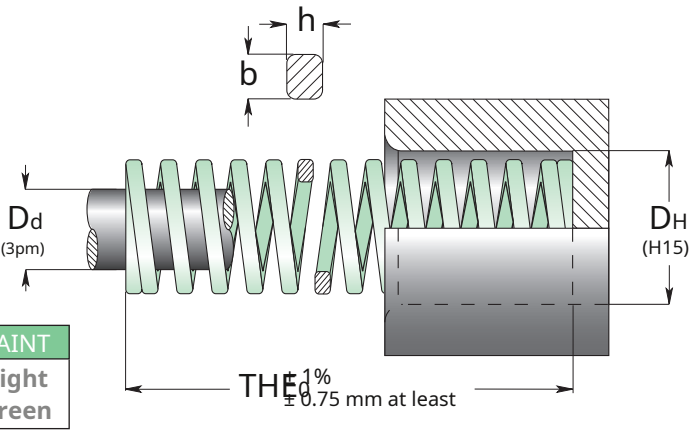
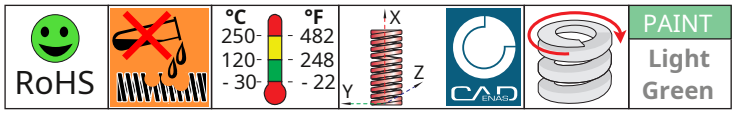
VL SERIES

Special Springs Standard
Rectangular Wire

IT Extra-light load springs Extra-
EN light load springs Federn für
FRON leichte Spannung Ressorts
FR charge extra-légère Muelles
ES load extra-ligera Molas load
PT extra-leve





