Wire Die & Mould Springs

ISO 10243 - Rectangular Section & Round Section

The following main characteristics show the superiority of our springs:

* Special profile / section usage to increase steel characteristics.
* Usage of special wire winding machine.
* Usage of special heat treatment developed by especially spring production.
* Maximum care showing grinding and closing of spring ends in order to warranty optimum vertical and parallel acceleration.
* All springs are coil shaped in order to warranty significant decrease of load losses in working conditions.
* Special remoulding stroke methods in order to increase resistance against metal abrasion.
* Special pretreatment and powder coating applications of our springs in order to ensure the best protection, preservation and completion.
* Intensive control performed during production and final stage in order to warranty dimensional compliance and precision.
* **Spring load coefficient tolerances - nominal rate at all springs is +10%.**

Research & Development ongoing in parallel of quality assurance procedures in compliance with ISO 9001, ensure high sensitivity, durability and reliability criteria. Continuous improvement in our springs performance is monitored directly in the factory through comparative and destructive tests. The excellences of these products are verified with the increasing number of the customers selecting our springs in their dies and moulds.

Code	Colour Series	Wire Section	Colour	Load	*XLL Long Life total deflection	Cycles	*Max. working total deflection	Cycles
AYY			Purple	Extra Light	35%	+3.000.000	50%	200.000
YY			Green	Light	30%	+3.000.000	40%	200.000
MY			Blue	Medium	25%	+3.000.000	37.5%	200.000
KY			Red	Heavy	20%	+3.000.000	30%	200.000
SY			Yellow	Extra Heavy	17%	+5.000.000	25%	300.000
GY			Brown	Ultra Heavy	10%	+5.000.000	15%	500.000

Code	Colour Series	Wire Section	Colour	Load
TVY			Green	Light
TBM			Blue	Medium
TRK			Red	Heavy

Cycles:
Lifetime statistic data based on tests carried out on items with central free lengths under the recommendations specified here below.

* **Total deflection:** preload + working stroke

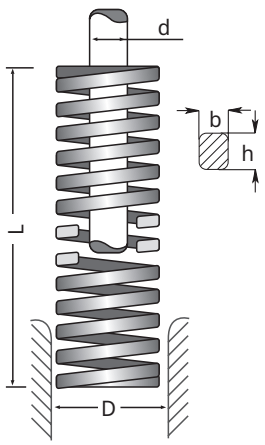
When selecting and using the springs we recommend:

1- Select the lightest and longest springs working requirements allow.
2- Never select total deflections (preload + stroke) that are greater than the maximum deflection indicated in the catalogue. Also check this when sharpening the tools in the die.
3- Preload at least 5% of the free length of each spring, with a minimum of 2 mm.
4- Provide for an even base for each spring.
5- Guide the springs with an internal pin or deep housing to avoid buckling, in particular when **L / D>3.**

* Please select springs carefully during the design period.
* The bigger the guide the longer the lifetime. It is essential to always use guide pin for all springs with a free length / diameter ratio exceeding x3.5.
* Ensure support and perpendicularity of springs to the compression area.
* If possible, use long springs at lower loadings (preloading should be increased properly).
* Please apply minimum preloading of 5% of the free length.
* Never apply pressure to the springs over maximum stroke.
* Tool maintenance can vary the original working deflection of the springs. Always check and re-set the original working stroke. High risk of early failures or damages of the die / mould.
* Please protect springs from abrasive activities.
* In the temperature range of 120 ÷ 250°C consider a loss between 1 to 2% of the load every 40°C.
* Pleases don't change a spring at a time, instead of this, use programmed maintenance procedure that all springs can be changed at the same time.
* Any alteration on the surface of the springs (cutting, grinding, scratches, etc.) may significantly reduce the lifetime. Always replace the damaged springs with new ones.
* Shoulder screw (Güvenal code: G39) should be used in usage of precision mechanical spring.

Code: AYY Colour: Purple

Extra Light Load Spring



D: Outer Diameter
d: Rod Diameter
b x h: Wire Section
L: Length
R: Load Rate (N)
XLL %: Long Life Deflection
Max %: Max. Working Deflection
S1: Deflection
F1: Load N
S2: Defleciton
F2: Load N

N - Newton = (0.102) Kgf
1kg = 9.81 N

Order:
AYY. D x L

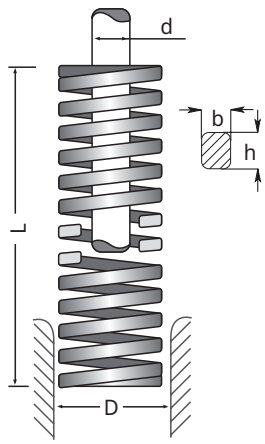
D	d	L	R	XLL 35 %		Max. 50 %	
				S1	F1	S2	F2
10	5	25	8.5	8.8	74	12.5	106
		32	6.5	11.2	73	16.0	104
		38	5.5	13.3	73	19.0	105
		44	5.0	15.4	77	22.01	110
		51	4.5	17.9	80	25.5	115
		64	3.3	22.4	74	32.0	106
		76	3.2	26.6	85	38.0	122
b x h							
2.1 x 0.9		305	0.6	106.8	64	152.5	92
13	6.3	25	15.5	8.8	136	12.5	194
		32	12.2	11.2	137	16.0	195
		38	10.3	13.3	137	19.0	196
		44	8.7	15.4	134	22.0	191
		51	7.5	17.9	134	25.5	191
		64	5.8	22.4	130	32.0	186
		76	4.7	26.6	125	38.0	179
		89	4.1	31.2	128	44.5	182
		102	3.6	35.7	129	51.0	184
b x h							
2.5 x 1.2		305	1.2	106.8	128	152.5	183
16	8	25	20.2	8.8	177	12.5	253
		32	14.4	11.2	161	16.0	230
		38	12.3	13.3	164	19.0	234
		44	10.6	15.4	163	22.0	233
		51	8.9	17.9	159	25.5	227
		64	7.0	22.4	157	32.0	224
		76	5.8	26.6	154	38.0	220
		89	4.8	31.2	150	44.5	214
		102	4.0	35.7	143	51.0	204
		115	3.9	40.3	157	57.5	224
b x h							
3.4 x 1.2		305	1.5	106.8	160	152.5	229
20	10	25	32.1	8.8	281	12.5	401
		32	24.7	11.2	277	16.0	395
		38	20.7	13.3	275	19.0	393
		44	17.8	15.4	274	22.0	392
		51	15.3	17.9	273	25.5	390
		64	12.1	22.4	271	32.0	387
		76	10.2	26.6	271	38.0	388
		89	8.6	31.2	268	44.5	383
		102	7.5	35.7	268	51.0	383
		115	6.7	40.3	270	57.5	385
		127	6.1	44.5	271	63.5	387
		139	5.5	48.7	268	69.5	382
		152	5.1	53.2	271	76.0	388
b x h							
4.0 x 1.7		305	2.5	106.8	267	152.5	381
25	12.5	25	52.7	8.8	461	12.5	659
		32	40.0	11.2	448	16.0	640
		38	33.3	13.3	443	19.0	633
		44	28.6	15.4	440	22.0	629
		51	24.7	17.9	441	25.5	630
		64	19.4	22.4	435	32.0	321
		76	16.3	26.6	434	38.0	619
		89	13.9	31.2	433	44.5	619
		102	12.1	35.7	432	51.0	617
		115	10.8	40.3	435	57.5	621
		127	9.8	44.5	436	63.5	622
		139	8.9	48.7	433	69.5	619
		152	8.1	53.2	431	76.0	616
		178	6.9	62.3	430	89.0	614
		203	6.1	71.1	433	101.5	619
b x h							
5.4 x 2.2		305	4.0	106.8	427	152.5	610

