

# GB T 91 Split Cotter Pin Specification

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GB T 91 specifies the dimensions and tolerances for split cotter pin. The full dimensional table is reproduced below, followed by the DIN, ISO and ASME parts that match or supersede it.

## Standard

### GB T 91

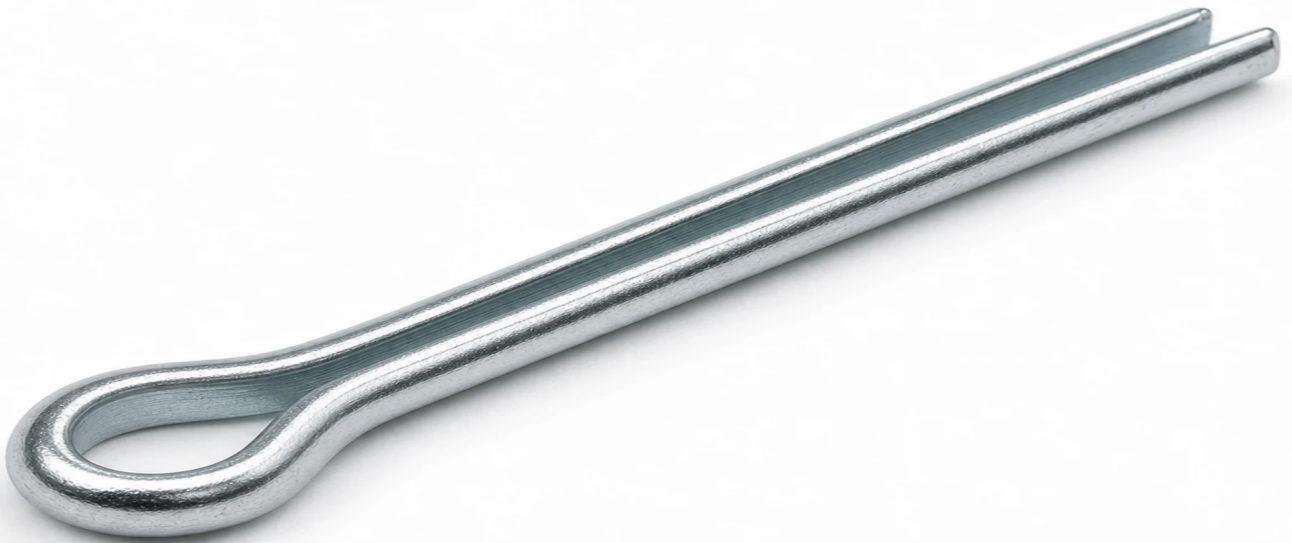
## Product

### Split Cotter Pin — ISO / DIN (Series 102)

## Governing standards

### ISO / DIN

Equivalence between national standards is dimensional, not always metallurgical. Check the property class separately when substituting.



For split cotter pin, GB T 91 is the governing document for the dimensions listed below. Mechanical and performance requirements for this part family are set by its own standards, not by the bolt and screw property-class documents.

## GB T 91 — Scope

GB T 91 is "Split pins". GB/T 91 is the Chinese national adoption of the same document.

## Tolerance & Product Grades

GB T 91 does not divide split cotter pin — iso / din (series 102) into product grades. Tolerances are given as limits on the individual dimensions in the table.

*Where a general-tolerance class is cited on the drawing instead, it applies to the dimensions not otherwise toleranced.*

## Dimensions Specified by GB T 91

| Nominal diameter (mm) | Length L (mm) | Material     | Reference standard |
|-----------------------|---------------|--------------|--------------------|
| 1.0                   | 16            | Carbon steel | ISO 1234 / GB/T 91 |
| 1.2                   | 20            | Carbon steel | ISO 1234 / GB/T 91 |
| 1.6                   | 25            | Carbon steel | ISO 1234 / GB/T 91 |
| 2.0                   | 32            | Carbon steel | ISO 1234 / GB/T 91 |
| 2.5                   | 40            | Carbon steel | ISO 1234 / GB/T 91 |
| 3.2                   | 50            | Carbon steel | ISO 1234 / GB/T 91 |
| 4.0                   | 63            | Carbon steel | ISO 1234 / GB/T 91 |
| 5.0                   | 80            | Carbon steel | ISO 1234 / GB/T 91 |
| 6.3                   | 100           | Carbon steel | ISO 1234 / GB/T 91 |
| 8.0                   | 125           | Carbon steel | ISO 1234 / GB/T 91 |
|                       |               |              |                    |

## Equivalent Standards

Where direct equivalents exist (ISO ↔ DIN, ISO ↔ ASME), they are listed on the parent Split Cotter Pin — ISO / DIN (Series 102) page.

