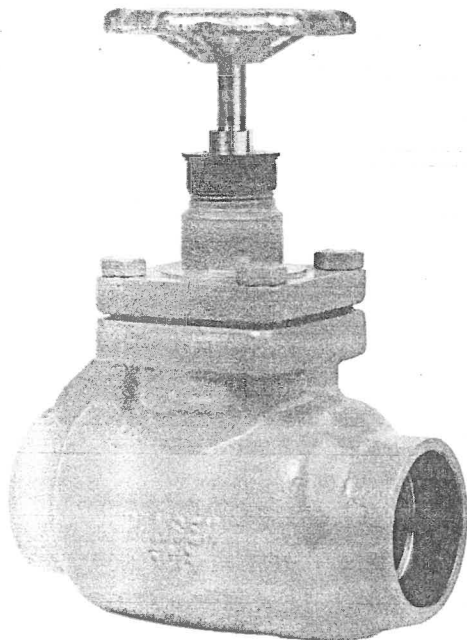


HANSEN TECHNOLOGIES CORPORATION



2" Globe Valve: GS200H

ISO 9002

INTRODUCTION

The advanced design and materials of the Hansen Steel Body Socket Weld Refrigerant Valves make them stronger and far superior to other commonly-available products. This is especially true in regard to leakage from seats, stems, bonnets, and piping connections. Socket weld steel bodies permit these valves to be quickly and easily welded directly into piping without the inconvenience of pipe threading or using bulkier iron-flanged valves with socket weld steel flanges requiring bolts, nuts, and gaskets. Compared to butt weld valves, the Hansen socket weld bodies allow quicker welding, easier pipe alignment, and cleaner pipe and valve interiors.

APPLICATIONS

Typical uses include:

Ammonia refrigeration system suction, liquid, discharge, recirculating liquid, hot gas, and oil lines using handwheel or seal cap models.

Steel pipe portions of halocarbon commercial, industrial, and air conditioning systems using seal cap models.

Compressor suction and discharge connections and condenser and evaporator inlet and outlet connections for ammonia, R22, R134a, and other Hansen-approved refrigerants.

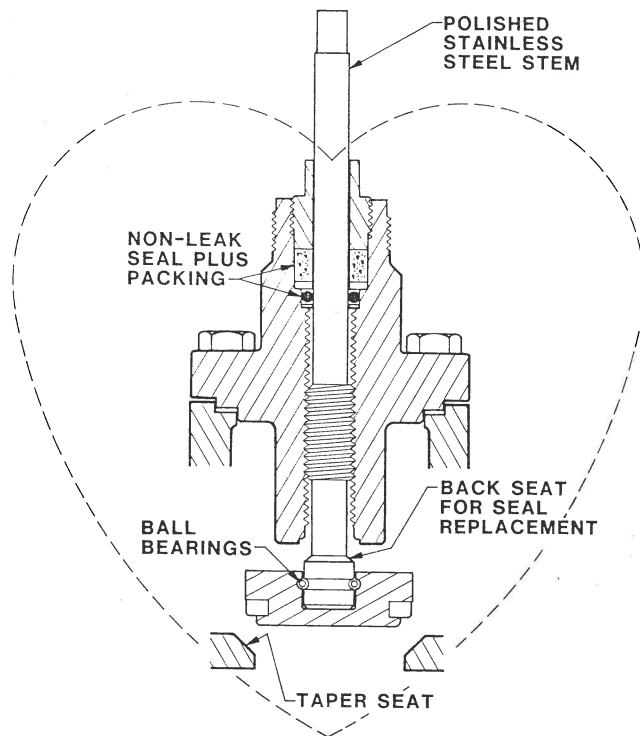
Specifications, Applications, Service Instructions & Parts

SOCKET WELD SHUT-OFF VALVES

1/2" through 2 1/2"*
Globe and Angle
for Refrigerants

*2" to 16" available as butt weld

KEY FEATURES



ADDITIONAL FEATURES

Suitable for ammonia, R22, R134a, and other Hansen-approved refrigerants
Globe and angle available
Teflon seat disc (no lead)
Available also as an expansion valve
Handwheels or seal caps are interchangeable
400 psig (28.6 bar) safe working pressure
Temperature range: -60F to +240F (-50 to +115°C)
Below -60F (-50°C) at lower pressures
Nonasbestos gaskets
Made entirely in the USA

FLOW CAPACITIES

Service	CONDITIONS		CAPACITIES SHOWN IN TONS						
	°F Temp.	PSIG Pres.	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"
Suction Lines	+20	33.5	—	—	8.6	15.8	21.3	35.7	51.1
Single Stage Compressor	0	15.7	—	—	5.7	10.4	13.9	22.7	34.0
Suction Lines	-20	3.6	—	—	4.2	7.4	10.3	16.8	24.8
Booster	-40	8.7"	—	—	—	4.4	6.3	9.9	14.4
Liquid	+20	33.5	—	—	5.0	9.1	12.3	20.6	29.4
Overfeed	0	15.7	—	—	3.4	6.3	8.5	13.6	20.5
Return	-20	3.6	—	—	2.2	4.0	5.5	8.9	13.1
Lines (4x)	-40	8.7"	—	—	—	2.4	3.4	5.4	7.9
Hot Gas Feed	+70	114.1	2.2	4.3	7.3	14.1	19.6	36.5	53.0
Hot Gas Main	+70	114.1	4.4	8.6	14.7	28.1	39.2	73.0	106
Compressor Discharge	+86	154.5	—	—	12.6	24.1	33.6	62.6	90.3
Condenser Drains	+86	—	6.0	14.5	24.0	50.0	77.0	140	220
Liquid Mains	+86	—	28.3	53.1	90.8	143	202	454	657
Liquid Feed Branch	+86	—	54.9	103	176	277	392	881	1273
Liquid Overfeed Supply (4x)	+10	—	9.0	17.0	29.0	46.0	65.0	144	208

SIZING GUIDE

These capacity recommendations are not affected by the length of the pipe line. These are approximate optimum sizes based on power costs versus the investment cost of piping and its total installed cost. Piping sized to these capacities will have 1 degree F pressure drop for the following equivalent lengths:

- Suction lines 700 diameters
- Discharge lines 1400 diameters
- Liquid lines 2400 diameters

Example: Hansen angle socket weld valves have about 145 diameters of equivalent flow resistance,

or $147/700 = 0.2$ degrees of equivalent pressure drop at the suction line capacities shown for a valve in a suction line. Globe valves equal about 225 diameters.

The rationale for the vapor line sizing was developed by William V. Richards in two papers: "Refrigerant Vapor Line Sizing Not Dependent on Length," 16th International Congress of Refrigeration, IIR, Paris, 1983, and "Practical Pipe Sizing for Refrigerant Vapor Lines," Sixth Annual Meeting, IIR, San Francisco, 1984.

