SANHUA

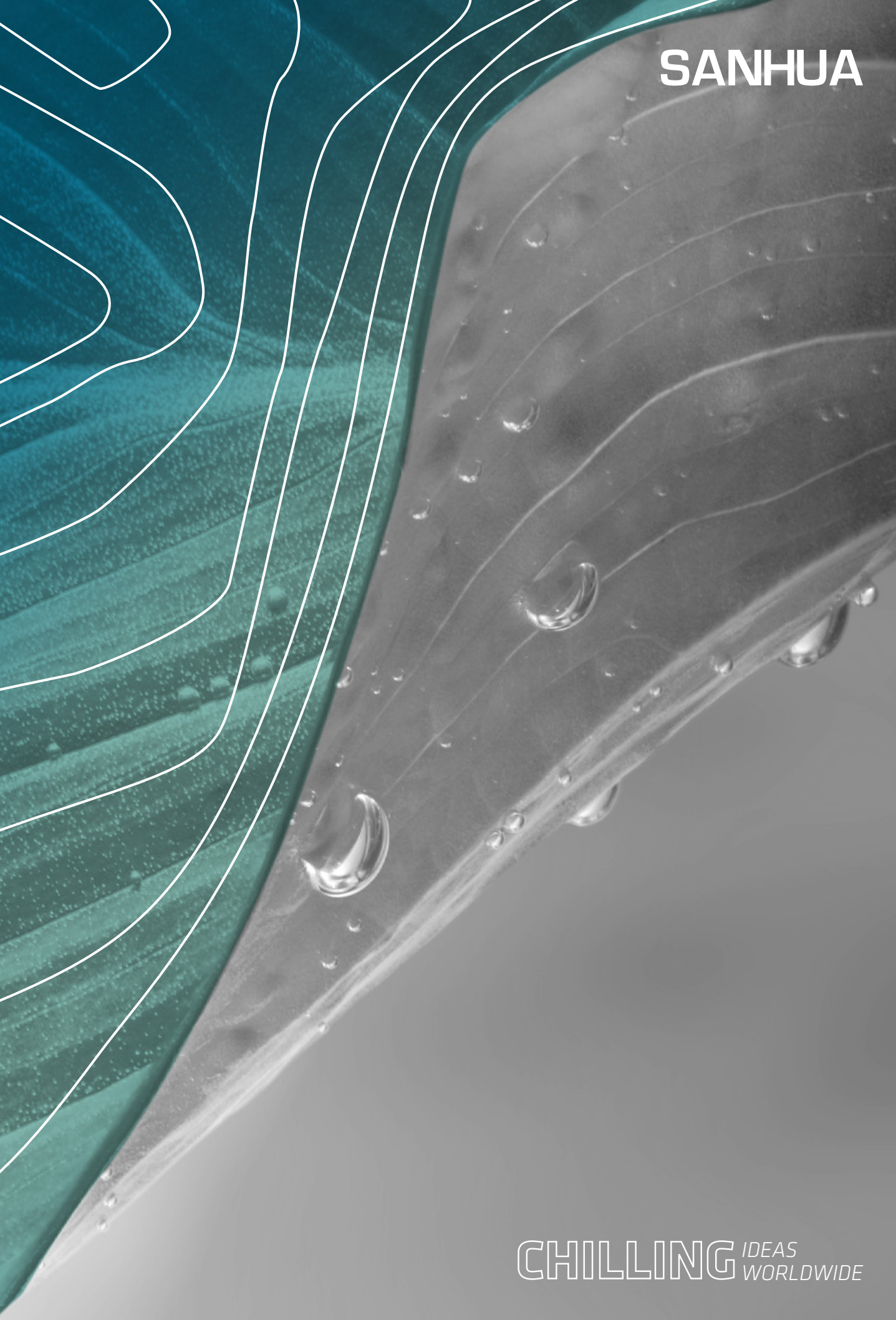
GREEN TECH LINE

CATALOGUE

Commercial refrigeration
Heat pump
Air conditioning

GREEN TECH

Solutions for natural refrigerants


SANHUA
CHILLING IDEAS
WORLDWIDE

SANHUA

GREEN TECH LINE

Solutions for natural refrigerants

OUR COMMITMENT TO PROVIDE GREEN TECHNOLOGY FOR LOW CARBON FOOT PRINT

We provide components and solutions to HVAC-R industry in order to support the protection of the environment by reducing carbon foot print, energy consumption and increasing system efficiency.

CHILLING *IDEAS WORLDWIDE*

COMPONENTS SUITABLE FOR R290-PROPANE AND OTHER HC & A2L REFRIGERANTS

Propane and other HC & A2L refrigerants		
CONTROLLER for EL. EXP. VALVE	SEC61x & SECR03	
ELECTRONIC EXPANSION VALVE - Uni polar	LPF	
ELECTRONIC EXPANSION VALVE - Uni polar	DPF(TS1)/(S03)	
ELECTRONIC EXPANSION VALVE - Bi polar	VPF	limited to VPF100
PRESSURE SENSOR	YCQ-A2L	
THERMOSTATIC EXPANSION VALVE	RFGB06	
SOLENOID VALVE	MDF	Limited to MDF-A03-22H
SOLENOID VALVE	LDF	
SOLENOID VALVE	FDF	
4 WAY REVERSING VALVE	SHF	
BALL VALVE	SBV	For models with DN≤25mm
BALL VALVE	SBV-R	
CHECK VALVE	YCVS	For models with DN≤25mm
CHECK VALVE	YCVS-R	
SIGHT GLASS	SYJ	
UNI-FLOW FILTER DRIER	DTG	
BI-FLOW FILTER DRIER	STG	

COMPONENTS SUITABLE FOR R32

CONTROLLER for EL. EXP. VALVE	SEC61x & SECR03	
ELECTRONIC EXPANSION VALVE - Uni polar	DPF	
ELECTRONIC EXPANSION VALVE - Bi polar	VPF	limited to VPF100
PRESSURE SENSOR	YCQ-R32	
SOLENOID VALVE	MDF-RH	limited to MDF-A03RH-22H
SIGHT GLASS	SYJ-R	
4 WAY REVERSING VALVE	SHF-R	
BALL VALVE	SBV-R	
BALL VALVE	RBV-R	
CHECK VALVE - Magnetic Type	CCV	
CHECK VALVE - Piston Type	YCVS-R	
UNI-FLOW FILTER DRIER	DTG-R	
BI-FLOW FILTER DRIER	STG-R	
FILTER DRIERS WITH REPLACEABLE CORE	HTG-R	

COMPONENTS SUITABLE FOR R744 – CO_2

CONTROLLER for EL. EXP. VALVE	SEC61x & SECR03
Electronic Expansion Valve	DPF-R
Electronic Expansion Valve	LPFF-D
PRESSURE SENSOR	YCQ-R744
BALL VALVE - PS=60bar	CBV
BALL VALVE - PS=140bar	CBVT

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CATALOGUE

CA-GT-EN-R2203

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Certificate of registration
ISO 14001:2004

Certificate of registration
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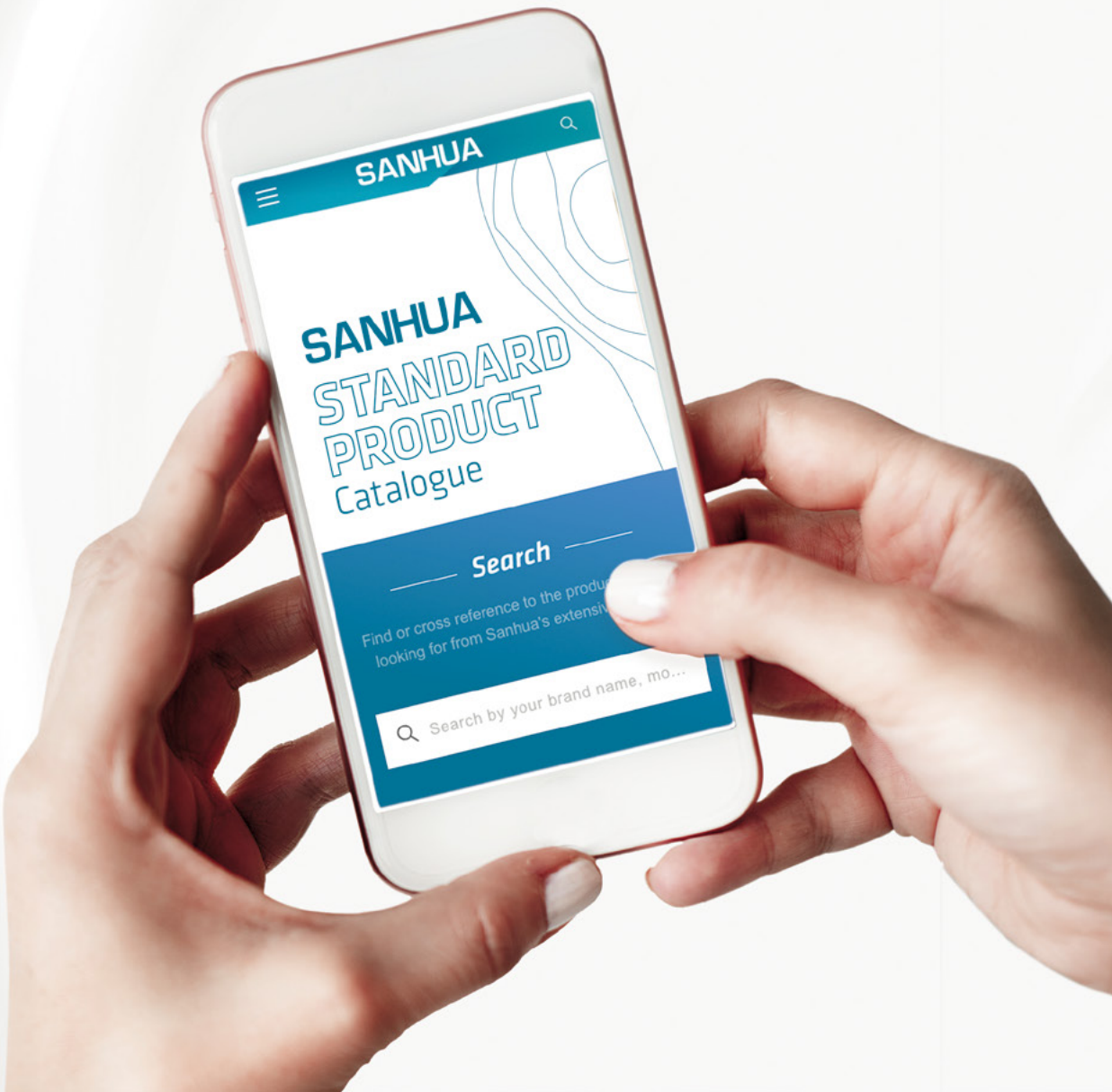
REACH
NR. 1907/2006
CONFORMITY DECLARATION

BEST SUPPLIER AWARDS

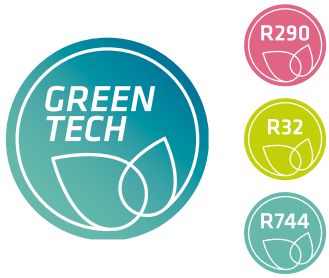
B/S/H/ Carrier TRANE



SANHUA

GREEN TECH LINE

Solutions for natural refrigerants



SUMMARY

Clickable


R2900
Product Line Series

Product Line Series

The Sanhua R290 Product Line Series collects all the products designed and developed for usage with flammable refrigerants like R290 (propane), R1270 (propylene), R600a (isobutane) but also with the new generation of refrigerants classified as A2L (lightly flammable refrigerant) according to ASHRAE STANDARD 34-2016 and EN 378-1:2016 Annex E. The European Regulation EU No. 517/2014 on fluorinated greenhouse gases (F-Gas Regulation) imposes a clear plan to gradually reduce the use and the impact of HFCs with high GWP. The final goal is to reduce dramatically the quotes in the market of the refrigerants with GWP above 2500 (first step) and the ones with GWP above 150 (second and final step). In some critical applications like domestic refrigerators and freezers the prohibition of HFC with GWP > 150 started from the 1st of January 2015. Many other applications see as deadline for the use of high GWP HFCs the 1st of January 2020 or the 1st of January 2022.

In Air Conditioning (A/C), in Commercial Refrigeration, and in Food retail applications the R290 is a very good alternative to traditional HFCs like R410A, R407C and R404A. Propane (GWP=3) can easily become the long term solution in many refrigeration units and systems, substituting the R404A, an HFC with high GWP level equal to 3922.

Besides propane, the Sanhua R290 Product Line Series, can be successfully used also in systems operating with synthetic lightly flammable refrigerants (A2L) like HFO, R1234ze(E), R1234y, R454A/B/C, R455A etc.

The refrigerant R290 is classified as A3 (flammable refrigerant) according to ASHRAE STANDARD 34-2016 and EN 378-1:2016 Annex E. It also belongs to Group 1 which includes substances and mixtures, as defined in points 7 and 8 of Article 2 of EC Regulation No 1272/2008, that are classified as hazardous in accordance with physical or health hazard classes as laid down in Parts 2 and 3 of Annex I to that Regulation. A list of 18 classes of hazardous fluids is included in point 1.a of Article 13 (explosive, flammable, oxidizing, toxic). According to the PED Directive 2014/68/EU (Art.4.1 and ANNEX II), in case of usage with fluids Group 1, the valves with Nominal Diameter > 25mm belong to Category II and they must satisfy the essential safety requirements set out in Annex I. All these models (Cat.II) are covered by a third part certification issued by a recognized European notify body. The complete Sanhua R290 product line series can also be used with HFC refrigerants (A1 ref.), classified in Group 2 according to EC Regulation No 1272/2008.

