

C-AW300H Butt Weld Angle Valve

INTRODUCTION

These low pressure drop refrigerant shut-off valves are designed to be butt-welded directly to steel piping, thereby eliminating potential leaky flanges or threaded joints and simplifying installation. Forged and cast steel bodies are lightweight, yet have substantial wall thickness to help overcome corrosion loss. The cast steel body is rigid, reducing the potential for seat leakage due to flexing of the valve body under abnormal conditions. The “heart” of Hansen shut-off valves is the patented non-leak seal plus design. This seal design is used exclusively on Hansen shut-off valves and virtually eliminates stem seal leakage. These valves have been redesigned to function at a higher working pressure for sub-critical CO₂ applications.

APPLICATIONS

Typical uses include:

Ammonia, Halocarbon, or CO₂ refrigeration system suction, liquid, discharge, recirculating liquid, hot gas, thermosyphon, and oil lines, using handwheel (standard) or seal cap models.

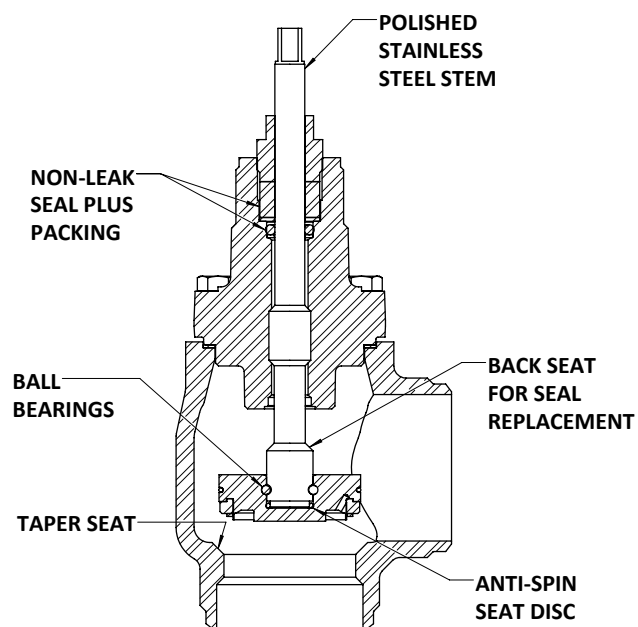
Specifications, Applications, Service Instructions & Parts

BUTT WELD SHUT-OFF VALVES

**1/2" through 3"
(13mm through 80mm)
Globe & Angle
for Refrigerants**

TSG Certified

KEY FEATURES



ADDITIONAL FEATURES

Globe and angle valves available.

Low pressure drop design

Interchangeable handwheel (STANDARD) or seal cap.

Teflon seat disc.

Also available as Hand Expansion Valve.

Suitable for R717 (ammonia), R22, R134a, R507a, R404a, R744 (CO₂) and other Hansen approved refrigerants.

754 psig (52 bar g) SWP standard.

MATERIAL SPECIFICATIONS

Body: ½" to 1¼" (13mm–32mm), forged steel, ASTM A350 Grade LF2; 1½" to 3" (40mm–450mm), cast steel, ASTM A-352, Grade LCB

Bonnet: Forged Steel, ASTM A350 Grade LF2

Stem: Polished stainless steel

Disc Holder: Plated steel

Seat Disc: Retained PTFE Teflon

Ball Bearings: Stainless steel

Packing Nut: Zinc plated steel

Stem Packing: Graphite composite plus neoprene
O-ring in series

Handwheel: ½" to 1¼" (13mm–32mm) Zinc plated alloy;
1½" to 3" (40mm–80mm) Zinc plated iron alloy;

Seal Cap: ½" to 1¼" (13mm–32mm) Glass-filled polymer, safety vented; 1½" to 3" (40mm–80mm) Zinc plated steel.

Operating Temperature:

Standard, –60°F to 240°F (–51°C to 115°C),

Safe Working Pressure: 754 psig (52 bar g) standard

Connection Dimensions: ½" to 1 ½" Match Schedule

80 pipe, 2" to 3" Match Schedule 40 pipe.

ADVANTAGES

Compared to conventional stem seal designs, Hansen's patented no leak seal-plus-stem-packing virtually eliminates stem seal leakage. In addition, the stem is polished to avoid packing wear. The precision stem threads avoid stem wobble and the packing nut is close fitting to remove dirt particles and frost from the stem. This results in infrequent maintenance or tightening and almost no refrigerant loss.

Hansen valves are designed with anti-spin seat discs. High velocity gas can sometimes cause ordinary seat discs to fail over time. Hansen adds a snubber to prevent the seat disc from freely rotating when valve is in the open position.

Compared to threaded valves, Hansen welding valves eliminate the chance of future leaks at pipe threads. In addition, a butt weld pipe-to-valve body joint eliminates the inherent weakness and corrosion vulnerability of the threaded portion of pipe immediately adjacent to a screwed valve body or flange.

Compared to ball valves, Hansen welding valves have no threaded or flanged-gasket pipe joints. Hansen valves also will not open or close so rapidly as to cause severe pipe shock due to sudden change in liquid velocity. In addition, ball valve stem packing typically cannot be replaced while the valve is in a pressurized line. The stem packing on these Hansen valves can be replaced while the valve is in a pressurized line. Also, dirt or damage to ball valve Teflon seats cannot be overcome by greater stem closing forces, an advantage of Hansen valves.

INSTALLATION

All Hansen welded valves can be installed in horizontal or vertical pipe lines. Stems are normally installed horizontally, but, depending on the application, stems may be installed vertically. Inlet pressure or direction of flow for all valve sizes should normally be under valve seat disc. However, to avoid installing an angle valve with the stem down, it is better to install the valve with the normal flow opposite the direction of the arrow.

Care must be taken when handling and installing large valves. Proper lifting devices and safety precautions must be observed.

