

RFGB SERIES

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. RFGB 06 series has been designed and optimized for application with propane (R290).

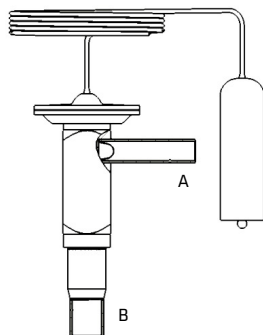


FEATURES

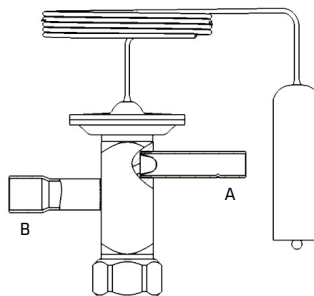
- COMPACT DESIGN WITH BUILD-IN ORIFICE
- WARM THERMO HEAD CONSTRUCTION
- ALL CONNECTION PIPES ARE COMPLETELY IN COPPER
- VALVES WITH MOP FUNCTION CAN BE PROVIDED TO ASSURE RELIABLE COMPRESSOR OPERATION
- APPLICABLE IN A WIDE EVAPORATION TEMPERATURE RANGE
- RELIABLE AND CONSISTENT PERFORMANCE OF SUPERHEAT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

GENERAL SPECIFICATIONS

- Special series designed for application with R290
- Ambient temperature min./max.: -35/+55°C
- Medium temperature TS min./max.: -40°C / +70°C
- Factory setting for static super heat: 3.5 K
- Max. operating pressure PS: 3,5 MPa (35 bar)
- Installation position:
 - Preferably valve head upwards
 - Flow direction from inlet A to outlet B
- Certifications: UL/CSA and PED declaration



Angle version



Straight version



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 (available for models with metric solder connections)
 - Imperial: 1/4" ODF (available for models with imperial solder connections)
- Capillary tube length 800mm

MODEL DESIGNATION LEGEND

Position Number	Model Designation Legend	
1	Product Code	Product Series
	RFGB	Thermostatic expansion valve with build-in orifice
2	Refrigerant	Description
	06	R290
3	Pressure Equalization	Description
	E	External pressure equalization
	(Omitted)	Internal pressure equalization
4	Valve Size	Internal Orifice Size
	X.XX	Nominal capacity (expressed in USRT)
5	Internal Code	Description
	2XXX	Straight Layout + Internal consequential code
	6XXX	Angle Layout + Internal consequential code



MODEL DESIGNATION EXAMPLE

Position Number					According to Model Designation Legend
1	2	3	4	5	
RFGB	06	E	1.0	xxx	Thermostatic expansion valve with build-in orifice
RFGB	06	E	1.0	xxx	Refrigerant: R290
RFGB	06	E	1.0	xxx	With connection for external pressure equalization
RFGB	06	E	1.0	xxx	Capacity: Nominal value 1.0 USRT (3.5kW)
RFGB	06	E	1.0	6xxx	Angle Shape + Internal consequential code



Code	Description
GB06E-1.0-518	Model
-40/+10°C	Evaporating temperature (°C)
-40/+50°F	Evaporating temperature (°F)
R290	Refrigerant
MWP 3.5Mpa	Max. Working Pressure (MPa)
MWP 505psig	Max. Working Pressure (psig)

TECHNICAL DATA

Nominal Cooling Capacities ¹⁾²⁾				
Refrigerant	Size	Valve Nomenclature	Capacity	
			[USRT]	[kW]
R290	0	RFGB06(E)-0.17-xxx	0,17	0,60
	1	RFGB06(E)-0.35-xxx	0,35	1,20
	2	RFGB06(E)-0.7-xxx	0,70	2,50
	3	RFGB06(E)-1.0-xxx	1,00	3,50
	4	RFGB06(E)-1.5-xxx	1,50	5,30
	5	RFGB06(E)-2.0-xxx	2,00	7,00

Note:

- 1) Nominal capacity valid for: - Version in straight and 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

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MODEL LIST – TABLE 1

Temperature Range N: from -40°C to +10°C, without MOP

Models with Straight layout and adjustable static superheat setting

Models with Imperial Connections

Models with External Equalization: connection size 1/4" (*)

