

RAM-SEAL[®]

FLUSH BOTTOM VALVES for Sampling and Tank Drain Services



FEATURES

- RAM TYPE DESIGN – NO CLOGGING
- FLOW IN EITHER DIRECTION
- HIGH Cv – 45° BRANCH
- TIGHT SHUT-OFF TO 5500 PSI
- EXTENDED SEAL LIFE – SEAL OUT OF FLOW
- OPTIONS – FOR EVERY SERVICE

FETTEROLF

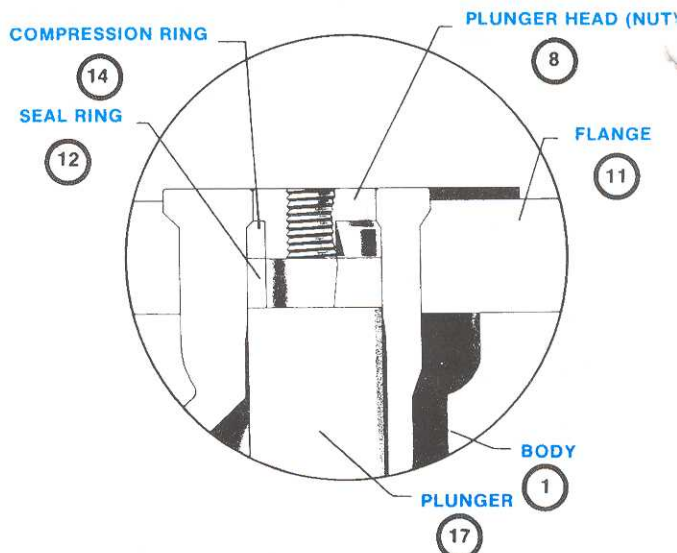
FETTEROLF **RAM-SEAL**®

The **RAM-SEAL** concept of absolute shutoff is the basis of many valves in the Fetterolf line. Since its development and patenting in 1971, the **RAM-SEAL** has developed an unequalled reputation for dependability in the "most severe" placements in the process and power industries. The original application was flush-bottom tank closure. Its positive sealing of viscous, slurry or pulp media has extended its usage into applications where gate, seatless, globe, plug and ball valves just aren't good enough. Additionally, the **RAM-SEAL** element has been incorporated into a number of "reverse flow" applications where the sealing of the injection or sparging aperture is required.

HOW THE RAM-SEAL WORKS

The basic action is that of a piston operating within a cylinder. When the valve is in the closed position, the plunger occupies the entire inner bore leaving no space for particles to collect in a clogging formation. Unlike other valves of the ram or seatless families, the resilient seal-ring is mounted **on the plunger** and travels with it throughout its stroke. In the closed position, it receives the reaction thrust of a compression ring and is expanded into a wide-band seal against the surface of the sealing barrel.

In the open position, the seal-ring is retracted into the bonnet where it is protected from the abusive forces of flow and velocity. Wear is minimized because the sealing contact occurs only for the short distance of traverse of the sealing barrel. The stuffing box is a separate element offering absolute protection from leakage to atmosphere, independent of the seal-ring condition.

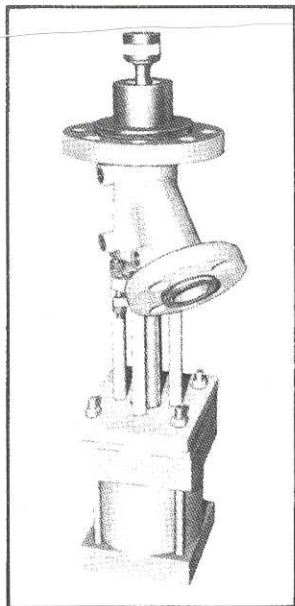


THE "RAM-SEAL" PRINCIPLE

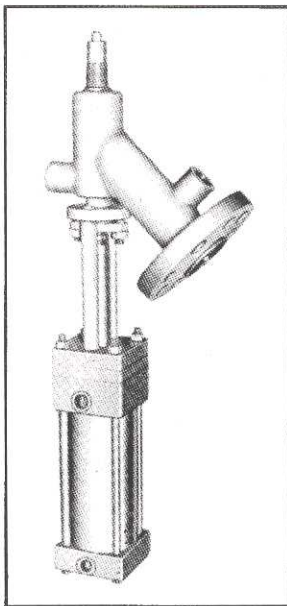
Since tight shutoff is not a function of the plunger nor plunger head, these metal surfaces are non-critical. Scratches or damage by mechanical, erosive or chemical action can be tolerated without affecting the sealing capabilities.