All the electromechanical valves present in the Sanhua R290 Product Line Series ensure a protection against the electric shock respecting the appropriate mounting described in the installation manual. Each valve and coil respect, where applicable, the prescription of the EU Directive 2014-35-EU (Low Voltage Directive).

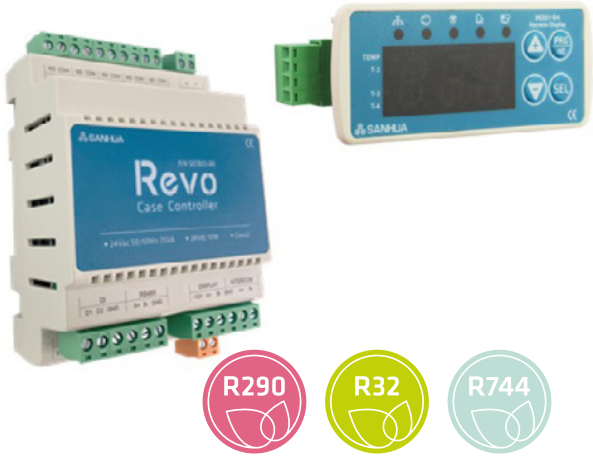
An additional third part certification issued by VDE institute guarantees the respect of the prescriptions indicated in the LVD and in the standards listed below, ensuring a safety usage of the product in systems operating with flammable refrigerants (A2L ref.) and (A3 ref.):

EN 60335-2-24; EN 60335-2-24 Subclause 22.110.
EN 60335-2-89; EN 60335-2-89 Subclause 22.109.
EN 60335-2-40; EN 60335-2-40 + A11:2004 + A12:2005 + A1:2006 + A2:2009 + A13:2012 + A13:2012/AC:2013

subclause 22.116 (no electrical component, which could be a source of ignition in case of normal operation or in the event of a leak);
subclause 22.117 (Annex BB).

SECR03 *SERIES*

REFRIGERATED CABINET CONTROLLER SECR03 SERIES



FEATURES

- COMPLETE CABINET CONTROLLER INTEGRATED EEV CONTROL, CABINET TEMPERATURE CONTROL, DEFROSTING CONTROL, EVAPORATING FAN CONTROL AND OTHER FUNCTIONS
- INTERCOM FOR MULTIPLE CONTROLLERS SHARED SIGNAL
- DUAL TEMP MODE FOR MULTIPLE OPERATING CONDITIONS
- ENERGY EFFICIENT, ACHIEVING THE MOST EFFICIENT USE OF THE EVAPORATOR

GENERAL SPECIFICATIONS

- Applicable for various refrigerants
- Operating temperature:
  -30 ~ 55°C
- Storage temperature:
  -30 ~ 55°C
- Relative humidity:
  ≤95%RH
- Certification:
  CE Declaration according to EMC
- Installation method:
  DIN35 rail install
- Compatible with Sanhua DPF and LPF valves

ELECTRICAL PARAMETERS

- Power supply:
  24Vac +10%/-15%, 50/60Hz
  24Vdc+10%/-15%, Class II
- Requested transformer:
  >15W (24Vdc) / >25VA (24Vac)
- Connection:
  Pluggable terminal (M3)
  Torque 0.5N.m, current ≤ 3A(220V),
  Min / Max wire diameter 0.34 ~ 2.5mm2
  XHP terminal (EEV and sensors)
- Communication:
  RS485, Remote Display, InterCom

REFRIGERATED CABINET CONTROLLER SECR03 SERIES

MODEL DESIGNATION LEGEND

NO. 1 2 3		Model Designation Legend
SECR03-R0	→	SANHUA electronic Expansion valve Controller
SEC**R03**-R0	→	Revo series refrigerated cabinet controller
SECR03-**R0**	→	R0 means no display on shell and need remote display

ORDERING METHOD

All the models are compatible with the main refrigerants on the market:
R22, R404A, R410A, R134a, R407C, R507, R1234ze, R1234yf, R290, R450A, R513A, R448A, R449A, R452A, R744(CO2), R744(N20), R32, R245fa, R23, R407A, R407F, R124, R717, R407H,R454C,R455A.

Model	Part Number	Details
SECR03-R0	10680001902	Cabinet controller
MD01-R4	10680002002	Remote display
YCQB02H01	10185001502	0-20bar, 0.5-3.5V, 1/4” soldering, 2m cable
YCQB02H18	10185015402	0-20bar, 0.5-3.5V, 1/4” soldering, 4.9m cable
YCQB02L12	10185015502	0-20bar, 0.5-3.5V, Thread: SAE-1/4" 7/16-20UNF-2B, 2m cable
YCQB02L28	10185015602	0-20bar, 0.5-3.5V, Thread: SAE-1/4" 7/16-20UNF-2B, 4.9m cable
NTC2A1	10665000102	Temperature Sensor (NTC 5 KΩ), 2m cable
NTC5A1	10665000202	Temperature Sensor (NTC 5 KΩ), 5m cable
NTC9A1	10665000402	Temperature Sensor (NTC 5 KΩ), 9m cable

Note: The temperature & pressure sensors should be ordered separately.
Other pressures transmitters are available on the YCQ datasheet.

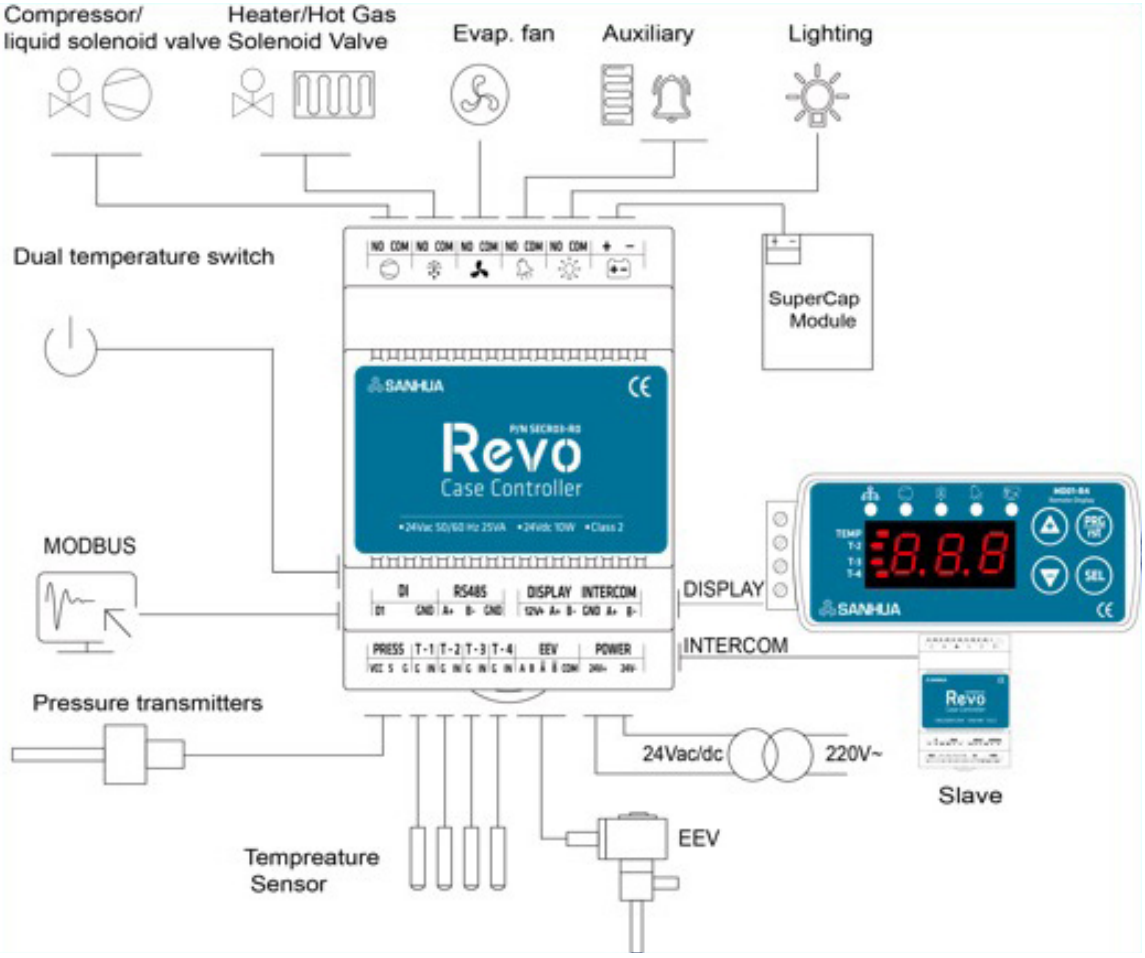
REFRIGERATED CABINET CONTROLLER SECR03 SERIES

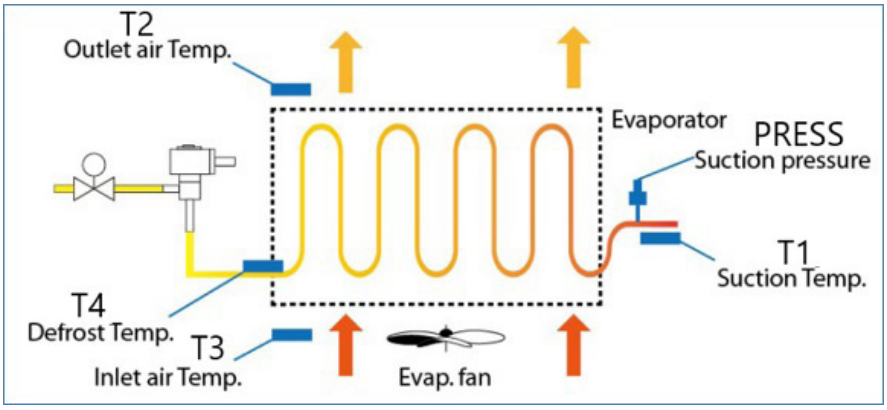
SENSOR INFORMATION

Items	Description	
Temperature sensor	Sensor type	NTC 5KΩ
	Cable specification	2 / 5 or 9 m × 0.5mm²
	Protection level	IP 67
	Accuracy	±0.3°C (at 25°C)
	Operating temperature range	-55 ~ 85°C
Pressure Transmitter	Power Supply	YCQB: (5±0.25) V DC
	Output signal	YCQB: (0.5 ~ 3.5) VDC
	Pressure range accuracy	±2.0% F.S. (-30°C/+85 °C)
	Protection level	IP 67
	Connection	Soldering: 1/4" or Thread: 1/4"SAE 7/16-20UNF

REFRIGERATED CABINET CONTROLLER SECR03 SERIES

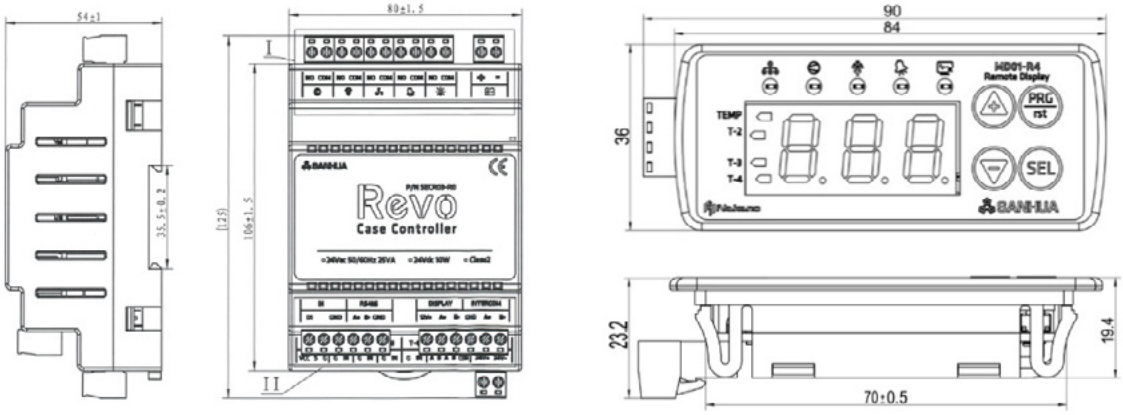
INSTALLATION





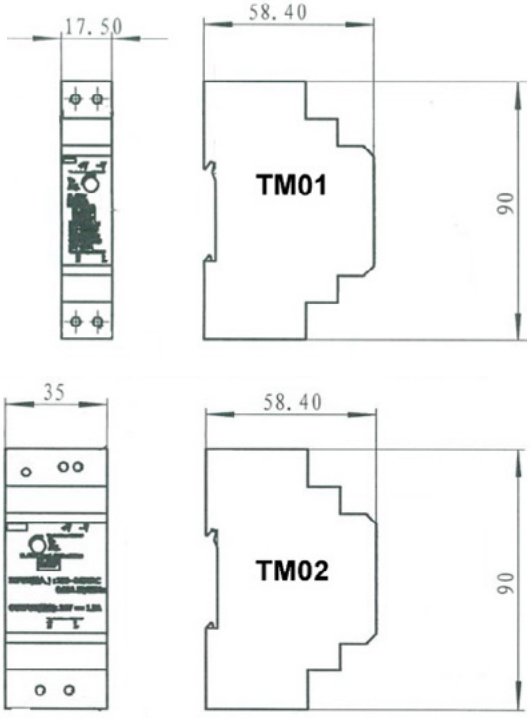
REFRIGERATED CABINET CONTROLLER SECR03 SERIES

DIMENSIONS



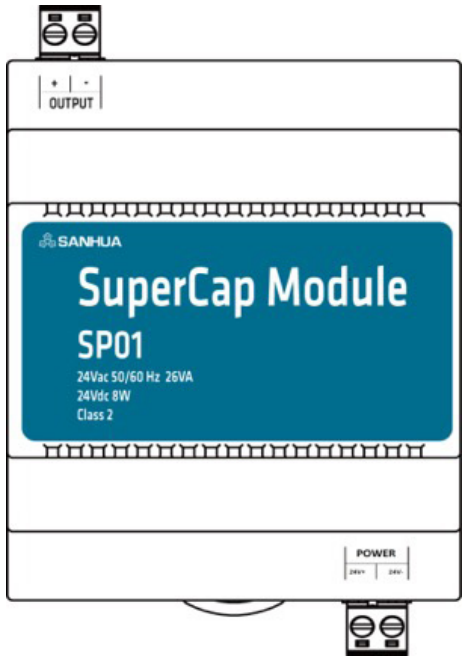
ACCESSORIES

Transformer

Item	Description		
Transformer	Supply Voltage	100 ~ 240 VAC	
	Output Voltage	From 21.6 to 29V, Set at 24 VDC	
	Output current	0.63 A for TM01 1.5 A for TM02	
	Operating Temperature	-30 ~ +70°C	
	Mounting	DIN 35mm	

