

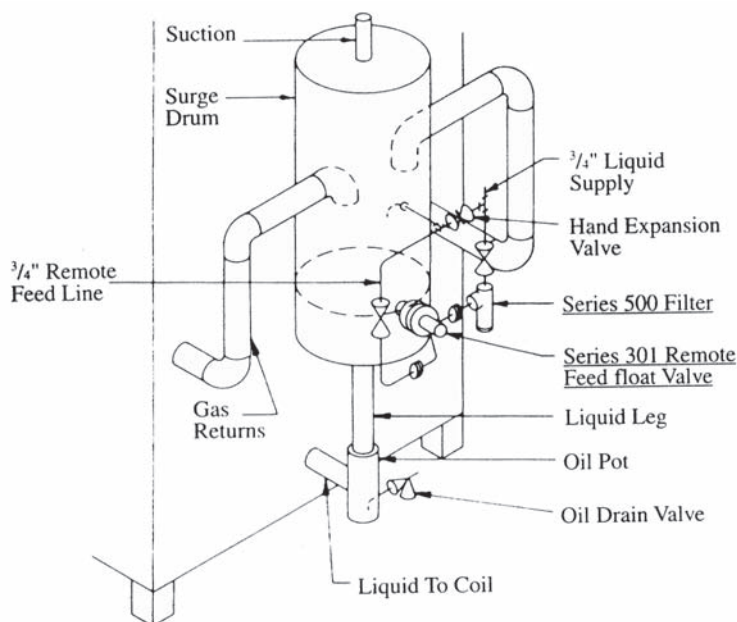
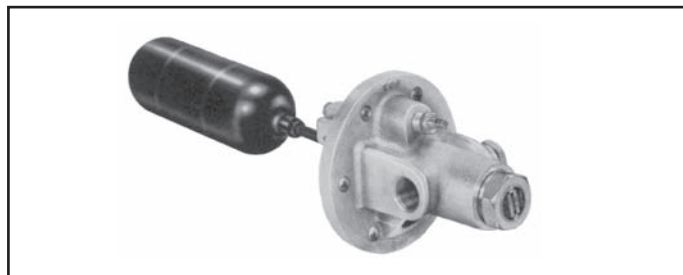
MODULATING LIQUID LEVEL CONTROL For Ammonia (R-717) and Halocarbon Refrigerants

- **Pressure Rating: 300PSI (-20°F – +240°F)**
- **ASTM A536 Gr. 65-45-12 Ductile Iron Body**

Design Function

The Phillips® Series 301H internal mounting fixed level low side float valves are modulating type liquid level controls, designed primarily for use with ammonia (R-717). They are fixed level controls with a remote feed line required from the valve outlet to the evaporator or surge drum. The valves incorporate a replaceable cartridge that contains the working needle and seat. The cartridge can be removed without pump down of the surge drum or evaporator due to a secondary shut-off arrangement built into the valve. The stem on the front of the valve is for operating the back-seating arrangement and is not to be used as a hand expansion bypass. A typical application is shown below and is for reference only. H. A. Phillips & Co. can provide modifications for manufacturers desiring to incorporate the valves in special process applications such as ice cream freezers. When used in halocarbon systems, these valves can be supplied with heavier float balls.

For externally mounted float valves without the back-seating arrangement, see bulletin 301E. When greater capacities are required, the 301E Series can be used as pilot float valves in conjunction with Phillips® Series 701 pilot operated valves.



VALVE CAPACITIES – TONS*

VALVE NUMBER**	ORIFICE (IN.)	Cv	AMMONIA (R-717)					R-22				
			INLET PRESSURE (PSIG)					INLET PRESSURE (PSIG)				
			80†	100	125	160	200	80†	100	125	160	200
301H	3/16	.55	28	30	34	37	42	6.8	7.1	7.7	8.4	8.9
	7/32	.78	40	43	49	53	60	9.5	9.8	11	12	13
	9/32	1.0	48	52	-	-	-	12	12	14	15	16
301A	9/32	1.0	48	52	59	66	74	12	12	14	15	16

* Calculated for operation with saturated liquid at the valve inlet. To develop these capacities, the pressure drop across the valve must be greater than one-half the inlet absolute pressure. When liquid is subcooled, valve capacity will increase. To calculate increase, see Liquid Sub-Cooling Factor table.

**Add suffix 'F' when ordering a valve for use with a halocarbon refrigerant.

† Valve capacities at 20 to 25 PSIG are 50% of these ratings. Outlet pressure must be 0 PSIG or less.

LIQUID SUB-COOLING FACTORS

°F OF SUB-COOLING	5	10	20	30	50
FACTOR	1.25	1.47	1.75	1.9	2.2

Consult H. A. Phillips & Co. if special applications, other refrigerants, or unusual liquid conditions prevail.

