

ISO 7049 Phillips Pan Head Self-Tapping Screw Specification

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ISO 7049 specifies the dimensions and tolerances for phillips pan head self-tapping screw. The full dimensional table is reproduced below, followed by the DIN, ISO and ASME parts that match or supersede it.

Standard

ISO 7049

Product

Phillips Pan Head Self-Tapping Screw — GB/T 845 / ISO 7049 (Series 032)

Governing standards

GB/T 845 / ISO 7049

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



Specification summary of ISO 7049 as applied to phillips pan head self-tapping screw: the dimensions the standard fixes, the full size range supplied, and the related designations commonly cross-referenced.

ISO 7049 — Scope

ISO 7049 is "Cross-recessed pan head tapping screws".

Material, property class, surface finish and packaging are governed by separate documents — ISO 898-1 and ISO 898-2 for mechanical property classes, ISO 4042 for electroplated finishes.

Tolerance & Product Grades

ISO 7049 does not divide phillips pan head self-tapping screw — gb/t 845 / iso 7049 (series 032) 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 ISO 7049

Size	Pitch (mm)	Length L (mm)	Head diameter dk (mm)	Head height k (mm)	Cross
M3	0.5	20	5.6	1.8	PH1
M4	0.7	25	8.0	2.4	PH2
M5	0.8	30	9.5	3.0	PH2
M6	1.0	40	12.0	3.6	PH3
M8	1.25	50	16.0	4.8	PH3
M10	1.5	60	20.0	6.0	PH4

Equivalent Standards

Where direct equivalents exist (ISO ↔ DIN, ISO ↔ ASME), they are listed on the parent Phillips Pan Head Self-Tapping Screw — GB/T 845 / ISO 7049 (Series 032) page.

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

Companion Standards

ISO 7049 controls only the geometry of phillips pan head self-tapping screw — gb/t 845 / iso 7049 (series 032). The mechanical strength is set by ISO 898-1 (bolts, screws and studs) or ISO 898-2 (nuts); the surface finish is governed by separate finish standards such as ISO 4042 for electroplating. For corrosion testing, the relevant document is ISO 9227 (neutral salt spray).

Custom manufacturing · Made to drawing

Need a screw to this standard in a non-standard size?

Parts built to ISO 7049 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 warm forging.

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

Custom screw manufacturing

(<https://engineeringhardware.com/custom/screws/>)

Send a drawing (<https://engineeringhardware.com/custom/screws/#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 M3 Phillips Pan Head Self-Tapping Screw — GB/T 845 / ISO 7049 (Series 032) to GB/T 845 / ISO 7049. 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 (GB/T 845 / ISO 7049)

Size	Pitch (mm)	Length L (mm)	Head diameter dk (mm)	Head height k (mm)	Cross section
M3	0.5	20	5.6	1.8	PH1
M4	0.7	25	8.0	2.4	PH2
M5	0.8	30	9.5	3.0	PH2
M6	1.0	40	12.0	3.6	PH3
M8	1.25	50	16.0	4.8	PH3
M10	1.5	60	20.0	6.0	PH4

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 Steel66

Alloy Steel41

Bearing Steels5

Spring Steel25

Aluminum and Aluminum Alloys21

Brass17

Bronze11

Copper8

Titanium and Titanium Alloys18

Nickel and Nickel Alloys22

Iron-Nickel and High-Temperature Alloys10

Tool Steel and Specialty Hardened Steel9

Structural and Construction Steel9

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

What Phillips Pan Head Self-Tapping Screw are specified for, industry by industry. Stocked from M3 to M10 (screw size).

Industries that specify Phillips Pan Head Self-Tapping Screw

Roofing & cladding **Profiled sheet and rainscreen fixed to purlins and rails.**

Volume assembly **Appliance and consumer products driven at speed with power tools.**

Construction & fit-out **Fixing board, batten, framing and trim into timber and light-gauge steel.**

Sheet-metal & HVAC **Ducting, enclosures, trunking and cladding assembled without tapped holes.**

Joinery & furniture **Hardware, hinges and fittings into solid timber and wood-based board.**

Typical applications

- **fixing where there is no access to add a nut behind the panel**
- **high-volume driving with a bit and a clutch-set driver**
- **forming a thread directly in sheet, board or timber**

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.

Pilot hole

Selection is really a hole-size decision: too small and the screw snaps or splits the material, too large and it strips. The size is stated per row.

Where to use something else

Not for a joint that will be dismantled and reassembled repeatedly in the same hole — use an insert or a rivet nut instead.

Need help matching Phillips Pan Head Self-Tapping Screw to your application? Send the assembly, the load and the environment with your enquiry and we will specify the size, material and finish against them.

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.



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.



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.



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.



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 edition of ISO 7049 does this table follow?

The table reproduces the dimensions we supply phillips pan head self-tapping screw — gb/t 845 / iso 7049 (series 032) 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 ISO 7049?

ISO 7049 is "Cross-recessed pan head tapping screws".

What does ISO 7049 specify for Phillips Pan Head Self-Tapping Screw — GB/T 845 / ISO 7049 (Series 032)?

ISO 7049 specifies the dimensions and tolerances of phillips pan head self-tapping screw — gb/t 845 / iso 7049 (series 032). Material and property class are governed by separate documents.

Does ISO 7049 specify the mechanical strength?

No. ISO 7049 controls only the geometry of phillips pan head self-tapping screw — gb/t 845 / iso 7049 (series 032). The mechanical strength is set by ISO 898-1 (bolts, screws and studs) or ISO 898-2 (nuts), and the finish by separate documents.

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 Phillips Pan Head Self-Tapping Screw — GB/T 845 / ISO 7049 \(Series 032\) page](https://engineeringhardware.com/fastener/cad-svg-032-panhead/) (<https://engineeringhardware.com/fastener/cad-svg-032-panhead/>)

More Phillips Pan Head Self-Tapping Screw — GB/T 845 / ISO 7049 (Series 032) Guides

- **GB/T 845 Phillips Pan Head Self-Tapping Screw — GB/T 845 / ISO 7049 (Series 032)**
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