GAS POWERED SUCTION STOP VALVE

Type CK-2

Port Size: 32mm to 150mm (1¼" - 6")

February 2003
Installation Information

Purpose

These special valves are used on low temperature applications to positively close suction lines and both liquid legs and gas returns on flooded evaporators. Because of the spring, no line pressure drop is required to open the valve; therefore, on suction line applications pressure drop is nominal; on flooded evaporators normal gravity circulation is unrestricted. Being pressure powered to close, this valve can overcome sticking at low temperatures caused by the presence of viscous oil.

Principles of Operation

For closing of the CK-2, condenser gas pressure or pressure from another source is admitted to the inlet on top of #1 Piston. The gas pressure acting on the #1 Piston forces the piston down, compressing #2 Spring, firmly seating on the valve seat bead. The valve will not close unless pressure above the piston exceeds the downstream pressure by at least 0.35 bar (5 psi). For opening the CK-2 Valve the remote pressure source must be closed. The higher pressure above #1 Piston will equalize through the piston bleed hole to the lower pressure downstream of main valve allowing #2 Spring to open valve fully. The valve will not open until pressure above the piston is equalized with the downstream pressure after de-energizing, or closing, of the pilot solenoid valve.

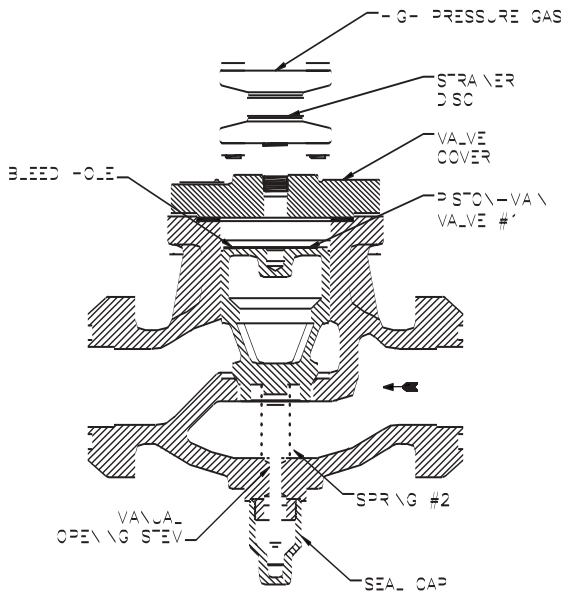

Fig 1

Manual Lift Stem

If it is desired to hold open the CK-2 check valve manually, remove #6 Sealing Cap (See Fig. 3) and turn #11 Seat Lifting Stem inward as far as possible. Valve cannot close now until the #11 Seat Lift Stem is once again turned out.

Installation

Protect inside of valve from dirt and chips during installation. The CK-2 Suction Stop Valve may be installed on its side or vertically upright in either vertical or horizontal pipe lines. When used on suction lines, the arrow on the valve body should point in the direction of normal fluid flow. When used on either gas or liquid legs of a flooded evaporator, the arrow on the valve body should point from the evaporator to the surge drum. The Type S6N Pilot Solenoid Valve should be located as close to the CK-2 Suction Stop Valve as possible in order to minimize the volume of high pressure gas to be relieved through the internal bleed port of the CK-2, upon termination of the defrost cycle and to assure a more rapid and positive opening of the CK-2 Suction Stop Valve.

Service Pointers

1. Failure to close: (a) Pilot solenoid is not opening due to low voltage or solenoid coil burnout. (b) Dirt lodged between #1 Valve Piston and cylinder wall (disassemble and remove all dirt and burrs). (c) Manual lift stem is turned in, thereby mechanically holding the #1 Piston up. (d) Strainer/Disc in Pilot Line Flanges may be plugged (Remove and clean). (e) Pilot pressure source is not high enough; must be at least 0.35 bar (5 psi) above the main valve downstream pressure.

2. Failure to open: (a) Pilot solenoid is not closing because its manual lift stem is turned in. (b) Dirt lodged between #1 Valve Piston and cylinder wall. (Disassemble and remove all dirt and burrs). (c) #2 Spring may be broken (replace spring). (d) Pressures between remote pressure source and main valve downstream pressures are not equalizing. Check for leakage through the pilot solenoid valve. Check for backward installation of CK-2 preventing equalization with downstream pressure.

