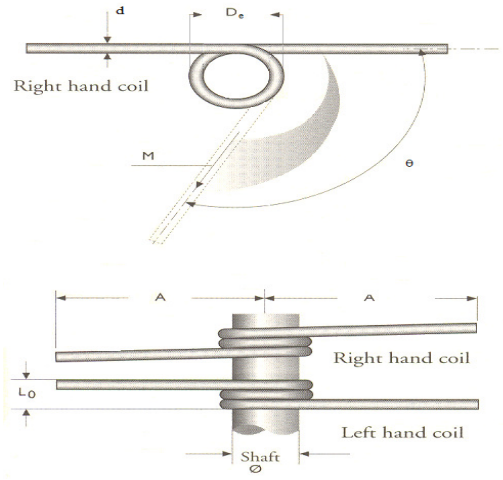
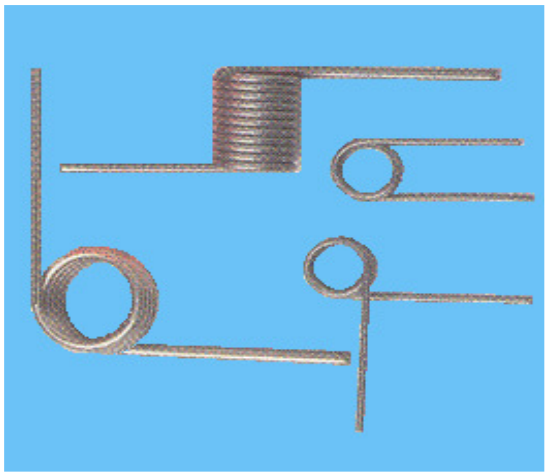
TORSION SPRINGS

MUSIC WIRE AND STAINLESS STEEL





Introduction

Our stock of torsion springs is specially suited for engineering designs, maintenance and mechanical experiments.

Material

Music wire: EN 10270-1 DH or ASTM A228 or JIS G3522 SWP-A/B or DIN 17223 Class D.
Stainless steel: EN 10270-3 1.4310 or Type 302 per ASTM A313 or JIS G4314 SUS 302/304 or DIN 17224 1.4310.
Tolerances of wire diameters comply with DIN 2076.

Direction of Wind

Torsion springs are available from stock with either right (clockwise) or left (anti-clockwise) hand coiling.
The spring bodies are coiled without gaps.

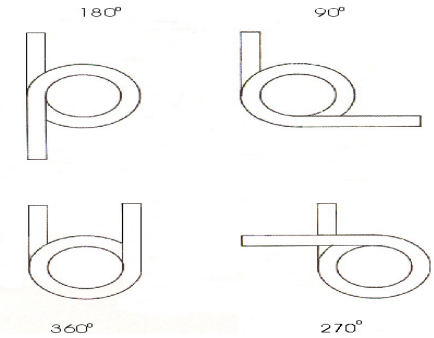
Note: When ordering, indicate direction of wind by adding the suffix "L" (for left) or "R" (for right) after the stock code.

Shaft

Torsion springs are usually operated in conjunction with a shaft, which holds the spring in position. If the shaft is too large, the spring body tends to contract when bending. If the shaft is too small, it will tilt.

Legs/Leg position

Standard legs are straight, we can also supply torsion springs with any form of leg.
Torsion springs are available in stock with leg positions ranging from 0º to 270º.



Surface Finishes

Springs manufactured from music wire are slightly lubricated following thermal treatment.
Springs manufactured from stainless steel wire are passivated.
Springs can be delivered with any additional standard surface protection for an extra charge (i.e. zinc coatings, nickel-plated, phosphate, black oxide etc.).

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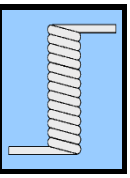


Operating Temperature

Music wire springs are not recommended for applications where temperature exceeds 120°C. Stainless steel springs are not recommended for applications where temperature exceeds 260ºC. For temperatures beyond these boundaries, a different material must be selected.

Stress Relief

All springs are thermally treated and relieve of coiling stress.

Loads

The spring load (Fn) can be determined by dividing the torque (M) by leverage (R).

To calculate the load (Fx) at a particular deflection angle α_x, it can be determined as follows:-

$$Fx = \frac{Fn}{\theta_n} * \alpha_x$$

where α_n is the largest possible rotational angle.