*Always confirm against the dimensions on this page, since some "equivalent" standards differ in tolerances and head geometry.*

## When to Specify GB T 91

Choose GB T 91 for international engineering work and OEM supply where ISO standards are the contractual reference. It is the default modern specification for split cotter pin — iso / din (series 102).

Custom manufacturing · Made to drawing

### Need a pin to this standard in a non-standard size?

Parts built to GB T 91 are already in the catalog, so a special is usually a variation on existing tooling rather than a new design — which is what keeps the cost down. Made by cold heading or turning.

Minimum order from 2,000 pieces; samples within 7 days of drawing approval.

**Custom pin manufacturing (<https://engineeringhardware.com/custom/pins/>)**

**Send a drawing (<https://engineeringhardware.com/custom/pins/#rfq>)**

## 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.



Dimensioned line drawing of 1.0 Split Cotter Pin — ISO / DIN (Series 102). Side view and top view, drawn to the dimensions in the table below and redrawn for any size selected.

Opens a short step to confirm the exact specification before you enter contact details.

### Request a Quote

Click “Request this configuration” under the drawing to confirm the exact specification, then add your contact details. You can also send the request without a specification — but only an accurate selection gets an accurate quote.

## Dimensions & Specifications (ISO / DIN)

| Nominal diameter (mm) | Length L (mm) | Material     | Reference standard |
|-----------------------|---------------|--------------|--------------------|
| 1.0                   | 16            | Carbon steel | ISO 1234 / GB/T 91 |
| 1.2                   | 20            | Carbon steel | ISO 1234 / GB/T 91 |
| 1.6                   | 25            | Carbon steel | ISO 1234 / GB/T 91 |
| 2.0                   | 32            | Carbon steel | ISO 1234 / GB/T 91 |
| 2.5                   | 40            | Carbon steel | ISO 1234 / GB/T 91 |
| 3.2                   | 50            | Carbon steel | ISO 1234 / GB/T 91 |
| 4.0                   | 63            | Carbon steel | ISO 1234 / GB/T 91 |
| 5.0                   | 80            | Carbon steel | ISO 1234 / GB/T 91 |
| 6.3                   | 100           | Carbon steel | ISO 1234 / GB/T 91 |
| 8.0                   | 125           | Carbon steel | ISO 1234 / GB/T 91 |
|                       |               |              |                    |

## Materials & Grades

Select a material class to see the grades we supply it in. Each designation is listed with its ISO/EN, AISI/SAE, JIS and GB equivalents.