Code	DH Hole Diameter	Dd Rod Diameter	THE0 Free Length	R Spring Rate	TO 30%THE 0		B 40%THE 0		C 45%THE 0		D 50%THE 0		AND approx. do not use	H
	bxh			± 10%	+ 3,000,000		~ 1,500,000		300 - 500,000		100 - 200,000			
	mm	mm	mm	N/mm	mm	N	mm	N	mm	N	mm	N	mm	Pcs
VL 10 - 025			25	8.5	7.5	63.8	10.0	85.0	11.3	96.1	12.5	106.3	14.1	50
VL 10 - 032			32	6.5	9.6	62.4	12.8	83.2	14.4	93.6	16.0	104.0	18.5	50
VL 10 - 038			38	5.5	11.4	62.7	15.2	83.6	17.1	94.1	19.0	104.5	22.5	50
VL 10 - 044	10	5	44	4.8	13.2	63.4	17.6	84.5	19.8	95.0	22.0	105.6	23.2	50
VL 10 - 051			51	4.2	15.3	64.3	20.4	85.7	23.0	96.6	25.5	107.1	27.5	25
VL 10 - 064			64	3.3	19.2	63.4	25.6	84.5	28.8	95.0	32.0	105.6	34.0	25
VL 10 - 076			76	2.7	22.8	61.6	30.4	82.1	34.2	92.3	38.0	102.6	40.4	25
VL 10 - 305	1.65 x 1.0		305	0.7	91.5	59.5	122.0	79.3	137.3	89.2	152.5	99.1	172.7	10
VL 13 - 025			25	16.0	7.5	120.0	10.0	160.0	11.3	180.8	12.5	200.0	13.6	50
VL 13 - 032			32	12.2	9.6	117.1	12.8	156.2	14.4	175.7	16.0	195.2	17.9	50
VL 13 - 038			38	10.3	11.4	117.4	15.2	156.6	17.1	176.1	19.0	195.7	21.9	50
VL 13 - 044			44	8.7	13.2	114.8	17.6	153.1	19.8	172.3	22.0	191.4	26.4	25
VL 13 - 051	12.5	6.3	51	7.5	15.3	114.8	20.4	153.0	23.0	172.5	25.5	191.3	29.6	25
VL 13 - 064			64	5.8	19.2	111.4	25.6	148.5	28.8	167.0	32.0	185.6	37.1	25
VL 13 - 076			76	4.7	22.8	107.2	30.4	142.9	34.2	160.7	38.0	178.6	44.9	25
VL 13 - 089			89	4.1	26.7	109.5	35.6	146.0	40.1	164.4	44.5	182.5	53.2	20
VL 13 - 102			102	3.6	30.6	110.2	40.8	146.9	45.9	165.2	51.0	183.6	59.4	10
VL 13 - 305	2.3 x 1.3		305	1.3	91.5	114.4	122.0	152.5	137.3	171.6	152.5	190.6	186.6	10
VL 16 - 025			25	20.2	7.5	151.5	10.0	202.0	11.3	228.3	12.5	252.5	14.0	50
VL 16 - 032			32	16.0	9.6	153.6	12.8	204.8	14.4	230.4	16.0	256.0	18.7	50
VL 16 - 038			38	12.3	11.4	140.2	15.2	187.0	17.1	210.3	19.0	233.7	22.0	25
VL 16 - 044			44	10.6	13.2	139.9	17.6	186.6	19.8	209.9	22.0	233.2	26.1	25
VL 16 - 051	16	8	51	8.9	15.3	136.2	20.4	181.6	23.0	204.7	25.5	227.0	30.4	25
VL 16 - 064			64	7.0	19.2	134.4	25.6	179.2	28.8	201.6	32.0	224.0	38.8	25
VL 16 - 076			76	5.8	22.8	132.2	30.4	176.3	34.2	198.4	38.0	220.4	46.4	20
VL 16 - 089			89	4.8	26.7	128.2	35.6	170.9	40.1	192.5	44.5	213.6	54.2	20
VL 16 - 102			102	4.1	30.6	125.5	40.8	167.3	45.9	188.2	51.0	209.1	62.4	20
VL 16 - 115			115	3.9	34.5	134.6	46.0	179.4	51.8	202.0	57.5	224.3	70.6	10
VL 16 - 305	3.05 x 1.5		305	1.5	91.5	137.3	122.0	183.0	137.3	206.0	152.5	228.8	190.2	10
VL 20 - 025			25	29.4	7.5	220.5	10.0	294.0	11.3	332.2	12.5	367.5	13.9	50
VL 20 - 032			32	22.6	9.6	217.0	12.8	289.3	14.4	325.4	16.0	361.6	18.2	50
VL 20 - 038			38	18.6	11.4	212.0	15.2	282.7	17.1	318.1	19.0	353.4	22.0	25
VL 20 - 044			44	15.7	13.2	207.2	17.6	276.3	19.8	310.9	22.0	345.4	25.8	25
VL 20 - 051			51	13.7	15.3	209.6	20.4	279.5	23.0	315.1	25.5	349.4	30.3	25
VL 20 - 064			64	11.3	19.2	217.0	25.6	289.3	28.8	325.4	32.0	361.6	38.9	25
VL 20 - 076	20	10	76	9.8	22.8	223.4	30.4	297.9	34.2	335.2	38.0	372.4	47.0	25
VL 20 - 089			89	8.3	26.7	221.6	35.6	295.5	40.1	332.8	44.5	369.4	55.7	20
VL 20 - 102			102	7.4	30.6	226.4	40.8	301.9	45.9	339.7	51.0	377.4	64.2	20
VL 20 - 115			115	6.4	34.5	220.8	46.0	294.4	51.8	331.5	57.5	368.0	72.9	10
VL 20 - 127			127	5.9	38.1	224.8	50.8	299.7	57.2	337.5	63.5	374.7	80.7	10
VL 20 - 139			139	5.4	41.7	225.2	55.6	300.2	62.6	338.0	69.5	375.3	88.4	10
VL 20 - 152			152	4.9	45.6	223.4	60.8	297.9	68.4	335.2	76.0	372.4	96.7	10
VL 20 - 305	3.9 x 1.7		305	2.5	91.5	228.8	122.0	305.0	137.3	343.3	152.5	381.3	196.0	10

