Danfoss 067L5955

Danfoss TR6 TXV Thermostatic Expansion Valve Kit

Model: 067L5955

For 1.5 to 3 ton Traditional HVAC Systems - A/C, Heat Pump, Bi Flow

1. Product Overview

The Danfoss TR6 thermostatic expansion valve is engineered for precise control of refrigerant flow in ducted split (residential) and light commercial air conditioning systems. Its hermetically sealed design and robust construction ensure long-term reliability and performance.

Figure 1: The Danfoss TR6 TXV Thermostatic Expansion Valve Kit, showing its brass body, capillary tube, and sensing bulb.

Key Features:

- **Extended Diaphragm Lifespan:** Achieved through an embedded laser-welded power element.
- **High Pressure Tolerance:** Exceptional tolerance to high and operational pressures.
- **Corrosion Resistance:** Outstanding resistance for sustained performance.
- **Hermetically Sealed Design:** Manufactured with cutting-edge technology for reliability.
- **R410A Compatibility:** Compatible with all fluorinated refrigerants, including R410A.
- **Robust Construction:** Features a hot-pressed brass body and a stainless steel power element.
- **Balanced Port Design:** Minimizes the impact of varying condensing pressures.
- **Built-in Check Valve:** Essential for heat pump applications.
- **Anti-hunt Bulb Charge:** Optimized for residential A/C needs.
- **Bimetal Connections:** Enable easy and rapid soldering without the need for wet cloth or refrigeration pliers.
- **Compact Design:** Small dimensions and lightweight construction.

