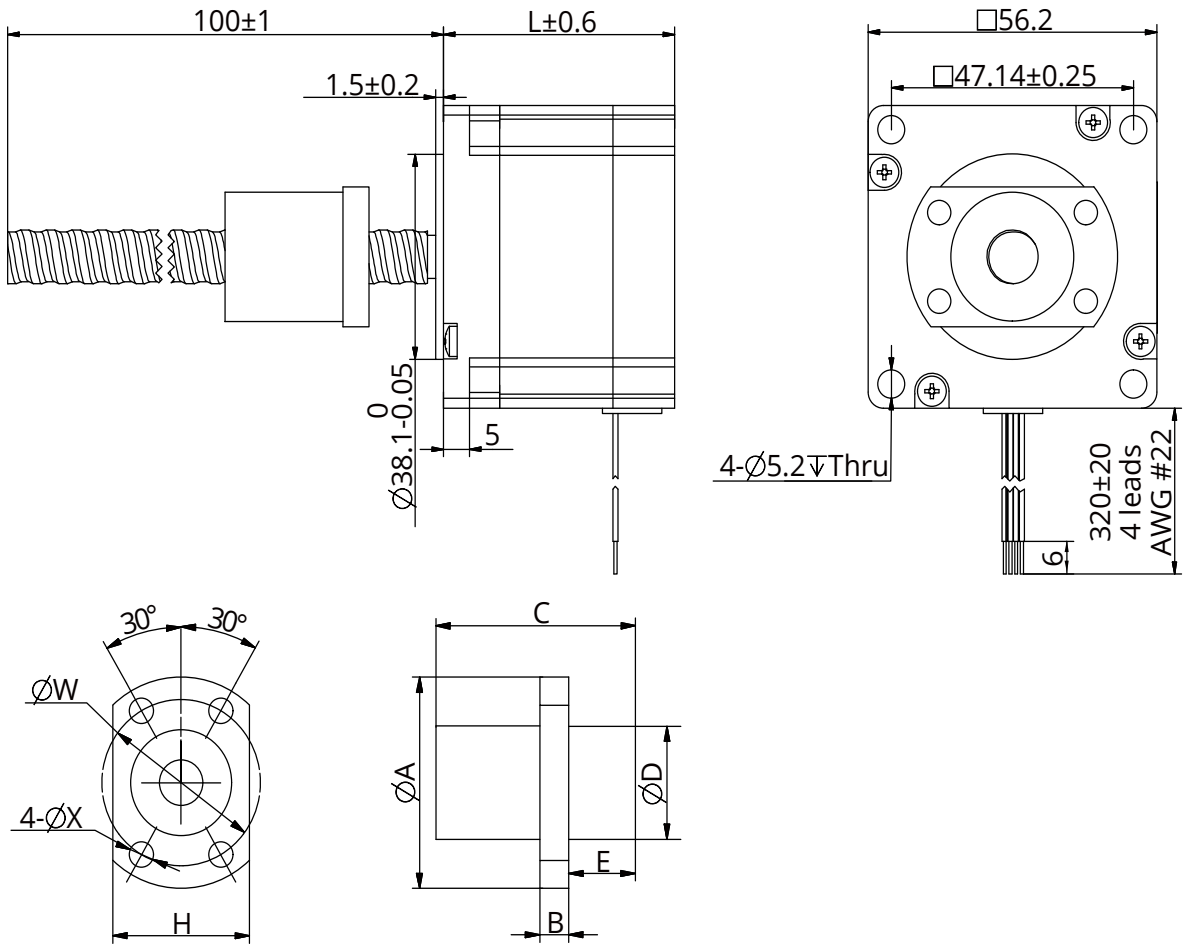
Testing Voltage: 24Vdc, Driver Model: DS-OLS2-FPD bipolar, chopper driver at rated current (rms). Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

Size 23 (57mm) Series

Motor Characteristics

Motor No.	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Lead Wire No.	Motor Length (mm)
23E2120	3.5	2.0	1.75	4.1	4	45
23E2130	2.4	3.0	0.8	1.7	4	45
23E2225	5.0	2.5	2.0	5.2	4	65
23E2240	2.8	4.0	0.7	2.0	4	65

Dimensional Drawings



NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

Stepper Ball Screw Specification

Ball screw type	1002 (2mm/rev)	1004 (4mm/rev)	1005 (5mm/rev)	1010 (10mm/rev)	1015 (15mm/rev)	1020 (20mm/rev)	1202 (2mm/rev)	1210 (10mm/rev)
Ball size	Φ1.5875	Φ2.0	Φ2.0	Φ2.0	Φ2.0	Φ1.5875	Φ1.5875	Φ2.381
Number of thread	1	1	1	2	2	4	1	2
Thread direction	Right							
Shaft root dia.	Φ8.6	Φ8.2	Φ8.2	Φ8.4	Φ8.4	Φ8.7	Φ10.6	Φ10.2
Number of circuit	3.7×1	2.7×1	2.7×1	1.6×1	1.6×2	0.7×4	3.7×1	1.7 x 2
Shat, nut material	SCM415H							
Surface hardness	HRC58~62							
Anti-rust treatment	Anti-rust oil							
Grade	C7							

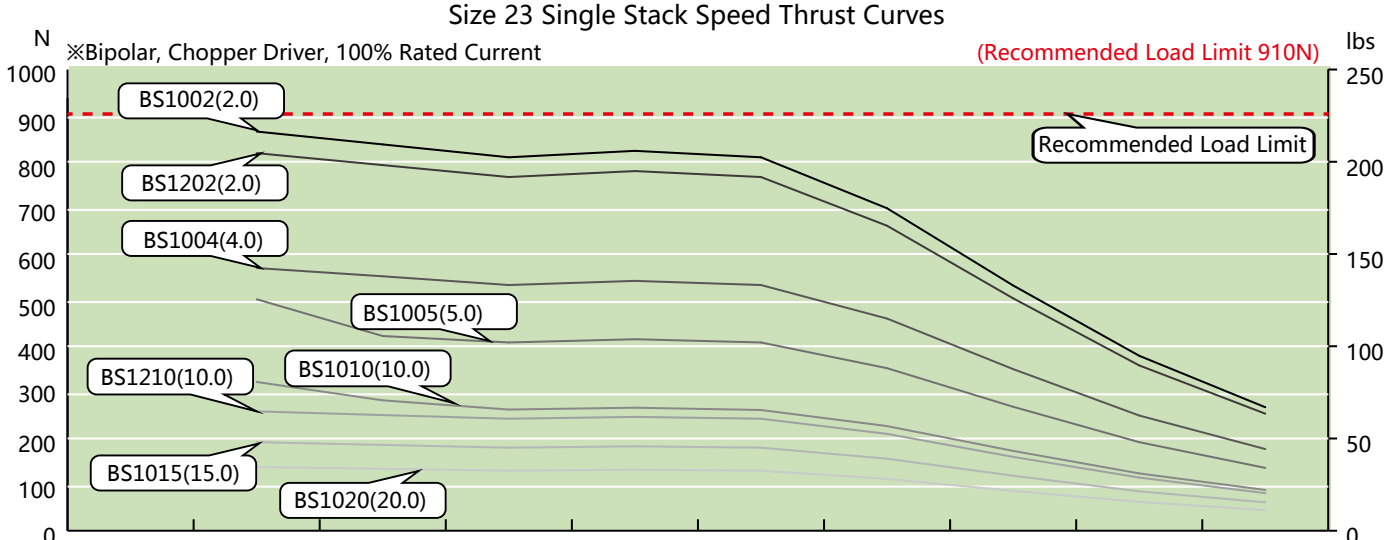
Nut size	A	B	C	D	H	W	X	E	Position accuracy	Total run out	Axial play	Dynamic load(N)	Static load(N)
BS1002	40	5	24	23	25	32	4.5		±0.05	0.12	≤0.03	2700	5300
BS1004	41	5	28	24	26	33	4.5		±0.05	0.12	≤0.03	3000	5200
BS1005	40	5	26	23	25	32	4.5		±0.05	0.12	≤0.03	3000	5200
BS1010	40	5	24	23	25	32	4.5	6	±0.05	0.12	≤0.03	3300	5900
BS1015	40	5	33	23	25	32	4.5	6	±0.05	0.12	≤0.03	3300	6400
BS1020	37	5	23	20	22	29	4.5	5	±0.05	0.12	≤0.03	2100	4000
BS1202	42	5	24	25	27	34	4.5		±0.05	0.12	≤0.03	3000	6400
BS1210	41	5	30	24	26	33	4.5	9.5	±0.05	0.12	≤0.03	5100	9800

* The unit of Position accuracy, Total run out and Axial play is [mm].

Size 23 (57mm) Series

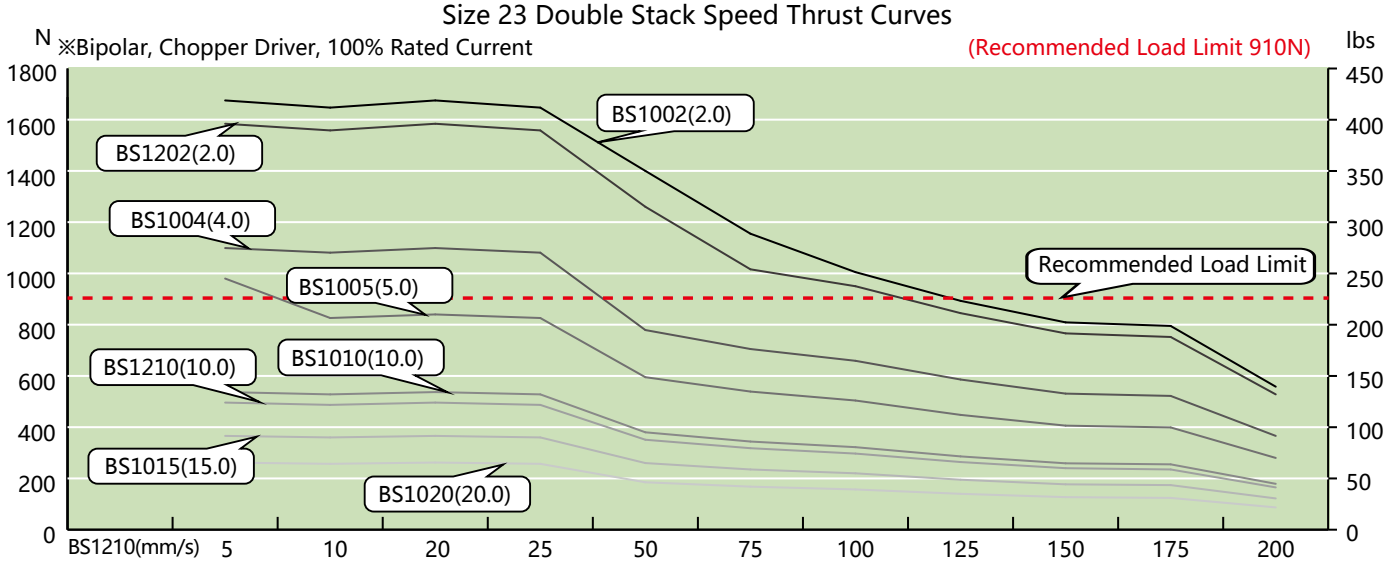
Speed Thrust Curves

Size 23 Single Stack Speed Thrust Curves



BS1210(mm/s)	5	10	20	25	30	75	100	125	150
BS1202(mm/s)	1	2	4	5	10	15	20	25	30
BS1020(mm/s)	10	20	40	50	100	150	200	250	300
BS1015(mm/s)	7.5	15	30	37.5	75	112.5	150	187.5	225
BS1010(mm/s)	5	10	20	25	50	75	100	125	150
BS1005(mm/s)	2.5	5	10	12.5	25	37.5	50	62.5	75
BS1004(mm/s)	2	4	8	10	20	30	40	50	60
BS1002(mm/s)	1	2	4	5	10	15	20	25	30
RPM r/min	30	60	120	150	300	450	600	750	900
PPS	100	200	400	500	1000	1500	2000	2500	3000

Size 23 Double Stack Speed Thrust Curves

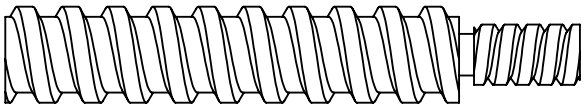
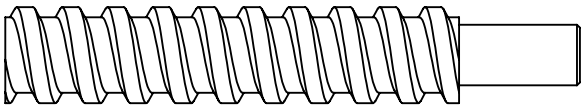
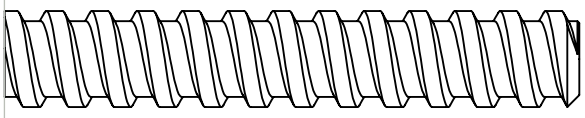
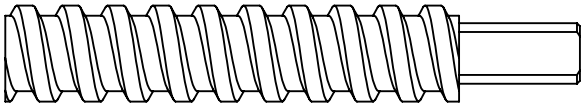


BS1210(mm/s)	5	10	20	25	50	75	100	125	150	175	200
BS1202(mm/s)	1	2	4	5	10	15	20	25	30	35	40
BS1020(mm/s)	10	20	40	50	100	150	200	250	300	350	400
BS1015(mm/s)	7.5	15	30	37.5	75	112.5	150	187.5	225	262.5	300
BS1010(mm/s)	5	10	20	25	50	75	100	125	150	175	200
BS1005(mm/s)	2.5	5	10	12.5	25	37.5	50	62.5	75	87.5	100
BS1004(mm/s)	2	4	8	10	20	30	40	50	60	70	80
BS1002(mm/s)	1	2	4	5	10	15	20	25	30	35	40
RPM r/min	30	60	120	150	300	450	600	750	900	1050	1200
PPS	100	200	400	500	1000	1500	2000	2500	3000	3500	4000

TEST CONDITION

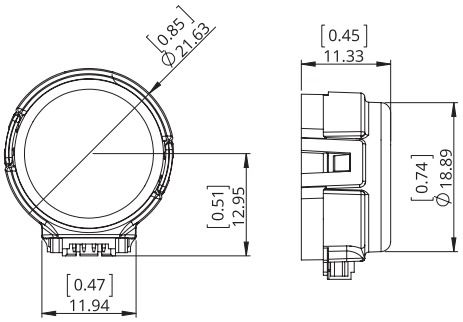
Testing Voltage: 40Vdc, Driver Model: DS-OLS4-FPD bipolar, chopper driver at rated current (rms). Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

Stepper Ball Screw End Machining

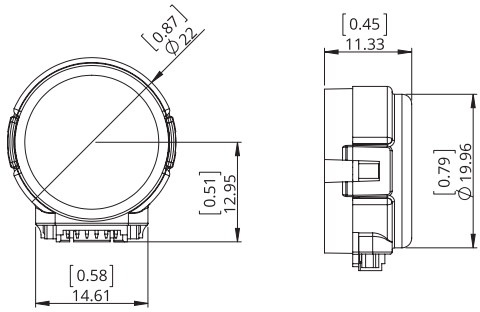
	Thread End	Screw end machining depends on screw diameter. For customized screw end machining are available, please contact DINGS' representatives for more details.
	Smooth End	
	None	
	Customized	

Accessories and Options

Encoder



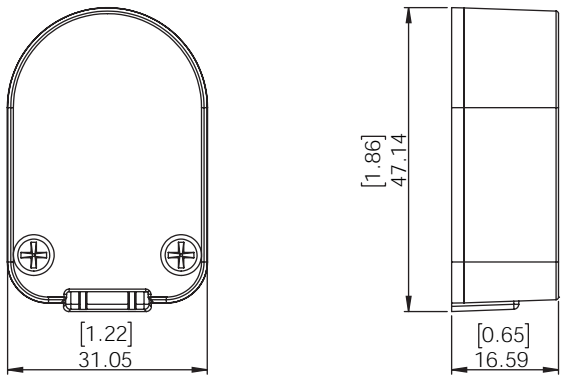
EK1 Encoder – single ended output



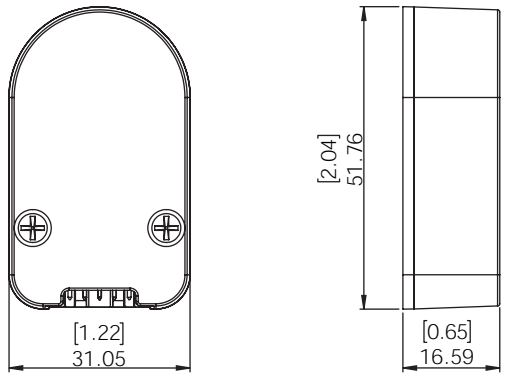
EK1 Encoder – differential output

- **EK1 Encoder (Used for Size 8, 11, 14, 17 Motor)** *No Index

Resolution(CPR)	100	108	120	125	128	200	250	256	300	360	400	500	1000	512	720	800
Single ended output	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Differential output	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P



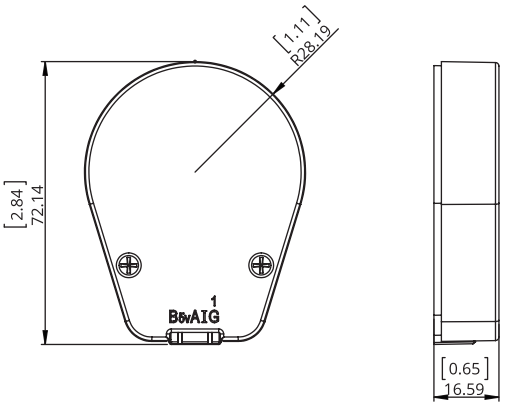
EK2 Encoder – single ended output



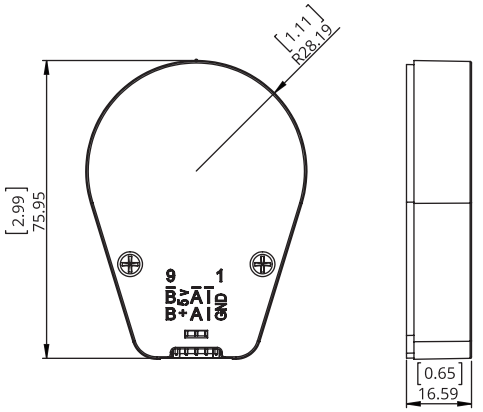
EK2 Encoder – differential output

- **EK2 Encoder (Used for Size 11, 14, 17, 23, 24 Motor)** *Index / No Index

Resolution(CPR)	50	100	192	200	250	256	360	400	500	720	900	1000	1250	2000	2500	4000	5000
Single ended output	0	1	2	3	4	5	6	7	8	9	10	11	12				
Differential output	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q



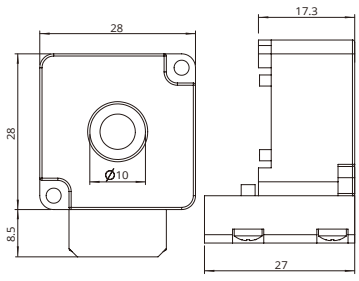
EK3 Encoder – single ended output



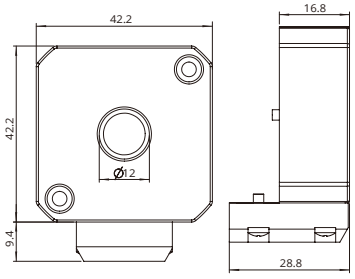
EK3 Encoder – differential output

- **EK3 Encoder (Used for Size 23, 24, 34 Motor)** *Index / No Index

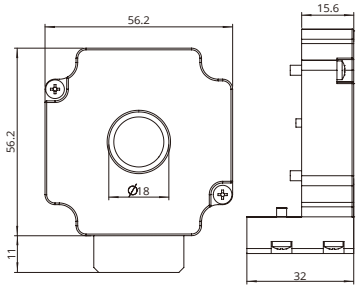
Resolution(CPR)	64	100	200	500	1000	1800	2000	2500	3600	4000	5000	7200	8000	10000
Single ended output	0	1	2	3	4	5	6	7	8					
Differential output		A	B	C	D	E	F	G	H	I	J	K	L	M



EK4 Encoder 11



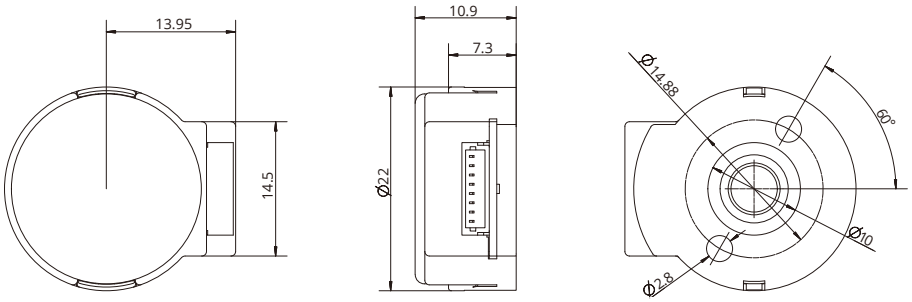
EK4 Encoder 17



EK4 Encoder 23

- **EK4 Encoder (Used for Size 11, 17, 23 External drive, Hollow, Rotary Motor)** * Index, Differential Shielded Cable

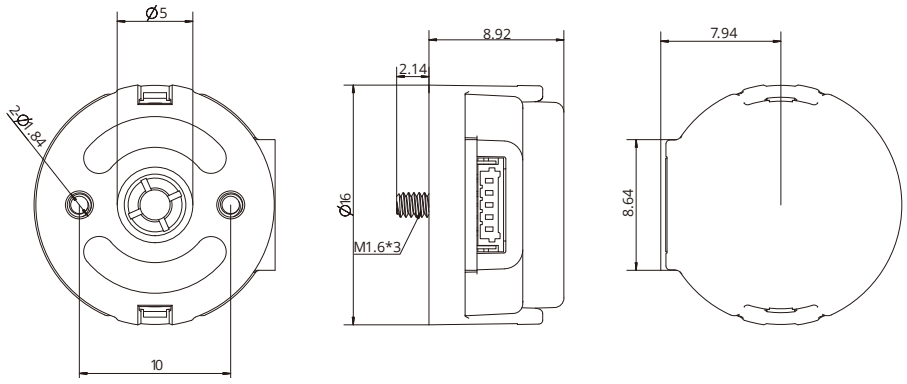
Resolution(CPR)	625	800	1000	1250	1600	2000	2500	3200	4000
Single ended output	-	-	-	-	-	-	-	-	-
Differential output	-	-	C	-	-	-	-	-	-



EK5 Encoder – differential output

- **EK5 Encoder (Used for Size 8, 11, 17 Motor)** * Index

Resolution(CPR)	360	500	512	1000	1024	2000	2048
Single ended output	0	1	2	3	4	5	6
Differential output	A	B	C	D	E	F	G

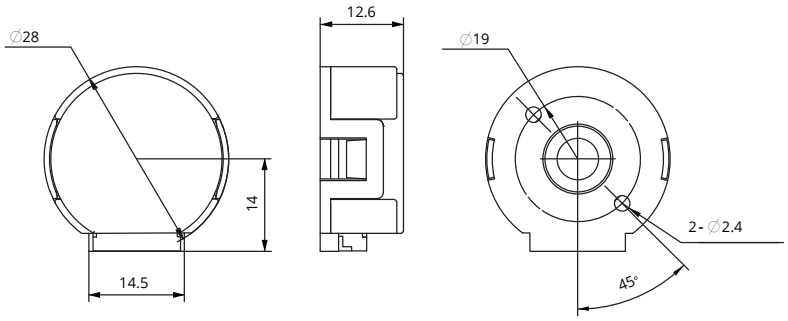


EK6 Encoder – single ended output

- **EK6 Encoder (Used for Size 6 Motor)**

Resolution[CPR]	250	256	500	512	1000	1024	2000	2048	4000	4096
Single ended output	0	1	2	3	4	5	6	7	8	9

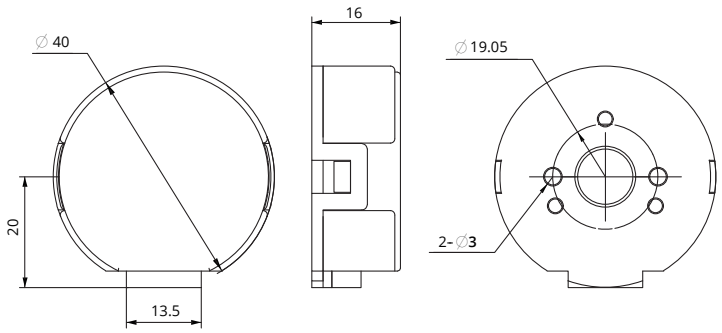
Accessories and Options



KPL 28 Encoder

- **KPL 28 Encoder (Used for Size 8, 11, 14, 17 Motor)** * Index

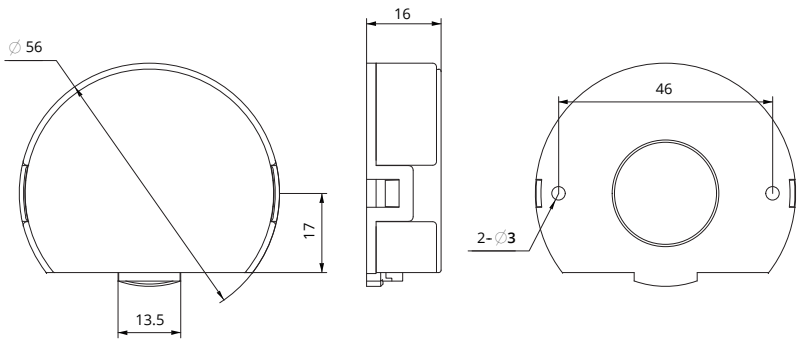
Resolution(CPR)	400	500	1000	2000
Single ended output	0	1	3	6
Differential output	A	B	D	G



KPL 40 Encoder

- **KPL 40 Encoder (Used for Size 14, 17 Motor)** * Index

Resolution(CPR)	400	800	1000	1250	1600	2000	2500	3200	4000
Single ended output	0	2	3	4	5	6	7	8	9
Differential output	A	C	D	E	F	G	H	I	J



KPL 56 Encoder

- **KPL 56 Encoder (Used for Size 14, 17, 23, 24 Motor)** * Index

Resolution(CPR)	400	800	1000	1250	1600	2000	2500	3200	4000
Single ended output	0	2	3	4	5	6	7	8	9
Differential output	A	C	D	E	F	G	H	I	J

Optional Brake (See Pages A-56~A-59)

PRECAUTION OF HANDLING AND OPERATION

This product integrates the motor and screw together, and repair is not possible for either of these components.
Please handle with care to avoid damage to the assembly.

PRECAUTION FOR OPERATION

1. Before use, please read instruction manuals and follow the precautions below.
2. Do not hit or drop the shaft. Do not apply Axial load exceeding specifications as it may cause malfunc
3. Before use, please inspect product to ensure that they are manufactured per order.
4. Do not disassemble the actuator. Do not remove ll screw.
5. Avoid contaminating the ball screw with dust, particles or any other foreign matters, as it may lead to damage to the components.
6. Lubrication is required under the ball screw operation. Lubrication condition should be checked every 2-3 months. If grease is contaminated, remove old grease and replace with new one.
7. Do not use the motor exceeding our specification in load or speed.
8. Allowing ball screw nut to over-run may result in malfunctioning due to balls escaping, damage to recycling parts, and indentation on the raceways. Therefore ball screw nut must never be allowed to over-run. If over- running occurs, contact us for an inspection with charge.
9. Do not hold the motor lead wire. It is for fixation, do not use it as movement.
10. The motor torque and speed characteristics may vary from the specifications, depending on the load conditions or Driver used. Please adjust as appropriate.
11. The motor has a resonant point within the specifications. Please avoid it when in use.

PRECAUTION FOR SAFETY

1. If abnormal odor,noise,smoke,overheating,or vibration occurs,stop operation immediately and turn the power off.
2. Do not use the exceeding rated current.
3. The motor may overheat depending on the load condition or Driver used. Make sure that the motor surface temperature dose not exceed 80℃ when in use.
4. Check the wire connection type,Drive system, and phase sequence.Inappropriate connection leads to malfunction.
5. Do not bend ,pull or pinch the motor lead wire.
6. Do not touch moving parts during operation.
7. Disconnect from the controller before performing dielectric withstanding voltage test of the motor or Insulation test.
8. Please switch off the Driver ,when inspection or maintenance.

Installation Guide

OPERATING ENVIRONMENT

1.Operating environment should be 0-40℃ in temperature and 20-80%RH in humidity. Do not use it under dew condensation,corrosive gas or inflammable gas environment.

2.Do not use it under strong electric field,strong magnetic field.

3.Please prevent from swarf ,oil mist,cutting fluid,water/moisture,salt spray, organic solvent and other contamination.

4.The motor can not be used under the vibration,impact,vacuum,and other special environment.

BALL SCREW MAINTENANCE

1. BALL SCREW PAIR PROTECTION DEVICE

(1) The use of the ball screw in the use of the process, is strictly prohibited dust or dirt entering, and therefore must be equipped with protective device.

(2) The ball screw pair is exposed on the machine tool, and a closed protective cover shall be adopted, such as the use of a coil spring steel tape sleeve, a telescopic sleeve and a folding sleeve, etc.. When you install, connect one end of the shield to the side of the ball nut. The other end is fixed on the supporting seat of the ball screw.

(3) The position of the ball screw is located in a position, and the sealing ring is used to protect the ball screw. Sealing ring is arranged on both ends of the nut. Contact and non contact type two sealing ring.

2. LUBRICATION of BALL SCREW

(1) The ball screw pair is usually used for two kinds of lubricants, lithium based grease and the main shaft oil. Lubricating grease generally and in the thread rolling and nut shell space, spindle oil through the shell of an oil hole injection nut of the space.

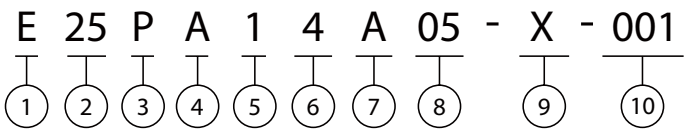
(2) Use of the process, every half a year to replace the grease, clean the old grease, coated with new grease. The ball screw pair lubricated with spindle oil can be oiled once before each operation of the machine.

PM Stepper Linear Actuator

DINGS' Permanent Magnetic PM Stepper Linear Actuators are available as 20/25/36mm sizes via External, Non-Captive and Kaptive series especially for economic application usage with Max. 115N linear force.

This is very economic linear actuator solution but still we use high quality of lead screw and Derlin plastic nut to ensure quality. Typical applications includes medical equipment like diagnostics, analyzers and also laboratory applications like microscope, tester, measurement device or etc.

Part Number Construction



① Linear Structure
- E = External
- N = Non-captive
- K = Kaptive

② Motor Size
- 20 mm
- 25 mm
- 36 mm

③ PM Stepper Motor

④ Mounting
- A = Flange and wiring box
- B = Flange only
- C = Wiring box only
- D = No flange or wiring box

A & C is not available for Uni-Polar (6 wiring)

⑤ Step Angle
- 1 = 7.5°
- 2 = 15°

⑥ Wiring Number
- 4 = Bi-polar (4 wiring)
- 6 = Uni-polar (6 wiring)

⑦ Lead Code

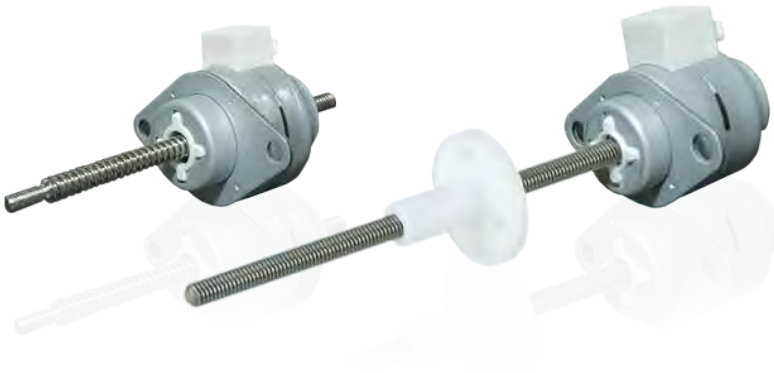
⑧ Winding Code
- 05 = 5V
- 12 = 12V

⑨ Screw Stroke /Length
- Kaptive - stroke distance
- Non-captive - total length of screw
- External - screw extension length from the mounting flange

⑩ Customization Sequence Number

Example

Naming code	E25PA14AA05-X-001
Description	Φ25 mm size External type with mounting flange and wiring box 2 Phase 7.5° step angle Bi-polar Screw Lead AA 5V winding Screw extension X mm Customization sequence number is 001

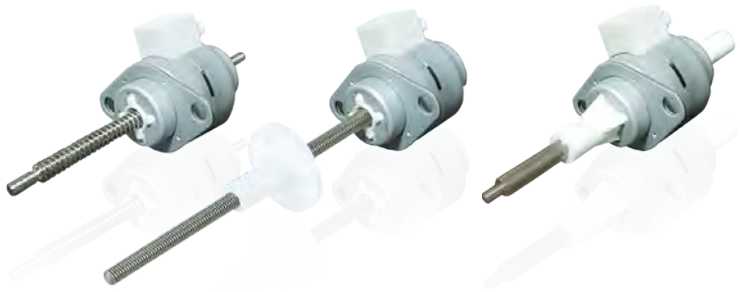


Lead Screw Code Selection

Motor size	Screw diameter (mm)	Screw lead (mm)	Travel per step (mm)		Max. Thrust force (N)	Power consumption (W)	Screw lead code
			7.5°	15°			
Φ20	Φ3.5	0.6096	0.0127	0.0254	35	3.4	AA
		1.2192	0.0254	0.0508			B
		2.4384	0.0508	0.1016			J
Φ25	Φ3.5	0.6096	0.0127	0.0254	65	3.9	AA
		1.2192	0.0254	0.0508			B
		2.4384	0.0508	0.1016			J
Φ36	Φ6.35	0.6096	0.0127	0.0254	115	5.6	AA
		1.2192	0.0254	0.0508			B
		2.4384	0.0508	0.1016			J

20mm Series

Motor Characteristics



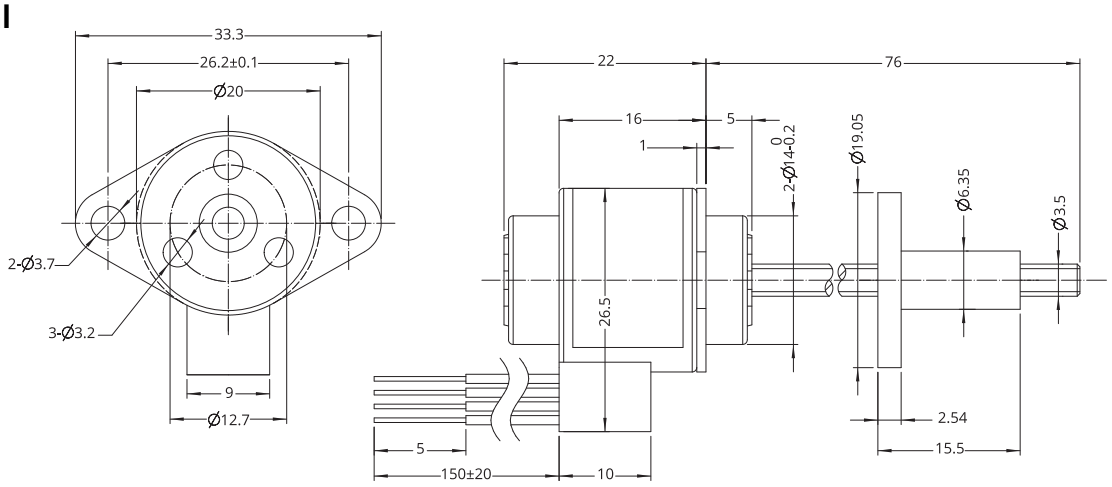
20mm Frame				
Polarity	Bi-polar			
Linear actuator type	Kaptive, Non-captive, External			
Step angle	7.5°		15°	
Winding	5V	12V	5V	12V
Phase current	370mA	160mA	370mA	160mA
Phase resistance	13.5Ω	74.5Ω	13.5Ω	76Ω
Phase inductance	6.5mH	36mH	4mH	25mH
Power consumption	3.4W			
Rotor inertia	1.05gcm²			
Insulation class	B			
Insulation resistance	100MΩ			
Mass	35g			
Bearing	Ball Bearing			

Available Lead Screw and Travel per Step

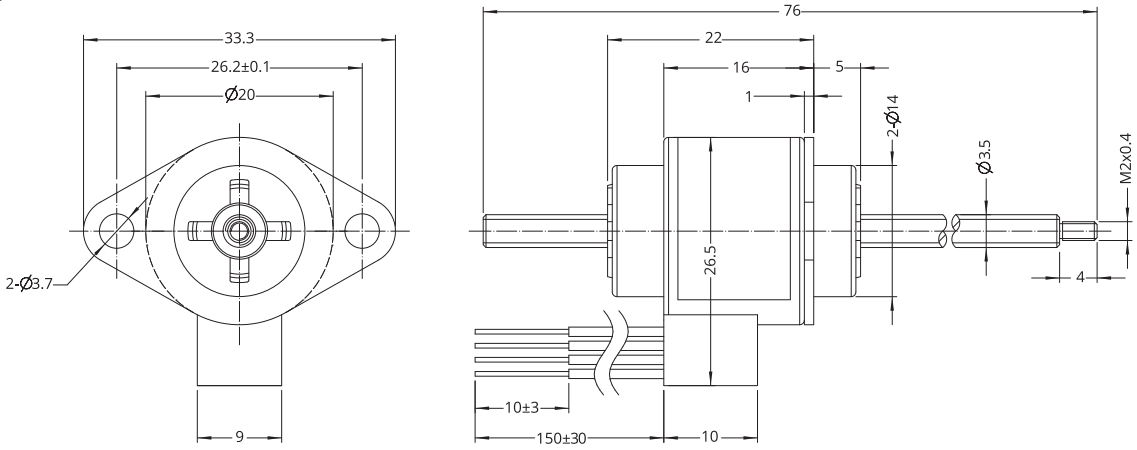
Step angle	Screw lead		Travel per step		Screw lead code
	mm	inch	mm	inch	
7.5°	0.6096	0.024	0.0127	0.0005	AA
	1.2192	0.048	0.0254	0.0010	B
	2.4384	0.096	0.0508	0.0020	J
15°	0.6096	0.024	0.0254	0.0010	AA
	1.2192	0.048	0.0508	0.0020	B
	2.4384	0.096	0.1016	0.0040	J

Dimensional Drawings

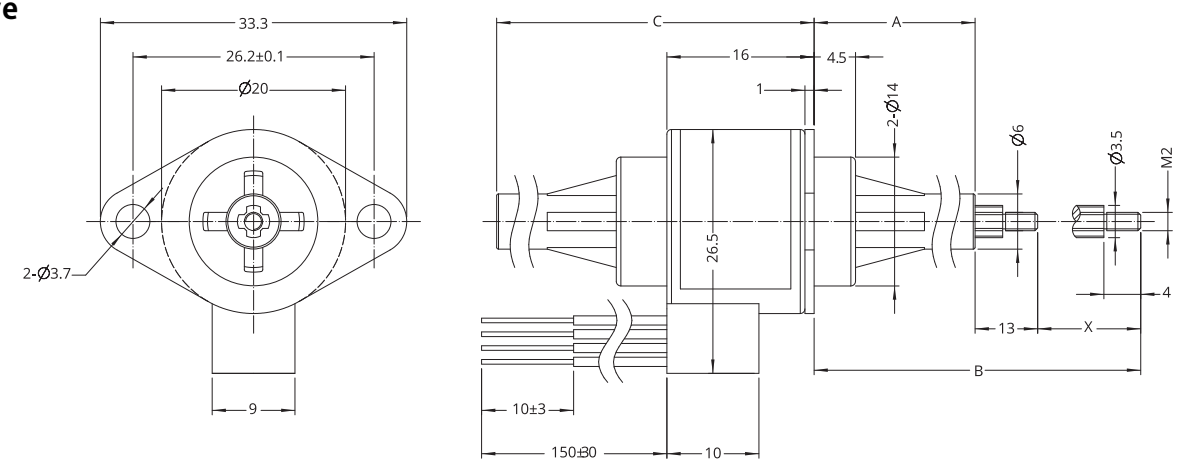
External



Non-captive



Kaptive



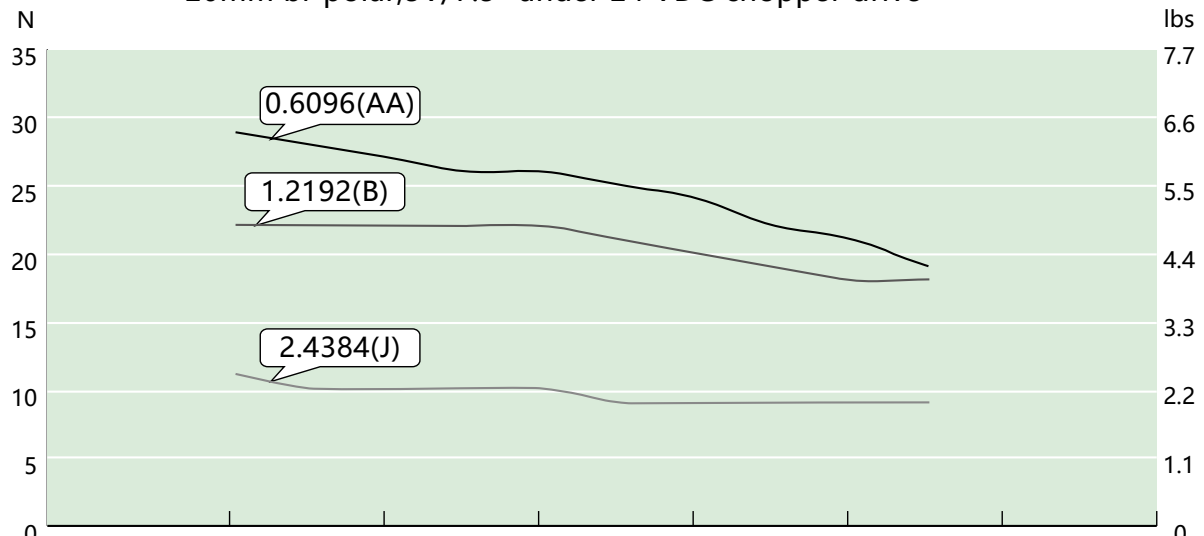
Stroke X	Front extension A	Total extension B	Body length C (MAX)
14	13.5±0.25	40.5	30.5
18	17.5±0.25	48.5	34.5
25	24.5±0.25	62.5	41.5
31	30.5±0.25	74.5	47.5

NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

20mm Series

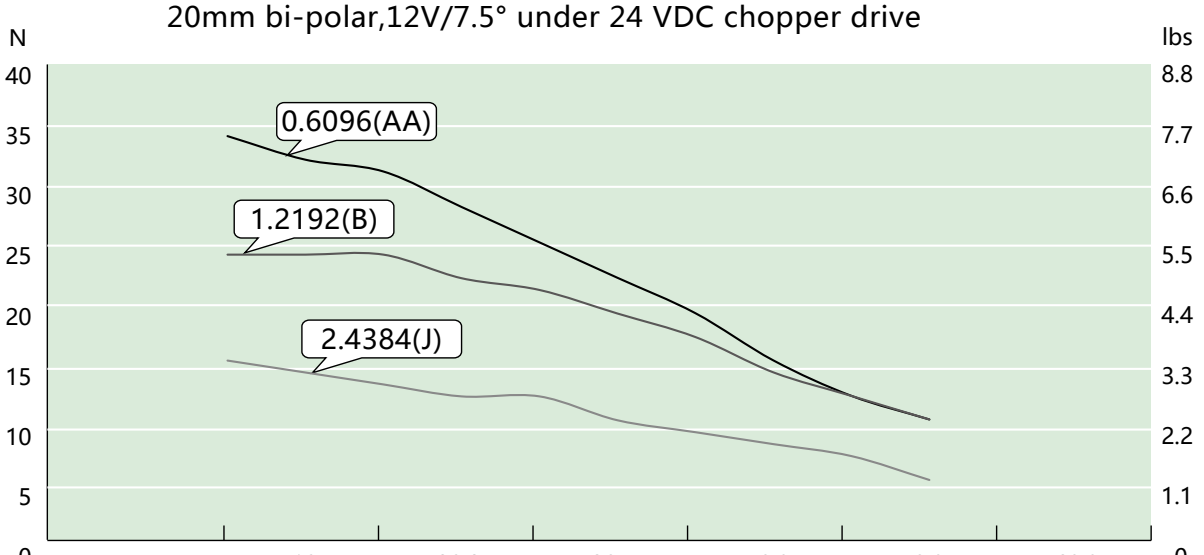
Speed Thrust Curves

20mm bi-polar,5V/7.5° under 24 VDC chopper drive



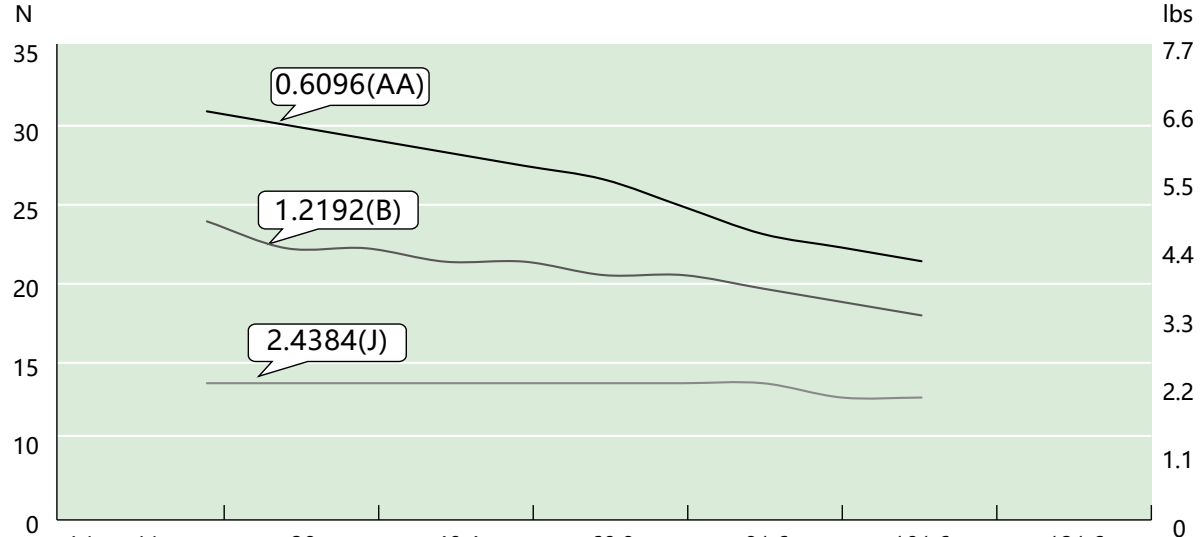
J (mm/s)	10	20.2	30.4	40.8	50.8	60.8
B (mm/s)	5	10.2	15.2	20.4	25.4	30.4
AA (mm/s)	2.5	5.1	7.6	10.2	12.7	15.2
RPM r/Min	250	500	750	1000	1250	1500
PPS	200	400	600	800	1000	1200

20mm bi-polar,12V/7.5° under 24 VDC chopper drive



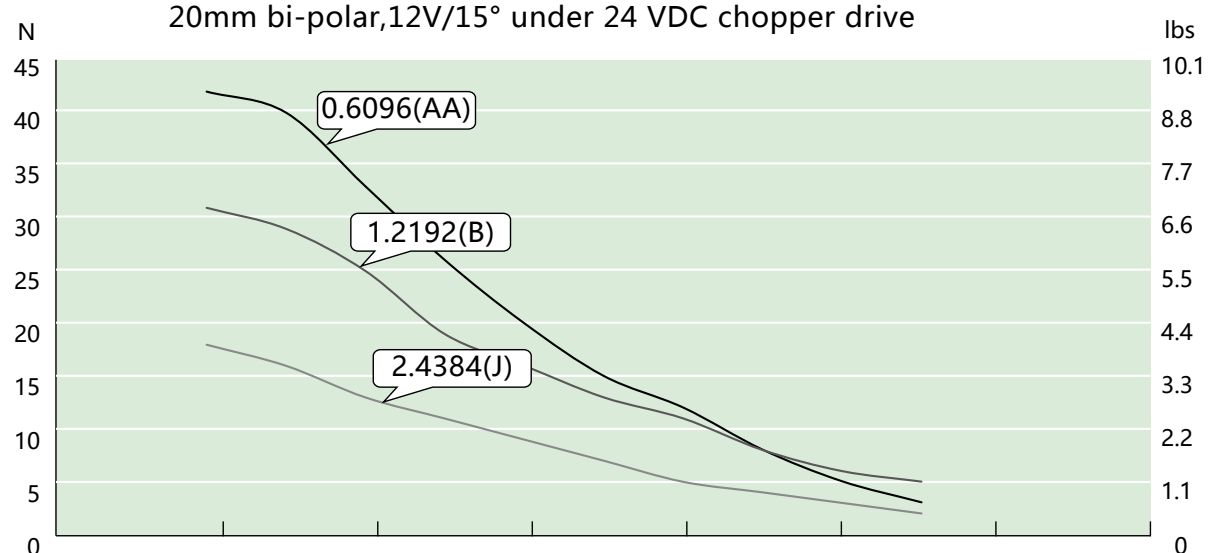
J (mm/s)	10	20.2	30.4	40.8	50.8	60.8
B (mm/s)	5	10.2	15.2	20.4	25.4	30.4
AA (mm/s)	2.5	5.1	7.6	10.2	12.7	15.2
RPM r/Min	250	500	750	1000	1250	1500
PPS	200	400	600	800	1000	1200

20mm bi-polar,5V/15° under 24 VDC chopper drive



J (mm/s)	20	40.4	60.8	81.6	101.6	121.6
B (mm/s)	10	20.2	30.4	40.8	50.8	60.8
AA (mm/s)	5	10.2	15.2	20.4	25.4	30.4
RPM r/Min	500	1000	1500	2000	2500	3000
PPS	200	400	600	800	1000	1200

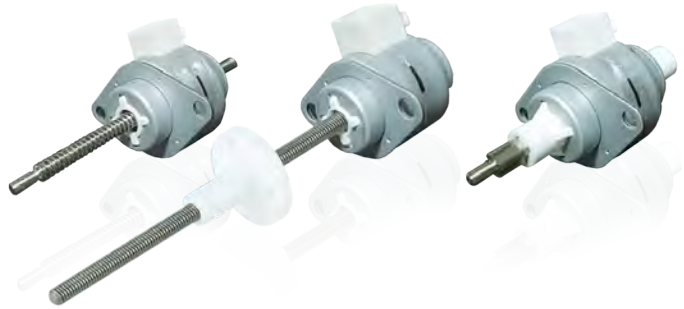
20mm bi-polar,12V/15° under 24 VDC chopper drive



J (mm/s)	20	40.4	60.8	81.6	101.6	121.6
B (mm/s)	10	20.2	30.4	40.8	50.8	60.8
AA (mm/s)	5	10.2	15.2	20.4	25.4	30.4
RPM r/Min	500	1000	1500	2000	2500	3000
PPS	200	400	600	800	1000	1200

25mm Series

Motor Characteristics



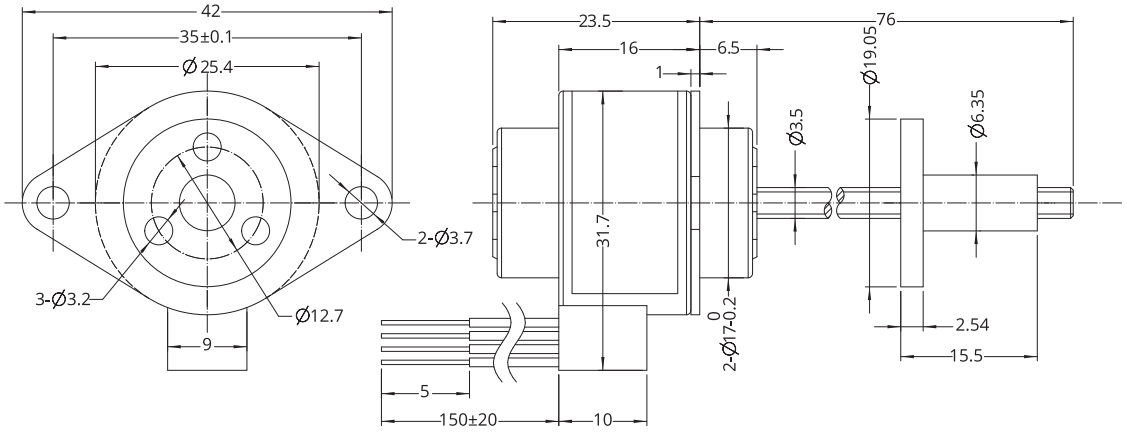
25mm Frame				
Polarity	Bi-polar			
Linear actuator type	Kaptive, Non-captive, External			
Step angle	7.5°		15°	
Winding	5V	12V	5V	12V
Phase current	370mA	160mA	370mA	160mA
Phase resistance	13.5Ω	70Ω	13.5Ω	70Ω
Phase inductance	12.5mH	65mH	9.5mH	47mH
Power consumption	3.85W			
Rotor inertia	1.08gcm²			
Insulation class	B			
Insulation resistance	100MΩ			
Mass	50g			
Bearing	Ball Bearing			

Available Lead Screw and Travel per Step

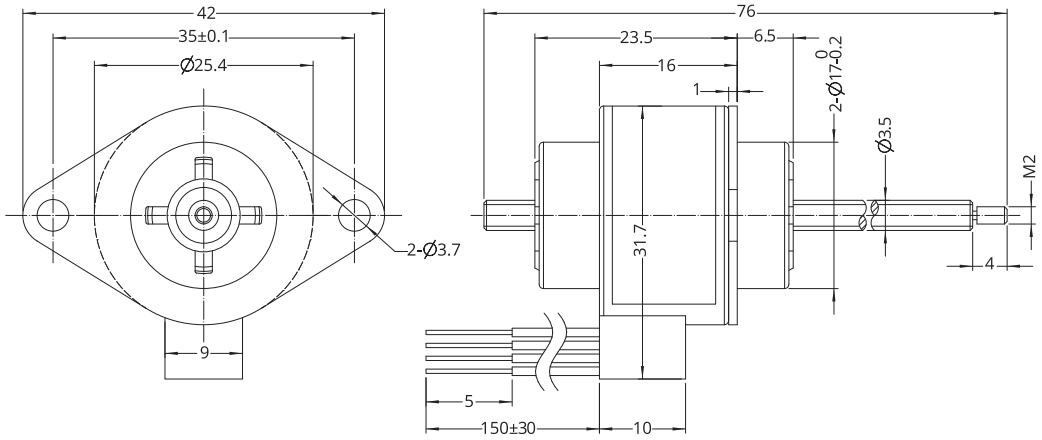
Step angle	Screw lead		Travel per step		Screw lead code
	mm	inch	mm	inch	
7.5°	0.6096	0.024	0.0127	0.0005	AA
	1.2192	0.048	0.0254	0.0010	B
	2.4384	0.096	0.0508	0.0020	J
15°	0.6096	0.024	0.0254	0.0010	AA
	1.2192	0.048	0.0508	0.0020	B
	2.4384	0.096	0.1016	0.0040	J

Dimensional Drawings

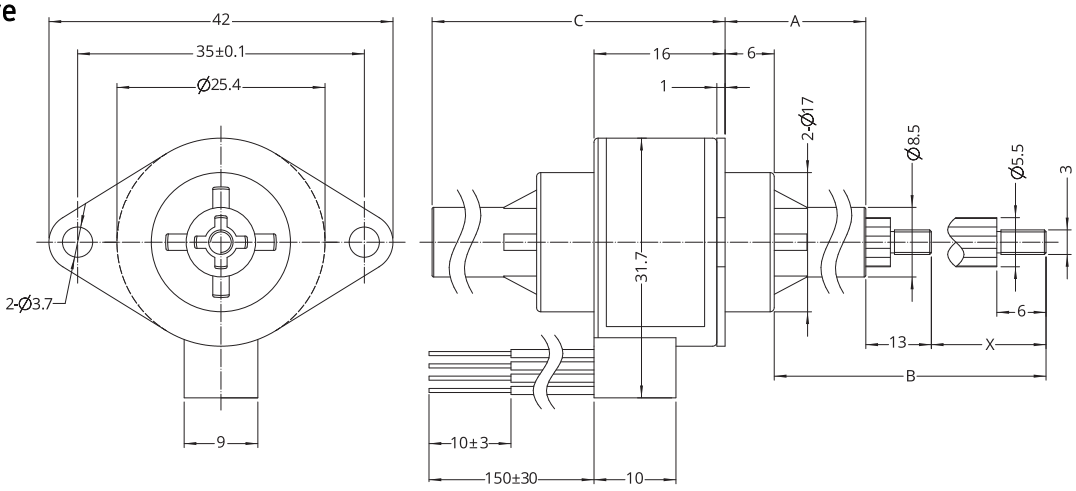
- External



- Non-captive



- Kaptive



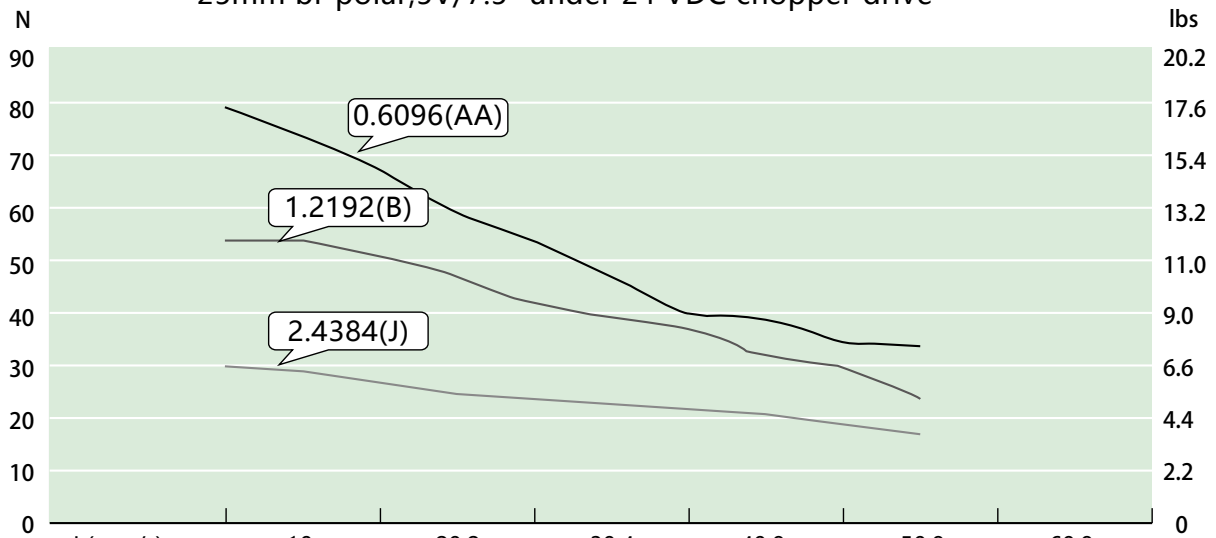
Stroke X	Front extension A	Total extension B	Body length C (MAX)
13	10.5±0.25	36.5	27.5
18	15.5±0.25	46.5	32.5
25	22.5±0.25	60.5	39.5
31	28.5±0.25	72.5	45.5

NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

25mm Series

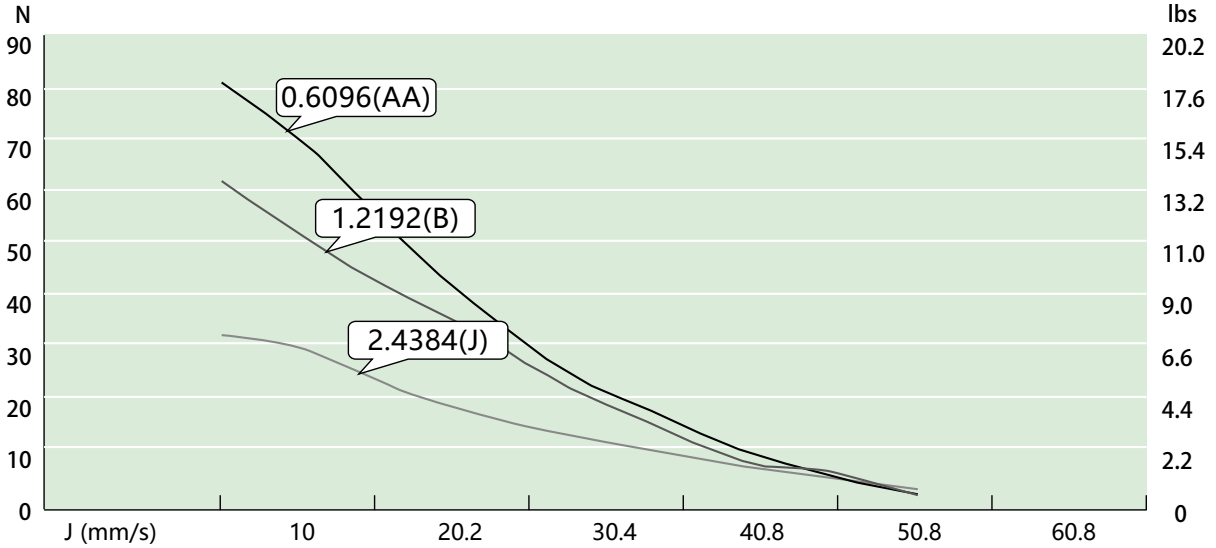
Speed Thrust Curves

25mm bi-polar,5V/7.5° under 24 VDC chopper drive



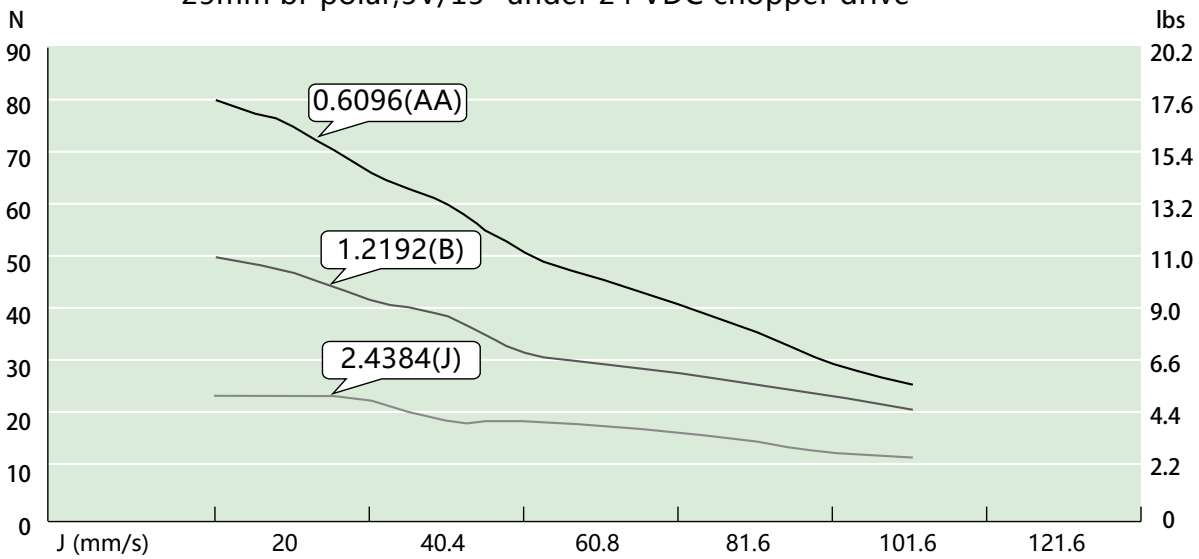
J (mm/s)	10	20.2	30.4	40.8	50.8	60.8
B (mm/s)	5	10.2	15.2	20.4	25.4	30.4
AA (mm/s)	2.5	5.1	7.6	10.2	12.7	15.2
RPM r/Min	250	500	750	1000	1250	1500
PPS	200	400	600	800	1000	1200

25mm bi-polar,12V/7.5° under 24 VDC chopper drive



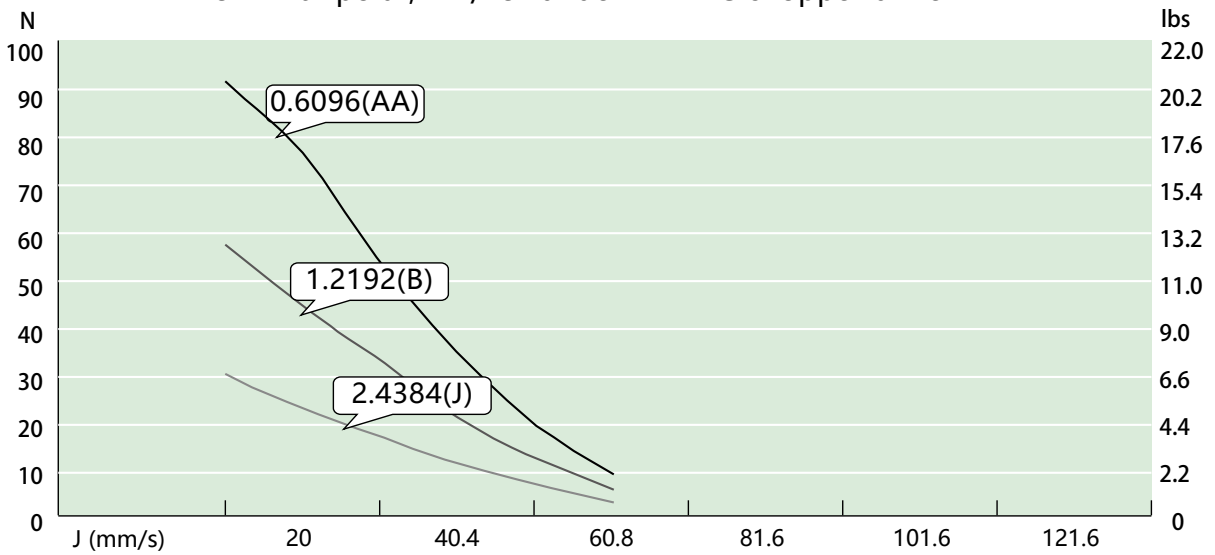
J (mm/s)	10	20.2	30.4	40.8	50.8	60.8
B (mm/s)	5	10.2	15.2	20.4	25.4	30.4
AA (mm/s)	2.5	5.1	7.6	10.2	12.7	15.2
RPM r/Min	250	500	750	1000	1250	1500
PPS	200	400	600	800	1000	1200

