

# Standard Product Catalogue

**AIR  
CONDITIONING**

**COMMERCIAL  
REFRIGERATION**

**HEAT PUMP**



# SANHUA

*“Strive for perfection,  
Pursuit of excellence”*

Sanhua is a leading HVAC&R manufacturer of controls and components with a global footprint and 30 years of experience. Our co-operation with the largest companies in the Automotive, Appliance and HVAC&R industry makes Sanhua a leading worldwide OEM supplier providing the highest quality components at the most competitive price.

Furthermore, strategic acquisitions by Sanhua of leading HVAC brands such as Ranco and Aweco and joint venture projects with Danfoss transformed Sanhua into one of the largest manufacturers of Expansion, Solenoid and Reversing Valves with annual valve sales exceeding 100 Million pieces.

**SANHUA IS LISTED IN TOP 100 STRONGEST CHINESE INDUSTRIAL BRANDS.**

After sustainable growth over the last 3 decades, Sanhua have made significant progress to introduce a comprehensive range of controls and line components for the Commercial Air conditioning and Refrigeration Industries and to increase its service level coverage in Asia Pacific markets.

**CHILLING**  
*ideas worldwide*



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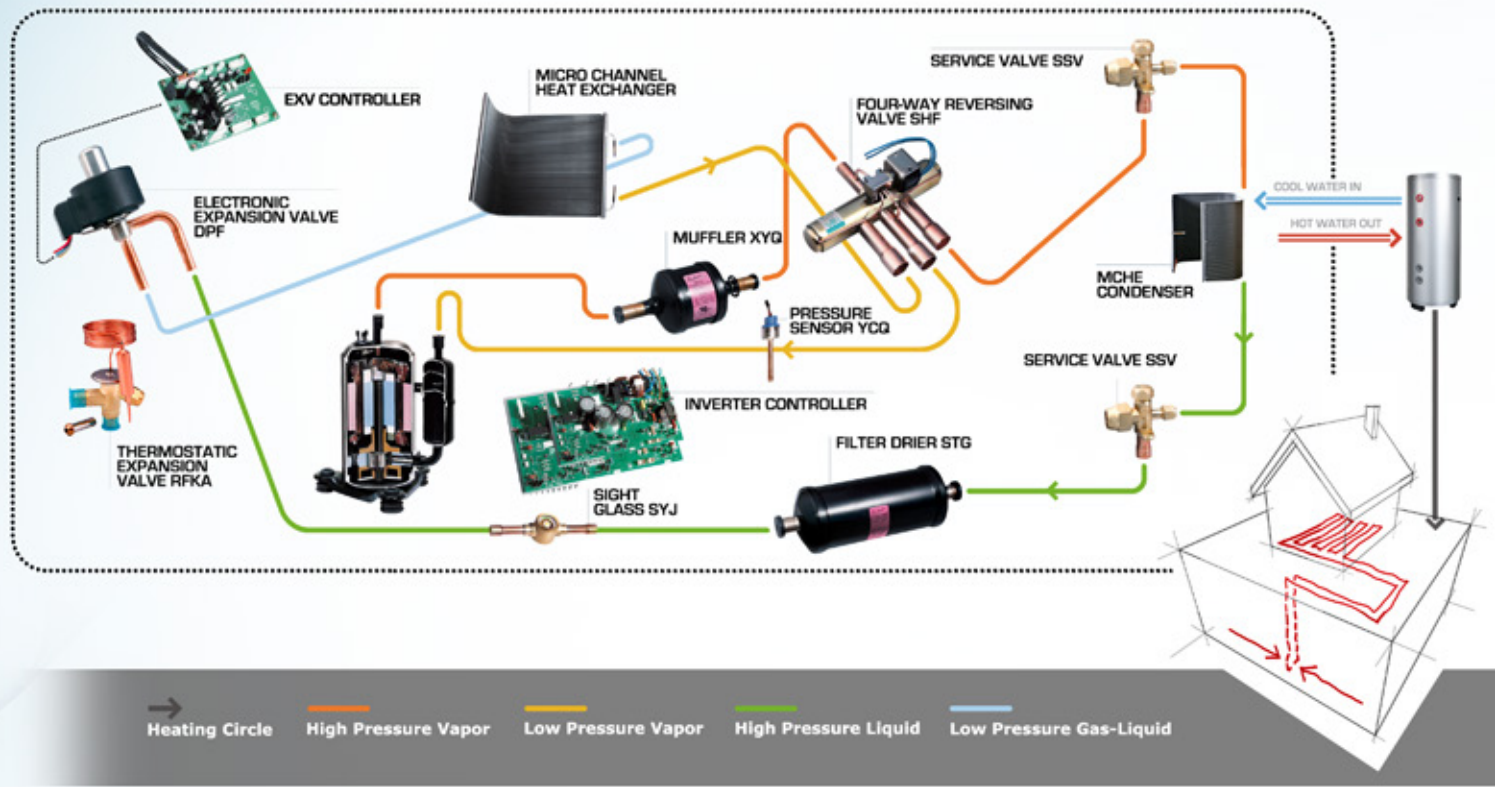
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**Note:** Sanhua accepts no responsibility for any errors that may occur in this catalogue. Sanhua accepts no responsibility for any product selection made from this material, it is the customers sole responsibility to ensure the correct selection of any components.

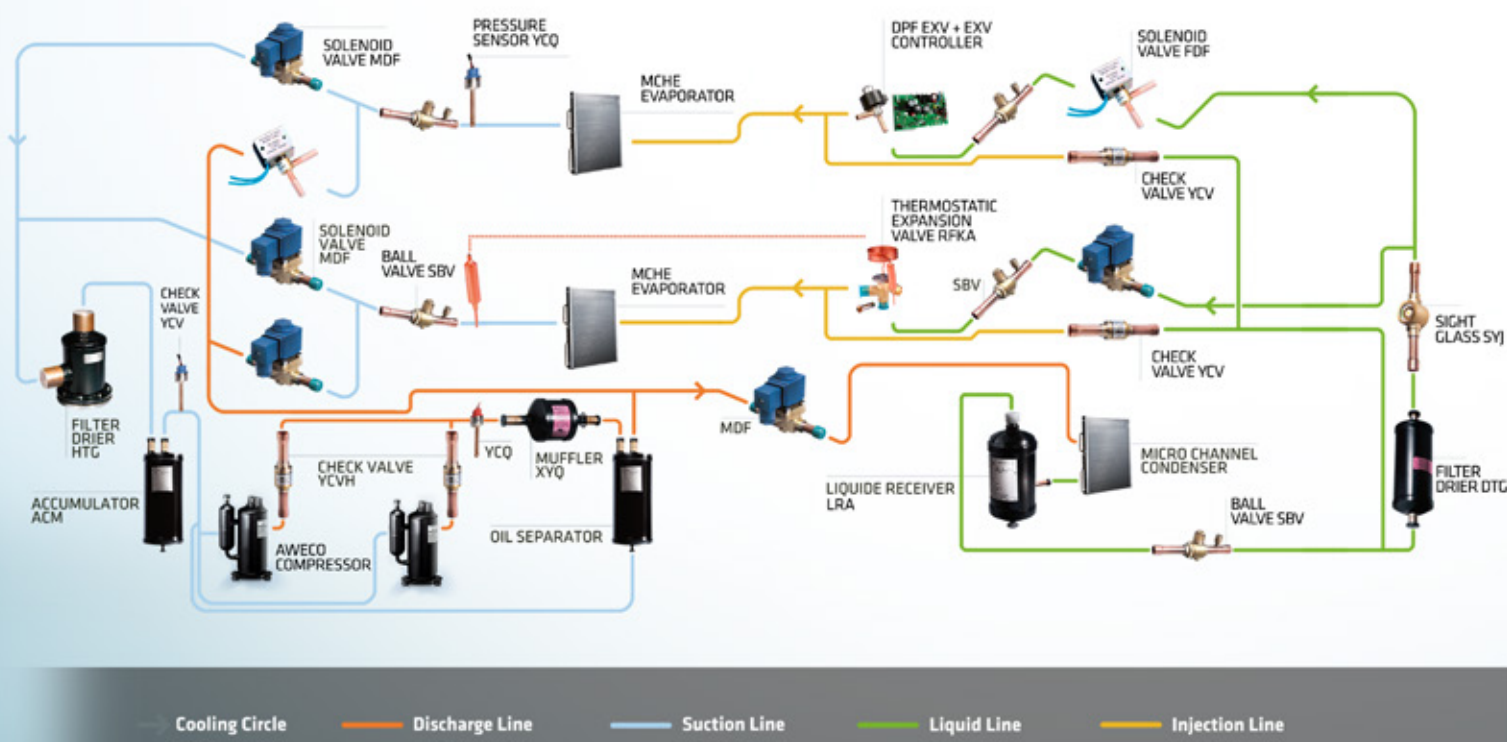


# Air to Water Heat Pump Application Solutions

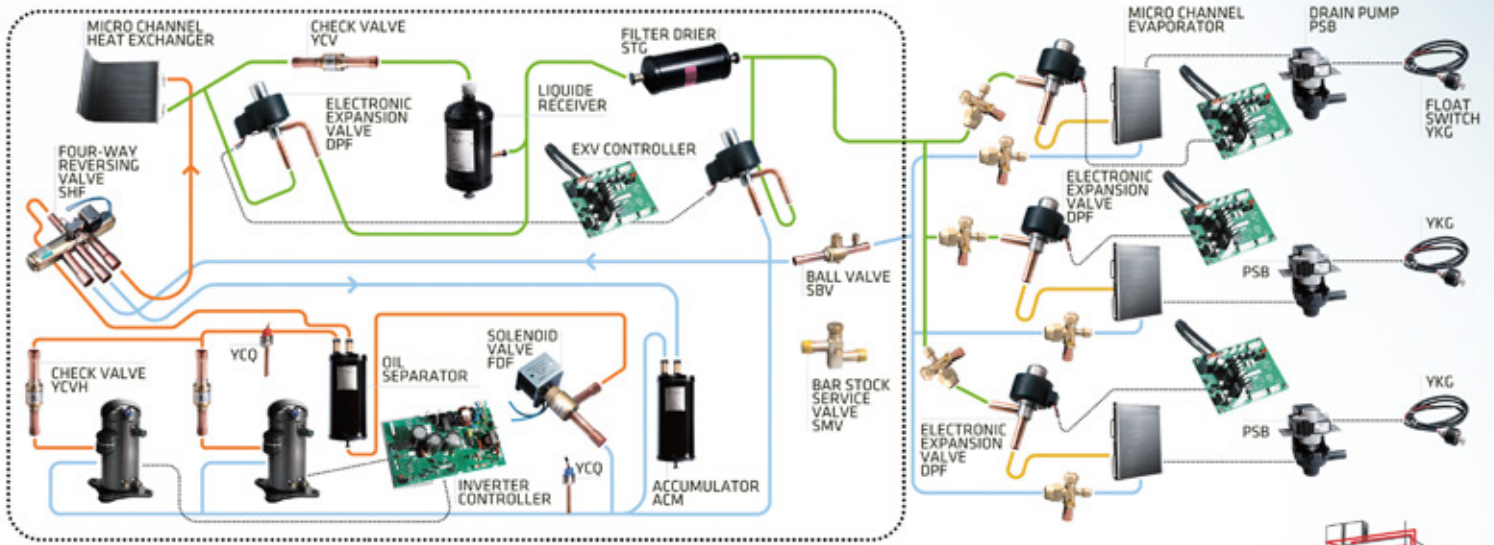


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# Commercial Refrigeration Application Solutions



# COMMERCIAL AIR CONDITIONING VRF SYSTEM



→ Heating Circle    
 — Discharge Line    
 — Suction Line    
 — Liquid Line    
 — Injection Line



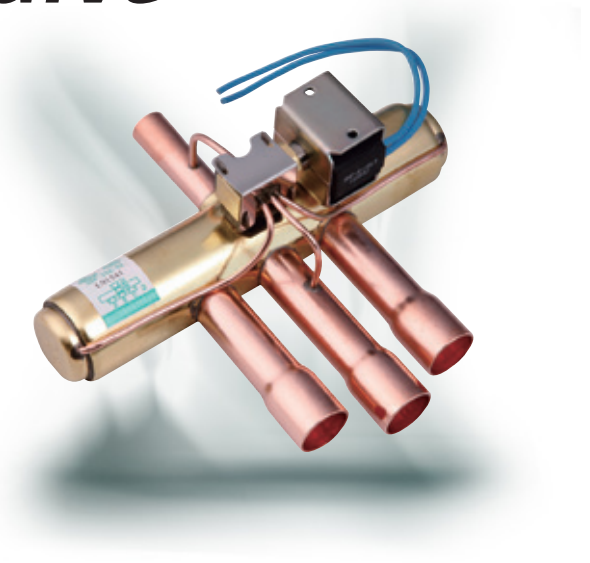
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*CHILLING* ideas worldwide



# 4 Way Reversing Valve

SHF series four-way reversing valves are applicable for heat pump systems such as central, unitary and room air conditioners to realize switching between cooling mode and heating mode by changing the flow path of refrigerant.



## FEATURES

- WIDE APPLICATION RANGE
- SUITABLE FOR COOLING CAPACITIES FROM 3.6 TO 420KW (R410A, CONDITION 2)
- SEVERAL DESIGNS AVAILABLE

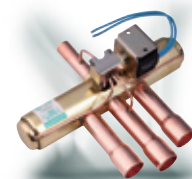
## GENERAL SPECIFICATIONS

- Applicable for all common HCFC, HFC refrigerants such as: R22, R134a, R404A, R407C, R410A, R507
- Ambient temperature min./max.: -30°C / +55°C
- Relative humidity: 0 to 95% RH
- Max. operating pressure: 4.2MPa (42 bar)
- Installation position:
  - Coil upwards or with body axis in horizontal alignment
  - Flow direction according to installation instruction
- Certifications: UL/CSA and declaration according to LVD or PED



# SHF SERIES

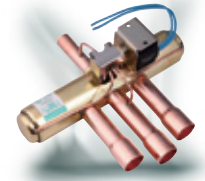
## 4 Way Reversing Valve



General Characteristics							
Valve series	Valve Model	Fixed/ Inverter AC	Connections ODF		OPD		Medium temperature
			ØD	ØE/S/C	Max.	Min.	[°C]
			[inch]	[inch]	[MPa]	[MPa]	
SHF 4	SHF-4H-23U-P	General	5/16	3/8	3.1	0.1	-30/+120
SHF 7	SHF-7H-34U-P	General	3/8	1/2	3.1	0.1	-30/+120
SHF 9	SHF-9H-35U-P	General	3/8	5/8	3.1	0.1	-30/+120
SHF 11	SHF-11H-45D1	General	1/2	5/8	3.1	0.1	-30/+120
SHF 14	SHF-14A-46	General	1/2	3/4	3.1	0.3	-30/+120
SHF 20	SHF-20D-46-01	Fixed	1/2	3/4	3.1	0.3	-30/+130
SHF 20	SHF-20D-46-02	Inverter	1/2	3/4	3.1	0.3	-30/+130
SHF 20	SHF-20D-46-03	Fixed	1/2	3/4	3.1	0.3	-30/+120
SHF 20	SHF-20D-46-04	Inverter	1/2	3/4	3.1	0.3	-30/+120
SHF 35	SHF-35B-67-01	Fixed	3/4	7/8	3.1	0.3	-30/+130
SHF 35	SHF-35B-67-04	Inverter	3/4	7/8	3.1	0.3	-30/+130
SHF 35	SHF-35B-67-05	Fixed	3/4	7/8	3.1	0.3	-30/+120
SHF 35	SHF-35B-67-06	Inverter	3/4	7/8	3.1	0.3	-30/+120
SHF 50	SHF-50-79-03	Fixed	7/8	9/8	3.1	0.3	-30/+130
SHF 50	SHF-50-79-04	Inverter	7/8	9/8	3.1	0.3	-30/+130
SHF 70	SHF(L)-70-810-10	Fixed	1	1-1/4	3.1	0.3	-30/+130
SHF 70	SHF(L)-70-810-20	Inverter	1	1-1/4	3.1	0.3	-30/+130
SHF 100	SHF(L)-100-1012	General	1-1/4	1-1/2	3.1	0.3	-30/+130
SHF 140	SHF(L)-140-1214	General	1-1/2	1-3/4	3.1	0.3	-30/+130
SHF 175	SHF(L)-175-1217	General	1-1/2	2-1/8	3.1	0.3	-30/+130
SHF 210	SHF(L)-210-1321	General	1-5/8	2-5/8	3.1	0.3	-30/+130
SHF 350	SHF(L)-350-1721	General	2-1/8	2-5/8	3.1	0.3	-30/+130
SHF 420	SHF(L)-420-2125	General	2-5/8	3-1/8	3.1	0.3	-30/+130

# SHF SERIES

## 4 Way Reversing Valve



### Nominal Operating Conditions

Nominal Operating Conditions	Condition 1	Condition 2
Condensing Temperature tc	38°C	54,4°C
Evaporating Temperature to	5°C	7,2°C
Superheat Δtsh	5K	5K
Subcooling Δtsc	0K	5K

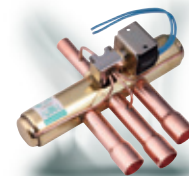
#### Notes for Capacity Selection Tables :

- 1) Pressure drop is valid for flow from ØC to ØS or from ØE to ØS
- 2) R407C data based on dew point condition

Capacity Selection Table																					
Series	Nominal Cooling Capacity (condition 1)										Nominal Cooling Capacity (condition 2)										
	R22		R407C <sup>2)</sup>		R410A		R134a		R404A / R507		R22		R407C <sup>2)</sup>		R410A		R134a		R404A / R507		
	ΔP: 0,1 bar	ΔP: 0,2 bar	ΔP: 0,1 bar	ΔP: 0,2 bar	ΔP: 0,1 bar	ΔP: 0,2 bar	ΔP: 0,1 bar	ΔP: 0,2 bar	ΔP: 0,1 bar	ΔP: 0,2 bar	ΔP: 0,1 bar	ΔP: 0,2 bar	ΔP: 0,1 bar	ΔP: 0,2 bar	ΔP: 0,1 bar	ΔP: 0,2 bar	ΔP: 0,1 bar	ΔP: 0,2 bar	ΔP: 0,1 bar	ΔP: 0,2 bar	
	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
SHF 4	3.6	5.1	3.3	4.6	3.9	5.4	2.4	3.5	2.4	3.5	5.1	4.8	3	4.3	3.6	5	2.3	3.2	2.3	3.2	
SHF 7	6.5	9.2	5.7	8.1	6.7	9.5	4.3	6	4.3	6	9.2	8.6	5.3	7.5	6.2	8.8	4	5.6	4	5.6	
SHF 9	7.8	11.1	7.3	10.4	8.7	12.2	5.5	7.8	5.5	7.8	11.1	10.4	6.8	9.6	8	11.3	5.1	7.2	5.1	7.2	
SHF 11	10.0	14.2	9	12.7	10.6	14.9	6.7	9.5	6.7	9.5	14.2	13.4	8.3	11.7	9.8	13.8	6.2	8.8	6.2	8.8	
SHF 14	14.5	20.5	12	16.9	14.2	20	9	12.7	9	12.7	20.5	19.3	11.1	15.6	13.1	18.5	8.3	11.8	8.3	11.8	
SHF 20	22.1	31.3	19.1	27	22.6	31.8	14.3	20.2	14.3	20.2	31.3	29.5	17.7	25	20.9	29.5	13.3	18.7	13.3	18.7	
SHF 35	32.8	46.4	28.6	40.3	33.7	47.5	21.4	30.2	21.4	30.2	46.4	43.7	26.5	37.3	31.2	44	19.8	28	19.8	28	
SHF 50	40.9	57.8	36.6	51.5	43.1	60.7	27.4	38.6	27.4	38.6	57.8	54.4	33.9	47.7	39.9	56.3	25.3	35.8	25.3	35.8	
SHF 70	63.6	90.0	57.1	80.6	67.4	95.1	42.9	60.4	42.9	60.4	90.0	84.8	52.9	74.6	62.4	88	39.7	56	39.7	56	
SHF 100	90.4	127.9	81.6	115.1	96.3	135.8	61.2	86.3	61.2	86.3	127.9	120.5	75.6	106.6	89.2	125.8	56.7	79.9	56.7	79.9	
SHF 140	130.4	184.4	114.3	161.1	134.9	190.1	85.7	120.9	85.7	120.9	184.4	173.8	105.8	149.2	124.9	176.1	79.4	111.9	79.4	111.9	
SHF 175	157.4	222.6	142.9	201.4	168.6	237.7	107.1	151.1	107.1	151.1	222.6	209.8	132.3	186.5	156.1	220.1	99.2	139.9	99.2	139.9	
SHF 210	188.4	266.5	171.4	241.7	202.3	285.2	128.6	181.3	128.6	181.3	266.5	251.1	158.7	223.8	187.3	264.1	119	167.9	119	167.9	
SHF 350	309.0	437.0	285.7	402.9	337.1	475.4	214.3	302.1	214.3	302.1	437.0	411.8	264.6	373	312.2	440.2	198.4	279.8	198.4	279.8	
SHF 420	395.2	558.9	342.9	483.4	404.6	570.4	257.1	362.6	257.1	362.6	558.9	526.6	317.5	447.6	374.6	528.2	238.1	335.7	238.1	335.7	

# SHF SERIES

## 4 Way Reversing Valve



Coil Characteristics											
Coil Model <sup>1)</sup>	Winding Code	Electrical Function / Connection Type	Cable Length [mm]	Power Supply [-]	Rated Voltage [V]	Power Consumption			Protection Class [-]	Insulation Class [-]	Max. Op. Temp. [°C]
						AC	AC	DC			
						50Hz [W]	60Hz [W]				
SQ-A25 22G-00 0001	SHF-4-10L3	Lead Wires	500	AC	220-240	4,5	3,5	-	IP54	B <sup>2)</sup>	130
SQ-A25 200-00 0001	SHF-4-10L2	Lead Wires	500	AC	200	4,5	3,5	-			
SQ-A25 100-00 0001	SHF-4-10L1	Lead Wires	500	AC	100	4,5	3,5	-			
SQ-A25 11A-00 0001	SHF-4-10L4	Lead Wires	500	AC	110-120	4,5	3,5	-			
SQ-A25 024-00 0001	SHF-4-10L5	Lead Wires	500	AC	24	4,5	3,5	-			
SQ-A25 26H-00 0001	SHF-4-10L6	Lead Wires	500	AC	265-277	4,5	3,5	-			
SQ-A25 22G-00 0870	SHF-4-10L3	Lead Wires	1500	AC	220-240	4,5	3,5	-			
SQ-A25 11A-00 0840	SHF-4-10L4	Lead Wires	1500	AC	110-120	4,5	3,5	-			
SQ-A25 024-00 0161	SHF-4-10L5	Lead Wires	1500	AC	24	4,5	3,5	-			
SQ-A47 22G-00 0001	SHF-4-10FA5	Spade (Faston) <sup>3)</sup>	-	AC	220-240	6	5	-	IP00	F <sup>2)</sup>	155
SQ-A47 220-00 0001	SHF-4-10FA1	Spade (Faston) <sup>3)</sup>	-	AC	220	6	5	-			
SQ-A47 11B-00 0001	SHF-4-10FA2	Spade (Faston) <sup>3)</sup>	-	AC	120	6	5	-			
SQ-A47 10A-00 0001	SHF-4-10FA3	Spade (Faston) <sup>3)</sup>	-	AC	100-110	6	5	-			
SQ-A47 024-00 0001	SHF-4-10FA4	Spade (Faston) <sup>3)</sup>	-	AC	24	6	5	-			
SQ-A47 26H-00 0001	SHF-4-10FA6	Spade (Faston) <sup>3)</sup>	-	AC	265-277	6	5	-			
SQ-D44 012-00 0001	SHF-4-10FA8	Spade (Faston) <sup>3)</sup>	-	DC	12	-	-	10	IP54	B <sup>2)</sup>	130
SQ-D44 024-00 0001	SHF-4-10FA9	Spade (Faston) <sup>3)</sup>	-	DC	24	-	-	11			
SQ-A27 100-00 0001	-	Bi-stable/Lead W.	500	AC	100	18	18	-			
SQ-A27 200-00 0001	-	Bi-stable/Lead W.	500	AC	200	18	18	-	IP54	B <sup>2)</sup>	130
SQ-A27 20K-00 0001	-	Bi-stable/Lead W.	500	AC	220-240	18	18	-			
SQ-D27 012-00 0001	-	Bi-stable/Lead W.	500	DC	12	-	-	20			

**Note:**

- 1) Every coil is applicable to all above specified valve models
- 2) Max ambient temperature up to + 50°C
- 3) Wire Harness for coil with Faston connector available as accessory

**Accessory**

Wire Harness	
Model	Cable Length [mm]
SQ-000000-090028	1200
SQ-000000-090029	2000



# Electronic Expansion Valve

VPF series electronic expansion valves are designed for commercial and industrial applications. Typical VPF applications are air conditioning and refrigeration systems or heat pumps. The valve controls the automatic adjustment of refrigerant flow rate and makes the system work under optimized conditions for the purpose of fast cooling or heating, precise temperature control and energy saving. The valve can also be used e.g. for suction line pressure controls. These valves provide bidirectional operation to control the refrigerant flow rate in heating or cooling mode.



## FEATURES

- ENERGY SAVING THANKS TO VERY PRECISE CAPACITY CONTROL: UP TO 3800 STEPS
- INTERNAL TIGHTNESS LIKE A SOLENOID VALVE
- OPTIMIZED FLOW PATH DESIGN FOR NOISE REDUCTION
- APPLICABLE FOR REVERSIBLE SYSTEMS LIKE HEAT PUMPS: BIDIRECTIONAL FLOW
- CORROSION RESISTANT DESIGN, LONG LIFETIME, HIGH RELIABILITY
- COMPACT DESIGN
- MODELS WITH INTEGRATED SIGHT GLASS ARE AVAILABLE

## GENERAL SPECIFICATION

- Applicable for all common HCFC and HFC refrigerants such as: R22, R134a, R404A, R407A, R407C, R407F, R410A, R507A ...
- Cooling capacity: 54 to 1495 kW (R134a nominal capacity)
- Up to 3800 steps (full stroke); Valve starts opening with
  - VPF12.5, VPF25: 110 steps
  - VPH50... VPF400: 165 steps
- Medium temperature TS min./max.: -40°C / +90°C
- Ambient temperature min./max.: -40°C / +60°C
- Relative humidity: : 0 to 100% RH
- Installation position:
  - Major flow direction from connection A to B
  - Installation in horizontal and vertical pipes possible
  - Installation position in horizontal lines with stepper motor preferably upwards
- Certifications: EAC and PED Declaration



**ELECTRICAL PARAMETERS**

- Rated voltage: 12V DC, rectangular wave
- Actuating mode: 2-phase 4-step permanent magnet stepping motor
- Excitation mode: 2 phase excitation, bi-pole actuation
- Excitation rate:
  - 150 pps (Maximum for voltage drive)
  - 300 pps (Maximum for current drive)
- Motion time from completely open to completely closed (voltage drive/current drive):
  - VPF12.5...VPF50: 17,3s / 8,7s
  - VPF100: 23,3s / 11,7s
  - VPF150...VPF400: 25,3s / 12,7s

- Nominal motor current\*:
  - Voltage drive: 124mA RMS per phase in control operation
  - Current drive: 100mA RMS per phase in control operation
- Peak motor current\*:
  - Voltage drive: 238mA RMS per phase in control operation
  - Current drive: 140mA RMS per phase in control operation
- Coil resistance: 52 ± 5,2Ω/coil (20°C)
- Insulation class of coil: E
- Protection class: IP 67

\*Specified motor currents are based on max. excitation rates

**MODEL DESIGNATIONS**

Position Number	Model Designation Legend	
1	Product Code	Product Series
	VPF	Electronic expansion valve with bi-pole stepper motor
2	Capacity Size	Description
	12.5	Digits for valve capacity size
	25	
	50	
	100	
	150	
	250	
400		
3	Connections Type	Description
	H	Solder
4	Valve Body	Description
	0..4	With sight glass
	5...9	Without sight glass
5	Pipe Connection	Description
	1...9	Digit for pipe connection diameter

**MODEL DESIGNATION EXAMPLE**

Position Number					According to Model Designation Legend
1	2	3	4	5	
<b>VPF</b>	100	H	0	3	Electronic expansion valve
VPF	<b>100</b>	H	0	3	Digits for capacity size
VPF	100	<b>H</b>	0	3	Connection: Solder
VPF	100	H	<b>0</b>	3	Valve body: With sight glass
VPF	100	H	0	<b>3</b>	Digit for pipe connection diameter



**TECHNICAL PARAMETER**

Model	Valve Shape	Sight Glass	Connections ød ODF Inlet A x Outlet B	Seat <sup>2)</sup> ø	Kv <sup>3)</sup>	MWP PS	MOPD Direct A->B	MOPD Rev. B->A
			[inch]	[mm]	m <sup>3</sup> /h	[MPa]	[MPa]	[MPa]
VPF12.5H52	straight	-	5/8 x 5/8	7,5	0,8	5,0	3,9	3,9
VPF12.5H53			7/8 x 7/8					
VPF12.5H58	L-shape	-	5/8 x 5/8					
VPF12.5H59			7/8 x 7/8					
VPF25H52	straight	-	5/8 x 5/8	7,5	1,4			
VPF25H53			7/8 x 7/8					
VPF25H58	L-shape	-	5/8 x 5/8					
VPF25H59			7/8 x 7/8					
VPF50H51	straight	-	7/8 x 7/8	11,4	2,3			
VPF50H52			7/8 x 1 1/8					
VPF50H53			1 1/8 x 1 1/8					
VPF50H54			1 1/8 x 1 3/8					
VPF 50H01	straight	with sight glass	7/8 x 7/8					
VPF 50H02			7/8 x 1 1/8					
VPF 50H03			1 1/8 x 1 1/8					
VPF50H04			1 1/8 x 1 3/8					
VPF100H51	straight	-	1 1/8 x 1 1/8	14,4	4,0			
VPF100H52			1 1/8 x 1 3/8					
VPF100H53			1 3/8 x 1 3/8					
VPF100H01	straight	with sight glass	1 1/8 x 1 1/8					
VPF100H02			1 1/8 x 1 3/8					
VPF100H03			1 3/8 x 1 3/8					
VPF150H01	L-shape	with sight glass	1 1/8 x 1 3/8	14,8	7,7			
VPF150H02			1 5/8 x 1 5/8					
VPF250H01	straight	with sight glass	1 1/8 x 1 1/8	25	11,9			
VPF250H02			1 3/8 x 1 3/8					
VPF250H03			1 5/8 x 1 5/8					
VPF400H01	straight	with sight glass	1 5/8 x 1 5/8	33	17,0			
VPF400H03			2 1/8 x 2 1/8					

**Note:** 1) Extent of delivery: valve body (reference number for connection cable see in the following pages)  
 2) Kv values valid for the flow direction inlet A to outlet B





**COOLING CAPACITIES**

Model	Steps Completely Open	Nominal Cooling Capacity <sup>1)</sup> [kW]							
		R22	R134a	R407A <sup>2)</sup>	R407C <sup>2)</sup>	R407F <sup>2)</sup>	R404A <sup>2)</sup> R507A	R410A <sup>2)</sup>	R1234ze <sup>2)</sup>
VPF12.5	2600	69	54	67	71	76	50	82	43
VPF25	2600	147	116	144	152	162	108	176	92
VPF50	2600	281	221	275	290	310	206	336	175
VPF100	3500	406	319	397	418	447	297	484	253
VPF150	3800	730	574	714	752	804	534	871	455
VPF250	3800	1133	892	1108	1168	1249	830	1353	706
VPF400	3800	1900	1495	1857	1958	2094	1392	2269	1183

Model	Steps Completely Open	Nominal Cooling Capacity <sup>1)</sup> [USRT]							
		R22	R134a	R407A <sup>2)</sup>	R407C <sup>2)</sup>	R407F <sup>2)</sup>	R404A <sup>2)</sup> R507A	R410A <sup>2)</sup>	R1234ze <sup>2)</sup>
VPF12.5	2600	20	15	19	20	22	14	23	12
VPF25	2600	42	33	41	43	46	31	50	26
VPF50	2600	80	63	78	82	88	59	95	50
VPF100	3500	115	91	113	119	127	85	138	72
VPF150	3800	207	163	203	214	229	152	248	129
VPF250	3800	322	254	315	332	355	236	385	201
VPF400	3800	540	425	528	557	595	396	645	336

**Note:**

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

2) Data based on dew point conditions

**ACCESSORIES**

*Connection Cable*

Model	Cable Length [m]
Y02A	2
Y08A	8

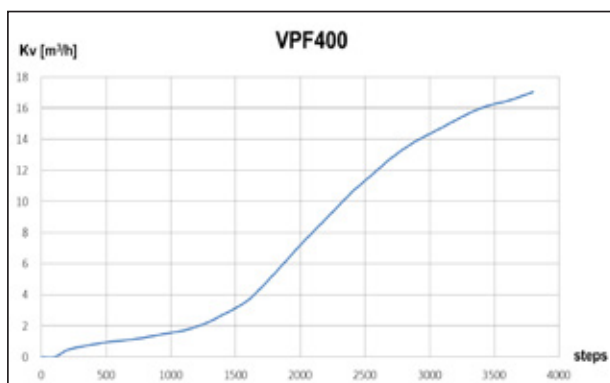
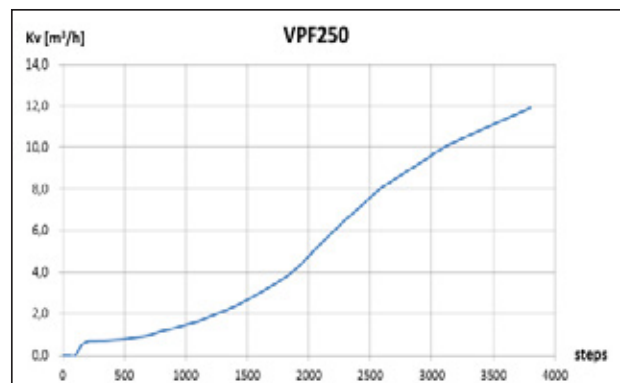
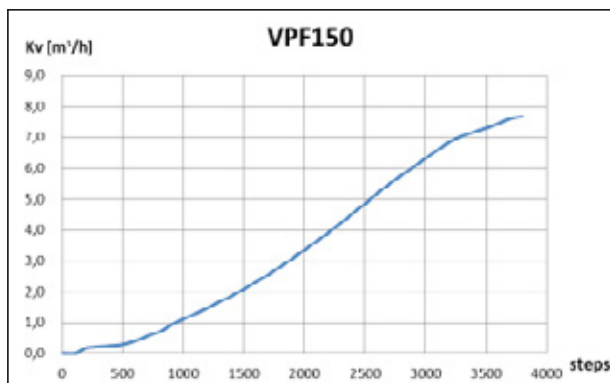
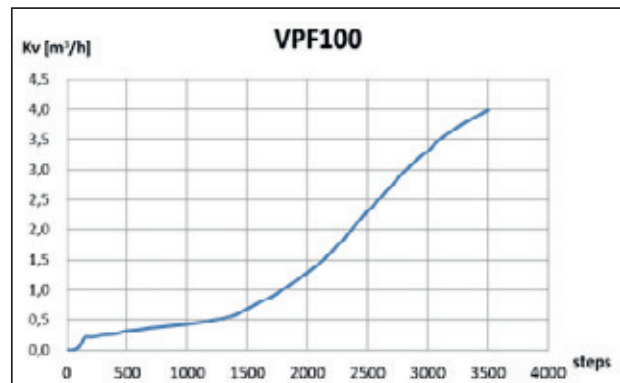
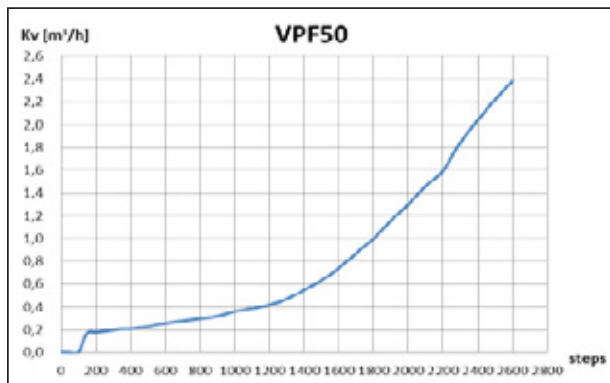
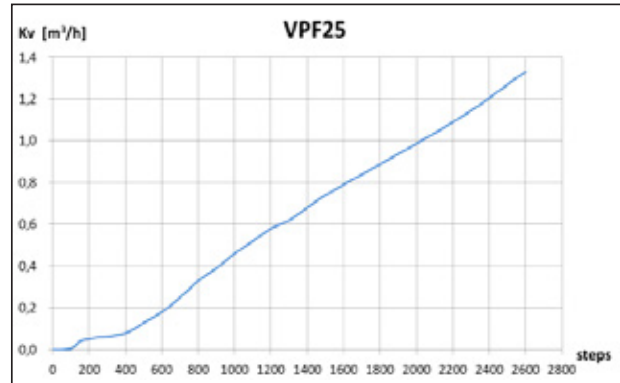
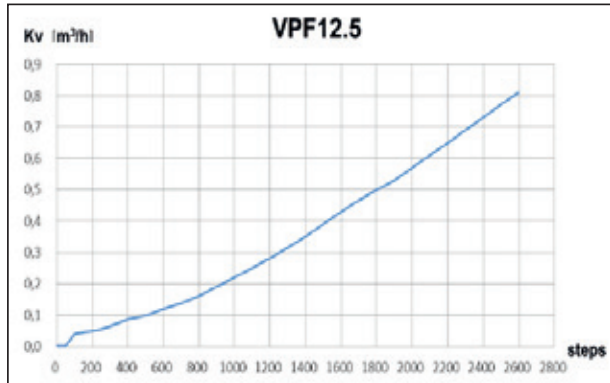
**Note:** 1) Extent of delivery: cable, connecting valve plug and cable sleeves for each single wire

2) Cable-VPF valve connection in IP67



**FLOW CHARACTERISTIC**

Add drawing for VPF12.5 + VPF 400 into catalogue





Model	Dimensions [mm]								
	L	L1	L2	L3	L4	H1	H2	H4	øD1
VPF12.5H52	120	60	60	13	13	25,6	13	136	52
VPF12.5H53	120	60	60	20	20	25,6	13	136	52
VPF12.5H58	-	60	-	13	13	22,5	66,5	178	52
VPF12.5H59	-	60	-	20	20	22,5	66,5	178	52
VPF25H52	120	60	60	13	13	25,6	13	136	52
VPF25H53	120	60	60	20	20	25,6	13	136	52
VPF25H58	-	60	-	13	13	22,5	66,5	178	52
VPF25H59	-	60	-	20	20	22,5	66,5	178	52
VPF50H51	112	56	56	20	20	17	20,5	166	52
VPF50H52	122	56	66	20	25	17	20,5	166	52
VPF50H53	132	66	66	25	25	17	20,5	166	52
VPF50H54	142	66	76	25	30	17	20,5	166	52
VPF50H01	112	56	56	20	20	17	20,5	166	52
VPF50H02	122	56	66	20	25	17	20,5	166	52
VPF50H03	132	66	66	25	25	17	20,5	166	52
VPF50H04	142	66	76	25	30	17	20,5	166	52
VPF100H51	132	66	66	25	25	17	20,5	166	52
VPF100H52	142	66	76	25	30	17	20,5	166	52
VPF100H53	152	76	76	30	30	17	20,5	166	52
VPF100H01	132	66	66	25	25	17	20,5	166	52
VPF100H02	142	66	76	25	30	17	20,5	166	52
VPF100H03	152	76	76	30	30	17	20,5	166	52
VPF150H01	-	76	-	30	25	24	70	195	52
VPF150H02	-	76	-	25	25	33,5	89	212	52
VPF250H01	166	84	82	25	25	170	107	24	52
VPF250H02	186	94	92	30	30	180	107	24	52
VPF250H03	186	94	92	25	25	180	107	24	52
VPF400H01	203	104	99	30	30	198	118	24	52
VPF400H03	240	121	119	30	30	218	118	24	52

# Electronic Expansion Valve Driver



## FEATURES

- CONSTANT CURRENT CONTROL STEPPER MOTOR, PRECISE DRIVE CURRENT
- 0~10VDC OR 4~20MA ANALOG SIGNAL INPUT~CONTROL EEV OPENING
- FORCED OPEN/CLOSE VALVE CONTROL TO FACILITATE DEBUGGING
- SUPPORT MODBUS COMMUNICATION, UP TO 32 CASCADES
- SMALL SIZE, SLIDE DESIGN, EASY TO INSTALL

## GENERAL SPECIFICATIONS

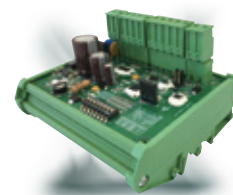
- Suitable for all VPF series EEV
- Operating temperature: -40~+60°C
- Storage temperature: -40~+85°C
- Relative humidity: ≤90%RH
- Dimension: 98(W)mm×90(H)mm×65(D)mm
- Installation method: DIN35 or M3 screws

## ELECTRICAL PARAMETERS

Power supply:	24Vac +10%/-15%, 50/60Hz & 24Vdc AC/DC 24V ±20% (20~28V)
Power consumption:	Max 30W at 24Vdc
Terminals:	Spacing 5.08mm Pluggable
Inputs:	4~20mA or 0~10VDC analog signal Digital signal input
Output:	4 wire EEV output
Communication:	RS485

# VSD10 SERIES

## Electronic Expansion Valve Driver



### Technical Parameters

DIP switch settings

DIP switch			pulse	Applicable Products
1	2	3		
OFF	OFF	OFF	2700	VPF12.5 VPF25 VPF50 VPF400(NEW)
ON	OFF	OFF	3500	VPF100
OFF	ON	OFF	3800	VPF150 VPF250 VPF400

DIP switches 1/2/3 are used to select VPF model

DIP switch	OFF	ON	Remark
4	Bipolar	Unipolar	Do not support Unipolar now
5	Forward	Reverse	Change motor rotation direction
6	0-10V	4-20mA	Used with jumper P2
7	200pps	300pps	
8	I1(100mA)	I2(200mA)	

Jumper P2 settings

Analog setting	Jumper P2 (0~10V)	Jumper P2 (4~20mA)	DIP switch S1-6
0~10VDC	ON	OFF	OFF
4~20mA	OFF	ON	ON

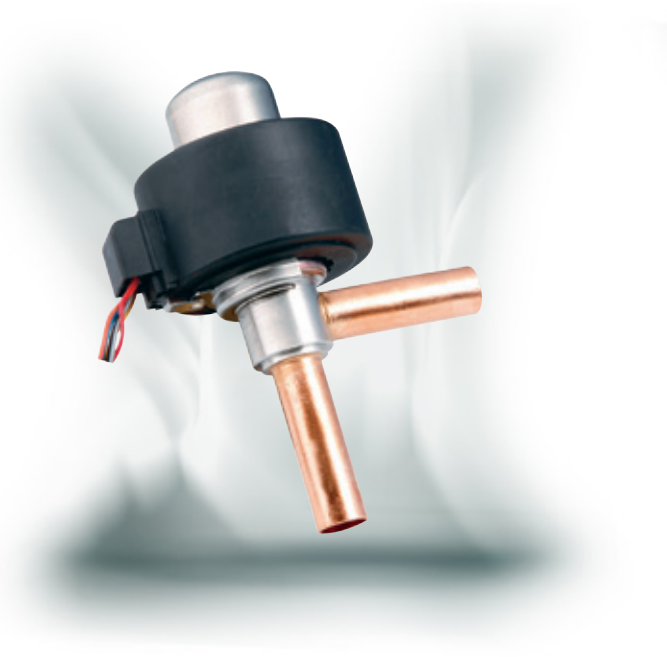
Ordering method

NO.	Name	Model
1	EEV driver (VPF series)	VSD1001



# Electronic Expansion Valve

T/S series electronic expansion valves are designed for use in air conditioning and refrigeration systems or in heat pumps. The valve controls the automatic adjustment of refrigerant flow rate and makes the system work under optimized conditions for the purpose of fast cooling or heating, precise temperature control and energy saving. The valve can also be used e.g. for suction line pressure controls. These valves provide bidirectional operation to control the refrigerant flow rate in heating or cooling mode.



## FEATURES

- APPLICABLE FOR OIL-FREE SYSTEM (T SERIES)
- SMALLER INSTALLATION SPACE: LOW HEIGHT, SMALL VOLUME, LIGHT WEIGHT
- OPTIMIZED FLOW PATH DESIGN FOR NOISE REDUCTION
- FAST OPERATION, ENERGY SAVING
- APPLICABLE FOR REVERSIBLE SYSTEMS LIKE HEAT PUMPS: BIDIRECTIONAL FLOW

## GENERAL SPECIFICATIONS

- Applicable for all common HFC, HFO refrigerants such as: R134a, R404A, R407A/F, R407C, R410A, R448A, R449A, R450A, R452A, R513A, R507A<sup>1)</sup>
- Cooling capacity: 3,5 to 105 kW (R22 nominal capacity)
- 500 steps (full stroke); 32 ± 20 opening steps
- Medium temperature TS min./max.: -30°C / +70°C (duty cycle rate below 50%)
- Ambient temperature min./max.: -30°C / +60°C (duty cycle rate below 50%)
- Relative humidity: 0 to 95% RH
- Installation position:
  - Coil installed in the upwards position, valve rotor central axis within ±15° versus vertical axis
  - Inlet connection preferably sidewise, outlet preferably downwards
- Certifications: UL/CSA and declaration according to LVD or PED

**Note:** 1) Flammable refrigerants like R32, R290, R1234ze(E), R1234yf on request

# DPF-T/S SERIES

## Electronic Expansion Valve



### ELECTRICAL PARAMETERS

- Rated voltage: 12V DC(± 10%), rectangular wave
- Actuating mode: 4-phase 8-step permanent magnet stepping motor of direct-acting type
- Excitation mode: 1 ~ 2 phase excitation, monopole actuation
- Excitation rate:
  - Seat Ø 1,3 to 3,2 mm: 30 to 90pps
  - Seat Ø 4,0 to 6,5 mm: 30 to 40pps
- Activation of self-holding mechanism: Maintain excitation in stop position min. 0,1~1,0sec.
- Min. motion time from completely open to completely closed:
  - Seat Ø 1,3 to 3,2 mm: 6s @ 90pps
  - Seat Ø 4,0to 6,5 mm: 13s @ 40pps
- Coil current:
  - Seat Ø 1,3 to 3,2 mm: 260mA/phase (20°C)
  - Seat Ø 4,0 to 6,5 mm: 375mA/phase (20°C)
- Coil resistance:
  - Seat Ø 1,3 to 3,2 mm: 46 ± 3.7 Ω/phase (20°C)
  - Seat Ø 4,0 to 6,5 mm: 32± 3.2 Ω/phase (20°C)
- Insulation class of coil: E
- Protection class: IP67

### GENERAL CHARACTERISTICS

Valve Model	Seat Ø [mm]	Kv [m³/h]	Nominal Cooling Capacity [KW]					MOP Max. Oper. Press. [MPa]	MOPD Direct [MPa]	MOPD Rev. (MPa)
			R22	R134a	R407C	R404A/R507C	R410A			
DPF(TS1)1.3C-21	1,3	0,05	5,2	4,1	5,4	3,6	6,1	4,5	3,5	≥2.5
DPF(TS1)1.65C-36	1,65	0,08	8,9	6,9	9,2	6,2	10,4			
DPF(TS1)1.8C-69	1,8	0,1	10,6	8,3	10,9	7,4	12,4			
DPF(TS1)2.0C-33	2	0,16	13,1	10,2	13,5	9,2	15,3			
DPF(TS1)2.2C-24	2,2	0,2	14,1	11,0	14,5	9,9	16,5			
DPF(TS1)2.4C-40	2,4	0,23	16,6	12,9	17,1	11,6	19,4			
DPF(TS1)3.0C-29	3	0,39	27,8	21,7	28,6	19,4	32,5			≥1.5
DPF(TS1)3.2C-30	3,2	0,43	30,3	23,7	31,3	21,2	35,5			
DPF(S03)4.0C-01	4	0,5	50,4	39,3	51,9	35,3	59,0			≥0.7
DPF(S03)4.5C-01	4,5	0,7	67,9	53,0	70,0	47,6	79,5			
DPF(S03)5.5C-01	5,5	0,9	78,2	61,0	80,6	54,7	91,5			
DPF(S03)6.5C-02	6,5	1,1	95,6	74,5	98,4	66,9	111,8			

- Note:**
- 1) Extent of delivery without coil
  - 2) Nominal working conditions: Condensing Temperature 38°C; Evaporating Temperature 5°C; Sub-cooling OK; Superheat OK
  - 3) Nominal capacity is got at 480 fully open pulses of linear flow curve.

# DPF-T/S SERIES

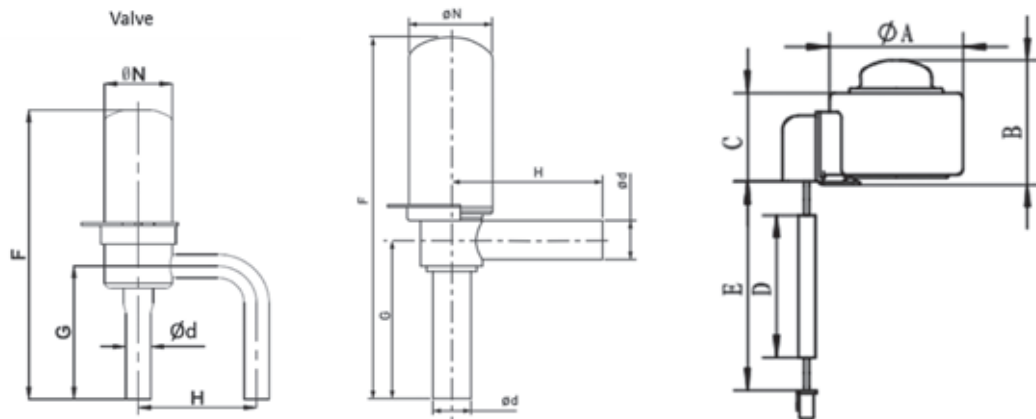
## Electronic Expansion Valve



### FLOW CHARACTERISTIC



### DIMENSIONS



Valve Model	Coil Series	Valve Dimensions [mm]				
		F	G	H	ØD	ØN
DPF 1.3~2.4	PQ M10	78	36	30	6.35	17.35
DPF 3.0~3.2	PQ M10	85	43	53	7.94	17.35
DPF(S03) 4.0~6.5	PQ M03	148	64.7	63.4	15.88	35.3

Coil Model	Dimensions [mm]					Terminal	Valve series
	ØA	B	C	E	D		
PQ-M10012-001059	38.5	35.8	25.6	700	600	XHP-5	DPF(TS1) 1.3~3.2
PQ-M10012-001091	38.5	35.8	25.6	1500	1400		DPF(TS1) 1.3~3.2
PQ-M10012-001002	38.5	35.8	25.6	2000	1800		DPF(TS1) 1.3~3.2
PQ-M10012-001008	38.5	35.8	25.6	5000	4500		DPF(TS1) 1.3~3.2
PQ-M03012-001004	67.5	74.4	33.3	2000	1900		DPF(S03) 4.0~6.5
PQ-M03012-000044	67.5	74.4	33.3	5000	4800		DPF(S03) 4.0~6.5

# Electronic Expansion Valve

LPF series Electronic Expansion Valves are especially designed for use in refrigeration systems. Thanks to the soft-sealing seat design, it can be as tight as a solenoid valve once it is completely shut off thus to prevent liquid refrigerant migrate to evaporator or compressor.



