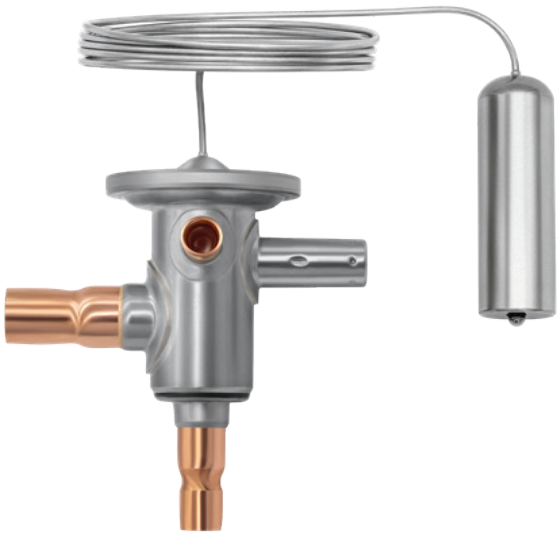
# **RFGC** SERIES | *Thermostatic Expansion Valve*



RFGC series thermostatic expansion valves are used to adjust refrigerant's mass flow into the evaporator while controlling the refrigerant's superheat at the outlet of the evaporator. They can be used for various refrigerants under all kinds of conditions. Typical applications are all sorts of refrigeration and heat pump systems like heat pump water heater, ice makers and so on, especially suitable for the food field.

## FEATURES

- THE MAIN BODY IS MADE OF STAINLESS STEEL, HIGHLY ROBUST, WITH HIGH LEVEL OF VIBRATION AND CORROSION RESISTANCE, ESPECIALLY SUITABLE FOR THE FOOD FIELD
- LIGHT WEIGHT AND COMPACT STRUCTURE, SMALLER INSTALLATION SPACE NEEDED
- CONNECTION IN COPPER FOE EASIER WELDING
- VALVES WITH MOP FUNCTION CAN BE PROVIDED TO ASSURE RELIABLE COMPRESSOR OPERATION

## GENERAL SPECIFICATION

- Applicable for all common HCFC and HFC refrigerants such as: R134a/R513A, R290, R404A/R507, R455A/R454C, R448A/R449A, R452A, etc.
- Ambient temperature; min,/max.: -35°C ~ +55°C
- Maximum operating pressur:  3.5MPa
- Installation advice: Preferably valve head upwards

## **RFGC** SERIES | *Thermostatic Expansion Valve*

### MODEL DESIGNATION LEGEND

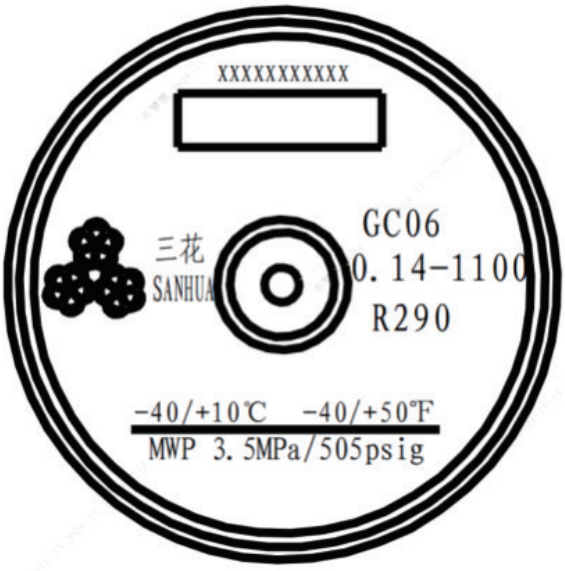
| Description | |
|---|---|
| **Code** | **Refrigerant** |
| 03 | R404A/R507 |
| 04 | R134a/R513A |
| 06 | R290 |
| 08 | R448A/R449A |
| 11 | R452A |
| 20 | R455A/R454C |

**RFGC 06 E 2.0 XXX**

- **XXX** — **Miscellaneous**
- **2.0** — **Nominal cooling capacity: (unit: USRT)**
- **E** — **E: External pressure equalization**; (omitted): internal pressure equalization
- **06** — **Refrigerant**
- **RFGC** — **TXV series**

