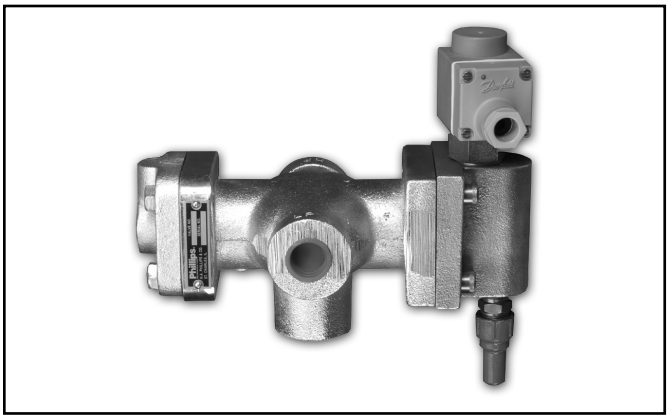
SOLENOID OPERATED

Size: 3/4 & 1-1/4

For Ammonia (R-717) and Halocarbon Refrigerants

Features

- Pressure Rating: 300PSI (-20ºF – +240ºF)
- ASTM A536 Gr. 65-45-12 Ductile Iron Body and Bonnet
- Connection Sizes: 3/4" FPT or 1-1/4" FPT
- The 3000N and 3000AN Directly Replace the 3000 and 3000A, Respectively
- Solenoid Valve is Integral Part of Main Valve
- Encapsulated Solenoid Coil
- Manual Solenoid Bypass
- Zinc-Plated Exterior Finish



3000N (3/4" FPT) Valve

Description

The Phillips® 3000N and 3000AN Automatic 3-Way Valves are direct replacements for the 3000 and 3000A valves, respectively. All of these valves are configured with three external ports. The high pressure port (marked "HP") is the inlet for pressurizing gas. The low pressure port (marked "LP") is the vent port. The center "common" port is open to either the HP or LP port, depending on the position of the internal pistons, as described later in this bulletin.

Phillips® 3-Way Valves valves are typically used on gas-pumped liquid transfer or recirculating systems. (Refer to Phillips Bulletins CPS and GDRS.) The valve's common port is connected to the top of the pumper drum (dump trap). The LP port is connected to the suction accumulator, above the level of the liquid but below the suction connection on the accumulator. High pressure gas is fed to the HP port.

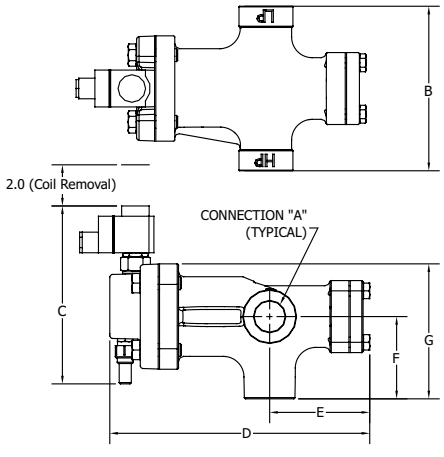
Design Function

With the 3-Way valve connected as described above and the solenoid de-energized, the pathway between the common and LP (vent) ports is held open. This is accomplished by high pressure gas and an internal spring which hold the smaller (HP) piston closed against the HP seat. The LP port is open. This "vent" position (shown in the valve cut-away view on the reverse of this bulletin) allows the pumper drum to vent to the suction accumulator while it fills with liquid.

When the solenoid is energized, high pressure gas is directed internally to the space above the larger, (LP) piston. This causes the pistons to move in unison, closing the LP seat and the path between the LP and common ports while simultaneously opening the HP seat and the path between the HP and common ports. This is the "high pressure" position. The high pressure gas now flowing into the pumper drum through the common port can push the liquid to another location in the system. Typically, high pressure gas need only be about 20 psi above the liquid destination pressure. This may need to be increased for long pipe distances, however unnecessarily high pressure can lead to premature valve wear.

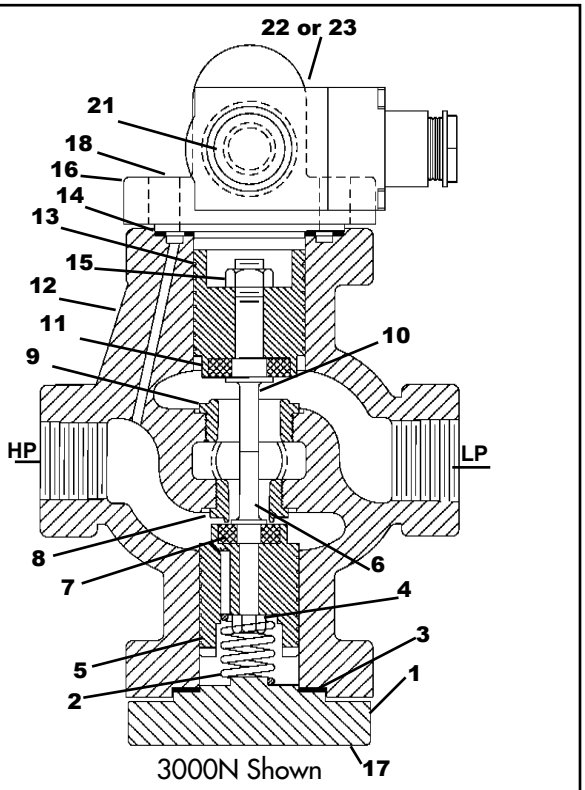
Design Function (continued)

