

HANSEN TECHNOLOGIES CORPORATION



3/4" (20 mm) Globe Valve: GT076H

ISO 9002

INTRODUCTION

The advanced design and materials of Hansen threaded refrigerant shut-off valves make them far superior to commonly-available products, especially in regard to nonleakage of seats, stems, and bonnets. Anyone who has experienced the failure of a shut-off valve at a crucial time will take care to insist upon these highly-reliable valves.

APPLICATIONS

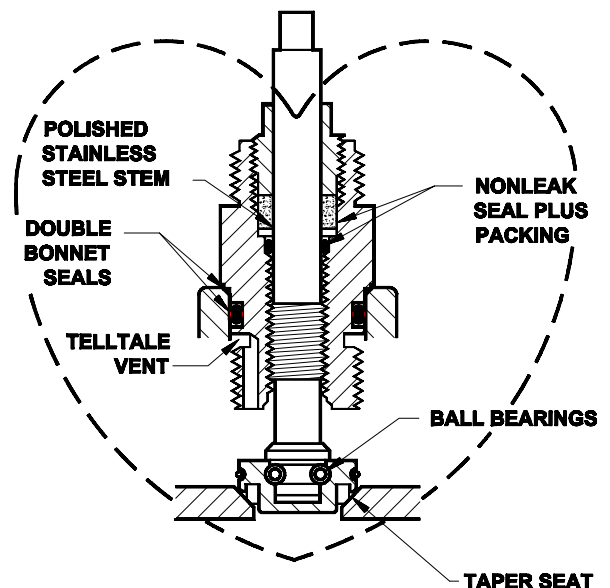
Hansen refrigeration valves are ideal for shut-off of liquid, suction, discharge, recirculating liquid, hot gas, and oil lines in ammonia refrigeration systems. When used with seal caps, these valves are also suitable for R22, R134a, and other Hansen-approved refrigerants in steel piping systems where threaded joints are desired. Valves can be ordered initially with seal caps, or valves can be converted later by removing the handwheel and plastic bonnet thread cap and installation of seal cap with its O-ring.

Specifications, Applications, Service Instructions & Parts

THREADED SHUT-OFF VALVES

3/8" through 1 1/4"
(10 mm through 32 mm) FPT
Globe & Angle
for refrigerants

KEY FEATURES



ADDITIONAL FEATURES

Perfected for ammonia refrigeration
Removable disc on conical polished seat
Teflon seat disc (no lead)
400 PSIG (27 bar) safe working pressure
Temperature range: -60F to +240F
(-50°C to +115°C)
Back seating for packing replacement
Globe and angle available
Handwheel or seal cap versions
U.S. Patent #4,550,896
Converts to Expansion Valve
Individually packaged and labeled
Nonasbestos gaskets
Made entirely in the USA

MATERIAL SPECIFICATIONS

Body: ductile iron, A-536
Bonnet: steel, zinc chromate plated
Stem: stainless steel
Disc holder: steel, zinc chromate plated
Seat disc: PTFE Teflon, retained
Ball bearings: stainless steel
Ball retainer ring: stainless steel
Packing nut: steel, zinc chromate plated
Stem packing: graphite composite plus neoprene O-ring
Handwheel: zamak alloy, zinc chromate plated
Seal cap: glass filled polymer, safety vented
Seal cap O-ring: neoprene
Bonnet gasket: Neoprene O-ring plus steel knife edge
Bonnet thread cap: polyethylene (remove above 200F)

ADVANTAGES

Compared to other ammonia threaded shut-off valves, Hansen valves are stronger, seals and seats are tighter, construction is simpler, and pressure drop is lower. One very important feature is the standard usage of stainless steel stems. This avoids packing deterioration and leakage by rust abrasion.

FLOW CAPACITIES (U.S. GPM/PSI)

SIZE	ANGLE		GLOBE	
	Cv	Eq. Length FT.	Cv	Eq. Length Ft.
3/8"	8	3.0	5	5.0
1/2"	9	3.7	6	5.5
3/4"	10	6.7	7	13.4
1"	26	3.9	18	8.1
1 1/4"	30	13.5	21	29.0

