KE2 RefrigerationStepper Valve

Electronic Expansion Valve General Product Information

Introducing KE2 Therm Solution's new Refrigeration Stepper Valve, with capacity range from 1 to 19 tons in R-404A.

Introduction - KE2 Therm's RSV is a stepper motor actuated electric expansion valve designed for refrigeration and air conditioning applications. The RSV uses a unipolar motor with high precision control. Upgrading to an RSV eliminates the headache of adjusting superheat, and provides consistent superheat control which increases system efficiency.

Applications - The RSV works with common HCFC and HFC refrigerants. Nominal capacities range from 1 to 19 tons in R404A.Using an RSV in place of a mechanical expansion valve, ensures the system operates at the superheat setpoint over a much wider range of operating conditions. Conversely, TEVs are affected by changing system conditions and can fall out of adjustment over time. Refrigeration owners benefit from eliminating the expense of paying a qualified technician to periodically check and reset system superheat.

Superheat and system efficiency - RSVs not only eliminate the need to manually adjust superheat, they save time at installation. Setting superheat is tedious and time consuming, and it is difficult unless the system is pulled down to temperature. Properly setting superheat is less and less common, and often not even done. Instead, technicians trust factory superheat settings. This typically results in inefficient system performance, where the evaporator has insufficient refrigerant to maximize available coil surface area.

With less of the evaporator in use to refrigerate the space, the system must run longer to maintain the desired temperature. This increases compressor runtime, at the expense of the system owner. Most owners don't have sophisticated energy monitoring showing the actual expense, and they don't realize this problem costs them hundreds, if not thousands, of operation dollars per year.

RSVs are the most reliable way to ensure the superheat is accurate and the system is running at peak efficiency. When the RSV is used in conjunction with a KE2 Therm controller, the valve no longer relies on antiquated mechanical TEV control. Instead the controller constantly adjusts the RSV to maintain the superheat setpoint.

Compact motor design - The compact motor design is cost-effective, while providing enough power to control with up to 450 pound pressure differential. By directly driving the position of the valve a geared drive train is unnecessary. The elimination of these parts reduces potential failure modes in the valve.

Ensuring the continuing performance of the RSV - KE2 Therm recommends installing a filter drier in the liquid line ahead of the RSV to prevent system contaminants from disrupting valve performance, and impeding refrigerant flow.

Benefits and Features:

- High precision bi-directional control
- 4-phase unipolar stepper motor
- Neodymium-iron-boron magnet rotor
- 500 steps for high resolution control; 30-90 per second step rate
- External, replaceable coil
- 5 wire coil
- Insulation class E
- Low power consumption

Specifications:

Capacity: Up to 19 tons based on R-404A
Motor Type: Unipolar
Supply voltage: 12VDC ±10%
Stepping current: 330 mA/phase
Ambient Temperature Range: -22°F to 140°F (-30°C to 60°C)
Maximum Rated Pressure (MRP): 600 psi
Maximum Operating Pressure Differential (MOPD): 500 psi
Resistance of Coil RSV100-320: 36 / 46 Ohms, ±3.5 Ohms at 68°F (20°C)
Resistance of Coil RSV400 - 650: 32 Ohms, ±3.5 Ohms at 68°F (20°C)

RSV Selection Program

Scan the QR code
or go to
http://ke2therm.w21.wh-2.com/SelectEEV.aspx

RSV Description & Part Numbers

Valve Body	Connections Inches Inlet x Outlet	Lead Length	Nominal Capacity Tons*	Part Number
RSV 100	3/8 x 1/2 ODF	5 ft	0.5	21667
RSV 100	3/8 x 1/2 ODF	10 ft	0.5	21665
RSV 100	3/8 x 1/2 ODF	40 ft	0.5	21666
RSV 130	3/8 x 1/2 ODF	5 ft	1.0	21169
RSV 130	3/8 x 1/2 ODF	10 ft	1.0	21161
RSV 130	3/8 x 1/2 ODF	40 ft	1.0	21162
RSV 220	3/8 x 1/2 ODF	5 ft	2.5	21170
RSV 220	3/8 x 1/2 ODF	10 ft	2.5	21163
RSV 220	3/8 x 1/2 ODF	40 ft	2.5	21164
RSV 320	3/8 x 1/2 ODF	5 ft	4.75	21171
RSV 320	3/8 x 1/2 ODF	10 ft	4.75	21165
RSV 320	3/8 x 1/2 ODF	40 ft	4.75	21166
RSV 320	1/2 x 1/2 ODF	5 ft	4.75	21172
RSV 320	1/2 x 1/2 ODF	10 ft	4.75	21167
RSV 320	1/2 x 1/2 ODF	40 ft	4.75	21168
RSV 400	5/8 x 7/8 ODF	15 ft	9.5	21529
RSV 400	5/8 x 7/8 ODF	40 ft	9.5	21530
RSV 550	5/8 x 7/8 ODF	15 ft	16.0	21594
RSV 550	5/8 x 7/8 ODF	40 ft	16.0	21595
RSV 650	5/8 x 7/8 ODF	15 ft	19.0	21779
RSV 650	5/8 x 7/8 ODF	40 ft	19.0	21778
RSV-C10 Stator		10 ft		21149
RSV-C40 Stator		40 ft		21150
RSV-LC15		10 ft		21525
RSV-LC40		40 ft		21526

