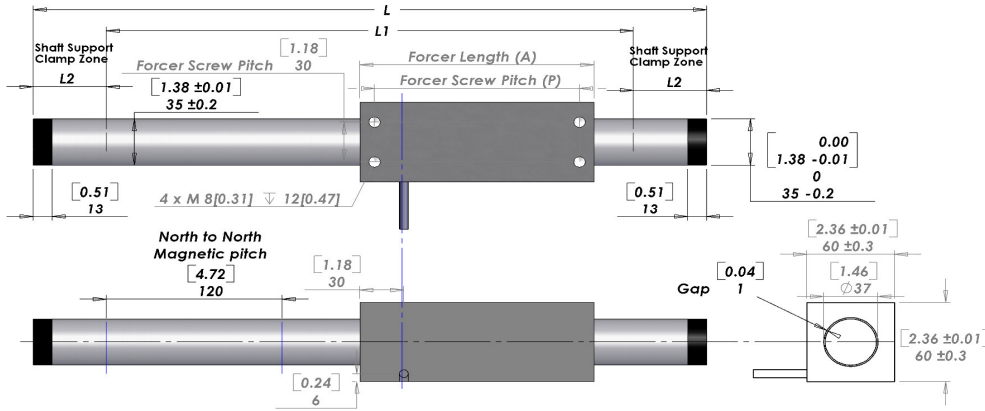


NPM S350



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

	S350D	S350T	S350Q
Continuous Force ¹	104N (23.4lbs)	148N (33.3lbs)	190N (42.7lbs)
Continuous Current ¹	1.5Arms	1.5Arms	2.7Arms
Peak Force ²	416N (93.5lbs)	592N (133lbs)	760N (171lbs)
Peak Current ²	6.0Arms	6.0Arms	10.8Arms
Force Constant K_f	69N/Arms (15.60lbs/Arms)	99N/Arms (22.2lbs/Arms)	70N/Arms (15.8lbs/Arms)
Back EMF K_e	23V/m/s (0.59 V/in/s)	33V/m/s (0.84 V/in/s)	23V/m/s (0.60 V/in/s)
Resistance 25 °C, ³	13.8Ω	20.2Ω	6.9Ω
Inductance ³	21.8mH	33mH	10.9mH
Electrical Time Constant	1.58ms	1.63ms	1.58ms
Fundamental Motor Constant K_m	18.66N√w	21.95N√w	26.79N√w
Magnetic Pitch (North-North)	120mm (4.72in)	120mm (4.72in)	120mm (4.72in)

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°K 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).

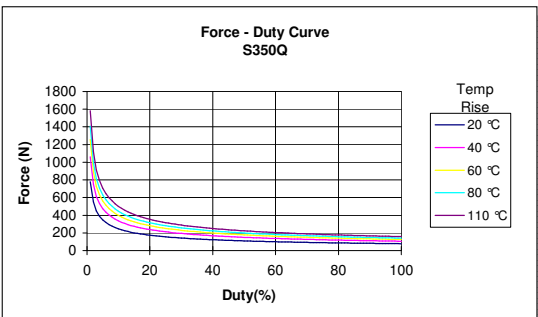
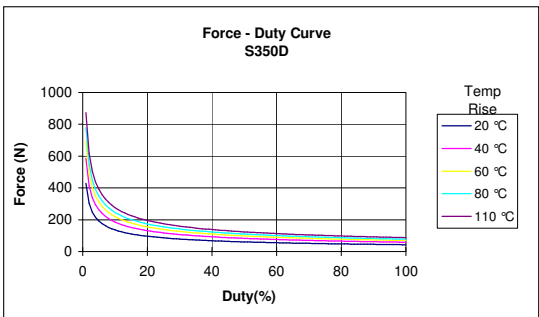
Thermal Specifications

	S350D	S350T	S350Q
Max phase temperature ⁴	135 °C (275 °F)	135 °C (275 °F)	135 °C (275 °F)
Thermal Resistance (Coil) K_{θ}	3.5 °C/W	2.4 °C/W	2.2 °C/W

4) The standard temperature difference between the coil and the forcer surface is 25 °C

Mechanical Specifications

	S350D	S350T	S350Q
Forcer Length A	160mm (6.3in)	220mm (8.6in)	280mm (11in)
Forcer Width	60mm (2.4in)	60mm (2.4in)	60mm (2.4in)
Forcer Screw Pitch P	140mm (5.51in)	200mm (7.87in)	260mm (10.24in)
Forcer Weight	1.3kg (2.9lbs)	1.9kg (4.2lbs)	2.4kg (5.3lbs)
Gap	1.00mm (0.039in)	1.00mm (0.039in)	1.00mm (0.039in)



