Chart Vacuum Insulated Control Valve Assembly

One of Chart's latest innovations is the vacuum insulated control valve assembly for environmental test chambers. This assembly gives a completely frost and water free connection of the liquid nitrogen piping to the chamber. The vacuum insulation eliminates the need for insulating the valves with unsightly insulation after installation. The valve assembly also eliminates any dripping of water on lab equipment or the floor, which is often an issue with the facilities and safety groups.

The assembly consists of a linear control valve and a redundant on/off cooling safety valve. The space between the valves is protected with a thermal relief valve for safety. The connection to the assembly is a vacuum insulated bayonet, which minimizes heat transfer and greatly simplifies installation.

The vacuum insulated valve assembly gives the chamber better cooling performance. The vacuum insulation ensures colder liquid is introduced into the chamber. The colder liquid generates faster ramp rates than can be experienced with non-vacuum insulated valves. Because the liquid entering the chamber is colder, it provides more cooling capacity per gallon. This additional cooling capacity ultimately reduces the amount of liquid nitrogen used during the test.

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