

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)

H.A. Phillips offers a wide variety of flanged normally-closed in-line disc-type check valves to prevent reverse flow in many refrigeration applications. These valves are summarized in Table 1 and illustrated in Figures 1 through 4. Many of these are directly interchangeable with Wolfe-Linde check valves. The 600D2 and 600D3 have metal-to-metal seats; all other check valves have PTFE-to-metal seats.

APPLICATION NOTES

All 600 Series check valves may be installed in either horizontal or vertical lines.

GRAVITY DRAIN:

Note that because of their low pressure drops only the following valves are suitable for gravity-drain applications, such as gas-driven recirculating and compressor protection systems:

600K	600AK
600AJ	600DJ
600BJ	600J

COMPRESSOR DISCHARGE:

Disc-type check valves are NOT recommended for applications with highly variable flow, such as compressor discharge. For these applications consider the Phillips 700X Series piston-type check valves, described in Engineering Data Bulletin 700X.

Table 1: Valve Configurations

Valve Model	Approx. DP to Open	Flange Size Avail.	Body Material	Purge Line Conn.	Wolfe-Linde Ref.
600D2	2 psid	1/2" 3/4"	Machined Steel (Fig. 1)	-	-
600D3	2 psid	1"		-	-
600JR	<1 psid	1/2" 3/4" 1"	Cast Iron (Fig. 2)	-	5970 5972 5974
600J	<1 psid	1-1/4" 1-1/2"		-	5975 5976
600AJ	<1 psid	1-1/2" 2"		-	- 5978
600K	< 0.2 psid	1"	Machined Steel (Fig. 3)	1/4" FPT	-
600KS	2 psid	1-1/4"			-
600AK	< 0.2 psid	1-1/2"			-
600AKS	2 psid	2"			-
600BJ	< 0.2 psid	3"	Cast Iron (Fig. 4)	1/4" FPT	5980
600BJS	2 psid				5982
600DJ	< 0.2 psid	4"			
600DJS	2 psid				

SERVICE INSTRUCTIONS

600D2/D3

Refer to Figure 1 & Table 2. Remove valve piece (Item 3) by pulling out through the valve inlet, overcoming the friction of the O-Ring (Item 6). Apply O-Ring grease to O-Ring before installing new valve piece.

600JR / J / AJ

Refer to Figure 2 & Table 2. Remove back plate ring and back plate (Items 9 & 10). Install new valve piece and spring.

600K / KS / AK / AKS

Refer to Figure 3 and Table 2. Remove guide piece (Item 2) by pulling out through the valve outlet, overcoming the friction of the O-Ring (Item 6). Apply O-Ring grease to O-Ring before installing new valve piece and spring.

If removing the pipe plug (Item 13) and installing a new one, use pipe thread sealant and 60 ft-lbs torque.

600BJ / BJS / DJ / DJS

Refer to Figure 4 and Table 2. Remove back plate ring and back plate (Items 9 & 10). Install new valve piece and spring.

If removing the pipe plug (Item 13) and installing a new one, use pipe thread sealant and 60 ft-lbs torque.

Figure 1: 600D2, 600D3

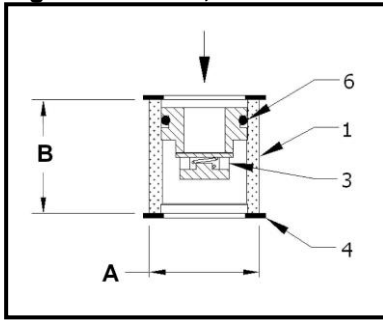


Figure 2: 600JR, 600J, 600AJ

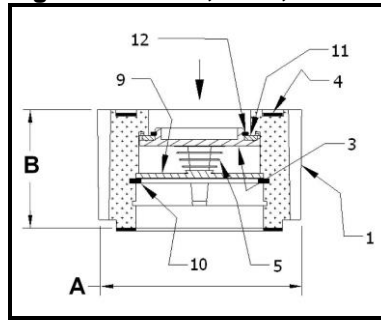


Figure 3: 600K, 600AK

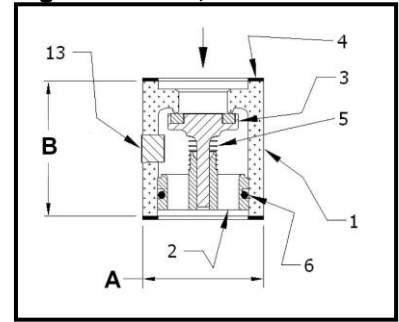


Table 3: Dimensions (in.)