25mm bi-polar,5V/15° under 24 VDC chopper drive



J (mm/s)	20	40.4	60.8	81.6	101.6	121.6
B (mm/s)	10	20.4	30.4	40.8	50.8	60.8
AA (mm/s)	5.0	10.2	15.2	20.4	25.4	30.4
RPM r/Min	500	1000	1500	2000	2500	3000
PPS	200	400	600	800	1000	1200

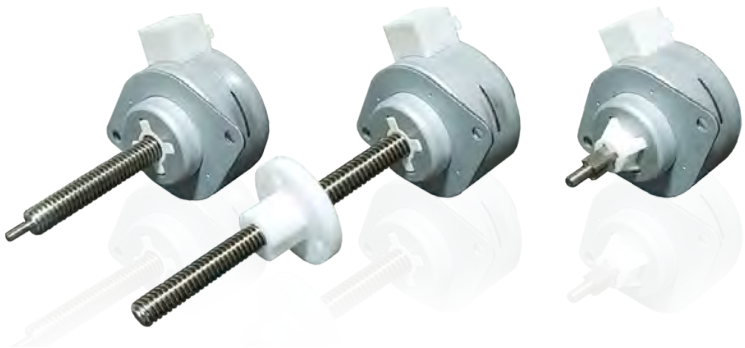
25mm bi-polar,12V/15° under 24 VDC chopper drive



J (mm/s)	20	40.4	60.8	81.6	101.6	121.6
B (mm/s)	10	20.4	30.4	40.8	50.8	60.8
AA (mm/s)	5.0	10.2	15.2	20.4	25.4	30.4
RPM r/Min	500	1000	1500	2000	2500	3000
PPS	200	400	600	800	1000	1200

36mm Series

Motor Characteristics



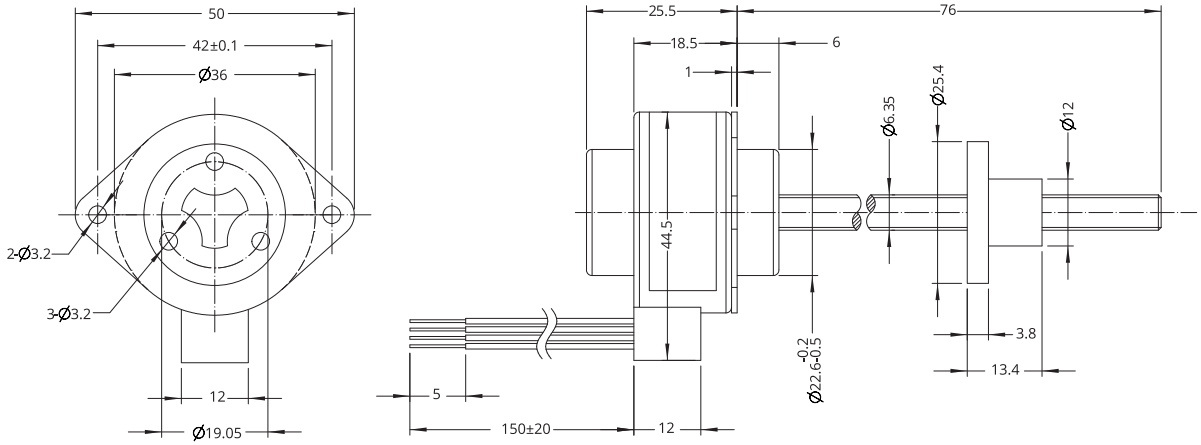
36mm Frame				
Polarity	Bi-polar			
Linear structure	Kaptive, Non-captive, External			
Step angle	7.5°		15°	
Winding	5V	12V	5V	12V
Phase current	560mA	230mA	560mA	230mA
Phase resistance	9Ω	52Ω	9Ω	52Ω
Phase inductance	11.5mH	72mH	8mH	56mH
Power consumption	5.6W			
Rotor inertia	8.5gcm²			
Insulation class	B			
Insulation resistance	100MΩ			
Mass	120g			
Bearing	Ball Bearing			

Available Lead Screw and Travel per Step

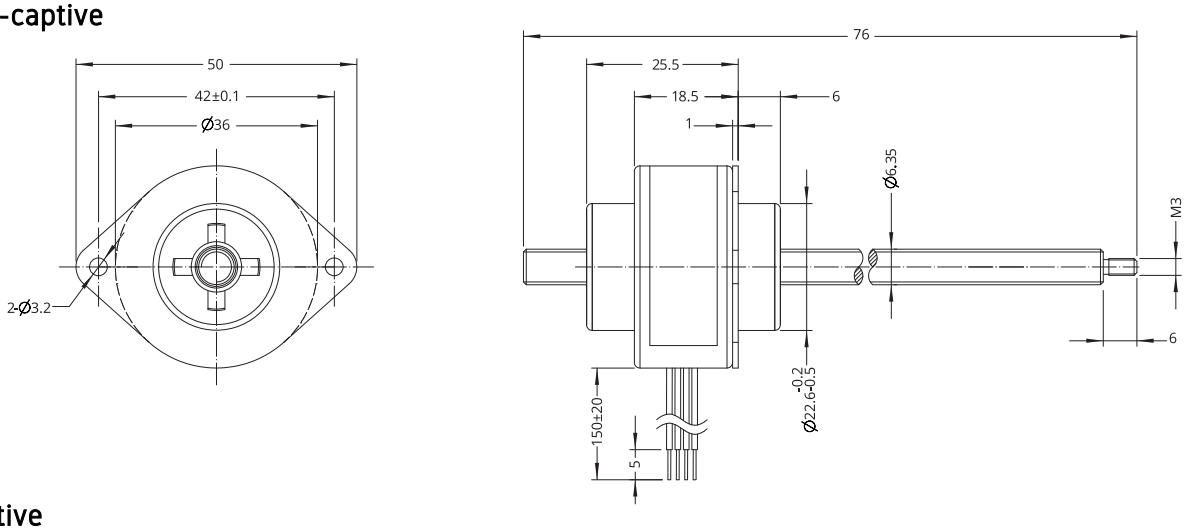
Step angle	Screw lead		Travel per step		Screw lead code
	mm	inch	mm	inch	
7.5°	0.6096	0.024	0.0127	0.0005	AA
	1.2192	0.048	0.0254	0.0010	B
	2.4384	0.096	0.0508	0.0020	J
15°	0.6096	0.024	0.0254	0.0010	AA
	1.2192	0.048	0.0508	0.0020	B
	2.4384	0.096	0.1016	0.0040	J

Dimensional Drawings

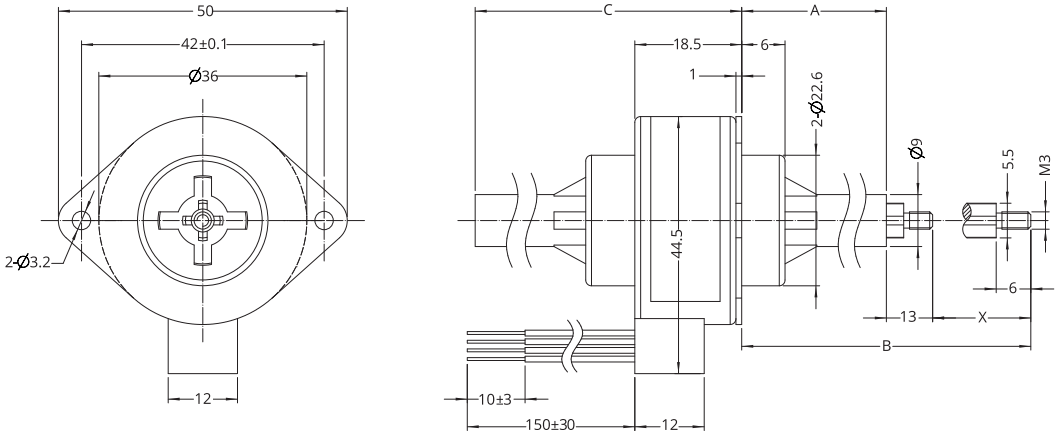
External



Non-captive



Kaptive



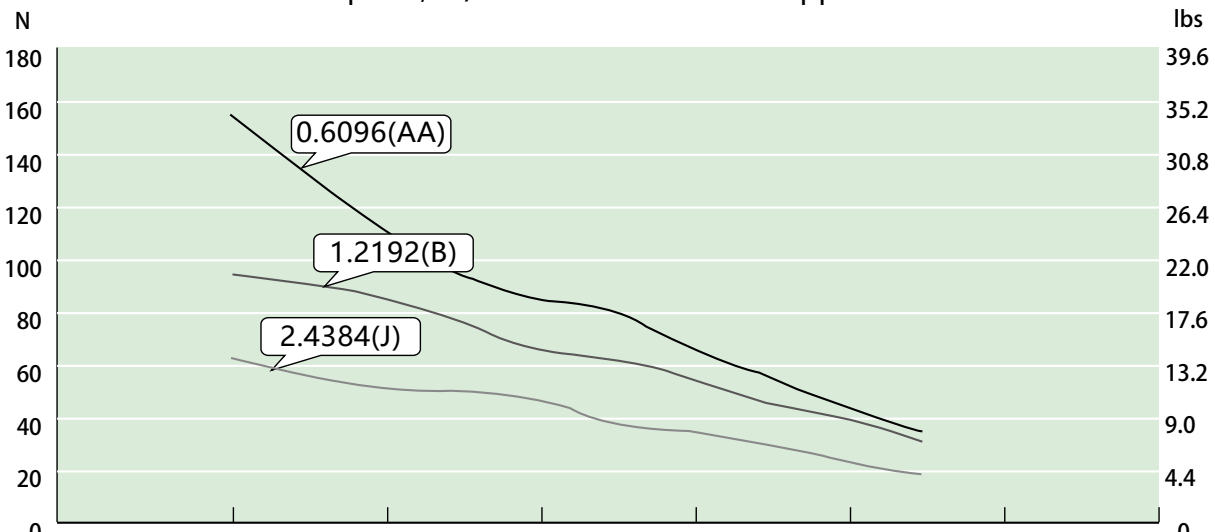
Stroke X	Front extension A	Total extension B	Body length C (MAX)
16	12±0.25	41	31.5
25	21±0.25	59	40.5
38	34±0.25	85	53.5

NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

36mm Series

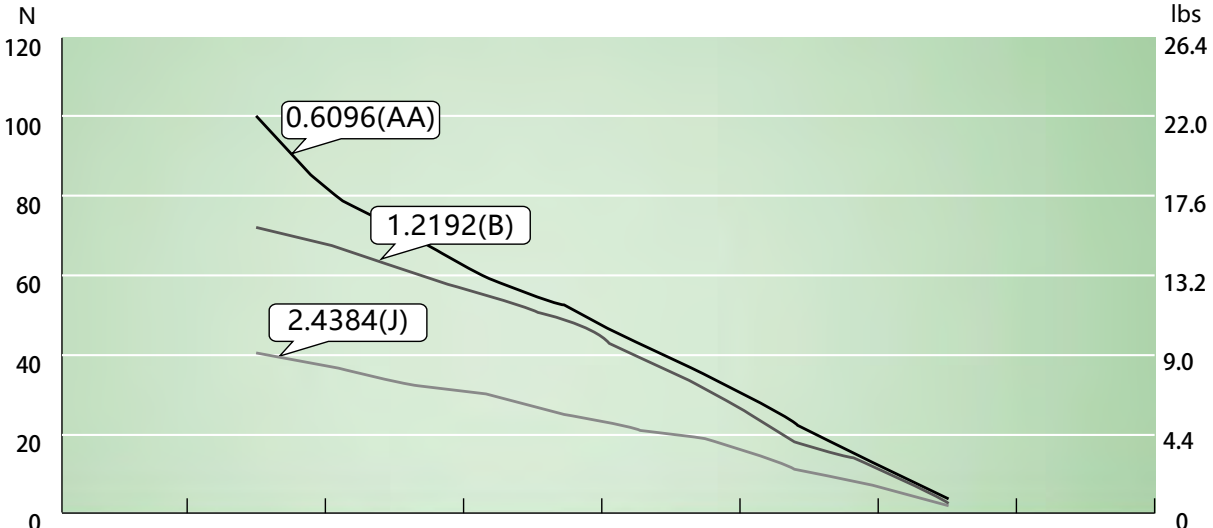
Speed Thrust Curves

36mm bi-polar,5V/7.5° under 24 VDC chopper drive



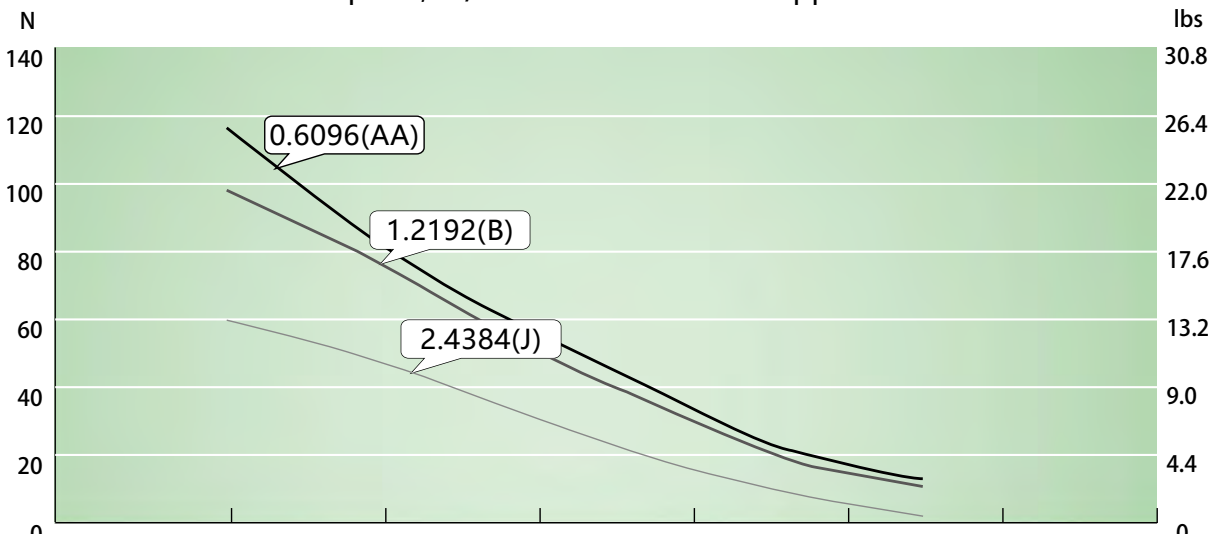
J (mm/s)	10	20.2	30.4	40.8	50.8	60.8
B (mm/s)	5	10.2	15.2	20.4	25.4	30.4
AA (mm/s)	2.5	5.1	7.6	10.2	12.7	15.2
RPM r/Min	250	500	750	1000	1250	1500
PPS	200	400	600	800	1000	1200

36mm bi-polar,12V/7.5° under VDC chopper drive



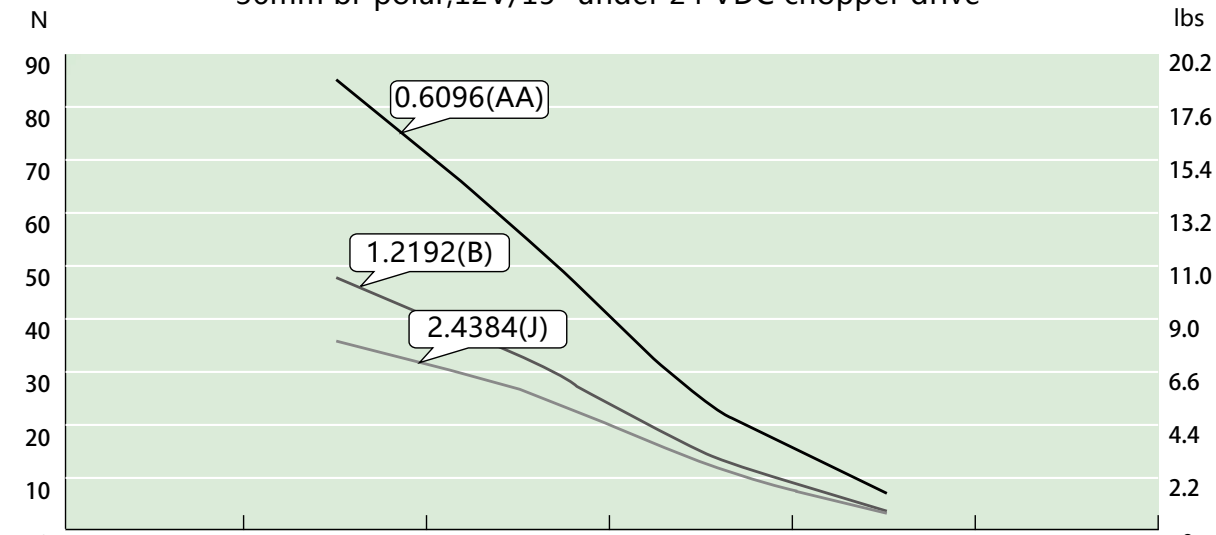
J (mm/s)	5	10	15.1	20.2	25.3	30.4	35.4
B (mm/s)	2.5	5	7.5	10.2	12.5	15.2	17.7
AA (mm/s)	1.25	2.5	3.8	5.1	6.3	7.6	8.9
RPM r/Min	125	250	375	500	625	750	875
PPS	100	200	300	400	500	600	700

36mm bi-polar,5V/15° under 24 VDC chopper drive



J (mm/s)	20	40.4	60.8	81.6	101.6	121.6
B (mm/s)	10	20.4	30.4	40.8	50.8	60.8
AA (mm/s)	5.0	10.2	15.2	20.4	25.4	30.4
RPM r/Min	500	1000	1500	2000	2500	3000
PPS	200	400	600	800	1000	1200

36mm bi-polar,12V/15° under 24 VDC chopper drive



J (mm/s)	10	20	20.2	40.4	50.8
B (mm/s)	5	10	15.1	20.2	25.4
AA (mm/s)	2.5	5	7.6	10.2	12.7
RPM r/Min	250	500	750	1000	1250
PPS	100	200	300	400	500

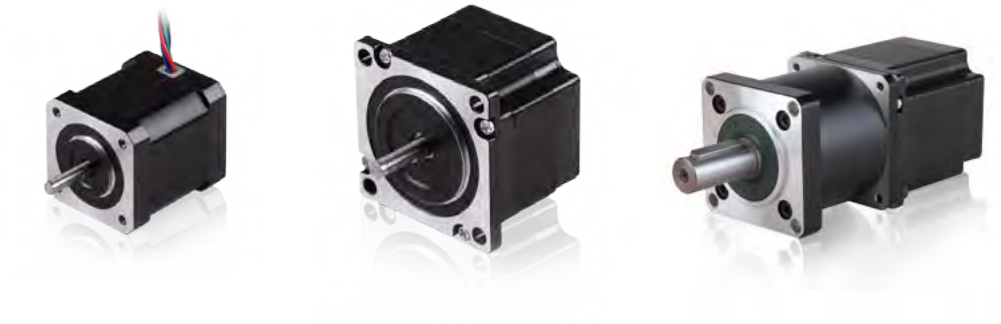
B Hybrid Rotary Stepper Motor

DINGS' provides 8 different sizes of hybrid stepper motors from 14mm to 86mm.

Each size has multiple stack lengths. Single or dual shaft is standard but customized shaft options are also available.

DINGS' can customize all range of hybrid stepper motors as encoder ready for general motion solution providers and also encoder housing, special machining of front and rear shafts, special cables, wire harness assemblies and other solutions are available.

According to customer's requirements, we can adopt certain range of gearboxes, encoders, connectors and cables too. In addition, various ratio of planetary gearboxes, DINGS' standard encoders and power-off brakes (NEMA 14, 17 and 23), IP Protection is optional.



Part Number Construction

17 H 2 061 - 200 - 4 B T - GR - 01

1 2 3 4 5 6 7 8 9 10

① Frame Size (mm)

CODE	06	08	11	14	17	23	24	34
MOTOR SIZE(mm)	14	20	28	35	42	57	60	86

② Basic Structure
- H = Normal
- P = IP54
- W = Enhanced

*For IP65, please contact DINGS' for more information

③ Step Angle(°)
- 1 = 3°
- 2 = 1.8°
- 3 = 1.2°
- 4 = 0.9°
- 5 = 0.72°

④ Body Length (truncated / mm)

⑤ Rated Current×100 (A)

For example, 200 = 2.0A

⑥ Wiring Number (3,4,5,6,8) Shaft

⑦ Configuration
- A = Single Shaft
- B = Dual Shaft

* Shaft dimension and D-Cut customization, please contact DINGS'

⑧ Wiring Method
- L = Discrete flying wire
- T = Integrated connector
- C = Cable

* If customer has special requirement for connector and cable, please inform DINGS'

⑨ Option
- GR = Planetary gearbox ready
- BR = Brake ready
- ER = Encoder ready
- PG = Planetary gearbox
- FB = Power off brake
- EKX, KPLX = Encoder [XX = Encoder Code]

* DINGS' can customize shafts and covers to be ready to assemble Gearbox, Brake or Encoder by customers, according to customer's requirements by drawing.
* DINGS' has standard planetary gearbox options. Please see product details.
* Power-Off Brake is available for Motor size 35, 42 and 57mm

⑩ Customer Sequence Number

Example

Naming code 17H2061-200-4BT-GR-01

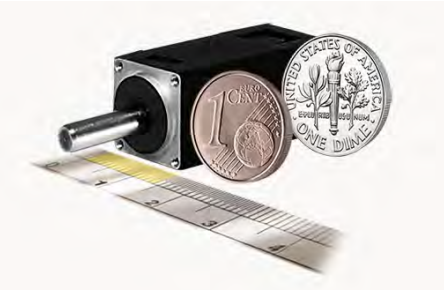
Description
Size 42 mm
Normal structure
Step angle 1.8°
Motor body length 61 mm
Rated current 2.0 A
4 wiring leads
Dual shaft
Wiring method integrated connector
Gearbox ready
Customization sequence code 01

Product Overview

Part Number	Current (A)	Resistance (Ω)	Inductance (mH)	Holding Torque (N·m)	Rotor Inertia (g·cm²)	Motor Length (mm)	Mass (g)
6H2030	0.3	22	3.6	0.005	1.5	30	30
8H2028	0.5	5.1	1.5	0.012	2.7	27.2	60
8H2038	0.5	8.8	2.7	0.02	3.3	38	80
11H2032	1.0	2.1	1.5	0.06	9	33.5	110
11H2045	1.0	4.1	4.0	0.1	13	45	200
11H2052	1.0	4.7	4.6	0.14	18	52	280
14H2027	0.5	20	23	0.15	10	27	140
14H2037	1.5	2.0	3.2	0.2	28	37	180
17H2034	0.5	15	21	0.25	25	34	230
17H2041	1.2	2.5	5.5	0.4	54	41	300
17H2049	1.5	2.0	5.4	0.48	77	49	360
17H2061	2.0	1.8	4.0	0.72	110	61	500
23H2042	1.0	4.2	9.0	0.6	140	42.5	460
23H2051	2.0	1.5	4.4	1.0	240	51.5	640
23H2065	3.0	0.9	2.7	1.6	350	65.5	860
23H2076	4.0	0.6	2.4	2.0	480	76.5	1060
24H2047	2.0	1.5	3.4	1.0	240	47	600
24H2056	3.0	0.8	2.3	1.5	340	56	800
24H2068	4.0	0.6	1.9	2.1	490	68	1000
24H2085	5.0	0.4	1.8	3.0	690	85	1300
34H2060	3.0	1.0	6.0	3.0	1100	60.5	1600
34H2075	4.5	0.6	4.5	4.5	1800	75	2100
34H2098	6.0	0.5	3.5	7.0	2800	96.5	2900

Size 6 (14mm) Series

The size 6 [14mm] which is smallest hybrid rotary stepper motor from DINGS' has Max. 0.005N·m of holding torque.



Parameters

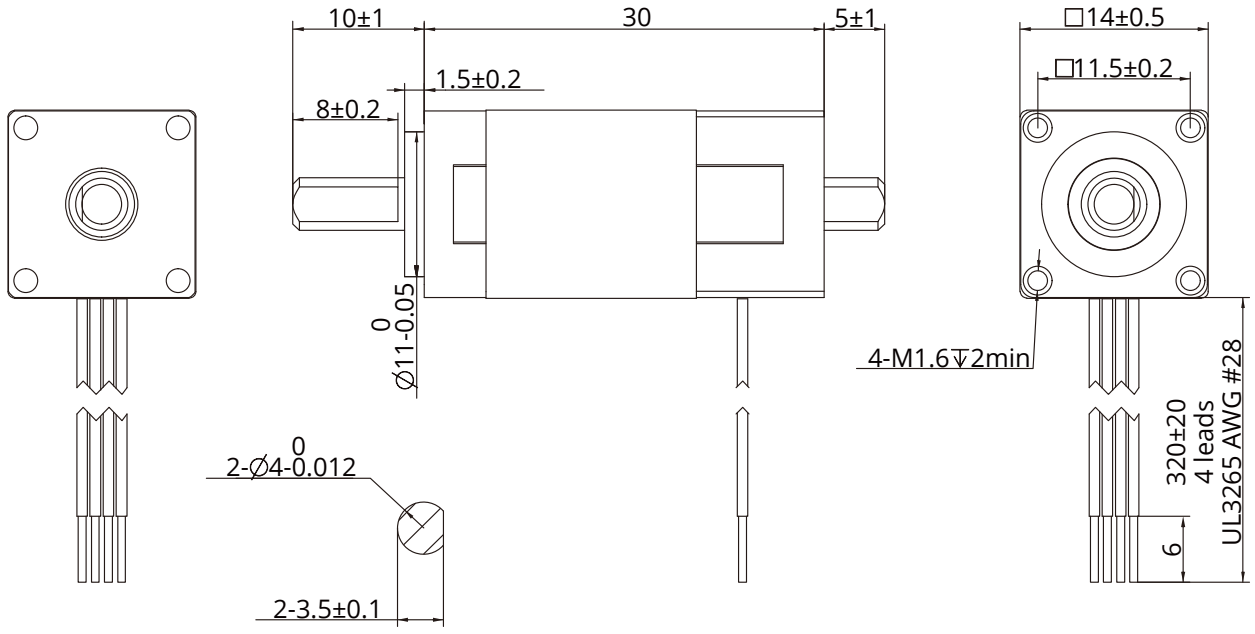
General			
Accuracy	Step angle	1.8°±5%	
	Resistance	±10% / 20 C	
	Inductance	±20% / 1KHz	
Insulation class		B	
Duty type		S1	
Dielectrical strength		500 VAC / 1 KHz / 1 mA / 1 s	
Insulation resistance		100 MΩ / 500 VDC	
Permissible radial load (5mm distance from mounting surface)	Permissible radial load (10mm distance from mounting surface)	Permissible radial load (15mm distance from mounting surface)	Permissible radial load (20mm distance from mounting surface)
15N	12N	8N	6N

Parameter							
Type	Current (A)	Resistance (Ω)	Inductance (mH)	Holding Torque (N·m)	Rotor Inertia (g·cm²)	Length (mm)	Mass (g)
6H2030	0.3	22	3.6	0.005	1.5	30	30

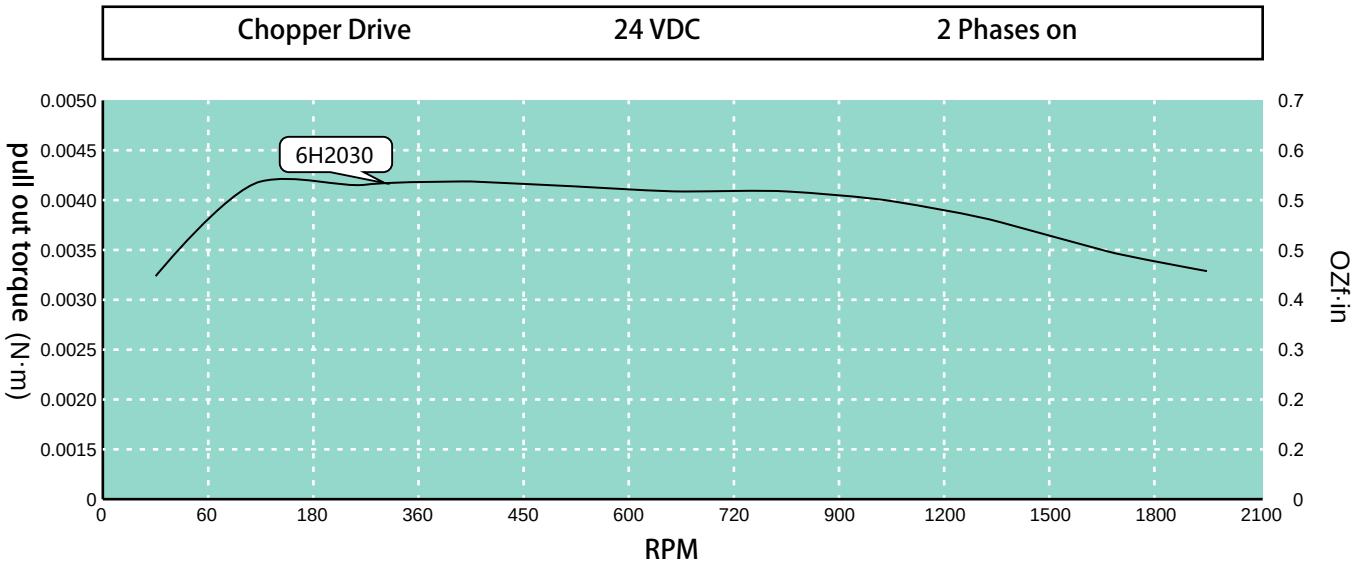
Material	
End bell	Aluminum alloy
Bearing	Deep groove ball bearing
Magnet	Sintered NdFeB
Shaft	Stainless steel
Wiring	UL 3265, 28 AWG

Size 6 (14mm) Series

Dimensional Drawings



Tourque Performance Curves

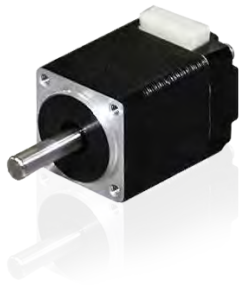


Size 8 (20mm) Series

The size 8 [20mm] Hybrid Rotary Stepper Motor has Max. 0.02N·m of holding torque.

Encoders and 22mm frame planetary gearbox solutions are available.

For special windings or customization, Please contact DINGS' for further information.



Parameters

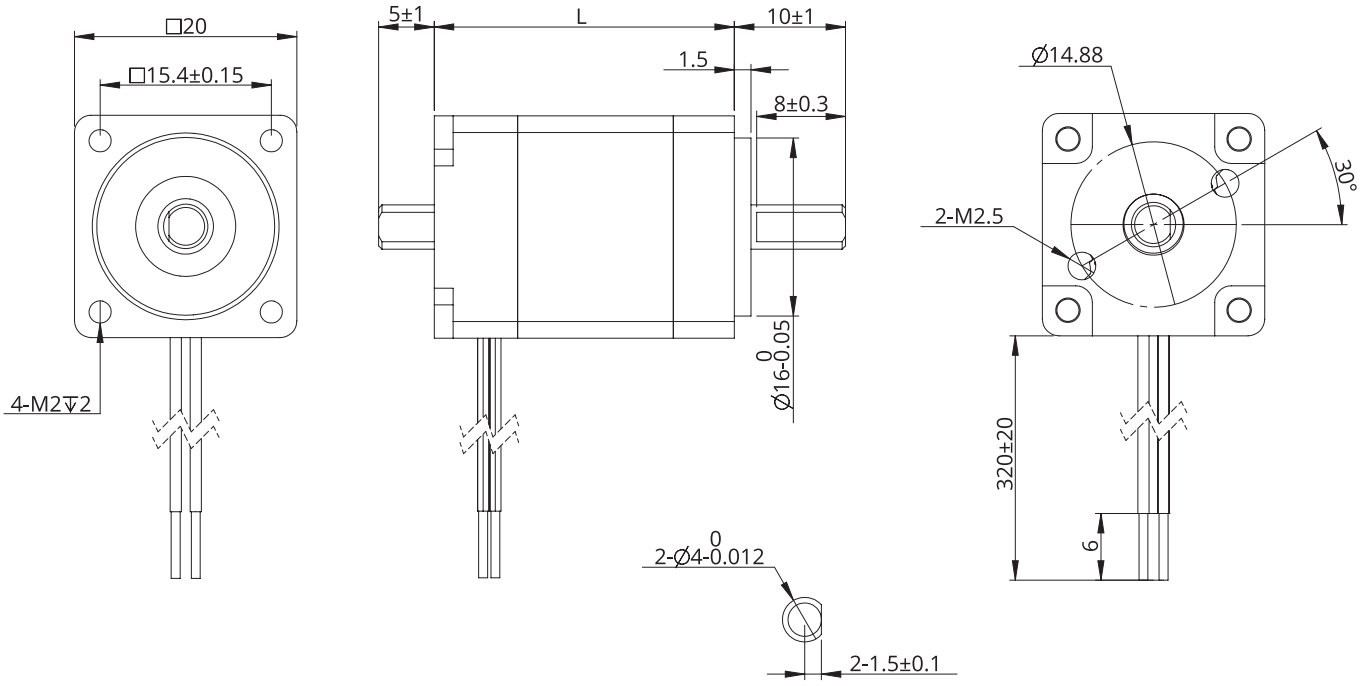
General			
Accuracy	Step angle	1.8°±5%	
	Resistance	±10% / 20 C	
	Inductance	±20% / 1KHz	
Insulation class		B	
Duty type		S1	
Dielectrical strength		500 VAC / 1 KHz / 1 mA / 1 s	
Insulation resistance		100 MΩ / 500 VDC	
Permissible radial load (5mm distance from mounting surface)	Permissible radial load (10mm distance from mounting surface)	Permissible radial load (15mm distance from mounting surface)	Permissible radial load (20mm distance from mounting surface)
15N	12N	8N	6N

Parameter							
Type	Current (A)	Resistance (Ω)	Inductance (mH)	Holding Torque (N·m)	Rotor Inertia (g·cm²)	Length (mm)	Mass (g)
8H2028	0.5	5.1	1.5	0.012	2.7	27.2	60
8H2038	0.5	8.8	2.7	0.02	3.3	38	80

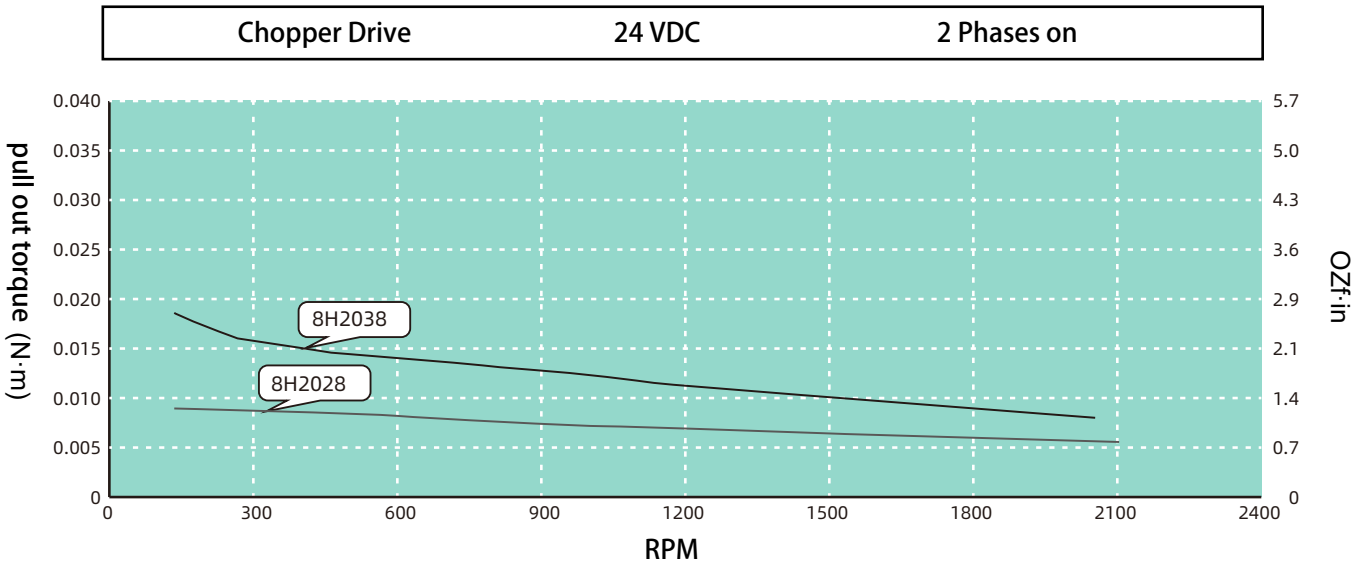
Material	
End bell	Aluminum alloy
Bearing	Deep groove ball bearing
Magnet	Sintered NdFeB
Shaft	Stainless steel
Wiring	UL 3265, 28 AWG

Size 8 (20mm) Series

Dimensional Drawings



Tourque Performance Curves



Size 11 (28mm) Series

The size 11 [28mm] Hybrid Rotary Stepper Motor has Max. 0.14N·m of holding torque.

Encoders and 28mm frame planetary gearbox solutions are available.

For special windings or customization, Please contact DINGS' for further information.

Parameters

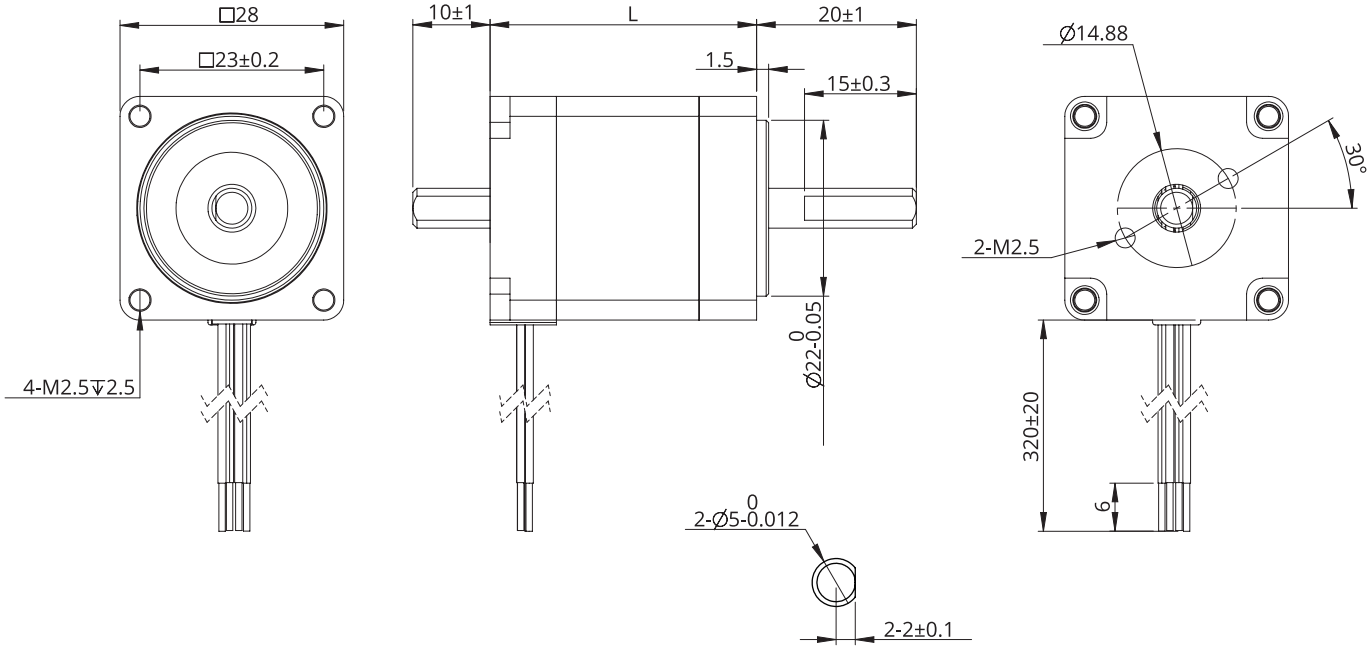
General			
Accuracy	Step angle	1.8°±5%	
	Resistance	±10% / 20 C	
	Inductance	±20% / 1KHz	
Insulation class		B	
Duty type		S1	
Dielectrical strength		500 VAC / 1 KHz / 1 mA / 1 s	
Insulation resistance		100 MΩ / 500 VDC	
Permissible radial load (5mm distance from mounting surface)	Permissible radial load (10mm distance from mounting surface)	Permissible radial load (15mm distance from mounting surface)	Permissible radial load (20mm distance from mounting surface)
50N	35N	25N	20N

Parameter							
Type	Current (A)	Resistance (Ω)	Inductance (mH)	Holding Torque (N·m)	Rotor Inertia (g·cm²)	Length (mm)	Mass (g)
11H2032	1	2.1	1.5	0.06	9	33.5	110
11H2045	1	4.1	4.0	0.1	13	45	200
11H2052	1	4.7	4.6	0.14	18	52	280

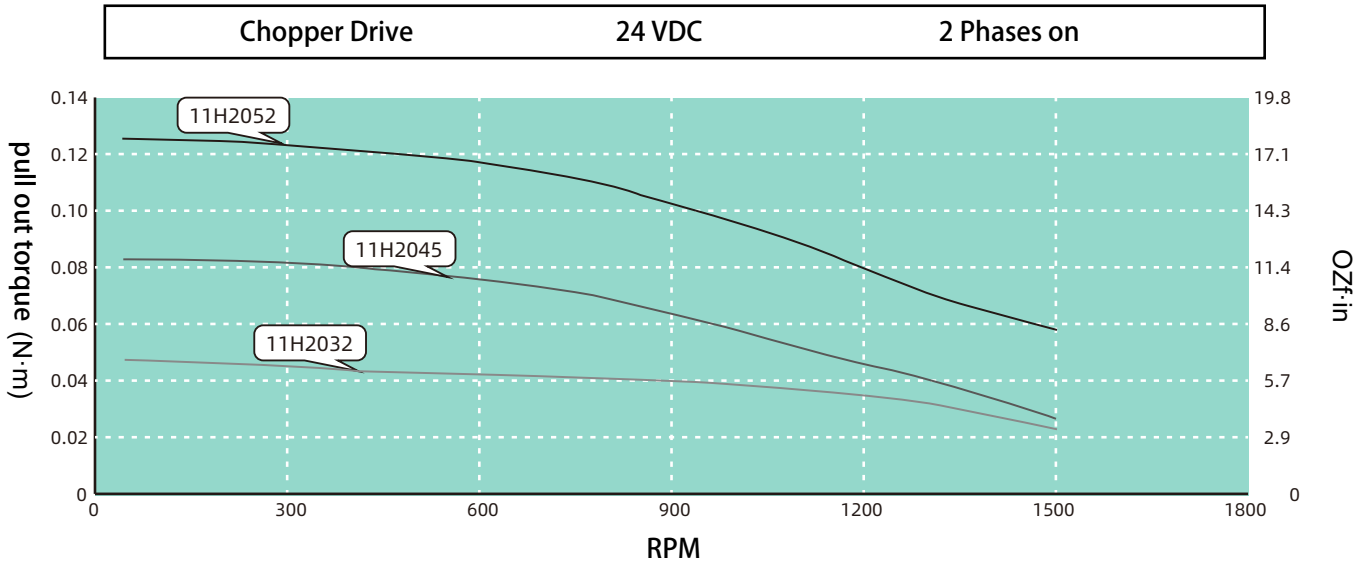
Material	
End bell	Aluminum alloy
Bearing	Deep groove ball bearing
Magnet	Sintered NdFeB
Shaft	Stainless steel
Wiring	UL 3265, 26 AWG

Size 11 (28mm) Series

Dimensional Drawings



Tourque Performance Curves



Size 14 (35mm) Series

The size 14 [35mm] Hybrid Rotary Stepper Motor has Max. 0.2N·m of holding torque.

Encoders and 32mm frame planetary gearbox solutions are available.

For special windings or customization, Please contact DINGS' for further information.

Parameters

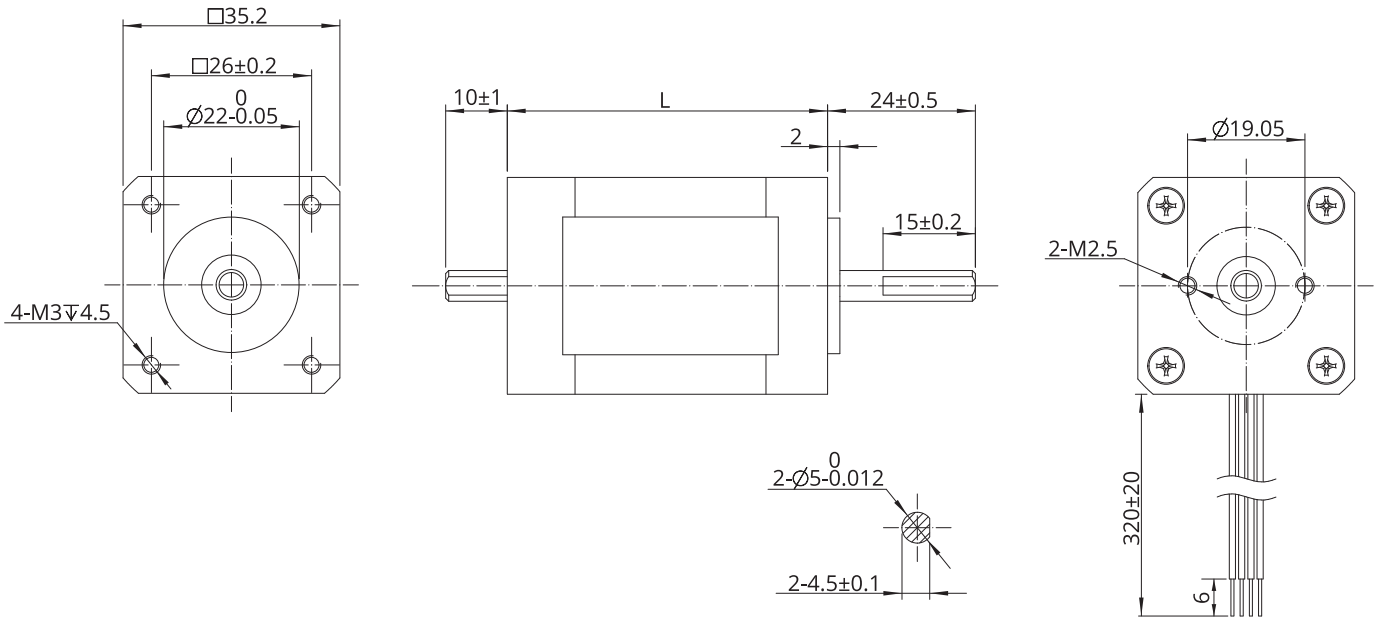
General			
Accuracy	Step angle	1.8°±5%	
	Resistance	±10% / 20 C	
	Inductance	±20% / 1KHz	
Insulation class		B	
Duty type		S1	
Dielectrical strength		500 VAC / 1 KHz / 1 mA / 1 s	
Insulation resistance		100 MΩ / 500 VDC	
Permissible radial load (5mm distance from mounting surface)	Permissible radial load (10mm distance from mounting surface)	Permissible radial load (15mm distance from mounting surface)	Permissible radial load (20mm distance from mounting surface)
50N	40N	25N	20N

Parameter							
Type	Current (A)	Resistance (Ω)	Inductance (mH)	Holding Torque (N·m)	Rotor Inertia (g·cm²)	Length (mm)	Mass (g)
14H2027	0.5	20	23	0.15	10	27	140
14H2037	1.5	2.0	3.2	0.2	28	37	180

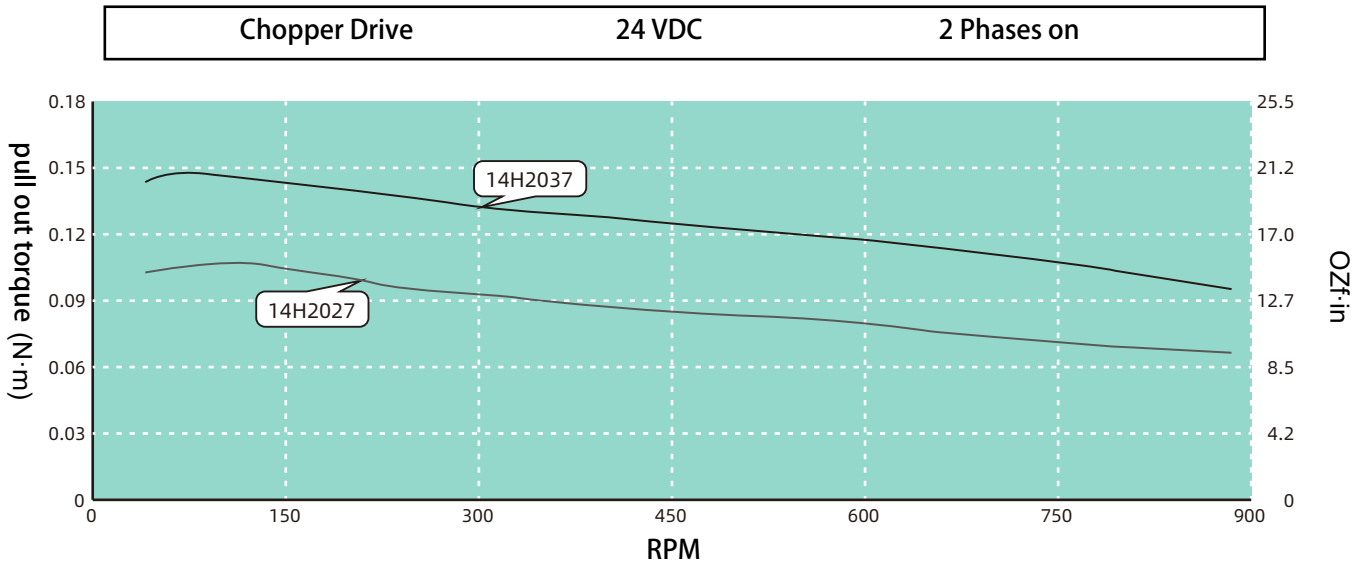
Material	
End bell	Aluminum alloy
Bearing	Deep groove ball bearing
Magnet	Sintered NdFeB
Shaft	Stainless steel
Wiring	UL 3265, 26 AWG

Size 14 (35mm) Series

Dimensional Drawings



Tourque Performance Curves



Size 17 (42mm) Series

The size 17 [42mm] Hybrid Rotary Stepper Motor has Max. 0.72N·m of holding torque.

Encoders and 42mm frame planetary gearbox solutions are available.

For special windings or customization, Please contact DINGS' for further information.

Parameters

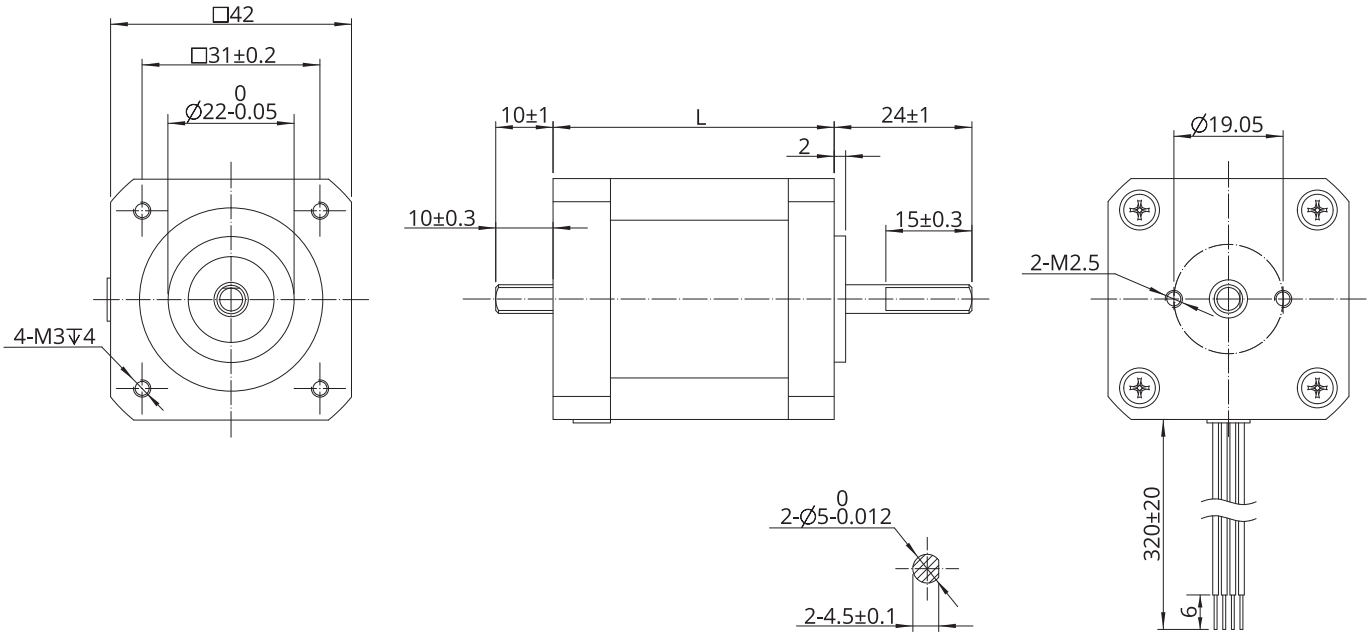
General			
Accuracy	Step angle	1.8°±5%	
	Resistance	±10% / 20 C	
	Inductance	±20% / 1KHz	
Insulation class		B	
Duty type		S1	
Dielectrical strength		500 VAC / 1 KHz / 1 mA / 1 s	
Insulation resistance		100 MΩ / 500 VDC	
Permissible radial load (5mm distance from mounting surface)	Permissible radial load (10mm distance from mounting surface)	Permissible radial load (15mm distance from mounting surface)	Permissible radial load (20mm distance from mounting surface)
50N	40N	25N	20N

Parameter							
Type	Current (A)	Resistance (Ω)	Inductance (mH)	Holding Torque (N·m)	Rotor Inertia (g·cm²)	Length (mm)	Mass (g)
17H2034	0.5	15.0	21.0	0.25	25	34	230
17H2041	1.2	2.5	5.5	0.4	54	41	300
17H2049	1.5	2.0	5.4	0.48	77	49	360
17H2061	2.0	1.8	4.0	0.72	110	61	500

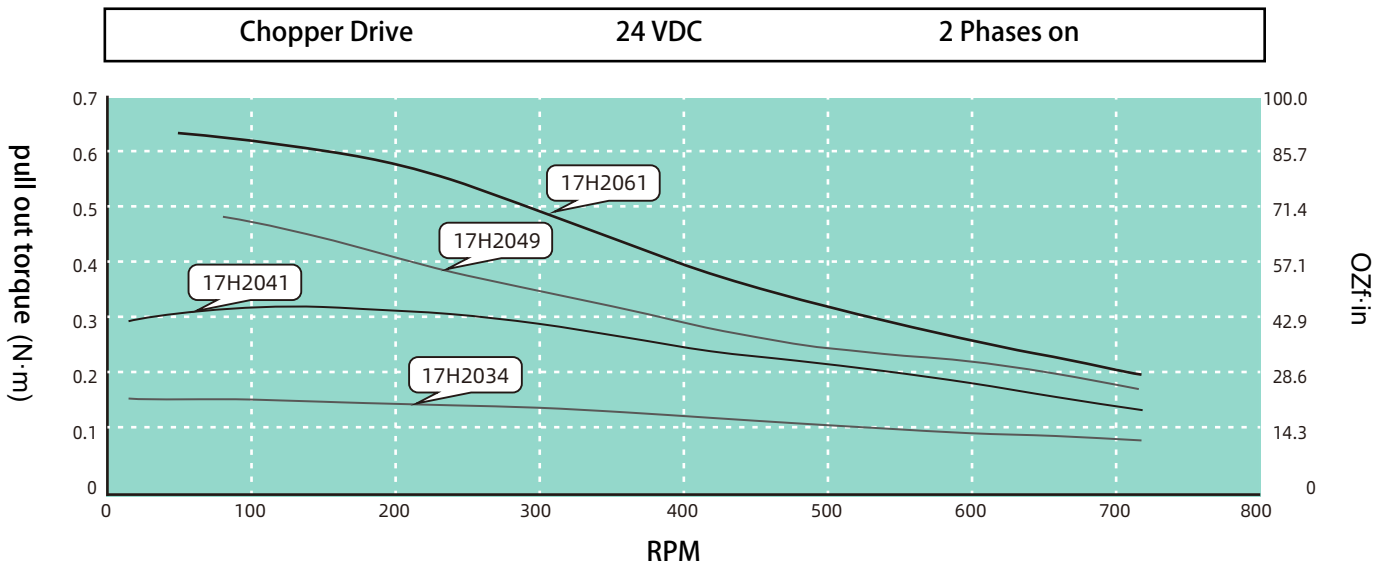
Material	
End bell	Aluminum alloy
Bearing	Deep groove ball bearing
Magnet	Sintered NdFeB
Shaft	Stainless steel
Wiring	UL 3265, 26/24 AWG

Size 17 (42mm) Series

Dimensional Drawings



Tourque Performance Curves



Size 23 (57mm) Series

The size 23 [57mm] Hybrid Rotary Stepper Motor has Max. 2.0N·m of holding torque.

Encoders and 57mm frame planetary gearbox solutions are available.

For special windings or customization, Please contact DINGS' for further information.

Parameters

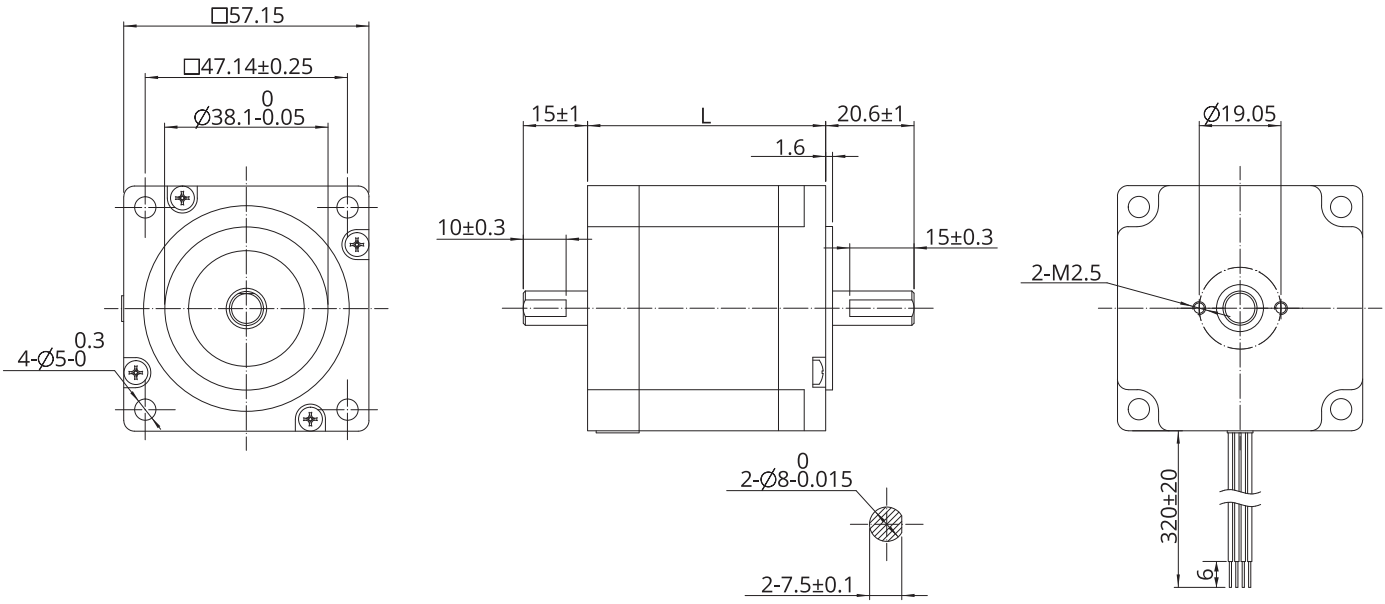
General			
Accuracy	Step angle	1.8°±5%	
	Resistance	±10% / 20 C	
	Inductance	±20% / 1KHz	
Insulation class		B	
Duty type		S1	
Dielectrical strength		500 VAC / 1 KHz / 1 mA / 1 s	
Insulation resistance		100 MΩ / 500 VDC	
Permissible radial load (5mm distance from mounting surface)	Permissible radial load (10mm distance from mounting surface)	Permissible radial load (15mm distance from mounting surface)	Permissible radial load (20mm distance from mounting surface)
180N	130N	100N	90N

Parameter							
Type	Current (A)	Resistance (Ω)	Inductance (mH)	Holding Torque (N·m)	Rotor Inertia (g·cm²)	Length (mm)	Mass (g)
23H2042	1.0	4.2	9.0	0.6	140	42.5	460
23H2051	2.0	1.5	4.4	1.0	240	51.5	640
23H2065	3.0	0.9	2.7	1.6	350	65.5	860
23H2076	4.0	0.6	2.4	2.0	480	76.5	1060

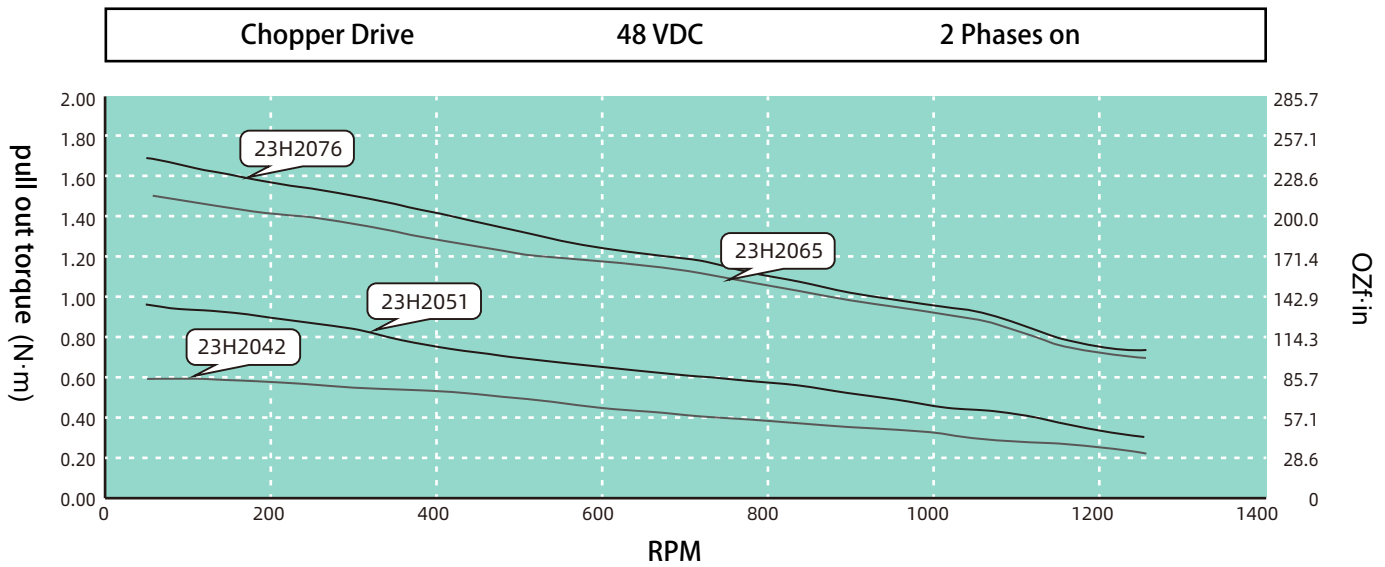
Material	
End bell	Aluminum alloy
Bearing	Deep groove ball bearing
Magnet	Sintered NdFeB
Shaft	Stainless steel
Wiring	UL 3265, 20/22 AWG

Size 23 (57mm) Series

Dimensional Drawings



Tourque Performance Curves

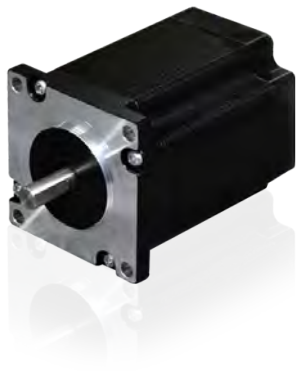


Size 24 (60mm) Series

The size 24 [60mm] Hybrid Rotary Stepper Motor has Max. 3.0N·m of holding torque.

Encoders and 60mm frame planetary gearbox solutions are available.

For special windings or customization, Please contact DINGS' for further information.



