



E160-807 SED/JAN 93

S160-807 IOM/JAN 93

File: EQUIPMENT MANUAL - Section 160  
SERVICE MANUAL - Section 160

Replaces: Nothing (New Information)  
Dist: 1, 1a, 1c, 3, 3b, 3c, 4, 4c

## Specifications - Engineering Data - Dimensions Installation - Operation - Maintenance

### FRICK SWV SOCKET WELD VALVES

Frick SWV Socket Weld Valves are designed for heavy-duty refrigeration service. Their sturdy construction, quality materials and accuracy of machining assure reliable and efficient operation. They eliminate flanged connections, decreasing weight and simplifying installation.

#### LOW PRESSURE DROP

Large ports and fluid passages allow full flow capacity with minimum pressure drop. Straight-through configuration allows significantly lower pressure drop in straight-through piping.

#### LEAK-FREE SEATING and SEALING

The Teflon seal ring in the disc provides positive shutoff with hand tightening. The button seating ring is beveled to provide increased sealing area. The stem-sealing packing rings provide effective sealing for all compatible refrigerants.

#### MAXIMUM CORROSION RESISTANCE

Stainless steel stems and packing nuts provide maximum corrosion resistance and durability.

#### EASE OF INSTALLATION and MAINTENANCE

The complete valve can be welded directly into the line. Back-seating allows replacement of stem-sealing packing rings under system pressure. Teflon backseating (1-1/4" - 2") above the threads allows a minimum loss of trapped gas. The extended bonnet design provides gland removal for packing ring replacement without insulation removal.

#### AND THEY'RE AMERICAN MADE

Valves are manufactured in the United States to U.S. standards of material testing. They match U.S. standard piping.

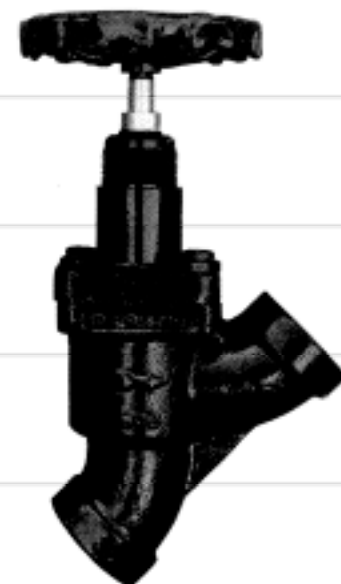
#### APPLICATION

Ammonia, halocarbons, hydrocarbons, and other inert gases compatible with cast steel and ductile iron.\*

All sizes available with angle or straight-through connections and with interchangeable handwheels or seal caps.

Working pressures of 400 PSIG. Temperature range of 350°F to -50°F for all sizes. Temperatures below -50°F at reduced pressures.

\*Consult Frick Company for compatibility details.



## COMPONENT SPECIFICATIONS and FEATURES

**BODIES** - Sizes 1-1/4" through 8" are ASTM SA352 GR LCB cast steel. Cast steel provides strength over a large range of operating conditions.

**BONNETS** - All sizes are bolted design, ASTM A395-80 ductile iron for high strength and light weight.

**STEM and PACKING GLAND** - ASTM A-493 type 410 stainless steel (1-1/4" - 2") or cadmium-plated steel (1/2" - 1") for maximum corrosion resistance and durability. Coarse stem threads allow for quick opening and closing of the valve.

**SELF-ALIGNING DISC** - Sizes 1-1/4" through 2" are hot rolled carbon steel. Discs are nonrotating under sealing pressure to eliminate frictional damage on closure. The fully retained Teflon seal ring, conformable to the body seat, provides positive shutoff with hand tightening. The seal ring's beveled edge provides for greater sealing area and is firmly secured by a steel washer.

