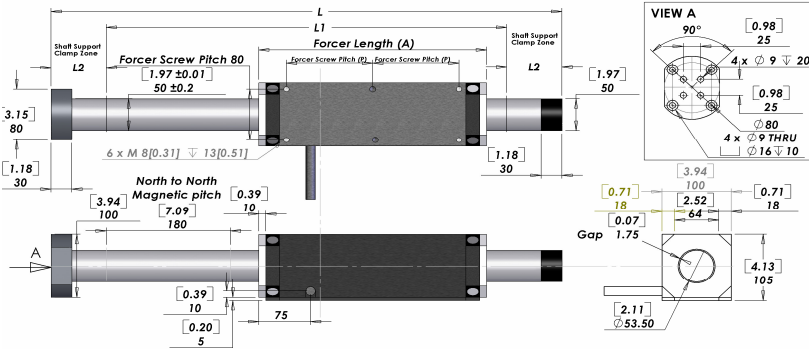


**NPM S500**



**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 36.6 mm (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.

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**

	S500D	S500T	S500Q
Continuous Force <sup>1</sup>	289N (65.0lbs)	440N (98.9lbs)	585N (132lbs)
Continuous Current <sup>1</sup>	3.8Arms	5.8Arms	7.7Arms
Peak Force <sup>2</sup>	1156N (260lbs)	1760N (369lbs)	2340N (526lbs)
Peak Current <sup>2</sup>	15.2Arms	23.2Arms	30.8Arms
Force Constant Kf	76N/Arms (17.1lbs/Arms)	76N/Arms (17.1lbs/Arms)	76N/Arms (17.1lbs/Arms)
Back EMF	25V/m/s (0.64 V/in/s)	25V/m/s (0.64 V/in/s)	25V/m/s (0.64 V/in/s)
Resistance 25 °C, <sup>3</sup>	4.4Ω	3.3Ω	2.2Ω
Inductance <sup>3</sup>	27mH	19.8mH	13.8mH
Electrical Time Constant	6.14ms	6.0ms	6.0ms
Magnetic Pitch (North-North)	180mm (7.09in)	180mm (7.09in)	180mm (7.09in)

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

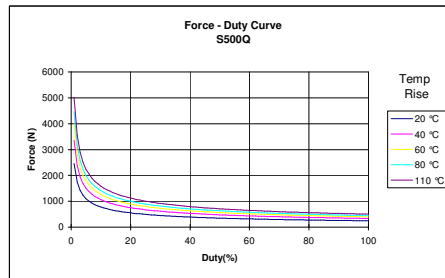
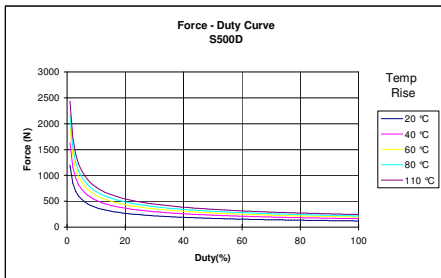
- 1) Based on a temp rise of coil surface of 110 °K over 25 °C ambient temperature stalled forcer, and no external cooling or heat sinking. Addition of 25 cm x 25 cm x 2.5 cm aluminum heat sink increases continuous force by 20%.
- 2) Can be maintained for a maximum of 40 seconds, consult Nippon Pulse America.
- 3) All winding parameters listed are measured line-to-line (phase-to-phase).

**Thermal Specifications**

	S500D	S500T	S500Q
Max phase temperature	135 °C (275 °F)	135 °C (275 °F)	135 °C (275 °F)
Thermal Resistance Kq	1.7 °C/W	1 °C/W	0.8 °C/W

**Mechanical Specifications**

Forcer		S500D	S500T	S500Q
Forcer Length	A	240mm (9.45in)	330mm (12.99in)	420mm (16.54in)
Forcer Width		100 x 105mm (3.94 x 4.13in)	100 x 105mm (3.94 x 4.13in)	100 x 105mm (3.94 x 4.13in)
Forcer Screw Pitch	P	80mm (3.15in)	125mm (4.92in)	170mm (6.69in)
Forcer Weight		10kg (22.0lbs)	13kg (28.7lbs)	15kg (33.1lbs)
Gap		1.75mm (0.07in)	1.75mm (0.07in)	1.75mm (0.07in)



