

Spring elements

- System springs, system spring units
- Elastomer springs
- Thrust pieces





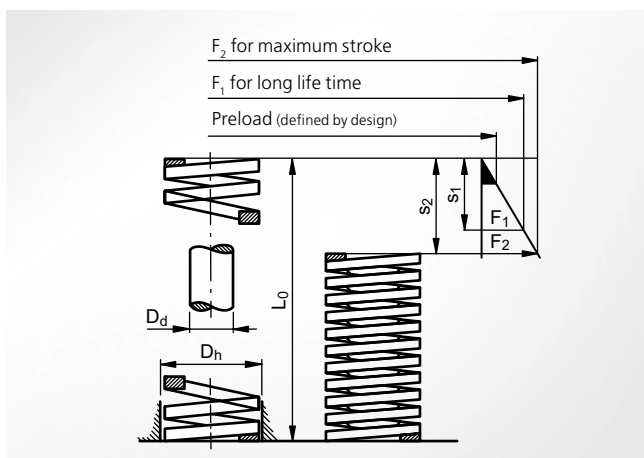


STEINEL system springs are available in eight types of load, as well as various diameters and lengths. Types of load are colour-marked so that they can be immediately told apart.

Technical features

- alloyed valve spring steel
- heat-treated
- shot-blasted
- set
- powder-coated
- Application up to 180°C
- Forces up to 4500 daN over the maximum stroke

General spring characteristic image



The "long life time" is recommended for the optimal design of the spring. The data on the maximum stroke can be found on the corresponding product pages. The tolerances for the length L_0 of the unloaded spring are $\pm 1\%$, at least ± 0.75 mm.

D_d = Pin diameter in mm (inner guide)
 D_h = Sleeve diameter in mm (outer guide)
 F_1 and F_2 = Spring forces in N
 assigned to stroke s_1 and s_2
 L_0 = Length of the unloaded spring in mm
 s_1 and s_2 = Strokes in mm
 assigned to the spring forces F_1 and F_2

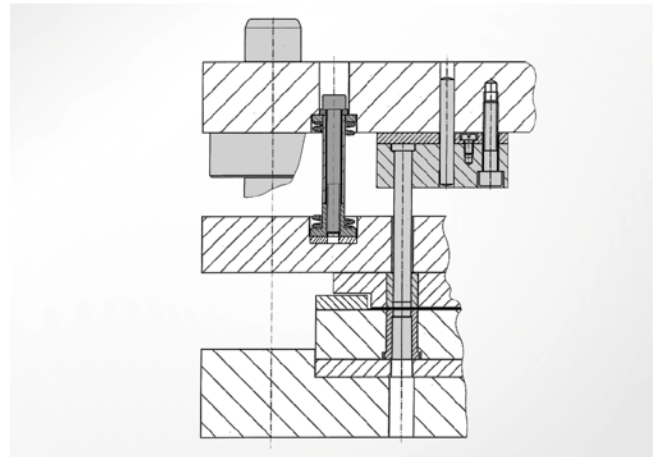
c = Spring rate in N/mm
 (Force increase per stroke)

System spring units



In addition to the standardised system springs, all components for pre-loaded system spring units are also available; this ensures a perfectly coordinated, ready-to-install combination.

System spring units in the tool



Elastomer springs



Elastomer springs made from rubber or plastic are distinguished by their high operational safety and long life times. The preferred application fields are medium and industrial tool making, where they serve as cushioning for scrapers and wedge-type gate valves, as well as supports for tool upper parts.

Elastomer springs must be guided with the aid of guide pins. These determine the position of the springs and prevent lateral buckling. Elastomer springs can also be used as individual springs as well as stacked spring units. When stacking, guide pins and metallic discs are required.

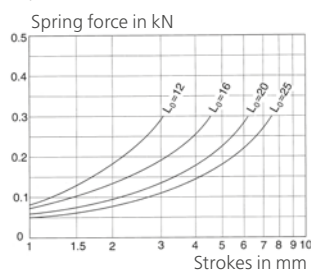
Rubber springs

The material is high-quality chloroprene elastomer (CR) with a hardness value of 70 ± 3 Shore-A. It is distinguished by its

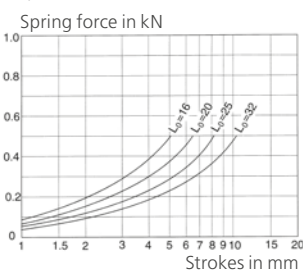
high level of elasticity and resistance to breakage, as well as its good resistance to oil.

Force path diagrams for rubber springs

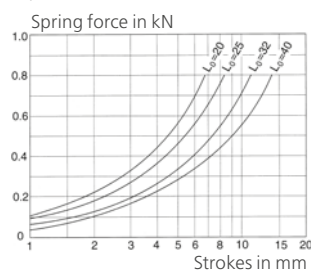
D_a 16



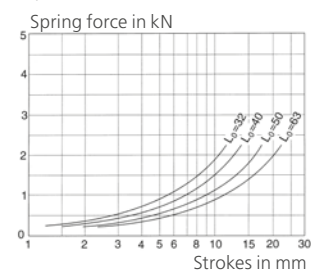
D_a 20



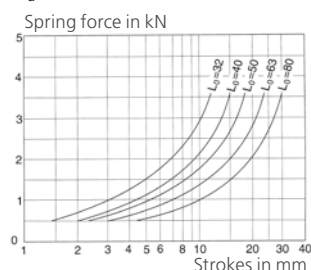
D_a 25



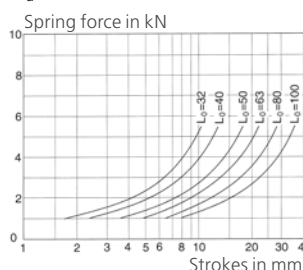
D_a 32



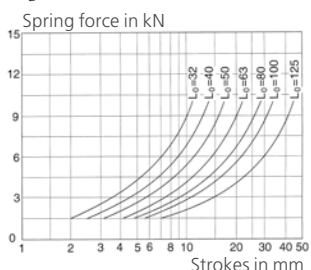
D_a 40



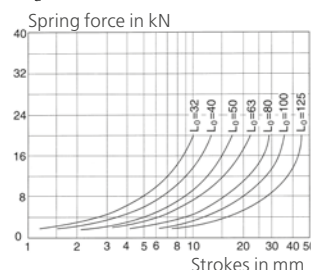
D_a 50



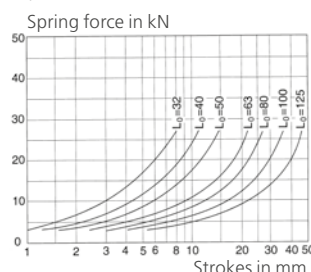
D_a 63



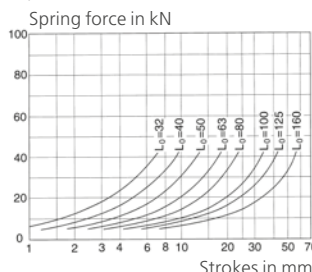
D_a 80



D_a 100



D_a 125



Elastomer springs

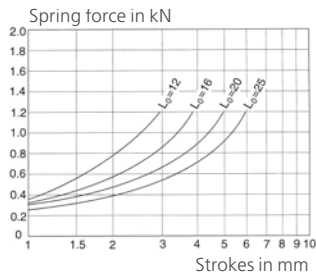
Elastomer springs

This material is a high-quality polyurethane elastomer (PUR) with a hardness value of 90 ± 5 Shore-A. It is distinguished by its imperviousness to chemical and mechanical influences. At

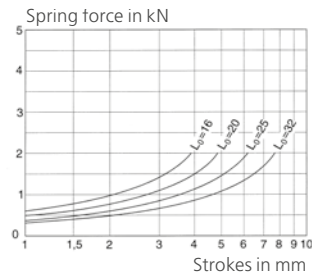
the same sizes, elastomer springs have a greater spring force than rubber springs. They are ideally suitable for use wherever high forces are required for small dimensions.

Force path diagrams for elastomer springs

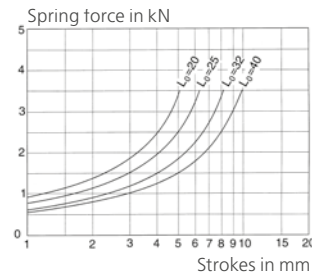
D_a 16



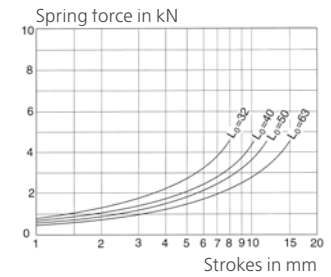
D_a 20



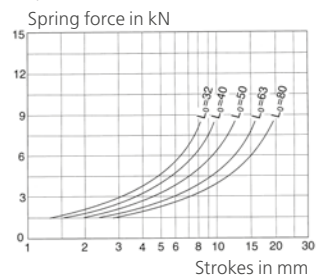
D_a 25



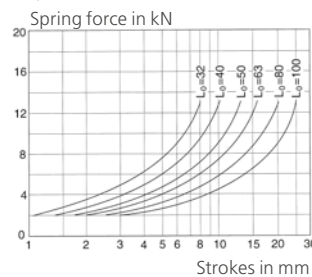
D_a 32



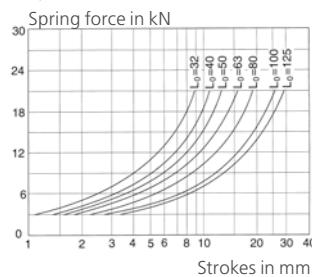
D_a 40



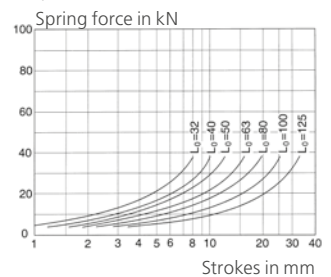
D_a 50



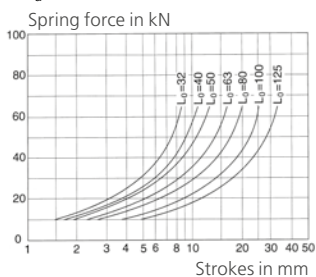
D_a 63



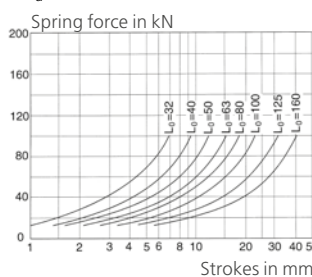
D_a 80



D_a 100



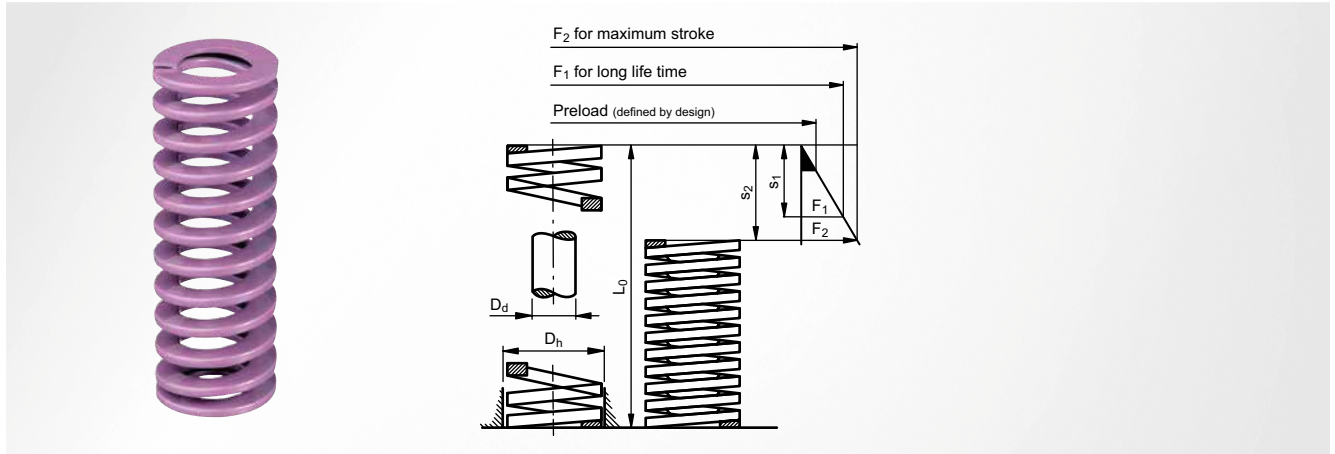
D_a 125



In addition to their usual round design, elastomer springs are also available as rectangular rods or plate material. Mechanical reworking tasks such as water jet cutting, turning, drilling and milling can be carried out without any problems.

SZ8005 System spring

extra light load, identification colour lilac



Material

Profiled valve spring steel wire (52SiCrNi5)

Wire cross-section

rectangular

Spring type

Helical compression spring

Note

Spring is set, closed and rectangular ground

Sleeve Ø D_h^{H15}	Pin Ø D_d^{H15}	Wire	L_0	Spring rate N/mm $c \pm 10\%$	long life time		max. stroke		Item number
					$s_1^{35\%}$	F_1 N	$s_2^{50\%}$	F_2 N	
10.0	5.0	2.1 x 0.9	25	8.5	8.8	74	12.5	106	SZ8005 10 x 025
			32	6.5	11.2	73	16.0	104	SZ8005 10 x 032
			38	5.5	13.3	73	19.0	105	SZ8005 10 x 038
			44	5.0	15.4	77	22.0	110	SZ8005 10 x 044
			51	4.5	17.9	80	25.5	115	SZ8005 10 x 051
			64	3.3	22.4	74	32.0	106	SZ8005 10 x 064
			76	3.2	26.6	85	38.0	122	SZ8005 10 x 076
			305	0.6	106.8	64	152.5	92	SZ8005 10 x 305
12.5	6.3	2.5 x 1.2	25	15.5	8.8	136	12.5	194	SZ8005 13 x 025
			32	12.2	11.2	137	16.0	195	SZ8005 13 x 032
			38	10.3	13.3	137	19.0	196	SZ8005 13 x 038
			44	8.7	15.4	134	22.0	191	SZ8005 13 x 044
			51	7.5	17.9	134	25.5	191	SZ8005 13 x 051
			64	5.8	22.4	130	32.0	186	SZ8005 13 x 064
			76	4.7	26.6	125	38.0	179	SZ8005 13 x 076
			89	4.1	31.2	128	44.5	182	SZ8005 13 x 089
			102	3.6	35.7	129	51.0	184	SZ8005 13 x 102
			305	1.2	106.8	128	152.5	183	SZ8005 13 x 305
16.0	8.0	3.4 x 1.2	25	20.2	8.8	177	12.5	253	SZ8005 16 x 025
			32	14.4	11.2	161	16.0	230	SZ8005 16 x 032
			38	12.3	13.3	164	19.0	234	SZ8005 16 x 038
			44	10.6	15.4	163	22.0	233	SZ8005 16 x 044
			51	8.9	17.9	159	25.5	227	SZ8005 16 x 051
			64	7.0	22.4	157	32.0	224	SZ8005 16 x 064
			76	5.8	26.6	154	38.0	220	SZ8005 16 x 076
			89	4.8	31.2	150	44.5	214	SZ8005 16 x 089
			102	4.0	35.7	143	51.0	204	SZ8005 16 x 102
			115	3.9	40.3	157	57.5	224	SZ8005 16 x 115
			305	1.5	106.8	160	152.5	229	SZ8005 16 x 305
20.0	10.0	4.0 x 1.7	25	32.1	8.8	281	12.5	401	SZ8005 20 x 025
			32	24.7	11.2	277	16.0	395	SZ8005 20 x 032
			38	20.7	13.3	275	19.0	393	SZ8005 20 x 038
			44	17.8	15.4	274	22.0	392	SZ8005 20 x 044
			51	15.3	17.9	273	25.5	390	SZ8005 20 x 051
			64	12.1	22.4	271	32.0	387	SZ8005 20 x 064

extra light load, identification colour lilac

Sleeve Ø D _h ^{H15}	Pin Ø D _d ^{H15}	Wire	L ₀	Spring rate N/mm c ±10 %	long life time		max. stroke		Item number
					s ₁ ^{35 %}	F ₁ N	s ₂ ^{50 %}	F ₂ N	
20.0	10.0	4.0 x 1.7	76	10.2	26.6	271	38.0	388	SZ8005 20 x 076
			89	8.6	31.2	268	44.5	383	SZ8005 20 x 089
			102	7.5	35.7	268	51.0	383	SZ8005 20 x 102
			115	6.7	40.3	270	57.5	385	SZ8005 20 x 115
			127	6.1	44.5	271	63.5	387	SZ8005 20 x 127
			139	5.5	48.7	268	69.5	382	SZ8005 20 x 139
			152	5.1	53.2	271	76.0	388	SZ8005 20 x 152
			305	2.5	106.8	267	152.5	381	SZ8005 20 x 305
25.0	12.5	5.4 x 2.2	25	52.7	8.8	461	12.5	659	SZ8005 25 x 025
			32	40.0	11.2	448	16.0	640	SZ8005 25 x 032
			38	33.3	13.3	443	19.0	633	SZ8005 25 x 038
			44	28.6	15.4	440	22.0	629	SZ8005 25 x 044
			51	24.7	17.9	441	25.5	630	SZ8005 25 x 051
			64	19.4	22.4	435	32.0	621	SZ8005 25 x 064
			76	16.3	26.6	434	38.0	619	SZ8005 25 x 076
			89	13.9	31.2	433	44.5	619	SZ8005 25 x 089
			102	12.1	35.7	432	51.0	617	SZ8005 25 x 102
			115	10.8	40.3	435	57.5	621	SZ8005 25 x 115
			127	9.8	44.5	436	63.5	622	SZ8005 25 x 127
			139	8.9	48.7	433	69.5	619	SZ8005 25 x 139
			152	8.1	53.2	431	76.0	616	SZ8005 25 x 152
			178	6.9	62.3	430	89.0	614	SZ8005 25 x 178
			203	6.1	71.1	433	101.5	619	SZ8005 25 x 203
			305	4.0	106.8	427	152.5	610	SZ8005 25 x 305
32.0	16.0	6.4 x 2.7	38	43.8	13.3	583	19.0	832	SZ8005 32 x 038
			44	37.5	15.4	578	22.0	825	SZ8005 32 x 044
			51	32.3	17.9	577	25.5	824	SZ8005 32 x 051
			64	25.4	22.4	569	32.0	813	SZ8005 32 x 064
			76	21.3	26.6	567	38.0	809	SZ8005 32 x 076
			89	18.1	31.2	564	44.5	805	SZ8005 32 x 089
			102	15.8	35.7	564	51.0	806	SZ8005 32 x 102
			115	13.9	40.3	559	57.5	799	SZ8005 32 x 115
			127	12.6	44.5	560	63.5	800	SZ8005 32 x 127
			139	11.4	48.7	555	69.5	792	SZ8005 32 x 139
			152	10.5	53.2	559	76.0	798	SZ8005 32 x 152
			178	8.9	62.3	554	89.0	792	SZ8005 32 x 178
			203	7.8	71.1	554	101.5	792	SZ8005 32 x 203
			254	6.2	88.9	551	127.0	787	SZ8005 32 x 254
			305	5.2	106.8	555	152.5	793	SZ8005 32 x 305
40.0	20.0	7.8 x 3.4	51	50.8	17.9	907	25.5	1295	SZ8005 40 x 051
			64	39.7	22.4	889	32.0	1270	SZ8005 40 x 064
			76	33.1	26.6	880	38.0	1258	SZ8005 40 x 076
			89	28.1	31.2	875	44.5	1250	SZ8005 40 x 089
			102	24.5	35.7	875	51.0	1250	SZ8005 40 x 102
			115	21.6	40.3	869	57.5	1242	SZ8005 40 x 115
			127	19.5	44.5	867	63.5	1238	SZ8005 40 x 127
			139	17.8	48.7	866	69.5	1237	SZ8005 40 x 139
			152	16.3	53.2	867	76.0	1239	SZ8005 40 x 152
			178	13.8	62.3	860	89.0	1228	SZ8005 40 x 178
			203	12.1	71.1	860	101.5	1228	SZ8005 40 x 203
			254	9.7	88.9	862	127.0	1232	SZ8005 40 x 254
			305	8.0	106.8	854	152.5	1220	SZ8005 40 x 305
50.0	25.0	10.7 x 4.4	64	80.2	22.4	1796	32.0	2566	SZ8005 50 x 064
			76	66.9	26.6	1780	38.0	2542	SZ8005 50 x 076
			89	56.6	31.2	1763	44.5	2519	SZ8005 50 x 089
			102	49.3	35.7	1760	51.0	2514	SZ8005 50 x 102
			115	43.5	40.3	1751	57.5	2501	SZ8005 50 x 115
			127	39.3	44.5	1747	63.5	2496	SZ8005 50 x 127

SZ8005 System spring

STEINEL®

extra light load, identification colour lilac

Sleeve Ø D_h^{H15}	Pin Ø D_d^{H15}	Wire	L_0	Spring rate N/mm $c \pm 10\%$	long life time		max. stroke		Item number
					$s_1^{35\%}$	F_1 N	$s_2^{50\%}$	F_2 N	
50.0	25.0	10.7 x 4.4	139	35.8	48.7	1742	69.5	2488	SZ8005 50 x 139
			152	32.8	53.2	1745	76.0	2493	SZ8005 50 x 152
			178	27.8	62.3	1732	89.0	2474	SZ8005 50 x 178
			203	24.2	71.1	1719	101.5	2456	SZ8005 50 x 203
			254	19.2	88.9	1707	127.0	2438	SZ8005 50 x 254
			305	16.0	106.8	1708	152.5	2440	SZ8005 50 x 305
63.0	38.0	11.4 x 5.1	76	57.8	26.6	1537	38.0	2196	SZ8005 63 x 076
			89	51.4	31.2	1601	44.5	2287	SZ8005 63 x 089
			102	44.4	35.7	1585	51.0	2264	SZ8005 63 x 102
			115	41.6	40.3	1674	57.5	2392	SZ8005 63 x 115
			127	33.2	44.5	1476	63.5	2108	SZ8005 63 x 127
			152	27.4	53.2	1458	76.0	2082	SZ8005 63 x 152
			178	24.0	62.3	1495	89.0	2136	SZ8005 63 x 178
			203	21.0	71.1	1492	101.5	2132	SZ8005 63 x 203
			254	16.4	88.9	1458	127.0	2083	SZ8005 63 x 254
			305	13.6	106.8	1452	152.5	2074	SZ8005 63 x 305

Nitrogen
systems

Tapping
units

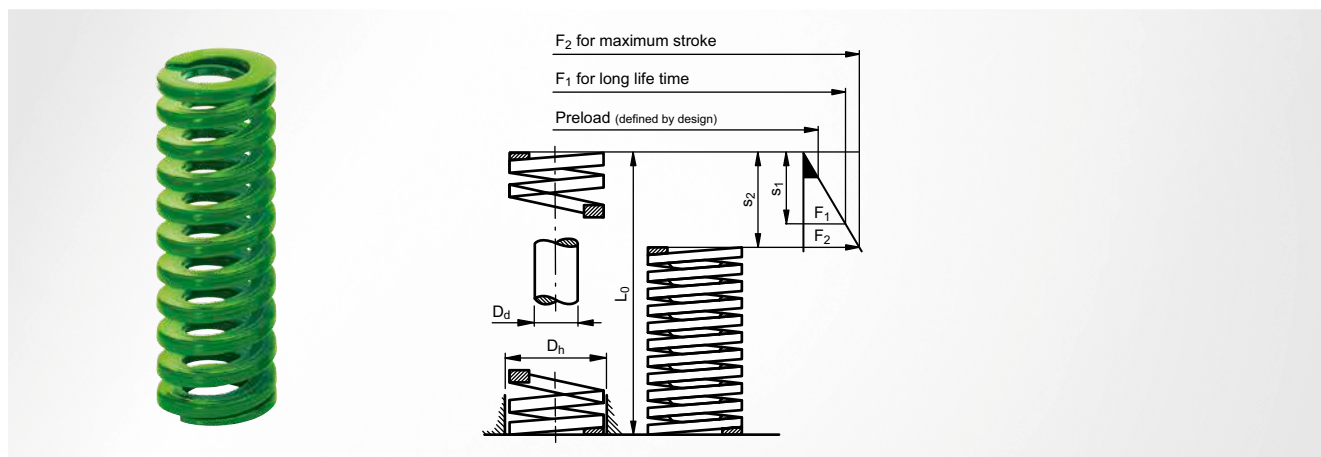
Module
system

Machine
elements

Accessories

SZ8010 System spring

light load, identification colour green



ISO 10243

Material

Profiled valve spring steel wire (52SiCrNi5)

Spring type

Helical compression spring

Wire cross-section

rectangular

Note

Spring is set, closed and rectangular ground

Sleeve Ø D_h^{H15}	Pin Ø D_d^{h15}	Wire	L_0	Spring rate N/mm $c \pm 10\%$	long life time		max. stroke		Item number
					$s_1^{30\%}$	F_1 N	$s_2^{40\%}$	F_2 N	
10.0	5.0	1.7 x 1.1	25	11.0	7.5	83	10.0	110	SZ8010 10 x 025
			32	8.5	9.6	82	12.8	109	SZ8010 10 x 032
			38	6.8	11.4	78	15.2	103	SZ8010 10 x 038
			44	6.0	13.2	79	17.6	106	SZ8010 10 x 044
			51	5.0	15.3	77	20.4	102	SZ8010 10 x 051
			64	4.1	19.2	79	25.6	105	SZ8010 10 x 064
			76	3.6	22.8	82	30.4	109	SZ8010 10 x 076
			305	0.9	91.5	82	122.0	110	SZ8010 10 x 305
12.5	6.3	2.3 x 1.5	25	21.0	7.5	158	10.0	210	SZ8010 13 x 025
			32	16.4	9.6	157	12.8	210	SZ8010 13 x 032
			38	13.6	11.4	155	15.2	207	SZ8010 13 x 038
			44	12.1	13.2	160	17.6	213	SZ8010 13 x 044
			51	10.3	15.3	158	20.4	210	SZ8010 13 x 051
			64	7.6	19.2	146	25.6	195	SZ8010 13 x 064
			76	6.3	22.8	144	30.4	192	SZ8010 13 x 076
			89	5.4	26.7	144	35.6	192	SZ8010 13 x 089
			102	4.6	30.6	141	40.8	188	SZ8010 13 x 102
			305	1.6	91.5	146	122.0	195	SZ8010 13 x 305
16.0	8.0	3.2 x 1.7	25	29.0	7.5	218	10.0	290	SZ8010 16 x 025
			32	22.9	9.6	220	12.8	293	SZ8010 16 x 032
			38	19.3	11.4	220	15.2	293	SZ8010 16 x 038
			44	17.1	13.2	226	17.6	301	SZ8010 16 x 044
			51	14.0	15.3	214	20.4	286	SZ8010 16 x 051
			64	10.7	19.2	205	25.6	274	SZ8010 16 x 064
			76	9.0	22.8	205	30.4	274	SZ8010 16 x 076
			89	7.3	26.7	195	35.6	260	SZ8010 16 x 089
			102	6.8	30.6	208	40.8	277	SZ8010 16 x 102
			115	7.0	34.5	242	46.0	322	SZ8010 16 x 115
			305	2.3	91.5	210	122.0	281	SZ8010 16 x 305
20.0	10.0	4.0 x 2.1	25	55.8	7.5	419	10.0	558	SZ8010 20 x 025
			32	45.0	9.6	432	12.8	576	SZ8010 20 x 032
			38	36.0	11.4	410	15.2	547	SZ8010 20 x 038
			44	30.0	13.2	396	17.6	528	SZ8010 20 x 044