Valve Number	Figure Number	Flanged Connections (IPS Thread. or Socket Weld)	Outside Diameter A	Height Less Flanges B	Height with Flanges	Orifice Size	Flange Type	Weight (lbs.)
600D2	1	1/2, 3/4	1.69	1.75	3.50	5/8	Oval	4.0
600D3	1	1	2.06	2.38	4.13	7/8	Oval	5.5
600JR	2	1/2, 3/4, 1	2.31	1.56	3.31	1	Oval	5.0
600J	2	1-1/4, 1-1/2	3.25	2.03	4.06	1-1/2	Square	10.0
600AJ	2	1-1/2, 2	4.00	2.31	4.44	2	Square	12.0
600K*	3	1, 1-1/4	2.38	2.63	4.63	1-5/16	Square	7.0
600AK*	3	1-1/2, 2	3.25	3.33	5.46	1-9/16	Square	10.5
600BJ*	4	3	5.63	3.50	6.50	3	Square	30.0
600DJ*	4	4	7.13	4.19	7.82	4	Square	45.0

*If ordered with suffix 'S', the valve will be supplied with a heavy spring (not suitable for gravity drain).

*Only these valves have the 1/4" FPT purge connection.

Figure 4: 600BJ, 600DJ

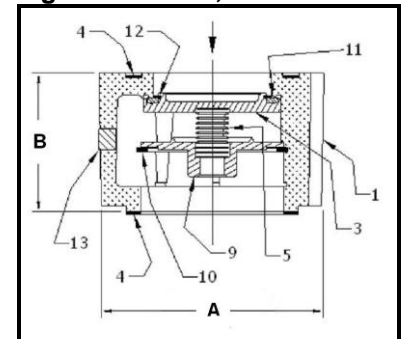


Table 2: Replacement Parts

Item No.	Description	600D2 (Fig. 1)	600D3 (Fig. 1)	600JR (Fig. 2)	600J (Fig. 2)	600AJ (Fig. 2)	600K† (Fig. 3)	600AK† (Fig. 3)	600BJ† (Fig. 4)	600DJ† (Fig. 4)
1	Valve Body	600D2-1	600D3-1	600JR-VB	600J-VB	600AJ-VB	600K-VB	600AK-VB	600BJ-VB	600DJ-VB
2	Guide Piece	-	-	-	-	-	602K	602AK	-	-
3	Valve Piece*	600D2-2	600D3-2	604JR	604J	604AJ	604	604A	604BJ	604DJ
4	Gasket* (2)	728	723	626	63W	73	63	73	326Y	326YA
5	Spring*	Light	-	605JR	605AJ	605AJ	477K	605A4	605BJ	605DJ
		Heavy	-	-	-	-	477-1	605A1	605BJS	605DJS
6	O-Ring	11-215	11-222	-	-	-	11-222	11-229	-	-
7	Flange Bolt (4)	72C**	72E**	72C**	721A	72E	721L	726C	24B	24C
8	Flange Nut (4)	58*	58*	58*	57	58	57	58	59	60
9	Back Plate	-	-	602JR	602J	602AJ	-	-	602BJ	602DJ
10	Back Plate Ring	-	-	608JR	608J	608AJ	-	-	608BJ	608DJ
11	PTFE Ring	-	-	603JR	603J	603AJ	-	-	603BJ	603DJ
12	Snap Ring	-	-	601JR	601J	601AJ	-	-	601BJ	601DJ
13	Pipe Plug	-	-	-	-	-	12	12	12	12
-	*Service Kit (Items 3, 4, 5, 6)	-	-	K600JR	K600J	K600AJ	K600 K600S	K600A K600AS	K600BJ K600BJS	K600DJ K600DJS

**Only 2 bolts and nuts

†If ordered with suffix 'S', valve will be supplied with a heavy spring (not suitable for gravity drain).

‡Only these valves have the 1/4" FPT purge connection.

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