A valve should have its bonnet assembly removed before welding. This reduces weight during welding, protects the Teflon seat disc from welding sparks, and facilitates cleaning of welding debris from the body interior prior to valve operation. The valve stem should be several turns open when removing and replacing the bonnet assembly. The Teflon seat disc should be protected when outside of the valve. Do not allow the Teflon seat to bump the valve body when removing it or stand the bonnet on the seat disc.

Where it is necessary or standard practice to weld a valve into the line without bonnet removal, the stem should be opened several turns to prevent heat damage to the seat disc. Extra care should be taken when welding angle valves without disassembly to avoid welding sparks striking the seat from the outlet weld connection.

Use of welding rings is recommended. They help alignment, control the gap for full penetration welding, and reduce the potential of welding debris entering the system. Welds should be annealed as necessary in accordance with good practice. Painting of valves and welds is recommended for corrosion protection. Pipe covering, where applied, should have a proper moisture barrier.

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

Shut-off valves leading to the atmosphere must not be left unsupervised and must be plugged or capped to prevent corrosion inside the valve as well as leakage due to seat expansion, vibration, pressure shock, or improper opening. Where hand wheel valves are subject to excessive vibration or liquid shock loads, the packing nut should be tightened to prevent handwheel vibration from potentially rotating valve stem. The valve seat should be cracked open to prevent hydrostatic expansion between the valve and the cap. A bleed valve and gauge should be installed to provide a means of monitoring and pump-out. Valves should never directly feed a water tank because of potential internal corrosion or seat opening caused by vibration.

INSULATION

Conventional valve-shaped block insulation can occasionally be used for both angle and globe valves. However, fabricated insulation shapes are recommended. If not available locally, Hansen can recommend a source of high quality, economical valve insulation. For exterior valve insulation dimensions refer to Sales Drawing 5002-28.

SIZING GUIDE

These flow capacity recommendations are not affected by the length of the pipe line. These are approximate optimum sizes based on power costs versus the investment costs of piping and its total installed cost. Piping sized to this capacity will have a 1°F (0.6°C) pressure drop for the following equivalent lengths:

suction lines 700 diameters
 discharge lines 1400 diameters
 liquid lines 2400 diameters

Example: 275 feet (84m) of 3" (80mm) pipe and equivalent fittings amount to 1100 diameters, pressure drop for a suction line handling 81.5 tons (287 kW) at 20°F (-7°C) is 1100/700 times 1°F (0.6°C) drop, equals 1.6°F (1°C) or 1.8 psi (0.12 bar).

Example: Hansen valves have about 145 diameters of equivalent flow resistance, or 145/700 = 0.2°F (0.12°C) of equivalent pressure drop at the suction line capacities shown for a valve in a suction line.

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

For more convenient valve sizing, please consult the Hansen sizing and quoting tool located on the Hansen website.

FLOW COEFFICIENTS

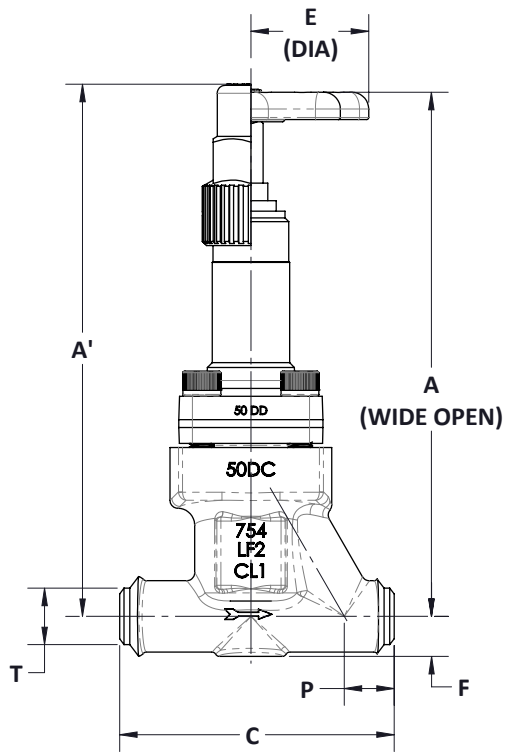
| NOMINAL SIZE | | ANGLE | | | | GLOBE | | | |
|--------------|----|------------------|-----|-------------------|--------|------------------|-----|-------------------|--------|
| INCH | MM | FLOW COEFFICIENT | | EQUIVALENT LENGTH | | FLOW COEFFICIENT | | EQUIVALENT LENGTH | |
| | | Cv | Kv | FEET | METERS | Cv | Kv | FEET | METERS |
| 1/2" | 13 | 6.0 | 5.2 | 3.7 | 1.1 | 4.0 | 3.5 | 8.4 | 2.6 |
| 3/4" | 20 | 9.0 | 7.8 | 8.4 | 2.6 | 8.0 | 6.9 | 11 | 3.2 |
| 1" | 25 | 19 | 16 | 7.2 | 2.2 | 15 | 13 | 12 | 3.5 |
| 1¼" | 32 | 21 | 18 | 27 | 8.2 | 16 | 14 | 46 | 14 |
| 1½" | 40 | 53 | 46 | 10 | 3.0 | 41 | 35 | 16 | 5.0 |
| 2" | 50 | 80 | 69 | 23 | 7.0 | 67 | 58 | 33 | 10 |
| 2½" | 65 | 173 | 150 | 13 | 3.8 | 163 | 141 | 14 | 4.3 |
| 3" | 80 | 205 | 177 | 28 | 8.5 | 195 | 169 | 31 | 9.3 |

