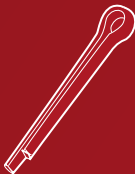
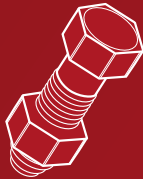
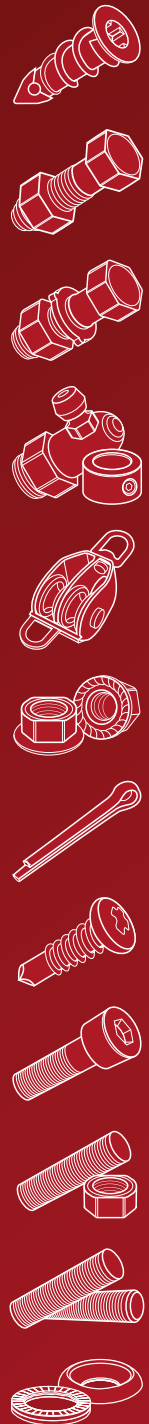


milsons®



Product
Handbook





milsons®

Delivering New Zealand's
Leading Fastening Experience

Product
Handbook



Contents



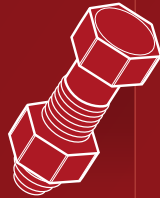
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Anchors



Anchors are the most commonly used fasteners in the construction industry. They connect structural components (usually metal parts like brackets, plates, etc.) to base materials such as concrete, plasterboard and brick.

There are two types of anchors: mechanical and chemical. The choice of anchor depends on a variety of factors, such as the strength and depth of the base material, external elements such as temperature and corrosion.

Their installation requires drilling a hole larger than the fastener. Anchors will have features (metal flaps, sleeves, threads) that engage to create friction with the walls of the drilled hole as the anchor is tightened. In chemical anchors, a resin is used to fill in the extra space and secure the anchor in the hole.

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Chem Set Stud
Drop In Anchor Standard
Drop In Anchor Lipped
Hollow Wall Anchor
Nylon Plug
Metal Round Head Pin Anchor
Nylon Mushroom Head
Nylon Round Head
Plasterboard Anchor
Countersunk Screw Bolt
Eye Screw Bolt
Hex Flanged Screw Bolt
C Hook Sleeve Anchor
Countersunk Sleeve Anchor
Hex Sleeve Anchor
O Hook Sleeve Anchor
Countersunk Split Drive Anchor
Mushroom Head Split Drive Anchor
Wedge Anchor
Vertical Concrete Threaded Rod Anchor
Horizontal Steel Threaded Rod Anchor
Vertical Steel Threaded Rod Anchor
Horizontal Timber Threaded Rod Anchor
Vertical Timber Threaded Rod Anchor





Chem Set Stud

Class 4 Galv
Stainless Steel 316



Drop In Anchor Standard

Yellow Zinc
Stainless Steel 316



Nylon Plug

Nylon



Metal Round Head Pin Anchor

Zinc



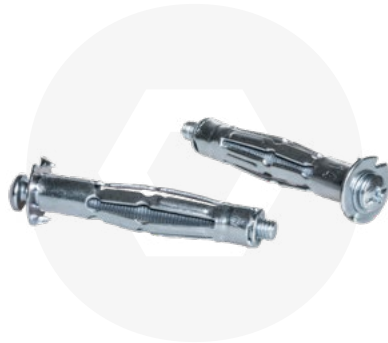
Drop In Anchor Lipped

Yellow Zinc



Hollow Wall Anchor

Zinc



Nylon Mushroom Head Pin Anchor

Zinc



Nylon Round Head Pin Anchor

Zinc
Stainless Steel 304





Plasterboard Anchor

Metal
Nylon



Countersunk Screw Bolt

Class 4 Galv
Yellow Zinc



C Hook Sleeve Anchor

Yellow Zinc



Countersunk Sleeve Anchor

Yellow Zinc



Eye Screw Bolt

Yellow Zinc



Hex Flanged Screw Bolt

Class 4 Galv
Yellow Zinc
Bimetal 316



Hex Sleeve Anchor

Class 4 Galv
Yellow Zinc
Stainless Steel 316



O Hook Sleeve Anchor

Yellow Zinc





Countersunk Split Drive Anchor

Zinc
Stainless Steel 316



Mushroom Head Split Drive Anchor

Zinc
Stainless Steel 316



Horizontal Steel Threaded Rod Anchor

Zinc



Vertical Steel Threaded Rod Anchor

Zinc



Wedge Anchor

Class 4 Galv
Stainless Steel 316



Vertical Concrete Threaded Rod Anchor

Zinc



Horizontal Timber Threaded Rod Anchor

Zinc



Vertical Timber Threaded Rod Anchor

Zinc



Bolts



Bolts are threaded fasteners that are used to connect two or more parts, usually along with washers and nuts. As they contain an external thread, they require a hole with a female or internal thread to secure it in place.

The shape and style of the bolt's head will change depending on the tool and application it is used for. The standard bolt type has a hexagonal head. The dimensions and mechanical properties of bolts are based on international standards.

Metric bolts are classified based on their diameter in metric units (M4, M6, M8, etc) while imperial bolts use inches for their diameter ($\frac{1}{4}$ ", $\frac{1}{2}$ ", etc.). Milsons stocks both, as well as bolts for special construction applications like coach bolts, Structural HSFG bolts, Purlin bolts, etc.