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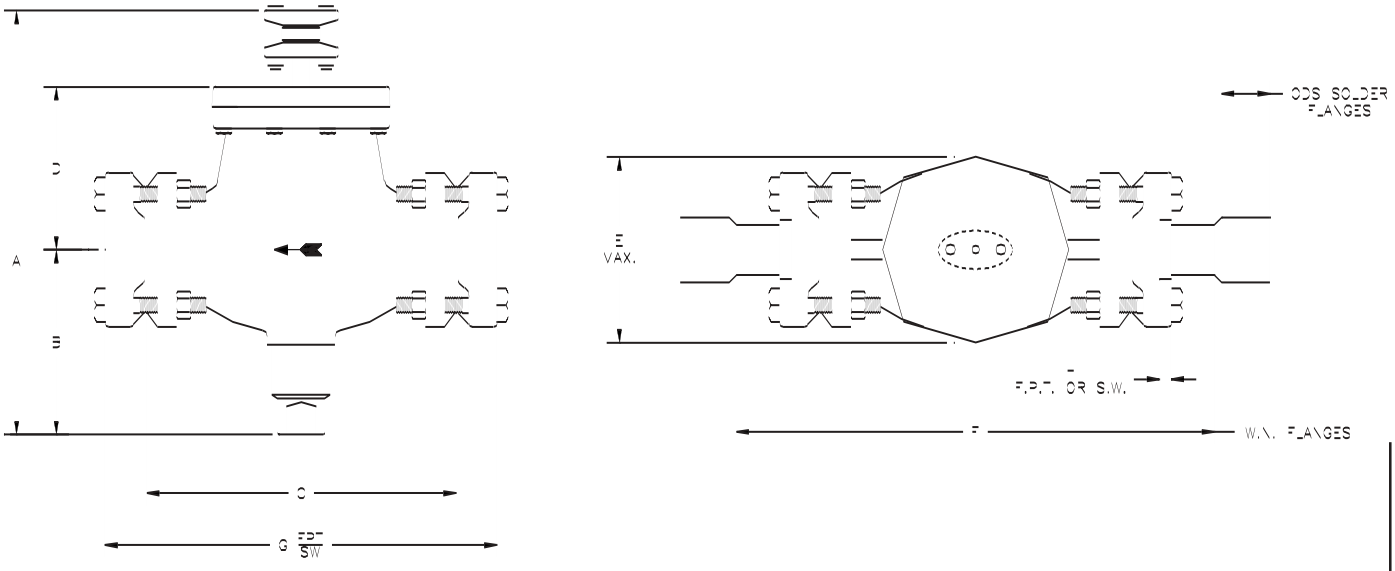
3. Leakage through valve when closed: (a) There are dirt or chips under the Piston Main Valve. Disassemble valve and clean thoroughly. (b) PTFE main valve disc, on valve size 32mm (11/4") port, may be damaged enough to permit leakage. (Disassemble valve and replace #1 Piston Main Valve). On metal to metal seated valves replace entire Piston Main Valve assembly and lap grind piston face into valve and seat bead if necessary.



DIMENSIONAL DATA																			
PORT SIZE		A		B		C		D		E		F		G		H		J	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
32	1¼	312.7	12.31	122	4.8	203	8.0	96.5	3.8	86.4	3.4	304	12.0	256	10.1	15	0.6	33	1.3
40	1⅝	359.9	14.17	139.7	5.5	251	9.9	129.5	5.1	129.5	5.1	371	14.6	307	12.1	15	0.6	38	1.5
50	2	359.9	14.17	139.7	5.5	251	9.9	129.5	5.1	129.5	5.1	371	14.6	307	12.1	15	0.6	38	1.5
65	2½	396.5	15.6	142.2	5.6	251	9.9	160	6.3	147.3	5.8	401	15.8	331	13.0	25	1.0	43	1.7
75	3	475.0	18.7	216	8.5	311	12.2	167.6	6.6	167.6	6.6	478	18.8	389	15.3	29	1.1	48	1.9
100	4	518.2	20.4	217	8.6	359	14.1	208.3	8.2	190.5	7.5	571	22.5	450	17.7	32	1.3	55	2.2
125	5	586.7	23.15	298.4	11.7	381	15.0	198.1	7.8	228.6	9.0	576.6	22.7	485	19.1	30.5	1.2	—	—
150	6	628.6	24.7	355.6	14.0	514.3	20.2	108.3	7.1	294.6	11.6	706.1	27.8	617	24.3	35.6	1.4	—	—

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