## FEATURES

- EXTREMELY HIGH INTERNAL TIGHTNESS, WHICH IS AS GOOD AS WITH SOLENOID VALVES(<1ML/MIN)
- EQUAL PERCENTAGE FLOW DESIGN FOR BETTER FLOW REGULATION
- SNAP-ON COIL FOR EASIER INSTALLATION
- COIL WITH IP67 WORKS SAFELY IN EXTREMELY ENVIRONMENT
- APPLICABLE FOR OIL-FREE SYSTEM
- BUILT-IN STRAINER AT INLET
- FLOW DIRECTION: BI-FLOW
- LPF...D : 60BAR DESIGN FOR R744 APPLICATION

## GENERAL SPECIFICATIONS

- Applicable for all common HFCF, HFC and HFO refrigerants (such as R134a, R404A, R407A/F, R407C, R410A, R448A, R449A, R450A, R452A, R513A, R507A as well as R744. For Flammable refrigerants like R32, R290, R1234ze and R1234yf are available on request
- 500 steps (full stroke); 32 ± 20 opening steps
- Medium temperature TS min./max.: -40°C / +70°C (duty cycle rate below 40%)
- Ambient temperature min./max.: -40°C / +60°C (duty cycle rate below 40%)
- Relative humidity: 0 to 95% RH
- Design Pressure: 42 bar, MOPD: 35 bar  
60 bar, MOPD: 35 bar -- Designed for R744 series
- Reverse operating pressure difference ≥ 2.1 MPa



**ELECTRICAL PARAMETERS**

- Rated voltage: 12V DC(± 10%), rectangular wave
- Excitation mode: 1 - 2 phase excitation, uni-polar actuation
- Excitation rate: 30 - 90pps
- Full stroke time: 6s@ 90pps
- Coil current: 260mA/phase (20°C)
- Coil resistance: 46 ± 3.7 Ω/phase (20°C)
- Insulation class of coil: E
- Protection class: IP 67
- Compatible with Sanhua controller SEC series

**GENERAL CHARACTERISTICS**

Condition 1: Tc/Te/Sc/SH: 45°C/-10°C/1K/10K  
 R744: 0°C/-20°C/1K/10K

Model	Seat Ø [mm]	Kv [m³/h]	Nominal Cooling Capacity [kW]											Operate pressure [bar]	MOPD Direct [bar]	MOPD Rev. [bar]	
			R22	R134a	R404A	R410A	R448A	R449A	R450A	R452A	R513A	R290	R744				
LPF10	1,0	0,04	4.80	3.70	3.30	5.60	4.60	4.50	3.20	3.40	3.00	4.90	7.60	42	35	≥21	
LPF10D			4.80	3.70	3.30	5.60	4.60	4.50	3.20	3.40	3.00	4.90	7.60	60			
LPF14	1,4	0,08	9.10	7.00	6.20	10.70	8.80	8.60	6.10	6.50	5.80	9.30	14.50	42			
LPF14D			9.10	7.00	6.20	10.70	8.80	8.60	6.10	6.50	5.80	9.30	14.50	60			
LPF18	1,8	0,12	12.60	9.60	8.60	14.80	12.30	11.90	8.40	9.00	8.00	12.90	20.00	42			
LPF18D			12.60	9.60	8.60	14.80	12.30	11.90	8.40	9.00	8.00	12.90	20.00	60			
LPF24	2,4	0,2	17.30	13.20	11.70	20.20	16.60	16.30	11.50	12.30	10.90	17.70	27.40	42			≥15
LPF24D			17.30	13.20	11.70	20.20	16.60	16.30	11.50	12.30	10.90	17.70	27.40	60			

Condition 2: Tc/Te/Sc/SH: 40°C/-35°C/1K/10K  
 R744: -10°C/-40°C/1K/10K

Model	Seat Ø [mm]	Kv [m³/h]	Nominal Cooling Capacity [kW]											Operate pressure [bar]	MOPD Direct [bar]	MOPD Rev. [bar]	
			R22	R134a	R404A	R410A	R448A	R449A	R450A	R452A	R513A	R290	R744				
LPF10	1,0	0,04	4.80	3.50	3.10	5.70	4.50	4.40	3.00	3.20	2.80	4.70	8.80	42	35	≥21	
LPF10D			4.80	3.50	3.10	5.70	4.50	4.40	3.00	3.20	2.80	4.70	8.80	60			
LPF14	1,4	0,08	9.00	6.60	5.90	10.80	8.50	8.30	5.60	6.10	5.40	9.00	16.70	42			
LPF14D			9.00	6.60	5.90	10.80	8.50	8.30	5.60	6.10	5.40	9.00	16.70	60			
LPF18	1,8	0,12	12.50	9.10	8.20	14.90	11.70	11.50	7.80	8.50	7.40	12.40	23.10	42			
LPF18D			12.50	9.10	8.20	14.90	11.70	11.50	7.80	8.50	7.40	12.40	23.10	60			
LPF24	2,4	0,2	17.10	12.40	11.20	20.40	16.00	15.70	10.60	11.60	10.10	17.00	31.60	42			≥15
LPF24D			17.10	12.40	11.20	20.40	16.00	15.70	10.60	11.60	10.10	17.00	31.60	60			

- Note:**
- 1) Extent of delivery without coil
  - 2) Nominal capacity is got at 480 fully open pulses of linear flow curve.
  - 3) LPF... is standard series and LPF...D is designed for CO<sub>2</sub>

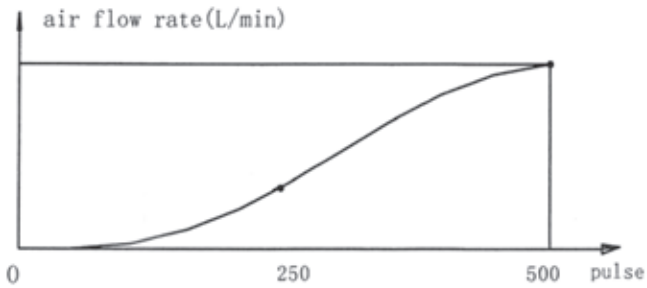


# LPF SERIES

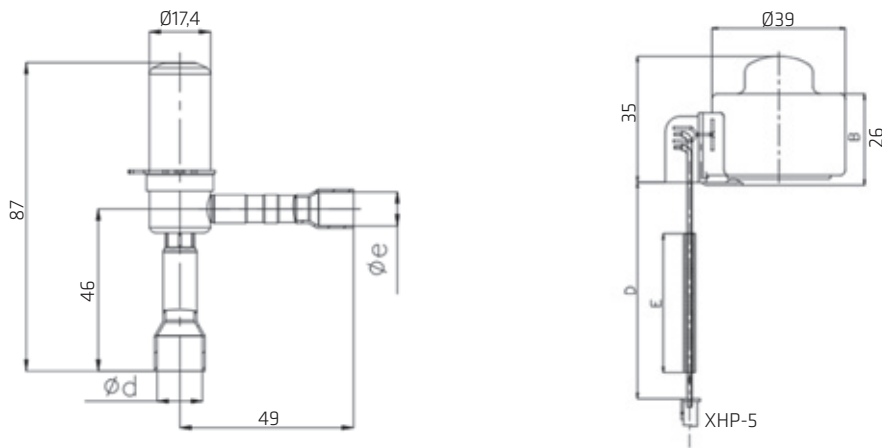
## Electronic Expansion Valve



### FLOW CHARACTERISTIC (EQUAL PERCENTAGE)



### DIMENSIONS



Valve Model	Dimensions (mm unless specified)		Weight (g)
	Øe inlet	Ød outlet	
LPF10-002/LPF10D-002	3/8	1/2	51,2
LPF10-003/LPF10D-003	1/4	3/8	
LPF10-004/LPF10D-004	10mm	12mm	
LPF10-005/LPF10D-005	6mm	10mm	
LPF14-002/LPF14D-002	3/8	1/2	
LPF14-003/LPF14D-003	1/4	3/8	
LPF14-004/LPF14D-004	10mm	12mm	
LPF14-005/LPF14D-005	6mm	10mm	
LPF18-002/LPF18D-002	3/8	1/2	
LPF18-003/LPF18D-003	10mm	12mm	
LPF24-002/LPF24D-002	3/8	1/2	
LPF24-003/LPF24D-003	10mm	12mm	

Coil Model	Coil Dimensions [mm]		Weight (g)
	D = Cable length	E	
PQ-M24012-000007	1500	1400	140,2
PQ-M24012-000008	3000	2700	
PQ-M24012-000009	6000	2*2700	
PQ-M24012-000010	9000	3*2700	

# Electronic Expansion Valve Controller



## FEATURES

- ADVANCED PID ALGORITHM TO ENSURE ACCURATE AUTOMATIC ADJUSTMENT OF SUPERHEAT
- QUICK-SAFE PREVENTION OF LOW AND HIGH SUPERHEAT TO ENSURE THE SYSTEM OPERATING WELL AT ANY CONDITIONS
- SMALL SIZE, RAIL MOUNTING DESIGN, EASY TO INSTALL
- ENERGY EFFICIENT, ACHIEVING THE MOST EFFICIENT USE OF THE EVAPORATOR

## GENERAL SPECIFICATIONS

- Applicable for various refrigerants
- Operating temperature: -10~50°C;
- Storage temperature: -20~60°C;
- Relative humidity: ≤90%RH;
- Certification: CE Declaration according to EMC;
- Installation method: DIN railsnap-in or wall mounting with screws.

## ELECTRICAL PARAMETERS

- Power supply: 24Vac/24Vdc (+10%/-15%, 50/60Hz)
- Inputs: 1Pressure transducer input  
1Temperature sensor input  
1Communicationinput (RS485 Modbus)
- Output: 1Auxiliary relay output (30Vdc/5A)  
1 EEV output (12V DC±10%), rectangular wave

## ELECTRICAL PARAMETERS

- Power supply: 24Vac/24Vdc (+10%/-15%, 50/60Hz)
- Inputs: 1Pressure transducer input  
1Temperature sensor input  
1Communicationinput (RS485 Modbus)
- Output: 1Auxiliary relay output (30Vdc/5A)  
1 EEV output (12V DC±10%), rectangular wave

# SEC601/602 SERIES

## Electronic Expansion Valve Controller



### TECHNICAL PARAMETERS

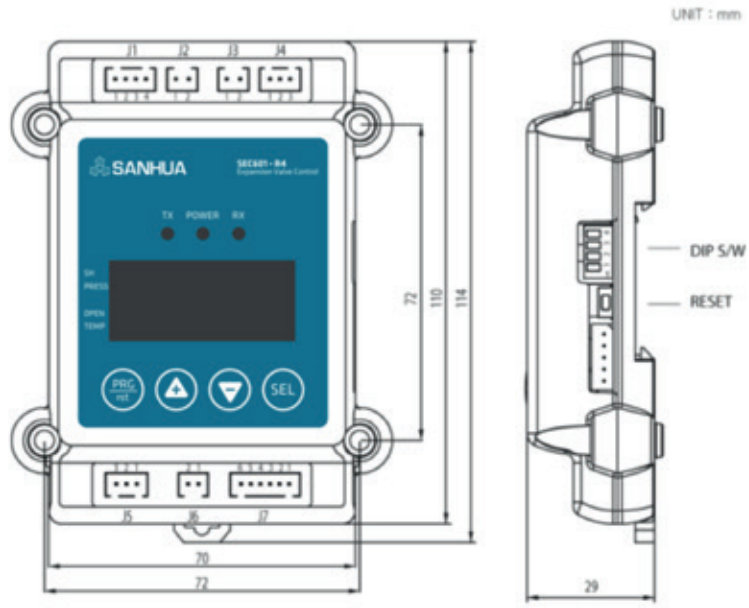
Model	Communication	Pressure transducer
SEC601-00	N/A	0.5-3.5V
SEC601-R4	RS485	0.5-3.5V
SEC602-R4	RS485	4-20mA

Model	Communication	Pressure transducer
Temperature Sensor	Type	NTC 5KΩ
	Wire	2C×0.5mm
	Protection class	IP 67
	Accuracy	±0.3°C (below 25°C)
	Temperature Range	-50 ~ 50°C
Connection Cable		

Model	Communication	Pressure transducer	
Temperature Sensor	Supply Voltage	YCQB: 5±0.25 Vdc YCQC: 10-30Vdc	
	Output	YCQB: 0.5~3.5 Vdc YCQC: 4-20mA	
	Measure range	0~2MPa/-0.1~1.2MPa	
	Total Accuracy	±0.8% F.S.	
	Protection	IP 67	
	Connector Type	Solder 1/4" Thread 7/16-20UNF	
	Wiring	black, white, red	

# SEC601/602 SERIES

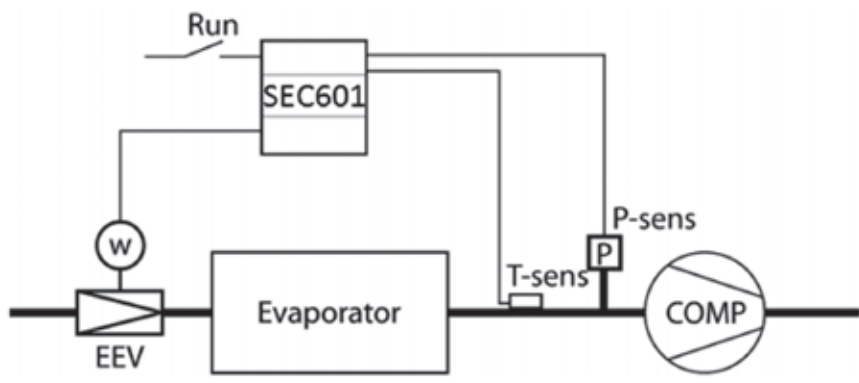
## Electronic Expansion Valve Controller



### CONNECTION PORTS

NO.	Function	Description
J1	AC/DC 24V	Power input port (AC/DC 24V)
J2	RUN	RUN signal input port
J3	RS485	RS485 comm. Input/output port
J4	AUX-RLY	Auxiliary relay output port
J5	P-SENS	Pressure transducer input port
J6	T-SENS	Temperature sensor input port
J7	EEV	EEV output port

### CONNECTION PORTS



# SEC601/602 SERIES

## Electronic Expansion Valve Controller



### ORDERING METHOD

NO.	Item	Model	Details			
			Item			Qty.
1	Controller Package	SEC601-00	EEV controller(Basic model)			1
			Package TP-00			1
		SEC601-R4	EEV controller (With RS485)			1
			Package TP-R4			1
		SEC602-R4	EEV controller(current model with RS485)			1
			Package TP-C5			1
2	Temp. sensor + cable Package	TP-00	2m Temp. Sensor×1; Cable 2pin×1 Cable 3pin×1; Cable 4pin×1			
		TP-R4	2m Temp. Sensor×1; Cable 2pin×2 Cable 3pin×1; Cable 4pin×1			
		TP-C5	5m Temp. Sensor×1; Cable 2pin×2 Cable 3pin×1; Cable 4pin×1			
		TP-C9	9m Temp. Sensor×1; Cable 2pin×2 Cable 3pin×1; Cable 4pin×1			
3	Pressure transducer	YCQB02H01-1	Connection	Solder	Cable Length	2m
		YCQB02L12-1		Thread		2m
		YCQB02H18-1		Solder		4.9m
		YCQB02L28-1		Thread		4.9m
		YCQC02L18		Packard		/
4	Packard cable	YCQB02-013054	Packard cable for YCQC02L18		Cable Length	6m
		YCQB02-013055				9m

- Note:**
- 1) The controller packages already contain the corresponding temperature sensor and cable package.
  - 2) The temperature sensor + cable packages can be ordered separately.
  - 3) The pressure transducer is not included in the packages and should be ordered separately.



# Pressure Transducer

Pressure transducers are widely used in Air Conditioning, Refrigeration and Heat Pump system. Using a 5 V excitation input these sensors provide a 0.5-3.5 V or 0.5-4.5 V ratiometric signal output proportional to the pressure of the medium. This device requires no end user amplification. Pressure transducers permit to control and guarantee the system working under safe and stability condition.



## FEATURES

- OVERALL FEATURES: APPLIED HIGH PERFORMANCE DIGITAL CIRCUIT WHICH HAS GOOD LINEAR, SMALL TEMPERATURE EXCURSION AND HIGH LEVEL OF ACCURACY OVER WIDE OPERATING RANGE
- SMALL SIZE AND SIMPLE INSTALLATION; MODELS AVAILABLE WITH LEAD WIRE DIRECT CONNECTOR OR WITH PACKARD AND MOLEX SOCKET CONNECTIONS;
- STABILITY: APPLIED SUPERIOR PRESSURE CORE, GOOD STABILITY UNDER STRICT PROCESS CONTROL;
- DIVERSIFICATION: DIFFERENT PRESSURE RANGES AND DIFFERENT LEVEL OF ACCURACY.

## GENERAL SPECIFICATION

- Applicable for all common HCFC, HFC refrigerants such as: R22, R134a, R404A, R407C, R410A, R507
- Installation position: preferably with vertical axis and sensor upwards
- Certifications: UL/CSA and declaration according to EMC directive

## ELECTRICAL SPECIFICATION

- Supply Voltage : 5V ± 0.25V DC
- Current Consumption : Max. 10 mA
- Response Time<sup>3)</sup>: 10 ms
- Insulation Resistance 4 : Min. 100 MΩ
- Load Resistance : Min. 10 kΩ
- Protection Class : IP66/IP67



**GENERAL CHARACTERISTICS**

Table 1: Operative Limits								
Model Name	Ambient Temperature	Relative Humidity	Medium Temperature TS min / max	Temperature Range for maximum accuracy	Maximum Operating Pressure (MOP) [ Mpa ]			
YCQB02H01	-30°C/+80°C	from 0 to 95%	-30°C / +120°C	± 2,0 % F.S. in the range -30°C / +85°C	5,25			
YCQB05H01				± 2,0 % F.S. in the range -30°C / +120°C	7,50			
YCQB02L01				± 2,0 % F.S. in the range -30°C / +85°C	5,25			
YCQB05L01				± 2,0 % F.S. in the range -30°C / +120°C	7,50			
YCQB02H01-01 <sup>(1)</sup>			-40°C / +120°C	± 0,8 % F.S. in the range -40°C / +40°C	5,25			
YCQB02H18-1 <sup>(1)</sup>								
YCQB02L01-01								
YCQB02L12-1 <sup>(1)</sup>								
YCQB02L28-1 <sup>(1)</sup>								
YCQB02H50						-30°C / +120°C	± 2,0 % F.S. in the range -20°C / +120°C	5,25
YCQB04H50						7,50		
YCQB01L50 <sup>(2)</sup>						-30°C / +130°C	± 2,0 % F.S. in the range -30°C / +120°C	5,25
YCQB02L50						5,25		
YCQB02L51						-30°C / +120°C	± 1,0 % F.S. in the range -30°C / +85°C	5,25
YCQB04L50 <sup>(2)</sup>							± 2,0 % F.S. in the range -40°C / +30°C	5,25
YCQB05L50							± 2,5 % F.S. in the range +85°C / +125°C	7,50
YCQB05L53 <sup>(2)</sup>						-30°C / +130°C	± 2,0 % F.S. in the range -30°C / +120°C	7,50
YCQB02L100						± 1,0 % F.S. in the range -30°C / +85°C	5,25	
YCQB05L100						-30°C / +120°C	± 1,0 % F.S. in the range -30°C / +85°C	7,50
							± 2,0 % F.S. in the range -40°C / +30°C	
		± 2,5 % F.S. in the range +85°C / +125°C						

**Note:** 1) Models suitable for usage with Sanhua EEV driver  
2) Models especially designed for distribution market



**GENERAL CHARACTERISTICS**

Model Name	Mechanical connection			Electrical connection	Cable Length [ mm ]	Pressure Range (0 to pr) [ Mpa ]	Output (VA0 to VApr) [ V ]	Maximum Accuracy
	Type	Pipe Size [ inch ]	Thread size					
YCQB02H01	Solder	1/4"	-	Lead Wires	2000	0 to 2	0,5 to 3,5 DC	± 2,0 % F.S.
YCQB05H01	Solder	1/4"	-	Lead Wires	2000	0 to 5	0,5 to 3,5 DC	± 2,0 % F.S.
YCQB02L01	Thread	SAE - 1/4"	7/16-20UNF	Lead Wires	2000	0 to 2	0,5 to 4,5 DC	± 2,0 % F.S.
YCQB05L01	Thread	SAE - 1/4"	7/16-20UNF	Lead Wires	2000	0 to 4,6	0,5 to 4,5 DC	± 2,0 % F.S.
YCQB02H01-01	Solder	1/4"	-	Lead Wires	2000	0 to 2	0,5 to 3,5 DC	± 0,8 % F.S.
YCQB02H18-1	Solder	1/4"	-	Lead Wires	4900	0 to 2	0,5 to 3,5 DC	± 0,8 % F.S.
YCQB02L01-01	Thread	SAE - 1/4"	7/16-20UNF	Lead Wires	2000	0 to 2	0,5 to 4,5 DC	± 0,8 % F.S.
YCQB02L12-1	Thread	SAE - 1/4"	7/16-20UNF	Lead Wires	2000	0 to 2	0,5 to 3,5 DC	± 0,8 % F.S.
YCQB02L28-1	Thread	SAE - 1/4"	7/16-20UNF	Lead Wires	4900	0 to 2	0,5 to 3,5 DC	± 0,8 % F.S.
YCQB02H50	Solder	1/4"	-	Packard	-	0 to 1,38	0,5 to 4,5 DC	± 2,0 % F.S.
YCQB04H50	Solder	1/4"	-	Packard	-	0 to 3,45	0,5 to 4,5 DC	± 2,0 % F.S.
YCQB01L50	Thread	SAE - 1/4"	7/16-20UNF	Packard	-	0 to 0,93	0,5 to 4,5 DC	± 2,0 % F.S.
YCQB02L50	Thread	SAE - 1/4"	7/16-20UNF	Packard	-	0 to 1,38	0,5 to 4,5 DC	± 1,0 % F.S.
YCQB02L51	Thread	SAE - 1/4"	7/16-20UNF	Packard	-	0 to 1,72	0,5 to 4,5 DC	± 1,0 % F.S.
YCQB04L50	Thread	SAE - 1/4"	7/16-20UNF	Packard	-	0 to 3,45	0,5 to 4,5 DC	± 1,0 % F.S.
YCQB05L50	Thread	SAE - 1/4"	7/16-20UNF	Packard	-	0 to 4,6	0,5 to 4,5 DC	± 1,0 % F.S.
YCQB05L53	Thread	SAE - 1/4"	7/16-20UNF	Packard	-	0 to 4,5	0,5 to 4,5 DC	± 2,0 % F.S.
YCQB02L100	Thread	SAE - 1/4"	7/16-20UNF	Molex	-	0 to 2	0,5 to 4,5 DC	± 2,0 % F.S.
YCQB05L100	Thread	SAE - 1/4"	7/16-20UNF	Molex	-	0 to 4,6	0,5 to 4,5 DC	± 1,0 % F.S.

- Note:**
- 1) Signal span:  $V_{FS}=FS$  (Full Scale) =  $V_A(p_r) - V_{A0}$
  - 2) Accuracy measured within the temperature ranges shown in Table 1:  
Included Nonlinearity (L) and pressure hysteresis. The Nonlinearity is the deviation of the real sensor characteristic  $V_A = f(p)$  from the ideal straight line. It can be approximated by a polynomial of second order, with the maximum at  $p_x = p_r / 2$ .  
The equation to calculate the nonlinearity is:  
 $L = (V_A(p_x) - V_{A0}) / (V_A(p_r) - V_{A0}) - p_x / p_r$
  - 3) Response Time: delay between a pressure change (10 to 90% pr) and the corresponding signal output change (10 to 90% FS)
  - 4) Insulation Resistance measured with rated voltage: 500 V DC



**OPERATING TEMPERATURES**

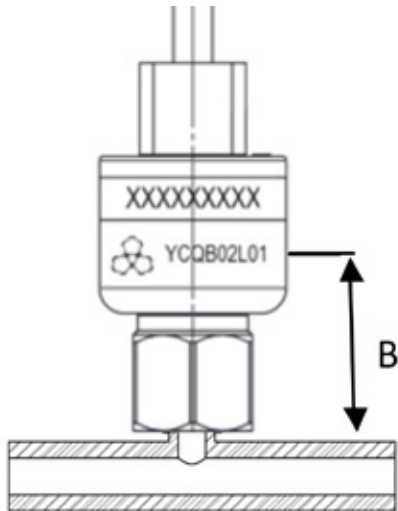


Fig. 1

YCQB – version with Flare connection

Distance B = 40mm

Medium Temperature [ °C ]	Ambient Temperature [ °C ]	Distance "B" [ mm ]	Max. Operational Temperature [ °C ]*
120	79.4	40	90
130	59.9	40	90
140	37.2	40	90

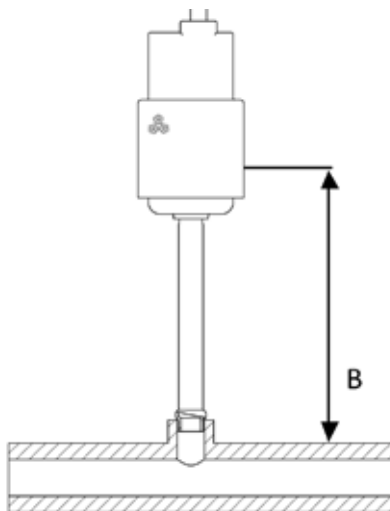


Fig. 2

YCQB – version with Solder connection

Distance B = 70mm

Medium Temperature [ °C ]	Ambient Temperature [ °C ]	Distance "B" [ mm ]	Max. Operational Temperature [ °C ]*
120	96.2	70	90
130	80.2	70	90
140	60.0	70	90

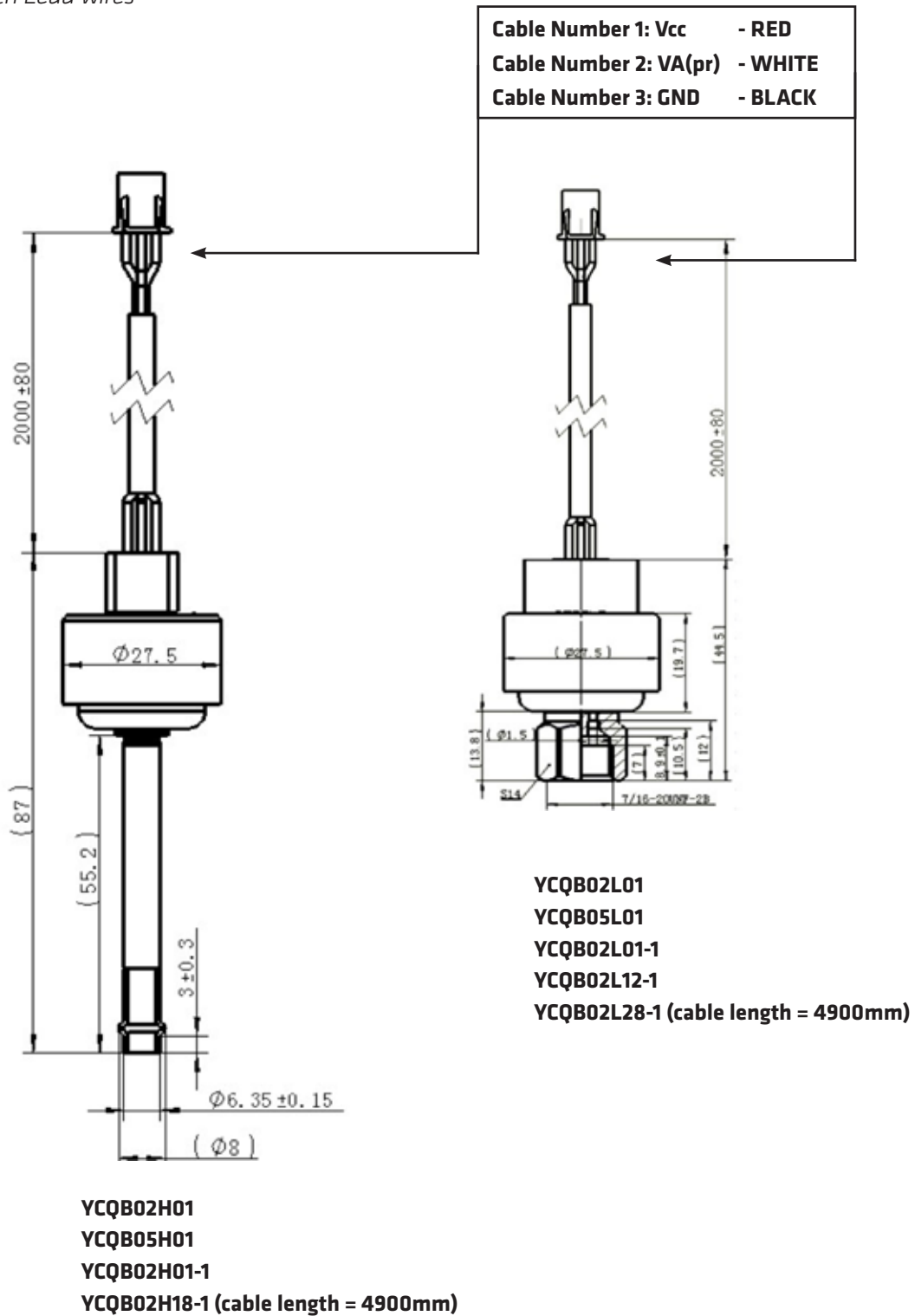
**Note:** Operational Temperature can exceed 90°C for a limited period. In this condition the indicated accuracy is not more guaranteed

**YCQB SERIES**  
**Pressure transducer**



**DIMENSIONS**

a) Models with Lead wires



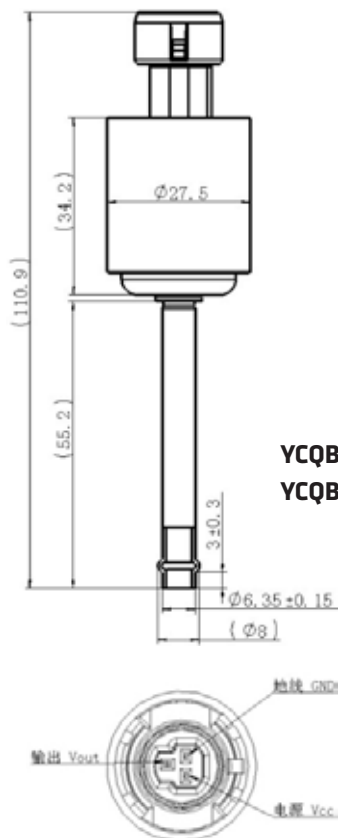


# YCQB SERIES

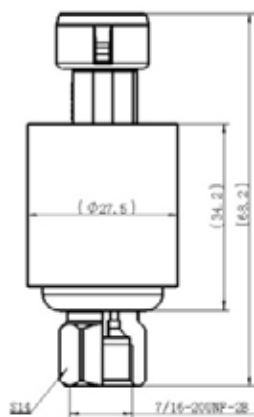
## Pressure transducerw



### b) Models with Parkard Socket

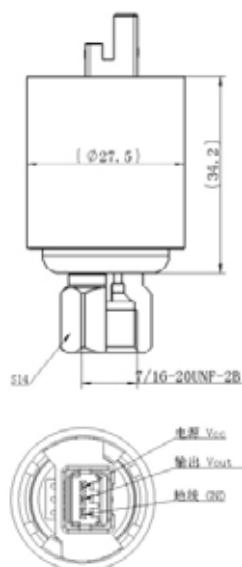


YCQB02H50  
YCQB04H50



YCQB01L50  
YCQB02L50  
YCQB02L51  
YCQB04L50  
YCQB05L50  
YCQB05L53

### c) Models with Molex Socket

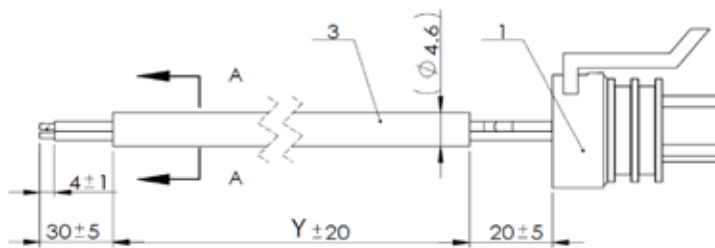


YCQB02L100  
YCQB05L100

### ACCESSORIES

1) Lead wires cable suitable for connection with YCQB equipped with Packard connector.

Model Name	Connector Type	Cable Length (Y)	Terminal
YCQB 02 - 013051	Packard	1500 mm	Lead Wires
YCQB 02 - 013052	Packard	5000 mm	Lead Wires



# Pressure Transducer

Pressure transducers are widely used in Air Conditioning, Refrigeration and Heat Pump system. YCQC pressure transducer uses a DC 10-30V excitation input to provide a 4-20mA signal output proportional to the pressure of the medium. This device requires no end user amplification. Pressure transducers permit to control and guarantee the system working under safe and stability condition.



## FEATURES

- OVERALL FEATURES: APPLIED HIGH PERFORMANCE DIGITAL CIRCUIT WHICH HAS GOOD LINEAR, SMALL TEMPERATURE SHIFT AND HIGH LEVEL OF ACCURACY OVER WIDE OPERATING RANGE
- SMALL SIZE AND SIMPLE INSTALLATION; MODELS AVAILABLE WITH HIRSCHMANN AND PARKARD SOCKET CONNECTIONS
- STABILITY: APPLIED SUPERIOR PRESSURE CORE, GOOD STABILITY UNDER STRICT PROCESS CONTROL
- DIVERSIFICATION: VARIOUS PRESSURE RANGE

## GENERAL SPECIFICATION

- Applicable for all common HCFC, HFC refrigerants such as: R22, R134a, R404A, R407C, R410A, R507
- Installation position: preferably with vertical axis and sensor upwards



**ELECTRICAL SPECIFICATION**

- Supply Voltage : from 10V to 30V DC
- Rated Output Signal: from 4 to 20 mA
- Voltage dependency : < 0,05% FS/10 V
- Current Limitation (linear output signal up to 1.5 x rated range) : 28 mA
- Signal Span (VFS) : 16 V
- Insulation Resistance 2 : Min. 100 MΩ
- Protection Class : IP65/IP66

Operative Limits					
Model Name	Ambient Temperature	Relative Humidity	Medium Temperature TS min / max	Temperature Range for maximum accuracy	Maximum Operating Pressure (MOP) [ Mpa ]
YCQC02L04	-40°C/+80°C	from 0 to 95%	-40°C / +80°C	± 0,5 % F.S. at +25°C ± 5°C ± 0,8 % F.S. in the range -40°C / +80°C	5,25
YCQC02L05					5,25
YCQC03L04					7,50
YCQC03L05					7,50
YCQC03L06				7,50	
YCQC01L13 <sup>(3)</sup>				5,25	
YCQC03L11 <sup>(3)</sup>				7,50	
YCQC05L09 <sup>(3)</sup>				7,50	

**GENERAL CHARACTERISTICS**

Model Name	Mechanical connection			Electrical connection	Pressure Range (0 to pr) [ Mpa ]	Maximum Accuracy
	Type	Pipe Size [ inch ]	Thread size			
YCQC02L04	Thread	G3/8A	-	Hirschmann	-0,1 to 1,2	± 0,5 % F.S.
YCQC02L05	Thread	G3/8A	-	Hirschmann	-0,1 to 2,0	± 0,5 % F.S.
YCQC03L04	Thread	SAE - 1/4"	7/16-20UNF-2B	Hirschmann	0 to 3,0	± 0,5 % F.S.
YCQC03L05	Thread	SAE - 1/4"	7/16-20UNF-2B	Packard	0 to 3,0	± 0,5 % F.S.
YCQC03L06	Thread	SAE - 1/4"	7/16-20UNF-2A	Packard	0 to 3,0	± 0,5 % F.S.
YCQC01L13 (3)	Thread	SAE - 1/4"	7/16-20UNF-2B	Packard	-0,05 to 0,7	± 0,8 % F.S.
YCQC03L11 (3)	Thread	SAE - 1/4"	7/16-20UNF-2B	Packard	0 to 3,0	± 0,8 % F.S.
YCQC05L09 (3)	Thread	SAE - 1/4"	7/16-20UNF-2B	Packard	0 to 4,48	± 0,8 % F.S.

- Note:**
- 1) Signal span:  $V_{FS}=FS$  (Full Scale) =  $V_A(p_r) - V_{A0}$
  - 2) Insulation Resistance measured with rated voltage: 500 V DC
  - 3) Models especially designed for distribution market



**OPERATING TEMPERATURES**

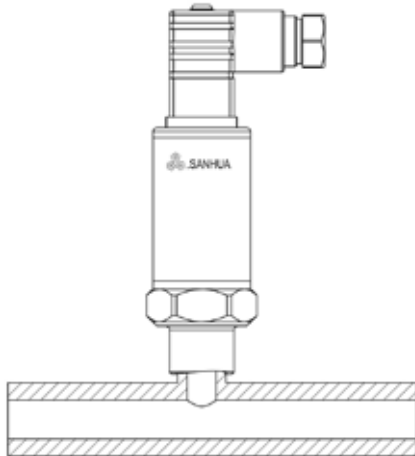


Fig. 1

YCQC – version with Flare connection

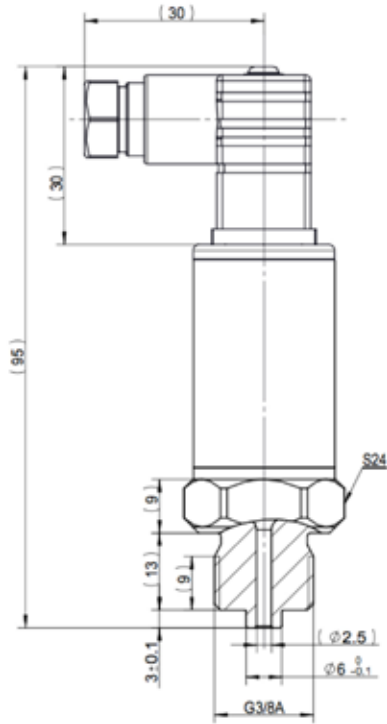
Distance B = 40mm

Medium Temperature [ °C ]	Ambient Temperature [ °C ]	Distance "B" [ mm ]	Max. Operational Temperature [ °C ]*
120	79.4	40	90
130	59.9	40	90
140	37.2	40	90

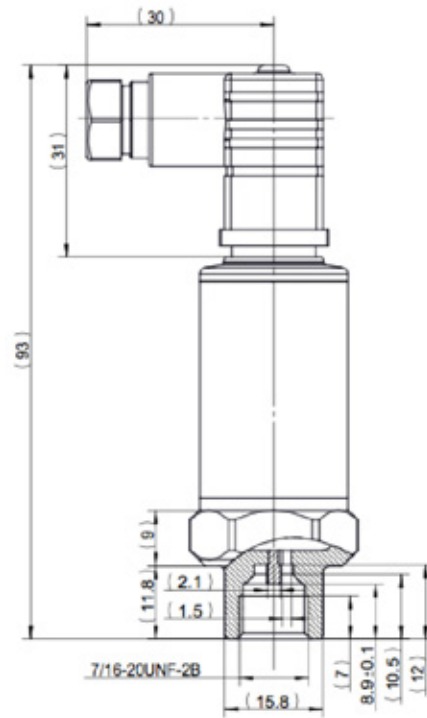
**Note:** Operational Temperature can exceed 90°C for a limited period. In this condition the indicated accuracy is not more guaranteed



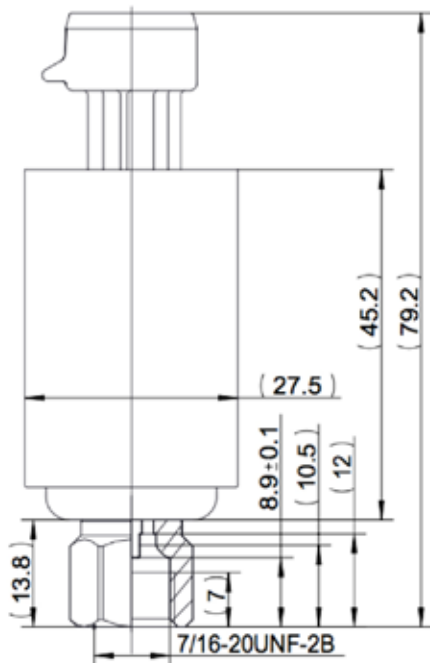
**DIMENSIONS**



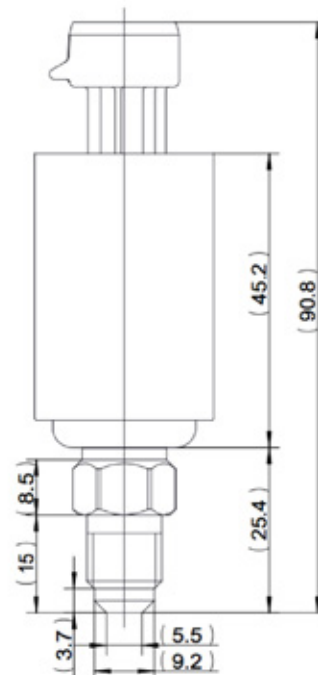
*YCQC02L04, YCQC02L05 (Hirschmann Socket)*



*YCQC03L04 (Hirschmann Socket)*



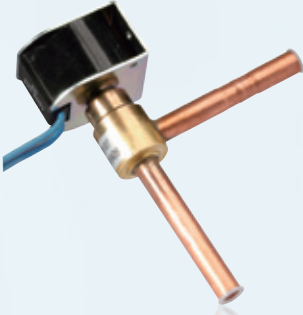



*Female Packard Socket:  
 YCQC03L05  
 YCQC01L13  
 YCQC03L11  
 YCQC05L09*



*Male Packard Socket:  
 YCQC03L06*

# Sanhua solenoid vavle series introduction

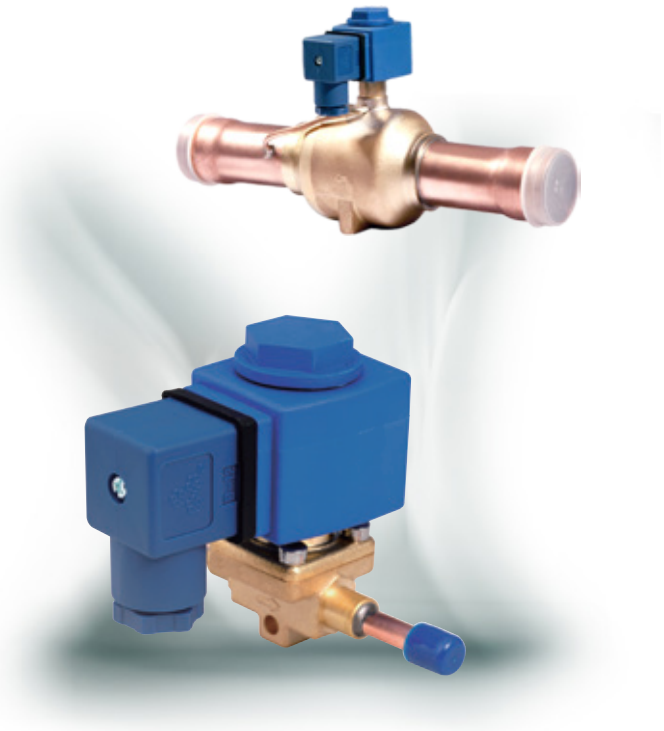
Product series	Product picture	General specification	Typical application
<b>MDF</b>		<ul style="list-style-type: none"> <li>✓ Membrane Type</li> <li>✓ Medium Temperature: -30°C/+105°C(2H-20H) -40°C/+140°C(25H-40H)</li> <li>✓ PS/MWP:4.5MPa</li> </ul>	<ul style="list-style-type: none"> <li>✓ Mainly for commercial refrigeration like cold room,display case and ice maker.</li> <li>✓ Also for commercial A/C(Heat Pump)system.</li> <li>✓ The relevent MQ-A11 coil can achieve fast wiring.</li> </ul>
<b>HDF</b>		<ul style="list-style-type: none"> <li>✓ Piston Type</li> <li>✓ Medium Temperature: -40°C/+140°C</li> <li>✓ PS/MWP:4.5MPa</li> </ul>	<ul style="list-style-type: none"> <li>✓ Mainly for commercial refrigeration</li> <li>✓ High Discharge temperature circuit</li> <li>✓ Especially for Transportation Ref/Bus AC where DC coil is used, higher MOPD can be realized.</li> <li>✓ For North America market MQ-A10 or MQ-A14 Coils are recommended with knock-out Junction Box.</li> </ul>
<b>FDF</b>		<ul style="list-style-type: none"> <li>✓ Piston Type(Steel Ball Sealing)</li> <li>✓ Medium temperature: -30°C/+120°C</li> <li>✓ PS/MWP:4.5 MPa</li> </ul>	<ul style="list-style-type: none"> <li>✓ Mainly for VRF, Air Source Heat Pump Compact design.</li> </ul>
<b>LDF</b>		<ul style="list-style-type: none"> <li>✓ Piston Type(Soft Sealing)</li> <li>✓ Medium temperature: -30°C/+120°C</li> <li>✓ PS/MWP:4.5MPa</li> </ul>	<ul style="list-style-type: none"> <li>✓ Mainly for compact refrigeration systems like ice maker or cabinets.</li> <li>✓ Thanks to the low inner leakage it can be used for hot gas defrost circuit.</li> </ul>



## MDF SERIES

# Solenoid Valve

MDF series solenoid valves are direct operated or pilot operated solenoid valves, mainly used in refrigerant control of various devices such as refrigerating and freezing systems, air conditioners and heat pumps.



### FEATURES

- NORMALLY CLOSED(NC) AND NORMALLY OPEN(NO) TYPE ARE AVAILABLE
- COILS: LOW ENERGY CONSUMPTION, RELIABLE
- GREAT VALVE OPENING PERFORMANCE, HIGH MOPD
- COILS ARE DOUBLE SEALED, WATER TIGHT AND SAFE

### GENERAL SPECIFICATIONS

- Applicable for all common HCFC and HFC refrigerants such as: R22, R134a, R404A, R407C, R410A, R507
- Medium temperature TS min./max.:
  - MDF 2H...22H and MDF 2L...15L: -30°C/105°C
  - MDF 25H...40H: -40°C/140°C
- Ambient temperature min./max.: -30°C / +55°C
- Relative humidity: 0 to 95% RH
- Installation position:
  - Liquid, suction and discharge line
  - Preferably coil upwards and flow direction corresponds to the arrow
- Declaration according to LVD or PED

### TECHNICAL PARAMETERS

*Technical parameters of Coil*

Rated Voltage	Voltage Tolerance	Wiring type	Power (50/60Hz)	Insulation Class	Protection Class (w/plug)	Model Coil*
[V]			[W]			
AC24	-15%+10%	DIN Plug	10.5/8.5	F	IP65	MQ-A03024-000001
AC110 ~ 120			12/10			MQ-A0311A-000001
AC220 ~ 240			12/10			MQ-A0322G-000001

**Note:** Used for MDF NC series

# MDF SERIES

## Solenoid Valve



Rated Voltage [V]	Voltage Tolerance	Wiring type	Power (50/60Hz)	Insulation Class	Protection Class (w/plug)	Model Coil*
			[W]			
AC 24	-15%+10%	DIN Plug	9.5/8.5	F	IP67	MQ-A11024-000001
AC 110~120			11.5/10			MQ-A1111A-000001
AC 220~240			11/9.5			MQ-A1122G-000001

**Note:** 1) Achieve quick installation via toolless wire connection system  
2) Used for MDF NC series

Rated Voltage [V]	Voltage Tolerance	Wiring type	Power (50/60Hz)	Insulation Class	Protection Class (w/plug)	Model Coil*
			[W]			
AC24	-15%+10%	DIN Plug	12.5/10.5	F	IP65	MQ-A02024-000001
AC110 ~ 120			12.5/10.5			MQ-A0211A-000001
AC220 ~ 240			12.5/10.5			MQ-A0222G-000001

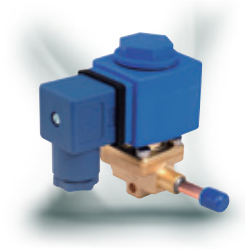
**Note:** Used for MDF NO series

### Technical Parameters of Valve Body

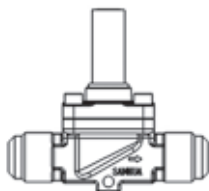
Valve body		Normal position	Actuation	Kv	MOP	Max. OPD	Min. OPD
Solder	Flare	NC		[m <sup>3</sup> /h]	[MPa]	[MPa]	[MPa]
MDF2	MDF2	NC	Direct	0.16	4.5	3.1	0
MDF3	MDF3	NC	Direct	0.23	4.5	3.1	0
MDF6	MDF6	NC	pilot Membrane	0.8	4.5	3.1	0.005
MDF6 NO	MDF6 NO	NO	pilot Membrane	0.8	4.5	2.8	0.005
MDF10	MDF10	NC	pilot Membrane	1.9	4,5	3.1	0.005
MDF10 NO	MDF10 NO	NO	pilot Membrane	1.9	4.5	2.8	0.005
MDF15	MDF15	NC	pilot Membrane	2.3	4,5	3.1	0.005
MDF15 NO	MDF15 NO	NO	pilot Membrane	2.3	4.5	2.8	0.005
MDF20	--	NC	pilot Membrane	5	4.5	3.1	0.02
MDF20 NO	--	NO	pilot Membrane	5	4.5	2.8	0.02
MDF22	--	NC	pilot Membrane	5.9	4.5	3.1	0.02
MDF22 NO	--	NO	pilot Membrane	5.9	4.5	2.8	0.02
MDF25	--	NC	Pilot Piston	10	4.5	3.1	0.02
MDF32	--	NC	Pilot Piston	15	4.5	3.1	0.02
MDF40	--	NC	Pilot Piston	25	4.5	3.1	0.02

# MDF SERIES

## Solenoid Valve



### SAE Flare connection, NC valve body

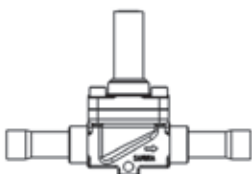
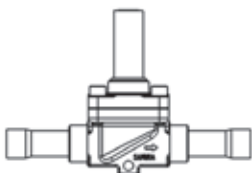


Series	SAE Flare connection	Model Valve body
	[Inch]	
MDF 2	1/4	MDF-A03-2L002
MDF 3	1/4	MDF-A03-3L002
MDF 3	3/8	MDF-A03-3L004
MDF 6	3/8	MDF-A03-6L002
MDF 6	1/2	MDF-A03-6L004
MDF 10	1/2	MDF-A03-10L004
MDF 10	5/8	MDF-A03-10L002
MDF 15	5/8	MDF-A03-15L002
MDF 15	7/8	MDF-A03-15L004

### SAE Flare connection, NO valve body

Series	SAE Flare connection	Model Valve body
	[Inch]	
MDF 6	3/8	MDF-A02-6L002
MDF 6	1/2	MDF-A02-6L004
MDF 10	5/8	MDF-A02-10L002
MDF 10	1/2	MDF-A02-10L004
MDF 15	5/8	MDF-A02-15L002
MDF 15	7/8	MDF-A02-15L004

### Solder connection, NC valve body



Series	SAE Flare connection	Model Valve body
	[Inch]	
MDF2	1/4	MDF-A03-2H002
MDF3	1/4	MDF-A03-3H002
MDF3	3/8	MDF-A03-3H004
MDF6	3/8	MDF-A03-6H002
MDF6	1/2	MDF-A03-6H004
MDF10	1/2	MDF-A03-10H002
MDF10	5/8	MDF-A03-10H004
MDF15	5/8	MDF-A03-15H002
MDF15	7/8	MDF-A03-15H004
MDF20	7/8	MDF-A03-20H002
MDF20	1- 1/8	MDF-A03-20H004
MDF22	7/8	MDF-A03-22H002
MDF22	1- 1/8	MDF-A03-22H008
MDF22	1- 3/8	MDF-A03-22H004
MDF25	1- 1/8	MDF-B03-25H003
MDF25	1- 3/8	MDF-B03-25H004
MDF32	1- 3/8	MDF-B03-32H001
MDF32	1- 5/8	MDF-B03-32H002
MDF40	1- 5/8	MDF-B03-40H002
MDF40	2- 1/8	MDF-B03-40H004

### Solder connection, NO valve body

Series	SAE Flare connection	Model Valve body
	[Inch]	
MDF6	3/8	MDF-A02-6H002
MDF6	1/2	MDF-A02-6H004
MDF10	1/2	MDF-A02-10H002
MDF10	5/8	MDF-A02-10H004
MDF15	5/8	MDF-A02-15H002
MDF15	7/8	MDF-A02-15H004
MDF20	7/8	MDF-A02-20H002
MDF20	1- 1/8	MDF-A02-20H004
MDF22	7/8	MDF-A02-22H002
MDF22	1- 1/8	MDF-A02-22H008
MDF22	1- 3/8	MDF-A02-22H004



**Rated capacity [KW] For other refrigerants, refer to Quick Finder**

Model	R-22 R407C	R-134a	R-404A R-507	R410A	R32	R-290	R600a
<b>liquid</b>							
MDF2	3.34	3.15	2.36	3.34	4.70	3.81	3.80
MDF3	4.80	4.53	3.39	4.80	6.76	5.47	5.47
MDF6	16.71	15.76	11.78	16.69	23.52	19.04	19.01
MDF10	39.69	37.43	27.97	39.65	55.86	45.23	45.16
MDF15	48.04	45.30	33.86	47.99	67.61	54.75	54.66
MDF20	104.44	98.49	73.60	104.33	146.99	119.01	118.83
MDF22	123.24	116.22	86.85	123.11	173.45	140.44	140.22
MDF25	208.89	196.98	147.20	208.66	/	/	/
MDF32	313.33	295.47	220.80	313.00	/	/	/
MDF40	522.22	492.44	368.00	521.66	/	/	/
<b>Suction vapour</b>							
MDF2	0.37	0.28	0.33	0.47	0.59	0.46	0.28
MDF3	0.53	0.40	0.48	0.67	0.84	0.66	0.40
MDF6	1.85	1.40	1.66	2.33	2.93	2.31	1.38
MDF10	4.39	3.33	3.93	5.53	6.96	5.49	3.27
MDF15	5.31	4.03	4.76	6.69	8.43	6.65	3.96
MDF20	11.55	8.77	10.35	14.55	18.32	14.45	8.60
MDF22	13.63	10.35	12.21	17.17	21.61	17.05	10.15
MDF25	23.11	17.54	20.70	29.09	/	/	/
MDF32	34.66	26.31	31.05	43.64	/	/	/
MDF40	57.76	43.85	51.75	72.74	/	/	/
<b>Hot gas</b>							
MDF2	1.55	1.24	1.33	1.92	2.47	1.82	1.19
MDF3	2.22	1.79	1.91	2.76	3.56	2.61	1.71
MDF6	7.73	6.22	6.63	9.59	12.37	9.09	5.94
MDF10	18.36	14.77	15.74	22.77	29.37	21.58	14.10
MDF15	22.23	17.88	19.05	27.56	35.56	26.12	17.06
MDF20	48.32	38.86	41.42	59.92	77.29	56.79	37.10
MDF22	57.02	45.85	48.87	70.70	91.21	67.01	43.78
MDF25	96.64	77.72	82.84	119.83	/	/	/
MDF32	144.96	116.58	124.25	179.75	/	/	/
MDF40	241.60	194.30	207.09	299.58	/	/	/

