

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.

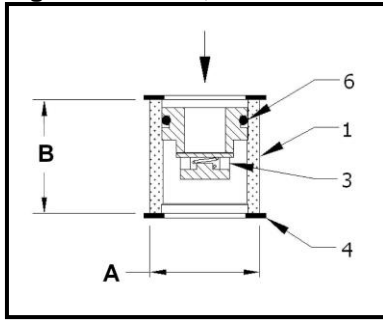
If removing the pipe plug (Item 13) and installing a new one, use pipe thread sealant and 60 ft-lbs torque.

##### 600BJ / BJS / DJ / DJS

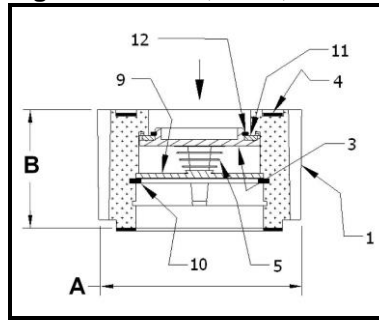
Refer to Figure 4 and Table 2. Remove back plate ring and back plate (Items 9 & 10). Install new valve piece and spring.

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

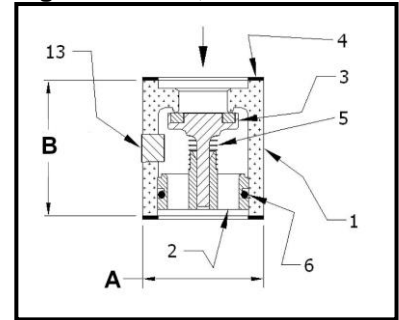
**Figure 1: 600D2, 600D3**



**Figure 2: 600JR, 600J, 600AJ**



**Figure 3: 600K, 600AK**



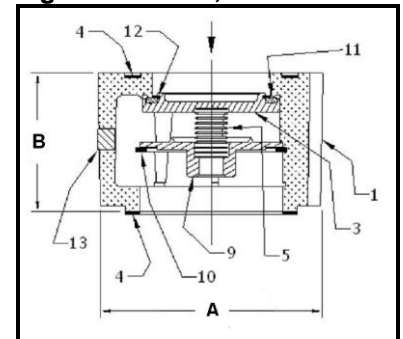
**Table 3: Dimensions (in.)**

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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