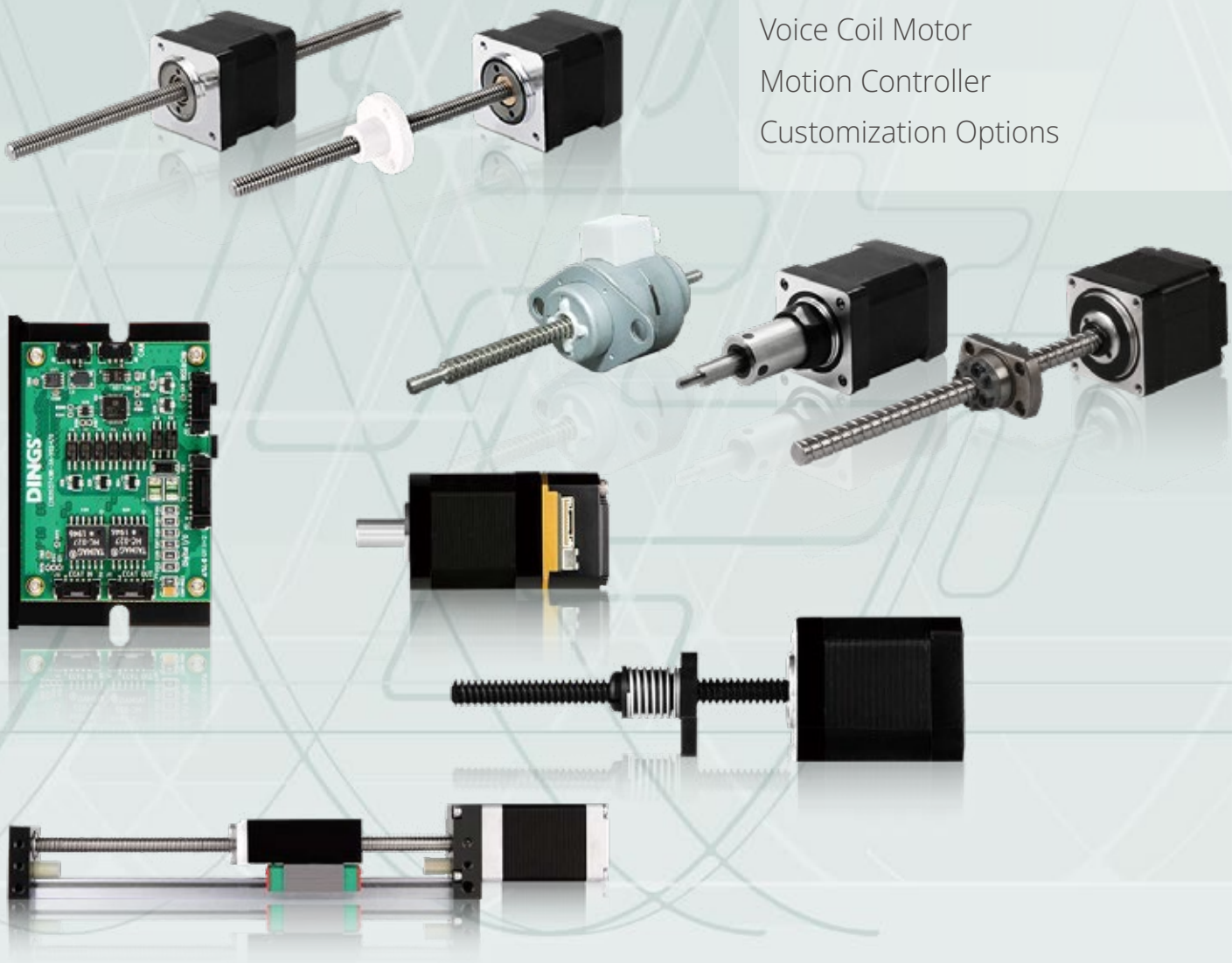
DINGS'

Precision Motion Specialist

GENERAL CATALOG

PRODUCTS 2024

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



Jiangsu DINGS' Intelligent Control Technology Co., Ltd.

DINGS
Precision Motion Specialist



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

Jiangsu DINGS' Intelligent Control Technology Co., Ltd (stock code: 873593) was established in April 2008 and is an innovative technology enterprise. It has been awarded the titles of "National High tech Enterprise" and "National Specialization, Precision, and Innovation"

Titles such as "Little Giant Enterprise" and "Jiangsu Province Science and Technology Small and Medium sized Enterprise".
Main products include precision stepper motors, rolling trapezoidal screw linear actuators, BLDC/DC motors, new energy motors and motion controllers.
Wide range of products, linear modules and voice coil motors are widely used in fields such as bio-medical, healthcare, automation, semiconductors, aerospace, new energy vehicles and etc.
As a professional customized solution provider, DINGS' provides customers personalized and integrated services such as product research and development design, sample manufacturing, inspection, analysis and help customers improve efficiency.

The company is headquartered in Changzhou, Jiangsu with subsidiaries in USA, South Korea and technical service center in Germany.

The company adopts the ISO9001 quality system and all products comply with CE/RoHS requirements.

For more product information, please refer to our website:

www.dingsmotion.com

Or contact DINGS' global distributors for technical support.

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



DINGS'
Precision Motion Specialist

GENERAL CATALOG

A Lead Screw Linear Actuator

B Hybrid Rotary Stepper Motor

C Hollow Shaft Stepper Motor

D Brushless DC Motor

E Brush DC Motor

F Slotless Brushless DC Motor

G DLM / DSM Series

DLM Series

DSM Series

H Gripper

I Voice Coil Motor

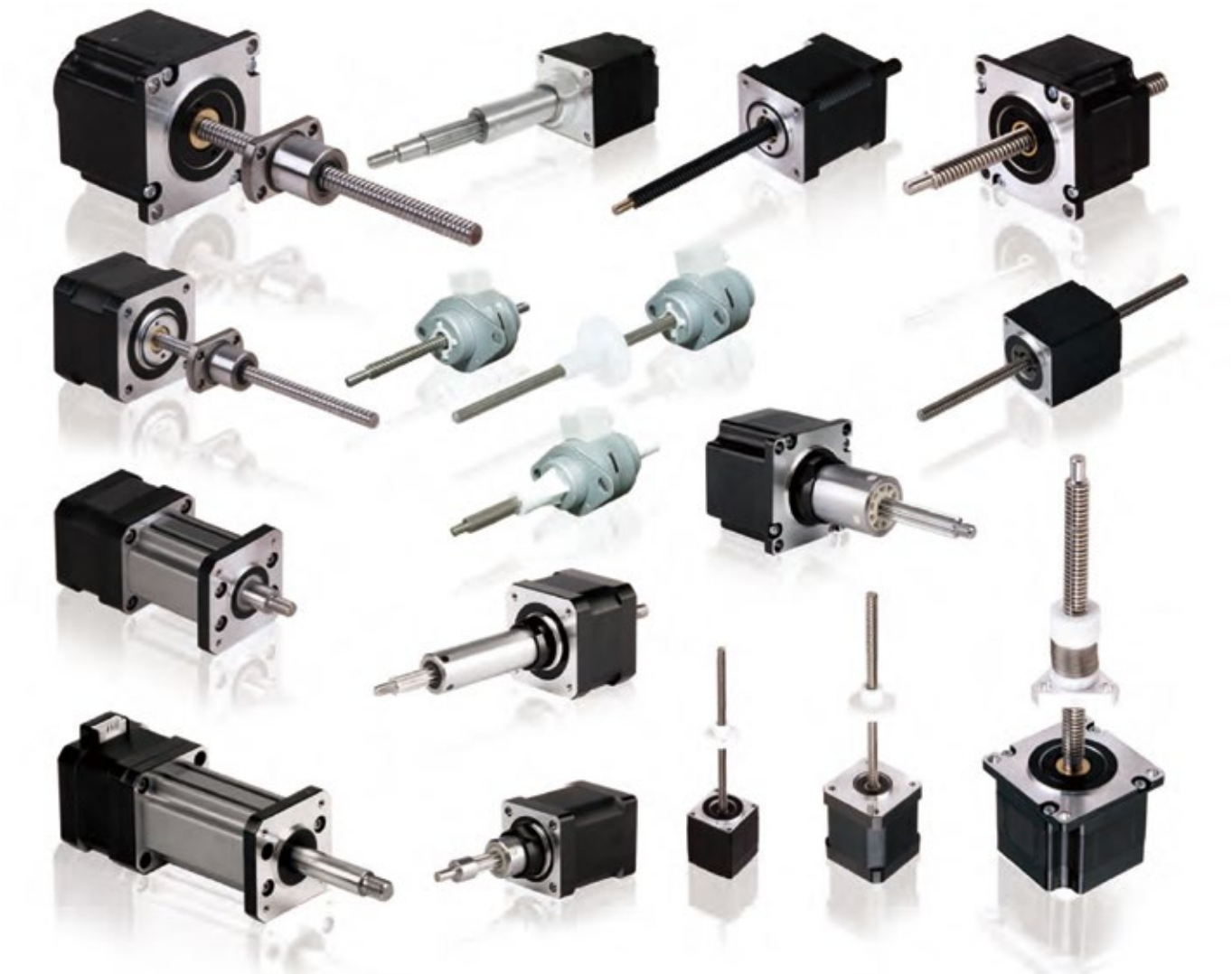
J Motion Controller

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

17N 2 1 15 K 4 - 101.6 T M S EK2 - 001

(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12) (13)

(1) Motor Size

Motor Size (mm)	14	20	28	35	42	57	60	86
Motor Size (NEMA)	6	8	11	14	17	23	24	34

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

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

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

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

(6) Lead Screw Code
- Please refer to lead screw code selection table

(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 Grease

[Note]
- -Screw lead <0.6mm : standard grease
- -Screw lead >0.6mm : standard grease or teflon coating

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

(11) Nut Style
- S = Standard Flange Nut
  [For External Stepper Lead Screw Linear Actuator]
- A = Anti-Backlash Nut
  [For External/Non-Captive Stepper Lead Screw Linear Actuator]

(12) Option
- EKX = Encoder [X = Encoder Resolution]
- P = Manual Knob
- B = Brake
- X = Rear Shaft
- R = Encoder Ready [Hole and Shaft]
- C = Customize
- N = No processing at the rear end

(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 (0.138″)	Φ4.77 (0.188″)	Φ5.56 (0.218″)	Φ6 (0.236″)	Φ6.35 (0.25″)	Φ8 (0.315″)	Φ9.525 (0.375″)	Φ10 (0.394″)	Φ12 (0.472″)	Φ15.875 (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)		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)	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)		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)				
E	0.000985″ (0.025)				0.1969″ (5.0)		0.1969″ (5.0)			0.1969″ (5.0)	
C	0.00197″ (0.05)						0.3937″ (10.0)		0.3937″ (10.0)	0.3937″ (10.0)	
I	0.00394″ (0.1)								0.7874″ (20.0)		
N	0.000156″ (0.00397)					0.0313″ (0.794)					

Note : The data in [ ] refers to the conversion between metric and imperial systems. When the division is incomplete, rounding is used to retain four significant digits.
Optional left handed rotation with * lead

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

As the size of the motor increases, the output thrust of the motor correspondingly increases.

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.

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.

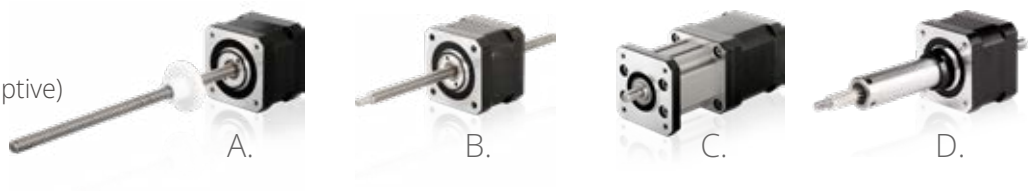
Some basic design consideration are as follows:

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?

TERMINOLOGY

LINEAR ACTUATOR TYPES

A. External Linear
B. Non-captive
C. Electric Cylinder (Captive)
D. Kaptive



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.

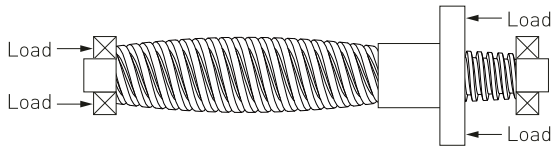
TOTAL INDICATED RUNOUT

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

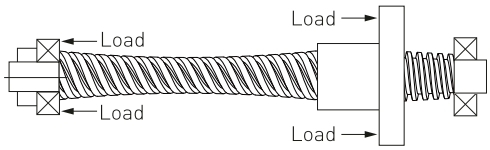
Technology Overview

- **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.
- **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.

Technology Overview

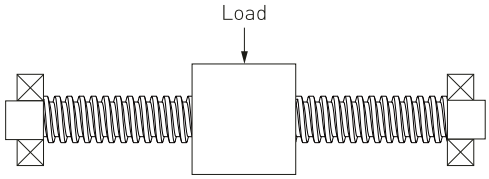


Compression Loading



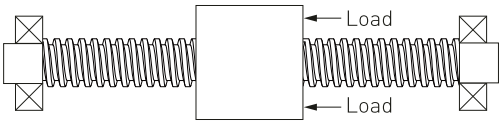
Tension Loading

- **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

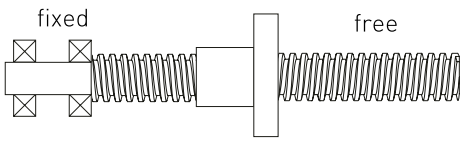
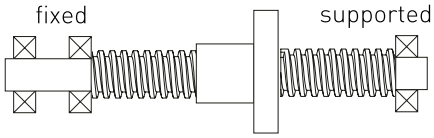
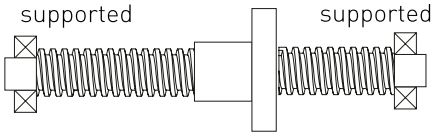
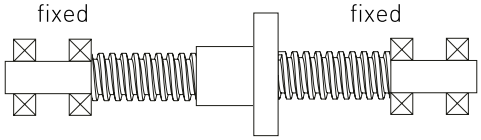
- **LUBRICATION**
  The nut material contains a self-lubricating material that eliminates the need for adding a lubricant to the system. The Teflon coated screw option also lowers friction and extends life of the system

- **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.

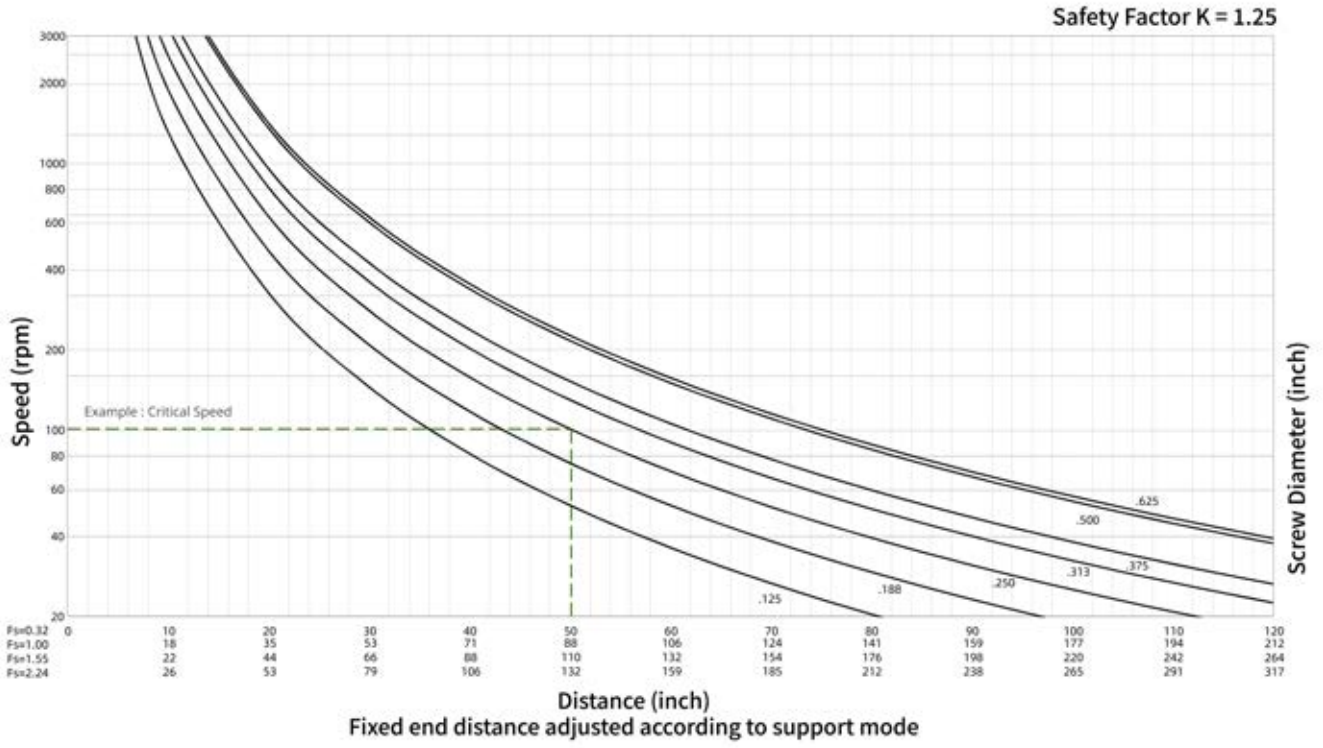
CRITICAL SPEED

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

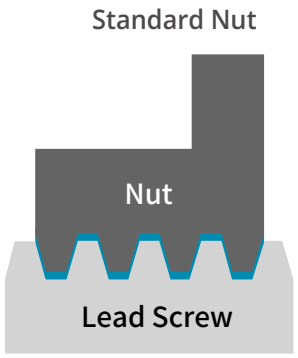
An example in the figure, it shows the screw rod with a diameter of 19.05mm (0.75inch) and a length of 1778mm (70inch) has a safety factor of K = 1.25,
And under the fixed mode of FS = 0.32, the critical speed is 187rpm.

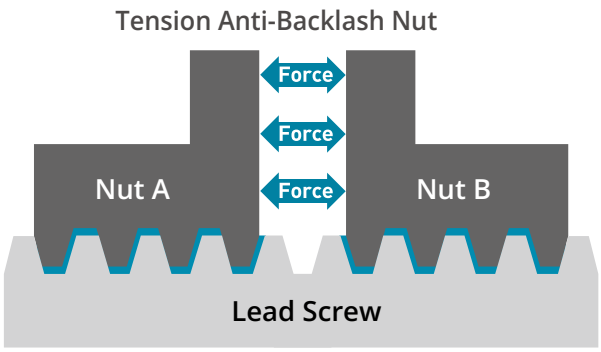
CRITICAL ROTATION SPEED (RPM) VS. UNSUPPORTED SCREW LENGTH FOR VARIOUS SCREW DIAMETERS (INCH)

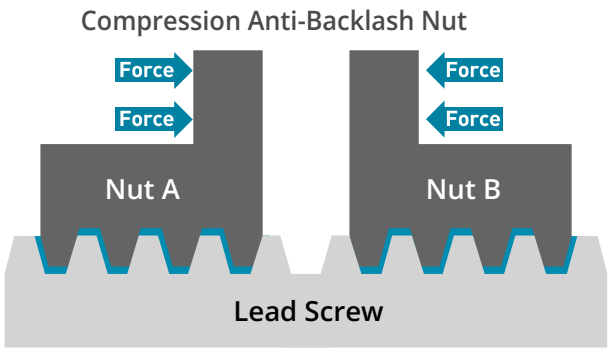


BACKLASH

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.





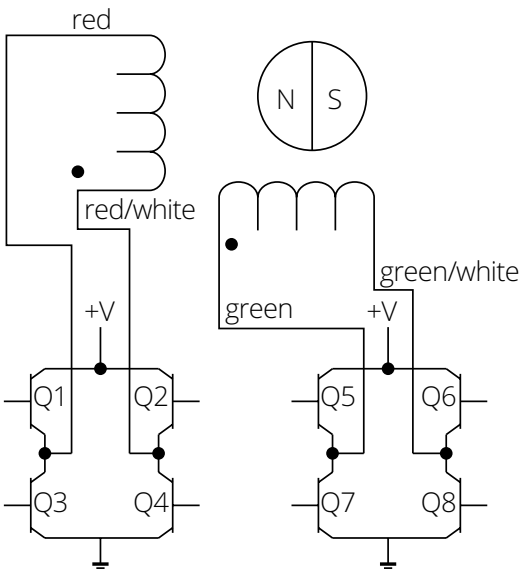


BACKLASH IN BLUE

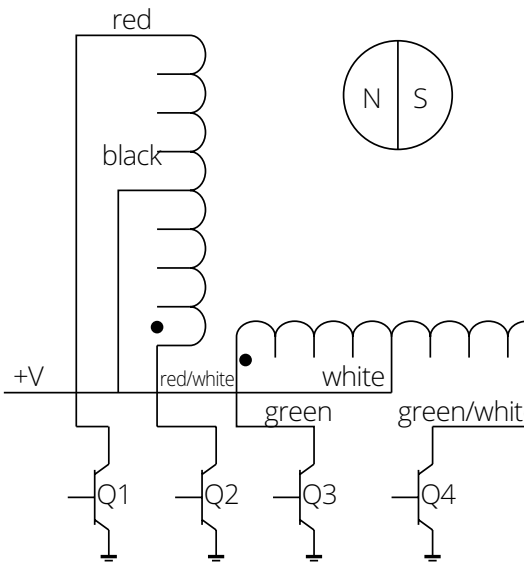
Technology Overview

Stepper motor : Outlet mode

BIPOLAR



UNIPOLAR



Stepper motor : Step sequence

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

Note: Inserting an off state in phase sequence conversion can achieve half step stepping

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°to 55°C
Storage Temperature	Storage at room temperature with a relative humidity as lower than 75%, clean, well ventilated and free from corrosive gases.
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	4.5	60	4	32

Note : Motor Insulation Class B, Motor Temperature Rise 80°C, Ambient Temperature -20°C~55°C

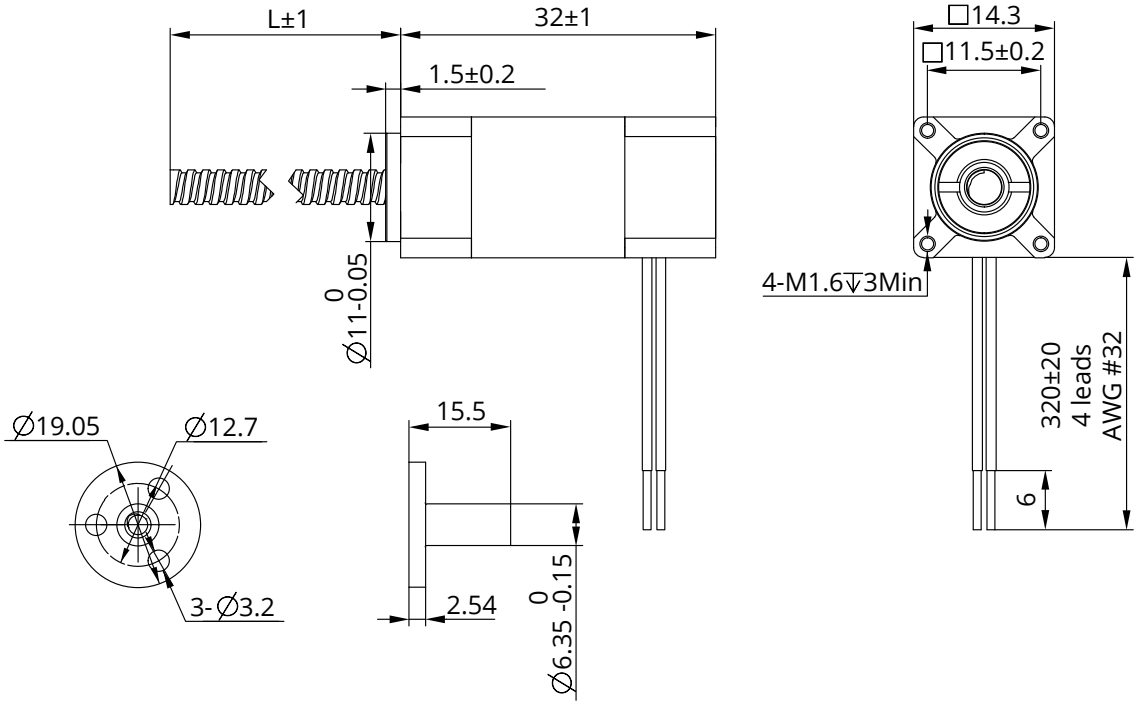
Available Lead Screw and Travel per Step

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	3.5	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

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

* Value Truncated

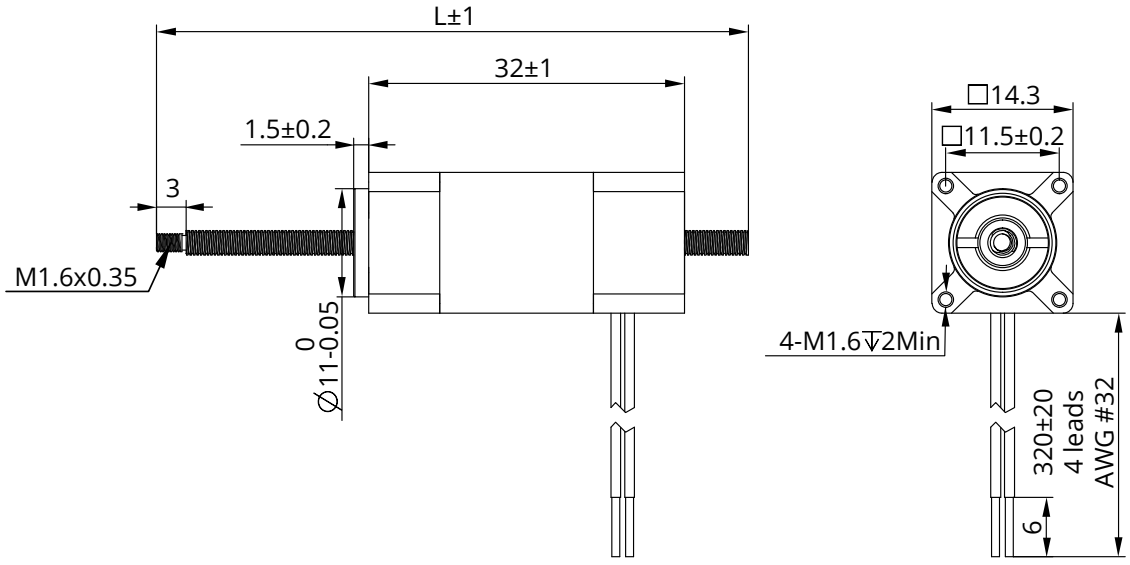
Dimensional Drawings : External Actuator



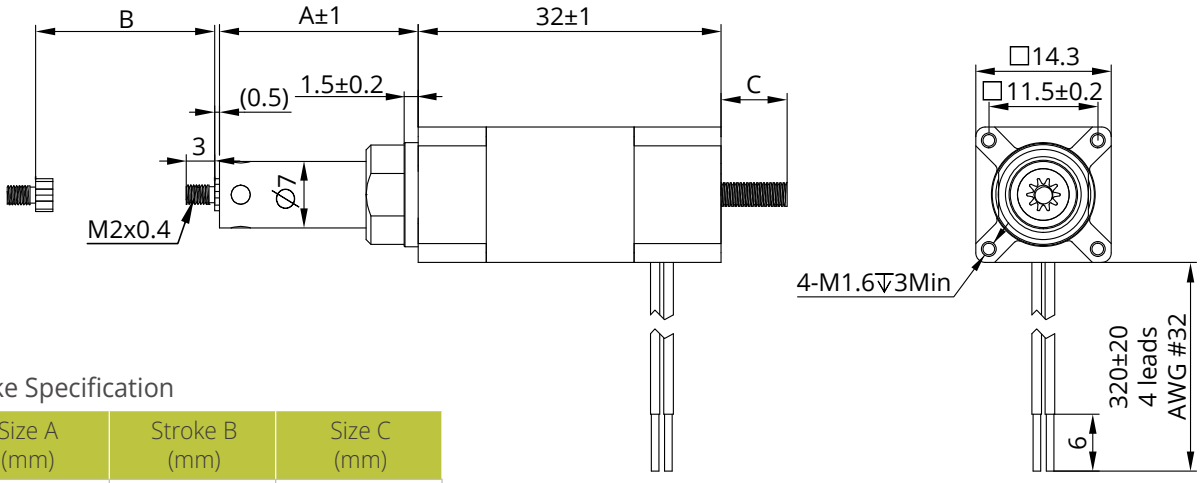
Note : All drawings are 1st Angle Projection - ISO Compliant (3D models available)

Size 6 (14mm) Series

Dimensional Drawings : Non-Captive Actuator



Dimensional Drawings : Kaptive Actuator



- Stroke Specification

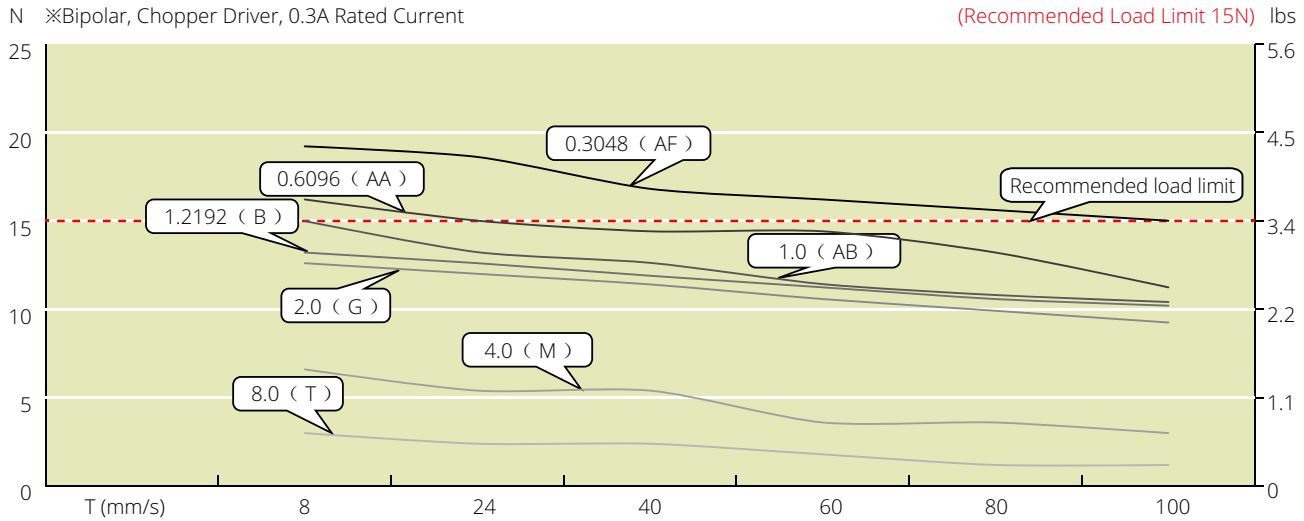
Size A (mm)	Stroke B (mm)	Size C (mm)
6	5	0
11	10	0
16	15	2
21	20	7

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

Size 6 (14mm) Series

Speed Thrust Curves

Size 6 Single Stack Speed Thrust Curves



T (mm/s)	8	24	40	60	80	100
M (mm/s)	4	12	20	30	40	50
G (mm/s)	2	6	10	15	20	25
B (mm/s)	1.2	3.7	6.1	9.1	12.2	15.2
AB (mm/s)	1	3	5	7.5	10	12.5
AA (mm/s)	0.6	1.8	3	4.6	6.1	7.6
AF (mm/s)	0.3	0.9	1.5	2.3	3	3.8
Speed r/min	60	180	360	450	600	750
Pulse pps	200	600	1000	1500	2000	2500

TEST CONDITION

Testing Voltage: 12Vdc, 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 in^2 of mounting footprint and providing up to 45N of continuous thrust.

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

Note : Motor Insulation Class B, Motor Temperature Rise 80°C, Ambient Temperature -20°C~55°C

Available Lead Screw and Travel per Step

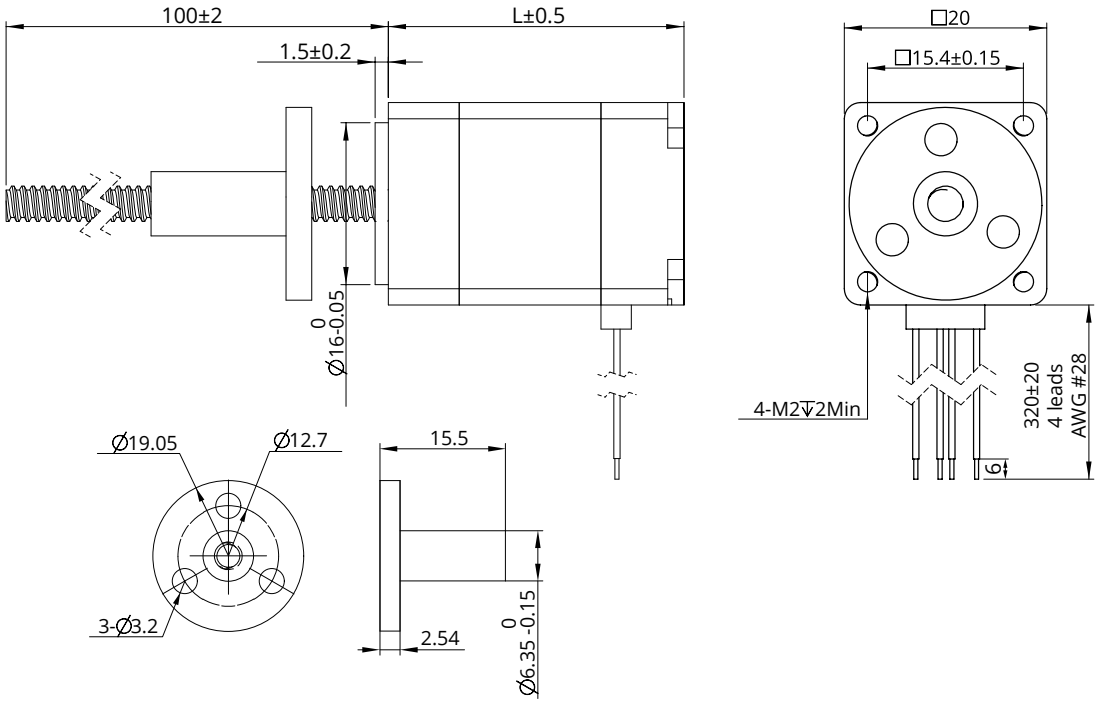
Screw Dia. (inch)	Screw Dia. (mm)	Lead (inch)	Lead (mm)	Lead Code	Travel Per Step @1.8° (mm)*
0.138	3.5	0.0118	0.3	AF	0.0015
0.138	3.5	0.024	0.6096	AA	0.003048
0.138	3.24	0.0394	1	AB	0.005
0.138	3.5	0.048	1.2192	B	0.0061
0.138	3.5	0.0787	2	G	0.01
0.138	3.5	0.1575	4	M	0.02
0.138	3.5	0.315	8	T	0.04

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

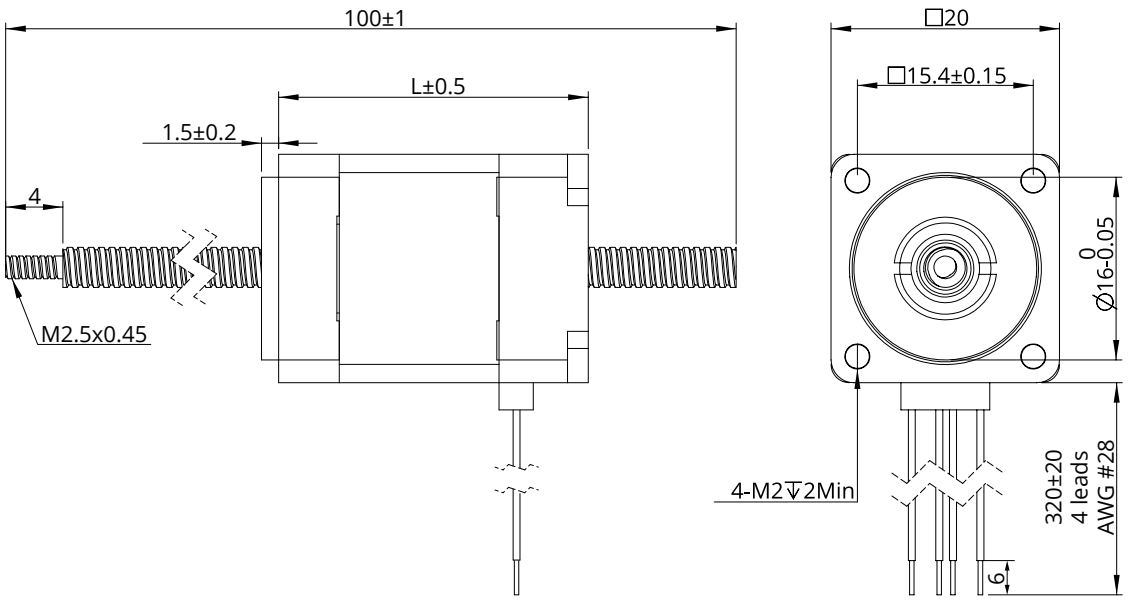
* Value Truncated

Size 8 (20mm) Series

Dimensional Drawings : External Actuator

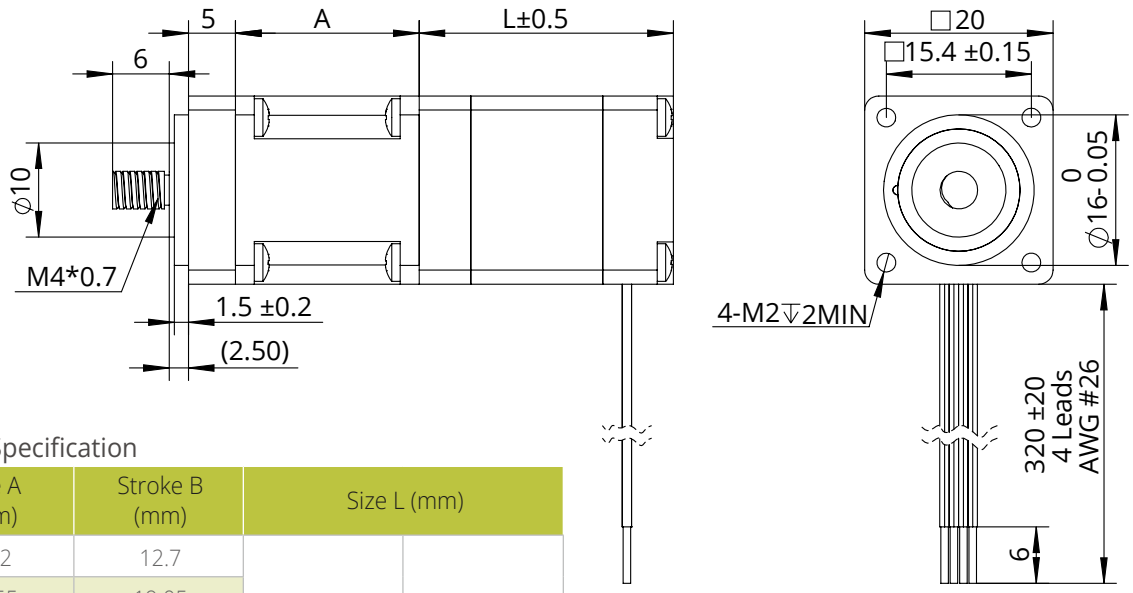


Dimensional Drawings : Non-Captive Actuator



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

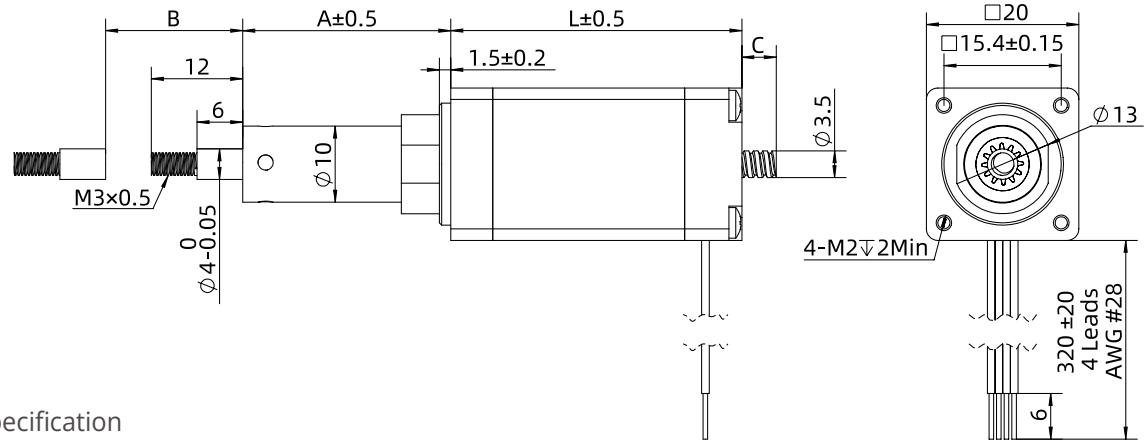
Dimensional Drawings : Electric Cylinder (Captive) Actuator



Stroke Specification

Size A (mm)	Stroke B (mm)	Size L (mm)	
22.2	12.7	Single stack motor 27.2mm	Double stack motor 38.1mm
28.55	19.05		
34.9	25.4		
41.3	31.8		
47.6	38.1		
60.3	50.8		
73	63.5		

Dimensional Drawings : Kaptive Actuator



Stroke Specification

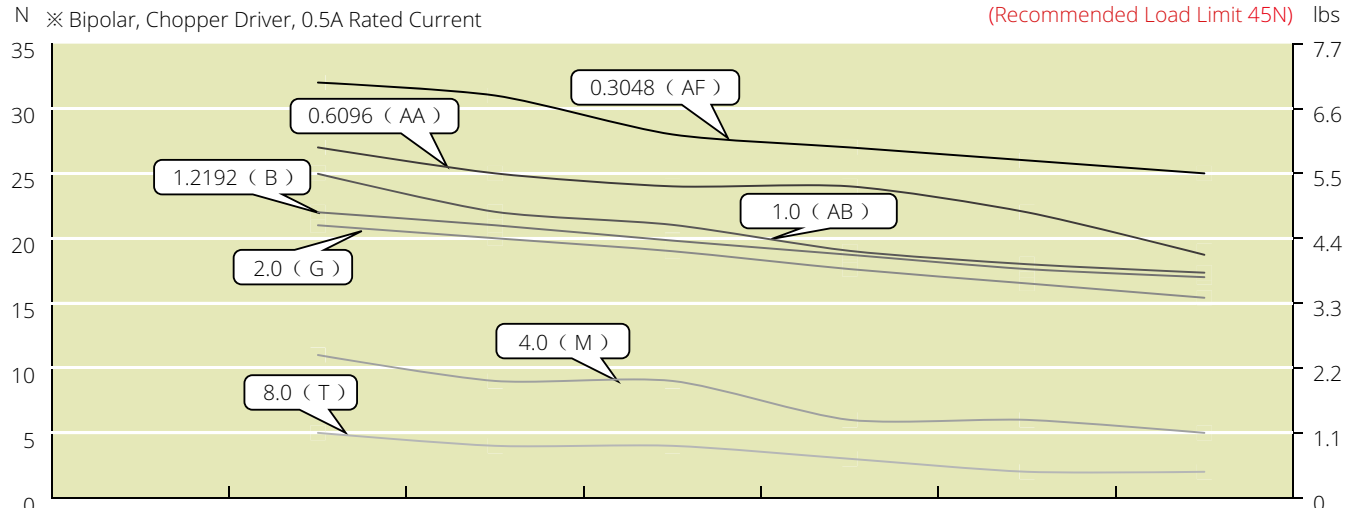
Size A (mm)	Stroke B (mm)	Size L (mm)	
		L=27.2	L=38.1
11.2	9	1	0
14.9	12.7	5	0
21.1	19.05	11	0
27.6	25.4	17	6
34	31.8	24	13
40.3	38.1	30	19

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

Size 8 (20mm) Series

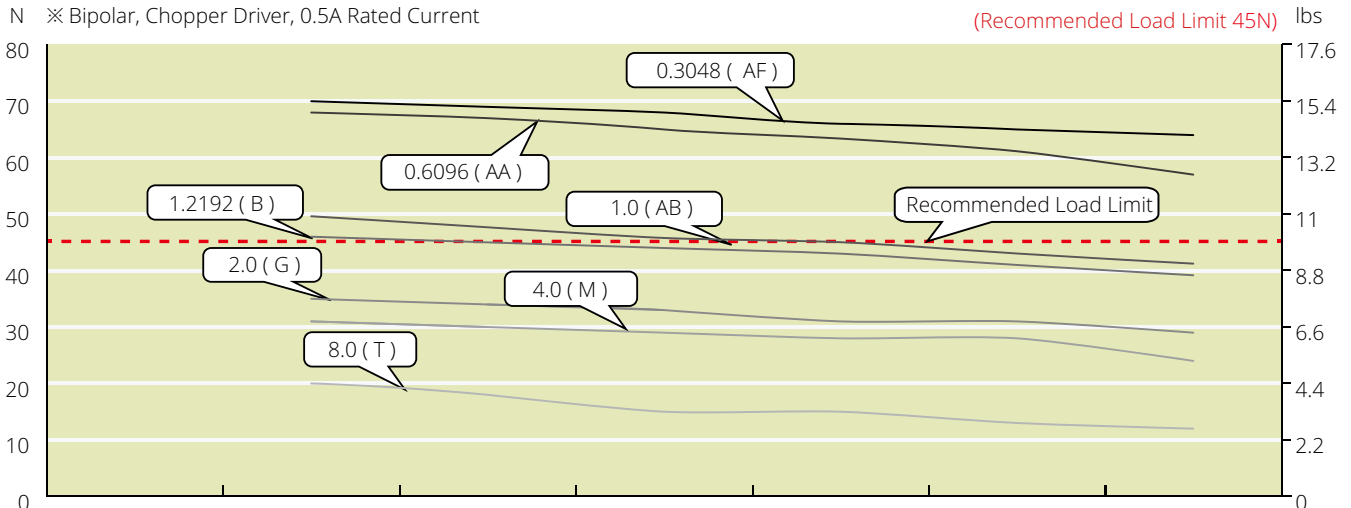
Speed Thrust Curves

Size 8 Single Stack Speed Thrust Curves



T(mm/s)	8	24	40	60	80	100
M(mm/s)	4	12	20	30	40	50
G(mm/s)	2	6	10	15	20	25
B(mm/s)	1.2	3.7	6.1	9.1	12.2	15.2
AB(mm/s)	1	3	5	7.5	10	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	3.8
Speed r/min	60	180	300	450	600	750
Pulse pps	200	600	1000	1500	2000	2500

Size 8 Double Stack Speed Thrust Curves



T(mm/s)	8	24	40	60	80	100
M(mm/s)	4	12	20	30	40	50
G(mm/s)	2	6	10	15	20	25
B(mm/s)	1.2	3.7	6.1	9.1	12.2	15.2
AB(mm/s)	1	3	5	7.5	10	12.5
AA(mm/s)	0.6	1.8	3	4.6	6.1	7.6
AF(mm/s)	0.3	0.9	1.5	2.3	3	3.8
Speed r/min	60	180	300	450	600	750
Pulse 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.

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	117	4	33.35
11-2110	2.1	1	2.1	1.5	117	4	33.35
11-2209	3.9	0.95	4.1	4	173	4	45
11-2216	2.4	1.6	1.5	1.3	173	4	45

Note : Motor Insulation Class B, Motor Temperature Rise 80°C, Ambient Temperature -20°C~55°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)*
0.188	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

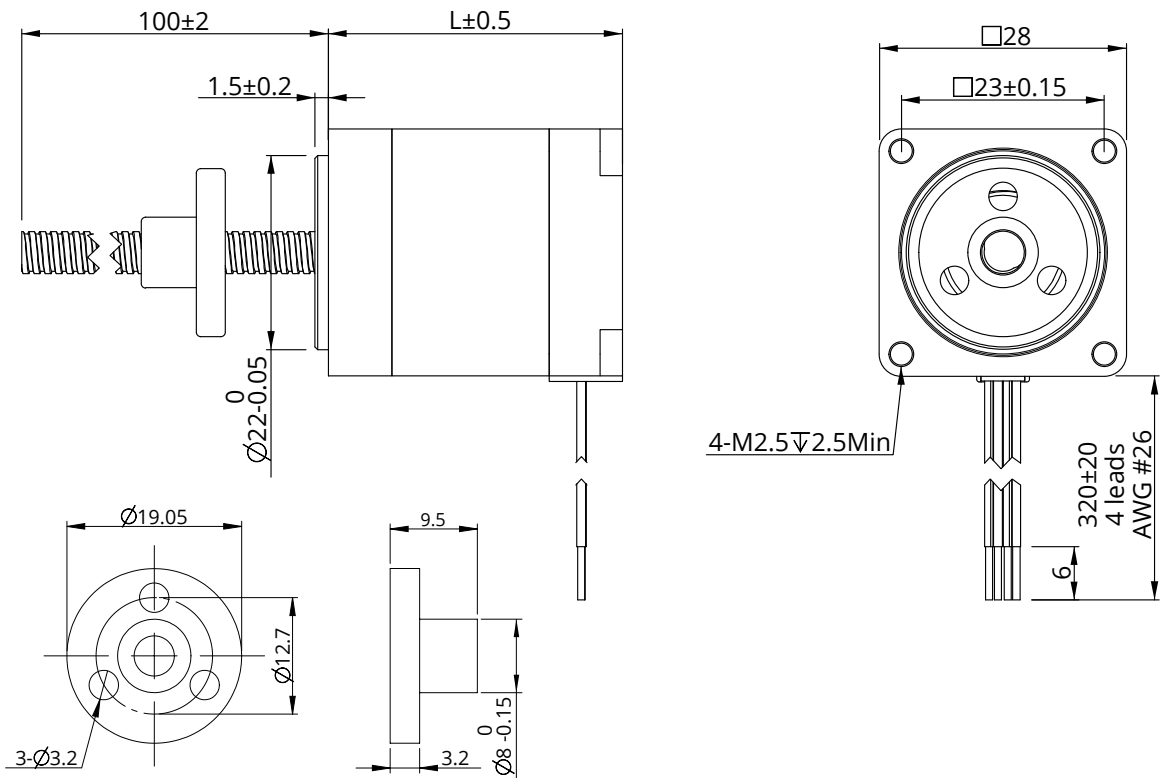
* Value Truncated

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

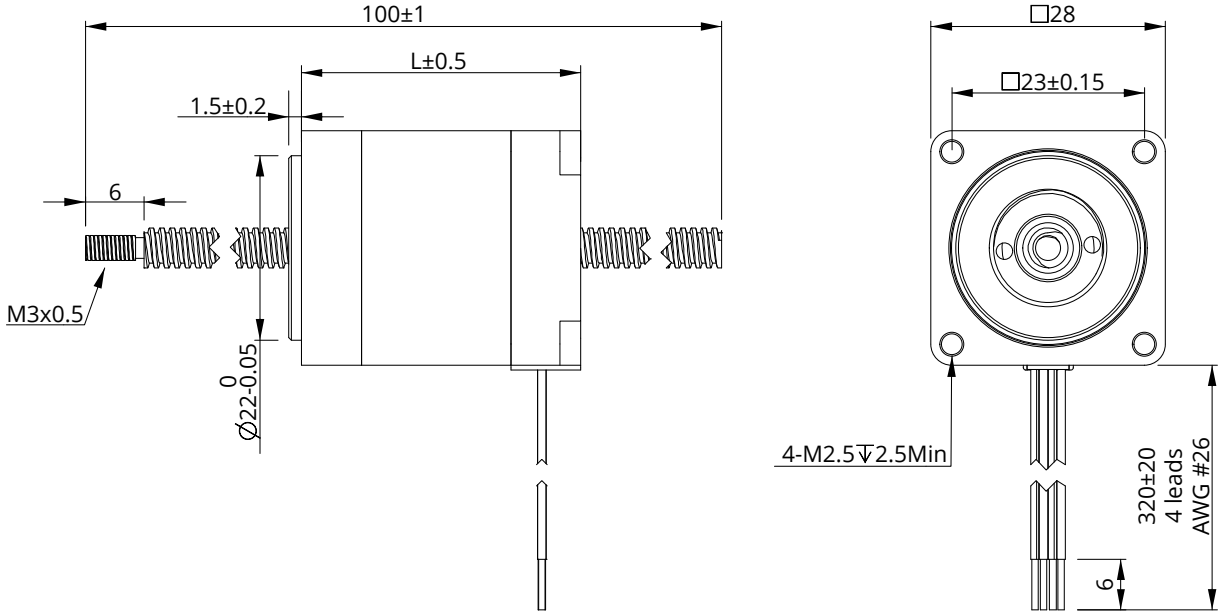
* 5.56mm diameter screw only can be applied in External Type

Size 11 (28mm) Series

Dimensional Drawings : External Actuator



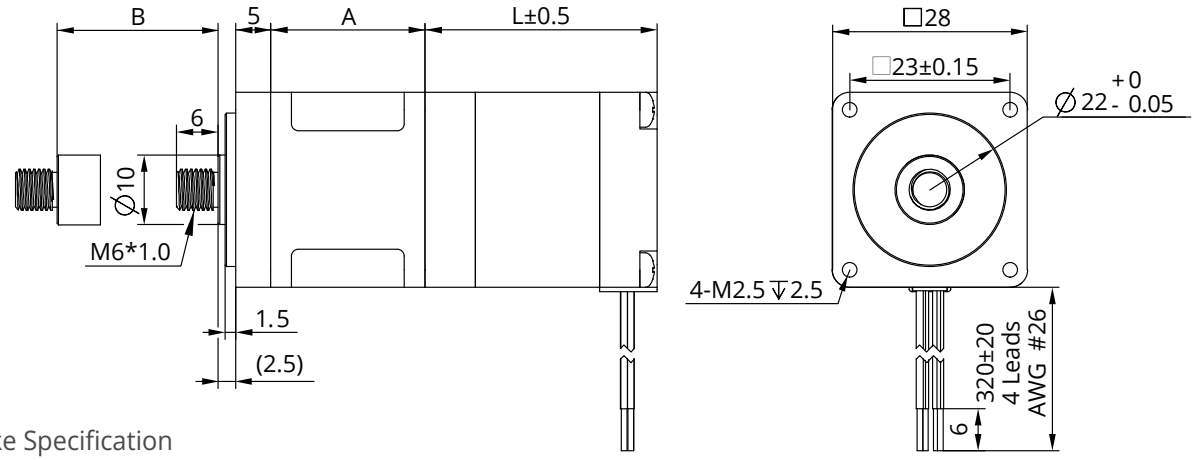
Dimensional Drawings : Non-Captive Actuator



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

Size 11 (28mm) Series

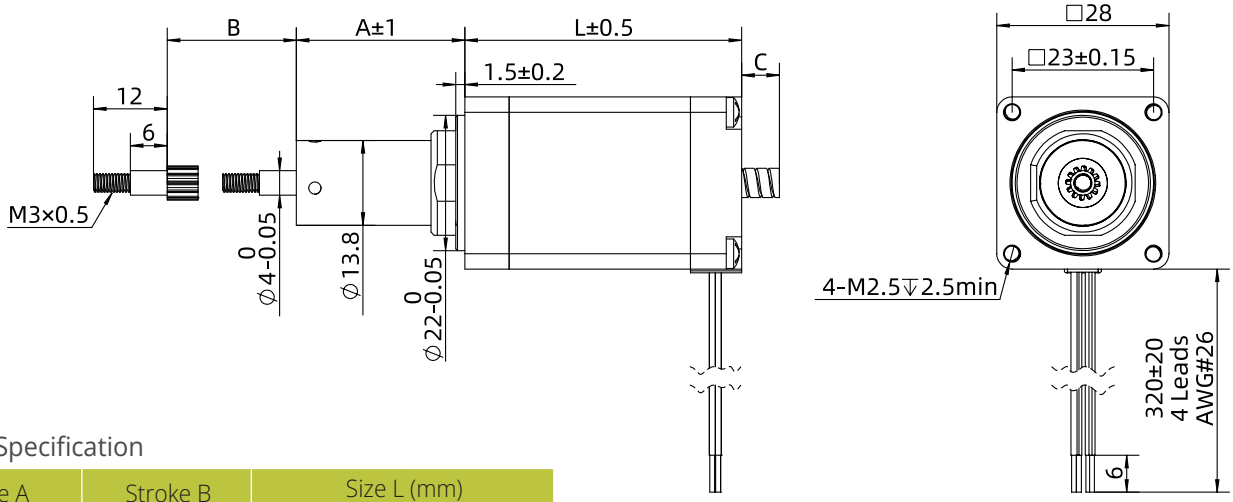
Dimensional Drawings : Electric Cylinder (Captive) Actuator



Stroke Specification

Size A (mm)	Stroke B (mm)	Size L (mm)	
22.2	12.7	Single stack motor 33.35mm	Double stack motor 45mm
28.55	19.05		
34.9	25.4		
41.3	31.8		
47.6	38.1		
60.3	50.8		
73	63.5		

Dimensional Drawings : Kaptive Actuator



Stroke Specification

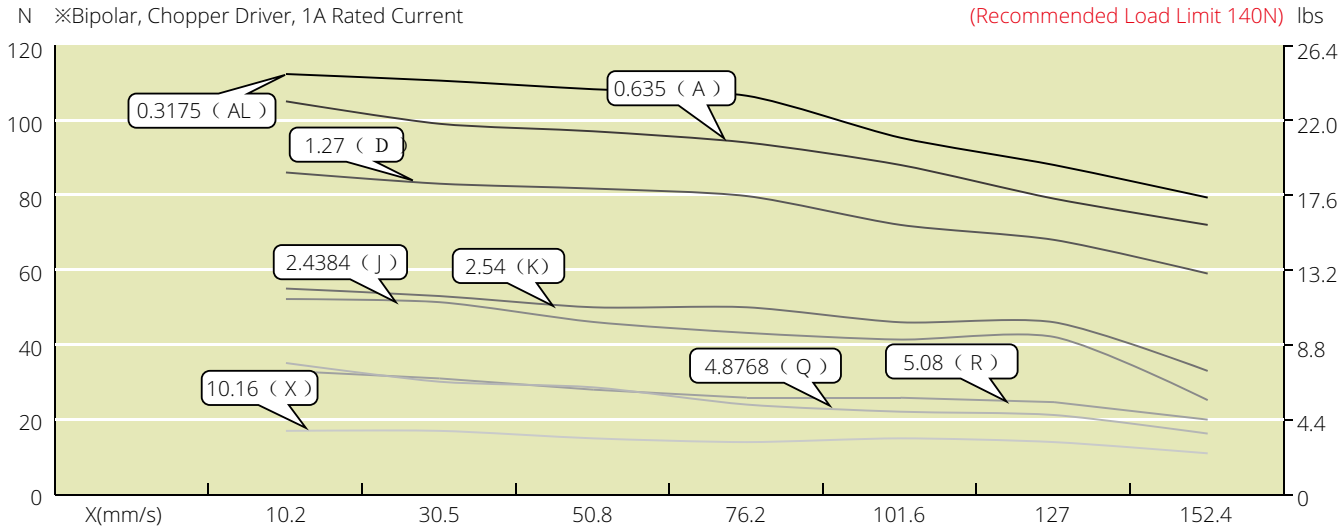
Size A (mm)	Stroke B (mm)	Size L (mm)	
		L=33.35	L=45
15.7	12.7	1	0
22.1	19.05	7.4	0
28.4	25.4	13.7	4
34.8	31.8	20.1	10.4
41.1	38.1	26.4	16.8
53.8	50.8	39	29.4
66.5	63.5	52.7	42.1

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

Size 11 (28mm) Series

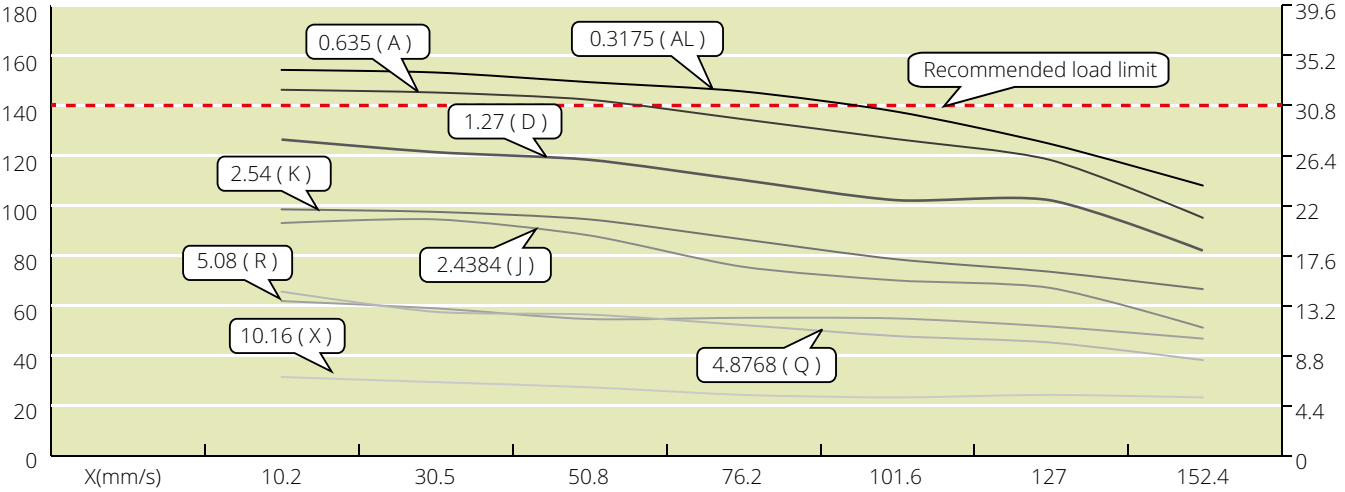
Speed Thrust Curves

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
Speed r/min	60	180	300	450	600	750	900
Pulse 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	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	1.6	2.4	3.2	4	4.8
Speed r/min	60	180	300	450	600	750	900
Pulse 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.

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	189	4	33.6
14-2110	3.5	1	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	0.5	24	29	210	4	45.6
14-2210	6	1	6	7.2	210	4	45.6
14-2215	4	1.5	2.7	3.2	210	4	45.6

Note : Motor Insulation Class B, Motor Temperature Rise 80°C, Ambient Temperature -20°C~55°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)*	Travel Per Step @0.9° (mm)*
0.25	6.35	0.024	0.6096	AA	0.003	0.0015
0.236/0.25/0.315	6/6.35/8	0.0394	1	AB	0.005	0.0025
0.25	6.35	0.025	0.635	A	0.003175	0.0015
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
0.25	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	25.4	Z*	0.127	0.0635
0.25	6.35	0.0313	0.794	N	0.00397	0.002
0.315	8	0.1575	4	M	0.02	0.01
0.315	8	0.315	8	T	0.04	0.02
0.25/0.315	6.35/8	0.0787	2	G	0.01	0.005
0.236/0.315	6/8	0.1969	5	E	0.025	0.0125
0.315	8	0.3937	10	C	0.05	0.025

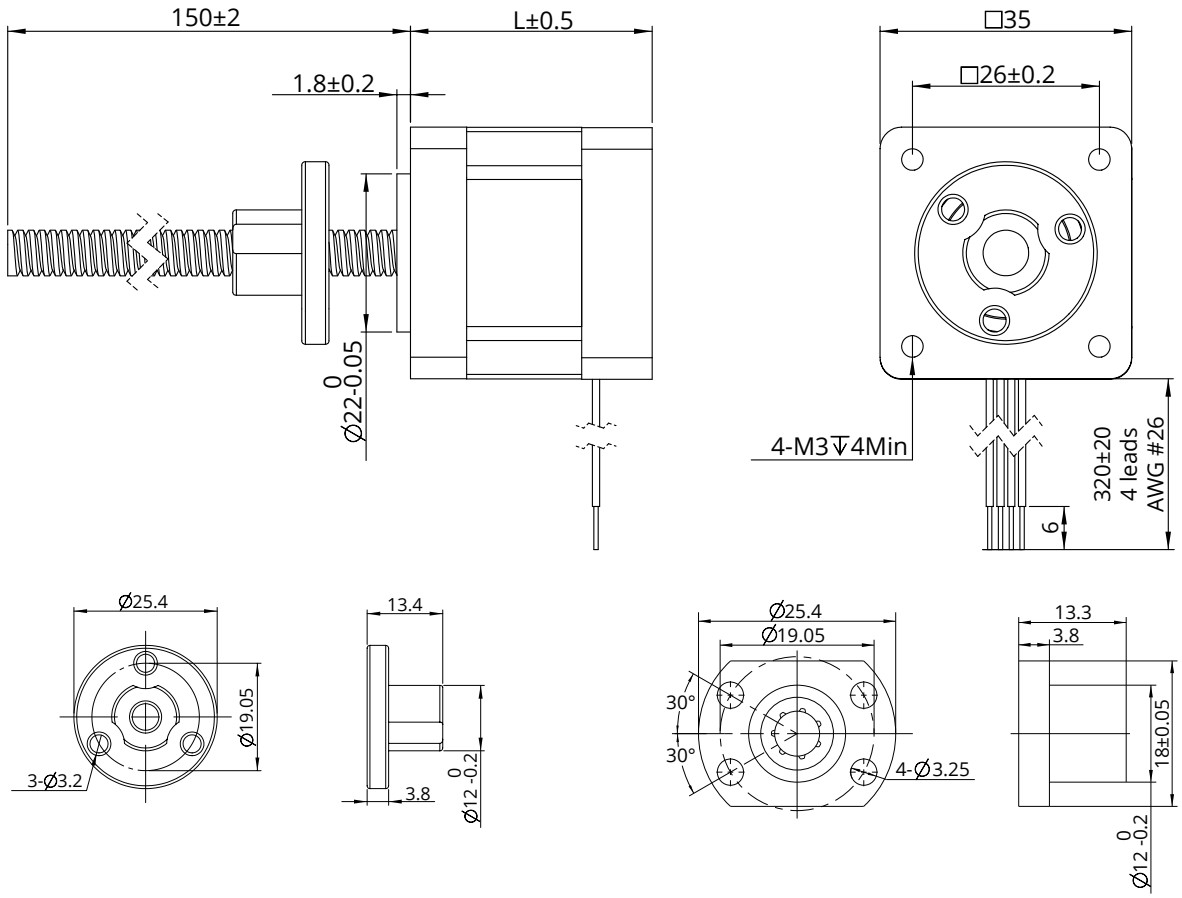
* Motor wiring and screw lead could be customized according to customer's request

* Value Truncated

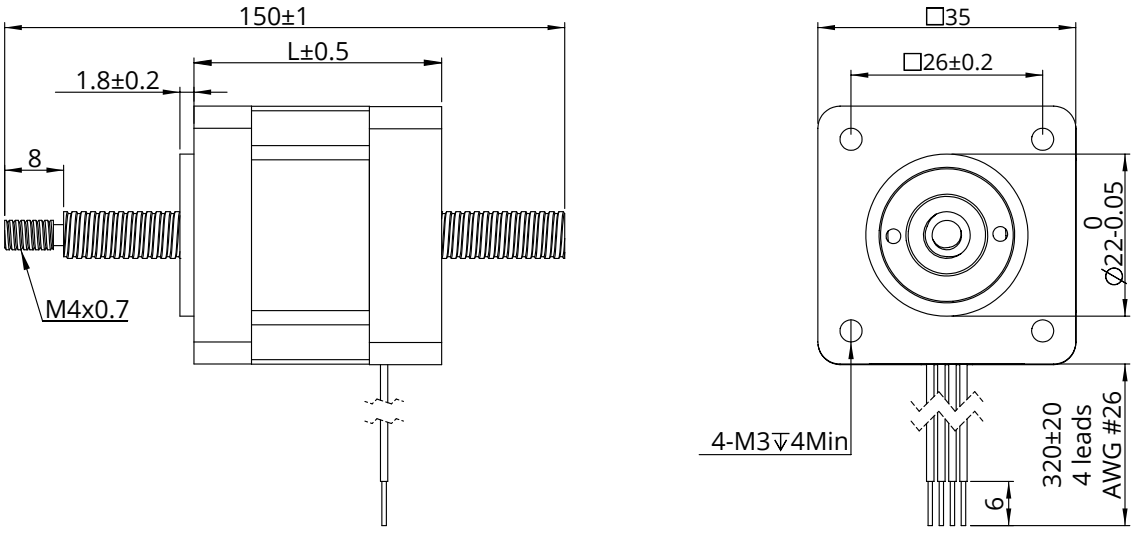
* 9.525mm diameter screw only can be applied in External Type

Size 14 (35mm) Series

Dimensional Drawings : External Actuator



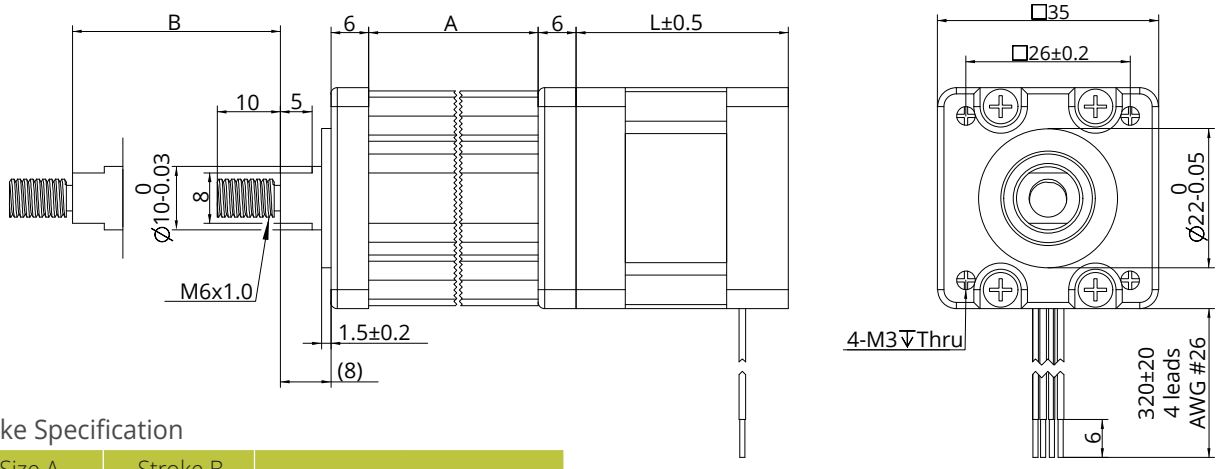
Dimensional Drawings : Non-Captive Actuator



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

Size 14 (35mm) Series

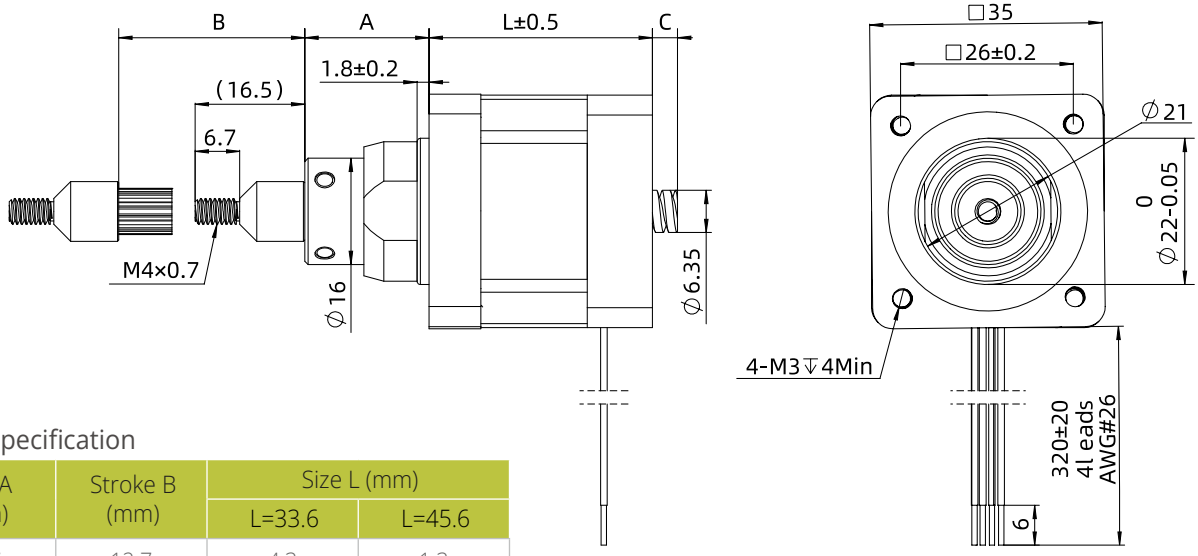
Dimensional Drawings : Electric Cylinder (Captive) Actuator



- Stroke Specification

Size A (mm)	Stroke B (mm)	Size L (mm)	
35.7	12.7	Single stack motor 33.6mm	Double stack motor 45.6mm
42.05	19.05		
48.4	25.4		
54.8	31.8		
61.1	38.1		
73.8	50.8		
86.5	63.5		

Dimensional Drawings : Kaptive Actuator



- Stroke Specification

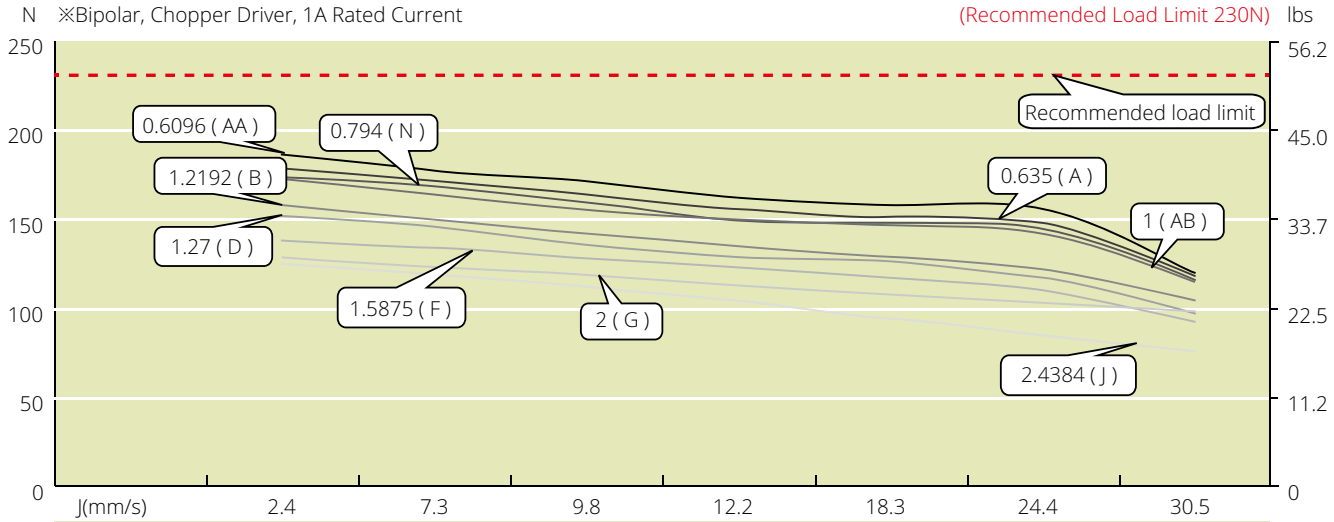
Size A (mm)	Stroke B (mm)	Size L (mm)	
		L=33.6	L=45.6
18.7	12.7	4.3	1.3
25.05	19.05	10.65	7.65
31.4	25.4	17	14
37.75	31.75	23.35	20.35
44.1	38.1	29.7	26.7
56.8	50.8	42.4	39.4
69.5	63.5	55.1	52.1

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

Size 14 (35mm) Series

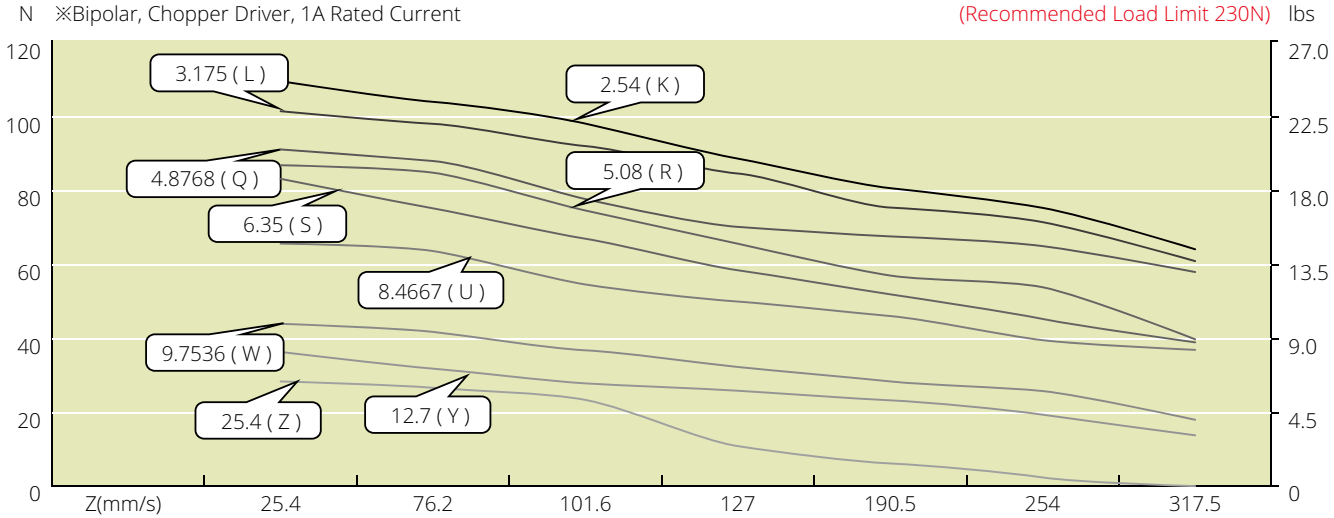
Speed Thrust Curves

Size 14 Single Stack Speed Thrust Curves



J(mm/s)	2.4	7.3	9.8	12.2	18.3	24.4	30.5
G(mm/s)	2	6	8	10	15	20	25
F(mm/s)	1.6	4.8	6.4	7.9	11.9	15.9	19.8
D(mm/s)	1.27	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	3	4	5	7.5	10	12.5
N(mm/s)	0.8	2.4	3.2	4	6	7.9	9.9
A(mm/s)	0.6	1.9	2.5	3.2	4.8	6.4	7.9
AA(mm/s)	0.6	1.8	2.4	3	4.6	6.1	7.6
Speed r/min	60	180	240	300	450	600	750
Pulse pps	200	600	800	1000	1500	2000	2500

Size 14 Single Stack Speed Thrust Curves

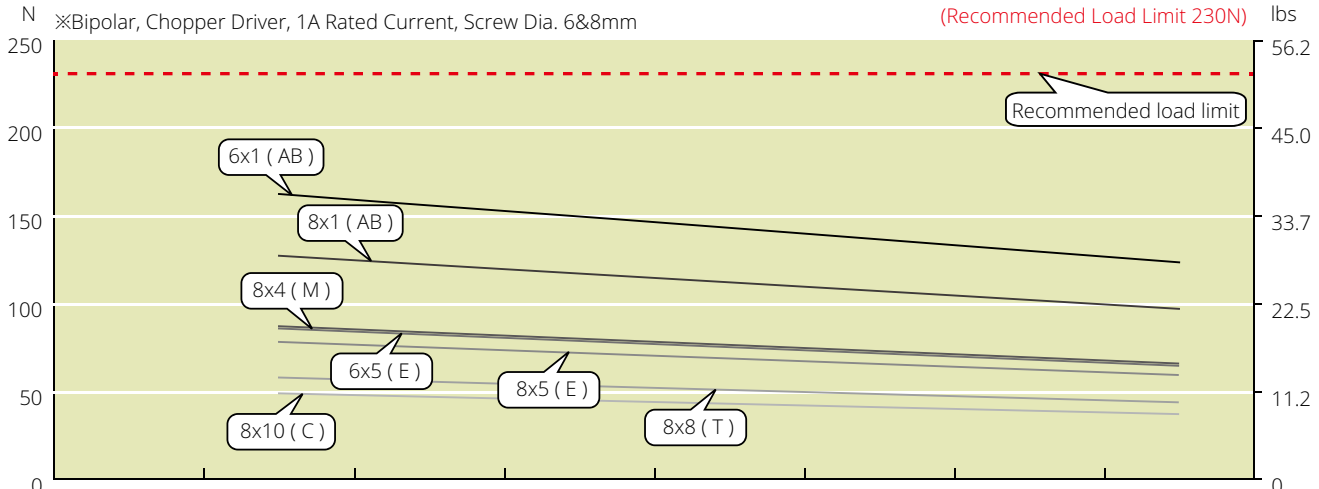


Z(mm/s)	25.4	76.2	101.6	127	190.5	254	317.5
Y(mm/s)	12.7	38.1	50.8	63.5	95.3	127.0	158.8
W(mm/s)	9.8	29.3	39.0	48.8	73.2	97.5	121.9
U(mm/s)	8.5	25.4	25.4	42.3	63.5	84.7	105.8
S(mm/s)	6.4	19.1	25.4	31.8	47.6	63.5	79.4
R(mm/s)	5.1	15.2	20.3	25.4	38.1	50.8	63.5
Q(mm/s)	4.9	14.6	19.5	24.4	36.6	48.8	61.0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

TEST CONDITION

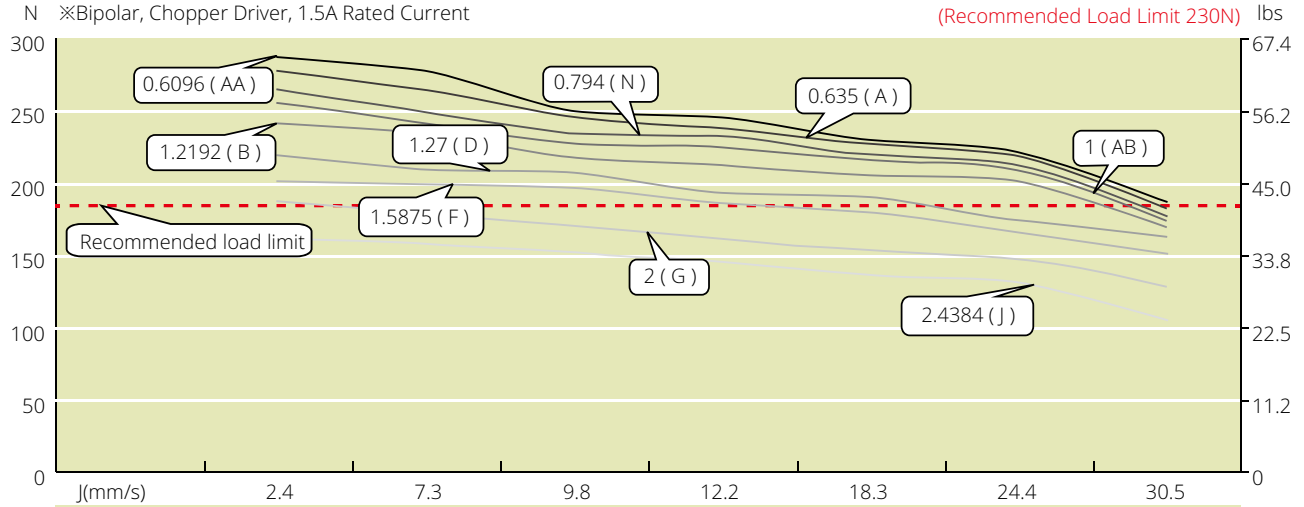
Testing Voltage: 24Vdc, Driver Model: DS-OLS2-FPD bipolar, chopper driver at rated current (rms).
Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

Size 14 Single Stack Speed Thrust Curves



C(mm/s)	10	30	40	50	75	100	125
T(mm/s)	8	24	32	40	60	80	100
E(mm/s)	5	15	20	25	37.5	50	62.5
M(mm/s)	4	12	16	20	30	40	50
AB(mm/s)	1	3	4	5	7.5	10	12.5
C(mm/s)	5	15	20	25	37.5	50	62.5
AB(mm/s)	1	3	4	5	7.5	10	12.5
Speed r/min	60	180	240	300	450	600	750
Pulse pps	200	600	800	1000	1500	2000	2500

Size 14 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	6	8	10	15	20	25
F(mm/s)	1.6	4.8	6.4	7.9	11.9	15.9	19.8
D(mm/s)	1.27	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	3	4	5	7.5	10	12.5
N(mm/s)	0.8	2.4	3.2	4	6	7.9	9.9
A(mm/s)	0.6	1.9	2.5	3.2	4.8	6.4	7.9
AA(mm/s)	0.6	1.8	2.4	3	4.6	6.1	7.6
Speed r/min	60	180	240	300	450	600	750
Pulse pps	200	600	800	1000	1500	2000	2500

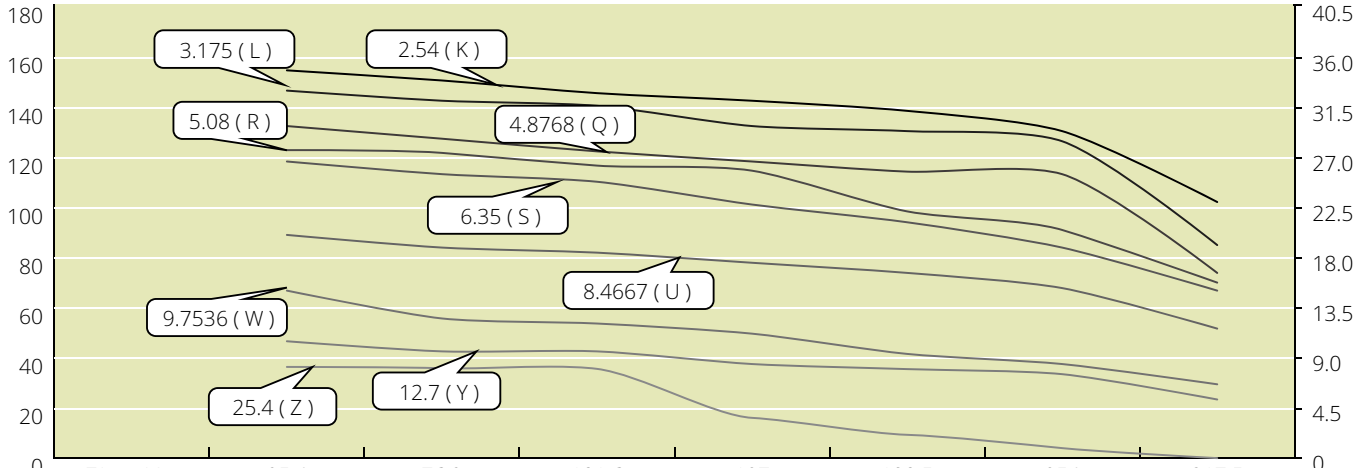
TEST CONDITION

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

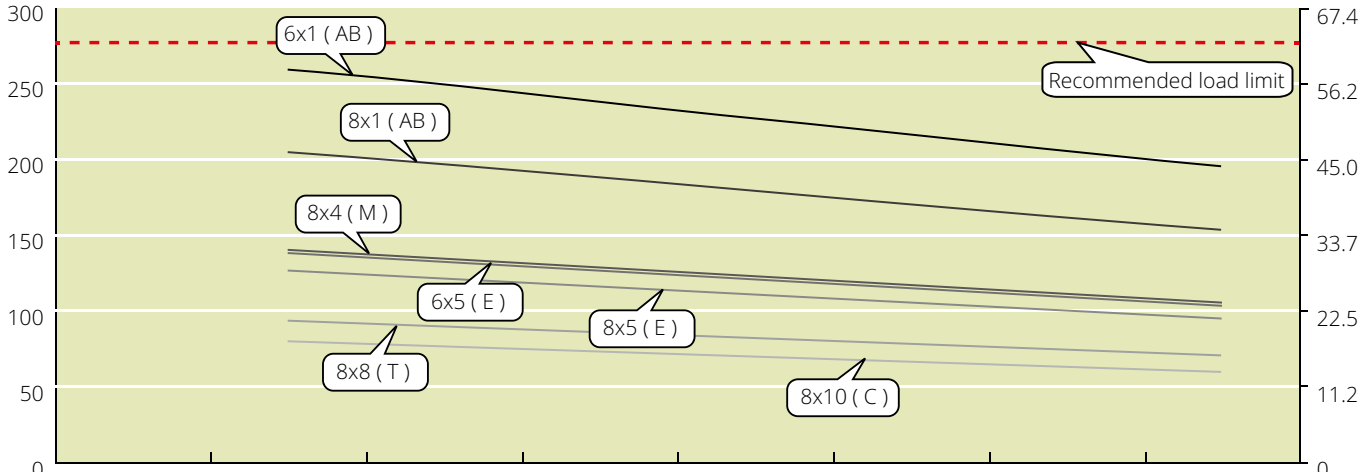
N ※Bipolar, Chopper Driver, 1.5A Rated Current (Recommended Load Limit 230N) lbs



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
Speed r/min	60	180	240	300	450	600	750
Pulse pps	200	600	800	1000	1500	2000	2500

Size 14 Double Stack Speed Thrust Curves

N ※Bipolar, Chopper Driver, 1.5A Rated Current, Screw Dia. 6&8mm (Recommended Load Limit 230N) lbs



C(mm/s)	10	30	40	50	75	100	125
T(mm/s)	8	24	32	40	60	80	100
E(mm/s)	5	15	20	25	37.5	50	62.5
M(mm/s)	4	12	16	20	30	40	50
AB(mm/s)	1	3	4	5	7.5	10	12.5
C(mm/s)	5	15	20	25	37.5	50	62.5
AB(mm/s)	1	3	4	5	7.5	10	12.5
Speed r/min	60	180	240	300	450	600	750
Pulse 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.