Model	Part number	Output current
TM01	20680008002	0.63 A
TM02	20680008102	1.5 A

ULTRACAPACITOR

Item	Description	
Model	SP01	
Dimension	80 (W)mm x 106 (H)mm x 54(D)mm	
Voltage input	24Vac, +10%/-15%, 50/60HZ 24Vdc, +10%/-15%	
Voltage output	22.5~23.5V at Charging (24Vdc input), 14~16V at discharging	
Discharging time	≥25s(Load current400mA)	
Rated power	Max 8w(24Vdc)or 26VA(24Vac)	
Operation	-30 ~ +55°C,≤95%RH (Non-condensing)	
Storage	30 ~ +55°C,≤95%RH (Non-condensing)	

Model	Part number
SP01	206800083

SEC61X *SERIES*

ELECTRONIC EXPANSION VALVE CONTROLLER

Electronic Expansion Valve Controller SEC61X series is the controller with enhanced features for the refrigeration applications, A/C and HP applications.

R290 R32 R744

FEATURES

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

GENERAL SPECIFICATIONS

- Applicable for various refrigerants
- Operating temperature: -30~55°C
- Storage temperature: -30~55°C
- Relative humidity: ≤95%RH
- Certification: UL, CE Declaration according to EMC
- Installation method: DIN railsnap-in or wall mounting with screws
- Compatible with Sanhua DPF and LPF valves

ELECTRICAL PARAMETERS

- Power supply:
  24Vac +10%/-15%, 50/60Hz (SEC611 & SEC613 only)
  24Vdc+10%/-15% (Suitable for all the SEC models) Class II
- Requested transformer: ≥ 15VA
- Inputs: 1 Pressure sensor input
  1 Temperature sensor input
  1 Communicationinput (RS485 Modbus)
- Output: 1 Auxiliary relay output (30Vdc/3A)
  1 EEV output (12V DC±10%), rectangular wave

SEC61X SERIES
ELECTRONIC EXPANSION VALVE CONTROLLER

MODEL DESIGNATION LEGEND

NO.				Model Designation Legend
1	2	3	4	
SEC	6	11	R4	SANHUA electronic Expansion valve Controller
SEC	**6**	11	R4	Digital means the sixth-generation product
SEC	6	**11**	R4	Odd means voltage P-sensor, even means current type
SEC	6	11	**R4**	R4 means with RS485 modbus communication

ORDERING METHOD

All the models are compatible with the main refrigerants on the market :

R22, R404A, R410A, R134a, R407C, R507, R1234ze, R1234yf, R290, R450A, R513A, R448A, R449A, R452A, R744(CO2), R744(N20), R32, R245fa, R23, R407A, R407F, R124, R717, R407H, R454C, R455A.

All the models get a RS485 port for communication.

NO.	Item	Model	Part Number	Details		
				Item		Qty.
1	Controller Package[1)]	SEC611-R4 SEC613-R4	10680001002 10680001202	**Voltage** pressure sensor	**°C/Bar**	1
					°F/Psi	1
		SEC612-R4 SEC614-R4	10680001102 10680001302	**Current** pressure sensor	**°C/Bar**	1
					°F/Psi	1
2	Temp. Sensor[2)]	NTC2A1	10665000102	2m Temp. Sensor		
3		NTC5A1	10665000202	5m Temp. Sensor		
4		NTC9A1	10665000402	9m Temp. Sensor		
6	Pressure Sensor[3)]	YCQB02H01-1	10185001502	**Ratio** with **Solder** connection, **2m** cable length		
7		YCQB02L12-1	10185015502	**Ratio** with **Thread** connection, **2m** cable length		
8		YCQB02H18-1	10185015402	**Ratio** with **Solder** connection, **4.9m** cable length		
9		YCQB02L28-1	10185015602	**Ratio** with **Thread** connection, **4.9m** cable length		
10		YCQC02L18	10185017102	**Current** with **Thread** connection, **Packard** connection		
11	Packard cable	YCQC02-013038	20185051202	**5m** cable length		
12		YCQC02-013039	20185051302	**9m** cable length		

Note: The temperature & pressure sensors should be ordered separately.

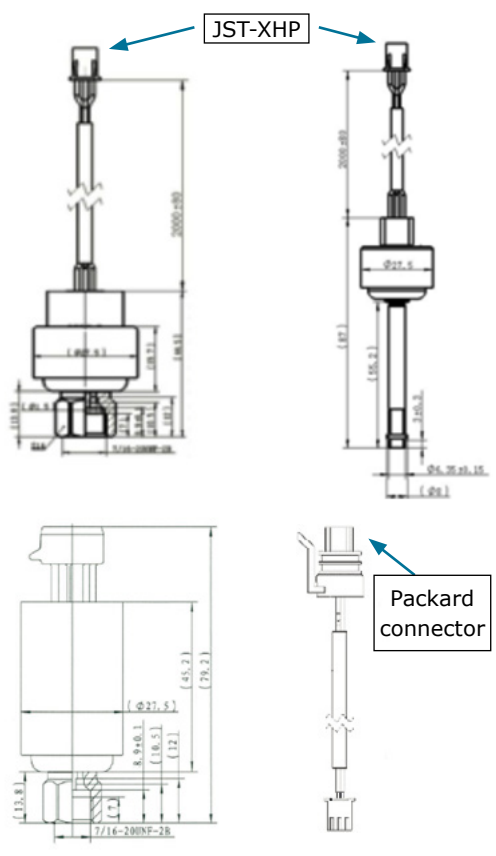
Others YCQ models are available, please check the SANHUA YCQ Datasheet or ask your local support

SEC61X SERIES
ELECTRONIC EXPANSION VALVE CONTROLLER

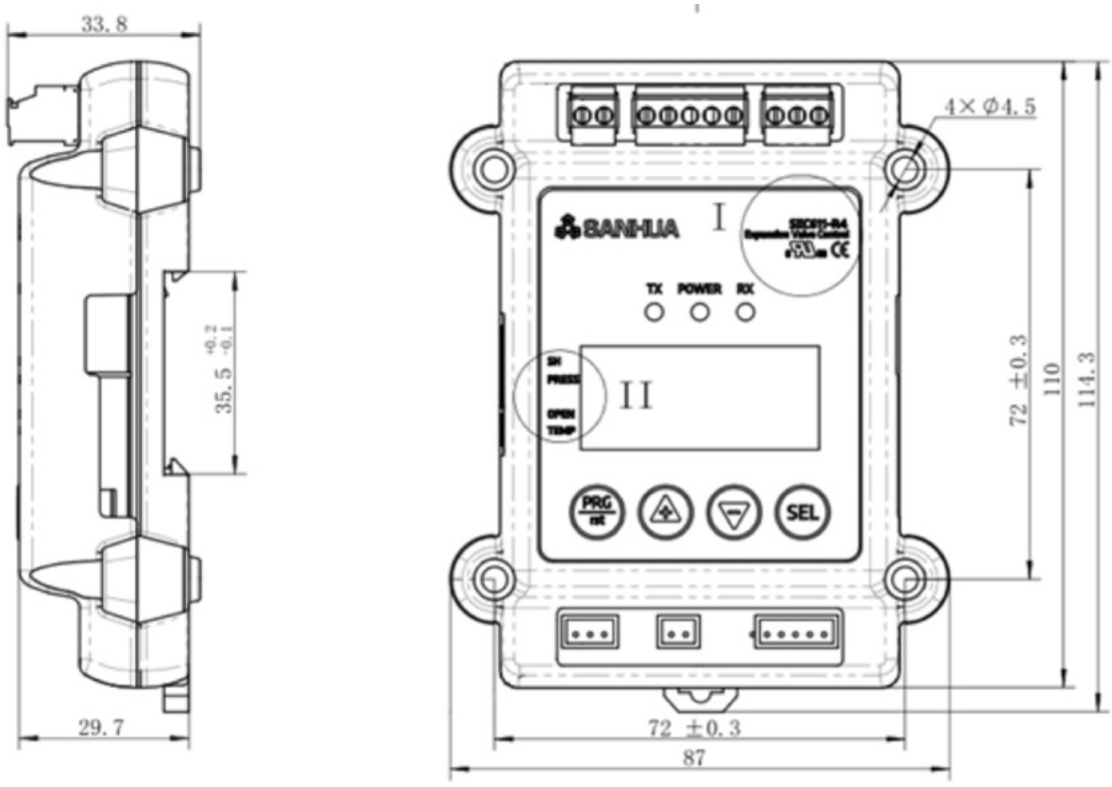
TEMPERATURE SENSOR

Item	Description	
Temperature Sensor	Type	NTC 5KΩ
	Wire	2C×0.5mm²
	Protection class	IP 67
	Accuracy	±0.3ºC (below25ºC)
	Temperature Range	-50 ~50ºC
	Electrical connector	JST-XHP connector
		

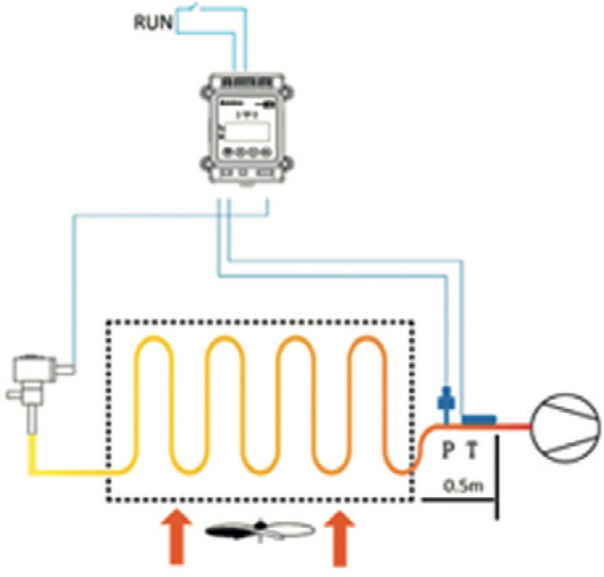
PRESSURE SENSORS

Item	Description		
Pressure sensor	Voltage supply	YCQB: 5±0.25 Vdc YCQC: 10-30 Vdc	
	Output	YCQB: 0.5~3.5 Vdc YCQC: 4-20mA	
	Pressure range	0~20 Bar -1~12 Bar	
	Test Pressure	52.5Bar	
	Accuracy	±0.8% F.S.(-40~40ºC)	
	Protection class	IP 67	
	Connection Type	Solder 1/4” Thread SAE - 1/4” 7/16-20UNF	
	Electrical connector	JST-XHP connector Packard connector	

DIMENSIONS AND INSTALLATION

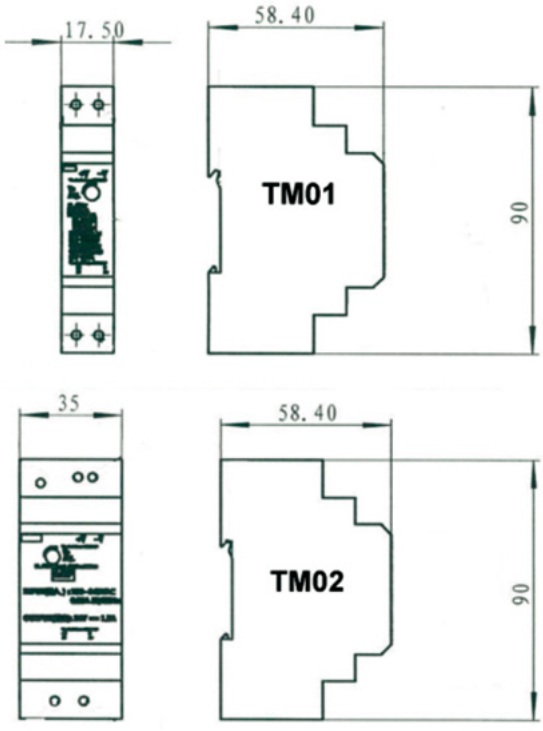


INSTALLATION DIAGRAM



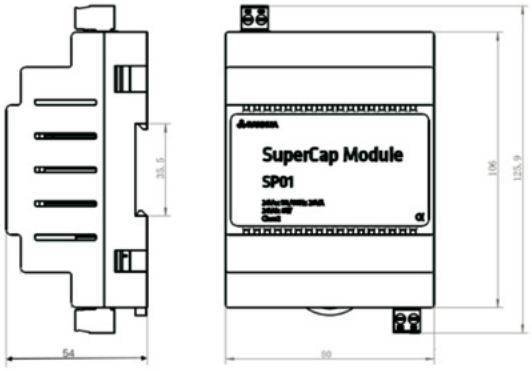
ACCESSORIES

Transformer

Item	Description		
Transformer	Supply Voltage	100 ~ 240 VAC	
	Output Voltage	From 21.6 to 29V, Set at 24 VDC	
	Output current	0.63 A for TM01 1.5 A for TM02	
	Operating Temperature	-30 ~ +70°C	
	Mounting	DIN 35mm	