Valve Size	Capacity	Bleed	Connections (Solder ODF) IN/OUT	Model Name [Internal Eq.]	Product Number (U11) [Internal Eq.]	Model Name [External Eq.]*	Product Number (U11) [External Eq.]
	[kW]	[%]	[inch]				
0	0,6	15%	1/4"; 3/8"	RFGB06-0.17-2xxx	On Request	RFGB06E-0.17-2xxx	On Request
0	0,6	0%	1/4"; 3/8"	RFGB06-0.17-2800	102052520	RFGB06E-0.17-2840	102052671
0	0,6	0%	3/8"; 1/2"	RFGB06-0.17-2880	102052638	RFGB06E-0.17-2920	102052729
1	1,2	15%	1/4"; 3/8"	RFGB06-0.35-2xxx	On Request	RFGB06E-0.35-2xxx	On Request
1	1,2	0%	1/4"; 3/8"	RFGB06-0.35-2801	102052521	RFGB06E-0.35-2841	102052672
1	1,2	0%	3/8"; 1/2"	RFGB06-0.35-2881	102052508	RFGB06E-0.35-2921	102052730
2	1,2	15%	1/4"; 3/8"	RFGB06-0.7-2xxx	On Request	RFGB06E-0.7-2xxx	On Request
2	2,5	0%	1/4"; 3/8"	RFGB06-0.7-2802	102052522	RFGB06E-0.7-2842	102052673
2	2,5	0%	3/8"; 1/2"	RFGB06-0.7-2882	102052505	RFGB06E-0.7-2922	102052731
3	3,5	15%	1/4"; 3/8"	RFGB06-1.0-2xxx	On Request	RFGB06E-1.0-2xxx	On Request
3	3,5	0%	1/4"; 3/8"	RFGB06-1.0-2803	102052540	RFGB06E-1.0-2843	102052674
3	3,5	0%	3/8"; 1/2"	RFGB06-1.0-2883	102052639	RFGB06E-1.0-2923	102052732
4	5,3	15%	1/4"; 3/8"	RFGB06-1.5-2xxx	On Request	RFGB06E-1.5-2xxx	On Request
4	5,3	0%	1/4"; 3/8"	RFGB06-1.5-2804	102052541	RFGB06E-1.5-2844	102052675
4	5,3	0%	3/8"; 1/2"	RFGB06-1.5-2884	102052640	RFGB06E-1.5-2924	102052733
5	7	0%	1/4"; 3/8"	RFGB06-2.0-2805	102052542	RFGB06E-2.0-2845	102052676
5	7	0%	3/8"; 1/2"	RFGB06-2.0-2885	102052641	RFGB06E-2.0-2925	102052441

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MODEL LIST – TABLE 2

Temperature Range N: from -40°C to +10°C, without MOP

Models with Straight layout and adjustable static superheat setting

Models with Metric Connections

Models with External Equalization: connection size 6mm (*)