Parameters

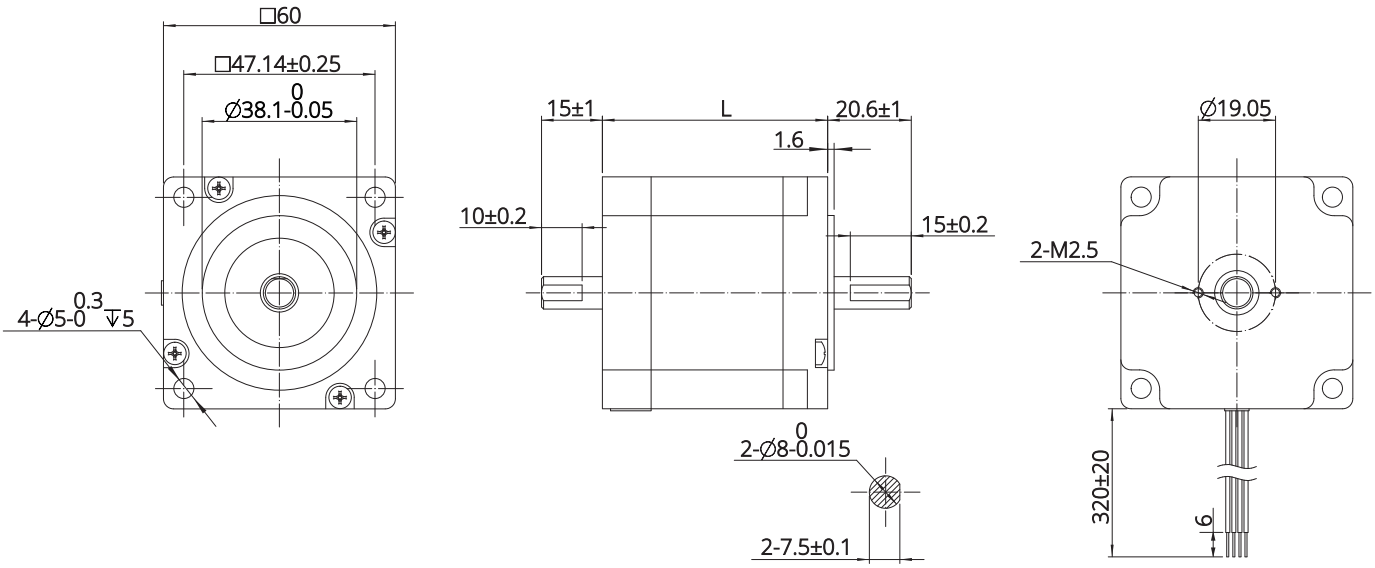
General			
Accuracy	Step angle	1.8°±5%	
	Resistance	±10% / 20 C	
	Inductance	±20% / 1KHz	
Insulation class		B	
Duty type		S1	
Dielectrical strength		500 VAC / 1 KHz / 1 mA / 1 s	
Insulation resistance		100 MΩ / 500 VDC	
Permissible radial load (5mm distance from mounting surface)	Permissible radial load (10mm distance from mounting surface)	Permissible radial load (15mm distance from mounting surface)	Permissible radial load (20mm distance from mounting surface)
210N	170N	140N	120N

Parameter							
Type	Current (A)	Resistance (Ω)	Inductance (mH)	Holding Torque (N·m)	Rotor Inertia (g·cm²)	Length (mm)	Mass (g)
24H2047	2.0	1.5	3.4	1.0	240	47	600
24H2056	3.0	0.8	2.3	1.5	340	56	800
24H2068	4.0	0.6	1.9	2.1	490	68	1000
24H2085	5.0	0.4	1.8	3.0	690	85	1300

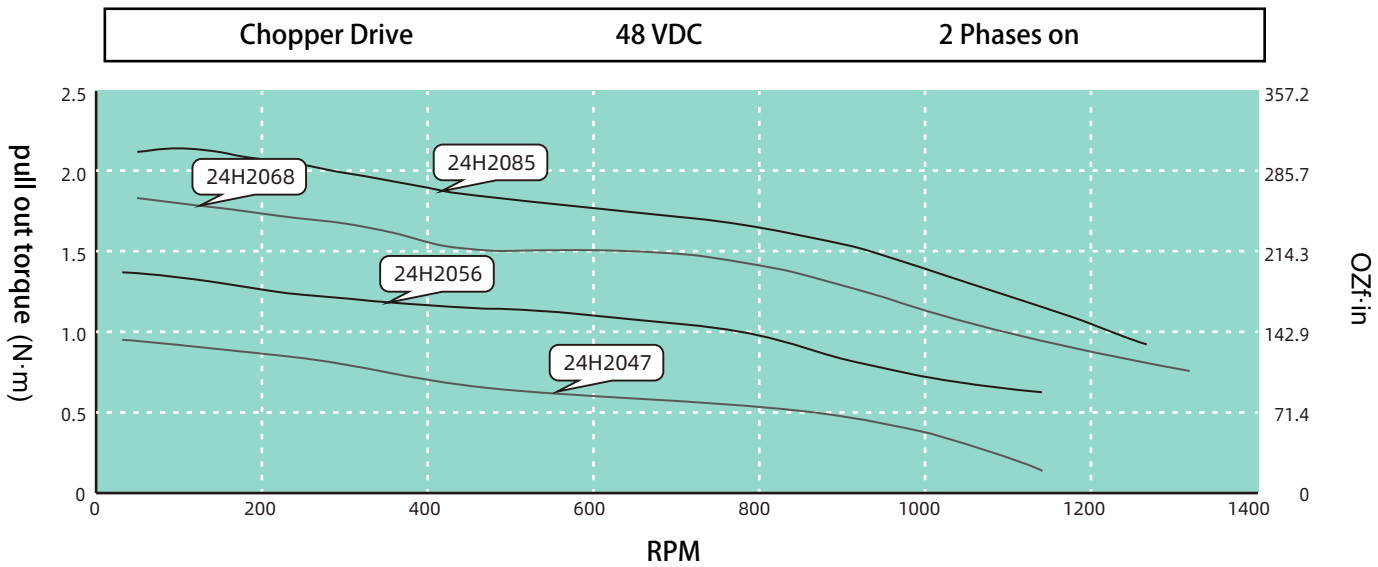
Material	
End bell	Aluminum alloy
Bearing	Deep groove ball bearing
Magnet	Sintered NdFeB
Shaft	Stainless steel
Wiring	UL 3265, 20/22 AWG

Size 24 (60mm) Series

Dimensional Drawings



Tourque Performance Curves



Size 34 (86mm) Series

The size 34 [86mm] Hybrid Rotary Stepper Motor has Max. 7.0N·m of holding torque.

Encoders solutions are available.

For special windings or customization, Please contact DINGS' for further information.

Parameters

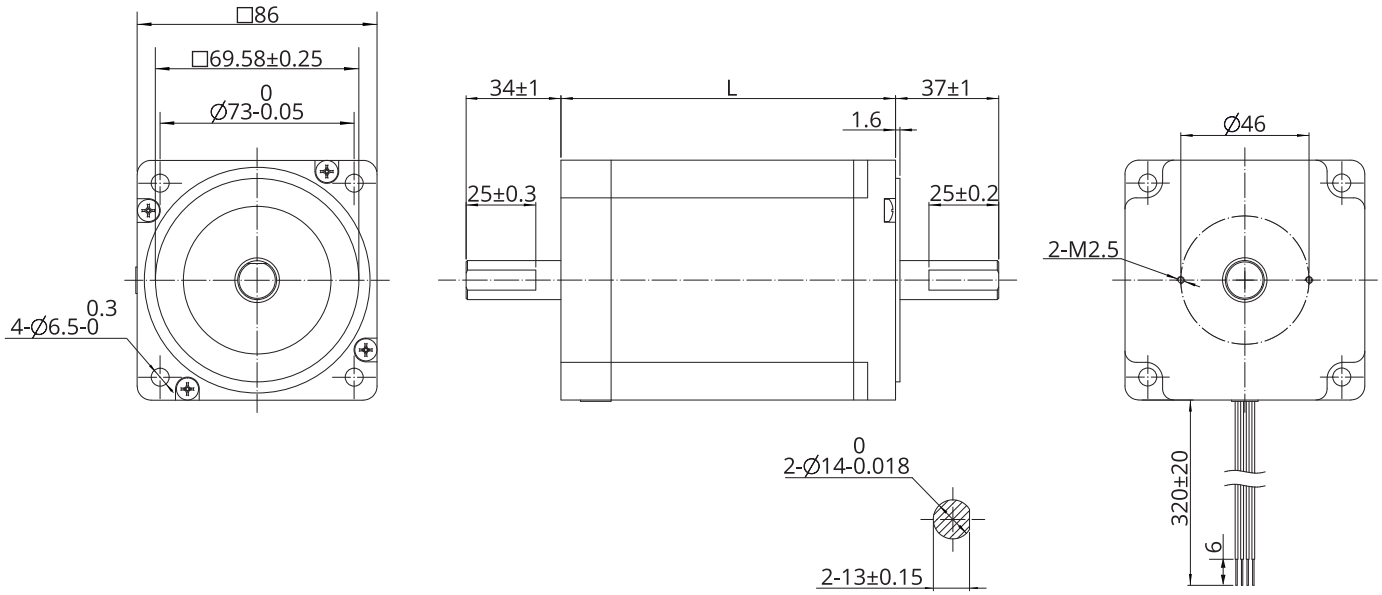
General			
Accuracy	Step angle	1.8°±5%	
	Resistance	±10% / 20 C	
	Inductance	±20% / 1KHz	
Insulation class		B	
Duty type		S1	
Dielectrical strength		500 VAC / 1 KHz / 1 mA / 1 s	
Insulation resistance		100 MΩ / 500 VDC	
Permissible radial load (5mm distance from mounting surface)	Permissible radial load (10mm distance from mounting surface)	Permissible radial load (15mm distance from mounting surface)	Permissible radial load (20mm distance from mounting surface)
600N	550N	480N	390N

Parameter							
Type	Current (A)	Resistance (Ω)	Inductance (mH)	Holding Torque (N·m)	Rotor Inertia (g·cm²)	Length (mm)	Mass (g)
34H2060	3.0	1.0	6.0	3.0	1100	60.5	1600
34H2075	4.5	0.6	4.5	4.5	1800	75.0	2100
34H2098	6.0	0.5	3.5	7.0	2800	96.5	2900

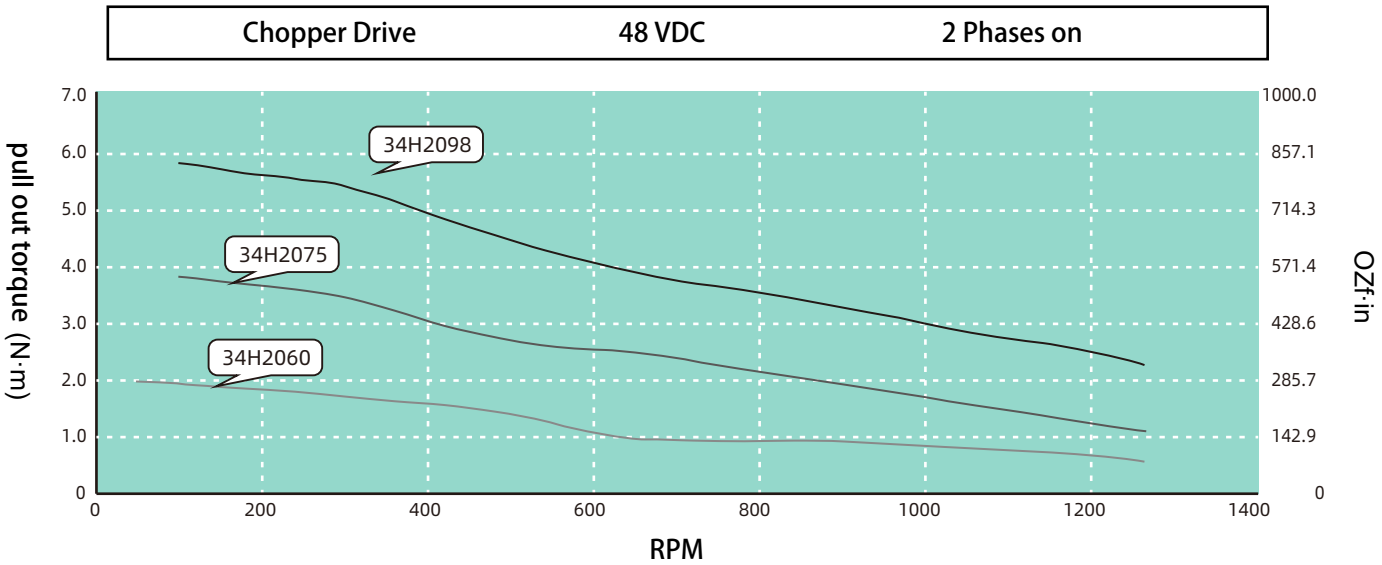
Material	
End bell	Aluminum alloy
Bearing	Deep groove ball bearing
Magnet	Sintered NdFeB
Shaft	Stainless steel
Wiring	UL 3265, 18 AWG

Size 34 (86mm) Series

Dimensional Drawings



Tourque Performance Curves



Planetary Gearbox

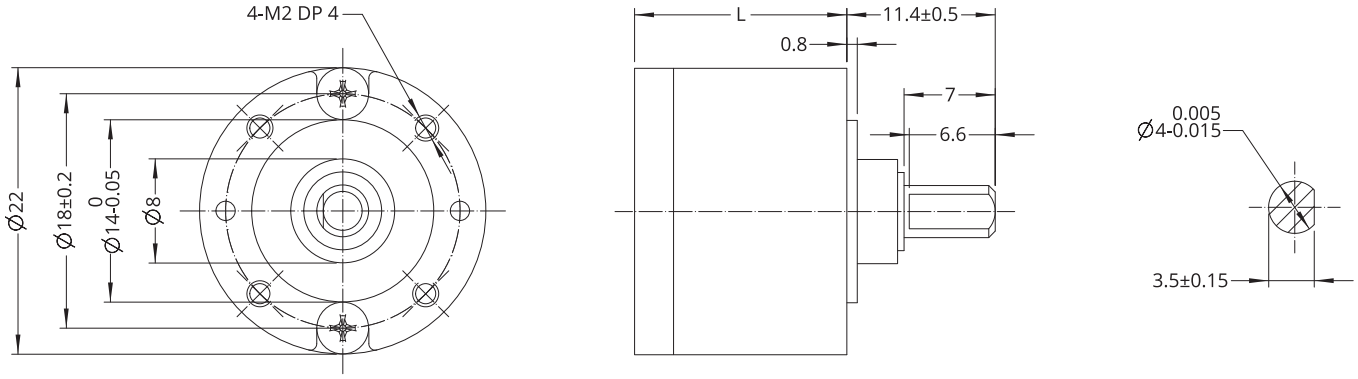
Overview

Frame size	Ratio	Rated torque (N·m)	Limit torque (N·m)	Stages	Efficiency (%)	Length (mm)	Mass (g)	Corresponding motor
22 mm	4	0.03	0.09	1	81	16.3	29.1	20 mm
	15	0.05	0.15	2	66	16.3	30.1	
	20							
	107	0.1	0.3	3	53	19.5	36	
28 mm	3.3	0.5	1.5	1	90	21.2	87	28 mm
	4.6							
	11.2	1	3	2	81	26.9	91	
	15.5							
	21.5							
	37.7	2.5	7.5	3	73	32.7	100	
	72							
32 mm	3.3	0.5	1.5	1	90	16.2	90	35 mm
	4.6							
	11.2	1	3	2	81	21.9	115	
	15.5							
	21.5							
	37.7	2.5	7.5	3	73	27.7	140	
	72							
42 mm	3.7	1	3	1	90	30.6	260	42 mm
	5.2							
	13.7	2	6	2	81	41.9	350	
	19.2							
	26.9							
	50.9	5	15	3	73	53.2	440	
	71.2							
	99.5							
57 mm	5	6	12	1	95	53	800	57 mm
	10							
	15	25	40	2	90	70	1100	
	20							
	25							
60 mm	5	6	12	1	95	53	900	60 mm
	10							
	15	25	40	2	90	70	1200	
	20							
	25							

Accessories and Options

22 mm Frame Planetary Gearbox

• Dimensional Drawing

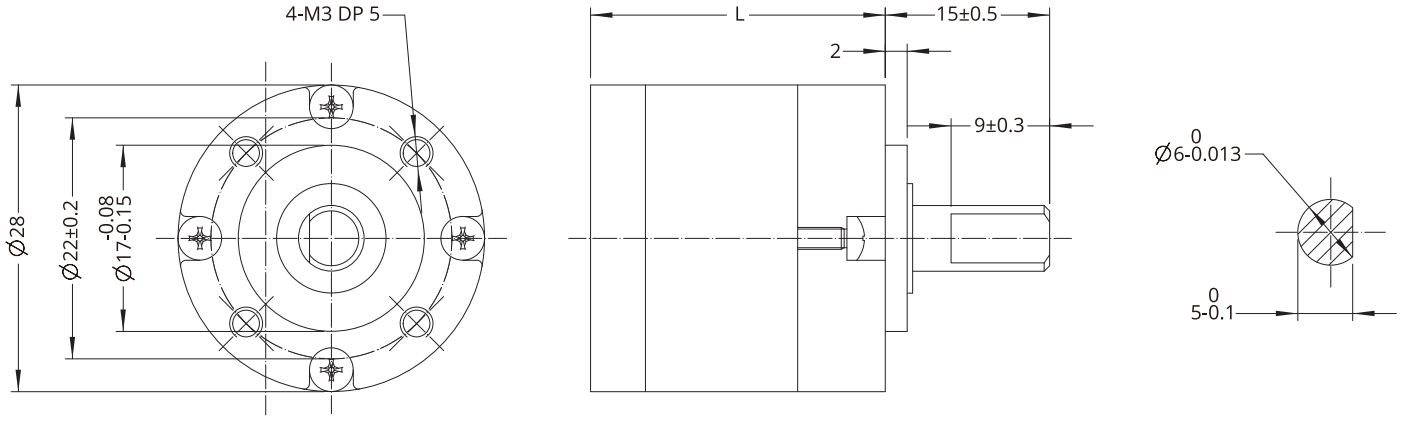


• Parameters

Housing material			Metal			
No load backlash			1°			
Bearing			Sleeve bearing			
Ratio	Rated torque (N·m)	Limit torque (N·m)	Stages	Efficiency (%)	Length (mm)	Mass (g)
4	0.03	0.09	1	81	16.3	29.1
15	0.05	0.15	2	66	16.3	30.1
20						
107	0.1	0.3	3	53	19.5	36

28 mm Frame Planetary

Gearbox Dimensional Drawing



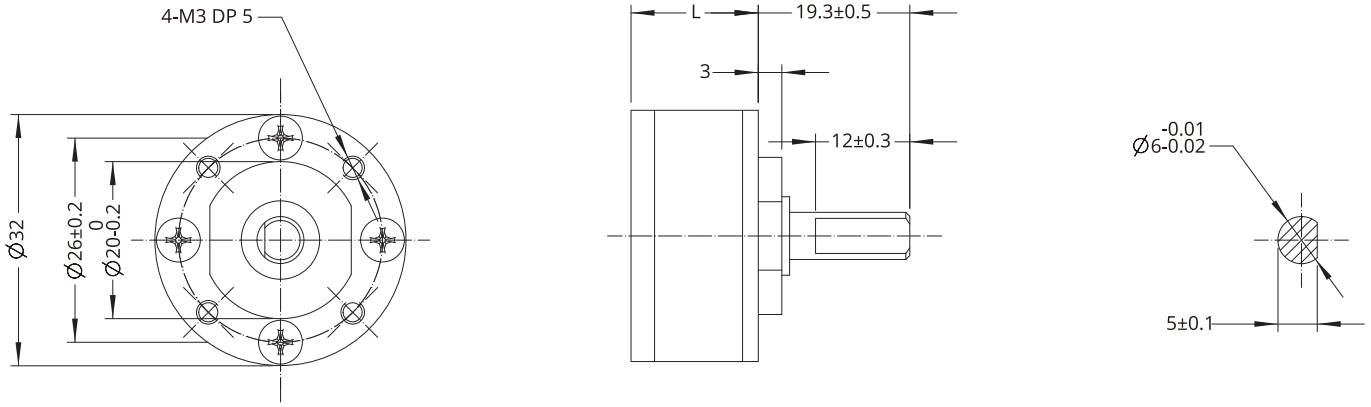
Parameters

Housing material			Metal			
No load backlash			1°			
Bearing			Ball bearing			
Ratio	**Rated torque (N·m)**	**Limit torque (N·m)**	**Stages**	**Efficiency (%)**	**Length (mm)**	**Mass (g)**
3.3	0.5	1.5	1	90	21.2	87
4.6						
11.2	1	3	2	81	26.9	91
15.5						
21.5						
37.7	2.5	7.5	3	73	32.7	100
72						

Accessories and Options

32 mm Frame Planetary Gearbox

• Dimensional Drawing

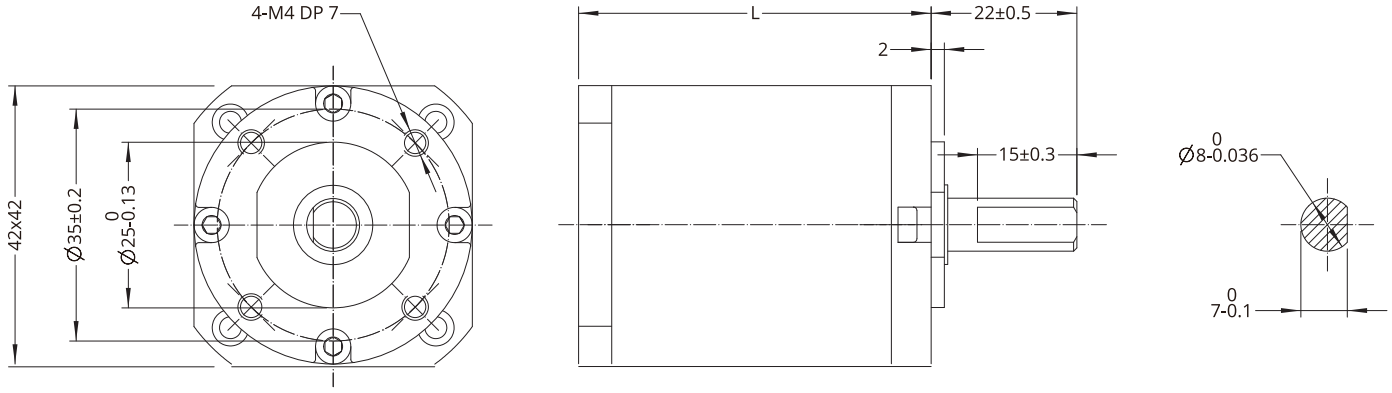


• Parameters

Housing material			Metal			
No load backlash			1°			
Bearing			Ball bearing			
Ratio	**Rated torque (N·m)**	**Limit torque (N·m)**	**Stages**	**Efficiency (%)**	**Length (mm)**	**Mass (g)**
3.3	0.5	1.5	1	90	16.2	90
4.6						
11.2	1	3	2	81	21.9	115
15.5						
21.5						
37.7	2.5	7.5	3	73	27.7	140
72						

42 mm Frame Planetary

• Gearbox Dimensional Drawing



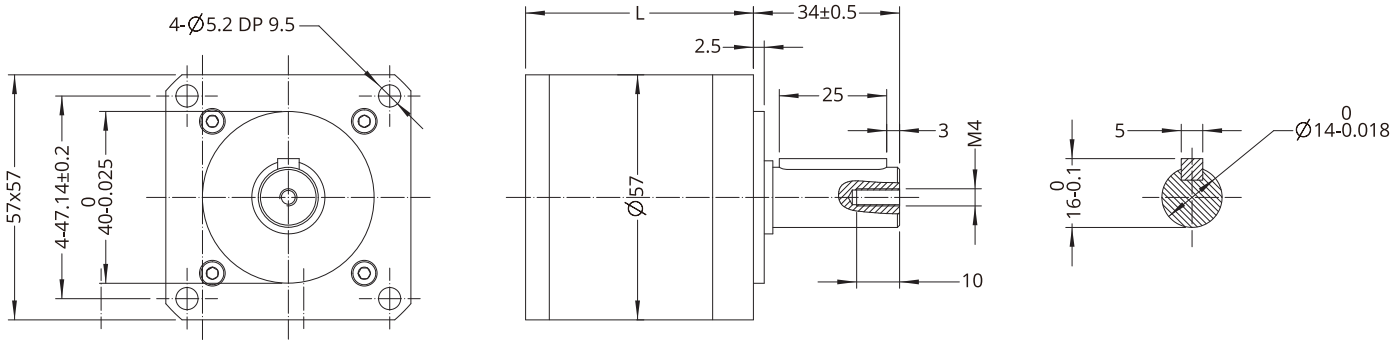
• Parameters

Housing material			Metal			
No load backlash			1.2°			
Bearing			Ball bearing			
Ratio	**Rated torque (N·m)**	**Limit torque (N·m)**	**Stages**	**Efficiency (%)**	**Length (mm)**	**Mass (g)**
3.7	1	3	1	90	30.6	260
5.2						
13.7	2	6	2	81	41.9	350
19.2						
26.9						
50.9	5	15	3	73	53.2	440
71.2						
99.5						

Accessories and Options

57 mm Frame Planetary Gearbox

• Dimensional Drawing

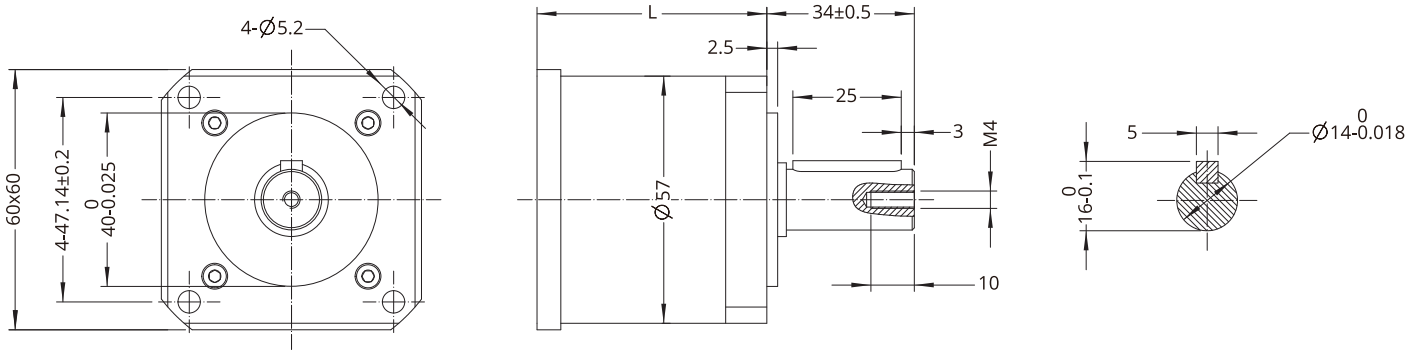


• Parameters

Housing material			Metal			
No load backlash			One stage 15 arcmin, two stages 25 arcmin			
Bearing			Ball bearing			
Ratio	Rated torque (N·m)	Limit torque (N·m)	Stages	Efficiency (%)	Length (mm)	Mass (g)
5	6	12	1	95	53	800
10						
15	25	40	2	90	70	1100
20						
25						

60 mm Frame Planetary

• Gearbox Dimensional Drawing

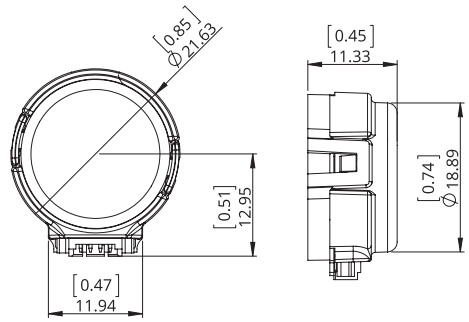


• Parameters

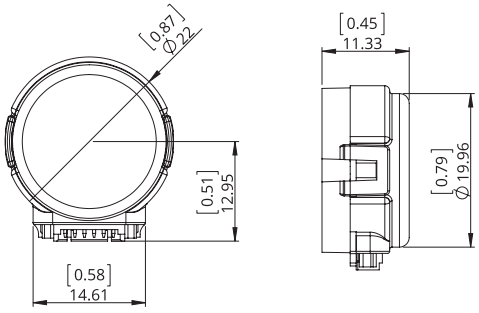
Housing material			Metal			
No load backlash			One stage 15 arcmin, two stages 25 arcmin			
Bearing			Ball bearing			
Ratio	**Rated torque (N·m)**	**Limit torque (N·m)**	**Stages**	**Efficiency (%)**	**Length (mm)**	**Mass (g)**
5	6	12	1	95	53	900
10						
15	25	40	2	90	70	1200
20						
25						

Accessories and Options

Encoder



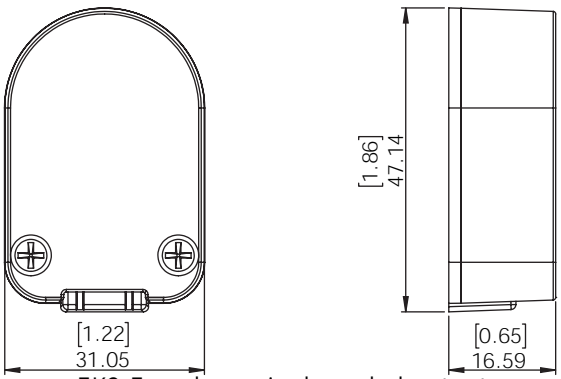
EK1 Encoder – single ended output



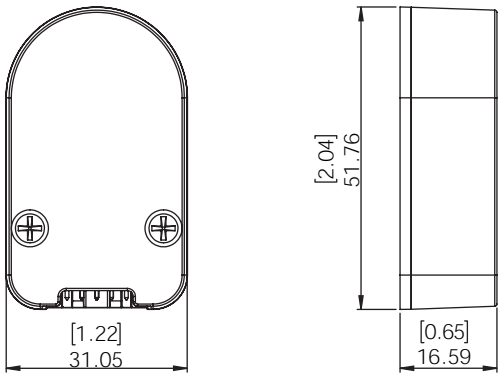
EK1 Encoder – differential output

- **EK1 Encoder (Used for Size 8, 11, 14, 17 Motor)** *No Index

Resolution(CPR)	100	108	120	125	128	200	250	256	300	360	400	500	1000	512	720	800
Single ended output	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Differential output	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P



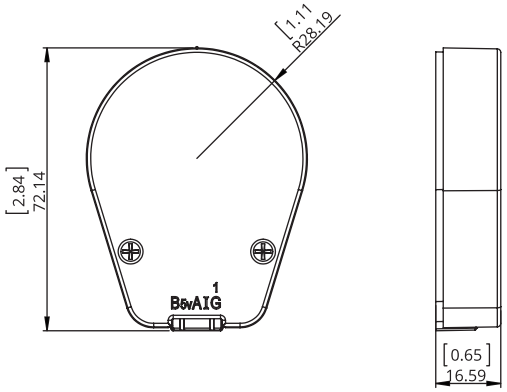
EK2 Encoder – single ended output



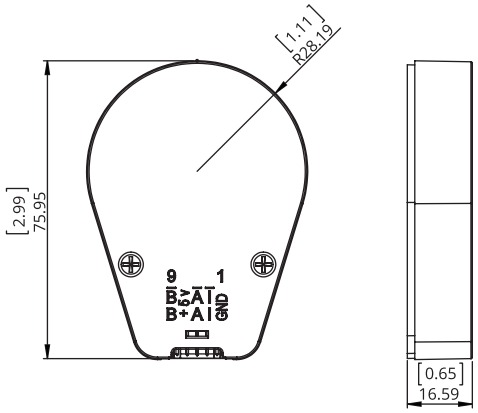
EK2 Encoder – differential output

- **EK2 Encoder (Used for Size 11, 14, 17, 23, 24 Motor)** *Index / No index

Resolution(CPR)	50	100	192	200	250	256	360	400	500	720	900	1000	1250	2000	2500	4000	5000
Single ended output	0	1	2	3	4	5	6	7	8	9	10	11	12				
Differential output	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q



EK3 Encoder – single ended output

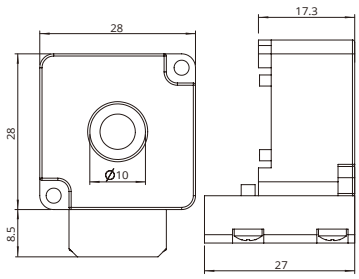


EK3 Encoder – differential output

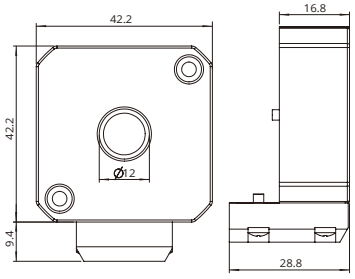
- **EK3 Encoder (Used for Size 23, 24, 34 Motor)** *Index / No index

Resolution(CPR)	64	100	200	500	1000	1800	2000	2500	3600	4000	5000	7200	8000	10000
Single ended output	0	1	2	3	4	5	6	7	8					
Differential output		A	B	C	D	E	F	G	H	I	J	K	L	M

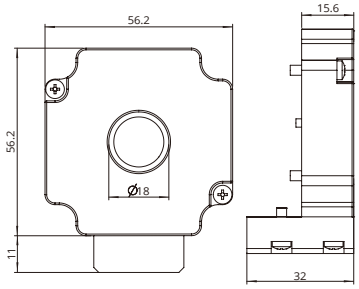
Accessories and Options



EK4 Encoder 11



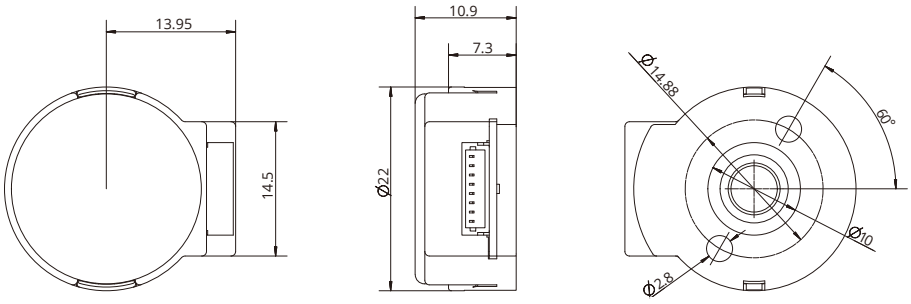
EK4 Encoder 17



EK4 Encoder 23

- **EK4 Encoder (Used for Size 11, 17, 23 External drive, Hollow, Rotary Motor)** * Index, Differential Shielded Cable

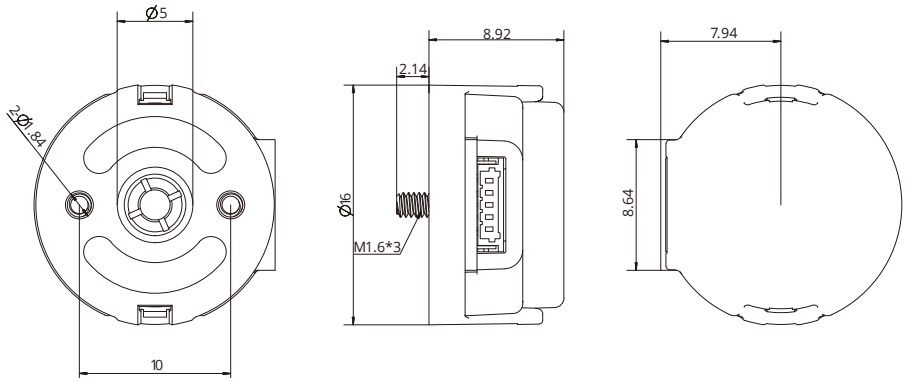
Resolution(CPR)	625	800	1000	1250	1600	2000	2500	3200	4000
Single ended output	-	-	-	-	-	-	-	-	-
Differential output	-	-	C	-	-	-	-	-	-



EK5 Encoder – differential output

- **EK5 Encoder (Used for Size 8, 11, 17 Motor)** * Index

Resolution(CPR)	360	500	512	1000	1024	2000	2048
Single ended output	0	1	2	3	4	5	6
Differential output	A	B	C	D	E	F	G

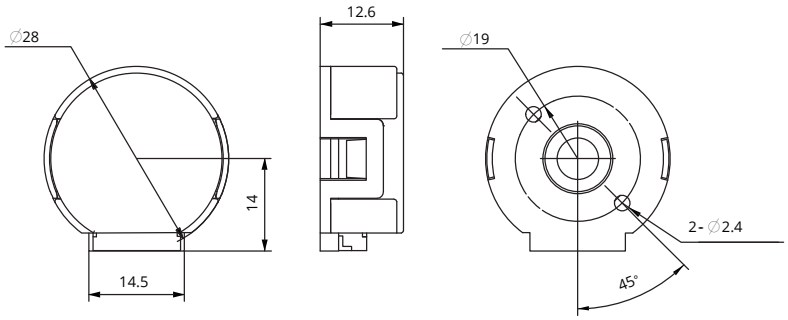


EK6 Encoder – single ended output

- **EK6 Encoder (Used for Size 6 Motor)**

Resolution[CPR]	250	256	500	512	1000	1024	2000	2048	4000	4096
Single ended output	0	1	2	3	4	5	6	7	8	9

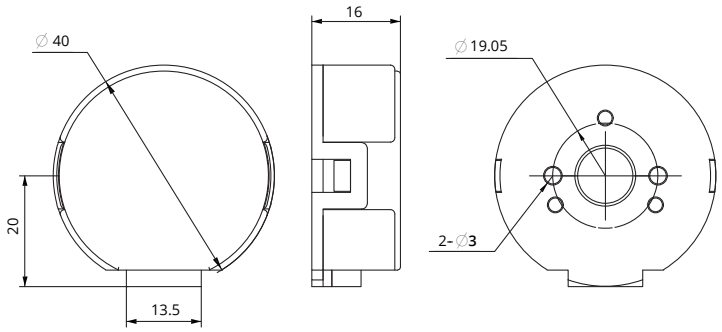
Accessories and Options



KPL 28 Encoder

- **KPL 28 Encoder (Used for Size 8, 11, 14, 17 Motor)** *Index

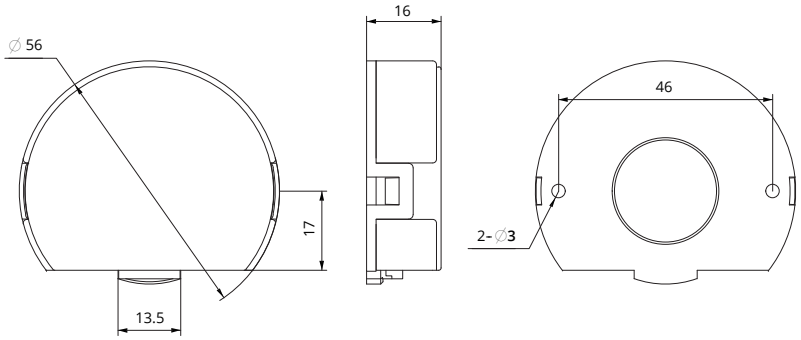
Resolution(CPR)	400	500	1000	2000
Single ended output	0	1	3	6
Differential output	A	B	D	G



KPL 40 Encoder

- **KPL 40 Encoder (Used for Size 14, 17 Motor)** * Index

Resolution(CPR)	400	800	1000	1250	1600	2000	2500	3200	4000
Single ended output	0	2	3	4	5	6	7	8	9
Differential output	A	C	D	E	F	G	H	I	J



KPL 56 Encoder

- **KPL 56 Encoder (Used for Size 14, 17, 23, 24 Motor)** * Index

Resolution(CPR)	400	800	1000	1250	1600	2000	2500	3200	4000
Single ended output	0	2	3	4	5	6	7	8	9
Differential output	A	C	D	E	F	G	H	I	J

C Hollow Shaft Stepper Motor

DINGS' provides 7 different sizes of Hollow shaft stepper motors from 14mm to 86mm.

Each size has multiple stack lengths. Single or dual shaft is standard but customized shaft options are also available. In addition hollow shaft encoders are available.

Customers are able to use hollow shaft motor to let something go thru hollow shaft like suction valve, cables or pumps especially pick & place application, electronics picker module or other applications.

Hollow shaft motor enables customers to design this kind of pick-up module in very compact design and small size of hollow steppers for example NEMA8 or NEMA11, it can reduce total weight of picker module since light weight of motors.

For better positioning, lots of customers require closed loop function of hollow shaft motors and DINGS' has various hollow shaft type of encoders so it can be very helpful to realize light weight of motor and encoder package for higher accuracy of positioning.



Part Number Construction

17 HS 2 034 - 4 D - 100 - 001

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① NEMA Size (mm)

CODE	06	08	11	14	17	23	34
MOTOR SIZE (mm)	14	20	28	35	42	57	86

② Motor Type

HS = hollow shaft Step

③ Step Angle (°)

2 = 2 phase with 1.8°
4 = 2 phase with 0.9°

④ Motor Length/Stack (mm)

034 = 34mm

⑤ Number of Lead Wires

4 = Bi-Polar (4 flying leads)
6 = Uni-Polar (6 flying leads)

⑥ Shaft Configuration

D = Double Shaft
S = Single Shaft
*For shaft customization, please contact DINGS'

⑦ Rated Current

100 = 1.0A

⑧ Customer Sequence Number

Example

Naming code 17HS2034-4D-100-001

Description

Size 42 mm
Hollow shaft stepper motor
Step angle 1.8°
Motor length 34 mm
4 Flying leads
Dual shaft
Rated current 1.0A
Customization sequence 001

Size (mm)	Motor length (mm)	Holding torque (N · m)	Inner holes (mm)	Power consumption (W)
6 (14*14)	30	0.005	2.5	2
8 (20*20)	28	0.014	3	2.4
	38	0.02	3	4
11 (28*28)	33	0.053	5	4.2
	45	0.1	5	7.5
14 (35*35)	33.6	0.19	8	5.7
	45.6	0.36	8	9.1
17 (42*42)	34.1	0.25	8	7
	48.1	0.48	8	13
23 (57*57)	45	0.8	12	13
	65	1.6	12	25
34 (86*86)	76	4.5	16	31

Size 6 (14mm) Series

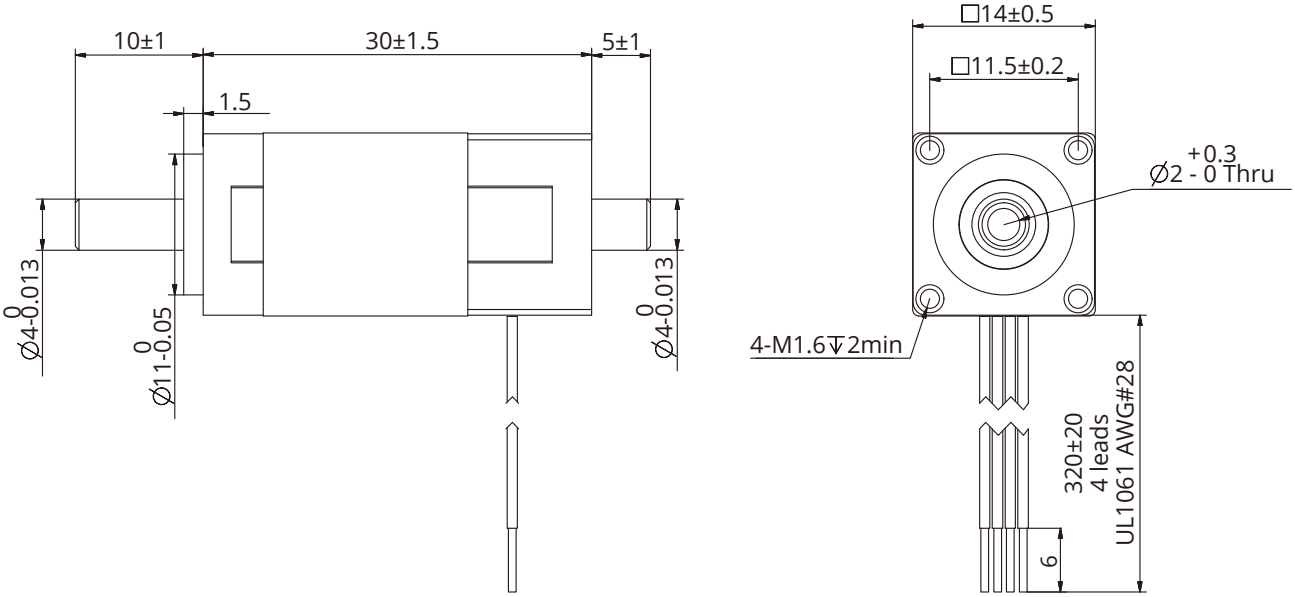
The size 6 [14mm] Hollow Shaft Stepper Motor is the smallest hollow shaft motor from DINGS' It has Max. 0.005N·m of holding torque.

For special windings or customization of shaft, please contact DINGS' for further information.

Motor Characteristics

Motor No.	Rated Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Holding Tourque (N·m)	Detent Torque (N·m)	Motor Length (mm)
6HS2030	6.6	0.3	22	3.6	0.005	0.002	30.0

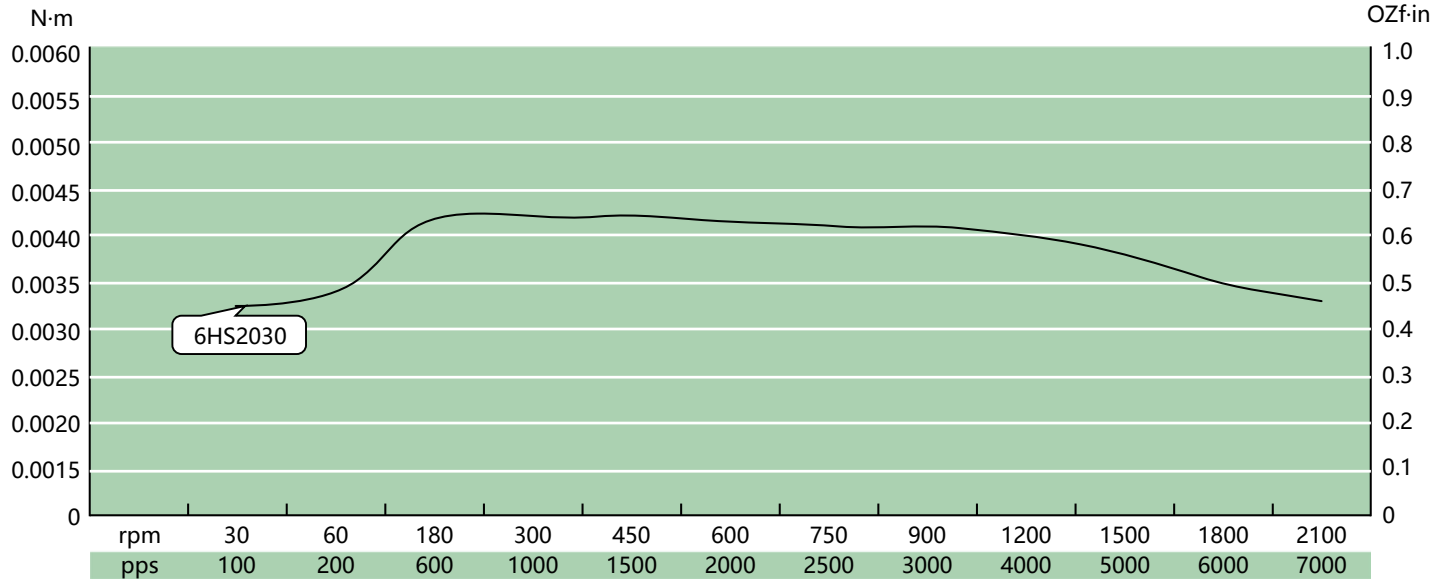
Dimensional Drawings



Note : All drawings are 1st Angle Projection - ISO Compliant (3D models available)

Size 6 (14mm) Series

Torque Performance Curves



TEST CONDITION

The above curves are tested by DS-OLS2-FPD Bi-polar constant current chopper stepper driver under the condition of 24VDC. Different test conditions and operation conditions will lead to difference performance which is reasonable. The acceleration and deceleration of the motor will help to improve the performance of the motor, here for reference. In order to ensure the life cycle and reliability, it is recommended to have more than 50% margin when select products.

Size 8 (20mm) Series

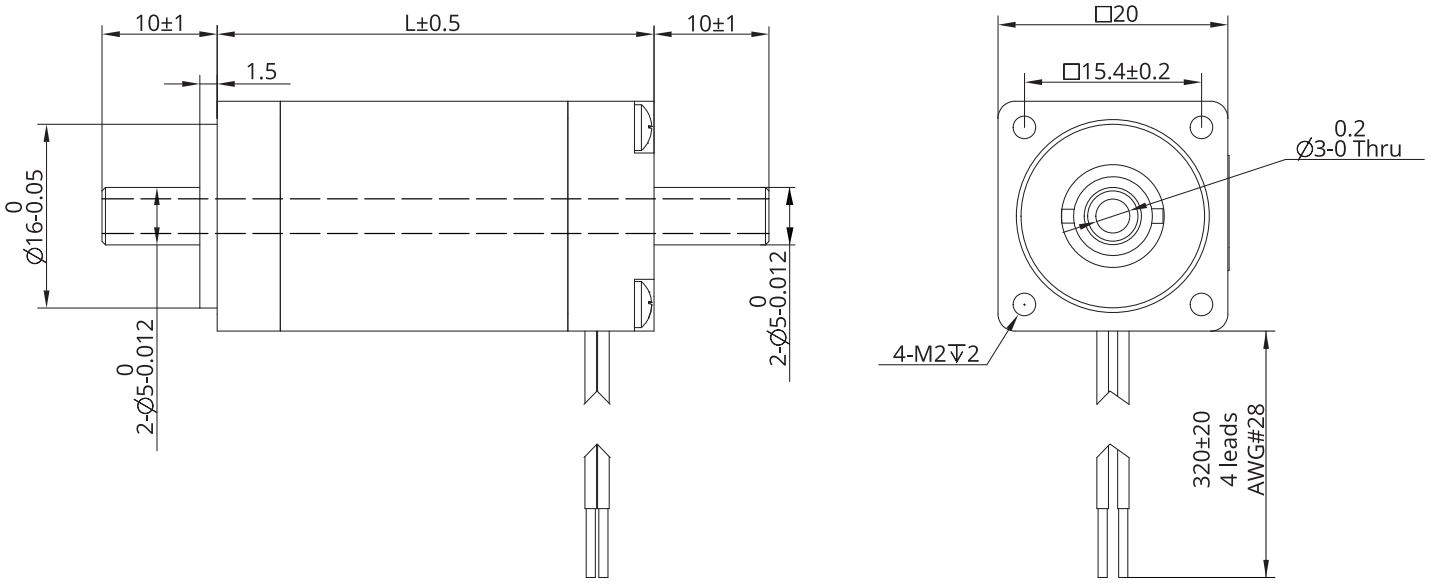
The size 8 [20mm] Hollow Shaft Stepper Motor has Max. 0.02N·m of holding torque.

For special windings or customization of shaft, also hollow type of encoder assembly, Please contact DINGS' for further information.

Motor Characteristics

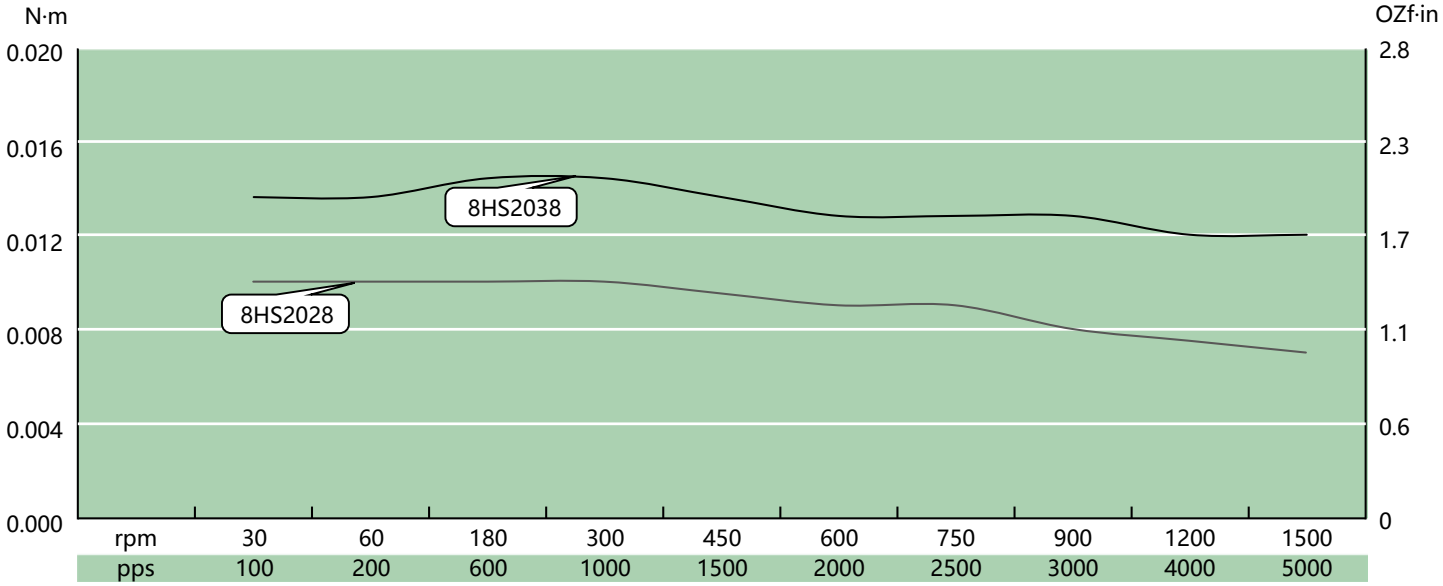
Motor No.	Rated Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Holding Tourque (N·m)	Detent Torque (N·m)	Motor Length (mm)
8HS2028	2.55	0.5	5.1	1.5	0.014	0.002	28
8HS2038	4.4	0.5	8.8	2.7	0.020	0.004	38

Dimensional Drawings



Note : All drawings are 1st Angle Projection - ISO Compliant (3D models available)

Torque Performance Curves



TEST CONDITION

The above curves are tested by DS-OLS2-FPD Bi-polar constant current chopper stepper driver under the condition of 24VDC. Different test conditions and operation conditions will lead to difference performance which is reasonable. The acceleration and deceleration of the motor will help to improve the performance of the motor, here for reference. In order to ensure the life cycle and reliability, it is recommended to have more than 50% margin when select products.

Size 11 (28mm) Series

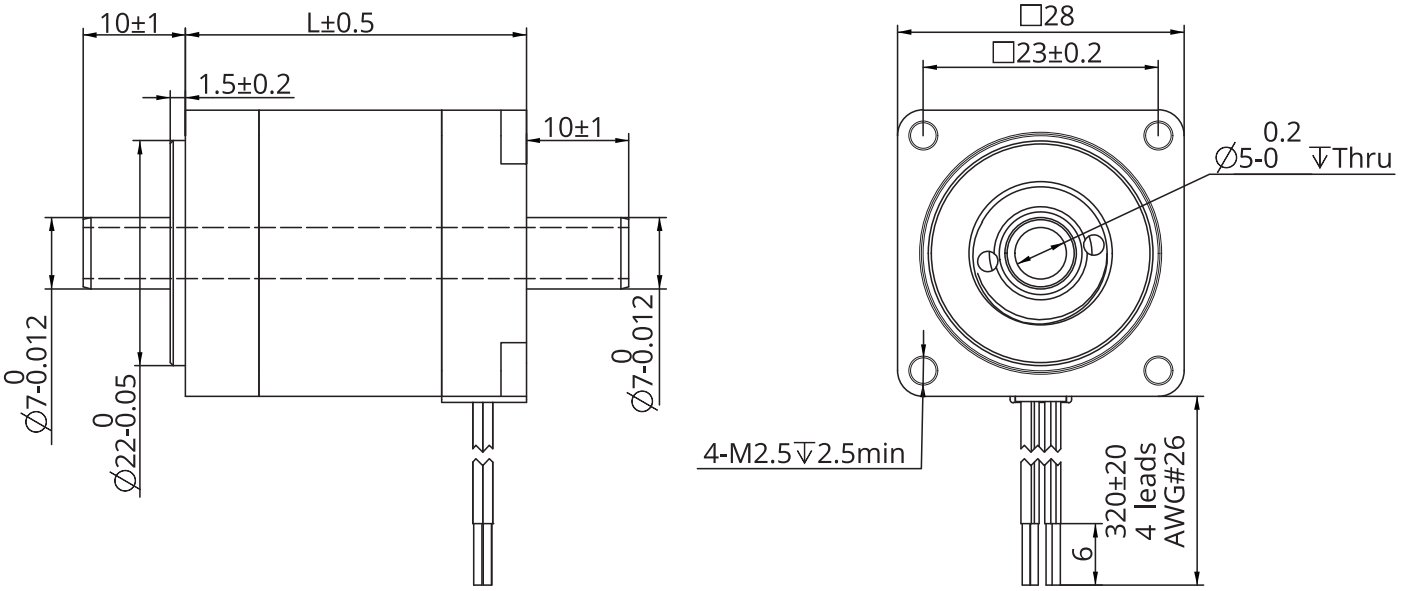
The size 11 [28mm] Hollow Shaft Stepper Motor has Max. 0.1N·m of holding torque.

For special windings or customization of shaft, also hollow type of encoder assembly, Please contact DINGS' for further information.

Motor Characteristics

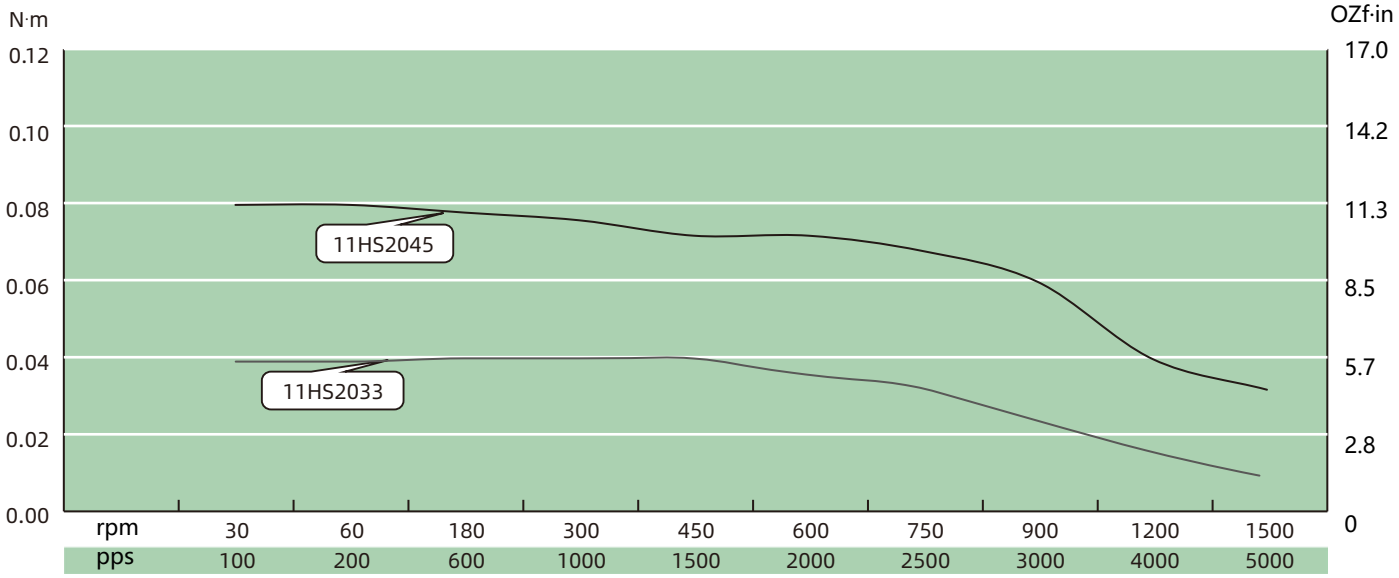
Motor No.	Rated Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Holding Tourque (N·m)	Detent Torque (N·m)	Motor Length (mm)
11HS2033	2.1	1.0	2.1	1.5	0.053	0.004	33
11HS2045	4.1	1.0	4.1	4.0	0.1	0.004	45

Dimensional Drawings



Note : All drawings are 1st Angle Projection - ISO Compliant (3D models available)

Torque Performance Curves



TEST CONDITION

The above curves are tested by DS-OLS2-FPD Bi-polar constant current chopper stepper driver under the condition of 24VDC. Different test conditions and operation conditions will lead to difference performance which is reasonable. The acceleration and deceleration of the motor will help to improve the performance of the motor, here for reference. In order to ensure the life cycle and reliability, it is recommended to have more than 50% margin when select products.

Size 14 (35mm) Series

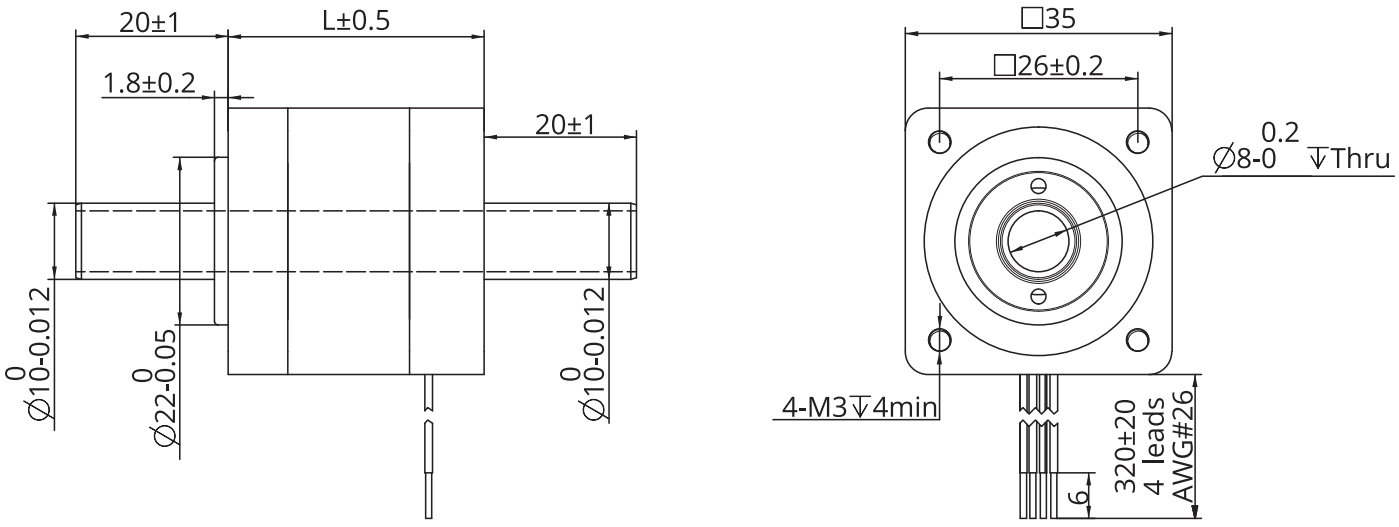
The size 14 [35mm] Hollow Shaft Stepper Motor has Max. 0.36N·m of holding torque.

For special windings or customization of shaft, also hollow type of encoder assembly, Please contact DINGS' for further information.

Motor Characteristics

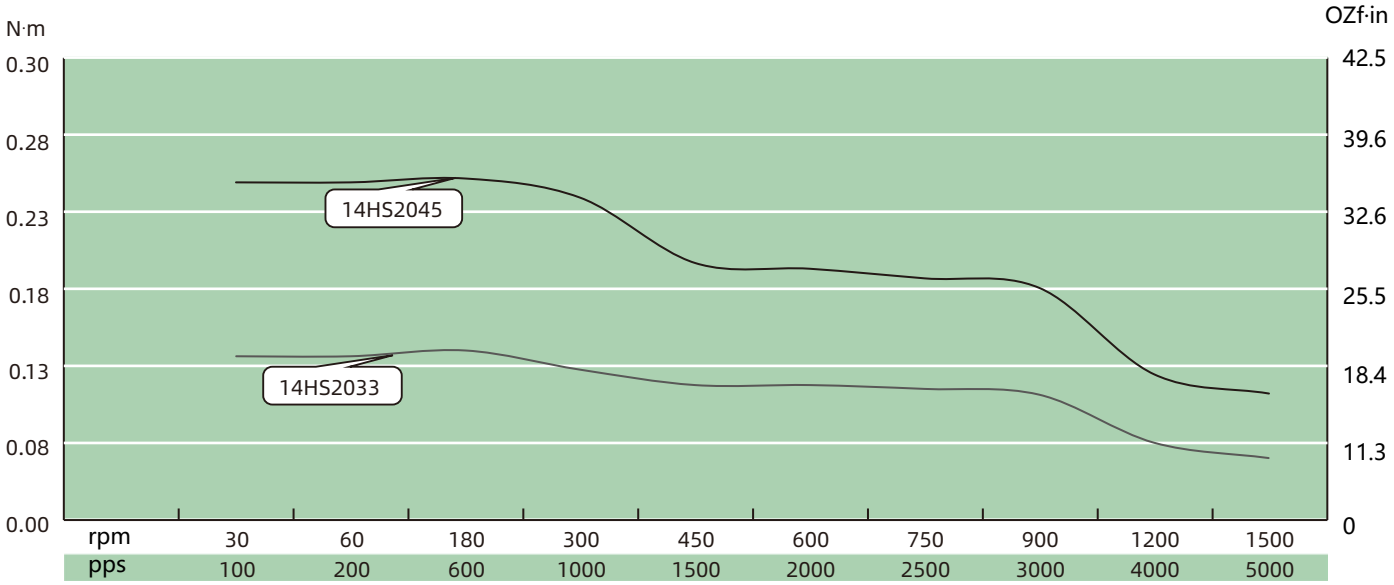
Motor No.	Rated Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Holding Tourque (N·m)	Detent Torque (N·m)	Motor Length (mm)
14HS2033	3.5	1.0	3.5	3.6	0.19	0.008	33.6
14HS2045	6	1.0	6	7.2	0.36	0.013	45.6

Dimensional Drawings



Note : All drawings are 1st Angle Projection - ISO Compliant (3D models available)

Torque Performance Curves



TEST CONDITION

The above curves are tested by DS-OLS2-FPD Bi-polar constant current chopper stepper driver under the condition of 24VDC. Different test conditions and operation conditions will lead to difference performance which is reasonable. The acceleration and deceleration of the motor will help to improve the performance of the motor, here for reference. In order to ensure the life cycle and reliability, it is recommended to have more than 50% margin when select products.

