

What Are Torsion Springs Used For?

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

Torsion Springs are used for storing and returning mechanical energy. They are manufactured to DIN 2089, 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 2089

Wire diameter range

0.5 mm to 4 mm

Category

Springs

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



Torsion Springs (DIN 2089) are specified where the joint requires storing and returning mechanical energy. The sections below cover the typical end-uses by industry, the size and material decisions for each, assembly practice, and the applications this fastener type is not suited to. Stocked across roughly 0.5 mm to 4 mm, they cover light-duty and instrument-scale work.

Typical Applications for Torsion Springs

The most common settings where these are specified:

- **General machine building:** fastening covers, brackets, motors and sub-assemblies on production equipment.
- **Maintenance & repair (MRO):** a stocked size for servicing existing plant where the original fastener spec must be matched.
- **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.

How to Specify Torsion 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–4 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 2089. Quoting the standard on your order guarantees interchangeable dimensions between suppliers.

Where Torsion 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 2089)

Wire dia d (mm)	Inner diameter Di (mm)	Outer diameter De (mm)	Length Lo (mm)	Coils n	Torque range	Material	Reference standard
0.5	4.0	5.0	10	6	5~15Nmm	Spring steel	DIN 2089
0.6	5.0	6.2	12	6	8~25Nmm	Spring steel	DIN 2089
0.8	6.0	7.6	15	6	18~55Nmm	Spring steel	DIN 2089
1.0	8.0	10.0	18	6	35~100Nmm	Spring steel	DIN 2089
1.2	9.0	11.4	20	6	65~190Nmm	Spring steel	DIN 2089
1.5	12.0	15.0	25	6	150~420Nmm	Spring steel	DIN 2089
2.0	15.0	19.0	30	6	380~1100Nmm	Spring steel	DIN 2089
2.5	20.0	25.0	35	6	900~2500Nmm	Spring steel	DIN 2089
3.0	25.0	31.0	40	6	1800~5000Nmm	Spring steel	DIN 2089
4.0	32.0	40.0	50	6	5500~15000Nmm	Spring steel	DIN 2089

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

Which industries use Torsion Springs?

They are commonly specified in fabrication & metalwork, mechanisms & latches and valves & actuators, among other sectors.

How do I choose the right size of Torsion Springs?

Select on wire diameter and on the fit the assembly requires. This product is available from 0.5 mm to 4 mm; the full dimension table on this page lists each size.

How do I avoid over-stressing Torsion Springs?

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

Are Torsion Springs made to a recognized standard?

Yes — they are manufactured to DIN 2089, so dimensions are interchangeable between suppliers when you quote the standard on your order.

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

Torsion Springs Specification Guides

- [A4 stainless Torsion 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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