FLOW COEFFICIENTS

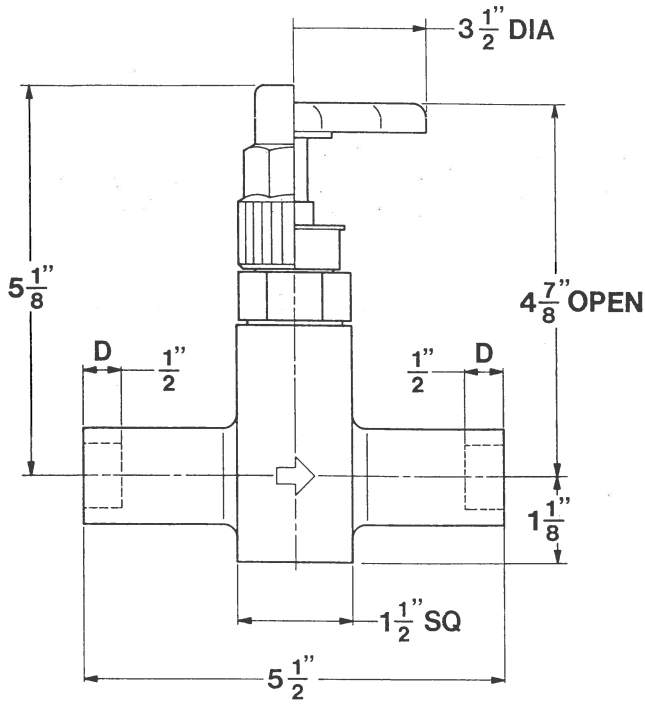
SIZE	ANGLE		GLOBE	
	Cv	*Equiv. Length Ft.	Cv	*Equiv. Length Ft.
1/2"	6	5	4	9
3/4"	9	8	8	8
1"	26	5	18	8
1 1/4"	30	14	21	21
1 1/2"	53	11	41	14
2"	80	27	67	34
2 1/2"	173	18	163	20

The Cv Factor is in units of U.S. GPM and PSI.

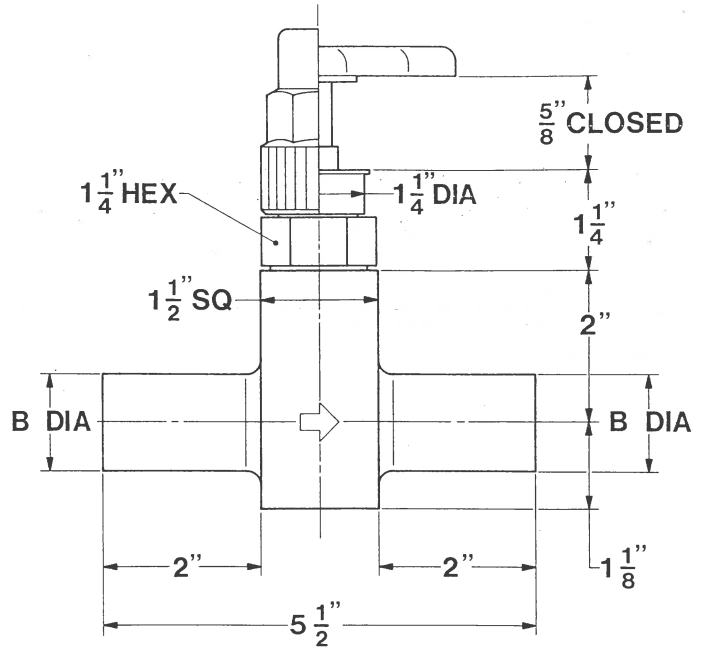
*Schedule 80 pipe under 2" size.

1/2" AND 3/4" SOCKET WELD VALVE

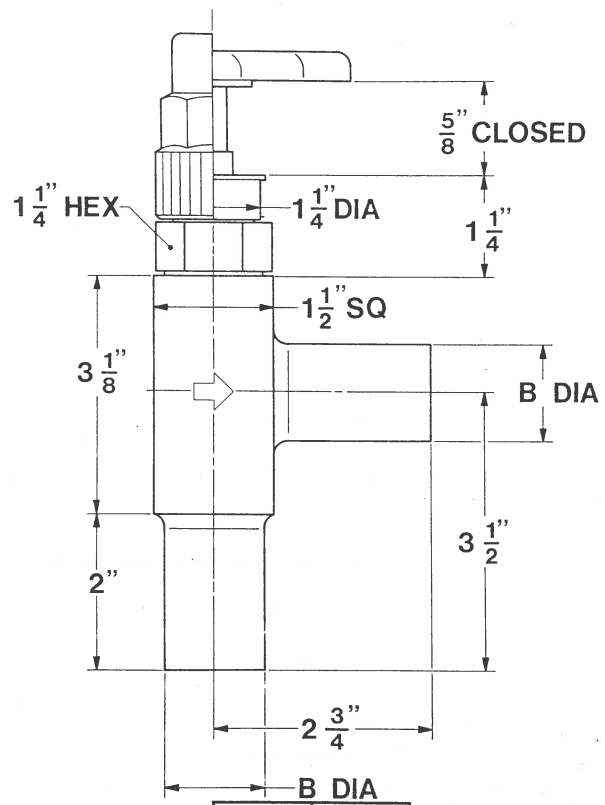
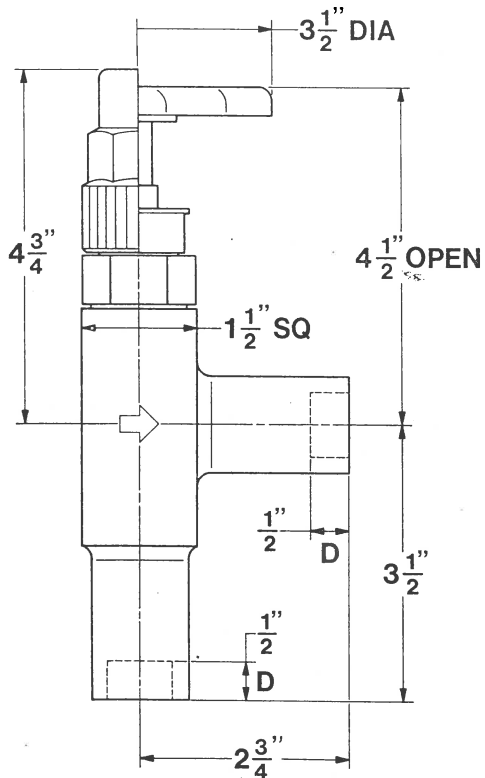
INSTALLATION DIMENSIONS



