Danfoss HFI series high pressure float valve

A good partner of plate heat exchanger type condensers

The HFI is a high pressure float valve with internal liquid measuring device. The float valve is designed for direct flange mounting or welding on to plate heat exchanger type condensers.

Direct acting
No differential pressure is required to activate the valve.

Reliable by simple design
The float valve is equipped with a purge valve for purging non condensable gases from the top of the valve housing.
Introduction

HFI is a high pressure float valve with internal liquid measuring device. The float valve is designed for direct flange mounting or welding on to plate heat exchanger type condensers.

HFI is direct acting, therefore no differential pressure is required to activate the valve.

HFI is sturdy and reliable owing to its simple design. The float valve is equipped with a purge valve for purging non condensable gases e.g. air from the top of the valve housing. This facility is also useful if the valve has to be serviced.

Technical data

- **Dimensions**
  DN 100 and DN 150

- **Refrigerants**
  + HFI as standard can be used for R 717 (ammonia) and other refrigerants with a density of 500 through 700 kg/m³ (31.21 - 43.70 lb/ft³).
  + Flammable hydrocarbons are not recommended.

- **Temperature range**
  –50/+80°C (–58/+176 °F)

- **Pressure range**
  The float valve is designed for:
  + Maximum operating pressure: 25 bar g (363 psi g).
  + Strength test without float ball: 42 bar g (609 psi g).
  + Leakage test: 25 bar g (363 psi g).
  Valves for higher pressure are available on request.

- **Connections**
  + Flange:
    Inlet: Flange DN 100 or DN 150 (DIN-2635/DIN 2512-F)
    Outlet: Welding connection DN 50 (EN 10220)
  + Butt-weld, DIN:
    Inlet: DN 100 or DN 150 (EN 10220)
    Outlet: Welding connection DN 50 (EN 10220)
  + Butt-weld, ANSI:
    Inlet: DN 100 (4 in.) or DN 150 (6 in.)
    (ANSI B 36.10)
    Outlet: Welding connection DN 50 (2 in.)
    (ANSI 36.10)
Features

- Designed for direct flange mounting on to plate heat exchanger type condensers.
- Equipped with purge valve for purging non condensable gasses.
- Available with external connections for drainage and pressure equalizations.
- Housing i.e. shell and flange are made of special steel approved for low temperature application.

The principle of high pressure control

In installations with one application high pressure control is an effective and cost saving way of expanding liquid from the condenser to the low pressure side.

High pressure refrigerant entering the condenser will start to condense, consequently condensate will accumulate at the bottom of the condenser and in the float valve.

When capacity demands increase, the liquid level in the float valve will rise, which will cause the valve to open and the refrigerant to expand into the separator at the low pressure side.

When the valve is closed, there will still be a small by-pass over the seat, so any remaining liquid will equalize slowly to the low pressure side, for instance during an off cycle. Therefore the system will equalize automatically and the compressor can start up without excessive back pressure. The size of the bypass is predetermined and defined by geometry of the elements.

It follows from the above, that almost all the refrigerant will be accumulated on the low pressure side under normal conditions. Therefore under normal conditions no high pressure receiver is necessary when using the HFI for high pressure control.

Standard applications

Here shows a water chiller with plate heat exchanger as both condenser and evaporator. HFI is flanged directly on to the condenser.
Danfoss Flexline™

Designed to offer clever simplicity, timesaving efficiency and advanced flexibility the Flexline™ series includes three popular product categories:

- **ICV Flexline™** – Control valves
- **ICF Flexline™** – Complete valve stations
- **SVL Flexline™** – Line components

All products are based on a modular design with no functionality in the housing. This set-up reduces complexity right from the design phase to the installation, commissioning and service. All key to lower total life cycle costs – and major savings.

Go to [www.danfoss.com/flexline](http://www.danfoss.com/flexline) for more information on the Flexline™ platform.

Global knowhow
Local support

Backed by more than 60 years of experience producing valves and controllers for industrial refrigeration applications Danfoss is a solid partner to turn to when you are looking for quality components.

Our global knowhow combined with local support offers you the best possible products and service.