**FLOW CAPACITIES
PIPING AND VALVE SIZING GUIDE FOR AMMONIA**

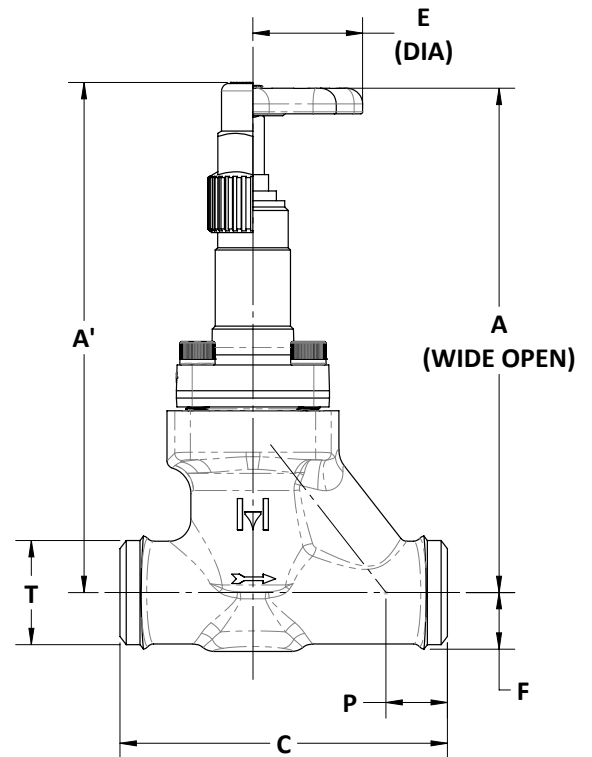
| SERVICE | CONDITIONS | | | | CAPACITIES (MM) | | | | | | | |
|---------------------------------------|-------------|---------|----------|--------|-----------------|-------|-----------|-------|---------|-------|-------------|-------|
| | TEMPERATURE | | PRESSURE | | 1/2" (13) | | 3/4" (20) | | 1" (25) | | 1 1/4" (32) | |
| | °F | (°C) | PSIG | (BAR) | TONS | (kW) | TONS | (kW) | TONS | (kW) | TONS | (kW) |
| Suction Lines Single Stage Compressor | +20 | (-6.7) | 33.5 | (2.3) | - | - | - | - | 8.6 | (30) | 15.8 | (56) |
| | 0 | (-17.8) | 15.7 | (1.1) | - | - | - | - | 5.7 | (20) | 10.4 | (37) |
| Suction Lines Booster | -20 | (-28.9) | 3.6 | (0.25) | - | - | - | - | 4.2 | (15) | 7.4 | (26) |
| | -40 | (-40) | 8.7" | (0.7) | - | - | - | - | - | - | 4.4 | (15) |
| Liquid Overfeed Return Lines (4X) | +20 | (-6.7) | 33.5 | (2.3) | - | - | - | - | 5.0 | (18) | 9.1 | (32) |
| | 0 | (-17.8) | 15.7 | (1.1) | - | - | - | - | 3.4 | (12) | 6.3 | (22) |
| | -20 | (-28.9) | 3.6 | (0.25) | - | - | - | - | 2.2 | (8.0) | 4.0 | (14) |
| | -40 | (-40) | 8.7" | (0.7) | - | - | - | - | - | - | 2.4 | (8.0) |
| Hot Gas Feed Hot Gas Main | +70 | (+21.1) | 114 | (7.9) | 2.2 | (8) | 4.3 | (15) | 7.3 | (26) | 14.1 | (50) |
| | +70 | (+21.1) | 114 | (7.9) | 4.4 | (15) | 8.6 | (30) | 14.7 | (52) | 28.1 | (99) |
| Compressor Discharge | +86 | (+30) | 155 | (10.7) | - | - | - | - | 12.6 | (44) | 24.1 | (85) |
| Condenser Drains | +86 | (+30) | - | - | 6.0 | (21) | 14.5 | (51) | 24.0 | (84) | 50.0 | (176) |
| Liquid Mains | +86 | (+30) | - | - | 28.3 | (100) | 53.1 | (187) | 90.8 | (320) | 143 | (503) |
| Liquid Feed Branch | +86 | (+30) | - | - | 54.9 | (193) | 103 | (363) | 176 | (620) | 277 | (975) |
| Liquid Overfeed Supply (4X) | +10 | (-12.2) | - | - | 9.0 | (32) | 17.0 | (60) | 29.0 | (102) | 46.0 | (162) |

| SERVICE | CONDITIONS | | | | CAPACITIES (MM) | | | | | |
|---------------------------------------|-------------|---------|----------|--------|-----------------|--------|-------------|--------|---------|--------|
| | TEMPERATURE | | PRESSURE | | 2" (50) | | 2 1/2" (65) | | 3" (80) | |
| | °F | (°C) | PSIG | (BAR) | TONS | (kW) | TONS | (kW) | TONS | (kW) |
| Suction Lines Single Stage Compressor | +20 | (-6.7) | 33.5 | (2.3) | 35.7 | (126) | 51.1 | (180) | 81.5 | (287) |
| | 0 | (-17.8) | 15.7 | (1.1) | 22.7 | (80.0) | 34.0 | (120) | 53.9 | (190) |
| Suction Lines Booster | -20 | (-28.9) | 3.6 | (0.25) | 16.8 | (59.0) | 24.8 | (87.0) | 39.7 | (140) |
| | -40 | (-40) | 8.7" | (0.7) | 9.9 | (35.0) | 14.4 | (51.0) | 23.4 | (82.3) |
| Liquid Overfeed Return Lines (4X) | +20 | (-6.7) | 33.5 | (2.3) | 20.6 | (72.4) | 29.4 | (103) | 47.0 | (165) |
| | 0 | (-17.8) | 15.7 | (1.1) | 13.6 | (48.0) | 20.5 | (72.0) | 32.4 | (114) |
| | -20 | (-28.9) | 3.6 | (0.25) | 8.9 | (31.3) | 13.1 | (46.0) | 21.0 | (74.0) |
| | -40 | (-40) | 8.7" | (0.7) | 5.4 | (19.0) | 7.90 | (28.0) | 12.8 | (45.0) |
| Hot Gas Feed Hot Gas Main | +70 | (+21.1) | 114 | (7.9) | 36.5 | (128) | 53.0 | (186) | 82.5 | (290) |
| | +70 | (+21.1) | 114 | (7.9) | 73.0 | (257) | 106 | (373) | 165 | (580) |
| Compressor Discharge | +86 | (+30) | 155 | (10.7) | 62.6 | (220) | 90.3 | (318) | 142 | (499) |
| Condenser Drains | +86 | (+30) | - | - | 140 | (492) | 220 | (774) | 375 | (1319) |
| Liquid Mains | +86 | (+30) | - | - | 454 | (1597) | 657 | (2311) | 1031 | (3626) |
| Liquid Feed Branch | +86 | (+30) | - | - | 881 | (3098) | 1273 | (4477) | 1999 | (7030) |
| Liquid Overfeed Supply (4X) | +10 | (-12.2) | - | - | 144 | (506) | 208 | (732) | 327 | (1150) |