**DISC RETAINING PINS and CLIP** - Type 440 stainless steel for maximum strength and dimensional integrity.

**BACKSEAT** - Teflon above the threads (1-1/4" through 2") and metal to metal (1/2" through 1") provide a positive seal. Valve stem sealing packing rings can be replaced under system pressure.

**STEM-SEALING PACKING RINGS** - Nonasbestos, Teflon filled, fibrous top and bottom rings and compressed graphite center ring provide effective sealing for all compatible refrigerants. Designed for operational ease and long life without deterioration.

**HANDWHEEL** - Rugged, pressed carbon steel with forged nut (1-1/4" through 2") or heavy-duty aluminum (1/2" through 1"). Interchangeable with seal cap.

**SEAL CAP** - Lightweight, heavy-duty aluminum. Added security against stem leakage. Interchangeable with handwheel.

## VALVE PRESSURE DROP

SIZE	ANGLE		STRAIGHT THROUGH	
	L <sub>e</sub>	C <sub>v</sub>	L <sub>s</sub>	C <sub>v</sub>
1/2	2	8	4	6
3/4	3	15	5	11
1	4	24	7	18
1-1/4	9	34	9	34
1-1/2	11	48	11	48
2	16	92	16	92

L<sub>e</sub> - Equivalent pipe length in feet.  
C<sub>v</sub> - GPM at 1 PSIG.

## VALVE INSTALLATION

Frick SWV Socket Weld Valves, with their light weight and direct socket welding into the refrigerant piping, provide simplified, low cost installation. Frick recommends removal of the bonnet assembly prior to installation. This protects the disc seal, allows cleaning of the valve after welding, and reduces the weight. Valves may be installed in any position to allow the most convenient operational stem location.

Install Frick SWV valves as follows:

1. Open valve several turns prior to disassembly.
2. Weld into the line taking care to localize heat to the welding area.
3. Clean welding debris from inside of valve body.
4. Reassemble valve after the body has fully cooled. Care should be taken so as NOT to damage the disc seal ring on assembly.

## VALVE OPERATION

Frick LPD valves are designed to provide positive shutoff with hand tightening only. **Do not apply a wrench since this may result in disc, stem, or handwheel damage.** If the valve does not seat securely with hand tightening, the problem is probably due to particles from system contamination entering the valve with the refrigerant and lodging between the Teflon seal ring and the body seating surface. This contamination should be removed before attempting to seat the valve.

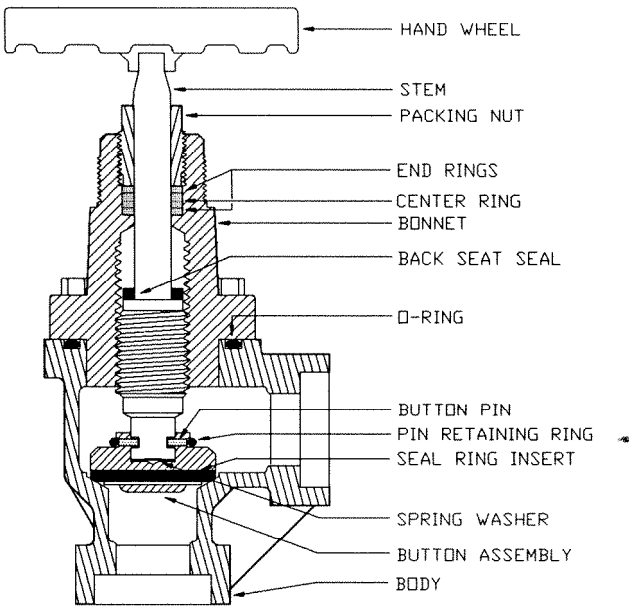
## STEM-SEALING PACKING RINGS REPLACEMENT

Stem-sealing packing rings can be replaced with the valve in service under system pressure. Open the valve until firmly backseated, remove the handwheel and gland, remove and replace packing rings and reassemble. Packing rings should be installed in this order: fibrous ring, compressed graphite ring, and fibrous ring. The extended bonnet design allows packing gland adjustment and packing ring replacement without insulation removal.