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Set Screw Metric 4.6

Set Screw Metric 8.8

Set Screw Metric Fine 8.8

Set Screw BSW Grade 2

Set Screw UNC / UNF Grade 5

Set Screw UNC / UNF Grade 8

Set Screw Stainless Steel 304

Set Screw Stainless Steel 316

Hex Bolt and Nut Metric 4.6

Hex Bolt and Nut Metric 8.8

Hex Bolt Metric Fine 8.8

Hex Bolt Metric 10.9

Hex Bolt and Nut UNC / UNF Grade 5

Hex Bolt and Nut UNC / UNF Grade 8

Hex Bolt Stainless Steel 304

Hex Bolt Stainless Steel 316

Half Thread Bolt – Assembled with Two Nuts

Coach Bolt & Nut Mild Steel 4.6

Coach Bolt Stainless Steel 304

Coach Bolt Stainless Steel 316

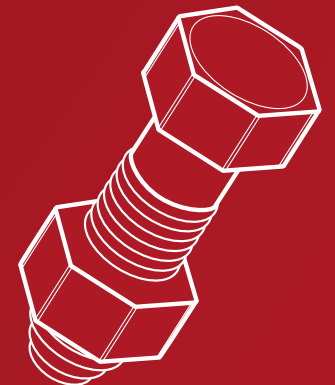
Coach Screw Mild Steel

Coach Screw Stainless Steel 304

Coach Screw Stainless Steel 316

Structural Bolt, Nut & Washer Assembly

Purlin Bolt & Nut Metric 8.8





Set Screw

Metric 4.6

Black
Galv
Zinc



Set Screw

Metric 8.8

Black
Galv
Zinc



Set Screw

UNC / UNF Grade 5

Black
Zinc



Set Screw

UNC / UNF Grade 8

Black
Zinc



Set Screw

Metric Fine 8.8

Black
Zinc



Set Screw

BSW Grade 2

Zinc



Set Screw

Stainless Steel 304

Metric
Imperial



Set Screw

Stainless Steel 316

Metric
Imperial





Hex Bolt and Nut

Metric 4.6

Black
Galv
Zinc



Hex Bolt & Nut

Metric 8.8

Black
Galv
Zinc



Hex Bolt and Nut

UNC / UNF Grade 5

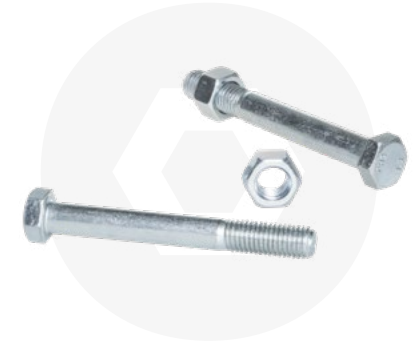
Black
Zinc



Hex Bolt and Nut

UNC / UNF Grade 8

Black
Zinc



Hex Bolt

Metric Fine 8.8

Black
Zinc



Hex Bolt

Metric 10.9

Black
Zinc



Hex Bolt

Stainless Steel 304

Metric
Imperial



Hex Bolt

Stainless Steel 316

Metric
Imperial





Half Thread Bolt

Assembled with Two Nuts

Mild Steel 4.6

Galv



Coach Bolt & Nut

Mild Steel 4.6

Zinc

Galv



Coach Screw

Mild Steel

Galv



Coach Screw

Stainless Steel 304



Coach Bolt

Stainless Steel 304

Metric



Coach Bolt

Stainless Steel 316

Metric



Coach Screw

Stainless Steel 316



Structural Bolt, Nut & Washer Assembly

Metric 8.8

Galv



Purlin Bolt & Nut

Metric 8.8

Galv
Zinc



High Strength Friction Grip (HSFG) bolts

What are HSFG bolts?

High Strength Friction Grip (HSFG) bolts are high strength steel bolted connections whose bolt shanks contain a pre-induced tension. This ensures that it is the friction between the two steel plates that will carry any external loads. They are also known as 'slip-resistant' connections, because the connection is so tight that there is no slip between the plates. HSFGs adhere to the AS 1252.1:2016 standard, which outlines the specifications and characteristics of high strength structural bolt assemblies.

How are HSFGs different from normal bolt assemblies?

The primary difference is that HSFGs work through friction provided by the pre-induced tension, whereas normal bolts work via shear stress in the bolt shank. As a result, HSFGs are used for permanent connections, unlike regular bolts which can be removed. HSFGs are used for specific applications (e.g. exposed to a lot of vibrations) only, unlike ordinary bolts which are multi-purpose.

Applications of HSFG Bolts

They are commonly used in construction, such as steel bridges, which experience a lot of cyclic loading or vibrations. The preloaded tension means that the tension doesn't fluctuate as much as an ordinary steel bolt, giving it better fatigue resistance. The connections here would be permanent, so once tightened, the bolt can't be reused.

HSFG and k-classes (K0)

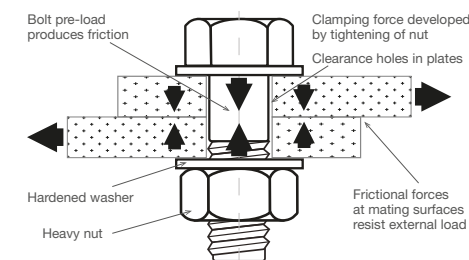
These bolted connections depend on a specific predetermined minimum preload. The torque needed to tighten any bolted connection is calculated according to the formula:

$$T = F \times D \times K$$

Where T= torque, F= tension needed for bolt, d= diameter of the bolt. There will be a certain amount of energy lost due to friction during tightening, which is what the 'k' factor accounts for. Each k-class of bolts, would have a certain range of k values.

The k-class of a HSFG bolt refers to the torque needed to tighten the bolt. Here, K0 means that there is no specific k-value for the torque to be determined.

How HSFG Bolts work:



Structural

Structural fasteners are specifically designed to be used in heavy-duty engineering applications. They are made from metals such as Grade 8.8 high tensile steels or 'structural grade', with galvanising. This metal has superior tensile strength, fatigue and corrosion resistance.

Examples of structural bolts are the HSFG (High Strength Friction Grip) bolt connections found in bridges. They not only need to be strong, but also resistant to vibrations and shocks. Milsons offers the following products in this category:

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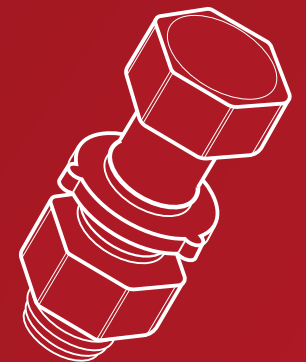
milsons[®]



Structural Bolt Nut & Washer Assembly

Structural Nut

Structural Washer





Structural Bolt, Nut & Washer Assembly

Metric 8.8

Galv



Structural Nut

Class 8

Galv

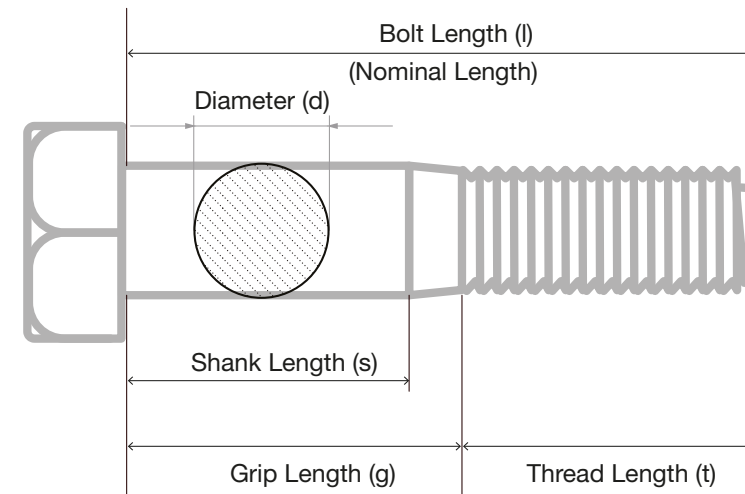


Structural Washer

Galv



Bolt Measurements Diagram



Formula To Calculate The Thread Length Of Partial Thread Bolts

A Guide For: DIN 931, ISO 4014

Bolts up to and including 125mm long:

$$t = 2d + 6$$

Bolts 130mm - 200mm long:

$$t = 2d + 12$$

Bolts 220mm and longer:

$$t = 2d + 25$$

Key:

t = Thread Length

d = Bolt Diameter

l = Bolt Length

g = Grip Length

s = Shank Length

Units in mm

Formula to calculate grip length:

$$g = s - t$$

Engineering Supplies

In addition to fasteners, Milsons also stocks engineering supplies, which consist of tools to be used with fasteners. These include hex wrenches or allen keys, (used to tighten or loosen bolts/socket screws), key steel (steel to make keys in gears and pulleys), and shaft collars (used to hold bearings and sprockets onto shafts).

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Grease Nipple 45 Degree

Grease Nipple 67 Degree

Grease Nipple 90 Degree

Grease Nipple Straight

Hex Wrench Short Arm

Hex Wrench Long Arm

Key Steel

Shaft Collar





Grease Nipple

45 Degree

Zinc
Stainless Steel 304



Grease Nipple

67 Degree

Zinc



Grease Nipple

90 Degree

Zinc
Stainless Steel 304



Grease Nipple

Straight

Zinc
Stainless Steel 304



Hex Wrench

Short Arm

Black



Hex Wrench

Long Arm

Black



Key Steel

Self Colour

Stainless Steel 304



Key Steel

Self Colour

Stainless Steel 304



Shaft Collar

Self Colour

Yellow Zinc
Stainless Steel 304



Stainless Hardware



These are designed with superior material properties to withstand harsh marine environments. These fasteners are made from 316 Stainless Steel. This grade of steel is commonly used in industrial applications, as they possess higher yield and tensile strengths.

Most fasteners in this category are used in marine applications.

Delivering New Zealand's
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Bow Shackle

Collared Eye Bolt

D Ring

D Shackle

D Shackle Long

D Shackle Captive Pin

Eye Bolt, Nut & Washer

Eye Nut

Mame Swivel Double Block

Round Ring

S Hook

Screw Eye

Spring Hook with Eyelet

Square Eye Plate

Swage Eye Terminal

Swage Terminal

Swivel Eye & Eye

Swivel Jaw & Jaw

Turnbuckle - Eye & Eye

Turnbuckle - Hook & Eye

Turnbuckle - Jaw & Jaw

Turnbuckle - Jaw & Terminal

U Bolt, Nut & Washer

Wire Eye Strap

Wire Rope Grip

Wire Rope Thimble



Stainless Hardware



Bow Shackle

Stainless Steel 316



Collared Eye Bolt

Stainless Steel 316



D Shackle Long

Stainless Steel 316



D Shackle Captive Pin

Stainless Steel 316



D Ring

Stainless Steel 316



D Shackle

Stainless Steel 316



Eye Bolt, Nut & Washer

Stainless Steel 316



Eye Nut

Stainless Steel 316



Stainless Hardware



Mame Swivel Double Block

Stainless Steel 316



Round Ring

Stainless Steel 316



Spring Hook with Eyelet

Stainless Steel 316



Square Eye Plate

Stainless Steel 316



S Hook

Stainless Steel 316



Screw Eye

Stainless Steel 316



Swage Eye Terminal

Stainless Steel 316



Swage Terminal

Stainless Steel 316





Swivel Eye & Eye

Stainless Steel 316



Swivel Jaw & Jaw

Stainless Steel 316



Turnbuckle - Jaw & Jaw

Stainless Steel 316



Turnbuckle - Jaw & Terminal

Stainless Steel 316



Turnbuckle - Eye & Eye

Stainless Steel 316



Turnbuckle - Hook & Eye

Stainless Steel 316



U Bolt, Nut & Washer

Stainless Steel 316



Wire Eye Strap

Stainless Steel 316





Wire Rope Grip

Stainless Steel 316



Wire Rope Thimble

Stainless Steel 316



Types of Stainless Steel

Stainless Steel differs from Carbon Steel as it has the addition of Chromium, and must be at least 11% Chromium to be classified as Stainless Steel. This level of Chromium is the minimum amount required to form a passive film of chromium oxide, which in turn prevents the formation and spread of iron oxide (rust). However, Stainless Steel is not completely impervious to corrosion. It can oxidise and tarnish, but is highly corrosion resistant in comparison to Carbon Steel.

Milsons stock general fasteners in two main grades of Stainless Steel, 304 and 316. Both of these grades belong to the 300 series Austenitic family of stainless steel.

The exception to this is our Self Drilling Screws in Stainless Steel. We stock the 410 grade which is part of the Martensitic family of Stainless Steel. This is because, unlike 300 series, the 410 grade can be hardened, which is required for a stainless self drilling screw.

304

Description

304 Stainless Steel, also referred to as A2 Stainless Steel, is a general purpose grade that is selected for applications that require greater corrosion resistance than provided by Carbon Steel, or Carbon Steel with Zinc or Galv plating. 304 is also safe for use in application that directly contact foodstuffs or produce. Therefore, it is commonly used for sinks, tabletops, stoves, refrigerators, pots, pans dairy equipment, brewing industry equipment, fruit industry, food processing plants, pipelines, and many more applications.

316

316 Stainless Steel, also referred to as A4 Stainless Steel, is similar to 304, but offers greater corrosion resistance. 316 achieves a higher level of corrosion resistance than 304 as it has the addition of Molybdenum as well as higher levels of Nickel. Because of its increased corrosion resistance, 316 covers most applications of 304 but is also suitable for use in marine and coastal environments.

Chemical Composition

18% chromium
8% nickel

16% chromium
10% nickel
2% molybdenum

Range of Items Milsons Stock in Stainless Steel

Bolts • Nuts • Washers • Threaded Rod • Screws • Marine Hardware
Cotter Pins • Key Steel • Shaft Collars • B8M Stud Bar

Nuts



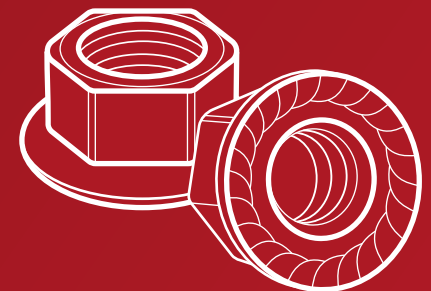
Nuts are small threaded parts that are used to secure bolts and other metal components. The nut would often be tightened at the end of the bolt shaft, so that the metal part (e.g. sheet or plate) will be sandwiched between the bolt head and nut.