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	3.8	5	254	4	34.1
17-2115	2.85	1.5	1.9	2.2	254	4	34.1
17-2205	11	0.5	22	46	386	4	48.1
17-2212	4.5	1.2	3.8	8	386	4	48.1
17-2225	2.5	2.5	1	1.8	386	4	48.1

Note : Motor Insulation Class B, Motor Temperature Rise 80°C, Ambient Temperature -20°C~55°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)*	Travel Per Step @0.9° (mm)*
0.25	6.35	0.024	0.6096	AA	0.003	0.0015
0.236/0.25/0.315	6/6.35/8	0.0394	1	AB	0.005	0.0025
0.25	6.35	0.025	0.635	A	0.003175	0.0015
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
0.25	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	25.4	Z*	0.127	0.0635
0.25	6.35	0.0313	0.794	N	0.00397	0.002
0.315	8	0.1575	4	M	0.02	0.01
0.315	8	0.315	8	T	0.04	0.02
0.25/0.315	6.35/8	0.0787	2	G	0.01	0.005
0.236/0.315	6/8	0.1969	5	E	0.025	0.0125
0.315	8	0.3937	10	C	0.05	0.025

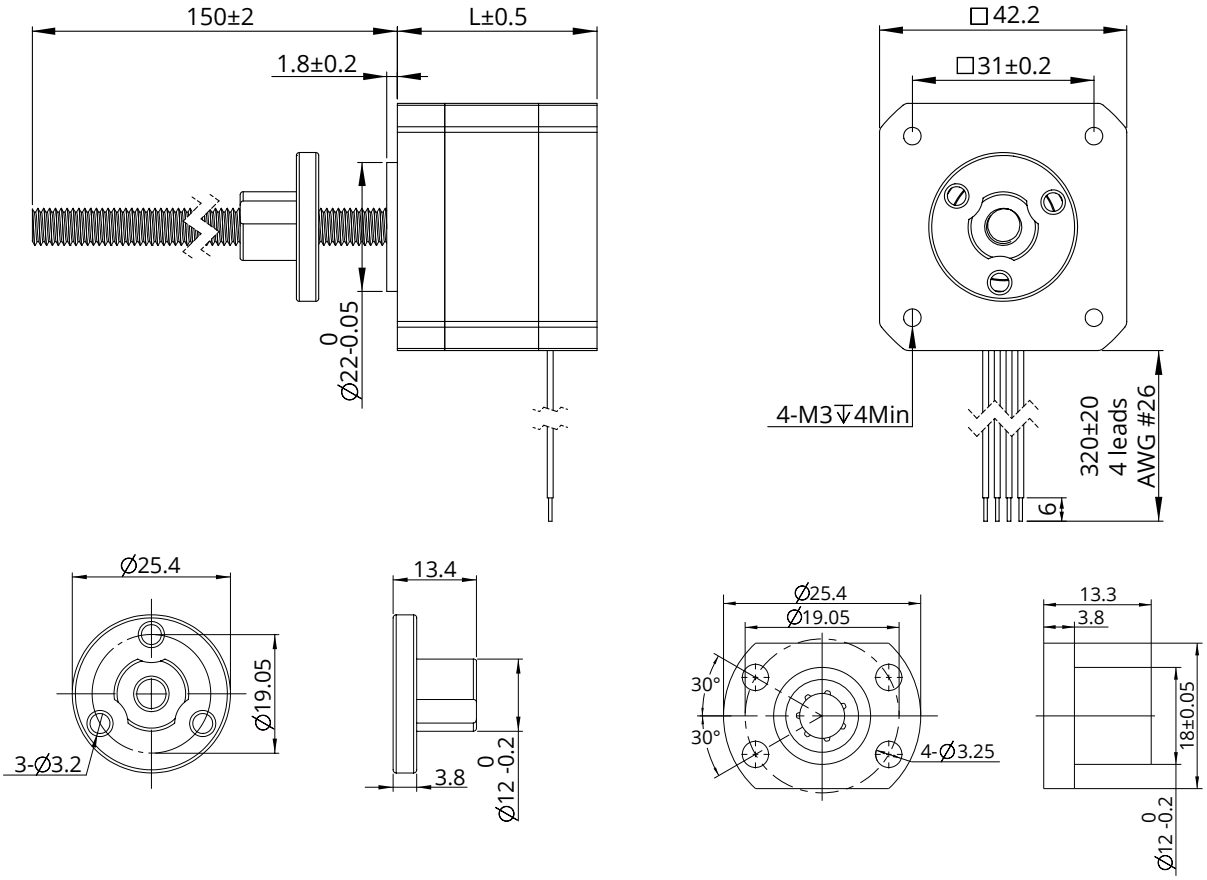
* Motor wiring and screw lead could be customized according to customer's request

* Value Truncated

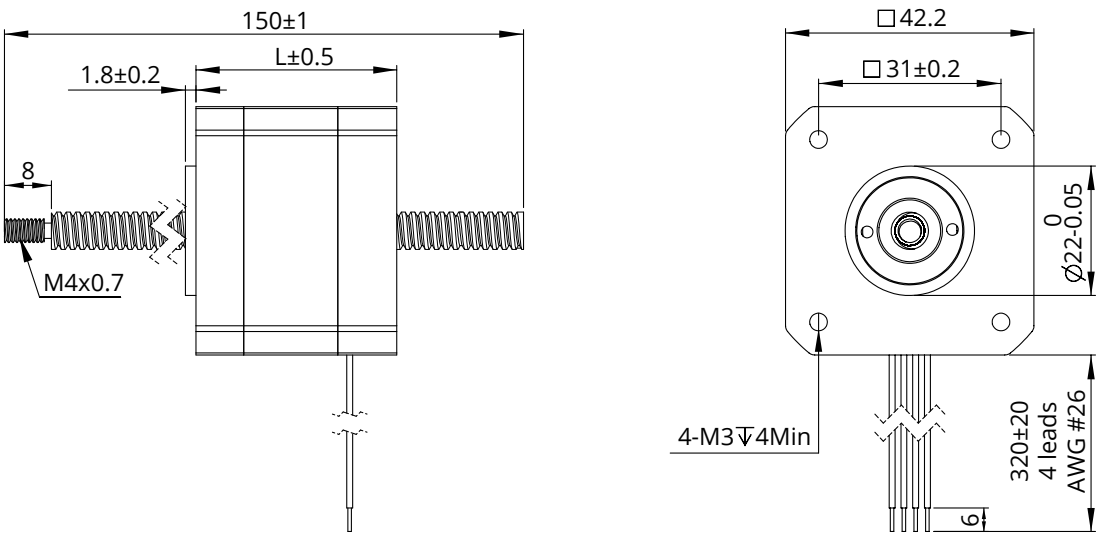
* 9.525mm diameter screw only can be applied in External Type

Size 17 (42mm) Series

Dimensional Drawings : External Actuator

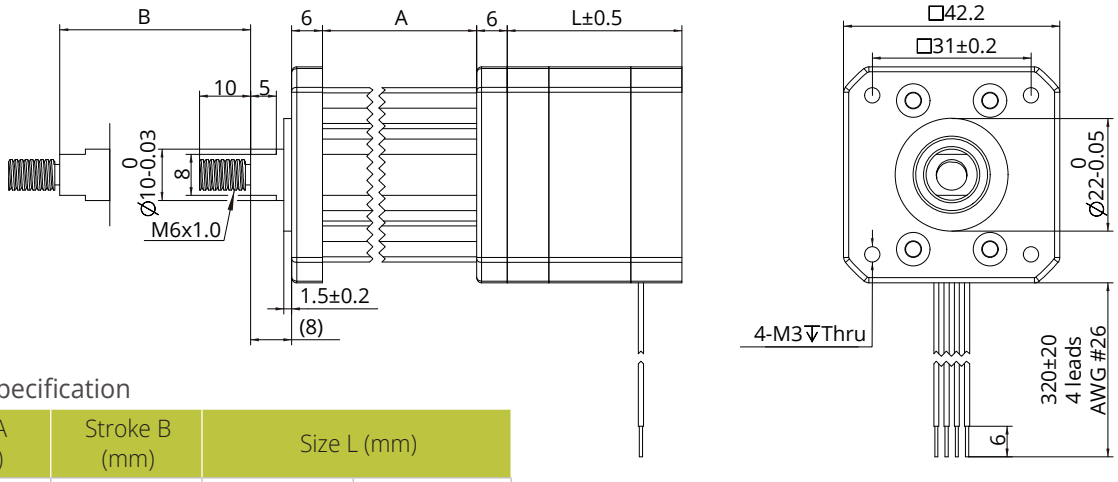


Dimensional Drawings : Non-Captive Actuator



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

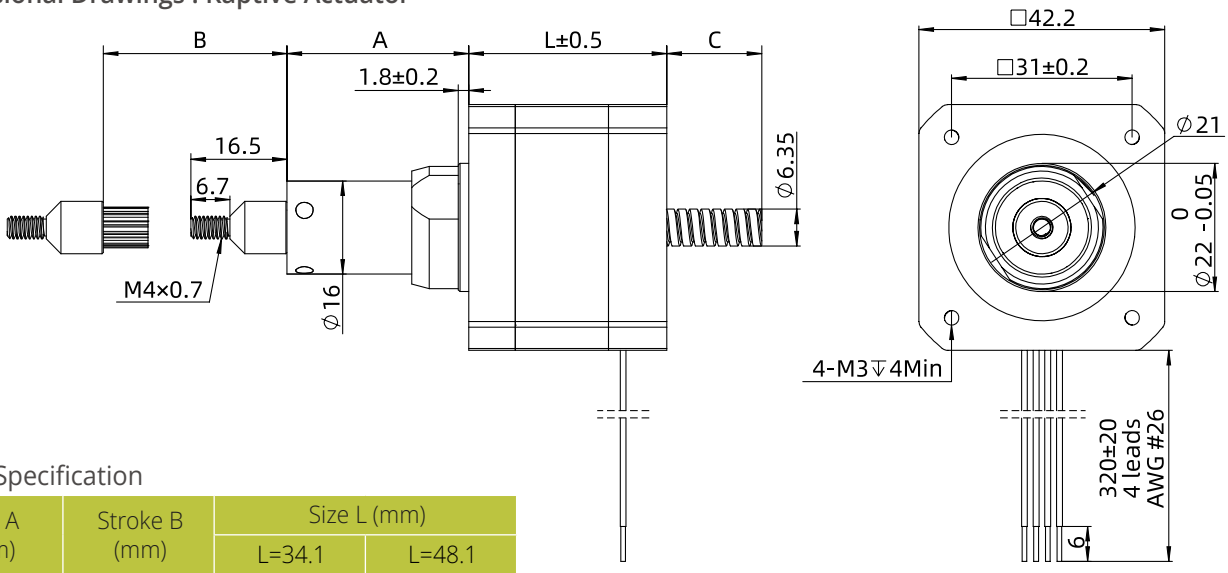
Dimensional Drawings : Electric Cylinder (Captive) Actuator



- Stroke Specification

Size A (mm)	Stroke B (mm)	Size L (mm)	
35.7	12.7	Single stack motor 34.1mm	Double stack motor 48.1mm
42.05	19.05		
48.4	25.4		
54.8	31.8		
61.1	38.1		
73.8	50.8		
86.5	63.5		

Dimensional Drawings : Kaptive Actuator



- Stroke Specification

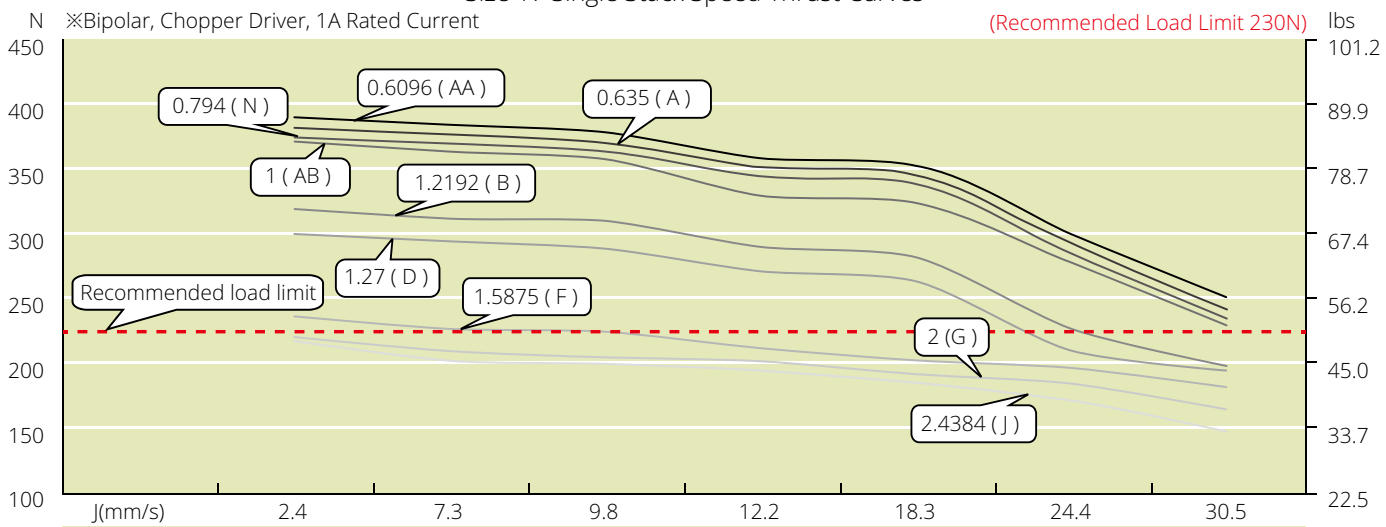
Size A (mm)	Stroke B (mm)	Size L (mm)	
		L=34.1	L=48.1
18.5	12.7	4.1	0
24.85	19.05	10.45	5.45
31.2	25.4	16.8	11.8
37.55	31.75	23.15	18.15
43.9	38.1	29.5	24.5
56.6	50.8	42.2	37.2
69.3	63.5	54.9	49.9

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

Size 17 (42mm) Series

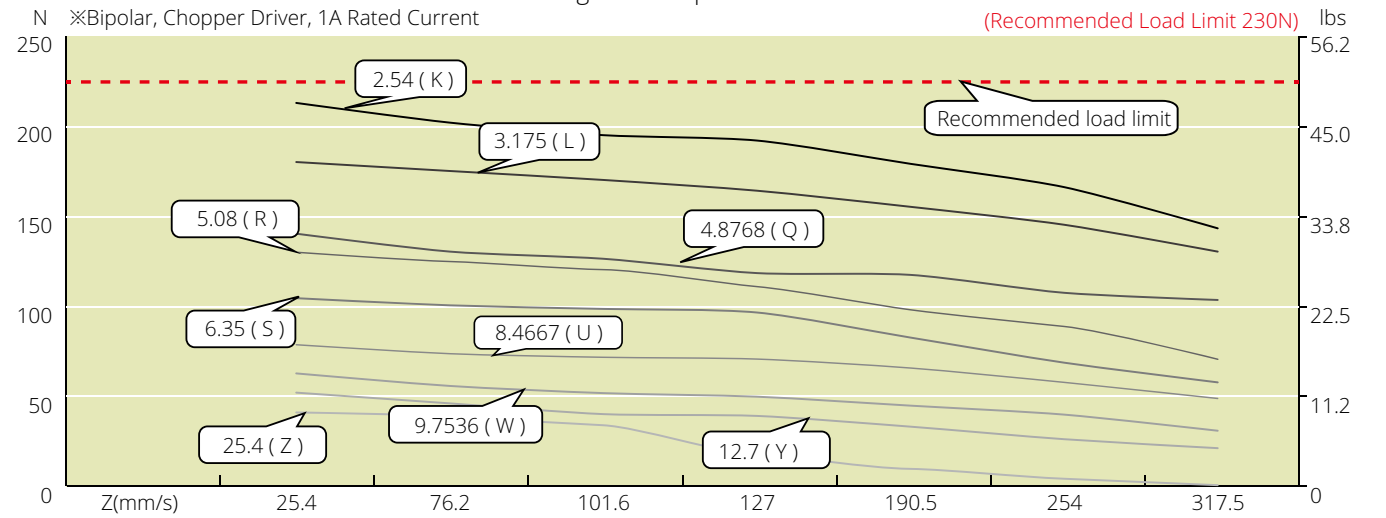
Speed Thrust Curves

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	6	8	10	15	20	25
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	3	4	5	7.5	10	12.5
N(mm/s)	0.8	2.4	3.2	4	6	7.9	9.9
A(mm/s)	0.6	1.9	1.5	3.2	4.8	6.4	7.9
AA(mm/s)	0.6	1.8	2.4	3	4.6	6.1	7.6
Speed r/min	60	180	240	300	450	600	750
Pulse pps	200	600	800	1000	1500	2000	2500

Size 17 Single Stack Speed Thrust Curves

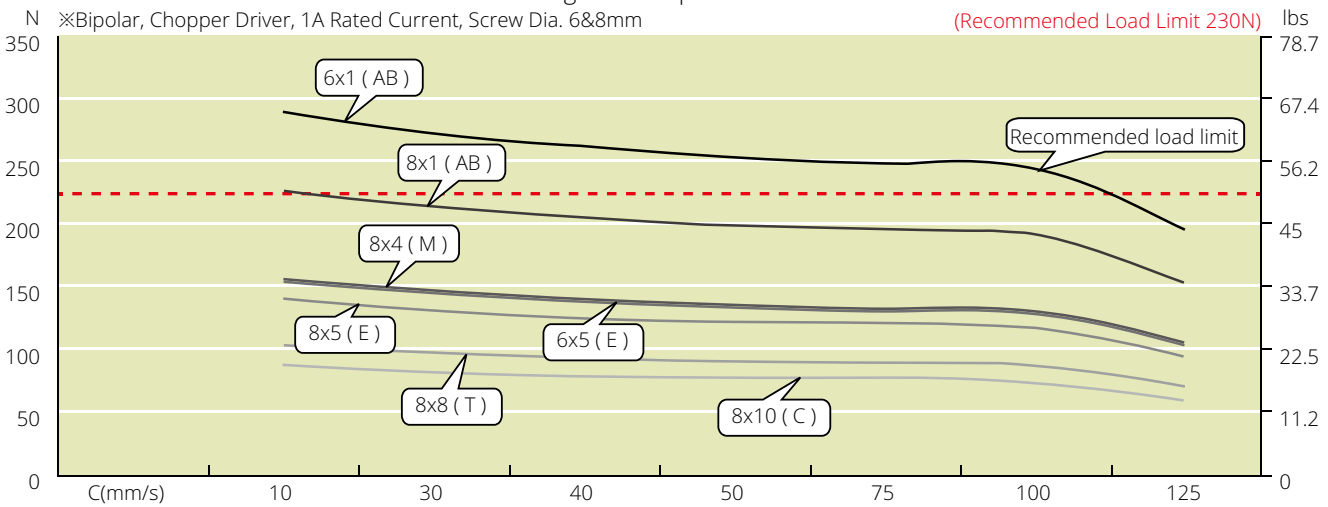


Z(mm/s)	25.4	76.2	101.6	127	190.5	254	317.5
Y(mm/s)	12.7	38.1	50.8	63.5	95.3	127	158.8
W(mm/s)	9.8	29.3	39	48.8	73.2	97.5	121.9
U(mm/s)	8.5	25.4	33.9	42.3	63.5	84.7	105.8
S(mm/s)	6.4	19.1	25.4	31.8	47.6	63.5	79.4
R(mm/s)	5.1	15.2	20.3	25.4	38.1	50.8	63.5
Q(mm/s)	4.9	14.6	19.5	24.4	36.6	48.8	61
L(mm/s)	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
Speed r/min	60	180	240	300	450	600	750
Pulse pps	200	600	800	1000	1500	2000	2500

TEST CONDITION

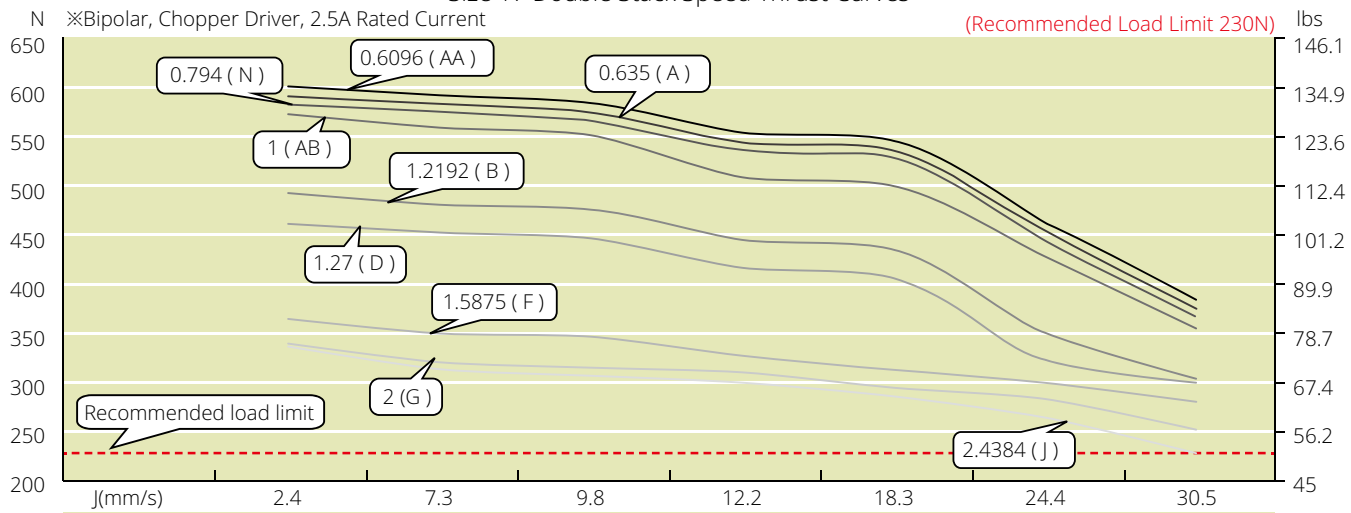
Testing Voltage: 24Vdc, Driver Model: DS-OLS2-FPD bipolar, chopper driver at rated current (rms).
Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

Size 17 Single Stack Speed Thrust Curves



C(mm/s)	10	30	40	50	75	100	125
T(mm/s)	8	24	32	40	60	80	100
E(mm/s)	5	15	20	25	37.5	50	62.5
M(mm/s)	4	12	16	20	30	40	50
AB(mm/s)	1	3	4	5	7.5	10	12.5
E(mm/s)	5	15	20	25	37.5	50	62.5
AB(mm/s)	1	3	4	5	7.5	10	12.5
Speed r/min	60	180	240	300	450	600	750
Pulse pps	200	600	800	1000	1500	2000	2500

Size 17 Double Stack Speed Thrust Curves



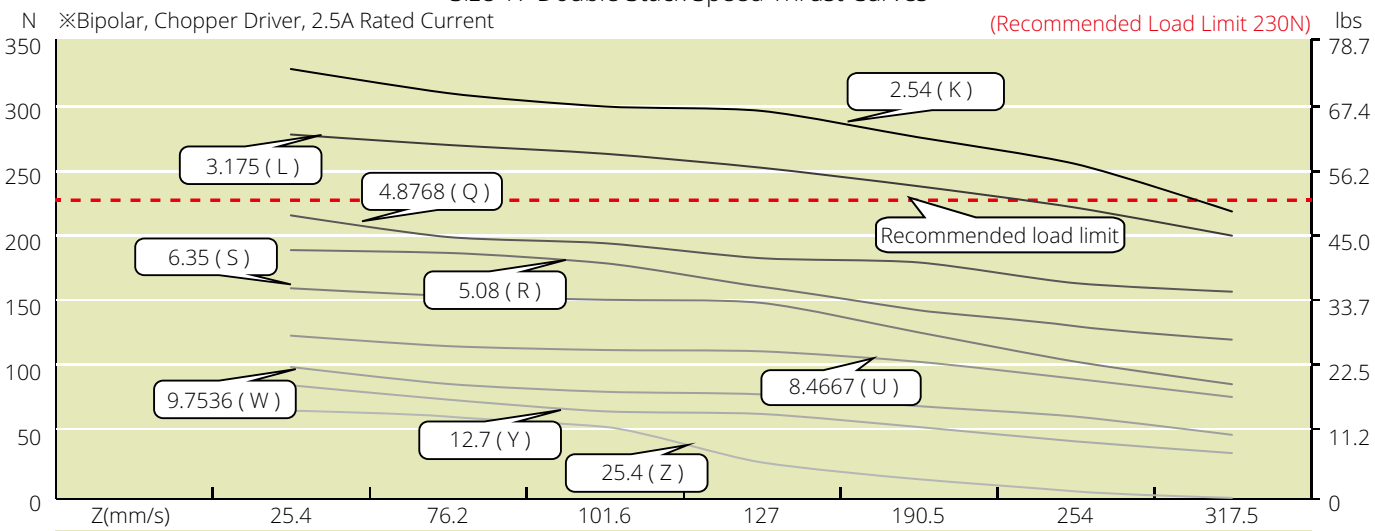
J(mm/s)	2.4	7.3	9.8	12.2	18.3	24.4	30.5
G(mm/s)	2	6	8	10	15	20	25
F(mm/s)	1.6	4.8	6.4	7.9	11.9	15.9	19.8
D(mm/s)	1.3	3.8	5.1	6.4	9.5	12.7	15.9
B(mm/s)	1.2	3.7	4.9	6.1	9.1	12.2	15.2
AB(mm/s)	1	3	4	5	7.5	10	12.5
N(mm/s)	0.8	2.4	3.2	4	6	7.9	9.9
A(mm/s)	0.6	1.9	1.5	3.2	4.8	6.4	7.9
AA(mm/s)	0.6	1.8	2.4	3	4.6	6.1	7.6
Speed r/min	60	180	240	300	450	600	750
Pulse 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.

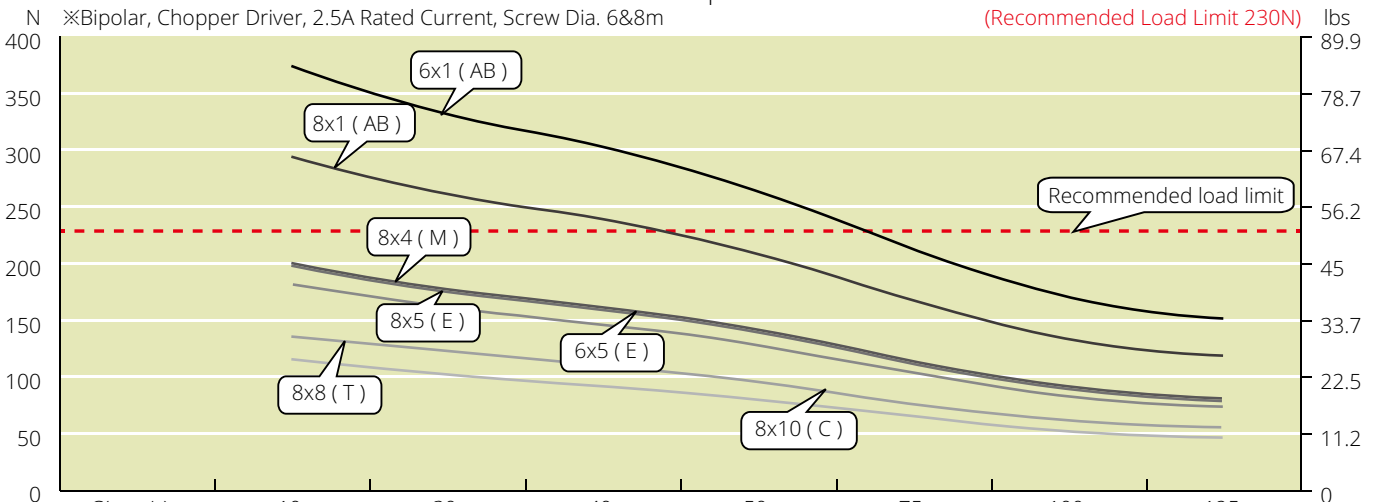
Size 17 (42mm) Series

Size 17 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	158.8
W(mm/s)	9.8	29.3	39	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
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
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
Speed r/min	60	180	240	300	450	600	750

Size 17 Double Stack Speed Thrust Curves



C(mm/s)	10	30	40	50	75	100	125
T(mm/s)	8	24	32	40	60	80	100
E(mm/s)	5	15	20	25	37.5	50	62.5
M(mm/s)	4	12	16	20	30	40	50
AB(mm/s)	1	3	4	5	7.5	10	12.5
E(mm/s)	5	15	20	25	37.5	50	62.5
AB(mm/s)	1	3	4	5	7.5	10	12.5
Speed r/min	60	180	240	300	450	600	750

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.

Motor Characteristics

Motor	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Weight (g)	Lead Wire No.	Motor Length (mm)
23-2110	6.4	1	6.4	16.4	585	4	45
23-2120	3.5	2	1.75	4.1	585	4	45
23-2130	2.4	3	0.8	1.7	585	4	45
23-2210	11.5	1	11.5	32	880	4	65
23-2225	5	2.5	2	5.2	880	4	65
23-2240	2.8	4	0.7	2	880	4	65

Note : Motor Insulation Class B, Motor Temperature Rise 80°C, Ambient Temperature -20°C~55°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)*	Travel Per Step @0.9° (mm)*
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	25.4	Z	0.127	0.0635
0.394/0.472	10/12	0.0787	2	G	0.01	0.005
0.394/0.472	10/12	0.3937	10	C	0.05	0.025
0.394	10	0.7874	20	I	0.1	0.05
0.472	12	0.1969	5	E	0.025	0.0125

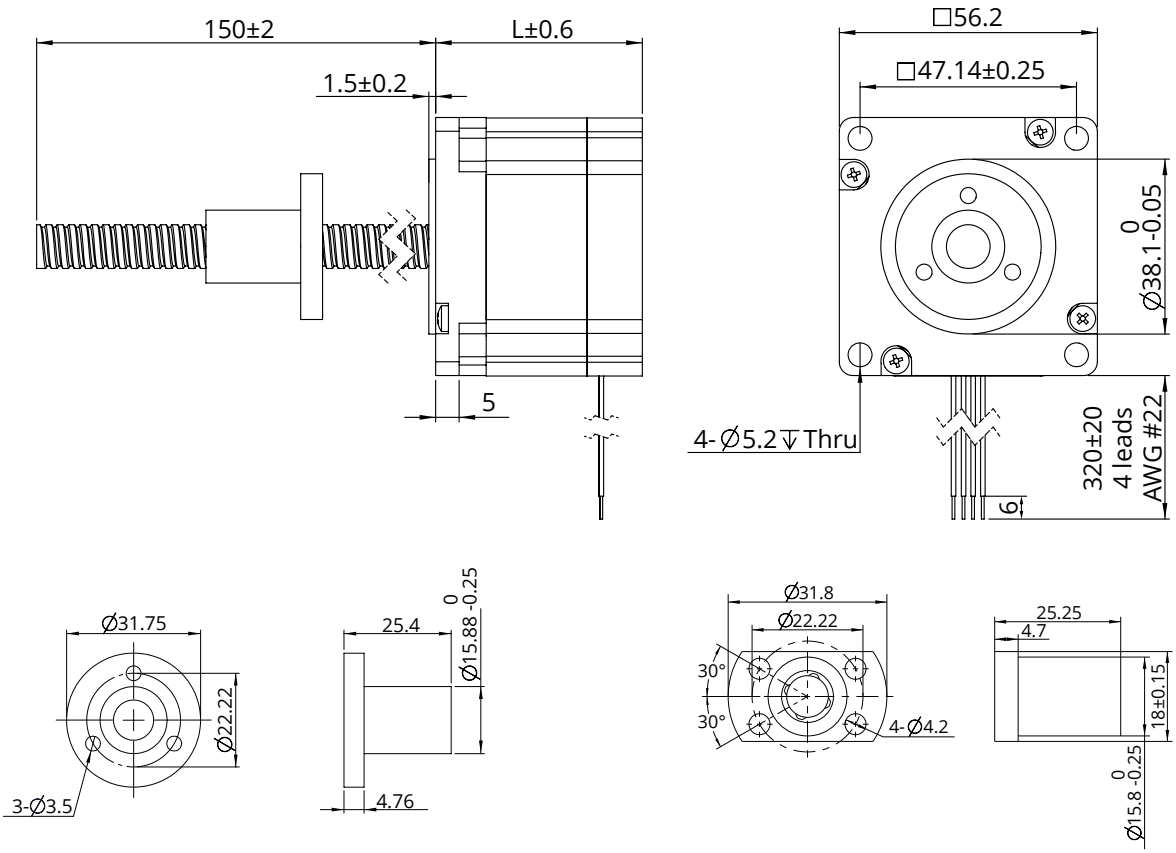
* Motor wiring and screw lead could be customized according to customer's request

* Value Truncated

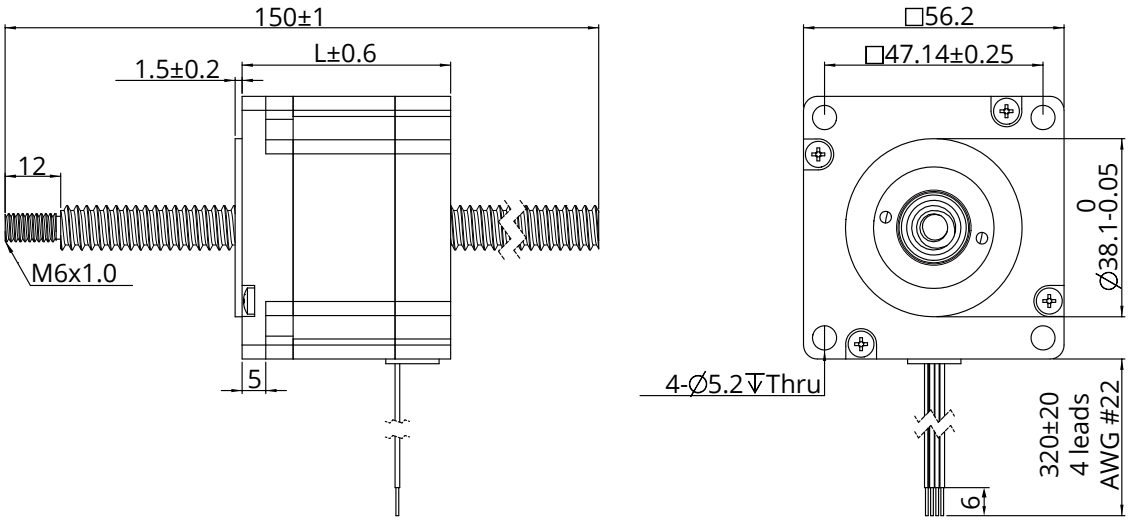
* 15.875mm diameter screw only can be applied in External Type

Size 23 (57mm) Series

Dimensional Drawings : External Actuator

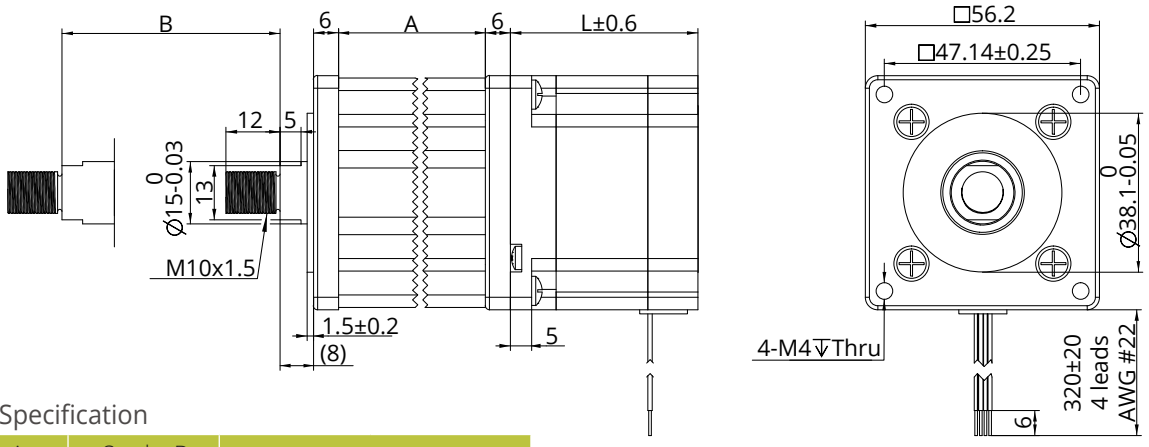


Dimensional Drawings : Non-Captive Actuator



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

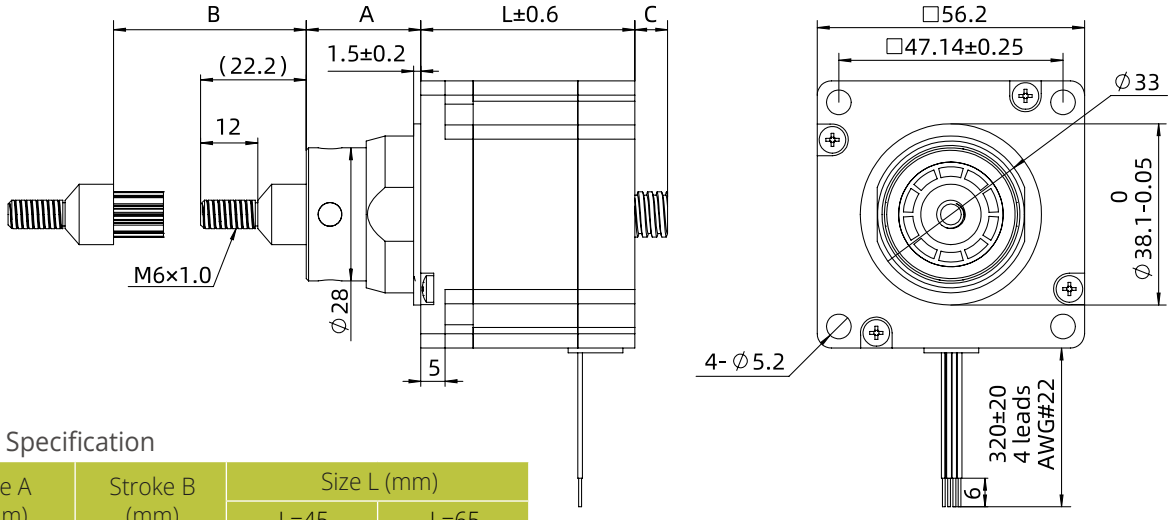
Dimensional Drawings : Electric Cylinder (Captive) Actuator



Stroke Specification

Size A (mm)	Stroke B (mm)	Size L (mm)	
45.7	12.7	Single stack motor 45mm	Double stack motor 65mm
52.05	19.05		
58.4	25.4		
64.8	31.8		
71.1	38.1		
83.8	50.8		
96.5	63.5		

Dimensional Drawings : Kaptive Actuator



Stroke Specification

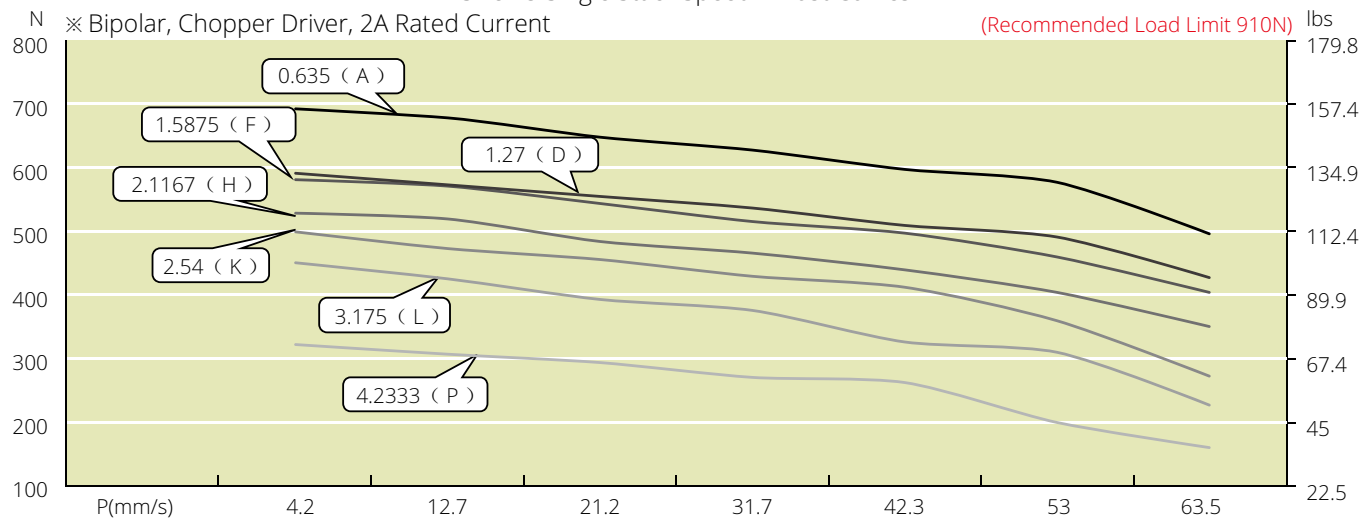
Size A (mm)	Stroke B (mm)	Size L (mm)	
		L=45	L=65
24.2	12.7	5.8	0
30.55	19.05	12.15	2.15
36.9	25.4	18.5	8.5
43.25	31.75	24.85	14.85
49.6	38.1	31.2	21.2
62.3	50.8	43.9	33.9
75	63.5	56.6	46.6

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

Size 23 (57mm) Series

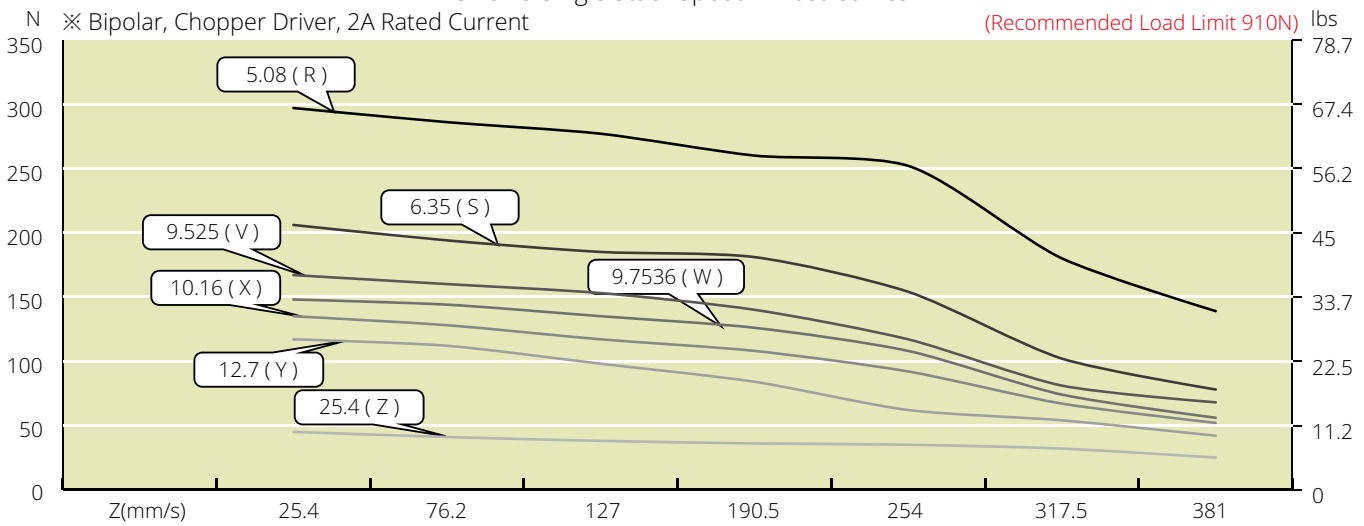
Speed Thrust Curves

Size 23 Single Stack Speed Thrust Curves



P(mm/s)	4.2	12.7	21.2	31.7	42.3	53	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
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	4.6	6.1	7.6	9.1
Speed r/min	60	180	300	450	600	750	900
Pulse pps	200	600	1000	1500	2000	2500	3000

Size 23 Single Stack Speed Thrust Curves

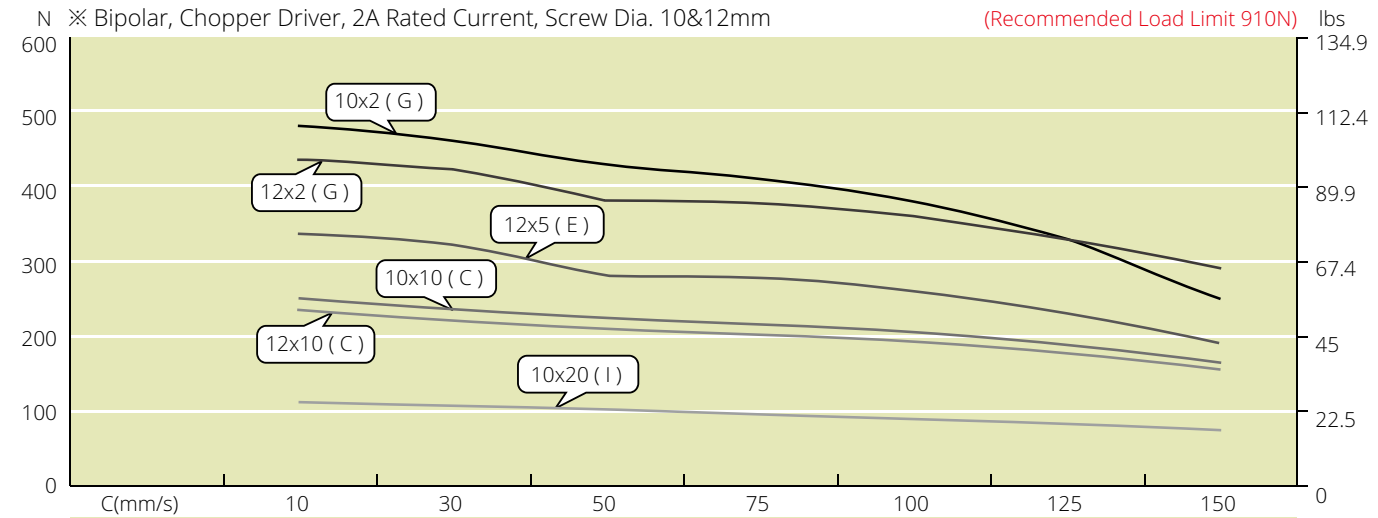


Z(mm/s)	25.4	76.2	127	190.5	254	317.5	381
Y(mm/s)	12.7	38.1	63.5	95.3	127	158.8	190.5
X(mm/s)	10.2	30.5	50.8	76.2	101.6	127	152.4
W(mm/s)	9.8	29.3	48.8	73.2	97.5	121.9	146.3
V(mm/s)	9.5	28.6	47.6	71.4	95.3	119.1	142.9
S(mm/s)	6.4	19.1	31.8	47.6	63.5	79.4	95.3
R(mm/s)	5.1	15.2	25.4	38.1	50.8	63.5	76.2
Speed r/min	60	180	300	450	600	750	900
Pulse pps	200	600	1000	1500	2000	2500	3000

TEST CONDITION

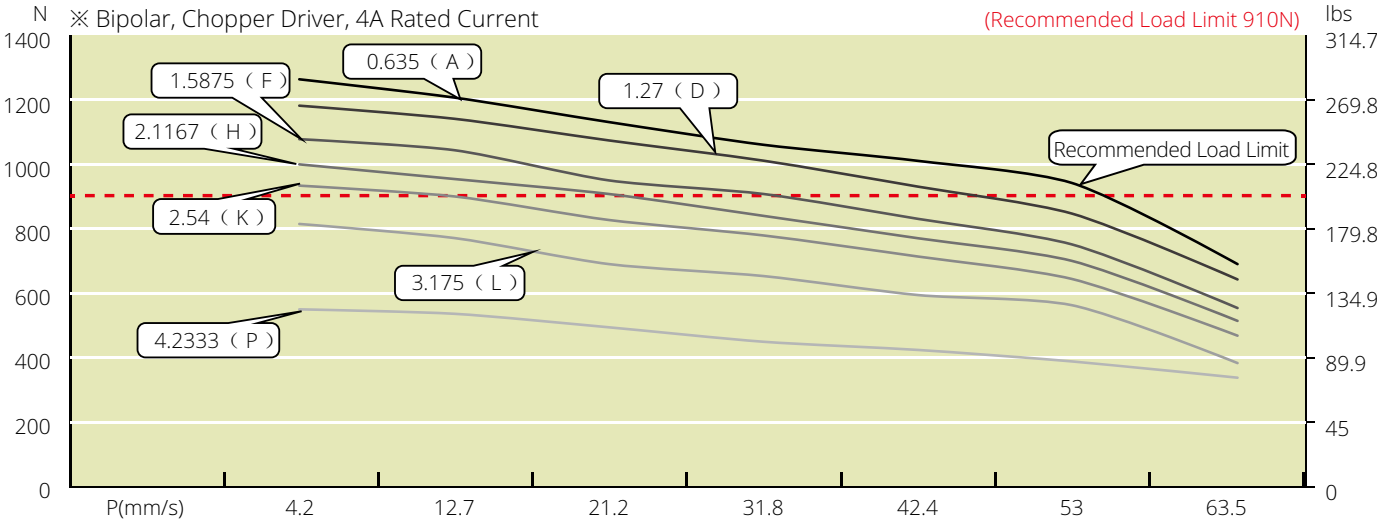
Testing Voltage: 40Vdc, Driver Model: DS-OLS4-FPD bipolar, chopper driver at rated current (rms).
Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

Size 23 Single Stack Speed Thrust Curves



C(mm/s)	10	30	50	75	100	125	150
E(mm/s)	5	15	25	37.5	50	62.5	75
G(mm/s)	2	6	10	15	20	25	30
I(mm/s)	20	60	100	150	200	250	300
C(mm/s)	10	30	50	75	100	125	150
G(mm/s)	2	6	10	15	20	25	30
Speed r/min	60	180	300	450	600	750	900
Pulse pps	200	600	1000	1500	2000	2500	3000

Size 23 Double Stack Speed Thrust Curves



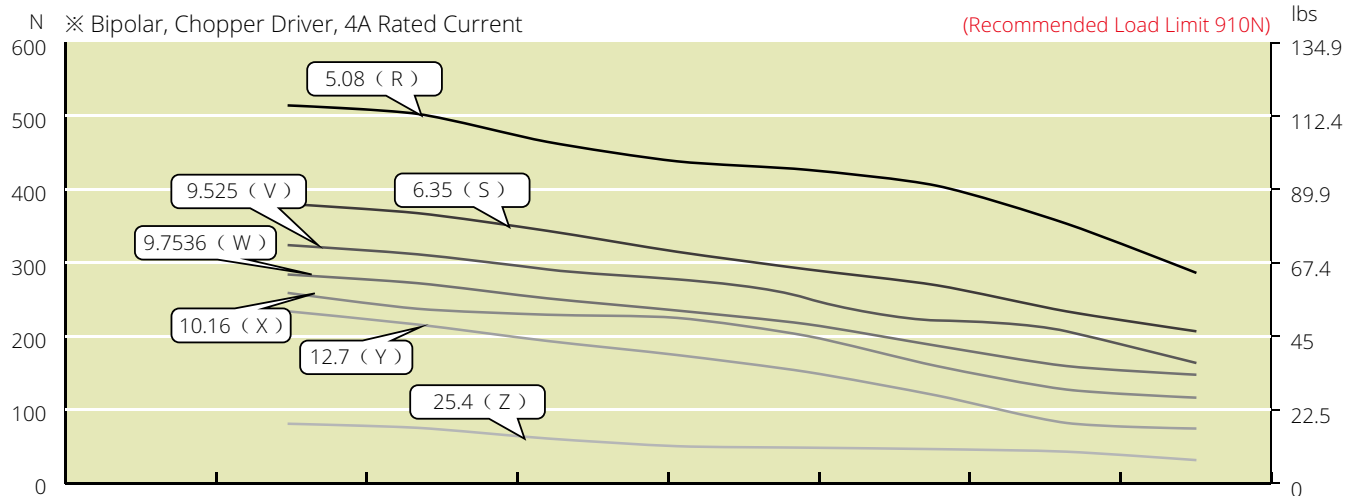
P(mm/s)	4.2	12.7	21.2	31.8	42.4	53	63.5
L(mm/s)	3.2	9.5	15.9	23.8	31.8	39.7	47.6
K(mm/s)	2.5	7.6	12.7	19.1	25.4	31.8	38.1
H(mm/s)	2.1	6.4	10.6	15.9	21.2	26.5	31.8
F(mm/s)	1.6	4.8	7.9	11.9	15.9	19.8	23.8
D(mm/s)	1.3	3.8	6.4	9.5	12.7	15.9	19.1
A(mm/s)	0.6	1.8	3	4.6	6.1	7.6	9.1
Speed r/min	60	180	300	450	600	750	900
Pulse 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.

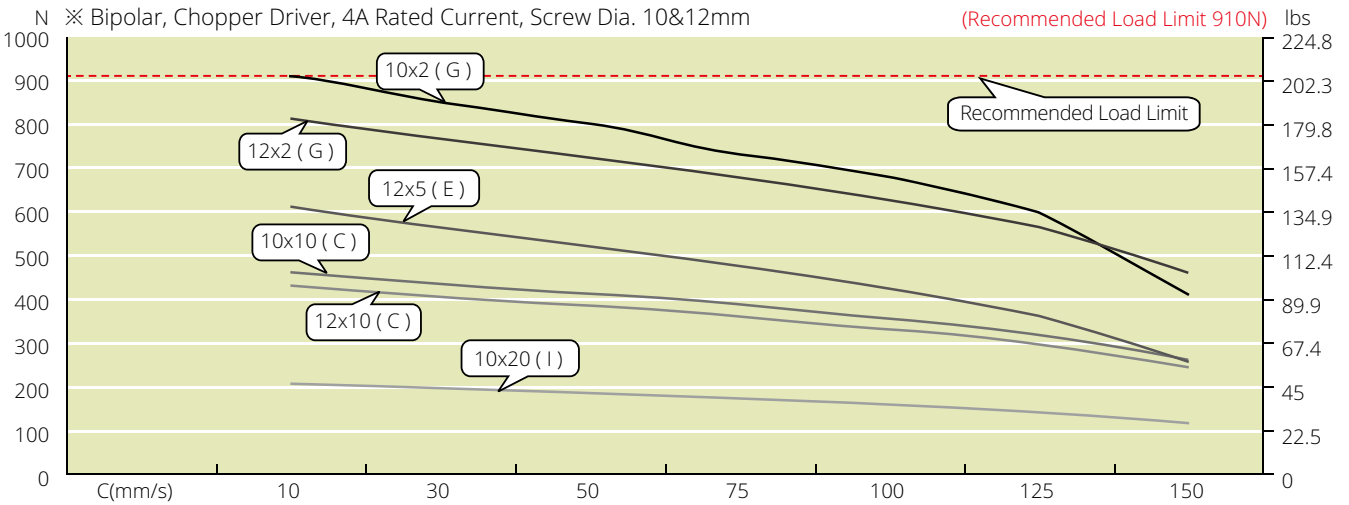
Size 23 (57mm) Series

Size 23 Double Stack Speed Thrust Curves



Z(mm/s)	25.4	76.2	127	190.5	254	317.5	381
Y(mm/s)	12.7	38.1	63.5	95.3	127	158.8	190.5
X(mm/s)	10.2	30.5	50.8	76.2	101.6	127	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
Speed r/min	60	180	300	450	600	750	900
Pulse pps	200	600	1000	1500	2000	2500	3000

Size 23 Double Stack Speed Thrust Curves



C(mm/s)	10	30	50	75	100	125	150
E(mm/s)	5	15	25	37.5	50	62.5	75
G(mm/s)	2	6	10	15	20	25	30
I(mm/s)	20	60	100	150	200	250	300
C(mm/s)	10	30	50	75	100	125	150
G(mm/s)	2	6	10	15	20	25	30
Speed r/min	60	180	300	450	600	750	900
Pulse 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.

Motor Characteristics

Motor	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Weight (g)	Lead Wire No.	Motor Length (mm)
24-2120	3	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	3	1	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~55°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)*	Travel Per Step @0.9° (mm)*
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	25.4	Z	0.127	0.0635
0.394/0.472	10/12	0.0787	2	G	0.01	0.005
0.394/0.472	10/12	0.3937	10	C	0.05	0.025
0.394	10	0.7874	20	I	0.1	0.05
0.472	12	0.1969	5	E	0.025	0.0125

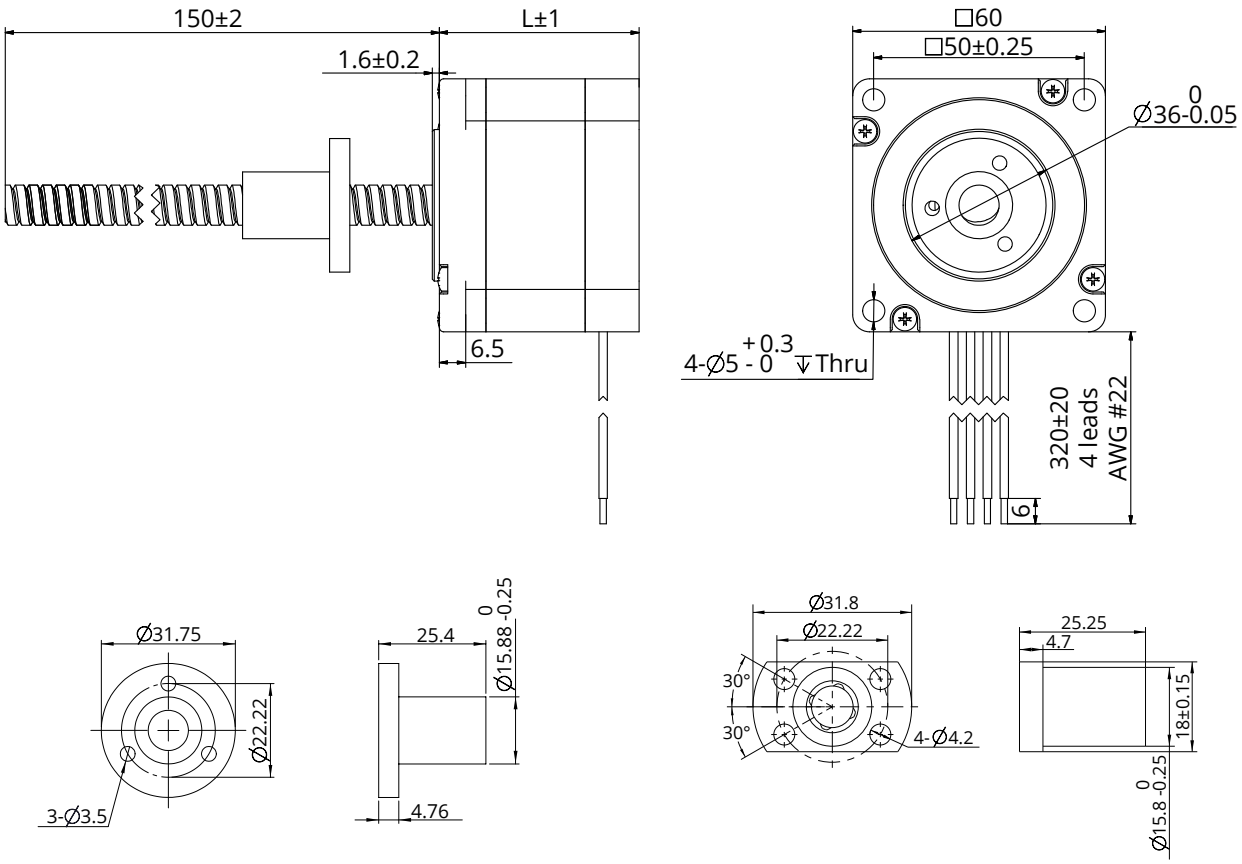
* Motor wiring and screw lead could be customized according to customer's request

* Value Truncated

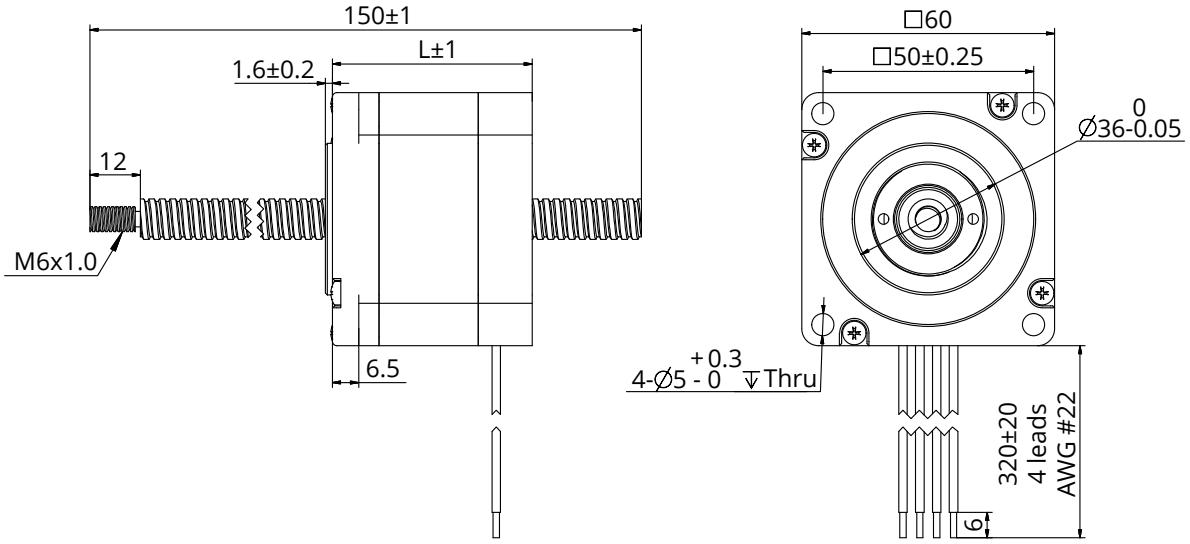
* 15.875mm diameter screw only can be applied in External Type

Size 24 (60mm) Series

Dimensional Drawings : External Actuator



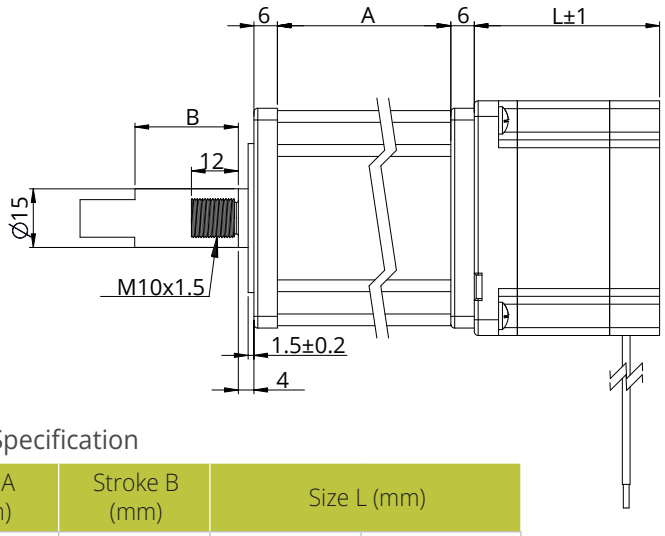
Dimensional Drawings : Non-Captive Actuator

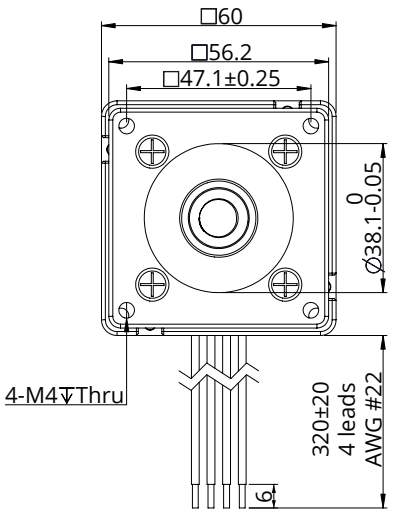


Note : All drawings are 1st Angle Projection - ISO Compliant (3D models available)

Size 24 (60mm) Series

Dimensional Drawings : Electric Cylinder (Captive) Actuator

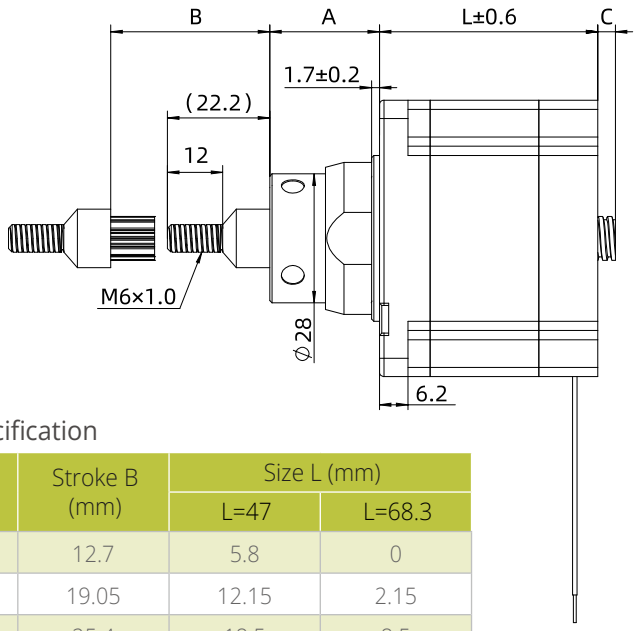


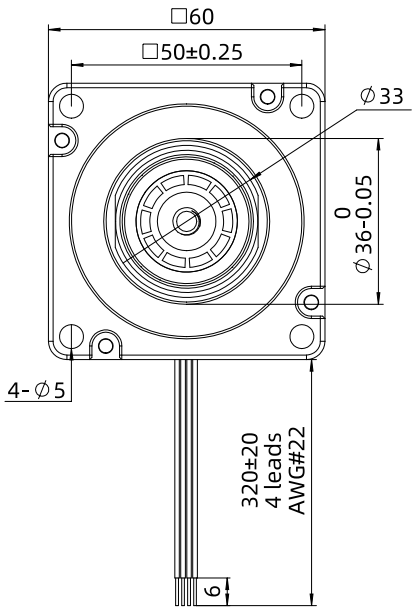


Stroke Specification

Size A (mm)	Stroke B (mm)	Size L (mm)	
45.7	12.7	Single stack motor 47mm	Double stack motor 68.3mm
52.05	19.05		
58.4	25.4		
64.8	31.8		
71.1	38.1		
83.8	50.8		
96.5	63.5		

Dimensional Drawings : Kaptive Actuator





Stroke Specification

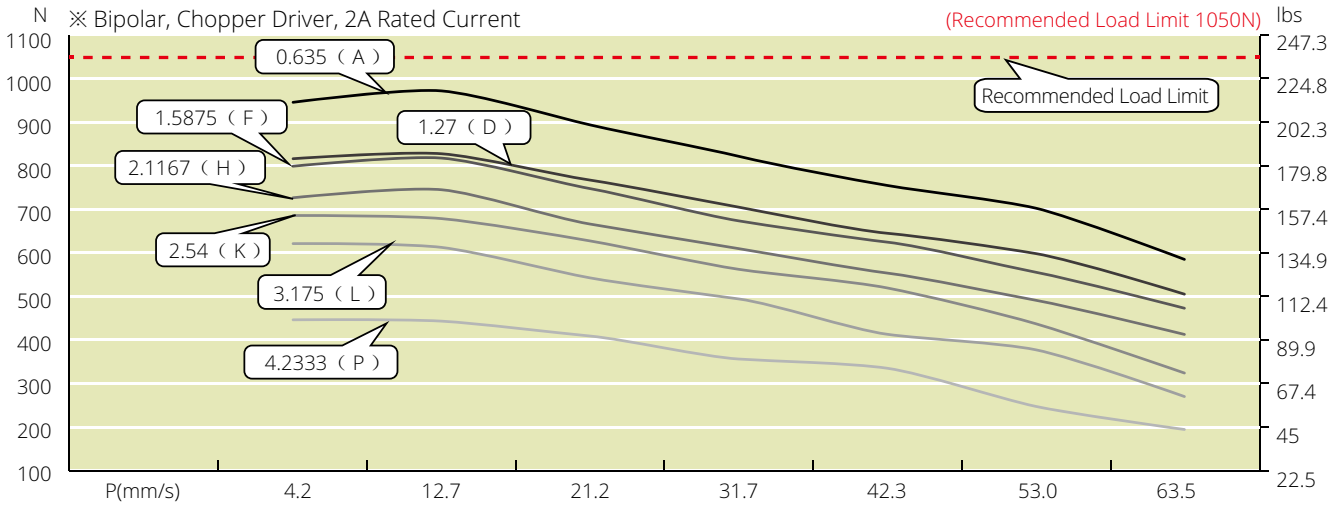
Size A (mm)	Stroke B (mm)	Size L (mm)	
		L=47	L=68.3
24.2	12.7	5.8	0
30.55	19.05	12.15	2.15
36.9	25.4	18.5	8.5
43.25	31.75	24.85	14.85
49.6	38.1	31.2	21.2
62.3	50.8	43.9	33.9
75	63.5	56.6	46.6

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

Size 24 (60mm) Series

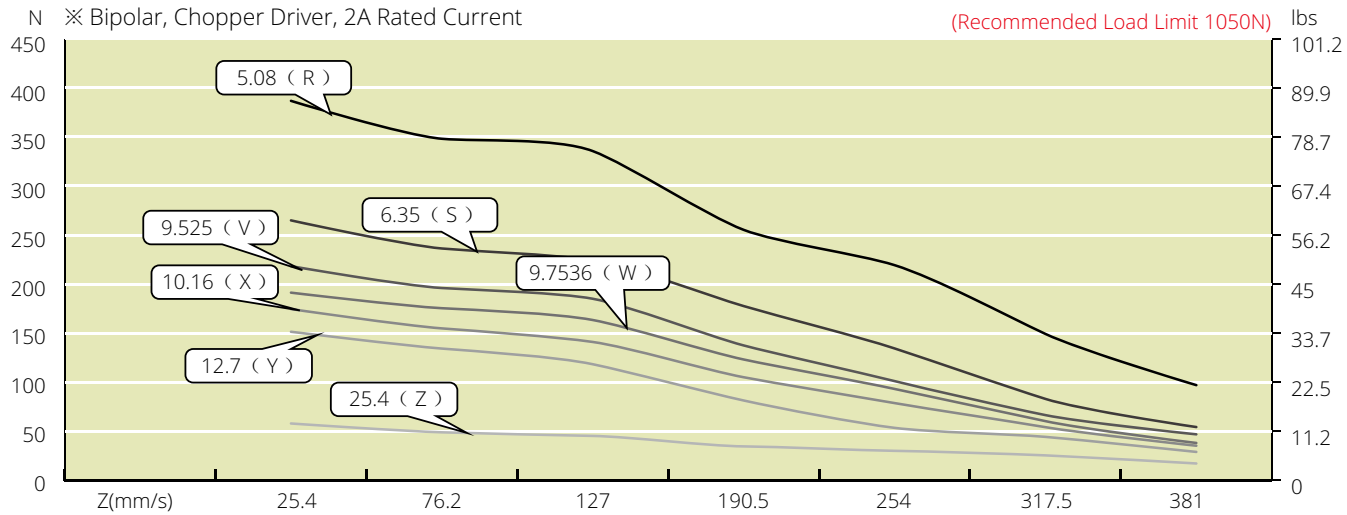
Speed Thrust Curves

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
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	4.6	6.1	7.6	9.1
Speed r/min	60	180	300	450	600	750	900
Pulse pps	200	600	1000	1500	2000	2500	3000

Size 24 Single Stack Speed Thrust Curves

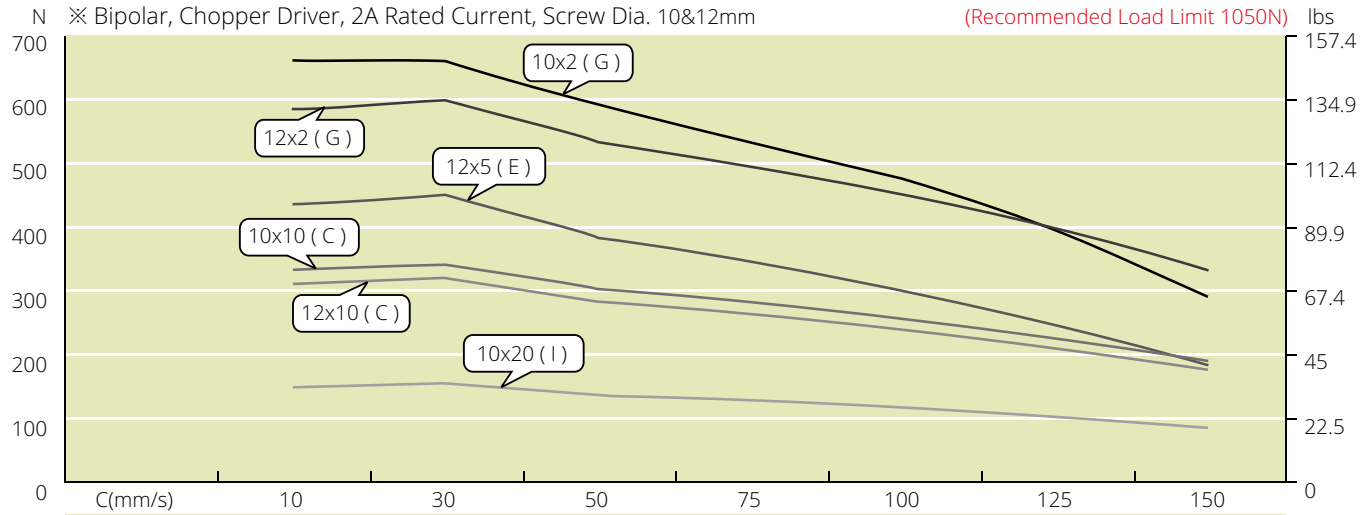


Z(mm/s)	25.4	76.2	127	190.5	254	317.5	381
Y(mm/s)	12.7	38.1	63.5	95.3	127	158.8	190.5
X(mm/s)	10.2	30.5	50.8	76.2	101.6	127	152.4
W(mm/s)	9.8	29.3	48.8	73.2	97.5	121.9	146.3
V(mm/s)	9.5	28.6	47.6	71.4	95.3	119.1	142.9
S(mm/s)	6.4	19.1	31.8	47.6	63.5	79.4	95.3
R(mm/s)	5.1	15.2	25.4	38.1	50.8	63.5	76.2
Speed r/min	60	180	300	450	600	750	900
Pulse pps	200	600	1000	1500	2000	2500	3000

TEST CONDITION

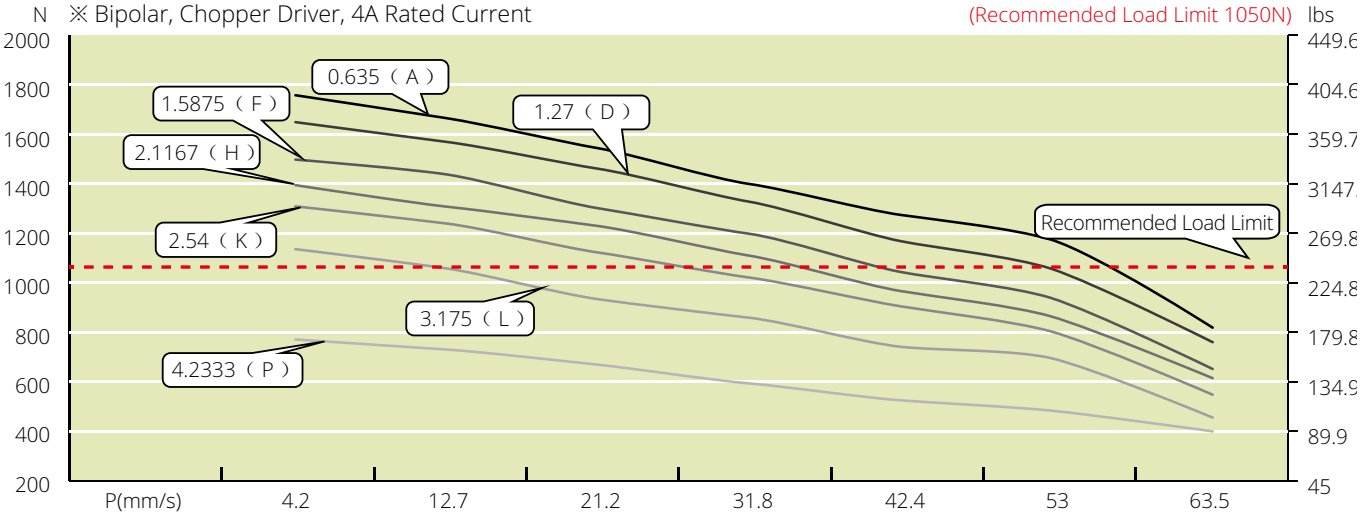
Testing Voltage: 40Vdc, Driver Model: DS-OLS4-FPD bipolar, chopper driver at rated current (rms).
Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

Size 24 Single Stack Speed Thrust Curves



C(mm/s)	10	30	50	75	100	125	150
E(mm/s)	5	15	25	37.5	50	62.5	75
G(mm/s)	2	6	10	15	20	25	30
I(mm/s)	20	60	100	150	200	250	300
C(mm/s)	10	30	50	75	100	125	150
G(mm/s)	2	6	10	15	20	25	30
Speed r/min	60	180	300	450	600	750	900
Pulse pps	200	600	1000	1500	2000	2500	3000

Size 24 Double Stack Speed Thrust Curves



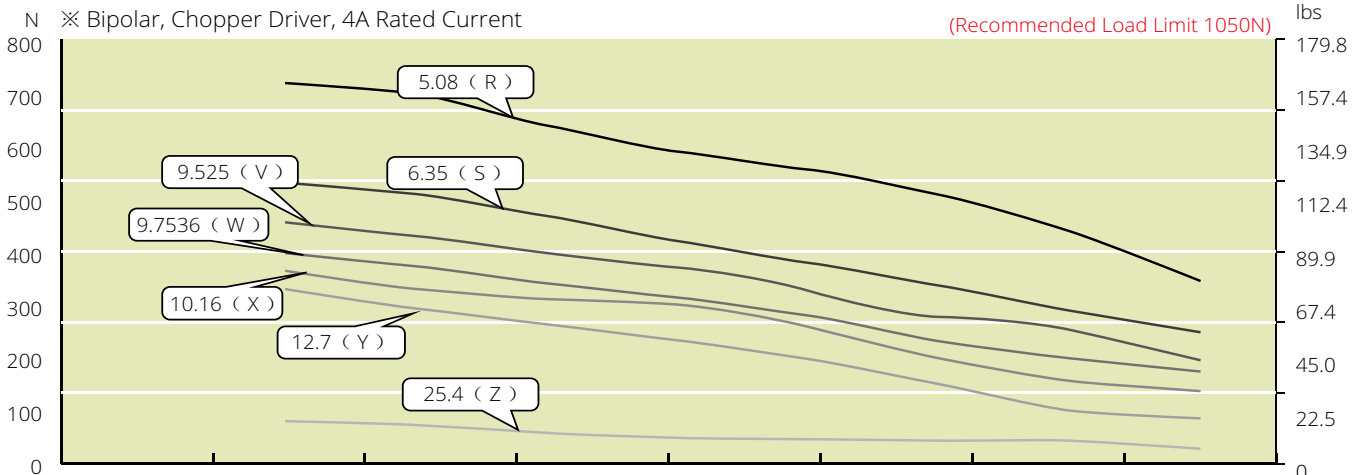
P(mm/s)	4.2	12.7	21.2	31.8	42.4	53	63.5
L(mm/s)	3.2	9.5	15.9	23.8	31.8	39.7	47.6
K(mm/s)	2.5	7.6	12.7	19.1	25.4	31.8	38.1
H(mm/s)	2.1	6.4	10.6	15.9	21.2	26.5	31.8
F(mm/s)	1.6	4.8	7.9	11.9	15.9	19.8	23.8
D(mm/s)	1.3	3.8	6.4	9.5	12.7	15.9	19.1
A(mm/s)	0.6	1.8	3	4.6	6.1	7.6	9.1
Speed r/min	60	180	300	450	600	750	900
Pulse 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.

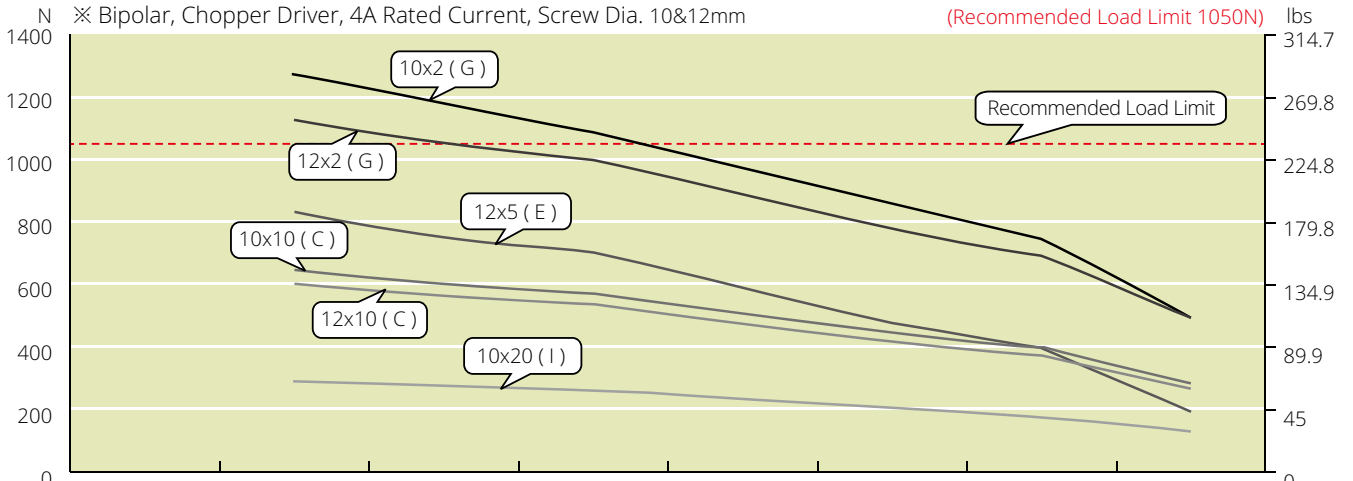
Size 24 (60mm) Series

Size 24 Double Stack Speed Thrust Curves



Z(mm/s)	25.4	76.2	127	190.5	254	317.5	381
Y(mm/s)	12.7	38.1	63.5	95.3	127	158.8	190.5
X(mm/s)	10.2	30.5	50.8	76.2	101.6	127	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
Speed r/min	60	180	300	450	600	750	900
Pulse pps	200	600	1000	1500	2000	2500	3000

Size 24 Double Stack Speed Thrust Curves



C(mm/s)	10	30	50	75	100	125	150
E(mm/s)	5	15	25	37.5	50	62.5	75
G(mm/s)	2	6	10	15	20	25	30
I(mm/s)	20	60	100	150	200	250	300
C(mm/s)	10	30	50	75	100	125	150
G(mm/s)	2	6	10	15	20	25	30
Speed r/min	60	180	300	450	600	750	900
Pulse 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.

Motor Characteristics

Motor	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Weight (g)	Lead Wire No.	Motor Length (mm)
34-2113	12	1.3	9.2	71	2370	4	76
34-2130	5.7	3	1.9	15	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~55°C

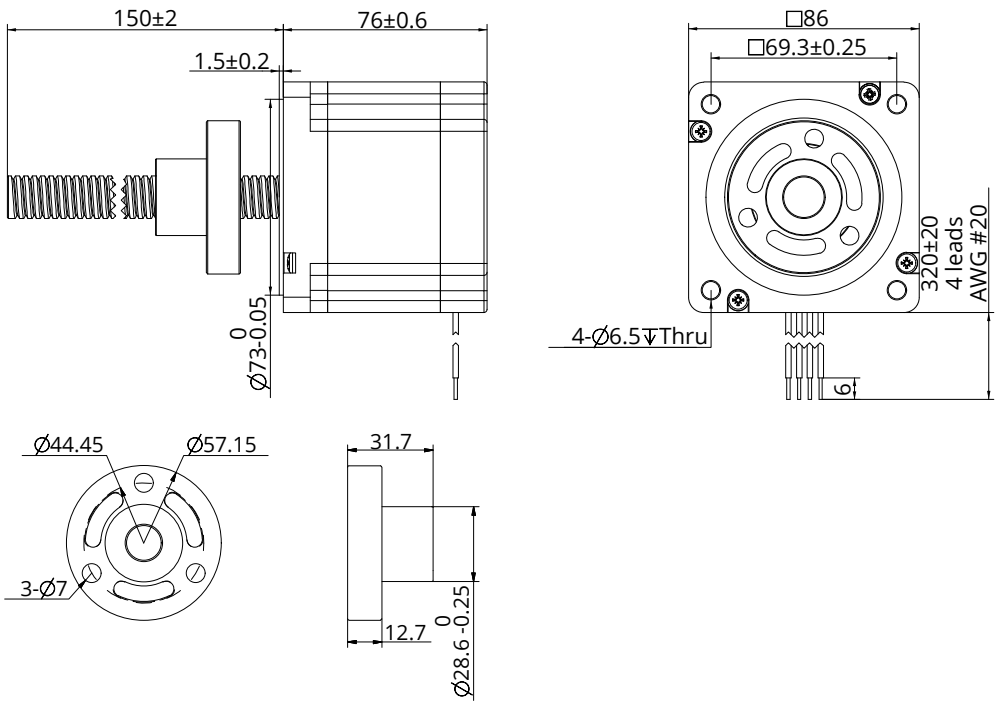
Available Lead Screw and Travel per Step

Screw Dia. (inch)	Screw Dia. (mm)	Lead (inch)	Lead (mm)	Lead Code	Travel Per Step @1.8° (mm)*
0.625	15.875	0.1	2.54	K	0.0127
0.625	15.875	0.125	3.175	L	0.0159
0.625	15.875	0.2	5.08	R	0.0254
0.625	15.875	0.25	6.35	S	0.0318
0.625	15.875	0.5	12.7	Y	0.0635
0.625	15.875	1	25.4	Z	0.127

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

* Value Truncated

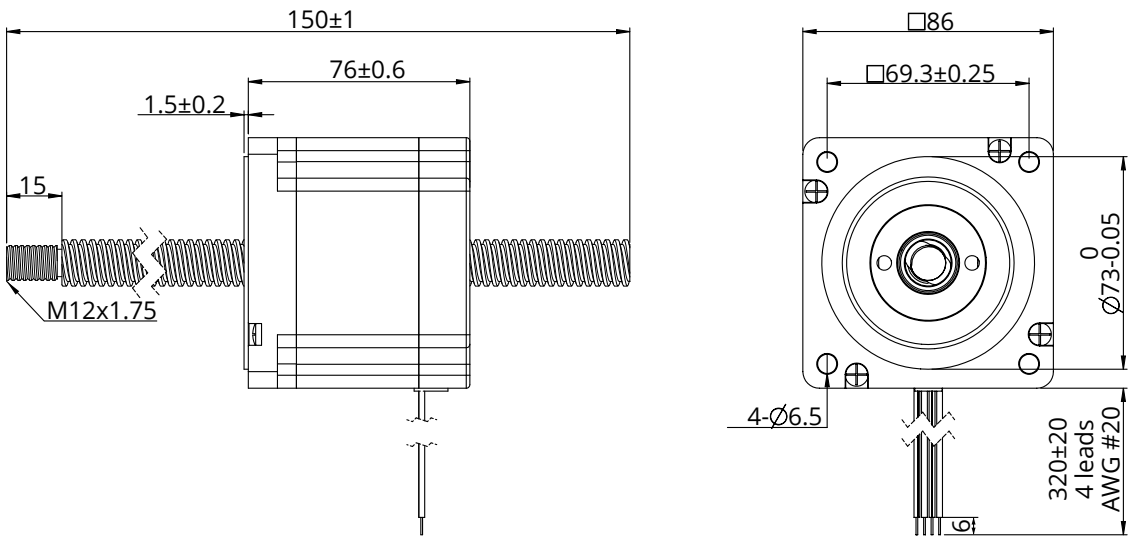
Dimensional Drawings : External Actuator



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

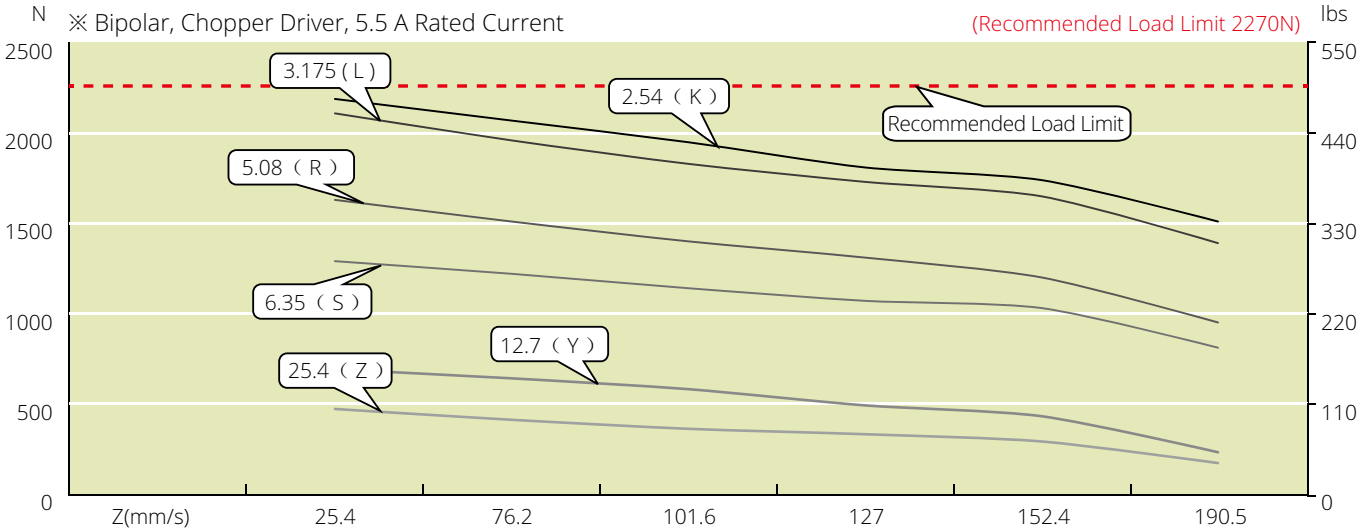
Size 34 (86mm) Series

Dimensional Drawings : Non-Captive Actuator



Speed Thrust Curves

Size 34 Single Stack Speed Thrust Curves



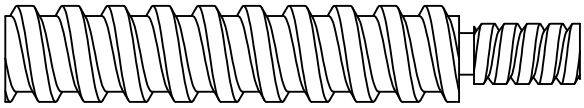
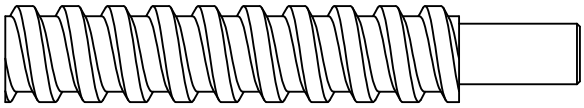
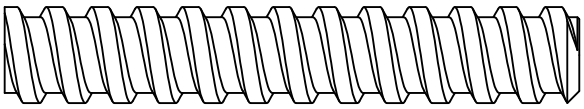
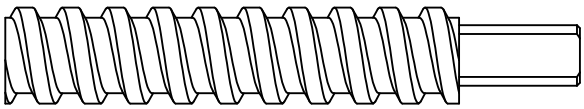
Z(mm/s)	25.4	76.2	101.6	127	152.4	190.5
Y(mm/s)	12.7	38.1	50.8	63.5	76.2	95.3
S(mm/s)	6.4	19.1	25.4	31.8	38.1	47.6
R(mm/s)	5.1	15.2	20.3	25.4	30.5	38.1
L(mm/s)	3.2	9.5	12.7	15.9	19.1	23.8
K(mm/s)	2.5	7.6	10.2	12.7	15.2	19.1
Speed r/min	60	180	240	300	360	450
Pulse pps	200	600	800	1000	1200	1500

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

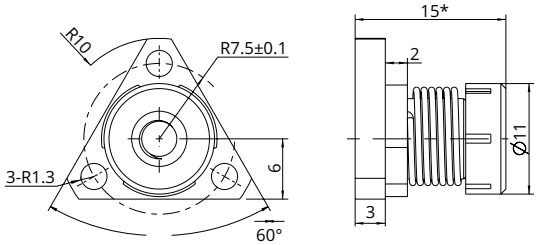
Screw End Machining

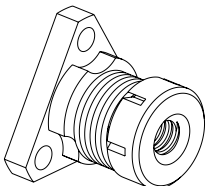
	Threaded End	Screw end machining depends on screw diameter. For customized screw end machining are available, please contact DINGS' representatives for more details.
	Smooth End	
	None	
	Customized	

Accessories and Options

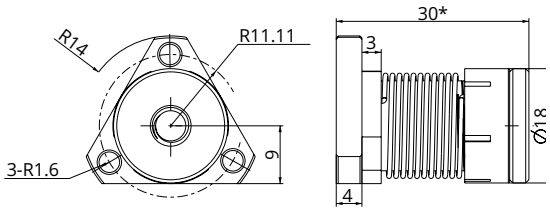
External Actuator Anti-Backlash Nut

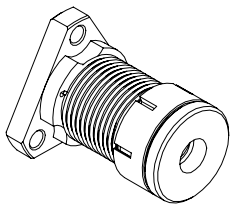
Torsion Spring Anti-Backlasn Nut



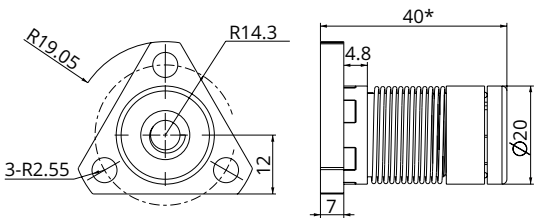


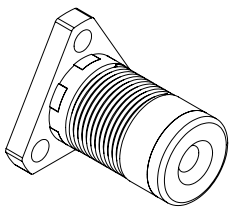
Size 8 (20mm) & Size 11 (28mm)





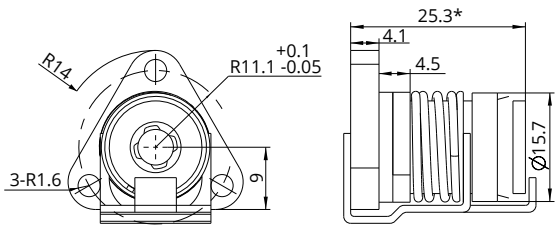
Size 14 (35mm) & Size 17 (42mm)

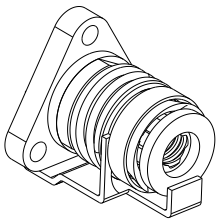




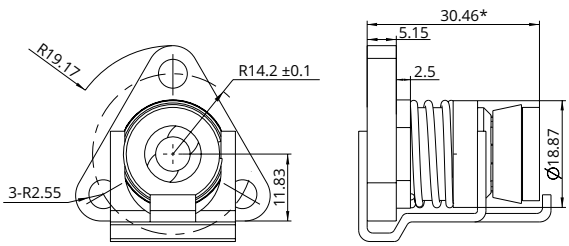
Size 23 (57mm)

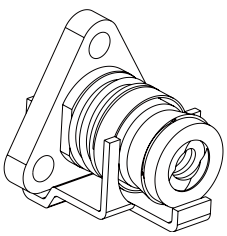
Compression Spring Anti-Backlasn Nut





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



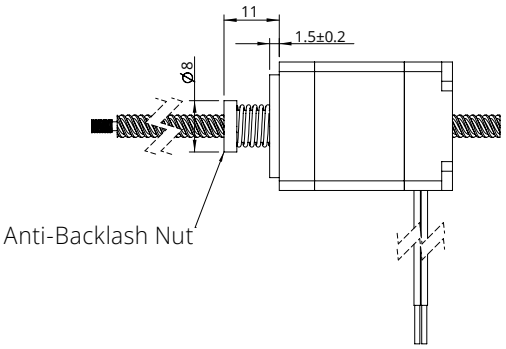


Size 23 (57mm)

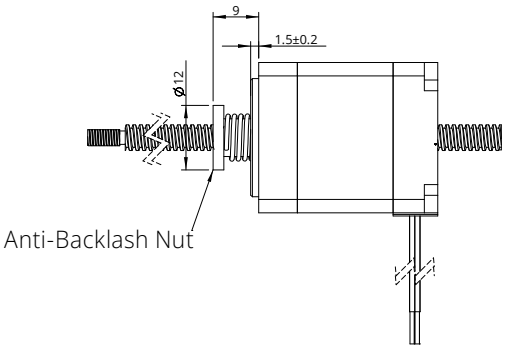
* According to different screw lead code selection, length of Anti-Backlash nut can be changed

Accessories and Options

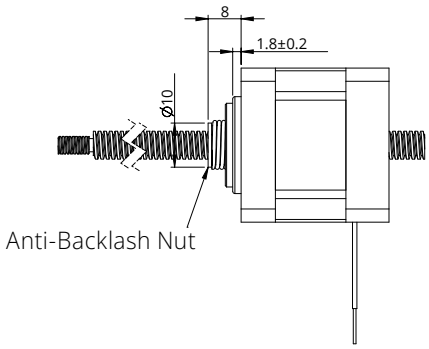
Non-Captive Actuator Anti-Backlash Nut



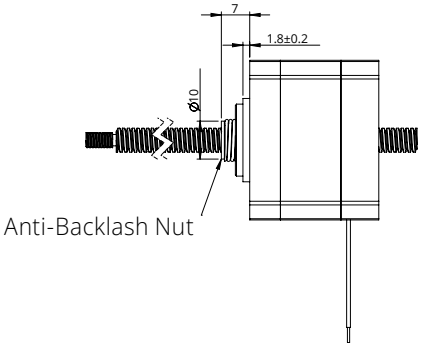
Size 8 (20mm)



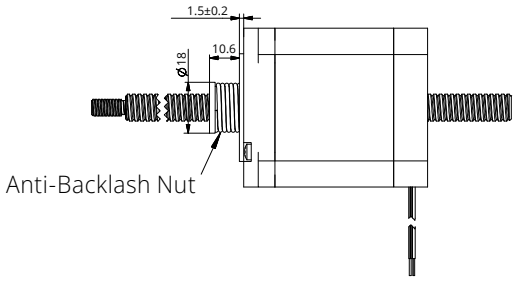
Size 11 (28mm)



Size 14 (35mm)



Size 17 (42mm)

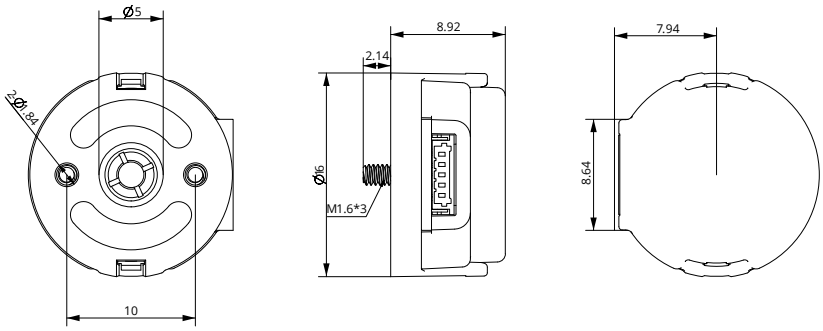


Size 23 (57mm)

Customized Nut

Accessories and Options

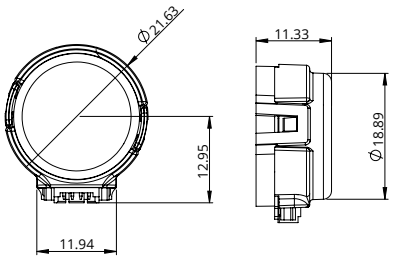
Encoder



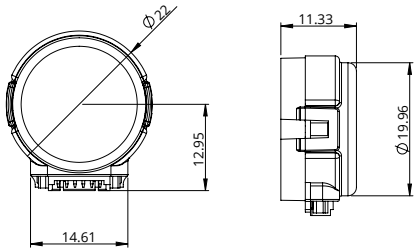
EK 6 Encoder

- EK 6 Encoder (Used for size 6 motors) * No Index

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



EK 1 Encoder - single ended output

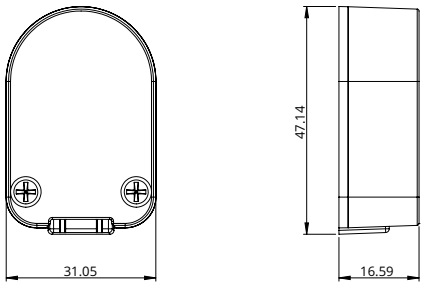


EK 1 Encoder - differential output

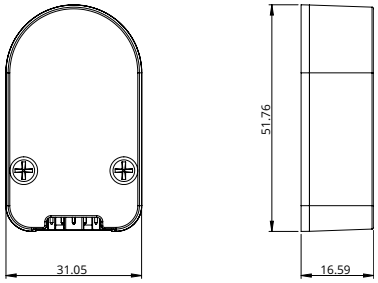
- EK 1 Encoder (Used for size 8, 11, 14, 17 motors) * No Index

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

Accessories and Options



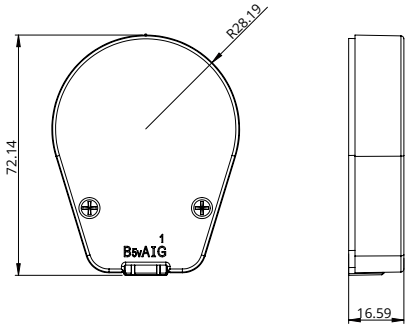
EK 2 Encoder - single ended output



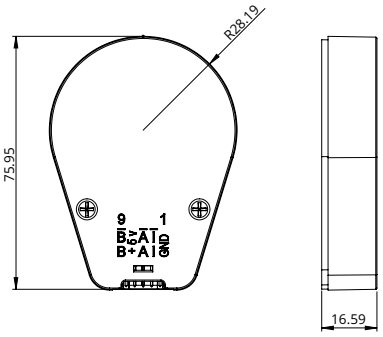
EK 2 Encoder - differential output

- EK 2 Encoder (Used for size 11, 14, 17, 23, 24 motors)

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



EK 3 Encoder - single ended output

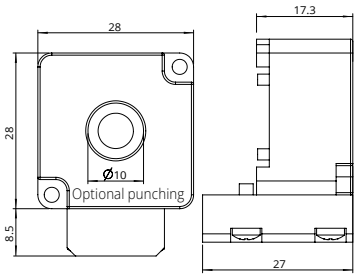


EK 3 Encoder - differential output

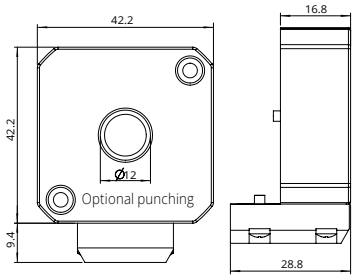
- EK 3 Encoder (Used for size 23, 24, 34 motors)

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

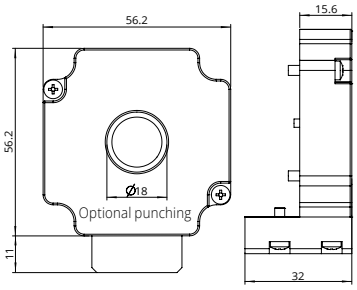
Accessories and Options



EK 4 Encoder 11



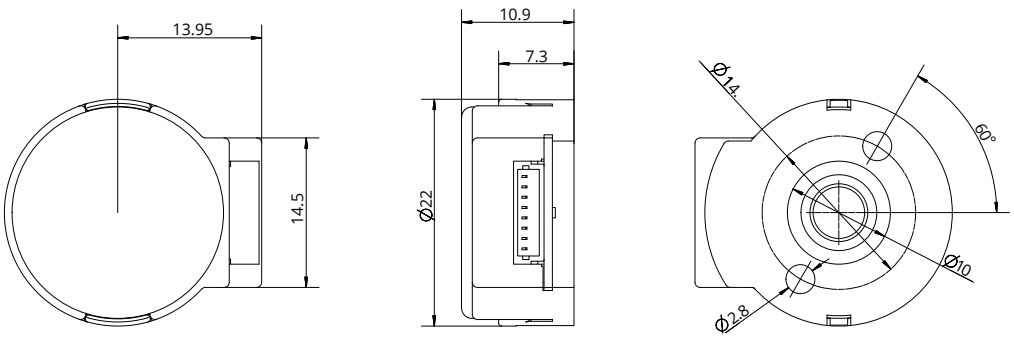
EK 4 Encoder 17



EK 4 Encoder 23

- EK 4 Encoder (Used for size 11, 17, 23 External drive, Hollow, Rotary motors) * Index, Differential shielded cable

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

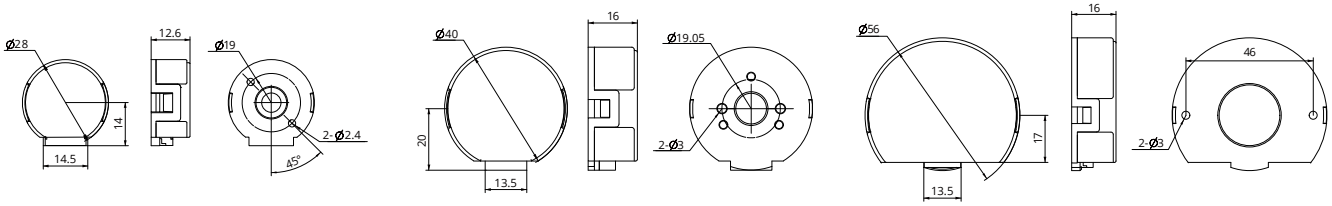


EK 5 Encoder - differential output

- EK 5 Encoder (Used for size 8, 11, 17 motors) * 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

Accessories and Options



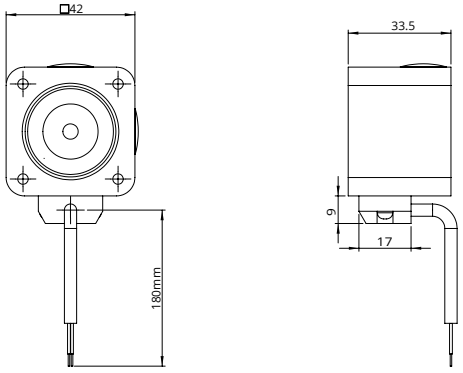
KPL 28 KPL 40 KPL 56

- KPL Encoder (Used for Size 8, 11, 14, 17, 23, 24 Motor) * Index, Differential Shielded Cable

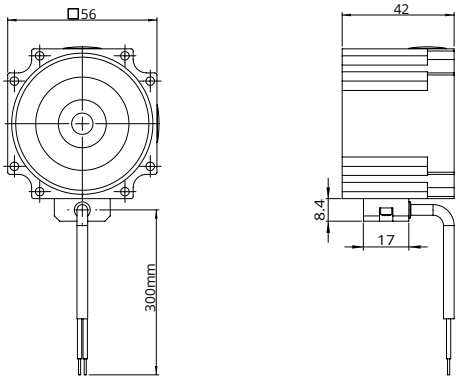
Code / Resolution (CPR) / Model	Differential output	A	B	C	D	E	F	G	H	I	J
	Single ended output	0	1	2	3	4	5	6	7	8	9
KPL 28		-	-	-	1000	-	-	-	-	-	-
KPL 40		-	-	-	1000	-	-	-	-	-	-
KPL 56		-	-	-	1000	-	-	-	-	-	-

Accessories and Options

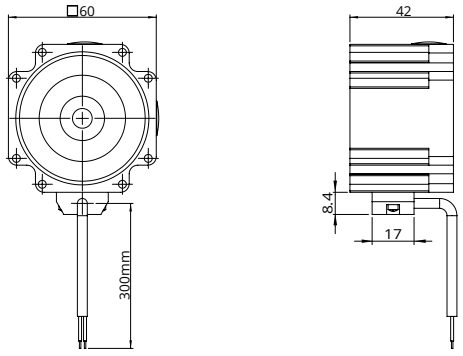
Power OFF Brake



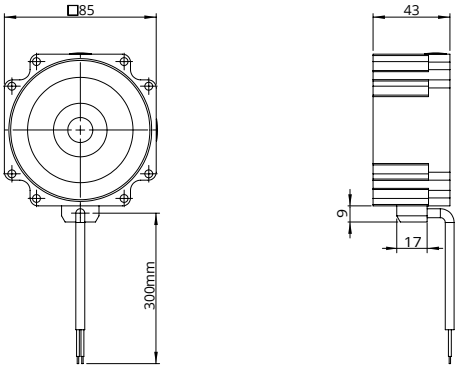
17 (42mm) Series



23 (57mm) Series



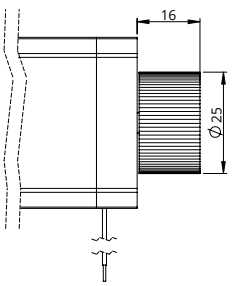
24 (60mm) Series



34 (86mm) Series

Series	17 (42mm) series	23 (57mm) series	24 (60mm) series	34 (86mm) series
Rated voltage	DC 24V±5%			
Resistance	297Ω±5%	140Ω±5%	140Ω±5%	80Ω±5%
Power	2W	4.5W	4.5W	6W
Hold torque	>0.5N·M	>2.3N·m	>2.3N·m	>5N·m
Insulation	B			
Insulation resistance	100Mohm (DC500V)			
Dielectric strength	AC 1000V for 1 sec			
Retraction time	50ms			
Release time	30ms			
Gyration gap	1°			
Emergency brake time	200 times			
Lifetime	2,000,000 times			
Noise level	<60db			

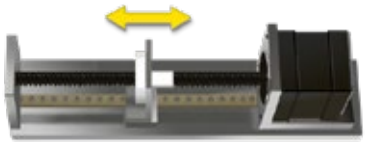
Manual Knob



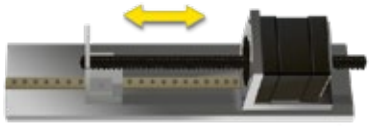
Precautions for using screw stepper motors

1. The most common installation structures

1) Linear Stepper Motor + Linear Guide

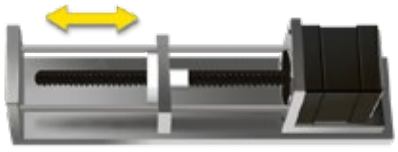


External Lead Screw Linear Actuator + Linear Guide



Non-captive Lead Screw Linear Actuator + Linear Guide

2) Linear Stepper Motor + Guided Rod

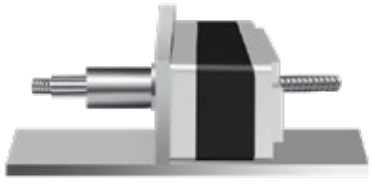


External Lead Screw Linear Actuator + Guided Rod

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

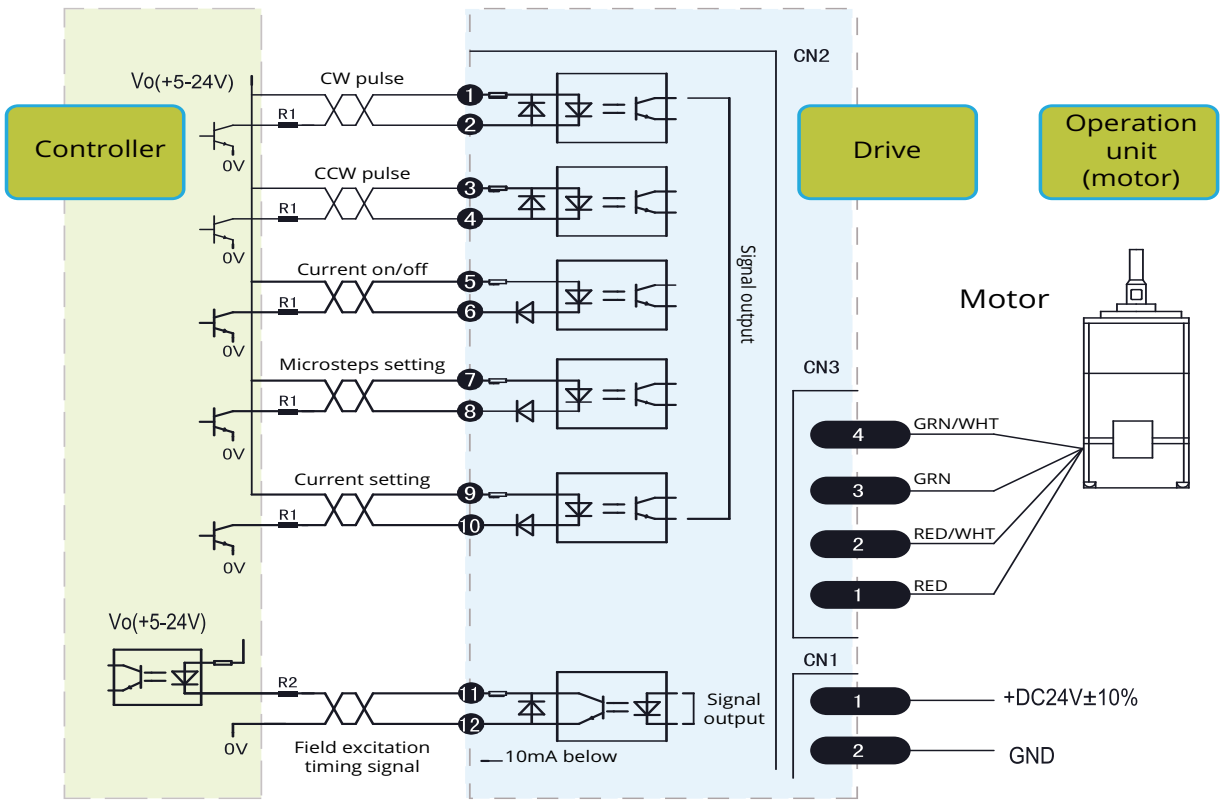
Installation Guide

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 +55°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 at room temperature with a relative humidity as lower than 75%, clean, well ventilated and free from corrosive gases.