INSULATION DIMENSIONS

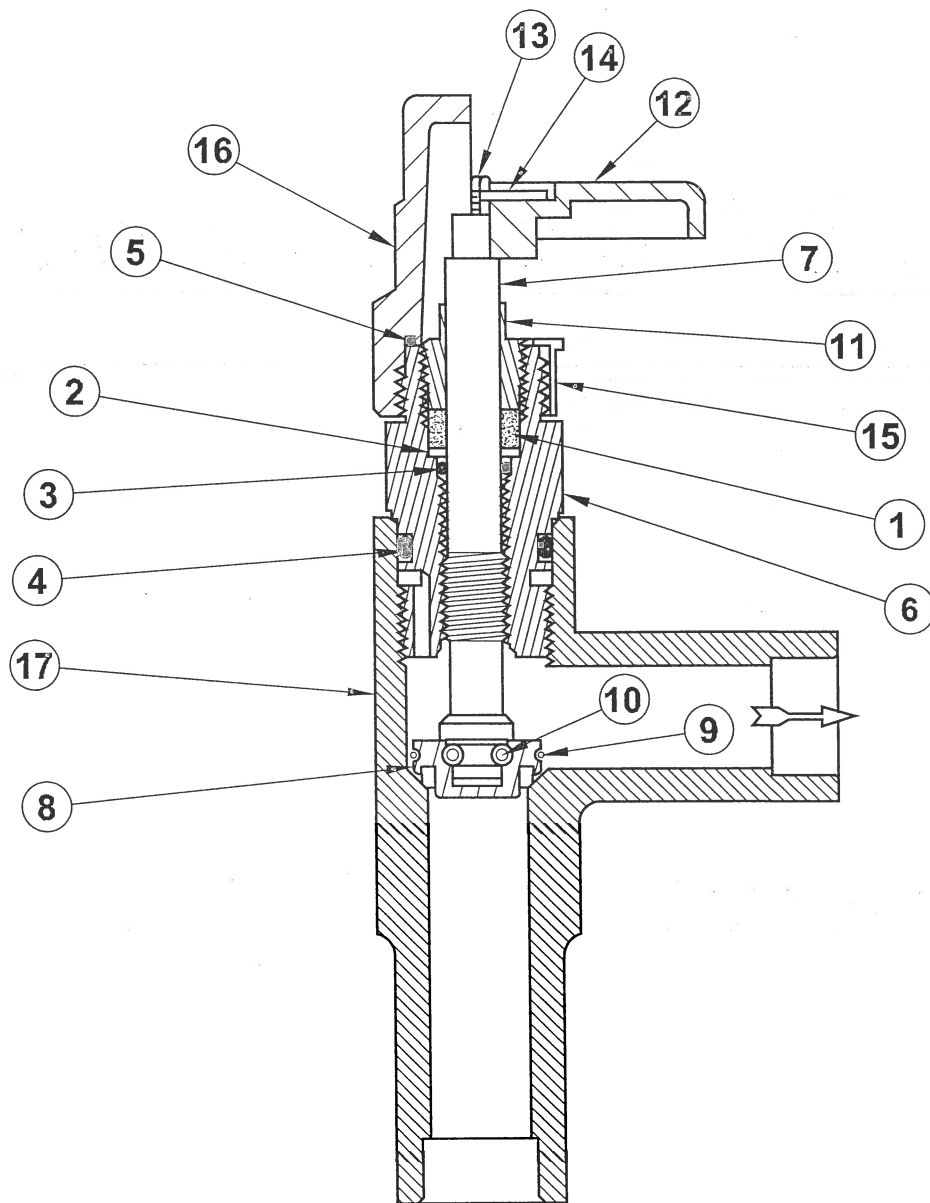


	B
1/2"	1 1/4"
3/4"	1 1/2"



	B DIA
1/2"	1 1/4"
3/4"	1 1/2"

1/2" AND 3/4" SOCKET WELD VALVE



PARTS LIST

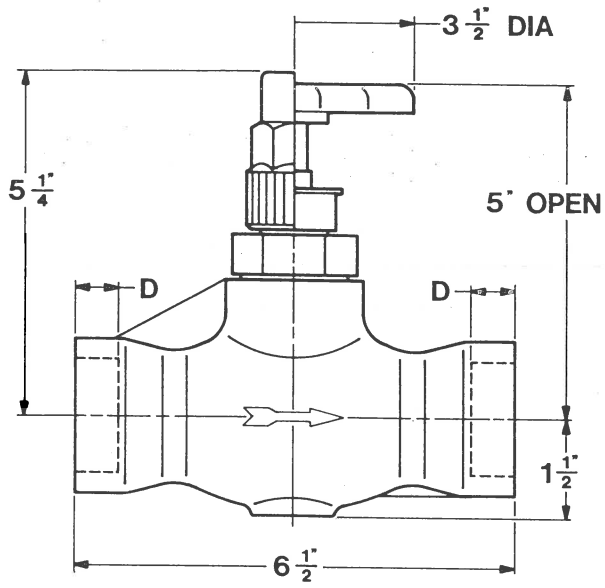
ITEM	DESCRIPTION	QTY	PART NO.*
	Gasket Kit consists of:		50-1040
1	Stem Packing	1	50-0045
2	Stem Washer	1	50-0046
3	Stem O-ring	1	50-0179
4	Bonnet O-ring 1/2", 3/4"	1	50-0453
5	Seal Cap O-ring	1	50-0432
11	Packing Nut	1	50-0013
	Bonnet Assembly Kit 1/2", 3/4"		50-1041
	Above Kit consists of:		
6	Bonnet	1	50-0422
7	Stem	1	50-0012
8	Disc Assembly	1	50-0803
9	Ball Retainer	1	50-0439
10	Balls	10	50-0016
	Gasket Kit	1	50-1040
	Disc Assembly consists of:		50-1042
8	Disc Assembly	1	50-0803
9	Ball Retainer	1	50-0439
10	Balls	10	50-0016
4	Bonnet O-ring 1/2", 3/4"	1	50-0453

ITEM	DESCRIPTION	QTY	PART NO.*
	Handwheel Kit consists of:		50-1005
12	Handwheel	1	50-0027
13	Screw	1	50-0479
14	Name Plate	1	50-0094
15	Bonnet Thread Cap	1	50-0434
	Seal Cap Kit consists of:		50-1036
16	Seal Cap	1	50-0423
5	Seal Cap O-ring	1	50-0432
17a	Body, Globe 1/2" SW	1	50-0449
17b	Body, Globe 3/4" SW	1	50-0451
17c	Body, Angle 1/2" SW	1	50-0450
17d	Body, Angle 3/4" SW	1	50-0452

*Prior to 1989, 1/2" and 3/4" socket weld valves had cast steel bodies. Replacement parts and numbers for these valves are the same as the 1" and 1 1/4" valves listed on page 7. A plated steel seal cap is available. To order specify part number 50-1064.

