Blind Rivet Questions I am Frequently Asked

by Anthony Di Maio

I have been in the blind rivet business for many years and I devoted a lot of my time to the fastener industry, especially blind fasteners. I receive many phone calls and emails from people in the blind rivet industry, both users, distributors and manufacturers asking for answers to interesting questions. Some questions are both blind rivets, setting tools and also blind rivet applications. I would like to share some of the questions with you.

How can I test a painted blind rivet to know if the paint has been applied properly?

Set the blind rivet at the minimum grip range and see if the paint peels off the upset side of the rivet body. The upset side of a set blind rivet is the side opposite the flange of the rivet body. If the paint has been applied properly, you should see no paint lifting away from the rivet body. If you see sections of paint lifting away from the set rivet body, the paint has not been applied properly.

Some of the causes for the paint lifting could be that improper paint was used. The paint when applied to a rivet body and baked dry, should have some elastic qualities that will permit the paint to stretch and expand without flaking on the up-set side of a rivet body when the blind rivet is set.

Another cause can be that the rivet body was not properly cleaned before painting causing poor paint adhesion. The paint on the flange of the set rivet should not crack or flake when the setting tool nosepiece applies pressure on the flange when setting the blind rivet.

When work pieces are not flat to each other, how do you determine the proper grip range for blind rivet to use?

Work pieces to be blind riveted together should be as flat as possible to each other to determine the proper length for blind rivet to use. If it is possible to bring the work pieces together by applying pressure with the blind rivet setting tool, you then only have to add the thicknesses of the work pieces to establish the proper grip range blind rivet for the application. If you cannot bring the work pieces together with the blind rivet setting tool, you will have to calculate the greatest distance between the work pieces and add the thicknesses of the work pieces to this distance to arrive at the correct grip range for the blind rivet to use. When you have a distance between work pieces to be riveted, the blind rivet must have a barrel length long enough to extend through the work piece and the gap distance in order to bring the work pieces together when setting the blind rivet. The blind rivet when set will compress the work pieces together.

How do you read the grip range of hard metric and inch blind rivets?

Hard metric refers to exact metric blind rivets, such as 3mm, 4mm, 5mm, & 6mm diameters. Not the soft metric conversion, such as, 3.2mm, 4.8mm, 5mm & 6.3mm diameters that are the direct conversion of the inch to metric.

Inch size blind rivets have the maximum grip range in their part number. Example: size 44 inch blind rivet, the first 4 has a base factor of 1/32 of an inch. Therefore, 1/32 X 4 = 1/8, which is the diameter of the blind rivet. The second 4 has a base factor of 1/16 of an inch, therefore 1/16 X 4 = 1/4 which is the maximum grip range of a size 44 inch blind rivet. The first number is the diameter of the blind rivet and the second number or numbers is the maximum grip range of the blind rivet. Example: size 410, we know the 4 = 1/8 diameter, 10 X 1/16 = 5/8 which is the maximum grip range of a size 410 blind rivet.

Hard metrics is a complete different situation. Example:- a 4mm x 8mm hard metric blind rivet, 4mm is the diameter of the blind rivet and the 8mm is the length of the barrel of the blind rivet. The 8mm dimension has no relationship to the maximum grip range of the blind rivet. You must refer to the manufacturer's catalog to find out what the minimum and maximum grip ranges of the 4mm x 8mm blind rivet are.

What are large flange blind rivets used for?

Large flange blind rivets were designed primarily to distribute the setting force over a larger area when setting a blind rivet. Example: If you are riveting a fairly soft plastic work piece to a metal work piece and the fairly soft plastic is on the flange side of the blind rivet and if you use a dome head blind rivet, you would depress the dome head into the plastic. If you use a large flange blind rivet, you would only slightly depress into the plastic because the setting force is being applied to a larger area.

The setting force of the blind rivet is generated when the blind rivet setting tool is pulling the mandrel to its ultimate tensile strength and breaks. The mandrel tensile strength is the same for all head configurations of the same diameter and alloy blind rivets.

Closed-end blind rivets are referred to as seal blind rivets. I know they are sealed through the center because it is a closed-end but what seals it on the barrel diameter?

The closed-end blind rivet prevents liquid or gases from passing through its center because it has a closed-end. The sealing ability of the outside diameter of the set closed-end is questionable because the condition of the hole in the work piece to be riveted plays a large part on how it will seal on the outside diameter. There could be burrs on the hole of the upset side of the closed-end rivet that can prevent the rivet-upset side to not set properly on the work piece.

To insure that a closed-end blind rivet is completely sealed around its outside diameter against water, gases, air, etc. is to apply a sealant to the barrel side of the flange of the rivet body. There are companies that will apply the sealant to the closed-end rivets and the sealant has a long shelf life. We can tell you the best sealant to use for your application and which company can process the closed-end rivets for you. Sealant has also been applied to all types of blind rivets and rivet-nuts.

Are the tensile and shear values of structural blind rivets constant?

The blind rivet industry has expanded very quickly in the design, production and sales of structural blind rivets.

Many structural blind rivets have a multi-grip range of work thickness capabilities. Example: a 3/16 (4.8mm) structural blind rivet has a grip range of .062 (1.5mm) to .437 (11.0mm) and 1/4 (6.4mm) has a grip range of .080 (2.03mm) to .625 (15.8mm). The tensile and shear strength of the set structural blind rivet is constant at the minimum and maximum grip ranges and anywhere in between. Structural blind rivets when set have mandrel material in the shear plane at minimum and maximum grip ranges. They also have the ability to lock the set rivet mandrel in the set rivet body. Structural blind rivets also offer high tensile values of the set structural blind rivet.