



*AIR  
CONDITIONING*

*COMMERCIAL  
REFRIGERATION*

*HEAT PUMP*



***STANDARD***  
PRODUCT  
CATALOGUE

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**SANHUA** "Strive for perfection, Pursuit of excellence" ..... **02**

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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.



**STANDARD PRODUCTS**

CIE

RoHS

PED

UL

TÜV

VDE

CSA

 **SANHUA**

# 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.

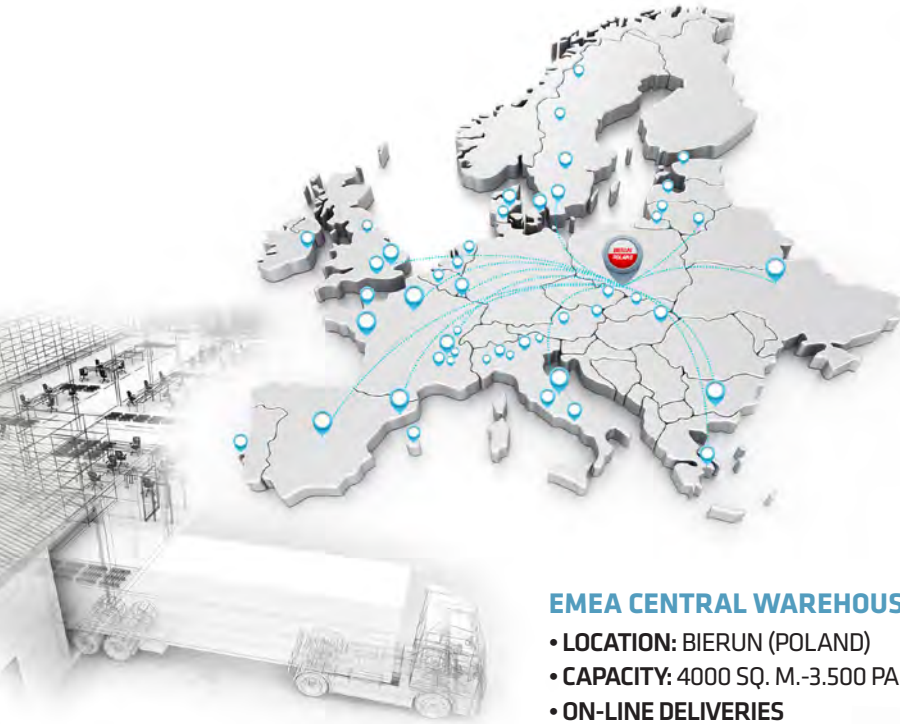
Furthermore, strategic acquisitions by Sanhua of leading HVAC brands such as Ranco and Aweco and joint venture projects transformed Sanhua into one of the largest manufacturers of Expansion, Solenoid and Reversing Valves with annual valve sales exceeding 100 Million pieces.

**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 the most important European markets.

**CHILLING  
IDEAS  
WORLDWIDE**

# GLOBAL FOOTPRINT & LOCAL SUPPORT



- Technical Service Hotline in 4 languages (English, Italian, German and Spanish)
- On site engineering support on request.
- Online Data Sheets and product catalogues.
- 72 hours delivery service for standard stocked items within the European Union.
- B2B Customer Platform, on line 24x7 order & stock management.

## EMEA CENTRAL WAREHOUSE

- LOCATION: BIERUN (POLAND)
- CAPACITY: 4000 SQ. M.-3.500 PALLETS
- ON-LINE DELIVERIES TRACKING SYSTEM
- OPENING HOURS FLEXIBILITY
- URGENCIES MANAGEMENT

## QUALITY AND R&D

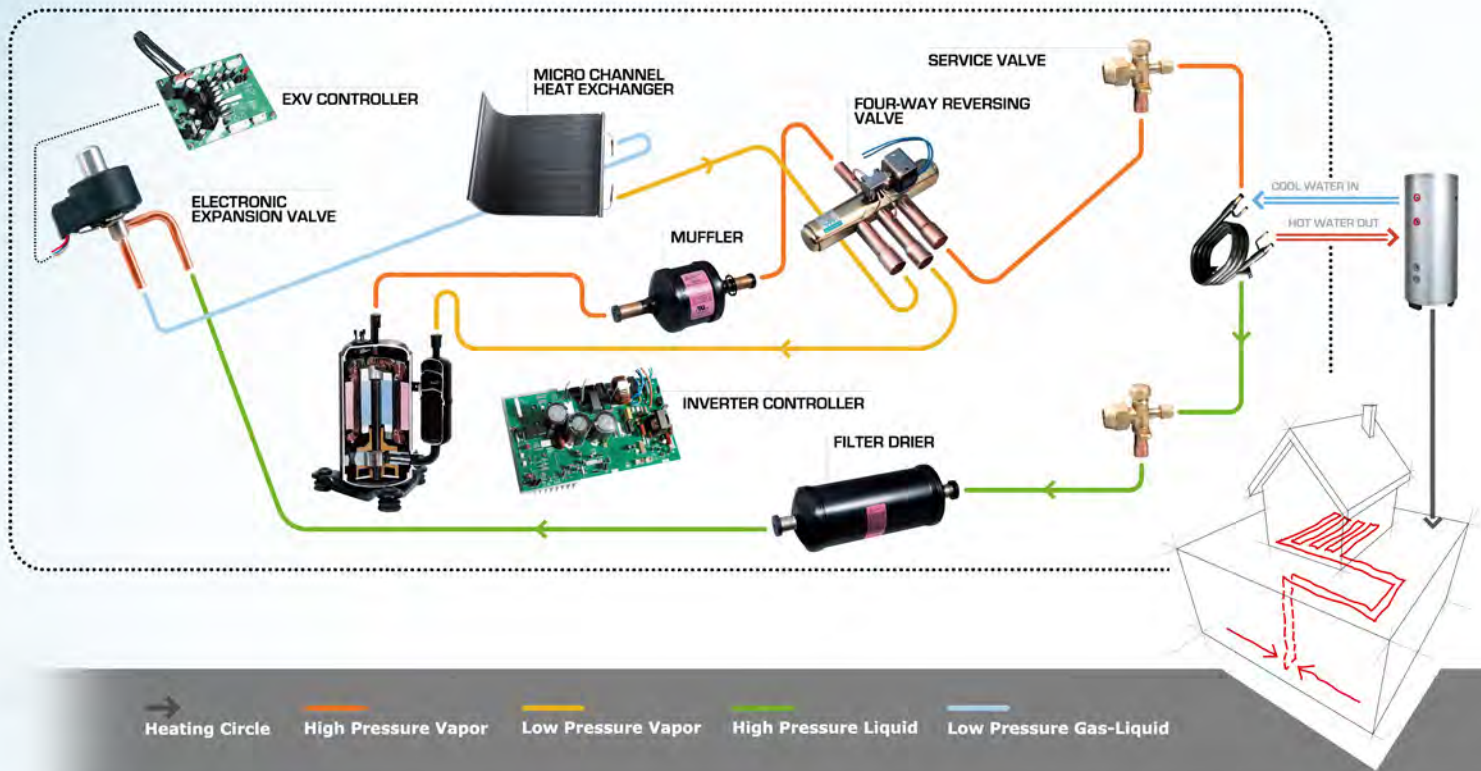
The company has a sufficient number of modern manufacturing equipment, advanced production engineering and effective control tools.

Products of Sanhua have passed many international and domestic safety certificates such as CQC, CE, TÜV, UL, VDE, and have gained trust and satisfaction from customers with reliable and continuous-improving quality.

ISO9001 Quality Management System  
ISO14001 Environment Manag.System  
QC080000 Hazardous Substance  
ISO10012 Measurement Manag System\*\*

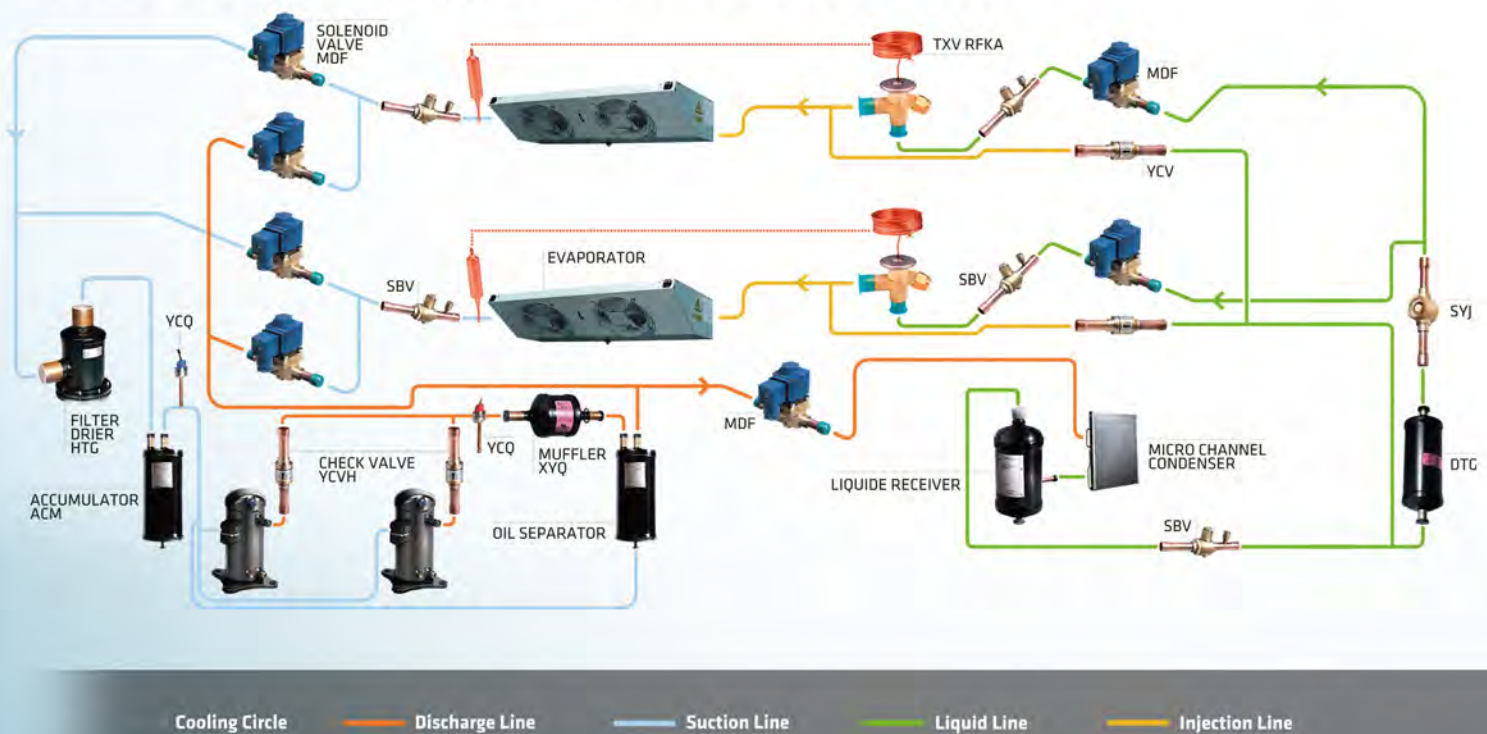


# HOT WATER HEAT PUMP



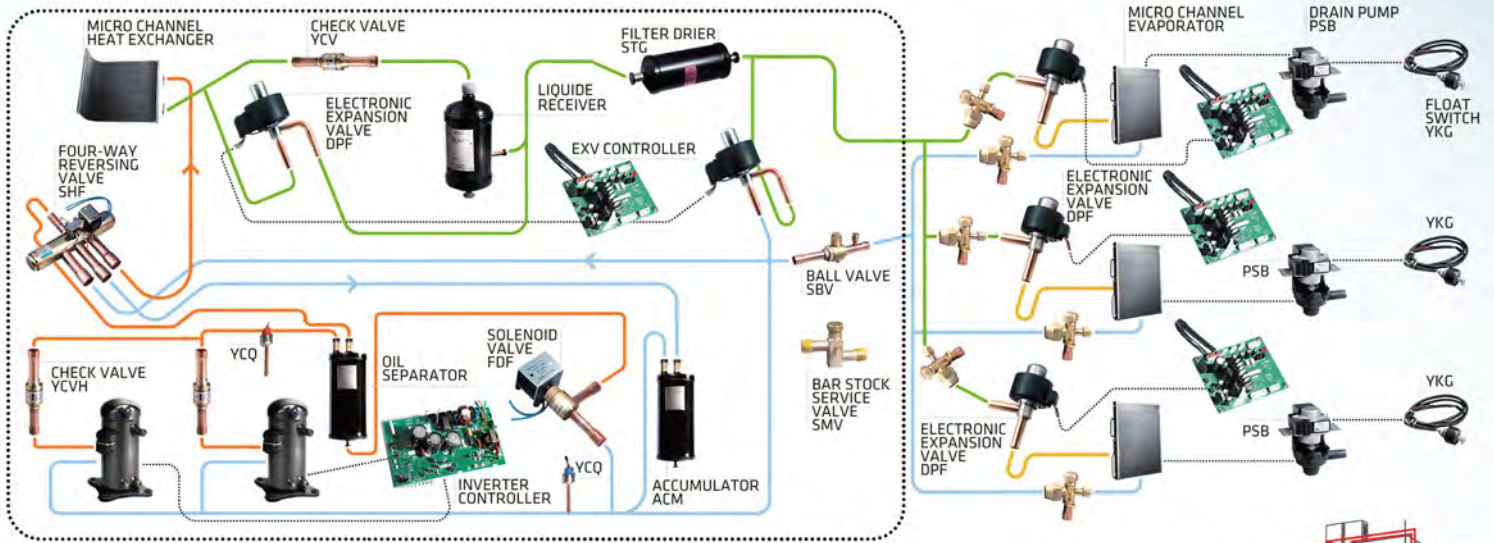
SANHUA IS YOUR PARTNER WITH COMPLETE RANGE AND TECHNOLOGY TO ADDRESS NEW EFFICIENCY CHALLENGES

# Food Retail Application Solutions



# COMMERCIAL AIR CONDITIONING

## VRF SYSTEM



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



SANHUA IS YOUR PARTNER WITH COMPLETE RANGE AND TECHNOLOGY TO ADDRESS NEW EFFICIENCY CHALLENGES

chilling *ideas* worldwide



# SANHUA *YOUR ROAD MAP TO THE ECO-DESIGN DIRECTIVE\**

**KEEPS YOU ONE STEP AHEAD OF THE COMING EFFICIENCY AND ENVIRONMENTAL EUROPEAN CHALLENGES**



### EEV Technology + Electronic Controls

- Improves HVAC $\alpha$ -R system efficiency up to **20%**
- DPF $\alpha$ -VPF series from 2kW to 1400kW  
\*75kW and 1400kW available in Quarter 4
- Advanced MSS (Minimum Stable Superheat) control logic



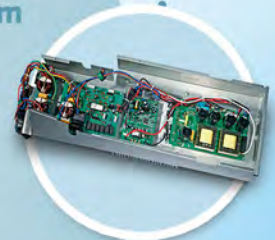
### 4 Way Reversing Valve

- Improves efficiency by **5%**
- SHF series 1kW to 420 kW
- Widest range in the market with Single Body Design



### Inverter Controller for Large System

- Improves system efficiency up to **30%**
- Active Frequency Conversion Technology**
- Wide Range of voltage application



### MCHE

- Improves efficiency by **30%**
- Refrigerant Charge Reduction by **30%** Environmental Friendly
- MCHE is lighter in weight, smaller in volume Compact Design



ADIRALES

\*DIRECTIVE 2012/27/EU

**ADVANCED**  
Technology & Solutions



CHILLING IDEAS WORLDWIDE

SANHUA INTERNATIONAL EUROPE  
info@sanhuaeurope.com

2 out of 3 AC units are equipped  
with a **SANHUA**  
reversing valve

YEARLY SANHUA SUPPLIES OVER 50 MILLION  
FOUR WAY REVERSING VALVES TO THE  
COMMERCIAL AND RESIDENTIAL HVAC  
INDUSTRY WORLDWIDE

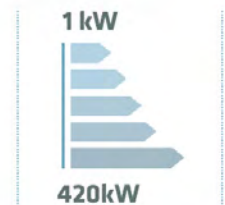


DISCOVER  
**WHY**

[www.sanhuaeurope.com](http://www.sanhuaeurope.com)

**ADVANCED**  
Technology & Solutions

- ✓ Improves efficiency by **5%**
- ✓ SHF series 1kW to 420 kW
- ✓ Widest range in the market  
with Single Body Design



 **SANHUA**

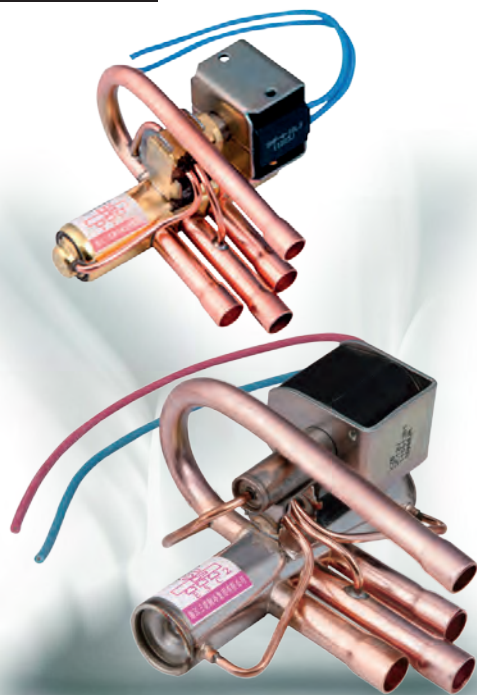
CHILLING *IDEAS* WORLDWIDE

SANHUA INTERNATIONAL EUROPE  
[info@sanhuaeurope.com](mailto:info@sanhuaeurope.com)



# 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 SPECIFICATION

- Applicable for all common HCFC and HFC refrigerants such as: R22, R134a, R404A, R407C, R410A, R507
- Medium temperature TS min./max.: -30°C / +135°C \*
- Ambient temperature min./max.: -30°C / +50 or +70°C (Depending on used coil)
- Relative humidity: 0 to 95% RH
- Max. operating pressure PS: 4.5 MPa (45 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-50-911-D2: TS min./max. : -30°C / +120°C

\*\* SHF(L)-4H to SHF-50 valves, coil selection on request

# SHF SERIES

## 4 Way Reversing Valve

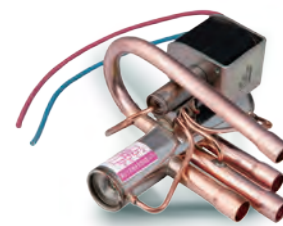


### GENERAL CHARACTERISTICS

General Characteristics									
Valve Model	Product Number	Ø Port	Kv	Connections ODF		MOP	OPD		PED Category
				ØD	ØE/S/C		Max.	Min.	
		[mm]	[m³/h]	[inch]	[inch]	[MPa]	[MPa]	[MPa]	
SHF(L)-3H-12U-51	SHF-19007	7,4	1,5	1/4	5/16	4,5	4	0,25	3.3
SHF(L)-4H-23U-51	SHF-19008	8	1,6	5/16	3/8	4,5	4	0,25	3.3
SHF(G)-7C-34U	SHF-19009	11,1	2,9	3/8	1/2	4,5	4	0,25	3.3
SHF(G)-7C-34	SHF-19010	11,1	2,9	3/8	1/2	4,5	4	0,25	3.3
SHF(L)-7H-35-51	SHF-19011	11,1	2,9	3/8	5/8	4,5	4	0,25	3.3
SHF(G)-11C-34U	SHF-19012	11,5	3,9	3/8	1/2	4,5	4	0,25	3.3
SHF(L)-11H-35U-51	SHF-19013	11,5	4,5	3/8	5/8	4,5	4	0,3	3.3
SHF(L)-11H-45D1-51	SHF-19014	11,5	4,5	1/2	5/8	4,5	4	0,3	3.3
SHF(L)-11H-46D1-51	SHF-19015	11,5	4,5	1/2	3/4	4,5	4	0,3	3.3
SHF-14A-46	SHF-50033	13,5	6,6	1/2	3/4	4,5	4	0,3	3.3
SHF-20D-46-02	SHF-50022	17,2	9,5	1/2	3/4	4,5	4	0,3	3.3
SHF-20D-47-02	SHF-50041	17,2	9,9	1/2	7/8	4,5	4	0,3	3.3
SHF-20D-57-02	SHF-50042	17,2	9,9	5/8	7/8	4,5	4	0,3	3.3
SHF-20D-67-02	SHF-50043	17,2	9,9	3/4	7/8	4,5	4	0,3	3.3
SHF-35B-47-04	SHF-50044	20	14,7	1/2	7/8	4,5	4	0,3	3.3
SHF-35B-57-04	SHF-50045	20	14,7	5/8	7/8	4,5	4	0,3	3.3
SHF-35B-59-04	SHF-50046	20	14,7	5/8	1 1/8	4,5	4	0,3	3.3
SHF-35B-67-04	SHF-50027	20	14,7	3/4	7/8	4,5	4	0,3	3.3
SHF-35B-69-04	SHF-50047	20,9	14,7	3/4	1 1/8	4,5	4	0,3	3.3
SHF-35B-79-04	SHF-50048	20,9	14,7	7/8	1 1/8	4,5	4	0,3	3.3
SHF-50A-79	SHF-50038	22,8	18,3	7/8	1 1/8	4,5	4	0,3	3.3
SHF-50-911D2	SHF-50016	25,6	18,5	1 1/8	1 3/8	4,5	3,1	0,3	3.3
SHF(L)-70-810	SHF-50017	28,6	28,5	1	1 1/4	4,5	4	0,3	3.3
SHF(L)-70-810-01	SHF-50024	28,6	28,5	1	1 1/4	4,5	4	0,3	3.3
SHF(L)-70-911	SHF-50049	28,6	28,5	1 1/8	1 3/8	4,5	4	0,3	3.3
SHF(L)-70-911-01	SHF-50050	28,6	28,5	1 1/8	1 3/8	4,5	4	0,3	3.3
SHF(L)-70-913-05	SHF-50052	28,6	28,5	1 1/8	1 5/8	4,5	4	0,3	3.3
SHF(L)-70-913-03	SHF-50051	28,6	28,5	1 1/8	1 5/8	4,5	4	0,3	3.3
SHF(L)-100-911	SHF-50053	34,8	40,5	1 1/8	1 3/8	4,5	4	0,3	I
SHF(L)-100-911-01	SHF-50054	34,8	40,5	1 1/8	1 3/8	4,5	4	0,3	I
SHF(L)-100-913	SHF-50055	34,8	40,5	1 1/8	1 5/8	4,5	4	0,3	I
SHF(L)-100-913-01	SHF-50056	34,8	40,5	1 1/8	1 5/8	4,5	4	0,3	I
SHF(L)-100-1012	SHF-50018	34,8	40,5	1 1/4	1 1/2	4,5	4	0,3	I
SHF(L)-100-1012-01	SHF-50025	34,8	40,5	1 1/4	1 1/2	4,5	4	0,3	I
SHF(L)-100-1013	SHF-50057	34,8	40,5	1 1/4	1 5/8	4,5	4	0,3	I
SHF(L)-100-1013-01	SHF-50058	34,8	40,5	1 1/4	1 5/8	4,5	4	0,3	I

# SHF SERIES

## 4 Way Reversing Valve

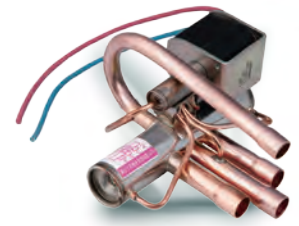


### GENERAL CHARACTERISTICS

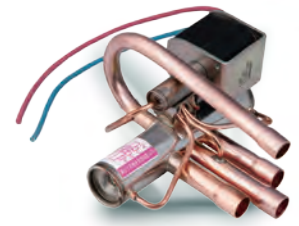
General Characteristics									
Valve Model	Product Number	Ø Port [mm]	Kv [m <sup>3</sup> /h]	Connections ODF		MOP [MPa]	OPD		PED Category
				ØD [inch]	ØE/S/C [inch]		Max. [MPa]	Min. [MPa]	
				SHF(L)-140-1113	SHF-50059		41	58,4	
SHF(L)-140-1213	SHF-50060	41	58,4	1 1/2	1 5/8	4,5	4	0,3	I
SHF(L)-140-1214	SHF-50019	41	58,4	1 1/2	1 3/4	4,5	4	0,3	I
SHF(L)-140-1313	SHF-50061	41	58,4	1 5/8	1 5/8	4,5	4	0,3	I
SHF(L)-175-1217	SHF-50020	46,4	70,5	1 1/2	2 1/8	4,5	4	0,3	I
SHF(L)-175-1317	SHF-50062	46,4	70,5	1 5/8	2 1/8	4,5	4	0,3	I
SHF(L)-210-1321	SHF-50021	50	84,4	1 5/8	2 5/8	4,5	4	0,3	I
SHF(L)-350-1721	SHF-50031	59	138,4	2 1/8	2 5/8	4,5	4	0,3	I
SHF(L)-420-2125	SHF-50032	69	177	2 5/8	3 1/8	4,5	4	0,3	I

Nominal Operating Conditions	Condition 1	Condition 2
Condensing Temperature t <sub>c</sub>	38°C	54,4°C
Evaporating Temperature t <sub>o</sub>	5°C	7,2°C
Superheat Δt <sub>sc</sub>	5K	5K
Subcooling Δt <sub>sr</sub>	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 conditions

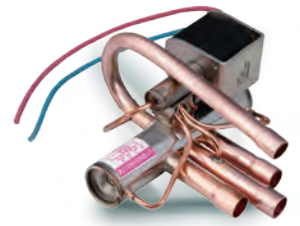


Capacity Selection Table									
Valve Model	Product Number	Nominal Cooling Capacity (condition 1)							
		R407C <sup>2)</sup>		R410A		R134a		R404A / R507	
		ΔP: 0,1 bar	ΔP: 0,2 bar	ΔP: 0,1 bar	ΔP: 0,2 bar	ΔP: 0,1 bar	ΔP: 0,2 bar	ΔP: 0,1 bar	ΔP: 0,2 bar
		[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
SHF(L)-3H-12U-51	SHF-19007	3,3	4,7	4,0	5,7	2,6	3,7	2,9	4,0
SHF(L)-4H-23U-51	SHF-19008	3,6	5,0	4,3	6,1	2,8	4,0	3,1	4,3
SHF(G)-7C-34U	SHF-19009	6,5	9,1	7,8	11,0	5,1	7,2	5,5	7,8
SHF(G)-7C-34	SHF-19010	6,5	9,1	7,8	11,0	5,1	7,2	5,5	7,8
SHF(L)-7H-35-51	SHF-19011	6,5	9,1	7,8	11,0	5,1	7,2	5,5	7,8
SHF(G)-11C-34U	SHF-19012	8,7	12,3	10,5	14,8	6,8	9,6	7,4	10,5
SHF(L)-11H-35U-51	SHF-19013	10,0	14,2	12,1	17,1	7,9	11,1	8,6	12,1
SHF(L)-11H-45D1-51	SHF-19014	10,0	14,2	12,1	17,1	7,9	11,1	8,6	12,1
SHF(L)-11H-46D1-51	SHF-19015	10,0	14,2	12,1	17,1	7,9	11,1	8,6	12,1
SHF-14A-46	SHF-50033	14,7	20,8	17,7	25,1	11,5	16,3	12,6	17,8
SHF-20D-46-02	SHF-50022	21,2	29,9	25,5	36,1	16,6	23,5	18,1	25,6
SHF-20D-47-02	SHF-50041	22,1	31,2	26,6	37,7	17,3	24,5	18,9	26,7
SHF-20D-57-02	SHF-50042	22,1	31,2	26,6	37,7	17,3	24,5	18,9	26,7
SHF-20D-67-02	SHF-50043	22,1	31,2	26,6	37,7	17,3	24,5	18,9	26,7
SHF-35B-47-04	SHF-50044	32,7	46,3	39,5	55,9	25,7	36,3	28,1	39,7
SHF-35B-57-04	SHF-50045	32,7	46,3	39,5	55,9	25,7	36,3	28,1	39,7
SHF-35B-59-04	SHF-50046	32,7	46,3	39,5	55,9	25,7	36,3	28,1	39,7
SHF-35B-67-04	SHF-50027	32,7	46,3	39,5	55,9	25,7	36,3	28,1	39,7
SHF-35B-69-04	SHF-50047	32,7	46,3	39,5	55,9	25,7	36,3	28,1	39,7
SHF-35B-79-04	SHF-50048	32,7	46,3	39,5	55,9	25,7	36,3	28,1	39,7
SHF-50A-79	SHF-50038	40,8	57,7	49,2	69,6	32,0	45,2	34,9	49,4
SHF-50-911D2	SHF-50016	41,2	58,3	49,8	70,4	32,3	45,7	35,3	49,9
SHF(L)-70-810	SHF-50017	63,5	89,8	76,6	108,4	49,8	70,4	54,4	76,9
SHF(L)-70-810-01	SHF-50024	63,5	89,8	76,6	108,4	49,8	70,4	54,4	76,9
SHF(L)-70-911	SHF-50049	63,5	89,8	76,6	108,4	49,8	70,4	54,4	76,9
SHF(L)-70-911-01	SHF-50050	63,5	89,8	76,6	108,4	49,8	70,4	54,4	76,9
SHF(L)-70-913-05	SHF-50052	63,5	89,8	76,6	108,4	49,8	70,4	54,4	76,9
SHF(L)-70-913-03	SHF-50051	63,5	89,8	76,6	108,4	49,8	70,4	54,4	76,9
SHF(L)-100-911	SHF-50053	90,2	127,6	108,9	154,0	70,8	100,1	77,3	109,3
SHF(L)-100-911-01	SHF-50054	90,2	127,6	108,9	154,0	70,8	100,1	77,3	109,3
SHF(L)-100-913	SHF-50055	90,2	127,6	108,9	154,0	70,8	100,1	77,3	109,3
SHF(L)-100-913-01	SHF-50056	90,2	127,6	108,9	154,0	70,8	100,1	77,3	109,3
SHF(L)-100-1012	SHF-50018	90,2	127,6	108,9	154,0	70,8	100,1	77,3	109,3
SHF(L)-100-1012-01	SHF-50025	90,2	127,6	108,9	154,0	70,8	100,1	77,3	109,3
SHF(L)-100-1013	SHF-50057	90,2	127,6	108,9	154,0	70,8	100,1	77,3	109,3
SHF(L)-100-1013-01	SHF-50058	90,2	127,6	108,9	154,0	70,8	100,1	77,3	109,3
SHF(L)-140-1113	SHF-50059	130,1	184,0	157,1	222,1	102,0	144,3	111,5	157,6
SHF(L)-140-1213	SHF-50060	130,1	184,0	157,1	222,1	102,0	144,3	111,5	157,6
SHF(L)-140-1214	SHF-50019	130,1	184,0	157,1	222,1	102,0	144,3	111,5	157,6
SHF(L)-140-1313	SHF-50061	130,1	184,0	157,1	222,1	102,0	144,3	111,5	157,6
SHF(L)-175-1217	SHF-50020	157,0	222,1	189,6	268,1	123,2	174,2	134,6	190,3
SHF(L)-175-1317	SHF-50062	157,0	222,1	189,6	268,1	123,2	174,2	134,6	190,3
SHF(L)-210-1321	SHF-50021	188,0	265,9	227,0	321,0	147,5	208,6	161,1	227,8
SHF(L)-350-1721	SHF-50031	308,3	436,0	372,2	526,4	241,8	342,0	264,2	373,6
SHF(L)-420-2125	SHF-50032	394,3	557,6	476,0	673,2	309,3	437,4	337,8	477,8

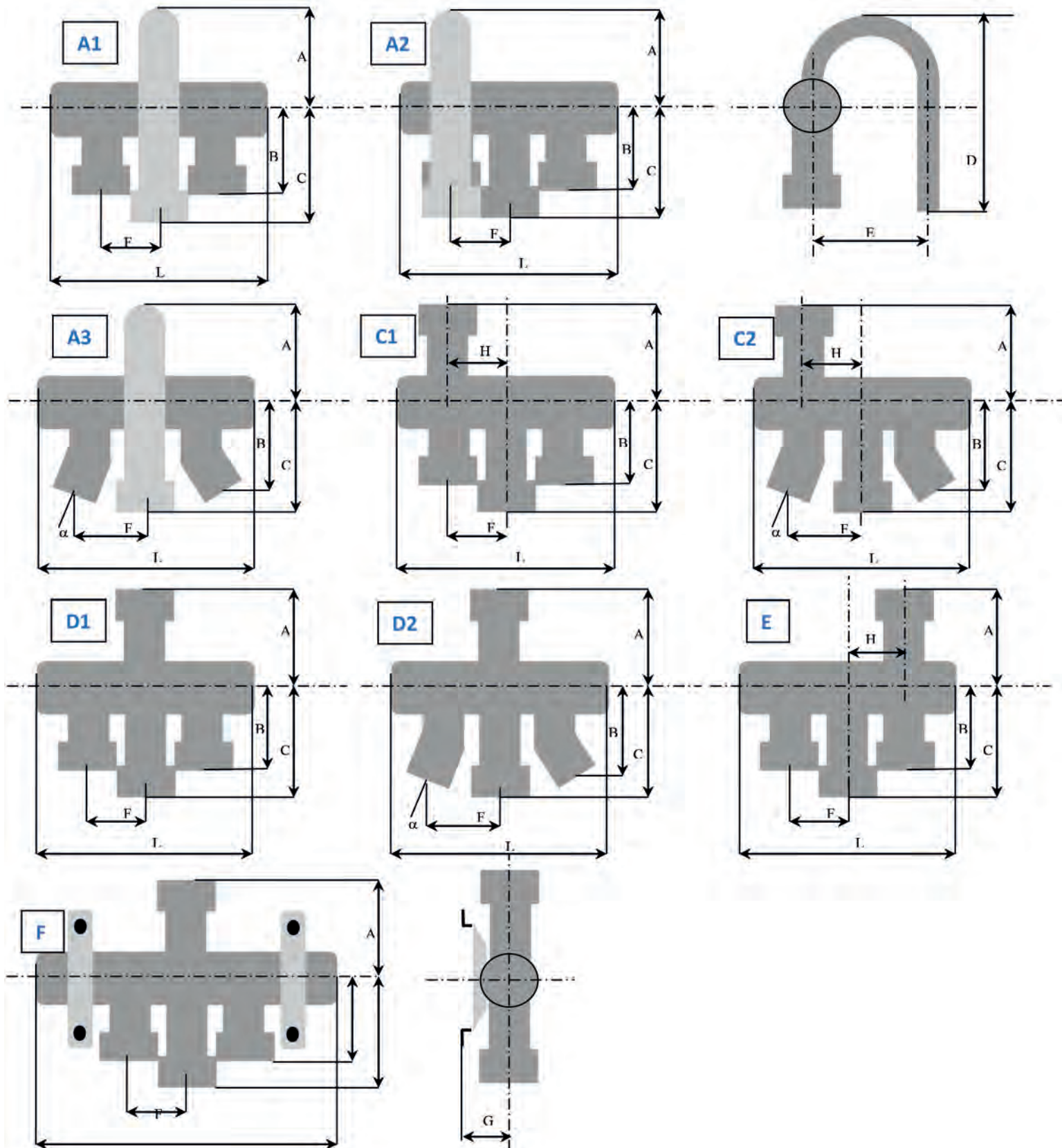


Capacity Selection Table									
Valve Model	Product Number	Nominal Cooling Capacity (condition 2)							
		R407C <sup>2)</sup>		R410A		R134a		R404A / R507	
		ΔP: 0,1 bar	ΔP: 0,2 bar	ΔP: 0,1 bar	ΔP: 0,2 bar	ΔP: 0,1 bar	ΔP: 0,2 bar	ΔP: 0,1 bar	ΔP: 0,2 bar
		[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
SHF(L)-3H-12U-51	SHF-19007	3,0	4,3	3,6	5,0	2,4	3,4	2,4	3,4
SHF(L)-4H-23U-51	SHF-19008	3,2	4,6	3,8	5,4	2,6	3,7	2,6	3,7
SHF(G)-7C-34U	SHF-19009	5,9	8,3	6,9	9,7	4,7	6,6	4,7	6,6
SHF(G)-7C-34	SHF-19010	5,9	8,3	6,9	9,7	4,7	6,6	4,7	6,6
SHF(L)-7H-35-51	SHF-19011	5,9	8,3	6,9	9,7	4,7	6,6	4,7	6,6
SHF(G)-11C-34U	SHF-19012	7,9	11,2	9,3	13,1	6,3	8,9	6,3	8,9
SHF(L)-11H-35U-51	SHF-19013	9,1	12,9	10,7	15,1	7,3	10,3	7,3	10,3
SHF(L)-11H-45D1-51	SHF-19014	9,1	12,9	10,7	15,1	7,3	10,3	7,3	10,3
SHF(L)-11H-46D1-51	SHF-19015	9,1	12,9	10,7	15,1	7,3	10,3	7,3	10,3
SHF-14A-46	SHF-50033	13,4	18,9	15,7	22,2	10,7	15,1	10,7	15,1
SHF-20D-46-02	SHF-50022	19,3	27,3	22,5	31,9	15,4	21,7	15,4	21,7
SHF-20D-47-02	SHF-50041	20,1	28,4	23,5	33,2	16,0	22,7	16,0	22,6
SHF-20D-57-02	SHF-50042	20,1	28,4	23,5	33,2	16,0	22,7	16,0	22,6
SHF-20D-67-02	SHF-50043	20,1	28,4	23,5	33,2	16,0	22,7	16,0	22,6
SHF-35B-47-04	SHF-50044	29,8	42,2	34,9	49,3	23,8	33,7	23,8	33,6
SHF-35B-57-04	SHF-50045	29,8	42,2	34,9	49,3	23,8	33,7	23,8	33,6
SHF-35B-59-04	SHF-50046	29,8	42,2	34,9	49,3	23,8	33,7	23,8	33,6
SHF-35B-67-04	SHF-50027	29,8	42,2	34,9	49,3	23,8	33,7	23,8	33,6
SHF-35B-69-04	SHF-50047	29,8	42,2	34,9	49,3	23,8	33,7	23,8	33,6
SHF-35B-79-04	SHF-50048	29,8	42,2	34,9	49,3	23,8	33,7	23,8	33,6
SHF-50A-79	SHF-50038	37,1	52,5	43,4	61,4	29,6	41,9	29,6	41,8
SHF-50-911D2	SHF-50016	37,5	53,1	43,9	62,1	29,9	42,4	29,9	42,3
SHF(L)-70-810	SHF-50017	57,8	81,8	67,6	95,7	46,1	65,2	46,1	65,2
SHF(L)-70-810-01	SHF-50024	57,8	81,8	67,6	95,7	46,1	65,2	46,1	65,2
SHF(L)-70-911	SHF-50049	57,8	81,8	67,6	95,7	46,1	65,2	46,1	65,2
SHF(L)-70-911-01	SHF-50050	57,8	81,8	67,6	95,7	46,1	65,2	46,1	65,2
SHF(L)-70-913-05	SHF-50052	57,8	81,8	67,6	95,7	46,1	65,2	46,1	65,2
SHF(L)-70-913-03	SHF-50051	57,8	81,8	67,6	95,7	46,1	65,2	46,1	65,2
SHF(L)-100-911	SHF-50053	82,2	116,2	96,1	136,0	65,6	92,7	65,5	92,6
SHF(L)-100-911-01	SHF-50054	82,2	116,2	96,1	136,0	65,6	92,7	65,5	92,6
SHF(L)-100-913	SHF-50055	82,2	116,2	96,1	136,0	65,6	92,7	65,5	92,6
SHF(L)-100-913-01	SHF-50056	82,2	116,2	96,1	136,0	65,6	92,7	65,5	92,6
SHF(L)-100-1012	SHF-50018	82,2	116,2	96,1	136,0	65,6	92,7	65,5	92,6
SHF(L)-100-1012-01	SHF-50025	82,2	116,2	96,1	136,0	65,6	92,7	65,5	92,6
SHF(L)-100-1013	SHF-50057	82,2	116,2	96,1	136,0	65,6	92,7	65,5	92,6
SHF(L)-100-1013-01	SHF-50058	82,2	116,2	96,1	136,0	65,6	92,7	65,5	92,6
SHF(L)-140-1113	SHF-50059	118,5	167,5	138,6	196,0	94,5	133,7	94,4	133,5
SHF(L)-140-1213	SHF-50060	118,5	167,5	138,6	196,0	94,5	133,7	94,4	133,5
SHF(L)-140-1214	SHF-50019	118,5	167,5	138,6	196,0	94,5	133,7	94,4	133,5
SHF(L)-140-1313	SHF-50061	118,5	167,5	138,6	196,0	94,5	133,7	94,4	133,5
SHF(L)-175-1217	SHF-50020	143,0	202,2	167,3	236,7	114,1	161,4	114,0	161,2
SHF(L)-175-1317	SHF-50062	143,0	202,2	167,3	236,7	114,1	161,4	114,0	161,2
SHF(L)-210-1321	SHF-50021	171,2	242,1	200,3	283,3	136,6	193,2	136,5	193,0
SHF(L)-350-1721	SHF-50031	280,7	397,0	328,5	464,6	224,1	316,9	223,8	316,4
SHF(L)-420-2125	SHF-50032	359,0	507,8	420,1	594,2	286,5	405,2	286,2	404,7