**Liquid:**

tc 30°C  
 $\Delta t_{sub}$  5.0 K  
 tl 25.0°C  
 te -10.0°C  
 th 65.0°C  
 $\Delta t_{sh}$  10.0 K  
 $\Delta p$  0.15 bar (MDF02~22)  
 0.15 bar (MDF25~40)

**Suction vapour:**

tc 30°C  
 $\Delta t_{sub}$  5.0 K  
 tl 25.0°C  
 te -10.0°C  
 th 65.0°C  
 $\Delta t_{sh}$  10.0 K  
 $\Delta p$  0.15 bar (MDF02~22)  
 0.15 bar (MDF25~40)

**Hot gas:**

tc 40°C  
 $\Delta t_{sub}$  4.0 K  
 tl 36.0°C  
 te -10.0°C  
 th 65.0°C  
 $\Delta t_{sh}$  10.0 K  
 $\Delta p$  0.80 bar (MDF02~22)  
 0.80 bar (MDF25~40)



**Extend capacity Liquid**

type	Liquid capacity Qe[kW] at pressure drop across valve Δp [bar]				
	0.1	0.2	0.3	0.4	0.5
<b>R22/R407C</b>					
MDF2	2.73	3.86	4.73	5.46	6.10
MDF3	3.92	5.55	6.79	7.85	8.77
MDF6	13.64	19.30	23.63	27.29	30.51
MDF10	32.41	45.83	56.13	64.81	72.46
MDF15	39.23	55.48	67.95	78.46	87.72
MDF20	85.28	120.60	147.71	170.56	190.69
MDF22	100.63	142.31	174.29	201.26	225.01
MDF25	/	241.20	295.41	341.11	381.38
MDF32	/	361.81	443.12	511.67	572.07
MDF40	/	603.01	738.53	852.79	953.44
<b>R134a</b>					
MDF2	2.57	3.64	4.46	5.15	5.75
MDF3	3.70	5.23	6.41	7.40	8.27
MDF6	12.87	18.20	22.29	25.73	28.77
MDF10	30.56	43.22	52.93	61.12	68.33
MDF15	36.99	52.31	64.07	73.98	82.72
MDF20	80.42	113.73	139.28	160.83	179.82
MDF22	94.89	134.20	164.36	189.78	212.18
MDF25	/	227.45	278.57	321.66	359.63
MDF32	/	341.18	417.85	482.50	539.45
MDF40	/	568.63	696.42	804.16	899.08

**Capacity based on: liquid temperature**

tl 25°C Ahead of valve  
 Δtsc 5 K subcooling temperature  
 te -40°C Evaporate temperature  
 Δtsh 0.0 K Superheat temperature

**Extend capacity Liquid**

t1[°C]	-10	0	10	15	20	25	30	35	40	45	50
R22	1.27	1.19	1.12	1.08	1.04	1.00	0.96	0.92	0.88	0.84	0.79
R407C	1.34	1.24	1.15	1.10	1.05	1.00	0.95	0.90	0.84	0.79	0.73
R134a	1.34	1.25	1.15	1.10	1.05	1.00	0.95	0.90	0.84	0.79	0.73



**Extend capacity Liquid (continued)**

type	Liquid capacity Qe[kW] at pressure drop across valve Δp [bar]				
	0.1	0.2	0.3	0.4	0.5
<b>R22/R407C</b>					
MDF2	1.92	2.72	3.33	3.85	4.30
MDF3	2.76	3.91	4.79	5.53	6.18
MDF6	9.62	13.60	16.65	19.23	21.50
MDF10	22.84	32.29	39.55	45.67	51.06
MDF15	27.64	39.09	47.88	55.29	61.81
MDF20	60.09	84.99	104.09	120.19	134.38
MDF22	70.91	100.28	122.82	141.82	158.56
MDF25	/	169.97	208.17	240.38	268.75
MDF32	/	254.96	312.26	360.57	403.13
MDF40	/	424.93	520.43	600.95	671.88
<b>R410A</b>					
MDF2	2.73	3.86	4.72	5.45	6.10
MDF3	3.92	5.54	6.79	7.84	8.76
MDF6	13.63	19.28	23.61	27.26	30.48
MDF10	32.37	45.78	56.07	64.74	72.38
MDF15	39.19	55.42	67.87	78.37	87.62
MDF20	85.19	120.47	147.55	170.37	190.48
MDF22	100.52	142.16	174.11	201.04	224.77
MDF25	/	240.95	295.10	340.75	380.97
MDF32	/	361.42	442.65	511.12	571.45
MDF40	/	602.36	737.74	851.87	952.42

**Capacity based on: liquid temperature**

tl 25°C Ahead of valve  
 Δtsc 5 K subcooling temperature  
 te -40°C Evaporate temperature  
 Δtsh 0.0 K Superheat temperature

**Correction factors for liquid temperature tl**

t1[°C]	-10	0	10	15	20	25	30	35	40	45	50
R404a/R507	1.47	1.34	1.21	1.14	1.07	1.00	0.93	0.85	0.78	0.70	0.62
R410A	1.33	1.24	1.15	1.10	1.05	1.00	0.95	0.90	0.84	0.79	0.73



**Extend capacity Liquid (continued)**

type	Liquid capacity Qe[kW] at pressure drop across valve $\Delta p$ [bar]				
	0.1	0.2	0.3	0.4	0.5
<b>R32</b>					
MDF2	3.84	5.43	6.65	7.68	8.59
MDF3	5.52	7.81	9.56	11.04	12.34
MDF6	19.20	27.16	33.26	38.40	42.94
MDF10	45.61	64.50	78.99	91.21	101.98
MDF15	55.21	78.07	95.62	110.41	123.45
MDF20	120.02	169.73	207.87	240.03	268.36
MDF22	141.62	200.28	245.29	283.24	316.67
<b>R290</b>					
MDF2	3.11	4.40	5.39	6.22	6.95
MDF3	4.47	6.32	7.74	8.94	10.00
MDF6	15.55	21.99	26.93	31.10	34.77
MDF10	36.93	52.22	63.96	73.85	82.57
MDF15	44.70	63.22	77.42	89.40	99.95
MDF20	97.17	137.43	168.31	194.35	217.29
MDF22	114.67	162.16	198.61	229.33	256.40
<b>R600a</b>					
MDF2	3.10	4.39	5.38	6.21	6.94
MDF3	4.46	6.31	7.73	8.93	9.98
MDF6	15.52	21.95	26.89	31.05	34.71
MDF10	36.87	52.14	63.86	73.74	82.44
MDF15	44.63	63.12	77.31	89.26	99.80
MDF20	97.03	137.22	168.06	194.05	216.96
MDF22	114.49	161.92	198.31	228.98	256.01

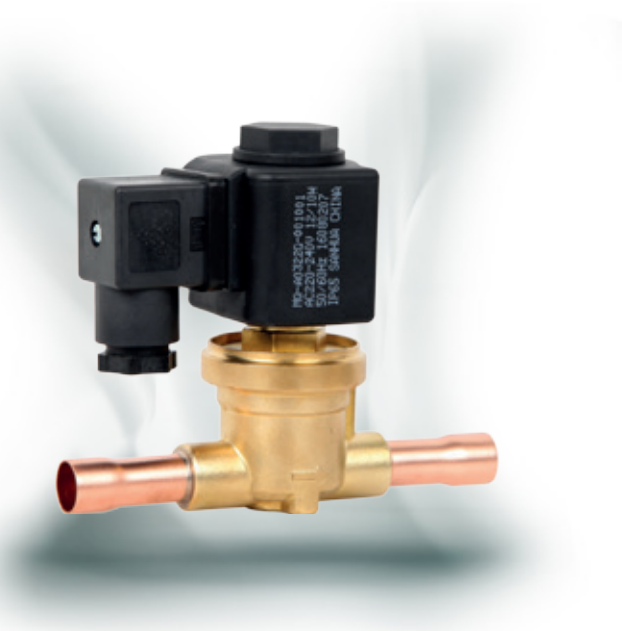
**Extend capacity Liquid**

t1[°C]	-10	0	10	15	20	25	30	35	40	45	50
R32	1.24	1.18	1.11	1.07	1.04	1.00	0.96	0.92	0.88	0.84	0.80
R290	1.34	1.25	1.15	1.10	1.05	1.00	0.95	0.89	0.84	0.79	0.73
R600a	1.34	1.24	1.15	1.10	1.05	1.00	0.95	0.90	0.85	0.79	0.74



# Solenoid Valve

HDF series solenoid valves are piston type pilot operated solenoid valves, mainly used in refrigerant control of various devices such as refrigerating and freezing systems, air conditioners and heat pumps. The maximum admitted refrigerant temperature (equal to +140°C) permits to install HDF valves in gas injection or hot gas bypass lines such as in the compressor discharge line.



## FEATURES

- VALVE BODY WITH A COMPACT DESIGN, EASY TO MANAGE AND INSTALL
- VALVE BODY WITH HERMETIC DESIGN TO ELIMINATE THE RISK OF EXTERNAL LEAKAGE
- SOLENOID VALVES PILOTED BY PISTON ACTUATION. WIDE MEDIUM TEMPERATURE RANGE ALLOWED
- GREAT VALVE OPENING PERFORMANCE, HIGH MAX. OPD
- COILS: LOW ENERGY CONSUMPTION, RELIABLE
- COILS ARE DOUBLE SEALED, WATER TIGHT AND SAFE
- COILS CAN BE SELECTED WITH DIN CONNECTOR

## GENERAL SPECIFICATIONS

- Applicable for all common HCFC, HFC refrigerants such as: R22, R134a, R404A, R407C, R410A, R507
- Medium temperature TS min./max.: -40°C/+140°C
- Ambient temperature min./max.: -30°C /+55°C
- Relative humidity: 0 to 95% RH
- Installation position:
  - Liquid, suction and discharge line
  - Preferably coil upwards and flow direction corresponds to the arrow
- Certifications: Declaration according to LVD and PED (2014/68/EU)

## TECHNICAL PARAMETERS OF VALVE BODY

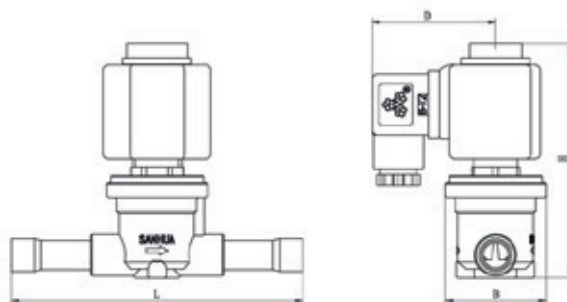
Valve body (solder connections)	Normal Position	Actuation	Kv [m <sup>3</sup> /h]	MOP [MPa]	Max. OPD [MPa]		Min. OPD [MPa]
					AC coil	DC coil	
HDF 3	NC	Pilot (piston operated)	0,3	4,5	3,8	2,8	0.007
HDF 6			0,8	4,5	3,8	2,8	0.007
HDF 10			1,9	4,5	3,8	2,8	0.007
HDF 15			2,6	4,5	3,8	2,8	0.007
HDF 20			4,0	4,5	3,8	2,8	0.007
HDF 22			5,7	4,5	3,8	2,8	0.007



**DIMENSIONS**

Model Valve body	Solder Connection (ODF)	Kv [m <sup>3</sup> /h]	PED Category Group 2	Dimensions [mm]			
	[inch]			L	B	D	H
HDF3H01	1/4"	0,3	4.3	118	33	54	95
HDF3H02	3/8"	0,3	4.3	118	33	54	95
HDF6H02	3/8"	0,8	4.3	118	33	54	95
HDF6H03	1/2"	0,8	4.3	127	33	54	95
HDF10H01	1/2"	1,9	4.3	127	44	54	102
HDF10H02	5/8"	1,9	4.3	166	44	54	102
HDF15H01	5/8"	2,6	4.3	175	48	54	105
HDF15H02	7/8"	2,6	4.3	175	48	54	105
HDF20H01	7/8"	4,0	4.3	181	57	54	114
HDF20H02	1 1/8"	4,0	4.3	214	57	54	114
HDF22H01	7/8"	5,7	4.3	190	58	54	114
HDF22H03	1 1/8"	5,7	4.3	214	58	54	114
HDF22H02	1 3/8"	5,7	I	281	58	54	114

**Note:** 1) Extent of delivery: valve body without coil



Valve Body Solder Connection- with standard coils (DIN connector) - (MQ-A03)



**TECHNICAL PARAMETERS OF COIL**

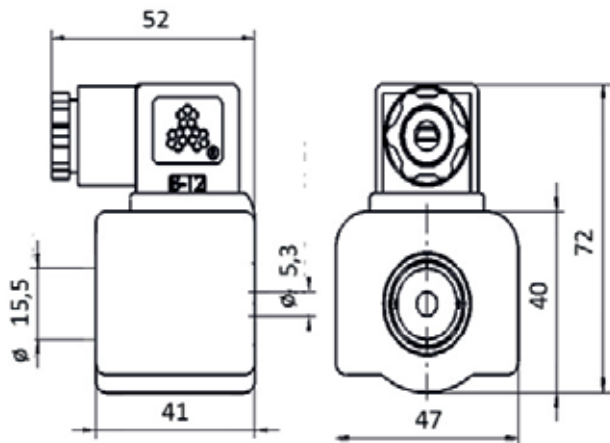
Standard coils with DIN connector (MQ-A03)

Model Coil <sup>1)</sup>	Rated Voltage [V]	Supply	Power [W]	Frequency [Hz]	Voltage Tolerance	Insulation Class	Protection Class (w/plug)	Wiring type
MQ-A03 024-001001	24	AC	8,5 (50Hz) 7,5 (60Hz)	50/60	-15% to +10%	F	IP65	DIN Plug
MQ-A03 11A-001001	110 to 120		8,5 (50Hz) 7,5 (60Hz)					
MQ-A03 22G-001001	220 to 240		8,5 (50Hz) 7,5 (60Hz)					

**Note:** Extent of delivery: coil body, fastening screw for the coil body, DIN plug for electrical connection incl. gaskets

**DIMENSIONS OF THE COILS**

Coils with DIN Plug (MQ-A03)



Coils with DIN Plug (MQ-A03 and MQ-D03 Series)

# Solenoid Valve

FDF series solenoid valves are direct operated or pilot operated solenoid valves, mainly used in refrigerant control of various devices such as refrigerating and freezing systems, air conditioners and heat pumps.



## FEATURES

- COILS: LOW ENERGY CONSUMPTION, RELIABLE
- GREAT VALVE OPENING PERFORMANCE, HIGH MOPD

## GENERAL SPECIFICATIONS

- Applicable for all common HCFC and HFC refrigerants such as: R22, R134a, R404A, R407C, R410A, R507
- Medium temperature TS min./max.: -30°C / 120°C
- Ambient temperature min./max.: -30°C / +50°C
- Relative humidity: 0 to 95% RH
- Installation position: - Liquid, suction and discharge line  
- Coil upwards, coil axis  $\pm 15^\circ$  tolerance versus vertical axis  
- Flow direction corresponds to the arrow
- Certifications: UL/CSA\* and declaration according to LVD or PED

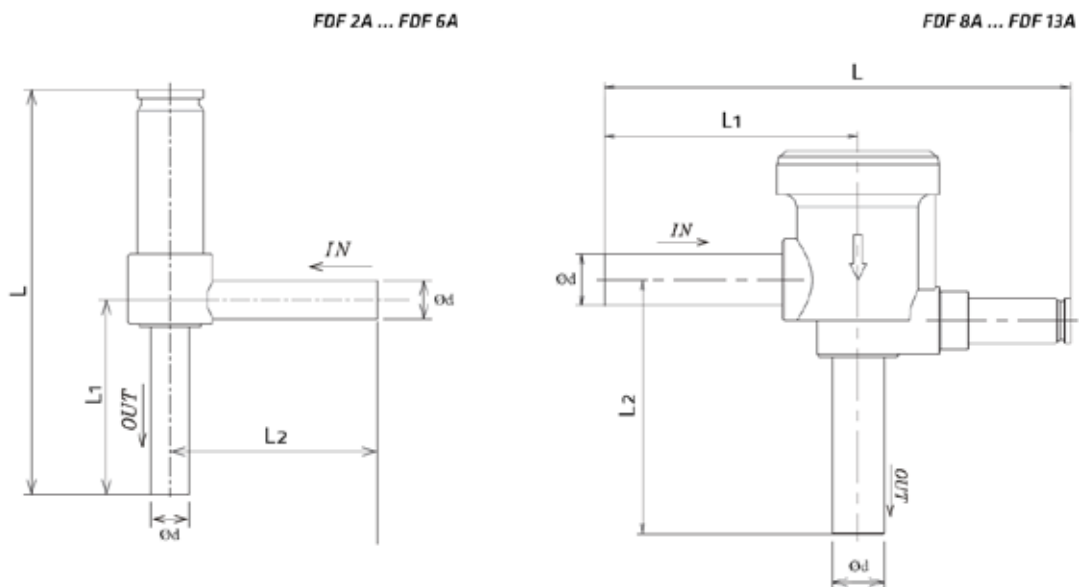
## TECHNICAL PARAMETERS OF VALVE BODY

Model Valve Body	Normal Position	Actuation	Ø Seat	Kv	MOP	Max. OPD	Min. OPD	Ød OD	Measurement [mm]		
			[mm]	[m <sup>3</sup> /h]	[MPa]	[MPa]	[MPa]	[inch]	L	L1	L2
FDF 2A 94	NC	Direct	1,9	0,08	4,5	3,4	0	1/4	66,5	32	34
FDF 2.5A 08			2,5	0,21		2,1	0,01	1/4	85	37,5	38
FDF 3A 08			2,7	0,26		3,4		5/16	81	34,5	36
FDF 4A 10			4,0	0,30		3,4		1/4	81	35	38
FDF 6A 58		Pilot	5,8	0,56		3,0		5/16	81	35,5	35,5
FDF 8A 15			8,0	1,29		2,8	1/2	114	62	62	
FDF 11A 16			11	2,40			1/2	114	61	61	
FDF 13A 12			13	3,44			5/8	114	62	62	

\* Available also as industrial package. Contact Sanhua for more details.



**DIMENSIONS - VALVE BODY**

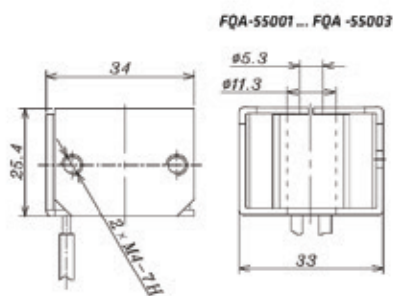


**TECNHICAL PARAMETERS OF COIL**

Coil Series	Rated Voltage	Power (50/60Hz)	Insulation Class	Wiring type	Length	Coil Model
	[V]	[W]			[mm]	
FQ A024	AC24	5.0/4.5	B	Flying leads	1800	FQ-A05024-000709
FQ A120	AC120				800	FQ-A05120-001098
FQ A22G	AC220 ~ 240				500	FQ-A0522G-000502
FQ A22G	AC220 ~ 240				1500	FQ-A0522G-000593
FQ A22G	AC220 ~ 240				1350	FQ-A0522G-001044

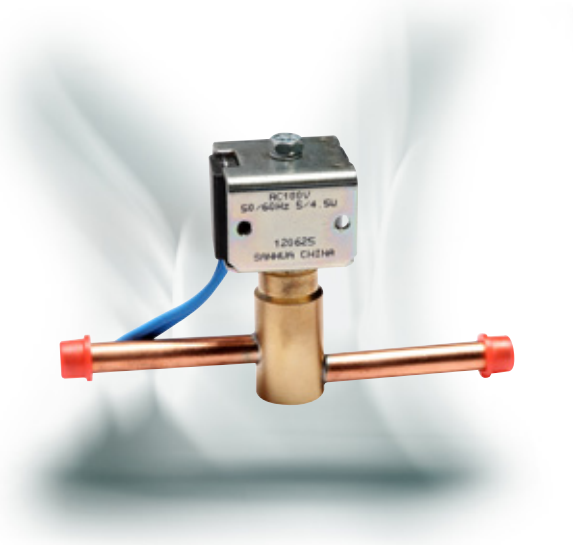
**Note:** 1) Power consumption based on 220V

**DIMENSIONS - COIL**



# Solenoid Valve

LDF series solenoid valves are direct operated or pilot operated solenoid valves, mainly used in refrigerant control of various devices such as refrigerating and freezing systems, air conditioners and heat pumps.



## FEATURES

- COILS: LOW ENERGY CONSUMPTION, RELIABLE
- LOW INTERNAL LEAKAGE, CAN BE USED IN DISCHARGE BY PASS LINE.
- COMPACT DESIGN, EASY TO INSTALL.

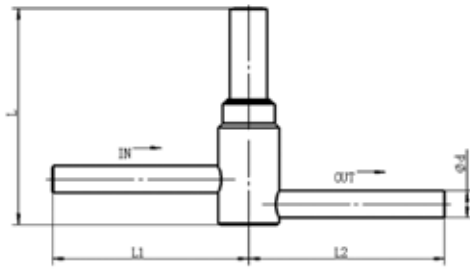
## GENERAL SPECIFICATIONS

- Applicable for all common HCFC and HFC refrigerants such as R22, R134a, R407C, R404A, R410A
- Medium temperature TS min./max.: -30°C/+120°C
- Ambient temperature min./max.: -30°C/+50°C
- Relative humidity: 0 to 95%RH
- Max. operating pressure PS: 4.2Mpa
- Installation position:
  - Liquid suction and discharge line
  - Coil upwards, coil axis  $\pm 15^\circ$  to tolerance versus vertical axis
  - Flow direction corresponds to the arrow

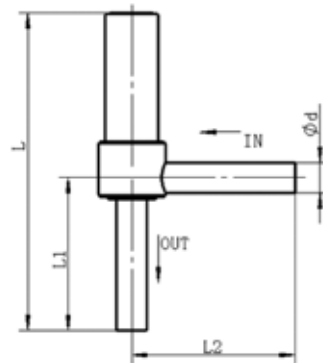
## TECHNICAL PARAMETERS

Series	Model Valve body	Actuation	Ø Seat [mm]	Kv [mm]	Internal leakage [mL/min]		Max. OPD [MPa]	Min. OPD [MPa]
					3.1MPa	0.05MPa		
LDF2	LDF2A01	Direct	2	0.12	≤ 10	≤ 10	3.1	0
LDF2	LDF2A02		2	0.12	≤ 10	≤ 10	3.1	0
LDF3	LDF3A01	Pilot	3	0.3	≤ 16	≤ 16	3.1	0.005
LDF3	LDF3A02		3	0.3	≤ 16	≤ 16	3.1	0.005
LDF4	LDF4A01		4	0.5	≤ 20	≤ 20	3.1	0.005
LDF4	LDF4A02		4	0.5	≤ 20	≤ 20	3.1	0.005
LDF6	LDF6A01		6	0.6	≤ 20	≤ 20	3.1	0.005
LDF6	LDF6A02		6	0.7	≤ 20	≤ 20	3.1	0.005
LDF8	LDF8A01		8	0.9	≤ 20	≤ 20	3.1	0.005
LDF8	LDF8A02		8	1.1	≤ 20	≤ 20	3.1	0.005

**TECHNICAL PARAMETERS**



1



2

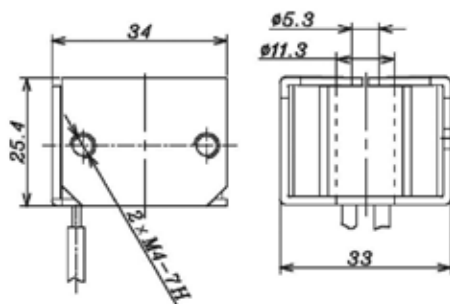


Series	Ød OD	Model Valve body	Dimensions [ mm ]			Drawings number
	[inch]		L	L1	L2	
LDF2	1/4	LDF2A01	51.6	39	39	1
LDF2	1/4	LDF2A02	79.1	38	39	2
LDF3	5/16	LDF3A01	63.7	58	58	1
LDF3	5/16	LDF3A02	107.4	57	58	2
LDF4	5/16	LDF4A01	63.7	58	58	1
LDF4	5/16	LDF4A02	107.4	57	58	2
LDF6	5/16	LDF6A01	63.7	58	58	1
LDF6	5/16	LDF6A02	107.4	57	58	2
LDF8	3/8	LDF8A01	67	71	71	1
LDF8	3/8	LDF8A02	120.7	69.5	71	2

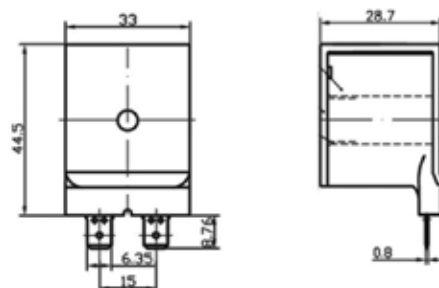
**Technical parameters of Coil**

Model Coil	Rated voltage [V]	Power 50/60Hz [W]	Voltage Tolerance	Insulation Class	Wiring type
FQ-A05 024-000709	AC 24	5/4.5	+10% -15%	B	Lead Wires
FQ-A05 120-001098	AC 120				
FQ-A05 22G-001044	AC 220-240				
SQ-A44024-000771	AC 24	6/5	+10% -15%	F	Spade (Faston)
SQ-A4411B-000811	AC 120				
SQ-A4422G-000771	AC 220-240				

**Dimensions - Coil**




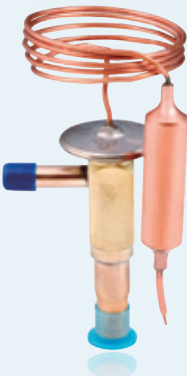

1) Lead wire type coil



2) Spade type coil

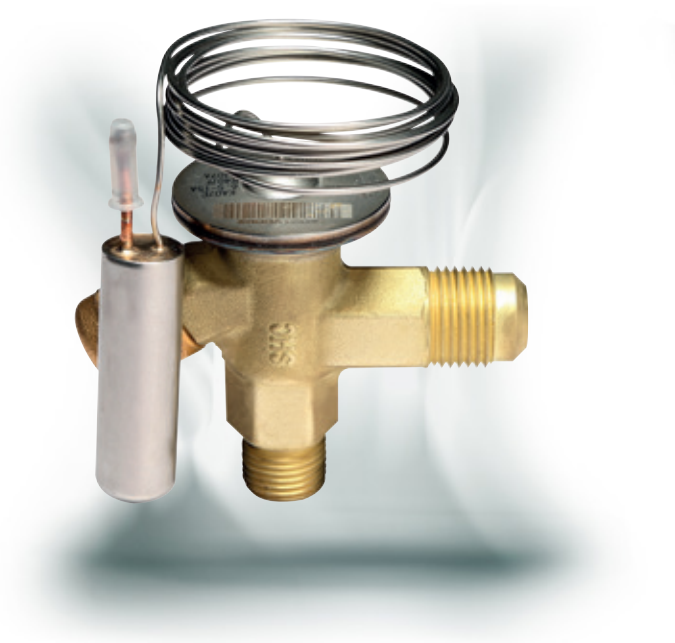


# Sanhua TXV series introduction

Product series	Product picture	General specification	Typical application
<b>RFKH</b>		<ul style="list-style-type: none"> <li>✓ Evaporating Temperature: -60°C/+10°C</li> <li>✓ Cooling Capacity: 0.7~17 kW@ R404A</li> <li>✓ Cooling Capacity: 0.7~11 kW@ R134a</li> <li>✓ PS/MWP:4.6MPa</li> </ul>	<ul style="list-style-type: none"> <li>✓ Mainly for commercial refrigeration systems and the orifice is interchangeable.</li> </ul>
<b>RFGB</b>		<ul style="list-style-type: none"> <li>✓ Evaporating Temperature: -40°C/+10°C</li> <li>✓ Cooling Capacity: 1~8 kW@ R404A</li> <li>✓ Cooling Capacity: 1~5 kW@R134a</li> <li>✓ PS/MWP:3.5MPa</li> </ul>	<ul style="list-style-type: none"> <li>✓ Mainly for compact refrigeration system, IT cooling or Sanitary Water Heat Pump</li> <li>✓ Fixed Orifice.</li> <li>✓ For high volume customization</li> </ul>
<b>RFGD10/20</b>		<ul style="list-style-type: none"> <li>✓ Evaporating Temperature: -40°C/+10°C</li> <li>✓ Cooling Capacity: 7-45.7 kW@ R404A</li> <li>✓ Cooling Capacity: 6.5-42.2 kW@ R134a</li> <li>✓ PS/MWP:4.8MPa</li> </ul>	<ul style="list-style-type: none"> <li>✓ Mainly for AC and Heat Pumps like Bus AC, Data center Cooling and Moduler(Scroll) Chiller.</li> </ul>

# Thermostatic Expansion Valve

RFKH 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 freezers, ice makers, dehumidifiers as well as air conditioners and heat pumps at various evaporation temperature ranges.



## FEATURES

- STAINLESS STEEL CAPILLARY AND SENSING BULB
- EXCHANGEABLE VALVE ORIFICE, EASY TO STOCK HOLDING, CONVENIENT FOR CAPACITY MATCH AND REPAIR
- THERMAL BULB UTILIZES CROSS CHARGE TECHNOLOGY, PROVIDING CONSISTENT SUPERHEAT DEGREE OVER THE WHOLE EVAPORATION TEMPERATURE RANGE
- 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

- Applicable for all common HCFC and HFC refrigerants such as: R22, R407C, R404A, R507, R134a, R404A, R410A, R407A, R407F, R448A/R449A, R452A, R450A/R513A<sup>1)</sup>
- Ambient temperature min./max.: -35°C / +55°C
- Max. operating pressure PS: 4,6 MPa (46 bar)
- Installation position:
  - Preferably valve head upwards
  - Flow direction from inlet A to outlet B
- Certifications: UL/CSA and PED declaration

**Note:** 1) Models R450A/R513A are on request

**Thermostatic Expansion Valve**



**TECHNICAL PARAMETERS**

- RFKH series angle shape valve
- Inlet 3/8" flare connection
- Capillary tube length 1,5m
- Equalization port:
  - RFKH flare/flare type with 1/4" flare connection
  - RFKH flare/solder type with 1/4" solder connection

**MODEL DESIGNATION LEGEND**

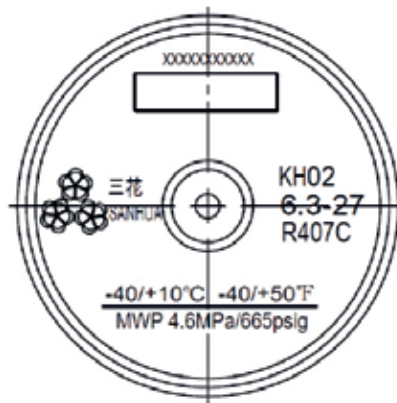
Position Number	Model Designation Legend	
1	<b>Product Code</b>	<b>Product Series</b>
	RFKH	Thermostatic expansion valve: The valve orifice is exchangeable!
2	<b>Refrigerant</b>	<b>Description</b>
	01	R22
	02	R407C
	03	R404A / R507A
	04	R134a
	05	R410A
	07	R407A / R407F
	08	R448A / R449A
	11	R452A
3	<b>Pressure Equalization</b>	<b>Description</b>
	E	External pressure equalization
	(Omitted)	Internal pressure equalization
4	<b>Miscellaneous</b>	<b>Description</b>
	xxxx	Digits for additional information

**Thermostatic Expansion Valve**



**MODEL DESIGNATION EXAMPLE**

Position Number				According to Model Designation Legend
1	2	3	4	
<b>RFKH</b>	01	E	xxxx	Thermostatic expansion valve
RFKH	<b>01</b>	E	xxxx	Refrigerant R22
RFKH	01	<b>E</b>	xxxx	Connection for external pressure equalization
RFKH	01	E	<b>xxxx</b>	Digits for additional information



**MODELS WITH MOP FUNCTION**

RFKH valves can be selected with MOP (Max. Operating Pressure) function. MOP protects the compressor motor against excessive evaporating pressure during normal operation.

Refrigerant	Evaporating Temperature Range			
	(from -40°C to +10°C)	(from -40°C to -5°C)	(from -40°C to -15°C)	(from -60°C to -25°C)
	MOP = +15°C	MOP = 0°C	MOP = -10°C	MOP = -20°C
R22	6,9 bar (abs.) - STD	4,1 bar (abs.) - O.R.	2,4 bar (abs.) - STD	N.A.
R407C	6,6 bar (abs.) - STD	N.A.	N.A.	N.A.
R404A/R507	8,6 bar (abs.) - STD	5,2 bar (abs.) - O.R.	3,4 bar (abs.) - STD	2,0 bar (abs.) - STD
R134a	3,8 bar (abs.) - STD	2,1 bar (abs.) - O.R.	1,0 bar (abs.) - O.R.	N.A.
R410A	11,4 bar (abs.) - STD	8,0 bar (abs.) - O.R.	4,8 bar (abs.) - STD	N.A.
R407A/R407F	6,9 bar (abs.) - STD	N.A.	N.A.	N.A.
R448A/R449A	7,5 bar (abs.) - O.R.	4,3 bar (abs.) - O.R.	2,7 bar (abs.) - O.R.	N.A.
R452A	8,1 bar (abs.) - O.R.	4,8 bar (abs.) - O.R.	3,1 bar (abs.) - O.R.	1,8 bar (abs.) - STD

**Note:** STD : Standard product  
 O.R. : On Request  
 N.A. : Not Available

**Thermostatic Expansion Valve**

**TECHNICAL PARAMETERS**

Table A : Models with Evaporating Temperature Range from -40°C to +10°C [ without MOP ]

Ref.	Connection Type	Inlet ØA	Outlet ØB		Ext. ØC		Model Valve Body
	In / Out / Ext. Pressure Equal.	Flare	Flare	Solder	Flare	Solder	
		[inch]	[inch]	[inch]	[inch]	[inch]	
R22	flare / flare	3/8	1/2	-	-	-	RFKH 01-6.0-22
	flare / flare / flare		1/2	-	1/4	-	RFKH01E-6.0-13
	flare / solder		-	1/2	-	-	RFKH01-6.0-07
	flare / solder / solder		-	1/2	-	1/4	RFKH01E-6.0-08
R407C	flare / flare	3/8	1/2	-	-	-	RFKH02-6.3-24
	flare / flare / flare		1/2	-	1/4	-	RFKH02E-6.3-20
	flare / solder		-	1/2	-	-	RFKH02-6.3-32
	flare / solder / solder		-	1/2	-	1/4	RFKH02E-6.3-18
R404A / R507A	flare / flare	3/8	1/2	-	-	-	RFKH03-4.8-21
	flare / flare / flare		1/2	-	1/4	-	RFKH03E-4.8-15
	flare / solder		-	1/2	-	-	RFKH03-4.8-09
	flare / solder / solder		-	1/2	-	1/4	RFKH03E-4.8-10
R134a	flare / flare	3/8	1/2	-	-	-	RFKH04-2.9-23
	flare / flare / flare		1/2	-	1/4	-	RFKH04E-2.9-19
	flare / solder		-	1/2	-	-	RFKH04-2.9-30
	flare / solder / solder		-	1/2	-	1/4	RFKH04E-2.9-31
R410A	flare / solder	3/8	1/2	-	-	-	RFKH05-7.6-66
	flare / flare / flare		1/2	-	1/4	-	RFKH05E-7.6-33
	flare / solder		-	1/2	-	-	RFKH05-7.6-35
	flare / solder / solder		-	1/2	-	1/4	RFKH05E-7.6-34
R407A / R407F	flare / flare	3/8	1/2	-	-	-	RFKH07-6.0-43
	flare / flare / flare		1/2	-	1/4	-	RFKH07E-6.0-42
	flare / solder		-	1/2	-	-	RFKH07-6.0-45
	flare / solder / solder		-	1/2	-	1/4	RFKH07E-6.0-46
R448A / R449A	flare / flare	3/8	1/2	-	-	-	RFKH08-6.1-49
	flare / flare / flare		1/2	-	1/4	-	RFKH08E-6.1-48
	flare / solder		-	1/2	-	-	RFKH08-6.1-51
	flare / solder / solder		-	1/2	-	1/4	RFKH08E-6.1-52
R452A	flare / flare	3/8	1/2	-	-	-	RFKH11-4.5-55
	flare / flare / flare		1/2	-	1/4	-	RFKH11E-4.5-54
	flare / solder		-	1/2	-	-	RFKH11-4.5-57
	flare / solder / solder		-	1/2	-	1/4	RFKH11E-4.5-58

**Thermostatic Expansion Valve**

**TECHNICAL PARAMETERS**

Tab. B: Models with Evaporating Temperature Range from -40°C to +10°C [ with MOP +15°C ]

Ref.	Connection Type	Inlet ØA	Outlet ØB		Ext. ØC		Model Valve Body
	In / Out / Ext. Pressure Equal.	Flare	Flare	Solder	Flare	Solder	
		[inch]	[inch]	[inch]	[inch]	[inch]	
R404A / R507A	flare / flare	3/8	1/2	-	-	-	RFKH03-4.8-218
	flare / flare / flare		1/2	-	1/4	-	RFKH03E-4.8-216
	flare / solder		-	1/2	-	-	RFKH03-4.8-215
	flare / solder / solder		-	1/2	-	1/4	RFKH03E-4.8-217
R134a	flare / flare	3/8	1/2	-	-	-	RFKH04-2.9-221
	flare / flare / flare		1/2	-	1/4	-	RFKH04E-2.9-220
	flare / solder		-	1/2	-	-	RFKH04-2.9-222
	flare / solder / solder		-	1/2	-	1/4	RFKH04E-2.9-224

Table C: Models with Evaporating Temperature Range from -40°C to -15°C [ with MOP -10°C ]

Ref.	Connection Type	Inlet ØA	Outlet ØB		Ext. ØC		Model Valve Body
	In / Out / Ext. Pressure Equal.	Flare	Flare	Solder	Flare	Solder	
		[inch]	[inch]	[inch]	[inch]	[inch]	
R404A / R507A	flare / flare	3/8	1/2	-	-	-	RFKH03-4.8-312
	flare / flare / flare		1/2	-	1/4	-	RFKH03E-4.8-311
	flare / solder		-	1/2	-	-	RFKH03-4.8-309
	flare / solder / solder		-	1/2	-	1/4	RFKH03E-4.8-69

Table D: Models with Evaporating Temperature Range from -60°C to -25°C [ with MOP -20°C ]

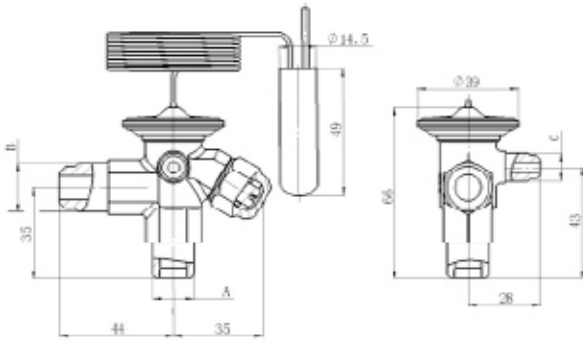
Ref.	Connection Type	Inlet ØA	Outlet ØB		Ext. ØC		Model Valve Body
	In / Out / Ext. Pressure Equal.	Flare	Flare	Solder	Flare	Solder	
		[inch]	[inch]	[inch]	[inch]	[inch]	
R404A / R507A	flare / flare	3/8	1/2	-	-	-	RFKH03-4.8-406
	flare / flare / flare		1/2	-	1/4	-	RFKH03E-4.8-405
	flare / solder		-	1/2	-	-	RFKH03-4.8-403
	flare / solder / solder		-	1/2	-	1/4	RFKH03E-4.8-404
R452A	flare / flare	3/8	1/2	-	-	-	RFKH11-4.5-409
	flare / flare / flare		1/2	-	1/4	-	RFKH11E-4.5-408
	flare / solder		-	1/2	-	-	RFKH11-4.5-411
	flare / solder / solder		-	1/2	-	1/4	RFKH11E-4.5-412

# RFKH SERIES

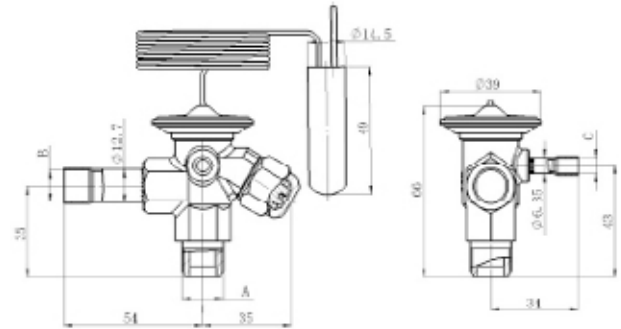
## Thermostatic Expansion Valve



### DIMENSIONS

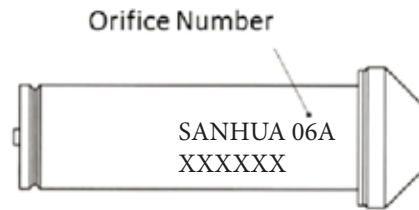


Valve Body - Connection Type: flare/flange/flare



Valve Body - Connection Type: flare/solder/solder

### ACCESSORIES



### ORIFICE

Orifice Number	Valve Orifice Model	Nominal Capacity <sup>1)</sup> [ kW ]								
		R22	R407C	R404A/ R507A	R134a	R410A	R407A/ R407F	R448A	R449A	R452A
0X	RFKH-023-0X	1	1	0,7	0,69	1,3	1	1,1	1,0	0,8
0	RFKH-023-00	1,9	2,1	1,4	1,2	2,5	1,8	2,1	2,0	1,5
1	RFKH-023-01	3,8	4	2,8	2,1	5	3,7	4,0	4,0	3,0
2	RFKH-023-02	5,1	5,4	4	2,7	6,2	5,1	5,0	4,9	3,7
3	RFKH-023-03	8,6	9,2	6,8	4,4	11,2	8,6	8,9	8,8	6,7
4	RFKH-023-04	13,2	13,9	10,8	6,5	17	13,4	13,6	13,4	10,1
5	RFKH-023-05	18,1	18,5	14,1	8,6	21,3	17,6	17,0	16,8	12,7
6	RFKH-023-06	21,3	22,1	16,8	10,3	26,8	21,2	21,4	21,1	16,0

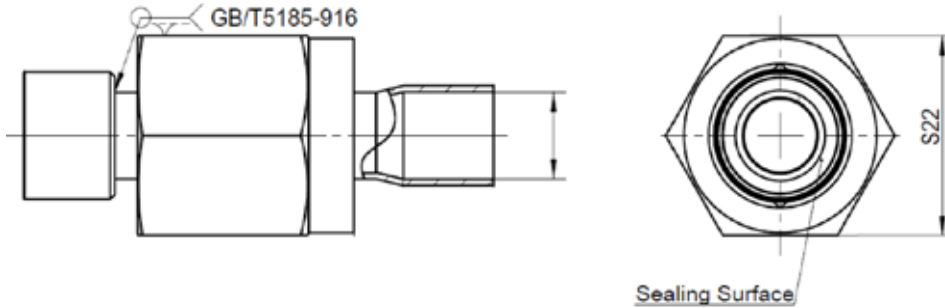
- Note:**
- 1) Nominal working conditions: Condensing temperature: 38°C;  
Evaporating temperature: 4,4°C;  
Liquid temperature: 37°C;
  - 2) R407C data based on dew point conditions
  - 3) Nominal capacity based on Static Superheat (SS) 5K(non-MOP) and 4K(MOP)  
Opening Superheat(OS) 6K



**Thermostatic Expansion Valve**



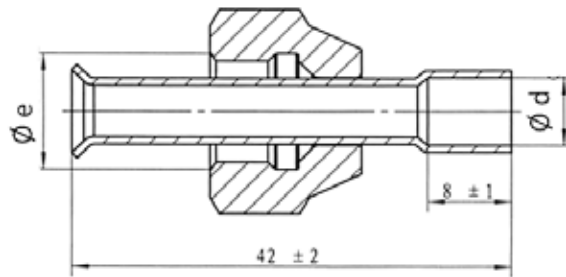
**SOLDER ADAPTERS FOR RFKH INLET A**



Model	SAE Flare Ø e	Solder Connection Ø d
RFK-A04-038010	3/8"	3/8"
RFK-A04-038012		1/4"

**Note:** 1) Copper pipe and flare nut are in the extent of delivery

**SOLDER ADAPTERS FOR RFKH EXTERNAL PRESSURE EQUALIZATION C**



Model	SAE Flare Ø e	Solder Connection Ø d
RFKA-038-04	1/4"	1/4"

**Note:** 1) Copper pipe and flare nut are in the extent of delivery



**Cooling Capacities**

Table1: R22

Size	Cond. Temp. [°C]	Cooling Capacity [kW]										
		Evaporating Temperature [°C]										
		-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
0X	25	0.75	0.78	0.81	0.84	0.86	0.88	0.89	0.87	0.84	0.80	0.75
00		0.96	1.07	1.17	1.28	1.39	1.49	1.58	1.60	1.62	1.57	1.52
01		1.33	1.52	1.71	1.95	2.19	2.46	2.72	2.89	3.05	3.08	3.10
02		1.52	1.76	1.99	2.30	2.61	3.00	3.39	3.72	4.04	4.21	4.37
03		2.58	2.99	3.39	3.93	4.47	5.13	5.79	6.35	6.90	7.22	7.54
04		3.64	4.21	4.78	5.60	6.41	7.45	8.49	9.35	10.21	10.65	11.08
05		4.68	5.41	6.14	7.20	8.25	9.66	11.06	12.31	13.56	14.24	14.91
06	5.78	6.68	7.58	8.86	10.14	11.91	13.67	15.23	16.79	17.56	18.32	
0X	35	0.78	0.82	0.85	0.88	0.91	0.94	0.96	0.96	0.96	0.95	0.94
00		1.00	1.11	1.22	1.35	1.47	1.60	1.72	1.78	1.84	1.88	1.91
01		1.38	1.59	1.79	2.06	2.32	2.64	2.96	3.23	3.49	3.70	3.90
02		1.59	1.84	2.09	2.44	2.78	3.24	3.70	4.17	4.63	5.09	5.54
03		2.72	3.16	3.59	4.19	4.78	5.57	6.35	7.16	7.96	8.77	9.58
04		3.90	4.51	5.11	6.00	6.89	8.12	9.34	10.56	11.77	13.01	14.25
05		5.02	5.80	6.57	7.72	8.87	10.53	12.19	14.01	15.83	17.58	19.33
06	6.15	7.10	8.05	9.45	10.84	12.90	14.96	17.24	19.51	21.61	23.70	
0X	45	0.80	0.84	0.87	0.91	0.94	0.97	1.00	1.01	1.02	1.04	1.05
00		1.02	1.14	1.25	1.39	1.52	1.67	1.81	1.90	1.98	2.07	2.15
01		1.42	1.63	1.84	2.12	2.40	2.76	3.11	3.44	3.76	4.09	4.41
02		1.64	1.90	2.15	2.52	2.88	3.39	3.89	4.45	5.01	5.66	6.31
03		2.81	3.27	3.72	4.35	4.98	5.86	6.74	7.73	8.71	9.88	11.05
04		4.12	4.74	5.36	6.28	7.20	8.53	9.85	11.34	12.82	14.55	16.27
05		5.29	6.09	6.89	8.10	9.31	11.11	12.91	15.10	17.28	19.85	22.42
06	6.47	7.45	8.42	9.89	11.36	13.59	15.82	18.54	21.26	24.37	27.48	
0X	55	0.79	0.83	0.87	0.91	0.94	0.98	1.01	1.03	1.04	1.07	1.10
00		1.02	1.14	1.25	1.39	1.53	1.68	1.83	1.93	2.03	2.15	2.26
01		1.43	1.65	1.86	2.15	2.43	2.80	3.17	3.53	3.88	4.28	4.67
02		1.66	1.93	2.19	2.56	2.93	3.46	3.98	4.59	5.20	5.95	6.70
03		2.86	3.32	3.78	4.44	5.10	6.02	6.94	8.03	9.12	10.47	11.82
04		4.29	4.91	5.52	6.45	7.38	8.73	10.07	11.60	13.13	15.15	17.16
05		5.51	6.32	7.12	8.35	9.58	11.45	13.32	15.61	17.90	20.94	23.97
06	6.71	7.70	8.68	10.18	11.67	13.96	16.25	19.19	22.13	25.84	29.54	

**Subcooling correction factor 'fsub'**

Subcooling[K]	2	4	10	15	20	25	30	35	40	45	50
Correction factor	0.98	1.00	1.05	1.10	1.14	1.19	1.23	1.28	1.32	1.36	1.41

**Distributer correction factor 'fp' \***

Pressure drop [bar]	Evaporating temperature [°C]											
	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15
0	1	1	1	1	1	1	1	1	1	1	1	1
1	0.96	0.95	0.95	0.95	0.95	0.95	0.94	0.94	0.93	0.92	0.91	0.89
1.5	0.93	0.93	0.93	0.93	0.92	0.92	0.91	0.91	0.90	0.88	0.86	0.82
2	0.91	0.91	0.90	0.90	0.90	0.89	0.88	0.87	0.86	0.84	0.81	0.76

\*Calculated at 32°C condensing temperature.

# RFKH SERIES

## Thermostatic Expansion Valve



### Cooling Capacities

Table2: R407C

Size	Cond. Temp. [°C]	Cooling Capacity [kW]										
		Evaporating Temperature [°C]										
		-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
0X	25	0.76	0.79	0.82	0.85	0.88	0.91	0.93	0.93	0.92	0.91	0.90
00		1.00	1.10	1.20	1.31	1.42	1.54	1.65	1.71	1.76	1.79	1.81
01		1.42	1.61	1.79	2.04	2.28	2.58	2.87	3.11	3.34	3.52	3.69
02		1.62	1.85	2.07	2.39	2.71	3.14	3.56	3.99	4.42	4.83	5.23
03		2.75	3.14	3.52	4.07	4.61	5.36	6.11	6.87	7.62	8.32	9.01
04		3.91	4.44	4.97	5.74	6.50	7.59	8.68	9.91	11.14	12.58	14.02
05		5.03	5.72	6.41	7.41	8.41	9.84	11.27	12.88	14.49	16.25	18.00
06	6.21	7.08	7.94	9.24	10.53	12.37	14.21	16.26	18.31	20.47	22.62	
0X	35	0.76	0.80	0.83	0.87	0.90	0.94	0.97	0.98	0.99	1.01	1.02
00		1.00	1.11	1.21	1.33	1.45	1.59	1.72	1.81	1.89	1.97	2.05
01		1.41	1.61	1.80	2.07	2.33	2.66	2.98	3.29	3.59	3.89	4.19
02		1.62	1.86	2.09	2.43	2.76	3.23	3.70	4.22	4.73	5.34	5.95
03		2.76	3.16	3.56	4.14	4.72	5.55	6.37	7.29	8.21	9.26	10.31
04		3.98	4.54	5.09	5.90	6.71	7.90	9.09	10.54	11.98	13.96	15.93
05		5.12	5.84	6.55	7.61	8.67	10.23	11.78	13.71	15.63	18.09	20.54
06	6.28	7.18	8.08	9.46	10.84	12.85	14.86	17.30	19.73	22.81	25.88	
0X	45	0.73	0.77	0.81	0.85	0.89	0.93	0.97	0.99	1.01	1.04	1.07
00		0.96	1.07	1.18	1.31	1.43	1.58	1.72	1.83	1.93	2.04	2.15
01		1.37	1.57	1.76	2.03	2.29	2.64	2.98	3.32	3.66	4.04	4.42
02		1.58	1.82	2.05	2.39	2.73	3.22	3.70	4.27	4.84	5.56	6.28
03		2.70	3.10	3.50	4.09	4.68	5.55	6.41	7.42	8.43	9.68	10.93
04		3.94	4.50	5.06	5.89	6.72	7.95	9.18	10.74	12.29	14.56	16.83
05		5.05	5.78	6.51	7.59	8.67	10.33	11.98	14.06	16.14	19.01	21.87
06	6.16	7.08	7.99	9.37	10.74	12.85	14.96	17.68	20.39	23.95	27.51	
0X	55	0.68	0.72	0.76	0.81	0.85	0.90	0.94	0.97	0.99	1.03	1.06
00		0.89	1.00	1.11	1.24	1.37	1.52	1.66	1.78	1.89	2.02	2.14
01		1.28	1.47	1.66	1.93	2.19	2.54	2.88	3.24	3.59	4.00	4.41
02		1.49	1.72	1.94	2.28	2.61	3.10	3.58	4.16	4.74	5.51	6.28
03		2.55	2.95	3.34	3.93	4.51	5.37	6.22	7.27	8.31	9.67	11.02
04		3.79	4.34	4.89	5.72	6.54	7.77	9.00	10.60	12.19	14.57	16.94
05		4.84	5.56	6.28	7.36	8.44	10.06	11.68	13.81	15.94	19.02	22.09
06	5.86	6.77	7.67	9.04	10.41	12.53	14.64	17.41	20.17	24.08	27.98	

### Subcooling correction factor 'fsub'

Subcooling[K]	2	4	10	15	20	25	30	35	40	45	50
Correction factor	0.98	1.00	1.07	1.12	1.18	1.23	1.28	1.34	1.39	1.45	1.50

### Distributer correction factor 'fp' \*

Pressure drop [bar]	Evaporating temperature [°C]											
	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15
0	1	1	1	1	1	1	1	1	1	1	1	1
1	0.96	0.96	0.96	0.96	0.96	0.96	0.95	0.95	0.95	0.94	0.93	0.92
1.5	0.94	0.94	0.94	0.94	0.94	0.93	0.93	0.93	0.92	0.91	0.90	0.88
2	0.92	0.92	0.92	0.92	0.91	0.91	0.91	0.90	0.89	0.88	0.86	0.84

\*Calculated at 32°C condensing temperature.