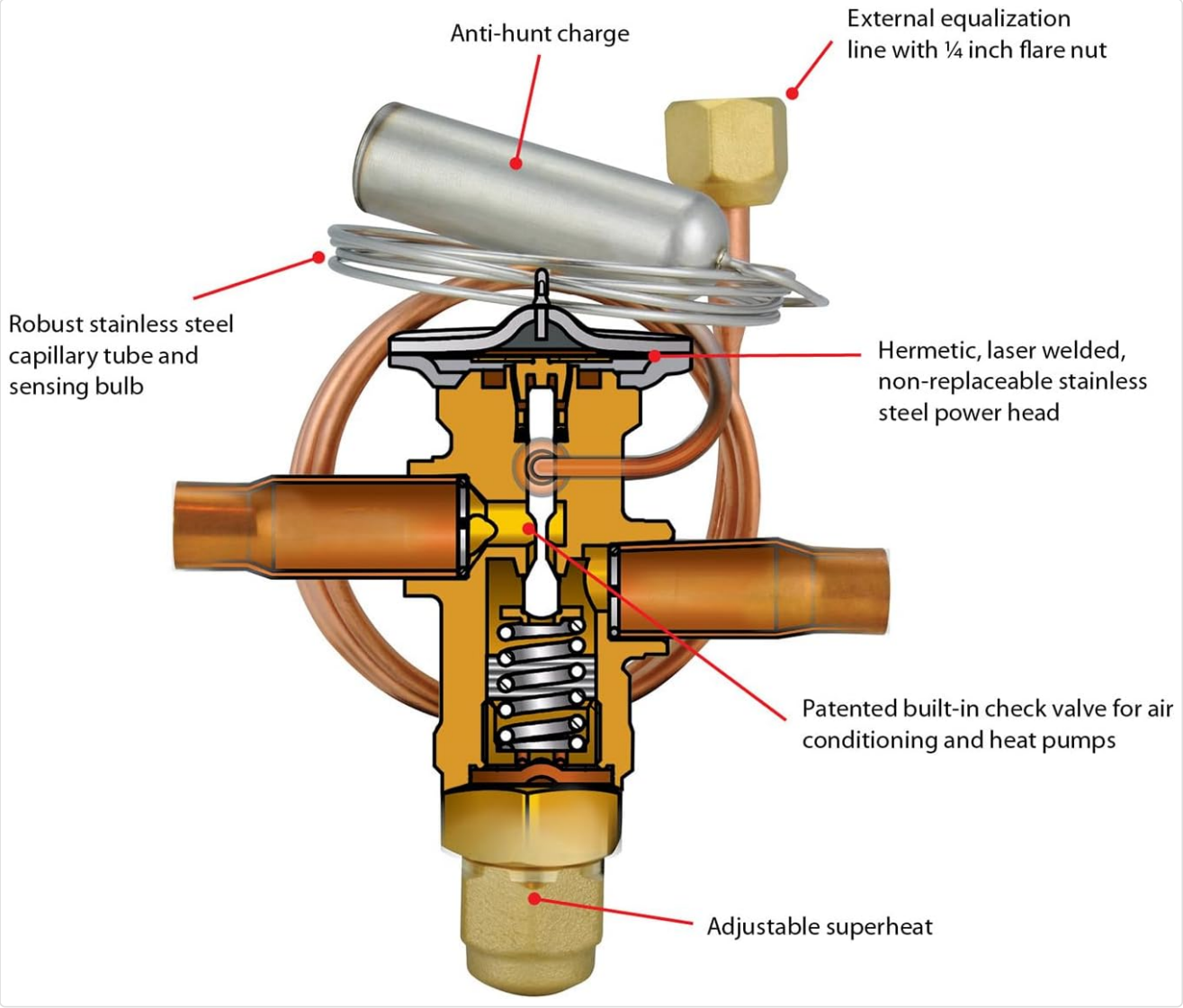


Figure 2: Cross-section view of the Danfoss TR6 TXV, highlighting internal components such as the hermetic power head, anti-hunt charge, robust stainless steel capillary tube, and built-in check valve.

2. Installation and Setup

The Danfoss TR6 kit includes all necessary components for installation. Professional installation by a qualified

HVAC technician is recommended to ensure proper function and system integrity.

Included Components:

- TR6 Thermostatic Expansion Valve
- 1 Aeroquip female 5/8 inch connector
- 1 Chatleff female 3/4 inch connector
- 1 Flare 3/8 inch connector
- Insulation tape
- Bulb strap
- Installation instructions (detailed within this manual)

General Installation Guidelines:

1. **System Preparation:** Ensure the HVAC system is depressurized and isolated before beginning installation.
2. **Connection:** Connect the valve to the evaporator using the appropriate fittings (aeroquip, chatleff, or flare) provided in the kit. Bimetal connections allow for soldering without excessive heat transfer.
3. **Bulb Placement:** Securely attach the sensing bulb to the suction line using the provided bulb strap and insulating tape. Proper bulb placement is critical for accurate superheat control.
4. **Equalization Line:** Connect the external equalization line (if applicable) to the suction line.
5. **Leak Check:** After installation, perform a thorough leak check on all connections.
6. **System Evacuation and Charging:** Evacuate the system to remove non-condensables and moisture, then charge with the correct refrigerant (R410A).
7. **Superheat Adjustment:** The valve features adjustable superheat. Adjustments should be made by a qualified technician according to system requirements.