Model	Part Number	Output current	Code reported on the product label
TM01	20680008002	0.63 A	HDR 15
TM02	20680008102	1.5 A	HDR 30

Supercapacitor

Item	Description		
Supercapacitor	Power supply	24Vac +10%/-15%, 50/60Hz 24Vdc+10%/-15%, Class II	
	Protection Level	IP20	
	Mounting	DIN 35mm	
	Weight	171 g	

Model	Part Number
SP01	10680001702

LPF SERIES

ELECTRONIC EXPANSION VALVE

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

R290 R744

FEATURES

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

GENERAL SPECIFICATION

- Applicable for all common HFCF, HFC and HFO refrigerants (such as: R134a, R404A, R407A/F, R407C, R410A, R448A, R449A, R450A, R452A, R513A, R507A and also for flammable refrigerants like R290,R1234ze, R454C, R455A, R1234yf and R744 (CO_2)
- 500 steps (full stroke); 32 ± 20 opening steps
- Medium temperature TS min./max.: -40°C / +70°C (duty cycle rate below 40%)
- Ambient temperature min./max.: -40°C / +60°C (duty cycle rate below 40%)
- Relative humidity: 0 to 95% RH
- Design Pressure:
  42 bar, MOPD: 35 bar (LPF series)
  60 bar, MOPD: 35 bar (LPF...D series, designed for R744 refrigerant)
- Reverse operating pressure difference≥ 2.1 MPa

LPF SERIES

ELECTRONIC EXPANSION VALVE

ELECTRICAL PARAMETERS

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

GENERAL CHARACTERISTICS

Condition 1: Tc/Te/Sc/SH: 45oC/-10oC/2K/6K (0 °C/-20 °C/2K/6K for R744)

Valve Model	Seat Φ (mm)	Kv (m³/h)	Maximal Cooling Capacity [kW]							
			R134a	R404A	R407F	R448A	R449A	R450A	R452A	R513A
LPF08 LPF08D	0.8	0.025	2.23	1.96	3.15	2.82	2.76	1.94	2.07	1.84
LPF10 LPF10D	1.0	0.04	3.64	3.2	5.14	4.60	4.49	3.16	3.37	3.00
LPF14 LPF14D	1.4	0.08	6.90	6.08	9.75	8.70	8.51	6.00	6.39	5.69
LPF18 LPF18D	1.8	0.12	9.53	8.40	13.47	12.0	11.76	8.29	8.83	7.86
LPF24 LPF24D	2.4	0.2	13.04	11.50	18.43	16.45	16.09	11.34	12.1	10.75
LPF30	3.0	0.27	19.0	17	26.9	24.1	23.6	16.5	17.8	15.7
LPF32	3.2	0.30	20.8	18.7	19.6	26.4	25.9	18.1	19.6	17.2

Valve Model	Seat Φ (mm)	Kv (m³/h)	Maximal Cooling Capacity [kW]							
			R454B	R454C	R455A	R1234yf	R1234ze	R290	R410A	R744
LPF08 LPF08D	0.8	0.025	4.0	2.41	2.62	1.57	1.72	3.0	3.43	4.7
LPF10 LPF10D	1.0	0.04	6.52	3.93	4.27	2.55	2.81	4.87	5.6	7.6
LPF14 LPF14D	1.4	0.08	12.36	7.45	8.10	4.84	5.32	9.23	10.6	14.4
LPF18 LPF18D	1.8	0.12	17.08	10.3	11.20	6.69	7.36	12.7	14.64	19.9
LPF24 LPF24D	2.4	0.2	23.37	14.1	15.32	9.16	10.07	17.3	20.0	27.2
LPF30	3.0	0.27	34.2	20.6	22.5	13.4	14.6	25.4	29.5	-
LPF32	3.2	0.30	37.5	22.6	24.7	14.7	16.0	27.9	32.3	-

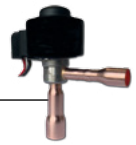
Condition 2: Tc/Te/Sc/SH: 45°C/-35°C/2K/6K (-10°C/-40°C/2K/6K for R744)

Valve Model	Seat Φ (mm)	Kv (m^3/h)	Maximal Cooling Capacity [kW]							
			R134a	R404A	R407F	R448A	R449A	R450A	R452A	R513A
LPF08 LPF08D	0.8	0.025	2.1	1.81	3.04	2.68	2.62	1.79	1.88	1.69
LPF10 LPF10D	1.0	0.04	3.43	2.95	4.96	4.36	4.26	2.92	3.07	2.75
LPF14 LPF14D	1.4	0.08	6.5	5.6	9.4	8.27	8.08	5.53	5.82	5.21
LPF18 LPF18D	1.8	0.12	9.00	7.73	13.0	11.43	11.17	7.64	8.04	7.21
LPF24 LPF24D	2.4	0.2	12.3	10.58	17.78	15.65	15.29	10.45	11.0	9.86
LPF30	3.0	0.27	18.0	15.8	26.1	23.0	22.5	15.3	16.4	14.5
LPF32	3.2	0.30	19.7	17.4	28.7	25.3	24.7	16.8	18.0	15.9

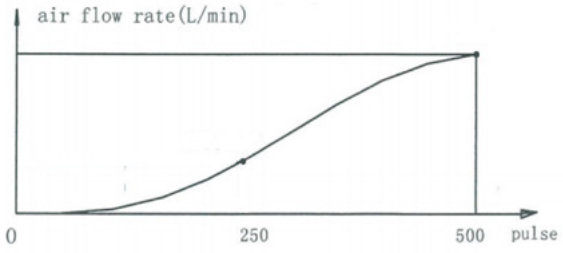
Valve Model	Seat Φ (mm)	Kv (m^3/h)	Maximal Cooling Capacity [kW]							
			R454B	R454C	R455A	R1234yf	R1234ze	R290	R410A	R744
LPF08 LPF08D	0.8	0.025	4.03	2.23	2.43	1.4	1.57	2.86	3.42	5.4
LPF10 LPF10D	1.0	0.04	6.56	3.63	3.95	2.28	2.55	4.66	5.57	8.8
LPF14 LPF14D	1.4	0.08	12.45	6.89	7.50	4.33	4.84	8.84	10.57	16.6
LPF18 LPF18D	1.8	0.12	17.20	9.53	10.36	5.98	6.69	12.21	14.61	23.0
LPF24 LPF24D	2.4	0.2	23.54	13.03	14.17	8.18	9.15	16.7	20.0	31.5
LPF30	3.0	0.27	34.6	19.2	20.9	12.0	13.4	24.4	28.3	-
LPF32	3.2	0.30	37.9	21.1	23.0	13.2	14.7	26.8	31	-

Note: The Max capacity is given for full opened position

LPF... is standard series, LPF...D is designed for CO_2 application

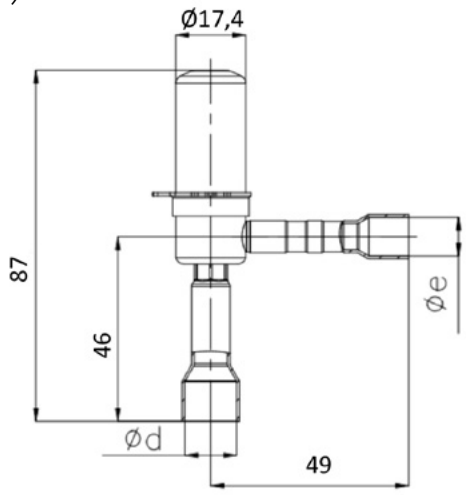


FLOW CHARACTERISTIC (EQUAL PERCENTAGE)



DIMENSIONS

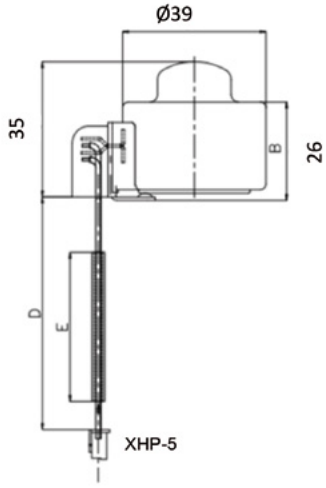
(Unit is mm)



LPF SERIES
ELECTRONIC EXPANSION VALVE

Valve Model	Part Number Multi-Pack	Dimensions (mm unless specified)		Weight (g)
		Øe Inlet	Ød Outlet	
LPF08-001/ LPF08D-001	10136003202/ 10136003702	3/8	1/2	51,2
LPF08-002/ LPF08D-002	10136003302/ 10136003802	1/4	1/4	
LPF08-003/LPF08D-003	10136004302 /	10mm	12mm	
LPF10-002/ LPF10D-002	10136000502/ 10136002002	3/8	1/2	
LPF10-003/ LPF10D-003	10136000602/ 10136002102	1/4	3/8	
LPF10-004/ LPF10D-004	10136000702/ 10136002202	10mm	12mm	
LPF10-005/ LPF10D-005	10136000802/ 10136002302	6mm	10mm	
LPF14-002/ LPF14D-002	10136000902/ 10136002402	3/8	1/2	
LPF14-003/ LPF14D-003	10136001002/ 10136002502	1/4	3/8	
LPF14-004/ LPF14D-004	10136001102/ 10136002602	10mm	12mm	
LPF14-005/ LPF14D-005	10136001202/ 10136002702	6mm	10mm	
LPF18-002/ LPF18D-002	10136001302/ 10136002802	3/8	1/2	
LPF18-003/ LPF18D-003	10136001402/ 10136002902	10mm	12mm	
LPF24-002/ LPF24D-002	10136001502/ 10136003002	3/8	1/2	
LPF24-003/ LPF24D-003	10136001602/ 10136003102	10mm	12mm	
LPF30-001	10136003902	3/8	1/2	
LPF30-002	10136004602	10mm	12mm	
LPF32-001	10136003402	3/8	1/2	
LPF32-002	10136004002	1/4	3/8	
LPF32-003	10136004502	10mm	12mm	

The coil is separated
(Unit is mm)



Coil Model	Coil Code number	Coil Dimensions [mm]	Weight (g)
		L1	
PQ-M24012-000007	10810127602	1500	140,2
PQ-M24012-000008	10810129502	3000	
PQ-M24012-000009	10810129602	6000	
PQ-M24012-000010	10810129702	9000	

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DPF-TS/S *SERIES*

ELECTRONIC EXPANSION VALVE

R290 R32

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 REVERSIBLE SYSTEMS: BIDIRECTIONAL FLOW
- SMALLER INSTALLATION SPACE: LOW HEIGHT, SMALL VOLUME, LIGHT WEIGHT
- OPTIMIZED FLOW PATH DESIGN FOR NOISE REDUCTION
- FAST OPERATION, ENERGY SAVING

GENERAL SPECIFICATION

- Applicable for all common HFC, HFO refrigerants such as: R134a, R404A, R407A/F, R407C, R410A, R448A, R449A, R450A, R452A, R513A, R507A And also for flammable refrigerants like R32, R290, R1234ze(E), R1234yf
- Cooling capacity: 2 to 121 kW (for R410A)
- 500 steps (full stroke); 32 ± 20 opening steps
- Medium temperature TS min./max.: -40°C / +85°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
- Certifications: UL/CSA and declaration according to LVD or PED
- Suitable with the EN 60335-2-24 / 2-40 / 2-89

DPF-TS/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 67
- Compatible with Sanhua controller SEC series

