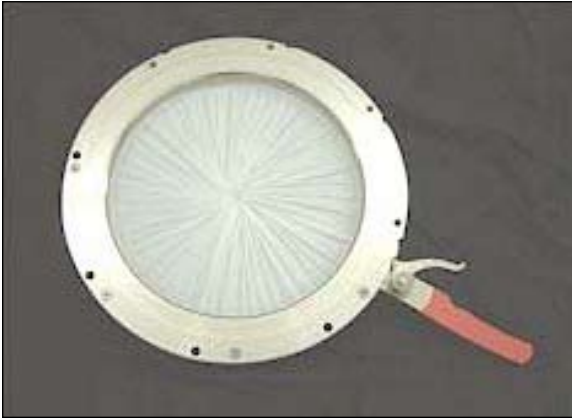


Ask Joe! Column

What is an Iris Valve?

Guest article by Kevin Peterson of Salina Vortex



Iris valves control the discharge of free-flowing, dry material in gravity flow applications. Most typically, they are located on bulk-bag discharge stations, portable and fixed bin bottoms and chutes.

The valve mechanism consists of two concentric rings connected by a flexible, tubular sleeve material. One end of the sleeve is fixed inside the valve body. The other end is attached to a control ring that is normally manipulated by an external handle. As the handle is rotated through a 180° arc, the sleeve is twisted to the point that it becomes a flat, tight solid barrier.

The sleeves for Iris valves are available in a variety of fabrics, coated fabrics and rubber material to accommodate a range of material handling requirements. The use of double sleeves is common for handling fine powders. Rubber material is regularly used to handle abrasive materials, or when wash-down is likely to occur.

Iris Valve Closing



The bodies of Iris valves are typically aluminum, but stainless steel bodies are also readily available. Anodized or Teflon coated aluminum bodies are offered as options.

Manually actuated Iris valves are available in two styles. The twist-handle style allows infinite opening control. The quick-lock handle, with a limited number of set points on the valve body, allows quicker action to reach those set points.

Twist-Type



Quick-Lock



Two bolt hole mounting patterns for each size of valve are offered as standards. Mating spool pieces and ferrule type connections are also available.

Typical material handled by the Iris valve ranges across most industries, including: chemicals, dairy, food, minerals, plastics and pharmaceuticals. Iris valves are often used to handle friable products because of their gentle closing action. Many companies utilize Iris valves as a means of shutting off material being discharged from bulk bags.

Iris Valve Pros

- Inexpensive
- Compact design and weight of the valve make it easy install, especially in confined areas.
- Ideal for use with delicate products.
- Unobstructed orifice
- The valve closes to the center of the valve, allowing containers to be filled more evenly.
- Easy to maintain

Iris Valve Cons

- Not recommended for handling large volumes of material.
- Not for use with heavy, abrasive material.
- Valve cannot close through a standing column of material.
- Valve body will not support heavy equipment hanging from it.
- Bolt hole mounting patterns differ and are usually specific to the manufacturer.

Other Considerations



Iris valves are subject to torsional stress, especially as they are being closed. Handles and locking mechanisms made of polycarbonate are subject to distortion and breakage. Polycarbonate control rings are subject to the same problems.

Additionally, iris valves containing bronze control rings are subject to metal flaking inside the valve due to the metal-on-metal contact between the bronze control ring and the metal valve body. This can lead to damaged sleeves, introduction of foreign material and erratic actuation of the valve. It is important to thoroughly investigate materials of construction prior to making a purchase.

Comments, Suggestions and More!

If you would like to comment on the article or discuss iris valves and their design, please feel free to click the link below and post your comments. Its a great way to let our author know what you think about his article!

Add your comment to our discussion about it in our Help Forum, click this link:

<http://www.powderandbulk.com/cgi-bin/yabb/YaBB.pl?board=general;action=display;num=1116704538>

About our author

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Welcome to Ask Joe!, a monthly column by our resident materials handling guru, Joe Marinelli of Solids Handling Technologies. Joe addresses the issues that bug you the most. And Joe knows!! Formerly with Jenike & Johanson, Solids Flow and Peabody TecTank, Joe is an expert on materials handling.

For past articles, **Ask Joe!** Archived Articles.

Guest articles for the **Ask Joe!** Column are always welcome, for more information please contact Joe Marinelli directly at his email address: joe@solidshandlingtech.com.

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