



Metric Unit Supplement to Design Guide

VulcanSpring.com

Conforce® Spring Design Chart - Metric

AISI TYPE 301 STAINLESS STEEL

GUIDE H SPRING LIFE 4,000 CYCLES

b →		D 6.4	E 7.9	F 9.5	G 12.7	J 15.9	K 19.1	P 25.4	R 31.8	S 38.1	U 50.8	V 76.2	W 101.6
t	ID	P (Force)											
.05	3.3	1.73	2.18	2.58	3.43								
.08	5.1	2.58	3.20	3.83	5.12	6.41							
.10	6.9	3.43	4.27	5.12	6.85	8.54	10.23						
.13	8.6	4.27	5.34	6.41	8.54	10.68	12.81	17.08					
.15	10.4	5.12	6.41	7.70	10.23	12.81	15.35	20.51	25.62				
.20	13.7	6.85	8.54	10.28	13.66	17.08	20.51	27.31	34.16	41.01			
.25	17.3	8.54	10.68	12.81	17.08	21.35	25.62	34.16	42.66	51.15	68.50		
.30	20.6		12.81	15.35	20.51	25.62	30.74	40.97	51.15	61.39	81.85	116.5	
.36	24.1			17.93	23.89	29.89	35.85	48.04	59.61	71.62	95.64	136.1	172.1
.41	27.4				27.31	34.16	40.97	54.71	68.50	81.85	109.4	155.7	196.6
.46	31.0					38.39	46.26	61.39	76.95	92.08	122.8	175.3	221.1
.51	34.3						51.15	68.50	85.41	102.3	136.6	194.8	246.0
.56	37.8							75.17	93.86	112.5	150.3	214.0	270.5
.64	42.9								106.8	128.1	170.8	243.3	307.4
.79	53.1									158.8	211.7	301.6	381.2

GUIDE J SPRING LIFE 8,000 CYCLES

b →		D 6.4	E 7.9	F 9.5	G 12.7	J 15.9	K 19.1	P 25.4	R 31.8	S 38.1	U 50.8	V 76.2	W 101.6
t	ID	P (Force)											
.05	4.6	1.29	1.60	1.91	2.54	3.16							
.08	6.6	1.91	2.36	2.85	3.83	4.76							
.10	8.9	2.54	3.16	3.83	5.07	6.36	7.61						
.13	11.2	3.20	3.96	4.76	6.36	7.96	9.56	12.72					
.15	13.5	3.83	4.76	5.69	7.61	9.52	11.43	15.21	19.04				
.20	17.8	5.07	6.36	7.61	10.14	12.68	15.21	20.28	25.35	30.43			
.25	22.4	6.32	7.92	9.52	12.68	15.84	19.04	25.35	31.72	38.03	50.71		
.30	26.7	7.61	9.52	11.43	15.21	19.04	22.82	30.43	38.03	45.82	60.94	91.19	
.36	31.2			13.30	17.75	22.20	26.64	35.50	44.39	53.38	71.17	106.3	134.8
.41	35.6				20.28	25.35	30.43	40.57	50.71	60.94	80.96	121.9	154.4
.46	40.1					28.51	34.25	45.82	56.94	68.50	91.63	137.0	173.5
.51	44.5						38.03	50.71	63.61	76.06	101.4	152.1	192.6
.56	49.0							55.60	69.84	83.63	111.7	167.3	212.2
.64	55.6								79.18	95.19	126.8	190.4	241.1
.79	68.8									117.9	157.0	235.8	298.5