Typical Electrical Connection

1. General Drive Connection Method



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	14 mm	0.8kgf.cm	1.0kgf.cm		Ø2.6/Ø3.2	M2.5 or M3 and smaller
2	20 mm	0.8kgf.cm	1.0kgf.cm		Ø2.6/Ø3.2	M2.5 or M3 and smaller
3	28 mm	0.8kgf.cm	4.0kgf.cm		Ø2.6/Ø3.2	M2.5 or M3 and smaller
4	35/42 mm	4.0kgf.cm	5.5kgf.cm	5.5kgf.cm	Ø3.2	M3 and smaller
5	57/60 mm	6.0kgf.cm	6.0kgf.cm		Ø3.5/Ø5.1	M3 or M5 and smaller
6	86 mm			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

17 E 2 1 10 BS2 4 - 100 R S EK2 - 001

1 2 3 4 5 6 7 8 9 10 11 12

(1) Motor Size

MOTOR SIZE (mm)	14	20	28	35	42	57
MOTOR SIZE (NEMA)	6	8	11	14	17	23

(2) Motor Type
- E = External Linear

(3) Motor Step Angle
- 2 = 2 Phase with 1.8°
- 4 = 2 Phase with 0.9°

(4) Motor Length
- 1 = Single stack
- 2 = Double stack
- 3 = Triple stack

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

(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
- XXX = XXXmm

(9) Thread Direction
- R = right

(10) Ball Screw End
- M = Metric
- U = UNC
- S = Smooth
- C = Customize
- [Please provide customization requirements to DINGS']
- N = None

(11) Option
- EKX = Encoder [X = Encoder Resolution]
- P = Manual Knob
- B = Brake
- X = Rear shaft
- R = Encoder Ready [Hole and Shaft]
- [Please provide encoder ready requirements to DINGS']
- C = Customize
- [Please provide customization requirements to DINGS']
- N = No processing at the rear end

(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 Selection

	14	20	28		35		42		57	
Dia. / 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									*	

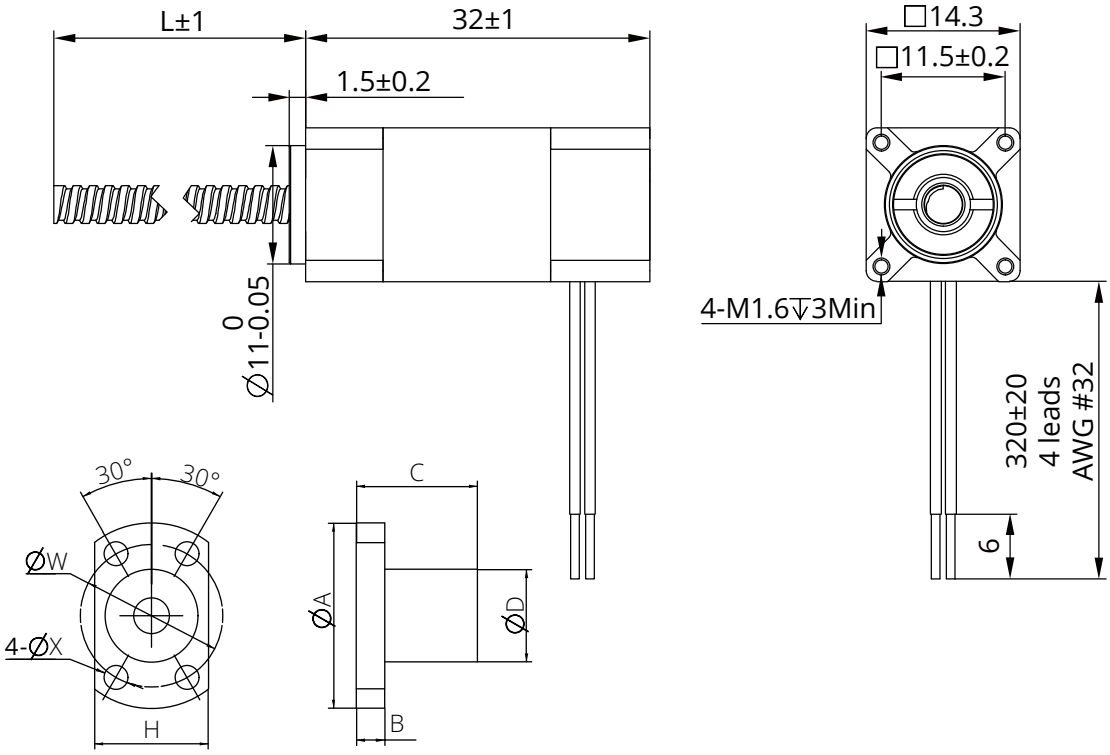
* Ball screw available for specific motor size

Size 6 (14mm) Series

Motor Characteristics

Motor	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Lead Wire No.	Motor Length (mm)
6E2103	6.6	0.3	22.0	3.6	4	32

Dimensional Drawings



Stepper Ball Screw Specification

Ball Screw Type	0401	0402
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	HRC 58~62	
Anti-rust treatment	Anti-rust oil	
Grade	C7	

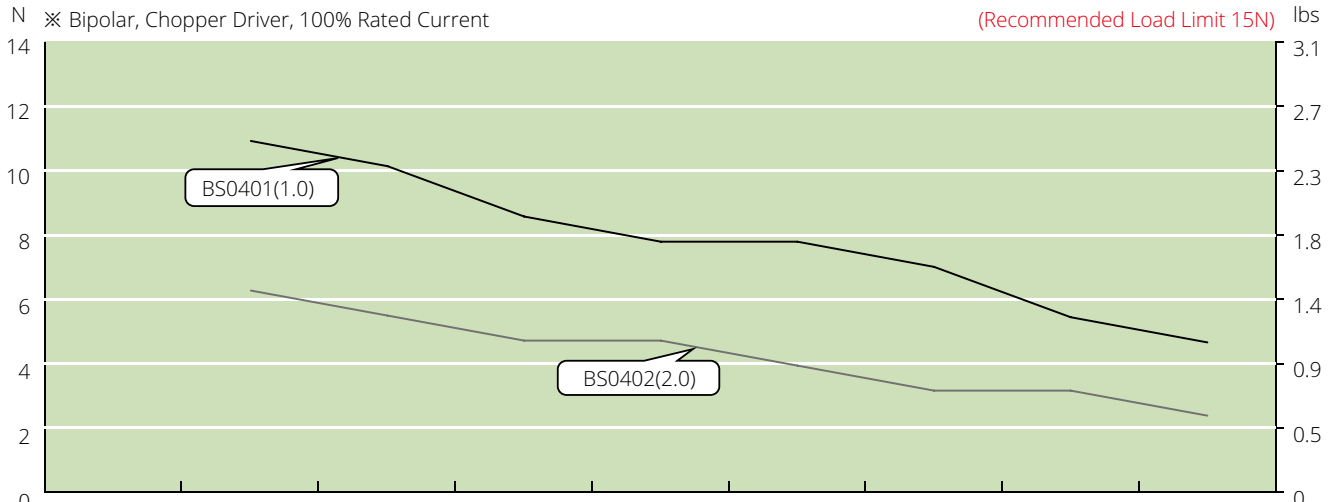
Nut Size	A	B	C	D	H	W	X	Position accuracy	Total run out	Axial play	Dynamic load (N)	Static load (N)
BS0401	23	4	17	11	15	17	3.4	±0.05	0.12	≤0.03	560	790
BS0402	23	4	19	11	15	17	3.4	±0.05	0.12	≤0.03	420	570

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

Size 6 (14mm) Series

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
Speed r/min	60	120	150	300	600	900	1200	1500
Pulse pps	200	400	500	1000	2000	3000	4000	5000

TEST CONDITION

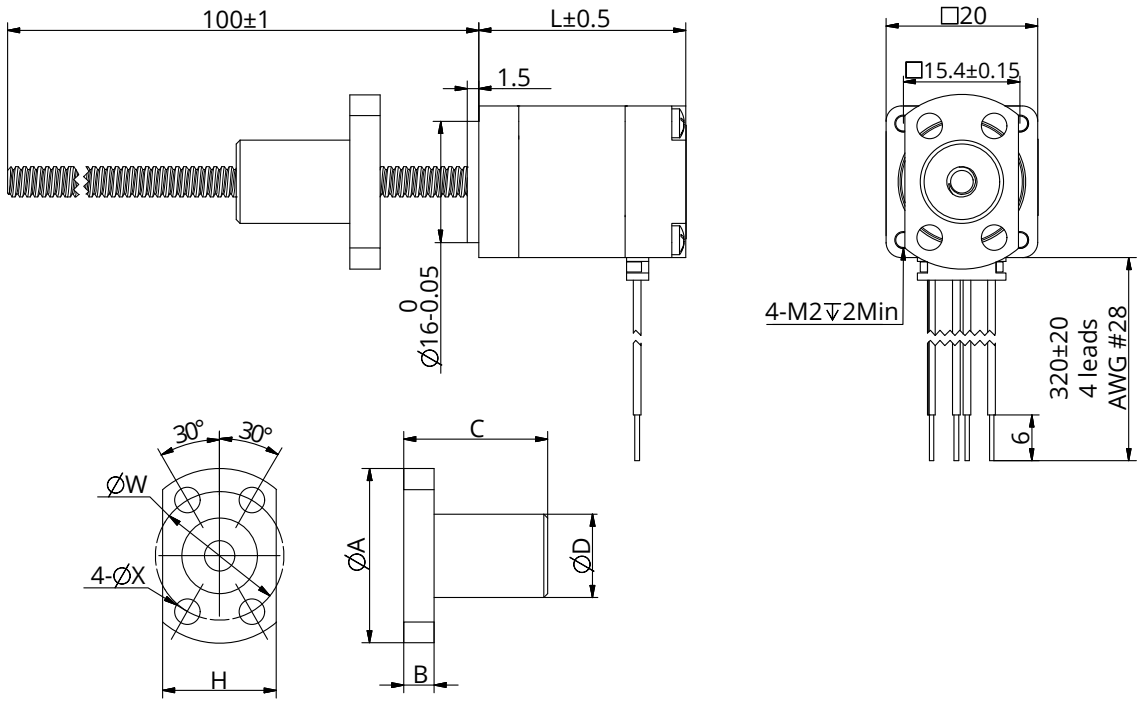
Testing Voltage: 12Vdc, Driver Model: DS-OLS2-FPD bipolar, chopper driver at rated current (rms).
Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

Size 8 (20mm) Series

Motor Characteristics

Motor	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



Stepper Ball Screw Specification

Ball Screw Type	0401	0402
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	HRC 58~62	
Anti-rust treatment	Anti-rust oil	
Grade	C7	

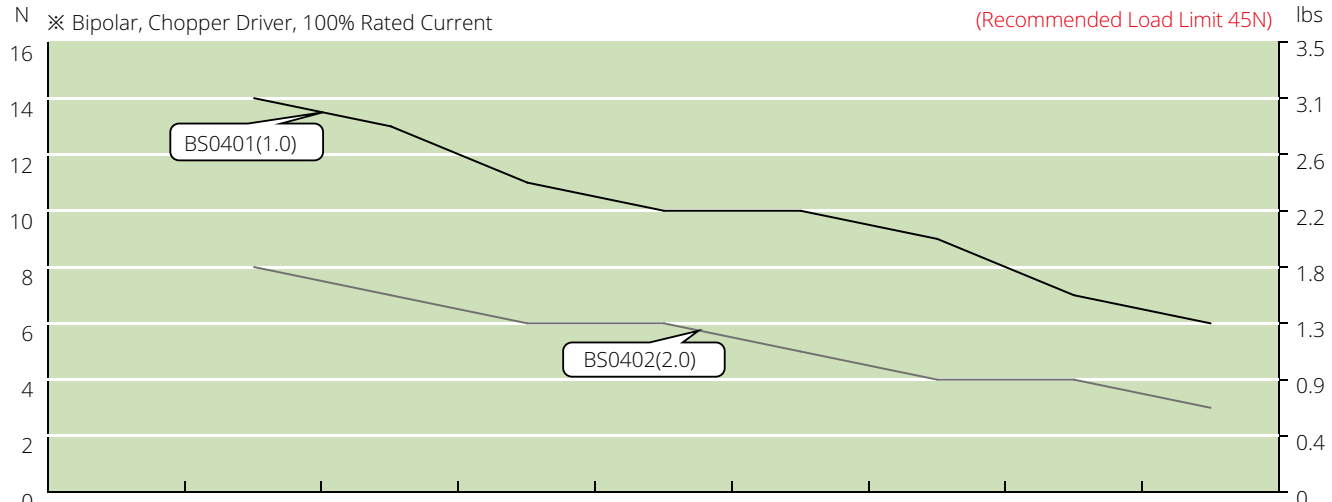
Nut Size	A	B	C	D	H	W	X	Position accuracy	Total run out	Axial play	Dynamic load (N)	Static load (N)
BS0401	23	4	17	11	15	17	3.4	±0.05	0.12	≤0.03	560	790
BS0402	23	4	19	11	15	17	3.4	±0.05	0.12	≤0.03	420	570

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

Size 8 (20mm) Series

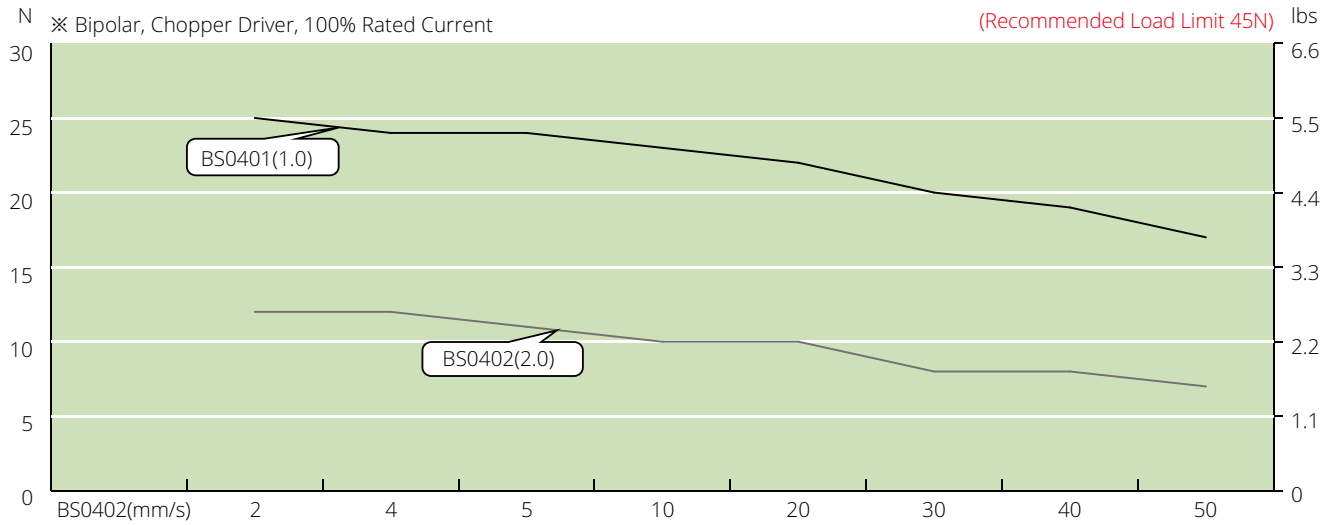
Speed Thrust Curves

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
Speed r/min	60	120	150	300	600	900	1200	1500
Pulse 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
Speed r/min	60	120	150	300	600	900	1200	1500
Pulse pps	200	400	500	1000	2000	3000	4000	5000

TEST CONDITION

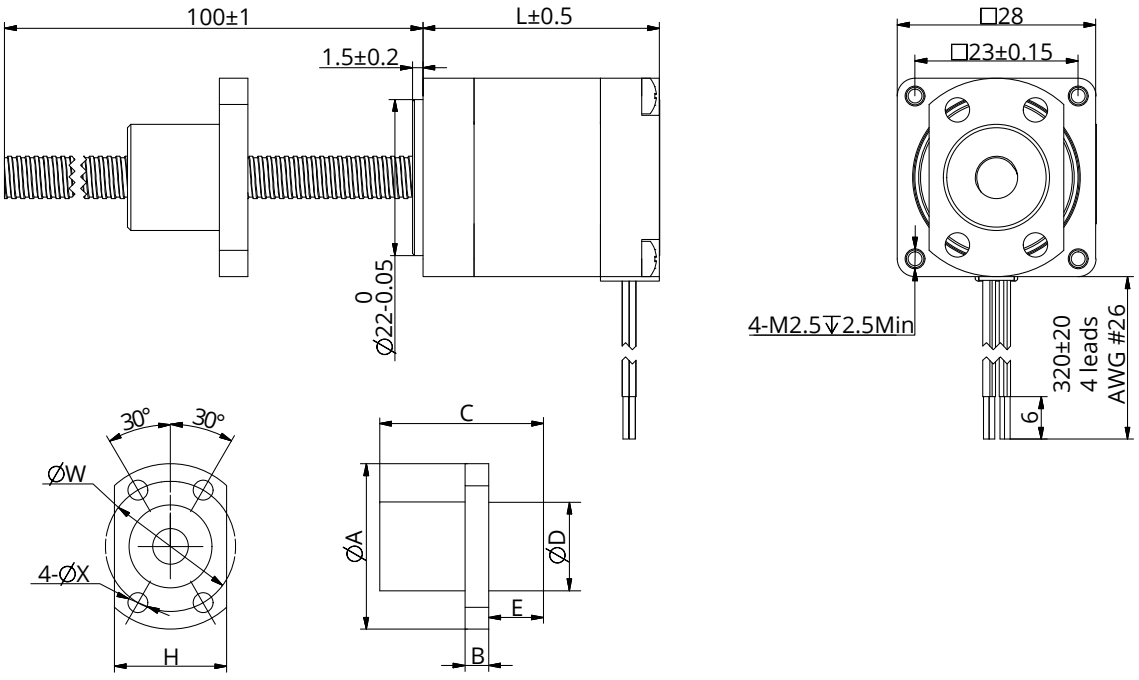
Testing Voltage: 24Vdc, Driver Model: DS-OLS2-FPD bipolar, chopper driver at rated current (rms).
Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

Size 11 (28mm) Series

Motor Characteristics

Motor	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Lead Wire No.	Motor Length (mm)
11E2110	2.1	1	2.1	1.5	4	33.35
11E2209	3.9	0.95	4.1	4	4	45

Dimensional Drawings



Stepper Ball Screw Specification

Ball Screw Type	0601	0602	0606	0610	0504
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	HRC 58~62				
Anti-rust treatment	Anti-rust oil				
Grade	C7				

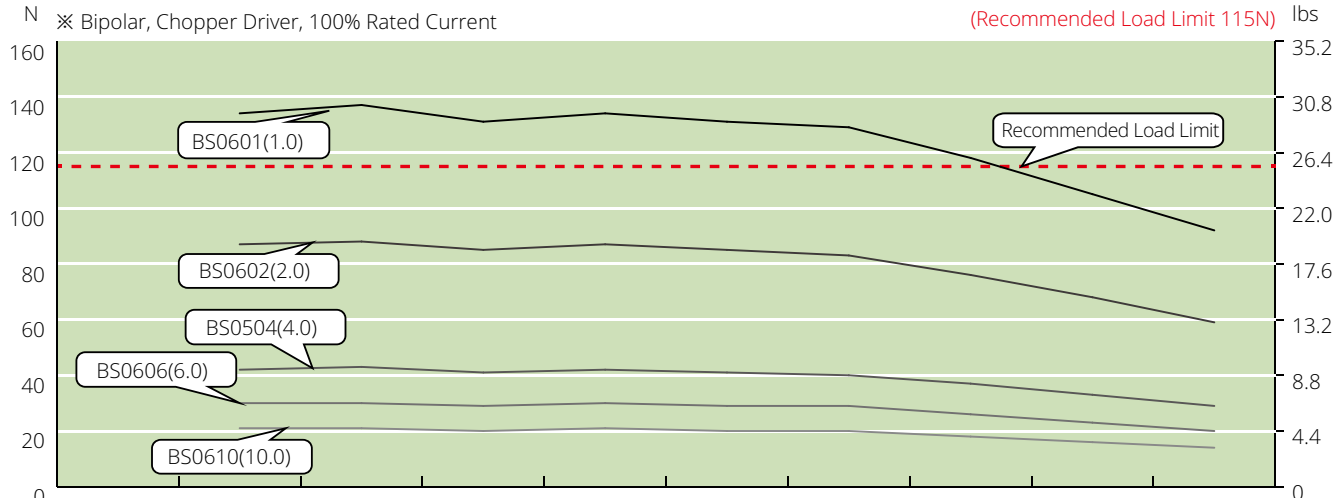
Nut Size	A	B	C	D	H	W	X	E	Position accuracy	Total run out	Axial play	Dynamic load (N)	Static load (N)
BS0601	26	4	17	13	16	20	3.4		±0.05	0.12	≤0.03	680	1200
BS0602	28	4	17	15	19	22	3.4		±0.05	0.12	≤0.03	750	1450
BS0606	27	4	17	14	16	21	3.4	5	±0.05	0.12	≤0.03	870	1600
BS0610	27	4	23	14	16	21	3.4	7.5	±0.05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

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

Size 11 (28mm) Series

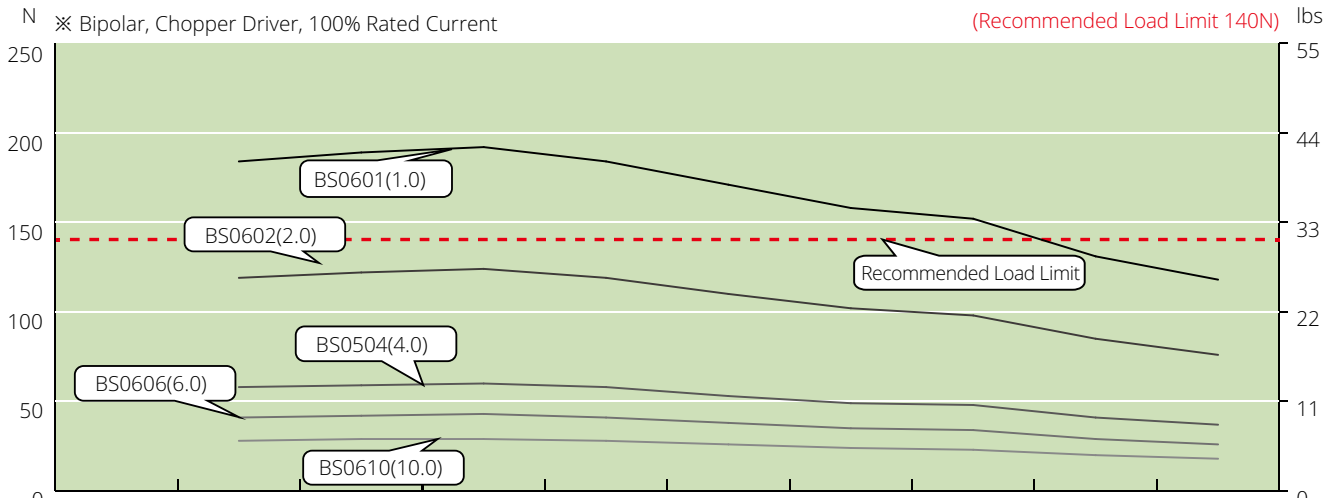
Speed Thrust Curves

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
Speed r/min	30	60	120	150	300	450	600	750	900
Pulse 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
Speed r/min	30	60	120	150	300	450	600	750	900
Pulse pps	100	200	400	500	1000	1500	2000	2500	3000

TEST CONDITION

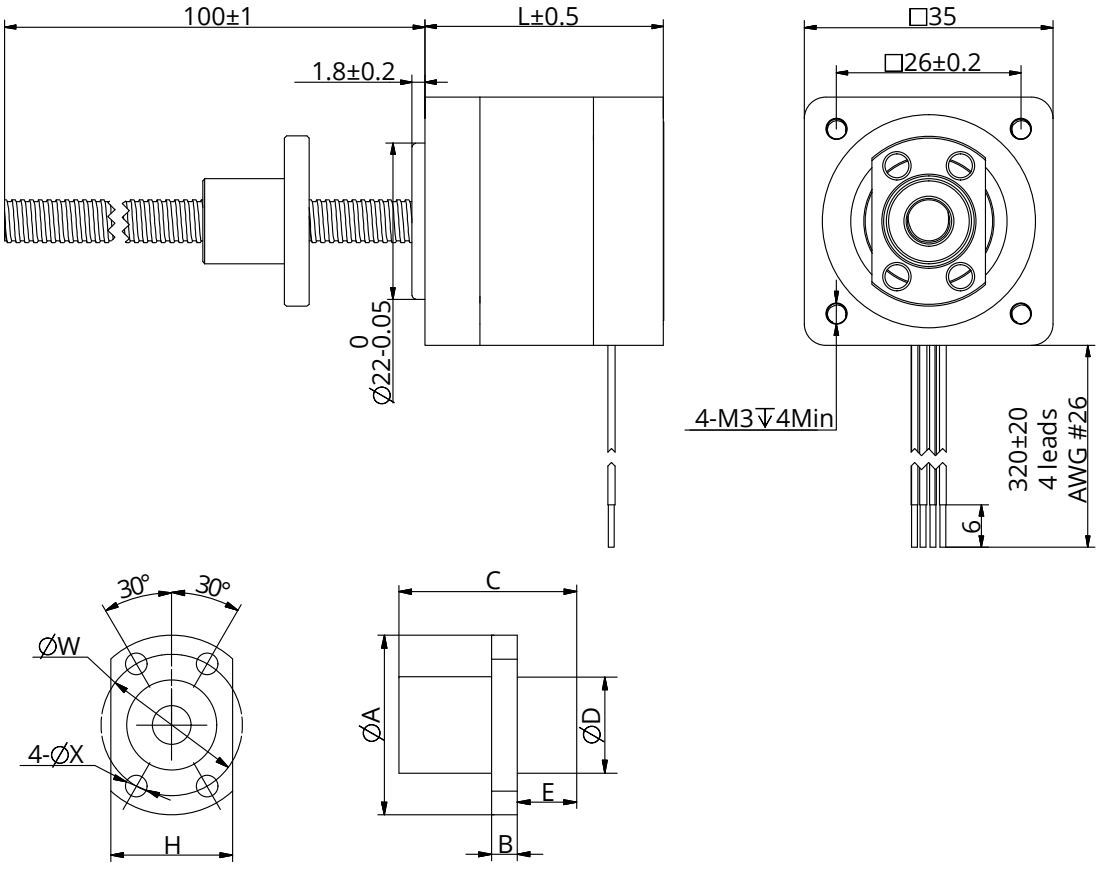
Testing Voltage: 24Vdc, Driver Model: DS-OLS2-FPD bipolar, chopper driver at rated current (rms).
Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

Size 14 (35mm) Series

Motor Characteristics

Motor	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Lead Wire No.	Motor Length (mm)
14E2110	3.5	1	3.5	3.6	4	33.6
14E2115	2.7	1.5	1.8	1.9	4	33.6
14E2210	6	1	6	7.2	4	45.6
14E2215	4	1.5	2.7	3.2	4	45.6

Dimensional Drawings



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

Size 14 (35mm) Series

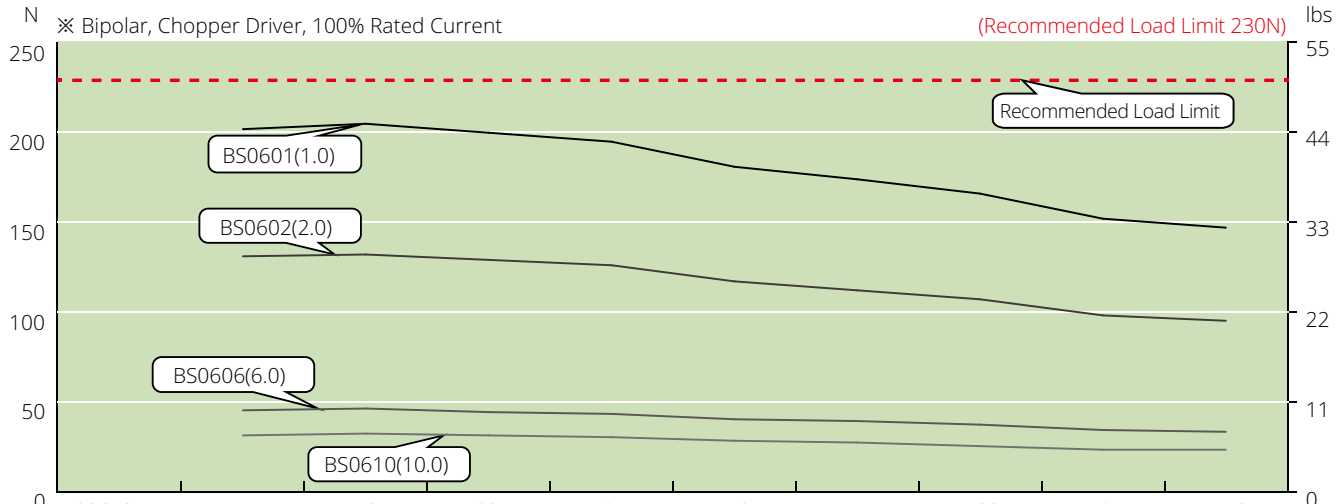
Stepper Ball Screw Specification

Ball Screw Type	0601	0602	0606	0610	0801	0802	0802.5	0805	0808	0810	0812
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	HRC 58~62										
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

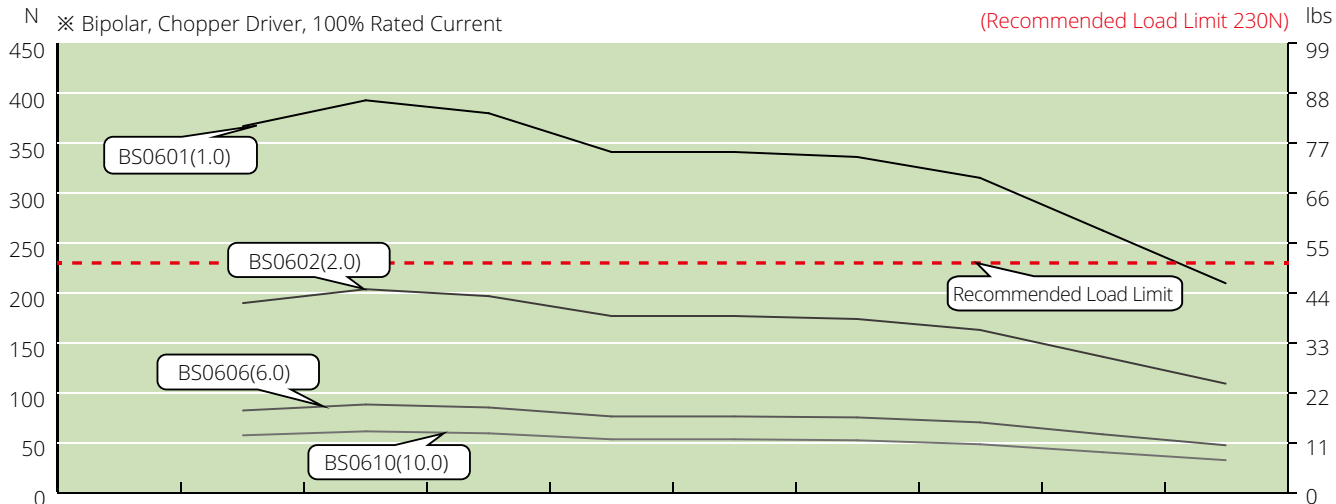
Speed Thrust Curves

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
Speed r/min	30	60	120	150	300	450	600	750	900
Pulse 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
Speed r/min	30	60	120	150	300	450	600	750	900
Pulse pps	100	200	400	500	1000	1500	2000	2500	3000

TEST CONDITION

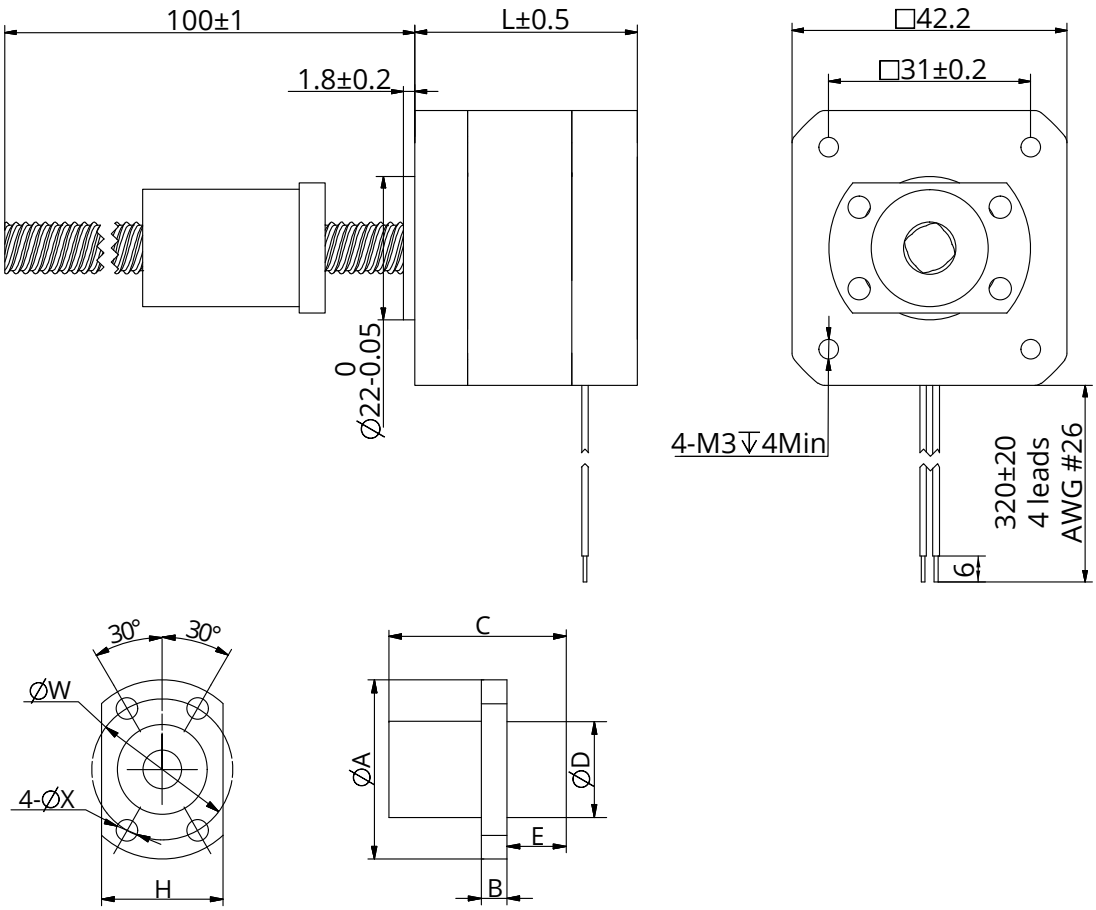
Testing Voltage: 24Vdc, Driver Model: DS-OLS2-FPD bipolar, chopper driver at rated current (rms).
Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

Size 17 (42mm) Series

Motor Characteritics

Motor	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Lead Wire No.	Motor Length (mm)
17E2110	3.8	1	3.8	5	4	34.1
17E2115	2.78	1.5	1.85	2.2	4	34.1
17E2212	4.56	1.2	3.8	8	4	48.1
17E2225	2.5	2.5	1	1.8	4	48.1

Dimensional Drawings



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

Size 17 (42mm) Series

Stepper Ball Screw Specification

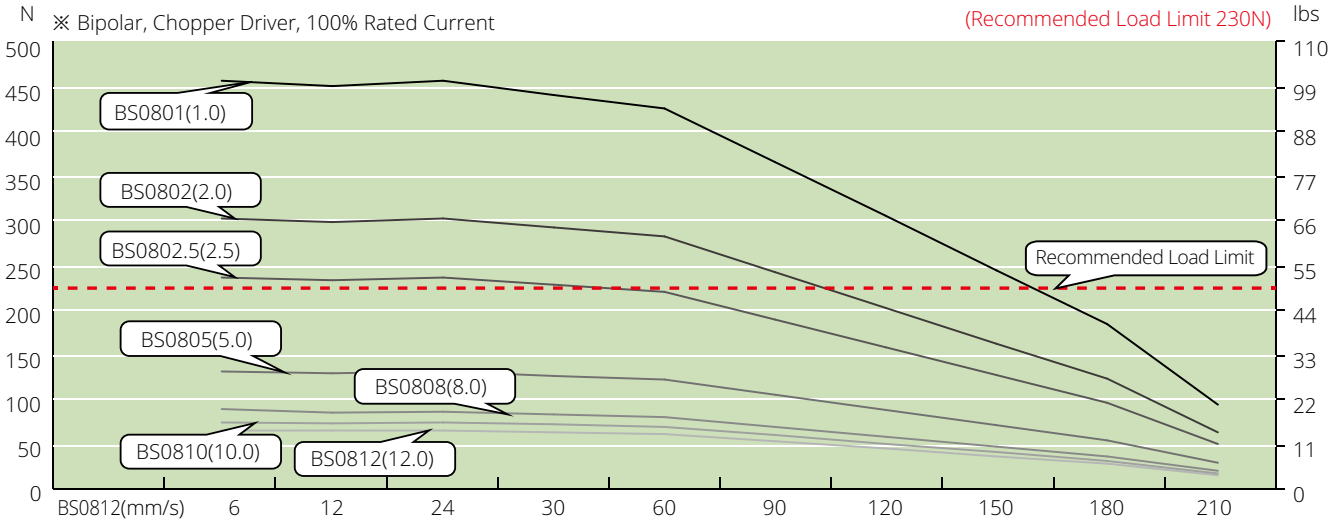
Ball Screw Type	0801	0802	0802.5	0805	0808	0810	0812
Ball Size	Φ0.8	Φ1.5875	Φ1.5875	Φ1.5875	Φ1.5875	Φ1.5875	Φ1.5875
Number of thread	1	1	1	1	2	2	2
Thread direction	Right						
Shaft root dia	Φ7.3	Φ6.6	Φ6.3	Φ6.6	Φ6.7	Φ6.7	Φ6.7
Number of circuit	3.7×1	3.7×1	2.7×1	2.7×1	1.6×2	1.6×2	1.6×2
Shaft, nut material	SCM415H						
Surface hardness	HRC 58~62						
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

Size 17 (42mm) Series

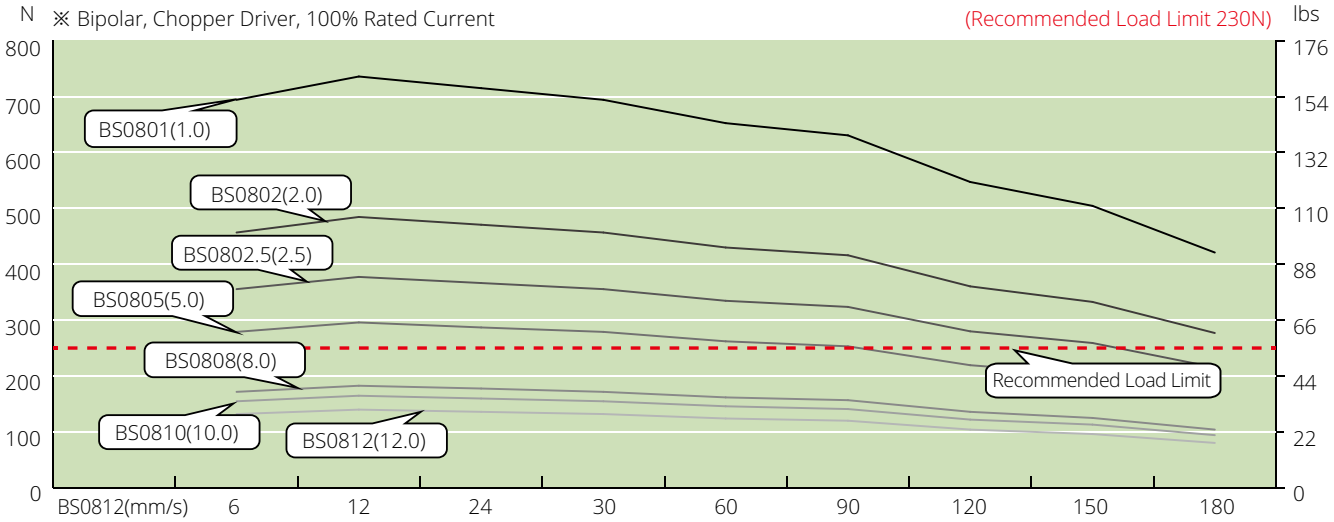
Speed Thrust Curves

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
Speed r/min	30	60	120	150	300	450	600	750	900	1050
Pulse 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
Speed r/min	30	60	120	150	300	450	600	750	900
Pulse pps	100	200	400	500	1000	1500	2000	2500	3000

TEST CONDITION

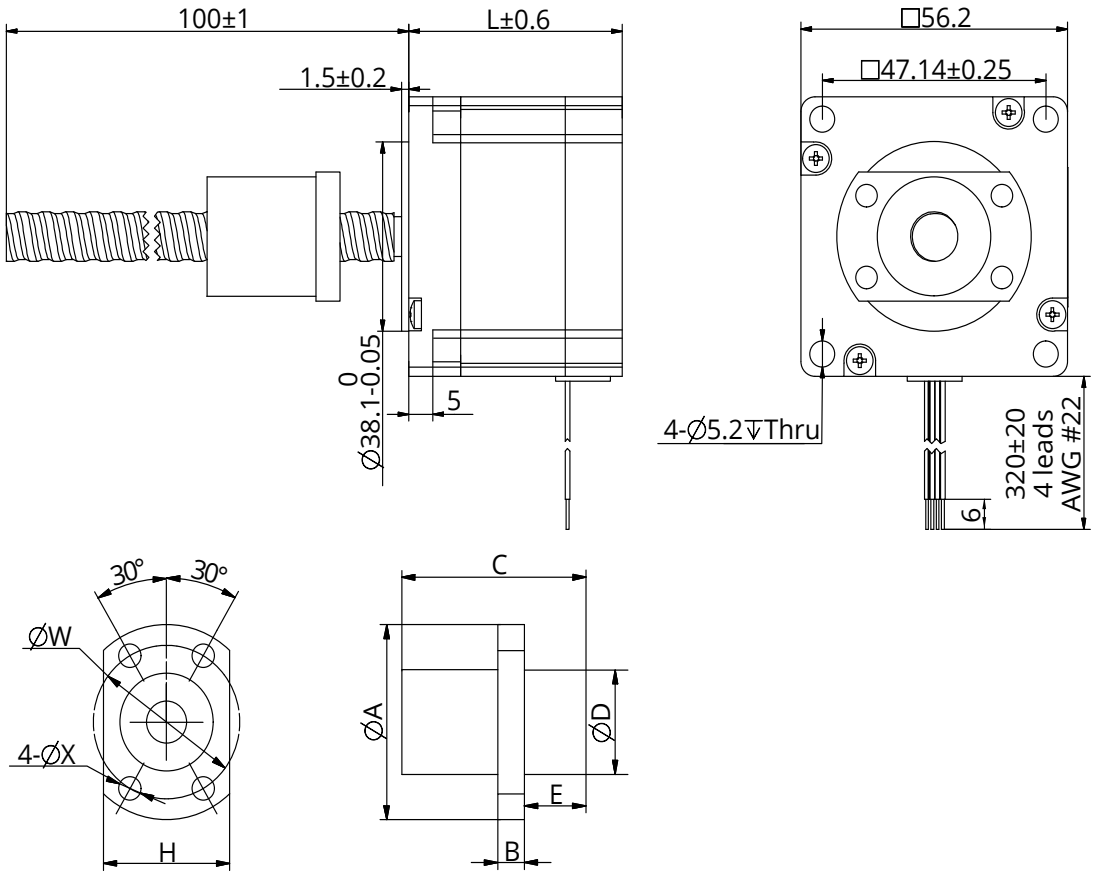
Testing Voltage: 24Vdc, Driver Model: DS-OLS2-FPD bipolar, chopper driver at rated current (rms).
Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

Size 23 (57mm) Series

Motor Characteristics

Motor	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Lead Wire No.	Motor Length (mm)
23E2120	3.5	2	1.75	4.1	4	45
23E2130	2.4	3	0.8	1.7	4	45
23E2225	5	2.5	2	5.2	4	65
23E2240	2.8	4	0.7	2	4	65

Dimensional Drawings



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

Size 23 (57mm) Series

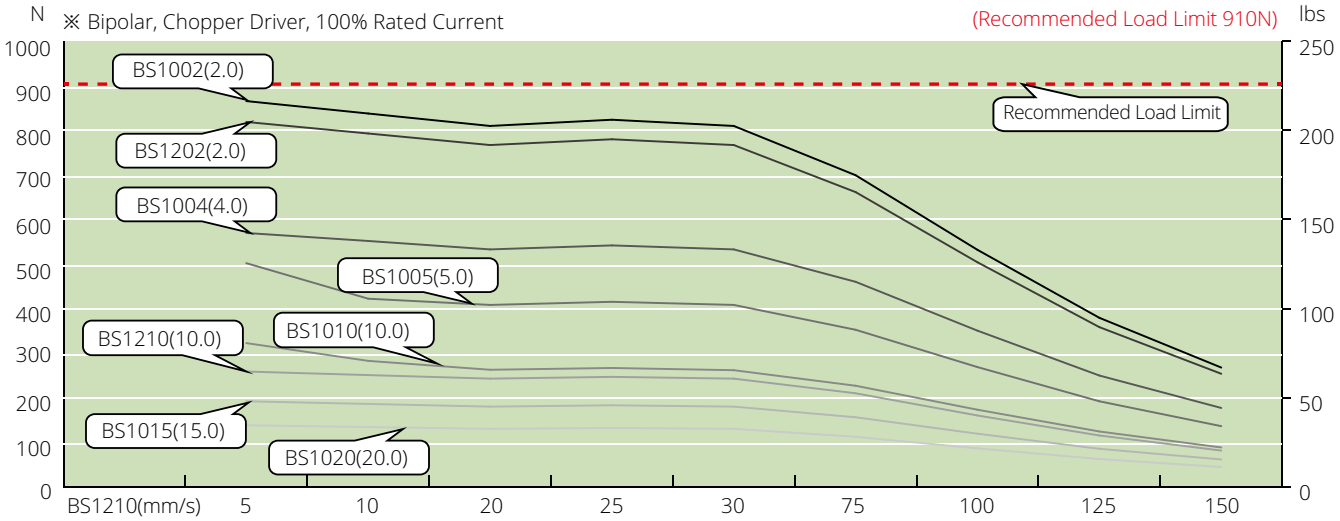
Stepper Ball Screw Specification

Ball Screw Type	1002	1004	1005	1010	1015	1020	1202	1210
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	1.6×2	1.6×2	0.7×4	3.7×1	1.7×2
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)
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

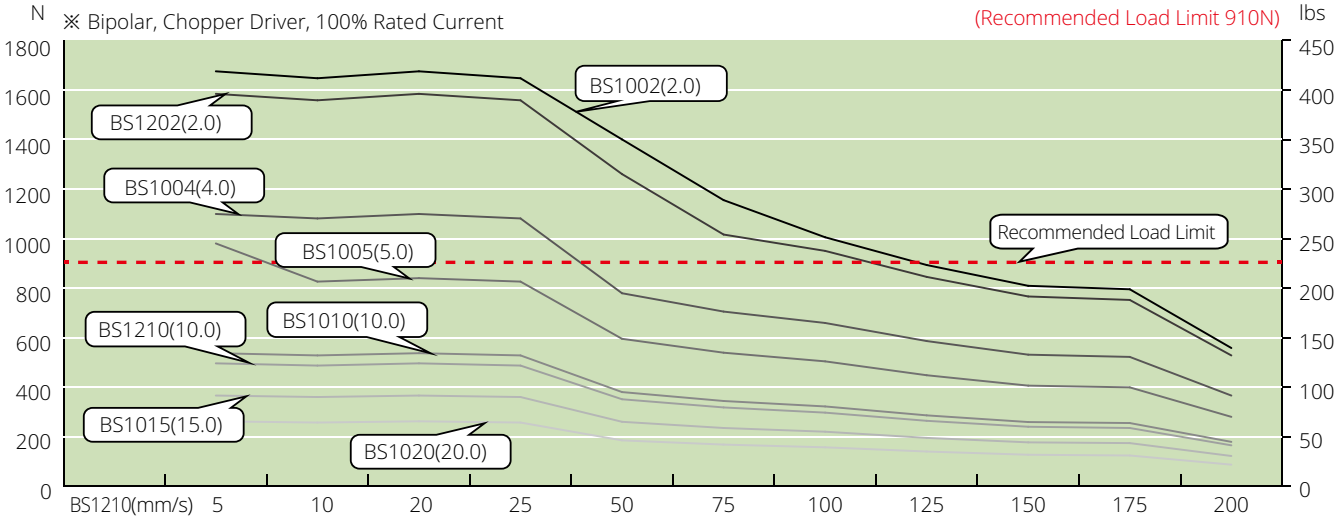
Speed Thrust Curves

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
Speed r/min	30	60	120	150	300	450	600	750	900
Pulse pps	100	200	400	500	1000	1500	2000	2500	3000

Size 23 Double Stack Speed Thrust Curves



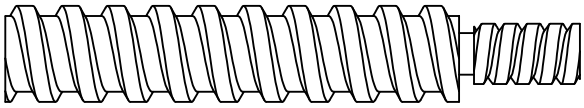
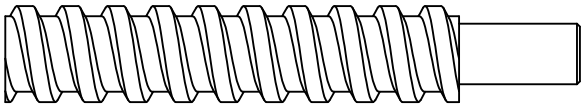
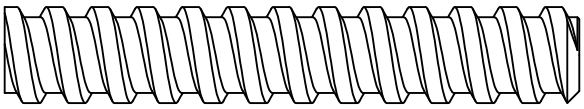
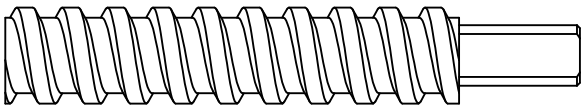
BS1210(mm/s)	5	10	20	25	50	75	100	125	150	175	200
BS1202(mm/s)	1	2	4	5	10	15	20	25	30	35	40
BS1020(mm/s)	10	20	40	50	100	150	200	250	300	350	400
BS1015(mm/s)	7.5	15	30	37.5	75	112.5	150	187.5	225	262.5	300
BS1010(mm/s)	5	10	20	25	50	75	100	125	150	175	200
BS1005(mm/s)	2.5	5	10	12.5	25	37.5	50	62.5	75	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
Speed r/min	30	60	120	150	300	450	600	750	900	1050	1200
Pulse 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.

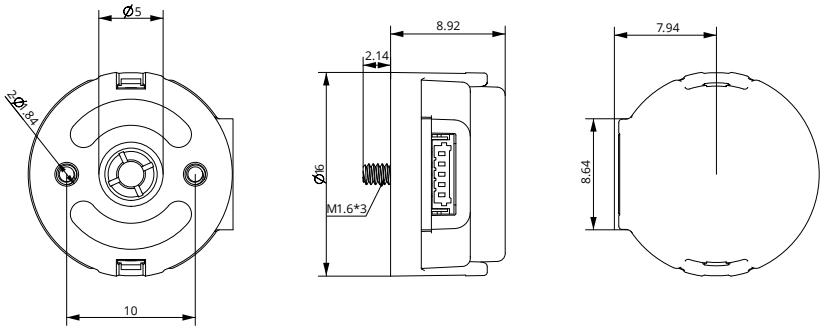
Accessories and Options

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

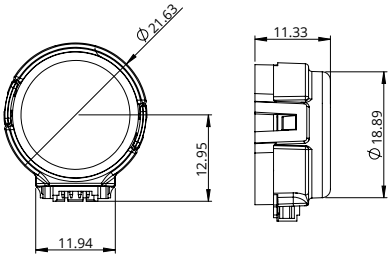
Encoder



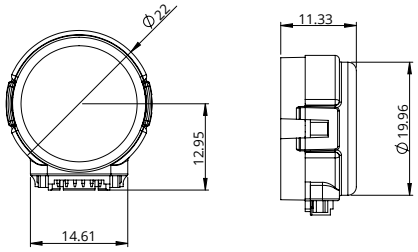
EK 6 Encoder

- EK 6 Encoder (Used for size 6 motors) * No Index

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



EK 1 Encoder - single ended output

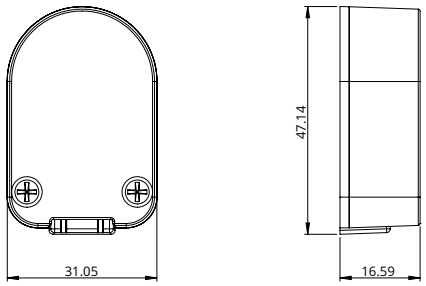


EK 1 Encoder - differential output

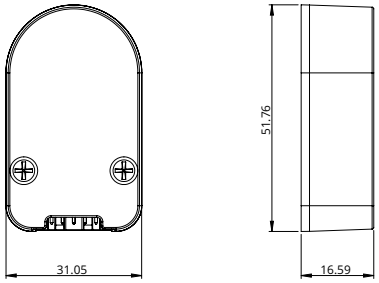
- EK 1 Encoder (Used for size 8, 11, 14, 17 motors) * No Index

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

Accessories and Options



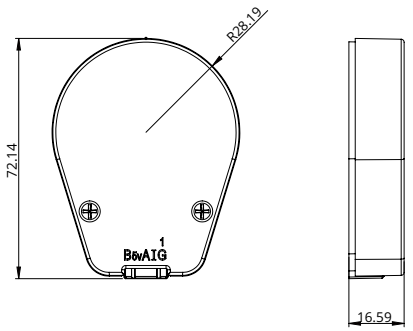
EK 2 Encoder - single ended output



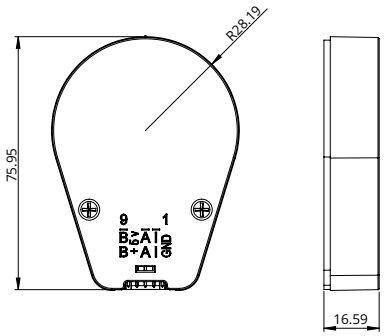
EK 2 Encoder - differential output

- EK 2 Encoder (Used for size 11, 14, 17, 23, 24 motors)

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



EK 3 Encoder - single ended output

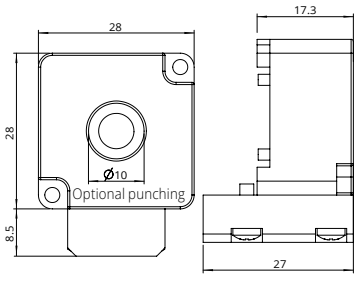


EK 3 Encoder - differential output

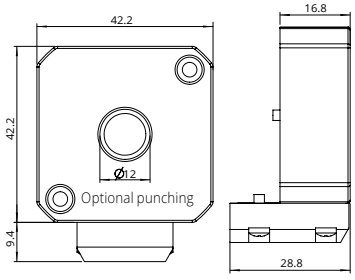
- EK 3 Encoder (Used for size 23, 24, 34 motors)

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

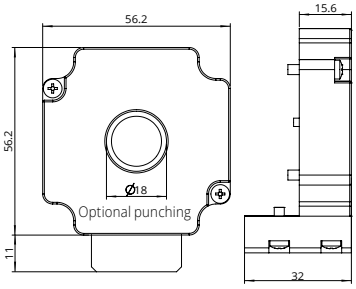
Accessories and Options



EK 4 Encoder 11



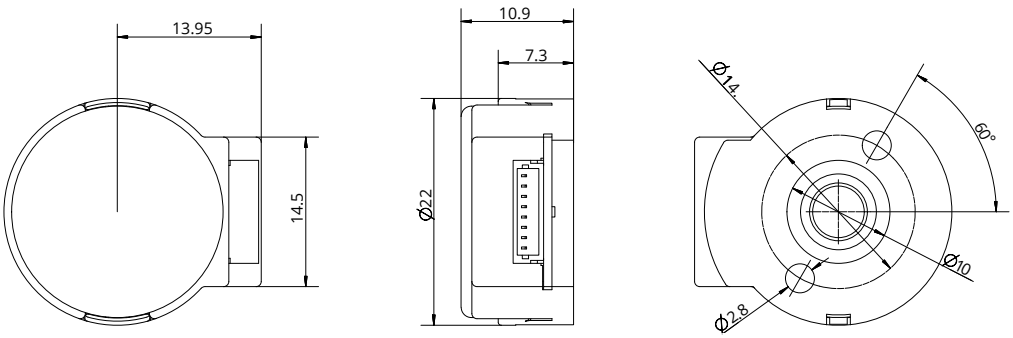
EK 4 Encoder 17



EK 4 Encoder 23

- EK 4 Encoder (Used for size 11, 17, 23 External drive, Hollow, Rotary motors) * Index, Differential shielded cable

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

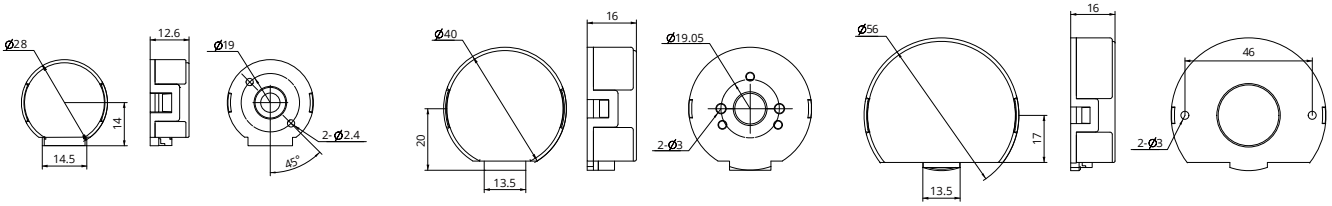


EK 5 Encoder - differential output

- EK 5 Encoder (Used for size 8, 11, 17 motors) * 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

Accessories and Options



KPL 28 KPL 40 KPL 56

- KPL Encoder (Used for Size 8, 11, 14, 17, 23, 24 Motor) * Index, Differential Shielded Cable

Code / Resolution (CPR) / Model	Differential output	A	B	C	D	E	F	G	H	I	J
	Single ended output	0	1	2	3	4	5	6	7	8	9
KPL 28		-	-	-	1000	-	-	-	-	-	-
KPL 40		-	-	-	1000	-	-	-	-	-	-
KPL 56		-	-	-	1000	-	-	-	-	-	-

Optional Brake (See page A-56)

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.

1. 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 or radial load exceeding specifications, it may cause malfunction.
3. Before use, please check that the product has no defect, and product is the same as your order.
4. Do not disassemble each component, dust may get inside the product. It may deteriorate accuracy.
5. Please prevent contamination from dust or swarf. Dust or swarf may cause damage to ball screw, Which lead to deteriorating the function.
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.

2. 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.

3. 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.

4. 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.

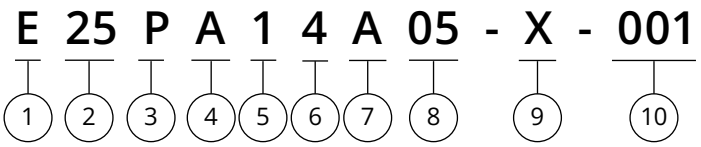
(2) Use of the process, every half a year to replace the grease, clean the old grease, coated with new grease. The ball screw pair lubricated with spindle oil can be oiled once before each operation of the machine.

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 Motor Type
- E = External
- N = Non-captive
- K = Kaptive

② Motor Size
- 20mm
- 25mm
- 36mm

③ Product Name
- PM stepper linear actuator

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 Motor Step Angle
- 1 = 7.5°
- 2 = 15°
- 3 = 18°

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

⑦ Lead Screw Code
- Please refer to lead screw code selection table

⑧ Winding Code
- 05 = 5V
- 12 = 12V

⑨ Screw Length / Stroke
- 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

Product Overview

Motor Size	Screw diameter (mm)	Screw lead (mm)	Travel per step (mm)		Max. Thrust foece (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

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	1.05gcm^2			
Insulation class	B			
Insulation resistance	100MΩ			
Mass	35g			

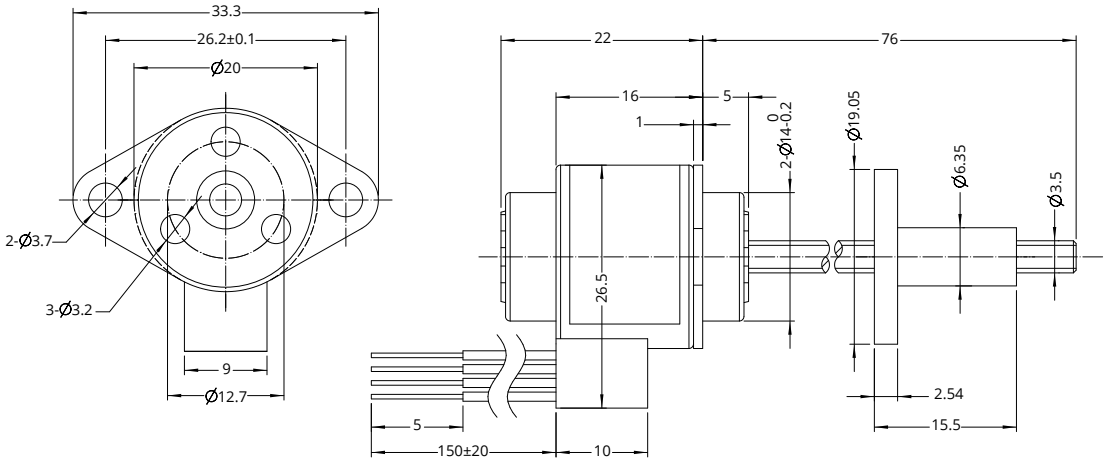
Available Lead Screw and Travel per Step

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

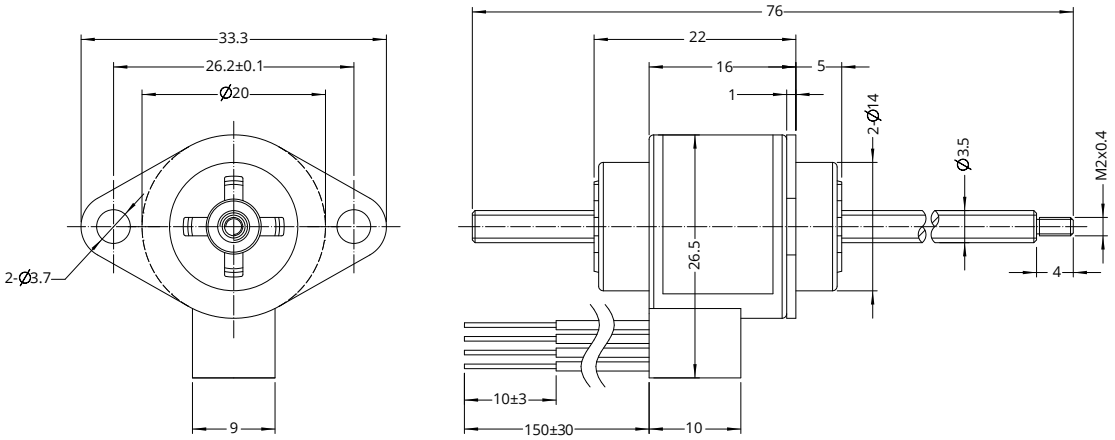
20mm Series

Dimensional Drawings

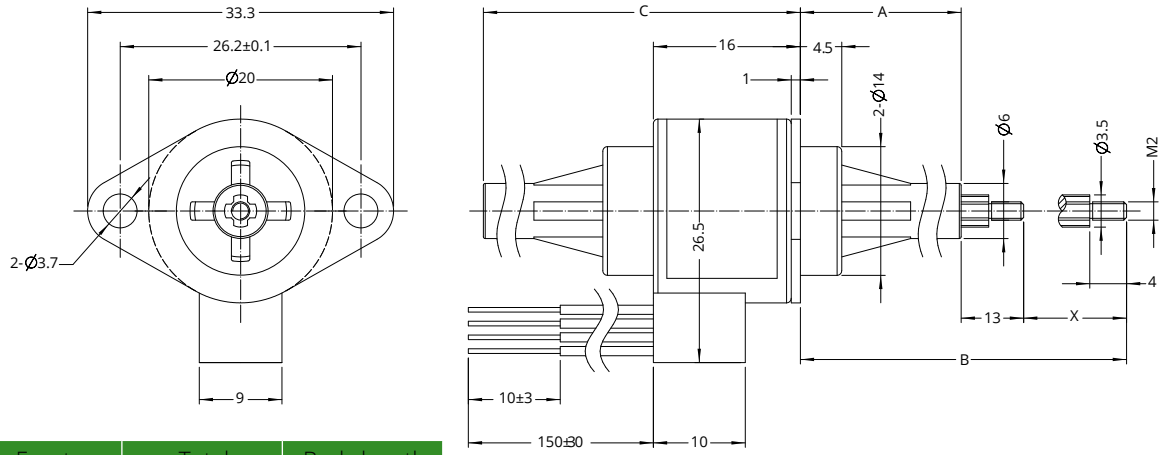
- 1. External



- 2. Non-captive



- 3. Kaptive

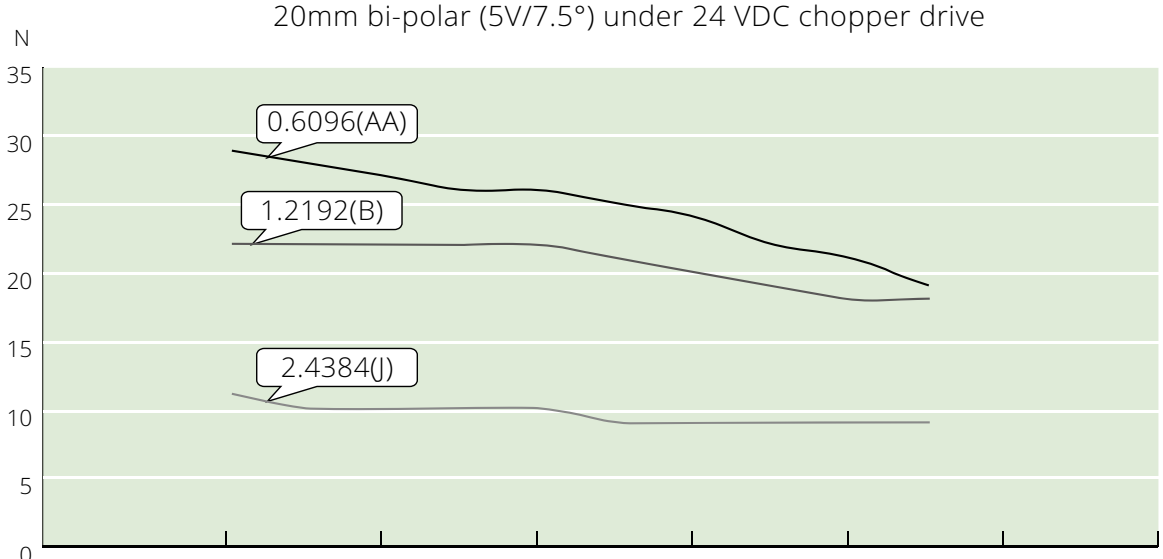


Stroke X	Front extension A	Total extension B	Body length C (Max.)
14	13.5±0.25	40.5	30.5
18	17.5±0.25	48.5	34.5
25	24.5±0.25	62.5	41.5
31	30.5±0.25	74.5	47.5

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

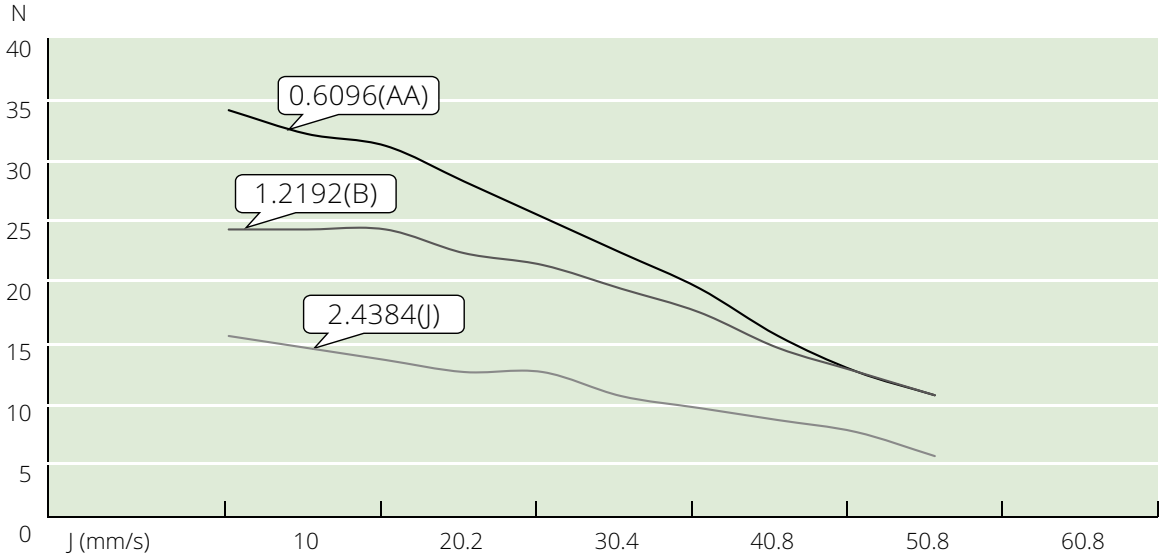
Speed Thrust Curves

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
Speed r/Min	250	500	750	1000	1250	1500
Pulse PPS	200	400	600	800	1000	1200

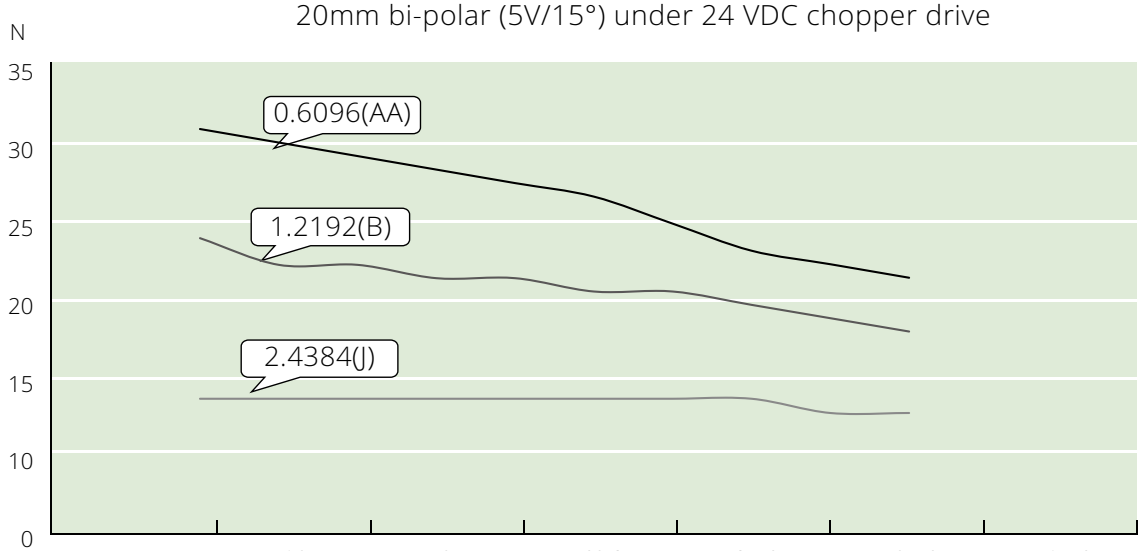
20mm bi-polar (12V/7.5°) under 24 VDC chopper drive



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
Speed r/Min	250	500	750	1000	1250	1500
Pulse PPS	200	400	600	800	1000	1200

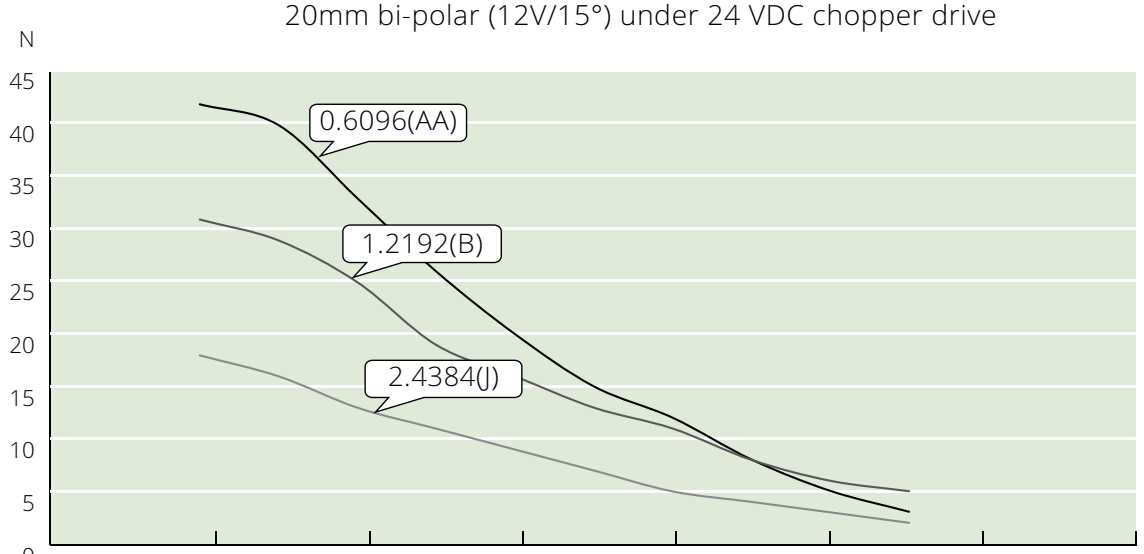
20mm Series

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
Speed r/Min	500	1000	1500	2000	2500	3000
Pulse 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
Speed r/Min	500	1000	1500	2000	2500	3000
Pulse PPS	200	400	600	800	1000	1200

25mm Series

Motor Characteristics

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	1.08gcm^2			
Insulation class	B			
Insulation resistance	100MΩ			
Mass	50g			

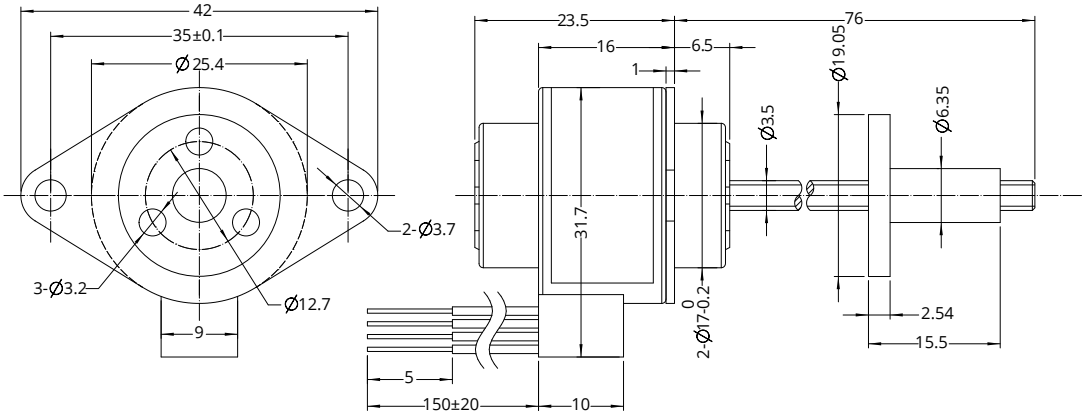
Available Lead Screw and Travel per Step

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

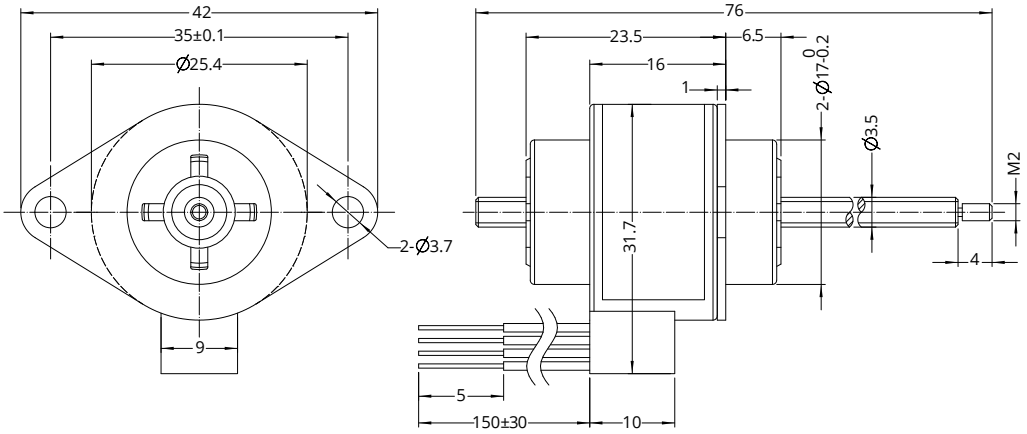
25mm Series

Dimensional Drawings

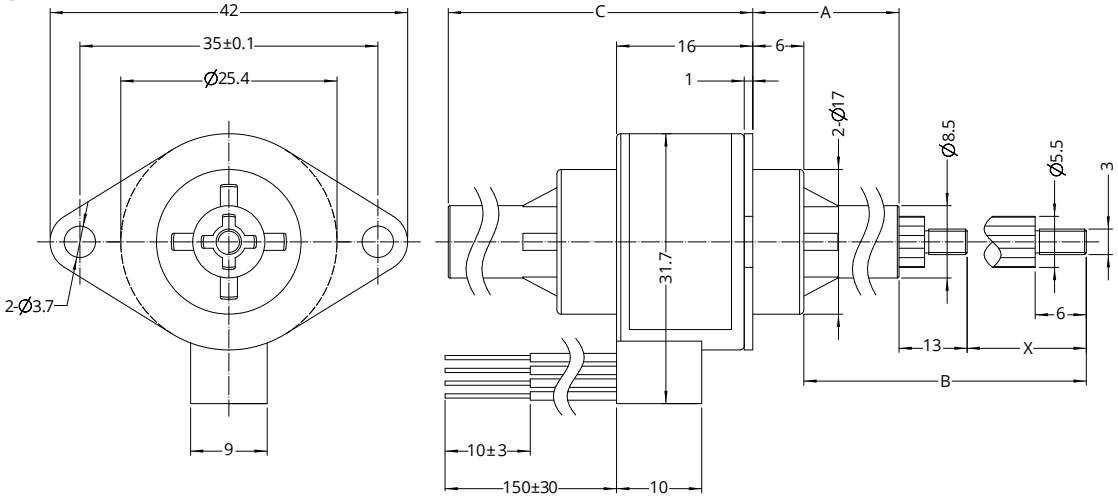
- 1. External



- 2. Non-captive



- 3. Kaptive

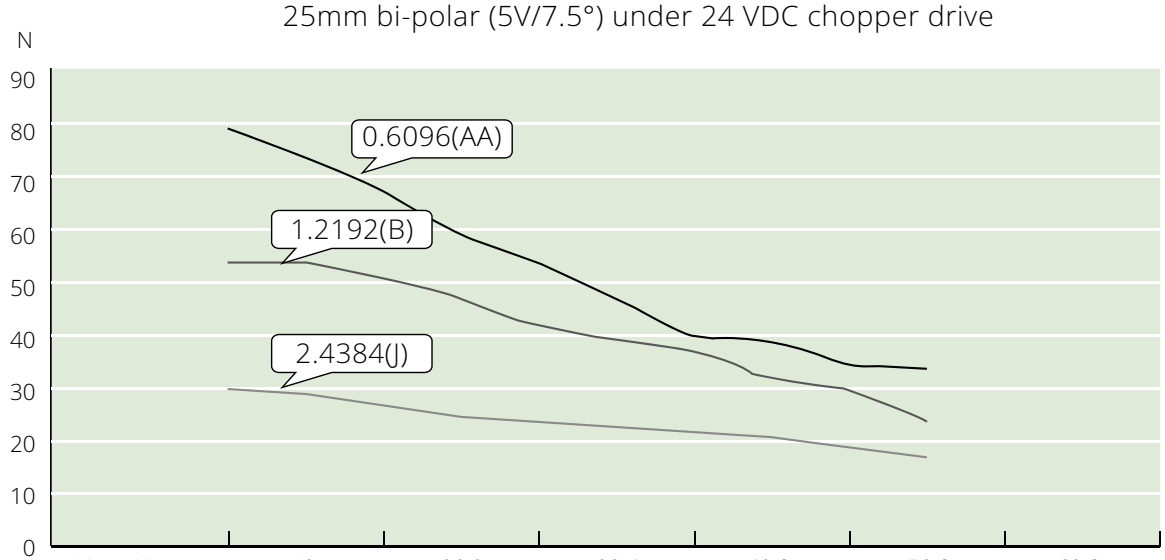


Stroke X	Front extension A	Total extension B	Body length C (Max.)
13	10.5±0.25	36.5	27.5
18	15.5±0.25	46.5	32.5
25	22.5±0.25	60.5	39.5
31	28.5±0.25	72.5	45.5

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

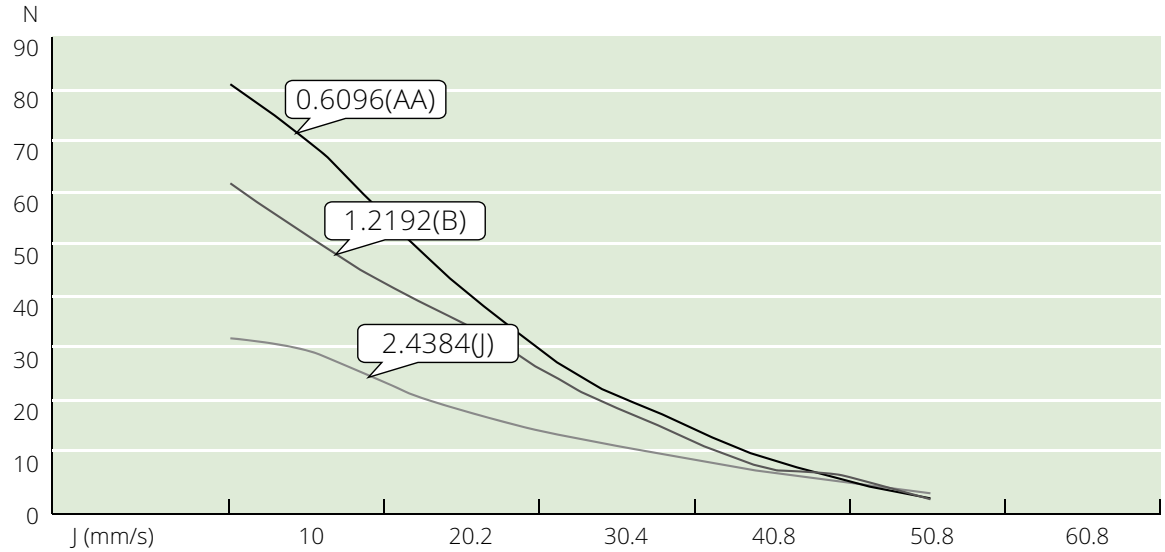
Speed Thrust Curves

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
Speed r/Min	250	500	750	1000	1250	1500
Pulse PPS	200	400	600	800	1000	1200

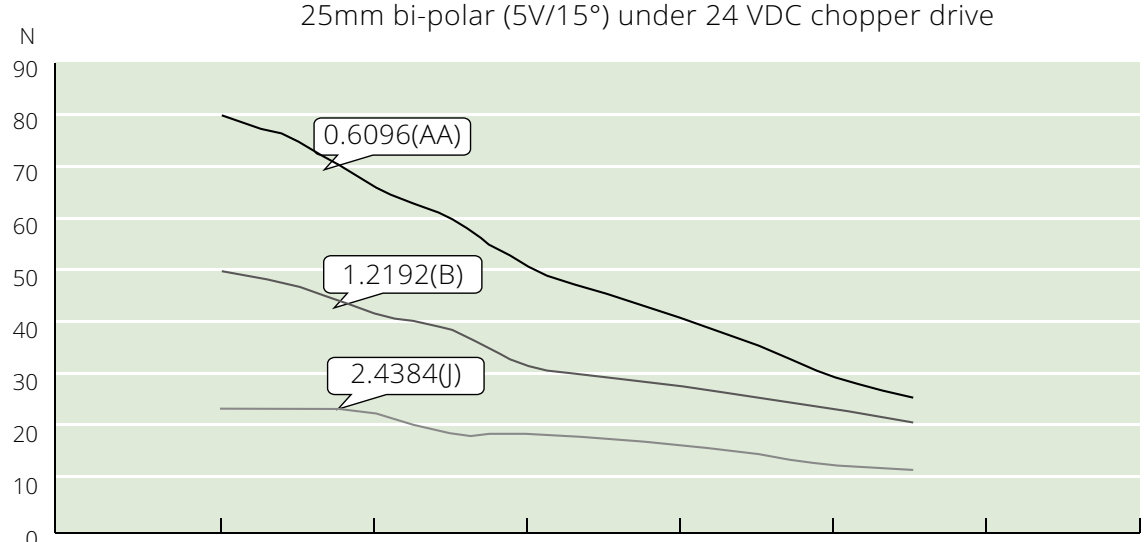
25mm bi-polar (12V/7.5°) under 24 VDC chopper drive



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
Speed r/Min	250	500	750	1000	1250	1500
Pulse PPS	200	400	600	800	1000	1200

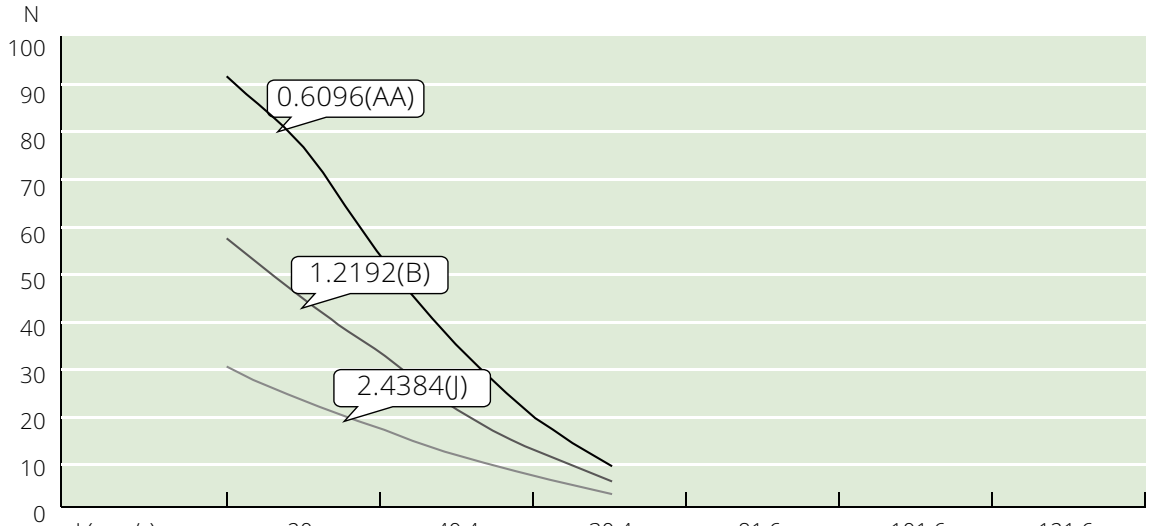
25mm Series

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
Speed r/Min	500	1000	1500	2000	2500	3000
Pulse PPS	200	400	600	800	1000	1200

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



J (mm/s)	20	40.4	30.4	81.6	101.6	121.6
B (mm/s)	10	20.4	15.2	40.8	50.8	60.8
AA (mm/s)	5.0	10.2	7.6	20.4	25.4	30.4
Speed r/Min	500	1000	1500	2000	2500	3000
Pulse PPS	200	400	600	800	1000	1200

36mm Series

Motor Characteristics

Polarity	Bi-polar			
Linear actuator type	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	8.5gcm^2			
Insulation class	B			
Insulation resistance	100MΩ			
Mass	120g			

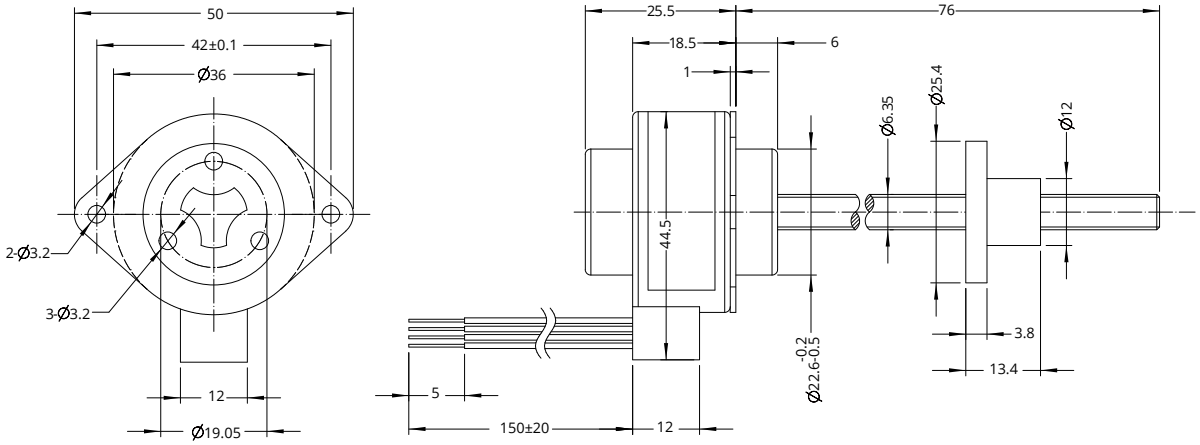
Available Lead Screw and Travel per Step

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

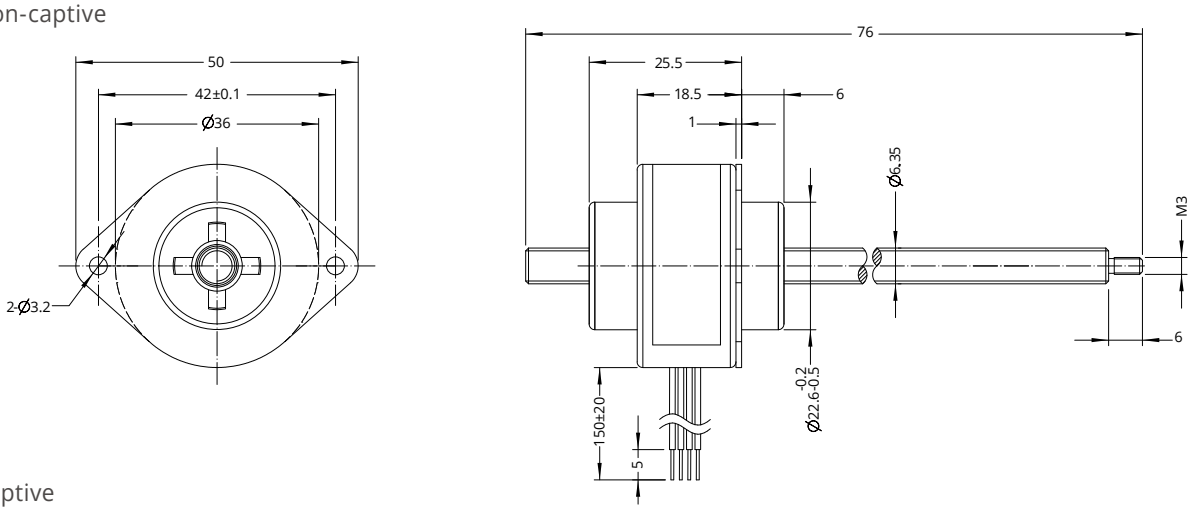
36mm Series

Dimensional Drawings

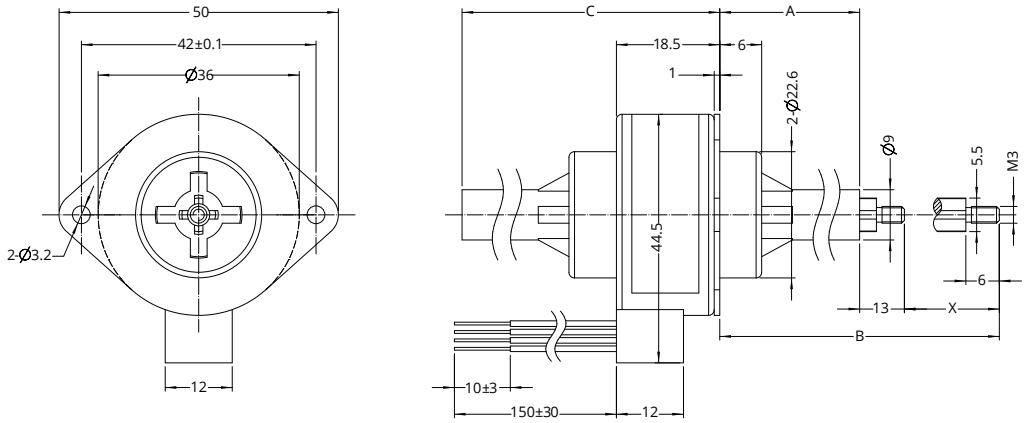
- 1. External



- 2. Non-captive



- 3. Kaptive

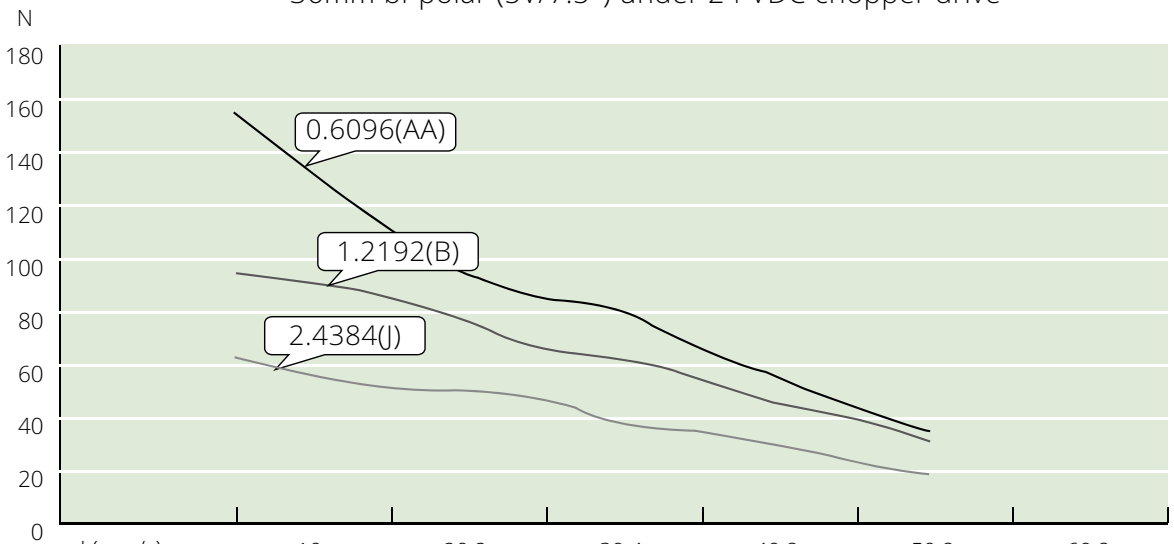


Stroke X	Front extension A	Total extension B	Body length C (Max.)
16	12±0.25	41	31.5
25	21±0.25	59	40.5
38	34±0.25	85	53.5

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

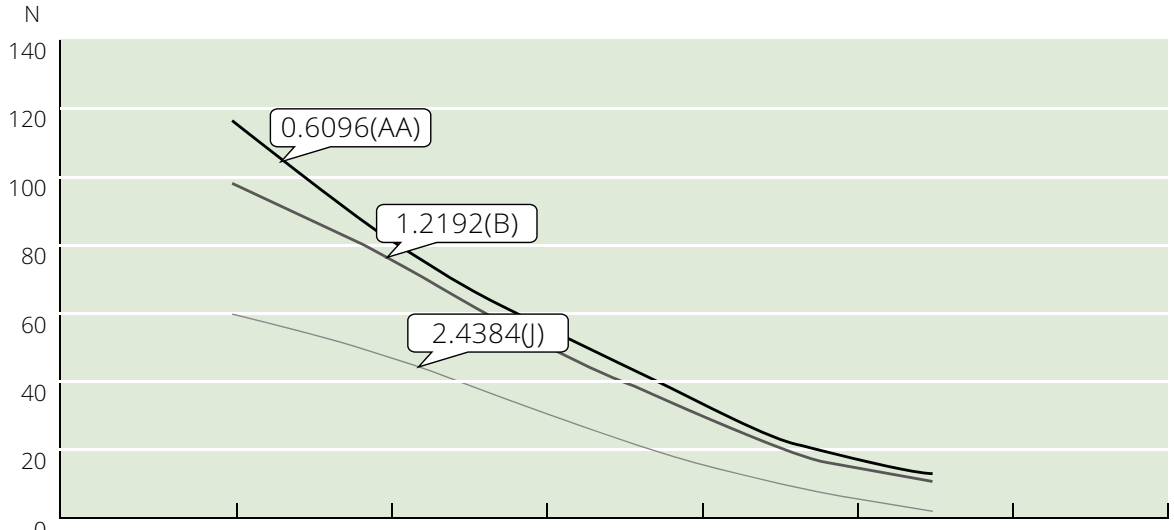
Speed Thrust Curves

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
Speed r/Min	250	500	750	1000	1250	1500
Pulse PPS	200	400	600	800	1000	1200

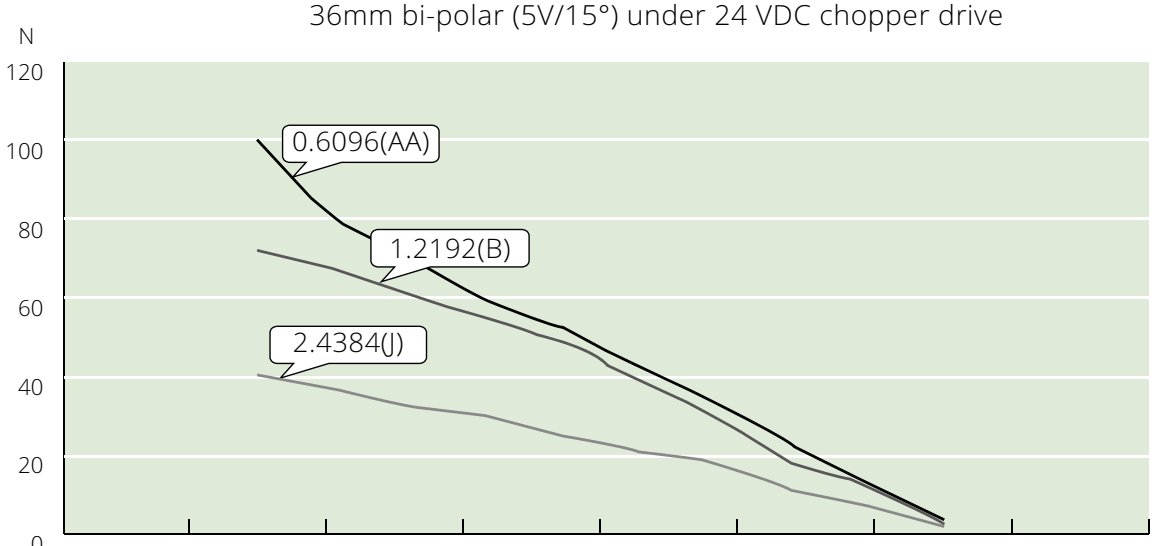
36mm bi-polar (12V/7.5°) under 24 VDC chopper drive



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	10.2	15.2	20.4	25.4	30.4
Speed r/Min	500	1000	1500	2000	2500	3000
Pulse PPS	200	400	600	800	1000	1200

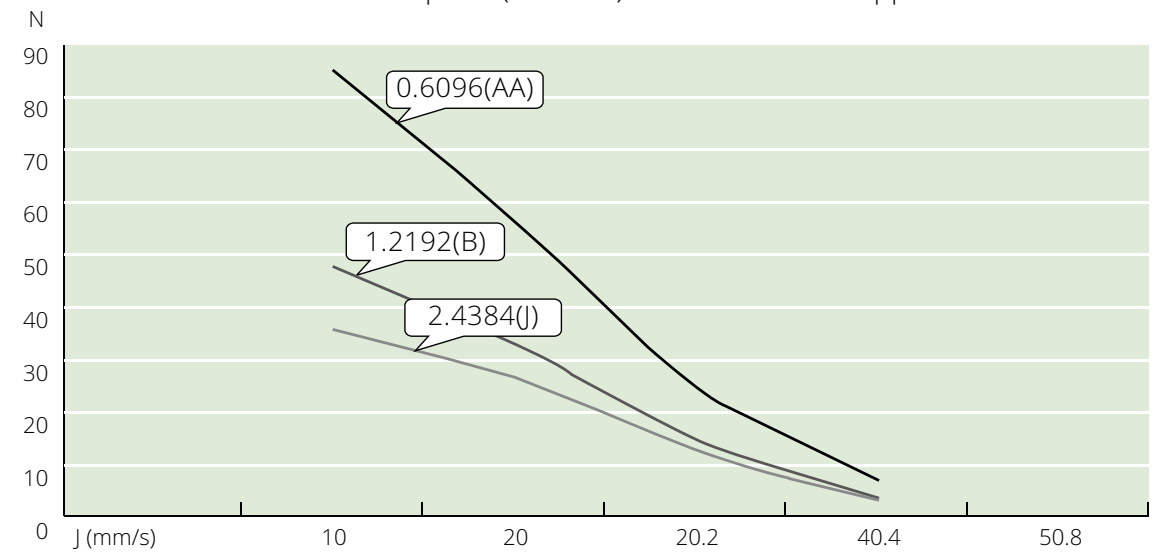
36mm Series

36mm bi-polar (5V/15°) under 24 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
Speed r/Min	125	250	375	500	625	750	875
Pulse PPS	100	200	300	400	500	600	700

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



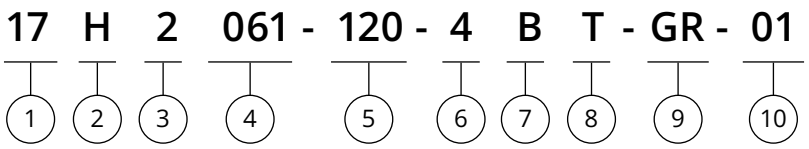
J (mm/s)	10	20	20.2	40.4	50.8
B (mm/s)	5	10	15.1	20.2	25,4
AA (mm/s)	2.5	5	7.6	10.2	12.7
Speed r/Min	250	500	750	1000	1250
Pulse PPS	100	200	300	400	500

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 11, 14, 17,23 and 24), IP Protection is optional.