GENERAL CHARACTERISTICS

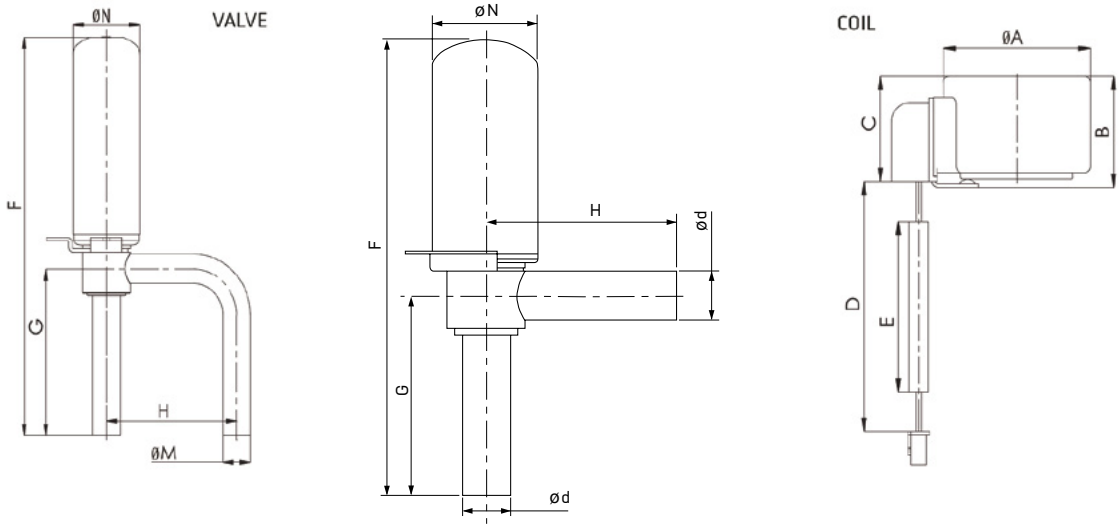
Valve Model	Part Number[1)]	Seat Φ (mm)	Kv (m^3/h)	MOP[2)] [Bar]	MOPD Direct[3)] [Bar]	MOPD Rev.[4)] [Bar]
DPF(TS1)1.3C-21	10130389302	1,3	0,05	49	35	≥25
DPF(TS1)1.65C-36	10130391702	1,65	0,08			
DPF(TS1)1.8C-69	10130391802	1,8	0,1			
DPF(TS1)2.0C-33	10130392402	2	0,16			
DPF(TS1)2.2C-24	10130392702	2,2	0,2			
DPF(TS1)2.4C-40	10130392602	2,4	0,23			
DPF(TS1)3.0C-29	10130389902	3	0,39			≥15
DPF(TS1)3.2C-30	10130389502	3,2	0,43			
DPF(S03)4.0C-01	10130355702	4	0,5			≥7
DPF(S03)4.5C-01	10130035502	4,5	0,7			
DPF(S03)5.5C-01	10130355802	5,5	0,9			
DPF(S03)6.5C-02	10130355902	6,5	1,1		30	

Note: 1) Coil is separated
2) MOP = Maximum Operating Pressure
3) MOPD Direct = Maximum Operating Pressure Difference in Direct flow direction
4) MOPD Rev = Maximum Operating Pressure Difference in Reversible flow direction

ELECTRONIC EXPANSION VALVE

FLOW CHARACTERISTIC

DIMENSIONS



Valve Model	Coil Series	Valve Dimensions [mm]				
		F	G	H	Ød	ØN
DPF(T01)1.3C-07 to DPF(T01)2.4C-01	PQ-M10	78	36	30	6,35	17,35
DPF(TS1)3.0C-01 to DPF(TS1)3.2C-01		82	40	30	7,94	17,35
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	Part Number	Coil Dimensions [mm]					Part Number
			ØA	B	C	D	E	
DPF(T01)1.3C-07 to DPF(TS1)3.2C-01	PQ-M10 012-000277	10810069001	38,5	26,4	25,6	700	600	10810069002
DPF(S03)4.0C-01 to DPF(S03)6.5C-02	PQ-M03 012-000001	10810011601	67,5	42,4	33	700	600	10810011602

DPF-TS/S *SERIES*

ELECTRONIC EXPANSION VALVE

Valve Model	Max Cooling Capacity @ 5°C/38°C/0K/0K [kW]									
	R134a	R513A	R407C	R404A R507A	R410A	R452A	R32	R290	R1234yf	R1234ze
DPF(TS1)1.3C-21	4,1	3.5	5,4	3,6	6,1	4.1	9.2	5.5	3	3.3
DPF(TS1)1.65C-36	6,9	5.9	9,2	6,2	10,4	6.9	15.5	9.3	5.1	5.5
DPF(TS1)1.8C-69	8,3	7	10,9	7,4	12,4	8.1	18.4	11	6.1	6.5
DPF(TS1)2.0C-33	10,2	8.7	13,5	9,2	15,3	10.1	22.7	13.7	7.5	8.1
DPF(TS1)2.2C-24	11,0	9.3	14,5	9,9	16,5	10.8	24.4	14.7	8	8.7
DPF(TS1)2.4C-40	12,9	11	17,1	11,6	19,4	12.7	28.7	17.3	9.5	10.2
DPF(TS1)3.0C-29	21,7	18.2	28,6	19,4	32,5	21.1	47.6	28.6	15.7	17
DPF(TS1)3.2C-30	23,7	20	31,3	21,2	35,5	23.2	52.4	31.5	17.3	18.7
DPF(S03)4.0C-01	39,3	33.3	51,9	35,3	59,0	38.7	87.2	52.4	28.8	31.1
DPF(S03)4.5C-01	53,0	44.6	70,0	47,6	79,5	51.7	116.6	70.2	38.5	41.6
DPF(S03)5.5C-01	61,0	51.6	80,6	54,7	91,5	59.9	135	81.2	44.5	48.1
DPF(S03)6.5C-02	74,5	62.7	98,4	66,9	111,8	72.8	164	98.8	54.2	58.5

For others running points or others refrigerants, please contact your local support or download our selection software – Quick Finder - SanhuaQF.eu

DPF-R *SERIES*

CO_2 ELECTRONIC EXPANSION VALVES

R series electronic expansion valves are used in air conditioning and refrigeration systems with variable refrigerant flow to realize automatic adjustment of refrigerant flow rate and make the system work under the best working condition for the purpose of fast cooling, precise temperature control and power saving. These valves are unidirectional and can also be used for other controls on request.

FEATURES

- SMALLER INSTALLATION SPACE: LOW HEIGHT, SMALL VOLUME AND LIGHT WEIGHT
- SNAP-ON COIL FOR EASIER INSTALLATION
- DESIGN FOR R744 APPLICATION WITH 140BAR

GENERAL SPECIFICATIONS

- Applicable for R744 (CO_2) specifically
  For other refrigerants, please contact your local support
- Unidirectional operation
- Design pressure PS: 140bar
- Medium temperature TS min./max.: -40°C / +80°C (duty cycle rate below 40%)
- Ambient temperature min./max.: -40°C / +60°C (duty cycle rate below 40%)
- 500 steps (full stroke)
- Relative humidity: 0 to 95%RH
- Flow direction: from horizontal tube to vertical tube
- Installation mode: coil upwards, central axis of valve rotor +/- 15° vertical to horizontal
- Certification: declaration of PED or LVD
- Compatible with SANHUA controller SEC

ELECTRICAL PARAMETERS

Coil	PQ-M10	PQ-M08
Rated voltage	12V DC(± 10%), rectangular wave	
Excitation mode	1 - 2 phase excitation, unipolar actuation	
Excitation rate	30 - 90pps	30 - 40pps
Full stroke time	13s @40pps, 6s @90pps0	
Coil current	260mA/phase (20°C)	375 mA/phase (20°C)
Coil resistance	46 ± 3.7Ω/phase (20°C)	32 ± 3.2Ω/phase (20°C)
Insulation class of coil	E	

TECHNICAL CHARACTERISTICS

Valve Model	Seat Φ	Max. Cooling Capacity 0°C/-20°C/6K/2K[1]	Max. Working Pressure	Kv	MOPD
	[mm]	[kW]	[bar]	[m³/h]	[bar]
DPF(R04) 1.0D	1,0	7,1	140	0.045	100
DPF(R04) 1.5D	1,5	14,9	140	0.115	100
DPF(R05) 2.4D	2.4	35,6	140	0.23	100

1: Condensing temp./Evaporating temp./Superheating

Valve Model	U11 Code	Coil Model	Cable length	U11 Code
DPF(R04) 1.0D-04	10130414402	PQ-M10012-001059	0.7m	10810138802
		PQ-M10012-001002	2m	10810130702
DPF(R04) 1.5D-07	10130394102	PQ-M10012-001268	5m	10810160602
DPF(R05) 2.4D-03	10130425302	PQ-M08012-001301	0.7m	10810171402
		PQ-M08012-001304	2m	10810211702
DPF(R05) 2.4D-05	10130447802	On request	5m	On request

CAPACITY TABLES
(R744: SUPERHEATING = 6K)

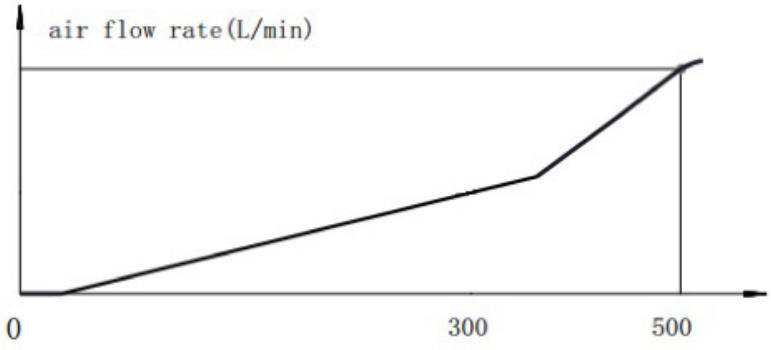
Capacity(kW) for R04-1.0		Inlet Temp. at EEV(°C)												
		-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30
Te(°C)	-40	5,0	6,1	6,9	7,6	8,2	8,6	8,9	9,1	9,2	9,1	8,9	8,5	7,8
	-35	3,7	5,1	6,2	7,0	7,7	8,2	8,6	8,9	9,0	9,0	8,8	8,4	7,8
	-30		3,8	5,2	6,3	7,1	7,7	8,2	8,5	8,7	8,7	8,6	8,3	7,6
	-25			3,8	5,3	6,3	7,1	7,7	8,1	8,4	8,5	8,4	8,1	7,5
	-20				3,8	5,3	6,3	7,1	7,6	7,9	8,1	8,1	7,8	7,3
	-15					3,9	5,3	6,3	7,0	7,4	7,7	7,7	7,5	7,1
	-10						3,8	5,2	6,2	6,8	7,1	7,3	7,2	6,8
	-5							3,8	5,1	6,0	6,5	6,8	6,8	6,5
	0								3,7	5,0	5,7	6,1	6,3	6,1
	5									3,6	4,7	5,4	5,6	5,6
	10										3,4	4,4	4,9	5,0
	15											3,1	4,0	4,3

Capacity(kW) for R04-1.5		Inlet Temp. at EEV(°C)												
		-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30
Te(°C)	-40	10,6	12,8	14,6	16,1	17,2	18,2	18,8	19,3	19,4	19,3	18,8	17,9	16,5
	-35	7,8	10,8	13,1	14,8	16,2	17,3	18,2	18,7	19,0	18,9	18,6	17,7	16,4
	-30		7,9	11,0	13,3	15,0	16,3	17,3	18,0	18,4	18,5	18,2	17,4	16,1
	-25			8,0	11,2	13,4	15,0	16,2	17,1	17,7	17,9	17,7	17,0	15,8
	-20				8,1	11,2	13,3	14,9	16,0	16,8	17,1	17,1	16,5	15,5
	-15					8,1	11,2	13,2	14,7	15,7	16,2	16,3	15,9	15,0
	-10						8,1	11,0	13,0	14,3	15,1	15,4	15,2	14,4
	-5							8,0	10,8	12,6	13,7	14,3	14,3	13,6
	0								7,8	10,5	12,1	13,0	13,2	12,8
	5									7,5	10,0	11,4	11,9	11,8
	10										7,1	9,3	10,4	10,5
	15											6,6	8,5	9,1

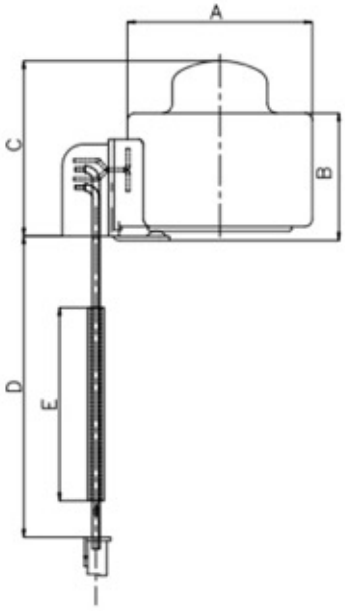
Capacity(kW) for R05-2.4		Inlet Temp. at EEV(°C)												
		-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30
Te(°C)	-40	25,3	30,6	34,9	38,4	41,2	43,4	45,0	46,0	46,4	46,1	45,0	42,8	39,4
	-35	18,5	25,9	31,2	35,4	38,8	41,4	43,4	44,7	45,3	45,2	44,3	42,3	39,0
	-30		18,9	26,3	31,6	35,7	38,9	41,3	43,0	43,9	44,1	43,4	41,6	38,5
	-25			19,2	26,3	31,9	35,8	38,8	40,9	42,2	42,6	42,2	40,6	37,8
	-20				19,4	26,7	31,8	35,6	38,3	40,0	40,8	40,7	39,5	36,9
	-15					19,4	26,7	31,6	35,0	37,4	38,7	38,9	38,0	35,7
	-10						19,3	26,4	31,0	34,1	36,0	36,7	36,2	34,3
	-5							19,0	25,8	30,0	32,8	34,1	34,1	32,5
	0								18,6	25,0	28,8	30,9	31,5	30,5
	5									17,9	23,8	27,1	28,5	28,0
	10										17,0	22,3	24,8	25,2
	15											15,8	20,2	21,7