**SHF SERIES**  
**4 Way Reversing Valve**

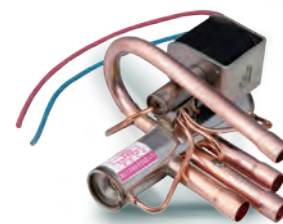


**DIMENSIONS - VALVES**



# SHF SERIES

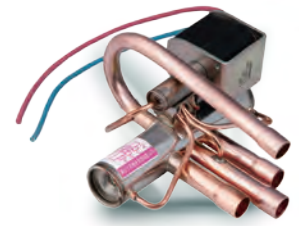
## 4 Way Reversing Valve



Dimensions - Valves													
Valve Model	Product Number	Valve Style	L	A	B	C	D	E	F	G	H	Angle α	Weight
			[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	
SHF(L)-3H-12U-51	SHF-19007	A1	88,2	38,5	38	50	88,5	43	11	-	-	0	0,2
SHF(L)-4H-23U-51	SHF-19008	A1	94,4	43	50	62	105	43	12	-	-	0	0,2
SHF(G)-7C-34U	SHF-19009	A2	113,6	48	59	71	119	52	16	-	-	0	0,28
SHF(G)-7C-34	SHF-19010	C1	113,6	51	59	71	-	-	16	-	-	0	0,28
SHF(L)-7H-35-51	SHF-19011	D2	113	52	57	72	-	-	23,5	-	16	0	0,3
SHF(G)-11C-34U	SHF-19012	A2	113,6	51	59	71	119	52	16	-	-	0	0,3
SHF(L)-11H-35U-51	SHF-19013	A3	115,5	51	57	71	119	52	23,5	-	-	15	0,3
SHF(L)-11H-45D1-51	SHF-19014	C2	117	52	62	87	-	-	25	-	16	15	0,32
SHF(L)-11H-46D1-51	SHF-19015	C2	117	52	82	87	-	-	32,5	-	16	20	0,35
SHF-14A-46	SHF-50033	D1	163	67	83	95	-	-	23,8	-	-	0	0,72
SHF-20D-46-02	SHF-50022	D1	183,6	67	83	95	-	-	28,6	-	-	0	0,75
SHF-20D-47-02	SHF-50041	D1	183,6	67	83	95	-	-	28,6	-	-	0	0,75
SHF-20D-57-02	SHF-50042	D1	183,6	67	83	95	-	-	28,6	-	-	0	0,75
SHF-20D-67-02	SHF-50043	D1	183,6	67	83	95	-	-	28,6	-	-	0	0,75
SHF-35B-47-04	SHF-50044	D1	212,2	82	87	100	-	-	33	-	-	0	1,3
SHF-35B-57-04	SHF-50045	D1	212,2	82	87	100	-	-	33	-	-	0	1,3
SHF-35B-59-04	SHF-50046	D1	212,2	82	87	100	-	-	33	-	-	0	1,3
SHF-35B-67-04	SHF-50027	D1	212,2	82	87	100	-	-	33	-	-	0	1,3
SHF-35B-69-04	SHF-50047	D1	212,2	82	87	100	-	-	33	-	-	0	1,3
SHF-35B-79-04	SHF-50048	D1	212,2	82	87	100	-	-	33	-	-	0	1,3
SHF-50A-79	SHF-50038	D1	217	91	96	128	-	-	33	-	-	0	2,1
SHF-50-911D2	SHF-50016	E	269	97	149	174	-	-	41,3	-	41,3	0	2,1
SHF(L)-70-810	SHF-50017	D1	303	111	117	131	-	-	46	-	-	0	3
SHF(L)-70-810-01	SHF-50024	F	303	111	117	154	-	-	46	58	-	0	3
SHF(L)-70-911	SHF-50049	D1	303	111	117	154	-	-	46	-	-	0	3
SHF(L)-70-911-01	SHF-50050	F	321	111	117	131	-	-	49	58	-	0	3,5
SHF(L)-70-913-05	SHF-50052	D1	321	111	117	131	-	-	49	-	-	0	3,5
SHF(L)-70-913-03	SHF-50051	F	321	111	117	131	-	-	49	58	-	0	3,5
SHF(L)-100-911	SHF-50053	D1	321	111	117	131	-	-	49	-	-	0	3,5
SHF(L)-100-911-01	SHF-50054	F	303	111	117	131	-	-	46	58	-	0	3
SHF(L)-100-913	SHF-50055	D1	303	111	117	154	-	-	46	-	-	0	3
SHF(L)-100-913-01	SHF-50056	F	303	111	117	154	-	-	46	58	-	0	3
SHF(L)-100-1012	SHF-50018	D1	321	111	117	131	-	-	49	-	-	0	3,5
SHF(L)-100-1012-01	SHF-50025	F	321	111	117	131	-	-	49	58	-	0	3,5
SHF(L)-100-1013	SHF-50057	D1	321	111	117	131	-	-	49	-	-	0	3,5
SHF(L)-100-1013-01	SHF-50058	F	321	111	117	131	-	-	49	58	-	0	3,5
SHF(L)-140-1113	SHF-50059	F	390	135,6	148,7	168,7	-	-	58	63	-	0	7,2
SHF(L)-140-1213	SHF-50060	F	390	135,6	148,7	168,7	-	-	58	63	-	0	7,2
SHF(L)-140-1214	SHF-50019	F	390	135,6	148,7	168,7	-	-	58	63	-	0	7,2
SHF(L)-140-1313	SHF-50061	F	390	135,6	148,7	168,7	-	-	58	63	-	0	7,2
SHF(L)-175-1217	SHF-50020	F	390	135,6	148,7	198	-	-	58	63	-	0	7,6
SHF(L)-175-1317	SHF-50062	F	390	135,6	148,7	198	-	-	58	63	-	0	7,6
SHF(L)-210-1321	SHF-50021	F	452	135,6	148,7	198	-	-	71,5	63	-	0	8,7
SHF(L)-350-1721	SHF-50031	F	531	176,5	184	240	-	-	75	82,5	-	0	22
SHF(L)-420-2125	SHF-50032	F	611,7	176,5	184	240	-	-	93	82,5	-	0	26

# SHF SERIES

## 4 Way Reversing Valve

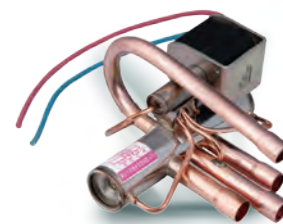


Coil Characteristics												
Coil Model <sup>1)</sup>	Winding Code	Product Number	Electrical Function/ Connection Type	[mm]	[-]	[V]	Power Consumption			[-]	[-]	[°C]
							AC	AC	DC			
							50Hz	60Hz				
SQ-A25 22G-00 0001	SHF-4-10L3	SHF-56001	Lead Wires	500	AC	220-240	4,5	3,5	-	IP54	B <sup>2)</sup>	130
SQ-A25 200-00 0001	SHF-4-10L2	SHF-56002	Lead Wires	500	AC	200	4,5	3,5	-			
SQ-A25 100-00 0001	SHF-4-10L1	SHF-56003	Lead Wires	500	AC	100	4,5	3,5	-			
SQ-A25 11A-00 0001	SHF-4-10L4	SHF-56004	Lead Wires	500	AC	110-120	4,5	3,5	-			
SQ-A25 024-00 0001	SHF-4-10L5	SHF-56005	Lead Wires	500	AC	24	4,5	3,5	-			
SQ-A25 26H-00 0001	SHF-4-10L6	SHF-56006	Lead Wires	500	AC	265-277	4,5	3,5	-			
SQ-A25 22G-00 0870	SHF-4-10L3	SHF-56024	Lead Wires	1500	AC	220-240	4,5	3,5	-			
SQ-A25 11A-00 0840	SHF-4-10L4	SHF-56025	Lead Wires	1500	AC	110-120	4,5	3,5	-			
SQ-A25 024-00 0161	SHF-4-10L5	SHF-56009	Lead Wires	1500	AC	24	4,5	3,5	-			
SQ-A44 22G-00 0771	SHF-4-10FA5	SHF-56012	Spade (Faston) <sup>4)</sup>	-	AC	220-240	6	5	-	IP00	F <sup>3)</sup>	155
SQ-A44 220-00 0001	SHF-4-10FA1	SHF-56013	Spade (Faston) <sup>4)</sup>	-	AC	220	6	5	-			
SQ-A44 11B-00 0001	SHF-4-10FA2	SHF-56014	Spade (Faston) <sup>4)</sup>	-	AC	120	6	5	-			
SQ-A44 10A-00 0001	SHF-4-10FA3	SHF-56015	Spade (Faston) <sup>4)</sup>	-	AC	100-110	6	5	-			
SQ-A44 024-00 0771	SHF-4-10FA4	SHF-56016	Spade (Faston) <sup>4)</sup>	-	AC	24	6	5	-			
SQ-A44 26H-00 0831	SHF-4-10FA6	SHF-56017	Spade (Faston) <sup>4)</sup>	-	AC	265-277	6	5	-			
SQ-D44 012-00 0001	SHF-4-10FA8	SHF-56019	Spade (Faston) <sup>4)</sup>	-	DC	12	-	-	10			
SQ-D44 024-00 0001	SHF-4-10FA9	SHF-56020	Spade (Faston) <sup>4)</sup>	-	DC	24	-	-	11			
SQ-A27 100-00 0001	-	SHF-56021	Bi-stable/Lead W.	500	AC	100	18	18	-			
SQ-A27 200-00 0001	-	SHF-56022	Bi-stable/Lead W.	500	AC	200	18	18	-			
SQ-A27 20K-00 0001	-	SHF-56027	Bi-stable/Lead W.	500	AC	220-240	18	18	-			
SQ-D27 012-00 0001	-	SHF-56023	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) Max ambient temperature up to + 70°C
  - 4) Wire Harness for coil with Faston connector: SQ-000000-090028 (Part Number: SHF-56026)
  - 5) Bi-stable coils (SQ-A27 series) cannot be selected with the following valves:
    - SHF(G)-7C-34U (P/N: SHF-19009)
    - SHF(G)-7C-34 (P/N: SHF-19010)
    - SHF(G)-11C-34U (P/N: SHF-19012)

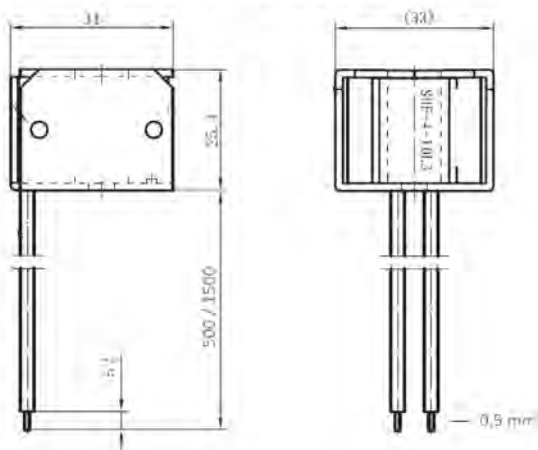


**SHF SERIES**  
**4 Way Reversing Valve**

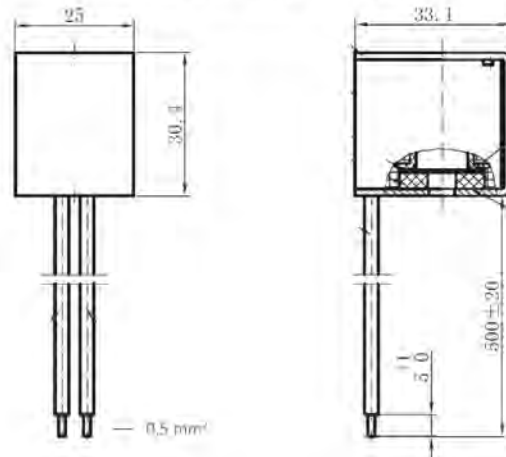


**DIMENSIONS - COILS**

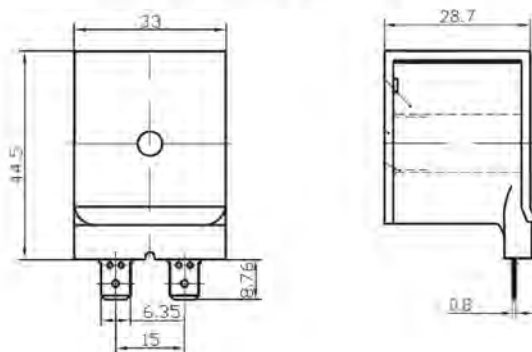
Coils with Lead Wires (SQ-A25 Series)



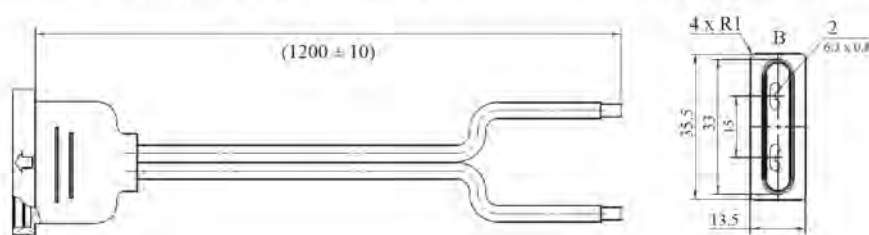
Bistable Coils (SQ-A/D27 Series)



Coils with Spade Connections (SQ-A/D44 Series)



Wire Harness (SQ-000000-090028)



EVERY SECOND HOME REFRIGERATOR IN EUROPE IS EQUIPPED WITH A **SANHUA** SOLENOID VALVE



Solenoid Valve



Check Valve Piston Type



Thermostatic Expansion Valve



Uni-Flow Filter Driers



4 Way Reversing Valve



Ball Valve



Pressure Switch



Filter Driers with Replaceable Core



Sight Glass



Electronic Expansion Valve

2 OUT OF 3 AC UNITS ARE EQUIPPED WITH A **SANHUA** REVERSING VALVE

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**SANHUA**

CHILLING  
IDEAS  
WORLDWIDE



# 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 SPECIFICATION

- Applicable for all common HCFC and HFC refrigerants such as: R22, R134a, R404A, R407C, R410A, R507A ...
- 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 sideways, outlet preferably downwards
- Certifications: UL/CSA and declaration according to LVD or PED

# 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. 0,1~1,0 sec.
- Min. motion time from completely open to completely closed:
  - Seat Ø 1,3 to 3,2 mm: 6s @ 90pps
  - Seat Ø 4,0 to 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: IP 66

### GENERAL CHARACTERISTICS

Valve Model	Part Number <sup>1)</sup>	Seat Φ (mm)	Kv (m <sup>3</sup> /h)	Nominal Cooling Capacity <sup>2)</sup> [kW]					MOP Max. Oper. Press. [MPa]	MOPD Direct [MPa]	MOPD Rev. (MPa)
				R22	R134a	R407C <sup>3)</sup>	R404A R507A	R410A			
DPF(T01)1.3C-07	DPF-09001	1,3	0,05	3,5	2,7	3,5	2,5	4,2	4,5	3,5	≥2.1
DPF(T01)1.65C-05	DPF-09002	1,65	0,08	5,3	4,1	5,3	3,7	6,36			
DPF(T01)1.8C-08	DPF-09003	1,8	0,1	7	5,4	7	4,9	8,4			
DPF(T01)2.0C-03	DPF-09004	2	0,16	8,8	6,7	8,75	6,1	10,5			
DPF(T01)2.2C-01	DPF-09005	2,2	0,2	11	8,1	10,5	7,4	12,6			
DPF(T01)2.4C-01	DPF-09006	2,4	0,23	18	13,5	17,5	12,3	21			
DPF(TS1)3.0C-01	DPF-09007	3	0,39	21	16,2	21	14,7	25,2			≥1.47
DPF(TS1)3.2C-01	DPF-09008	3,2	0,43	28	21,6	28	19,6	33,6			
DPF(S03)4.0C-01	DPF-09010	4	0,5	42	32,3	42	29,4	50,4			
DPF(S03)4.5C-01	DPF-09011	4,5	0,7	53	40,4	52,5	36,8	63			≥0.7
DPF(S03)5.5C-01	DPF-09012	5,5	0,9	70	53,9	70	49,0	84			
DPF(S03)6.5C-02	DPF-09013	6,5	1,1	105	80,9	105	73,5	126			

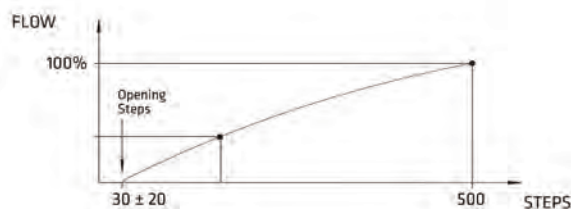
- Note:**
- 1) Extent of delivery without coil
  - 2) Nominal working conditions: Condensing Temperature 38°C; Evaporating Temperature 5°C; Sub-cooling OK; Superheat OK
  - 3) R407C data based on dew point conditions

# DPF-T/S SERIES

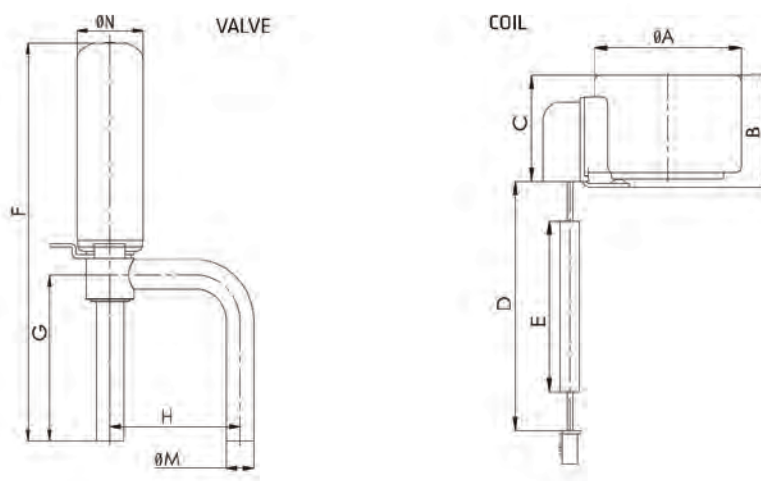
## Electronic Expansion Valve



### FLOW CHARACTERISTIC



### DIMENSIONS



Valve Model	Coil Series	Valve Dimensions [mm]				
		F	G	H	$\varnothing d$	$\varnothing N$
DPF(T01)1.3C-07 to DPF(T01)2.4C-01	PQ-M10	78	36	30	6,35	17,3
DPF(TS1)3.0C-01 to DPF(TS1)3.2C-01		82	40	30	7,94	17,3
DPF(S03)4.0C-01 to DPF(S03)6.5C-02	PQ-M03	148	64,7	63,4	15,88	35,3

Valve Model	Coil Model	Coil Part Number	Coil Dimensions [mm]				
			$\varnothing A$	B	C	D	E
DPF(T01)1.3C-07 to DPF(TS1)3.2C-01	PQ-M10 012-000001	DPF-58001	38,5	26,4	25,6	700	600
DPF(S03)4.0C-01 to DPF(S03)6.5C-02	PQ-M03 012-000001	DPF-58002	67,5	42,4	33	700	600

Every 4<sup>th</sup> car is equipped  
with a **SANHUA**  
expansion valve

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ELECTRONIC EXPANSION VALVES  
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INDUSTRIES WORLDWIDE

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**ADVANCED**  
Technology & Solutions

- ✓ Improves HVAC&R system efficiency up to **20%**
- ✓ DPF&VPF series from 2kW to 1400kW  
\*75kW and 1400kW available in Quarter 4
- ✓ Advanced MSS (Minimum Stable Superheat) control logic



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# 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: 112 to 892 kW (R134a nominal capacity)
- Up to 3800 steps (full stroke); Valve starts opening with 110 steps (VPF25) and 165 steps (VPF50...250)
- Medium temperature TS min./max.: -40°C / +70°C (duty cycle rate below 50%)
- Ambient temperature min./max.: -40°C / +60°C (duty cycle rate below 50%)
- Relative humidity: : 0 to 100% RH
- Installation position:
  - Major flow direction corresponds to the arrow
  - Installation in horizontal and vertical pipes possible
  - Installation position in horizontal lines with stepper motor preferably upwards
- Certifications: Declaration according to PED and EAC

**Electronic Expansion Valve**



**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: 300 pps (current drive)
- Motion time from completely open to completely closed (current drive):
  - VPF25, VPF50: 8,7s
  - VPF100: 11,7s
  - VPF150, VPF250: 12,7s
- Nominal motor current: 100mA RMS per phase in control operation
- Peak motor current: 140mA per phase in reference run
- Coil resistance: 52 ± 5,2Ω/coil (20°C)
- Insulation class of coil: E
- Protection class: IP 67