**Cooling Capacities**

Table3: R404A / R507A

Size	Cond. Temp. [°C]	Cooling Capacity [kW]										
		Evaporating Temperature [°C]										
		-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
0X	25	0.54	0.58	0.61	0.63	0.65	0.67	0.69	0.68	0.66	0.63	0.59
00		0.70	0.81	0.92	1.01	1.10	1.20	1.29	1.29	1.29	1.23	1.17
01		0.98	1.18	1.38	1.61	1.84	2.10	2.36	2.46	2.56	2.51	2.46
02		1.11	1.36	1.60	1.91	2.22	2.62	3.02	3.26	3.50	3.53	3.56
03		1.88	2.31	2.73	3.27	3.81	4.51	5.21	5.62	6.02	6.06	6.10
04		2.64	3.25	3.85	4.66	5.46	6.57	7.68	8.41	9.13	9.35	9.56
05		3.41	4.21	5.00	6.04	7.08	8.52	9.96	10.89	11.81	12.03	12.24
06	4.22	5.22	6.22	7.55	8.87	10.69	12.50	13.70	14.89	15.04	15.19	
0X	35	0.51	0.55	0.59	0.62	0.65	0.69	0.72	0.72	0.72	0.71	0.70
00		0.66	0.77	0.88	0.99	1.09	1.21	1.33	1.38	1.42	1.41	1.40
01		0.93	1.13	1.33	1.58	1.82	2.14	2.45	2.63	2.81	2.88	2.95
02		1.06	1.31	1.55	1.88	2.20	2.67	3.14	3.50	3.86	4.08	4.30
03		1.80	2.23	2.65	3.23	3.80	4.62	5.44	6.07	6.70	7.05	7.40
04		2.56	3.17	3.77	4.62	5.47	6.75	8.03	9.12	10.20	10.93	11.66
05		3.30	4.10	4.89	5.99	7.09	8.76	10.42	11.80	13.18	14.01	14.84
06	4.06	5.06	6.06	7.45	8.84	10.95	13.06	14.81	16.55	17.59	18.62	
0X	45	0.45	0.50	0.54	0.58	0.61	0.65	0.69	0.71	0.72	0.73	0.73
00		0.60	0.71	0.81	0.92	1.02	1.15	1.28	1.35	1.42	1.46	1.50
01		0.84	1.03	1.22	1.46	1.70	2.03	2.35	2.59	2.83	2.99	3.14
02		0.96	1.20	1.43	1.75	2.07	2.56	3.04	3.48	3.92	4.26	4.60
03		1.64	2.05	2.45	3.02	3.58	4.44	5.30	6.07	6.84	7.40	7.95
04		2.39	2.96	3.52	4.35	5.17	6.50	7.83	9.13	10.43	11.49	12.54
05		3.08	3.82	4.56	5.64	6.71	8.44	10.17	11.89	13.60	14.87	16.14
06	3.77	4.70	5.62	6.98	8.33	10.53	12.73	14.92	17.11	18.67	20.22	
0X	55	0.38	0.43	0.47	0.51	0.55	0.59	0.63	0.65	0.66	0.68	0.70
00		0.51	0.61	0.70	0.80	0.90	1.02	1.14	1.22	1.30	1.36	1.41
01		0.73	0.90	1.06	1.28	1.49	1.80	2.10	2.35	2.60	2.79	2.98
02		0.84	1.04	1.24	1.53	1.82	2.28	2.73	3.17	3.61	4.00	4.38
03		1.44	1.80	2.15	2.66	3.16	3.97	4.77	5.56	6.34	6.98	7.61
04		2.14	2.63	3.12	3.85	4.58	5.80	7.02	8.32	9.61	10.80	11.99
05		2.75	3.39	4.03	4.99	5.94	7.54	9.14	10.85	12.55	14.08	15.60
06	3.34	4.15	4.95	6.15	7.35	9.43	11.50	13.70	15.89	17.77	19.65	

**Subcooling correction factor 'fsub'**

Subcooling[K]	2	4	10	15	20	25	30	35	40	45	50
Correction factor	0.97	1.00	1.09	1.16	1.23	1.30	1.38	1.45	1.52	1.59	1.65

**Distributer correction factor 'fp' \***

Pressure drop [bar]	Evaporating temperature [°C]											
	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15
0	1	1	1	1	1	1	1	1	1	1	1	1
1	0.96	0.96	0.96	0.96	0.96	0.96	0.95	0.95	0.94	0.94	0.92	0.91
1.5	0.94	0.94	0.94	0.94	0.94	0.93	0.93	0.92	0.91	0.90	0.88	0.86
2	0.92	0.92	0.92	0.92	0.91	0.91	0.9	0.89	0.88	0.87	0.84	0.80

\*Calculated at 32°C condensing temperature.



**Cooling Capacities**

Table4: R134a

Size	Cond. Temp. [°C]	Cooling Capacity [kW]										
		Evaporating Temperature [°C]										
		-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
0X	25	0.49	0.52	0.54	0.57	0.60	0.61	0.62	0.62	0.61	0.59	0.56
00		0.53	0.60	0.67	0.75	0.83	0.89	0.95	1.00	1.04	1.03	1.01
01		0.71	0.82	0.92	1.07	1.21	1.35	1.49	1.62	1.74	1.79	1.83
02		0.80	0.92	1.04	1.21	1.38	1.57	1.75	1.94	2.12	2.23	2.34
03		1.37	1.57	1.77	2.07	2.37	2.68	2.98	3.30	3.62	3.82	4.01
04		1.93	2.22	2.50	2.92	3.34	3.79	4.24	4.73	5.22	5.57	5.92
05		2.52	2.89	3.25	3.80	4.34	4.93	5.52	6.15	6.78	7.22	7.66
06	3.13	3.60	4.07	4.77	5.46	6.21	6.96	7.76	8.55	9.11	9.66	
0X	35	0.50	0.54	0.57	0.61	0.64	0.66	0.67	0.68	0.69	0.69	0.68
00		0.55	0.62	0.69	0.78	0.87	0.95	1.03	1.11	1.18	1.22	1.26
01		0.73	0.85	0.96	1.12	1.27	1.44	1.61	1.79	1.97	2.13	2.28
02		0.83	0.96	1.08	1.27	1.46	1.68	1.89	2.15	2.40	2.66	2.92
03		1.42	1.64	1.85	2.18	2.50	2.87	3.24	3.68	4.11	4.56	5.00
04		2.06	2.36	2.65	3.12	3.58	4.11	4.63	5.28	5.93	6.64	7.35
05		2.68	3.06	3.44	4.04	4.63	5.32	6.01	6.86	7.70	8.62	9.53
06	3.31	3.80	4.28	5.04	5.79	6.66	7.53	8.61	9.68	10.82	11.96	
0X	45	0.50	0.54	0.57	0.61	0.65	0.67	0.69	0.71	0.73	0.75	0.76
00		0.55	0.63	0.70	0.80	0.89	0.98	1.07	1.17	1.26	1.33	1.40
01		0.74	0.86	0.97	1.14	1.30	1.49	1.67	1.89	2.10	2.33	2.55
02		0.84	0.97	1.10	1.30	1.50	1.73	1.95	2.26	2.56	2.91	3.25
03		1.44	1.66	1.88	2.22	2.55	2.95	3.35	3.87	4.38	4.99	5.59
04		2.15	2.45	2.74	3.22	3.70	4.27	4.83	5.58	6.32	7.26	8.20
05		2.78	3.17	3.55	4.17	4.78	5.52	6.26	7.24	8.21	9.43	10.65
06	3.42	3.91	4.39	5.16	5.92	6.87	7.81	9.05	10.29	11.83	13.37	
0X	55	0.48	0.52	0.56	0.60	0.64	0.67	0.69	0.72	0.74	0.76	0.78
00		0.54	0.62	0.69	0.79	0.88	0.98	1.07	1.18	1.28	1.38	1.48
01		0.73	0.84	0.95	1.12	1.28	1.47	1.66	1.90	2.13	2.40	2.66
02		0.83	0.96	1.09	1.29	1.48	1.72	1.96	2.28	2.60	3.00	3.39
03		1.44	1.66	1.87	2.21	2.54	2.96	3.37	3.92	4.47	5.17	5.86
04		2.19	2.49	2.78	3.26	3.73	4.31	4.88	5.67	6.46	7.52	8.58
05		2.83	3.21	3.59	4.21	4.82	5.57	6.32	7.35	8.38	9.77	11.16
06	3.47	3.94	4.41	5.17	5.93	6.89	7.84	9.16	10.48	12.25	14.01	

**Subcooling correction factor 'fsub'**

Subcooling[K]	2	4	10	15	20	25	30	35	40	45	50
Correction factor	0.98	1.00	1.07	1.12	1.18	1.23	1.29	1.34	1.40	1.45	1.50

**Distributer correction factor 'fp' \***

Pressure drop [bar]	Evaporating temperature [°C]											
	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15
0	1	1	1	1	1	1	1	1	1	1	1	1
1	0.93	0.93	0.93	0.93	0.92	0.92	0.92	0.91	0.90	0.89	0.87	0.83
1.5	0.90	0.89	0.89	0.89	0.88	0.88	0.87	0.86	0.84	0.82	0.79	0.74
2	0.86	0.86	0.85	0.85	0.84	0.83	0.82	0.81	0.79	0.76	0.71	0.62

\*Calculated at 32°C condensing temperature.



**Cooling Capacities**

Table5: R410A

Size	Cond. Temp. [°C]	Cooling Capacity [kW]										
		Evaporating Temperature [°C]										
		-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
0X	25	0.60	0.70	0.79	0.86	0.92	0.96	1.00	1.03	1.05	0.95	0.84
00		0.75	0.94	1.12	1.29	1.46	1.61	1.76	1.87	1.98	1.83	1.68
01		1.06	1.36	1.65	1.98	2.31	2.67	3.02	3.37	3.72	3.56	3.39
02		1.29	1.65	2.01	2.42	2.83	3.27	3.70	4.14	4.58	4.38	4.18
03		2.33	2.99	3.64	4.39	5.13	5.92	6.70	7.49	8.27	7.91	7.55
04		3.45	4.43	5.40	6.52	7.64	8.84	10.04	11.26	12.48	11.96	11.43
05		4.35	5.58	6.81	8.22	9.63	11.13	12.63	14.15	15.67	15.01	14.34
06	5.43	6.97	8.50	10.27	12.03	13.92	15.81	17.73	19.65	18.83	18.01	
0X	35	0.60	0.71	0.81	0.89	0.96	1.02	1.07	1.12	1.16	1.09	1.02
00		0.76	0.96	1.15	1.34	1.52	1.70	1.88	2.04	2.20	2.12	2.04
01		1.07	1.38	1.69	2.05	2.41	2.82	3.22	3.68	4.14	4.12	4.10
02		1.30	1.68	2.06	2.51	2.95	3.45	3.95	4.53	5.10	5.09	5.07
03		2.37	3.05	3.73	4.54	5.34	6.25	7.15	8.18	9.20	9.18	9.15
04		3.50	4.52	5.54	6.76	7.97	9.35	10.72	12.30	13.88	13.87	13.86
05		4.42	5.71	6.99	8.52	10.04	11.76	13.48	15.46	17.43	17.41	17.38
06	5.50	7.11	8.72	10.63	12.54	14.71	16.87	19.36	21.85	21.84	21.82	
0X	45	0.59	0.70	0.80	0.88	0.96	1.02	1.08	1.15	1.21	1.16	1.11
00		0.74	0.94	1.13	1.33	1.52	1.72	1.91	2.10	2.29	2.26	2.22
01		1.05	1.36	1.67	2.04	2.41	2.85	3.28	3.80	4.31	4.39	4.46
02		1.27	1.65	2.03	2.49	2.95	3.49	4.02	4.67	5.31	5.41	5.51
03		2.31	3.00	3.69	4.52	5.34	6.31	7.27	8.43	9.59	9.76	9.93
04		3.42	4.45	5.47	6.72	7.96	9.43	10.89	12.68	14.46	14.76	15.05
05		4.32	5.61	6.90	8.47	10.03	11.87	13.70	15.93	18.16	18.52	18.88
06	5.38	7.00	8.61	10.57	12.53	14.84	17.15	19.96	22.77	23.24	23.70	
0X	55	0.55	0.65	0.75	0.83	0.91	0.98	1.04	1.12	1.19	1.15	1.11
00		0.69	0.88	1.07	1.26	1.44	1.64	1.84	2.05	2.25	2.24	2.23
01		0.98	1.28	1.57	1.93	2.29	2.73	3.16	3.70	4.23	4.36	4.48
02		1.19	1.55	1.91	2.36	2.80	3.34	3.87	4.54	5.21	5.38	5.54
03		2.15	2.81	3.47	4.28	5.08	6.04	7.00	8.20	9.40	9.70	9.99
04		3.18	4.16	5.14	6.36	7.57	9.03	10.49	12.33	14.17	14.65	15.13
05		4.02	5.26	6.49	8.02	9.54	11.37	13.20	15.50	17.80	18.39	18.98
06	5.01	6.55	8.09	10.01	11.92	14.22	16.52	19.42	22.32	23.08	23.83	

**Subcooling correction factor 'fsub'**

Subcooling[K]	1	4	10	15	20	25	30	35	40	45	50
Correction factor	0.98	1.00	1.08	1.15	1.21	1.27	1.33	1.39	1.45	1.50	1.56

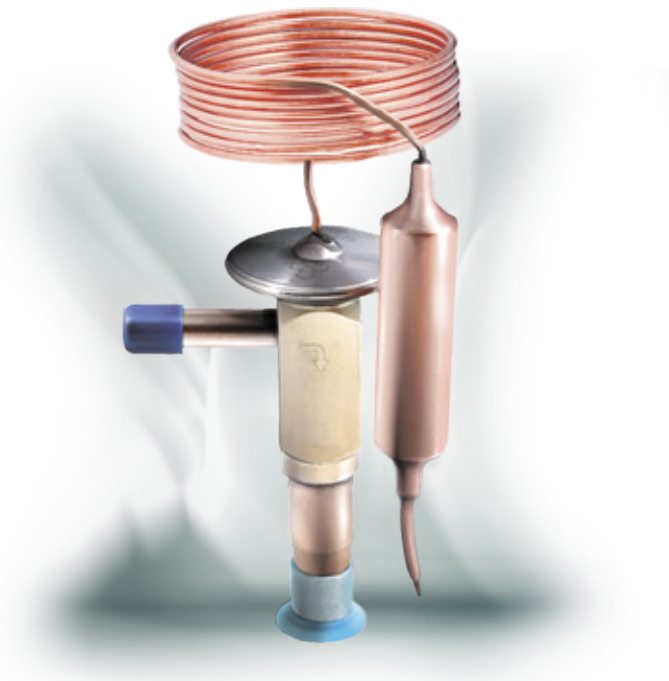
**Distributer correction factor 'fp' \***

Pressure drop [bar]	Evaporating temperature [°C]											
	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15
0	1	1	1	1	1	1	1	1	1	1	1	1
1	0.97	0.97	0.97	0.97	0.97	0.97	0.96	0.96	0.96	0.95	0.94	0.93
1.5	0.96	0.96	0.96	0.95	0.95	0.95	0.95	0.94	0.93	0.93	0.91	0.89
2	0.94	0.94	0.94	0.94	0.93	0.93	0.93	0.92	0.91	0.90	0.88	0.85

\*Calculated at 32°C condensing temperature.

# 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

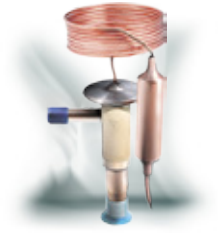
- Applicable for all common HCFC, HFC, HC, HFO refrigerants such as: R22, R134a, R404A, R407C, R507A, R290, R1234yf, R448A/R449A, R452A, R450A/R513A<sup>1)</sup>
- Ambient temperature min./max.: -35/+55°C
- Medium temperature TS min./max.: -40°C / +70°C
- Max. operating pressure PS: 2,1 ... 3,5 MPa (21 ... 35 bar)<sup>2)</sup>
- Installation position: - Preferably valve head upwards  
- Flow direction from inlet A to outlet B
- Certifications: UL/CSA and PED declaration

**Note:** 1) Models for R407A/F, R1234yf, R448A/R449A, R452A, R450A/R513A are on request  
2) 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 super heat settings
- Both versions are available with the following solder connections
  - Imperial: Inlet 1/4" ODF/ Outlet 3/8" ODF or Inlet 3/8" ODF/ Outlet 1/2" ODF
- Equalization port available as option:
  - Imperial: 1/4" ODF (available for models with imperial solder connections)
- Capillary tube length 800mm



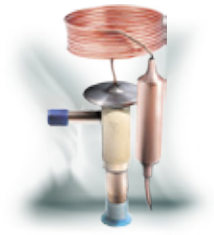


**MODEL DESIGNATION LEGEND**

Position Number	Model Designation Legend	
1	<b>Product Code</b>	<b>Product Series</b>
	RFGB	Thermostatic expansion valve with build-in orifice
2	<b>Refrigerant</b>	<b>Description</b>
	1	R22
	2	R407C
	3	R404A / R507A
	4	R134a
3	6	R290
	<b>Pressure Equalization</b>	<b>Description</b>
	E	External pressure equalization
4	(Omitted)	Internal pressure equalization
	<b>Valve Size</b>	<b>Internal Orifice Size</b>
5	From 1 to 5	Valve size: proportional to the orifice size and to the nominal capacity
	<b>Valve Shape</b>	<b>Description</b>
6	S	Straight Version
	A	Angle Version
7	<b>Connections Type</b>	<b>Description</b>
	Ix	Imperial: I2 inlet 1/4" ; I3 inlet 3/8"
7	<b>Miscellaneous</b>	<b>Description</b>
	xxx	Digits for additional information e.g. static superheat, MOP, Bleed...

**MODEL DESIGNATION EXAMPLE**

Position Number							According to Model Designation Legend
1	2	3	4	5	6	7	
<b>RFGB</b>	04	E	3	S	2	xxxx	Thermostatic expansion valve with build-in orifice
RFGB	<b>04</b>	E	3	S	2	xxxx	Refrigerant: R134a
RFGB	04	<b>E</b>	3	S	2	xxxx	With connection for external pressure equalization
RFGB	04	E	<b>3</b>	S	2	xxxx	Capacity: Valve and orifice size 3
RFGB	04	E	3	<b>S</b>	2	xxxx	Valve Shape: straight
RFGB	04	E	3	S	<b>2</b>	xxxx	Valve pipe connections: Imperial inlet 1/4"/outlet 3/8"
RFGB	04	E	3	S	2	<b>xxxx</b>	Digits for additional information



**TECHNICAL DATA**

Nominal Cooling Capacities <sup>1)2)</sup>					
Refrigerant	Size	Model	Capacity		PS
			[ USRT ]	[ kW ]	[ MPa ]
R22	1	RFGB01(E)-0.35-xxx	0.35	1.2	2,8
	2	RFGB01(E)-0.7-xxx	0.7	2.5	
	3	RFGB01(E)-1.0-xxx	1	3.5	
	4	RFGB01(E)-1.5-xxx	1.5	5.3	
	5	RFGB01(E)-2.0-xxx	2	7	
R407C <sup>3)</sup>	1	RFGB02(E)-0.38-xxx	0.38	1.3	2,8
	2	RFGB02(E)-0.76-xxx	0.76	2.7	
	3	RFGB02(E)-1.1-xxx	1.1	3.9	
	4	RFGB02(E)-1.6-xxx	1.6	5.6	
	5	RFGB02(E)-2.2-xxx	2.2	7.7	
R404A / R507	1	RFGB03(E)-0.25-xxx	0.25	0.9	3,5
	2	RFGB03(E)-0.5-xxx	0.5	1.8	
	3	RFGB03(E)-0.7-xxx	0.7	2.5	
	4	RFGB03(E)-1.0-xxx	1	3.5	
	5	RFGB03(E)-1.4-xxx	1.4	4.9	
R134a	1	RFGB04(E)-0.23-xxx	0.22	0.8	2,1
	2	RFGB04(E)-0.44-xxx	0.44	1.5	
	3	RFGB04(E)-0.63-xxx	0.63	2.2	
	4	RFGB04(E)-0.94-xxx	0.94	3.3	
	5	RFGB04(E)-1.3-xxx	1.3	4.6	
R290	1	RFGB06(E)-0.35-xxx	0.35	1.2	2,8
	2	RFGB06(E)-0.7-xxx	0.7	2.5	
	3	RFGB06(E)-1.0-xxx	1	3.5	
	4	RFGB06(E)-1.5-xxx	1.5	5.3	
	5	RFGB06(E)-2.0-xxx	2	7	

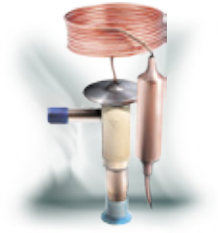
**Note:**

1) Nominal capacity valid for: - Version "S" in straight shape and version "A" in angle shape  
 - Versions with 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

**Thermostatic Expansion Valve**



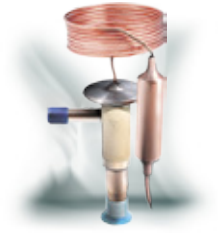
**MODEL LIST**

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

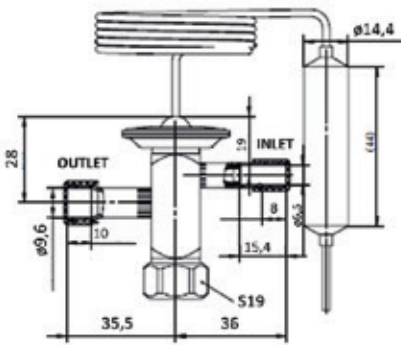
Model Name <sup>2) 3) 4) 5)</sup>				Connections Size (Solder ODF)		
Valve Body All Refrigerants	Capacity Size All Sizes	Valve Shape <sup>6)</sup> Straight / Angle	Pipe connections Metric / Imperial	Inlet	Outlet	Pressure Equal.
				[inch]	[inch]	[inch]
RFGB 01 -	1 -	S -	2	1/4	3/8	-
RFGB 02 -	2 -		3	3/8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

**Note:**

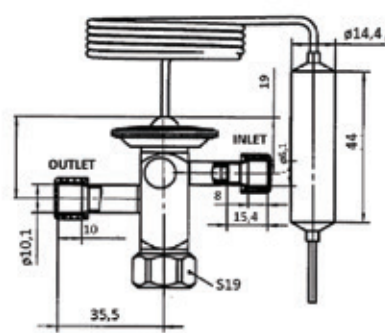
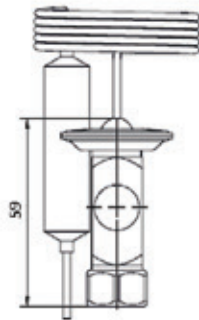
- 1) Different evaporation temperature range on request
- 2) Extent of delivery: valve body and bulb strap
- 3) MOP function on request
- 4) Delivery time on request
- 5) Model Name in this table is referred to the first 6 positions of the model designation
- 6) Superheat : - Straight version "S" with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



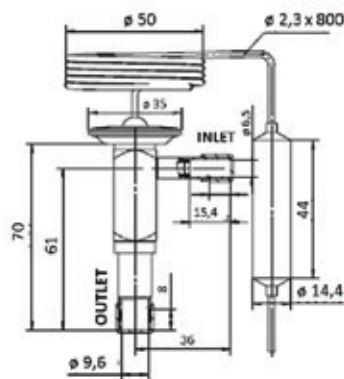
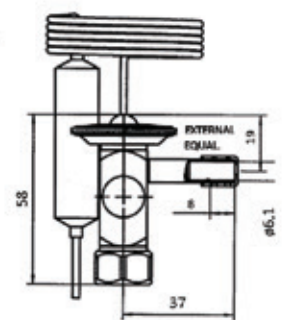
**DIMENSIONS**



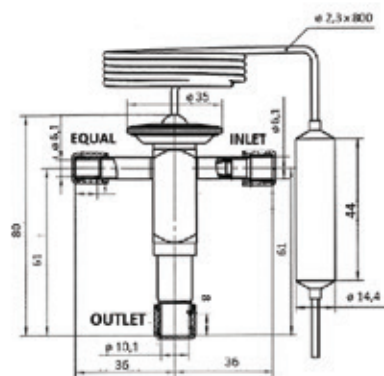
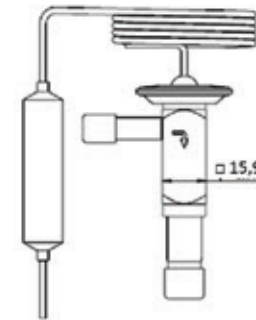
**Straight Shape with Internal Pressure Equalization**



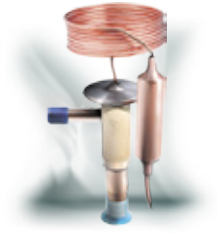
**Straight Shape with External Pressure Equalization**



**Angle Shape with Internal Pressure Equalization**



**Angle Shape with External Pressure Equalization**



**Cooling Capacities**

Table1: R22

Size	Cond. Temp. [°C]	Cooling Capacity [kW]										
		Evaporating Temperature [°C]										
		-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
0	25	0.28	0.32	0.37	0.41	0.44	0.47	0.49	0.51	0.52	0.51	0.49
1		0.55	0.65	0.74	0.82	0.91	0.96	1.02	1.07	1.11	1.09	1.06
2		0.72	0.85	0.99	1.10	1.22	1.30	1.39	1.46	1.53	1.51	1.49
3		1.36	1.61	1.86	2.08	2.30	2.46	2.63	2.77	2.90	2.87	2.84
4		1.98	2.35	2.72	3.05	3.37	3.62	3.87	4.08	4.28	4.24	4.19
5		2.23	2.64	3.06	3.43	3.79	4.07	4.36	4.59	4.82	4.78	4.73
0	35	0.29	0.34	0.39	0.44	0.48	0.52	0.55	0.58	0.62	0.64	0.66
1		0.58	0.68	0.79	0.89	0.98	1.06	1.14	1.22	1.30	1.36	1.42
2		0.76	0.91	1.05	1.19	1.32	1.44	1.55	1.68	1.80	1.89	1.99
3		1.43	1.71	1.98	2.24	2.49	2.72	2.94	3.18	3.42	3.60	3.79
4		2.09	2.50	2.90	3.28	3.66	3.99	4.32	4.68	5.04	5.32	5.60
5		2.34	2.80	3.26	3.69	4.11	4.49	4.86	5.27	5.68	6.00	6.32
0	45	0.30	0.35	0.41	0.46	0.51	0.55	0.59	0.63	0.68	0.72	0.76
1		0.59	0.71	0.82	0.93	1.03	1.13	1.22	1.33	1.44	1.54	1.65
2		0.78	0.93	1.09	1.24	1.38	1.52	1.66	1.82	1.98	2.15	2.31
3		1.47	1.76	2.05	2.33	2.61	2.88	3.14	3.45	3.76	4.08	4.40
4		2.14	2.57	3.01	3.42	3.84	4.23	4.62	5.08	5.55	6.03	6.51
5		2.40	2.89	3.38	3.85	4.31	4.76	5.20	5.72	6.25	6.80	7.34
0	55	0.30	0.35	0.41	0.46	0.51	0.56	0.61	0.66	0.71	0.77	0.82
1		0.59	0.71	0.83	0.94	1.05	1.15	1.26	1.38	1.51	1.65	1.79
2		0.78	0.94	1.10	1.25	1.41	1.56	1.71	1.90	2.08	2.29	2.50
3		1.46	1.77	2.07	2.36	2.66	2.95	3.24	3.60	3.95	4.36	4.77
4		2.14	2.58	3.03	3.47	3.90	4.33	4.76	5.30	5.83	6.44	7.05
5		2.40	2.90	3.40	3.89	4.39	4.87	5.36	5.96	6.57	7.26	7.96

**Subcooling correction factor 'fsub'**

Subcooling[K]	2	4	10	15	20	25	30	35	40	45	50
Correction factor	0.98	1.00	1.05	1.10	1.14	1.19	1.23	1.28	1.32	1.36	1.41

**Thermostatic Expansion Valve**

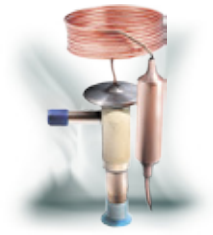


Table2: R407C

Size	Cond. Temp. [°C]	Cooling Capacity [kW]										
		Evaporating Temperature [°C]										
		-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
0	25	/	/	0.42	0.47	0.51	0.54	0.57	0.59	0.61	0.61	0.61
1		/	/	0.84	0.94	1.05	1.12	1.19	1.24	1.30	1.32	1.34
2		/	/	1.12	1.27	1.41	1.51	1.62	1.70	1.79	1.83	1.88
3		/	/	2.12	2.39	2.66	2.87	3.07	3.23	3.40	3.49	3.57
4		/	/	3.10	3.50	3.91	4.21	4.52	4.76	5.01	5.15	5.29
5		/	/	3.49	3.94	4.39	4.74	5.09	5.36	5.64	5.80	5.97
0	35	/	/	0.43	0.48	0.54	0.58	0.62	0.65	0.68	0.71	0.74
1		/	/	0.87	0.98	1.10	1.19	1.28	1.36	1.44	1.52	1.60
2		/	/	1.16	1.32	1.48	1.61	1.74	1.86	1.99	2.12	2.25
3		/	/	2.19	2.49	2.79	3.04	3.30	3.54	3.78	4.03	4.28
4		/	/	3.21	3.65	4.10	4.47	4.85	5.21	5.57	5.95	6.34
5		/	/	3.60	4.11	4.61	5.03	5.46	5.87	6.28	6.72	7.15
0	45	/	/	0.43	0.49	0.54	0.59	0.63	0.68	0.72	0.76	0.81
1		/	/	0.87	0.99	1.11	1.21	1.32	1.42	1.52	1.64	1.75
2		/	/	1.16	1.33	1.49	1.64	1.79	1.94	2.10	2.28	2.46
3		/	/	2.19	2.51	2.83	3.11	3.39	3.69	3.98	4.33	4.69
4		/	/	3.21	3.68	4.15	4.57	4.99	5.43	5.87	6.40	6.93
5		/	/	3.60	4.13	4.67	5.14	5.61	6.11	6.61	7.22	7.83
0	55	/	/	0.42	0.47	0.53	0.58	0.63	0.67	0.72	0.78	0.83
1		/	/	0.84	0.96	1.08	1.19	1.30	1.41	1.53	1.67	1.80
2		/	/	1.12	1.29	1.46	1.61	1.77	1.94	2.11	2.32	2.53
3		/	/	2.11	2.43	2.75	3.05	3.35	3.67	4.00	4.41	4.83
4		/	/	3.09	3.57	4.04	4.48	4.92	5.41	5.90	6.52	7.14
5		/	/	3.47	4.01	4.55	5.04	5.54	6.09	6.65	7.35	8.06

Subcooling correction factor 'fsub'

Subcooling [K]	2	4	10	15	20	25	30	35	40	45	50
Correction factor	0.98	1.00	1.07	1.12	1.18	1.23	1.28	1.34	1.39	1.45	1.50

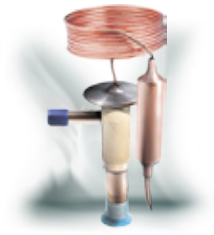


Table3: R404A

Orifice No.	Cond. Temp. [°C]	Cooling Capacity [kW]										
		Evaporating Temperature [°C]										
		-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
0	25	0.26	0.30	0.34	0.36	0.39	0.40	0.42	0.44	0.45	0.44	0.43
1		0.51	0.60	0.68	0.74	0.80	0.85	0.90	0.94	0.97	0.96	0.95
2		0.68	0.80	0.92	1.00	1.09	1.17	1.25	1.30	1.36	1.35	1.35
3		1.28	1.50	1.73	1.89	2.06	2.22	2.38	2.48	2.58	2.58	2.58
4		1.87	2.20	2.53	2.78	3.03	3.27	3.51	3.66	3.81	3.81	3.82
5		2.10	2.47	2.85	3.13	3.40	3.68	3.96	4.13	4.30	4.31	4.31
0	35	0.25	0.29	0.34	0.37	0.40	0.42	0.44	0.47	0.50	0.52	0.54
1		0.50	0.59	0.68	0.75	0.82	0.88	0.94	1.01	1.08	1.14	1.19
2		0.66	0.79	0.91	1.01	1.11	1.21	1.31	1.41	1.50	1.60	1.69
3		1.25	1.48	1.72	1.91	2.09	2.29	2.50	2.68	2.86	3.05	3.24
4		1.83	2.17	2.52	2.80	3.08	3.38	3.68	3.96	4.23	4.51	4.80
5		2.05	2.44	2.83	3.15	3.46	3.81	4.16	4.46	4.77	5.09	5.42
0	45	0.23	0.27	0.32	0.35	0.38	0.41	0.43	0.47	0.51	0.55	0.58
1		0.46	0.55	0.64	0.71	0.79	0.86	0.93	1.02	1.10	1.20	1.29
2		0.61	0.74	0.86	0.96	1.06	1.18	1.29	1.41	1.53	1.68	1.83
3		1.16	1.39	1.62	1.82	2.02	2.24	2.46	2.69	2.92	3.21	3.49
4		1.69	2.04	2.38	2.67	2.96	3.30	3.63	3.97	4.31	4.75	5.18
5		1.90	2.29	2.67	3.00	3.33	3.71	4.10	4.48	4.86	5.36	5.85
0	55	0.20	0.24	0.28	0.31	0.34	0.37	0.40	0.44	0.49	0.53	0.57
1		0.40	0.48	0.56	0.63	0.71	0.78	0.85	0.95	1.04	1.15	1.26
2		0.53	0.64	0.75	0.85	0.95	1.07	1.19	1.32	1.45	1.62	1.79
3		0.99	1.21	1.42	1.61	1.81	2.03	2.26	2.51	2.75	3.09	3.42
4		1.45	1.77	2.08	2.37	2.65	2.99	3.33	3.70	4.07	4.57	5.07
5		1.63	1.99	2.34	2.66	2.99	3.37	3.76	4.17	4.59	5.15	5.72

Subcooling correction factor 'fsub'

Subcooling[K]	2	4	10	15	20	25	30	35	40	45	50
Correction factor	0.97	1.00	1.09	1.16	1.23	1.30	1.38	1.45	1.52	1.59	1.65

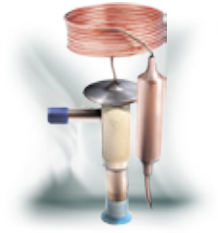


Table4: R134a

Size	Cond. Temp. [°C]	Cooling Capacity [kW]										
		Evaporating Temperature [°C]										
		-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
0	25	/	/	/	/	0.27	0.28	0.30	0.31	0.33	0.47	0.60
1		/	/	/	/	0.53	0.57	0.60	0.64	0.68	0.97	1.25
2		/	/	/	/	0.71	0.76	0.80	0.86	0.92	1.32	1.71
3		/	/	/	/	1.34	1.43	1.51	1.63	1.75	2.50	3.24
4		/	/	/	/	1.96	2.09	2.22	2.39	2.57	3.67	4.78
5		/	/	/	/	2.20	2.35	2.50	2.69	2.89	4.13	5.38
0	35	/	/	/	/	0.29	0.31	0.33	0.36	0.39	0.40	0.42
1		/	/	/	/	0.58	0.63	0.67	0.74	0.81	0.84	0.87
2		/	/	/	/	0.77	0.83	0.90	1.00	1.09	1.14	1.19
3		/	/	/	/	1.45	1.58	1.70	1.88	2.07	2.16	2.26
4		/	/	/	/	2.13	2.31	2.49	2.76	3.04	3.18	3.32
5		/	/	/	/	2.39	2.59	2.80	3.11	3.42	3.58	3.74
0	45	/	/	/	/	0.30	0.33	0.35	0.39	0.43	0.45	0.48
1		/	/	/	/	0.60	0.66	0.71	0.80	0.88	0.94	1.00
2		/	/	/	/	0.80	0.87	0.95	1.07	1.19	1.28	1.37
3		/	/	/	/	1.51	1.65	1.79	2.02	2.25	2.43	2.60
4		/	/	/	/	2.21	2.42	2.63	2.97	3.31	3.57	3.82
5		/	/	/	/	2.48	2.72	2.96	3.34	3.73	4.02	4.31
0	55	/	/	/	/	0.28	0.31	0.34	0.38	0.42	0.46	0.49
1		/	/	/	/	0.57	0.63	0.69	0.78	0.87	0.95	1.03
2		/	/	/	/	0.76	0.84	0.92	1.05	1.18	1.29	1.40
3		/	/	/	/	1.43	1.58	1.73	1.98	2.23	2.45	2.66
4		/	/	/	/	2.09	2.32	2.54	2.91	3.28	3.60	3.92
5		/	/	/	/	2.35	2.60	2.86	3.27	3.69	4.05	4.41

Subcooling correction factor 'fsub'

Subcooling [K]	2	4	10	15	20	25	30	35	40	45	50
Correction factor	0.98	1.00	1.07	1.12	1.18	1.23	1.29	1.34	1.40	1.45	1.50



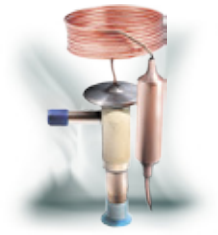


Table5: R290

Size	Cond. Temp. [°C]	Cooling Capacity [kW]										
		Evaporating Temperature [°C]										
		-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
0	25	0.25	0.31	0.36	0.40	0.44	0.46	0.49	0.50	0.52	0.52	0.52
1		0.50	0.61	0.73	0.81	0.89	0.94	1.00	1.04	1.09	1.10	1.11
2		0.66	0.81	0.97	1.08	1.19	1.27	1.35	1.41	1.48	1.51	1.54
3		1.24	1.53	1.82	2.03	2.24	2.39	2.55	2.68	2.81	2.87	2.94
4		1.81	2.24	2.66	2.97	3.28	3.51	3.74	3.94	4.14	4.24	4.34
5		2.03	2.51	2.99	3.34	3.69	3.95	4.21	4.44	4.66	4.78	4.89
0	35	0.26	0.32	0.38	0.42	0.47	0.50	0.53	0.57	0.60	0.64	0.68
1		0.51	0.64	0.76	0.85	0.94	1.02	1.09	1.18	1.26	1.36	1.46
2		0.67	0.84	1.01	1.13	1.26	1.37	1.48	1.60	1.72	1.88	2.03
3		1.27	1.58	1.90	2.14	2.38	2.59	2.79	3.03	3.26	3.56	3.87
4		1.86	2.32	2.78	3.13	3.49	3.79	4.10	4.45	4.80	5.26	5.71
5		2.08	2.60	3.12	3.52	3.92	4.27	4.61	5.01	5.40	5.92	6.45
0	45	0.26	0.32	0.38	0.43	0.48	0.52	0.56	0.60	0.65	0.71	0.78
1		0.51	0.64	0.77	0.87	0.97	1.05	1.14	1.25	1.36	1.51	1.67
2		0.67	0.84	1.01	1.15	1.29	1.42	1.54	1.70	1.86	2.09	2.32
3		1.26	1.59	1.91	2.17	2.44	2.68	2.92	3.22	3.52	3.97	4.42
4		1.85	2.32	2.80	3.19	3.57	3.93	4.29	4.73	5.18	5.85	6.52
5		2.07	2.61	3.14	3.58	4.01	4.42	4.83	5.33	5.83	6.60	7.36
0	55	0.25	0.31	0.37	0.42	0.47	0.51	0.56	0.61	0.67	0.74	0.82
1		0.49	0.62	0.75	0.85	0.95	1.05	1.15	1.27	1.39	1.58	1.77
2		0.65	0.82	0.99	1.13	1.27	1.41	1.55	1.73	1.90	2.18	2.46
3		1.22	1.54	1.86	2.13	2.40	2.67	2.93	3.27	3.61	4.15	4.68
4		1.78	2.25	2.72	3.12	3.52	3.91	4.30	4.81	5.31	6.12	6.92
5		1.99	2.53	3.06	3.51	3.96	4.40	4.84	5.41	5.99	6.89	7.80

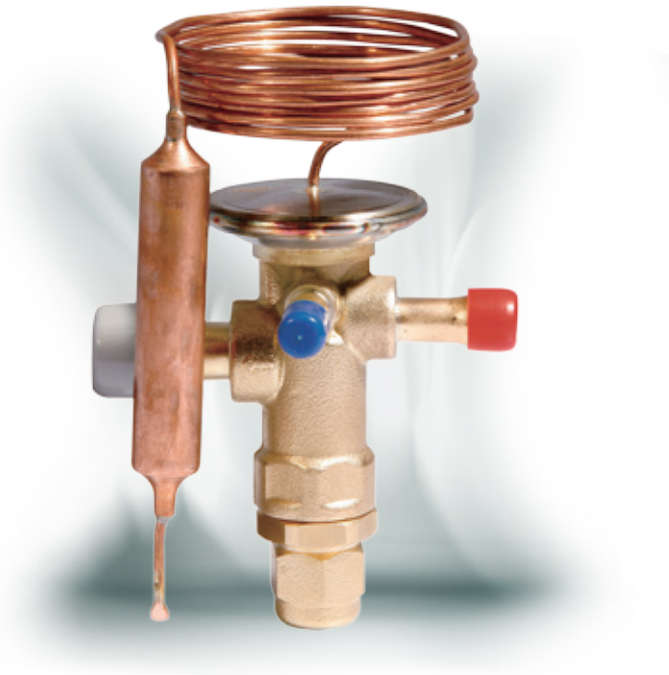
**Subcooling correction factor 'fsub'**

Subcooling [K]	2	4	10	15	20	25	30	35	40	45	50
Correction factor	0.98	1.00	1.06	1.10	1.15	1.20	1.24	1.28	1.33	1.37	1.41

## RFGD10/20 SERIES

# Thermostatic Expansion Valve

RFGD10/20 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 temperatures.



### 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
- BALANCED PORT – SUITABLE FOR REVERSIBLE CYCLES
- THERMAL BULB UTILIZES CROSS CHARGE TECHNOLOGY, PROVIDING CONSISTENT SUPERHEAT DEGREE OVER THE WHOLE EVAPORATION TEMPERATURE RANGE

### GENERAL SPECIFICATION

- Applicable for all common HCFC, HFC, HFO refrigerants<sup>1)</sup> such as: R22, R134a, R404A, R407C, R410A, R507, R1234ze, R1234yf, R450A/R513A
- Ambient temperature min./max.: -35/+55°C
- Max. operating pressure PS: 4,8 MPa
- Installation position: - Preferably valve head upwards  
- Main flow direction from inlet A to outlet B
- Certifications: UL/CSA and PED declaration

**Note:** 1) Models for R407A/F, R1234ze, R1234yf, R450A/R513A are on request  
2) Max. operating pressure is related to the used refrigerant

# RFGD10/20 SERIES

## Thermostatic Expansion Valve



### TECHNICAL PARAMETERS

- RFGD valves are available in straight shape with adjustable superheat on site
- RFGD valves are available with the following solder connections
  - Imperial: Inlet 3/8" ODF/ Outlet 5/8" ODF or Inlet 1/2" ODF/ Outlet 7/8" ODF or Inlet 5/8" ODF/ Outlet 7/8" ODF
- Equalization port available as option:
  - Imperial: 1/4" ODF (available for models with imperial solder connections)
- Capillary tube length 1500mm as standard. Different length customizable on request.
- Standard MOP values:
  - T. range -25°C to +10°C, MOP: +15°C

### MODEL DESIGNATION LEGEND

Position Number	Model Designation Legend	
1	Product Code	Product Series
	RFGD	Thermostatic expansion valve with build-in orifice
2	Refrigerant	Description
	1	R22
	2	R407C
	3	R404A / R507
	4	R134a
	5	R410A
3	Pressure Equalization	Description
	E	External pressure equalization
	(Omitted)	Internal pressure equalization
4	Nominal capacity	Unit
	xx	Digits for USRT
5	Other information	Description
	xx	Digits for additional information

# RFGD10/20 SERIES

## Thermostatic Expansion Valve



### MODEL DESIGNATION EXAMPLE

Position Number					According to Model Designation Legend
1	2	3	4	5	
RFGD	04	E	3.6	71	Thermostatic expansion valve with build-in orifice
RFGD	<b>04</b>	E	3.6	71	Refrigerant: R134a
RFGD	04	<b>E</b>	3.6	71	With connection for external pressure equalization
RFGD	04	E	<b>3.6</b>	71	Nominal capacity :3.6USRT
RFGD	04	E	3.6	<b>71</b>	Digits for additional information

### TECHNICAL DATA

Table A: RFGD10 -40°C ~ +10°C (without MOP)

Ref.	Size	Capacity		Inlet connections	Outlet Connections	Pressure Equal.	Product Model
		USRT	kW	[Inch]	[Inch]	[Inch]	
R22	01	3.0	10.6	3/8	5/8	1/4	RFGD01E-3.0-10
	02	4.0	14.1	1/2	7/8	1/4	RFGD01E-4.0-17
	03	6.0	21.1	1/2	7/8	1/4	RFGD01E-6.0-06
	04	7.5	26.4	5/8	7/8	1/4	RFGD01E-7.5-19
	05	9.0	31.7	5/8	7/8	1/4	RFGD01E-9.0-31
	06	11.0	38.7	5/8	7/8	1/4	RFGD01E-11.0-20
R407C	01	3.1	10.9	3/8	5/8	1/4	RFGD02E-3.1-33
	02	4.2	14.8	1/2	7/8	1/4	RFGD02E-4.2-34
	03	6.3	22.2	1/2	7/8	1/4	RFGD02E-6.3-35
	04	8.1	28.5	5/8	7/8	1/4	RFGD02E-8.1-36
	05	9.4	33.1	5/8	7/8	1/4	RFGD02E-9.4-37
	06	11.7	41.1	5/8	7/8	1/4	RFGD02E-11.7-38
R404 / R507	01	2.0	7.0	3/8	5/8	1/4	RFGD03E-2.0-39
	02	2.8	9.8	1/2	7/8	1/4	RFGD03E-2.8-40
	03	4.2	14.8	1/2	7/8	1/4	RFGD03E-4.2-41
	04	5.4	19.0	5/8	7/8	1/4	RFGD03E-5.4-42
	05	6.4	22.5	5/8	7/8	1/4	RFGD03E-6.4-43
	06	7.8	27.4	5/8	7/8	1/4	RFGD03E-7.8-44
R134a	01	1.8	6.3	3/8	5/8	1/4	RFGD04E-1.8-01
	02	2.5	8.8	1/2	7/8	1/4	RFGD04E-2.5-02
	03	3.6	12.7	1/2	7/8	1/4	RFGD04E-3.6-03
	04	4.6	16.2	5/8	7/8	1/4	RFGD04E-4.6-04
	05	5.5	19.3	5/8	7/8	1/4	RFGD04E-5.5-49
	06	6.8	23.9	5/8	7/8	1/4	RFGD04E-6.8-32
R410A	01	3.5	12.3	3/8	5/8	1/4	RFGD05E-3.5-22
	02	4.5	15.8	1/2	7/8	1/4	RFGD05E-4.5-23
	03	7.0	24.6	1/2	7/8	1/4	RFGD05E-7.0-24
	04	8.6	30.2	5/8	7/8	1/4	RFGD05E-8.6-25
	05	10.6	37.3	5/8	7/8	1/4	RFGD05E-10.6-27
	06	12.8	45.0	5/8	7/8	1/4	RFGD05E-12.8-26

#### Note:

1) Nominal capacities referred at the following working conditions:

Condensing temperature: 38°C; evaporating temperature +4.4°C; Liquid temperature 37°C;

Static Super Heating: 3,5K

# RFGD10/20 SERIES

## Thermostatic Expansion Valve

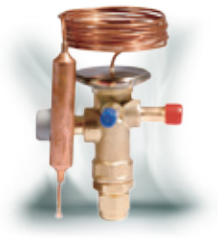


TABLE B: RFGD20 -40°C ~ +10°C (Without MOP)

Ref.	Size	Capacity		Inlet connections	Outlet Connections	Pressure Equal.	Product Model
		USRT	kW	[Inch]	[Inch]	[Inch]	
R22	01	12.0	42.2	5/8	7/8	1/4	RFGD01E-12.0-506
	02	12.0	42.2	5/8	1 1/8	1/4	RFGD01E-12.0-513
	03	15.0	52.8	5/8	1 1/8	1/4	RFGD01E-15.0-514
	04	15.0	52.8	7/8	1 1/8	1/4	RFGD01E-15.0-516
	05	18.0	63.3	7/8	1 1/8	1/4	RFGD01E-18.0-518
	06	18.0	63.3	7/8	1-3/8	1/4	RFGD01E-18.0-519
R407C	01	12.0	42.2	5/8	7/8	1/4	RFGD02E-12.0-542
	02	12.0	42.2	5/8	1 1/8	1/4	RFGD02E-12.0-543
	03	15.0	52.8	5/8	1 1/8	1/4	RFGD02E-15.0-545
	04	15.0	52.8	7/8	1 1/8	1/4	RFGD02E-15.0-547
	05	18.0	63.3	7/8	1 1/8	1/4	RFGD02E-18.0-549
	06	18.0	63.3	7/8	1-3/8	1/4	RFGD02E-18.0-551
R404 / R507	01	9	31.7	5/8	7/8	1/4	RFGD03E-9.0-532
	02	9	31.7	5/8	1 1/8	1/4	RFGD03E-9.0-533
	03	11	38.7	5/8	1 1/8	1/4	RFGD03E-11.0-535
	04	11	38.7	7/8	1 1/8	1/4	RFGD03E-11.0-537
	05	13	45.7	7/8	1 1/8	1/4	RFGD03E-13.0-539
	06	13	45.7	7/8	1-3/8	1/4	RFGD03E-13.0-541
R134a	01	8.0	28.1	5/8	7/8	1/4	RFGD04E-8.0-501
	02	8.0	28.1	5/8	1 1/8	1/4	RFGD04E-8.0-502
	03	10.0	35.2	5/8	1 1/8	1/4	RFGD04E-10.0-504
	04	10.0	35.2	7/8	1 1/8	1/4	RFGD04E-10.0-520
	05	12.0	42.2	7/8	1 1/8	1/4	RFGD04E-12.0-522
	06	12.0	42.2	7/8	1-3/8	1/4	RFGD04E-12.0-524
R410A	01	15.0	52.8	5/8	7/8	1/4	RFGD05E-15.0-510
	02	15.0	52.8	5/8	1 1/8	1/4	RFGD05E-15.0-511
	03	19.0	66.8	5/8	1 1/8	1/4	RFGD05E-19.0-512
	04	19.0	66.8	7/8	1 1/8	1/4	RFGD05E-19.0-517
	05	23.0	80.9	7/8	1 1/8	1/4	RFGD05E-23.0-555
	06	23.0	80.9	7/8	1-3/8	1/4	RFGD05E-23.0-557

# RFGD10/20 SERIES

## Thermostatic Expansion Valve

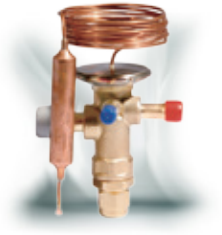


TABLE C: RFGD20 -25°C ~ +10°C (With MOP +15°C)