Tolerances

Tolerances on Torque - +/- 10%

Tolerances on Outside Diameter

Outside Diameter (mm)	Tolerances (mm)
2.36 – 3.17	+/- 0.10
3.18 – 5.08	+/- 0.13
5.09 – 7.62	+/- 0.18
7.63 – 10.41	+/- 0.26
10.42 – 12.70	+/- 0.33
12.71 – 17.78	+/- 0.38
17.79 – 22.23	+/- 0.51

Tolerances on Free Position

From 3 to 10 total coils (incl.) +/- 10º

From 11 to 20 total coils (incl.) +- 15º

Design Formulas

The basic formulas for torque or moment (M) and bending stress (S) used in designing torsion springs are as follows (the constants 10.8 give results closer to the actual values obtained):-

Round Wire

$$M = \frac{Ed^4T}{10.8N_tDm} \qquad S = \frac{32M}{\pi d^3}$$

Symbols	Meaning	Units
Dm	Mean coil diameter	mm
d	Diameter of round wire	mm
N_t	Number of coils	-
E	Modulus of elasticity	kg/mm^2
T	Deflection, number of turns or revolutions of spring	-
S	Bending stress	kg/mm^2
M	Moment or torque	kg mm
A	Length of Leg	mm
R	Point of moment	mm

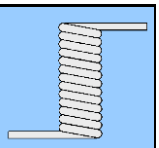
How to specify part number ?

For example, if you need part SST-025E-3 to be wound right hand and material is stainless steel. Please indicate SST-025E-3-R-S. If material is music wire, please indicate SST-025E-3-R-M.

Shincoil®

TORSION SPRINGS

MUSIC WIRE AND STAINLESS STEEL



Part Number	Outside Dia. (De)	Inside Dia. (Di)	Wire Dia. (d)	Free Angle	Body Length ≈ (Lo)	Leg Length (A)	For Cyclic application Torque @ Θ (M)	For Cyclic application Deflection Angle (Θ)	Point of Moment arm (R)	Shaft Size Suggested
	mm	mm	mm	degree	mm	mm	Nmm	degree	mm	mm
SST-012A-1	2.67	2.06		90	1.35	9.53		52.29	4.75	1.65
SST-012A-2	2.79	2.18		180	2.20	9.53		101.73	4.75	1.70
SST-012A-3	2.62	2.01	0.30	270	3.55	9.53	3.128	153.50	4.75	1.57
SST-012A-4	4.24	3.63		180	1.50	12.70		107.26	6.35	2.77
SST-012A-5	4.34	3.73		270	2.20	12.70		158.17	6.35	2.77
SST-012A-6	4.42	3.81		360	2.85	12.70		210.20	6.35	2.77
SST-014A-1	3.15	2.44		90	1.65	12.70		53.01	6.35	1.57
SST-014A-2	3.38	2.67		180	2.60	12.70		105.88	6.35	1.57
SST-014A-3	3.15	2.44	0.36	270	3.95	12.70	4.966	159.04	6.35	1.57
SST-014A-4	4.93	4.22		180	1.90	19.05		106.77	9.53	2.77
SST-014A-5	5.11	4.39		270	2.55	19.05		159.45	9.53	2.77
SST-014A-6	5.18	4.47		360	3.15	19.05		211.31	9.53	2.77
SST-015B-1	2.82	2.06		90	1.75	12.70		43.18	6.35	1.57
SST-015B-2	3.33	2.57		180	2.70	12.70		96.33	6.35	1.98
SST-015B-3	3.18	2.41	0.38	270	4.40	12.70	6.108	148.44	6.35	1.98
SST-015B-4	4.67	3.91		180	1.90	19.05		93.56	9.53	2.77
SST-015B-5	5.08	4.32		270	2.70	19.05		147.23	9.53	2.77
SST-015B-6	5.28	4.52		360	3.35	19.05		200.34	9.53	2.77
SST-017C-1	4.06	3.20		90	1.95	12.70		55.40	6.35	2.36
SST-017C-2	4.37	3.51		180	3.20	12.70		110.87	6.35	2.67
SST-017C-3	4.06	3.20	0.43	270	4.80	12.70	8.680	166.21	6.35	2.36
SST-017C-4	6.32	5.46		180	2.30	19.05		110.63	9.53	4.32
SST-017C-5	6.58	5.72		270	3.05	19.05		165.89	9.53	4.45
SST-017C-6	5.97	5.11		360	4.25	19.05		220.90	9.53	3.96
SST-018C-1	4.52	3.61		90	2.05	12.70		58.55	6.35	2.77
SST-018C-2	4.19	3.28		180	3.80	12.70		115.86	6.35	2.77
SST-018C-3	4.06	3.15	0.46	270	5.80	12.70	10.304	171.87	6.35	2.77
SST-018C-4	5.51	4.60		180	2.75	19.05		112.03	9.53	3.56
SST-018C-5	6.25	5.33		270	3.80	19.05		173.28	9.53	3.96
SST-018C-6	5.94	5.03		360	5.10	19.05		231.04	9.53	3.96
SST-020D-1	4.85	3.84		90	2.30	19.05		54.94	9.53	3.05
SST-020D-2	4.55	3.53		180	4.20	19.05		110.03	9.53	2.67
SST-020D-3	4.45	3.43	0.51	270	6.10	19.05	13.790	164.73	9.53	2.67
SST-020D-4	6.15	5.13		180	3.20	25.40		109.73	12.70	4.06
SST-020D-5	6.81	5.79		270	4.05	25.40		165.49	12.70	4.75
SST-020D-6	6.45	5.44		360	5.45	25.40		219.77	12.70	4.37
SST-021D-1	5.08	4.01		90	2.40	19.05		54.77	9.53	3.05
SST-021D-2	4.72	3.66		180	4.40	19.05		108.75	9.53	2.77
SST-021D-3	4.70	3.63	0.53	270	6.75	19.05	15.963	165.99	9.53	2.77
SST-021D-4	6.30	5.23		180	3.25	25.40		106.86	12.70	3.96
SST-021D-5	6.25	5.18		270	4.95	25.40		164.18	12.70	3.76
SST-021D-6	6.91	5.84		360	5.85	25.40		224.51	12.70	4.75