**MODEL DESIGNATIONS**

Position Number	Model Designation Legend	
1	<b>Product Code</b>	<b>Product Series</b>
	VPF	Electronic expansion valve with bi-pole stepper motor
2	<b>Capacity Size</b>	<b>Description</b>
	25	
	50	
	100	
	150	
250		
3	<b>Connections Type</b>	<b>Description</b>
	H	Solder
4	<b>Valve Body</b>	<b>Description</b>
	0...4	With sight glass
	5...9	Without sight glass
5	<b>Pipe Connection</b>	<b>Description</b>
	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	Part Number <sup>1)</sup>	Valve Shape	Sight Glass	Connections ød ODF Inlet A x Outlet B		Seat <sup>2)</sup> ø	Kv <sup>3)</sup> m <sup>3</sup> /h	MWP PS [MPa]	MOPD Direct A->B [MPa]	MOPD Rev. B->A [MPa]																																																																																																																																																																																																																																								
				[inch]	[mm]																																																																																																																																																																																																																																													
VPF 25-H52	VPF-66014	straight	-	5/8 x 5/8	16 x 16	7,5	1,3																																																																																																																																																																																																																																											
VPF 25-H53	VPF-66015			7/8 x 7/8	22 x 22						VPF 25-H58	VPF-66020	L-shape	-	5/8 x 5/8	16 x 16	14,4	2,4	5,0	3,9	3,9	VPF 25-H59	VPF-66021	7/8 x 7/8	22 x 22	VPF 50-H51	VPF-66025	straight	-	7/8 x 7/8	22 x 22	14,4	2,4	5,0	3,9	3,9	VPF 50-H52	VPF-66026	7/8 x 1 1/8	-	VPF 50-H53	VPF-66027	1 1/8 x 1 1/8	-	VPF 50-H54	VPF-66028	1 1/8 x 1 3/8	-	VPF 50-H56	VPF-66030	-	22 x 28	VPF 50-H57	VPF-66031	-	28 x 28	VPF 50-H58	VPF-66032	-	28 x 35	VPF 50-H01	VPF-66033	straight	with sight glass	7/8 x 7/8	22 x 22	VPF 50-H02	VPF-66034	7/8 x 1 1/8	-	VPF 50-H03	VPF-66035	1 1/8 x 1 1/8	-	VPF 50-H04	VPF-66036	1 1/8 x 1 3/8	-	VPF 50-H06	VPF-66038	-	22 x 28	VPF 50-H07	VPF-66039	-	28 x 28	VPF 50-H08	VPF-66040	-	28 x 35	VPF100-H51	VPF-66041	straight	-	1 1/8 x 1 1/8	-	14,4	4,0				VPF100-H52	VPF-66042	1 1/8 x 1 3/8	-	VPF100-H53	VPF-66043	1 3/8 x 1 3/8	35 x 35	VPF100-H54	VPF-66044	-	28 x 28	VPF100-H55	VPF-66045	-	28 x 35	VPF100-H01	VPF-66046	straight	with sight glass	1 1/8 x 1 1/8	-	14,8	7,7				VPF100-H02	VPF-66047	1 1/8 x 1 3/8	-	VPF100-H03	VPF-66048	1 3/8 x 1 3/8	35 x 35	VPF100-H05	VPF-66049	-	28 x 35	VPF100-H06	VPF-66050	-	28 x 28	VPF150-H51	VPF-	L-shape	-	1 1/8 x 1 3/8	-	14,8	7,7				VPF150-H52	VPF-	1 5/8 x 1 5/8	-	VPF150-H01	VPF-66061	L-shape	with sight glass	1 1/8 x 1 3/8	-	23,9	12,0	4,5	3,5	3,5	VPF150-H02	VPF-66062	1 5/8 x 1 5/8	-	VPF250-H01	VPF-66051	straight	with sight glass	1 1/8 x 1 1/8	-	23,9	12,0	4,5	3,5	3,5	VPF250-H02	VPF-66052	1 3/8 x 1 3/8	35 x 35	VPF250-H03	VPF-66053	1 5/8 x 1 5/8	-	VPF250-H04	VPF-66054	-	28 x 28	VPF250-H05	VPF-66055	-	42 x 42																																									
VPF 25-H58	VPF-66020	L-shape	-	5/8 x 5/8	16 x 16						14,4	2,4			5,0	3,9						3,9																																																																																																																																																																																																																												
VPF 25-H59	VPF-66021			7/8 x 7/8	22 x 22								VPF 50-H51	VPF-66025									straight	-	7/8 x 7/8	22 x 22	14,4			2,4	5,0						3,9	3,9	VPF 50-H52	VPF-66026	7/8 x 1 1/8	-	VPF 50-H53	VPF-66027	1 1/8 x 1 1/8	-	VPF 50-H54	VPF-66028	1 1/8 x 1 3/8	-	VPF 50-H56	VPF-66030	-	22 x 28	VPF 50-H57	VPF-66031	-	28 x 28	VPF 50-H58	VPF-66032	-	28 x 35			VPF 50-H01	VPF-66033	straight	with sight glass	7/8 x 7/8	22 x 22	VPF 50-H02	VPF-66034	7/8 x 1 1/8	-	VPF 50-H03	VPF-66035	1 1/8 x 1 1/8	-	VPF 50-H04	VPF-66036	1 1/8 x 1 3/8	-	VPF 50-H06	VPF-66038	-	22 x 28	VPF 50-H07	VPF-66039	-	28 x 28	VPF 50-H08	VPF-66040			-	28 x 35						VPF100-H51	VPF-66041	straight	-	1 1/8 x 1 1/8	-	14,4	4,0				VPF100-H52	VPF-66042	1 1/8 x 1 3/8	-	VPF100-H53	VPF-66043	1 3/8 x 1 3/8			35 x 35	VPF100-H54						VPF-66044	-	28 x 28	VPF100-H55	VPF-66045	-	28 x 35	VPF100-H01	VPF-66046	straight	with sight glass	1 1/8 x 1 1/8	-	14,8	7,7				VPF100-H02	VPF-66047	1 1/8 x 1 3/8	-	VPF100-H03	VPF-66048	1 3/8 x 1 3/8	35 x 35	VPF100-H05	VPF-66049	-	28 x 35	VPF100-H06	VPF-66050	-	28 x 28	VPF150-H51	VPF-	L-shape	-	1 1/8 x 1 3/8	-	14,8	7,7				VPF150-H52	VPF-	1 5/8 x 1 5/8			-	VPF150-H01						VPF-66061	L-shape	with sight glass	1 1/8 x 1 3/8	-	23,9	12,0	4,5	3,5	3,5	VPF150-H02	VPF-66062	1 5/8 x 1 5/8	-	VPF250-H01	VPF-66051	straight	with sight glass	1 1/8 x 1 1/8	-	23,9	12,0	4,5	3,5	3,5	VPF250-H02	VPF-66052	1 3/8 x 1 3/8	35 x 35	VPF250-H03	VPF-66053	1 5/8 x 1 5/8	-	VPF250-H04	VPF-66054	-	28 x 28	VPF250-H05	VPF-66055	-	42 x 42																
VPF 50-H51	VPF-66025	straight	-	7/8 x 7/8	22 x 22	14,4	2,4	5,0	3,9	3,9																																																																																																																																																																																																																																								
VPF 50-H52	VPF-66026			7/8 x 1 1/8	-								VPF 50-H53	VPF-66027			1 1/8 x 1 1/8	-	VPF 50-H54	VPF-66028	1 1/8 x 1 3/8				-	VPF 50-H56													VPF-66030	-	22 x 28	VPF 50-H57	VPF-66031	-	28 x 28	VPF 50-H58	VPF-66032	-	28 x 35	VPF 50-H01	VPF-66033	straight	with sight glass	7/8 x 7/8	22 x 22	VPF 50-H02	VPF-66034	7/8 x 1 1/8	-	VPF 50-H03	VPF-66035	1 1/8 x 1 1/8			-	VPF 50-H04			VPF-66036	1 1/8 x 1 3/8	-	VPF 50-H06	VPF-66038	-	22 x 28	VPF 50-H07	VPF-66039	-	28 x 28	VPF 50-H08	VPF-66040	-	28 x 35	VPF100-H51	VPF-66041	straight	-	1 1/8 x 1 1/8	-	14,4	4,0											VPF100-H52	VPF-66042			1 1/8 x 1 3/8	-						VPF100-H53	VPF-66043	1 3/8 x 1 3/8	35 x 35	VPF100-H54	VPF-66044	-			28 x 28	VPF100-H55						VPF-66045	-	28 x 35	VPF100-H01	VPF-66046	straight	with sight glass	1 1/8 x 1 1/8	-			14,8	7,7									VPF100-H02	VPF-66047	1 1/8 x 1 3/8	-	VPF100-H03	VPF-66048	1 3/8 x 1 3/8	35 x 35	VPF100-H05	VPF-66049	-	28 x 35	VPF100-H06	VPF-66050	-	28 x 28	VPF150-H51	VPF-	L-shape	-	1 1/8 x 1 3/8	-	14,8	7,7						VPF150-H52	VPF-						1 5/8 x 1 5/8	-	VPF150-H01	VPF-66061	L-shape	with sight glass	1 1/8 x 1 3/8	-	23,9	12,0	4,5	3,5	3,5	VPF150-H02	VPF-66062	1 5/8 x 1 5/8			-	VPF250-H01						VPF-66051	straight	with sight glass	1 1/8 x 1 1/8	-	23,9	12,0	4,5	3,5	3,5	VPF250-H02	VPF-66052	1 3/8 x 1 3/8	35 x 35	VPF250-H03	VPF-66053	1 5/8 x 1 5/8	-	VPF250-H04	VPF-66054	-	28 x 28	VPF250-H05	VPF-66055	-	42 x 42						
VPF 50-H53	VPF-66027			1 1/8 x 1 1/8	-						VPF 50-H54	VPF-66028	1 1/8 x 1 3/8	-	VPF 50-H56	VPF-66030	-	22 x 28	VPF 50-H57	VPF-66031	-	28 x 28			VPF 50-H58	VPF-66032													-	28 x 35	VPF 50-H01	VPF-66033	straight	with sight glass	7/8 x 7/8	22 x 22	VPF 50-H02	VPF-66034	7/8 x 1 1/8	-	VPF 50-H03			VPF-66035	1 1/8 x 1 1/8	-	VPF 50-H04	VPF-66036	1 1/8 x 1 3/8	-	VPF 50-H06	VPF-66038			-	22 x 28			VPF 50-H07	VPF-66039	-	28 x 28	VPF 50-H08	VPF-66040	-	28 x 35	VPF100-H51	VPF-66041	straight	-	1 1/8 x 1 1/8	-	14,4	4,0									VPF100-H52	VPF-66042			1 1/8 x 1 3/8	-	VPF100-H53	VPF-66043	1 3/8 x 1 3/8	35 x 35	VPF100-H54			VPF-66044	-						28 x 28	VPF100-H55	VPF-66045	-	28 x 35	VPF100-H01	VPF-66046			straight	with sight glass						1 1/8 x 1 1/8	-	14,8	7,7																		VPF100-H02	VPF-66047	1 1/8 x 1 3/8	-	VPF100-H03	VPF-66048	1 3/8 x 1 3/8	35 x 35	VPF100-H05	VPF-66049	-	28 x 35	VPF100-H06	VPF-66050	-	28 x 28	VPF150-H51	VPF-			L-shape	-						1 1/8 x 1 3/8	-	14,8	7,7				VPF150-H52	VPF-	1 5/8 x 1 5/8	-	VPF150-H01	VPF-66061			L-shape	with sight glass						1 1/8 x 1 3/8	-	23,9			12,0	4,5						3,5			3,5	VPF150-H02						VPF-66062	1 5/8 x 1 5/8	-	VPF250-H01	VPF-66051	straight	with sight glass	1 1/8 x 1 1/8	-	23,9	12,0	4,5	3,5	3,5	VPF250-H02	VPF-66052	1 3/8 x 1 3/8	35 x 35	VPF250-H03	VPF-66053	1 5/8 x 1 5/8	-
VPF 50-H54	VPF-66028			1 1/8 x 1 3/8	-						VPF 50-H56	VPF-66030	-	22 x 28	VPF 50-H57	VPF-66031	-	28 x 28	VPF 50-H58	VPF-66032	-	28 x 35			VPF 50-H01	VPF-66033													straight	with sight glass	7/8 x 7/8	22 x 22			VPF 50-H02	VPF-66034	7/8 x 1 1/8	-	VPF 50-H03	VPF-66035	1 1/8 x 1 1/8			-	VPF 50-H04	VPF-66036	1 1/8 x 1 3/8	-	VPF 50-H06	VPF-66038	-	22 x 28			VPF 50-H07	VPF-66039			-	28 x 28	VPF 50-H08	VPF-66040	-	28 x 35	VPF100-H51	VPF-66041	straight	-			1 1/8 x 1 1/8	-											14,4	4,0						VPF100-H52	VPF-66042	1 1/8 x 1 3/8	-			VPF100-H53	VPF-66043						1 3/8 x 1 3/8	35 x 35	VPF100-H54	VPF-66044	-	28 x 28	VPF100-H55	VPF-66045	-			28 x 35	VPF100-H01	VPF-66046	straight	with sight glass	1 1/8 x 1 1/8	-																				14,8	7,7				VPF100-H02	VPF-66047	1 1/8 x 1 3/8	-	VPF100-H03	VPF-66048	1 3/8 x 1 3/8	35 x 35	VPF100-H05	VPF-66049	-	28 x 35	VPF100-H06	VPF-66050	-			28 x 28	VPF150-H51	VPF-	L-shape	-	1 1/8 x 1 3/8	-						14,8	7,7				VPF150-H52	VPF-	1 5/8 x 1 5/8			-	VPF150-H01	VPF-66061	L-shape	with sight glass	1 1/8 x 1 3/8	-															23,9						12,0	4,5	3,5	3,5	VPF150-H02			VPF-66062	1 5/8 x 1 5/8						-	VPF250-H01	VPF-66051	straight	with sight glass	1 1/8 x 1 1/8	-	23,9
VPF 50-H56	VPF-66030			-	22 x 28						VPF 50-H57	VPF-66031	-	28 x 28	VPF 50-H58	VPF-66032	-	28 x 35	VPF 50-H01	VPF-66033	straight	with sight glass			7/8 x 7/8	22 x 22															VPF 50-H02	VPF-66034			7/8 x 1 1/8	-	VPF 50-H03	VPF-66035	1 1/8 x 1 1/8	-	VPF 50-H04			VPF-66036	1 1/8 x 1 3/8	-	VPF 50-H06	VPF-66038	-	22 x 28	VPF 50-H07	VPF-66039			-	28 x 28			VPF 50-H08	VPF-66040	-	28 x 35	VPF100-H51	VPF-66041	straight	-					1 1/8 x 1 1/8	-																		14,4	4,0				VPF100-H52	VPF-66042	1 1/8 x 1 3/8	-	VPF100-H53	VPF-66043	1 3/8 x 1 3/8	35 x 35	VPF100-H54	VPF-66044	-	28 x 28	VPF100-H55	VPF-66045	-	28 x 35	VPF100-H01			VPF-66046	straight	with sight glass			1 1/8 x 1 1/8	-																									14,8	7,7				VPF100-H02	VPF-66047	1 1/8 x 1 3/8	-	VPF100-H03	VPF-66048	1 3/8 x 1 3/8	35 x 35	VPF100-H05	VPF-66049	-	28 x 35	VPF100-H06	VPF-66050	-			28 x 28	VPF150-H51	VPF-	L-shape	-	1 1/8 x 1 3/8	-						14,8	7,7				VPF150-H52	VPF-	1 5/8 x 1 5/8			-	VPF150-H01	VPF-66061	L-shape	with sight glass	1 1/8 x 1 3/8	-	23,9	12,0	4,5	3,5	3,5	VPF150-H02			VPF-66062											1 5/8 x 1 5/8			-	VPF250-H01						VPF-66051	straight	with sight glass			1 1/8 x 1 1/8	-	
VPF 50-H57	VPF-66031			-	28 x 28						VPF 50-H58	VPF-66032	-	28 x 35	VPF 50-H01	VPF-66033	straight	with sight glass	7/8 x 7/8	22 x 22					VPF 50-H02	VPF-66034		7/8 x 1 1/8	-			VPF 50-H03	VPF-66035	1 1/8 x 1 1/8	-	VPF 50-H04					VPF-66036	1 1/8 x 1 3/8			-	VPF 50-H06	VPF-66038	-	22 x 28	VPF 50-H07	VPF-66039			-	28 x 28	VPF 50-H08	VPF-66040	-	28 x 35	VPF100-H51	VPF-66041	straight	-	1 1/8 x 1 1/8	-	14,4			4,0				VPF100-H52	VPF-66042							1 1/8 x 1 3/8	-																							VPF100-H53	VPF-66043	1 3/8 x 1 3/8	35 x 35	VPF100-H54	VPF-66044	-	28 x 28	VPF100-H55	VPF-66045	-	28 x 35	VPF100-H01	VPF-66046	straight	with sight glass	1 1/8 x 1 1/8			-					14,8	7,7													VPF100-H02	VPF-66047	1 1/8 x 1 3/8	-														VPF100-H03	VPF-66048	1 3/8 x 1 3/8	35 x 35	VPF100-H05	VPF-66049	-	28 x 35	VPF100-H06	VPF-66050	-	28 x 28	VPF150-H51	VPF-	L-shape	-	1 1/8 x 1 3/8	-	14,8	7,7						VPF150-H52	VPF-	1 5/8 x 1 5/8	-						VPF150-H01	VPF-66061	L-shape	with sight glass	1 1/8 x 1 3/8	-	23,9	12,0			4,5	3,5						3,5			VPF150-H02	VPF-66062						1 5/8 x 1 5/8	-	VPF250-H01	VPF-66051	straight			with sight glass	1 1/8 x 1 1/8						-					23,9	12,0	
VPF 50-H58	VPF-66032			-	28 x 35						VPF 50-H01	VPF-66033	straight	with sight glass	7/8 x 7/8	22 x 22			VPF 50-H02	VPF-66034					7/8 x 1 1/8	-		VPF 50-H03	VPF-66035			1 1/8 x 1 1/8	-	VPF 50-H04	VPF-66036	1 1/8 x 1 3/8					-	VPF 50-H06			VPF-66038	-	22 x 28	VPF 50-H07	VPF-66039	-	28 x 28			VPF 50-H08	VPF-66040	-	28 x 35	VPF100-H51	VPF-66041	straight	-			1 1/8 x 1 1/8	-								14,4	4,0													VPF100-H52			VPF-66042	1 1/8 x 1 3/8	-			VPF100-H53	VPF-66043									1 3/8 x 1 3/8	35 x 35	VPF100-H54	VPF-66044	-	28 x 28	VPF100-H55	VPF-66045	-	28 x 35	VPF100-H01	VPF-66046	straight	with sight glass			1 1/8 x 1 1/8			-																			14,8	7,7																	VPF100-H02	VPF-66047	1 1/8 x 1 3/8	-	VPF100-H03	VPF-66048	1 3/8 x 1 3/8	35 x 35	VPF100-H05	VPF-66049	-	28 x 35	VPF100-H06			VPF-66050	-			28 x 28	VPF150-H51				VPF-	L-shape	-	1 1/8 x 1 3/8	-	14,8	7,7				VPF150-H52			VPF-	1 5/8 x 1 5/8			-	VPF150-H01			VPF-66061	L-shape	with sight glass	1 1/8 x 1 3/8	-		23,9	12,0	4,5	3,5	3,5	VPF150-H02	VPF-66062	1 5/8 x 1 5/8	-	VPF250-H01	VPF-66051	straight	with sight glass					1 1/8 x 1 1/8						-							
VPF 50-H01	VPF-66033			straight	with sight glass						7/8 x 7/8	22 x 22			VPF 50-H02	VPF-66034			7/8 x 1 1/8	-			VPF 50-H03	VPF-66035	1 1/8 x 1 1/8	-	VPF 50-H04	VPF-66036	1 1/8 x 1 3/8	-	VPF 50-H06	VPF-66038	-	22 x 28	VPF 50-H07	VPF-66039	-	28 x 28			VPF 50-H08	VPF-66040			-	28 x 35	VPF100-H51	VPF-66041	straight	-	1 1/8 x 1 1/8			-	14,4	4,0								VPF100-H52	VPF-66042		1 1/8 x 1 3/8	-											VPF100-H53	VPF-66043			1 3/8 x 1 3/8	35 x 35	VPF100-H54		VPF-66044	-	28 x 28	VPF100-H55	VPF-66045	-			28 x 35	VPF100-H01									VPF-66046	straight	with sight glass	1 1/8 x 1 1/8	-	14,8	7,7				VPF100-H02	VPF-66047					1 1/8 x 1 3/8			-										VPF100-H03	VPF-66048					1 3/8 x 1 3/8	35 x 35						VPF100-H05	VPF-66049	-												28 x 35	VPF100-H06	VPF-66050	-	28 x 28	VPF150-H51	VPF-	L-shape	-	1 1/8 x 1 3/8	-	14,8	7,7				VPF150-H52	VPF-	1 5/8 x 1 5/8	-	VPF150-H01	VPF-66061	L-shape	with sight glass	1 1/8 x 1 3/8			-	23,9						12,0	4,5	3,5	3,5	VPF150-H02	VPF-66062	1 5/8 x 1 5/8	-	VPF250-H01	VPF-66051	straight	with sight glass			1 1/8 x 1 1/8	-	23,9						12,0	4,5	3,5	3,5	VPF250-H02	VPF-66052				1 3/8 x 1 3/8	35 x 35		VPF250-H03	VPF-66053	1 5/8 x 1 5/8	-	VPF250-H04	VPF-66054	-							
VPF 50-H02	VPF-66034	7/8 x 1 1/8	-			VPF 50-H03	VPF-66035	1 1/8 x 1 1/8	-	VPF 50-H04	VPF-66036	1 1/8 x 1 3/8			-	VPF 50-H06			VPF-66038	-			22 x 28	VPF 50-H07	VPF-66039	-	28 x 28	VPF 50-H08	VPF-66040	-	28 x 35	VPF100-H51	VPF-66041	straight	-	1 1/8 x 1 1/8	-	14,4			4,0						VPF100-H52	VPF-66042			1 1/8 x 1 3/8			-										VPF100-H53	VPF-66043		1 3/8 x 1 3/8	35 x 35									VPF100-H54	VPF-66044	-	28 x 28			VPF100-H55	VPF-66045	-		28 x 35	VPF100-H01	VPF-66046	straight	with sight glass	1 1/8 x 1 1/8	-	14,8	7,7				VPF100-H02						VPF-66047			1 1/8 x 1 3/8	-						VPF100-H03	VPF-66048					1 3/8 x 1 3/8	35 x 35	VPF100-H05	VPF-66049							-	28 x 35	VPF100-H06	VPF-66050	-	28 x 28	VPF150-H51			VPF-	L-shape						-	1 1/8 x 1 3/8	-												14,8	7,7				VPF150-H52	VPF-			1 5/8 x 1 5/8	-						VPF150-H01	VPF-66061	L-shape	with sight glass	1 1/8 x 1 3/8	-			23,9	12,0	4,5	3,5		3,5	VPF150-H02	VPF-66062	1 5/8 x 1 5/8	-					VPF250-H01	VPF-66051	straight	with sight glass	1 1/8 x 1 1/8	-			23,9	12,0	4,5	3,5		3,5	VPF250-H02	VPF-66052	1 3/8 x 1 3/8	35 x 35					VPF250-H03	VPF-66053				1 5/8 x 1 5/8	-		VPF250-H04	VPF-66054	-	28 x 28	VPF250-H05	VPF-66055	-			42 x 42				
VPF 50-H03	VPF-66035	1 1/8 x 1 1/8	-			VPF 50-H04	VPF-66036	1 1/8 x 1 3/8	-	VPF 50-H06	VPF-66038	-			22 x 28	VPF 50-H07			VPF-66039	-			28 x 28	VPF 50-H08	VPF-66040	-	28 x 35	VPF100-H51	VPF-66041	straight	-	1 1/8 x 1 1/8	-			14,4	4,0															VPF100-H52	VPF-66042	1 1/8 x 1 3/8										-	VPF100-H53		VPF-66043	1 3/8 x 1 3/8							35 x 35	VPF100-H54	VPF-66044	-	28 x 28	VPF100-H55			VPF-66045	-	28 x 35		VPF100-H01	VPF-66046	straight			with sight glass	1 1/8 x 1 1/8						-	14,8	7,7				VPF100-H02			VPF-66047	1 1/8 x 1 3/8						-	VPF100-H03					VPF-66048	1 3/8 x 1 3/8	35 x 35	VPF100-H05			VPF-66049	-			28 x 35	VPF100-H06	VPF-66050	-	28 x 28	VPF150-H51	VPF-			L-shape								-	1 1/8 x 1 3/8	-	14,8	7,7															VPF150-H52	VPF-	1 5/8 x 1 5/8	-	VPF150-H01	VPF-66061	L-shape	with sight glass	1 1/8 x 1 3/8	-	23,9	12,0			4,5	3,5	3,5	VPF150-H02					VPF-66062		1 5/8 x 1 5/8	-	VPF250-H01	VPF-66051	straight	with sight glass	1 1/8 x 1 1/8	-	23,9	12,0			4,5	3,5									3,5	VPF250-H02	VPF-66052	1 3/8 x 1 3/8					35 x 35	VPF250-H03				VPF-66053	1 5/8 x 1 5/8		-	VPF250-H04	VPF-66054	-	28 x 28	VPF250-H05	VPF-66055	-	42 x 42					
VPF 50-H04	VPF-66036	1 1/8 x 1 3/8	-			VPF 50-H06	VPF-66038	-	22 x 28	VPF 50-H07	VPF-66039	-			28 x 28	VPF 50-H08			VPF-66040	-			28 x 35	VPF100-H51	VPF-66041	straight	-	1 1/8 x 1 1/8	-			14,4	4,0																				VPF100-H52	VPF-66042								1 1/8 x 1 3/8	-	VPF100-H53	VPF-66043	1 3/8 x 1 3/8	35 x 35	VPF100-H54	VPF-66044	-	28 x 28	VPF100-H55			VPF-66045	-	28 x 35	VPF100-H01	VPF-66046	straight			with sight glass	1 1/8 x 1 1/8	-		14,8	7,7																				VPF100-H02	VPF-66047						1 1/8 x 1 3/8	-					VPF100-H03	VPF-66048	1 3/8 x 1 3/8	35 x 35	VPF100-H05	VPF-66049	-	28 x 35			VPF100-H06	VPF-66050	-	28 x 28	VPF150-H51	VPF-	L-shape				-						1 1/8 x 1 3/8		-	14,8					7,7				VPF150-H52		VPF-	1 5/8 x 1 5/8	-	VPF150-H01	VPF-66061		L-shape	with sight glass	1 1/8 x 1 3/8	-	23,9	12,0			4,5	3,5			3,5	VPF150-H02				VPF-66062	1 5/8 x 1 5/8	-	VPF250-H01	VPF-66051	straight	with sight glass	1 1/8 x 1 1/8	-	23,9	12,0			4,5	3,5																3,5	VPF250-H02	VPF-66052					1 3/8 x 1 3/8	35 x 35			VPF250-H03	VPF-66053	1 5/8 x 1 5/8	-	VPF250-H04	VPF-66054	-	28 x 28	VPF250-H05	VPF-66055	-	42 x 42						
VPF 50-H06	VPF-66038	-	22 x 28			VPF 50-H07	VPF-66039	-	28 x 28	VPF 50-H08	VPF-66040	-			28 x 35	VPF100-H51			VPF-66041	straight			-	1 1/8 x 1 1/8	-			14,4	4,0																									VPF100-H52						VPF-66042	1 1/8 x 1 3/8	-	VPF100-H53	VPF-66043	1 3/8 x 1 3/8	35 x 35	VPF100-H54	VPF-66044	-	28 x 28	VPF100-H55	VPF-66045	-	28 x 35	VPF100-H01	VPF-66046	straight	with sight glass	1 1/8 x 1 1/8		-	14,8		7,7																									VPF100-H02						VPF-66047	1 1/8 x 1 3/8			-	VPF100-H03	VPF-66048	1 3/8 x 1 3/8	35 x 35	VPF100-H05	VPF-66049	-	28 x 35	VPF100-H06	VPF-66050	-	28 x 28	VPF150-H51	VPF-	L-shape	-	1 1/8 x 1 3/8		-	14,8	7,7									VPF150-H52		VPF-	1 5/8 x 1 5/8	-	VPF150-H01					VPF-66061		L-shape	with sight glass	1 1/8 x 1 3/8	-	23,9	12,0			4,5	3,5			3,5	VPF150-H02			VPF-66062	1 5/8 x 1 5/8		-	VPF250-H01	VPF-66051	straight	with sight glass	1 1/8 x 1 1/8	-	23,9	12,0			4,5	3,5																							3,5	VPF250-H02					VPF-66052	1 3/8 x 1 3/8	35 x 35	VPF250-H03	VPF-66053	1 5/8 x 1 5/8	-	VPF250-H04	VPF-66054	-	28 x 28	VPF250-H05	VPF-66055	-	42 x 42							
VPF 50-H07	VPF-66039	-	28 x 28			VPF 50-H08	VPF-66040	-	28 x 35	VPF100-H51	VPF-66041	straight			-	1 1/8 x 1 1/8			-		14,4	4,0																												VPF100-H52				VPF-66042	1 1/8 x 1 3/8	-	VPF100-H53	VPF-66043	1 3/8 x 1 3/8	35 x 35	VPF100-H54	VPF-66044	-	28 x 28	VPF100-H55	VPF-66045	-	28 x 35	VPF100-H01	VPF-66046	straight	with sight glass	1 1/8 x 1 1/8	-	14,8	7,7																																							VPF100-H02	VPF-66047	1 1/8 x 1 3/8	-	VPF100-H03	VPF-66048	1 3/8 x 1 3/8	35 x 35	VPF100-H05	VPF-66049	-	28 x 35	VPF100-H06	VPF-66050	-	28 x 28	VPF150-H51	VPF-	L-shape			-	1 1/8 x 1 3/8	-			14,8		7,7						VPF150-H52	VPF-	1 5/8 x 1 5/8	-	VPF150-H01	VPF-66061	L-shape	with sight glass	1 1/8 x 1 3/8	-	23,9	12,0			4,5	3,5			3,5	VPF150-H02			VPF-66062	1 5/8 x 1 5/8		-	VPF250-H01	VPF-66051	straight	with sight glass	1 1/8 x 1 1/8	-	23,9	12,0			4,5	3,5																			3,5	VPF250-H02					VPF-66052					1 3/8 x 1 3/8	35 x 35	VPF250-H03	VPF-66053	1 5/8 x 1 5/8	-	VPF250-H04	VPF-66054	-	28 x 28	VPF250-H05	VPF-66055	-	42 x 42													
VPF 50-H08	VPF-66040	-	28 x 35			VPF100-H51	VPF-66041	straight	-	1 1/8 x 1 1/8	-					14,4	4,0																		VPF100-H52			VPF-66042			1 1/8 x 1 3/8	-			VPF100-H53	VPF-66043				1 3/8 x 1 3/8				35 x 35	VPF100-H54	VPF-66044	-	28 x 28	VPF100-H55	VPF-66045	-	28 x 35	VPF100-H01	VPF-66046	straight	with sight glass	1 1/8 x 1 1/8	-	14,8	7,7																																					VPF100-H02			VPF-66047	1 1/8 x 1 3/8	-	VPF100-H03	VPF-66048	1 3/8 x 1 3/8	35 x 35	VPF100-H05	VPF-66049	-	28 x 35	VPF100-H06	VPF-66050	-	28 x 28	VPF150-H51	VPF-	L-shape	-	1 1/8 x 1 3/8	-	14,8	7,7						VPF150-H52	VPF-	1 5/8 x 1 5/8		-					VPF150-H01	VPF-66061	L-shape	with sight glass	1 1/8 x 1 3/8	-	23,9	12,0			4,5	3,5			3,5	VPF150-H02			VPF-66062	1 5/8 x 1 5/8		-	VPF250-H01	VPF-66051	straight	with sight glass	1 1/8 x 1 1/8	-	23,9	12,0			4,5	3,5																					3,5	VPF250-H02				VPF-66052	1 3/8 x 1 3/8	35 x 35	VPF250-H03	VPF-66053	1 5/8 x 1 5/8	-				VPF250-H04	VPF-66054	-	28 x 28	VPF250-H05	VPF-66055	-	42 x 42																			
VPF100-H51	VPF-66041	straight	-			1 1/8 x 1 1/8	-			14,4	4,0																																																																																																																																																																																																																																							
VPF100-H52	VPF-66042			1 1/8 x 1 3/8	-	VPF100-H53	VPF-66043																			1 3/8 x 1 3/8	35 x 35				VPF100-H54	VPF-66044	-		28 x 28	VPF100-H55	VPF-66045	-			28 x 35	VPF100-H01	VPF-66046	straight	with sight glass	1 1/8 x 1 1/8	-	14,8		7,7					VPF100-H02	VPF-66047	1 1/8 x 1 3/8	-	VPF100-H03	VPF-66048	1 3/8 x 1 3/8	35 x 35	VPF100-H05	VPF-66049			-	28 x 35																					VPF100-H06	VPF-66050	-	28 x 28		VPF150-H51	VPF-	L-shape	-	1 1/8 x 1 3/8		-	14,8	7,7								VPF150-H52	VPF-	1 5/8 x 1 5/8	-	VPF150-H01	VPF-66061	L-shape	with sight glass	1 1/8 x 1 3/8	-	23,9	12,0	4,5	3,5	3,5	VPF150-H02	VPF-66062	1 5/8 x 1 5/8	-	VPF250-H01	VPF-66051	straight	with sight glass	1 1/8 x 1 1/8	-	23,9	12,0	4,5	3,5	3,5	VPF250-H02	VPF-66052	1 3/8 x 1 3/8	35 x 35	VPF250-H03	VPF-66053	1 5/8 x 1 5/8	-	VPF250-H04	VPF-66054	-	28 x 28	VPF250-H05	VPF-66055	-	42 x 42																																																																																							
VPF100-H53	VPF-66043			1 3/8 x 1 3/8	35 x 35	VPF100-H54	VPF-66044													-			28 x 28			VPF100-H55	VPF-66045	-	28 x 35		VPF100-H01	VPF-66046	straight		with sight glass	1 1/8 x 1 1/8	-	14,8	7,7				VPF100-H02			VPF-66047	1 1/8 x 1 3/8						-		VPF100-H03	VPF-66048	1 3/8 x 1 3/8	35 x 35	VPF100-H05	VPF-66049	-	28 x 35	VPF100-H06	VPF-66050			-	28 x 28												VPF150-H51			VPF-				L-shape	-	1 1/8 x 1 3/8	-	14,8	7,7						VPF150-H52	VPF-	1 5/8 x 1 5/8					-					VPF150-H01	VPF-66061	L-shape	with sight glass	1 1/8 x 1 3/8	-			23,9	12,0						4,5	3,5	3,5	VPF150-H02	VPF-66062	1 5/8 x 1 5/8			-	VPF250-H01						VPF-66051	straight	with sight glass	1 1/8 x 1 1/8	-	23,9	12,0	4,5	3,5	3,5	VPF250-H02	VPF-66052	1 3/8 x 1 3/8	35 x 35	VPF250-H03	VPF-66053	1 5/8 x 1 5/8	-	VPF250-H04	VPF-66054	-	28 x 28	VPF250-H05	VPF-66055	-	42 x 42																																																																													
VPF100-H54	VPF-66044			-	28 x 28	VPF100-H55	VPF-66045					-			28 x 35					VPF100-H01	VPF-66046	straight	with sight glass	1 1/8 x 1 1/8	-	14,8	7,7					VPF100-H02				VPF-66047	1 1/8 x 1 3/8						-			VPF100-H03	VPF-66048		1 3/8 x 1 3/8				35 x 35		VPF100-H05	VPF-66049	-	28 x 35	VPF100-H06	VPF-66050	-	28 x 28	VPF150-H51	VPF-			L-shape	-									1 1/8 x 1 3/8	-		14,8		7,7				VPF150-H52			VPF-	1 5/8 x 1 5/8						-	VPF150-H01	VPF-66061	L-shape	with sight glass	1 1/8 x 1 3/8	-	23,9	12,0	4,5		3,5	3,5		VPF150-H02	VPF-66062			1 5/8 x 1 5/8	-	VPF250-H01	VPF-66051			straight	with sight glass	1 1/8 x 1 1/8	-	23,9				12,0	4,5	3,5			3,5	VPF250-H02						VPF-66052			1 3/8 x 1 3/8	35 x 35						VPF250-H03	VPF-66053	1 5/8 x 1 5/8	-	VPF250-H04	VPF-66054	-	28 x 28	VPF250-H05	VPF-66055	-	42 x 42																																																																																	
VPF100-H55	VPF-66045			-	28 x 35	VPF100-H01	VPF-66046	straight	with sight glass			1 1/8 x 1 1/8			-	14,8	7,7				VPF100-H02			VPF-66047	1 1/8 x 1 3/8							-		VPF100-H03		VPF-66048	1 3/8 x 1 3/8						35 x 35			VPF100-H05	VPF-66049		-				28 x 35		VPF100-H06	VPF-66050	-	28 x 28	VPF150-H51	VPF-	L-shape	-	1 1/8 x 1 3/8	-							14,8	7,7						VPF150-H52	VPF-		1 5/8 x 1 5/8					-	VPF150-H01	VPF-66061	L-shape	with sight glass	1 1/8 x 1 3/8	-	23,9	12,0	4,5	3,5	3,5	VPF150-H02			VPF-66062	1 5/8 x 1 5/8							-	VPF250-H01	VPF-66051	straight	with sight glass	1 1/8 x 1 1/8	-	23,9	12,0	4,5	3,5			3,5	VPF250-H02		VPF-66052	1 3/8 x 1 3/8	35 x 35							VPF250-H03						VPF-66053			1 5/8 x 1 5/8	-						VPF250-H04	VPF-66054	-	28 x 28	VPF250-H05	VPF-66055	-	42 x 42																																																																																					
VPF100-H01	VPF-66046	straight	with sight glass	1 1/8 x 1 1/8	-	14,8	7,7																																																																																																																																																																																																																																											
VPF100-H02	VPF-66047			1 1/8 x 1 3/8	-								VPF100-H03	VPF-66048	1 3/8 x 1 3/8						35 x 35			VPF100-H05	VPF-66049					-		28 x 35		VPF100-H06		VPF-66050	-						28 x 28			VPF150-H51	VPF-		L-shape				-		1 1/8 x 1 3/8	-	14,8	7,7				VPF150-H52	VPF-	1 5/8 x 1 5/8	-	VPF150-H01	VPF-66061	L-shape	with sight glass	1 1/8 x 1 3/8	-	23,9	12,0	4,5	3,5	3,5	VPF150-H02	VPF-66062	1 5/8 x 1 5/8	-	VPF250-H01	VPF-66051	straight	with sight glass	1 1/8 x 1 1/8	-	23,9	12,0	4,5	3,5	3,5	VPF250-H02	VPF-66052	1 3/8 x 1 3/8	35 x 35	VPF250-H03	VPF-66053	1 5/8 x 1 5/8	-	VPF250-H04	VPF-66054	-	28 x 28	VPF250-H05	VPF-66055	-	42 x 42																																																																																																																																							
VPF100-H03	VPF-66048			1 3/8 x 1 3/8	35 x 35								VPF100-H05	VPF-66049	-						28 x 35			VPF100-H06	VPF-66050					-		28 x 28		VPF150-H51		VPF-	L-shape						-	1 1/8 x 1 3/8	-	14,8	7,7					VPF150-H52		VPF-	1 5/8 x 1 5/8	-						VPF150-H01	VPF-66061	L-shape	with sight glass	1 1/8 x 1 3/8	-			23,9	12,0						4,5	3,5	3,5	VPF150-H02	VPF-66062	1 5/8 x 1 5/8			-	VPF250-H01						VPF-66051	straight	with sight glass	1 1/8 x 1 1/8	-	23,9	12,0	4,5	3,5	3,5	VPF250-H02	VPF-66052	1 3/8 x 1 3/8	35 x 35	VPF250-H03	VPF-66053	1 5/8 x 1 5/8	-	VPF250-H04	VPF-66054			-	28 x 28								VPF250-H05		VPF-66055	-	42 x 42																																																																																																																			
VPF100-H05	VPF-66049			-	28 x 35								VPF100-H06	VPF-66050	-						28 x 28			VPF150-H51	VPF-					L-shape		-	1 1/8 x 1 3/8	-	14,8	7,7					VPF150-H52	VPF-		1 5/8 x 1 5/8	-				VPF150-H01			VPF-66061	L-shape	with sight glass	1 1/8 x 1 3/8	-	23,9	12,0	4,5	3,5	3,5	VPF150-H02	VPF-66062			1 5/8 x 1 5/8	-	VPF250-H01	VPF-66051			straight	with sight glass	1 1/8 x 1 1/8	-	23,9				12,0	4,5	3,5			3,5	VPF250-H02						VPF-66052			1 3/8 x 1 3/8	35 x 35						VPF250-H03	VPF-66053	1 5/8 x 1 5/8	-	VPF250-H04	VPF-66054	-	28 x 28	VPF250-H05	VPF-66055			-	42 x 42																																																																																																																															
VPF100-H06	VPF-66050			-	28 x 28								VPF150-H51	VPF-	L-shape						-	1 1/8 x 1 3/8	-	14,8	7,7				VPF150-H52		VPF-		1 5/8 x 1 5/8	-			VPF150-H01				VPF-66061	L-shape	with sight glass	1 1/8 x 1 3/8	-	23,9	12,0	4,5	3,5	3,5	VPF150-H02	VPF-66062			1 5/8 x 1 5/8	-						VPF250-H01	VPF-66051	straight	with sight glass	1 1/8 x 1 1/8	-	23,9	12,0	4,5	3,5			3,5	VPF250-H02		VPF-66052	1 3/8 x 1 3/8	35 x 35							VPF250-H03						VPF-66053			1 5/8 x 1 5/8	-						VPF250-H04	VPF-66054	-	28 x 28	VPF250-H05	VPF-66055	-	42 x 42																																																																																																																																					
VPF150-H51	VPF-			L-shape	-			1 1/8 x 1 3/8	-				14,8	7,7																																																																																																																																																																																																																																				
VPF150-H52	VPF-	1 5/8 x 1 5/8	-			VPF150-H01	VPF-66061	L-shape	with sight glass	1 1/8 x 1 3/8	-	23,9			12,0				4,5	3,5	3,5	VPF150-H02	VPF-66062	1 5/8 x 1 5/8	-	VPF250-H01	VPF-66051	straight	with sight glass	1 1/8 x 1 1/8	-	23,9	12,0	4,5	3,5	3,5	VPF250-H02	VPF-66052	1 3/8 x 1 3/8	35 x 35	VPF250-H03	VPF-66053	1 5/8 x 1 5/8	-	VPF250-H04	VPF-66054	-	28 x 28	VPF250-H05	VPF-66055	-	42 x 42																																																																																																																																																																																														
VPF150-H01	VPF-66061	L-shape	with sight glass	1 1/8 x 1 3/8	-	23,9	12,0			4,5	3,5		3,5																																																																																																																																																																																																																																					
VPF150-H02	VPF-66062			1 5/8 x 1 5/8	-			VPF250-H01	VPF-66051			straight		with sight glass	1 1/8 x 1 1/8	-	23,9	12,0	4,5	3,5	3,5	VPF250-H02	VPF-66052	1 3/8 x 1 3/8	35 x 35	VPF250-H03	VPF-66053			1 5/8 x 1 5/8	-						VPF250-H04	VPF-66054	-	28 x 28	VPF250-H05	VPF-66055	-	42 x 42																																																																																																																																																																																																						
VPF250-H01	VPF-66051	straight	with sight glass	1 1/8 x 1 1/8	-	23,9	12,0	4,5	3,5	3,5																																																																																																																																																																																																																																								
VPF250-H02	VPF-66052			1 3/8 x 1 3/8	35 x 35						VPF250-H03		VPF-66053		1 5/8 x 1 5/8	-						VPF250-H04	VPF-66054	-	28 x 28	VPF250-H05	VPF-66055			-	42 x 42																																																																																																																																																																																																																			
VPF250-H03	VPF-66053			1 5/8 x 1 5/8	-						VPF250-H04		VPF-66054		-	28 x 28						VPF250-H05	VPF-66055	-	42 x 42																																																																																																																																																																																																																									
VPF250-H04	VPF-66054			-	28 x 28						VPF250-H05		VPF-66055		-	42 x 42																																																																																																																																																																																																																																		
VPF250-H05	VPF-66055			-	42 x 42																																																																																																																																																																																																																																													

**Note:**

- 1) Extent of delivery: valve body (reference number for connection cable see in the following pages)
- 2) Specified diameters are hydraulic diameters. The seat cross-section isn't circularly.
- 3) Kv values valid for the flow direction inlet to outlet



**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 R507A	R410A
VPF 25	2600	143	112	144	153	163	105	171
VPF 50	2600	287	226	289	307	328	210	343
VPF 100	3500	406	319	409	435	463	298	485
VPF 150	3800	730	574	736	782	833	535	872
VPF 250	3800	1133	892	1143	1215	1294	832	1354

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 R507A	R410A
VPF 25	2600	41	32	41	44	46	30	49
VPF 50	2600	82	64	82	87	93	60	97
VPF 100	3500	115	91	116	124	132	85	138
VPF 150	3800	207	163	209	222	237	152	248
VPF 250	3800	322	254	325	345	368	236	385

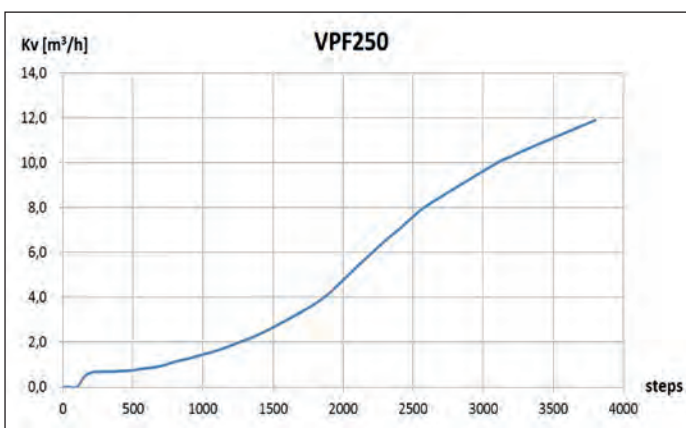
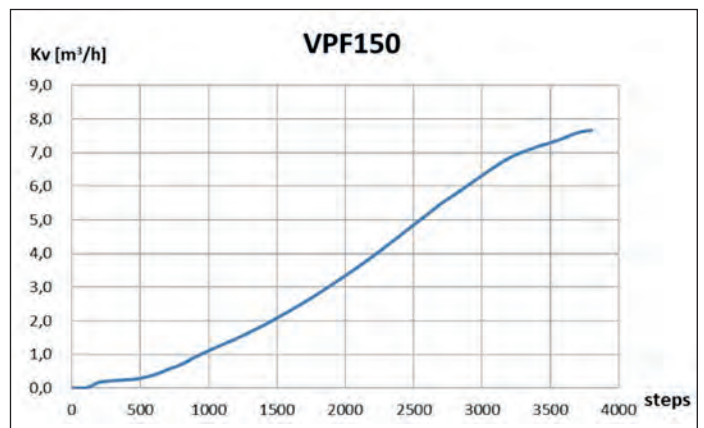
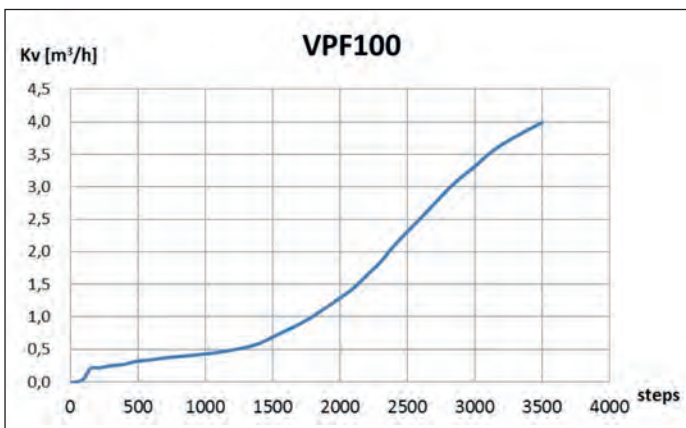
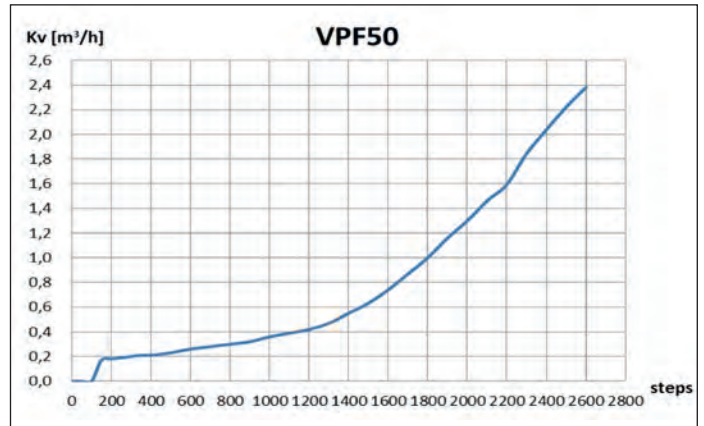
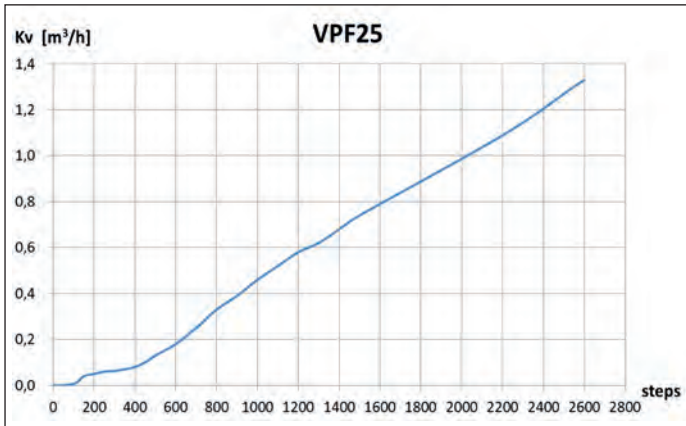
**Note:**

