

Technical Bulletin

To: Sales Force

Date: March 14, 2018

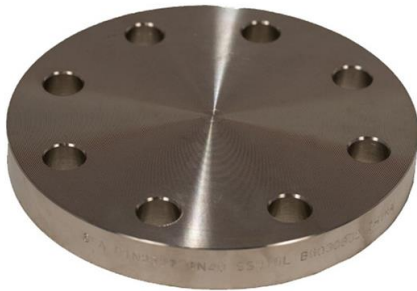
From: Applications Engineering

Subject: Blind flanges

What is a blind flange?

A blind flange is a solid flange as shown below. The purpose of these is to block off a section of pipe or a nozzle on a vessel that is not used. (A nozzle is typically a pipe coming out of a vessel and is usually flanged so it can be connected to valves or piping). Many times a nozzle will be blanked off with a blind flange for pressure tests in a plant, or simply because the customer does not need all the nozzles that were supplied on the tank.

The best practice is to use a standard gasket for these blinds. Blind flanges, just like standard pipe flanges, can be raised face (RF) or flat faced (FF). If the flange is RF we would recommend a standard ring gasket that is appropriate for the service and/or test. If it is FF we would TYPICALLY use a full face gasket, because the most common reason the flange is FF is that it is not designed to handle the bending forces that result when using a ring gasket or a RF flange against the FF flange. Again, we treat a blind flange just like any other pipe flange.

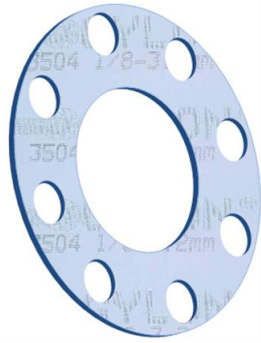


Flat Face (FF) Blind Flange



Raised Face (RF) Blind Flange

A common request for gaskets with a blind flange is for a gasket with no ID; a gasket with a solid center. The customer might ask for these solid gaskets with bolt holes or without. If the blind flange is a standard ASME flange, the OD of the gasket will be the same as the OD of the standard ring or standard full face gasket. Many times, the customer expects that the solid gasket will protect the blind flange from the fluid in the system. They might be trying to save money by using a carbon steel (CS) blind in chemicals that require a more expensive metal, so they want the gasket to keep the fluids away from the low cost blind flange.



Standard Flange Gasket
(recommended)



Blind Flange Gasket without ID
(not recommended)

This practice of using a solid ID is **NOT RECOMMENDED**, however, for several reasons.

- The first is that the gasket will probably not completely stop the fluids from reaching the blind flange. Keep in mind that we do not publish zero leakage for test results such as the ASTM F37B Sealability; there is some small amount of permeation that occurs when gaskets are at low compressive loads, like they are in the ASTM F37B test, but especially when the center of the disc is under **NO** compressive load.
- Another issue is that the solid center of the gasket will be uncompressed and probably will be affected by the fluids. Fiber gaskets, such as Style 3000, etc, will often be damaged in the uncompressed area, even in fluids that are compatible with the gasket, including water. Fiber gaskets are simply not meant to be immersed in fluids with no compression. That means that the gasket may contaminate the process fluids when the uncompressed area swells or breaks apart.
- There is also a **VERY IMPORTANT SAFETY ISSUE**: Because the center, uncompressed portion of the gasket might be permeable over time, fluids and even fluid pressure can build up between the solid gasket disc and the blind flange. This is because the pressure will try to equalize on both sides of the solid gasket disc. This will even happen with a GYLON gasket, despite the very tight sealing properties of the GYLON gaskets. Remember the center is not under compressive loads. When the space behind the disc becomes filled with fluid, this fluid is under pressure. If the system is shut down and brought back to zero pressure, the fluid that is trapped cannot escape back through the solid disc fast enough. So when the bolts are loosened to remove the blind flange, liquids or gases can spray out of the connection. If this fluid is dangerous, toxic, or flammable, the mechanic can be in danger.

For these reasons, GARLOCK recommends that gaskets for blind flanges be cut as standard rings or full face gaskets, and not with a solid center.

Spectacle Blinds are another somewhat uncommon but important application for gaskets. A picture of a spectacle blind is shown below. The name comes from the fact that the assembly looks like eyeglasses, or “spectacles”.



These are normally used in piping systems, usually between two standard flanges, and are designed to block off a section of pipe. However these are used where the customer needs to block this connection off somewhat frequently. They are typically used where there is piping connected to both flanges, where you cannot simply drop a standard blind flange in, because the flanges cannot be pulled apart far enough to drop in the blind flange.

In this case, the open side of the spectacle is used (with a gasket on each side) when the customer wants the piping sections connected and operating normally. Then they will remove bolts, and spin the blind side of the spectacle into the flanged connection, and install 2 new gaskets. The reasons these are built this way is that the spacing between the flanges and the piping is now the same whether the pipe is blanked off or open, because the open ring and solid blind are the same thickness. This is the easiest way to be able to blank off a connection and then open it without the issue of the having different spacing between the flanges.

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