Size 17 (42mm) Series

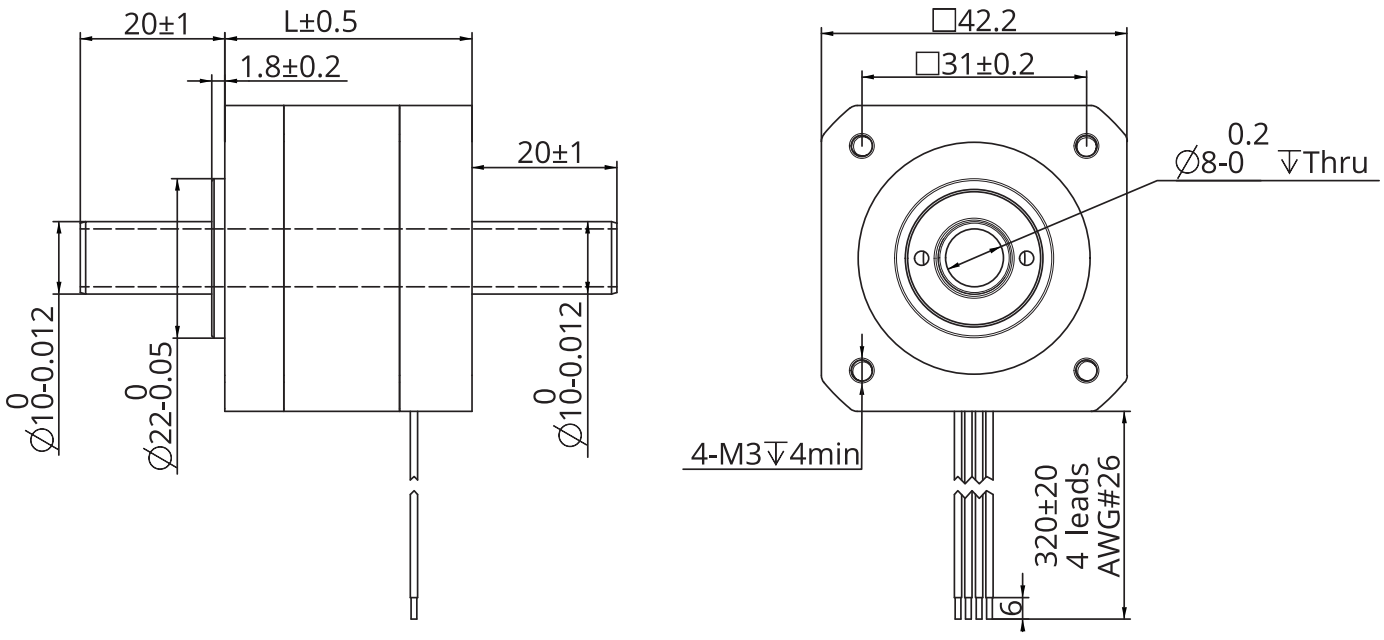
The size 17 [42mm] Hollow Shaft Stepper Motor has Max. 0.48N·m of holding torque.

For special windings or customization of shaft, also hollow type of encoder assembly, Please contact DINGS' for further information.

Motor Characteristics

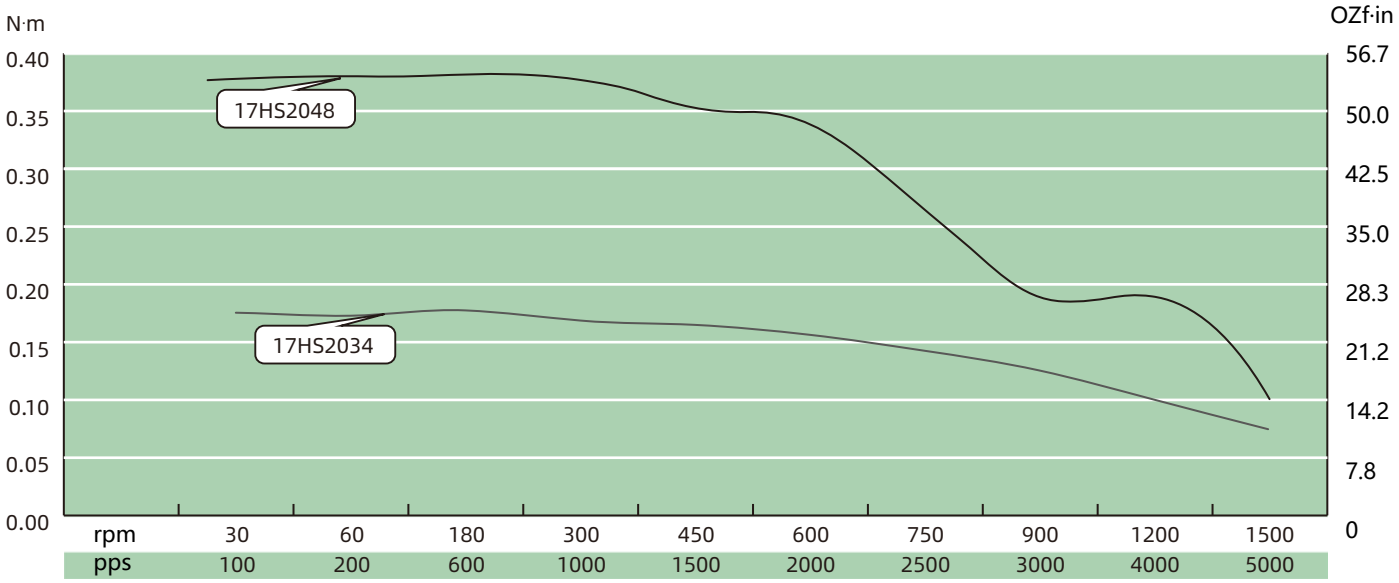
Motor No.	Rated Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Holding Tourque (N·m)	Detent Torque (N·m)	Motor Length (mm)
17HS2034	3.8	1.0	3.6	5.0	0.25	0.014	34.1
17HS2048	2.25	2.5	1.0	1.8	0.48	0.018	48.1

Dimensional Drawings



Note : All drawings are 1st Angle Projection - ISO Compliant (3D models available)

Torque Performance Curves



TEST CONDITION

The above curves are tested by DS-OLS2-FPD Bi-polar constant current chopper stepper driver under the condition of 24VDC. Different test conditions and operation conditions will lead to difference performance which is reasonable. The acceleration and deceleration of the motor will help to improve the performance of the motor, here for reference. In order to ensure the life cycle and reliability, it is recommended to have more than 50% margin when select products.

Size 23 (57mm) Series

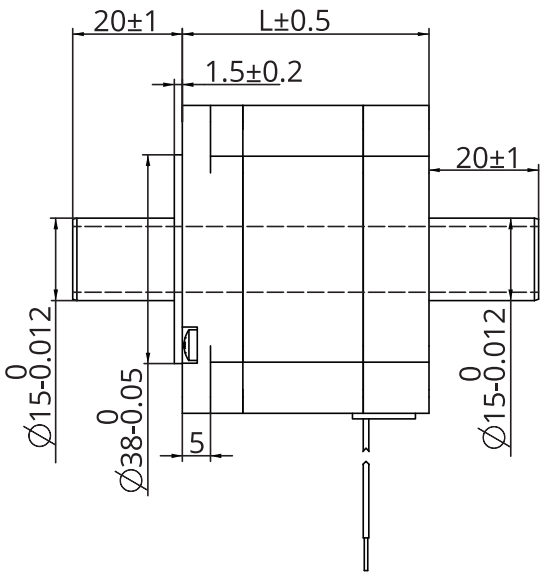
The size 23 [57mm] Hollow Shaft Stepper Motor has Max. 1.6N·m of holding torque.

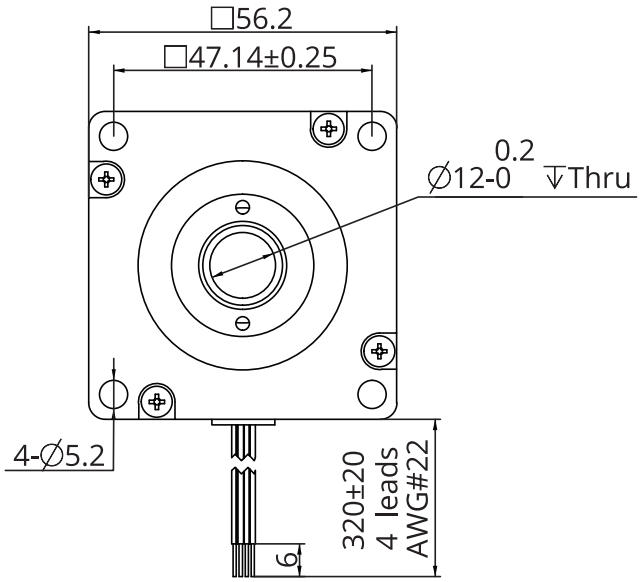
For special windings or customization of shaft, also hollow type of encoder assembly, Please contact DINGS' for further information.

Motor Characteristics

Motor No.	Rated Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Holding Tourque (N·m)	Detent Torque (N·m)	Motor Length (mm)
23HS2045	3.5	2.0	1.75	4.1	0.8	0.020	45
23HS2065	5.0	2.5	2.0	5.2	1.6	0.040	65

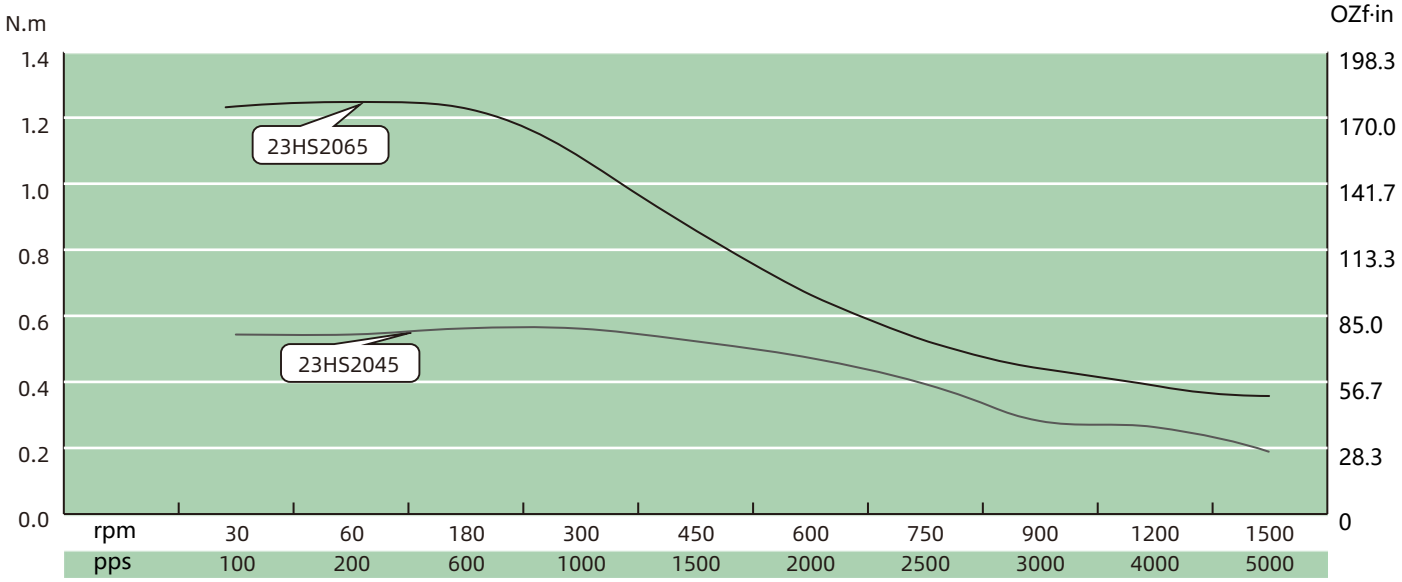
Dimensional Drawings





Note : All drawings are 1st Angle Projection - ISO Compliant (3D models available)

Torque Performance Curves



TEST CONDITION

The above curves are tested by DS-OLS4-FPD Bi-polar constant current chopper stepper driver under the condition of 36VDC. Different test conditions and operation conditions will lead to difference performance which is reasonable. The acceleration and deceleration of the motor will help to improve the performance of the motor, here for reference. In order to ensure the life cycle and reliability, it is recommended to have more than 50% margin when select products.

Size 34 (86mm) Series

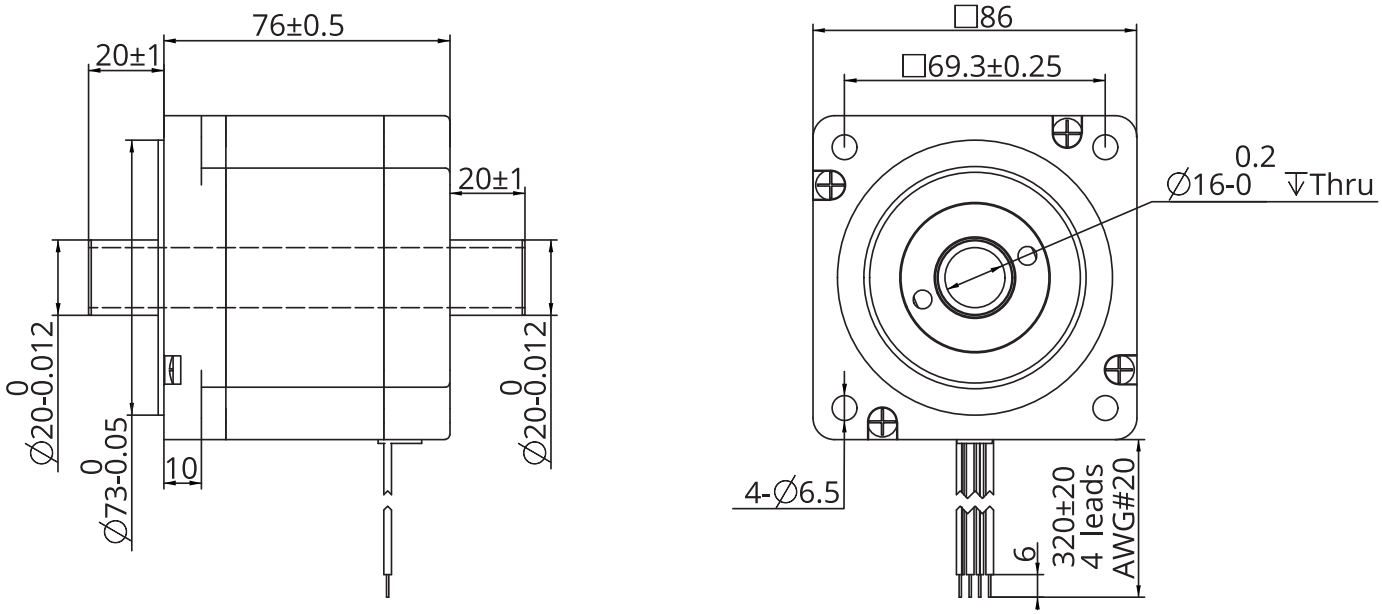
The size 34 [86mm] Hollow Shaft Stepper Motor has Max. 4.5N·m of holding torque.

For special windings or customization of shaft, also hollow type of encoder assembly, Please contact DINGS' for further information.

Motor Characteristics

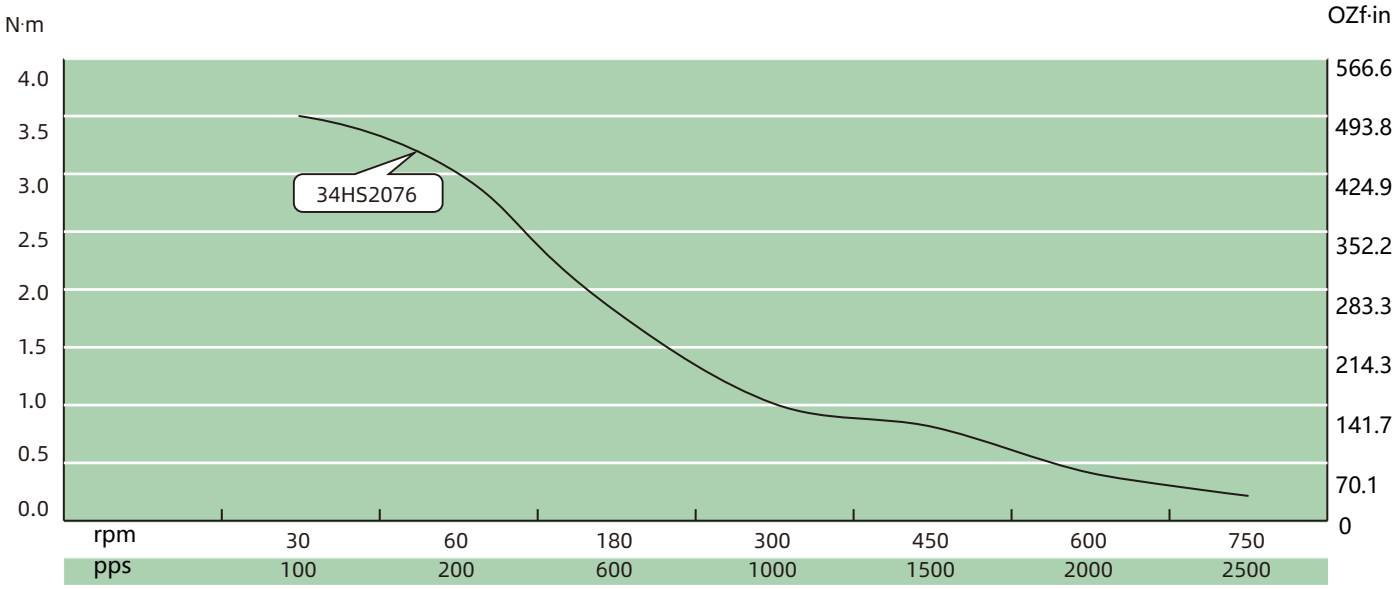
Motor No.	Rated Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Holding Tourque (N·m)	Detent Torque (N·m)	Motor Length (mm)
34HS2076	5.7	3.0	1.9	15	4.5	0.095	76

Dimensional Drawings



Note : All drawings are 1st Angle Projection - ISO Compliant (3D models available)

Torque Performance Curves



TEST CONDITION

The above curves are tested by DS-OLS8-FPD Bi-polar constant current chopper stepper driver under the condition of 48VDC. Different test conditions and operation conditions will lead to difference performance which is reasonable. The acceleration and deceleration of the motor will help to improve the performance of the motor, here for reference. In order to ensure the life cycle and reliability, it is recommended to have more than 50% margin when select products.

D Brushless DC Motor

DINGS' provides 5 different sizes of Brushless DC motors have several advantages, including start and speed regulation, higher powerdensity and over load capacity.

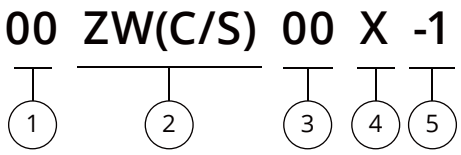
From 16mm to 86mm with power output ranging from 9.2W to 471.2W, DINGS' provides 5 frame sizes and according customer's requirements, higher capacity of Brushless DC Motors can be customized.

Brushless DC Motors can be used between stepper and AC Servo as low voltage DC Servo solution. Compare to regular stepper, it can run at high speed up to 3,000RPM without losing running torque as like conventional stepper solution but also compare to AC Servo, Brushless DC motor can be alternative as economic choice for wide range of applications as like Logistic Automation (AGV), office automation, timing belt, packaging, textile industry, food/beverage and others. Especially 16ZWC32L-1 motor can reach 16,300RPM high speed of operation.

DINGS' Brushless DC Motors has an option with basic hall sensors and also incremental encoder up to 10,000PPR to be low voltage DC servo and also gearboxes can be chosen as an option.

For packaging and food/beverage applications, DINGS' is able to provide IP ratings of Brushless DC Motor. For more information, please contact us.

Part Number Construction



① Motor Size (mm)

Size	16	42	57	60	86

② Brushless DC Motor
- C = Circular Type
- S = Square Type

③ Motor Length (mm)

④ Motor Type
- X = No case
- L = With Case
- EKX, KPLX = Encoder [XX = Encoder Code]
- G = Gearbox
- S = Screw Type
- B = Brake

⑤ Customer Sequence Number

Example

Part Number	57ZWS50X-001
Description	General NEMA 23 size (57mm) Square type Brushless DC Motor 50mm motor length With case Customization No. 001

16mm Series

16ZWC32L-1 is very compact size but it has optimized magnetic circuit. Brushless DC Motor with core winding has high torque density and multi-pole rotor can provide very strong and dynamic performance.

16ZWC32L-1 can reach Max. 16,300RPM.

Motor Characteristics

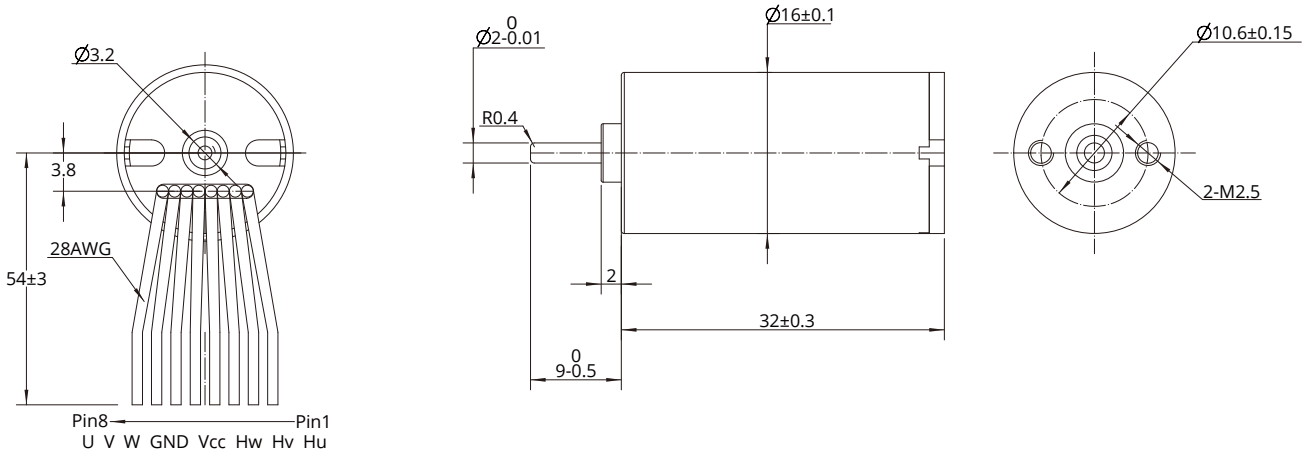
Motor Part Number			16ZWC32L-1
General Information			
Dimension	Motor Length	mm	32
	Mounting Hole	mm	10.6 (±0.15)
	Motor Shaft	mm	9 (±0.5)
Phase Resistance		Ω	6.5
Insulation Class		-	B
Duty Type		-	S1
Feedback Method		-	Hall Sensors
Commutation Angle		-	120°
Insulation Strength (Withstand Voltage)		-	500VAC/1KHz/1mA/1s
Insulation Resistance		-	100 MΩ/500VDC
Weight		g	25.5
Performance Parameters			
Rated Voltage		V	24
Rated Power		W	9.2
Rated Torque		N·m	0.007
Rated Speed		RPM	12600
Rated Current		A	0.65
No Load Speed		RPM	16300
No Load Current		A	0.22
Motor Efficiency		%	71.6
Noise (Ambient noise 20db, test distance 1M)		dB	< 50

Motor Characteristics

Motor Part Number			16ZWC32L-1
Thermal Parameters			
Enclosure - Ambient Thermal Resistance		K/W	0.75
Motor Thermal Time Constant		min	1.26
Ambient Temperature		℃	31.3
Maximum Winding Temperature		℃	68.5
Motor Constant Coefficient			
Torque Constant		mN·m/A	10.5
Back-EMF Constant	Effective Value	V/Krpm	1.054
Calculated Value			
Peak Torque		N·m	0.021
Peak Current		A	1.95
Inertia Moment		Kg·cm²	0.085
Material			
End Cover			Aluminium Die Casting
Bearing			Deep Groove Ball Bearing
Magnet			Sinter NdFedB
Shaft			Carbon Steel

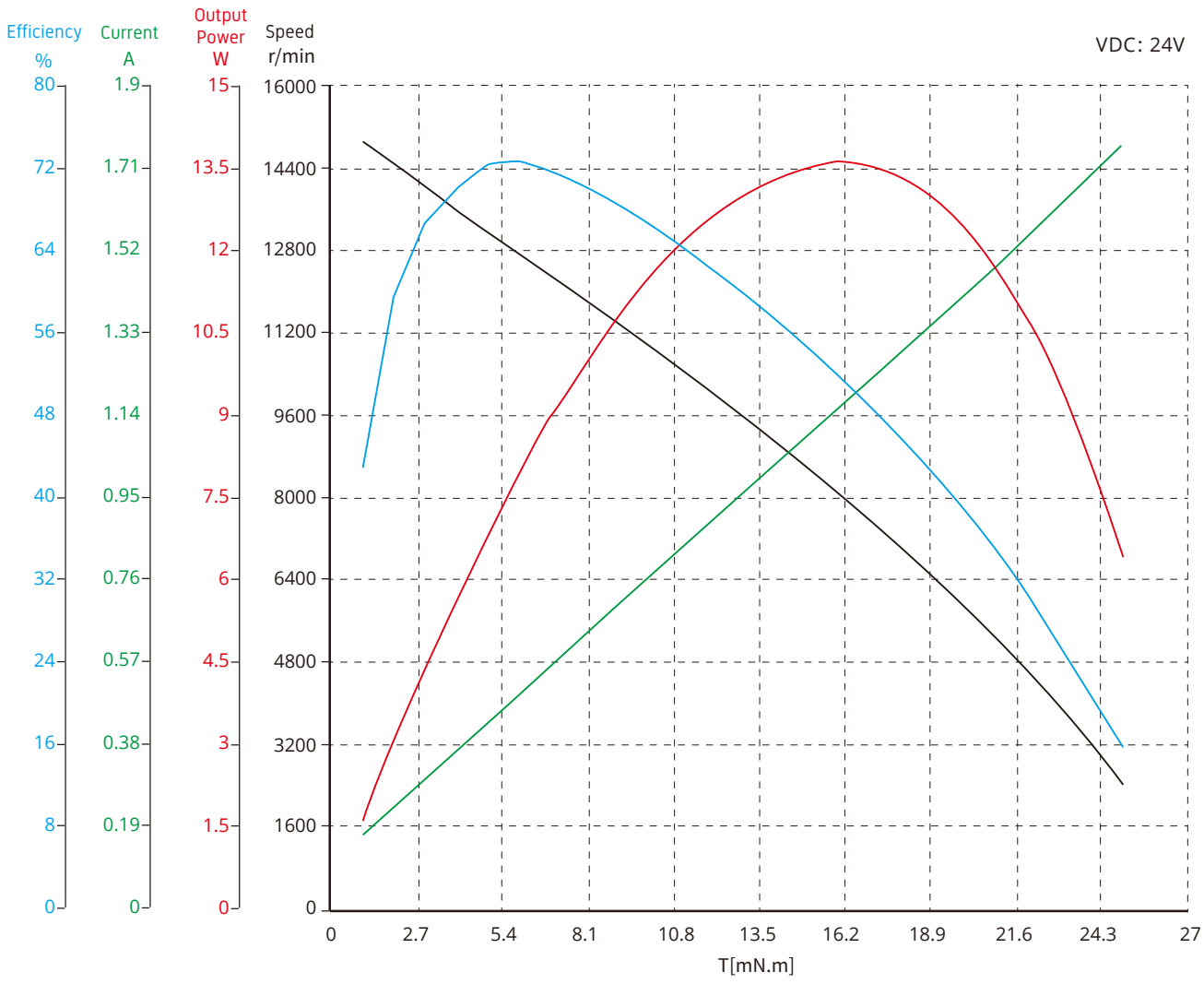
16mm Series

Dimensional Drawings



Torque performance Curves

16ZWC32L-1



NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

42mm Series

42mm Brushless DC Motor has Max. 0.185N·m rated torque and triple stack 42mm Motor can generate 58.1W capacity of rated power.

Single and double stack motor has Star winding connection and for triple stack motor has Star winding connection, all 42mm Brushless DC Motors are 5 pole pairs motors.

Hall sensors feed back method as standard and also additional incremental encoder is available.

Motor Characteristics

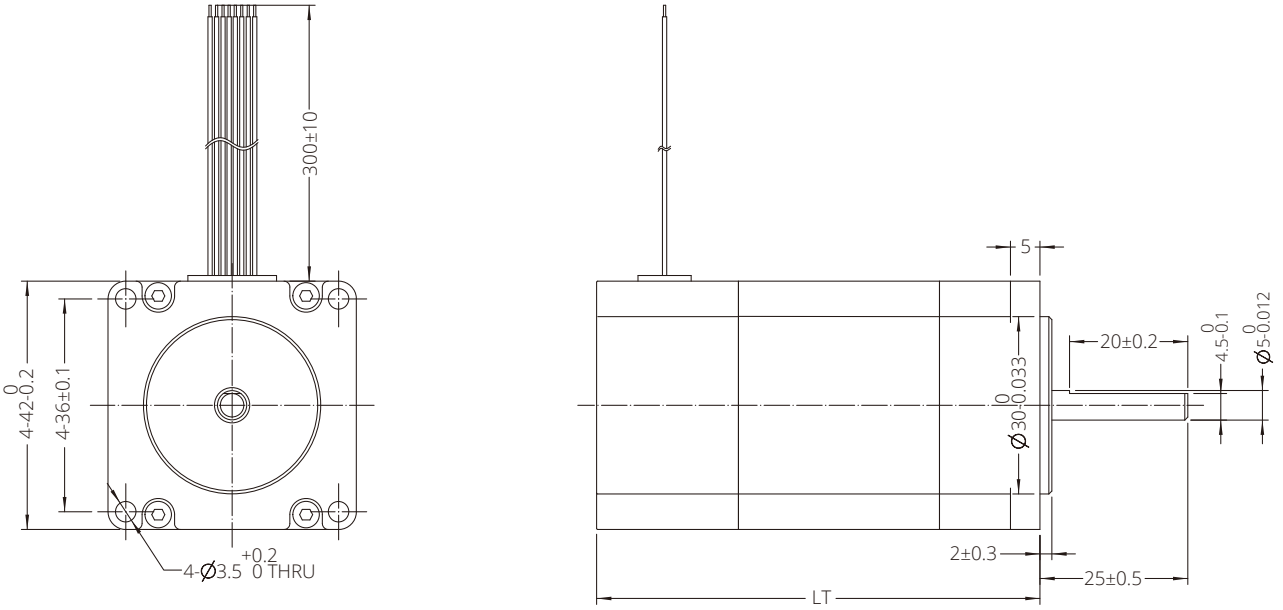
Motor Part Number			42ZWS50X-1	42ZWS63X-1	42ZWS75X-1
General Information					
Dimension	Motor Length	mm	50	63	75
	Mounting Hole	mm	36 (±0.2)	36 (±0.2)	36 (±0.2)
	Motor Shaft	mm	25 (±0.5)	25 (±0.5)	25 (±0.5)
Pole Pairs		-	5	5	5
Phase Resistance		Ω	2.482	1.261	0.987
Phase Inductance		mH	1.062	0.586	0.434
Winding Connection		-	Star	Star	Star
Insulation Class		-	B	B	B
Duty Type		-	S1	S1	S1
Feedback Method		-	Hall Sensors	Hall Sensors	Hall Sensors
Commutation Angle		-	120°	120°	120°
Insulation Strength (Withstand Voltage)		-	500VAC/1KHz/1mA/1s	500VAC/1KHz/1mA/1s	500VAC/1KHz/1mA/1s
Insulation Resistance		-	100 MΩ/500VDC	100 MΩ/500VDC	100 MΩ/500VDC
Weight		Kg	0.26	0.38	0.5

42mm Series

Motor Characteristics

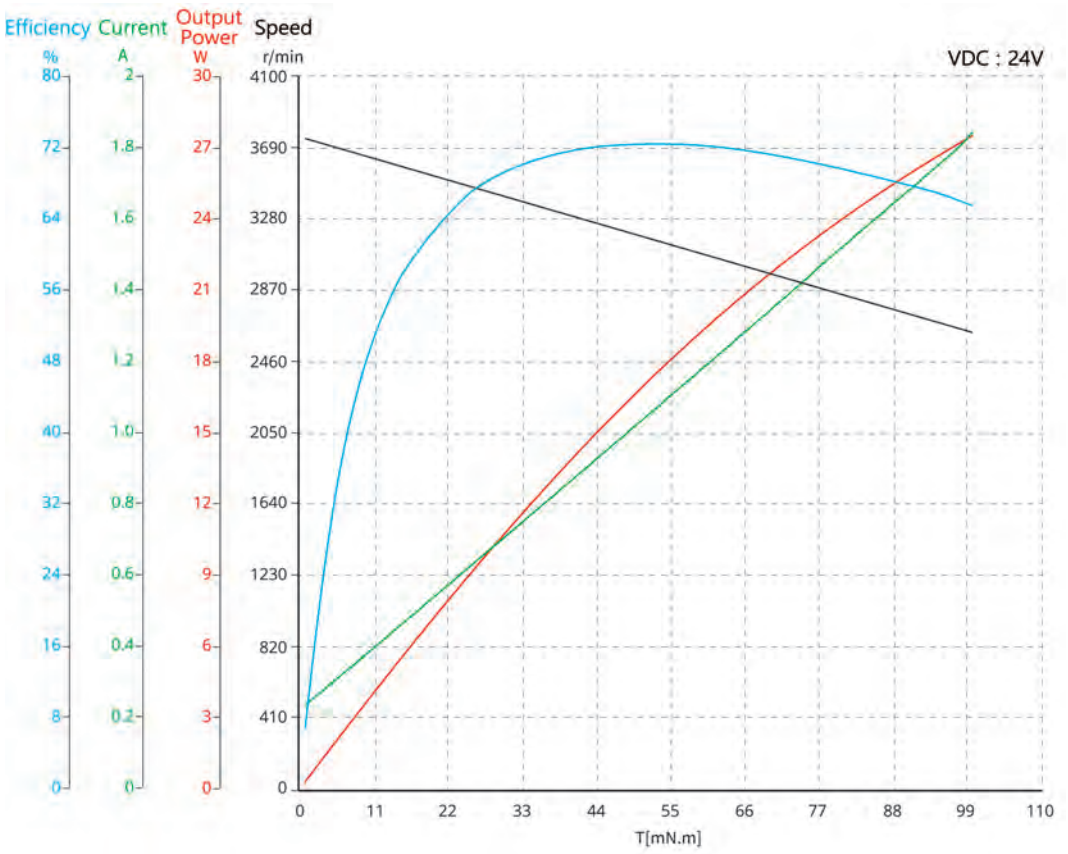
Motor Part Number			42ZWS50X-1	42ZWS63X-1	42ZWS75X-1
Performance Parameters					
Rated Voltage		V	24	24	24
Rated Power		W	19.6	39.3	58.1
Rated Torque		N·m	0.0625	0.125	0.185
Rated Speed		RPM	3000	3000	3000
Rated Current		A	1.2	2.4	3.6
No Load Speed		RPM	4000	4000	4000
No Load Current		A	0.15	0.3	0.45
Motor Efficiency		%	70	70	70
Noise(Ambient noise 20db, test distance 1M)		dB	< 50	< 50	< 50
Thermal Parameters					
Enclosure - Ambient Thermal Resistance		K/W	0.75	0.38	0.25
Motor Thermal Time Constant		min	2.3	3.1	3.6
Ambient Temperature		℃	25	25	25
Maximum Winding Temperature		℃	68.5	68.5	68.5
Motor Constant Coefficient					
Torque Constant		N·m/A	0.052	0.052	0.051
Back-EMF Constant	Effective Value	V/Krpm	5.44	5.44	5.44
Calculated Value					
Peak Torque		N·m	0.1875	0.375	0.555
Peak Current		A	3.6	7.2	10.8
Inertia Moment		Kg·cm²	0.05	0.1	0.15
Material					
End Cover			Aluminium Die Casting	Aluminium Die Casting	Aluminium Die Casting
Bearing			Deep Groove Ball Bearing	Deep Groove Ball Bearing	Deep Groove Ball Bearing
Magnet			Sinter NdFedB	Sinter NdFedB	Sinter NdFedB
Shaft			Carbon Steel	Carbon Steel	Carbon Steel

Dimensional Drawings



Torque performance Curves

42ZWS50X-1

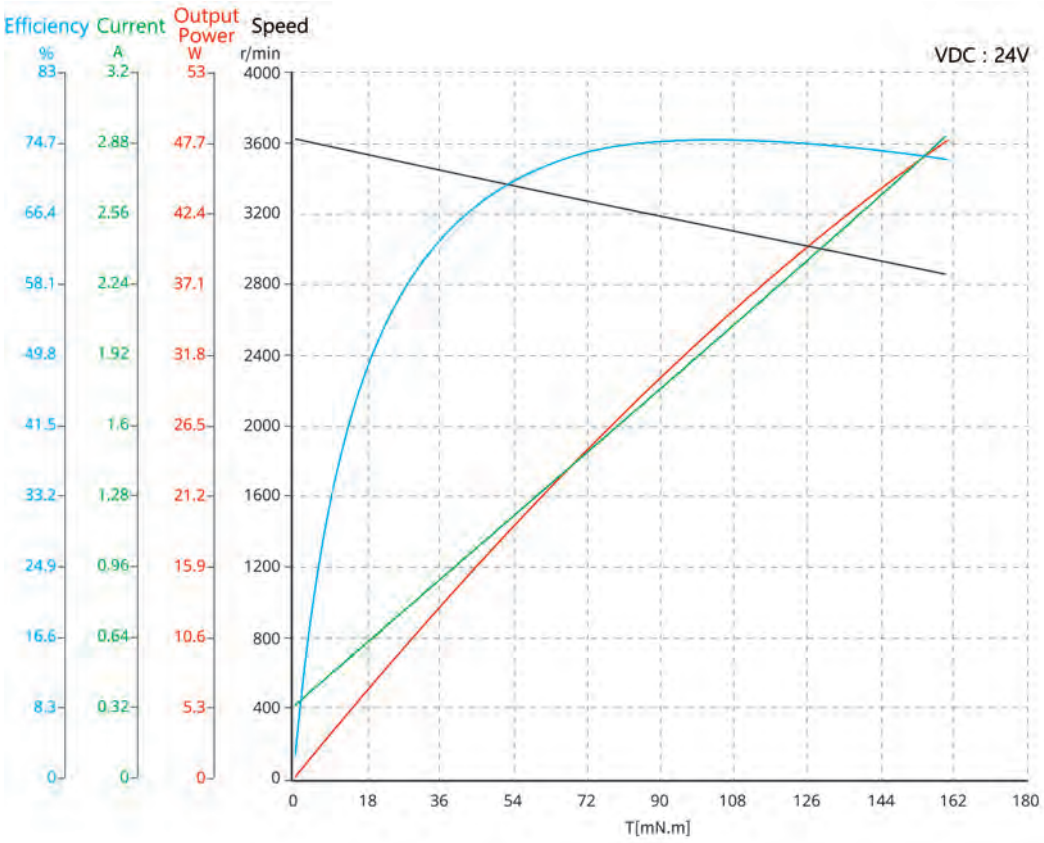


NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

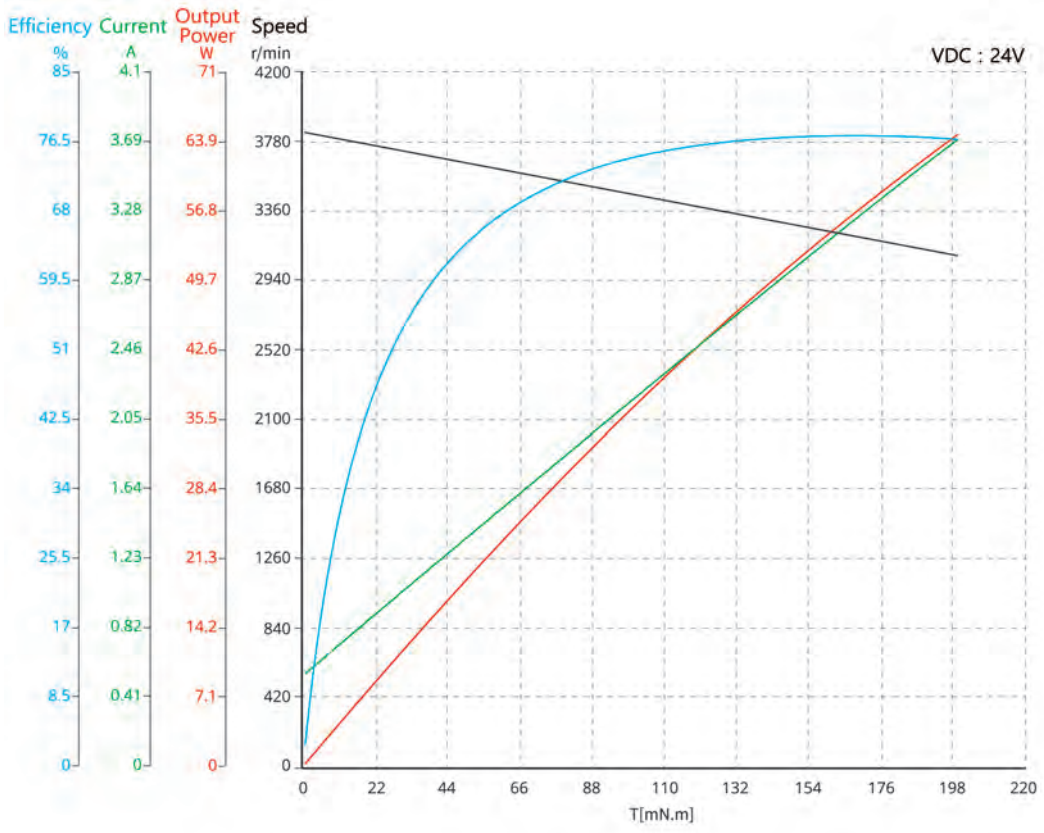
42mm Series

Torque performance Curves

42ZWS63X-1



42ZWS75X-1

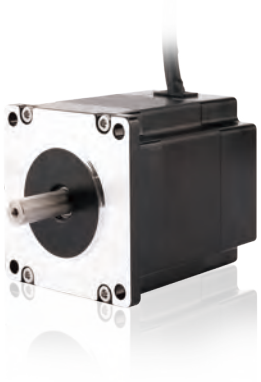


NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

57mm Brushless DC Motor has Max. 0.33N·m rated torque and triple stack 57mm Motor can generate 103.7W capacity of rated power.

All 57mm motors have Star winding connection.

And 57mm Brushless DC Motors are 5 pole pairs motors Hall sensors feed back method as standard and also additional incremental encoder is available.



Motor Characteristics

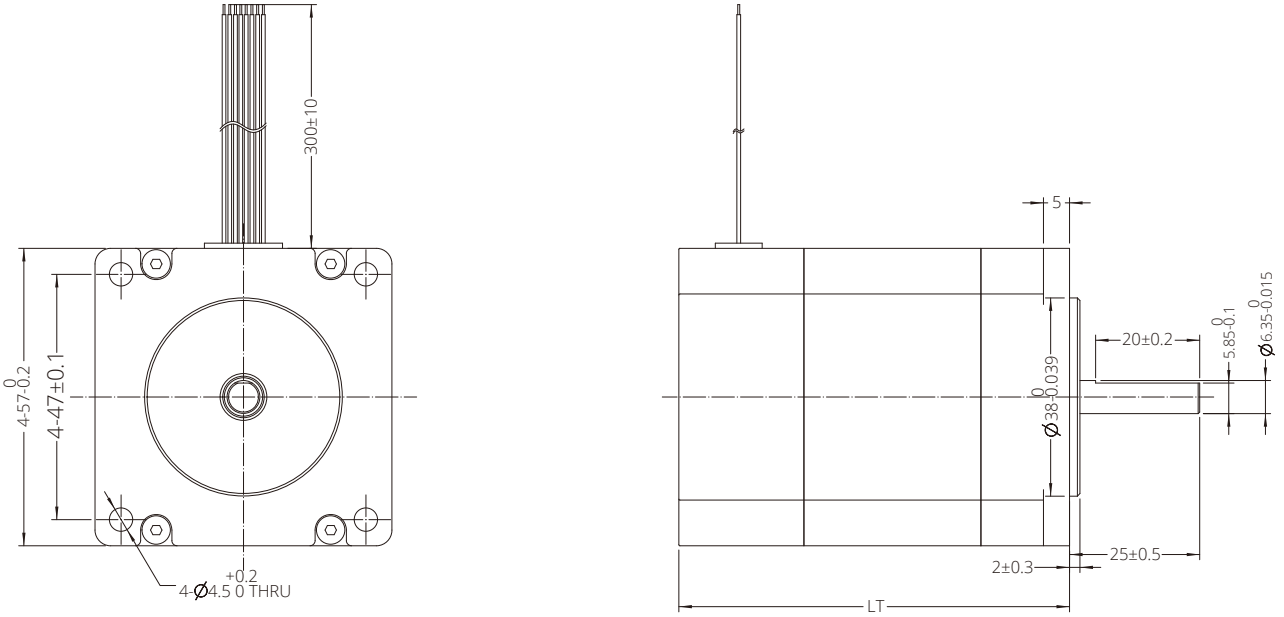
Motor Part Number			57ZWS50X-1	57ZWS63X-1	57ZWS75X-1
General Information					
Dimension	Motor Length	mm	50	63	75
	Mounting Hole	mm	47.14 (±0.2)	47.14 (±0.2)	47.14 (±0.2)
	Motor Shaft	mm	25 (±0.5)	25 (±0.5)	25 (±0.5)
Pole Pairs		-	5	5	5
Phase Resistance		Ω	0.958	0.473	0.301
Phase Inductance		mH	0.742	0.357	0.205
Winding Connection		-	Star	Star	Star
Insulation Class		-	B	B	B
Duty Type		-	S1	S1	S1
Feedback Method		-	Hall Sensors	Hall Sensors	Hall Sensors
Commutation Angle		-	120°	120°	120°
Insulation Strength (Withstand Voltage)		-	500VAC/1KHz/1mA/1s	500VAC/1KHz/1mA/1s	500VAC/1KHz/1mA/1s
Insulation Resistance		-	100 MΩ/500VDC	100 MΩ/500VDC	100 MΩ/500VDC
Weight		Kg	0.42	0.65	0.87

57mm Series

Motor Characteristics

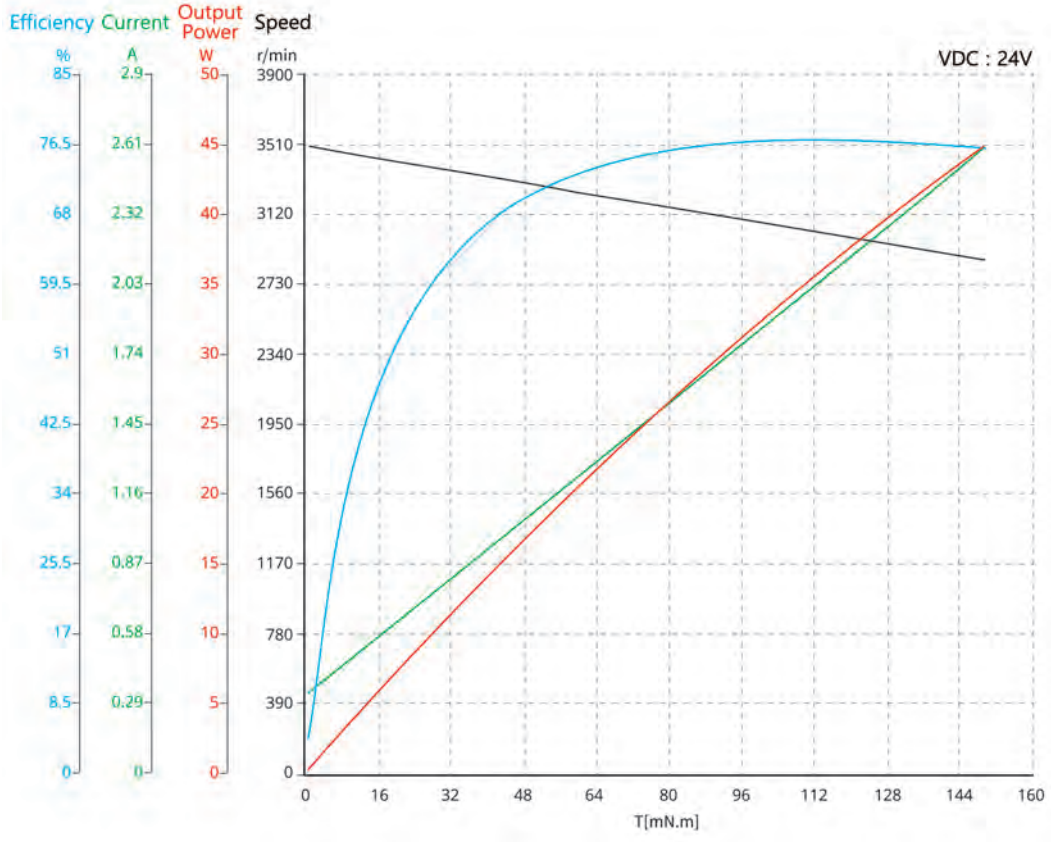
Motor Part Number			57ZWS50X-1	57ZWS63X-1	57ZWS75X-1
Performance Parameters					
Rated Voltage		V	24	24	24
Rated Power		W	37.4	69.1	103.7
Rated Torque		N·m	0.119	0.22	0.33
Rated Speed		RPM	3000	3000	3000
Rated Current		A	2.2	4.1	6
No Load Speed		RPM	4000	4000	4000
No Load Current		A	0.25	0.5	0.75
Motor Efficiency		%	75	75	75
Noise (Ambient noise 20db, test distance 1M)		dB	< 50	< 50	< 50
Thermal Parameters					
Enclosure - Ambient Thermal Resistance		K/W	0.53	0.27	0.18
Motor Thermal Time Constant		min	4.6	5	5.7
Ambient Temperature		℃	29	29	29
Maximum Winding Temperature		℃	77.4	77.4	77.4
Motor Constant Coefficient					
Torque Constant		N·m/A	0.054	0.054	0.055
Back-EMF Constant	Effective Value	V/Krpm	5.66	5.66	5.66
Calculated Value					
Peak Torque		N·m	0.357	0.66	0.99
Peak Current		A	6.6	12.3	18
Inertia Moment		Kg·cm²	0.19	0.38	0.56
Material					
End Cover			Aluminium Die Casting	Aluminium Die Casting	Aluminium Die Casting
Bearing			Deep Groove Ball Bearing	Deep Groove Ball Bearing	Deep Groove Ball Bearing
Magnet			Sinter NdFedB	Sinter NdFedB	Sinter NdFedB
Shaft			Carbon Steel	Carbon Steel	Carbon Steel

Dimensional Drawings



Torque performance Curves

57ZWS50X-1

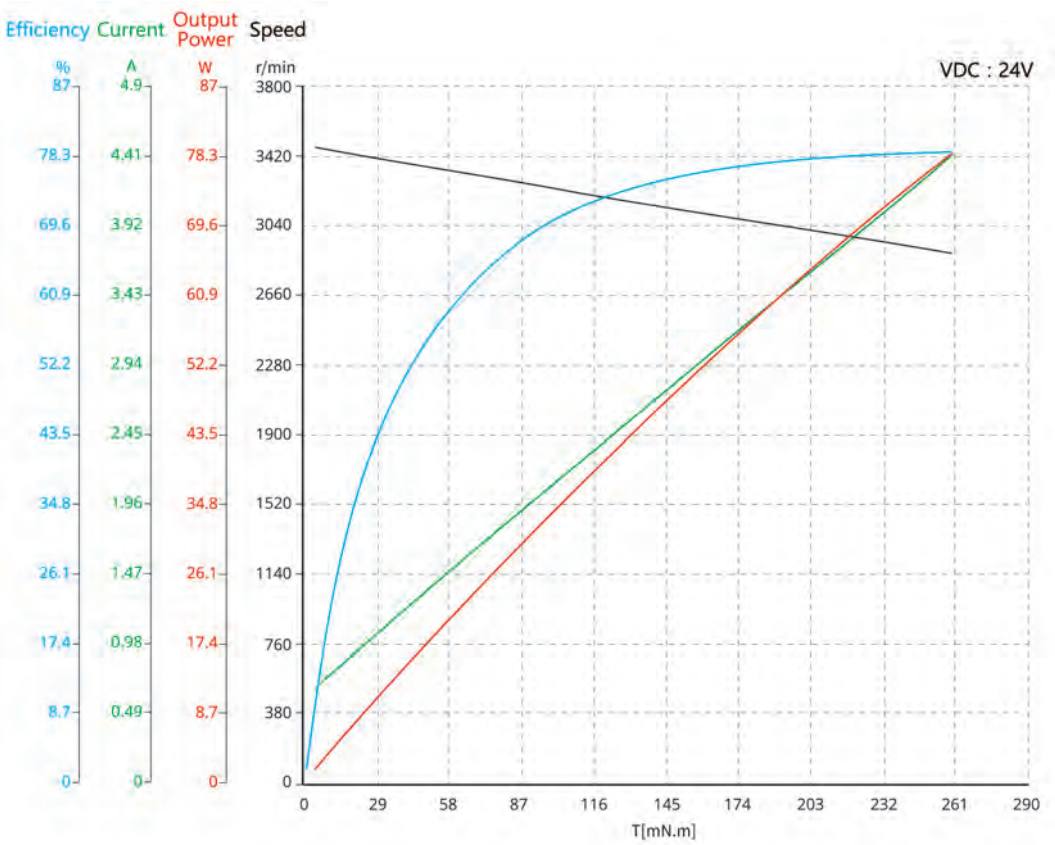


NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

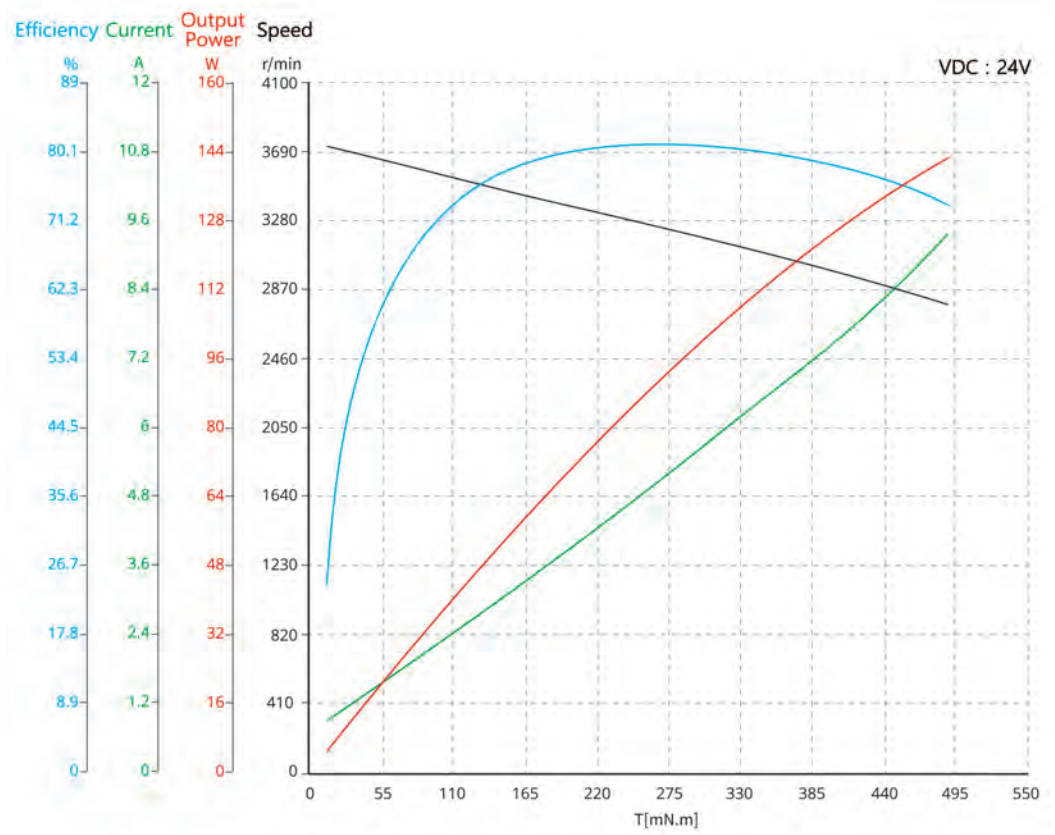
57mm Series

Torque performance Curves

57ZWS63X-1



57ZWS75X-1



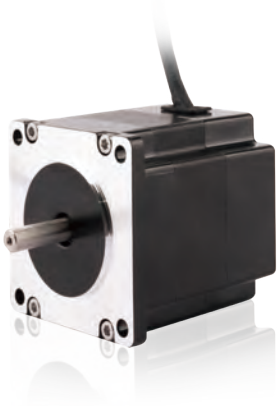
NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

60mm Series

60mm Brushless DC Motor has Max. 0.46N·m rated torque and triple stack 60mm Motor can generate 144.5W capacity of rated power.

All 60mm motors have Star winding connection.

And 60mm Brushless DC Motors are 5 pole pairs motors Hall sensors feed back method as standard and also additional incremental encoder is available.



Motor Characteristics

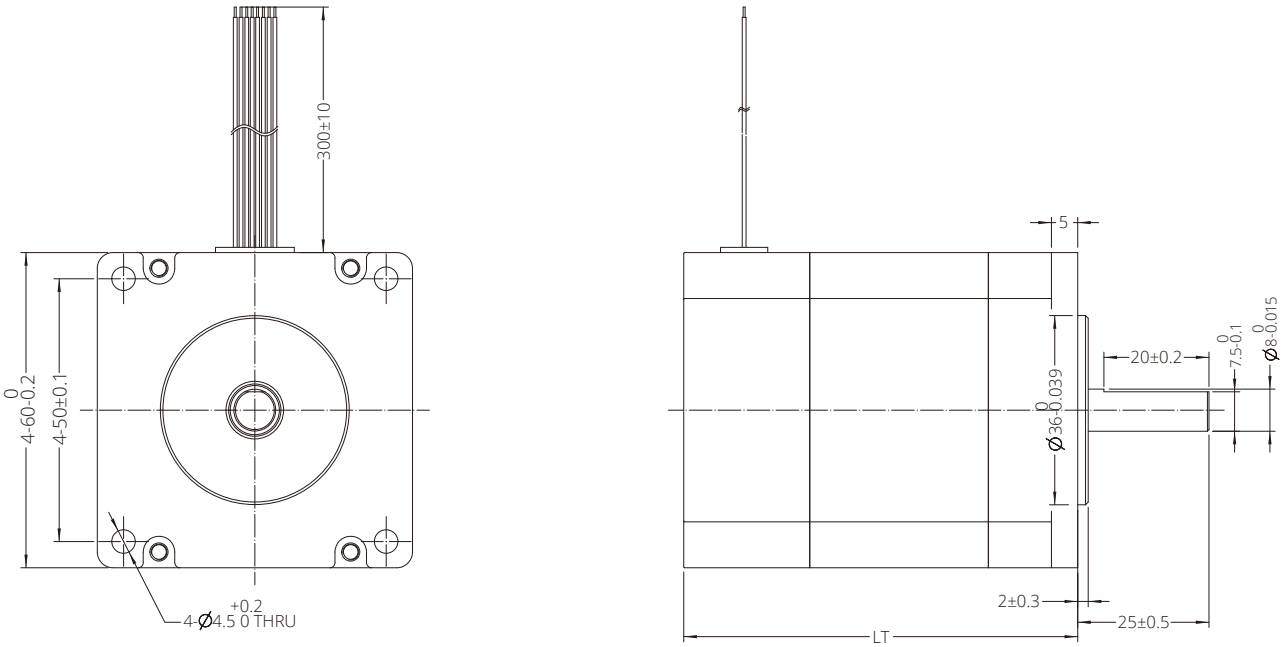
Motor Part Number			60ZWS50X-1	60ZWS63X-1	60ZWS75X-1
General Information					
Dimension	Motor Length	mm	50	63	75
	Mounting Hole	mm	50 (±0.2)	50 (±0.2)	50 (±0.2)
	Motor Shaft	mm	25 (±0.5)	25 (±0.5)	25 (±0.5)
Pole Pairs		-	5	5	5
Phase Resistance		Ω	0.976	0.334	0.233
Phase Inductance		mH	0.768	0.305	0.183
Winding Connection		-	Star	Star	Star
Insulation Class		-	B	B	B
Duty Type		-	S1	S1	S1
Feedback Method		-	Hall Sensors	Hall Sensors	Hall Sensors
Commutation Angle		-	120°	120°	120°
Insulation Strength (Withstand Voltage)		-	500VAC/1KHz/1mA/1s	500VAC/1KHz/1mA/1s	500VAC/1KHz/1mA/1s
Insulation Resistance		-	100 MΩ/500VDC	100 MΩ/500VDC	100 MΩ/500VDC
Weight		Kg	0.51	0.77	1

60mm Series

Motor Characteristics

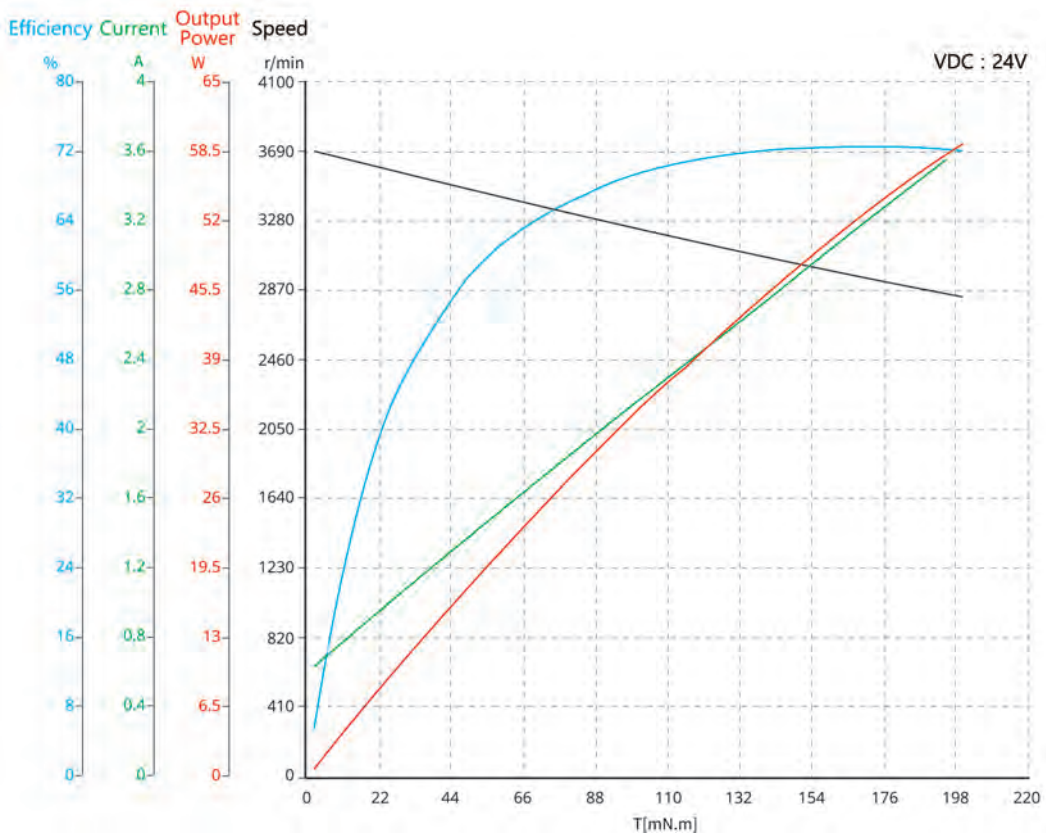
Motor Part Number			60ZWS50X-1	60ZWS63X-1	60ZWS75X-1
Performance Parameters					
Rated Voltage		V	24	24	24
Rated Power		W	47.1	97.4	144.5
Rated Torque		N·m	0.15	0.31	0.46
Rated Speed		RPM	3000	3000	3000
Rated Current		A	2.7	5.5	8.2
No Load Speed		RPM	3500	3500	3500
No Load Current		A	0.29	0.58	0.87
Motor Efficiency		%	75	75	75
Noise (Ambient noise 20db, test distance 1M)		dB	< 50	< 50	< 50
Thermal Parameters					
Enclosure - Ambient Thermal Resistance		K/W	0.57	0.28	0.19
Motor Thermal Time Constant		min	4.8	5.3	6
Ambient Temperature		℃	30	30	30
Maximum Winding Temperature		℃	87	87	87
Motor Constant Coefficient					
Torque Constant		N·m/A	0.056	0.056	0.056
Back-EMF Constant	Effective Value	V/Krpm	5.87	5.87	5.87
Calculated Value					
Peak Torque		N·m	0.45	0.93	1.38
Peak Current		A	8.1	16.5	24.6
Inertia Moment		Kg·cm²	0.22	0.44	0.66
Material					
End Cover			Aluminium Die Casting	Aluminium Die Casting	Aluminium Die Casting
Bearing			Deep Groove Ball Bearing	Deep Groove Ball Bearing	Deep Groove Ball Bearing
Magnet			Sinter NdFedB	Sinter NdFedB	Sinter NdFedB
Shaft			Carbon Steel	Carbon Steel	Carbon Steel

Dimensional Drawings



Torque performance Curves

60ZWS50X-1

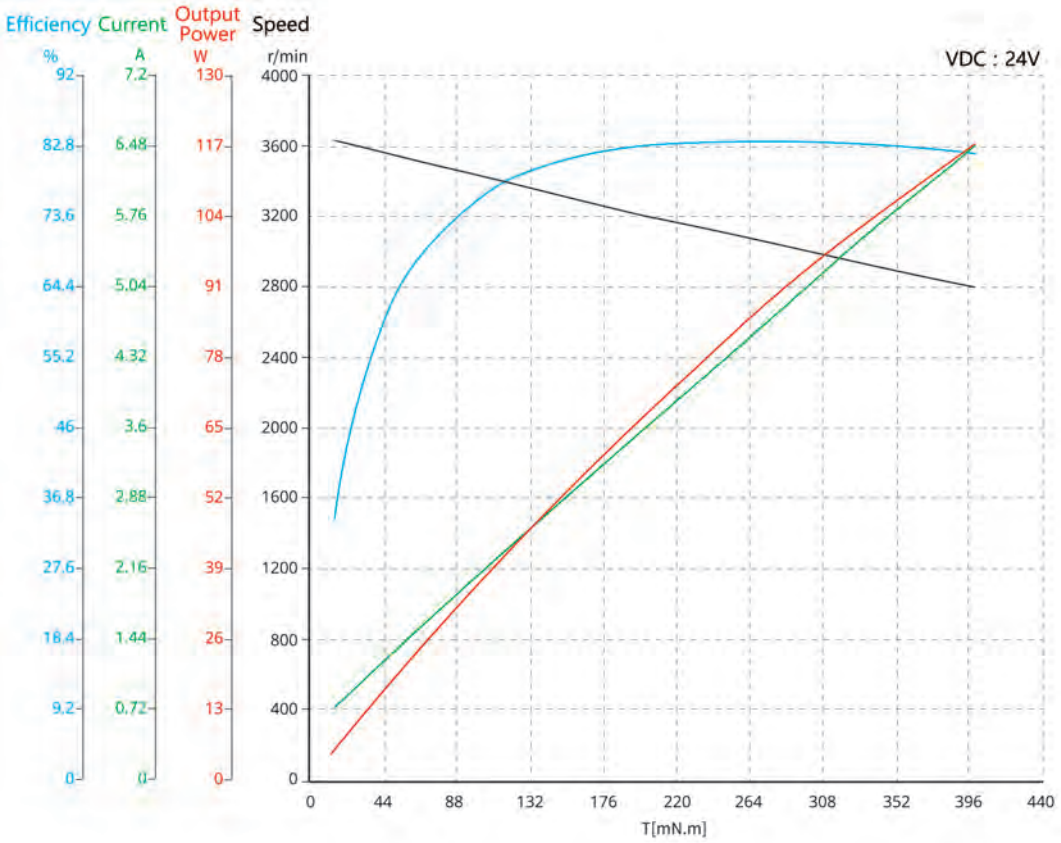


NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

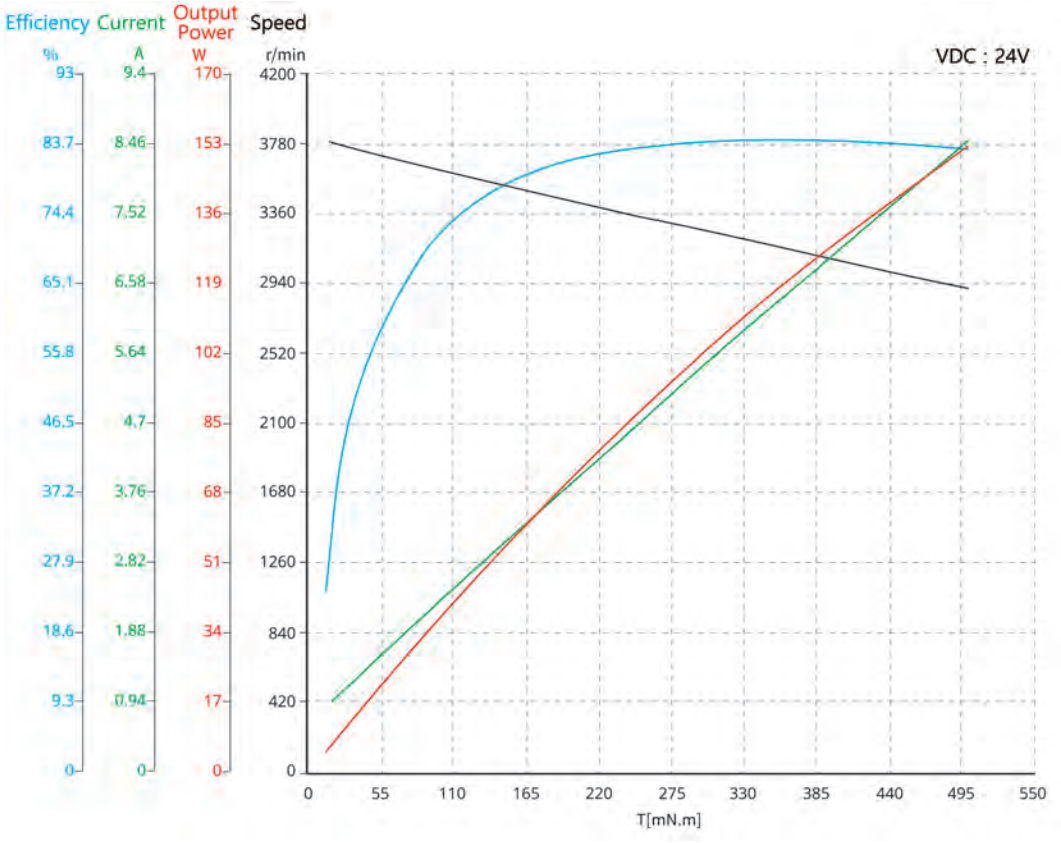
60mm Series

Torque performance Curves

60ZWS63X-1



60ZWS75X-1



NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

86mm Brushless DC Motor has Max. 1.5N·m rated torque and triple stack 86mm Motor can generate 471.2W capacity of rated power.