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

2) Data based on dew point conditions



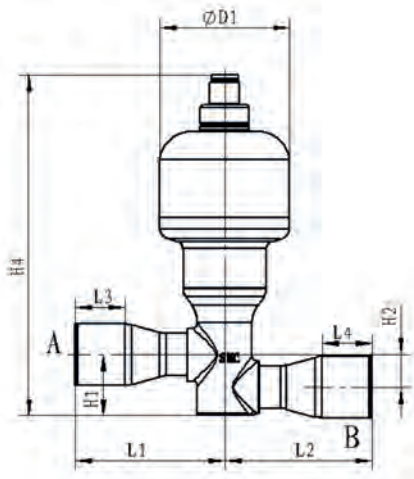
**FLOW CHARACTERISTIC**



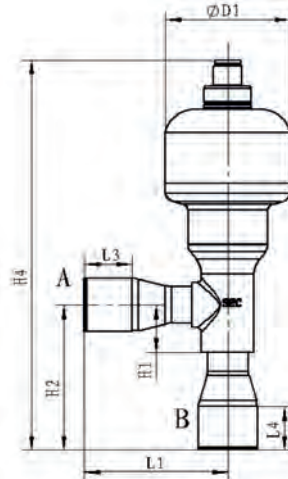
**VPF SERIES**  
**Electronic Expansion Valve**



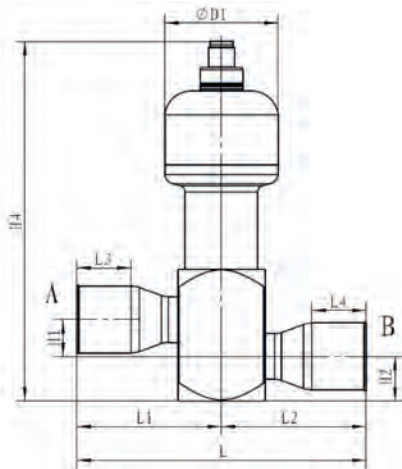
**DIMENSIONS**



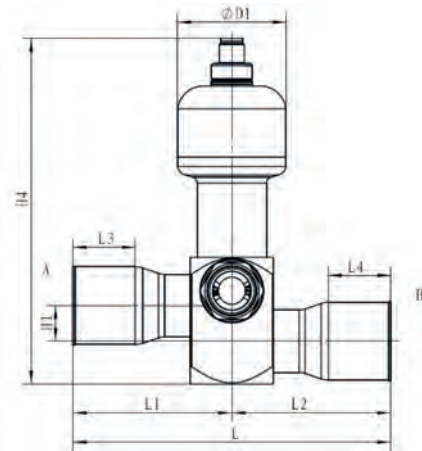
Valve Body - Straight: VPF25



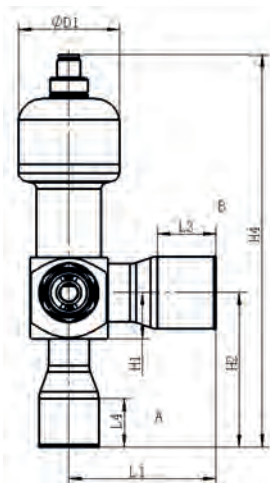
Valve Body - L-Shape: VPF25



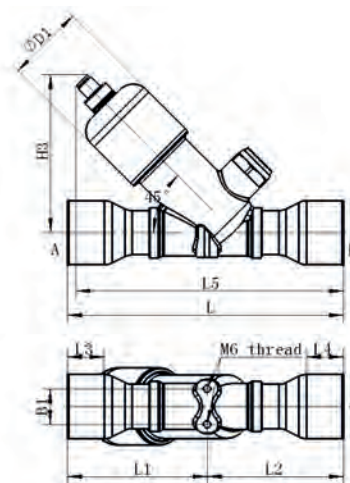
Valve Body - Without sight glass: VPF50, VPF100



Valve Body - With sight glass: VPF50, VPF100



Valve Body - With sight glass: VPF150



Valve Body - With sight glass: VPF250



Model	Part Number	Dimensions [mm]											
		L	L1	L2	L3	L4	L5	H1	H2	H3	H4	B1	øD1
VPF 25-H52	VPF-66014	120	60	60	13	13	-	25,6	13	-	136	-	52
VPF 25-H53	VPF-66015	120	60	60	20	20	-	25,6	13	-	136	-	52
VPF 25-H58	VPF-66020	-	60	-	13	13	-	22,5	66,5	-	178	-	52
VPF 25-H59	VPF-66021	-	60	-	20	20	-	22,5	66,5	-	178	-	52
VPF 50-H51	VPF-66025	112	56	56	20	20	-	17	21	-	166	-	52
VPF 50-H52	VPF-66026	122	56	66	20	25	-	17	21	-	166	-	52
VPF 50-H53	VPF-66027	132	66	66	25	25	-	17	21	-	166	-	52
VPF 50-H54	VPF-66028	142	66	76	25	30	-	17	21	-	166	-	52
VPF 50-H56	VPF-66030	122	56	66	20	25	-	17	21	-	166	-	52
VPF 50-H57	VPF-66031	132	66	66	25	25	-	17	21	-	166	-	52
VPF 50-H58	VPF-66032	142	66	76	25	30	-	17	21	-	166	-	52
VPF 50-H01	VPF-66033	112	56	56	20	20	-	17	21	-	166	-	52
VPF 50-H02	VPF-66034	122	56	66	20	25	-	17	21	-	166	-	52
VPF 50-H03	VPF-66035	132	66	66	25	25	-	17	21	-	166	-	52
VPF 50-H04	VPF-66036	142	66	76	25	30	-	17	21	-	166	-	52
VPF 50-H06	VPF-66038	122	56	66	20	25	-	17	21	-	166	-	52
VPF 50-H07	VPF-66039	132	66	66	25	25	-	17	21	-	166	-	52
VPF 50-H08	VPF-66040	142	66	76	25	30	-	17	21	-	166	-	52
VPF100-H51	VPF-66041	132	66	66	25	25	-	17	21	-	166	-	52
VPF100-H52	VPF-66042	142	66	76	25	30	-	17	21	-	166	-	52
VPF100-H53	VPF-66043	152	76	76	30	30	-	17	21	-	166	-	52
VPF100-H54	VPF-66044	132	66	66	25	25	-	17	21	-	166	-	52
VPF100-H55	VPF-66045	142	66	76	25	30	-	17	21	-	166	-	52
VPF100-H01	VPF-66046	132	66	66	25	25	-	17	21	-	166	-	52
VPF100-H02	VPF-66047	142	66	76	25	30	-	17	21	-	166	-	52
VPF100-H03	VPF-66048	152	76	76	30	30	-	17	21	-	166	-	52
VPF100-H05	VPF-66049	142	66	76	25	30	-	17	21	-	166	-	52
VPF100-H06	VPF-66050	132	66	66	25	25	-	17	21	-	166	-	52
VPF150-H01	VPF-66061	-	76	-	30	25	-	24	70	-	195	-	52
VPF150-H02	VPF-66062	-	76	-	25	25	-	34	89	-	212	-	52
VPF250-H01	VPF-66051	166	84	82	25	25	170	-	-	107	-	24	52
VPF250-H02	VPF-66052	186	94	92	25	25	180	-	-	107	-	24	52
VPF250-H03	VPF-66053	186	94	92	25	25	180	-	-	107	-	24	52
VPF250-H04	VPF-66054	166	84	82	25	25	170	-	-	107	-	24	52
VPF250-H05	VPF-66055	186	94	92	25	25	180	-	-	107	-	24	52

## VPF SERIES

### Electronic Expansion Valve



#### ACCESSORIES

##### Connection Cable

Model	Part Number <sup>1)</sup>	Cable Length [m]
VPF100-006 005	VPF-66044	2
VPF100-006 006	VPF-66045	8

**Note:** 1) Extent of delivery: cable, connecting valve plug and cable sleeves for each single wire  
2) Cable-VPF valve connection in IP67

# Pressure Sensor

Pressure sensors are widely used in Air Conditioning, Refrigeration and Heat Pump system. Using a 5V excitation input these sensors provide a 0.5-3.5 V or 0.5-4.5 V signal output proportional to the pressure of the medium. This device requires no end user amplification. Pressure sensors 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 WITH LEAD WIRE DIRECT CONNECTOR;
- STABILITY: APPLIED SUPERIOR PRESSURE CORE, GOOD STABILITY UNDER STRICT PROCESS CONTROL;
- DIVERSIFICATION: 2 DIFFERENT PRESSURE RANGE; 2 DIFFERENT LEVEL OF ACCURACY.

## GENERAL SPECIFICATION

- Applicable for all common HCFC and HFC refrigerants such as: R22, R134a, R404A, R407C, R410A, R507A ...
- Medium temperature TS min./max.: -30°C / +120°C (models with 2% accuracy)
- Medium temperature TS min./max.: -40°C / +120°C\* (models with 0,8% accuracy)
- Ambient temperature min./max.: -30°C / +80°C
- Relative humidity: 0 to 95% RH
- Installation position: preferably with vertical axis and sensor upwards
- Certifications: UL/CSA and declaration according to LVD or PED

\***Note:** 0.8% FS accuracy is guaranteed only in the temperature range -40°C / +40°C



**GENERAL CHARACTERISTICS**

Models with 2% Accuracy					
<b>Model</b>		YCQB02H01	YCQB05H01	YCQB02L01	YCQB05L01
<b>Part Number</b>		YCQ-21001	YCQ-21002	YCQ-21003	YCQ-21004
<b>Connection Type</b>		Solder	Solder	Thread	Thread
<b>Connection Pipe Size</b>	[ inch ]	1/4"	1/4"	SAE - 1/4"	SAE - 1/4"
<b>Thread Size</b>	[ inch ]	-	-	7/16-20 UNF	7/16-20 UNF
<b>Supply Voltage</b>	[ V ]	5 ± 0,25 DC	5 ± 0,25 DC	5 ± 0,25 DC	5 ± 0,25 DC
<b>Pressure Range (0 to pr)</b>	[ MPa ]	0 to 2	0 to 5	0 to 2	0 to 4,6
<b>Output (VA0 to VApr)</b>	[ V ]	0,5 to 3,5 DC	0,5 to 3,5 DC	0,5 to 4,5 DC	0,5 to 4,5 DC
<b>Signal Span (VFS) <sup>1</sup></b>	[ V ]	3,0	3,0	3,0	3,0
<b>Accuracy <sup>2</sup></b>	[ % ]	± 2,0 % F.S.	± 2,0 % F.S.	± 2,0 % F.S.	± 2,0 % F.S.
<b>Response Time <sup>3</sup></b>	[ ms ]	10	10	10	10
<b>Current Consumption</b>	[ mA ]	Max. 10	Max. 10	Max. 10	Max. 10
<b>Load Resistance</b>	[ kΩ ]	Min. 10	Min. 10	Min. 10	Min. 10
<b>Insulation Resistance <sup>4</sup></b>	[ MΩ ]	Min. 100	Min. 100	Min. 100	Min. 100
<b>Maximum Operating Pressure (MOP)</b>	[ MPa ]	3,50	5,00	3,50	4,60
<b>Test Pressure</b>	[ MPa ]	5,25	7,50	5,25	7,50
<b>Burst Pressure</b>	[ MPa ]	17,50	25,00	17,50	25,00
<b>Protection Class</b>	[ - ]	IP 67	IP 67	IP 67	IP 67





**GENERAL CHARACTERISTICS**

Models with 0.8% Accuracy			
<b>Model</b>		YCQB02H01-1	YCQB02L01-1
<b>Part Number</b>		YCQ-21005	YCQ-21006
<b>Connection Type</b>		Solder	Thread
<b>Connection Pipe Size</b>	[ inch ]	1/4"	SAE - 1/4"
<b>Thread Size</b>	[ inch ]	-	7/16-20 UNF
<b>Supply Voltage</b>	[ V ]	5 ± 0,25 DC	5 ± 0,25 DC
<b>Pressure Range (0 to p<sub>r</sub>)</b>	[ MPa ]	0 to 2	0 to 2
<b>Output (V<sub>A0</sub> to V<sub>Apr</sub>)</b>	[ V ]	0,5 to 3,5 DC	0,5 to 4,5 DC
<b>Signal Span (V<sub>FS</sub>)<sup>1</sup></b>	[ V ]	3,0	3,0
<b>Accuracy<sup>2</sup></b>	[ % ]	± 0,8 % F.S.	± 0,8 % F.S
<b>Response Time<sup>3</sup></b>	[ ms ]	10	10
<b>Current Consumption</b>	[ mA ]	Max. 10	Max. 10
<b>Load Resistance</b>	[ kΩ ]	Min. 10	Min. 10
<b>Insulation Resistance<sup>4</sup></b>	[ MΩ ]	Min. 100	Min. 100
<b>Maximum Operating Pressure (MOP)</b>	[ MPa ]	3,50	3,50
<b>Test Pressure</b>	[ MPa ]	5,25	5,25
<b>Burst Pressure</b>	[ MPa ]	17,50	17,50
<b>Protection Class</b>	[ - ]	IP 67	IP 67

**Note:** 1) Signal span:  $V_{FS}=FS$  (Full Scale) =  $V_A(p_r) - V_{A0}$

2) Accuracy measured within the temperature ranges:

- YCQB02xxx: from -30°C to +85°C
- YCQB05xxx: from -30°C to +120°C
- YCQB02xxx-1: from -40°C to +40°C

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  $p_x = p_r / 2$ .

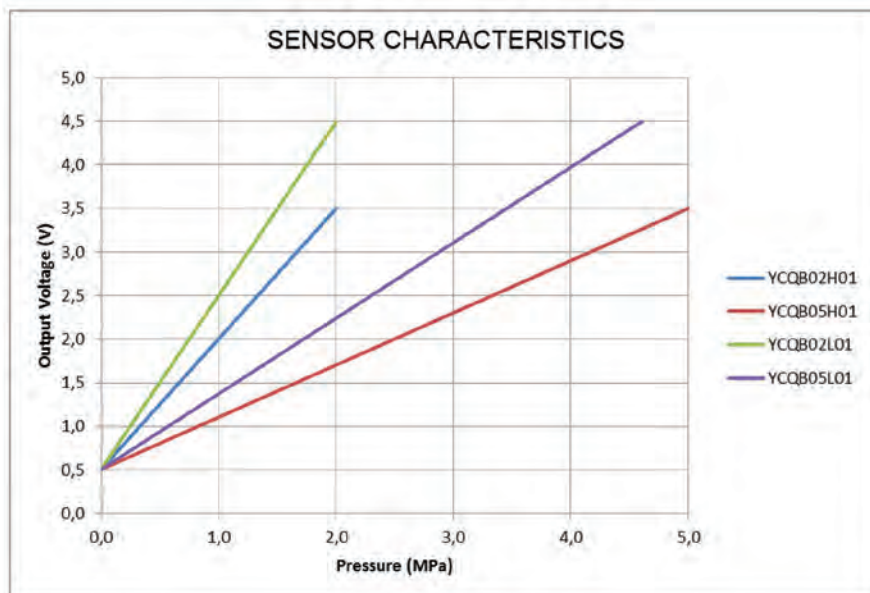
The equation to calculate the nonlinearity is:  $L = (V_A(p_x) - V_{A0}) / (V_A(p_r) - V_{A0}) - p_x / p_r$

3) Response Time: delay between a pressure change (10 to 90%  $p_r$ ) and the corresponding signal output change (10 to 90% FS)

4) Insulation Resistance measured with rated voltage: 500 V DC

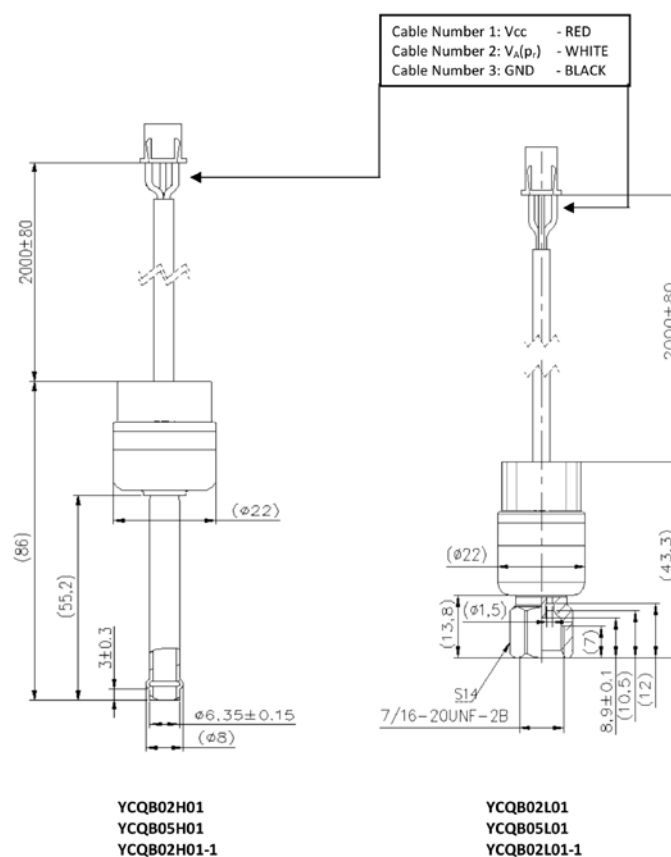


**PRESSURE / OUTPUT VOLTAGE CHARACTERISTICS 1**



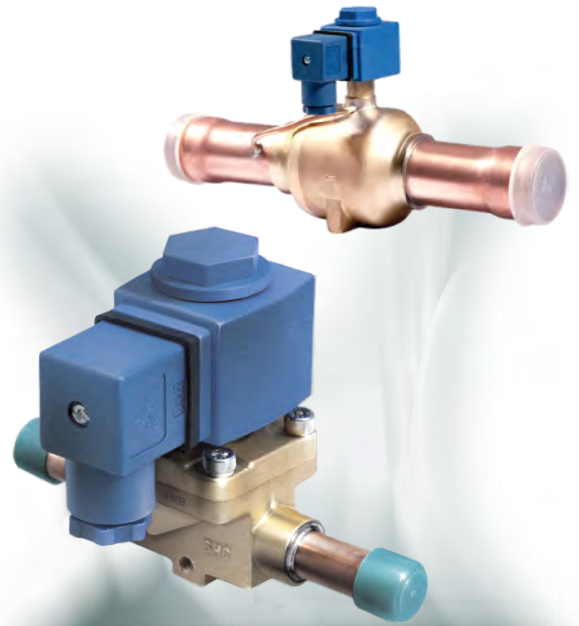
**Note:** 1) The YCQB02H01 characteristic is also valid for the model YCQB02H01-1  
2) The YCQB02L01 characteristic is also valid for the model YCQB02L01-1

**DIMENSIONS**



# 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

- COILS: LOW ENERGY CONSUMPTION, RELIABLE
- GREAT VALVE OPENING PERFORMANCE, HIGH MOPD
- COILS ARE DOUBLE SEALED, WATER TIGHT AND SAFE

## GENERAL SPECIFICATION

- Applicable for all common HCFC and HFC refrigerants such as: R22, R134a, R407C, R404A, R410A, R507A <sup>1)</sup>
- 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
- Certifications: UL/CSA<sup>2)</sup> and declaration according to LVD or PED

<sup>1)</sup> Other refrigerants on request

<sup>2)</sup> MDF-B03 solenoid valves on request

## TECHNICAL PARAMETERS

Technical Parameters of Valve Body

Valve Body		Normal position	Actuation	Kv [m <sup>3</sup> /h]	MOP [Mpa]	Max. OPD [Mpa]	Min. OPD [Mpa]
Solder	Flare						
MDF-A03-2H	MDF-A03-2L	NC	Direct	0,16	4,5	3,1	0,00
MDF-A03-3H	MDF-A03-3L			0,23			
MDF-A03-6H	MDF-A03-6L		Pilot <sup>1)</sup>	0,8			
MDF-A03-10H	MDF-A03-10L			1,9			
MDF-A03-15H	MDF-A03-15L			2,3			

# MDF SERIES

## Solenoid Valve



### TECHNICAL PARAMETERS

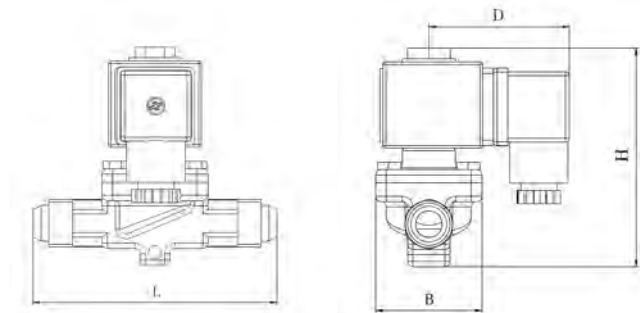
Technical Parameters of Valve Body

Valve Body		Normal position	Actuation	Kv [m <sup>3</sup> /h]	MOP [Mpa]	Max. OPD [Mpa]	Min. OPD [Mpa]
Solder	Flare						
MDF-A03-20H	--	NC	Pilot <sup>1)</sup>	5,0	4,5	3,1	0,02
MDF-A03-22H	--			5,9			
MDF-B03-25H	--		Pilot (P) <sup>2)</sup>	10,0			
MDF-B03-32H	--			15,0			
MDF-B03-40H	--			25,0			

**Note:** 1) Membrane operated  
 2) Piston operated  
 3) Min. OPD: values referred to 60% of nominal flow

### DIMENSIONS

Valve Body Thread Connection



Model Valve Body	Part Number <sup>1)</sup>	SAE Flare Connection [ inch ]	PED Category	Dimensions [mm]			
				L	B	D	H
MDF-A03-2L 001	MDF-08039	1/4	3.3	59	30	53	82
MDF-A03-3L 001	MDF-08040	1/4	3.3	59	30	53	82
MDF-A03-3L 003	MDF-08041	3/8	3.3	59	30	53	82
MDF-A03-6L 001	MDF-08042	3/8	3.3	69	36	53	88
MDF-A03-6L 003	MDF-08043	1/2	3.3	69	36	53	88
MDF-A03-10L 003	MDF-08044	1/2	3.3	92	42	53	96
MDF-A03-10L 001	MDF-08045	5/8	3.3	92	42	53	96
MDF-A03-15L 001	MDF-08046	5/8	3.3	104	52	53	100
MDF-A03-15L 003	MDF-08047	7/8	3.3	104	52	53	100

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

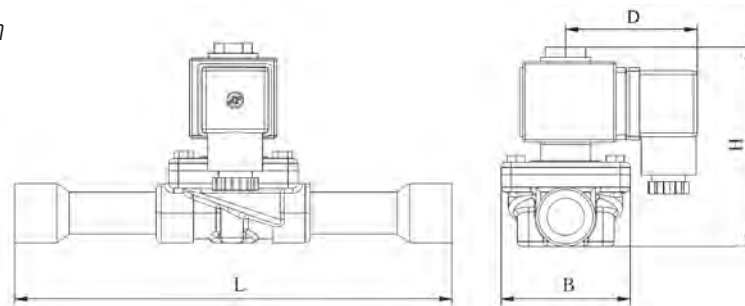
# MDF SERIES

## Solenoid Valve



### DIMENSIONS

Valve Body Solder Connection

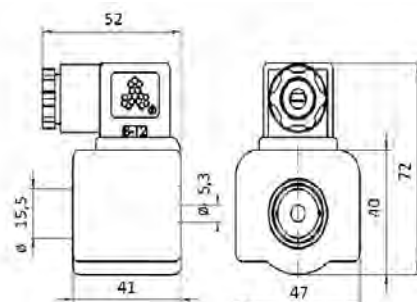


Model Valve Body	Part Number <sup>1)</sup>	Solder Connection ODF		Kv [m <sup>3</sup> /h]	PED Category	Dimensions [mm]			
		[inch]	[mm]			L	B	D	H
MDF-A03-2H 003	MDF-08020	-	6	0,16	3.3	102	30	53	82
MDF-A03-3H 005	MDF-08021	-	6	0,23	3.3	102	30	53	82
MDF-A03-2H 001	MDF-08001	1/4	-	0,16	3.3	102	30	53	82
MDF-A03-3H 001	MDF-08002	1/4	-	0,23	3.3	102	30	53	82
MDF-A03-3H 003	MDF-08003	3/8	-	0,23	3.3	102	30	53	82
MDF-A03-6H 001	MDF-08004	3/8	-	0,8	3.3	111	36	53	88
MDF-A03-3H 007	MDF-08022	-	10	0,23	3.3	102	30	53	82
MDF-A03-6H 005	MDF-08023	-	10	0,8	3.3	111	36	53	88
MDF-A03-6H 007	MDF-08024	-	12	0,8	3.3	111	36	53	88
MDF-A03-10H 005	MDF-08025	-	12	1,9	3.3	127	42	53	95
MDF-A03-6H 003	MDF-08005	1/2	-	0,8	3.3	111	36	53	88
MDF-A03-10H 001	MDF-08006	1/2	-	1,9	3.3	127	42	53	95
MDF-A03-10H 003	MDF-08007	5/8	16	1,9	3.3	127	42	53	95
MDF-A03-15H 005	MDF-08027	5/8	16	2,3	3.3	176	52	53	100
MDF-A03-15H 003	MDF-08009	7/8	22	2,3	3.3	176	52	53	100
MDF-A03-20H 001	MDF-08010	7/8	22	5,0	3.3	191	52	53	117
MDF-A03-22H 001	MDF-08012	7/8	22	5,9	3.3	191	60	53	117
MDF-A03-20H 007	MDF-08030	-	28	5,0	3.3	191	52	53	117
MDF-A03-22H 011	MDF-08031	-	28	5,9	3.3	191	60	53	117
MDF-B03-25H 005	MDF-08033	-	28	10,0	3.3	280	76	53	144
MDF-A03-20H 003	MDF-08011	1-1/8	-	5,0	3.3	191	52	53	117

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

### DIMENSIONS - COILS

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



# MDF SERIES

## Solenoid Valve



### DIMENSIONS

Valve Body Solder Connection

Model Valve Body	Part Number <sup>1)</sup>	Solder Connection ODF		Kv [m <sup>3</sup> /h]	PED Category	Dimensions [mm]			
		[inch]	[mm]			L	B	D	H
MDF-A03-22H 009	MDF-08082	1-1/8	-	5,9	3.3	191	60	53	117
MDF-B03-25H 003	MDF-08014	1-1/8	-	10,0	3.3	280	76	53	144
MDF-A03-22H 003	MDF-08013	1-3/8	35	5,9	I	191	60	53	117
MDF-B03-25H 004	MDF-08015	1-3/8	35	10,0	I	280	76	53	144
MDF-B03-32H 001	MDF-08016	1-3/8	35	15	I	281	76	53	144
MDF-B03-32H 002	MDF-08017	1-5/8	-	15	I	281	76	53	144
MDF-B03-40H 002	MDF-08018	1-5/8	-	25	I	281	84	53	152
MDF-B03-32H 003	MDF-08036	-	42	15	I	281	76	53	144
MDF-B03-40H 003	MDF-08037	-	42	25	I	281	84	53	152
MDF-B03-40H 004	MDF-08019	2-1/8	54	25	I	281	84	53	152

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

### TECHNICAL PARAMETERS

Technical parameters of Coil

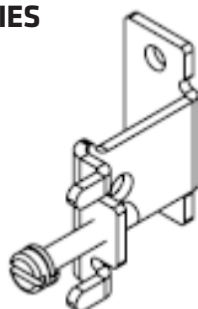
Model Coil <sup>1)</sup>	Part Number <sup>2)</sup>	Rated Voltage	Supply	Power [W]	Frequ. [Hz]	Voltage Tolerance	Insulation Class	Protection Class (w/plug)	Wiring type
MQ-A03024-000001	MDF-60001	24	AC	10,5W (50Hz) 8,5W (60Hz)	50/60	-15% +10%	F	IP65	DIN Plug
MQ-A0311A-000001	MDF-60002	110 to 120		12W (50Hz) 10W (60Hz)					
MQ-A0322G-000001	MDF-60003	220 to 240		12W (50Hz) 10W (60Hz)					
MQ-D03024-000002	MDF-60004	24	DC	15	-	±10%			

**Note:** 1) Applicable to MDF-A03 and MDF-B03 valve bodies

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

### ACCESSORIES

Bracket



Model <sup>1)</sup>	Part number	Applicable Valve Models	
		Solder	Flare
MDF-A03-033001	MDF-08085	MDF-A03-2H	MDF-A03-2L
		MDF-A03-3H	MDF-A03-3L
		MDF-A03-6H	MDF-A03-6L
		MDF-A03-10H	MDF-A03-10L
		MDF-A03-15H	MDF-A03-15L

**Note:** 1) Extent of delivery: bracket and screw

# 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 SPECIFICATION

- Applicable for all common HCFC and HFC refrigerants such as: R22, R134a, R404A, R407C, R410A, R507A ...
- 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

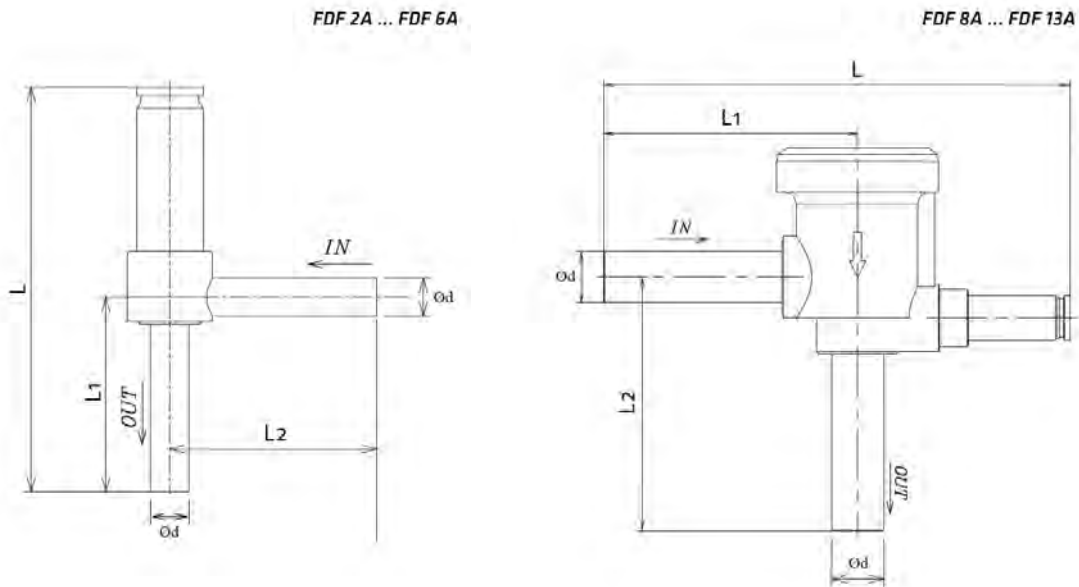
\*For FDF 3A 08 on request

## TECHNICAL PARAMETERS OF VALVE BODY

Model Valve Body	Part Number	Normal Position	Actuation	Ø Seat	Kv	MOP	Max. OPD	Min. OPD	Ød OD	Ød OD	Measurement [mm]		
				[mm]	[m <sup>3</sup> /h]	[MPa]	[MPa]	[MPa]			[mm]	[inch]	L
FDF 2A 94	FDF-06001	NC	Direct	1,9	0,08	4,5	3,4	0	6,35	1/4	67	32	34
FDF 2.5A 08	FDF-06002			2,5	0,20		2,1	6,35	1/4	85	38	38	
FDF 3A 08	FDF-06003			2,7	0,26		3,4	7,94	5/16	81	35	36	
FDF 4A 10	FDF-06004		Pilot	4,0	0,26		3,4	6,35	1/4	81	35	38	
FDF 6A 58	FDF-06005			5,8	0,56		3,0	7,94	5/16	81	35	36	
FDF 8A 21	FDF-06006			8,0	0,95		2,8	12,7	1/2	114	62	62	
FDF 11A 16	FDF-06007			11	2,40		0,02	12,7	1/2	113	61	61	
FDF 13A 12	FDF-06008			13	3,44		0,02	15,88	5/8	114	62	62	



**DIMENSIONS - VALVE BODY**

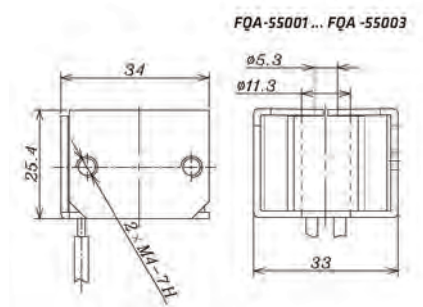


**TECNHICAL PARAMETERS OF COIL**

Model Coil	Part Number	Rated Voltage [V]	Supply	Power <sup>1)</sup> [W]	Freq. [Hz]	Voltage Tolerance	Insulation Class	Wiring type
FQ-A05 024-000709	FQA-55001	24	AC	5 (50Hz) 4,5 (60Hz)	50/60	-15% +10%	B	flying leads
FQ-A05 120-001098	FQA-55002	110 to 120		5 (50Hz) 4,5 (60Hz)				
FQ-A05 22G-001022	FQA-55003	220 to 240		5 (50Hz) 4,5 (60Hz)				

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

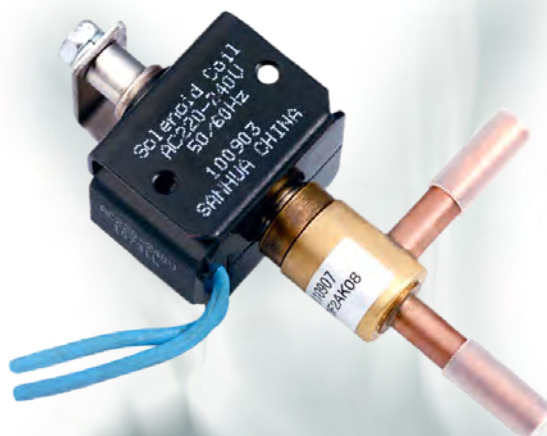
**DIMENSIONS - COIL**





## Solenoid Valve

FDF2AK series solenoid valves are direct operated, normally open solenoid valves, mainly used in refrigerant control of various devices such as refrigerating and freezing systems, air conditioners and heat pumps.