As with bolts, nuts come in different shapes that are suited to different applications. Like bolts, they also follow international standards for dimensions. The standard type are hex nuts which have a hexagonal shape.

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- Barrel Nut
- Conelock Nut Metric
- Conelock Nut UNC / UNF Grade 8
- Conelock Nut Flanged UNF Grade 8
- Coupling Nut Mild Steel
- Coupling Nut Stainless Steel 316
- Dome Nut Stainless Steel 304
- Dome Nut Stainless Steel 316
- Dome Nut Brass (Nickel Plated)
- Fuji Lock Nut Stainless Steel 304
- Half Nut Mild Steel
- Half Nut Stainless Steel 316
- Hex Nut Class 5
- Hex Nut Class 8
- Hex Nut Metric Fine Class 8
- Hex Nut Class 10
- Hex Nut UNC / UNF Grade 5
- Hex Nut UNC / UNF Grade 8
- Hex Nut Stainless Steel 304
- Hex Nut Stainless Steel 316
- Hex Nut BSW Grade 2
- Hex Nut Brass
- Structural Nut Class 8
- Nyloc Nut Class 6
- Nyloc Nut BSW Grade 2
- Nyloc Nut UNC / UNF Grade 2
- Nyloc Nut Stainless Steel 304
- Nyloc Nut Stainless Steel 316
- Serrated Flange Nut Class 8
- Serrated Flange Nut
Stainless Steel 304
- Serrated Flange Nut
Stainless Steel 316
- Strut Nut No Spring
- Strut Nut Short Spring
- Strut Nut Long Spring
- Tee Nut Zinc
- Tee Nut Stainless 304
- Wedge Nut Zinc
- Wing Nut Zinc
- Wing Nut Stainless Steel 304
- Wing Nut Stainless Steel 316



Nuts



Barrel Nut
Stainless Steel 316



Conelock Nut
Metric
Zinc



Coupling Nut
Mild Steel
Galv
Yellow Zinc



Coupling Nut
Stainless Steel 316



Conelock Nut
UNC / UNF Grade 8
Zinc



Conelock Nut Flanged
UNF Grade 8
Black



Dome Nut
Stainless Steel 304
Metric
Imperial



Dome Nut
Stainless Steel 316
Metric



Nuts



Dome Nut

Brass (Nickel Plated)



Fuji Lock Nut

Stainless Steel 304

Metric



Hex Nut

Class 5

Galv



Hex Nut

Class 8

Black
Galv
Zinc



Half Nut

Mild Steel

Zinc



Half Nut

Stainless Steel 316



Hex Nut

Metric Fine Class 8

Black
Zinc



Hex Nut

Class 10

Black
Zinc



Nuts



Hex Nut

UNC / UNF Grade 5

Black
Zinc



Hex Nut

UNC / UNF Grade 8

Black
Zinc



Hex Nut

BSW Grade 2

Zinc



Hex Nut

Brass

Metric
Imperial



Hex Nut

Stainless Steel 304

Metric
Imperial



Hex Nut

Stainless Steel 316

Metric
Imperial



Structural Nut

Class 8

Galv



Nyloc Nut

Class 6

Galv
Zinc



Nuts



Nyloc Nut

BSW Grade 2

Zinc



Nyloc Nut

UNC / UNF Grade 2

Zinc



Serrated Flange Nut

Class 8

Zinc
Yellow Zinc
Stainless Steel 304
Stainless Steel 316



Serrated Flange Nut

Stainless Steel 304

Metric



Nyloc Nut

Stainless Steel 304

Metric
Imperial



Nyloc Nut

Stainless Steel 316

Metric
Imperial



Serrated Flange Nut

Stainless Steel 316

Metric



Strut Nut

No Spring

Zinc



Nuts



Strut Nut

Short Spring

Zinc



Strut Nut

Long Spring

Zinc



Wedge Nut

Zinc



Wing Nut

Zinc



Tee Nut

Zinc



Tee Nut

Stainless 304



Wing Nut

Stainless Steel 304



Wing Nut

Stainless Steel 316



Pins

Pins are unthreaded fasteners that can be inserted through a pre-drilled hole to secure two parts together. Milsons stocks three types of pins:

Cotter Pin Zinc

Cotter Pin Stainless Steel 304

Dowel Pin

Roll Pin

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Pins



Cotter Pin

Zinc



Cotter Pin

Stainless Steel 304



Dowel Pin

Self Colour



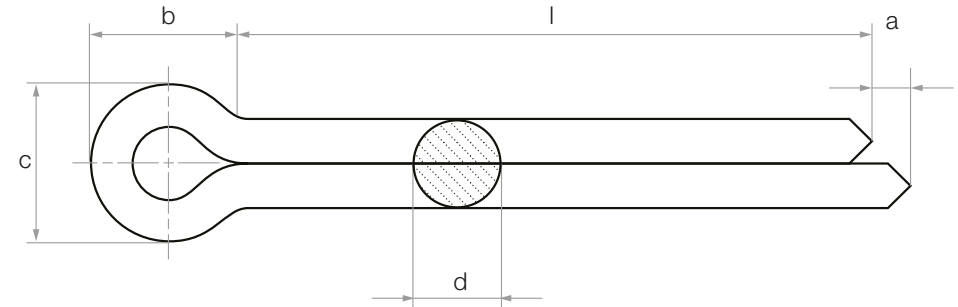
Roll Pin

Self Colour



How To Measure a Cotter Pin

Also known as a Split Pin



The Cotter Pin has two main measurements, **the diameter**, and **the effective length**. The easiest way to obtain these measurements is by using a pair of Vernier Calipers.

Key:

- c** = Width of the eye
- b** = Height of the eye
- d** = Diameter
- l** = Effective length
- a** = Offset end

Diameter of Cotter Pin

The diameter of a Cotter Pin is measured from a point where both tines are flush together. Refer to 'd' in the diagram below.

Effective Length of Cotter Pin

The effective length of a Cotter Pin is measured on the shortest tine. To obtain this measurement, measure from the tip of the shortest tine, to where it begins to taper up into the head. Refer to 'l' on the diagram above.

Screws



Threaded fasteners that are used to connect two parts together. In contrast to bolts, screws do not require nuts to secure them. Also, the head of the screw will often have small slits, crosses or grooves to engage a tool, like a screwdriver.

They come in different dimensions and shapes, depending on their application.