GLOBE INSTALLATION DIMENSIONS
1/2" THROUGH 1 1/4" (13MM THROUGH 32MM)



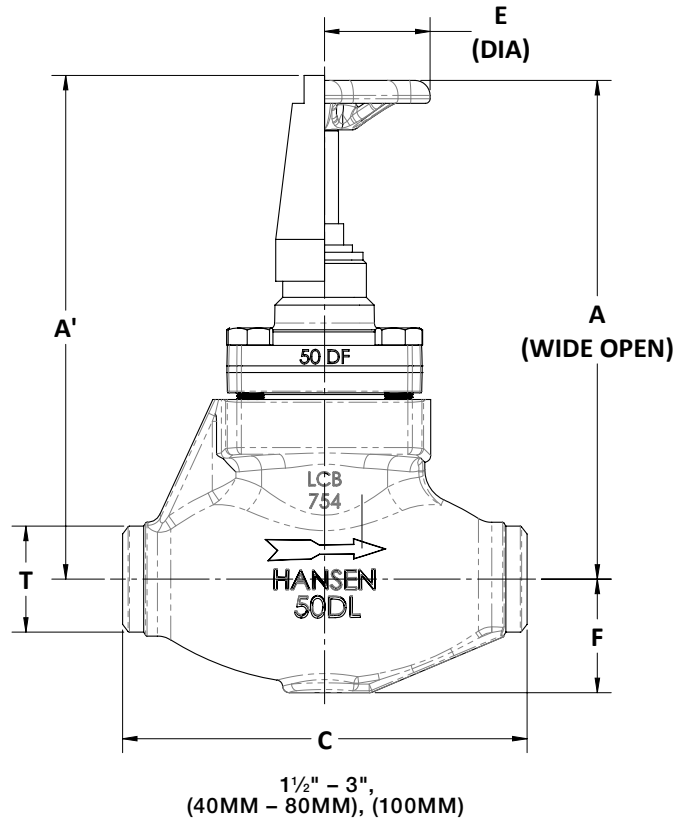
1/2" AND 3/4"
(13MM AND 20MM)



1" AND 1 1/4"
(25MM AND 32MM)

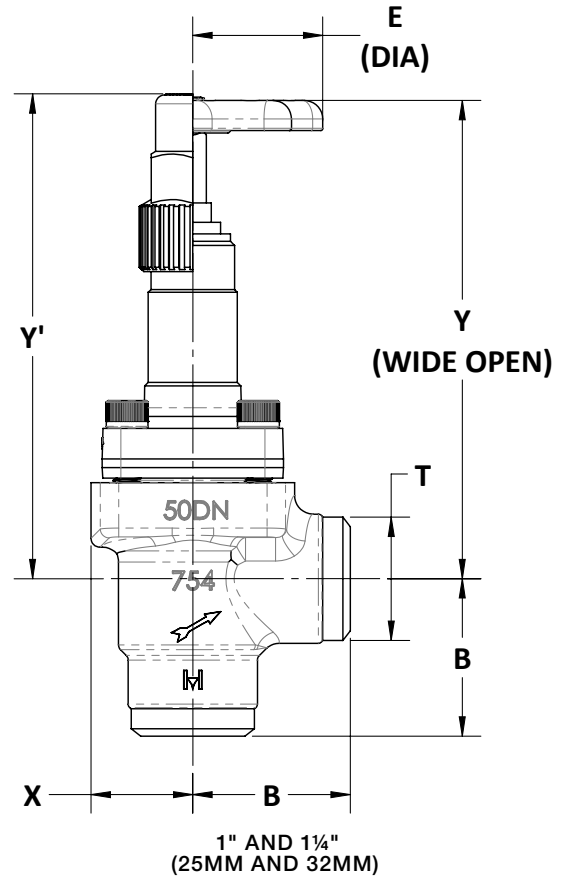
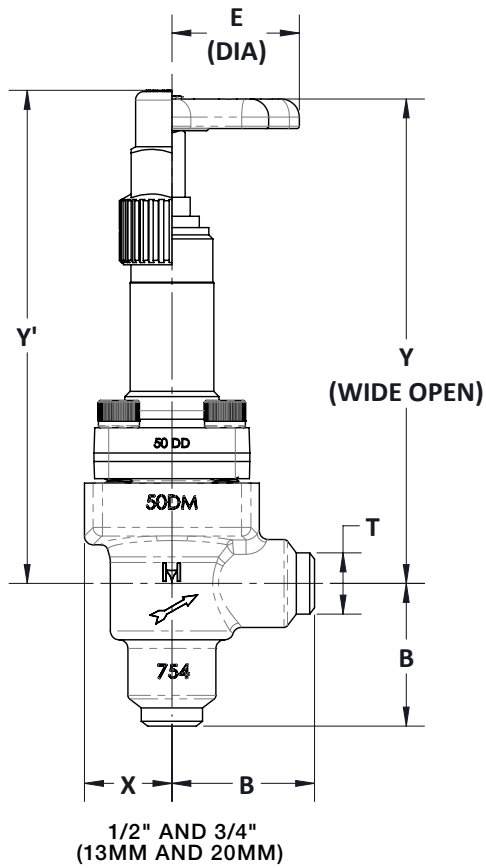
| SIZE (MM) | A | A' | C | E | F | P | T |
|----------------|----------------|----------------|----------------|---------------|---------------|---------------|---------------|
| 1/2" (13) | 7.55" (192) | 7.91" (201) | 4.08" (104) | 1.75" (44) | 0.59" (15) | 0.71" (18) | 0.84" (21) |
| 3/4" (20) | 7.55" (192) | 7.91" (201) | 4.08" (104) | 1.75" (44) | 0.59" (15) | 0.71" (18) | 1.05" (27) |
| 1" (25) | 7.81" (198) | 8.14" (207) | 5.22" (133) | 1.75" (44) | 0.94" (24) | 0.91" (23) | 1.31" (33) |
| 1-1/4" (32) | 7.81" (198) | 8.14" (207) | 5.22" (133) | 1.75" (44) | 0.94" (24) | 0.90" (23) | 1.66" (42) |