### FEATURES

- COMPACT DESIGN
- LOW ENERGY CONSUMPTION
- EXCELLENT OPERATION PERFORMANCE

### GENERAL SPECIFICATION

- Applicable for all common HCFC and HFC refrigerants such as: R22, R134a, R404A, R407C, R410A, R507A ...
- Medium temperature TS min./max.: -30°C / 120°C
- Ambient temperature: -30°C / +50°C
- Relative humidity: 0 to 95% RH
- Installation position:
  - Liquid, suction and discharge line
  - Coil upwards, coil axis ±15° tolerance versus vertical axis
  - Flow direction corresponds to the arrow
- Declaration according to LVD or PED

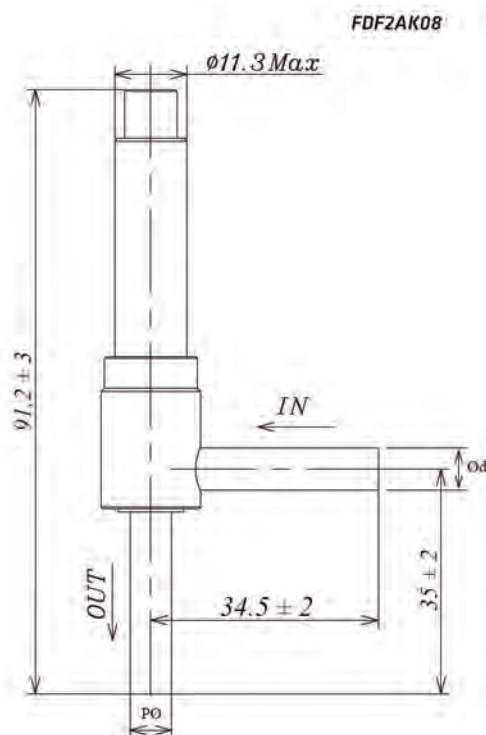
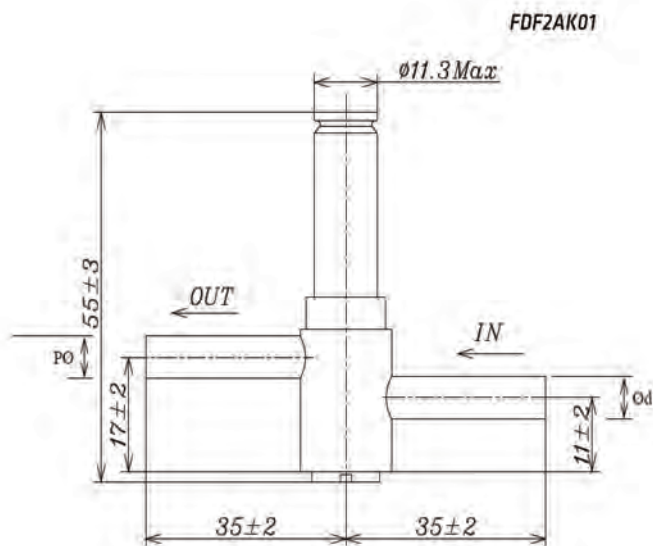
### TECHNICAL PARAMETERS OF VALVE BODY

Valve Body Model	Part Number	Normal Position	Actuation	Ø Seat [mm]	Kv [m³/h]	MOP [MPa]	Max. OPD [MPa]	Min. OPD [MPa]	Connection OD Ød	
									[mm]	[inch]
FDF 2AK 01	FDF-06009	NO	Direct	1,8	0,05	4,5	1,5	0	6,35 ±0,1	1/4
FDF 2AK 08	FDF-06010			1,9	0,08					

# FDF2AK (NO) SERIES Solenoid Valve



## DIMENSIONS - VALVE BODY



## TECNHICAL PARAMETERS OF COIL

Coil Model	Part Number	Rated Voltage [V]	Supply	Power <sup>3)</sup> [W]	Used for	Freq. [Hz]	Voltage Tolerance	Insulation Class	Wiring type
FQ-A05024 -000709	FQA-55001	24	AC	5 (50Hz) 4,5 (60Hz)	FDF 2AK 01 <sup>1)</sup>	50/60	-15% +10%	B	flying leads
FQ-A05120 -001098	FQA-55002	110 to 120		5 (50Hz) 4,5 (60Hz)					
FQ-A0522G -001022	FQA-55003	220 to 240		5 (50Hz) 4,5 (60Hz)					
FQA-0522G -001066	FQA-55007	220 to 240		6,5 (50Hz) 5 (60Hz)	FDF 2AK 08 <sup>2)</sup>				

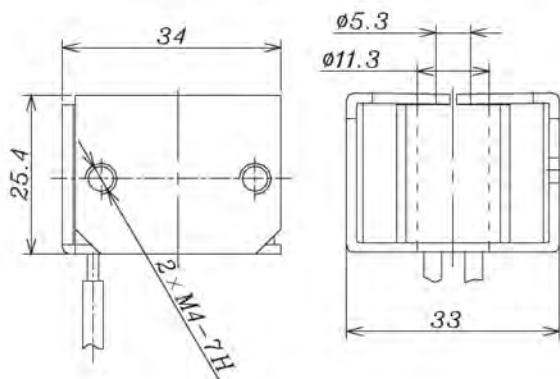
- Note:**
- 1) Dimensions: drawing 1
  - 2) Dimensions: drawing 2
  - 3) Power consumption based on 220V

# FDF2AK (NO) SERIES Solenoid Valve

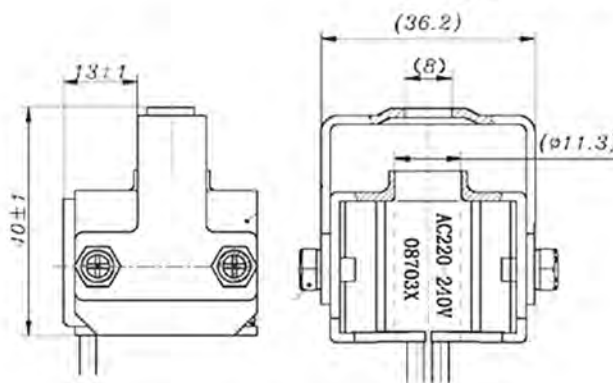


## DIMENSIONS - COIL

Drawing 1: FQA-55001, -55002, -55003



Drawing 2: FQA-55007





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



# SANHUA

**SELECTION TOOL**

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





Every 2<sup>nd</sup> home refrigerator  
in Europe is equipped

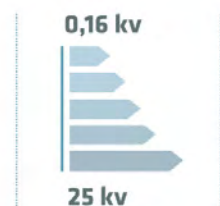
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Technology & Solutions



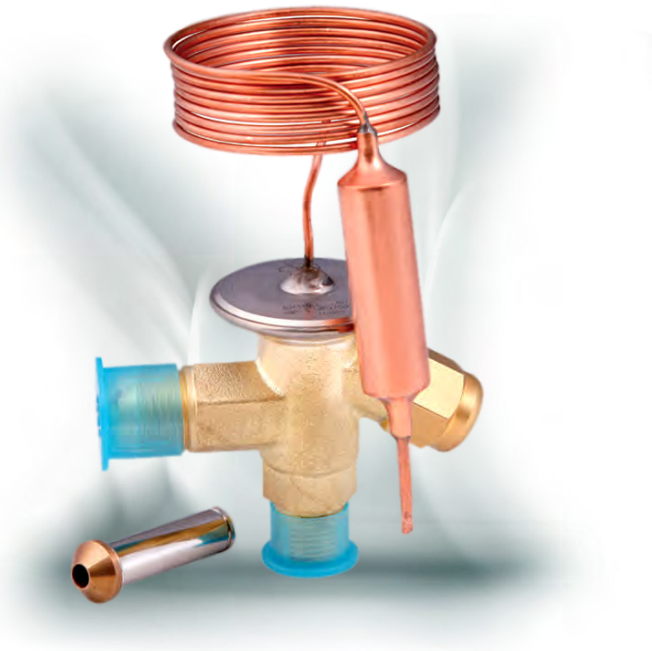
 **SANHUA**

CHILLING *IDEAS* WORLDWIDE

SANHUA INTERNATIONAL EUROPE  
[info@sanhuaeurope.com](mailto:info@sanhuaeurope.com)

# Thermostatic Expansion Valve

RFKA 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

- 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 SPECIFICATION

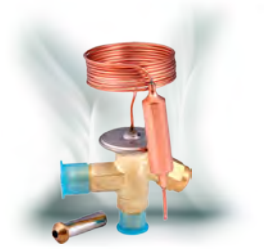
- Applicable for all common HCFC and HFC refrigerants such as: R22, R134a, R404A, R407C, R507A ...
- Medium temperature TS min./max.: -40°C/+70°C
- Max. operating pressure PS: 2,1 ... 3,5 MPa (21 ... 35 bar)
- Installation position:
  - Preferably valve head upwards
  - Flow direction from inlet A to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

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

## TECHNICAL PARAMETERS

- RFKA series angle shape valve
- Inlet 3/8" flare connection
- Capillary tube length 1,5m
- Equalization port:
  - RFKA flare/flare type with 1/4" flare connection;
  - RFKA flare/solder type with 6mm solder connection

**Thermostatic Expansion Valve**

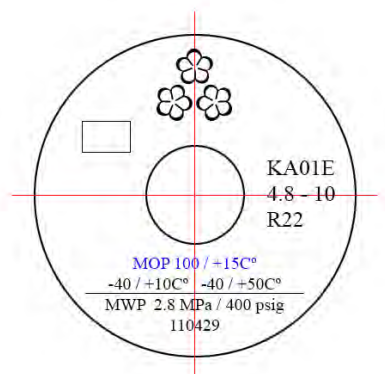


**MODEL DESIGNATION LEGEND**

Position Number	Model Designation Legend	
1	<b>Product Code</b>	<b>Product Series</b>
	RFKA	Thermostatic expansion valve
2	<b>Refrigerant</b>	<b>Description</b>
	01	R22
	02	R407C
	03	R404A / R507A
	04	R134a
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

**MODEL DESIGNATION EXAMPLE**

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





**TECHNICAL PARAMETERS**

Ref. PS [MPa]	Model Valve Body	Part Number <sup>1)</sup>	Connection type	Temp. Range <sup>2)</sup>	MOP <sup>3)</sup>	Inlet ØA	Outlet <sup>4)</sup> ØB				Ext. ØC	
			In / Out / Ext. Pressure Equal.	[°C]	[°C]	flare	Flare	Solder		Flare	Solder	
						[inch]	[inch]	[mm]	[inch]	[inch]		
R22 2,8	RFKA01-4.8-22	RFK-24001	flare / flare	+10 to -40	-	3/8	1/2	-	-	-	-	
	RFKA01E-4.8-13	RFK-24002	flare / flare / flare				1/2	-	-	1/4	-	
	RFKA01-4.8-26	RFK-24003	flare / solder				-	12	-	-	-	
	RFKA01E-4.8-06	RFK-24004	flare / solder / solder				-	12	-	-	6	
	RFKA01-4.8-07	RFK-24005	flare / solder				-	-	1/2	-	-	
	RFKA01E-4.8-08	RFK-24006	flare / solder / solder				-	-	1/2	-	1/4	
R407C 2,8	RFKA02-5.2-24	RFK-24007	flare / flare	+10 to -40	-	3/8	1/2	-	-	-	-	
	RFKA02E-5.2-20	RFK-24008	flare / flare / flare				1/2	-	-	1/4	-	
	RFKA02-5.2-27	RFK-24009	flare / solder				-	12	-	-	-	
	RFKA02E-5.2-28	RFK-24010	flare / solder / solder				-	12	-	-	6	
	RFKA02-5.2-32	RFK-24011	flare / solder				-	-	1/2	-	-	
	RFKA02E-5.2-18	RFK-24012	flare / solder / solder				-	-	1/2	-	1/4	
R404A / R507A 3,5	RFKA03-3.4-21	RFK-24013	flare / flare	+10 to -40	-	3/8	1/2	-	-	-	-	
	RFKA03E-3.4-15	RFK-24014	flare / flare / flare				1/2	-	-	1/4	-	
	RFKA03-3.4-03	RFK-24015	flare / solder				-	12	-	-	-	
	RFKA03E-3.4-02	RFK-24016	flare / solder / solder				-	12	-	-	6	
	RFKA03-3.4--09	RFK-24017	flare / solder				-	-	1/2	-	-	
	RFKA03E-3.4-10	RFK-24018	flare / solder / solder				-	-	1/2	-	1/4	
R134a 2,1	RFKA04-4.0-23	RFK-24019	flare / flare	+10 to -40	-	3/8	1/2	-	-	-	-	
	RFKA04E-4.0-19	RFK-24020	flare / flare / flare				1/2	-	-	1/4	-	
	RFKA04-4.0-29	RFK-24021	flare / solder				-	12	-	-	-	
	RFKA04E-4.0-17	RFK-24022	flare / solder / solder				-	12	-	-	6	
	RFKA04-4.0-30	RFK-24023	flare / solder				-	-	1/2	-	-	
	RFKA04E-4.0-31	RFK-24024	flare / solder / solder				-	-	1/2	-	1/4	

**Note:**

1) Extent of delivery: valve body and bulb strap

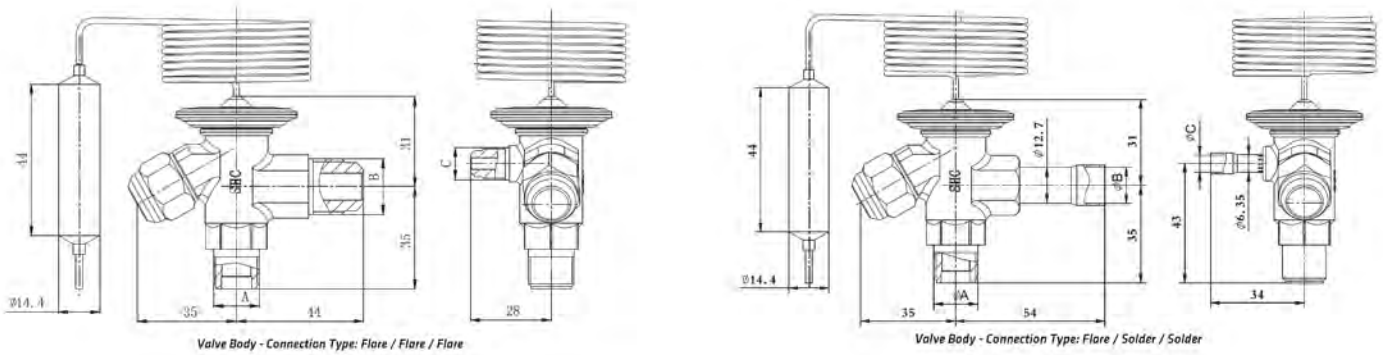
2) Different evaporation temperature range on request

3) MOP function on request

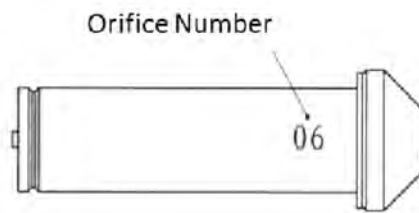
**Thermostatic Expansion Valve**



**DIMENSIONS**



**ACCESSORIES**



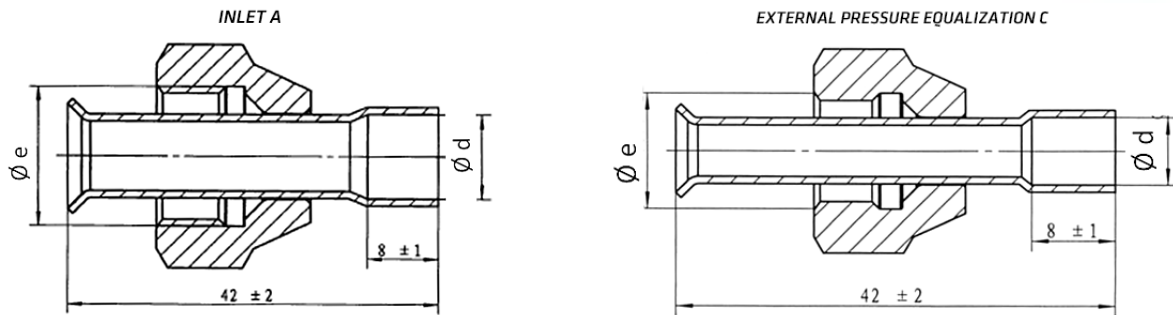
**ORIFICE**

Orifice Number	Nominal Capacity <sup>1)</sup> [ kW ]				Valve Orifice Model	Valve Orifice Part Number
	R22	R407C <sup>2)</sup>	R404A / R507A	R134a		
0X	1,04	1,09	0,76	0,62	RFKA-023-0X	RFK-24036
0	1,66	1,7	1,34	1,1	RFKA-023-00	RFK-24037
1	3,5	3,62	3,06	2,18	RFKA-023-01	RFK-24038
2	4,87	5	4,15	2,77	RFKA-023-02	RFK-24039
3	6,82	7,02	6,01	4,07	RFKA-023-03	RFK-24040
4	9,49	9,92	8,73	5,56	RFKA-023-04	RFK-24041
5	14,9	14,8	12,5	8,35	RFKA-023-05	RFK-24042
6	19,9	20,2	15,8	12,0	RFKA-023-06	RFK-24043

**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





**SOLDER ADAPTERS FOR RFKA INLET A**

Model	Part Number <sup>1)</sup>	SAE Flare Ø e	Solder Connection Ø d
RFKA-038-01	RFK-24044	3/8"	3/8"
RFKA-038-02	RFK-24045		10mm
RFKA-038-05	RFK-24048		1/4"
RFKA-038-06	RFK-24049		6mm

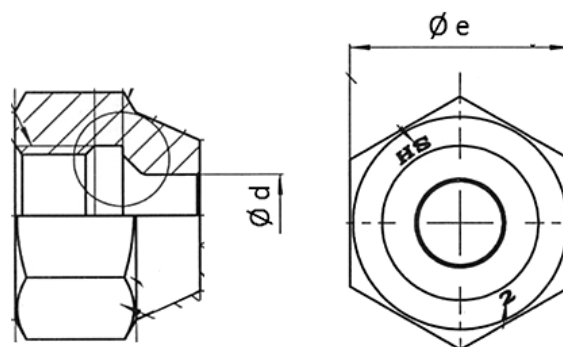
**Note:** 1) Copper pipe and flare nut are in the extent of delivery

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

Model	Part Number <sup>1)</sup>	SAE Flare Ø e	Solder Connection Ø d
RFKA-038-03	RFK-24046	1/4"	6mm
RFKA-038-04	RFK-24047		1/4"

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

**FLARE NUTS FOR RFKA**



Model	Part Number	SAE Flare	Pipe Diameter Ø d		Wrench Size Ø e
		[inch]	[mm]	[inch]	[mm]
JZF-000-011072	RFK-24050	1/4	6	1/4	17
JZF-000-011073	RFK-24051	3/8	-	3/8	22
JZF-000-011074	RFK-24052	1/2	12	1/2	24

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- Improves HVAC $\alpha$ -R system efficiency up to **20%**
- DPF $\alpha$ -VPF series from 2kW to 1400kW  
\*75kW and 1400kW available in Quarter 4
- Advanced MSS (Minimum Stable Superheat) control logic



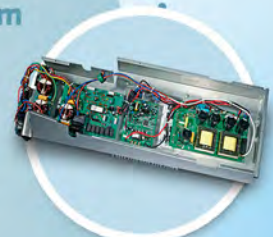
### 4 Way Reversing Valve

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- SHF series 1kW to 420 kW
- Widest range in the market with Single Body Design



### Inverter Controller for Large System

- Improves system efficiency up to **30%**
- Active Frequency Conversion Technology**
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- Improves efficiency by **30%**
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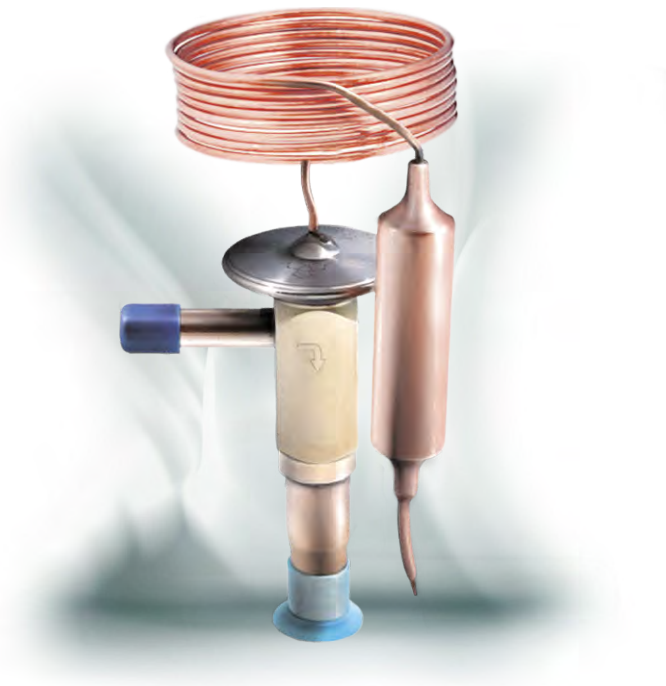


CHILLING IDEAS WORLDWIDE

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# Thermostatic Expansion Valve

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



## FEATURES

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

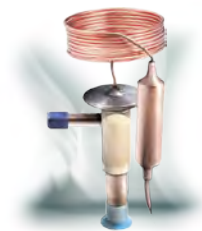
## GENERAL SPECIFICATION

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

<sup>1)</sup> Max. operating pressure is related to the used refrigerant

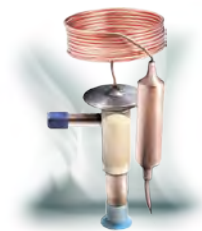
## TECHNICAL PARAMETERS

- 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
  - Metric: Inlet 6mm ODF/ Outlet 10mm ODF or Inlet 10mm ODF/ Outlet 12mm ODF
  - Imperial: Inlet 1/4" ODF/ Outlet 3/8" ODF or Inlet 3/8" ODF/ Outlet 1/2" ODF
- Equalization port available as option:
  - Metric: 6mm ODF (available for models with metric solder connections)
  - Imperial: 1/4" ODF (available for models with imperial solder connections)
- Capillary tube length 800mm



**MODEL DESIGNATION LEGEND**

Position Number	Model Designation Legend	
1	Product Code	Product Series
	RFGB	Thermostatic expansion valve with build-in orifice
2	Refrigerant	Description
	1	R22
	2	R407C
	3	R404A / R507A
3	4	R134a
	Pressure Equalization	Description
	E	External pressure equalization
4	(Omitted)	Internal pressure equalization
	Valve Size	Internal Orifice Size
5	From 1 to 5	Valve size: proportional to the orifice size and to the nominal capacity
	Valve Shape	Description
	S	Straight Version
6	A	Angle Version
	Connections Type	Description
	M6	Metric: inlet 6mm / outlet 10mm
	M10	Metric: inlet 10mm / outlet 12mm
7	2	Imperial: inlet 1/4" / outlet 3/8"
	3	Imperial: inlet 3/8" / outlet 1/2"
	Miscellaneous	Description
	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	M6	xxxx	Thermostatic expansion valve with build-in orifice
RFGB	<b>04</b>	E	3	S	M6	xxxx	Refrigerant: R134a
RFGB	04	<b>E</b>	3	S	M6	xxxx	With connection for external pressure equalization
RFGB	04	E	<b>3</b>	S	M6	xxxx	Capacity: Valve and orifice size 3
RFGB	04	E	3	<b>S</b>	M6	xxxx	Valve Shape: straight
RFGB	04	E	3	S	<b>M6</b>	xxxx	Valve pipe connections: metric inlet 6mm/outlet 10mm
RFGB	04	E	3	S	M6	<b>xxxx</b>	Digits for additional information

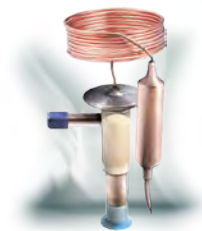
**TECHNICAL DATA**

R22			R407C <sup>3)</sup>			R404A / R507A			R134a		
PS: 2,8 MPa			PS: 2,8 MPa			PS: 3,5 MPa			PS: 2,1 MPa		
Model Name <sup>4)</sup>	Capacity		Model Name <sup>4)</sup>	Capacity		Model Name <sup>4)</sup>	Capacity		Model Name <sup>4)</sup>	Capacity	
	[USRT]	[kW]		[USRT]	[kW]		[USRT]	[kW]		[USRT]	[kW]
RFGB 01 -1 RFGB 01E-1	0,48	1,7	RFGB 02 -1 RFGB 02E-1	0,48	1,7	RFGB 03 -1 RFGB 03E-1	0,34	1,2	RFGB 04 -1 RFGB 04E-1	0,31	1,1
RFGB 01 -2 RFGB 01E-2	0,82	2,9	RFGB 02 -2 RFGB 02E-2	0,85	3,0	RFGB 03 -2 RFGB 03E-2	0,65	2,3	RFGB 04 -2 RFGB 04E-2	0,43	1,5
RFGB 01 -3 RFGB 01E-3	1,4	4,8	RFGB 02 -3 RFGB 02E-3	1,4	5,0	RFGB 03 -3 RFGB 03E-3	1,2	4,3	RFGB 04 -3 RFGB 04E-3	0,77	2,7
RFGB 01 -4 RFGB 01E-4	2,0	6,9	RFGB 02 -4 RFGB 02E-4	2,0	7,2	RFGB 03 -4 RFGB 03E-4	1,8	6,4	RFGB 04 -4 RFGB 04E-4	1,1	4,0
RFGB 01 -5 RFGB 01E-5	2,3	8,1	RFGB 02 -5 RFGB 02E-5	2,4	8,4	RFGB 03 -5 RFGB 03E-5	2,1	7,5	RFGB 04 -5 RFGB 04E-5	1,3	4,6

**Note:**

- 1) Nominal capacity valid for: - Version "S" in straight shape and version "A" in angle shape  
- Versions with metrical and imperial connections
- 2) Nominal working conditions: Condensing temperature: 38°C; evaporating temperature +4.4°C; Liquid temperature 37°C
- 3) R407C data based on dew point conditions
- 4) Model Name in this table is referred to the first 4 positions of the model designation

**Thermostatic Expansion Valve**



**MODEL LIST**

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

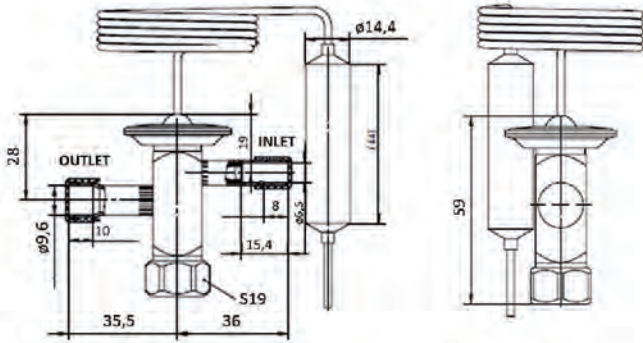
Model Name <sup>2) 3) 4) 5)</sup>				Connections Size (Solder ODF)					
Valve Body All Refrigerants	Capacity Size All Sizes	Valve Shape <sup>6)</sup> Straight / Angle	Pipe connections Metric / Imperial	Inlet		Outlet		Pressure Equal.	
				[mm]	[inch]	[mm]	[inch]	[mm]	[inch]
RFGB 01 - RFGB 02 - RFGB 03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

**Note:**

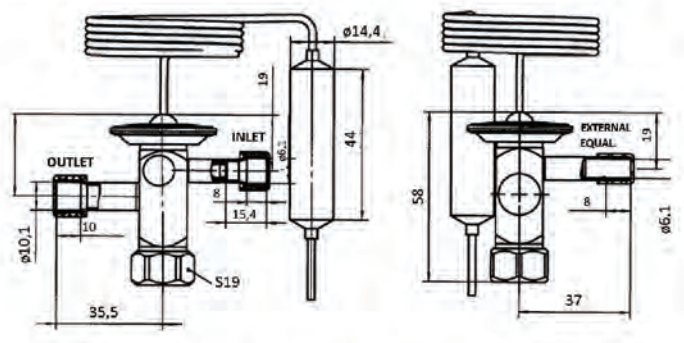
- 1) Different evaporation temperature range on request
- 2) Extent of delivery: valve body and bulb strap
- 3) MOP function on request
- 4) Delivery time on request
- 5) Model Name in this table is referred to the first 6 positions of the model designation
- 6) Superheat : - Straight version "S" with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



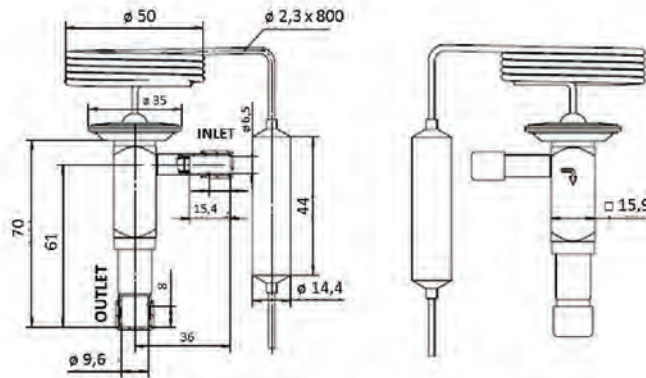
**DIMENSIONS**



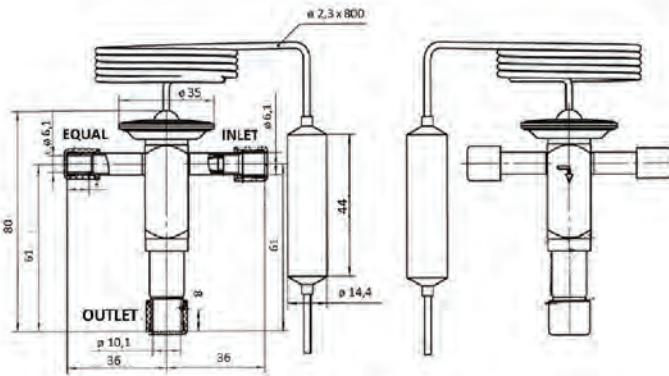
*Straight Shape with Internal Pressure Equalization*



*Straight Shape with External Pressure Equalization*



*Angle Shape with Internal Pressure Equalization*



*Angle Shape with External Pressure Equalization*



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Certificate of registration  
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**BEST SUPPLIER  
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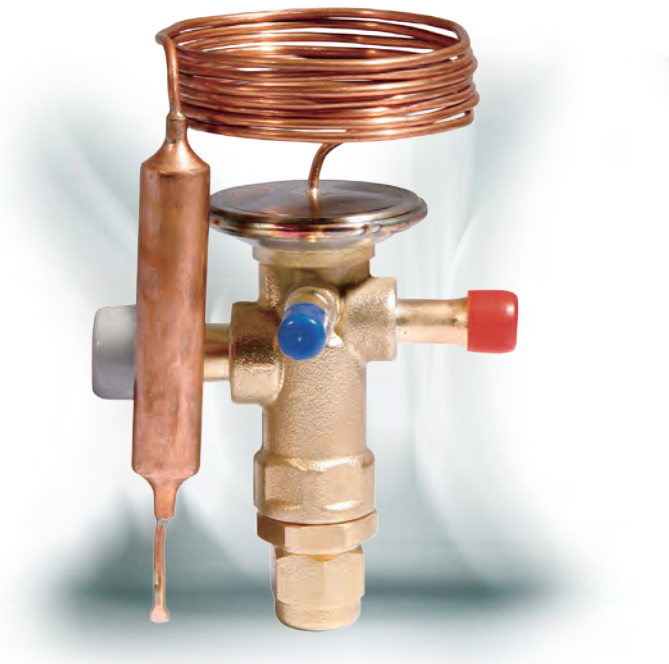
**B/S/H/**





# Thermostatic Expansion Valve

RFGD 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 and HFC refrigerants such as: R22, R134a, R404A, R407C, R410A, R507
- Ambient temperature min./max.: -35/+55°C
- Medium temperature TS min./max.: -40°C / +70°C  
-60°C / +70°C
- Max. operating pressure PS: 2,1 ... 4,5 MPa (21 ... 45 bar)<sup>1)</sup>
- Installation position: - Preferably valve head upwards  
- Main flow direction from inlet A to outlet B
- Certifications: UL/CSA and PED declaration

<sup>1)</sup> Max. operating pressure is related to the used refrigerant

**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
  - Metric: Inlet 10mm ODF/ Outlet 16mm ODF or Inlet 12mm ODF/ Outlet 22mm ODF or Inlet 16mm ODF/ Outlet 22mm ODF
  - 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
- RFGD valves are available with 3 different temperature ranges:
  - from -40°C to +10°C
  - from -40°C to -5°C
  - from -60°C to -25°C
- Equalization port available as option:
  - Metric: 6mm ODF (available for models with metric solder connections)
  - Imperial: 1/4" ODF (available for models with imperial solder connections)
- Capillary tube length 1500mm as standard. Different length customizable on request.
- Standard MOP values:
  - T. range -40°C to +10°C: MOP: +15°C or MOP not present
  - T. range -40°C to -5°C: MOP: 0°C
  - T. range -60°C to -25°C: MOP: -20°C

**MODEL DESIGNATION LEGEND**

Position Number	Model Designation Legend	
1	<b>Product Code</b>	<b>Product Series</b>
	RFGD	Thermostatic expansion valve with build-in orifice
2	<b>Refrigerant</b>	<b>Description</b>
	1	R22
	2	R407C
	3	R404A / R507
	4	R134a
	5	R410A
3	<b>Pressure Equalization</b>	<b>Description</b>
	E	External pressure equalization
	(Omitted)	Internal pressure equalization
4	<b>Valve Size</b>	<b>Internal Orifice Size</b>
	From 1 to 6	Valve size: proportional to the orifice size and to the nominal capacity
5	<b>Connections Type</b>	<b>Description</b>
	M10	Metric: inlet 10mm / outlet 16mm
	M12	Metric: inlet 12mm / outlet 22mm
	M16	Metric: inlet 16mm / outlet 22mm
	3	Imperial: inlet 3/8" / outlet 5/8"
	4	Imperial: inlet 1/2" / outlet 7/8"
	5	Imperial: inlet 5/8" / outlet 7/8"
6	<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	
<b>RFGD</b>	04	E	3	M16	xxxx	Thermostatic expansion valve with build-in orifice
RFGD	<b>04</b>	E	3	M16	xxxx	Refrigerant: R134a
RFGD	04	<b>E</b>	3	M16	xxxx	With connection for external pressure equalization
RFGD	04	E	<b>3</b>	M16	xxxx	Capacity: Valve and orifice size 3
RFGD	04	E	3	<b>M16</b>	xxxx	Valve pipe connections: metric inlet 16mm/outlet 22mm
RFGD	04	E	3	M16	<b>xxxx</b>	Digits for additional information

**TECHNICAL DATA**

*Nominal Capacities<sup>1</sup>*

R22			R407C <sup>2)</sup>			R404A / R507A			R134a			R410A		
PS: 2,8 MPa			PS: 2,8 MPa			PS: 3,5 MPa			PS: 2,1 MPa			PS: 4,5 MPa		
Model Name <sup>3)</sup>	Capacity		Model Name <sup>3)</sup>	Capacity		Model Name <sup>3)</sup>	Capacity		Model Name <sup>3)</sup>	Capacity		Model Name <sup>3)</sup>	Capacity	
	[USRT]	[kW]		[USRT]	[kW]		[USRT]	[kW]		[USRT]	[kW]		[USRT]	[kW]
RFGD 01-1	3,0	10,6	RFGD 02-1	3,1	10,9	RFGD 03-1	2,0	7,0	RFGD 04-1	1,8	6,3	RFGD 05-1	3,5	12,3
RFGD 01E-1			RFGD 02E-1			RFGD 03E-1			RFGD 04E-1			RFGD 05E-1		
RFGD 01-2	4,0	14,1	RFGD 02-2	4,2	14,8	RFGD 03-2	2,8	9,8	RFGD 04-2	2,5	8,8	RFGD 05-2	4,5	15,8
RFGD 01E-2			RFGD 02E-2			RFGD 03E-2			RFGD 04E-2			RFGD 05E-2		
RFGD 01-3	6,0	21,1	RFGD 02-3	6,3	22,2	RFGD 03-3	4,2	14,8	RFGD 04-3	3,6	12,7	RFGD 05-3	7,0	24,6
RFGD 01E-3			RFGD 02E-3			RFGD 03E-3			RFGD 04E-3			RFGD 05E-3		
RFGD 01-4	7,5	26,4	RFGD 02-4	8,1	28,5	RFGD 03-4	5,4	19,0	RFGD 04-4	4,6	16,2	RFGD 05-4	8,6	30,2
RFGD 01E-4			RFGD 02E-4			RFGD 03E-4			RFGD 04E-4			RFGD 05E-4		
RFGD 01-5	9,0	31,7	RFGD 02-5	9,4	33,1	RFGD 03-5	6,4	22,5	RFGD 04-5	5,5	19,3	RFGD 05-5	10,6	37,3
RFGD 01E-5			RFGD 02E-5			RFGD 03E-5			RFGD 04E-5			RFGD 05E-5		
RFGD 01-6	11,0	38,7	RFGD 02-6	11,7	41,1	RFGD 03-6	7,8	27,4	RFGD 04-6	6,8	23,9	RFGD 05-6	12,8	45,0
RFGD 01E-6			RFGD 02E-6			RFGD 03E-6			RFGD 04E-6			RFGD 05E-6		

**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
- 2) R407C data based on dew point conditions
- 3) Model Name in this table is referred to the first 4 positions of the model designation



**MODEL LIST (WITHOUT INTERNAL EQUALIZATION)**

Model Name										Temperature Range			
Ref.	Valve Body	Capacity Size All Sizes	Pipe connections Metric / Imperial	Inlet		Outlet		Pressure Equal.		-40°C to +10°C		-40°C to -5°C	-60°C to -20°C
				[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	No MOP	MOP: +15°C	MOP: 0°C	MOP: -20°C
R22	RFGD 01	1	M10	10	-	16	-	-	-	O.R.	O.R.	O.R.	O.R.
		2	M12	12	-	22	-	-	-	O.R.	O.R.	O.R.	O.R.
		3	M16	16		22		-	-	O.R.	O.R.	O.R.	O.R.
		4	3	-	3/8	-	5/8	-	-	O.R.	O.R.	O.R.	O.R.
		5	4	-	1/2	-	7/8	-	-	O.R.	O.R.	O.R.	O.R.
		6	5		5/8		7/8	-	-	O.R.	O.R.	O.R.	O.R.
R407C	RFGD 02	1	M10	10	-	16	-	-	-	O.R.	O.R.	O.R.	O.R.
		2	M12	12	-	22	-	-	-	O.R.	O.R.	O.R.	O.R.
		3	M16	16		22		-	-	O.R.	O.R.	O.R.	O.R.
		4	3	-	3/8	-	5/8	-	-	O.R.	O.R.	O.R.	O.R.
		5	4	-	1/2	-	7/8	-	-	O.R.	O.R.	O.R.	O.R.
		6	5		5/8		7/8	-	-	O.R.	O.R.	O.R.	O.R.
R404A / R507	RFGD 03	1	M10	10	-	16	-	-	-	O.R.	O.R.	O.R.	O.R.
		2	M12	12	-	22	-	-	-	O.R.	O.R.	O.R.	O.R.
		3	M16	16		22		-	-	O.R.	O.R.	O.R.	O.R.
		4	3	-	3/8	-	5/8	-	-	O.R.	O.R.	O.R.	O.R.
		5	4	-	1/2	-	7/8	-	-	O.R.	O.R.	O.R.	O.R.
		6	5		5/8		7/8	-	-	O.R.	O.R.	O.R.	O.R.
R134a	RFGD 04	1	M10	10	-	16	-	-	-	O.R.	O.R.	O.R.	O.R.
		2	M12	12	-	22	-	-	-	O.R.	O.R.	O.R.	N.A.
		3	M16	16		22		-	-	O.R.	O.R.	O.R.	N.A.
		4	3	-	3/8	-	5/8	-	-	O.R.	O.R.	O.R.	N.A.
		5	4	-	1/2	-	7/8	-	-	O.R.	O.R.	O.R.	N.A.
		6	5		5/8		7/8	-	-	O.R.	O.R.	O.R.	N.A.
R410A	RFGD 05	1	M10	10	-	16	-	-	-	O.R.	O.R.	O.R.	N.A.
		2	M12	12	-	22	-	-	-	O.R.	O.R.	O.R.	N.A.
		3	M16	16		22		-	-	O.R.	O.R.	O.R.	N.A.
		4	3	-	3/8	-	5/8	-	-	O.R.	O.R.	O.R.	N.A.
		5	4	-	1/2	-	7/8	-	-	O.R.	O.R.	O.R.	N.A.
		6	5		5/8		7/8	-	-	O.R.	O.R.	O.R.	N.A.

