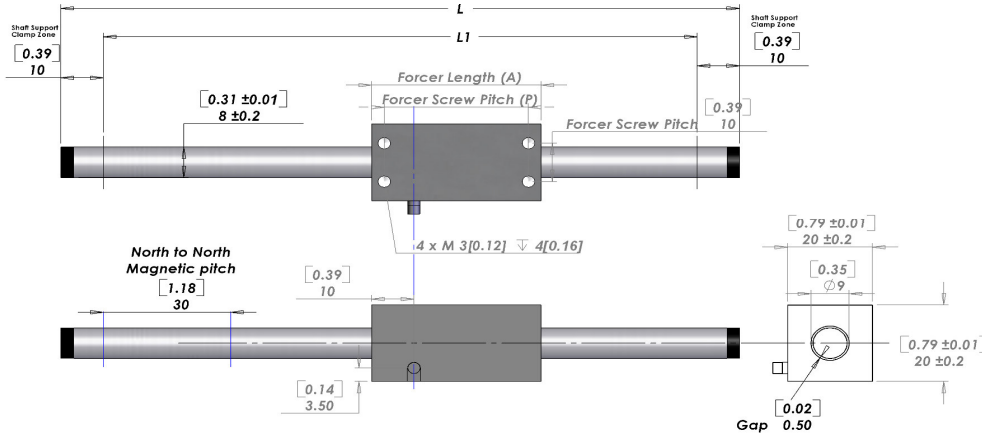


# NPM S080



**UNLESS OTHERWISE SPECIFIED:**  
 Dimensions are in MM [IN]  
 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

\* 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.

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 Specifications

	S080D	S080T	S080Q
Continuous Force <sup>1</sup>	1.8N (0.4lbs)	2.7N (0.61lbs)	3.5N (0.79lbs)
Continuous Current <sup>1</sup>	0.8Arms	0.8Arms	0.8Arms
Peak Force <sup>2</sup>	7.2N (1.62lbs)	10.8N (2.43lbs)	14N (3.15lbs)
Peak Current <sup>2</sup>	3.4Arms	3.4Arms	3.4Arms
Force Constant	$K_f$ 2.1N/Arms (0.5lb/Arms)	3.2N/Arms (0.7lb/Arms)	4.2N/Arms (0.9lb/Arms)
Back EMF	$K_e$ 0.7V/m/s (0.02 V/in/s)	1.1V/m/s (0.03 V/in/s)	1.4V/m/s (0.04 V/in/s)
Resistance 25°C, <sup>3</sup>	4.7Ω	6.8Ω	9.0Ω
Inductance <sup>3</sup>	0.7mH	1.0mH	1.3mH
Electrical Time Constant	0.149ms	0.147ms	0.144ms
Fundamental Motor Constant	$K_m$ 0.98N√w	1.23N√w	1.39N√w
Magnetic Pitch (North-North)	30mm (1.18in)	30mm (1.18in)	30mm (1.18in)

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

- 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%.
- Can be maintained for a maximum of 40 seconds, higher forces and current possible for short periods of time, consult Nippon Pulse America.
- All winding parameters listed are measured line-to-line (phase-to-phase).

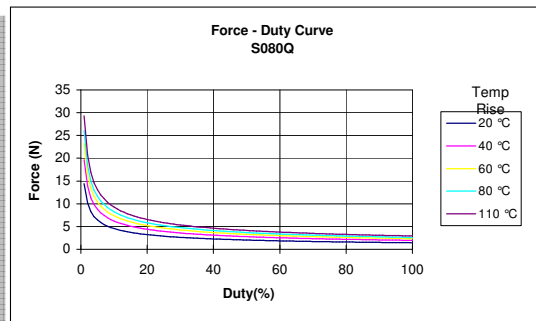
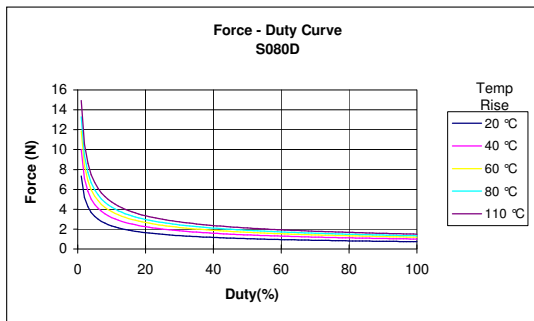
### Thermal Specifications

	S080D	S080T	S080Q
Max phase temperature <sup>4</sup>	135°C (275°F)	135°C (275°F)	135°C (275°F)
Thermal Resistance (Coil)	$K_{\theta}$ 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

