

Visit nipponpulse.com to download 3D CAD drawings and 2D prints of this motor.

Electrical Specs	L320SS	L320DS	L320TS	L320QS
Continuous Force ¹	19N (4.27lbs)	33N (7.42lbs)	48N (10.79lbs)	59N (13.26lbs)
Continuous Current ¹	1.7Arms	1.5Arms		1.3Arms
Acceleration Force ²	75N (16.86lbs)	132N (29.67lbs)	193N (43.39lbs)	235N (52.83lbs)
Acceleration Current ²	6.9Arms	6.0Arms	5.9Arms	5.2Arms
Force Constant (K_f)	11N/amp (2.47lbs/amp)	22N/amp (4.95lbs/amp)	33N/amp (7.42lbs/amp)	45N/amp (10.12lbs/amp)
Back EMF (K_e)	3.6V/m/s	7.3V/m/s	11V/m/s	15V/m/s
Resistance 25°C ³	3.6Ω	7.1Ω	11Ω	14Ω
Inductance ³	5.1mH	7.8mH	12mH	15mH
Electric Time Constant	1.42ms	1.10ms	1.11ms	1.08ms
Fundamental Motor Constant (K_m)	5.72N√W	8.27N√W	10.01N√W	11.94N√W
Magnetic Pitch (North-North)	60mm (2.36in)			

Is this the proper Linear Shaft Motor for your application? Use our [SMART sizing program](#) to assist in your decision.

This motor can be customized to fit your application demands; contact your application engineer for more information.

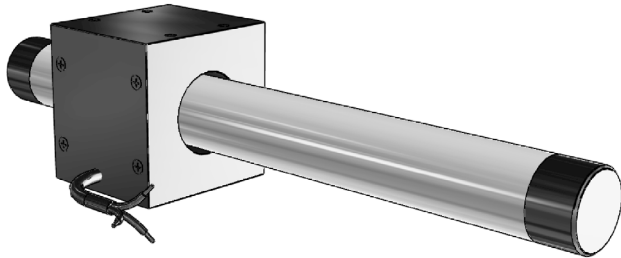
¹ Based on a temp rise of coil surface of 110°K over 25°C ambient temperature stalled forcer, and no external cooling or heat sinking.

² Can be maintained for a maximum of 40 seconds. Higher forces and current possible for short periods of time, contact Nippon Pulse for more information.

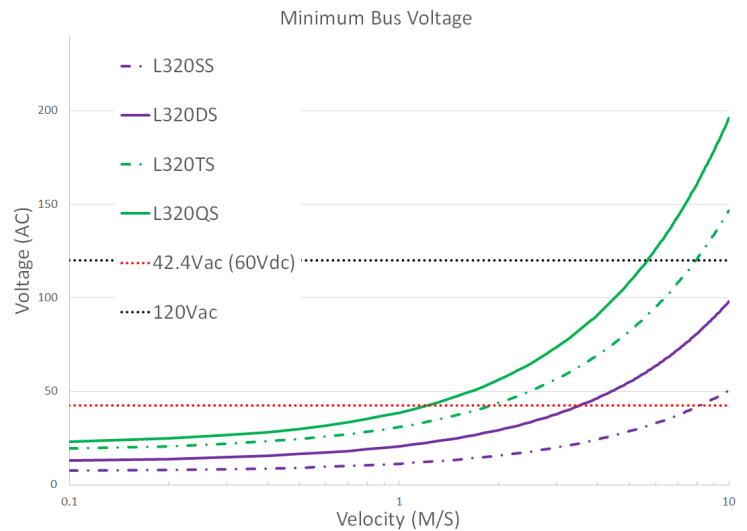
³ All winding parameters listed are measured line-to-line (phase-to-phase).

Thermal Specs	L320SS	L320DS	L320TS	L320QS
Max Phase Temperature ⁴	135°C (275°F)			
Thermal Resistance (Coil) (K_c)	10.0°C/W	6.9°C/W	4.7°C/W	4.5°C/W

⁴The standard temperature difference between the coil and the forcer surface is 40°C.



Bus Voltage



These motors have not received a CE Declaration of Conformity, and as such are designated FGA.