GLOBE INSTALLATION DIMENSIONS
1½" THROUGH 3" (40MM THROUGH 80MM)



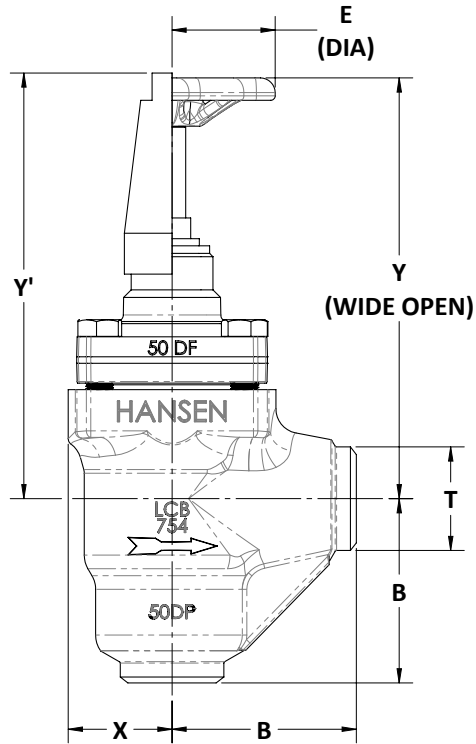
| SIZE (MM) | A | A' | C | E | F | P | T |
|-------------|-----------------|-----------------|----------------|----------------|---------------|---|---------------|
| 1½" (40) | 8.88" (225) | 9.13" (232) | 7.25" (184) | 4.25" (108) | 2.12" (54) | – | 1.90" (48) |
| 2" (50) | 8.88" (225) | 9.13" (232) | 7.25" (184) | 4.25" (108) | 2.13" (54) | – | 2.38" (60) |
| 2½" (65) | 12.13" (308) | 11.75" (298) | 9.25" (235) | 7.63" (194) | 2.75" (70) | – | 2.88" (73) |
| 3" (80) | 12.13" (308) | 11.75" (298) | 9.25" (235) | 7.63" (194) | 2.75" (70) | – | 3.50" (89) |

ANGLE INSTALLATION DIMENSIONS
½" THROUGH 1¼" (13MM THROUGH 32MM)



| SIZE (MM) | B | E | T | X | Y | Y' |
|--------------|---------------|---------------|---------------|---------------|----------------|----------------|
| 1/2" (13) | 2.33" (59) | 3.50" (89) | 0.84" (21) | 1.07" (27) | 6.46" (164) | 6.70" (170) |
| 3/4" (20) | 2.33" (59) | 3.50" (89) | 1.05" (27) | 1.07" (27) | 6.46" (164) | 6.70" (170) |
| 1" (25) | 2.75" (70) | 3.50" (89) | 1.31" (33) | 1.22" (31) | 6.24" (158) | 6.52" (166) |
| 1¼" (32) | 2.75" (70) | 3.50" (89) | 1.66" (42) | 1.22" (31) | 6.24" (158) | 6.52" (166) |