Part Number	Outside Dia. (De)	Inside Dia. (Di)	Wire Dia. (d)	Body Length ≈ (Lo)	Leg Length (A)	Cyclic Torque @ Θ (M)	Point of moment arm (R)	Shaft Size Suggested
	in.	in.	in.	in.	in.	lbin	in.	in.
SST-012A-1	0.105	0.081		0.053	0.375		0.187	0.065
SST-012A-2	0.110	0.086		0.087	0.375		0.187	0.067
SST-012A-3	0.103	0.079	0.012	0.140	0.375	0.0277	0.187	0.062
SST-012A-4	0.167	0.143		0.059	0.500		0.250	0.109
SST-012A-5	0.171	0.147		0.087	0.500		0.250	0.109
SST-012A-6	0.174	0.15		0.112	0.500		0.250	0.109
SST-014A-1	0.124	0.096		0.065	0.500		0.250	0.062
SST-014A-2	0.133	0.105		0.102	0.500		0.250	0.062
SST-014A-3	0.124	0.096	0.014	0.156	0.500	0.0440	0.250	0.062
SST-014A-4	0.194	0.166		0.075	0.750		0.375	0.109
SST-014A-5	0.201	0.173		0.100	0.750		0.375	0.109
SST-014A-6	0.204	0.176		0.124	0.750		0.375	0.109
SST-015B-1	0.111	0.081		0.069	0.500		0.250	0.062
SST-015B-2	0.131	0.101		0.106	0.500		0.250	0.078
SST-015B-3	0.125	0.095	0.015	0.173	0.500	0.0541	0.250	0.078
SST-015B-4	0.184	0.154		0.075	0.750		0.375	0.109
SST-015B-5	0.200	0.170		0.106	0.750		0.375	0.109
SST-015B-6	0.208	0.178		0.132	0.750		0.375	0.109
SST-017C-1	0.160	0.126		0.077	0.500		0.250	0.093
SST-017C-2	0.172	0.138		0.126	0.500		0.250	0.105
SST-017C-3	0.160	0.126	0.017	0.189	0.500	0.0768	0.250	0.093
SST-017C-4	0.249	0.215		0.091	0.750		0.375	0.170
SST-017C-5	0.259	0.225		0.120	0.750		0.375	0.175
SST-017C-6	0.235	0.201		0.167	0.750		0.375	0.156
SST-018C-1	0.178	0.142		0.081	0.500		0.250	0.109
SST-018C-2	0.165	0.129		0.150	0.500		0.250	0.109
SST-018C-3	0.160	0.124	0.018	0.228	0.500	0.0912	0.250	0.109
SST-018C-4	0.217	0.181		0.108	0.750		0.375	0.140
SST-018C-5	0.246	0.210		0.150	0.750		0.375	0.156
SST-018C-6	0.234	0.198		0.201	0.750		0.375	0.156
SST-020D-1	0.191	0.151		0.091	0.750		0.375	0.120
SST-020D-2	0.179	0.139		0.165	0.750		0.375	0.105
SST-020D-3	0.175	0.135	0.020	0.240	0.750	0.1220	0.375	0.105
SST-020D-4	0.242	0.202		0.126	1.000		0.500	0.160
SST-020D-5	0.268	0.228		0.159	1.000		0.500	0.187
SST-020D-6	0.254	0.214		0.215	1.000		0.500	0.172
SST-021D-1	0.200	0.158		0.094	0.750		0.375	0.120
SST-021D-2	0.186	0.144		0.173	0.750		0.375	0.109
SST-021D-3	0.185	0.143	0.021	0.266	0.750	0.1413	0.375	0.109
SST-021D-4	0.248	0.206		0.128	1.000		0.500	0.156
SST-021D-5	0.246	0.204		0.195	1.000		0.500	0.148
SST-021D-6	0.272	0.230		0.230	1.000		0.500	0.187

