

# Sheet-Metal Self-Tapping Screw

Engineering Hardware & Fasteners · [engineeringhardware.com/fastener/cad-svg-045-tapping](https://engineeringhardware.com/fastener/cad-svg-045-tapping)

[Fasteners](#) / [Screws](#) / Sheet-Metal Self-Tapping Screw

Screws · Self-Tapping Screws

8 catalogued sizes, dimensioned to GB/T 845 / ISO 7049. Pick any row and the technical drawing redraws to it.

Sheet-Metal Self-Tapping Screw to GB/T 845 / ISO 7049 are catalogued in dia 2.2-6.3 mm, with pitch 0.8-1.8 mm, long 9.5-38 mm, head 4.2-12.5 mm. 8 sizes are held in the table below, and the technical drawing redraws to whichever row you select.

Standard

GB/T 845 / ISO 7049

Dia

2.2-6.3 mm

Pitch

0.8-1.8 mm

Long

9.5-38 mm

Catalogued sizes

8

Dimensions are nominal values from the governing standard. Confirm the tolerance class for your application before ordering.



## 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](#)[38 Carbon Steel](#)[66 Alloy Steel](#)[41 Bearing Steel](#)[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 Steel](#)[9 Structural and Construction Steel](#)[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

## 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 Quotation for Sheet-Metal Self-Tapping Screw

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

## Dimensions & Specifications (GB/T 845 / ISO 7049)

Every row below is a starting point for the customizer above — pick any size and the drawing will redraw to that row.

| Size  | Nominal diameter<br>(mm) | Pitch<br>(mm) | Length L<br>(mm) | Head diameter dk<br>(mm) | Head height k<br>(mm) | Reference<br>standard  |
|-------|--------------------------|---------------|------------------|--------------------------|-----------------------|------------------------|
| ST2.2 | 2.2                      | 0.8           | 9.5              | 4.2                      | 1.4                   | ISO 1481 / GB/T<br>845 |
| ST2.9 | 2.9                      | 1.1           | 13               | 5.6                      | 1.7                   | ISO 1481 / GB/T<br>845 |
| ST3.5 | 3.5                      | 1.3           | 16               | 6.9                      | 2.1                   | ISO 1481 / GB/T<br>845 |
| ST3.9 | 3.9                      | 1.3           | 16               | 7.5                      | 2.3                   | ISO 1481 / GB/T<br>845 |
| ST4.2 | 4.2                      | 1.4           | 19               | 8.2                      | 2.5                   | ISO 1481 / GB/T<br>845 |
| ST4.8 | 4.8                      | 1.6           | 25               | 9.5                      | 2.9                   | ISO 1481 / GB/T<br>845 |
| ST5.5 | 5.5                      | 1.8           | 32               | 10.9                     | 3.3                   | ISO 1481 / GB/T<br>845 |
| ST6.3 | 6.3                      | 1.8           | 38               | 12.5                     | 3.8                   | ISO 1481 / GB/T<br>845 |

Manufactured to GB/T 845 / ISO 7049, Sheet-Metal Self-Tapping Screw — GB/T 845 / ISO 7049 (Series 045) are screws supplied by Engineering Hardware. The dimensional data, materials and selection notes are summarized here.

## What Are Sheet-Metal Self-Tapping Screw — GB/T 845 / ISO 7049 (Series 045)?

Sheet-Metal Self-Tapping Screw — GB/T 845 / ISO 7049 (Series 045) are screws defined by GB/T 845 / ISO 7049. They are selected by size designation and the dimensional characteristics shown below, and are available in a range of materials and finishes to suit the application and environment.

## CAD Source Reference

This page is generated from an original native CAD part model (SolidWorks .SLDPRT) of the sheet-metal self-tapping screw — gb/t 845 / iso 7049 (series 045) family maintained by our engineering team. The technical drawing shown above is rebuilt parametrically from the dimensional table, so it always reflects the exact size and configuration you select. Native CAD files (STEP / SLDPRPT) can be supplied with your quotation on request.

## Materials & Finishes

Common materials include carbon steel (typically zinc plated or hot-dip galvanized), hardened or case-hardened steel where wear matters, and stainless steel A2 (304) or A4 (316) for corrosion resistance. Specify the material, hardness where relevant, and the surface finish appropriate to your application and environment.

## Typical Applications

Machine assembly, tooling, enclosures and precision equipment where a clean, controllable drive and head form are needed.

## Pricing

Sheet-Metal Self-Tapping Screw — GB/T 845 / ISO 7049 (Series 045) are supplied to order. Pricing starts from approximately US\$0.050 per piece for standard sizes in case-hardened steel, zinc plated; final pricing depends on size, material, finish and order quantity (MOQ applies). Submit your exact configuration with the quote form above.

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

What is the controlling standard for Sheet-Metal Self-Tapping Screw — GB/T 845 / ISO 7049 (Series 045), and what drive do they take?

Sheet-Metal Self-Tapping Screw — GB/T 845 / ISO 7049 (Series 045) are manufactured to GB/T 845 / ISO 7049 and use a cross recess (Phillips/Pozi) drive. The dimensional values on this page follow that standard.

What is the size range of Sheet-Metal Self-Tapping Screw — GB/T 845 / ISO 7049 (Series 045)?

The table on this page lists 8 sizes for Sheet-Metal Self-Tapping Screw — GB/T 845 / ISO 7049 (Series 045), ranging from ST2.2 to ST6.3. Sizes outside the table can be quoted on request.

In which materials are Sheet-Metal Self-Tapping Screw — GB/T 845 / ISO 7049 (Series 045) supplied?

Sheet-Metal Self-Tapping Screw — GB/T 845 / ISO 7049 (Series 045) are supplied in alloy steel (typically 10.9 / 12.9 for socket screws), carbon steel and stainless A2 / A4, with finishes including zinc plating, hot-dip galvanizing and black oxide. Choose material and finish to suit the load and the service environment for Sheet-Metal Self-Tapping Screw — GB/T 845 / ISO 7049 (Series 045).

How do I request a quotation?

Use the parametric drawing on this page to set the exact configuration (size, material, finish) and click "Request this configuration" — a specialist from Engineering Hardware will respond within one business day.

More Screws

[← Previous](#)[Knurled Thumb Screws, High Type](#)[DIN 464](#)[Next →](#)[Heavy Hex Socket Head Cap Screw — GB/T 1228 / ASTM A325 \(Series 046\)](#)[GB/T 1228 / ASTM A325](#)