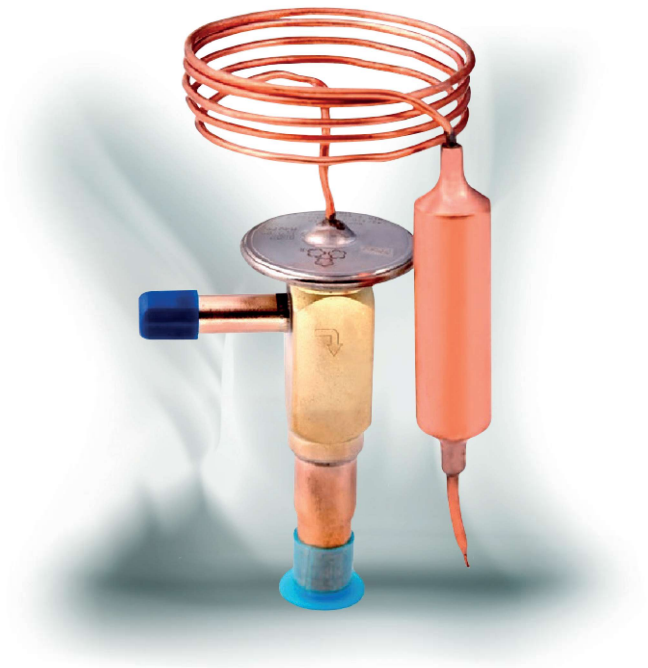




# Thermostatic Expansion Valve

RFGB series thermostatic expansion valves are used to adjust mass flow of refrigerant into the evaporator while controlling the refrigerant's superheat at the outlet of the evaporator. They can be used for various refrigerants under all working conditions. Typical applications are refrigeration systems like commercial refrigerators and freezers, icemakers, dehumidifiers as well as air conditioners at various evaporation temperature.



## FEATURES

- COMPACT DESIGN WITH BUILD-IN ORIFICE
- WARM THERMO HEAD CONSTRUCTION
- ALL CONNECTIONS PIPES ARE COMPLETELY IN COPPER
- VALVES WITH MOP FUNCTION CAN BE PROVIDED TO ASSURE RELIABLE COMPRESSOR OPERATION
- APPLICABLE IN A WIDE EVAPORATION TEMPERATURE RANGE
- RELIABLE AND CONSISTENT PERFORMANCE OF SUPERHEAT CONTROL

## GENERAL SPECIFICATION

- Applicable for all common HCFC and HFC refrigerants such as: R22, R134a, R404A, R407C, R507A ...
- Ambient temperature min./max.: -35/+55°C
- Medium temperature TS min./max.: -40°C / +70°C
- Max. operating pressure PS: 2,1 ... 3,5 MPa (21 ... 35 bar) <sup>1)</sup>
- Installation position
  - Preferably valve head upwards
  - Flow direction from inlet A to outlet B
- Certifications: UL/CSA and PED declaration

1) Max. operating pressure is related to the used refrigerant

## TECHNICAL PARAMETERS

- RFGB valve available in straight shape with adjustable superheat on site
- RFGB valve available in angle shape with fixed factory superheat settings
- Both versions are available with the following solder connections:
  - Metric: Inlet 6mm ODF/ Outlet 10mm ODF or Inlet 10mm ODF/ Outlet 12mm ODF
  - Imperial: Inlet 1/4" ODF/ Outlet 3/8" ODF or Inlet 3/8" ODF/ Outlet 1/2" ODF
- Equalization port available as option:
  - Metric: 6mm ODF
  - Imperial: 1/4" ODF
- Capillary tube length 800mm





# SANHUA SERIES RFGB Thermostatic Expansion Valve

## MODEL DESIGNATION LEGEND

Position Number	Model Designation Legend	
1	Product Code	Product Series
	RFGB	Thermostatic expansion valve with build-in orifice
2	Refrigerant	Description
	1	R22
	2	R407C
	3	R404A / R507A
	4	R134a
3	Pressure Equalization	Description
	E (Omitted)	External pressure equalization Internal pressure equalization
4	Valve Size	Internal Orifice Size
	From 1 to 5	Valve size: proportional to the orifice size and to the nominal capacity
5	Valve Shape	Description
	S	Straight Version
	A	Angle Version
6	Connections Type	Description
	Mx Ix	Metric: M6 inlet 6mm ; M10 inlet 10mm Imperial: I2 inlet 1/4" ; I3 inlet 3/8"
7	Miscellaneous	Description
	xxx	Digits for additional information e.g. static superheat, MOP, Bleed...