SZ8010 System spring

light load, identification colour green

Sleeve Ø D _h ^{H15}	Pin Ø D _d ^{H15}	Wire	L ₀	Spring rate N/mm c ±10 %	long life time		max. stroke		Item number
					s ₁ ^{30 %}	F ₁ N	s ₂ ^{40 %}	F ₂ N	
20.0	10.0	4.0 x 2.1	51	24.5	15.3	375	20.4	500	SZ8010 20 x 051
			64	19.2	19.2	369	25.6	492	SZ8010 20 x 064
			76	16.0	22.8	365	30.4	486	SZ8010 20 x 076
			89	14.0	26.7	374	35.6	498	SZ8010 20 x 089
			102	12.0	30.6	367	40.8	490	SZ8010 20 x 102
			115	10.9	34.5	376	46.0	501	SZ8010 20 x 115
			127	9.5	38.1	362	50.8	483	SZ8010 20 x 127
			139	8.4	41.7	350	55.6	467	SZ8010 20 x 139
			152	7.5	45.6	342	60.8	456	SZ8010 20 x 152
			305	4.0	91.5	366	122.0	488	SZ8010 20 x 305
25.0	12.5	5.3 x 2.7	25	105.0	7.5	788	10.0	1050	SZ8010 25 x 025
			32	80.3	9.6	771	12.8	1028	SZ8010 25 x 032
			38	62.0	11.4	707	15.2	942	SZ8010 25 x 038
			44	52.9	13.2	698	17.6	931	SZ8010 25 x 044
			51	44.0	15.3	673	20.4	898	SZ8010 25 x 051
			64	35.2	19.2	676	25.6	901	SZ8010 25 x 064
			76	28.0	22.8	638	30.4	851	SZ8010 25 x 076
			89	24.0	26.7	641	35.6	854	SZ8010 25 x 089
			102	21.1	30.6	646	40.8	861	SZ8010 25 x 102
			115	18.7	34.5	645	46.0	860	SZ8010 25 x 115
			127	16.7	38.1	636	50.8	848	SZ8010 25 x 127
			139	15.3	41.7	638	55.6	851	SZ8010 25 x 139
			152	14.0	45.6	638	60.8	851	SZ8010 25 x 152
			178	12.5	53.4	668	71.2	890	SZ8010 25 x 178
			203	10.4	60.9	633	81.2	844	SZ8010 25 x 203
			305	7.0	91.5	641	122.0	854	SZ8010 25 x 305
32.0	16.0	6.7 x 3.3	38	98.0	11.4	1117	15.2	1490	SZ8010 32 x 038
			44	79.5	13.2	1049	17.6	1399	SZ8010 32 x 044
			51	67.0	15.3	1025	20.4	1367	SZ8010 32 x 051
			64	53.0	19.2	1018	25.6	1357	SZ8010 32 x 064
			76	44.0	22.8	1003	30.4	1338	SZ8010 32 x 076
			89	37.2	26.7	993	35.6	1324	SZ8010 32 x 089
			102	32.0	30.6	979	40.8	1306	SZ8010 32 x 102
			115	29.0	34.5	1001	46.0	1334	SZ8010 32 x 115
			127	25.0	38.1	953	50.8	1270	SZ8010 32 x 127
			139	23.0	41.7	959	55.6	1279	SZ8010 32 x 139
			152	21.5	45.6	980	60.8	1307	SZ8010 32 x 152
			178	18.2	53.4	972	71.2	1296	SZ8010 32 x 178
			203	15.8	60.9	962	81.2	1283	SZ8010 32 x 203
			254	12.5	76.2	953	101.6	1275	SZ8010 32 x 254
			305	10.3	91.5	942	122.0	1257	SZ8010 32 x 305
40.0	20.0	8.0 x 4.0	51	92.0	15.3	1408	20.4	1877	SZ8010 40 x 051
			64	73.0	19.2	1402	25.6	1869	SZ8010 40 x 064
			76	63.0	22.8	1436	30.4	1915	SZ8010 40 x 076
			89	51.0	26.7	1362	35.6	1816	SZ8010 40 x 089
			102	44.5	30.6	1362	40.8	1816	SZ8010 40 x 102
			115	39.6	34.5	1366	46.0	1822	SZ8010 40 x 115
			127	36.0	38.1	1372	50.8	1829	SZ8010 40 x 127
			139	32.0	41.7	1334	55.6	1779	SZ8010 40 x 139
			152	28.0	45.6	1277	60.8	1702	SZ8010 40 x 152
			178	25.2	53.4	1346	71.2	1794	SZ8010 40 x 178
			203	21.8	60.9	1328	81.2	1770	SZ8010 40 x 203
			254	17.0	76.2	1295	101.6	1734	SZ8010 40 x 254
			305	14.8	91.5	1354	122.0	1806	SZ8010 40 x 305
50.0	25.0	11.1 x 5.5	64	156.0	19.2	2995	25.6	3994	SZ8010 50 x 064
			76	125.0	22.8	2850	30.4	3800	SZ8010 50 x 076
			89	109.0	26.7	2910	35.6	3880	SZ8010 50 x 089
			102	94.0	30.6	2876	40.8	3835	SZ8010 50 x 102

Nitrogen
systems

Tapping
units

Module
system

Machine
elements

Accessories

SZ8010 System spring

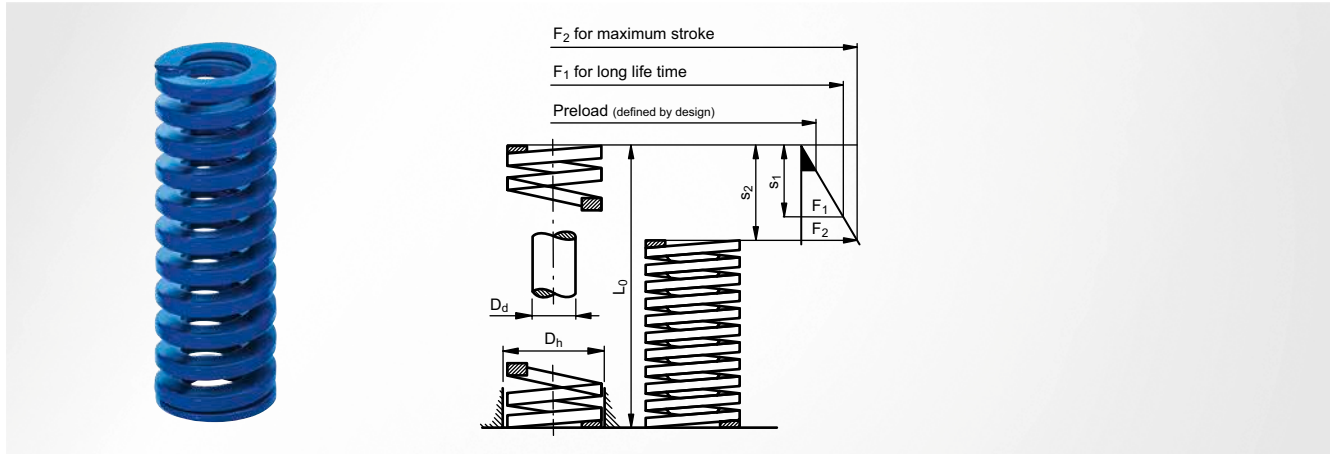


light load, identification colour green

Sleeve Ø D_h^{H15}	Pin Ø D_d^{H15}	Wire	L_0	Spring rate N/mm $c_{\pm 10\%}$	long life time		max. stroke		Item number
					$s_1^{30\%}$	F_1 N	$s_2^{40\%}$	F_2 N	
50.0	25.0	11.1 x 5.5	115	81.0	34.5	2795	46.0	3726	SZ8010 50 x 115
			127	71.0	38.1	2705	50.8	3607	SZ8010 50 x 127
			139	66.5	41.7	2773	55.6	3697	SZ8010 50 x 139
			152	60.0	45.6	2736	60.8	3648	SZ8010 50 x 152
			178	52.0	53.4	2777	71.2	3702	SZ8010 50 x 178
			203	44.0	60.9	2680	81.2	3573	SZ8010 50 x 203
			229	38.2	68.7	2624	91.6	3499	SZ8010 50 x 229
			254	35.0	76.2	2667	101.6	3570	SZ8010 50 x 254
			305	28.5	91.5	2608	122.0	3477	SZ8010 50 x 305
63.0	38.0	11.6 x 7.7	76	189.0	22.8	4309	30.4	5746	SZ8010 63 x 076
			89	158.0	26.7	4219	35.6	5625	SZ8010 63 x 089
			102	131.0	30.6	4009	40.8	5345	SZ8010 63 x 102
			115	116.0	34.5	4002	46.0	5336	SZ8010 63 x 115
			127	103.0	38.1	3924	50.8	5232	SZ8010 63 x 127
			152	84.3	45.6	3844	60.8	5125	SZ8010 63 x 152
			178	71.5	53.4	3818	71.2	5091	SZ8010 63 x 178
			203	61.7	60.9	3758	81.2	5010	SZ8010 63 x 203
			254	47.0	76.2	3581	101.6	4775	SZ8010 63 x 254
			305	38.2	91.5	3495	122.0	4660	SZ8010 63 x 305

SZ8020 System spring

medium load, identification colour blue



ISO 10243

Wire cross-section

rectangular

Material

Profiled valve spring steel wire (52SiCrNi5)

Note

Spring is set, closed and rectangular ground

Spring type

Helical compression spring

Sleeve Ø D_h^{H15}	Pin Ø D_d^{H15}	Wire	L_0	Spring rate N/mm $c \pm 10\%$	long life time		max. stroke		Item number
					$s_1^{25\%}$	F_1 N	$s_2^{37.5\%}$	F_2 N	
10.0	5.0	1.8 x 1.2	25	16.0	6.3	100	9.4	150	SZ8020 10 x 025
			32	13.0	8.0	104	12.0	156	SZ8020 10 x 032
			38	11.9	9.5	113	14.2	169	SZ8020 10 x 038
			44	10.3	11.0	113	16.5	170	SZ8020 10 x 044
			51	8.9	12.8	113	19.1	170	SZ8020 10 x 051
			64	7.5	16.0	120	24.0	180	SZ8020 10 x 064
			76	6.2	19.0	118	28.5	177	SZ8020 10 x 076
			305	1.6	76.3	122	114.4	182	SZ8020 10 x 305
12.5	6.3	2.5 x 1.7	25	30.0	6.3	188	9.4	282	SZ8020 13 x 025
			32	24.8	8.0	198	12.0	298	SZ8020 13 x 032
			38	21.4	9.5	203	14.2	304	SZ8020 13 x 038
			44	18.0	11.0	198	16.5	297	SZ8020 13 x 044
			51	15.5	12.8	198	19.1	296	SZ8020 13 x 051
			64	12.1	16.0	194	24.0	290	SZ8020 13 x 064
			76	10.2	19.0	194	28.5	291	SZ8020 13 x 076
			89	8.4	22.3	187	33.3	280	SZ8020 13 x 089
			102	7.1	25.5	181	38.3	272	SZ8020 13 x 102
			305	2.4	76.3	183	114.0	274	SZ8020 13 x 305
16.0	8.0	3.2 x 2.0	25	49.4	6.3	309	9.4	464	SZ8020 16 x 025
			32	38.5	8.0	308	12.0	462	SZ8020 16 x 032
			38	33.9	9.5	322	14.2	481	SZ8020 16 x 038
			44	30.0	11.0	330	16.5	495	SZ8020 16 x 044
			51	26.4	12.8	337	19.1	504	SZ8020 16 x 051
			64	20.5	16.0	328	24.0	492	SZ8020 16 x 064
			76	17.8	19.0	338	28.5	507	SZ8020 16 x 076
			89	15.2	22.3	338	33.3	506	SZ8020 16 x 089
			102	13.5	25.5	344	38.2	516	SZ8020 16 x 102
			115	12.0	28.8	345	43.1	518	SZ8020 16 x 115
			305	4.3	76.3	328	114.4	490	SZ8020 16 x 305
20.0	10.0	4.0 x 2.4	25	98.0	6.3	613	9.4	921	SZ8020 20 x 025
			32	72.6	8.0	581	12.0	871	SZ8020 20 x 032
			38	56.0	9.5	532	14.2	795	SZ8020 20 x 038
			44	47.5	11.0	523	16.5	784	SZ8020 20 x 044

medium load, identification colour blue

Sleeve Ø D _h ^{H15}	Pin Ø D _d ^{H15}	Wire	L ₀	Spring rate N/mm c ±10 %	long life time		max. stroke		Item number
					s ₁ ^{25 %}	F ₁ N	s ₂ ^{37.5 %}	F ₂ N	
20.0	10.0	4.0 x 2.4	51	41.7	12.8	532	19.1	797	SZ8020 20 x 051
			64	32.3	16.0	517	24.0	775	SZ8020 20 x 064
			76	25.1	19.0	477	28.5	715	SZ8020 20 x 076
			89	22.0	22.3	490	33.3	733	SZ8020 20 x 089
			102	19.8	25.5	505	38.2	756	SZ8020 20 x 102
			115	18.1	28.8	520	43.1	780	SZ8020 20 x 115
			127	16.6	31.8	527	47.6	790	SZ8020 20 x 127
			139	15.1	34.8	525	52.1	787	SZ8020 20 x 139
			152	13.2	38.0	502	57.0	752	SZ8020 20 x 152
			305	6.1	76.3	465	114.4	695	SZ8020 20 x 305
25.0	12.5	5.3 x 3.1	25	157.0	6.3	981	9.4	1476	SZ8020 25 x 025
			32	118.0	8.0	944	12.0	1416	SZ8020 25 x 032
			38	93.0	9.5	884	14.2	1321	SZ8020 25 x 038
			44	80.8	11.0	889	16.5	1333	SZ8020 25 x 044
			51	68.6	12.8	875	19.1	1310	SZ8020 25 x 051
			64	53.0	16.0	848	24.0	1272	SZ8020 25 x 064
			76	43.2	19.0	821	28.5	1231	SZ8020 25 x 076
			89	38.2	22.3	850	33.3	1272	SZ8020 25 x 089
			102	33.0	25.5	842	38.2	1272	SZ8020 25 x 102
			115	28.0	28.8	805	43.1	1207	SZ8020 25 x 115
			127	25.9	31.8	822	47.6	1233	SZ8020 25 x 127
			139	23.2	34.8	806	52.1	1209	SZ8020 25 x 139
			152	20.8	38.0	790	57.0	1186	SZ8020 25 x 152
			178	17.8	44.5	792	66.7	1187	SZ8020 25 x 178
			203	15.8	50.8	802	76.1	1202	SZ8020 25 x 203
			305	10.2	76.3	778	114.4	1163	SZ8020 25 x 305
32.0	16.0	6.8 x 4.0	38	185.0	9.5	1758	14.2	2627	SZ8020 32 x 038
			44	158.0	11.0	1738	16.5	2607	SZ8020 32 x 044
			51	134.0	12.8	1709	19.1	2559	SZ8020 32 x 051
			64	99.0	16.0	1584	24.0	2376	SZ8020 32 x 064
			76	80.5	19.0	1530	28.5	2294	SZ8020 32 x 076
			89	69.1	22.3	1537	33.3	2301	SZ8020 32 x 089
			102	58.8	25.5	1499	38.2	2246	SZ8020 32 x 102
			115	51.5	28.8	1481	43.1	2220	SZ8020 32 x 115
			127	44.8	31.8	1422	47.6	2132	SZ8020 32 x 127
			139	42.3	34.8	1470	52.1	2204	SZ8020 32 x 139
			152	37.8	38.0	1436	57.0	2155	SZ8020 32 x 152
			178	32.5	44.5	1446	66.7	2168	SZ8020 32 x 178
			203	28.9	50.8	1467	76.1	2199	SZ8020 32 x 203
			254	22.2	63.5	1410	95.2	2113	SZ8020 32 x 254
			305	18.3	76.3	1395	114.4	2086	SZ8020 32 x 305
40.0	20.0	8.1 x 4.8	51	181.6	12.8	2315	19.1	3476	SZ8020 40 x 051
			64	140.0	16.0	2240	24.0	3360	SZ8020 40 x 064
			76	108.0	19.0	2052	28.5	3078	SZ8020 40 x 076
			89	90.7	22.3	2018	33.3	3020	SZ8020 40 x 089
			102	81.0	25.5	2066	38.2	3094	SZ8020 40 x 102
			115	71.8	28.8	2064	43.1	3095	SZ8020 40 x 115
			127	62.7	31.8	1991	47.6	2985	SZ8020 40 x 127
			139	57.5	34.8	1998	52.1	2996	SZ8020 40 x 139
			152	51.6	38.0	1961	57.0	2941	SZ8020 40 x 152
			160	47.5	40.0	1900	60.0	2850	SZ8020 40 x 160
			178	44.1	44.5	1962	66.7	2941	SZ8020 40 x 178
			203	36.7	50.8	1863	76.1	2793	SZ8020 40 x 203
			254	30.1	63.5	1911	95.2	2866	SZ8020 40 x 254
			305	24.6	76.3	1876	114.4	2804	SZ8020 40 x 305
50.0	25.0	10.9 x 6.0	64	209.0	16.0	3344	24.0	5016	SZ8020 50 x 064
			76	168.0	19.0	3192	28.5	4788	SZ8020 50 x 076
			89	140.0	22.3	3115	33.3	4662	SZ8020 50 x 089

SZ8020 System spring



medium load, identification colour blue

Sleeve Ø D_h^{H15}	Pin Ø D_d^{H15}	Wire	L_0	Spring rate N/mm $c \pm 10\%$	long life time		max. stroke		Item number
					$s_1^{25\%}$	F_1 N	$s_2^{37.5\%}$	F_2 N	
50.0	25.0	10.9 x 6.0	102	119.0	25.5	3035	38.2	4546	SZ8020 50 x 102
			115	106.0	28.8	3048	43.1	4569	SZ8020 50 x 115
			127	97.0	31.8	3080	47.6	4617	SZ8020 50 x 127
			139	87.0	34.8	3023	52.1	4533	SZ8020 50 x 139
			152	80.0	38.0	3040	57.0	4560	SZ8020 50 x 152
			160	76.0	40.0	3040	60.0	4560	SZ8020 50 x 160
			178	69.5	44.5	3093	66.7	4636	SZ8020 50 x 178
			203	59.8	50.8	3035	76.1	4551	SZ8020 50 x 203
			229	50.9	57.3	2914	85.8	4367	SZ8020 50 x 229
			254	46.0	63.5	2921	95.2	4379	SZ8020 50 x 254
			305	38.6	76.3	2943	114.4	4400	SZ8020 50 x 305
63.0	38.0	11.5 x 9.3	76	320.0	19.0	6080	28.5	9120	SZ8020 63 x 076
			89	260.0	22.3	5785	33.3	8658	SZ8020 63 x 089
			102	221.0	25.5	5636	38.2	8442	SZ8020 63 x 102
			115	187.0	28.8	5376	43.1	8060	SZ8020 63 x 115
			127	168.0	31.8	5334	47.6	7997	SZ8020 63 x 127
			152	136.0	38.0	5168	57.0	7752	SZ8020 63 x 152
			160	128.0	40.0	5120	60.0	7680	SZ8020 63 x 160
			178	114.0	44.5	5073	66.7	7604	SZ8020 63 x 178
			203	100.0	50.8	5075	76.1	7610	SZ8020 63 x 203
			229	89.2	57.3	5107	85.8	7653	SZ8020 63 x 229
			254	78.4	63.5	4978	95.2	7464	SZ8020 63 x 254
			305	64.7	76.3	4933	114.4	7376	SZ8020 63 x 305
			315	62.8	78.8	4946	118.1	7418	SZ8020 63 x 315
			400	48.5	100.0	4850	150.0	7275	SZ8020 63 x 400

Nitrogen
systems

Tapping
units

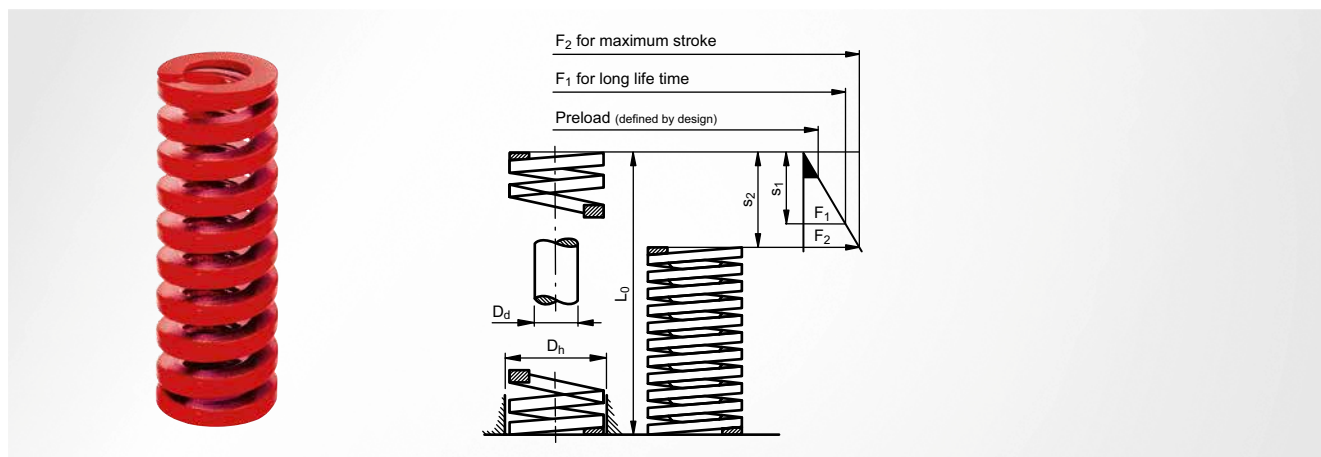
Module
system

Machine
elements

Accessories

SZ8030 System spring

heavy load, identification colour red



ISO 10243

Material

Profiled valve spring steel wire (52SiCrNi5)

Spring type

Helical compression spring

Wire cross-section

rectangular

Note

Spring is set, closed and rectangular ground

Sleeve Ø D_h^{H15}	Pin Ø D_d^{H15}	Wire	L_0	Spring rate N/mm $c \pm 10\%$	long life time		max. stroke		Item number
					$s_1^{20\%}$	F_1 N	$s_2^{30\%}$	F_2 N	
10.0	5.0	1.8 x 1.4	25	23.0	5.0	115	7.5	173	SZ8030 10 x 025
			32	17.5	6.4	112	9.6	168	SZ8030 10 x 032
			38	14.8	7.6	112	11.4	169	SZ8030 10 x 038
			44	13.0	8.8	114	13.2	172	SZ8030 10 x 044
			51	11.2	10.2	114	15.3	171	SZ8030 10 x 051
			64	9.2	12.8	118	19.2	177	SZ8030 10 x 064
			76	7.5	15.2	114	22.8	171	SZ8030 10 x 076
			305	1.9	61.0	116	91.5	174	SZ8030 10 x 305
12.5	6.3	2.4 x 2.0	25	42.1	5.0	211	7.5	316	SZ8030 13 x 025
			32	33.2	6.4	212	9.6	319	SZ8030 13 x 032
			38	29.3	7.6	223	11.4	334	SZ8030 13 x 038
			44	24.6	8.8	216	13.2	325	SZ8030 13 x 044
			51	19.6	10.2	200	15.3	300	SZ8030 13 x 051
			64	15.0	12.8	192	19.2	288	SZ8030 13 x 064
			76	13.2	15.2	201	22.8	301	SZ8030 13 x 076
			89	11.4	17.8	203	26.7	304	SZ8030 13 x 089
			102	9.4	20.4	192	30.6	288	SZ8030 13 x 102
16.0	8.0	3.0 x 2.4	305	3.2	61.0	195	91.5	293	SZ8030 13 x 305
			25	75.7	5.0	379	7.5	568	SZ8030 16 x 025
			32	60.2	6.4	385	9.6	578	SZ8030 16 x 032
			38	50.8	7.6	386	11.4	579	SZ8030 16 x 038
			44	42.8	8.8	377	13.2	565	SZ8030 16 x 044
			51	37.1	10.2	378	15.3	568	SZ8030 16 x 051
			64	30.3	12.8	388	19.2	582	SZ8030 16 x 064
			76	25.7	15.2	391	22.8	586	SZ8030 16 x 076
			89	21.7	17.8	386	26.7	579	SZ8030 16 x 089
			102	18.9	20.4	386	30.6	578	SZ8030 16 x 102
			115	17.0	23.0	391	34.5	587	SZ8030 16 x 115
20.0	10.0	4.0 x 3.2	305	6.3	61.0	384	91.5	577	SZ8030 16 x 305
			25	216.0	5.0	1080	7.5	1620	SZ8030 20 x 025
			32	168.0	6.4	1075	9.6	1613	SZ8030 20 x 032
			38	129.0	7.6	980	11.4	1471	SZ8030 20 x 038
			44	112.0	8.8	986	13.2	1478	SZ8030 20 x 044

heavy load, identification colour red

Sleeve Ø D _h ^{H15}	Pin Ø D _d ^{H15}	Wire	L ₀	Spring rate N/mm c ±10 %	long life time		max. stroke		Item number
					s ₁ ^{20 %}	F ₁ N	s ₂ ^{30 %}	F ₂ N	
20.0	10.0	4.0 x 3.2	51	94.0	10.2	959	15.3	1438	SZ8030 20 x 051
			64	72.1	12.8	923	19.2	1384	SZ8030 20 x 064
			76	59.7	15.2	907	22.8	1361	SZ8030 20 x 076
			89	50.5	17.8	899	26.7	1348	SZ8030 20 x 089
			102	44.2	20.4	902	30.6	1353	SZ8030 20 x 102
			115	38.4	23.0	883	34.5	1325	SZ8030 20 x 115
			127	34.1	25.4	866	38.1	1299	SZ8030 20 x 127
			139	31.0	27.8	862	41.7	1293	SZ8030 20 x 139
			152	28.2	30.4	857	45.6	1286	SZ8030 20 x 152
			305	14.0	61.0	854	91.5	1281	SZ8030 20 x 305
25.0	12.5	5.6 x 4.1	25	375.0	5.0	1875	7.5	2813	SZ8030 25 x 025
			32	297.0	6.4	1901	9.6	2851	SZ8030 25 x 032
			38	219.0	7.6	1664	11.4	2497	SZ8030 25 x 038
			44	187.0	8.8	1646	13.2	2468	SZ8030 25 x 044
			51	156.0	10.2	1591	15.3	2387	SZ8030 25 x 051
			64	123.0	12.8	1574	19.2	2362	SZ8030 25 x 064
			76	99.0	15.2	1505	22.8	2257	SZ8030 25 x 076
			89	84.0	17.8	1495	26.7	2243	SZ8030 25 x 089
			102	73.0	20.4	1489	30.6	2234	SZ8030 25 x 102
			115	65.0	23.0	1495	34.5	2243	SZ8030 25 x 115
			127	57.7	25.4	1466	38.1	2198	SZ8030 25 x 127
			139	52.7	27.8	1465	41.7	2198	SZ8030 25 x 139
			152	47.8	30.4	1453	45.6	2180	SZ8030 25 x 152
			178	41.0	35.6	1460	53.4	2189	SZ8030 25 x 178
			203	35.8	40.6	1453	60.9	2180	SZ8030 25 x 203
			305	22.9	61.0	1397	91.5	2095	SZ8030 25 x 305
32.0	16.0	6.9 x 5.3	38	388.0	7.6	2949	11.4	4423	SZ8030 32 x 038
			44	324.0	8.8	2851	13.2	4277	SZ8030 32 x 044
			51	272.0	10.2	2774	15.3	4162	SZ8030 32 x 051
			64	212.0	12.8	2714	19.2	4070	SZ8030 32 x 064
			76	172.0	15.2	2614	22.8	3922	SZ8030 32 x 076
			89	141.0	17.8	2510	26.7	3765	SZ8030 32 x 089
			102	122.0	20.4	2489	30.6	3733	SZ8030 32 x 102
			115	107.0	23.0	2461	34.5	3692	SZ8030 32 x 115
			127	93.0	25.4	2362	38.1	3543	SZ8030 32 x 127
			139	86.0	27.8	2391	41.7	3586	SZ8030 32 x 139
			152	78.0	30.4	2371	45.6	3557	SZ8030 32 x 152
			178	67.2	35.6	2392	53.4	3558	SZ8030 32 x 178
			203	59.1	40.6	2399	60.9	3599	SZ8030 32 x 203
			254	46.4	50.8	2357	76.2	3536	SZ8030 32 x 254
			305	38.0	61.0	2318	91.5	3477	SZ8030 32 x 305
40.0	20.0	8.4 x 6.2	51	350.0	10.2	3570	15.3	5355	SZ8030 40 x 051
			64	269.0	12.8	3443	19.2	5165	SZ8030 40 x 064
			76	219.0	15.2	3329	22.8	4993	SZ8030 40 x 076
			89	190.0	17.8	3382	26.7	5073	SZ8030 40 x 089
			102	163.0	20.4	3325	30.6	4988	SZ8030 40 x 102
			115	142.0	23.0	3266	34.5	4899	SZ8030 40 x 115
			127	128.0	25.4	3251	38.1	4877	SZ8030 40 x 127
			139	115.0	27.8	3197	41.7	4796	SZ8030 40 x 139
			152	105.0	30.4	3192	45.6	4788	SZ8030 40 x 152
			178	89.0	35.6	3168	53.4	4753	SZ8030 40 x 178
			203	77.0	40.6	3126	60.9	4689	SZ8030 40 x 203
			254	61.0	50.8	3099	76.2	4648	SZ8030 40 x 254
			305	51.0	61.0	3111	91.5	4667	SZ8030 40 x 305
50.0	25.0	11.3 x 7.4	64	413.0	12.8	5286	19.2	7930	SZ8030 50 x 064
			76	339.0	15.2	5153	22.8	7729	SZ8030 50 x 076
			89	288.0	17.8	5126	26.7	7690	SZ8030 50 x 089
			102	245.0	20.4	4998	30.6	7497	SZ8030 50 x 102