D	d	L	R	XLL 35 %		Max. 50 %	
				S1	F1	S2	F2
32	16	38	43.8	13.3	583	19.0	832
		44	37.5	15.4	578	22.0	825
		51	32.3	17.9	577	25.5	824
		64	25.4	22.4	569	32.0	813
		76	21.3	26.6	567	38.0	809
		89	18.1	31.2	564	44.5	805
		102	15.8	35.7	564	51.0	806
		115	13.9	40.3	559	57.5	799
		127	12.6	44.5	560	63.5	800
		139	11.4	48.7	555	69.5	792
		152	10.5	53.2	559	76.0	798
		178	8.9	62.3	554	89.0	792
		203	7.8	71.1	554	101.5	792
		254	6.2	88.9	551	127	787
b x h							
6.4 x 2.7		305	5.2	106.8	555	152.5	793
40	20	51	50.8	17.9	907	25.5	1295
		64	39.7	22.4	889	32.0	1270
		76	33.1	26.6	880	38.0	1258
		89	28.1	31.2	875	44.5	1250
		102	24.5	35.7	875	51.0	1250
		115	21.6	40.3	869	57.5	1242
		127	19.5	44.5	867	63.5	1238
		139	17.8	48.7	866	69.5	1237
		152	16.3	53.2	867	76.0	1239
		178	13.8	62.3	860	89.0	1220
		203	12.1	71.1	860	101.5	1220
		254	9.7	88.9	862	127.0	1232
b x h							
7.8 x 3.4		305	8.0	106.8	854	152.5	1220
50	25	64	80.2	22.4	1796	32.0	2566
		76	66.9	26.6	1780	38.0	2542
		89	56.6	31.2	1763	44.5	2519
		102	49.3	35.7	1760	51.0	2514
		115	43.5	40.3	1751	57.5	2501
		127	39.3	44.5	1747	63.5	2496
		139	35.8	48.7	1742	69.5	2488
		152	32.8	53.2	1745	76.0	2493
		178	27.8	62.3	1732	89.0	2474
		203	24.2	71.1	1719	101.5	2456
		254	19.2	88.9	1707	127	2438
b x h							
10.7 x 4.4		305	16.0	106.8	1708	152.5	2440
63	38	76	87.8	26.6	1537	38.0	2196
		89	51.4	31.2	1601	44.5	2287
		102	44.4	35.7	1585	51.0	2264
		115	41.6	40.3	1674	57.5	2392
		127	33.2	44.5	1476	63.5	2108
		152	27.4	53.2	1458	76.0	2082
		178	24.0	62.3	1495	89.0	2136
		203	21.0	71.1	1492	101.5	2132
		254	16.4	88.9	1458	127	2083
b x h							
11.4 x 5.1		305	13.6	106.8	1452	152.5	2074

Code: **YY** Colour: **Green**

Light Load Spring

ISO 10243



D: Outer Diameter
d: Rod Diameter
b x h: Wire Section
L: Length
R: Load Rate (N)
XLL %: Long Life Deflection
Max %: Max. Working Deflection
S1: Deflection
F1: Load N
S2: Defleciton
F2: Load N

N - Newton = (0.102) Kgf
1kg = 9.81 N

Order: **YY.** D x L

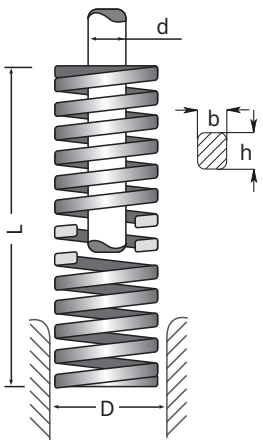
D	d	L	R	XLL 30 %		Max. 40 %	
				S1	F1	S2	F2
10	5	25	11.0	7.5	83	10.0	110
		32	8.5	9.6	82	12.8	109
		38	6.8	11.4	78	15.2	103
		44	6.0	13.2	79	17.6	106
		51	5.0	15.3	77	20.4	102
		64	4.1	19.2	79	25.6	105
		76	3.6	22.8	82	30.4	109
b x h		305	0.9	91.5	82	122	110
1.7 x 1.1							
13	6.3	25	21.0	7.5	158	10.0	210
		32	16.4	9.6	157	12.8	210
		38	13.6	11.4	155	15.2	207
		44	12.1	13.2	160	17.6	213
		51	10.3	15.3	158	20.4	210
		64	7.6	19.2	146	25.6	195
		76	6.3	22.8	144	30.4	192
		89	5.4	26.7	144	35.6	192
b x h		102	4.6	30.6	141	40.8	188
2.3 x 1.5		305	1.6	91.5	146	122	195
16	8	25	29.0	7.5	218	10.0	290
		32	22.9	9.6	220	12.8	293
		38	19.3	11.4	220	15.2	293
		44	17.1	13.2	226	17.6	301
		51	14.0	15.3	214	20.4	286
		64	10.7	19.2	205	25.6	274
		76	9.0	22.8	205	30.4	274
		89	7.3	26.7	195	35.6	260
		102	6.8	30.6	208	40.8	277
		115	7.0	34.5	242	46.0	322
b x h		305	2.3	91.5	210	122	281
3.2 x 1.7							
20	10	25	55.8	7.5	419	10.0	558
		32	45.0	9.6	432	12.8	576
		38	36.0	11.4	410	15.2	547
		44	30.0	13.2	396	17.6	528
		51	24.5	15.3	375	20.4	500
		64	19.2	19.2	369	25.6	492
		76	16.0	22.8	365	30.4	486
		89	14.0	26.7	374	35.6	498
		102	12.0	30.6	367	40.8	490
		115	10.9	34.5	376	46.0	501
		127	9.5	38.1	362	50.8	483
		139	8.4	41.7	350	55.6	467
		152	7.5	45.6	342	60.8	456
b x h		305	4.0	91.5	366	122	488
4.0 x 2.1							
25	12.5	25	105	7.5	788	10.0	1050
		32	80.3	9.6	771	12.8	1028
		38	62.0	11.4	707	15.2	942
		44	52.9	13.2	698	17.6	931
		51	44.0	15.3	673	20.4	898
		64	35.2	19.2	676	25.6	901
		76	28.0	22.8	638	30.4	851
		89	24.0	26.7	641	35.6	854
		102	21.1	30.6	646	40.8	861
		115	18.7	34.5	645	46.0	860
		127	16.7	38.1	636	50.8	848
		139	15.3	41.7	638	55.6	851
		152	14.0	45.6	638	60.8	851
		178	12.5	53.4	668	71.2	890
		203	10.4	60.9	633	81.2	844
b x h		305	7.0	91.5	641	122	854
5.3 x 2.7							