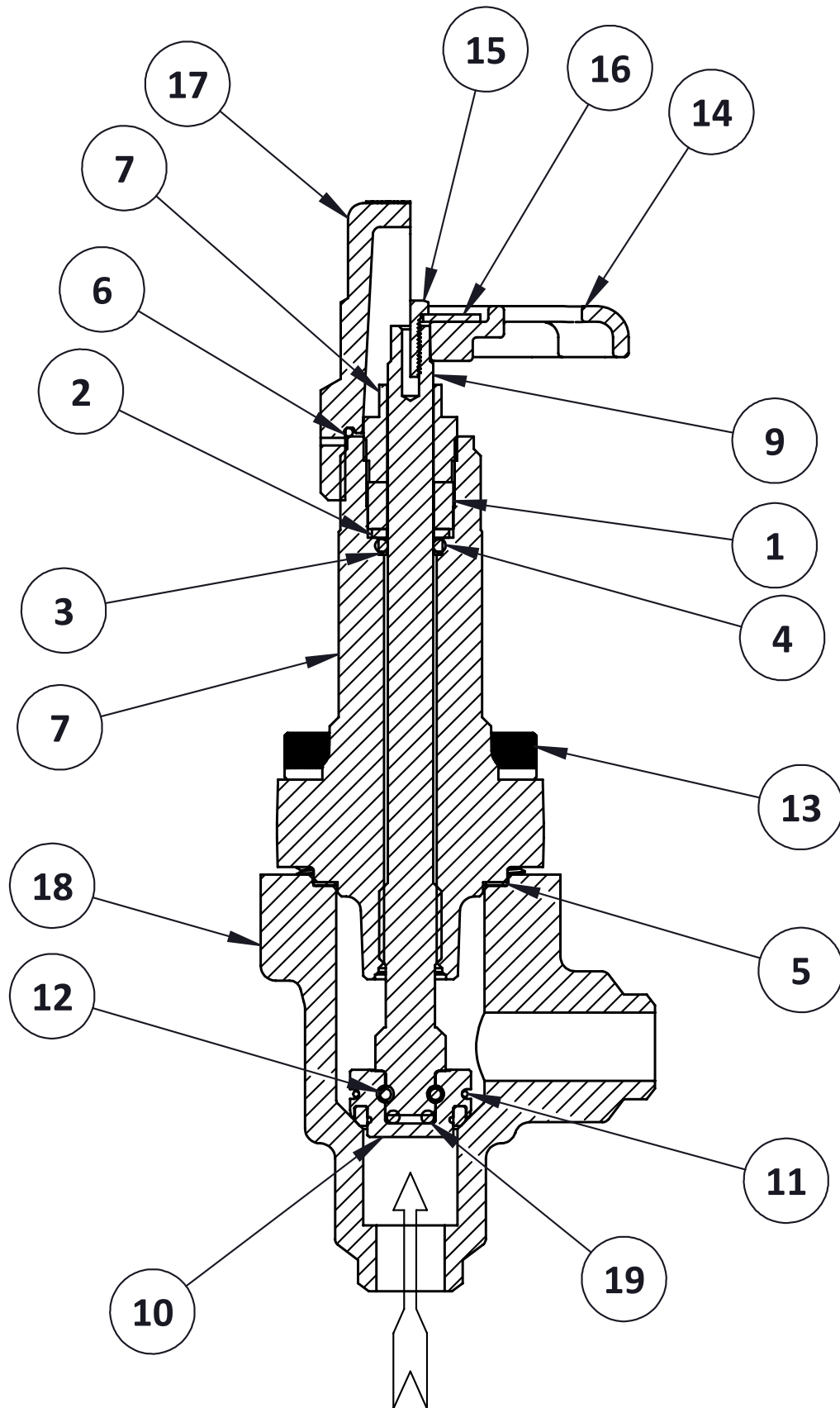
ANGLE INSTALLATION DIMENSIONS
1½" THROUGH 3" (40MM THROUGH 80MM)



1½" – 3"
 (40MM – 80MM)

| SIZE (MM) | B | E | T | X | Y | Y' |
|-------------|---------------|----------------|---------------|---------------|-----------------|-----------------|
| 1½" (40) | 3.38" (86) | 4.25" (108) | 1.90" (48) | 1.88" (48) | 7.75" (197) | 8.00" (203) |
| 2" (50) | 3.38" (86) | 4.25" (108) | 2.38" (60) | 1.88" (48) | 7.75" (197) | 8.00" (203) |
| 2½" (65) | 3.38" (86) | 7.63" (194) | 2.88" (73) | 2.38" (60) | 11.00" (280) | 10.63" (270) |
| 3" (80) | 3.38" (86) | 7.63" (194) | 3.50" (89) | 2.38" (60) | 11.00" (280) | 10.63" (270) |

1/2" THROUGH 1 1/4" (13 MM THROUGH 32 MM) BUTT WELD SHUT-OFF VALVES



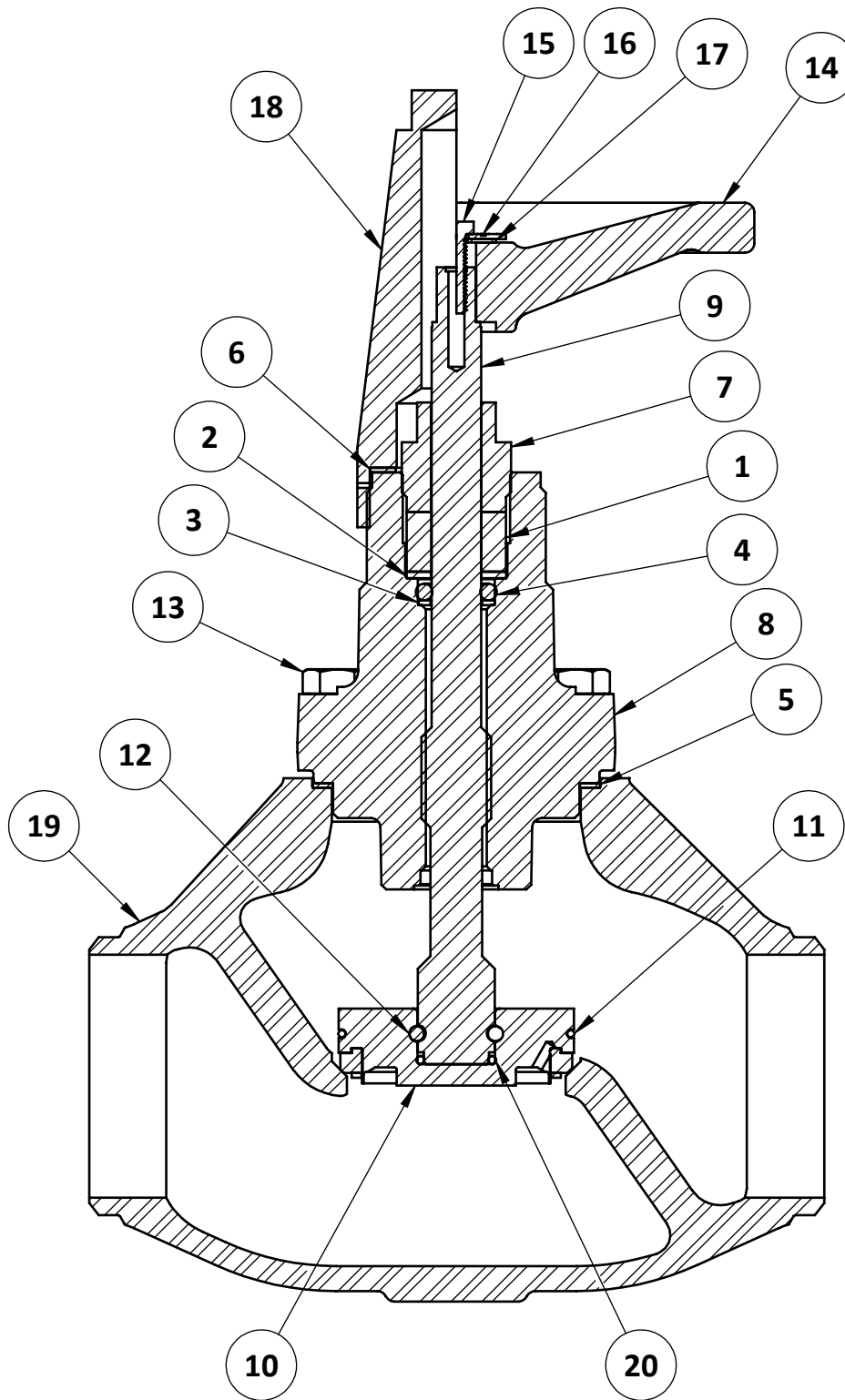
NOTE: Angle valve shown; kits are the same for globe valves.