Nitrogen
systems

Tapping
units

Module
system

Machine
elements

Accessories

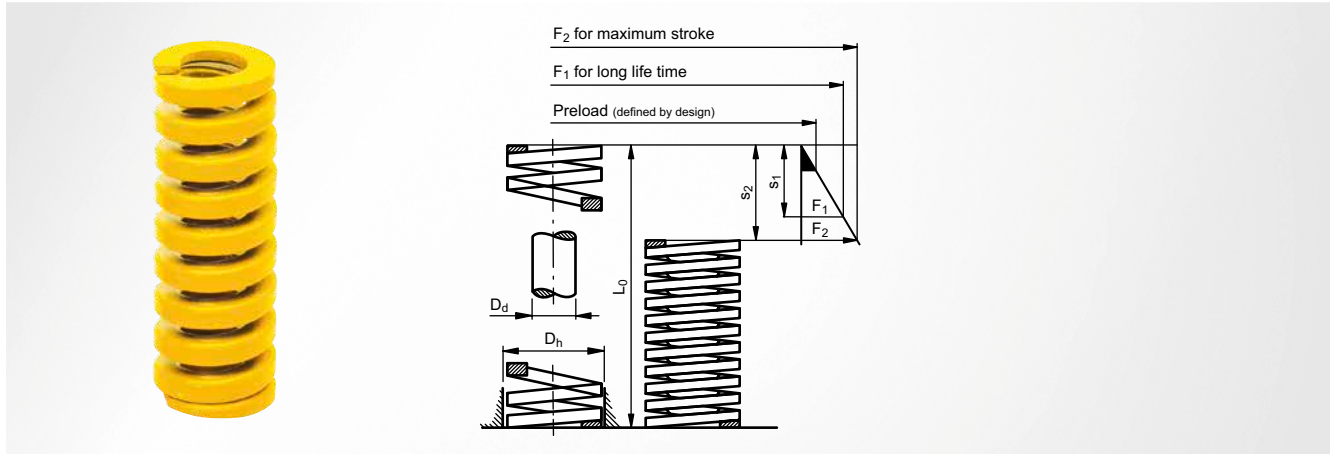
SZ8030 System spring

heavy load, identification colour red

Sleeve Ø D_h^{H15}	Pin Ø D_d^{H15}	Wire	L_0	Spring rate N/mm $c_{\pm 10\%}$	long life time		max. stroke		Item number
					$s_1^{20\%}$	F_1 N	$s_2^{30\%}$	F_2 N	
50.0	25.0	11.3 x 7.4	115	215.0	23.0	4945	34.5	7418	SZ8030 50 x 115
			127	192.0	25.4	4877	38.1	7315	SZ8030 50 x 127
			139	168.0	27.8	4670	41.7	7006	SZ8030 50 x 139
			152	154.0	30.4	4682	45.6	7022	SZ8030 50 x 152
			178	134.0	35.6	4770	53.4	7156	SZ8030 50 x 178
			203	117.0	40.6	4750	60.9	7125	SZ8030 50 x 203
			254	89.0	50.8	4521	76.2	6782	SZ8030 50 x 254
			305	73.0	61.0	4453	91.5	6680	SZ8030 50 x 305
63.0	38.0	11.2 x 12.9	76	630.0	15.2	9576	22.8	14364	SZ8030 63 x 076
			89	485.0	17.8	8633	26.7	12950	SZ8030 63 x 089
			102	434.0	20.4	8854	30.6	13280	SZ8030 63 x 102
			115	384.0	23.0	8832	34.5	13248	SZ8030 63 x 115
			127	349.0	25.4	8865	38.1	13297	SZ8030 63 x 127
			152	276.0	30.4	8390	45.6	12586	SZ8030 63 x 152
			178	237.0	35.6	8437	53.4	12656	SZ8030 63 x 178
			203	210.0	40.6	8526	60.9	12789	SZ8030 63 x 203
			254	165.0	50.8	8382	76.2	12573	SZ8030 63 x 254
			305	134.0	61.0	8174	91.5	12261	SZ8030 63 x 305

SZ8040 System spring

very heavy load, identification colour yellow



ISO 10243

Material

Profiled valve spring steel wire (52SiCrNi5)

Spring type

Helical compression spring

Wire cross-section

rectangular

Note

Spring is set, closed and rectangular ground

Sleeve Ø D_h^{H15}	Pin Ø D_d^{H15}	Wire	L_0	Spring rate N/mm $c \pm 10\%$	long life time		max. stroke		Item number
					$s_1^{17\%}$	F_1 N	$s_2^{25\%}$	F_2 N	
10.0	5.0	1.9 x 1.5	25	36.8	4.3	156	6.2	228	SZ8040 10 x 025
			32	27.9	5.4	152	8.0	223	SZ8040 10 x 032
			38	23.7	6.5	153	9.5	225	SZ8040 10 x 038
			44	19.2	7.5	144	11.0	211	SZ8040 10 x 044
			51	16.5	8.7	143	12.7	210	SZ8040 10 x 051
			64	13.2	10.9	144	16.0	211	SZ8040 10 x 064
			76	10.9	12.9	141	19.0	207	SZ8040 10 x 076
			305	2.6	51.9	135	76.3	198	SZ8040 10 x 305
12.5	6.3	2.3 x 2.2	25	58.5	4.3	249	6.2	363	SZ8040 13 x 025
			32	43.9	5.4	239	8.0	351	SZ8040 13 x 032
			38	36.0	6.5	233	9.5	342	SZ8040 13 x 038
			44	30.3	7.5	227	11.0	333	SZ8040 13 x 044
			51	26.2	8.7	227	12.7	333	SZ8040 13 x 051
			64	21.2	10.9	231	16.0	339	SZ8040 13 x 064
			76	17.1	12.9	221	19.0	325	SZ8040 13 x 076
			89	14.5	15.1	219	22.2	322	SZ8040 13 x 089
			102	12.5	17.3	217	25.5	319	SZ8040 13 x 102
			305	4.3	51.9	223	76.3	328	SZ8040 13 x 305
16.0	8.0	3.2 x 2.7	25	118.0	4.3	502	6.2	732	SZ8040 16 x 025
			32	89.0	5.4	484	8.0	712	SZ8040 16 x 032
			38	72.1	6.5	466	9.5	685	SZ8040 16 x 038
			44	60.9	7.5	456	11.0	670	SZ8040 16 x 044
			51	52.3	8.7	453	12.7	664	SZ8040 16 x 051
			64	41.2	10.9	448	16.0	659	SZ8040 16 x 064
			76	34.1	12.9	441	19.0	648	SZ8040 16 x 076
			89	29.5	15.1	446	22.2	655	SZ8040 16 x 089
			102	25.6	17.3	444	25.5	653	SZ8040 16 x 102
			115	22.8	19.6	446	28.8	656	SZ8040 16 x 115
			305	8.4	51.9	436	76.3	641	SZ8040 16 x 305
20.0	10.0	4.1 x 3.7	25	293.0	4.3	1245	6.2	1817	SZ8040 20 x 025
			32	224.0	5.4	1219	8.0	1792	SZ8040 20 x 032
			38	177.0	6.5	1143	9.5	1682	SZ8040 20 x 038
			44	149.0	7.5	1115	11.0	1639	SZ8040 20 x 044

SZ8040 System spring



very heavy load, identification colour yellow

Sleeve Ø D _h ^{H15}	Pin Ø D _d ^{H15}	Wire	L ₀	Spring rate N/mm c ±10 %	long life time		max. stroke		Item number
					s ₁ ^{17 %}	F ₁ N	s ₂ ^{25 %}	F ₂ N	
20.0	10.0	4.1 x 3.7	51	128.0	8.7	1110	12.7	1626	SZ8040 20 x 051
			64	99.0	10.9	1077	16.0	1584	SZ8040 20 x 064
			76	81.7	12.9	1056	19.0	1552	SZ8040 20 x 076
			89	69.5	15.1	1052	22.2	1543	SZ8040 20 x 089
			102	60.6	17.3	1051	25.5	1545	SZ8040 20 x 102
			115	53.0	19.6	1036	28.7	1521	SZ8040 20 x 115
			127	47.5	21.6	1026	31.7	1506	SZ8040 20 x 127
			139	43.0	23.6	1016	34.7	1492	SZ8040 20 x 139
			152	39.0	25.8	1008	38.0	1482	SZ8040 20 x 152
			305	20.0	51.9	1037	76.3	1526	SZ8040 20 x 305
25.0	12.5	5.6 x 4.6	25	488.0	4.3	2098	6.3	3074	SZ8040 25 x 025
			32	374.4	5.4	2037	8.0	2992	SZ8040 25 x 032
			38	300.0	6.5	1938	9.5	2850	SZ8040 25 x 038
			44	244.0	7.5	1825	11.0	2684	SZ8040 25 x 044
			51	207.5	8.7	1799	12.7	2642	SZ8040 25 x 051
			64	161.0	10.9	1752	16.0	2576	SZ8040 25 x 064
			76	130.8	12.9	1690	19.0	2489	SZ8040 25 x 076
			89	110.5	15.1	1672	22.2	2464	SZ8040 25 x 089
			102	96.3	17.3	1670	25.5	2456	SZ8040 25 x 102
			115	85.7	19.6	1675	28.7	2460	SZ8040 25 x 115
			127	76.3	21.6	1647	31.7	2419	SZ8040 25 x 127
			139	66.0	23.6	1560	34.7	2290	SZ8040 25 x 139
			152	63.5	25.8	1641	38.0	2413	SZ8040 25 x 152
			178	53.9	30.3	1631	44.5	2399	SZ8040 25 x 178
			203	47.0	34.5	1622	50.7	2383	SZ8040 25 x 203
			305	30.9	51.9	1602	76.3	2358	SZ8040 25 x 305
32.0	16.0	7.2 x 5.6	38	480.0	6.5	3101	9.5	4560	SZ8040 32 x 038
			44	390.0	7.5	2917	11.0	4290	SZ8040 32 x 044
			51	336.0	8.7	2913	12.7	4267	SZ8040 32 x 051
			64	269.2	10.9	2929	16.0	4304	SZ8040 32 x 064
			76	218.5	12.9	2823	19.0	4161	SZ8040 32 x 076
			89	180.3	15.1	2728	22.2	3996	SZ8040 32 x 089
			102	155.0	17.3	2688	25.5	3953	SZ8040 32 x 102
			115	140.0	19.6	2737	28.7	4018	SZ8040 32 x 115
			127	124.0	21.6	2677	31.7	3931	SZ8040 32 x 127
			139	112.0	23.6	2647	34.7	3886	SZ8040 32 x 139
			152	102.0	25.8	2636	38.0	3876	SZ8040 32 x 152
			178	88.2	30.3	2669	44.5	3925	SZ8040 32 x 178
			203	76.0	34.5	2623	50.7	3853	SZ8040 32 x 203
			254	60.8	43.2	2625	63.5	3891	SZ8040 32 x 254
			305	49.0	51.9	2541	76.3	3739	SZ8040 32 x 305
40.0	20.0	8.7 x 7.3	51	628.0	8.7	5445	12.7	7976	SZ8040 40 x 051
			64	487.0	10.9	5299	16.0	7792	SZ8040 40 x 064
			76	379.0	12.9	4897	19.0	7201	SZ8040 40 x 076
			89	321.0	15.1	4857	22.2	7126	SZ8040 40 x 089
			102	281.0	17.3	4873	25.5	7166	SZ8040 40 x 102
			115	245.0	19.6	4790	28.7	7032	SZ8040 40 x 115
			127	221.0	21.6	4771	31.7	7006	SZ8040 40 x 127
			139	185.0	23.6	4372	34.7	6420	SZ8040 40 x 139
			152	168.0	25.8	4341	38.0	6384	SZ8040 40 x 152
			178	150.0	30.3	4539	44.5	6675	SZ8040 40 x 178
			203	132.0	34.5	4555	50.7	6692	SZ8040 40 x 203
			254	107.0	43.2	4620	63.5	6848	SZ8040 40 x 254
			305	87.8	51.9	4552	76.6	6725	SZ8040 40 x 305
50.0	25.0	11.4 x 9.1	64	709.0	10.9	7714	16.0	11344	SZ8040 50 x 064
			76	572.0	12.9	7390	19.0	10868	SZ8040 50 x 076
			89	475.0	15.1	7187	22.3	10569	SZ8040 50 x 089
			102	405.0	17.3	7023	25.5	10328	SZ8040 50 x 102

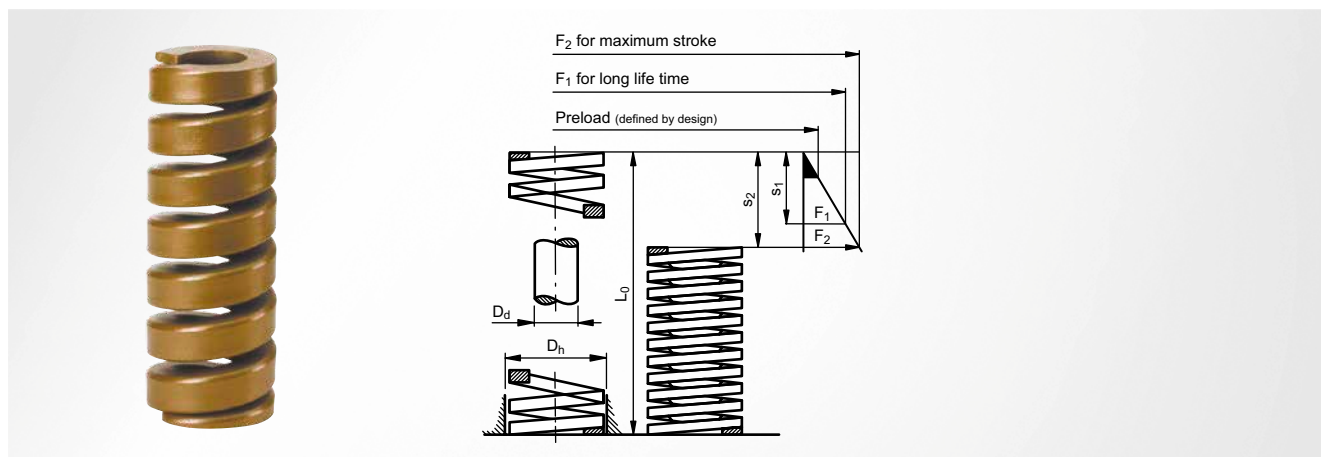
SZ8040 System spring

very heavy load, identification colour yellow

Sleeve Ø D_h^{H15}	Pin Ø D_d^{H15}	Wire	L_0	Spring rate N/mm $c_{\pm 10\%}$	long life time		max. stroke		Item number
					$s_1^{17\%}$	F_1 N	$s_2^{25\%}$	F_2 N	
50.0	25.0	11.4 x 9.1	115	352.0	19.6	6882	28.7	10102	SZ8040 50 x 115
			127	316.0	21.6	6822	31.7	10017	SZ8040 50 x 127
			139	289.0	23.6	6829	34.7	10028	SZ8040 50 x 139
			152	255.0	25.8	6589	38.0	9690	SZ8040 50 x 152
			178	215.0	30.3	6506	44.5	9568	SZ8040 50 x 178
			203	187.0	34.5	6453	50.7	9481	SZ8040 50 x 203
			254	153.0	43.2	6607	63.5	9792	SZ8040 50 x 254
			305	127.0	51.9	6585	76.3	9690	SZ8040 50 x 305
63.0	38.0	11.8 x 13.4	76	842.0	12.9	10879	19.0	15998	SZ8040 63 x 076
			89	726.0	15.1	10984	22.3	16154	SZ8040 63 x 089
			102	656.0	17.3	11375	25.5	16728	SZ8040 63 x 102
			115	534.0	19.6	10440	28.8	15353	SZ8040 63 x 115
			127	480.0	21.6	10363	31.8	15240	SZ8040 63 x 127
			152	396.0	25.8	10233	38.0	15048	SZ8040 63 x 152
			178	335.0	30.3	10137	44.5	14908	SZ8040 63 x 178
			203	297.0	34.5	10249	50.8	15073	SZ8040 63 x 203
			254	235.0	43.2	10147	63.5	14923	SZ8040 63 x 254
			305	194.0	51.9	10059	76.3	14793	SZ8040 63 x 305

SZ8045 System spring

extra heavy load, identification colour bronze



Material

Profiled valve spring steel wire (52SiCrNi5)

Wire cross-section

rectangular

Spring type

Helical compression spring

Note

Spring is set, closed and rectangular ground

Sleeve Ø D_h^{H15}	Pin Ø D_d^{H15}	Wire	L_0	Spring rate N/mm $c \pm 10\%$	long life time		max. stroke		Item number
					$s_1^{10\%}$	F_1 N	$s_2^{15\%}$	F_2 N	
10.0	5.0	2.2 x 2.7	25	167	2.5	418	3.8	626	SZ8045 10 x 025
			32	130	3.2	416	4.8	624	SZ8045 10 x 032
			38	105	3.8	399	5.7	599	SZ8045 10 x 038
			44	86	4.4	378	6.6	568	SZ8045 10 x 044
			51	79	5.1	403	7.7	604	SZ8045 10 x 051
			64	62	6.4	397	9.6	595	SZ8045 10 x 064
			76	51	7.6	388	11.4	581	SZ8045 10 x 076
12.5	6.3	2.8 x 3.4	25	288	2.5	720	3.8	1080	SZ8045 13 x 025
			32	216	3.2	691	4.8	1037	SZ8045 13 x 032
			38	176	3.8	669	5.7	1003	SZ8045 13 x 038
			44	149	4.4	656	6.6	983	SZ8045 13 x 044
			51	128	5.1	653	7.7	979	SZ8045 13 x 051
			64	100	6.4	640	9.6	960	SZ8045 13 x 064
			76	84	7.6	638	11.4	958	SZ8045 13 x 076
			89	71	8.9	632	13.4	948	SZ8045 13 x 089
			102	61	10.2	622	15.3	933	SZ8045 13 x 102
16.0	8.0	3.5 x 4.6	32	449	3.2	1437	4.8	2155	SZ8045 16 x 032
			38	363	3.8	1379	5.7	2069	SZ8045 16 x 038
			44	309	4.4	1360	6.6	2039	SZ8045 16 x 044
			51	256	5.1	1306	7.7	1958	SZ8045 16 x 051
			64	203	6.4	1299	9.6	1949	SZ8045 16 x 064
			76	166	7.6	1262	11.4	1892	SZ8045 16 x 076
			89	139	8.9	1237	13.4	1856	SZ8045 16 x 089
			102	114	10.2	1163	15.3	1744	SZ8045 16 x 102
			115	105	11.5	1208	17.3	1811	SZ8045 16 x 115
			127	94	12.7	1194	19.1	1791	SZ8045 16 x 127
			152	69	15.2	1049	22.8	1573	SZ8045 16 x 152
			305	37	30.5	1129	45.8	1693	SZ8045 16 x 305
20.0	10.0	4.1 x 5.9	44	452	4.4	1989	6.6	2983	SZ8045 20 x 044
			51	378	5.1	1928	7.7	2892	SZ8045 20 x 051
			64	301	6.4	1926	9.6	2890	SZ8045 20 x 064
			76	247	7.6	1877	11.4	2816	SZ8045 20 x 076
			89	208	8.9	1851	13.4	2777	SZ8045 20 x 089
			102	188	10.2	1918	15.3	2876	SZ8045 20 x 102
			115	159	11.5	1829	17.3	2743	SZ8045 20 x 115

extra heavy load, identification colour bronze

Sleeve Ø D _h ^{H15}	Pin Ø D _d ^{H15}	Wire	L ₀	Spring rate N/mm c ±10 %	long life time		max. stroke		Item number
					s ₁ ^{10 %}	F ₁ N	s ₂ ^{15 %}	F ₂ N	
20.0	10.0	4.1 x 5.9	127	146	12.7	1854	19.1	2781	SZ8045 20 x 127
			152	121	15.2	1839	22.8	2759	SZ8045 20 x 152
			305	60	30.5	1830	45.8	2745	SZ8045 20 x 305
25.0	12.5	5.7 x 7.4	44	1158	4.4	5095	6.6	7643	SZ8045 25 x 044
			51	933	5.1	4758	7.7	7137	SZ8045 25 x 051
			64	730	6.4	4672	9.6	7008	SZ8045 25 x 064
			76	556	7.6	4226	11.4	6338	SZ8045 25 x 076
			89	462	8.9	4112	13.4	6168	SZ8045 25 x 089
			102	390	10.2	3978	15.3	5967	SZ8045 25 x 102
			115	360	11.5	4140	17.3	6210	SZ8045 25 x 115
			127	326	12.7	4140	19.1	6210	SZ8045 25 x 127
			152	255	15.2	3876	22.8	5814	SZ8045 25 x 152
			178	230	17.8	4094	26.7	6141	SZ8045 25 x 178
			203	202	20.3	4101	30.5	6151	SZ8045 25 x 203
			305	136	30.5	4148	45.8	6222	SZ8045 25 x 305
32.0	16.0	7.4 x 8.8	44	1300	4.4	5720	6.6	8580	SZ8045 32 x 044
			51	1150	5.1	5865	7.7	8798	SZ8045 32 x 051
			64	887	6.4	5677	9.6	8515	SZ8045 32 x 064
			76	733	7.6	5571	11.4	8356	SZ8045 32 x 076
			89	612	8.9	5447	13.4	8170	SZ8045 32 x 089
			102	544	10.2	5549	15.3	8323	SZ8045 32 x 102
			115	494	11.5	5681	17.3	8522	SZ8045 32 x 115
			127	432	12.7	5486	19.1	8230	SZ8045 32 x 127
			152	356	15.2	5411	22.8	8117	SZ8045 32 x 152
			178	304	17.8	5411	26.7	8117	SZ8045 32 x 178
			203	265	20.3	5380	30.5	8069	SZ8045 32 x 203
			254	214	25.4	5436	38.1	8153	SZ8045 32 x 254
			305	177	30.5	5399	45.8	8098	SZ8045 32 x 305
40.0	20.0	8.4 x 10.9	64	1228	6.4	7859	9.6	11789	SZ8045 40 x 064
			76	1017	7.6	7729	11.4	11594	SZ8045 40 x 076
			89	880	8.9	7832	13.4	11748	SZ8045 40 x 089
			102	762	10.2	7772	15.3	11659	SZ8045 40 x 102
			115	679	11.5	7809	17.3	11713	SZ8045 40 x 115
			127	622	12.7	7899	19.1	11849	SZ8045 40 x 127
			152	509	15.2	7737	22.8	11605	SZ8045 40 x 152
			178	429	17.8	7636	26.7	11454	SZ8045 40 x 178
			203	374	20.3	7592	30.5	11388	SZ8045 40 x 203
			254	296	25.4	7518	38.1	11278	SZ8045 40 x 254
			305	246	30.5	7503	45.8	11255	SZ8045 40 x 305
50.0	25.0	11.8 x 13.4	64	1980	6.4	12672	9.6	19008	SZ8045 50 x 064
			76	1811	7.6	13764	11.4	20645	SZ8045 50 x 076
			89	1410	8.9	12549	13.4	18824	SZ8045 50 x 089
			102	1215	10.2	12393	15.3	18590	SZ8045 50 x 102
			115	1076	11.5	12374	17.3	18561	SZ8045 50 x 115
			127	968	12.7	12294	19.1	18440	SZ8045 50 x 127
			152	806	15.2	12251	22.8	18377	SZ8045 50 x 152
			178	698	17.8	12424	26.7	18637	SZ8045 50 x 178
			203	612	20.3	12424	30.5	18635	SZ8045 50 x 203
			254	472	25.4	11989	38.1	17983	SZ8045 50 x 254
			305	388	30.5	11834	45.8	17751	SZ8045 50 x 305
63.0	38.0	11.8 x 17.8	89	1560	10.0	15600	17.4	27144	SZ8045 63 x 089
			102	1298	12.0	15576	20.9	27128	SZ8045 63 x 102
			115	1078	14.1	15200	25.2	27166	SZ8045 63 x 115
			127	970	15.7	15229	28.0	27160	SZ8045 63 x 127
			152	801	18.9	15139	33.9	27154	SZ8045 63 x 152
			178	655	23.4	15327	41.4	27117	SZ8045 63 x 178
			203	552	27.0	14904	49.0	27048	SZ8045 63 x 203
			254	423	35.0	14805	64.0	27072	SZ8045 63 x 254

Nitrogen
systems

Tapping
units

Module
system

Machine
elements

Accessories

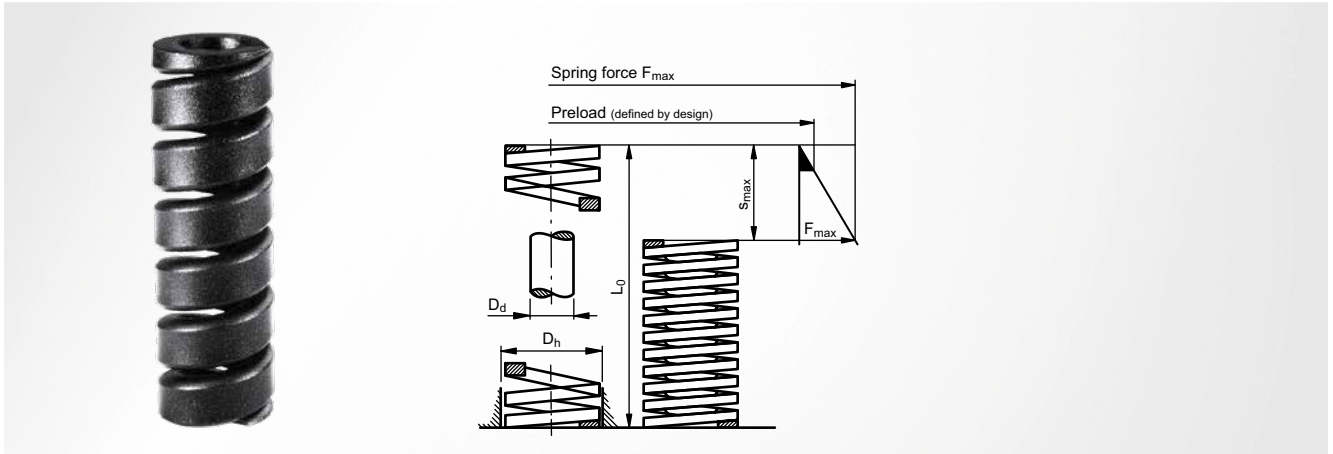
SZ8045 System spring

extra heavy load, identification colour bronze

Sleeve Ø D_h^{H15}	Pin Ø D_d^{H15}	Wire	L_0	Spring rate N/mm $c \pm 10\%$	long life time		max. stroke		Item number
					$s_1^{10\%}$	F_1 N	$s_2^{15\%}$	F_2 N	
63.0	38.0	11.8 x 17.8	305	349	42.5	14833	77.5	27048	SZ8045 63 x 305

SZ8047 System spring

extra heavy load, identification colour black



Material

Profiled valve spring steel wire (52SiCrNi5)

Wire cross-section

rectangular

Spring type

Helical compression spring

Note

Spring is set, closed and rectangular ground

Sleeve Ø D_h^{H15}	Pin Ø D_d^{H15}	$L_0 \pm 0.5\%$ min ± 0.2 mm	Spring rate N/mm $c \pm 10\%$	s_{max}	F_{max} N	Item number
10.0	5.0	20	580	2.2	1250	SZ8047 10 x 020
		30	360	3.5	1250	SZ8047 10 x 030
		40	260	4.8	1250	SZ8047 10 x 040
		50	200	6.0	1250	SZ8047 10 x 050
12.5	6.3	20	850	2.4	2000	SZ8047 13 x 020
		30	590	3.3	2000	SZ8047 13 x 030
		40	400	5.0	2000	SZ8047 13 x 040
		50	320	6.0	2000	SZ8047 13 x 050
16.0	8.0	20	1650	2.1	3500	SZ8047 16 x 020
		35	920	3.8	3500	SZ8047 16 x 035
		50	580	6.0	3500	SZ8047 16 x 050
		75	410	8.5	3500	SZ8047 16 x 075
		100	280	12.5	3500	SZ8047 16 x 100
19.0	10.0	25	2270	2.2	5000	SZ8047 20 x 025
		40	1160	4.3	5000	SZ8047 20 x 040
		50	830	6.0	5000	SZ8047 20 x 050
		75	500	10.0	5000	SZ8047 20 x 075
		100	360	14.0	5000	SZ8047 20 x 100
25.0	12.5	30	3850	2.6	10000	SZ8047 25 x 030
		50	2000	5.0	10000	SZ8047 25 x 050
		60	1500	6.5	10000	SZ8047 25 x 060
		75	1250	8.0	10000	SZ8047 25 x 075
		100	900	11.1	10000	SZ8047 25 x 100
32.0	16.0	125	710	14.0	10000	SZ8047 25 x 125
		35	5360	2.8	15000	SZ8047 32 x 035
		50	3000	5.0	15000	SZ8047 32 x 050
		75	1670	9.0	15000	SZ8047 32 x 075
		100	1200	12.5	15000	SZ8047 32 x 100
38.0	20.0	125	940	16.0	15000	SZ8047 32 x 125
		150	810	18.5	15000	SZ8047 32 x 150
		40	5710	3.5	20000	SZ8047 40 x 040
		50	4000	5.0	20000	SZ8047 40 x 050
		75	2220	9.0	20000	SZ8047 40 x 075
		100	1540	13.0	20000	SZ8047 40 x 100
		150	1050	19.0	20000	SZ8047 40 x 150