Torque shown are for music wire.
For Stainless steel, multiply figures shown by 0.933

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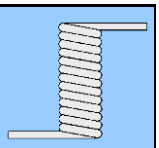

Part Number	Outside Dia. (De)	Inside Dia. (Di)	Wire Dia. (d)	Free Angle	Body Length ≈ (Lo)	Leg Length (A)	For Cyclic application Torque @ Θ (M)	For Cyclic application Deflection Angle (Θ)	Point of Moment arm (R)	Shaft Size Suggested
	mm	mm	mm	degree	mm	mm	Nmm	degree	mm	mm
SST-023D-1	5.18	4.01		90	2.60	19.05		50.57	9.53	3.18
SST-023D-2	4.85	3.68		180	4.85	19.05		101.09	9.53	2.92
SST-023D-3	4.75	3.58	0.58	270	7.10	19.05	20.972	151.56	9.53	2.77
SST-023D-4	6.58	5.41		180	3.70	25.40		101.44	12.70	4.32
SST-023D-5	6.38	5.21		270	5.35	25.40		151.90	12.70	4.11
SST-023D-6	6.88	5.72		360	6.35	25.40		202.53	12.70	4.57
SST-025E-1	5.99	4.72		90	2.80	19.05		54.23	9.53	3.56
SST-025E-2	5.72	4.45		180	5.25	19.05		110.72	9.53	3.56
SST-025E-3	5.59	4.32	0.64	270	7.70	19.05	26.933	165.79	9.53	3.56
SST-025E-4	7.75	6.48		180	3.85	25.40		110.72	12.70	5.16
SST-025E-5	8.66	7.39		270	5.25	25.40		168.69	12.70	5.54
SST-025E-6	8.26	6.99		360	7.00	25.40		225.40	12.70	5.54
SST-028E-1	6.78	5.36		90	3.35			53.48		4.45
SST-028E-2	6.32	4.90		180	6.30			106.51		3.96
SST-028E-3	6.22	4.80	0.71	270	9.25	25.40	36.893	160.61	12.70	3.96
SST-028E-4	8.64	7.21		180	4.60			107.40		5.97
SST-028E-5	8.36	6.93		270	7.10			160.61		5.72
SST-028E-6	9.02	7.59		360	8.25			213.88		6.22
SST-030F-1	7.75	6.22		90	3.35			57.43		5.21
SST-030F-2	6.93	5.41		180	6.30			109.30		4.37
SST-030F-3	6.88	5.36	0.76	270	9.25	25.40	45.377	166.48	12.70	4.37
SST-030F-4	10.03	8.51		180	4.60			117.27		6.35
SST-030F-5	9.58	8.05		270	7.10			172.81		6.35
SST-030F-6	10.41	8.89		360	8.25			231.97		6.35
SST-032F-1	7.32	5.69		90	3.70			48.84		4.57
SST-032F-2	6.86	5.23		180	6.75			97.79		4.32
SST-032F-3	6.71	5.08	0.81	270	9.80	25.40	53.659	146.39	12.70	4.11
SST-032F-4	9.30	7.67		180	5.10			98.03		6.35
SST-032F-5	8.99	7.37		270	7.35			146.48		6.10
SST-032F-6	9.70	8.08		360	8.75			195.17		6.35
SST-035G-1	8.03	6.25		90	3.90			49.01		4.75
SST-035G-2	7.72	5.94		180	7.35			101.05		4.75
SST-035G-3	7.92	6.15	0.89	270	10.80	31.75	70.209	159.81	15.88	4.75
SST-035G-4	11.46	9.68		180	5.40			111.63		7.14
SST-035G-5	11.07	9.30		270	8.00			166.78		7.14
SST-035G-6	11.99	10.21		360	9.65			222.80		7.92
SST-038G-1	9.80	7.87		90	4.30			55.91		6.35
SST-038G-2	9.22	7.29		180	8.00			112.45		6.10
SST-038G-3	8.97	7.04	0.97	270	11.55	31.75	89.854	167.38	15.88	5.84
SST-038G-4	12.37	10.44		180	6.05			110.97		8.64
SST-038G-5	12.12	10.19		270	8.70			168.17		8.38
SST-038G-6	13.06	11.13		360	10.40			223.52		9.02