Forcer Specs	L320SS	L320DS	L320TS	L320QS
Forcer Length (A)	50mm (1.97in)	80mm (3.15in)	110mm (4.33in)	140mm (5.51in)
Forcer Width	60mm (2.36in)			
Forcer Screw Pitch (P)	40mm (1.57in)	70mm (2.8in)	100mm (3.94in)	130mm (5.12in)
Forcer Weight	0.44kg (0.97lbs)	0.68kg (1.50lbs)	0.98kg (2.16lbs)	1.2kg (2.65lbs)
Gap	2.5mm (0.1in)			

Tolerances are as follows:

Dimension (mm)	Tolerance (mm)
0 - 6	±0.1
7 - 30	±0.2
31 - 120	±0.3
121 - 315	±0.5
316 - 1000	±0.8
1001 - 2000	±1.2
2000 -	±1.5

L = See Shaft Length

L1 = Usable Stroke + A

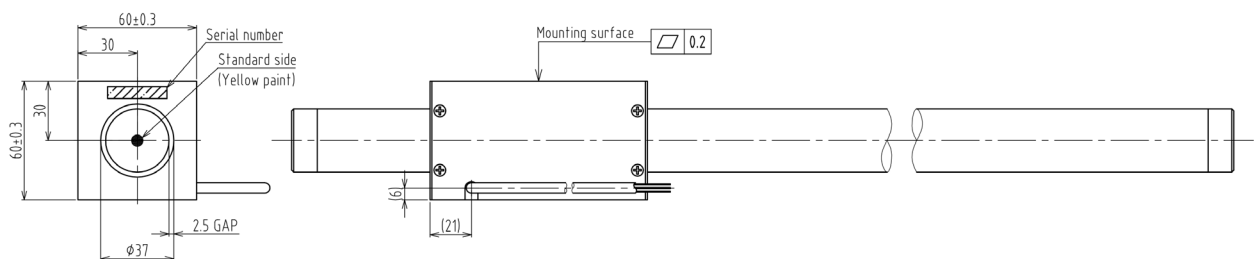
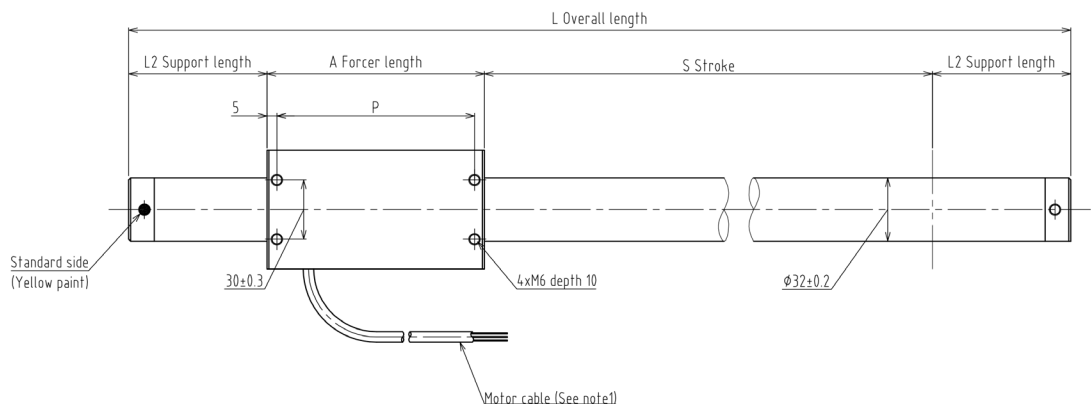
L2 = See Support Length

A = See Forcer Length

P = See Forcer Screw Pitch

Unless otherwise specified,
dimensions are in mm

Note: Cable length 300mm. The bending radius of the motor cable should be 36.6mm (wire diameter 6.1 * 6) as suggested by the wire manufacturer. This radius should be maintained. Use supplied connector to attach the proper high-flex cable as required by your application.