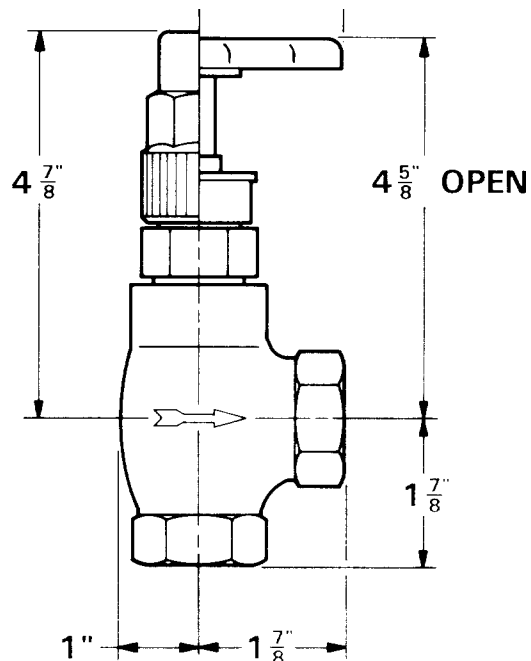
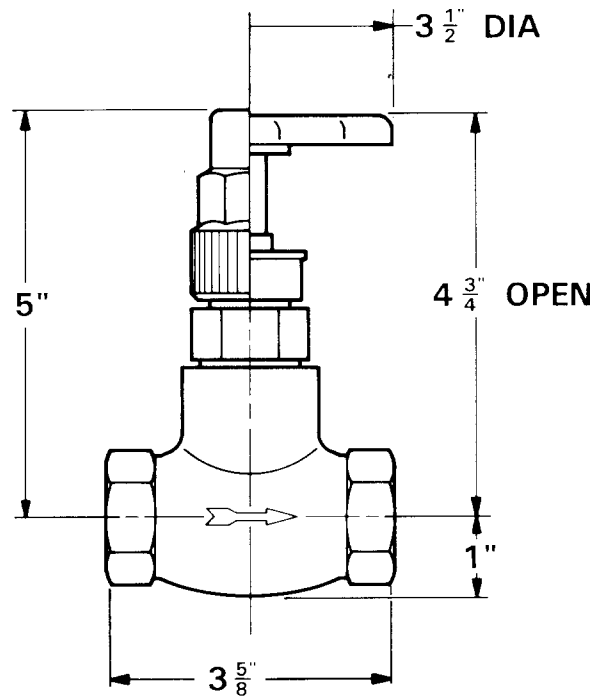
INSTALLATION

The most important factor, other than the valve itself, in achieving a leak-tight and secure threaded valve installation is selection and preparation of mating piping. Pipe 1 1/2" and smaller should be Schedule 80 Steel ASTM A-106 Grade B or equal, properly cut to the correct length, and cleanly and properly threaded with U.S. National Tapered Male Pipe Threads. The male threads on the piping and the female threads in the valves should be cleaned and inspected. Proper pipe thread sealant is recommended. Sealant should be applied evenly to act as a lubricant between the ductile iron and steel threads to avoid any chance of metal-to-metal thread "galling." Valve and piping should be adequately tightened with two wrenches positioned as close together as possible, but not touching the pipe threads. While "backwelding" the threaded steel pipe to the ductile iron body is possible for total elimination of thread leakage, this is not recommended in the field because a special welding rod and special techniques are necessary. Hansen weld valves should be used instead wherever a tight welded joint is desired. In the horizontal piping of suction, overfeed gas return, or condenser drain lines, globe valve or angle valve stems should be horizontal to avoid liquid trapping of gas flow at the valve body casting seat orifice.

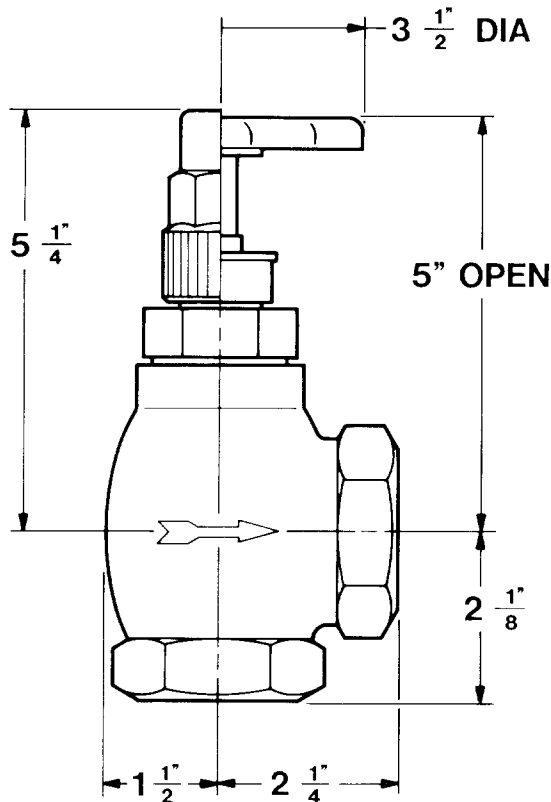
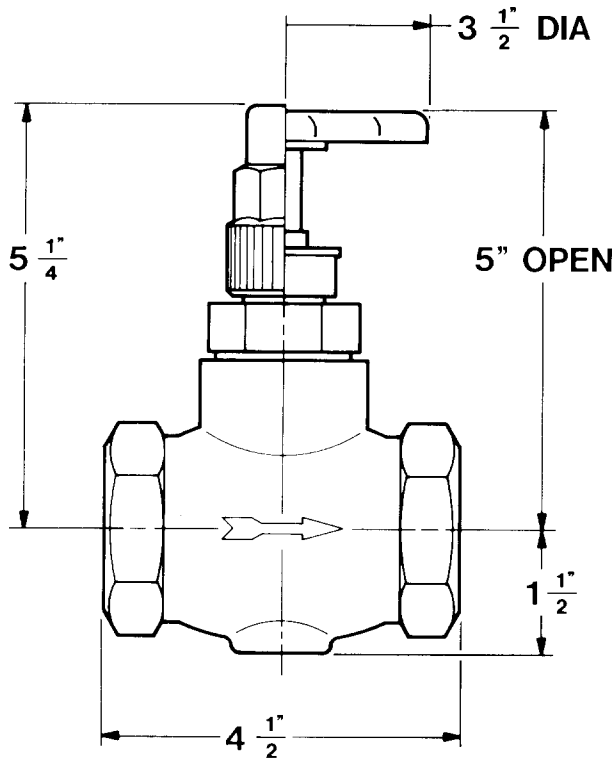
Before putting valves into service, all pipe connections, valve seats, bonnet seals, and stem seals should be tested for leaks at pressure levels called for in appropriate codes.

