

Did you know?

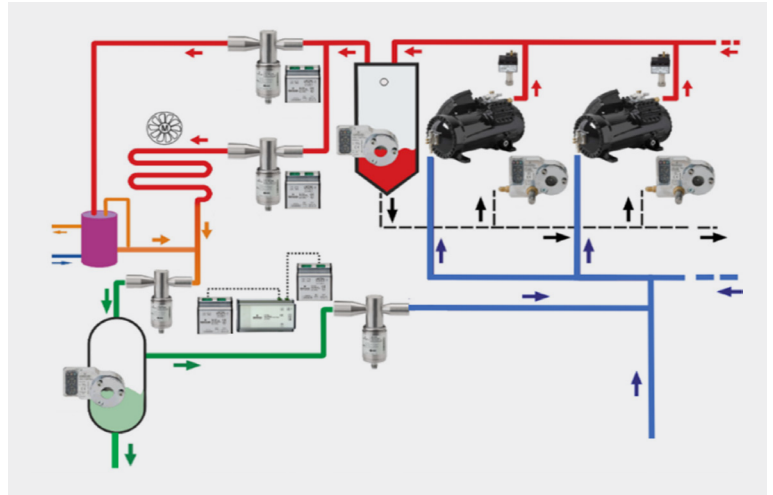


Stepper motor valves in transcritical CO₂ refrigeration/air-conditioning systems

For precise control of refrigerant mass flows in transcritical CO₂ systems, electronically controlled stepper motor valves are used in the high and medium pressure range.

In subcritical gas cooler operation, the valves operate at working pressures between 75 and 120 bar, and according to the optimum efficiency (COP) or maximum cooling capacity as required.

The medium pressure bypass mode is used to reduce the gas content in the medium pressure vessel after the gas cooler valve and throttles the liquid refrigerant to a low-pressure level before the expansion valve at the evaporators. The working pressure can be up to 90 bar.



Emerson CV4-6.5 series stepper motor valves meet these requirements in the high pressure as well as in the medium pressure range up to a working pressure of 130 bar. They can be used as a high-pressure valve after the gas cooler, flash tank bypass valve, expansion valve or as a suction pressure regulator. The wear-free ceramic valve design allows maintenance-free operation.

The control can be done via the Emerson drivers EXD-U02 or XEV-20D (0...10V). Furthermore, it is possible to realize a control with the Emerson XC Pro rack controller via a CAN bus interface.

Valve overview

Model	Kv (m ³ /h)	PS (bar)	MOPD (bar)	Control Range (%)	Connection
CV4	0,21	130	90/70*	10...100	3/8" x 5/8" ODF
CV4,5	0,45	130	90/70*	5...100**	5/8" x 5/8" ODF
CV5	0,68	130	90/70*	10...100	5/8" x 7/8" ODF
CV5,5	0,85	130	90/70*	5...100**	7/8" x 7/8" ODF
CV5,8	1,30	130	90/70*	5...100**	7/8" x 7/8" ODF
CV6	1,57	130	90/70*	10...100	7/8" x 1-1/8" ODF
CV6,5	2,60	130	90/70*	5...100**	1-1/8" x 1-1/8" ODF

* Bypass application

** Equal percentage valve characteristic