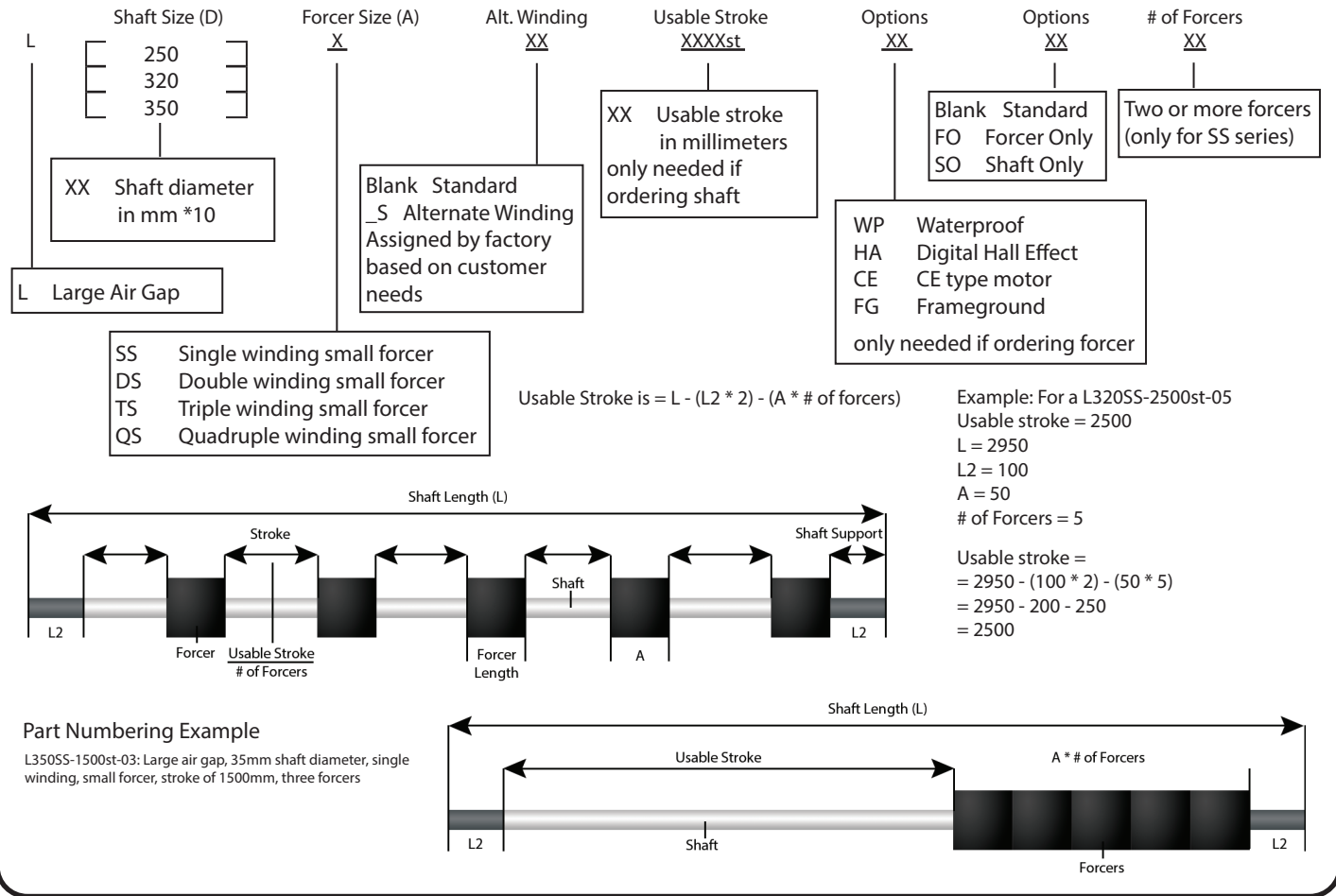


Support and Bending

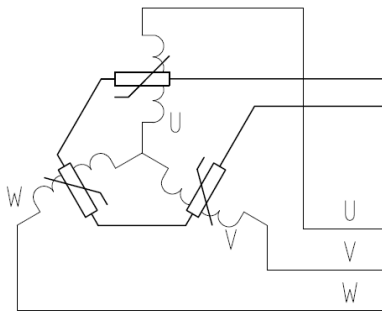
Stroke	Support Length (L2)	Max. Bending
0~850	50mm	0.00mm
900~1650	70mm	0.30mm
1700~max	100mm	0.70mm

Note: Metric units guaranteed. Imperial (United States customary) units are calculated.

Linear Shaft Motor Part Numbering Guide (SS Series)

