

What Are Phillips Countersunk Machine Screw Used For?

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[Fasteners Screws/Phillips Countersunk Machine Screw — GB/T 819.1 / ISO 7046 \(Series 029\)](#) Applications

Screws · GB/T 819.1 / ISO 7046 · Application guide

Typical applications, the industries that specify phillips countersunk machine screw, and how to choose the right size, material and finish for the joint.

Phillips Countersunk Machine Screws are used for threaded assemblies where the head drive and seating style matter. They are manufactured to GB/T 819.1 / ISO 7046, and the choice of size, property class and finish is driven by the load in the joint and the environment it sits in.

Primary duty

Threaded assemblies where the head drive and seating style matter

Governing standard

GB/T 819.1 / ISO 7046

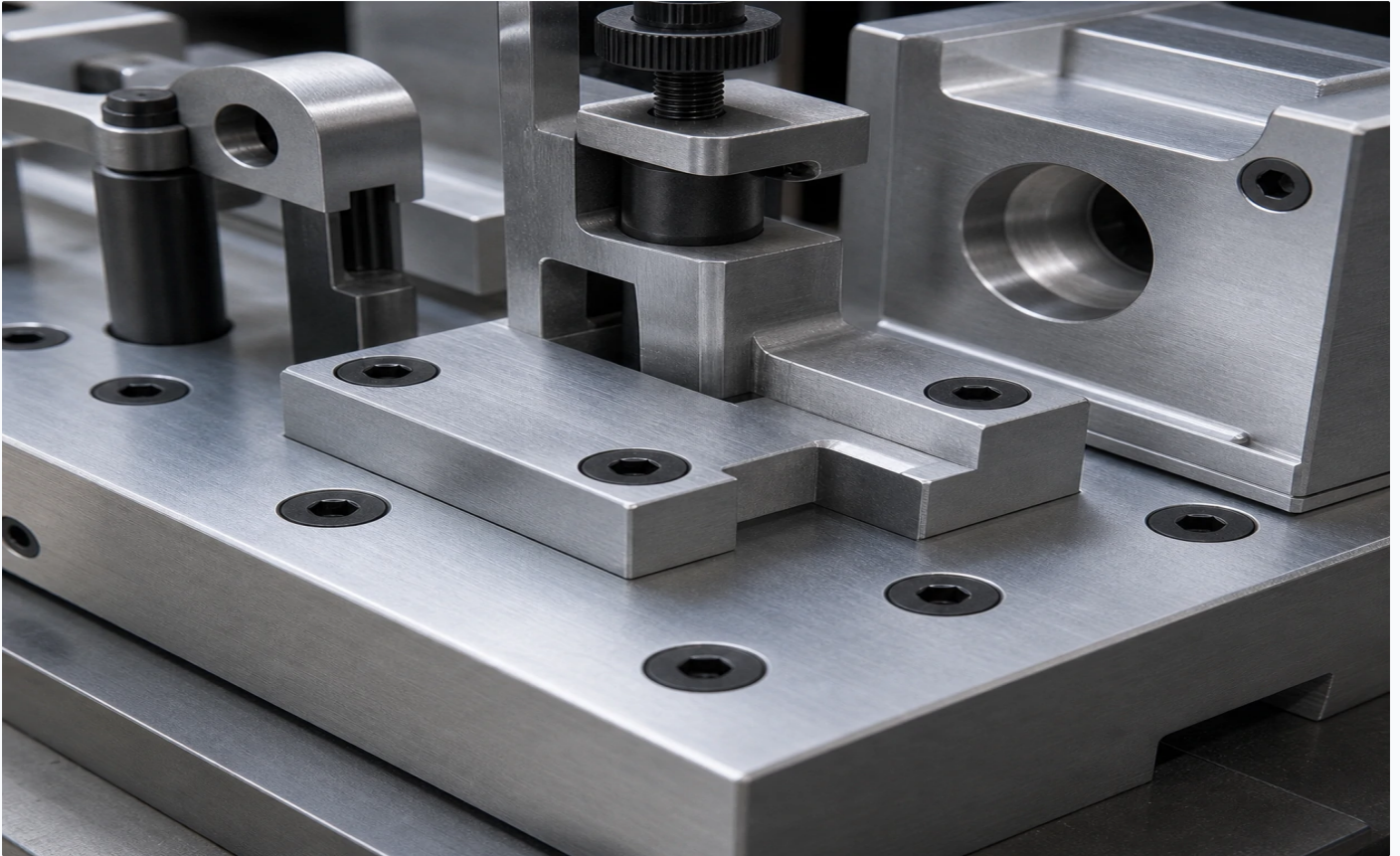
Thread size range

M3 to M24

Category

Screws

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



Phillips Countersunk Machine Screws are used primarily for threaded assemblies where the head drive and seating style matter. This page lists the industries and assemblies where they are specified, the selection criteria that matter for each application, installation practice, and the cases where a different fastener type is the correct choice. Parts are supplied to GB/T 819.1 / ISO 7046. Stocked across roughly M3 to M24, they cover general to heavy-duty work.

Typical Applications for Phillips Countersunk Machine Screw — GB/T 819.1 / ISO 7046 (Series 029)

The most common settings where these are specified:

- **Fabrication & metalwork:** bench and on-site assembly of steel frames, enclosures and weldments.
- **Electronics & enclosures:** mounting PCBs, panels and lids where the drive style and head height matter.
- **Appliances & consumer goods:** high-volume assembly with power tools and consistent seating.
- **Machine guarding & panels:** removable access covers that are opened for service.
- **General machine building:** fastening covers, brackets, motors and sub-assemblies on production equipment.