GUIDE K SPRING LIFE 12,000 CYCLES

b →		D 6.4	E 7.9	F 9.5	G 12.7	J 15.9	K 19.1	P 25.4	R 31.8	S 38.1	U 50.8	V 76.2	W 101.6
t	ID	P (Force)											
.05	5.3	.98	1.20	1.42	1.91	2.40							
.08	7.9	1.42	1.78	2.14	2.89	3.60							
.10	10.4	1.91	2.40	2.89	3.83	4.80	5.74						
.13	13.0	2.40	3.02	3.60	4.80	6.01	7.21	9.56					
.15	15.7	2.89	3.60	4.31	5.74	7.16	8.63	11.48	14.37				
.20	20.8	3.83	4.80	5.74	7.65	9.56	11.48	15.30	19.13	22.95			
.25	26.2	4.80	5.96	7.16	9.56	11.97	14.37	19.13	23.93	28.69	38.25		
.30	31.2	5.74	7.16	8.63	11.48	14.37	17.21	22.95	28.69	34.43	45.82	68.95	
.36	36.6			10.05	13.39	16.73	20.11	26.78	33.50	40.17	53.38	80.51	107.2
.41	41.7				15.30	19.13	22.95	30.60	38.25	45.82	61.39	91.63	122.3
.46	47.0					21.53	25.84	34.43	43.06	51.60	68.95	103.2	137.9
.51	52.1						28.69	38.25	48.04	57.38	76.51	114.8	153.0
.56	57.4							42.08	52.49	63.16	84.07	126.3	168.1
.64	65.0								59.61	71.62	95.64	143.7	191.3
.79	80.8									88.96	118.8	177.9	237.1

Variables:

t = material thickness (millimeters)

b = material width (millimeters)

P = force (newtons)

ID = inside coil diameter (millimeters)

GUIDE L
SPRING LIFE
25,000 CYCLES

b →		D 6.4	E 7.9	F 9.5	G 12.7	J 15.9	K 19.1	P 25.4	R 31.8	S 38.1	U 50.8	V 76.2	W 101.6
t	ID	P (Force)											
.05	7.1	.58	.71	.85	1.16	1.42							
.08	10.4	.85	1.07	1.29	1.69	2.14							
.10	14.0	1.16	1.42	1.69	2.27	2.85	3.43						
.13	17.5	1.42	1.78	2.14	2.85	3.56	4.27	5.69					
.15	21.1	1.69	2.14	2.54	3.43	4.27	5.12	6.81	8.50				
.20	27.9	2.27	2.85	3.43	4.54	5.69	6.81	9.07	11.34	13.61			
.25	35.1	2.85	3.56	4.27	5.69	7.12	8.54	11.39	14.23	17.08	22.77		
.30	41.9	3.43	4.27	5.12	6.81	8.50	10.23	13.61	17.04	20.42	27.22	40.83	
.36	49.0			5.96	7.96	9.96	11.97	15.92	19.93	23.89	31.85	47.60	63.61
.41	55.9				9.07	11.34	13.61	18.15	22.69	27.22	36.30	54.27	72.51
.46	63.0					12.77	15.30	20.42	25.53	30.65	40.83	61.39	81.85
.51	69.9						17.04	22.69	28.38	34.03	45.37	68.06	90.74
.56	77.0							24.91	31.18	37.45	49.82	74.73	99.64
.64	87.4								35.45	42.52	56.94	84.96	113.4
.79	108.2									52.93	70.28	105.4	140.6

GUIDE M
SPRING LIFE
50,000 CYCLES

b →		D 6.4	E 7.9	F 9.5	G 12.7	J 15.9	K 19.1	P 25.4	R 31.8	S 38.1	U 50.8	V 76.2	W 101.6
t	ID	P (Force)											
.05	9.4	.31	.40	.49	.67	.80							
.08	14.2	.49	.62	.71	.98	1.20							
.10	19.1	.67	.80	.98	1.29	1.60	1.96						
.13	23.6	.80	1.02	1.20	1.60	2.00	2.49	3.25					
.15	28.4	.98	1.20	1.47	1.96	2.40	2.89	3.87	4.85				
.20	37.8	1.29	1.60	1.96	2.58	3.20	3.87	5.16	6.45	7.74			
.25	47.2	1.60	2.00	2.40	3.25	4.05	4.85	6.45	8.05	9.70	12.90		
.30	56.9	1.96	2.40	2.89	3.87	4.85	5.83	7.74	9.70	11.61	15.48	23.22	
.36	66.3			3.43	4.54	5.69	6.81	9.07	11.34	13.61	18.15	27.22	36.30
.41	75.7				5.16	6.45	7.74	10.32	12.90	15.48	20.64	30.96	41.28
.46	85.1					7.25	8.72	11.61	14.50	17.44	23.22	34.83	46.26
.51	94.7						9.70	12.90	16.15	19.35	25.80	38.70	51.60
.56	104.1							14.19	17.75	21.31	28.38	42.57	56.94
.64	118.4								20.15	24.20	32.25	48.49	64.50
.79	146.6									30.03	39.99	60.05	80.07

