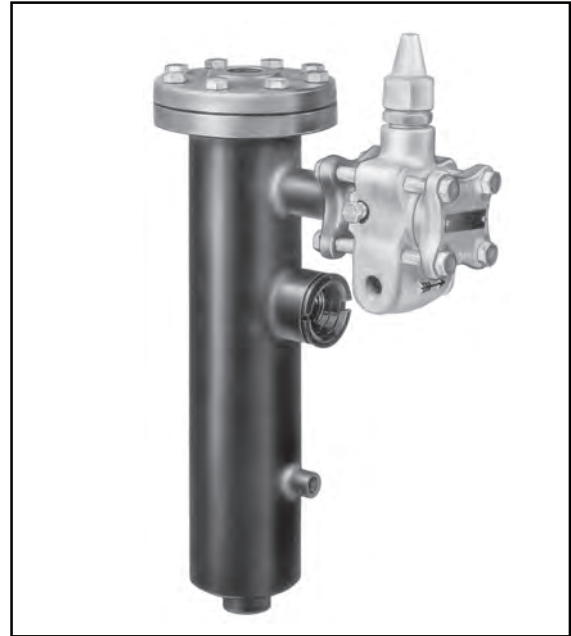


## For Ammonia (R-717) and Halocarbon Refrigerants

### Features

- For use with all refrigerants
- Modulating liquid level control
- Exceptional sensitivity to dynamic load conditions
- Adjustable liquid level
- Phillips® Level Eye® with frost shield aids in determination and adjustment of liquid level
- Rugged construction
- ASTM A53B welded steel chambers
- Seal cap on adjusting stem
- Also functions as a pilot float valve for Series 701 low side pilot operated valves

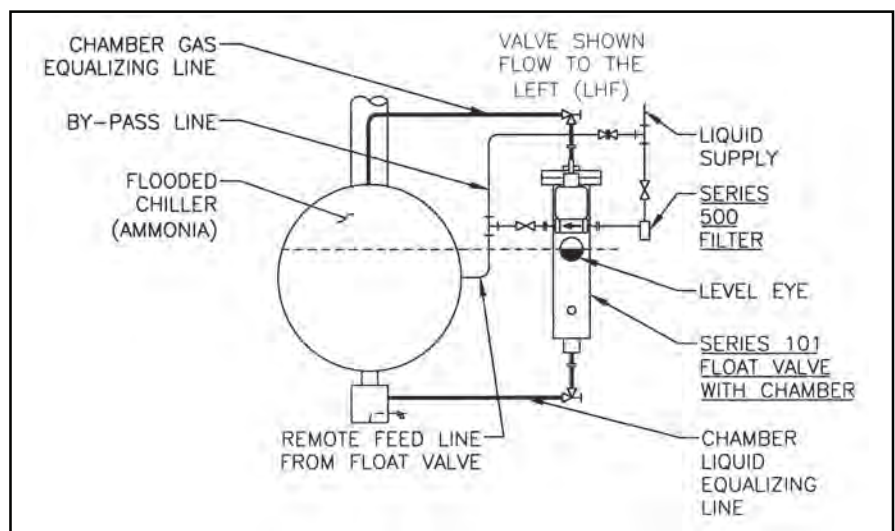


### Description

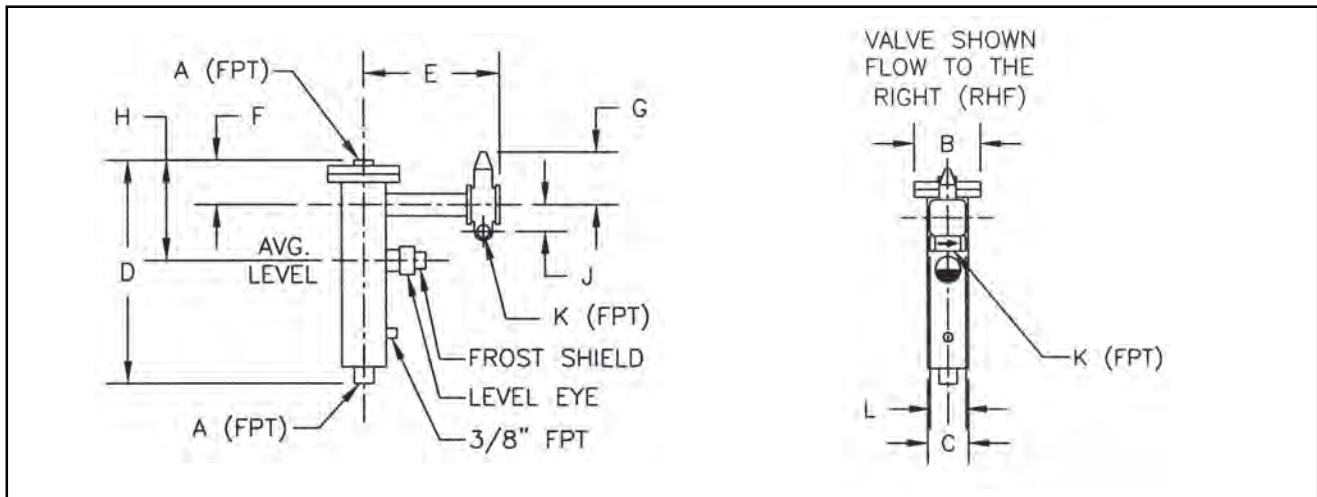
The Type 101 valves modulate the flow of liquid refrigerant in direct response to the movement of the float ball immersed in the liquid. The float ball is linked through a forked lever to act upon a needle or plunger directly over the orifice controlling the refrigerant flow. A spring is installed over the needle, working in opposition to the lever, which tends to support the weight of the float ball. The spring pressure can be regulated by an external adjusting stem to make the float lighter or heavier, causing the liquid level to be lower or higher, respectively, to any desired point within the range of the spring. Turning the adjusting stem counter-clockwise will raise the liquid level. Turning the stem clockwise will lower the level. Total level change, at a particular setting, from a fully closed to a fully open valve is about 2".

