

MUELLES/RESORTES DE TORSION

Los muelles/resortes de torsión de SPEC se utilizan extensamente para almacenar y liberar la energía de rotación o para mantener una presión sobre un recorrido corto. En nuestro surtido de stock se incluyen muelles/resortes de torsión con cuatro posiciones de extremo, tal como se muestra en los dibujos.

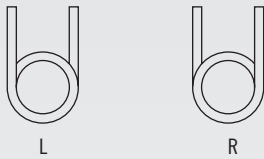
MATERIAL

Acero inoxidable : Tipo 302 según ASTM A313 ó templado de resorte AMS 5688.

Alambre de piano: ASTM A228 ó AMS 5112

DIRECCIÓN DE LA ESPIRA

Se debe especificar el sentido de hélice añadiendo un sufijo al número de catálogo. Utilice L para muelles/resortes enrollados a izquierdas, R para muelles/resortes enrollados a derechas.



TOLERANCIAS

Diámetro externo $\pm 5\%$ acero inoxidable
 $\pm 2\%$ alambre de piano

CLAVES DE CARACTERÍSTICAS

Do = Diámetro exterior
 d = Diámetro del alambre
 R = Posición de carga
 T = Par N/mm
 M = Tamaño eje recomendado
 E = Longitud pata (desde centro)
 A = Longitud de eje mínima
 Fig = Posición patas
 Deg° = Grados deflexión
 INOX = Alambre de piano
 MW = Acero inoxidable

INFORMACIÓN TÉCNICA ADICIONAL

Los muelles/resortes de torsión de SPEC se utilizan generalmente sobre un mandril o eje. Los tamaños de eje sugeridos permiten una holgura del 10% aproximadamente en las deflexiones indicadas. En caso de que se utilicen deflexiones mayores, se debería reducir el diámetro del eje. Se debe dejar suficiente espacio (espacio axial mínimo) en el montaje de forma que el muelle pueda funcionar correctamente.

Los muelles/resortes de torsión de SPEC deberían utilizarse en el sentido que se enrollen las bobinas. En el sentido de desenrollar la carga máxima es menor debido a las tensiones residuales.

Los valores de torsión son adecuados para condiciones medias. Dichos valores pueden ser aumentados en un 20% para condiciones estáticas, con una ligera flecha solamente.

EXTREMOS

Los extremos rectos de torsión son estándar.

ACABADO

El acabado simple es estándar. Dejen un tiempo adicional para acabados especiales.

A la hora de realizar comprobaciones, la carga debe medirse a $\frac{1}{2}$ de la longitud de la pata (E). La utilización de otras longitudes afecta significativamente a la longitud activa y a los resultados de la prueba.

El par torsor de referencia indicado puede traducirse a una carga directa mediante $P=T/En$, donde P es la carga aplicada en la nueva longitud En.

El par torsor en deflexiones intermedias puede calcularse mediante un prorrateo.

INOX

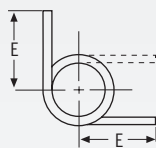


Fig 1. 90°

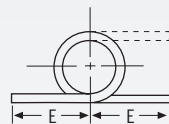


Fig 2. 180°

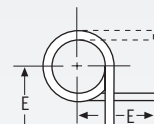


Fig 3. 270°

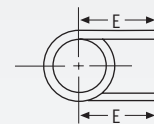


Fig 4. 360°

MW

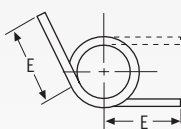


Fig 5. 120°

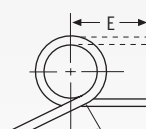


Fig 6. 210°

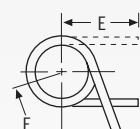
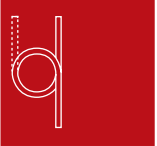
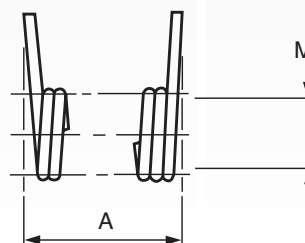
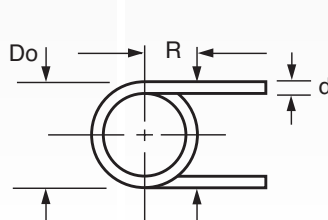