D	d	L	R	XLL 30 %		Max. 40 %	
				S1	F1	S2	F2
32	16	38	98.0	11.4	1117	15.2	1490
		44	79.5	13.2	1049	17.6	1399
		51	67.0	15.3	1025	20.4	1367
		64	53.0	19.2	1018	25.6	1357
		76	44.0	22.8	1003	30.4	1338
		89	37.2	26.7	993	35.6	1324
		102	32.0	30.6	979	40.8	1306
		115	29.0	34.5	1001	46.0	1334
		127	25.0	38.1	953	50.8	1270
		139	23.0	41.7	959	55.6	1279
		152	21.5	45.6	980	60.8	1307
		178	18.2	53.4	972	71.2	1296
		203	15.8	60.9	962	81.2	1283
		254	12.5	76.2	953	101.6	1270
b x h		305	10.3	91.5	942	122	1257
6.7 x 3.3							
40	20	51	92.0	15.3	1408	20.4	1877
		64	73.0	19.2	1402	25.6	1869
		76	63.0	22.8	1436	30.4	1915
		89	51.0	26.7	1362	35.6	1816
		102	45.0	30.6	1377	40.8	1836
		115	39.6	34.5	1366	46.0	1822
		127	36.0	38.1	1372	50.8	1829
		139	32.0	41.7	1334	55.6	1779
		152	28.0	45.6	1277	60.8	1702
		178	25.2	53.4	1346	71.2	1794
		203	21.8	60.9	1328	81.2	1770
		254	17.0	76.2	1295	101.6	1727
b x h		305	14.8	91.5	1354	122	1806
8.0 x 4.0							
50	25	64	156	19.2	2995	25.6	3994
		76	125	22.8	2850	30.4	3800
		89	109	26.7	2910	35.6	3880
		102	94.0	30.6	2876	40.8	3835
		115	81.0	34.8	2795	46.0	3726
		127	71.0	38.1	2705	50.8	3607
		139	66.5	41.7	2773	55.6	3697
		152	60.0	45.6	2736	60.8	3648
		178	52.0	53.4	2777	71.2	3702
		203	44.0	60.9	2680	81.2	3573
		229	38.2	68.7	2624	91.6	3499
		254	35.0	76.2	2667	101.6	3556
b x h		305	28.5	91.5	2608	122.0	3477
11.1 x 5.5							
63	38	76	189	22.8	4309	30.4	5746
		89	158	26.7	4219	35.6	5625
		102	131	30.6	4009	40.8	5345
		115	116	34.5	4002	46.0	5336
		127	103	38.1	3924	50.8	5232
		152	84.3	45.6	3844	60.8	5125
		178	71.5	53.4	3818	71.2	5091
		203	61.7	60.9	3758	81.2	5010
		254	47.0	76.2	3581	101.6	4775
b x h		305	38.2	91.5	3495	122	4660
11.6 x 7.7							

Code: **MY** Colour: **Blue**

Medium Load Spring

ISO 10243



D: Outer Diameter
d: Rod Diameter
b x h: Wire Section
L: Length
R: Load Rate (N)
XLL %: Long Life Deflection
Max %: Max. Working Deflection
S1: Deflection
F1: Load N
S2: Defleciton
F2: Load N

N - Newton = (0.102) Kgf
1kg = 9.81 N

Order:
MY. D x L

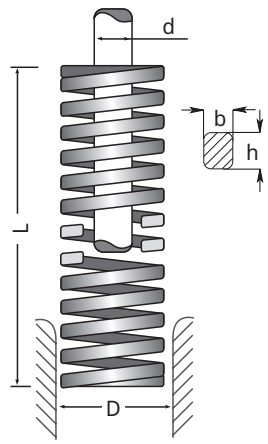
D	d	L	R	XLL 25 %		Max. 37.5 %	
				S1	F1	S2	F2
10	5	25	16.0	6.3	100	9.4	150
		32	13.0	8.0	104	12.0	156
		38	11.9	9.5	113	14.3	170
		44	10.3	11.0	113	16.5	170
		51	8.9	12.8	113	19.1	170
		64	7.5	16.0	120	24.0	180
b x h		76	6.2	19.0	118	28.5	177
1.8 x 1.2		305	1.6	76.3	122	114.4	183
13	6.3	25	30.0	6.3	188	9.4	281
		32	24.8	8.0	198	12.0	298
		38	21.4	9.5	203	14.3	305
		44	18.0	11.0	198	16.5	297
		51	15.5	12.8	198	19.1	296
		64	12.1	16.0	194	24.0	290
		76	10.2	19.0	194	28.5	291
		89	8.4	22.3	187	33.4	280
b x h		102	7.1	25.5	181	38.3	272
2.5 x 1.7		305	2.4	76.3	183	114.4	275
16	8	25	49.4	6.3	309	9.4	463
		32	38.5	8.0	308	12.0	462
		38	33.9	9.5	322	14.3	483
		44	30.0	11.0	330	16.5	495
		51	26.4	12.8	337	19.1	505
		64	20.5	16.0	328	24.0	492
		76	17.8	19.0	338	28.5	507
		89	15.2	22.3	338	33.4	507
		102	13.5	25.5	344	38.3	516
b x h		115	12.0	28.8	345	43.1	518
3.2 x 2.0		305	4.3	76.3	328	114.4	492
20	10	25	98.0	6.3	613	9.4	919
		32	72.6	8.0	581	12	871
		38	56.0	9.5	532	14.3	798
		44	47.5	11.0	523	16.5	784
		51	41.7	12.8	5321	19.1	798
		64	32.3	16.0	517	24.0	775
		76	25.1	19.0	477	28.5	715
		89	22.0	22.3	490	33.4	734
		102	19.8	25.5	505	38.3	757
		115	18.1	28.8	520	43.1	781
		127	16.6	31.8	527	47.6	791
		139	15.1	34.8	525	52.1	787
b x h		152	13.2	38.0	502	57.0	752
4.0 x 2.4		305	6.1	76.3	465	114.4	698
25	12.5	25	157	6.2	981	9.4	1472
		32	118	8.0	944	12.0	1416
		38	93.0	9.5	884	14.3	1325
		44	80.8	11.0	889	16.5	1333
		51	68.6	12.8	875	19.1	1312
		64	53.0	16.0	848	24	1272
		76	43.2	19.0	821	28.5	1231
		89	38.2	22.3	850	33.4	1275
		102	33	25.5	842	38.3	1262
		115	28	28.8	805	43.1	1208
		127	25.9	31.8	822	47.6	1233
		139	23.2	34.8	806	52.1	1209
		152	20.8	38.0	790	57.0	1186
		178	17.8	44.5	792	66.8	1188
b x h		203	15.8	50.8	802	76.1	1203
5.3 x 3.1		305	10.2	76.3	778	114.4	1167

