# M24 Hex Head Bolt Dimensions

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M24 Hex Head Bolt dimensions to GB/T 5782 / ISO 4014: width across flats (spanner size) 36 mm, head height 15 mm, coarse thread pitch 3 mm, clearance hole (ISO 273 medium) 26 mm. Tighten to approximately 726 Nm at property class 8.8 in a dry, as-supplied condition.

**Width across flats (spanner size)**

**36 mm**

**Head height**

**15 mm**

**Coarse thread pitch**

**3 mm**

**Clearance hole (ISO 273 medium)**

**26 mm**

**Tightening torque (class 8.8)**

**726 Nm**

Figures are nominal values from the governing standard. Confirm against the tolerance class for your application before machining or ordering.

This page covers M24 Hex Head Bolt to GB/T 5782 / ISO 4014: the full dimensional row, hole and tool sizes, proof-load data and typical applications. All values are taken from the governing standards (GB/T 5782 / ISO 4014 together with ISO 273, ISO 724 and ISO 898-1 where applicable).

## M24 Dimensional Row (GB/T 5782 / ISO 4014)

| Size | Pitch (mm) | Nominal diameter d (mm) | Length L (mm) | Width across flats s (mm) |
|---|---|---|---|---|
| M24 | 3.0 | 24 | 150 | 36.0 |

# Spanner & Drive for M24 Hex Head Bolt — GB/T 5782 / ISO 4014 (Series 007)

M24 Hex Head Bolt — GB/T 5782 / ISO 4014 (Series 007) have a width across flats of 36.0 mm — fit a 36.0 mm open-ended spanner or socket. Prefer a 6-point socket over a 12-point: it loads the corners of the 36.0 mm hex far less, which matters on plated heads and on anything that will be re-used. Set preload with a torque wrench rather than by arm.

## Hole Sizes for M24

| | |
|---|---|
| **Coarse-thread pitch (ISO 724)** | 3 mm |
| **Through-hole / clearance (ISO 273 medium)** | 26 mm |
| **Tapping drill, coarse thread** | 21 mm |

## Tightening Torque for M24

| | |
|---|---|
| **Class 8.8 (dry, ~μ 0.125)** | ≈ 726 Nm |
| **Class 10.9 (dry, ~μ 0.125)** | ≈ 1034 Nm |
| **Class 12.9 (dry, ~μ 0.125)** | ≈ 1210 Nm |

*Indicative dry-joint values. Lubrication can lower the required torque by 15–25%. Always confirm against the joint design, especially when going up a strength class.*

# Proof Load & Strength for M24

| | |
|---|---|
| **Tensile stress area As (ISO 724)** | 353 mm² |
| **Proof load, class 8.8** | 212 kN |
| **Proof load, class 10.9** | 293 kN |
| **Proof load, class 12.9** | 342 kN |
| **Min. ultimate tensile load, class 8.8** | 293 kN |

*Proof load = tensile stress area × the proof stress Sp of the class, per ISO 898-1 — Sp is a lower figure than the yield stress Rp0.2 and the two are not interchangeable. The stress area is computed from this size's own diameter and pitch, so a fine-pitch designation gives the fine-pitch figure. Design the joint so the working preload stays below the proof load of the class selected.*

# M24 Hex Head Bolt — GB/T 5782 / ISO 4014 (Series 007) Weight

A steel M24 hex head bolt at the listed 150 mm length weighs approximately 665 g each — about 665 kg per 1,000 pieces. Stainless A2/A4 weighs roughly the same (density 7.9–8.0 g/cm³).

*Actual weight varies slightly with head form, thread and finish; use this figure for freight estimation only.*

## Installation Tips for M24 Hex Head Bolt — GB/T 5782 / ISO 4014 (Series 007)

- Use a 6-point socket where access allows — 12-point sockets are more prone to rounding the corners on smaller sizes.
- A flanged head is its own washer. Adding a flat one under it lifts the serrations clear of the surface they are meant to bite, which is the whole locking mechanism gone.
- At M24 the stretch in the bolt becomes the controlling factor — for critical joints, use angle-controlled or stretch-controlled tightening instead of pure torque.

## Mating Parts for M24

For M24, pair with a M24 hex nut (ISO 4032 / DIN 934) and, where used, a M24 flat washer (ISO 7089 / DIN 125A) under the head and under the nut.

Custom manufacturing · Made to drawing

### Need hex head bolt in a size this table does not list?

This page covers M24 hex head bolt. Material and finish are usually what drives a special — a grade the standard part is not stocked in, or a coating chosen against a salt-spray figure instead of a default. Made by cold heading or hot forging.

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

**Custom bolt manufacturing**

**(https://engineeringhardware.com/custom/bolts/)**

**Send a drawing (https://engineeringhardware.com/custom/bolts/#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 M24 Hex Head Bolt — GB/T 5782 / ISO 4014 (Series 007) to GB/T 5782 / ISO 4014. 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 5782 / ISO 4014)

| Size | Pitch (mm) | Nominal diameter d (mm) | Length L (mm) | Width across flats s (mm) |
|---|---|---|---|---|
| M3 | 0.5 | 3 | 20 | 5.5 |
| M4 | 0.7 | 4 | 25 | 7.0 |
| M5 | 0.8 | 5 | 30 | 8.0 |
| M6 | 1.0 | 6 | 40 | 10.0 |
| M8 | 1.25 | 8 | 50 | 13.0 |
| M10 | 1.5 | 10 | 60 | 16.0 |
| M12 | 1.75 | 12 | 80 | 18.0 |
| M14 | 2.0 | 14 | 80 | 21.0 |
| M16 | 2.0 | 16 | 100 | 24.0 |
| M18 | 2.5 | 18 | 100 | 27.0 |
| M20 | 2.5 | 20 | 120 | 30.0 |
| M24 | 3.0 | 24 | 150 | 36.0 |
| M30 | 3.5 | 30 | 180 | 46.0 |
| M36 | 4.0 | 36 | 200 | 55.0 |

