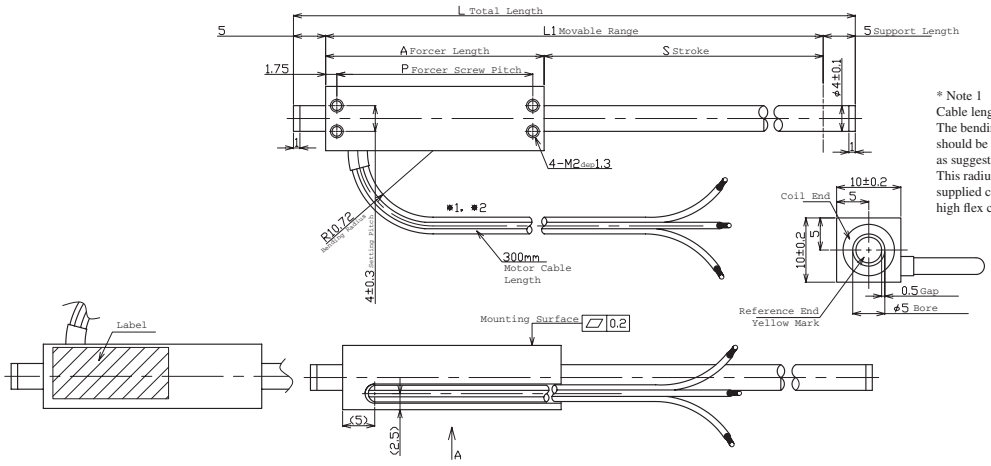
NPM Nippon Pulse
Your Partner in Motion Control

S040
Linear Shaft Motor

Unless Otherwise Specified:
Dimensions are in mm
Tolerances are as follows:

Dimension (mm)	Tolerance (mm)
- 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 Shaft Support Length
A = See Moving Coil Length
P = See Moving Coil Screw Pitch



* Note 1
Cable length 300mm
The bending radius of the motor cable should be 10.72 mm (wire diameter 1.34 * 8) 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.

Electrical Specs	S040D	S040T	S040Q
Continuous Force[1]	0.29N	0.45N	0.58N
Continuous Current[1]	0.3Arms	0.3Arms	0.3Arms
Acceleration Force[2]	1.2N	1.8N	2.3N
Acceleration Current[2]	1.1Arms	1.1Arms	1.1Arms
Force Constant (K_f)	1.0N/amp	1.6N/amp	2.1N/amp
Back EMF (K_e)	0.4V/m/s	0.5V/m/s	0.7V/m/s
Resistance 25°C,[3]	11.2Ω	16.8Ω	22.4Ω
Inductance[3]	0.5mH	0.7mH	1.0mH
Electric Time Constant	0.045ms	0.042ms	0.044ms
Fundamental Motor Constant (K_m)	0.31N√W	0.39N√W	0.44N√W
Magnetic Pitch (North-North)	18mm	18mm	18mm

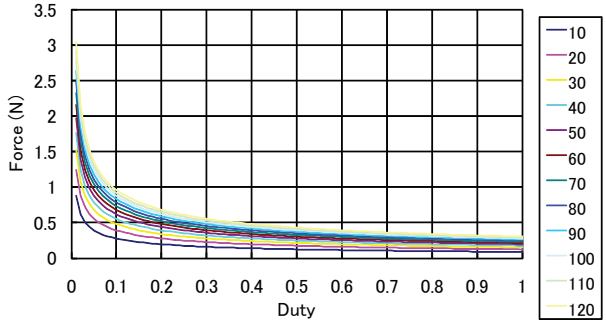
All specifications are for reference only. Specifications may change depending on servo driver selected. Consult Nippon Pulse.
1) Based on a temp rise of coil surface of 110°K over 25°C ambient temperature stalled forcer, and no external cooling or heat sinking
Addition of 25 cm x 25 cm x 2.5 cm aluminum heat sink increases continuous force by 20%
2) Can be maintained for a maximum of 40 seconds, higher forces and current possible for short periods of time, consult Nippon Pulse
3) All winding parameters listed are measured line-to-line (phase-to-phase)

Thermal Specs	S040D	S040T	S040Q
Max Phase Temperature[4]	135°C	135°C	135°C
Thermal Resistance (Coil) (K_q)	125.3°C/W	83.5°C/W	62.6°C/W

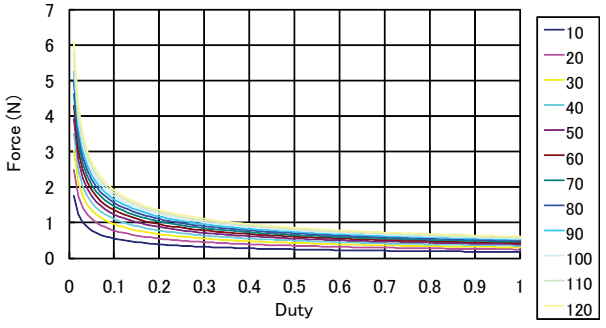
4) The standard temperature difference between the coil and the forcer surface is 10°C

Forcer Specs	S040D	S040T	S040Q
Forcer Length (A)	25mm	34mm	43mm
Forcer Width	10mm	10mm	10mm
Forcer Screw Pitch (P)	21.5mm	30.5mm	39.5mm
Forcer Weight	9g	11g	14g
Gap	0.50mm	0.50mm	0.50mm

S040D Duty Curve



S040Q Duty Curve



Shaft Length

Stroke	S040D	S040T	S040Q
20	55mm	64mm	73mm
30	65mm	74mm	83mm
40	75mm	84mm	93mm

Shaft Diameter - 4mm ±0.1

Shaft Mass

Stroke	S040D	S040T	S040Q
20	5.5g	6.4g	7.3g
30	6.5g	7.4g	8.3g
40	7.5g	8.4g	9.3g

Support and Bending

Stroke	Support Length	Max. bending
All	5mm	0mm

Lead Wire

Wire Type	UL 1430
Wire AWG	28
U Phase	Red
V Phase	White
W Phase	Black

300mm lead wire bare leads
The bending radius of the motor cable should be 10.72mm as suggested by the wire manufacturer.

Connector (Motor Cable)

Receptacle Housing	XMR-03V
Plug Housing	XMP-03V
Retainer	XMS-03V
Pin Contact	SXM-001T-P0.6
Socket Contact	SXA-001T-P0.6

-To be installed by the user

Tandem Forcer

Forcer Spacing Distance

Forcer Spacing Distance

Spec	S040T	S040Q
Forcer Spacing Distance	2mm	2mm
Pole (N/S) Distance	9mm	9mm
Forcer Length	34mm	43mm
Flip Forcers	No	Yes

Tandem S040D forcers are possible, but are equivalent to one (1) S040Q forcer and thus are not listed above.

Part Numbering System

S	—	Shaft Size (D)	—	Forcer Size (A)	—	Parallel Option	—	Usable Stroke	—	Options	—	# of Forcers
		040		X		XX		XXXXst		XX		XX
				D: Double (2) windings T: Triple (3) windings Q: Quadruple (4) windings		Blank: Single Motor PL: Parallel Motors		20, 30, 40		Blank: Standard FO: Forcer Only SO: Shaft Only		Two or more