### POWERHEAD PRINTING INSTRUCTIONS

| Code | Description |
|---|---|
| GC06-0.14-1100 | Product model |
| -40/+10°C | Evaporating temperature (Celsius) |
| -40/+50°F | Evaporating temperature (Fahrenheit) |
| R290 | Refrigerant |
| MWP 3.5 MPa | Maximum Working Pressure (unit: MPa) |
| MWP 505 psig | Maximum Working Pressure (unit: psig) |



## **RFGC** SERIES | *Thermostatic Expansion Valve*

### NOMiNAL COOLiNG CAPACITY [1)]

| Ref. | R134a | | R513A | | R290 | |
|---|---|---|---|---|---|---|
| Oriffice | Cooling Capacity | | Cooling Capacity | | Cooling Capacity | |
| | kW | USRT | kW | USRT | kW | USRT |
| X# | 0.32 | 0.09 | 0.28 | 0.08 | 0.49 | 0.14 |
| 0# | 0.42 | 0.12 | 0.36 | 0.1 | 0.64 | 0.18 |
| 1# | 0.61 | 0.17 | 0.53 | 0.15 | 0.94 | 0.27 |
| 2# | 0.72 | 0.2 | 0.62 | 0.18 | 1.1 | 0.32 |
| 3# | 0.95 | 0.27 | 0.82 | 0.23 | 1.5 | 0.41 |
| 4# | 1.6 | 0.45 | 1.4 | 0.4 | 2.6 | 0.72 |
| 5# | 2.1 | 0.6 | 1.8 | 0.53 | 3.4 | 0.96 |
| 6# | 3.4 | 0.94 | 2.9 | 0.83 | 5.3 | 1.5 |
| 7# | 4.4 | 1.3 | 3.8 | 1.1 | 7.0 | 2 |
| 8# | 6.5 | 1.8 | 5.6 | 1.6 | 10.2 | 2.9 |
| 9# | 9.0 | 2.5 | 7.7 | 2.2 | 14.3 | 4.1 |

| Ref. | R404A/R507 | | R455A | | R454C | |
|---|---|---|---|---|---|---|
| Oriffice | Cooling Capacity | | Cooling Capacity | | Cooling Capacity | |
| | kW | USRT | kW | USRT | kW | USRT |
| X# | 0.37 | 0.11 | 0.52 | 0.15 | 0.46 | 0.13 |
| 0# | 0.49 | 0.14 | 0.57 | 0.16 | 0.50 | 0.14 |
| 1# | 0.71 | 0.21 | 0.87 | 0.25 | 0.76 | 0.22 |
| 2# | 0.87 | 0.26 | 1.0 | 0.3 | 0.91 | 0.26 |
| 3# | 1.1 | 0.33 | 1.4 | 0.38 | 1.2 | 0.34 |
| 4# | 2.0 | 0.59 | 2.4 | 0.67 | 2.0 | 0.58 |
| 5# | 2.7 | 0.79 | 3.2 | 0.9 | 2.7 | 0.78 |
| 6# | 4.2 | 1.2 | 4.9 | 1.4 | 4.3 | 1.2 |
| 7# | 5.6 | 1.6 | 6.5 | 1.9 | 5.6 | 1.6 |
| 8# | 8.0 | 2.4 | 9.5 | 2.7 | 8.2 | 2.3 |
| 9# | 11.3 | 3.4 | 12.9 | 3.7 | 11.2 | 3.2 |

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### NOMiNAL COOLiNG CAPACITY [1)]

| Ref. | R448A | | R449A | | R452A | |
|---|---|---|---|---|---|---|
| Oriffice | Cooling Capacity | | Cooling Capacity | | Cooling Capacity | |
| | kW | USRT | kW | USRT | kW | USRT |
| X# | 0.48 | 0.14 | 0.47 | 0.14 | 0.28 | 0.08 |
| 0# | 0.63 | 0.18 | 0.61 | 0.18 | 0.31 | 0.09 |
| 1# | 0.93 | 0.27 | 0.9 | 0.26 | 0.46 | 0.13 |
| 2# | 1.1 | 0.33 | 1.1 | 0.31 | 0.55 | 0.16 |
| 3# | 1.4 | 0.42 | 1.4 | 0.41 | 0.72 | 0.2 |
| 4# | 2.5 | 0.74 | 2.4 | 0.71 | 1.3 | 0.36 |
| 5# | 3.4 | 1.0 | 3.2 | 1.0 | 1.7 | 0.48 |
| 6# | 5.3 | 1.5 | 5.1 | 1.5 | 2.7 | 0.75 |
| 7# | 7.0 | 2.0 | 6.7 | 2.0 | 3.5 | 0.99 |
| 8# | 10.1 | 3.0 | 9.8 | 2.9 | 5.1 | 1.4 |
| 9# | 13.9 | 4.1 | 13.6 | 4.0 | 7.2 | 2.1 |

