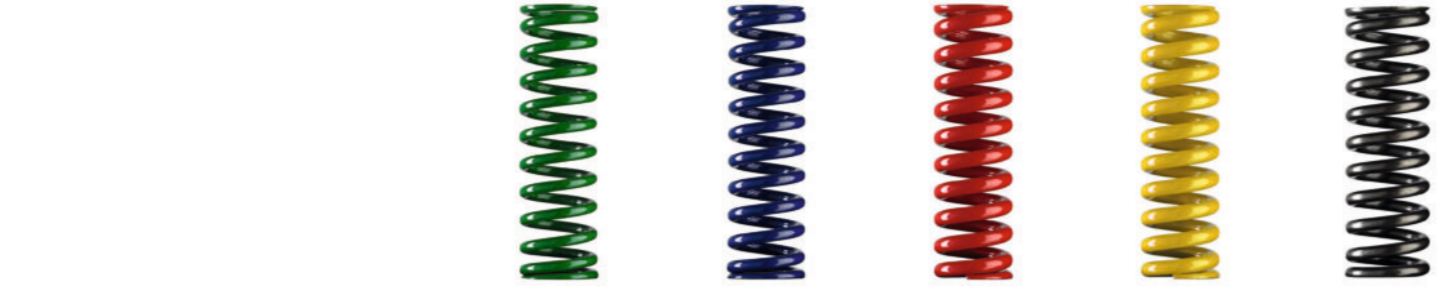


COIL SPRINGS ACC. TO ISO 10243

COIL SPRINGS ACC. TO JIS-STANDARDS



Rectangular Wire	ISWLG	ISWG	ISWB	ISWR	ISWY	ISWS
	Extra Light	Light	Medium	Strong	Extra Strong	Ultra Strong
	Max. Defl. 50% L0	Max. Defl. 40% L0	Max. Defl. 37.5% L0	Max. Defl. 30% L0	Max. Defl. 25% L0	Max. Defl. 15% L0

Round Wire	ISWTG	ISWTB	ISWTR	ISWTY	ISWL
	Light	Medium	Strong	Extra Strong	
	Max. Defl. 40% L0	Max. Defl. 37.5% L0	Max. Defl. 30% L0	Max. Defl. 25% L0	Max. Defl. 32% L0

Product Name	Coil Springs - Round Wire - Inner Diameter Standard Type		Coil Springs - Rectangular Wire			
	WY	WR	SWW	SWL	SWZ	SWX

DH	Dd	L0	R ± 10%	R ± 10%	R ± 10%	R ± 10%	R ± 10%
mm	mm	mm	N/mm	N/mm	N/mm	N/mm	N/mm

DH	Dd	L0	R ± 10%	R ± 10%	R ± 10%	R ± 10%
mm	mm	mm	N/mm	N/mm	N/mm	N/mm

SWC	SWF	SWL	SWM	SWH	SWB	SWG	SWZ	SWV	SWX
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

10	5	25	8.5	11	16	23	36.8	167
		32	6.5	8.5	13	17.5	27.9	130
		38	5.5	6.8	11.9	14.8	23.7	105
		44	4.8	6	10.3	13	19.2	86
		51	4.2	5	8.9	11.2	16.5	79
		64	3.3	4.1	7.5	9.2	13.2	62
		76	2.7	3.6	6.2	7.5	10.9	51
		115	-	-	-	4.8	-	-
		305	0.7	0.9	1.6	1.9	2.6	11.5

10	5	25	4.4	12.3	20.7	-	-	-
		32	3.4	9.5	16.1	-	-	-
		38	2.8	7.8	13.0	-	-	-
		44	2.4	6.5	10.9	-	-	-
		51	2.1	5.6	9.6	-	-	-
		64	1.6	4.5	7.7	-	-	-
		76	1.3	3.7	6.3	-	-	-
		115	-	-	-	-	-	-
		305	0.3	0.9	1.5	-	-	-

10	5	25	8.5	11	16	23	36.8	167
		32	6.5	8.5	13	17.5	27.9	130
		38	5.5	6.8	11.9	14.8	23.7	105
		44	4.8	6	10.3	13	19.2	86
		51	4.2	5	8.9	11.2	16.5	79
		64	3.3	4.1	7.5	9.2	13.2	62
		76	2.7	3.6	6.2	7.5	10.9	51
		115	-	-	-	4.8	-	-
		305	0.7	0.9	1.6	1.9	2.6	11.5