**Note:** 1) Extent of delivery: valve body and bulb strap  
 2) O.R.: On Request  
 3) N.A.: Not Available



**MODEL LIST (WITH EXTERNAL EQUALIZATION)**

Model Name										Temperature Range			
Ref.	Valve Body	Capacity Size All Sizes	Pipe connections Metric / Imperial	Inlet		Outlet		Pressure Equal.		-40°C to +10°C		-40°C to -5°C	-60°C to -20°C
				[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	No MOP	MOP: +15°C	MOP: 0°C	MOP: -20°C
R22	RFGD 01E	1	M10	10	-	16	-	-	-	O.R.	O.R.	O.R.	O.R.
		2	M12	12	-	22	-	-	-	O.R.	O.R.	O.R.	O.R.
		3	M16	16		22		-	-	O.R.	O.R.	O.R.	O.R.
		4	3	-	3/8	-	5/8	-	-	O.R.	O.R.	O.R.	O.R.
		5	4	-	1/2	-	7/8	-	-	O.R.	O.R.	O.R.	O.R.
		6	5		5/8		7/8	-	-	O.R.	O.R.	O.R.	O.R.
R407C	RFGD 02E	1	M10	10	-	16	-	-	-	STD	O.R.	O.R.	O.R.
		2	M12	12	-	22	-	-	-	STD	O.R.	O.R.	O.R.
		3	M16	16		22		-	-	STD	O.R.	O.R.	O.R.
		4	3	-	3/8	-	5/8	-	-	STD	O.R.	O.R.	O.R.
		5	4	-	1/2	-	7/8	-	-	STD	O.R.	O.R.	O.R.
		6	5		5/8		7/8	-	-	STD	O.R.	O.R.	O.R.
R404A / R507	RFGD 03E	1	M10	10	-	16	-	-	-	STD	O.R.	O.R.	O.R.
		2	M12	12	-	22	-	-	-	STD	O.R.	O.R.	O.R.
		3	M16	16		22		-	-	STD	O.R.	O.R.	O.R.
		4	3	-	3/8	-	5/8	-	-	STD	O.R.	O.R.	O.R.
		5	4	-	1/2	-	7/8	-	-	STD	O.R.	O.R.	O.R.
		6	5		5/8		7/8	-	-	STD	O.R.	O.R.	O.R.
R134a	RFGD 04E	1	M10	10	-	16	-	-	-	STD	O.R.	O.R.	O.R.
		2	M12	12	-	22	-	-	-	STD	O.R.	O.R.	N.A.
		3	M16	16		22		-	-	STD	O.R.	O.R.	N.A.
		4	3	-	3/8	-	5/8	-	-	STD	O.R.	O.R.	N.A.
		5	4	-	1/2	-	7/8	-	-	STD	O.R.	O.R.	N.A.
		6	5		5/8		7/8	-	-	STD	O.R.	O.R.	N.A.
R410A	RFGD 05E	1	M10	10	-	16	-	-	-	STD	O.R.	O.R.	N.A.
		2	M12	12	-	22	-	-	-	STD	O.R.	O.R.	N.A.
		3	M16	16		22		-	-	STD	O.R.	O.R.	N.A.
		4	3	-	3/8	-	5/8	-	-	STD	O.R.	O.R.	N.A.
		5	4	-	1/2	-	7/8	-	-	STD	O.R.	O.R.	N.A.
		6	5		5/8		7/8	-	-	STD	O.R.	O.R.	N.A.

**Note:** 1) Extent of delivery: valve body and bulb strap  
 2) O.R.: On Request  
 3) N.A.: Not Available  
 4) STD: Standard Models available on stock (see Standard Model Table for further details)


**RFGD STANDARD RANGE**

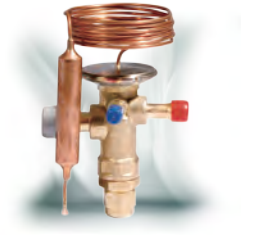
A) Models with Metric Connections

Model Name								
Ref.	MWP [ MPa ]	Valve Body	Capacity Size All Sizes	Connections IN x OUT		Pressure Equal. [mm]	Internal Code	Product Number
				Metric	[mm]			
R407C	2,8	RFGD 02E	1 -	M10	10 x 16	6	RFGD 02E-3.1-57	RFG-25007
			2 -	M12	12 x 22	6	RFGD 02E-4.2-58	RFG-25008
			3 -	M12	12 x 22	6	RFGD 02E-6.3-59	RFG-25009
			4 -	M12	12 x 22	6	RFGD 02E-8.1-60	RFG-25010
			5 -	M16	16 x 22	6	RFGD 02E-9.4-61	RFG-25011
			6 -	M16	16 x 22	6	RFGD 02E-11.7-62	RFG-25012
R404A / R507	3,5	RFGD 03E	1 -	M10	10 x 16	6	RFGD 03E-2.0-63	RFG-25013
			2 -	M12	12 x 22	6	RFGD 03E-2.8-64	RFG-25014
			3 -	M12	12 x 22	6	RFGD 03E-4.2-65	RFG-25015
			4 -	M12	12 x 22	6	RFGD 03E-5.4-66	RFG-25016
			5 -	M16	16 x 22	6	RFGD 03E-6.4-67	RFG-25017
			6 -	M16	16 x 22	6	RFGD 03E-7.8-68	RFG-25018
R134a	2,1	RFGD 04E	1 -	M10	10 x 16	6	RFGD 04E-1.8-69	RFG-25019
			2 -	M12	12 x 22	6	RFGD 04E-2.5-70	RFG-25020
			3 -	M12	12 x 22	6	RFGD 04E-3.6-71	RFG-25021
			4 -	M12	12 x 22	6	RFGD 04E-4.6-72	RFG-25022
			5 -	M16	16 x 22	6	RFGD 04E-5.5-73	RFG-25023
			6 -	M16	16 x 22	6	RFGD 04E-6.8-74	RFG-25024
R410A	4,5	RFGD 05E	1 -	M10	10 x 16	6	RFGD 05E-3.5-75	RFG-25025
			2 -	M12	12 x 22	6	RFGD 05E-4.5-76	RFG-25026
			3 -	M12	12 x 22	6	RFGD 05E-7.0-77	RFG-25027
			4 -	M12	12 x 22	6	RFGD 05E-8.6-78	RFG-25028
			5 -	M16	16 x 22	6	RFGD 05E-10.6-79	RFG-25029
			6 -	M16	16 x 22	6	RFGD 05E-12.8-80	RFG-25030

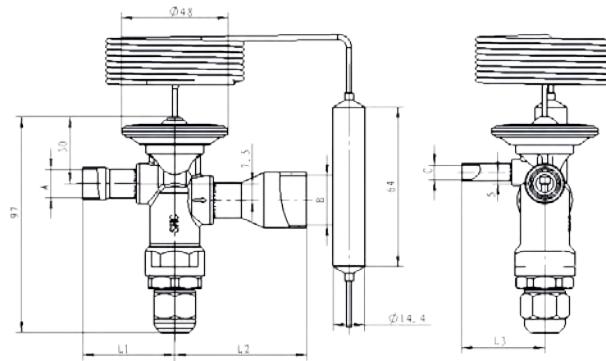

**RFGD STANDARD RANGE**

B) Models with Imperial Connections

Model Name								
Ref.	MWP [ MPa ]	Valve Body	Capacity Size All Sizes	Connections IN x OUT		Pressure Equal.	Product Number	Product Number
				Imperial	[inch]	[inch]		
R407C	2,8	RFGD 02E	1 -	3	3/8 x 5/8	1/4	RFGD 02E-3.1-33	RFG-25037
			2 -	4	1/2 x 7/8	1/4	RFGD 02E-4.2-34	RFG-25038
			3 -	4	1/2 x 7/8	1/4	RFGD 02E-6.3-35	RFG-25039
			4 -	4	1/2 x 7/8	1/4	RFGD 02E-8.1-36	RFG-25040
			5 -	5	5/8 x 7/8	1/4	RFGD 02E-9.4-37	RFG-25041
			6 -	5	5/8 x 7/8	1/4	RFGD 02E-11.7-38	RFG-25042
R404A / R507	3,5	RFGD 03E	1 -	3	3/8 x 5/8	1/4	RFGD 03E-2.0-39	RFG-25043
			2 -	4	1/2 x 7/8	1/4	RFGD 03E-2.8-40	RFG-25044
			3 -	4	1/2 x 7/8	1/4	RFGD 03E-4.2-41	RFG-25045
			4 -	4	1/2 x 7/8	1/4	RFGD 03E-5.4-42	RFG-25046
			5 -	5	5/8 x 7/8	1/4	RFGD 03E-6.4-43	RFG-25047
			6 -	5	5/8 x 7/8	1/4	RFGD 03E-7.8-44	RFG-25048
R134a	2,1	RFGD 04E	1 -	3	3/8 x 5/8	1/4	RFGD 04E-1.8-01	RFG-25049
			2 -	4	1/2 x 7/8	1/4	RFGD 04E-2.5-02	RFG-25050
			3 -	4	1/2 x 7/8	1/4	RFGD 04E-3.6-03	RFG-25051
			4 -	4	1/2 x 7/8	1/4	RFGD 04E-4.6-04	RFG-25052
			5 -	5	5/8 x 7/8	1/4	RFGD 04E-5.5-49	RFG-25053
			6 -	5	5/8 x 7/8	1/4	RFGD 04E-6.8-32	RFG-25054
R410A	4,5	RFGD 05E	1 -	3	3/8 x 5/8	1/4	RFGD 05E-3.5-22	RFG-25055
			2 -	4	1/2 x 7/8	1/4	RFGD 05E-4.5-23	RFG-25056
			3 -	4	1/2 x 7/8	1/4	RFGD 05E-7.0-24	RFG-25057
			4 -	4	1/2 x 7/8	1/4	RFGD 05E-8.6-25	RFG-25058
			5 -	5	5/8 x 7/8	1/4	RFGD 05E-10.6-27	RFG-25059
			6 -	5	5/8 x 7/8	1/4	RFGD 05E-12.8-26	RFG-25060



**DIMENSIONS**



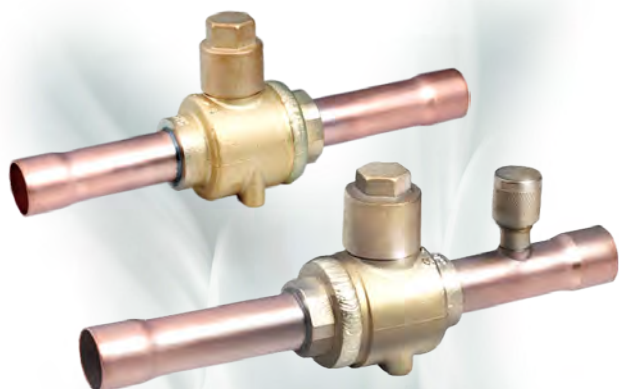
**Note:** The drawing represents a model with External Pressure Equalization

Overall Dimensions			
Orifice Size	L1 (mm)	L2 (mm)	L3 (mm)
1	41.5	59.5	37.5
2	41.5	59.5	37.5
3	41.5	59.5	37.5
4	41.5	59.5	37.5
5	41.5	59.5	37.5
6	41.5	59.5	37.5



# 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
- OPTIONAL WITH REINFORCED SPRING
- 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 SPECIFICATION

- Applicable for all common HCFC and HFC refrigerants such as: R22, R134a, R404A, R407C, R410A, R507A ...
- 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



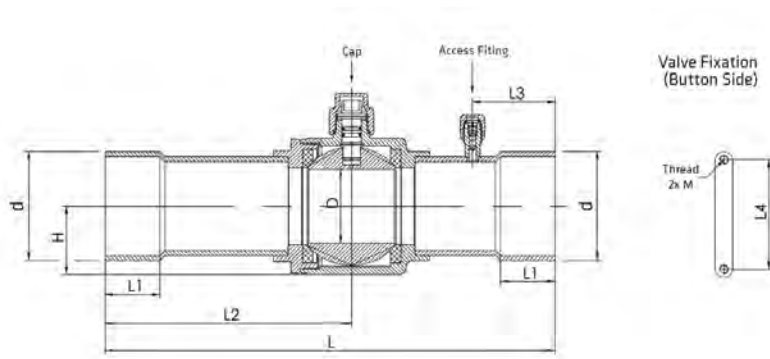
**GENERAL CHARACTERISTICS**

Without Access Fitting		Connections Ø d ODF		Kv	Wrench Size Cap	PED category	With Access Fitting	
Model	Part Number	[inch]	[mm]	[m <sup>3</sup> /h]	[mm]		Model	Part Number
SBV(M)-A2YHSY-2-S	SBV-13001	-	6	1,9	14	3.3	SBV(M)-JA2YHSY-2-S	SBV-13019
SBV(M)-A2YHSY-1-S	SBV-13002	1/4	-	1,9	14	3.3	SBV(M)-JA2YHSY-1-S	SBV-13020
SBV(M)-A3YHSY-2-S	SBV-13037	3/8	-	5,5	14	3.3	SBV(M)-JA3YHSY-2-S	SBV-13039
SBV(M)-A3YHSY-1-S	SBV-13003	-	10	5,5	14	3.3	SBV(M)-JA3YHSY-1-S	SBV-13021
SBV(M)-A4YHSY-2-S	SBV-13004	-	12	10,2	14	3.3	SBV(M)-JA4YHSY-2-S	SBV-13022
SBV(M)-A4YHSY-1-S	SBV-13005	1/2	-	10,2	14	3.3	SBV(M)-JA4YHSY-1-S	SBV-13023
SBV(M)-A5YHSY-2-S	SBV-13006	-	15	13,2	14	3.3	SBV(M)-JA5YHSY-2-S	SBV-13024
SBV(M)-A5YHSY-1-S	SBV-13007	5/8	16	13,8	14	3.3	SBV(M)-JA5YHSY-1-S	SBV-13025
SBV(M)-A6YHSY-2-S	SBV-13008	-	18	19,5	17	3.3	SBV(M)-JA6YHSY-2-S	SBV-13026
SBV(M)-A6YHSY-1-S	SBV-13009	3/4	-	19,5	17	3.3	SBV(M)-JA6YHSY-1-S	SBV-13027
SBV(M)-A7YHSY-1-S	SBV-13010	7/8	22	28,0	17	3.3	SBV(M)-JA7YHSY-1-S	SBV-13028
SBV(M)-A9YHSY-2-S	SBV-13011	-	28	51,5	17	3.3	SBV(M)-JA9YHSY-2-S	SBV-13029
SBV(M)-A9YHSY-1-S	SBV-13012	1 1/8	-	51,5	17	3.3	SBV(M)-JA9YHSY-1-S	SBV-13030
SBV(M)-A11YHSY-1-S	SBV-13013	1 3/8	35	80,0	17	I	SBV(M)-JA11YHSY-1-S	SBV-13031
SBV(M)-A13YHSY-2-S	SBV-13038	1 5/8	-	119,8	17	I	SBV(M)-JA13YHSY-2-S	SBV-13040
SBV(M)-A13YHSY-1-S	SBV-13014	-	42	119,8	17	I	SBV(M)-JA13YHSY-1-S	SBV-13032
SBV(M)-A17YHSY-1-S	SBV-13015	2 1/8	54	225	19	I	SBV(M)-JA17YHSY-1-S	SBV-13033
SBV(M)-A19YHSY-1-S	SBV-13016	-	64	225	19	I	SBV(M)-JA19YHSY-1-S	SBV-13034
SBV(M)-A21YHSY-2-S	SBV-13017	2 5/8	-	305	19	I	SBV(M)-JA21YHSY-2-S	SBV-13035
SBV(M)-A25YHSY-2-S	SBV-13018	3 1/8	80	635	24	I	SBV(M)-JA25YHSY-2-S	SBV-13036
SBV(M)-A29YHSY-1-S	SBV-13041	3 5/8	92	805	26	I	SBV(M)-JA29YHSY-1-S	SBV-13043
SBV(M)-A33YHSY-2-S	SBV-13046	4 1/8	105	950	32	I	SBV(M)-JA33YHSY-2-S	SBV-13045
SBV(M)-A34YHSY-1-S	SBV-13042	4 1/4	108	950	32	I	SBV(M)-JA34YHSY-1-S	SBV-13044

**Note:** SBV model with connection size 3-1/2" (89mm) available on request



**DIMENSIONS & WEIGHT**



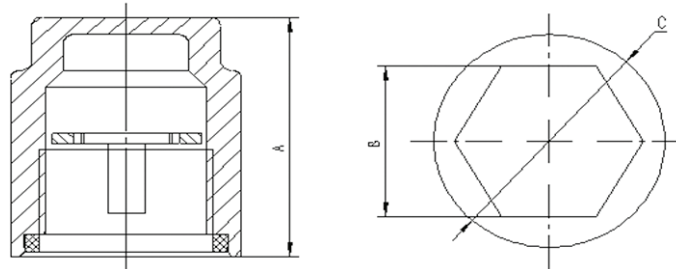
Part Number		L	L1	L2	L3 <sup>1)</sup>	L4	D	H	M	Weight
Without access fitting	With Access Fitting	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
SBV-13001	SBV-13019	132	8	68	31	22	14	16	M4 x 0,7	0,28
SBV-13002	SBV-13020	132	8	68	31	22	14	16	M4 x 0,7	0,28
SBV-13037	SBV-13039	132	8	68	31	22	14	16	M4 x 0,7	0,29
SBV-13003	SBV-13021	132	8	68	31	22	14	16	M4 x 0,7	0,29
SBV-13004	SBV-13022	160	10	85	31	22	14	16	M4 x 0,7	0,30
SBV-13005	SBV-13023	160	10	85	31	22	14	16	M4 x 0,7	0,30
SBV-13006	SBV-13024	160	12	85	31	22	14	16	M4 x 0,7	0,30
SBV-13007	SBV-13025	160	12	85	31	22	14	16	M4 x 0,7	0,30
SBV-13008	SBV-13026	185	14	99	37	30	19	20	M4 x 0,7	0,51
SBV-13009	SBV-13027	185	14	99	37	30	19	20	M4 x 0,7	0,51
SBV-13010	SBV-13028	185	17	99	37	30	19	20	M4 x 0,7	0,52
SBV-13011	SBV-13029	208	20	112	44	38	25	25	M4 x 0,7	0,73
SBV-13012	SBV-13030	208	20	112	44	38	25	25	M4 x 0,7	0,73
SBV-13013	SBV-13031	251	25	136	44	48	32	31	M6 x 1,0	1,42
SBV-13038	SBV-13040	281	29	151	56	55	38	35	M6 x 1,0	1,90
SBV-13014	SBV-13032	281	29	151	56	55	38	35	M6 x 1,0	1,90
SBV-13015	SBV-13033	305	34	167	56	74	50	46	M6 x 1,0	3,74
SBV-13016	SBV-13034	305	34	167	70	74	50	46	M6 x 1,0	3,79
SBV-13017	SBV-13035	305	37	167	56	74	60	56	M6 x 1,0	6,08
SBV-13018	SBV-13036	378	42	186,2	80	90	70	63	M6 x 1,0	8,81
SBV-13041	SBV-13043	422,7	42	207,5	75	108	80	75	M6 x 1,0	11,32
SBV-13046	SBV-13045	423	42	210,0	75	148	95	91	M6 x 1,0	19,94
SBV-13042	SBV-13044	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	Part Number	Applicable for SBV models with:		Cap Nut	Dimensions mm		
		Inch connections:	Metric connections:		A	B	C
SK01	SBV-13101	1" 1/8 - 1" 3/8	28mm - 35mm	M18X1-6H	27,0	H17	Ø 24
SK02	SBV-13102	1" 5/8	42mm	M22X1-6H	27,5	H17	Ø 26
SK03	SBV-13103	2" 1/8 - 2" 5/8	54mm - 64mm	M22X1-6H	27,5	H19	Ø 28
SK04	SBV-13104	3" 1/8 - 3" 5/8	80mm - 92mm	M26X1-6H	29,5	H24	Ø 32
SK05	SBV-13105	4" 1/8 - 4" 1/4	105mm - 108mm	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: 4,5 MPa (45 bar)
- Installation position: liquid, suction and discharge line in all directions
- Certification: PED declaration.



**GENERAL CHARACTERISTICS**

Model	Part Number <sup>1)</sup>	Connection Ø d ODF		Kv	Wrench Size Cap	PED Category
		[inch]	[mm]	[m <sup>3</sup> /h]	[mm]	
CBV02-002	CBV-67001	-	6	1,9	H14	3.3
CBV02-001	CBV-67002	1/4	-	1,9	H14	3.3
CBV03-001	CBV-67003	3/8	-	5,5	H14	3.3
CBV03-002	CBV-67004	-	10	5,5	H14	3.3
CBV04-002	CBV-67005	-	12	10,2	H14	3.3
CBV04-001	CBV-67006	1/2	-	10,2	H14	3.3
CBV05-001	CBV-67007	5/8	16	13,8	H14	3.3
CBV06-002	CBV-67008	-	18	19,5	H17	3.3
CBV06-001	CBV-67009	3/4	-	19,5	H17	3.3
CBV07-001	CBV-67010	7/8	22	28,0	H17	3.3
CBV09-002	CBV-67011	-	28	51,5	H17	3.3
CBV09-001	CBV-67012	1 1/8	-	51,5	H17	3.3
CBV11-001	CBV-67013	1 3/8	35	80,0	H17	I
CBV13-002	CBV-67014	1 5/8	-	119,8	H17	I
CBV13-003	CBV-67015	-	42	119,8	H17	I
CBV17-001	CBV-67016	2 1/8	54	225,0	H19	I

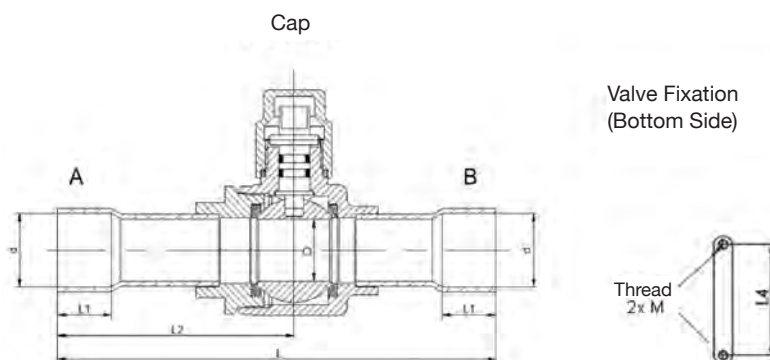
**Note:** 1) Extent of delivery: valve body and standard cap

# CBV SERIES

## Ball Valve



### DIMENSIONS & WEIGHT



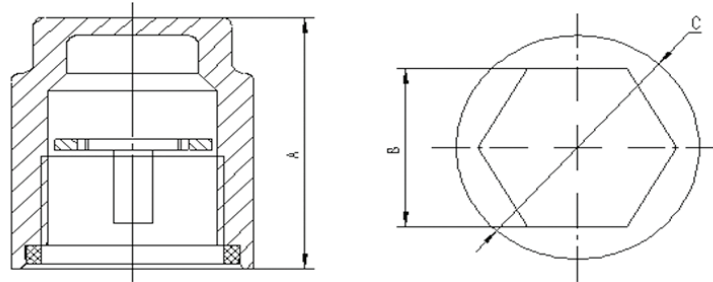
Model	Part Number	L	L1	L2	L4	D	H	M	Weight
CBV02-002	CBV-67001	132	8	68	22	14	16	M4 x 0,7	0,28
CBV02-001	CBV-67002	132	8	68	22	14	16	M4 x 0,7	0,28
CBV03-001	CBV-67003	132	8	68	22	14	16	M4 x 0,7	0,29
CBV03-002	CBV-67004	132	8	68	22	14	16	M4 x 0,7	0,29
CBV04-002	CBV-67005	160	10	85	22	14	16	M4 x 0,7	0,30
CBV04-001	CBV-67006	160	10	85	22	14	16	M4 x 0,7	0,30
CBV05-001	CBV-67007	160	12	85	22	14	16	M4 x 0,7	0,30
CBV06-002	CBV-67008	185	14	99	30	19	20	M4 x 0,7	0,51
CBV06-001	CBV-67009	185	14	99	30	19	20	M4 x 0,7	0,51
CBV07-001	CBV-67010	185	17	99	30	19	20	M4 x 0,7	0,52
CBV09-002	CBV-67011	208	20	112	38	25	25	M4 x 0,7	0,73
CBV09-001	CBV-67012	208	20	112	38	25	25	M4 x 0,7	0,73
CBV11-001	CBV-67013	251	25	136	48	32	31	M6 x 1,0	1,42
CBV13-002	CBV-67014	281	29	151	55	38	35	M6 x 1,0	1,90
CBV13-003	CBV-67015	281	29	151	55	38	35	M6 x 1,0	1,90
CBV17-001	CBV-67016	305	34	167	74	50	46	M6 x 1,0	3,74

# CBV SERIES

## Ball Valve



### ACCESSORIES



#### Anti-Rotation Device

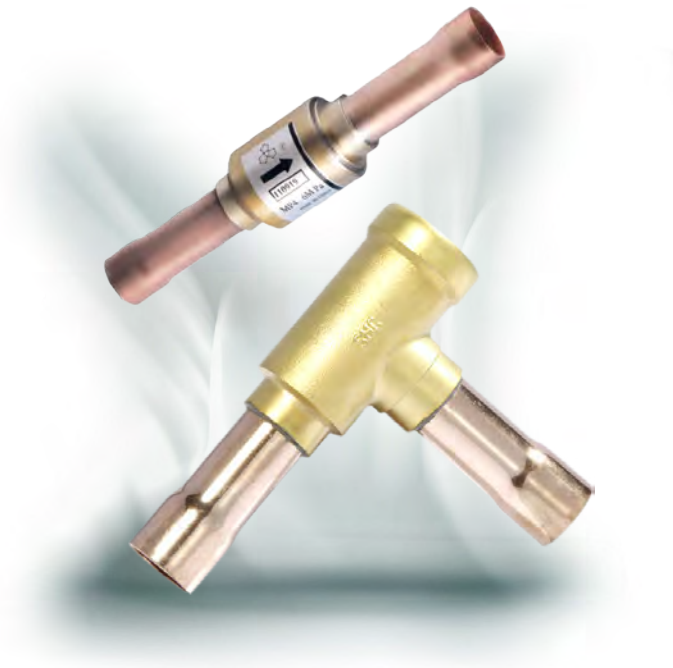
Model	Part Number <sup>1)</sup>	Applicable for CBV models with:		Cap Nut	Dimensions mm		
		Inch connections	Metric connections		A	B	C
SK01	SBV-13101	1" 1/8 - 1" 3/8	28mm - 35mm	M18X1-6H	27,0	H17	Ø 24
SK02	SBV-13102	1" 5/8	42mm	M22X1-6H	27,5	H17	Ø 26
SK03	SBV-13103	2" 1/8 - 2" 5/8	54mm - 64mm	M22X1-6H	27,5	H19	Ø 28

**Note:** 1) Extent of delivery: cap with anti-rotation device



# 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 SPECIFICATION

- Applicable for all common HCFC and 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



**GENERAL CHARACTERISTICS**

Model	Part Number	Type	Connections ODF		Kv	Min. OPD	Dimensions			PED category
			Ø d				ØD	C	E	
			[inch]	[mm]	[m³/h]	[kPa]	[mm]	[mm]	[mm]	
YCVS 5-11GSHC-1	YCV-15001	straight-way	-	6	0,56	5	5	90	18	3,3
YCVS 5-22GSHC-1	YCV-15002	straight-way	1/4	-	0,56	5	5	90	18	3,3
YCVS 8-33GSHC-1	YCV-15007	straight-way	3/8	-	1,43	5	8	110	18	3,3
YCVSH 8-33GSHC-1	YCV-15008	straight-way	3/8	-	1,43	15	8	110	18	3,3
YCVS 8-33GSHC-2	YCV-15009	straight-way	-	10	1,43	5	8	110	18	3,3
YCVSH 8-33GSHC-2	YCV-15010	straight-way	-	10	1,43	15	8	110	18	3,3
YCVS 10-33GSHC-1	YCV-15015	straight-way	-	12	2,1	5	10	130	22	3,3
YCVSH 10-33GSHC-1	YCV-15016	straight-way	-	12	2,1	15	10	130	22	3,3
YCVS 10-44GSHC-1	YCV-15017	straight-way	1/2	-	2,1	5	10	130	22	3,3
YCVSH10-44GSHC-1	YCV-15018	straight-way	1/2	-	2,1	15	10	130	22	3,3
YCVS 13-55GSHC-1	YCV-15021	straight-way	5/8	16	3,9	5	13	140	28	3,3
YCVSH 13-55GSHC-1	YCV-15022	straight-way	5/8	16	3,9	15	13	140	28	3,3
YCVS 17-55GSHC-1	YCV-15027	straight-way	-	18	5,52	5	17	165	34	3,3
YCVSH 17-55GSHC-1	YCV-15028	straight-way	-	18	5,52	15	17	165	34	3,3
YCVS 17-66GSHC-1	YCV-15029	straight-way	3/4	-	5,52	5	17	165	34	3,3
YCVSH 17-66GSHC-1	YCV-15030	straight-way	3/4	-	5,52	15	17	165	34	3,3
YCVS 17-77GSHC-1	YCV-15051	straight-way	7/8	22	5,52	5	17	165	34	3,3
YCVSH 17-77GSHC-1	YCV-15052	straight-way	7/8	22	5,52	15	17	165	34	3,3
YCVS 20-77GSHC-1	YCV-15033	L-shape	7/8	22	13,2	10	20	132	87	3,3
YCVSH 20-77GSHC-1	YCV-15034	L-shape	7/8	22	13,2	30	20	132	87	3,3
YCVS 26-88GSHC-1	YCV-15039	L-shape	-	28	19,02	10	26	196	123	3,3
YCVSH 26-88GSHC-1	YCV-15040	L-shape	-	28	19,02	30	26	196	123	3,3
YCVS 26-99GSHC-1	YCV-15041	L-shape	1 1/8	-	19,02	10	26	196	123	3,3
YCVSH 26-99GSHC-1	YCV-15042	L-shape	1 1/8	-	19,02	30	26	196	123	3,3
YCVS 31-BBGSHC-1	YCV-15045	L-shape	1 3/8	35	29,1	10	31	196	123	I
YCVSH 31-BBGSHC-1	YCV-15046	L-shape	1 3/8	35	29,1	30	31	196	123	I
YCVS 31-DDGSHC-1	YCV-15047	L-shape	1 5/8	-	29,1	10	31	196	123	I
YCVSH 31-DDGSHC-1	YCV-15048	L-shape	1 5/8	-	29,1	30	31	196	123	I
YCVS 31-DDGSHC-2	YCV-15049	L-shape	-	42	29,1	10	31	196	123	I
YCVSH 31-DDGSHC-2	YCV-15050	L-shape	-	42	29,1	30	31	196	123	I

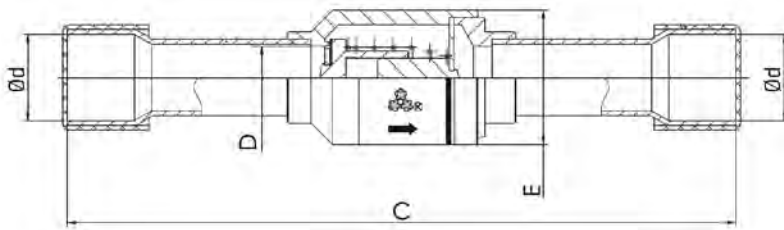
## YCV SERIES

### Check Valve Piston Type

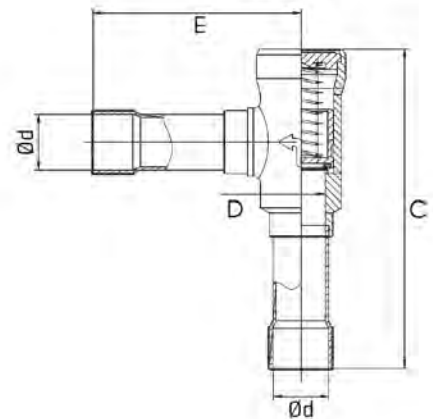


#### GENERAL CHARACTERISTICS

*Straight-way*



*L-shape*



Every 2<sup>nd</sup> home refrigerator  
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solenoid valve



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REFRIGERATION, HVAC AND HOME  
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0,16 kv

25 kv



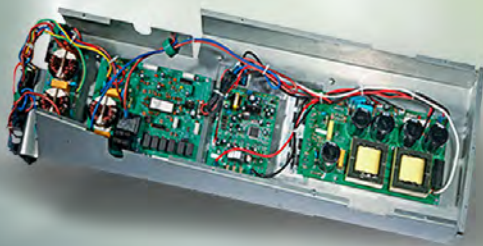
Every second A/C system  
in the world is equipped with  
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# Sight Glass

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

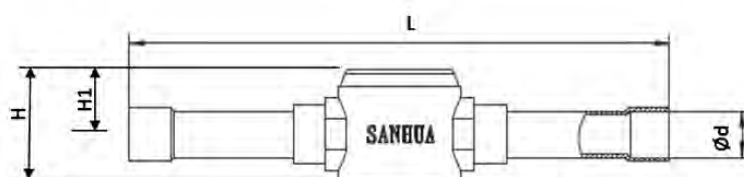
- HIGH PRECISION COLOR INDICATOR
- INDICATOR PASTED CLOSELY TO THE GLASS TO PREVENT SURFACE CONTAMINATION
- SOLID AND CORROSION RESISTANT BRASS MATERIAL
- GOOD READABILITY DUE TO HIGH CLEAR SIGHT GLASS OF WIDE ANGLE
- SEALING OF LOW CREEP PTFE TO ENSURE LEAKAGE FREE PERFORMANCE

## GENERAL SPECIFICATION

- Applicable for all common HCFC and HFC refrigerants such as: R22, R134a, R404A, R407C, R410A, R507A ...
- 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

## CHARACTERISTICS

*Version with solder connections*



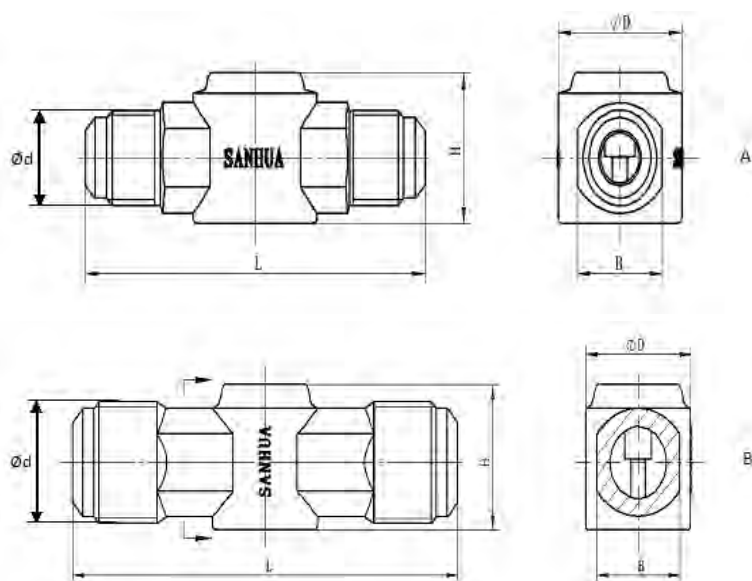


*Version with Solder Connections*

Model ODF Solder	Part Number	Connection Type	Connections ODF		Dimensions & Weight				PED Category
			Ød		L	H	H1	Weight	
			[inch]	[mm]	[mm]	[mm]	[mm]	[g]	
SYJ-A00061-000	SYJ-42001	solder	-	6	101	24	14	100	3.3
SYJ-A00040-000	SYJ-42002	solder	1/4	-	101	24	14	100	3.3
SYJ-A00060-000	SYJ-42003	solder	3/8	-	119	24	14	100	3.3
SYJ-A00101-000	SYJ-42004	solder	-	10	119	24	14	100	3.3
SYJ-A00080-000	SYJ-42005	solder	1/2	-	146	30	17	200	3.3
SYJ-A00121-000	SYJ-42006	solder	-	12	146	30	17	200	3.3
SYJ-A00100-000	SYJ-42007	solder	5/8	16	146	30	17	200	3.3
SYJ-A00120-000	SYJ-42008	solder	3/4	-	173	37	21	300	3.3
SYJ-A00140-000	SYJ-42009	solder	7/8	22	173	37	21	300	3.3