Note: 1) Nominal working conditions: Condensing temperature: 38°C, Evaporating temperature: 4.4°C, Liquid temperature: 37°C, Static superheat: 4K, Opening superheat: 4K

# **RFGC** SERIES | *Thermostatic Expansion Valve*

## Model List

| Ref. | Orifice | Capacity | | Type | In x Out | Ext. Pressure Equal. | Model | In x Out | Ext. Pressure Equal. | Model |
|---|---|---|---|---|---|---|---|---|---|---|
| | | kW | USRT | | Inch | Inch | | mm | Inch | |
| R404A/ R507 | X# | 0.37 | 0.11 | Int. Equal. | 1/4 x 3/8 | - | RFGC03-0.11-1500 | 6x10 | - | RFGC03-0.11-1514 |
| | 0# | 0.49 | 0.14 | | 1/4 x 3/8 | | RFGC03-0.14-1501 | 6x10 | | RFGC03-0.14-1515 |
| | 1# | 0.71 | 0.21 | | 1/4 x 1/2 | | RFGC03-0.21-1502 | 6x12 | | RFGC03-0.21-1516 |
| | 2# | 0.87 | 0.26 | | 1/4 x 1/2 | | RFGC03-0.26-1503 | 6x12 | | RFGC03-0.26-1517 |
| | 3# | 1.1 | 0.33 | | 1/4 x 1/2 | | RFGC03-0.33-1504 | 6x12 | | RFGC03-0.33-1518 |
| | 4# | 2.0 | 0.59 | | 1/4 x 1/2 | | RFGC03-0.59-1505 | 6x12 | | RFGC03-0.59-1519 |
| | 5# | 2.7 | 0.79 | | 1/4 x 1/2 | | RFGC03-0.79-1506 | 6x12 | | RFGC03-0.79-1520 |
| | 6# | 4.2 | 1.2 | | 1/4 x 1/2 | | RFGC03-1.2-1507 | 6x12 | | RFGC03-1.2-1521 |
| | 7# | 5.6 | 1.6 | | 3/8 x 1/2 | | RFGC03-1.6-1508 | 10x12 | | RFGC03-1.6-1522 |
| | 5# | 2.7 | 0.79 | Ext. Equal. | 1/4 x 1/2 | 1/4 | RFGC03E-0.79-1509 | 6x12 | 6 | RFGC03E-0.79-1523 |
| | 6# | 4.2 | 1.2 | | 1/4 x 1/2 | | RFGC03E-1.2-1510 | 6x12 | | RFGC03E-1.2-1524 |
| | 7# | 5.6 | 1.6 | | 3/8 x 1/2 | | RFGC03E-1.6-1511 | 10x12 | | RFGC03E-1.6-1525 |
| | 8# | 8.0 | 2.4 | | 3/8 x 1/2 | | RFGC03E-2.4-1512 | 10x12 | | RFGC03E-2.4-1526 |
| | 9# | 11.3 | 3.4 | | 3/8 x 1/2 | | RFGC03E-3.4-1513 | 10x12 | | RFGC03E-3.4-1527 |

