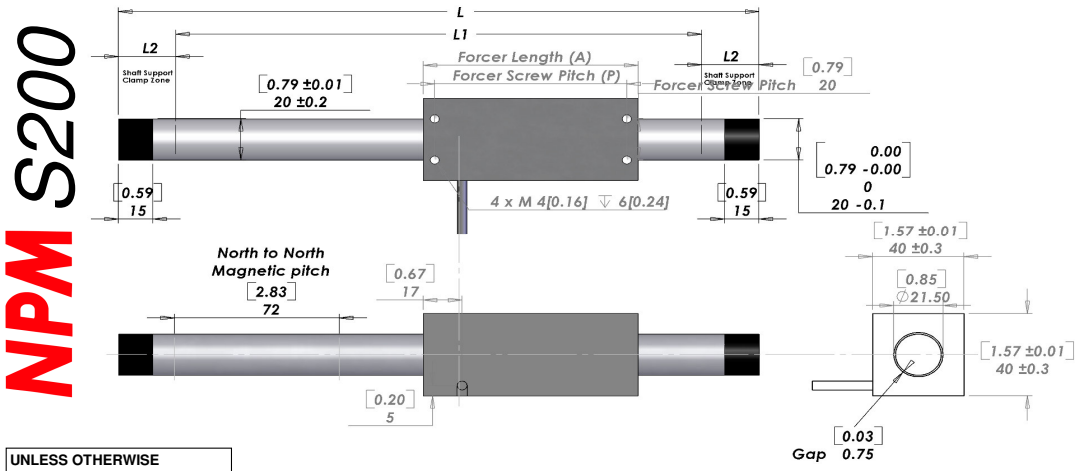
NPM S200



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 26.4 mm (wire diameter 4.4 * 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.

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

		S200D	S200T	S200Q
Continuous Force[1]		18N (4.05lbs)	28N (6.29lbs)	38N (8.54lbs)
Continuous Current[1]		0.6Arms	0.6Arms	0.6Arms
Peak Force[2]		72N (16.2lbs)	112N (25.2lbs)	152N (34.2lbs)
Peak Current[2]		2.4Arms	2.4Arms	2.4Arms
Force Constant	K_f	31N/Arms (6.9lbs/Arms)	47N/Arms (10.7lbs/Arms)	64N/Arms (14.5lbs/Arms)
Back EMF	K_e	10V/m/s (0.26 V/in/s)	16V/m/s (0.40 V/in/s)	21V/m/s (0.55 V/in/s)
Resistance 25℃, [3]		28.7Ω	43Ω	56Ω
Inductance[3]		19.3mH	29mH	39mH
Electrical Time Constant		0.67ms	0.67ms	0.70ms
Fundamental Motor Constant	K_m	5.70N√w	7.24N√w	8.61N√w
Magnetic Pitch (North-North)		72mm (2.83in)	72mm (2.83in)	72mm (2.83in)

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

1) Based on a temp rise of coil surface of 110℃K over 25℃ 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 America.

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

Thermal Specifications

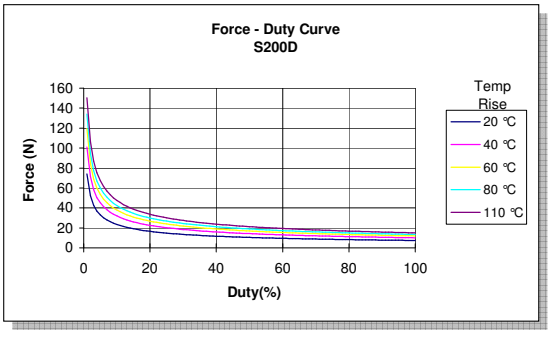
		S200D	S200T	S200Q
Max phase temperature[4]		135℃ (275℉)	135℃ (275℉)	135℃ (275℉)
Thermal Resistance (Coil)	K_q	11℃/W	7.3℃/W	5.6℃/W