How to order: VL 50 - 152 (Series DH -)THE0

1 N = 0.1 daN = 0.102 kgf Load (N) = R (N/mm) x Deflection (mm)

Special Springs Standard Rectangular Wire

SERIES VL

VL

Code	D_H Hole Diameter	D_d Rod Diameter	THE Free Length	R Spring Rate	TO 30%THE 0		B 40%THE 0		C 45%THE 0		D 50%THE 0		AND approx. do not use	
	bxh			± 10%	+ 3,000,000		~ 1,500,000		300 - 500,000		100 - 200,000			
	mm	mm	mm	N/mm	mm	N	mm	N	mm	N	mm	N	mm	Pcs
VL 25 - 025	25	12.5	25	67.0	7.5	404.3	10.0	539.0	11.3	609.1	12.5	673.8	12.9	50
VL 25 - 032			32	42.2	9.6	405.1	12.8	540.2	14.4	607.7	16.0	675.2	17.2	25
VL 25 - 038			38	35.8	11.4	408.1	15.2	544.2	17.1	612.2	19.0	680.2	20.7	25
VL 25 - 044			44	31.4	13.2	414.5	17.6	552.6	19.8	621.7	22.0	690.8	24.4	25
VL 25 - 051			51	27.0	15.3	413.1	20.4	550.8	23.0	621.0	25.5	688.5	28.5	25
VL 25 - 064			64	21.6	19.2	414.7	25.6	553.0	28.8	622.1	32.0	691.2	36.5	25
VL 25 - 076			76	18.1	22.8	412.7	30.4	550.2	34.2	619.0	38.0	687.8	43.9	20
VL 25 - 089			89	15.2	26.7	405.8	35.6	541.1	40.1	609.5	44.5	676.4	51.4	20
VL 25 - 102			102	13.2	30.6	403.9	40.8	538.6	45.9	605.9	51.0	673.2	59.3	20
VL 25 - 115			115	11.8	34.5	407.1	46.0	542.8	51.8	611.2	57.5	678.5	67.2	10
VL 25 - 127			127	10.6	38.1	403.9	50.8	538.5	57.2	606.3	63.5	673.1	74.4	10
VL 25 - 139			139	9.6	41.7	400.3	55.6	533.8	62.6	601.0	69.5	667.2	81.6	10
VL 25 - 152			152	8.8	45.6	401.3	60.8	535.0	68.4	601.9	76.0	668.8	89.5	10
VL 25 - 178			178	7.6	53.4	405.8	71.2	541.1	80.1	608.8	89.0	676.4	105.0	10
VL 25 - 203			203	6.7	60.9	408.0	81.2	544.0	91.4	612.4	101.5	680.1	121.0	10
VL 25 - 305	5.4 x 2.2		305	4.4	91.5	402.6	122.0	536.8	137.3	604.1	152.5	671.0	182.0	5
VL 32 - 038	32	16	38	43.1	11.4	491.3	15.2	655.1	17.1	737.0	19.0	818.9	19.9	20
VL 32 - 044			44	37.3	13.2	492.4	17.6	656.5	19.8	738.5	22.0	820.6	23.5	20
VL 32 - 051			51	32.4	15.3	495.7	20.4	661.0	23.0	745.2	25.5	826.2	27.6	20
VL 32 - 064			64	25.5	19.2	489.6	25.6	652.8	28.8	734.4	32.0	816.0	35.2	20
VL 32 - 076			76	21.6	22.8	492.5	30.4	656.6	34.2	738.7	38.0	820.8	42.4	20
VL 32 - 089			89	18.1	26.7	483.3	35.6	644.4	40.1	725.8	44.5	805.5	50.0	10
VL 32 - 102			102	15.7	30.6	480.4	40.8	640.6	45.9	720.6	51.0	800.7	57.6	10
VL 32 - 115			115	14.2	34.5	489.9	46.0	653.2	51.8	735.6	57.5	816.5	65.5	10
VL 32 - 127			127	12.7	38.1	483.9	50.8	645.2	57.2	726.4	63.5	806.5	72.5	10
VL 32 - 139			139	11.6	41.7	483.7	55.6	645.0	62.6	726.2	69.5	806.2	79.4	10
VL 32 - 152			152	10.6	45.6	483.4	60.8	644.5	68.4	725.0	76.0	805.6	87.3	10
VL 32 - 178			178	9.0	53.4	480.6	71.2	640.8	80.1	720.9	89.0	801.0	103.0	5
VL 32 - 203			203	7.8	60.9	475.0	81.2	633.4	91.4	712.9	101.5	791.7	118.0	5
VL 32 - 254			254	6.4	76.2	487.7	101.6	650.2	114.3	731.5	127.0	812.8	148.0	5
VL 32 - 305	6.5 x 2.6		305	5.3	91.5	485.0	122.0	646.6	137.3	727.7	152.5	808.3	178.0	5
