



Virtual Engineer: Sporlan Division

3 Way Hot Gas Defrost Valves

Contents

3 Way Hot Gas Defrost Valves	1
10G79B, 10G711B, and 10G711C Series	1
Valve Sizing in Virtual Engineer.....	2
Inputting Sizing Information.....	2
Getting Results and Comparing Choices	2
Configuring a Part and Saving Results	3

3 Way Hot Gas Defrost Valves

3 Way Hot Gas Defrost valves are used for gas defrost only. One or more compressors are used to provide refrigeration for multiple evaporators, both medium and low temperature. The 3 Way valves are used to control either the flow of gas off a discharge header to the various evaporators, or suction gas from the evaporators to the suction header.

10G Series

The only series Sporlan offers for this application is the 10G series of pilot valves. The position of the piston and seat assembly is controlled by the pilot valve. When the valve is de-energized, discharge gas is prevented from entering the upper piston cavity through the pilot. When the valve is energized, suction gas is completely blocked off and the flow is from the discharge header through the valve and to the evaporator outlet. These valves can only be applied off a discharge header and not in the main discharge line.

Refer to [Bulletin 30-20](#) for more information on Sporlan 3 Way Valves.

Valve Sizing in Virtual Engineer

Inputting Sizing Information

Refrigerant is the type of refrigerant the system is operating with, by ASHRAE R-number designation.

Evaporator Temperature is the saturated temperature at evaporator or suction pressure. Virtual Engineer will allow Liquid Temperature to be less than the Evaporator Temperature.

Suction Vapor Temperature is the temperature of the suction vapor entering the compressor. Virtual Engineer will not allow Suction Vapor Temperature to be less than Evaporator Temperature.

Liquid Temperature value is the liquid refrigerant temperature at the inlet of the expansion valve.

Evaporator Capacity is the total cooling capacity of the evaporator(s) which this valve controls.

Enter the required information into the left pane of the sizing tool. As information is entered, Virtual Engineer will filter products meeting that criteria in the right pane. When you have entered the required information, valid products will be available to compare in the right pane. All valid products are included to compare by default. You may uncheck any product you don't wish to compare.

Getting Results and Comparing Choices

Click the "Compare" button at the top of the right pane to be taken to the Compare Table. The Compare Table will display the results of the selection, and the values input. The best selection within each compared product will be highlighted. The Compare Table will also show other selections within the compared products.

Click the "Select Columns" button at the upper left corner of the Compare Table to select what values you would like to appear in the Compare Table. Below is a quick explanation of the columns that can be selected for the 3 Way Hot Gas Defrost Valve tool:

- **Valve Type:** The family that the valve belongs to
- **Nominal Capacity:** The rated capacity of the valve per ANSI/AHRI Standards
- **Coil Size:** Standard Sporlan Coil Sizes are MKC-1, MKC-2, OMKC-1, and OMKC-2. Refer to [Bulletin 30-10](#) for more information on Sporlan Coils.
- **Pressure Drop Across Valve:** Reduction of pressure from inlet to outlet of the valve
- **Percent of Rated Capacity:** How much of the valve's capacity is being used
- **Maximum Rated Pressure:** The maximum working pressure of the valve in ambient conditions

- **Warnings:** Any warnings associated with the selection, such as a high or low loading condition, will display here.

After selecting columns, you can click and drag the column header to change the order of the columns. You can also click the ▼ in the column headers to further narrow or sort your results.

Click the “Group by Series” button at the top of the Compare Table to group the results by the valve family they belong to. Click the button again to ungroup.

Click the “Close” button below the Compare Table or the X in the upper right corner of the screen to close the Compare Table and return to the input screen.

Configuring a Part and Saving Results

In the second column of the Compare Table, there are two buttons that can appear: “Configure” or “Select.”

Click the “Configure” button next to the desired series to be taken to its eConfigurator. The eConfigurator can be used to configure a part according to your unique system. The eConfigurator will give an item number that can be used to purchase your part. Click the “Save” button to save your configuration and return to Virtual Engineer’s dashboard. The configured part will appear in your system.

If a “Select” button appears next to the desired series, then there is no eConfigurator currently available for that product, and the series will be selected without any configuration.

Click the “Export” button at the upper right corner of the Compare Table to save your results as an Excel spreadsheet.

Click the blue page icon in the “RPT” column of the Compare Table to generate a summary report of your inputs and choices. If the part was configured using an eConfigurator, the item number will also appear in the summary report. This report can be downloaded as a PDF and printed as needed.