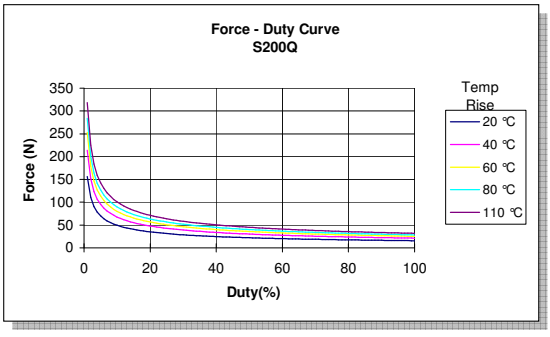
4) The standard temperature difference between the coil and the forcer surface is 20℃

Mechanical Specifications

Forcer

		S200D	S200T	S200Q
Forcer Length	A	94mm (3.7in)	130mm (5.1in)	166mm (6.5in)
Forcer Width		40mm (1.57in)	40mm (1.57in)	40mm (1.57in)
Forcer Screw Pitch	P	84mm (3.31in)	120mm (4.72in)	156mm (6.14in)
Forcer Weight		0.30kg (0.7lbs)	0.50kg (1.1lbs)	0.70kg (1.5lbs)
Gap		0.75mm (0.029in)	0.75mm (0.029in)	0.75mm (0.029in)





Mechanical Specifications

Shaft

Shaft Diameter (D) 20 ±0.2mm (0.79in)

Shaft Length (L) **Maximum Stroke length 2700mm (106.3in)**

Stroke \ Motor Type	S200D	S200T	S200Q
100	244mm (9.6in)	280mm (11in)	316mm (12.4in)
150	294mm (11.6in)	330mm (13in)	366mm (14.4in)
200	344mm (13.5in)	380mm (15in)	416mm (16.4in)
250	394mm (15.5in)	430mm (16.9in)	466mm (18.3in)
300	444mm (17.5in)	480mm (18.9in)	516mm (20.3in)
350	524mm (20.6in)	560mm (22in)	596mm (23.5in)
400	574mm (22.6in)	610mm (24in)	646mm (25.4in)
450	624mm (24.6in)	660mm (26in)	696mm (27.4in)
500	674mm (26.5in)	710mm (28in)	746mm (29.4in)
550	724mm (28.5in)	760mm (29.9in)	796mm (31.3in)
600	774mm (30.5in)	810mm (31.9in)	846mm (33.3in)
650	824mm (32.4in)	860mm (33.9in)	896mm (35.3in)
700	874mm (34.4in)	910mm (35.8in)	946mm (37.2in)
750	964mm (38in)	1000mm (39.4in)	1036mm (40.8in)
800	1014mm (39.9in)	1050mm (41.3in)	1086mm (42.8in)
850	1064mm (41.9in)	1100mm (43.3in)	1136mm (44.7in)
900	1114mm (43.9in)	1150mm (45.3in)	1186mm (46.7in)
950	1164mm (45.8in)	1200mm (47.2in)	1236mm (48.7in)
1000	1214mm (47.8in)	1250mm (49.2in)	1286mm (50.6in)
1050	1264mm (49.8in)	1300mm (51.2in)	1336mm (52.6in)
1100	1314mm (51.7in)	1350mm (53.1in)	1386mm (54.6in)
1150	1364mm (53.7in)	1400mm (55.1in)	1436mm (56.5in)
1200	1414mm (55.7in)	1450mm (57.1in)	1486mm (58.5in)
1250	1464mm (57.6in)	1500mm (59.1in)	1536mm (60.5in)
1300	1514mm (59.6in)	1550mm (61in)	1586mm (62.4in)
1350	1564mm (61.6in)	1600mm (63in)	1636mm (64.4in)
1400	1614mm (63.5in)	1650mm (65in)	1686mm (66.4in)
1450	1664mm (65.5in)	1700mm (66.9in)	1736mm (68.3in)
1500	1714mm (67.5in)	1750mm (68.9in)	1786mm (70.3in)
1550	1764mm (69.4in)	1800mm (70.9in)	1836mm (72.3in)
1600	1814mm (71.4in)	1850mm (72.8in)	1886mm (74.3in)
1650	1864mm (73.4in)	1900mm (74.8in)	1936mm (76.2in)
1700	1914mm (75.4in)	1950mm (76.8in)	1986mm (78.2in)
1750	1964mm (77.3in)	2000mm (78.7in)	2036mm (80.2in)
1800	2014mm (79.3in)	2050mm (80.7in)	2086mm (82.1in)
1850	2064mm (81.3in)	2100mm (82.7in)	2136mm (84.1in)
1900	2114mm (83.2in)	2150mm (84.6in)	2186mm (86.1in)
1950	2164mm (85.2in)	2200mm (86.6in)	2236mm (88in)
2000	2214mm (87.2in)	2250mm (88.6in)	2286mm (90in)