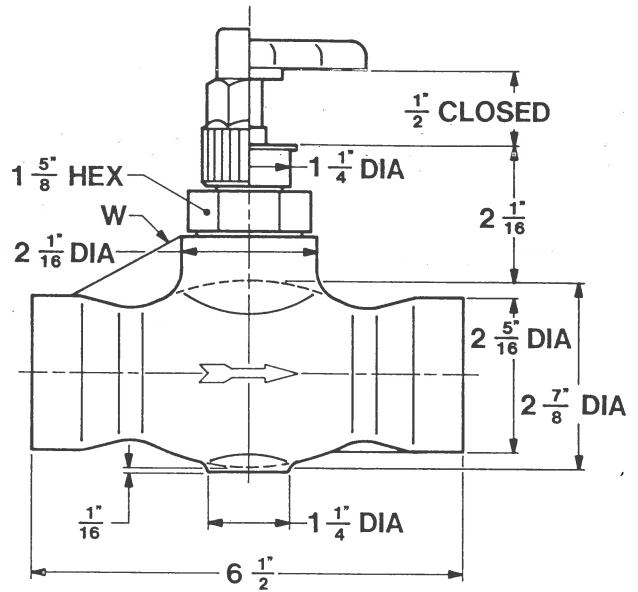
1" AND 1 1/4" SOCKET WELD VALVE

INSTALLATION DIMENSIONS

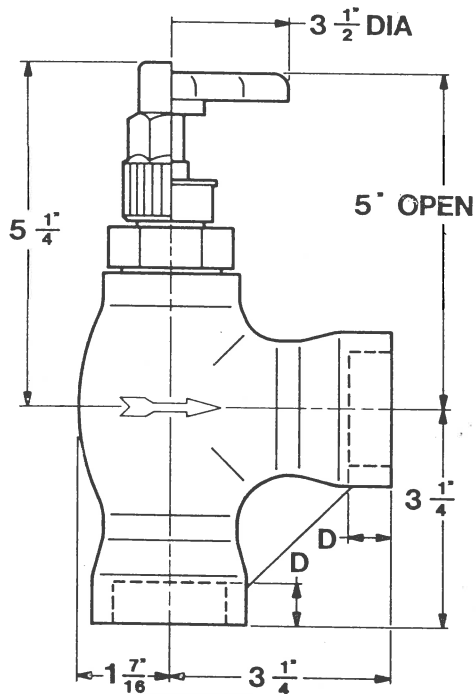


	D
1"	1/2"
1 1/4"	5/8"

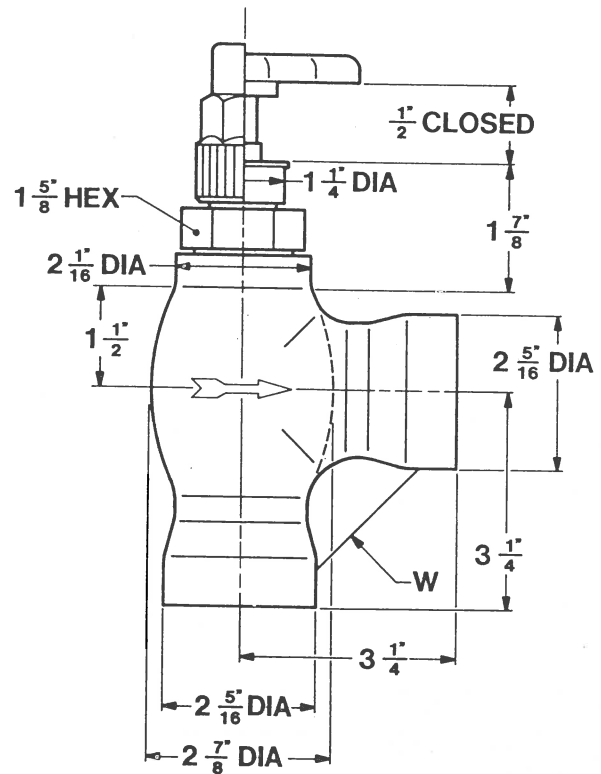
INSULATION DIMENSIONS



W=1" (WEB THICKNESS)

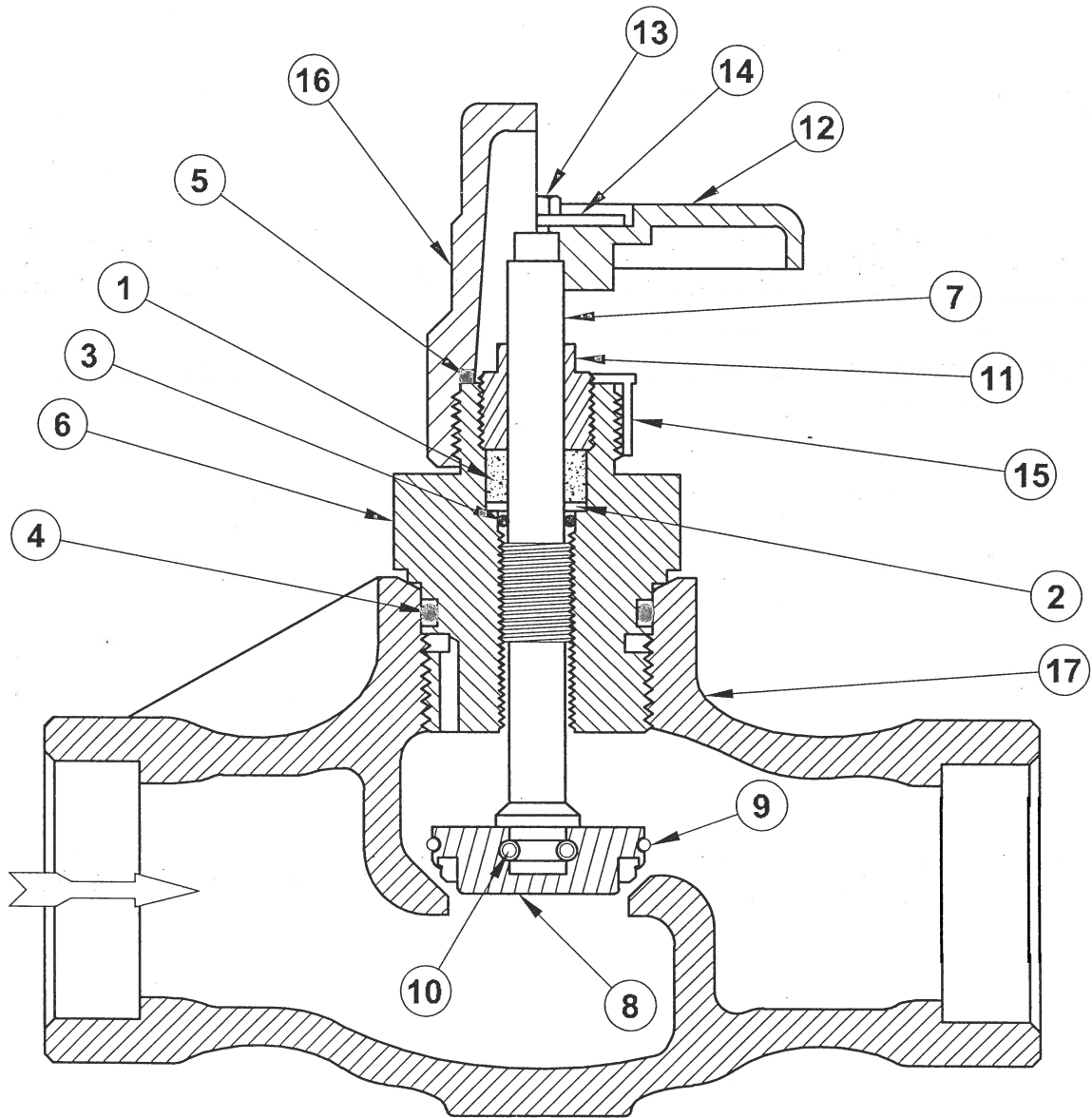


	D
1"	1/2"
1 1/4"	5/8"