Part Number	Outside Dia. (De)	Inside Dia. (Di)	Wire Dia. (d)	Body Length ≈ (Lo)	Leg Length (A)	Cyclic Torque @ Θ (M)	Point of moment arm (R)	Shaft Size Suggested
	in.	in.	in.	in.	in.	lbin	in.	in.
SST-023D-1	0.204	0.158		0.102	0.750		0.375	0.125
SST-023D-2	0.191	0.145		0.191	0.750		0.375	0.115
SST-023D-3	0.187	0.141	0.023	0.280	0.750	0.1856	0.375	0.109
SST-023D-4	0.259	0.213		0.146	1.000		0.500	0.170
SST-023D-5	0.251	0.205		0.211	1.000		0.500	0.162
SST-023D-6	0.271	0.225		0.250	1.000		0.500	0.180
SST-025E-1	0.236	0.186		0.110	0.750		0.375	0.140
SST-025E-2	0.225	0.175		0.207	0.750		0.375	0.140
SST-025E-3	0.220	0.170	0.025	0.303	0.750	0.2384	0.375	0.140
SST-025E-4	0.305	0.255		0.152	1.000		0.500	0.203
SST-025E-5	0.341	0.291		0.207	1.000		0.500	0.218
SST-025E-6	0.325	0.275		0.276	1.000		0.500	0.218
SST-028E-1	0.267	0.211		0.132				0.175
SST-028E-2	0.249	0.193		0.248				0.156
SST-028E-3	0.245	0.189	0.028	0.364	1.000	0.3265	0.500	0.156
SST-028E-4	0.340	0.284		0.181				0.235
SST-028E-5	0.329	0.273		0.280				0.225
SST-028E-6	0.355	0.299		0.325				0.245
SST-030F-1	0.305	0.245		0.132				0.205
SST-030F-2	0.273	0.213		0.248				0.172
SST-030F-3	0.271	0.211	0.030	0.364	1.000	0.4016	0.500	0.172
SST-030F-4	0.395	0.335		0.181				0.250
SST-030F-5	0.377	0.317		0.280				0.250
SST-030F-6	0.410	0.350		0.325				0.250
SST-032F-1	0.288	0.224		0.146				0.180
SST-032F-2	0.270	0.206		0.266				0.170
SST-032F-3	0.264	0.200	0.032	0.386	1.000	0.4749	0.500	0.162
SST-032F-4	0.366	0.302		0.201				0.250
SST-032F-5	0.354	0.290		0.289				0.240
SST-032F-6	0.382	0.318		0.344				0.250
SST-035G-1	0.316	0.246		0.154				0.187
SST-035G-2	0.304	0.234		0.289				0.187
SST-035G-3	0.312	0.242	0.035	0.425	1.250	0.6214	0.625	0.187
SST-035G-4	0.451	0.381		0.213				0.281
SST-035G-5	0.436	0.366		0.315				0.281
SST-035G-6	0.472	0.402		0.380				0.312
SST-038G-1	0.386	0.310		0.169				0.250
SST-038G-2	0.363	0.560		0.315				0.240
SST-038G-3	0.353	0.277	0.038	0.455	1.250	0.7953	0.625	0.230
SST-038G-4	0.487	0.411		0.238				0.340
SST-038G-5	0.477	0.401		0.343				0.330
SST-038G-6	0.514	0.438		0.409				0.355