GUIDE N
SPRING LIFE
100,000 CYCLES

b →		D 6.4	E 7.9	F 9.5	G 12.7	J 15.9	K 19.1	P 25.4	R 31.8	S 38.1	U 50.8	V 76.2	W 101.6
t	ID	P (Force)											
.05	11.2	.22	.31	.36	.49	.58							
.08	16.8	.36	.44	.53	.71	.89							
.10	22.6	.49	.58	.71	.93	1.16	1.42						
.13	28.2	.58	.71	.89	1.16	1.47	1.78	2.36					
.15	33.8	.71	.89	1.07	1.42	1.73	2.09	2.80	3.51				
.20	45.0	.93	1.16	1.42	1.87	2.36	2.80	3.74	4.89	5.60			
.25	56.1	1.16	1.47	1.73	2.36	2.94	3.51	4.67	5.83	7.03	9.34		
.30	67.6	1.42	1.73	2.09	2.80	3.51	4.23	5.60	7.03	8.41	11.21	16.81	
.36	78.7			2.45	3.29	4.09	4.89	6.54	8.18	9.79	13.08	19.62	26.16
.41	89.9				3.74	4.67	5.60	7.47	9.34	11.21	14.95	22.42	29.89
.46	101.1					5.25	6.32	8.41	10.50	12.63	16.81	25.27	33.63
.51	112.5						7.03	9.34	11.70	14.06	18.68	28.11	37.37
.56	123.7							10.28	12.86	15.44	20.55	30.87	41.10
.64	140.5								14.59	17.53	23.35	35.05	46.71
.79	174.2									21.75	28.96	43.46	57.83

Variables:

t = material thickness (millimeters)

b = material width (millimeters)

P = force (newtons)

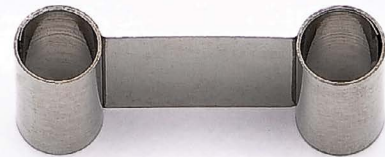
ID = inside coil diameter (millimeters)

Conforce Motor Brush and Twin Springs - Metric

CONFORCE CHART B - METRIC

3,000 CYCLES | SINGLE COIL

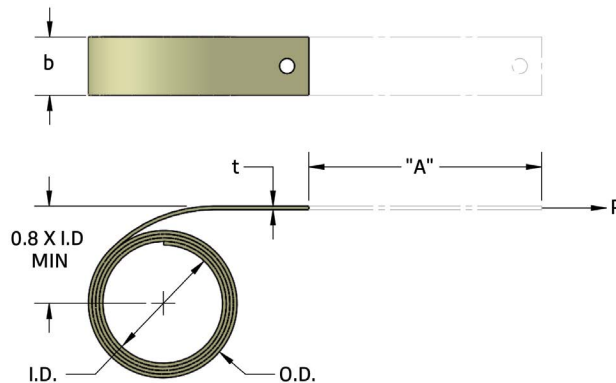
b →	B	C	D	E	F	G	J	K	
	3.2	4.8	6.4	7.9	9.5	12.7	15.9	19.1	
t	ID	P (Force)							
.03	1.5	.49	.71	.93	Reference Only				
.04	2.3	.71	1.07	1.42	Reference Only				
.05	3.0	.93	1.42	1.91	2.36	2.85			
.06	4.1	1.20	1.78	2.36	2.98	3.56			
.08	4.8	1.42	2.14	2.85	3.56	4.27	5.69		
.09	5.6	1.65	2.49	3.34	4.14	4.98	6.63		
.10	6.4	1.91	2.85	3.83	4.76	5.69	7.61	9.52	
.11	7.1	2.14	3.20	4.27	5.34	6.41	8.54	10.68	
.13	8.1	2.40	3.56	4.76	5.92	7.12	9.47	11.83	
.14	8.9		3.91	5.20	6.54	7.83	10.41	13.03	
.15	9.7			5.69	7.12	8.54	11.39	14.23	
.20	13.0			7.61	9.47	11.39	15.17	18.95	
.25	16.3			9.47	11.83	14.23	18.95	23.71	
.30	19.6			11.39	14.23	17.08	22.77	28.42	