Fig 7. 300°



TORSION SPRINGS - STAINLESS STEEL / INOX

Part Number	d (mm)	Do (mm)	Fig	Deg°	T (N/mm)	1/2 E (mm)	M (mm)	E (mm)	A (mm)
T012-090-055		2.36	1	90			1.40		1.37
T012-180-067		2.77	2	180		4.75	1.70	9.52	2.29
T012-270-062	0.30	2.59	3	270	5.31		1.57		3.53
T012-180-109		4.22	2	180			2.77		1.68
T012-270-109		4.32	3	270			2.77		2.29
T012-360-109		4.42	4	360		6.35	2.77	12.70	2.90
T014-090-063		3.15	1	90			1.60		1.70
T014-180-078		3.38	2	180			1.98		2.67
T014-270-063	0.36	3.15	3	270	7.91		1.60		4.09
T014-180-109		4.93	2	180			2.77		1.96
T014-270-125		5.11	3	270		9.52	3.18	19.05	2.67
T014-360-125		5.18	4	360			3.18		3.38
T015-090-062		2.79	1	90			1.57		1.71
T015-180-078		3.30	2	180		6.35	1.98	12.70	2.86
T015-270-078	0.38	3.15	3	270	10.51		1.98		4.39
T015-180-109		4.65	2	180			2.77		2.10
T015-270-109		5.05	3	270		9.52	2.77	19.05	2.86
T015-360-109		5.26	4	360			2.77		3.62
T017-090-093		4.06	1	90			2.36		2.06
T017-180-093		4.37	2	180		6.35	2.36	12.70	3.24
T017-270-093	0.43	4.06	3	270	13.22		2.36		4.97
T017-180-156		6.32	2	180			3.96		2.39
T017-270-156		6.58	3	270		9.52	3.96	19.05	3.24
T017-360-140		5.97	4	360			3.56		4.32
T018-090-109		4.50	1	90			2.77		2.06
T018-180-109		4.17	2	180		6.35	2.77	12.70	3.89
T018-270-109	0.46	4.06	3	270	15.82		2.77		5.79
T018-180-140		5.49	2	180			3.56		2.97
T018-270-156		6.22	3	270			3.96		3.81
T018-360-156		5.92	4	360		9.52	3.96	19.05	5.33
T020-090-109		4.85	1	90			2.77		2.41
T020-180-109		4.55	2	180			2.77		4.32
T020-270-093	0.51	4.45	3	270	21.10		2.36		6.35
T020-180-140		6.15	2	180			3.56		3.30
T020-270-172		6.81	3	270		12.70	4.37	25.40	4.19
T020-360-156		6.45	4	360			3.96		6.35
T021-090-109		4.72	1	90			2.77		2.40
T021-180-109		4.70	2	180		9.52	2.77	19.05	4.53
T021-270-109	0.53	4.67	3	270	24.60		2.77		6.76
T021-180-156		6.27	2	180			3.96		3.47
T021-270-187		7.19	3	270		12.70	4.75	25.40	4.53
T021-360-187		6.88	4	360			4.75		6.15
T023-090-109		5.18	1	90			2.77		2.77
T023-180-109		4.85	2	180		9.52	2.77	19.05	4.98
T023-270-109	0.58	4.75	3	270	34.80		2.77		7.30
T023-180-156		6.58	2	180			3.96		3.81
T023-270-156		6.38	3	270		12.70	3.96	25.40	5.55
T023-360-172		6.88	4	360			4.37		6.72
T025-090-140		5.97	1	90			3.56		2.86
T025-180-140		5.69	2	180		9.52	3.56	19.05	5.40
T025-270-140	0.64	5.56	3	270	42.40		3.56		8.03
T025-180-203		7.72	2	180			5.16		4.13
T025-270-218		8.64	3	270			5.54		5.40
T025-360-218		8.23	4	360			5.54		7.32
T028-090-156		6.78	1	90			3.96		3.38
T028-180-140		6.32	2	180		12.70	3.56	25.40	6.05
T028-270-140	0.71	6.22	3	270	58.20		3.56		8.89
T028-180-203		8.64	2	180			5.16		4.62
T028-270-203		8.36	3	270			5.16		6.76
T028-360-218		9.02	4	360			5.54		8.89
T030-090-172		7.14	1	90			4.37		3.43
T030-180-172		6.91	2	180			4.37		6.48
T030-270-172	0.76	6.86	3	270	70.60		4.37		9.65
T030-180-250		10.01	2	180			6.35		4.95
T030-270-250		9.58	3	270			6.35		7.11
T030-360-250		10.41	4	360		12.70	6.35	25.40	8.79
T032-090-172		7.32	1	90			4.36		3.86
T032-180-156		6.86	2	180			3.96		6.91
T032-270-156	0.81	6.71	3	270	92.70		3.96		10.97
T032-180-218		9.30	2	180			5.54		5.28
T032-270-218		8.99	3	270			5.54		7.72