CO2 ELECTRONIC EXPANSION VALVES

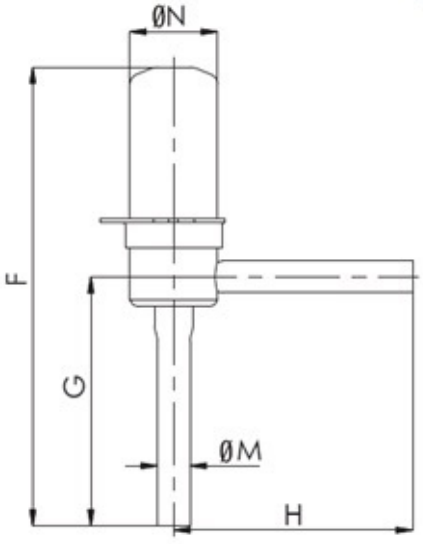
FLOW CHARACTERISTIC



DIMENSIONS



Coil model	Dimensions [mm]					Coil Weight [kg]
	A	B	C	D	E	
PQ-M10012-001059	38.5	26.4	35.8	700	600	0,12
PQ-M10012-001002	38.5	26.4	35.8	2000	1800	
PQ-M10012-001268	38.5	26.4	35.8	5000	4500	
PQ-M08012-001301	46	30.1	48.1	700	600	0,15
PQ-M08012-001304	46	30.1	48.1	2000	1800	0,15



Valve model	Dimensions [mm]					Valve Weight [kg]
	F	G	H	M	N	
DPF(R04) 1.0D-04	93.5	50	47	6.35	17.35	0,04
DPF(R04) 1.5D-07	93.5	50	47	6.35	17.35	
DPF(R05) 2.4D-03	117	58	54	7.94	21.75	0,11
DPF(R05) 2.4D-05	119	60	60	6.35	21.75	

VPF SERIES

ELECTRONIC EXPANSION VALVE

R290 R32

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, HFC, HFO and flammable refrigerants such as: R134a, R513A, R404A, R407A, R407C, R407F, R450A, R452A, R452B, R410A, R507A, R1234yf, R1234ze, R290, R32, R454C, R455A, ...
- Cooling capacity: from 54 to 1495 kW (R134a nominal capacity)
- Up to 3800 steps (full stroke); Valve starts opening with
  - VPF12.5, VPF25: 110 steps
  - VPH50...VPF400: 165 steps
- Medium temperature TS min./max.: -40°C / +90°C
- Ambient temperature min./max.: -40°C / +60°C
- Relative humidity: 0 to 100% RH
- Installation position:
  - Major flow direction from connection A to B
  - Installation in horizontal and vertical pipes possible
  - Installation position in horizontal lines with stepper motor preferably upwards
- Certifications: EAC, PED Declaration for fluids group 2 full range and fluid group 1 for VPF12.5 to 100.

ELECTRONIC EXPANSION VALVE

ELECTRICAL PARAMETER

- Rated voltage: 12VDC, rectangular wave
- Actuating mode: 2-phase 4-step permanent magnet stepping motor
- Excitation mode: 2 phase excitation, bi-pole actuation
- Coil resistance: 52 ± 5,2Ω/coil (20°C)
- Insulation class of coil: E
- Protection class: IP 67

	Voltage drive	Current drive
Excitation rate	150 pps Max	300 pps Max
Motion time from completely open to completely closed	VPF12.5...VPF50 : 17,3s	VPF12.5...VPF50 : 8,7s
	VPF100 : 23,3s	VPF100 : 11,7s
	VPF150...VPF400 : 25,3s	VPF150...VPF400 : 12,7s
Nominal motor current*	124mA RMS per phase in control operation	100mA RMS per phase in control operation
Peak motor current*	238mA RMS per phase in control operation	140mA RMS per phase in control operation

* Specified motor currents are based on max. excitation rates

VPF SERIES
ELECTRONIC EXPANSION VALVE

Model Designations

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

MODEL DESIGNATION EXAMPLE

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

VPF SERIES
ELECTRONIC EXPANSION VALVE

TECHNICAL PARAMETER

VPF 12.05 to 150
MWP (Max Working Pressure) = 50 bar
MOPD (Max Operating Pressure Differential) A-> B or B-> A = 39 bar

Model	Part Number[1)]	Valve Shape	Sight Glass	Connections ød ODF Inlet A x Outlet B		Seat ø	Kv[2)]	PED Cat. Fluid	
				[inch]	[mm]	[mm]	m^3/h	Group 1	Group 2
VPF12.5H52	10130349502	straight	-	5/8 x 5/8	16 × 16	7,5	0,8	Art. 4.3	Art. 4.3
VPF12.5H53	10130350202			7/8 x 7/8	22 × 22			Art. 4.3	Art. 4.3
VPF12.5H58	10130342102	L-shape	-	5/8 x 5/8	16 × 16			Art. 4.3	Art. 4.3
VPF12.5H59	10130349802			7/8 x 7/8	22 × 22			Art. 4.3	Art. 4.3
VPF25H52	10130349202	straight	-	5/8 x 5/8	16 × 16	7,5	1,4	Art. 4.3	Art. 4.3
VPF25H53	10130356202			7/8 x 7/8	22 × 22			Art. 4.3	Art. 4.3
VPF25H58	10130343202	L-shape	-	5/8 x 5/8	16 × 16			Art. 4.3	Art. 4.3
VPF25H59	10130356102			7/8 x 7/8	22 × 22			Art. 4.3	Art. 4.3
VPF50H51	10130337702	straight	-	7/8 x 7/8	22 x 22	11,4	2,3	Art. 4.3	Art. 4.3
VPF50H52	10130347002			7/8 x 1 1/8	-			Art. 4.3	Art. 4.3
VPF50H53	10130356502			1 1/8 x 1 1/8	-			Art. 4.3	Art. 4.3
VPF50H54	10130342302			1 1/8 x 1 3/8	-			Art. 4.3	Cat. I
VPF50H56	10130347102			-	22 x 28			Art. 4.3	Art. 4.3
VPF50H57	10130347202			-	28 x 28			Art. 4.3	Art. 4.3
VPF50H58	10130342402			-	28 x 35			Art. 4.3	Cat. I
VPF 50H01	10130341102	straight	with sight glass	7/8 x 7/8	22 x 22			Art. 4.3	Art. 4.3
VPF 50H02	10130346702			7/8 x 1 1/8	-			Art. 4.3	Art. 4.3
VPF 50H03	10130344802			1 1/8 x 1 1/8	-			Art. 4.3	Art. 4.3
VPF50H04	10130342802			1 1/8 x 1 3/8	-			Art. 4.3	Cat. I
VPF50H06	10130346802			-	22 x 28			Art. 4.3	Art. 4.3
VPF50H07	10130346902			-	28 x 28			Art. 4.3	Art. 4.3
VPF50H08	10130342502			-	28 x 35			Art. 4.3	Cat. I
VPF100H51	10130347502	straight	-	1 1/8 x 1 1/8	-	14,4	4,0	Cat. II	Art. 4.3
VPF100H52	10130347602			1 1/8 x 1 3/8	-			Cat. II	Cat. I
VPF100H53	10130342602			1 3/8 x 1 3/8	35 x 35			Cat. II	Cat. I
VPF100H54	10130347702			-	28 x 28			Cat. II	Art. 4.3
VPF100H55	10130347802			-	28 x 35			Cat. II	Cat. I
VPF100H01	10130356802	straight	with sight glass	1 1/8 x 1 1/8	-			Cat. II	Art. 4.3
VPF100H02	10130347302			1 1/8 x 1 3/8	-			Cat. II	Cat. I
VPF100H03	10130356602			1 3/8 x 1 3/8	35 x 35			Cat. II	Cat. I
VPF100H05	10130347402			-	28 x 35			Cat. II	Cat. I
VPF100H06	10130343102			-	28 x 28			Cat. II	Art. 4.3
VPF150H01	10130357002	L-shape	with sight glass	1 1/8 x 1 3/8	-	14,8	7,7	O.R	Cat. I
VPF150H02	10130356702			1 5/8 x 1 5/8	-			O.R	Cat. I

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

VPF SERIES
ELECTRONIC EXPANSION VALVE

TECHNICAL PARAMETER

VPF 250 & 400
MWP (Max Working Pressure) = 45 bar / 34 bar for the VPF400H10 model
MOPD (Max Operating Pressure Differential) A->B or B -> A = 35 bar / 21 bar for the

Model	Part Number[1)]	Valve Shape	Sight Glass	Connections ød ODF Inlet A x Outlet B		Seat ø	Kv[2)]	PED Cat. Fluid	
				[inch]	[mm]	[mm]	m^3/h	Group 1	Group 2
VPF250H01	10130348002	straight	with	1 1/8 x 1 1/8	-	25	11,9	O.R	Art. 4.3
VPF250H02	10130342902			1 3/8 x 1 3/8	35 x 35			O.R	Cat. I
VPF250H03	10130356402			1 5/8 x 1 5/8	-			O.R	Cat. I
VPF250H04	10130348102			-	28 x 28			O.R	Art. 4.3
VPF250H05	10130341202				42 x 42			O.R	Cat. I
VPF400H01	10130344902	straight	with	1 5/8 x 1 5/8	-	33	17,0	O.R	Cat. I
VPF400H02	10130349002			-	42 x 42			O.R	Cat. I
VPF400H03	10130343302			2 1/8 x 2 1/8	54 x 54			O.R	Cat. I
VPF400H10	10130426002	angle	with	2 1/8 x 2 5/8	54 x 67	28,5	14,5	O.R	Cat. I

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

COOLING CAPACITIES

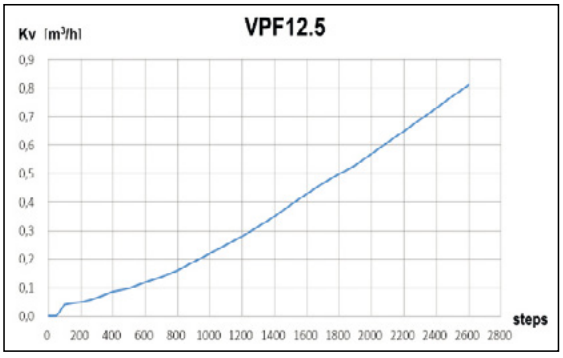
Model	Steps	Nominal Cooling Capacity[1)] [kW]												
		R134a	R407A	R407C	R407F	R404A R507A	R410A	R32	R290	R454B	R454C	R455A	R1234yf	R1234ze
VPF12.5	2600	54	67	71	76	50	82	126	77.4	101.2	66.1	72.8	41.9	43
VPF25	2600	116	144	152	162	108	176	262	160.8	210.1	137.2	151.1	87	92
VPF50	2600	221	275	290	310	206	336	527	323.1	422.3	275.7	303.6	173	175
VPF100	3500	319	397	418	447	297	484	748	458.9	599.7	391.6	431.3	248	253
VPF150	3800	574	714	752	804	534	871	N.C	N.C	N.C	N.C	N.C	N.C	455
VPF250	3800	892	1108	1168	1249	830	1353	N.C	N.C	N.C	N.C	N.C	N.C	706
VPF400	3800	1495	1857	1958	2094	1392	2269	N.C	N.C	N.C	N.C	N.C	N.C	1183
VPF400	2700	1301	1616	1703	1822	1211	N.C	N.C	N.C	N.C	N.C	N.C	N.C	1029

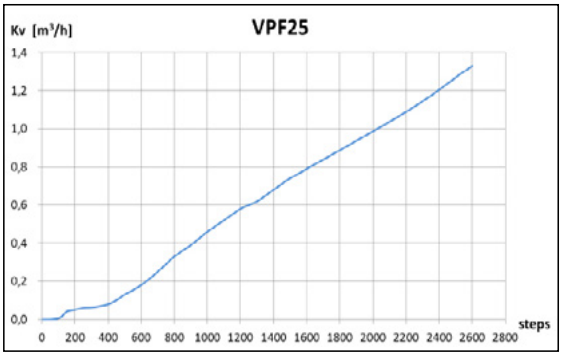
Note: 1) Nominal conditions : Condensing temperature 38°C / Evaporating temperature = +4,4°C / liquid temperature = 37°C
2) For refrigerants with glide, performances are given in dew point
N.C = Not Certified

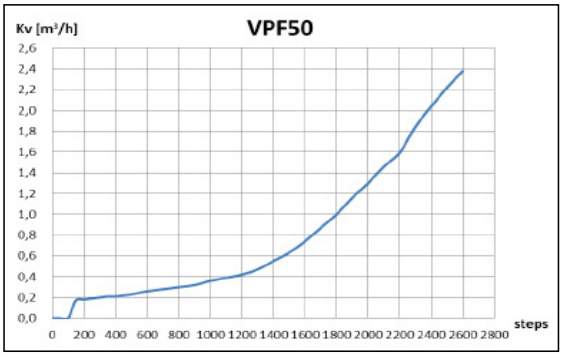
For others running points or others refrigerants, please contact your local support or download our selection software – Quick Finder with the link :
www.sanhuaeurope.com/en/quick-finder-software-download

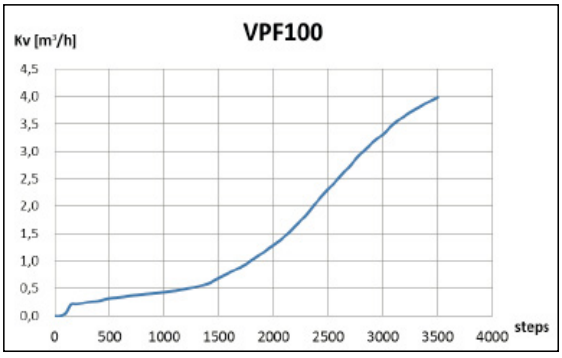
FLOW CHARACTERISTIC

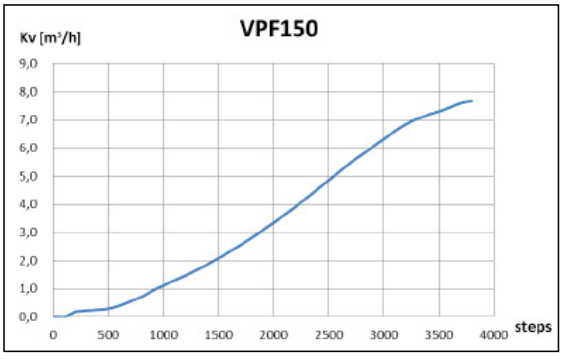
Add drawing for VPF12.5 + VPF 400 into catalogue

