FETTEROLF

SPRAY-RINSE VALVE

BULLETIN SR-699

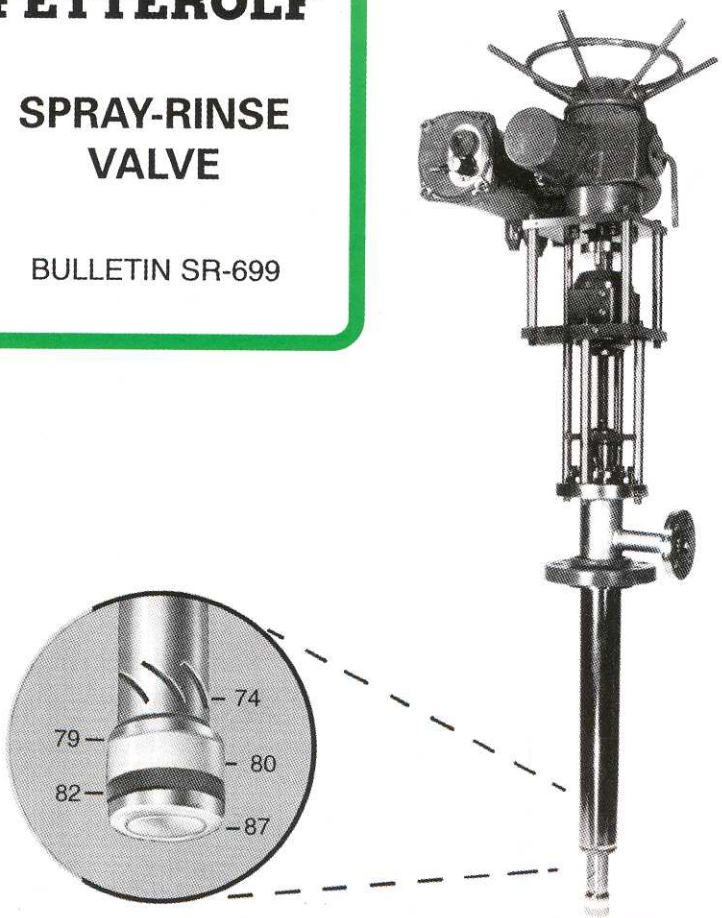


FIG. 9410-EM

The Fetterolf Spray-Rinse Valve was devised to improve safety of operation and increase the production time available for chemical reactors used in batch processes. The valve eliminates the need for vessel opening and closing to wash the residue from the preceding batch from the vessel walls. In operation, the spray tube assembly is moved out of the valve body to initiate the spray and is retracted back into the valve body after completing the washing cycle. In closed position the valve disc is flush with the end of the valve body and the spray apertures are sealed off from the process and are maintained clog-free. Tight shut-off of flow is accomplished by the Ram-Seal element originally developed for flush-bottom tank drain and sampling services at pressures up to 5000 psi. The device efficiently performs the dual functions of:

1. Shut-off and control of the spray water.
2. Direction of the spray in a varying pattern to attain complete washdown of the residue.
3. The Fig. 9420 model performs the additional function of distribution of an anti-stick agent.

HOW IT OPERATES

Spray water, introduced through the side inlet port of the valve, flows into the plunger spray tube (74), which contains a series of slots and holes to give an efficient washing pattern. As the valve is opened, water flow begins and a hard concentrated downward spray initially flushes the bottom of the vessel. On continued opening the spray slots emerge and the spray pattern fans out covering the sides and dome of the tank. Complete washing of the inner surface is obtained at the end of the opening stroke when the mechanism automatically shifts into a continuing 360° rotation.

To end the rinse cycle, the procedure is reversed. repeating the strong downward flushing action just prior to closure. At end of the stroke, tight shut-off of spray water flow is accomplished by the Ram-Seal element. The compression ring (79), free to move axially along the plunger head (87), compresses and expands the TFE sealring (80) establishing a seal with minimal stem torque. Sealing at this location has two distinct advantages.

1. The product and atmosphere of the vessel cannot enter the valve assembly to escape to atmosphere or clog upstream piping.
2. The spray apertures are given DOUBLE protection against clogging: first, by the dependable Ram-Seal element between them and the product, and, second by their submergence in the spray-water within the closed valve.

Automatic models of the Spray Rinse Valve utilize the Fetterolf electric motor drive or an air motor drive to stroke the valves open, to continuously rotate the spray tube and to reclose the valve. Switches for position indicating and computer sequencing are optional.

APPLICATION

The Fetterolf Spray-Rinse Valve may be specified for use on any tank or reactor to render it self-cleaning. The residue to be removed may or may not be water soluble. In the case of the latter, the material must be only mildly adherent to the vessel wall and removable with normal hose-down methods not dependent upon high-pressure impingement. Fetterolf Spray-Rinse Valves are built to the customer's specification in most stainless steels. They are designed to comply with the requirements of 600 lb. ANSI pressure rating up to temperatures permitted by the seal-ring materials (500° F for TFE). The valves are equipped with a mounting flange sized to mate with the vessel's flange, pad or boss. The water inlet connection is 1" or 1½" FNPT standard or may be flanged.