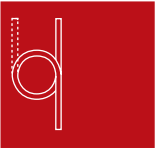
TORSION SPRINGS - STAINLESS STEEL / INOX

Part Number	d (mm)	Do (mm)	Fig	Deg°	T (N/mm)	1/2 E (mm)	M (mm)	E (mm)	A (mm)
T032-360-234		9.70	4	360			5.95		9.35
T035-090-187		8.00	1	90			4.75		4.00
T035-180-187		7.70	2	180			4.75		7.56
T035-270-187	0.89	7.90	3	270	113.00		4.75		11.23
T035-180-281		11.43	2	180			7.14		5.78
T035-270-281		11.05	3	270			7.14		8.45
T035-360-312		11.96	4	360			7.92		10.29
T038-090-234		9.80	1	90			5.94		4.57
T038-180-218		9.35	2	180		15.88	5.54	31.75	8.20
T038-270-218	0.97	8.97	3	270	134.50		5.54		12.07
T038-180-312		12.37	2	180			8.08		6.27
T038-270-312		12.12	3	270			7.92		9.17
T038-360-328		13.06	4	360			8.33		12.07
T040-090-187		7.85	1	90			4.75		5.59
T040-180-218		8.84	2	180			5.54		9.65
T040-270-218	1.02	9.09	3	270	155.40		5.54		13.97
T040-180-343		13.16	2	180			8.71		6.60
T040-270-343		12.98	3	270		25.40	8.71	50.80	9.65
T040-360-343		12.88	4	360			8.71		12.90
T045-090-203		9.07	1	90			5.16		6.58
T045-180-218		9.58	2	180		15.88	5.54	31.75	10.86
T045-270-234	1.14	9.70	3	270	226.00		5.94		15.43
T045-180-359		14.61	2	180			9.12		7.44
T045-270-359		14.12	3	270		25.40	9.12	50.80	10.86
T045-360-359		13.94	4	360			9.12		14.29
T048-090-218		9.53	1	90			5.54		6.71
T048-180-250		10.26	2	180		15.88	6.35	31.75	11.58
T048-270-250	1.22	10.57	3	270	282.00		6.35		16.76
T048-180-406		15.70	2	180			10.31		7.92
T048-270-406		15.24	3	270			10.31		11.58
T048-360-406		15.09	4	360			10.31		15.49
T051-090-234		10.36	1	90			5.94		7.44
T051-180-250		10.92	2	180			6.35		12.32
T051-270-266	1.30	11.15	3	270	328.00		6.76		17.49
T051-180-344		14.12	2	180			8.74		9.72
T051-270-359		14.50	3	270			9.12		13.60
T051-360-406		15.95	4	360			10.31		16.19
T054-090-296		12.29	1	90			7.52		7.87
T054-180-312		12.93	2	180			7.92		13.00
T054-270-312	1.37	13.06	3	270	370.00		7.92		18.16
T054-180-421		16.61	2	180			10.69		10.29
T054-270-437		16.87	3	270			11.10		14.40
T054-360-453		17.63	4	360			11.51		17.91
T059-090-296		12.67	1	90			7.52		8.64
T059-180-328		13.36	2	180			8.33		14.24
T059-270-328	1.50	13.64	3	270	475.00		8.33		20.23
T059-180-437		17.30	2	180			11.10		11.30
T059-270-453		17.75	3	270			11.51		15.74
T059-360-459		18.01	4	360			11.66		20.23
T063-090-343		14.22	1	90		25.40	8.71	50.80	9.19
T063-180-359		15.01	2	180			9.12		15.24
T063-270-375	1.60	15.24	3	270	582.00		9.53		21.60
T063-180-500		19.48	2	180			12.70		12.07
T063-270-516		19.91	3	270			13.11		16.80
T063-360-516		20.27	4	360			13.11		21.60
T070-090-359		15.06	1	90			9.12		10.16
T070-180-390		15.88	2	180			9.91		16.89
T070-270-390	1.78	16.23	3	270	791.00		9.91		24.00
T070-180-515		20.57	2	180			13.08		13.34
T070-270-531		20.98	3	270			13.49		18.67
T070-360-546		21.41	4	360			13.87		24.00
T075-090-375		16.13	1	90			9.53		10.92
T075-180-422		17.15	2	180			10.72		18.10
T075-270-500	1.91	17.78	3	270	989.00		12.70		25.72
T075-180-484		19.69	2	180			12.29		16.26
T075-270-531		20.96	3	270			13.49		21.91
T075-360-640		24.77	4	360			16.26		26.67
T078-090-406		17.22	1	90			10.31		11.43
T078-180-453	1.98	18.49	2	180	1102.00		11.51		18.82
T078-270-453		18.49	3	270			11.51		26.16
T078-180-500		20.40	2	180			12.70		16.84



