

# **ROD-SEAL**

## **FLUSH BOTTOM VALVES**



### **FEATURES**

- NON-CLOGGING...SELF-RODDING
- CAVITY-FREE...NO RESIDUAL PRODUCT
- FULL-PORT FLOW CHANNEL
- 45° BRANCH YIELDS HIGHER Cv
- SPRING-LOADED SEALING CONTROL
- OPTIONS: MATERIALS, ENDS, PENETRATION

**FETTEROLF**

# FETTEROLF **ROD-SEAL**

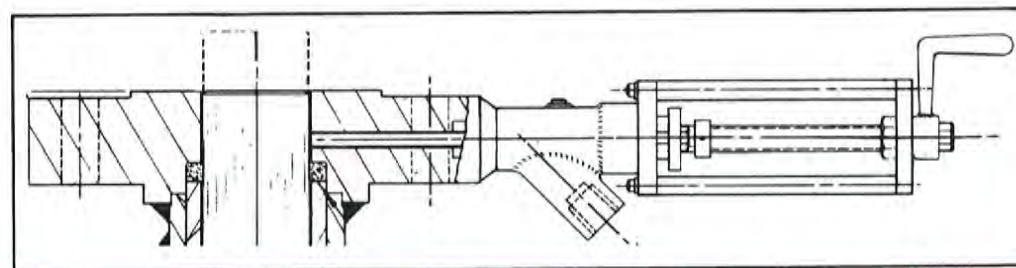
The ROD-SEAL valve is designed and built to eliminate typical problems of conventional valves. The seatless sealing principle plus "Super Closure" thrust loading provides the basis for the Rod-Seal difference. The valve has been proven in sampling, purging, or draining highly viscous media, polymers, abrasive slurries, and powders.

## ADVANTAGES

- **Clog-Free performance** - Automatic rodding on every stroke
- **Free-Flow** with no obstruction from stem within product stream
- **Low Pressure drop**, high Cv 45° discharge pattern (60 or 90° branch angles optional)
- **Installation** with standard 45° fittings
- **Adjustable spring-loaded sealing** assures leak-free performance open, closed or mid-stroke
- **Automatic packing-wear compensation** - means longer trouble-free service
- **Extended plunger option** - permits ramming into the nozzle or pipe I.D.
- **Extended body or bushing option** - eliminates need for separate adapter
- **Self-Locking stem** - no stem back-off under high pressure and vibration
- **"Super-Closure"** - when closed, the actuator adds extra loading on the seal ring and packing.

## HOW THE ROD-SEAL OPERATES

Each component of the Fetterolf ROD-SEAL valve performs specific functions to assure superior performance. Upon closing, the plunger advances through the bore, effectively rodding material from the valve. Positive shut-off, "Super Closure", occurs when the plunger drive bushing forces the gland and guide sleeve to further compress the seal rings and expand them against the plunger. In the open position, the plunger is retracted into the yoke giving obstruction-free flow. The gland maintains adjustable pressure on the outer seal ring (packing) to prevent leakage to the atmosphere. Spring-loading provides compensation for wear as well as expansion or contraction at all temperatures.

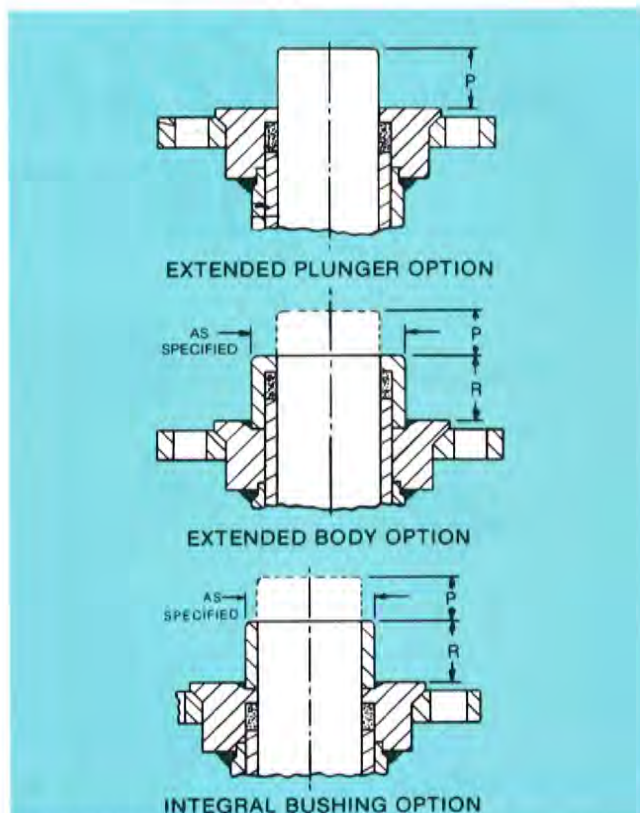


**Sizes:** 1" to 12" standard. Larger sizes developed to specification. For smaller pipe sizes, see Sampling Valve Bulletins, Rod-Seal and Ram-Seal.