D	d	L	R	XLL 25 %		Max. 37.5 %	
				S1	F1	S2	F2
32	16	38	185	9.5	1758	14.3	2636
		44	158	11	1738	16.5	2607
		51	134	12.8	1709	19.1	2563
		64	99	16	1584	24	2376
		76	80.5	19	1530	28.5	2294
		89	69.1	22.3	1537	33.4	2306
		102	58.8	25.5	1499	38.3	2249
		115	51.5	28.8	1481	43.1	2221
		127	44.8	31.8	1422	47.6	2134
		139	42.3	34.8	1470	52.1	2205
		152	37.8	38	1436	57	2155
		178	32.5	44.5	1446	66.8	2169
		203	28.9	50.8	1467	76.1	2200
b x h		254	22.2	63.5	1410	95.3	2115
6.8 x 4.0		305	18.3	76.3	1395	114.4	2093
40	20	51	181.6	12.8	2315	19.1	3473
		64	140	16	2240	24	3360
		76	108	19	2052	28.5	3078
		89	90.7	22.3	2018	33.4	3027
		102	81	25.5	2066	38.3	3098
		115	71.8	28.8	2064	43.1	3096
		127	62.7	31.8	1991	47.6	2986
		139	57.5	34.8	1998	52.1	2997
		152	51.6	38	1961	57	2941
		160	47.5	40	1900	60	2850
		178	44.1	44.5	1962	66.8	2944
		203	36.7	50.8	1863	76.1	2794
		254	30.1	63.5	1911	95.3	2867
b x h		305	24.6	76.3	1876	114.4	2814
8.1 x 4.8							
50	25	64	209	16	3344	24	5016
		76	168	19	3192	28.5	4788
		89	140	22.3	3115	33.4	4673
		102	119	25.5	3035	38.3	4552
		115	106	28.8	3048	43.1	4571
		127	97	31.8	3080	47.6	4620
		139	87	34.8	3023	52.1	4535
		152	80	38	3040	57	4560
		160	76	40	3040	60	4560
		178	69.5	44.5	3093	66.8	4639
		203	59.8	50.8	3035	76.1	4552
		229	50.9	57.3	2914	85.9	4371
		254	46.0	63.5	2921	95.3	4382
b x h		305	38.6	76.3	2943	114.4	4415
10.9 x 6.0							
63	38	76	320	19	6080	28.5	9120
		89	260	22.3	5785	33.4	8687
		102	221	25.5	5636	38.3	8453
		115	187	28.8	5376	43.1	8064
		127	168	31.8	5334	47.6	8001
		152	136	38	5168	57	7752
		160	128	40	5120	60	7680
		178	114	44.5	5073	66.8	7610
		203	100	50.8	5075	76.1	7613
		229	89.2	57.3	5107	85.9	7660
		254	78.4	63.5	4978	95.3	7468
		305	64.7	76.3	4933	114.4	7400
		315	52.8	78.8	4946	118.1	7418
b x h		400	48.5	100	4850	150	7275
11.5 x 9.3							

Code: **KY** Colour: **Red**

Heavy Load Spring

ISO 10243



D: Outer Diameter
d: Rod Diameter
b x h: Wire Section
L: Length
R: Load Rate (N)
XLL %: Long Life Deflection
Max %: Max. Working Deflection
S1: Deflection
F1: Load N
S2: Defleciton
F2: Load N

N - Newton = (0.102) Kgf

1kg = 9.81 N

Order: **KY.** D x L

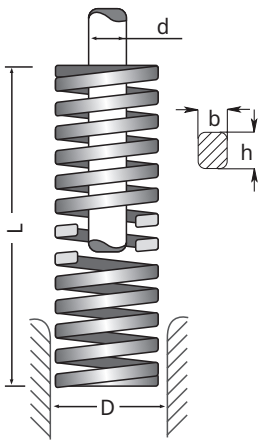
D	d	L	R	XLL 20 %		Max. 30 %	
				S1	F1	S2	F2
10	5	25	23	5.0	115	7.5	173
		32	17.5	6.4	112	9.6	168
		38	14.8	7.6	112	11.4	169
		44	13	8.8	114	13.2	172
		51	11.2	10.2	114	15.3	171
		64	9.2	12.8	118	19.2	177
		76	7.5	15.2	114	22.8	171
b x h							
1.8 x 1.4		305	1.9	61.0	116	91.5	174
13	6.3	25	42.1	5.0	211	7.5	316
		32	33.2	6.4	212	9.6	319
		38	29.3	7.6	223	11.4	334
		44	24.6	8.8	216	13.2	325
		51	19.6	10.2	200	15.3	300
		64	15.0	12.8	192	19.2	288
		76	13.2	15.2	20	22.8	301
		89	11.4	17.8	203	26.7	304
		102	9.4	20.4	192	30.6	288
b x h							
2.4 x 2.0		305	3.2	61.0	195	91.5	293
16	8	25	75.7	5.0	379	7.5	568
		32	60.2	6.4	385	9.6	578
		38	50.8	7.6	386	11.4	579
		44	42.8	8.8	377	13.2	565
		51	37.1	10.2	378	15.3	568
		64	30.3	12.8	388	19.2	582
		76	25.8	15.2	392	22.8	588
		89	21.7	17.8	386	26.7	573
		102	18.9	20.4	386	30.6	578
		115	17.0	23.0	391	34.5	587
b x h							
3.0 x 2.4		305	6.3	61.0	384	91.5	576
20	10	25	216	5.0	1080	7.5	1620
		32	168	6.4	1075	9.6	1613
		38	129	7.6	980	11.4	1471
		44	112	8.8	986	13.2	1478
		51	97	10.21	959	15.3	1438
		64	72.1	12.8	923	19.2	1384
		76	59.7	15.2	907	22.8	1361
		89	50.5	17.8	899	26.7	1348
		102	44.2	20.4	902	30.6	1353
		115	38.4	23.0	883	34.5	1325
		127	34.1	25.4	866	38.1	1299
		139	31.0	27.8	862	41.7	1293
		152	28.2	30.4	857	45.6	1286
b x h							
4.0 x 3.2		305	14.0	61	854	91.5	1281
25	12.5	25	375	5.0	1875	7.5	2813
		32	297	6.4	1901	9.6	2851
		38	219	7.6	1664	11.4	2497
		44	187	8.8	1646	13.2	2468
		51	156	10.2	1591	15.3	2387
		64	123	12.8	1574	19.2	2362
		76	99	15.2	1505	22.8	2257
		89	84	17.8	1495	26.7	2243
		102	73	20.4	1489	30.6	2234
		115	65	23	1495	34.5	2243
		127	57.7	25.4	1466	38.1	2198
		139	52.7	27.8	1465	41.7	2198
		152	47.8	30.4	1453	45.6	2180
		178	41	35.6	1460	53.4	2189
		203	35.8	40.6	1453	60.9	2180
b x h							
5.6 x 4.1		305	22.9	61	1397	91.5	2095

