



# MCS-SERI-G/J/K/L

## Description & Specifications



Photo shows MCS-SERI-JS

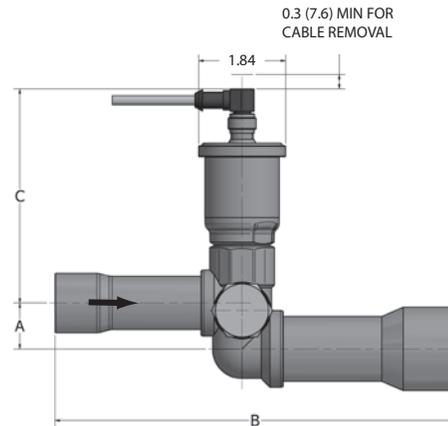
### Specifications

|                                |   |
|--------------------------------|---|
| Motor Type.....                | 2 phase, bipolar wet motor  |
| Supply Voltage.....            | 12 VDC, -5% + 10%,<br>measured at the valve leads   |
| Phase Resistance.....          | 100 ohms per winding ±10%   |
| Maximum Power.....             | 2.8 watts   |
| Recommend Step Rate            | 200 steps per second, other<br>rates must be tested & approved  |
| Number of Steps.....           | 2500  |
| 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<br>body; synthetic materials -<br>seating and seals; stainless<br>steel - motor housing, and<br>adaptors |
| Cable Type .....               | IP67 Removable<br>Quad-Position - 4 lead,<br>18 AWG, PVC insulation   |

### Part #'s

|                          |  |
|--------------------------|--|
| <b>MCS-SERI-GS</b> ..... | 26.6 *Ton Nominal EXV, 7/8"<br>inlet fitting, 1-1/8" outlet fitting,<br>30' cable-build in sight glass   |
| <b>MCS-SERI-JS</b> ..... | 47.8 *Ton Nominal EXV, 1-1/8"<br>inlet fitting, 1-3/8" outlet fitting,<br>30' cable-build in sight glass |
| <b>MCS-SERI-KS</b> ..... | 86.7 *Ton Nominal EXV, 1-1/8"<br>inlet fitting, 1-5/8" outlet fitting,<br>30' cable-build in sight glass |
| <b>MCS-SERI-LS</b> ..... | 118 *Ton Nominal EXV, 1-3/8"<br>inlet fitting, 1-5/8" outlet fitting,<br>30' cable-build in sight glass  |

\*R-22 Capacity @ Evaporator Temp 40°F - see manual for tonnage and different temperatures and refrigerants.



### Description

The **MCS-SERI** 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 MCS-SERI 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 MCS-SERI valves modulate by the electronically controlled rotation of a step motor. The step motor drives a gear train and leads 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

| VALVE          | CONFIGURATION              | A           | B            | C            |
|----------------|----------------------------|-------------|--------------|--------------|
| <b>SERI-GS</b> | Straight Through<br>Offset | 0.73 (18.5) | 6.84 (173.7) | 3.59 (91.2)  |
| <b>SERI-JS</b> |                            | 0.73 (18.5) | 7.09 (180.1) | 3.59 (91.2)  |
| <b>SERI-KS</b> |                            | 0.97 (24.6) | 7.66 (194.6) | 4.01 (101.9) |
| <b>SERI-LS</b> |                            | 0.97 (24.6) | 7.69 (195.3) | 4.01 (101.9) |

\* Dimensions may vary slightly based upon connection sizes selected

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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