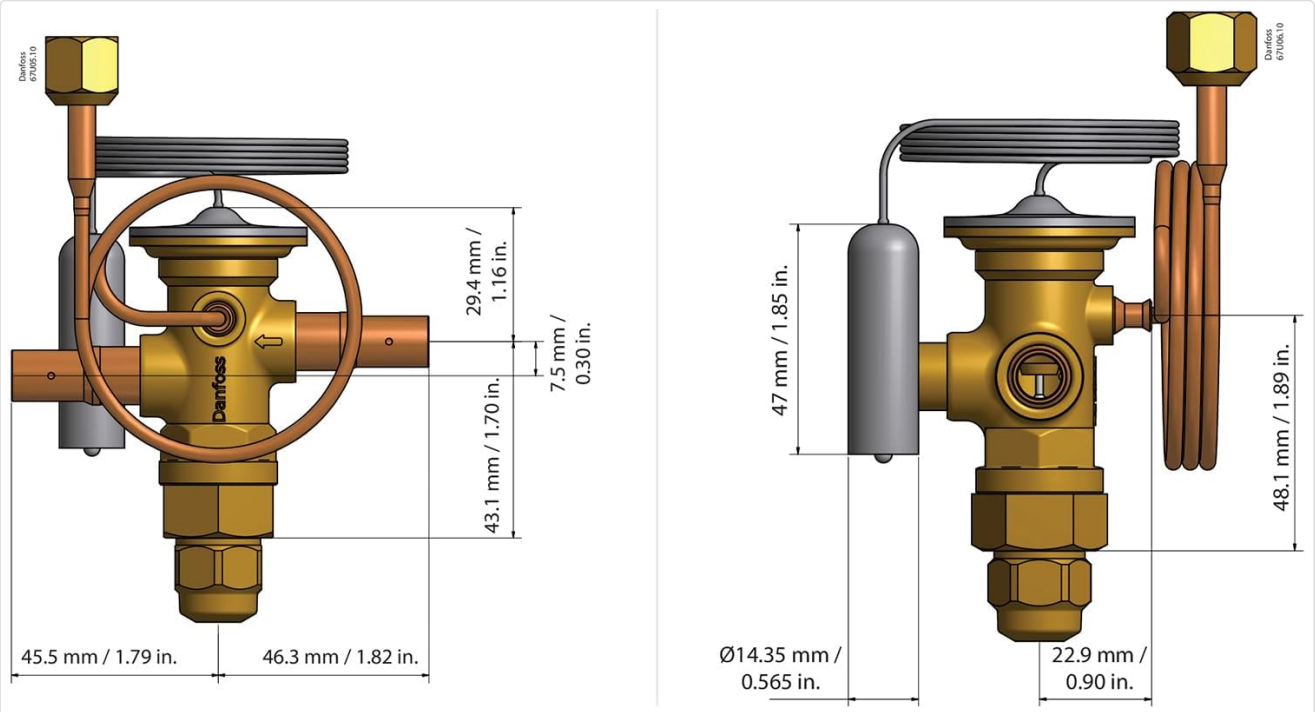
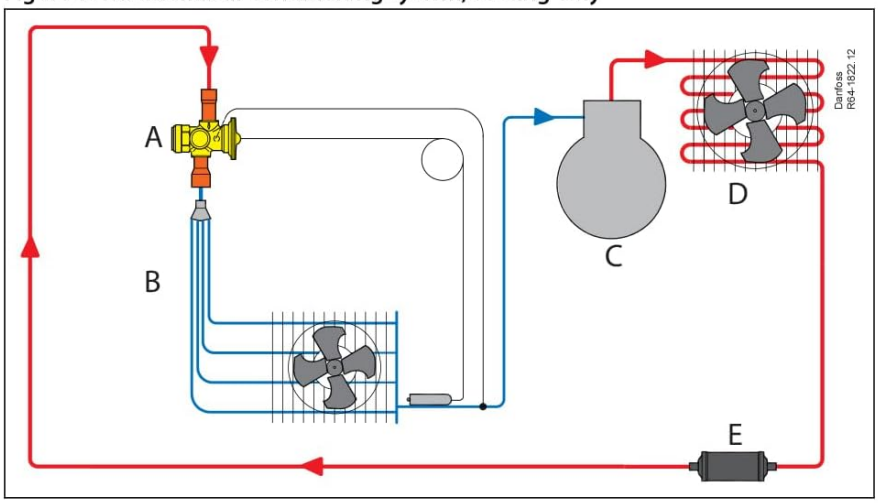


Figure 3: Technical drawing illustrating the dimensions of the Danfoss TR6 TXV in millimeters and inches.

