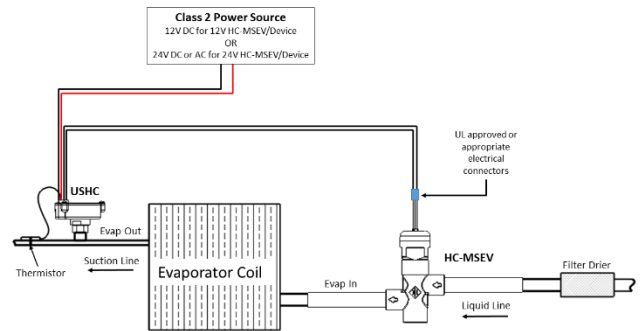




## Introduction

The High Capacity Modular Silicon Expansion Valve (HC-MSEV) is an electronically controlled, normally closed and one directional flow valve. It can be used for refrigerant mass flow control for today's industry-standard HVAC and Refrigeration systems. The HC-MSEV provides precise superheat control and quick mass flow adjustments through a closed loop control methodology achieved with DMQ's Universal SuperHeat Controller (USHC). Embedded with the silQflo® Silicon Servo Valve (SSV), the HC-MSEV is the fastest responding refrigerant expansion valve in the industry.



## Principle of Operation

The HC-MSEV is a two-stage proportional control valve. The first stage silQflo® SSV microvalve acts as a pilot valve that controls the second stage spool valve. When the microvalve receives a PWM signal, it modulates to change the pressure differential across the second stage spool valve. The spool will move to balance the pressure differential, effectively changing the orifice opening of the valve to control the desired amount of refrigerant flow. The maximum effective orifice allowed by the spool in the complete open position defines the maximum valve cooling capacity. The HC-MSEV comes in a single footprint that accommodates different spool cartridges to cater to various valve capacity.

## Features and Benefits

- Fast response
- Precise superheat control
- Compact and light weight
- Single Footprint for all capacities
- High Durability and Reliability
- Closed Loop Control
- Cost Effective Electronic Control

## Applications

Industrial Chillers, Commercial Cooling, Transport Refrigeration and etc.

## Technical Specifications

<b>Suitable Environmental Temperature</b>	-40°F ~ 158°F (-40°C ~ 70°C)
<b>Suitable Fluid Temperature</b>	-40°F ~ 158°F (-40°C ~ 70°C)
<b>Suitable Environmental Humidity</b>	< 95% RH
<b>Voltage Input</b>	12V <sub>rms</sub> ±20% (for a 12V valve) or 24V <sub>rms</sub> ±20% (for a 24V valve) Pulse Width Modulated 0 - 100%, 15 – 200 Hertz
<b>Power Consumption</b>	Max power 10±1W, Nominal 5±1 W   t <sub>operating</sub> ≥0.5 S
<b>Response Time</b>	250 ms (from fully close to fully open)
<b>Minimum Operating Pressure Differential</b>	25 psi (0.17 MPa)
<b>Maximum Operating Pressure Differential</b>	500 psi (3.45 MPa)
<b>Proof Pressure</b>	700 psi (4.83 MPa)
<b>Burst Pressure</b>	3300 psi (22.75 MPa)
<b>Refrigerant Compatibility</b>	R410A, R404A, R134A, R22 (call for all other refrigerants)
<b>Refrigerant Oil Compatibility</b>	Polyolester (POE); Polyalkylene Glycol (PAG); Mineral Oil (MO); Polyvinylether (PVE)
<b>Electrical Connections</b>	Two 20 AWG, UL 1332 wires with minimum length of 6 inches (152mm)
<b>Weight</b>	Approx. 17.6 oz (500 grams)
<b>Product Listing and Certifications</b>	UL 429, CUL, IP67



## Model Number Nomenclature

# AXXV-C3XX

12V = 12 Volts  
24V = 24 Volts

Capacity Code

# BXXV-C3XX

12V = 12 Volts  
24V = 24 Volts

Capacity Code

**A: PDA3-10 (U-flow MEMS SSV pilot valve)**

**B: PDA3-11 (Inline flow MEMS SSV pilot valve)**

## Nominal Capacity Tables

HC-MSEV Model Number	R410A		R22		R404A		R134A	
	Nominal, Ton	Capacity, Ton (kW)	Nominal, Ton	Capacity, Ton (kW)	Nominal, Ton	Capacity, Ton (kW)	Nominal, Ton	Capacity, Ton (kW)
AXXV-C332; BXXV-C332	10	13.0 (45.7)	9	11.0 (38.8)	6	7.8 (27.6)	7	8.6 (30.4)
AXXV-C338; BXXV-C338	13	15.4 (54.2)	11	13.1 (46.0)	8	9.3 (32.6)	9	10.2 (36.0)
AXXV-C343; BXXV-C343	15	17.9 (63.0)	13	15.2 (53.4)	9	10.8 (37.9)	10	11.9 (41.8)
AXXV-C348; BXXV-C348	17	20.3 (71.4)	15	17.2 (60.6)	10	12.2 (43.0)	11	13.5 (47.4)
AXXV-C352; BXXV-C352	20	22.8 (80.2)	16	19.3 (68.1)	12	13.7 (48.3)	13	15.2 (53.3)
AXXV-C355; BXXV-C355	22	25.2 (88.6)	18	21.4 (75.2)	13	15.2 (53.4)	14	16.7 (58.9)
AXXV-C358; BXXV-C358	25	27.7 (97.4)	20	23.5 (82.7)	14	16.7 (58.7)	15	18.4 (64.7)

The capacity tables for each refrigerant type is based on vapor free, 100 °F liquid refrigerant entering the expansion valve, a superheat of 4 °F, and the evaporator temperature at 40 °F. Please call for more information on valve capacity and sizing.

## Physical Dimension and Product Markings