**Materials:** A wide variety of body and trim materials may be specified, including titanium, Inconel, Monel, nickel, Alloy 20, and the Hastelloys. 316 Stainless steel is standard. Valves may also be specified with TFE linings and electropolished bodies for sanitary service. Special quality control testing and certification available upon request.

**Pressure:** All ANSI ratings to 600 lbs. For rating to 4500 lbs. refer to the Fetterolf RAM-SEAL bulletin.

**Temperature:** Seal ring materials are available for temperatures to 1000°F.



## EXTENSION OPTIONS

The ROD-SEAL valve is often mounted to pipeline or vessel nozzles. Plugging may result when materials accumulate within the nozzle cavity. ROD-SEAL valves, may be specified with a broad variety of plunger options to eliminate plugging problems.

**FLUSH** - No plunger extension beyond the valve body—used where nozzle plugging is non-existent.

**EXTENDED PLUNGER** - Plunger extends beyond valve body into connecting nozzle or vessel—specified to eliminate nozzle plugging or penetrate bridging sediment.

**EXTENDED BODY OR BUSHING** - Enables installation of a valve in a larger nozzle without the need for special adapter pieces. The integral extension is sized to fill the void between the plunger and the nozzle wall. The piece is machined along with the valve body to assure axial alignment.

## "COMBO" INLET FLANGE

For processes requiring periodic sampling of the media without release of the batch, the COMBO inlet flange is often specified. It eliminates the need for a second nozzle connection or a separate (two-gasket) adapter piece with the danger of plunger damage due to accidental off-center attachment. The integral COMBO flange is bored concentric with the valve axis.



**FLANGE** - Separate rotatable bolting ring fits any piping orientation.

**BODY** - Fabricated to fit into any piping layout.

**GUIDE SCREW** - Locks the guide sleeve into alignment with the discharge nozzle.

**PLUNGER** - The smooth cylindrical shape offers no place for material to catch. Flush or specified penetration.

**STEM** - Self-locking ACME thread is oversized for longer wear.

**INNER SEAL RING** - Seals against the plunger. "Super-Closure" gives it an extra boost.

**GUIDE SLEEVE** - Transmits the load from the top works. Can be polymer lined to eliminate material build-up.

**OUTER SEAL RING** - Prevents leakage to the environment. Special lethal gas version available.

**45° BRANCH NOZZLE** - Higher flow rate than 60° outlet. Compatible with standard fittings.

**SPRING LOADED GLAND** - Oversized, adjustable springs provide a high continuous sealing load to compensate for wear and thermal gradients.

**CROSS HEAD** - Changes the stem torque into sealing thrust (Super-Closure) when it contacts the gland flange at closure.

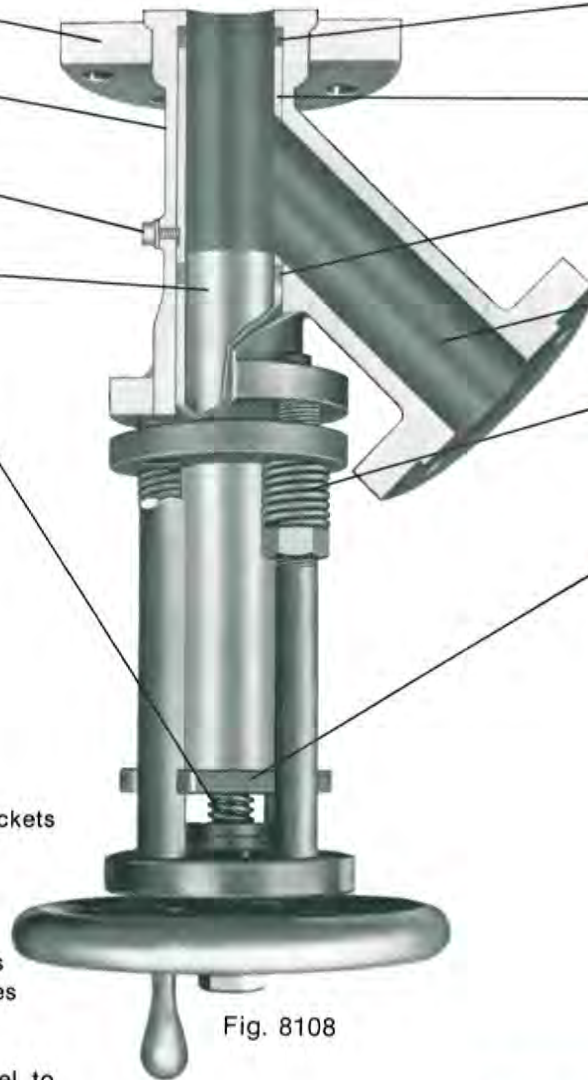


Fig. 8108

## NUMEROUS OPTIONS AVAILABLE

- 1) Valve and Piping Assemblies
- 2) Integral Direct-Contact Heating Jackets
- 3) Variable Branch Nozzle Angles
- 4) Temperature Sensors in Plunger Head
- 5) Zero-clearance Plungers
- 6) Flushing and Purging Connections
- 7) Oversized Main and Branch Flanges
- 8) Fail-Safe devices
- 9) Plunger Position Logic System:
  - a) Flush plunger rises into vessel to break up any bridging product.
  - b) Plunger withdraws into body for total vessel drainage.
  - c) Valve returns to closed position with plunger flush with bottom of vessel.

