



MCS-SER-D Description & Specifications



C **UL** **US**
File # SA5460



Specifications

Motor Type.....	2 phase, bipolar wet motor
Supply Voltage.....	12 VDC, -5% + 10%, measured at the valve leads
Phase Resistance.....	100 ohms per winding ±10%
Maximum Power.....	2.8 watts
Required Step Rate.....	200 steps per second, other rates must be tested and approved
Number of Steps.....	2500 Steps
Maximum Rated Pressure (MRP)...	700 psi
Operating Temperature Range	-50°F to 155°F (-45°C to 68° C)
Materials of Construction.....	copper - fittings; brass - valve body; synthetic materials - seating and seals; stainless steel - motor housing, and adaptors
Cable Type	IP66 Removable - 4 lead, 18 AWG, PVC insulation 50 ft max

Part #'s

MCS-SER-D 13.8 Ton Nominal EXV, 5/8"
inlet fitting, 7/8" outlet fitting,
30' cable

Description

The SER-D are Electronically Operated Step motor flow control valves, intended for the precise control of liquid refrigerant flow. Synchronized signals to the motor provide discrete angular movement, which translates into precise linear positioning of the valve piston. Valve pistons and ports are uniquely characterized, providing improved flow resolution and performance. The SER-D valves are easily interfaced with MCS microprocessor based controllers. Therefore, they are applicable on all the same types of systems found in the air conditioning and refrigeration industry as thermostatic expansion valves.

The SER-D valves modulate by the electronically controlled rotation of a step motor. The step motor drives a gear train and lead screw to position a piston. The piston is used to modulate flow through a port.

The motor is a two phase type driven in the bi-polar mode. Two discrete sets of motor stator windings are powered in sequence to rotate the rotor 3.6 degrees per step. Polarity of the drive signal reverses for each step.

When used with one of the MCS Controls, the valves provide unsurpassed accuracy in resolution of flow and repeatability of position. External parts of the valve are brass, copper and stainless steel, and meet or exceed 2000 hour salt spray tests per ASTM B-117.

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