

# Buying Guide: Bolts, Nuts and Washers to Secure Your Project



**Bolts, nuts** and **washers** all work together to provide security and reliability when fastening two materials together. While some projects only require you to have a bolt and nut, others may need an added washer to create a stronger, more solid connection. But with so many options for your bolt, nut and washer combo, it can be challenging to know exactly what you need. Rely on Tractor Supply's buying guide to lay it all out for you, including the different types of bolts, nuts and washers and what to use them for.

## **Types of Bolts**

When **screws** won't work to give your project the holding power it needs, opt for a **bolt**, which is designed with a square or round head and cylindrical, threaded shaft. These types of fasteners also often come with an unthreaded shank, which is the area located near the bolt head, to give projects a more secure hold.

Mostly used for machinery and attaching metal to other metal materials, as well as woodworking, you can find a variety of bolt types, each one working better for different projects than others. Depending on your job task, you may need one of the following bolts:

### ***Carriage Bolts***

**Carriage bolts** are designed to attach wooden materials to metal, as well as metal materials to metal. They feature a mushroom-like, flat and dome-shaped head, and come with a circular shank up until just below the head, which is shaped as a square. The square portion of the shank allows for enhanced self-locking after driving the bolt through materials, keeping bolt heads from pulling through or rotating unexpectedly. All you need is a **wrench** to drive these bolt types.

### ***Eye Bolts***

When you want to secure **ropes, cables** or other materials to surfaces, rely on an **eye bolt**, which features an eyehole-shaped head at the top to allow for easy stringing. It usually comes with a **standard** or **coarse** threaded shaft, and is used in a variety of mechanical applications.

Before purchasing eye bolts, you must pay attention to their safe working load rating, as some are better suited for heavy-duty applications, such as axial loads, over others. For example, special-purpose lifting eyes are ideal for attaching cranes to machinery, meaning they must be compatible with the weight capacity of the crane and machine.

### ***Hex Bolts***

**Hex bolts** are mainly used for maintenance repairs, construction and machine parts, coming in many sizes, including **SAE** and **metric**, as well as materials and finishes to accommodate a variety of job tasks. They feature a hexagonal-shaped, six-sided head, as well as a beveled end with a washer under the head, making them suitable for attaching wood to wood or metal to wood. However, not all hex bolts come with this design, meaning you may need to use a **nut** with some hex bolts to ensure secure attachment and a durable hold. These types of bolts can be easily installed with a **wrench** or **socket tool**.

### ***J-Bolts***

**J-bolts** look different than traditional **screws** and **fasteners**, featuring a J-shaped head instead of a cap structure. However, these bolts can still take **nuts** and **washers** through the threaded end. Many construction sites use J-bolts to complete a variety of applications on the job, including for use as an **anchor bolt** in concrete slabs, as well as securing walls in roofing and concrete tasks. They are also great to have on-hand around the house, especially if you love doing DIY projects.

### ***U-Bolts***

**U-bolts** come in a U-shaped design, with **coarse** or **standard** threaded components on both ends of the U, and are often made with durable **steel** and **stainless steel** materials. Their shape makes them

suitable for securing and supporting pipework, as it's intended to wrap around the diameter of **pipes** to attach them to surfaces. This decreases vibrations and prevents damage from loose and moving pipes.

When shopping for the right size U-bolt, you must find one that works with the outer diameter of your pipe. In other words, the U's size should be large enough to fit over pipes exactly, as gaps between pipes and U-bolts can cause vibrations, loud sounds and damage.

### **Different Kinds of Nuts**

To secure **bolts**, you'll need an added **nut**, which attaches to bolts via their threaded interior to allow easy spinning around the bolt's shaft. You must have a compatible nut with the type of bolt you're using for your project. Browse the following nut types to find something suitable for your needs:

#### ***Axle Hat Nuts***

**Axle hat nuts** come in a special hat-like shape, complete with a brim. They are used to secure and cap wheel axles on a variety of items, from **air compressors** to **dollies** to **pressure washers**, keeping wheels in place and safe to move. Cap nuts attach axles using inward facing contact points, and install by gently tapping them with a mallet or **hammer**. Alongside capping axles, these nuts are also suitable for protecting the ends of **rods**, shafts or **studs**.

