

# Metal Fasteners

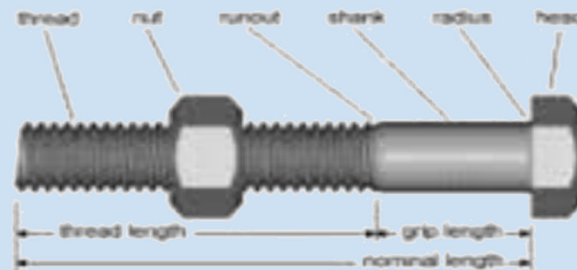


A **fastener** or **fastening** is a hardware device that mechanically joins or affixes two or more objects together. In general, **fasteners** are used to create non-permanent joints; that is, joints that can be removed or dismantled without damaging the joining components.

# Metal Fasteners



Bolt and Nut



A **bolt** is a mechanical fastener with a threaded shaft. **Bolts** are closely related to **screws**, which are also mechanical fasteners with threaded shafts. These types of fasteners are typically inserted through two parts, with aligned holes.



A **nut** is a type of **fastener** with a **threaded** hole. **Nuts** are almost always used in conjunction with a mating bolt to fasten multiple parts together.



Set Screw



Cap Head Screw



TEC Screw

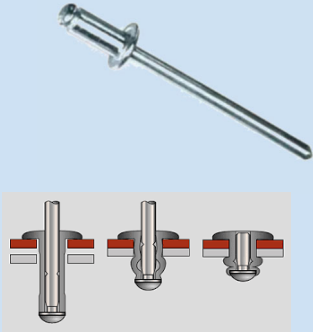


Button Head Sheet Metal Screw/Bolt and Nut

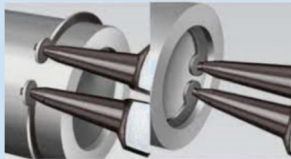


Castle Nut, Washer and Split Pin

# Metal Fasteners



A **POP Rivet** is a **blind** fastener which can be inserted and set from one side of the work piece. ... The **POP Rivet** is inserted into a pre-drilled hole in the materials you're joining together. The mandrel is gripped by a **POP Rivet** gun or tool. To **Riveting** tool pulls mandrel through the body of the **rivet** and sets it.



A *circlip* is a type of retaining ring or fastener that takes the form of a flexible, open-ended ring, made from metal. ... *Circlips* fit into a groove on the inside of a bore or the outside of a shaft. They work as a load-bearing shoulder which positions and holds mechanical parts.



A **set screw**, also known as a blind **screw** or a **grub screw**, is a type of **screw** generally used as a detent to secure an object within or against another object, usually without using a nut



A split pin, 'R' pin and Cotter pins are simple fasteners generally made of soft, malleable metal used to lock low torque parts in place.



A **washer** is a thin plate (typically disk-shaped, but sometimes square) with a hole (typically in the middle) that is normally used to distribute the load of a threaded fastener, such as a bolt or nut. ... **Washers** are usually metal or plastic.



**D-shackle.** Also known as a chain **shackle**, **D-shackles** are narrow **shackles** shaped like a loop of chain, usually with a pin or threaded pin closure. **D-shackles** are very common and most other **shackle** types are a variation of the **D-shackle**. The small loop can take high loads primarily in line.

# Metal Fasteners



Hose Clamp

A **hose clamp** or **hose clip** or **hose** lock is a device used to attach and seal a **hose** onto a fitting such as a barb or nipple.



Quick Release Hose Clamp



Thumb Screw Hose Clamp



Hose Crimp

“**Crimping** is the act of forming a metal sleeve or ferrule of the **hose or wire** fitting with a surrounding series of die segments to compress the **hose or wire** within the fitting,”



Wire Crimp