*Version with male/male Flare Connections*

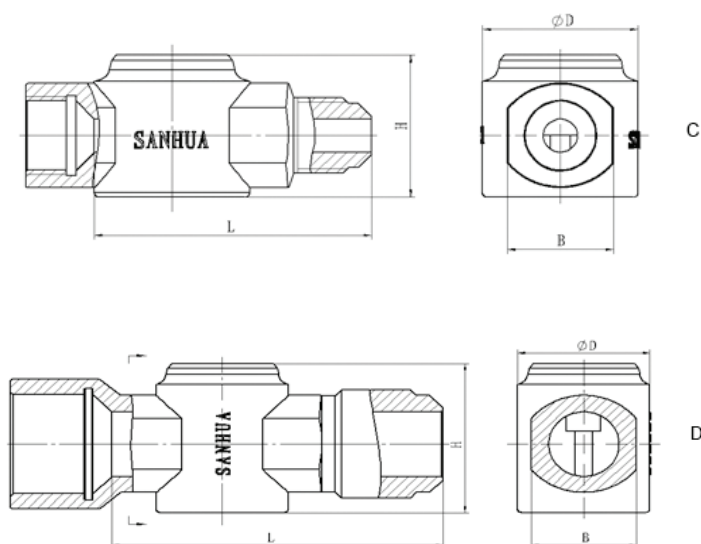
Model Flare	Part Number	Connection Type	SAE Flare	Dimensions & Weight				PED Category	Drawing
			Ød	L	H	ØD	Weight		
			[inch]	[mm]	[mm]	[mm]	[g]		
SYJ-A02040-000	SYJ-42010	flare	1/4	67	24	14	110	3.3	A
SYJ-A02060-000	SYJ-42011	flare	3/8	82	24	14	240	3.3	A
SYJ-A02080-000	SYJ-42012	flare	1/2	88	30	17	240	3.3	A
SYJ-A02100-000	SYJ-42013	flare	5/8	104	30	17	320	3.3	A
SYJ-A02120-000	SYJ-42014	flare	3/4	110	32	15	340	3.3	B



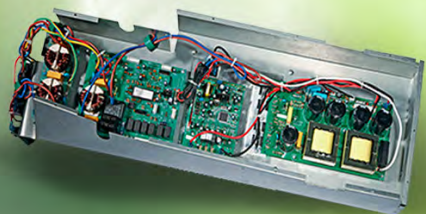


Version with male/female Flare connections

Model male/female flare	Part Number	Connection Type	SAE Flare	Dimensions & Weight					PED Category	Drawing
			Ød	L	H	ØD	B	Weight		
			[inch]	[mm]	[mm]	[mm]	[mm]	[g]		
SYJ-A02040-100	SYJ-42015	flare	1/4	46	30	32	22	200	3,3	C
SYJ-A02060-100	SYJ-42016	flare	3/8	57	30	32	22	240	3,3	C
SYJ-A02080-100	SYJ-42017	flare	1/2	59	32	30	24	250	3,3	C
SYJ-A02100-100	SYJ-42018	flare	5/8	71	37	30	24	320	3,3	D
SYJ-A02120-100	SYJ-42019	flare	3/4	75	37	30	24	330	3,3	D



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in the world is equipped with  
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CONTROLLER SOLUTIONS TO ITS  
COSTUMERS HELPING THEM TO  
IMPROVE SYSTEM EFFICIENCY BY 30%**

**ADVANCED**  
Technology & Solutions

- ✓ Improves system efficiency up to **30%**
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- ✓ Wide Range of voltage application





Moisture Indication Limits

Refrigerant	Moisture Content 25°C: PMM		
	Green/Dry	Middle Color	Yellow/Wet
R22	<30	30~90	>90
R134a	<50	50~200	>200
R404A	<15	15~90	>90
R507	<15	15~90	>90
R407C	<120	120~280	>280
R410A	<75	75~150	>150

Refrigerant	Moisture Content 40°C: PMM		
	Green/Dry	Middle Color	Yellow/Wet
R22	<45	45~130	>130
R134a	<80	80~225	>225
R404A	<30	30~140	>140
R507	<30	30~140	>140

2 out of 3 AC units are equipped  
**with a SANHUA**  
reversing valve

**ADVANCED**  
Technology & Solutions

- ✓ Improves efficiency by **5%**
- ✓ SHF series 1kW to 420 kW
- ✓ Widest range in the market with Single Body Design



YEARLY SANHUA SUPPLIES OVER 50 MILLION  
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 SPECIFICATION

- Applicable for all common HCFC and HFC refrigerants such as: R134a, R404A, R407C, R410A, R507A...
- Ambient temperature min./max.: -30°C / +55°C
- Medium temperature TS min./max.: -30 °C / +120°C
- Max. operating pressure PS: 4,5 MPa (45 bar)
- Installation position: Preferably liquid and suction line
- Certifications: UL/CSA and PED declaration

## GENERAL CHARACTERISTICS

Model	Part Number <sup>1)</sup>	Connections					Cooling capacity [ kW ]	PED Category
		ØA Flare	Ød ODF		ØI Pipe	Charge Port Flare (SAE)		
		[ inch ]	[inch]	[mm]	[mm]	[ inch ]		
SSV-A2GSHC-23	SSV-14001	7/16-20UNF	1/4	6,35	4,8	-	0,7 - 1,5	3,3
SSV-JA3GSHC-20	SSV-14002	5/8-18UNF	3/8	9,52	7,0	5/16	0,7 - 3,7	3,3
SSV-JA4GSHC-19	SSV-14003	3/4-16UNF	1/2	12,7	10	5/16	1,1 - 7,5	3,3
SSV-JA5GSHC-15	SSV-14004	7/8-14UNF	5/8	15,9	12,5	5/16	1,5 - 8,8	3,3
SSV-JA6-GSHC-13	SSV-14005	1 1/16-14UNS	3/4	19,1	16	5/16	3,7 - 5,9	3,3

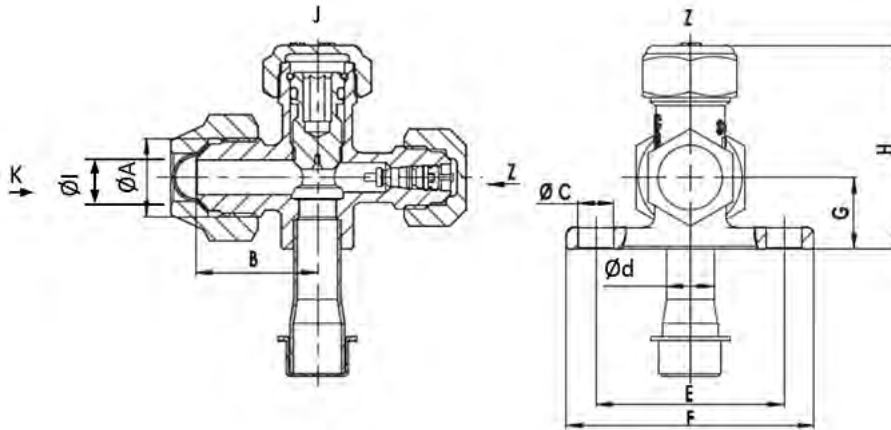
**Note:** 1) Extent of delivery:

- SSV-JA valve body with schrader valve, cap charge port, cap shut-off valve, nut pipe connection
- SSV-A valve body, cap shut-off valve, nut pipe connection, without charge port

**SSV SERIES**  
**Brass Service Valve**



**DIMENSIONS**



Model	Part Number	Dimensions [ mm ]						Wrench Size [ mm ]			
		B	ØC	E	F	G	H	Nut Pipe Connection K	Cap Shut-off Valve J	Valve <sup>1)</sup> Steam J	Cap Charge Port Z
SSV-A2GSHC-23	SSV14001	23	7,2	38	50	14	36	19	17	5	-
SSV-JA3GSHC-20	SSV14002	24,5	7,2	38	50	14,5	41	22	19	5	17
SSV-JA4GSHC-19	SSV14003	28	7,2	38	50	16	44	24	22	5	17
SSV-JA5GSHC-15	SSV14004	34	7,2	38	50	17	47	27	26	5	17
SSV-JA6-GSHC-13	SSV14005	40	7,2	44	56	23	61	32	30	5	17

**Note:** 1) Allen screw

Every 4<sup>th</sup> car is equipped  
**with a SANHUA**  
 expansion valve



**YEARLY SANHUA SUPPLIES OVER 40 MILLION THERMOSTATIC AND ELECTRONIC EXPANSION VALVES TO THE HVAC & AUTOMOTIVE INDUSTRIES WORLDWIDE**

**ADVANCED**  
 Technology & Solutions

- ✓ Improves HVAC&R system efficiency up to **20%**
- ✓ DPF&VPF series from 2kW to 1400 kW  
\*75kW and 1400kW available in Quarter 4
- ✓ Advanced MSS (Minimum Stable Superheat) control logic



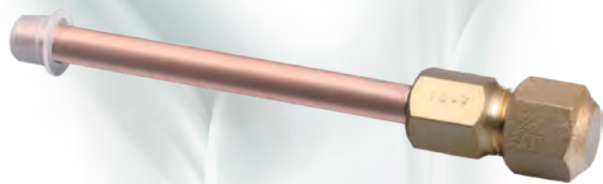
2 kW



1400kW

# 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.



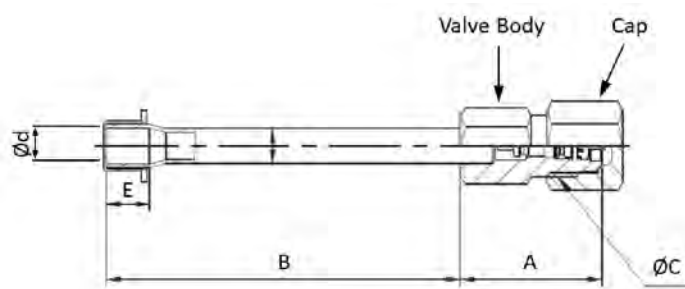
## FEATURES

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

## GENERAL SPECIFICATION

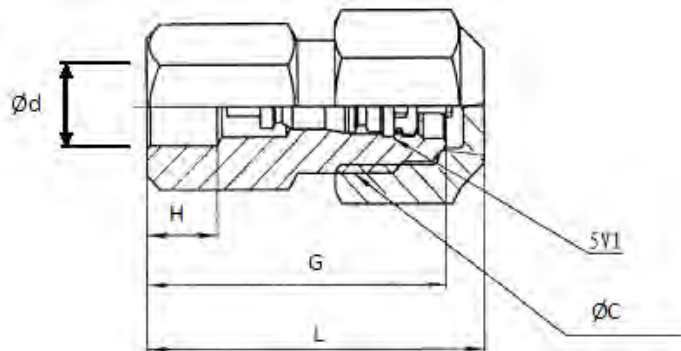
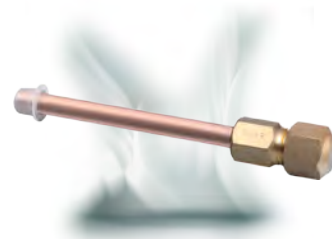
- Applicable for all common HCFC and HFC refrigerants such as: R22, R134a, R404A, R407C, R410A, R507A ...
- Ambient temperature min./max.: -30/+55°C
- Medium temperature TS min./max.: -30°C / +80°C
- Max. operating pressure PS: 4,5 MPa (45 bar)
- Installation position: liquid or suction line
- Declaration according to PED

## DIMENSIONS



Model	Part Number <sup>1)</sup>	Connections			Dimensions			Wrench Size		Refrigerant
		Solder ODF Ød		Flare UNF ØC	A	B	E	Valve Body	Cap	
		[mm]	[inch]	[inch]	[mm]			[mm]		
TCJ-2HMSZ-1	TCJ-14001	6,35	1/4	7/16-20	26	65	8	12	14	R22
TCJ-2GMS-1	TCJ-14002	6,35	1/4	1/2-20	26	65	8	14	17	R134a/R404A/R407C R410A/R507

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



Model	Part Number <sup>1)</sup>	Connections			Dimensions			Wrench Size		Refrigerant
		Solder ODF $\varnothing d$		Flare UNF $\varnothing C$	L	G	H	Valve Body	Cap	
		[mm]	[inch]	[inch]	[mm]			[mm]		
TCJ-2HLEN-1	TCJ-14003	6,35	1/4	7/16-20	29	26	6	12	14	R22
TCJ-2GLEN-2	TCJ-14004	6,35	1/4	1/2-20	29	26	6	14	17	R134a/R404A/R407C R410A/R507

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

**SANHUA is the world's largest  
producer of  
Micro-Channel Heat Exchangers**  
for Stationary HVAC&R application



**SANHUA DELIVERS OVER 1,300,000 MCH  
CONDENSERS (CO & HP) AND  
EVAPORATORS HELPING TO IMPROVE  
SYSTEM EFFICIENCY BY UP TO 30%**

**ADVANCED**  
Technology & Solutions

- ✓ Improves efficiency by **30%**
- ✓ Refrigerant Charge Reduction by **30%** Environmental Friendly
- ✓ MCH is lighter in weight, smaller in volume Compact Design



# 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 SPECIFICATION

- Applicable for all common HCFC and HFC refrigerants such as: R22, R134a, R404A, R407C, R410A, R507A ...
- 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

## TECHNICAL PARAMETERS *Desiccant Selection Table*

	Medium Type	80% 3Å desiccant and 20% active alumina	100% 3Å desiccant
Refrigerant <sup>1</sup>	HFC	Applicable	Applicable
	HCFC	Applicable	Applicable
	CFC	Applicable	Not Applicable
Oil <sup>2</sup>	Mineral oil or AB	Applicable	Applicable
	Pure POE or PAG	Applicable	Applicable
	POE or PAG with additive	Not Applicable	Applicable

**Note:** 1) For CFC system, usage of core with alumina is recommended as a strong capability to absorb acid may be needed  
2) When the systems use oil with additive, it is not recommended to use a core with alumina.

# DTG/L SERIES

## Uni-Flow Filter Driers



### Model Designation Legend

<b>1</b>	<b>Product Code</b>	<b>Filter Drier Series</b>	
	DTG	Indicates unidirectional filter drier	
<b>2</b>	<b>Filter Core</b>	<b>Structure and Material</b>	
	A	Loos core, 100%3Å desiccant	
	B	Solid core, 100%3Å desiccant	
	E	Loos core, 80% 3Å desiccant and 20% active alumina	
	F	Solid core, 80% 3Å desiccant and 20% active alumina	
<b>3</b>	<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
	41	41	672
	75	75	1229
<b>4</b>	<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	-
	<b>Connection Size</b>	<b>Pos. 5 shows "1": Solder [mm]</b>	
	06	6	
	(08) *	(5/16" version can be used e.g. DTG-B03 <b>250</b> )	
	10	10	
	12	12	
16	16		
(22) *	(7/8" version can be used e.g. DTG-B16 <b>070</b> )		
28	28		
<b>5</b>	<b>Pipe Connection</b>	<b>Type</b>	
	0	Solder with inch connections	
	1 *	Solder with metric connections	
	4	SAE flare connections	
<b>6</b>	<b>Version Number</b>	<b>Description</b>	
	901	Standard product	

**Note:** \* Solder connections which fit to metric and inch are marked with inch product codes e.g. 8 and 22mm



**MODEL DESIGNATION EXAMPLE**

Position Number						According to Model Designation Legend
1	2	3	4	5	6	
<b>DTG</b>	B	03	06	1	901	Unidirectional filter drier
DTG	<b>B</b>	03	06	1	901	Solid filter core with 100% 3Å desiccant
DTG	B	<b>03</b>	06	1	901	3 inch <sup>3</sup> internal volume
DTG	B	03	<b>06</b>	1	901	When Pos. 5 is "1": connection size 6mm
DTG	B	03	06	<b>1</b>	901	Solder connection metric
DTG	B	03	06	1	<b>901</b>	Standard product

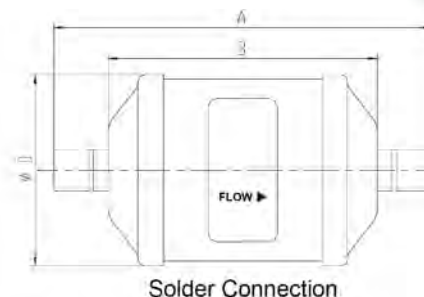
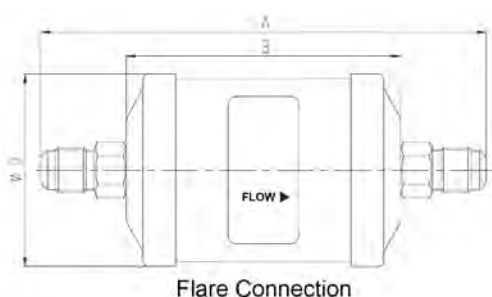
**GENERAL CHARACTERISTICS OF DTG-B FILTER - FLARE CONNECTION**

Model	Part Number	Type of Connection	Nominal Volume	Connection	Dimensions & Weight <sup>1)</sup>				PED Category
				SAE Flare	ØD	B	A	Weight	
				[inch]	[mm]	[mm]	[mm]	[g]	
DTG-B03 024-901	DTG-30001	flare	49	1/4	45	65	112,0	160	3,3
DTG-B03 034-901	DTG-30002	flare	49	3/8	45	65	125,2	160	3,3
DTG-B03 044-901	DTG-30153	flare	49	1/2	45	65	133,2	160	3,3
DTG-B05 024-901	DTG-30003	flare	82	1/4	68	76	123,0	450	3,3
DTG-B05 034-901	DTG-30004	flare	82	3/8	68	76	136,2	450	3,3
DTG-B08 024-901	DTG-30005	flare	131	1/4	68	98	145,0	550	3,3
DTG-B08 034-901	DTG-30006	flare	131	3/8	68	98	158,2	550	3,3
DTG-B08 044-901	DTG-30007	flare	131	1/2	68	98	166,2	550	3,3
DTG-B16 024-901	DTG-30008	flare	262	1/4	68	118	165,0	660	3,3
DTG-B16 034-901	DTG-30009	flare	262	3/8	68	118	178,2	660	3,3
DTG-B16 044-901	DTG-30010	flare	262	1/2	68	118	186,2	660	3,3
DTG-B16 054-901	DTG-30011	flare	262	5/8	68	118	195,4	660	3,3
DTG-B16 064-901	DTG-30012	flare	262	3/4	68	118	195,4	660	3,3
DTG-B30 034-901	DTG-30013	flare	492	3/8	80	193	253,2	1550	3,3
DTG-B30 044-901	DTG-30014	flare	492	1/2	80	193	261,2	1550	3,3
DTG-B30 054-901	DTG-30015	flare	492	5/8	80	193	270,4	1550	3,3
DTG-B30 064-901	DTG-30016	flare	492	3/4	80	193	270,4	1550	3,3
DTG-B30 074-901	DTG-30017	flare	492	7/8	80	193	283,0	1550	3,3
DTG-B41 044-901	DTG-30018	flare	672	1/2	94	194	262,2	2050	3,3
DTG-B41 054-901	DTG-30019	flare	672	5/8	94	194	271,4	2050	3,3

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

# DTG/L SERIES

## Uni-Flow Filter Driers



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

Model [inch]	Part Number [inch]	Model [mm]	Part Number [mm]	Type of connection	Nominal Volumen [cm <sup>3</sup> ]	Connection		Dimensions & Weight <sup>1)</sup>				PED category
						Solder		ØD	B	A	Weight	
						[inch]	[mm]	[mm]	[mm]	[mm]	[g]	
DTG-B03 020-901	DTG-30020	DTG-B03 061-901	DTG-30053	solder	49	1/4	6	45	65	103	160	3,3
DTG-B03 250-901	DTG-30021	DTG-B03 250-901	DTG-30021	solder	49	5/16	8	45	65	103	160	3,3
DTG-B03 030-901	DTG-30022	DTG-B03 101-901	DTG-30055	solder	49	3/8	10	45	65	103	160	3,3
DTG-B03 040-901	DTG-30023	DTG-B03 121-901	DTG-30056	solder	49	1/2	12	45	65	113	160	3,3
DTG-B05 020-901	DTG-30024	DTG-B05 061-901	DTG-30057	solder	82	1/4	6	69	76	114	450	3,3
DTG-B05 250-901	DTG-30025	DTG-B05 250-901	DTG-30025	solder	82	5/16	8	69	76	114	450	3,3
DTG-B05 030-901	DTG-30026	DTG-B05 101-901	DTG-30059	solder	82	3/8	10	69	76	114	450	3,3
DTG-B05 040-901	DTG-30027	DTG-B05 121-901	DTG-30060	solder	82	1/2	12	69	76	124	450	3,3
DTG-B05 050-901	DTG-30028	DTG-B05 161-901	DTG-30054	solder	82	5/8	16	69	76	124	450	3,3
DTG-B08 020-901	DTG-30029	DTG-B08 061-901	DTG-30061	solder	131	1/4	6	69	98	136	550	3,3
DTG-B08 250-901	DTG-30030	DTG-B08 250-901	DTG-30030	solder	131	5/16	8	69	98	136	550	3,3
DTG-B08 030-901	DTG-30031	DTG-B08 101-901	DTG-30063	solder	131	3/8	10	69	98	136	550	3,3
DTG-B08 040-901	DTG-30032	DTG-B08 121-901	DTG-30064	solder	131	1/2	12	69	98	146	550	3,3
DTG-B08 050-901	DTG-30033	DTG-B08 161-901	DTG-30062	solder	131	5/8	16	69	98	146	550	3,3
DTG-B16 020-901	DTG-30034	DTG-B16 061-901	DTG-30065	solder	262	1/4	6	69	118	156	660	3,3
DTG-B16 250-901	DTG-30035	DTG-B16 250-901	DTG-30035	solder	262	5/16	8	69	118	156	660	3,3
DTG-B16 030-901	DTG-30036	DTG-B16 101-901	DTG-30067	solder	262	3/8	10	69	118	156	660	3,3
DTG-B16 040-901	DTG-30037	DTG-B16 121-901	DTG-30068	solder	262	1/2	12	69	118	166	660	3,3
DTG-B16 050-901	DTG-30038	DTG-B16 161-901	DTG-30066	solder	262	5/8	16	69	118	166	660	3,3
DTG-B16 060-901	DTG-30039	-	-	solder	262	3/4	-	69	118	178	660	3,3
DTG-B16 070-901	DTG-30040	DTG-B16 070-901	DTG-30040	solder	262	7/8	22	69	118	178	660	3,3
DTG-B30 030-901	DTG-30041	DTG-B30 101-901	DTG-30069	solder	492	3/8	10	81	193	231	1550	3,3
DTG-B30 040-901	DTG-30042	DTG-B30 121-901	DTG-30070	solder	492	1/2	12	81	193	241	1550	3,3
DTG-B30 050-901	DTG-30043	DTG-B30 161-901	DTG-30075	solder	492	5/8	16	81	193	241	1550	3,3
DTG-B30 060-901	DTG-30044	-	-	solder	492	3/4	-	81	193	253	1550	3,3





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

Model [inch]	Part Number [inch]	Model [mm]	Part Number [mm]	Type of connection	Nominal Volume	Connection		Dimensions & Weight <sup>1)</sup>				PED category
						Solder		ØD	B	A	Weight	
						[cm <sup>3</sup> ]	[inch]	[mm]	[mm]	[mm]	[mm]	
DTG-B30 070-901	DTG-30045	DTG-B30 070-901	DTG-30045	solder	492	7/8	22	81	193	253	1550	3,3
DTG-B30 090-901	DTG-30046	DTG-B30 281-901	DTG-30071	solder	492	1 1/8	28	81	193	263	1550	3,3
DTG-B41 040-901	DTG-30047	DTG-B41 121-901	DTG-30072	solder	672	1/2	12	94	194	242	2050	3,3
DTG-B41 050-901	DTG-30048	DTG-B41 161-901	DTG-30058	solder	672	5/8	16	94	194	242	2050	3,3
DTG-B41 070-901	DTG-30049	DTG-B41 070-901	DTG-30049	solder	672	7/8	22	94	194	254	2050	3,3
DTG-B41 090-901	DTG-30050	DTG-B41 281-901	DTG-30073	solder	672	1 1/8	28	94	194	264	2050	3,3
DTG-B75 070-901	DTG-30051	DTG-B75 070-901	DTG-30051	solder	1229	7/8	22	94	333	393	3400	3,3
DTG-B75 090-901	DTG-30052	DTG-B75 281-901	DTG-30074	solder	1229	1 1/8	28	94	333	403	3400	3,3

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

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

Model <sup>1)</sup>	Part Number	Type of Connection	Nominal Volume	Connection	Dimensions & Weight <sup>2)</sup>				PED Category
				SAE Flare	ØD	B	A	Weight	
				[cm <sup>3</sup> ]	[inch]	[mm]	[mm]	[mm]	
DTG-F03 024-901	DTG-30078	flare	49	1/4	45	65	112,0	160	3,3
DTG-F03 034-901	DTG-30079	flare	49	3/8	45	65	125,2	160	3,3
DTG-F03 044-901	DTG-30154	flare	49	1/2	45	65	133,2	160	3,3
DTG-F05 024-901	DTG-30080	flare	82	1/4	69	76	123,0	450	3,3
DTG-F05 034-901	DTG-30081	flare	82	3/8	69	76	136,2	450	3,3
DTG-F08 024-901	DTG-30082	flare	131	1/4	69	98	145,0	550	3,3
DTG-F08 034-901	DTG-30083	flare	131	3/8	69	98	158,2	550	3,3
DTG-F08 044-901	DTG-30084	flare	131	1/2	69	98	166,2	550	3,3
DTG-F16 024-901	DTG-30085	flare	262	1/4	69	118	165,0	660	3,3
DTG-F16 034-901	DTG-30086	flare	262	3/8	69	118	178,2	660	3,3
DTG-F16 044-901	DTG-30087	flare	262	1/2	69	118	186,2	660	3,3
DTG-F16 054-901	DTG-30088	flare	262	5/8	69	118	195,4	660	3,3
DTG-F16 064-901	DTG-30089	flare	262	3/4	69	118	195,4	660	3,3
DTG-F30 034-901	DTG-30090	flare	492	3/8	81	193	253,2	1550	3,3

**Note:** 1) Delivery time on request  
2) Dimensions are rounded up to integral mm



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

Model <sup>1)</sup>	Part Number	Type of Connection	Nominal Volume	Connection		Dimensions & Weight <sup>2)</sup>				PED Category
				SAE Flare	ØD	B	A	Weight		
				[cm <sup>3</sup> ]	[inch]	[mm]	[mm]	[mm]	[g]	
DTG-F30 044-901	DTG-30091	flare	492	1/2	81	193	261,2	1550	3,3	
DTG-F30 054-901	DTG-30092	flare	492	5/8	81	193	270,4	1550	3,3	
DTG-F30 064-901	DTG-30093	flare	492	3/4	81	193	270,4	1550	3,3	
DTG-F30 074-901	DTG-30094	flare	492	7/8	81	193	283,0	1550	3,3	
DTG-F41 044-901	DTG-30095	flare	672	1/2	94	194	262,2	2050	3,3	
DTG-F41 054-901	DTG-30096	flare	672	5/8	94	194	271,4	2050	3,3	

**Note:** 1) Delivery time on request  
2) Dimensions are rounded up to integral mm

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

Model <sup>1)</sup> [inch]	Part Number [inch]	Model <sup>1)</sup> [mm]	Part Number [mm]	Type of connection	Nominal Volume	Connection		Dimensions & Weight <sup>2)</sup>				PED category
						Solder		ØD	B	A	Weight	
						[cm <sup>3</sup> ]	[inch]	[mm]	[mm]	[mm]	[mm]	
DTG-F03 020-901	DTG-30097	DTG-F03 061-901	DTG-30130	solder	49	1/4	6	45	65	103	160	3,3
DTG-F03 250-901	DTG-30098	DTG-F03 250-901	DTG-30098	solder	49	5/16	8	45	65	103	160	3,3
DTG-F03 030-901	DTG-30099	DTG-F03 101-901	DTG-30131	solder	49	3/8	10	45	65	103	160	3,3
DTG-F03 040-901	DTG-30100	DTG-F03 121-901	DTG-30132	solder	49	1/2	12	45	65	113	160	3,3
DTG-F05 020-901	DTG-30101	DTG-F05 061-901	DTG-30133	solder	82	1/4	6	69	76	114	450	3,3
DTG-F05 250-901	DTG-30102	DTG-F05 250-901	DTG-30102	solder	82	5/16	8	69	76	114	450	3,3
DTG-F05 030-901	DTG-30103	DTG-F05 101-901	DTG-30134	solder	82	3/8	10	69	76	114	450	3,3
DTG-F05 040-901	DTG-30104	DTG-F051 21-901	DTG-30135	solder	82	1/2	12	69	76	124	450	3,3
DTG-F05 050-901	DTG-30105	DTG-F05 1 61-901	DTG-30136	solder	82	5/8	16	69	76	124	450	3,3
DTG-F08 020-901	DTG-30106	DTG-F08 061-901	DTG-30137	solder	131	1/4	6	69	98	136	550	3,3
DTG-F08 250-901	DTG-30107	DTG-F08 250-901	DTG-30107	solder	131	5/16	8	69	98	136	550	3,3
DTG-F08 030-901	DTG-30108	DTG-F08 101-901	DTG-30138	solder	131	3/8	10	69	98	136	550	3,3
DTG-F08 040-901	DTG-30109	DTG-F08 121-901	DTG-30139	solder	131	1/2	12	69	98	146	550	3,3
DTG-F08 050-901	DTG-30110	DTG-F08 161-901	DTG-30140	solder	131	5/8	16	69	98	146	550	3,3
DTG-F16 020-901	DTG-30111	DTG-F16 061-901	DTG-30141	solder	262	1/4	6	69	118	156	660	3,3



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

Model <sup>1)</sup> [inch]	Part Number [inch]	Model <sup>1)</sup> [mm]	Part Number [mm]	Type of connection	Nominal Volume [cm <sup>3</sup> ]	Connection		Dimensions & Weight <sup>2)</sup>				PED category
						Solder		ØD	B	A	Weight	
						[inch]	[mm]	[mm]	[mm]	[mm]	[g]	
DTG-F16 250-901	DTG-30112	DTG-F16 250-901	DTG-30112	solder	262	5/16	8	69	118	156	660	3,3
DTG-F16 030-901	DTG-30113	DTG-F16 101-901	DTG-30142	solder	262	3/8	10	69	118	156	660	3,3
DTG-F16 040-901	DTG-30114	DTG-F16 121-901	DTG-30143	solder	262	1/2	12	69	118	166	660	3,3
DTG-F16 050-901	DTG-30115	DTG-F16 161-901	DTG-30144	solder	262	5/8	16	69	118	166	660	3,3
DTG-F16 060-901	DTG-30116	-	-	solder	262	3/4	-	69	118	178	660	3,3
DTG-F16 070-901	DTG-30117	DTG-F16 070-901	DTG-30117	solder	262	7/8	22	69	118	178	660	3,3
DTG-F30 030-901	DTG-30118	DTG-F30 101-901	DTG-30145	solder	492	3/8	10	81	193	231	1550	3,3
DTG-F30 040-901	DTG-30119	DTG-F30 121-901	DTG-30146	solder	492	1/2	12	81	193	241	1550	3,3
DTG-F30 050-901	DTG-30120	DTG-F30 161-901	DTG-30147	solder	492	5/8	16	81	193	241	1550	3,3
DTG-F30 060-901	DTG-30121	-	-	solder	492	3/4	-	81	193	253	1550	3,3
DTG-F30 070-901	DTG-30122	DTG-F30 070-901	DTG-30122	solder	492	7/8	22	81	193	253	1550	3,3
DTG-F30 090-901	DTG-30123	DTG-F30 281-901	DTG-30148	solder	492	1 1/8	28	81	193	263	1550	3,3
DTG-F41 040-901	DTG-30124	DTG-F41 121-901	DTG-30149	solder	672	1/2	12	94	194	242	2050	3,3
DTG-F41 050-901	DTG-30125	DTG-F41 161-901	DTG-30150	solder	672	5/8	16	94	194	242	2050	3,3
DTG-F41 070-901	DTG-30126	DTG-F41 070-901	DTG-30126	solder	672	7/8	22	94	194	254	2050	3,3
DTG-F41 090-901	DTG-30127	DTG-F41 281-901	DTG-30151	solder	672	1 1/8	28	94	194	264	2050	3,3
DTG-F75 070-901	DTG-30128	DTG-F75 070-901	DTG-30128	solder	1229	7/8	22	94	333	393	3400	3,3
DTG-F75 090-901	DTG-30129	DTG-F75 281-901	DTG-30152	solder	1229	1 1/8	28	94	333	403	3400	3,3

**Note:** 1) Delivery time on request  
2) Dimensions are rounded up to integral mm

**SELECTION TABLE**

Model	Capacity [ kW ]					Moisture Absorption (gram H <sub>2</sub> O)							
	R134a	R404A	R22	R407C	R410A	R134a		R404A		R407C		R22	
		R507A				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
DTG-B03 020-901	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
DTG-B03 024-901	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
DTG-B03 250-901	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
DTG-B03 030-901	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
DTG-B03 034-901	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

# DTG/L SERIES

## Uni-Flow Filter Driers



### SELECTION TABLE

Model	Capacity [ kW ]					Moisture Absorption (gram H <sub>2</sub> O)							
	R134a	R404A	R22	R407C	R410A	R134a		R404A		R407C		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
DTG-B03 040-901	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
DTG-B03 044-901	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
DTG-B05 020-901	8,4	6,0	8,4	8,4	8,4	11,6	10,9	17,7	10,2	10,9	9,5	11,4	9,7
DTG-B05 024-901	8,4	6,0	8,4	8,4	8,4	11,6	10,9	17,7	10,2	10,9	9,5	11,4	9,7
DTG-B05 250-901	10,9	7,4	10,9	10,9	11,3	11,6	10,9	17,7	10,2	10,9	9,5	11,4	9,7
DTG-B05 030-901	23,9	16,9	24,3	23,9	24,6	11,6	10,9	17,7	10,2	10,9	9,5	11,4	9,7
DTG-B05 034-901	23,9	16,9	24,3	23,9	24,6	11,6	10,9	17,7	10,2	10,9	9,5	11,4	9,7
DTG-B05 040-901	25,3	17,9	25,7	25,7	26,0	11,6	10,9	17,7	10,2	10,9	9,5	11,4	9,7
DTG-B05 050-901	34,8	24,6	35,5	35,2	35,9	11,6	10,9	17,7	10,2	10,9	9,5	11,4	9,7
DTG-B08 020-901	8,4	6,0	8,4	8,4	8,4	14,8	14,2	23,7	19,8	14,8	13,0	15,5	13,1
DTG-B08 024-901	8,4	6,0	8,4	8,4	8,4	14,8	14,2	23,7	19,8	14,8	13,0	15,5	13,1
DTG-B08 250-901	11,6	8,1	12,0	11,6	12,0	14,8	14,2	23,7	19,8	14,8	13,0	15,5	13,1
DTG-B08 030-901	25,0	17,6	25,3	25,0	25,7	14,8	14,2	23,7	19,8	14,8	13,0	15,5	13,1
DTG-B08 034-901	25,0	17,6	25,3	25,0	25,7	14,8	14,2	23,7	19,8	14,8	13,0	15,5	13,1
DTG-B08 040-901	30,6	21,5	31,3	30,9	31,7	14,8	14,2	23,7	19,8	14,8	13,0	15,5	13,1
DTG-B08 044-901	30,6	21,5	31,3	30,9	31,7	14,8	14,2	23,7	19,8	14,8	13,0	15,5	13,1
DTG-B08 050-901	44,7	31,7	45,7	45,4	46,1	14,8	14,2	23,7	19,8	14,8	13,0	15,5	13,1
DTG-B16 020-901	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
DTG-B16 024-901	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
DTG-B16 250-901	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
DTG-B16 030-901	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
DTG-B16 034-901	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
DTG-B16 040-901	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
DTG-B16 044-901	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
DTG-B16 050-901	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
DTG-B16 054-901	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
DTG-B16 060-901	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
DTG-B16 064-901	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
DTG-B16 070-901	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
DTG-B30 030-901	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
DTG-B30 034-901	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
DTG-B30 040-901	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
DTG-B30 044-901	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
DTG-B30 050-901	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
DTG-B30 054-901	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
DTG-B30 060-901	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
DTG-B30 064-901	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
DTG-B30 070-901	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

# DTG/L SERIES

## Uni-Flow Filter Driers



### SELECTION TABLE

Model	Capacity [ kW ]					Moisture Absorption (gram H <sub>2</sub> O)							
	R134a	R404A	R22	R407C	R410A	R134a		R404A		R407C		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
DTG-B30 074-901	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
DTG-B30 090-901	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
DTG-B41 040-901	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
DTG-B41 044-901	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
DTG-B41 050-901	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
DTG-B41 054-901	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
DTG-B41 070-901	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
DTG-B41 090-901	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
DTG-B75 070-901	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
DTG-B75 090-901	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:** 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.