Torque shown are for music wire.
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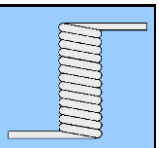
TORSION SPRINGS

MUSIC WIRE AND STAINLESS STEEL



Part Number	Outside Dia. (De)	Inside Dia. (Di)	Wire Dia. (d)	Free Angle	Body Length ≈ (Lo)	Leg Length (A)	For Cyclic application Torque @ Θ (M)	For Cyclic application Deflection Angle (Θ)	Point of Moment arm (R)	Shaft Size Suggested
	mm	mm	mm	degree	mm	mm	Nmm	degree	mm	mm
SST-040H-1	8.51	6.48		90	5.60	31.75		57.32	15.88	5.38
SST-040H-2	8.86	6.83		180	9.50	31.75		113.03	15.88	5.54
SST-040H-3	9.12	7.09	1.02	270	13.35	31.75	102.04	171.38	15.88	5.54
SST-040H-4	13.18	11.15		180	6.15	50.80		109.51	25.40	8.71
SST-040H-5	13.00	10.97		270	9.15	50.80		167.25	25.40	8.71
SST-040H-6	12.90	10.87		360	11.95	50.80		224.68	25.40	8.71
SST-045H-1	9.07	6.78		90	6.20	31.75		53.89	15.88	5.72
SST-045H-2	9.58	7.29		180	10.55	31.75		107.95	15.88	6.10
SST-045H-3	9.70	7.42	1.14	270	14.85	31.75	145.29	160.93	15.88	6.10
SST-045H-4	14.61	12.32		180	7.10	50.80		107.70	25.40	9.91
SST-045H-5	14.12	11.84		270	10.30	50.80		160.95	25.40	9.53
SST-045H-6	13.94	11.66		360	13.45	50.80		215.08	25.40	9.53
SST-048J-1	9.86	7.42		90	6.60	31.75		55.06	15.88	5.84
SST-048J-2	10.29	7.85		180	11.45	31.75		108.82	15.88	6.35
SST-048J-3	10.59	8.15	1.22	270	16.00	31.75	176.33	165.20	15.88	6.35
SST-048J-4	15.72	13.28		180	7.40	50.80		108.78	25.40	10.31
SST-048J-5	15.27	12.83		270	11.05	50.80		163.30	25.40	10.31
SST-048J-6	15.11	12.67		360	14.50	50.80		218.84	25.40	10.31
SST-051J-1	10.36	7.77		90	7.00			52.94		6.35
SST-051J-2	10.92	8.33		180	12.70			105.79		6.99
SST-051J-3	11.15	8.56	1.30	270	16.75	50.80	205.79	159.07	25.40	7.11
SST-051J-4	14.12	11.53		180	9.25			105.72		9.53
SST-051J-5	14.50	11.91		270	12.95			158.76		9.91
SST-051J-6	15.95	13.36		360	15.25			231.52		11.10
SST-054K-1	12.29	9.55		90	7.50			60.22		8.00
SST-054K-2	12.93	10.19		180	12.70			119.95		8.76
SST-054K-3	13.06	10.31	1.37	270	17.80	50.80	244.28	178.11	25.40	8.76
SST-054K-4	16.61	13.87		180	9.90			118.63		11.68
SST-054K-5	16.87	14.12		270	13.70			175.89		12.07
SST-054K-6	17.63	14.88		360	17.55			242.54		12.70
SST-059K-1	12.67	9.68		90	8.15			56.40		7.92
SST-059K-2	13.36	10.36		180	13.70			112.68		8.51
SST-059K-3	13.64	10.64	1.50	270	19.45	50.8	318.61	169.40	25.40	8.89
SST-059K-4	17.30	14.30		180	10.80			112.56		11.94
SST-059K-5	17.75	14.76		270	14.85			168.90		12.32
SST-059K-6	18.01	15.01		360	19.05			225.45		12.45
SST-063L-1	14.22	11.02		90	8.90			58.00		9.53
SST-063L-2	15.01	11.81		180	14.75			116.00		9.91
SST-063L-3	15.24	12.04	1.60	270	20.85	50.8	377.13	173.27	25.40	10.31
SST-063L-4	19.48	16.28		180	11.70			116.00		13.89
SST-063L-5	19.91	16.71		270	16.00			173.25		14.27
SST-063L-6	20.27	17.07		360	20.45			232.11		14.68