CONFORCE CHART T - METRIC

3,000 CYCLES | TWIN COIL

b →	A	B	C	D	E	F	G
	1.6	3.2	4.8	6.4	7.9	9.5	12.7
t	ID	P (Force)					
.03	1.52	.49	.93	1.42	1.91	Reference Only	
.04	2.29	.71	1.42	2.14	2.85	Reference Only	
.05	3.05	.93	1.91	2.85	3.78	4.76	5.69
.06	4.06	1.20	2.36	3.56	4.76	5.92	7.12
.08	4.83		2.85	4.27	5.69	7.12	8.54
.09	5.59		3.34	4.98	6.63	8.27	9.96
.10	6.35			5.69	7.61	9.47	11.39
.11	7.11			6.41	8.54	10.68	12.81
.13	8.13				9.47	11.83	14.23
.14	8.89				10.41	13.03	15.66
.15	9.65				11.39	14.23	17.08
.20	12.95				15.17	18.95	22.77



Contorque® Spring Design Guide - Metric

AISI TYPE 301 STAINLESS STEEL

GUIDE V SPRING LIFE 4,000 CYCLES

b →				C 4.8	D 6.4	E 7.9	F 9.5	G 12.7	J 15.9	K 19.1	P 25.4	R 31.8	S 38.1	U 50.8
t	ID	Ds	Do	T (Torque)										
.05	5.1	5.8	10.4	.007	.009	.011	.015	.019						
.08	7.6	8.9	15.5	.016	.021	.026	.032	.043	.053					
.10	10.4	11.9	20.6	.028	.037	.047	.056	.076	.094	.113				
.13	13.0	14.7	25.7	.044	.059	.073	.088	.118	.147	.176	.235			
.15	15.5	17.8	31.0		.085	.106	.128	.169	.212	.254	.338	.424		
.20	20.6	23.6	41.1			.188	.226	.301	.376	.452	.602	.752	.904	
.25	25.7	29.7	51.3				.354	.471	.589	.706	.941	1.175	1.412	1.887
.30	31.0	35.6	61.7					.678	.847	1.017	1.356	1.695	2.034	2.712
.36	36.1	41.4	72.1						1.152	1.390	1.842	2.305	2.768	3.695
.41	41.1	47.2	82.3							1.808	2.407	3.017	3.616	4.824
.46	46.2	53.3	92.7								3.051	3.819	4.576	6.101
.51	51.6	59.2	102.9								3.762	4.711	5.649	7.536
.56	56.6	65.0	113.3									5.694	6.836	9.118
.64	64.3	73.9	128.8									7.355	8.824	11.75
.79	79.8	91.7	159.5										13.56	18.08

GUIDE W SPRING LIFE 8,000 CYCLES

b →				C 4.8	D 6.4	E 7.9	F 9.5	G 12.7	J 15.9	K 19.1	P 25.4	R 31.8	S 38.1	U 50.8
t	ID	Ds	Do	T (Torque)										
.05	6.6	7.6	13.2	.006	.008	.010	.012	.016						
.08	9.9	11.4	20.1	.014	.018	.023	.027	.036	.045					
.10	13.2	15.2	26.7	.024	.032	.040	.047	.064	.080	.096				
.13	16.8	19.1	33.3	.037	.050	.062	.075	.099	.124	.150	.200			
.15	20.1	22.9	39.9	.000	.072	.089	.107	.143	.180	.216	.287	.359		
.20	26.7	30.7	53.3			.159	.192	.255	.319	.383	.511	.638	.766	
.25	33.3	38.4	66.5				.299	.399	.499	.599	.799	.998	1.198	1.593
.30	39.9	46.0	79.8					.575	.719	.862	1.152	1.435	1.729	2.305
.36	46.5	53.6	93.2						.977	1.175	1.559	1.955	2.350	3.130
.41	53.3	61.2	106.4							1.537	2.045	2.553	3.062	4.090
.46	59.9	68.8	119.9								2.587	3.231	3.875	5.175
.51	66.5	76.5	133.1								3.197	3.988	4.791	6.384
.56	73.2	84.1	146.3									4.824	5.796	7.728
.64	83.3	95.8	166.4									6.237	7.491	9.977
.79	103.1	118.6	206.2										11.52	15.37