Stroke lengths up to 2700mm available. Please consult Nippon Pulse America for more information.

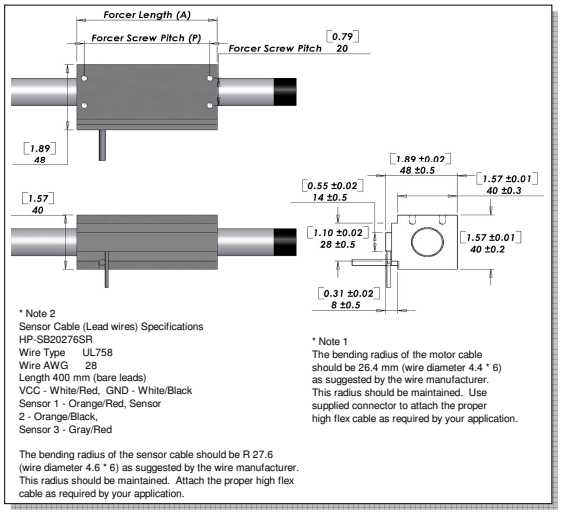
Support and Bending

Stroke	Shaft Support length (L2)	Max Bending
0 → 300	25mm (0.98in)	0.00mm (0.00in)
301 → 700	40mm (1.57in)	0.00mm (0.00in)
701 → 1000	60mm (2.36in)	0.70mm (0.028in)
1001 → Max	60mm (2.36in)	0.90mm (0.035in)