### Application

Unless otherwise stated by vessel manufacturer, liquid level setpoint should typically be 2/3 to 3/4 of vessel diameter for flooded ammonia chillers and 40% of vessel diameter for flooded halocarbon chillers. Never trap the lower balance line on R-717 applications. A separating vessel above the chiller is recommended.



# Engineering Data



| Valve Number* | Dimensions |         |         |         |         |         |         |         |         |         |         | Shipping Weight** [lbs] |
|---------------|------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------------------------|
|               | A [FPT]    | B [in.] | C [in.] | D [in.] | E [in.] | F [in.] | G [in.] | H [in.] | J [in.] | K [FPT] | L [in.] |                         |
| 101           | 1          | 6 1/2   | 4       | 19 1/2  | 12 3/8  | 4       | 5 7/8   | 9       | 2 3/8   | 1 1/2   | 3 1/2   | 60                      |
| 101A          | 1 1/4      | 8 3/8   | 5 9/16  | 20      | 11 7/8  | 4 1/2   | 5 7/8   | 9 1/2   | 2 3/8   | 3/4     | 3 1/2   | 85                      |

\* 'F' suffix on valve number indicates halocarbon use. Assembled with heavier displacer and spring.

\*\* Shipping weight including chamber.

## VALVE CAPACITY RATINGS (Tons)\*

| Series<br>101<br>Valve | Orifice<br>[in.] | Cv   | Ammonia (R-717)         |     |     |     |     | R-22 (Valve suffix 'F') |     |     |     |     |
|------------------------|------------------|------|-------------------------|-----|-----|-----|-----|-------------------------|-----|-----|-----|-----|
|                        |                  |      | Inlet Pressure [PSIG]** |     |     |     |     | Inlet Pressure [PSIG]** |     |     |     |     |
|                        |                  |      | 80                      | 100 | 125 | 160 | 200 | 80                      | 100 | 125 | 160 | 200 |
| 101                    | 5/64             | 0.14 | 7.4                     | 7.8 | 9.1 | 9.9 | 11  | 1.8                     | 1.9 | 2.1 | 2.3 | 2.4 |
|                        | 3/32             | 0.18 | 9.3                     | 11  | 11  | 12  | 14  | 2.4                     | 2.5 | 2.7 | 2.9 | 3.2 |
|                        | 1/8              | 0.29 | 15                      | 17  | 18  | 20  | 23  | 3.8                     | 4.1 | 4.3 | 4.7 | 5.1 |
|                        | 5/32             | 0.34 | 18                      | 19  | 22  | 24  | 27  | 4.4                     | 4.7 | 5.0 | 5.5 | 5.9 |
|                        | 3/16             | 0.47 | 25                      | 27  | 30  | 33  | 37  | 6.1                     | 6.4 | 7.0 | 7.7 | 8.2 |
| 101A                   | 3/16             | 0.55 | 29                      | 32  | 36  | 39  | 44  | 6.9                     | 7.4 | 8.0 | 9.2 | 9.7 |
|                        | 1/4              | 0.96 | 51                      | 55  | 62  | 68  | 76  | 12                      | 13  | 14  | 16  | 17  |
|                        | 5/16             | 1.1  | 58                      | 63  | 71  | 77  | 87  | 14                      | 15  | 16  | 18  | 19  |
|                        | 3/8              | 1.4  | 73                      | 79  | 89  | -   | -   | 18                      | 19  | 21  | 22  | -   |

\*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 Subcooling Factor table. All valves function properly at maximum pressure drop of 230 PSIG except as indicated.

\*\*Valve capacities at 20 to 25 PSIG inlet pressures are approximately 50% of these ratings.

## LIQUID SUBCOOLING FACTORS

| °F of Subcooling | 5    | 10   | 20   | 30  | 50  |
|------------------|------|------|------|-----|-----|
| Factor           | 1.25 | 1.47 | 1.75 | 1.9 | 2.2 |

## Ordering Instructions

When ordering, please specify:

1. Phillips® valve number (101 or 101A). 101AB and 101B valves are discontinued, but parts are available.
2. If used with halocarbon refrigerant, add suffix "F". Valve will be assembled with heavier displacer and spring.
3. Orifice size and/or capacity and pressure conditions.
4. Left hand flow (LHF) or right hand flow (RHF). If not specified, LHF will be supplied.
5. Optional Phillips® filter. For 101 valve, specify filter 510-1/2". For 101A valve, specify filter 575-3/4".

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