OPTIONS

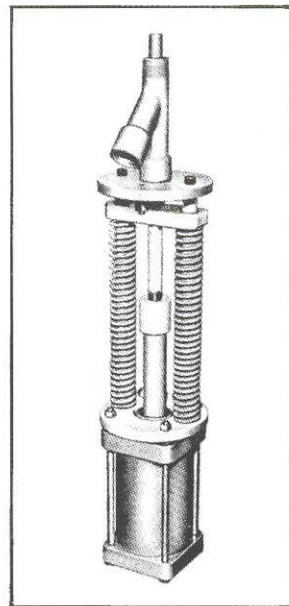
Fetterolf has a wide range of designs and configurations to adapt the performance of the **RAM-SEAL** to the process requirements. The section below gives only a highlight of our capabilities. Contact us to discuss the details of your application.



VALVE OPENS INTO TANK
TO BREAK THRU CRUST
FIG. 9306J



JACKETED SAMPLING VALVE
WITH AIR CYLINDER ACTUATOR
FIG. 9107-6JAC



SPARGING VALVE
WITH SPRING "FAIL-SAFE"
FEATURE
FIG. 9107 ACSC

OPTIONS

Sizes: ½" through 12" standard. Larger sizes are developed to specification.

Materials: Body and wetted parts may be specified in a wide variety of metals, including titanium. Type 316 stainless steel is standard. A wide range of QC tests available.

Pressure Ratings: All ANSI ratings to 2500 lb., flanged or weld ends.

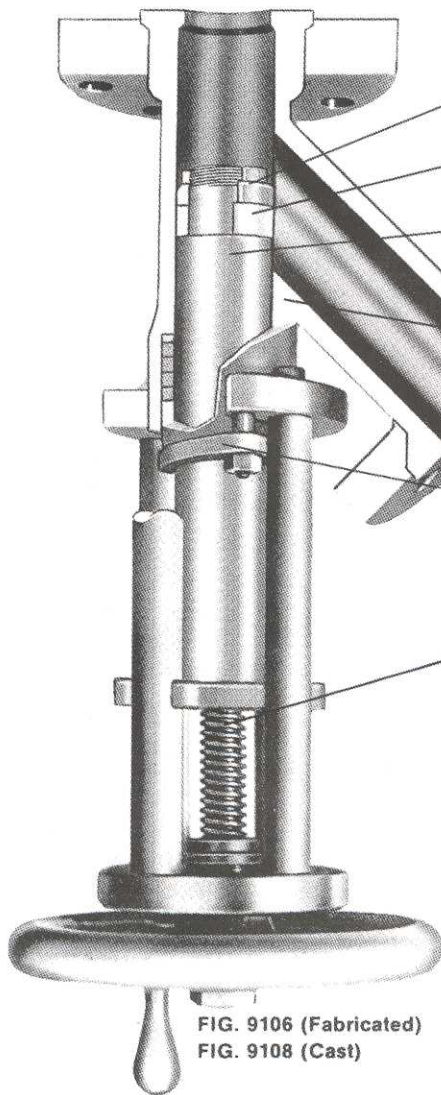


FIG. 9106 (Fabricated)
FIG. 9108 (Cast)