Shaft Mass

Stroke \ Motor Type	S200D	S200T	S200Q
100	0.5kg (1lb)	0.6kg (1.2lb)	0.6kg (1.4lb)
150	0.6kg (1.3lb)	0.7kg (1.5lb)	0.7kg (1.6lb)
200	0.7kg (1.5lb)	0.8kg (1.7lb)	0.9kg (1.9lb)
250	0.8kg (1.8lb)	0.9kg (1.9lb)	1kg (2.1lb)
300	0.9kg (2lb)	1kg (2.2lb)	1.1kg (2.4lb)
350	1.1kg (2.3lb)	1.1kg (2.5lb)	1.2kg (2.7lb)
400	1.2kg (2.6lb)	1.2kg (2.7lb)	1.3kg (2.9lb)
450	1.3kg (2.8lb)	1.4kg (3lb)	1.4kg (3.2lb)
500	1.4kg (3lb)	1.5kg (3.2lb)	1.5kg (3.4lb)
550	1.5kg (3.3lb)	1.6kg (3.5lb)	1.6kg (3.6lb)
600	1.6kg (3.5lb)	1.7kg (3.7lb)	1.8kg (3.9lb)
650	1.7kg (3.8lb)	1.8kg (3.9lb)	1.9kg (4.1lb)
700	1.8kg (4lb)	1.9kg (4.2lb)	2kg (4.4lb)
750	2kg (4.3lb)	2kg (4.5lb)	2.1kg (4.7lb)
800	2.1kg (4.6lb)	2.2kg (4.8lb)	2.2kg (4.9lb)
850	2.2kg (4.8lb)	2.3kg (5lb)	2.3kg (5.2lb)
900	2.3kg (5.1lb)	2.4kg (5.2lb)	2.5kg (5.4lb)
950	2.4kg (5.3lb)	2.5kg (5.5lb)	2.6kg (5.7lb)
1000	2.5kg (5.6lb)	2.6kg (5.7lb)	2.7kg (5.9lb)
1050	2.6kg (5.8lb)	2.7kg (6lb)	2.8kg (6.1lb)
1100	2.7kg (6lb)	2.8kg (6.2lb)	2.9kg (6.4lb)
1150	2.8kg (6.3lb)	2.9kg (6.5lb)	3kg (6.6lb)
1200	3kg (6.5lb)	3kg (6.7lb)	3.1kg (6.9lb)
1250	3.1kg (6.8lb)	3.1kg (6.9lb)	3.2kg (7.1lb)
1300	3.2kg (7lb)	3.3kg (7.2lb)	3.3kg (7.4lb)
1350	3.3kg (7.3lb)	3.4kg (7.4lb)	3.4kg (7.6lb)
1400	3.4kg (7.5lb)	3.5kg (7.7lb)	3.6kg (7.8lb)
1450	3.5kg (7.7lb)	3.6kg (7.9lb)	3.7kg (8.1lb)
1500	3.6kg (8lb)	3.7kg (8.2lb)	3.8kg (8.3lb)
1550	3.7kg (8.2lb)	3.8kg (8.4lb)	3.9kg (8.6lb)
1600	3.8kg (8.5lb)	3.9kg (8.6lb)	4kg (8.8lb)
1650	3.9kg (8.7lb)	4kg (8.9lb)	4.1kg (9.1lb)
1700	4.1kg (8.9lb)	4.1kg (9.1lb)	4.2kg (9.3lb)
1750	4.2kg (9.2lb)	4.2kg (9.4lb)	4.3kg (9.5lb)
1800	4.3kg (9.4lb)	4.4kg (9.6lb)	4.4kg (9.8lb)
1850	4.4kg (9.7lb)	4.5kg (9.8lb)	4.5kg (10lb)
1900	4.5kg (9.9lb)	4.6kg (10.1lb)	4.7kg (10.3lb)
1950	4.6kg (10.2lb)	4.7kg (10.3lb)	4.8kg (10.5lb)
2000	4.7kg (10.4lb)	4.8kg (10.6lb)	4.9kg (10.8lb)

Hall Effect (Optional)



* Note 2
Sensor Cable (Lead wires) Specifications
HP-SB20276SR
Wire Type UL758
Wire AWG 28
Length 400 mm (bare leads)
VCC - White/Red, GND - White/Black
Sensor 1 - Orange/Red, Sensor
2 - Orange/Black,
Sensor 3 - Gray/Red

The bending radius of the sensor cable should be R 27.6 (wire diameter 4.6 * 6) 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 26.4 mm (wire diameter 4.4 * 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.

How to Order (Available Options)

Motor Type	Forcer Size	Usable Stroke	Options	Options
S200 –	X –	XX –	XX –	XX
		100 - 2700 mm		(Blank) Standard
Linear Shaft Motor	D Double (2) windings			FO Forcer Only
	T Triple (3) windings			SO Shaft Only
	Q Quadruple (4) windings			XX Two digit for custom motor
			ST Standard	
			WP Waterproof	
			HA Digital Hall Effect	
			CE CE type motor	

Lead Wire

Motor Cable

Wire Type	UL 2464
Wire AWG	24
U phase	Orange
V phase	White
W phase	Gray

300mm lead wire bare leads

The bending radius of the motor cable should be 26.4mm 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 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

400mm lead wire bare leads

The bending radius of the hall effect cable should be 27.6mm as suggested by the wire manufacturer.

Connector (Hall Effect Cable)
None supplied

Tandem Forcer

Forcer spacing distance

	S200T	S200Q
Forcer spacing distance	14	14
Pole (North-South) distance	36	36
Forcer length	130	166
Flip forcers	No	Yes

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