SZ8047 System spring



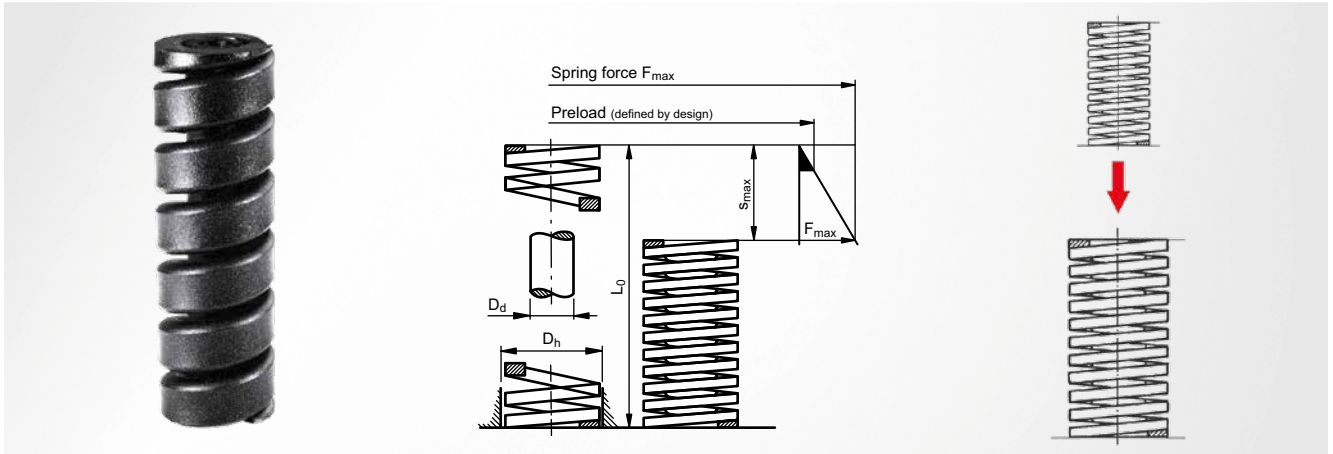
extra heavy load, identification colour black

Sleeve Ø D_h^{H15}	Pin Ø D_d^{H15}	$L_0 \pm 0.5\%$ min ± 0.2 mm	Spring rate N/mm $c \pm 10\%$	s_{max}	F_{max} N	Item number
38.0	20.0	200	740	27.0	20000	SZ8047 40 x 200
50.0	25.0	60	4605	7.6	35000	SZ8047 50 x 060
		75	3932	8.9	35000	SZ8047 50 x 075
		100	2650	13.2	35000	SZ8047 50 x 100
		125	2000	17.5	35000	SZ8047 50 x 125
		150	1605	21.8	35000	SZ8047 50 x 150
		200	1167	30.0	35000	SZ8047 50 x 200

SZ8049 System spring

STEINEL®

double, extra, extra heavy load, identification colour black-black



Material

Profiled valve spring steel wire (52SiCrNi5)

Wire cross-section

rectangular

Spring type

Helical compression spring

Note

Spring is set, closed and rectangular ground

Sleeve Ø D_h^{H15}	Pin Ø D_d^{H15}	$L_0 \pm 0.5\%$ min ± 0.2 mm	Spring rate N/mm $c \pm 10\%$	s_{max}	F_{max} N	Item number
32.0	8.0	35	6280	3.0	18500	SZ8049 32 x 035
		50	3580	5.2	18500	SZ8049 32 x 050
		75	2080	9.0	18500	SZ8049 32 x 075
		100	1480	12.5	18500	SZ8049 32 x 100
38.0	10.0	40	6880	3.6	25000	SZ8049 40 x 040
		50	4830	5.2	25000	SZ8049 40 x 050
		75	2720	9.2	25000	SZ8049 40 x 075
		100	1900	13.2	25000	SZ8049 40 x 100
50.0	12.5	60	6105	7.4	45000	SZ8049 50 x 060
		75	5182	8.7	45000	SZ8049 50 x 075
		100	3550	12.7	45000	SZ8049 50 x 100
		125	2710	16.6	45000	SZ8049 50 x 125

Nitrogen
systems

Tapping
units

Module
system

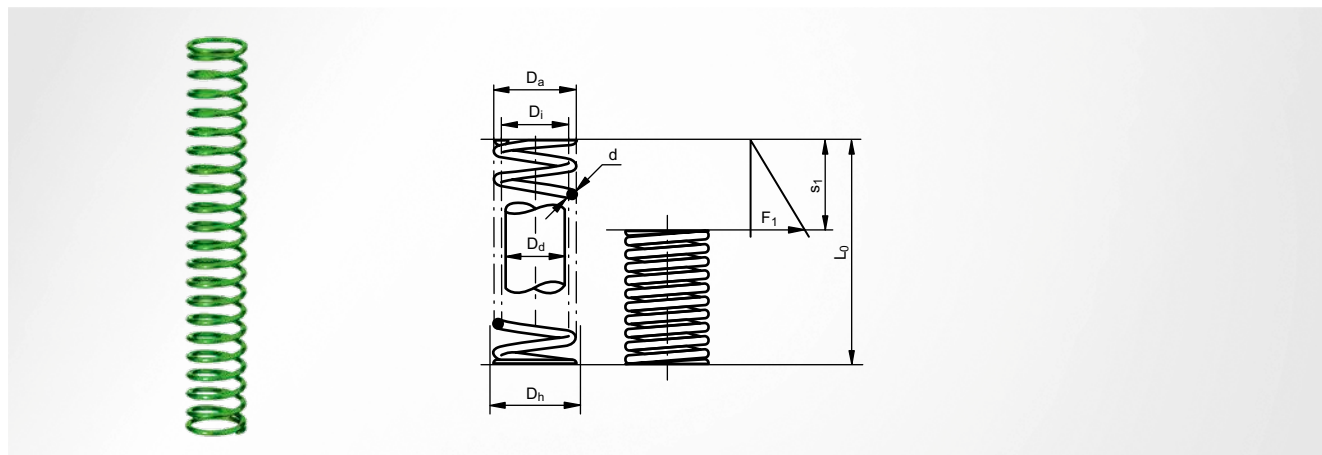
Machine
elements

Accessories

SZ8111 System spring

STEINEL®

light load, identification colour green, small series



Material

Spring steel wire in accordance with EN 10270-1 DH (type D)

Spring type

Helical compression spring

Wire cross-section

round

Installation instruction

Preload spring; spring set; winding closed and ground at each of the two ends

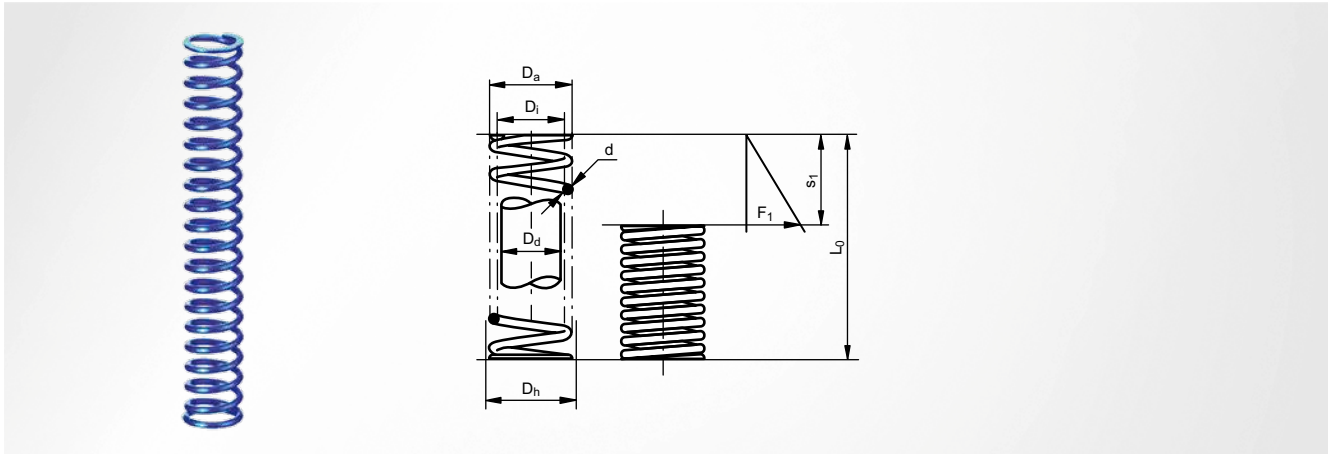
Note

Table specifications refer to the maximum permissible stroke at 1 mm preload for a long life time; if the preload is greater than 1 mm, the maximum working stroke is decreased; DIN EN 13906 must be observed for the design

D_a	Sleeve $\varnothing$ D_h^{H15}	Pin $\varnothing$ D_d^{H15}	D_i	d wire	Standard packaging piece	L_0	Spring rate N/mm $c \pm 10\%$	s_1	F_1 N	Item number
6	6.3	4.4	4.7	0.6	20	16	1.5	5.2	7.98	SZ8111 06 x 016
						25	0.8	8.5	7.17	SZ8111 06 x 025
						38	0.5	14.0	7.38	SZ8111 06 x 038
						51	0.4	19.0	7.28	SZ8111 06 x 051
8	8.3	5.9	6.2	0.8	20	16	2.2	6.0	13.50	SZ8111 08 x 016
						25	1.2	11.0	13.75	SZ8111 08 x 025
						38	0.8	16.0	12.85	SZ8111 08 x 038
						51	0.6	23.0	12.93	SZ8111 08 x 051

SZ8112 System spring

medium load, identification colour blue, small series



Material

Spring steel wire in accordance with EN 10270-1 DH (type D)

Spring type

Helical compression spring

Wire cross-section

round

Installation instruction

Preload spring; spring set; winding closed and ground at each of the two ends

Note

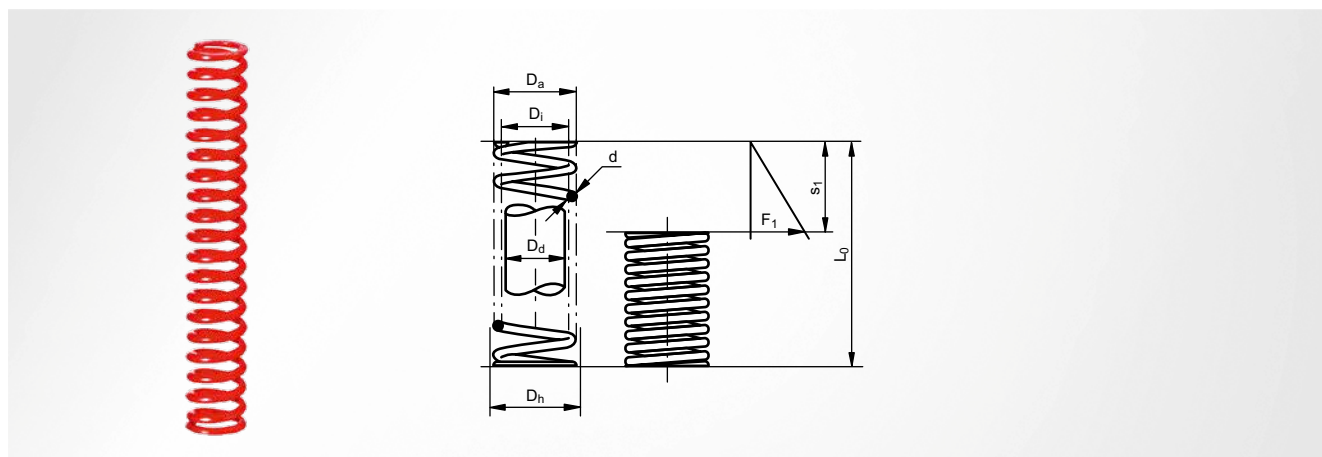
Table specifications refer to the maximum permissible stroke at 1 mm preload for a long life time; if the preload is greater than 1 mm, the maximum working stroke is decreased; DIN EN 13906 must be observed for the design

D_a	Sleeve $\varnothing$ D_h^{H15}	Pin $\varnothing$ D_d^{H15}	D_i	d wire	Standard packaging piece	L_0	Spring rate N/mm $c \pm 10\%$	s_1	F_1 N	Item number
6	6.3	3.9	4.2	0.8	20	16	5.4	3.2	17.38	SZ8112 06 x 016
						25	3.0	6.0	18.00	SZ8112 06 x 025
						38	1.9	9.5	17.73	SZ8112 06 x 038
						51	1.5	12.5	16.96	SZ8112 06 x 051
8	8.3	5.5	5.8	1.0	20	16	7.5	3.3	24.65	SZ8112 08 x 016
						25	3.7	6.6	24.62	SZ8112 08 x 025
						38	2.3	10.8	24.84	SZ8112 08 x 038
						51	1.7	15.0	24.90	SZ8112 08 x 051

SZ8113 System spring

STEINEL®

heavy load, identification colour red, small series



Material

Spring steel wire in accordance with EN 10270-1 DH (type D)

Spring type

Helical compression spring

Wire cross-section

round

Installation instruction

Preload spring; spring set; winding closed and ground at each of the two ends

Note

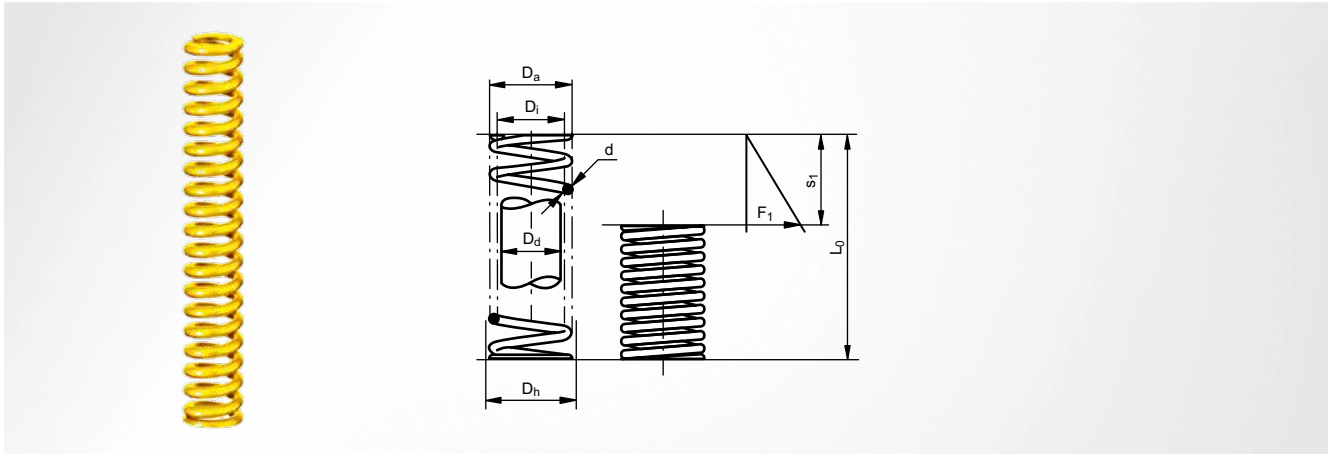
Table specifications refer to the maximum permissible stroke at 1 mm preload for a long life time; if the preload is greater than 1 mm, the maximum working stroke is decreased; DIN EN 13906 must be observed for the design

D_a	Sleeve $\varnothing$ D_h^{H15}	Pin $\varnothing$ D_d^{H15}	D_i	d wire	Standard packaging piece	L_0	Spring rate N/mm $c \pm 10\%$	s_1	F_1 N	Item number
6	6.3	3.6	3.9	1.0	20	16	16.4	2.1	34.44	SZ8113 06 x 016
						25	9.1	3.8	34.62	SZ8113 06 x 025
						38	5.9	5.9	34.56	SZ8113 06 x 038
						51	4.1	8.4	34.44	SZ8113 06 x 051
8	8.3	5.2	5.5	1.2	20	16	16.9	3.1	52.39	SZ8113 08 x 016
						25	8.4	5.5	46.48	SZ8113 08 x 025
						38	5.2	8.4	43.68	SZ8113 08 x 038
						51	3.8	11.6	43.56	SZ8113 08 x 051

SZ8114 System spring

STEINEL®

very heavy load, identification colour yellow, small series



Material

Spring steel wire in accordance with EN 10270-1 DH (type D)

Spring type

Helical compression spring

Wire cross-section

round

Installation instruction

Preload spring; spring set; winding closed and ground at each of the two ends

Note

Table specifications refer to the maximum permissible stroke at 1 mm preload for a long life time; if the preload is greater than 1 mm, the maximum working stroke is decreased; DIN EN 13906 must be observed for the design

D_a	Sleeve $\varnothing$ D_h^{H15}	Pin $\varnothing$ D_d^{H15}	D_i	d wire	Standard packaging piece	L_0	Spring rate N/mm $c \pm 10\%$	s_1	F_1 N	Item number
6	6.3	3.2	3.5	1.2	20	16	38.4	2.0	76.88	SZ8114 06 x 016
						25	21.4	3.1	66.19	SZ8114 06 x 025
						38	13.7	4.5	61.79	SZ8114 06 x 038
						51	9.6	6.0	57.66	SZ8114 06 x 051
8	8.3	4.5	4.8	1.5	20	16	47.2	2.2	103.93	SZ8114 08 x 016
						25	23.6	3.8	89.76	SZ8114 08 x 025
						38	14.5	6.0	87.18	SZ8114 08 x 038
						51	10.5	7.6	79.80	SZ8114 08 x 051

Nitrogen
systems

Tapping
units

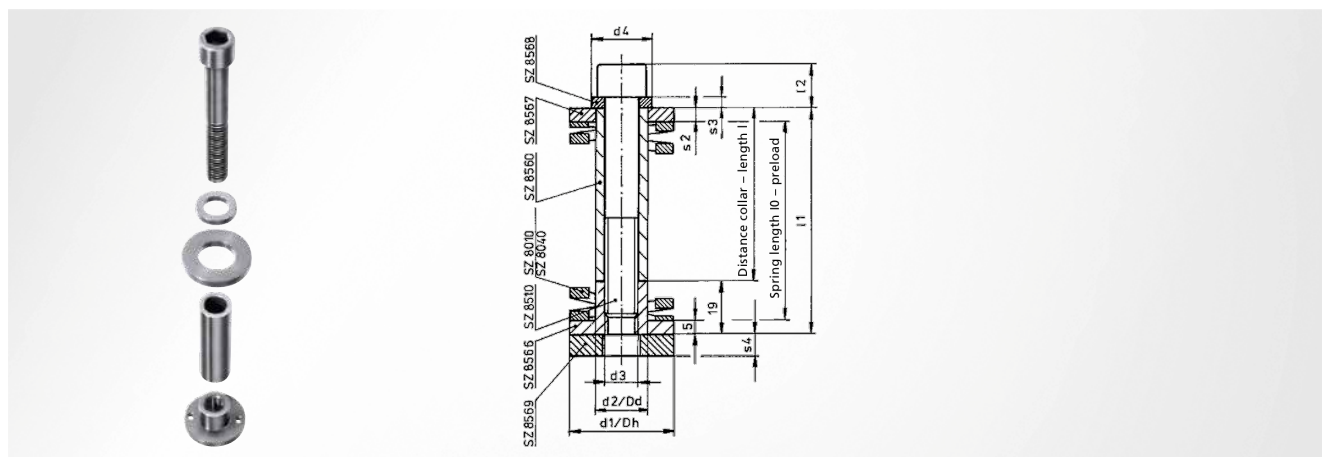
Module
system

Machine
elements

Accessories

SZ8565.00 System spring unit

without spring



Note

Consisting of adapting disc, spacer pipe, threaded disc, regrinding disc, clamping disc, socket-head screw

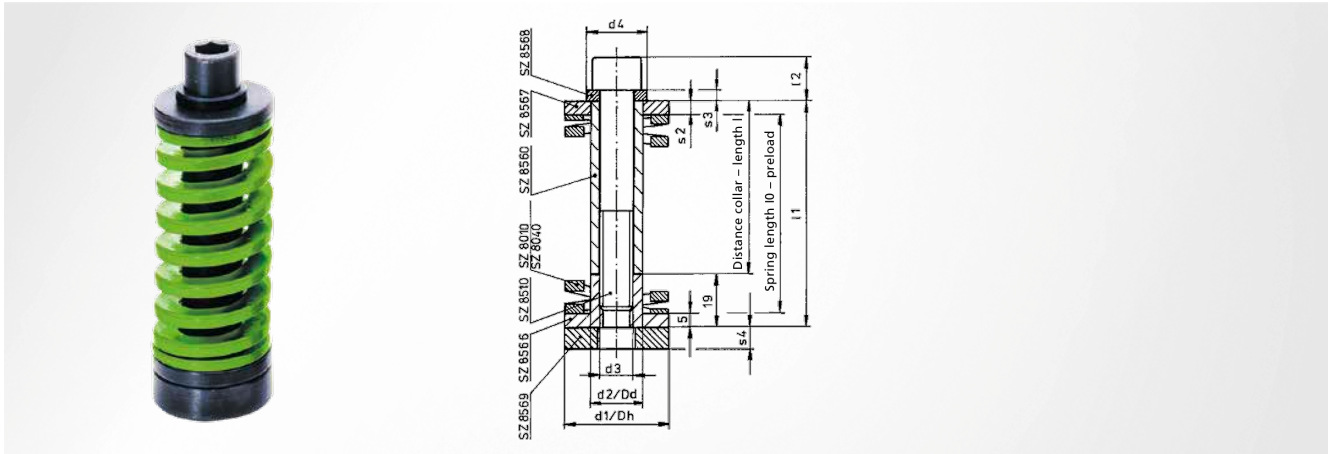
Scope of supply

SZ8510; SZ8560; SZ8566; SZ8567; SZ8568; SZ8569

Sleeve Ø d_1/D_h	Pin Ø d_2/D_d	d_3	d_4	s_2	l_2	s_3	l	l_1	Item number
20	10.0	M6	13	4	9	3	20	39	SZ8565.00. 20 x 039
							30	49	SZ8565.00. 20 x 049
							50	69	SZ8565.00. 20 x 069
							63	82	SZ8565.00. 20 x 082
25	12.5	M8	16	4	11	3	20	39	SZ8565.00. 25 x 039
							30	49	SZ8565.00. 25 x 049
							50	69	SZ8565.00. 25 x 069
							63	82	SZ8565.00. 25 x 082
							100	119	SZ8565.00. 25 x 119
32	16.0	M10	19	4	13	3	30	49	SZ8565.00. 32 x 049
							50	69	SZ8565.00. 32 x 069
							63	82	SZ8565.00. 32 x 082
							100	119	SZ8565.00. 32 x 119
40	20.0	M12	23	5	16	4	50	69	SZ8565.00. 40 x 069
							63	82	SZ8565.00. 40 x 082
							100	119	SZ8565.00. 40 x 119
50	25.0	M16	28	5	20	4	50	69	SZ8565.00. 50 x 069
							63	82	SZ8565.00. 50 x 082
							100	119	SZ8565.00. 50 x 119

SZ8565.10 System spring unit

light load, identification colour green, preloaded



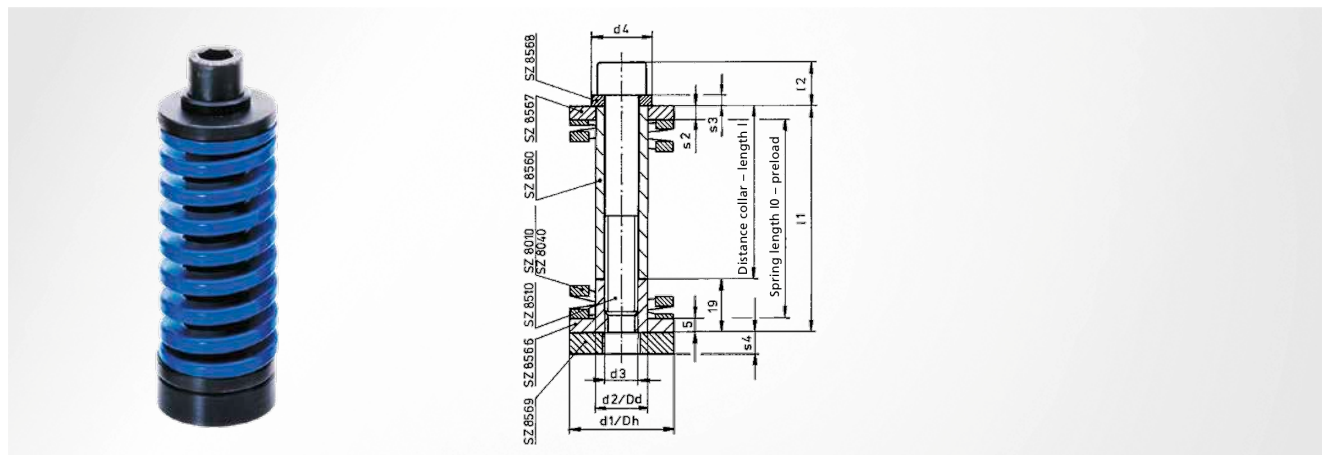
Scope of supply

SZ8010; SZ8565.00

SZ8010	preload mm	preload %	preload force N	max. stroke	max. spring force N	Item number
20 x 032	2	6	90	10.8	576	SZ8565.10. 20 x 039
20 x 044	4	9	120	13.6	528	SZ8565.10. 20 x 049
20 x 064	4	6	80	21.6	512	SZ8565.10. 20 x 069
20 x 076	3	4	48	27.4	486	SZ8565.10. 20 x 082
25 x 032	2	6	160	10.8	1027	SZ8565.10. 25 x 039
25 x 044	4	9	211	13.6	931	SZ8565.10. 25 x 049
25 x 064	4	6	140	21.6	901	SZ8565.10. 25 x 069
25 x 076	3	4	84	27.4	851	SZ8565.10. 25 x 082
25 x 115	5	4	93	41.0	860	SZ8565.10. 25 x 119
32 x 044	4	9	318	13.6	1399	SZ8565.10. 32 x 049
32 x 064	4	6	212	21.6	1356	SZ8565.10. 32 x 069
32 x 076	3	4	132	27.4	1337	SZ8565.10. 32 x 082
32 x 115	5	4	145	41.0	1334	SZ8565.10. 32 x 119
40 x 064	5	8	365	20.6	1868	SZ8565.10. 40 x 069
40 x 076	4	5	252	26.4	1915	SZ8565.10. 40 x 082
40 x 115	6	5	237	40.0	1821	SZ8565.10. 40 x 119
50 x 064	5	8	780	20.6	3993	SZ8565.10. 50 x 069
50 x 076	4	5	500	26.4	3800	SZ8565.10. 50 x 082
50 x 115	6	5	486	40.0	3726	SZ8565.10. 50 x 119