W=1" (WEB THICKNESS)

1" AND 1 1/4" SOCKET WELD VALVE



PARTS LIST

ITEM	DESCRIPTION	QTY	PART NO.
	Gasket Kit consists of:		50-1040
1	Stem Packing	1	50-0045
2	Stem Washer	1	50-0046
3	Stem O-ring	1	50-0179
4	Bonnet O-ring 1", 1 1/4"	1	50-0017
5	Seal Cap O-ring	1	50-0432
11	Packing Nut	1	50-0013
	Bonnet Assembly Kit 1", 1 1/4"		50-1021
	Above kit consists of:		
6	Bonnet	1	50-0429
7	Stem	1	50-0012
8	Disc Assembly	1	50-0804
9	Ball Retainer	1	50-0026
10	Balls	10	50-0016
	Gasket Kit	1	50-1020
	Disc Assembly Kit consists of:		50-1004
8	Disc Assembly	1	50-0804
9	Ball Retainer	1	50-0026
10	Balls	10	50-0016
4	Bonnet O-ring 1", 1 1/4"	1	50-0017

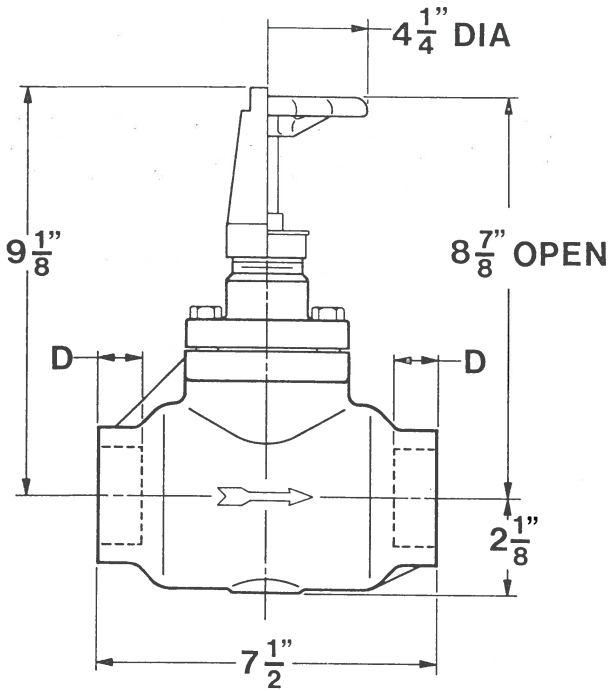
ITEM	DESCRIPTION	QTY	PART NO.
	Handwheel Kit consists of:		50-1005
12	Handwheel	1	50-0027
13	Screw	1	50-0479
14	Name Plate	1	50-0094
15	Bonnet Thread Cap	1	50-0434
	Seal Cap Kit* consists of:		50-1036
16	Seal Cap	1	50-0423
5	Seal Cap O-ring	1	50-0432
17a	Body, Globe 1" SW	1	50-0386
17b	Body, Globe 1 1/4" SW	1	50-0387
17c	Body, Angle 1" SW	1	50-0389
17d	Body, Angle 1 1/4" SW	1	50-0390

*Plated steel seal cap kits are available (p/n 50-1064).