GUIDE X SPRING LIFE 12,000 CYCLES

b →				C 4.8	D 6.4	E 7.9	F 9.5	G 12.7	J 15.9	K 19.1	P 25.4	R 31.8	S 38.1	U 50.8
t	ID	Ds	Do	T (Torque)										
.05	7.9	8.9	15.7	.006	.007	.009	.010	.015						
.08	11.7	13.5	23.4	.012	.016	.020	.024	.032	.041					
.10	15.7	18.0	31.2	.021	.028	.036	.043	.058	.071	.086				
.13	19.6	22.4	39.1	.034	.045	.055	.067	.089	.112	.134	.179			
.15	23.4	26.9	47.0		.064	.080	.096	.129	.160	.192	.258	.321		
.20	31.2	36.1	62.5			.142	.172	.228	.286	.342	.456	.572	.685	
.25	39.1	45.0	78.2				.268	.357	.446	.536	.714	.893	1.071	1.424
.30	47.0	53.8	93.7					.514	.643	.771	1.028	1.288	1.548	2.056
.36	54.6	63.0	109.5						.875	1.050	1.401	1.751	2.102	2.802
.41	62.5	71.9	125.0							1.367	1.830	2.282	2.746	3.661
.46	70.4	80.8	140.7								2.316	2.892	3.469	4.632
.51	78.2	89.9	156.2								2.859	3.570	4.282	5.717
.56	85.9	98.8	172.0									4.316	5.186	6.915
.64	97.8	112.3	195.3									5.581	6.700	8.926
.79	121.2	139.2	242.3										10.29	13.67

Variables:

t = material thickness (millimeters)

b = material width (millimeters)

T = torque (newton-meters)

Do = output drum diameter (millimeters)

Ds = storage drum diameter (millimeters)

ID = inside coil diameter (millimeters)

GUIDE Y
SPRING LIFE
25,000 CYCLES

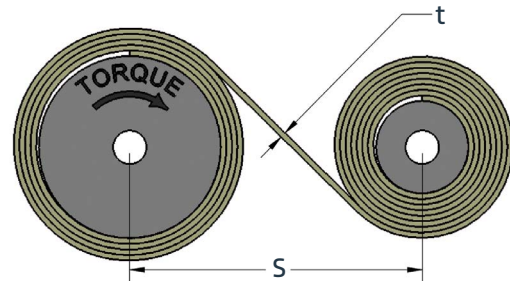
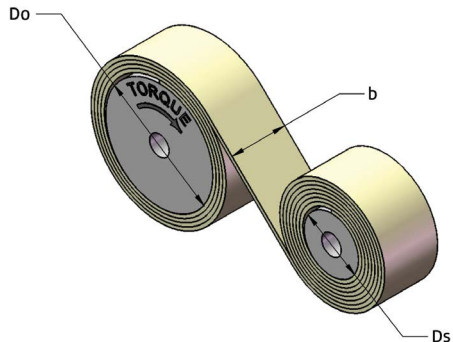
b →				C 4.8	D 6.4	E 7.9	F 9.5	G 12.7	J 15.9	K 19.1	P 25.4	R 31.8	S 38.1	U 50.8
t	ID	Ds	Do	T (Torque)										
.05	10.4	11.9	20.8	.005	.006	.007	.008	.011						
.08	15.7	18.0	31.2	.009	.012	.015	.018	.025	.031					
.10	20.8	24.1	41.7	.016	.021	.027	.033	.043	.054	.064				
.13	26.2	30.0	52.1	.025	.034	.042	.051	.068	.085	.102	.136			
.15	31.2	36.1	62.7		.049	.061	.073	.097	.122	.146	.194	.243		
.20	41.7	48.0	83.6			.108	.130	.173	.216	.259	.346	.432	.520	
.25	52.1	59.9	104.4				.203	.270	.338	.406	.540	.676	.811	1.081
.30	62.7	72.1	125.2					.389	.486	.584	.777	.973	1.164	1.559
.36	73.2	84.1	146.1						.662	.794	1.059	1.322	1.593	2.124
.41	83.6	96.0	167.1							1.038	1.378	1.729	2.079	2.768
.46	94.0	108.0	188.0								1.751	2.192	2.633	3.503
.51	104.4	120.1	208.8								2.158	2.700	3.243	4.327
.56	114.8	132.1	229.6									3.265	3.932	5.231
.64	130.6	150.1	261.6									4.226	5.073	6.756
.79	161.8	186.2	322.6										7.796	10.39