Part Number	Outside Dia. (De)	Inside Dia. (Di)	Wire Dia. (d)	Body Length ≈ (Lo)	Leg Length (A)	Cyclic Torque @ Θ (M)	Point of moment arm (R)	Shaft Size Suggested
	in.	in.	in.	in.	in.	lbin	in.	in.
SST-040H-1	0.335	0.255		0.220	1.250		0.625	0.212
SST-040H-2	0.349	0.269		0.374	1.250		0.625	0.218
SST-040H-3	0.359	0.279	0.040	0.526	1.250	0.9032	0.625	0.218
SST-040H-4	0.519	0.439		0.242	2.000		1.000	0.343
SST-040H-5	0.512	0.432		0.360	2.000		1.000	0.343
SST-040H-6	0.508	0.428		0.470	2.000		1.000	0.343
SST-045H-1	0.357	0.267		0.244	1.250		0.625	0.225
SST-045H-2	0.377	0.287		0.415	1.250		0.625	0.240
SST-045H-3	0.382	0.292	0.045	0.585	1.250	1.2860	0.625	0.240
SST-045H-4	0.575	0.485		0.280	2.000		1.000	0.390
SST-045H-5	0.556	0.466		0.406	2.000		1.000	0.375
SST-045H-6	0.549	0.459		0.530	2.000		1.000	0.375
SST-048J-1	0.388	0.292		0.260	1.250		0.625	0.230
SST-048J-2	0.405	0.309		0.451	1.250		0.625	0.250
SST-048J-3	0.417	0.321	0.048	0.630	1.250	1.5607	0.625	0.250
SST-048J-4	0.619	0.523		0.291	2.000		1.000	0.406
SST-048J-5	0.601	0.505		0.435	2.000		1.000	0.406
SST-048J-6	0.595	0.499		0.571	2.000		1.000	0.406
SST-051J-1	0.408	0.306		0.276				0.250
SST-051J-2	0.430	0.328		0.500				0.275
SST-051J-3	0.439	0.337	0.051	0.659	2.000	1.8214	1.000	0.280
SST-051J-4	0.556	0.454		0.364				0.375
SST-051J-5	0.571	0.469		0.510				0.390
SST-051J-6	0.628	0.526		0.600				0.437
SST-054K-1	0.484	0.376		0.295				0.315
SST-054K-2	0.509	0.401		0.500				0.345
SST-054K-3	0.514	0.406	0.054	0.701	2.000	2.1621	1.000	0.345
SST-054K-4	0.654	0.546		0.390				0.460
SST-054K-5	0.664	0.556		0.539				0.475
SST-054K-6	0.694	0.586		0.691				0.500
SST-059K-1	0.499	0.381		0.321				0.312
SST-059K-2	0.526	0.408		0.539				0.335
SST-059K-3	0.537	0.419	0.059	0.766	2.000	2.8200	1.000	0.350
SST-059K-4	0.681	0.563		0.425				0.470
SST-059K-5	0.699	0.581		0.585				0.485
SST-059K-6	0.709	0.591		0.750				0.490
SST-063L-1	0.560	0.434		0.350				0.375
SST-063L-2	0.591	0.465		0.581				0.390
SST-063L-3	0.600	0.474	0.063	0.821	2.000	3.3379	1.000	0.406
SST-063L-4	0.767	0.641		0.461				0.547
SST-063L-5	0.784	0.658		0.630				0.562
SST-063L-6	0.798	0.672		0.805				0.578

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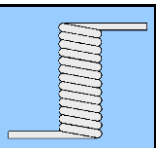