NO.	DESCRIPTION	MATERIAL
1	BODY	STAINLESS STEEL, TYPE 316
2	STEM WITH LUBE FITTING	STAINLESS STEEL, TYPE 416
3	YOKE POST (4)	STAINLESS STEEL, TYPE 303
4/5	BEARING SET	THRUST/RADIAL
6	KEY	CARBON STEEL
7	HANDWHEEL	MALLEABLE IRON
8	PLUNGER HEAD NUT	STAINLESS STEEL, TYPE 316
9	FLANGE INSERT (BRANCH)	STAINLESS STEEL, TYPE 316
10	FLANGE INSERT (BODY)	STAINLESS STEEL, TYPE 316
11	BOLTING RING	CARBON STEEL
12	SEAL RING	▲ TFE
13	PENETRATION SLEEVE	STAINLESS STEEL, TYPE 316
ITEM 13 (NOT REQUIRED ON 1-F, & 1-1/2 SIZES)		
14	COMPRESSION RING	STAINLESS STEEL, TYPE 316
17	PLUNGER	STAINLESS STEEL, TYPE 316
18	GUIDE RING	▲ TFE
19	PACKING RING	▲ TFE-KEVLAR®
20	GLAND BUSHING	STAINLESS STEEL, TYPE 316
21	GLAND FLANGE	CARBON STEEL
22	PLUNGER DRIVE BUSHING	CARBON STEEL
23	STEM NUT	STAINLESS STEEL, TYPE 416
24	CL. POS. IND. SWITCH	(OPTIONAL)
25	OP. POS. IND. SWITCH	(OPTIONAL)
26	YOKE DECK	CARBON STEEL
27	CROSS HEAD	CARBON STEEL

• RECOMMENDED SPARE PARTS

COMPRESSION RING exerts compressive force against seal-ring. Expands ring against polished seating surface in body wall. Drop-tight seating when valve is closed.

SEAL RING is TFE (standard), suitable for service at 510°F. Glass filled TFE, asbestos filament and polymeric rings available for higher service temperatures.

PLUNGER is flush with inner surface of pipe or vessel when valve is closed; displaces full bore of valve. Extended plunger for greater penetration is optional.

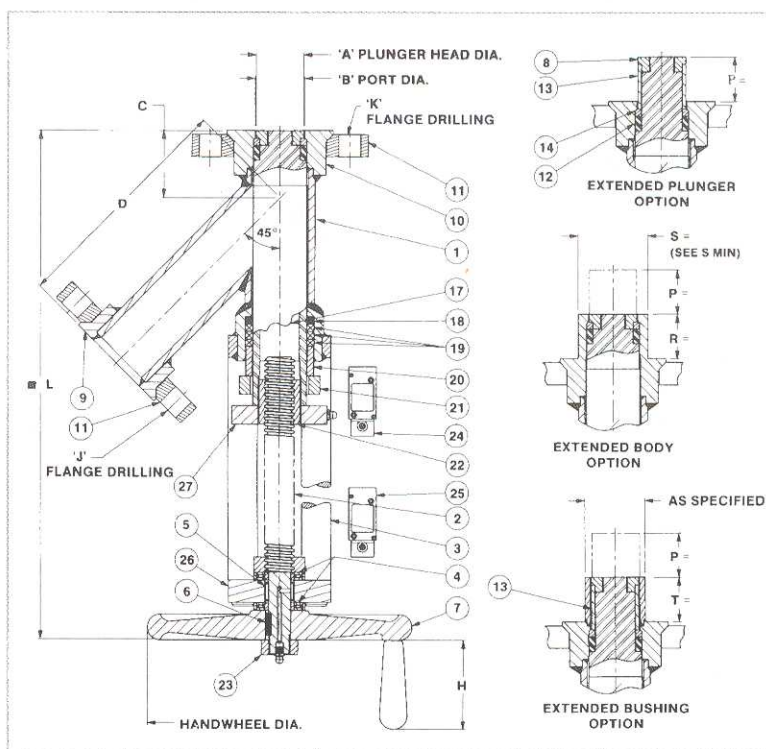
45° BRANCH NOZZLE permits streamlined flow with low pressure drop. Higher Cv than 60° outlets.

BODY is Type 316 stainless steel (standard). Other materials available.

LAP-JOINT FLANGE (Van Stone) flanges are used for ease in orientation of the valve on the vessel and downstream piping alignment. Fixed flanges optional.

ADJUSTABLE GLAND sets and holds pressure on gland packing. Deep stuffing box controls leakage.

STEM with self-locking ACME thread is oversize for longer wear.



NOTE: DIMENSIONS FOR 150# & 300# VALVES ONLY.

