

What Are Extension Springs Used For?

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Typical applications, the industries that specify extension springs, and how to choose the right size, material and finish for the joint.

Extension Springs are used for storing and returning mechanical energy. They are manufactured to DIN 2097, 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 2097

Wire diameter range

0.5 mm to 6 mm

Category

Springs

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



The primary duty of Extension Springs is storing and returning mechanical energy. Below: the sectors that specify them in volume, the checklist used to select the right size and material for the application, installation notes, and the known limits of the type. Stocked across roughly 0.5 mm to 6 mm, they cover light-duty and instrument-scale work.

Typical Applications for Extension 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 Extension 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–6 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 2097. Quoting the standard on your order guarantees interchangeable dimensions between suppliers.

Where Extension 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 2097)

Wire dia d (mm)	Inner diameter Di (mm)	Outer diameter De (mm)	Free length Lo (mm)	Active coils n	Initial tension Fi (N)	Rate k (N/mm)	Material	Reference standard
0.5	3.5	4.5	20	12	10	0.7	Spring steel	DIN 2097 / EN 15800
0.6	4.5	5.7	25	12	15	1.2	Spring steel	DIN 2097 / EN 15800
0.8	5.5	7.1	30	12	30	2.5	Spring steel	DIN 2097 / EN 15800
1.0	7.0	9.0	40	15	45	3.5	Spring steel	DIN 2097 / EN 15800
1.2	8.5	10.9	50	15	70	6.0	Spring steel	DIN 2097 / EN 15800
1.5	11.0	14.0	60	15	100	8.0	Spring steel	DIN 2097 / EN 15800
2.0	13.0	17.0	80	15	200	16.0	Spring steel	DIN 2097 / EN 15800
2.5	17.0	22.0	100	15	380	30.0	Spring steel	DIN 2097 / EN 15800
3.0	22.0	28.0	120	15	680	55.0	Spring steel	DIN 2097 / EN 15800
4.0	28.0	36.0	160	15	1500	120.0	Spring steel	DIN 2097 / EN 15800
5.0	36.0	46.0	200	15	2900	210.0	Spring steel	DIN 2097 / EN 15800
6.0	46.0	58.0	250	15	5200	380.0	Spring steel	DIN 2097 / EN 15800

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 choose the right size of Extension Springs?

Select on wire diameter and on the fit the assembly requires. This product is available from 0.5 mm to 6 mm; the full dimension table on this page lists each size.

How do I avoid over-stressing Extension Springs?

Stay within the rated deflection and load. Compressing or extending a spring beyond its design limit causes permanent set or fatigue failure.

Are Extension Springs made to a recognized standard?

Yes — they are manufactured to DIN 2097, so dimensions are interchangeable between suppliers when you quote the standard on your order.

What are Extension Springs used for?

Storing and returning mechanical energy. They are supplied to DIN 2097.

Can I get a quote for Extension 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: [Extension Springs — specifications & sizes](#)

Extension Springs Specification Guides

- [A4 stainless Extension 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](#)
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