Evaporating temperature: -40°C ~+10°C, no MOP; Capillary length: 800mm. SS=4K±1K

| Ref. | Orifice | Capacity | | Type | In x Out | Ext. Pressure Equal. | Model | In x Out | Ext. Pressure Equal. | Model |
|---|---|---|---|---|---|---|---|---|---|---|
| | | kW | USRT | | Inch | Inch | | mm | Inch | |
| R134a/ R513A | X# | 0.32 | 0.09 | Int. Equal. | 1/4 x 3/8 | - | RFGC04-0.09-1000 | 6x10 | - | RFGC04-0.09-1014 |
| | 0# | 0.42 | 0.12 | | 1/4 x 3/8 | | RFGC04-0.12-1001 | 6x10 | | RFGC04-0.12-1015 |
| | 1# | 0.61 | 0.17 | | 1/4 x 1/2 | | RFGC04-0.17-1002 | 6x12 | | RFGC04-0.17-1016 |
| | 2# | 0.72 | 0.2 | | 1/4 x 1/2 | | RFGC04-0.2-1003 | 6x12 | | RFGC04-0.2-1017 |
| | 3# | 0.95 | 0.27 | | 1/4 x 1/2 | | RFGC04-0.27-1004 | 6x12 | | RFGC04-0.27-1018 |
| | 4# | 1.6 | 0.45 | | 1/4 x 1/2 | | RFGC04-0.45-1005 | 6x12 | | RFGC04-0.45-1019 |
| | 5# | 2.1 | 0.6 | | 1/4 x 1/2 | | RFGC04-0.6-1006 | 6x12 | | RFGC04-0.6-1020 |
| | 6# | 3.4 | 0.94 | | 1/4 x 1/2 | | RFGC04-0.94-1007 | 6x12 | | RFGC04-0.94-1021 |
| | 7# | 4.4 | 1.3 | | 3/8 x 1/2 | | RFGC04-1.3-1008 | 10x12 | | RFGC04-1.3-1022 |
| | 5# | 2.1 | 0.06 | Ext. Equal. | 1/4 x 1/2 | 1/4 | RFGC04E-0.6-1009 | 6x12 | 6 | RFGC04E-0.6-1023 |
| | 6# | 3.4 | 0.94 | | 1/4 x 1/2 | | RFGC04E-0.94-1010 | 6x12 | | RFGC04E-0.94-1024 |
| | 7# | 4.4 | 1.3 | | 3/8 x 1/2 | | RFGC04E-1.3-1011 | 10x12 | | RFGC04E-1.3-1025 |
| | 8# | 6.5 | 1.8 | | 3/8 x 1/2 | | RFGC04E-1.8-1012 | 10x12 | | RFGC04E-1.8-1026 |
| | 9# | 9.0 | 2.5 | | 3/8 x 1/2 | | RFGC04E-2.5-1013 | 10x12 | | RFGC04E-2.5-1027 |

Evaporating temperature: -40°C ~+10°C, no MOP; Capillary length: 800mm, SS=4K±1K (The capacity is marked according to R134a)

## **RFGC** SERIES | *Thermostatic Expansion Valve*

### Model List continued

| Ref. | Orifice | Capacity | | Type | In x Out | Ext. Pressure Equal. | Model | In x Out | Ext. Pressure Equal. | Model |
|---|---|---|---|---|---|---|---|---|---|---|
| | | kW | USRT | | Inch | Inch | | mm | Inch | |
| R290 | X# | 0.48 | 0.14 | Int. Equal. | 1/4 x 3/8 | - | RFGC06-0.14-1100 | 6x10 | - | RFGC06-0.14-1114 |
| | 0# | 0.64 | 0.18 | | 1/4 x 3/8 | | RFGC06-0.18-1101 | 6x10 | | RFGC06-0.18-1115 |
| | 1# | 0.94 | 0.27 | | 1/4 x 1/2 | | RFGC06-0.27-1102 | 6x12 | | RFGC06-0.27-1116 |
| | 2# | 1.1 | 0.32 | | 1/4 x 1/2 | | RFGC06-0.32-1103 | 6x12 | | RFGC06-0.32-1117 |
| | 3# | 1.5 | 0.41 | | 1/4 x 1/2 | | RFGC06-0.41-1104 | 6x12 | | RFGC06-0.41-1118 |
| | 4# | 2.6 | 0.72 | | 1/4 x 1/2 | | RFGC06-0.72-1105 | 6x12 | | RFGC06-0.72-1119 |
| | 5# | 3.4 | 0.96 | | 1/4 x 1/2 | | RFGC06-0.96-1106 | 6x12 | | RFGC06-0.96-1120 |
| | 6# | 5.3 | 1.5 | | 1/4 x 1/2 | | RFGC06-1.5-1107 | 6x12 | | RFGC06-1.5-1121 |
| | 7# | 7.0 | 2.0 | | 3/8 x 1/2 | | RFGC06-2.0-1108 | 10x12 | | RFGC06-2.0-1122 |
| | 5# | 3.4 | 0.96 | Ext. Equal. | 1/4 x 1/2 | 1/4 | RFGC06E-0.96-1109 | 6x12 | 6 | RFGC06E-0.96-1123 |
| | 6# | 5.3 | 1.5 | | 1/4 x 1/2 | | RFGC06E-1.5-1110 | 6x12 | | RFGC06E-1.5-1124 |
| | 7# | 7.0 | 2.0 | | 3/8 x 1/2 | | RFGC06E-2.0-1111 | 10x12 | | RFGC06E-2.0-1125 |
| | 8# | 10.2 | 2.9 | | 3/8 x 1/2 | | RFGC06E-2.9-1112 | 10x12 | | RFGC06E-2.9-1126 |
| | 9# | 14.3 | 4.1 | | 3/8 x 1/2 | | RFGC06E-4.1-1113 | 10x12 | | RFGC06E-4.1-1127 |

