



# Uni-polar EEV with Internal Check

Types SEV-C 19(R) & 25(R)

INSTALLATION AND SERVICING INSTRUCTIONS  
SD-432 / 122016



The Parker SEV-C is a unipolar EEV with internal check feature for use in reverse flow applications, (i.e. residential heat pump systems). The check valve allows flow to bypass the expansion port in reverse flow when the valve is fully open. This minimizes liquid pressure drop. SEV-C features include:

- Unipolar motor design
- Precise 500 step flow resolution
- Internal check valve for full port reverse flow
- Welded stainless steel body for corrosion resistance
- Tight seating pin & port design
- Serviceable external stator design
- ODF and Chatleff Style connections available
- Compatible with HCFC & HFC, mineral and POE oils

## INSTALLATION

1. The SEV-C should be installed in the liquid line just upstream of the evaporator and downstream of the condenser, often feeding a distributor. To expand refrigerant, the flow direction is in the side and out the bottom. See Figure 1.
2. The valve should be installed with the stator no more than 45° from vertical.



3. The valve is available with ODF Solder and Chatleff Style mechanical connections.
4. The motor stator and o-ring should be removed before brazing. Rotate the stator to disengage the retention clips and remove from the valve. **NOTE:** Care must be taken to prevent damaging the motor cable from the torch, or indirectly from contact with a hot surface.
5. Braze or solder the inlet and outlet connections using standard practices and materials. It is recommended to purge with inert gas, and to wrap the valve body with a wet rag to prevent damage from overheating during installation. **NOTE:** Valve is shipped at approximately half stroke, allowing inert gas to flow through the port. **NOTE:** Valve internal temperature must not reach 240°F (115°C)

- during installation. **NOTE:** Valve is hermetic and not serviceable. Only the stator can be removed and replaced if needed.
6. The SEV-C with Chatleff Style connections should be installed using the provided gasket (P/N: BA1001-07). The recommended torque for the Chatleff Style connection is 20 ft-lbs.
  7. Pressurize the system and check for leaks.
  8. Reinstall the o-ring and stator to the valve. Place the stator over the valve's motor enclosure and slide it to the locating plate. Rotate the stator to lock in place by engaging the stator's retention clips.
  9. The valve will only operate when connected to a properly designed and configured controller. Wire the valve cable to the controller according to the controller specifications. The required valve drive sequence is shown here for reference. The gray lead wire is common.

### CABLE LEAD COLOR

Steps Rotated	PHASE			
	0 (Orange)	R (Red)	Y (Yellow)	B (Black)
1	Zero	HI	HI	HI
2	Zero	Zero	HI	HI
3	HI	Zero	HI	HI
4	HI	Zero	Zero	HI
5	HI	HI	Zero	HI
6	HI	HI	Zero	Zero
7	HI	HI	HI	Zero
8	Zero	HI	HI	Zero

↑ OPEN ↓

↑ CLOSE ↓

10. Apply power to the valve controller. The valve is shipped at approximately half stroke. Many controllers are designed to drive the valve closed for initialization upon start up. A light clicking may be heard during this time. Upon completion of the initialization, the valve should be ready to begin controlling.

### TROUBLESHOOTING INSTRUCTIONS

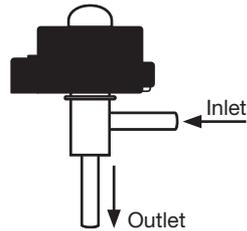
1. If the valve fails to operate properly, reinitialize the valve. Check with manufacturer on how to reinitialize their controller. Often disconnecting the line voltage from the valve controller and reapplying power to the controller will reinitialize the valve. Monitor system operation and valve function.
2. If the valve control issue is not resolved, disconnect the valve leads from the controller.
3. Check the resistance of each motor phase. Resistance between each wire (Orange, Red, Yellow and Black) to common (Gray) should be approximately  $40\Omega \pm 4\Omega$  at  $72^{\circ}\text{F}$  ( $22^{\circ}\text{C}$ ). Differences of more than 10% between phases may indicate a failed stator. The stator can be removed and replaced.
4. Check to ensure that resistance between any lead and the valve body is greater than  $1\text{ M}\Omega$ . Lower resistance readings may indicate a short, and the stator should be replaced. **NOTE:** The valve is not serviceable. If a mechanical failure occurs, the complete

valve should be removed and replaced with a new valve.

### COMPLETE VALVE REPLACEMENT INSTRUCTIONS

1. Valves with ODF solder connections should be replaced by unbrazing or cutting out the existing fittings. If cut out, a tubing or pipe cutter should be used to minimize copper contamination in the system.
2. Prior to removing the valve, make sure system refrigerant has been properly recovered and pressure has been reduced to a safe level (0 psig).
3. Install the replacement valve according to the preceding installation instructions. Ensure that the new valve is an exact replacement, or meets all functional requirements of system and is compatible with the controller.

**FIGURE 1**  
Valve Orientation



### **⚠ WARNING – USER RESPONSIBILITY**

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