REPLACEMENT PARTS – BUTT WELD SHUT-OFF VALVES

1/2" THROUGH 1 1/4" (13MM THROUGH 32MM)

| ITEM | DESCRIPTION | QTY | PART NO |
|------|---|-----|----------------------------------|
| | Gasket Kit 1/2", 3/4", 1", 1-1/4" (13mm, 20mm, 25mm, 32mm) <i>Above kits consist of:</i> | | 50-1500 |
| 1 | Stem Packing | 1 | |
| 2 | Stem Washer | 1 | |
| 3 | Stem O-ring | 1 | |
| 4 | Back-up Washer | 1 | |
| 5 | Bonnet Gasket | 1 | |
| 6 | Seal Cap O-ring | 1 | |
| 7 | Packing Nut | 1 | |
| 19 | O-ring, Anti-Spin | 1 | |
| | Bonnet Assembly Kit 1/2", 3/4" (13mm, 20mm) Bonnet Assembly Kit 1", 1-1/4" (25mm, 32mm) <i>Above kits consist of:</i> | | 50-1501 50-1502 |
| 8 | Bonnet | 1 | |
| 9 | Stem | 1 | |
| 10 | Disc Assembly | 1 | |
| 11 | Balls Retainer | 1 | |
| 12 | Balls | 10 | |
| 13 | Bonnet Cap Screw | 4 | |
| | Gasket Kit | 1 | |
| | Handwheel Kit <i>Above kit consists of:</i> | | 50-1005 |
| 14 | Handwheel | 1 | |
| 15 | Screw | 1 | |
| 16 | Nameplate/Handwheel Washer | 1 | |
| | Bonnet Thread Cap | 1 | |
| | Seal Cap Kit <i>Above kit consist of:</i> | | 50-1036 |
| 6 | Seal Cap O-Ring | 1 | |
| 17 | Seal Cap | 1 | |
| 18 | Body | 1 | |

1½" THROUGH 3" (40MM THROUGH 80MM) – BUTT WELD SHUT-OFF VALVES



NOTE: Globe valve shown; kits are the same for angle valves.

REPLACEMENT PARTS – BUTT WELD SHUT-OFF VALVES

1½" THROUGH 3" (40MM THROUGH 80MM)

| ITEM | DESCRIPTION | QTY. | KIT NO |
|------|---|------|--------|
| | Gasket Kit 1-1/2", 2" (40mm, 50mm) | | |
| | Gasket Kit 2-1/2", 3" (65mm, 80mm) | | |
| | Above kits consist of: | | |
| 1 | Stem Packing | 1 | |
| 2 | Stem Washer | 1 | |
| 3 | Back-up Washer | 1 | |
| 4 | Stem O-Ring | 1 | |
| 5 | Bonnet Gasket | 1 | |
| 6 | Seal Cap Gasket | 1 | |
| 7 | Packing Nut | 1 | |
| 20 | O-Ring, Anti-Spin | 1 | |
| | Bonnet Assembly Kit 1-1/2", 2" (40mm, 50mm) | | |
| | Bonnet Assembly Kit 2-1/2", 3" (65mm, 80mm) | | |
| | <i>Above kits consist of</i> | | |
| 8 | Bonnet | 1 | |
| 9 | Stem | 1 | |
| 10 | Disc Assembly | 1 | |
| 11 | Ball Retainer | 1 | |
| 12 | Balls | 16 | |
| 13 | Bonnet Cap Screw | 4 | |
| | Gasket Kit | 1 | |
| | Handwheel Kit 1-1/2", 2" (40mm, 50mm) | | |
| | Handwheel Kit 2-1/2", 3" (65mm, 80mm, 100mm) | | |
| | <i>Above kits consist of</i> | | |
| 14 | Handwheel | 1 | |
| 15 | Screw | 1 | |
| 16 | Nameplate | 1 | |
| 17 | Support Washer | | |
| | Seal Cap Kit 1-1/2", 2" (40mm, 50mm) | | |
| | Seal Cap Kit 2-1/2", 3" (65mm, 80mm, 100mm) | | |
| | <i>Above kits consist of</i> | | |
| 6 | Seal Cap Gasket | 1 | |
| 18 | Seal Cap | 1 | |
| 19 | Body | 1 | |

SERVICE AND MAINTENANCE

Hansen steel butt welding shut-off valves require practically no service or maintenance due to the combination of polished stainless steel stems and reliable O-ring stem seals plus graphite composite packing. This almost entirely eliminates stem leakage, the common ailment of shut-off valves.

To help ensure safety, verify the tightness of the packing nut whenever the position (open or closed) is changed on isolation shut-off valves before opening the system. Ensuring that the packing nut is tight helps reduce the possibility that any line or system vibration may cause a slight unseating of a closed valve.