## 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 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**

| |
|---|
| **ML08Al** |
| **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 for M24 Hex Head Bolt

**Where Hex Head Bolt are used, and what decides the specification in each case. Stocked from M3 to M36.**

## Industries that specify Hex Head Bolt

Steel fabrication **Bolted connections in frames, enclosures, walkways and weldments, on the bench and on site.**

Energy & infrastructure **Tower, pipework, switchgear and plant fixings specified for long service life and inspectable joints.**

Maintenance & MRO **Stocked replacements matched to an existing property class, thread and finish.**

Food, pharma & cleanroom **Stainless assemblies that are washed down, where the finish matters as much as the strength.**

Machine building & OEM **The default fastener on production equipment: covers, brackets, motor mounts and sub-assemblies tightened to a specified torque.**

Automotive & transport **Chassis, driveline and body fixings that see vibration and are assembled to a controlled preload.**

## Typical applications

- **clamping two machined faces to a calculated preload**
- **bolting brackets, motors and gearboxes to a frame**
- **assemblies that are dismantled for service and re-torqued**
- **joints where the property class is stated on the drawing**

## 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.**

High load

**Supplied in ISO 898-1 property classes, so the joint can be designed to a stated proof load and tightened to a calculated torque rather than by feel.**

Torque and preload

**The joint is designed around bolt tension, so lubrication, coating and the friction coefficient all change the torque figure — state them together.**

## Where to use something else

- **Do not use a machine thread into unthreaded sheet or timber; use a tapping screw, rivet nut or insert made for that parent material.**

**Need help matching Hex Head Bolt 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.**

## Video: M24 Hex Head Bolt Dimensions

(https://www.youtube.com/watch?v=yoUwfvRcggI)(https://www.youtube.com/watch?v=yoUwfvRcggI)

► Watch video: https://www.youtube.com/watch?v=yoUwfvRcggI(https://www.youtube.com/watch?v=yoUwfvRcggI)

Nuts & Bolts - How Metric Bolts are Measured (https://www.youtube.com/watch?v=yoUwfvRcggI)

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.

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

**What torque do M24 class 8.8 Hex Head Bolt — GB/T 5782 / ISO 4014 (Series 007) take?**

A dry M24 class 8.8 joint takes about 726 Nm (≈ 1034 Nm for 10.9, ≈ 1210 Nm for 12.9). Confirm against your joint design; lubrication reduces these values.

### What clearance and tapping drill suit M24?

Use a 26 mm clearance hole (ISO 273 medium) for through-fixing, or a 21 mm tapping drill for a coarse M24 thread.

### Should M24 Hex Head Bolt — GB/T 5782 / ISO 4014 (Series 007) be tightened by torque or by angle?

For critical structural joints at M24, angle-controlled or stretch-controlled tightening is more repeatable than pure torque — the friction scatter at large diameters can dominate the torque signal.

### What grip range is typical for M24 structural bolts?

Grip ranges are highly application-dependent at M24. As a guide, choose a length that gives at least 1× the thread diameter engagement in the nut plus 2–3 thread pitches projecting.

### 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 Hex Head Bolt — GB/T 5782 / ISO 4014 (Series 007) page (https://engineeringhardware.com/fastener/cad-svg-007-hexbolt/)**

## More Hex Head Bolt — GB/T 5782 / ISO 4014 (Series 007) Guides

- **M3 Hex Head Bolt — GB/T 5782 / ISO 4014 (Series 007) (https://engineeringhardware.com/guide/size/m3-cad-svg-007-hexbolt/)**
- **M4 Hex Head Bolt — GB/T 5782 / ISO 4014 (Series 007) (https://engineeringhardware.com/guide/size/m4-cad-svg-007-hexbolt/)**
- **M5 Hex Head Bolt — GB/T 5782 / ISO 4014 (Series 007) (https://engineeringhardware.com/guide/size/m5-cad-svg-007-hexbolt/)**
- **M6 Hex Head Bolt — GB/T 5782 / ISO 4014 (Series 007) (https://engineeringhardware.com/guide/size/m6-cad-svg-007-hexbolt/)**
- **M8 Hex Head Bolt — GB/T 5782 / ISO 4014 (Series 007) (https://engineeringhardware.com/guide/size/m8-cad-svg-007-hexbolt/)**
- **M10 Hex Head Bolt — GB/T 5782 / ISO 4014 (Series 007) (https://engineeringhardware.com/guide/size/m10-cad-svg-007-hexbolt/)**
- **M12 Hex Head Bolt — GB/T 5782 / ISO 4014 (Series 007) (https://engineeringhardware.com/guide/size/m12-cad-svg-007-hexbolt/)**
- **M14 Hex Head Bolt — GB/T 5782 / ISO 4014 (Series 007) (https://engineeringhardware.com/guide/size/m14-cad-svg-007-hexbolt/)**