VL 40 - 051	40	20	51	48.1	15.3	736	20.4	981	23.0	1106	25.5	1227	28.0	20
VL 40 - 064			64	39.2	19.2	753	25.6	1004	28.8	1129	32.0	1254	36.2	10
VL 40 - 076			76	33.3	22.8	759	30.4	1012	34.2	1139	38.0	1265	43.7	10
VL 40 - 089			89	28.4	26.7	758	35.6	1011	40.1	1139	44.5	1264	51.7	10
VL 40 - 102			102	24.5	30.6	750	40.8	1000	45.9	1125	51.0	1250	59.8	10
VL 40 - 115			115	22.1	34.5	762	46.0	1017	51.8	1145	57.5	1271	67.9	10
VL 40 - 127			127	19.6	38.1	747	50.8	996	57.2	1121	63.5	1245	75.2	5
VL 40 - 139			139	17.7	41.7	738	55.6	984	62.6	1108	69.5	1230	82.4	5
VL 40 - 152			152	16.2	45.6	739	60.8	985	68.4	1108	76.0	1231	90.6	5
VL 40 - 178			178	13.7	53.4	732	71.2	975	80.1	1097	89.0	1219	106.0	5
VL 40 - 203			203	12.3	60.9	749	81.2	999	91.4	1124	101.5	1248	122.0	5
VL 40 - 254			254	9.8	76.2	747	101.6	996	114.3	1120	127.0	1245	154.0	2
VL 40 - 305	8.0 x 3.4		305	8.3	91.5	759	122.0	1013	137.3	1140	152.5	1266	185.0	2
VL 50 - 064	50	25	64	86.3	19.2	1657	25.6	2209	28.8	2485	32.0	2762	35.1	5
VL 50 - 076			76	70.6	22.8	1610	30.4	2146	34.2	2415	38.0	2683	42.2	5
VL 50 - 089			89	59.8	26.7	1597	35.6	2129	40.1	2398	44.5	2661	50.3	5
VL 50 - 102			102	52.0	30.6	1591	40.8	2122	45.9	2387	51.0	2652	58.4	5
VL 50 - 115			115	46.1	34.5	1590	46.0	2121	51.8	2388	57.5	2651	66.1	5
VL 50 - 127			127	42.2	38.1	1608	50.8	2144	57.2	2414	63.5	2680	73.8	5
VL 50 - 139			139	38.2	41.7	1593	55.6	2124	62.6	2391	69.5	2655	80.9	5
VL 50 - 152			152	34.3	45.6	1564	60.8	2085	68.4	2346	76.0	2607	89.0	2
VL 50 - 178			178	29.4	53.4	1570	71.2	2093	80.1	2355	89.0	2617	105.0	2
VL 50 - 203			203	25.5	60.9	1553	81.2	2071	91.4	2331	101.5	2588	121.0	2
VL 50 - 254			254	20.6	76.2	1570	101.6	2093	114.3	2355	127.0	2616	152.0	2
VL 50 - 305	10.5 x 4.1		305	17.2	91.5	1574	122.0	2098	137.3	2362	152.5	2623	184.0	2
VL 63 - 076	63	38	76	57.8	22.8	1318	30.4	1757	34.2	1977	38.0	2196	47.3	5
VL 63 - 089			89	51.4	26.7	1372	35.6	1830	40.1	2061	44.5	2287	54.9	5
VL 63 - 102			102	44.4	30.6	1359	40.8	1812	45.9	2038	51.0	2264	64.1	5
VL 63 - 115			115	38.0	34.5	1311	46.0	1748	51.8	1968	57.5	2185	75.6	5
VL 63 - 127			127	33.2	38.1	1265	50.8	1687	57.2	1899	63.5	2108	82.6	2
VL 63 - 152			152	27.4	45.6	1249	60.8	1666	68.4	1874	76.0	2082	99.8	2
VL 63 - 178			178	24.0	53.4	1282	71.2	1709	80.1	1922	89.0	2136	118.4	2
VL 63 - 203			203	21.0	60.9	1279	81.2	1705	91.4	1919	101.5	2132	135.9	2
VL 63 - 254			254	16.4	76.2	1250	101.6	1666	114.3	1875	127.0	2083	172.8	2
VL 63 - 305			305	13.6	91.5	1244	122	1659	137.3	1867	152.5	2074	208.6	2
VL 63 - 315			315	11.5	94.5	1086.8	126	1449	141.75	1630.1	157.5	1811.3	205	2
* VL 63 - 350			350	9.8	105	1029	140	1372	157.5	1543.5	175	1715	230	2
* * VL 63 - 400	11 x 4.9		400	8	120	960	160	1280	180	1440	200	1600	240	2

*new sizes

How to order: VL 50 - 152 (Series D_H -)THE$_0$ 1 N = 0.1 daN = 0.102 kgf Load (N) = R (N/mm) x Deflection (mm)