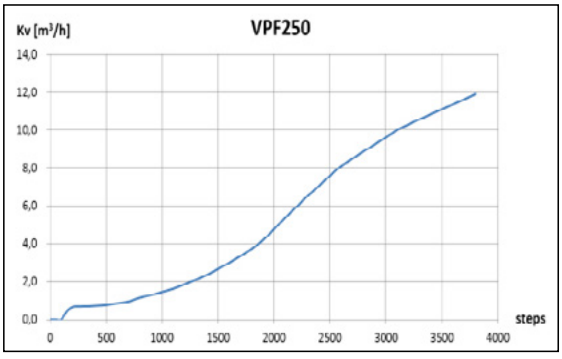


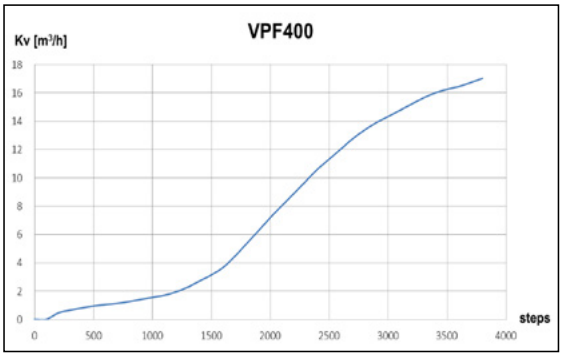






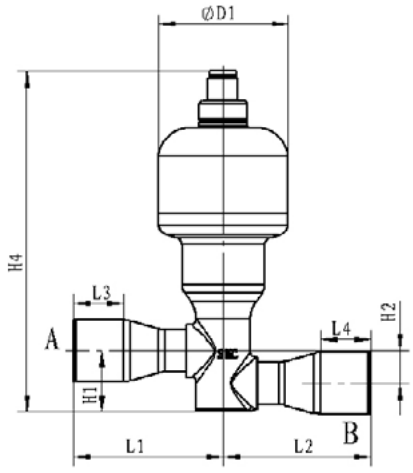




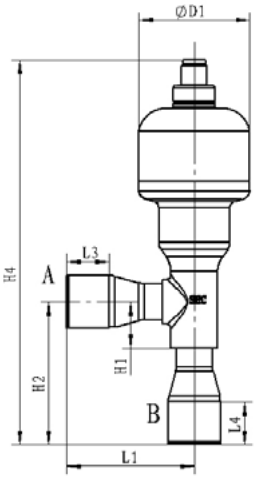


DIMENSIONS

Model	Part Number	Dimensions [mm]								
		L	L1	L2	L3	L4	H1	H2	H4	øD1
VPF12.5H52	10130349502	120	60	60	13	13	25,6	13	136	52
VPF12.5H53	10130350202	120	60	60	20	20	25,6	13	136	52
VPF12.5H58	10130342102	-	60	-	13	13	22,5	66,5	178	52
VPF12.5H59	10130349802		60		20	20	22,5	66,5	178	52
VPF25H52	10130349202	120	60	60	13	13	25,6	13	136	52
VPF25H53	10130356202	120	60	60	20	20	25,6	13	136	52
VPF25H58	10130343202	-	60	-	13	13	22,5	66,5	178	52
VPF25H59	10130356102		60		20	20	22,5	66,5	178	52



VPF12.5, VPF25, Straight version

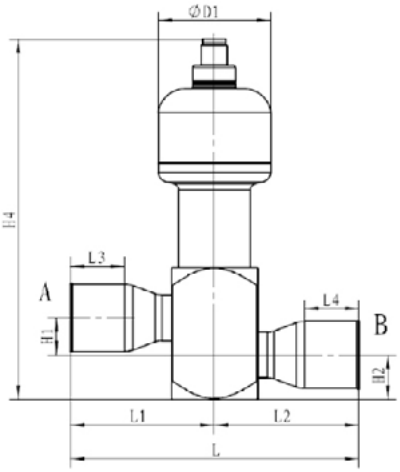


VPF12.5, VPF25, L-Shape version

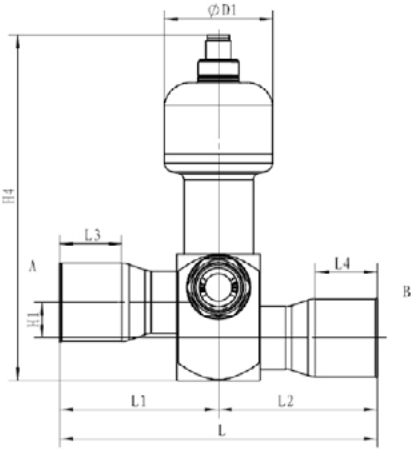
ELECTRONIC EXPANSION VALVE

DIMENSIONS

Model	Part Number	Dimensions [mm]								
		L	L1	L2	L3	L4	H1	H2	H4	øD1
VPF50H51	10130337702	112	56	56	20	20	17	20,5	166	52
VPF50H52	10130347002	122	56	66	20	25	17	20,5	166	52
VPF50H53	10130356502	132	66	66	25	25	17	20,5	166	52
VPF50H54	10130342302	142	66	76	25	30	17	20,5	166	52
VPF50H56	10130347102	122	56	66	20	25	17	20,5	166	52
VPF50H57	10130347202	132	66	66	25	25	17	20,5	166	52
VPF50H58	10130342402	142	66	76	25	30	17	20,5	166	52
VPF50H01	10130341102	112	56	56	20	20	17	20,5	166	52
VPF50H02	10130346702	122	56	66	20	25	17	20,5	166	52
VPF50H03	10130344802	132	66	66	25	25	17	20,5	166	52
VPF50H04	10130342802	142	66	76	25	30	17	20,5	166	52
VPF50H06	10130346802	122	56	66	20	25	17	20,5	166	52
VPF50H07	10130346902	132	66	66	25	25	17	20,5	166	52
VPF50H08	10130342502	142	66	76	25	30	17	20,5	166	52
VPF100H51	10130347502	132	66	66	25	25	17	20,5	166	52
VPF100H52	10130347602	142	66	76	25	30	17	20,5	166	52
VPF100H53	10130342602	152	76	76	30	30	17	20,5	166	52
VPF100H54	10130347702	132	66	66	25	25	17	20,5	166	52
VPF100H55	10130347802	142	66	76	25	30	17	20,5	166	52
VPF100H01	10130356802	132	66	66	25	25	17	20,5	166	52
VPF100H02	10130347302	142	66	76	25	30	17	20,5	166	52
VPF100H03	10130356602	152	76	76	30	30	17	20,5	166	52
VPF100H05	10130347402	142	66	76	25	30	17	20,5	166	52
VPF100H06	10130343102	132	66	66	25	25	17	20,5	166	52
VPF150H01	10130357002	-	76	-	30	25	24	70	195	52
VPF150H02	10130356702		76		25	25	33,5	89	212	52



VPF50, VPF100 without sight glass

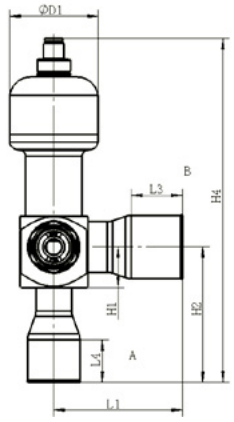


VPF50, VPF100 with sight glass

ELECTRONIC EXPANSION VALVE

DIMENSIONS

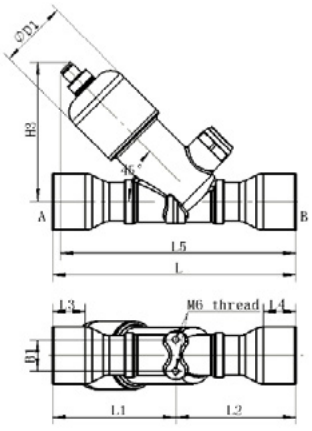
Model	Part Number	Dimensions [mm]								
		L	L1	L2	L3	L4	H1	H2	H4	øD1
VPF150H01	10130357002	-	76	-	30	25	24	70	195	52
VPF150H02	10130356702		76		25	25	33,5	89	212	52



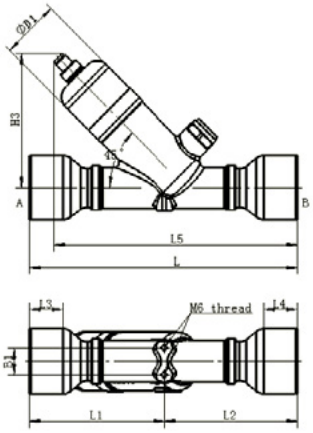
VPF150 with sight glass

DIMENSIONS

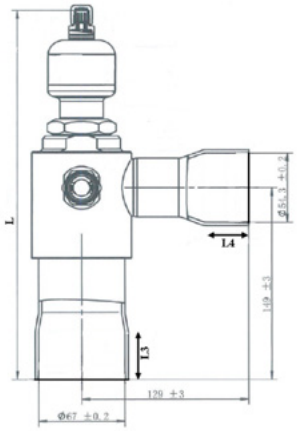
Model	Part Number	Dimensions [mm]								
		L	L1	L2	L3	L4	H1	H2	H4	øD1
VPF250H01	10130348002	166	84	82	25	25	170	107	24	52
VPF250H02	10130342902	186	94	92	30	30	180	107	24	52
VPF250H03	10130356402	186	94	92	25	25	180	107	24	52
VPF250H04	10130348102	166	84	82	25	25	170	107	24	52
VPF250H05	10130341202	186	94	92	25	25	180	107	24	52
VPF400H01	10130344902	203	104	99	30	30	198	118	24	52
VPF400H02	10130349002	203	104	99	30	30	198	118	24	52
VPF400H03	10130343302	240	121	119	30	30	218	118	24	52
VPF400H10	10130426002	286	-	-	36	32	-	-	-	-



VPF250 with sight glass



VPF400 with sight glass

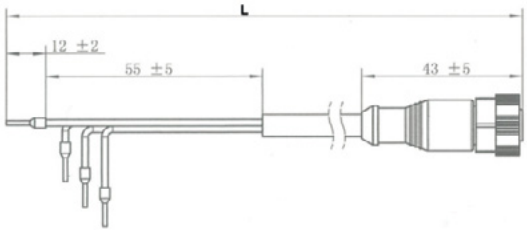


VPF400H10

VPF SERIES
ELECTRONIC EXPANSION VALVE

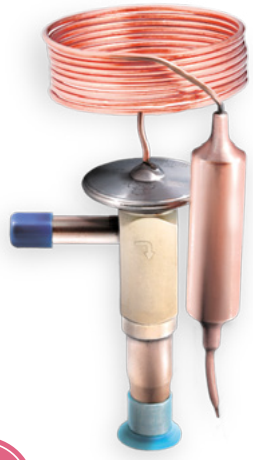
ACCESSORIES
Connection Cable

Model	Part Number	Cable Length (L) [mm]	Toleranz [mm]	IP
Y02A	20130674902	2000	± 40	67
Y08A	20130675102	8000	± 160	67



RFGB *SERIES*

THERMOSTATIC EXPANSION VALVE



R290

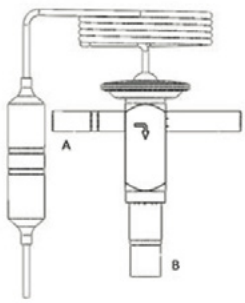
RFGB series thermostatic expansion valves are used to adjust mass flow of refrigerant into the evaporator while controlling the refrigerant´s superheat at the outlet of the evaporator. They can be used for various refrigerants under all working conditions. Typical applications are refrigeration systems like commercial refrigerators and freezers, icemakers, dehumidifiers as well as air conditioners at various evaporation temperature. RFGB 06 series has been designed and optimized for application with propane (R290).