SIZE	A	B	C	D	J	K	■ L	HANDWHEEL DIAMETER	H	S min. 150#	S min. 300#
1-F	1.000	1.062	2	6-1/2	ANSI STD.	ANSI STD.	18	7	2	1.445	1.536
1-1/2	1.125	1.188	2-1/8	6-1/2			18	7	2	1.575	1.675
2	1.625	1.688	2-1/4	7-7/8			19	9	3	2.161	2.300
2-1/2	2.000	2.063	2-1/2	9-1/8			20	9	3	2.617	2.786
3	2.562	2.625	2-7/8	10			24	11	4	3.137	3.341
4	3.250	3.313	3	11-3/8			27	12	4	3.854	4.105
6	5.188	5.250	3-5/8	14-7/8			33	12	4	5.872	6.257

OPTIONS

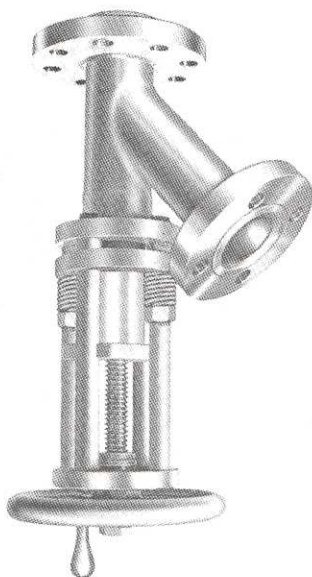
- Patterns:** Lateral (30° or 60°); angle (90°) straightway (180°).
Stuffing Box: Wide variety of packing. Lantern ring available.
Actuation: Manual, electric, hydraulic or pneumatic actuators.
Flow-control: Shutoff and control of flow in either direction.

FETTEROLF RAM-SEAL®

THERE IS A FETTEROLF VALVE TO HANDLE JUST ABOUT EVERY CORROSIVE OR ABRASIVE FLUID AT PRESSURES FROM 5500 PSI DOWN TO VACUUM.

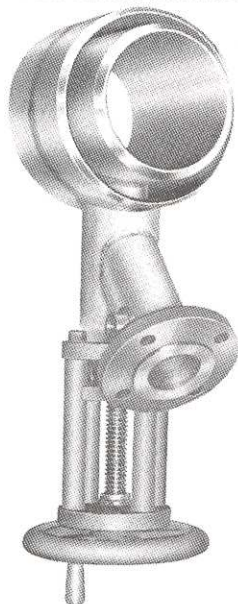
IF WE DON'T ALREADY MAKE IT, WE'LL DESIGN AND FABRICATE TO YOUR EXACT REQUIREMENTS. HERE ARE JUST A FEW VALVES DEVELOPED FOR A SPECIFIC NEED BUT NOW CONSIDERED "STANDARD."

FETTEROLF
ROD-SEAL VALVES



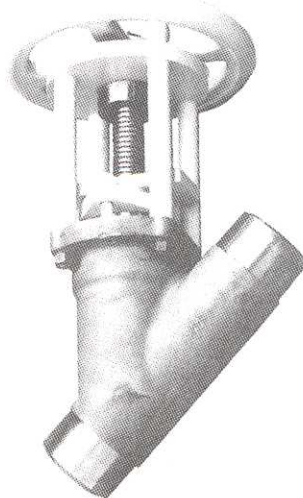
Fetterolf ROD-SEAL VALVES are specially designed for services involving aggressive slurries of high solids concentration and dry powders. Unlike ram valves of earlier generations, they introduce the "Super Closure" feature which permits applicational capability from vacuum through pressures and temperatures of 600 lb. ANSI. It is sometimes the answer where space limitations exist. Available with a whole series of options and accessories.

FETTEROLF
SAMPLING ASSEMBLIES



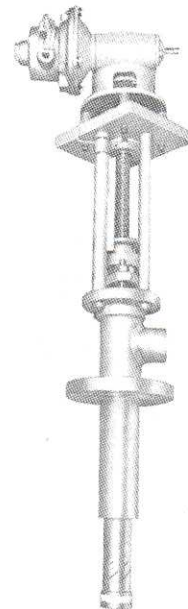
Fetterolf SAMPLING ASSEMBLIES - Custom fabricated assemblies for in-line drain or sampling applications include the Fetterolf valve of desired pipe size, welded to a short section of the process pipe. Considerable savings in field installation plus the higher quality assured by controlled shop-welding 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

• CAM-SET® LINE BLINDS

FETTEROLF CORPORATION

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