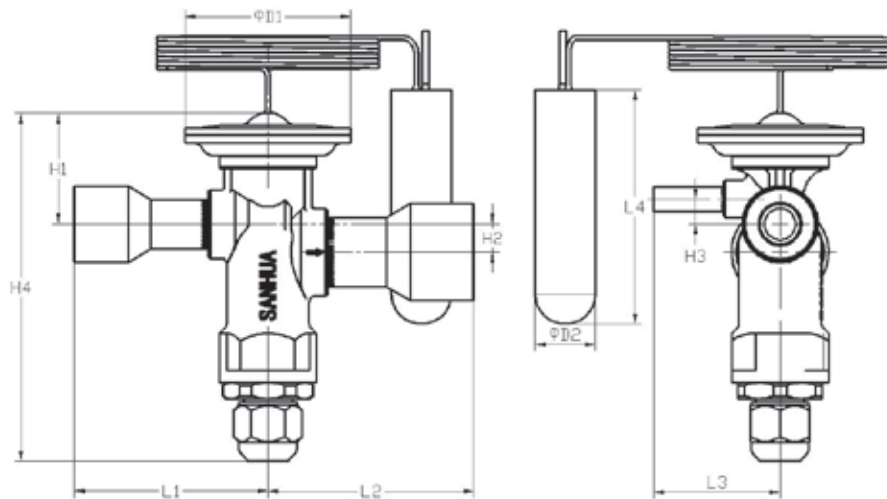
Ref.	Size	Capacity		Inlet connections	Outlet Connections	Pressure Equal.	Product Model
		USRT	kW	[Inch]	[Inch]	[Inch]	
R22	01	12.0	42.2	5/8	7/8	1/4	RFGD01E-12.0-617
	02	12.0	42.2	5/8	1 1/8	1/4	RFGD01E-12.0-618
	03	15.0	52.8	5/8	1 1/8	1/4	RFGD01E-15.0-620
	04	15.0	52.8	7/8	1 1/8	1/4	RFGD01E-15.0-622
	05	18.0	63.3	7/8	1 1/8	1/4	RFGD01E-18.0-624
	06	18.0	63.3	7/8	1-3/8	1/4	RFGD01E-18.0-626
R407C	01	12.0	42.2	5/8	7/8	1/4	RFGD02E-12.0-637
	02	12.0	42.2	5/8	1 1/8	1/4	RFGD02E-12.0-638
	03	15.0	52.8	5/8	1 1/8	1/4	RFGD02E-15.0-640
	04	15.0	52.8	7/8	1 1/8	1/4	RFGD02E-15.0-642
	05	18.0	63.3	7/8	1 1/8	1/4	RFGD02E-18.0-644
	06	18.0	63.3	7/8	1-3/8	1/4	RFGD02E-18.0-646
R404 / R507	01	9	31.7	5/8	7/8	1/4	RFGD03E-9.0-627
	02	9	31.7	5/8	1 1/8	1/4	RFGD03E-9.0-628
	03	11	38.7	5/8	1 1/8	1/4	RFGD03E-11.0-630
	04	11	38.7	7/8	1 1/8	1/4	RFGD03E-11.0-632
	05	13	45.7	7/8	1 1/8	1/4	RFGD03E-13.0-634
	06	13	45.7	7/8	1-3/8	1/4	RFGD03E-13.0-636
R134a	01	8.0	28.1	5/8	7/8	1/4	RFGD04E-8.0-601
	02	8.0	28.1	5/8	1 1/8	1/4	RFGD04E-8.0-602
	03	10.0	35.2	5/8	1 1/8	1/4	RFGD04E-10.0-604
	04	10.0	35.2	7/8	1 1/8	1/4	RFGD04E-10.0-606
	05	12.0	42.2	7/8	1 1/8	1/4	RFGD04E-12.0-608
	06	12.0	42.2	7/8	1-3/8	1/4	RFGD04E-12.0-610
R410A	01	15.0	52.8	5/8	7/8	1/4	RFGD05E-15.0-647
	02	15.0	52.8	5/8	1 1/8	1/4	RFGD05E-15.0-648
	03	19.0	66.8	5/8	1 1/8	1/4	RFGD05E-19.0-512
	04	19.0	66.8	7/8	1 1/8	1/4	RFGD05E-19.0-517
	05	23.0	80.9	7/8	1 1/8	1/4	RFGD05E-23.0-555
	06	23.0	80.9	7/8	1-3/8	1/4	RFGD05E-23.0-557

# RFGD10/20 SERIES

## Thermostatic Expansion Valve



### DIMENSIONS



Series	Pipe Connection		Capillary length [m]	Dimensions									
	Inlet	Outlet		H1	H2	H3	H4	L1	L2	L3	L4	ΦD1	ΦD2
	[inch]	[inch]		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
RFGD10	3/8	5/8	1.5	30	7.5	5	97	41.5	45.5	37.5	64	48	14.4
	1/2	7/8						41.5	59.5				
	5/8	7/8						45.5	59.5				
RFGD20	5/8	7/8	1.5	32	9	8	111	48	62	40.5	75	53	19.2
	5/8	1 1/8						48	66				
	7/8	1 1/8						62	66				
	7/8	1 3/8						62	66				

# RFGD10/20 SERIES

## Thermostatic Expansion Valve



### COOLING CAPACITIES

Table1: R22

Size	Cond. Temp. [°C]	Cooling Capacity [kW]										
		Evaporating Temperature [°C]										
		-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
01	25	5.61	5.89	6.16	6.42	6.67	6.85	7.02	7.97	8.92	8.52	8.12
02		7.01	7.35	7.68	8.00	8.31	8.52	8.72	9.90	11.07	10.56	10.05
03		10.43	10.95	11.47	11.95	12.42	12.75	13.08	14.87	16.66	15.93	15.19
04		12.27	12.88	13.49	14.05	14.61	15.00	15.38	17.48	19.57	18.70	17.83
05		14.47	15.18	15.89	16.55	17.20	17.65	18.10	20.56	23.02	21.99	20.96
06		18.68	19.61	20.53	21.38	22.23	22.82	23.40	26.59	29.77	28.45	27.12
01	35	5.88	6.20	6.52	6.85	7.17	7.45	7.72	8.97	10.22	10.18	10.13
02		7.34	7.74	8.13	8.53	8.92	9.26	9.60	11.15	12.69	12.62	12.55
03		10.91	11.52	12.13	12.74	13.34	13.87	14.39	16.74	19.09	19.03	18.96
04		12.85	13.56	14.27	14.98	15.69	16.30	16.91	19.67	22.42	22.34	22.25
05		15.15	15.98	16.81	17.65	18.48	19.20	19.91	23.14	26.37	26.26	26.15
06		19.56	20.64	21.72	22.80	23.88	24.81	25.73	29.92	34.11	33.98	33.84
01	45	6.00	6.36	6.72	7.10	7.47	7.82	8.17	9.63	11.08	11.27	11.45
02		7.50	7.94	8.38	8.84	9.30	9.73	10.16	11.96	13.76	13.98	14.19
03		11.15	11.83	12.50	13.20	13.90	14.57	15.23	17.97	20.71	21.07	21.43
04		13.13	13.92	14.70	15.53	16.35	17.13	17.90	21.11	24.32	24.74	25.15
05		15.47	16.40	17.32	18.29	19.25	20.16	21.07	24.84	28.60	29.08	29.56
06		19.98	21.18	22.38	23.63	24.88	26.06	27.24	32.12	36.99	37.63	38.26
01	55	5.98	6.36	6.74	7.15	7.56	7.97	8.37	9.96	11.54	11.88	12.22
02		7.46	7.93	8.40	8.91	9.41	9.91	10.40	12.37	14.33	14.74	15.14
03		11.10	11.82	12.53	13.30	14.07	14.84	15.60	18.58	21.56	22.22	22.88
04		13.06	13.91	14.75	15.65	16.55	17.45	18.34	21.83	25.32	26.09	26.85
05		15.40	16.39	17.37	18.43	19.49	20.54	21.58	25.69	29.79	30.68	31.56
06		19.88	21.16	22.44	23.81	25.18	26.54	27.90	33.21	38.52	39.68	40.84

### Subcooling correction factor 'fsub'

Subcooling [K]	2	4	10	15	20	25	30	35	40	45	50
Correction factor	0.98	1.00	1.05	1.10	1.14	1.19	1.23	1.28	1.32	1.36	1.41

### Distributor correction factor 'fp' \*

Pressure drop [bar]	Evaporating temperature [°C]											
	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15
0	1	1	1	1	1	1	1	1	1	1	1	1
1	0.96	0.95	0.95	0.95	0.95	0.95	0.94	0.94	0.93	0.92	0.91	0.89
1.5	0.93	0.93	0.93	0.93	0.92	0.92	0.91	0.91	0.9	0.88	0.86	0.82
2	0.91	0.91	0.9	0.9	0.9	0.89	0.88	0.87	0.86	0.84	0.81	0.76

\*Calculated at 32°C condensing temperature.



# RFGD10/20 SERIES

## Thermostatic Expansion Valve

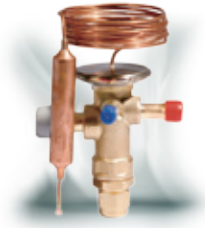


Table2: R407C

Size	Cond. Temp. [°C]	Cooling Capacity [kW]										
		Evaporating Temperature [°C]										
		-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
01	25	5.96	6.19	6.42	6.75	7.08	7.35	7.62	8.83	10.04	9.27	8.49
02		7.44	7.72	8.00	8.41	8.81	9.15	9.48	10.97	12.46	11.49	10.52
03		11.08	11.51	11.93	12.56	13.18	13.70	14.22	16.49	18.75	17.32	15.89
04		13.04	13.54	14.04	14.77	15.50	16.11	16.71	19.37	22.02	20.34	18.65
05		15.37	15.96	16.54	17.40	18.25	18.96	19.67	22.79	25.90	23.91	21.92
06		19.85	20.61	21.37	22.48	23.58	24.50	25.42	29.46	33.50	30.93	28.36
01	35	6.07	6.33	6.59	6.98	7.37	7.73	8.09	9.53	10.97	10.69	10.40
02		7.57	7.90	8.22	8.70	9.17	9.62	10.06	11.84	13.62	13.25	12.88
03		11.27	11.77	12.26	12.99	13.72	14.40	15.08	17.79	20.50	19.99	19.47
04		13.27	13.85	14.43	15.28	16.13	16.93	17.73	20.90	24.07	23.46	22.84
05		15.63	16.31	16.99	18.00	19.00	19.93	20.86	24.59	28.32	27.59	26.85
06		20.19	21.07	21.95	23.25	24.55	25.76	26.97	31.80	36.62	35.68	34.74
01	45	5.98	6.27	6.56	6.99	7.42	7.84	8.26	9.85	11.43	11.46	11.48
02		7.47	7.83	8.18	8.71	9.23	9.75	10.27	12.23	14.19	14.21	14.22
03		11.12	11.67	12.21	13.01	13.81	14.61	15.40	18.38	21.35	21.42	21.49
04		13.09	13.73	14.36	15.30	16.24	17.17	18.10	21.59	25.07	25.14	25.21
05		15.42	16.17	16.92	18.02	19.12	20.21	21.30	25.40	29.49	29.56	29.63
06		19.92	20.89	21.86	23.29	24.71	26.13	27.54	32.85	38.15	38.25	38.35
01	55	5.69	6.00	6.30	6.75	7.19	7.65	8.11	9.76	11.40	11.63	11.86
02		7.10	7.48	7.85	8.41	8.96	9.52	10.08	12.12	14.15	14.43	14.70
03		10.56	11.14	11.71	12.55	13.39	14.26	15.12	18.21	21.29	21.75	22.21
04		12.43	13.11	13.78	14.77	15.75	16.76	17.77	21.39	25.00	25.53	26.06
05		14.65	15.45	16.24	17.40	18.55	19.74	20.92	25.17	29.41	30.03	30.64
06		18.92	19.95	20.97	22.47	23.97	25.51	27.04	32.54	38.04	38.85	39.65

Subcooling correction factor 'fsub'

Subcooling [K]	2	4	10	15	20	25	30	35	40	45	50
Correction factor	0.98	1.00	1.07	1.12	1.18	1.23	1.28	1.34	1.39	1.45	1.50

Distributor correction factor 'fp' \*

Pressure drop [bar]	Evaporating temperature [°C]											
	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15
0	1	1	1	1	1	1	1	1	1	1	1	1
1	0.96	0.96	0.96	0.96	0.96	0.96	0.95	0.95	0.95	0.94	0.93	0.92
1.5	0.94	0.94	0.94	0.94	0.94	0.93	0.93	0.93	0.92	0.91	0.90	0.88
2	0.92	0.92	0.92	0.92	0.91	0.91	0.91	0.90	0.89	0.88	0.86	0.84

\*Calculated at 32°C condensing temperature.

# RFGD10/20 SERIES

## Thermostatic Expansion Valve

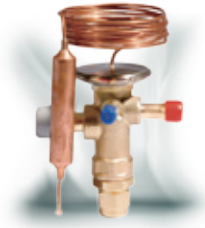


Table3: R404A

Size	Cond. Temp. [°C]	Cooling Capacity [kW]										
		Evaporating Temperature [°C]										
		-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
01	25	4.36	4.47	4.58	4.73	4.87	5.52	6.16	7.11	8.06	7.76	7.46
02		5.44	5.57	5.70	5.88	6.06	6.86	7.65	8.82	9.99	9.61	9.22
03		8.10	8.31	8.51	8.79	9.07	10.29	11.50	13.30	15.09	14.55	14.00
04		9.53	9.77	10.01	10.34	10.67	12.09	13.51	15.61	17.70	17.06	16.41
05		11.23	11.52	11.80	12.18	12.56	14.23	15.89	18.35	20.81	20.05	19.28
06		14.50	14.87	15.24	15.74	16.23	18.39	20.55	23.74	26.93	25.95	24.96
01	35	4.24	4.38	4.52	4.72	4.91	5.65	6.38	7.55	8.72	8.75	8.78
02		5.29	5.46	5.63	5.87	6.11	7.02	7.92	9.36	10.80	10.83	10.86
03		7.87	8.14	8.41	8.78	9.14	10.53	11.91	14.11	16.31	16.40	16.48
04		9.26	9.58	9.89	10.32	10.75	12.37	13.99	16.57	19.14	19.23	19.32
05		10.92	11.29	11.65	12.15	12.65	14.55	16.45	19.48	22.50	22.60	22.70
06		14.10	14.58	15.05	15.70	16.35	18.82	21.28	25.20	29.12	29.26	29.39
01	45	3.91	4.08	4.24	4.47	4.69	5.46	6.23	7.50	8.77	9.01	9.24
02		4.88	5.09	5.29	5.57	5.84	6.79	7.74	9.30	10.86	11.15	11.43
03		7.26	7.58	7.89	8.32	8.74	10.19	11.64	14.03	16.41	16.88	17.34
04		8.55	8.92	9.29	9.78	10.27	11.97	13.67	16.47	19.26	19.80	20.33
05		10.08	10.51	10.94	11.52	12.10	14.09	16.08	19.36	22.64	23.26	23.88
06		13.01	13.57	14.13	14.88	15.63	18.21	20.79	25.04	29.29	30.11	30.92
01	55	3.34	3.53	3.71	3.95	4.18	4.93	5.68	6.94	8.20	8.56	8.91
02		4.17	4.40	4.62	4.92	5.21	6.14	7.06	8.61	10.16	10.59	11.02
03		6.20	6.55	6.89	7.35	7.80	9.21	10.61	12.98	15.34	16.04	16.73
04		7.30	7.71	8.11	8.64	9.17	10.82	12.46	15.23	18.00	18.81	19.61
05		8.61	9.08	9.55	10.17	10.79	12.73	14.66	17.91	21.16	22.10	23.03
06		11.11	11.73	12.34	13.15	13.95	16.46	18.96	23.18	27.39	28.61	29.82

Subcooling correction factor 'fsub'

Subcooling [K]	2	4	10	15	20	25	30	35	40	45	50
Correction factor	0.97	1.00	1.09	1.16	1.23	1.30	1.38	1.45	1.52	1.59	1.65

Distributor correction factor 'fp' \*

Pressure drop [bar]	Evaporating temperature [°C]												
	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.95	0.95	0.94	0.94	0.92	0.91
0	0.94	0.94	0.94	0.94	0.94	0.94	0.93	0.93	0.92	0.91	0.90	0.88	0.86
1	0.92	0.92	0.92	0.92	0.91	0.91	0.90	0.89	0.88	0.87	0.84	0.84	0.80
1.5	0.94	0.94	0.94	0.94	0.94	0.93	0.93	0.93	0.92	0.91	0.90	0.90	0.88
2	0.92	0.92	0.92	0.92	0.91	0.91	0.91	0.90	0.89	0.88	0.88	0.86	0.84

\*Calculated at 32°C condensing temperature.

# RFGD10/20 SERIES

## Thermostatic Expansion Valve



Table4: R134a

Size	Cond. Temp. [°C]	Cooling Capacity [kW]										
		Evaporating Temperature [°C]										
		-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
01	25	2.12	2.32	2.51	2.70	2.89	3.25	3.61	4.32	5.02	4.96	4.90
02		2.65	2.90	3.14	3.37	3.60	4.05	4.50	5.38	6.25	6.17	6.09
03		3.93	4.30	4.66	5.01	5.36	6.04	6.72	8.04	9.35	9.25	9.15
04		4.63	5.06	5.49	5.90	6.31	7.11	7.90	9.45	10.99	10.87	10.75
05		5.46	5.97	6.47	6.96	7.44	8.38	9.31	11.13	12.95	12.80	12.65
06		7.04	7.70	8.36	8.99	9.61	10.82	12.03	14.38	16.73	16.55	16.36
01	35	2.19	2.41	2.63	2.86	3.08	3.51	3.94	4.83	5.71	5.90	6.09
02		2.74	3.02	3.29	3.57	3.84	4.38	4.92	6.02	7.11	7.34	7.56
03		4.07	4.48	4.88	5.30	5.71	6.52	7.33	8.99	10.64	11.00	11.35
04		4.79	5.27	5.75	6.24	6.72	7.68	8.63	10.58	12.52	12.93	13.34
05		5.65	6.22	6.78	7.11	7.44	8.81	10.17	12.46	14.74	15.22	15.70
06		7.29	8.02	8.75	9.18	9.61	11.37	13.13	16.09	19.04	19.67	20.30
01	45	2.20	2.44	2.67	2.92	3.16	3.65	4.13	5.14	6.14	6.48	6.82
02		2.75	3.05	3.34	3.65	3.95	4.55	5.15	6.40	7.64	8.06	8.48
03		4.08	4.52	4.96	5.42	5.88	6.78	7.68	9.56	11.43	12.08	12.73
04		4.81	5.33	5.84	6.38	6.92	7.98	9.03	11.24	13.45	14.21	14.96
05		5.67	6.28	6.88	7.16	7.44	9.04	10.64	13.24	15.83	16.72	17.60
06		7.32	8.11	8.89	9.25	9.61	11.68	13.75	17.11	20.46	21.61	22.76
01	55	2.14	2.38	2.62	2.88	3.14	3.65	4.16	5.24	6.31	6.76	7.20
02		2.67	2.98	3.28	3.60	3.92	4.56	5.19	6.52	7.85	8.40	8.95
03		3.96	4.41	4.86	5.35	5.84	6.79	7.74	9.75	11.75	12.60	13.44
04		4.67	5.20	5.73	6.30	6.87	7.99	9.11	11.46	13.81	14.80	15.79
05		5.50	6.13	6.76	7.10	7.44	9.09	10.73	13.50	16.27	17.43	18.58
06		7.10	7.91	8.72	9.17	9.61	11.74	13.86	17.44	21.02	22.52	24.02

**Subcooling correction factor 'fsub'**

Subcooling [K]	2	4	10	15	20	25	30	35	40	45	50
Correction factor	0.98	1.00	1.07	1.12	1.18	1.23	1.29	1.34	1.40	1.45	1.50

**Distributor correction factor 'fp' \***

Pressure drop [bar]	Evaporating temperature [°C]											
	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15
0	1	1	1	1	1	1	1	1	1	1	1	1
1	0.93	0.93	0.93	0.93	0.92	0.92	0.92	0.91	0.90	0.89	0.87	0.83
1.5	0.90	0.89	0.89	0.89	0.88	0.88	0.87	0.86	0.84	0.82	0.79	0.74
2	0.86	0.86	0.85	0.85	0.84	0.83	0.82	0.81	0.79	0.76	0.71	0.62

\*Calculated at 32°C condensing temperature.

# RFGD10/20 SERIES

## Thermostatic Expansion Valve

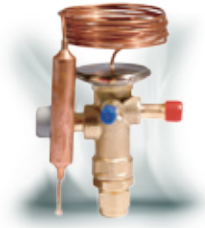


Table5: R410A

Size	Cond. Temp. [°C]	Cooling Capacity [kW]										
		Evaporating Temperature [°C]										
		-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
01	25	7.20	8.11	9.02	9.33	9.63	10.61	11.59	13.17	14.74	13.77	12.79
02		8.99	10.11	11.23	11.60	11.96	13.17	14.37	16.30	18.23	17.01	15.79
03		13.38	15.09	16.79	17.38	17.96	19.82	21.68	24.66	27.64	25.84	24.04
04		15.75	17.75	19.75	20.43	21.10	23.28	25.45	28.93	32.41	30.29	28.16
05		18.56	20.91	23.25	24.04	24.83	27.38	29.93	34.00	38.07	35.57	33.06
06		23.97	27.01	30.05	31.08	32.11	35.42	38.72	44.01	49.29	46.06	42.82
01	35	7.30	8.28	9.25	9.64	10.03	11.20	12.37	14.38	16.38	15.93	15.47
02		9.12	10.32	11.52	12.00	12.47	13.91	15.34	17.80	20.26	19.68	19.10
03		13.56	15.39	17.22	17.97	18.71	20.93	23.14	26.94	30.73	29.91	29.09
04		15.97	18.11	20.25	21.12	21.99	24.58	27.16	31.60	36.03	35.05	34.07
05		18.82	21.34	23.85	24.87	25.88	28.91	31.94	37.14	42.33	41.17	40.00
06		24.30	27.56	30.82	32.14	33.46	37.39	41.32	48.06	54.80	53.31	51.81
01	45	7.14	8.14	9.13	9.58	10.02	11.30	12.57	14.82	17.06	16.93	16.80
02		8.91	10.14	11.37	11.92	12.46	14.03	15.59	18.35	21.11	20.93	20.74
03		13.26	15.13	17.00	17.85	18.70	21.11	23.52	27.76	32.00	31.79	31.57
04		15.62	17.81	20.00	20.99	21.98	24.79	27.60	32.56	37.52	37.25	36.98
05		18.40	20.98	23.55	24.71	25.86	29.16	32.45	38.27	44.08	43.75	43.42
06		23.77	27.10	30.43	31.94	33.44	37.72	41.99	49.53	57.07	56.66	56.24
01	55	6.65	7.62	8.59	9.06	9.53	10.82	12.11	14.42	16.72	16.80	16.88
02		8.30	9.50	10.69	11.27	11.84	13.43	15.01	17.85	20.69	20.77	20.84
03		12.35	14.17	15.99	16.89	17.78	20.22	22.65	27.01	31.37	31.56	31.74
04		14.54	16.67	18.80	19.85	20.89	23.74	26.59	31.69	36.78	36.98	37.17
05		17.14	19.64	22.14	23.36	24.58	27.92	31.26	37.24	43.21	43.43	43.64
06		22.13	25.37	28.61	30.20	31.78	36.11	40.44	48.19	55.94	56.24	56.53

Subcooling correction factor 'fsub'

Subcooling [K]	1	4	10	15	20	25	30	35	40	45	50
Correction factor	0.98	1.00	1.08	1.15	1.21	1.27	1.33	1.39	1.45	1.50	1.56

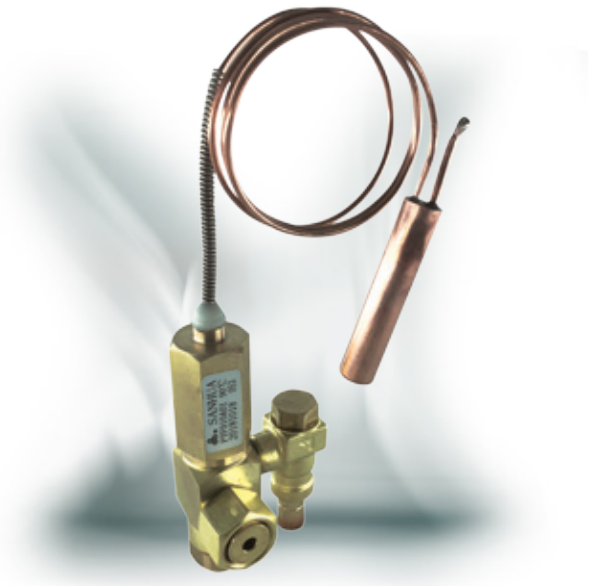
Distributor correction factor 'fp' \*

Pressure drop [bar]	Evaporating temperature [°C]											
	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15
0	1	1	1	1	1	1	1	1	1	1	1	1
1	0.97	0.97	0.97	0.97	0.97	0.97	0.96	0.96	0.96	0.95	0.94	0.93
1.5	0.96	0.96	0.96	0.95	0.95	0.95	0.95	0.94	0.93	0.93	0.91	0.89
2	0.94	0.94	0.94	0.94	0.93	0.93	0.93	0.92	0.91	0.90	0.88	0.85

\*Calculated at 32°C condensing temperature.

# Temperature Response Expansion valve

Temperature response expansion valve are mainly used in cryogenic refrigeration systems. When the exhaust temperature of the compressor is higher than the set temperature of the valve, the bulb senses the exhaust temperature and makes the valve open. The temperature response expansion valve accepts the liquid refrigerant from the condenser outlet and sprays it into the compressor medium pressure chamber after throttling and cooling, reduce the exhaust temperature. So as to protect refrigerant and lubricating oil performance, avoid deterioration caused by mechanical wear aggravation, compressor life shortened.



## FEATURES

- HIGH LIFE BELLOWS
- LOW INTER LEAKAGE
- WIDE RANGE OF APPLICABLE MODELS

## GENERAL SPECIFICATIONS

- Applicable refrigerant: R22, R404A
- Applicable refrigerated oil: 3GS, POE
- Environment temperature: -40°C~60°C
- Max working pressure: 4.2MPa
- Media temperature: -40°C~70°C
- Opening temperature: 90°C
- Suitable for 2~10HP compressor

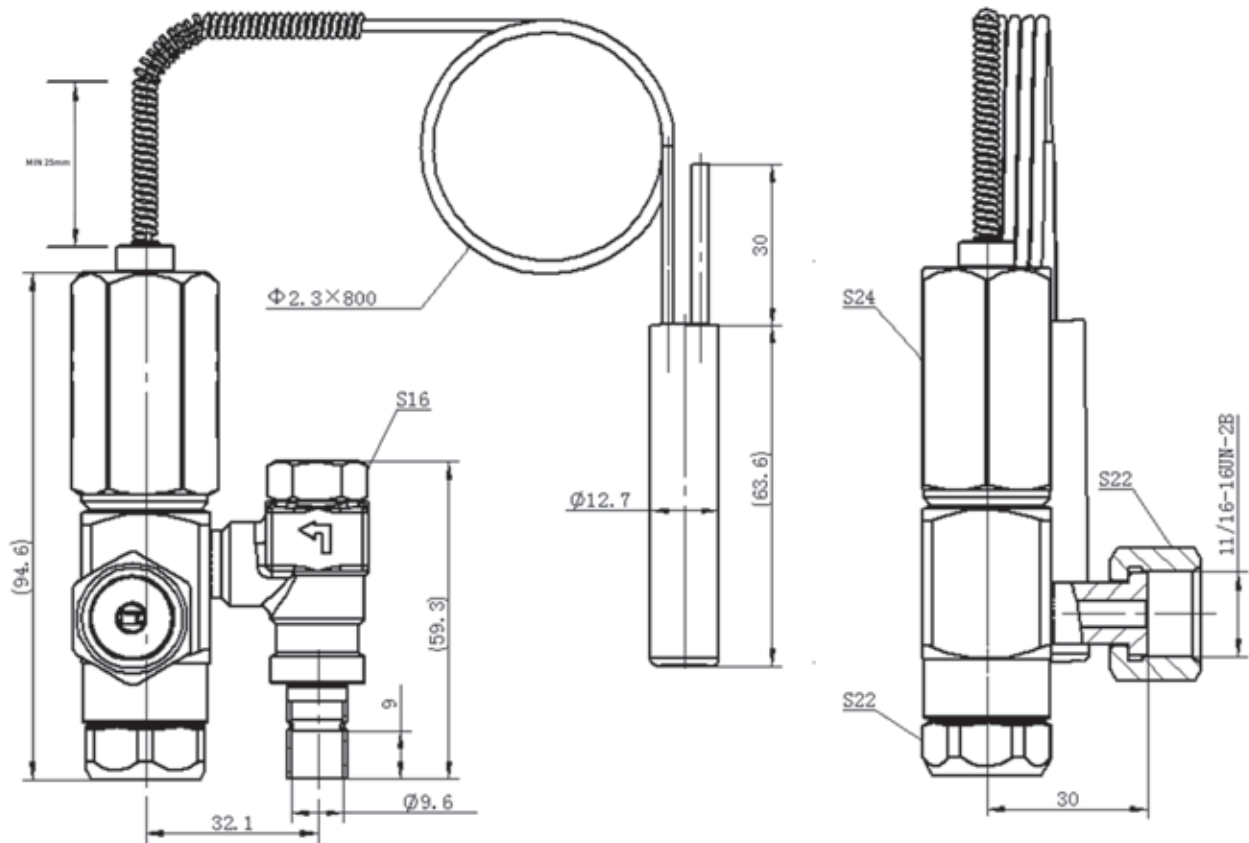
## APPLICATION

- Refrigeration compressor exhaust temperature is too high occasions
- Compressor oil cooling

# TEMPERATURE RESPONSE EXPANSION VALVE



## DIMENSIONS



## PRESSURE SWITCH SERIES

# PS01/50/15

Pressure switches can be used in refrigeration and air conditioning systems to protect the systems from extremely low suction pressure or extremely high discharge pressure. The pressure switches are also used to start or stop the refrigeration compressors and air-cooled condenser fans, to regulate other components in the systems which require pressure control function.



### FEATURES

- HIGH LEVEL OF ACCURACY AND STABLE REPEATABILITY
- LONG LIFE TIME WITH BOTH EXCELLENT ELECTRIC AND MECHANICAL RELIABILITY
- SPDT SWITCH TO ENSURE GOOD CONTACT AND DISCONNECT CONVERSION WITH FAST REACTIONS
- VARIOUS PRESSURE RANGES ARE AVAILABLE
- SUPPLY WITH STANDARD PLATE FOR INSTALLATION
- BELLOW ELEMENTS ARE MADE OF TIN BRONZE AND PRESSURE CONNECTIONS ARE MADE OF BRASS

### GENERAL SPECIFICATIONS

- Applicable for all common HCFC, non-flammable HFC and HFO refrigerants such as: R134a, R404A/R507, R407C, R22, R407A/F, R448A/449A, R452A, R513A, R450A, (for R410A, R32, R717, R290, R1234ze(E) and R1234yf applications please contact Sanhua)
- Medium temperature TS min./max. -40°C / +120°C
- Ambient temperature min./max. -30°C / +65°C
- Relative humidity: 0 - 95% RH
- Max. working pressure (PS): HP: 3.5MPa; LP: 1.65MPa
- Enclosure: IP44
- Certification: CE, PED IV (In process) and UL Listed (In process)
- Contact load

Rated Voltage (V)	AC1	AC3	AC15	DC
	400	400	400	24
Rated Current (A)	16	16	10	16



**MODEL DESIGNATION SYSTEM**

Position Number	Model designation legend	
1	Type of pressure switch	Description
	PS	Pressure switch
2	Pressure regulating range	Description
	01	LP:-0.5~7 bar(g)
	02	TBD
	03	TBD
	50	HP:6~32 bar(g)
	60	HP:6~42 bar(g)
	70	TBD
	80	TBD
	15	Dual (LP/HP): LP:-0.5~7 bar(g)/ HP:6~32 bar(g)
	16	Dual (LP/HP): LP:-0.5~7 bar(g)/ HP:6~42 bar(g)
3	Type of reset	Description
	A	Automatic reset
	M	Manual reset
	C	Convertible reset
	AA	Auto LP/ Auto HP
	AC	Auto LP/Convertible HP
	AM/MA/MC/CA/CM/CC	.....
4	Pressure connection type	Description
	L	Flare
	H	Solder
	M	Capillary tube
5	Product design (type)	Description
	S	Standard
	C	Customized
6	inch or mm pressure connection	Description
	01 (03/05/07/09/11/13.....)	Inch or unified Inch & Metric (will be certified as Cat. IV)
	02 (04/06/08/10/12/14.....)	Metric only (will be certified as Cat. IV)
	51 (53/55/57/59/61/63....)	Inch or unified Inch & Metric
	52 (54/56/58/60/62/64....)	Metric only



# PRESSURE SWITCH SERIES

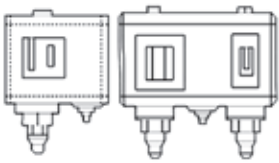
## PS01/50/15



### MODEL DESIGNATION SYSTEM

1	2	3	4	-	5	6	
PS	15	AA	L	-	S	01	Pressure switch
PS	15	AA	L	-	S	01	Dual Pressure Range LP:-0.5~7 bar(g)/ HP:6~42 bar(g)
PS	15	AA	L	-	S	01	Auto reset HP, Auto reset LP
PS	15	AA	L	-	S	01	Flare connection type
PS	15	AA	L	-	S	01	Standard
PS	15	AA	L	-	S	01	Inch (or unified Inch & Metric) pressure connection

### SELECTION AND ORDERING

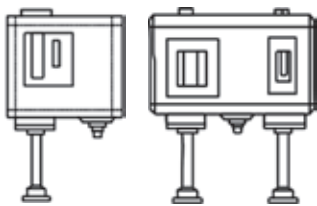


#### PS01, PS50, PS15, Flare Connection

Pressure	Type	Low Pressure (LP)		High Pressure (HP)		Reset		PED 2014 68/EU EN 12263 Certified <sup>1)</sup>	Ordering Code
		Range	Differential Pressure ΔP	Range	Differential Pressure ΔP	Low Pressure	High Pressure		Flare Connection 7/16-20UNF (1/4in. & 6mm)
		[bar]	[bar]	[bar]	[bar]				Model
Low	PS01	-0.5~7	0.5~5	—	—	Auto	—	In process	PS01AL-S01
Low	PS01	-0.5~7	1	—	—	Manual	—	In process	PS01ML-S01
High	PS50	—	—	6~32	3~15	—	Auto	NO	PS50AL-S51
High	PS50	—	—	6~32	4	—	Manual	NO	PS50ML-S51
Dual	PS15	-0.5~7	0.5~5	6~32	4	Auto	Auto	NO	PS15AAL-S51
Dual	PS15	-0.5~7	0.5~5	6~32	4	Auto	Manual	NO	PS15AML-S51

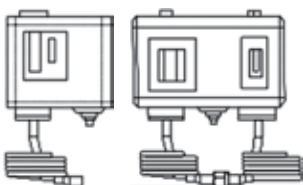
# PRESSURE SWITCH SERIES

## PS01/50/15



PS01, PS50, PS15, Solder ODF Connection

Pressure	Type	Low Pressure (LP)		High Pressure (HP)		Reset		PED 2014 68/EU EN 12263 Certified <sup>1)</sup>	Ordering Code	
		Range	Differential Pressure ΔP	Range	Differential Pressure ΔP				Solder ODF 1/4 in.	Solder ODF 6mm
		[bar]	[bar]	[bar]	[bar]	Low Pressure	High Pressure		Model	Model
Low	PS01	-0.5~7	0.5~5	—	—	Auto	—	In process	PS01AH-S01	PS01AH-S02
Low	PS01	-0.5~7	1	—	—	Manual	—	In process	PS01MH-S01	PS01MH-S02
High	PS50	—	—	6~32	3~15	—	Auto	NO	PS50AH-S51	PS50AH-S52
High	PS50	—	—	6~32	4	—	Manual	NO	PS50MH-S51	PS50MH-S52
Dual	PS15	-0.5~7	0.5~5	6~32	4	Auto	Auto	NO	PS15AAH-S51	PS15AAH-S52
Dual	PS15	-0.5~7	0.5~5	6~32	4	Auto	Manual	NO	PS15AMH-S51	PS15AMH-S52



PS01, PS50, PS15, Capillary Connection

Pressure	Type	Low Pressure (LP)		High Pressure (HP)		Reset		PED 2014 68/EU EN 12263 Certified <sup>1)</sup>	Ordering Code
		Range	Differential Pressure ΔP	Range	Differential Pressure ΔP				Flare Connection 7/16-20UNF (1/4in. & 6mm)
		[bar]	[bar]	[bar]	[bar]	Low Pressure	High Pressure		Model
Low	PS01	-0.5~7	0.5~5	—	—	Auto	—	In process	PS01AM-S01
Low	PS01	-0.5~7	1	—	—	Manual	—	In process	PS01MM-S01
High	PS50	—	—	6~32	3~15	—	Auto	NO	PS50AM-S51
High	PS50	—	—	6~32	4	—	Manual	NO	PS50MM-S51
Dual	PS15	-0.5~7	0.5~5	6~32	4	Auto	Auto	NO	PS15AAM-S51
Dual	PS15	-0.5~7	0.5~5	6~32	4	Auto	Manual	NO	PS15AMM-S51

**Notes:**

1) PS50 and PS15 which are planned to be certified by TÜV, Rheinland acc. to PED 2014 68/EU, EN12263 are designed with double bellows at high pressure and they provide fail-safe function (models without PED 2014 68/EU Certificate can be used as pressure regulation devices, usage them as pressure safety devices must be verified as per local legislation in the country of use). Regarding availability of PED 2014 68/EU (Category IV) Certificate please contact your Sanhua sales representative.

The double bellows system prevents loss of charge in the event of the inner bellow rupture. A rupture in the inner bellow will cause the control cut-out pressure to fall about 3 times less the set value and the compressor will stop. A rupture in the outer bellows will cause the control cut-out pressure to fall to about 3 bar under the set value and providing the so-called 'fail-safe' function.

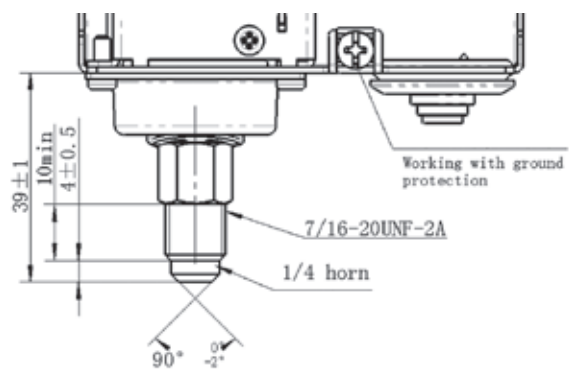
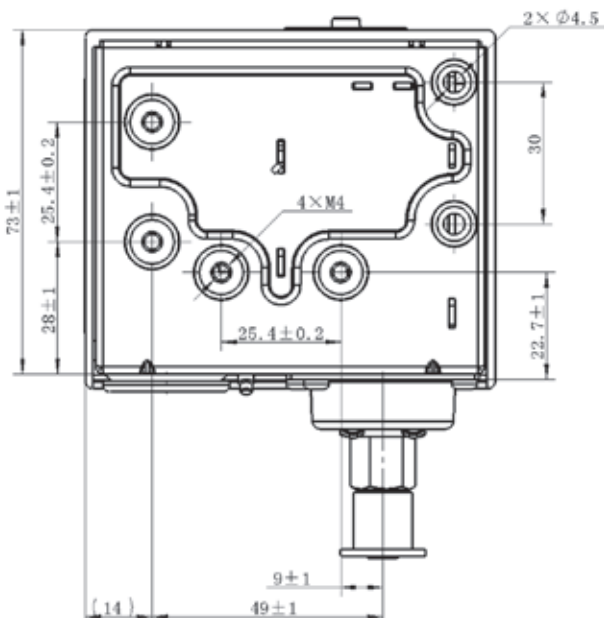
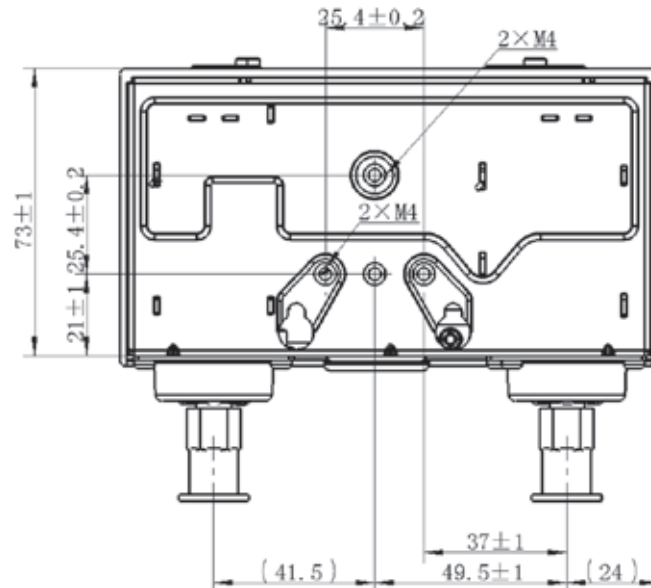
1) The PS01 are planned to be certified by TÜV, Rheinland acc. to PED 2014 68/EU, EN12263 but due to the fact that they will not be used as high pressure protection function, PED IV is not required and they are designed with only single bellow.

# PRESSURE SWITCH SERIES

## PS01/50/15



### DIMENSIONAL DRAWINGS

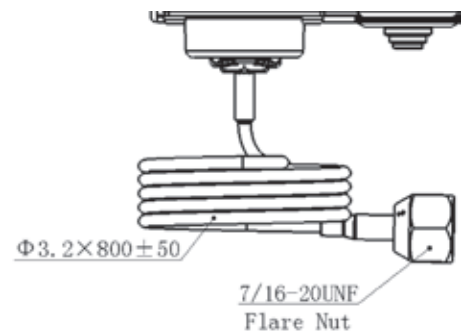
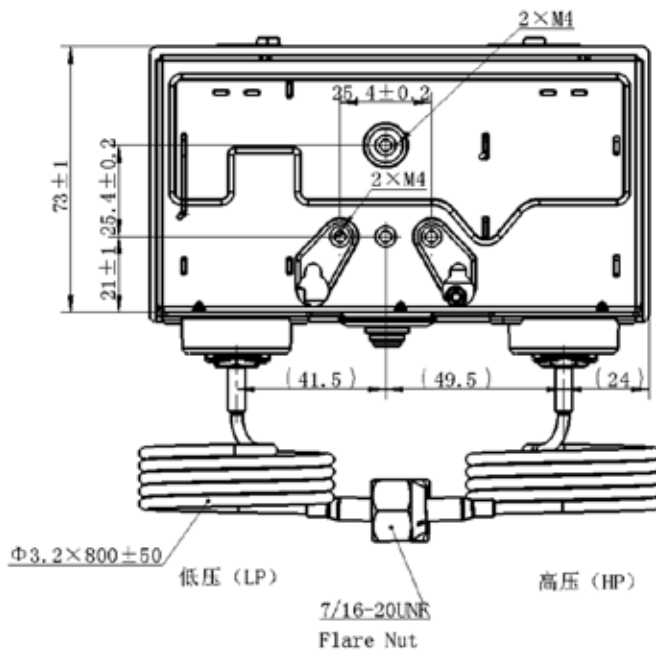
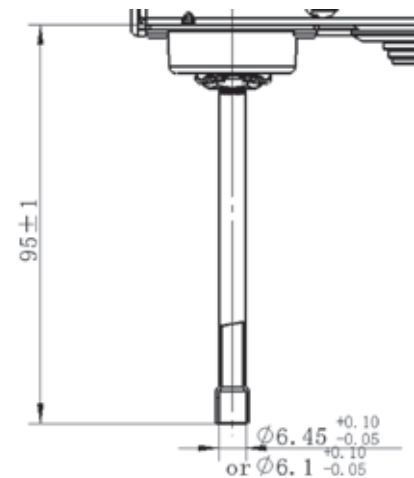
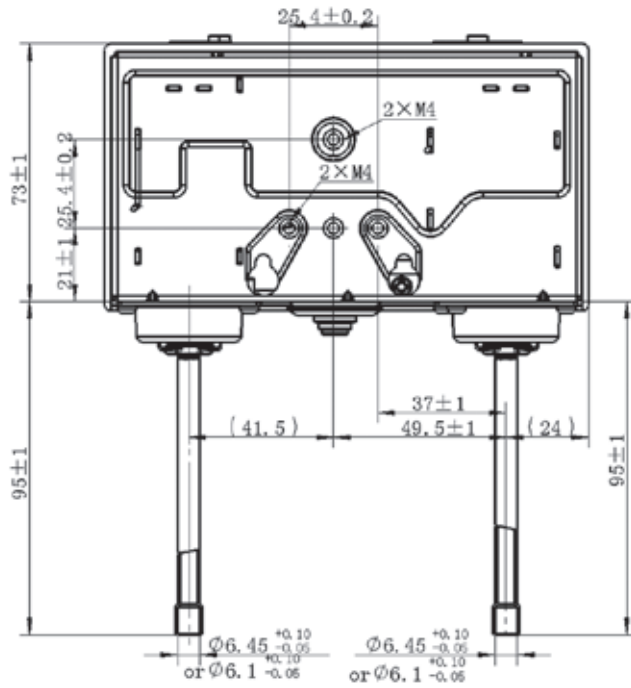


# PRESSURE SWITCH SERIES

## PS01/50/15



### DIMENSIONAL DRAWINGS

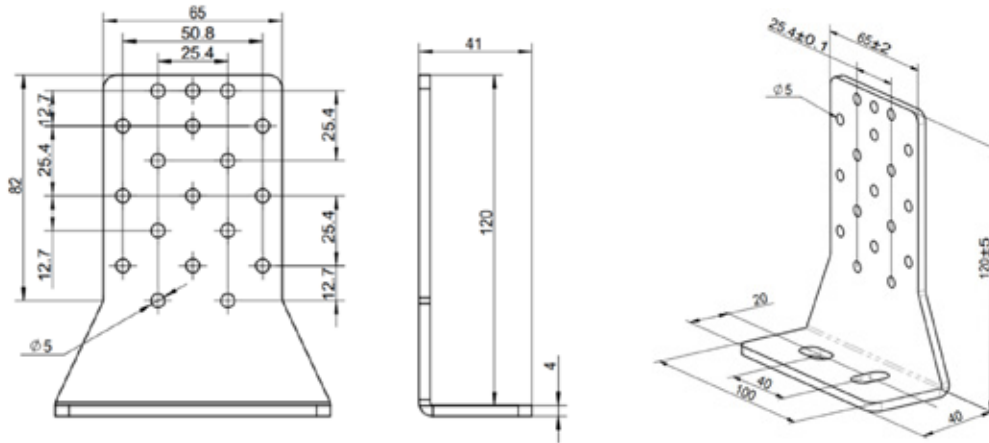


# PRESSURE SWITCH SERIES

PS01/50/15

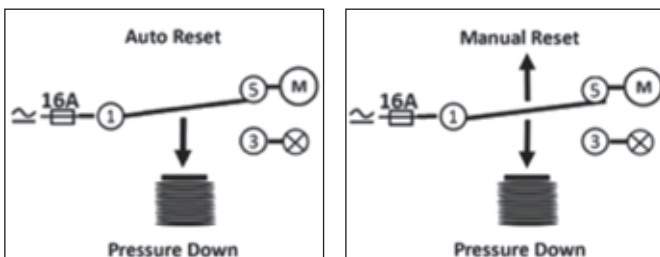


## MOUNTING PLATE

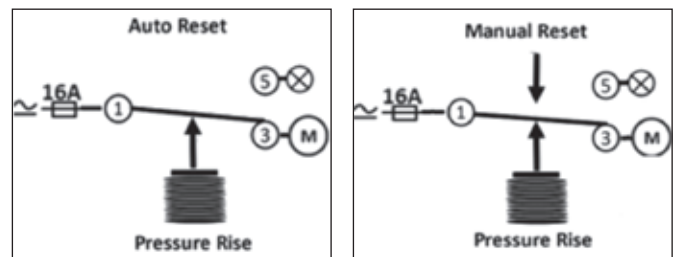


## CONTACT SYSTEM

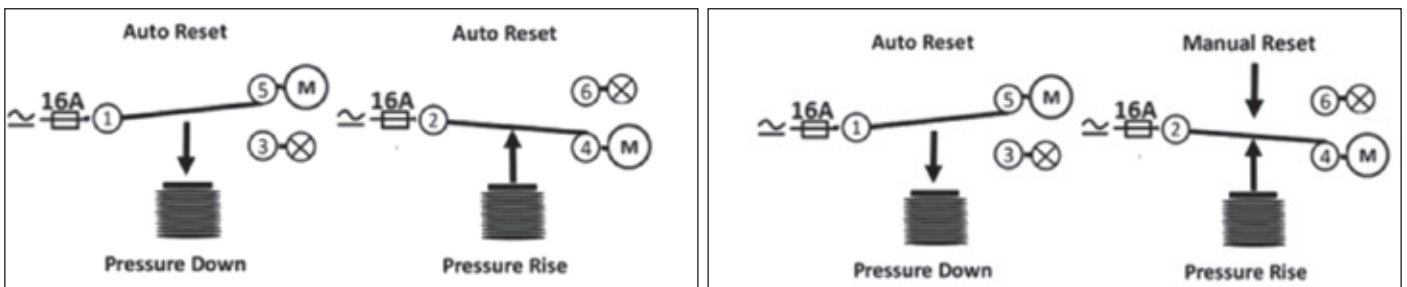
Single PS01



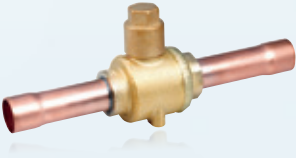
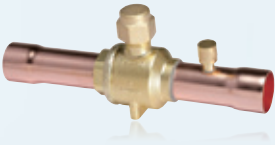
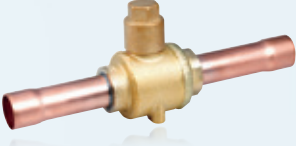

Single PS50



Dual PS15

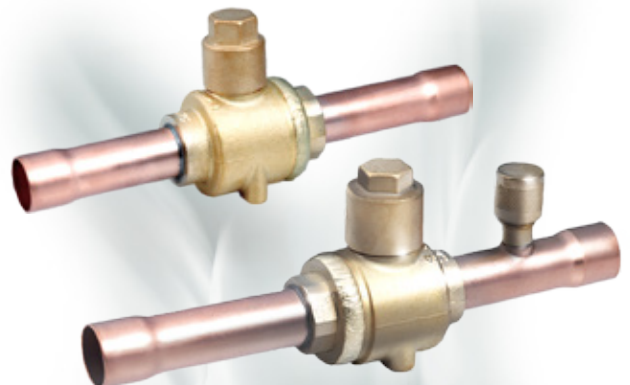


# Sanhua Ball valve series introduction

Product series	Product picture	General specification	Typical application
<b>SBV</b>		<ul style="list-style-type: none"> <li>✓ Medium Temperature: -40°C/+120°C</li> <li>✓ PS/MWP: 4.5 Mpa</li> <li>✓ Connections: 1/4" to 4-1/4" for system except CO<sub>2</sub> bi-flow installation</li> </ul>	<ul style="list-style-type: none"> <li>✓ SBV is standard portfolio</li> <li>✓ Mainly for commercial AC, refrigeration turn off the stem to shut off the circuit for servicing purpose.</li> </ul>
<b>RBV</b>		<ul style="list-style-type: none"> <li>✓ Medium Temperature: -60°C/+150°C</li> <li>✓ PS/MWP: 4.5 Mpa</li> <li>✓ Connections: 1/4" to 4-1/4" for system except CO<sub>2</sub> bi-flow installation</li> </ul>	<ul style="list-style-type: none"> <li>✓ RBV(other than SBV) use SANHUA patented graphite sealing technology, especially for extreme low/high temperature circuit.</li> </ul>
<b>CBV</b>		<ul style="list-style-type: none"> <li>✓ Medium Temperature: -40°C/+150°C</li> <li>✓ PS/MWP: 6.0 Mpa</li> <li>✓ Connections: 1/4" to 2-1/8" for CO<sub>2</sub> sub critical system uni-flow installation (relief hole on the ball)</li> </ul>	<ul style="list-style-type: none"> <li>✓ CBV(other than SBV) use special sealing material to be compatible with CO<sub>2</sub>.</li> </ul>
<b>CBVT</b>		<ul style="list-style-type: none"> <li>✓ Medium Temperature: -40°C/+150°C</li> <li>✓ PS/MWP: 14 Mpa</li> <li>✓ Connections: 1/4" to 1-5/8" for CO<sub>2</sub> transcritical system uni-flow installation (relief hole on the ball)</li> </ul>	<ul style="list-style-type: none"> <li>✓ CBVT is designed for CO<sub>2</sub> transcritical system.</li> <li>✓ Stainless steel body+bi-metal connections</li> <li>✓ SANHUA patented graphite sealing technology</li> </ul>

# Ball Valve

The ball valve of series SBV is applicable for commercial air conditioner, freezing or deep-freezing equipment or other refrigeration circuits in order to open and to shut off inner flow path by operating the valve stem. It can also be used as service valve for vacuum pumping and refrigerant injection etc.



