

Common Misconceptions About How Blind Rivets Work

Blind rivets are the most popular fasteners for a wide range of applications - from the tiniest electronic printed circuit boards to the largest high-rise. With new rivet designs and tool-setting technology, blind rivets are the easiest, fastest method for joining an assembly.

Blind rivets consist of two parts, a cylindrical rivet and a long mandrel with a head, similar to a nail, which is assembled through the rivet.

To set, the rivet is placed head-first into a pre-drilled hole in the two parts of the assembly. Then a special rivet tool grabs the mandrel stem and pulls it toward the tool, deforming the back side of the rivet to create a secondary head. Blind rivets are sometimes called "break-stem rivets" due to the mandrel pin that is broken off during the setting process.

When choosing a blind fastener, it's important to overcome these five common misconceptions.

MISCONCEPTION #1. ALL BLIND FASTENERS ARE THE SAME

Not all blind fasteners are created equal. Blind rivets come with different specifications:

Head Styles - The head of the rivet is the part of the fastener that remains visible after being set. Head styles can be divided into three basic types: dome, large flange, and countersunk. Dome, or button heads, are the standard rivet style for general applications. Large flanges provide extra support to the rivet and are used to fasten thin sheets; fasten brittle or soft materials, such as wood or plastic; or cover large holes or slots. Countersunk heads leave a completely level surface, which can be important for aesthetic or engineering reasons.

Materials Options - Rivet material can depend upon the head exposure, as well as finish type: for example, paint colours. In addition to metals, composite and plastic materials also can be assembled with blind rivets - with the right design and material selection. Generally, rivet material should match the assembly material to prevent galvanic reactions between dissimilar metals, but coatings and platings can help prevent this type of corrosion.

Not only do blind fasteners come in a wide range of materials, but rivet and mandrel can be made of different materials to suit the application. For example, a copper alloy rivet (used for high corrosion resistance) can be combined with a steel mandrel to keep costs down.

Structural Options - Structural and non-structural blind rivets exist for different applications. Non-structural applications might be appliances, general industry, or electronics. Structural applications would include construction and transportation, where vibration, high shear loads (applied along the joint interface), and/or high tensile loads (applied along the fastener length) exist.

High-strength rivets for structural applications are designed with locking mandrels, so that the mandrel head left inside the rivet body locks into place and provides increased strength in the shear plane, as well as clamp-up force to withstand vibration.

Blind locking bolts are also available. These can provide structural fastening from one side, for example when fastening into a box section or girder cavity and can withstand high shear and tensile strength.

MISCONCEPTION #2. YOU CAN ACCESS BLIND FASTENERS FROM EITHER SIDE

The concept of blind fasteners was developed during the 1930s for applications where access to a workpiece was possible from only one side, leaving the opposite side "blind." If you need to access the fastener from both sides in order to set it, it's not a blind fastener.

MISCONCEPTION #3. BLIND FASTENERS ARE REMOVABLE

Blind rivets are permanent, and therefore tamper resistant. This makes them ideal for certain types of projects, such as aerospace, construction, and automotive, where the two workpieces will never be separated. The perfect choice of blind rivet depends on the type of project.



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MISCONCEPTION #4. ANY BLIND RIVET WILL DO

Because of the many types of blind rivets available today, it's important to select the right one for a given project. For example, heavy transportation applications, such as trucks, trains, and railways, experience severe vibration, which could cause fasteners to lose clamp force and even separate. Blind rivets are available that provide a safe, permanent, and vibration-resistant solution.

For applications exposed to gas or liquids, blind rivets are available in corrosion-resistant materials and in closed-end styles that prevent moisture or gas from entering or exiting the application.

MISCONCEPTION #5. ANY BLIND FASTENER VENDOR WILL HAVE WHAT YOU NEED

Not all fastener suppliers are alike. When selecting the optimal blind rivet solution, it's important to work with an experienced supplier who knows the options available for materials, finish, and head style and is familiar with the quality of each supplier's products. Dafra is just such a supplier with in-house tool sales and service along with over 40 years of industry experience.

Contact the team at Dafra for help in choosing the right blind fastener for your application.