System Integration Diagrams:

Traditional air conditioning system, cooling only

Figure 1: Traditional air conditioning system, cooling only



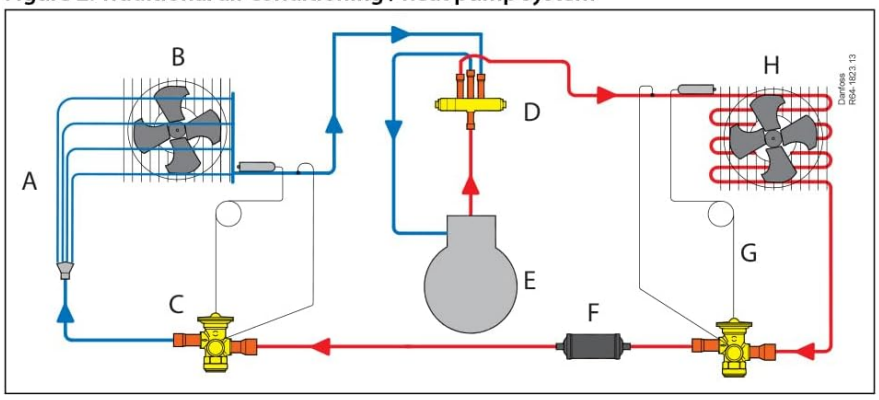
A	TR6 with / without internal check valve
B	RD Distributor
C	Compressor
D	Outdoor coil
E	DCL/DML

Illustrates the diagram of a traditional air conditioning system where the TR6 is controlling liquid injection in one direction only.

Figure 4: Diagram of a traditional air conditioning system (cooling only) showing the placement of the TR6 valve (A) controlling liquid injection in one direction.

Traditional air conditioning / heat pump system

Figure 2: Traditional air conditioning / heat pump system



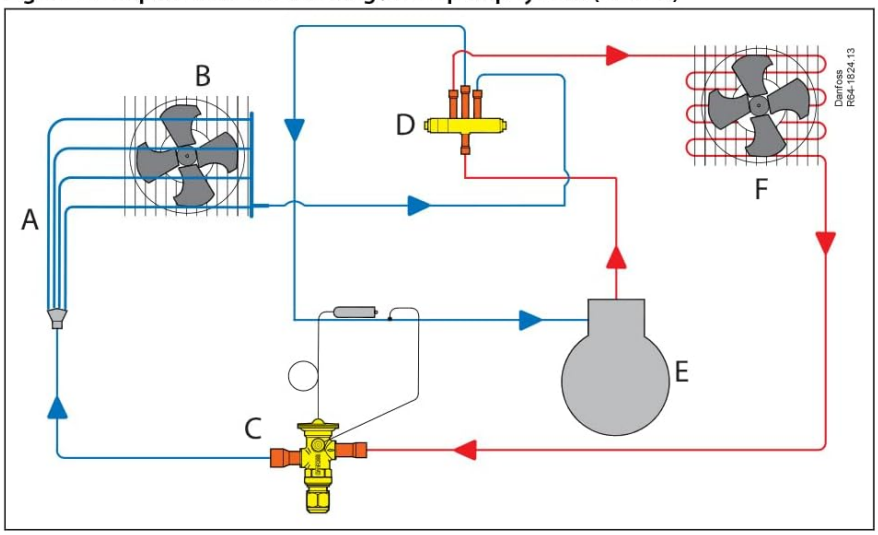
A	RD Distributor
B	Indoor coil
C	TR6 with internal check valve
D	4-way valve
E	Compressor
F	DCB/DMB
G	TR6 with internal check valve
H	Outdoor coil

Illustrates a split air conditioning / heat pump system with two thermostatic expansion valves, one for cooling mode and one for heating mode. The thermostatic expansion valves each has a built-in check valve, which has the function of preventing flow in one direction and allowing the flow in the opposite direction. It means that one thermostatic expansion valve is controlling liquid injection into the indoor coil while the other thermostatic expansion valve is bypassing the metering device with the open check valve.