12.5	6.3	25	16	21	30	42.1	58.5	288
		32	12.2	16.4	24.8	33.2	43.9	216
		38	10.3	13.6	21.4	29.3	36	176
		44	8.7	12.1	18	24.6	30.3	149
		51	7.5	10.3	15.5	19.6	26.2	128
		64	5.8	7.6	12.1	15	21.2	100
		76	4.7	6.3	10.2	13.2	17.1	84
		89	4.1	5.4	8.4	11.4	14.5	71
		102	3.6	4.1	6.3	8.4	12.7	61
305	1.3	1.6	2.4	3.2	4.3	22		

12.5	6.3	25	4.4	12.3	20.7	-	-	-
		32	3.4	9.5	16.1	-	-	-
		38	2.8	7.8	13.0	-	-	-
		44	2.4	6.5	10.9	-	-	-
		51	2.1	5.6	9.6	-	-	-
		64	1.6	4.5	7.7	-	-	-
		76	1.3	3.7	6.3	-	-	-
		115	-	-	-	-	-	-
		305	0.6	1.5	2.7	-	-	-

12.5	6.3	25	16	21	30	42.1	58.5	288
		32	12.2	16.4	24.8	33.2	43.9	216
		38	10.3	13.6	21.4	29.3	36	176
		44	8.7	12.1	18	24.6	30.3	149
		51	7.5	10.3	15.5	19.6	26.2	128
		64	5.8	7.6	12.1	15	21.2	100
		76	4.7	6.3	10.2	13.2	17.1	84
		89	4.1	5.4	8.4	11.4	14.5	71
		102	3.6	4.1	6.3	8.4	12.7	61
305	1.3	1.6	2.4	3.2	4.3	22		

16	8	25	20.2	29	49.4	75.7	118	-
		32	16	22.9	38.5	60.2	89	449
		38	12.3	19.3	33.9	50.8	72.1	363
		44	10.6	17.1	30	42.8	60.9	309
		51	8.9	14	26.4	37.1	52.3	256
		64	7	10.7	20.5	30.3	41.2	203
		76	5.8	9	17.8	25.7	34.1	166
		89	4.8	7.3	15.2	21.7	29.5	139
		102	4.1	6.8	13.5	18.9	25.6	114
115	3.9	6.6	11.8	15.7	22.4	105		
127	-	-	-	-	-	94		
152	-	-	-	-	-	78		
305	1.5	2.3	4.3	6.3	8.4	38.8		

16	8	25	17.9	31.9	81.6	-	-	-
		32	13.5	24.0	61.3	-	-	-
		38	10.5	19.4	49.9	-	-	-
		44	8.8	16.1	40.8	-	-	-
		51	7.6	13.8	35.6	-	-	-
		64	5.9	10.7	27.8	-	-	-
		76	4.8	8.8	22.8	-	-	-
		89	4.0	7.5	19.6	-	-	-
		102	3.5	6.5	17.0	-	-	-
305	1.1	2.1	5.4	-	-	-		

16	8	25	20.2	29	49.4	75.7	118	-
		32	16	22.9	38.5	60.2	89	449
		38	12.3	19.3	33.9	50.8	72.1	363
		44	10.6	17.1	30	42.8	60.9	309
		51	8.9	14	26.4	37.1	52.3	256
		64	7	10.7	20.5	30.3	41.2	203
		76	5.8	9	17.8	25.7	34.1	166
		89	4.8	7.3	15.2	21.7	29.5	139
		102	4.1	6.8	13.5	18.9	25.6	114
115	3.9	6.6	11.8	15.7	22.4	105		
127	-	-	-	-	-	94		
152	-	-	-	-	-	78		
305	1.5	2.3	4.3	6.3	8.4	38.8		

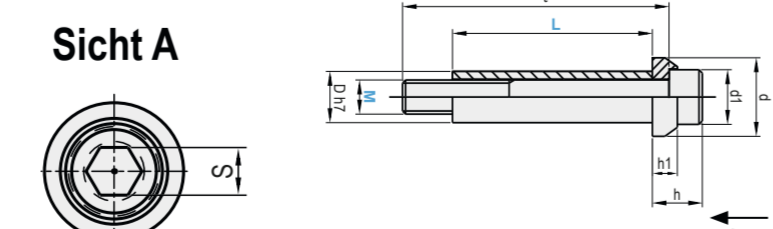
20	10	25	29.4	55.8	98	216	293	-
		32	22.6	45	72.6	168	224	-
		38	18.6	36	56	129	177	-
		44	15.7	30	47.5	112	149	452
		51	13.7	24.5	41.7	94	128	378
		64	11.3	19.2	32.3	72.1	99	301
		76	9.8	16	25.1	59.7	81.7	247
		89	8.3	14	22	50.5	69.5	208
		102	7.4	12	19.8	44.2	60.6	188
115	6.4	10.9	18.1	38.4	53	159		
127	5.9	9.5	16.6	34.1	47.5	146		
139	5.4	8.4	15.1	31	43	-		
152	4.9	7.5	13.2	28.2	39	120		
178	-	7.1	-	-	-	-		
305	2.5	4	6.1	14	20	60		

