



HSCK200C STOP/CHECK VALVE

Specifications, Applications, Service Instructions & Parts

COMBINATION STOP/CHECK VALVES

1-1/4" thru 6"
(32 mm thru 150 mm)
Angle for refrigerants



INTRODUCTION

These durable, carbon-steel-bodied valves are a combination stop valve and normally-spring-closed check valve. Valves open wide for full flow in the arrow direction on the valve body and promptly reseal when reverse flow occurs. Stainless steel valve stems facilitate positive manual closing while Teflon disc seats assure reliable, long-life seating. Use of these combination valves reduces pressure drop, minimizes space requirements, and simplifies installation.

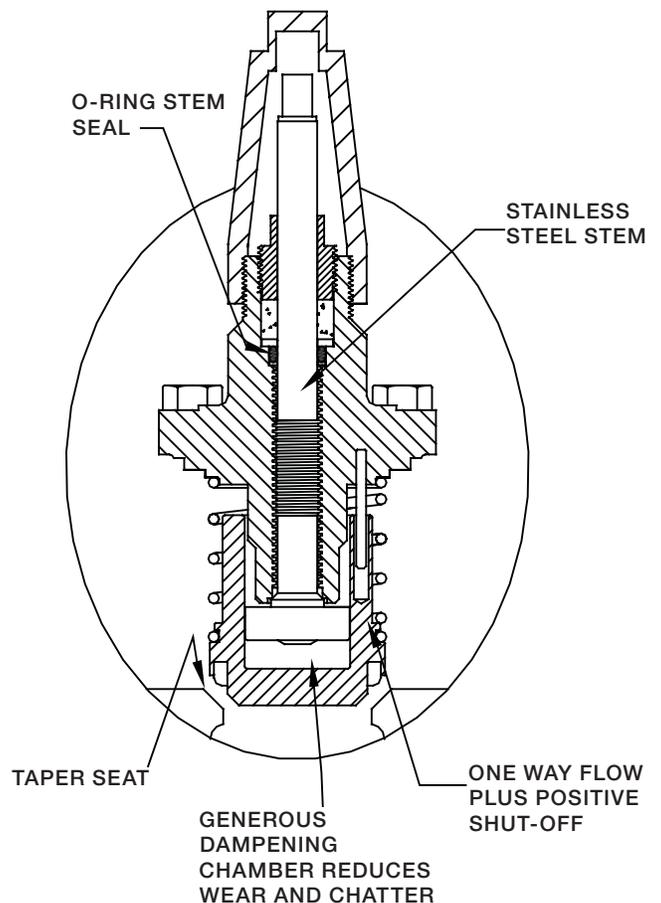
APPLICATIONS

Stop/check valves can be used instead of separate shut-off valves and check valves in refrigeration liquid-suction, and hot gas lines. They are ideal for liquid pump and compressor discharge applications and eliminate the need for pressure relief valve between the conventional check valve and stop valve. Their design makes them particularly well suited for small package equipment and compact assemblies where space may not be available for two separate valves.

ADDITIONAL FEATURES

- Single seat means no trapping liquid.
- Dampening chamber design minimized potential check valve chatter.
- Seal cap is standard, handwheels are available.
- Only 1 psi (.07 bar) pressure drop is required to open.
- Suitable for ammonia, R22, R134a, CO2 and other compatible refrigerants.

KEY FEATURES



MATERIAL SPECIFICATIONS

Body:

1¼" (32 mm): ASTM A105, forged carbon steel

1½" to 6" (32 mm to 150 mm): ASTM A352 Grade LCB cast steel

Bonnet: ASTM A536, ductile iron

Stem: Stainless steel

Spring: Steel

Disc Assy: ASTM A536, Ductile iron with Teflon seat

Packing Nut: Steel

Stem Packing: Graphite composite with Neoprene O-ring in series

Seal Cap: 1¼" Glass filled polymer, 1½" to 4" (50 mm to 100 mm) Zinc plated Steel, 5" to 6" (125 mm to 150 mm) Cast Aluminum

Temperature Range: -50°F to 240°F (-45°C to 115°C)

Safe Working Pressure: 400 psig (27 bar), 600 psig (40 bar) for CO₂

ADVANTAGES

These combination stop/check valves avoid the need for a separate check valve and shut-off valve and also reduce pressure drop and the number of welded joints.