Figure 5: Diagram of a traditional air conditioning / heat pump system with two TR6 valves (C and G), illustrating their function in cooling and heating modes with built-in check valves.

Simplified air conditioning / heat pump system (bi-flow)

Figure 3: Simplified air conditioning / heat pump system (bi-flow)



A	RD Distributor
B	Indoor coil
C	TR6 without check valve
D	4-way valve
E	Compressor
F	Outdoor coil

Illustrates a packaged air conditioning / heat pump system with a short distance between the indoor and outdoor heat-exchangers. The two TR6 valves from fig 6 can be replace by one TR6 valve without internal check valve, making use of the bi-flow feature of this thermostatic expansion valve. The single valve is controlling the liquid injection in both directions. The normal flow direction marked with an arrow on the valve body should be used for the primary function, i.e. cooling or heating.

Figure 6: Diagram of a simplified air conditioning / heat pump system (bi-flow) using a single TR6 valve (C) without an internal check valve, controlling liquid injection in both directions.

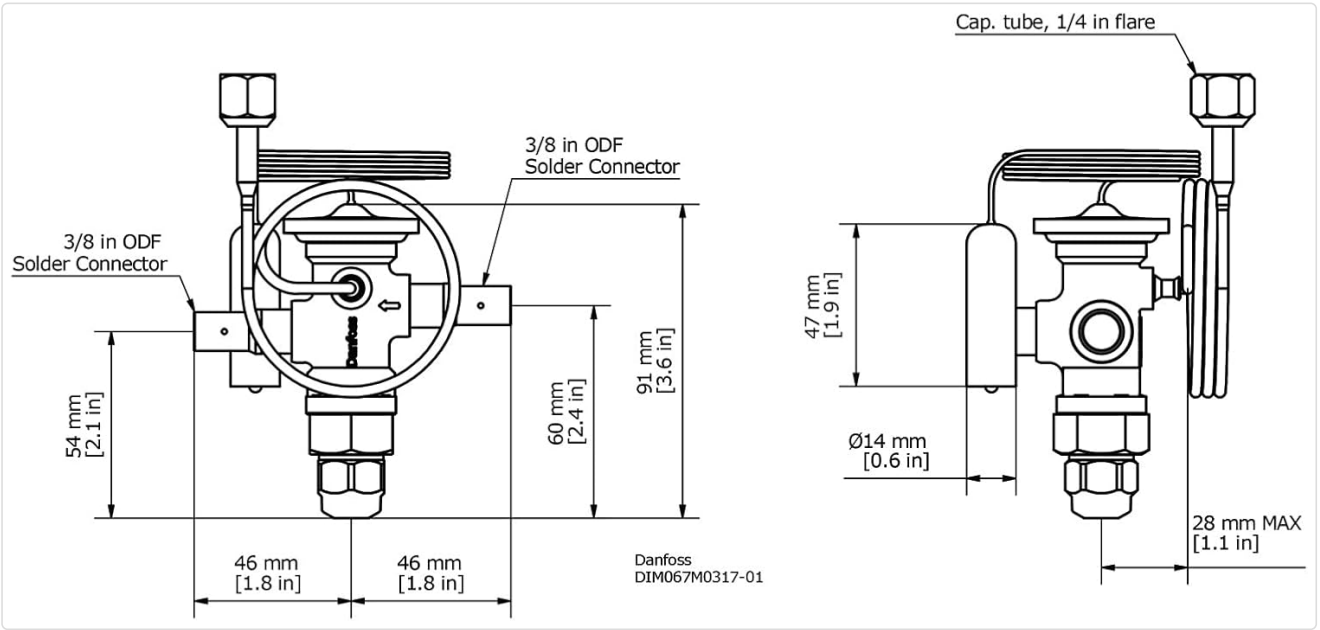


Figure 7: Detailed technical drawing of the Danfoss TR6 TXV, showing various dimensions and connection points.