## FEATURES

- STRAIGHTWAY TYPE, FULL PORT, LOW PRESSURE DROP , COST-EFFECTIVE
- VALVE BODY AND VALVE SEAT WITH WELDED STRUCTURE, WITH HIGH PRODUCT RELIABILITY
- ROTATE 1/4 CIRCLES FROM FULL-OPEN TO FULL-CLOSE, EASY TO OPERATE
- BIDIRECTIONAL FLOW
- ROTATION STOP ON REQUEST FOR FULL-OPEN AND FULL-CLOSE OF THE VALVE
- SPECIAL SEALING MATERIALS TO PREVENT INTERNAL LEAKAGE

## GENERAL SPECIFICATIONS

- Applicable for all common HCFC and HFC refrigerants such as: R22, R134a, R404A, R407C, R410A, R507
- Medium temperature TS min./max.: -40°C / +120°C
- Max. operating pressure PS: 4,5 MPa (45 bar)
- Installation position: liquid, suction and discharge line in all directions
- Certifications: UL/CSA and PED declaration



**GENERAL CHARACTERISTICS**

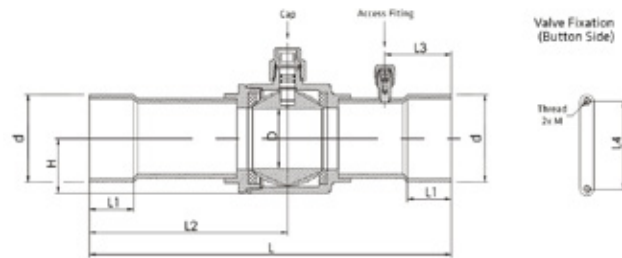
Without Access Fitting	Connections Ø d ODF	Kv	Wrench Size Cap	PED category	With Access Fitting
Model	[inch]	[m <sup>3</sup> /h]	[mm]		Model
SBV(M)-A2YHSY-1-SA	1/4	1,9	14	4.3	SBV(M)-JA2YHSY-1-SA
SBV(M)-A3YHSY-2-SA	3/8	5,5	14	4.3	SBV(M)-JA3YHSY-2-SA
SBV(M)-A4YHSY-1-SA	1/2	10,2	14	4.3	SBV(M)-JA4YHSY-1-SA
SBV(M)-A5YHSY-1-SA	5/8	13,8	14	4.3	SBV(M)-JA5YHSY-1-SA
SBV(M)-A6YHSY-1-SA	3/4	19,5	17	4.3	SBV(M)-JA6YHSY-1-SA
SBV(M)-A7YHSY-1-SA	7/8	28,0	17	4.3	SBV(M)-JA7YHSY-1-SA
SBV(M)-A9YHSY-1-SA	1 1/8	51,5	17	4.3	SBV(M)-JA9YHSY-1-SA
SBV(M)-A11YHSY-1-SA	1 3/8	80,0	17	I	SBV(M)-JA11YHSY-1-SA
SBV(M)-A13YHSY-2-SA	1 5/8	119,8	17	I	SBV(M)-JA13YHSY-2-SA
SBV(M)-A17YHSY-1-SA	2 1/8	225	19	I	SBV(M)-JA17YHSY-1-SA
SBV(M)-A21YHSY-2-SA	2 5/8	305	19	I	SBV(M)-JA21YHSY-2-SA
SBV(M)-A25YHSY-2-SA	3 1/8	635	24	I	SBV(M)-JA25YHSY-2-SA
SBV(M)-A29YHSY-1-SA	3 5/8	805	26	I	SBV(M)-JA29YHSY-1-SA
SBV(M)-A33YHSY-2-SA	4 1/8	950	32	I	SBV(M)-JA33YHSY-2-SA
SBV(M)-A34YHSY-1-SA	4 1/4	950	32	I	SBV(M)-JA34YHSY-1-SA

**Note:** SBV model with connection size 3-1/2" available on request





**DIMENSIONS & WEIGHT**



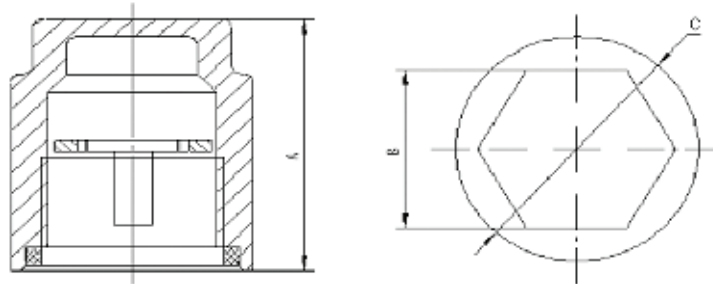
Part Number		L	L1	L2	L3 <sup>1)</sup>	L4	D	H	M	Weight
Without access fitting	With Access Fitting	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
SBV(M)-A2YHSY-1-SA	SBV(M)-JA2YHSY-1-SA	132	8	68	31	22	14	16	M4 x 0,7	0,28
SBV(M)-A3YHSY-2-SA	SBV(M)-JA3YHSY-2-SA	132	8	68	31	22	14	16	M4 x 0,7	0,29
SBV(M)-A4YHSY-1-SA	SBV(M)-JA4YHSY-1-SA	160	10	85	31	22	14	16	M4 x 0,7	0,30
SBV(M)-A5YHSY-1-SA	SBV(M)-JA5YHSY-1-SA	160	12	85	31	22	14	16	M4 x 0,7	0,30
SBV(M)-A6YHSY-1-SA	SBV(M)-JA6YHSY-1-SA	185	14	99	37	30	19	20	M4 x 0,7	0,51
SBV(M)-A7YHSY-1-SA	SBV(M)-JA7YHSY-1-SA	185	17	99	37	30	19	20	M4 x 0,7	0,52
SBV(M)-A9YHSY-1-SA	SBV(M)-JA9YHSY-1-SA	208	20	112	44	38	25	25	M4 x 0,7	0,73
SBV(M)-A11YHSY-1-SA	SBV(M)-JA11YHSY-1-SA	251	25	136	44	48	32	31	M6 x 1,0	1,42
SBV(M)-A13YHSY-2-SA	SBV(M)-JA13YHSY-2-SA	281	29	151	56	55	38	35	M6 x 1,0	1,90
SBV(M)-A17YHSY-1-SA	SBV(M)-JA17YHSY-1-SA	305	34	167	56	74	50	46	M6 x 1,0	3,74
SBV(M)-A21YHSY-2-SA	SBV(M)-JA21YHSY-2-SA	305	37	167	56	74	60	56	M6 x 1,0	6,08
SBV(M)-A25YHSY-2-SA	SBV(M)-JA25YHSY-2-SA	378	42	186,2	80	90	70	63	M6 x 1,0	8,81
SBV(M)-A29YHSY-1-SA	SBV(M)-JA29YHSY-1-SA	422,7	42	207,5	75	108	80	75	M6 x 1,0	11,32
SBV(M)-A33YHSY-2-SA	SBV(M)-JA33YHSY-2-SA	423	42	210,0	75	148	95	91	M6 x 1,0	19,94
SBV(M)-A34YHSY-1-SA	SBV(M)-JA34YHSY-1-SA	423	42	210,0	75	148	95	91	M6 x 1,0	19,94

**Note:** 1) Applicable to versions with access fitting - SBV(M)-JA series

**SBV SERIES**  
**Ball Valve**



**ACCESSORIES**



*Anti-Rotation Device*

Model	Applicable for SBV models with:	Cap Nut	Dimensions mm		
	Inch connections:		A	B	C
SK01	1" 1/8 - 1" 3/8	M18X1-6H	27,0	H17	Ø 24
SK02	1" 5/8	M22X1-6H	27,5	H17	Ø 26
SK03	2" 1/8 - 2" 5/8	M22X1-6H	27,5	H19	Ø 28
SK04	3" 1/8 - 3" 5/8	M26X1-6H	29,5	H24	Ø 32
SK05	4" 1/8 - 4" 1/4	M32X1-6H	32,0	H29	Ø 38

# Ball Valve

CBV valves are typically used in commercial CO<sub>2</sub> refrigeration applications in order to open and to shut off inner flow path by operating the valve stem. The ball valve of series CBV is applicable for subcritical CO<sub>2</sub> refrigeration systems and is a perfect choice for all similar CO<sub>2</sub> systems.



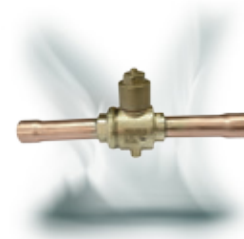
## FEATURES

- STRAIGHTWAY TYPE, FULL PORT, LOW PRESSURE DROP, COST-EFFECTIVE
- VALVE BODY AND VALVE SEAT WITH WELDED STRUCTURE, WITH HIGH PRODUCT RELIABILITY
- ROTATE ¼ CIRCLES FROM FULL-OPEN TO FULL-CLOSE, EASY TO OPERATE
- BIDIRECTIONAL FLOW<sup>1)</sup>
- ROTATION STOP FOR FULL-OPEN AND FULL-CLOSE OF THE VALVE AVAILABLE
- SPECIAL SEALING MATERIALS TO PREVENT INTERNAL LEAKAGE

**Note:** 1) CBV valves fulfill internal tightness requirements of the standard EN12284, paragraph 9.6.3 in both flow directions. Installations with shut off function to the atmosphere (just temporarily for service purpose): Please install the solder connection "B" at the airside. Please see solder connection "A" and "B" at the dimensional drawing page 3.  
Remark: Welding body junction is always at solder connection "A"

## GENERAL SPECIFICATION

- Applicable for R744 (CO<sub>2</sub>)
- Medium temperature TS min./max.:  
-40°C/+150°C
- Max. operating pressure PS: 6,0 MPa (60bar)
- Installation position: liquid, suction and discharge line in all directions
- Certification: PED declaration.

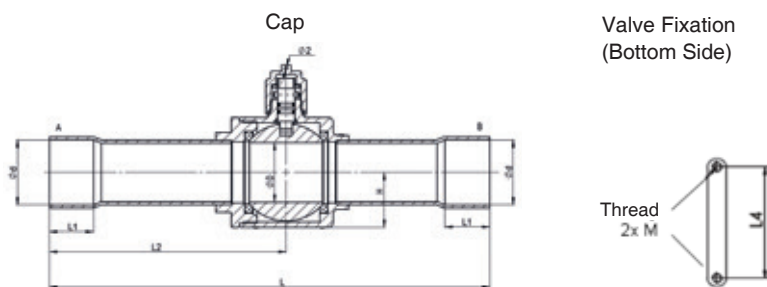


**GENERAL CHARACTERISTICS**

Model	Connection Ø d ODF	Kv	Wrench Size Cap	PED Category
	[inch]	[m <sup>3</sup> /h]	[mm]	
CBV02-001	1/4	1,9	H14	4.3
CBV03-001	3/8	5,5	H14	4.3
CBV04-001	1/2	10,2	H14	4.3
CBV05-001	5/8	13,8	H14	4.3
CBV06-001	3/4	19,5	H17	4.3
CBV07-001	7/8	28,0	H17	4.3
CBV09-001	1 1/8	51,5	H17	4.3
CBV11-001	1 3/8	80,0	H17	I
CBV13-002	1 5/8	119,8	H17	I
CBV17-001	2 1/8	225,0	H19	I

**Note:** 1) Extent of delivery: valve body and standard cap

**DIMENSIONS & WEIGHT**



Model	L	L1	L2	L4	D	H	M	Weight
CBV02-001	132	8	68	22	14	16	M4 x 0,7	0,28
CBV03-001	132	8	68	22	14	16	M4 x 0,7	0,29
CBV04-001	160	10	85	22	14	16	M4 x 0,7	0,30
CBV05-001	160	12	85	22	14	16	M4 x 0,7	0,30
CBV06-001	185	14	99	30	19	20	M4 x 0,7	0,51
CBV07-001	185	17	99	30	19	20	M4 x 0,7	0,52
CBV09-001	208	20	112	38	25	25	M4 x 0,7	0,73
CBV11-001	251	25	136	48	32	31	M6 x 1,0	1,42
CBV13-002	281	29	151	55	38	35	M6 x 1,0	1,90
CBV17-001	305	34	167	74	50	46	M6 x 1,0	3,74

## CBVT SERIES

# Ball Valve

The ball valve of series CBVT is applicable for commercial CO<sub>2</sub> refrigeration applications in order to open and to shut off inner flow path by operating the valve stem. The ball valve of CBVT is applicable for transcritical CO<sub>2</sub> refrigeration systems and is a perfect choice for all similar CO<sub>2</sub> systems.



### FEATURES

- STRAIGHTWAY TYPE, FULL PORT, LOW PRESSURE DROP – HIGH EFFICIENCY
- VALVE BODY WITH WELDED STRUCTURE – PRODUCT STRENGTH AND RELIABILITY
- ROTATE 1/4 CIRCLES FROM FULL-OPEN TO FULL-CLOSE – EASY AND FAST TO OPERATE
- BIDIRECTIONAL FLOW<sup>1)</sup>
- VERSION WITH BI-METAL CONNECTIONS – EASY AND FAST BRAZING FOR SYSTEMS WITH K65 PIPING

### GENERAL SPECIFICATIONS

- Applicable for R744 (CO<sub>2</sub>)
- Medium temperature TS min./max.: -40°C / +150°C
- Max. operating pressure PS: 14 MPa, burst pressure: 42 MPa
- Installation position: liquid, suction and discharge line in all directions
- Unidirectional flow
- Certifications: PED declaration, UL attestation

**Note:** 1) CBVT valves fulfill internal tightness requirements of the standard EN12284, paragraph 9.6.3 in both flow directions. Installations with shut off function to the atmosphere (just temporarily for service purpose): Please install the solder connection "B" at the airside. Please see solder connection "A" and "B" at the dimensional drawing page 3. Remark: Welding body junction is always at solder connection "A"

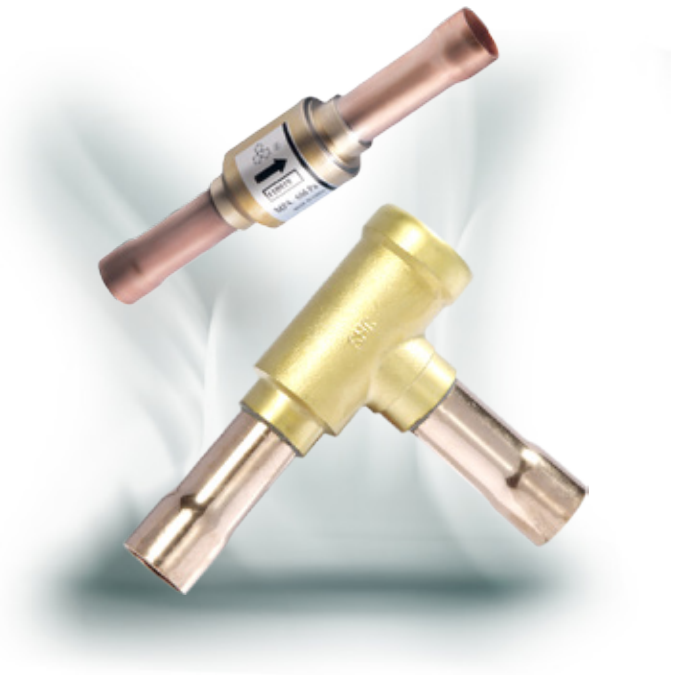


**GENERAL CHARACTERISTICS**

Model	Connection Ød ODF	KV	Wrench Size Cap	PED Category
	[inch]	[m <sup>3</sup> /h]	[mm]	
CBVT 02H001	1/4	1.66	H24	4.3
CBVT 03H001	3/8	4.35	H24	4.3
CBVT 04H001	1/2	6.73	H24	4.3
CBVT 05H001	5/8	9.02	H24	4.3
CBVT 06H001	3/4	14.6	H27	4.3
CBVT 07H001	7/8	18.9	H27	4.3
CBVT 09H001	1-1/8	34.9	H27	4.3
CBVT 11H001	1-3/8	54	H32	I
CBVT 13H001	1-5/8	77.6	H32	I

# Check Valve Piston Type

Piston type check valves are designed for installation in commercial refrigerating systems and in residential or industrial air conditioning plants. They are used to control the unidirectional flow of refrigerant so as to prevent backflow.



## FEATURES

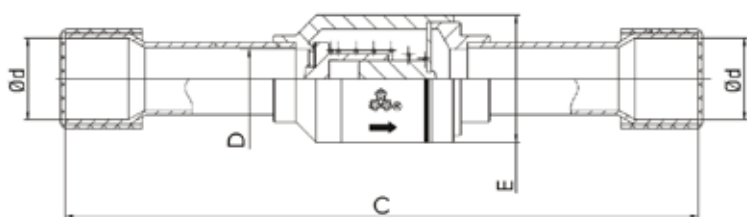
- THIS VALVE CAN ENSURE THE ONLY CORRECT FLOW DIRECTION
- EQUIPPED WITH DAMPING SPRING TO FREELY INSTALL THE VALVE AT POSITIONS WITH PRESSURE PULSE
- AVAILABLE IN TWO TYPES OF MODEL: STRAIGHTWAY VALVE AND L-SHAPE VALVE, EASY TO CONNECT
- SPECIAL VERSION OF CHECK VALVE EQUIPPED WITH REINFORCED SPRING AVAILABLE, APPLICABLE TO COMPRESSOR DISCHARGE PIPES IN SINGLE OR MULTI COMPRESSOR SYSTEMS (YCVSH SERIES)
- LOW PRESSURE DROP DURING OPERATION

## GENERAL SPECIFICATIONS

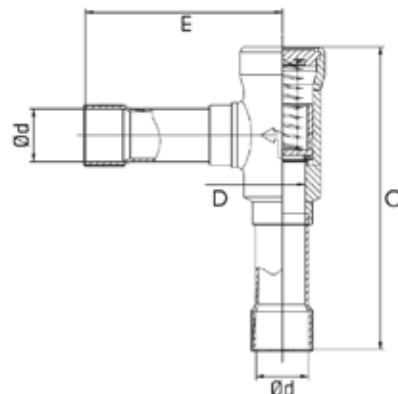
- Applicable for all common HCFC, HFC refrigerants such as: R22, R134a, R404A, R407C, R410A, R507A
- Medium temperature TS min./max.: -50°C / +140°C
- Max. operating pressure PS: 4,6 MPa (46 bar)
- Installation position:
  - Flow direction corresponds to the arrow
  - Straight-way type: preferably installed with vertical axis and flow upwards, sloping axis up to horizontal is tolerable
  - L-shape type: flow direction from bottom to top
- Declaration according to PED

# YCVS SERIES

## Check Valve Piston Type



Straight-way



L-shape

### GENERAL CHARACTERISTICS

Model	Type	Connections	Kv	Min. OPD	Dimensions			PED category
		ODF			ØD	C	E	
		Ø d			[mm]	[mm]	[mm]	
		[inch]	[m <sup>3</sup> /h]	[kPa]				
YCVS 5-22GSHC-1	straight-way	1/4	0,56	5	5	90	18	4,3
YCVS 8-33GSHC-1	straight-way	3/8	1,42	5	8	110	18	4,3
YCVSH 8-33GSHC-1	straight-way	3/8	1,42	15	8	110	18	4,3
YCVS 10-44GSHC-1	straight-way	1/2	2,08	5	10	130	22	4,3
YCVSH10-44GSHC-1	straight-way	1/2	2,08	15	10	130	22	4,3
YCVS 13-55GSHC-1	straight-way	5/8	3,87	5	13	140	28	4,3
YCVSH 13-55GSHC-1	straight-way	5/8	3,87	15	13	140	28	4,3
YCVS 17-66GSHC-1	straight-way	3/4	5,47	5	17	165	34	4,3
YCVSH 17-66GSHC-1	straight-way	3/4	5,47	15	17	165	34	4,3
YCVS 17-77GSHC-1	straight-way	7/8	5,47	5	17	165	34	4,3
YCVSH 17-77GSHC-1	straight-way	7/8	5,47	15	17	165	34	4,3
YCVS 20-77GSHC-1	L-shape	7/8	13,09	10	20	132	87	4,3
YCVSH 20-77GSHC-1	L-shape	7/8	13,09	30	20	132	87	4,3
YCVS 26-99GSHC-1	L-shape	1 1/8	18,86	10	26	196	123	4,3
YCVSH 26-99GSHC-1	L-shape	1 1/8	18,86	30	26	196	123	4,3
YCVS 31-BBGSHC-1	L-shape	1 3/8	28,86	10	31	196	124	I
YCVSH 31-BBGSHC-1	L-shape	1 3/8	28,86	30	31	196	124	I
YCVS 31-DDGSHC-1	L-shape	1 5/8	28,86	10	31	196	124	I
YCVSH 31-DDGSHC-1	L-shape	1 5/8	28,86	30	31	196	124	I

\* Piston type check valve could not used at enhanced vapor injection circuit.



# Magnetic check Valve

CCV series magnetic check valve are mainly used for commercial refrigeration and air conditioning systems, could be installed at compressor discharge line and suction line, to be used to control the unidirectional flow of refrigerant so as to prevent backflow.



## FEATURES

- LOW PRESSURE DROP, LOW INTERNAL LEAKAGE
- CONNECTION SIZE FROM 1/4" TO 5/8" ARE COPPER VALVE BODY, FROM 7/8" AND ABOVE ARE STAINLESS STEEL VALVE BODY, COST EFFECTIVE
- NO PLASTIC COMPONENTS INSIDE, NO NEED TO HAVE WELDING PROTECTION

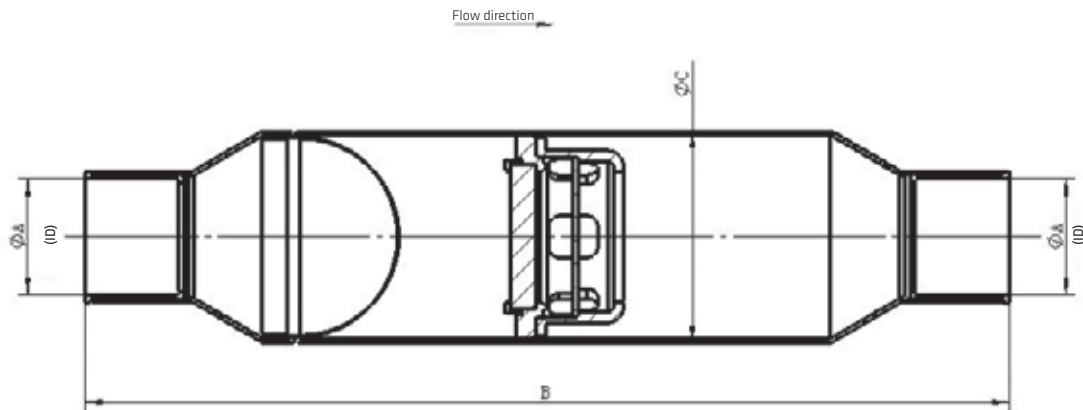
## GENERAL SPECIFICATIONS

- Applicable for all common HCFC and HFC refrigerants such as R22, R134a, R410A
- Medium temperature TS min./max.: -40°C ~ 150°C
- Max. Operating pressure PS: 4.9Mpa (49bar)
- Installation direction: in Any direction
  - Flow direction corresponds to the arrow

**CCV SERIES**  
Magnetic check Valve



**DIMENSIONS**



Series	Model	Type	Connections	Kv	Min. OPD	Dimensions	
			Ø A (ID)			[kPa]	B
			[inch]	[m³/h]	[mm]	[mm]	
CCV10	CCV10-019	Copper	3/8	0.8	10	101.6	22.2
CCV10	CCV10-021	Copper	1/4	0.77	10	101.6	22.2
CCV17	CCV17-001	Copper	1/2	2.5	10	127	28.6
CCV17	CCV17-017	Copper	5/8	2.9	10	127	28.6
CCV25	CCV25-020	Stainless steel	7/8	6.5	10	178	42
CCV32	CCV32-001	Stainless steel	1-1/8	11.9	10	212	51
CCV38	CCV38-001	Stainless steel	1-3/8	17	10	239	63.5

\* Available also as industrial package. Contact Sanhua for more details

# Sight Glass

Sight glasses are installed after the filter drier in liquid line of refrigerating systems, in order to observe property changes of the refrigerant (liquid/vapor) and to indicate the moisture level by colors.



## FEATURES

- HIGH PRECISION COLOR INDICATOR
- INDICATOR PASTED CLOSELY TO THE GLASS TO PREVENT SURFACE CONTAMINATION
- SOLID AND CORROSION RESISTANT BRASS MATERIAL
- GOOD READABILITY DUE TO HIGH CLEAR SIGHT GLASS OF WIDE ANGLE
- SEALING OF LOW CREEP PTFE TO ENSURE LEAKAGE FREE PERFORMANCE
- NEW ANNULAR HUMIDITY COLOR INDICATOR. FULL PORT PASSAGE WITH LOW PRESSURE DROP

## GENERAL SPECIFICATION

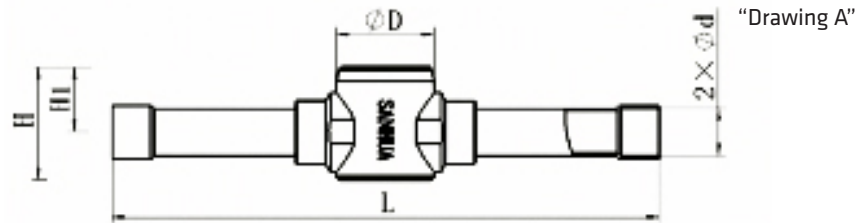
- Applicable for all common HCFC, HFC, HC, HFO<sup>1)</sup> refrigerants such as: R22, R134a, R404A, R407C, R410A, R507, R407A/F, R1234ze
- Ambient temperature min./max.: -50°C / +80°C
- Medium temperature TS min./max.: -50°C / +80°C
- Max. operating pressure PS: 4,6 MPa (46 bar)
- Installation position:
  - Liquid and suction line
  - Preferably in vertical lines, recommended position for horizontal lines is upwards without inclination in any direction
- Declaration according to PED (all products have been covered by Art.4.3 PED Directive 2014/68/EU)

**Note:** 1) please contact Sanhua representative regarding applications with HFO



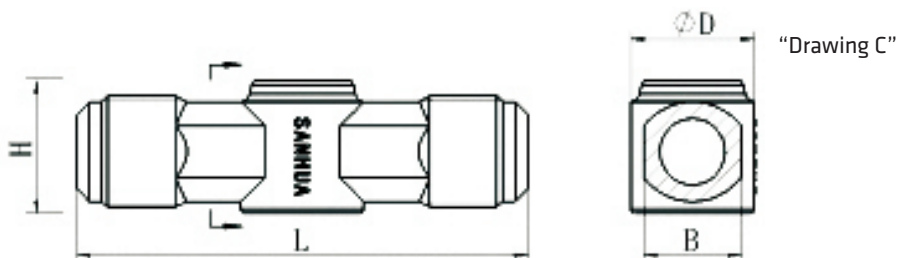
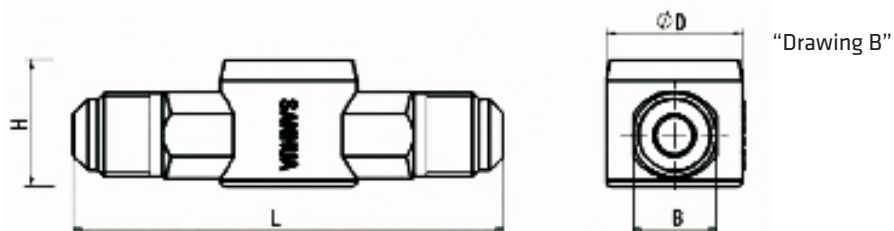
*Version with Solder Connections*

General Characteristics										
Model Series	Model Name	Connection Type [inch]	Connecting dimensions	Dimensions & Weight						drawing
				L	H	H1	ØD	B	Weight	
			[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[g]	
SYJ6	SYJ06H11	solder ODF x ODF	1/4	101	23	14	26	/	100	A
SYJ10	SYJ10H11	solder ODF x ODF	3/8	119	23	14	26	/	100	
SYJ12	SYJ12H11	solder ODF x ODF	1/2	146	30	17	26	/	200	
SYJ16	SYJ16H11	solder ODF x ODF	5/8	146	30	17	26	/	200	
SYJ19	SYJ19H11	solder ODF x ODF	3/4	173	36	21	27	/	300	
SYJ22	SYJ22H11	solder ODF x ODF	7/8	173	36	21	27	/	300	



*Version with male/male Flare Connections*

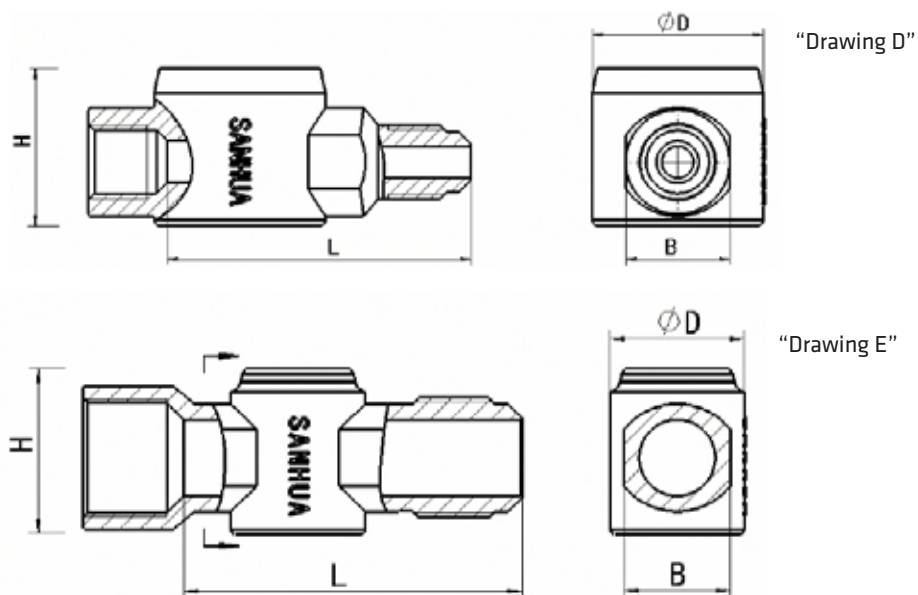
General Characteristics										
Model Series	Model Name	Connection Type [inch]	Connecting dimensions	Dimensions & Weight						drawing
				L	H	H1	ØD	B	Weight	
			[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[g]	
SYJ6	SYJ06L11	flare M x M	1/4	67	24		27	14	110	B
SYJ10	SYJ10L11	flare M x M	3/8	82	24		32	22	240	
SYJ12	SYJ12L11	flare M x M	1/2	88	30		32	22	240	
SYJ16	SYJ16L11	flare M x M	5/8	104	30		30	24	320	C
SYJ19	SYJ19L11	flare M x M	3/4	110	32		30	24	340	





Version with male/female Flare connections

General Characteristics										
Model Series	Model Name	Connection Type [inch]	Connecting dimensions	Dimensions & Weight						drawing
				L	H	H1	ØD	B	Weight	
			[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[g]	
SYJ6	SYJ06L41	flare F x M	1/4	46	30		32	22	200	d
SYJ10	SYJ10L41	flare F x M	3/8	57	30		32	22	240	
SYJ12	SYJ12L41	flare F x M	1/2	59	32		30	24	250	
SYJ16	SYJ16L41	flare F x M	5/8	71	37		30	24	320	e
SYJ19	SYJ19L41	flare F x M	3/4	75	37		30	24	330	



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Moisture Indication Limits

Refrigerant	Moisture Content 25°C: PPM		
	Green/Dry	Middle Color	Yellow/Wet
R22	<100	100~200	>200
R134a	<90	90~180	>180
R404A	<40	40~100	>100
R410A	<90	90~300	>300
R507	<15	15~90	>90
R407C	<120	120~280	>280

Refrigerant	Moisture Content 40°C: PPM		
	Green/Dry	Middle Color	Yellow/Wet
R22	<140	140~350	>350
R134a	<120	120~330	>335
R404A	<80	80~160	>160
R410A	<200	200~580	>580
R507	<80	80~170	>170
R407C	<100	100~260	>260

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**with a SANHUA**  
reversing valve

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- ✓ SHF series 1kW to 420 kW
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FOUR WAY REVERSING VALVES TO THE  
COMMERCIAL AND RESIDENTIAL HVAC  
INDUSTRY WORLDWIDE





# Brass Service Valve

Brass service valves of series SSV are applicable for split air conditioners to connect indoor unit and outdoor unit. It can also be used in other cooling or refrigeration systems. The inner path of the valve can be closed by operating the valve stem. The 3way version (with charge port) can be used as service valve for vacuum pumping and refrigerant injection.



## FEATURES

- AVAILABLE WITHOUT AND WITH CHARGE PORT
- COST EFFICIENT SOLUTION
- RELIABLE AND ROBUST DESIGN

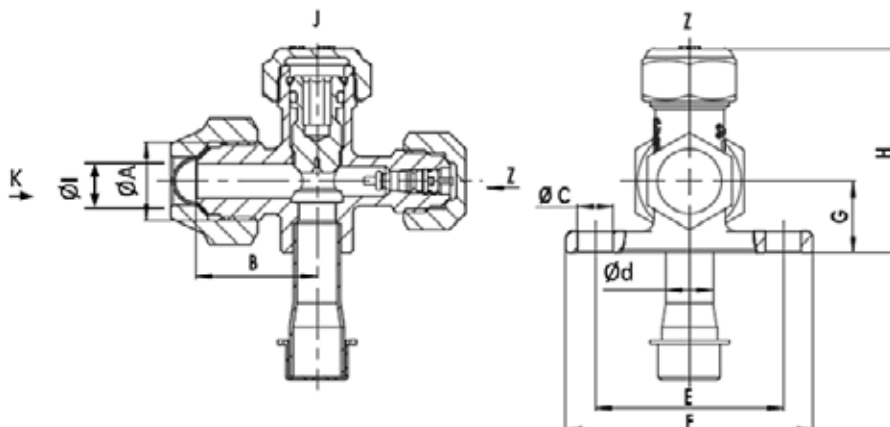
## GENERAL SPECIFICATIONS

- Applicable for all common HFC refrigerants<sup>1)</sup> such as: R22, R134a, R404A, R407C, R410A, R507A, R32
- Ambient temperature min./max.: -20°C / +60°C

- Medium temperature TS min./max.: -30 °C / +120°C
- Max. operating pressure PS: 4,3 MPa (43 bar)
- Installation position: Preferably liquid and suction line
- Certifications: UL/CSA and PED declaration

**Note:** 1) Cooling capacity of refrigerants pls refer to Sanhua selection tool

## DIMENSIONS



# SSV SERIES

## Brass Service Valve



### Applicable for HCFC such as R22

Series	ØA Flare	Ød ODF	Charge Port Flare	Model
	[inch]	[inch]	[inch]	
SSV 2	7/16-20UNF	1/4	-	SSV-A2HSHC-37
SSV 3	5/8-18UNF	3/8	7/16-20UNF	SSV-JA3HSHC-34
SSV 4	3/4-16UNF	1/2	7/16-20UNF	SSV-JA4HSHC-33
SSV 5	7/8-14UNF	5/8	7/16-20UNF	SSV-JA5HSHC-28
SSV 6	1-1/16-14UNS	3/4	7/16-20UNF	SSV-JA6HSHC-22
SSV 7	1- 1/4-12UNF	7/8	7/16-20UNF	SSV-JA7HSHC-8

### Applicable for HCFC such as R22

Series	Port size [mm]	Dimensions [mm]						Cap Shut-off Valve J	Wrench Size		
		B	ØC	E	F	G	H		Nut Pipe Connection K	Valve stem	Cap Charge Port Z
SSV 2	4.8	23.5	7.2	38	60	14	36	S17	S19	S5	-
SSV 3	7.0	25.0	7.2	38	60	14	41	S22	S19	S5	S14
SSV 4	10.0	32.0	7.2	38	60	16	44	S24	S22	S5	S14
SSV 5	12.5	35.0	7.2	38	60	18	50	S27	S26	S5	S14
SSV 6	16.0	48.5	8.0	44	60	25	64	S32	S30	S5	S14
SSV 7	20.0	62.0	7.2	60	60	24	71	S38	S42	S8	S14

### Applicable for HFC such as R410A

Series	ØA Flare	Ød ODF	Charge Port Flare	Model
	[inch]	[inch]	[inch]	
SSV 2	7/16-20UNF	1/4	-	SSV-A2GSHC-23
SSV 3	5/8-18UNF	3/8	1/2-20UNF	SSV-JA3GSHC-20
SSV 4	3/4-16UNF	1/2	1/2-20UNF	SSV-JA4GSHC-19
SSV 5	7/8-14UNF	5/8	1/2-20UNF	SSV-JA5GSHC-15
SSV 6	1-1/16-14UNS	3/4	1/2-20UNF	SSV-JA6GSHC-13

### Applicable for HFC such as R410A

Series	Port size [mm]	Dimensions [mm]						Cap Shut-off Valve J	Wrench Size		
		B	ØC	E	F	G	H		Nut Pipe Connection K	Valve stem	Cap Charge Port Z
SSV 2	4.8	23.5	7.2	38	25	14	36	S17	S19	S5	-
SSV 3	7.0	25.0	7.2	38	25	14	41	S22	S19	S5	S17
SSV 4	10.0	32.0	7.2	38	25	16	44	S24	S22	S5	S17
SSV 5	12.5	35.0	7.2	38	25	18	50	S27	S26	S5	S17
SSV 6	16.0	48.5	7.2	44	25	25	64	S32	S30	S5	S17



# Charge Valve

Charge valves are mainly installed in air conditioning and refrigeration systems. They are used as service valve for circuit evacuation to vacuum and for refrigerant injection.



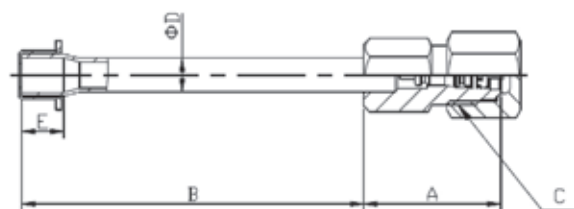
## FEATURES

- SIMPLE STRUCTURE, CONVENIENT TO USE
- PREVENT REFRIGERANT LOSS THROUGH INTEGRATED SHRADER VALVE

## GENERAL SPECIFICATION

- Applicable for all common HCFC and HFC refrigerants such as: R22, R134a, R404A, R407C, R410A, R507A ...
- Ambient temperature min./max.: -20/+60°C
- Medium temperature TS min./max.: -30°C / +120°C
- Max. operating pressure PS: 4,3 MPa (43 bar)
- Installation position: liquid or suction line
- Declaration according to PED

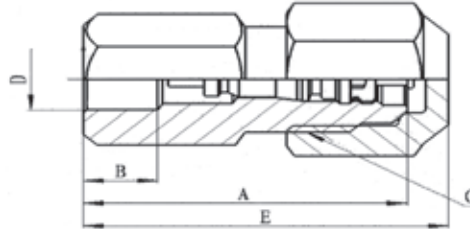
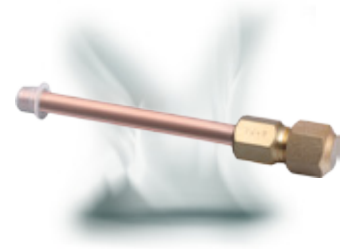
## DIMENSIONS



Product Series	Refrigerant	A	B	C	D	E	Model
		[mm]	[mm]	[inch]	[inch]	[mm]	
TCJ 2	HCFC	26	65	7/16-20UNF	1/4	8	TCJ-2HMSZ-1
TCJ 2	HFC	26	65	1/2-20UNF	1/4	8	TCJ-2GMS-1

**Note:** 1) Extent of delivery: valve body, schrader valve and cap

**TCJ SERIES**  
**Charge Valve**



Product Series	Refrigerant	A	B	C	D	E	Model
		[mm]	[mm]	[inch]	[inch]	[mm]	
TCJ 2	HCFC	26	6	7/16-20UNF	1/4	29.5	TCJ-2HLEN-1
TCJ 2	HFC	26	6	1/2-20UNF	1/4	29.5	TCJ-2GLEN-2



Product Series	Refrigerant	A	B	C	D	E	Model
		[mm]	[mm]	[inch]	[inch]	[mm]	
TCJ 2	HCFC	26	65	7/16-20UNF	1/4	3	TCJ-2HWT-2
TCJ 2	HFC	26	65	7/16-20UNF	1/4	3	TCJ-2GWT-4

# Sanhua filter drier series introduction

Product series	Product picture	General specification	Typical application
<b>DTG-A</b>		<ul style="list-style-type: none"> <li>✓ Uni-flow Liquid Line Drying and Filtering Function</li> <li>✓ Medium temperature -30°C~+120°C</li> <li>✓ PS/MWP: 4.8 MPa</li> <li>✓ Compact core, 100% 3A Molecure Sieve</li> </ul>	<ul style="list-style-type: none"> <li>✓ Mainly used in liquid line for drying and filtering Function.</li> </ul>
<b>DTG-B</b>		<ul style="list-style-type: none"> <li>✓ Uni-flow Liquid Line Drying and Filtering Function</li> <li>✓ Medium temperature -30°C~+120°C</li> <li>✓ PS/MWP: 4.8 MPa</li> <li>✓ Solid core, 100% 3A Molecure Sieve</li> </ul>	<ul style="list-style-type: none"> <li>✓ Mainly used in liquid line for drying and filtering Function.</li> </ul>
<b>DTG-E</b>		<ul style="list-style-type: none"> <li>✓ Uni-flow Liquid Line Drying and Filtering Function</li> <li>✓ Medium temperature -30°C~+120°C</li> <li>✓ PS/MWP: 4.8 MPa</li> <li>✓ Compact core, 80% 3A Molecure Sieve</li> </ul>	<ul style="list-style-type: none"> <li>✓ DTG-E core has 20% Al<sub>2</sub>O<sub>3</sub> especially for acid absorption.</li> </ul>
<b>DTG-F</b>		<ul style="list-style-type: none"> <li>✓ Uni-flow Liquid Linve Drying and Filtering Function</li> <li>✓ Medium temperature -30°C~+120°C</li> <li>✓ PS/MWP: 4.8 MPa</li> <li>✓ Solid core, 80% 3A Molecure Sieve</li> </ul>	<ul style="list-style-type: none"> <li>✓ DTG-F core has 20% Al<sub>2</sub>O<sub>3</sub> especially for acid absorption.</li> </ul>
<b>STG-B</b>		<ul style="list-style-type: none"> <li>✓ Bi-flow Liquid Line Drying and Filtering Function</li> <li>✓ Medium temperature -30°C~+120°C</li> <li>✓ PS/MWP: 4.8 MPa</li> <li>✓ 100% 3A Molecure Sieve</li> </ul>	<ul style="list-style-type: none"> <li>✓ Mainly used in Heat Pum sytem where drying and filtering from both directions are necessary.</li> </ul>
<b>STG-F</b>		<ul style="list-style-type: none"> <li>✓ Bi-flow Liquid Line Drying and Filtering Function</li> <li>✓ Medium temperature -30°C~+120°C</li> <li>✓ PS/MWP: 4.8 MPa</li> <li>✓ 80% 3A Molecure Sieve</li> </ul>	<ul style="list-style-type: none"> <li>✓ STG-F core has 20% Al<sub>2</sub>O<sub>3</sub> especially for acid absorption.</li> </ul>
<b>HTG</b>		<ul style="list-style-type: none"> <li>✓ Uni-flow Liquid Line Drying and Filtering Function</li> <li>✓ Filter Core interchangeable</li> <li>✓ Medium temperature -30°C~+120°C</li> <li>✓ PS/MWP: 4.5 MPa</li> </ul>	<ul style="list-style-type: none"> <li>✓ HTG shell has 3 different cores available:</li> <li>✓ A00: liquid line (normal)</li> <li>✓ A80: liquid line (acid removal)</li> <li>✓ A30: suction line</li> </ul>

# Uni-Flow Filter Driers

The filter driers of series DTG are used in refrigeration system with unidirectional flow to absorb moisture and acid in the system and to filter out the impurities.



## FEATURES

- HIGH EFFICIENT IN MOISTURE ABSORPTION, FILTERING IMPURITY, ACID, PAINT REMAINS AND MUD REMOVAL
- HYBRID DESICCANT
- DURABLE AND SOLID FILTER CORES
- FILTERING FINENESS: 20µm
- CORROSION RESISTANT PAINTING SURVIVES SALT SPRAY TEST OF 500 HOURS
- CONNECTION TYPE: FLARE OR SOLDER

## GENERAL SPECIFICATIONS

- Applicable for all common HCFC, HFC, HC, HFO <sup>1)</sup> refrigerants such as: R22, R134a, R404A, R407C, R410A, R507, R290 <sup>2)</sup>, R1234ze, R1234yf, R407A/F, R32, R448A/R449A, R452A, R450A/R513A
- Ambient temperature min./max.: -30°C / +55°C
- Medium temperature TS min./max.: -30°C / +120°C
- Max. operating pressure PS max.: 4,83 MPa (48,3 bar) - 700 PSI
- Installation position:
  - Flow direction corresponds to the arrow
  - Preferably installed in liquid line
- Certifications: UL/CSA and PED declaration

## TECNHICAL PARAMETERS *Desiccant Selection Table*

	Medium Type	80% 3Å desiccant and 20% active alumina	100% 3Å desiccant
Refrigerant	HFC	Applicable	Applicable
	HCFC	Applicable	Applicable
	HC	Applicable	Applicable
Oil <sup>3)</sup>	Mineral oil or AB	Applicable	Applicable
	Pure POE or PAG	Applicable	Applicable
	POE or PAG with additive	Not Applicable	Applicable

- Note:** 1) Please contact Sanhua representative regarding applications with HFO  
 2) Propane(R290) only solder versions with tube connections below 25 mm (1 inch) can be used  
 3) When the systems use oil with additive, it is not recommended to use a core with alumina.