### Mechanical Specifications

	S080D	S080T	S080Q
Forcer Length	A 40mm (1.57in)	55mm (2.17in)	70mm (2.76in)
Forcer Width	20mm( 0.79in)	20mm( 0.79in)	20mm( 0.79in)
Forcer Screw Pitch	P 34mm (1.34in)	49mm (1.93in)	64mm (2.52in)
Forcer Weight	0.05kg (0.11lb)	0.06kg (0.13lb)	0.08kg (0.18lb)
Gap	0.50mm (0.019in)	0.50mm (0.019in)	0.50mm (0.019in)



**Mechanical Specifications**

**Shaft**

Shaft Diameter (D) 8 ±0.1mm (0.32in)

Shaft Length (L) Motor Type	Maximum Stroke length 300mm (11.8in)		
	S080D	S080T	S080Q
Stroke 25	85mm (3.3in)	100mm (3.9in)	115mm (4.5in)
50	110mm (4.3in)	125mm (4.9in)	140mm (5.5in)
100	160mm (6.3in)	175mm (6.9in)	190mm (7.5in)
150	210mm (8.3in)	225mm (8.9in)	240mm (9.4in)
200	260mm (10.2in)	275mm (10.8in)	290mm (11.4in)
250	310mm (12.2in)	325mm (12.8in)	340mm (13.4in)
300	360mm (14.2in)	375mm (14.8in)	390mm (15.4in)

Stroke lengths from 25mm are available. Please consult Nippon Pulse America for more information.

**Support and Bending**

Stroke	Shaft Support length (L2)	Max Bending
All	10mm (0.4in)	0.05mm (0.00in)

**Hall Effect (Optional)**

**Forcer Length (A)**  
**Forcer Screw Pitch (P)** 0.39  
**Forcer Screw Pitch** 10

0.79  
20  
28

**\* Note 2**  
Sensor Cable (Lead wires) Specifications  
Wire Type UL1430  
Wire AWG 28  
Length 400 mm (bare leads)  
VCC - Red, GND - /Black  
Sensor 1 - White, Sensor 2 - Blue, Sensor 3 - Yellow

The bending radius of the sensor cable should be R 10.72 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.

**How to Order (Available Options)**

Motor Type	Forcer Size	Usable Stroke	Options	Options	Options
S080	X	XX 25 - 300 mm	XX	XX	Standard
Linear Shaft Motor	D	Double (2) windings	ST WP HA CE	(Blank)	Forcer Only
	T	Triple (3) windings		FO	Shaft Only
	Q	Quadruple (4) windings		SO	Two digit for custom motor
				XX	

**Shaft Mass**

Motor Type	S080D	S080T	S080Q
Stroke 25	0.02kg (0.05lb)	0.03kg (0.06lb)	0.03kg (0.07lb)
50	0.03kg (0.07lb)	0.04kg (0.08lb)	0.04kg (0.09lb)
100	0.05kg (0.11lb)	0.05kg (0.12lb)	0.06kg (0.13lb)
150	0.07kg (0.15lb)	0.07kg (0.16lb)	0.08kg (0.17lb)
200	0.08kg (0.19lb)	0.09kg (0.2lb)	0.1kg (0.21lb)
250	0.1kg (0.22lb)	0.11kg (0.24lb)	0.11kg (0.25lb)
300	0.12kg (0.26lb)	0.12kg (0.28lb)	0.13kg (0.29lb)

**Lead Wire**

Motor Cable	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.

**Supplied 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)

**CE Type Motor Cable (Optional)**

Wire Type	UL 1330
Wire AWG	24
U phase	Red
V phase	White
W phase	Black
Ground Cable	
Wire Type	UL 1330
Wire AWG	20
FG (Frame Ground)	Green / Yellow

300mm lead wire blunt cut

The bending radius of the motor cable should be 16.96mm or more as suggested by the wire manufacturer.

**Hall Effect Cable (Optional)**

Wire Type	UL 1430
Wire AWG	28
VCC	Red
GND	Black
Sensor 1	White
Sensor 2	Blue
Sensor 3	Yellow

400mm lead wire bare leads

The bending radius of the hall effect cable should be 10.72 mm as suggested by the wire manufacturer.

Connector (Hall Effect Cable)  
None supplied

**Tandem Forcer**



Forcer spacing distance

	S080T	S080Q
Forcer spacing distance	5	5
Pole (North-South) distance	15	15
Forcer length	55	70
Flip forcers	No	Yes