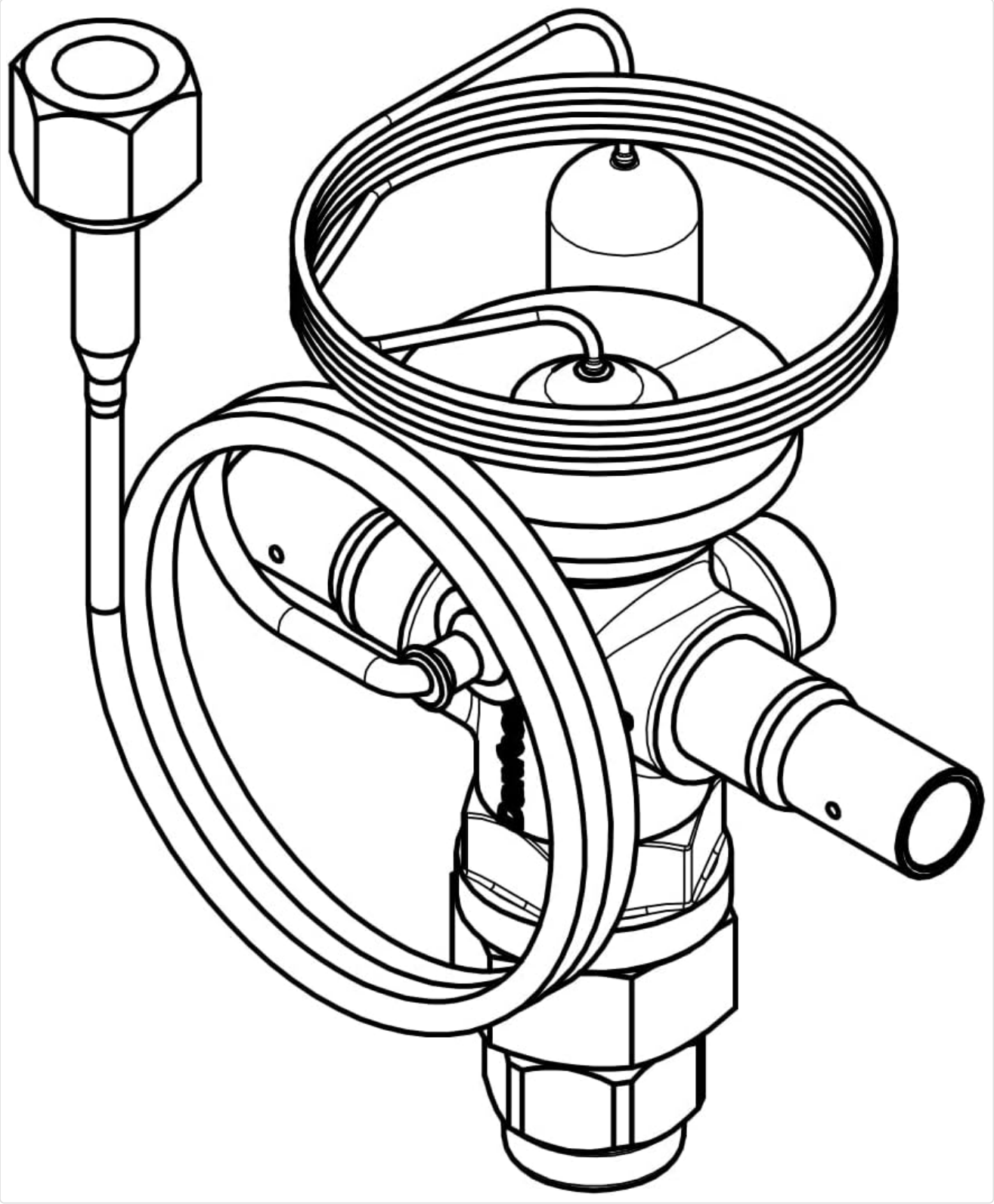


Figure 8: Isometric view of the Danfoss TR6 TXV, providing a three-dimensional perspective of the valve and its components.