Part Number Construction



① Motor Size

Motor Size (mm)	14	20	28	35	42	57	60	86
Motor Size (NEMA)	6	8	11	14	17	23	24	34

② Basic Structure

H = Normal

P = IP54

W = Enhanced

*For IP65, please contact DINGS' for more information

③ Motor Step Angle (°)

1 = 3°

2 = 1.8°

3 = 1.2°

4 = 0.9°

④ Motor Length (mm)

⑤ Rated Current

XXX = Rated current ×100 (A)

⑥ Wiring Number (3,4,5,6,8)

⑦ Shaft Configuration

A = Single shaft

B = Dual shaft

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

⑧ Wiring Method

L = Flying lead 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

Refers to the part number of gearbox with ratio

DG = DINGS' gearbox

FB = Power off brake, NB = Power on brake

EKX = Encoder [X = Encoder Resolution]

*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 28, 35, 42, 57 and 60mm

⑩ Customer Sequence Number

Example

Naming code	17H2061-120-4BT-GR-01
Description	Size 42 mm Normal structure Step angle 1.8° Motor body length 61 mm Rated current 1.2 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	23	4	0.005	1.5	32	30
8H2028	0.5	5.1	1.5	0.012	2.7	27	60
8H2038	0.5	8.8	2.7	0.02	3.3	38.2	80
11H2033	1	2.1	1.2	0.06	9	33.5	110
11H2045	1	4.1	3.2	0.1	13	45	200
11H2052	1	4.7	3.9	0.14	18	52	280
14H2027	0.5	9.2	7.4	0.1	12	27	150
14H2037	1.5	1.65	2.1	0.2	20	37	210
14H2052	1.5	2.65	4.1	0.4	35	52	250
17H2031	1.2	1.7	2.3	0.16	23	31	200
17H2034	1.2	2.1	2.7	0.25	25	34	230
17H2041	1.2	2.4	4.7	0.4	54	41	300
17H2049	2	1.3	2	0.48	77	49	360
17H2061	2	1.7	3.6	0.72	110	61	500
23H2042	1	4.2	9	0.6	140	42	460
23H2045	1	4.5	12	0.8	180	45	520
23H2051	2	1.5	4.4	1	240	51	640
23H2055	2	1.6	5.2	1.2	280	55	720
23H2065	3	0.9	2.7	1.6	350	65	860
23H2076	4	0.6	2.4	2	480	76	1060
23H2100	5	0.46	2.3	3	720	100	1500
24H2047	2	1.5	3.4	1	240	47	600
24H2056	3	0.8	2.3	1.5	340	56	800
24H2068	4	0.6	1.9	2.1	490	68	1000
24H2085	5	0.4	1.8	3	690	85	1300
34H2060	3	1	6	3	1100	60.5	1600
34H2075	4.5	0.6	4.5	4.5	1800	75	2100
34H2098	6	0.5	3.5	7	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		250 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

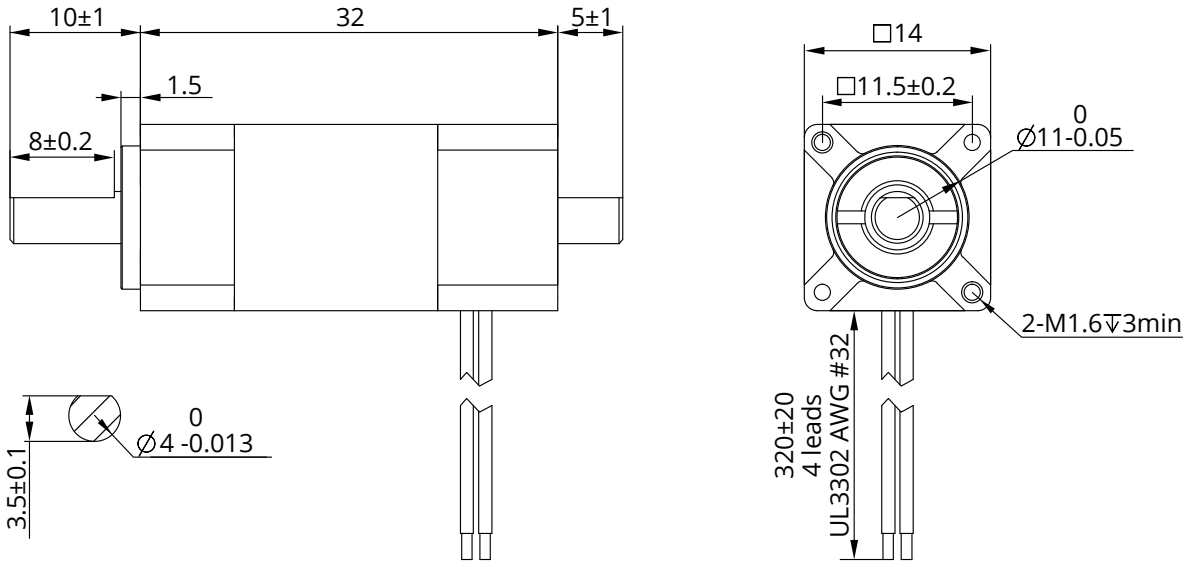
Parameter							
Type	Current (A)	Resistance (Ω)	Inductance (mH)	Holding Torque (N·m)	Rotor Inertia ($g \cdot cm^2$)	Length (mm)	Mass (g)
6H2030	0.3	23	4	0.005	1.5	32	30

Material	
End bell	Aluminum alloy
Bearing	Deep groove ball bearing
Magnet	Sintered NdFeb
Shaft	Stainless steel
Wiring	UL 3265, 32AWG

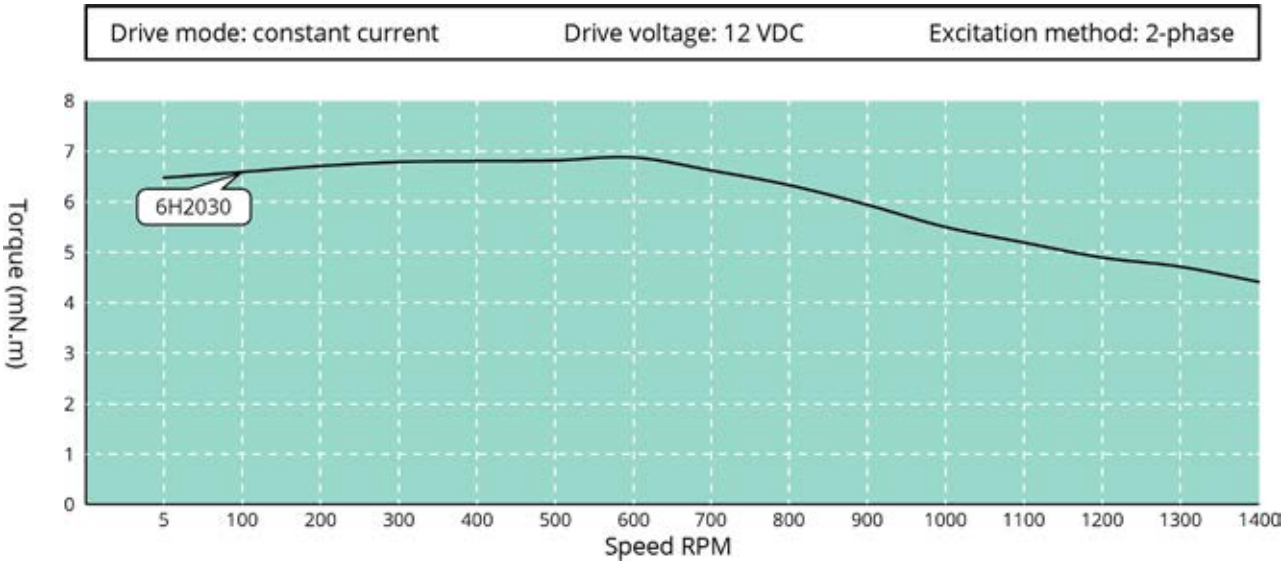
For stroke customization, please contact DINGS' or local representative.

Size 6 (14mm) Series

Dimensional Drawings



Tourque Performance Curves



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

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

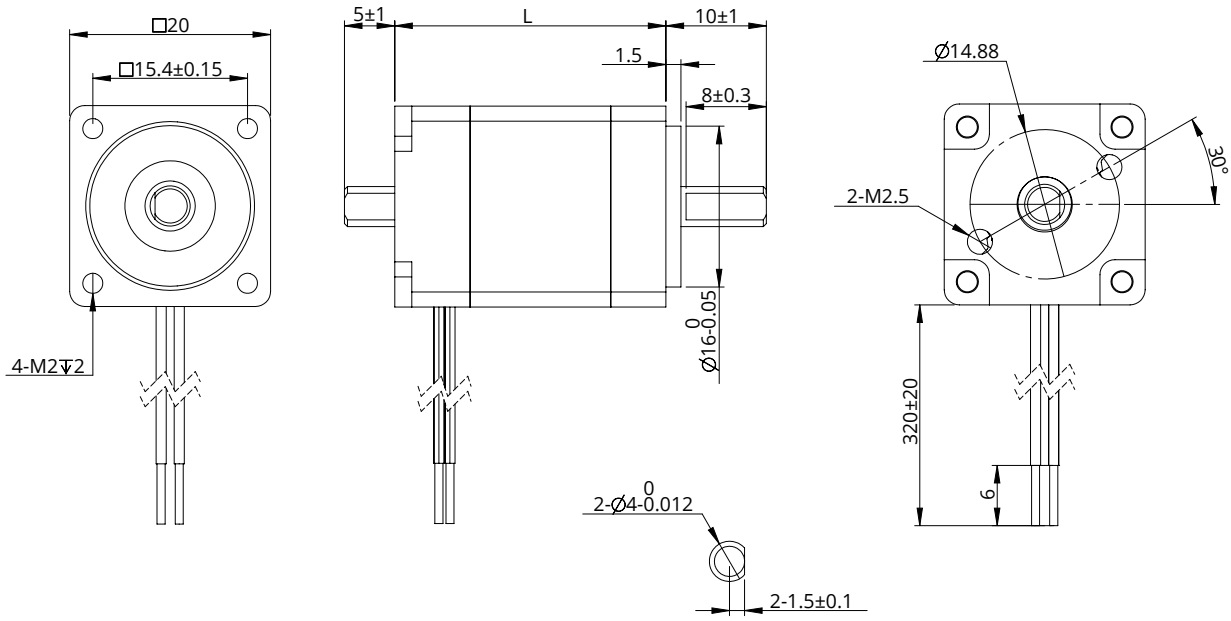
Parameter							
Type	Current (A)	Resistance (Ω)	Inductance (mH)	Holding Torque (N·m)	Rotor Inertia ($g \cdot cm^2$)	Length (mm)	Mass (g)
8H2028	0.5	5.1	1.5	0.012	2.7	27	60
8H2038	0.5	8.8	2.7	0.02	3.3	38.2	80

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

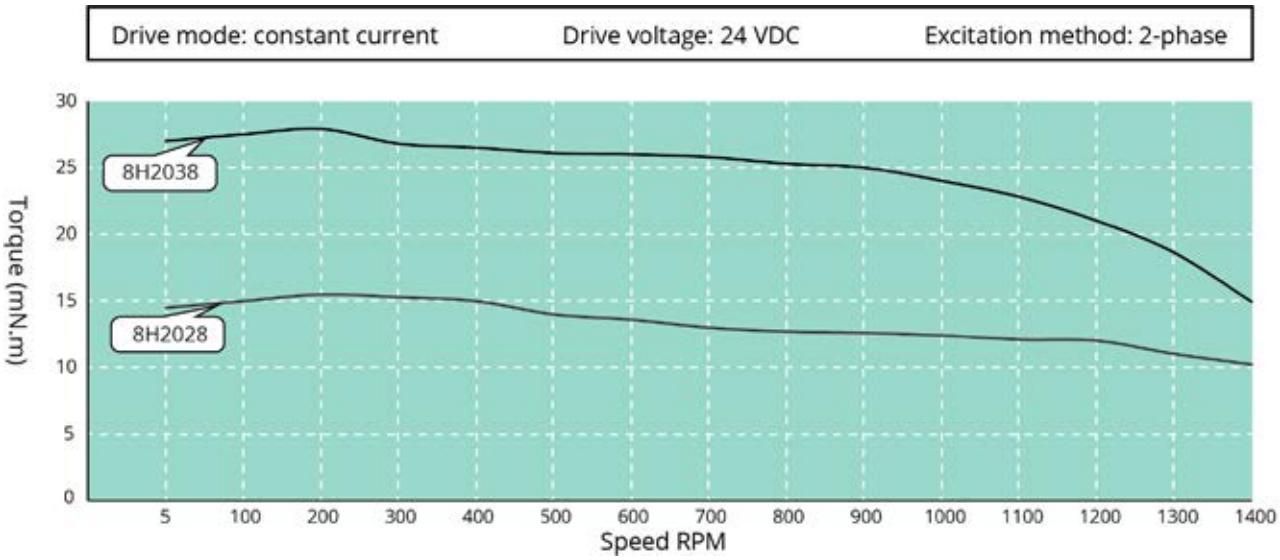
For stroke customization, please contact DINGS' or local representative.

Size 8 (20mm) Series

Dimensional Drawings



Tourque Performance Curves



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

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

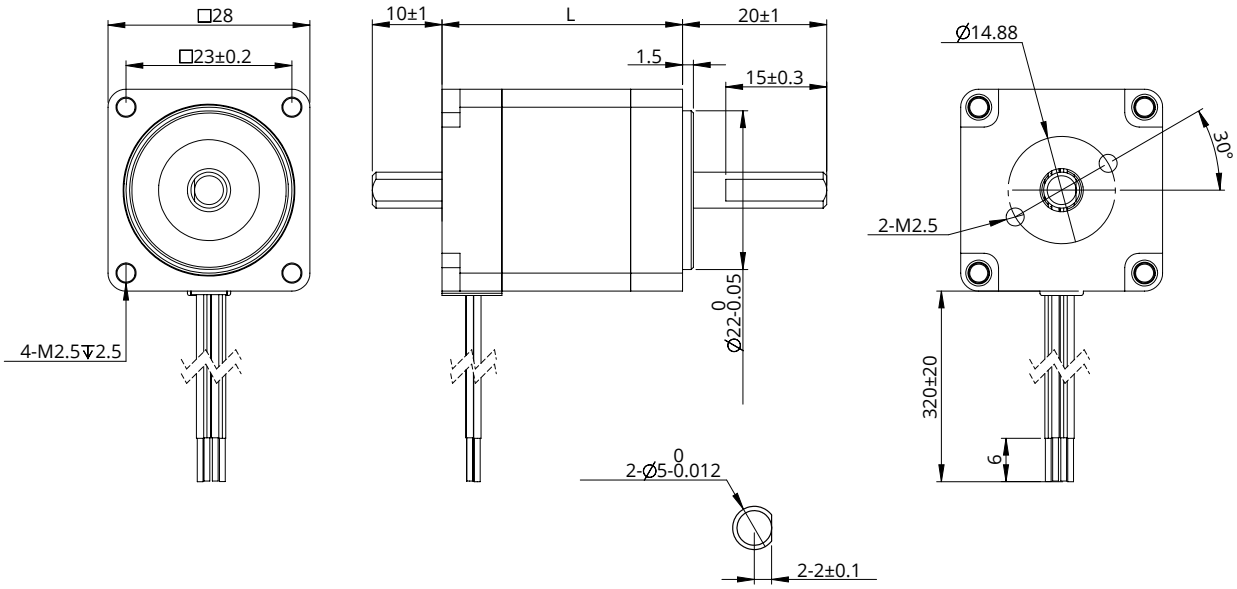
Parameter							
Type	Current (A)	Resistance (Ω)	Inductance (mH)	Holding Torque (N·m)	Rotor Inertia ($g \cdot cm^2$)	Length (mm)	Mass (g)
11H2033	1	2.1	1.2	0.06	9	33.5	110
11H2045	1	4.1	3.2	0.1	13	45	200
11H2052	1	4.7	3.9	0.14	18	52	280

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

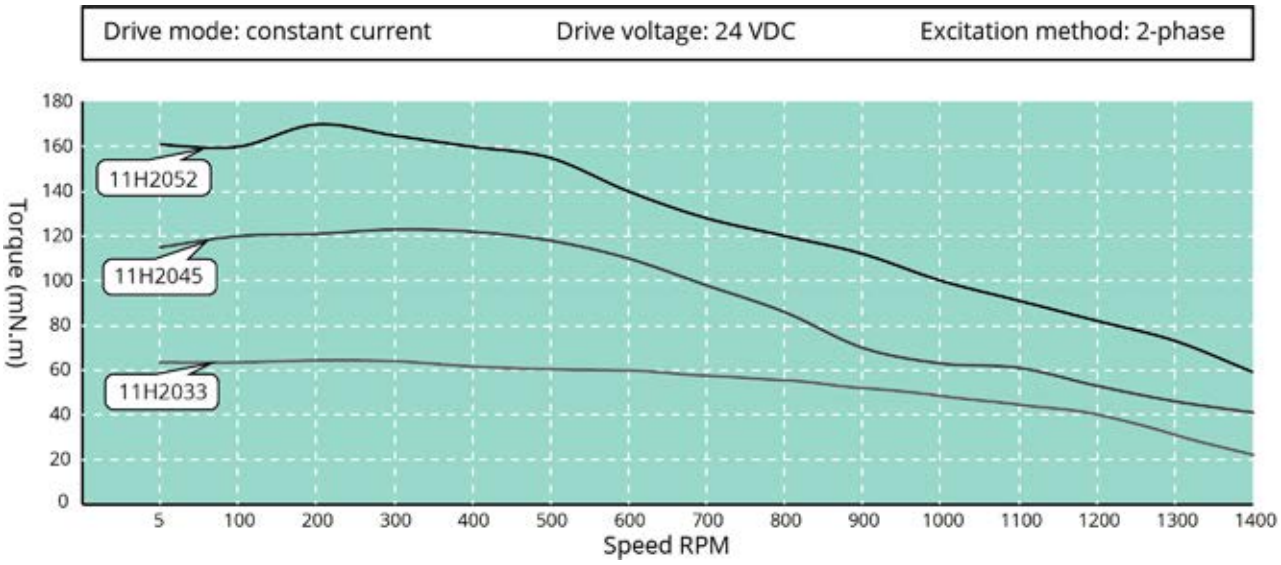
For stroke customization, please contact DINGS' or local representative.

Size 11 (28mm) Series

Dimensional Drawings



Tourque Performance Curves



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

Size 14 (35mm) Series

The size 14 [35mm] Hybrid Rotary Stepper Motor has Max. 0.4N·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

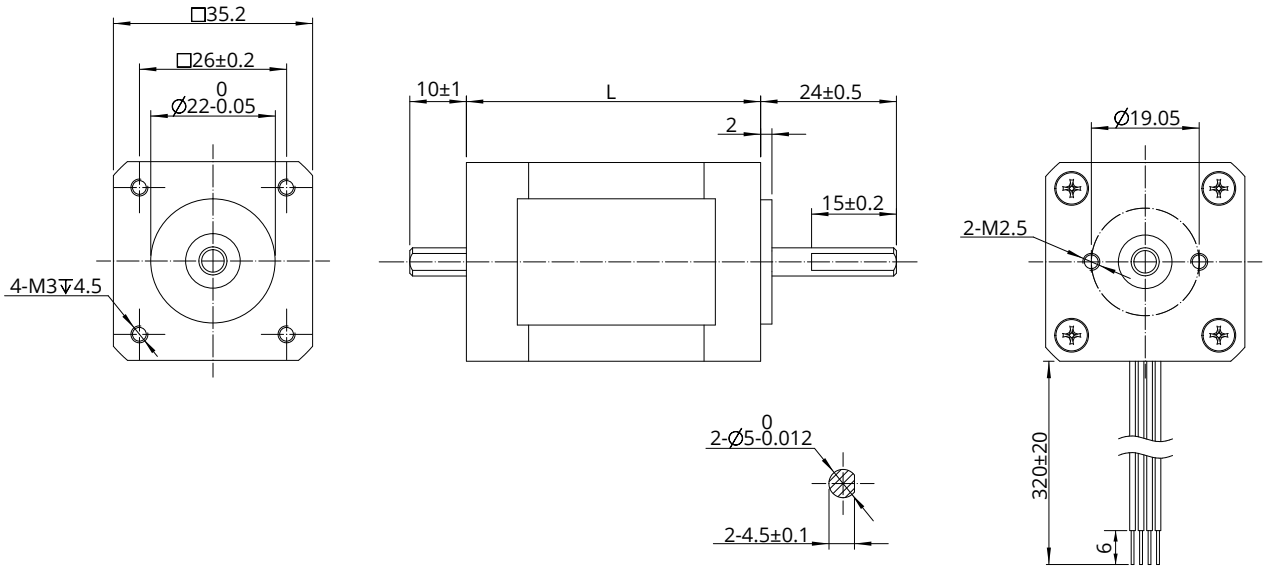
General			
Accuracy	Step angle	1.8°±5%	
	Resistance	±10% / 20 C	
	Inductance	±20% / 1KHz	
Insulation class		B	
Duty type		S1	
Dielectrical strength		500 VAC / 1 KHz / 1 mA / 1 s	
Insulation resistance		100 MΩ / 500 VDC	
Permissible radial load (5mm distance from mounting surface)	Permissible radial load (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 ($g \cdot cm^2$)	Length (mm)	Mass (g)
14H2027	0.5	9.2	7.4	0.1	12	27	150
14H2037	1.5	1.65	2.1	0.2	20	37	210
14H2052	1.5	2.65	4.1	0.4	35	52	250

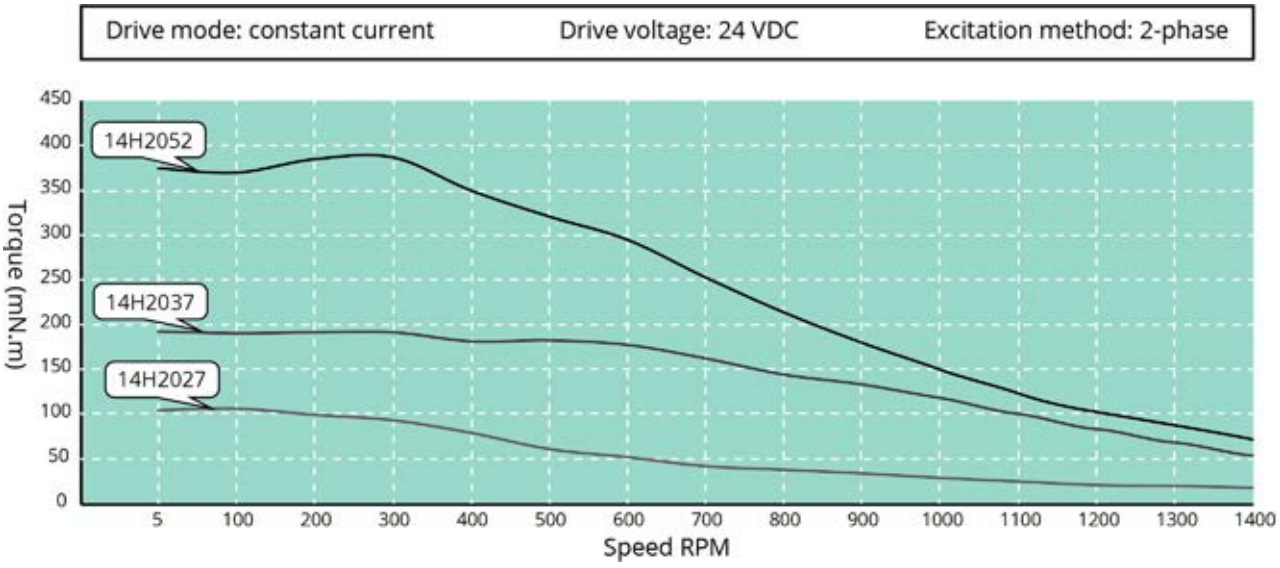
Material	
End bell	Aluminum alloy
Bearing	Deep groove ball bearing
Magnet	Sintered NdFeb
Shaft	Stainless steel
Wiring	UL 3265, 26AWG

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

Dimensional Drawings



Tourque Performance Curves



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

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

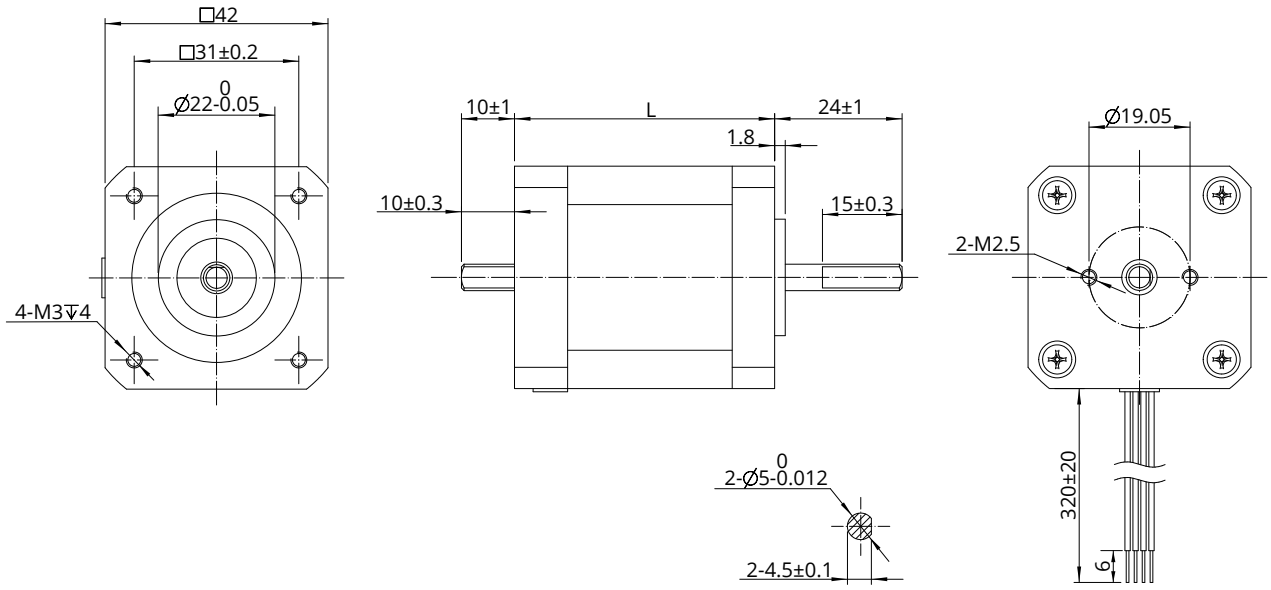
Parameter							
Type	Current (A)	Resistance (Ω)	Inductance (mH)	Holding Torque (N·m)	Rotor Inertia ($g \cdot cm^2$)	Length (mm)	Mass (g)
17H2031	1.2	1.7	2.3	0.16	23	31	200
17H2034	1.2	2.1	2.7	0.25	25	34	230
17H2041	1.2	2.4	4.7	0.4	54	41	300
17H2049	2	1.3	2	0.48	77	49	360
17H2061	2	1.7	3.6	0.72	110	61	500

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

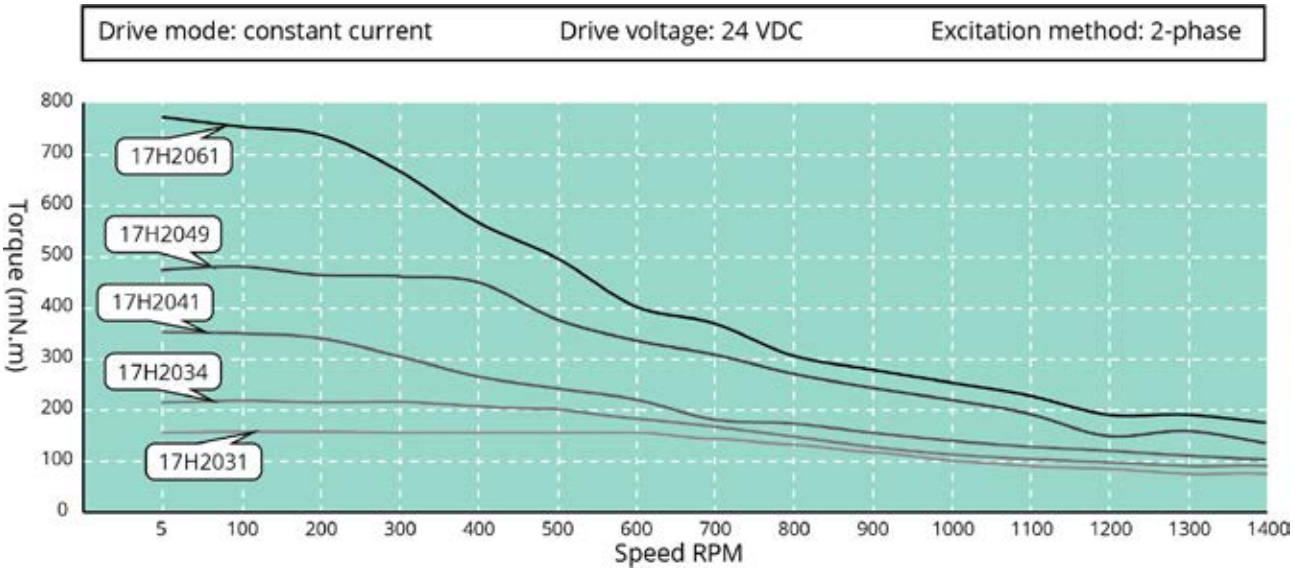
For stroke customization, please contact DINGS' or local representative.

Size 17 (42mm) Series

Dimensional Drawings



Tourque Performance Curves



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

Size 23 (57mm) Series

The size 23 [57mm] Hybrid Rotary Stepper Motor has Max. 3.0N·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

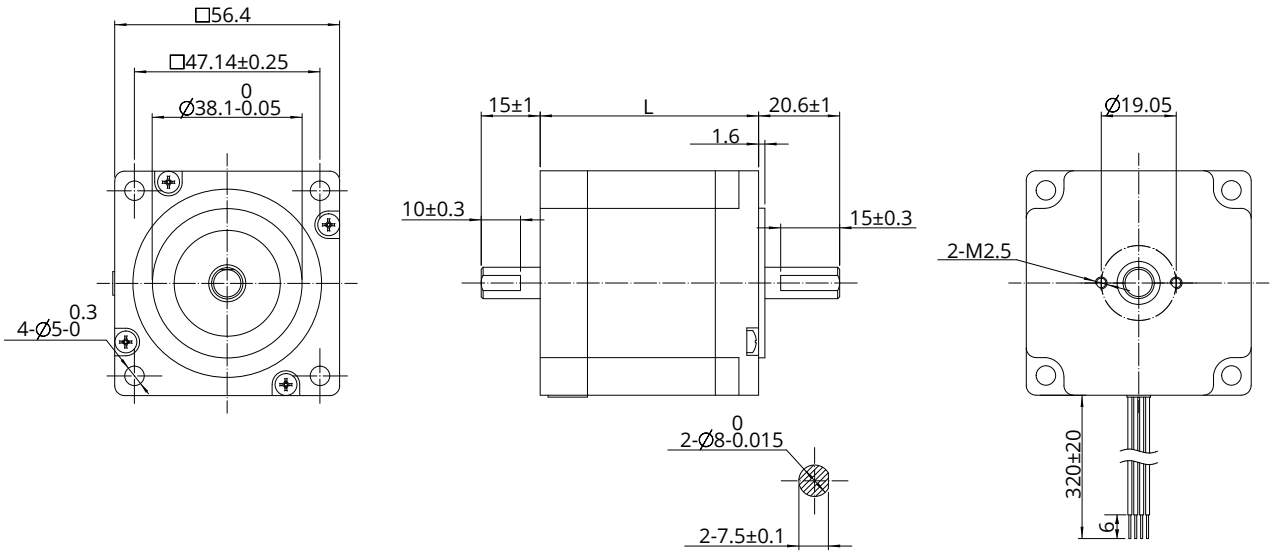
General			
Accuracy	Step angle	1.8°±5%	
	Resistance	±10% / 20 C	
	Inductance	±20% / 1KHz	
Insulation class		B	
Duty type		S1	
Dielectrical strength		500 VAC / 1 KHz / 1 mA / 1 s	
Insulation resistance		100 MΩ / 500 VDC	
Permissible radial load (5mm distance from mounting surface)	Permissible radial load (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 ($g \cdot cm^2$)	Length (mm)	Mass (g)
23H2042	1	4.2	9	0.6	140	42	460
23H2045	1	4.5	12	0.8	180	45	520
23H2051	2	1.5	4.4	1	240	51	640
23H2055	2	1.6	5.2	1.2	280	55	720
23H2065	3	0.9	2.7	1.6	350	65	860
23H2076	4	0.6	2.4	2	480	76	1060
23H2100	5	0.46	2.3	3	720	100	1500

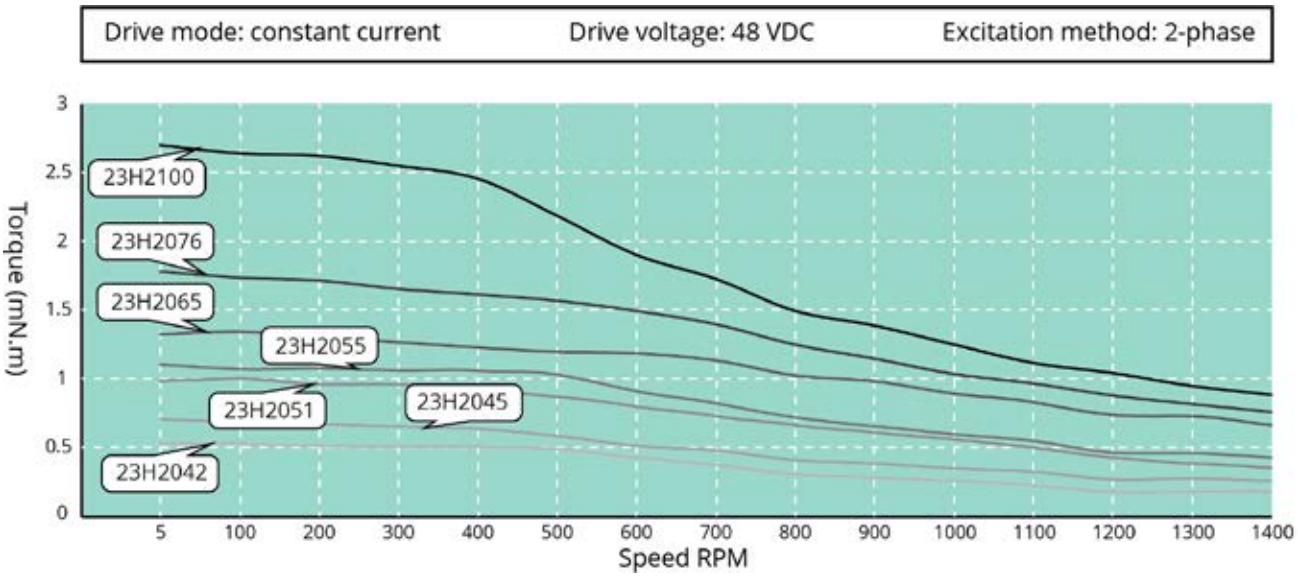
Material	
End bell	Aluminum alloy
Bearing	Deep groove ball bearing
Magnet	Sintered NdFeb
Shaft	Stainless steel
Wiring	UL 3265, 22 / 20AWG

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

Dimensional Drawings



Tourque Performance Curves



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

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

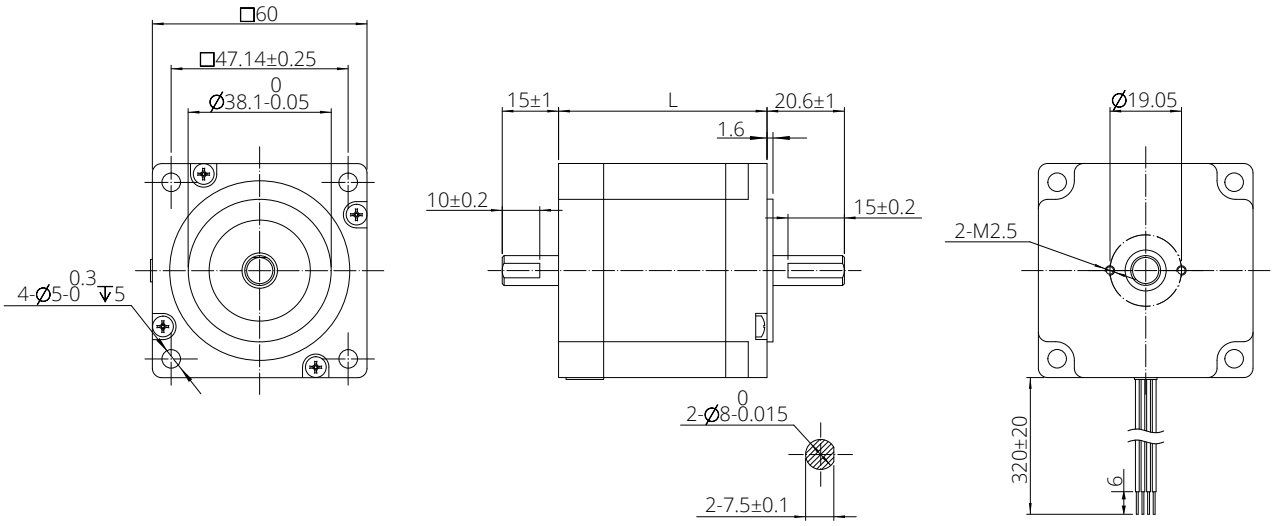
Parameter							
Type	Current (A)	Resistance (Ω)	Inductance (mH)	Holding Torque (N·m)	Rotor Inertia ($g \cdot cm^2$)	Length (mm)	Mass (g)
24H2047	2	1.5	3.4	1	240	47	600
24H2056	3	0.8	2.3	1.5	340	56	800
24H2068	4	0.6	1.9	2.1	490	68	1000
24H2085	5	0.4	1.8	3	690	85	1300

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

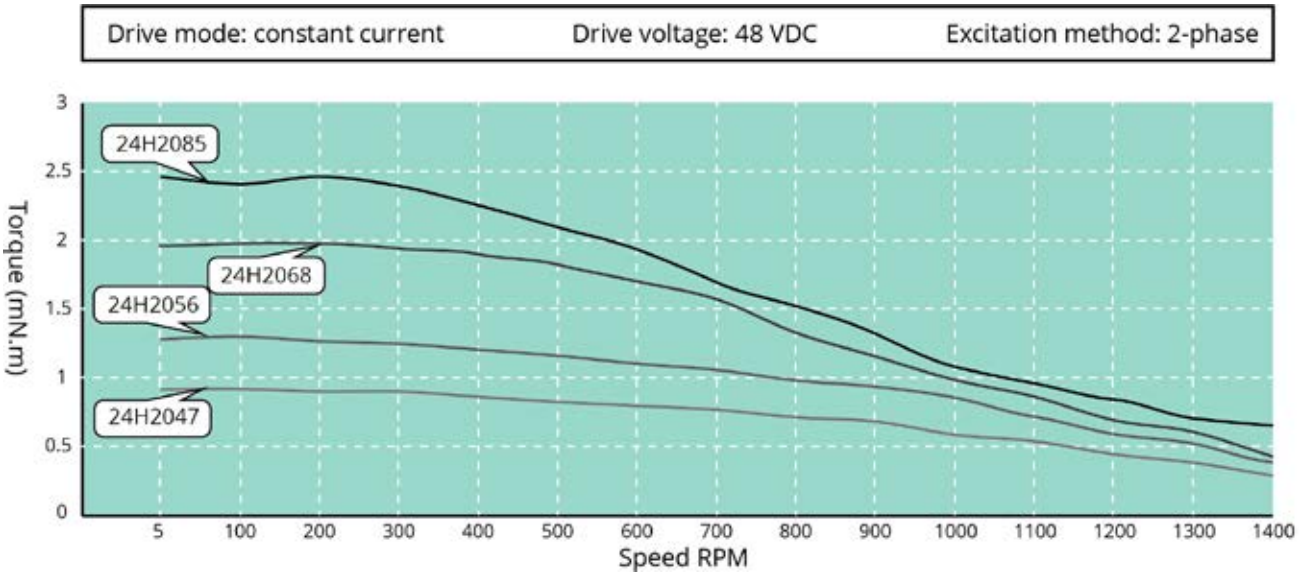
For stroke customization, please contact DINGS' or local representative.

Size 24 (60mm) Series

Dimensional Drawings



Tourque Performance Curves



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

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

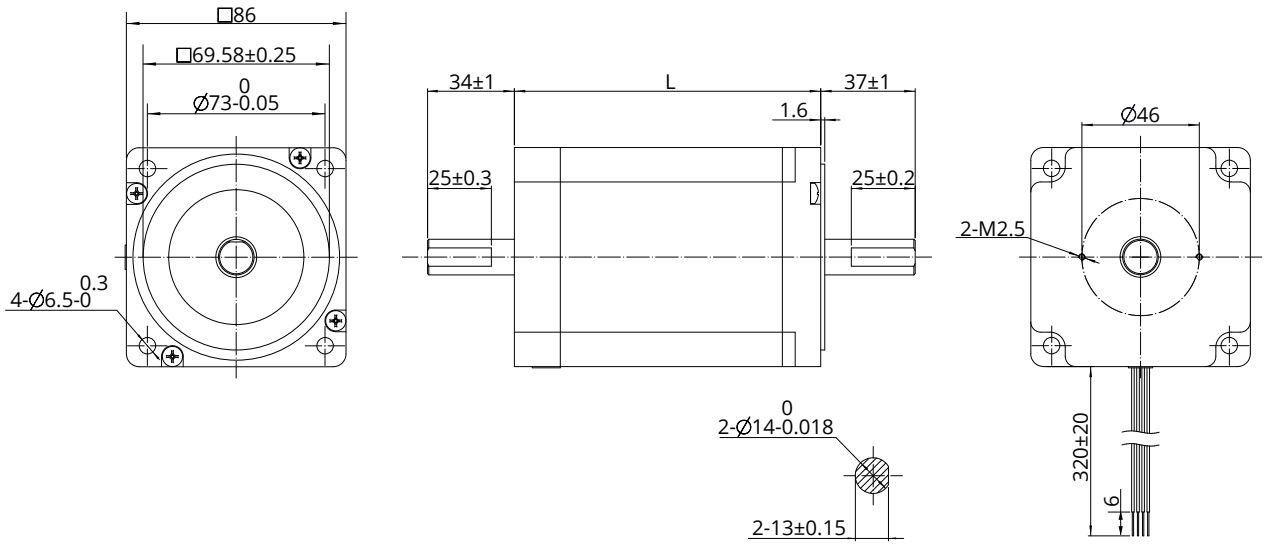
General			
Accuracy	Step angle	1.8°±5%	
	Resistance	±10% / 20 C	
	Inductance	±20% / 1KHz	
Insulation class		B	
Duty type		S1	
Dielectrical strength		500 VAC / 1 KHz / 1 mA / 1 s	
Insulation resistance		100 MΩ / 500 VDC	
Permissible radial load (5mm distance from mounting surface)	Permissible radial load (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 ($g \cdot cm^2$)	Length (mm)	Mass (g)
34H2060	3	1	6	3	1100	60.5	1600
34H2075	4.5	0.6	4.5	4.5	1800	75	2100
34H2098	6	0.5	3.5	7	2800	96.5	2900

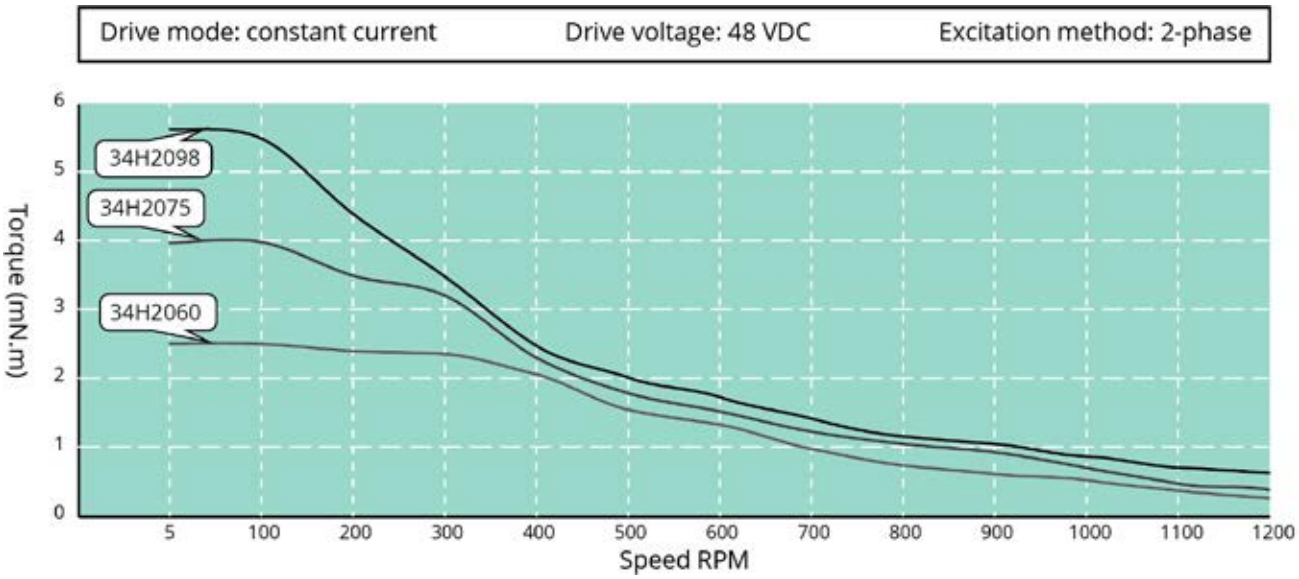
Material	
End bell	Aluminum alloy
Bearing	Deep groove ball bearing
Magnet	Sintered NdFeb
Shaft	Stainless steel
Wiring	UL 3265, 18AWG

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

Dimensional Drawings



Tourque Performance Curves



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

Accessories and Options

Planetary Gearbox

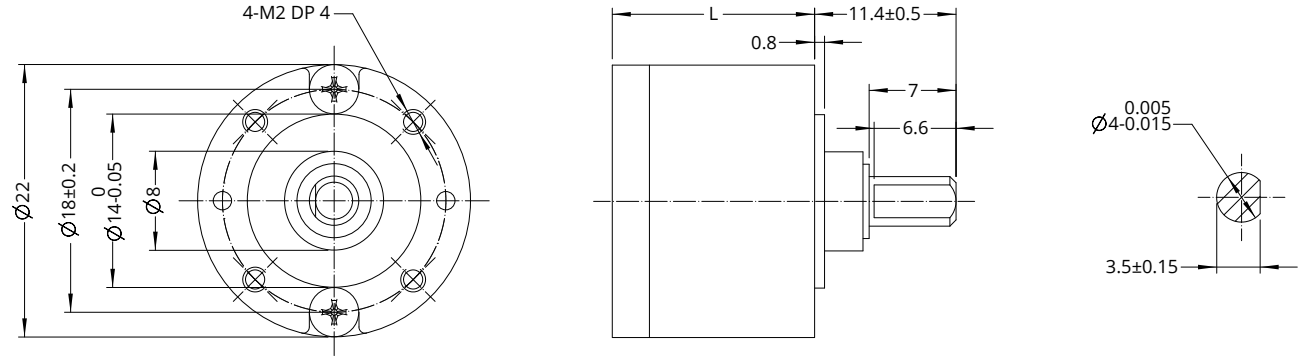
- Overview

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							
	20	25	40	2	90	70	1200	
	25							

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

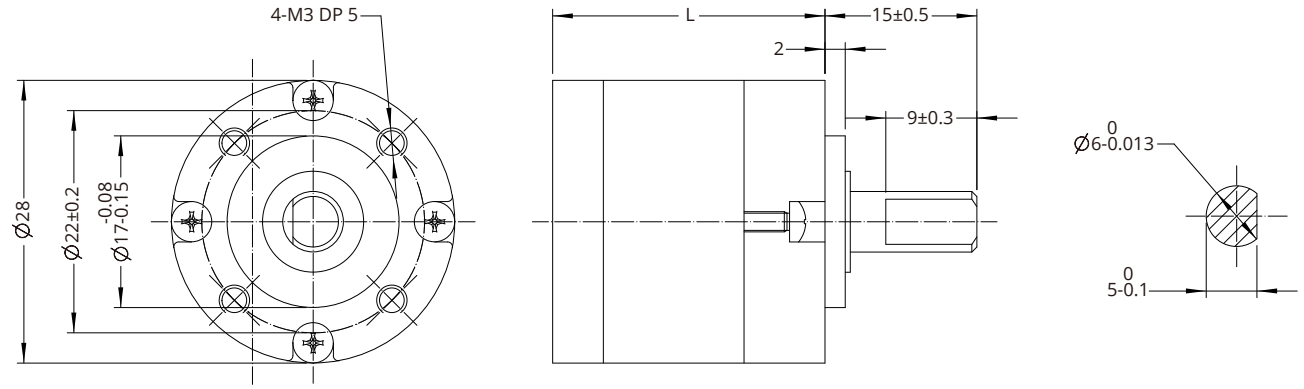
Accessories and Options

22mm Frame Planetary Gearbox



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 20	0.05	0.15	2	66	16.3	30.1
107	0.1	0.3	3	53	19.5	36

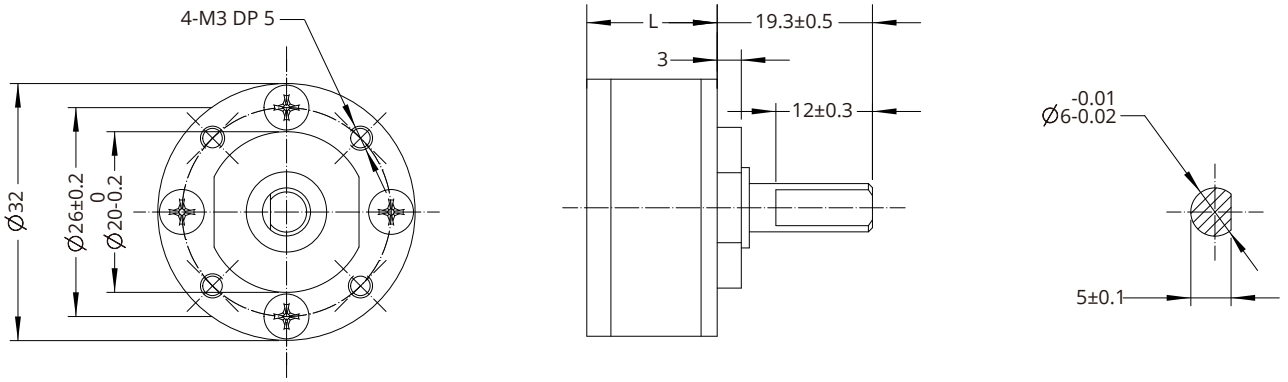
28mm Frame Planetary Gearbox



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 4.6	0.5	1.5	1	90	21.2	87
11.2 15.5 21.5	1	3	2	81	26.9	91
37.7 72	2.5	7.5	3	73	32.7	100

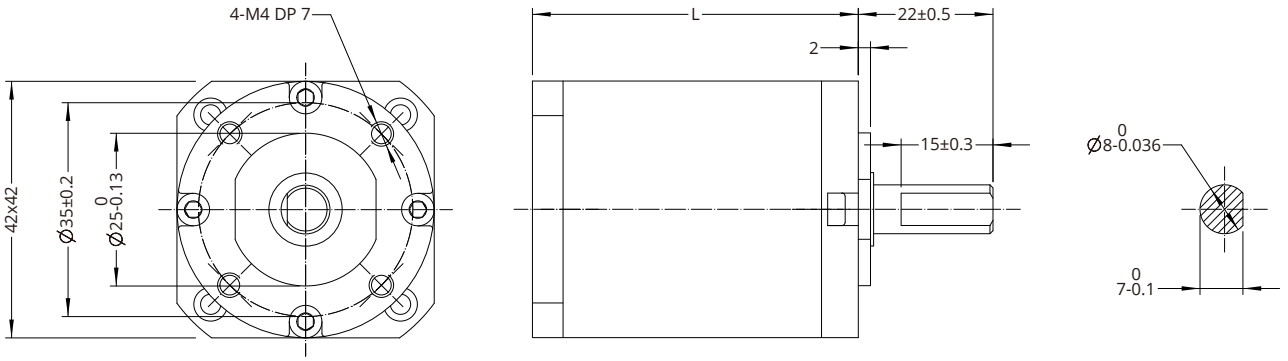
Accessories and Options

- 32mm Frame Planetary Gearbox



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 4.6	0.5	1.5	1	90	16.2	90
11.2 15.5 21.5	1	3	2	81	21.9	115
37.7 72	2.5	7.5	3	73	27.7	140

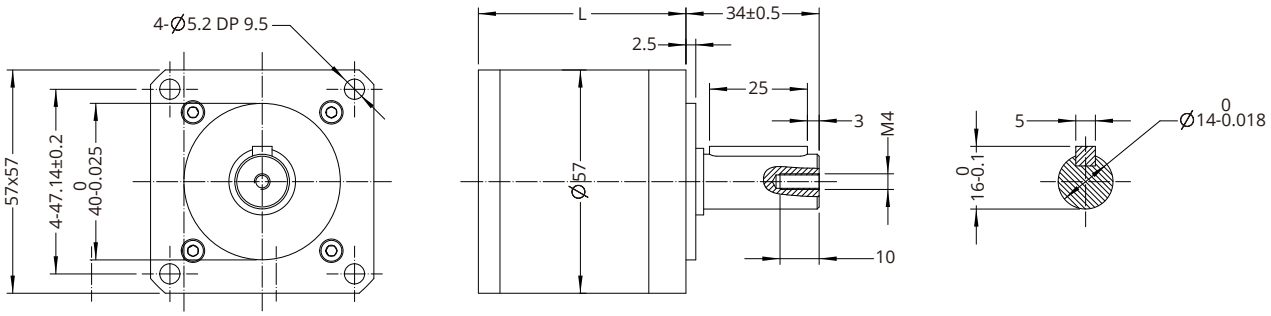
- 42mm Frame Planetary Gearbox



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 5.2	1	3	1	90	30.6	260
13.7 19.2 26.9	2	6	2	81	41.9	350
50.9 71.2 99.5	5	15	3	73	53.2	440

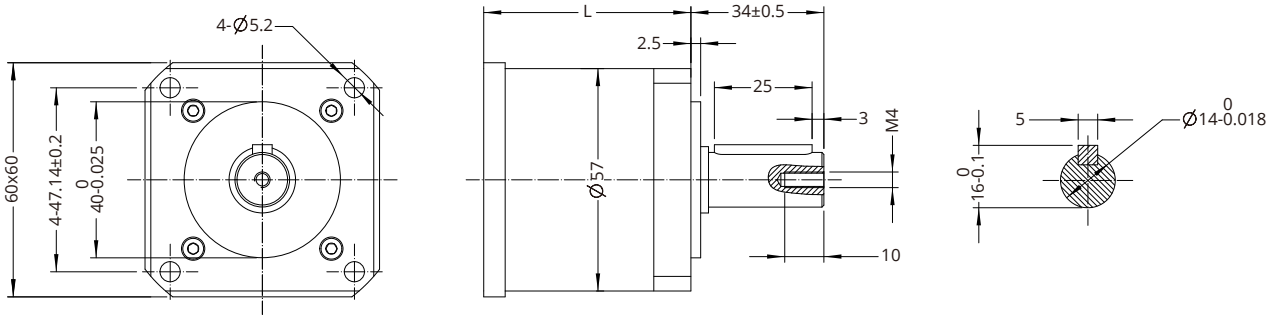
Accessories and Options

57mm Frame Planetary Gearbox



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 10	6	12	1	95	53	800
15 20 25	25	40	2	90	70	1100

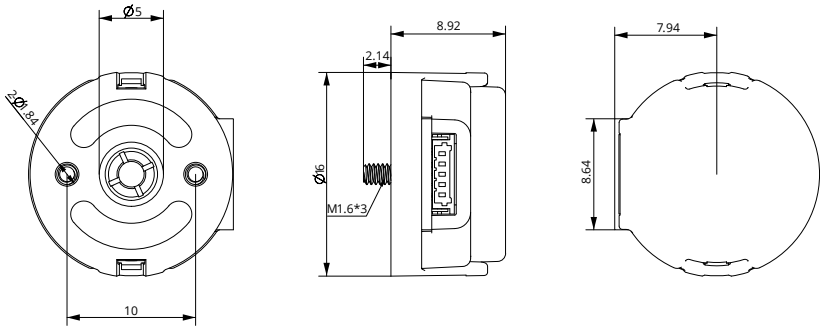
60mm Frame Planetary Gearbox



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 10	6	12	1	95	53	900
15 20 25	25	40	2	90	70	1200

Accessories and Options

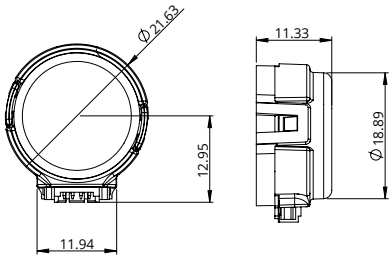
Encoder



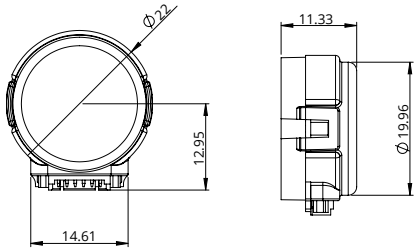
EK 6 Encoder

- EK 6 Encoder (Used for size 6 motors) * No Index

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



EK 1 Encoder - single ended output

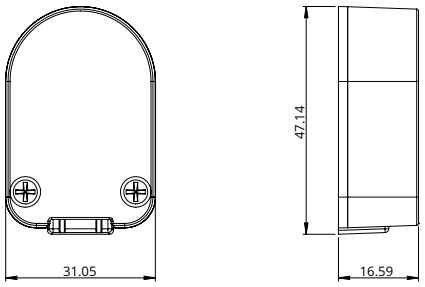


EK 1 Encoder - differential output

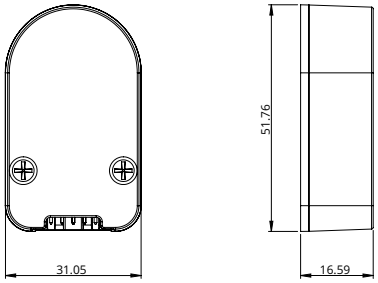
- EK 1 Encoder (Used for size 8, 11, 14, 17 motors) * No Index

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

Accessories and Options



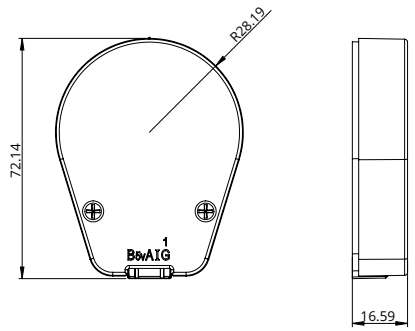
EK 2 Encoder - single ended output



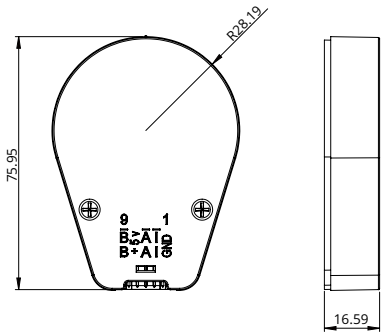
EK 2 Encoder - differential output

- EK 2 Encoder (Used for size 11, 14, 17, 23, 24 motors)

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



EK 3 Encoder - single ended output

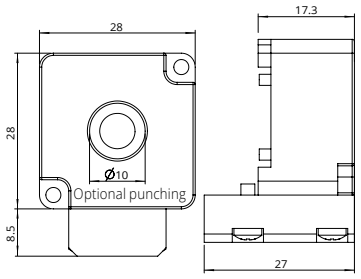


EK 3 Encoder - differential output

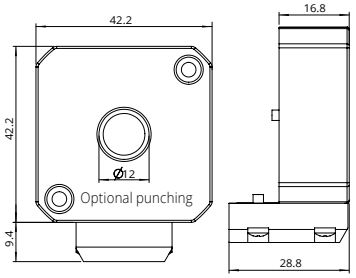
- EK 3 Encoder (Used for size 23, 24, 34 motors)

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

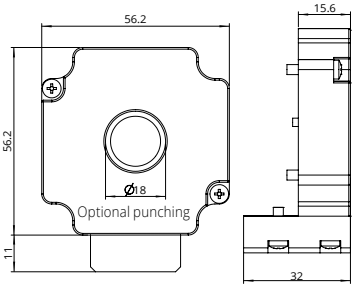
Accessories and Options



EK 4 Encoder 11



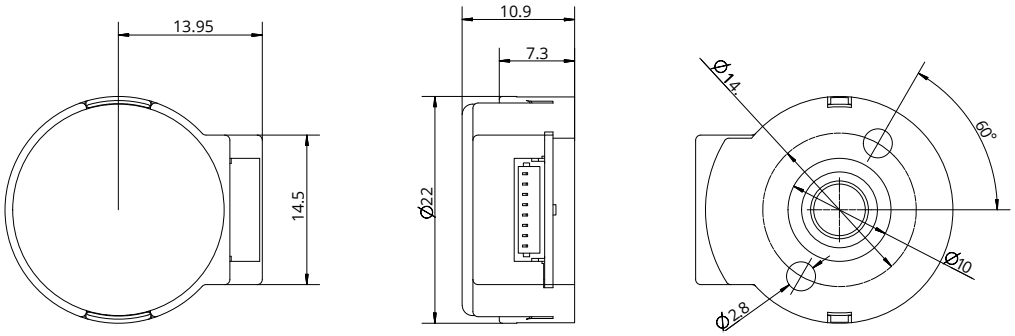
EK 4 Encoder 17



EK 4 Encoder 23

- KPL Encoder (Used for Size 8, 11, 14, 17, 23, 24 Motor) * Index, Differential Shielded Cable

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

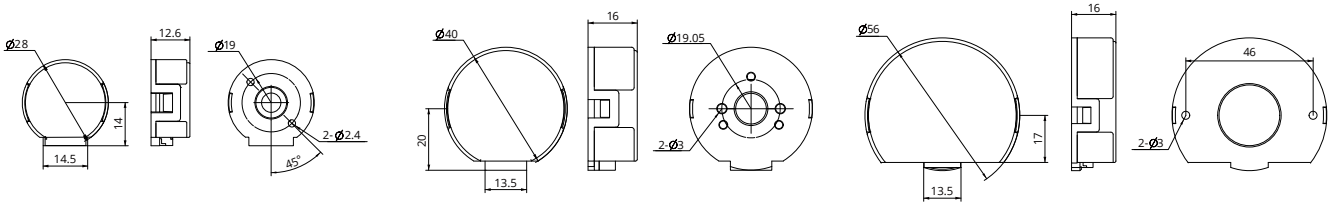


EK 5 Encoder - differential output

- EK 5 Encoder (Used for size 8, 11, 17 motors) * 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

Accessories and Options



KPL 28 KPL 40 KPL 56

- KPL Encoder (Used for Size 8, 11, 14, 17, 23, 24 Motor) * Index, Differential Shielded Cable

Code / Resolution (CPR) / Model	Differential output	A	B	C	D	E	F	G	H	I	J
	Single ended output	0	1	2	3	4	5	6	7	8	9
KPL 28		-	-	-	1000	-	-	-	-	-	-
KPL 40		-	-	-	1000	-	-	-	-	-	-
KPL 56		-	-	-	1000	-	-	-	-	-	-

Optional Brake (See page A-56)

C Hollow Shaft Stepper Motor

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

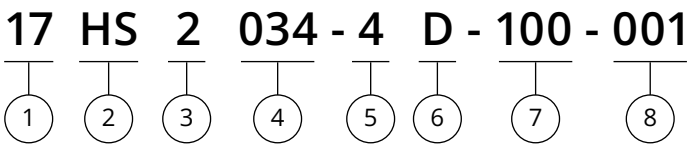
Each size has multiple stack lengths. Single or dual shaft is standard but customized shaft options are also available. In addition hollow shaft encoders are available.

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 NEMA 6, 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



① Motor Size

Motor Size (mm)	14	20	28	35	42	57	60	86
Motor Size (NEMA)	6	8	11	14	17	23	24	34

② Motor Type

HS = Hollow Shaft Step

③ Motor Step Angle

2 = 2 phase with 1.8°

4 = 2 phase with 0.9°

④ Motor Length

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

XXX = Rated current ×100 (A)

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

Product Overview

Size (mm)	Motor Length (mm)	Holding torque (N·m)	Inner holes (mm)	Power consumption (W)
6 (14*14)	32	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
24 (60*60)	47	0.9	12	16.2
	68	1.9	12	19.2
34 (86*86)	76	4.5	16	31

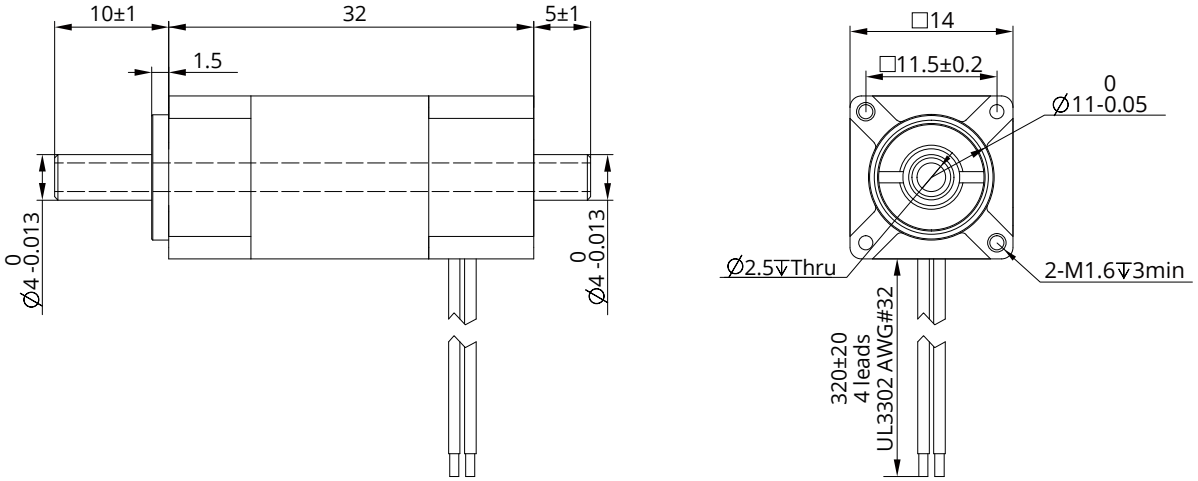
Size 6 (14mm) Series

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.

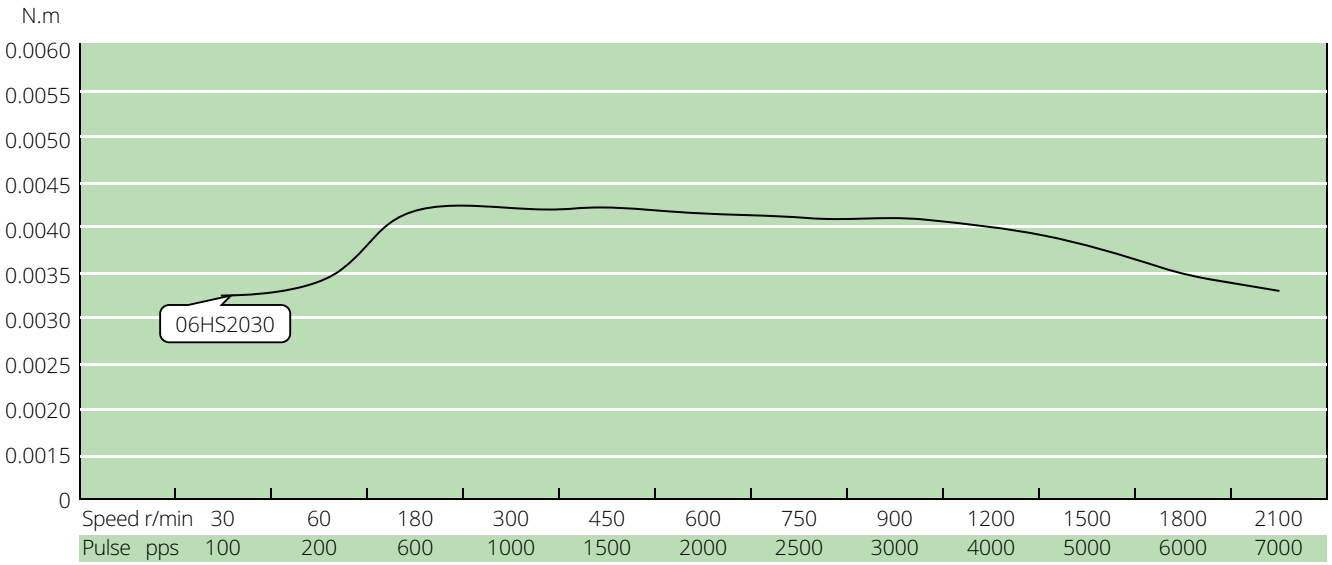
Motor Characteristics

Motor No.	Rated Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Holding torque (N·m)	Detent torque (N·m)	Motor Length (mm)
06HS2030	6.6	0.3	23	4.0	0.005	0.002	32

Dimensional Drawings



Torque Performance Curves



TEST CONDITION

Testing Voltage: 12Vdc, 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.

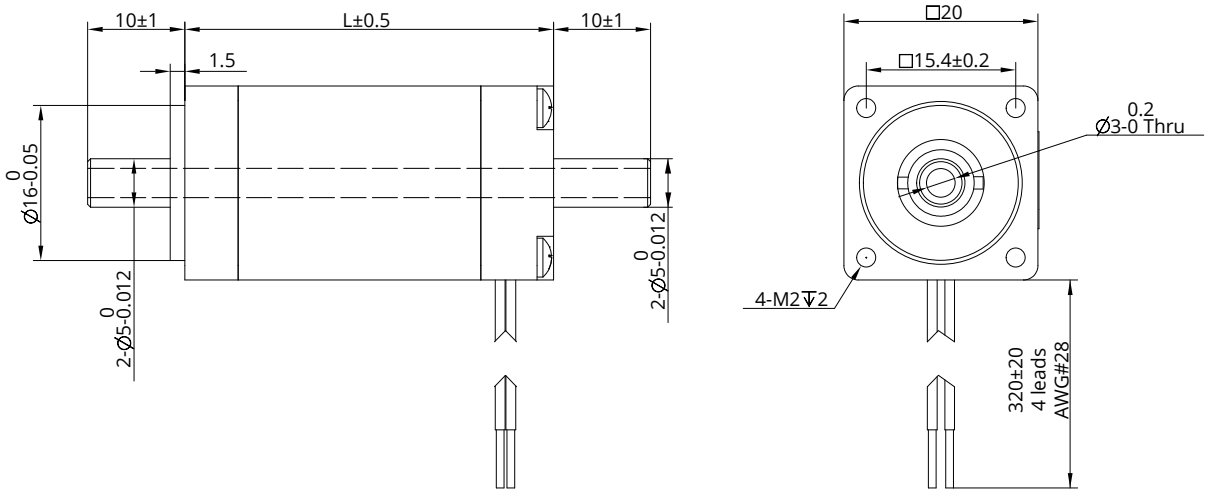
Size 8 (20mm) Series

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.

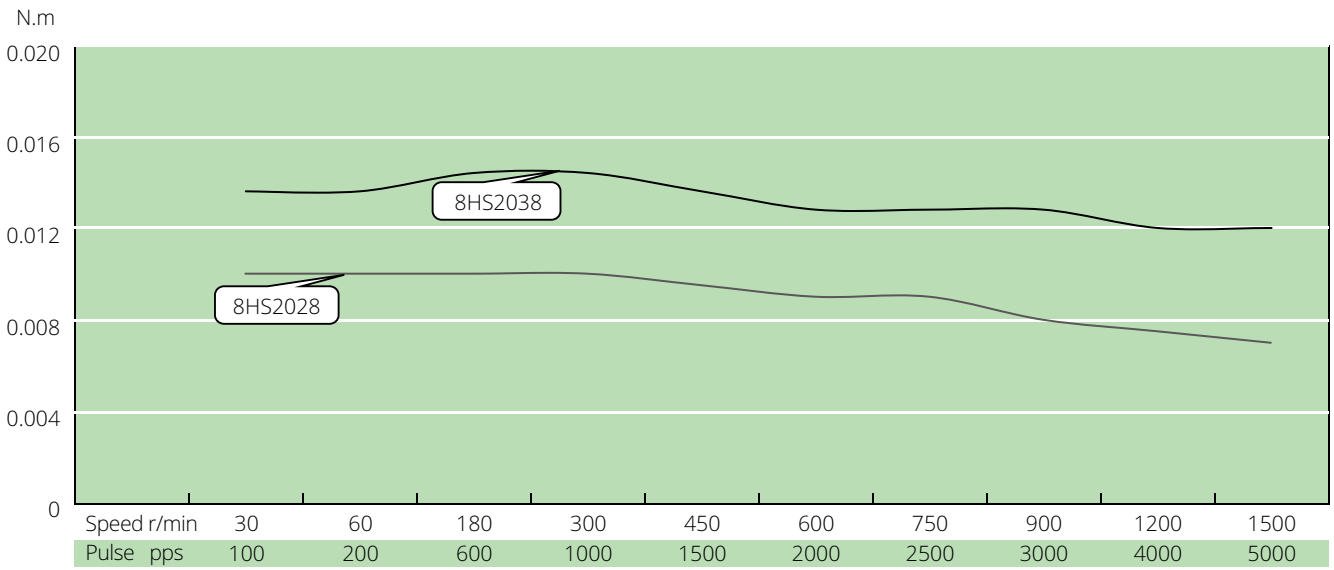
Motor Characteristics

Motor No.	Rated Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Holding torque (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



Torque Performance Curves



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.

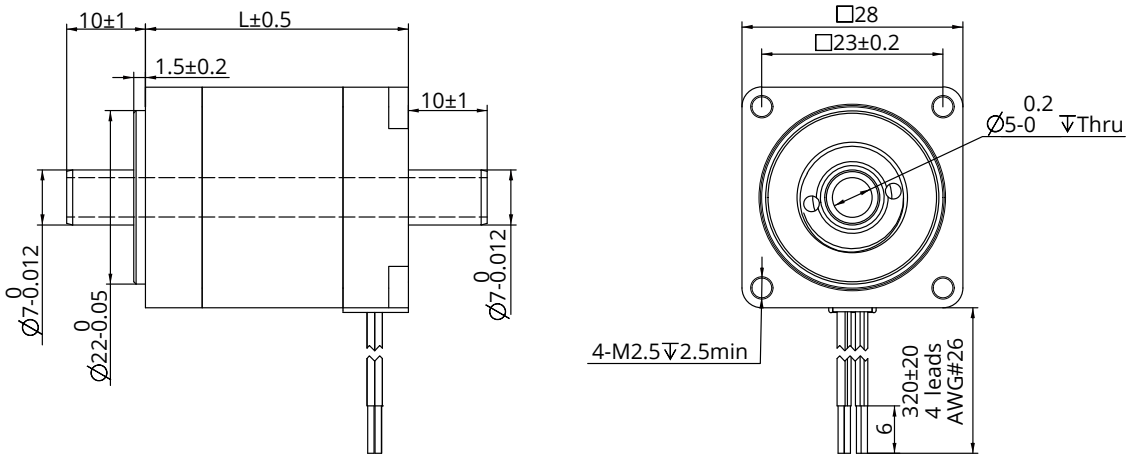
Size 11 (28mm) Series

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.

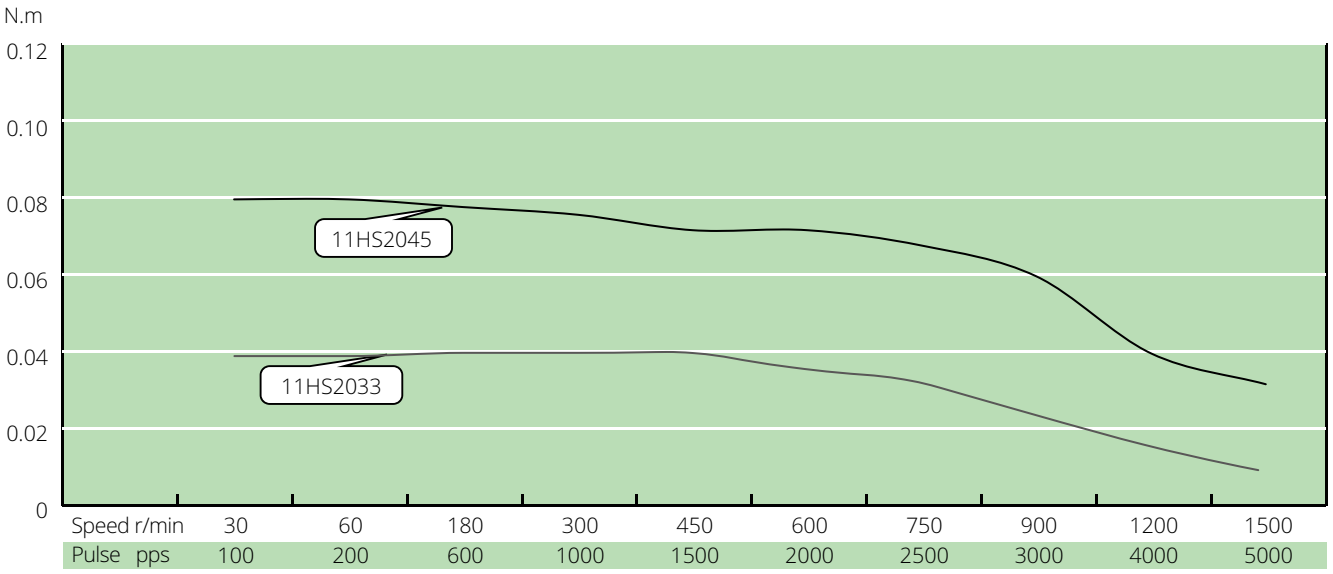
Motor Characteristics

Motor No.	Rated Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Holding torque (N·m)	Detent torque (N·m)	Motor Length (mm)
11HS2033	2.1	1	2.1	1.5	0.053	0.004	33
11HS2045	4.1	1	4.1	4	0.1	0.004	45

Dimensional Drawings



Torque Performance Curves



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.

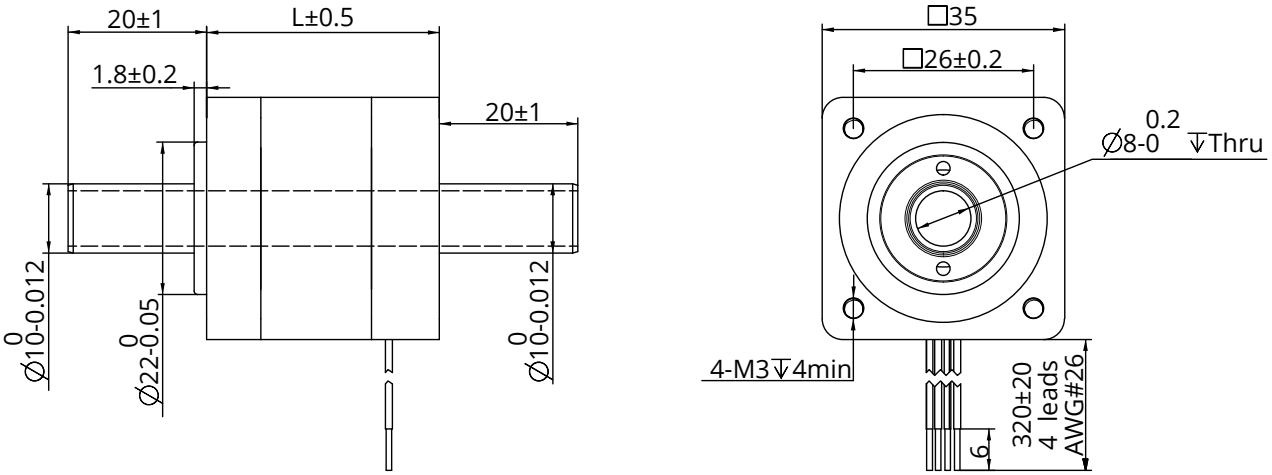
Size 14 (35mm) Series

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.

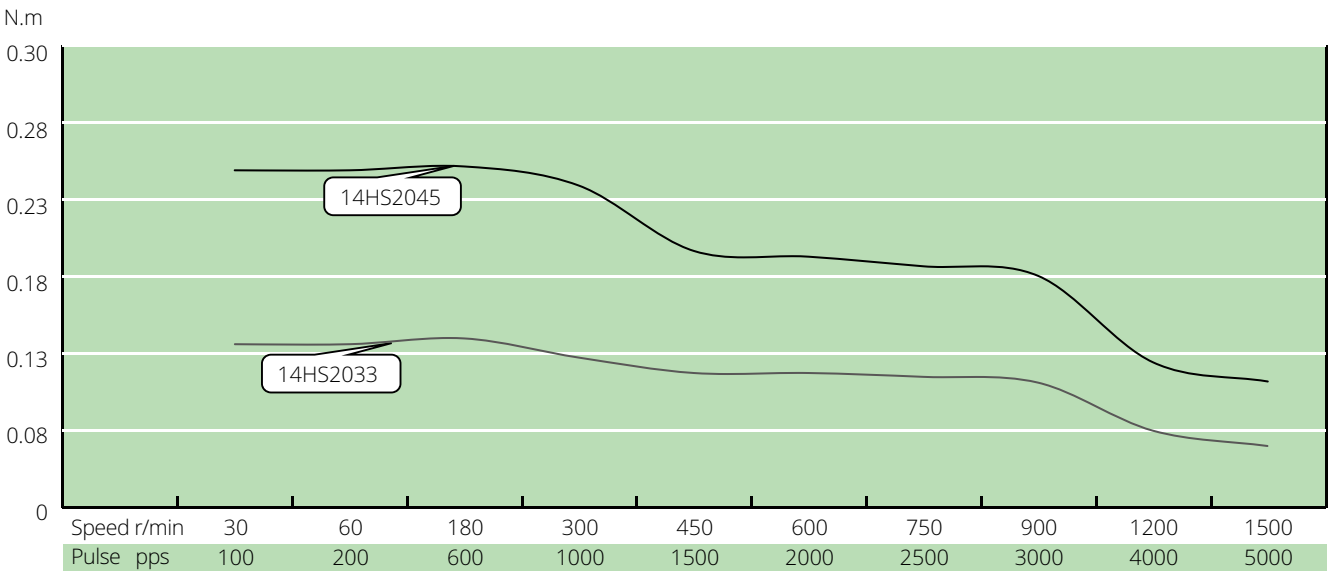
Motor Characteristics

Motor No.	Rated Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Holding torque (N·m)	Detent torque (N·m)	Motor Length (mm)
14HS2033	3.5	1	3.5	3.6	0.19	0.008	33.6
14HS2045	6	1	6	7.2	0.36	0.013	45.6

Dimensional Drawings



Torque Performance Curves



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.

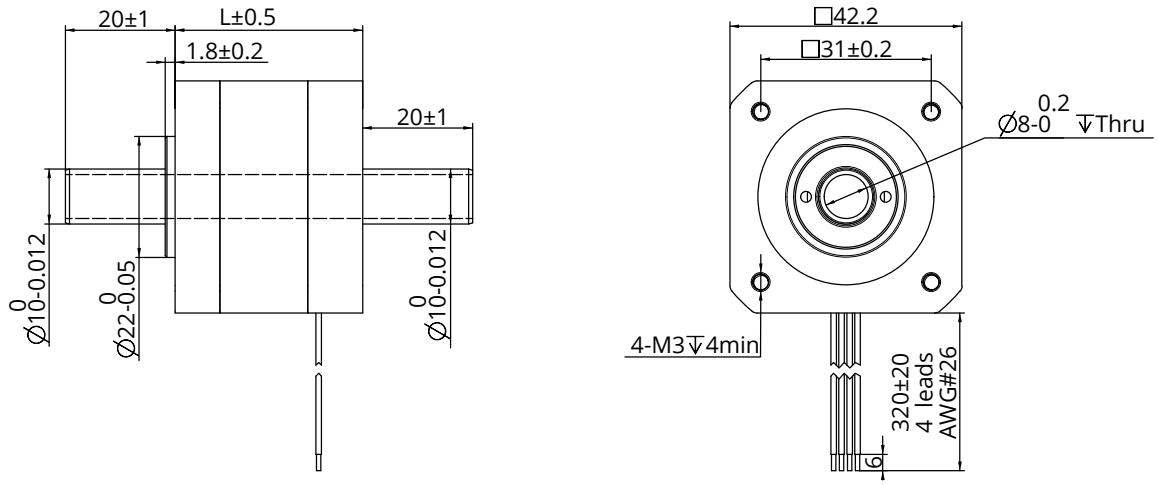
Size 17 (42mm) Series

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.

