



CHECK VALVE



CHECK VALVE

Type: PSCK-1
Port Size: 15 to 100mm (1-1/4"-4")
Refrigerant: R-717 (Ammonia) R-12, R-22, R-502 and other common refrigerants

FEATURES

- Manual Opening Stem
- Low Pressure Drop
- Piston Type Gravity Closing
- Flanged
- Working Pressure : 25 bar (365 psig)
- Rugged Heavy Duty

INTRODUCTION:

These piston type, gravity closing, heavy duty check valves are suitable for ammonia R-12, R-22, R-502, and other refrigerants. All PSCK check valves are flanged and have a provision for manual operation with the help of manual opening stem. The PSCK valves have metal to metal seats. A minimum pressure difference of .07 bar (1 psig) is required to open the valve completely. The valve closes tight when flow reversal occurs. When inlet pressure and outlet pressure are equalized, the weight of the piston/seat assembly causes the valve to close. When outlet pressure exceeds inlet pressure, the outlet pressure acting on top of the piston help seat to close.

APPLICATIONS

The PSCK piston-type check valve prevents backward flow of refrigerant in liquid, discharge, and suction and hot gas lines. They are recommended for compressor discharge line also for liquid line & suction lines with the temperature as low as -30°C (-25°F).

PRINCIPLES OF OPERATION

This piston type check valve opens by the pressure difference between valve inlet and outlet. The pressure difference must be a minimum of .07 bar (1 psig). When upstream pressure exceeds downstream pressure, the pressure on the bottom side of the piston-main valve will lift the assembly and allow flow through the valve. On opening, pressure above the piston-main valve assembly will be relieved through the piston bleed hole, permitting the piston to travel its full vertical distance and open the valve to its full open position. When upstream and downstream pressures are equalized, the weight of the piston-main valve will cause it to drop tight against its seat bead and stop flow. When downstream pressure rise, the additional pressure action on the top of the valve seat will further assist in seating the valve closed.



MANUAL OPENING

If it is desired to hold open the PSCK check valve manually, the following procedure should be adopted. The seal cap on the bottom of the valve is to be removed. This must be done with caution as refrigerant may be trapped inside the seal cap. Manual opening is accomplished by turning the stem clock wise. To reset for automatic operation, turn the stem anti clock wise as far as it goes.

MATERIAL SPECIFICATIONS

| | | |
|-----------------------|---|------------------------------|
| Body | : | C.I. FG260 |
| Piston/Seat | : | C.I. FG260 |
| Cover | : | C.I. |
| Stem | : | A105 |
| Companion Flanges | : | Forged Steel ASTM A105 |
| Safe Working Pressure | : | 25 bar (365 psig) |
| Operating Temperature | : | -25 F to 250F (-32 to +121c) |

INSTALLATION

Protect inside of valve from dirt, chips and moisture during installation. Be sure to remove protective plugs from valve before installation. Install the valve in an accessible location for servicing. **DO NOT INSTALL THE CHECK VALVE AT THE INLET OF A SOLENOID VALVE, OR A REGULATOR WITH AN ELECTRIC SHUT-OFF FEATURE. DO NOT INSTALL AT THE INLET OF AN OUTLET PRESSURE REGULATOR IN A SYSTEM WHERE LIQUID MAY BE TRAPPED BETWEEN TWO VALVES.** Check Valves when used with such valves should always be installed at the outlet of the valves. The valve must be installed with the flow arrow on the valve pointing in the direction of permissible fluid flow through the valve. The type PSCK are for installation on horizontal pipelines only. The valve must be installed with the cover on top. Tighten the flange bolts evenly. Before putting the valve into operation check the manual opening stem. For automatic operation, turn the stem wheel anti clockwise as far as it goes, turn clockwise for manual open position.



SUPERFREEZE

CHECK VALVE

CAPACITIES (Tons)

| Applications | | | | | | | | | | | | |
|---------------------|------|-------|-------|----------|-----------|---------|---------|---------|-----------|-----------|-----------|-----------|
| Description | | ΔP | ¾" | 1" | 1¼" | 1½" | 2" | 2¼" | 3" | 4" | 5" | 6" |
| Discharge Line | | 2 psi | 21 | 28 | 44 | 128 | 150 | 242 | 343 | 750 | 952 | 1224 |
| | | 5 psi | 34 | 45 | 69 | 200 | 234 | 378 | 535 | 1173 | 1487 | 1912 |
| Compressor Sideport | | 2 psi | 12 | 16 | 25 | 72 | 84 | 136 | 193 | — | — | — |
| | | 5 psi | 19 | 25 | 38 | 110 | 129 | 209 | 296 | — | — | — |
| Liquid Line | TONS | 2 psi | 209 | 274 | 425 | 1227 | 1435 | 2322 | 3289 | 7209 | — | — |
| | GPM | 2 psi | 14 | 18 | 29 | 83 | 97 | 157 | 222 | 486 | — | — |
| Discharge Line | | 2 psi | 7.5 | 10 | 16 | 44 | 52 | 83 | 118 | 259 | 328 | 422 |
| | | 5 psi | 12 | 16 | 25 | 70 | 82 | 133 | 189 | 414 | 525 | 675 |
| Compressor sideport | | 2 psi | 4.7 | 6 | 10 | 27 | 32 | 52 | 74 | — | — | — |
| | | 5 psi | 7.2 | 9.5 | 15 | 42 | 50 | 80 | 114 | — | — | — |
| Liquid Line | TONS | 2 psi | 48 | 63 | 97 | 282 | 330 | 534 | 756 | 1656 | — | — |
| | GPM | 5 psi | 9.9 | 13 | 20 | 58 | 68 | 110 | 156 | 342 | — | — |
| CV (KV) | | | 8 (7) | 10.5 (9) | 16.3 (14) | 47 (40) | 55 (47) | 89 (76) | 126 (108) | 276 (236) | 350 (300) | 450 (385) |

2psi = 0.14bar 5psi = 0.35 bar 1U.S. GPM = 0.227124 m³ / hr.