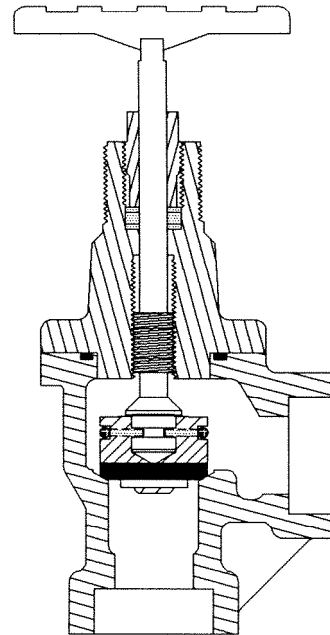
## STEM and DISC SERVICING

All moving and wearing parts are accessible by removing the bonnet and stem assembly. The valve body, which is welded in the line, contains no working parts and does not require removal.

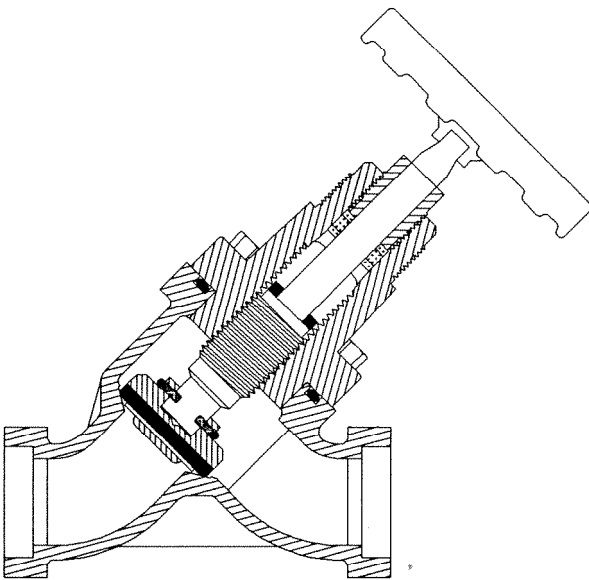
The disc and seal ring assembly is replaceable. The disc and seal can be removed from the stem by removing the pin-retainer ring, which allows the pins to be removed, freeing the disc assembly. Care should be taken when installing the new disc and seal assembly to avoid cutting or nicking the seal ring.