# SANHUA SERIES RFGB Thermostatic Expansion Valve

## MODEL DESIGNATION EXAMPLE

Position Number							According to Model Designation Legend
1	2	3	4	5	6	7	
<b>R</b> FGB	04	E	3	S	M6	xxx	Thermostatic expansion valve with build-in orifice
RFGB	<b>04</b>	E	3	S	M6	xxx	Refrigerant: R134a
RFGB	04	<b>E</b>	3	S	M6	xxx	With connection for external pressure equalization
RFGB	04	E	<b>3</b>	S	M6	xxx	Capacity: Valve and orifice size 3
RFGB	04	E	3	<b>S</b>	M6	xxx	Valve Shape: straight
RFGB	04	E	3	S	<b>M6</b>	xxx	Valve pipe connections: metric inlet 6mm/outlet 10mm
RFGB	04	E	3	S	M6	<b>xxx</b>	Digits for additional information

## TECHNICAL DATA

Nominal Cooling Capacities <sup>1) 2)</sup>						
Refrigerant	Size	Model Name <sup>4)</sup>	Drawing	Capacity		PS
				[ USRT ]	[ kW ]	[ MPa ]
R22	1	RFGB 01(E) -1	RFGB01(E)-0.35-xxx	0,48	1,69	2,8
	2	RFGB 01(E) -2	RFGB01(E)-0.7-xxx	0,83	2,93	
	3	RFGB 01(E) -3	RFGB01(E)-1.0-xxx	1,43	5,04	
	4	RFGB 01(E) -4	RFGB01(E)-1.5-xxx	2,04	7,17	
	5	RFGB 01(E) -5	RFGB01(E)-2.0-xxx	2,39	8,39	
R407C <sup>3)</sup>	1	RFGB 02(E) -1	RFGB02(E)-0.38-xxx	0,48	1,70	2,8
	2	RFGB 02(E) -2	RFGB02(E)-0.76-xxx	0,84	2,94	
	3	RFGB 02(E) -3	RFGB02(E)-1.1-xxx	1,44	5,06	
	4	RFGB 02(E) -4	RFGB02(E)-1.6-xxx	2,05	7,20	
	5	RFGB 02(E) -5	RFGB02(E)-2.2-xxx	2,39	8,42	
R404A / R507	1	RFGB 03(E) -1	RFGB03(E)-0.25-xxx	0,34	1,21	3,5
	2	RFGB 03(E) -2	RFGB03(E)-0.5-xxx	0,65	2,28	
	3	RFGB 03(E) -3	RFGB03(E)-0.7-xxx	1,22	4,28	
	4	RFGB 03(E) -4	RFGB03(E)-1.0-xxx	1,80	6,34	
	5	RFGB 03(E) -5	RFGB03(E)-1.4-xxx	2,11	7,42	
R134a	1	RFGB 04(E) -1	RFGB04(E)-0.23-xxx	0,30	1,06	2,1
	2	RFGB 04(E) -2	RFGB04(E)-0.44-xxx	0,43	1,51	
	3	RFGB 04(E) -3	RFGB04(E)-0.63-xxx	0,76	2,67	
	4	RFGB 04(E) -4	RFGB04(E)-0.94-xxx	1,14	4,01	
	5	RFGB 04(E) -5	RFGB04(E)-1.3-xxx	1,33	4,68	



# SANHUA SERIES RFGB Thermostatic Expansion Valve



## TECHNICAL DATA

Nominal Cooling Capacities <sup>1) 2)</sup>						
Refrigerant	Size	Model Name <sup>4)</sup>	Drawing	Capacity		PS
				[ USRT ]	[ kW ]	[ MPa ]
R290	1	RFGB 06(E) -1	RFGB06(E)-0.35-xxx	0,48	1,69	2,8
	2	RFGB 06(E) -2	RFGB06(E)-0.7-xxx	0,83	2,93	
	3	RFGB 06(E) -3	RFGB06(E)-1.0-xxx	1,43	5,04	
	4	RFGB 06(E) -4	RFGB06(E)-1.5-xxx	2,04	7,17	
	5	RFGB 06(E) -5	RFGB06(E)-2.0-xxx	2,39	8,39	