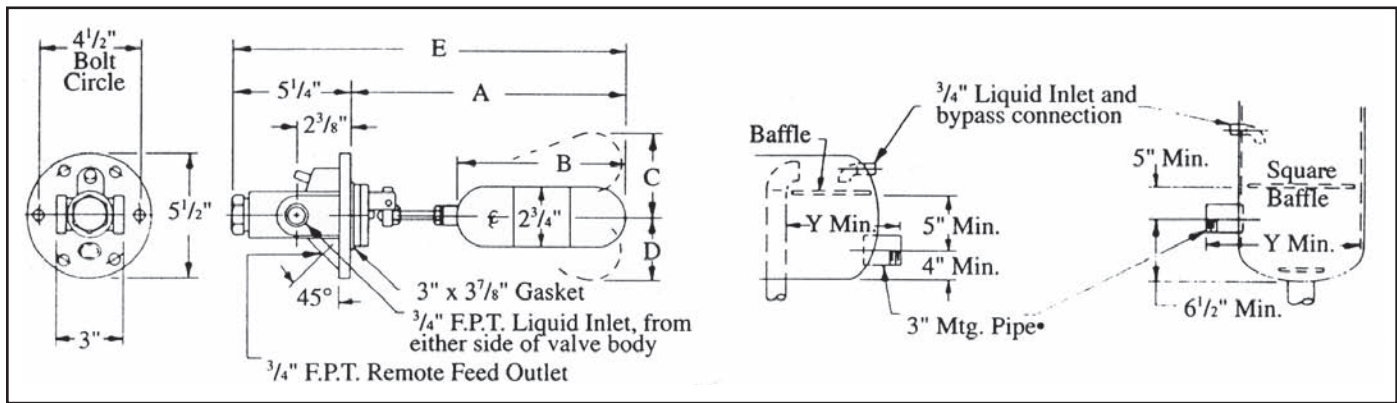
301H – Float Valve

Installation and Operation

Typical application of these valves is to a vertical or horizontal surge drum at individual evaporators. Liquid level is maintained near the valve centerline. The valve is mounted to the vessel by a 3" pipe. The 3" pipe may be threaded for use with a screw-type mounting flange, or a plain end pipe may be welded to a socket or butt weld mounting flange. See the table below for pipe length to be used with the various mounting flanges. Liquid feed is into the valve body from the right or left side. The remote feed exits from the front of the valve at 45 degrees, and a line must be piped to the surge drum or the evaporator.

A liquid line filter is recommended. A bypass hand expansion valve is useful during servicing of the cartridge while the evaporator remains in use. When the refrigeration load is greatly reduced on an individual air unit, or if fans are shut off, it is advisable to utilize a liquid line solenoid valve ahead of the float valve in order to stop liquid feed. Otherwise, the body of liquid in the surge drum will flow down into the coil and the float valve will continue feeding, thus filling the coil with liquid refrigerant. Room thermostats can be utilized to stop liquid feed to the evaporators.

SERIES 301H VALVE DIMENSIONS



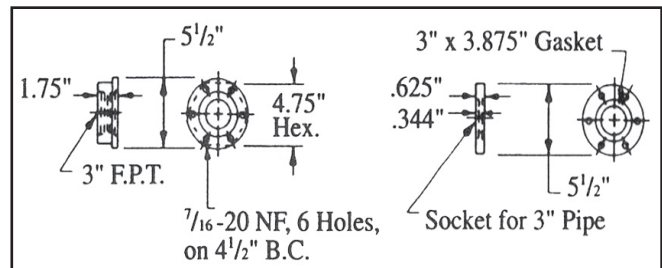
SERIES 301H VALVES – DATA

VALVE NO.	DIMENSIONS (INCHES)						SHIPPING WT. (LBS.)
	A	B	C	D	E	Y	
301H	12.25	7.5	3.75	2.75	17.5	13	16
301A	14.75	10	4	3.25	20	15.5	18

MOUNTING FLANGES – DATA

FLANGE NO.	TYPE OF FLANGE	MOUNTING		SHIPPING WT. (LBS.)
		S/40	PIPE LENGTH*	
399	MALE THREAD	3"	3.5"	7
300WF3	SOCKET WELD	3"	4.0"	4

*Pipe lengths indicated are maximum; shorter lengths may be used.



ORDERING INSTRUCTIONS

Specify:

- (1) Valve Number
- (2) Orifice Size
- (3) Flang Number
- (4) Filter—With or Without



ANGLE FILTER

FILTER NO.	CONNECTIONS F.P.T.	SHIPPING WEIGHT (LBS.)
575-3/4	3/4"	18

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