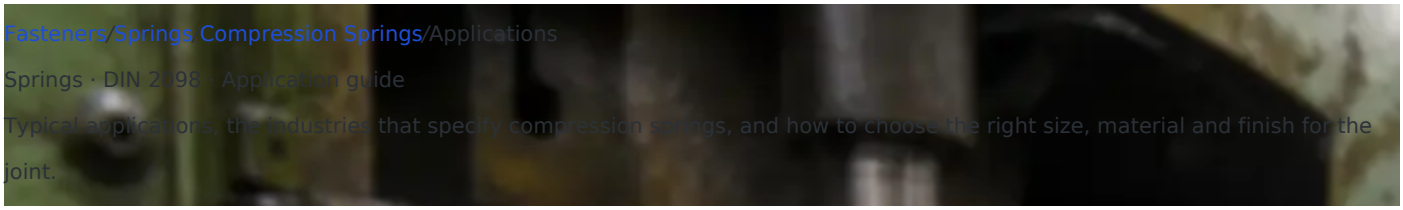
What Are Compression Springs Used For?

Engineering Hardware & Fasteners · engineeringhardware.com/applications/compression-springs



Compression Springs are used for storing and returning mechanical energy. They are manufactured to DIN 2098, and selection is driven by the wire diameter, the fit and tolerance the assembly requires, and the service environment.

Primary duty
: Storing and returning mechanical energy

Governing standard
: DIN 2098

Wire diameter range
: 0.5 mm to 10 mm

Category
: Springs

Application notes are general engineering guidance. Verify the property class and any approval requirement against your own design calculation.

Compression Springs are selected when an assembly calls for storing and returning mechanical energy. This application guide to the DIN 2098 type covers concrete end-uses, the specification checklist, correct installation, and where an alternative fastener performs better. Stocked across roughly 0.5 mm to 10 mm, they cover general to heavy-duty work.

Typical Applications for Compression Springs

The most common settings where these are specified:

- **Fabrication & metalwork:** bench and on-site assembly of steel frames, enclosures and weldments.
- **Mechanisms & latches:** return and detent forces in moving assemblies.
- **Valves & actuators:** controlled closing or opening force.
- **Vibration & cushioning:** absorbing shock and maintaining contact pressure.
- **General machine building:** fastening covers, brackets, motors and sub-assemblies on production equipment.

How to Specify Compression Springs for Your Application

- **Size:** Select on wire diameter, and confirm it against the mating feature in the assembly. This product spans 0.5 mm–10 mm; check the full table below for the exact dimensions of each size.

- **Material:** Choose the material and finish for the service environment — plated steel for general use, stainless for corrosion resistance.
- **Environment:** For damp, coastal or chemical exposure prefer A4/316 stainless or a suitable coating; indoors, plated steel or A2 is usually sufficient.
- **Standard:** This product is supplied to DIN 2098. Quoting the standard on your order guarantees interchangeable dimensions between suppliers.

Where Compression Springs Are Not the Right Choice

Not where a precise, repeatable force is needed without rating the spring, and avoid over-stressing beyond the rated deflection.

Technical Drawing

Customize the parameters below — every spec field is editable, and the drawing redraws to match the values you choose. Changing the size will snap the other fields to that size's standard values; you can then override any individual value.

Sends the selected values to the quote form below.

Request a Quote

The form below follows the current technical drawing configuration. Change the drawing values above and the request details update automatically.

Dimensions & Specifications (DIN 2098)

Wire dia d (mm)	Inner diameter Di (mm)	Outer diameter De (mm)	Free length Lo (mm)	Active coils n	Rated force Fn (N)	Rate k (N/mm)	Material	Reference standard	Notes
0.5	3.0	4.0	15	8	8	1.0	Spring steel SH/DH	DIN 2098 / EN 15800	Compression spring, ground ends
0.5	4.0	5.0	20	10	6	0.7	Spring steel SH/DH	DIN 2098 / EN 15800	Compression spring, ground ends
0.6	4.0	5.2	20	9	12	1.5	Spring steel SH/DH	DIN 2098 / EN 15800	Compression spring, ground ends
0.7	5.0	6.4	25	10	15	1.5	Spring steel SH/DH	DIN 2098 / EN 15800	Compression spring, ground ends
0.8	5.0	6.6	25	10	22	2.5	Spring steel SH/DH	DIN 2098 / EN 15800	Compression spring, ground ends
1.0	6.0	8.0	30	10	35	3.5	Spring steel SH/DH	DIN 2098 / EN 15800	Compression spring, ground ends
1.0	8.0	10.0	40	12	25	2.0	Spring steel SH/DH	DIN 2098 / EN 15800	Compression spring, ground ends
1.2	8.0	10.4	40	10	55	6.0	Spring steel SH/DH	DIN 2098 / EN 15800	Compression spring, ground ends
1.5	10.0	13.0	50	10	80	8.0	Spring steel SH/DH	DIN 2098 / EN 15800	Compression spring, ground ends
1.6	12.0	15.2	60	10	90	8.5	Spring steel SH/DH	DIN 2098 / EN 15800	Compression spring, ground ends