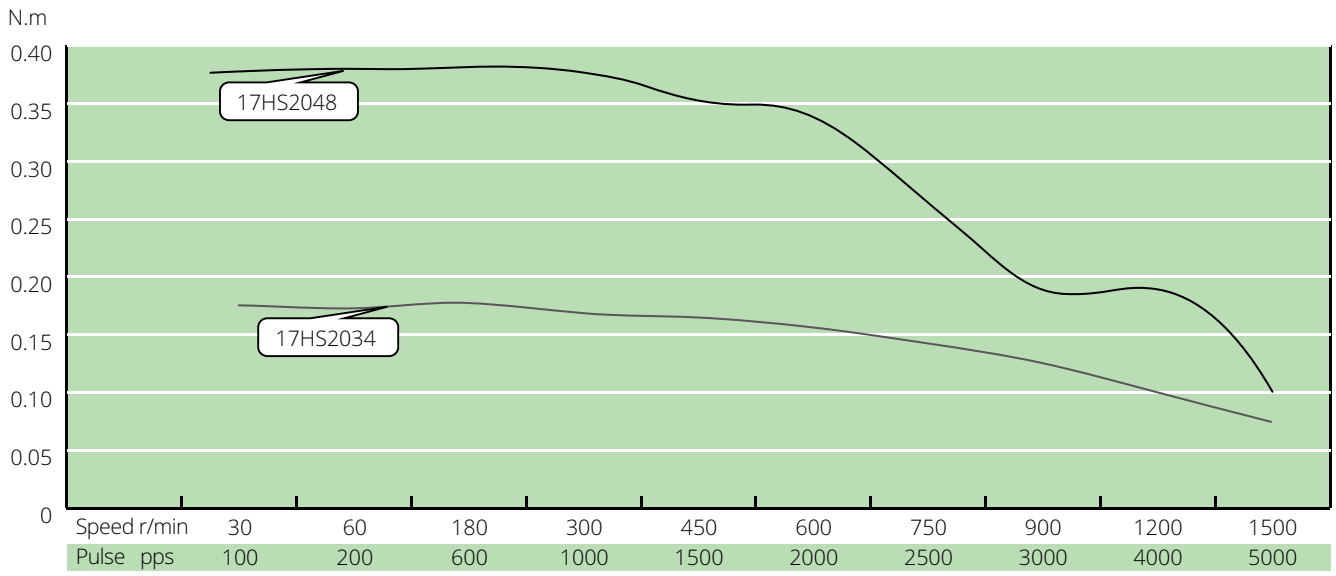
Motor Characteristics

Motor No.	Rated Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Holding torque (N·m)	Detent torque (N·m)	Motor Length (mm)
17HS2034	3.8	1	3.6	5	0.25	0.014	34.1
17HS2048	2.25	2.5	1	1.8	0.48	0.018	48.1

Dimensional Drawings



Torque Performance Curves



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.

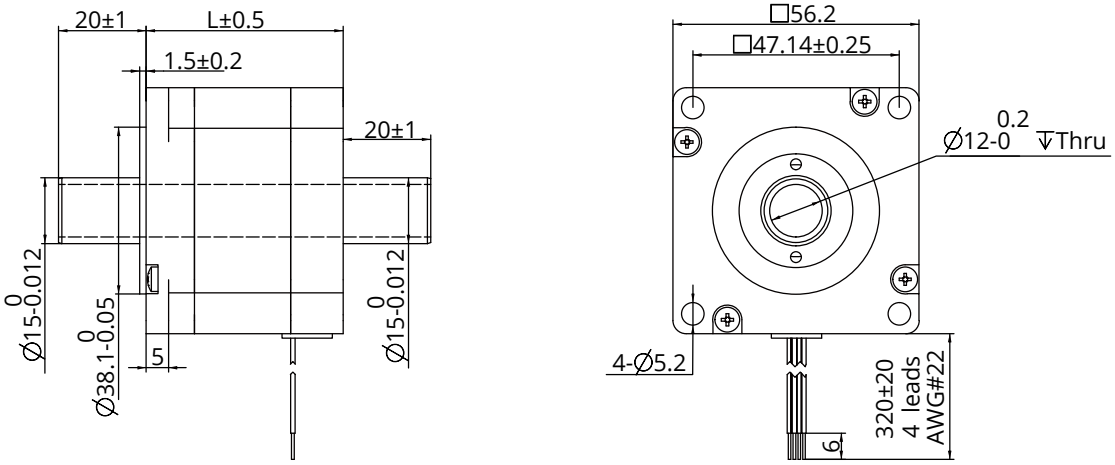
Size 23 (57mm) Series

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.

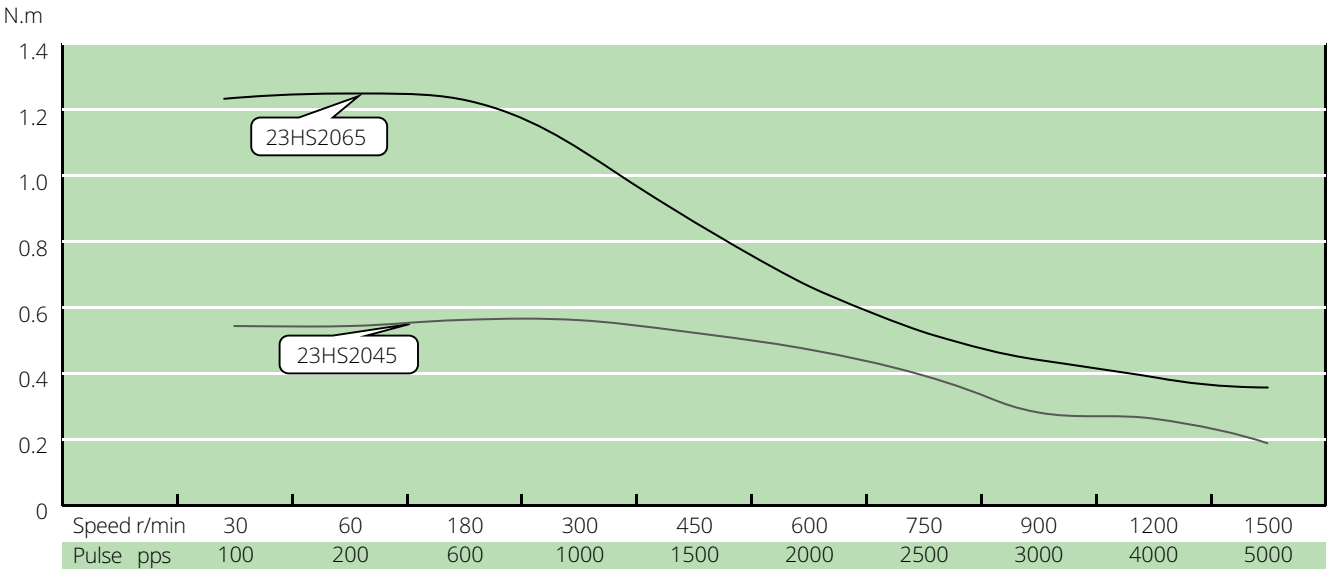
Motor Characteristics

Motor No.	Rated Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Holding torque (N·m)	Detent torque (N·m)	Motor Length (mm)
23HS2045	3.5	2	1.75	4.1	0.8	0.02	45
23HS2065	5	2.5	2	5.2	1.6	0.04	65

Dimensional Drawings



Torque Performance Curves



TEST CONDITION

Testing Voltage: 36Vdc, 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.

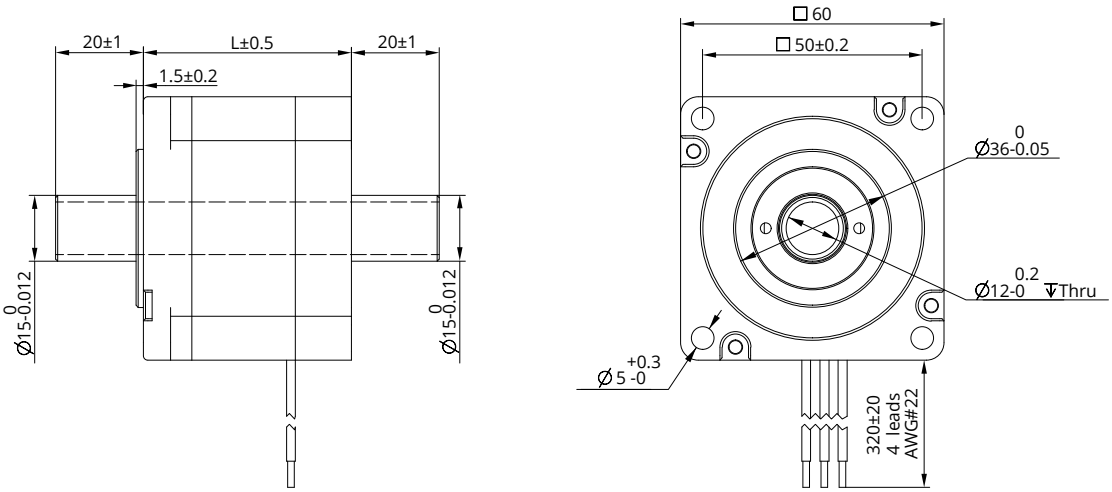
Size 24 (60mm) Series

The size 24 [60mm] Hollow Shaft Stepper Motor has Max. 1.9N·m of holding torque.
For special windings or customization of shaft,
also hollow type of encoder assembly,
Please contact DINGS' for further information.

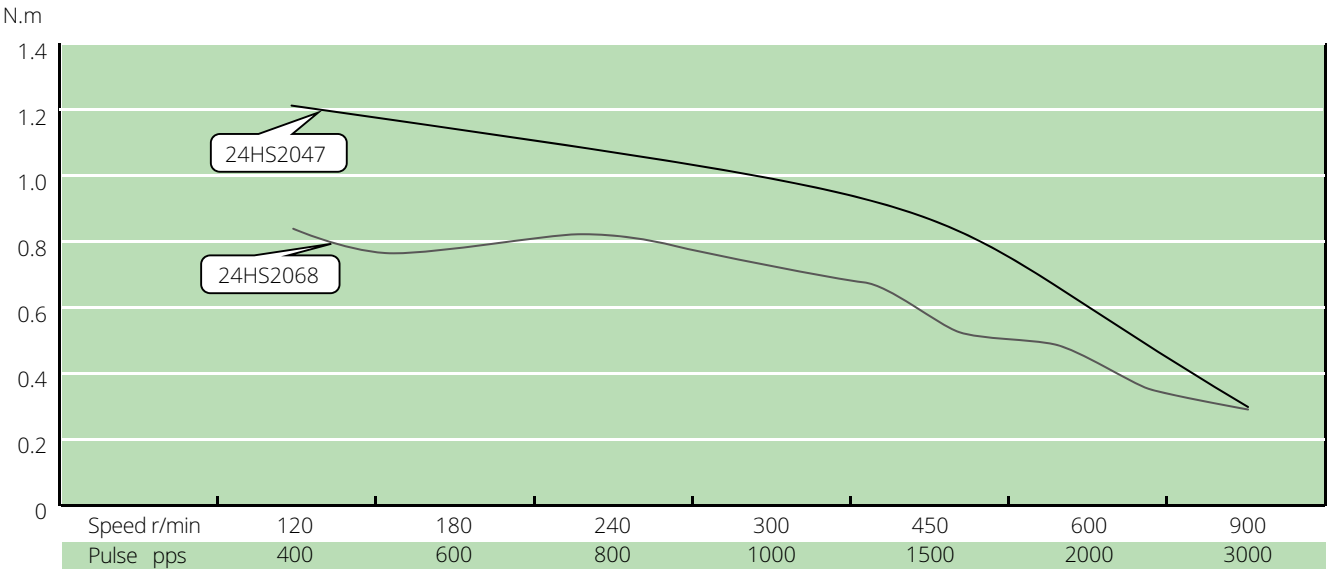
Motor Characteristics

Motor No.	Rated Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Holding torque (N·m)	Detent torque (N·m)	Motor Length (mm)
24HS2047	1.52	4	0.38	0.78	0.9	0.03	47
24HS2068	2.4	4	0.6	1.9	1.9	0.06	68

Dimensional Drawings



Torque Performance Curves



TEST CONDITION

Testing Voltage: 36Vdc, 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.

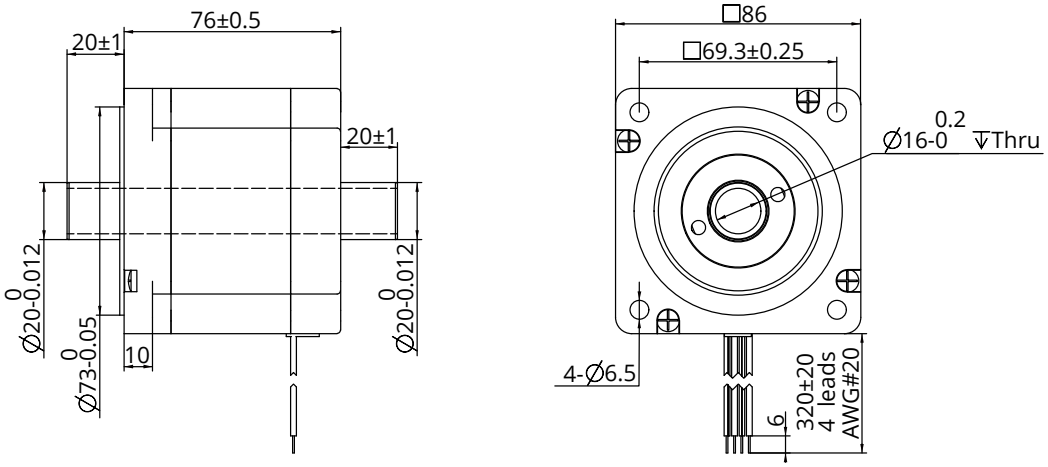
Size 34 (86mm) Series

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.

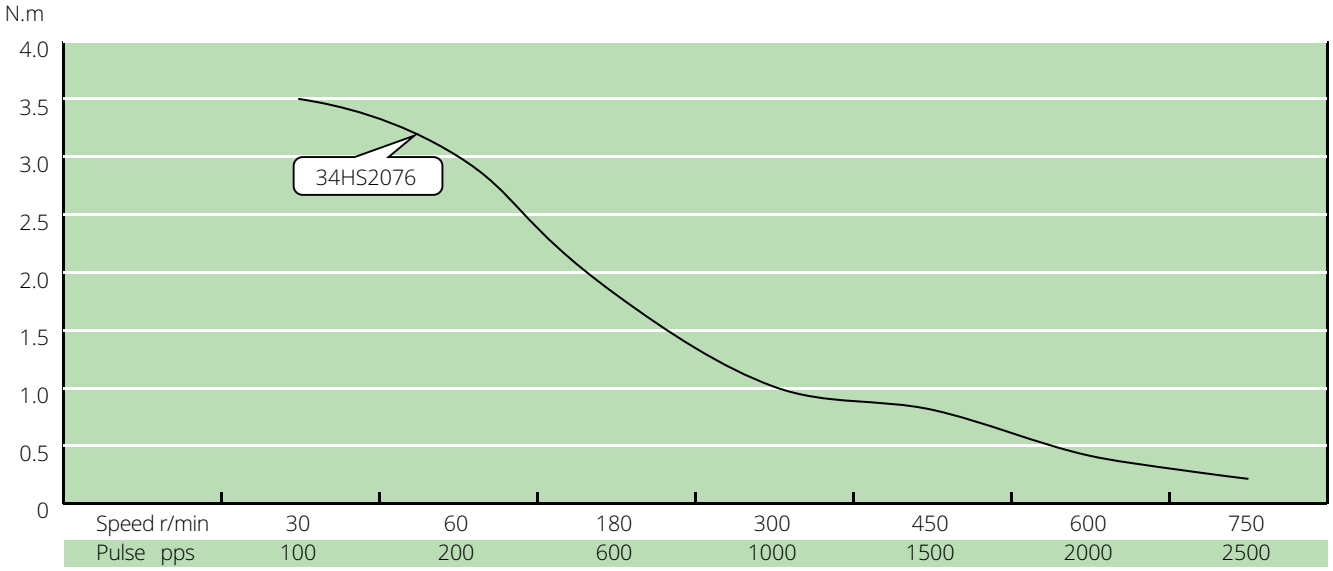
Motor Characteristics

Motor No.	Rated Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Holding torque (N·m)	Detent torque (N·m)	Motor Length (mm)
34HS2076	5.7	3	1.9	15	4.5	0.095	76

Dimensional Drawings



Torque Performance Curves



TEST CONDITION

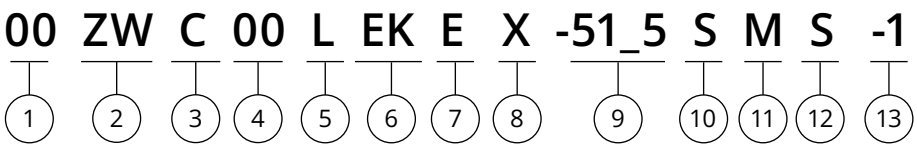
Testing Voltage: 48Vdc, Driver Model: DS-OLS8-FPD bipolar, chopper driver at rated current (rms).
Motor's thrust will be changed with different voltage and driver. 50% thrust margin is recommended.

D Brushless DC Motor

DINGS' provides 12 different sizes of Brushless DC motors have several advantages, including start and speed regulation, higher power density and over load capacity.

From 12mm to 130mm with power output ranging from 1.6W to 837W, DINGS' provides 12 frame sizes and according customer's requirements, higher capacity of Brushless DC Motors can be customized.

Part Number Construction



① Motor Size

Motor Size(mm)	12	16	22	28	36	42	57	60	86	90	110	130

② Product Name

ZW = Slotted Brushless DC Motor

③ Motor Shape

C = Circular Type

S = Square Type

④ Motor Length

Unit : mm

when the length involves decimal points, use "_" instead

⑤ Motor Casing

L = Aluminum

T = Stainless steel / Iron

X = Inorganic Shell

⑥ Option

EKX = Encoder (X = Encoder Recolution)

B = Brake

GX= Gearbox (X = Gear Ratio)

Note: When Options are not single,

please use in alphabetical order for example, "BEG"

⑦ Structure

E = External type

N = Non-Captive type

C = Electric Cylinder (Captive) type

K = Kaptive type

⑧ Lead Screw Code

Please refer to lead screw code selection table

⑨ Screw Length / Stroke

Kaptive = stroke distance

Non-captive = total length of screw

External = screw extension length from the mounting flange

⑩ Screw Surface Treatment

T = Teflon coating

S = Standard (No teflon coating)

⑪ End Machining

M = Metric

U = UNC

S = Smooth

C = Customize

N = None

⑫ Nut Style

S = Standard Flange Nut

A = Anti-Backlash Nut

C = Customized Nut

⑬ Customer Sequence Number

Example

Part Number	57ZWS40L-001
Description	General NEMA 23 size (57mm) Square type Brushless DC Motor 40mm motor length With case Customization No. 001

12mm Series

12ZWC30L-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.

12ZWC30L-1 can reach Max. 10,000RPM.

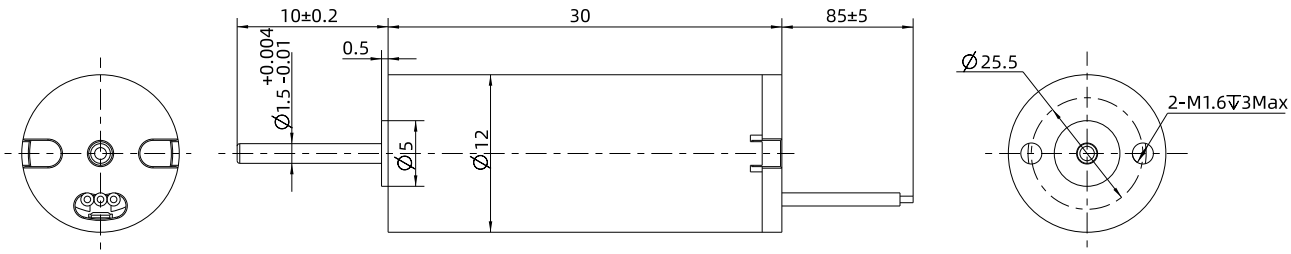
Motor Characteristics

Motor part number		12ZWC30L-1
Pole pair	-	2
Phase resistance	Ω	52.5
Phase inductance	mH	3.92
Winding connection method	-	Star shape
Insulation class	-	B
Duty type	-	S2
Commutation angle	-	120°
Insulation strength (Withstand voltage)	-	500VAC/1KHz/1mA/1s
Insulation resistance	-	100 MOhm 20C
Weight	g	18
Rated voltage	V	24
Rated power	W	1.6
Rated torque	mN·m	1
Rated speed	RPM	7700
Rated current	A	0.11
No load speed	RPM	10000
No load current	A	0.035
Motor efficiency	%	60
Noise (Ambient noise 20db, test distance 1m)	dB	< 50
Enclosure - Ambient thermal resistance	K/W	0.9
Ambient temperature	℃	20
Maximum winding temperature	℃	68.5
Torque constant	N·m/A	9.091
Back-EMF constant / Effective value	V/Krpm	1.68
Peak torque	mN·m	3
Peak current	A	0.33
Inertia moment	$g \cdot cm^2$	0.18

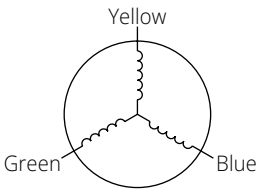
For stroke customization, please contact DINGS' or local representative.

12mm Series

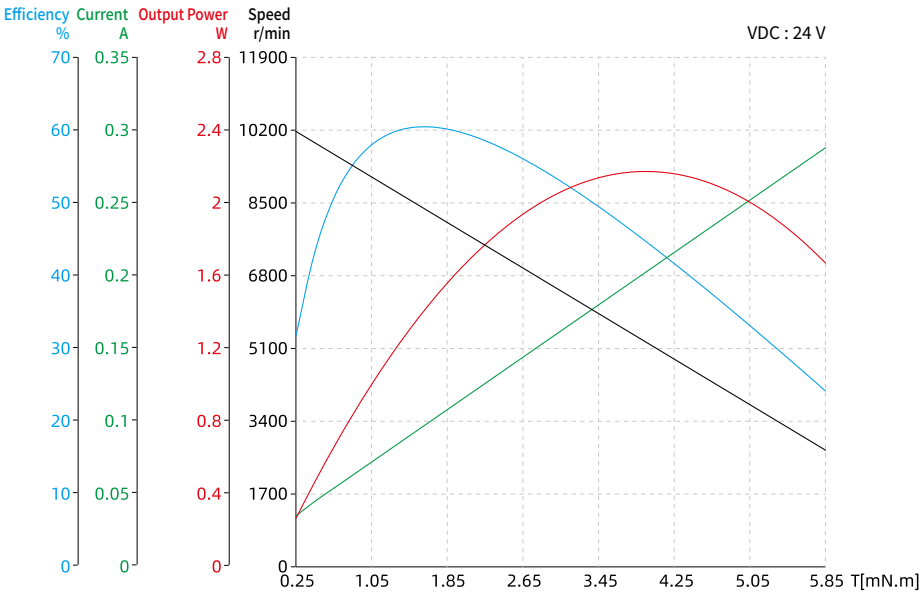
Dimensional Drawings



Lead-out type	Lead-out color	Function
UL3265 AWG26	Yellow	U phase
	Green	V phase
	Blue	W phase



Torque Performance Curves



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

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.

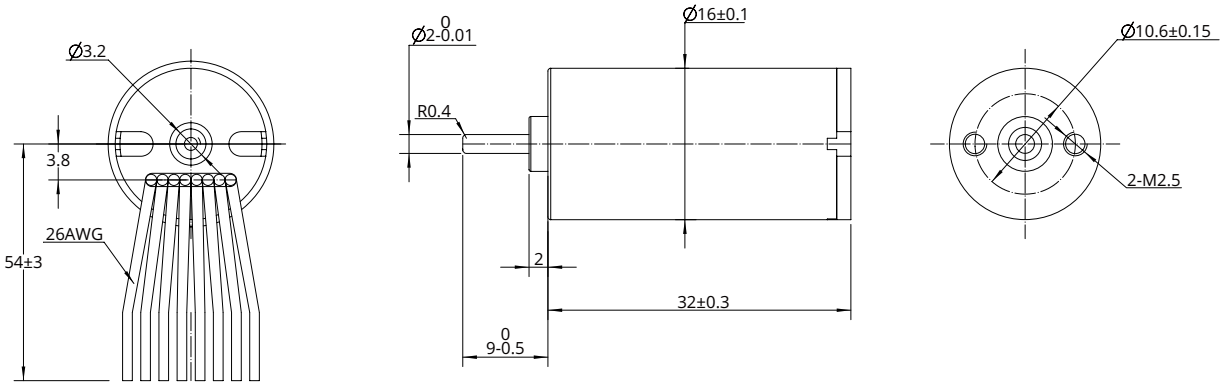
Motor Characteristics

Motor part number		16ZWC32L-1
Pole pair	-	2
Phase resistance	Ω	6.5
Phase inductance	mH	0.78
Winding connection method	-	Star shape
Insulation class	-	B
Duty type	-	S2
Feedback method	-	Hall sensors
Commutation angle	-	120°
Insulation strength (Withstand voltage)	-	500VAC/1KHz/1mA/1s
Insulation resistance	-	100 MOhm 20C
Weight	g	25.5
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
Static torque	mN·m	4.5
Noise (Ambient noise 20db, test distance 1m)	dB	< 50
Enclosure - Ambient thermal resistance	K/W	0.9
Ambient temperature	℃	25
Maximum winding temperature	℃	68.5
Torque constant	N·m/A	0.011
Back-EMF constant / Effective value	V/Krpm	1.05
Peak torque	N·m	0.021
Peak current	A	1.95
Inertia moment	$g \cdot cm^2$	0.45

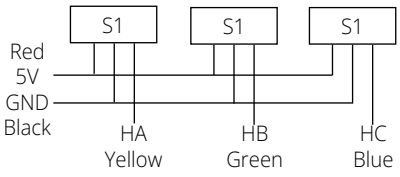
For stroke customization, please contact DINGS' or local representative.

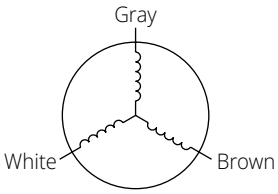
16mm Series

Dimensional Drawings

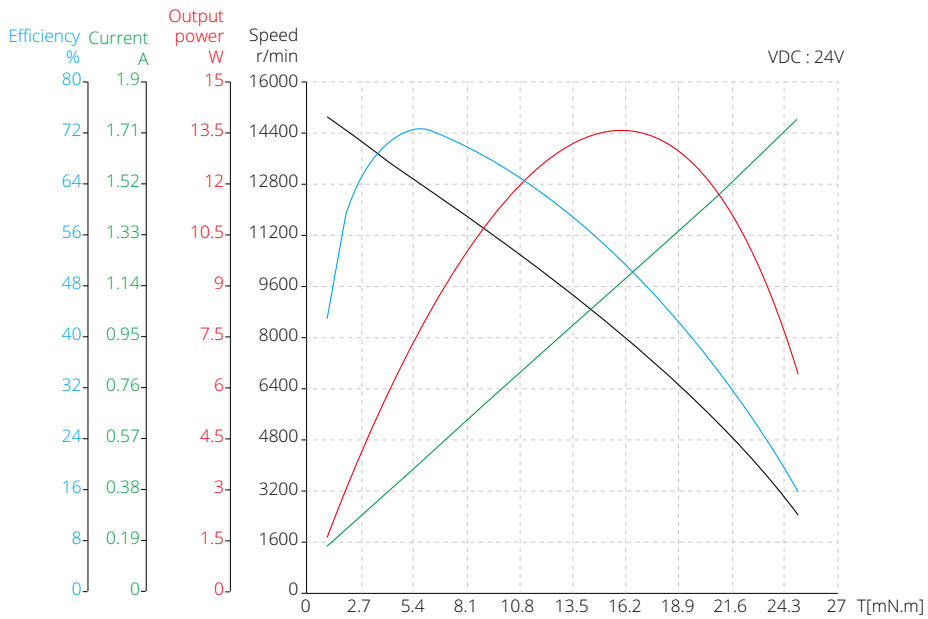


Lead-out type	Lead-out color	Function
UL3265 AWG26	Yellow	Hall U (Hu)
	Green	Hall V (Hv)
	Blue	Hall W (Hw)
	Red	Hall power supply positive (Vcc)
	Black	Hall power supply negative (GND)
UL3265 AWG26	Gray	U phase
	White	V phase
	Brown	W phase





Torque Performance Curves



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

22mm Series

22mm Brushless DC Motor has Max. 0.019N·m rated torque and it can generate 19.9W capacity of rated power.

22mm motor has Star winding connection and 2 pole pairs motor with Hall sensors feed back method as standard.

In addition, and gearbox and incremental encoder is available.

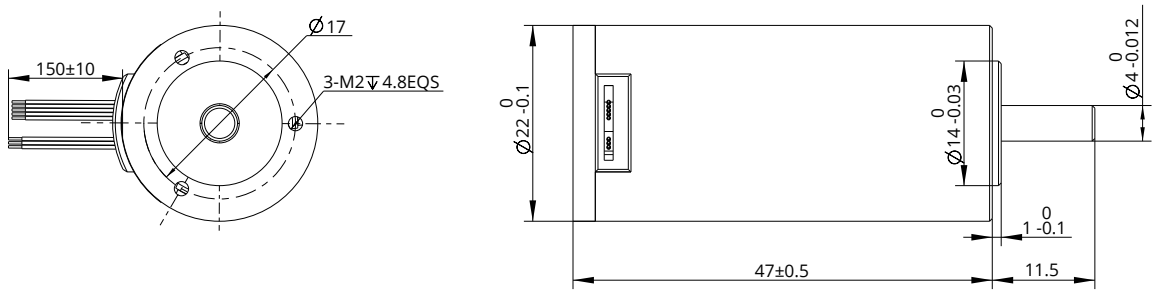
Motor Characteristics

Motor part number		22ZWC48L-1
Pole pair	-	2
Phase resistance	Ω	3.053
Phase inductance	mH	0.54
Winding connection method	-	Star shape
Insulation class	-	B
Duty type	-	S2
Feedback method	-	Hall sensors
Commutation angle	-	120°
Insulation strength (Withstand voltage)	-	500VAC/1KHz/1mA/1s
Insulation resistance	-	100 MOhm 20C
Weight	g	200
Rated voltage	V	24
Rated power	W	19.9
Rated torque	N·m	0.019
Rated speed	RPM	10000
Rated current	A	1.2
No load speed	RPM	12000
No load current	A	0.24
Motor efficiency	%	70
Static torque	mN·m	3.42
Noise (Ambient noise 20db, test distance 1m)	dB	< 50
Enclosure - Ambient thermal resistance	K/W	0.85
Ambient temperature	℃	25
Maximum winding temperature	℃	75
Torque constant	N·m/A	0.016
Back-EMF constant / Effective value	V/Krpm	1.67
Peak torque	N·m	0.057
Peak current	A	3.6
Inertia moment	$g \cdot cm^2$	1.1

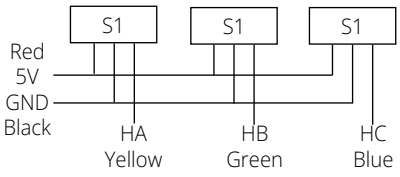
For stroke customization, please contact DINGS' or local representative.

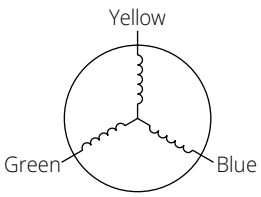
22mm Series

Dimensional Drawings

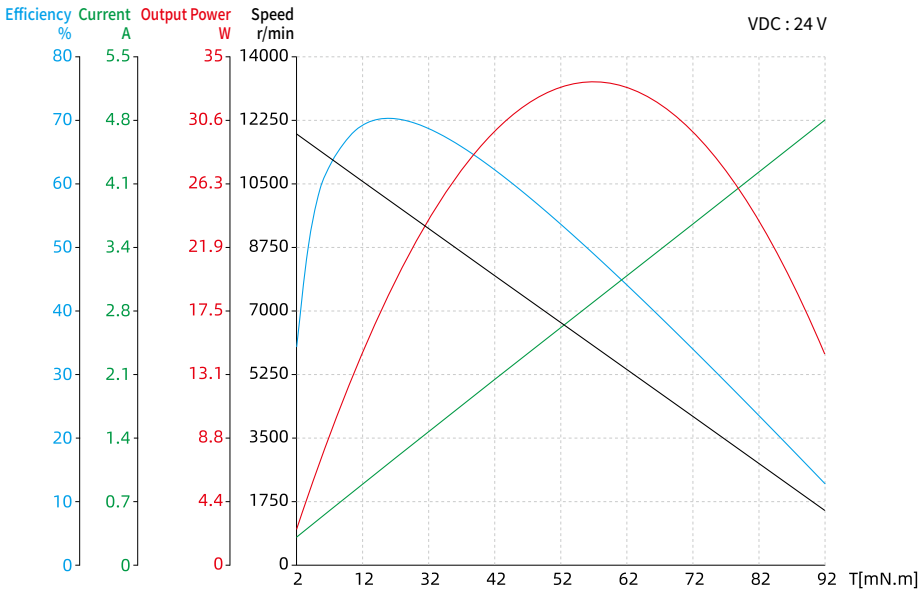


Lead-out type	Lead-out color	Function
UL3265 AWG26	Yellow	Hall U (Hu)
	Green	Hall V (Hv)
	Blue	Hall W (Hw)
	Red	Hall power supply positive (Vcc)
	Black	Hall power supply negative (GND)
UL3265 AWG22	Yellow	U phase
	Green	V phase
	Blue	W phase





Torque Performance Curves



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

28mm Series

28mm Brushless DC Motor has Max. 0.05N·m rated torque and it can generate 52.4W capacity of rated power.

28mm motor has Star winding connection and 2 pole pairs motor with Hall sensors feed back method as standard.

In addition, and gearbox and incremental encoder is available.

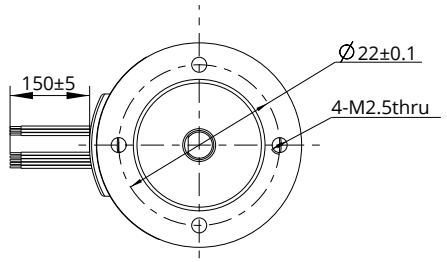
Motor Characteristics

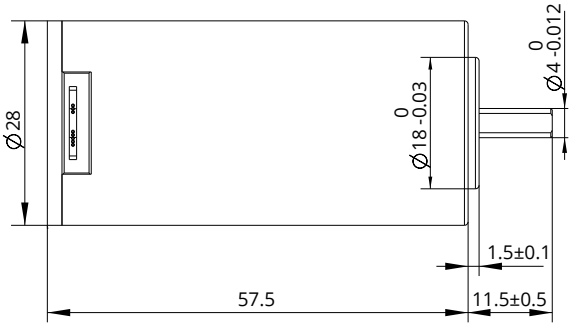
Motor part number		28ZWC58L-1
Pole pair	-	2
Phase resistance	Ω	0.676
Phase inductance	mH	0.2
Winding connection method	-	Star shape
Insulation class	-	B
Duty type	-	S2
Feedback method	-	Hall sensors
Commutation angle	-	120°
Insulation strength (Withstand voltage)	-	500VAC/1KHz/1mA/1s
Insulation resistance	-	100 MOhm 20C
Weight	g	300
Rated voltage	V	24
Rated power	W	52.4
Rated torque	N·m	0.05
Rated speed	RPM	10000
Rated current	A	3
No load speed	RPM	12000
No load current	A	0.5
Motor efficiency	%	77
Static torque	mN·m	12.8
Noise (Ambient noise 20db, test distance 1m)	dB	< 50
Enclosure - Ambient thermal resistance	K/W	0.38
Ambient temperature	℃	25
Maximum winding temperature	℃	75
Torque constant	N·m/A	0.017
Back-EMF constant / Effective value	V/Krpm	1.78
Peak torque	N·m	0.15
Peak current	A	9
Inertia moment	$Kg{\cdot}cm^2$	0.011

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

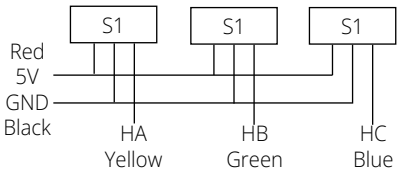
28mm Series

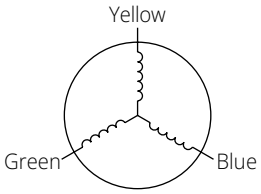
Dimensional Drawings



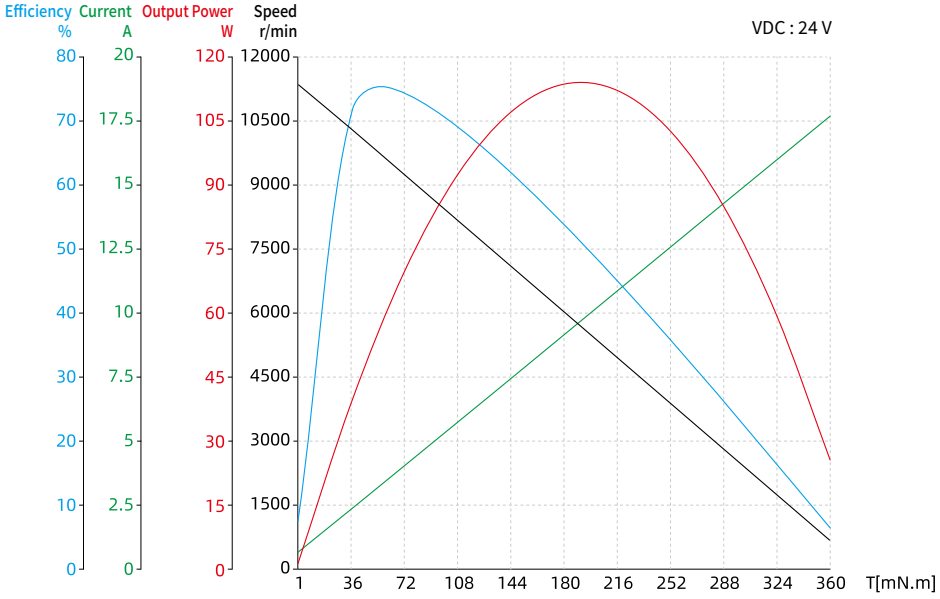


Lead-out type	Lead-out color	Function
UL3265 AWG26	Yellow	Hall U (Hu)
	Green	Hall V (Hv)
	Blue	Hall W (Hw)
	Red	Hall power supply positive (Vcc)
	Black	Hall power supply negative (GND)
UL3265 AWG22	Yellow	U phase
	Green	V phase
	Blue	W phase





Torque Performance Curves



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

36mm Series

36mm Brushless DC Motor has Max. 0.125N·m rated torque and it can generate 130.9W capacity of rated power.

36mm motor has Star winding connection and 2 pole pairs motor with Hall sensors feed back method as standard.

In addition, and gearbox and incremental encoder is available.

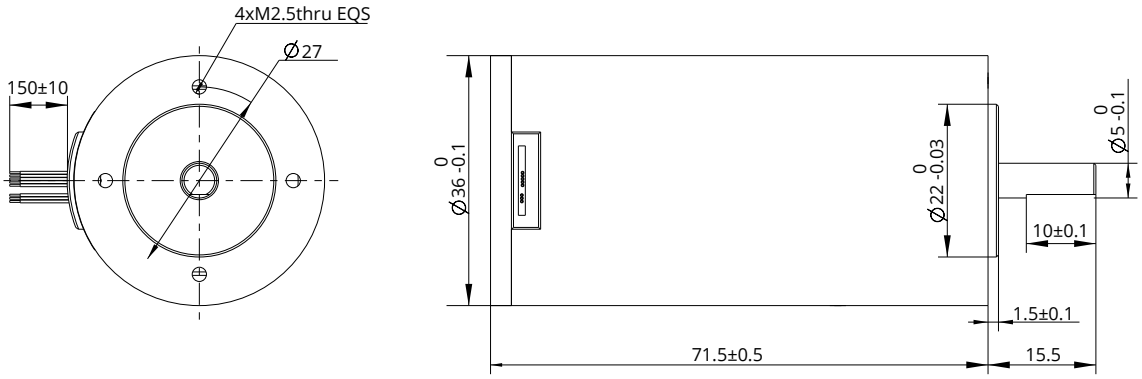
Motor Characteristics

Motor part number		36ZWC72L-1
Pole pair	-	2
Phase resistance	Ω	0.67
Phase inductance	mH	0.37
Winding connection method	-	Star shape
Insulation class	-	B
Duty type	-	S2
Feedback method	-	Hall sensors
Commutation angle	-	120°
Insulation strength (Withstand voltage)	-	500VAC/1KHz/1mA/1s
Insulation resistance	-	100 MOhm 20C
Weight	g	600
Rated voltage	V	48
Rated power	W	130.9
Rated torque	N·m	0.125
Rated speed	RPM	10000
Rated current	A	3.6
No load speed	RPM	12000
No load current	A	0.5
Motor efficiency	%	80
Static torque	mN·m	35.5
Noise (Ambient noise 20db, test distance 1m)	dB	< 50
Enclosure - Ambient thermal resistance	K/W	0.24
Ambient temperature	℃	25
Maximum winding temperature	℃	75
Torque constant	N·m/A	0.035
Back-EMF constant / Effective value	V/Krpm	3.67
Peak torque	N·m	0.375
Peak current	A	10.8
Inertia moment	$Kg{\cdot}cm^2$	0.037

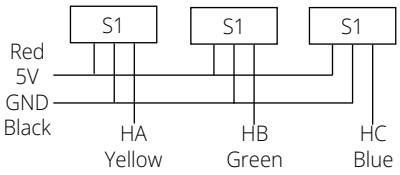
For stroke customization, please contact DINGS' or local representative.

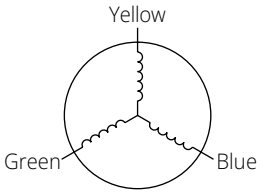
36mm Series

Dimensional Drawings

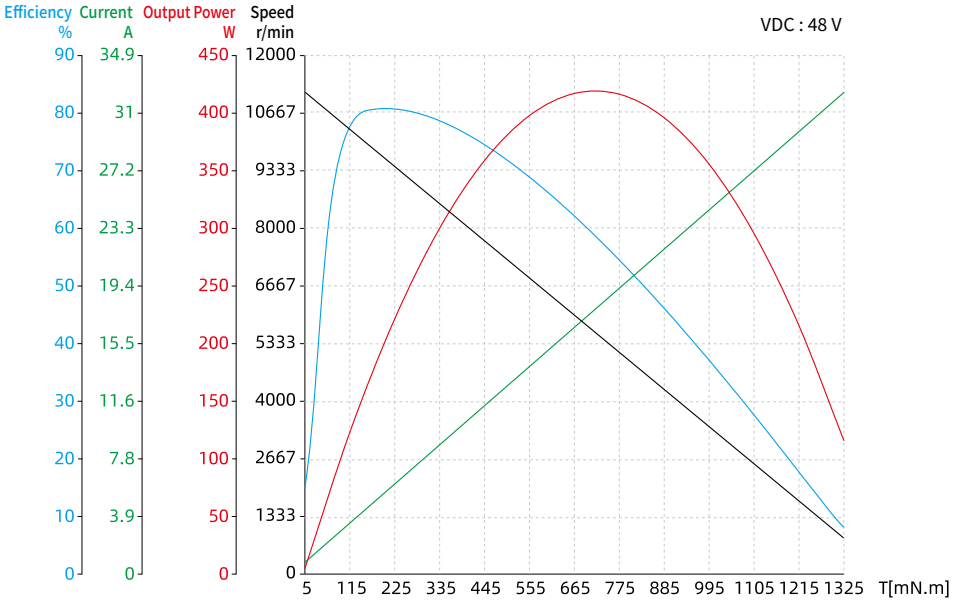


Lead-out type	Lead-out color	Function
UL3265 AWG26	Yellow	Hall U (Hu)
	Green	Hall V (Hv)
	Blue	Hall W (Hw)
	Red	Hall power supply positive (Vcc)
	Black	Hall power supply negative (GND)
UL3265 AWG22	Yellow	U phase
	Green	V phase
	Blue	W phase





Torque Performance Curves



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

42mm Series

42mm Brushless DC Motor has Max. 0.2N·m rated torque and it can generate 209.4W capacity of rated power.

42mm motors have Star winding connection and 2 or 5 pole pairs motor with Hall sensors feed back method as standard.

In addition, and gearbox and incremental encoder is available.

Motor Characteristics

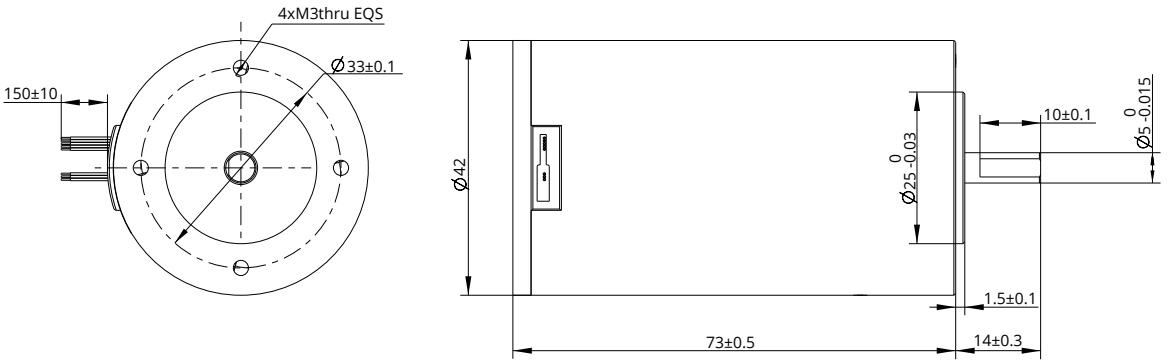
Motor part number		42ZWC75L-1	42ZWC75L-2	42ZWS50X-1	42ZWS63X-1	42ZWS75X-1
Pole pair	-	2	2	5	5	5
Phase resistance	Ω	0.24	0.19	2.482	1.261	0.987
Phase inductance	mH	0.15	0.12	1.062	0.586	0.434
Winding connection method	-	Star shape	Star shape	Star shape	Star shape	Star shape
Insulation class	-	B	B	B	B	B
Duty type	-	S2	S2	S1	S1	S1
Feedback method	-	Hall sensors	Hall sensors	Hall sensors	Hall sensors	Hall sensors
Commutation angle	-	120°	120°	120°	120°	120°
Insulation strength (Withstand voltage)	-	500VAC/1KHz/ 1mA/1s	500VAC/1KHz/ 1mA/1s	500VAC/1KHz/ 1mA/1s	500VAC/1KHz/ 1mA/1s	500VAC/1KHz/ 1mA/1s
Insulation resistance	-	100 MOhm 20C	100 MOhm 20C	100 MOhm 20C	100 MOhm 20C	100 MOhm 20C
Weight	g	800	800	260	380	500
Rated voltage	V	48	24	24	24	24
Rated power	W	209.4	83	19.6	39.3	58.1
Rated torque	N·m	0.2	0.08	0.0625	0.125	0.185
Rated speed	RPM	10000	10000	3000	3000	3000
Rated current	A	5.5	4.3	1.2	2.4	3.6
No load speed	RPM	12000	12000	4000	4000	4000
No load current	A	0.86	0.7	0.15	0.3	0.45
Motor efficiency	%	80	80	72	77.6	76
Noise (Ambient noise 20db, test distance 1m)	dB	< 50	< 50	< 50	< 50	< 50
Enclosure - Ambient thermal resistance	K/W	0.085	0.25	0.75	0.38	0.25
Ambient temperature	℃	25	25	31.3	31.3	31.3
Maximum winding temperature	℃	75	75	68.5	68.5	68.5
Torque constant	N·m/A	0.036	0.019	0.052	0.052	0.051
Back-EMF constant / Effective value	V/Krpm	3.77	1.99	5.44	5.44	5.44
Peak torque	N·m	0.6	0.24	0.1875	0.375	0.555
Peak current	A	16.5	12.9	3.6	7.2	10.8
Inertia moment	$Kg{\cdot}cm^2$	0.084	0.084	0.05	0.1	0.15

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

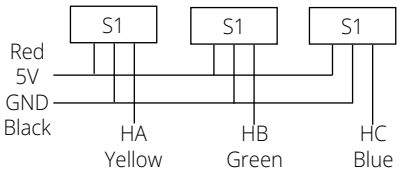
42mm Series

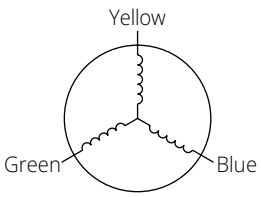
Dimensional Drawings

42ZWC75L

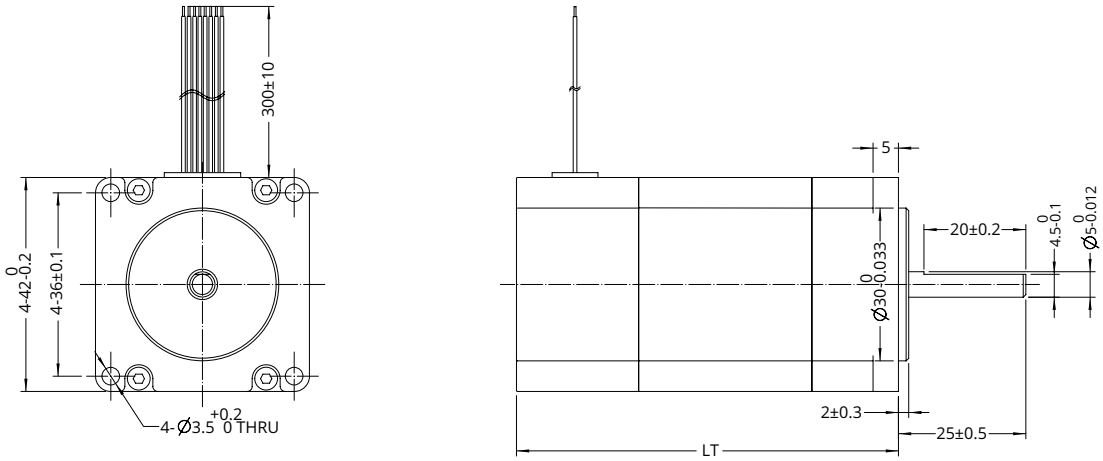


Lead-out type	Lead-out color	Function
UL3265 AWG26	Yellow	Hall U (Hu)
	Green	Hall V (Hv)
	Blue	Hall W (Hw)
	Red	Hall power supply positive (Vcc)
	Black	Hall power supply negative (GND)
UL3265 AWG22	Yellow	U phase
	Green	V phase
	Blue	W phase

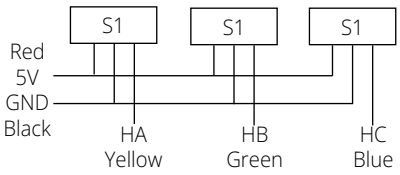


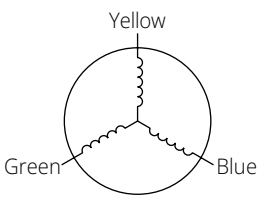


42ZWS**X



Lead-out type	Lead-out color	Function
UL3265 AWG26	Yellow	Hall U (Hu)
	Green	Hall V (Hv)
	Blue	Hall W (Hw)
	Red	Hall power supply positive (Vcc)
	Black	Hall power supply negative (GND)
UL3265 AWG22	Yellow	U phase
	Green	V phase
	Blue	W phase

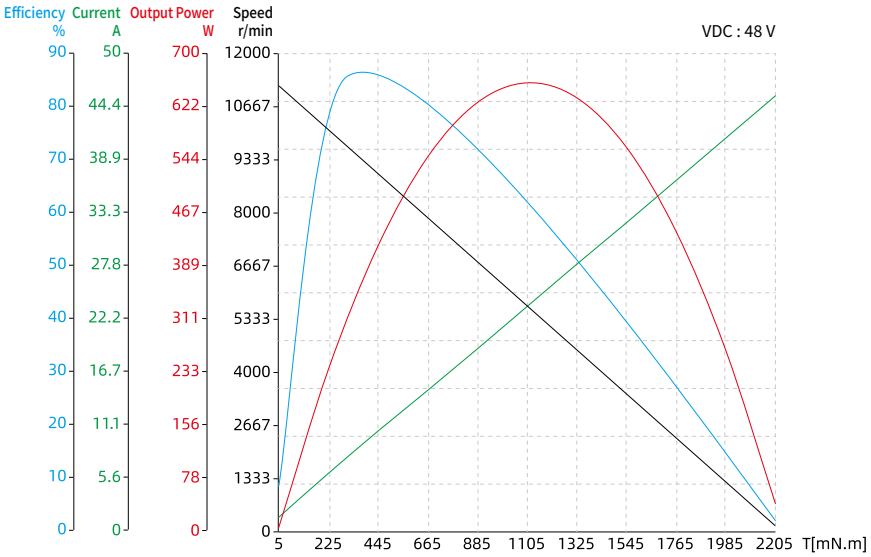




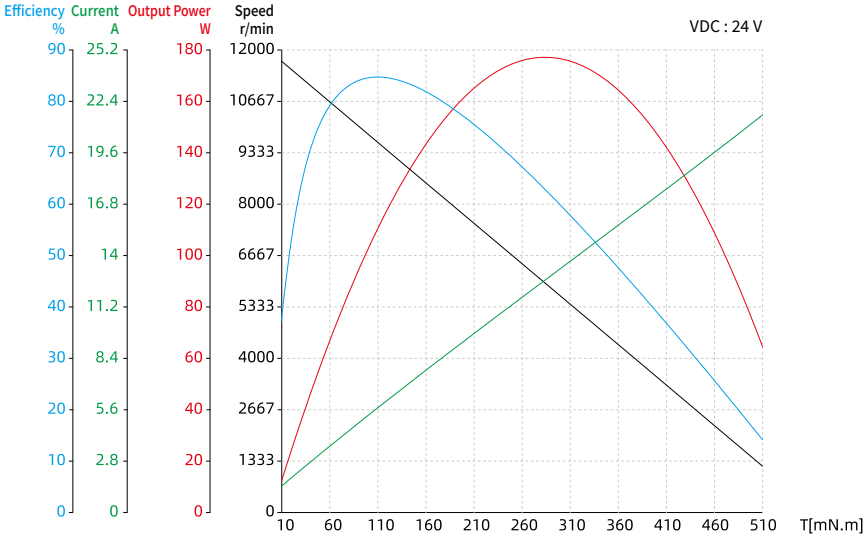
Note : All drawings are 1st Angle Projection - ISO Compliant (3D models available)

Torque Performance Curves

42ZWC75L-1

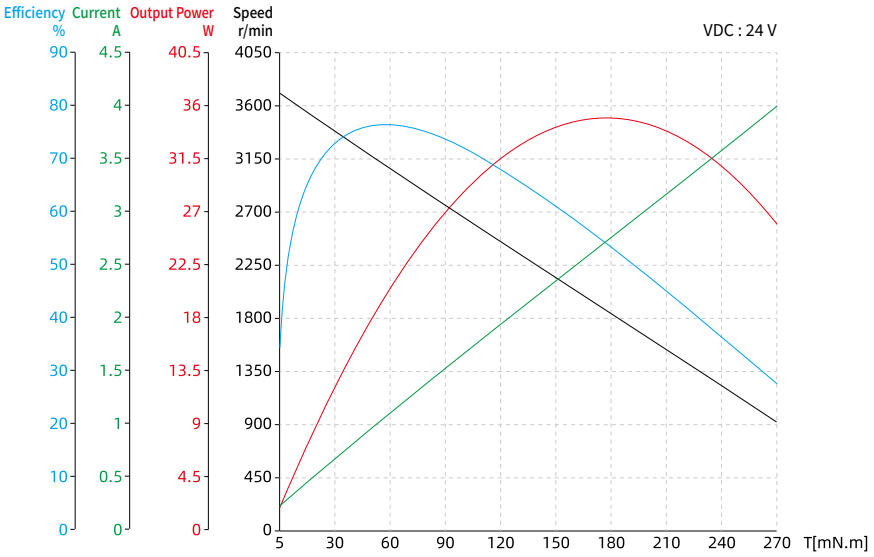


42ZWC75L-2

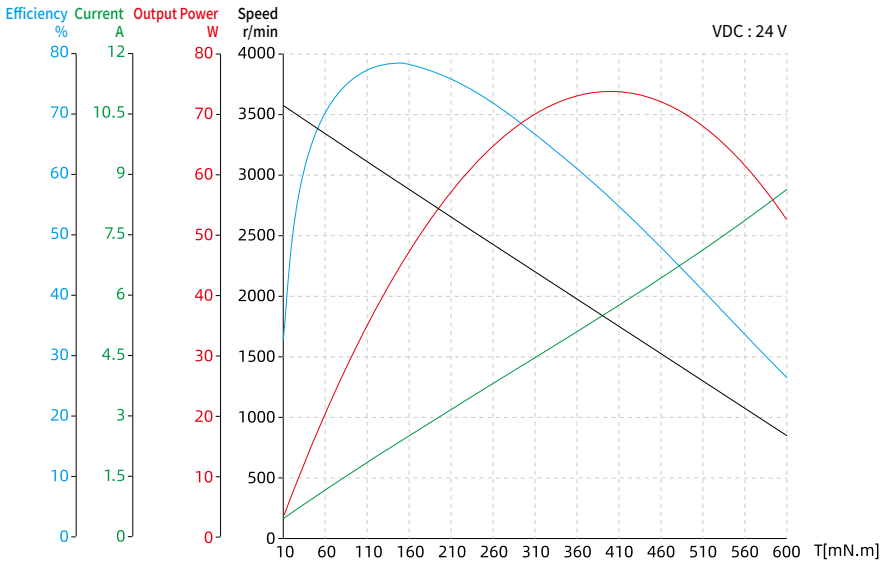


42mm Series

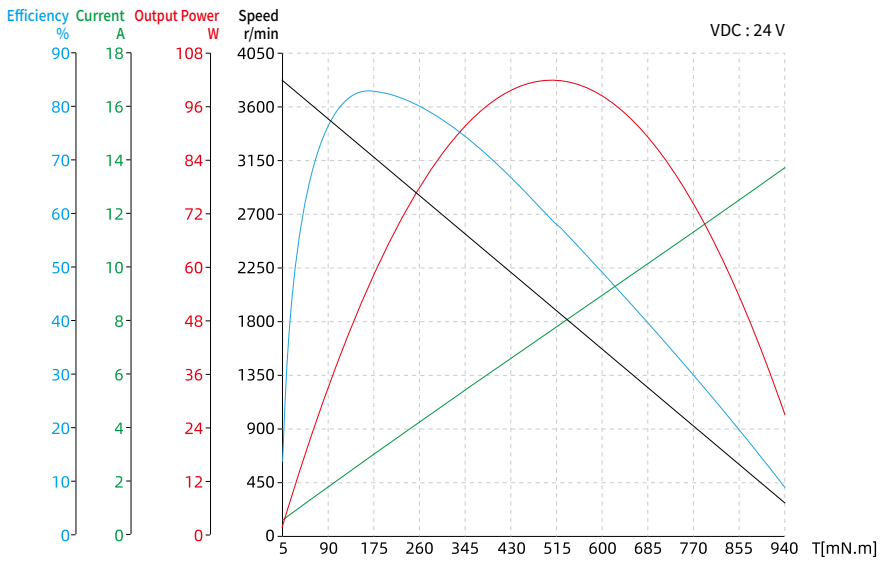
- 42ZWS50X-1



- 42ZWS63X-1



- 42ZWS75X-1



57mm Series

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

57mm motors have Star winding connection and 5 pole pairs motors with Hall sensors feed back method as standard.

In addition, gearbox and incremental encoder is available.

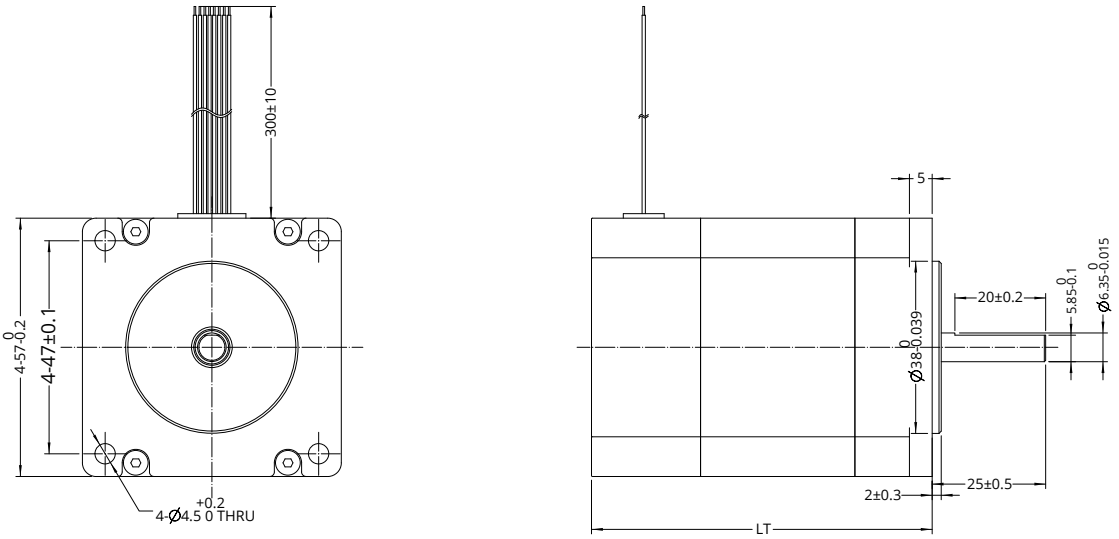
Motor Characteristics

Motor part number		57ZWS50X-1	57ZWS63X-1	57ZWS75X-1
Pole pair	-	5	5	5
Phase resistance	Ω	0.958	0.473	0.301
Phase inductance	mH	0.742	0.357	0.205
Winding connection method	-	Star shape	Star shape	Star shape
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 MOhm 20C	100 MOhm 20C	100 MOhm 20C
Weight	kg	0.42	0.65	0.87
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	%	78	80	82
Noise (Ambient noise 20db, test distance 1m)	dB	< 50	< 50	< 50
Enclosure - Ambient thermal resistance	K/W	0.53	0.27	0.18
Ambient temperature	℃	29	29	29
Maximum winding temperature	℃	77.4	77.4	77.4
Torque constant	N·m/A	0.054	0.054	0.055
Back-EMF constant / Effective value	V/Krpm	5.66	5.66	5.66
Peak torque	N·m	0.357	0.66	0.99
Peak current	A	6.6	12.3	18
Inertia moment	$Kg{\cdot}cm^2$	0.19	0.38	0.56

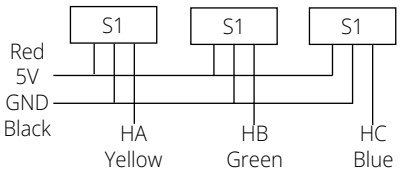
For stroke customization, please contact DINGS' or local representative.

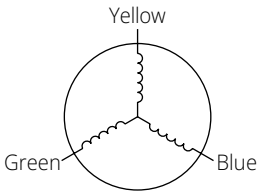
57mm Series

Dimensional Drawings



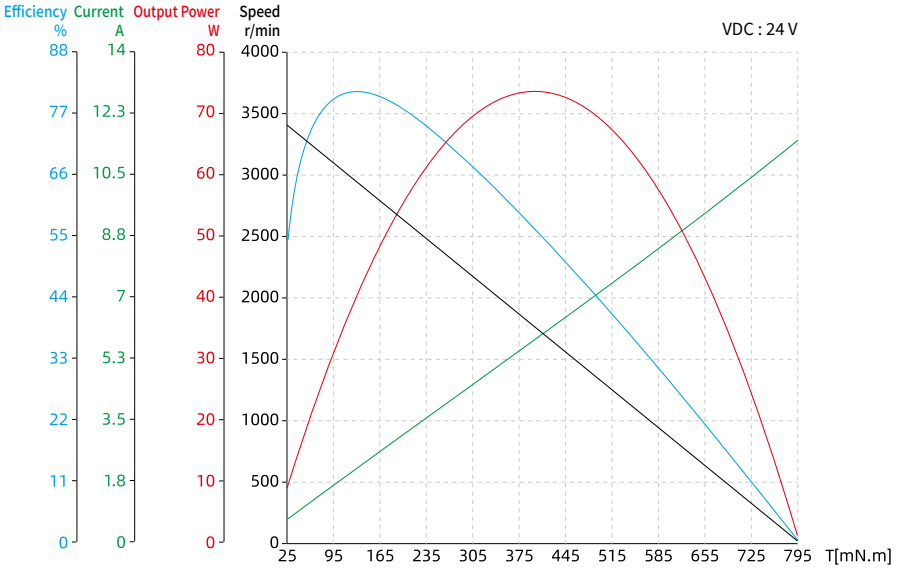
Lead-out type	Lead-out color	Function
UL3265 AWG26	Yellow	Hall U (Hu)
	Green	Hall V (Hv)
	Blue	Hall W (Hw)
	Red	Hall power supply positive (Vcc)
	Black	Hall power supply negative (GND)
UL3265 AWG18	Yellow	U phase
	Green	V phase
	Blue	W phase





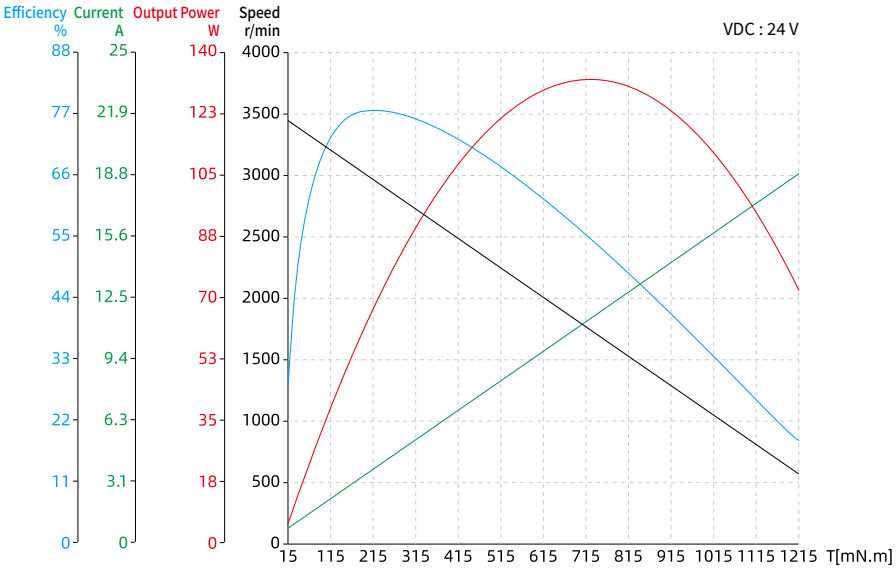
Torque Performance Curves

- 57ZWS50X-1

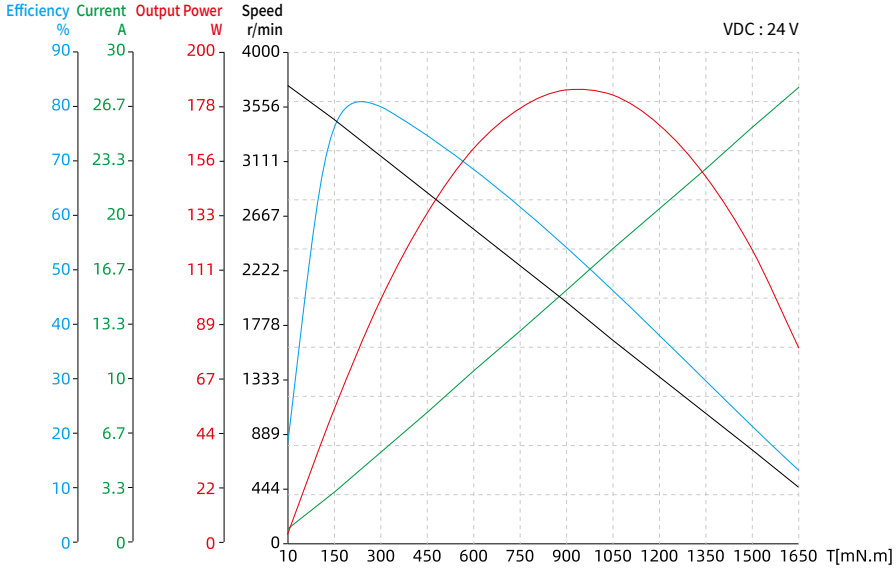


Note : All drawings are 1st Angle Projection - ISO Compliant (3D models available)

- 57ZWS63X-1



- 57ZWS75X-1



60mm Series

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

60mm motors have Star winding connection and 5 pole pairs motors with Hall sensors feed back method as standard.

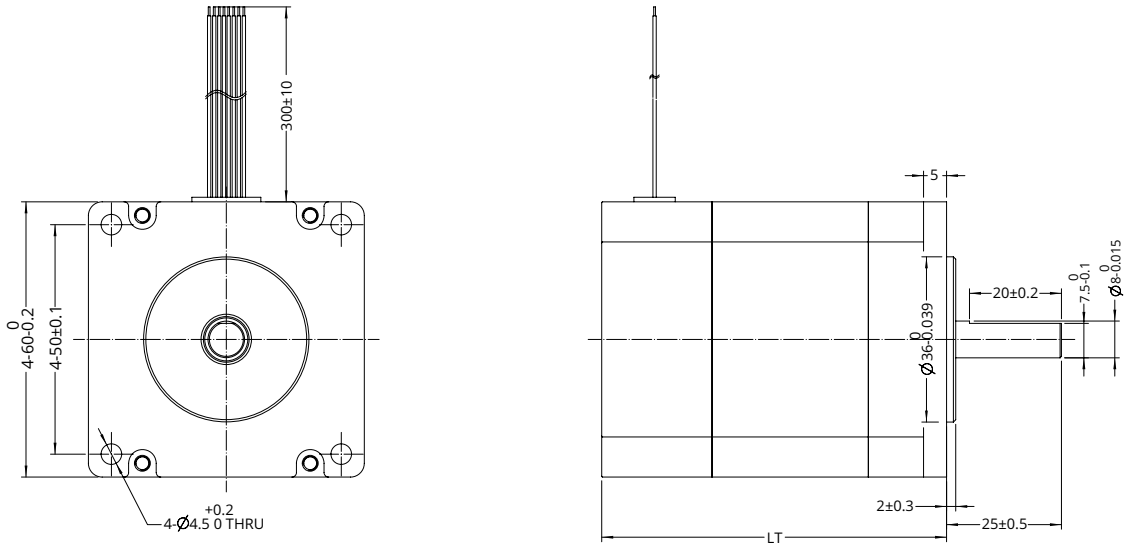
In addition, gearbox and incremental encoder is available.

Motor Characteristics

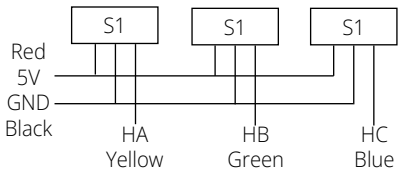
Motor part number		60ZWS50X-1	60ZWS63X-1	60ZWS75X-1
Pole pair	-	5	5	5
Phase resistance	Ω	0.886	0.334	0.233
Phase inductance	mH	0.682	0.305	0.183
Winding connection method	-	Star shape	Star shape	Star shape
Insulation class	-	B	B	B
Duty type	-	S1	S1	S1
Feedback method	-	Hall sensors	Hall sensors	Hall 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 MOhm 20C	100 MOhm 20C	100 MOhm 20C
Weight	kg	0.51	0.77	1
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	%	81.1	82.6	83
Noise (Ambient noise 20db, test distance 1m)	dB	< 50	< 50	< 50
Enclosure - Ambient thermal resistance	K/W	0.57	0.28	0.19
Ambient temperature	℃	30	30	30
Maximum winding temperature	℃	87	87	87
Torque constant	N·m/A	0.056	0.056	0.056
Back-EMF constant / Effective value	V/Krpm	5.87	5.87	5.87
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

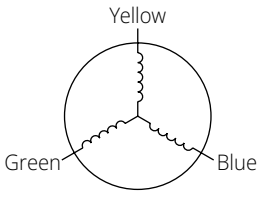
For stroke customization, please contact DINGS' or local representative.

Dimensional Drawings



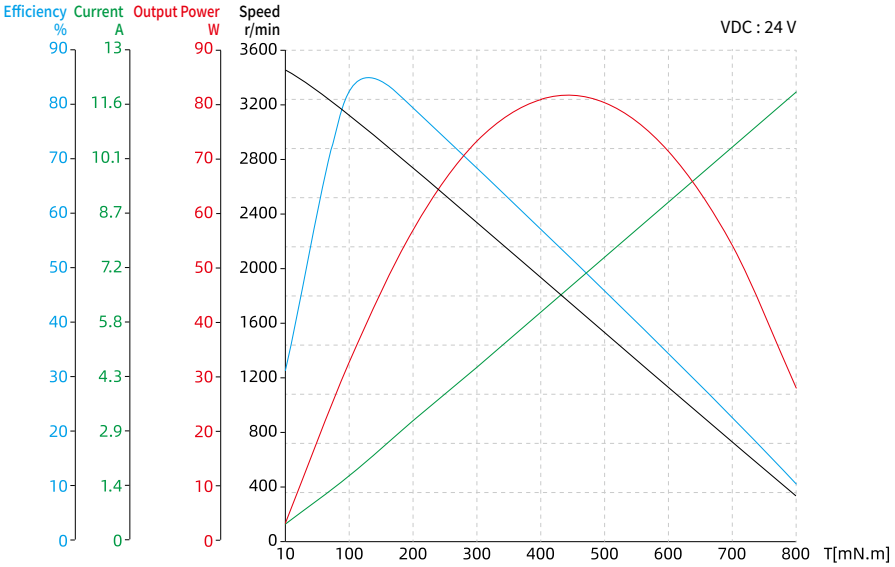
Lead-out type	Lead-out color	Function
UL3265 AWG26	Yellow	Hall U (Hu)
	Green	Hall V (Hv)
	Blue	Hall W (Hw)
	Red	Hall power supply positive (Vcc)
	Black	Hall power supply negative (GND)
UL3265 AWG18	Yellow	U phase
	Green	V phase
	Blue	W phase





Torque Performance Curves

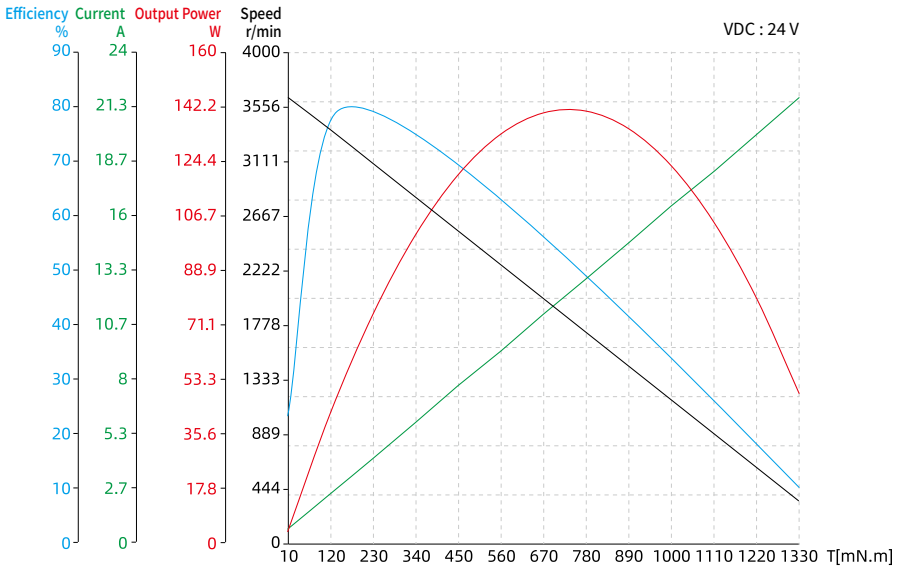
- 60ZWS50X-1



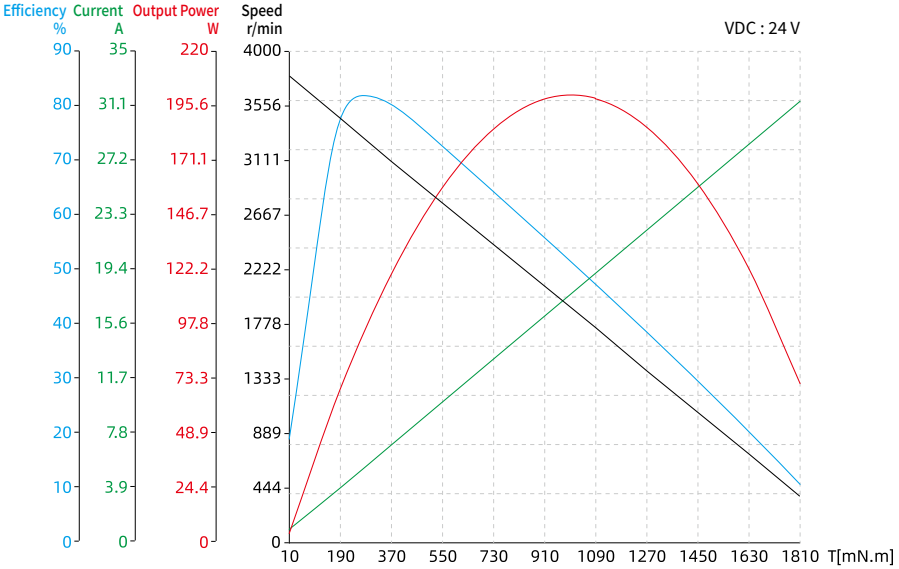
Note : All drawings are 1st Angle Projection - ISO Compliant (3D models available)

60mm Series

- 60ZWS63X-1



- 60ZWS75X-1



86mm Series

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

86mm motors have Star winding connection and 5 pole pairs motors with Hall sensors feed back method as standard.

In addition, gearbox and incremental encoder is available.

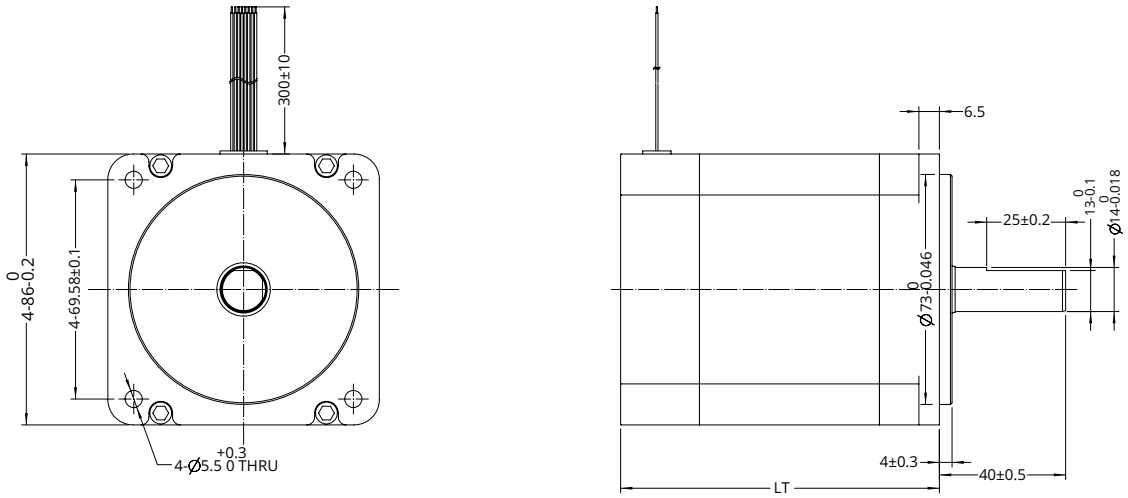
Motor Characteristics

Motor part number		86ZWS61X-1	86ZWS81X-1	86ZWS101X-1
Pole pair	-	5	5	5
Phase resistance	Ω	0.492	0.21	0.13
Phase inductance	mH	1.139	0.44	0.25
Winding connection method	-	Star shape	Star shape	Star shape
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 MOhm 20C	100 MOhm 20C	100 MOhm 20C
Weight	kg	1.38	2.18	3
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	3600	3600	3600
No load current	A	0.35	0.7	1.05
Motor efficiency	%	86.5	85.5	83.7
Noise (Ambient noise 20db, test distance 1m)	dB	< 50	< 50	< 50
Enclosure - Ambient thermal resistance	K/W	0.61	0.31	0.2
Ambient temperature	℃	30	30	30
Maximum winding temperature	℃	90	90	90
Torque constant	N·m/A	0.106	0.106	0.106
Back-EMF constant / Effective value	V/Krpm	11.1	11.1	11.1
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

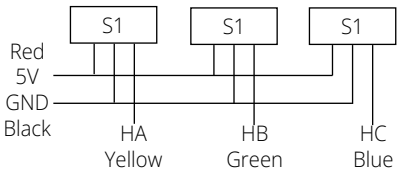
For stroke customization, please contact DINGS' or local representative.

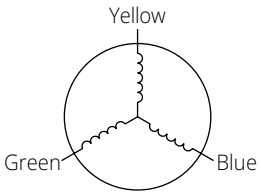
86mm Series

Dimensional Drawings



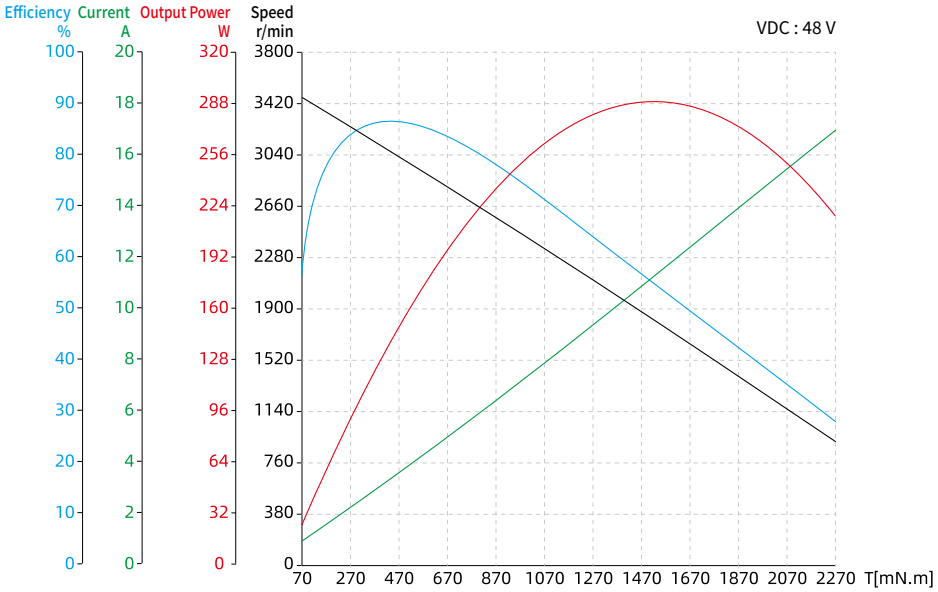
Lead-out type	Lead-out color	Function
UL3265 AWG26	Yellow	Hall U (Hu)
	Green	Hall V (Hv)
	Blue	Hall W (Hw)
	Red	Hall power supply positive (Vcc)
	Black	Hall power supply negative (GND)
UL3265 AWG18	Yellow	U phase
	Green	V phase
	Blue	W phase





Torque Performance Curves

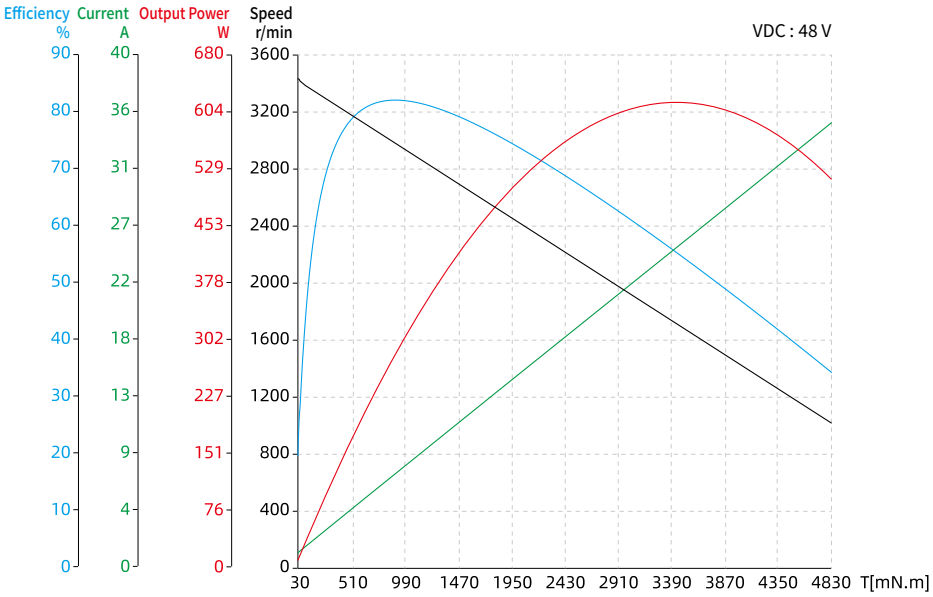
- 86ZWS61X-1



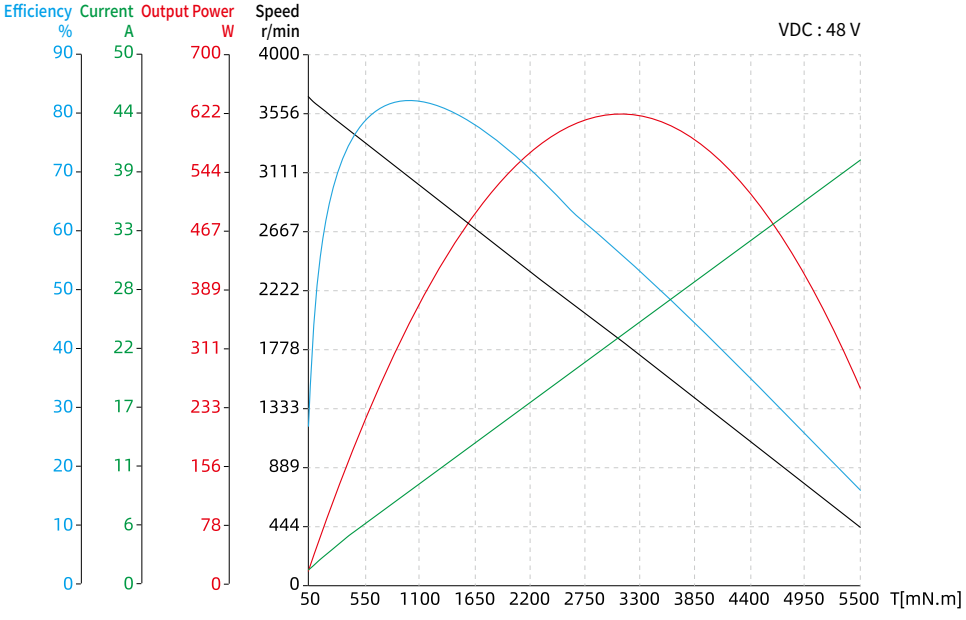
Note : All drawings are 1st Angle Projection - ISO Compliant (3D models available)

86mm Series

- 86ZWS81X-1



- 86ZWS101X-1



90mm Series

90mm Brushless DC Motor has Max. 0.87N·m rated torque and it can generate 173W capacity of rated power.

90mm motor has Star winding connection and 5 pole pairs motors with Hall sensors feed back method as standard.

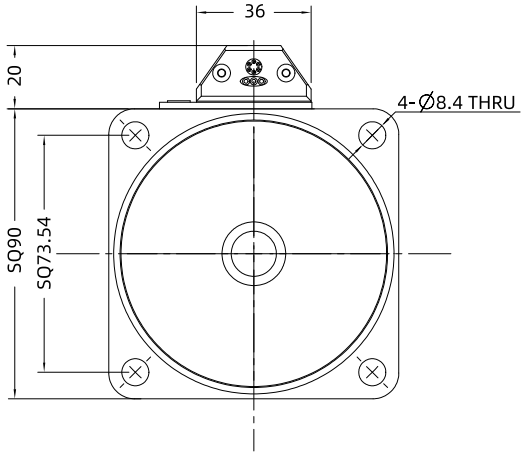
In addition, gearbox and incremental encoder is available.

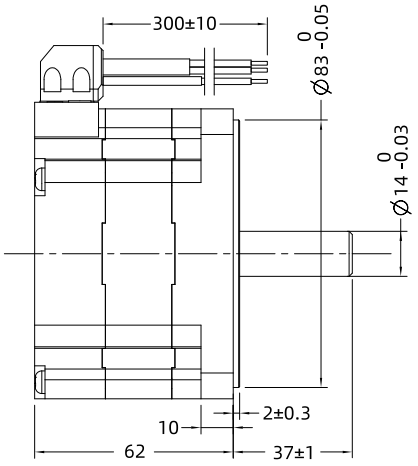
Motor Characteristics

Motor part number		90ZWS62X-4
Pole pair	-	5
Phase resistance	Ω	0.54
Phase inductance	mH	1.5
Winding connection method	-	Star shape
Insulation class	-	B
Duty type	-	S1
Feedback method	-	Hall sensors
Commutation angle	-	120°
Insulation strength (Withstand voltage)	-	500VAC/1KHz/1mA/1s
Insulation resistance	-	100 MOhm 20C
Weight	kg	1.5
Rated voltage	V	48
Rated power	W	173
Rated torque	N·m	0.87
Rated speed	RPM	1900
Rated current	A	5.5
No load speed	RPM	2400
No load current	A	0.6
Motor efficiency	%	80
Noise (Ambient noise 20db, test distance 1m)	dB	< 50
Enclosure - Ambient thermal resistance	K/W	2
Ambient temperature	℃	30
Maximum winding temperature	℃	90
Torque constant	N·m/A	0.158
Back-EMF constant / Effective value	V/Krpm	15
Peak torque	N·m	1.7
Peak current	A	10.5
Inertia moment	Kg·cm²	0.51

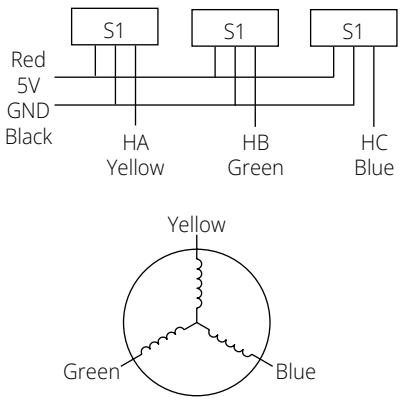
For stroke customization, please contact DINGS' or local representative.

Dimensional Drawings

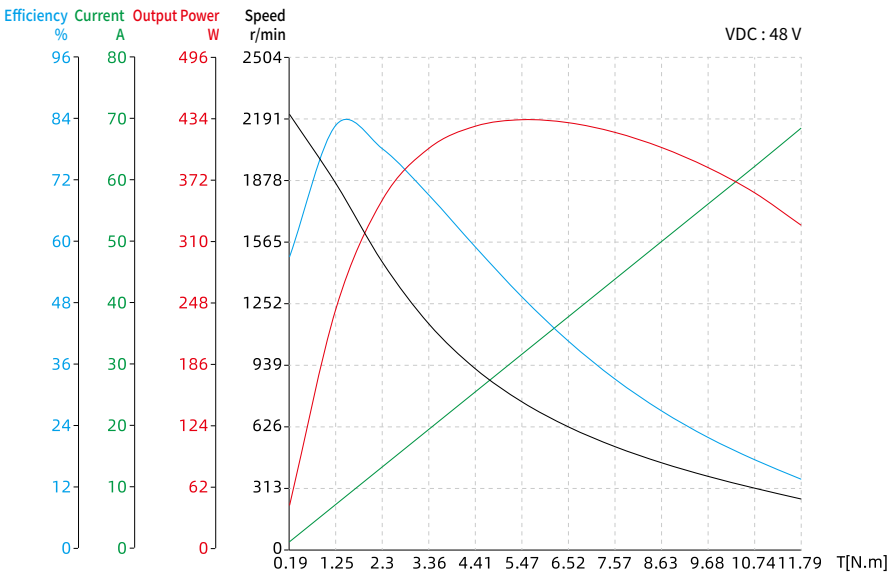




Lead-out type	Lead-out color	Function
UL3265 AWG26	Yellow	Hall U (Hu)
	Green	Hall V (Hv)
	Blue	Hall W (Hw)
	Red	Hall power supply positive (Vcc)
	Black	Hall power supply negative (GND)
UL3265 AWG18	Yellow	U phase
	Green	V phase
	Blue	W phase



Torque Performance Curves



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

110mm Series

110mm Brushless DC Motor has Max. 4.6N·m rated torque and it can generate 710W capacity of rated power.

110mm motor has Star winding connection and 5 pole pairs motors with Hall sensors feed back method as standard.

In addition, gearbox and incremental encoder is available.

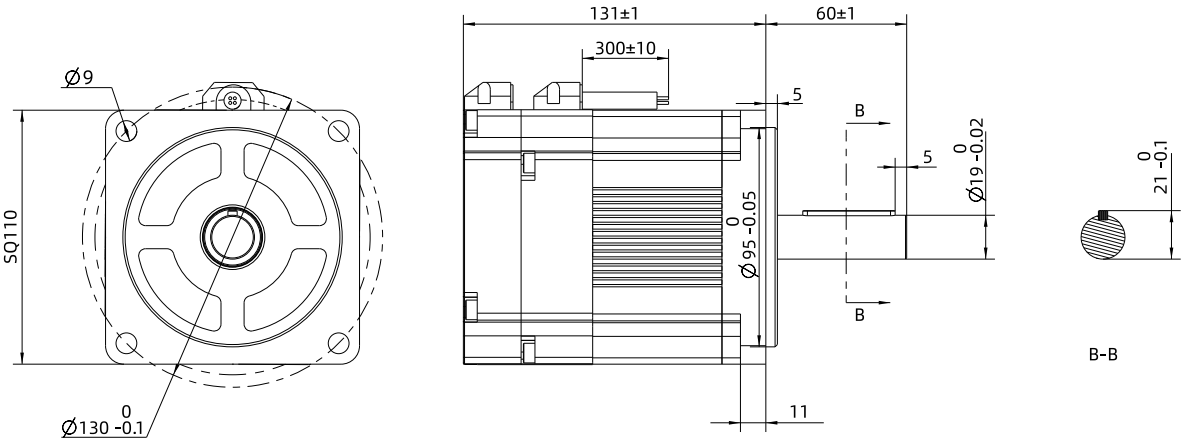
Motor Characteristics

Motor part number		110ZWS132XE-1
Pole pair	-	5
Phase resistance	Ω	1.04
Phase inductance	mH	3.658
Winding connection method	-	Star shape
Insulation class	-	B
Duty type	-	S1
Commutation angle	-	120°
Insulation strength (Withstand voltage)	-	1000VAC/1KHz/1mA/1s
Insulation resistance	-	100 MOhm 20C
Weight	kg	3
Rated voltage	V	120
Rated power	W	710.0
Rated torque	N·m	4.6
Rated speed	RPM	1500
Rated current	A	9.6
No load speed	RPM	1850
No load current	A	0.65
Motor efficiency	%	90
Noise (Ambient noise 20db, test distance 1m)	dB	< 50
Enclosure - Ambient thermal resistance	K/W	0.36
Ambient temperature	℃	20
Maximum winding temperature	℃	88
Torque constant	N·m/A	0.479
Back-EMF constant / Effective value	V/Krpm	112.2
Peak torque	N·m	13.8
Peak current	A	28.8
Inertia moment	Kg·cm²	10.2

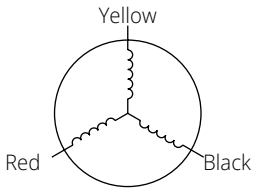
For stroke customization, please contact DINGS' or local representative.

110mm Series

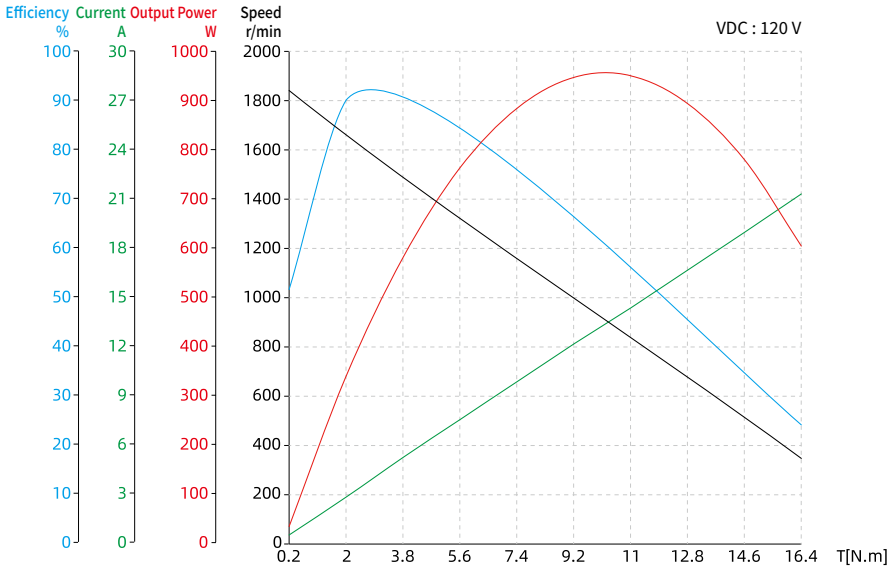
Dimensional Drawings



Lead-out type	Lead-out color	Function
UL3265 AWG16	Yellow	U phase
	Red	V phase
	Black	W phase



Torque Performance Curves



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

130mm Series

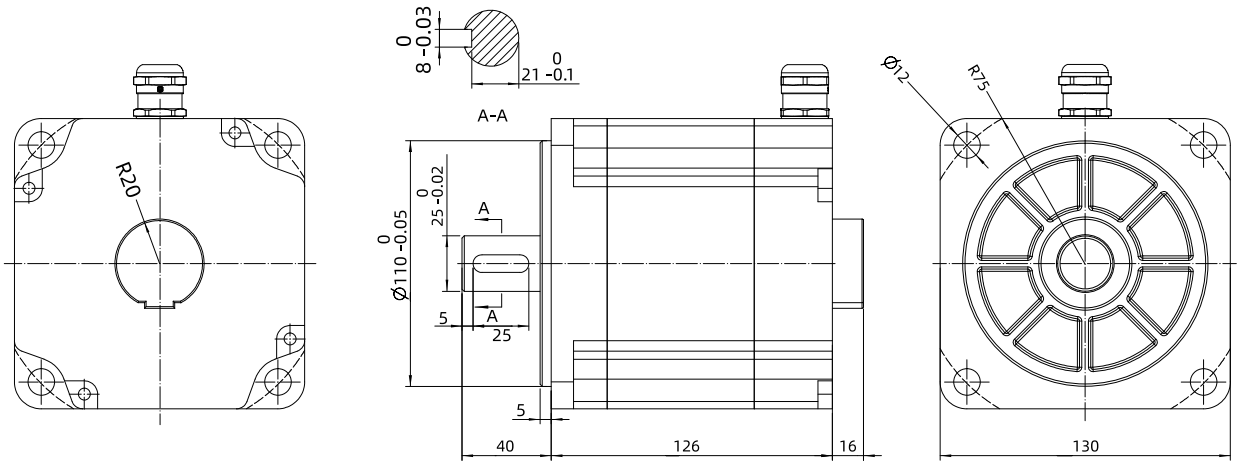
130mm Brushless DC Motor has Max. 8N·m rated torque and it can generate 837W capacity of rated power.