#### ***Cap Nuts***

Also called acorn nuts, **cap nuts** get their name from their shape, which features a domed cap to avoid external thread contact. Underneath the cap, you'll find a hexagonal-shaped nut. The domed construction of these nuts protects interior components from corrosion after installation, sealing them off to prevent thread leakage. Cap nuts provide a more finished, complete look to projects, covering up **screws**, **bolts** and other components to give them a cleaner appearance.

#### ***Hex Nuts***

**Hex nuts** are your most common nut type, used for a variety of general fastening applications. When installing hex nuts, they can be attached to any threaded bolt or screw, as well as **hex bolts**. **Washers** help to prevent movements and ensure a secure connection between metal and wood materials. Designs with **fine**, **coarse** or **standard** threads provide maximum grip and torque, creating an axial force that adds friction to keep nuts from becoming unscrewed over time. To install these nuts, you must use a **wrench** or **socket tool**.

#### ***Push Nuts***

**Push nuts** (also referred to as retaining nuts) are mainly used with **non-threaded fasteners**, offering a sufficient hold in many types of machinery, including industrial machines, vehicles, HVAC systems and electronics. These nuts are designed with internal gripping serrations or teeth, offering enhanced grip on components, such as shafts and studs, and preventing vibrations and movements. To install them, you simply push onto the nut, and it will snap onto the shaft or stud – no tools required. Find push nuts in many materials, from plastic to steel to stainless steel.

#### ***Rod Coupling Nuts***

**Coupling nuts** are longer than your traditional nut shape, coming with threaded ends on both sides. These make it easy to attach two threaded **rods** together, extending their length to accommodate specific project needs. Some coupling nuts feature two different thread sizes on the ends, meaning you can easily secure rods with varying thread types into one coupling nut component.

Rod coupling nuts can be used in many industries, including manufacturing, construction and engineering applications. These versatile fasteners are utilized for anything, from smaller tasks, such as fixing **shower curtains** or **curtain** rods, to more heavy-duty jobs, such as pipe installation.

#### ***Speed Nuts***

**Speed nuts** (also commonly called spring steel fasteners) are different in that they don't look like your traditional **hex nut**. Instead, these look more like binder clips, featuring a large, solid piece of metal that wraps around materials. They forgo the need to use a spanner washer, **threaded nuts** or **lock washers**, as their self-locking design efficiently sticks to threaded screw components. These nuts are easy to install, as you won't need a **wrench** or other specialized tools to tighten them.

Speed nuts come in many styles and designs, each working better for different jobs and applications. The various kinds of speed nuts include:

#### U-Nuts

**U-nuts** feature a solid metal piece that wraps around the back completely, with the two ends matching up with each other. The extended lower leg of these nuts provides added strength, making them perfect for flush surface and full bearing tasks. When receiving **screws**, these nuts are self-retained, offering fast and quick panel installation, and their construction prevents corroding and freezing on the threads for durability.

#### J-Nuts

J-nuts look similar to U-nuts, as they are a solid piece of metal that wraps around the back. However, the lower leg of these nuts does not meet the upper portion, instead stopping about halfway down the piece.

This design makes them suitable for working with thin metal materials, allowing you to see clearance holes while positioning the fastener onto projects. These are self-retaining nuts that install over center-panels or panel edges, and they are best for installations that are hard-to-reach, or instances where you're working on projects blindly.

#### Flat Type

Flat-type speed nuts simply come as a flat, solid metal piece, and do not wrap around the back, such as with U-nuts and J-nuts. Many people use these fasteners to replace spanner washers or **lock washers**, ensuring a more secure hold with fewer tools and parts. These nuts are quick and convenient to install, offering maximum holding capabilities.

#### ***Stop Nuts***

These types of nuts look similar to traditional **hex nuts**, but come with two prongs on the top portion. The prongs secure and attach to materials, creating a wedge and locking nuts as you tighten them.

Use **stop nuts** in situations where you don't have a counter-threaded **screw** or **bolt**, or when working with thin materials, such as **plastic** or **sheet metal**. Their purpose is to keep other nuts from moving around, especially in plumbing or electrical work. Stop nuts are available in many materials, such as **steel** and **carbon steel**, making it easy to find something that works with your project.