GUIDE Z
SPRING LIFE
50,000 CYCLES

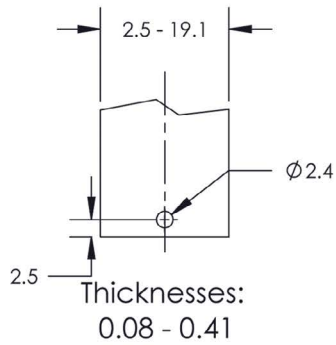
b →				C 4.8	D 6.4	E 7.9	F 9.5	G 12.7	J 15.9	K 19.1	P 25.4	R 31.8	S 38.1	U 50.8
t	ID	Ds	Do	T (Torque)										
.05	14.2	16.3	28.4	.003	.005	.006	.007	.008						
.08	21.3	24.6	42.7	.007	.009	.011	.015	.019	.024					
.10	28.4	32.8	56.9	.012	.017	.021	.025	.034	.042	.051				
.13	35.6	40.9	71.1	.019	.026	.033	.040	.053	.066	.079	.105			
.15	42.7	49.0	85.3		.037	.047	.056	.076	.095	.113	.151	.189		
.20	56.9	65.5	114.0			.084	.101	.134	.168	.201	.269	.337	.403	
.25	71.1	81.8	142.5				.158	.210	.263	.315	.420	.525	.630	.841
.30	85.3	98.3	170.9					.302	.378	.454	.604	.757	.908	1.209
.36	99.8	114.6	199.4						.515	.618	.824	1.029	1.232	1.650
.41	114.0	131.1	227.8							.807	1.076	1.345	1.616	2.147
.46	128.3	147.3	256.5								1.367	1.706	2.045	2.723
.51	142.5	163.8	284.5								1.683	2.102	2.520	3.367
.56	156.7	180.1	312.4									2.542	3.051	4.067
.64	178.1	204.7	355.6									3.288	3.943	5.254
.79	220.7	254.0	442.0										6.056	8.078

Variables:
t = material thickness (millimeters)
b = material width (millimeters)
T = torque (newton-meters)

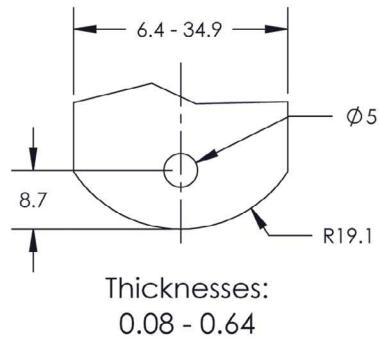
Do = output drum diameter (millimeters)
Ds = storage drum diameter (millimeters)
ID = inside coil diameter (millimeters)