FEATURES

1. Positive shut-off by the dependable Ram-Seal element. No additional valves required.
2. Reduced maintenance and longer service life through the use of TFE seal-rings.
3. Spray apertures are given double protection from the product or polymerizing atmosphere by both a mechanical seal and a water submergence seal. No build-up to a clogging condition.
4. Removable and interchangeable spray tube permits special characterization of spray pattern if required.
5. Rotating spray head provides an ever changing spray pattern to completely cover vessel walls.

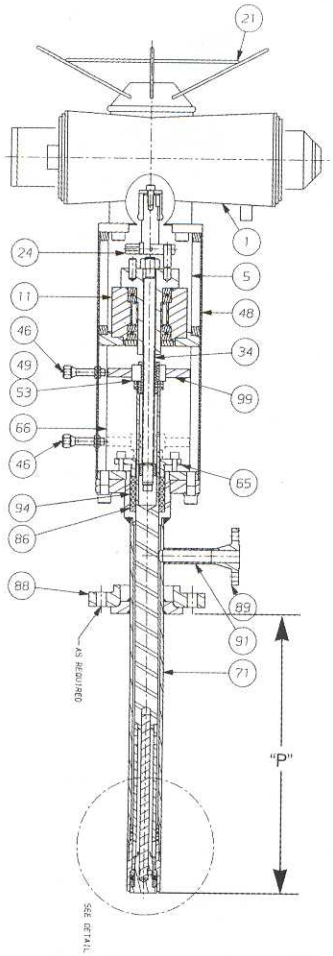
BENEFITS — CUSTOMER COMMENTS

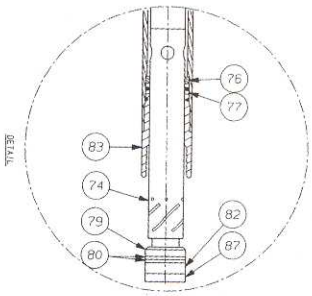
1. "...increased the production time of our reactors by four hours per day simply by the eliminating tank-opening, hosing and tank-closing between batches."
2. "...provides a more thorough spray pattern than valves previously used."
3. "...Treated water is expensive. We're using considerably less water for a complete wash than with any method heretofore."
4. "...Good pattern. Less time and water consumed."
5. "...The positive seal has eliminated the problem of polymer solidification in the valve body. No trips to the maintenance shop for burning out."
6. "...enabled us to meet the rigid EPA requirements governing toxic gas emissions."

HOW TO ORDER

Fetterolf Figure No. 9410 Spray-Rinse Valves are fabricated to customer dimensions. We need the following information:

1. Method of operation: electric motor, air motor.
2. Size and pressure rating of mounting flange or bore and drilling of pad.
3. Water supply connection; FNPT is standard. Flanged optional.
4. Body extension ("P") into vessel. 24" is standard.
5. Pressure and temperature maximum within vessel.
6. Desired spray capacity, spray media. and pump pressure.





NO.	DESCRIPTION	MATERIAL
1	ELECTRIC ACTUATOR	AS REQUIRED
5	UPPER YOKE	STAINLESS STEEL
● 11	BEARING ASSEMBLY	CARBON STEEL
21	HANDWHEEL	STEEL
24	PIN CLUTCH PL. ASSY.	STAINLESS STEEL
34	SCREW SHAFT (STEM)	CARBON STEEL
48	COVER	CARBON STEEL
49	SPRAG. CLUTCH	STEEL
● 53	ACME DRIVE NUT	CARBON STEEL
65	STUFFING BOX GLAND	STAINLESS STEEL
66	LOWER YOKE	STAINLESS STEEL
71	BODY	STAINLESS STEEL
74	SPRAY TUBE	STAINLESS STEEL
● 76	STOP RING	STAINLESS STEEL
● 77	GUIDE RING	TFE
● 79	COMPRESSION RING	STAINLESS STEEL
● 80	SEAL RING	TFE
● 82	SCRAPER RING	STAINLESS STEEL
83	SEAT	STAINLESS STEEL
46	POS. IND. SWITCH	AS REQUIRED
● 86	GUIDE RING (STUFF. BOX)	TFE
87	PLUNGER HEAD	STAINLESS STEEL
88	MAIN FLANGE	CARBON STEEL
89	INLET FLANGE	STAINLESS STEEL
91	BRANCH	STAINLESS STEEL
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● 94	GLAND PACKING	TFE-KEVLAR
99	CROSSHEAD	STAINLESS STEEL

● RECOMMENDED SPARE PARTS.

OTHER FETTEROLF PRODUCTS

- VALVE-PIPING ASSEMBLIES
- RAM-SEAL® TANK VALVES
- CAM-SET® LINE BLINDS

FETTEROLF CORPORATION

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