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Bugle Batten Screw

Deep Drilling Screw

Gypsum Screw

Machine Screws

Countersunk Head Phillips Drive

Pan Head Phillips Drive

Particle Board Screws

Bugle Head Square Drive Type 17

Countersunk Head

Phillips Drive Ribbed

Countersunk Head Square Drive

Countersunk Head

Square Drive Ribbed

Countersunk Head

Square Drive Type 17

Countersunk Head

Square Drive Type 17 Ribbed

Self Drilling Screws

Bugle Head Phillips Drive

Button Head Phillips Drive

Countersunk Head Phillips Drive

Countersunk Head Square Drive

Hex Washer Face

Hex Washer Face Neo

Pan Head Phillips Drive

Pan Head Square Drive

Wafer Head Phillips Drive

Wafer Head Square Drive

Phillips Drive Wing Tek

Square Drive Wing Tek

Self Tapping Screws

Countersunk Head Phillips Drive

Countersunk Head Pozi Drive

Countersunk Head Square Drive

Hex Washer Face Type 17

Hex Washer Face Type 17, Neo

Pan Head Phillips Drive

Pan Head Pozi Drive

Pan Head Square Drive

Wafer Head Phillips Drive Type 17

Wafer Head Square Drive Type 17

Stitching Screw Button Head Phillips Drive

Truck Deck Screws

Bugle Head Phillips Drive Type 17

Countersunk Head

Phillips Drive Type 17





Bugle Batten Screw

Bugle Head Internal Hex Drive
Type 17 Ribbed

Yellow Zinc
Galv
Stainless Steel 316



Deep Drilling Screw

Hex Washer Face
#5 Point Neo

Galv



Machine Screw

Pan Head Phillips Drive

Stainless Steel 304



Particle Board Screw

Bugle Head Square Drive
Type 17

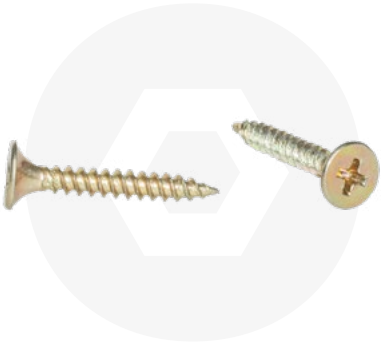
Stainless Steel 304



Gypsum Screw

Bugle Head Phillips Drive

Yellow Zinc



Machine Screw

Countersunk Head
Phillips Drive

Stainless Steel 304



Particle Board Screw

Countersunk Head
Phillips Drive Ribbed

Yellow Zinc



Particle Board Screw

Countersunk Head
Square Drive

Stainless Steel 304





Particle Board Screw

Countersunk Head
Square Drive Ribbed

Galv
Yellow Zinc
Stainless Steel 304



Particle Board Screw

Countersunk Head
Square Drive
Type 17 Ribbed

Stainless Steel 304
Stainless Steel 316



Self Drilling Screw

Countersunk Head
Phillips Drive

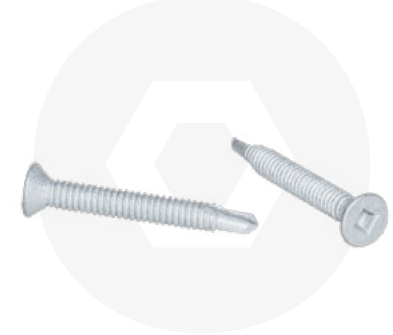
Galv
Yellow Zinc
Stainless Steel 410



Self Drilling Screw

Countersunk Head
Square Drive

Galv
Yellow Zinc
Stainless Steel 410



Self Drilling Screw

Bugle Head Phillips Drive
Yellow Zinc



Self Drilling Screw

Button Head Phillips Drive

Galv
Yellow Zinc



Self Drilling Screw

Hex Washer Face

Galv
Yellow Zinc
Stainless Steel 410



Self Drilling Screw

Hex Washer Face Neo

Galv





Self Drilling Screw

Pan Head Phillips Drive

Stainless Steel 410



Self Drilling Screw

Pan Head Square Drive

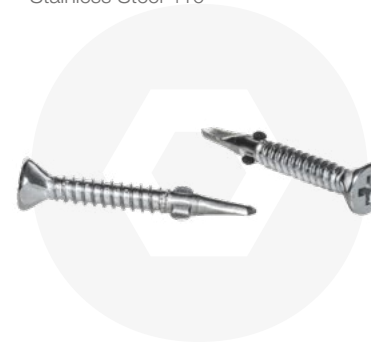
Stainless Steel 410



Self Drilling Screw

Countersunk Head
Phillips Drive Wing Tek

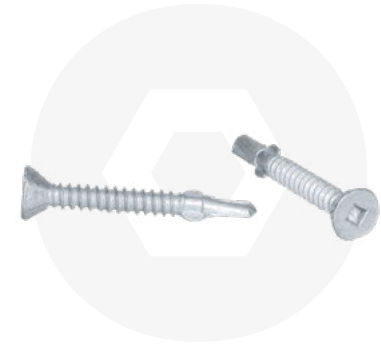
Galv
Yellow Zinc
Stainless Steel 410



Self Drilling Screw

Countersunk Head
Square Drive Wing Tek

Galv
Yellow Zinc



Self Drilling Screw

Wafer Head Phillips Drive

Galv
Yellow Zinc
Stainless Steel 410



Self Drilling Screw

Wafer Head Square Drive

Galv
Yellow Zinc



Self Tapping Screw

Countersunk Head Phillips Drive

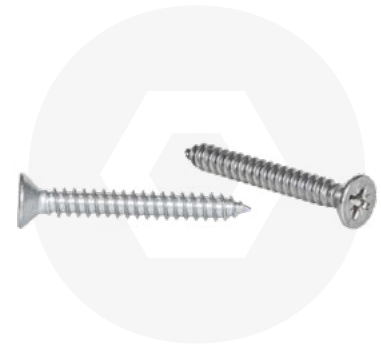
Stainless Steel 304



Self Tapping Screw

Countersunk Head Pozi Drive

Stainless Steel 304
Stainless Steel 316





Self Tapping Screw

Countersunk Head Square Drive

Stainless Steel 304
Stainless Steel 316



Self Tapping Screw

Hex Washer Face Type 17

Galv
Yellow Zinc
Stainless Steel 304
Stainless Steel 316



Self Tapping Screw

Pan Head Pozi Drive

Stainless Steel 304
Stainless Steel 316



Self Tapping Screw

Pan Head Square Drive

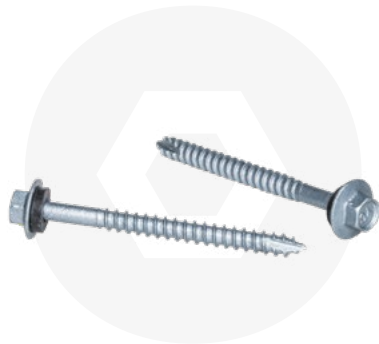
Stainless Steel 304
Stainless Steel 316



Self Tapping Screw

Hex Washer Face
Type 17 Neo

Galv



Self Tapping Screw