Mechanical Specifications

Shaft

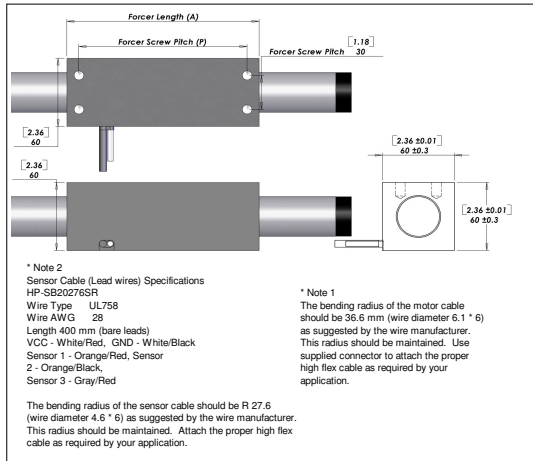
Shaft Diameter (D) 35 ±0.2mm (1.37in)

Shaft Length (L) Motor Type	Maximum Stroke length 2500mm (98.43in)		
	S350D	S350T	S350Q
150	410mm (16.1in)	470mm (18.5in)	530mm (20.9in)
200	460mm (18.1in)	520mm (20.5in)	580mm (22.8in)
250	510mm (20.1in)	570mm (22.4in)	630mm (24.8in)
300	560mm (22in)	620mm (24.4in)	680mm (26.8in)
350	610mm (24in)	670mm (26.4in)	730mm (28.7in)
400	660mm (26in)	720mm (28.3in)	780mm (30.7in)
450	710mm (28in)	770mm (30.3in)	830mm (32.7in)
500	760mm (29.9in)	820mm (32.3in)	880mm (34.6in)
550	810mm (31.9in)	870mm (34.3in)	930mm (36.6in)
600	860mm (33.9in)	920mm (36.2in)	980mm (38.6in)
650	910mm (35.8in)	970mm (38.2in)	1030mm (40.6in)
700	960mm (37.8in)	1020mm (40.2in)	1080mm (42.5in)
750	1010mm (39.8in)	1070mm (42.1in)	1130mm (44.5in)
800	1100mm (43.3in)	1160mm (45.7in)	1220mm (48in)
850	1150mm (45.3in)	1210mm (47.6in)	1270mm (50in)
900	1200mm (47.2in)	1260mm (49.6in)	1320mm (52in)
950	1250mm (49.2in)	1310mm (51.6in)	1370mm (53.9in)
1000	1300mm (51.2in)	1360mm (53.5in)	1420mm (55.9in)
1050	1350mm (53.1in)	1410mm (55.5in)	1470mm (57.9in)
1100	1400mm (55.1in)	1460mm (57.5in)	1520mm (59.8in)
1150	1450mm (57.1in)	1510mm (59.4in)	1570mm (61.8in)
1200	1500mm (59.1in)	1560mm (61.4in)	1620mm (63.8in)
1250	1550mm (61in)	1610mm (63.4in)	1670mm (65.7in)
1300	1600mm (63in)	1660mm (65.4in)	1720mm (67.7in)
1350	1650mm (65in)	1710mm (67.3in)	1770mm (69.7in)
1400	1700mm (66.9in)	1760mm (69.3in)	1820mm (71.7in)
1450	1750mm (68.9in)	1810mm (71.3in)	1870mm (73.6in)
1500	1800mm (70.9in)	1860mm (73.2in)	1920mm (75.6in)
1550	1910mm (75.2in)	1970mm (77.6in)	2030mm (79.9in)
1600	1960mm (77.2in)	2020mm (79.5in)	2080mm (81.9in)
1650	2010mm (79.1in)	2070mm (81.5in)	2130mm (83.9in)
1700	2060mm (81.1in)	2120mm (83.5in)	2180mm (85.8in)
1750	2110mm (83.1in)	2170mm (85.4in)	2230mm (87.8in)
1800	2160mm (85in)	2220mm (87.4in)	2280mm (89.8in)
1850	2210mm (87in)	2270mm (89.4in)	2330mm (91.7in)
1900	2260mm (89in)	2320mm (91.3in)	2380mm (93.7in)
1950	2310mm (90.9in)	2370mm (93.3in)	2430mm (95.7in)
2000	2360mm (92.9in)	2420mm (95.3in)	2480mm (97.6in)

Stroke lengths from 100mm and up to 2500mm are available. Please consult Nippon Pulse America for more information.