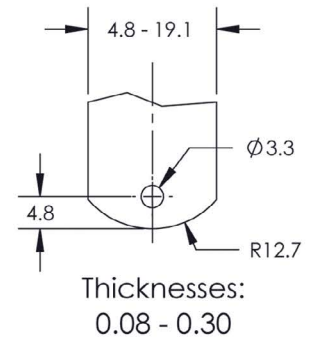
Commonly Used End Details - Metric



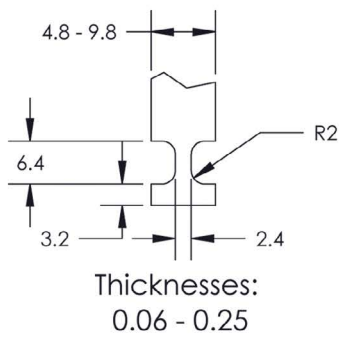
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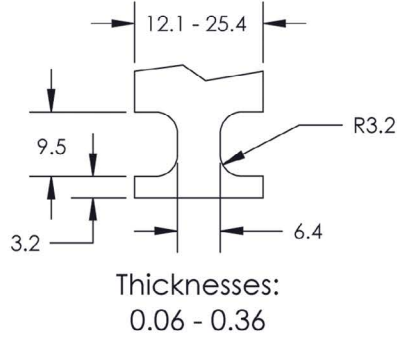
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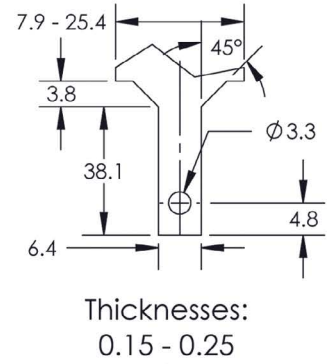
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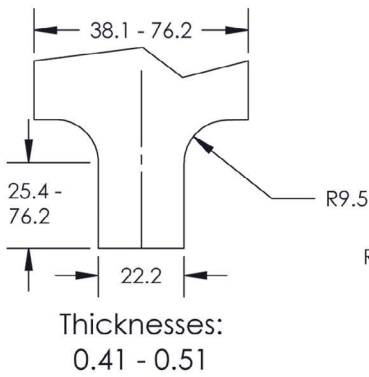
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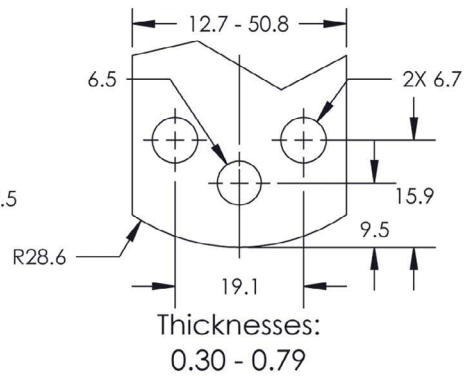
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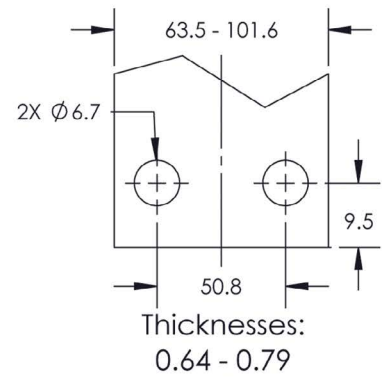
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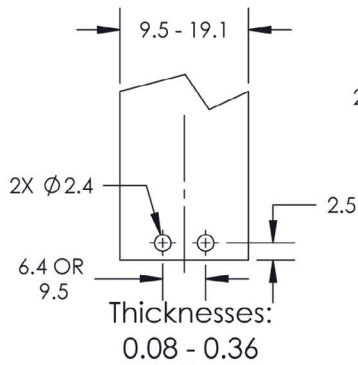
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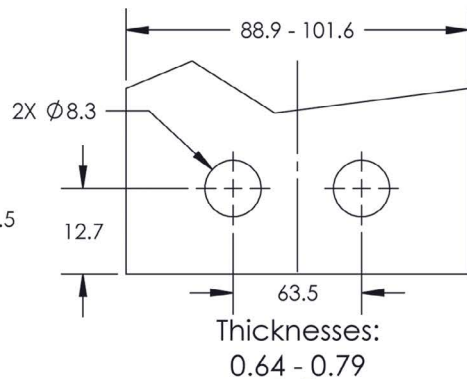
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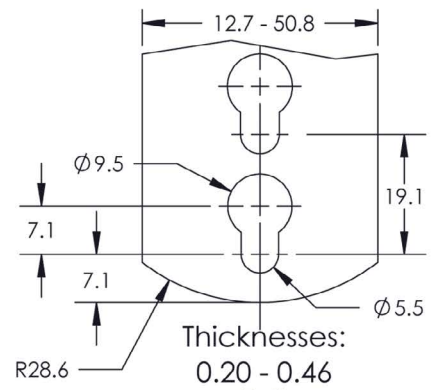
9



10



11



12

About Vulcan Spring

Vulcan Spring is the preferred global supplier of mass-produced spring solutions, headquartered in Telford, Pennsylvania. With innovative machinery, tooling, and engineers, we can deliver a spring solution for even the most challenging applications. For industrial or POP displays and beyond, we're equipped for the timely production of millions of high-quality springs, all while promising to make your experience from concept to production as easy as possible.

Contact us with questions or for help with a custom need.

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