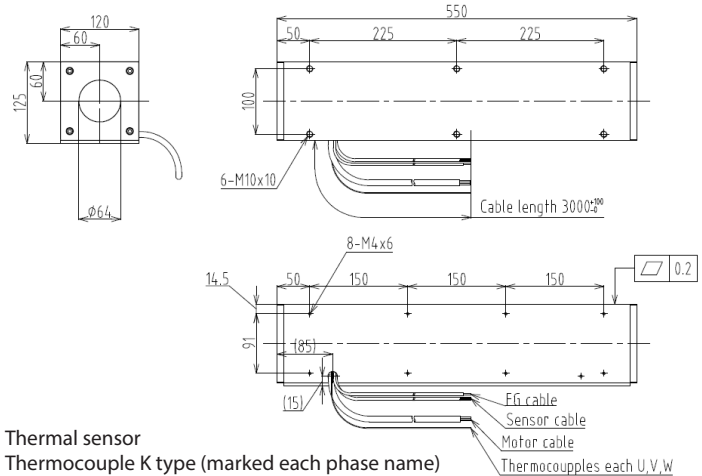


THM Option



4. Thermistor
 PTCSL20T071DBE (Vishay)

Thermocouple

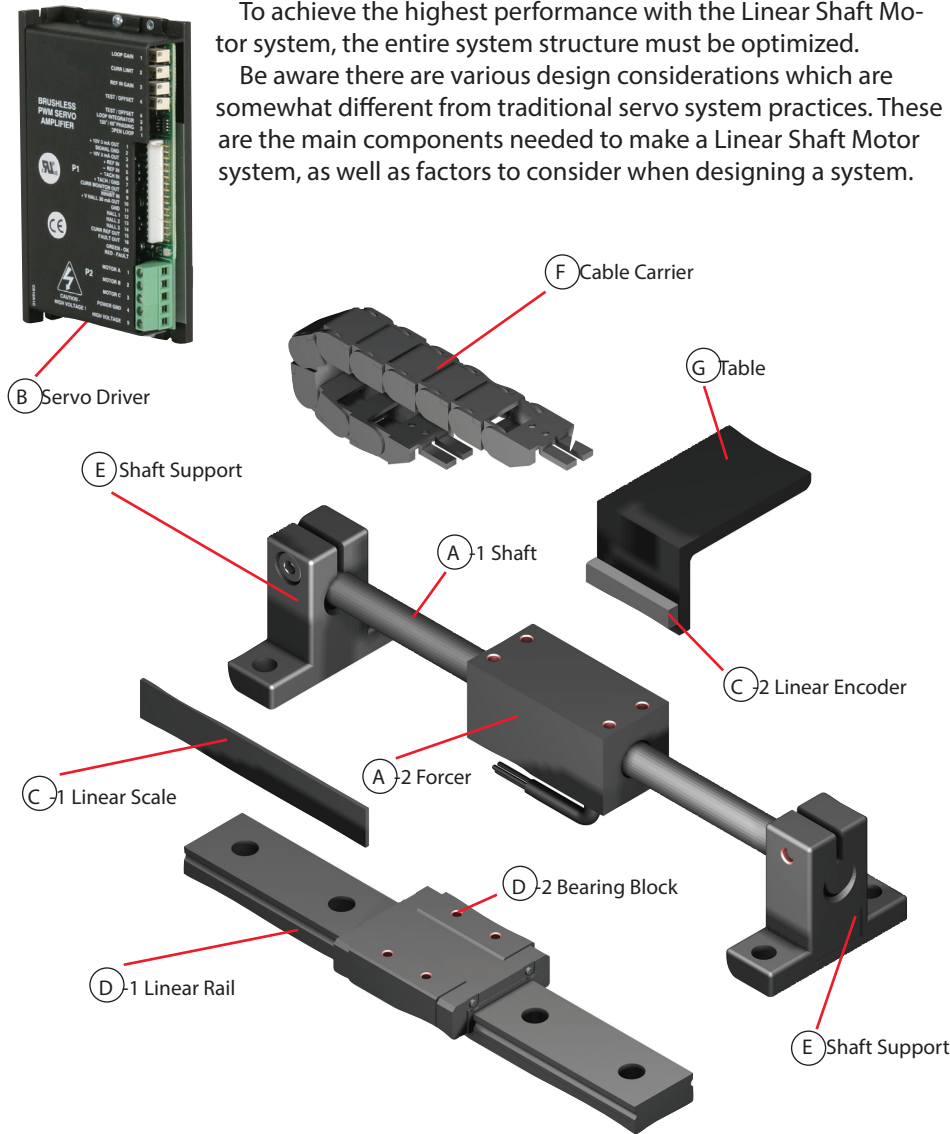


For assistance in selecting the best motor for your application, contact Nippon Pulse to speak with an applications engineer. 1-540-633-1677

The design of the Linear Shaft Motor allows you to replace traditional linear motion systems, such as a standard ball screw, with the Linear Shaft Motor and achieve higher speed and resolution.

To achieve the highest performance with the Linear Shaft Motor system, the entire system structure must be optimized.

Be aware there are various design considerations which are somewhat different from traditional servo system practices. These are the main components needed to make a Linear Shaft Motor system, as well as factors to consider when designing a system.



Configuring the Linear Shaft Motor

To configure a system using the Linear Shaft Motor, the following peripheral devices are required:

- A. Linear Shaft Motor
- B. Servo Driver
- C. Linear encoder (optical or magnetic)

Item D (Linear Guide) is a necessary part of a system, but consideration must be given to the application, demand specifications, environmental conditions, and which will be moving--the forcer or the shaft.

The other items, E through G, are optional and will need to be selected depending on the application.

System Design Linear Shaft Motor

Steps to putting together a Linear Shaft Motor System

Choose the Linear Shaft Motor based on force and stroke requirements.

Choose the shaft supports based on design and motor specifications.

Choose the linear guide (bearings) based on cost and smoothness (performance) constraints.

Choose the linear encoder to achieve the required position resolution.

Choose the servo driver to match the power requirements of the Linear Shaft Motor.

Choose the OTL, limit switches/other components and assemble the Linear Shaft Motor system.