Single and double stack of 86mm motors have Star winding connection and triple stack motor has Star winding connection and 86mm Brushless DC Motors are 5 pole pairs motors Hall sensors feed back method as standard and also additional incremental encoder is available.

Motor Characteristics

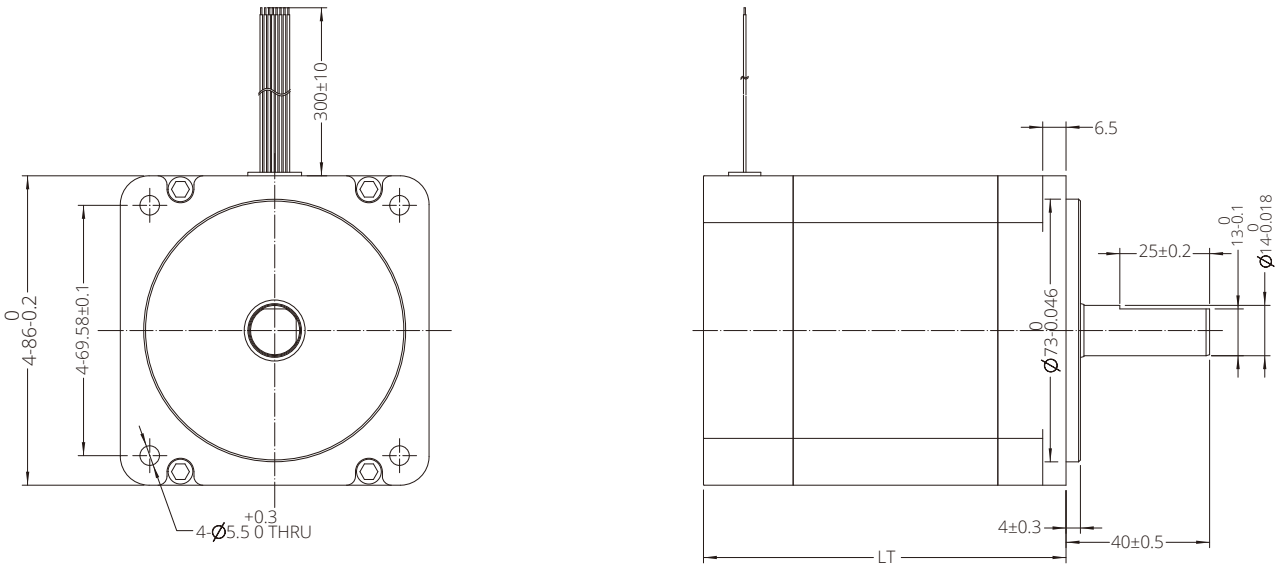
Motor Part Number			86ZWS61X-1	86ZWS81X-1	86ZWS101X-1
General Information					
Dimension	Motor Length	mm	61	81	101
	Mounting Hole	mm	69.58 (±0.2)	69.58 (±0.2)	69.58 (±0.2)
	Motor Shaft	mm	25 (±0.5)	25 (±0.5)	25 (±0.5)
Pole Pairs		-	5	5	5
Phase Resistance		Ω	0.492	0.21	0.13
Phase Inductance		mH	1.139	0.44	0.25
Winding Connection		-	Star	Star	Star
Insulation Class		-	B	B	B
Duty Type		-	S1	S1	S1
Feedback Method		-	Hall Sensors	Hall Sensors	Hall Sensors
Commutation Angle		-	120°	120°	120°
Insulation Strength (Withstand Voltage)		-	500VAC/1KHz/1mA/1s	500VAC/1KHz/1mA/1s	500VAC/1KHz/1mA/1s
Insulation Resistance		-	100 MΩ/500VDC	100 MΩ/500VDC	100 MΩ/500VDC
Weight		Kg	1.38	2.18	3

86mm Series

Motor Characteristics

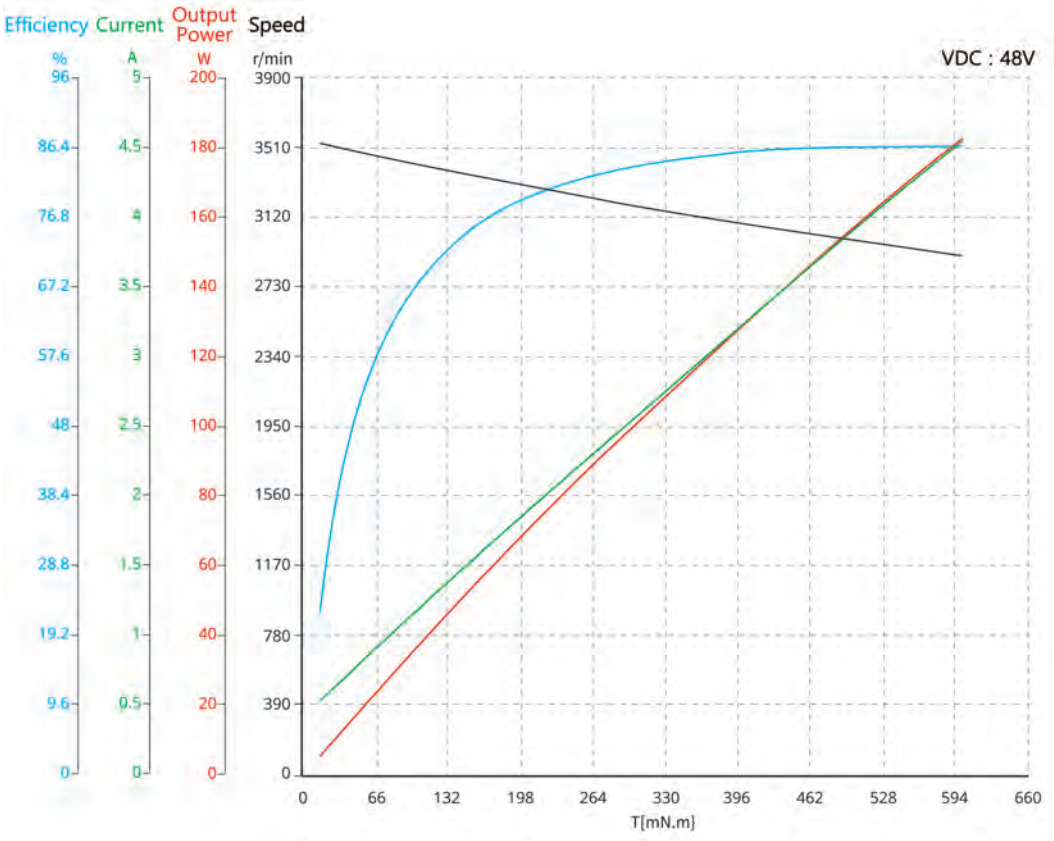
Motor Part Number			86ZWS61X-1	86ZWS81X-1	86ZWS101X-1
Performance Parameters					
Rated Voltage		V	48	48	48
Rated Power		W	157.1	314.1	471.2
Rated Torque		N·m	0.5	1	1.5
Rated Speed		RPM	3000	3000	3000
Rated Current		A	4.7	9.4	14.1
No Load Speed		RPM	3300	3300	3300
No Load Current		A	0.35	0.7	1.05
Motor Efficiency		%	85	85	85
Noise (Ambient noise 20db, test distance 1M)		dB	< 50	< 50	< 50
Thermal Parameters					
Enclosure - Ambient Thermal Resistance		K/W	0.61	0.31	0.2
Motor Thermal Time Constant		min	5.3	6.8	8.2
Ambient Temperature		℃	30	30	30
Maximum Winding Temperature		℃	90	90	90
Motor Constant Coefficient					
Torque Constant		N·m/A	0.106	0.106	0.106
Back-EMF Constant	Effective Value	V/Krpm	11.1	11.1	11.1
Calculated Value					
Peak Torque		N·m	1.5	3	4.5
Peak Current		A	14.1	28.2	42.3
Inertia Moment		Kg·cm²	1.4	2.8	4.2
Material					
End Cover			Aluminium Die Casting	Aluminium Die Casting	Aluminium Die Casting
Bearing			Deep Groove Ball Bearing	Deep Groove Ball Bearing	Deep Groove Ball Bearing
Magnet			Sinter NdFedB	Sinter NdFedB	Sinter NdFedB
Shaft			Carbon Steel	Carbon Steel	Carbon Steel

Dimensional Drawings



Torque performance Curves

86ZWS61X-1

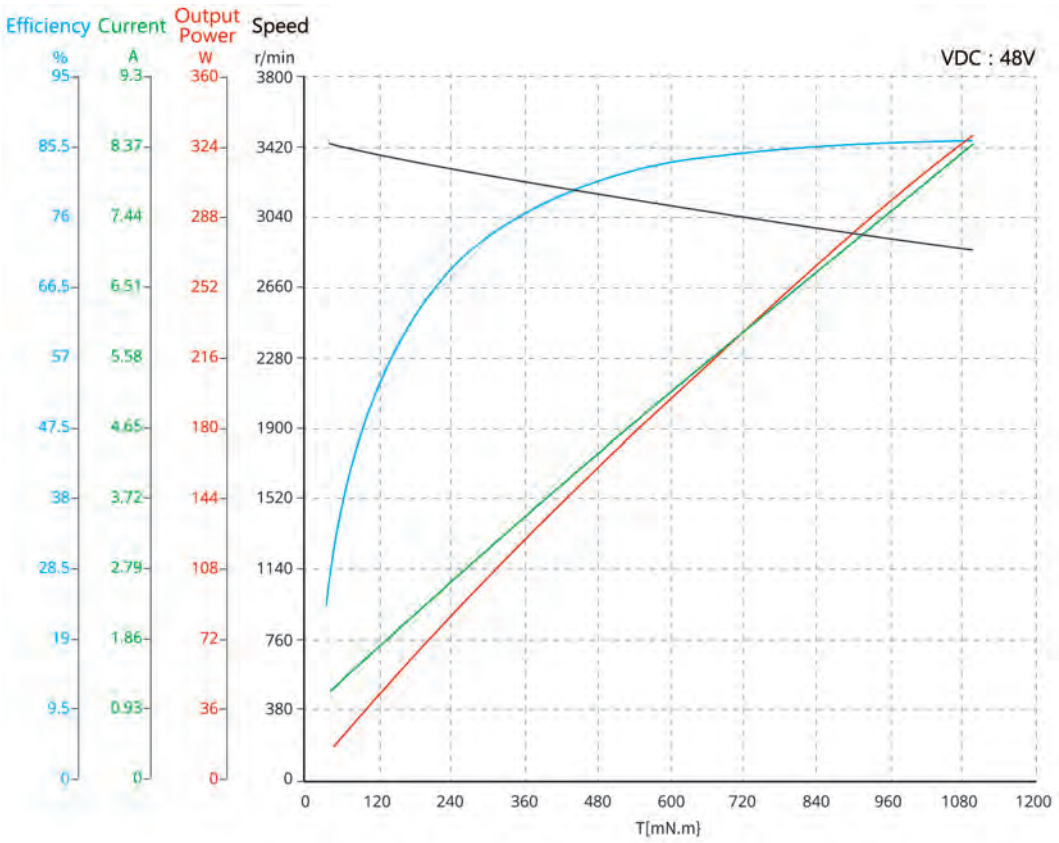


NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

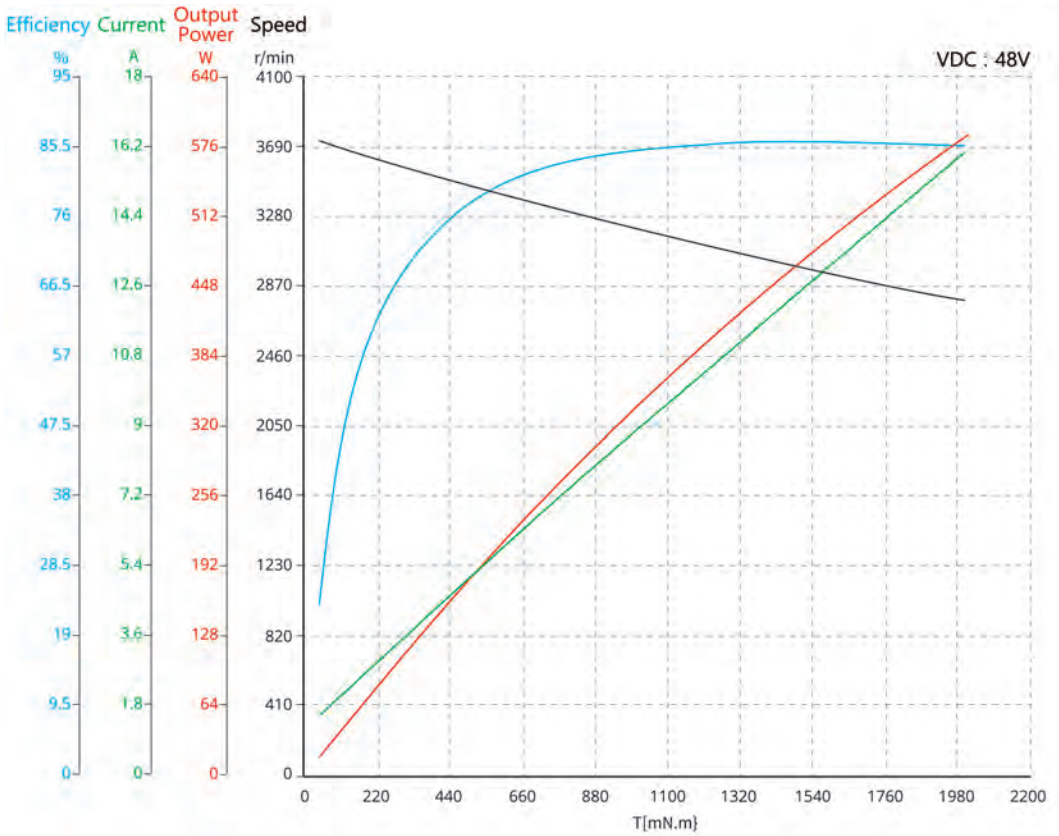
86mm Series

Torque performance Curves

86ZWS81X-1



86ZWS101X-1



NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

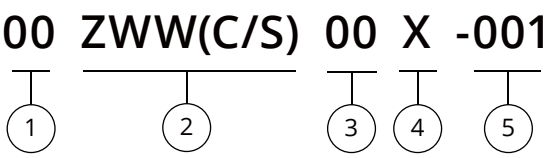
E Slotless Brushless DC Motor

DINGS' Slotless Brushless DC Motors can avoid the pulsation of air gap magnetic induction caused by uneven magnetic resistance in the teeth.

It can eliminate the pulse loss in the armature core and the surface loss on the main pole surface.

Slotless Brushless DC Motor has high durability, low electrical noise and high efficiency. Maximum efficiency of motor reaches 90% and this motor is suitable for the servo system which needs quick movement and high power.

Part Number Construction



① Motor Size (mm)

Size	16	22	28	36	42

② Slotless Brushless DC Motor

C = Circular Type
S = Square Type

③ Motor Length (mm)

④ Motor Type

E = Encoder
G = Gearbox
S = Screw Type
B = Brake

⑤ Customer Sequence Number

Example

Part Number	16ZWWC40E-001
Description	Motor diameter 16mm Circular Slotless Brushless DC Motor Motor Length 40mm Encoder Customization No. 001

16ZWWC40

DINGS' Slotless Brushless DC Motor, 16ZWWC40 can avoid the pulsation of air gap magnetic induction caused by uneven magnetic resistance in the teeth.

It can eliminate the pulse loss in the armature core and the surface loss on the main pole surface.

16ZWWC40 Slotless Brushless DC Motor has high durability, low electrical noise and high efficiency.

Maximum efficiency of motor reaches 85% and this motor is suitable for the servo system which needs quick movement and high power.

16ZWWC40 Rated Power is 39W and Peak Torque is 118.13mN·m.

Motor Characteristics

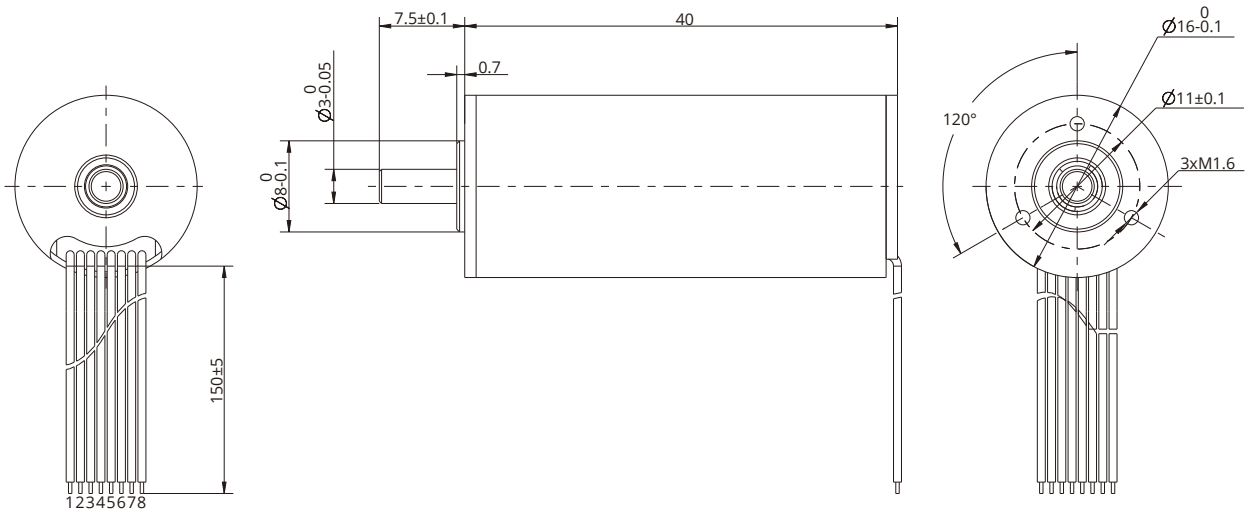
Motor Part Number			16ZWWC40			
General Information						
Dimension	Motor Length	mm	40	40	40	40
	Mounting Hole	mm	Φ16	Φ16	Φ16	Φ16
	Motor Shaft	mm	6.8	6.8	6.8	6.8
Pole Pairs		-	1	1	1	1
Phase Resistance		Ω	0.63	1.31	1.85	3.15
Phase Inductance		mH	0.033	0.045	0.096	0.2
Winding Connection		-	Star	Star	Star	Star
Insulation Class		-	B	B	B	B
Duty Type		-	S2	S2	S2	S2
Feedback Method		-	Hall Sensors	Hall Sensors	Hall Sensors	Hall Sensors
Commutation Angle		-	120°	120°	120°	120°
Insulation Strength (Withstand Voltage)		-	500VAC/1KHz/1mA/1s	500VAC/1KHz/1mA/1s	500VAC/1KHz/1mA/1s	500VAC/1KHz/1mA/1s
Insulation Resistance		-	100 MΩ/500VDC	100 MΩ/500VDC	100 MΩ/500VDC	100 MΩ/500VDC
Weight		g	47	47	47	47

16ZWWC40

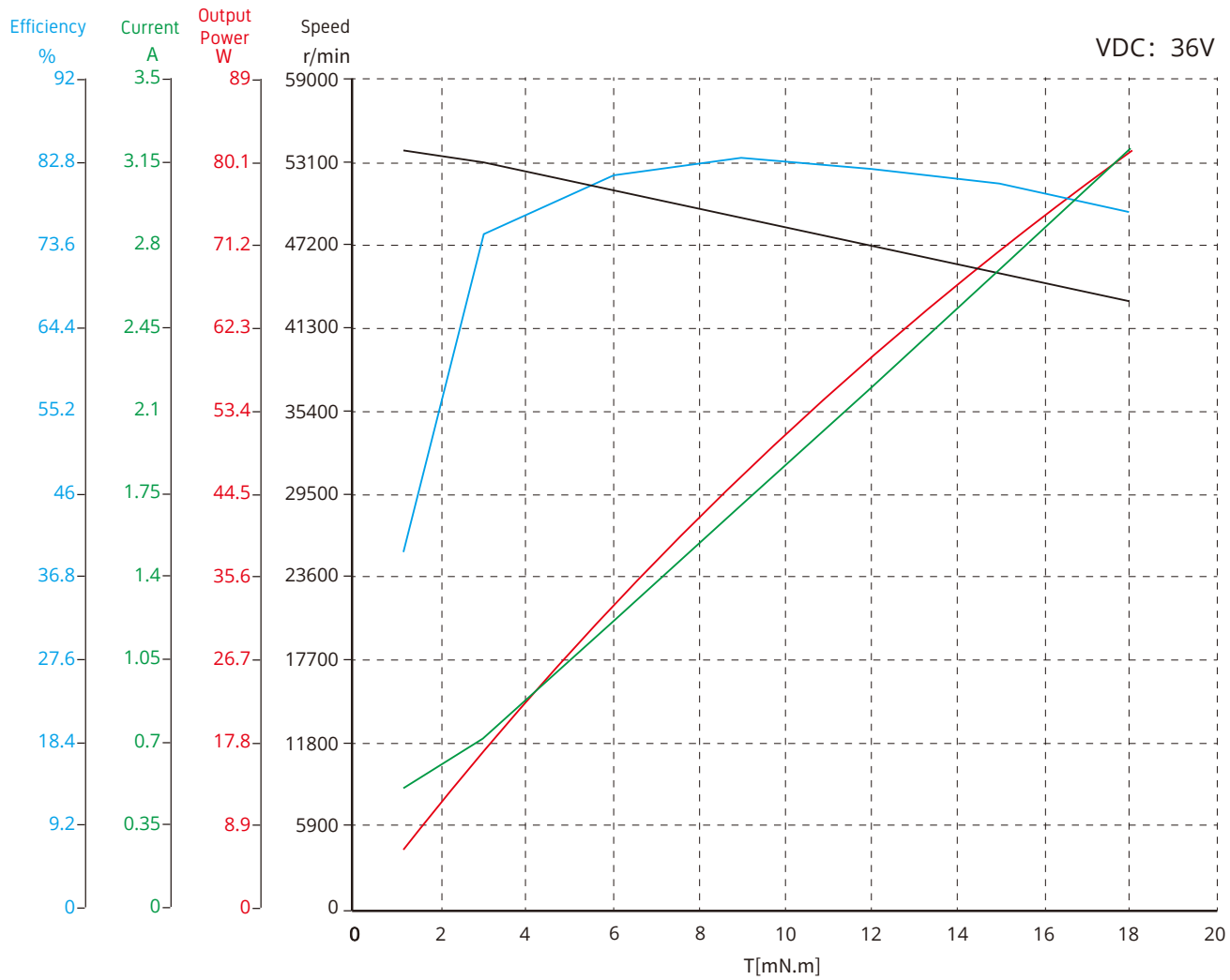
Motor Characteristics

Motor Part Number			16ZWWC40			
Performance Parameters						
Rated Voltage		V	18	24	36	48
Rated Power		W	33	39	39	39
Rated Torque		mN·m	7.4	7.4	7.5	7.4
Rated Speed		RPM	44000	51300	50000	50000
Rated Current		A	2.19	1.96	1.32	0.95
No Load Speed		RPM	50000	58000	56000	56000
No Load Current		A	0.31	0.22	0.15	0.12
Motor Efficiency		%	85	84	82.4	84.92
Noise (Ambient noise 20db, test distance 1M)		dB	<50	<50	<50	<50
Thermal Parameters						
Enclosure - Ambient Thermal Resistance (No Load)		K/W	1.22	1.33	1.47	1.07
Motor Thermal Time Constant (No Load)		S	420	450	480	390
Ambient Temperature		℃	22.3	22.3	22.3	22.3
Maximum Winding Temperature (No Load)		℃	63	75	80	63.8
Motor Constant Coefficient						
Torque Constant		mN·m/A	3.38	3.78	5.66	7.75
Back-EMF Constant	Peak Value	V/Krpm	0.50	0.56	0.84	1.15
	Effective Value	V/Krpm	0.35	0.40	0.59	0.81
Calculated Value						
Peak Torque		mN·m	96.65	69.21	110.19	118.13
Peak Current		A	29	18	19	15
Inertia Moment		g·cm²	0.583	0.583	0.583	0.583
Mechanical Time Constant		mS	3.21	5.35	3.36	3.06
Material						
End Cover			Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
Bearing			Deep Groove Ball Bearing	Deep Groove Ball Bearing	Deep Groove Ball Bearing	Deep Groove Ball Bearing
Magnet			Sintered NdFeB	Sintered NdFeB	Sintered NdFeB	Sintered NdFeB
Shaft			Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel

Dimensional Drawings



Tourque Performance Curves



Note : All drawings are 1st Angle Projection - ISO Compliant (3D models available)

22ZWWC48

DINGS' Slotless Brushless DC Motor, 22ZWWC48 can avoid the pulsation of air gap magnetic induction caused by uneven magnetic resistance in the teeth.

It can eliminate the pulse loss in the armature core and the surface loss on the main pole surface.

22ZWWC48 Slotless Brushless DC Motor has high durability, low electrical noise and high efficiency.

Maximum efficiency of motor reaches 91% and this motor is suitable for the servo system which needs quick movement and high power.

22ZWWC48 Rated Power is 100W and Peak Torque is 419.33mN·m.

Motor Characteristics

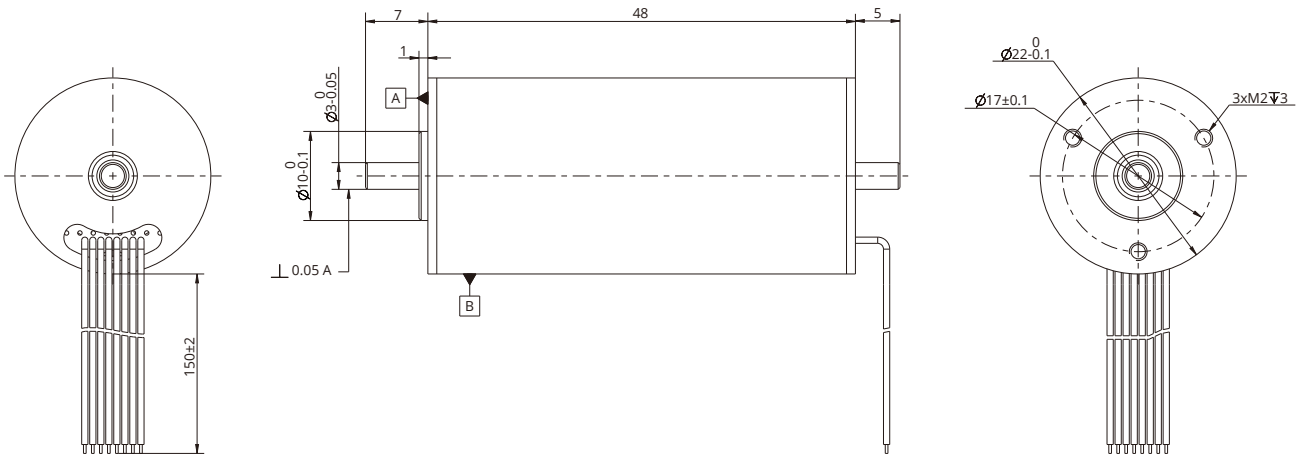
Motor Part Number			22ZWWC48			
General Information						
Dimension	Motor Length	mm	48	48	48	48
	Mounting Hole	mm	Φ22	Φ22	Φ22	Φ22
	Motor Shaft	mm	6	6	6	6
Pole Pairs		-	1	1	1	1
Phase Resistance		Ω	0.26	0.3	0.57	1
Phase Inductance		mH	0.018	0.027	0.06	0.11
Winding Connection		-	Star	Star	Star	Star
Insulation Class		-	B	B	B	B
Duty Type		-	S2	S2	S2	S2
Feedback Method		-	Hall Sensors	Hall Sensors	Hall Sensors	Hall Sensors
Commutation Angle		-	120°	120°	120°	120°
Insulation Strength (Withstand Voltage)		-	500VAC/1KHz/1mA/1s	500VAC/1KHz/1mA/1s	500VAC/1KHz/1mA/1s	500VAC/1KHz/1mA/1s
Insulation Resistance		-	100 MΩ/500VDC	100 MΩ/500VDC	100 MΩ/500VDC	100 MΩ/500VDC
Weight		g	110	110	110	110

Motor Characteristics

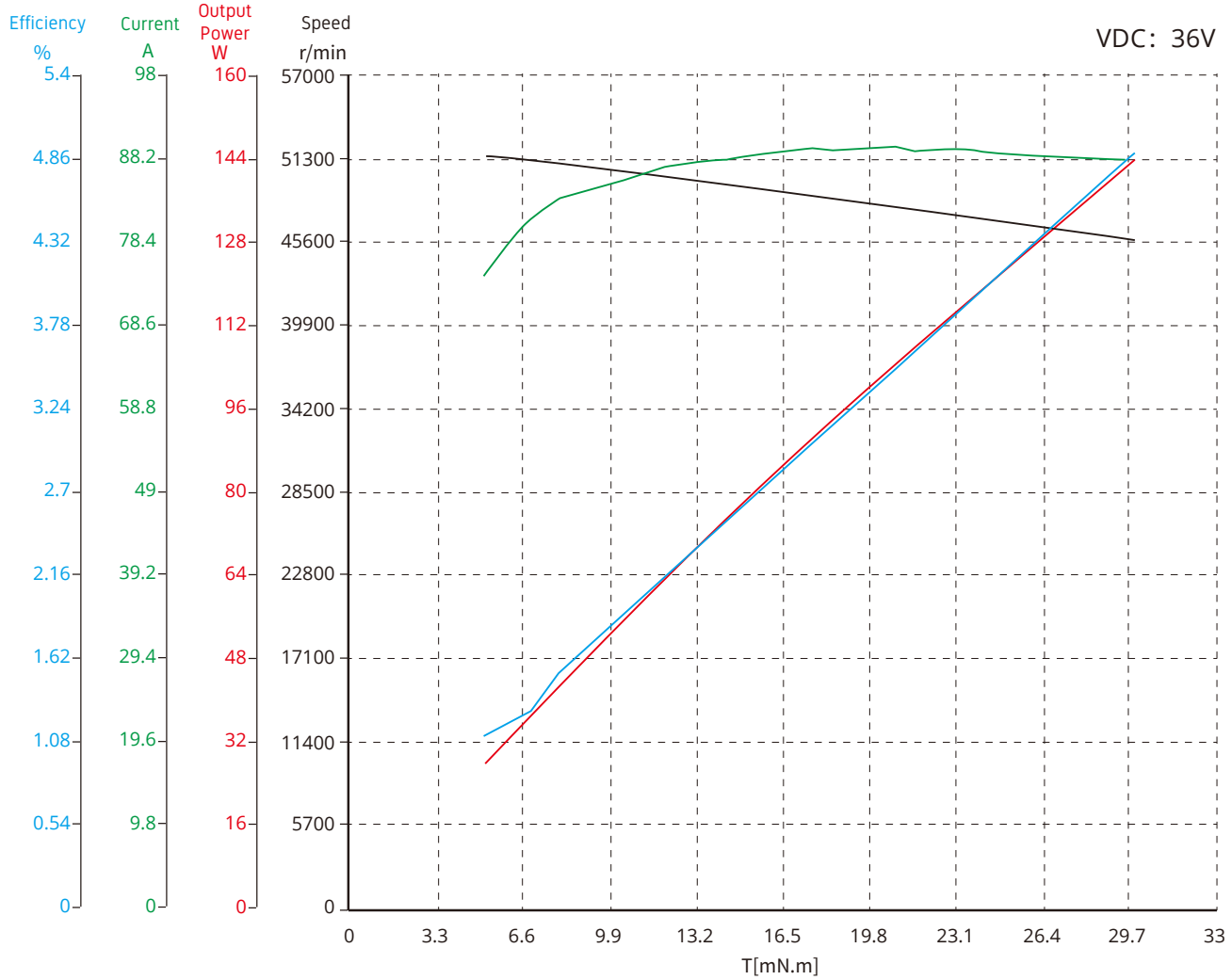
Motor Part Number			22ZWWC48			
Performance Parameters						
Rated Voltage		V	12	24	36	48
Rated Power		W	83	100	100	100
Rated Torque		mN·m	20	20	20	20
Rated Speed		RPM	40000	49000	47400	49600
Rated Current		A	7.95	4.68	3.12	2.29
No Load Speed		RPM	50000	55000	53000	54000
No Load Current		A	0.3	0.4	0.32	0.14
Motor Efficiency		%	87	89	89	91
Noise (Ambient noise 20db, test distance 1M)		dB	<50	<50	<50	<50
Thermal Parameters						
Enclosure - Ambient Thermal Resistance (No Load)		K/W	0.38	0.58	0.51	0.42
Motor Thermal Time Constant (No Load)		S	840	600	900	1200
Ambient Temperature		℃	21.4	22	24.7	21.1
Maximum Winding Temperature (No Load)		℃	52.7	80	75.5	70.5
Motor Constant Coefficient						
Torque Constant		mN·m/A	2.52	4.27	6.41	8.74
Back-EMF Constant	Peak Value	V/Krpm	0.37	0.63	0.95	1.29
	Effective Value	V/Krpm	0.26	0.45	0.67	0.91
Calculated Value						
Peak Torque		mN·m	116.11	341.76	404.72	419.33
Peak Current		A	46	80	63	48
Inertia Moment		g·cm²	1.15	1.15	1.15	1.15
Mechanical Time Constant		mS	4.72	1.89	1.60	1.51
Material						
End Cover			Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
Bearing			Deep Groove Ball Bearing	Deep Groove Ball Bearing	Deep Groove Ball Bearing	Deep Groove Ball Bearing
Magnet			Sintered NdFeB	Sintered NdFeB	Sintered NdFeB	Sintered NdFeB
Shaft			Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel

22ZWWC48

Dimensional Drawings



Tourque Performance Curves



Note : All drawings are 1st Angle Projection - ISO Compliant (3D models available)

28ZWWC52

DINGS' Slotless Brushless DC Motor, 28ZWWC52 can avoid the pulsation of air gap magnetic induction caused by uneven magnetic resistance in the teeth.

It can eliminate the pulse loss in the armature core and the surface loss on the main pole surface.

28ZWWC52 Slotless Brushless DC Motor has high durability, low electrical noise and high efficiency.

Maximum efficiency of motor reaches 85% and this motor is suitable for the servo system which needs quick movement and high power.

28ZWWC52 Rated Power is 35W and Peak Torque is 288.25mN·m.

Motor Characteristics

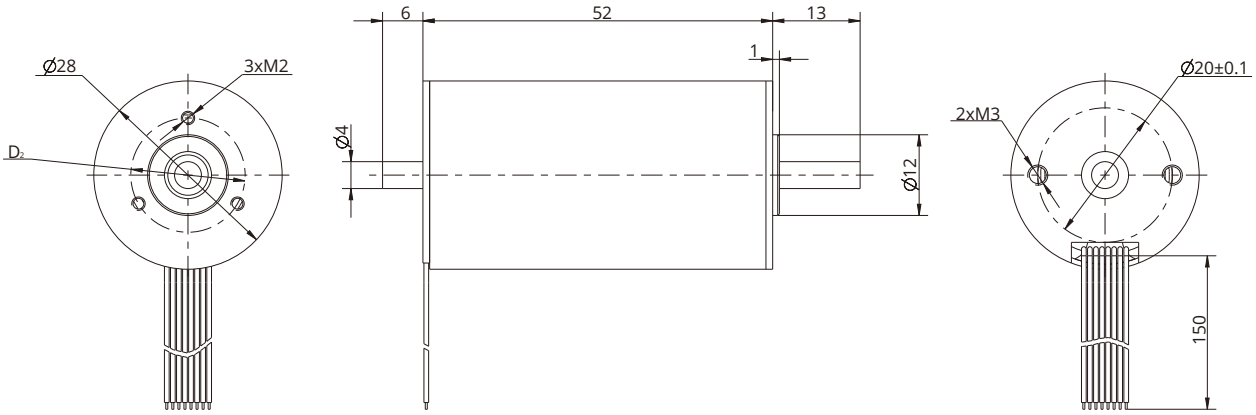
Motor Part Number			28ZWWC52			
General Information						
Dimension	Motor Length	mm	52	52	52	52
	Mounting Hole	mm	Φ28	Φ28	Φ28	Φ28
	Motor Shaft	mm	6.8	6.8	6.8	6.8
Pole Pairs		-	1	1	1	1
Phase Resistance		Ω	0.52	1.7	4.3	6.6
Phase Inductance		mH	0.0495	0.178	0.42	0.77
Winding Connection		-	Star	Star	Star	Star
Insulation Class		-	B	B	B	B
Duty Type		-	S2	S2	S2	S2
Feedback Method		-	Hall Sensors	Hall Sensors	Hall Sensors	Hall Sensors
Commutation Angle		-	120°	120°	120°	120°
Insulation Strength (Withstand Voltage)		-	500VAC/1KHz/1mA/1s	500VAC/1KHz/1mA/1s	500VAC/1KHz/1mA/1s	500VAC/1KHz/1mA/1s
Insulation Resistance		-	100 MΩ/500VDC	100 MΩ/500VDC	100 MΩ/500VDC	100 MΩ/500VDC
Weight		g	170	170	170	170

28ZWWC52

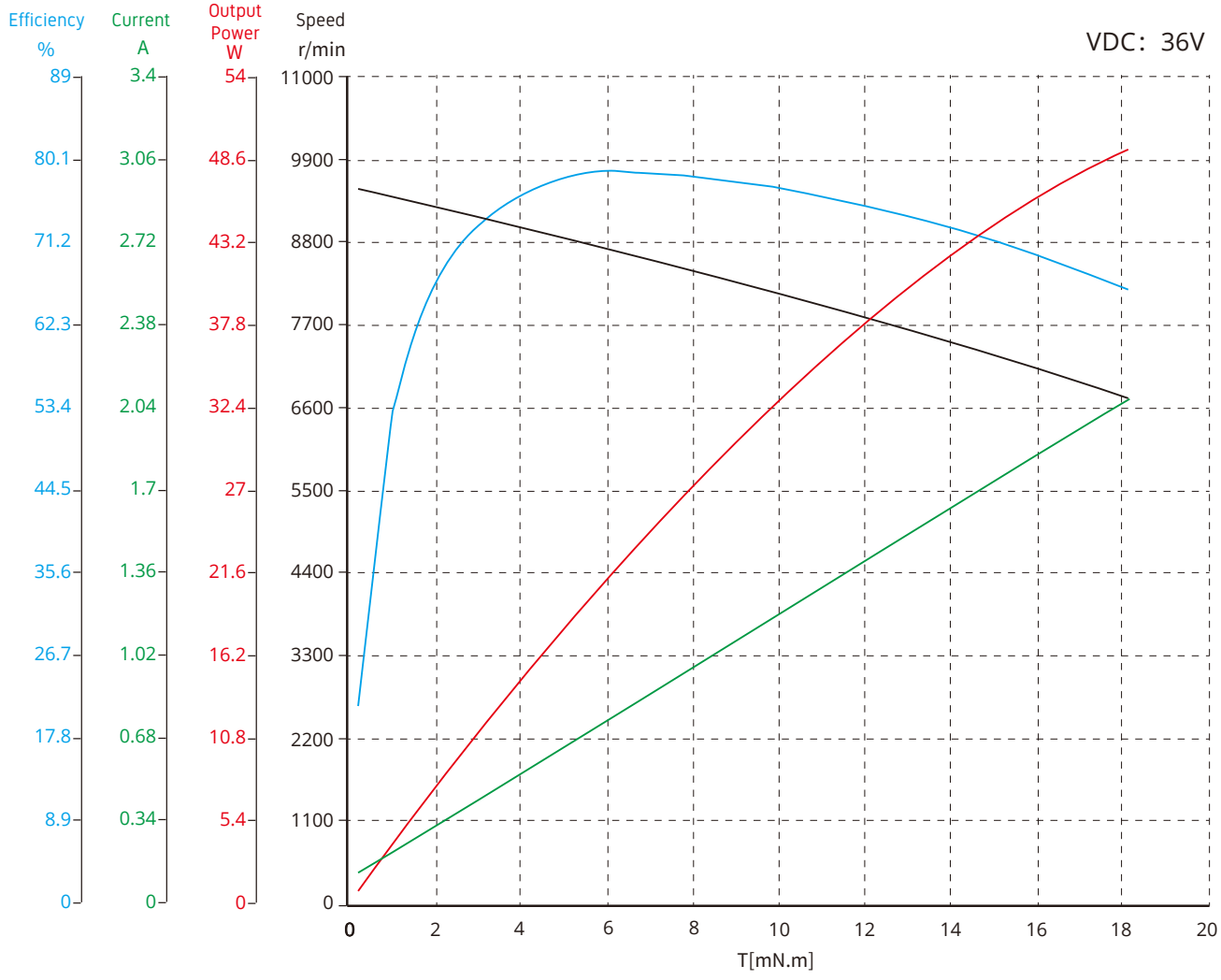
Motor Characteristics

Motor Part Number			28ZWWC52			
Performance Parameters						
Rated Voltage		V	12	24	36	48
Rated Power		W	30	34	35	35
Rated Torque		mN·m	32	32	32	34
Rated Speed		RPM	6970	8430	8370	8340
Rated Current		A	3.13	1.69	1.17	0.86
No Load Speed		RPM	9270	9680	9500	9400
No Load Current		A	0.2	0.11	0.084	0.061
Motor Efficiency		%	80	84	83	85
Noise (Ambient noise 20db, test distance 1M)		dB	<50	<50	<50	<50
Thermal Parameters						
Enclosure - Ambient Thermal Resistance (No Load)		K/W	0.67	0.69	0.73	1.19
Motor Thermal Time Constant (No Load)		S	1200	1200	1080	1100
Ambient Temperature		℃	23	24	27	25
Maximum Winding Temperature (No Load)		℃	43.2	47.3	52.5	47.4
Motor Constant Coefficient						
Torque Constant		mN·m/A	10.24	18.97	27.32	39.63
Back-EMF Constant	Peak Value	V/Krpm	1.52	2.81	4.04	5.87
	Effective Value	V/Krpm	1.07	1.99	2.86	4.15
Calculated Value						
Peak Torque		mN·m	236.31	267.87	228.72	288.25
Peak Current		A	23	14	8	7
Inertia Moment		g·cm²	10.2	10.2	10.2	10.2
Mechanical Time Constant		mS	5.06	4.82	5.88	4.29
Material						
End Cover			Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
Bearing			Deep Groove Ball Bearing	Deep Groove Ball Bearing	Deep Groove Ball Bearing	Deep Groove Ball Bearing
Magnet			Sintered NdFeB	Sintered NdFeB	Sintered NdFeB	Sintered NdFeB
Shaft			Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel

Dimensional Drawings



Tourque Performance Curves



Note : All drawings are 1st Angle Projection - ISO Compliant (3D models available)

36ZWWC60

DINGS' Slotless Brushless DC Motor, 36ZWWC60 can avoid the pulsation of air gap magnetic induction caused by uneven magnetic resistance in the teeth.

It can eliminate the pulse loss in the armature core and the surface loss on the main pole surface.

36ZWWC60 Slotless Brushless DC Motor has high durability, low electrical noise and high efficiency.

Maximum efficiency of motor reaches 80% and this motor is suitable for the servo system which needs quick movement and high power.

36ZWWC60 Rated Power is 85W and Peak Torque is 722.82mN·m.

Motor Characteristics

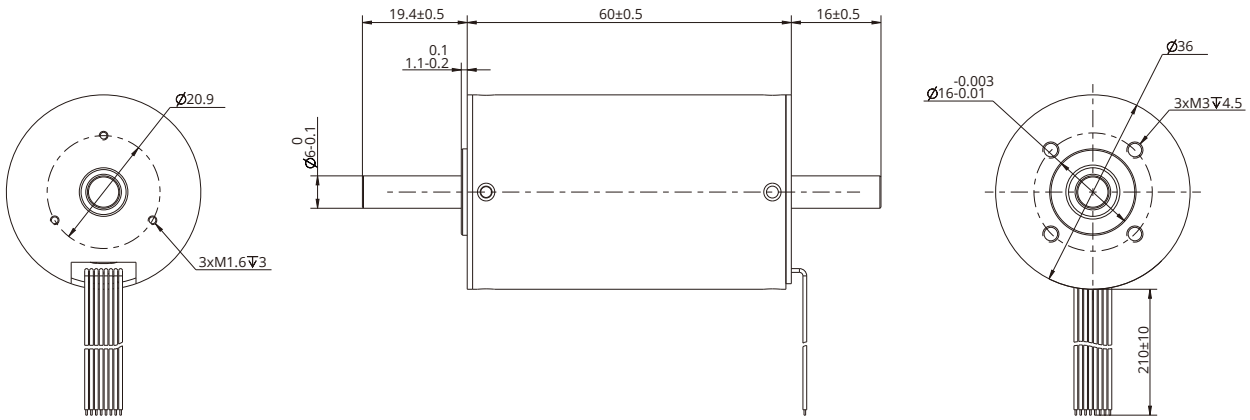
Motor Part Number			36ZWWC60			
General Information						
Dimension	Motor Length	mm	60	60	60	60
	Mounting Hole	mm	Φ36	Φ36	Φ36	Φ36
	Motor Shaft	mm	10	10	10	10
Pole Pairs		-	1	1	1	1
Phase Resistance		Ω	0.6	0.68	1.45	2.1
Phase Inductance		mH	0.08	0.1	0.19	0.27
Winding Connection		-	Star	Star	Star	Star
Insulation Class		-	B	B	B	B
Duty Type		-	S2	S2	S2	S2
Feedback Method		-	Hall Sensors	Hall Sensors	Hall Sensors	Hall Sensors
Commutation Angle		-	120°	120°	120°	120°
Insulation Strength (Withstand Voltage)		-	500VAC/1KHz/1mA/1s	500VAC/1KHz/1mA/1s	500VAC/1KHz/1mA/1s	500VAC/1KHz/1mA/1s
Insulation Resistance		-	100 MΩ/500VDC	100 MΩ/500VDC	100 MΩ/500VDC	100 MΩ/500VDC
Weight		g	270	270	270	270

Motor Characteristics

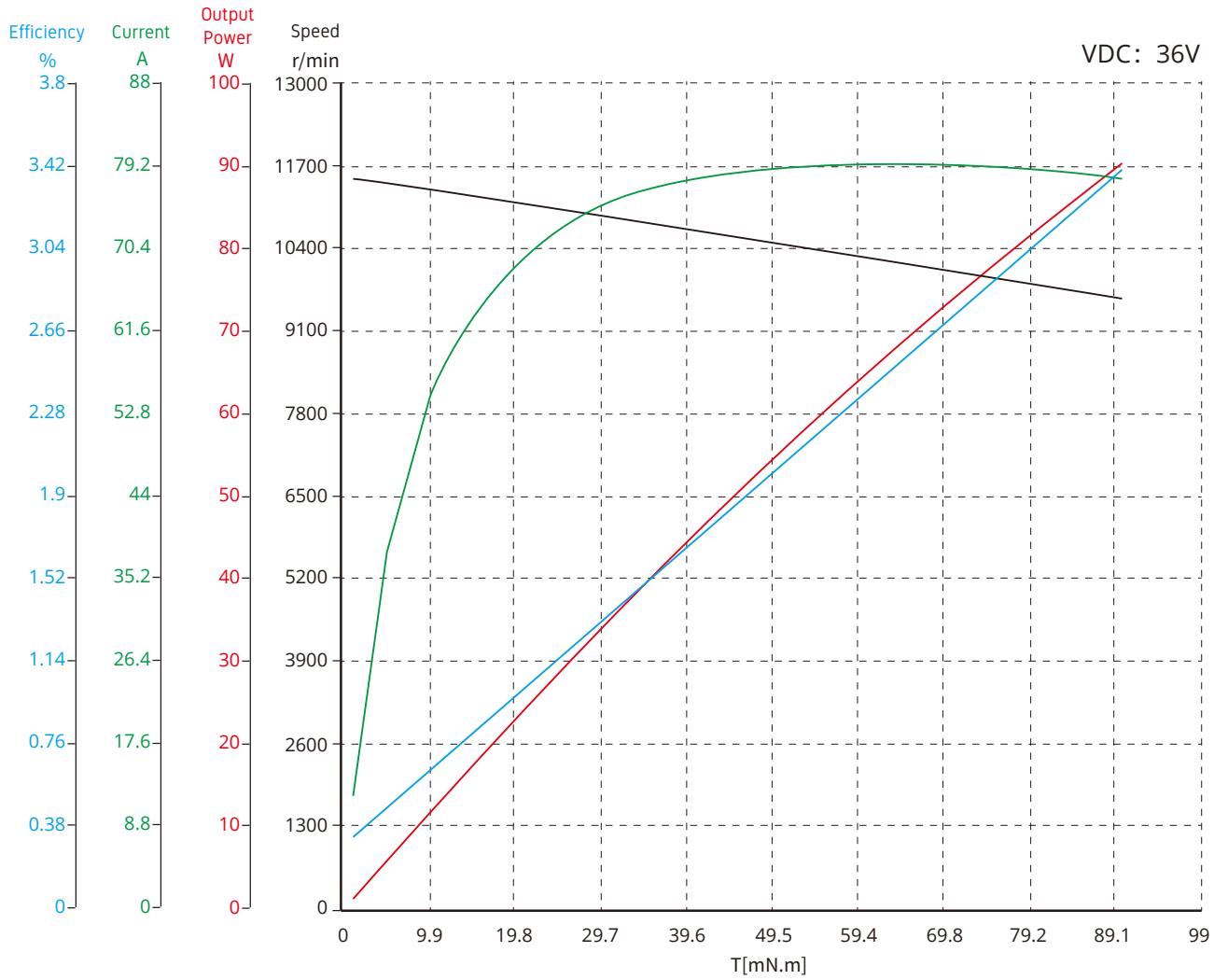
Motor Part Number			36ZWWC60			
Performance Parameters						
Rated Voltage		V	18	24	36	48
Rated Power		W	68	69	74	85
Rated Torque		mN·m	70	70	70	70
Rated Speed		RPM	7340	9345	10000	11700
Rated Current		A	4.97	3.78	2.59	2.21
No Load Speed		RPM	10000	11000	11500	13000
No Load Current		A	0.37	0.37	0.22	0.2
Motor Efficiency		%	76	76	79.5	80
Noise (Ambient noise 20db, test distance 1M)		dB	<50	<50	<50	<50
Thermal Parameters						
Enclosure - Ambient Thermal Resistance (No Load)		K/W	0.42	0.43	0.44	0.36
Motor Thermal Time Constant (No Load)		S	1350	1350	2700	1080
Ambient Temperature		℃	21.1	23.1	20.1	20.4
Maximum Winding Temperature (No Load)		℃	49.4	52.9	52.8	50.8
Motor Constant Coefficient						
Torque Constant		mN·m/A	14.08	18.50	27.07	31.62
Back-EMF Constant	Peak Value	V/Krpm	2.09	2.74	4.01	4.68
	Effective Value	V/Krpm	1.47	1.94	2.83	3.31
Calculated Value						
Peak Torque		mN·m	422.47	653.09	672.16	722.82
Peak Current		A	30	35	25	23
Inertia Moment		g·cm²	39	39	39	39
Mechanical Time Constant		mS	11.80	7.75	7.72	8.19
Material						
End Cover			Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
Bearing			Deep Groove Ball Bearing	Deep Groove Ball Bearing	Deep Groove Ball Bearing	Deep Groove Ball Bearing
Magnet			Sintered NdFeB	Sintered NdFeB	Sintered NdFeB	Sintered NdFeB
Shaft			Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel

36ZWWC60

Dimensional Drawings



Tourque Performance Curves



Note : All drawings are 1st Angle Projection - ISO Compliant (3D models available)

42ZWWC80

DINGS' Slotless Brushless DC Motor, 42ZWWC80 can avoid the pulsation of air gap magnetic induction caused by uneven magnetic resistance in the teeth.

It can eliminate the pulse loss in the armature core and the surface loss on the main pole surface.

42ZWW80 Slotless Brushless DC Motor has high durability, low electrical noise and high efficiency.

Maximum efficiency of motor reaches 80% and this motor is suitable for the servo system which needs quick movement and high power.

42ZWWC80 Rated Power is 160W and Peak Torque is 1455.16mN·m.

Motor Characteristics

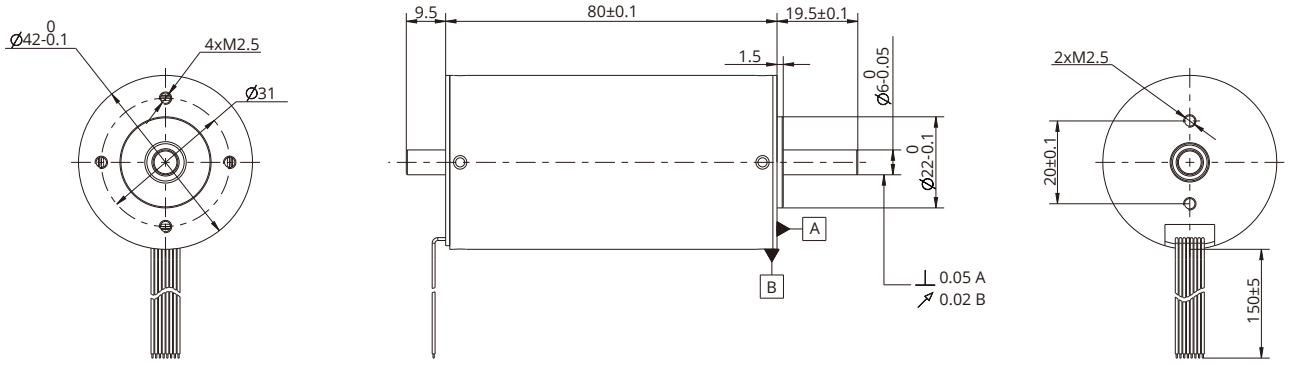
Motor Part Number			42ZWWC80			
General Information						
Dimension	Motor Length	mm	80	80	80	80
	Mounting Hole	mm	Φ42	Φ42	Φ42	Φ42
	Motor Shaft	mm	18	18	18	18
Pole Pairs		-	1	1	1	1
Phase Resistance		Ω	0.4	0.45	0.6	0.95
Phase Inductance		mH	0.085	0.14	0.14	0.23
Winding Connection		-	Star	Star	Star	Star
Insulation Class		-	B	B	B	B
Duty Type		-	S2	S2	S2	S2
Feedback Method		-	Hall Sensors	Hall Sensors	Hall Sensors	Hall Sensors
Commutation Angle		-	120°	120°	120°	120°
Insulation Strength (Withstand Voltage)		-	500VAC/1KHz/1mA/1s	500VAC/1KHz/1mA/1s	500VAC/1KHz/1mA/1s	500VAC/1KHz/1mA/1s
Insulation Resistance		-	100 MΩ/500VDC	100 MΩ/500VDC	100 MΩ/500VDC	100 MΩ/500VDC
Weight		g	500	500	500	500

42ZWWC80

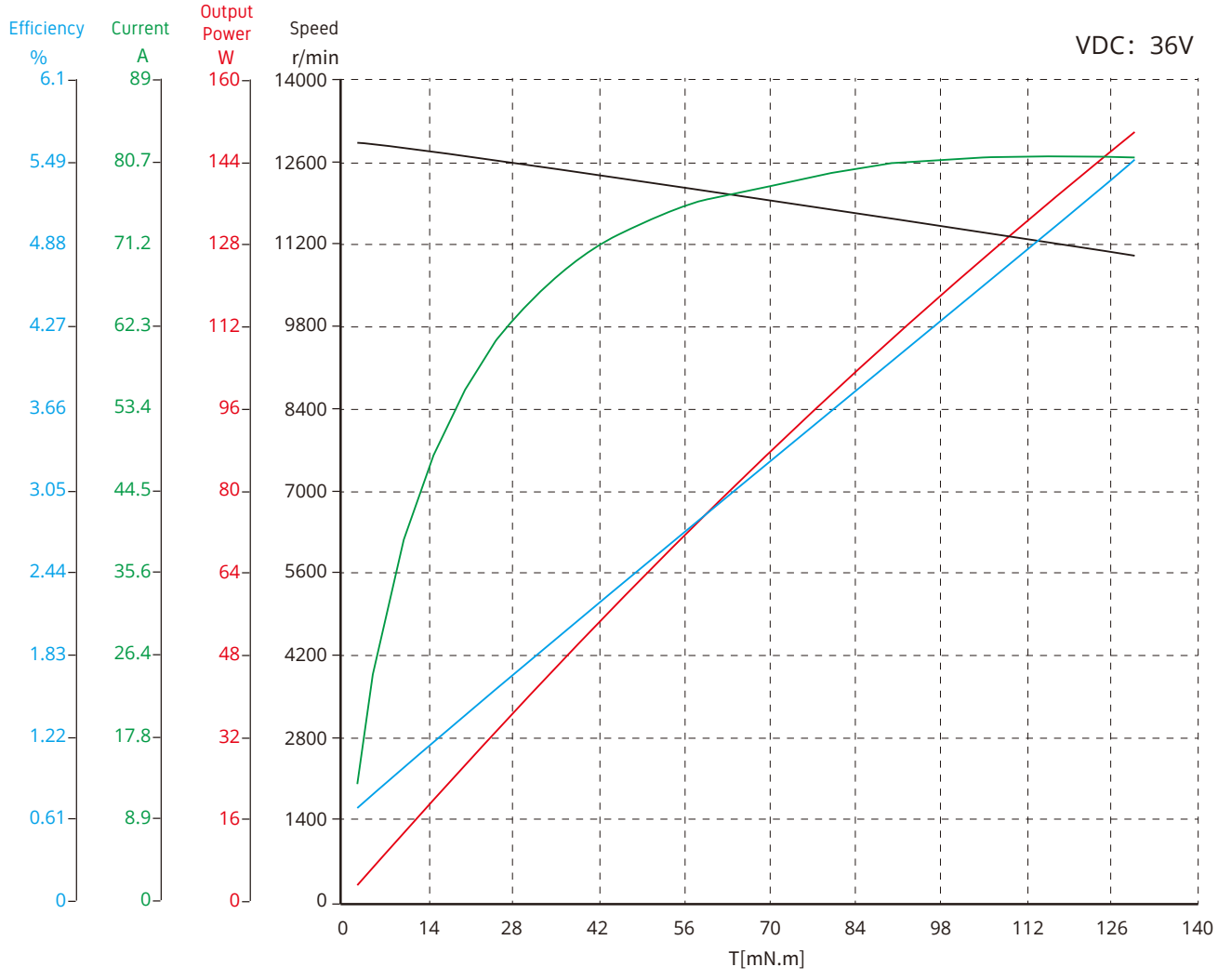
Motor Characteristics

Motor Part Number			42ZWWC80			
Performance Parameters						
Rated Voltage		V	18	24	36	48
Rated Power		W	66	80	100	160
Rated Torque		mN·m	90	90	90	120
Rated Speed		RPM	6678	8346	11619	12200
Rated Current		A	4.89	4.17	3.47	4.17
No Load Speed		RPM	9000	11000	13000	13800
No Load Current		A	0.6	0.69	0.6	0.58
Motor Efficiency		%	75	80	80	80
Noise (Ambient noise 20db, test distance 1M)		dB	<50	<50	<50	<50
Thermal Parameters						
Enclosure - Ambient Thermal Resistance (No Load)		K/W	0.43	0.50	0.67	0.26
Motor Thermal Time Constant (No Load)		S	900	1620	2040	2040
Ambient Temperature		℃	23.1	23.5	23	23
Maximum Winding Temperature (No Load)		℃	51.5	63.7	90	90
Motor Constant Coefficient						
Torque Constant		mN·m/A	18.41	21.60	25.92	28.80
Back-EMF Constant	Peak Value	V/Krpm	2.73	3.20	3.84	4.26
	Effective Value	V/Krpm	1.93	2.26	2.71	3.02
Calculated Value						
Peak Torque		mN·m	828.41	1152.00	1555.20	1455.16
Peak Current		A	45	53	60	51
Inertia Moment		g·cm²	96.3	96.3	96.3	96.3
Mechanical Time Constant		mS	11.37	9.29	8.60	11.03
Material						
End Cover			Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
Bearing			Deep Groove Ball Bearing	Deep Groove Ball Bearing	Deep Groove Ball Bearing	Deep Groove Ball Bearing
Magnet			Sintered NdFeB	Sintered NdFeB	Sintered NdFeB	Sintered NdFeB
Shaft			Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel

Dimensional Drawings



Tourque Performance Curves

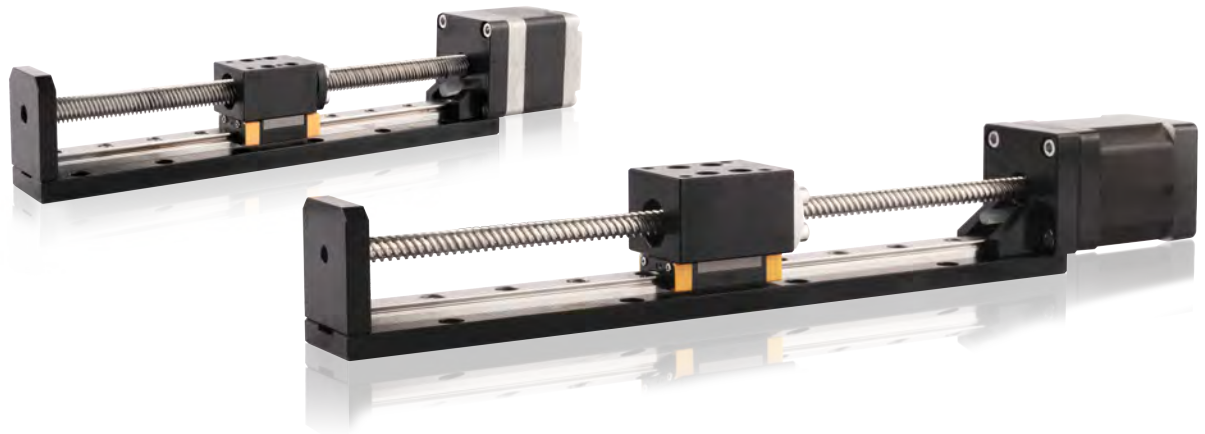


Note : All drawings are 1st Angle Projection - ISO Compliant (3D models available)

F DLM Series

Based on DINGS' platform products, high precision of lead screw linear actuator and self-developed simple linear module, DLM series is compact and reliable structure of linear solution.

