

System drawings shown in this bulletin are for illustration purposes only. Refrigeration systems should only be serviced by a qualified technician. Always observe proper safety procedures when servicing a refrigeration system. For more information see the latest revision of Phillips Safety Bulletin SGRV.

## GENERAL INFORMATION

**Pressure Rating:** 300 psig (21 bar, gauge)

**Temperature Rating:** -20°F to 240°F  
(-29°C to 116°C)

The 700S Series flanged, piston-type, gas-powered valves are normally open by a spring beneath the valve piston. All are equipped with a Manual Lift Stem with a Seal Cap closure. The pilot line connection in the bonnet is 1/4" FPT.

The 700S Series valve is designed to be applied as a Suction Stop Valve in suction lines. It also may be applied to liquid legs and gas return legs on flooded evaporators and liquid drain lines in transfer systems. Since the valve is spring opening, no pressure is required to open the valve. On gravity drain application, flow is unrestricted.

Valves in this series include the 700JRS, 700XS, 700AXS and 700BXS. If the valve is applied to a halocarbon system, the suffix "F" is applied to the valve designation (example: 700JRSF).

The 700S valve is a normally open valve. It is closed by gas pressure from a remote source by energizing a pilot solenoid valve. The gas enters the valve through the 1/4" FPT connection in the top of the valve bonnet and acts upon the top of the piston, forcing the seat disc down on the main valve seat bead, and stopping the refrigerant flow through the main valve. In order for the valve to close, the inlet pilot pressure on top of the piston must be a minimum of 7 psi higher than the inlet pressure to the valve. For the valve to open, the solenoid in the remote pilot line must be de-energized. The higher pressure above the piston vents around the piston and approaches the lower pressure at the outlet of the valve. The spring under the piston forces the piston up, opening the valve fully to allow refrigerant flow.

## TROUBLESHOOTING

### Problem: Check valve does not close

- A) Solenoid valve not opening.

Solution: Check the coil to determine if it has shorted or burned out. Replace if necessary.

- B) Check the voltage to the coil.

Solution: If the voltage is correct and the solenoid does not appear to open, replace the coil or solenoid.

- C) Piston may be jammed in the bore of the valve body, causing the valve be in an open position.

Solution: If the piston has considerable wear or is rusted, change the piston and bonnet gasket.

- D) Spring may be broken and the pieces are holding the piston in an open position.

Solution: Install a new spring and a new bonnet gasket.

- E) The Teflon seat disc is broken or missing.

Solution: Install a new seat disc and bonnet gasket.

- F) If defrost pressure is low, and with pressure of the hot gas holding the valve in a closed position and with a piston severely decreased in diameter due to wear, the pressure bleeding around the piston may be so great that closing pressure is not enough to keep the valve closed.

Solution: Install a new piston and bonnet gasket.

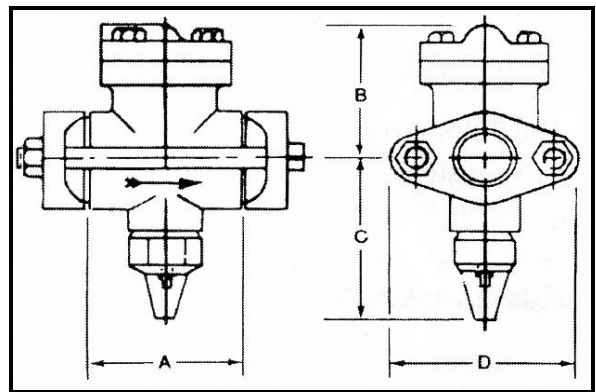
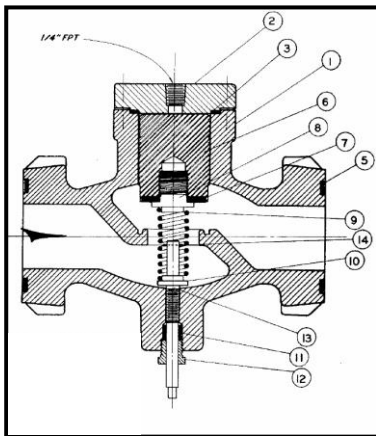
- G) Piston seems to be tilted in the bore.

Solution: Install a new piston and bonnet gasket.

## REPLACEMENT PARTS

When contacting Phillips for replacement parts, have the complete valve model and serial number (shown on the valve nameplate) available to ensure you receive the correct components. For example: "700AXSF-ZM" is a complete valve model, and "990123" or "E-12345" are complete serial numbers.

Item No.	Description	700JRS	700XS	700AXS	700BXS
1	Valve Body	700JRF-VB	700F-VB	700AF-VB	700BXF-VB
2	Bonnet	702JRS	702S	702AS	702BS
3	Bonnet Gasket*	710	710	710A	710B
4	Bonnet Screw (not shown)	577 (4)	577 (4)	718 (4)	1459 (4)
5	Flange Gasket*	506 (2)	725N (2)	73 (2)	326Y (2)
6	Piston	700-4JRH	700-4XH	700-4AXS	700-4BXS
7	Seat Disc*	703	700-3X	700-3AX	700-3BX
8	Flush Plug	700-7JRS	700-7S	700-7AXS	700-7BXS
9	Spring	705-10L	705-10L	705A-10L	705B-10L
10	Spring Cone	6T	6T	708AT	708BT
11	Packing Ring	775	775	775	777BN
12	Gland	8	8	8	8B
13	Stem	711XT	711XT	711AXT	711BT
14	Roll Pin	211-3/8	211-3/8	211-1/2	211-1/2
15	Flange Bolt (not shown)	726B (2)	726 (2)	23 (8)	24A (8)
16	Flange Nut (not shown)	58 (2)	58 (2)	58 (8)	59 (8)
17	Seal Cap (not shown)	714	714	714	714
18	Seal Cap Gasket (not shown)	720	720	720	720
-	* Spare Parts Kit (Includes items 3, 5 & 7)	K700JR	K700X	K700AX	K700BX



## 700S SERIES VALVE DIMENSIONS (in.)

Valve Number	A	B	C	D	Orifice Size	Flanges				Weight (lbs.)
						Flange Type	Flange Sizes	Bolts		
								No.	Size	
700JRS	3-1/2	3-3/4	4-1/2	4-1/8	3/4	Oval	1/2, 3/4, 1 (FPT, SW) 1-1/8, 1-3/8 (ODC)	2	1/2	14
700XS	4	3-3/4	4-1/2	5	1	Oval	1, 1-1/4 (FPT, SW, WN) 1-5/8 (ODC)	2	5/8	20
700AXS	9	4-3/4	5-1/2	4-3/4	1-1/2	Square	1-1/4, 1-1/2, 2 (FPT, SW, WN) 2-1/8 (ODC)	4	5/8	40
700BXS	10	6-1/4	7	6	2-1/4	Square	3 (SW, WN) 3-1/8 (ODC)	4	3/4	75

H. A. Phillips & Co.  
770 Enterprise Avenue  
DeKalb, IL 60115 U.S.A.  
Phone: (630) 377-0050  
Fax: (630) 377-2706