### 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):

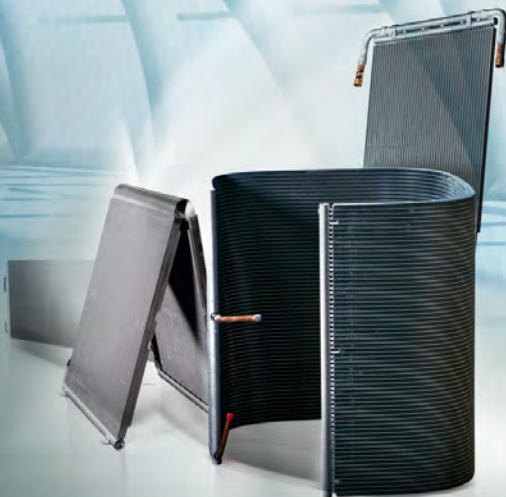
- 60ppm R22
- 50ppm R134a
- 50ppm R404A
- 50ppm R407C
- 50ppm R410A
- 50ppm R507A

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# 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 SPECIFICATION

- Applicable for all common HCFC and HFC refrigerants such as: R22, R134a, R404A, R407C, R410A, R507A ...
- 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 <sup>1</sup>	HFC	applicable	applicable
	HCFC	applicable	applicable
	CFC	applicable	not applicable
Oil <sup>2</sup>	Mineral oil or AB	applicable	applicable
	Pure POE or PAG	applicable	applicable
	POE or PAG with additive	not applicable	applicable

**Note:** 1) For CFC system, usage of core with alumina is recommended as a strong capability to absorb acid may be needed  
2) When the systems use oil with additive, it is not recommended to use a core with alumina.

# STG 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>	
	A	Loos core, 100%3Å desiccant	
	B	Solid core, 100%3Å desiccant	
	E	Loos core, 80% 3Å desiccant and 20% active alumina	
	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	-
	<b>Connection Size</b>	<b>Pos. 5 shows "1": Solder [mm]</b>	
	06	6	
	(08) *	(5/16" version can be used e.g. STG-B08 <b>250</b> )	
	10	10	
	12	12	
16	16		
(22) *	(7/8" version can be used e.g. STG-B16 <b>070</b> )		
28	28		
5	<b>Pipe Connection</b>	<b>Type</b>	
	0	Solder with inch connections	
	1 *	Solder with metric connections	
	4	SAE flare connections	
6	<b>Version Number</b>	<b>Description</b>	
	901	Standard product	

**Note:** \* Solder connections which fit to metric and inch are marked with inch product codes e.g. 8 and 22mm





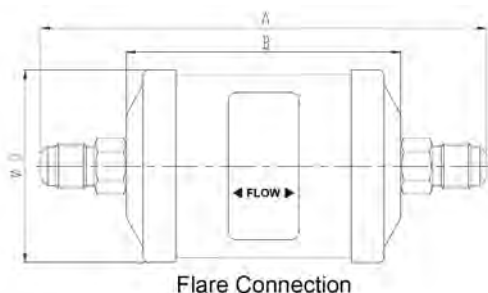
**MODEL DESIGNATION EXAMPLE**

Position Number						According to Model Designation Legend
1	2	3	4	5	6	
<b>STG</b>	B	05	06	1	901	Bidirectional filter drier
STG	<b>B</b>	05	06	1	901	Solid filter core with 100% 3Å desiccant
STG	B	<b>05</b>	06	1	901	5 inch <sup>3</sup> internal volume
STG	B	05	<b>06</b>	1	901	When Pos. 5 is "1": connection size 6mm
STG	B	05	06	<b>1</b>	901	Solder connection metric
STG	B	05	06	1	<b>901</b>	Standard product

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

Model	Part Number	Type of Connection	Nominal Volume [cm <sup>3</sup> ]	Connection	Dimensions & Weight <sup>1)</sup>				PED Category
				SAE Flare	ØD	B	A	Weight	
				[inch]	[mm]	[mm]	[mm]	[g]	
STG-B05 024-901	STG-31001	flare	82	1/4	69	76	123	450	3,3
STG-B05 034-901	STG-31002	flare	82	3/8	69	76	137	450	3,3
STG-B05 044-901	STG-31003	flare	82	1/2	69	76	145	450	3,3
STG-B08 024-901	STG-31004	flare	131	1/4	69	98	145	580	3,3
STG-B08 034-901	STG-31005	flare	131	3/8	69	98	159	580	3,3
STG-B08 044-901	STG-31006	flare	131	1/2	69	98	167	580	3,3
STG-B16 034-901	STG-31007	flare	262	3/8	81	118	179	900	3,3
STG-B16 044-901	STG-31008	flare	262	1/2	81	118	187	900	3,3
STG-B16 054-901	STG-31009	flare	262	5/8	81	118	196	900	3,3
STG-B30 034-901	STG-31010	flare	492	3/8	81	193	254	1700	3,3
STG-B30 044-901	STG-31011	flare	492	1/2	81	193	262	1700	3,3
STG-B30 054-901	STG-31012	flare	492	5/8	81	193	271	1700	3,3
STG-B30 064-901	STG-31013	flare	492	3/4	81	193	271	1700	3,3

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

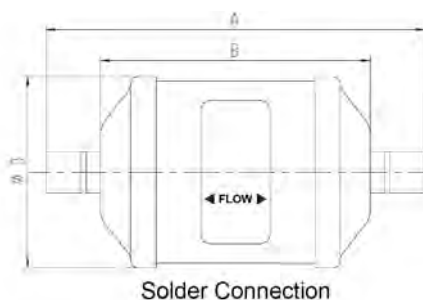




**GENERAL CHARACTERISTICS OF STG-B FILTER - SOLDER CONNECTION**

Model [inch]	Part Number [inch]	Model [mm]	Part Number [mm]	Type of connection	Nominal Volumen [cm <sup>3</sup> ]	Connection		Dimensions & Weight <sup>1)</sup>				PED category
						Solder		ØD	B	A	Weight	
						[inch]	[mm]	[mm]	[mm]	[mm]	[g]	
STG-B05 020-901	STG-31014	STG-B05 061-901	STG-31031	solder	82	1/4	6	69	76	114	450	3,3
STG-B05 030-901	STG-31015	STG-B05 101-901	STG-31032	solder	82	3/8	10	69	76	114	450	3,3
STG-B05 040-901	STG-31016	STG-B05 121-901	STG-31033	solder	82	1/2	12	69	76	124	450	3,3
STG-B08 020-901	STG-31017	STG-B08 061-901	STG-31034	solder	131	1/4	6	69	98	136	580	3,3
STG-B08 250-901	STG-31018	STG-B08 250-901	STG-31018	solder	131	5/16	8	69	98	136	580	3,3
STG-B08 030-901	STG-31019	STG-B08 101-901	STG-31035	solder	131	3/8	10	69	98	136	580	3,3
STG-B08 040-901	STG-31020	STG-B08 121-901	STG-31036	solder	131	1/2	12	69	98	146	580	3,3
STG-B16 030-901	STG-31021	STG-B16 101-901	STG-31037	solder	262	3/8	10	81	118	156	900	3,3
STG-B16 040-901	STG-31022	STG-B16 121-901	STG-31038	solder	262	1/2	12	81	118	166	900	3,3
STG-B16 050-901	STG-31023	STG-B16 161-901	STG-31087	solder	262	5/8	16	81	118	166	900	3,3
STG-B16 070-901	STG-31024	STG-B16 070-901	STG-31024	solder	262	7/8	22	81	118	178	900	3,3
STG-B30 030-901	STG-31025	STG-B30 101-901	STG-31039	solder	492	3/8	10	81	193	231	1700	3,3
STG-B30 040-901	STG-31026	STG-B30 121-901	STG-31040	solder	492	1/2	12	81	193	241	1700	3,3
STG-B30 050-901	STG-31027	STG-B30 161-901	STG-31088	solder	492	5/8	16	81	193	241	1700	3,3
STG-B30 060-901	STG-31028	-	-	solder	492	3/4	-	81	193	253	1700	3,3
STG-B30 070-901	STG-31029	STG-B30 070-901	STG-31029	solder	492	7/8	22	81	193	253	1700	3,3
STG-B30 090-901	STG-31030	STG-B30 281-901	STG-31043	solder	492	1 1/8	28	81	193	263	1700	3,3

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

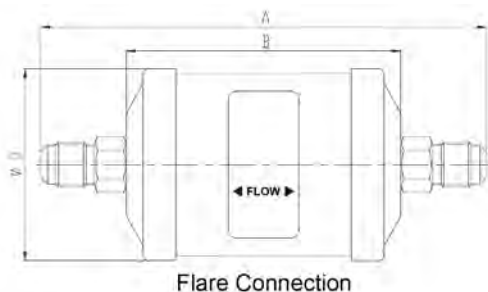




**GENERAL CHARACTERISTICS OF STG-F FILTER - FLARE CONNECTION**

Model <sup>1)</sup>	Part Number	Type of Connection	Nominal Volume [cm <sup>3</sup> ]	Connection	Dimensions & Weight <sup>2)</sup>				PED Category
				SAE Flare	ØD	B	A	Weight	
				[inch]	[mm]	[mm]	[mm]	[g]	
STG-F05 024-901	STG-31044	flare	82	1/4	69	76	123	450	3,3
STG-F05 034-901	STG-31045	flare	82	3/8	69	76	137	450	3,3
STG-F05 044-901	STG-31046	flare	82	1/2	69	76	145	450	3,3
STG-F08 024-901	STG-31047	flare	131	1/4	69	98	145	580	3,3
STG-F08 034-901	STG-31048	flare	131	3/8	69	98	159	580	3,3
STG-F08 044-901	STG-31049	flare	131	1/2	69	98	167	580	3,3
STG-F16 034-901	STG-31050	flare	262	3/8	81	118	179	900	3,3
STG-F16 044-901	STG-31051	flare	262	1/2	81	118	187	900	3,3
STG-F16 054-901	STG-31052	flare	262	5/8	81	118	196	900	3,3
STG-F30 034-901	STG-31053	flare	492	3/8	81	193	254	1700	3,3
STG-F30 044-901	STG-31054	flare	492	1/2	81	193	262	1700	3,3
STG-F30 054-901	STG-31055	flare	492	5/8	81	193	271	1700	3,3
STG-F30 064-901	STG-31056	flare	492	3/4	81	193	271	1700	3,3

**Note:** 1) Delivery time on request  
 2) Dimensions are rounded up to integral mm

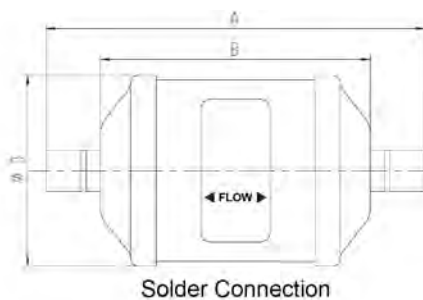




**GENERAL CHARACTERISTICS OF STG-F FILTER - SOLDER CONNECTION**

Model <sup>1)</sup> [inch]	Part Number [inch]	Model [mm]	Part Number [mm]	Type of connection	Nominal Volumen [cm <sup>3</sup> ]	Connection		Dimensions & Weight <sup>2)</sup>				PED category
						Solder		ØD	B	A	Weight	
						[inch]	[mm]	[mm]	[mm]	[mm]	[g]	
STG-F05 020-901	STG-31057	STG-F05 061-901	STG-31074	solder	82	1/4	6	69	76	114	450	3,3
STG-F05 030-901	STG-31058	STG-F05 101-901	STG-31075	solder	82	3/8	10	69	76	114	450	3,3
STG-F05 040-901	STG-31059	STG-F05 121-901	STG-31076	solder	82	1/2	12	69	76	124	450	3,3
STG-F08 020-901	STG-31060	STG-F08 061-901	STG-31077	solder	131	1/4	6	69	98	136	580	3,3
STG-F08 250-901	STG-31061	STG-F08 250-901	STG-31061	solder	131	5/16	8	69	98	136	580	3,3
STG-F08 030-901	STG-31062	STG-F08 101-901	STG-31078	solder	131	3/8	10	69	98	136	580	3,3
STG-F08 040-901	STG-31063	STG-F08 121-901	STG-31079	solder	131	1/2	12	69	98	146	580	3,3
STG-F16 030-901	STG-31064	STG-F16 101-901	STG-31080	solder	262	3/8	10	81	118	156	900	3,3
STG-F16 040-901	STG-31065	STG-F16 121-901	STG-31081	solder	262	1/2	12	81	118	166	900	3,3
STG-F16 050-901	STG-31066	STG-F16 161-901	STG-31082	solder	262	5/8	16	81	118	166	900	3,3
STG-F16 070-901	STG-31067	STG-F16 070-901	STG-31067	solder	262	7/8	22	81	118	178	900	3,3
STG-F30 030-901	STG-31068	STG-F30 101-901	STG-31083	solder	492	3/8	10	81	193	231	1700	3,3
STG-F30 040-901	STG-31069	STG-F30 121-901	STG-31084	solder	492	1/2	12	81	193	241	1700	3,3
STG-F30 050-901	STG-31070	STG-F30 161-901	STG-31085	solder	492	5/8	16	81	193	241	1700	3,3
STG-F30 060-901	STG-31071	-	-	solder	492	3/4	-	81	193	253	1700	3,3
STG-F30 070-901	STG-31072	STG-F30 070-901	STG-31072	solder	492	7/8	22	81	193	253	1700	3,3
STG-F30 090-901	STG-31073	STG-F30 281-901	STG-31086	solder	492	1 1/8	28	81	193	263	1700	3,3

**Note:** 1) Delivery time on request  
2) Dimensions are rounded up to integral mm





**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
	STG-B05 020-901	7,4	5,3	7,7	7,7	7,7	4,3	4,0	4,1	3,8	3,7	3,4	4,1
STG-B05 024-901	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
STG-B05 030-901	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
STG-B05 034-901	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
STG-B05 040-901	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
STG-B05 044-901	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
STG-B08 020-901	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
STG-B08 024-901	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
STG-B08 250-901	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
STG-B08 030-901	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
STG-B08 034-901	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
STG-B08 040-901	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
STG-B08 044-901	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
STG-B16 030-901	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
STG-B16 034-901	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
STG-B16 040-901	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
STG-B16 044-901	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
STG-B16 050-901	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
STG-B16 054-901	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
STG-B16 070-901	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
STG-B30 030-901	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
STG-B30 034-901	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
STG-B30 040-901	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
STG-B30 044-901	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
STG-B30 050-901	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
STG-B30 054-901	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
STG-B30 060-901	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
STG-B30 064-901	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
STG-B30 070-901	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
STG-B30 090-901	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

# STG 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



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# 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
- HYBRID DESICCANT
- DURABLE AND SOLID FILTER CORES
- FILTERING FINENESS: 20 $\mu$ m
- CORROSION RESISTANT PAINTING CAN SURVIVE SALT SPRAY TEST OF 500 HOURS
- CONNECTION TYPE: FLARE OR 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.



### GENERAL SPECIFICATION

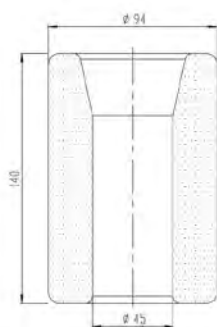
- Applicable for all common HCFC and HFC refrigerants such as: R22, R134a, R404A, R407C, R410A, R507A ...
- Ambient temperature min./max.: -30°C / +55°
- Medium temperature TS min./max.: -40°C / +70°C
- Max. operating pressure PS: from 4,5 MPa (45 bar) (see table 1)
- Installation position: HTG with SH48-A80 or SH48-A00 in liquid line, HTG with SH48-A30 in suction line
- Certifications: UL/CSA and PED declaration

### TECHNICAL PARAMETERS

#### Desiccant Selection Table

	Medium Type	30% 3A desiccant 70% active alumina	80% 3A desiccant 20% active alumina	100% 3A desiccant
Core Model	-	SH48-A30	SH48-A80	SH48-A00
Core Part Number	-	HTG-29101	HTG-29102	HTG-29103
Suggested Installation position	-	Suction Line	Liquid Line	Liquid Line
Refrigerant	HFC	Applicable	Applicable	Suggested
	HCFC	Suggested	Suggested	Applicable
	CFC	Applicable	Applicable	Not Applicable
	HC	Applicable	Applicable	Applicable
Oil	Mineral oil or AB	Suggested	Suggested	Applicable
	Pure POE or PAG	Applicable	Applicable	Suggested
	POE or PAG with additive	Not applicable	Not applicable	Applicable

**Note:** 1) For CFC system, usage of core with alumina is recommended as a strong capability to absorb acid may be needed  
 2) 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	28	1	901		Replaceable core filter drier
HTG	<b>A96</b>	28	1	901		96 inch <sup>3</sup> internal volume
HTG	A96	<b>28</b>	1	901		When Pos. 4 is "1": connection size 28mm
HTG	A96	28	<b>1</b>	901		Solder connection metric
HTG	A96	28	1	<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>	
	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>Connection size</b>	<b>Pos. 4 shows "1": Solder [mm]</b>	
	05	16 - (5/8" version can be used e.g. HTG-A48 050)	
	07	22 - (7/8" version can be used e.g. HTG-A48 070)	
	28	28	
	11	35 - (1 3/8" version can be used e.g. HTG-A48 110)	
	42	42	
17	54 - (2 1/8" version can be used e.g. HTG-A48 170)		
<b>4</b>	<b>Pipe Connection</b>	<b>Type</b>	
	0	Solder with inch connections	
	1 *	Solder with metric connections	
<b>5</b>	<b>Version Number</b>	<b>Description</b>	
	901	Standard product	

**Note:** \* Solder connections which fit to metric and inch are marked with inch product codes e.g. 16, 22, 35 and 54mm



**GENERAL CHARACTERISTICS OF FILTER** Table 1

Series	Model	Part Number	Solder Connections ODF		Number of cores	Dimensions & Weight					Design Pressure (MPa)	PED category
			[inch]	[mm]		A	B	L	G	Weight <sup>1)</sup>		
						[mm]	[mm]	[mm]	[mm]	[kg]		
HTG A48s	HTG-A48050-901	HTG-29001	5/8	16	1	250	164	170	116	5,1	4,5	Cat. I
	HTG-A48070-901	HTG-29002	7/8	22		249	163	170	116	5,1	4,5	
	HTG-A48090-901	HTG-29003	1 1/8	-		254	168	170	121	5,1	4,5	
	HTG-A48281-901	HTG-29004	-	28		254	168	170	121	5,1	4,5	
	HTG-A48110-901	HTG-29005	1 3/8	35		253	167	170	121	5,1	4,5	
	HTG-A48130-901	HTG-29006	1 5/8	-		272	186	170	141	5,1	4,5	
	HTG-A48421-901	HTG-29007	-	42		272	186	170	141	5,1	4,5	
	HTG-A48170-901	HTG-29008	2 1/8	54		275	182	170	145	5,1	4,5	
	HTG-A48210-901	HTG-29009	2 5/8	-		277	177	170	149	5,1	4,5	
HTG A96s	HTG-A96050-901	HTG-29010	5/8	16	2	391	305	310	116	6,2	4,5	
	HTG-A96070-901	HTG-29011	7/8	22		390	304	310	116	6,2	4,5	
	HTG-A96090-901	HTG-29012	1 1/8	-		395	309	310	121	6,2	4,5	
	HTG-A96281-901	HTG-29013	-	28		395	309	310	121	6,2	4,5	
	HTG-A96110-901	HTG-29014	1 3/8	35		394	308	310	121	6,2	4,5	
	HTG-A96130-901	HTG-29015	1 5/8	-		413	327	310	141	6,2	4,5	
	HTG-A96421-901	HTG-29016	-	42		413	327	310	141	6,2	4,5	
	HTG-A96170-901	HTG-29017	2 1/8	54		416	323	310	145	6,2	4,5	
	HTG-A96210-901	HTG-29018	2 5/8	-		418	318	310	149	6,2	4,5	
HTG B44s	HTG-B44050-901	HTG-29019	5/8	16	3	532	446	310	116	7,6	4,5	
	HTG-B44070-901	HTG-29020	7/8	22		531	445	310	116	7,6	4,5	
	HTG-B44090-901	HTG-29021	1 1/8	-		536	450	310	121	7,6	4,5	
	HTG-B44281-901	HTG-29022	-	28		536	450	310	121	7,6	4,5	
	HTG-B44110-901	HTG-29023	1 3/8	35		535	449	310	121	7,6	4,5	
	HTG-B44130-901	HTG-29024	1 5/8	-		554	468	310	141	7,6	4,5	
	HTG-B44421-901	HTG-29025	-	42		554	468	310	141	7,6	4,5	
	HTG-B44170-901	HTG-29026	2 1/8	54		557	464	310	145	7,6	4,5	
	HTG-B44210-901	HTG-29027	2 5/8	-		559	459	310	149	7,6	4,5	
HTG B92s	HTG-B92050-901	HTG-29028	5/8	16	4	677	591	310	116	9,1	4,5	
	HTG-B92070-901	HTG-29029	7/8	22		676	590	310	116	9,1	4,5	
	HTG-B92090-901	HTG-29030	1 1/8	-		681	595	310	121	9,1	4,5	
	HTG-B92281-901	HTG-29031	-	28		681	595	310	121	9,1	4,5	
	HTG-B92110-901	HTG-29032	1 3/8	35		680	594	310	121	9,1	4,5	
	HTG-B92130-901	HTG-29033	1 5/8	-		699	613	310	141	9,1	4,5	
	HTG-B92421-901	HTG-29034	-	42		699	613	310	141	9,1	4,5	
	HTG-B92170-901	HTG-29035	2 1/8	54		702	609	310	145	9,1	4,5	
	HTG-B92210-901	HTG-29036	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 Absorption 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
		23,9°C	51,7°C	23,9°C	51,7°C	23,9°C	51,7°C	23,9°C	51,7°C	23,9°C	51,7°C			
		HTG-A48050-901		65,5	45,9	67,6	67,6	67,6	67,4	58,1	72,6	59,6	57,0	51,8
HTG-A48070-901		104,7	73,5	108,2	108,2	108,2	67,4	58,1	72,6	59,6	57,0	51,8	62,2	57,0
HTG-A48090-901		150,5	105,7	155,4	155,4	155,4	67,4	58,1	72,6	59,6	57,0	51,8	62,2	57,0
HTG-A48281-901		150,5	105,7	155,4	155,4	155,4	67,4	58,1	72,6	59,6	57,0	51,8	62,2	57,0
HTG-A48110-901	-	202,7	142,5	209,3	209,3	209,3	67,4	58,1	72,6	59,6	57,0	51,8	62,2	57,0
HTG-A48130-901		248,9	174,7	256,6	256,6	256,6	67,4	58,1	72,6	59,6	57,0	51,8	62,2	57,0
HTG-A48421-901		59,9	174,7	256,6	256,6	256,6	67,4	58,1	72,6	59,6	57,0	51,8	62,2	57,0
HTG-A48170-901		353,5	248,2	364,7	364,7	364,7	67,4	58,1	72,6	59,6	57,0	51,8	62,2	57,0
HTG-A48210-901		392,7	276,2	405,7	405,7	405,7	67,4	58,1	72,6	59,6	57,0	51,8	62,2	57,0
HTG-A96050-901		65,5	45,9	67,6	67,6	67,6	134,8	116,1	145,2	119,2	114,0	103,7	124,4	114,0
HTG-A96070-901		104,7	73,5	108,2	108,2	108,2	134,8	116,1	145,2	119,2	114,0	103,7	124,4	114,0
HTG-A96090-901		150,5	105,7	155,4	155,4	155,4	134,8	116,1	145,2	119,2	114,0	103,7	124,4	114,0
HTG-A96281-901		150,5	105,7	155,4	155,4	155,4	134,8	116,1	145,2	119,2	114,0	103,7	124,4	114,0
HTG-A96110-901	-	202,7	142,5	209,3	209,3	209,3	134,8	116,1	145,2	119,2	114,0	103,7	124,4	114,0
HTG-A96130-901		248,9	174,7	256,6	256,6	256,6	134,8	116,1	145,2	119,2	114,0	103,7	124,4	114,0
HTG-A96421-901		248,9	174,7	256,6	256,6	256,6	134,8	116,1	145,2	119,2	114,0	103,7	124,4	114,0
HTG-A96170-901		353,5	248,2	364,7	364,7	364,7	134,8	116,1	145,2	119,2	114,0	103,7	124,4	114,0
HTG-A96210-901		392,7	276,2	405,7	405,7	405,7	134,8	116,1	145,2	119,2	114,0	103,7	124,4	114,0
HTG-B44050-901		65,5	45,9	67,6	67,6	67,6	202,2	174,3	217,8	178,8	171,0	155,4	186,6	171,0
HTG-B44070-901		104,7	73,5	108,2	108,2	108,2	202,2	174,3	217,8	178,8	171,0	155,4	186,6	171,0
HTG-B44090-901		150,5	105,7	155,4	155,4	155,4	202,2	174,3	217,8	178,8	171,0	155,4	186,6	171,0
HTG-B44281-901		150,5	105,7	155,4	155,4	155,4	202,2	174,3	217,8	178,8	171,0	155,4	186,6	171,0
HTG-B44110-901	-	202,7	142,5	209,3	209,3	209,3	202,2	174,3	217,8	178,8	171,0	155,4	186,6	171,0
HTG-B44130-901		248,9	174,7	256,6	256,6	256,6	202,2	174,3	217,8	178,8	171,0	155,4	186,6	171,0
HTG-B44421-901		248,9	174,7	256,6	256,6	256,6	202,2	174,3	217,8	178,8	171,0	155,4	186,6	171,0
HTG-B44170-901		353,5	248,2	364,7	364,7	364,7	202,2	174,3	217,8	178,8	171,0	155,4	186,6	171,0
HTG-B44210-901		392,7	276,2	405,7	405,7	405,7	202,2	174,3	217,8	178,8	171,0	155,4	186,6	171,0
HTG-B92050-901		65,5	45,9	67,6	67,6	67,6	269,6	232,4	290,4	238,4	228,0	207,2	248,8	228,0
HTG-B92070-901		104,7	73,5	108,2	108,2	108,2	269,6	232,4	290,4	238,4	228,0	207,2	248,8	228,0
HTG-B92090-901		150,5	105,7	155,4	155,4	155,4	269,6	232,4	290,4	238,4	228,0	207,2	248,8	228,0
HTG-B92281-901		150,5	105,7	155,4	155,4	155,4	269,6	232,4	290,4	238,4	228,0	207,2	248,8	228,0
HTG-B92110-901	-	202,7	142,5	209,3	209,3	209,3	269,6	232,4	290,4	238,4	228,0	207,2	248,8	228,0
HTG-B92130-901		248,9	174,7	256,6	256,6	256,6	269,6	232,4	290,4	238,4	228,0	207,2	248,8	228,0
HTG-B92421-901		248,9	174,7	256,6	256,6	256,6	269,6	232,4	290,4	238,4	228,0	207,2	248,8	228,0
HTG-B92170-901		353,5	248,2	364,7	364,7	364,7	269,6	232,4	290,4	238,4	228,0	207,2	248,8	228,0
HTG-B92210-901		392,7	276,2	405,7	405,7	405,7	269,6	232,4	290,4	238,4	228,0	207,2	248,8	228,0



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

Model	Acid Absorption capacity (g) <sup>3</sup>	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	75°F	125°F
		R507A		R507A	R410A	R22										
		23,9°C		51,7°C	23,9°C	51,7°C										
HTG-A48050-901	10	65,5	45,9	67,6	67,6	67,6	58,0	50,0	61,7	50,7	47,9	43,5	52,9	48,5		
HTG-A48070-901		104,7	73,5	108,2	108,2	108,2	58,0	50,0	61,7	50,7	47,9	43,5	52,9	48,5		
HTG-A48090-901		150,5	105,7	155,4	155,4	155,4	58,0	50,0	61,7	50,7	47,9	43,5	52,9	48,5		
HTG-A48281-901		150,5	105,7	155,4	155,4	155,4	58,0	50,0	61,7	50,7	47,9	43,5	52,9	48,5		
HTG-A48110-901		202,7	142,5	209,3	209,3	209,3	58,0	50,0	61,7	50,7	47,9	43,5	52,9	48,5		
HTG-A48130-901		248,9	174,7	256,6	256,6	256,6	58,0	50,0	61,7	50,7	47,9	43,5	52,9	48,5		
HTG-A48421-901		59,9	174,7	256,6	256,6	256,6	58,0	50,0	61,7	50,7	47,9	43,5	52,9	48,5		
HTG-A48170-901		353,5	248,2	364,7	364,7	364,7	58,0	50,0	61,7	50,7	47,9	43,5	52,9	48,5		
HTG-A48210-901		392,7	276,2	405,7	405,7	405,7	58,0	50,0	61,7	50,7	47,9	43,5	52,9	48,5		
HTG-A96050-901	20	65,5	45,9	67,6	67,6	67,6	115,9	99,8	123,4	101,3	95,8	87,1	105,7	96,9		
HTG-A96070-901		104,7	73,5	108,2	108,2	108,2	115,9	99,8	123,4	101,3	95,8	87,1	105,7	96,9		
HTG-A96090-901		150,5	105,7	155,4	155,4	155,4	115,9	99,8	123,4	101,3	95,8	87,1	105,7	96,9		
HTG-A96281-901		150,5	105,7	155,4	155,4	155,4	115,9	99,8	123,4	101,3	95,8	87,1	105,7	96,9		
HTG-A96110-901		202,7	142,5	209,3	209,3	209,3	115,9	99,8	123,4	101,3	95,8	87,1	105,7	96,9		
HTG-A96130-901		248,9	174,7	256,6	256,6	256,6	115,9	99,8	123,4	101,3	95,8	87,1	105,7	96,9		
HTG-A96421-901		248,9	174,7	256,6	256,6	256,6	115,9	99,8	123,4	101,3	95,8	87,1	105,7	96,9		
HTG-A96170-901		353,5	248,2	364,7	364,7	364,7	115,9	99,8	123,4	101,3	95,8	87,1	105,7	96,9		
HTG-A96210-901		392,7	276,2	405,7	405,7	405,7	115,9	99,8	123,4	101,3	95,8	87,1	105,7	96,9		
HTG-B44050-901	30	65,5	45,9	67,6	67,6	67,6	173,9	149,9	185,1	152,0	143,6	130,5	158,6	145,4		
HTG-B44070-901		104,7	73,5	108,2	108,2	108,2	173,9	149,9	185,1	152,0	143,6	130,5	158,6	145,4		
HTG-B44090-901		150,5	105,7	155,4	155,4	155,4	173,9	149,9	185,1	152,0	143,6	130,5	158,6	145,4		
HTG-B44281-901		150,5	105,7	155,4	155,4	155,4	173,9	149,9	185,1	152,0	143,6	130,5	158,6	145,4		
HTG-B44110-901		202,7	142,5	209,3	209,3	209,3	173,9	149,9	185,1	152,0	143,6	130,5	158,6	145,4		
HTG-B44130-901		248,9	174,7	256,6	256,6	256,6	173,9	149,9	185,1	152,0	143,6	130,5	158,6	145,4		
HTG-B44421-901		248,9	174,7	256,6	256,6	256,6	173,9	149,9	185,1	152,0	143,6	130,5	158,6	145,4		
HTG-B44170-901		353,5	248,2	364,7	364,7	364,7	173,9	149,9	185,1	152,0	143,6	130,5	158,6	145,4		
HTG-B44210-901		392,7	276,2	405,7	405,7	405,7	173,9	149,9	185,1	152,0	143,6	130,5	158,6	145,4		
HTG-B92050-901	40	65,5	45,9	67,6	67,6	67,6	231,9	199,9	246,8	202,6	191,5	174,0	211,5	193,8		
HTG-B92070-901		104,7	73,5	108,2	108,2	108,2	231,9	199,9	246,8	202,6	191,5	174,0	211,5	193,8		
HTG-B92090-901		150,5	105,7	155,4	155,4	155,4	231,9	199,9	246,8	202,6	191,5	174,0	211,5	193,8		
HTG-B92281-901		150,5	105,7	155,4	155,4	155,4	231,9	199,9	246,8	202,6	191,5	174,0	211,5	193,8		
HTG-B92110-901		202,7	142,5	209,3	209,3	209,3	231,9	199,9	246,8	202,6	191,5	174,0	211,5	193,8		
HTG-B92130-901		248,9	174,7	256,6	256,6	256,6	231,9	199,9	246,8	202,6	191,5	174,0	211,5	193,8		
HTG-B92421-901		248,9	174,7	256,6	256,6	256,6	231,9	199,9	246,8	202,6	191,5	174,0	211,5	193,8		
HTG-B92170-901		353,5	248,2	364,7	364,7	364,7	231,9	199,9	246,8	202,6	191,5	174,0	211,5	193,8		
HTG-B92210-901		392,7	276,2	405,7	405,7	405,7	231,9	199,9	246,8	202,6	191,5	174,0	211,5	193,8		

**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



**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)

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

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>**

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-A48281-901	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-A48421-901	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-A96281-901	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-A96421-901	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-B44281-901	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-B44421-901	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-B92281-901	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-B92421-901	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. Only for R407C and R410A is present a second column identify by a (\*) with the capacities rated at the maximum recommended pressure drop for temporary installation.

Suction line Filter-Driers guarantees an acid removal and a drying capacity described in 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:

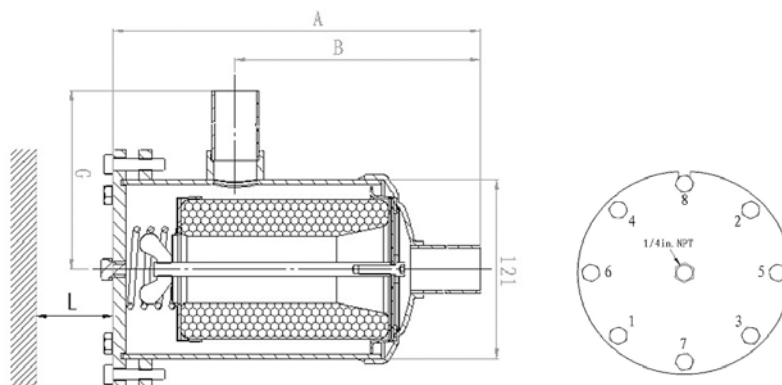
R22: EPD = 10 ppm W, corresponding dew point temperature is -50°C

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





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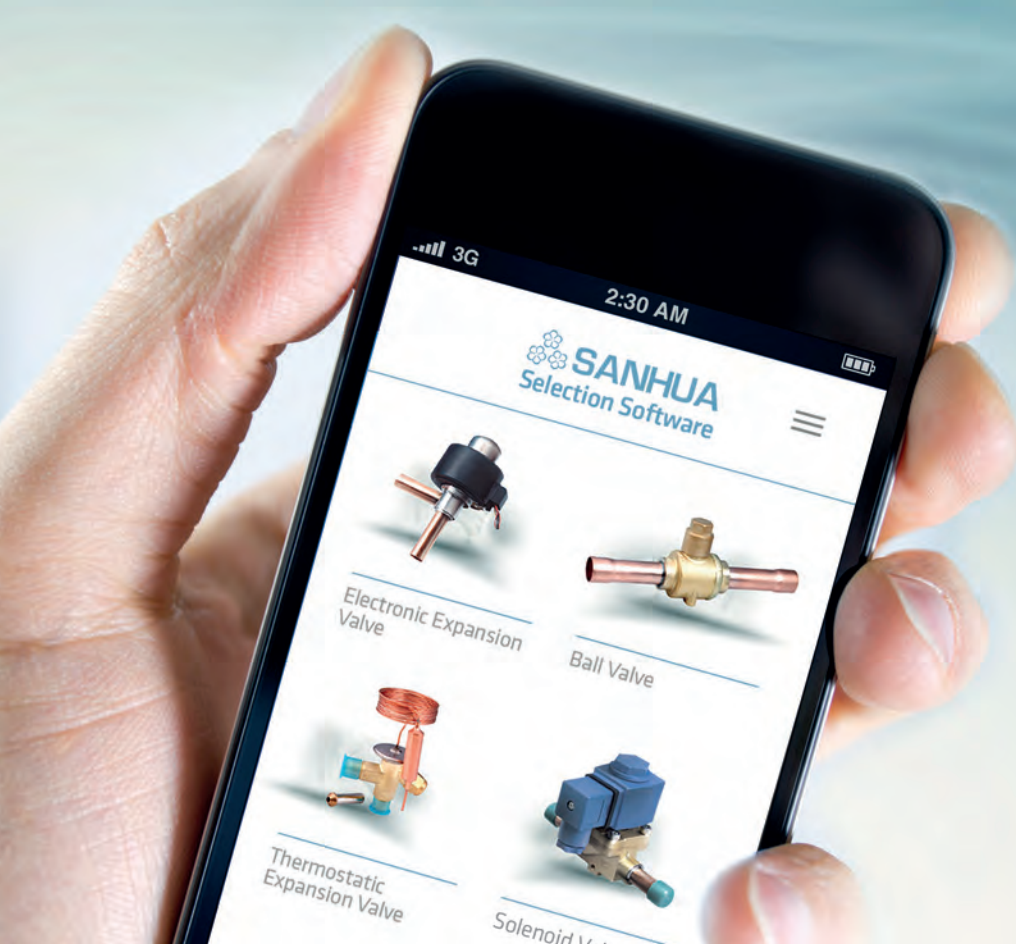
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