## HOW TO SPECIFY

To facilitate prompt handling of your order, please specify the following:

- a. Quantity
- b. Size and Fetterolf figure number
- c. Metallurgy of body and trim
- d. Flush or desired plunger/body penetration dimension
- e. Body and branch end connections/sizes/ANSI rating
- f. Application data including pressure, temperature, and product handled
- g. Actuator type and characteristics

NO.	PART NAME	MATERIAL
1	BODY	STAINLESS STEEL, TYPE 316
2	STEM	STAINLESS STEEL, TYPE 416
3	YOKE POST	STAINLESS STEEL
4/5	BEARING SET	THRUST/RADIAL
6	KEY	STEEL
7	HANDWHEEL	MALLEABLE IRON
9	FLANGE INSERT	STAINLESS STEEL, TYPE 316
10	FLANGE INSERT	STAINLESS STEEL, TYPE 316
11	FLANGE BACK-UP	STEEL
12	SEAL RING (2)	TFE/HI-TEMP
17	PLUNGER	STAINLESS STEEL, TYPE 17-4PH
20	GLAND BUSHING	STAINLESS STEEL, TYPE 316
21	GLAND FLANGE	STEEL
22	PLUNGER DRIVE BUSHING	STEEL
23	STEM NUT	STAINLESS STEEL, TYPE 416
25	GASKET	STAINLESS STEEL, TYPE 316
26	OP. POS. IND. SW. (OPTIONAL)	
27	CL.POS. IND. SW. (OPTIONAL)	
28	GUIDE SLEEVE	STAINLESS STEEL, TYPE 316
29	SPRING	STEEL

**Patterns:** Lateral (45° or 60°) or angle (90°) branch.

**Seals:** A broad variety including TFE, asbestos, and metallic.

**Actuation:** Manual to 6" size. Air or hydraulic cylinder and air or electric motor available for all sizes.

**Jacketing:** Direct-contact heat jacketing may be specified - highest efficiency transfer; Special designs can be accommodated such as temperature controlled plungers.

**Accessories:** Position indicating switches; airlock or yoke spring fail-safe mechanisms; right-angle gear drives; remote control equipment.

**Connections:** Threaded NPT; flanges to ANSI, DIN, or other standards; quick-disconnect coupling.



# FETTEROLF ROD-SEAL

THERE IS A FETTEROLF VALVE TO HANDLE JUST ABOUT EVERY CORROSIVE OR ABRASIVE FLUID AT PRESSURES FROM 5500 PSI DOWN TO VACUUM. IF WE DON'T ALREADY MAKE IT, WE'LL DESIGN AND FABRICATE TO YOUR EXACT REQUIREMENTS. HERE ARE JUST A FEW VALVES DEVELOPED FOR A SPECIFIC NEED BUT NOW CONSIDERED "STANDARD."

**FETTEROLF  
RAM-SEAL VALVES**



Fetterolf RAM-SEAL VALVES - Although originally designed as a Flush-Bottom Tank Valve, exceptional performance at high pressures and with highly abrasive media has led to its specification in line shut-off services as well. The RAM-SEAL concept has been adapted into valve bodies in many configurations. Pictured here is the standard Tank Valve. Jacketed models are also standard.

**FETTEROLF  
SAMPLING ASSEMBLIES**



Fetterolf SAMPLING ASSEMBLIES - Custom fabricated assemblies for in-line drain or sampling applications include the Fetterolf valve of desired pipe size, welded to a short section of the process pipe. Considerable savings in field installation plus the higher quality assured by controlled shop-welding are benefits to the project. Pictured above is a heat-jacketed valve welded to sections of both the process pipe and the jacket pipe.

**FETTEROLF  
STRAIGHTWAY VALVES**



Fetterolf STRAIGHTWAY VALVES- Wye pattern body for straight-through flow providing low pressure drop combined with high Cv. eliminates internal pockets or stagnant areas. Utilizes the proven RAM-SEAL principle of closure for use from full vacuum to 5000 psi. Sizes 1/2" through 6" in ANSI pressure classes 150-2500. Flanged and welded ends available in all metallurgies. Manual, pneumatic, and electric actuation. Heating jackets and lantern ring designs available. Ideal replacement for leaking ball and plug valves.

**FETTEROLF  
SPRAY-RINSE VALVES**



Fetterolf SPRAY-RINSE VALVES These valves, utilized for reactor or tank washdown, emit a strong spray pattern to dislodge residue from the vessel walls without need to open the head of the vessel. Greatest benefit is the increased in-process time (more batches per day). Users also report a substantial reduction in volume of treated water consumed and more effective cleansing action. All-stainless construction is standard.

## OTHER FETTEROLF PRODUCTS

• VALVE-PIPING ASSEMBLIES

• RAM SEAL TANK VALVES

• STACEY LINE BLINDS

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