### Note:

1) Nominal capacity valid for:

- Version "S" in straight shape and version "A" in angle shape
- Versions with metrical and imperial connections

2) Nominal working conditions: Condensing temperature: 38°C; evaporating temperature +4,4°C; Liquid temperature 37°C

3) R407C data based on dew point conditions

4) Model Name in this table is referred to the first 4 positions of the model designation





# SANHUA SERIES RFGB Thermostatic Expansion Valve

## MODEL LIST

Evaporation Temp. Range to = +10...-40°C<sup>1)</sup>

Model Name <sup>2)3)4)5)</sup>				Connections Size (Solder ODF)					
Valve Body All Refrigerants	Capacity Size All Sizes	Valve Shape <sup>6)</sup> Straight / Angle	Pipe connections Metric / Im- perial	Inlet		Outlet		Pressure Equal.	
				[mm]	[inch]	[mm]	[inch]	[mm]	[inch]
RFGB 01 - RFGB 02 - RFGB 03 - RFGB 04 - RFGB 06 -	1 - 2 - 3 - 4 - 5 -	S -	M6	6	-	10	-	-	-
			M10	10	-	12	-	-	-
			2	-	1/4	-	3/8	-	-
			3	-	3/8	-	1/2	-	-
			M6	6	-	10	-	-	-
	A -	M10	10	-	12	-	-	-	
		2	-	1/4	-	3/8	-	-	
		3	-	3/8	-	1/2	-	-	
		M6	6	-	10	-	6	-	
		M10	10	-	12	-	6	-	
RFGB 01E - RFGB 02E - RFGB 03E - RFGB 04E - RFGB 06E -	1 - 2 - 3 - 4 - 5 -	S -	M6	6	-	10	-	6	-
			M10	10	-	12	-	6	-
			2	-	1/4	-	3/8	-	1/4
			3	-	3/8	-	1/2	-	1/4
			M6	6	-	10	-	6	-
	A -	M10	10	-	12	-	6	-	
		2	-	1/4	-	3/8	-	1/4	
		3	-	3/8	-	1/2	-	1/4	
		M6	6	-	10	-	6	-	
		M10	10	-	12	-	6	-	

### Note:

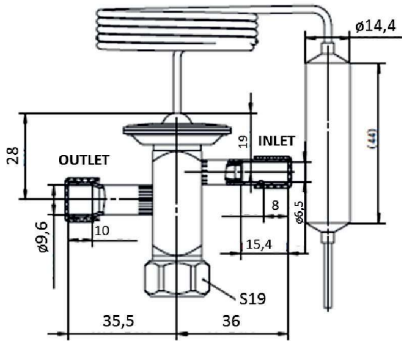
- 1) Different evaporation temperature range on request
- 2) Extent of delivery: valve body and bulb strap
- 3) MOP function on request
- 4) Delivery time on request
- 5) Model Name in this table is referred to the first 6 positions of the model designation
- 6) Superheat:
  - Straight version "S" with adjustable settings
  - Angle version "A" with fixed factory settings



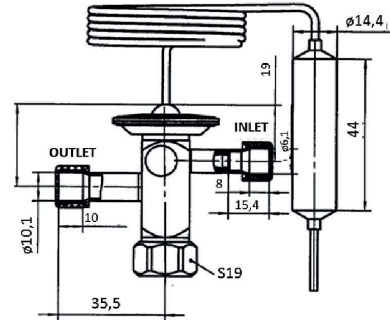
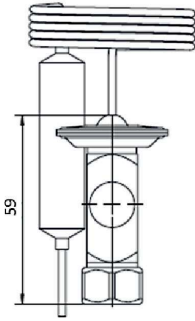


# SANHUA SERIES RFCB Thermostatic Expansion Valve

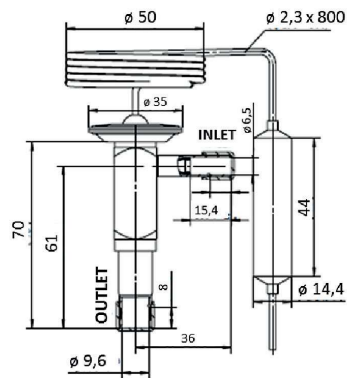
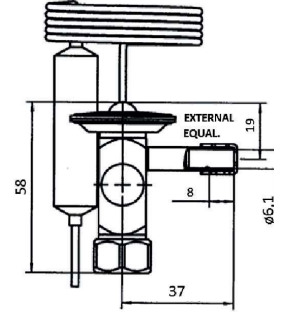
## DIMENSIONS