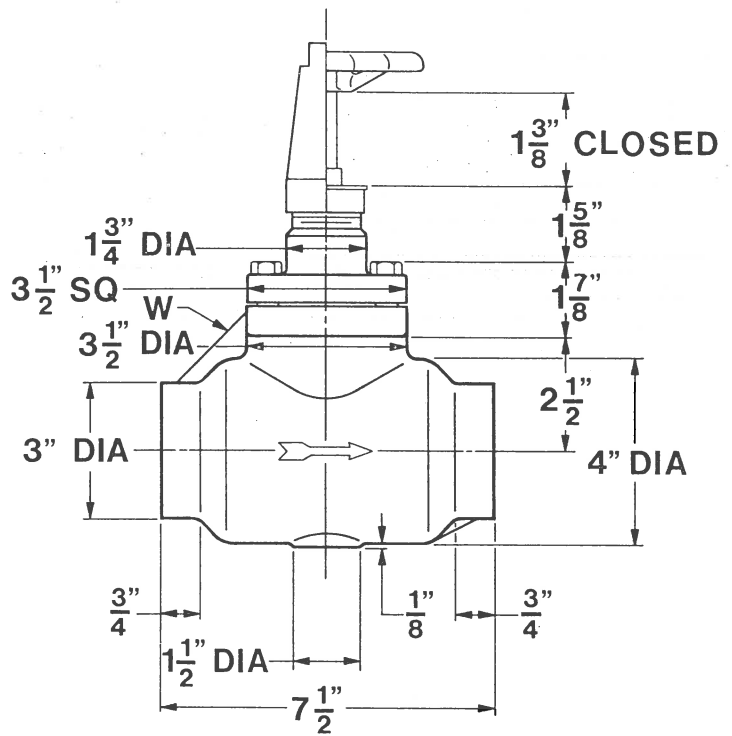
1 1/2" AND 2" SOCKET WELD VALVE

INSTALLATION DIMENSIONS

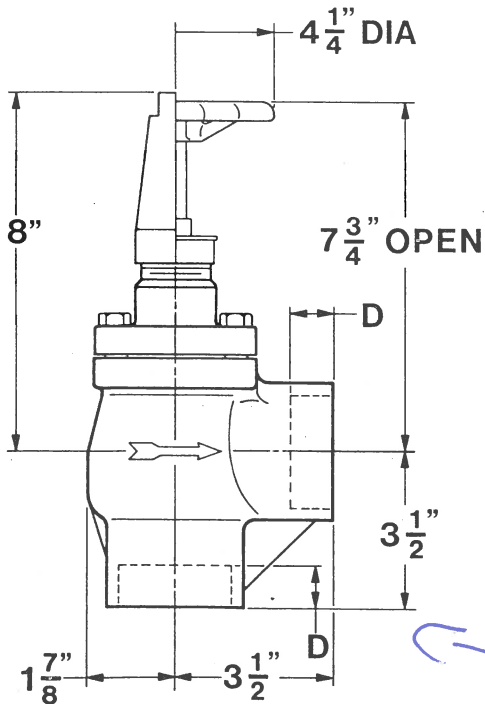
INSULATION DIMENSIONS



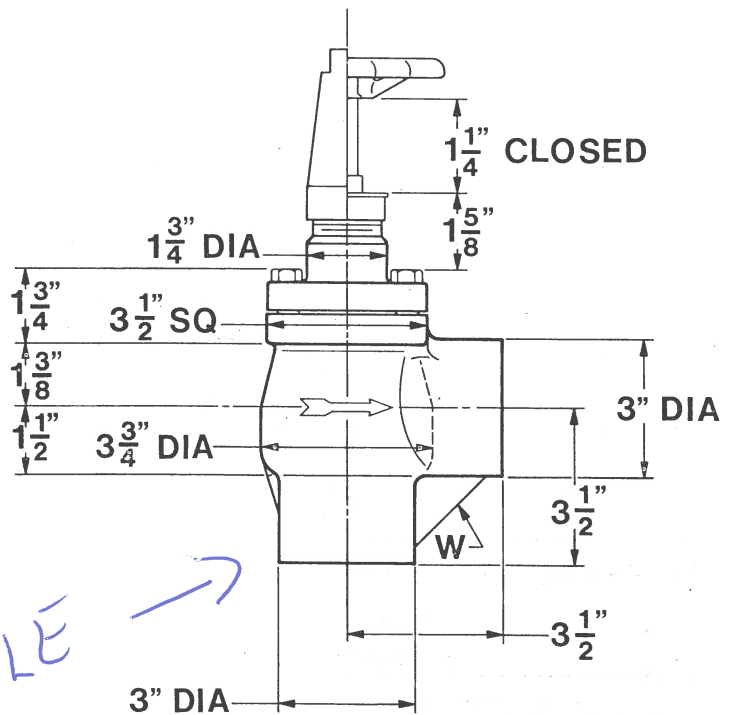
	D
1 1/2"	5/8"
2"	7/8"



W=1" (WEB THICKNESS)



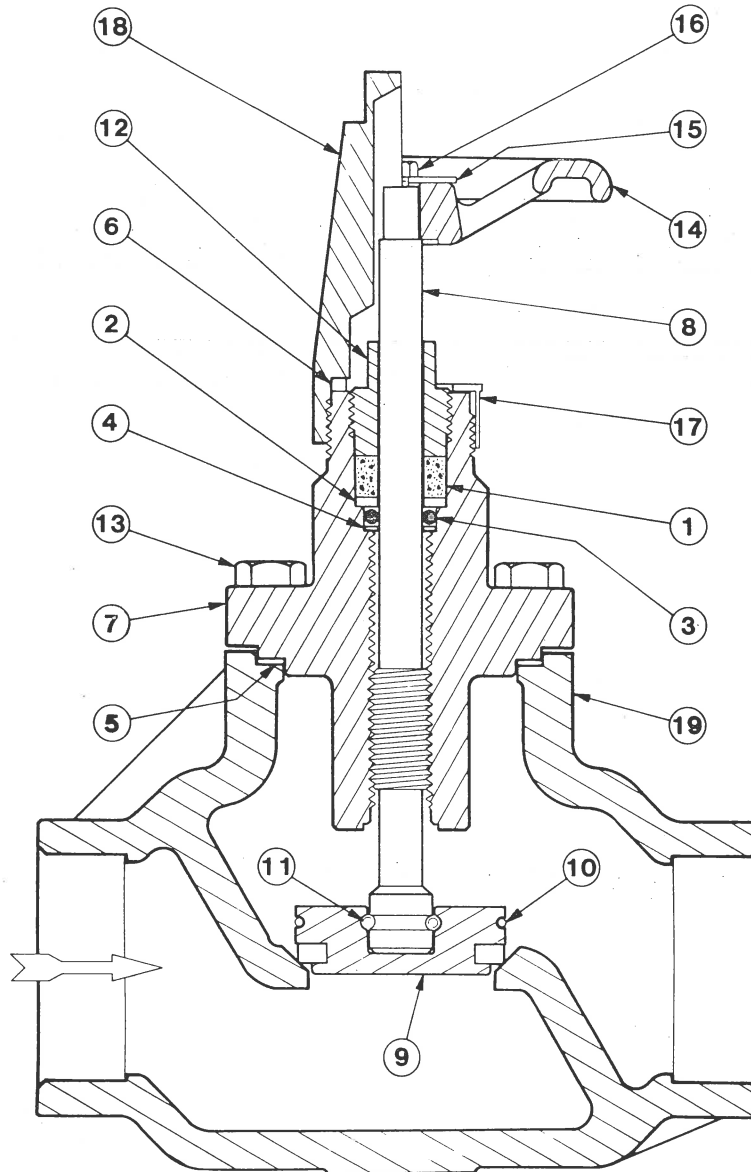
	D
1 1/2"	5/8"
2"	7/8"



W=1" (WEB THICKNESS)

ANGLE

1½" AND 2" SOCKET WELD VALVE



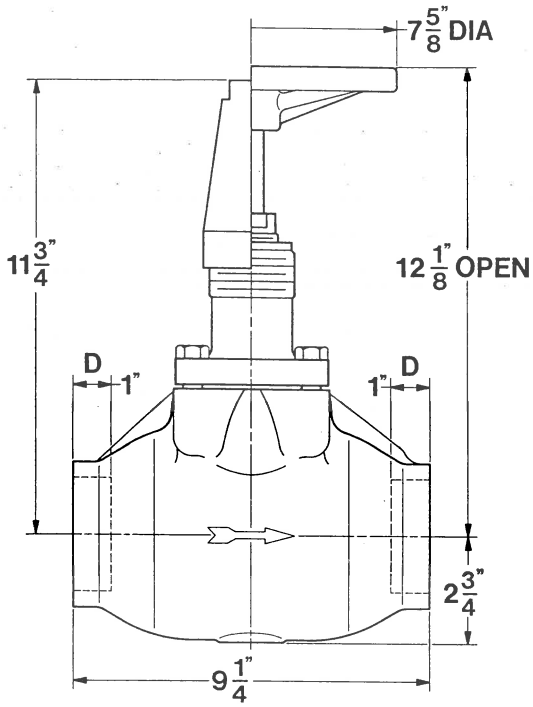
PARTS LIST

ITEM	DESCRIPTION	QTY	PART NO.
	Gasket Kit consists of:		50-1023
1	Stem Packing	1	50-0248
2	Stem Washer	1	50-0247
3	Stem O-ring	1	50-0253
4	Back-Up Washer	1	50-0351
5	Bonnet Gasket	1	50-0259
6	Seal Cap Gasket	1	50-0270
12	Packing nut	1	50-0251
	Bonnet Assembly Kit 1½", 2"		50-1024
	Above kit consists of:		
7	Bonnet	1	50-0239
8	Stem	1	50-0242
9	Disc Assembly	1	50-0363
10	Ball Retainer	1	50-0257
11	Balls	16	50-0016
13	Bonnet Bolts	4	50-0473
	Gasket Kit	1	50-1023