**Mechanical Specifications**

**Shaft**

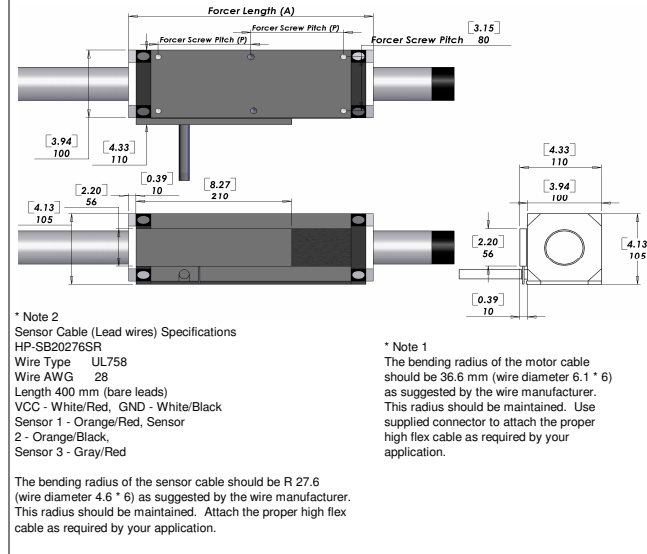
Shaft Diameter (D) 50 ±0.2mm (1.96in)

Shaft Length (L) Motor Type	Maximum Stroke length 3850mm (151.6in)		
	S500D	S500T	S500Q
200	600mm (23.6in)	690mm (27.2in)	780mm (30.7in)
250	650mm (25.6in)	740mm (29.1in)	830mm (32.7in)
300	700mm (27.6in)	790mm (31.1in)	880mm (34.6in)
350	750mm (29.5in)	840mm (33.1in)	930mm (36.6in)
400	800mm (31.5in)	890mm (35in)	980mm (38.6in)
450	850mm (33.5in)	940mm (37in)	1030mm (40.6in)
500	900mm (35.4in)	990mm (39in)	1080mm (42.5in)
550	950mm (37.4in)	1040mm (40.9in)	1130mm (44.5in)
600	1000mm (39.4in)	1090mm (42.9in)	1180mm (46.5in)
650	1050mm (41.3in)	1140mm (44.9in)	1230mm (48.4in)
700	1100mm (43.3in)	1190mm (46.9in)	1280mm (50.4in)
750	1150mm (45.3in)	1240mm (48.8in)	1330mm (52.4in)
800	1240mm (48.8in)	1330mm (52.4in)	1420mm (55.9in)
850	1290mm (50.8in)	1380mm (54.3in)	1470mm (57.9in)
900	1340mm (52.8in)	1430mm (56.3in)	1520mm (59.8in)
950	1390mm (54.7in)	1480mm (58.3in)	1570mm (61.8in)
1000	1440mm (56.7in)	1530mm (60.2in)	1620mm (63.8in)
1050	1490mm (58.7in)	1580mm (62.2in)	1670mm (65.7in)
1100	1540mm (60.6in)	1630mm (64.2in)	1720mm (67.7in)
1150	1590mm (62.6in)	1680mm (66.1in)	1770mm (69.7in)
1200	1640mm (64.6in)	1730mm (68.1in)	1820mm (71.7in)
1250	1690mm (66.5in)	1780mm (70.1in)	1870mm (73.6in)
1300	1740mm (68.5in)	1830mm (72in)	1920mm (75.6in)
1350	1790mm (70.5in)	1880mm (74in)	1970mm (77.6in)
1400	1840mm (72.4in)	1930mm (76in)	2020mm (79.5in)
1450	1890mm (74.4in)	1980mm (78in)	2070mm (81.5in)
1500	1940mm (76.4in)	2030mm (79.9in)	2120mm (83.5in)
1550	1990mm (78.3in)	2080mm (81.9in)	2170mm (85.4in)
1600	2040mm (80.3in)	2130mm (83.9in)	2220mm (87.4in)
1650	2090mm (82.3in)	2180mm (85.8in)	2270mm (89.4in)
1700	2140mm (84.3in)	2230mm (87.8in)	2320mm (91.3in)
1750	2190mm (86.2in)	2280mm (89.8in)	2370mm (93.3in)
1800	2240mm (88.2in)	2330mm (91.7in)	2420mm (95.3in)
1850	2290mm (90.2in)	2380mm (93.7in)	2470mm (97.2in)
1900	2340mm (92.1in)	2430mm (95.7in)	2520mm (99.2in)
1950	2390mm (94.1in)	2480mm (97.6in)	2570mm (101.2in)
2000	2440mm (96.1in)	2530mm (99.6in)	2620mm (103.1in)

Stroke lengths from 100mm and up to 3850mm are available. Please consult Nippon Pulse America for more information.