SZ8565.20 System spring unit

medium load, identification colour blue, preloaded



Scope of supply

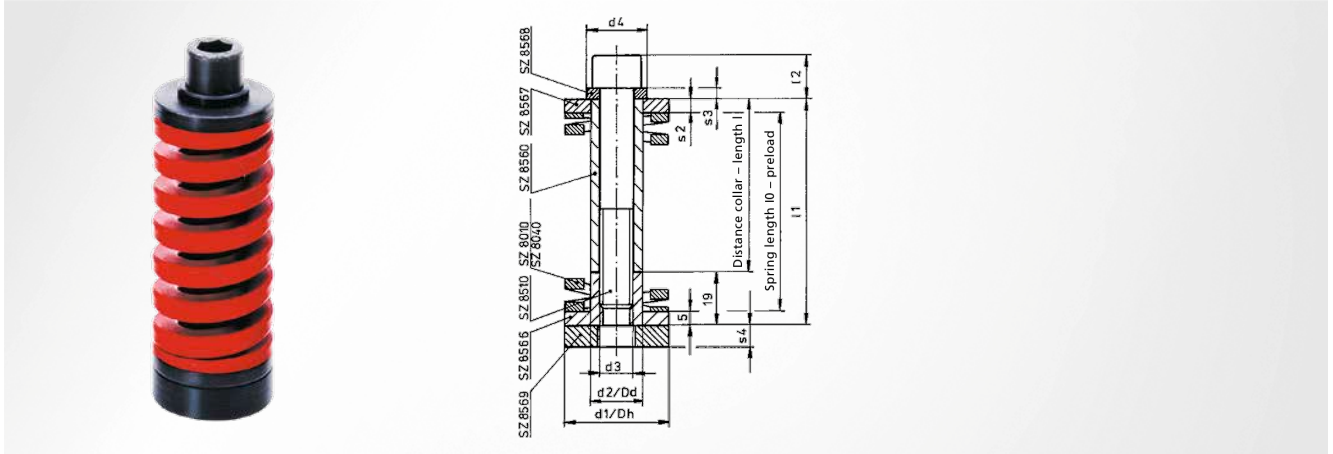
SZ8020; SZ8565.00

SZ8020	preload mm	preload %	preload force N	max. stroke	max. spring force N	Item number
20 x 032	2	6	145	9.2	813	SZ8565.20. 20 x 039
20 x 044	4	9	190	11.4	731	SZ8565.20. 20 x 049
20 x 064	4	6	129	18.4	723	SZ8565.20. 20 x 069
20 x 076	3	4	75	23.6	667	SZ8565.20. 20 x 082
25 x 032	2	6	236	9.2	1321	SZ8565.20. 25 x 039
25 x 044	4	9	323	11.4	1244	SZ8565.20. 25 x 049
25 x 064	4	6	212	18.4	1187	SZ8565.20. 25 x 069
25 x 076	3	4	129	23.6	1149	SZ8565.20. 25 x 082
25 x 115	5	4	40	35.3	1128	SZ8565.20. 25 x 119
32 x 044	4	9	632	11.4	2433	SZ8565.20. 32 x 049
32 x 064	4	6	396	18.4	2217	SZ8565.20. 32 x 069
32 x 076	3	4	241	23.6	2141	SZ8565.20. 32 x 082
32 x 115	5	4	257	35.3	2058	SZ8565.20. 32 x 119
40 x 064	5	8	700	17.4	3136	SZ8565.20. 40 x 069
40 x 076	4	5	432	22.6	2872	SZ8565.20. 40 x 082
40 x 115	6	5	430	34.3	2893	SZ8565.20. 40 x 119
50 x 064	5	8	1045	17.4	4681	SZ8565.20. 50 x 069
50 x 076	4	5	672	22.6	4468	SZ8565.20. 50 x 082
50 x 115	6	5	636	34.3	4271	SZ8565.20. 50 x 119

SZ8565.30 System spring unit

STEINEL®

heavy load, identification colour red, preloaded



Scope of supply

SZ8030; SZ8565.00

SZ8030	preload mm	preload %	preload force N	max. stroke	max. spring force N	Item number
20 x 032	2	6	336	7.6	1612	SZ8565.30. 20 x 039
20 x 044	4	9	448	9.2	1478	SZ8565.30. 20 x 049
20 x 064	4	6	288	15.2	1384	SZ8565.30. 20 x 069
20 x 076	3	4	179	19.8	1361	SZ8565.30. 20 x 082
25 x 032	2	6	594	7.6	2851	SZ8565.30. 25 x 039
25 x 044	4	9	748	9.2	2468	SZ8565.30. 25 x 049
25 x 064	4	6	492	15.2	2361	SZ8565.30. 25 x 069
25 x 076	3	4	297	19.8	2257	SZ8565.30. 25 x 082
25 x 115	5	4	325	29.5	2242	SZ8565.30. 25 x 119
32 x 044	4	9	1296	9.2	4276	SZ8565.30. 32 x 049
32 x 064	4	6	848	15.2	4070	SZ8565.30. 32 x 069
32 x 076	3	4	516	19.8	3921	SZ8565.30. 32 x 082
32 x 115	5	4	535	29.5	3691	SZ8565.30. 32 x 119
40 x 064	5	8	1345	14.2	5164	SZ8565.30. 40 x 069
40 x 076	4	5	876	18.8	4993	SZ8565.30. 40 x 082
40 x 115	6	5	852	28.5	4899	SZ8565.30. 40 x 119
50 x 064	5	8	2065	14.2	7929	SZ8565.30. 50 x 069
50 x 076	4	5	1356	18.8	7729	SZ8565.30. 50 x 082
50 x 115	6	5	1290	28.5	7417	SZ8565.30. 50 x 119

Nitrogen
systems

Tapping
units

Module
system

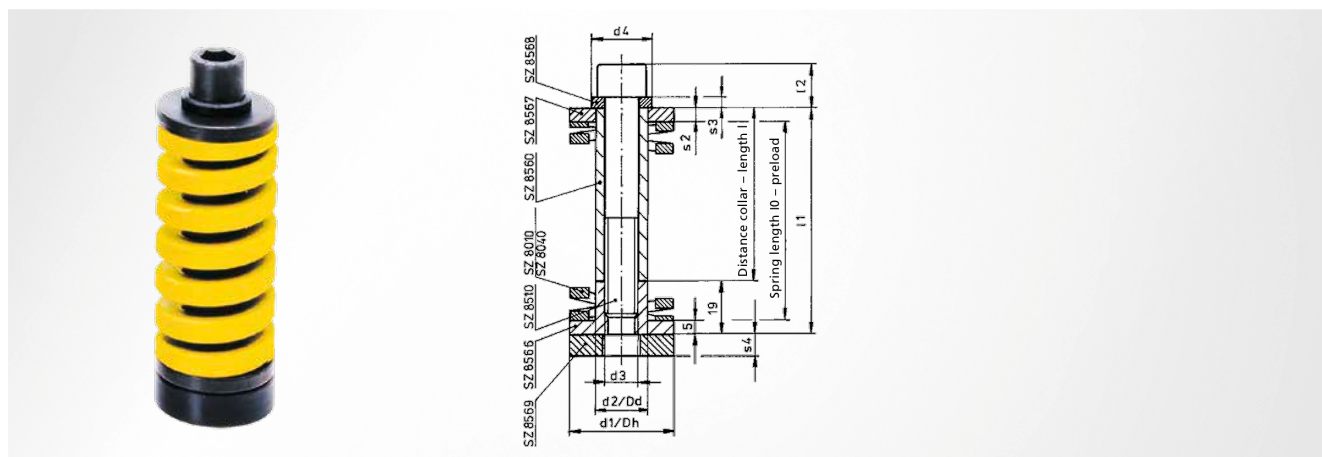
Machine
elements

Accessories

SZ8565.40 System spring unit

STEINEL®

very heavy load, identification colour yellow, preloaded

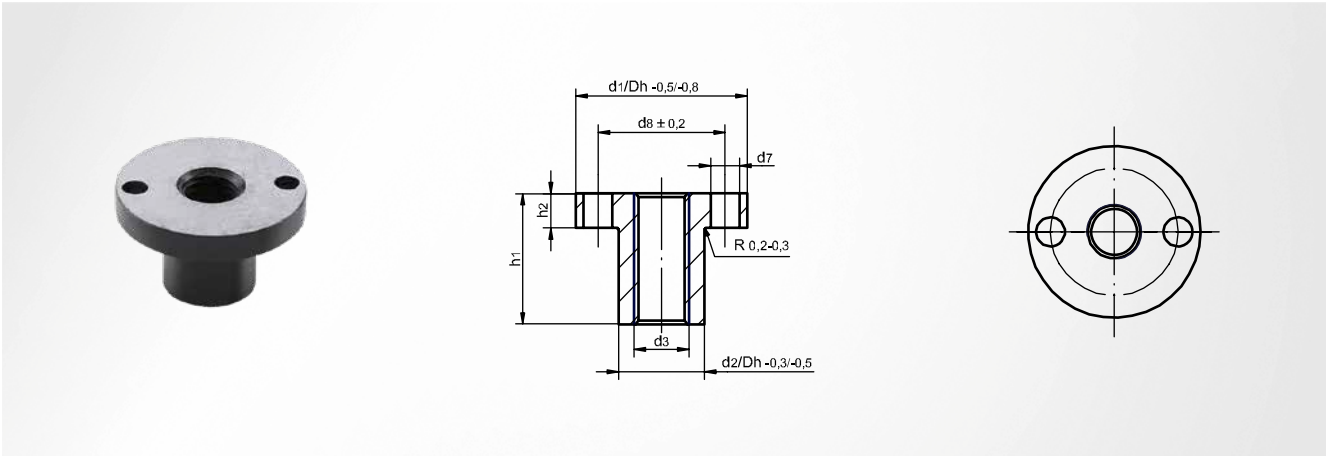


Scope of supply

SZ8040; SZ8565.00

SZ8040	preload mm	preload %	preload force N	max. stroke	max. spring force N	Item number
20 x 032	2	6	448	6.0	1792	SZ8565.40. 20 x 039
20 x 044	4	9	596	7.0	1639	SZ8565.40. 20 x 049
20 x 064	4	6	396	12.0	1584	SZ8565.40. 20 x 069
20 x 076	3	4	245	16.0	1552	SZ8565.40. 20 x 082
25 x 032	2	6	748	6.0	2995	SZ8565.40. 25 x 039
25 x 044	4	9	976	7.0	2684	SZ8565.40. 25 x 049
25 x 064	4	6	644	12.0	2576	SZ8565.40. 25 x 069
25 x 076	3	4	392	16.0	2485	SZ8565.40. 25 x 082
25 x 115	5	4	428	23.8	2468	SZ8565.40. 25 x 119
32 x 044	4	9	1976	7.0	4668	SZ8565.40. 32 x 049
32 x 064	4	6	1076	12.0	4307	SZ8565.40. 32 x 069
32 x 076	3	4	655	16.0	4151	SZ8565.40. 32 x 082
32 x 115	5	4	700	23.8	4032	SZ8565.40. 32 x 119
40 x 064	5	8	2435	11.0	7792	SZ8565.40. 40 x 069
40 x 076	4	5	1516	15.0	7201	SZ8565.40. 40 x 082
40 x 115	6	5	1470	22.8	7056	SZ8565.40. 40 x 119
50 x 064	5	8	3545	11.0	11344	SZ8565.40. 50 x 069
50 x 076	4	5	2288	15.0	10868	SZ8565.40. 50 x 082
50 x 115	6	5	2112	22.8	10137	SZ8565.40. 50 x 119

SZ8566 Threaded disc

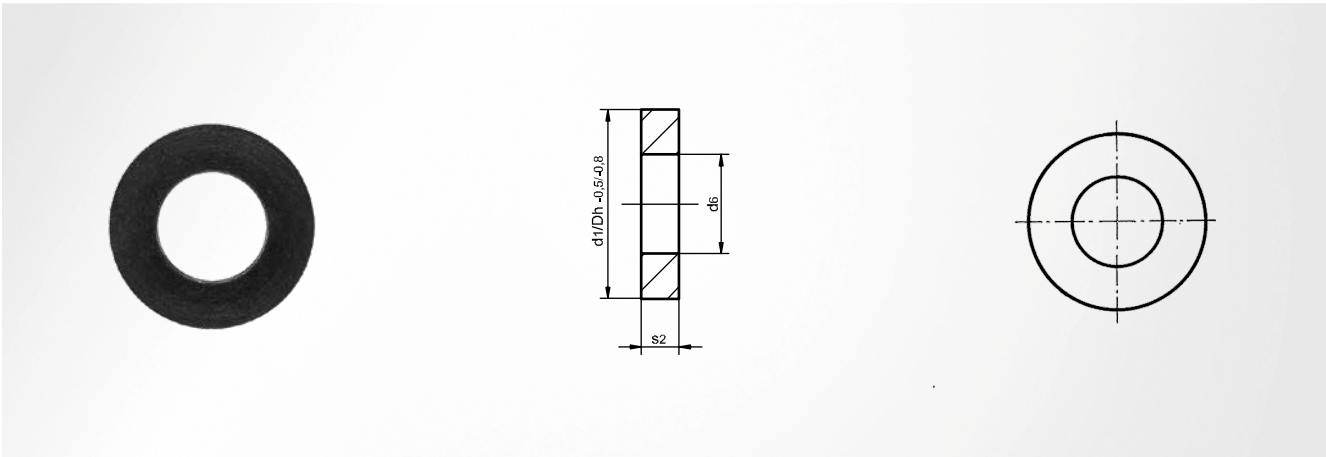


Material

Steel 1.0503 (C45)

$d_1 / Dh^{-0.5 - -0.8}$	$d_2 / Dd^{-0.5 - -0.3}$	d_3	d_7	d_8	h_1	h_2	Item number
20	10,0	M6	3.2	14.0	19	5	SZ8566 20
25	12,5	M8	4.2	18.5	19	5	SZ8566 25
32	16,0	M10	4.2	25.0	19	5	SZ8566 32
40	20,0	M12	4.2	30.0	19	5	SZ8566 40
50	25,0	M16	4.2	40.0	19	5	SZ8566 50

SZ8567 Adapting disc

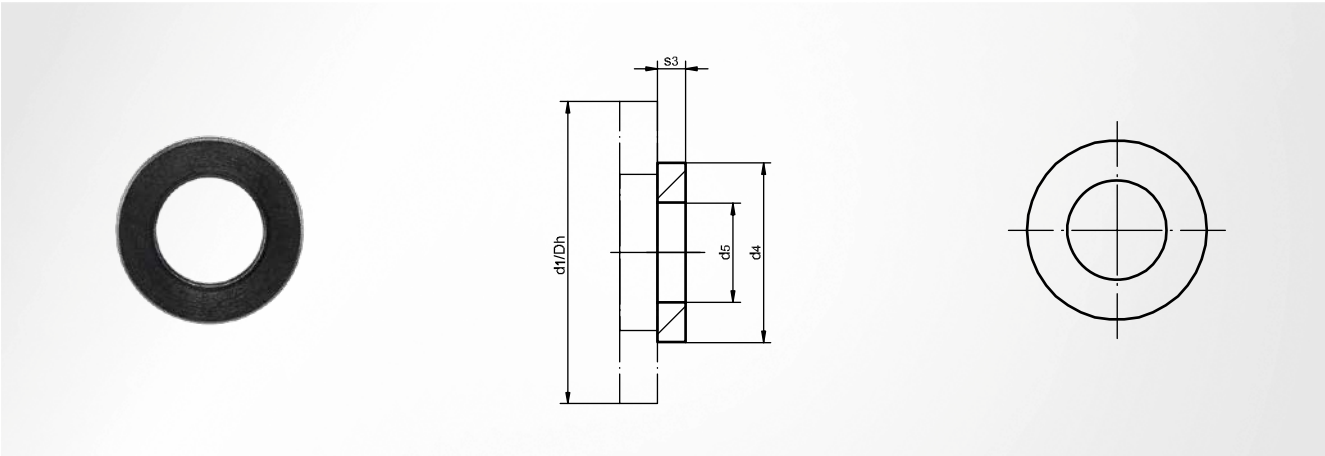


Material

Steel 1.0503 (C45)

$d_1 / Dh^{-0.5 - -0.8}$	d_6	s_2	Item number
20	10.5	4	SZ8567 20
25	13.0	4	SZ8567 25
32	16.5	4	SZ8567 32
40	20.5	5	SZ8567 40
50	25.5	5	SZ8567 50

SZ8568 Clamping disc

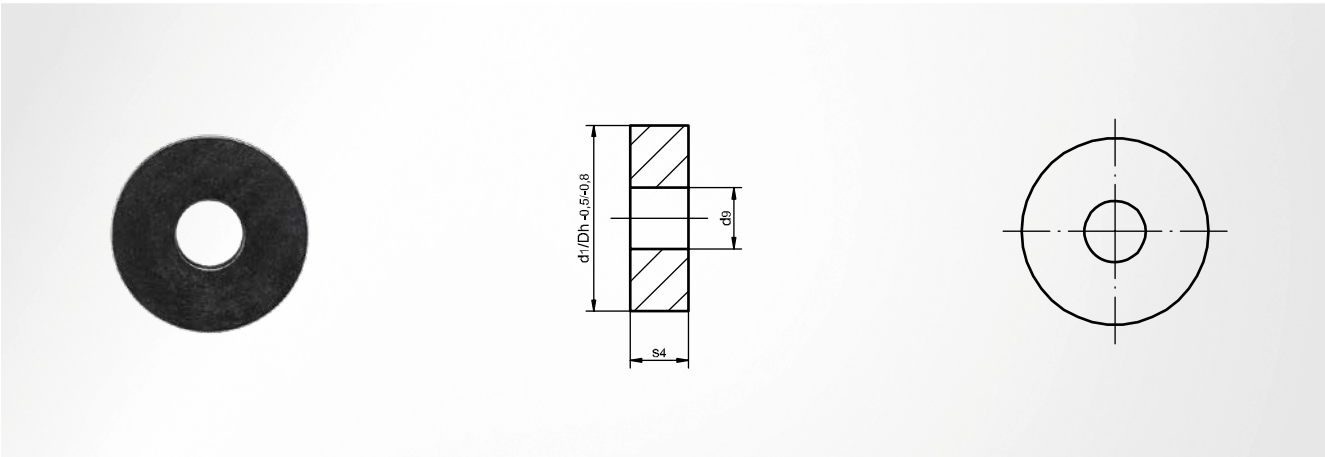


Material

Steel 1.0503 (C45)

$d_1 / Dh^{+0.5 - 0.8}$	d_4	d_5	s_3	Item number
20	13	6.5	3	SZ8568 20
25	16	8.5	3	SZ8568 25
32	19	10.5	3	SZ8568 32
40	23	12.5	4	SZ8568 40
50	28	16.5	4	SZ8568 50

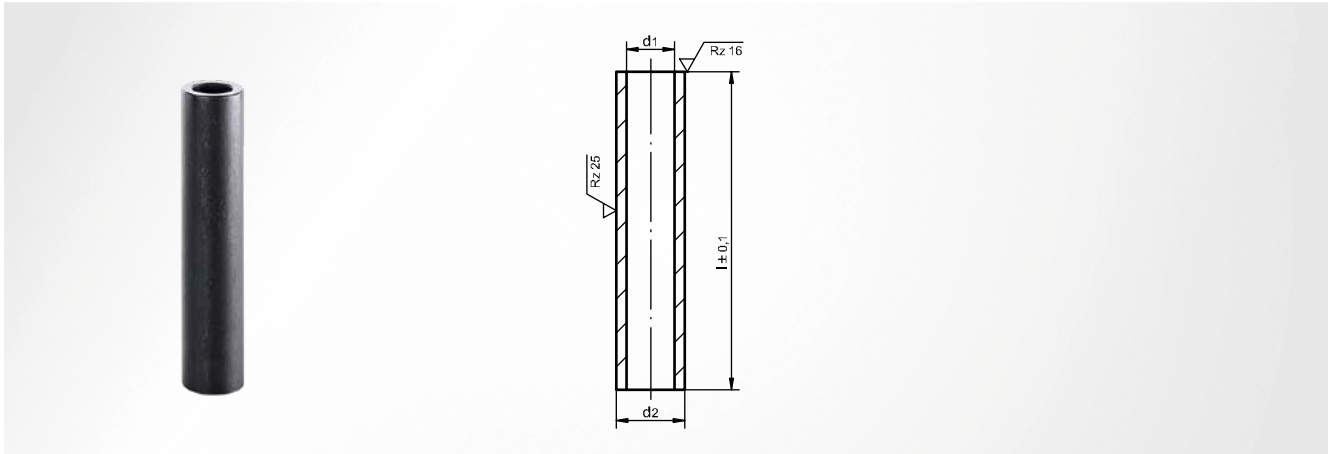
SZ8569 Regrinding disc



Material

Steel 1.0503 (C45)

$d_1 / Dh^{+0.5 - 0.8}$	d_9	s_4	Item number
20	6.5	8	SZ8569 20
25	8.5	8	SZ8569 25
32	10.5	10	SZ8569 32
40	12.5	10	SZ8569 40
50	16.5	10	SZ8569 50



Material

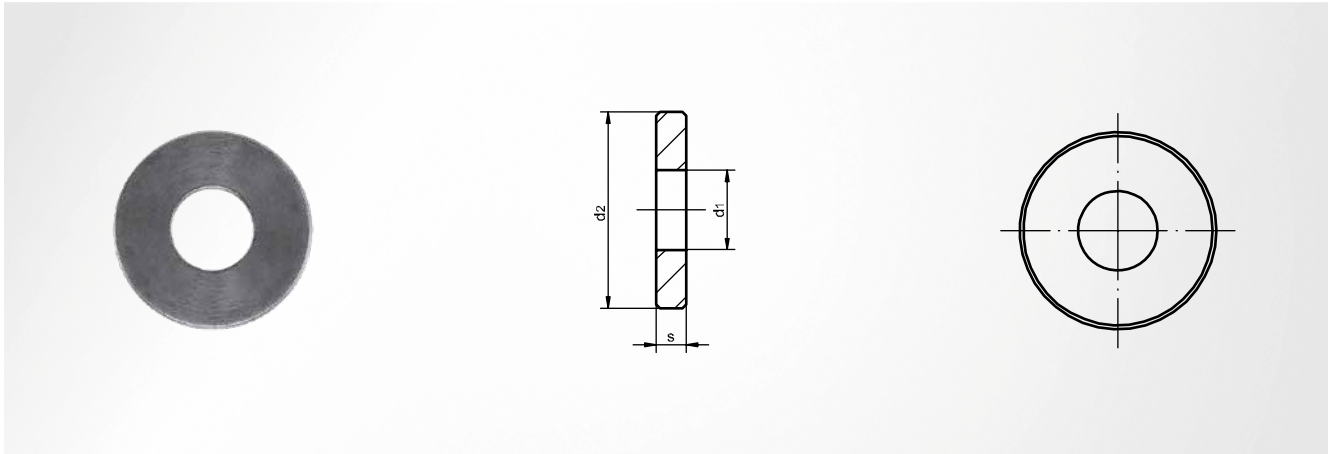
Steel 1.0308 (St35); hardened

Hardness

57 ±1 HRC

d ₁	d ₂	l ±0.1	Item number
7	10.0	20	SZ8560 10 x 020
		30	SZ8560 10 x 030
		40	SZ8560 10 x 040
		50	SZ8560 10 x 050
		63	SZ8560 10 x 063
		80	SZ8560 10 x 080
9	12.5	20	SZ8560 12 x 020
		30	SZ8560 12 x 030
		40	SZ8560 12 x 040
		50	SZ8560 12 x 050
		63	SZ8560 12 x 063
		80	SZ8560 12 x 080
		100	SZ8560 12 x 100
9	13.0	20	SZ8560 13 x 020
		30	SZ8560 13 x 030
		40	SZ8560 13 x 040
		50	SZ8560 13 x 050
		63	SZ8560 13 x 063
		80	SZ8560 13 x 080
		100	SZ8560 13 x 100
11	16.0	30	SZ8560 16 x 030
		40	SZ8560 16 x 040
		50	SZ8560 16 x 050
		60	SZ8560 16 x 060
		63	SZ8560 16 x 063
		80	SZ8560 16 x 080
		100	SZ8560 16 x 100
		125	SZ8560 16 x 125
		160	SZ8560 16 x 160
		200	SZ8560 16 x 200
13	19.0	30	SZ8560 19 x 030
		40	SZ8560 19 x 040
		50	SZ8560 19 x 050
		60	SZ8560 19 x 060
		63	SZ8560 19 x 063

d ₁	d ₂	l ±0.1	Item number
13	19.0	80	SZ8560 19 x 080
		100	SZ8560 19 x 100
		125	SZ8560 19 x 125
		200	SZ8560 19 x 200
13	20.0	30	SZ8560 20 x 030
		40	SZ8560 20 x 040
		50	SZ8560 20 x 050
		60	SZ8560 20 x 060
		63	SZ8560 20 x 063
		80	SZ8560 20 x 080
		100	SZ8560 20 x 100
		125	SZ8560 20 x 125
17	25.0	200	SZ8560 20 x 200
		30	SZ8560 25 x 030
		40	SZ8560 25 x 040
		50	SZ8560 25 x 050
		60	SZ8560 25 x 060
		63	SZ8560 25 x 063
		70	SZ8560 25 x 070
		80	SZ8560 25 x 080
		90	SZ8560 25 x 090
		100	SZ8560 25 x 100
22	30.0	125	SZ8560 25 x 125
		200	SZ8560 25 x 200
		70	SZ8560 30 x 070
		80	SZ8560 30 x 080
		90	SZ8560 30 x 090
		100	SZ8560 30 x 100
		120	SZ8560 30 x 120
26	36.0	125	SZ8560 30 x 125
		150	SZ8560 30 x 150
		200	SZ8560 30 x 200
		80	SZ8560 36 x 080
		100	SZ8560 36 x 100
		125	SZ8560 36 x 125
		150	SZ8560 36 x 150



Material

Steel 1.0503 (C45)

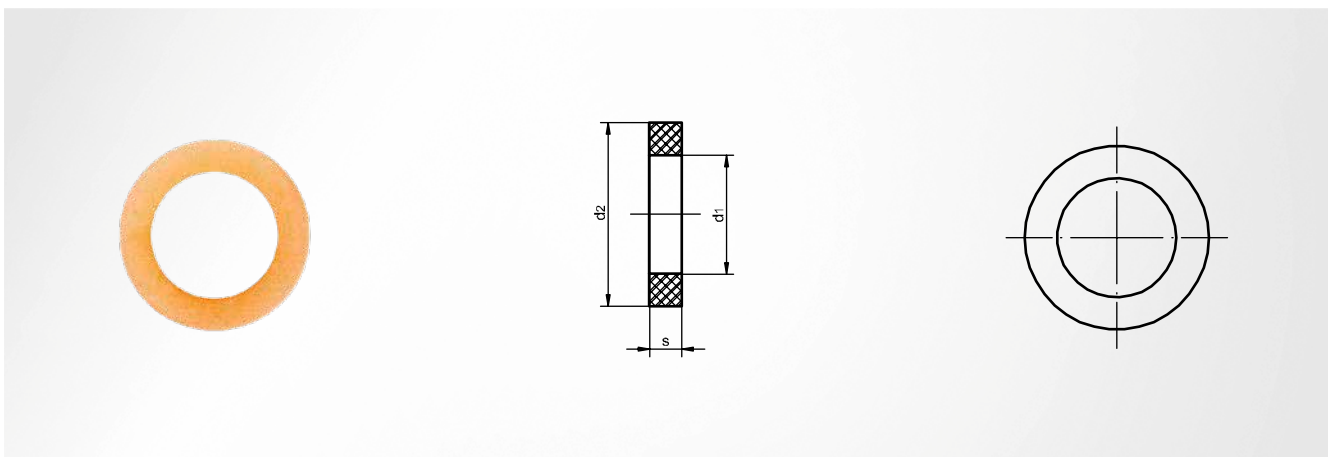
Hardness

48 $\pm$ 2 HRC

d_1	d_2	s	Item number
6.4	17	3	SZ8561 06.4
8.4	23	4	SZ8561 08.4
10.5	26	4	SZ8561 10.5
13.0	30	5	SZ8561 13

d_1	d_2	s	Item number
17.0	35	6	SZ8561 17
21.0	42	8	SZ8561 21
25.0	46	10	SZ8561 25

SZ8563 Damping spring



Material

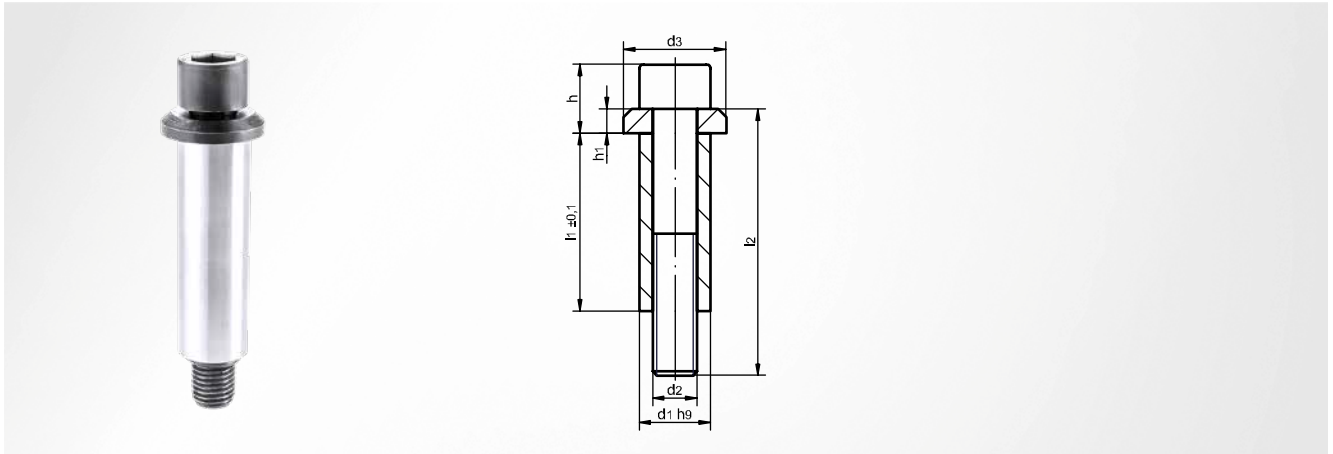
Polyurethane (PUR); the colour depends on the batch (natural or black)