How to Specify Phillips Countersunk Machine Screw — GB/T 819.1 / ISO 7046 (Series 029) for Your Application

- **Size:** Match the nominal size to the mating thread or hole. This product spans M3–M24; check the full table below for the exact dimensions of each size.
- **Drive & head:** Pick the drive (socket, cross, slot) and head style for the tool access and seating surface; a recessed drive resists cam-out under power tools.
- **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 GB/T 819.1 / ISO 7046. Quoting the standard on your order guarantees interchangeable dimensions between suppliers.

Installation & Assembly Practice

- Match the driver exactly to the recess (PH ≠ PZ; hex key sizes per ISO 2936) and keep the tool axial — side load is the main cause of stripped drives.
- In tapped holes, engage a thread length of at least 1× the nominal diameter in steel, 2× in aluminum.
- Set power tools to a torque that seats the head without embedding it into the mating surface.

Common Selection Mistakes with Phillips Countersunk Machine Screw — GB/T 819.1 / ISO 7046 (Series 029)

- Under-sizing the drive for the installation torque — a small recess at high torque strips before the screw is seated.
- Using a countersunk head in thin sheet where the countersink removes most of the load-bearing material.
- Specifying stainless in high-strength duty: A2-70 is roughly class 7 steel, not a 10.9 substitute.

Where Phillips Countersunk Machine Screw — GB/T 819.1 / ISO 7046 (Series 029) Are Not the Right Choice

Not for high-preload structural joints (use a property-class bolt and nut), and not in thin sheet where a self-drilling or self-tapping type suits better.

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 (GB/T 819.1 / ISO 7046)

Size	Pitch (mm)	Length L (mm)	Head diameter dk (mm)	Head height k (mm)	Cross recess	Countersink angle (deg)	Reference standard
M3	0.5	20	5.6	1.65	PH1	90	ISO 7046 / GB/T 819
M4	0.7	25	7.5	2.2	PH2	90	ISO 7046 / GB/T 819
M5	0.8	30	9.2	2.5	PH2	90	ISO 7046 / GB/T 819
M6	1.0	40	11.0	3.0	PH3	90	ISO 7046 / GB/T 819
M8	1.25	50	14.5	4.0	PH3	90	ISO 7046 / GB/T 819
M10	1.5	60	18.0	5.0	PH4	90	ISO 7046 / GB/T 819
M12	1.75	80	22.0	6.0	PH4	90	ISO 7046 / GB/T 819
M14	2.0	80	25.0	7.0	PH4	90	ISO 7046 / GB/T 819
M16	2.0	100	29.0	8.0	PH4	90	ISO 7046 / GB/T 819
M18	2.5	100	33.0	9.0	PH4	90	ISO 7046 / GB/T 819
M20	2.5	120	36.5	10.0	PH4	90	ISO 7046 / GB/T 819
M24	3.0	150	43.5	12.0	PH4	90	ISO 7046 / GB/T 819

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 Phillips Countersunk Machine Screw — GB/T 819.1 / ISO 7046 (Series 029)?

Match the nominal size to the mating thread or hole. This product is available from M3 to M24; the full dimension table on this page lists each size.

What drive type do Phillips Countersunk Machine Screw — GB/T 819.1 / ISO 7046 (Series 029) use?

Drive depends on the head style — socket (hex key), cross (Phillips/Pozi) or slot. A recessed drive resists cam-out when driven with power tools; check the product head style on this page.

What material should Phillips Countersunk Machine Screw — GB/T 819.1 / ISO 7046 (Series 029) be for outdoor use?

For damp, coastal or chemical environments specify A4 (316) stainless or a suitably coated steel. For indoor or dry use, A2 (304) stainless or zinc-plated steel is normally adequate.

Are Phillips Countersunk Machine Screw — GB/T 819.1 / ISO 7046 (Series 029) made to a recognized standard?

Yes — they are manufactured to GB/T 819.1 / ISO 7046, so dimensions are interchangeable between suppliers when you quote the standard on your order.

Can I get a quote for Phillips Countersunk Machine Screw — GB/T 819.1 / ISO 7046 (Series 029) 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: [Phillips Countersunk Machine Screw — GB/T 819.1 / ISO 7046 \(Series 029\) — specifications & sizes](#)

Phillips Countersunk Machine Screw — GB/T 819.1 / ISO 7046 (Series 029) Specification Guides

- [M3 Phillips Countersunk Machine Screw — GB/T 819.1 / ISO 7046 \(Series 029\) size guide](#)
- [A4 stainless Phillips Countersunk Machine Screw — GB/T 819.1 / ISO 7046 \(Series 029\)](#)

Related Fastener Applications

- [Button Head Socket Screws applications](#)
- [Cheese Head Screws applications](#)
- [Countersunk Socket Screws applications](#)
- [Fine Adjustment Set Screws applications](#)
- [Heavy Hex Socket Head Cap Screw — GB/T 1228 / ASTM A325 \(Series 046\) applications](#)
- [Hex Socket Cone Point Set Screw — GB/T 77 / ISO 4026 \(Series 022\) applications](#)