Evaporating temperature: -40°C ~+10°C, no MOP; Capillary length: 800mm. SS=4K±1K

| Ref. | Orifice | Capacity | | Type | In x Out | Ext. Pressure Equal. | Model | In x Out | Ext. Pressure Equal. | Model |
|---|---|---|---|---|---|---|---|---|---|---|
| | | kW | USRT | | Inch | Inch | | mm | Inch | |
| R448A/ R449A | X# | 0.48 | 0.14 | Int. Equal. | 1/4 x 3/8 | - | RFGC08-0.14-2000 | 6x10 | - | RFGC08-0.14-2014 |
| | 0# | 0.63 | 0.18 | | 1/4 x 3/8 | | RFGC08-0.18-2001 | 6x10 | | RFGC08-0.18-2015 |
| | 1# | 0.93 | 0.27 | | 1/4 x 1/2 | | RFGC08-0.27-2002 | 6x12 | | RFGC08-0.27-2016 |
| | 2# | 1.1 | 0.33 | | 1/4 x 1/2 | | RFGC08-0.33-2003 | 6x12 | | RFGC08-0.33-2017 |
| | 3# | 1.4 | 0.42 | | 1/4 x 1/2 | | RFGC08-0.42-2004 | 6x12 | | RFGC08-0.42-2018 |
| | 4# | 2.5 | 0.74 | | 1/4 x 1/2 | | RFGC08-0.74-2005 | 6x12 | | RFGC08-0.74-2019 |
| | 5# | 3.4 | 1.0 | | 1/4 x 1/2 | | RFGC08-1.0-2006 | 6x12 | | RFGC08-1.0-2020 |
| | 6# | 5.3 | 1.5 | | 1/4 x 1/2 | | RFGC08-1.5-2007 | 6x12 | | RFGC08-1.5-2021 |
| | 7# | 7.0 | 2.0 | | 3/8 x 1/2 | | RFGC08-2.0-2008 | 10x12 | | RFGC08-2.0-2022 |
| | 5# | 3.4 | 1.0 | Ext. Equal. | 1/4 x 1/2 | 1/4 | RFGC08E-1.0-2009 | 6x12 | 6 | RFGC08E-1.0-2023 |
| | 6# | 5.3 | 1.5 | | 1/4 x 1/2 | | RFGC08E-1.5-2010 | 6x12 | | RFGC08E-1.5-2024 |
| | 7# | 7.0 | 2.0 | | 3/8 x 1/2 | | RFGC08E-2.0-2011 | 10x12 | | RFGC08E-2.0-2025 |
| | 8# | 10.1 | 3.0 | | 3/8 x 1/2 | | RFGC08E-3.0-2012 | 10x12 | | RFGC08E-3.0-2026 |
| | 9# | 13.9 | 4.1 | | 3/8 x 1/2 | | RFGC08E-4.1-2013 | 10x12 | | RFGC08E-4.1-2027 |