D	d	L	R	XLL 20 %		Max. 30 %	
				S1	F1	S2	F2
32	16	38	388	7.6	2949	11.4	4423
		44	324	8.8	2851	13.2	4277
		51	272	10.2	2774	15.3	4162
		64	212	12.8	2714	19.2	4070
		76	172	15.2	2614	22.8	3922
		89	141	17.8	2510	26.7	3765
		102	122	20.4	2489	30.6	3733
		115	107	23	2461	34.5	3692
		127	93	25.4	2362	38.1	3543
		139	86	27.8	2391	41.7	3586
		152	78	30.4	2371	45.6	3557
		178	67.2	35.6	2392	53.4	3588
		203	59.1	40.6	2399	60.9	3599
		254	46.4	50.8	2357	76.2	3536
b x h							
6.9 x 5.3		305	38	61	2318	91.5	3477
40	20	51	350	10.2	3570	15.3	5355
		64	269	12.8	3443	19.2	5165
		76	219	15.2	3329	22.8	4993
		89	190	17.8	3382	26.7	5073
		102	163	20.4	3325	30.6	4988
		115	142	23	3266	34.5	4899
		127	128	25.4	3251	38.1	4877
		139	115	27.8	3197	41.7	4796
		152	105	30.4	3192	45.6	4788
		178	89	35.6	3168	53.4	4753
		203	77	40.6	3126	60.9	4689
		254	61	50.8	3099	76.2	4648
b x h							
8.4 x 6.2		305	51	61.0	3111	91.5	4667
50	25	64	413	12.8	5286	19.2	7930
		76	339	15.2	5153	22.8	7729
		89	288	17.8	5126	26.7	7690
		102	245	20.4	4998	30.6	7497
		115	215	23	4945	34.5	7418
		127	192	25.4	4877	38.1	7315
		139	168	27.8	4670	41.7	7006
		152	154	30.4	4682	45.6	7022
		178	134	35.6	4770	53.4	7156
		203	117	40.6	4750	60.9	7125
		254	89	50.8	4521	76.2	6782
b x h							
11.3 x 7.4		305	73	61	4453	91.5	6680
63	38	76	630	15.2	9576	22.8	14364
		89	485	17.8	8633	26.7	12950
		102	434	20.4	8854	30.6	13280
		115	384	23	8832	34.5	13248
		127	349	25.4	8865	38.1	13297
		152	276	30.4	8390	45.6	12586
		178	237	35.6	8437	53.4	12656
		203	210	40.6	8526	60.9	12789
		254	165	50.8	8382	76.2	12573
b x h							
11.2 x 12.9		305	134	61	8174	91.5	12261

Code: **SY** Colour: **Yellow**

Extra Heavy Load Spring

ISO 10243



D: Outer Diameter
d: Rod Diameter
b x h: Wire Section
L: Length
R: Load Rate (N)
XLL %: Long Life Deflection
Max %: Max. Working Deflection
S1: Deflection
F1: Load N
S2: Defleciton
F2: Load N

N - Newton = (0.102) Kgf
1kg = 9.81 N

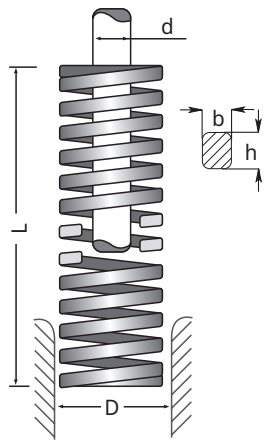
Order:
SY. D x L

D	d	L	R	XLL 17 %		Max. 25 %	
				S1	F1	S2	F2
10	5	25	36.8	4.3	156	6.3	230
		32	27.9	5.4	152	8.0	223
		38	23.7	6.5	153	9.5	225
		44	19.2	7.5	144	11.0	211
		51	16.5	8.7	143	12.8	210
		64	13.2	10.9	144	16	211
		76	10.9	12.9	141	19	207
b x h							
1.9 x 1.5		305	2.6	51.9	135	76.3	198
13	6.3	25	58.5	4.3	249	6.3	366
		32	43.9	5.4	239	8.0	351
		38	36.0	6.5	233	9.5	342
		44	30.3	7.5	227	11.0	333
		51	26.2	8.7	227	12.8	334
		64	21.2	10.9	231	16	339
		76	17.1	12.9	221	19	325
		89	14.5	15.1	219	22.3	323
		102	12.5	17.3	217	25.5	319
b x h							
2.3 x 2.2		305	4.3	51.9	223	76.3	328
16	8	25	118	4.3	502	6.3	738
		32	89	5.4	484	8.0	712
		38	72.1	6.5	466	9.5	685
		44	60.9	7.5	456	11.0	670
		51	52.3	8.7	453	12.8	667
		64	41.2	10.9	448	16	659
		76	34.1	12.9	441	19	648
		89	29.5	15.1	446	22.3	656
		102	25.6	17.3	444	25.5	653
		115	22.8	19.6	446	28.8	656
b x h							
3.2 x 2.7		305	8.4	51.9	436	76.3	641
20	10	25	293	4.3	1245	6.3	1831
		32	224	5.4	1219	8.0	1792
		38	177	6.5	1143	9.5	1682
		44	149	7.5	1115	11	1639
		51	128	8.7	1110	12.8	1632
		64	99	10.9	1077	16	1584
		76	81.7	12.9	1056	19	1552
		89	69.5	15.1	1052	22.3	1546
		102	60.6	17.3	1051	25.5	1545
		115	53	19.6	1036	28.8	1524
		127	47.5	21.6	1026	31.8	1508
		139	43	23.6	1016	34.8	1494
		152	39	25.8	1008	38	1482
b x h							
4.1 x 3.7		305	20	51.9	1037	76.3	1525
25	12.5	25	488	4.3	2098	6.3	3074
		32	374.4	5.4	2037	8	2995
		38	346	6.5	2235	9.5	3287
		44	244	7.5	1825	11	2684
		51	207.5	8.7	1799	12.8	2646
		64	161	10.9	1752	16	2576
		76	130.8	12.9	1690	19	2485
		89	110.5	15.1	1672	22.3	2459
		102	96.3	17.3	1670	25.5	2456
		115	85.7	19.6	1675	28.8	2464
		127	76.3	21.6	1647	31.8	2423
		139	69.5	23.6	1642	34.8	2415
		152	63.5	25.8	1641	38	2413
		178	53.9	30.3	1631	44.5	2399
		203	47.0	34.5	1622	50.8	2385
b x h							
5.6 x 4.6		305	30.9	51.9	1602	76.3	2356

D	d	L	R	XLL 17 %		Max. 25 %	
				S1	F1	S2	F2
32	16	38	528.2	6.5	3412	9.5	5018
		44	424.4	7.5	3175	11	4668
		51	336	8.7	2913	12.8	4284
		64	269.2	10.9	2929	16	4307
		76	218.5	12.9	2823	19	4152
		89	180.3	15.1	2728	22.3	4012
		102	155	17.3	2688	25.5	3953
		115	140	19.6	2737	28.8	4025
		127	124	21.6	2677	31.8	3937
		139	112	23.6	2647	34.8	3898
		152	102	25.8	2636	38	3876
		178	88.2	30.3	2669	44.5	3925
		203	76	34.5	2623	50.8	3857
		254	60.8	43.2	2625	63.5	3861
b x h							
7.2 x 5.6		305	49	51.9	2541	76.3	3736
40	20	51	628	8.7	5445	12.8	8007
		64	487	10.9	5299	16	7792
		76	379	12.9	4897	19	7201
		89	321	15.1	4857	22.3	7142
		102	281	17.3	4873	25.5	7166
		115	245	19.6	4790	28.8	7044
		127	221	21.6	4771	31.8	7017
		139	185	23.6	4372	34.8	6429
		152	168	25.8	4341	38	6384
		178	150	30.3	4539	44.5	6675
		203	132	34.5	4555	50.8	6699
		254	107	43.2	4620	63.5	6795
b x h							
8.7 x 7.3		305	87.8	51.9	4552	76.3	6695
50	25	64	709	10.9	7714	16.0	11344
		76	572	12.9	7390	19.0	10868
		89	475	15.1	7187	22.3	10569
		102	405	17.3	7023	25.5	10328
		115	352	19.6	6882	28.8	10120
		127	316	21.6	6822	31.8	10033
		139	289	23.6	6829	34.8	10043
		152	255	25.8	6589	38	9690
		178	216	30.3	6536	44.5	9612
		203	187	34.5	6453	50.8	9490
		254	153	43.2	6607	63.5	9716
b x h							
11.4 x 9.1		305	127	51.9	6585	76.3	9684
63	38	76	842	12.9	10879	19	15998
		89	726	15.1	10984	22.3	16154
		102	656	17.3	11375	25.5	16728
		115	534	19.6	10440	28.8	15353
		127	480	21.6	10363	31.8	15240
		152	396	25.8	10233	38	15048
		178	335	30.3	10137	44.5	14908
		203	297	34.5	10249	50.8	15073
		254	235	43.2	10147	63.5	14923
b x h							
11.8 x 13.4		305	194	51.9	10059	76.3	14793