Hardness

90 $\pm$ 5 Shore A

d_1	d_2	s	Item number
11	17	3	SZ8563 11
14	23	4	SZ8563 14
17	26	4	SZ8563 17
21	30	5	SZ8563 21

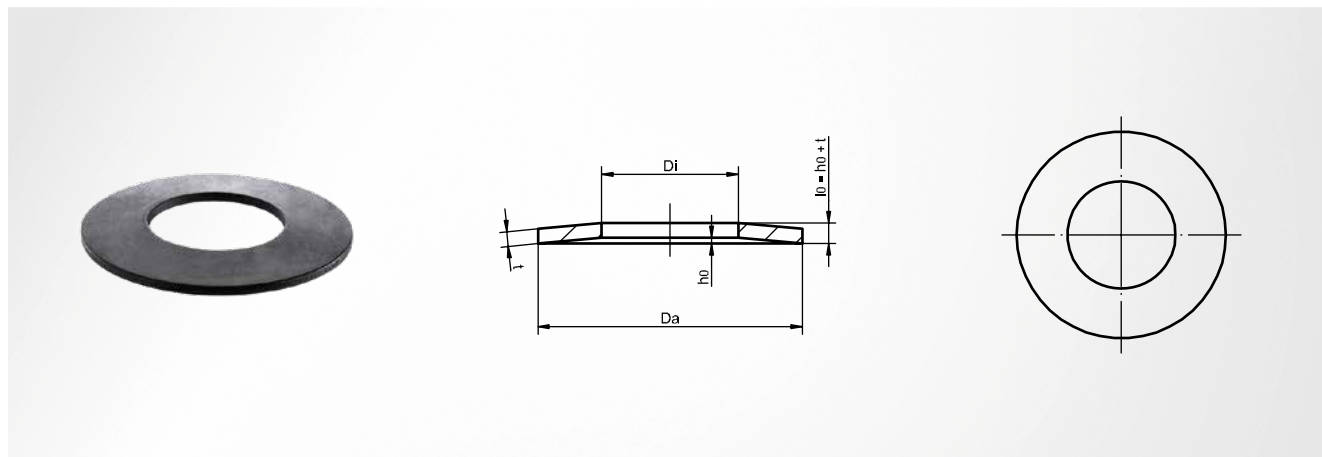
d_1	d_2	s	Item number
26	35	6	SZ8563 26
31	42	6	SZ8563 31
37	46	6	SZ8563 37



Scope of supply

Disc; spacer pipe; socket-head screw

d_1^{h9}	d_2	d_3	h	h_1	$l_1^{\pm 0.1}$	l_2	Item number
10	M6	15	10.0	4.0	20	35	SZ8580 10 x 020
					30	45	SZ8580 10 x 030
					40	60	SZ8580 10 x 040
					50	70	SZ8580 10 x 050
					63	80	SZ8580 10 x 063
					80	100	SZ8580 10 x 080
12	M8	19	13.0	5.0	20	35	SZ8580 12 x 020
					30	45	SZ8580 12 x 030
					40	60	SZ8580 12 x 040
					50	70	SZ8580 12 x 050
					63	80	SZ8580 12 x 063
					80	100	SZ8580 12 x 080
16	M10	23	15.5	5.5	100	120	SZ8580 12 x 100
					30	50	SZ8580 16 x 030
					40	60	SZ8580 16 x 040
					50	70	SZ8580 16 x 050
					63	80	SZ8580 16 x 063
					80	100	SZ8580 16 x 080
20	M12	27	19.0	7.0	100	120	SZ8580 16 x 100
					125	150	SZ8580 16 x 125
					30	50	SZ8580 20 x 030
					40	60	SZ8580 20 x 040
					50	70	SZ8580 20 x 050
					63	90	SZ8580 20 x 063
25	M16	34	23.0	7.0	80	100	SZ8580 20 x 080
					100	120	SZ8580 20 x 100
					125	150	SZ8580 20 x 125
					50	80	SZ8580 25 x 050
					63	90	SZ8580 25 x 063
					80	110	SZ8580 25 x 080
					100	130	SZ8580 25 x 100
					125	150	SZ8580 25 x 125



DIN EN 16983/ Series A and B

Spring type

Disc spring

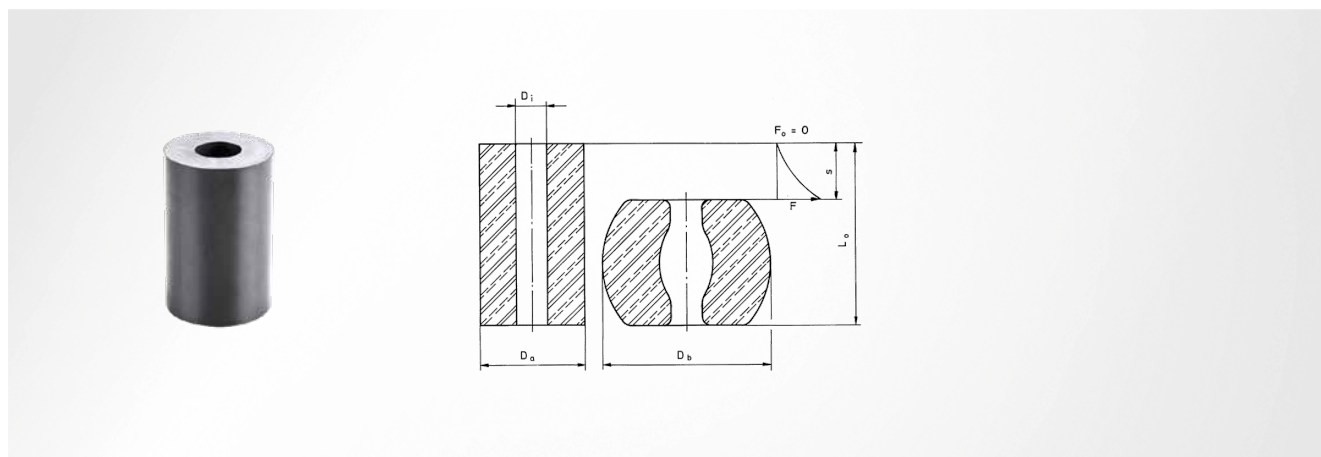
Series A and B

Note

s = stroke of a single disc

D _a	D _i	t	h ₀	l ₀	s = 0.2 h ₀		s = 0.4 h ₀		s = 0.6 h ₀		s = 0.75 h ₀		Standard packaging piece	Item number
					F N	s	F N	s	F N	s	F N	s		
8.0	4.2	0.30	0.25	0.55	42.5	0.05	75.6	0.10	102	0.15	119	0.19	100	SZ8300 08 x 4.2 x 0.3
8.0	4.2	0.40	0.20	0.60	63.5	0.04	120.0	0.08	173	0.12	210	0.15	100	SZ8300 08 x 4.2 x 0.4
10.0	5.2	0.40	0.30	0.70	72.1	0.06	130.0	0.12	178	0.18	213	0.23	100	SZ8300 10 x 5.2 x 0.4
10.0	5.2	0.50	0.25	0.75	98.5	0.05	187.0	0.10	268	0.15	329	0.19	100	SZ8300 10 x 5.2 x 0.5
12.5	6.2	0.50	0.35	0.85	98.3	0.07	180.0	0.14	248	0.21	291	0.26	100	SZ8300 12.5 x 6.2 x 0.5
12.5	6.2	0.70	0.30	1.00	194.0	0.06	372.0	0.12	539	0.18	673	0.23	100	SZ8300 12.5 x 6.2 x 0.7
14.0	7.2	0.50	0.40	0.90	98.9	0.08	177.0	0.16	239	0.24	279	0.30	100	SZ8300 14 x 7.2 x 0.5
14.0	7.2	0.80	0.30	1.10	229.0	0.06	444.0	0.12	648	0.18	813	0.23	100	SZ8300 14 x 7.2 x 0.8
15.0	5.2	0.70	0.40	1.10	174.0	0.08	326.0	0.16	461	0.24	555	0.30	100	SZ8300 15 x 5.2 x 0.7
16.0	8.2	0.60	0.45	1.05	141.0	0.09	255.0	0.18	349	0.27	412	0.34	100	SZ8300 16 x 8.2 x 0.6
16.0	8.2	0.90	0.35	1.25	293.0	0.07	566.0	0.14	825	0.21	1000	0.26	100	SZ8300 16 x 8.2 x 0.9
18.0	9.2	0.70	0.50	1.20	191.0	0.10	348.0	0.20	480	0.30	572	0.38	100	SZ8300 18 x 9.2 x 0.7
18.0	9.2	1.00	0.40	1.40	364.0	0.08	703.0	0.16	1020	0.24	1250	0.30	100	SZ8300 18 x 9.2 x 1
20.0	10.2	0.80	0.55	1.35	249.0	0.11	456.0	0.22	631	0.33	745	0.41	100	SZ8300 20 x 10.2 x 0.8
20.0	10.2	0.90	0.55	1.45	336.0	0.11	624.0	0.22	877	0.33	1040	0.41	100	SZ8300 20 x 10.2 x 0.9
20.0	10.2	1.10	0.45	1.55	443.0	0.09	854.0	0.18	1240	0.27	1530	0.34	100	SZ8300 20 x 10.2 x 1.1
22.5	11.2	0.80	0.65	1.45	252.0	0.13	450.0	0.26	608	0.39	710	0.49	100	SZ8300 22.5 x 11.2 x 0.
22.5	11.2	1.25	0.50	1.75	560.0	0.10	1080.0	0.20	1570	0.30	1950	0.38	100	SZ8300 22.5 x 11.2 x 12
23.0	12.2	1.25	0.60	1.85	700.0	0.12	1330.0	0.24	1920	0.36	2330	0.45	100	SZ8300 23 x 12.2 x 1.25
25.0	12.2	0.90	0.70	1.60	302.0	0.14	542.0	0.28	737	0.42	868	0.53	100	SZ8300 25 x 12.2 x 0.9
25.0	12.2	1.50	0.55	2.05	838.0	0.11	1630.0	0.22	2380	0.33	2910	0.41	100	SZ8300 25 x 12.2 x 1.5
28.0	14.2	1.00	0.80	1.80	392.0	0.16	702.0	0.32	949	0.48	1110	0.60	100	SZ8300 28 x 14.2 x 1.0
28.0	14.2	1.50	0.65	2.15	836.0	0.13	1600.0	0.26	2320	0.39	2850	0.49	100	SZ8300 28 x 14.2 x 1.5
31.5	16.3	1.25	0.90	2.15	648.0	0.18	1180.0	0.36	1620	0.54	1920	0.68	100	SZ8300 31.5 x 16.3 x 12
31.5	16.3	1.75	0.70	2.45	1120.0	0.14	2170.0	0.28	3160	0.42	3900	0.53	100	SZ8300 31.5 x 16.3 x 17
35.5	18.3	1.25	1.00	2.25	602.0	0.20	1080.0	0.40	1460	0.60	1700	0.75	50	SZ8300 35.5 x 18.3 x 12
35.5	18.3	2.00	0.80	2.80	1500.0	0.16	2910.0	0.32	4230	0.48	5190	0.60	50	SZ8300 35.5 x 18.3 x 2
40.0	20.4	1.50	1.15	2.65	911.0	0.23	1640.0	0.46	2240	0.69	2620	0.86	50	SZ8300 40 x 20.4 x 1.5
40.0	20.4	2.25	0.90	3.15	1890.0	0.18	3640.0	0.36	5300	0.54	6540	0.68	50	SZ8300 40 x 20.4 x 2.25
45.0	22.4	1.75	1.30	3.05	1250.0	0.26	2260.0	0.52	3100	0.78	3660	0.98	50	SZ8300 45 x 22.4 x 1.75
45.0	22.4	2.50	1.00	3.50	2240.0	0.20	4320.0	0.40	6290	0.60	7720	0.75	50	SZ8300 45 x 22.4 x 2.5
50.0	25.4	2.00	1.40	3.40	1600.0	0.28	2910.0	0.56	4020	0.84	4760	1.05	50	SZ8300 50 x 25.4 x 2
50.0	25.4	2.50	1.40	3.90	2820.0	0.28	5300.0	0.56	7520	0.84	9060	1.05	50	SZ8300 50 x 25.4 x 2.5

D _a	D _i	t	h ₀	l ₀	s = 0.2 h ₀		s = 0.4 h ₀		s = 0.6 h ₀		s = 0.75 h ₀		Standard packaging piece	Item number
					F N	s	F N	s	F N	s	F N	s		
50.0	25.4	3.00	1.10	4.10	3430.0	0.22	6660.0	0.44	9740	0.66	12000	0.83	50	SZ8300 50 x 25.4 x 3
56.0	28.5	2.00	1.60	3.60	1570.0	0.32	2810.0	0.64	3810	0.96	4440	1.20	50	SZ8300 56 x 28.5 x 2
56.0	28.5	3.00	1.30	4.30	3350.0	0.26	6430.0	0.52	9320	0.78	11400	0.98	50	SZ8300 56 x 28.5 x 3
63.0	31.0	2.50	1.75	4.25	2410.0	0.35	4400.0	0.70	6080	1.05	7180	1.31	50	SZ8300 63 x 31 x 2.5
63.0	31.0	3.50	1.40	4.90	4360.0	0.28	8420.0	0.56	12300	0.84	15000	1.05	50	SZ8300 63 x 31 x 3.5



DIN ISO 10069-1

Material

Chloroprene elastomer (CR)

Hardness

70 $\pm$ 3 Shore A

Spring type

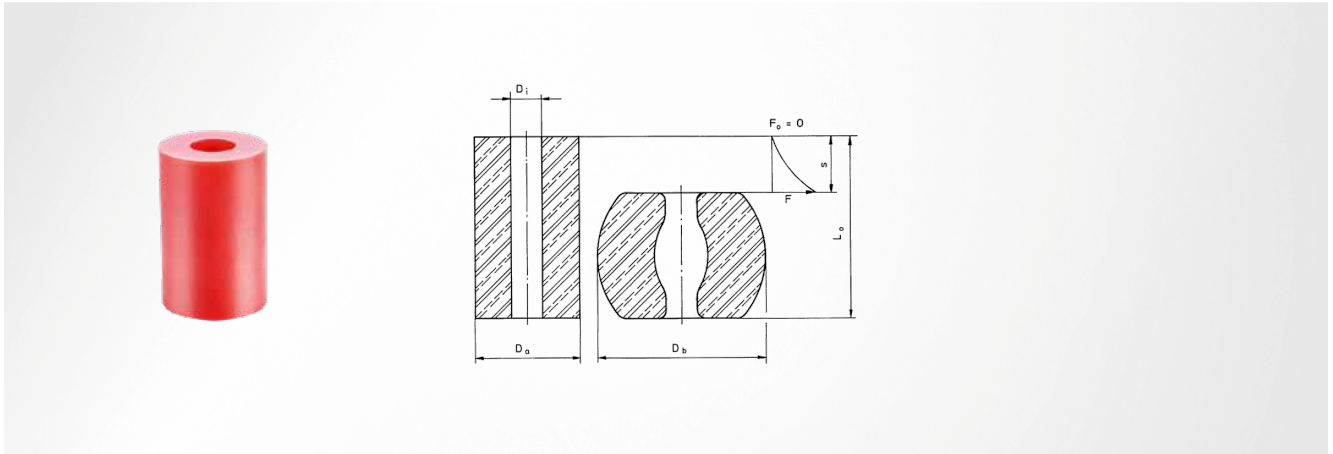
Rubber spring

Note

Permissible spring deflection $s_{\max} = 0.35 L_0$; setting inclination 3-5 % of L_0 ; thermal stability up to +80°, +120° for short periods

D_a	D_i	D_b	L_0	Standard packaging piece	Item number
16	6.5	22	12	10	SZ8500 016 x 012
			16	10	SZ8500 016 x 016
			20	10	SZ8500 016 x 020
			25	10	SZ8500 016 x 025
20	8.5	27	16	10	SZ8500 020 x 016
			20	10	SZ8500 020 x 020
			25	10	SZ8500 020 x 025
			32	10	SZ8500 020 x 032
25	10.5	34	20	5	SZ8500 025 x 020
			25	5	SZ8500 025 x 025
			32	5	SZ8500 025 x 032
			40	5	SZ8500 025 x 040
32	13.5	43	32	5	SZ8500 032 x 032
			40	5	SZ8500 032 x 040
			50	5	SZ8500 032 x 050
			63	5	SZ8500 032 x 063
40	13.5	54	32	3	SZ8500 040 x 032
			40	3	SZ8500 040 x 040
			50	3	SZ8500 040 x 050
			63	3	SZ8500 040 x 063
			80	3	SZ8500 040 x 080
50	17.0	68	32	3	SZ8500 050 x 032
			40	3	SZ8500 050 x 040
			50	3	SZ8500 050 x 050
			63	2	SZ8500 050 x 063
			80	2	SZ8500 050 x 080
			100	2	SZ8500 050 x 100
63	17.0	85	32	2	SZ8500 063 x 032

D_a	D_i	D_b	L_0	Standard packaging piece	Item number
63	17.0	85	40	2	SZ8500 063 x 040
			50	2	SZ8500 063 x 050
			63	2	SZ8500 063 x 063
			80	1	SZ8500 063 x 080
			100	1	SZ8500 063 x 100
			125	1	SZ8500 063 x 125
			32	1	SZ8500 080 x 032
			40	1	SZ8500 080 x 040
			50	1	SZ8500 080 x 050
			63	1	SZ8500 080 x 063
80	21.0	108	80	1	SZ8500 080 x 080
			100	1	SZ8500 080 x 100
			125	1	SZ8500 080 x 125
			32	1	SZ8500 100 x 032
			40	1	SZ8500 100 x 040
100	21.0	135	50	1	SZ8500 100 x 050
			63	1	SZ8500 100 x 063
			80	1	SZ8500 100 x 080
			100	1	SZ8500 100 x 100
			125	1	SZ8500 100 x 125
125	27.0	169	32	1	SZ8500 125 x 032
			40	1	SZ8500 125 x 040
			50	1	SZ8500 125 x 050
			63	1	SZ8500 125 x 063
			80	1	SZ8500 125 x 080
			100	1	SZ8500 125 x 100
			125	1	SZ8500 125 x 125
			160	1	SZ8500 125 x 160



DIN ISO 10069-1

Material

Polyurethane elastomer (PUR)

Hardness

93 ±5 Shore A

Spring type

Elastomer spring

Note

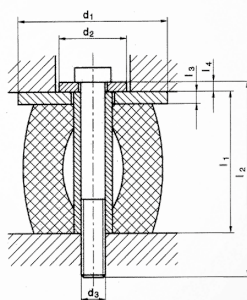
Permissible spring deflection $s_{\max} = 0.25 L_o$; setting inclination 8-10 % of L_o ; thermal stability up to +80°, +120° for short periods

D_a	D_i	D_b	L_o	Standard packaging piece	Item number
16	6.5	20	12	10	SZ8590 016 x 012
			16	10	SZ8590 016 x 016
			20	10	SZ8590 016 x 020
			25	10	SZ8590 016 x 025
20	8.5	25	16	10	SZ8590 020 x 016
			20	10	SZ8590 020 x 020
			25	10	SZ8590 020 x 025
			32	10	SZ8590 020 x 032
25	10.5	31	20	5	SZ8590 025 x 020
			25	5	SZ8590 025 x 025
			32	5	SZ8590 025 x 032
			40	5	SZ8590 025 x 040
32	13.5	40	32	5	SZ8590 032 x 032
			40	5	SZ8590 032 x 040
			50	5	SZ8590 032 x 050
			63	5	SZ8590 032 x 063
40	13.5	50	32	3	SZ8590 040 x 032
			40	3	SZ8590 040 x 040
			50	3	SZ8590 040 x 050
			63	3	SZ8590 040 x 063
			80	3	SZ8590 040 x 080
50	17.0	63	32	3	SZ8590 050 x 032
			40	3	SZ8590 050 x 040
			50	3	SZ8590 050 x 050
			63	2	SZ8590 050 x 063
			80	2	SZ8590 050 x 080
			100	2	SZ8590 050 x 100
63	17.0	79	32	2	SZ8590 063 x 032

D_a	D_i	D_b	L_o	Standard packaging piece	Item number
63	17.0	79	40	2	SZ8590 063 x 040
			50	2	SZ8590 063 x 050
			63	2	SZ8590 063 x 063
			80	1	SZ8590 063 x 080
			100	1	SZ8590 063 x 100
80	21.0	100	125	1	SZ8590 063 x 125
			32	1	SZ8590 080 x 032
			40	1	SZ8590 080 x 040
			50	1	SZ8590 080 x 050
			63	1	SZ8590 080 x 063
100	21.0	125	80	1	SZ8590 080 x 080
			100	1	SZ8590 080 x 100
			125	1	SZ8590 080 x 125
			32	1	SZ8590 100 x 032
			40	1	SZ8590 100 x 040
125	27.0	156	50	1	SZ8590 100 x 050
			63	1	SZ8590 100 x 063
			80	1	SZ8590 100 x 080
			100	1	SZ8590 100 x 100
			125	1	SZ8590 100 x 125
125	27.0	156	125	1	SZ8590 100 x 125
			32	1	SZ8590 125 x 032
			40	1	SZ8590 125 x 040
			50	1	SZ8590 125 x 050
			63	1	SZ8590 125 x 063
			80	1	SZ8590 125 x 080
			100	1	SZ8590 125 x 100
			125	1	SZ8590 125 x 125
			160	1	SZ8590 125 x 160

SZ8526 Spring unit

single, with rubber spring



Note

Stroke including preload is max. 35 % of L_0 of the elastomer springs used

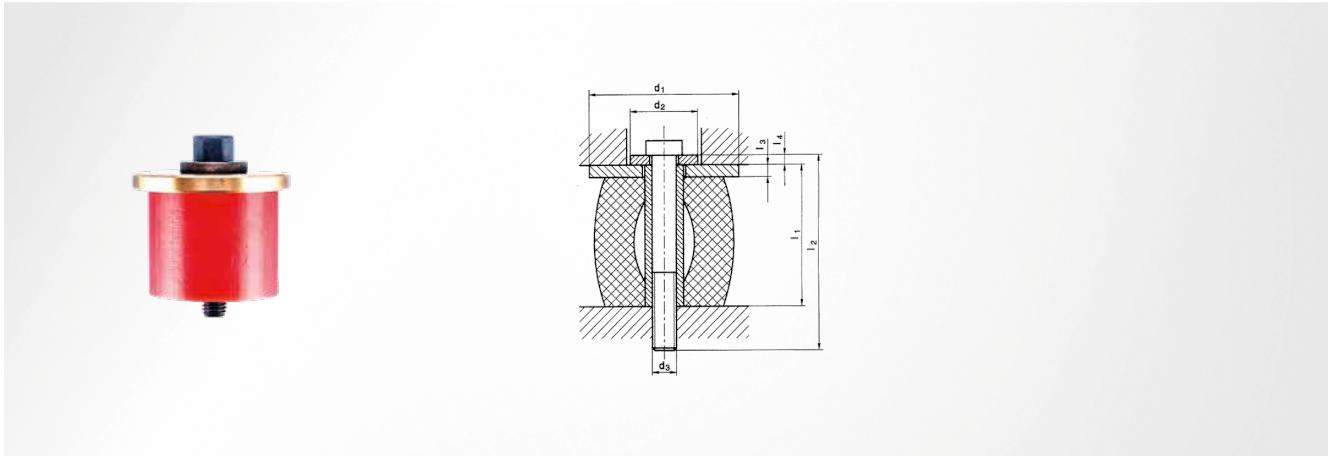
Scope of supply

SZ8500; SZ8510; SZ8556; SZ8560; SZ8561

d_1	d_2	d_3	l_3	l_4	l_1	l_2	SZ8500	Item number
30	17	M6	5	3	20	30	025 x 020	SZ8526 030 x 020
					30	40	025 x 032	SZ8526 030 x 032
					40	50	025 x 040	SZ8526 030 x 040
40	23	M8	5	4	30	50	032 x 032	SZ8526 040 x 032
					40	60	032 x 040	SZ8526 040 x 040
					50	70	032 x 050	SZ8526 040 x 050
					63	80	032 x 063	SZ8526 040 x 063
50	23	M8	5	4	30	50	040 x 032	SZ8526 050 x 032
					40	60	040 x 040	SZ8526 050 x 040
					50	70	040 x 050	SZ8526 050 x 050
					63	80	040 x 063	SZ8526 050 x 063
					80	100	040 x 080	SZ8526 050 x 080
60	26	M10	6	4	30	50	050 x 032	SZ8526 060 x 032
					40	60	050 x 040	SZ8526 060 x 040
					50	70	050 x 050	SZ8526 060 x 050
					63	80	050 x 063	SZ8526 060 x 063
					80	100	050 x 080	SZ8526 060 x 080
					100	120	050 x 100	SZ8526 060 x 100
80	26	M10	6	4	30	50	063 x 032	SZ8526 080 x 032
					40	60	063 x 040	SZ8526 080 x 040
					50	70	063 x 050	SZ8526 080 x 050
					63	80	063 x 063	SZ8526 080 x 063
					80	100	063 x 080	SZ8526 080 x 080
					100	120	063 x 100	SZ8526 080 x 100
					125	140	063 x 125	SZ8526 080 x 125
100	30	M12	8	5	30	50	080 x 032	SZ8526 100 x 032
					40	60	080 x 040	SZ8526 100 x 040
					50	70	080 x 050	SZ8526 100 x 050
					63	80	080 x 063	SZ8526 100 x 063
					80	100	080 x 080	SZ8526 100 x 080
					100	120	080 x 100	SZ8526 100 x 100
					125	140	080 x 125	SZ8526 100 x 125
120	30	M12	8	5	30	50	100 x 032	SZ8526 120 x 032
					40	60	100 x 040	SZ8526 120 x 040
					50	70	100 x 050	SZ8526 120 x 050
					63	80	100 x 063	SZ8526 120 x 063
					80	100	100 x 080	SZ8526 120 x 080
					100	120	100 x 100	SZ8526 120 x 100
					125	140	100 x 125	SZ8526 120 x 125

