

Nuts bolts and washers



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Nuts, Bolts and Washers – Buyer’s Guide

Nuts, bolts and washers are used in all joinery work in domestic and industrial applications. Nuts are threaded holes that work with threaded bolts to fasten hardware. Bolts or screws are cylindrical rods having helical threads and a head; used standalone or with a bolt for positioning and fastening. Washers are thin, round plates of metal or plastic, with a hole for the fastener to go through.

About nuts and their types

Nuts and bolts hold together materials by forming a tight hold due to their interlocking threads, part compression and stretching of the bolt. Nuts and bolts are matched by their proof strength that is measured by the ISO property class. To circumvent loosening due to vibrations and torque, nuts can come with locking features such as nylon wires, adhesives, oval shaped threads, and so on. These nuts are called locknuts or prevailing torque nuts. They come in various shapes but the most common is hexagonal.

The following is a list of common types of nuts:

- acorn nut (cap nut)
- Allen nut (internal wrenching nut)
- barrel nut
- blind nut (Rivet nut)
- cage nut
- castle nut
- clinch nut
- clip-on nut (J-nut)

- collar nut (flange nut)
- coupling nuts
- cross dowel nut
- crushed nuts
- hex nut
- insert nut
- lug nut
- machine screw nut
- nut-type MJT
- panel nut
- PEM nut
- Plate nut
- self-aligning nut
- slotted nut
- split nut
- square nut
- staked or welded nut
- swage nut
- T-nut (tee nut)
- Thumb nut (knurled nut)
- T-groove nut (T-slot nut)
- weld nuts
- well nuts
- wing nut

Types of lock nuts:

- aerotight nut
- autolok nut
- Clevelock nut
- castellated nut
- conduit lock nut
- distorted thread lock nut
- centerlock nut
- elliptical offset lock nut
- toplock nut
- flex locknut
- interfering thread
- tapered thread nut
- jam nut
- jet nut (J-nut)
- KEPS nut (K-nut)
- nylon plate nut
- polymer insert nut (nylon)
- serrated face nut
- serrated flange nut
- Stover lock nuts
- speed nut (Tinnerman style or sheet metal nut)
- split beam nuts
- two way reversible locknuts

About bolts and their types

A bolt is composed of a shank that is partially or fully threaded, and may or may not taper; and a head that is usually larger than the body of the bolt.

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Most bolts are driven into a material, but there are exceptions. Bolts usually have right handed threads, except where they can be subjected to anticlockwise forces.

Bolts are made of metals – stainless steel, alloys, titanium; or plastic – Teflon, nylon. The shape of screw heads varies – pan, button, round, truss, flat, oval, bugle, octagon, hexagon, cheese, fillister, mirror screw or headless. Drive designs on the screw heads also vary – single slot, cross-head, square, hex, Torx, Pozidriv, Supadriv, tri-wing, double hex, Bristol, combi-head drives and more.

Common types of bolts or screws are:

- coach screw
- concrete screw
- deck screw
- dowel screw
- drywall screw
- lag bolt
- particle board screw
- screw eye
- self-drilling screw
- sheet metal screw
- wood screw
- breakaway bolt
- button socket cap screw
- carriage bolt

- cap screw
- eye bolt
- elevator bolt
- flange bolt
- flat socket cap screws
- hex bolt
- hex head cap screw
- machine screw
- metric flange bolt
- plow bolt
- security screw
- self-tapping machine screw
- set screw
- shoulder screw
- stove bolt
- stud
- tap bolt
- TC bolt
- thumb screw
- toggle bolt
- hanger screw
- hold and drive bolts
- super bolt
- thread rolling screws
- waisted shank bolt

About washers and their types

Washers are used to distribute the load of a threaded fastener to prevent brinelling; for spacing; as spring and wear pads, locking devices, preload indicating devices; and for the prevention of galvanic corrosion. They come in various sizes.

Following are the main types of washers available:

- anchor
- Belleville
- bimetal
- bit guard
- countersunk washer
- crush washer
- fender washer
- flat (normal and hardened)
- helical spring washer
- internal-external lock washers
- multi-tooth (star)
- phenolic
- pop rivet backup
- plumbing
- shoulder
- spherical
- split lock
- spring
- top hat

- torque
- washer nut
- wave

Nuts, bolts and washers have a place in almost all mechanical, manufacturing and engineering processes. It is important to select the right fasteners and washers for the job as these simple pieces of metal or plastic play a vital role in reinforcing structures and materials.