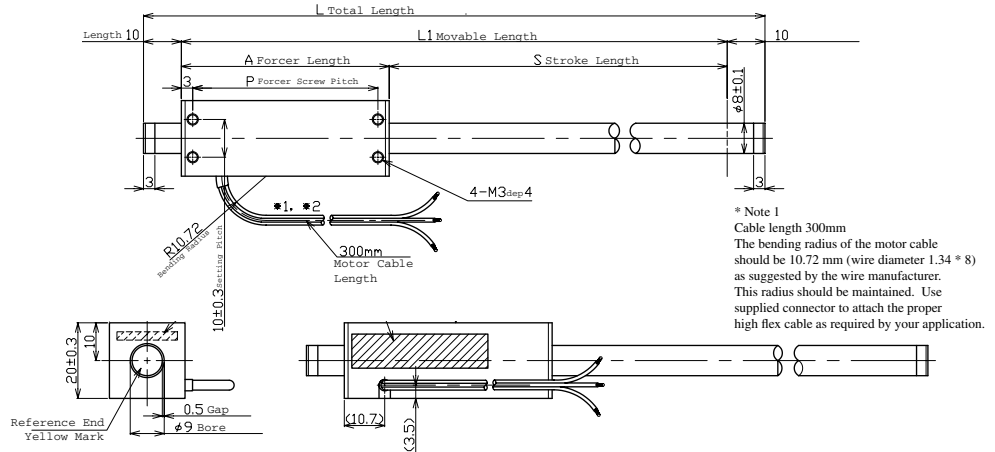


Unless Otherwise Specified:  
Dimensions are in mm  
Tolerances are as follows:

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



Electrical Specs	S080D	S080T	S080Q
Continuous Force <sup>1</sup>	1.8N	2.7N	3.5N
Continuous Current <sup>1</sup>	0.8Arms	0.8Arms	0.8Arms
Acceleration Force <sup>2</sup>	7.2N	10.8N	14N
Acceleration Current <sup>2</sup>	3.4Arms	3.4Arms	3.4Arms
Force Constant ( $K_f$ )	2.1N/Arms	3.2N/Arms	4.2N/Arms
Back EMF ( $K_e$ )	0.7V/m/s	1.1V/m/s	1.4V/m/s
Resistance 25°C, <sup>3</sup>	4.7Ω	6.8Ω	9.0Ω
Inductance <sup>3</sup>	0.7mH	1.0mH	1.3mH
Electric Time Constant	0.149ms	0.147ms	0.144ms
Rated Voltage (AC)	240V	240V	240V
Fundamental Motor Constant ( $K_m$ )	0.98N√W	1.23N√W	1.39N√W
Magnetic Pitch (North-North)	30mm	30mm	30mm

All specifications are for reference only. Specifications may change depending on servo driver selected. Consult Nippon Pulse.

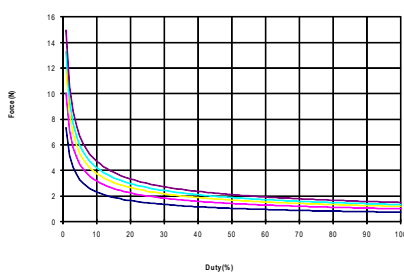
- 1) Based on a temp rise of coil surface of 110°K over 25°C ambient temperature stalled forcer, and no external cooling or heat sinking. Addition of 10cm x 20cm x 1.2cm aluminum heat sink increases continuous force up to 75%.
- 2) Can be maintained for a maximum of 40 seconds, higher forces and current possible for short periods of time, consult Nippon Pulse.
- 3) All winding parameters listed are measured line-to-line (phase-to-phase).