#### ***T-Nuts***

A **T-nut** features a small T-shape, with a long, circular and threaded body and flange at one end. It's mainly used to secure wood, as well as composite or particle board. The special T-shape construction allows for deeper installation, meaning fasteners will sit flush with material surfaces, giving projects a less noticeable hardware appearance. These parts may come with added prongs to allow for enhanced retention, sinking into materials for a secure hold.

#### ***Wing Nuts***

**Wing nuts** are ideal for projects that require quick nut removal, as these are constructed with two large, wing-like parts on the head. The wings make it easy to grab onto and twist off using only your hands, meaning tools aren't always necessary for installation. Instead, you manually turn the nut until it secures to materials.

## Exploring Washer Options

Lastly, some projects may require you to apply a **washer** underneath the bolt head, which works to provide better holding power and decreases pressure on bolts by widening and sharing loads with the larger area of the washer. These should be placed around bolt heads before installing nuts, as nuts will hold the washer in place and secure it against materials. The different types of washers include:

### *Flat Washers*

**Flat washers** come in a round, donut shape, including a hole in the center for screw and bolt shafts to fit through. These are your traditional washer type, offering enhanced strength and support for **screws** and **bolts** with smaller head shapes. They are designed to lay flat against materials and **nuts**, offering a less bulky and noticeable appearance on projects. Their design balances loads, meaning bolt heads take less pressure from holding materials together, instead sharing loads with the wider area of the washer.

### *Fender Washers*

**Fender washers** are another flat-style washer type, but come with a smaller center hole and larger outer diameter than your typical flat washer. Because of this, these types of washers offer even more load balancing between the bolt and project material. Their name comes from their common use, which is securing parts on car fenders. However, these washers can be utilized in many other projects, anything from installing panels and drywall to securing plumbing and **sheet metal**.

### *Finishing Washers*

Similar to traditional washers, **finishing washers** (also referred to as countersunk washers) feature a round shape and hole in the middle. However, these come with a raised center, meaning they aren't completely flat, as well as counters on the top laying at 90- or 120-degree angles. The added material fits perfectly into countersunk screw holes, allowing all components to rest flush against surfaces. These are more of a decorative washer type to give projects a more finished appearance.

### *Lock Washers*

**Lock washers** work to secure bolts or screws and prevent them from vibrating or becoming loose. Split lock washers feature a traditional, round washer shape, except these are not designed as a continuous ring. Instead, they come with a small gap, leaving room between where the materials meet. The ends of the washer are pushed slightly, allowing them to tilt in opposite directions.

After installing these washers, the ends should dig into project materials, sitting flush with surfaces and locking bolts securely. When installed, they create a preload on the **screw**, preventing parts from loosening as machines vibrate and corrode. Internal tooth lock washers are another type of lock washer, featuring teeth surrounding the interior ring that grip onto the bolt or nut head to secure it.

## Shopping for the Right Bolt, Nut and Washer Combo

When securing projects with **bolts**, oftentimes, you'll need a matching **nut** and **washer**. This provides a more durable, reliable hold when fastening two materials together. Bolts, nuts and washers should all be of the same size and thread type, and different materials and bolt grades can affect how durable your project is. Consider the following when browsing your options for bolts, nuts and washers:

### *Bolt Grade*

A bolt's grade tells you how durable it is, including how well it can handle stress before pulling and breaking. The higher the bolt grade, the stronger it will be. For example, a bolt with a **grade 8** will be stronger than one with a **grade 5**, with grade 8 options being your most versatile and common choice, working well in both automotive and general home applications.

Nuts also measure their durability using a grading scale, and the one you pick must work with the grade of bolt. So, if using a grade 8 bolt, you'll want a **grade 8** nut, and grade 5 bolts will need **grade 5** nuts.

### ***Material and Finish***

Bolts, nuts and washers come in many different materials, all of which are designed to provide varying levels of durability to your project. **Stainless steel** or **carbon steel** options are better for heavy-duty projects requiring a strong hold, with stainless steel materials providing enhanced corrosion resistance.