Evaporating temperature: -40°C ~+10°C, no MOP; Capillary length: 800mm, SS=4K±1K (The capacity is marked according to R448A)

## **RFGC** SERIES | *Thermostatic Expansion Valve*

### Model List continued

| Ref. | Orifice | Capacity | | Type | In x Out | Ext. Pressure Equal. | Model | In x Out | Ext. Pressure Equal. | Model |
|---|---|---|---|---|---|---|---|---|---|---|
| | | kW | USRT | | Inch | Inch | | mm | Inch | |
| R452A | X# | 0.28 | 0.08 | Int. Equal. | 1/4 x 3/8 | - | RFGC11-0.08-2100 | 6x10 | - | RFGC11-0.08-2114 |
| | 0# | 0.31 | 0.09 | | 1/4 x 3/8 | | RFGC11-0.09-2101 | 6x10 | | RFGC11-0.09-2115 |
| | 1# | 0.46 | 0.13 | | 1/4 x 1/2 | | RFGC11-0.13-2102 | 6x12 | | RFGC11-0.13-2116 |
| | 2# | 0.55 | 0.16 | | 1/4 x 1/2 | | RFGC11-0.16-2103 | 6x12 | | RFGC11-0.16-2117 |
| | 3# | 0.72 | 0.2 | | 1/4 x 1/2 | | RFGC11-0.2-2104 | 6x12 | | RFGC11-0.2-2118 |
| | 4# | 1.3 | 0.36 | | 1/4 x 1/2 | | RFGC11-0.36-2105 | 6x12 | | RFGC11-0.36-2119 |
| | 5# | 1.7 | 0.48 | | 1/4 x 1/2 | | RFGC11-0.48-2106 | 6x12 | | RFGC11-0.48-2120 |
| | 6# | 2.7 | 0.75 | | 1/4 x 1/2 | | RFGC11-0.75-2107 | 6x12 | | RFGC11-0.75-2121 |
| | 7# | 3.5 | 0.99 | | 3/8 x 1/2 | | RFGC11-0.99-2108 | 10x12 | | RFGC11-0.99-2122 |
| | 5# | 1.7 | 0.48 | Ext. Equal. | 1/4 x 1/2 | 1/4 | RFGC11E-0.48-2109 | 6x12 | 6 | RFGC11E-0.48-2123 |
| | 6# | 2.7 | 0.75 | | 1/4 x 1/2 | | RFGC11E-0.75-2110 | 6x12 | | RFGC11E-0.75-2124 |
| | 7# | 3.5 | 0.99 | | 3/8 x 1/2 | | RFGC11E-0.99-2111 | 10x12 | | RFGC11E-0.99-2125 |
| | 8# | 5.1 | 1.4 | | 3/8 x 1/2 | | RFGC11E-1.4-2112 | 10x12 | | RFGC11E-1.4-2126 |
| | 9# | 7.2 | 2.1 | | 3/8 x 1/2 | | RFGC11E-2.1-2113 | 10x12 | | RFGC11E-2.1-2127 |