Code: **GY** Colour: **Brown**

Ultra Heavy Load Spring



D: Outer Diameter
d: Rod Diameter
b x h: Wire Section
L: Length
R: Load Rate (N)
XLL %: Long Life Deflection
Max %: Max. Working Deflection
S1: Deflection
F1: Load N
S2: Defleciton
F2: Load N

N - Newton = (0.102) Kgf
1kg = 9.81 N

Order: **GY.** D x L

D	d	L	R	XLL 10 %		Max. 15 %	
				S1	F1	S2	F2
10	5	25	167	2.5	418	3.8	626
		32	130	3.2	416	4.8	624
		38	105	3.8	399	5.7	599
		44	86	4.4	378	6.6	568
		51	76	5.1	403	7.7	604
		64	62	6.4	397	9.6	595
b x h		76	51	7.6	388	11.4	581
2.2 x 2.7							
13	6.3	25	288	2.5	720	3.8	1080
		32	216	3.2	691	4.8	1037
		38	176	3.8	669	5.7	1003
		44	149	4.4	646	6.6	983
		51	128	5.1	653	7.7	979
		64	100	6.4	640	9.6	960
		76	84	7.6	638	11.4	958
		89	71	8.9	632	13.4	948
b x h		102	61	10.2	622	15.3	933
2.8 x 3.4							
16	8	32	449	3.2	1437	4.8	2155
		38	363	3.8	1379	5.7	2069
		44	309	4.4	1360	6.6	2039
		51	256	5.1	1306	7.7	1959
		64	203	6.4	1299	9.6	1949
		76	166	7.6	1262	11.4	1892
		89	139	8.9	1237	13.4	1856
		102	114	10.2	1163	15.3	1744
		115	105	11.5	1208	17.3	1811
		127	94	12.7	1194	19.1	1791
		152	69	15.2	1049	22.8	1573
b x h		305	37	30.5	1129	45.8	1693
3.5 x 4.6							
20	10	44	452	4.4	1989	6.6	2983
		51	378	5.1	1928	7.7	2892
		64	301	6.4	1926	9.6	2890
		76	247	7.6	1877	11.4	2816
		89	208	8.9	1851	13.4	2777
		102	188	10.2	1918	15.3	2876
		115	159	11.5	1829	17.3	2743
		127	146	12.7	1854	19.1	2781
		152	121	15.2	1839	22.8	2749
b x h		305	60	30.5	1830	45.8	2745
4.1 x 5.9							
25	12.5	44	1158	4.4	5095	6.6	7643
		51	933	5.1	4758	7.7	7137
		64	730	6.4	4672	9.6	7008
		76	556	7.6	4226	11.4	6338
		89	462	8.9	4112	13.4	6168
		102	390	10.2	3978	15.3	5967
		115	360	11.5	4140	17.3	6210
		127	325	12.7	4140	19.1	6210
		152	255	15.2	3876	22.8	5814
		178	230	17.8	4094	26.7	6141
		203	202	20.3	4101	30.5	6151
b x h		305	136	30.5	4148	45.8	6222
5.7 x 7.4							

D	d	L	R	XLL 10 %		Max. 15 %	
				S1	F1	S2	F2
32	16	44	1300	4.4	5720	6.6	8580
		51	1150	5.1	5865	7.7	8798
		64	887	6.4	5677	9.6	8515
		76	733	7.6	5571	11.4	8356
		89	612	8.9	5447	13.4	8170
		102	544	10.2	5549	15.3	8323
		115	494	11.5	5681	17.3	8522
		127	432	12.7	5486	19.1	8230
		152	356	15.2	5411	22.8	8117
		178	304	17.8	5411	26.7	8117
		203	265	20.3	5380	30.5	8069
		254	214	25.4	5436	38.1	8153
b x h		305	177	30.5	5399	45.8	8098
7.4 x 8.8							
40	20	64	1228	6.4	7859	9.6	11789
		76	1017	7.6	7729	11.4	11594
		89	880	8.9	7832	13.4	11748
		102	762	10.2	7772	15.3	11659
		115	679	11.5	7809	17.3	11716
		127	622	12.7	7899	19.1	11849
		152	509	15.2	7737	22.8	11605
		178	429	17.8	7636	26.7	11454
		203	374	20.3	7592	30.5	11388
		254	296	25.4	7518	38.1	11278
b x h		305	246	30.5	7503	45.8	11255
8.4 x 10.9							
50	25	64	1980	6.4	12672	9.6	19008
		76	1811	7.6	13764	11.4	20645
		89	1410	8.9	12549	13.4	18824
		102	1215	10.2	12393	15.3	18590
		115	1076	11.5	12374	17.3	18561
		127	968	12.7	12294	19.1	18440
		152	806	15.2	12251	22.8	18377
		178	698	17.8	12424	26.7	18637
		203	612	20.3	12424	30.5	18635
		254	472	25.4	11989	38.1	17983
b x h		305	388	30.5	11834	45.8	17751
11.8 x 13.4							
63	38	89	1560	10.0	15600	17.4	27144
		102	1298	12.0	15576	20.9	27128
		115	1078	14.1	15200	25.2	27166
		127	970	15.7	15229	28	27160
		152	801	18.9	15139	33.9	27154
		178	655	23.4	15327	41.4	27117
		203	552	27.0	14904	49	27048
		254	423	35.0	14805	64	27072
b x h		305	349	42.5	14833	77.5	27048
11.8 x 17.8							

In the GY series diameter 63 mm, XLL % and Max % are different from the standard (10% and 15%) fixed for the other diameters.