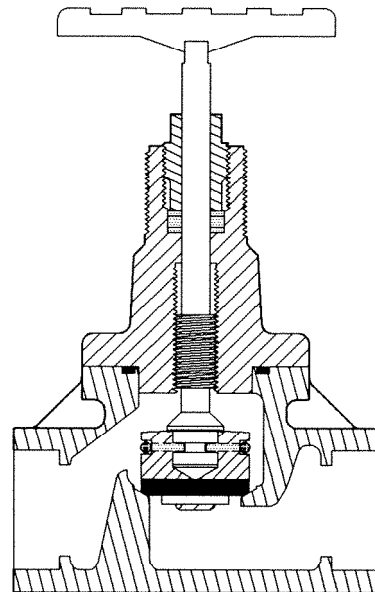
1-1/4" through 2" HW ANGLE



1/2" through 1" HW ANGLE

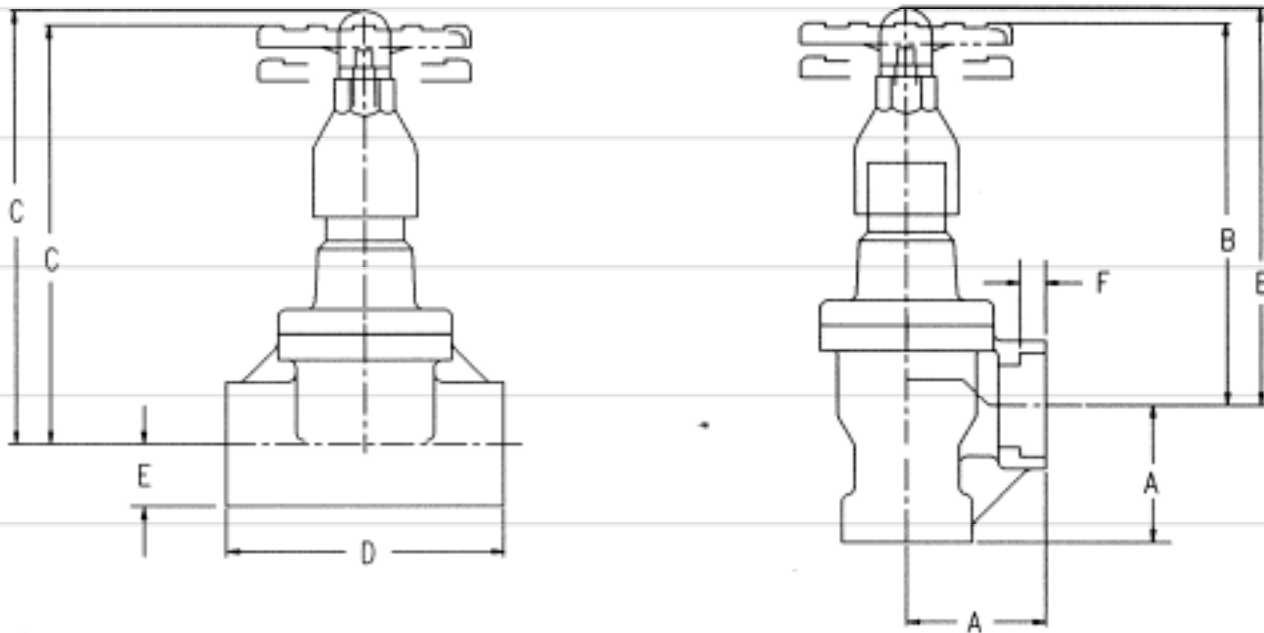


1-1/4" through 2" STRAIGHT THROUGH



1/2" through 1" HW GLOBE

FRICK SWV SOCKET WELD VALVES  
DIMENSIONS



SIZE	STOCK NO./PART #				VALVE DIMENSION - INCHES							WEIGHTS		
	HANDWHEEL		SEAL CAP		A	B		C		D	E	F	ANGLE	STR THRU
	ANGLE	STRAIGHT THROUGH	ANGLE	STRAIGHT THROUGH		HW OPEN	SC	HW OPEN	SC					
1/2	R13121 580D0165G12	R13119 580D0165G10	R13120 580D0165G11	R13118 580D0165G09	2	5.56	5.77	6.09	6.30	4.00	0.91	.500	4.5	4.5
3/4	R13101 580D0165G08	R13115 580D0165G06	R13116 580D0165G07	R13114 580D0165G05	2	5.56	5.77	6.09	6.30	4.00	0.91	.500	4.5	4.5
1	R13113 580D0165G04	R13111 580D0165G02	R13112 580D0165G03	R13110 580D0165G01	2	5.56	5.77	6.09	6.30	4.00	0.91	.500	4.5	4.5
1-1/4	R13188 580D0163G03	R13186 580D0163G01	R13189 580D0163G04	R13187 580D0163G02	2.75	8.10	8.43	9.08	7.75	6.38	1.09	.500	8	10
1-1/2	R13192 580D0167G03	R13190 580D0167G01	R13193 580D0167G04	R13191 580D0167G02	3	8.25	8.62	9.39	8.04	6.75	1.22	.500	10	12
2	R13196 580D0164G03	R13194 580D0164G01	R13197 580D0164G04	R13195 580D0164G02	3.25	9.75	9.56	11.06	9.06	8.00	1.48	.625	14	17

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