TORSION SPRINGS - STAINLESS STEEL / INOX

Part Number	d (mm)	Do (mm)	Fig	Deg°	T (N/mm)	1/2 E (mm)	M (mm)	E (mm)	A (mm)
T078-270-546	1.98	21.67	3	270	1102.00	25.40	13.87	50.80	22.78
T078-360-578		22.94	4	360			14.68		28.73
T085-090-422		18.16	1	90			10.72		12.42
T085-180-469		19.30	2	180			11.91		20.52
T085-270-500	2.16	20.07	3	270	1356.00	31.75	12.70	63.50	29.15
T085-180-641		25.25	2	180			16.28		16.21
T085-270-672		26.42	3	270			17.07		22.67
T085-360-688		26.77	4	360			17.48		29.15
T095-090-453		19.71	1	90			11.51		13.87
T095-180-531		22.07	2	180			13.49		22.94
T095-270-578	2.41	23.50	3	270	1808.00	38.10	14.68	76.20	32.58
T095-180-734		28.73	2	180			18.64		18.11
T095-270-797		30.56	3	270			20.24		25.34
T095-360-813		31.12	4	360			20.65		32.58
T105-090-500		21.54	1	90			12.70		15.34
T105-180-609		24.94	2	180			15.47		25.35
T105-270-703	2.67	27.69	3	270	2373.00	44.45	17.86	88.90	36.00
T105-180-813		31.70	2	180			20.65		20.02
T105-270-891		34.09	3	270			22.63		28.00
T105-360-906		34.77	4	360			23.01		36.00
T115-090-594		24.84	1	90			15.09		16.79
T115-180-641		26.49	2	180			16.28		27.76
T115-270-688	2.92	27.58	3	270	3164.00		17.48		39.43
T115-180-859		34.21	2	180			21.82		21.92
T115-270-938		36.45	3	270			23.83		30.67
T115-360-969		37.21	4	360			24.61		39.43
T125-090-591		25.12	1	90			15.01		21.44
T125-180-666		27.48	2	180			16.92		36.53
T125-270-751	3.18	30.20	3	270	3616.00	50.80	19.08	101.60	49.21
T125-180-885		34.44	2	180			22.48		30.18
T125-270-1013		38.51	3	270			25.73		39.69
T125-360-1084		40.77	4	360			27.53		49.21
T135-090-666		27.99	1	90			16.92		23.14
T135-180-735		30.20	2	180			18.67		39.45
T135-270-825	3.43	33.05	3	270	4519.00		20.96		53.15
T135-180-977		37.87	2	180			24.82		32.59
T135-270-1112		42.16	3	270			28.24		42.86
T135-360-1188		44.58	4	360			30.18		53.15