DLM Series is good precision, high diversity of optional stroke and lead based customization linear module which can provide customers with integrated customization solutions.



Part Number Construction

DLM 100 - 17 E 2 1 10 S 4 - EK5D-001

1 2 3 4 5 6 7 8 9 10 11

① DLM Series / Linear Module

② Stroke (mm)
100 = 100mm

③ Motor Size

Code	08	11	14	17	23
Motor Size	20	28	35	42	57

④ Motor Type
E = External Linear Actuator

⑤ Step Angle
2 = 2 Phase with 1.8°
4 = 2 Phase with 0.9°

⑥ Motor Length / Stack
1 = Single stack
2 = Double stack

⑦ Rated Current / Phase
XX = X.X (A) / Phase

⑧ Lead Screw Code

⑨ Number of Lead Wires
4 = 4 Flying leads
6 = 6 Flying leads

⑩ Encoder Option
EKX, KPLX = Encoder [XX = Encoder Code]
P = Manual Knob
B = Brake
X = Rear Shaft
R = Encoder Ready
C = Customize
N = None

⑪ Customer Sequence Number

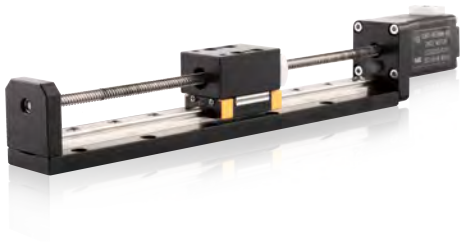
Example

Part Number	DLM100-17E2110S4-EK5D-001
Description	Linear Module 100mm Stroke NEMA 17 External Linear Actuator 2 Phase / 1.8° Stepper Single Stack 1.0A / Phase S Lead (0.25" or 6.35mm) 4 Flying Wires EK5 Encoder with differential output 1,000 lines Serial Number 001

Size 20mm DLM

Based on DINGS' platform products, high precision of lead screw linear actuator and self-developed simple linear module, DLM 20mm series is compact and reliable structure of linear solution.

DLM 20mm Series is good precision, high diversity of optional stroke and lead based customization linear module which can provide customers with integrated customization solutions.



Motor Characteristics

Motor	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Motor Length (mm)	Lead Wire No.
8E2105	2.5	0.5	5.1	1.5	27.2	4
8E2205	4.4	0.5	8.8	2.7	38.1	4

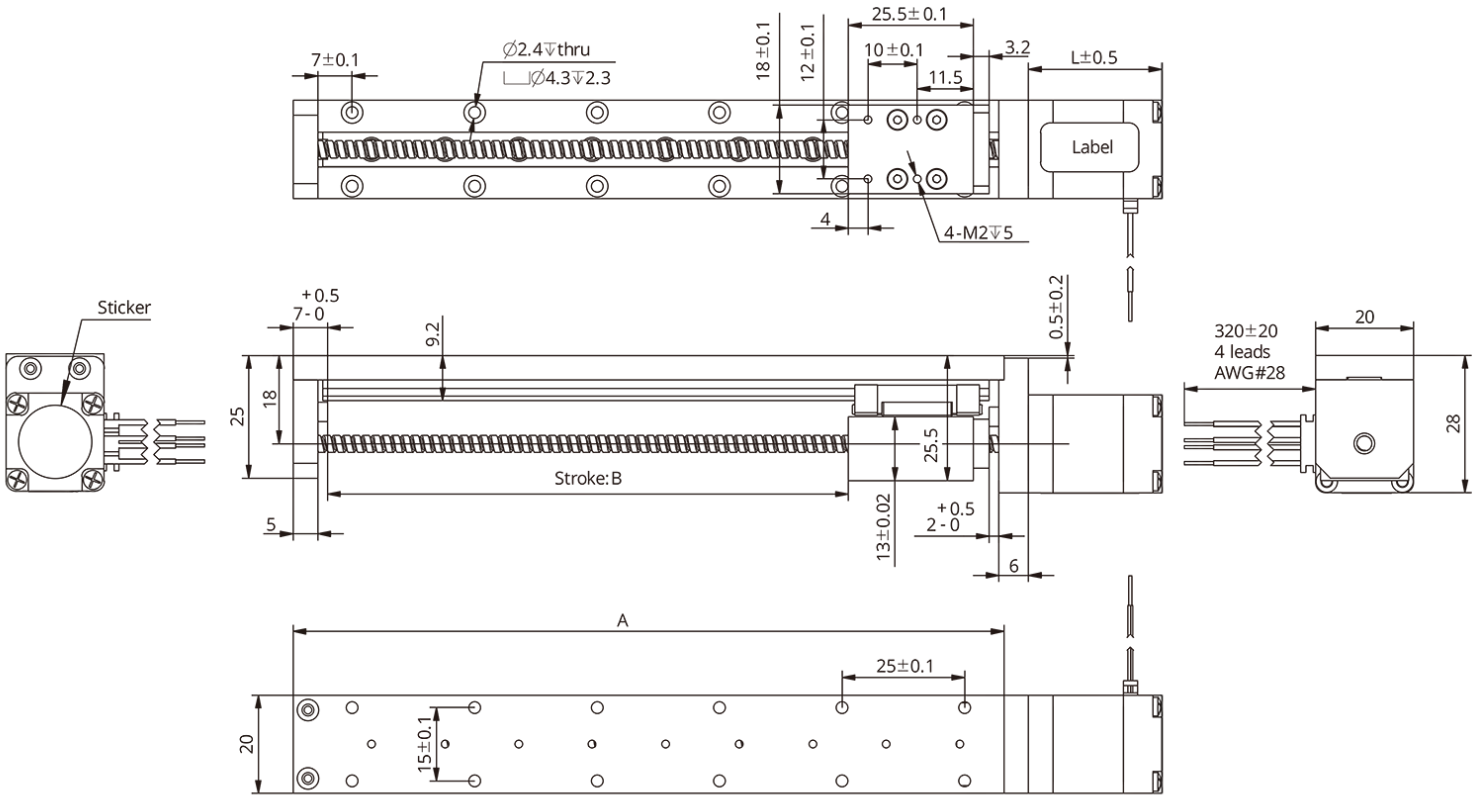
Available Lead Screw and Travel per Step

Screw Dia. (inch)	Screw Dia. (mm)	Lead (inch)	Lead (mm)	Lead Code	Travel Per Step @ 1.8 °(mm)
0.138	3.5	0.0118	0.3	AF	0.0015
0.138	3.5	0.024	0.6096	AA	0.003048
0.138	3.5	0.0394	1	AB	0.005
0.138	3.5	0.048	1.2192	B	0.006096
0.138	3.5	0.787	2	G	0.01
0.138	3.5	0.1575	4	M	0.02
0.138	3.5	0.315	8	T	0.04

Mechanical Specifications

Model	C_{100B}(dyn)(N)	Co(stat)(N)	Mro(Nm)	Mpo(Nm)	Myo(Nm)
DLM 20	445	720	2.6	1.65	1.65

Dimensional Drawings



Available Stroke Selection

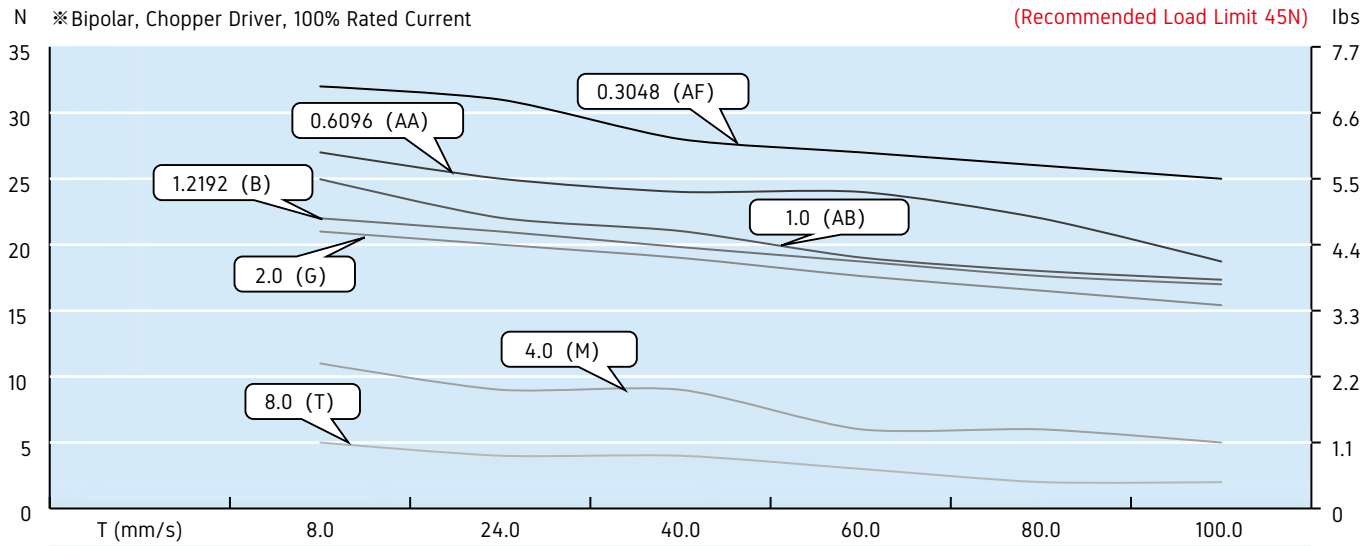
Size A	Stroke B	Motor Length L (mm)
60	20	
80	40	
100	60	
120	80	
140	100	
160	120	
190	150	

For stroke customization, please contact DINGS' or local representative.

Size 20mm DLM

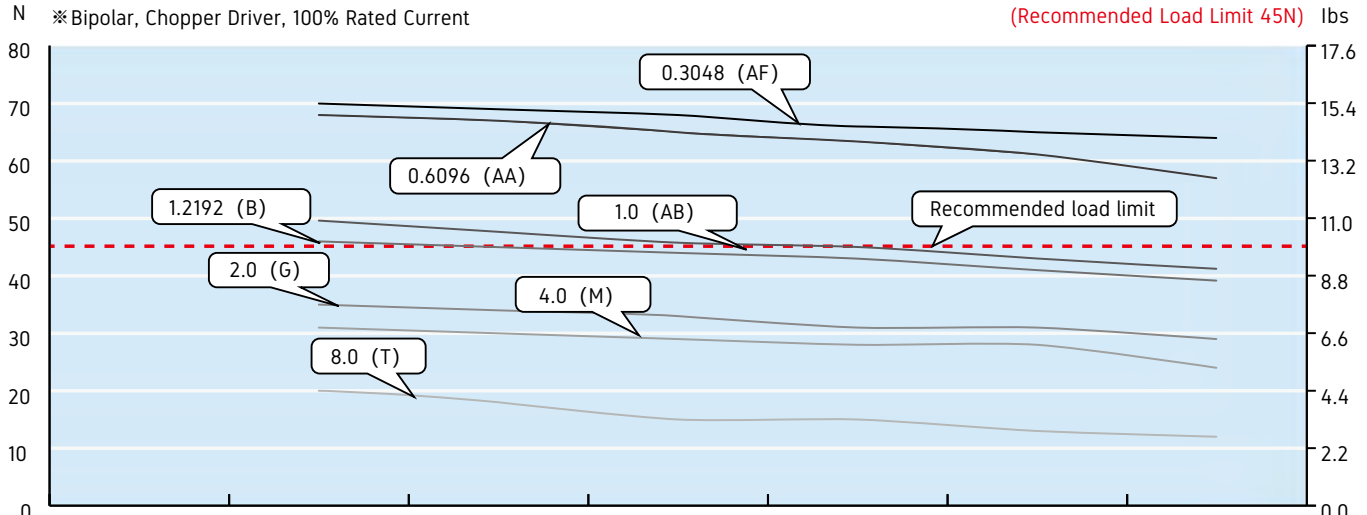
Speed Thrust Curves

Size 8 Single Stack Speed Thrust Curves



T (mm/s)	8.0	24.0	40.0	60.0	80.0	100.0
M (mm/s)	4.0	12.0	20.0	30.0	40.0	50.0
G (mm/s)	2.0	6.0	10.0	15.0	20.0	25.0
B (mm/s)	1.2	3.7	6.1	9.1	12.2	15.2
AB (mm/s)	1.0	3.0	5.0	7.5	10.0	12.5
AA (mm/s)	0.6	1.8	3.1	4.6	6.1	7.6
AF (mm/s)	0.3	0.9	1.5	2.3	3.0	3.8
RPM r/min	60	180	300	450	600	750
PPS	200	600	1000	1500	2000	2500

Size 8 Double Stack Speed Thrust Curves



T (mm/s)	8.0	24.0	40.0	60.0	80.0	100.0
M (mm/s)	4.0	12.0	20.0	30.0	40.0	50.0
G (mm/s)	2.0	6.0	10.0	15.0	20.0	25.0
B (mm/s)	1.2	3.7	6.1	9.1	12.2	15.2
AB (mm/s)	1.0	3.0	5.0	7.5	10.0	12.5
AA (mm/s)	0.6	1.8	3.0	4.6	6.1	7.6
AF (mm/s)	0.3	0.9	1.5	2.3	3.0	3.8
RPM r/min	60	180	300	450	600	750
PPS	200	600	1000	1500	2000	2500

TEST CONDITION

Testing Voltage: 24Vdc, Driver Model: DS-OLS2-FPD bipolar, chopper driver at rated current (rms). Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

Size 28mm DLM

Based on DINGS' platform products, high precision of lead screw linear actuator and self-developed simple linear module, DLM 28mm series is compact and reliable structure of linear solution.

DLM 28mm Series is good precision, high diversity of optional stroke and lead based customization linear module which can provide customers with integrated customization solutions.

Motor Characteristics

Motor	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Motor Length (mm)	Lead Wire No.
11E2105	4.55	0.5	9.1	6.0	33.35	4
11E2110	2.1	1.0	2.1	1.5	33.35	4
11E2210	3.9	0.95	4.1	4.0	45	4
11E2216	2.4	1.6	1.5	1.3	45	4

Available Lead Screw and Travel per Step

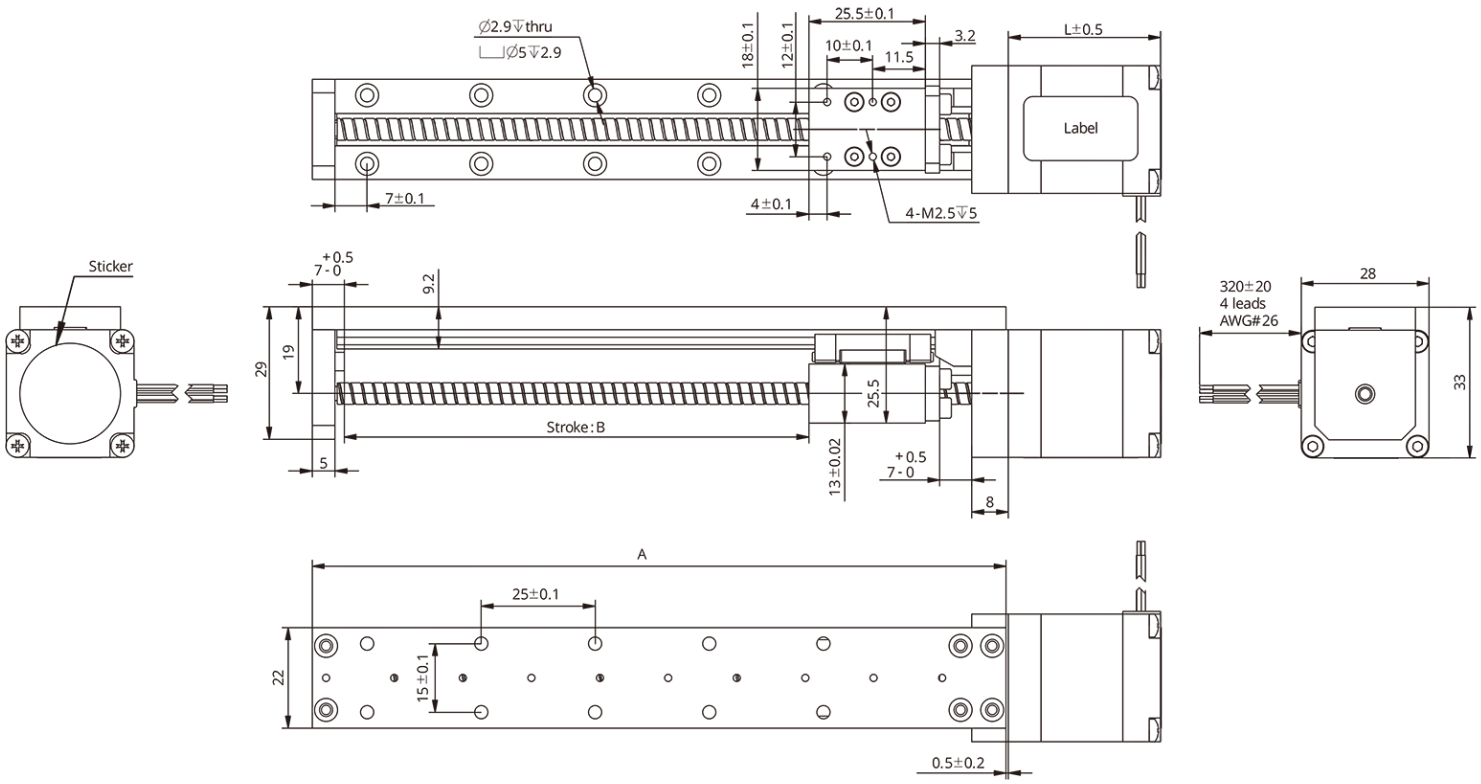
Screw Dia. (inch)	Screw Dia. (mm)	Lead (inch)	Lead (mm)	Lead Code	Travel Per Step @ 1.8 °(mm)
0.188	4.77	0.0125	0.3175	AL	0.0016
0.188	4.77	0.025	0.635	A	0.003175
0.188	4.77	0.05	1.27	D	0.00635
0.188	4.77	0.1	2.54	K	0.0127
0.188	4.77	0.2	5.08	R	0.0254
0.188	4.77	0.4	10.16	X	0.0508

Mechanical Specifications

Model	C_{100B}(dyn)(N)	Co(stat)(N)	Mro(Nm)	Mpo(Nm)	Myo(Nm)
DLM 28	445	720	2.6	1.65	1.65

Size 28mm DLM

Dimensional Drawings



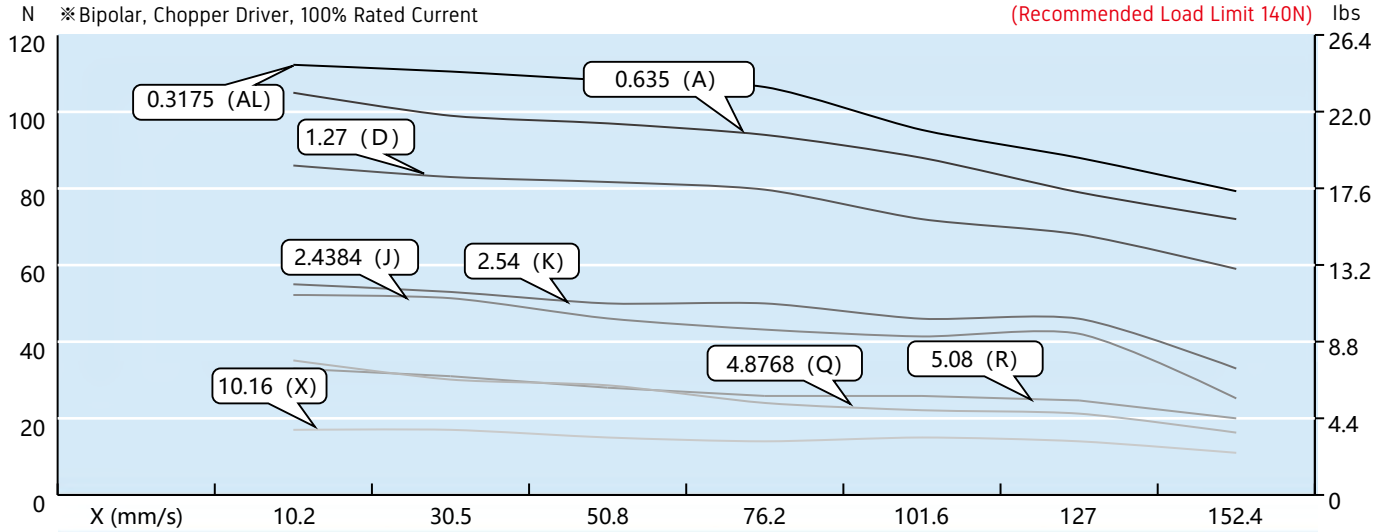
Available Stroke Selection

Size A	Stroke B	Motor Length L (mm)
72	20	
92	40	
112	60	
132	80	
152	100	
202	150	
252	200	
302	250	

For stroke customization, please contact DINGS' or local representative.

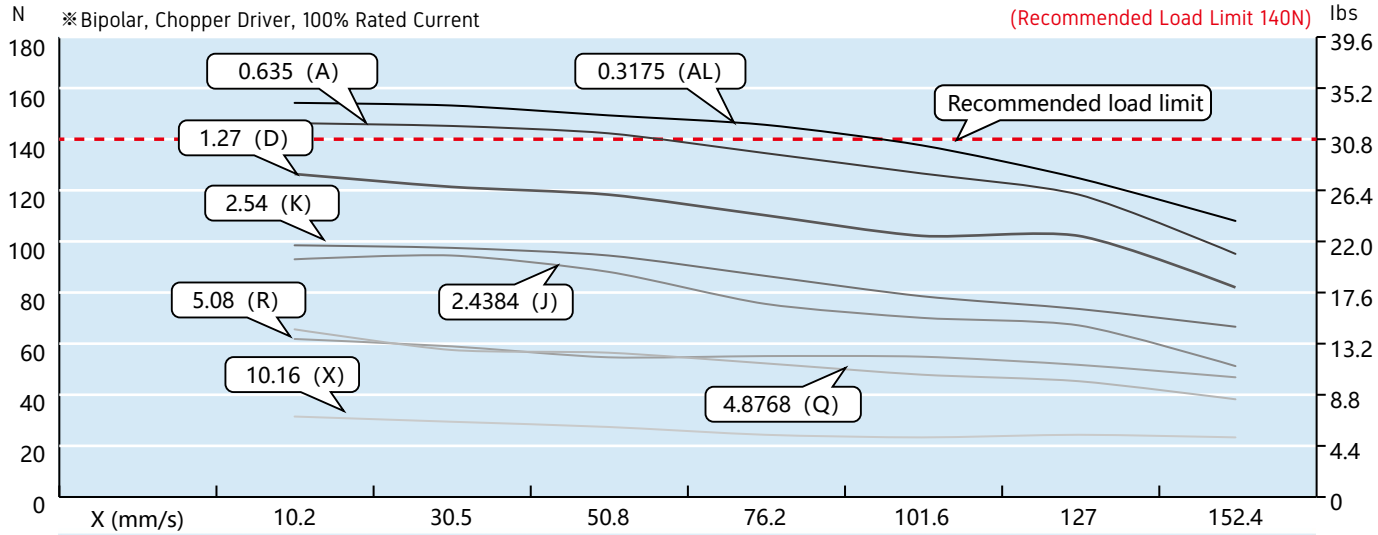
Speed Thrust Curves

Size 11 Single Stack Speed Thrust Curves



X (mm/s)	10.2	30.5	50.8	76.2	101.6	127	152.4
R (mm/s)	5.1	15.2	25.4	38.1	50.8	63.5	76.2
Q (mm/s)	4.9	14.6	24.4	36.6	48.8	61.0	73.2
K (mm/s)	2.5	7.6	12.7	19.1	25.4	31.8	38.1
J (mm/s)	2.4	7.3	12.2	18.3	24.4	30.5	36.6
D (mm/s)	1.3	3.8	6.4	9.5	12.7	15.9	19.1
A (mm/s)	0.6	1.9	3.2	4.8	6.4	7.9	9.5
AL (mm/s)	0.3	1.0	1.6	2.4	3.2	4.0	9.5
RPM r/min	60	180	300	450	600	750	900
PPS	200	600	1000	1500	2000	2500	3000

Size 11 Double Stack Speed Thrust Curves



X (mm/s)	10.2	30.5	50.8	76.2	101.6	127	152.4
R (mm/s)	5.1	15.2	25.4	38.1	50.8	63.5	76.2
Q (mm/s)	4.9	14.6	24.4	36.6	48.8	61.0	73.2
K (mm/s)	2.5	7.6	12.7	19.1	25.4	31.8	38.1
J (mm/s)	2.4	7.3	12.2	18.3	24.4	30.5	36.6
D (mm/s)	1.3	3.8	6.3	9.5	12.7	15.9	19.1
A (mm/s)	0.6	1.9	3.2	4.8	6.4	7.9	9.5
AL (mm/s)	0.3	1.0	1.6	2.4	3.2	4.0	4.8
RPM r/min	60	180	300	450	600	750	900
PPS	200	600	1000	1500	2000	2500	3000

TEST CONDITION

Testing Voltage: 24Vdc, Driver Model: DS-OLS2-FPD bipolar, chopper driver at rated current (rms). Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

Size 35mm DLM

Based on DINGS' platform products, high precision of lead screw linear actuator and self-developed simple linear module, DLM 35mm series is compact and reliable structure of linear solution.

DLM 35mm Series is good precision, high diversity of optional stroke and lead based customization linear module which can provide customers with integrated customization solutions.

Motor Characteristics

Motor	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Motor Length (mm)	Lead Wire No.
14E2105	6.6	0.5	13.2	14	33.6	4
14E2110	3.5	1.0	3.5	3.6	33.6	4
14E2115	2.7	1.5	1.8	1.9	33.6	4
14E2205	12.0	0.5	24.0	29	45.6	4
14E2210	6.0	1.0	6.0	7.2	45.6	4
14E2215	4.0	1.5	2.7	3.2	45.6	4

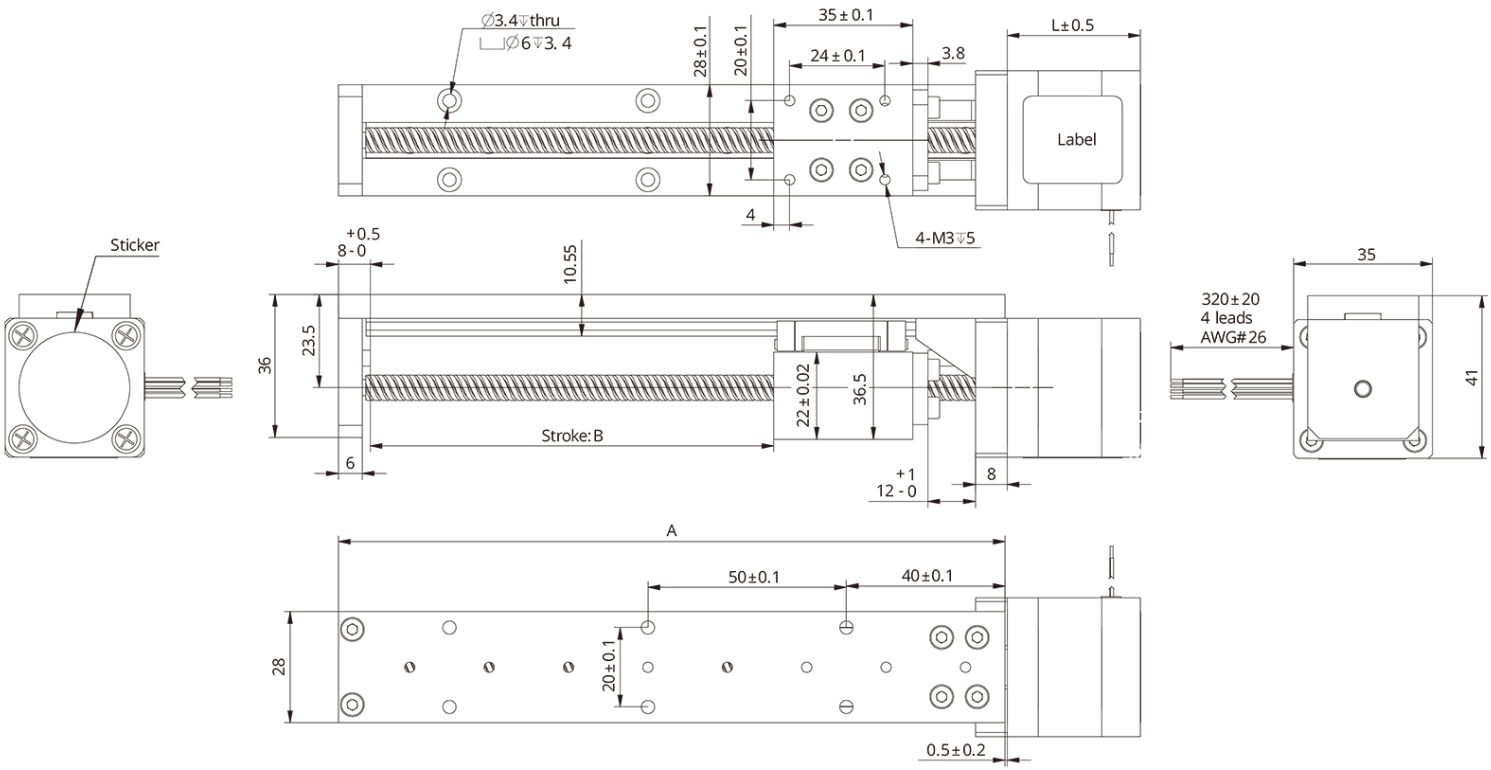
Available Lead Screw and Travel per Step

Screw Dia. (inch)	Screw Dia. (mm)	Lead (inch)	Lead (mm)	Lead Code	Travel Per Step @ 1.8 °(mm)
0.25	6.35	0.024	0.6096	AA	0.003048
0.25	6.35	0.0394	1.0	AB	0.005
0.25	6.35	0.048	1.2192	B	0.006096
0.25	6.35	0.05	1.27	D	0.00635
0.25	6.35	0.0625	1.5875	F	0.0079
0.25	6.35	0.096	2.4384	J	0.0122
0.25	6.35	0.1	2.54	K	0.0127
0.25	6.35	0.125	3.175	L	0.0159
0.25	6.35	0.192	4.8768	Q	0.024
0.25	6.35	0.2	5.08	R	0.0254
0.25	6.35	0.25	6.35	S	0.0318
0.25	6.35	0.333	8.4667	U	0.0423
0.25	6.35	0.384	9.7536	W	0.0488
0.25	6.35	0.5	12.7	Y	0.0635
0.25	6.35	1	25.4	Z	0.127
0.31	8	0.1575	4	M	0.02
0.31	8	0.315	8	T	0.04
0.31	8	0.0787	2	G	0.01

Mechanical Specifications

Model	C_{100B}(dyn)(N)	Co(stat)(N)	Mro(Nm)	Mpo(Nm)	Myo(Nm)
DLM 35	785	1247.5	5.85	3.2	3.2

Dimensional Drawings



Available Stroke Selection

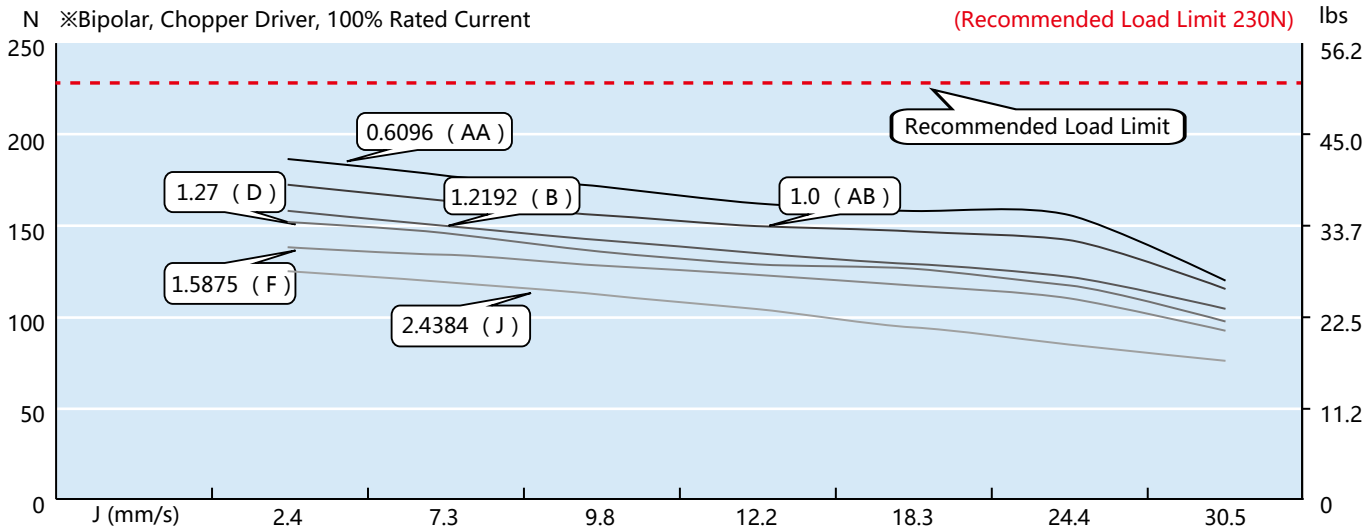
Size A	Stroke B	Motor Length L (mm)
118	50	
168	100	
218	150	
268	200	
318	250	
368	300	
418	350	
468	400	

For stroke customization, please contact DINGS' or local representative.

Size 35mm DLM

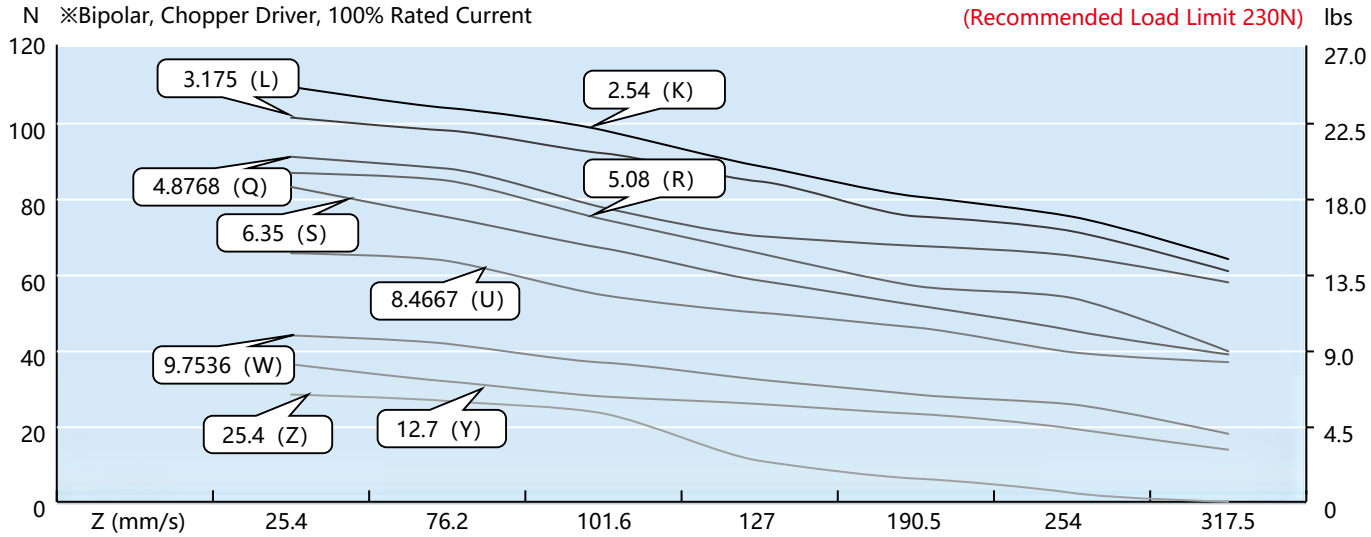
Speed Thrust Curves

Size 14 Single Stack Speed Thrust Curves



J (mm/s)	2.4	7.3	9.8	12.2	18.3	24.4	30.5
F (mm/s)	1.6	4.8	6.4	7.9	11.9	15.9	19.8
D (mm/s)	1.3	3.8	5.1	6.4	9.5	12.7	15.9
B (mm/s)	1.2	3.7	4.9	6.1	9.1	12.2	15.2
AB (mm/s)	1.0	3.0	4.0	5.0	7.5	10.0	12.5
AA (mm/s)	0.6	1.8	2.4	3.0	4.6	6.1	7.6
RPM r/min	60	180	240	300	450	600	750
PPS	200	600	800	1000	1500	2000	2500

Size 14 Single Stack Speed Thrust Curves



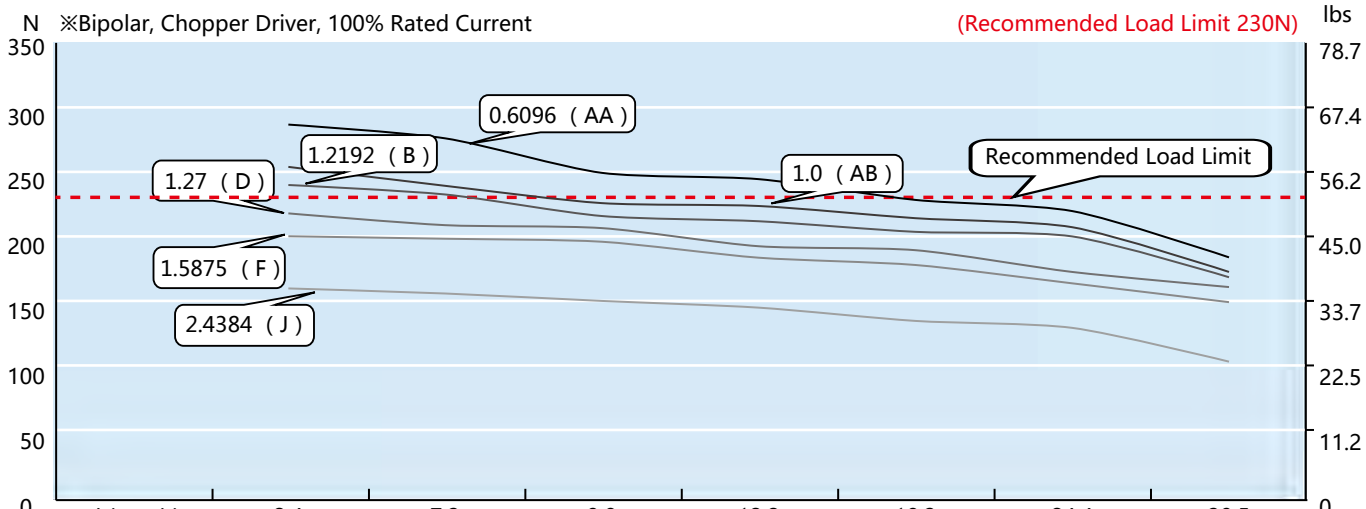
Z (mm/s)	25.4	76.2	101.6	127	190.5	254	317.5
Y (mm/s)	12.7	38.1	50.8	63.5	95.3	127.0	158.8
W (mm/s)	9.8	29.3	39.0	48.8	73.2	97.5	121.9
U (mm/s)	8.4667	25.4	25.4	42.3	63.5	84.7	105.8
S (mm/s)	6.35	19.1	25.4	31.8	47.6	63.5	79.4
R (mm/s)	5.08	15.2	20.3	25.4	38.1	50.8	63.5
Q (mm/s)	4.877	14.6	19.5	24.4	36.6	48.8	61.0
L (mm/s)	3.175	9.5	12.7	15.9	23.8	31.8	39.7
K (mm/s)	2.546	7.6	10.2	12.7	19.1	25.4	31.8
RPM r/min	60	180	240	300	450	600	750
PPS	200	600	800	1000	1500	2000	2500

TEST CONDITION

Testing Voltage: 24Vdc, Driver Model: DS-OLS2-FPD bipolar, chopper driver at rated current (rms). Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

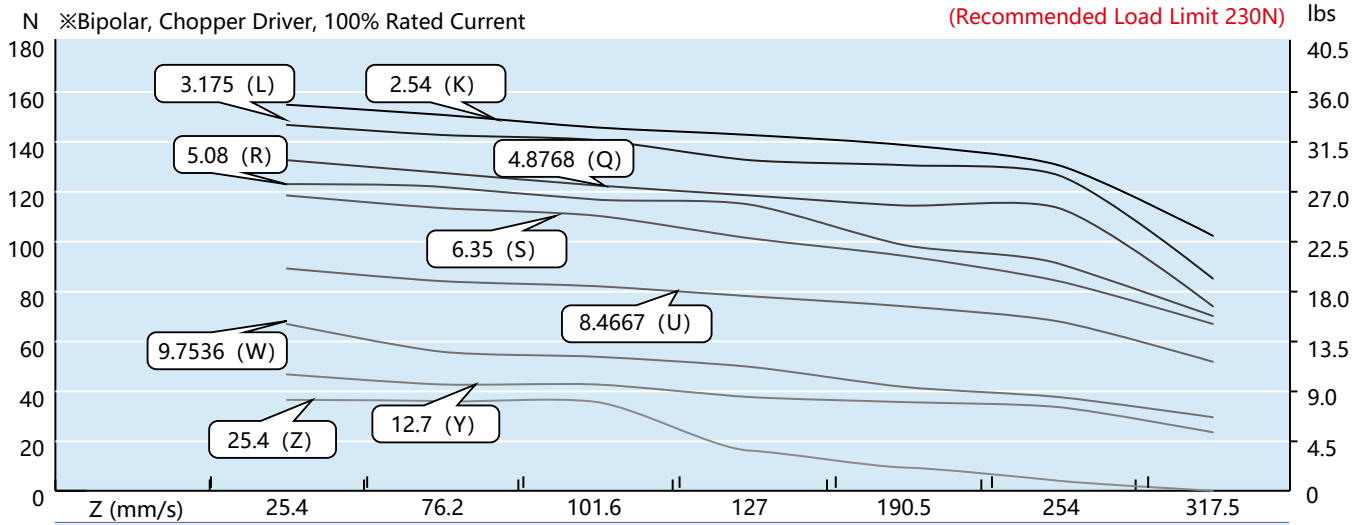
Speed Thrust Curves

Size 14 Double Stack Speed Thrust Curves



J (mm/s)	2.4	7.3	9.8	12.2	18.3	24.4	30.5
F (mm/s)	1.6	4.8	6.4	7.9	11.9	15.9	19.8
D (mm/s)	1.3	3.8	5.1	6.4	9.5	12.7	15.9
B (mm/s)	1.2	3.7	4.9	6.1	9.1	12.2	15.2
AB (mm/s)	1.0	3.0	4.0	5.0	7.5	10.0	12.5
AA (mm/s)	0.6	1.8	2.4	3.0	4.6	6.1	7.6
RPM r/min	60	180	240	300	450	600	750
PPS	200	600	800	1000	1500	2000	2500

Size 14 Double Stack Speed Thrust Curves



Z (mm/s)	25.4	76.2	101.6	127	190.5	254	317.5
Y (mm/s)	12.7	38.1	50.8	63.5	95.3	127.0	158.8
W (mm/s)	9.8	29.3	39.0	48.8	73.2	97.5	121.9
U (mm/s)	8.5	25.4	25.4	42.3	63.5	84.7	105.8
S (mm/s)	6.4	19.1	25.4	31.8	47.6	63.5	79.4
R (mm/s)	5.1	15.2	20.3	25.4	38.1	50.8	63.5
Q (mm/s)	4.9	14.6	19.5	24.4	36.6	48.8	61.0
L (mm/s)	3.2	9.5	12.7	15.9	23.8	31.8	39.7
K (mm/s)	2.5	7.6	10.2	12.7	19.1	25.4	31.8
RPM r/min	60	180	240	300	450	600	750
PPS	200	600	800	1000	1500	2000	2500

TEST CONDITION

Testing Voltage: 24Vdc, Driver Model: DS-OLS2-FPD bipolar, chopper driver at rated current (rms). Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

Size 42mm DLM

Based on DINGS' platform products, high precision of lead screw linear actuator and self-developed simple linear module, DLM 42mm series is compact and reliable structure of linear solution.

DLM 42mm Series is good precision, high diversity of optional stroke and lead based customization linear module which can provide customers with integrated customization solutions.

MotorCharacteristics

Motor	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Motor Length (mm)	Lead Wire No.
17E2105	7.2	0.5	14.4	19.8	34.1	4
17E2110	3.8	1.0	3.8	5.0	34.1	4
17E2115	2.85	1.5	1.9	2.2	34.1	4
17E2205	11.0	0.5	22.0	46	48.1	4
17E2212	4.5	1.2	3.8	8.0	48.1	4
17E2225	2.5	2.5	1.0	1.8	48.1	4

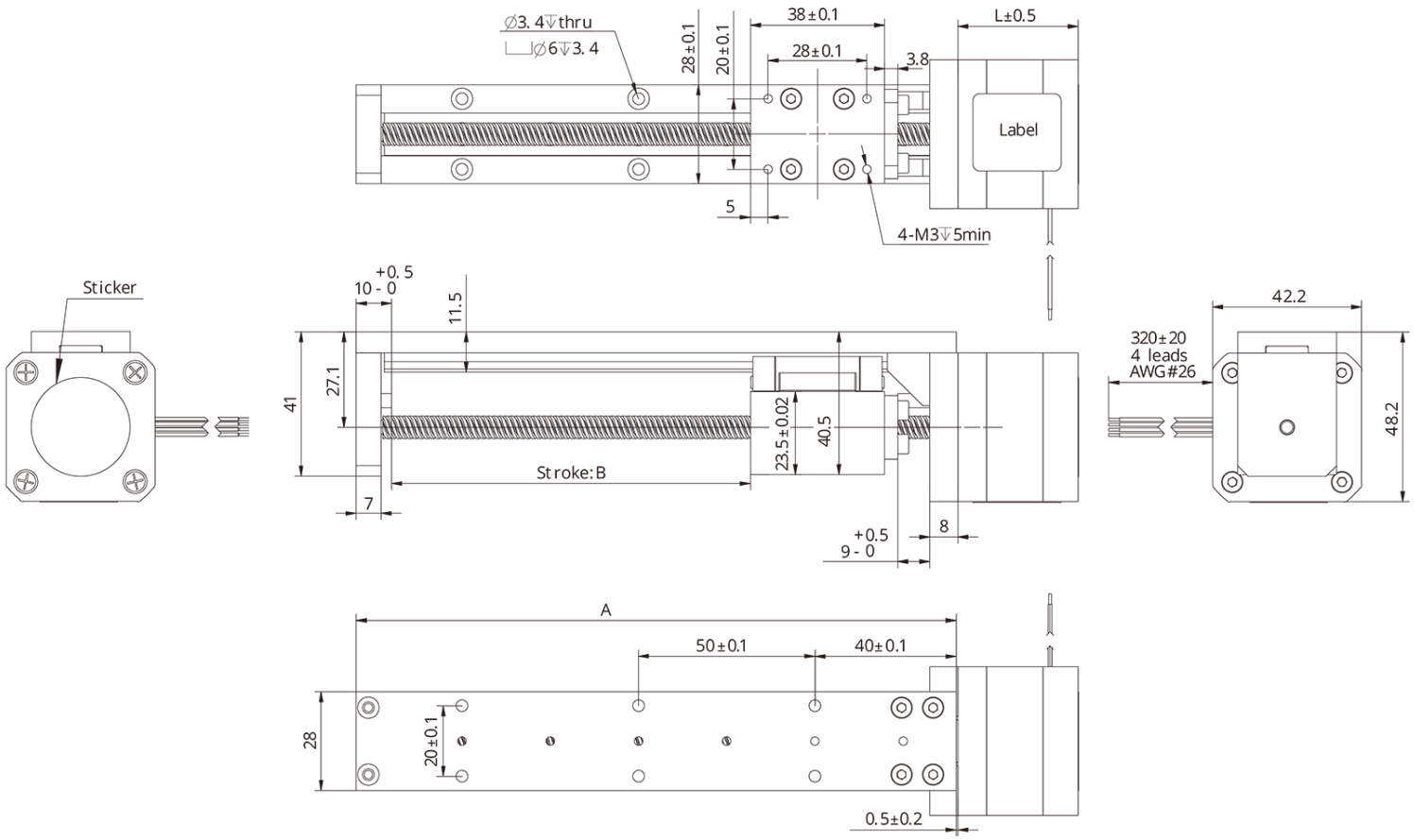
Available Lead Screw and Travel per Step

Screw Dia. (inch)	Screw Dia. (mm)	Lead (inch)	Lead (mm)	Lead Code	Travel Per Step @ 1.8 °(mm)
0.25	6.35	0.024	0.6096	AA	0.003048
0.25	6.35	0.0394	1.0	AB	0.005
0.25	6.35	0.048	1.2192	B	0.006096
0.25	6.35	0.05	1.27	D	0.00635
0.25	6.35	0.0625	1.5875	F	0.0079
0.25	6.35	0.096	2.4384	J	0.0122
0.25	6.35	0.1	2.54	K	0.0127
0.25	6.35	0.125	3.175	L	0.0159
0.25	6.35	0.192	4.8768	Q	0.024
0.25	6.35	0.2	5.08	R	0.0254
0.25	6.35	0.25	6.35	S	0.0318
0.25	6.35	0.333	8.4667	U	0.0423
0.25	6.35	0.384	9.7536	W	0.0488
0.25	6.35	0.5	12.7	Y	0.0635
0.25	6.35	1	25.4	Z	0.127
0.31	8	0.1575	4	M	0.02
0.31	8	0.315	8	T	0.04
0.31	8	0.0787	2	G	0.01

Mechanical Specifications

Model	C_{100B}(dyn)(N)	Co(stat)(N)	Mro(Nm)	Mpo(Nm)	Myo(Nm)
DLM 42	1154	1732.5	10.75	6.45	6.45

Dimensional Drawings



Available Stroke Selection

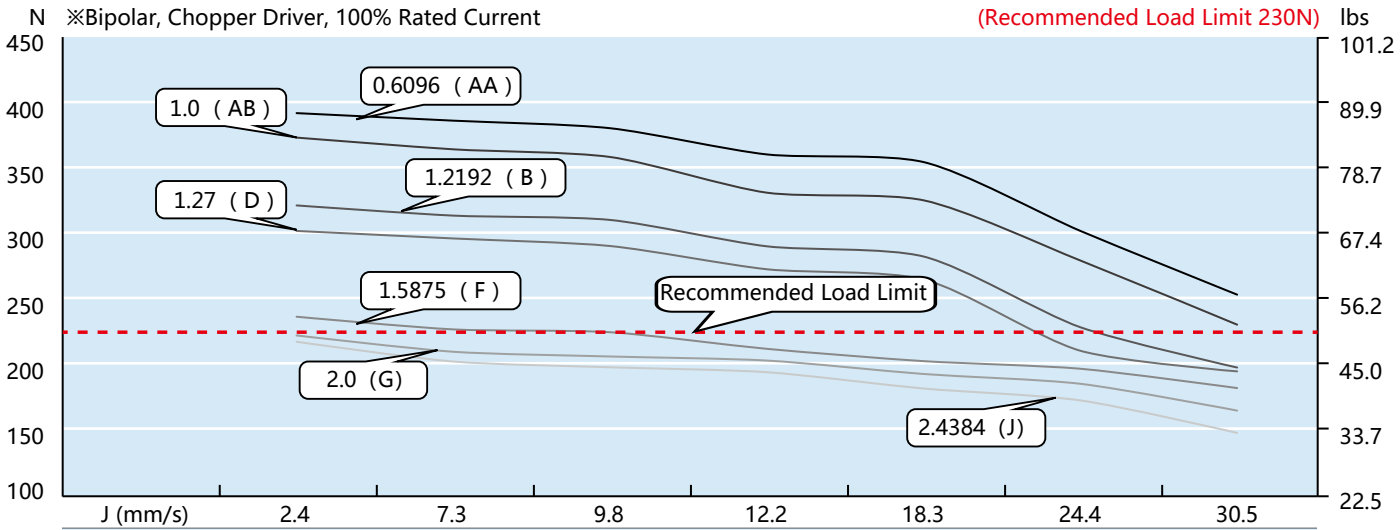
Size A	Stroke B	Motor Length L (mm)
120	50	
170	100	
220	150	
270	200	
320	250	
370	300	
420	350	
470	400	
520	450	
570	500	

For stroke customization, please contact DINGS' or local representative.

Size 42mm DLM

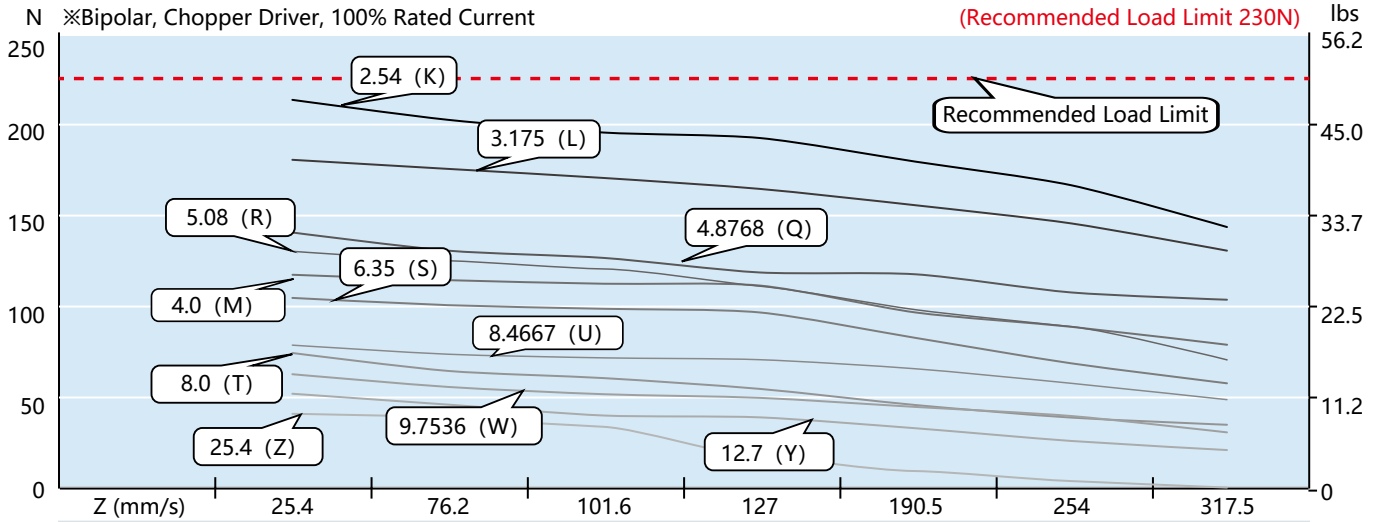
Speed Thrust Curves

Size 17 Single Stack Speed Thrust Curves



J (mm/s)	2.4	7.3	9.8	12.2	18.3	24.4	30.5
G (mm/s)	2.0	6.0	8.0	10.0	15.0	20.0	25.0
F (mm/s)	1.6	4.8	6.4	7.9	11.9	15.9	19.8
D (mm/s)	1.3	3.8	5.1	6.4	9.5	12.7	15.9
B (mm/s)	1.2	3.7	4.9	6.1	9.1	12.2	15.24
AB (mm/s)	1.0	3.0	4.0	5.0	7.5	10.0	12.5
AA (mm/s)	0.6	1.8	2.4	3.0	4.6	6.1	7.6
RPM r/min	60	180	240	300	450	600	750
PPS	200	600	800	1000	1500	2000	2500

Size 17 Single Stack Speed Thrust Curves



Z (mm/s)	25.4	76.2	101.6	127	190.5	254	317.5
Y (mm/s)	12.7	38.1	50.8	63.5	95.3	127	158.8
W (mm/s)	9.8	29.3	39.0	48.8	73.2	97.5	121.9
U (mm/s)	8.5	25.4	33.9	42.3	63.5	84.7	105.8
T (mm/s)	8.0	24.0	32.0	40.0	60.0	80.0	100.0
S (mm/s)	6.4	19.1	25.4	31.8	47.6	63.5	79.4
R (mm/s)	5.1	15.2	20.3	25.4	38.1	50.8	63.5
Q (mm/s)	4.9	14.6	19.5	24.4	36.6	48.8	61.0
M (mm/s)	4.0	12.0	16.0	20.0	30.0	40.0	50.0
L (mm/s)	3.2	9.5	12.7	15.9	23.8	31.8	39.7
K (mm/s)	2.5	7.6	10.2	12.7	19.1	25.4	31.8
RPM r/min	60	180	240	300	450	600	750
PPS	200	600	800	1000	1500	2000	2500

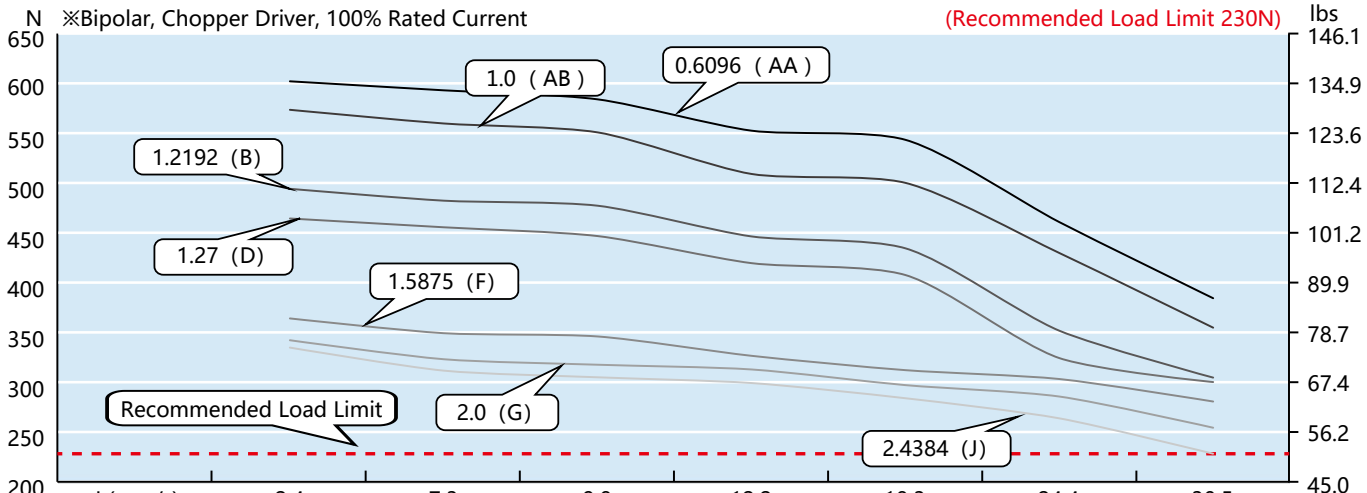
*T, M Lead is Φ8mm diameter lead screw

TEST CONDITION

Testing Voltage: 24Vdc, Driver Model: DS-OLS2-FPD bipolar, chopper driver at rated current (rms). Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

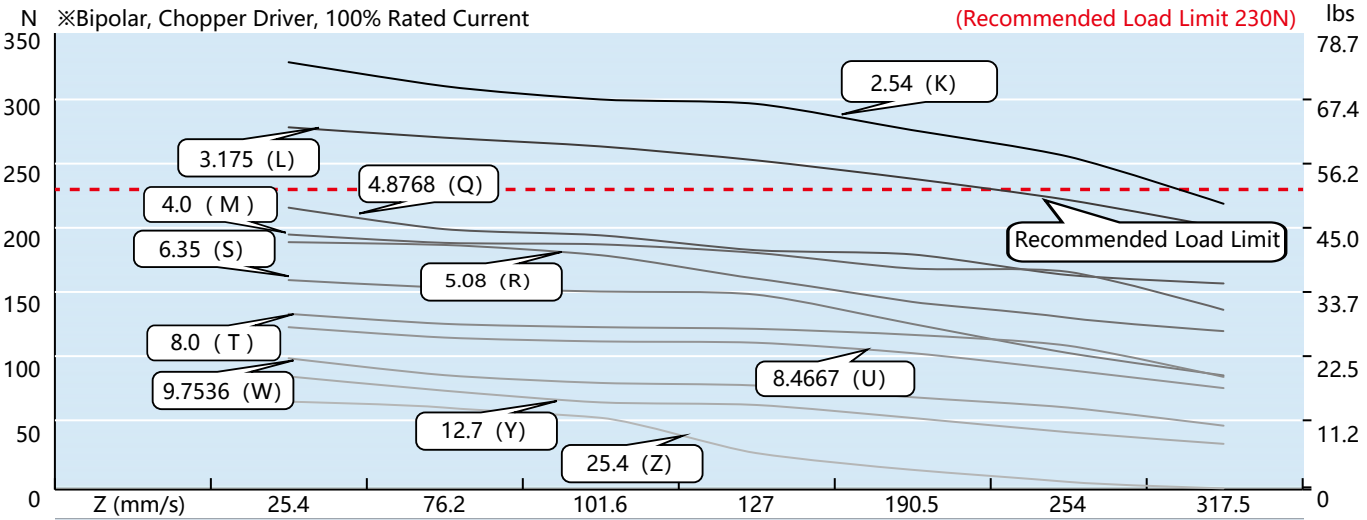
Size 42mm DLM

Size 17 Double Stack Speed Thrust Curves



J (mm/s)	2.4	7.3	9.8	12.2	18.3	24.4	30.5
G (mm/s)	2.0	6.0	8.0	10.0	15.0	20.0	25.0
F (mm/s)	1.6	4.8	6.4	7.9	11.9	15.9	19.8
D (mm/s)	1.3	3.8	5.1	6.4	9.5	12.7	15.9
B (mm/s)	1.2	3.7	4.9	6.1	9.1	12.2	15.2
AB (mm/s)	1.0	3.0	4.0	5.0	7.5	10.0	12.5
AA (mm/s)	0.6	1.8	2.4	3.0	4.6	6.1	7.6
RPM r/min	60	180	240	300	450	600	750
PPS	200	600	800	1000	1500	2000	2500

Size 17 Double Stack Speed Thrust Curves



Z (mm/s)	25.4	76.2	101.6	127	190.5	254	317.5
Y (mm/s)	12.7	38.1	50.8	63.5	95.3	127.0	158.8
W (mm/s)	9.8	29.3	39.0	48.8	73.2	97.5	121.9
U (mm/s)	8.5	25.4	33.9	42.3	63.5	84.7	105.8
T (mm/s)	8.0	24.0	32.0	40.0	60.0	80.0	100.0
S (mm/s)	6.4	19.1	25.4	31.8	47.6	63.5	79.4
R (mm/s)	5.1	15.2	20.3	25.4	38.1	50.8	63.5
Q (mm/s)	4.9	14.6	19.5	24.4	36.6	48.8	61.0
M (mm/s)	4.0	12.0	16.0	20.0	30.0	40.0	50.0
L (mm/s)	3.2	9.5	12.7	15.9	23.8	31.8	39.7
K (mm/s)	2.5	7.6	10.2	12.7	19.1	25.4	31.8
RPM r/min	60	180	240	300	450	600	750
PPS	200	600	800	1000	1500	2000	2500

*T, M Lead is Φ8mm diameter lead screw

TEST CONDITION

Testing Voltage: 24Vdc, Driver Model: DS-OLS2-FPD bipolar, chopper driver at rated current (rms). Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

Size 57mm DLM

Based on DINGS' platform products, high precision of lead screw linear actuator and self-developed simple linear module, DLM 57mm series is compact and reliable structure of linear solution.