# DTG SERIES

## Uni-Flow Filter Driers



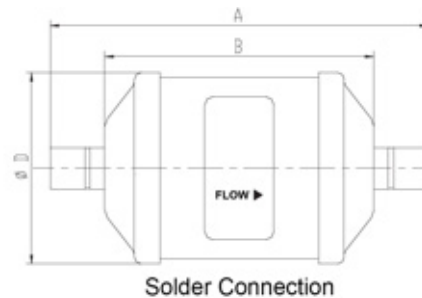
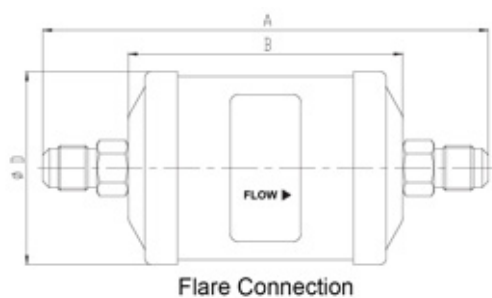
### Model Designation Legend

1	Product Code	Filter Drier Series	
	DTG	Indicates unidirectional filter drier	
2	Filter Core	Structure and Material	
	B	Solid core, 100% 3Å desiccant	
F	Solid core, 80% 3Å desiccant and 20% active alumina		
3	Internal Volume	Expressed in [ inch <sup>3</sup> ]	Expressed in [ cm <sup>3</sup> ]
	03	3	49
	05	5	82
	08	8	131
	16	16	262
	30	30	492
	41	41	672
	75	75	1229
4	Connection Size	Pos. 5 shows "0": Solder [inch]	Pos. 5 shows "4": SAE Flare [inch]
	02	1/4	1/4
	25	5/16	-
	03	3/8	3/8
	04	1/2	1/2
	05	5/8	5/8
	06	3/4	3/4
	07	7/8	7/8
	09	1 1/8	-
5	Pipe Connection	Type	
	0	Solder with inch connections	
	4	SAE flare connections	
6	Version Number	Description	
	901	Standard product	



**MODEL DESIGNATION EXAMPLE**

Position Number						According to Model Designation Legend
1	2	3	4	5	6	
<b>DTG</b>	B	03	02	0	901	Unidirectional filter drier
DTG	<b>B</b>	03	02	0	901	Solid filter core with 100% 3Å desiccant
DTG	B	<b>03</b>	02	0	901	3 inch <sup>3</sup> internal volume
DTG	B	03	<b>02</b>	0	901	Connection size 1/4"
DTG	B	03	02	<b>0</b>	901	Solder connection inch
DTG	B	03	02	0	<b>901</b>	Standard product



**GENERAL CHARACTERISTICS OF DTG-A FILTER - FLARE CONNECTION**

Filter	Model	Nominal Volume		Connec- tion SAE Flare	Dimensions & Weight <sup>1)</sup>				PED Category <sup>2)</sup>
					ØD	B	A	Weight	
		[inch <sup>3</sup> ]	[cm <sup>3</sup> ]	[inch]	[mm]	[mm]	[mm]	[ g ]	
DTGA032	DTG-A03 024-901	3	49	1/4	45	65	112	180	Art. 4.3
DTGA033	DTG-A03 034-901	3	49	3/8	45	65	125	180	Art. 4.3
DTGA034	DTG-A03 044-901	3	49	1/2	45	65	133	180	Art. 4.3
DTGA052	DTG-A05 024-901	5	82	1/4	69	76	123	450	Art. 4.3
DTGA053	DTG-A05 034-901	5	82	3/8	69	76	136	450	Art. 4.3
DTGA082	DTG-A08 024-901	8	131	1/4	69	98	145	550	Art. 4.3
DTGA083	DTG-A08 034-901	8	131	3/8	69	98	158	550	Art. 4.3
DTGA084	DTG-A08 044-901	8	131	1/2	69	98	166	550	Art. 4.3
DTGA085	DTG-A08 054-901	8	131	5/8	69	98	175	550	Art. 4.3
DTGA162	DTG-A16 024-901	16	262	1/4	69	118	165	660	Art. 4.3
DTGA163	DTG-A16 034-901	16	262	3/8	69	118	178	660	Art. 4.3
DTGA164	DTG-A16 044-901	16	262	1/2	69	118	186	660	Art. 4.3
DTGA165	DTG-A16 054-901	16	262	5/8	69	118	195	660	Art. 4.3
DTGA303	DTG-A30 034-901	30	492	3/8	81	193	253	1550	Art. 4.3
DTGA304	DTG-A30 044-901	30	492	1/2	81	193	261	1550	Art. 4.3
DTGA305	DTG-A30 054-901	30	492	5/8	81	193	270	1550	Art. 4.3
DTGA306	DTG-A30 064-901	30	492	3/4	81	193	270	1550	Art. 4.3
DTGA307	DTG-A30 074-901	30	492	7/8	81	193	283	1550	Art. 4.3

**Note:** 1) Dimensions are rounded up to integral mm

2) PED Directive 2014/68/EU



**GENERAL CHARACTERISTICS OF DTG-A FILTER - SOLDER CONNECTION**

Filter	Model	Nominal Volume		Connec- tion	Dimensions & Weight <sup>1)</sup>				PED Category <sup>2)</sup>
				Solder	ØD	B	A	Weight	
		[inch <sup>3</sup> ]	[cm <sup>3</sup> ]	[inch]	[mm]	[mm]	[mm]	[ g ]	
DTGA032s	DTG-A03 020-901	3	49	1/4	45	65	103	180	Art. 4.3
DTGA033s	DTG-A03 030-901	3	49	3/8	45	65	103	180	Art. 4.3
DTGA034s	DTG-A03 040-901	3	49	1/2	45	65	113	180	Art. 4.3
DTGA052s	DTG-A05 020-901	5	82	1/4	69	76	114	450	Art. 4.3
DTGA0525s	DTG-A05 250-901	5	82	5/16	69	76	114	450	Art. 4.3
DTGA053s	DTG-A05 030-901	5	82	3/8	69	76	114	450	Art. 4.3
DTGA054s	DTG-A05 040-901	5	82	1/2	69	76	124	450	Art. 4.3
DTGA055s	DTG-A05 050-901	5	82	5/8	69	76	124	450	Art. 4.3
DTGA082s	DTG-A08 020-901	8	131	1/4	69	98	136	550	Art. 4.3
DTGA0825s	DTG-A08 250-901	8	131	5/16	69	98	136	550	Art. 4.3
DTGA083s	DTG-A08 030-901	8	131	3/8	69	98	136	550	Art. 4.3
DTGA084s	DTG-A08 040-901	8	131	1/2	69	98	146	550	Art. 4.3
DTGA085s	DTG-A08 050-901	8	262	5/8	69	98	146	550	Art. 4.3
DTGA162s	DTG-A16 020-901	16	262	1/4	69	118	156	660	Art. 4.3
DTGA163s	DTG-A16 030-901	16	262	3/8	69	118	156	660	Art. 4.3
DTGA164s	DTG-A16 040-901	16	262	1/2	69	118	166	660	Art. 4.3
DTGA165s	DTG-A16 050-901	16	262	5/8	69	118	166	660	Art. 4.3
DTGA166s	DTG-A16 060-901	16	262	3/4	69	118	178	660	Art. 4.3
DTGA167s	DTG-A16 070-901	16	262	7/8	69	118	178	660	Art. 4.3
DTGA303s	DTG-A30 030-901	30	492	3/8	81	193	231	1550	Art. 4.3
DTGA304s	DTG-A30 040-901	30	492	1/2	81	193	241	1550	Art. 4.3
DTGA305s	DTG-A30 050-901	30	492	5/8	81	193	241	1550	Art. 4.3
DTGA306s	DTG-A30 060-901	30	492	3/4	81	193	253	1550	Art. 4.3
DTGA307s	DTG-A30 070-901	30	492	7/8	81	193	253	1550	Art. 4.3
DTGA309s	DTG-A30 090-901	30	492	1-1/8	81	193	263	1550	Art. 4.3

**Note:** 1) Dimensions are rounded up to integral mm  
2) PED Directive 2014/68/EU



## GENERAL CHARACTERISTICS OF DTG-B FILTER - FLARE CONNECTION

Filter	Model	Nominal Volume		Connection	Dimensions & Weight <sup>1)</sup>				PED Category <sup>2)</sup>
				SAE Flare	ØD	B	A	Weight	
		[inch <sup>2</sup> ]	[cm <sup>3</sup> ]	[inch]	[mm]	[mm]	[mm]	[ g ]	
DTGB032	DTG-B03 024-901	3	49	1/4	45	65	112	160	Art. 4.3
DTGB033	DTG-B03 034-901	3	49	3/8	45	65	125	160	Art. 4.3
DTGB034	DTG-B03 044-901	3	49	1/2	45	65	133	160	Art. 4.3
DTGB052	DTG-B05 024-901	5	82	1/4	69	76	123	450	Art. 4.3
DTGB053	DTG-B05 034-901	5	82	3/8	69	76	136	450	Art. 4.3
DTGB082	DTG-B08 024-901	8	131	1/4	69	98	145	550	Art. 4.3
DTGB083	DTG-B08 034-901	8	131	3/8	69	98	158	550	Art. 4.3
DTGB084	DTG-B08 044-901	8	131	1/2	69	98	166	550	Art. 4.3
DTGB162	DTG-B16 024-901	16	262	1/4	69	118	165	660	Art. 4.3
DTGB163	DTG-B16 034-901	16	262	3/8	69	118	178	660	Art. 4.3
DTGB164	DTG-B16 044-901	16	262	1/2	69	118	186	660	Art. 4.3
DTGB165	DTG-B16 054-901	16	262	5/8	69	118	195	660	Art. 4.3
DTGB166	DTG-B16 064-901	16	262	3/4	69	118	195	660	Art. 4.3
DTGB303	DTG-B30 034-901	30	492	3/8	81	193	253	1550	Art. 4.3
DTGB304	DTG-B30 044-901	30	492	1/2	81	193	261	1550	Art. 4.3
DTGB305	DTG-B30 054-901	30	492	5/8	81	193	270	1550	Art. 4.3
DTGB306	DTG-B30 064-901	30	492	3/4	81	193	270	1550	Art. 4.3
DTGB307	DTG-B30 074-901	30	492	7/8	81	193	283	1550	Art. 4.3
DTGB414	DTG-B41 044-901	41	672	1/2	94	194	262	2050	Art. 4.3
DTGB415	DTG-B41 054-901	41	672	5/8	94	194	271	2050	Art. 4.3

**Note:** 1) Dimensions are rounded up to integral mm

2) PED Directive 2014/68/EU





**GENERAL CHARACTERISTICS OF DTG-B FILTER - SOLDER CONNECTION**

Filter	Model	Nominal Volume		Connec- tion	Dimensions & Weight <sup>1)</sup>				PED Category <sup>2)</sup>
				Solder	ØD	B	A	Weight	
		[inch <sup>3</sup> ]	[cm <sup>3</sup> ]	[inch]	[mm]	[mm]	[mm]	[ g ]	
DTGB032s	DTG-B03 020-901	3	49	1/4	45	65	103	160	Art. 4.3
DTGB0325s	DTG-B03 250-901	3	49	5/16	45	65	103	160	Art. 4.3
DTGB033s	DTG-B03 030-901	3	49	3/8	45	65	103	160	Art. 4.3
DTGB034s	DTG-B03 040-901	3	49	1/2	45	65	113	160	Art. 4.3
DTGB052s	DTG-B05 020-901	5	82	1/4	69	76	114	450	Art. 4.3
DTGB0525s	DTG-B05 250-901	5	82	5/16	69	76	114	450	Art. 4.3
DTGB053s	DTG-B05 030-901	5	82	3/8	69	76	114	450	Art. 4.3
DTGB054s	DTG-B05 040-901	5	82	1/2	69	76	124	450	Art. 4.3
DTGB055s	DTG-B05 050-901	5	82	5/8	69	76	124	450	Art. 4.3
DTGB082s	DTG-B08 020-901	8	131	1/4	69	98	136	550	Art. 4.3
DTGB0825s	DTG-B08 250-901	8	131	5/16	69	98	136	550	Art. 4.3
DTGB083s	DTG-B08 030-901	8	131	3/8	69	98	136	550	Art. 4.3
DTGB084s	DTG-B08 040-901	8	131	1/2	69	98	146	550	Art. 4.3
DTGB085s	DTG-B08 050-901	8	131	5/8	69	98	146	550	Art. 4.3
DTGB162s	DTG-B16 020-901	16	262	1/4	69	118	156	660	Art. 4.3
DTGB1625s	DTG-B16 250-901	16	262	5/16	69	118	156	660	Art. 4.3
DTGB163s	DTG-B16 030-901	16	262	3/8	69	118	156	660	Art. 4.3
DTGB164s	DTG-B16 040-901	16	262	1/2	69	118	166	660	Art. 4.3
DTGB165s	DTG-B16 050-901	16	262	5/8	69	118	166	660	Art. 4.3
DTGB166s	DTG-B16 060-901	16	262	3/4	69	118	178	660	Art. 4.3
DTGB167s	DTG-B16 070-901	16	262	7/8	69	118	178	660	Art. 4.3
DTGB303s	DTG-B30 030-901	30	492	3/8	81	193	231	1550	Art. 4.3
DTGB304s	DTG-B30 040-901	30	492	1/2	81	193	241	1550	Art. 4.3
DTGB305s	DTG-B30 050-901	30	492	5/8	81	193	241	1550	Art. 4.3
DTGB306s	DTG-B30 060-901	30	492	3/4	81	193	253	1550	Art. 4.3

**Note:** 1) Dimensions are rounded up to integral mm  
 2) PED Directive 2014/68/EU



**GENERAL CHARACTERISTICS OF DTG-B FILTER - SOLDER CONNECTION**

Filter	Model [inch]	Nominal Volumen		Connec- tion	Dimensions & Weight <sup>1)</sup>				PED Category <sup>3)</sup>
				Solder	ØD	B	A	Weight	
		[inch <sup>3</sup> ]	[cm <sup>3</sup> ]	[inch]	[mm]	[mm]	[mm]	[g]	
DTGB307s	DTG-B30 070-901	30	492	7/8	81	193	253	1550	Art. 4.3
DTGB309s	DTG-B30 090-901	30	492	1 1/8	81	193	263	1550	Art. 4.3
DTGB414s	DTG-B41 040-901	41	672	1/2	94	194	242	2050	Art. 4.3
DTGB415s	DTG-B41 050-901	41	672	5/8	94	194	242	2050	Art. 4.3
DTGB417s	DTG-B41 070-901	41	672	7/8	94	194	254	2050	Art. 4.3
DTGB419s	DTG-B41 090-901	41	672	1 1/8	94	194	264	2050	Art. 4.3
DTGB757s	DTG-B75 070-901	75	1229	7/8	94	333	393	3400	Art. 4.3
DTGB759s	DTG-B75 090-901	75	1229	1 1/8	94	333	403	3400	Art. 4.3

**Note:** 1) Dimensions are rounded up to integral mm

2) PED Directive 2014/68/EU

**GENERAL CHARACTERISTICS OF DTG-E FILTER - FLARE CONNECTION**

Filter	Model	Nominal Volume		Connection	Dimensions & Weight <sup>1)</sup>				PED Category <sup>2)</sup>
				SAE Flare	ØD	B	A	Weight	
		[inch <sup>3</sup> ]	[cm <sup>3</sup> ]	[inch]	[mm]	[mm]	[mm]	[g]	
DTGE032	DTG-E03 024-901	3	49	1/4	45	65	112	180	Art. 4.3
DTGE033	DTG-E03 034-901	3	49	3/8	45	65	125	180	Art. 4.3
DTGE034	DTG-E03 044-901	3	49	1/2	45	65	133	180	Art. 4.3
DTGE052	DTG-E05 024-901	5	82	1/4	69	76	123	450	Art. 4.3
DTGE053	DTG-E05 034-901	5	82	3/8	69	76	136	450	Art. 4.3
DTGE082	DTG-E08 024-901	8	131	1/4	69	98	145	550	Art. 4.3
DTGE083	DTG-E08 034-901	8	131	3/8	69	98	158	550	Art. 4.3
DTGE084	DTG-E08 044-901	8	131	1/2	69	98	166	550	Art. 4.3
DTGE162	DTG-E16 024-901	16	262	1/4	69	118	165	660	Art. 4.3
DTGE163	DTG-E16 034-901	16	262	3/8	69	118	178	660	Art. 4.3
DTGE164	DTG-E16 044-901	16	262	1/2	69	118	186	660	Art. 4.3
DTGE165	DTG-E16 054-901	16	262	5/8	69	118	195	660	Art. 4.3
DTGE303	DTG-E30 034-901	30	492	3/8	81	193	253	1550	Art. 4.3
DTGE304	DTG-E30 044-901	30	492	1/2	81	193	261	1550	Art. 4.3
DTGE305	DTG-E30 054-901	30	492	5/8	81	193	270	1550	Art. 4.3
DTGE306	DTG-E30 064-901	30	492	3/4	81	193	270	1550	Art. 4.3
DTGE307	DTG-E30 074-901	30	492	7/8	81	193	283	1550	Art. 4.3

**Note:** 1) Delivery time on request

2) Dimensions are rounded up to integral mm

3) PED Directive 2014/68/EU



**GENERAL CHARACTERISTICS OF DTG-E FILTER - SOLDER CONNECTION**

Filter	Model	Nominal Volume		Connec- tion	Dimensions & Weight <sup>1)</sup>				PED Category <sup>2)</sup>
				Solder	ØD	B	A	Weight	
		[inch <sup>3</sup> ]	[cm <sup>3</sup> ]	[inch]	[mm]	[mm]	[mm]	[ g ]	
DTGE032s	DTG-E03 020-901	3	49	1/4	45	65	103	180	Art. 4.3
DTGE033s	DTG-E03 030-901	3	49	3/8	45	65	103	180	Art. 4.3
DTGE034s	DTG-E03 040-901	3	49	1/2	45	65	113	180	Art. 4.3
DTGE052s	DTG-E05 020-901	5	82	1/4	69	76	114	450	Art. 4.3
DTGE0525s	DTG-E05 250-901	5	82	5/16	69	76	114	450	Art. 4.3
DTGE053s	DTG-E05 030-901	5	82	3/8	69	76	114	450	Art. 4.3
DTGE054s	DTG-E05 040-901	5	82	1/2	69	76	124	450	Art. 4.3
DTGE055s	DTG-E05 050-901	5	82	5/8	69	76	124	450	Art. 4.3
DTGE082s	DTG-E08 020-901	8	131	1/4	69	98	136	550	Art. 4.3
DTGE083s	DTG-E08 030-901	8	131	3/8	69	98	136	550	Art. 4.3
DTGE084s	DTG-E08 040-901	8	131	1/2	69	98	146	550	Art. 4.3
DTGE085s	DTG-E08 050-901	8	131	5/8	69	98	146	550	Art. 4.3
DTGE162s	DTG-E16 020-901	16	262	1/4	69	118	156	660	Art. 4.3
DTGE163s	DTG-E16 030-901	16	262	3/8	69	118	156	660	Art. 4.3
DTGE164s	DTG-E16 040-901	16	262	1/2	69	118	166	660	Art. 4.3
DTGE165s	DTG-E16 050-901	16	262	5/8	69	118	166	660	Art. 4.3
DTGE166s	DTG-E16 060-901	16	262	3/4	69	118	178	660	Art. 4.3
DTGE167s	DTG-E16 070-901	16	262	7/8	69	118	178	660	Art. 4.3
DTGE303s	DTG-E30 030-901	30	492	3/8	81	193	231	1550	Art. 4.3
DTGE304s	DTG-E30 040-901	30	492	1/2	81	193	241	1550	Art. 4.3
DTGE305s	DTG-E30 050-901	30	492	5/8	81	193	241	1550	Art. 4.3
DTGE306s	DTG-E30 060-901	30	492	3/4	81	193	253	1550	Art. 4.3
DTGE307s	DTG-E30 070-901	30	492	7/8	81	193	253	1550	Art. 4.3
DTGE309s	DTG-E30 090-901	30	492	1-1/8	81	193	263	1550	Art. 4.3

**Note:** 1) Delivery time on request  
 2) Dimensions are rounded up to integral mm  
 3) PED Directive 2014/68/EU



**GENERAL CHARACTERISTICS OF DTG-F FILTER - FLARE CONNECTION**

Filter	Model <sup>1)</sup>	Nominal Volume		Connection	Dimensions & Weight <sup>2)</sup>				PED Category <sup>3)</sup>
				SAE Flare	ØD	B	A	Weight	
		[inch <sup>3</sup> ]	[cm <sup>3</sup> ]	[inch]	[mm]	[mm]	[mm]	[ g ]	
DTGF032	DTG-F03 024-901	3	49	1/4	45	65	112	160	Art. 4.3
DTGF033	DTG-F03 034-901	3	49	3/8	45	65	125	160	Art. 4.3
DTGF034	DTG-F03 044-901	3	49	1/2	45	65	133	160	Art. 4.3
DTGF052	DTG-F05 024-901	5	82	1/4	69	76	123	450	Art. 4.3
DTGF053	DTG-F05 034-901	5	82	3/8	69	76	136	450	Art. 4.3
DTGF082	DTG-F08 024-901	8	131	1/4	69	98	145	550	Art. 4.3
DTGF083	DTG-F08 034-901	8	131	3/8	69	98	158	550	Art. 4.3
DTGF084	DTG-F08 044-901	8	131	1/2	69	98	166	550	Art. 4.3
DTGF162	DTG-F16 024-901	16	262	1/4	69	118	165	660	Art. 4.3
DTGF163	DTG-F16 034-901	16	262	3/8	69	118	178	660	Art. 4.3
DTGF164	DTG-F16 044-901	16	262	1/2	69	118	186	660	Art. 4.3
DTGF165	DTG-F16 054-901	16	262	5/8	69	118	195	660	Art. 4.3
DTGF166	DTG-F16 064-901	16	262	3/4	69	118	195	660	Art. 4.3
DTGF303	DTG-F30 034-901	30	492	3/8	81	193	253	1550	Art. 4.3
DTGF304	DTG-F30 044-901	30	492	1/2	81	193	261	1550	Art. 4.3
DTGF305	DTG-F30 054-901	30	492	5/8	81	193	270	1550	Art. 4.3
DTGF306	DTG-F30 064-901	30	492	3/4	81	193	270	1550	Art. 4.3
DTGF307	DTG-F30 074-901	30	492	7/8	81	193	283	1550	Art. 4.3
DTGF414	DTG-F41 044-901	41	672	1/2	94	194	262	2050	Art. 4.3
DTGF414	DTG-F41 054-901	41	672	5/8	94	194	271	2050	Art. 4.3

**Note:** 1) Delivery time on request  
 2) Dimensions are rounded up to integral mm  
 3) PED Directive 2014/68/EU



## GENERAL CHARACTERISTICS OF DTG-F FILTER - SOLDER CONNECTION

Filter	Model <sup>1)</sup> [inch]	Nominal Volumen		Con- nec- tion	Dimensions & Weight <sup>2)</sup>				PED Category <sup>3)</sup>
				Solder	ØD	B	A	Weight	
		[inch <sup>3</sup> ]	[cm <sup>3</sup> ]	[inch]	[mm]	[mm]	[mm]	[g]	
DTGF032s	DTG-F03 020-901	3	49	1/4	45	65	103	160	Art. 4.3
DTGF0325s	DTG-F03 250-901	3	49	5/16	45	65	103	160	Art. 4.3
DTGF033s	DTG-F03 030-901	3	49	3/8	45	65	103	160	Art. 4.3
DTGF034s	DTG-F03 040-901	3	49	1/2	45	65	113	160	Art. 4.3
DTGF052s	DTG-F05 020-901	5	82	1/4	69	76	114	450	Art. 4.3
DTGF0525s	DTG-F05 250-901	5	82	5/16	69	76	114	450	Art. 4.3
DTGF053s	DTG-F05 030-901	5	82	3/8	69	76	114	450	Art. 4.3
DTGF054s	DTG-F05 040-901	5	82	1/2	69	76	124	450	Art. 4.3
DTGF055s	DTG-F05 050-901	5	82	5/8	69	76	124	450	Art. 4.3
DTGF082s	DTG-F08 020-901	8	131	1/4	69	98	136	550	Art. 4.3
DTGF0825s	DTG-F08 250-901	8	131	5/16	69	98	136	550	Art. 4.3
DTGF083s	DTG-F08 030-901	8	131	3/8	69	98	136	550	Art. 4.3
DTGF084s	DTG-F08 040-901	8	131	1/2	69	98	146	550	Art. 4.3
DTGF085s	DTG-F08 050-901	8	131	5/8	69	98	146	550	Art. 4.3
DTGF162s	DTG-F16 020-901	16	262	1/4	69	118	156	660	Art. 4.3
DTGF1625s	DTG-F16 250-901	16	262	5/16	69	118	156	660	Art. 4.3
DTGF163s	DTG-F16 030-901	16	262	3/8	69	118	156	660	Art. 4.3
DTGF164s	DTG-F16 040-901	16	262	1/2	69	118	166	660	Art. 4.3
DTGF165s	DTG-F16 050-901	16	262	5/8	69	118	166	660	Art. 4.3
DTGF166s	DTG-F16 060-901	16	262	3/4	69	118	178	660	Art. 4.3
DTGF167s	DTG-F16 070-901	16	262	7/8	69	118	178	660	Art. 4.3
DTGF303s	DTG-F30 030-901	30	492	3/8	81	193	231	1550	Art. 4.3
DTGF304s	DTG-F30 040-901	30	492	1/2	81	193	241	1550	Art. 4.3
DTGF305s	DTG-F30 050-901	30	492	5/8	81	193	241	1550	Art. 4.3
DTGF306s	DTG-F30 060-901	30	492	3/4	81	193	253	1550	Art. 4.3
DTGF307s	DTG-F30 070-901	30	492	7/8	81	193	253	1550	Art. 4.3
DTGF309s	DTG-F30 090-901	30	492	1 1/8	81	193	263	1550	Art. 4.3
DTGF414s	DTG-F41 040-901	41	672	1/2	94	194	242	2050	Art. 4.3
DTGF415s	DTG-F41 050-901	41	672	5/8	94	194	242	2050	Art. 4.3
DTGF417s	DTG-F41 070-901	41	672	7/8	94	194	254	2050	Art. 4.3
DTGF419s	DTG-F41 090-901	41	672	1 1/8	94	194	264	2050	Art. 4.3
DTGF757s	DTG-F75 070-901	75	1229	7/8	94	333	393	3400	Art. 4.3
DTGF759s	DTG-F75 090-901	75	1229	1 1/8	94	333	403	3400	Art. 4.3

**Note:** 1) Delivery time on request

2) Dimensions are rounded up to integral mm

3) PED Directive 2014/68/EU



**SELECTION TABLE**

Model	Capacity <sup>1)</sup> [ kW ]					Moisture Absorption (gram H <sub>2</sub> O)							
	R134a	R404A	R22	R407C <sup>2)</sup>	R410A	R134a		R404A		R407C <sup>2)</sup>		R22	
		R507A				75°F	125°F	75°F	125°F	75°F	125°F	75°F	125°F
						23,9°C	51,7°C	23,9°C	51,7°C	23,9°C	51,7°C	23,9°C	51,7°C
DTGB032s	7,7	6,7	8,1	8,1	8,1	4,2	3,8	5,7	3,4	3,4	3,1	3,7	3,4
DTGB032	7,7	6,7	8,1	8,1	8,1	4,2	3,8	5,7	3,4	3,4	3,1	3,7	3,4
DTGB0325s	9,5	6,7	9,5	9,5	9,8	4,2	3,8	5,7	3,4	3,4	3,1	3,7	3,4
DTGB033s	14,4	10,6	14,8	14,8	14,8	4,2	3,8	5,7	3,4	3,4	3,1	3,7	3,4
DTGB033	14,4	10,6	14,8	14,8	14,8	4,2	3,8	5,7	3,4	3,4	3,1	3,7	3,4
DTGB034s	24,6	17,2	25,0	24,6	25,0	4,2	3,8	5,7	3,4	3,4	3,1	3,7	3,4
DTGB034	24,6	17,2	25,0	24,6	25,0	4,2	3,8	5,7	3,4	3,4	3,1	3,7	3,4
DTGB052s	8,4	6,0	8,4	8,4	8,4	11,6	10,9	10,9	8,9	10,9	9,5	11,4	9,7
DTGB052	8,4	6,0	8,4	8,4	8,4	11,6	10,9	10,9	8,9	10,9	9,5	11,4	9,7
DTGB0525s	10,9	7,4	10,9	10,9	11,3	11,6	10,9	10,9	8,9	10,9	9,5	11,4	9,7
DTGB053s	23,9	16,9	24,3	23,9	24,6	11,6	10,9	10,9	8,9	10,9	9,5	11,4	9,7
DTGB053	23,9	16,9	24,3	23,9	24,6	11,6	10,9	10,9	8,9	10,9	9,5	11,4	9,7
DTGB054s	25,3	17,9	25,7	25,7	26,0	11,6	10,9	10,9	8,9	10,9	9,5	11,4	9,7
DTGB055s	34,8	24,6	35,5	35,2	35,9	11,6	10,9	10,9	8,9	10,9	9,5	11,4	9,7
DTGB082s	8,4	6,0	8,4	8,4	8,4	14,8	14,2	16,3	13,4	14,8	13,0	15,5	13,1
DTGB082	8,4	6,0	8,4	8,4	8,4	14,8	14,2	16,3	13,4	14,8	13,0	15,5	13,1
DTGB0825s	11,6	8,1	12,0	11,6	12,0	14,8	14,2	16,3	13,4	14,8	13,0	15,5	13,1
DTG-B083s	25,0	17,6	25,3	25,0	25,7	14,8	14,2	16,3	13,4	14,8	13,0	15,5	13,1
DTGB083	25,0	17,6	25,3	25,0	25,7	14,8	14,2	16,3	13,4	14,8	13,0	15,5	13,1
DTGB084s	30,6	21,5	31,3	30,9	31,7	14,8	14,2	16,3	13,4	14,8	13,0	15,5	13,1
DTGB084	30,6	21,5	31,3	30,9	31,7	14,8	14,2	16,3	13,4	14,8	13,0	15,5	13,1
DTGB085s	44,7	31,7	45,7	45,4	46,1	14,8	14,2	16,3	13,4	14,8	13,0	15,5	13,1
DTGB162s	10,9	7,7	11,3	10,9	11,3	20,6	19,5	33,2	18,3	20,6	17,6	20,9	17,7
DTGB162	10,9	7,7	11,3	10,9	11,3	20,6	19,5	33,2	18,3	20,6	17,6	20,9	17,7
DTGB1625s	11,6	8,1	12,0	11,6	12,0	20,6	19,5	33,2	18,3	20,6	17,6	20,9	17,7
DTGB163s	25,7	17,9	26,0	26,0	26,4	20,6	19,5	33,2	18,3	20,6	17,6	20,9	17,7
DTGB163	25,7	17,9	26,0	26,0	26,4	20,6	19,5	33,2	18,3	20,6	17,6	20,9	17,7
DTGB164s	32,4	22,9	33,1	32,7	33,8	20,6	19,5	33,2	18,3	20,6	17,6	20,9	17,7

**Note:** 1) The above data is based on filter driers with inch connections and clean system at ideal conditions; with impurities accumulated in the filter, the capacity may decrease.

2) R407C data based on dew point conditions



**SELECTION TABLE**

Model	Capacity <sup>1)</sup> [ kW ]					Moisture Absorption (gram H <sub>2</sub> O)							
	R134a	R404A	R22	R407C <sup>2)</sup>	R410A	R134a		R404A		R407C <sup>2)</sup>		R22	
		R507A				R507A		R410A		R22			
						75°F	125°F	75°F	125°F	75°F	125°F	75°F	125°F
						23,9°C	51,7°C	23,9°C	51,7°C	23,9°C	51,7°C	23,9°C	51,7°C
DTGB164	32,4	22,9	33,1	32,7	33,8	20,6	19,5	33,2	18,3	20,6	17,6	20,9	17,7
DTGB165s	43,3	30,6	43,6	43,6	44,3	20,6	19,5	33,2	18,3	20,6	17,6	20,9	17,7
DTGB165	43,3	30,6	43,6	43,6	44,3	20,6	19,5	33,2	18,3	20,6	17,6	20,9	17,7
DTGB166s	46,4	32,7	47,1	46,8	47,8	20,6	19,5	33,2	18,3	20,6	17,6	20,9	17,7
DTGB166	46,4	32,7	47,1	46,8	47,8	20,6	19,5	33,2	18,3	20,6	17,6	20,9	17,7
DTGB167s	47,1	33,4	48,2	47,8	48,5	20,6	19,5	33,2	18,3	20,6	17,6	20,9	17,7
DTGB303s	25,7	17,9	26,0	26,0	26,4	51,4	48,7	83,4	51,4	51,3	43,7	52,1	44,1
DTGB303	25,7	17,9	26,0	26,0	26,4	51,4	48,7	83,4	51,4	51,3	43,7	52,1	44,1
DTGB304s	33,1	23,2	33,8	33,4	34,1	51,4	48,7	83,4	51,4	51,3	43,7	52,1	44,1
DTGB304	33,1	23,2	33,8	33,4	34,1	51,4	48,7	83,4	51,4	51,3	43,7	52,1	44,1
DTGB305s	45,7	32,0	46,4	46,1	46,8	51,4	48,7	83,4	51,4	51,3	43,7	52,1	44,1
DTGB305	45,7	32,0	46,4	46,1	46,8	51,4	48,7	83,4	51,4	51,3	43,7	52,1	44,1
DTGB306s	62,6	44,0	63,7	63,3	64,4	51,4	48,7	83,4	51,4	51,3	43,7	52,1	44,1
DTGB306	62,6	44,0	63,7	63,3	64,4	51,4	48,7	83,4	51,4	51,3	43,7	52,1	44,1
DTGB307s	63,0	44,3	64,0	63,7	64,7	51,4	48,7	83,4	51,4	51,3	43,7	52,1	44,1
DTGB307	63,0	44,3	64,0	63,7	64,7	51,4	48,7	83,4	51,4	51,3	43,7	52,1	44,1
DTGB309s	70,7	52,1	75,3	74,6	76,0	51,4	48,7	83,4	51,4	51,3	43,7	52,1	44,1
DTGB414s	35,2	24,6	35,9	35,5	36,2	63,7	59,7	103,5	55,7	63,7	58,9	70,2	59,4
DTGB414	35,2	24,6	35,9	35,5	36,2	63,7	59,7	103,5	55,7	63,7	58,9	70,2	59,4
DTGB415s	60,8	42,9	61,9	61,5	62,6	63,7	59,7	103,5	55,7	63,7	58,9	70,2	59,4
DTGB415	60,8	42,9	61,9	61,5	62,6	63,7	59,7	103,5	55,7	63,7	58,9	70,2	59,4
DTGB417s	90,4	63,7	91,8	91,4	92,8	63,7	59,7	103,5	55,7	63,7	58,9	70,2	59,4
DTGB419s	92,1	64,7	93,6	92,8	94,6	63,7	59,7	103,5	55,7	63,7	58,9	70,2	59,4
DTGB757s	91,4	64,0	92,8	91,8	93,9	123,3	115,6	200,3	107,9	123,3	114,0	135,8	114,9
DTGB759s	95,3	67,2	97,1	96,4	98,1	123,3	115,6	200,3	107,9	123,3	114,0	135,8	114,9

**Note:** 1) The above data is based on filter driers with inch connections and clean system at ideal conditions; with impurities accumulated in the filter, the capacity may decrease.  
2) R407C data based on dew point conditions

**DTG SERIES****Uni-Flow Filter Driers****SELECTION FORMULAS**

Filter Driers for liquid line are manufactured in compliance with ARI Standard 710. Maximum flow rate of liquid refrigerant at a differential pressure of 0,07bar (1psi) is indicated by kW (ton) which is based on the temperature of liquid refrigerant 30°C (86°F), the evaporating temperature of -15°C (5°F) and the following mass flow:

- 0,40 kg/min/kW (3.1 lb/min/ton) R134a
- 0,53 kg/min/kW (4.1 lb/min/ton) R404A, R507A
- 0,39 kg/min/kW (3.0 lb/min/ton) R22, R407C
- 0,36 kg/min/kW (2.8 lb/min/ton) R410A

**Note:** Data on water absorption is based on the following EPD (method: ASHRAE Standard 63.1):

- 60ppm R22
- 50ppm R134a
- 50ppm R404A
- 50ppm R407C
- 50ppm R410A
- 50ppm R507A



# Bi-Flow Filter Driers

The filter driers of series STG are used in refrigeration system with bidirectional flow to absorb moisture and acid in the system and to filter out the impurities.



## FEATURES

- HIGH EFFICIENT IN MOISTURE ABSORPTION, FILTERING IMPURITY, ACID, PAINT REMAINS AND MUD REMOVAL
- HYBRID DESICCANT
- DURABLE AND SOLID FILTER CORES
- FILTERING FINENESS: 20µm
- CORROSION RESISTANT PAINTING CAN SURVIVE SALT SPRAY TEST OF 500 HOURS
- CONNECTION TYPE: FLARE OR SOLDER

## GENERAL SPECIFICATIONS

- Applicable for all common HCFC, HFC, HC, HFO<sup>1)</sup> refrigerants such as: R22, R134a, R404A, R407C, R410A, R507, R407A, R407F, R290<sup>2)</sup>, R1234ze, R1234yf, R32, R448A/R449A, R452A, R450A/R513A
- Ambient temperature min./max.: -30°C / +55°C
- Medium temperature TS min./max.: -30°C / +120°C
- Max. operating pressure PS: 4,83 MPa (48,3 bar)
- Installation position: preferably installed in liquid line
- Certifications: UL/CSA and PED declaration

## TECHNICAL PARAMETERS *Desiccant Selection Table*

	Medium Type	80% 3Å Desiccant and 20% Active Alumina	100% 3Å Desiccant
Refrigerant	HFC	Applicable	Applicable
	HCFC	Applicable	Applicable
	HC	Applicable	Applicable
Oil <sup>3)</sup>	Mineral oil or AB	Applicable	Applicable
	Pure POE or PAG	Applicable	Applicable
	POE or PAG with additive	Not Applicable	Applicable

- Note:**
- 1) Please contact Sanhua representative regarding applications with HFO
  - 2) For propane(R290) only solder versions with tube connections below 25 mm (1 inch) can be used
  - 3) When the systems use oil with additive, it is not recommended to use a core with alumina

# STGB/F SERIES

## Bi-Flow Filter Driers



### Model Designation Legend

1	<b>Product Code</b>	<b>Filter Drier Series</b>	
	STG	Indicates bidirectional filter drier	
2	<b>Filter Core</b>	<b>Structure and Material</b>	
	B	Solid core, 100% 3Å desiccant	
	F	Solid core, 80% 3Å desiccant and 20% active alumina	
3	<b>Internal Volume</b>	<b>Expressed in [ inch<sup>3</sup> ]</b>	<b>Expressed in [ cm<sup>3</sup> ]</b>
	03	3	49
	05	5	82
	08	8	131
	16	16	262
	30	30	492
4	<b>Connection Size</b>	<b>Pos. 5 shows "0": Solder [inch]</b>	<b>Pos. 5 shows "4": SAE Flare [inch]</b>
	02	1/4	1/4
	25	5/16	-
	03	3/8	3/8
	04	1/2	1/2
	05	5/8	5/8
	06	3/4	3/4
	07	7/8	7/8
	09	1 1/8	-
5	<b>Pipe Connection</b>	<b>Type</b>	
	0	Solder with inch connections	
	4	SAE flare connections	
6	<b>Version Number</b>	<b>Description</b>	
	901	Standard product	



**MODEL DESIGNATION EXAMPLE**

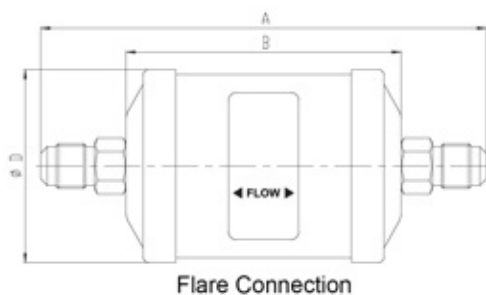
Position Number						According to Model Designation Legend
1	2	3	4	5	6	
<b>STG</b>	B	05	02	0	901	Bidirectional filter drier
STG	<b>B</b>	05	02	0	901	Solid filter core with 100% 3Å desiccant
STG	B	<b>05</b>	02	0	901	5 inch <sup>3</sup> internal volume
STG	B	05	<b>02</b>	0	901	connection size 1/4"
STG	B	05	02	<b>0</b>	901	Solder connection inch
STG	B	05	02	0	<b>901</b>	Standard product

**GENERAL CHARACTERISTICS OF STG-B FILTER - FLARE CONNECTION**

Filter	Model	Nominal Volume		Connection SAE Flare	Dimensions & Weight <sup>1)</sup>				PED Category <sup>2)</sup>
					ØD	B	A	Weight	
		[inch <sup>3</sup> ]	[cm <sup>3</sup> ]	[inch]	[mm]	[mm]	[mm]	[g]	
STGB052	STG-B05 024-901	5	82	1/4	69	76	123	450	Art. 4.3
STGB053	STG-B05 034-901	5	82	3/8	69	76	137	450	Art. 4.3
STGB054	STG-B05 044-901	5	82	1/2	69	76	145	450	Art. 4.3
STGB082	STG-B08 024-901	8	131	1/4	69	98	145	580	Art. 4.3
STGB083	STG-B08 034-901	8	131	3/8	69	98	159	580	Art. 4.3
STGB084	STG-B08 044-901	8	131	1/2	69	98	167	580	Art. 4.3
STGB163	STG-B16 034-901	16	262	3/8	81	118	179	900	Art. 4.3
STGB164	STG-B16 044-901	16	262	1/2	81	118	187	900	Art. 4.3
STGB165	STG-B16 054-901	16	262	5/8	81	118	196	900	Art. 4.3
STGB303	STG-B30 034-901	30	492	3/8	81	193	254	1700	Art. 4.3
STGB304	STG-B30 044-901	30	492	1/2	81	193	262	1700	Art. 4.3
STGB305	STG-B30 054-901	30	492	5/8	81	193	271	1700	Art. 4.3
STGB306	STG-B30 064-901	30	492	3/4	81	193	271	1700	Art. 4.3

**Note:** 1) Dimensions are rounded up to integral mm

2) PED Directive 2014/68/EU

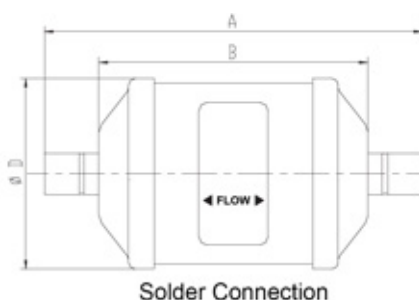




**GENERAL CHARACTERISTICS OF STG-B FILTER - SOLDER CONNECTION**

Filter	Model [inch]	Nominal Volume		Connec- tion	Dimensions & Weight <sup>1)</sup>				PED Category <sup>2)</sup>
				Solder	ØD	B	A	Weight	
		[inch <sup>3</sup> ]	[cm <sup>3</sup> ]	[inch]	[mm]	[mm]	[mm]	[g]	
STGB052s	STG-B05 020-901	5	82	1/4	69	76	114	450	Art. 4.3
STGB053s	STG-B05 030-901	5	82	3/8	69	76	114	450	Art. 4.3
STGB054s	STG-B05 040-901	5	82	1/2	69	76	124	450	Art. 4.3
STGB082s	STG-B08 020-901	8	131	1/4	69	98	136	580	Art. 4.3
STGB0825s	STG-B08 250-901	8	131	5/16	69	98	136	580	Art. 4.3
STGB083s	STG-B08 030-901	8	131	3/8	69	98	136	580	Art. 4.3
STGB084s	STG-B08 040-901	8	131	1/2	69	98	146	580	Art. 4.3
STGB163s	STG-B16 030-901	16	262	3/8	81	118	156	900	Art. 4.3
STGB164s	STG-B16 040-901	16	262	1/2	81	118	166	900	Art. 4.3
STGB165s	STG-B16 050-901	16	262	5/8	81	118	166	900	Art. 4.3
STGB167s	STG-B16 070-901	16	262	7/8	81	118	178	900	Art. 4.3
STGB303s	STG-B30 030-901	30	492	3/8	81	193	231	1700	Art. 4.3
STGB304s	STG-B30 040-901	30	492	1/2	81	193	241	1700	Art. 4.3
STGB305s	STG-B30 050-901	30	492	5/8	81	193	241	1700	Art. 4.3
STGB306s	STG-B30 060-901	30	492	3/4	81	193	253	1700	Art. 4.3
STGB307s	STG-B30 070-901	30	492	7/8	81	193	253	1700	Art. 4.3
STGB309s	STG-B30 090-901	30	492	1 1/8	81	193	263	1700	Art. 4.3

**Note:** 1) Dimensions are rounded up to integral mm  
2) PED Directive 2014/68/EU

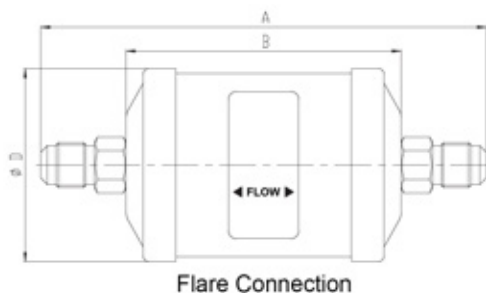




**GENERAL CHARACTERISTICS OF STG-F FILTER - FLARE CONNECTION**

Filter	Model <sup>1)</sup>	Nominal Volume		Connection	Dimensions & Weight <sup>2)</sup>				PED Category <sup>3)</sup>
					SAE Flare	ØD	B	A	
		[inch <sup>3</sup> ]	[cm <sup>3</sup> ]	[inch]	[mm]	[mm]	[mm]	[g]	
STGF052	STG-F05 024-901	5	82	1/4	69	76	123	450	Art. 4.3
STGF053	STG-F05 034-901	5	82	3/8	69	76	137	450	Art. 4.3
STGF054	STG-F05 044-901	5	82	1/2	69	76	145	450	Art. 4.3
STGF082	STG-F08 024-901	8	131	1/4	69	98	145	580	Art. 4.3
STGF083	STG-F08 034-901	8	131	3/8	69	98	159	580	Art. 4.3
STGF084	STG-F08 044-901	8	131	1/2	69	98	167	580	Art. 4.3
STGF163	STG-F16 034-901	16	262	3/8	81	118	179	900	Art. 4.3
STGF164	STG-F16 044-901	16	262	1/2	81	118	187	900	Art. 4.3
STGF165	STG-F16 054-901	16	262	5/8	81	118	196	900	Art. 4.3
STGF303	STG-F30 034-901	30	492	3/8	81	193	254	1700	Art. 4.3
STGF304	STG-F30 044-901	30	492	1/2	81	193	262	1700	Art. 4.3
STGF305	STG-F30 054-901	30	492	5/8	81	193	271	1700	Art. 4.3
STGF306	STG-F30 064-901	30	492	3/4	81	193	271	1700	Art. 4.3

- Note:** 1) Delivery time on request  
 2) Dimensions are rounded up to integral mm  
 3) PED Directive 2014/68/EU

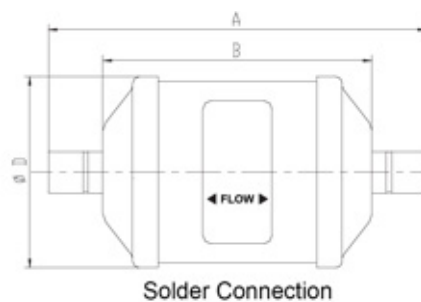




**GENERAL CHARACTERISTICS OF STG-F FILTER - SOLDER CONNECTION**

Filter	Model <sup>1)</sup> [inch]	Nominal Volumen		Connection	Dimensions & Weight <sup>2)</sup>				PED Category <sup>3)</sup>
				Solder	ØD	B	A	Weight	
		[inch <sup>3</sup> ]	[cm <sup>3</sup> ]	[inch]	[mm]	[mm]	[mm]	[g]	
STGF052s	STG-F05 020-901	5	82	1/4	69	76	114	450	Art. 4.3
STGF053s	STG-F05 030-901	5	82	3/8	69	76	114	450	Art. 4.3
STGF054s	STG-F05 040-901	5	82	1/2	69	76	124	450	Art. 4.3
STGF082s	STG-F08 020-901	8	131	1/4	69	98	136	580	Art. 4.3
STGF0825s	STG-F08 250-901	8	131	5/16	69	98	136	580	Art. 4.3
STGF083s	STG-F08 030-901	8	131	3/8	69	98	136	580	Art. 4.3
STGF084s	STG-F08 040-901	8	131	1/2	69	98	146	580	Art. 4.3
STGF163s	STG-F16 030-901	16	262	3/8	81	118	156	900	Art. 4.3
STGF164s	STG-F16 040-901	16	262	1/2	81	118	166	900	Art. 4.3
STGF165s	STG-F16 050-901	16	262	5/8	81	118	166	900	Art. 4.3
STGF167s	STG-F16 070-901	16	262	7/8	81	118	178	900	Art. 4.3
STGF303s	STG-F30 030-901	30	492	3/8	81	193	231	1700	Art. 4.3
STGF304s	STG-F30 040-901	30	492	1/2	81	193	241	1700	Art. 4.3
STGF305s	STG-F30 050-901	30	492	5/8	81	193	241	1700	Art. 4.3
STGF306s	STG-F30 060-901	30	492	3/4	81	193	253	1700	Art. 4.3
STGF307s	STG-F30 070-901	30	492	7/8	81	193	253	1700	Art. 4.3
STGF309s	STG-F30 090-901	30	492	1 1/8	81	193	263	1700	Art. 4.3

- Note:** 1) Delivery time on request  
 2) Dimensions are rounded up to integral mm  
 3) PED Directive 2014/68/EU



# STGB/F SERIES

## Bi-Flow Filter Driers



### SELECTION TABLE

Model	Capacity [ kW ] <sup>1</sup>					Moisture Absorption (gram H <sub>2</sub> O)							
	R134a	R404A	R22	R407C <sup>2</sup>	R410A	R134a		R404A		R407C <sup>2</sup>		R22	
		R507A				75°F	125°F	75°F	125°F	75°F	125°F	75°F	125°F
						23,9°C	51,7°C	23,9°C	51,7°C	23,9°C	51,7°C	23,9°C	51,7°C
STGB052s	7,4	5,3	7,7	7,7	7,7	4,3	4,0	4,1	3,8	3,7	3,4	4,1	3,7
STGB052	7,4	5,3	7,7	7,7	7,7	4,3	4,0	4,1	3,8	3,7	3,4	4,1	3,7
STGB053s	16,5	11,6	16,9	16,5	16,9	4,3	4,0	4,1	3,8	3,7	3,4	4,1	3,7
STGB053	16,5	11,6	16,9	16,5	16,9	4,3	4,0	4,1	3,8	3,7	3,4	4,1	3,7
STGB054s	25,0	17,6	25,3	25,0	25,3	4,3	4,0	4,1	3,8	3,7	3,4	4,1	3,7
STGB054	25,0	17,6	25,3	25,0	25,3	4,3	4,0	4,1	3,8	3,7	3,4	4,1	3,7
STGB082s	8,8	6,0	8,8	8,8	8,8	9,8	9,0	9,2	8,6	8,5	7,8	9,2	8,5
STGB082	8,8	6,0	8,8	8,8	8,8	9,8	9,0	9,2	8,6	8,5	7,8	9,2	8,5
STGB0825s	15,8	10,9	16,2	15,8	16,2	9,8	9,0	9,2	8,6	8,5	7,8	9,2	8,5
STGB083s	17,2	12,0	17,6	17,2	17,6	9,8	9,0	9,2	8,6	8,5	7,8	9,2	8,5
STGB083	17,2	12,0	17,6	17,2	17,6	9,8	9,0	9,2	8,6	8,5	7,8	9,2	8,5
STGB084s	25,7	17,9	26,4	26,0	26,4	9,8	9,0	9,2	8,6	8,5	7,8	9,2	8,5
STGB084	25,7	17,9	26,4	26,0	26,4	9,8	9,0	9,2	8,6	8,5	7,8	9,2	8,5
STGB163s	19,7	13,7	20,0	19,7	20,0	17,6	16,3	16,6	15,5	15,2	14,0	16,6	14,2
STGB163	19,7	13,7	20,0	19,7	20,0	17,6	16,3	16,6	15,5	15,2	14,0	16,6	14,2
STGB164s	30,2	21,5	30,9	30,6	30,9	17,6	16,3	16,6	15,5	15,2	14,0	16,6	14,2
STGB164	30,2	21,5	30,9	30,6	30,9	17,6	16,3	16,6	15,5	15,2	14,0	16,6	14,2
STGB165s	34,1	23,9	34,8	34,5	35,2	17,6	16,3	16,6	15,5	15,2	14,0	16,6	14,2
STGB165	34,1	23,9	34,8	34,5	35,2	17,6	16,3	16,6	15,5	15,2	14,0	16,6	14,2
STGB167s	42,2	29,9	42,9	42,6	43,3	17,6	16,3	16,6	15,5	15,2	14,0	16,6	14,2
STGB303s	25,0	17,6	25,3	25,0	25,7	41,3	38,4	38,9	36,5	35,9	32,9	39,1	33,1
STGB303	25,0	17,6	25,3	25,0	25,7	41,3	38,4	38,9	36,5	35,9	32,9	39,1	33,1
STGB304s	30,9	21,8	31,7	31,7	32,0	41,3	38,4	38,9	36,5	35,9	32,9	39,1	33,1
STGB304	30,9	21,8	31,7	31,7	32,0	41,3	38,4	38,9	36,5	35,9	32,9	39,1	33,1
STGB305s	35,5	25,0	36,2	35,9	36,6	41,3	38,4	38,9	36,5	35,9	32,9	39,1	33,1
STGB305	35,5	25,0	36,2	35,9	36,6	41,3	38,4	38,9	36,5	35,9	32,9	39,1	33,1
STGB306s	39,6	28,1	40,1	39,7	40,4	41,3	38,4	38,9	36,5	35,9	32,9	39,1	33,1
STGB306	39,6	28,1	40,1	39,7	40,4	41,3	38,4	38,9	36,5	35,9	32,9	39,1	33,1
STGB307s	46,4	32,4	47,1	46,8	47,5	41,3	38,4	38,9	36,5	35,9	32,9	39,1	33,1
STGB309s	54,2	38,0	55,2	54,5	55,6	41,3	38,4	38,9	36,5	35,9	32,9	39,1	33,1

**Note:** 1) The above data is based on filter driers with inch connections and clean system at ideal conditions; with impurities accumulated in the filter, the capacity may decrease.

2) R407C data based on dew point conditions

## STGB/F SERIES Bi-Flow Filter Driers



### SELECTION FORMULAS

Filter driers for liquid line are manufactured in compliance with ARI Standard 710. Maximum flow rate of liquid refrigerant at a differential pressure of 0,07bar (1psi) is indicated by kW (ton) which is based on the temperature of liquid refrigerant 30°C (86°F), the evaporating temperature of -15°C (5°F) and the following mass flow:

- 0,40 kg/min/kW (3.1 lb/min/ton) R134a
- 0,53 kg/min/kW (4.1 lb/min/ton) R404A, R507A
- 0,39 kg/min/kW (3.0 lb/min/ton) R22, R407C
- 0,36 kg/min/kW (2.8 lb/min/ton) R410A

**Note:** Data on water absorption is based on the following EPD (method: ASHRAE Standard 63.1):

- 60ppm R22
- 50ppm R134a
- 50ppm R404A
- 50ppm R407C
- 50ppm R410A
- 50ppm R507A

**HI I'M SOLY, THE SANHUA SOLENOID VALVE, I CAN HELP YOU TO FIND SANHUA'S BEST SOLUTION FOR YOU**

**SELECTION TOOL**

**CROSS REFERENCE TOOL**

**SANHUA**

3142 5185535 807923946 2643985279  
5028941571 8699537510 5820518944  
5823078254 0529850999 8678034825  
3421170679 8214808951 3282305647  
0008146365 5058229272 5229400128

SANHUA Selection Tool gives you the possibility to identify the best component suitable in our range which covers your system requirement.

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SANHUA with the collaboration of his dealers and technical team makes you easy to identify our products compared to other components and brands in the market.

Don't forget to double check if our suggestion covers your entire requirements.



# Filter Driers with Replaceable Core

The filter driers with replaceable core (HTG series) are used in liquid line and suction line of refrigerating, freezing and air conditioning system. The filter housing allows to choose different kinds of cores. It's sealed by bottom cover for an easy removal and replacement of core from the bottom. The core holder requires minimum free space to remove the core for replacement.



## FEATURES

- HIGH EFFICIENT IN MOISTURE ABSORPTION, FILTERING IMPURITY, ACID, PAINT REMAINS AND MUD REMOVAL
- DIFFERENT TYPES OF FILTER CORES
- DURABLE AND SOLID FILTER CORES
- FILTERING FINENESS: 20µm
- CORROSION RESISTANT PAINTING CAN SURVIVE SALT SPRAY TEST OF 500 HOURS
- CONNECTION TYPE: SOLDER

## FEATURES OF FILTER ELEMENT

### • SH48-A80 FILTER ELEMENT:

80% 3A DESICCANT AND 20% ACTIVATED ALUMINA,  
It provides a good desiccation ability and an acid absorption capability in a wide temperature range. The core resistance is guaranteed with high level of vibration thanks to an anti-shock design. Suggested installation position on liquid line

### • SH48-A00 FILTER ELEMENT:

100% 3A DESICCANT  
It provides the maximum level of desiccation ability in a wide temperature range. The core resistance is guaranteed with high level of vibration thanks to an anti-shock design. Suggested installation position on liquid line

### • SH48-A30 FILTER ELEMENT:

30% 3A DESICCANT, 70% ACTIVATED ALUMINA  
This solid filter element provides an excellent acid absorption together with a standard desiccation ability in a wide temperature range. The suggested installation position is on the suction line; it is suitable after compressor burnout because it removes acid, impurities and other harmful substance avoiding the damage of the new compressor.

SH48-A30 filter core is compatible with HCFC / HFC refrigerants and its design optimizes the flow passage generating low internal pressure drop. The core resistance is guaranteed with high level of vibration thanks to an anti-shock design.

### • SH48-B100 FILTER ELEMENT:

"Strainer core for filtering dirt particles. Compatible with HCFC, HFC, refrigerants. Suggested installation position on suction line."