SZ8527 Spring unit

single, with elastomer spring



Note

Stroke including preload is max. 25 % of L_0 of the elastomer springs used

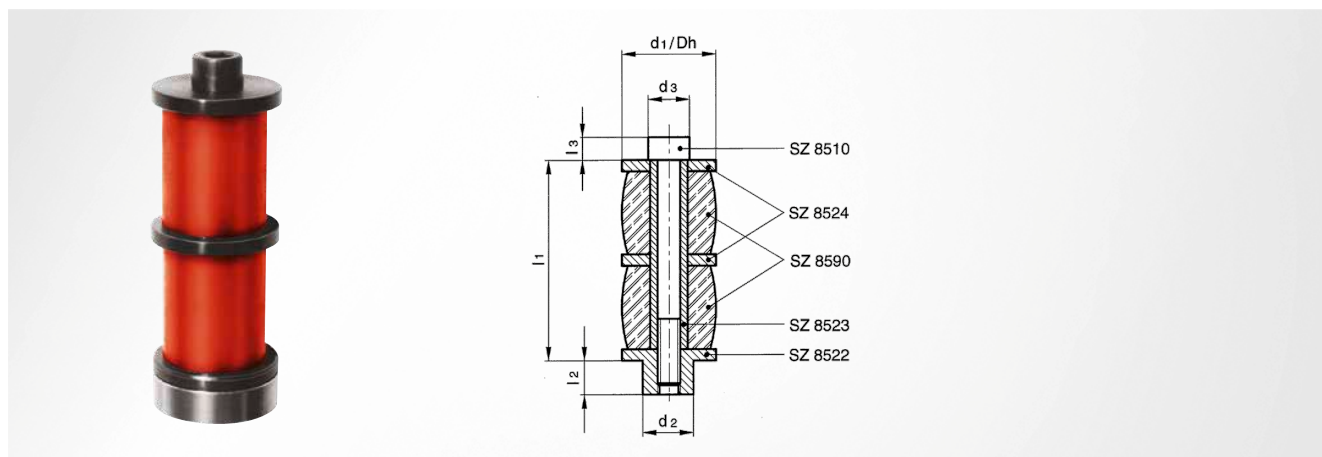
Scope of supply

SZ8510; SZ8556; SZ8560; SZ8561; SZ8590

d_1	d_2	d_3	l_3	l_4	l_1	l_2	SZ8590	Item number
30	17	M6	5	3	20	30	025 x 020	SZ8527 030 x 020
					30	40	025 x 032	SZ8527 030 x 032
					40	50	025 x 040	SZ8527 030 x 040
40	23	M8	5	4	30	50	032 x 032	SZ8527 040 x 032
					40	60	032 x 040	SZ8527 040 x 040
					50	70	032 x 050	SZ8527 040 x 050
					63	80	032 x 063	SZ8527 040 x 063
50	23	M8	5	4	30	50	040 x 032	SZ8527 050 x 032
					40	60	040 x 040	SZ8527 050 x 040
					50	70	040 x 050	SZ8527 050 x 050
					63	80	040 x 063	SZ8527 050 x 063
					80	100	040 x 080	SZ8527 050 x 080
60	26	M10	6	4	30	50	050 x 032	SZ8527 060 x 032
					40	60	050 x 040	SZ8527 060 x 040
					50	70	050 x 050	SZ8527 060 x 050
					63	80	050 x 063	SZ8527 060 x 063
					80	100	050 x 080	SZ8527 060 x 080
					100	120	050 x 100	SZ8527 060 x 100
80	26	M10	6	4	30	50	063 x 032	SZ8527 080 x 032
					40	60	063 x 040	SZ8527 080 x 040
					50	70	063 x 050	SZ8527 080 x 050
					63	80	063 x 063	SZ8527 080 x 063
					80	100	063 x 080	SZ8527 080 x 080
					100	120	063 x 100	SZ8527 080 x 100
					125	140	063 x 125	SZ8527 080 x 125
100	30	M12	8	5	30	50	080 x 032	SZ8527 100 x 032
					40	60	080 x 040	SZ8527 100 x 040
					50	70	080 x 050	SZ8527 100 x 050
					63	80	080 x 063	SZ8527 100 x 063
					80	100	080 x 080	SZ8527 100 x 080
					100	120	080 x 100	SZ8527 100 x 100
					125	140	080 x 125	SZ8527 100 x 125
120	30	M12	8	5	30	50	100 x 032	SZ8527 120 x 032
					40	60	100 x 040	SZ8527 120 x 040
					50	70	100 x 050	SZ8527 120 x 050
					63	80	100 x 063	SZ8527 120 x 063
					80	100	100 x 080	SZ8527 120 x 080
					100	120	100 x 100	SZ8527 120 x 100
					125	140	100 x 125	SZ8527 120 x 125

SZ8520 Spring unit

double, with elastomer spring



Note

Stroke including preload is max. 25 % of L_0 of the elastomer springs used (SZ8590)

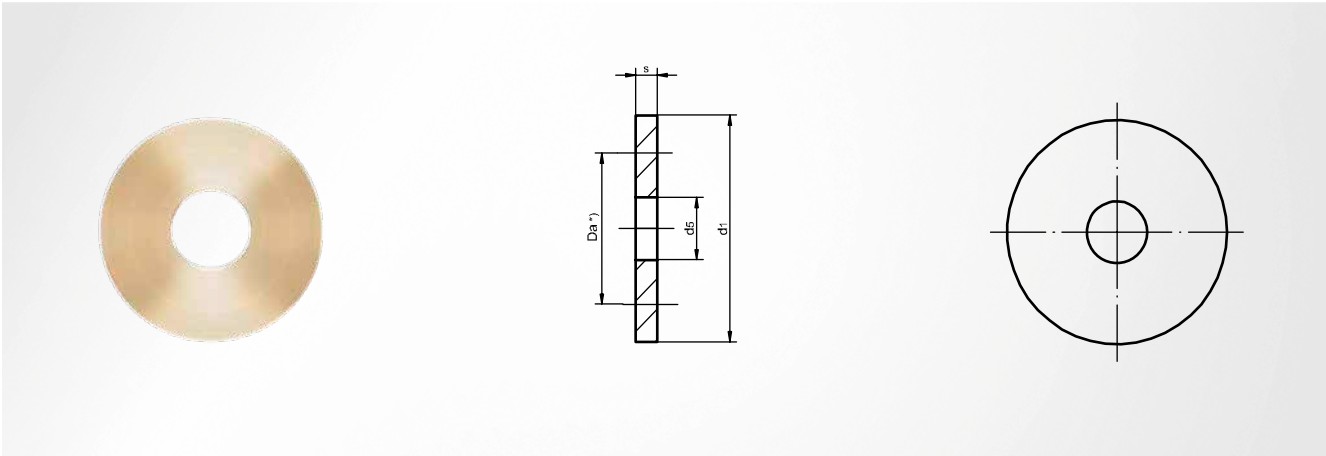
Scope of supply

SZ8510; SZ8590; SZ8522; SZ8523; SZ8524

Sleeve Ø d_1/D_h	d_2	d_3	l_2	l_3	l_1	SZ8510	SZ8522	SZ8523	SZ8524	SZ8590	Item number
25	13	10	9	6	53	06 x 060	25	08 x 050	25	020 x 025	SZ8520 25 x 053
					67	06 x 080	25	08 x 064	25	020 x 032	SZ8520 25 x 067
32	16	13	11	8	53	08 x 060	32	10 x 050	32	025 x 025	SZ8520 32 x 053
					67	08 x 080	32	10 x 064	32	025 x 032	SZ8520 32 x 067
					83	08 x 090	32	10 x 080	32	025 x 040	SZ8520 32 x 083
40	20	16	14	10	67	10 x 080	40	13 x 064	40	032 x 032	SZ8520 40 x 067
					83	10 x 090	40	13 x 080	40	032 x 040	SZ8520 40 x 083
					103	10 x 110	40	13 x 100	40	032 x 050	SZ8520 40 x 103
50	25	16	14	10	86	10 x 090	50	13 x 082	50	040 x 040	SZ8520 50 x 086
					106	10 x 110	50	13 x 102	50	040 x 050	SZ8520 50 x 106
					132	10 x 140	50	13 x 128	50	040 x 063	SZ8520 50 x 132

SZ8556 Spring washer

for elastomer spring



DIN ISO 10069-1

Note
 D_a = spring diameter

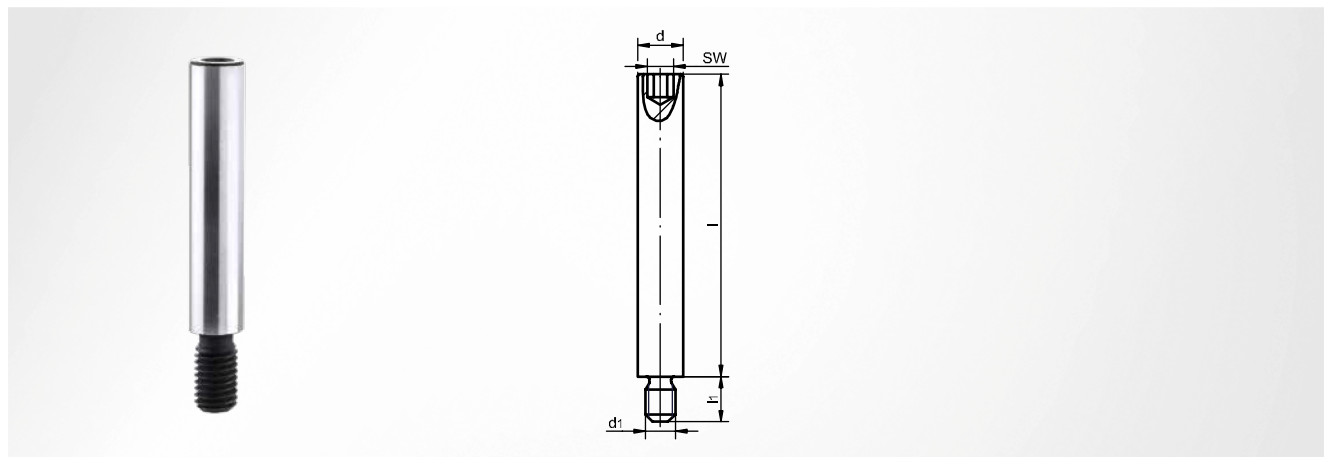
Material
 Brass

D_a	d_1	d_s	s	Item number
16	20	6.5	4	SZ8556 016
20	25	8.5	4	SZ8556 020
25	30	10.5	5	SZ8556 025
32	40	13.5	5	SZ8556 032
40	50	13.5	5	SZ8556 040
50	60	16.5	6	SZ8556 050
63	80	16.5	6	SZ8556 063
80	100	20.5	8	SZ8556 080
100	120	20.5	8	SZ8556 100
125	150	26.0	8	SZ8556 125

SZ8555 Guide pins

for elastomer spring

STEINEL®



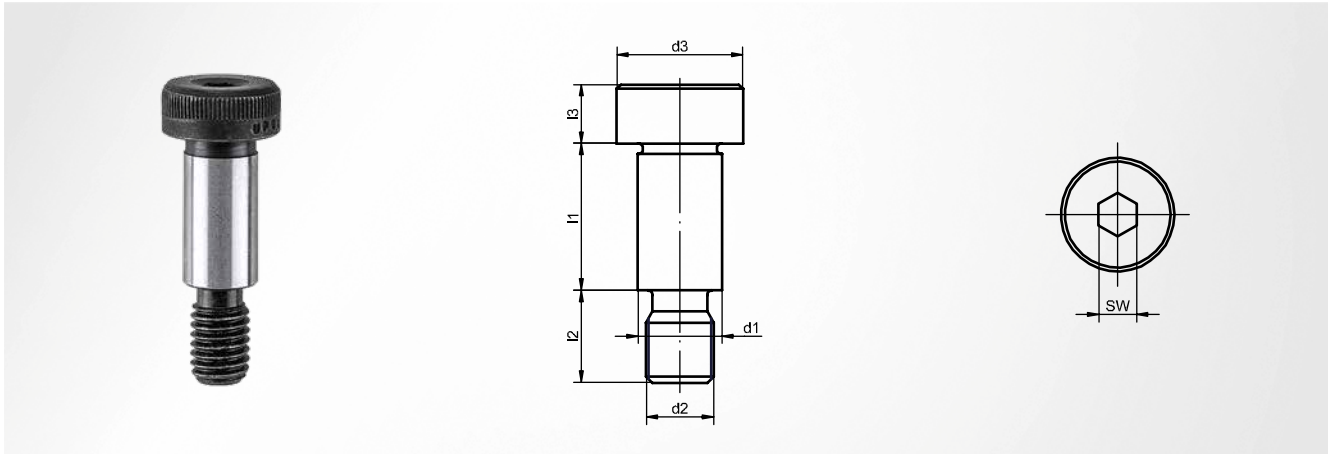
DIN ISO 10069-1

Material

Steel 1.7225

d_1	d^{h11}	l_1	SW	l	Standard packaging piece	Item number
M4	6	6	3	20	10	SZ8555 06 x 020
				25	10	SZ8555 06 x 025
				32	10	SZ8555 06 x 032
M6	8	9	4	20	10	SZ8555 08 x 020
				25	10	SZ8555 08 x 025
				32	10	SZ8555 08 x 032
				40	10	SZ8555 08 x 040
				50	10	SZ8555 08 x 050
M8	10	15	5	20	10	SZ8555 10 x 020
				25	10	SZ8555 10 x 025
				32	5	SZ8555 10 x 032
				40	5	SZ8555 10 x 040
				50	5	SZ8555 10 x 050
M10	13	15	6	63	5	SZ8555 10 x 063
				32	5	SZ8555 13 x 032
				40	5	SZ8555 13 x 040
				50	5	SZ8555 13 x 050
				63	5	SZ8555 13 x 063
M12	16	18	8	80	5	SZ8555 13 x 080
				95	5	SZ8555 13 x 095
				32	5	SZ8555 16 x 032

d_1	d^{h11}	l_1	SW	l	Standard packaging piece	Item number
M12	16	18	8	40	5	SZ8555 16 x 040
				50	5	SZ8555 16 x 050
				63	5	SZ8555 16 x 063
				80	2	SZ8555 16 x 080
				95	2	SZ8555 16 x 095
				118	2	SZ8555 16 x 118
M16	20	25	10	140	2	SZ8555 16 x 140
				50	2	SZ8555 20 x 050
				63	2	SZ8555 20 x 063
				80	2	SZ8555 20 x 080
				95	2	SZ8555 20 x 095
M20	25	30	14	118	2	SZ8555 20 x 118
				140	2	SZ8555 20 x 140
				50	2	SZ8555 25 x 050
				63	2	SZ8555 25 x 063
				80	2	SZ8555 25 x 080
				95	2	SZ8555 25 x 095
				118	2	SZ8555 25 x 118
				140	2	SZ8555 25 x 140
				180	2	SZ8555 25 x 180



ISO 7379

Note

Strength class 12.9

d_1^{f9}	d_2	d_3	l_2	l_3	SW	$l_1^{+0.25}$	Item number
4	M3	7	7.0	3.0	2.0	10	SZ8558 04 x 010
						12	SZ8558 04 x 012
						16	SZ8558 04 x 016
						20	SZ8558 04 x 020
						25	SZ8558 04 x 025
						30	SZ8558 04 x 030
5	M4	9	8.0	4.0	2.5	10	SZ8558 05 x 010
						12	SZ8558 05 x 012
						16	SZ8558 05 x 016
						20	SZ8558 05 x 020
						25	SZ8558 05 x 025
						30	SZ8558 05 x 030
6	M5	10	9.5	4.5	3.0	40	SZ8558 05 x 040
						10	SZ8558 06 x 010
						12	SZ8558 06 x 012
						16	SZ8558 06 x 016
						20	SZ8558 06 x 020
						25	SZ8558 06 x 025
						30	SZ8558 06 x 030
						35	SZ8558 06 x 035
						40	SZ8558 06 x 040
						45	SZ8558 06 x 045
8	M6	13	11.0	5.5	4.0	50	SZ8558 06 x 050
						55	SZ8558 06 x 055
						60	SZ8558 06 x 060
						65	SZ8558 06 x 065
						70	SZ8558 06 x 070
						16	SZ8558 08 x 016
						20	SZ8558 08 x 020
						25	SZ8558 08 x 025
						30	SZ8558 08 x 030
						35	SZ8558 08 x 035
						40	SZ8558 08 x 040
						45	SZ8558 08 x 045
						50	SZ8558 08 x 050
						55	SZ8558 08 x 055
						60	SZ8558 08 x 060
						65	SZ8558 08 x 065
						70	SZ8558 08 x 070
						80	SZ8558 08 x 080

d_1^{f9}	d_2	d_3	l_2	l_3	SW	$l_1^{+0.25}$	Item number
8	M6	13	11.0	5.5	4.0	90	SZ8558 08 x 090
						100	SZ8558 08 x 100
						16	SZ8558 10 x 016
						20	SZ8558 10 x 020
						25	SZ8558 10 x 025
						30	SZ8558 10 x 030
10	M8	16	13.0	7.0	5.0	35	SZ8558 10 x 035
						40	SZ8558 10 x 040
						45	SZ8558 10 x 045
						50	SZ8558 10 x 050
						55	SZ8558 10 x 055
						60	SZ8558 10 x 060
						65	SZ8558 10 x 065
						70	SZ8558 10 x 070
						80	SZ8558 10 x 080
						90	SZ8558 10 x 090
12	M10	18	16.0	8.0	6.0	100	SZ8558 10 x 100
						16	SZ8558 12 x 016
						20	SZ8558 12 x 020
						25	SZ8558 12 x 025
						30	SZ8558 12 x 030
						35	SZ8558 12 x 035
						40	SZ8558 12 x 040
						45	SZ8558 12 x 045
						50	SZ8558 12 x 050
						55	SZ8558 12 x 055
16	M12	24	18.0	11.0	8.0	60	SZ8558 12 x 060
						65	SZ8558 12 x 065
						70	SZ8558 12 x 070
						80	SZ8558 12 x 080
						90	SZ8558 12 x 090
						100	SZ8558 12 x 100
						25	SZ8558 16 x 025
						30	SZ8558 16 x 030
						35	SZ8558 16 x 035
						40	SZ8558 16 x 040
						45	SZ8558 16 x 045
						50	SZ8558 16 x 050
						55	SZ8558 16 x 055
						60	SZ8558 16 x 060

Nitrogen
systems

Tapping
units

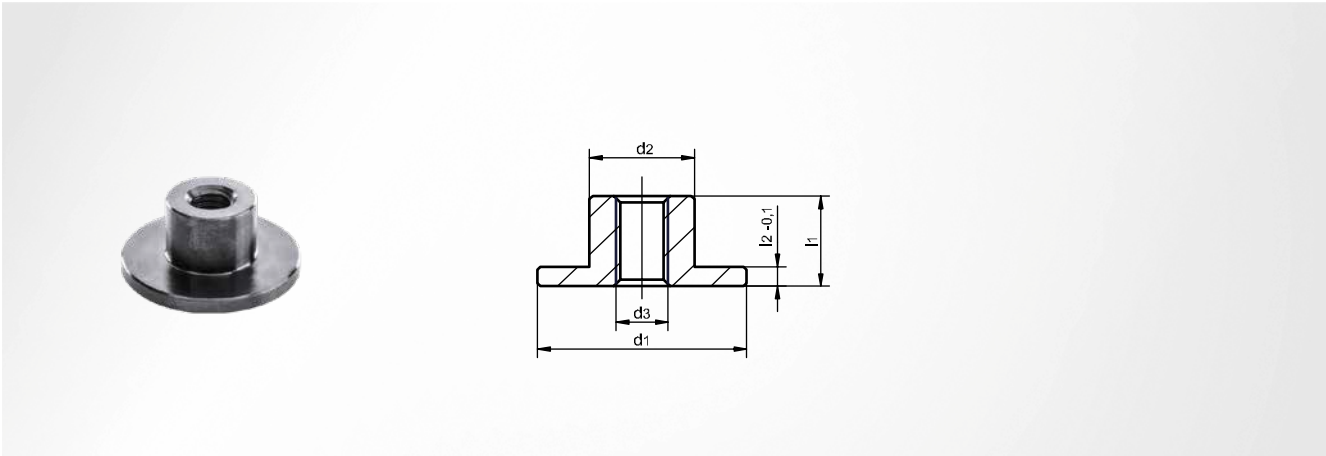
Module
system

Machine
elements

Accessories

d_1^{f9}	d_2	d_3	l_2	l_3	SW	$l_1^{+0.25}$	Item number
16	M12	24	18.0	11.0	8.0	65	SZ8558 16 x 065
						70	SZ8558 16 x 070
						80	SZ8558 16 x 080
						90	SZ8558 16 x 090
						100	SZ8558 16 x 100
20	M16	30	27.0	16.0	10.0	30	SZ8558 20 x 030
						35	SZ8558 20 x 035
						40	SZ8558 20 x 040
						45	SZ8558 20 x 045
						50	SZ8558 20 x 050
						55	SZ8558 20 x 055
						60	SZ8558 20 x 060

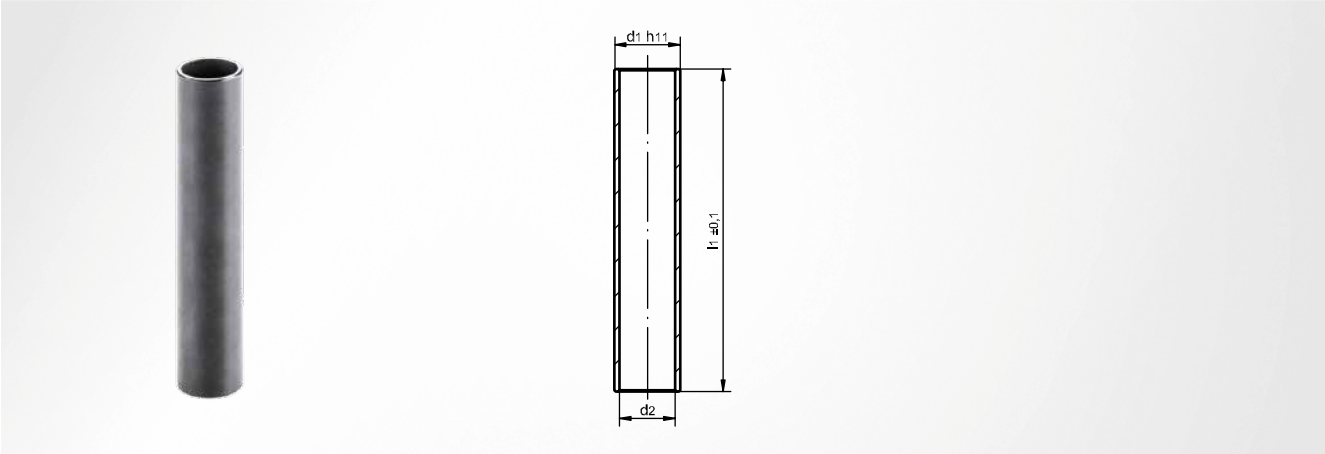
d_1^{f9}	d_2	d_3	l_2	l_3	SW	$l_1^{+0.25}$	Item number
20	M16	30	27.0	16.0	10.0	65	SZ8558 20 x 065
						70	SZ8558 20 x 070
						80	SZ8558 20 x 080
						90	SZ8558 20 x 090
						100	SZ8558 20 x 100
24	M20	36	27.0	16.0	12.0	50	SZ8558 24 x 050
						60	SZ8558 24 x 060
						65	SZ8558 24 x 065
						70	SZ8558 24 x 070
						80	SZ8558 24 x 080
						90	SZ8558 24 x 090
						100	SZ8558 24 x 100



Material

Steel 1.0503 (C45)

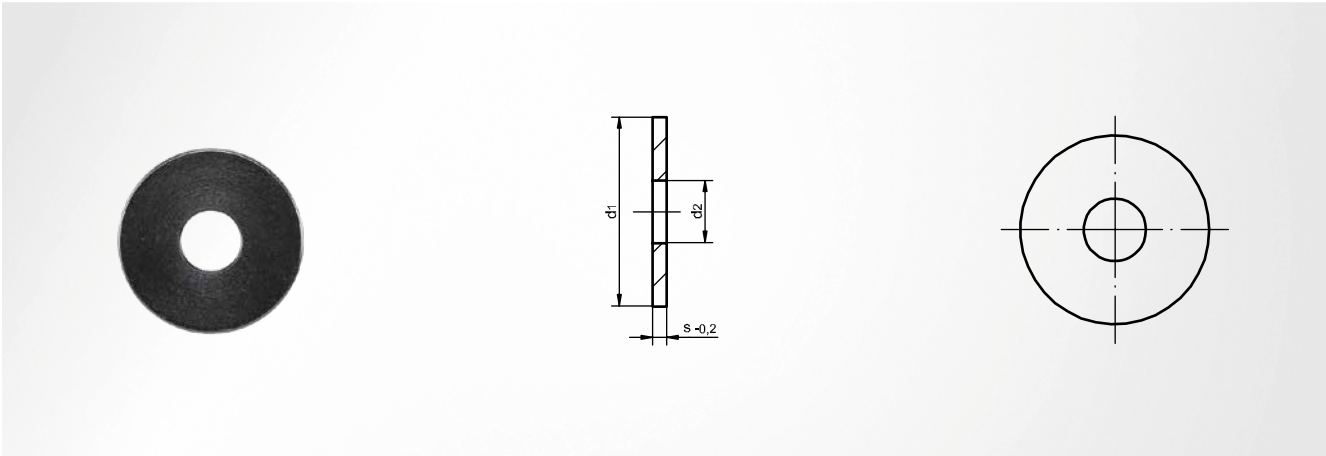
d ₁	d ₂	d ₃	l ₁	l ₂ ^{-0.1}	Item number
25	13	M6	12	3	SZ8522 25
32	16	M8	14	3	SZ8522 32
40	20	M10	17	3	SZ8522 40
50	25	M10	18	4	SZ8522 50



Material

Steel 1.0715 (9SMn28K)

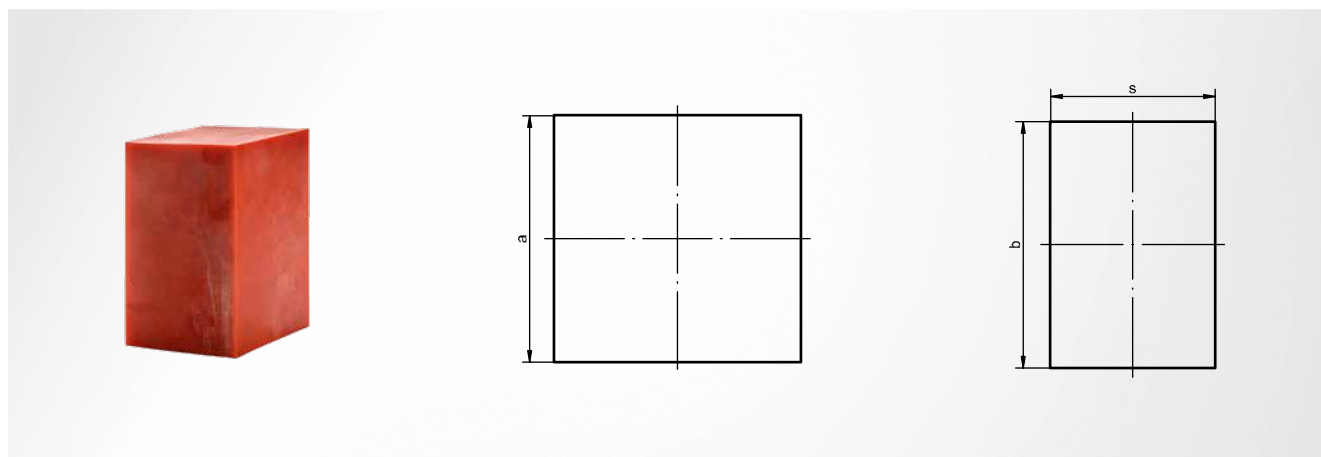
d_1^{h11}	d_2	$l_1^{\pm 0,1}$	Item number
8	6.5	50	SZ8523 08 x 050
		64	SZ8523 08 x 064
10	8.5	50	SZ8523 10 x 050
		64	SZ8523 10 x 064
		80	SZ8523 10 x 080
13	11.0	64	SZ8523 13 x 064
		80	SZ8523 13 x 080
		82	SZ8523 13 x 082
		100	SZ8523 13 x 100
		102	SZ8523 13 x 102
		128	SZ8523 13 x 128



Material

Steel 1.0503 (C45)

d_1	d_2	$s_{-0.2}$	Item number
25	8	3	SZ8524 25
32	10	3	SZ8524 32
40	13	3	SZ8524 40
50	13	4	SZ8524 50



Material

Polyurethane elastomer (PUR); the colour depends on the batch (red or natural)

