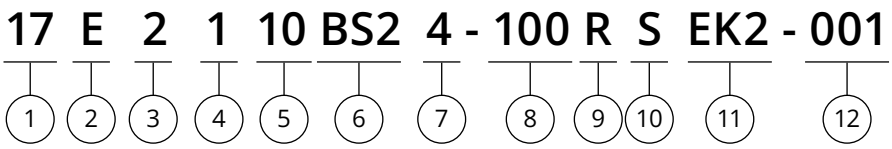
Stepper Ball Screw Linear Actuator

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

Part Number Construction



① Motor Size

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

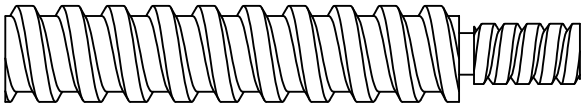
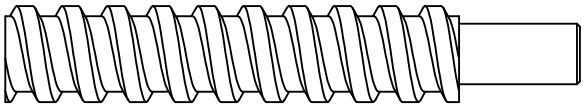
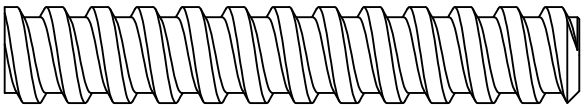
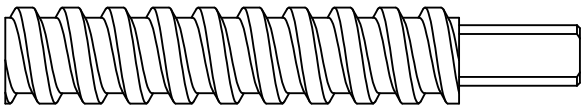
Stepper Ball Screw Lead Code Selection

	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

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	

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.