

High Pressure Expansion Valves Series CV4-6.5

Emerson's CV4-6.5 valves are stepper motor driven valves for precise control of refrigerant mass flow in air conditioning and refrigeration systems with CO₂. The control valves can be used as high pressure gas valve for gas cooler control, expansion device, hot gas and cold gas bypass, liquid injection duty, evaporator pressure regulator, crankcase pressure regulator, head pressure regulator, or liquid level control.

Features and Benefits

- Maintenance free
- Multifunction
- Fully hermetic design with ODF connections
- Stepper motor driven
- Short opening and closing time
- Very fast full stroke time
- High resolution and excellent repeatability
- Positive shut-off function to eliminate the use of an additional solenoid valve
- Linear flow capacity
- Extremely wide capacity range (10...100%)
- Optimal solution applied to offer the highest reliability and lifespan, accordingly to the high differential pressures in the CO₂ systems
- Ceramic slide and port for precise flow and minimal wear
- Balanced force design
- Corrosion resistant stainless-steel body and connections




CV4-6.5
with ODF connection

Selection Table



Type	Part No.	Kv (m ³ /hr)	Control Range	Inlet Connection	Outlet Connection	Electric Connector
CV4-HPV	802056	0.2	Please refer to the selection tool "Controls Navigator"	3/8"	5/8"	M12 plug
CV5-HPV	802057	0.6		5/8"	7/8"	
CV6-HPV	802058	1.5		7/8"	1 1/8"	

Note 1: Valves are delivered without cable/connector assembly (order separately)

Cable and Connector Assemblies

Type	Part No.	Temperature Range	Length	Connector type to valve	Connector type to driver board or controller	Illustration
EXV-M15	804 663	-50 ... +80°C	1.5 m	M12	Loose wires	
EXV-M30	804 664		3.0 m			
EXV-M60	804 665		6.0 m			

Technical Data CV Valves

Marking		not required (Out of scope of PED)
		CV4/5/6 (No.MP604)
Compatibility	CO ₂ and POE lubricants	
MOPD	70 bar (In conjunction with EXD-U02 driver)	
Max. Allowable Pressure PS	130 bar	
Factory Test Pressure PT	186 bar	
Temperatures	Ambient	-40...+65°C
	Storage	-40...+70°C
	Medium	-50...+100°C

Protection Accordance to IEC 529, DIN 40050	IP67 with EXV-Mxx plug and cable assembly
Vibration	4 g (0...1000 Hz, 1 octave /min.)
Shock (CV4-6)	20 g at 11 ms 80 g at 1 ms
External Leakage	6.4 * 10 ⁻⁶ mbar* [*] liter/sec.
Humidity	100% R.H.

Electrical data CV Valves

Stepper Motor Type	Bi-polar, phase current by chopper control (constant current)
Electrical Connection	4 pins terminal for M12 plug
Driver Supply Voltage to the Valve	18...36VDC
Operating (Moving) Current Peak	CV4: 625 mA CV5-7: 800 mA
Holding Current Peak	CV4: 100 mA CV5-7: 300 mA
Phase Inductance	CV4: 30 mH ± 25% CV5/6/7: 20 mH ± 25%

Step Mode	2 phase full step
Stepping Rate	500 Hz
Total Number of Steps	CV4-6: 750 full steps CV7: 6400 full steps
Winding Resistance per Phase	CV4: 14 Ohm ± 10% CV5-7: 10 Ohm ± 10%
Full Travel Time	CV4-6: 1.5 seconds CV7: 12.8 seconds
Reference Position	Mechanical stop at fully close position