Motor Characteristics

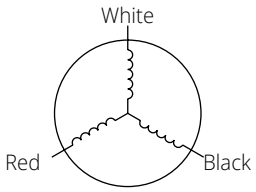
Motor part number		130ZWS126LE-1
Pole pair	-	5
Phase resistance	Ω	1.68
Phase inductance	mH	1.036
Winding connection method	-	Star shape
Insulation class	-	B
Duty type	-	S1
Commutation angle	-	120°
Insulation strength (Withstand voltage)	-	1000VAC/1KHz/1mA/1s
Insulation resistance	-	100 MOhm 20C
Weight	kg	3.5
Rated voltage	V	120
Rated power	W	837.0
Rated torque	N·m	8
Rated speed	RPM	1000
Rated current	A	20
No load speed	RPM	1300
No load current	A	0.9
Motor efficiency	%	94
Noise (Ambient noise 20db, test distance 1m)	dB	< 50
Enclosure - Ambient thermal resistance	K/W	0.22
Ambient temperature	℃	20
Maximum winding temperature	℃	94
Torque constant	N·m/A	0.4
Back-EMF constant / Effective value	V/Krpm	94.2
Peak torque	N·m	24
Peak current	A	60
Inertia moment	$Kg·cm^2$	13.2

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

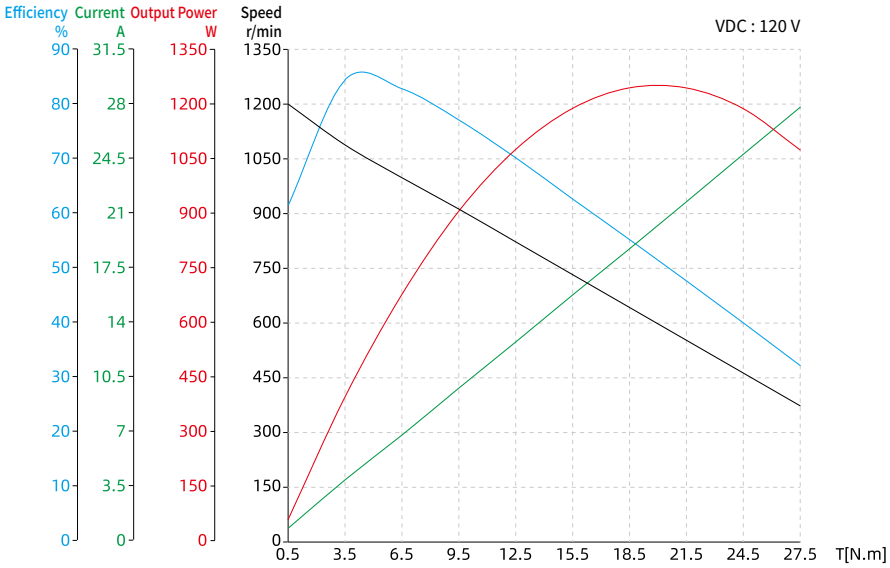
Dimensional Drawings



Lead-out type	Lead-out color	Function
UL3265 AWG18	White	U phase
	Red	V phase
	Black	W phase



Torque Performance Curves



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

E Brush DC Motor

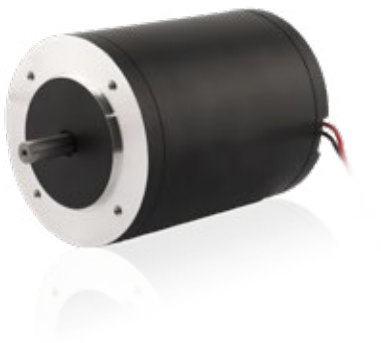
DINGS' Brush DC Motors have low mechanical loss, high power conversion efficiency but relatively save energy.

The speed of Brush DC motor can quickly respond to change of voltage and meet the requirements of high speed and high precision control.

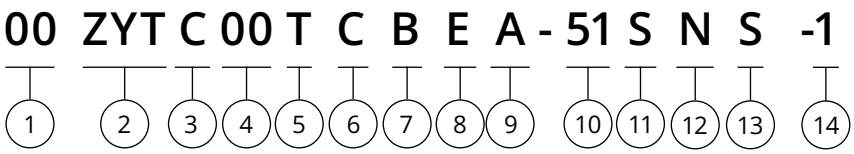
Brush DC Motor's torque is proportional to the current, it has very good starting performance.

DINGS' Brush DC Motors can be designed by Ferrite, Aluminium, Nickel Cobbalt, Rare Earth magnet or Permanent Magnet. Also DINGS' can adopt two different brush as Graphite or Metal Graphite.

In addition, DINGS' can customize Brush DC Motors in various ways with gearbox, encoder or DINGS' also can design Brush DC linear actuators for wide applications.



Part Number Construction



① Motor Size

Motor Size(mm)	8	42	50	80

② Product Name

ZYT = Slotted Brushed DC Motor (Ferrite)
ZY = Slotted Brushed DC Motor (Aluminum nickel cobalt)
ZYN = Slotted Brushed DC Motor (Rare earth)
LY = Permanent magnet DC torque motor
ZYC = Slotless Brush DC Motor

③ Motor Shape

C = Circular Type
S = Square Type

④ Motor Length

Unit : mm
when the length involves decimal points, use "_" instead

⑤ Motor Casing

L = Aluminum
T = Stainless steel / Iron
X = Inorganic Shell

⑥ Brush Type

C = Graphite brush
P = Metal graphite brush

⑦ Option

EKX = Encoder (X = Encoder Recolution)
B = Brake
GX = Gearbox (X = Gear Ratio)
Note: When Options are not single,
please use in alphabetical order for example, "BEG"

⑧ Structure

E = External type
N = Non-Captive type
C = Electric Cylinder (Captive) type
K = Kaptive type

⑨ Lead Screw Code

Please refer to lead screw code selection table

⑩ Screw Length / Stroke

Kaptive = stroke distance
Non-captive = total length of screw
External = screw extension length from the mounting flange

⑪ Screw Surface Treatment

T = Teflon coating
S = Standard (No teflon coating)

⑫ End Machining

M = Metric
U = UNC
S = Smooth
C = Customize
N = None

⑬ Nut Style

S = Standard Flange Nut
A = Anti-Backlash Nut
C = Customized Nut

⑭ Customer Sequence Number

Example

Part Number	50ZYTC100-1
Description	Brush DC Ferrite Motor Circular type Motor length 100mm Customizaion No.1

8mm Series

8ZYCC24P-G16-E256-1 is very compact size Brush DC Motor with 16:1 Planetary Gearbox and 256 lines of encoder.

Motor's rated power is 0.33W and rated speed is 350RPM.

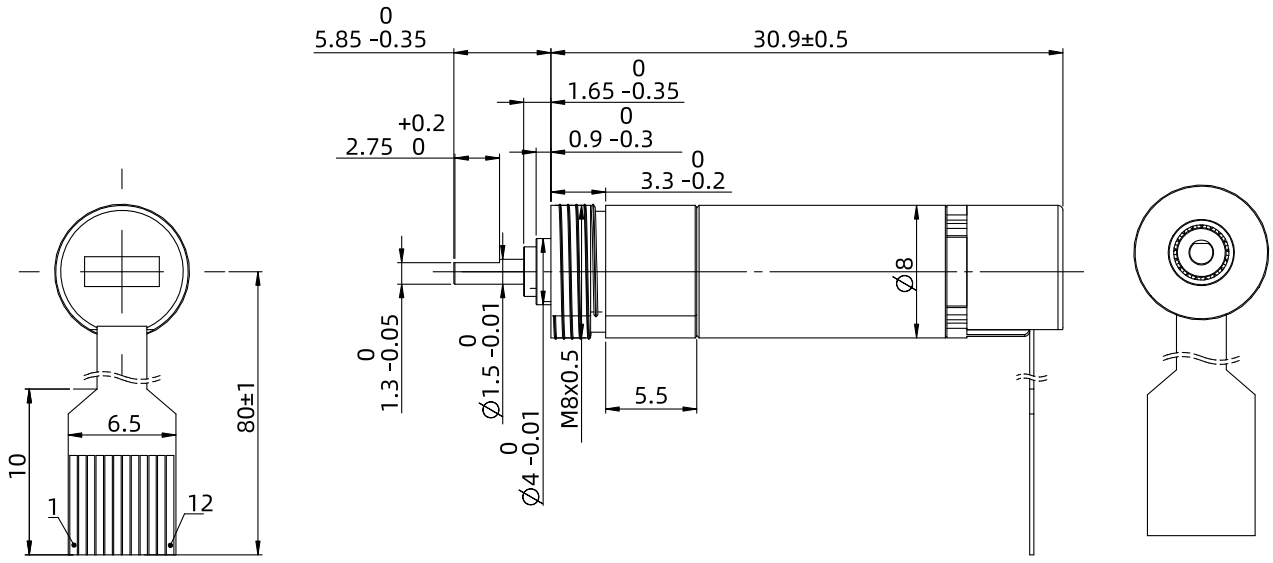
Very compact design of motor but this motor also can be customized as linear actuator.

Motor Characteristics

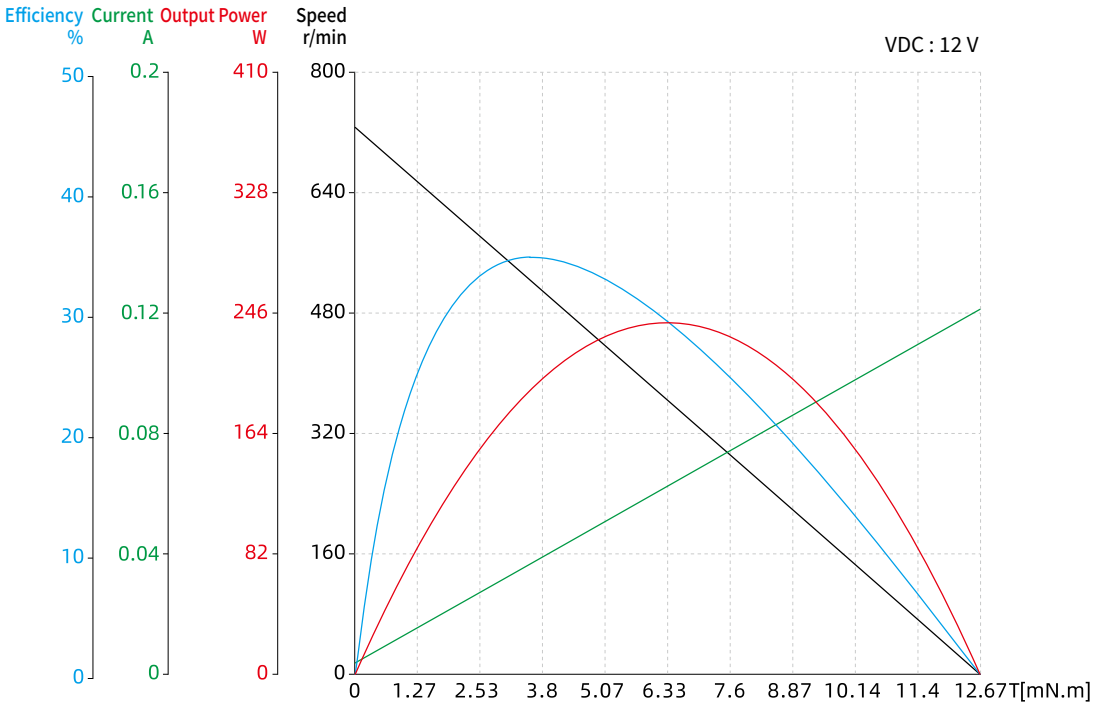
Motor part number		8ZYCC24P-G16-E256-1
Phase resistance	m Ω	101
Phase inductance	μ H	713
Insulation class	-	F/155 ℃
Duty type	-	S2
Insulation strength (Withstand voltage)	-	300V AC/50Hz/2mA/1S
Insulation resistance	-	10MΩ/250V
Weight	g	8
Rated voltage	V	12
Rated power	W	0.33
Rated torque	mN·m	6.5
Rated speed	RPM	350
Rated current	A	0.08
No load speed	RPM	720
No load current	A	0.026
Motor efficiency	%	34.6
Noise (Ambient noise 20db, test distance 30cm)	dB	< 50
Case - Environmental thermal resistance (no load)	K/W	0.91
Ambient temperature	℃	19
Maximum winding temperature (no load)	℃	23
Torque constant	mNm/A	8.02
Back-EMF constant	V/Krpm	0.84
Peak torque	m N·m	0.833
Peak current	A	0.107
Inertia moment	$g.mm^2$	2.56
Mechanical time constant	ms	24
End bell	-	PPS+30%GF
Bearing	-	Deep groove
Magnet	-	SinterNdFeB
Shaft	-	30Cr13

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

Dimensional Drawings



Torque Performance Curves



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

42mm Series

42ZYTC85-1 Brush DC Motor has 24V Rated voltage of DC Motor and it can run at Max. 3,300RPM.

It can generate 57mN.m of rated torque and customized with gearbox and also designed as various linear actuators.

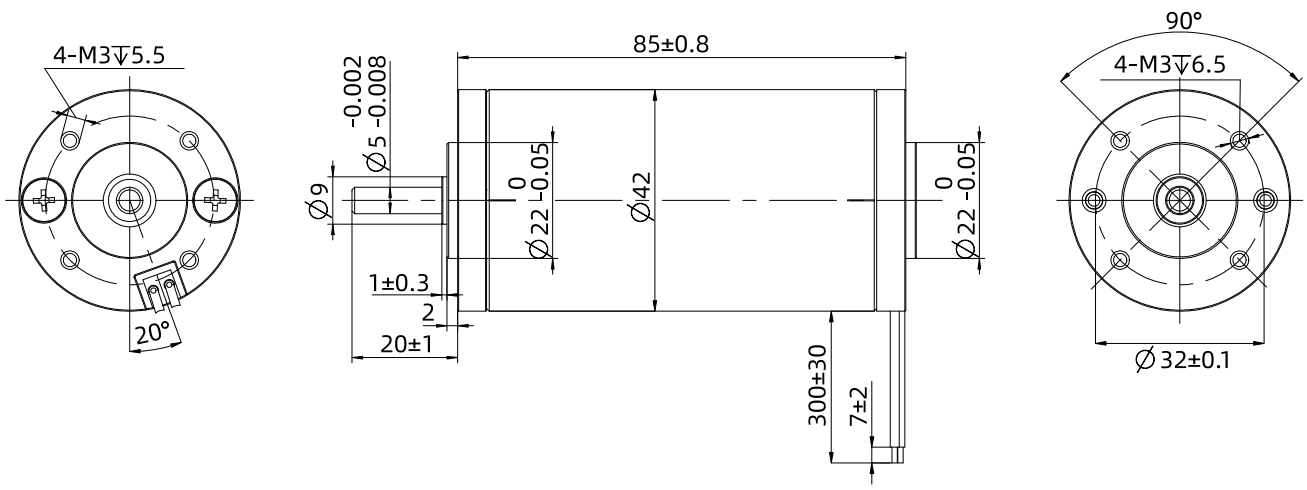
Motor Characteristics

Motor part number		42ZYTC85-1
Phase resistance	Ω	1.3
Phase inductance	m H	2.4
Rated power	W	19.7
Rated voltage	V	24
Rated torque	mN·m	57
Rated speed	RPM	3300
Rated current	A	1.35
No load speed	RPM	4000
No load current	A	0.25
Peak torque	mN·m	329.3
Peak current	A	5.93
Motor efficiency	%	70
Torque constant	mNm/A	57.30
Back-EMF constant	V/Krpm	6.00
Inertia moment	$g.cm^2$	107
Weight	Kg	0.426

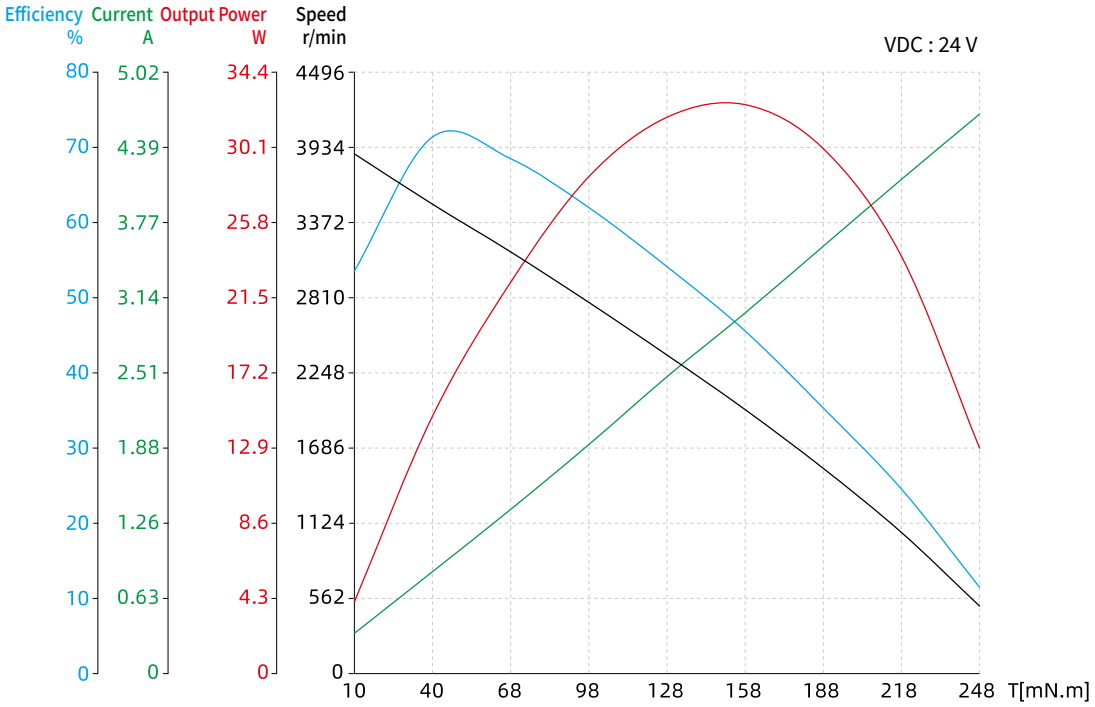
For stroke customization, please contact DINGS' or local representative.

42mm Series

Dimensional Drawings



Torque Performance Curves



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

50mm Series

50ZYTC60-1 Brush DC Motor has 24V Rated voltage of DC Motor and it can run at Max. 1,700RPM.

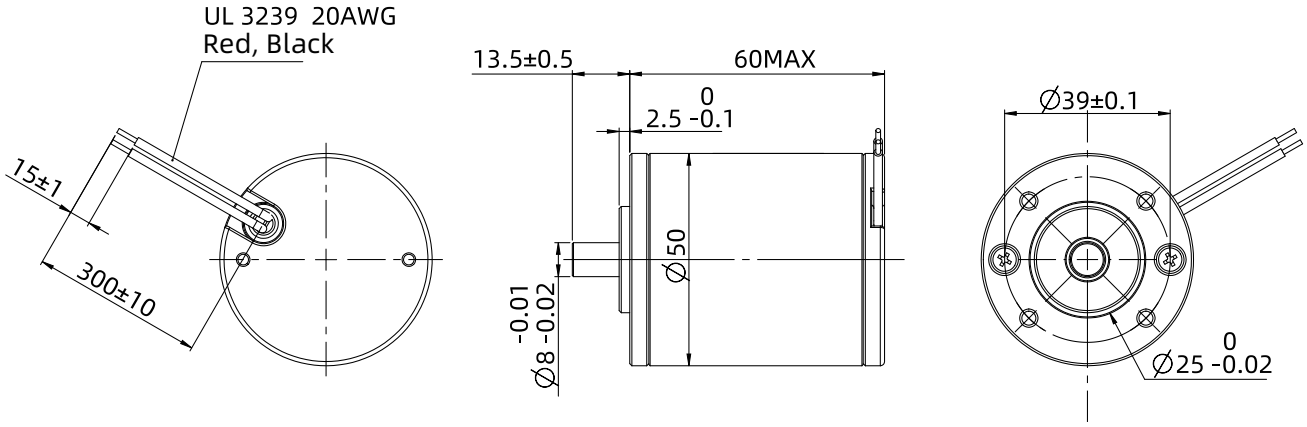
It can generate 22mN.m of rated torque and customized with gearbox and also designed as various linear actuators.

Motor Characteristics

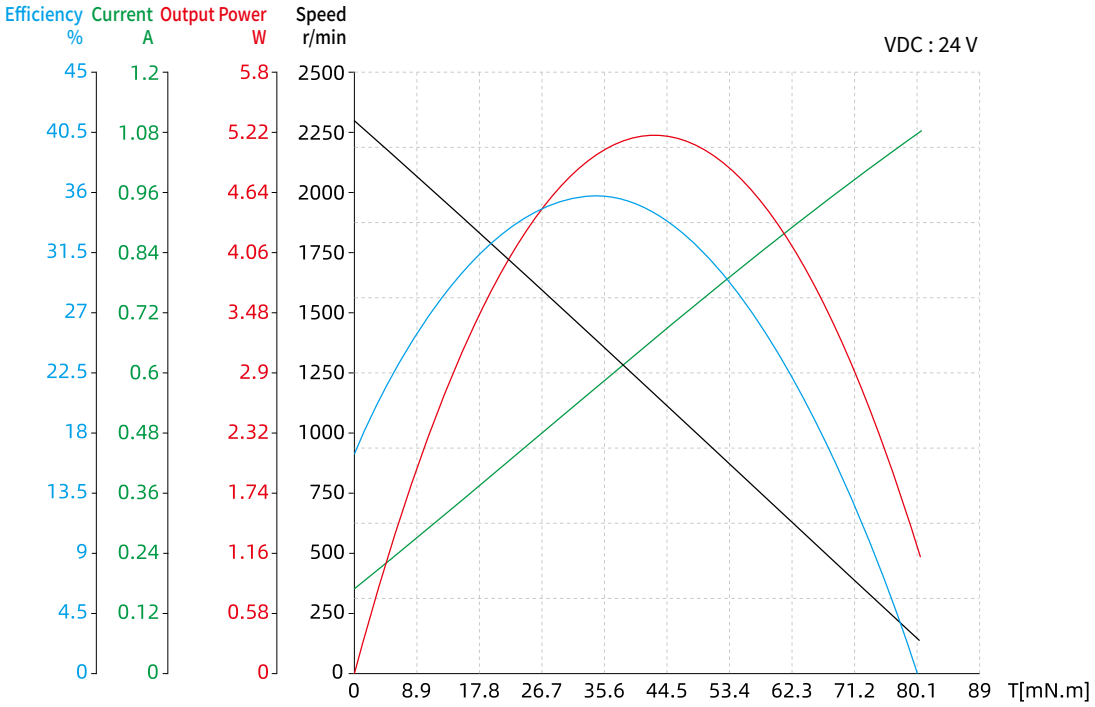
Motor part number		50ZYTC60-1
Phase resistance	Ω	22.87
Phase inductance	m H	10.4
Rated power	W	4.05
Rated voltage	V	24
Rated torque	mN·m	22
Rated speed	RPM	1700
Rated current	A	0.436
No load speed	RPM	2302
No load current	A	0.17
Peak torque	mN·m	99
Peak current	A	1.18
Motor efficiency	%	40
Torque constant	mNm/A	84.89
Back-EMF constant	V/Krpm	8.90
Inertia moment	$g.cm^2$	124
Weight	Kg	0.38

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

Dimensional Drawings



Torque Performance Curves



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

80mm Series

80ZYTC102-1 Brush DC Motor has 24V Rated voltage of DC Motor and it can run at Max. 2,560RPM.

It can generate 0.25N.m of rated torque and customized with gearbox and also designed as various linear actuators.

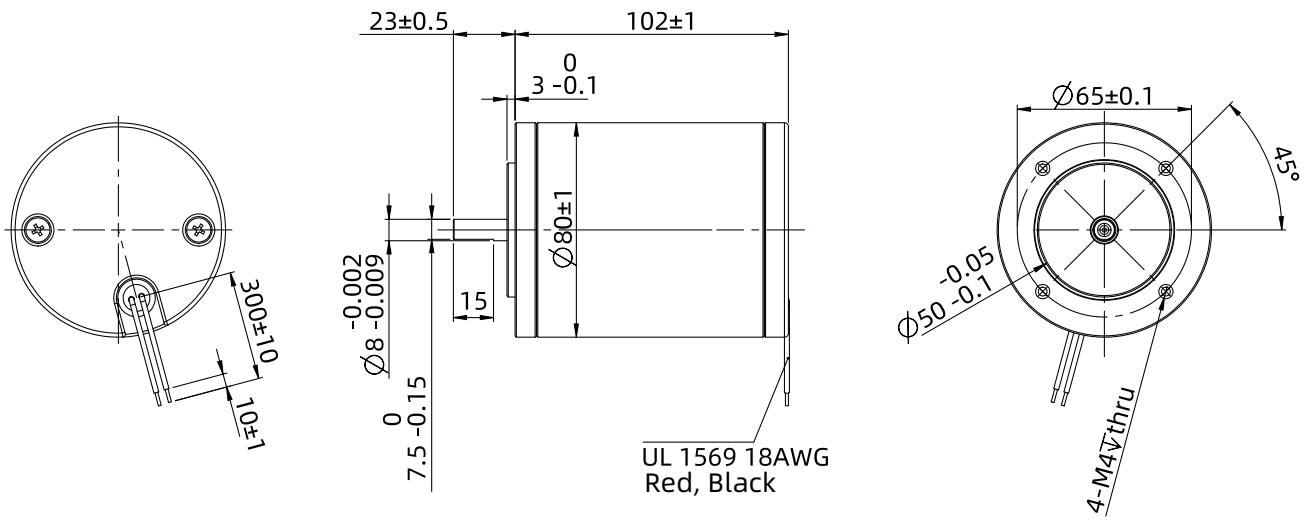
Motor Characteristics

Motor part number		80ZYTC102-1
Phase resistance	Ω	1.3
Phase inductance	m H	1.577
Rated power	W	69
Rated voltage	V	24
Rated torque	N·m	0.25
Rated speed	RPM	2560
Rated current	A	3.9
No load speed	RPM	3035
No load current	A	0.92
Peak torque	N·m	1.44
Peak current	A	19.96
Motor efficiency	%	75
Torque constant	mNm/A	74.20
Back-EMF constant	V/Krpm	7.77
Inertia moment	$g.cm^2$	1558
Weight	Kg	1.67

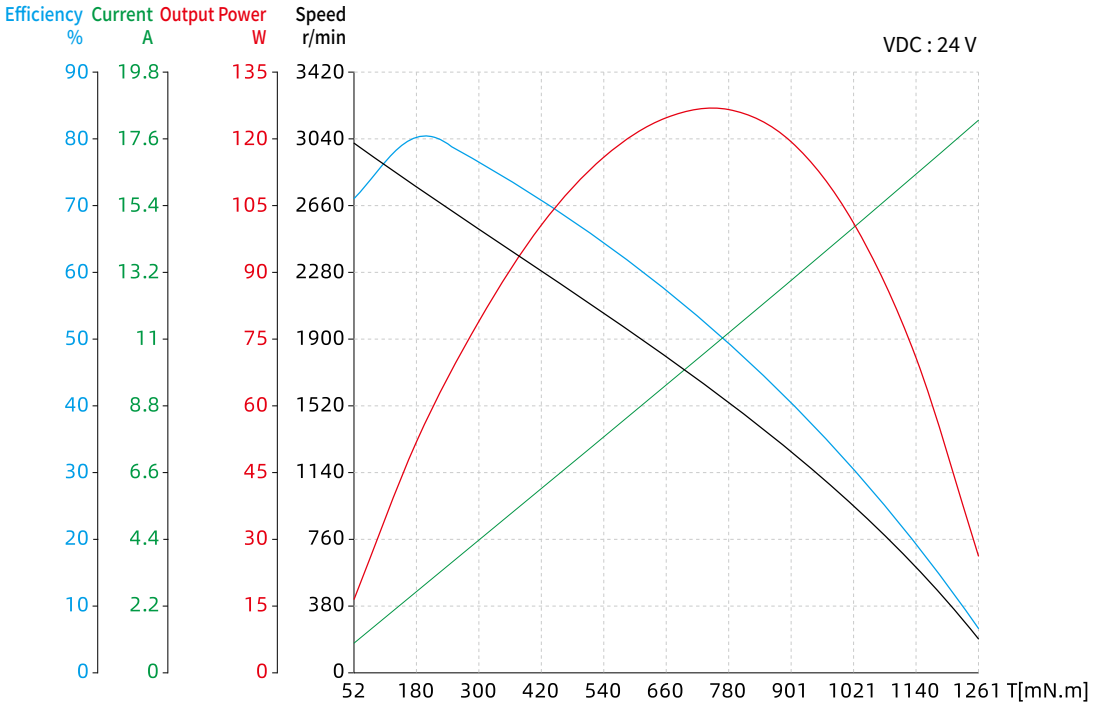
For stroke customization, please contact DINGS' or local representative.

80mm Series

Dimensional Drawings



Torque Performance Curves



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

F 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 91% and this motor is suitable for the servo system which needs quick movement and high power.

Part Number Construction

00	ZWW	C	00	L	EK	E	X	-51_5	S	M	S	-1
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬

① Motor Size

Motor Size(mm)	10	16	22	28	30	36	42

② Product Name

ZWW = Slotless Brushless DC Motor

③ Motor Shape

C = Circular Type

S = Square Type

④ Motor Length

Unit : mm

when the length involves decimal points, use "_" instead

⑤ Motor Casing

L = Aluminum

T = Stainless steel / Iron

X = Inorganic Shell

⑥ Option

EKX = Encoder (X = Encoder Recolution)

B = Brake

GX= Gearbox (X = Gear Ratio)

Note: When Options are not single,

please use in alphabetical order for example, "BEG"

⑦ Structure

E = External type

N = Non-Captive type

C = Electric Cylinder (Captive) type

K = Kaptive type

⑧ Lead Screw Code

Please refer to lead screw code selection table

⑨ Screw Length / Stroke

Kaptive = stroke distance

Non-captive = total length of screw

External = screw extension length from the mounting flange

⑩ Screw Surface Treatment

T = Teflon coating

S = Standard (No teflon coating)

⑪ End Machining

M = Metric

U = UNC

S = Smooth

C = Customize

N = None

⑫ Nut style

S = Standard Flange Nut

A = Anti-Backlash Nut

C = Customized Nut

⑬ Customer Sequence Number

Example

Part Number	16ZWWC38EK-001
Description	Motor diameter 16mm Slotless BLDC circular type Body length 38mm Encoder Customizaion No.001

10mm Series

DINGS' Slotless Brushless DC Motor, 10ZWWC25 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.

10ZWWC25 Slotless Brushless DC Motor has high durability, low electrical noise and high efficiency.

Maximum efficiency of motor reaches 86% and this motor is suitable for the servo system which needs quick movement and high power.

10ZWWC25 Rated Power is 65W and Peak Torque is 90mN.m

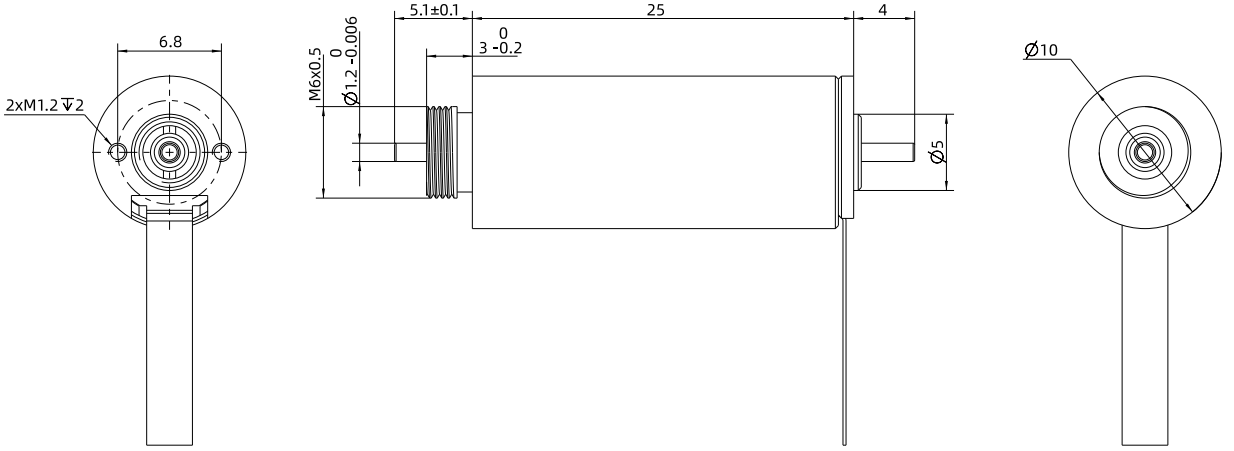
Motor Characteristics

Motor part number		10ZWWC25
Pole pair	-	2
Phase resistance	Ω	0.5
Winding connection method	-	Star shape
Insulation class	-	B
Duty type	-	S1
Commutation angle	-	120°
Insulation strength (Withstand voltage)	-	500VAC/1KHz/1mA/1s
Insulation resistance	-	100 MΩ/500VDC
Weight	g	230
Rated voltage	V	24
Rated power	W	65
Rated torque	mN·m	90
Rated speed	RPM	6900
Rated current	A	3.85
No load speed	RPM	9200
No load current	A	0.3
Motor efficiency	%	86
Noise (Ambient noise 20db, test distance 1m)	dB	<50
Torque constant	mN·m/A	23.28
Back-EMF constant - peak value	V/Krpm	3.46
Back-EMF constant - effective value	V/Krpm	2.45
Peak torque	mN·m	1122.08
Peak current	A	48
Inertia moment	$g \cdot cm^2$	28
Mechanical time constant	ms	2.56
End bell	-	Stainless steel
Bearing	-	Deep Groove Ball bearing
Magnet	-	Sinter NdFeB
Rotation shaft	-	Carbon steel

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

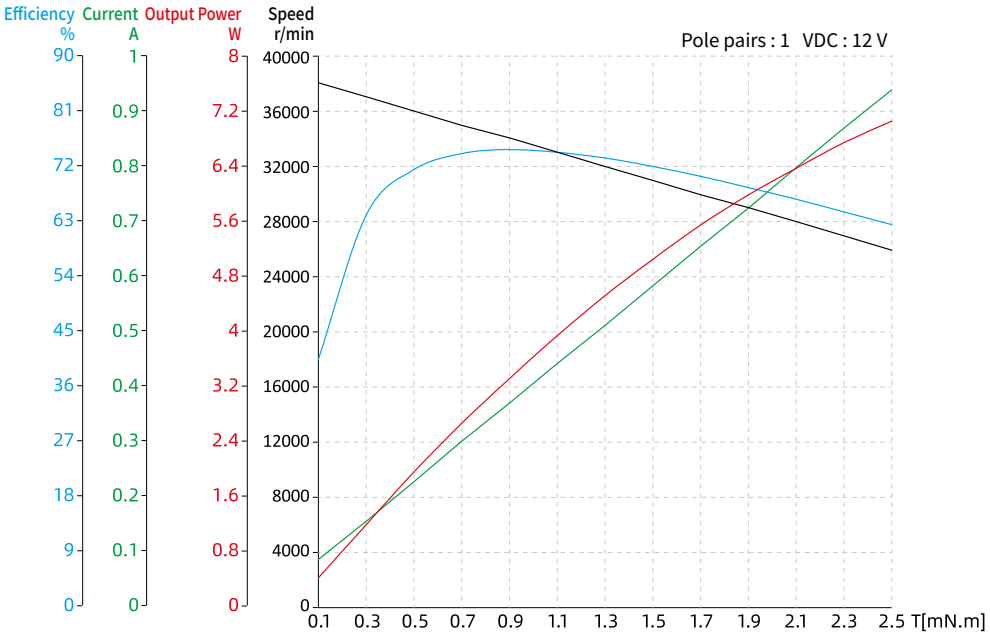
10mm Series

Dimensional Drawings



Line sequence : U, V, W

Torque Performance Curves



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

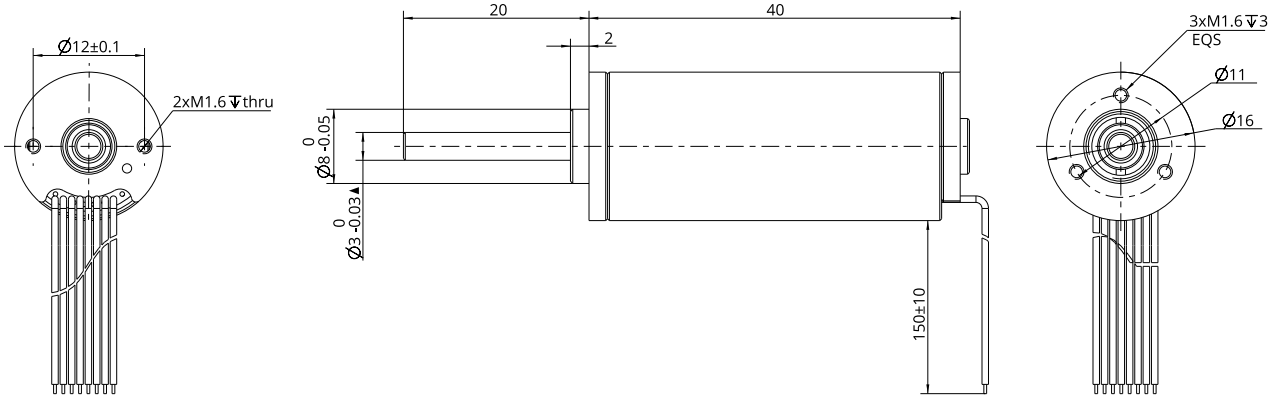
16mm Series

Motor Characteristics

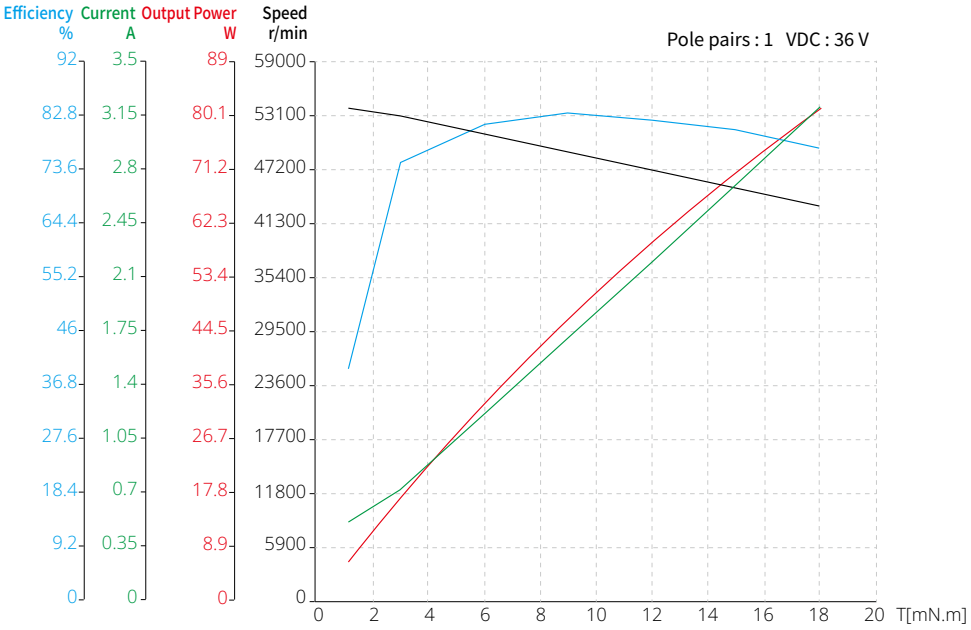
Motor part number		16ZWWC40			
Pole pair	-	1	1	1	1
Phase resistance	Ω	0.63	1.31	1.85	3.15
Phase inductance	mH	0.033	0.045	0.096	0.2
Winding connection method	-	Star shape	Star shape	Star shape	Star shape
Insulation class	-	B	B	B	B
Duty type	-	S2	S2	S2	S2
Feedback method	-	Hall sensors	Hall sensors	Hall 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
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
Case - Environmental 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
Max. winding temperature (no load)	℃	63	75	80	63.8
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
Back-EMF constant - effective value	V/Krpm	0.35	0.40	0.59	0.81
Peak torque	mN·m	96.65	69.21	110.19	118.13
Peak current	A	29	18	19	15
Inertia moment	$g \cdot cm^2$	0.583	0.583	0.583	0.583
Mechanical time constant	ms	3.21	5.35	3.36	3.06
End bell	-	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	-	Sinter NdFeB	Sinter NdFeB	Sinter NdFeB	Sinter NdFeB
Rotation shaft	-	Carbon steel	Carbon steel	Carbon steel	Carbon steel

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

Dimensional Drawings



Torque Performance Curves



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

22mm Series

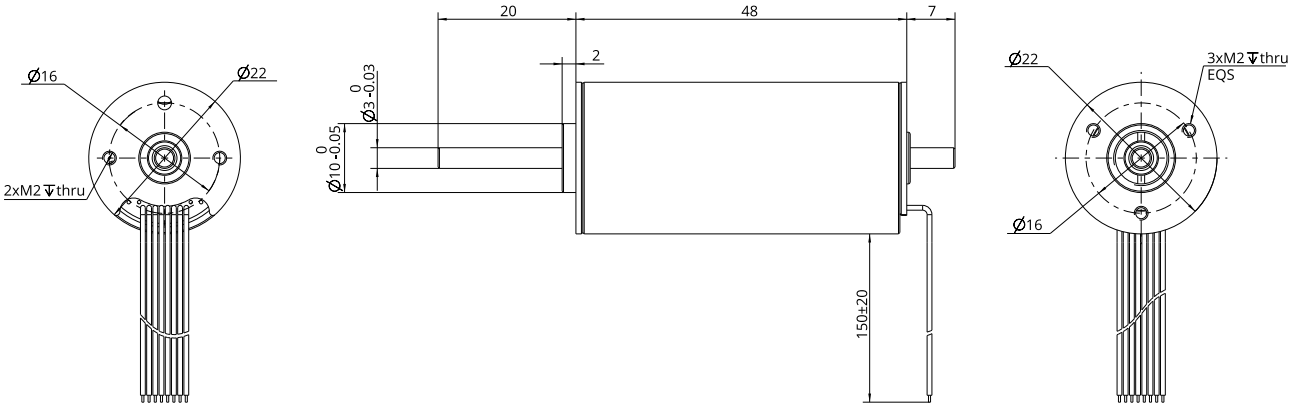
Motor Characteristics

Motor part number		22ZWWC48				
Pole pair	-	1	1	1	1	2
Phase resistance	Ω	0.26	0.3	0.57	1	0.94
Phase inductance	mH	0.018	0.027	0.06	0.11	0.057
Winding connection method	-	Star shape	Star shape	Star shape	Star shape	Star shape
Insulation class	-	B	B	B	B	B
Duty type	-	S2	S2	S2	S2	S1
Feedback method	-	Hall sensors	Hall sensors	Hall sensors	Hall sensors	Hall sensors
Commutation angle	-	120°	120°	120°	120°	120°
Insulation strength (Withstand voltage)	-	500VAC/1KHz/ 1mA/1s	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	100 MΩ/500VDC
Weight	g	110	110	110	110	110
Rated voltage	V	18	24	36	48	24
Rated power	W	83	100	100	100	53
Rated torque	mN·m	20	20	20	20	25
Rated speed	RPM	40000	49000	47400	49600	20100
Rated current	A	7.95	4.68	3.12	2.29	3.00
No load speed	RPM	50000	55000	53000	54000	25700
No load current	A	0.3	0.4	0.32	0.14	0.18
Motor efficiency	%	87	89	89	91	81
Noise (Ambient noise 20db, test distance 1m)	dB	<50	<50	<50	<50	<50
Case - Environmental thermal resistance (no load)	K/W	0.38	0.58	0.51	0.42	1.12
Motor thermal time constant (no load)	S	840	600	900	1200	620
Ambient temperature	℃	21.4	22	24.7	21.1	23.3
Max. winding temperature (no load)	℃	52.7	80	75.5	70.5	82
Torque constant	mN·m/A	2.52	4.27	6.41	8.74	8.33
Back-EMF constant - peak value	V/Krpm	0.37	0.63	0.95	1.29	1.23
Back-EMF constant - effective value	V/Krpm	0.26	0.45	0.67	0.91	0.87
Peak torque	mN·m	116.11	341.76	404.72	419.33	212.77
Peak current	A	46	80	63	48	26
Inertia moment	$g \cdot cm^2$	1.15	1.15	1.15	1.15	1.15
Mechanical time constant	ms	4.72	1.89	1.60	1.51	1.56
End bell	-	Stainless steel	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	Deep Groove Ball bearing
Magnet	-	Sinter NdFeB	Sinter NdFeB	Sinter NdFeB	Sinter NdFeB	Sinter NdFeB
Rotation shaft	-	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel

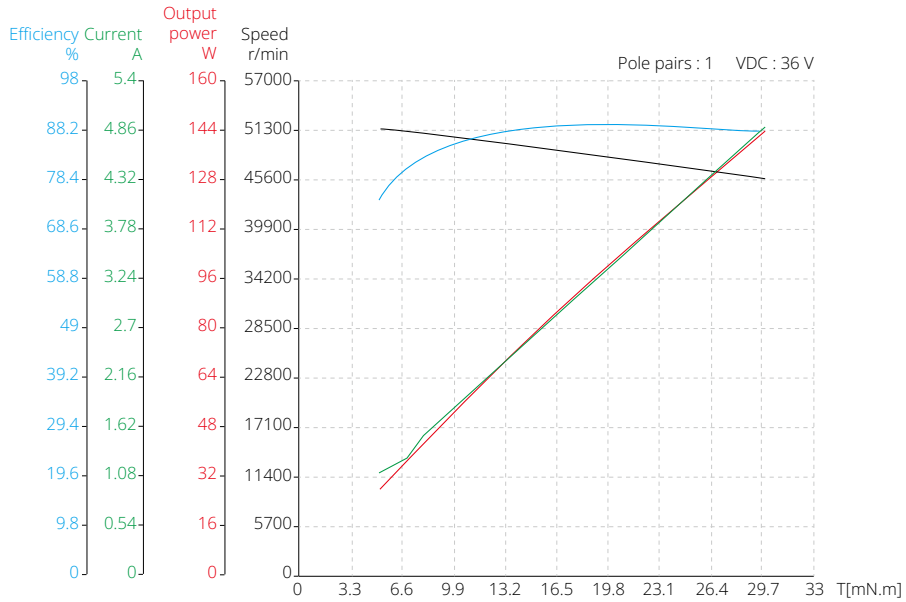
For stroke customization, please contact DINGS' or local representative.

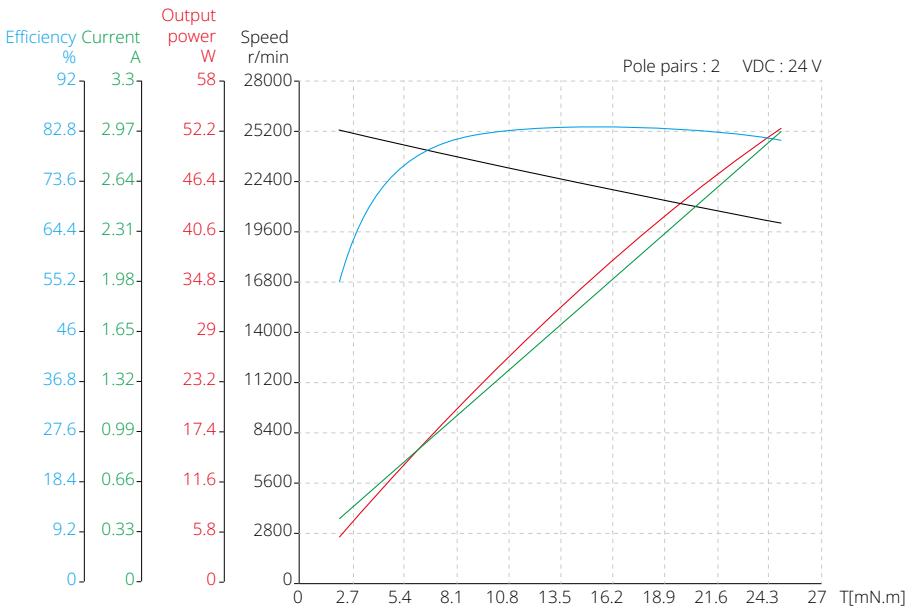
22mm Series

Dimensional Drawings



Torque Performance Curves





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

28mm Series

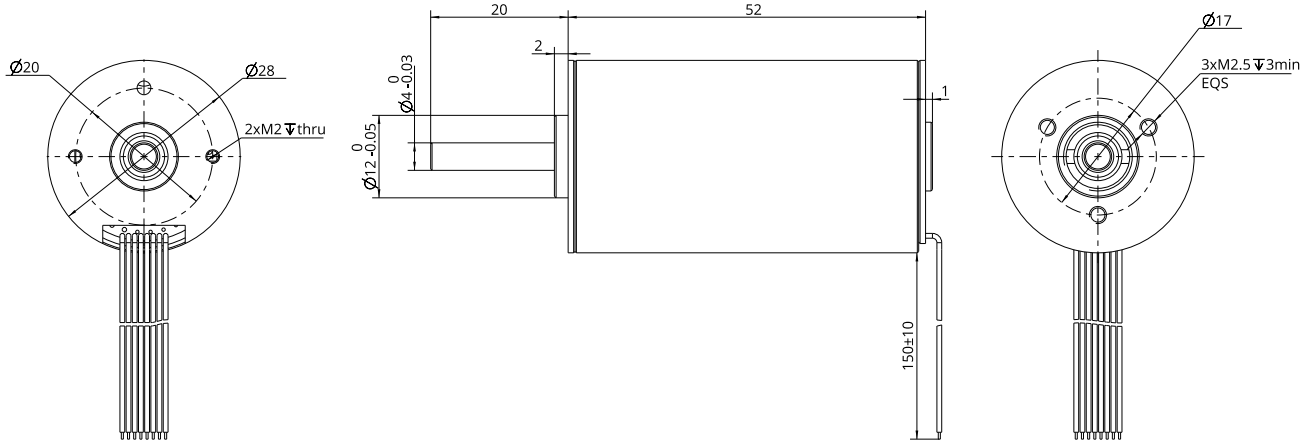
Motor Characteristics

Motor part number		28ZWWC52				
Pole pair	-	1	1	1	1	2
Phase resistance	Ω	0.52	1.7	4.3	6.6	1.6
Phase inductance	mH	0.0495	0.178	0.42	0.77	0.13
Winding connection method	-	Star shape	Star shape	Star shape	Star shape	Star shape
Insulation class	-	B	B	B	B	B
Duty type	-	S2	S2	S2	S2	S1
Feedback method	-	Hall sensors	Hall sensors	Hall sensors	Hall sensors	Hall sensors
Commutation angle	-	120°	120°	120°	120°	120°
Insulation strength (Withstand voltage)	-	500VAC/1KHz/ 1mA/1s	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	100 MΩ/500VDC
Weight	g	170	170	170	170	170
Rated voltage	V	12	24	36	48	24
Rated power	W	30	34	35	35	37
Rated torque	mN·m	32	32	32	34	50
Rated speed	RPM	6970	8430	8370	8340	7000
Rated current	A	3.13	1.69	1.17	0.86	2.00
No load speed	RPM	9270	9680	9500	9400	8500
No load current	A	0.2	0.11	0.084	0.061	0.12
Motor efficiency	%	80	84	83	85	81.5
Noise (Ambient noise 20db, test distance 1m)	dB	<50	<50	<50	<50	<50
Case - Environmental thermal resistance (no load)	K/W	0.67	0.69	0.73	0.64	0.70
Motor thermal time constant (no load)	S	1200	1200	1080	1100	880
Ambient temperature	℃	23	24	27	25	21.2
Max. winding temperature (no load)	℃	43.2	47.3	52.5	47.4	46.7
Torque constant	mN·m/A	10.24	18.97	27.32	39.63	25
Back-EMF constant - peak value	V/Krpm	1.52	2.81	4.04	5.87	3.70
Back-EMF constant - effective value	V/Krpm	1.07	1.99	2.86	4.15	2.62
Peak torque	mN·m	236.31	267.87	228.72	288.25	375
Peak current	A	23	14	8	7	15
Inertia moment	$g \cdot cm^2$	10.2	10.2	10.2	10.20	10.2
Mechanical time constant	ms	5.06	4.82	5.88	4.29	2.61
End bell	-	Stainless steel	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	Deep Groove Ball bearing
Magnet	-	Sinter NdFeB	Sinter NdFeB	Sinter NdFeB	Sinter NdFeB	Sinter NdFeB
Rotation shaft	-	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel

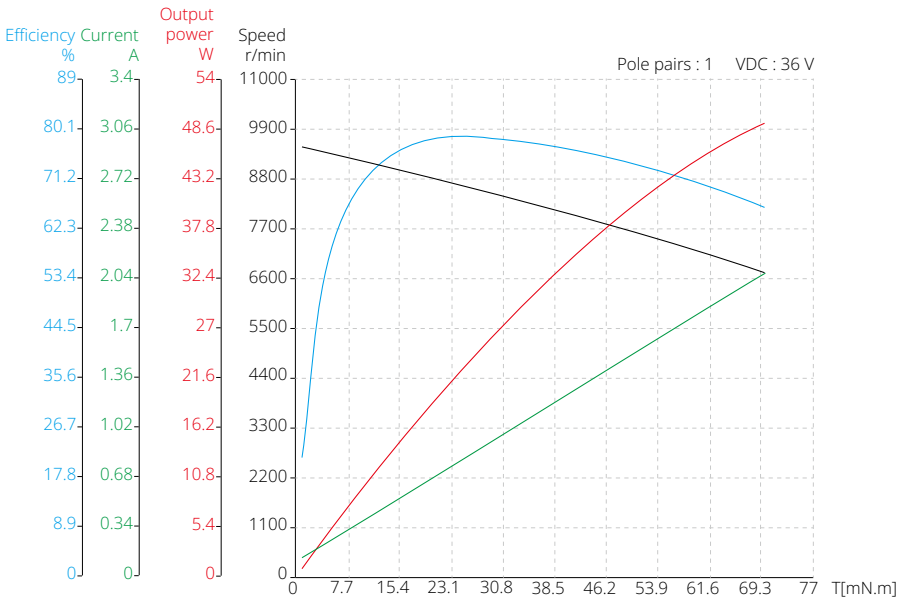
For stroke customization, please contact DINGS' or local representative.

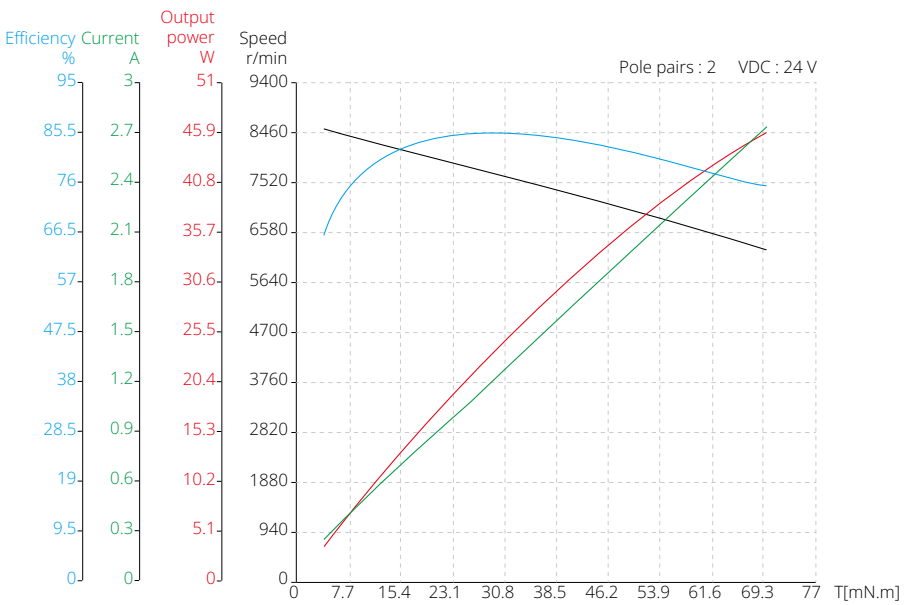
28mm Series

Dimensional Drawings



Torque Performance Curves





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

30mm Series

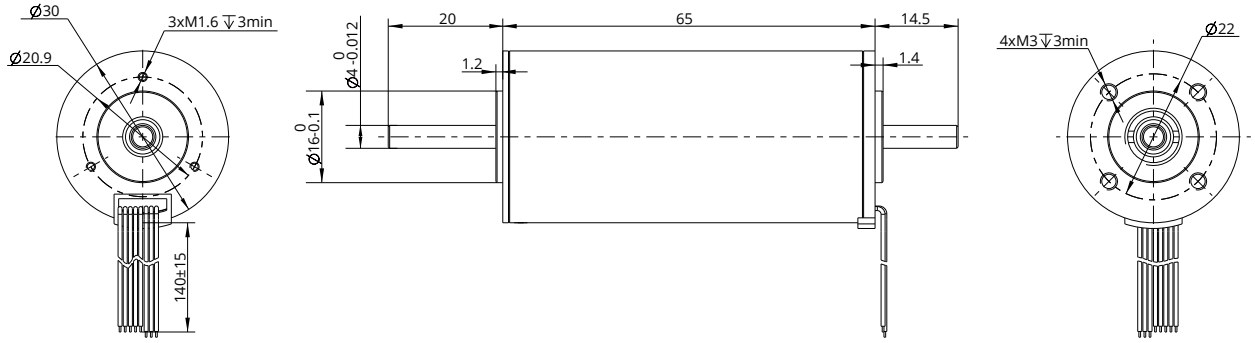
Motor Characteristics

Motor part number		30ZWWC65
Pole pair	-	2
Phase resistance	Ω	0.5
Phase inductance	mH	0.05
Winding connection method	-	Star shape
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	230
Rated voltage	V	24
Rated power	W	65
Rated torque	mN·m	90
Rated speed	RPM	6900
Rated current	A	3.85
No load speed	RPM	9200
No load current	A	0.3
Motor efficiency	%	86
Noise (Ambient noise 20db, test distance 1m)	dB	<50
Case - Environmental thermal resistance (no load)	K/W	0.31
Motor thermal time constant (no load)	S	1200
Ambient temperature	℃	23
Max. winding temperature (no load)	℃	43.2
Torque constant	mN·m/A	23.38
Back-EMF constant - peak value	V/Krpm	3.46
Back-EMF constant - effective value	V/Krpm	2.45
Peak torque	mN·m	1122.08
Peak current	A	48
Inertia moment	$g \cdot cm^2$	28
Mechanical time constant	ms	2.56
End bell	-	Stainless steel
Bearing	-	Deep Groove Ball bearing
Magnet	-	Sinter NdFeB
Rotation shaft	-	Carbon steel

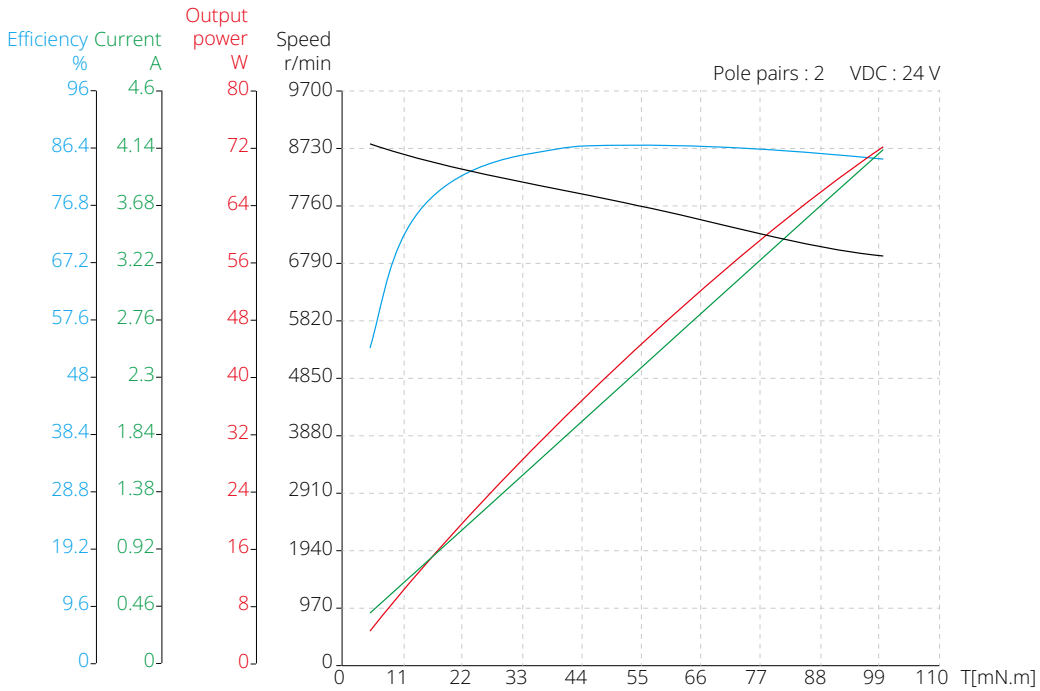
For stroke customization, please contact DINGS' or local representative.

30mm Series

Dimensional Drawings



Torque Performance Curves



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

36mm Series

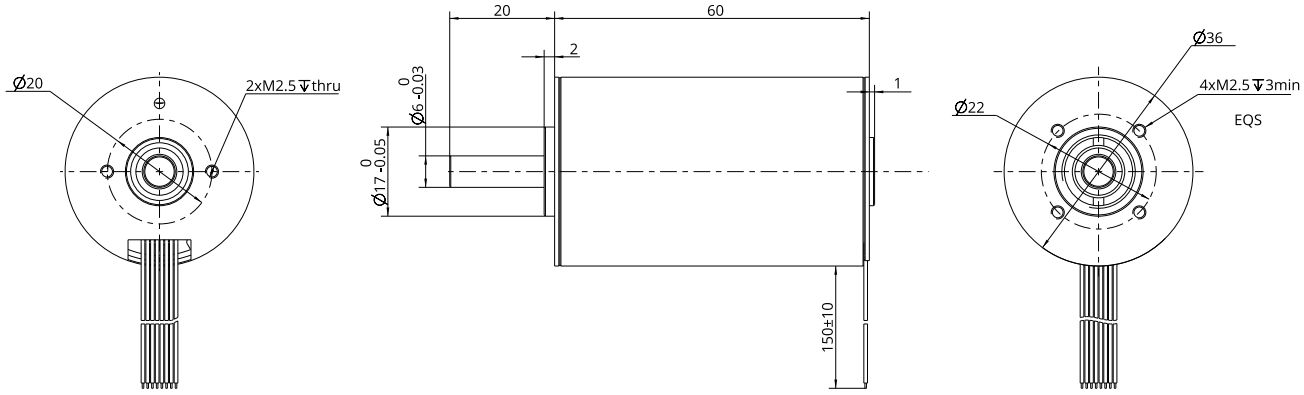
Motor Characteristics

Motor part number		36ZWWC60				
Pole pair	-	1	1	1	1	2
Phase resistance	Ω	0.6	0.68	1.45	2.1	0.41
Phase inductance	mH	0.08	0.1	0.19	0.27	0.042
Winding connection method	-	Star shape	Star shape	Star shape	Star shape	Star shape
Insulation class	-	B	B	B	B	B
Duty type	-	S2	S2	S2	S2	S1
Feedback method	-	Hall sensors	Hall sensors	Hall sensors	Hall sensors	Hall sensors
Commutation angle	-	120°	120°	120°	120°	120°
Insulation strength (Withstand voltage)	-	500VAC/1KHz/ 1mA/1s	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	100 MΩ/500VDC
Weight	g	270	270	270	270	270
Rated voltage	V	18	24	36	48	24
Rated power	W	68	69	74	85	85
Rated torque	mN·m	70	70	70	70	100
Rated speed	RPM	7340	9345	10000	11700	8100
Rated current	A	4.97	3.78	2.59	2.21	4.80
No load speed	RPM	10000	11000	11500	13000	10300
No load current	A	0.37	0.37	0.22	0.2	0.36
Motor efficiency	%	76	76	79.5	80	84.4
Noise (Ambient noise 20db, test distance 1m)	dB	<50	<50	<50	<50	<50
Case - Environmental thermal resistance (no load)	K/W	0.42	0.43	0.44	0.36	0.58
Motor thermal time constant (no load)	S	1350	1350	2700	1080	1330
Ambient temperature	℃	21.1	23.1	20.1	20.4	19.5
Max. winding temperature (no load)	℃	49.4	52.9	52.8	50.8	69.3
Torque constant	mN·m/A	14.08	18.50	27.07	31.62	20.83
Back-EMF constant - peak value	V/Krpm	2.09	2.74	4.01	4.68	3.08
Back-EMF constant - effective value	V/Krpm	1.47	1.94	2.83	3.31	2.18
Peak torque	mN·m	422.47	653.09	672.16	722.82	1219.51
Peak current	A	30	35	25	23	59
Inertia moment	$g \cdot cm^2$	39	39	39	39	39
Mechanical time constant	ms	11.80	7.75	7.72	8.19	3.68
End bell	-	Stainless steel	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	Deep Groove Ball bearing
Magnet	-	Sinter NdFeB	Sinter NdFeB	Sinter NdFeB	Sinter NdFeB	Sinter NdFeB
Rotation shaft	-	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel

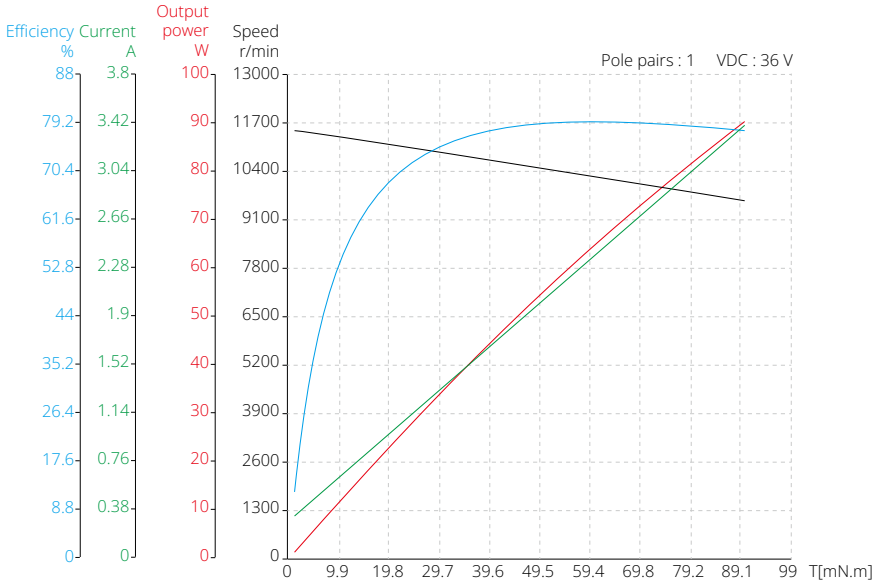
For stroke customization, please contact DINGS' or local representative.

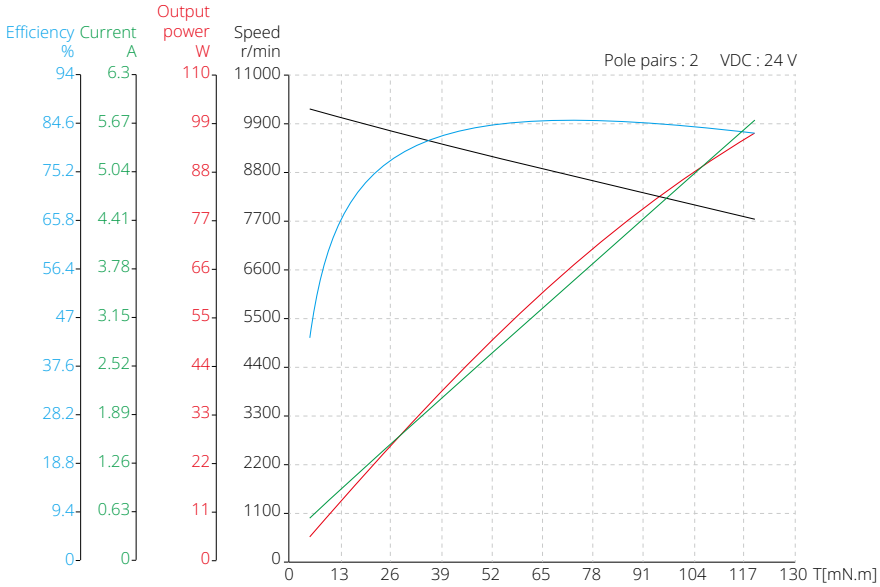
36mm Series

Dimensional Drawings



Torque Performance Curves





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

42mm Series

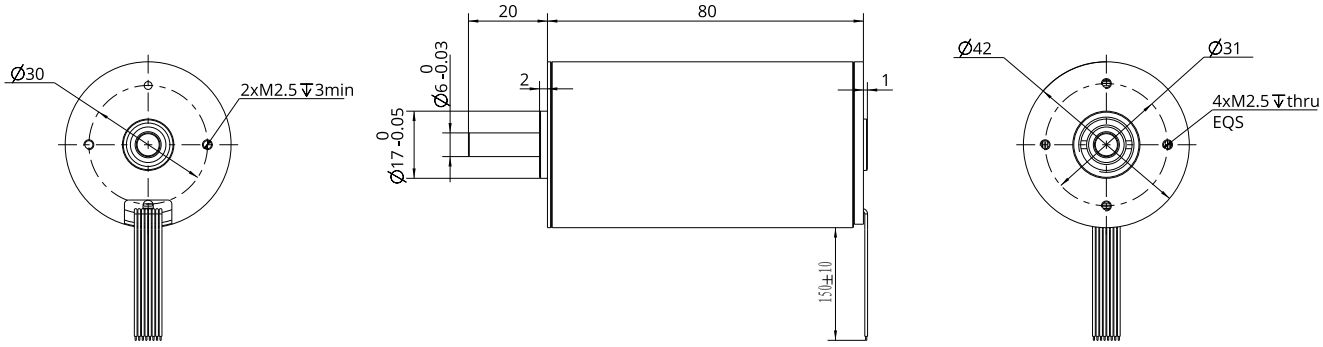
Motor Characteristics

Motor part number		42ZWWC80				
Pole pair	-	1	1	1	1	2
Phase resistance	Ω	0.4	0.45	0.6	0.95	0.22
Phase inductance	mH	0.085	0.14	0.14	0.23	0.035
Winding connection method	-	Star shape	Star shape	Star shape	Star shape	Star shape
Insulation class	-	B	B	B	B	B
Duty type	-	S2	S2	S2	S2	S1
Feedback method	-	Hall sensors	Hall sensors	Hall sensors	Hall sensors	Hall sensors
Commutation angle	-	120°	120°	120°	120°	120°
Insulation strength (Withstand voltage)	-	500VAC/1KHz/ 1mA/1s	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	100 MΩ/500VDC
Weight	g	500	500	500	500	500
Rated voltage	V	18	24	36	48	24
Rated power	W	66	80	100	160	102
Rated torque	mN·m	90	90	90	120	180
Rated speed	RPM	6678	8346	11619	12200	5400
Rated current	A	4.89	4.17	3.47	4.17	5.70
No load speed	RPM	9000	11000	13000	13800	6800
No load current	A	0.6	0.69	0.6	0.58	0.42
Motor efficiency	%	75	80	80	80	87.9
Noise (Ambient noise 20db, test distance 1m)	dB	<50	<50	<50	<50	<50
Case - Environmental thermal resistance (no load)	K/W	0.43	0.50	0.67	0.26	0.41
Motor thermal time constant (no load)	S	900	1620	2040	2040	1340
Ambient temperature	℃	23.1	23.5	23	23	22.6
Max. winding temperature (no load)	℃	51.5	63.7	90	90	72.1
Torque constant	mN·m/A	18.41	21.60	25.92	28.80	31.58
Back-EMF constant - peak value	V/Krpm	2.73	3.20	3.84	4.26	4.68
Back-EMF constant - effective value	V/Krpm	1.93	2.26	2.71	3.02	3.31
Peak torque	mN·m	828.41	1152.00	1555.20	1455.16	3444.98
Peak current	A	45	53	60	51	109
Inertia moment	$g \cdot cm^2$	96.3	96.3	96.3	96.3	96.3
Mechanical time constant	ms	11.37	9.29	8.60	11.03	2.12
End bell	-	Stainless steel	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	Deep Groove Ball bearing
Magnet	-	Sinter NdFeB	Sinter NdFeB	Sinter NdFeB	Sinter NdFeB	Sinter NdFeB
Rotation shaft	-	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel

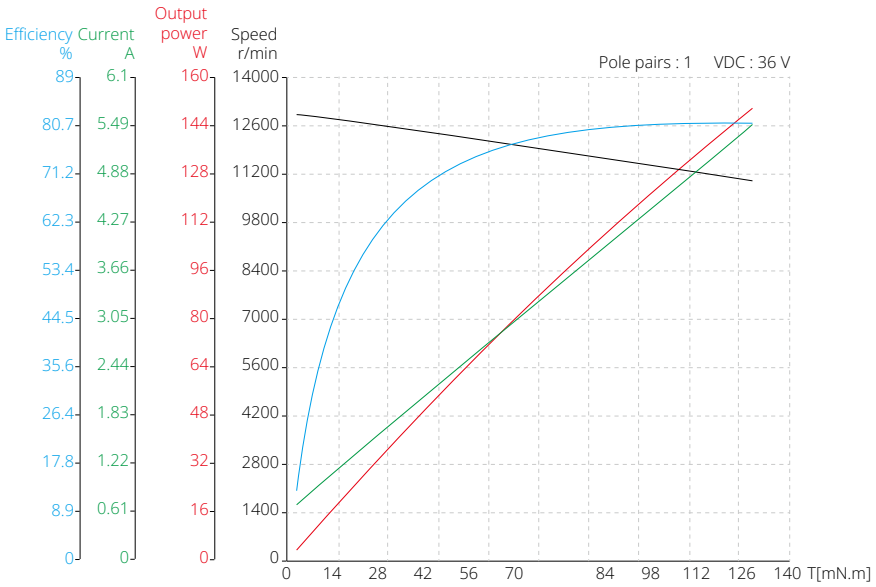
For stroke customization, please contact DINGS' or local representative.

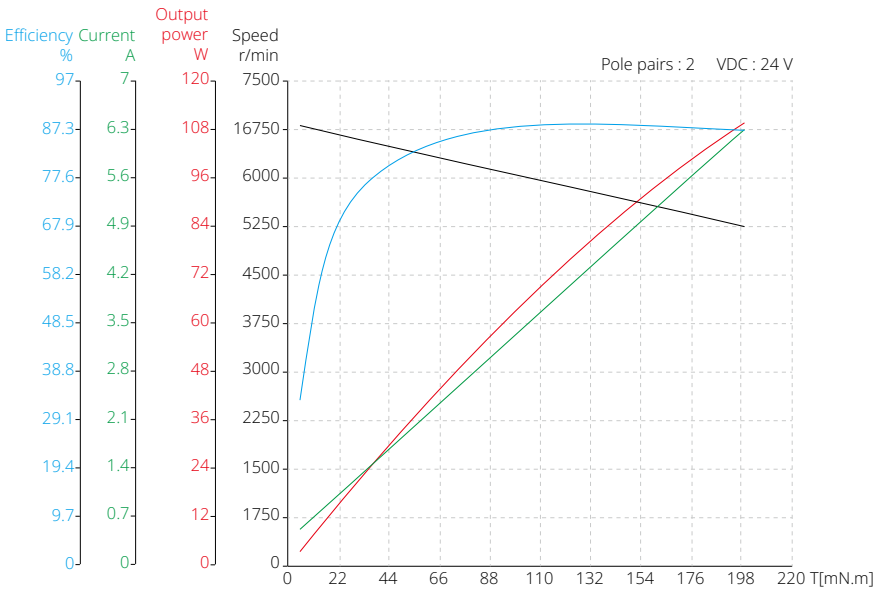
42mm Series

Dimensional Drawings



Torque Performance Curves



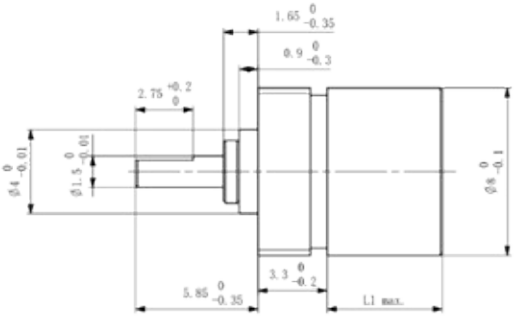


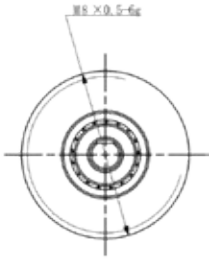
Note : All drawings are 1st Angle Projection - ISO Compliant (3D models available)

Accerrosies and Options

Precision planetary gearbox

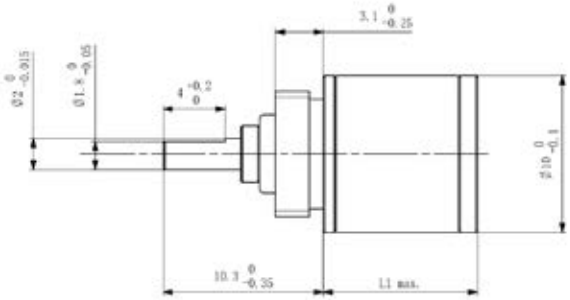
8PGX

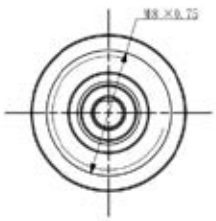




Stage	-	Stage 1	Stage 2
Reduction ratio	X : 1	4	16
Max. continuous torque	N·m	0.01	0.02
Max. continuous output power	W	0.84	0.52
Max. continous speed transfer	rpm	12000	12000
Max.axial load (Dynamic)	N	5	5
Max. radial load (5mm from flange)	N	5	6
Max. efficiency	%	90	81
Max. backlash	°	1.8	2.0
Gearbox length L	mm	5.5	8.1
Weight	g	2.6	3.2

10PGX

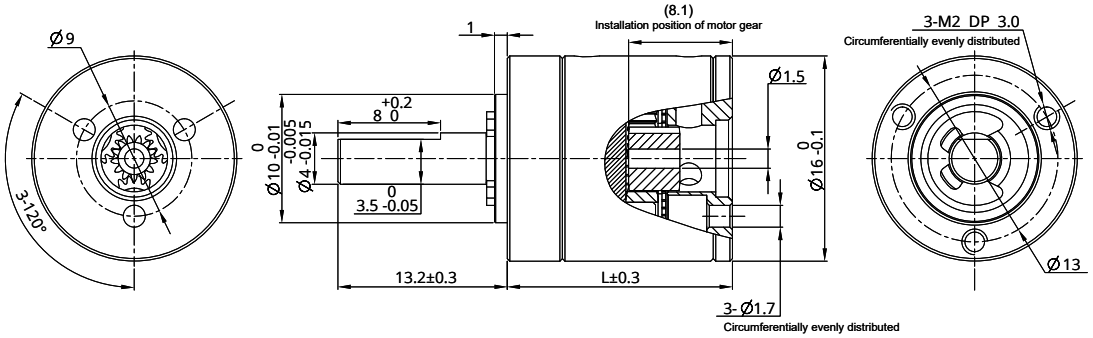




Stage	-	Stage 1	Stage 2	Stage 3	Stage 4
Reduction ratio	X : 1	4.25	18	76.8	326
Max. continuous torque	N·m	0.01	0.03	0.10	0.15
Max. continuous output power	W	1.6	1.2	1.0	0.4
Max. continous speed transfer	rpm	12000	12000	12000	12000
Max.axial load (Dynamic)	N	5	5	5	5
Max. radial load (5mm from flange)	N	5	10	15	20
Max. efficiency	%	90	81	73	65
Max. backlash	°	1.5	1.8	2.0	2.2
Gearbox length L	mm	10.1	13.6	17.1	20.6
Weight	g	6.7	7.2	7.7	8.2

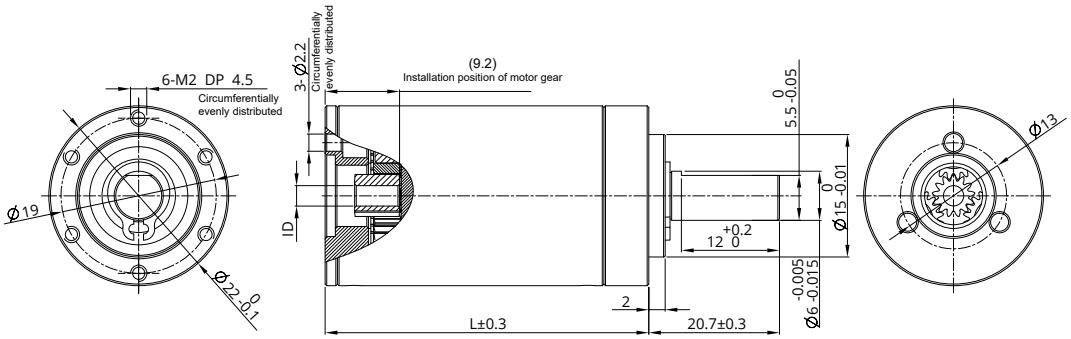
Accerrosies and Options

16PGX



Stage	-	Stage 1	Stage 2	Stage 3	Stage 4
Reduction ratio	X : 1	3.9, 5.3, 6.6	16, 21, 26, 28, 35, 44	62, 83, 103, 111, 138, 150, 172, 186, 231	243, 326, 406, 439, 546, 590, 679, 734, 794, 913, 987, 1135, 1227, 1526
Max. continuous torque	N·m	0.2	0.25	0.35	0.45
Max. continuous output power	W	6.5	3.2	1.6	0.6
Max. continous speed transfer	rpm	12000	14000	16000	16000
Max.axial load (Dynamic)	N	20	20	20	20
Max. radial load (5mm from flange)	N	30	45	70	70
Max. efficiency	%	90	80	75	65
Max. backlash	°	1.0	1.2	1.3	1.4
Gearbox length L	mm	18.7	25.5	30.2	35
Weight	g	25	31	37	42

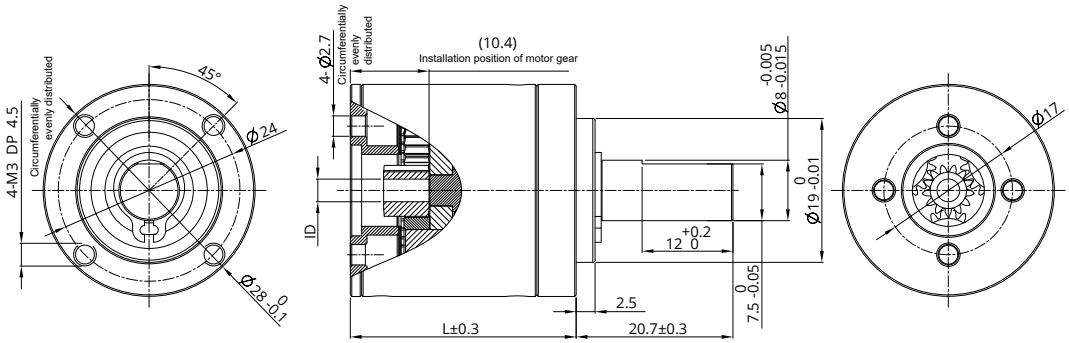
22PGX



Stage	-	Stage 1	Stage 2	Stage 3	Stage 4
Reduction ratio	X : 1	3.9, 5.3, 6.6	16, 21 , 26, 28 , 35, 44	62, 83, 103, 111, 138 , 150, 172, 186, 231	243, 326, 406, 439, 546, 590, 679, 734, 794, 913, 987, 1135, 1227, 1526
Max. continuous torque	N·m	0.50	0.70	1.20	1.50
Max. continuous output power	W	24	12	6.0	1.6
Max. continous speed transfer	rpm	8000	10000	12000	12000
Max.axial load (Dynamic)	N	40	40	40	40
Max. radial load (5mm from flange)	N	65	100	120	120
Max. efficiency	%	90	81	74	66
Max. backlash	°	0.85	1.05	1.2	1.35
Gearbox length L	mm	22.3	33	39.6	46.3
Weight	g	59	83	97	112

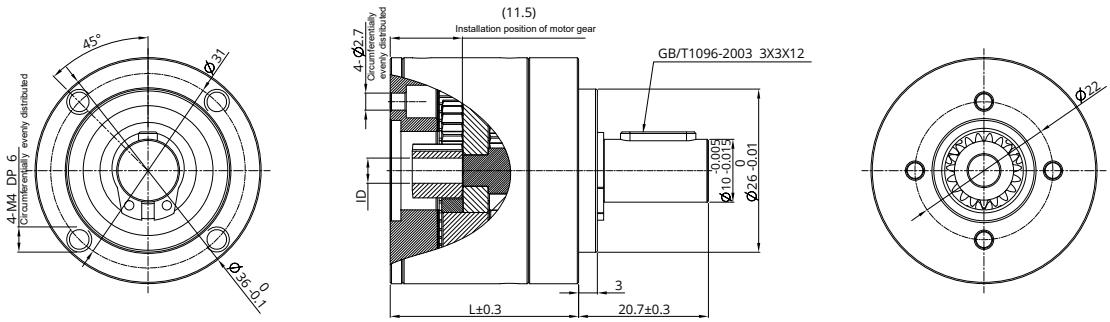
Accerrosies and Options

28PGX



Stage	-	Stage 1	Stage 2	Stage 3	Stage 4
Reduction ratio	X : 1	3.9, 5.3, 6.6	16, 21 , 26, 28, 35	62, 83, 103, 111, 138 , 150, 172, 186, 231	243, 326, 406, 439, 546, 590, 679, 734, 794, 913, 987, 1135, 1227, 1526
Max. continuous torque	N·m	1.25	2.90	5.0	5.0
Max. continuous output power	W	100	50	25	22
Max. continous speed transfer	rpm	6000	7000	8000	8000
Max.axial load (Dynamic)	N	110	110	110	110
Max. radial load (5mm from flange)	N	160	180	180	180
Max. efficiency	%	90	81	74	65
Max. backlash	°	0.55	0.7	0.9	1.0
Gearbox length L	mm	24.2	36.9	43.5	50.2
Weight	g	103	150	174	198

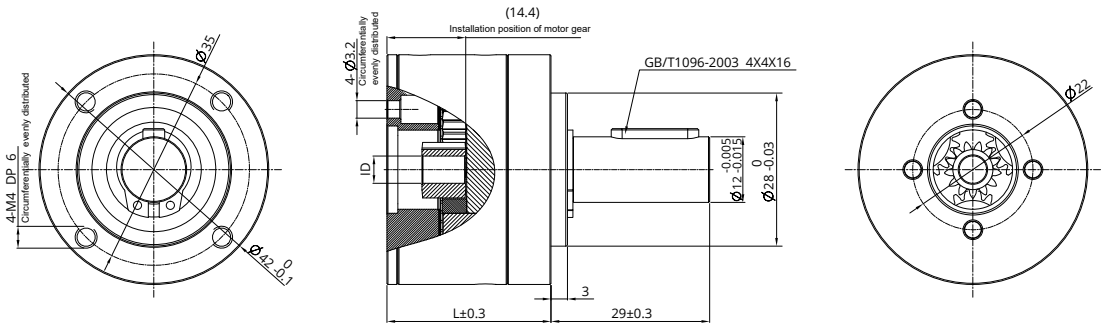
36PGX



Stage	-	Stage 1	Stage 2	Stage 3	Stage 4
Reduction ratio	X : 1	3.9, 5.3	16, 21 , 26, 28, 35	62, 83, 103, 111, 138 , 150, 172, 186, 231	243, 326, 406, 439, 546, 590, 679, 734, 794, 913, 987, 1135, 1227, 1526
Max. continuous torque	N·m	2.30	5.40	9.30	9.30
Max. continuous output power	W	185	90	45	40
Max. continous speed transfer	rpm	5000	6000	7000	7000
Max.axial load (Dynamic)	N	240	240	240	240
Max. radial load (5mm from flange)	N	200	250	250	250
Max. efficiency	%	90	80	75	65
Max. backlash	°	0.5	0.6	0.7	0.8
Gearbox length L	mm	30	44.7	51.3	58
Weight	g	156	238	277	315

Accerrosies and Options

- 42PGX



Stage	-	Stage 1	Stage 2	Stage 3	Stage 4
Reduction ratio	X : 1	3.9, 5.3	16, 21 , 26, 28, 35	62, 83, 103, 111, 138 , 150, 172, 186, 231	243, 326, 406, 439, 546, 590, 679, 734 , 794, 913, 987, 1135, 1227, 1526
Max. continuous torque	N·m	3.0	7.5	15	15
Max. continuous output power	W	580	240	100	20
Max. continous speed transfer	rpm	6000	6000	6000	6000
Max.axial load (Dynamic)	N	200	200	200	200
Max. radial load (5mm from flange)	N	350	525	750	750
Max. efficiency	%	90	81	72	64
Max. backlash	°	0.3	0.4	0.5	0.6
Gearbox length L	mm	36.1	54.9	63.6	72.4
Weight	g	252	405	476	544

G DLM / DSM Series

Based on our company's platform product high-precision screw stepper motor, combined with linear guide rails, we have designed DLM series and DSM series simple modules.

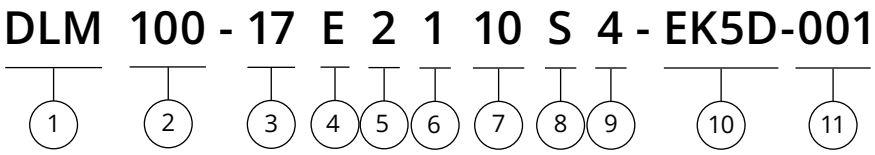
The product has a compact structure and high positioning accuracy, achieving mechanical miniaturization for customers. Both modules have a variety of lead screw and stroke options, providing accessories such as encoders and power brakes (refer to optional accessories for sliding screw linear actuators), as well as special customized products.

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



(1) Prooduct Name
DLM Series Module

(2) Stroke (mm)
100 = 100mm

(3) Motor Size

Motor Size (mm)	14	20	28	35	42	57
Motor Size (NEMA)	6	8	11	14	17	23

(4) Motor Type
E = External type
N = Non-Captive type

(5) Motor Step Angle
2 = 2 Phase with 1.8°
4 = 2 Phase with 0.9°

(6) Motor Length
1 = Single stack
2 = Double stack

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

(8) Lead Screw Code
Please refer to lead screw code selection table

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

(10) Option
EKX = Encoder [X = Encoder Resolution]
P = Manual Knob
B = Brake
X = Rear Shaft
R = Encoder Ready
C = Customize
N = No processing at the rear end

(11) Customer Sequence Number

Example

Part Number	DLM100-17E2110S4-EK5D-001
Description	DLM 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 14mm DLM

Based on DINGS' platform products, high precision of lead screw linear actuator and self-developed simple linear module, DLM 14mm series is compact and reliable structure of linear solution.