Support and Bending Stroke	Shaft Support length (L2)	Max Bending
0 → 550	80mm (3.15in)	0.00mm (0.00in)
551 → 750	80mm (3.15in)	0.15mm (0.006in)
751 → 1500	100mm (3.94in)	0.60mm (0.024in)
1501 → Max	120mm (4.72in)	1.10mm (0.043in)

**Hall Effect (Optional)**



**Shaft Mass**

Stroke	Motor Type		
	S500D	S500T	S500Q
200	7.9kg (17.4lb)	9.1kg (20lb)	10.2kg (22.6lb)
250	8.5kg (18.8lb)	9.7kg (21.4lb)	10.9kg (24lb)
300	9.2kg (20.3lb)	10.4kg (22.9lb)	11.6kg (25.5lb)
350	9.8kg (21.7lb)	11kg (24.3lb)	12.2kg (26.9lb)
400	10.5kg (23.2lb)	11.7kg (25.8lb)	12.9kg (28.4lb)
450	11.2kg (24.6lb)	12.3kg (27.2lb)	13.5kg (29.8lb)
500	11.8kg (26.1lb)	13kg (28.7lb)	14.2kg (31.3lb)
550	12.5kg (27.5lb)	13.7kg (30.1lb)	14.8kg (32.7lb)
600	13.1kg (28.9lb)	14.3kg (31.6lb)	15.5kg (34.2lb)
650	13.8kg (30.4lb)	15kg (33lb)	16.1kg (35.6lb)
700	14.4kg (31.8lb)	15.6kg (34.4lb)	16.8kg (37.1lb)
750	15.1kg (33.3lb)	16.3kg (35.9lb)	17.5kg (38.5lb)
800	16.3kg (35.9lb)	17.5kg (38.5lb)	18.6kg (41.1lb)
850	16.9kg (37.3lb)	18.1kg (39.9lb)	19.3kg (42.6lb)
900	17.6kg (38.8lb)	18.8kg (41.4lb)	20kg (44lb)
950	18.3kg (40.2lb)	19.4kg (42.8lb)	20.6kg (45.4lb)
1000	18.9kg (41.7lb)	20.1kg (44.3lb)	21.3kg (46.9lb)
1050	19.6kg (43.1lb)	20.7kg (45.7lb)	21.9kg (48.3lb)
1100	20.2kg (44.6lb)	21.4kg (47.2lb)	22.6kg (49.8lb)
1150	20.9kg (46lb)	22.1kg (48.6lb)	23.2kg (51.2lb)
1200	21.5kg (47.5lb)	22.7kg (50.1lb)	23.9kg (52.7lb)
1250	22.2kg (48.9lb)	23.4kg (51.5lb)	24.6kg (54.1lb)
1300	22.8kg (50.4lb)	24kg (53lb)	25.2kg (55.6lb)
1350	23.5kg (51.8lb)	24.7kg (54.4lb)	25.9kg (57lb)
1400	24.2kg (53.3lb)	25.3kg (55.9lb)	26.5kg (58.5lb)
1450	24.8kg (54.7lb)	26kg (57.3lb)	27.2kg (59.9lb)
1500	25.5kg (56.2lb)	26.7kg (58.8lb)	27.8kg (61.4lb)
1550	26.1kg (57.6lb)	27.3kg (60.2lb)	28.5kg (62.8lb)
1600	26.8kg (59.1lb)	28kg (61.7lb)	29.1kg (64.3lb)
1650	27.4kg (60.5lb)	28.6kg (63.1lb)	29.8kg (65.7lb)
1700	28.1kg (61.9lb)	29.3kg (64.6lb)	30.5kg (67.2lb)
1750	28.8kg (63.4lb)	29.9kg (66lb)	31.1kg (68.6lb)
1800	29.4kg (64.8lb)	30.6kg (67.4lb)	31.8kg (70.1lb)
1850	30.1kg (66.3lb)	31.2kg (68.9lb)	32.4kg (71.5lb)
1900	30.7kg (67.7lb)	31.9kg (70.3lb)	33.1kg (72.9lb)
1950	31.4kg (69.2lb)	32.6kg (71.8lb)	33.7kg (74.4lb)
2000	32kg (70.6lb)	33.2kg (73.2lb)	34.4kg (75.8lb)

**Lead Wire**

Motor Cable	
Wire Type	UL 1277
Wire AWG	14
U phase	White
V phase	Black
W phase	Green / Yellow
300mm lead wire bare leads	
The bending radius of the motor cable should be 36.6mm as suggested by the wire manufacturer.	

**Supplied Connector (Motor Cable)**

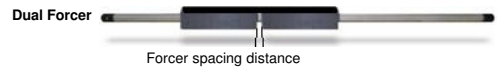
Receptacle housing	VLR-03V
Plug Housing	VLP-03V
Retainer	VLS-03V
Pin contact	SVM-61T-P2.0
Socket contact	SVF-61T-P2.0
(To be installed by the user)	

**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



	S500T	S500Q
Forcer spacing distance	30	30
Pole (North-South) distance	90	90
Forcer length	330	420
Flip forceers	No	Yes