NEW

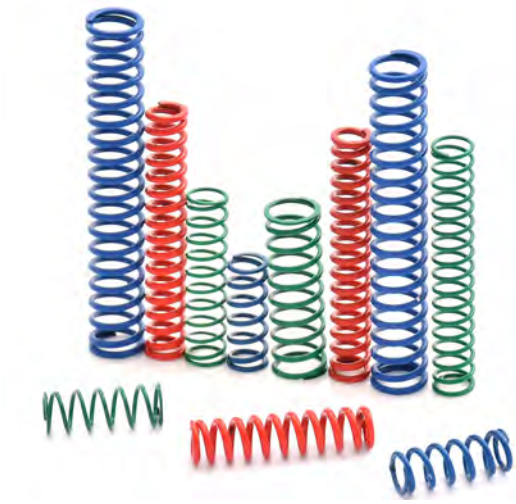
Small Series

Tolerances:

"R" ± 10% "D" ± 0.5 mm

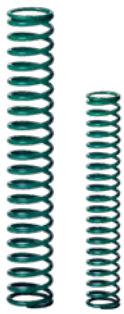
Mateiral:

UNI EN 10270-1 SH

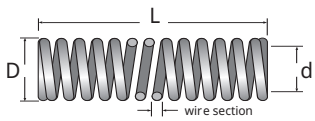


The small springs in this catalogue are made from round crosssection wire and are subdivided in three series. Each series has its own colour which allows easy identification. We make the pressing to solid also on these springs to avoid considerable settlements when the springs work.

D: Outer Diameter
d: Rod Diameter
L: Length
R: Load Rate (N)
S - Max: Stroke
F - Max: Load N



Small Series Green

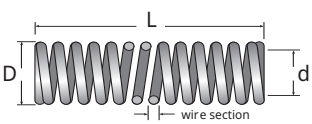


Light Load Spring - Round Wire

Code: **TVY**

Order Code	D	d	L	R	S - Max	F - Max
TVY 0616	6	4.7	16	1.60	10	16
TVY 0625			25	0.86	15	13
TVY 0638			38	0.64	23	15
TVY 0651	wire section 0.6 mm		51	0.38	31	12
TVY 0816	8	6.2	16	2.40	9	22
TVY 0825			25	1.30	14	18
TVY 0838			38	0.82	21	17
TVY 0851	wire section 0.8 mm		51	0.56	28	16

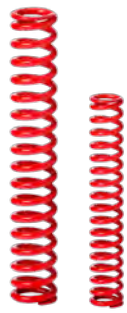
Small Series Blue



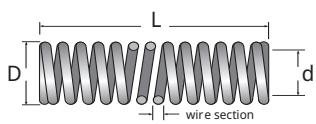
Medium Load Spring - Round Wire

Code: **TBM**

Order Code	D	d	L	R	S - Max	F - Max
TBM 0616	6	4.2	16	5.20	8.5	44
TBM 0625			25	3.06	13	40
TBM 0638			38	1.86	20	37
TBM 0651	wire section 0.8 mm		51	1.56	27	45
TBM 0816	8	5.8	16	7.23	9	65
TBM 0825			25	3.90	13	51
TBM 0838			38	2.36	20	47
TBM 0851	wire section 1 mm		51	1.64	26	43



Small Series Red



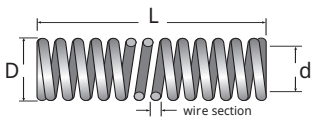
Heavy Load Spring - Round Wire

Code: **TRK**

Order Code	D	d	L	R	S - Max	F - Max
TRK 0616	6	3.9	16	12.78	8	102
TRK 0625			25	6.26	12	75
TRK 0638			38	5.0	19	95
TRK 0651	wire section 1 mm		51	3.64	25	91
TRK 0816	8	5.5	16	16.94	8	136
TRK 0825			25	10.02	11	110
TRK 0838			38	6.24	17	106
TRK 0851	wire section 1.2 mm		51	4.36	22	96

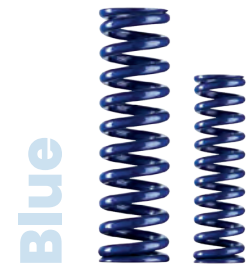
Light Load Spring Round Wire

Code: **TVY**



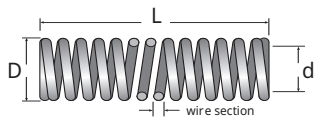
D	d	L	R	XLL 30 %		Max. 40 %	
				S1	F1	S2	F2
10	5	25	4.4	6.3	28	10.0	44
		32	3.4	8.0	27	12.8	44
		38	2.8	9.5	27	15.2	43
		44	2.4	11.0	26	17.6	42
		51	2.1	12.8	27	20.4	43
		64	1.6	16.0	26	25.6	41
		76	1.3	19.0	25	30.4	40
wire section 1.1 mm		305	0.3	76.3	23	122	37
13	6.3	25	8.5	6.3	54	10.0	85
		32	6.5	8.0	52	12.8	83
		38	5.3	9.5	50	15.2	81
		44	4.4	11.0	48	17.6	77
		51	3.8	12.8	49	20.4	78
		64	2.9	16.0	46	25.6	74
		76	2.5	19.0	48	30.4	76
		89	2.1	22.3	47	35.6	75
wire section 1.5 mm		305	0.6	76.3	46	122	73
16	8	25	17.9	6.3	113	10.0	179
		32	13.5	8.0	108	12.8	173
		38	10.5	9.5	100	15.2	160
		44	8.8	11.0	97	17.6	155
		51	7.6	12.8	97	20.4	155
		64	5.9	16.0	94	25.6	151
		76	4.8	19.0	91	30.4	146
		89	4.0	22.3	89	35.6	142
		102	3.5	25.5	89	40.8	143
wire section 2.0 mm		305	1.1	76.3	84	122	134

Order: **TVY.** D x L



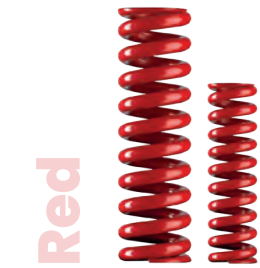
Medium Load Spring Round Wire

Code: **TBM**



D	d	L	R	XLL 30 %		Max. 40 %	
				S1	F1	S2	F2
10	5	25	12.3	6.3	77	9.4	115
		32	9.5	8.0	76	12.01	114
		38	7.8	9.5	74	14.3	111
		44	6.5	11.0	72	16.5	107
		51	5.6	12.8	71	19.1	107
		64	4.5	16.0	72	24.0	108
		76	3.7	19.0	70	28.5	105
wire section 1.5		305	0.9	76.3	69	114.4	103
13	6.3	25	6.3	6.3	136	9.4	203
		32	8.0	8.0	134	12.0	202
		38	9.5	9.5	131	14.3	197
		44	11.0	11.0	128	16.5	191
		51	12.8	12.8	128	19.1	191
		64	16.0	16.0	125	24.0	187
		76	19.0	19.0	122	28.5	182
		89	22.3	22.3	125	33.4	187
wire section 1.8		305	76.3	76.3	114	114.4	172
16	8	25	6.3	6.3	199	9.4	299
		32	8.0	8.0	192	12.0	288
		38	9.5	9.5	184	14.3	276
		44	11.0	11.0	177	16.5	266
		51	12.8	12.8	176	19.1	264
		64	16.0	16.0	171	24.0	257
		76	19.0	19.0	167	28.5	251
		89	22.3	22.3	167	33.4	250
		102	25.5	25.5	166	38.3	249
wire section 2.2		305	76.3	76.3	160	114.4	240