STEM PACKING

When verifying the tightness of the packing nut, use an 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 the back-seat position. This separates the O-ring and packing from the system refrigerant. Remove the packing nut carefully 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 the backup washer (1½"-18" or 13mm-450mm only), new lubricated stem O-ring, stem washer, and stem packing. Tighten the packing nut only enough to give the handwheel slight turning friction.

VALVE SEAT

To inspect or replace the valve seat disc, isolate the valve from the system and safely pump out all refrigerant to zero pressure with the stem open at least one turn. Evenly loosen all bolts one to two turns. Using a screwdriver, break the seal between the bonnet and valve body, proceeding cautiously to avoid any refrigerant which may still remain inside the valve body. Remove the bonnet bolts and bonnet assembly, being careful not to damage the Teflon seat disc surface. If the seat surface in the body is marred, it may be possible to repair the seat by polishing with emery paper.

If the Teflon seat disc is damaged, replace the entire disc assembly ½" (13mm) thru 3" (100mm) by first removing the ball retainer spring, ball bearings and anti-spin O-ring. Install a new disc assembly including anti-spin O-ring. Alternately, use a lathe to take a ⅛" (0.4 mm) by 45° surface cut on the Teflon seat.

Replace body gasket or O-ring and reassemble bonnet into body using care not to damage Teflon seat surface. Be careful not to pinch the O-ring. If necessary, retain O-ring in O-ring groove by using a suitable O-ring grease. Ensure the stem is opened at least several turns.

Hansen assembles valves with bonnet cap screws factory tightened as follows: ½" to 1¼" (13mm to 32mm)– 15 ft-lb (20 Nm); 1½" (40mm) to 3" (80mm) - 30 ft-lb (41 Nm).

TROUBLESHOOTING VALVE LEAKS

On the rare occasion when a small valve leak is discovered, the following procedures may help:

Stem seal leaks – The possibility of this occurrence is based on many factors, such as frequency of use, exercising, debris or rust on stem, etc. First, simply tighten the packing nut to see if this eliminates the leak. If not, back seat the valve or isolate it entirely from the refrigeration system. See Stem Packing section of this bulletin.

Bonnet gasket leaks – If a gasket leak is discovered at the bonnet-to-body interface, first bring the pressure in the valve to zero pressure and check the bonnet bolt tightness. If the leak persists, isolate the valve from the refrigeration system and disassemble the valve. Check the gasket sealing surfaces on the bonnet and valve body for scratches or gouges. These scratches can sometimes be polished smooth. Install a new gasket and reassemble the valve. Evenly tighten all bolts to properly seat the bonnet. Repeat the pressure test.

ORDERING INFORMATION,

| SIZE | DESCRIPTION | CAT NO |
|------------------|------------------|-----------|
| 1/2" (13mm) | Globe, Handwheel | C-GWB052H |
| | Angle, Handwheel | C-AWB051H |
| | Globe, Seal Cap | C-GWB052C |
| | Angle, Seal Cap | C-AWB051C |
| 3/4" (20mm) | Globe, Handwheel | C-GWB077H |
| | Angle, Handwheel | C-AWB076H |
| | Globe, Seal Cap | C-GWB077C |
| | Angle, Seal Cap | C-AWB076C |
| 1" (25mm) | Globe, Handwheel | C-GWB102H |
| | Angle, Handwheel | C-AWB101H |
| | Globe, Seal Cap | C-GWB102C |
| | Angle, Seal Cap | C-AWB101C |
| 1 1/4" (32mm) | Globe, Handwheel | C-GWB127H |
| | Angle, Handwheel | C-AWB126H |
| | Globe, Seal Cap | C-GWB127C |
| | Angle, Seal Cap | C-AWB126C |
| 1 1/2" (40mm) | Globe, Handwheel | C-GW151H |
| | Angle, Handwheel | C-AW151H |
| | Globe, Seal Cap | C-GW151C |
| | Angle, Seal Cap | C-AW151C |
| 2" (50mm) | Globe, Handwheel | C-GW201H |
| | Angle, Handwheel | C-AW201H |
| | Globe, Seal Cap | C-GW201C |
| | Angle, Seal Cap | C-AW201C |
| 2 1/2" (65mm) | Globe, Handwheel | C-GW252H |
| | Angle, Handwheel | C-AW252H |
| | Globe, Seal Cap | C-GW252C |
| | Angle, Seal Cap | C-AW252C |
| 3" (80mm) | Globe, Handwheel | C-GW302H |
| | Angle, Handwheel | C-AW302H |
| | Globe, Seal Cap | C-GW302C |
| | Angle, Seal Cap | C-AW302C |

CAUTION

Hansen valves are for refrigeration only. These instructions must be completely read and understood before selecting, using or servicing Hansen valves and electronics. Only knowledgeable, trained refrigeration mechanics should install, operate, or service. Stated temperature and pressure limits should not be exceeded. Bonnets should not be removed from valves unless system has been evacuated to zero pressure. See also Safety Precautions in the current List Price Schedule and the Safety Precautions Sheet supplied with product.

WARRANTY

All Hansen products, except electronics, are guaranteed against defective materials or workmanship for one year F.O.B. factory. Electronics are guaranteed against defective materials or workmanship for 90 days F.O.B. factory. No consequential damages or field labor is included.

TYPICAL SPECIFICATIONS

"Weldable refrigerant shut-off valves shall have stainless steel stems with dual seals, forged or cast steel bodies, back-seating design for packing replacement, bonnet threads for installation of stem seal caps, butt weld ends machined dimensionally correct for schedule 80 pipe (sizes 1/2"-1 1/2"), schedule 40 pipe (sizes 2"-3") and suitable for a safe working pressure of 754 psig (52 bar g) or as manufactured by Hansen Technologies Corporation, or approved equal."



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