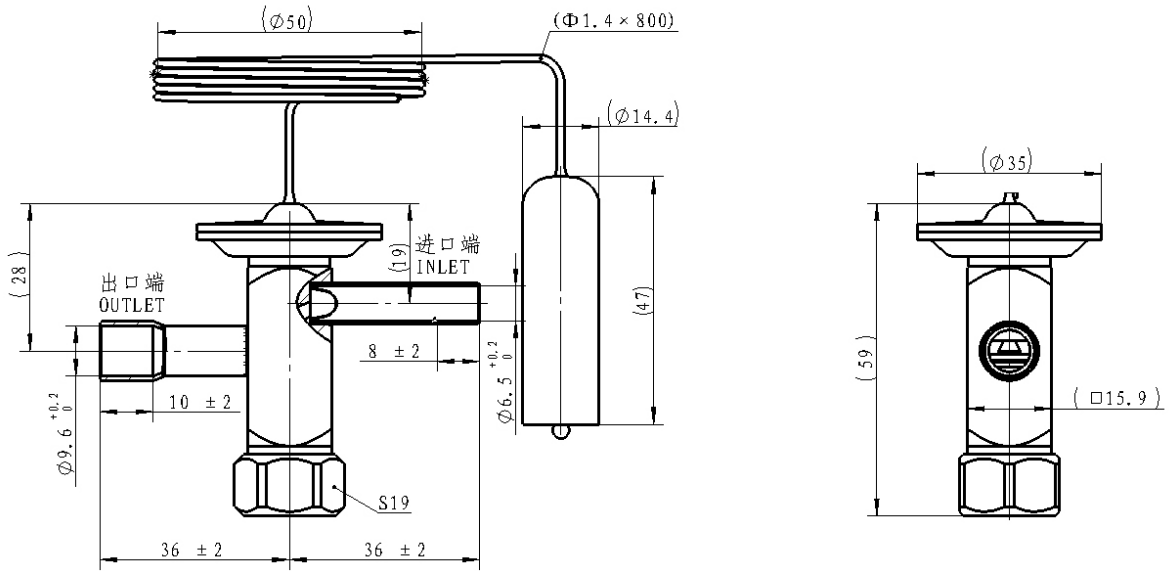
Valve Size	Capacity	Bleed	Connections (Solder ODF) IN/OUT	Model Name [Internal Eq.]	Product Number (U11) [Internal Eq.]	Model Name [External Eq.]*	Product Number (U11) [External Eq.]
	[kW]	[%]	[inch]				
0	0,6	15%	6; 10	RFGB06-0.17-2xxx	On Request	RFGB06E-0.17-2xxx	On Request
0	0,6	0%	6; 10	RFGB06-0.17-2820	102052570	RFGB06E-0.17-2860	102052706
0	0,6	0%	10; 12	RFGB06-0.17-2900	102052605	RFGB06E-0.17-2940	102052762
1	1,2	15%	6; 10	RFGB06-0.35-2xxx	On Request	RFGB06E-0.35-2xxx	On Request
1	1,2	0%	6; 10	RFGB06-0.35-2821	102052571	RFGB06E-0.35-2861	102052707
1	1,2	0%	10; 12	RFGB06-0.35-2901	102052606	RFGB06E-0.35-2941	102052763
2	2,5	15%	6; 10	RFGB06-0.7-2xxx	On Request	RFGB06E-0.7-2xxx	On Request
2	2,5	0%	6; 10	RFGB06-0.7-2822	102052572	RFGB06E-0.7-2862	102052708
2	2,5	0%	10; 12	RFGB06-0.7-2902	102052607	RFGB06E-0.7-2942	102052764
3	3,5	15%	6; 10	RFGB06-1.0-2xxx	On Request	RFGB06E-1.0-2xxx	On Request
3	3,5	0%	6; 10	RFGB06-1.0-2823	102052573	RFGB06E-1.0-2863	102052709
3	3,5	0%	10; 12	RFGB06-1.0-2903	102052608	RFGB06E-1.0-2943	102052765
4	5,3	0%	6; 10	RFGB06-1.5-2824	102052574	RFGB06E-1.5-2864	102052710
4	5,3	0%	10; 12	RFGB06-1.5-2904	102052609	RFGB06E-1.5-2944	102052766
5	7	0%	6; 10	RFGB06-2.0-2825	102052575	RFGB06E-2.0-2865	102052711
5	7	0%	10; 12	RFGB06-2.0-2905	102052610	RFGB06E-2.0-2945	102052767

- Note:**
- 1) Different evaporation temperature range on request
 - 2) Extent of delivery: valve body and bulb strap
 - 3) MOP function on request
 - 4) Bleed function on request (5%, 10% or 15%)