For refrigerant liquid pump discharge, the combination stop/check reduces the pressure drop, space required, and liquid trapping between the separate check valves and stop valves.

For screw compressors, the combination stop/check in the discharge line (or even in high temperature suction line) saves pressure drop, space, connections, and total cost.

For a large defrosting evaporator fed by pumped low pressure liquid, the combination stop/check valve is useful to prevent pressure loss through the liquid line during hot gas defrost.

While the valve cannot be serviced separately, in most systems there exists other stop valves which can be used to isolate the stop/check valve if necessary.

CONNECTION DIMENSIONS

Match US pipe having these gauges:

1¼", 1½" SW: Schedule 80 steel

2" SW: Schedule 40 steel

2-1/2" to 6" BW: Schedule 40 steel

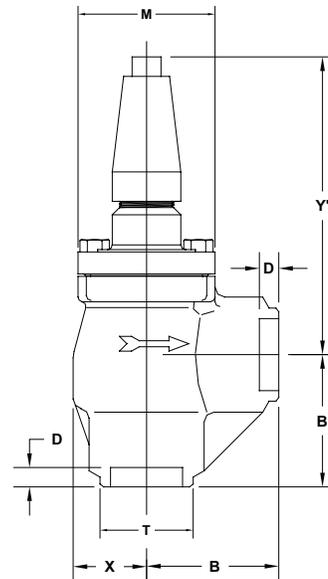
FLOW COEFFICIENTS

SIZE	ANGLE	
	Cv (Kv)	EQUIV. LENGTH FEET (M)
1-1/4" (32)	30 (26)	14 (4.3)
1-1/2" (40)	53 (46)	11 (3.4)
2" (50)	80 (89)	18 (5.5)
2-1/2" (65)	173 (150)	22 (6.7)
3" (80)	205 (177)	31 (9.4)
4" (100)	320 (277)	51 (15.6)
5" (125)	600 (519)	45 (13.7)
6" (150)	820 (709)	61 (18.6)

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INSTALLATION DIMENSIONS

INCHES (MM)



SIZE (mm)	B	D	M	T	X	Y
1-1/4" (32)	2.75" (70)	.62" (16)	2.44" (62)	-	1.56" (40)	6.52" (166)
1-1/2" (40)	3.38" (86)	.62" (16)	3.50" (89)	-	1.88" (48)	8.00" (203)
2" (50)	3.38" (86)	.88" (22)	3.50" (89)	-	1.88" (48)	8.00" (203)
2-1/2" (65)	3.38" (86)	-	4.00" (102)	2.88" (73)	2.38" (60)	10.63" (270)
3" (80)	3.38" (86)	-	4.00" (102)	3.50" (89)	3.47" (88)	10.63" (270)
4" (100)	3.38" (86)	-	5.50" (140)	4.50" (114)	3.00" (76)	10.63" (270)
5" (125)	4.47" (131)	-	6.75" (171)	5.56" (141)	3.47" (88)	16.62" (426)
6" (150)	5.15" (131)	-	9.88" (251)	6.63" (168)	3.85" (98)	16.78" (426)

INSTALLATION

Install these valves with flow in the same direction as the arrow on the body. Installation with the stem in a vertical position is recommended.