The Series 3000N valves incorporate a manual opening stem below the solenoid. When this stem is screwed in completely, the valve will automatically switch from the vent to the high pressure position when the solenoid coil is energized. Opening the stem 1/2-turn will manually cause the valve to switch from vent to high pressure.

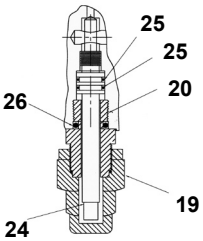


3000N Series Valve Dimensions (inches)								WT. (lb.)
Valve	A	B	C	D	E	F	G	
3000N	¾ FPT	5.5	8.8	9.8	4.3	2.8	4.5	20
3000AN	1 - ¼ FPT	8.0	8.8	12.7	4.9	4.0	6.5	45

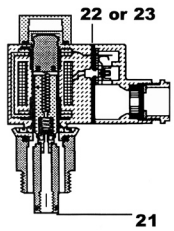
Spare Parts



3000N Shown



Manual Stem



Pilot Solenoid

ITEM NO.	PART NAME	3000N	3000AN
1	Bonnet, HP	3002JRN	3002A
2 *	Spring	705L	705AL
3 *	Gasket, HP	3010JR	710A
4 *	Lock nut, HP (Torque 5 ft-lb max)	3013JR	–
5**	Piston, HP	3004JR	3004A
6 *	Push rod, HP	3012JRL	3012A
7 *	Seat disc, HP	3003JR	3003A
8**	Seat, HP	3006JR	3006A
9**	Seat, LP	3006	3006B
10 *	Push rod, LP	3012L	3012B
11 *	Seat Disc, LP	3003	3003B
12	Valve body	3000N-VB	3000AN-VB
13**	Piston, LP	3004	3004B
14 *	Gasket, LP	3010N	3010AN
15 *	Lock nut, LP (Torque 15 ft-lb max)	3013	–
16	Bonnet, LP	3002N	3002AN
17	Cap screw, HP (4)	577	718
18	Cap screw, LP (4)	577N	1459
19	Seal Cap	714N	714N
20	Adaptor	3333NR	3333NR
21	Solenoid valve	027B1120	027B1120
22	Coil, 120V/60Hz	018F6710	018F6710
23	Coil, 240V/60Hz	018F6714	018F6714
24	Stem	3017NR	3017NR
25	O-ring (2)	11-012	11-012
26	O-ring	107	107
	Spare Parts Kit; Includes all parts(*)	K3000	K3000A
	Spare Parts Kit; Includes all parts (*), (**)	K3000PS	K3000APS

Service Tips

- Refrigeration systems should only be serviced by qualified technicians. Always observe proper safety procedures. For more information, refer to Phillips Safety Bulletin SGRV.
- In the event of a solenoid coil failure, the 3-way valve can be manually switched from the vent position to the high pressure position by backing-out the manual opening stem 1/2-turn. Closing the stem will return the valve to the vent position.
- When installing a new solenoid operator on the 3002N/3002AN Bonnet, USE CAUTION. The O-Ring must be well-lubricated and the solenoid stem screwed slowly into the Bonnet to avoid tearing the O-Ring. A torn O-Ring will force the valve into the high-pressure position.
- If valve makes a vibrating/hammering sound when switching from vent to high-pressure mode (and vice-versa) check the following: Gas pressure may be too low (10psid minimum required); pistons or bores may be worn causing blow-by.
- If the valve appears stuck in the high-pressure or an intermediate position check the following: Manual stem must be screwed inward completely for automatic operation; Gasket 3010N/3010AN may be torn; dirt or debris may be preventing free piston movement (open valve, clean complete length of both pistons and bores lightly with emery cloth, lubricate & reassemble valve); debris, or seat / seat disc damage may be preventing one or both valve seats from sealing (open valve, inspect both seat discs and seats, clean or replace as necessary).
- If the valve appears stuck in the vent position check the following: Coil may be burned out (attempt to move the valve manually by opening the manual stem 1/2-turn, replace coil if necessary); HP gas pressure may be too low to permit switching (10psid minimum required); dirt or debris may be preventing free piston movement (open valve, clean complete length of both pistons and bores lightly with emery cloth, lubricate & reassemble valve).

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