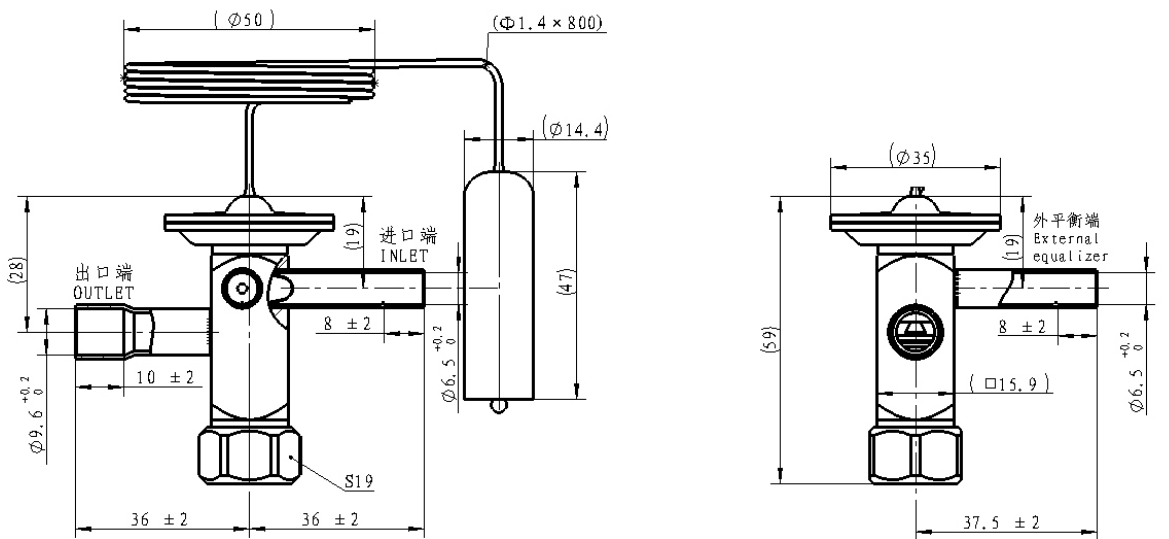
RFCB SERIES
THERMOSTATIC EXPANSION VALVE



DIMENSIONS - STRAIGHT SHAPE VERSION



Straight Shape with Internal Pressure Equalization



Straight Shape with External Pressure Equalization

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MODEL LIST – TABLE 3

Temperature Range N: from -40°C to +10°C, without MOP

Models with Angle layout and fixed static super-heat setting

Models with Imperial Connections

Models with External Equalization: connection size 1/4" (*)

Valve Size	Capacity	Bleed	Connections (Solder ODF) IN/OUT	Model Name [Internal Eq.]	Product Number (U11) [Internal Eq.]	Model Name [External Eq.]*	Product Number (U11) [External Eq.]
	[kW]	[%]	[inch]				
0	0,6	15%	1/4"; 3/8"	RFGB06-0.17-6xxx	On Request	RFGB06E-0.17-6xxx	On Request
0	0,6	0%	1/4"; 3/8"	RFGB06-0.17-6800	102052797	RFGB06E-0.17-6840	10205293
0	0,6	0%	3/8"; 1/2"	RFGB06-0.17-6880	102052899	RFGB06E-0.17-6920	102053004
1	1,2	15%	1/4"; 3/8"	RFGB06-0.35-6xxx	On Request	RFGB06E-0.35-6xxx	On Request
1	1,2	0%	1/4"; 3/8"	RFGB06-0.35-6801	102052280	RFGB06E-0.35-6841	102052935
1	1,2	0%	3/8"; 1/2"	RFGB06-0.35-6881	102052900	RFGB06E-0.35-6921	102053005
2	2,5	15%	1/4"; 3/8"	RFGB06-0.7-6xxx	On Request	RFGB06E-0.7-6xxx	On Request
2	2,5	0%	1/4"; 3/8"	RFGB06-0.7-6802	102052798	RFGB06E-0.7-6842	102052936
2	2,5	0%	3/8"; 1/2"	RFGB06-0.7-6882	102052901	RFGB06E-0.7-6922	102053006
3	3,5	15%	1/4"; 3/8"	RFGB06-1.0-6xxx	On Request	RFGB06E-1.0-6xxx	On Request
3	3,5	0%	1/4"; 3/8"	RFGB06-1.0-6803	102052799	RFGB06E-1.0-6843	102052937
3	3,5	0%	3/8"; 1/2"	RFGB06-1.0-6883	102052902	RFGB06E-1.0-6923	102053007
4	5,3	0%	1/4"; 3/8"	RFGB06-1.5-6804	102052800	RFGB06E-1.5-6844	102052938
4	5,3	0%	3/8"; 1/2"	RFGB06-1.5-6884	102052903	RFGB06E-1.5-6924	102053008
5	7	0%	1/4"; 3/8"	RFGB06-2.0-6805	102052801	RFGB06E-2.0-6845	102052939
5	7	0%	3/8"; 1/2"	RFGB06-2.0-6885	102052904	RFGB06E-2.0-6925	102053009