Wire dia d (mm)	Inner diameter Di (mm)	Outer diameter De (mm)	Free length Lo (mm)	Active coils n	Rated force Fn (N)	Rate k (N/mm)	Material	Reference standard	Notes
2.0	12.0	16.0	60	10	165	18.0	Spring steel SH/DH	DIN 2098 / EN 15800	Compression spring, ground ends
2.0	16.0	20.0	80	12	110	10.0	Spring steel SH/DH	DIN 2098 / EN 15800	Compression spring, ground ends
2.5	16.0	21.0	80	10	260	28.0	Spring steel SH/DH	DIN 2098 / EN 15800	Compression spring, ground ends
2.5	20.0	25.0	100	12	200	18.0	Spring steel SH/DH	DIN 2098 / EN 15800	Compression spring, ground ends
3.0	20.0	26.0	100	10	450	45.0	Spring steel SH/DH	DIN 2098 / EN 15800	Compression spring, ground ends
3.0	25.0	31.0	120	12	320	28.0	Spring steel SH/DH	DIN 2098 / EN 15800	Compression spring, ground ends
4.0	25.0	33.0	120	10	1000	90.0	Spring steel SH/DH	DIN 2098 / EN 15800	Compression spring, ground ends
4.0	30.0	38.0	150	12	750	65.0	Spring steel SH/DH	DIN 2098 / EN 15800	Compression spring, ground ends
5.0	30.0	40.0	150	10	1900	170.0	Spring steel SH/DH	DIN 2098 / EN 15800	Compression spring, ground ends
5.0	40.0	50.0	200	12	1200	100.0	Spring steel SH/DH	DIN 2098 / EN 15800	Compression spring, ground ends
6.0	40.0	52.0	200	10	3300	280.0	Spring steel SH/DH	DIN 2098 / EN 15800	Compression spring, ground ends

Wire dia d (mm)	Inner diameter Di (mm)	Outer diameter De (mm)	Free length Lo (mm)	Active coils n	Rated force Fn (N)	Rate k (N/mm)	Material	Reference standard	Notes
6.0	50.0	62.0	250	12	2100	185.0	Spring steel SH/DH	DIN 2098 / EN 15800	Compression spring, ground ends
8.0	50.0	66.0	250	10	7500	650.0	Spring steel SH/DH	DIN 2098 / EN 15800	Compression spring, ground ends
8.0	65.0	81.0	300	12	4800	430.0	Spring steel SH/DH	DIN 2098 / EN 15800	Compression spring, ground ends
10.0	65.0	85.0	300	10	14500	1200.0	Spring steel SH/DH	DIN 2098 / EN 15800	Compression spring, ground ends
10.0	80.0	100.0	350	12	9500	800.0	Spring steel SH/DH	DIN 2098 / EN 15800	Compression spring, ground ends

Inside the plant

Manufactured in our own plant

This part is cold-formed, threaded, heat-treated and finished in-house. The stages below are where its class and finish are actually decided.

1. 

01

Cold heading

Wire rod is drawn to size and cold-formed into blanks. Forming rather than cutting keeps the grain flow continuous around the head, which is where a bolt is most likely to fail.

Head dimensions and under-head radius checked at set-up and per shift.

2. 

02

Thread rolling

Threads are rolled between hardened dies rather than cut. Rolled threads are stronger in fatigue than cut threads and hold pitch and flank angle far more consistently across a batch.

Go / no-go ring gauges to ISO 965 tolerance class 6g.

3. 

03

Heat treatment

Quench-and-temper brings carbon and alloy steel to the property class ordered — 8.8, 10.9 or 12.9 — with the furnace charge tracked so a finished lot can be traced back to it.

Core hardness and tensile tested per lot to ISO 898-1.

4. 

04

Surface treatment

Zinc, zinc-nickel, hot-dip galvanizing, black oxide, phosphate and Dacromet, selected against the service environment rather than against the price list.

Coating thickness and neutral salt spray hours to ISO 9227.

Frequently Asked Questions

How do I avoid over-stressing Compression Springs?
Stay within the rated deflection and load. Compressing or extending a spring beyond its design limit causes permanent set or fatigue failure.

Are Compression Springs made to a recognized standard?
Yes — they are manufactured to DIN 2098, so dimensions are interchangeable between suppliers when you quote the standard on your order.

What are Compression Springs used for?
Storing and returning mechanical energy. They are supplied to DIN 2098.

Which industries use Compression Springs?

They are commonly specified in valves & actuators, vibration & cushioning and general machine building, among other sectors.

Can I get a quote for Compression Springs in the size and material I need?
Yes. Use the technical drawing and quote form on this page to set the size and options, then send the exact configuration to our team for pricing and lead time.

Related Pages

Product page: Compression Springs — specifications & sizes

Compression Springs Specification Guides

- A4 stainless Compression Springs

Related Fastener Applications

- Compression Spring — ISO / DIN (Series 141) applications
- Compression Spring — ISO / DIN (Series 142) applications
- Compression Spring — ISO / DIN (Series 144) applications
- Compression Spring — ISO / DIN (Series 145) applications
- Compression Spring — ISO / DIN (Series 146) applications
- Extension Spring — ISO / DIN (Series 143) applications