3. Operating Principles

The Danfoss TR6 thermostatic expansion valve regulates the flow of liquid refrigerant into the evaporator based on the superheat of the refrigerant vapor leaving the evaporator. The sensing bulb, attached to the suction line, monitors the refrigerant temperature. Changes in this temperature cause the charge within the bulb to expand or contract, which in turn opens or closes the valve orifice, maintaining optimal superheat and ensuring efficient

system operation.

The balanced port design minimizes the influence of varying condensing pressures on the valve's operation, providing stable control. For heat pump applications, the built-in check valve allows refrigerant flow in one direction while preventing it in the opposite, ensuring proper operation during heating and cooling cycles.

4. Maintenance

The Danfoss TR6 TXV is designed for long-term, maintenance-free operation due to its robust and hermetically sealed construction. Regular maintenance of the overall HVAC system, including filter changes and coil cleaning, will contribute to the longevity and efficiency of the expansion valve.

- **Periodic Inspection:** Annually inspect the valve and its connections for any signs of leaks or physical damage.
- **Superheat Verification:** Periodically verify the system's superheat settings. Adjustments should only be performed by a certified HVAC technician.
- **Cleanliness:** Ensure the sensing bulb and the section of the suction line where it is attached are clean and free of debris to allow for accurate temperature sensing.

5. Troubleshooting

Troubleshooting issues related to the expansion valve typically involves diagnosing refrigerant flow problems or incorrect superheat. Always consult a qualified HVAC technician for diagnosis and repair.

Common Symptoms and Potential Causes:

- **High Superheat / Starved Evaporator:**
  Potential Causes: Undercharge of refrigerant, restricted liquid line, clogged filter drier, sensing bulb improperly installed or lost charge, valve orifice too small, or external equalization line restricted.
- **Low Superheat / Flooded Evaporator:**
  Potential Causes: Overcharge of refrigerant, sensing bulb improperly installed or making poor contact, valve orifice too large, or internal leakage within the valve.
- **Hunting (Fluctuating Superheat):**
  Potential Causes: Improperly sized valve, incorrect bulb charge, poor bulb contact, or rapid load changes. The anti-hunt bulb charge in the TR6 is designed to minimize this.

For complex issues, it is recommended to use diagnostic tools such as pressure gauges and temperature probes to accurately assess system performance and identify the root cause.

6. Specifications

Specification	Value
Brand	Danfoss
Model Number	067L5955
Material	Stainless Steel, Brass
Item Dimensions (L x W x H)	2.75 x 3.5 x 2.5 inches
Item Weight	1.45 pounds (0.53 kg)
Inlet Connection Size	3/8 inch
Inlet Connection Type	Outside Diameter Flared (ODF)
Outlet Connection Size	3/8 inch
Outlet Connection Type	Flare
Maximum Operating Pressure	49 bar
Number of Ports	2
Orifice Capacity	3 TR (10.50 kW)
Compatible Refrigerants	R410A
Factory Setting	10.22 bar / 133.5 psig
Temperature Range (MIN)	-10 degC / 15 degF
Temperature Range (MAX)	15 degC / 60 degF
Adjustable	Yes
Check Valve	Yes (Built-in)
Capillary Tube Length	800mm / 31.5in

7. Warranty and Support

Warranty information for the Danfoss TR6 TXV Thermostatic Expansion Valve Kit is typically provided by the manufacturer, Danfoss, or the authorized seller at the time of purchase. Please refer to your purchase documentation or contact the seller for specific warranty terms and conditions.

For technical support, installation assistance, or further product information, please contact Danfoss directly or consult their official website. Danfoss also offers the Coolselector®2 app, an advanced calculation and selection software, which can assist in selecting appropriate Danfoss components for your HVAC system.