DLM 57mm Series is good precision, high diversity of optional stroke and lead based customization linear module which can provide customers with integrated customization solutions.

Motor Characteristics

Motor	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Motor Length (mm)	Lead Wire No.
23E2110	6.4	1.0	6.4	16.4	45	4
23E2120	3.5	2.0	1.75	4.1	45	4
23E2130	2.4	3.0	0.8	1.7	45	4
23E2210	11.5	1.0	11.5	32	65	4
23E2225	5.0	2.5	2.0	5.2	65	4
23E2240	2.8	4.0	0.7	2.0	65	4

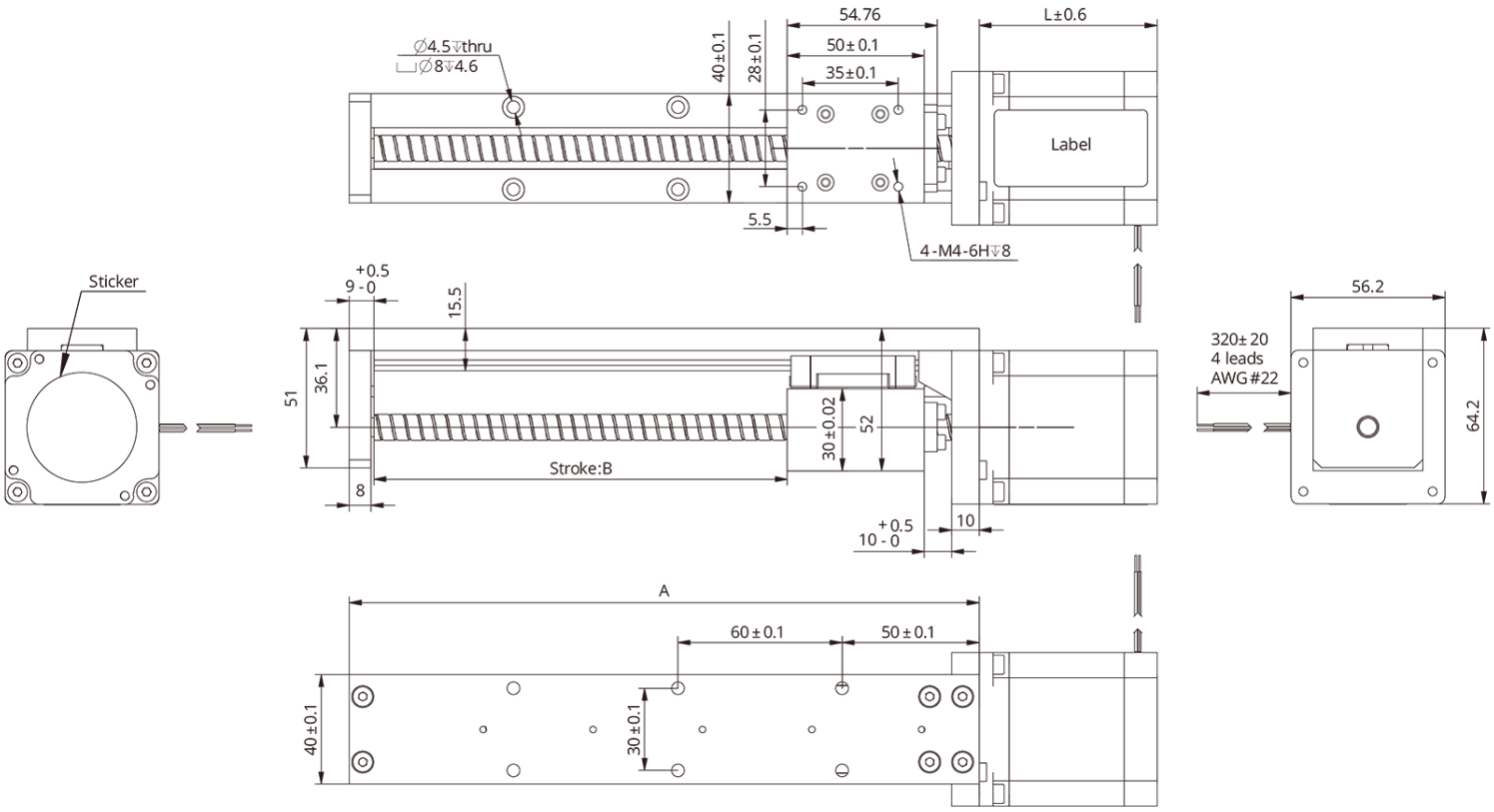
Available Lead Screw and Travel per Step

Screw Dia. (inch)	Screw Dia. (mm)	Lead (inch)	Lead (mm)	Lead Code	Travel Per Step @ 1.8 °(mm)
0.394	10	0.079	2.0	G	0.01
0.375	9.525	0.025	0.635	A	0.0032
0.375	9.525	0.005	1.27	D	0.00635
0.375	9.525	0.0625	1.5875	F	0.0079
0.375	9.525	0.083	2.1167	H	0.0106
0.375	9.525	0.1	2.54	K	0.0127
0.375	9.525	0.125	3.175	L	0.0159
0.375	9.525	0.167	4.2333	P	0.0212
0.375	9.525	0.2	5.08	R	0.0254
0.375	9.525	0.25	6.35	S	0.0318
0.375	9.525	0.375	9.525	V	0.0476
0.375	9.525	0.384	9.7536	W	0.0488
0.375	9.525	0.4	10.16	X	0.0508
0.375	9.525	0.5	12.7	Y	0.0635
0.375	9.525	1	25.4	Z	0.127

Mechanical Specifications

Model	C_{100}(dyn)(N)	Co(stat)(N)	Mro(Nm)	Mpo(Nm)	Myo(Nm)
DLM 57	1905	2795	21.8	13.5	13.5

Dimensional Drawings



Available Stroke Selection

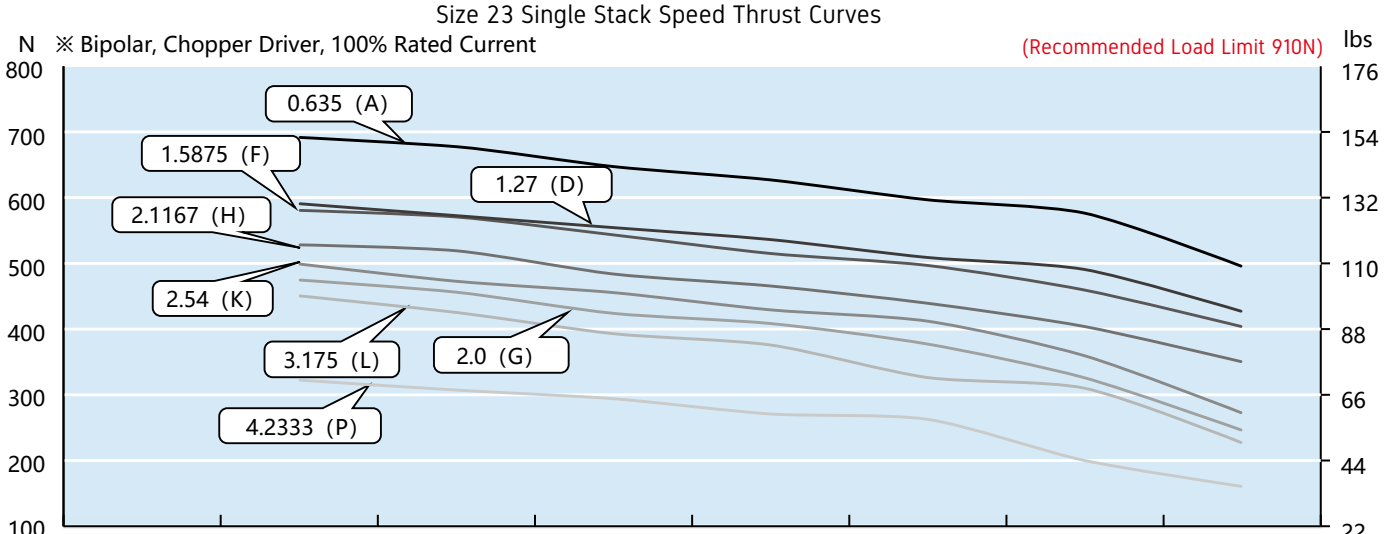
Size A	Stroke B	Motor Length L (mm)
130	50	
180	100	
230	150	
280	200	
330	250	
380	300	
430	350	
480	400	
530	450	
580	500	
630	550	
680	600	

For stroke customization, please contact DINGS' or local representative.

Size 57mm DLM

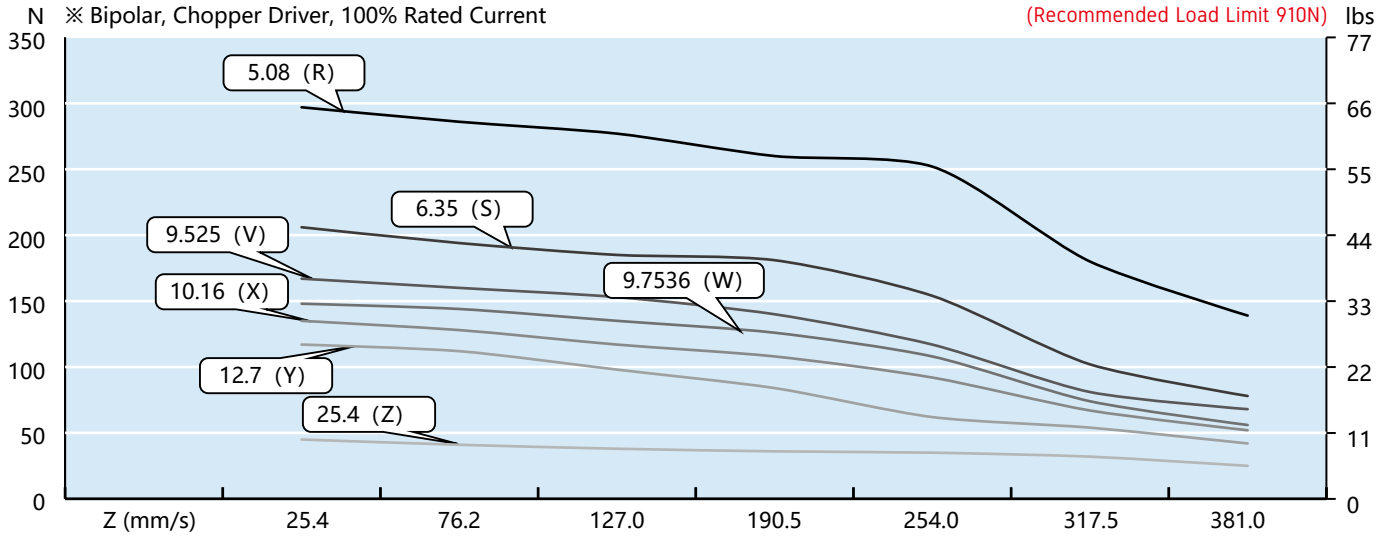
Speed ThrustCurves

Size 23 Single Stack Speed Thrust Curves



P (mm/s)	4.2	12.7	21.2	31.7	42.3	53.0	63.5
L (mm/s)	3.2	9.5	15.9	23.8	31.8	39.7	47.6
K (mm/s)	2.5	7.6	12.7	19.1	25.4	31.8	38.1
H (mm/s)	2.1	6.4	10.6	15.9	21.2	26.5	31.8
G (mm/s)	2.0	6.0	10.0	15.0	20.0	25.0	30.0
F (mm/s)	1.6	4.8	7.9	11.9	15.9	19.8	23.8
D (mm/s)	1.3	3.8	6.4	9.5	12.7	15.9	19.1
A (mm/s)	0.6	1.8	3.0	4.6	6.1	7.6	9.1
RPM r/min	60	180	300	450	600	750	900
PPS	200	600	1000	1500	2000	2500	3000

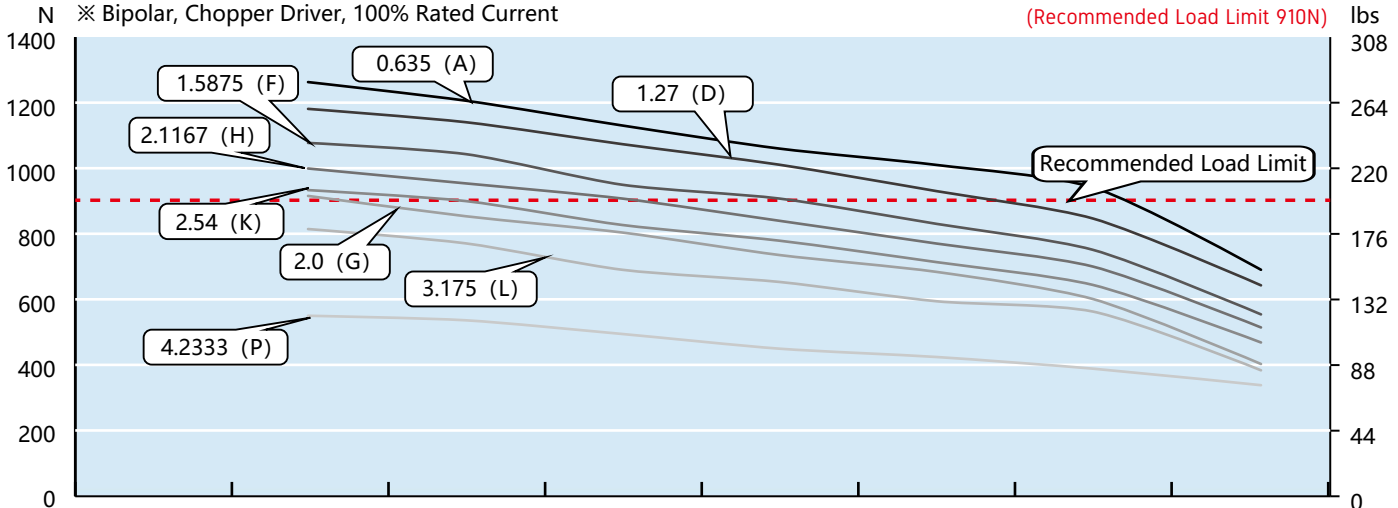
Size 23 Single Stack Speed Thrust Curves



Z (mm/s)	25.4	76.2	127.0	190.5	254.0	317.5	381.0
Y (mm/s)	12.7	38.1	63.5	95.3	127.0	158.8	190.5
X (mm/s)	10.2	30.5	50.8	76.2	101.6	127.0	152.4
W (mm/s)	9.8	29.3	48.8	73.2	97.5	121.9	146.3
V (mm/s)	9.5	28.6	47.6	71.4	95.3	119.1	142.9
S (mm/s)	6.4	19.1	31.8	47.6	63.5	79.4	95.3
R (mm/s)	5.1	15.2	25.4	38.1	50.8	63.5	76.2
RPM r/min	60	180	300	450	600	750	900
PPS	200	600	1000	1500	2000	2500	3000

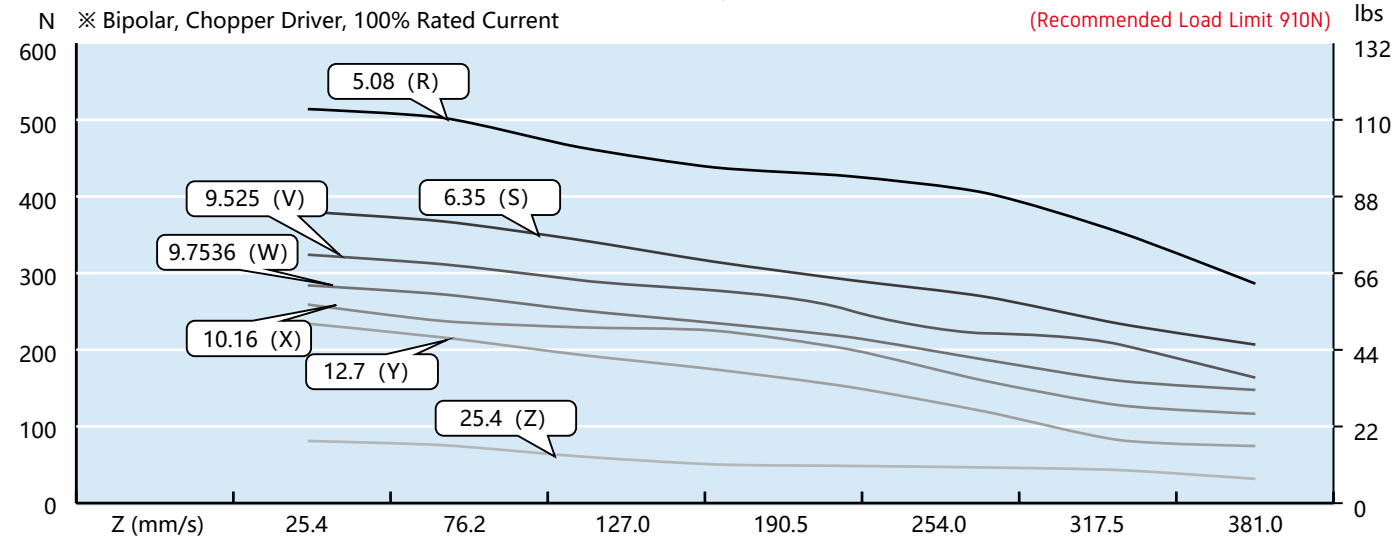
TEST CONDITION:
Testing Voltage: 40Vdc, Driver Model: DS-OLS4-FPD bipolar, chopper driver at rated current (rms). Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

Size 23 Double Stack Speed Thrust Curves



P (mm/s)	4.2	12.7	21.2	31.8	42.4	53.0	63.5
L (mm/s)	3.2	9.5	15.9	23.8	31.8	39.7	47.6
K (mm/s)	2.5	7.6	12.7	19.1	25.4	31.8	38.1
H (mm/s)	2.1	6.4	10.6	15.9	21.2	26.5	31.8
G (mm/s)	2.0	6.0	10.0	15.0	20.0	25.0	30.0
F (mm/s)	1.6	4.8	7.9	11.9	15.9	19.8	23.8
D (mm/s)	1.3	3.8	6.4	9.5	12.7	15.9	19.1
A (mm/s)	0.6	1.8	3.0	4.6	6.1	7.6	9.1
RPM r/min	60	180	300	450	600	750	900
PPS	200	600	1000	1500	2000	2500	3000

Size 23 Double Stack Speed Thrust Curves



Z (mm/s)	25.4	76.2	127.0	190.5	254.0	317.5	381.0
Y (mm/s)	12.7	38.1	63.5	95.3	127.0	158.8	190.5
X (mm/s)	10.2	30.5	50.8	76.2	101.6	127.0	152.4
W (mm/s)	9.8	29.3	48.8	73.2	97.5	121.9	146.3
V (mm/s)	9.5	28.6	47.6	71.4	95.3	119.1	142.9
S (mm/s)	6.4	19.1	31.8	47.6	63.5	79.4	95.3
R (mm/s)	5.1	15.2	25.4	38.1	50.8	63.5	76.2
RPM r/min	60	180	300	450	600	750	900
PPS	200	600	1000	1500	2000	2500	3000

TEST CONDITION
Testing Voltage: 40Vdc, Driver Model: DS-OLS4-FPD bipolar, chopper driver at rated current (rms). Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

G Gripper

Based on our own design and development of through motor foundation, the stroke of 6mm and 12mm Gripper can be selected.

The structure is compact and simple, which can replace the pneumatic clamping claw, reduce the operation noise, and effectively improve the accuracy.

High resolution of encoder based closed loop torque control Motion Controller is optional.

Part Number Construction

DMEG 12 - 11 N 2 1 10 D 4 - EK5D-001

1 2 3 4 5 6 7 8 9 10 11

1. DMEG Series / Electric Gripper
2. Stroke (mm)
   12 = 12mm
3. Motor Size

Code	08	11
Motor Size	20	28

4. Motor Type
   N = Non-Captive Linear Actuator
5. Step Angle
   2 = 2 Phase with 1.8°
6. Motor Length / Stack
   1 = Single Stack
   2 = Double Stack
7. Rated Current / Phase
   XX = X.X (A) / Phase
8. Lead Screw Code
9. Number of Lead Wires
   4 = 4 Flying leads
   6 = 6 Flying leads
10. Encoder Option
    EKX, KPLX = Encoder [XX = Encoder Code]
11. Customer Sequence Number

Example

Part Number	DMEG12-11N2110D4-EK5D-001
Description	Electric Gripper 12mm Stroke NEMA 11 Non-Captive Linear Actuator 2 Phase / 1.8° Stepper Single Stack 1.0A / Phase D Lead (0.05" or 1.27mm) 4 Flying Wires EK5 Encoder with differential output 1,000 lines Serial Number 001

20mm Gripper (6mm Stroke)

Motor Characteristics

Motor	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Lead Wire No.	Motor Length (mm)
8N2105	2.5	0.5	5.1	1.5	4	27.2
8N2205	4.4	0.5	8.8	2.7	4	38.1

Available Lead Screw and Travel per Step

Screw Dia. (inch)	Screw Dia. (mm)	Lead (inch)	Lead (mm)	Lead Code	Travel Per Step @ 1.8 °(mm)
0.138	3.5	0.0118	0.3	AF	0.0015
0.138	3.5	0.024	0.6096	AA	0.003048
0.138	3.5	0.0394	1	AB	0.005
0.138	3.5	0.048	1.2192	B	0.006096
0.138	3.5	0.0787	2	G	0.01
0.138	3.5	0.1575	4	M	0.02
0.138	3.5	0.315	8	T	0.04

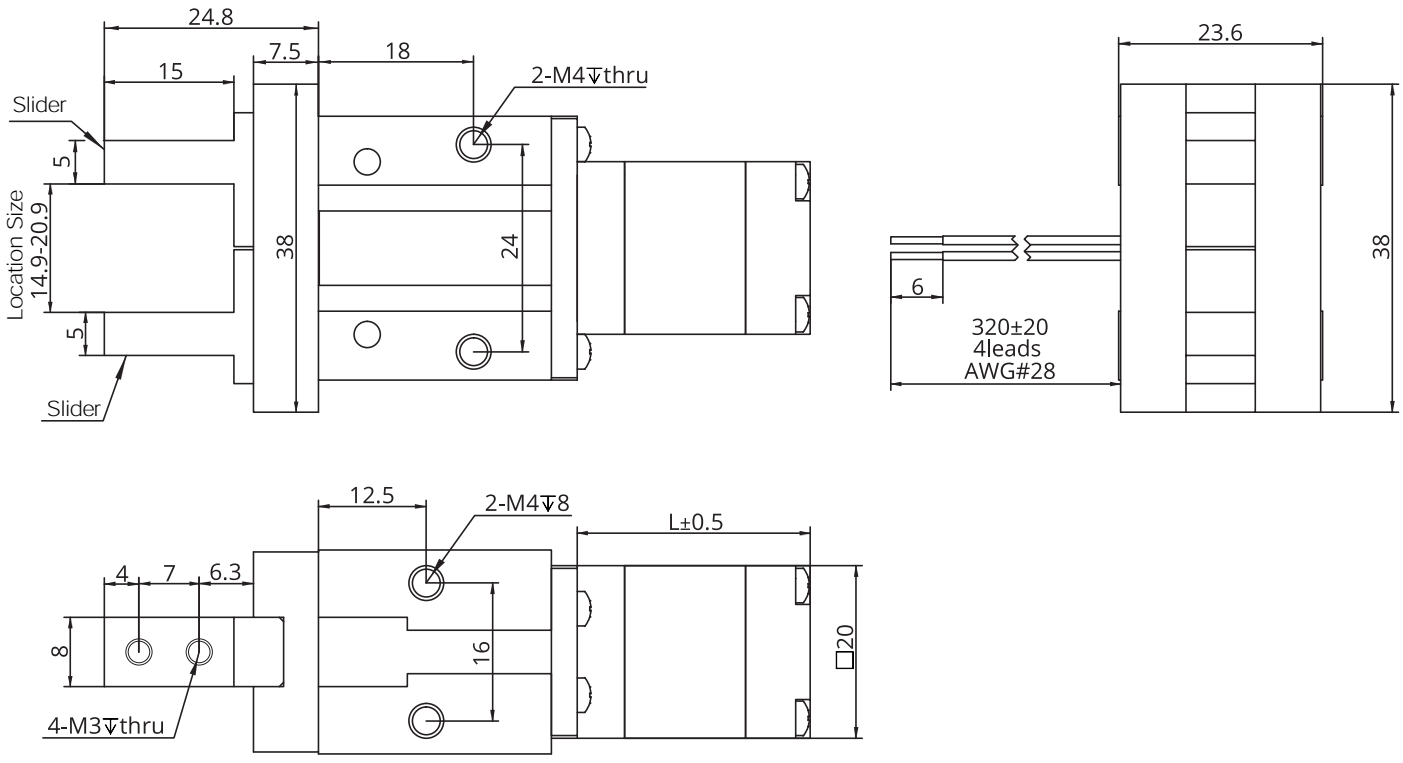
Gripping Force Recommendation

Motor Size	Body Length [mm]	Part Code	Stroke	Screw Code	Lead [mm]	Max. Gripping Force [N]	Recommended Gripping Force [N]
20mm	27.2	8N2105	6mm	AF	0.3	32	16
				AA	0.6096	28	14
				AB	1	25	13
				B	1.2192	22	11
				G	2	21	11
				M	4	11	6
				T	8	5	3
	38.1	8N2205	6mm	AF	0.3	70	35
				AA	0.6096	68	34
				AB	1	50	25
				B	1.2192	46	23
				G	2	36	18
				M	4	32	16
				T	8	20	10

For stroke customization, please contact DINGS' or local representative.

20mm Gripper (6mm Stroke)

Dimensional Drawings



NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

28mm Gripper (6mm / 12mm Stroke)

Motor Characteristics

Motor	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Lead Wire No.	Motor Length (mm)
11N2105	4.5	0.5	9.1	6.0	4	33.5
11N2110	2.2	1.0	2.1	1.5	4	33.5
11N2210	4.1	1.0	4.1	4.0	4	45
11N2216	2.4	1.6	1.5	1.3	4	45

Available Lead Screw and Travel per Step

Screw Dia. (inch)	Screw Dia. (mm)	Lead (inch)	Lead (mm)	Lead Code	Travel Per Step @ 1.8 °(mm)
0.188	4.77	0.0128	0.3175	AL	0.0016
0.188	4.77	0.025	0.635	A	0.003175
0.188	4.77	0.05	1.27	D	0.00635
0.188	4.77	0.1	2.54	K	0.0127
0.188	4.77	0.2	5.08	R	0.0254
0.188	4.77	0.4	10.16	X	0.0508

Gripping Force Recommendation

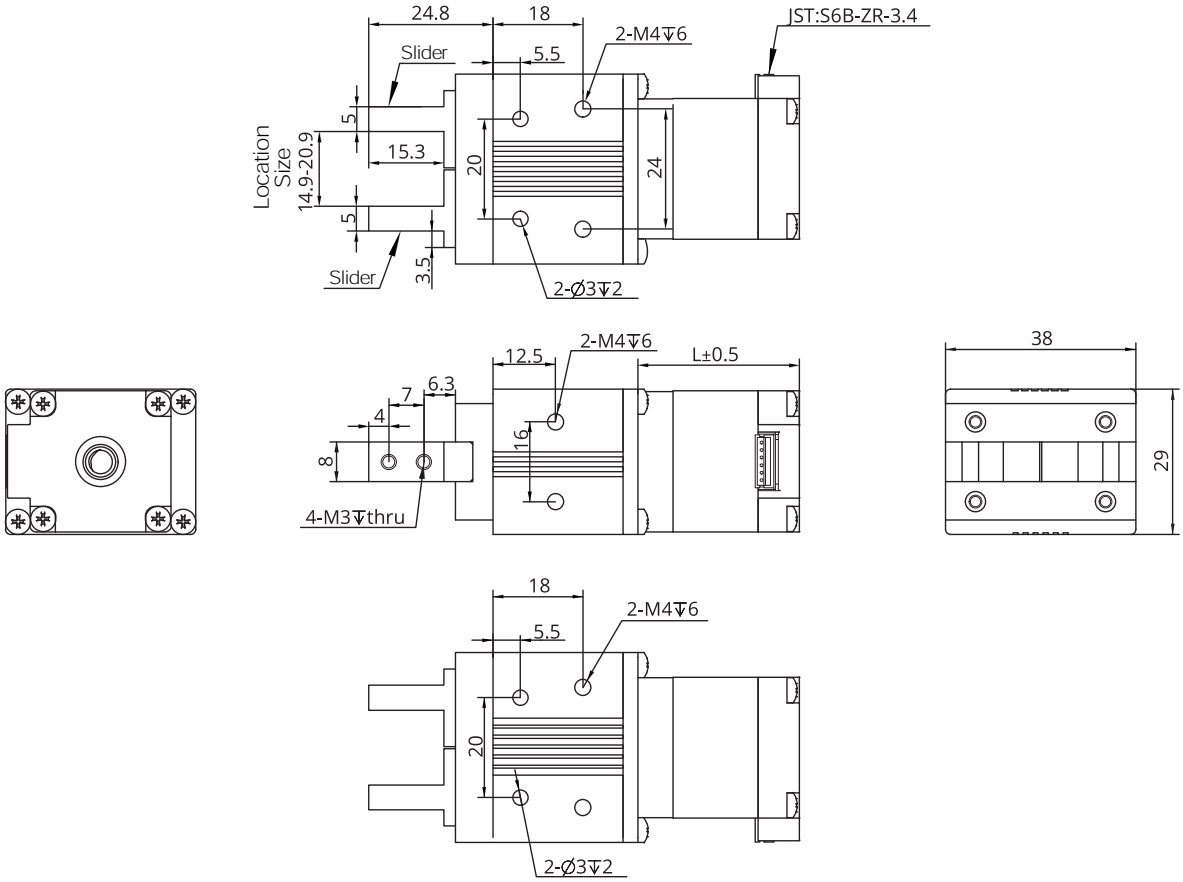
Motor Size	Body Length [mm]	Part Code	Stroke	Screw Code	Lead [mm]	Max. Gripping Force [N]	Recommended Gripping Force [N]
28mm	33.5	11N2105 /2110	6/12mm	AL	0.3175	118	59
				A	0.635	110	55
				D	1.27	54	42
				K	2.54	56	28
				R	5.08	36	18
				X	10.16	18	9
	45	11N2210 /2116	6/12mm	AL	0.3175	150	75
				A	0.635	140	70
				D	1.27	120	60
				K	2.54	100	50
				R	5.08	60	30
				X	10.16	30	15

For stroke customization, please contact DINGS' or local representative.

28mm Gripper (6mm / 12mm Stroke)

Dimensional Drawings

6mm Stroke

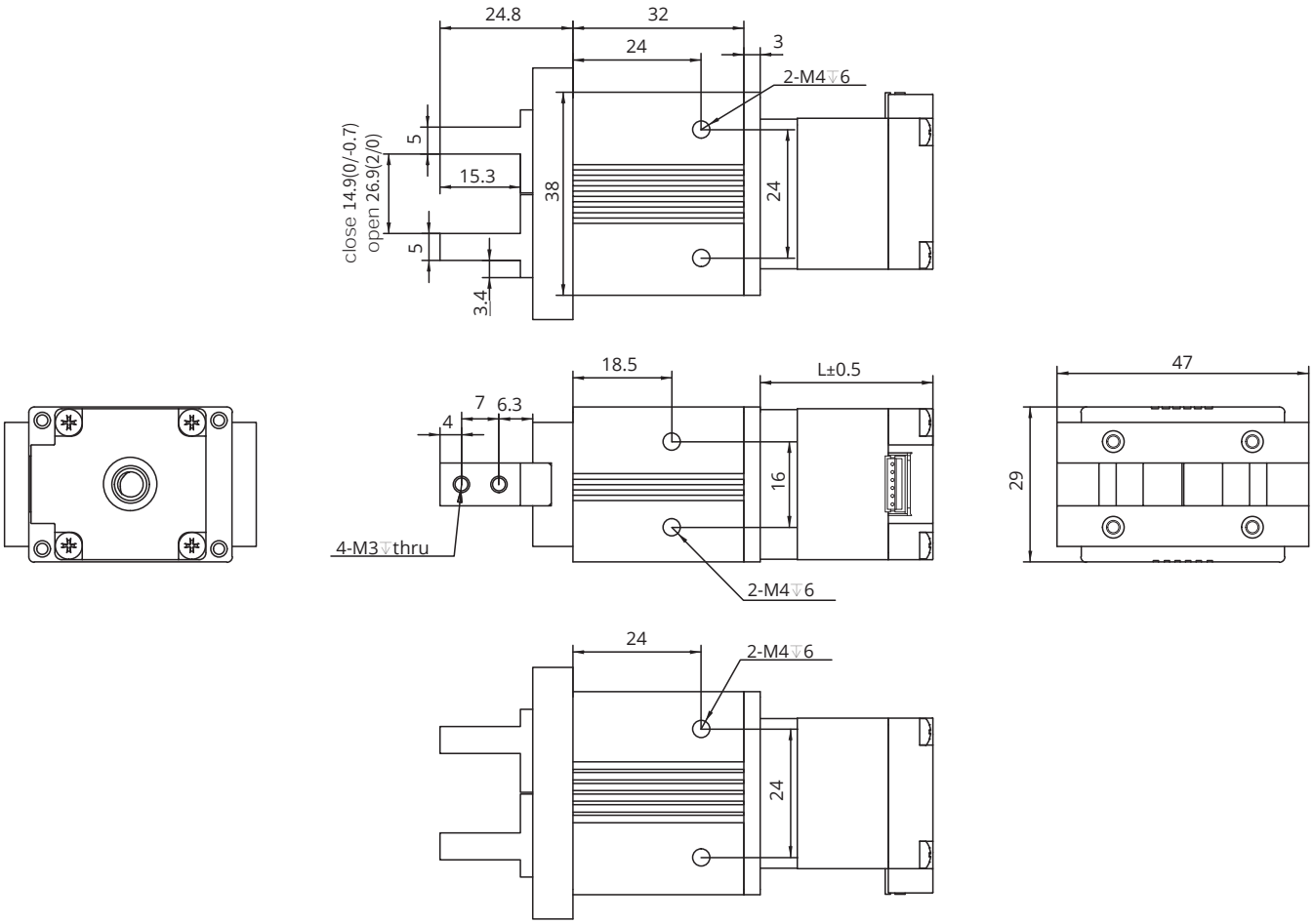


NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

28mm Gripper (6mm / 12mm Stroke)

Dimensional Drawings

12mm Stroke



NOTE: All drawings are 1st Angle Projection – ISO Standard. (3D Models are available).

H Voice Coil Motor

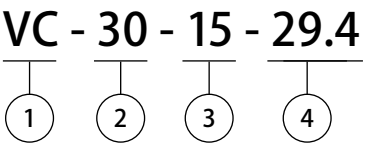
DINGS' offers wide range of sizes for VCM (Voice Coil Motor) series from smaller to bigger diameter of dimensional motors.

Based on fixed diameter sizes, DINGS' can customize different stroke compare to other competitors, DINGS' does not fix standard stroke but according to customer's different requirements, DINGS' is freely to customize stroke.

DINGS' provides very low backlash but fast response of voice coil motors with specialized drivers. Also if customer wants, DINGS' is also able to provide linear scale for accurate positioning and feedback.

For more details, please contact DINGS' or local representatives.

Part Number Construction



① Motor Size

VC = Voice Coil Motor

② Frame Size

Currently 25.4mm , 30mm, 38mm sizes are available

③ Stroke

15 = 15mm stroke

There is no standard stroke. For stroke customization, please contact DINGS' or local representative.

④ Continuous Force

30mm framze size and 15mm stroke of Voice coil motor can generate 29.4N continuous force.
Force value can be differentiated according to different size and stroke,
for details, please contact DINGS'

Example

Part Number	VC-30-15-29.4
Description	30 mm Frame Size 15 mm Stroke 29.4 N Continuous Thrust

25.4mm Voice Coil Motor

Size 25.4mm Voice Coil Motor is smallest solution from DINGS' at this moment.

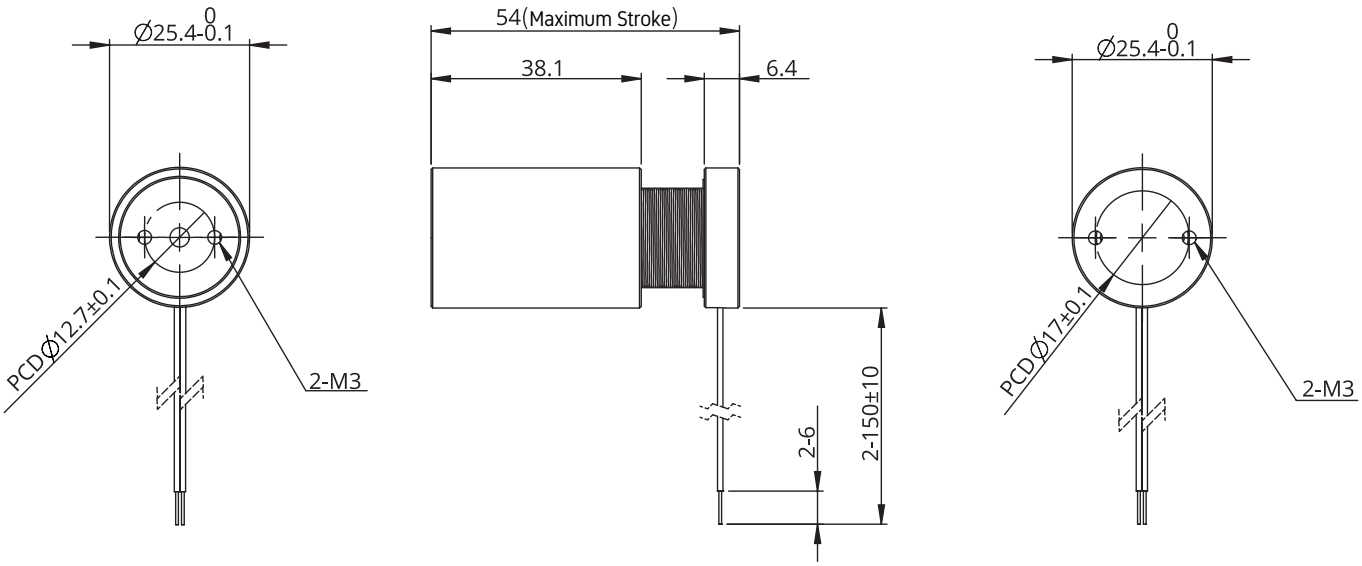
Not only standard 9.5mm stroke, different stroke of voice coil motor can be customized.

Also CANOpen and EtherCAT supported Voice Coil Motor Electronics, DS-BVM-FCAO and DS-BVM-FETC are available. For details, please check DINGS' website motion control products section.

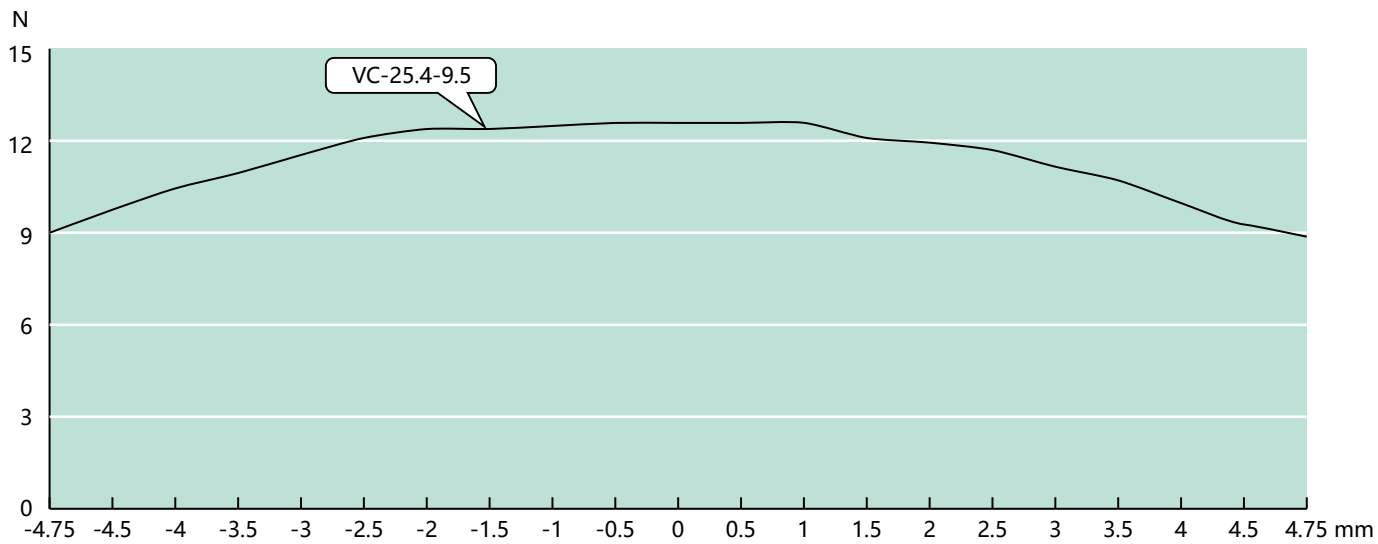
Motor Characteristics

Motor	Stroke (mm)	Back EMF Constant (V/m/s)	Continuous Force (N)	Continuous Current Coil@ 100 (℃)	Peak Thrust Force (N)	Force Sensitivity (N/A) Middle Position	Resistance /Phase (Ω)	Inductance /Phase (mH)	Coil Gap (mm)	Coil Max. Temperature (℃)	Coil Assembly Mass (g)	Body Assembly Mass (g)
25.4	9.5	9	11	1.25	31	9	6.9	2	0.38	100	33	102

Dimensional Drawings



Force Curve



* This curve is the thrust curve under the rated current and the thrust is affected by the current change.

30mm Voice Coil Motor

Size 30mm Voice Coil Motor is also popular solution among DINGS' VCM Series.

Not only standard 13, 15mm stroke, different stroke of voice coil motor can be customized.

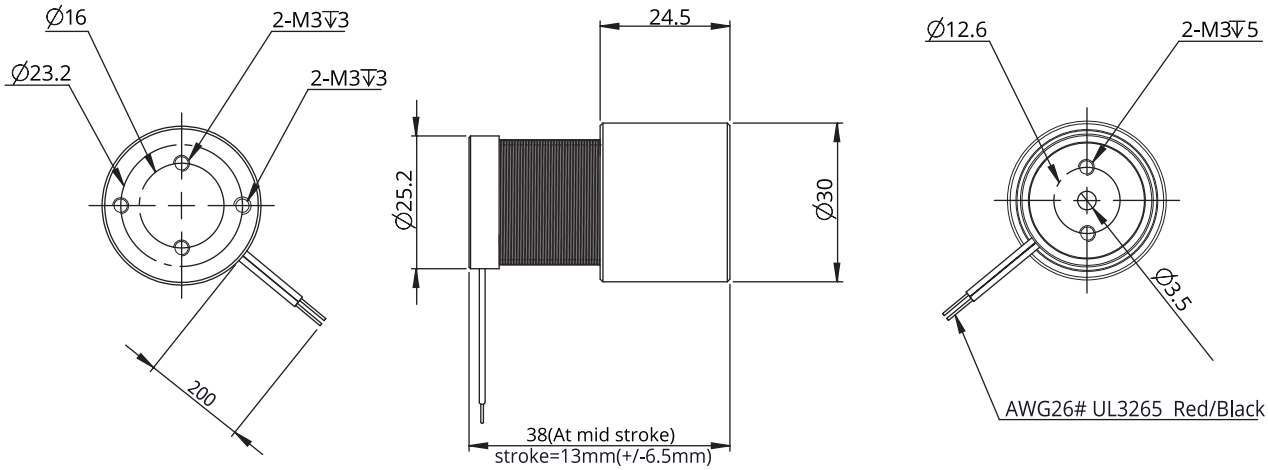
Also CANOpen and EtherCAT supported Voice Coil Motor Electronics, DS-BVM-FCAO and DS-BVM-FETC are available. For details, please check DINGS' website motion control products section.

Motor Characteristics

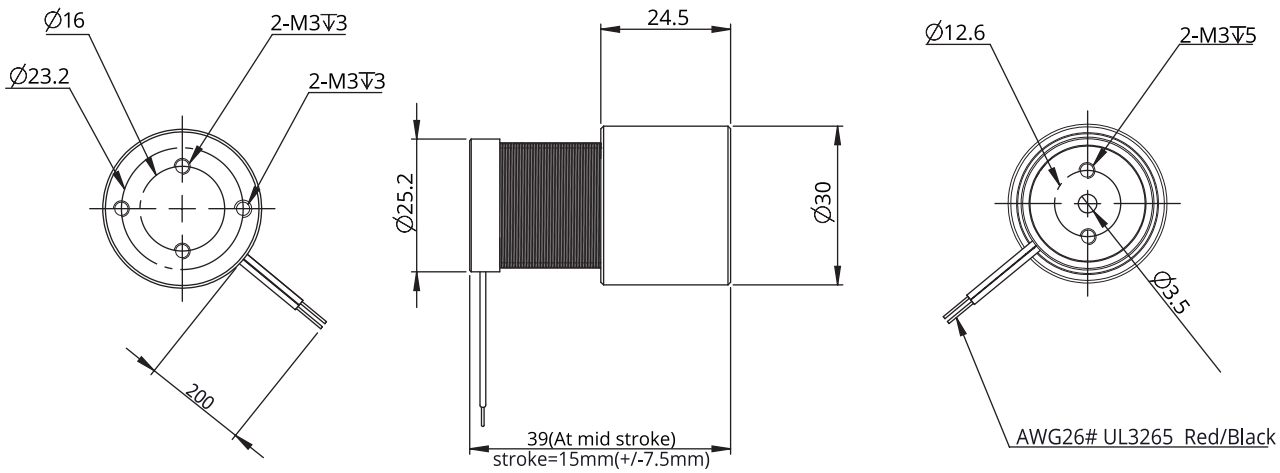
Motor	Stroke (mm)	Back EMF Constant (V/m/s)	Continuous Force (N)	Continuous Current Coil@ 100 (℃)	Peak Thrust Force (N)	Force Sensitivity (N/A) Middle Position	Resistance /Phase (Ω)	Inductance /Phase (mH)	Coil Gap (mm)	Coil Max. Temperature (℃)	Coil Assembly Mass (g)	Body Assembly Mass (g)
30-13	13	7.35	4.63	0.63	29.4	7.35	10.2	2.63	0.6	100	25	96
30-15	15	7.35	4.63	0.63	29.4	7.35	10.2	2.63	0.6	100	25	96

*Voice Coil Motor can support CANOpen and EtherCAT via DS-BV-MCAO and DS-BV-METC.

Dimensional Drawings



Motor 30-13

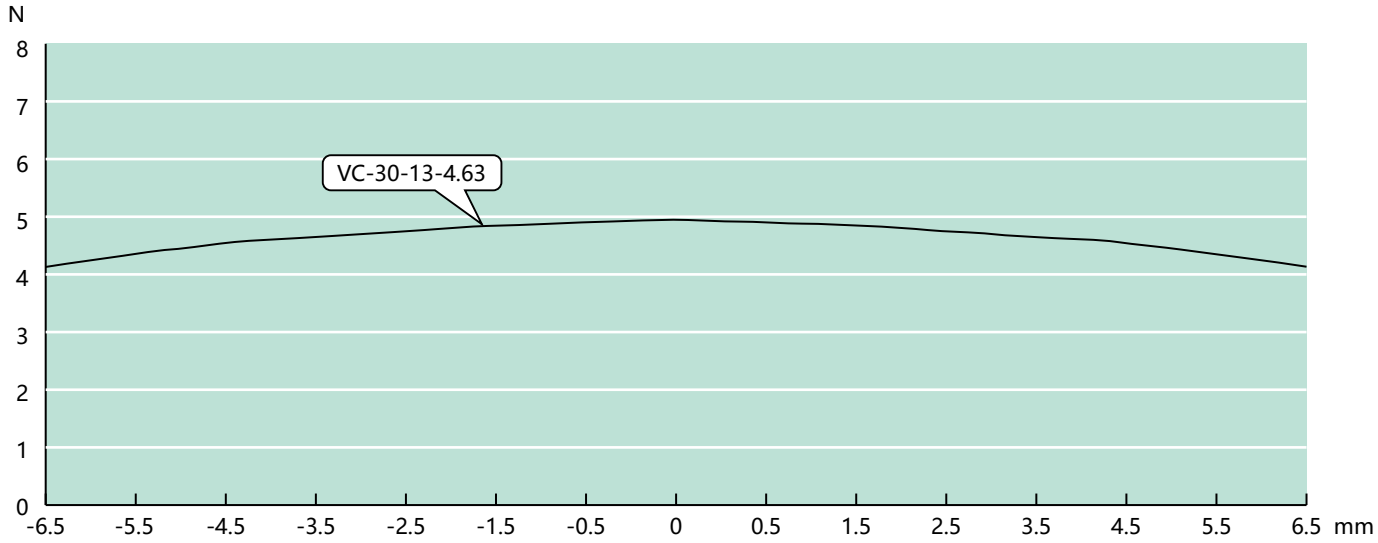


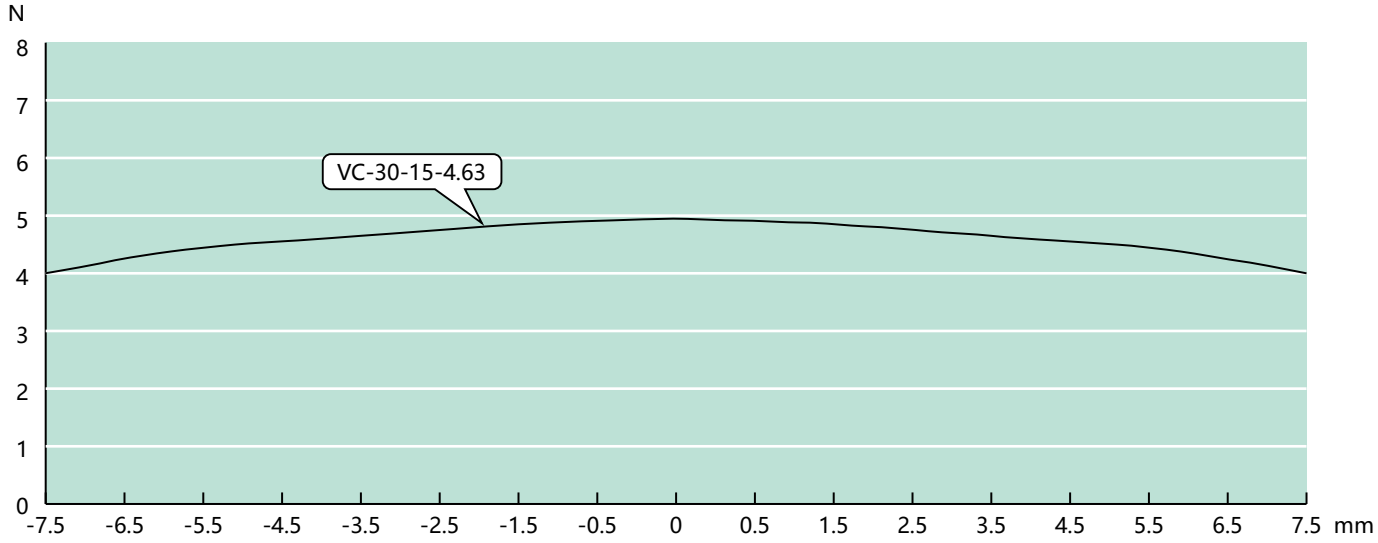
Motor 30-15

For stroke customization, please contact DINGS' or local representative.

30mm Voice Coil Motor

Force Curve





* This curve is the thrust curve under the rated current and the thrust is affected by the current change.

38mm Voice Coil Motor

Size 38mm Voice Coil Motor is also popular solution among DINGS' VCM Series.
Not only standard 7.7mm stroke, different stroke of voice coil motor can be customized.

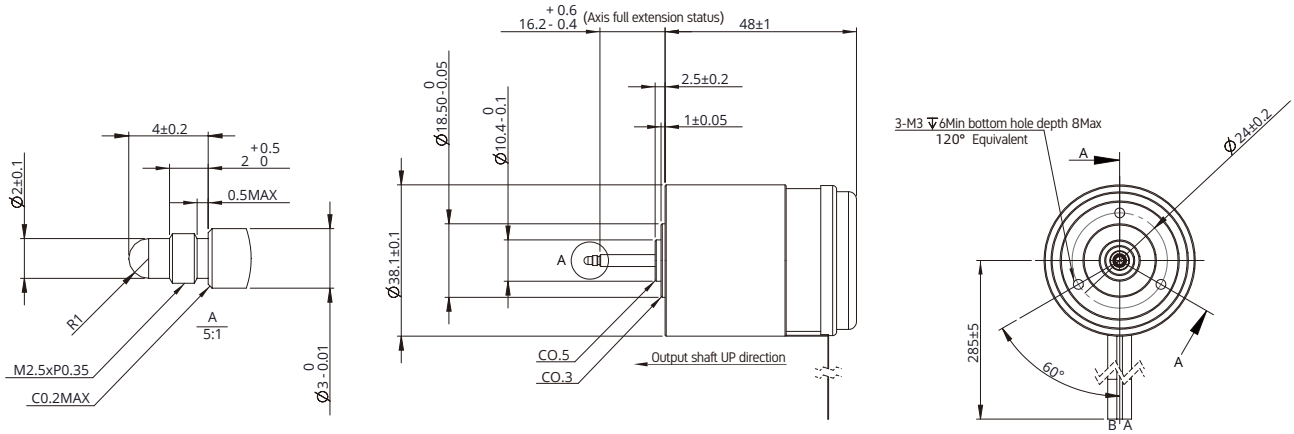
Also CANOpen and EtherCAT supported Voice Coil Motor Electronics, DS-BVM-FCAO and DS-BVM-FETC are available. For details, please check DINGS' website motion control products section.

Motor Characteristics

Motor	Stroke (mm)	Force Constant (N/A)	Continuous Force (N)	Peak Thrust Force (N)	Insulation Resistance (MΩ)	Dynamic Response (ms)	Retarding Force (mN)	Frictional Force (mN)	Life Cycle (Mil)	Operating Temperature (℃)	Coil Maximum Temperature (℃)	Gas Leakage (sccm) @12Kpa
38	7.7	4.8	5	22.5	100	<20	<40	<50	>30	2.63	120	<10

*Voice Coil Motor can support CANOpen and EtherCAT via DS-BV-MCAO and DS-BV-METC.

Dimensional Drawings



For stroke customization, please contact DINGS' or local representative.

I Motion Controller

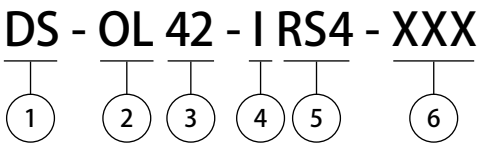
DINGS' offers various motion controllers includes drivers and programmable controllers with our hybrid stepper linear actuators, rotary stepper, hollow shaft motors, brushless DC motors and voice coil motors as one package.

From step and direction microstepping driver but also RS485, CANOpen and EtherCAT supported open loop / closed loop of motion controllers are available.

DINGS' motion controllers are very specialized for all types of linear actuators includes External, Non-Captive, Captive and Kaptive actuators with encoder or without encoder. These stepper electronics also can be available for regular rotary steppers and also for hollow shaft motors too. Both open and closed loop controls are available.

For Brushless DC motor, DINGS' provides standard and Mini type of motion controllers via CANOpen and EtherCAT field bus. These combination can be low-voltage DC Servo which can be alternatives for conventional closed loop stepping control system and AC Servo for certain applications.

Stand Alone Stepper Motor Driver Part Number Construction



① DS Brand

② Series
- OL = Open Loop
- CL = Closed Loop
- BV = BLDC / VCM
- OLB = Open Loop Brushless DC Motor
- CLB = Closed Loop Brushless DC Motor
- CLS = Closed Loop Servo Motor

③ Size
- 20/28/35/42/57/60 = Series Size
- S(x) = Standard Size
- M = Mini Size
- C(x) = Customization Specification

④ Structure
- I = Integrated
- F = Stand Alone

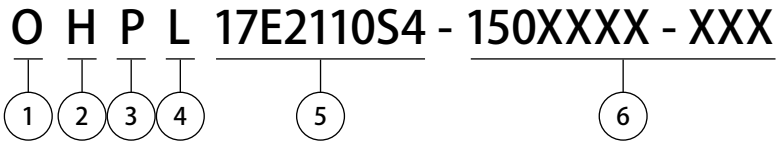
⑤ Control Method
- PD = Pulse / Direction
- SC = Speed Regulation
- RS4 = RS485
- CAO = CANopen
- ETC = EtherCAT
- SA = Step Servo

⑥ Other Customizations
- 00(XX) = Special Type
- L = Side Mounting
- T = Back Mounting
- 24V = Signal Voltage 24V
- H = Hollow Type
- C = Close Type

Example	
Part Number	DS-OLS2-FPD-24
Description	Open Loop S2 Series Stand Alone Pulse Direction Type Signal Voltage 24V

Example	
Part Number	DS-OL42-IPD-L
Description	Open Loop 42mm Integrated Pulse Direction Type Side Mounting

Integrated Stepper Motor Driver Part Number Construction



① Control Type
- O = Open Loop
- C = Closed Loop

② Structure
- H = Hollow Shaft Type
- B = Blocking Closed Type

③ Control Method
- P = Pulse / Direction
- S = Speed Regulation Type
- R = RS485 Communication
- C = CANopen Communication
- E = EtherCAT Communication

④ Mounting Type
- L = Side Mounting
- T = Back Mounting

⑤, ⑥ Product Model

Example

Part Number	OHRT17E2110S4-150XXXX-XXX
Description	Open Loop Hollow Shaft RS485 Communication Back Mounting

Stand Alone Stepper Electronics

DS-OLS2-FPD Driver

Features

1. 32-bit DSP Technology
2. Anti-Resonance for optimal torque, extra smooth motion, low motor heating and noise
3. 3-digit dialing code adjustable, 8 output current settings
4. Power-on automatic setting, automatic current halving at rest
5. Precise current control significantly reduces motor heating
6. Support single and double pulses, dial selection
7. Drive 4,6,8-wire two-phase stepper motor
8. Optically isolated inputs
9. 70KHz max pulse input frequency
10. 8 output current settings of 0.3 – 2.2A via DIP Switches
11. Over-voltage and over-current protections
12. External alarm output, maximum output current 100mA, withstand 24Vdc

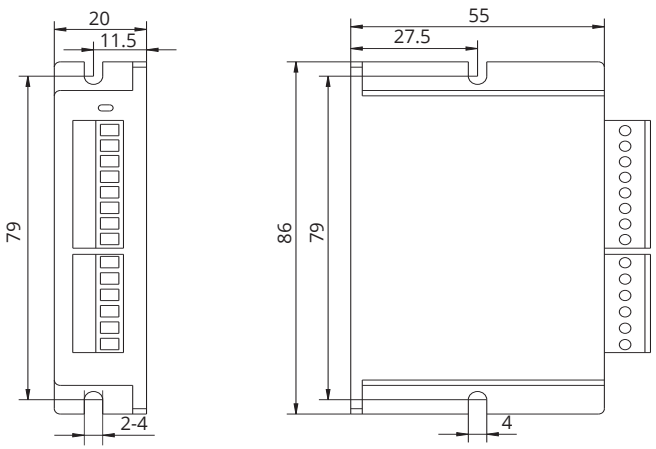
DS-OLS2-FPD Driver
Apply to Size 8, 11, 14, 17 of Step Motors

Specification

Parameters		DS-OLS2-FPD			
		Min	Typical	Max	Unit
Output Current		0.3	-	2.2	A
Supply Voltage		18 VDC	24 VDC	36 VDC	V
Logic Signal Current		7	10	16	mA
Pulse Input Frequency		0	-	200	KHz
Isolation Resistance		100			MΩ
Cooling		Natural Cooling or Forced Cooling			
Operating Environment	Environment	- It should not be placed next to other heating equipment. - It should avoid dust, oil mist, corrosive gas and places with too high humidity and strong vibration. Flammable gas and conductive dust are prohibited.			
	Humidity	40 - 90% RH			
	Temperature	0 ~ 50°C			
	Vibration	10 - 55 Hz / 0.15mm			
Storage Temperature		-20 ~ 65 °C			
Weight		150g			

Installation (Unit : mm)

* Side/Vertical mounting is recommended for better heat cooling. Terminal size and heat dissipation space need to be considered in installation design.



DS-OLS22-FPD Open-Loop Control - Pulse Type

Features

1. Input power：DC 12V - 48V
2. 8 Output current settings
3. PWM constant current bipolar subdivision drive
4. 16 Micro-step resolutions of DIP
5. Single / Double pulse selection
6. Optically isolated input function
7. Motor short circuit protection
8. Control signal to realize the functions of driver enable, start stop, emergency stop, limit, etc.
9. With off-line function

DS-OLS22-FPD Driver
Apply to Size 6, 8, 11, 17, 23 of Step Motors

Specification

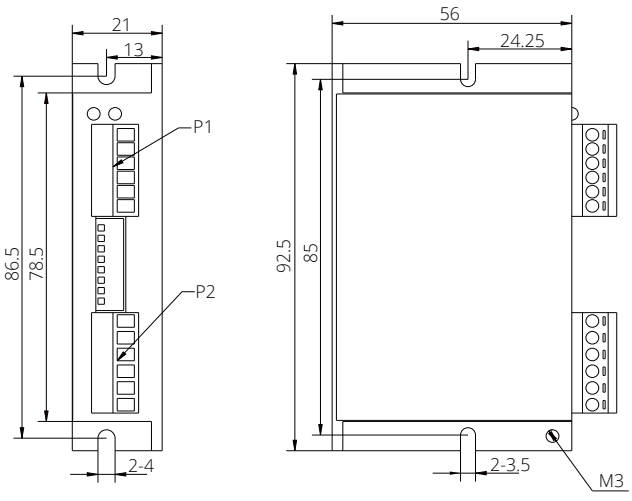
Model		DS-OLS22-FPD
Adapted Motor		2-phase hybrid stepping motor
Power Supply		DC 12 – 48 V
Output Current		0.3 – 3 A
Driving Method		Full-bridge bipolar PWM
Input Signal	Pulse Signal	Optocoupler input voltage H = 3.5 – 26 V , L = 0 – 0.8 V Current 6 - 15 mA
	Offline Signal	
	Direction Signal	
Size (mm)		92.5 × 21 × 56 mm
Weight		About 96g
Operating Environment	Pulse Signal	Avoid dust, oil mist and corrosive gas
	Humidity	<85% RH, no condensation
	Temperature	0 ~ 40°C
	Heat Dissipation	Install in a ventilated environment

Installation (Unit : mm)

1. When designs installation, please consider the size of terminals and pace required for heat dissipation.

2. The reliable working temperature of the driver is usually within 60℃ and motor is within 80℃.

3. When install driver, please install it vertically and laterally to make the radiator from strong air convection, when necessary, install a fan near the driver to force heat dissipation to ensure that the driver works within reliable working temperature range.



Stand Alone Stepper Electronics

DS-OLS4-FPD Driver

Features

1. 32-bit DSP Technology
2. Anti-Resonance for optimal torque, extra smooth motion, low motor heating and noise
3. Built-in Micro-stepping
4. Power-on automatic setting, automatic current halving at rest
5. Precise current control significantly reduces motor heating
6. Automatic idle current reduction to 50% , SW4 selection
7. Support single and double pulses, dial selection
8. Drive 4,6,8-wire two-phase stepper motor
9. Optically isolated inputs
10. 200KHz max pulse input frequency
11. 4-digit dialing code, adjustable 16 output current settings
12. Over-voltage and over-current protections
13. External alarm output, maximum output current 100mA, withstand 24Vdc

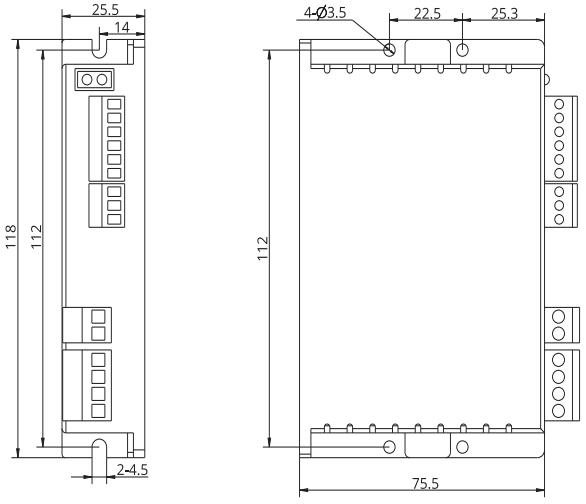
DS-OLS4-FPD Driver
Apply to Size 17, 23 of Step Motors

Specification

Parameters		DS-OLS4-FPD			
		Min	Typical	Max	Unit
Output Current		1	-	4.2	A
Supply Voltage		20 VDC	24 VDC / 36 VDC	50 VDC	V
Logic Signal Current		7	10	16	mA
Pulse Input Frequency		0	-	200	KHz
Isolation Resistance		100			MΩ
Cooling		Natural Cooling or Forced Cooling			
Operating Environment	Environment	- It should not be placed next to other heating equipment. - It should avoid dust, oil mist, corrosive gas and places with too high humidity and strong vibration. Flammable gas and conductive dust are prohibited.			
	Humidity	40 – 90% RH			
	Temperature	0 ~ 50°C			
	Vibration	10 – 55 Hz / 0.15mm			
Storage Temperature		-20 ~ 65°C			
Weight		250g			

Installation (Unit : mm)

* Side/Vertical mounting is recommended for better heat cooling. Terminal size and heat dissipation space need to be considered in installation design.