### Stainless Steel

**Carbon Steel**66

**Alloy Steel**41

**Bearing Steels**5

**Spring Steel**25

**Aluminum and Aluminum Alloys**21

**Brass**17

**Bronze**11

**Copper**8

**Titanium and Titanium Alloys**18

**Nickel and Nickel Alloys**22

**Iron-Nickel and High-Temperature Alloys**10

**Tool Steel and Specialty Hardened Steels**9

**Structural and Construction Steels**9

## **Stainless Steel**

### **Austenitic Stainless Steel**

#### **A1**

**AISI 303 · SAE 303 · SUS303 · EN 1.4305 · X8CrNiS18-9**

**A2**

AISI 304 · SAE 304 · SUS304 · EN 1.4301 · X5CrNi18-10 · 06Cr19Ni10

**304L**

AISI 304L · SUS304L · EN 1.4307 · X2CrNi18-9 · 022Cr19Ni10

**302**

AISI 302 · SUS302 · EN 1.4310

**305**

AISI 305 · SUS305 · EN 1.4303

**A4**

AISI 316 · SAE 316 · SUS316 · EN 1.4401 · X5CrNiMo17-12-2 · 06Cr17Ni12Mo2

**316L**

AISI 316L · SUS316L · EN 1.4404 · X2CrNiMo17-12-2 · 022Cr17Ni12Mo2

**321**

AISI 321 · SUS321 · EN 1.4541 · X6CrNiTi18-10

**310 / 310S**

AISI 310 · AISI 310S · SUS310S · EN 1.4845

**302HQ**

AISI 302HQ

**A3****A5****347**

AISI 347 · SUS347 · EN 1.4550 · X6CrNiNb18-10

**309 / 309S**

AISI 309 · AISI 309S · SUS309S

**Martensitic Stainless Steel****AISI 410**

SUS410 · EN 1.4006 · X12Cr13 · 12Cr13

**AISI 420**

SUS420J1 · SUS420J2 · EN 1.4021 · EN 1.4028 · 20Cr13 · 30Cr13

**AISI 431**

SUS431 · EN 1.4057 · X17CrNi16-2

**C1****C3****C4****AISI 440A****AISI 440B****AISI 440C****SUS440C · EN 1.4125****Ferritic Stainless Steel****AISI 430****SUS430 · EN 1.4016 · X6Cr17 · 10Cr17****F1****AISI 434****AISI 444****Precipitation-Hardening Stainless Steel****17-4 PH****AISI 630 · UNS S17400 · SUS630 · EN 1.4542 · X5CrNiCuNb16-4****15-5 PH****UNS S15500****17-7 PH****UNS S17700****Duplex and Super Duplex Stainless Steel****Duplex 2205****UNS S31803 · UNS S32205 · EN 1.4462****Super Duplex 2507****UNS S32750 · EN 1.4410****D2****D4****D6**

**D8****Lean Duplex 2101****UNS S32101****Super Duplex S32760****UNS S32760 · EN 1.4501**

## Carbon Steel

### Low-Carbon Steel

**SAE 1006****SAE 1008****SAE 1010****SAE 1018****SAE 1020****Q195****Q235****SAE 1012****SAE 1015****Q215****ML08****ML08AI****ML10****ML15****ML20****SWRCH6A****SWRCH8A****SWRCH10A****SWRCH12A**

**SWRCH15A****SWRCH18A****Medium-Carbon Steel****SAE 1035****SAE 1045****S45C****C45****SAE 1030****SAE 1040****SAE 1050****30****35****40****45****50****S35C****S40C****S50C****C35****C40****High-Carbon Steel****SAE 1060****SAE 1070****65Mn****SAE 1065**

**SAE 1075****SAE 1080****SAE 1085****SAE 1090****SAE 1095****60****65****70****75****80****85****Cold-Heading Steel****SWRCH22A****10B21****SWRCH22K****SWRCH25K****SWRCH30K****SWRCH35K****SWRCH40K****ML20Mn****ML25****ML30****ML35****ML40****15B25**

## Alloy Steel

### Chromium Steel

**40Cr****45Cr****AISI 5140****SAE 5140****AISI 5120****SAE 5120****SCr420****SCr440**

### Chromium-Molybdenum Steel

**35CrMo****42CrMo****AISI 4140****SCM435****SCM440****42CrMo4****30CrMo****AISI 4130****SAE 4130****SAE 4140****AISI 4142****AISI 4145****SCM415****SCM420****SCM445**

**EN 1.7220****EN 1.7225****25CrMo4****34CrMo4****Nickel-Chromium-Molybdenum Steel****AISI 4340****SAE 4340****40CrNiMo****SNCM439****EN 1.6511****36CrNiMo4****Boron Alloy Steel****10B22****10B21****15B21****15B25****20MnTiB****20Mn2B****35VB****40MnB****Bearing Steel****Bearing Steel****GCr15****AISI 52100**

**SAE 52100 · UNS G52986****SUJ2****100Cr6****EN 1.3505****GCr15SiMn**

## Spring Steel

### Carbon Spring Steel

**SAE 1065****SAE 1070****SAE 1075****SAE 1080****SAE 1095****65****70****75****80****65Mn**

### Silicon-Manganese Spring Steel

**60Si2Mn****60Si2MnA****SUP6****SUP7**

### Chromium-Vanadium Spring Steel

**50CrVA****SAE 6150**

**AISI 6150****SUP10****Stainless Spring Steel****AISI 301****SUS301****EN 1.4310****AISI 302****AISI 304****AISI 316****17-7 PH****Aluminum and Aluminum Alloys****Commercially Pure Aluminum****1050****1060****1070****1100****2xxx Series Aluminum****2024****2011****2014****2017****5xxx Series Aluminum****5052**