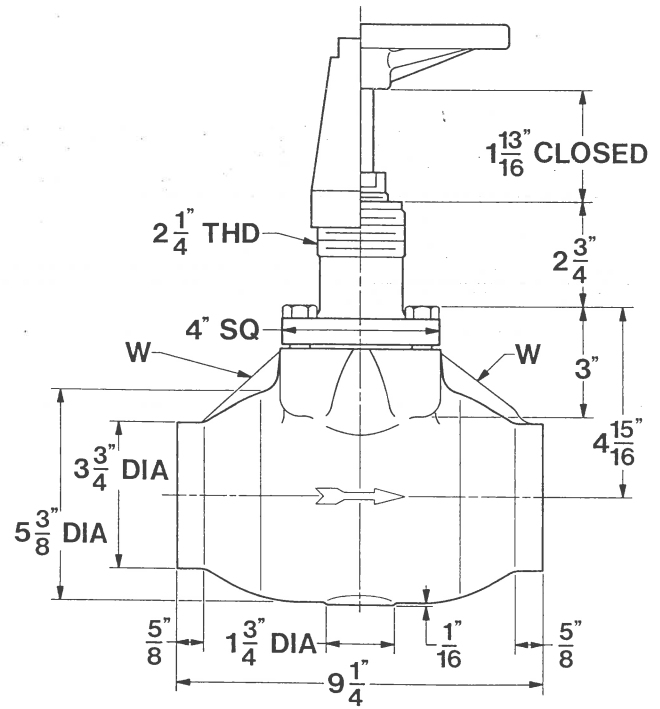
ITEM	DESCRIPTION	QTY	PART NO.
	Disc Assembly Kit consists of:		50-1025
9	Disc Assembly	1	50-0363
10	Ball Retainer	1	50-0257
11	Balls	16	50-0016
5	Bonnet Gasket	1	50-0259
	Handwheel Kit consists of:		50-1026
14	Handwheel	1	50-0321
15	Name Plate	1	50-0094
16	Screw	1	50-0254
17	Bonnet Thread Cap	1	50-0263
	Seal Cap Kit consists of:		50-1027
18	Seal Cap	1	50-0260
6	Seal Cap Gasket	1	50-0270
19a	Body, Globe 1½" S.W.	1	50-0232
19b	Body, Globe 2" S.W.	1	50-0233
19c	Body, Angle 1½" S.W.	1	50-0268
19d	Body, Angle 2" S.W.	1	50-0269

2 1/2" SOCKET WELD VALVE

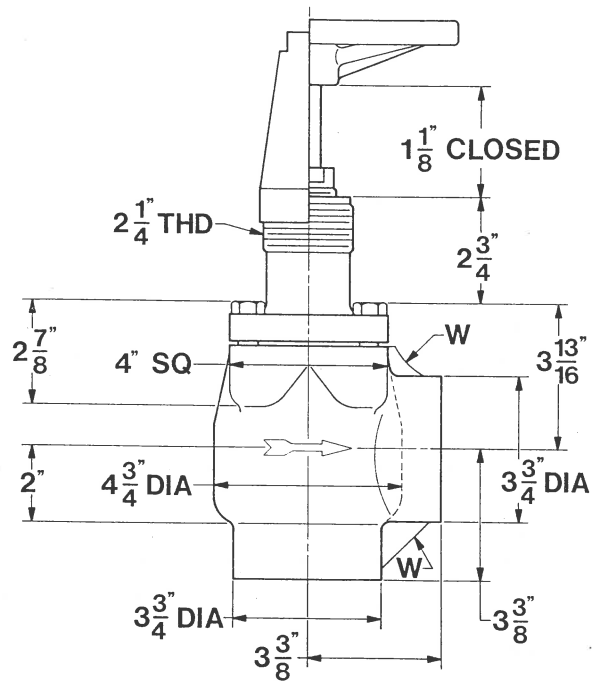
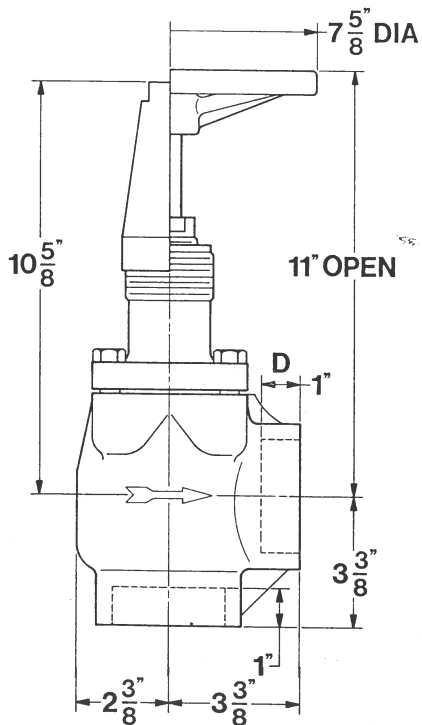
INSTALLATION DIMENSIONS



INSULATION DIMENSIONS

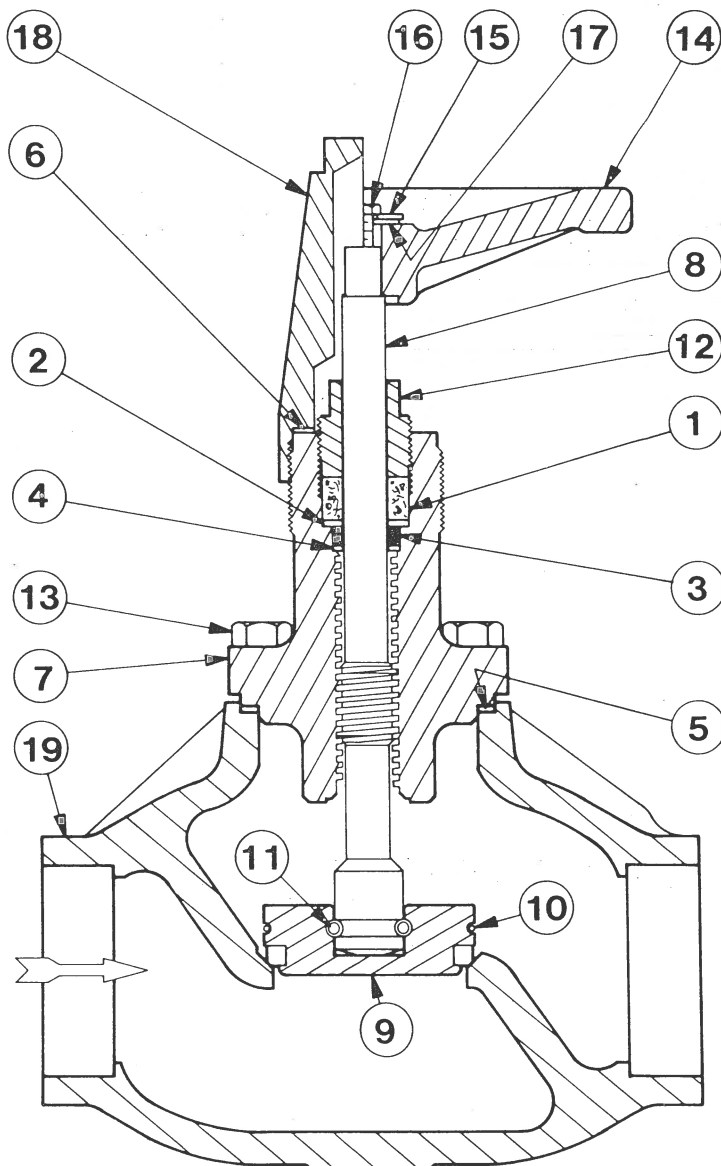


W=1 3/4" (WEB THICKNESS)