If shopping for **steel** fasteners, you must find one with a corrosion-resistant finish, ensuring it holds up through moisture or certain materials, such as pressure-treated lumber. Other materials, such as **neoprene** and **aluminum**, may be better for basic fastening applications.

Fasteners may also feature varying finishes, allowing for better resistance against moisture, corrosion and other elements. Anodized aluminum finishes give bolts, nuts and washers enhanced corrosion resistance, with coatings featuring different colors so you can find something that matches your project best.

**Zinc** finishes are your most common type, also working to prevent corrosion. However, these may be better for indoor projects, as zinc provides little protection. You must evaluate your project and what you'll be using it for to determine what material and finish of bolt, nut and washer you need.

### ***Size***

One of the more important aspects to think about when purchasing bolts and nuts is their size, which must match to successfully secure materials together. When bolt sizes do not match nuts, this can lead to structural issues with your project and lessen the connection strength. Nuts that are too big or too small won't catch to threads, meaning bolts won't latch to nuts as they should. They can also damage thread components on both nuts and bolts, especially when trying to make a nut that's too small fit onto a larger bolt.

Matching your bolt with the correct-sized nut not only ensures structural integrity, but it also makes installation quicker and easier. Additionally, some workers in professional fields may need specific sizes to accommodate industry-established standards and specifications. Following these requirements allows you to comply with industry regulations, keeping projects safe and reliable.

### ***Thread Type***

Most bolts are made with machine threads, which intertwine with nuts to securely attach materials. Bolts and nuts come in one of three thread types – **coarse-threaded**, **fine-threaded** or **standard**. When shopping for the right bolt and nut combo, it's imperative that you select fasteners with the same thread type.

Threads are the lines you see that run along the shaft of **bolts** or inside of **nuts**. While you may not notice it, these lines spin up the shaft in a spiral fashion, allowing you to rotate and screw threads into materials or on top of bolts. Bolts and nuts with coarse threads are your most common thread type, featuring larger gaps between threads to allow for quick and simple rotating and installation. Their design prevents jamming or cross-threading as you drive, meaning they'll slide into materials easier than other options.

Fine-threaded fasteners, on the other hand, come with smaller gaps between threads, meaning there are more lines on these types of fasteners. In turn, it will take longer to rotate and drive bolts into materials. However, it also provides a tighter, stronger hold, ensuring projects stay together for the long run, and it reduces the chances that vibrations from machinery loosen nuts or bolts while operating. The thread type you choose goes hand-in-hand with the size, as different nut and bolt sizes won't connect as they should, even if using compatible thread types.

## Frequently Asked Questions About Bolts, Nuts and Washers

*What's the difference between a bolt and screw?*

While they look similar and you may hear the terms used interchangeably, **bolts** and **screws** differ from each other in their construction and how you fasten them to materials. Both fasteners feature a head and cylindrical shaft, which can come with or without threads.

However, bolts feature either a square or round head shape, while screws traditionally have rounder heads. Screws are also designed with a sharp point at the end, allowing it to drive and cut into materials. Bolts have a flat end, meaning they're mostly driven into pre-drilled holes, and require a **nut** for securing.

*How should I organize my bolts, nuts and washers?*

Maybe you're someone who enjoys the thrill of hunting for different parts in your perfect mess. But the truth is, having our tools and parts well-organized allows projects to run smoother, and keeps everything you need readily available and easy to find. This is especially true when working with small components, such as **bolts**, **nuts** and **washers**.

Consider separating components in a handy **toolbox**, one with many compartments and drawers to keep parts from becoming jumbled and mixed together. While a portable toolbox can work just fine, others may want more heavy-duty setups to accommodate many tools and parts. In this case, you'll want something larger, such as a **garage workstation**.

### **Complete Your Next Project with Parts from Tractor Supply**

Whether you're looking to fix up something around your house, want to start building a new DIY project or need the right parts to finish the job, we have everything you need in-store and online. Alongside **bolts**, **nuts** and **washers**, we carry a variety of other **fasteners** and **hand tools**, making it easy to find what you're looking for and complete projects quickly. To learn more about our selection of parts, visit your **local Tractor Supply store** today or browse online.