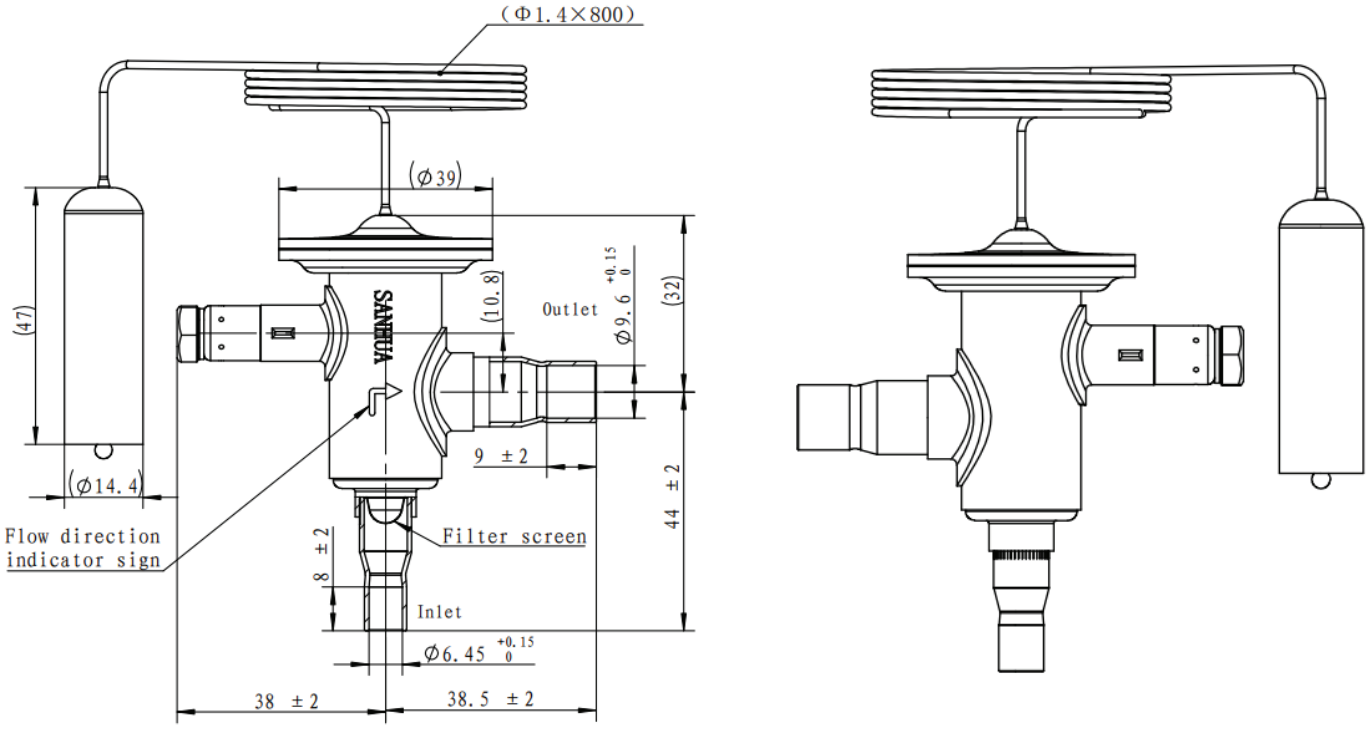
Evaporating temperature: -40°C ~+10°C, no MOP; Capillary length: 800mm. SS=4K±1K

| Ref. | Orifice | Capacity | | Type | In x Out | Ext. Pressure Equal. | Model | In x Out | Ext. Pressure Equal. | Model |
|---|---|---|---|---|---|---|---|---|---|---|
| | | kW | USRT | | Inch | Inch | | mm | Inch | |
| R455A/ R454C | X# | 0.52 | 0.15 | Int. Equal. | 1/4 x 3/8 | - | RFGC20-0.15-1600 | 6x10 | - | RFGC20-0.15-1614 |
| | 0# | 0.57 | 0.16 | | 1/4 x 3/8 | | RFGC20-0.16-1601 | 6x10 | | RFGC20-0.16-1615 |
| | 1# | 0.87 | 0.25 | | 1/4 x 1/2 | | RFGC20-0.25-1602 | 6x12 | | RFGC20-0.25-1616 |
| | 2# | 1.0 | 0.3 | | 1/4 x 1/2 | | RFGC20-0.3-1603 | 6x12 | | RFGC20-0.3-1617 |
| | 3# | 1.4 | 0.38 | | 1/4 x 1/2 | | RFGC20-0.38-1604 | 6x12 | | RFGC20-0.38-1618 |
| | 4# | 2.4 | 0.67 | | 1/4 x 1/2 | | RFGC20-0.67-1605 | 6x12 | | RFGC20-0.67-1619 |
| | 5# | 3.2 | 0.9 | | 1/4 x 1/2 | | RFGC20-0.9-1606 | 6x12 | | RFGC20-0.9-1620 |
| | 6# | 4.9 | 1.4 | | 1/4 x 1/2 | | RFGC20-1.4-1607 | 6x12 | | RFGC20-1.4-1621 |
| | 7# | 6.5 | 1.9 | | 3/8 x 1/2 | | RFGC20-1.9-1608 | 10x12 | | RFGC20-1.9-1622 |
| | 5# | 3.2 | 0.9 | Ext. Equal. | 1/4 x 1/2 | 1/4 | RFGC20E-0.9-1609 | 6x12 | 6 | RFGC20E-0.9-1623 |
| | 6# | 4.9 | 1.4 | | 1/4 x 1/2 | | RFGC20E-1.4-1610 | 6x12 | | RFGC20E-1.4-1624 |
| | 7# | 6.5 | 1.9 | | 3/8 x 1/2 | | RFGC20E-1.9-1611 | 10x12 | | RFGC20E-1.9-1625 |
| | 8# | 9.5 | 2.7 | | 3/8 x 1/2 | | RFGC20E-2.7-1612 | 10x12 | | RFGC20E-2.7-1626 |
| | 9# | 12.9 | 3.7 | | 3/8 x 1/2 | | RFGC20E-3.7-1613 | 10x12 | | RFGC20E-3.7-1627 |