W=1 3/4" (WEB THICKNESS)

2 1/2" SOCKET WELD VALVE



PARTS LIST

ITEM	DESCRIPTION	QTY	PART NO.
	Gasket Kit consists of:		50-1043
1	Stem Packing	1	50-0290
2	Stem Washer	1	50-0299
3	Stem O-ring	1	50-0293
4	Back-Up Washer	1	50-0324
5	Bonnet Gasket	1	50-0310
6	Seal Cap Gasket	1	50-0315
12	Packing nut	1	50-0292
	Bonnet Assembly Kit 2 1/2"		50-1044
	Above kit consists of:		
7	Bonnet	1	50-0286
8	Stem	1	50-0287
9	Disc Assembly	1	50-0374
10	Ball Retainer	1	50-0297
11	Balls	15	50-0305
13	Bonnet Bolts	4	50-0294
	Gasket Kit	1	50-1043

ITEM	DESCRIPTION	QTY	PART NO.
	Disc Assembly Kit consists of:		50-1045
9	Disc Assembly	1	50-0374
10	Ball Retainer	1	50-0297
11	Balls	15	50-0305
5	Bonnet Gasket	1	50-0310
	Handwheel Kit consists of:		50-1037
14	Handwheel	1	50-0319
15	Name Plate	1	50-0318
16	Screw	1	50-0295
17	Support Washer	1	50-0480
	Seal Cap Kit consists of:		50-1038
18	Seal Cap	1	50-0304
6	Seal Cap Gasket	1	50-0315
19a	Body, Globe 2 1/2" S.W.	1	50-0456
19b	Body, Angle 2 1/2" S.W.	1	50-0457

STEM PACKING

If tightening of the packing nut is needed, use an 8" adjustable wrench. Extrusion of some black graphite packing material is normal. Refrigerant or oil leaking at the stem indicates that the O-ring or the adjustable packing needs to be replaced. To do so, open the valve seat firmly to the back-seat position. This separates the O-ring and packing from the system refrigerant. Remove the packing nut carefully. Then, use a wire hook or small-blade screwdriver to remove the packing and O-ring. Take care not to scratch the stem or bonnet sealing surfaces. Carefully install a new, lubricated stem O-ring, stem washers, and stem packing. Tighten the packing nut only enough to give the handwheel a slight turning friction.

VALVE SEAT

To inspect or replace the valve seat disc, isolate the valve from the system and safely pump out the refrigerant. With the stem open at least one turn, carefully remove the bonnet assembly. A 12" wrench is adequate for ½" and ¾" screwed bonnet valves and bonnet cap screws for 1½" through 2½" valves. An 18" wrench is required for 1" and 1¼" screwed bonnet valves. Proceed slowly and cautiously since some refrigerant may still be inside the valve body. The ½" through 1¼" valves have a unique safety vent to warn of internal pressure when removing the threaded bonnet.

If the conical seat surface in the body is marred, remove the marks with emery paper by hand or with a power drill. If the seat disc is damaged, replace the entire disc assembly by first removing the ball retainer ring and ball bearings. Install a new disc assembly, including new bearings and retainer ring. Prior to 1998, seat discs in ½" to 1¼" socket weld shut-off valves were made with lead. All seat discs are now made with Teflon. The new seat disc assemblies and replacement kits are interchangeable with the old. Install new stem packing, stem O-ring, stem washers, and bonnet O-ring or gasket, if necessary. Reassemble the bonnet into the valve body with the stem still open several turns. Tighten the threaded bonnet to a minimum torque of 75 foot pounds. Flange bonnet cap screws on the 1½" and 2" valves require a torque of 50 foot pounds. The 2½" valves require 60 foot pounds on the flange bonnet cap screws.

CAUTION

Hansen valves are for refrigeration systems only. Read these instructions completely before selecting, using, or servicing these valves. Only knowledgeable, trained refrigeration technicians should install, operate, or service these valves. Stated temperature and pressure limits should never be exceeded. Bonnets should not be removed from the valves unless the system has been evacuated to zero pressure. See also Safety Precautions in the current List Price Bulletin and the Safety Precautions Sheet supplied with the product. Escaping refrigerant may cause injury, particularly to the eyes and lungs.

ORDERING INFORMATION, SOCKET WELD SHUT-OFF VALVES

SIZE	DESCRIPTION	CAT. NO.
½"	Globe, Handwheel	GS051H
	Angle, Handwheel	AS051H
	Globe, Seal Cap	GS051C
	Angle, Seal Cap	AS051C
¾"	Globe, Handwheel	GS076H
	Angle, Handwheel	AS076H
	Globe, Seal Cap	GS076C
	Angle, Seal Cap	AS076C
1"	Globe, Handwheel	GS100H
	Angle, Handwheel	AS100H
	Globe, Seal Cap	GS100C
	Angle, Seal Cap	AS100C
1¼"	Globe, Handwheel	GS125H
	Angle, Handwheel	AS125H
	Globe, Seal Cap	GS125C
	Angle, Seal Cap	AS125C
1½"	Globe, Handwheel	GS150H
	Angle, Handwheel	AS150H
	Globe, Seal Cap	GS150C
	Angle, Seal Cap	AS150C
2"	Globe, Handwheel	GS200H
	Angle, Handwheel	AS200H
	Globe, Seal Cap	GS200C
	Angle, Seal Cap	AS200C
2½"	Globe, Handwheel	GS251H
	Angle, Handwheel	AS251H
	Globe, Seal Cap	GS251C
	Angle, Seal Cap	AS251C

All of the above valves are also available as expansion valves except the 2½".

WARRANTY

Hansen valves are guaranteed against defective materials and workmanship for one year F.O.B. our plant. No consequential damages or field labor is included.

TYPICAL SPECIFICATIONS

"Refrigerant shut-off valves from ½" through 2½" sizes shall have steel bodies machined for socket weld connections, stainless steel stems, back-seating design for packing replacement, bonnet threads for installation of stem seal caps, and suitability for a safe working pressure of 400 psig (27 bar), as manufactured by Hansen Technologies Corporation or approved equal."

HANSEN TECHNOLOGIES CORPORATION

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