Order: **TBM.** D x L



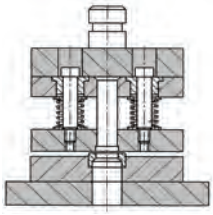
Heavy Load Spring Round Wire

Code: **TRK**

D	d	L	R	XLL 30 %		Max. 40 %	
				S1	F1	S2	F2
10	5	25	20.7	5.0	104	7.5	155
		32	16.1	6.4	103	9.6	155
		38	13.0	7.6	99	11.4	148
		44	10.9	8.8	96	13.2	144
		51	9.6	10.2	98	15.3	147
		64	7.7	12.8	99	19.2	147
		76	6.3	15.2	96	22.8	144
wire section 1.6		305	1.5	61.0	92	91.5	137
13	6.3	25	37.5	5.0	188	7.5	281
		32	28.9	6.4	185	9.6	277
		38	23.5	7.6	179	11.4	268
		44	19.6	8.8	172	13.2	259
		51	17.3	10.2	176	15.3	265
		64	13.5	12.8	173	19.2	259
		76	11.2	15.2	170	22.8	255
		89	9.5	17.8	169	26.7	254
wire section 2.1		305	2.7	61.0	165	91.5	247
16	8	25	81.6	5.0	404	7.5	612
		32	61.3	64	392	9.6	588
		38	49.9	7.6	379	11.4	569
		44	40.8	8.8	359	13.2	539
		51	35.6	10.2	363	15.3	545
		64	27.8	12.8	356	19.2	534
		76	22.8	15.2	347	22.8	520
		89	19.6	17.8	349	26.7	523
		102	17.0	20.4	347	30.6	520
wire section 2.8		305	5.4	61.0	329	91.5	494

Order: **TRK.** D x L

D: Outer Diameter **L:** Length **XLL %:** Long Life Deflection **S1:** Deflection **S2:** Defleciton
d: Rod Diameter **R:** Load Rate (N) **Max %:** Max. Working Deflection **F1:** Load N **F2:** Load N

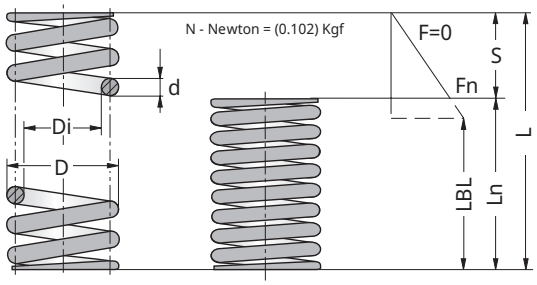


Pre-loading force and deviation should be determined
by the designer. Initially, 5 mm pre-loading should be applied.

Round Wire Compression Spring

Code: **YYH**

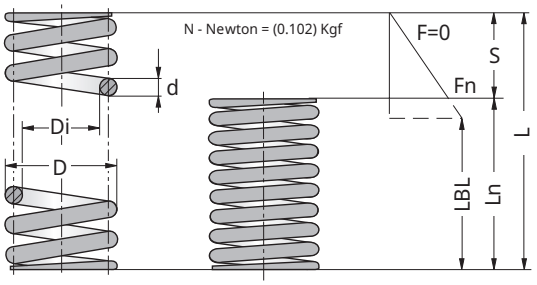
Light Duty & High Stroke



Round Wire Compression Spring

Code: **YYS**

Standard Performance



D: Average outer diameter **/ Di:** Slot diameter **/ d:** Spring wire diameter **/ S:** Total clamping **/ L:** Free length **/ Ln:** Length at load
LBL: Closed spring length **/ F:** Force / Newton **/ Fn:** Pressure force

D	L	Di	d	S	Fn	Ln	LBL
10	40	7.0	1.5	18.9	148	21.1	18.0
12	55	9.0	1.5	30.0	103	25.0	22.0
14	40	10.0	2.0	19.1	243	20.9	18.0
14	50	10.0	2.0	24.0	228	26.0	23.0
15	40	11.0	2.0	19.5	221	20.5	16.0
15	100	11.0	2.0	58.5	245	41.5	39.0
17	85	12.5	2.25	41.0	265	44.0	32.0
17.5	45	11.5	3.0	13.0	422	32.0	30.0
17.5	50	11.5	3.0	15.0	434	35.0	33.0
18	83	10	4.0	18.0	1198	65.0	62.0
19	35	11	4.0	5.0	697	30.0	28.0
19	90	10	4.50	17.0	1669	73.0	70.0
19.5	35	14.5	2.50	14.0	186	21.0	19.0
19.5	40	13.5	3.0	14.0	398	36.0	24.0
20.5	95	15.5	2.50	54.0	262	41.0	39.0
21	40	13	4.0	11.0	1148	29.0	27.0
21.5	45	15.5	3.0	20.0	436	25.0	23.0
21.5	50	13.5	4.0	15.0	1099	35.0	32.0
22	45	16	3.0	21.7	387	23.3	19.5
22	70	16	3.0	29.4	387	40.6	28.5
22	100	16	3.0	38.7	387	61.3	40.5
23	130	16	3.5	43.4	579	86.6	59.5
23	160	16	3.5	54.6	579	105.4	73.3
23	190	16	3.5	64.8	579	125.2	86.0
24	220	16	4.0	62.4	765	157.6	112.0
24	250	16	4.0	71.6	765	178.4	128.0
25	24	17	4.0	7.00	790	17.0	16.0
27.8	70	13.8	7.0	8.00	3014	62.0	62.0
30	70	22.0	4.0	32.5	739	37.5	32.0
30	150	17.0	6.5	34.0	3142	116.0	107.0

Order:
YYH. D x L

Material:
Spring Steel, Hardened.

D	L	Di	d	S	Fn	Ln	LBL
13	55	10.0	1.50	25.2	112	25.3	12.0
15	50	11.0	2.00	21.2	250	25.0	9.50
16	40	12.0	2.00	17.0	220	20.0	7.00
18	85	13.4	2.30	37.4	260	41.0	14.0
19	50	13.0	3.00	13.6	480	34.0	8.50
20.5	90	11.5	4.50	15.0	1714	72.4	4.00
21	40	15.0	3.00	11.9	450	26.0	5.50
22	95	17.0	2.50	41.5	200	46.2	17.0
23	50	15.0	4.00	13.3	1160	34.4	6.50
26.5	24	18.5	4.00	6.10	960	16.8	2.00
30	70	16.0	7.00	9.30	3750	59.0	8.00
32	70	24.0	4.00	28.9	822	36.0	6.00
34	125	22.0	6.00	27.2	2150	93.0	11.5
44	130	28.0	8.00	30.6	3895	94.0	10.0
48	67	28.0	10.0	7.60	5760	58.0	3.50
49	50	32.0	8.50	9.30	3707	39.0	2.50
58	50	42.0	8.00	11.9	2117	36.0	2.50
63	180	41.0	11.0	36.6	5203	137	10.0

Order:
YYS. D x L

Material:
Spring Steel, Hardened.

These springs from spring steel as winding / with high tension heat treated are used in table data standards **DIN 2095** or optionally both inactive and oscillatory loads. Optionally, they can be used in cases that are posed due to severe, hard impacts and vibrant load or when there are high expectations from spring life. Both types have flattened, forged coils and their surface are homogenized with shot blasting process. All springs are supplied as lubricated. All these springs can be produced in the desired lengths and diameters. **Maximum working temperature: 200°C.**