**5083****5754****6xxx Series Aluminum****6061****6061-T6****6063****6082****6082-T6****7xxx Series Aluminum****7075****7075-T6****7005****7050****7075-T73****Brass****Free-Cutting Brass****C36000****H62****HPb59-1****C3601****C3602****C3604****CuZn36Pb3****CuZn39Pb3**

**EN CW614N****EN CW617N****H65****Lead-Free Brass****C69300****C27450****CW510L****CW511L****Naval Brass****C46400****CuZn39Sn1****Bronze****Silicon Bronze****C65500****C65100****C65600****Phosphor Bronze****C51000****C52100****CuSn6****CuSn8**

## Aluminum Bronze

**C95400****C95500****C63000****CuAl10Ni5Fe4**

## Copper

### Copper

**C11000****T2****C10100****C10200****C12200****T1****TU1****TU2**

## Titanium and Titanium Alloys

### Commercially Pure Titanium

**Grade 2****Grade 1****Grade 3****Grade 4****TA1****TA2**

**TA3****Alpha-Beta Titanium Alloys****Grade 5****Ti-6Al-4V****TC4****UNS R56400****Low-Interstitial Grade****Grade 23****Ti-6Al-4V ELI****UNS R56407****Other Titanium Fastener Alloys****Ti-6Al-6V-2Sn****Ti-6Al-2Sn-4Zr-2Mo****Beta-C titanium****Ti-10V-2Fe-3Al****Nickel and Nickel Alloys****Commercially Pure Nickel****Nickel 200****UNS N02200****Nickel 201****UNS N02201**

## Inconel Alloys

**Inconel 625**

UNS N06625

**Inconel 718**

UNS N07718

**Inconel 600**

UNS N06600

**Inconel 601**

UNS N06601

**Inconel 686**

UNS N06686

**Inconel X-750**

UNS N07750

## Monel Alloys

**Monel 400**

UNS N04400

**Monel K-500**

UNS N05500

## Hastelloy Alloys

**Hastelloy C-276**

UNS N10276

**Hastelloy C-22**

UNS N06022

**Hastelloy B-2**

UNS N10665

**Hastelloy B-3**

UNS N10675

**Hastelloy X**

UNS N06002

## Other Nickel Alloys

**Alloy 20****UNS N08020****Alloy 625****Alloy 718****Alloy 825****UNS N08825****Alloy 925****UNS N09925**

## Iron-Nickel and High-Temperature Alloys

### A286

**A-286****UNS S66286****EN 1.4980**

### Invar

**Invar 36****Alloy 36****UNS K93600****FeNi36**

### Alloy 42

**Alloy 42****UNS K94100****FeNi42**

## Tool Steel and Specialty Hardened Steel

### Tool Steel and Specialty Hardened Steel

**AISI D2**

**AISI H13**

**SKD11**

**Cr12MoV**

**AISI O1**

**AISI A2**

**AISI S7**

**SKD61**

**9CrSi**

## Structural and Construction Steel

### Structural and Construction Steel

**ASTM A36**

**Q235B**

**Q355B**

**S355JR**

**Q235C**

**Q355C**

**S235JR**

**S275JR**

**S355J2**

## Applications & Industries

**Where Split Cotter Pin are used, and what decides the specification in each case. Stocked from 1.0 to 8.0 (nominal diameter).**

Industries that specify Split Cotter Pin

Jigs, tooling & fixtures **Locating plates and tooling so they reassemble in the same position.**

Machine building **Hinges, pivots and linkages carrying light to moderate shear.**

Agricultural & plant **Implement connections made and broken in the field.**

Gearboxes & housings **Dowelled joints where the bolts clamp and the pins locate.**

Typical applications

- **locating two parts to a repeatable position**
- **pivot and hinge joints loaded in shear**
- **quick connections made and broken by hand**

