FLOWSERVE

McCANNA/MARPAC Valves

Product Data Bulletin
FCD MMAPS0006-00
(Part PDB-3)

McCANNA and MARPAC Ball Valves for Vacuum Service

McCANNA and MARPAC ball valves can be prepared for vacuum service. Operating pressure and leakage requirements should be submitted with every valve order to determine which, if any, modifications will be required. Valve certification of vacuum test is also available.

Vacuum is classified by the American Vacuum Society as follows:

Atmospheric Pressure	760#mm Hg (absolute) or 0 inches Hg (vacum) or 14.7 psi (absolute)
Low Vacuum	From "Atmospheric Pressure" to 25#mm Hg (absolute) or 28.95 inches Hg (vacuum) or .484 psi (absolute)
Medium Vacuum	From "Low Vacuum" to .001 mm Hg (absolute) or 1 x 10^{-3} Torr or 1 micron
High Vacuum	From "Medium Vacuum" to 1 x 10^{-6} mm Hg (absolute) or 1 x 10^{-6} Torr or 1 x 10^{-3} micron
Very High Vacuum	From "High Vacuum" to 1 x 10^{-9} mm Hg (absolute) 1 x 10^{-9} Torr 1 x 10^{-6} micron

Limitation of Ball Valves in Vacuum Service

1. Standard "off the shelf" valves (without special preparation) can be used on industrial vacuum service, under favorable conditions, in part of the "Medium Vacuum" range to .020 mm Hg (1 x 10^{-2}) or 20 microns.
2. Specially prepared and tested valves can be used through the "High Vacuum" range 1 x 10^{-6} mm Hg (or 1 x 10^{-3} micron). Under favorable conditions they have been used in the "Very High Vacuum" range to 1 x 10^{-9} mm Hg (or 1 x 10^{-6} micron). Performance in this range cannot be guaranteed, however.
3. Only TFE seats and seals are recommended for vacuum service.

Assembly and Test Procedures

The assembly and test procedure is the same for all types of valves. Valves are assembled under clean conditions. See engineering specs for additional information.

If a quantitative leak rate certificate is required, the valve must be sent to Flowserve's laboratory for a Helium Mass Spectrometer test.

Notes:

1. All orders for ball valves in vacuum service must include the complete service conditions and the degree of vacuum under which they are to operate in order that proper selection and preparation of material can be made.
2. Valves with reinforced TFE, carbon-graphite or metal seats are not recommended for vacuum service.
3. Typically when a ball valve is in the open position during system evacuation, the cavity around the ball will remain at atmospheric pressure unless some relief is provided. When evacuation is complete and the valve is being closed, the pressure would be bled into the system destroying the vacuum. McCANNA and MARPAC ball valve designs automatically provide relief through the stem slot in the top of the ball connecting the cavity to the ball port.

For more information about Flowserve Corporation, visit www.flowserve.com or call USA 1-800-225-6989.

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FCD MMAPS0006-00 Printed in USA.
(Part PDB-3)