Thermal Specs	S080D	S080T	S080Q
Max Phase Temperature <sup>4</sup>	135°C	135°C	135°C
Thermal Resistance (Coil) ( $K_q$ )	33.2°C/W	22.9°C/W	17.3°C/W

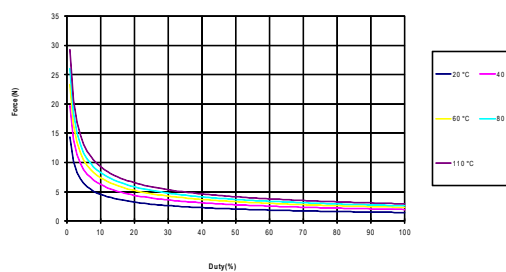
4) The standard temperature difference between the coil and the forcer surface is 10°C

Forcer Specs	S080D	S080T	S080Q
Forcer Length (A)	40mm	55mm	70mm
Forcer Width	20mm	20mm	20mm
Forcer Screw Pitch (P)	34mm	49mm	64mm
Forcer Weight	0.05kg	0.06kg	0.08kg
Gap	0.50mm	0.50mm	0.50mm

### S080D Force Duty Curve



### S080Q Force Duty Curve



## Shaft Length

Stroke	S080D	S080T	S080Q
25	85mm	100mm	115mm
50	110mm	125mm	140mm
100	160mm	175mm	190mm
150	210mm	225mm	240mm
200	260mm	275mm	290mm
250	310mm	325mm	340mm
300	360mm	375mm	390mm

## Shaft Mass

Stroke	S080D	S080T	S080Q
25	0.02kg	0.03kg	0.03kg
50	0.03kg	0.04kg	0.04kg
100	0.05kg	0.05kg	0.06kg
150	0.07kg	0.07kg	0.08kg
200	0.08kg	0.09kg	0.1kg
250	0.1kg	0.11kg	0.11kg
300	0.12kg	0.12kg	0.13kg

Shaft Diameter (D) - 8mm ±0.1

Total Length (L)=Stroke (S)+Forcer Length (A)+(Support Length (L2)x2)

## Support and Bending

Stroke	Support Length	Max. bending
All	10mm	0.05mm

## Lead Wire

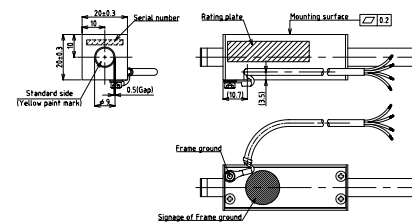
Wire Type	UL 1430
Wire AWG	28
U Phase	Red
V Phase	White
W Phase	Black

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

## CE Type Motor Cable

Wire Type	UL 1330
Wire AWG	24
U Phase	Red
V Phase	White
W Phase	Black

Ground Wire	CE
Wire Type	UL 1330
Wire AWG	20
Frame Ground	Green/Yellow



300mm lead wire bare leads  
The bending radius of the motor cable should be 16.96mm 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

## Hall Effect Specs

**Forcer Length (A)**  
**Forcer Screw Pitch (P)** [0.39]  
**Forcer Screw Pitch** 10  
[1.10] 28  
[0.79] 20

### Sensor Cable Specs

Wire Type	UL 758
Wire AWG	28
VCC	White/Red
GND	White/Black
Sensor 1	Orange/Red
Sensor 2	Orange/Black
Sensor 3	Gray/Red
No Connection	Gray/Black

The bending radius of the sensor cable should be R10.72 mm (wire diameter 1.38 \* 8) as suggested by the wire manufacturer. This radius should be maintained. Attach the proper high flex cable as required by your application.

\* Note 1  
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.

## Part Numbering System

S	Shaft Size (D)	Forcer Size (A)	Parallel Option	Usable Stroke	Options	Options	# of Forcers
	080	X	XX	XXXXst	XX	XX	XX
		D: Double (2) windings T: Triple (3) windings Q: Quadruple (4) windings	Blank: Single Motor PL: Parallel Motors	25-300mm	Blank: Standard WP: Water Resistant HA: Digital Hall Effect CE: CE type motor	Blank: Standard FO: Forcer Only SO: Shaft Only	Two or more

# S080 Linear Shaft Motor

## Tandem Forcer



## Forcer Spacing Distance

Spec	S080T	S080Q
Forcer Spacing Distance	5mm	5mm
Pole (N/S) Distance	15mm	15mm
Forcer Length	55mm	70mm
Flip Forcers	No	Yes

Tandem S080D forcers are possible, but are equivalent to one (1) S080Q forcer and thus are not listed above.