DS-OLS8-FPD Stand Alone Open Loop - Pulse Type

Features

1. Input power：DC 24V - 72V
2. 8 Output current settings
3. PWM constant current bipolar subdivision drive
4. 16 Micro-step resolutions of DIP
5. Single / Double pulse selection
6. Optically isolated input function, 5-24VDC compatible input
7. Motor short circuit protection
8. Control signal to realize the functions of driver enable, start stop, emergency stop, limit, etc.
9. Compact design, low noise, low vibration
10. With off-line function

DS-OLS8-FPD Stand Alone open Loop - Pulse Type
Apply to Size 23, 24,34 of Step Motors

Power Supply Connection

1. Power supply range is 24~72VDC, 48VDC recommended, Below 57mm, recommend 48V, Above 86mm recommend 72V
2. For relay connection, diodes should be connected at both ends of the relay such as IN4000 series.

Specification

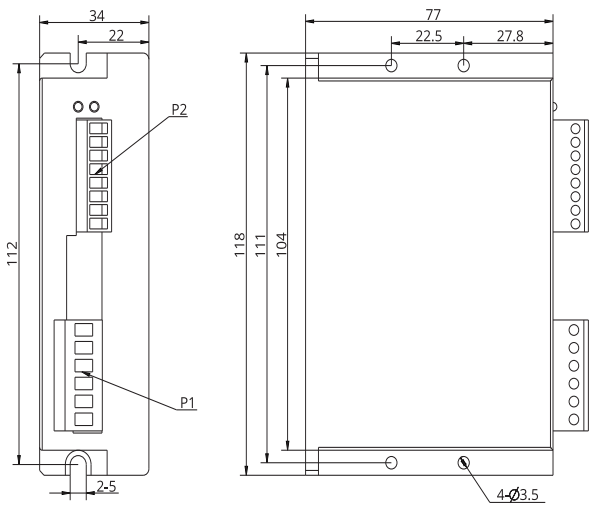
Model		DS-OLS8-FPD
Adapted Motor		Can operate Max. 7.8 A of motor
Power Supply		24 – 72 VDC
Output Current		2.8 – 7.8 A / Phase (peak value)
Driving Method		Bipolar PWM
Input Signal	Pulse Signal	Optocoupler input voltage H = 3.5 – 26 V , L = 0 – 0.8 V Current 6 - 15 mA
	Offline Signal	
	Direction Signal	
Output Signal	Alarm Output	Photoelectric isolation output, maximum withstand voltage 30VDC, maximum saturation current 50mA
Size (mm)		118 × 78 × 34 mm
Weight		About 300g
Operating Environment	Pulse Signal	Avoid dust, oil mist and corrosive gas
	Humidity	<85% RH, no condensation
	Temperature	0 ~ 40°C
	Heat Dissipation	Install in a ventilated environment

Installation (Unit : mm)

1. When designs installation, please consider the size of terminals and pace required for heat dissipation.

2. The reliable working temperature of the driver is usually within 60℃ and motor is within 80℃.

3. When install driver, please install it vertically and laterally to make the radiator from strong air convection, when necessary, install a fan near the driver to force heat dissipation to ensure that the driver works within reliable working temperature range.



Stand Alone Stepper Electronics

DS-OLS7-FRS4 Stand Alone Open Loop-RS485

Features

1. Input power : DC 24V ~ 48V
2. PWM constant current bipolar subdivision drive
3. Single / Double pulse selection
4. Optically isolated input function
5. Motor short circuit protection
6. Compact design, low noise and low vibration
7. Adjustable driving current peak below 3.2 A
8. Support RS 485 communication

DS-OLS7-FRS4 Stand Alone Open Loop -RS485
Apply to Size 8, 11, 14, 17 of Step Motors

Specifications

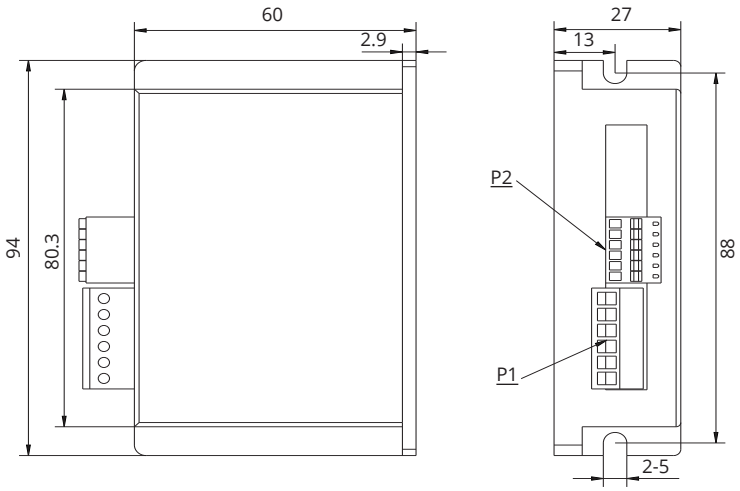
Model		DS-OLS7-FRS4
Adapted Motor		Adapted to two-phase hybrid stepping motor, DS-OLS7-FRS4 Maximum fit 3.2A
Power Supply		24 – 48 VDC
Output Current		0.1 – 3.2 A / Phase
Driving Method		Full-bridge Bipolar PWM
Input Signal	Pulse Signal	Optocoupler input voltage H = 3.5 – 26 V , L = 0 – 0.8 V Current 6 - 15 mA
	Offline Signal	
	Direction Signal	
Output Signal	Alarm Output	Optically isolation output, maximum withstand voltage 30VDC, maximum saturation current 50mA
Size (mm)		94 × 77 × 27 mm (Including terminal block)
Weight		About 175g
Operating Environment	Pulse Signal	Avoid dust, oil mist and corrosive gas
	Humidity	<85% RH, no condensation
	Temperature	0 ~ 40°C
	Heat Dissipation	Install in a ventilated environment

Installation (Unit : mm)

1. When designs installation, please consider the size of terminals and pace required for heat dissipation.

2. The reliable working temperature of the driver is usually within 60℃ and motor is within 80℃.

3. When install driver, please install it vertically and laterally to make the radiator from strong air convection, when necessary, install a fan near the driver to force heat dissipation to ensure that the driver works within reliable working temperature range.



DS-OLS8-FRS4 Stand Alone Open Loop-RS485

Features

1. Input power : DC 24V-72V
2. PWM constant current bipolar subdivision drive
3. Single / Double pulse selection
4. Optically isolated input function
5. Motor short circuit protection
6. Compact design, low noise and low vibration
7. Adjustable driving current peak below 6.5A
8. Support RS 485 communication

DS-OLS8-FRS4 Stand Alone Open Loop-RS485
Apply to Size 6, 8, 11, 23, 24, 34 of Step Motors

Specifications

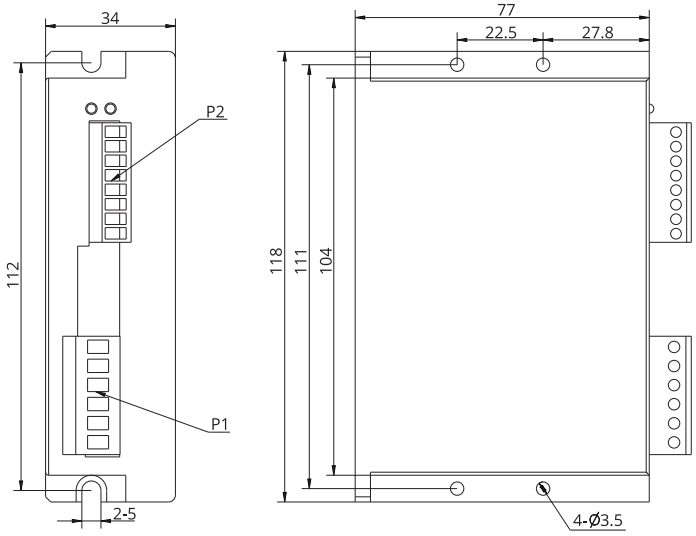
Model		DS-OLS8-FRS4
Adapted Motor		Adapted to two-phase hybrid stepping motor, DS-OLS8-FRS4 Maximum fit 6.5A
Power Supply		24 – 72 VDC
Output Current		0.1 – 6.5 A / Phase
Driving Method		Full-bridge Bipolar PWM
Input Signal	Pulse Signal	Optocoupler input voltage H = 3.5 – 26 V , L = 0 – 0.8 V Current 6 - 15 mA
	Offline Signal	
	Direction Signal	
Output Signal	Alarm Output	Optically isolation output, maximum withstand voltage 30VDC, maximum saturation current 50mA
Size (mm)		118 × 78 × 34 mm (Including terminal block)
Weight		About 300g
Operating Environment	Pulse Signal	Avoid dust, oil mist and corrosive gas
	Humidity	<85% RH, no condensation
	Temperature	0 ~ 40°C
	Heat Dissipation	Install in a ventilated environment

Installation (Unit : mm)

1. When designs installation, please consider the size of terminals and pace required for heat dissipation.

2. The reliable working temperature of the driver is usually within 60℃ and motor is within 80℃.

3. When install driver, please install it vertically and laterally to make the radiator from strong air convection, when necessary, install a fan near the driver to force heat dissipation to ensure that the driver works within reliable working temperature range.



Stand Alone Stepper Electronics

DS-CLS9-FRS4 Stand Alone Closed Loop - Communication Type Driver

Features

1. Input power : DC 24V-48V
2. Output rated current (peak value): 0~4.5A/phase
3. Pulse direction and RS485 control mode are optional to support MODBUS RTU

DS-CLS9-FRS4 Stand Alone Closed Loop - Communication Type Driver
Apply to Size 6, 8, 11, 14, 17, 23 of Step Motors

Specifications

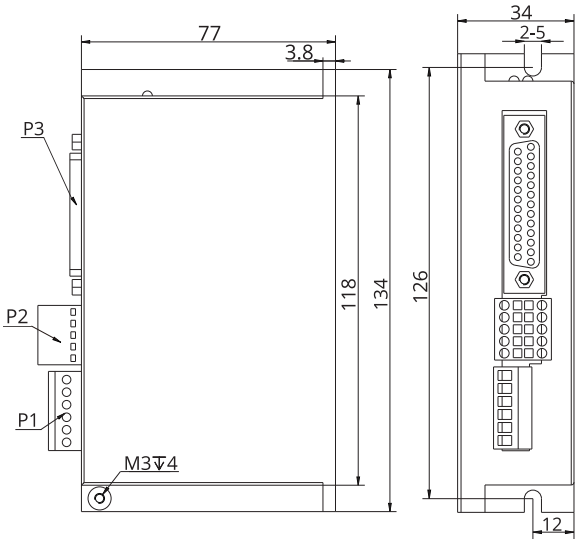
Project	Content	Remarks
Model	DS-CLS9-FRS4	
Power Supply	DC 24 ~ 48 V	
Output Current	4.5 A (0-peak)	Instantaneous current
Control Object Motor	Encoder 2-phase bipolar stepper motor	
Drive Mode	PWM constant current drive	
I/O Signals	[Input] -Pulse, direction input (configurable as digital input) -5 Digital input -Encoder input (A, B, Z) [Output] -4 digital outputs -Encoder signal output (differential A, B, Z)	The rest of input/ output can be freely configured via communication, except that the encoder output is fixed.
Digital Input Details	/SV ON (Servo On) /RESET (Alarm reset) /START (Motor start / stop /JOG (Motor jog) /HOME (Zero point)	
Digital Output Details	/IN-POSITION /ALARM	
LED Indication	Status, fault	2 indicators
Communication I/F	RS485, up to 32 nodes	MODBUS RTU protocol baud rate: 19200bps (default) or according to the agreement
Control Method	Position control mode	According to pulse positioning, according to RS485 communication positioning
Dimensions (mm)	77 x 134 x 34	Without terminal block
Weight	About 350 g	Without terminal block
Operating Temperature / Humidity	0~45°C, 85% RH or less	Prevent condensation
Storage Temperature	0~85°C, 85% RH or less	Prevent condensation
Ambient gas	Prevent corrosive gases	

Installation (Unit : mm)

1. When designs installation, please consider the size of terminals and pace required for heat dissipation.

2. The reliable working temperature of the driver is usually within 60℃ and motor is within 80℃.

3. When install driver, please install it vertically and laterally to make the radiator from strong air convection, when necessary, install a fan near the driver to force heat dissipation to ensure that the driver works within reliable working temperature range.



DS-CLS9-FRS4-01 Stand Alone Closed Loop-RS485 - Communication Type Driver

Features

1. Input power : DC 24V-48V
2. Output current : 0 - 4.5A
3. Pulse / Direction, RS-485 communication selection support MODBUS-RTU protocol
4. Torque control mode
5. Encoder signal output

DS-CLS9-FRS4 -01 Stand Alone Closed Loop - Communication Type Driver
Apply to Size 6, 8, 11, 14, 17, 23 of Step Motors

Specifications

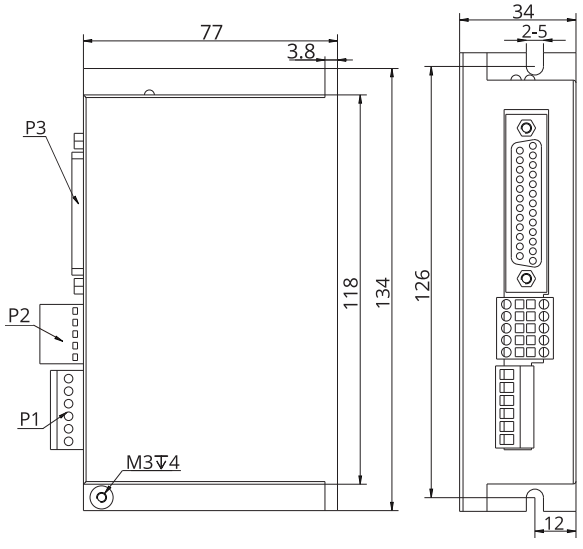
Project	Content	Remarks
Model	DS-CLS9-FRS4-01	
Power Supply	DC 24 ~ 48 V	
Output Current	4.5 A (0-peak)	Instantaneous current
Control Object Motor	Encoder 2-phase bipolar stepper motor	
Drive Mode	PWM constant current drive	
I/O Signals	[Input] -Pulse, direction input (configurable as digital input) -5 Digital input -Encoder input (A, B, Z) [Output] -4 digital outputs -Encoder signal output (differential A, B, Z)	The rest of input/ output can be freely configured via communication, except that the encoder output is fixed.
Digital Input Details	/SV ON (Servo On) /RESET (Alarm reset) /START (Motor start / stop /JOG (Motor jog) /HOME (Zero point)	
Digital Output Details	/IN-POSITION /ALARM	
LED Indication	Status, fault	2 indicators
Communication I/F	RS485, up to 32 nodes	MODBUS RTU protocol baud rate: 19200bps (default) or according to the agreement
Control Method	Position control mode Torque control mode	According to pulse positioning, according to RS485 communication positioning
Dimensions (mm)	77 x 134 x 34	Without terminal block
Weight	About 350 g	Without terminal block
Operating Temperature / Humidity	0~45°C, 85% RH or less	Prevent condensation
Storage Temperature	0~85°C, 85% RH or less	Prevent condensation
Ambient gas	Prevent corrosive gases	

Installation (Unit : mm)

1. When designs installation, please consider the size of terminals and pace required for heat dissipation.

2. The reliable working temperature of the driver is usually within 60℃ and motor is within 80℃.

3. When install driver, please install it vertically and laterally to make the radiator from strong air convection, when necessary, install a fan near the driver to force heat dissipation to ensure that the driver works within reliable working temperature range.



Stand Alone Stepper Electronics

DS-CLS9-FETC Stand Alone Closed Loop Control - EtherCAT Type

Features

1. Input power : DC 24V-48V
2. Max. Output current : 6.5A
3. PWM constant current bipolar micro-stepping drive
4. Support EtherCAT communication protocol, support control mode PP, PV, HM, CSP, CVS
5. Optically isolated inputs
6. Motor short circuit protection, under-voltage protection, over-voltage protection, over-current protection, etc.
7. Exquisite design, low noise and low vibration

DS-CLS9-FETC Stand Alone Closed Loop Control -EtherCAT Type
Apply to Size 6, 8, 11, 17, 23, 24, 34 of Step Motors

Specifications

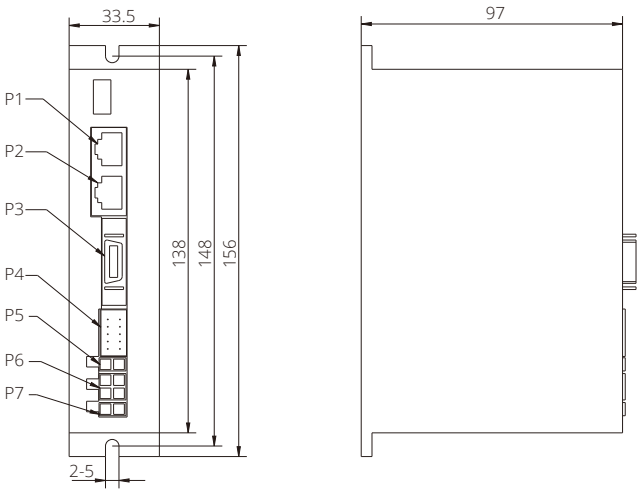
Project	Content	Remarks
Model	DS-CLS9-FETC	
Power Supply	DC 24 ~ 48 V	
Output Current	6.5 A	Instantaneous current
Control Object Motor	Encoder 2-phase bipolar stepper motor	
Drive Mode	PWM constant current drive	
I/O Signals	[Input] -High-speed inputs 2 -5 Digital input -Encoder input (A, B, Z) [Output] -3 digital outputs -Encoder signal output (differential A, B, Z)	The rest of input/ output can be freely configured via communication, except that the encoder output is fixed.
Digital Input Details	Enable, Alarm reset, Positive limit, Negative limit, Emergency stop, Origin, etc	
Digital Output Details	IN-POSITION, ALARM	
Brake	Brake output	
LED Indication	Status, fault	
EtherCAT Communication Address (nodes)	1 ~ 255	
Control Mode	PP, PV, HM, CSP	
Dimensions (mm)	156 x 97 x 33.5	Without terminal block
Weight	About 500 g	Without terminal block
Operating Temperature / Humidity	0~45°C, 85% RH or less	Prevent condensation
Storage Temperature	0~85°C, 85% RH or less	Prevent condensation
Ambient gas	Prevent corrosive gases	

Installation (Unit : mm)

1. When designs installation, please consider the size of terminals and pace required for heat dissipation.

2. The reliable working temperature of the driver is usually within 60℃ and motor is within 80℃.

3. When install driver, please install it vertically and laterally to make the radiator from strong air convection, when necessary, install a fan near the driver to force heat dissipation to ensure that the driver works within reliable working temperature range.



DS-CLS9-FCAO Stand Alone Closed Loop Control - CANopen Type

Features

1. Input power : DC 24V-48V
2. Max. Output current : 6.5A
3. PWM constant current bipolar micro-stepping drive
4. Support CANopen communication protocol, support control mode PP, PV, HM, PT
5. Optically isolated inputs
6. Motor short circuit protection, under-voltage protection, over-voltage protection, over-current protection, etc.
7. Exquisite design, low noise and low vibration

DS-CLS9-FCAO Stand Alone Closed Loop-CANopen
Apply to Size 6, 8, 11, 23,24,34 of Step Motors

Specifications

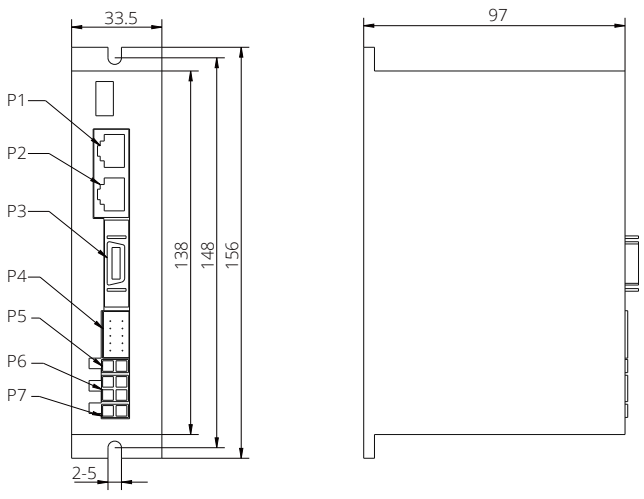
Model		DS-CLS9-FCAO
Adapted Motor		2-phase hybrid stepping motor
Power Supply		DC 24 – 48 V
Output Current		0.1 – 6.5 A
Driving Method		Full-bridge Bipolar PWM
Initialization Time		2s
Input Signal	2 high-speed input signals	Optocoupler input voltage H = 3.5 – 26 V , L = 0 – 0.8 V , Current 5 - 8 mA
	5 common input signals	Optocoupler input voltage H = 24 V , L = 0 – 0.8 V , Current 5 - 8 mA
Output Signal	3 common output signals	Optocoupler output, withstand voltage up to 30VDC maximum saturation current 50mA
Size (mm)		156 × 97 × 33.5 mm
Weight		About 500g
Operating Environment	Pulse Signal	Avoid dust, oil mist and corrosive gas
	Humidity	<85% RH, no condensation
	Temperature	0 ~ 40°C
	Heat Dissipation	Install in a ventilated environment

Installation (Unit : mm)

1. When designs installation, please consider the size of terminals and pace required for heat dissipation.

2. The reliable working temperature of the driver is usually within 60℃ and motor is within 80℃.

3. When install driver, please install it vertically and laterally to make the radiator from strong air convection, when necessary, install a fan near the driver to force heat dissipation to ensure that the driver works within reliable working temperature range.



Stand Alone Stepper Electronics

DS-OLS10-FSC Stand Alone Open Loop-Speed Regulation

DS-OLS10-FSC Stand Alone Open Loop
-Speed Regulation
Apply to Size 11, 14, 17, 23 of Step Motors

Features

1. Input power : DC 24V-48V
2. Maximum output current (peak) : 4.5A
3. Control mode: constant speed, analog quantity
4. Optoelectronic isolation input function, 5-24VDC compatible input
5. Motor short circuit protection function
6. Compact design, low noise, low vibration

Specifications

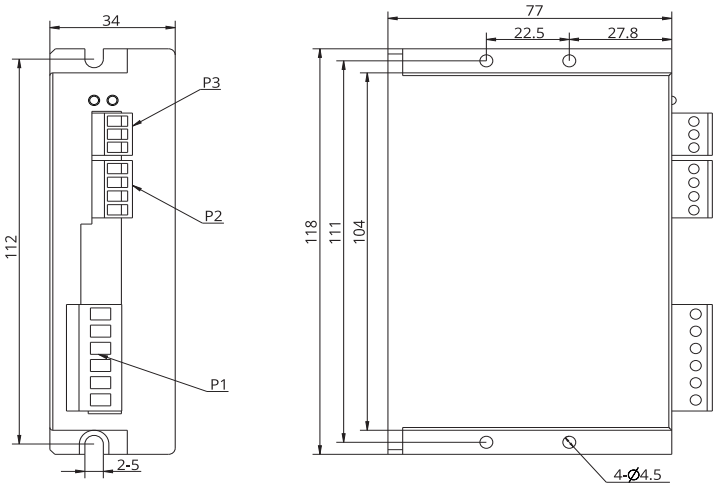
Model		DS-OLS10-FSC
Adapted Motor		Adapted to two-phase hybrid stepping motor, DS-OLS10-FSC Maximum fit 4.5A
Power Supply		24 – 48 VDC
Output Current		0.1 – 4.5 A / Phase
Driving Method		Full-bridge Bipolar PWM
Input Signal	IN 1 (Start) Signal	Optocoupler input voltage H = 3.5 – 26 V , L = 0 – 0.8 V Current 6 - 15 mA
	IN 2 (Direction) Signal	
	IN 1 (Speed switch) Signal	
Analog Adjustment		Connected to 10K potentiometer or 0 -10 V analog adjustment
Size (mm)		118 × 78 × 34 mm
Weight		About 300g
Operating Environment	Pulse Signal	Avoid dust, oil mist and corrosive gas
	Humidity	<85% RH, no condensation
	Temperature	0 ~ 40°C
	Heat Dissipation	Install in a ventilated environment

Installation (Unit : mm)

1. When designs installation, please consider the size of terminals and pace required for heat dissipation.

2. The reliable working temperature of the driver is usually within 60℃ and motor is within 80℃.

3. When install driver, please install it vertically and laterally to make the radiator from strong air convection, when necessary, install a fan near the driver to force heat dissipation to ensure that the driver works within reliable working temperature range.



Stand Alone Brushless Servo Driver

DS-BVS-FCAO/FETC Stand Alone Closed Loop - CANopen, EtherCAT

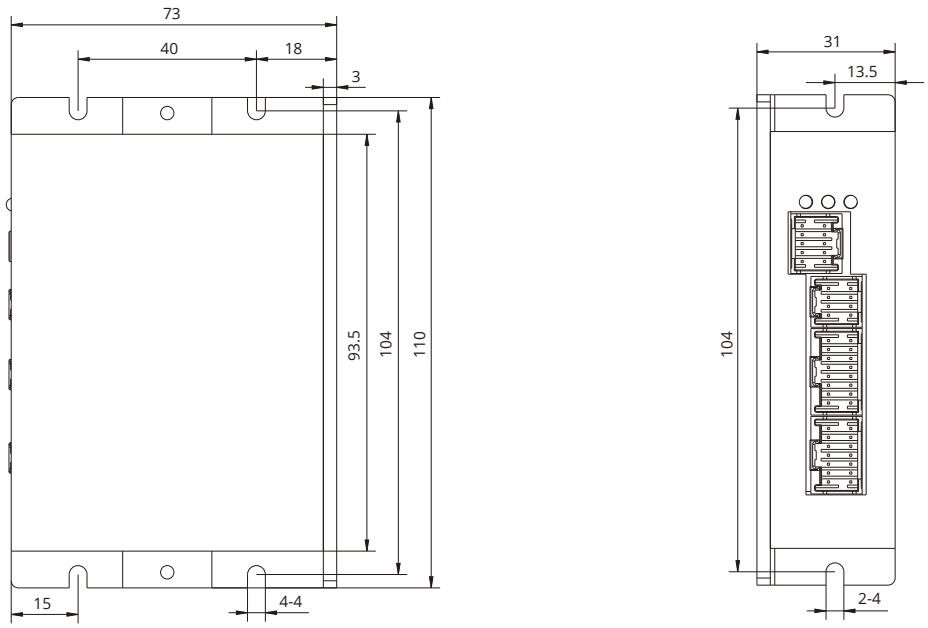
Features

1. Input power: DC 12V-48V
2. Output rated current：Continuous current 10A, Max. Current 20A Peak
3. Support BLDC, VCM, PMSM, LSM, DC
4. 6 Inputs and 2 Ouptuts
5. Support CANOpen, EtherCAT protocol

Specifications

Adapted Motor		DC / BLDC / PMSM / VCM
Current (Torque) Control		Control periodic 24KHz
Velocity & Position Control		Control periodic 2KHz
Reference Command		USB + CANopen or EtherCAT (CoE, FoE)
Auto Tuning		Automatic self-configuration and optimization of motor phasing, wires, current loop, velocity control loop.
User Interface		GUI : DINGS' servo studio, Setting, Drive, Motor, Feedback, I/O, Motion
Protective Functions		Under-and over-voltage, Over-current, Over-load (with PT), Drive over-temperature, Feedback sensor signal lost
Operating Environment	Ambient temperature	0 – 45°C
	Storage temperature	0 – 70°C
	Humidity	10 – 90%

Installation (Unit : mm)



Stand Alone Brushless Mini Servo Driver

DS-BVM-FCAO /FETC Stand Alone Closed Loop - CANopen, EtherCAT

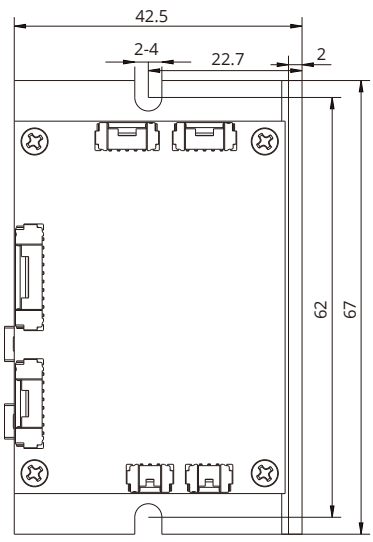
Features

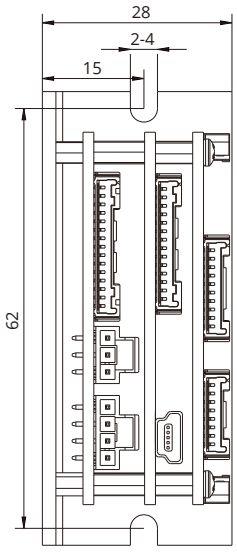
1. Input power : DC12V~48V
2. Output rated current : Continuous Current 3A, Max. Current 6A Peak
3. Support BLDC, VCM, PMSM, LSM, DC
4. 6 Inputs, 2 Outputs
5. Support CANOpen, EtherCAT Protocol

Specifications

Adapted Motor		DC / BLDC / PMSM / VCM
Current (Torque) Control		Control periodic 24KHz
Velocity & Position Control		Control periodic 2KHz
Reference Command		USB + CANopen or EtherCAT (CoE, FoE)
Auto Tuning		Automatic self-configuration and optimization of motor phasing, wires, current loop, velocity control loop.
User Interface		GUI : DINGS' servo studio, Setting, Drive, Motor, Feedback, I/O, Motion
Protective Functions		Under-and over-voltage, Over-current, Over-load (with PT), Drive over-temperature, Feedback sensor signal lost
Operating Environment	Ambient temperature	0 – 45°C
	Storage temperature	0 – 70°C
	Humidity	10 – 90%

Installation (Unit : mm)





DS-OLBS2-FRS4 Stand Alone Speed Controller - RS-485

Features

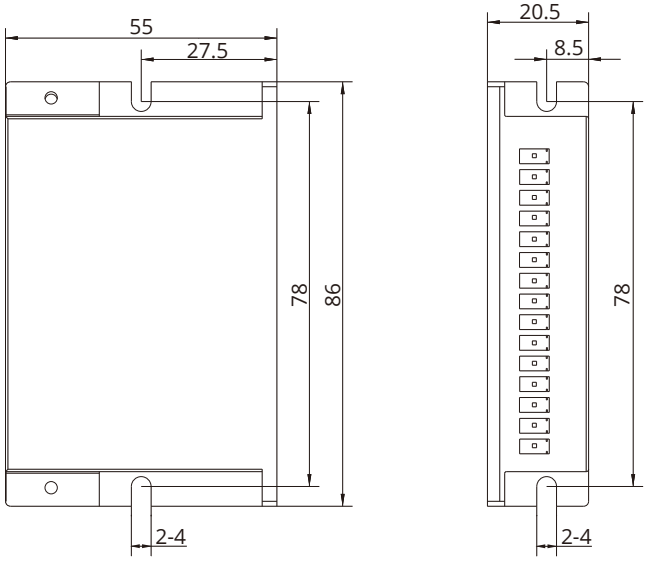
1. Isolation of input and output signals
2. External analog and PWM input
3. Start / Stop control & Forward / Reverse control
4. Electrical stop to ensure quick action of motor
5. Rotor protection, Fast response speed and High control accuracy
6. The overload ratio is more than double, and the torque can be achieved the max in low speed.

DS-OLBS2-FRS4 Driver

Specification

Model		DS-OLBS2-FRS4
Adapted Motor		Less than 80W Brushless DC motor
Power Supply		12 – 24 VDC
Output Current		5 A
Speed Controlled Analog Voltage		0 – 5 V
Structure		Wall mounting
Cooling Method		Air cooling
Control Signal		Full isolation of input and output signals
Protections		Over voltage, under voltage, over current, over temperature, abnormal hall signal and other fault alarms
Communication Mode		RS-485 Multi-axes communication
Operating Environment	Operating Temperature	0 ~ 45°C
	Storage Temperature	-20 ~ 85°C
	Operating Humidity	<85% RH

Installation (Unit : mm)



Brushless DC Motor Speed Controller

DS-OLBS4-FRS4 Stand Alone Speed Controller - RS-485

Features

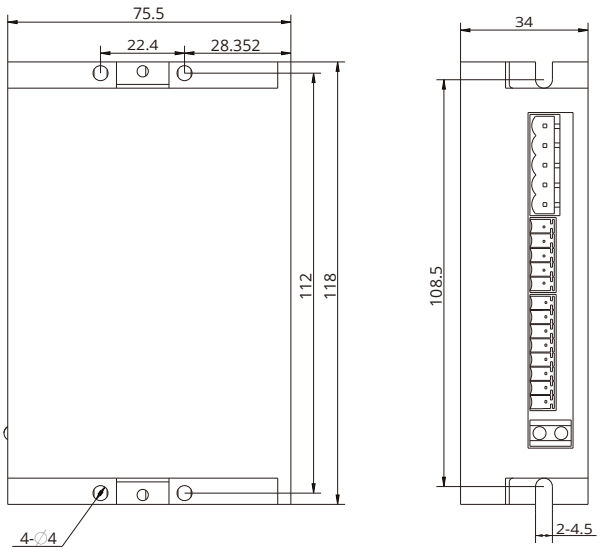
1. PID speed and current dual loop regulator
2. 20KHz chopper frequency
3. Start / Stop control & Forward / Reverse control
4. Electrical stop to ensure quick action of motor
5. Rotor protection, Fast response speed and High control accuracy
6. The overload ratio is more than double, and the torque can be achieved the max in low speed.

DS-OLBS4-FRS4 Driver

Specification

Model		DS-OLBS4-FRS4
Adapted Motor		Less than 200W Brushless DC motor
Power Supply		24 – 48 VDC
Output Current		10 A
Speed Controlled Analog Voltage		0 – 5 V
Structure		Wall mounting
Cooling Method		Air cooling
Control Signal		Full isolation of input and output signals
Protections		Over voltage, under voltage, over current, over temperature, abnormal hall signal and other fault alarms
Communication Mode		RS-485 Multi-axes communication
Operating Environment	Operating Temperature	0 ~ 45°C
	Storage Temperature	-20 ~ 85°C
	Operating Humidity	<85% RH

Installation (Unit : mm)



Brushless DC Motor Speed Controller

DS-OLBS6-FSC Stand Alone Speed Controller - Analog Control

Features

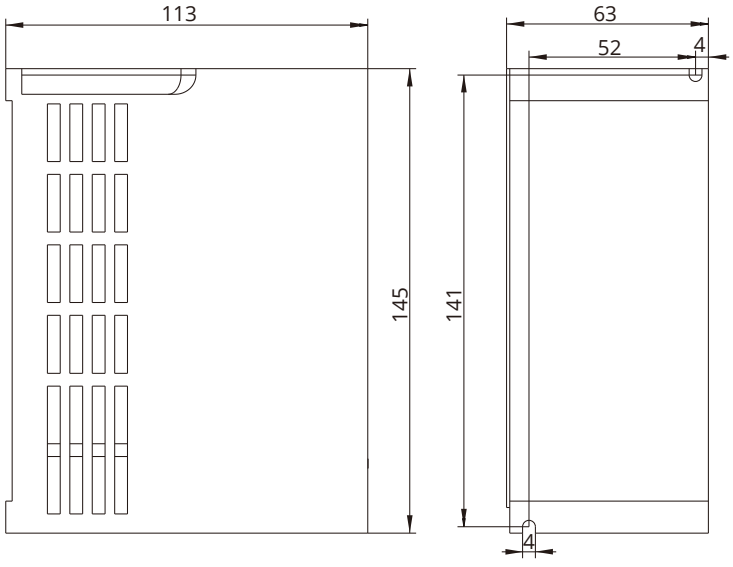
1. PID speed and current dual loop regulator
2. 20KHz chopper frequency
3. Start / Stop control & Forward / Reverse control
4. Electrical stop to ensure quick action of motor
5. Rotor protection, Fast response speed and High control accuracy
6. The overload ratio is more than double, and the torque can be achieved the max in low speed.

DS-OLBS6-FSC Driver

Specification

Model		DS-OLBS6-FSC
Adapted Motor		Less than 400W Brushless DC motor
Power Supply		24 – 48 VDC
Output Current		15 A
Speed Controlled Analog Voltage		0 – 5 V
Structure		Wall mounting
Cooling Method		Air cooling
Control Signal		Full isolation of input and output signals
Protections		Over voltage, under voltage, over current, over temperature, abnormal hall signal and other fault alarms
Communication Mode		RS-485 Multi-axes communication
Operating Environment	Operating Temperature	0 ~ 45°C
	Storage Temperature	-20 ~ 85°C
	Operating Humidity	<85% RH

Installation (Unit : mm)



Brushless DC Motor Speed Controller

DS-OLBS8-FRS4 Stand Alone Speed Controller - RS-485

Features

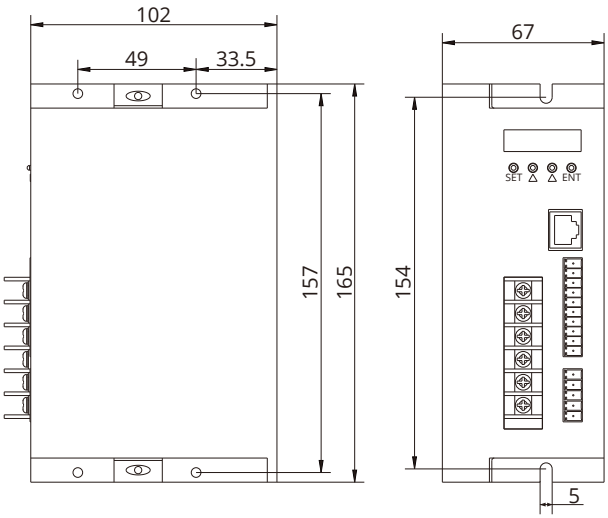
1. Hall sensor or sensorless control mode can be set and both modes are compatible.
2. External analog input and PWM (1~2KHz) input
3. Start / Stop control & Forward / Reverse control
4. Electrical stop to ensure quick action of motor
5. Rotor protection, Fast response speed and High control accuracy
6. Load without deceleration, power compensation, large starting torque
7. The overload ratio is more than double, and the torque can be achieved the max in low speed.

DS-OLBS8-FRS4 Driver

Specification

Model		DS-OLBS8-FRS4
Adapted Motor		Less than 750W Brushless DC motor
Power Supply		24 – 48 VDC
Output Current		30 A
Speed Controlled Analog Voltage		0 – 5 V
Structure		Wall mounting
Cooling Method		Air cooling
Control Signal		Full isolation of input and output signals
Protections		Over voltage, under voltage, over current, over temperature, abnormal hall signal and other fault alarms
Communication Mode		RS-485 Multi-axes communication
Operating Environment	Operating Temperature	0 ~ 45°C
	Storage Temperature	-20 ~ 85°C
	Operating Humidity	<85% RH

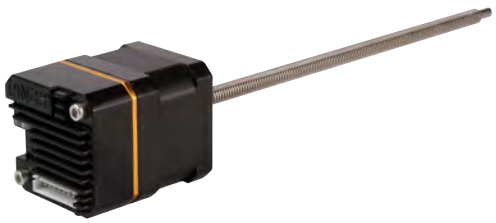
Installation (Unit : mm)



DS-OL42-IPD-T Integrated Open Loop - Pulse Direction

Features

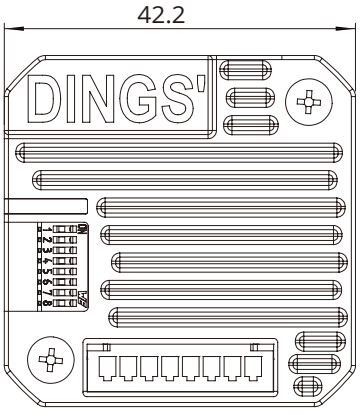
1. Input power: DC 24V
2. 8 Output current settings
3. PWM constant current bipolar subdivision drive
4. 16 Micro-step resolutions of DIP Switches
5. Single / Double pulse selection
6. Optically isolated input function
7. Motor short circuit protection
8. Compact design, low noise and low vibration
9. Support step-out protection

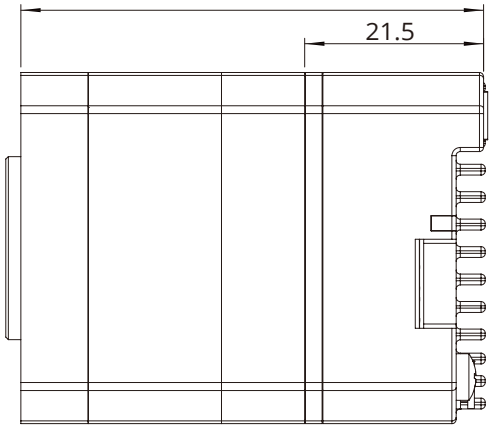


Specifications

Model		DS-OL42-IPD-T
Power Supply		24 VDC
Output Current		0.3 – 2.2 A / Phase
Driving Method		Full-bridge Bipolar PWM
Input Signal	Pulse Signal	Optocoupler input voltage H = 3.5 – 5 V , L = 0 – 0.8 V , Current 6 - 15 mA Signal power supply 12VDC Series resistance R = 1kΩ Signal power supply 24VDC Series resistance R = 2.2kΩ It also can be selected according to the input signal voltage such as fixed 12V or 24V
	Offline Signal	
	Direction Signal	
Operating Environment	Pulse Signal	Avoid dust, oil mist and corrosive gas
	Humidity	<85% RH, no condensation
	Temperature	0 ~ 40 °C
	Heat Dissipation	Install in a ventilated environment

Installation (Unit : mm)





Integrated Stepper Electronics

DS-OL42-IPD (IRS4) Integrated Open Loop - RS485

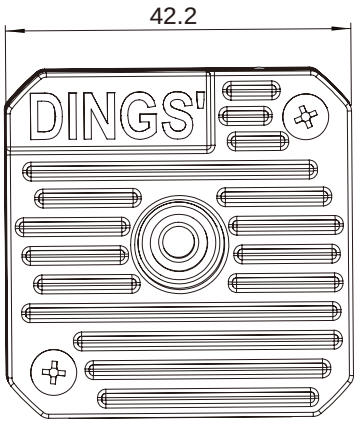
Features

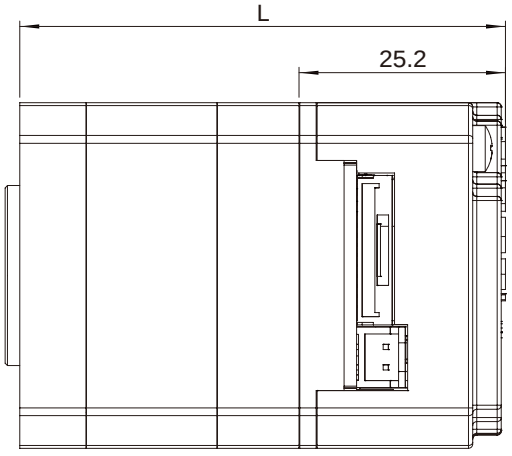
1. Input power：DC 24-36V
2. Output rated current (peak value)： 0.5~3.0A/Phase
3. Pulse, RS485 control, support MODBUS RTU communication protocol
4. Through hole type of Integrated Driver compatible DINGS' NEMA Size 17 step motor is diameter less than 11mm.
5. Input & Output 2 high speed input 2 general input 1 general output

Specifications

Model		DS-OL42-IPD / DS-OL42-IRS4
Adapted Motor		Suitable for two-phase hybrid stepping motor, the maximum adaptation is 3.0 A
Power Supply		DC 24 – 36 V
Output Current		0.5 – 3.0 A
Driving Method		Full-bridge Bipolar PWM
Initialization Time		2s
Input Signal	2 high-speed input signals	Optocoupler input voltage H = 3.5 – 26 V , L = 0 – 0.8 V , Current 5 - 8 mA
	2 common input signals	Optocoupler input voltage H = 5 V , L = 0 – 0.8 V , Current 5 - 8 mA
Output Signal	1 common output signal	Optocoupler output, withstand voltage up to 30VDC maximum saturation current 10mA
Size (mm)		42.2 × 42.2 × 25.2 mm
Weight		About 60g
Operating Environment	Pulse Signal	Avoid dust, oil mist and corrosive gas
	Humidity	<85% RH, no condensation
	Temperature	0 ~ 40°C
	Heat Dissipation	Install in a ventilated environment

Installation (Unit : mm)





DS-OL42-ICAO Integrated Open Loop - CANOpen

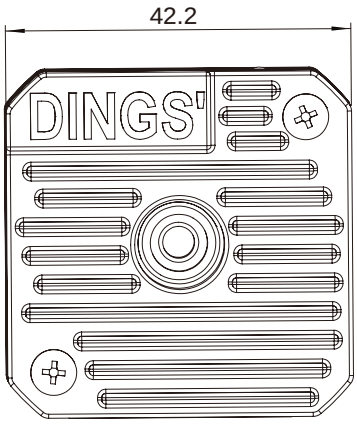
Features

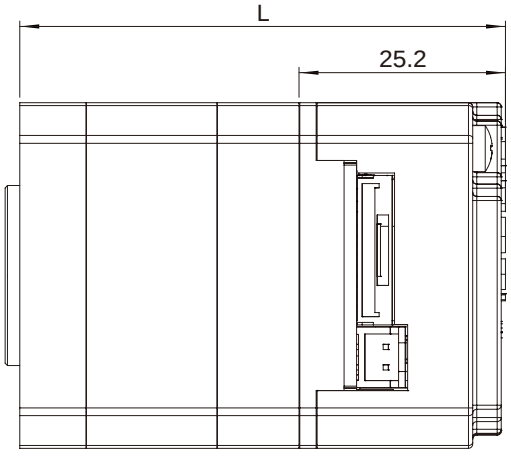
1. Input power: DC 24-36V
2. Output rated current (peak value): 0.5~3.0A/phase
3. Support CANopen communication protocol, Support control mode PP, PV, HM
4. Through hole type of Integrated Driver compatible DINGS' NEMA Size 17 step motor is diameter less than 11mm.
5. Input and Output is 4 general input and 1 universal output

Specifications

Model		DS-OL42-ICAO
Adapted Motor		Suitable for two-phase hybrid stepping motor, the maximum adaptation is 3.0 A
Power Supply		DC 24 – 36 V
Output Current		0.5 – 3.0 A
Driving Method		Full-bridge Bipolar PWM
Initialization Time		2s
Input Signal	4 high-speed input signals	Optocoupler input voltage H = 5 V , L = 0 – 0.8 V , Current 6 - 15 mA
Output Signal	1 common output signal	Optocoupler output, withstand voltage up to 30VDC maximum saturation current 10mA
Size (mm)		42.2 × 42.2 × 25.2 mm
Weight		About 60g
Operating Environment	Pulse Signal	Avoid dust, oil mist and corrosive gas
	Humidity	<85% RH, no condensation
	Temperature	0 ~ 40°C
	Heat Dissipation	Install in a ventilated environment

Installation (Unit : mm)





Integrated Stepper Electronics

DS-CL28-SA Integrated Closed Loop - RS485

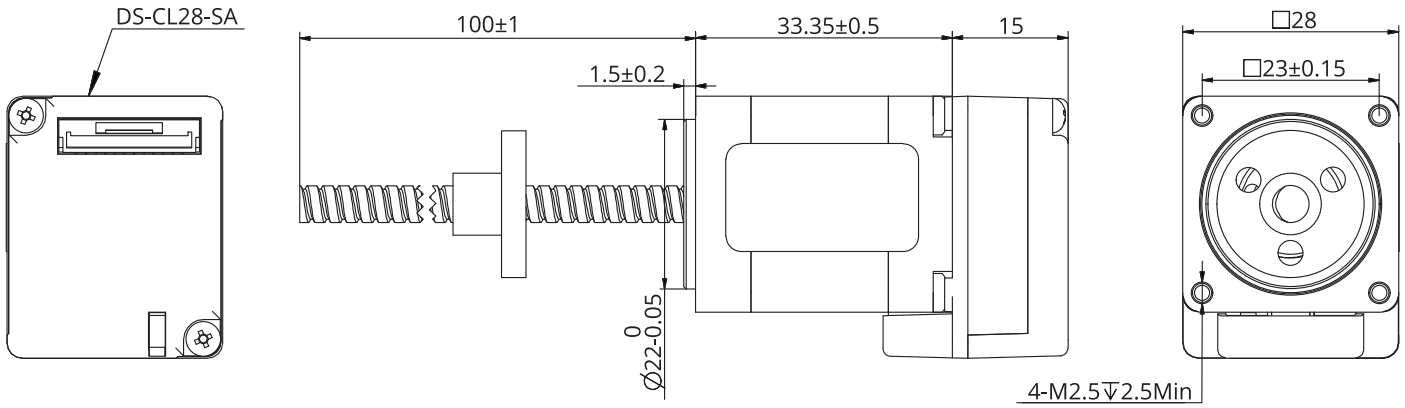
Features

1. Input power : DC24Vdc±10%
2. Output rated current (peak value) : 0 ~4.8A/Phase
3. Integrated 28mm Stepper Closed Loop Series, RS485 Communication interface supports MODBUS RTU Communication protocol
4. 3 Inputs, 1 Outputs

Specifications

Input Voltage	24 VDC ± 10 %	
Control Method	Closed loop control with 32 bit ARM	
Multi Axes Driver	Max 16 axes through Star Topology	
Position Table	64 movement command steps (continuous cycle jump etc)	
Board Current Consumption	Max 500mA (Except motor current)	
Ambient Temperature	Use : 0 ~ 40°C	Storage : -20 ~ 70°C
Ambient Humidity	Use : 35 – 85% RH (non-condensing)	Storage : 10 – 90% RH (non-condensing)
Vibration Resistant	0.5 G	
Rotation Speed	0 – 3000 rpm	
Encoder Resolution (P/R)	Max 16000 PPR	
Protection Functions	Multiple alarm function. For details, please refer to product manual	
Rotational Direction	CW / CCW (Selectable by parameter)	
Digital Inputs	4 programmable inputs (Photocoupler)	
Digital Output	-	
Communication Interface	RS-485 Serial communication with PC transmission speed : 115200 (bps)	
Position Control	Incremental mode Data range : -134217727 ~ +134217727 (pulse) Pulse speed : Max 800 kpps	
Return to Origin	Origin sensor, ± Limit sensor, Z phase, Torque	
GUI	User interface program with in windows	
Software	Ezi-Motion GUI / Motion library (DLL) for Windows 2000/XP/7/8/10	

Installation (Unit : mm)



DS-CL42-SA Integrated Closed Loop - RS485

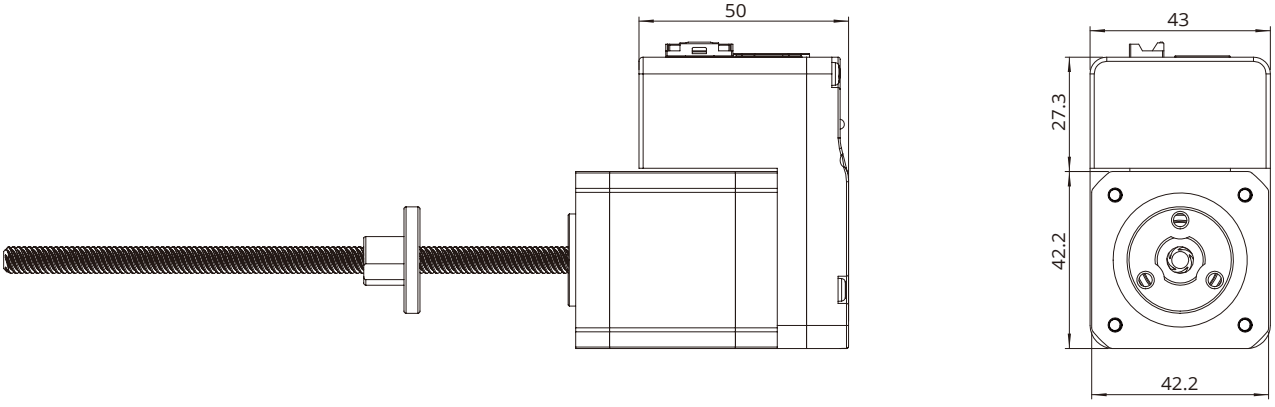
Features

1. Input power: DC24Vdc±10%
2. Output rated current (peak value) : 0 ~4.8A/Phase
3. Integrated 42mm Stepper Closed Loop Series, RS485 Communication interface supports MODBUS RTU Communication protocol
4. 7 Inputs, 3 Outputs

Specifications

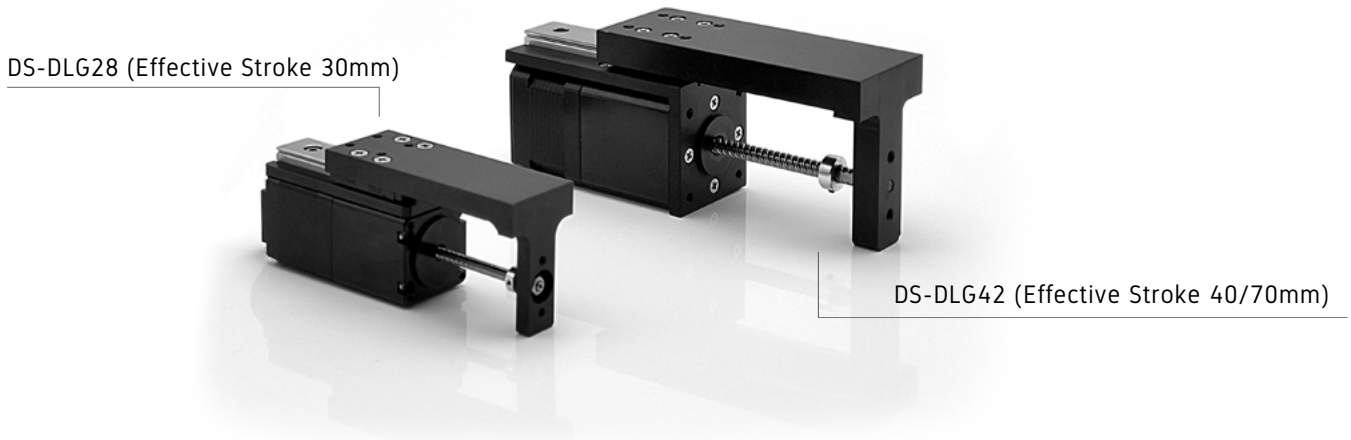
Input Voltage	24 VDC ± 10 %	
Control Method	Closed loop control with 32 bit ARM	
Multi Axes Driver	Max 16 axes through Star Topology	
Position Table	64 movement command steps (continuous cycle jump etc)	
Board Current Consumption	Max 500mA (Except motor current)	
Ambient Temperature	Use : 0 ~ 40°C	Storage : -20 ~ 70°C
Ambient Humidity	Use : 35 – 85% RH (non-condensing)	Storage : 10 – 90% RH (non-condensing)
Vibration Resistant	0.5 G	
Rotation Speed	0 – 3000 rpm	
Encoder Resolution (P/R)	Max 10000 PPR	
Protection Functions	Multiple alarm function. For details, please refer to product manual	
Rotational Direction	CW / CCW (Selectable by parameter)	
Digital Inputs	7 programmable inputs (Photocoupler)	
Digital Output	3 programmable outputs (Photocoupler)	
Communication Interface	RS-485 Serial communication with PC transmission speed : 115200 (bps)	
Position Control	Incremental mode Data range : -134217727 ~ +134217727 (pulse) Pulse speed : Max 800 kpps	
Return to Origin	Origin sensor, ± Limit sensor, Z phase, Torque	
GUI	User interface program with in windows	
Software	Ezi-Motion GUI / Motion library (DLL) for Windows 2000/XP/7/8/10	

Installation (Unit : mm)



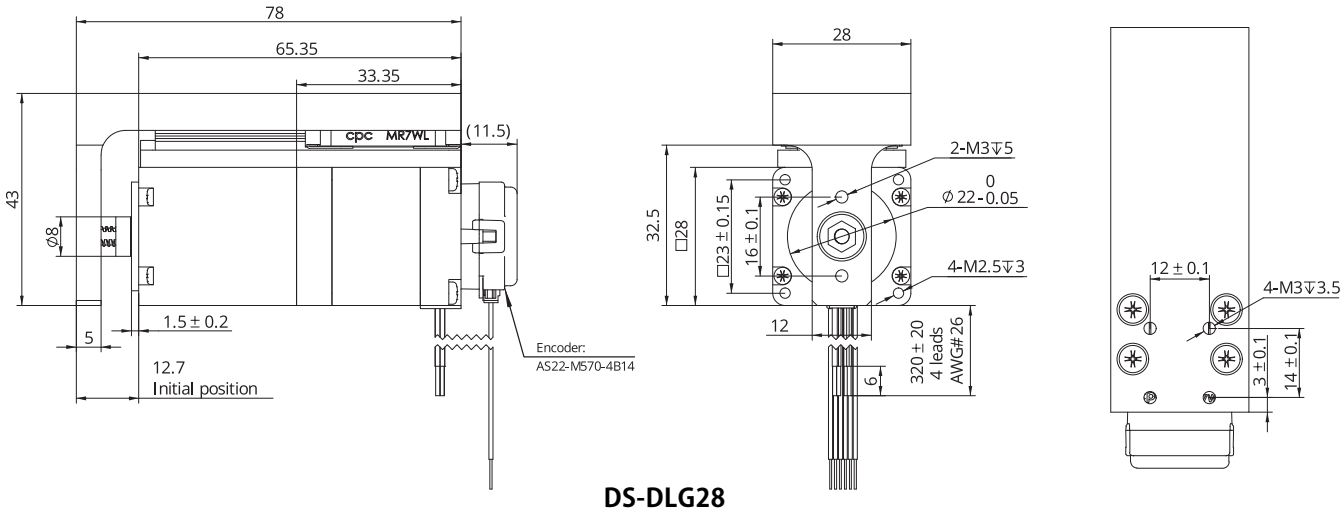
DLG/DLS Electric Slide Ball Screw Linear Actuator

Miniature Electric Linear Actuator based on Ball Screw

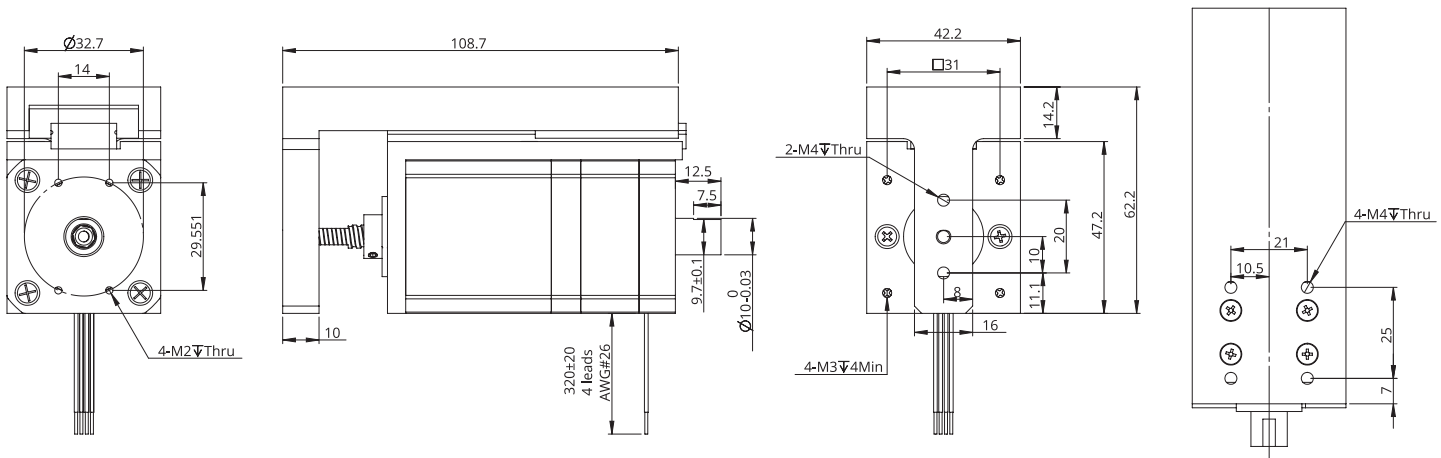


1. Compact linear actuator integrated with stepper motor and ball screw
2. Direct integration structure without coupling, higher efficiency and precision
3. It enables equipment design compact and reduce the number of parts and assembly process
4. Compared with trapezoidal screw type, it can achieve high precision, bigger thrust and longer life cycle

Dimensional Drawings



DS-DLG28

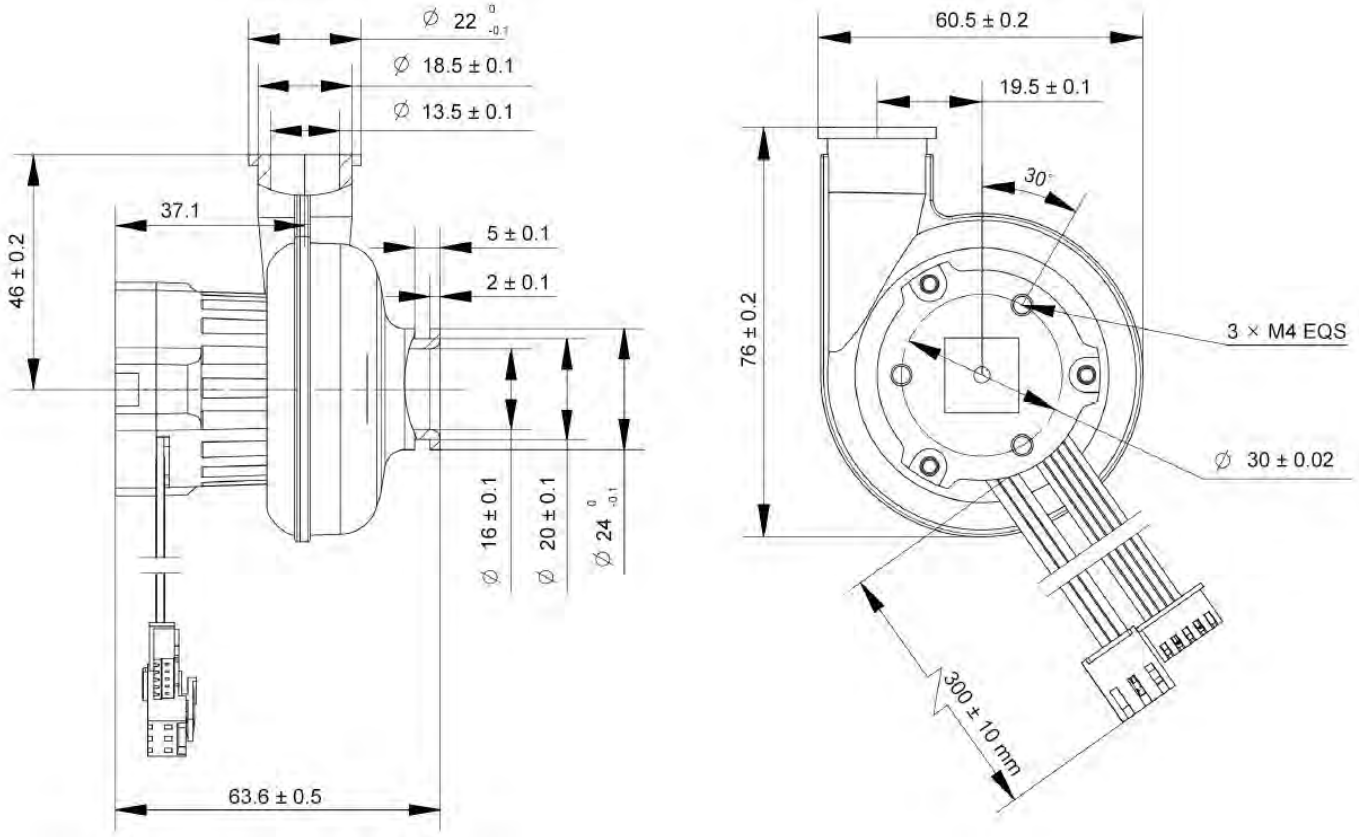


DS-DLG42

Brushless DC Blower Motor

1. Potentiometer speed control
2. Analog speed command signal. Fan speed is proportional to the analog command signal, and the range of the command signal is 0 - 5 V
3. Digital speed command signal (PWM). Fan speed is proportional to the PWM duty cycle signal, the command signal is 5V, 200Hz, the adjustment range is 10% - 90%, and it stops when it is lower than 10%.
4. High wind pressure, high flow rate, low noise, long life, small size, customizable.

Dimensional Drawings



Customization Options

IP54 coated motor solution

1. Epoxy resin Primer coating and blue polyurethane finish with thickness of 0.1 – 0.15 mm.
2. Coated surface can withstand up to 48 hours of salt spray.
3. Wiring connections use industrial threaded connector, capable of anti-vibration and anti-squeezing, obtaining protection class of IP 54.

FOR MORE INFOMATION, CONTACT YOUR LOCAL
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