



Virtual Engineer: Sporlan Division

3 Way Heat Reclaim Valves

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3 Way Heat Reclaim Valves

Heat reclaim is best described as the process of reclaiming heat that would normally be rejected by an outdoor condenser. It can significantly lower energy costs. While the most popular application of heat reclaim is air, water heating is popular in supermarkets, convenience stores and restaurants, which all use considerable amounts of hot water. Essentially, any application that requires heat can recover the heat from a refrigeration or air conditioning system. 3 Way refrigerant heat reclaim valves make it convenient to recover rejected or waste heat.

B5D, 8D, 12D, and 16D Series

All Sporlan’s 3 Way Heat Reclaim Valves have a pilot operated design that shifts the refrigerant flow to either the normal condenser or the reclaim condenser based on the heating requirements of the application. When the pilot valve is de-energized, high side pressure is prevented from entering the cavity above the piston-seat assembly. At the same time, the upper pilot port is opened to suction pressure. When the pilot valve is energized, high side pressure is permitted to flow through the lower pilot port. At the same time, the upper pilot port is closed to suction pressure. All valves are offered in either “B” type with bleed port or “C” type without bleed port.

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.

Condensing Temperature is the saturated temperature at discharge or condensing pressure. It is checked against the Liquid Temperature. Virtual Engineer will not allow Condensing Temperature to be less than Liquid Temperature.

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

System Capacity is the total cooling capacity of the system.

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. Virtual Engineer assumes isentropic compression plus 50°F, with 25°F superheated vapor entering the compressor.

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 Heat Reclaim Valve tool:

- **Valve Type:** The family that the valve belongs to
- **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.