3/8" TO 3/4"

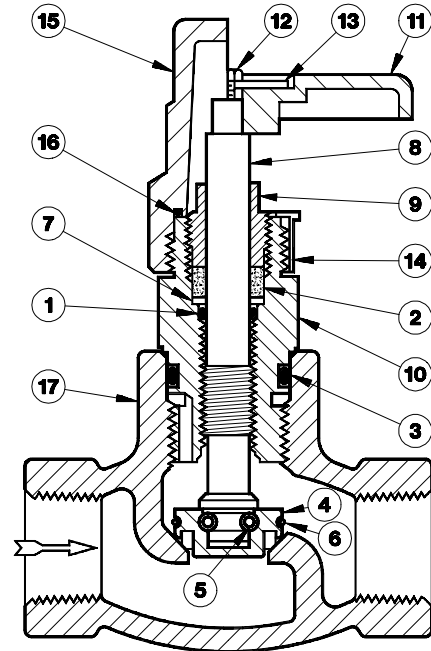
INSTALLATION DIMENSIONS



1" AND 1 1/4"
INSTALLATION DIMENSIONS



PARTS LIST



See page 4 for valve catalog numbers.

ITEM	DESCRIPTION	QTY	PART NO.
	GASKET KIT consists of:		50-1040†
1	Stem O-ring	1	50-0179
2	Stem Packing	1	50-0045
3a	Bonnet O-ring 3/8", 1/2", 3/4"	1	50-0453
3b	Bonnet O-ring 1", 1 1/4"	1	50-0017
7	Stem Washer	1	50-0046
16	Seal Cap O-ring	1	50-0432
9	Packing Nut	1	50-0013
	BONNET ASSEMBLY KIT 3/8", 1/2", 3/4"		50-1041†
	BONNET ASSEMBLY KIT 1", 1 1/4"		50-1021
	Above kits consist of:		
4a	Disc Assembly 3/8", 1/2", 3/4"	1	50-0803
4b	Disc Assembly 1", 1 1/4"	1	50-0804
5	Balls	10	50-0016
6a	Ball Retainer 3/8", 1/2", 3/4"	1	50-0439
6b	Ball Retainer 1", 1 1/4"	1	50-0026
8	Stem	1	50-0012
10a	Bonnet 3/8", 1/2", 3/4"	1	50-0422
10b	Bonnet 1", 1 1/4"	1	50-0429
	Gasket Kit	1	50-1040
	DISC ASSEMBLY KIT 3/8", 1/2", 3/4"		50-1042†
	DISC ASSEMBLY KIT 1", 1 1/4"		50-1004
	Above kits consist of:		
4a	Disc Assembly 3/8", 1/2", 3/4"	1	50-0803
4b	Disc Assembly 1", 1 1/4"	1	50-0804
5	Balls	10	50-0016
6a	Ball Retainer 3/8", 1/2", 3/4"	1	50-0439
6b	Ball Retainer 1", 1 1/4"	1	50-0026
3a	Bonnet O-ring 3/8", 1/2", 3/4"	1	50-0453
3b	Bonnet O-ring 1", 1 1/4"	1	50-0017
	HANDWHEEL KIT consists of:		50-1005
11	Handwheel	1	50-0027
12	Screw	1	50-0479
13	Name Plate	1	50-0094
14	Bonnet Thread Cap	1	50-0434
	SEAL CAP KIT consists of:		50-1036
15	Seal Cap	1	50-0423
16	Seal Cap O-ring	1	50-0432
17a	Body, Globe 3/8"	1	50-0504
17b	Body, Globe 1/2"	1	50-0505
17c	Body, Globe 3/4"	1	50-0506
17d	Body, Globe 1"	1	50-0035
17e	Body, Globe 1 1/4"	1	50-0036
17f	Body, Angle 3/8"	1	50-0507
17g	Body, Angle 1/2"	1	50-0508
17h	Body, Angle 3/4"	1	50-0509
17i	Body, Angle 1"	1	50-0037
17j	Body, Angle 1 1/4"	1	50-0038