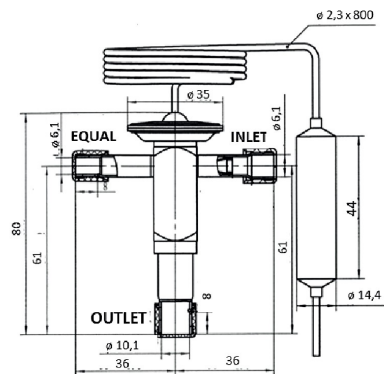
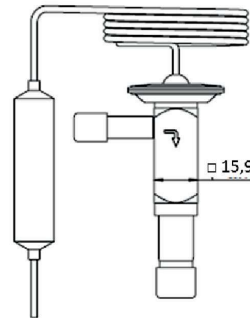
*Straight Shape with Internal Pressure Equalization*



*Straight Shape with External Pressure Equalization*



*Angle Shape with Internal Pressure Equalization*



*Angle Shape with External Pressure Equalization*



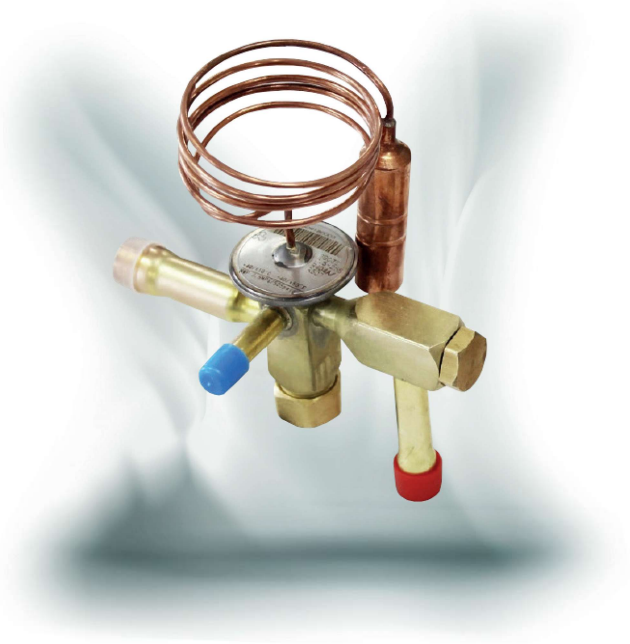


# SANHUA SERIES RFGB Thermostatic Expansion Valve

## RFGB WITH REPLACEABLE STRAINER

RFGB thermostatic expansion valves are also available on request with a replaceable strainer placed on the inlet connection of the valve. This mechanical filter equipped with a metallic net (mesh 100) can block all the potential impurities present in the refrigeration circuit avoiding that some of them damage the valve. The particular layout of the inlet connection (from the bottom) allows the strainer to be removed for cleaning or replacement without having to remove the valve from the system

All the RFGB variants shown on “Technical Data” and “Model List” tables can be customized on request with the introduction of a replaceable strainer.



## MODEL DESIGNATION EXAMPLE

Position Number							According to Model Designation Legend
1	2	3	4	5	6	7	
<b>RFGB</b>	04	E	3	S	M6	xxx	Thermostatic expansion valve with build-in orifice
RFGB	<b>04</b>	E	3	S	M6	xxx	Refrigerant: R134a
RFGB	04	<b>E</b>	3	S	M6	xxx	With connection for external pressure equalization
RFGB	04	E	<b>3</b>	S	M6	xxx	Capacity: Valve and orifice size 3
RFGB	04	E	3	<b>S</b>	M6	xxx	Valve Shape: straight
RFGB	04	E	3	S	<b>M6</b>	xxx	Valve pipe connections: metric inlet 6mm/outlet 10mm
RFGB	04	E	3	S	M6	<b>8xx</b>	"8" as first digits for RFGB with strainer