Support and Bending	Shaft Support length (L2)	Max Bending
Stroke 0 → 750	50mm (1.97in)	0.00mm (0.00in)
751 → 1000	70mm (2.76in)	0.30mm (0.012in)
1001 → 1500	70mm (2.76in)	0.90mm (0.035in)
1501 → Max	100mm (3.94in)	1.00mm (0.04in)

Hall Effect (Optional)



How to Order (Available Options)

Motor Type	Forcer Size	Usable Stroke	Options	Options	
S350	X	XX 100 - 2500 mm	XX	XX	Standard
Linear Shaft Motor	D T Q	Double (2) windings Triple (3) windings Quadruple (4) windings	ST WP HA CE	(Blank) FO SO XX	Forcer Only Shaft Only Two digit for custom motor
					Standard Waterproof Digital Hall Effect CE type motor

Shaft Mass	Motor Type		
	S350D	S350T	S350Q
Stroke 150	2.7kg (6lb)	3.1kg (6.8lb)	3.5kg (7.7lb)
200	3kg (6.7lb)	3.4kg (7.6lb)	3.8kg (8.4lb)
250	3.4kg (7.4lb)	3.8kg (8.3lb)	4.2kg (9.2lb)
300	3.7kg (8.1lb)	4.1kg (9lb)	4.5kg (9.9lb)
350	4kg (8.9lb)	4.4kg (9.8lb)	4.8kg (10.6lb)
400	4.4kg (9.6lb)	4.8kg (10.5lb)	5.1kg (11.4lb)
450	4.7kg (10.3lb)	5.1kg (11.2lb)	5.5kg (12.1lb)
500	5kg (11.1lb)	5.4kg (11.9lb)	5.8kg (12.8lb)
550	5.3kg (11.8lb)	5.7kg (12.7lb)	6.1kg (13.5lb)
600	5.7kg (12.5lb)	6.1kg (13.4lb)	6.5kg (14.3lb)
650	6kg (13.2lb)	6.4kg (14.1lb)	6.8kg (15lb)
700	6.3kg (14lb)	6.7kg (14.8lb)	7.1kg (15.7lb)
750	6.7kg (14.7lb)	7.1kg (15.6lb)	7.5kg (16.4lb)
800	7.3kg (16lb)	7.7kg (16.9lb)	8.1kg (17.8lb)
850	7.6kg (16.7lb)	8kg (17.6lb)	8.4kg (18.5lb)
900	7.9kg (17.5lb)	8.3kg (18.3lb)	8.7kg (19.2lb)
950	8.3kg (18.2lb)	8.6kg (19.1lb)	9kg (19.9lb)
1000	8.6kg (18.9lb)	9kg (19.8lb)	9.4kg (20.7lb)
1050	8.9kg (19.6lb)	9.3kg (20.5lb)	9.7kg (21.4lb)
1100	9.2kg (20.4lb)	9.6kg (21.2lb)	10kg (22.1lb)
1150	9.6kg (21.1lb)	10kg (22lb)	10.4kg (22.8lb)
1200	9.9kg (21.8lb)	10.3kg (22.7lb)	10.7kg (23.6lb)
1250	10.2kg (22.6lb)	10.6kg (23.4lb)	11kg (24.3lb)
1300	10.6kg (23.3lb)	11kg (24.2lb)	11.4kg (25lb)
1350	10.9kg (24lb)	11.3kg (24.9lb)	11.7kg (25.8lb)
1400	11.2kg (24.7lb)	11.6kg (25.6lb)	12kg (26.5lb)
1450	11.6kg (25.5lb)	11.9kg (26.3lb)	12.3kg (27.2lb)
1500	11.9kg (26.2lb)	12.3kg (27.1lb)	12.7kg (27.9lb)
1550	12.6kg (27.8lb)	13kg (28.7lb)	13.4kg (29.5lb)
1600	12.9kg (28.5lb)	13.3kg (29.4lb)	13.7kg (30.3lb)
1650	13.3kg (29.3lb)	13.7kg (30.1lb)	14.1kg (31lb)
1700	13.6kg (30lb)	14kg (30.9lb)	14.4kg (31.7lb)
1750	13.9kg (30.7lb)	14.3kg (31.6lb)	14.7kg (32.5lb)
1800	14.3kg (31.4lb)	14.7kg (32.3lb)	15.1kg (33.2lb)
1850	14.6kg (32.2lb)	15kg (33lb)	15.4kg (33.9lb)
1900	14.9kg (32.9lb)	15.3kg (33.8lb)	15.7kg (34.6lb)
1950	15.2kg (33.6lb)	15.6kg (34.5lb)	16kg (35.4lb)
2000	15.6kg (34.3lb)	16kg (35.2lb)	16.4kg (36.1lb)

Lead Wire

Motor Cable	Wire Type	UL 2464
Wire AWG	16	
U phase	Red	
V phase	White	
W phase	Black	

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)

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