Pan Head Phillips Drive

Stainless Steel 304



Self Tapping Screw

Wafer Head Phillips Drive
Type 17

Galv
Yellow Zinc



Self Tapping Screw

Wafer Head Square Drive
Type 17

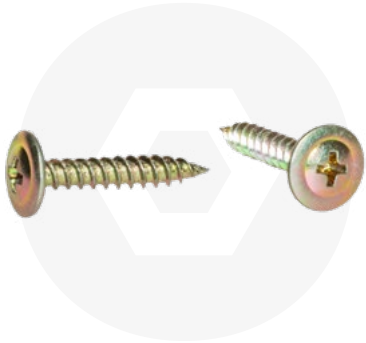
Galv
Yellow Zinc



Screws

Stitching Screw
Button Head Phillips Drive

Yellow Zinc



Truck Deck Screw
Bugle Head Phillips Drive Type 17

Zinc



Truck Deck Screw

Countersunk Head
Phillips Drive Type 17

Zinc

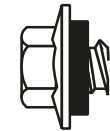


Screws – Head Types, Drive Types, and Drill Points

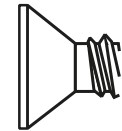
Head Types



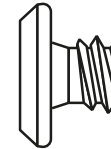
Hex Washer Face



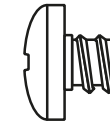
Hex Washer Face with Neoprene Washer



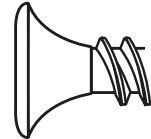
Counter Sunk / CSK / Flat Head



Wafer Head



Pan Head



Bugle Head

Drive Types



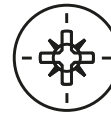
External Hex Drive



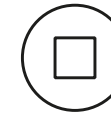
Internal Hex Drive



Phillips Drive



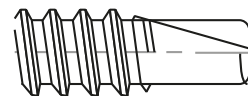
Pozi Drive



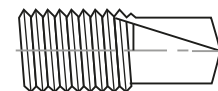
Square Drive

Drill Types

Drilling Screws

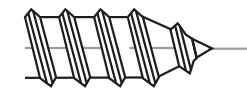


Drill Point with Type ASD Thread

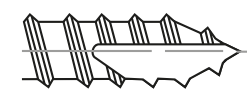


Drill Point with Type BSD Thread

Tapping Screws



Standard



Type 17

Socket Head



Socket screws are a specific type of screw that contain a hexagonal hole in the screwhead, designed to fit an allen key. They are often short with a flat end, and the shaft is often threaded all the way.

Milsons stocks several types of socket head screws:

Button Head Socket Screws

Metric

UNC / UNF

Stainless Steel 304

Stainless Steel 316

Socket Head Cap Screws

Metric

Metric Fine

BSW

UNC / UNF

Stainless Steel 304

Stainless Steel 316

Countersunk Socket Screws

Metric

BSW

UNC / UNF

Stainless Steel 304

Stainless Steel 316

Grub Screws

Metric

BSW

UNC / UNF

Stainless Steel 304

Stainless Steel 316

Knurled

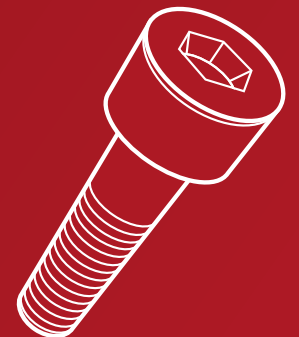
Low Head Cap Screw

Pressure Plugs

Socket Shoulder Screws

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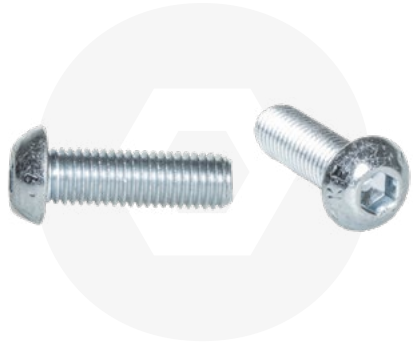
Socket Head



Button Head Socket Screw

Metric

Black
Zinc



Button Head Socket Screw

UNC / UNF

Black
Zinc



Socket Head Cap Screw

Metric

Black
Zinc



Socket Head Cap Screw

Metric Fine

Black



Button Head Socket Screw

Stainless Steel 304

Metric
Imperial



Button Head Socket Screw

Stainless Steel 316

Metric



Socket Head Cap Screw

BSW

Black



Socket Head Cap Screw

UNC / UNF

Black
Zinc



Socket Head



Socket Head Cap Screw

Stainless Steel 304

Metric
Imperial



Socket Head Cap Screw

Stainless Steel 316

Metric



Countersunk Socket Screw

Stainless Steel 304

Metric
Imperial



Countersunk Socket Screw

Stainless Steel 316

Metric



Countersunk Socket Screw

Metric

Black
Zinc



Countersunk Socket Screw

UNC / UNF

Black
Zinc



Grub Screw

Metric

Black
Zinc



Grub Screw

BSW

Black



Socket Head



Grub Screw

UNC / UNF

Black
Zinc



Grub Screw

Stainless Steel 304

Metric
Imperial



Low Head Cap Screw

Metric

Black



Pressure Plug

BSP

Black



Grub Screw

Stainless Steel 316

Metric



Grub Screw Knurled

Metric

Black



Pressure Plug

NPTF

Black



Pressure Plug

Stainless Steel 304

Imperial BSP



Socket Head

Socket Shoulder Screw

Metric

Self Colour



Socket Shoulder Screw

UNC

Self Colour



Metric to Imperial Conversion

Imperial Fraction	Millimetres	Decimal Equivalent
1/16	1.6	0.06
5/64	2.0	0.08
3/32	2.4	0.09
1/8	3.2	0.13
9/64	3.6	0.14
5/32	4.0	0.16
3/16	4.8	0.19
7/32	5.6	0.22
1/4	6.4	0.25
5/16	7.9	0.31
3/8	9.5	0.38
7/16	11.1	0.44
1/2	12.7	0.50
9/16	14.3	0.56
5/8	15.9	0.63
11/16	17.5	0.69
3/4	19.1	0.75
13/16	20.6	0.81
7/8	22.2	0.88
15/16	23.8	0.94