Discharge line capacities based on +86F (+30°C) condenser, +140F (+60°C) discharge and +15F (-9.4°C) evaporator.

Compressor side port capacities based on +20F (-6.7°C) economizer and +86F (+30°C) condensing

Liquid line capacities based on +20F (-6.7°C) Liquid and +5F (-15°C) evaporator, with no flashing through valve.

To convert to +86F (+30°C) liquid, multiply values in table by 0.9. To convert R 22 capacities to R 134 a, multiply tons in table by 0.92 (accuracy within 8%). GPM correction factors for temperature between 40F (-40°C) and +40 (4.4°C) are negligible.

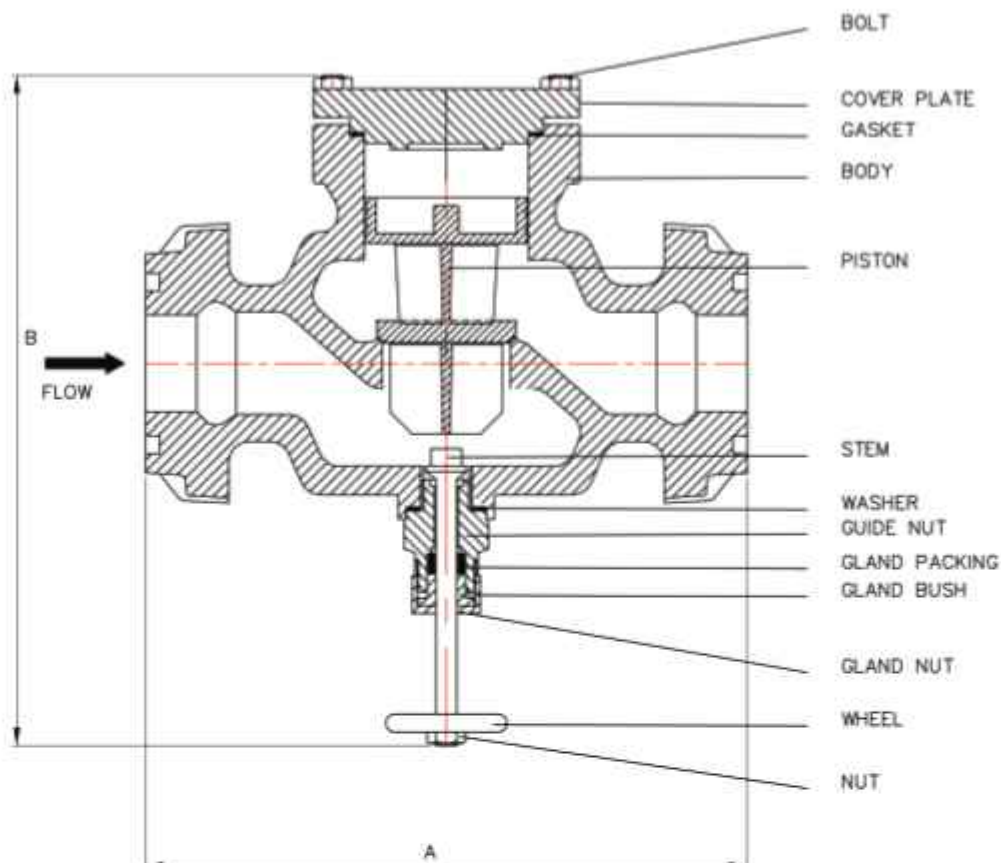
TROUBLE SHOOTINGS:

| SYMPTOM | PROBABLE REASON | CORRECTION |
|---|---|--|
| Valve does not close, or there is a leakage in valve. | <ul style="list-style-type: none"> Stuck due to dirt or chips Burs on Piston Manual stem is in open position Eroded or worn seat on piston main valve | <ul style="list-style-type: none"> Disassemble valve and clean thoroughly Polish or replace piston Unscrew manual stem anti clock wise. Replace entire main valve assembly |
| Valve does not open | <ul style="list-style-type: none"> Stuck Piston due to dirt or chips | <ul style="list-style-type: none"> Disassemble valve and clean thoroughly |
| Valve chatters | <ul style="list-style-type: none"> Valve is over sized Slow speed piston compressor | <ul style="list-style-type: none"> Replace with smaller port size |



SUPERFREEZE

CHECK VALVE



| SIZE | A | B |
|------|-----|-----|
| 32 | 235 | 280 |
| 40 | 238 | 290 |
| 50 | 260 | 300 |
| 65 | 310 | 335 |
| 75 | 350 | 350 |
| 100 | 380 | 390 |

ALL DIMENSIONS ARE IN mm.
TOLERANCE ± 3 mm.
DIMENSIONS MAY CHANGE DUE TO CONTINUOUS DEVELOPMENT PROCESS.

Note: For flange details refer flange catalog

SUPERFREEZE INDIA (P) LTD

An ISO 9001 : 2015 Certified Company

122, Qutab Plaza, DLF Phase-I, Gurgaon -122002, Haryana, India
Tel : +91-124-4301636

E mail : sales@superfreeze.com Website : www.superfreeze.com