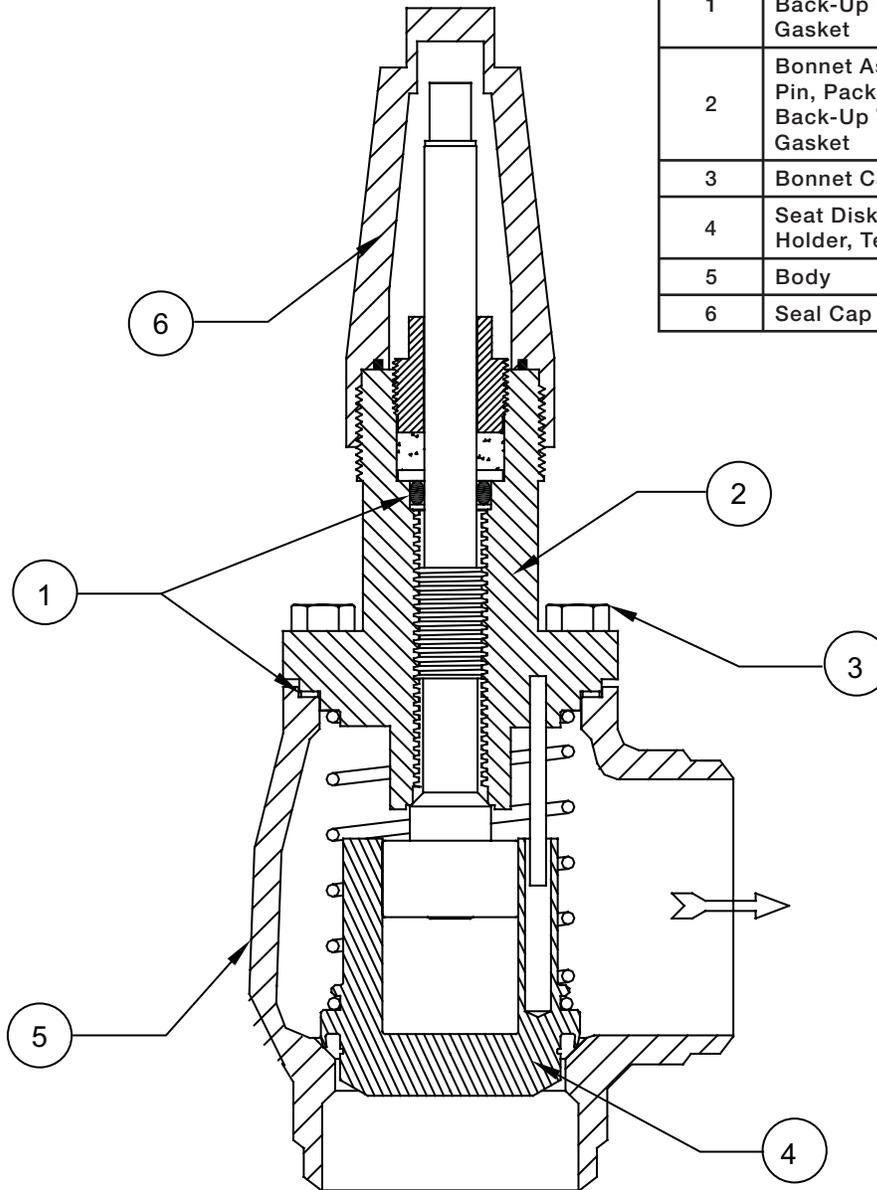
Valves should have the bonnet, spring, and disc assemblies removed before welding. This reduces weight, protects Teflon seat from welding heat and weld slag, and facilitates cleaning of welding debris from the valve body prior to operation. Valve stem should be several turns open when removing or replacing the bonnet/disc assembly. (Protect Teflon seats when seat disc assembly is outside the valve body).

Use of welding rings is optional but recommended. They help with alignment, control gap for full penetration welding, and reduce welding debris entry. Welds should be annealed as necessary in accordance with good practice. Painting of valves is recommended for corrosion protection.

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.

PARTS LIST

ITEM	DESCRIPTION
1	Gasket Kit: Bonnet Gasket, Stem Packing, Back-Up Washer, Stem O-Ring, Seal Cap Gasket
2	Bonnet Assembly: Stem Assy, Bonnet, Guide Pin, Packing Nut, Packing, Packing Washer, Back-Up Washer, Stem O-Ring, Bonnet Gasket
3	Bonnet Cap Screws
4	Seat Disk Assembly: Spring, Seat Disc Holder, Teflon Seat, Bonnet Gasket
5	Body
6	Seal Cap Kit: Seal Cap, Seal Cap O-Ring