Imperial Fraction	Millimetres	Decimal Equivalent
1	25.4	1
1-1/16	27.0	1.06
1-1/8	28.6	1.13
1-3/16	30.2	1.19
1-1/4	31.8	1.25
1-3/8	34.9	1.38
1-1/2	38.1	1.50
1-9/16	39.7	1.56
1-5/8	41.3	1.63
1-3/4	44.5	1.75
1-7/8	47.6	1.88
2	50.8	2
2-1/4	57.2	2.25
2-1/2	63.5	2.50
2-3/4	69.9	2.75
3	76.2	3
3-1/4	82.6	3.25
3-1/2	88.9	3.50
3-3/4	95.3	3.75
4	101.6	4
4-1/4	108.0	4.25
4-1/2	114.3	4.50
4-3/4	120.7	4.75
5	127.0	5

Stud Bar & Nuts



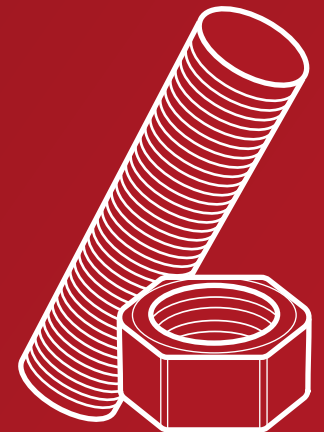
Stud bars are threaded rods with no protruding head as in screws and bolts. Because they have no head, they need to be secured with a nut on each side. Milsons carry a range of stud & nuts which are made to ATSM193/ASTM194, these are commonly used to connect flanges in the piping network.

Milsons offers the following parts in this category:

- B7 Stud & Nuts
- B8M Stud & Nuts
- L7 Stud & Nut
- B7 Stud
- B8M Stud
- L7 Stud
- 2H Nut
- B8M Nut
- G7 Nut

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Stud Bar & Nuts



Custom Cut
Threaded Rod Available!

see pg. 84
for details



B7 Stud & Nuts

UNC/UN8

Black
Galv
Yellow Zinc



B8M Stud & Nuts

UNC/UN8

Stainless Steel 316



B8M Stud

UNC/UN8

Stainless Steel 316



L7 Stud

UNC/UN8

Black
Galv
Yellow Zinc



L7 Stud & Nut

UNC/UN8

Black
Galv
Yellow Zinc



B7 Stud

UNC/UN8

Black
Galv
Yellow Zinc



2H Nut

UNC/UN8

Black
Galv
Yellow Zinc



B8M Nut

UNC/UN8

Stainless Steel



Stud Bar & Nuts

G7 Nut UNC/UN8

Black
Galv
Yellow Zinc



Custom Cut
Threaded Rod Available!

We can cut stud to any length you require.

Our in-house cutting service enables short lead times and quick production.

MILSONS RESOURCE

Thread Size & Pitch Comparison

Metric Threads					Imperial Threads						
Size	Standard Pitch mm	Fine Pitch mm	Extra Fine Pitch mm	Major Ø, mm	Size	UNC	UNF	UNS	UN8	BSW	Major Ø inch
M1.6	0.35			1.60							0.041
M2	0.40			2.00							0.079
M2.5	0.45			2.50							0.98
M3	0.50			3.00							0.118
				3.18	(#5) 1/8	40	44			40	0.125
				3.51	#6	32	40				0.138
M4	0.70			4.00							0.157
				4.17	#8	32	36				0.164
				4.76	#10 (3/16)	24	32			24	0.188
M5	0.80			5.00							0.197
M6	1.00			6.00							0.236
				6.35	1/4	20	28			20	0.250
M7	1.00			7.00							0.276
				7.94	5/16	18	24			18	0.313
M8	1.25	1.00		8.00							0.315
				9.53	3/8	16	24			16	0.375
M10	1.50	1.25	1.00	10.00							0.394
				11.11	7/16	14	20			14	0.438
M12	1.75	1.50	1.25	12.00							0.472
				12.70	1/2	13	20			12	0.500
M14	2.00	1.50		14.00							0.551
				14.29	9/16	12	18			12	0.563
				15.88	5/8	11	18			11	0.625
M16	2.00	1.50		16.00							0.630
M18	2.50	1.50		18.00							0.709
				19.05	3/4	10	16			10	0.750
M20	2.50	1.50		20.00							0.787
M22	2.50	1.50		22.00							0.866
				22.23	7/8	9	14			9	0.875
M24	3.00	1.50		24.00							0.945
				25.40	1	8	12	14		8	1.000
M27	3.00			27.00							1.063
				28.58	1-1/8	7	12		8	7	1.125
M30	3.50			30.00							1.181
				31.75	1-1/4	7	12		8	7	1.250
M33	3.50			33.00							1.299
				34.93	1-3/8	6	12		8	6	1.375
M36	4.00			36.00							1.417
				38.10	1-1/2	6	12		8	6	1.500
M39	4.00			39.00							1.535
				41.28	1-5/8	5 1/2	12		8		1.625
M42	4.50			42.00							1.654
				44.45	1-3/4	5	12		8		1.750
				47.63	1-7/8				8		1.875
M48	5.00			48.00							1.890
				50.80	2	4 1/2	12		8		2.000
M56	5.50			56.00							2.205
M64	6.00			64.00							2.520
M72	6.00			72.00							2.953

Threaded Rod



Threaded rods are cylindrical metal rods with threads cut in them. Like other threaded fasteners, they can be used to connect several components together. They can be cut into different lengths, so are useful in applications where a standard bolt or screw is not enough.

Unlike bolts and screws, they do not have an overhanging head to accommodate a tool. Hence, threaded rods will need two nuts on either side to secure them.