TORSION SPRINGS - MUSIC WIRE

Part Number	d (mm)	Do (mm)	Fig	Deg°	T (N/mm)	1/2 E (mm)	M (mm)	E (mm)	A (mm)
T016-120-125		4.83	5.00	120					2.31
T016-210-125	0.41	4.78	6.00	210	12.00	9.52	3.18	19.05	3.43
T016-300-125		4.78	7.00	300					4.55
T020-120-187		6.99	5.00	120					2.87
T020-210-187	0.51	6.96	6.00	210	20.00		4.75		4.27
T020-300-187		6.93	7.00	300					5.66
T024-120-250		9.19	5.00	120					3.45
T024-210-250	0.61	9.14	6.00	210	32.00				5.13
T024-300-250		9.12	7.00	300					6.81
T026-120-250		9.30	5.00	120	44.00				3.73
T026-210-250	0.66	9.25	6.00	210	43.00	12.70		25.40	5.56
T026-300-250		9.25	7.00	300	43.00				7.37
T029-120-250		9.27	5.00	120	53.00				4.90
T029-210-250	0.74	9.30	6.00	210	58.00		6.35		6.93
T029-300-250		9.32	7.00	300	60.00				8.97
T032-120-250		9.42	5.00	120	78.00				5.41
T032-210-250	0.81	9.37	6.00	210	75.00				8.46
T032-300-250		9.42	7.00	300	79.00				10.69
T035-120-250		9.58	5.00	120	108.00				5.92
T035-210-250	0.89	9.53	6.00	210	104.00				9.27
T035-300-250		9.58	7.00	300	112.00				11.71
T038-120-375		13.89	5.00	120	137.00		9.53		5.46
T038-210-312	0.97	11.71	6.00	210	134.00	15.88	7.92	31.75	9.09
T038-300-312		11.73	7.00	300	140.00		7.92		11.73
T040-120-375		14.02	5.00	120	167.00		9.53		5.77
T040-210-312	1.02	11.81	6.00	210	165.00				9.58
T040-300-312		11.76	7.00	300	155.00				13.39
T042-120-312		11.86	5.00	120	175.00				7.11
T042-210-312	1.07	11.81	6.00	210	170.00		7.92		11.13
T042-300-312		11.79	7.00	300	169.00				15.11
T045-120-312		12.04	5.00	120	229.00				7.62
T045-210-312	1.14	11.96	6.00	210	224.00				11.91
T045-300-312		11.94	7.00	300	221.00				16.21
T049-120-375		14.20	5.00	120	277.00				8.31
T049-210-375	1.24	14.12	6.00	210	266.00				12.98
T049-300-375		14.17	7.00	300	287.00				16.38
T055-120-375		14.33	5.00	120	357.00				10.72
T055-210-375	1.40	14.33	6.00	210	374.00	25.40	9.53	50.80	15.95
T055-300-375		14.33	7.00	300	382.00				21.18
T059-120-375		14.53	5.00	120	469.00				11.51
T059-210-375	1.50	14.45	6.00	210	444.00				18.62
T059-300-375		14.48	7.00	300	465.00				24.23
T063-120-375		14.61	5.00	120	513.00				13.87
T063-210-375	1.60	14.68	6.00	210	572.00				19.86
T063-300-375		14.66	7.00	300	561.00				27.48
T072-120-500		19.02	5.00	120	803.00				14.02
T072-210-500	1.83	19.05	6.00	210	835.00				20.88
T072-300-500		19.05	7.00	300	849.00		12.70		27.74
T081-120-500		19.33	5.00	120	1060.00				17.83
T081-210-500	2.06	19.41	6.00	210	1182.00				25.55
T081-300-500		19.38	7.00	300	1156.00	31.75		63.50	35.33
T085-120-625		23.52	5.00	120	1254.00				16.56
T085-210-625	2.16	23.55	6.00	210	1306.00				24.66
T085-300-625		23.55	7.00	300	1328.00				32.74
T092-120-625		23.88	5.00	120	1687.00				17.93
T092-210-625	2.34	23.77	6.00	210	1593.00		15.88		29.03
T092-300-625		23.83	7.00	300	1670.00	38.10		76.20	37.80
T096-120-625		24.10	5.00	120	1990.00				18.69
T096-210-625	2.44	23.98	6.00	210	1880.00				30.28
T096-300-625		23.95	7.00	300	1839.00				41.86
T105-120-750		28.37	5.00	120	2403.00				20.45
T105-210-750	2.67	28.40	6.00	210	2511.00	44.45		88.90	30.45
T105-300-750		28.30	7.00	300	2375.00				43.13
T112-120-750		28.75	5.00	120	3058.00				21.82
T112-210-750	2.84	28.60	6.00	210	2899.00				35.33
T112-300-750		28.65	7.00	300	3042.00		19.05		46.00
T125-120-750		29.16	5.00	120	3979.00				27.53
T125-210-750	3.18	29.16	6.00	210	4050.00	50.80		101.60	42.62
T125-300-750		29.08	7.00	300	3841.00				60.86
T135-120-750		29.51	5.00	120	4656.00				33.15
T135-210-750	3.43	29.46	6.00	210	4639.00				52.88
T135-300-750		29.51	7.00	300	4887.00				69.16