** Based on a R-404A 100°F Condenser Temperature, 40°F Saturated Suction Temperature.*

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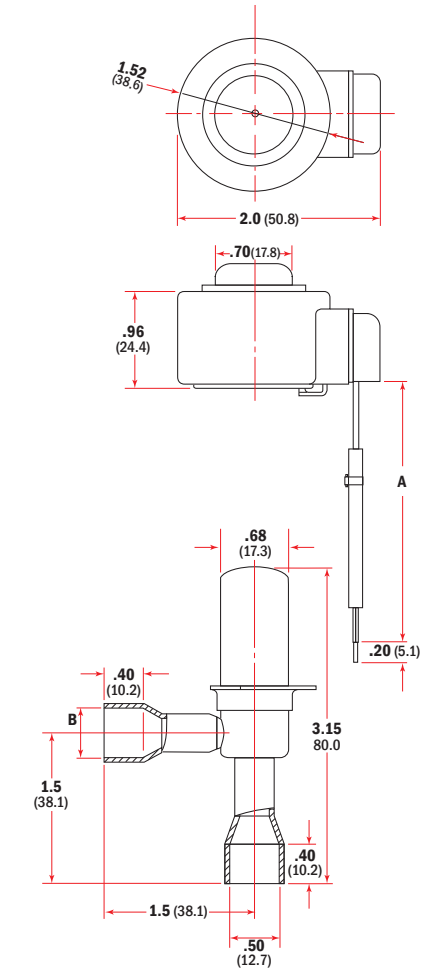
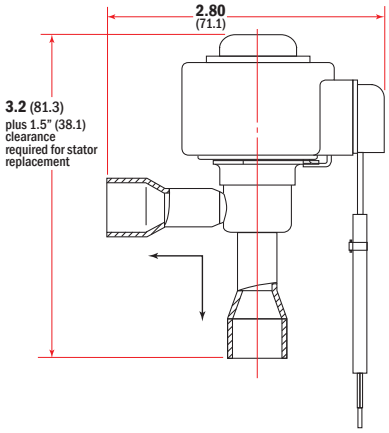
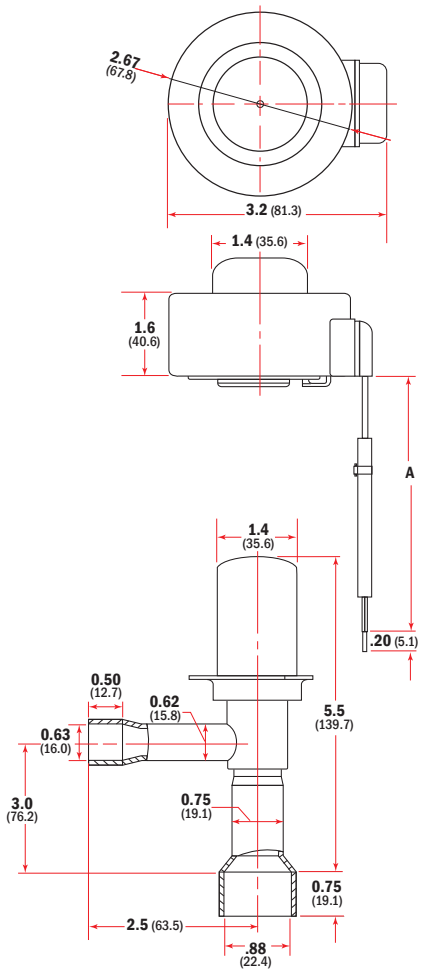
RSV 100s, 200s, 300s Dimensions - Inches (mm)

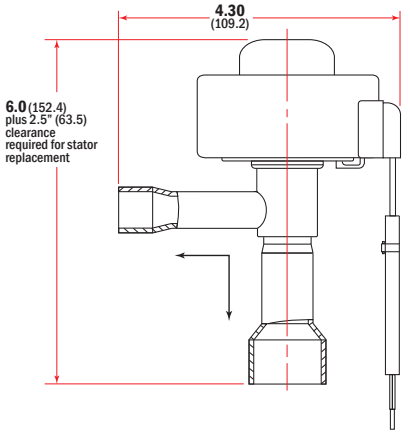




A	B
5ft, 10ft or 40ft	3/8 or 1/2

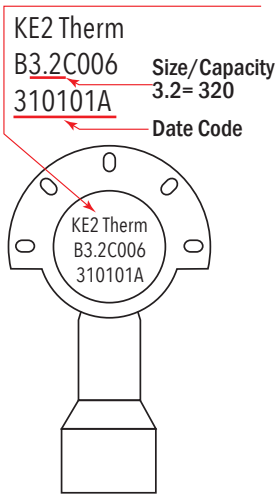
RSV 400s, 500s, 600s Dimensions - Inches (mm)



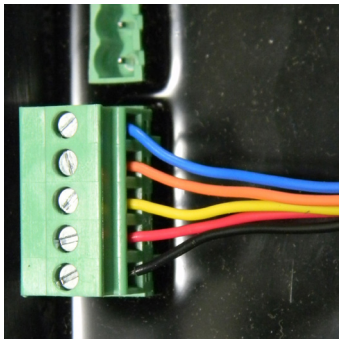


A
5ft, 10ft or 40ft

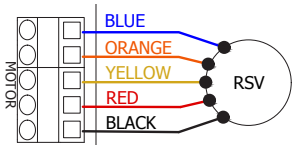
Product Identification Code



Wiring the RSV to the KE2 Evap Controller



Wiring the RSV to the KE2 Evap OEM



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