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MODEL LIST – TABLE 4

Temperature Range N: from -40°C to +10°C, without MOP

Models with Angle layout and fixed static super-heat setting

Models with Metric Connections

Models with External Equalization: connection size 6mm (*)

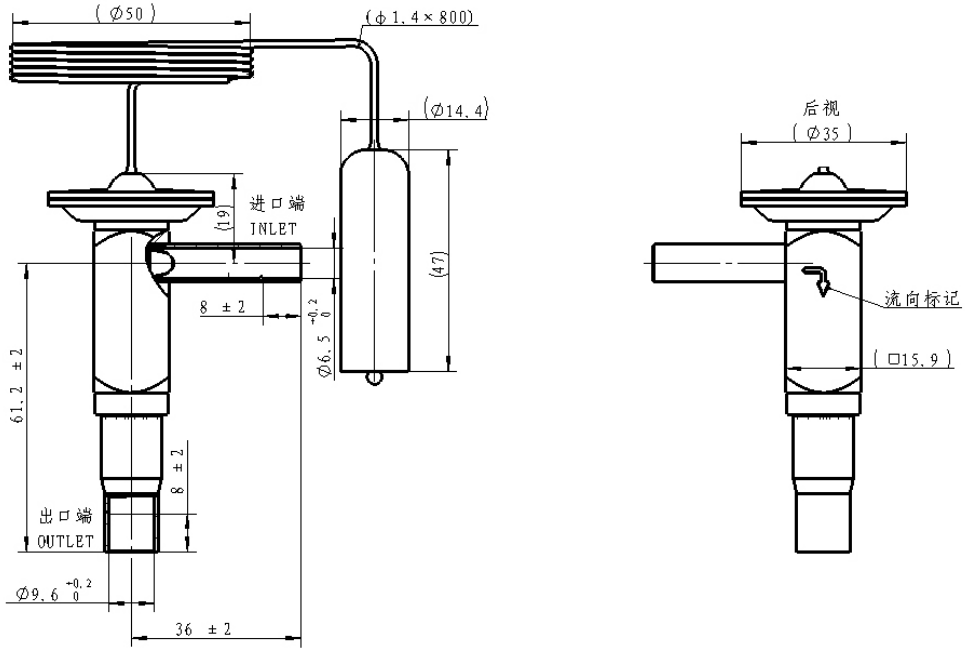
Valve Size	Capacity	Bleed	Connections (Solder ODF) IN/OUT	Model Name [Internal Eq.]	Product Number (U11) [Internal Eq.]	Model Name [External Eq.]*	Product Number (U11) [External Eq.]
	[kW]	[%]	[inch]				
0	0,6	15%	6; 10	RFGB06-0.17-6xxx	On Request	RFGB06E-0.17-6xxx	On Request
0	0,6	0%	6; 10	RFGB06-0.17-6820	102052830	RFGB06E-0.17-6860	102052969
0	0,6	0%	10; 12	RFGB06-0.17-6900	102052865	RFGB06E-0.17-6940	102053039
1	1,2	15%	6; 10	RFGB06-0.35-6xxx	On Request	RFGB06E-0.35-6xxx	On Request
1	1,2	0%	6; 10	RFGB06-0.35-6821	102052831	RFGB06E-0.35-6861	102052970
1	1,2	0%	10; 12	RFGB06-0.35-6901	102052866	RFGB06E-0.35-6941	102053040
2	2,5	15%	6; 10	RFGB06-0.7-6xxx	On Request	RFGB06E-0.7-6xxx	On Request
2	2,5	0%	6; 10	RFGB06-0.7-6822	102052832	RFGB06E-0.7-6862	102052971
2	2,5	0%	10; 12	RFGB06-0.7-6902	102052867	RFGB06E-0.7-6942	102053041
3	3,5	15%	6; 10	RFGB06-1.0-6xxx	On Request	RFGB06E-1.0-6xxx	On Request
3	3,5	0%	6; 10	RFGB06-1.0-6823	102052833	RFGB06E-1.0-6863	102052972
3	3,5	0%	10; 12	RFGB06-1.0-6903	102052868	RFGB06E-1.0-6943	102053042
4	5,3	0%	6; 10	RFGB06-1.5-6824	102052834	RFGB06E-1.5-6864	102052834
4	5,3	0%	10; 12	RFGB06-1.5-6904	102052869	RFGB06E-1.5-6944	102053043
5	7	0%	6; 10	RFGB06-2.0-6825	102052835	RFGB06E-2.0-6865	102052974
5	7	0%	10; 12	RFGB06-2.0-6905	102052870	RFGB06E-2.0-6945	102053044