DLM 14mm 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

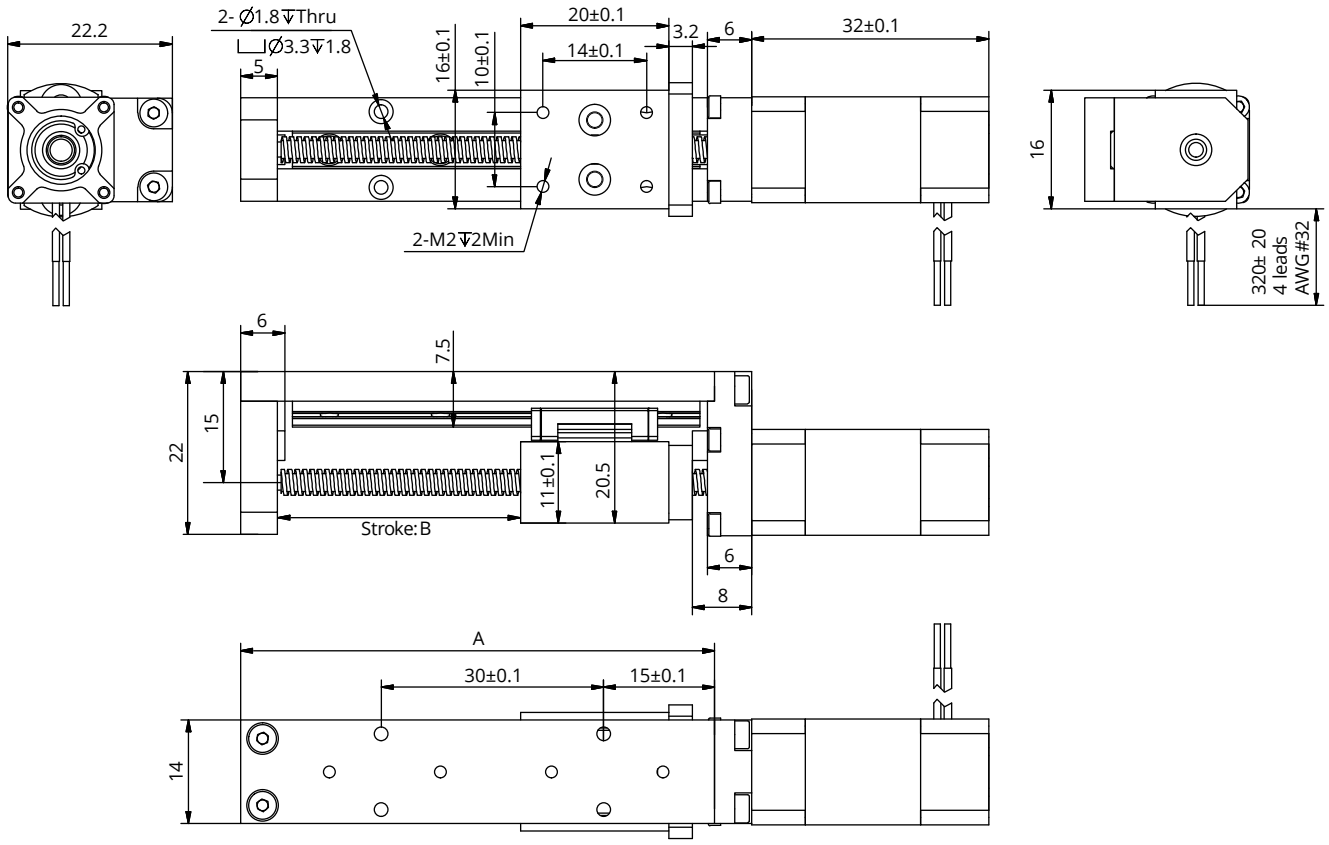
Motor	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Weight (g)	Lead Wire No.	Motor Length (mm)
6-2103	6.6	0.3	22	4.5	60	4	32

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	2.5	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

Size 14mm DLM

Dimensional Drawings



Available Stroke Selection

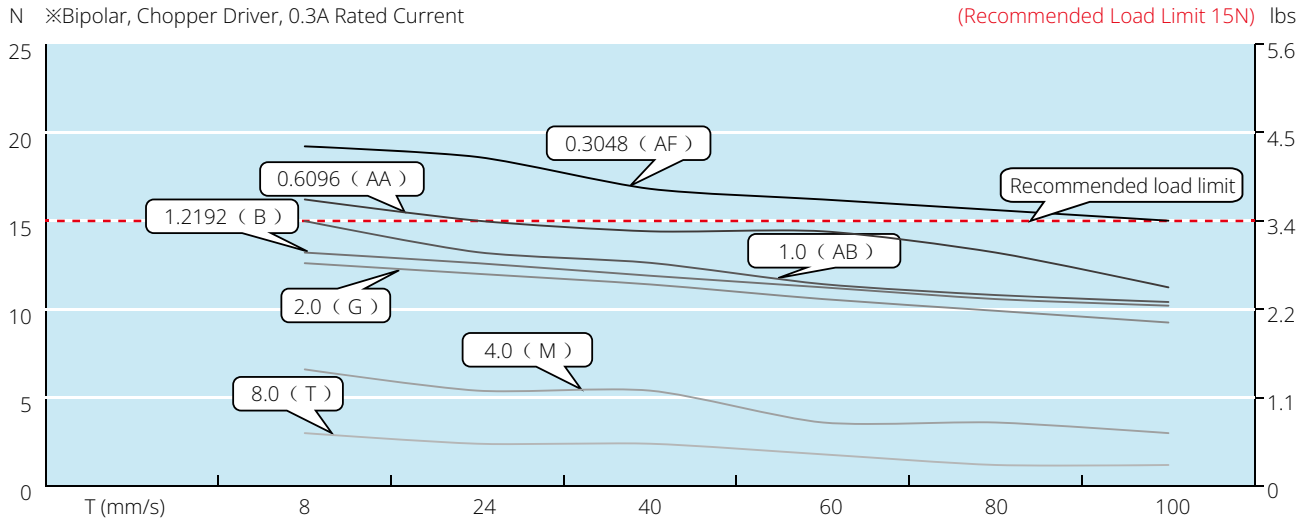
Size A (mm)	Stroke B (mm)
60	20
80	40
100	60
120	80
140	100

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

Size 14mm DLM

Speed Thrust Curves

Size 6 Single Stack Speed Thrust Curves



T (mm/s)	8	24	40	60	80	100
M (mm/s)	4	12	20	30	40	50
G (mm/s)	2	6	10	15	20	25
B (mm/s)	1.2	3.7	6.1	9.1	12.2	15.2
AB (mm/s)	1	3	5	7.5	10	12.5
AA (mm/s)	0.6	1.8	3	4.6	6.1	7.6
AF (mm/s)	0.3	0.9	1.5	2.3	3	3.8
Speed r/min	60	180	360	450	600	750
Pulse pps	200	600	1000	1500	2000	2500

TEST CONDITION

Testing Voltage: 12Vdc, 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 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)	Lead wire No.	Motor length (mm)
8E2105	2.5	0.5	5.1	1.5	4	27.2
8E2205	4.4	0.5	8.8	2.7	4	38.1

Available Lead Screw and Travel per Step

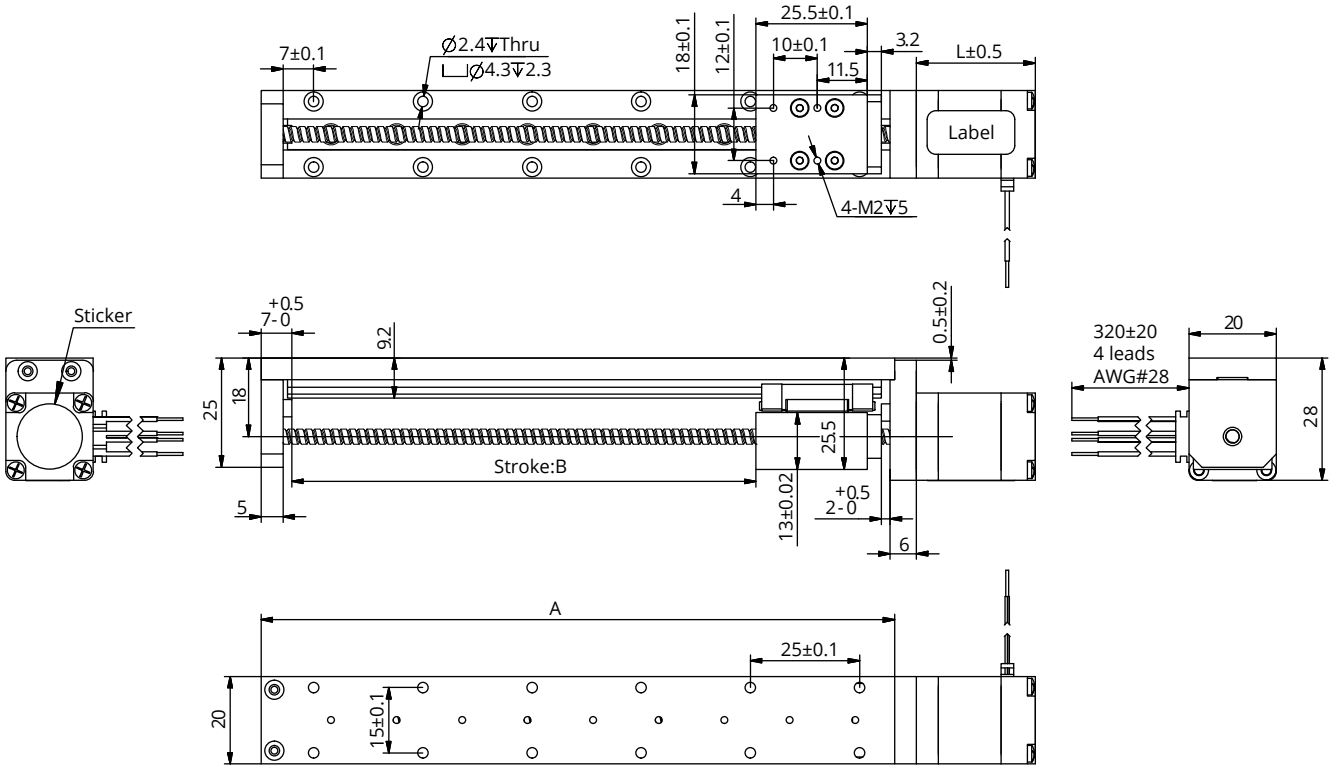
Screw Dia. (inch)	Screw Dia. (mm)	Lead (inch)	Lead (mm)	Lead Code	Travel Per Step @1.8° (mm)*
0.138	3.5	0.0118	0.3	AF	0.0015
0.138	3.5	0.024	0.6096	AA	0.003048
0.138	3.5	0.0394	1	AB	0.005
0.138	3.5	0.048	1.2192	B	0.006096
0.138	3.5	0.0787	2	G	0.01
0.138	3.5	0.1575	4	M	0.02
0.138	3.5	0.315	8	T	0.04

Mechanical Specifications

Model	C100B(dyn)(N)	Co(stat)(N)	Mro(Nm)	Mpo(Nm)	Myo(Nm)
DLM 20	445	720	2.6	1.65	1.65

Size 20mm DLM

Dimensional Drawings



Available Stroke Selection

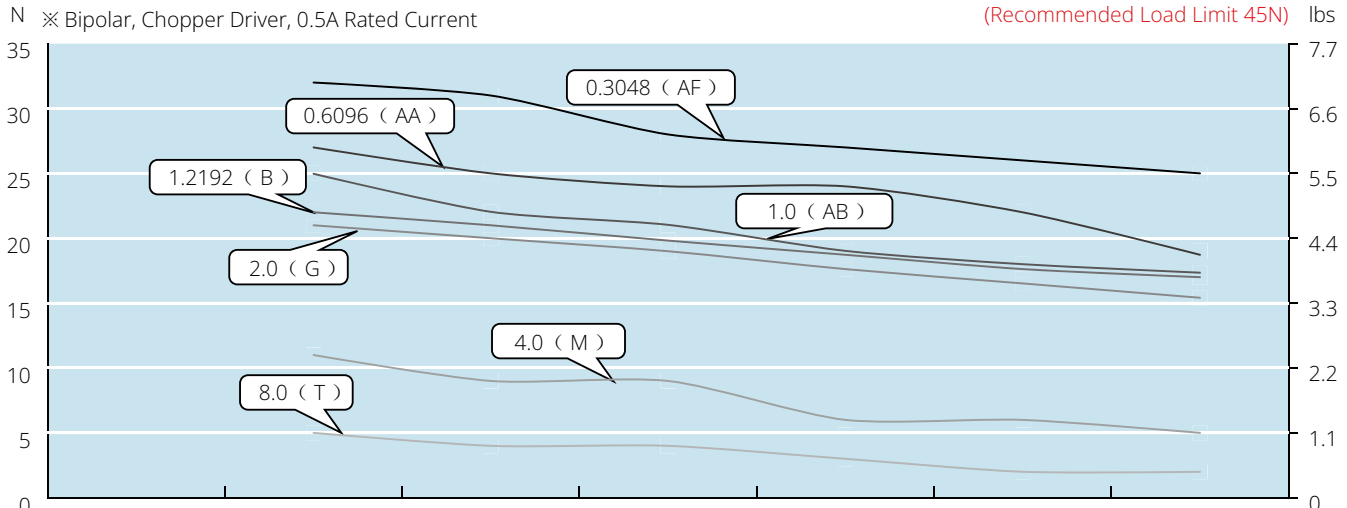
Size A (mm)	Stroke B (mm)
60	20
80	40
100	60
120	80
140	100
160	120
190	150

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

Size 20mm DLM

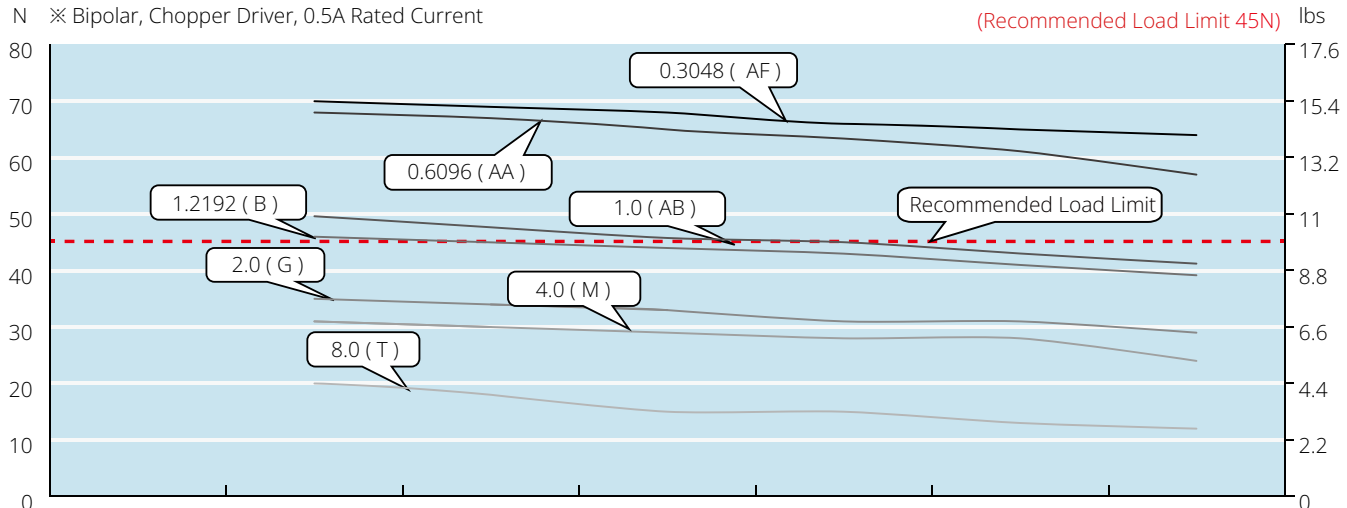
Speed Thrust Curves

Size 8 Single Stack Speed Thrust Curves



T(mm/s)	8	24	40	60	80	100
M(mm/s)	4	12	20	30	40	50
G(mm/s)	2	6	10	15	20	25
B(mm/s)	1.2	3.7	6.1	9.1	12.2	15.2
AB(mm/s)	1	3	5	7.5	10	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	3.8
Speed r/min	60	180	300	450	600	750
Pulse pps	200	600	1000	1500	2000	2500

Size 8 Double Stack Speed Thrust Curves



T(mm/s)	8	24	40	60	80	100
M(mm/s)	4	12	20	30	40	50
G(mm/s)	2	6	10	15	20	25
B(mm/s)	1.2	3.7	6.1	9.1	12.2	15.2
AB(mm/s)	1	3	5	7.5	10	12.5
AA(mm/s)	0.6	1.8	3	4.6	6.1	7.6
AF(mm/s)	0.3	0.9	1.5	2.3	3	3.8
Speed r/min	60	180	300	450	600	750
Pulse 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)	Lead wire No.	Motor length (mm)
11E2105	4.55	0.5	9.1	6.0	4	33.35
11E2110	2.1	1.0	2.1	1.5	4	33.35
11E2209	3.9	0.95	4.1	4.0	4	45
11E2216	2.4	1.6	1.5	1.3	4	45

Available Lead Screw and Travel per Step

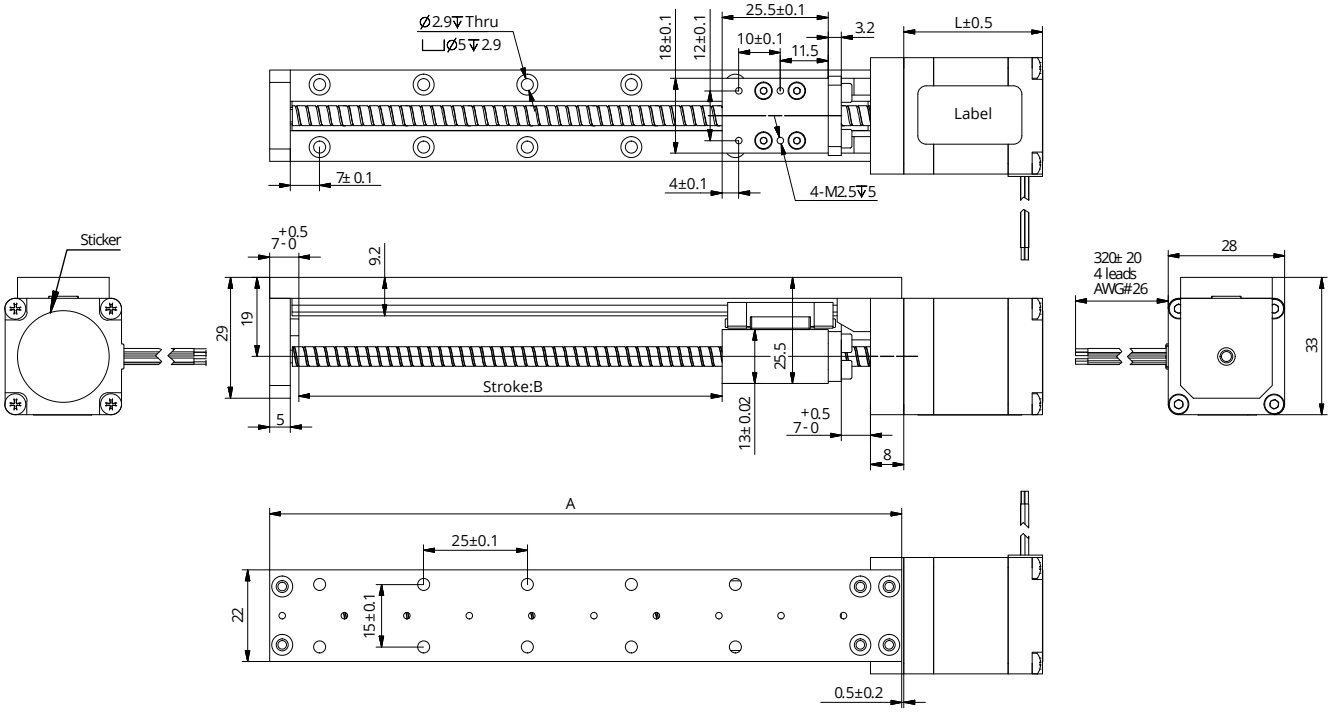
Screw Dia. (inch)	Screw Dia. (mm)	Lead (inch)	Lead (mm)	Lead Code	Travel Per Step @1.8° (mm)*
0.188	4.77	0.0125	0.3175	AL	0.0016
0.188	4.77	0.025	0.635	A	0.003175
0.188	4.77	0.05	1.27	D	0.00635
0.188	4.77	0.1	2.54	K	0.0127
0.188	4.77	0.2	5.08	R	0.0254
0.188	4.77	0.4	10.16	X	0.0508

Mechanical Specifications

Model	C100B(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

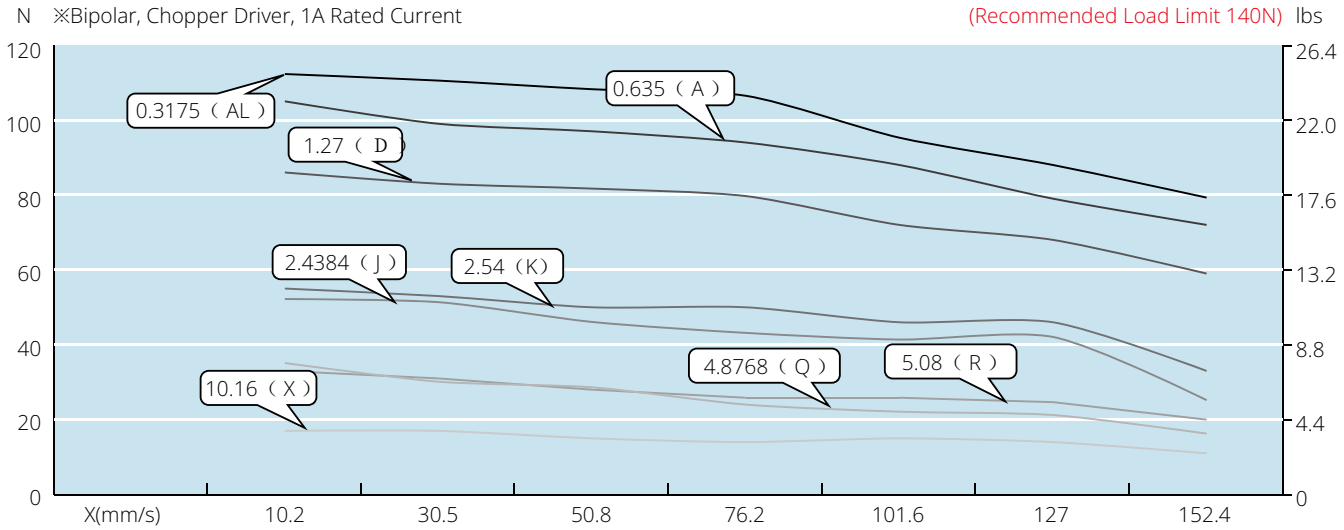
Size A (mm)	Stroke B (mm)
72	20
92	40
112	60
132	80
152	100
202	150
252	200
302	250

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

Size 28mm DLM

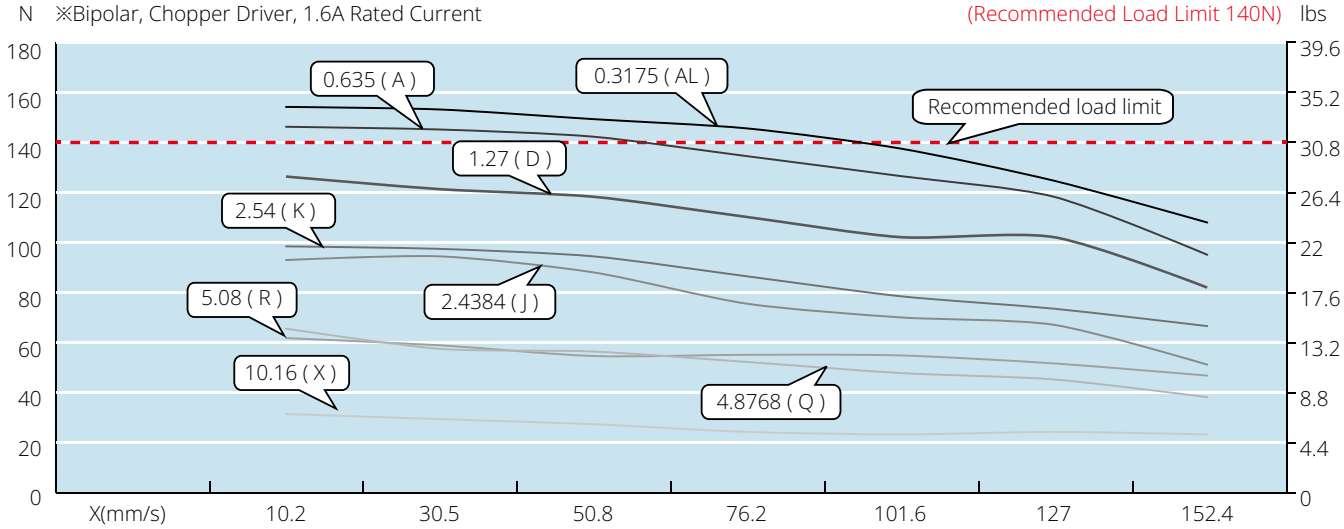
Speed Thrust Curves

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
Speed r/min	60	180	300	450	600	750	900
Pulse 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	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	1.6	2.4	3.2	4	4.8
Speed r/min	60	180	300	450	600	750	900
Pulse pps	200	600	1000	1500	2000	2500	3000

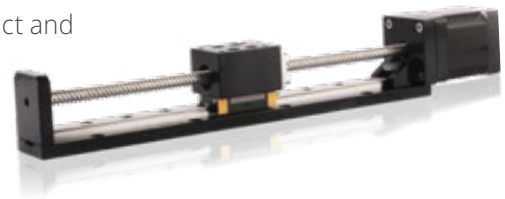
TEST CONDITION

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)	Lead wire No.	Motor length (mm)
14E2105	6.6	0.5	13.2	14	4	33.6
14E2110	3.5	1.0	3.5	3.6	4	33.6
14E2115	2.7	1.5	1.8	1.9	4	33.6
14E2205	12.0	0.5	24.0	29	4	45.6
14E2210	6.0	1.0	6.0	7.2	4	45.6
14E2215	4.0	1.5	2.7	3.2	4	45.6

Available Lead Screw and Travel per Step

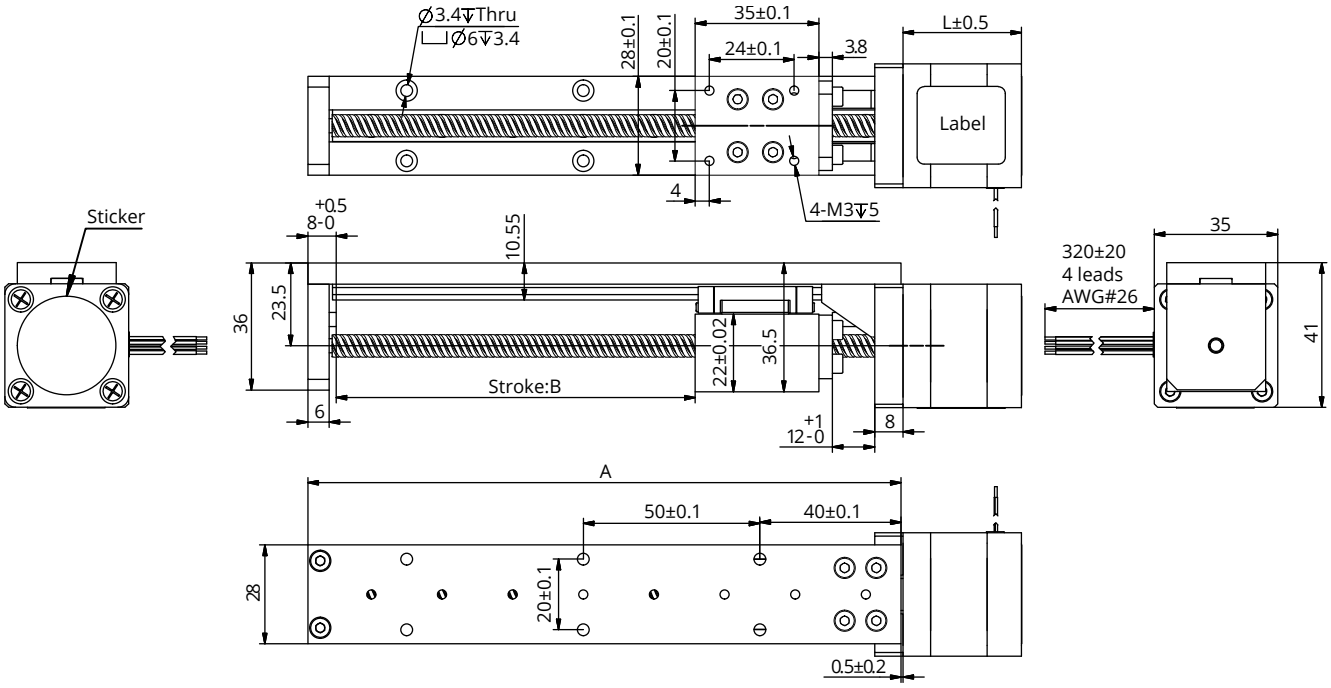
Screw Dia. (inch)	Screw Dia. (mm)	Lead (inch)	Lead (mm)	Lead Code	Travel Per Step @1.8° (mm)*
0.25	6.35	0.024	0.6096	AA	0.003048
0.25	6.35	0.0394	1	AB	0.005
0.25	6.35	0.048	1.2192	B	0.006096
0.25	6.35	0.0.05	1.27	D	0.00635
0.25	6.35	0.0625	1.5875	F	0.0079
0.25	6.35	0.096	2.4384	J	0.0122
0.25	6.35	0.1	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

Size 35mm DLM

Mechanical Specifications

Model	C100B(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

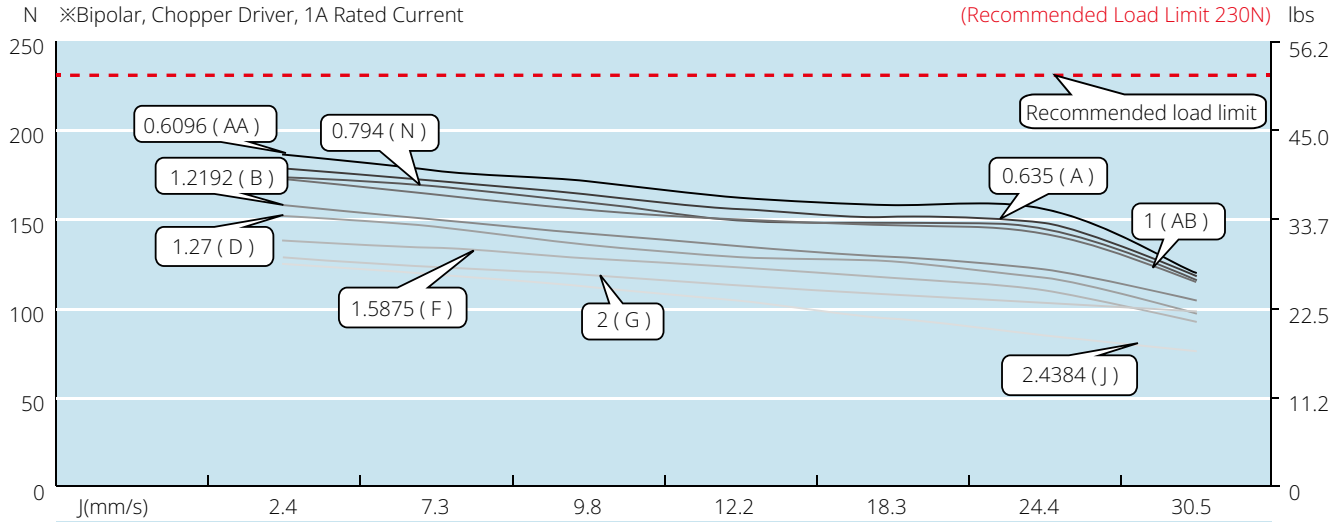
Size A (mm)	Stroke B (mm)
118	50
168	100
218	150
268	200
318	250
368	300
418	350
468	400

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

Size 35mm DLM

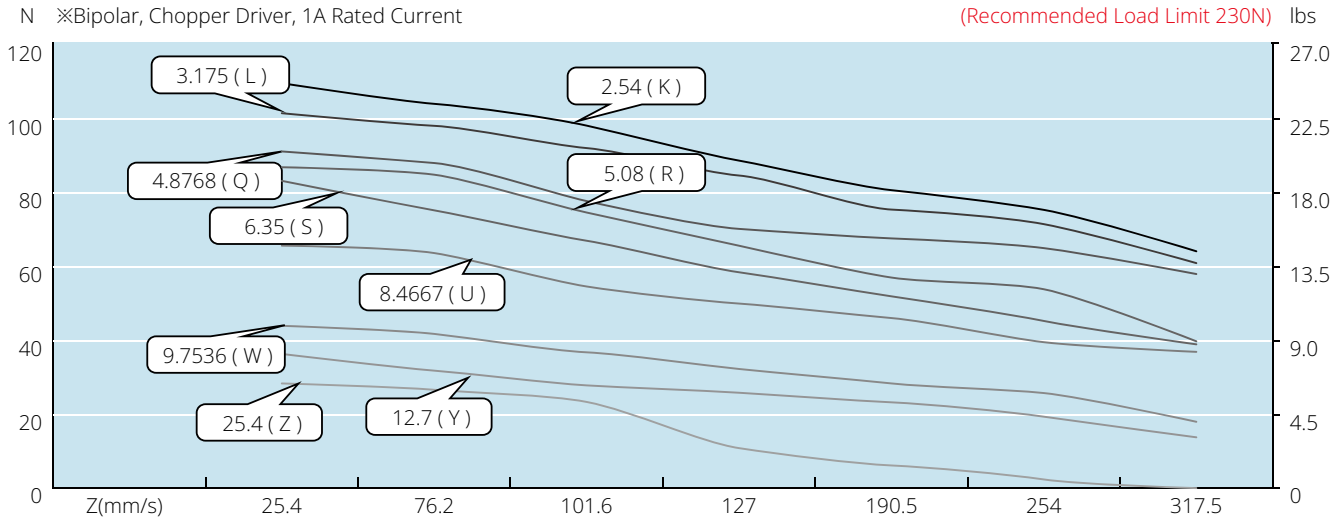
Speed Thrust Curves

Size 14 Single Stack Speed Thrust Curves



J(mm/s)	2.4	7.3	9.8	12.2	18.3	24.4	30.5
G(mm/s)	2	6	8	10	15	20	25
F(mm/s)	1.6	4.8	6.4	7.9	11.9	15.9	19.8
D(mm/s)	1.27	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	3	4	5	7.5	10	12.5
N(mm/s)	0.8	2.4	3.2	4	6	7.9	9.9
A(mm/s)	0.6	1.9	2.5	3.2	4.8	6.4	7.9
AA(mm/s)	0.6	1.8	2.4	3	4.6	6.1	7.6
Speed r/min	60	180	240	300	450	600	750
Pulse pps	200	600	800	1000	1500	2000	2500

Size 14 Single Stack Speed Thrust Curves



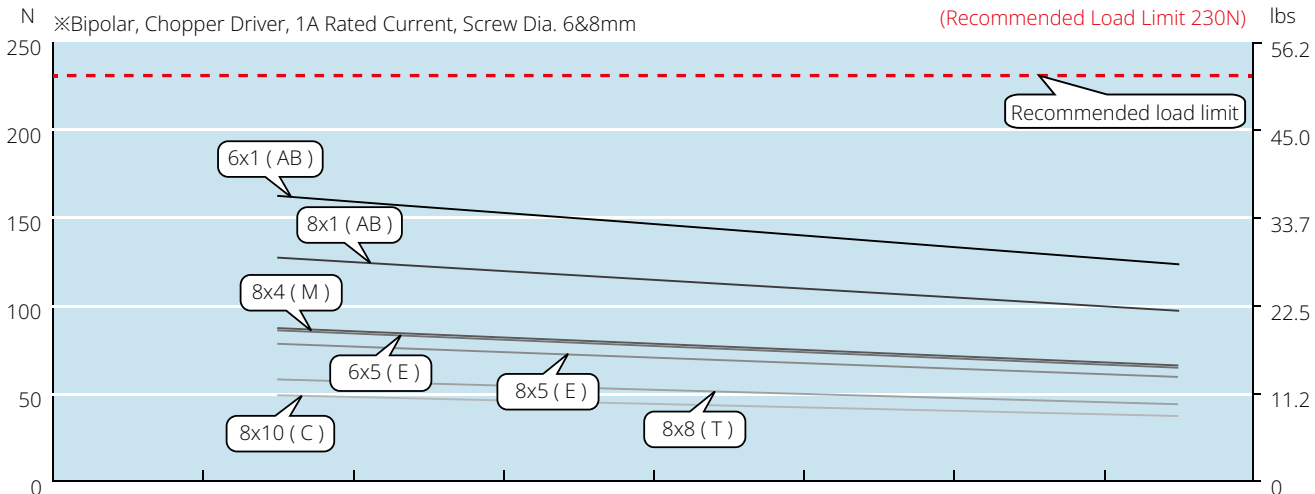
Z(mm/s)	25.4	76.2	101.6	127	190.5	254	317.5
Y(mm/s)	12.7	38.1	50.8	63.5	95.3	127.0	158.8
W(mm/s)	9.8	29.3	39.0	48.8	73.2	97.5	121.9
U(mm/s)	8.5	25.4	25.4	42.3	63.5	84.7	105.8
S(mm/s)	6.4	19.1	25.4	31.8	47.6	63.5	79.4
R(mm/s)	5.1	15.2	20.3	25.4	38.1	50.8	63.5
Q(mm/s)	4.9	14.6	19.5	24.4	36.6	48.8	61.0
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
Speed r/min	60	180	240	300	450	600	750
Pulse 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.

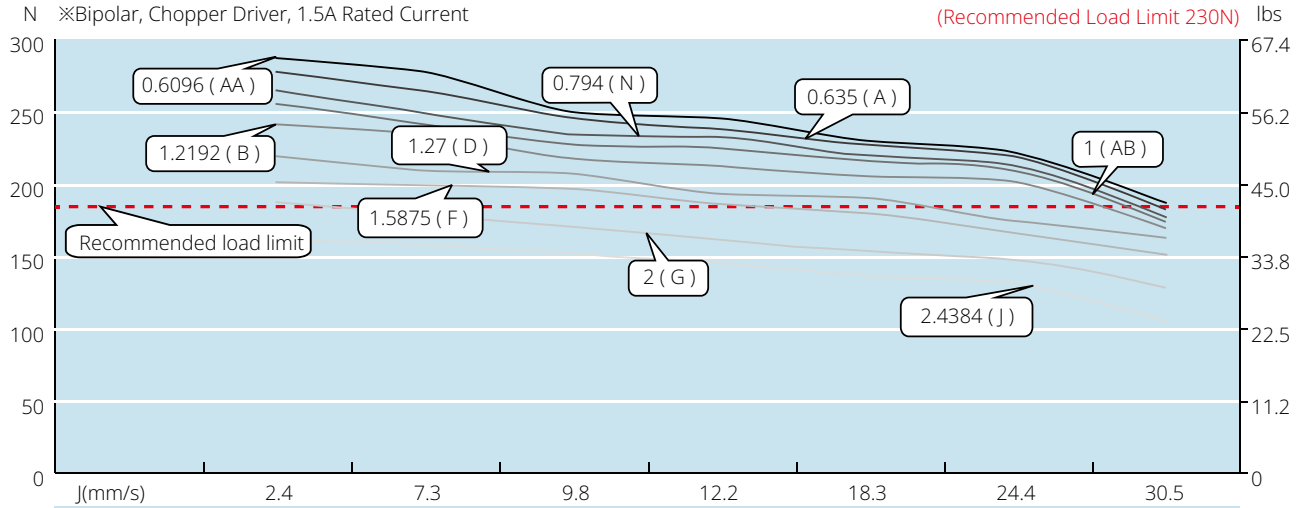
Size 35mm DLM

Size 14 Single Stack Speed Thrust Curves



C(mm/s)	10	30	40	50	75	100	125
T(mm/s)	8	24	32	40	60	80	100
E(mm/s)	5	15	20	25	37.5	50	62.5
M(mm/s)	4	12	16	20	30	40	50
AB(mm/s)	1	3	4	5	7.5	10	12.5
C(mm/s)	5	15	20	25	37.5	50	62.5
AB(mm/s)	1	3	4	5	7.5	10	12.5
Speed r/min	60	180	240	300	450	600	750
Pulse pps	200	600	800	1000	1500	2000	2500

Size 14 Double Stack Speed Thrust Curves



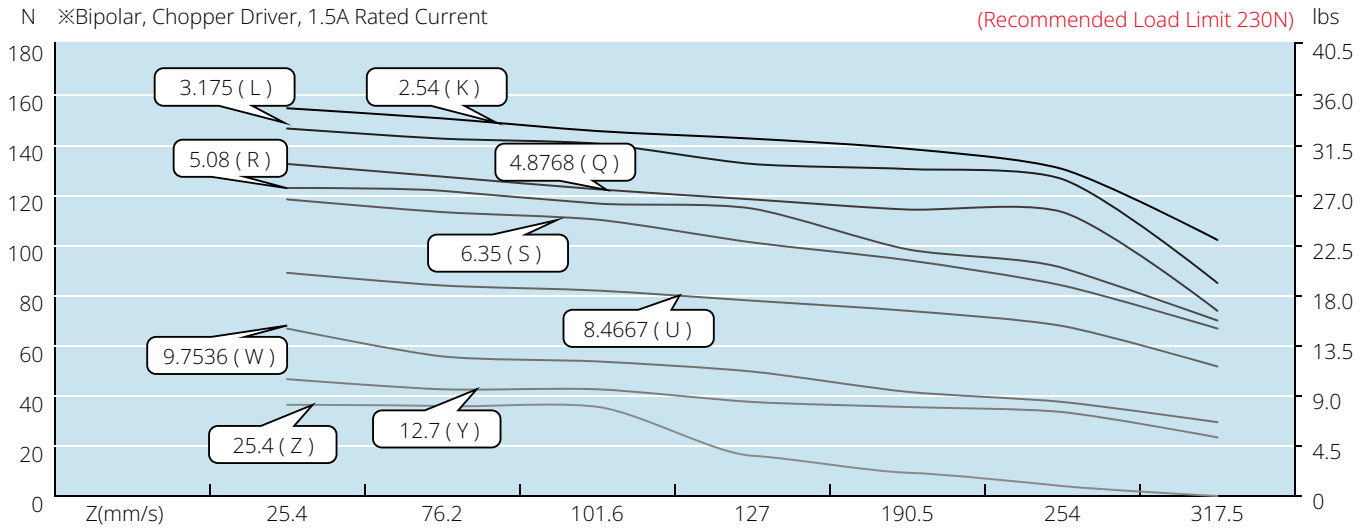
J(mm/s)	2.4	7.3	9.8	12.2	18.3	24.4	30.5
G(mm/s)	2	6	8	10	15	20	25
F(mm/s)	1.6	4.8	6.4	7.9	11.9	15.9	19.8
D(mm/s)	1.27	3.8	5.1	6.4	9.5	12.7	15.9
B(mm/s)	1.2	3.7	4.9	6.1	9.1	12.2	15.2
AB(mm/s)	1	3	4	5	7.5	10	12.5
N(mm/s)	0.8	2.4	3.2	4	6	7.9	9.9
A(mm/s)	0.6	1.9	2.5	3.2	4.8	6.4	7.9
AA(mm/s)	0.6	1.8	2.4	3	4.6	6.1	7.6
Speed r/min	60	180	240	300	450	600	750
Pulse 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.

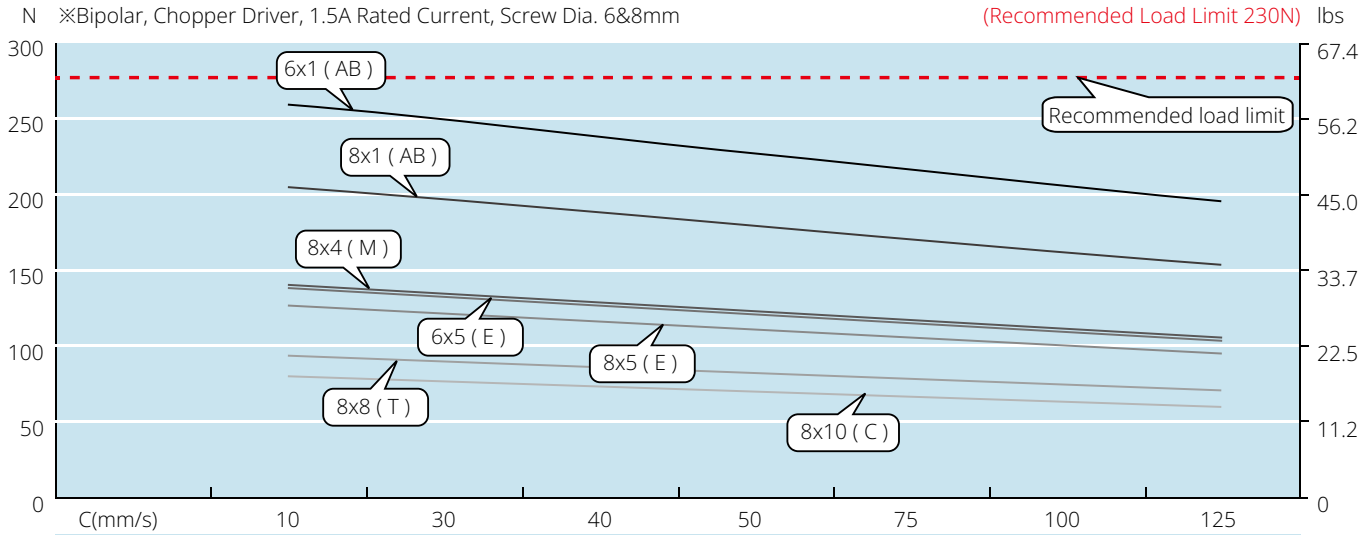
Size 35mm DLM

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
Speed r/min	60	180	240	300	450	600	750
Pulse pps	200	600	800	1000	1500	2000	2500

Size 14 Double Stack Speed Thrust Curves



C(mm/s)	10	30	40	50	75	100	125
T(mm/s)	8	24	32	40	60	80	100
E(mm/s)	5	15	20	25	37.5	50	62.5
M(mm/s)	4	12	16	20	30	40	50
AB(mm/s)	1	3	4	5	7.5	10	12.5
C(mm/s)	5	15	20	25	37.5	50	62.5
AB(mm/s)	1	3	4	5	7.5	10	12.5
Speed r/min	60	180	240	300	450	600	750
Pulse 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.

Motor Characteristics

Motor	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Lead wire No.	Motor length (mm)
17E2105	7.2	0.5	14.4	19.8	4	34.1
17E2110	3.8	1.0	3.8	5.0	4	34.1
17E2115	2.85	1.5	1.9	2.2	4	34.1
17E2205	11.0	0.5	22	46	4	48.1
17E2212	4.5	1.2	3.8	8.0	4	48.1
17E2225	2.5	2.5	1.0	1.8	4	48.1

Available Lead Screw and Travel per Step

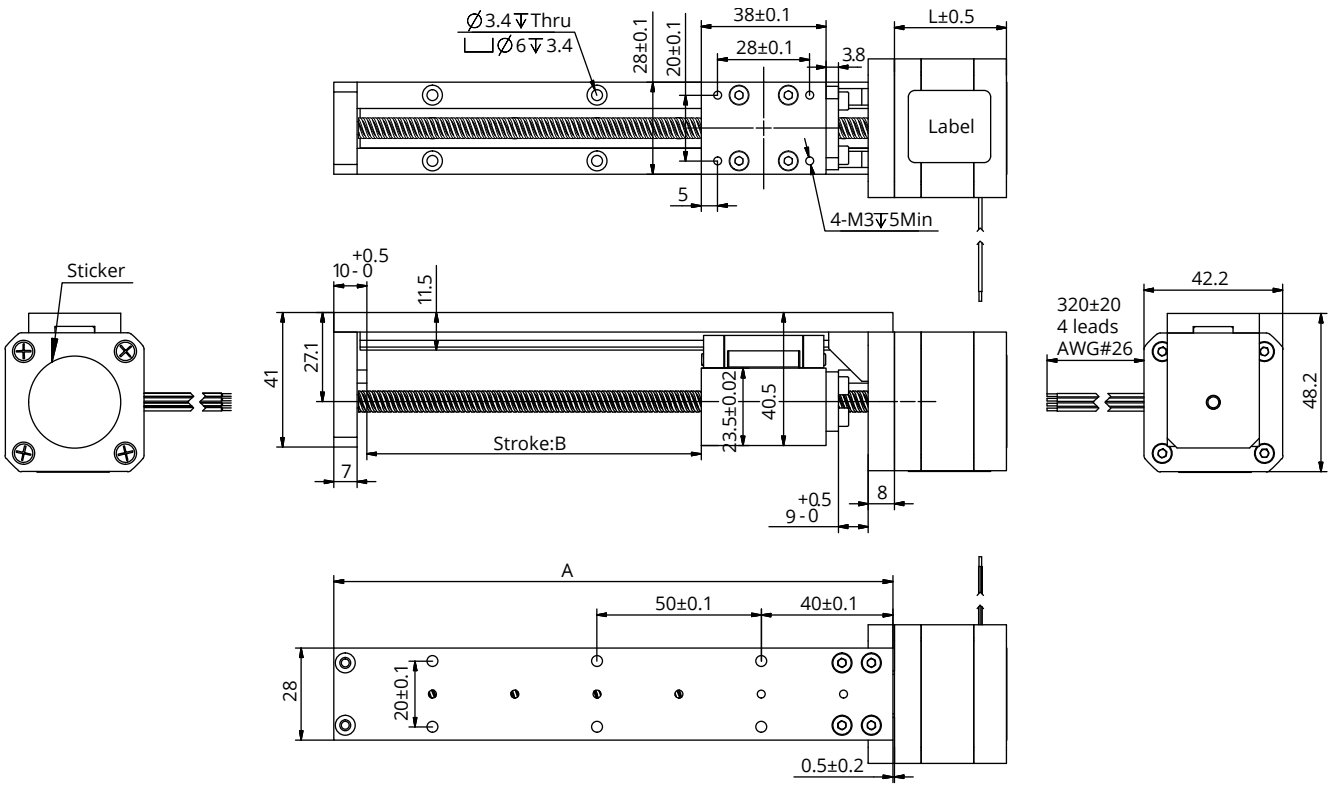
Screw Dia. (inch)	Screw Dia. (mm)	Lead (inch)	Lead (mm)	Lead Code	Travel Per Step @1.8° (mm)*
0.25	6.35	0.024	0.6096	AA	0.003048
0.25	6.35	0.0394	1	AB	0.005
0.25	6.35	0.048	1.2192	B	0.006096
0.25	6.35	0.05	1.27	D	0.00635
0.25	6.35	0.0625	1.5875	F	0.0079
0.25	6.35	0.096	2.4384	J	0.0122
0.25	6.35	0.1	2.54	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

Size 42mm DLM

Mechanical Specifications

Model	C100B(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

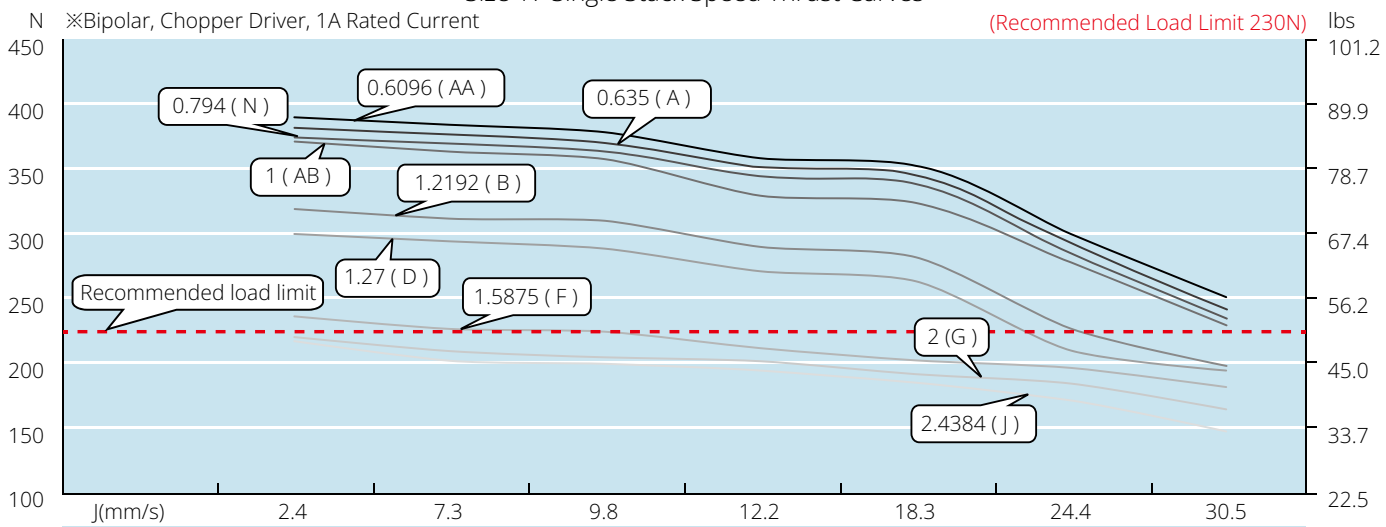
Size A (mm)	Stroke B (mm)
120	50
170	100
220	150
270	200
320	250
370	300
420	350
470	400
520	450
570	500

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

Size 42mm DLM

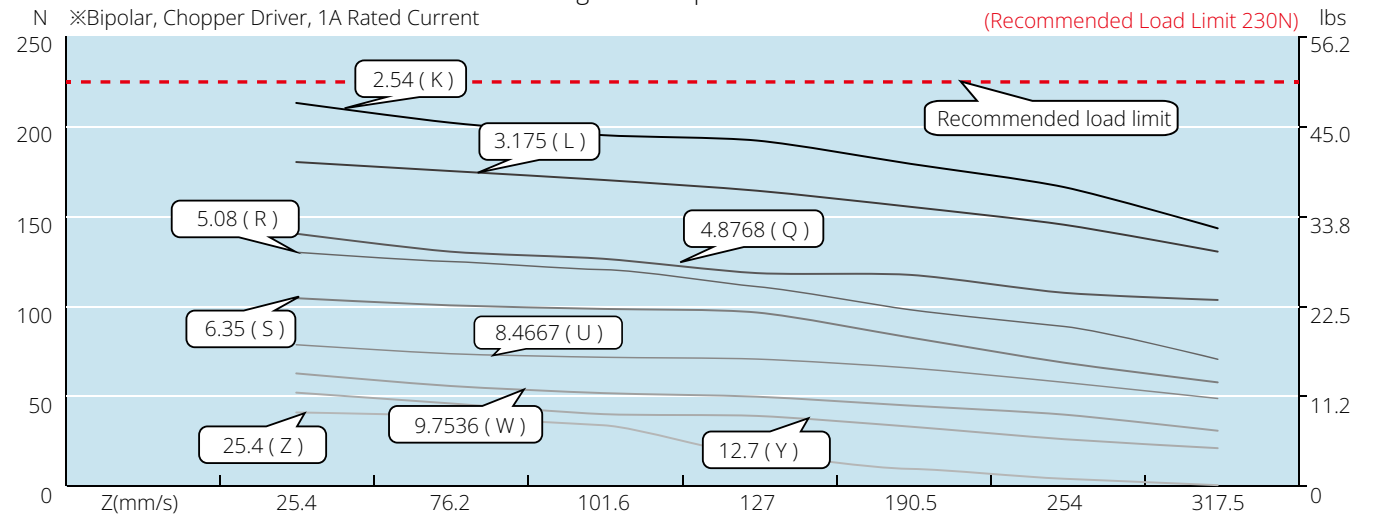
Speed Thrust Curves

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	6	8	10	15	20	25
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	3	4	5	7.5	10	12.5
N(mm/s)	0.8	2.4	3.2	4	6	7.9	9.9
A(mm/s)	0.6	1.9	1.5	3.2	4.8	6.4	7.9
AA(mm/s)	0.6	1.8	2.4	3	4.6	6.1	7.6
Speed r/min	60	180	240	300	450	600	750
Pulse pps	200	600	800	1000	1500	2000	2500

Size 17 Single Stack Speed Thrust Curves



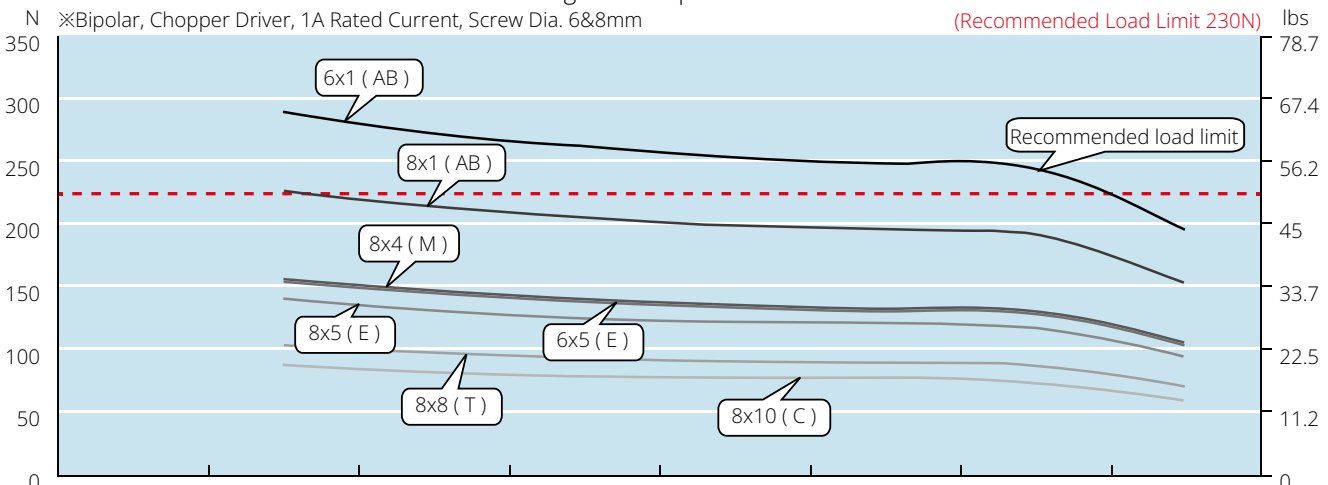
Z(mm/s)	25.4	76.2	101.6	127	190.5	254	317.5
Y(mm/s)	12.7	38.1	50.8	63.5	95.3	127	158.8
W(mm/s)	9.8	29.3	39	48.8	73.2	97.5	121.9
U(mm/s)	8.5	25.4	33.9	42.3	63.5	84.7	105.8
S(mm/s)	6.4	19.1	25.4	31.8	47.6	63.5	79.4
R(mm/s)	5.1	15.2	20.3	25.4	38.1	50.8	63.5
Q(mm/s)	4.9	14.6	19.5	24.4	36.6	48.8	61
L(mm/s)	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
Speed r/min	60	180	240	300	450	600	750
Pulse 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.

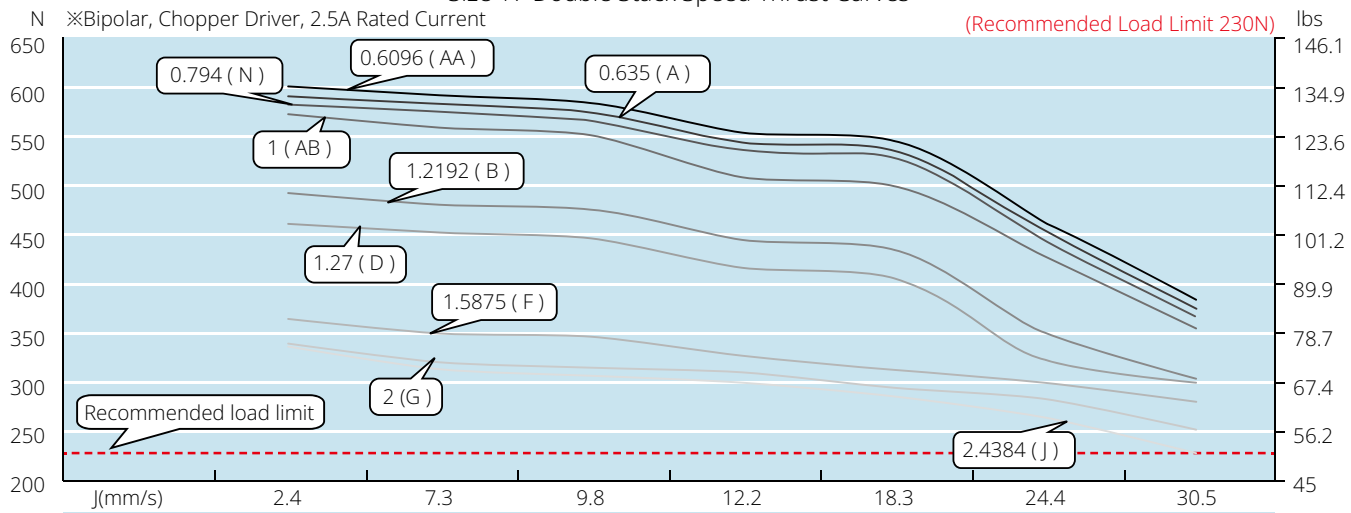
Size 42mm DLM

Size 17 Single Stack Speed Thrust Curves



C(mm/s)	10	30	40	50	75	100	125
T(mm/s)	8	24	32	40	60	80	100
E(mm/s)	5	15	20	25	37.5	50	62.5
M(mm/s)	4	12	16	20	30	40	50
AB(mm/s)	1	3	4	5	7.5	10	12.5
E(mm/s)	5	15	20	25	37.5	50	62.5
AB(mm/s)	1	3	4	5	7.5	10	12.5
Speed r/min	60	180	240	300	450	600	750
Pulse pps	200	600	800	1000	1500	2000	2500

Size 17 Double Stack Speed Thrust Curves



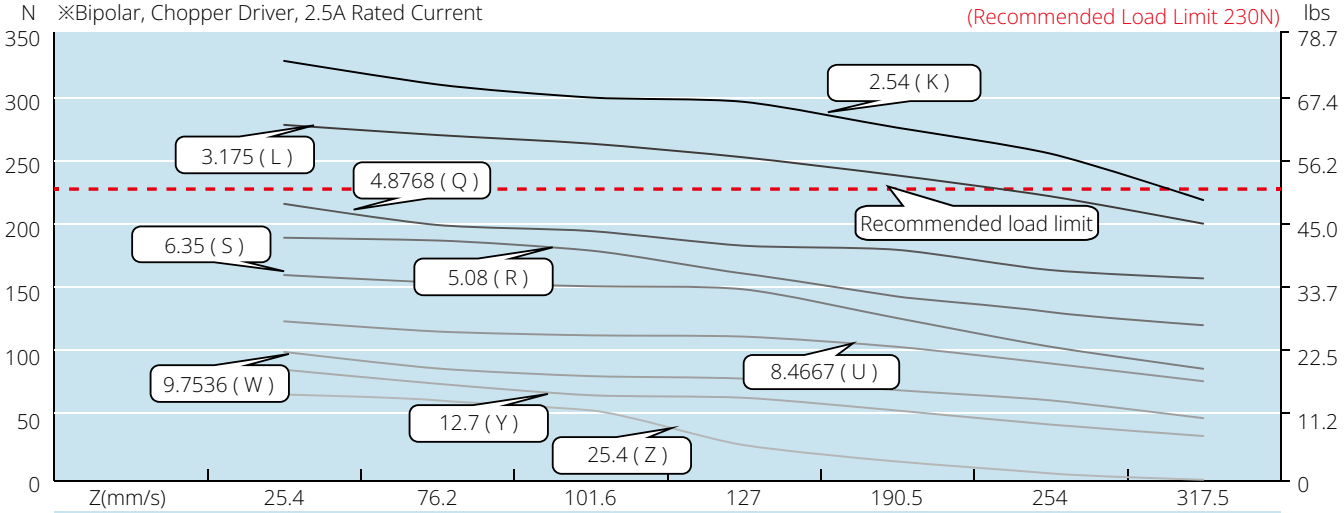
J(mm/s)	2.4	7.3	9.8	12.2	18.3	24.4	30.5
G(mm/s)	2	6	8	10	15	20	25
F(mm/s)	1.6	4.8	6.4	7.9	11.9	15.9	19.8
D(mm/s)	1.3	3.8	5.1	6.4	9.5	12.7	15.9
B(mm/s)	1.2	3.7	4.9	6.1	9.1	12.2	15.2
AB(mm/s)	1	3	4	5	7.5	10	12.5
N(mm/s)	0.8	2.4	3.2	4	6	7.9	9.9
A(mm/s)	0.6	1.9	1.5	3.2	4.8	6.4	7.9
AA(mm/s)	0.6	1.8	2.4	3	4.6	6.1	7.6
Speed r/min	60	180	240	300	450	600	750
Pulse 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.

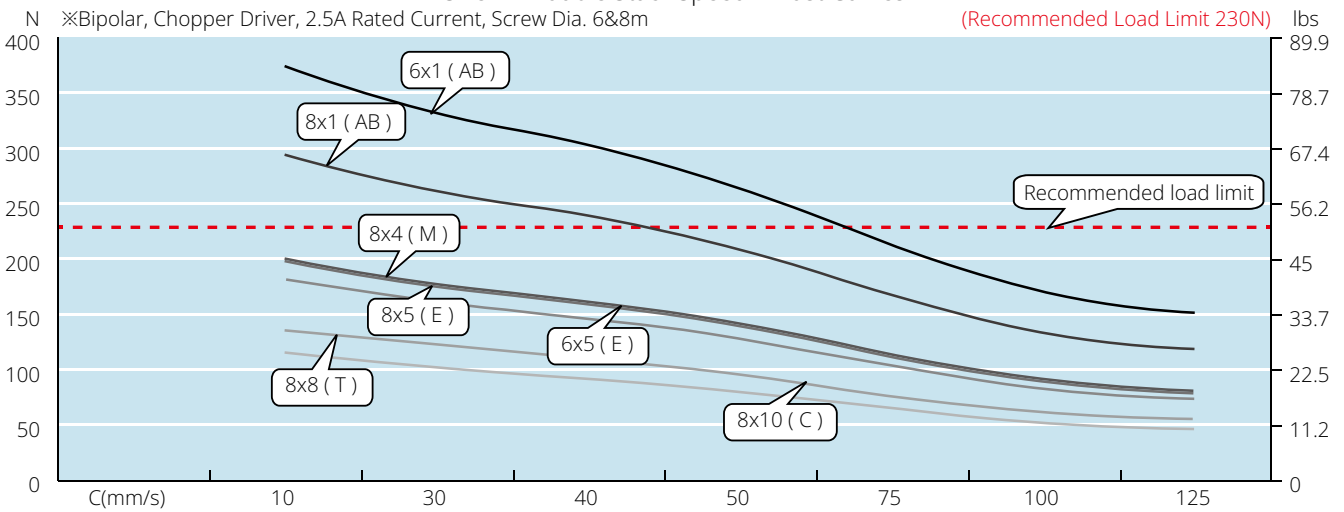
Size 42mm DLM

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	158.8
W(mm/s)	9.8	29.3	39	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
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
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
Speed r/min	60	180	240	300	450	600	750
Pulse pps	200	600	800	1000	1500	2000	2500

Size 17 Double Stack Speed Thrust Curves



C(mm/s)	10	30	40	50	75	100	125
T(mm/s)	8	24	32	40	60	80	100
E(mm/s)	5	15	20	25	37.5	50	62.5
M(mm/s)	4	12	16	20	30	40	50
AB(mm/s)	1	3	4	5	7.5	10	12.5
E(mm/s)	5	15	20	25	37.5	50	62.5
AB(mm/s)	1	3	4	5	7.5	10	12.5
Speed r/min	60	180	240	300	450	600	750
Pulse 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 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)	Lead wire No.	Motor length (mm)
23E2110	6.4	1.0	6.4	16.4	4	45
23E2120	3.2	2.0	1.75	4.1	4	45
23E2130	2.4	3.0	0.8	1.7	4	45
23E2210	10.8	1.0	11.5	32	4	65
23E2225	4.2	2.5	2.0	5.2	4	65
23E2240	2.8	4.0	0.7	2.0	4	65

Available Lead Screw and Travel per Step

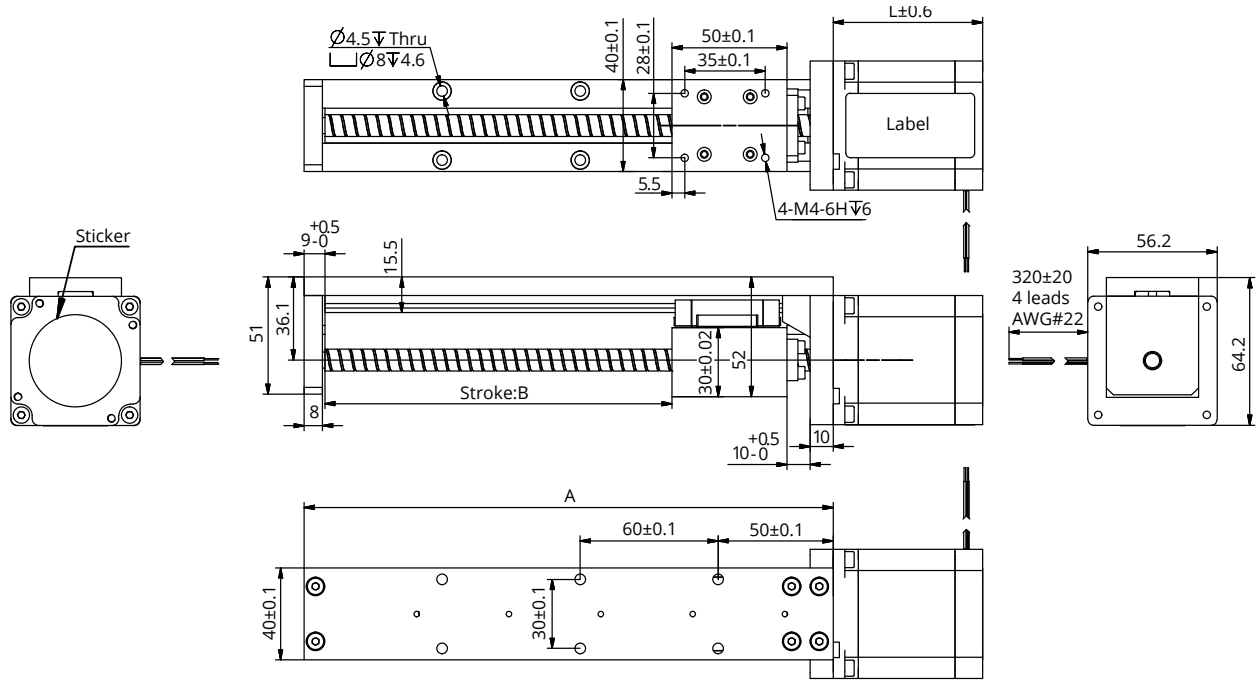
Screw Dia. (inch)	Screw Dia. (mm)	Lead (inch)	Lead (mm)	Lead Code	Travel Per Step @1.8° (mm)*
0.394	10	0.079	2	G	0.005
0.375	9.525	0.025	0.635	A	0.0016
0.375	9.525	0.05	1.27	D	0.0032
0.375	9.525	0.0625	1.5875	F	0.004
0.375	9.525	0.083	2.1167	H	0.0053
0.375	9.525	0.1	2.54	K	0.0064
0.375	9.525	0.125	3.175	L	0.0079
0.375	9.525	0.167	4.233	P	0.0106
0.375	9.525	0.2	5.08	R	0.0127
0.375	9.525	0.25	6.35	S	0.0159
0.375	9.525	0.375	9.525	V	0.0238
0.375	9.525	0.384	9.7536	W	0.0244
0.375	9.525	0.4	10.16	X	0.0254
0.375	9.525	0.5	12.7	Y	0.0318
0.375	9.525	1	25.4	Z	0.0635

Size 57mm DLM

Mechanical Specifications

Model	C100B(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

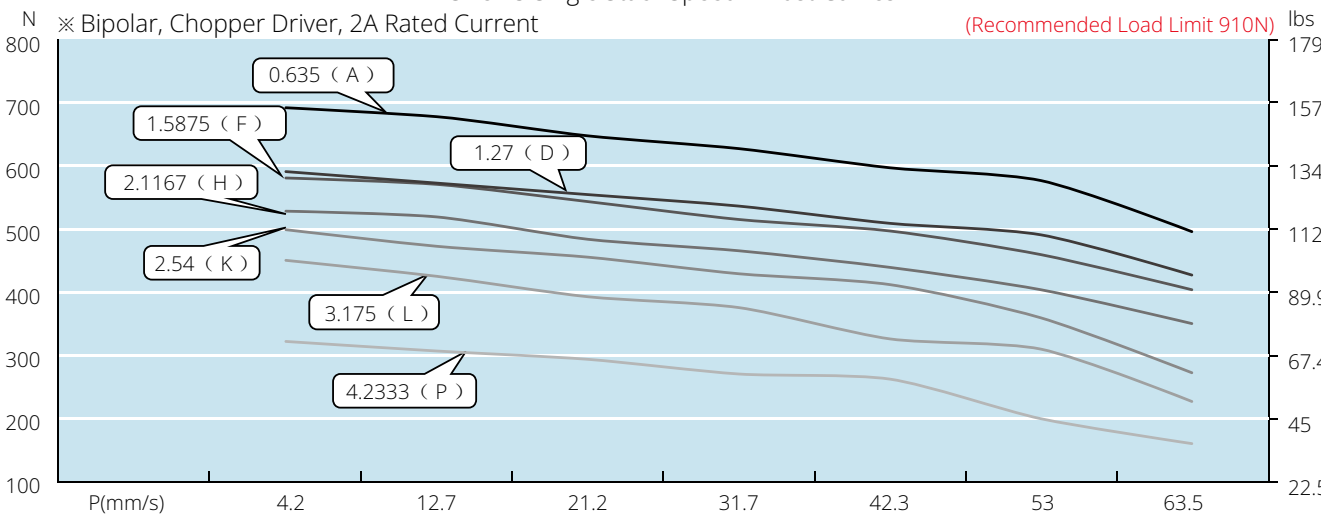
Size A (mm)	Stroke B (mm)
130	50
180	100
230	150
280	200
330	250
380	300
430	350
480	400
530	450
580	500
630	550
680	600

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

Size 57mm DLM

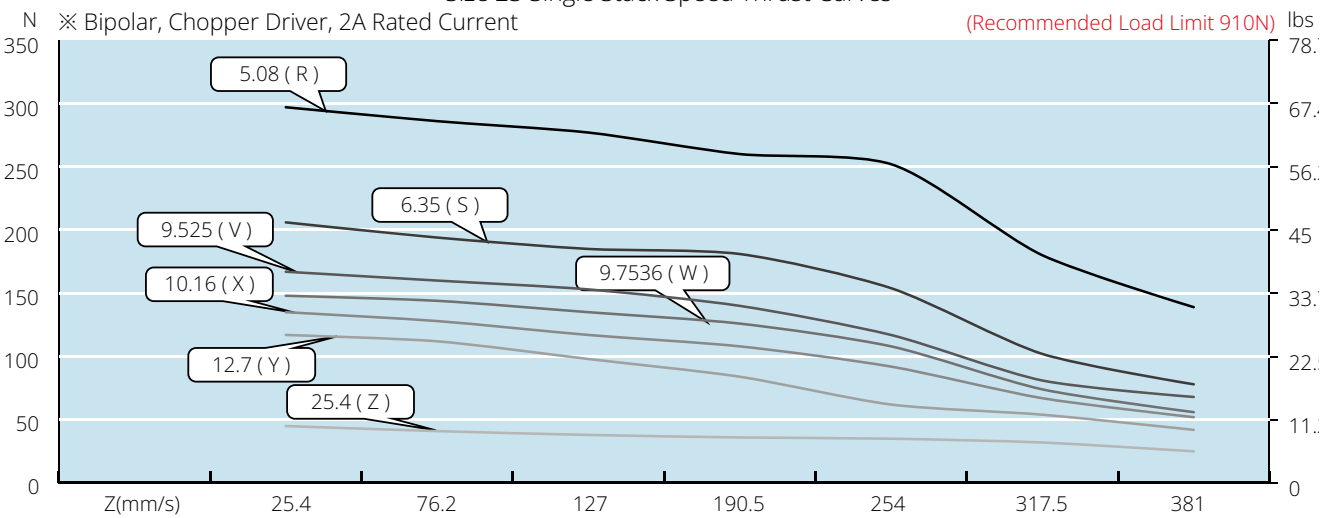
Speed Thrust Curves

Size 23 Single Stack Speed Thrust Curves



P(mm/s)	4.2	12.7	21.2	31.7	42.3	53	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
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	4.6	6.1	7.6	9.1
Speed r/min	60	180	300	450	600	750	900
Pulse pps	200	600	1000	1500	2000	2500	3000

Size 23 Single Stack Speed Thrust Curves



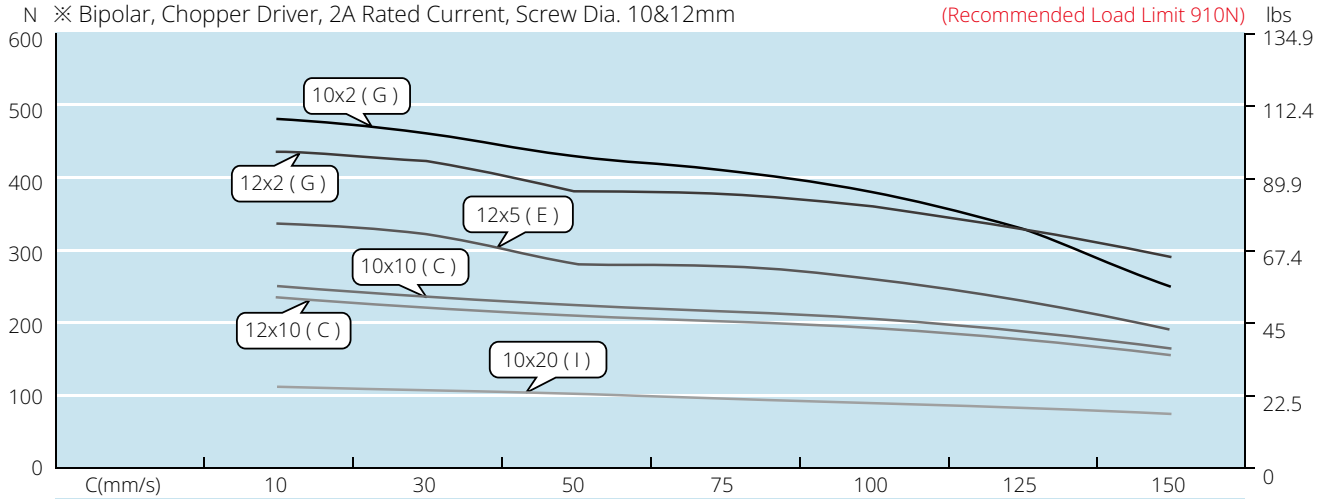
Z(mm/s)	25.4	76.2	127	190.5	254	317.5	381
Y(mm/s)	12.7	38.1	63.5	95.3	127	158.8	190.5
X(mm/s)	10.2	30.5	50.8	76.2	101.6	127	152.4
W(mm/s)	9.8	29.3	48.8	73.2	97.5	121.9	146.3
V(mm/s)	9.5	28.6	47.6	71.4	95.3	119.1	142.9
S(mm/s)	6.4	19.1	31.8	47.6	63.5	79.4	95.3
R(mm/s)	5.1	15.2	25.4	38.1	50.8	63.5	76.2
Speed r/min	60	180	300	450	600	750	900
Pulse 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.

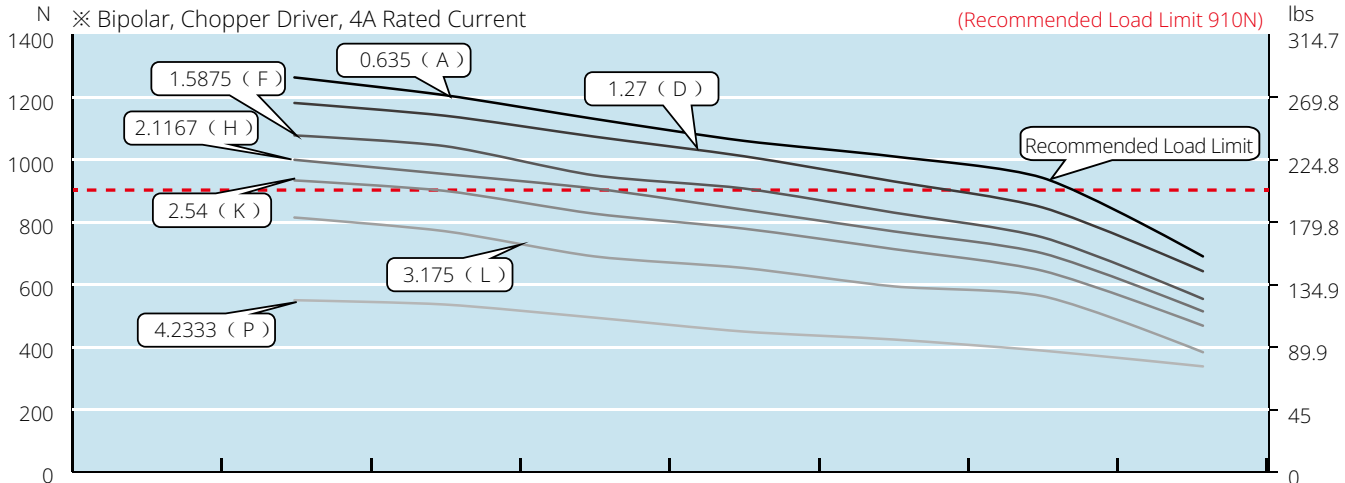
Size 57mm DLM

Size 23 Single Stack Speed Thrust Curves



C(mm/s)	10	30	50	75	100	125	150
E(mm/s)	5	15	25	37.5	50	62.5	75
G(mm/s)	2	6	10	15	20	25	30
I(mm/s)	20	60	100	150	200	250	300
C(mm/s)	10	30	50	75	100	125	150
G(mm/s)	2	6	10	15	20	25	30
Speed r/min	60	180	300	450	600	750	900
Pulse pps	200	600	1000	1500	2000	2500	3000

Size 23 Double Stack Speed Thrust Curves



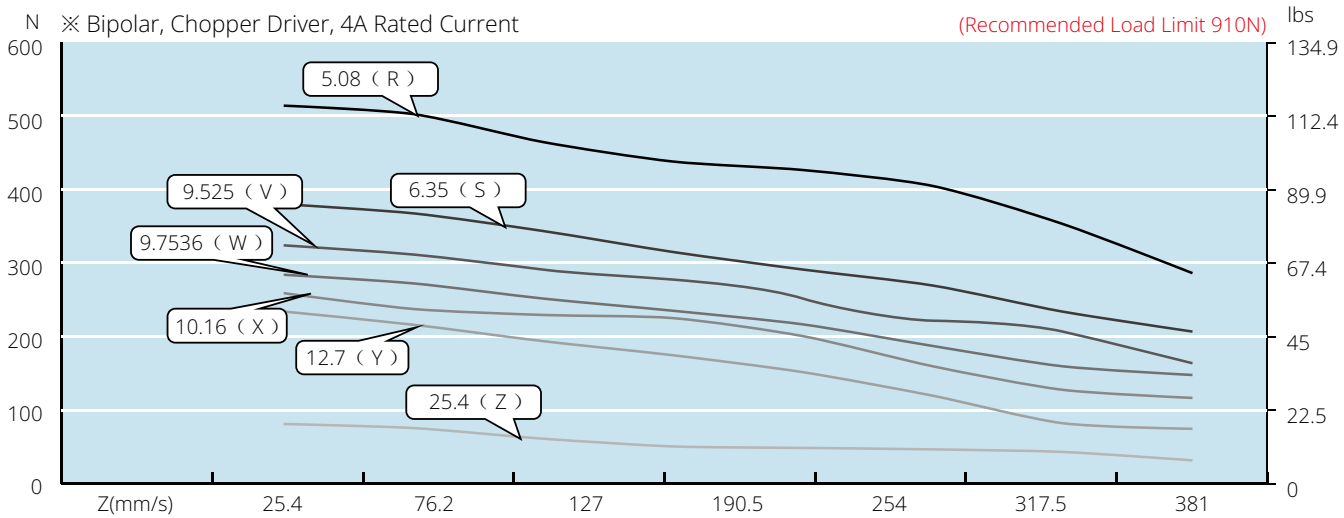
P(mm/s)	4.2	12.7	21.2	31.8	42.4	53	63.5
L(mm/s)	3.2	9.5	15.9	23.8	31.8	39.7	47.6
K(mm/s)	2.5	7.6	12.7	19.1	25.4	31.8	38.1
H(mm/s)	2.1	6.4	10.6	15.9	21.2	26.5	31.8
F(mm/s)	1.6	4.8	7.9	11.9	15.9	19.8	23.8
D(mm/s)	1.3	3.8	6.4	9.5	12.7	15.9	19.1
A(mm/s)	0.6	1.8	3	4.6	6.1	7.6	9.1
Speed r/min	60	180	300	450	600	750	900
Pulse 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.

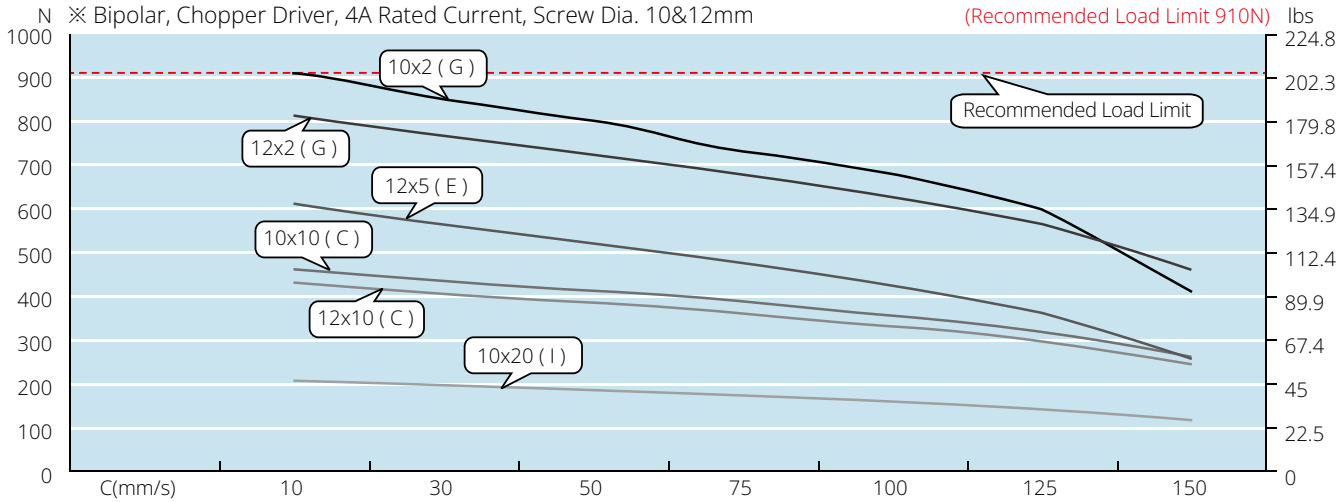
Size 57mm DLM

Size 23 Double Stack Speed Thrust Curves



Z(mm/s)	25.4	76.2	127	190.5	254	317.5	381
Y(mm/s)	12.7	38.1	63.5	95.3	127	158.8	190.5
X(mm/s)	10.2	30.5	50.8	76.2	101.6	127	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
Speed r/min	60	180	300	450	600	750	900
Pulse pps	200	600	1000	1500	2000	2500	3000

Size 23 Double Stack Speed Thrust Curves



C(mm/s)	10	30	50	75	100	125	150
E(mm/s)	5	15	25	37.5	50	62.5	75
G(mm/s)	2	6	10	15	20	25	30
I(mm/s)	20	60	100	150	200	250	300
C(mm/s)	10	30	50	75	100	125	150
G(mm/s)	2	6	10	15	20	25	30
Speed r/min	60	180	300	450	600	750	900
Pulse pps	200	600	1000	1500	2000	2500	3000

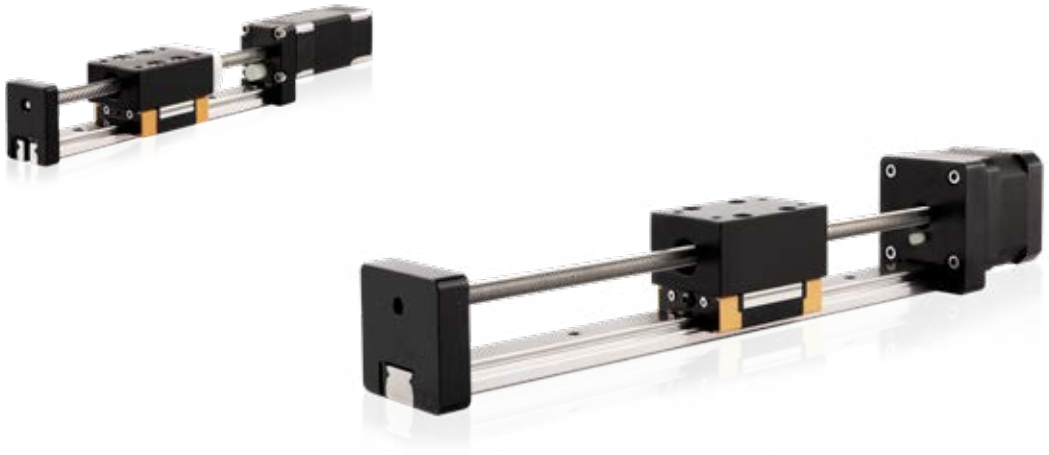
TEST CONDITION

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.

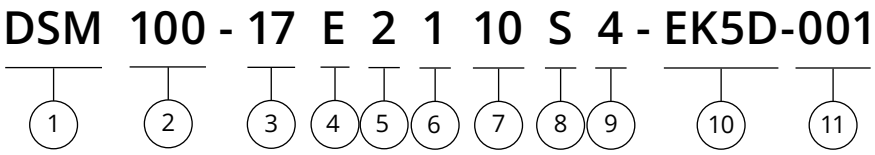
DSM Series

The DSM series of precise and compact linear modules combines all major aspects of the precise linear Motor system into a small and economical structure, including external drive linear actuators, precise screw rods and high-precision linear guides.

The DSM series linear modules are available in NEMA 6, 8, 11, 14, and 17 motor sizes. There are over 80 types of screw rods available for matching, with a range of lead options ranging from 0.3 to 25.4mm.



Part Number Construction



(1) Prooduct Name
DSM Series Module

(2) Stroke (mm)
100 = 100mm

(3) Motor Size

Motor Size (mm)	14	20	28	35	42
Motor Size (NEMA)	6	8	11	14	17

(4) Motor Type
E = External type
N = Non-Captive type

(5) Motor Step Angle
2 = 2 Phase with 1.8°
4 = 2 Phase with 0.9°

(6) Motor Length
1 = Single stack
2 = Double stack

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

(8) Lead Screw Code
Please refer to lead screw code selection table

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

(10) Option
EKX = Encoder [X = Encoder Resolution]
P = Manual Knob
B = Brake
X = Rear Shaft
R = Encoder Ready
C = Customize
N = No processing at the rear end

(11) Customer Sequence Number

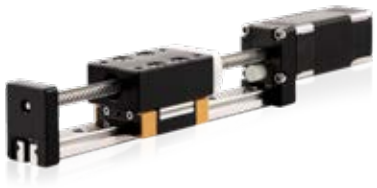
Example

Part Number	DSM100-17E2110S4-EK5D-001
Description	DSM 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 14mm DSM

Based on DINGS' platform products, high precision of lead screw linear actuator and self-developed simple linear module, DLM 14mm series is compact and reliable structure of linear solution.

DSM 14mm Series is good precision, high diversity of optional stroke and ead based customization linear module which can provide customers with integrated customization solutions.