PARTS LIST CATALOG NUMBERS

ITEM	1-1/4" (32 mm)	1-1/2" (40 mm)	2" (50 mm)	2-1/2" (65 mm)	3" (80 mm)	4" (100 mm)	5" (125 mm)	6" (150 mm)
1	50-1153	50-1136	50-1136	50-1137	50-1137	50-1138	50-1139	50-1140
2	50-1141	50-1142	50-1142	50-1143	50-1143	50-1144	50-1145	50-1146
3	50-0183	50-0473	50-0473	50-0294	50-0294	50-0521	50-0521	50-0732
4	50-1147	50-1148	50-1148	50-1149	50-1149	50-1150	50-1151	50-1152
5	50-0781	50-0268	50-0269	50-0285	50-0289	50-0516	50-0673	50-0680
6	50-1036	50-1027	50-1027	50-1038	50-1038	50-1038	50-1092	50-1092

VALVE SEAT

If the valve does not seem to be working satisfactorily, isolate the system and safely pump out refrigerant to zero gauge pressure. Retract open the valve stem to a full position and carefully loosen the bonnet bolts to break the gasket seal, and then remove bolts to separate this spring loaded unit. The spring force may push the unit apart. Separate the bonnet from the valve body and remove the disc assembly from the valve body to inspect the seat.

If the seat surface on the body is marred, polishing with emery paper may repair it.

If the Teflon seat disc in the disc is damaged, change the entire seat disc assembly.

To reassemble, place the seat disc assembly into the valve body. Use a new bonnet gasket. Align the guide pin in the bonnet to the guide hole in the disc assembly. Tighten the bonnet bolts in a diagonally crossing pattern. Each socket head bolt on the 1-1/4" valve requires a minimum torque of 30ft-lbs (40 Nm). The cap screws on the 1-1/2" and 2" require a minimum torque of 40 ft-lbs (55 Nm). The cap screws on the 2-1/2", 3" and 4" require a minimum torque of 60 ft-lbs (82 Nm), 60 ft-lbs (82 Nm) and 180 ft-lbs (245 Nm) respectively. The 5" and 6" valves will need a minimum torque of 200 ft-lbs (270 Nm) on the cap screws.

Test the valve for leaks before restoring service.

SERVICE AND MAINTENANCE

Hansen combination-stop-check 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 eliminates stem leakage.

Valves should be inspected on a regular basis for proper operation and mechanical integrity. Valves exhibiting excessive corrosion should be repaired or replaced.

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. See the CAUTION section. 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 a backup washer, new lubricated stem O-ring, stem washer, and stem packing. Tighten the packing nut only enough to give the handwheel slight turning friction.

CAUTION

Hansen valves are only for refrigeration systems. These instructions must be completely read and understood before selecting, using or servicing Hansen valves. Only knowledgeable, trained refrigeration mechanics should install, operate, or service these valves. Stated temperature and pressure limits should not be exceeded. Bonnets, solenoid tubes, etc. should not be removed from valves unless system has been evacuated to zero pressure. Must also see Safety Precautions in current List Price Bulletin and 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 combination shut-off and check valves shall have stainless steel stems with dual seals, teflon seats with closing springs, forged or cast steel bodies, back-seating design for packing replacement, bonnet threads for seal caps socket weld 1-1/4" thru 2", butt weld ends which are machined dimensionally correct for proper US pipe schedule and gauge 2-1/2" thru 6", suitability for a safe working pressure of 400 psig (27 bar), 600 psig (40 bar) for CO₂, as manufactured for Hansen Technologies Corporation, or approved equal."

ORDERING INFORMATION

SIZE INCHES (MM)	DESCRIPTION	CAT. NO.
1-1/4" (32)	ANGLE, SEAL CAP	HSCK125C
1-1/2" (40)	ANGLE, SEAL CAP	HSCK150C
2" (50)	ANGLE, SEAL CAP	HSCK200C
2-1/2" (65)	ANGLE, SEAL CAP	HSCK250C
3" (80)	ANGLE, SEAL CAP	HSCK300C
4" (100)	ANGLE, SEAL CAP	HSCK400C
5" (125)	ANGLE, SEAL CAP	HSCK500C
6" (150)	ANGLE, SEAL CAP	HSCK600C

Straight through bodied valves available on special order; contact factory. Handwheels available.

TO ORDER: Specify catalog number.

HANSEN

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