Part Number	Outside Dia. (De)	Inside Dia. (Di)	Wire Dia. (d)	Free Angle	Body Length ≈ (Lo)	Leg Length (A)	For Cyclic application Torque @ Θ (M)	For Cyclic application Deflection Angle (Θ)	Point of Moment arm (R)	Shaft Size Suggested
	mm	mm	mm	degree	mm	mm	Nmm	degree	mm	mm
SST-070M-1	15.06	11.51		90	9.55			53.37		9.78
SST-070M-2	15.88	12.32		180	16.25			106.60		10.31
SST-070M-3	16.23	12.67	1.78	270	23.00	50.8	502.55	160.52	25.40	10.67
SST-070M-4	20.57	17.02		180	12.70			106.60		14.35
SST-070M-5	20.98	17.42		270	17.80			158.82		14.73
SST-070M-6	21.41	17.86		360	22.60			213.43		15.06
SST-075M-1	16.18	12.37		90	10.20			53.52		9.91
SST-075M-2	17.07	13.26		180	17.50			107.02		10.62
SST-075M-3	17.40	13.59	1.91	270	24.75	50.8	618.11	160.61	25.40	12.50
SST-075M-4	19.23	15.42		180	15.55			106.98		12.34
SST-075M-5	20.57	16.76		270	20.90			160.58		13.39
SST-075M-6	25.02	21.21		360	22.35			214.11		16.76
SST-078N-1	16.69	12.73		90	10.60			53.02		10.21
SST-078N-2	17.60	13.64		180	18.20			106.01		10.95
SST-078N-3	17.93	13.97	1.98	270	25.75	50.8	695.29	158.99	25.40	12.88
SST-078N-4	19.84	15.88		180	16.15			106.03		12.70
SST-078N-5	21.21	17.25		270	21.70			159.03		13.79
SST-078N-6	25.78	21.82		360	23.25			211.98		17.27
SST-085N-1	19.00	14.68		90	11.55			54.07		11.86
SST-085N-2	20.07	15.75		180	19.80			108.23		12.73
SST-085N-3	20.45	16.13	2.16	270	28.05	63.5	873.33	162.35	31.75	14.83
SST-085N-4	22.63	18.31		180	17.65			108.27		14.73
SST-085N-5	24.21	19.89		270	23.65			162.41		15.98
SST-085N-6	27.08	22.76		360	27.55			216.50		18.19
SST-095P-1	22.12	17.30		90	12.95			56.63		14.07
SST-095P-2	23.37	18.54		180	22.15			113.32		15.06
SST-095P-3	23.80	18.97	2.41	270	31.35	76.2	1219.24	169.88	38.10	17.48
SST-095P-4	26.37	21.54		180	19.70			113.34		17.42
SST-095P-5	28.19	23.37		270	26.45			169.92		18.87
SST-095P-6	31.57	26.75		360	30.75			226.68		21.46

Part Number	Outside Dia. (De)	Inside Dia. (Di)	Wire Dia. (d)	Body Length ≈ (Lo)	Leg Length (A)	Cyclic Torque @ Θ (M)	Point of moment arm (R)	Shaft Size Suggested
	in.	in.	in.	in.	in.	lbin	in.	in.
SST-070M-1	0.593	0.453		0.376				0.385
SST-070M-2	0.625	0.485		0.640				0.406
SST-070M-3	0.639	0.499	0.070	0.906	2.000	4.4479	1.000	0.420
SST-070M-4	0.810	0.670		0.500				0.565
SST-070M-5	0.826	0.686		0.701				0.580
SST-070M-6	0.843	0.703		0.890				0.593
SST-075M-1	0.637	0.487		0.402				0.390
SST-075M-2	0.672	0.522		0.689				0.418
SST-075M-3	0.685	0.535	0.075	0.974	2.000	5.4708	1.000	0.492
SST-075M-4	0.757	0.607		0.612				0.486
SST-075M-5	0.810	0.660		0.823				0.527
SST-075M-6	0.985	0.835		0.880				0.660
SST-078N-1	0.657	0.501		0.417				0.402
SST-078N-2	0.693	0.537		0.717				0.431
SST-078N-3	0.706	0.550	0.078	1.014	2.000	6.1539	1.000	0.507
SST-078N-4	0.781	0.625		0.636				0.500
SST-078N-5	0.835	0.679		0.854				0.543
SST-078N-6	1.015	0.859		0.915				0.680
SST-085N-1	0.748	0.578		0.455				0.467
SST-085N-2	0.790	0.620		0.780				0.501
SST-085N-3	0.805	0.635	0.085	1.104	2.500	7.7296	1.250	0.584
SST-085N-4	0.891	0.721		0.695				0.580
SST-085N-5	0.953	0.783		0.931				0.629
SST-085N-6	1.066	0.896		1.085				0.716
SST-095P-1	0.871	0.681		0.510				0.554
SST-095P-2	0.920	0.730		0.903				0.593
SST-095P-3	0.937	0.747	0.095	1.283	3.000	10.791	1.500	0.688
SST-095P-4	1.038	0.848		0.808				0.686
SST-095P-5	1.110	0.920		1.093				0.743
SST-095P-6	1.243	1.053		1.283				0.845

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