

## Fan Coils

### Valve packages general data: V-D9M

Zehnder Rittling Console and High Capacity Fan Coils have standard valve packages available as a factory built assembly and field-installed option for the main cooling coil and optional heating coil. Vertical Hi-Stack Fan Coils are the exception where all valve packages are factory installed. All valve packages are manufactured within strict tolerances and are hydrostatically tested for leaks. All cooling piping and components are located directly above the drain pan to allow condensate to be captured and properly drained. Insulation of the factory valve package is not required. However, all field connections downstream of the valve package should be insulated.

#### Valve package components

Zehnder Rittling valve packages consist of a variety of components and selection of each combination is dependent upon the application. The following sections provide a detailed description of each of the components. Following this section are additional schematic illustrations and mechanical specifications and photos.

#### Interconnecting piping

Interconnecting piping refers to the copper piping which is attached to the coil connections and to which all other components (i.e. control valves, end valves, circuit setters, etc.) are attached. Piping is 1/2" nominal (5/8" OD) copper.

#### Deluxe valve package

The deluxe valve package includes the main components of the valve package (i.e. interconnecting piping, control valves, and end valves) while also including unions at the coil connections and a strainer on the supply water pipe.

All valve package components are solder end connections.

Each deluxe valve package includes a ball valve and strainer for the supply water pipe and one of the following end valves on the return water pipe; ball valve, manual circuit setter, or automatic circuit setter. These valves serve as the field connection points on all of the Zehnder Rittling valve packages. Consult the factory for inclusion of the other types of valves as end valves.

#### Unions

The unions are cast bronze construction and close with a minimum amount of effort. Used for quick connect and disconnect of valve package components to minimize required field labor during servicing of the unit.

<b>Part</b>	<b>Material</b>
Nut	Brass
Body	Brass
Temperature	325 °F maximum
Working pressure	600 PSI

### Strainer

The Y-type strainer body is constructed of brass with a 16 mesh 304 stainless steel screen. Used for removal of small particles from the water supply pipe during normal system operation. The strainer helps protect the coil and minimizes the chance of control valves clogging. Screens should be regularly removed and cleaned as part of a routine maintenance schedule.

<b>Part</b>	<b>Material</b>
Body	Forged brass
Ball	Brass/chrome plated
Seat	PTFE
Stem	Brass
Seals	Viton
Screen	304 stainless steel (20 mesh)
Temperature	325 °F maximum
Working pressure	600 PSI

### Ball valves

Ball valves, also known as end valves, allow the unit to be cut off for servicing purposes. They have a low resistance to water flow, operate easily, and are often used for water balancing. These valves have a compact handle that rotates 90 degrees to a fully open position. The valve body is forged brass and the ball is polished brass with virgin Teflon seats and seals. Ball valves are available as end valves on both the supply and return water pipes.

<b>Part</b>	<b>Material</b>
Body	Forged brass
Ball	Brass, chrome plated
Seat	PTFE
Stem	Brass
Seals	Viton
Temperature	325 °F maximum
Working pressure	600 PSI

### Balance valve

The balance valve body is constructed of bronze and is used to balance hydronic circuits.

<b>Part</b>	<b>Material</b>
Body	Bronze
O-Ring	EPDM

### Automatic Circuit Setter

An automatic circuit setter is an automatic flow control device that includes a ball valve cast in the valve body and is located on the return water pipe. The automatic circuit setter consists of a stainless steel/brass flow cartridge and a contoured orifice plate. As the pressure drop increases, the flow cartridge will move into the contoured orifice plate to decrease the flow. This flexing action provides a constant flow, independent of pressure (2-80 PSI), and makes it difficult to clog and resistant to cavitation damage. This valve sets flow through the coil without any action required by a system balancer. The automatic circuit setter includes two measuring ports in the valve body to be used for pressure drop and temperature measurements.

<b>Part</b>	<b>Material</b>
Body	Forged brass
Ball	Brass, chrome plated
Flow cartridge	Stainless steel/brass
Seals	Viton
Ball Seal	PTFE

Temperature	325 °F maximum
Working pressure	600 PSI

### 3-Way Modulating Valve

These 1/2", 24V valves modulate the flow of water (0-100%) through the coil in response to a signal from the controller and are normally closed to the coil as standard. Three-way valves allow the water supply from the water supply pipe to mix with bypass water from the bypass line. This mixture exits through the supply water pipe to the coil. Modulating three-wire floating type valves are compatible with any 24V three-wire signal when three-minute time-out logic resides in the system controller. Modulating proportional type valves are compatible with any 0 to 10 Vdc or 4 to 20 mA signal with jumper selectable operating range and action resulting in precise positioning. All valves feature a magnetic clutch to extend the life of the motor and gear train, manual operating lever/position indicator facilitates field setup, and easy to use lever terminal blocks. These valves are located in the water supply pipe, have a  $C_v$  of 4.0, and close off DP of 50 PSI.

<b>Part</b>	<b>Material</b>
Body	Forged brass
Stem	Nickel plated/chrome plated brass
Seat	Brass
Paddle/plug	High temperature thermoplastic/rubber
Actuator	High temperature plastic

Temperature	200 °F maximum
Working pressure	300 PSI