Service conditions to specify against

Marine and coastal

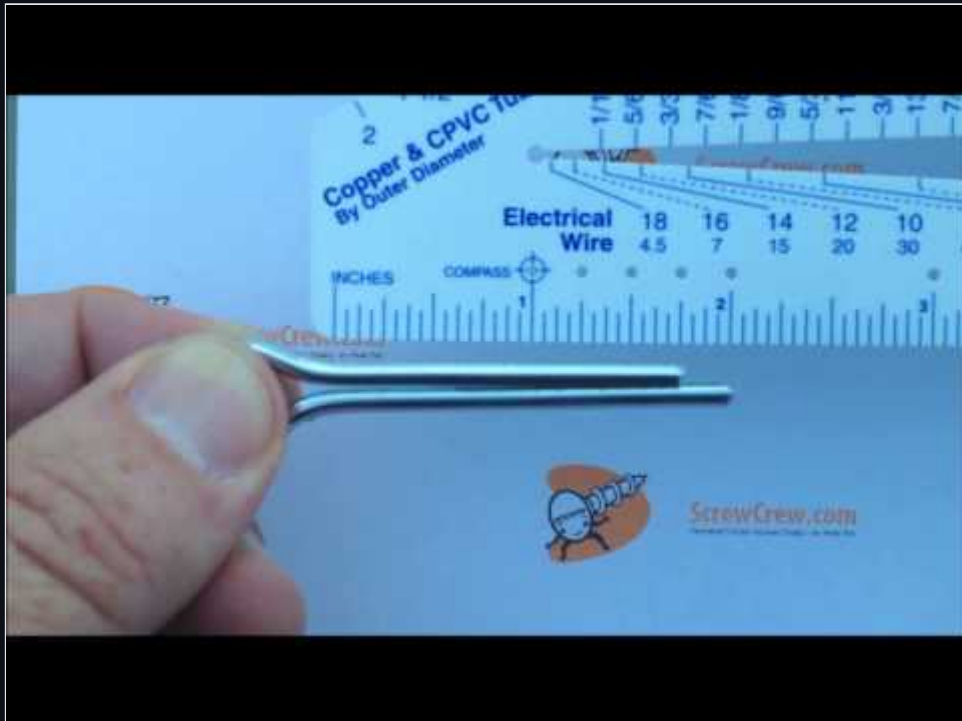
**Available in A4 (316) stainless for chloride exposure — coastal structures, pool halls, water treatment and deck hardware, where A2 will eventually pit.**

Hole preparation

**The hole is half the specification: a ground dowel needs a reamed H7 hole, a grooved or spring pin will hold in a drilled one.**

**Full application guide: where Split Cotter Pin are used, how to specify them, and the cases they are wrong for (<https://engineeringhardware.com/applications/cad-svg-102-cotterpin/>)**

## Video: GB T 91 Split Cotter Pin Specification



<https://www.youtube.com/watch?v=gcDuc03x-l8> (<https://www.youtube.com/watch?v=gcDuc03x-l8>)

► Watch video: <https://www.youtube.com/watch?v=gcDuc03x-l8> (<https://www.youtube.com/watch?v=gcDuc03x-l8>)

Third-party video, selected automatically for this topic. It is not produced by Engineering Hardware and is not a specification source — use the tables on this page for dimensional data.

### 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.



## 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.

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



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.

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



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.

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



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

**Does GB T 91 specify the mechanical strength?**

No. GB T 91 controls the dimensional requirements for split cotter pin — iso / din (series 102). Mechanical performance is set by the documents specific to this part family — ISO 898-1 and ISO 898-2 apply to bolts, screws, studs and nuts, and not to this product.

### **Can I substitute GB T 91 for the corresponding DIN standard on a drawing?**

On modern drawings the ISO standard is the master reference; the older DIN equivalent is a cross-reference. For most dimensional purposes the parts are interchangeable, but check tolerance grades and the head height — these are the most common points of divergence.

### **Which edition of GB T 91 does this table follow?**

The table reproduces the dimensions we supply split cotter pin — iso / din (series 102) to. We do not publish an edition year against it, so where the edition is contractually significant, cite the edition you require on the enquiry and we will confirm it against the table before quoting.

### **What is GB T 91?**

GB T 91 is "Split pins". GB/T 91 is the Chinese national adoption of the same document.

### **How do I request a quotation?**

Use the technical drawing on this page to pick the exact configuration, then submit it with the quote form. We respond within one business day.

## Related Pages

**[View the full Split Cotter Pin — ISO / DIN \(Series 102\) page](https://engineeringhardware.com/fastener/cad-svg-102-cotterpin/)**  
**(<https://engineeringhardware.com/fastener/cad-svg-102-cotterpin/>)**

## More Split Cotter Pin — ISO / DIN (Series 102) Guides

- **ISO 1234 Split Cotter Pin — ISO / DIN (Series 102)** (<https://engineeringhardware.com/guide/standard/iso-1234-cad-svg-102-cotterpin/>)