†Replacement part kits for older, larger style 1/2" and 3/4" shut-off valves (GT050, AT050, GT075, AT075): Gasket Kit, 50-1040; Bonnet Assembly Kit, 50-1028; Disc Assembly Kit, 50-1042 (includes bonnet O-Ring 50-0017).

SERVICE AND MAINTENANCE

Hansen shut-off valves require practically no service or maintenance. The common ailment of valves—stem leakage—is almost entirely eliminated by the combination of polished stainless steel stems and reliable, conventional, adjustable packing supplementing fluid-tight O-ring stem seals. For optimum maintenance, occasional cleaning of the valve stem with a soft rag containing refrigerant oil is helpful. The patented O-ring stem seal design permits low torque hand operation to open and close the valve because the packing nut does not require much tightening. Do not use a wrench on these small handwheels; it is not necessary and could bend or break the handwheel.

STEM PACKING

Tightening of the packing nut is seldom necessary because the O-ring portion of stem sealing is continuous. However, if tightening is ever needed, use a 1/2" open end wrench or an 8" adjustable wrench. Extrusion of some black graphite packing material along the stem is normal. If the O-ring or the adjustable packing ever needs replacement, as evidenced by refrigerant or oil leakage at the stem, open the valve stem firmly to back-seat position. This separates the O-ring and packing from the system refrigerant. Carefully remove the packing nut and then use a wire hook or a 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 O-ring and 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 refrigerant. With stem open at least one turn, carefully remove the bonnet assembly. An 18" wrench is required. If the conical seat surface in the body is marred, remove the marks with emery paper by hand or power drill. If the seat disc is damaged, replace the entire disc assembly by first removing the ball retainer ring and ball bearings. Install the new disc assembly, including new balls and retainer ring. Prior to 1998, seat discs in 3/8" to 1 1/4" threaded shut-off valves were made with lead. Now all seat discs are made with Teflon. New seat disc assemblies (and replacement kits) are interchangeable with the old. Install new stem packing, stem O-ring, and bonnet O-ring if necessary. Reassemble the bonnet into the valve body with the stem still open at least several turns, and tighten the bonnet to a minimum torque of 75 foot pounds (102 Nm). This prevents the seal cap or valve stem excess opening torque from unscrewing the bonnet. A tattletale vent hole in the bonnet warns of interior valve pressure before the bonnet can be removed. Test the valve for leaks before returning it to service.

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 not 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 Schedule and the Safety Precautions Sheet supplied with this product. Escaping refrigerant can cause injury, especially to the eyes and lungs.

WARRANTY

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

ORDERING INFORMATION, THREADED VALVES

SIZE	DESCRIPTION	CAT. NO.
3/8"	Globe, Handwheel	GT038H
	Angle, Handwheel	AT038H
	Globe, Seal Cap	GT038C
	Angle, Seal Cap	AT038C
1/2"	Globe, Handwheel	GT051H
	Angle, Handwheel	AT051H
	Globe, Seal Cap	GT051C
	Angle, Seal Cap	AT051C
3/4"	Globe, Handwheel	GT076H
	Angle, Handwheel	AT076H
	Globe, Seal Cap	GT076C
	Angle, Seal Cap	AT076C
1"	Globe, Handwheel	GT100H
	Angle, Handwheel	AT100H
	Globe, Seal Cap	GT100C
	Angle, Seal Cap	AT100C
1 1/4"	Globe, Handwheel	GT125H
	Angle, Handwheel	AT125H
	Globe, Seal Cap	GT125C
	Angle, Seal Cap	AT125C

TYPICAL SPECIFICATIONS

"Threaded refrigerant shut-off valves shall have stainless steel stems, ductile iron bodies, back-seating design for packing replacement, bonnet threads for installation of stem seal caps, and be suitable for a safe working pressure of 400 psig (27 bar), as manufactured by Hansen Technologies Corporation or approved equal."

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