Hardness

93 ±5 Shore A

Spring type

Elastomer spring

a x b	s	Item number
75 x 75	25.0	SZ5190 075 x 075 x 25
	50.0	SZ5190 075 x 075 x 50
100 x 75	12.0	SZ5190 100 x 075 x 12
	25.0	SZ5190 100 x 075 x 25
	50.0	SZ5190 100 x 075 x 50
100 x 100	12.0	SZ5190 100 x 100 x 12
	25.0	SZ5190 100 x 100 x 25
	50.0	SZ5190 100 x 100 x 50
125 x 100	12.0	SZ5190 125 x 100 x 12
	25.0	SZ5190 125 x 100 x 25
	50.0	SZ5190 125 x 100 x 50
125 x 125	12.0	SZ5190 125 x 125 x 12
	25.0	SZ5190 125 x 125 x 25
	50.0	SZ5190 125 x 125 x 50
150 x 75	12.0	SZ5190 150 x 075 x 12
	25.0	SZ5190 150 x 075 x 25
	50.0	SZ5190 150 x 075 x 50
150 x 100	12.0	SZ5190 150 x 100 x 12
	25.0	SZ5190 150 x 100 x 25
	50.0	SZ5190 150 x 100 x 50
150 x 125	12.0	SZ5190 150 x 125 x 12
	25.0	SZ5190 150 x 125 x 25
	50.0	SZ5190 150 x 125 x 50
150 x 150	12.0	SZ5190 150 x 150 x 12
	25.0	SZ5190 150 x 150 x 25
	50.0	SZ5190 150 x 150 x 50
200 x 100	12.0	SZ5190 200 x 100 x 12
	25.0	SZ5190 200 x 100 x 25
	50.0	SZ5190 200 x 100 x 50
200 x 125	12.0	SZ5190 200 x 125 x 12
	25.0	SZ5190 200 x 125 x 25
	50.0	SZ5190 200 x 125 x 50
200 x 150	12.0	SZ5190 200 x 150 x 12
	25.0	SZ5190 200 x 150 x 25
	50.0	SZ5190 200 x 150 x 50
200 x 200	12.0	SZ5190 200 x 200 x 12

a x b	s	Item number
200 x 200	25.0	SZ5190 200 x 200 x 25
	50.0	SZ5190 200 x 200 x 50
250 x 125	12.0	SZ5190 250 x 125 x 12
	25.0	SZ5190 250 x 125 x 25
	50.0	SZ5190 250 x 125 x 50
250 x 150	12.0	SZ5190 250 x 150 x 12
	25.0	SZ5190 250 x 150 x 25
	50.0	SZ5190 250 x 150 x 50
250 x 200	12.0	SZ5190 250 x 200 x 12
	25.0	SZ5190 250 x 200 x 25
	50.0	SZ5190 250 x 200 x 50
250 x 250	12.0	SZ5190 250 x 250 x 12
	25.0	SZ5190 250 x 250 x 25
	50.0	SZ5190 250 x 250 x 50
300 x 150	12.0	SZ5190 300 x 150 x 12
	25.0	SZ5190 300 x 150 x 25
	50.0	SZ5190 300 x 150 x 50
300 x 200	12.0	SZ5190 300 x 200 x 12
	25.0	SZ5190 300 x 200 x 25
	50.0	SZ5190 300 x 200 x 50
300 x 250	12.0	SZ5190 300 x 250 x 12
	25.0	SZ5190 300 x 250 x 25
	50.0	SZ5190 300 x 250 x 50
300 x 300	12.0	SZ5190 300 x 300 x 12
	25.0	SZ5190 300 x 300 x 25
	50.0	SZ5190 300 x 300 x 50
400 x 200	12.0	SZ5190 400 x 200 x 12
	25.0	SZ5190 400 x 200 x 25
	50.0	SZ5190 400 x 200 x 50
400 x 250	12.0	SZ5190 400 x 250 x 12
	25.0	SZ5190 400 x 250 x 25
	50.0	SZ5190 400 x 250 x 50
400 x 300	12.0	SZ5190 400 x 300 x 12
	25.0	SZ5190 400 x 300 x 25
	50.0	SZ5190 400 x 300 x 50
500 x 250	12.0	SZ5190 500 x 250 x 12

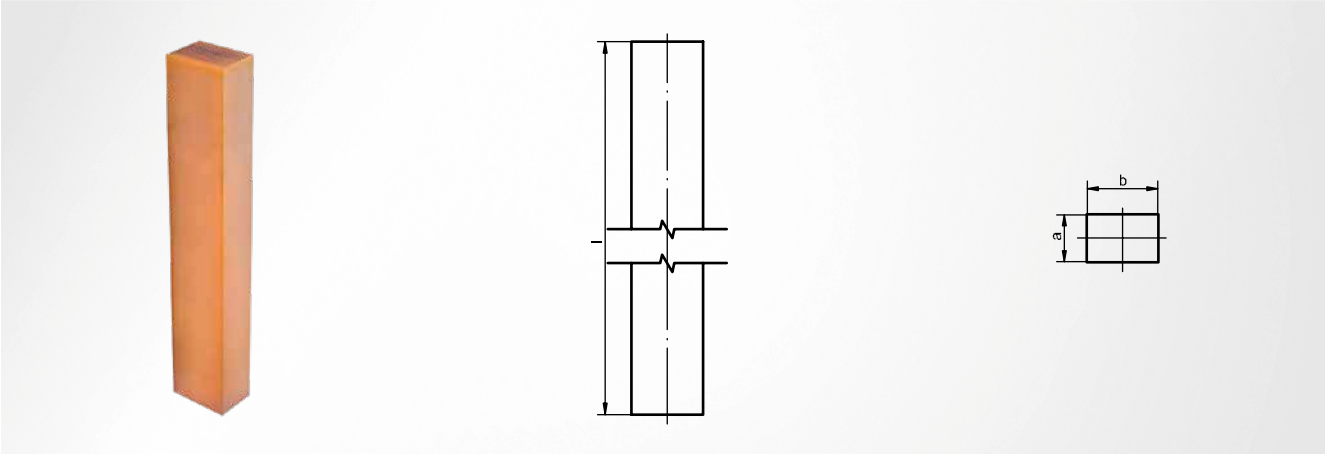
a x b	s	Item number
500 x 250	25.0	SZ5190 500 x 250 x 25
	50.0	SZ5190 500 x 250 x 50
500 x 300	12.0	SZ5190 500 x 300 x 12
	25.0	SZ5190 500 x 300 x 25

a x b	s	Item number
500 x 300	50.0	SZ5190 500 x 300 x 50
600 x 300	12.0	SZ5190 600 x 300 x 12
	25.0	SZ5190 600 x 300 x 25
	50.0	SZ5190 600 x 300 x 50

SZ5290 Polyurethane rod



rectangular rod



Material

Polyurethane elastomer (PUR)

Spring type

Elastomer spring

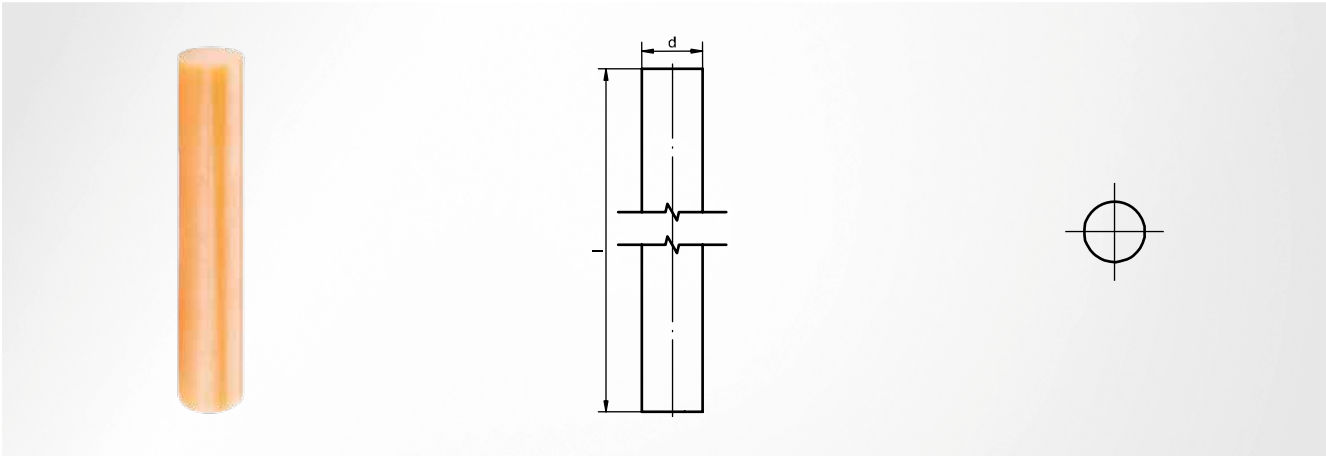
Hardness

93 ±5 Shore A

a	b	l	Item number
25.0	25.0	300	SZ5290 25 x 25 x 300
		600	SZ5290 25 x 25 x 600
		1200	SZ5290 25 x 25 x 1200
25.0	37.5	200	SZ5290 25 x 37.5 x 200
		300	SZ5290 25 x 37.5 x 300
		600	SZ5290 25 x 37.5 x 600
		1200	SZ5290 25 x 37.5 x 1200
50.0	50.0	100	SZ5290 50 x 50 x 100
		200	SZ5290 50 x 50 x 200
		300	SZ5290 50 x 50 x 300
		600	SZ5290 50 x 50 x 600
		1200	SZ5290 50 x 50 x 1200
50.0	75.0	100	SZ5290 50 x 75 x 100
		200	SZ5290 50 x 75 x 200
		300	SZ5290 50 x 75 x 300
		600	SZ5290 50 x 75 x 600
		1200	SZ5290 50 x 75 x 1200
75.0	75.0	100	SZ5290 75 x 75 x 100
		200	SZ5290 75 x 75 x 200
		300	SZ5290 75 x 75 x 300
		600	SZ5290 75 x 75 x 600
75.0	100.0	100	SZ5290 75 x 100 x 100
		200	SZ5290 75 x 100 x 200
		300	SZ5290 75 x 100 x 300
		600	SZ5290 75 x 100 x 600

SZ5390 Polyurethane rod

round rod



Material

Polyurethane elastomer (PUR)

Spring type

Elastomer spring

Hardness

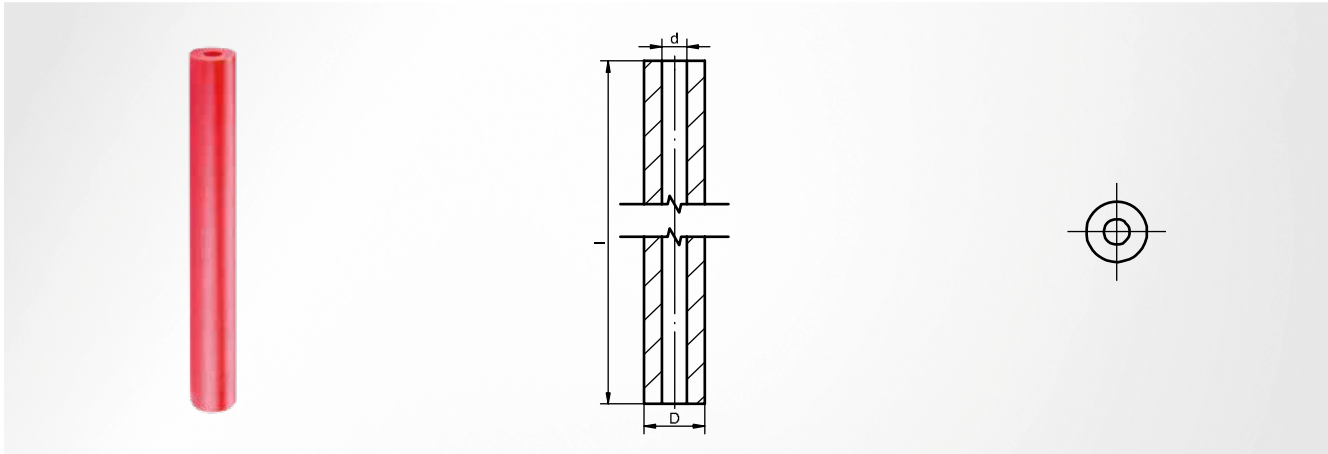
93 ±5 Shore A

d	l	Item number
25	200	SZ5390 25 x 200
	300	SZ5390 25 x 300
32	100	SZ5390 32 x 100
	200	SZ5390 32 x 200
50	300	SZ5390 32 x 300
	63	SZ5390 50 x 063
	80	SZ5390 50 x 080
	100	SZ5390 50 x 100

d	l	Item number
50	160	SZ5390 50 x 160
	200	SZ5390 50 x 200
	300	SZ5390 50 x 300
75	80	SZ5390 75 x 080
	100	SZ5390 75 x 100
	160	SZ5390 75 x 160
	200	SZ5390 75 x 200
	300	SZ5390 75 x 300

SZ5391 Polyurethane rod

hollow round rod



Material

Polyurethane elastomer (PUR)

Hardness

93 ±5 Shore A

Spring type

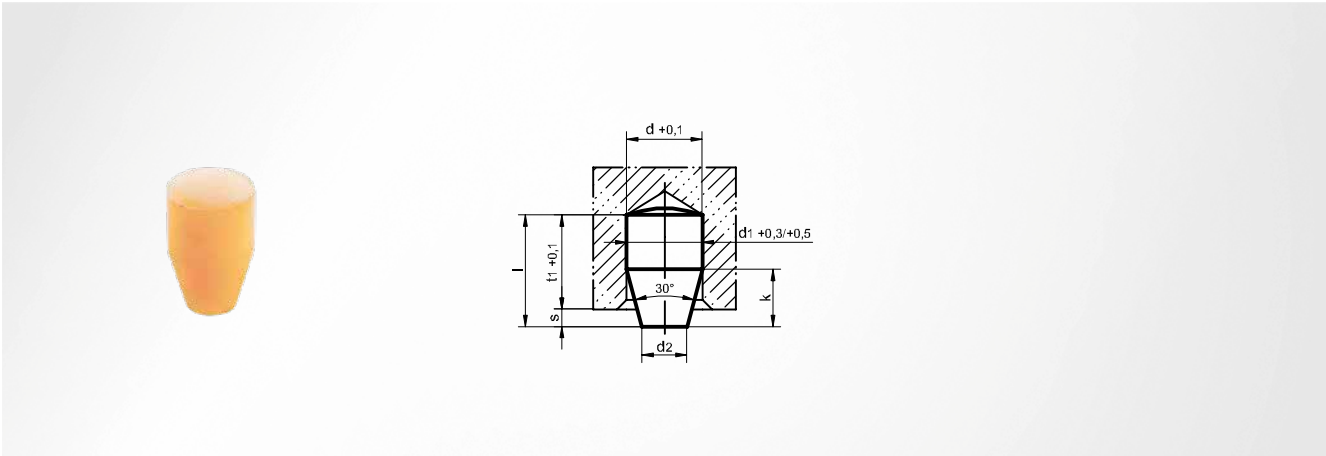
Elastomer spring

Note

Permissible spring deflection $s_{\max} = 30\%$; setting inclination 6-8 %; thermal stability -20° to +80°, -40° to +120° for short periods; resistant against: oil (lubricant oil), grease, alcohol, benzene, ozone

D	d	l	Item number
16	6.5	300	SZ5391 016 x 300
20	8.5	300	SZ5391 020 x 300
25	10.5	300	SZ5391 025 x 300
32	13.5	300	SZ5391 032 x 300
40	13.5	300	SZ5391 040 x 300

D	d	l	Item number
50	17.0	400	SZ5391 050 x 400
63	17.0	400	SZ5391 063 x 400
80	21.0	400	SZ5391 080 x 400
100	21.0	300	SZ5391 100 x 300
125	27.0	300	SZ5391 125 x 300



Material

Polyurethane elastomer (PUR)

Installation in mounting bore

$d +0.1$

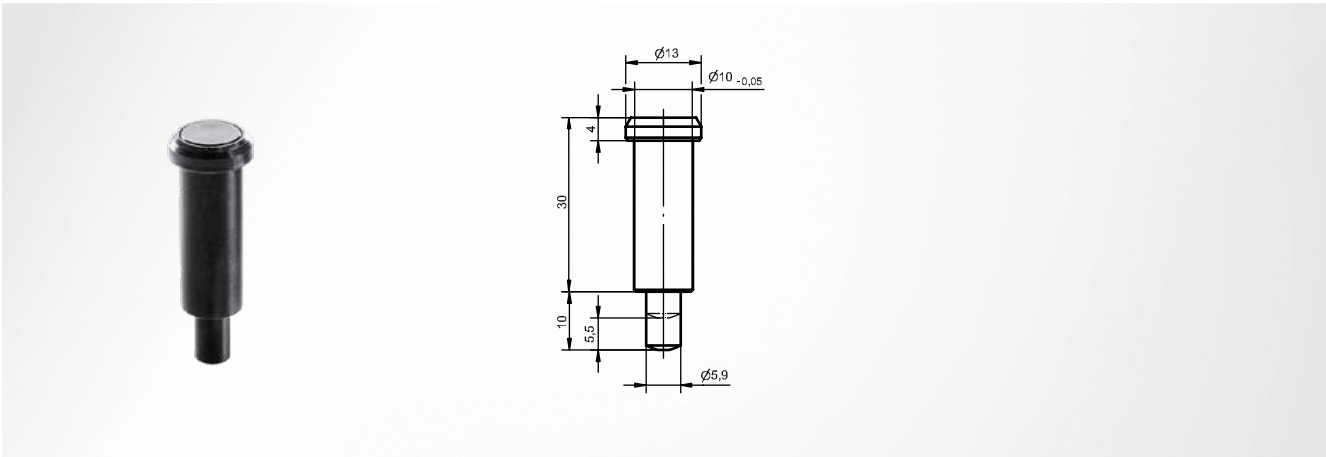
Hardness

93 $\pm$ 5 Shore A

Compressive force N	$d_1 +0,3 - +0,5$	d_2	l	k	$t_1 +0,1$	s	Standard packaging piece	Item number
150	6	3.6	9.5	4.5	8	1.5	20	SZ8460 06
350	10	6.0	15.5	7.5	13	2.5	20	SZ8460 10
1500	16	9.5	25.0	12.0	21	4.0	10	SZ8460 16

SZ8135 Thrust piece

with bolt



Material

Free-cutting steel

Installation in mounting bore

10 H7

Note

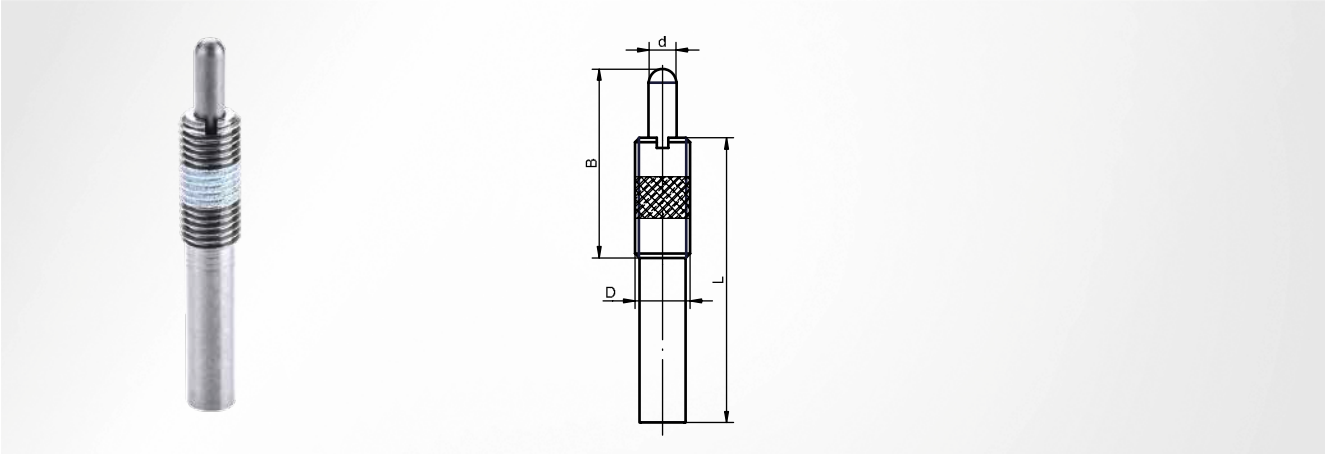
Pressure: Start $\sim$ 45 N - end $\sim$ 100 N; thrust bolt, hardened

Item number

SZ813510

SZ8140 Thrust piece

light series



Material

Free-cutting steel

Optional accessories

SZ8146

Installation instruction

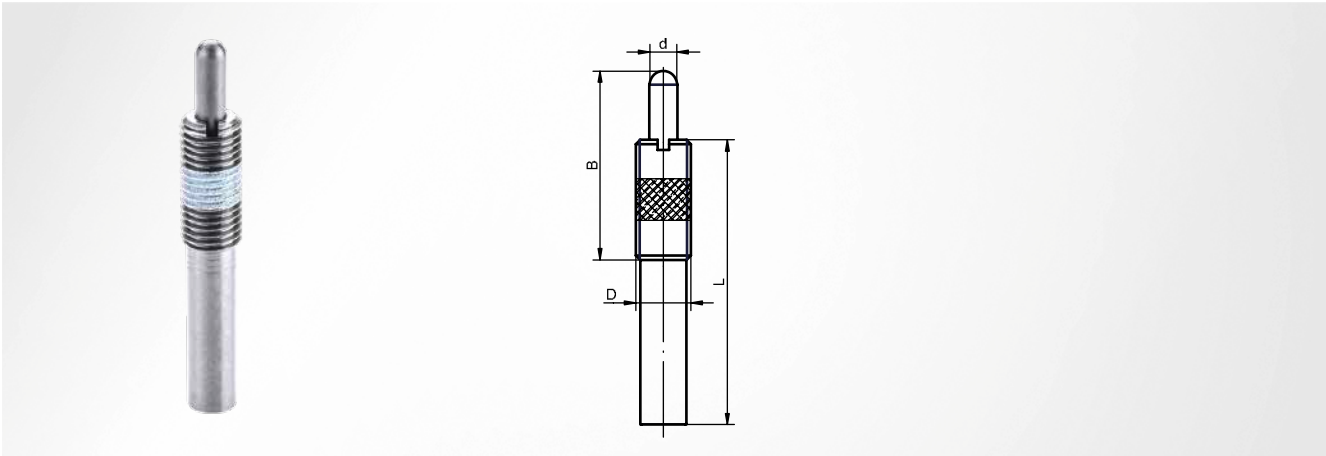
Installation and disassembly only with suitable key;
coloured thread marking also serves to secure the
thread

Spring force daN	D	B	d	Initial force daN	Stroke	L	Item number
2	M12	35	5.5	0.4	10	43	SZ8140 12 x 010
4	M16	35	7.5	1.3	10	60	SZ8140 16 x 010
				1.0	15	60	SZ8140 16 x 015
				1.3	20	80	SZ8140 16 x 020

Spring force daN	D	B	d	Initial force daN	Stroke	L	Item number
4	M16	35	7.5	1.8	30	125	SZ8140 16 x 030
				1.3	40	150	SZ8140 16 x 040
				1.3	50	150	SZ8140 16 x 050
10	M24	45	10.0	2.0	15	60	SZ8140 24 x 015

SZ8145 Thrust piece

heavy series



Material

Free-cutting steel

Optional accessories

SZ8146

Installation instruction

Installation and disassembly only with suitable key;
coloured thread marking also serves to secure the
thread

Spring force daN	D	B	d	Initial force daN	Stroke	L	Item number
4	M12	35	5.5	0.7	10	43	SZ8145 12 x 010
8	M16	35	7.5	2.7	10	60	SZ8145 16 x 010
				1.5	15	60	SZ8145 16 x 015
				1.7	20	80	SZ8145 16 x 020

Spring force daN	D	B	d	Initial force daN	Stroke	L	Item number
8	M16	35	7.5	2.0	30	125	SZ8145 16 x 030
				2.6	40	150	SZ8145 16 x 040
				2.6	50	150	SZ8145 16 x 050
20	M24	45	10.0	4.0	15	60	SZ8145 24 x 015

SZ8146 Mounting key

for thrust piece



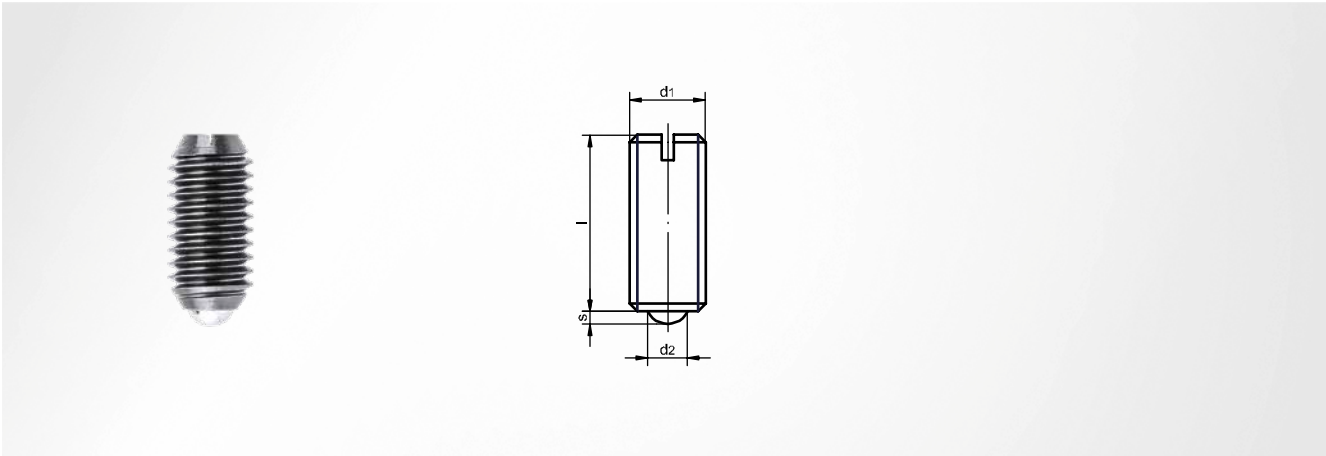
Installation instruction

for installation and disassembly of the thrust pieces SZ8140
and SZ8145

D	Item number
M12	SZ8146 .12
M16	SZ8146 .16
M24	SZ8146 .24

SZ8130 Thrust piece

with ball, slot



Material
Free-cutting steel

Note
Ball, hardened

d ₁	d ₂	l	s	Initial pressure N	Final pressure N	Standard packaging piece	Item number
M3	1.5	7	0.5	2.2	3	50	SZ8130 03
M4	2.5	9	0.8	6.0	12	50	SZ8130 04
M5	3.0	12	0.9	7.0	13	50	SZ8130 05
M6	3.5	14	1.0	9.0	15	50	SZ8130 06
M8	5.0	16	1.5	20.0	35	50	SZ8130 08
M10	6.0	19	2.0	25.0	45	50	SZ8130 10
M12	8.0	22	2.5	35.0	60	25	SZ8130 12
M16	10.0	24	3.5	65.0	110	25	SZ8130 16

Nitrogen
systems

Tapping
units

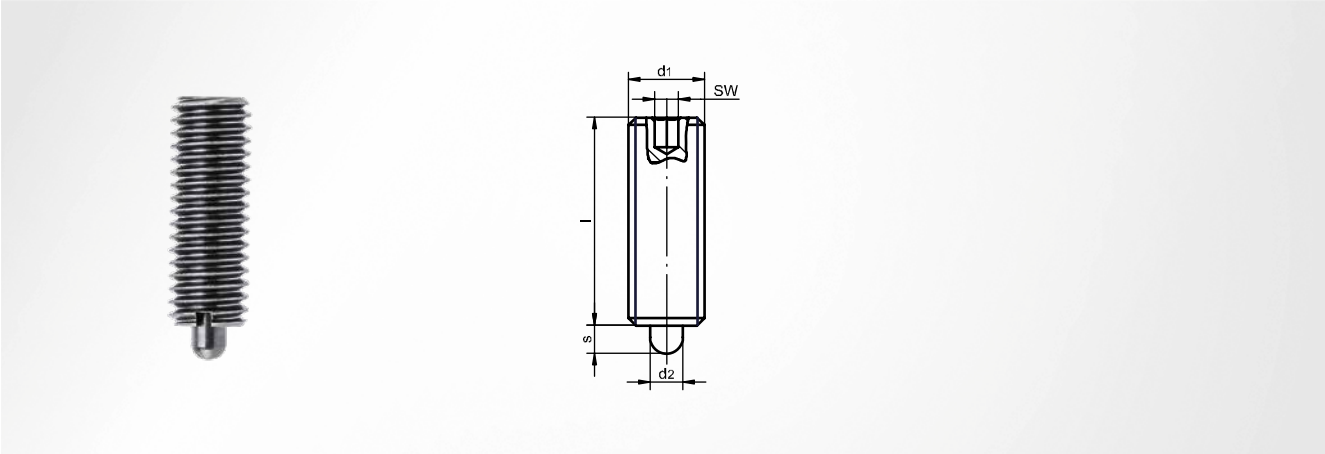
Module
system

Machine
elements

Accessories

SZ8131 Thrust piece

with bolt, hexagon socket



Material

Free-cutting steel

Note

Bolts hardened

d ₁	d ₂	l	s	Initial pressure N	Final pressure N	Standard packaging piece	SW	Item number
M3	1.0	12	1.0	1.7	3.5	25	0.7	SZ8131 03
M4	1.5	15	1.5	5.0	15.0	25	1.3	SZ8131 04
M5	2.4	18	2.3	7.0	20.0	25	1.5	SZ8131 05
M6	2.7	20	2.5	7.0	20.0	25	2.0	SZ8131 06
M8	3.5	22	3.0	9.0	35.0	10	2.5	SZ8131 08
M10	4.0	22	3.0	9.0	35.0	10	3.0	SZ8131 10
M12	6.0	28	4.0	15.0	55.0	10	4.0	SZ8131 12
M16	7.5	32	5.0	45.0	100.0	10	5.0	SZ8131 16