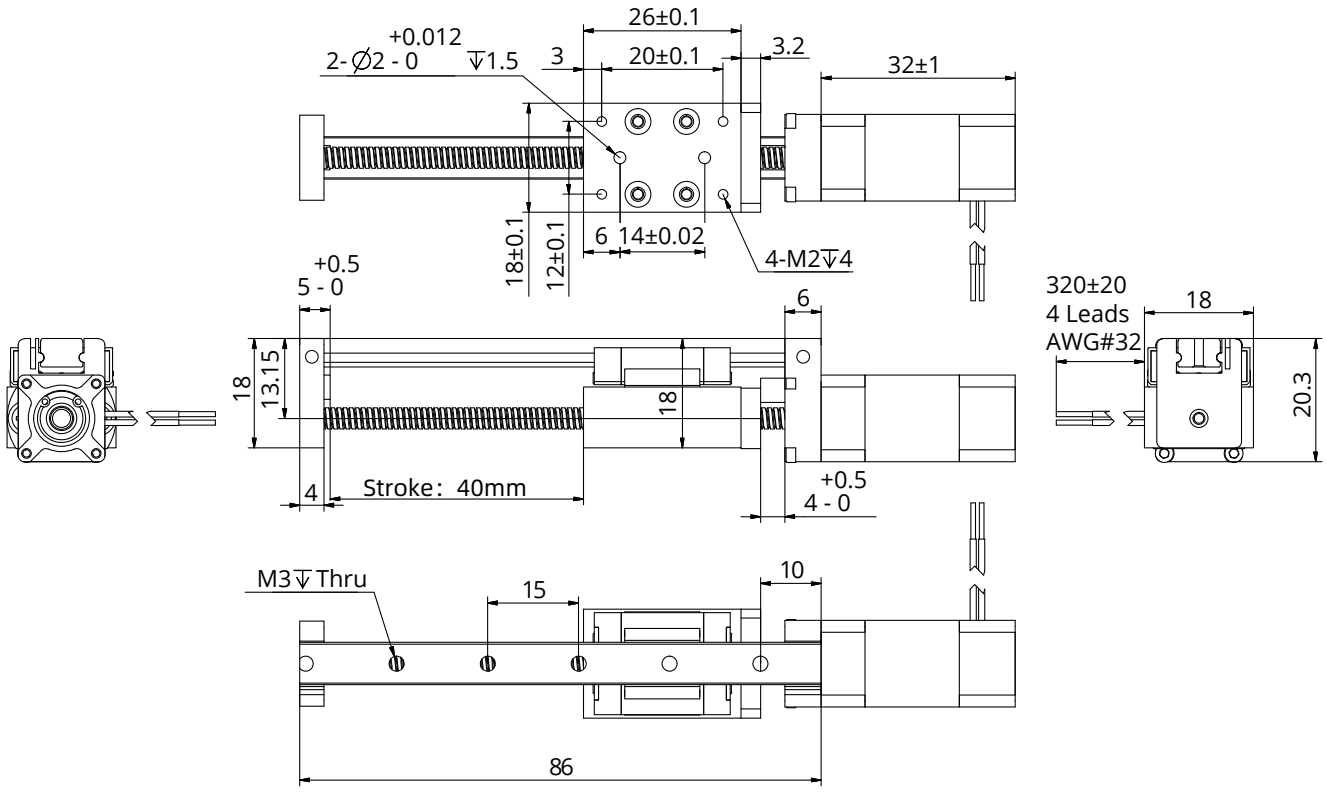
Motor Characteristics

Motor	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Weight (g)	Lead wire No.	Motor length (mm)
6E2103	6.6	0.3	22	4.5	60	4	32

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	0.048	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

Dimensional Drawings



Note: Any travel can be customized within the maximum travel range

Size 20mm DSM

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

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

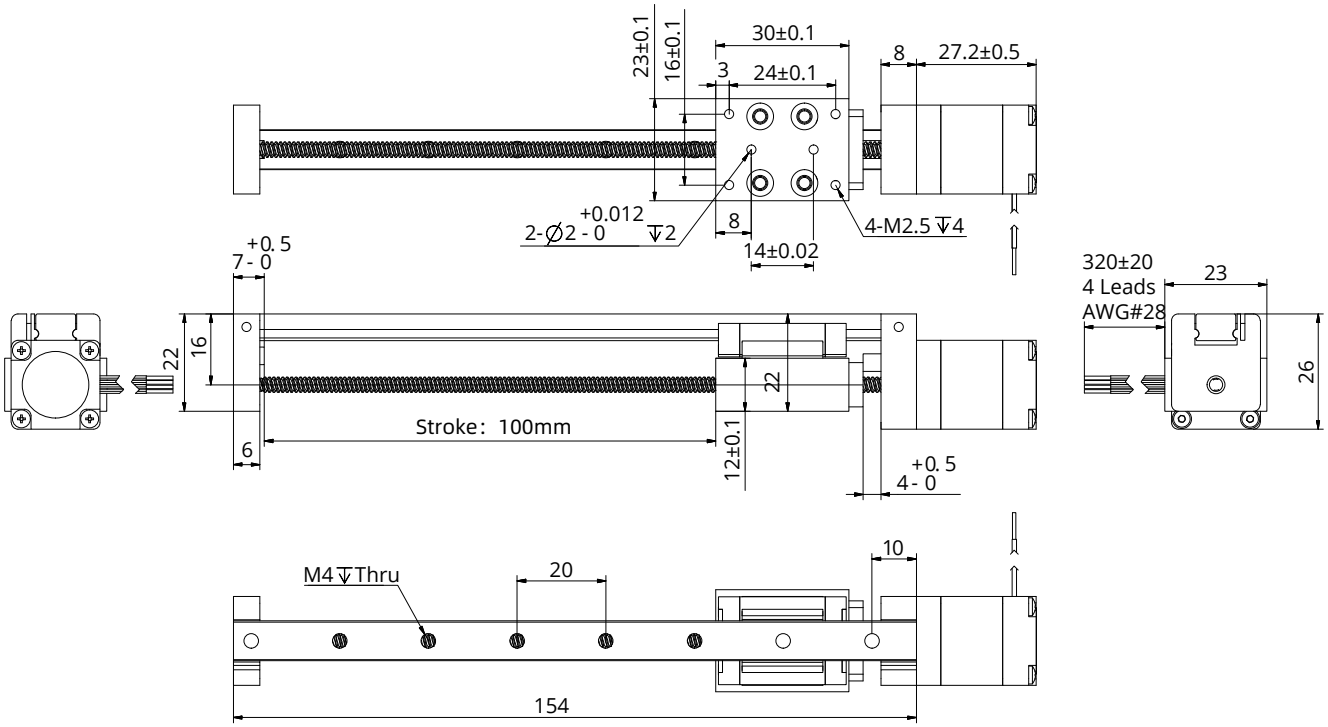
Motor Characteristics

Motor	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Lead wire No.	Motor length (mm)
8E2105	2.5	0.5	5.1	1.5	4	27.2
8E2205	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

Dimensional Drawings

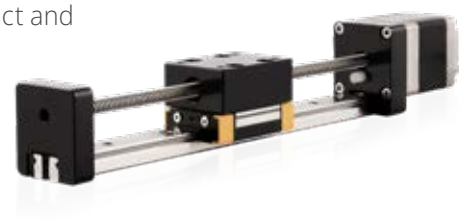


Note: Any travel can be customized within the maximum travel range

Size 28mm DSM

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

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



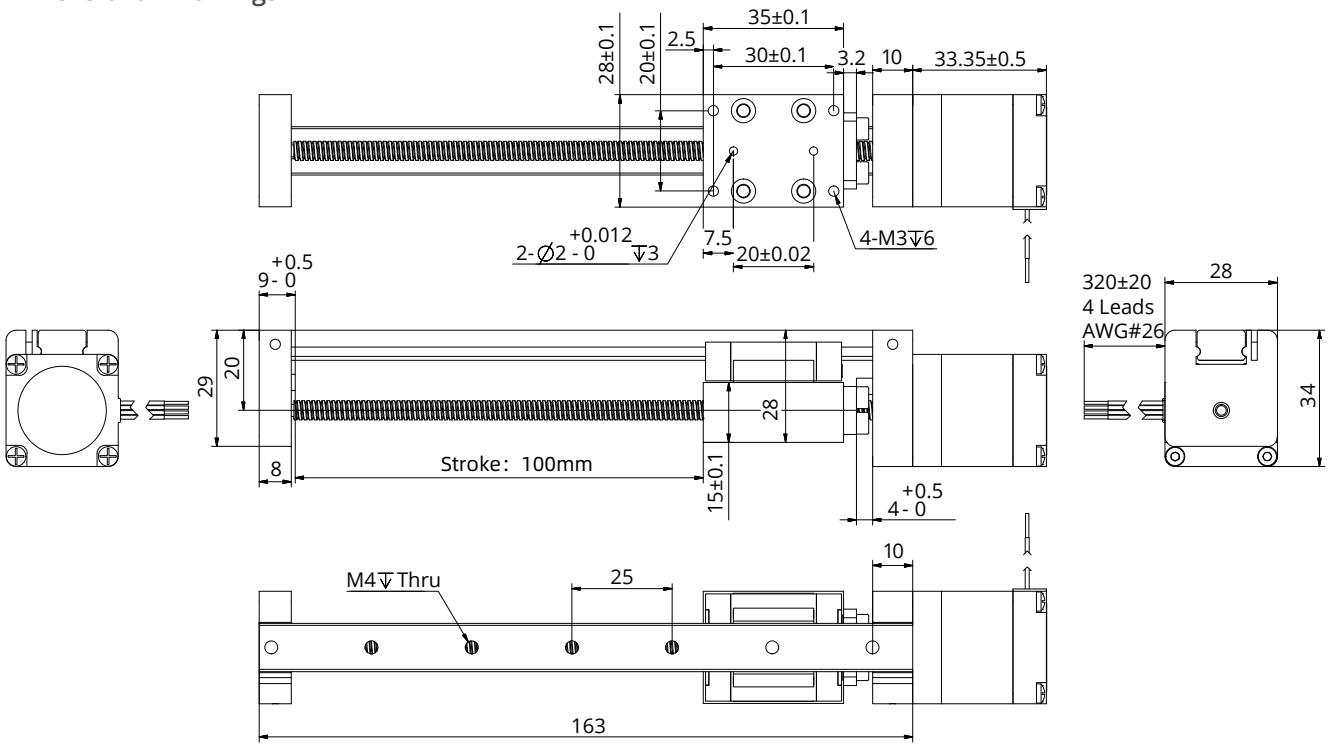
Motor Characteristics

Motor	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Lead wire No.	Motor length (mm)
11E2105	4.55	0.5	9.1	6.0	4	33.35
11E2110	2.1	1.0	2.1	1.5	4	33.35
11E2209	3.9	0.95	4.1	4.0	4	45
11E2216	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

Dimensional Drawings

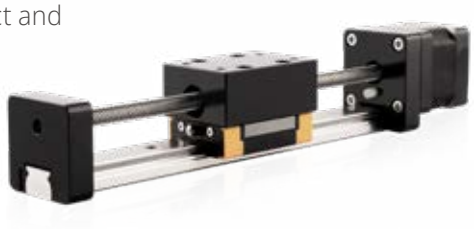


Note: Any travel can be customized within the maximum travel range

Size 35mm DSM

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

DSM 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)	Lead wire No.	Motor length (mm)
14E2105	6.6	0.5	13.2	14	4	33.6
14E2110	3.5	1.0	3.5	3.6	4	33.6
14E2115	2.7	1.5	1.8	1.9	4	33.6
14E2205	12.0	0.5	24.0	29	4	45.6
14E2210	6.0	1.0	6.0	7.2	4	45.6
14E2215	4.0	1.5	2.7	3.2	4	45.6

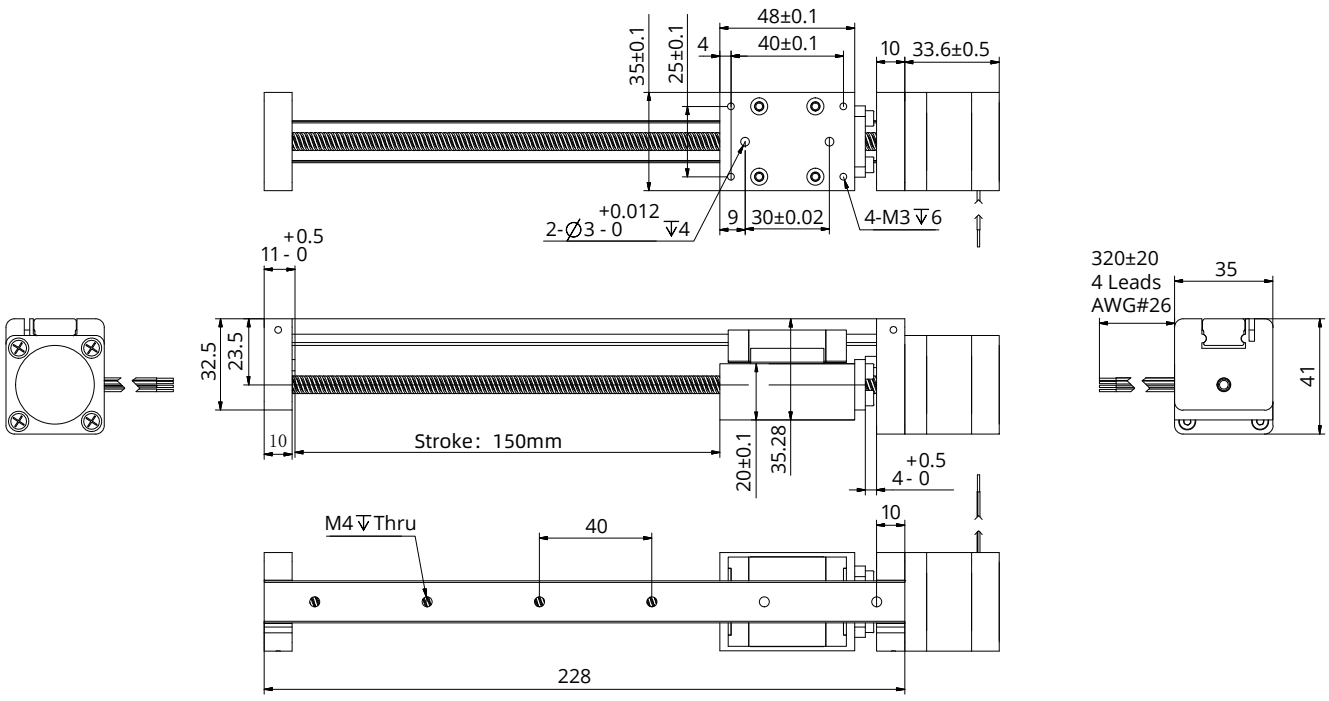
Available Lead Screw and Travel per Step

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	AB	0.005
0.25	6.35	0.048	1.2192	B	0.006096
0.25	6.35	0.0.05	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

Note: Any travel can be customized within the maximum travel range

Size 35mm DSM

Dimensional Drawings



Note: Any travel can be customized within the maximum travel range

Size 42mm DSM

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

DSM 42mm 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)	Lead wire No.	Motor length (mm)
17E2105	7.2	0.5	14.4	19.8	4	34.1
17E2110	3.8	1.0	3.8	5.0	4	34.1
17E2115	2.85	1.5	1.9	2.2	4	34.1
17E2205	11.0	0.5	22	46	4	48.1
17E2212	4.5	1.2	3.8	8.0	4	48.1
17E2225	2.5	2.5	1.0	1.8	4	48.1

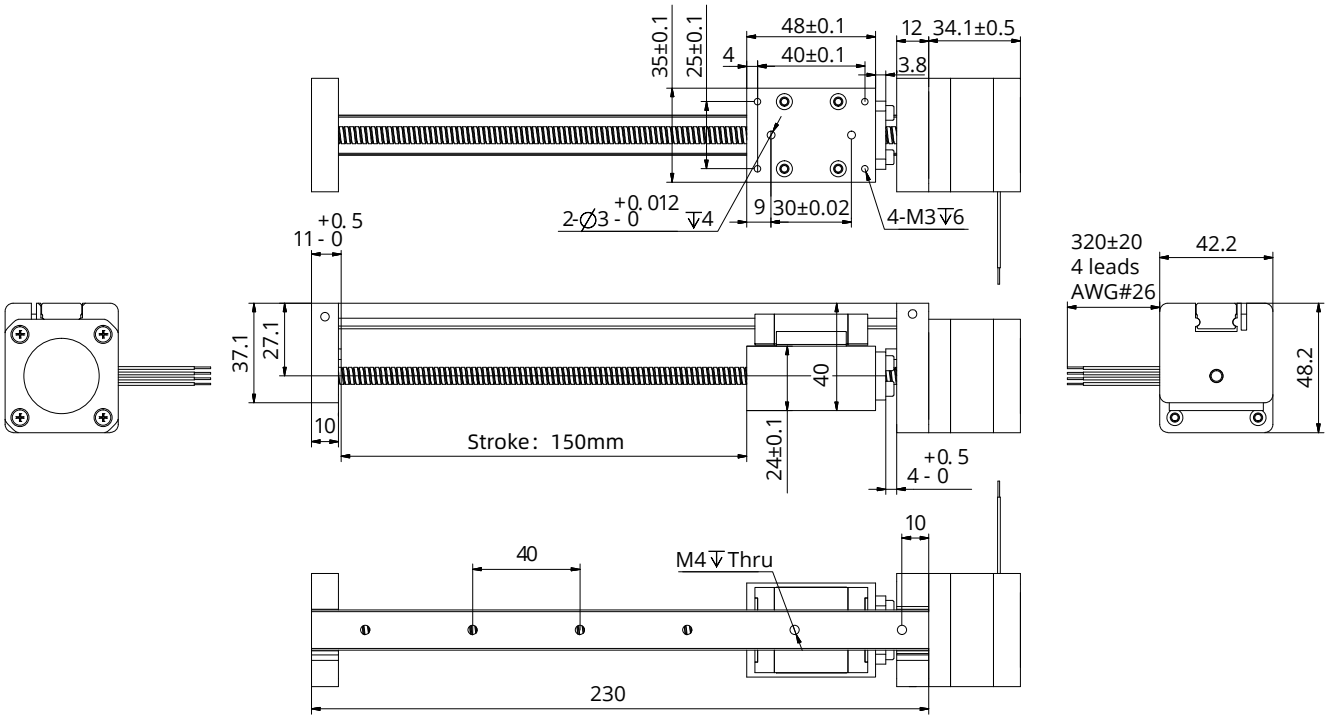
Available Lead Screw and Travel per Step

Screw Dia. (inch)	Screw Dia. (mm)	Lead (inch)	Lead (mm)	Lead Code	Travel Per Step @1.8° (mm)*
0.25	6.35	0.024	0.6096	AA	0.003048
0.25	6.35	0.0394	1	AB	0.005
0.25	6.35	0.048	1.2192	B	0.006096
0.25	6.35	0.0.05	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

Note: Any travel can be customized within the maximum travel range

Size 42mm DSM

Dimensional Drawings



Note: Any travel can be customized within the maximum travel range

H 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. Prooduct Name
   Electric Gripper
2. Stroke (mm)
   12 = 12 mm
3. Motor Size

Motor Size (mm)	20	28	35	42
Motor Size (NEMA)	8	11	14	17

4. Motor Type
   N = Non-Captive type
5. Motor Step Angle
   2 = 2 Phase with 1.8°
6. Motor Length
   1 = Single stack
   2 = Double stack
7. Rated Current / Phase
   XX = X.X (A) / Phase
7. Lead Screw Code
   Please refer to lead screw code selection table
8. Number of Lead Wires
   4 = 4 Flying leads
   6 = 6 Flying leads
9. Option
   EKX = Encoder [X = Encoder Resolution]
   ER = Encoder Ready
10. 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

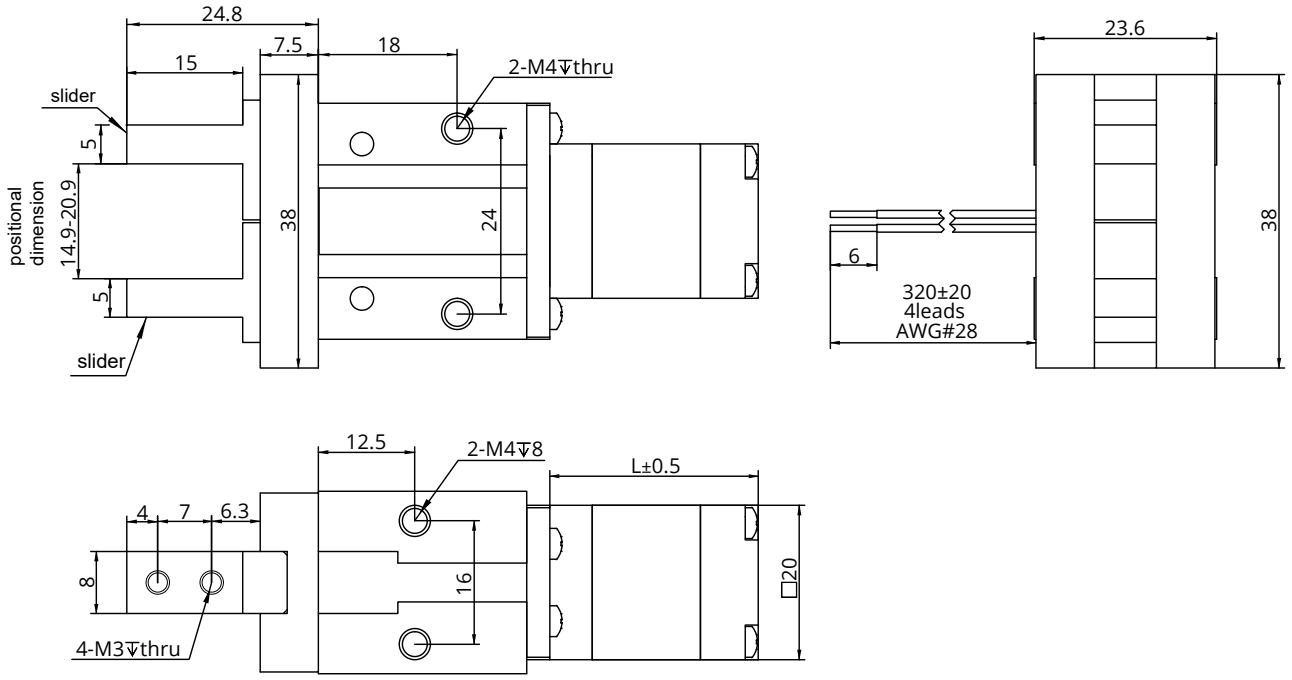
Screw Dia. (inch)	Screw Dia. (mm)	Lead (inch)	Lead (mm)	Lead Code	Travel Per Step @1.8° (mm)*
0.138	3.24	0.0394	1	AB	0.005
0.138	3.5	0.0787	2	G	0.01
0.138	3.5	0.1575	4	M	0.02

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	AB	1	25	13
				G	2	21	11
				M	4	11	6
	38.1	8N2205	6mm	AB	1	50	25
				G	2	36	18
				M	4	32	16

20mm Gripper (6mm Stroke)

Dimensional Drawings



Note : All drawings are 1st Angle Projection - ISO Compliant (3D models 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	4	33.5
11N2110	2.2	1	2.1	1.5	4	33.5
11N2210	4.1	1	4.1	4	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	0.025	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

Gripping Force Recommendation

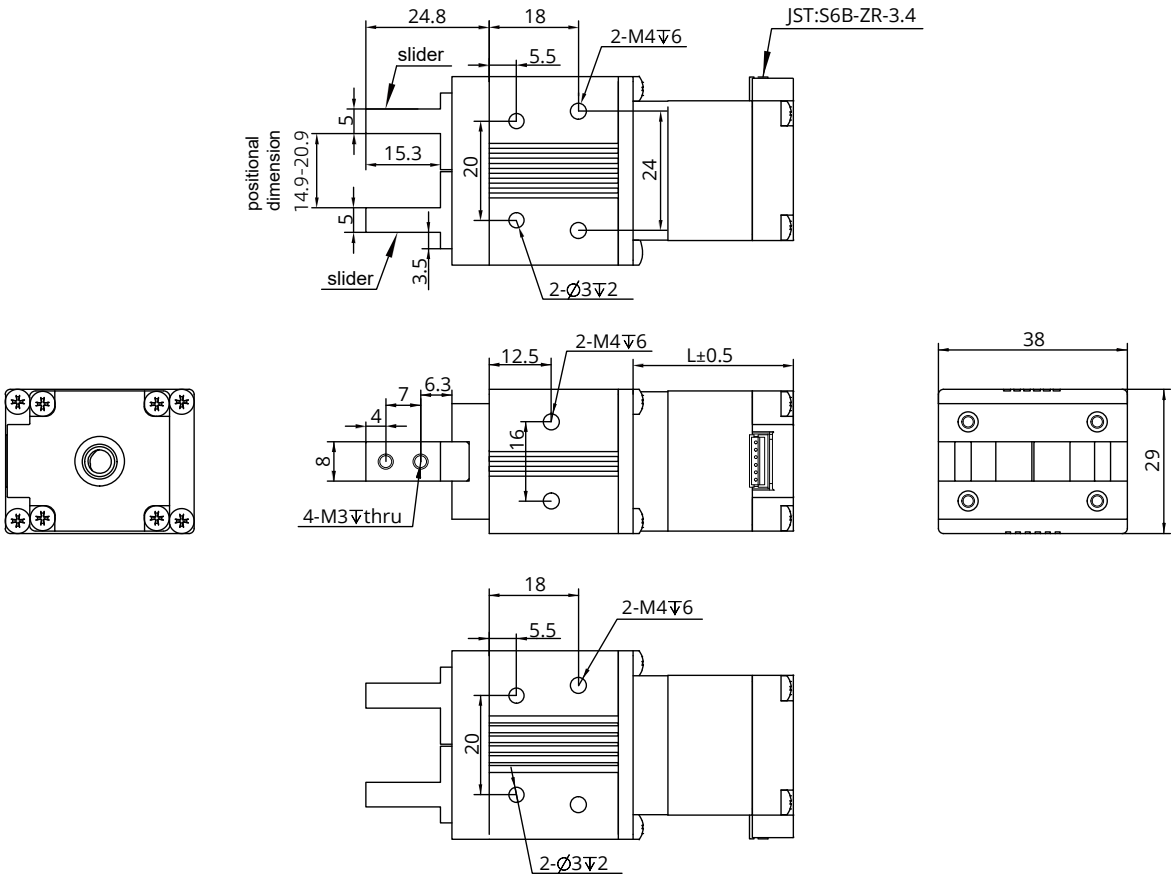
Motor Size	Body Length (mm)	Part Code	Stroke	Screw Code	Lead (mm)	Max. Gripping Force (N)	Recommended Gripping Force (N)
28mm	33.5	11N2105 / 2110	6 / 12mm	A	0.635	110	55
				D	1.27	84	42
				K	2.54	56	28
				R	5.08	36	18
	45	11N2210 / 2216	6 /12 mm	A	0.635	140	70
				D	1.27	120	60
				K	2.54	100	50
				R	5.08	60	30

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

28mm Gripper (6mm / 12mm Stroke)

Dimensional Drawings

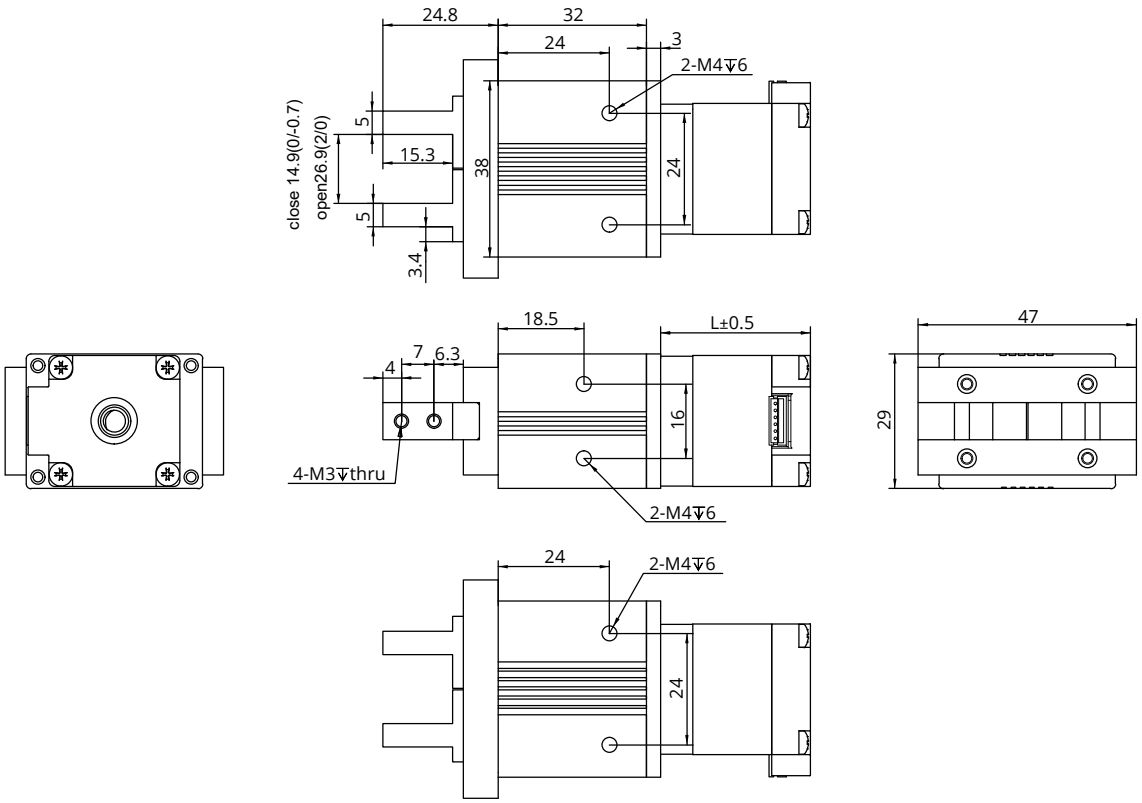
- 6mm Stroke



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

28mm Gripper (6mm / 12mm Stroke)

- 12mm Stroke



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

35mm 3-Finger Gripper

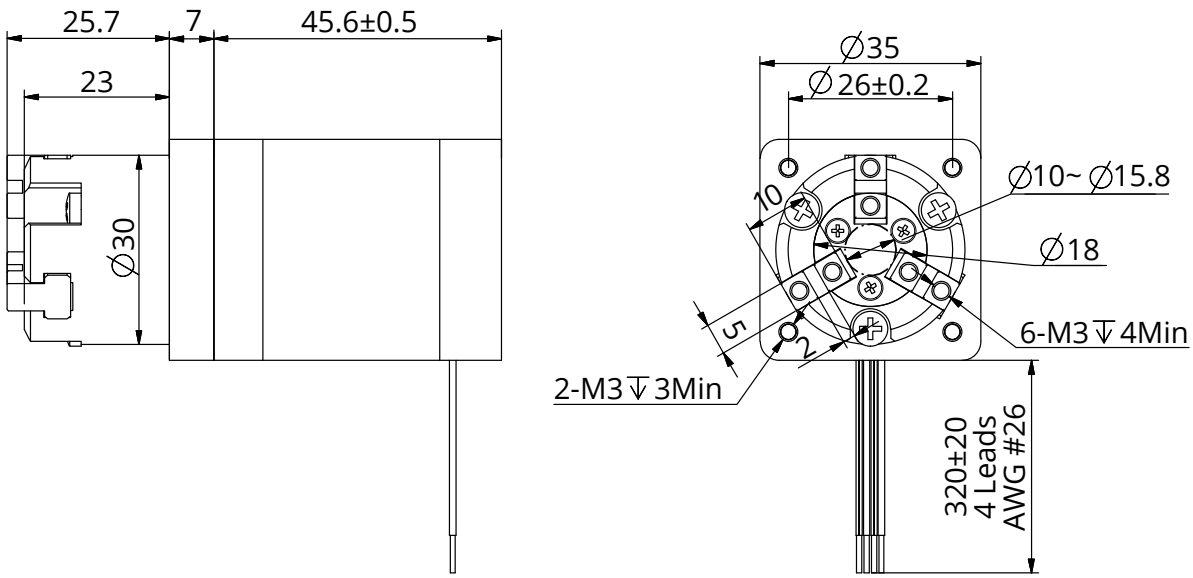
Motor Characteristics

Motor	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Weight (g)	Lead wire No.	Motor length (mm)
14N2105	6.6	0.5	13.2	14	189	4	33.6
14N2110	3.5	1	3.5	3.6	189	4	33.6
14N2115	2.7	1.5	1.8	1.9	189	4	33.6
14N2205	12	0.5	24	29	210	4	45.6
14N2210	6	1	6	7.2	210	4	45.6
14N2215	4	1.5	2.7	3.2	210	4	45.6

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	0.003
0.25	6.35	0.05	1.27	D	0.0064
0.25	6.35	0.1	2.54	K	0.0127
0.25	6.35	0.2	5.08	R	0.0254

Dimensional Drawings



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

42mm 3-Finger Gripper

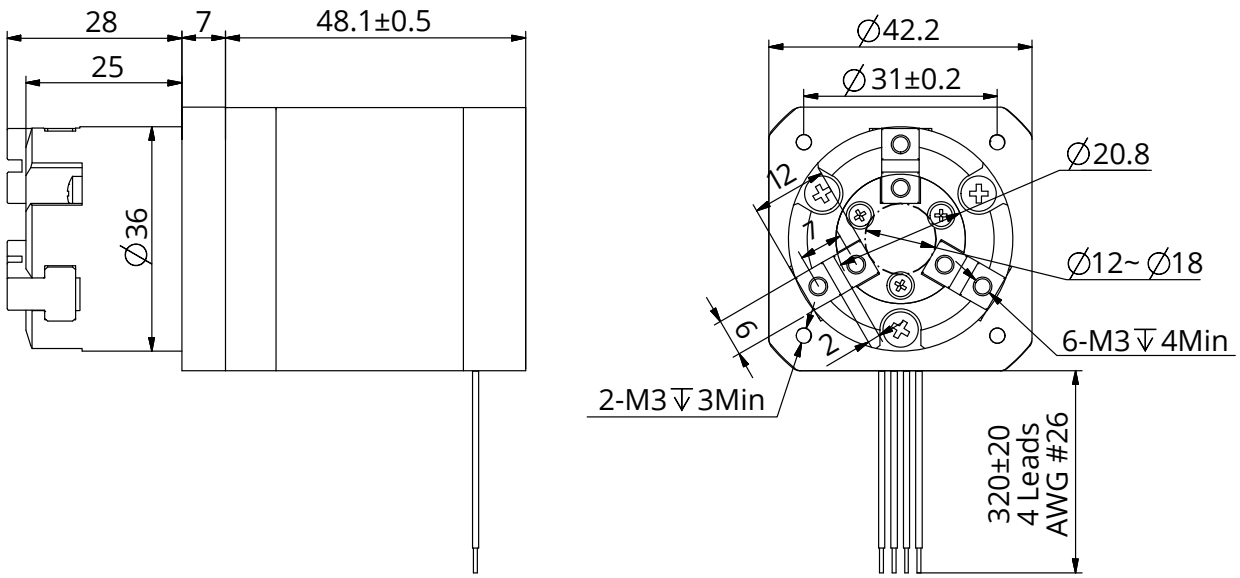
Motor Characteristics

Motor	Voltage (V)	Current (A)	Resistance (Ω)	Inductance (mH)	Weight (g)	Lead wire No.	Motor length (mm)
17N2105	7.2	0.5	14.4	19.8	254	4	34.1
17N2110	3.8	1	3.8	5	254	4	34.1
17N2115	2.85	1.5	1.9	2.2	254	4	34.1
17N2205	11	0.5	22	46	386	4	48.1
17N2212	4.5	1.2	3.8	8	386	4	48.1
17N2225	2.5	2.5	1	1.8	386	4	48.1

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)*
0.25	6.35	0.024	0.6096	AA	0.003
0.25	6.35	0.05	1.27	D	0.0064
0.25	6.35	0.1	2.54	K	0.0127
0.25	6.35	0.2	5.08	R	0.0254

Dimensional Drawings



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

I Voice Coil Motor

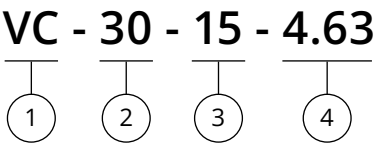
DINGS' offers wide range of sizes for VCM (Voice Coil Motor) series from smaller to bigger diameter of dimensional motors.

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 frame size and 15mm stroke of Voice coil motor can generate 4.63N continuous force.
Force value can be differentiated according to different size and stroke, for details,
please contact DINGS'

Example

Part Number	VC-30-15-4.63
Description	30 mm Frame Size 15 mm Stroke 4.63 N Continuous Force

25.4mm Voice Coil Motor

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

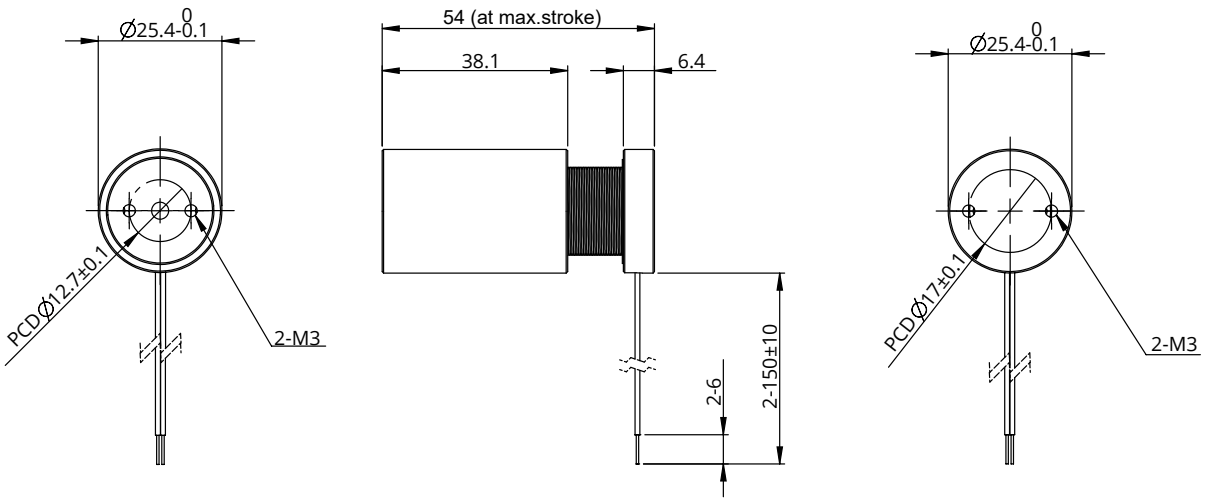
Not only standard 9.5mm stroke, different stroke of voice coil motor can be customized.

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.

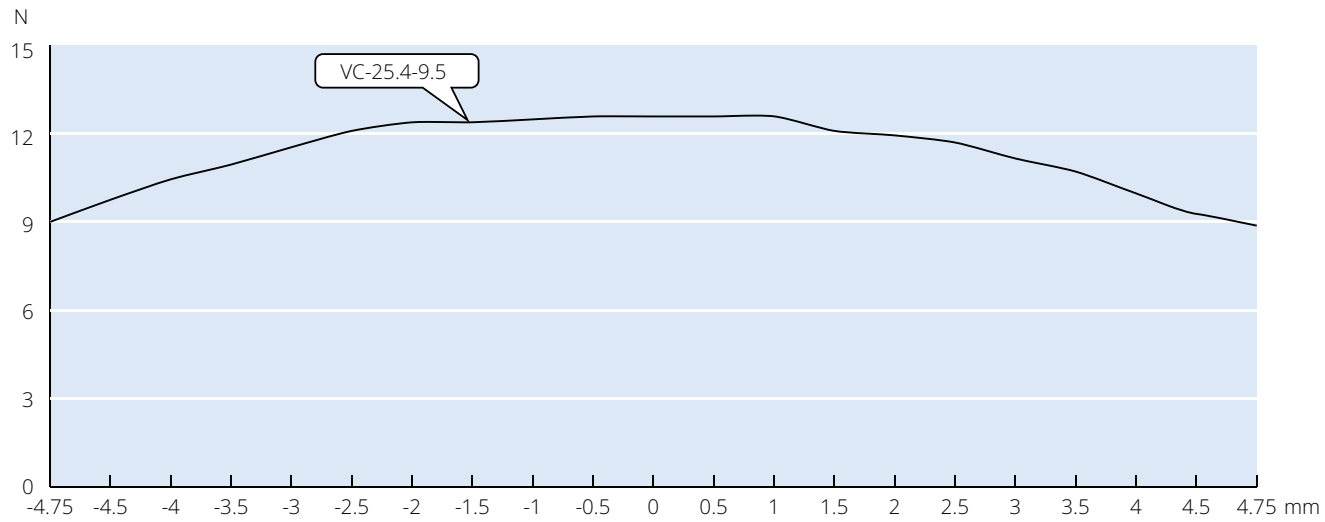
Motor Characteristics

Motor	Stroke (mm)	Back EMF constant (V/m/s)	Continuous force (N)	Continuous current 100℃ (A)	Peak thrust force (N)	Force sensitivity (N/A) middle position	Resistance (Ω)	Inductance (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.

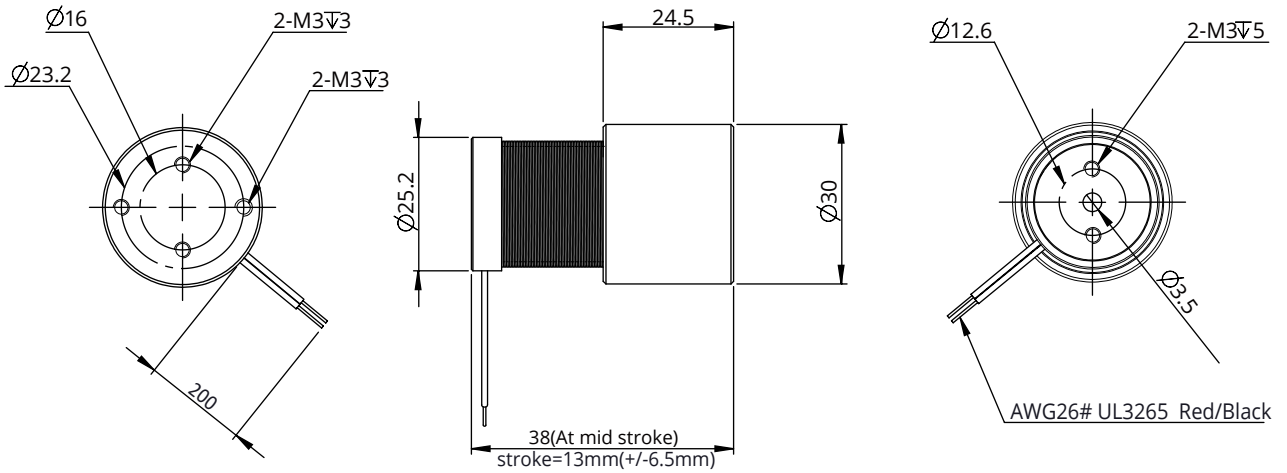
Also CANopen and EtherCAT supported Voice Coil Motor Electronics, DS-BVM-FCAO and DS-BVM-FETC are available.
For details, please check DINGS' website motion control products section.

Motor Characteristics

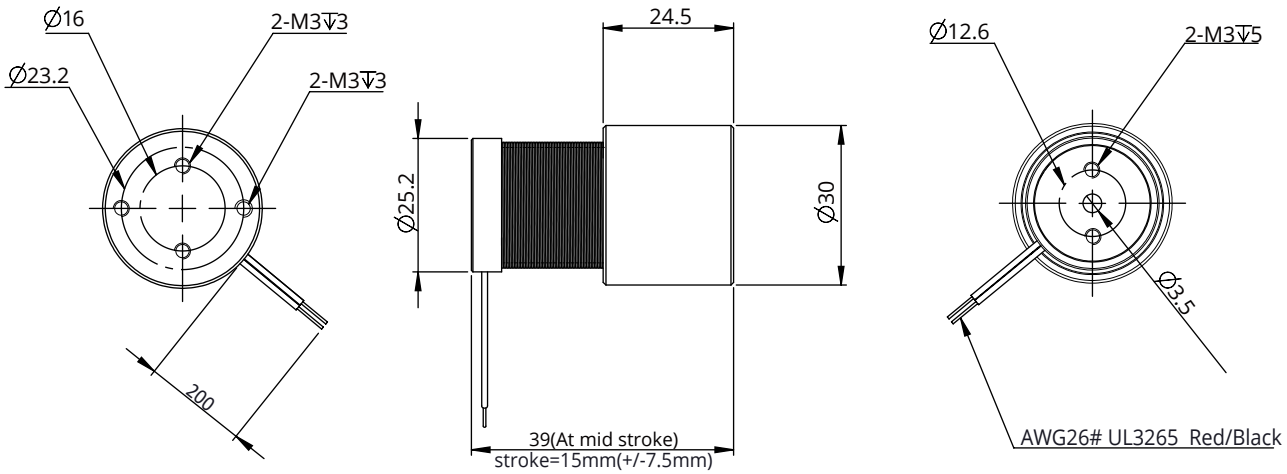
Motor	Stroke (mm)	Back EMF constant (V/m/s)	Continuous force (N)	Continuous current 100℃ (A)	Peak thrust force (N)	Force sensitivity (N/A) middle position	Resistance (Ω)	Inductance (mH)	Coil gap (mm)	Coil Max. temperature (℃)	Coil assembly mass (g)	Body assembly mass (g)
30-13	13	7.35	4.63	0.63	29.4	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-BVM-FCAO and DS-BVM-FETC.

Dimensional Drawings



Motor 30-13

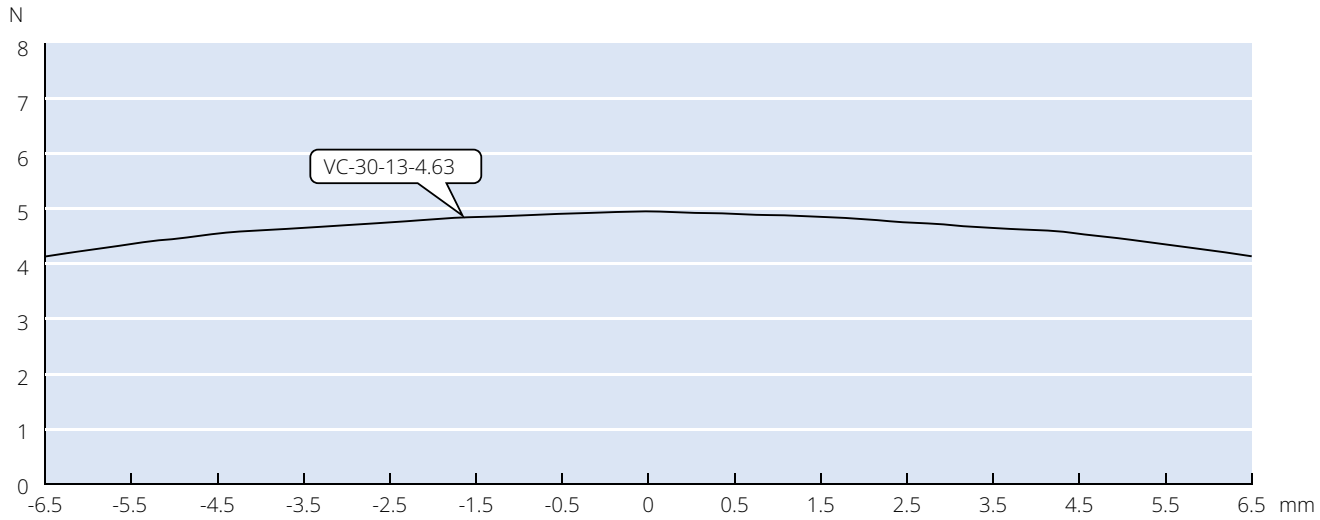


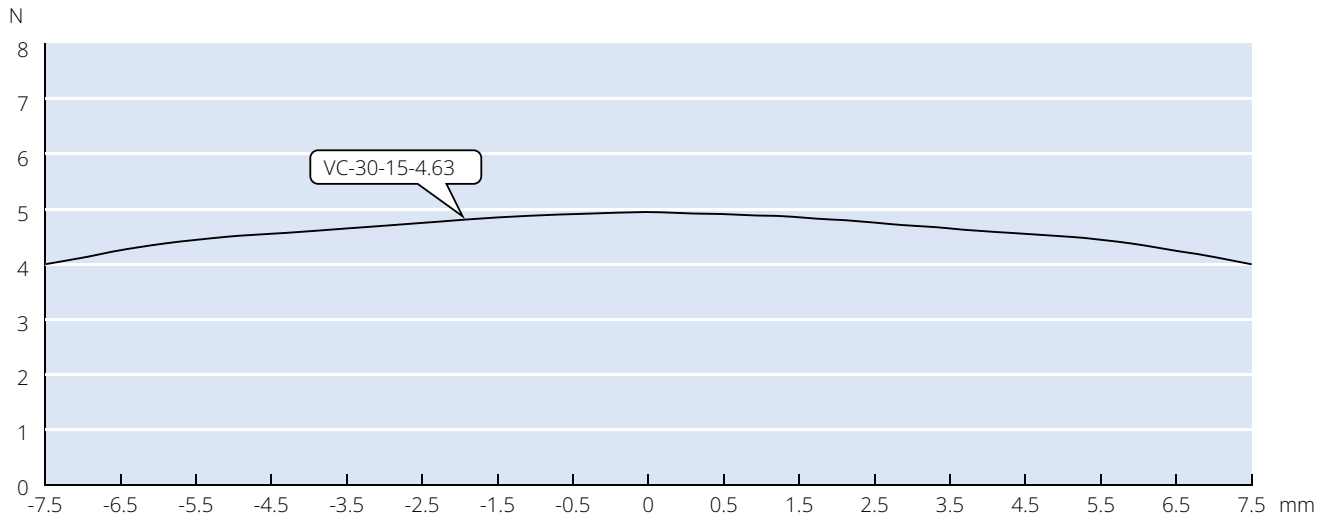
Motor 30-15

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

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.

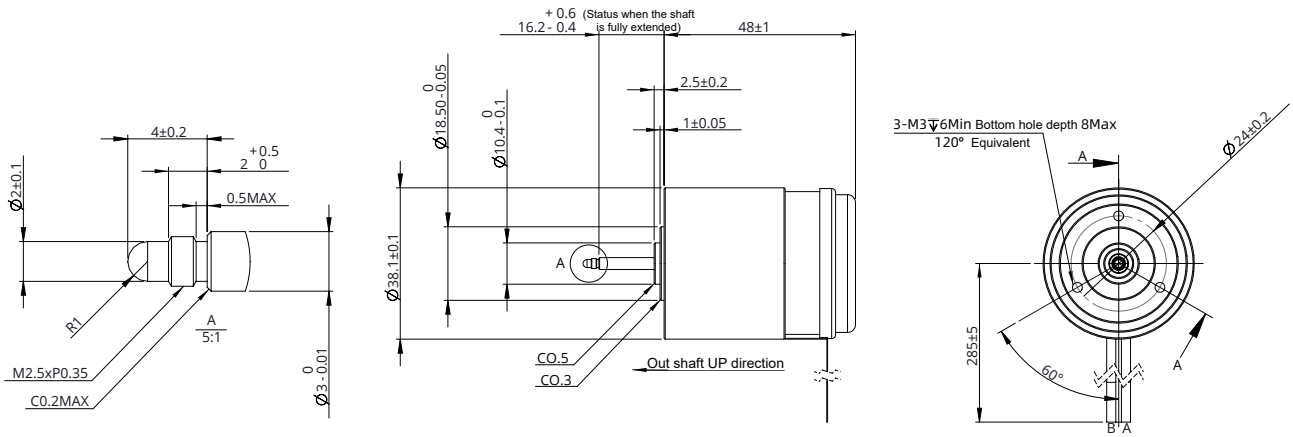
Also CANopen and EtherCAT supported Voice Coil Motor Electronics, DS-BVM-FCAO and DS-BVM-FETC are available.
For details, please check DINGS' website motion control products section.

Motor Characteristics

Motor	Stroke (mm)	Force constant (N/A)	Insulation resistance (mΩ)	Dynamic response (ms)	Retarding force (mN)	Frictional force (mN)	Life cycle (M)	Operating temperature (℃)	Coil Max. temperature (℃)	Gas leakage (sccm) @12Kpa
38	7.7	4.8	100	<20	<40	<50	>30	2.63	120	<10

*Voice Coil Motor can support CANopen and EtherCAT via DS-BVM-FCAO and DS-BVM-FETC.

Dimensional Drawings



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

J Motion Controller

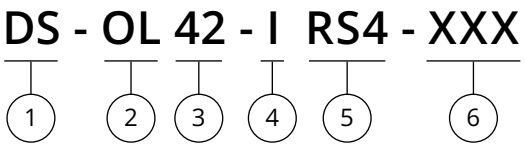
DINGS' offers various motion controllers includes drivers and programmable controllers with our hybrid stepper linear actuators, rotary stepper, hollow shaft motors, brushless DC motors and voice coil motors as one package.

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

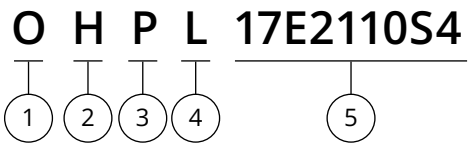


1. DINGS' Brand
2. Series
   - OL = Open Loop
   - CL = Closed Loop
   - BV = BLDC / VCM
   - OLB = Open Loop Brushless DC Motor
   - CLB = Closed Loop Brushless DC Motor
   - CLS = Closed Loop Servo Motor
3. Size
   - 20/28/35/42/57/60 = Motor Size
   - S(x) = Standard Size
   - M = Mini Size
   - C(x) = 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. Customization Requirements
   - 00(XX) = Special Type
   - L = Side Mounting
   - T = Back Mounting
   - 24V = 24V Signal Voltage

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 Product Model

Example

Part Number	OHRT17E2110S4
Description	Open Loop Hollow Shaft RS485 Communication Back Mounting

Stand Alone Stepper Electronics

DS-OLS2-FPD Driver

Features

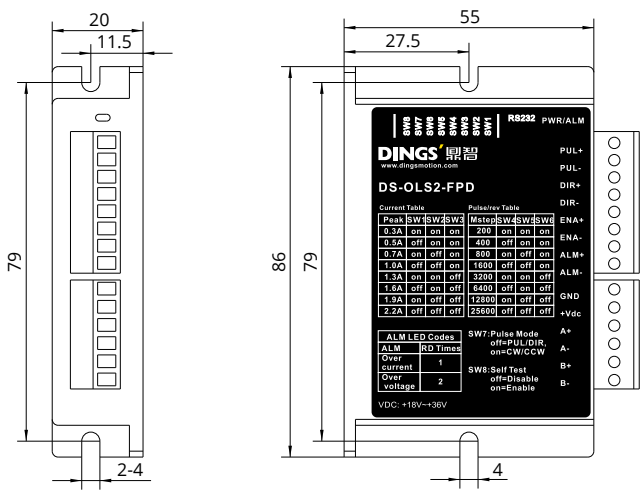
1. 32-bit DSP Technology
2. Anti-Resonance for optimal torque, extra smooth motion, low motor heating and noise
3. 3-digit dialing code adjustable, 8 output current settings
4. Power-on automatic setting, automatic current halving at rest
5. Precise current control significantly reduces motor heating
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

Specification

Adapted motor		Size 6, 8, 11, 14, 17 of Step Motors			
Project		Min	Typical	Max	Unit
Output current		0.3	-	2.2	A
Input power voltage		18	24	36	VDC
Control signal input 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℃			
	Vibration	10 ~ 55Hz / 0.15mm			
Storage temperature		-20 ~ 65℃			
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. Compact design, low noise, low vibration.
9. With off-line function

Specification

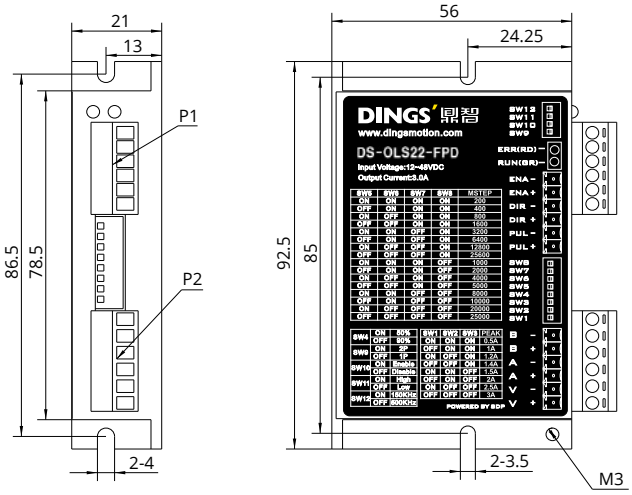
Adapted motor		Size 6, 8, 11, 14, 17, 23 of Step Motors
Power supply		DC 12 ~ 48V
Output current		0.3A - 3A / phase
Driving method		Full-bridge bipolar PWM
Input signal	Pulse signal	Optocoupler input voltage H = 3.5 – 26 V , L = 0 – 0.8 V, Current 6 - 15 mA
	Offline signal	
	Direction signal	
Size (mm)		92.5 × 21 × 56
Weight		about 96g
Operating environment	Application	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°C and motor is within 80°C.

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 Open-Loop Control - Pulse type

Features

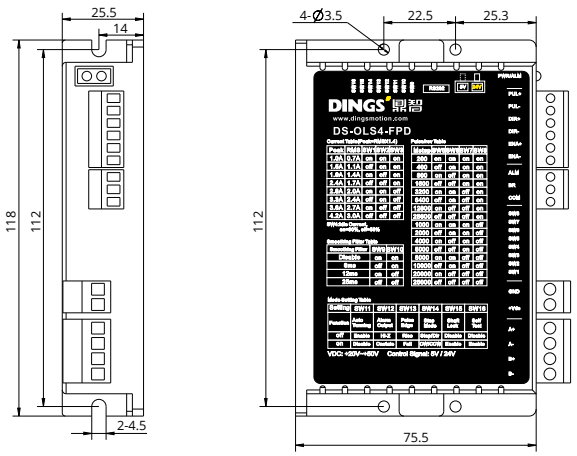
1. 32-bit DSP Technology
2. Anti-Resonance for optimal torque, extra smooth motion, low motor heating and noise
3. Built-in Micro-stepping
4. Power-on automatic setting, automatic current halving at rest
5. Precise current control significantly reduces motor heating
6. Automatic idle current reduction 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

Specification

Adapted motor		Size 17, 23, 24 of Step Motors			
Project		Min	Typical	Max	Unit
Output current		1	-	4.2	A
Input power voltage		20	24 / 36	50	VDC
Control signal input 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℃			
	Vibration	10 ~ 55Hz / 0.15mm			
Storage temperature		-20 ~ 65℃			
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.



Stand Alone Stepper Electronics

DS-OLS8-FPD Open-Loop Control - 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

Specification

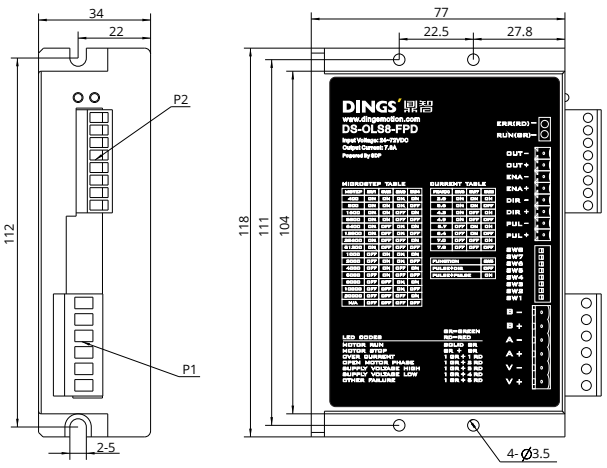
Adapted motor		Size 23, 24, 34 of Step Motors
Power supply		DC 24 ~ 72V
Output current		2.8A - 7.8A / phase
Driving method		Full-bridge bipolar PWM
Input signal	Pulse signal	Optocoupler input voltage H = 3.5 – 26 V , L = 0 – 0.8 V, Current 6 - 15 mA
	Offline signal	
	Direction signal	
Output signal	Alarm output	Optocoupler isolation output, max. withstand voltage 30VDC, max. saturation current 50mA
Size (mm)		118 × 78 × 34
Weight		about 300g
Operating environment	Application	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°C and motor is within 80°C.

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

Specification

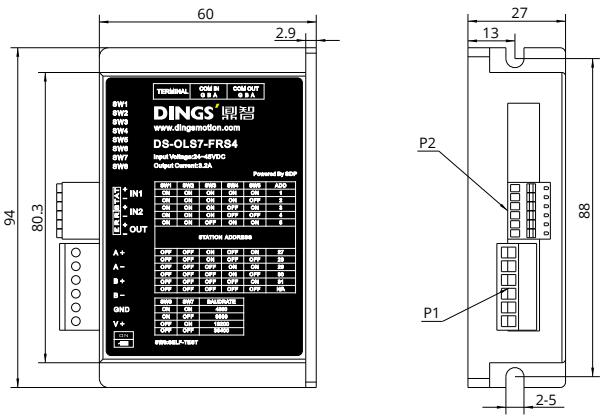
Adapted motor		Size 6, 8, 11, 14, 17 of Step Motors
Power supply		DC 24 ~ 48V
Output current		0.1A - 3.2A / phase
Driving method		Full-bridge bipolar PWM
Input signal	IN1 (DIR) signal	Optocoupler input voltage H = 3.5 – 26 V , L = 0 – 0.8 V, Current 6 - 15 mA
	IN2 (STEP) signal	
Output signal	Alarm output	Optocoupler isolation output, max. withstand voltage 30VDC, max. saturation current 50mA
Size (mm)		94 × 77 × 27 (including terminal block)
Weight		about 175g
Operating environment	Application	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°C and motor is within 80°C.

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-OLS8-FRS4 Stand Alone Open Loop - RS485 type

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

Specification

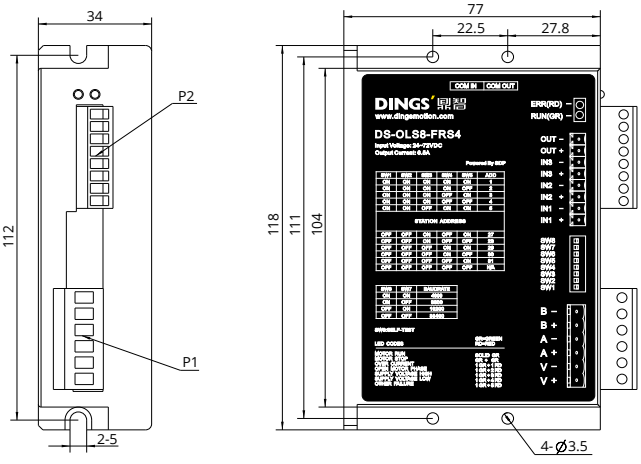
Adapted motor		Size 23, 24, 34 of Step Motors
Power supply		DC 24 ~ 72V
Output current		0.1A-6.5A/phase
Driving method		Full-bridge bipolar PWM
Input signal	Pulse signal	Optocoupler input voltage H = 3.5 – 26 V , L = 0 – 0.8 V, Current 6 - 15 mA
	Offline signal	
	Direction signal	
Output signal	Alarm output	Optocoupler isolation output, max. withstand voltage 30VDC, max. saturation current 50mA
Size (mm)		118 × 78 × 34
Weight		about 300g
Operating environment	Application	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°C and motor is within 80°C.

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-CLS3-FETC-4I Stand Alone Closed Loop - EtherCAT type

Features

1. Input power : DC 24V - 36V
2. Output rated current (peak value) : 0.4 - 3A
3. PWM constant current bipolar micro-stepping drive
4. Support EtherCAT communication protocol, support control mode PP, PV, HM, CSP, CSV
5. Optically isolated inputs
6. Motor short circuit protection, under-voltage protection, over-voltage protection, overcurrent protection, etc.
7. Maximum support for 4-axis control

Specification

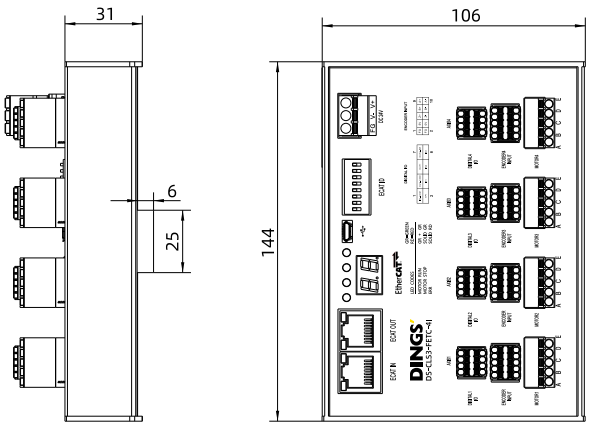
Adapted motor		Two phase open / closed loop incremental stepper motor
Power supply		DC 24 ~ 36V
Output current		0.4A - 3A / phase (peak value)
Driving method		Full-bridge bipolar PWM
Initialization time		2s
Input signal	1 probe input	Optocoupler input voltage H = 24 V , L = 0 – 0.8 V, Current 5 - 8 mA
	3 universal input signal	
Output signal	2 universal output signal	Optocoupler isolation output, max. withstand voltage 30VDC, max. saturation current 50mA
Size (mm)		144 × 106 × 31 (Excluding connectors)
Weight		about 450g
Operating environment	Application	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°C and motor is within 80°C.

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 - RS485 - Communication type

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

Specification

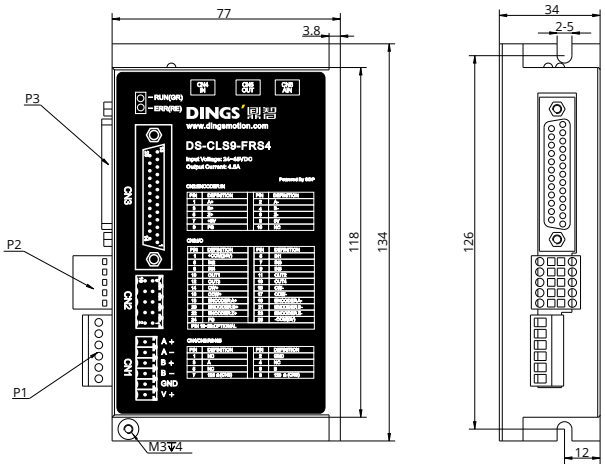
Project	Content	Remarks
Power supply	DC 24 ~ 48 V	
Output current	4.5 A (0-peak)	Instantaneous current
Adapted motor	Encoder 2-phase bipolar stepper motor	Size 6, 8, 11, 14, 17, 23, 24
Drive mode	PWM constant current drive	
I/O signals	**[Input]** - Pulse, direction input (configurable as digital input) - 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 mode	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°C and motor is within 80°C.

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-FRS4-01 Stand Alone Closed Loop - RS485 - Communication type

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

Specifications

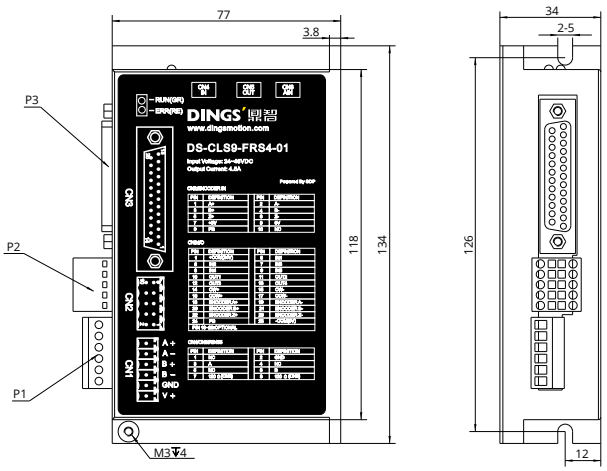
Project	Content	Remarks
Power supply	DC 24 ~ 48 V	
Output current	4.5 A (0-peak)	Instantaneous current
Adapted motor	Encoder 2-phase bipolar stepper motor	Size 6, 8, 11, 14, 17, 23, 24
Drive mode	PWM constant current drive	
I/O signals	**[Input]** - Pulse, direction input (configurable as digital input) - 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 mode	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°C and motor is within 80°C.

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 - 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, CSV
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

Specification

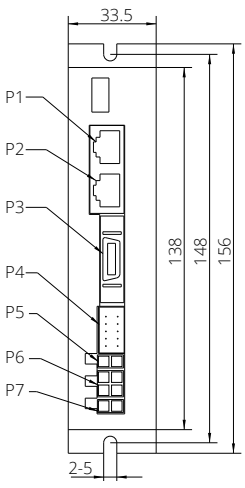
Project	Content	Remarks
Power supply	DC 24 ~ 48 V	
Output current	6.5 A	Instantaneous current
Adapted motor	Encoder 2-phase bipolar stepper motor	Size 6, 8, 11, 14, 17, 23, 24, 34
Drive mode	PWM constant current drive	
I/O signals	**[Input]** - 2 High-speed inputs - 5 Digital inputs - Encoder input (A, 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, Home, 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	

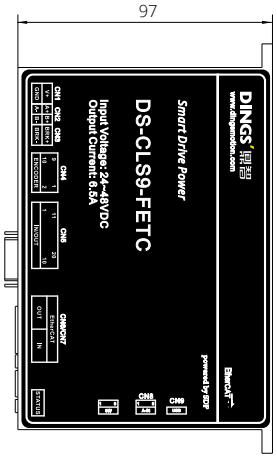
Installation (unit : mm)

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°C and motor is within 80°C.

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-2I/2A Stand ALone CLosed Loop - EtherCAT type

Features

1. Input power : DC 24V - 48V
2. Output rated current (peak value) : 0.4 - 6.5A
3. Maximum support for 2-axis control
4. Support EtherCAT communication protocol, support control mode PP, PV, TQ, HM, CSP, CSV
5. Optically isolated inputs
6. Motor short circuit protection, under-voltage protection, over-voltage protection, overcurrent protection, etc.

Specification

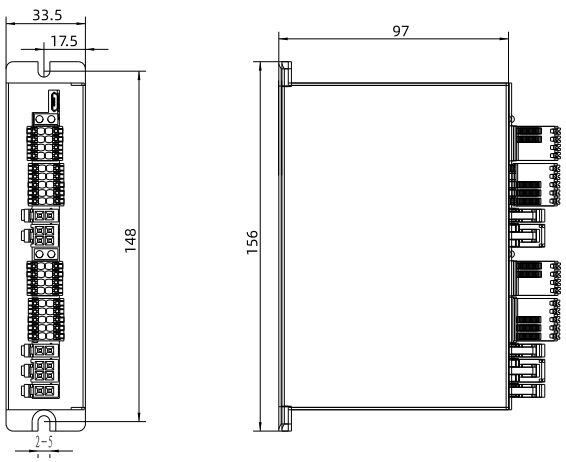
Drive model		DS-CLS9-FETC-2I	DS-CLS9-FETC-2A
Adapted motor		Two phase hybrid incremental stepper motor	Two phase hybrid absolute value stepper motor
Power supply		DC 24 ~ 48V	
Output current		0.4A - 6.5A / phase (peak value)	
Driving method		Full-bridge bipolar PWM	
Initialization time		2s	
Input signal	1 probe input	Optocoupler input voltage H = 24 V , L = 0 – 0.8 V, Current 5 - 8 mA	
	3 universal input signal		
Output signal	2 universal output signal	Optocoupler isolation output, max. withstand voltage 30VDC, max. saturation current 50mA	
	1 circuit brake output	Optocoupler isolation output, max. withstand voltage 30VDC, max. saturation current 500mA	
Size (mm)		156 × 97 × 34 (Excluding connectors)	
Weight		about 500g	
Operating environment	Application	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°C and motor is within 80°C.

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 - 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

Specification

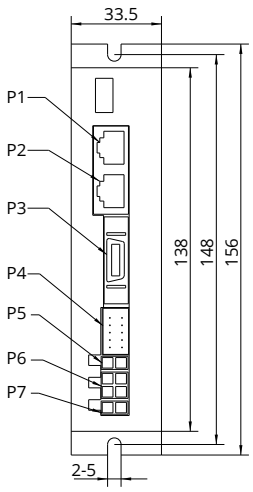
Adapted motor		Size 6, 8, 11, 14, 17, 23, 24, 34 2-phase hybrid stepping motor
Power supply		DC 24 ~ 48V
Output current		0.1 – 6.5 A
Driving method		Full-bridge bipolar PWM
Initialization time		2s
Input signal	2 high-speed input signals	Optocoupler input voltage H = 3.5 – 26 V, L = 0 – 0.8 V, Current 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 isolation output, max. withstand voltage 30VDC, max. saturation current 50mA
Size (mm)		156 × 97 × 33.5
Weight		about 500g
Operating environment	Application	Avoid dust, oil mist and corrosive gas
	Humidity	< 85% RH, no condensation
	Temperature	0 ~ 40°C
	Heat dissipation	Install in a ventilated environment

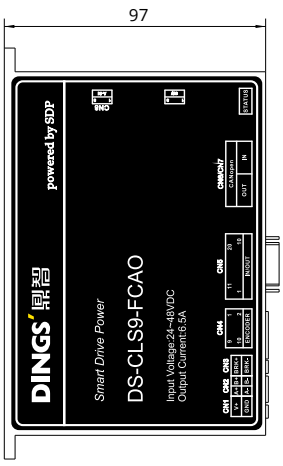
Installation (unit : mm)

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°C and motor is within 80°C.

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-CLS10-FRS4 Stand Alone Closed Loop Control - RS485 type

Features

1. Input power : DC 24V-72V
2. Current : 0.4 ~ 6.5A
3. PWM constant current bipolar micro-stepping drive
4. 2 high-speed inputs, 5 ordinary digital signal inputs, and 4 configurable digital outputs
5. Equipped with RS485 communication interface, supports MODBUS/RTU protocol, and can support up to 30 sites
6. Supports 0-5V analog control, pulse control, and serial communication control

Specification

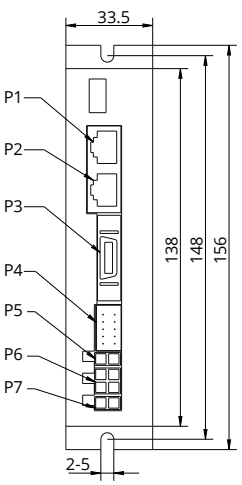
Project	Content	Remarks
Power supply	DC 24 ~ 72 V	
Output current	6.0 A (0.4-peak)	Instantaneous current
Adapted motor	Encoder 2-phase bipolar stepper motor	
Drive mode	PWM constant current drive	
I/O signals	**[Input]** - Pulse, direction input (configurable as digital input) - 7 Digital input - Encoder 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	/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	
Communication I/F	RS485, up to 30 nodes	MODBUS RTU protocol baud rate : 19200bps (default) or according to the agreement
Control mode	Position control mode Speed control mode	According to pulse positioning, according to RS485 communication positioning
Dimensions (mm)	156 x 97 x 33.5	Without terminal block
Weight	About 376 g	Without terminal block
Operating temperature / humidity	0~40°C, 85% RH or less	Prevent condensation
Storage temperature	-10~70°C, 85% RH or less	Prevent condensation
Ambient gas	Prevent corrosive gases	

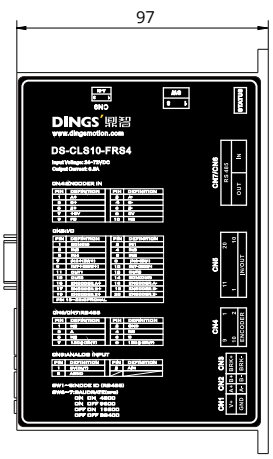
Installation (unit : mm)

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°C and motor is within 80°C.

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 regulator

Features

1. Control mode : constant speed, analog variable speed
2. Optoelectronic isolation input function, 5-24VDC compatible input
3. Motor short-circuit protection function
4. Compact design, low noise, low vibration, no need for control units

Specification

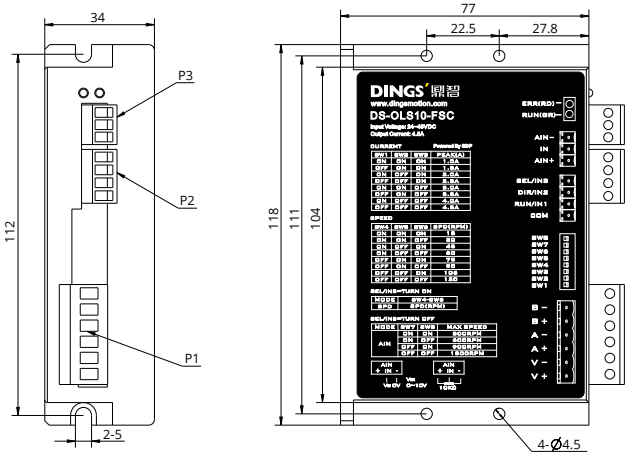
Adapted motor		Size 6, 8, 11, 14, 17, 23, 24 two-phase hybrid stepper motor
Power supply		DC 24 ~ 48V
Output current		1.0 – 4.5 A / Phase
Driving method		Full-bridge bipolar PWM
Input signal	IN 1 (Start) Signal	Optocoupler input voltage H = 3.5 – 26 V , L = 0 – 0.8 V, Current 6 - 15 mA
	IN 2 (Direction) Signal	
	IN 1 (Speed switch) Signal	
Analog adjustment		Connected to 10K potentiometer or 0 -10 V analog adjustment
Size (mm)		118 × 78 × 34
Weight		about 300g
Operating environment	Application	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°C and motor is within 80°C.

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

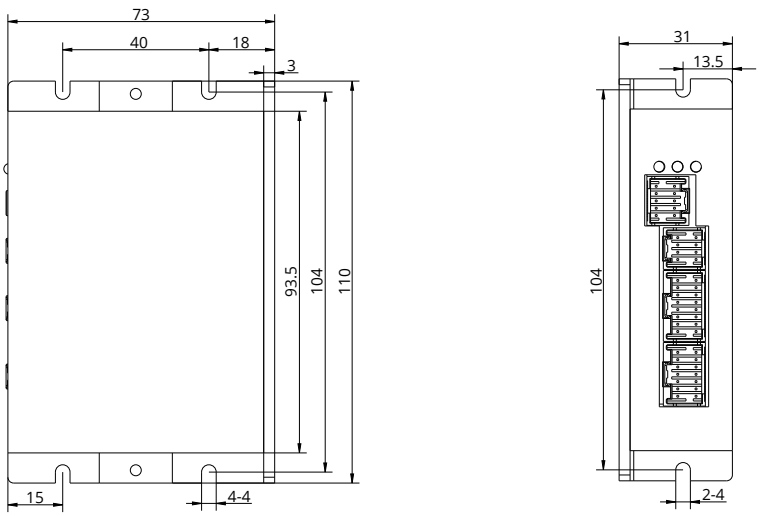
Features

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

Specification

Adapted motor		DC / BLDC / PMSM / VCM
Current (torque) control		Control cycle 24KHz
Speed and position control		Control cycle 2KHz
Communication method		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-voltge, 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 Servo Driver

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

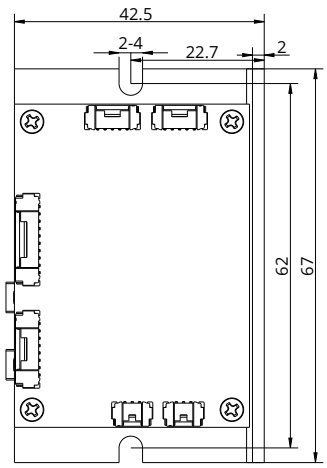
Features

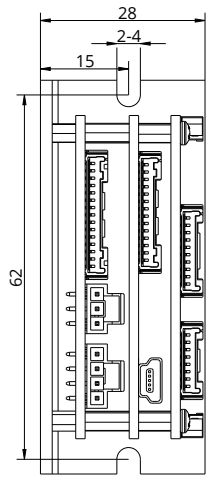
1. Input power : DC12V~48V
2. Output rated current : Continuous Current 3A, Max. Current 6A Peak
3. Support BLDC, VCM, PMSM, LSM, DC
4. 6 Inputs, 2 Outputs
5. Support CANopen, EtherCAT Protocol

Specification

Adapted motor		DC / BLDC / PMSM / VCM
Current (torque) control		Control cycle 24KHz
Speed and position control		Control cycle 2KHz
Communication method		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-voltge, 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)





Brushless DC Motor Speed Controller

DS-OLBS2-FRS4 Stand Alone Speed Controller - RS485

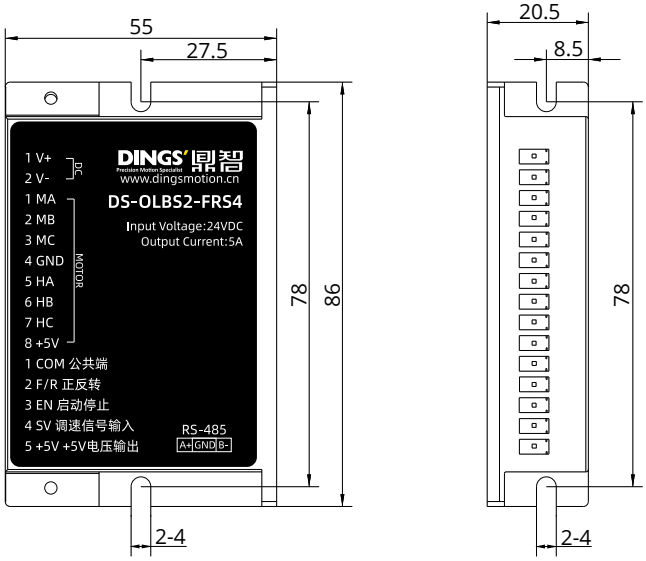
Features

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.

Specification

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 - RS485

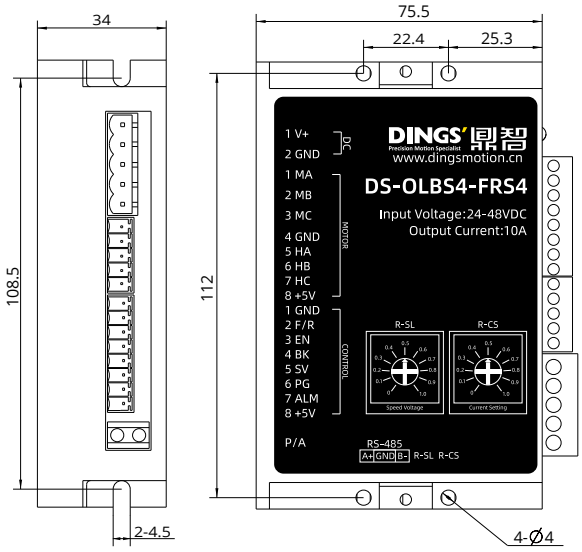
Features

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.

Specification

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

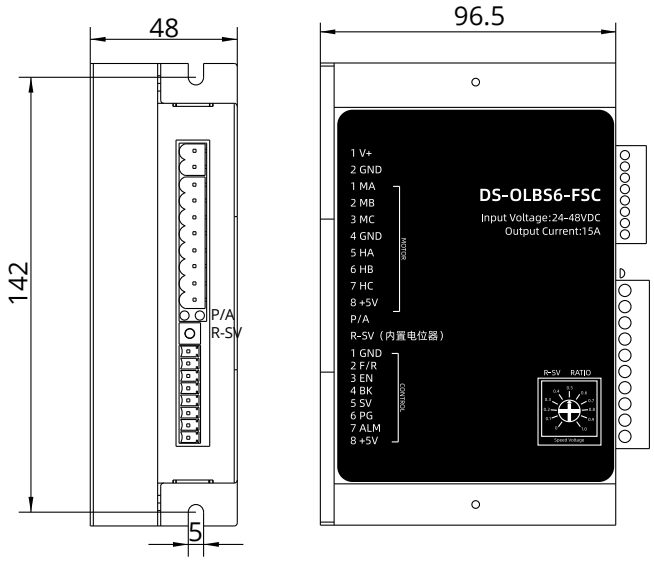
Features

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.

Specification

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 - RS485

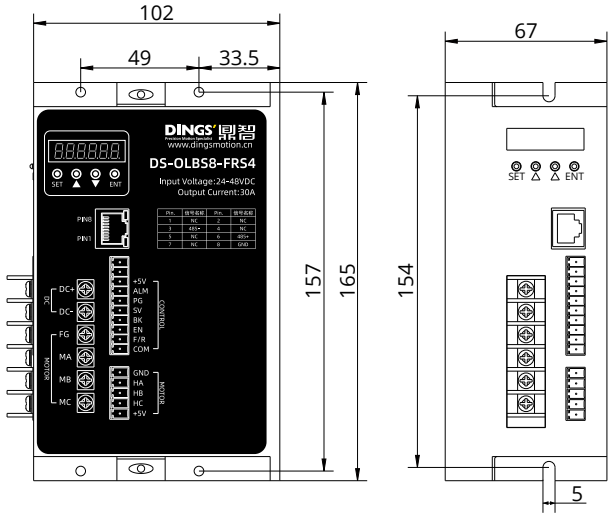
Features

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.
8. High quality components, simple and clear circuit design, reducing costs

Specification

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)

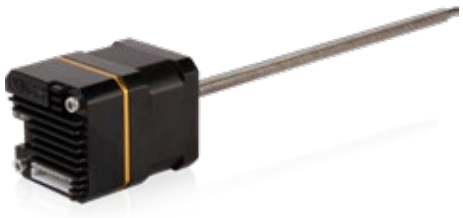


Integrated Stepper Electronics

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

Features

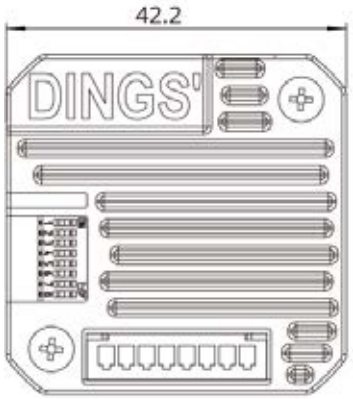
1. Input power : DC 24V
2. 8 Output current settings
3. PWM constant current bipolar micro-stepping drive
4. 16 Micro-step resolutions of DIP
5. Single / Double pulse selection
6. Optically isolated input function
7. Motor short circuit protection
8. Compact design, low noise, low vibration

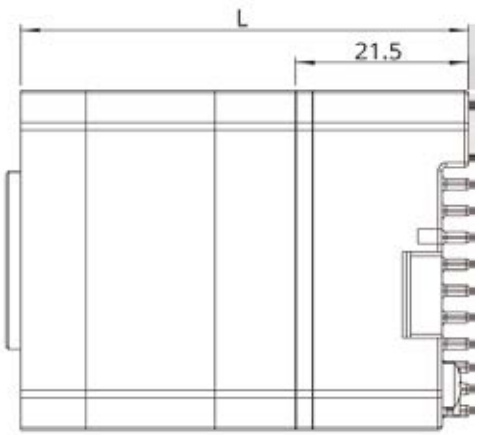


Specification

Drive model		DS-OL42-IPD-T
Power supply		DC 24V
Output current		0.3A - 2.2A / phase (peak value)
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=1K Ω Signal power supply 24VDC series resistance R=2.2K Ω Optional configurations can also be made based on the input signal voltage, such as fixed 12V or 24V
	Offline signal	
	Direction signal	
Operating environment	Application	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-(ICAO/IPD/IRS4) Integrated Open Loop

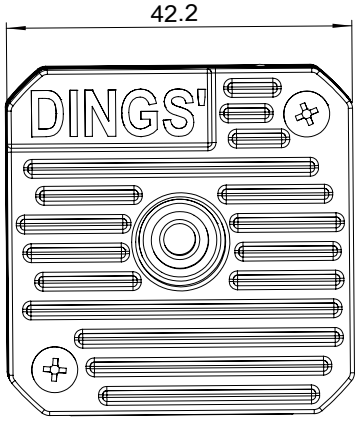
Features

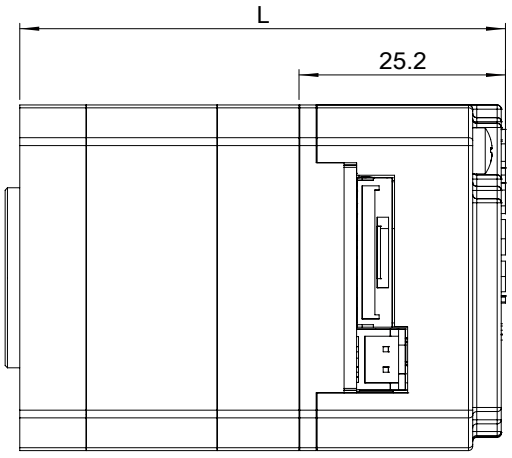
1. Input power : DC 24 - 36V
2. Output rated current (peak value) : 0.5~3.0A/Phase
3. IPD(IRS4) : Pulse, RS485 control, support MODBUS RTU communication protocol
   ICAO : Support CANopen communication protocol,
   Support control mode PP / PV / HM
4. Through hole type of Integrated Driver compatible DINGS' NEMA Size 17 step motor is diameter less than 11mm.

Specification

Model		DS-OL42-ICAO	DS-OL42-IRS4 (IPD)
Adapted motor		Suitable for two-phase hybrid stepping motor, the maximum adaptation is 3.0 A	
Power supply		DC 24V ~ 36V	
Output current		0.5A ~ 3.0A / phase (peak)	
Driving method		Full-bridge bipolar PWM	
Initialization time		2s	
Communication method		CANopen	RS485 / Pulse Direction
Input signal		4 high-speed input signals / 5V input	2 high-speed input signals / 5-24V input
			2 common input signals / 5V input
Output signal		1 universal output signal, with a max. withstand voltage of 30VDC and a max. saturation current of 10mA	
Size (mm)		42.2 x 42.2 x 25.2	
Weight		60g	
Operating environment	Application	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-OL57-(ICAO/IRS4/ISC) Integrated Open Loop

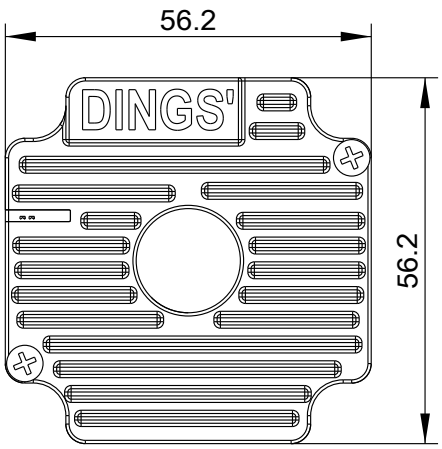
Features

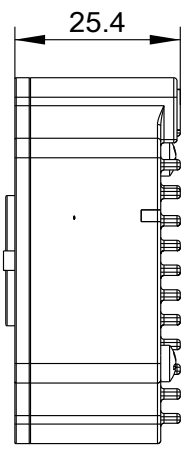
1. Input power : DC 24 - 48V
2. Output rated current (peak value) : 5.6A/Phase
3. Multiple control methods available: pulse, MODBUS-RTU communication, I/O trigger control, internal programming, CANopen, analog control
4. Through hole type of Integrated Driver compatible DINGS' NEMA Size 23 step motor is diameter less than 16mm.
5. Protection functions: over current, over voltage, under voltage

Specification

Model		DS-OL57-ICAO	DS-OL57-IRS4 (IPD)	DS-OL57-ISC
Adapted motor		Suitable for two-phase hybrid stepping motor, the max. adaptation is 5.6 A (peak)		
Power supply		DC 24V ~ 48V		
Output current		0.5A ~ 5.6A / phase (peak)		
Driving method		Full-bridge bipolar PWM		
Initialization time		2s		
Communication method		CANopen	RS485 / Pulse Direction	Speed regulation
Input signal		4 high-speed input signals 5V input	2 high-speed input signals 5V input	3 high-speed input signals 5V input
			2 common input signals 5V input	Analog input signal Connected to 10K potentiometer or 0~5V analog adjustment
Output signal		1 universal input signal, with a max. withstand voltage of 30VDC and a max. saturation current of 10mA		
Size (mm)		56.2 x 56.2 x 25.4mm		
Weight		60g		
Operating environment	Application	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

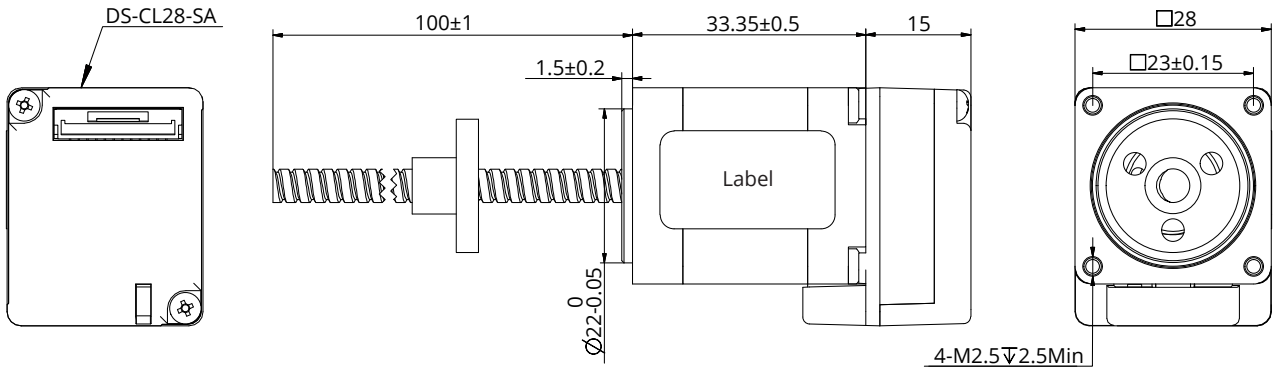
Features

1. Input power : DC 24 ± 10%
2. Output rated current (peak value) : 0~4.8A/Phase
3. Integrated 28 step closed-loop control system,
   RS485 communication interface supports MODBUS-RTU communication protocol
4. 3 inputs and 1 output

Specification

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 – 86% 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 / Absolute mode Data range : -2147493648 ~ +2147483647 (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	

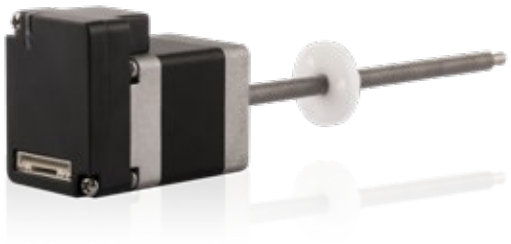
Installation (unit : mm)



Integrated Stepper Electronics

DS-CL28-IRS4(IPD) Integrated Open / Closed Loop

Features

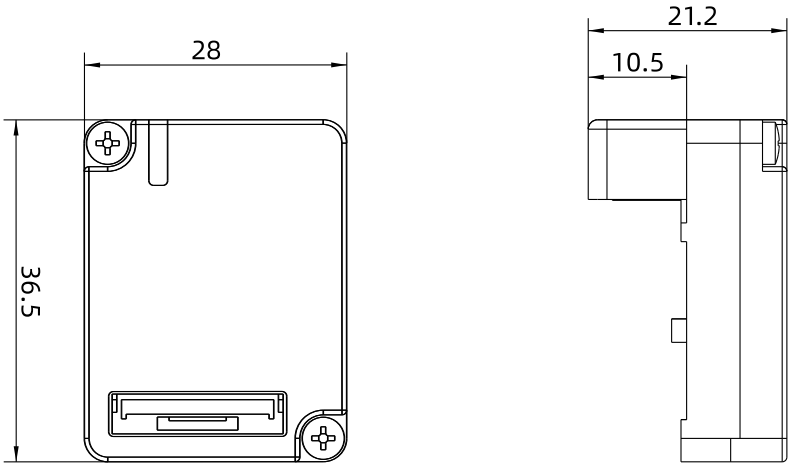


1. Max. frequency response: 500KHz (duty cycle 50%)
2. Supports pulse mode, internal pulse mode, I/O control, position pressing mode, and torque mode
3. 3 Input signals : pulse, direction, offline (optocoupler isolation, 5V signal drive, current limiting resistor required for exceeding 5V)
4. 1 output signal : alarm (optocoupler isolation, output when there is no alarm)
5. Protection functions : overcurrent, overvoltage, undervoltage, motor phase loss

Specification

Adapted motor		Suitable for two-phase hybrid stepping motor
Power supply		DC 24V
Output current		0.5A - 1.5A / phase (peak value)
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=1K Ω Signal power supply 24VDC series resistance R=2.2K Ω Optional configurations can also be made based on the input signal voltage, such as fixed 12V or 24V
	Offline signal	
	Direction signal	
Output signal	Alarm signal	Optocoupler isolation output, max. withstand voltage 30VDC, max. saturation current 10mA
Operating environment	Application	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-CL42-SA Integrated Closed Loop - RS485

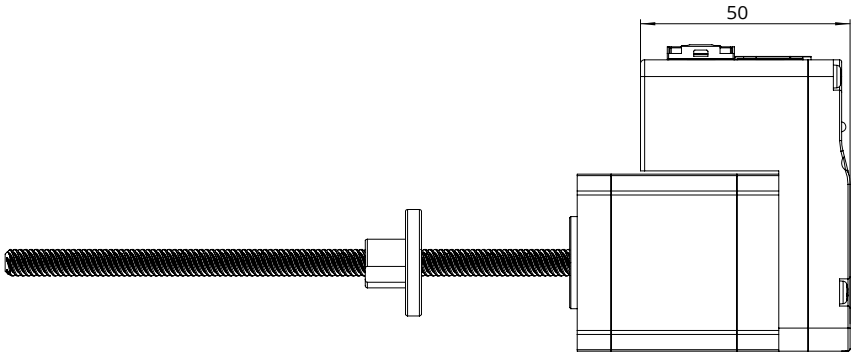
Features

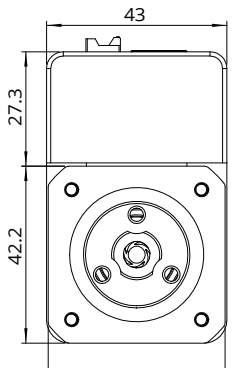
1. Input power: DC 24 Vdc ± 10%
2. Output rated current (peak value) : 0 ~ 4.8A/Phase
3. Integrated 42mm Stepper Closed Loop Series, RS485 Communication interface supports MODBUS RTU Communication protocol
4. 7 Inputs, 3 Outputs

Specification

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 – 86% 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 : -2147493648 ~ +2147483647 (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)



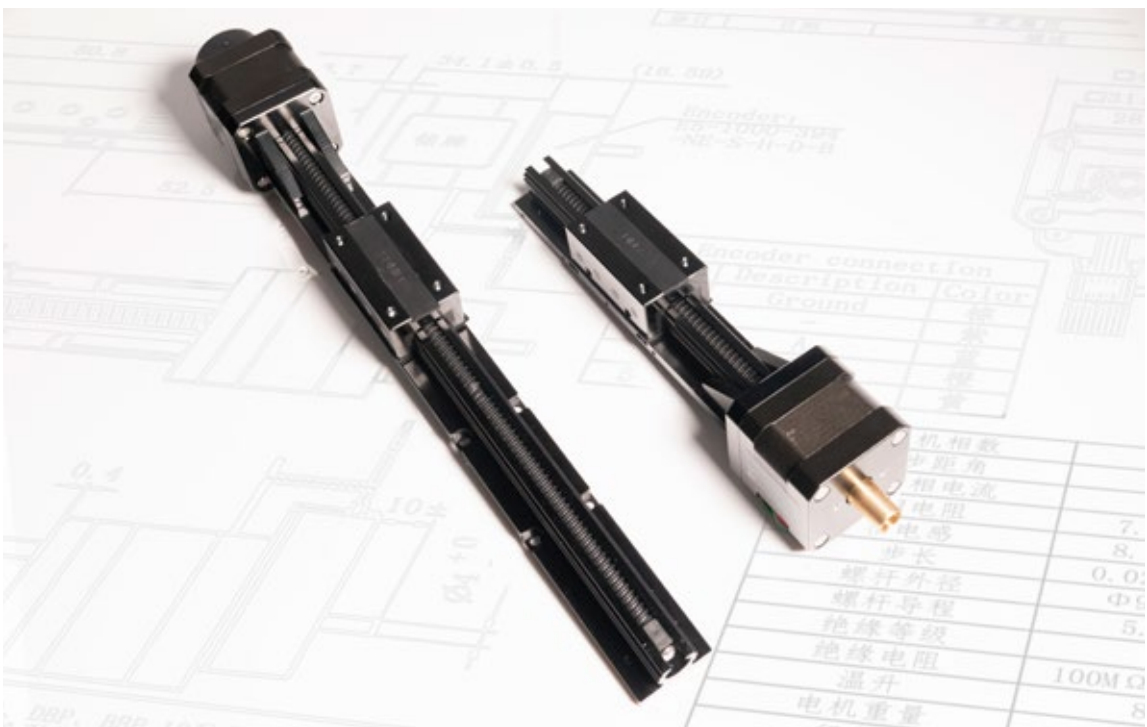


Customization Options

IP54 Rating Protection 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

DSLM module



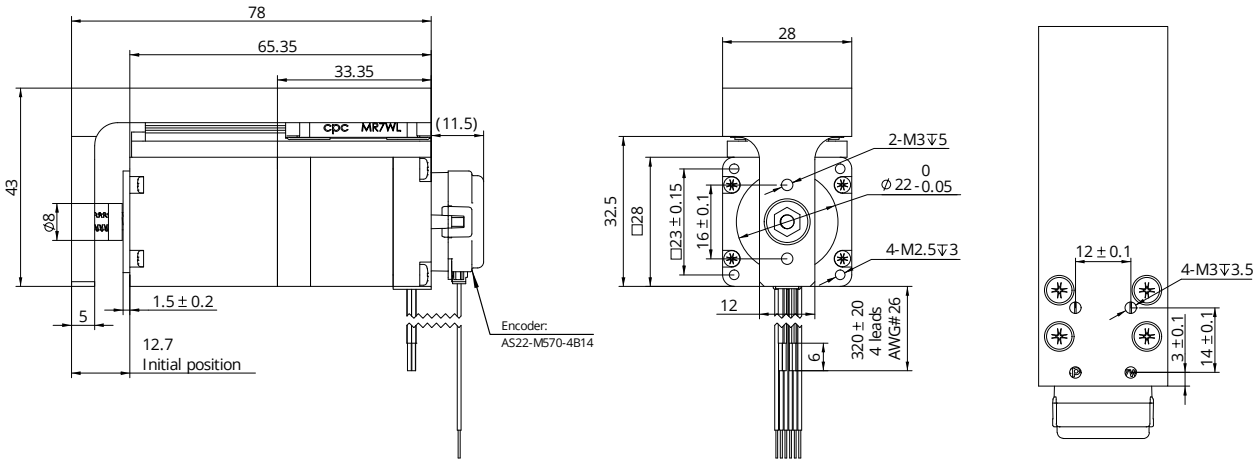
1. Excellent linear speed and precise positioning performance
2. Multiple lead options, with a maximum stroke of 900mm
3. The surface of the screw is coated with Teflon coating, resulting in a longer service life

Customization Options

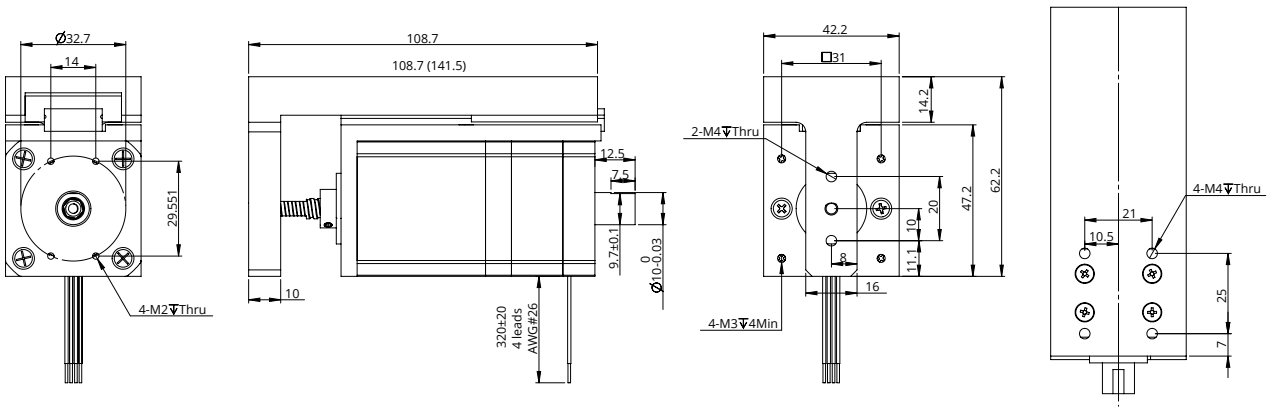
DLG/DRS Electric Slide Ball Screw Linear Actuator

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-DLG 28



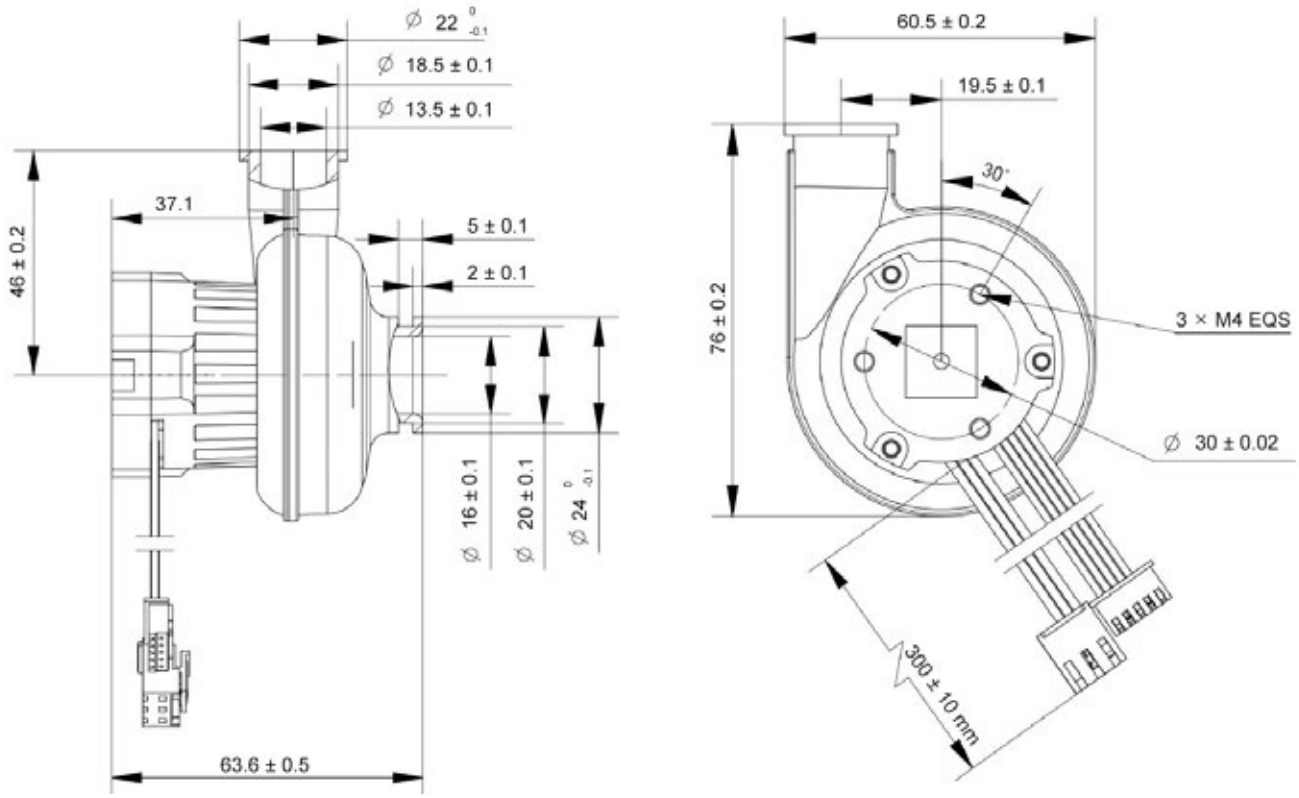
DS-DLG 42

Customization Options

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

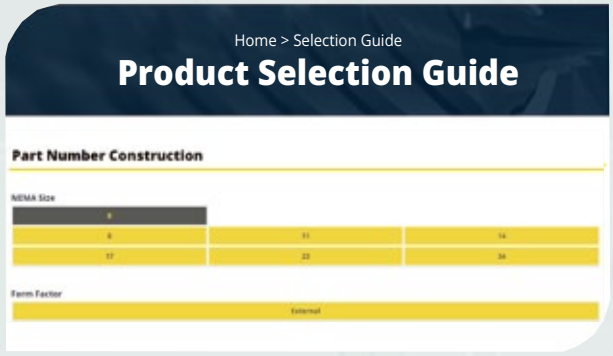


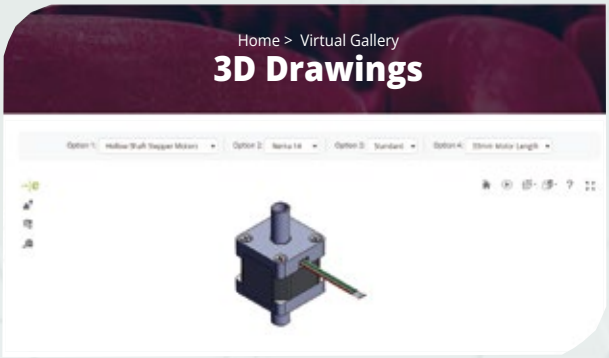
Customization Options

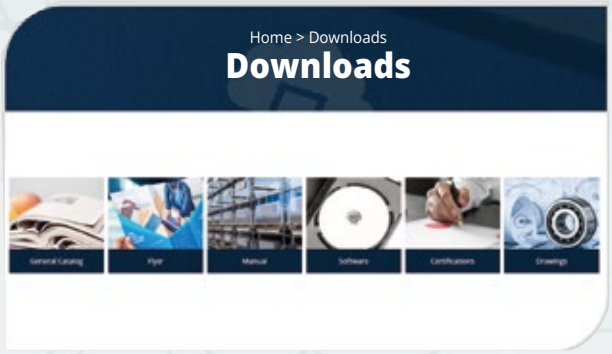
New energy main driver motor

1. Equipped with supporting electronic control, it has strong load and overload capacity, small starting torque and can meet multiple speed regulation requirements
2. DINGS' Established R&D and production line dedicated for permanent magnet synchronous motors with specialized development capabilities
3. Can meet various voltage customization requirements (72V / 96V / 115V / 320V / 350V)

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







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