What Are Hex Bolt, Fully Threaded Used For?

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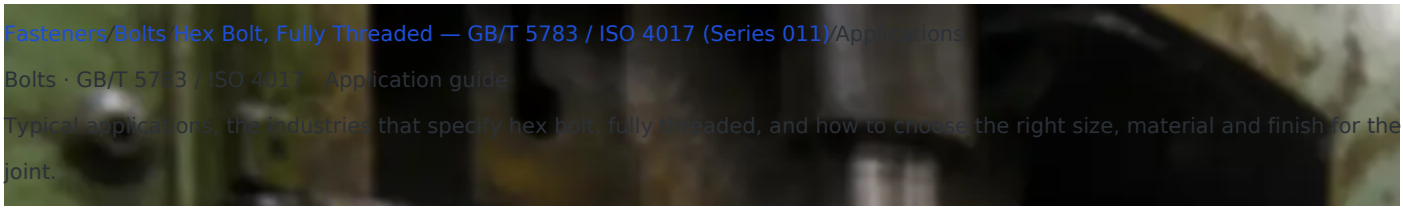

Hex Bolts, Fully Threaded are used for structural and machine joints that must be tightened to a controlled preload. They are manufactured to GB/T 5783 / ISO 4017, and the choice of size, property class and finish is driven by the load in the joint and the environment it sits in.

Primary duty
: Structural and machine joints that must be tightened to a controlled preload

Governing standard
: GB/T 5783 / ISO 4017

Thread size range
: M3 to M36

Category
: Bolts

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

Hex Bolts, Fully Threaded (GB/T 5783 / ISO 4017) are specified where the joint requires structural and machine joints that must be tightened to a controlled preload. 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 M3 to M36, they cover general to heavy-duty work.

Typical Applications for Hex Bolt, Fully Threaded — GB/T 5783 / ISO 4017 (Series 011)

The most common settings where these are specified:

- **Energy & infrastructure:** tower, pylon and pipework supports exposed to weather and long service life.
- **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.
- **Structural steel:** bolting beams, base plates and bracing where a defined preload and property class are required.

How to Specify Hex Bolt, Fully Threaded — GB/T 5783 / ISO 4017 (Series 011) for Your Application

- **Size:** Match the nominal size to the mating thread or hole. This product spans M3–M36; check the full table below for the exact dimensions of each size.
- **Strength class:** Choose the property class (e.g. 8.8, 10.9, 12.9 or A2/A4 stainless) for the load and environment, and tighten to the matching torque so the joint relies on preload, not friction.
- **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 5783 / ISO 4017. Quoting the standard on your order guarantees interchangeable dimensions between suppliers.

Installation & Assembly Practice

- Tighten to the torque for the size and property class with a calibrated wrench — the joint is held by preload, not by the thread friction alone.
- Ensure at least one full thread projects beyond the nut after tightening, and never re-use a bolt that has been tightened into yield.
- Under slotted or oversized holes, fit a hardened washer so the preload does not relax into the hole edge.

Common Selection Mistakes with Hex Bolt, Fully Threaded — GB/T 5783 / ISO 4017 (Series 011)

- Specifying class 12.9 "to be safe" in a corrosive environment — high classes are more sensitive to hydrogen embrittlement and stress corrosion; 8.8 hot-dip galvanized often outlasts them outdoors.
- Choosing a length that puts the shear plane through the threaded portion when a plain shank (partially threaded bolt) was available.
- Mixing stainless bolts with plated-steel nuts: the joint loses its corrosion logic and can gall or seize.

Where Hex Bolt, Fully Threaded — GB/T 5783 / ISO 4017 (Series 011) Are Not the Right Choice

Not for permanent joints that will never be opened (a rivet or weld is cheaper), and not where the head must sit flush — use a countersunk screw instead.

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 5783 / ISO 4017)

Size	Pitch (mm)	Nominal diameter d (mm)	Length L (mm)	Width across flats s (mm)	Width across corners e (mm)	Head height k (mm)
M3	0.5	3	20	5.5	6.01	2.0
M4	0.7	4	25	7.0	7.66	2.8
M5	0.8	5	30	8.0	8.79	3.5
M6	1.0	6	40	10.0	11.05	4.0
M8	1.25	8	50	13.0	14.38	5.3
M10	1.5	10	60	16.0	17.77	6.4
M12	1.75	12	80	18.0	20.03	7.5
M14	2.0	14	80	21.0	23.36	8.8
M16	2.0	16	100	24.0	26.75	10.0
M18	2.5	18	100	27.0	30.14	11.5
M20	2.5	20	120	30.0	33.53	12.5
M24	3.0	24	150	36.0	39.98	15.0
M30	3.5	30	180	46.0	50.85	18.7
M36	4.0	36	200	55.0	60.79	22.5

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

Are Hex Bolt, Fully Threaded — GB/T 5783 / ISO 4017 (Series 011) made to a recognized standard?
Yes — they are manufactured to GB/T 5783 / ISO 4017, so dimensions are interchangeable between suppliers when you quote the standard on your order.

What are Hex Bolt, Fully Threaded — GB/T 5783 / ISO 4017 (Series 011) used for?
Structural and machine joints that must be tightened to a controlled preload. They are supplied to GB/T 5783 / ISO 4017.

Which industries use Hex Bolt, Fully Threaded — GB/T 5783 / ISO 4017 (Series 011)?
They are commonly specified in energy & infrastructure, general machine building and maintenance & repair (mro), among other sectors.

How do I choose the right size of Hex Bolt, Fully Threaded — GB/T 5783 / ISO 4017 (Series 011)?

Match the nominal size to the mating thread or hole. This product is available from M3 to M36; the full dimension table on this page lists each size.

Can I get a quote for Hex Bolt, Fully Threaded — GB/T 5783 / ISO 4017 (Series 011) 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: Hex Bolt, Fully Threaded — GB/T 5783 / ISO 4017 (Series 011) — specifications & sizes

Hex Bolt, Fully Threaded — GB/T 5783 / ISO 4017 (Series 011) Specification Guides

- M3 Hex Bolt, Fully Threaded — GB/T 5783 / ISO 4017 (Series 011) size guide
- A4 stainless Hex Bolt, Fully Threaded — GB/T 5783 / ISO 4017 (Series 011)

Related Fastener Applications

- Carriage Bolts applications
- Clamping Handle Screw (Long) — DIN 6336 / GN 313 (Series 044) applications
- Clamping Handle Screw (Medium) — DIN 6336 / GN 313 (Series 043) applications
- Clamping Handle Screw (Short) — DIN 6336 / GN 313 (Series 042) applications
- Equal-End Stud Bolt — GB/T 901 / DIN 939 (Series 093) applications
- Eye Bolts applications