### GENERAL SPECIFICATION

- Applicable for all common HCFC and HFC, HFO<sup>1)</sup> refrigerants such as: R22, R134a, R404A, R407C, R410A, R507, R407A, R407F, R448A, R449A, R452A, R450A/R513A, R1234ze
- Ambient temperature min./max.: -30°C / +55°C
- Medium temperature TS min./max.: -40°C / +70°C
- Max. operating pressure PS: from 4,5 MPa (45 bar) (see table 1)
- Installation position: HTG with SH48-A80 or SH48-A00 in liquid line, HTG with SH48-A30 or mechanical strainer SH48-B100 in suction line
- Certifications: UL/CSA and PED declaration

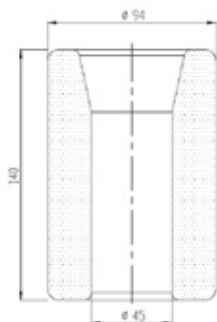
**Note:** 1) Please contact Sanhua representative regarding applications with HFO

### TECHNICAL PARAMETERS

Desiccant Selection Table

	Medium Type	30% 3A desiccant 70% active alumina	80% 3A desiccant 20% active alumina	100% 3A desiccant	Mechanical strainer
Core Model	-	SH48-A30	SH48-A80	SH48-A00	SH48-B00
Suggested Installation position	-	Suction Line	Liquid Line	Liquid Line	Suction Line
Refrigerant	HFC	Applicable	Applicable	Suggested	Suggested
	HCFC	Suggested	Suggested	Applicable	Applicable
	HC	Applicable	Applicable	Applicable	-
Oil <sup>1)</sup>	Mineral oil or AB	Suggested	Suggested	Applicable	Applicable
	Pure POE or PAG	Applicable	Applicable	Suggested	Suggested
	POE or PAG with additive	Not applicable	Not applicable	Applicable	Applicable

**Note:** 1) When the systems use oil with additive, it is not recommended to use a core with alumina.



Filter core dimensions



**MODEL DESIGNATION EXAMPLE**

Position Number						According to Model Designation Legend
1	2	3	4	5	6	
<b>HTG</b>	A96	09	0	901		Replaceable core filter drier
HTG	<b>A96</b>	09	0	901		96 inch <sup>3</sup> internal volume
HTG	A96	<b>09</b>	0	901		Connection size 1 1/8"
HTG	A96	09	<b>0</b>	901		Solder connection inch
HTG	A96	09	0	<b>901</b>		Standard product

*Model Designation Legend*

<b>1</b>	<b>Product Code</b>	<b>Filter Drier Series</b>	
	HTG	Indicates replaceable core filter drier	
<b>2</b>	<b>Internal volume</b>	<b>Expressed in inch<sup>3</sup></b>	<b>Expressed in cm<sup>3</sup></b>
	A48	48	787
	A96	96	1573
	B44	144	2360
	B92	192	3146
<b>3</b>	<b>Connection size</b>	<b>Pos. 4 shows "0": Solder [inch]</b>	
	05	5/8	
	07	7/8	
	09	1 1/8	
	11	1 3/8	
	13	1 5/8	
	17	2 1/8	
	21	2 5/8	
<b>4</b>	<b>Pipe Connection</b>	<b>Type</b>	
	0	Solder with inch connections	
<b>5</b>	<b>Version Number</b>	<b>Description</b>	
	901	Standard product	



**GENERAL CHARACTERISTICS OF FILTER** Table 1

Series	Model	Solder Connections ODF	Number of cores	Dimensions & Weight					Design Pressure (MPa)	PED category
				A	B	L	G	Weight <sup>1)</sup>		
		[inch]		[mm]	[mm]	[mm]	[mm]	[kg]		
HTG A48s	HTG-A48050-901	5/8	1	250	164	170	116	5,1	4,5	Cat. I
	HTG-A48070-901	7/8		249	163	170	116	5,1	4,5	
	HTG-A48090-901	1 1/8		254	168	170	121	5,1	4,5	
	HTG-A48110-901	1 3/8		253	167	170	121	5,1	4,5	
	HTG-A48130-901	1 5/8		272	186	170	141	5,1	4,5	
	HTG-A48170-901	2 1/8		275	182	170	145	5,1	4,5	
	HTG-A48210-901	2 5/8		277	177	170	149	5,1	4,5	
HTG A96s	HTG-A96050-901	5/8	2	391	305	310	116	6,2	4,5	
	HTG-A96070-901	7/8		390	304	310	116	6,2	4,5	
	HTG-A96090-901	1 1/8		395	309	310	121	6,2	4,5	
	HTG-A96110-901	1 3/8		394	308	310	121	6,2	4,5	
	HTG-A96130-901	1 5/8		413	327	310	141	6,2	4,5	
	HTG-A96170-901	2 1/8		416	323	310	145	6,2	4,5	
	HTG-A96210-901	2 5/8		418	318	310	149	6,2	4,5	
HTG B44s	HTG-B44050-901	5/8	3	532	446	310	116	7,6	4,5	
	HTG-B44070-901	7/8		531	445	310	116	7,6	4,5	
	HTG-B44090-901	1 1/8		536	450	310	121	7,6	4,5	
	HTG-B44110-901	1 3/8		535	449	310	121	7,6	4,5	
	HTG-B44130-901	1 5/8		554	468	310	141	7,6	4,5	
	HTG-B44170-901	2 1/8		557	464	310	145	7,6	4,5	
	HTG-B44210-901	2 5/8		559	459	310	149	7,6	4,5	
HTG B92s	HTG-B92050-901	5/8	4	677	591	310	116	9,1	4,5	
	HTG-B92070-901	7/8		676	590	310	116	9,1	4,5	
	HTG-B92090-901	1 1/8		681	595	310	121	9,1	4,5	
	HTG-B92110-901	1 3/8		680	594	310	121	9,1	4,5	
	HTG-B92130-901	1 5/8		699	613	310	141	9,1	4,5	
	HTG-B92170-901	2 1/8		702	609	310	145	9,1	4,5	
	HTG-B92210-901	2 5/8		704	604	310	149	9,1	4,5	

**Note:** 1) Weight of filter shell (must be added the filter core weight: 0.6 kg)



**SELECTION TABLE - WITH CORE SH48-A00** Table 2

Model	Acid Adsorption capacity (g)	Capacity [kW] <sup>1)</sup>					Moisture Absorption [gram H <sub>2</sub> O]							
		R134a	R404A	R22	R407C <sup>2)</sup>	R410A	R134a		R404A		R407C <sup>2)</sup>		R22	
			R507A				R507A		R410A		R22			
							75°F	125°F	75°F	125°F	75°F	125°F	75°F	125°F
						51,7°C	23,9°C	51,7°C	23,9°C	51,7°C	23,9°C	51,7°C		
HTG-A48050-901		78,6	55,8	80,7	80	81,5								
HTG-A48070-901		125,6	89,2	128,9	128	130,3								
HTG-A48090-901		180,6	128,2	185,4	183,9	187,2								
HTG-A48281-901		180,6	128,2	185,4	183,9	187,2								
HTG-A48110-901	-	243,2	172,6	249,6	247,7	252,2	87,4	75,3	94,1	77,3	73,9	67,2	80,6	73,9
HTG-A48130-901		298,7	212	306,5	304,2	309,7								
HTG-A48421-901		298,7	212	306,5	304,2	309,7								
HTG-A48170-901		424,2	301,1	435,4	432	439,8								
HTG-A48210-901		471,2	334,4	483,6	479,9	488,6								
HTG-A96050-901		80,6	57,2	82,7	82	83,5								
HTG-A96070-901		128,8	91,4	132,2	131,2	133,5								
HTG-A96090-901		185,1	131,4	190	188,5	191,9								
HTG-A96281-901		185,1	131,4	190	188,5	191,9								
HTG-A96110-901	-	249,3	176,9	255,9	253,9	258,5	174,7	150,5	188,2	154,6	147,8	134,4	161,3	147,8
HTG-A96130-901		306,1	217,3	314,2	311,8	317,4								
HTG-A96421-901		306,1	217,3	314,2	311,8	317,4								
HTG-A96170-901		434,8	308,6	446,3	442,8	450,8								
HTG-A96210-901		483	342,8	495,7	491,9	500,8								
HTG-B44050-901		82,5	58,6	84,7	84	85,6								
HTG-B44070-901		131,9	93,6	135,4	134,3	136,8								
HTG-B44090-901		189,6	134,6	194,6	193,1	196,6								
HTG-B44281-901		189,6	134,6	194,6	193,1	196,6								
HTG-B44110-901	-	255,4	181,3	262,1	260,1	264,8	262,1	225,8	282,2	231,8	221,8	201,6	241,9	221,8
HTG-B44130-901		313,6	222,6	321,9	319,4	325,1								
HTG-B44421-901		313,6	222,6	321,9	319,4	325,1								
HTG-B44170-901		445,4	316,1	457,1	453,6	461,8								
HTG-B44210-901		494,8	351,2	507,8	503,9	513,0								
HTG-B92050-901		84,5	60	86,7	86	87,6								
HTG-B92070-901		135,1	95,9	138,6	137,5	140								
HTG-B92090-901		194,1	137,8	199,3	197,7	201,3								
HTG-B92281-901		194,1	137,8	199,3	197,7	201,3								
HTG-B92110-901	-	261,5	185,6	268,4	266,3	271,1	349,4	301,1	376,3	309,1	295,7	268,8	322,6	295,7
HTG-B92130-901		321,1	227,9	329,5	327	332,9								
HTG-B92421-901		321,1	227,9	329,5	327	332,9								
HTG-B92170-901		456	323,6	468	464,4	472,8								
HTG-B92210-901		506,6	359,5	519,9	515,9	525,2								



**SELECTION TABLE - WITH CORE SH48-A80** Table 3

Model	Acid Adsorption capacity (g)	Capacity [kW] <sup>1)</sup>					Moisture Absorption [gram H <sub>2</sub> O]							
		R134a	R404A	R22	R407C <sup>2)</sup>	R410A	R134a		R404A		R407C <sup>2)</sup>		R22	
			R507A				75°F	125°F	75°F	125°F	75°F	125°F	75°F	125°F
51,7°C	23,9°C	51,7°C	23,9°C	51,7°C	23,9°C	51,7°C								
HTG-A48050-901	10	78,6	55,8	80,7	80	81,5	74,3	64	80	65,7	62,8	57,1	68,5	62,8
HTG-A48070-901		125,6	89,2	128,9	128	130,3								
HTG-A48090-901		180,6	128,2	185,4	183,9	187,2								
HTG-A48281-901		180,6	128,2	185,4	183,9	187,2								
HTG-A48110-901		243,2	172,6	249,6	247,7	252,2								
HTG-A48130-901		298,7	212	306,5	304,2	309,7								
HTG-A48421-901		298,7	212	306,5	304,2	309,7								
HTG-A48170-901		424,2	301,1	435,4	432	439,8								
HTG-A48210-901		471,2	334,4	483,6	479,9	488,6								
HTG-A96050-901	20	80,6	57,2	82,7	82	83,5	148,5	128	159,9	131,4	125,7	114,2	137,1	125,7
HTG-A96070-901		128,8	91,4	132,2	131,2	133,5								
HTG-A96090-901		185,1	131,4	190	188,5	191,9								
HTG-A96281-901		185,1	131,4	190	188,5	191,9								
HTG-A96110-901		249,3	176,9	255,9	253,9	258,5								
HTG-A96130-901		306,1	217,3	314,2	311,8	317,4								
HTG-A96421-901		306,1	217,3	314,2	311,8	317,4								
HTG-A96170-901		434,8	308,6	446,3	442,8	450,8								
HTG-A96210-901		483	342,8	495,7	491,9	500,8								
HTG-B44050-901	30	82,5	58,6	84,7	84	85,6	222,8	191,9	239,9	197,1	188,5	171,4	205,6	188,5
HTG-B44070-901		131,9	93,6	135,4	134,3	136,8								
HTG-B44090-901		189,6	134,6	194,6	193,1	196,6								
HTG-B44281-901		189,6	134,6	194,6	193,1	196,6								
HTG-B44110-901		255,4	181,3	262,1	260,1	264,8								
HTG-B44130-901		313,6	222,6	321,9	319,4	325,1								
HTG-B44421-901		313,6	222,6	321,9	319,4	325,1								
HTG-B44170-901		445,4	316,1	457,1	453,6	461,8								
HTG-B44210-901		494,8	351,2	507,8	503,9	513,0								
HTG-B92050-901	40	84,5	60	86,7	86	87,6	297	255,9	319,9	262,8	251,3	228,5	274,2	251,3
HTG-B92070-901		135,1	95,9	138,6	137,5	140								
HTG-B92090-901		194,1	137,8	199,3	197,7	201,3								
HTG-B92281-901		194,1	137,8	199,3	197,7	201,3								
HTG-B92110-901		261,5	185,6	268,4	266,3	271,1								
HTG-B92130-901		321,1	227,9	329,5	327	332,9								
HTG-B92421-901		321,1	227,9	329,5	327	332,9								
HTG-B92170-901		456	323,6	468	464,4	472,8								
HTG-B92210-901		506,6	359,5	519,9	515,9	525,2								

- Note:**
1. The data reported in the Table 2 and 3 is based on filter driers in a clean system at ideal conditions; with impurities accumulated in the filter, the capacity may decrease.
  2. R407C data based on dew point conditions
  3. Adsorption capacity of oleic acid at 0.05 TAN (Total Acid Number)



**SELECTION FORMULAS**

Filter driers for liquid line are manufactured in compliance with ARI Standard 710. Maximum flow rate of liquid refrigerant at a differential pressure of 0,07bar (1psi) is indicated by kW (ton) which is based on the temperature of liquid refrigerant 30°C (86°F), the evaporating temperature of -15°C (5°F) and the following mass flow:

- 0,40 kg/min/kW (3.1 lb/min/ton) R134a
- 0,53 kg/min/kW (4.1 lb/min/ton) R404A, R507A
- 0,39 kg/min/kW (3.0 lb/min/ton) R22, R407C
- 0,36 kg/min/kW (2.8 lb/min/ton) R410A

**Note:** Data on water absorption is based on the following EPD (method: ASHRAE Standard 63.1):

- 60ppm R22
- 50ppm R134a
- 50ppm R404A
- 50ppm R407C
- 50ppm R410A
- 50ppm R507A

**SUCTION LINE FILTER-DRIERS:**

Any pressure loss in the suction line also reduces system capacity significantly. Obtaining a low pressure drop is particularly important for energy savings on all the air conditioning and refrigeration systems. Therefore, suction line filter-driers should be sized generously on these systems. Sanhua suggests that the pressure drop across it should not exceed the values given in the table below (table 4: DP limits in metric units; table 5: DP limits in imperial units)

Table 4

Suction Line Filter Drier Maximum Recommended Pressure Drop (bar)					
System	Evaporator Saturated Suction Temperature <sup>4)</sup> (°C)	Permanent Installation		Temporary Installation	
		Refrigerant			
		R22; R404A; R407C; R410A, R507	R134a	R22; R404A; R407C; R410A, R507	R134a
Air conditioning	4	0,21	0,14	0,56	0,42
Commercial	-7	0,14	0,105	0,28	0,21
Low temperature	-29	0,07	0,035	0,14	0,07

Table 5

Suction Line Filter Drier Maximum Recommended Pressure Drop (psi)					
System	Evaporator Saturated Suction Temperature <sup>5)</sup> (°F)	Permanent Installation		Temporary Installation	
		Refrigerant			
		R22; R404A; R407C; R410A, R507	R134a	R22; R404A; R407C; R410A, R507	R134a
Air conditioning	40	3	2	8	6
Commercial	20	2	1,5	4	3
Low temperature	-20	1	0,5	2	1



**SUCTION LINE FLOW CAPACITY WITH CORE SH48-A30 (KW)<sup>1</sup> Table 6**

Model	Capacity (kW)											
	Evaporation temperature (°C)											
	-40	-20	4,4	-30	-20	4,4	-40	-20	4,4	-40	-20	4,4
	Pressure drop (bar)											
	0,04	0,10	0,21	0,04	0,07	0,14	0,04	0,10	0,21	0,04	0,10	0,21
R22/R407C			R134a			R404A/R507			R410A			
HTG-A48050-901	3,0	8,5	20,0	2,9	5,1	12,4	2,3	6,7	16,6	3,0	8,5	20,0
HTG-A48070-901	5,5	15,5	36,0	5,3	9,4	22,2	4,3	12,3	29,6	5,5	15,3	36,0
HTG-A48090-901	7,4	20,5	48,5	7,1	12,6	30,0	5,7	16,3	40,0	7,4	20,5	48,5
HTG-A48110-901	9,5	26,0	61,0	9,1	16,0	37,5	7,3	20,7	50,0	9,5	26,0	61,0
HTG-A48130-901	9,5	26,0	61,0	9,1	16,0	37,5	7,3	20,7	50,0	9,5	26,0	61,0
HTG-A48170-901	9,5	26,0	61,0	9,1	16,0	37,5	7,3	20,7	50,0	9,5	26,0	61,0
HTG-A48210-901	9,5	26,0	61,0	9,1	16,0	37,5	7,3	20,7	50,0	9,5	26,0	61,0
HTG-A96050-901	3,1	8,6	20,3	3,0	5,4	12,7	2,4	7,0	17,1	3,1	8,7	20,5
HTG-A96070-901	5,5	15,4	36,2	5,3	9,4	22,4	4,3	12,3	29,8	5,5	15,4	36,2
HTG-A96090-901	8,3	23,4	55,4	8,0	14,3	34,1	6,5	18,7	46,0	8,3	23,4	56,0
HTG-A96110-901	11,3	32,0	76,0	10,8	19,4	46,5	8,8	25,5	63,0	11,3	32,0	76,0
HTG-A96130-901	13,5	38,0	91,0	13,0	23,1	55,6	10,5	30,4	75,0	13,4	38,0	91,0
HTG-A96170-901	13,5	38,0	91,0	13,0	23,1	55,6	10,5	30,4	75,0	13,4	38,0	91,0
HTG-A96210-901	13,5	38,0	91,0	13,0	23,1	55,6	10,5	30,4	75,0	13,4	38,0	91,0
HTG-B44050-901	3,3	9,5	21,7	3,2	5,7	13,3	2,6	7,3	16,5	3,3	9,5	21,7
HTG-B44070-901	6,3	18,0	41,0	6,0	10,6	25,1	4,8	13,8	34,0	6,3	18,0	41,0
HTG-B44090-901	8,4	24,0	55,0	8,0	14,3	34,0	6,5	18,5	46,0	8,4	24,0	55,0
HTG-B44110-901	12,5	36,5	89,0	12,1	22,0	54,0	9,8	29,2	73,0	12,5	36,5	89,0
HTG-B44130-901	12,5	36,5	89,0	12,1	22,0	54,0	9,8	29,2	73,0	12,5	36,5	89,0
HTG-B44170-901	12,5	36,5	89,0	12,1	22,0	54,0	9,8	29,2	73,0	12,5	36,5	89,0
HTG-B44210-901	12,5	36,5	89,0	12,1	22,0	54,0	9,8	29,2	73,0	12,5	36,5	89,0
HTG-B92050-901	4,0	10,9	25,9	3,8	6,7	16,0	3,0	8,7	21,6	4,0	10,9	25,9
HTG-B92070-901	7,5	20,5	48,8	7,2	12,7	30,0	5,8	16,5	40,6	7,5	20,5	48,8
HTG-B92090-901	10,1	27,5	66,0	9,7	17,1	40,0	7,8	22,1	54,3	10,1	27,5	66,0
HTG-B92110-901	14,1	39,7	95,0	13,6	24,2	58,1	11,0	31,9	78,1	14,1	39,7	95,0
HTG-B92130-901	17,1	49,0	118,0	16,5	30,0	72,0	13,4	39,0	97,0	17,1	49,0	118,0
HTG-B92170-901	17,1	49,0	118,0	16,5	30,0	72,0	13,4	39,0	97,0	17,1	49,0	118,0
HTG-B92210-901	17,1	49,0	118,0	16,5	30,0	72,0	13,4	39,0	97,0	17,1	49,0	118,0





The capacities listed in the table 6 are rated at the maximum recommended pressure drop for permanent installation. Suction line Filter-Driers guarantees an acid removal and a drying capacity described in table 7:

Table 7

Drying capacity: SH48-A30 <sup>1)</sup>					
Filter Type		HTG-A48	HTG-A96	HTG-B44	HTG-B92
Number of cores		1	2	3	4
Acid Adsorption capacity (g) <sup>3)</sup>		28,0	56,0	84,0	112,0
Refrigerant	Evaporating Temp. (°C) <sup>4)</sup>	Moisture Absorption [gram H <sub>2</sub> O]			
R22/ R407C <sup>2)</sup>	-40,0	26,0	52,0	78,0	104,0
	-20,0	18,0	36,3	54,0	72,0
	4,4	11,0	22,0	32,0	43,0
R134a	-30,0	43,0	86,0	129,0	172,0
	-20,0	36,0	72,0	108,0	144,0
	4,4	25,0	50,0	75,0	100,0
R404A / R507	-40,0	45,0	90,0	135,0	180,0
	-20,0	28,0	56,0	84,0	112,0
	4,4	18,0	36,0	54,0	72,0
R410A	-40,0	40,0	80,0	120,0	160,0
	-20,0	33,0	66,0	99,0	132,0
	4,4	24,0	48,0	72,0	96,0

Drying capacity is expressed during drying in:

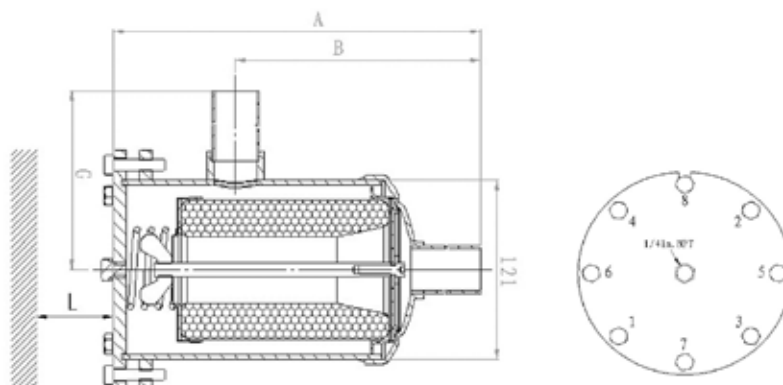
R22: EPD = 10 ppm W, corresponding dew point temperature is -50°C

R134a: EPD = 50 ppm W, corresponding dew point temperature is -37°C

R404A: EPD = 10 ppm W, corresponding dew point temperature is -40°C

R407C: EPD = 10 ppm W, corresponding dew point temperature is -40°C

- Note:**
1. The data reported in the Table 2, 3, 6 and 7 are based on filter driers in a clean system at ideal conditions; with impurities accumulated in the filter, the capacity may decrease.
  2. R407C data based on dew point conditions
  3. Adsorption capacity of oleic acid at 0.05 TAN (Total Acid Number)
  4. Standard Evaporating Temperature defined by ANSI.AHRI Standard 731 (SI)-2013
  5. Standard Evaporating Temperature defined by ANSI.AHRI Standard 730 (I-P)-2013



# Accumulator

Accumulator is installed between the suction port of the refrigerating system compressors and evaporator to separate gas and fluid, store fluid, return oil and filter.



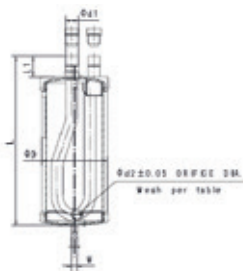
## FEATURES

- INLET AND OUTLET ARE MADE OF COPPER TUBES
- AIR GUIDING PART DIRECT THE REFRIGERANT TOWARD THE WALL WHICH FROM A SLIPSTREAM TO MAKE THE REFRIGERANT EXPAND QUICKLY AND SLOW THE FLOW TO LET THE LIQUID DROP DOWN. THIS EFFECTIVELY SEPARATES THE LIQUID AND GAS.
- THE U TUBE DESIGN GUARANTEE A MAX FLOW OF REFRIGERANT AND STOP LITTLE LUBRICATION OIL. THE INLET OF U TUBE IS BEHIND AIR GUIDING PART WHICH CAN PREVENT THE LIQUID FROM ENTERING COMPRESSOR. AT THE SAME TIME, IT CAN CHANGE THE DIRECTION OF REFRIGERANT TO COMPLETELY SEPARATE THE LIQUID AND GAS.
- THE BALANCING HOLE IN THE UPPER U TUBE CAN EFFECTIVELY ELIMINATE THE SIPHON CAUSED THE RESTART OF SYSTEM SO AS TO AVOID EXCESSIVE LIQUID ENTERING COMPRESSOR.
- THE OIL RETURN HOLE IS MATCHING THE SYSTEM CAPACITY TO OPTIMIZE THE FLOW OF LIQUID REFRIGERANT AND LUBRICATION OIL INTO COMPRESSOR
- CONNECTION TUBE, U TUBE AND VOLUME OF ACCUMULATOR IS DESIGNED BASED ON THE BASIC DEMAND OF HEAT PUMP SYSTEM ALLOWS A PROPER AND RELIABLE LIQUID REFRIGERANT AND LUBRICATION OIL BACK TO COMPRESSOR. THIS COMBINATION IS TO ACHIEVE A MINIMUM PRESSURE DROP AND LARGEST REFRIGERANT CAPACITY.
- POWER COATED SURFACE CAN SURVIVE 500 HOURS OF SALT SPRAY TEST.
- INCORPORATED FUSE OF 220°C

## GENERAL SPECIFICATIONS

- Applicable refrigerant: CFC, HCFC, HFC and HFO
- Applicable medium temperature: -30°C ~+120°C (22°F~+240°F)
- Applicable ambient temperature: -35°C ~+55°C (22°F~+131°F)
- Maximum working pressure: 2.5MPa
- Certification: UL, CSA and PED

**TECHNICAL PARAMETERS**



Model	D mm	L mm	d1 inch	L1 mm	d2 mm	N meshes/in	Screw Size M	Volume L
ACM-P21076-901	76	185,8	5/8	34,3	1,0	60	3/8-16UNC-2A	0,63
ACM-P22076-901	76	268,8	5/8	34,3	1,0	60	3/8-16UNC-2A	0,98
ACM-P23076-901	76	382,3	5/8	34,3	1,0	60	3/8-16UNC-2A	1,46
ACM-P21101-901	101,6	251	5/8	34,3	1,0	60	3/8-16UNC-2A	1,59
ACM-P22101-901	101,6	251	5/8	34,3	1,4	30	3/8-16UNC-2A	1,59
ACM-P23101-901	101,6	251	3/4	34,3	1,0	60	3/8-16UNC-2A	1,59
ACM-P24101-901	101,6	251	3/4	34,3	1,4	30	3/8-16UNC-2A	1,59
ACM-P25101-901	101,6	282,3	5/8	34,3	1,0	60	3/8-16UNC-2A	1,83
ACM-P26101-901	101,6	282,3	5/8	34,3	1,4	30	3/8-16UNC-2A	1,83
ACM-P27101-901	101,6	282,3	3/4	34,3	1,0	60	3/8-16UNC-2A	1,83
ACM-P28101-901	101,6	282,3	3/4	34,3	1,4	30	3/8-16UNC-2A	1,83
ACM-P29101-901	101,6	320	5/8	34,3	1,0	60	3/8-16UNC-2A	2,11
ACM-P30101-901	101,6	320	5/8	34,3	1,4	30	3/8-16UNC-2A	2,11
ACM-P31101-901	101,6	320	3/4	34,3	1,0	60	3/8-16UNC-2A	2,11
ACM-P32101-901	101,6	320	3/4	34,3	1,4	30	3/8-16UNC-2A	2,11
ACM-P33101-901	101,6	357,1	5/8	34,3	1,0	60	3/8-16UNC-2A	2,39
ACM-P34101-901	101,6	357,1	5/8	34,3	1,4	30	3/8-16UNC-2A	2,39
ACM-P35101-901	101,6	357,1	3/4	34,3	1,0	60	3/8-16UNC-2A	2,39
ACM-P36101-901	101,6	357,1	3/4	34,3	1,4	30	3/8-16UNC-2A	2,39
ACM-P37101-901	101,6	432,1	5/8	34,3	1,0	60	3/8-16UNC-2A	2,96
ACM-P38101-901	101,6	432,1	5/8	34,3	1,4	30	3/8-16UNC-2A	2,96
ACM-P39101-901	101,6	432,1	3/4	34,3	1,0	60	3/8-16UNC-2A	2,96
ACM-P40101-901	101,6	432,1	3/4	34,3	1,4	30	3/8-16UNC-2A	2,96
ACM-P21127-901	127	250,4	7/8	40,4	1,4	30	3/8-16UNC-2A	2,49
ACM-P22127-901	127	250,4	7/8	40,4	1,0	60	3/8-16UNC-2A	2,49
ACM-P23127-901	127	244,3	3/4	34,3	1,4	30	3/8-16UNC-2A	2,49
ACM-P24127-901	127	244,3	3/4	34,3	1,0	60	3/8-16UNC-2A	2,49
ACM-P25127-901	127	293,9	7/8	40,4	1,4	30	3/8-16UNC-2A	3,01
ACM-P26127-901	127	293,9	7/8	40,4	1,0	60	3/8-16UNC-2A	3,01
ACM-P27127-901	127	287,8	3/4	34,3	1,4	30	3/8-16UNC-2A	3,01
ACM-P28127-901	127	287,8	3/4	34,3	1,0	60	3/8-16UNC-2A	3,01
ACM-P29127-901	127	327,2	7/8	40,4	1,4	30	3/8-16UNC-2A	3,41
ACM-P30127-901	127	327,2	7/8	40,4	1,0	60	3/8-16UNC-2A	3,41
ACM-P31127-901	127	321,1	3/4	34,3	1,4	30	3/8-16UNC-2A	3,41
ACM-P32127-901	127	321,1	3/4	34,3	1,0	60	3/8-16UNC-2A	3,41
ACM-P33127-901	127	389,6	7/8	40,4	1,4	30	3/8-16UNC-2A	4,14
ACM-P34127-901	127	389,6	7/8	40,4	1,0	60	3/8-16UNC-2A	4,14
ACM-P35127-901	127	383,5	3/4	34,3	1,4	30	3/8-16UNC-2A	4,14
ACM-P36127-901	127	383,5	3/4	34,3	1,0	60	3/8-16UNC-2A	4,14
ACM-P37127-901	127	438,2	7/8	40,4	1,4	30	3/8-16UNC-2A	4,72
ACM-P38127-901	127	438,2	7/8	40,4	1,0	60	3/8-16UNC-2A	4,72
ACM-P39127-901	127	432,1	3/4	34,3	1,4	30	3/8-16UNC-2A	4,72
ACM-P40127-901	127	432,1	3/4	34,3	1,0	60	3/8-16UNC-2A	4,72
ACM-P21153-901	152,4	366,3	1 1/8	48,3	2,03	30	1/2-13UNC-2A	5
ACM-P22153-901	152,4	370,3	1 3/8	52,3	2,03	30	1/2-13UNC-2A	5
ACM-P23153-901	152,4	408,3	1 1/8	48,3	2,03	30	1/2-13UNC-2A	5,7
ACM-P24153-901	152,4	412,3	1 3/8	52,3	2,03	30	1/2-13UNC-2A	5,7
ACM-P25153-901	152,4	475,5	1 1/8	48,3	2,03	30	1/2-13UNC-2A	6,8
ACM-P26153-901	152,4	479,5	1 3/8	52,3	2,03	30	1/2-13UNC-2A	6,8
ACM-P27153-901	152,4	530,1	1 1/8	48,3	2,03	30	1/2-13UNC-2A	7,8
ACM-P28153-901	152,4	534,1	1 3/8	52,3	2,03	30	1/2-13UNC-2A	7,8

# Liquid Receiver

Liquid receiver are usually installed on high pressure liquid line of refrigeration systems to store excessive refrigerant when the load of the system changes.



## FEATURES

- THE INLET USE SOLDER CONNECTION AND 3 TYPES OUTLET ARE AVAILABLE: A SERIES WITH SOLDER CONNECTION, B SERIES WITH FLARE CONNECTION, AND C SERIES WITH ANGLE VALVE STRUCTURE
- INTERNAL FLOW-OUT IS REALIZED BY SUCTION TUBE
- POWDER COATED SURFACE CAN SURVIVE 500 HOURS OF SALT SPRAY TEST

## GENERAL SPECIFICATIONS

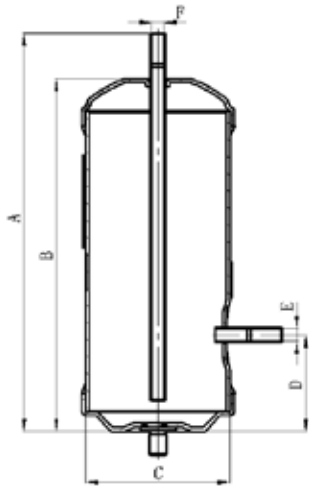
- Applicable refrigerant: HCFC, HFC and HFO
- Applicable medium temperature:  $-30^{\circ}\text{C}+120^{\circ}\text{C}$  ( $-22^{\circ}\text{F}\sim+248^{\circ}\text{F}$ )
- Applicable ambient temperature:  $-30^{\circ}\text{C}+55^{\circ}\text{C}$  ( $-22^{\circ}\text{F}\sim+131^{\circ}\text{F}$ )
- Maximum working pressure: 3.5MPa (500psig)
- Certification: UL&CUL, PED

# LRA-A/B/C SERIES

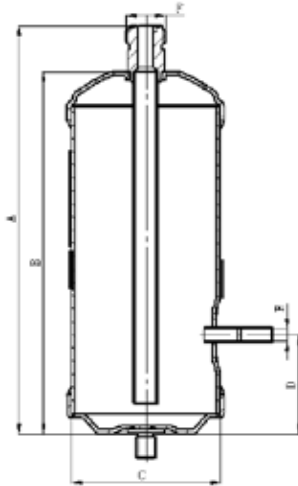
## Liquid Receiver



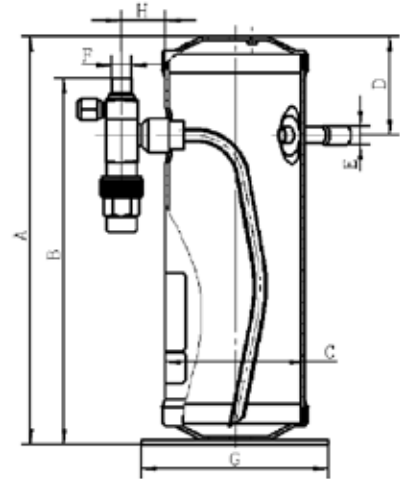
### TECHNICAL PARAMETERS



A Series



B Series



C Series

Series	Model	Internal Volume (L)	Dimensions							
			A [mm]	B [mm]	C [mm]	D [mm]	E(Inlet) [Inch]	F(Outlet) [Inch]	G [mm]	H [mm]
A	LRA-A01063-901	0.4	171	143	Φ63.5	51	1/4	1/4	/	/
	LRA-A02076-901	0.75	210	186	Φ76	51	1/4	1/4	/	/
B	LRA-B02076-901	0.75	210	186	Φ76	51	1/4	3/4-16UNF-2A	/	/
	LRA-B05127-901	2.1	221	197	Φ127	63.5	1/4	3/4-16UNF-2A	/	/
C	LRA-C01089-901	1.5	254	224	Φ89	63.5	3/8	3/8	120	28
	LRA-C02127-901	3.3	257	240	Φ127	63.5	3/8	3/8	165	28

## YFQ-F SERIES

# Oil Separators

YFQ-F series oil separators are used for commercial AC and refrigeration system, be installed at the outlet of compressor to separate gas and oil, to ensure oil returns to compressor and reduce oil entering system.



### FEATURES

- OIL SEPARATION EFFICIENCY IS OVER 90%
- OPTIMIZED STRUCTURE DESIGN TO REDUCE PRESSURE DROP AND NOISE DURING OPERATION
- CORROSION RESISTANT PAINTING SURVIVES SALT SPRAY TEST OF 500 HOURS

### GENERAL SPECIFICATIONS

- Applicable refrigerants: R22, R502, R134A, R407A, R410A, etc.
- Medium temperature:  $-30^{\circ}\text{C}\sim+120^{\circ}\text{C}$  ( $-22^{\circ}\text{F}\sim+248^{\circ}\text{F}$ )
- Ambient temperature:  $-30^{\circ}\text{C}\sim+55^{\circ}\text{C}$  ( $-22^{\circ}\text{F}\sim+131^{\circ}\text{F}$ )
- PS: 4.15MPa
- Installation position:
  - Flow direction corresponds to the arrow
  - Preferably installed in liquid line
- Certifications: UL and PED declaration



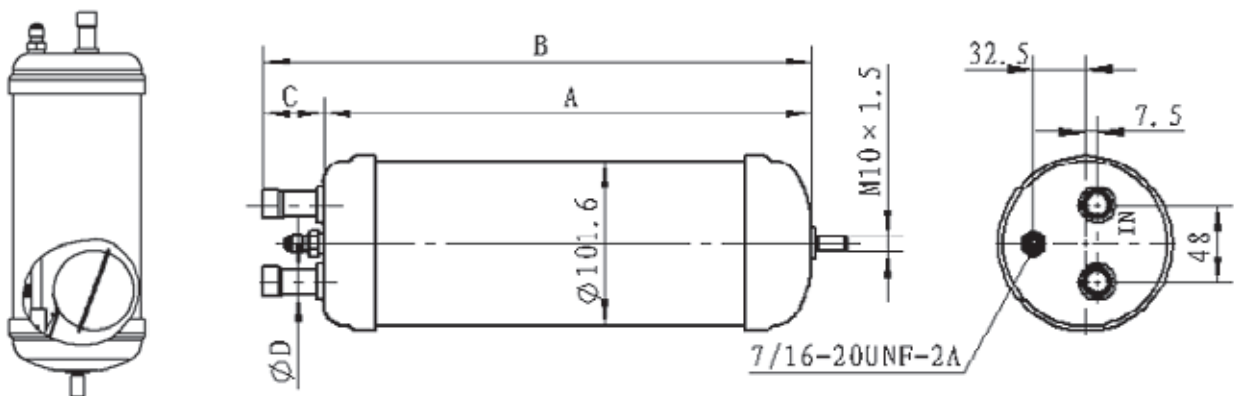
**TECHNICAL PARAMETERS**

Model	Solder Connection ODF [Inch]	Shell OD [mm]	Length [mm]	Oil pre-charge amount [ml]
YFQ-F00101-001	3/8	101.6	220	400
YFQ-F00101-002	1/2		287	
YFQ-F00101-003	5/8		341	
YFQ-F00101-004	7/8		396	
YFQ-F00101-005	1- 1/8		426	

**CAPACITY TABLE**

Model	R22/R407C		R134a		R404A/R507		R410A	
	-40°C	4°C	-40°C	4°C	-40°C	4°C	-40°C	4°C
	kW	kW	kW	kW	kW	kW	kW	kW
YFQ-F00101-001	5.0	6.8	3.1	6.0	5.1	6.8	6.8	9.3
YFQ-F00101-002	5.3	7.0	3.2	6.2	5.3	7.0	8.1	10.6
YFQ-F00101-003	15.8	19.3	11.4	15.8	14.4	19.3	24.0	29.3
YFQ-F00101-004	24.6	28.1	16.7	22.4	22.8	28.8	37.4	42.2
YFQ-F00101-005	31.7	37.0	22.4	29.9	30.0	37.4	52.8	56.2

**DIMENSIONS**



Model	Dimensions			
	A [mm]	B [mm]	C [mm]	D [Inch]
YFQ-F00101-001	187	220	33	3/8
YFQ-F00101-002	254	287	33	1/2
YFQ-F00101-003	303	341	38	5/8
YFQ-F00101-004	351	396	45	7/8
YFQ-F00101-005	376	426	50	1-1/8

## A SERIES

# Drain Pump

Drain pumps are used in packaged air conditioners, indoor units of ceiling air conditioners to drain the condensing water generated by heat exchangers during cooling and dehumidification.



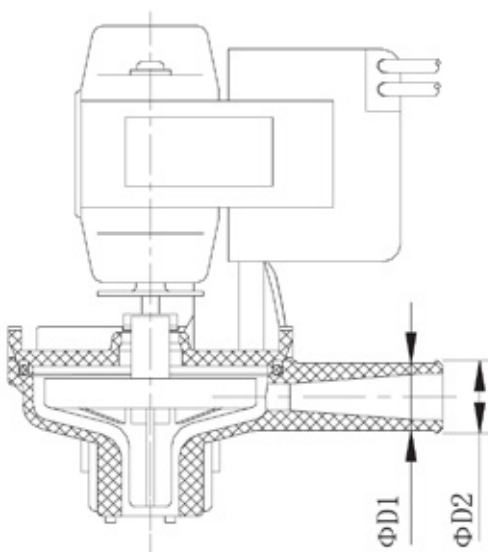
## FEATURES

- LOW NOISE, LOW VIBRATION AND LIGHT WEIGHT
- SMALL SCALE WITH ENOUGH FLOW RATE, LONG LIFE
- COST-EFFECTIVE

## GENERAL SPECIFICATIONS

- Applicable fluid temperature: 0°C ~ +40°C (but no fluid frozen)
- Applicable ambient temperature: -10°C ~ 45°C
- Relative humidity: below 95% RH
- Certification: UL, CQC and VDE

## DIMENSIONS



Model	Dimensions mm			
	D1		D2	
PSB-7A	13	16	14	17
PSB-12A	13	16	14	17

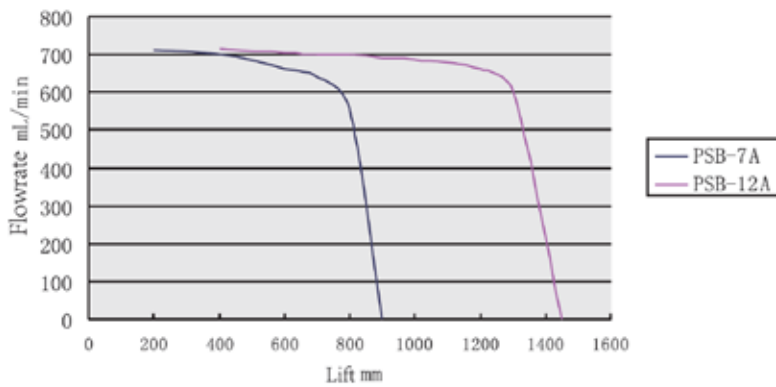
- Note:**
- 1) Type and length of leads, terminal insulation casing and support will be optional subject to the customers' needs.
  - 2) In addition to the water outlet direction shown in the figure, there are another three optional outlet directions every 90°.





**TECHNICAL PARAMETERS**

Model	Rated Lift mm	Rated Flow ml/min	Rated Voltage V	Rated Current mA	Input Power W
PSB-7A	700	≥450	AC220V~240V	<108/96	<10.8/96
		≥320	AC115V	<108/96	<10.8/96
PSB-12A	1200	≥400	AC220V~240V	120/108	12/10.8

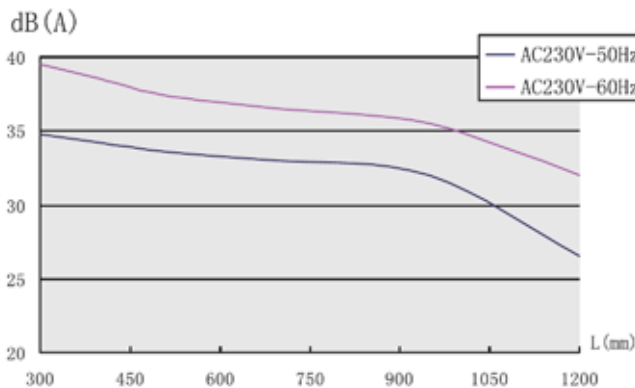
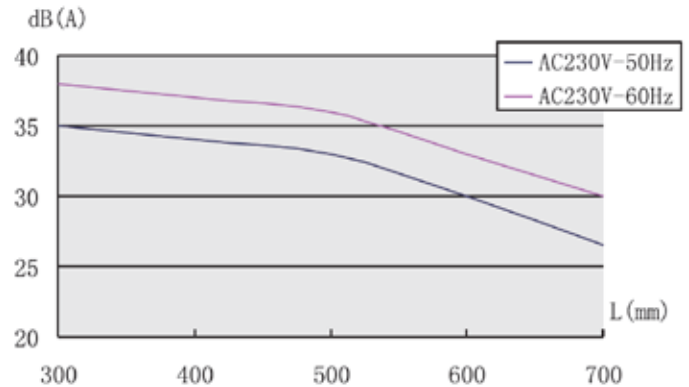


*Lift and Flowrate Graph*

- AC230V 50Hz/60Hz, at a water level of 10mm, testing draining noise in 1min under different lift (at the distance of 1m)

*PSB-7A Model Lift - Noise Graph*

- PSB-12A Model Lift - Noise Graph AC230V 50Hz/60Hz, at a water level of 10mm, testing draining noise in 1min under different lift (at the distance of 1m)



*PSB-12A Model Lift - Noise Graph*

- AC230V 50Hz/60Hz, at a water level of 10mm, testing draining noise in 1min under different lift (at the distance of 1m)

**B SERIES**

# Drain Pump

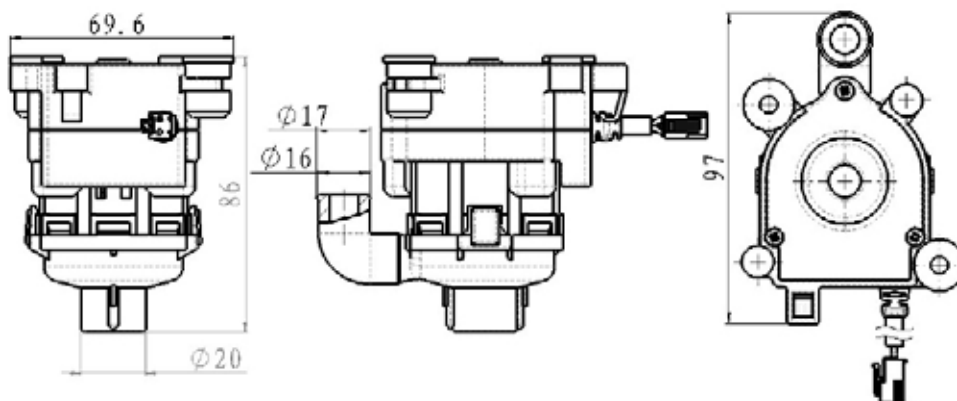
PSB 12B series drain pump are used in packaged air conditioners and indoor unit of ceiling air conditioners to drain the condensate generated by the heat exchanger during cooling and dehumidification.

**FEATURES**

- LOW NOISE, LOW VIBRATION AND LIGHT WEIGHT
- SMALL VOLUME, BIG FLOW AND LONG SERVICE LIFE
- LOW ENERGY CONSUMPTION
- COST-EFFECTIVE

**GENERAL SPECIFICATIONS**

- Applicable fluid temperature: 0°C ~ +50°C (but no fluid frozen)
- Applicable ambient temperature: -10°C ~ 50 °C
- Relative humidity: below 95% RH

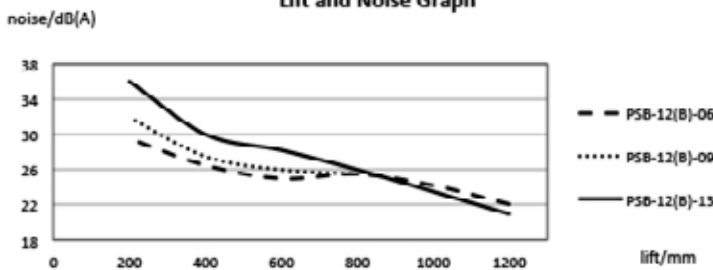
**DIMENSIONS**



**TECHNICAL PARAMETERS**

Model	Nominal lift	Nominal flow	Rated voltage	Rated current	input power
	mm	ml/min	V	mA	W
PSB-12(B)-06	1200	≥400	DC13V	<323	<4.2
PSB-12(B)-09	850	≥450	DC12V	<300	<3.6
PSB-12(B)-13	1200	≥400	DC12V	<350	<4.2

**Lift and Noise Graph**



*Lift and Noise Graph*

- AC230V 50Hz/60Hz, at a water level of 10mm, testing draining noise in 1min under different lift (at the distance of 1m)

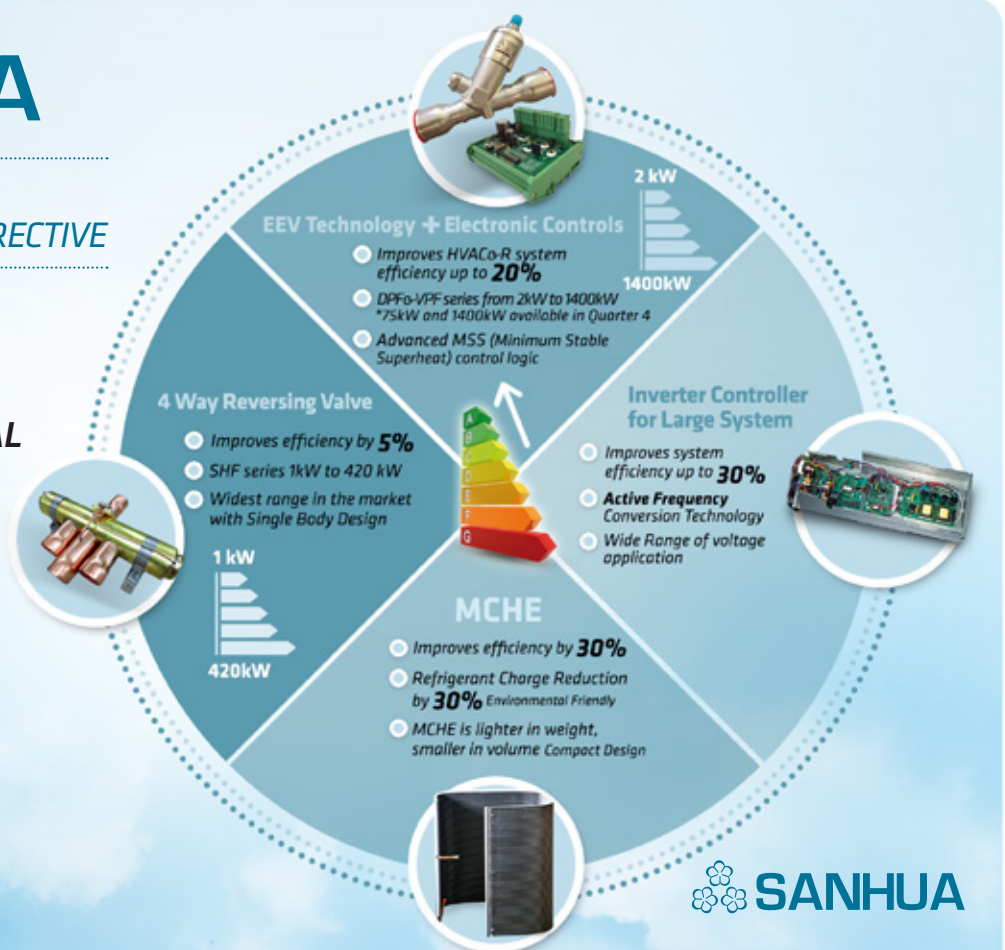
# SANHUA

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AHEAD OF THE  
COMING EFFICIENCY  
AND ENVIRONMENTAL  
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# Float Level Switch

YKG (A) series level switches are applicable to many environments, usually connected to actuators such as drain pumps or electromagnetic valves to control the fluid level in the equipment for the purpose of level warning in the system.



## FEATURES

- RELIABLE ACTION POINT, AND LONG LIFE
- COST EFFECTIVE

## GENERAL SPECIFICATIONS

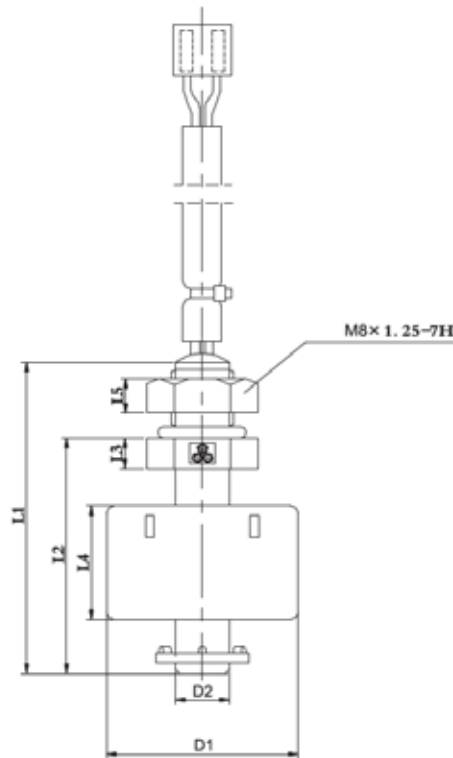
- Applicable fluid temperature: 0°C ~ +40°C (but no fluid frozen)
- Applicable ambient temperature: -10°C ~ +60°C
- Relative humidity: below 95% RH

## TECHNICAL PARAMETERS

Model	Max. Contact Power W	Max. Switching Voltage V	Max. Switching Current A	Action Life 10 thousand times	Contact Resistance between Reed Contacts mΩ
YKG(A)-10	10	DC 100/AC 100	DC 0.5/AC 0.5	100	≤300
YKG(A)-50	50	DC 300/AC 300	DC 0.7/AC 0.5	100	≤300



**DIMENSIONS**



Model	Dimension	
L1	41±0.5	44±0.5
L2	31±0.5	34±0.5
D1	φ25	
D2	φ7	
L3	15	
L4	4	
L5	4.5	

**Notes:**

- 1) Type and length of leads, terminal insulation casing will be optional subject to the customers' needs.
- 2) See above figure for external dimensions of nuts. Recommended to tighten the nut to 0.25 N.m;



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**Note:** Conditions could change without previous notice due to components updating or typing mistakes.

Sanhua declines any responsibility for a wrong product choice based on this table. Please make sure all your requirements are covered in our suggestion.



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