- Note:**
- 1) Different evaporation temperature range on request
 - 2) Extent of delivery: valve body and bulb strap
 - 3) MOP function on request
 - 4) Bleed function on request (5%, 10% or 15%)

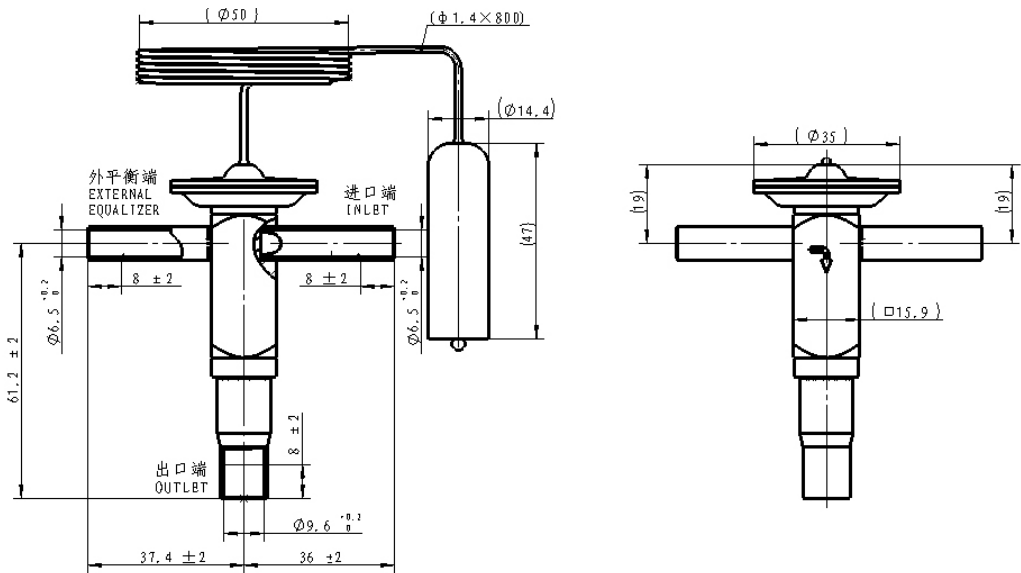
RFCB SERIES
THERMOSTATIC EXPANSION VALVE



DIMENSIONS - ANGLE SHAPE VERSION



Straight Shape with Internal Pressure Equalization



Straight Shape with External Pressure Equalization

RFGB SERIES
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ACCESSORIES

All the RFGB06 models listed in this datasheet are equipped with stainless-steel clips suitable to fix the sensitive element (bulb) to the suction line piping. The standard clip matches pipes with diameters 9.52mm (3/8"). Clips suitable for pipes with different diameters can be ordered as accessories: models and ordering codes are visible in the table below. As an alternative Sanhua offers a stainless-steel stripe to fix the bulb suitable for a wide range of pipe diameters.

Picture	Type / Pipe	Model	Ordering Number (U11)
	Stripe	RFK-000-019013	20201012702
	Clip [6mm]	RFK-000-025004	20205011801
	Clip [8mm]	RFK-000-025002	20201002801
	Clip [10mm]	RFK-000-025001	20200000501
	Clip [12mm]	RFK-000-025003	20205034901
	Clip [1/4"]	RFK-000-025001	20200000501
	Clip [5/16"]	RFK-000-025002	20201002801
	Clip [3/8"]	RFK-000-025003	20205034901
	Clip [1/2"]	RFK-000-025004	20205011801