Threaded Rod Mild Steel 4.6

Threaded Rod Class 8.8

Threaded Rod Metric Fine Class 8.8

Threaded Rod Class 10.9

Threaded Rod BSW Grade 2

Threaded Rod UNC / UNF Grade 5

Threaded Rod Stainless Steel 304

Threaded Rod Stainless Steel 316

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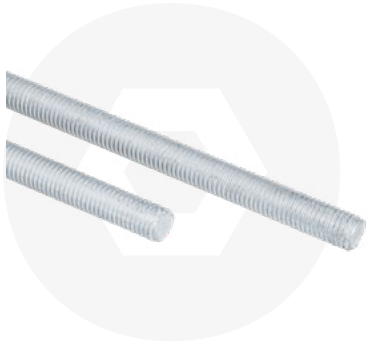
milsons[®]



Threaded Rod

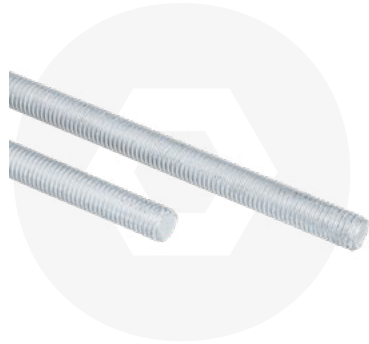
Threaded Rod Mild Steel 4.6

Self Colour
Galv
Zinc



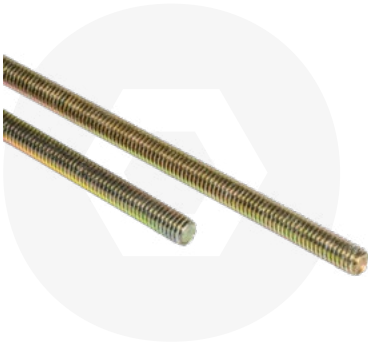
Threaded Rod Class 8.8

Black
Galv
Yellow Zinc



Threaded Rod Metric Fine Class 8.8

Yellow Zinc



Threaded Rod Class 10.9

Black



 Custom Cut
Threaded Rod Available!

We can cut threaded rod to any length you require. Our in-house cutting service enables short lead times and quick production.

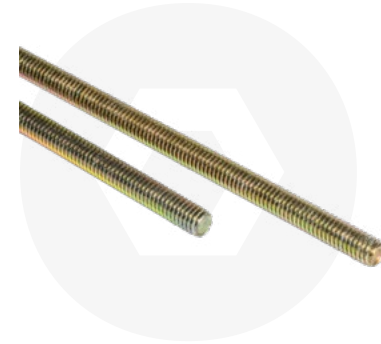
Threaded Rod BSW Grade 2

Zinc



Threaded Rod UNC / UNF Grade 5

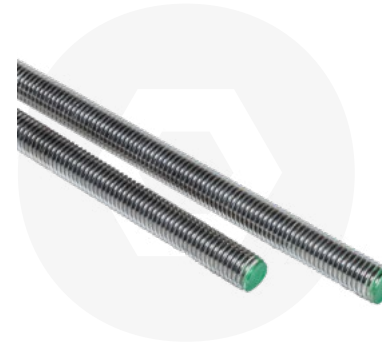
Yellow Zinc



Threaded Rod

Stainless Steel 304

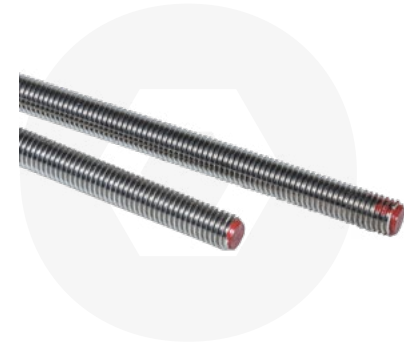
Metric
Imperial



Threaded Rod

Stainless Steel 316

Metric
Imperial



Washers



Washers are sometimes used in addition to nuts and bolts to provide extra security to the bolt head in an assembly. They are small, flat metal discs with an internal hole that fit onto a bolt shaft. In an assembly, the washer would sit between the metal part and under the bolt head.

Milsons stocks several types of washers:

- Belleville Washer
- Cup Washer
- Hardened Washer
- Heavy Washer
- Structural Washer
- Fender Washer
- Mini Fender Washer
- Light Washer
- Neoprene Washer
- Spring Washer
- Square Washer
- External Tooth Lock Washer
- Internal Tooth Lock Washer
- Wedge Lock Washer
- Wedge Lock Washer Large OD

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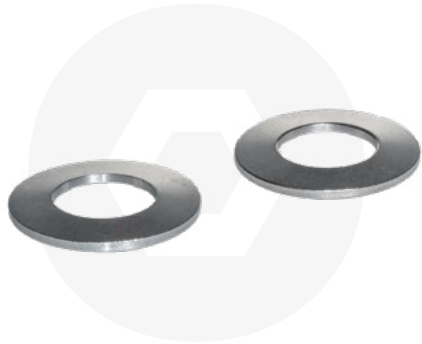
milsons[®]



Washers



Belleville Washer
Stainless Steel 304



Cup Washer
Stainless Steel 304



Structural Washer
Galv



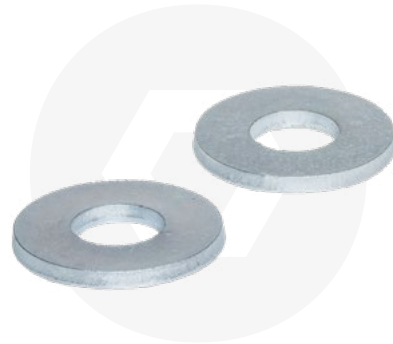
Fender Washer
Zinc
Stainless Steel 304
Stainless Steel 316



Hardened Washer
Yellow Zinc



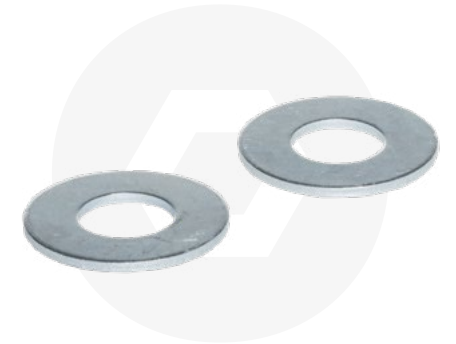
Heavy Washer
Black | Galv | Zinc
Stainless Steel 304
Stainless Steel 316



Mini Fender Washer
Zinc
Stainless Steel 304
Stainless Steel 316



Light Washer
Zinc
Stainless Steel 304
Stainless Steel 316
Brass



Washers



Neoprene Washer



Spring Washer

Black
Galv
Zinc
Stainless Steel 304
Stainless Steel 316



Internal Tooth Lock Washer

Stainless Steel 304



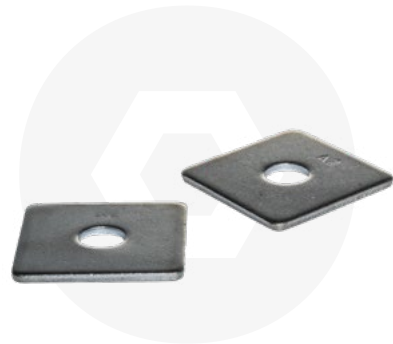
Wedge Lock Washer

Zinc
Stainless Steel 316



Square Washer

Galv
Stainless Steel 304
Stainless Steel 316



External Tooth Lock Washer

Stainless Steel 304



Wedge Lock Washer Large OD

Zinc
Stainless Steel 316





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& Distribution Warehouse



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