Spacer/Spring Unit

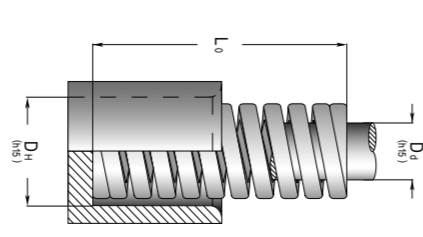


d	d1	h	h1	ℓ	S	D	Catalog-No.		L
							Type	M	
15	10	10	5.5	35	5	10	M6		20
				25					
				30					
				35					
				40					
				45					
				50					
				55					
				60					
				65					
				70					
				80					
				90					
19	13	13	6.5	45	6	12.5	M8		30
				35					
				40					
				45					
				50					
				55					
				60					
				65					
				70					
				80					
				90					
				100					
				110					
23	16	15	7.5	55	8	15	SVC	M10	50
				60					
				65					
				70					
				75					
				80					
				90					
				100					
				110					
				120					
				130					
				140					
				150					
27	18	18	9	65	10	17.5	M12		70
				80					
				90					
				100					
				110					
				120					
				130					
				140					
				150					
				160					
				170					
				180					
				190					
34	24	24	11	70	14	23	M16		80
				80					
				90					
				100					
				110					
				120					
				130					
				140					
				150					
				160					
				170					
				180					
				190					

Screw Tightening Torque for Steel 12.9 / [Nm]				Order Example	
M6	M8	M12	M16	Catalog-No.	L
13	32	65	290	SVCM10	80
				SVCM16	150



Order Example ISWG10-25		D _h	Hole diameter
		D _r	Rod diameter
		L ₀	Spring free length
Series	(D _h)	(L ₀)	
ISWG	10	25	
		R	Max. Defl.
			Spring rate (N) - load required for 1mm deflection



Type	Catalog-No.	Size	Full Length		Maximum Deflection	Load N(kgf)			
			Min.	Max.		Min.	Max.		
Coil Springs - Round Wire	WY	Ø 3	Ø 16	5	70	75 % (10 million shots)	0.38 (0.04)	10.3 (1.05)	
	WR	Ø 3	Ø 27	5	90	60 % (10 million shots)	0.9 (0.09)	23.5 (2.4)	
	WF	Ø 3	Ø 27	5	90	45 % (10 million shots)	1.1 (0.11)	35.3 (3.6)	
	WL	Ø 2	Ø 27	5	100	40 % (10 million shots)	0.98 (0.1)	117.7 (12.0)	
	WT	Ø 3	Ø 27	5	80	40 % (10 million shots)	2.9 (0.3)	125.5 (12.8)	
	WM	Ø 3	Ø 27	5	100	35 % (10 million shots)	3.4 (0.4)	171.6 (17.5)	
	WH	Ø 4	Ø 27	5	100	30 % (10 million shots)	4.9 (0.5)	441.3 (45.0)	
	WB	Ø 3	Ø 27	5	100	25 % (10 million shots)	4.9 (0.5)	735.5 (75.0)	
	NWL	Ø 5.5 (In. Ø)	Ø 16.6 (In. Ø)	30	60	40 % (10 million shots)	13.7 (1.4)	27.5 (2.8)	
	NWM	Ø 5.5 (In. Ø)	Ø 16.6 (In. Ø)	30	60	32 % (10 million shots)	20.6 (2.1)	34.3 (3.5)	
	WP	Ø 11.5	Ø 17	100	500	70 % (10 million shots)	21.3 (2.2)	34.3 (3.5)	
	Coil Springs - Rectangular Wire	SWY	Ø 11	Ø 42	20	300	65 % (10 million shots)	29.4 (3.0)	392.3 (40.0)
		SWU	Ø 10.5	Ø 43	15	300	70 % (3 million shots)	31.4 (3.2)	425.6 (43.4)
60 % (10 million shots)							68.6 (7.0)	588.4 (60.0)	
SWR		Ø 10.5	Ø 50	15	400	65 % (3 million shots)	73.9 (7.5)	637.4 (65.0)	
						50 % (10 million shots)	78.5 (8.0)	1323.9 (135.0)	
SWS		Ø 10.5	Ø 52	20	300	55 % (3 million shots)	87.2 (8.8)	1456.3 (148.5)	
						40 % (10 million shots)	87.2 (8.9)	1569.0 (160.0)	
SWC</									