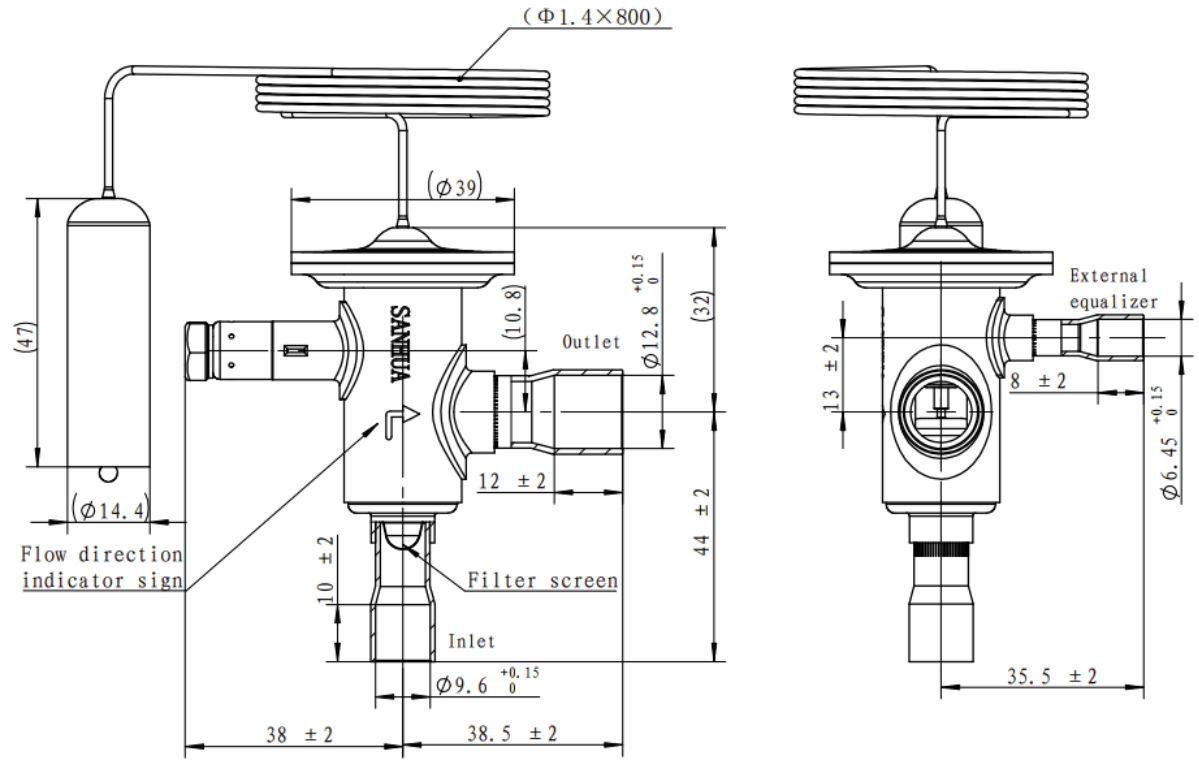
Evaporating temperature: -40°C ~+10°C, no MOP; Capillary length: 800mm, SS=4K±1K (The capacity is marked according to R455A)

Note: 1) Different evaporating range can be customized.
2) MOP function can be customized

## DIMENSIONS




**Internal Equalization**




**External Equalization**