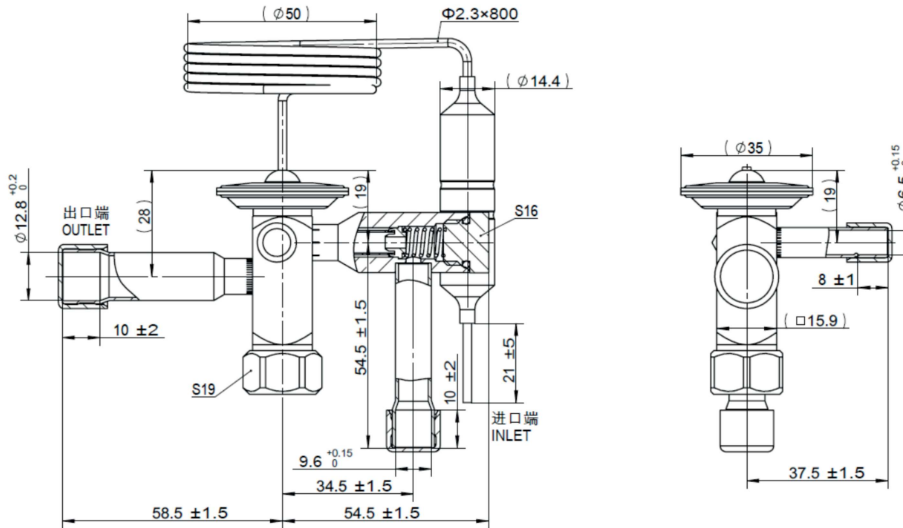


# SANHUA SERIES RFGB Thermostatic Expansion Valve



## DIMENSIONS

(RFGB with replaceable strainer)



*Straight shape with external equalization  
and replaceable strainer*







# SANHUA SERIES RFGB Thermostatic Expansion Valve

## RFGB CUSTOMIZATION TABLE

Necessary Information for RFGB customization

Please specify all mandatory information in the customization table below. The standard RFGB features will be used if fields aren't filled in.

Pos.	Mandatory information		
1	<b>Refrigerant</b>		
	<input type="radio"/> R22  <input type="radio"/> R134a	<input type="radio"/> R407C  <input type="radio"/> Other Ref. : _____	<input type="radio"/> R404A/R507A
2	<b>Pressure Equalization</b>		
	<input type="radio"/> Internal (Standard)	<input type="radio"/> Ext. pressure equalization	
3	<b>Capacity</b>		
	Capacity:	_____	kW
	Based on:		
	Evaporation temp. to:	_____	°C
	Condensing temp. tc:	_____	°C
	Subcooling tcu:	_____	K (Standard value 1K)
	Superheat toh:	_____	K (Standard value 10K)
Pressure drop:	_____	bar (Standard: Without pressure drop)	
	<b>Alternative information if capacity data isn't available</b>		
	Brand of used expansion valve:	_____	
	Complete model of used expansion valve:	_____	
4	<b>Valve Shape</b>		
	<input type="radio"/> Straight (Standard)	<input type="radio"/> Angle	

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# SANHUA SERIES RFGB Thermostatic Expansion Valve

## RFGB CUSTOMIZATION TABLE

Necessary Information for RFGB customization

Please specify all mandatory information in the customization table below. The standard RFGB features will be used if fields aren't filled in.

Pos.	Mandatory information	
5	<b>Connections</b>	
	Metrical	Imperial
	<input type="checkbox"/> Inlet 6mm, Outlet 10mm <input type="checkbox"/> Inlet 10mm, Outlet 12mm Ext. pressure equal. 6mm if selected	<input type="checkbox"/> Inlet 1/4", Outlet 3/8" <input type="checkbox"/> Inlet 3/8", Outlet 1/2" Ext. pressure equal. 1/4" if selected
	Other connections	
	Inlet:	_____
Outlet:	_____	
Ext. pressure equal.:	_____	
Pos.	Additional information	
6	<b>Static superheat: Factory Setting</b>	
	<b>Capacity</b>	
	<input type="checkbox"/> 3...4K (Standard)	<input type="checkbox"/> Other value: _____ K
7	<b>MOP</b>	
	<input type="checkbox"/> Without (Standard)	<input type="checkbox"/> MOP point: _____ °C
8	<b>Bleed</b>	
	<input type="checkbox"/> Without (Standard)	<input type="checkbox"/> 15% Bleed <input type="checkbox"/> 30% Bleed
9	<b>Designated application / other requirements:</b>	
	_____	

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