FEATURES

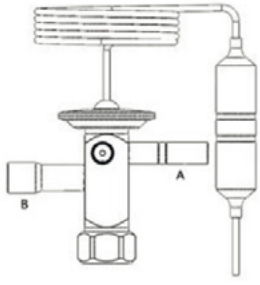
- COMPACT DESIGN WITH BUILD-IN ORIFICE
- WARM THERMO HEAD CONSTRUCTION
- ALL CONNECTIONS PIPES ARE COMPLETELY IN COPPER
- VALVES WITH MOP FUNCTION CAN BE PROVIDED TO ASSURE RELIABLE COMPRESSOR OPERATION
- APPLICABLE IN A WIDE EVAPORATION TEMPERATURE RANGE
- RELIABLE AND CONSISTENT PERFORMANCE OF SUPERHEAT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

GENERAL SPECIFICATIONS

- Special series designed for application with R290
- Ambient temperature min./max.: -35/+55°C
- Medium temperature TS min./max.: -40°C / +70°C
- Factory setting for static super heat: 3.5 K (4.0K for few models)
- Max. operating pressure PS: 3,5 MPa (35 bar)
- Installation position:
  - Preferably valve head upwards
  - Flow direction from inlet A to outlet B
- Certifications: UL/CSA and PED declaration

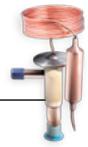


Angle version



Straight version

RFGB SERIES
THERMOSTATIC EXPANSION VALVE



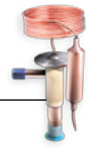
TECHNICAL PARAMETERS

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

MODEL DESIGNATION LEGEND

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

RFGB SERIES
THERMOSTATIC EXPANSION VALVE



MODEL DESIGNATION EXAMPLE

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

Code	Description
GB06E-1.0-518	Model
-40/+10℃	Evaporator temperature in ℃
-40/+50°F	Evaporator temperature in ℉
R290	Refrigerant
MWP 3.5Mpa	Max. Working Pressure in MPa
MWP 505psig	Max. Working Pressure in Psig

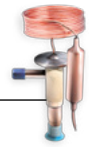
TECHNICAL DATA

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

Note:

1) Nominal capacity valid for: - Version in straight and angle shape
- Versions with metrical and imperial connections

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



MODEL LIST – TABLE 1

Temperature Range N: from -40°C to +10°C, without MOP
Models with Straight layout and adjustable static superheat setting
Models with Imperial Connections

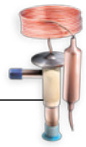
Model Name	Product Number U11 code Multi-Pack	Valve Size	Capacity	Capacity	Bleed	Connections (Solder ODF)	
						IN/OUT	Equalization
			[USRT]	[kW]	[%]	[inch]	[inch]
RFGB06-0.17-450	10205126802	0	0,17	0,60	15%	1/4"; 3/8"	-
RFGB06E-0.17-453	10205096402	0	0,17	0,60	15%	1/4"; 3/8"	1/4
RFGB06-0.35-525	10205115102	1	0,35	1,20	15%	1/4"; 3/8"	-
RFGB06-0.35-526	10205115202	1	0,35	1,20	0%	1/4"; 3/8"	-
RFGB06-0.35-527	10205115302	1	0,35	1,20	0%	1/4"; 1/2"	-
RFGB06E-0.35-528	10205115402	1	0,35	1,20	15%	1/4"; 3/8"	1/4
RFGB06E-0.35-536	10205122802	1	0,35	1,20	0%	1/4"; 3/8"	1/4
RFGB06E-0.7-537	10205122902	2	0,70	2,50	0%	1/4"; 3/8"	1/4
RFGB06E-1.0-518	10205114802	3	1,00	3,50	0%	3/8"; 1/2"	1/4
RFGB06E-1.5-519	10205114902	4	1,50	5,30	0%	3/8"; 1/2"	1/4
RFGB06E-2.0-520	10205115002	5	2,00	7,00	0%	3/8"; 1/2"	1/4

MODEL LIST – TABLE 2

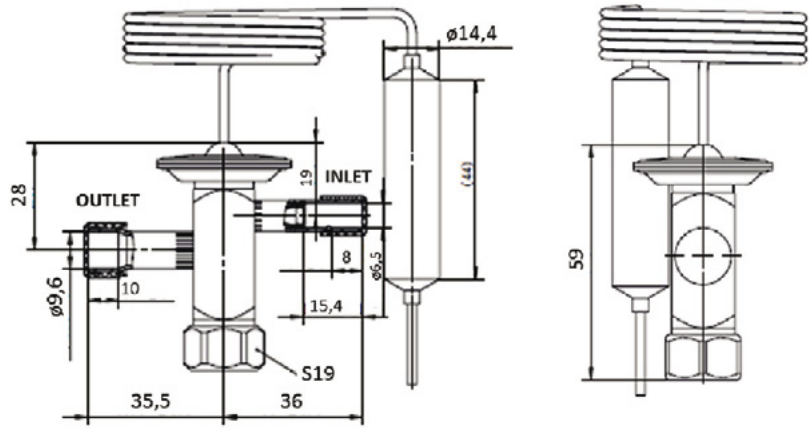
Temperature Range N: from -40°C to +10°C, without MOP
Models with Straight layout and adjustable static superheat setting
Models with Metric Connections

Model Name	Product Number U11 code Multi-Pack	Valve Size	Capacity	Capacity	Bleed	Connections (Solder ODF)	
						IN/OUT	Equalization
			[USRT]	[kW]	[%]	[inch]	[inch]
RFGB06-0.17-521	10205115502	0	0,17	0,60	15%	6; 10	-
RFGB06E-0.17-534	10205123102	0	0,17	0,60	15%	6; 10	-
RFGB06-0.35-522	10205115602	1	0,35	1,20	15%	6; 10	-
RFGB06-0.35-538	10205123202	1	0,35	1,20	0%	6; 10	-
RFGB06E-0.35-523	10205115702	1	0,35	1,20	15%	6; 12	6
RFGB06E-0.35-524	10205115802	1	0,35	1,20	0%	6; 12	6
RFGB06E-0.7-483	10205092602	2	0,70	2,50	0%	6; 10	6
RFGB06E-0.7-457	10205077202	2	0,70	2,50	0%	10; 12	6
RFGB06E-1.0-470*	10205087402	3	1,00	3,50	0%	10; 12	6
RFGB06E-1.5-465*	10205087302	4	1,50	5,30	0%	10; 12	6
RFGB06E-2.0-466*	10205126902	5	2,00	7,00	0%	10; 12	6

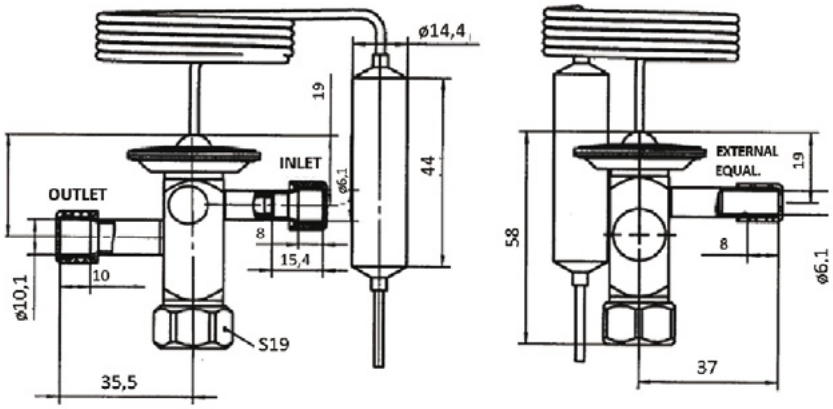
Note: 1) Different evaporation temperature range on request
2) Extent of delivery: valve body and bulb strap
3) MOP function on request
4) * Models with Static SH: 4K



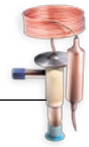
DIMENSIONS – STRAIGHT SHAPE VERSION



Straight Shape with Internal Pressure Equalization



Straight Shape with External Pressure Equalization



MODEL LIST – TABLE 3

Temperature Range N: from -40°C to +10°C, without MOP
Models with Angle layout and fixed static super-heat setting
Models with Imperial Connections

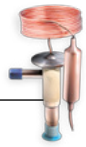
Model Name	Product Number U11 code Multi-Pack	Valve Size	Capacity	Capacity	Bleed	Connections (Solder ODF)	
						IN/OUT	Equalization
			[USRT]	[kW]	[%]	[inch]	[inch]
RFGB06-0.17-719	10205115902	0	0,17	0,60	15%	1/4"; 3/8"	-
RFGB06-0.17-735	10205123002	0	0,17	0,60	0%	1/4"; 3/8"	-
RFGB06-0.35-652	10205127002	1	0,35	1,20	15%	1/4"; 3/8"	-
RFGB06-0.35-736	10205053302	1	0,35	1,20	0%	1/4"; 3/8"	-
RFGB06E-0.35-720	10205116002	1	0,35	1,20	15%	1/4"; 3/8"	1/4
RFGB06E-0.35-721	10205116102	1	0,35	1,20	0%	1/4"; 3/8"	1/4
RFGB06E-0.7-722	10205116202	2	0,70	2,50	0%	1/4"; 3/8"	1/4
RFGB06E-1.0-723	10205116302	3	1,00	3,50	0%	3/8"; 1/2"	1/4
RFGB06E-1.5-724	10205116402	4	1,50	5,30	0%	3/8"; 1/2"	1/4
RFGB06E-2.0-725	10205116502	5	2,00	7,00	0%	3/8"; 1/2"	1/4

MODEL LIST – TABLE 4

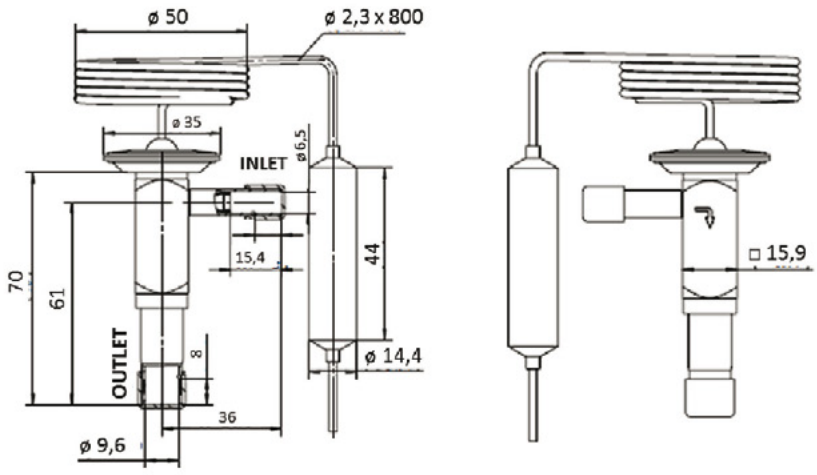
Temperature Range N: from -40°C to +10°C, without MOP
Models with Angle layout and fixed static super-heat setting
Models with Metric Connections

Model Name	Product Number U11 code Multi-Pack	Valve Size	Capacity	Capacity	Bleed	Connections (Solder ODF)	
						IN/OUT	Equalization
			[USRT]	[kW]	[%]	[inch]	[inch]
RFGB06-0.17-726	10205116602	0	0,17	0,60	15%	6; 10	-
RFGB06-0.17-737	10205123402	0	0,17	0,60	0%	6; 10	-
RFGB06-0.35-727	10205116702	1	0,35	1,20	15%	6; 10	-
RFGB06-0.35-738	10205123502	1	0,35	1,20	0%	6; 10	-
RFGB06E-0.35-728	10205116802	1	0,35	1,20	15%	6; 10	6
RFGB06E-0.35-729	10205116902	1	0,35	1,20	0%	6; 10	6
RFGB06E-0.7-730	10205117002	2	0,70	2,50	0%	10; 12	6
RFGB06E-1.0-731	10205117102	3	1,00	3,50	0%	10; 12	6
RFGB06E-1.5-732	10205117202	4	1,50	5,30	0%	10; 12	6
RFGB06E-2.0-733	10205117302	5	2,00	7,00	0%	10; 12	6

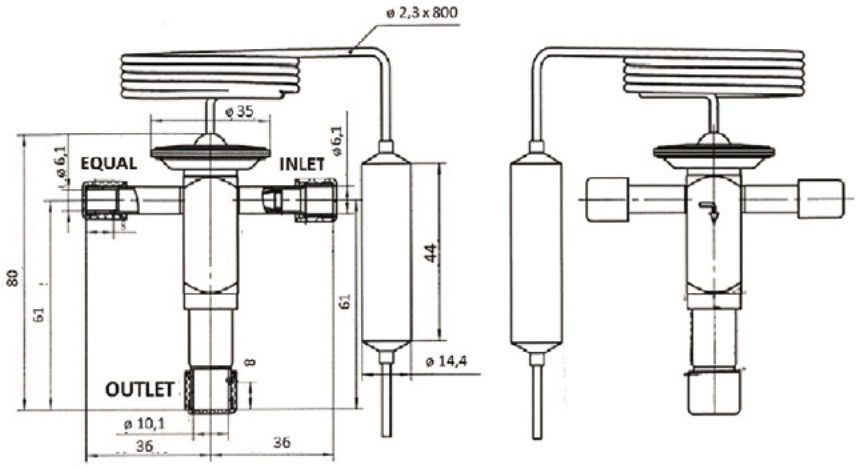
Note: 1) Different evaporation temperature range on request
2) Extent of delivery: valve body and bulb strap
3) MOP function on request



DIMENSIONS – ANGLE SHAPE VERSION



Angle Shape with Internal Pressure Equalization



Angle Shape with External Pressure Equalization


4000 PATENTS,
NEW PATENT
EVERY
24 HOURS
SANHUA

MDF-A02 (NO) *SERIES*

SOLENOID VALVE

(GreenTech range: for fluids GROUP 1 according to Directive 2014/68/EU or GROUP A3/A2L according to ANSI-ASHRAE 34-2016)
MDF-A02 series solenoid valves are normally open (NO) pilot operated solenoid valves, mainly used in refrigerant control of various devices such as refrigerating and freezing systems, air conditioners and heat pumps.

R290 R32

FEATURES

- COILS: LOW ENERGY CONSUMPTION, RELIABLE
- GREAT VALVE OPENING PERFORMANCE, HIGH MOPD
- COILS ARE DOUBLE SEALED, WATERTIGHT AND SAFE
- QUICK INSTALLATION COIL MQ-A11 FOR FAST AND EASY INSTALLATION AVAILABLE

GENERAL SPECIFICATIONS[1)]

- Applicable for all common HFC/HFO/HC refrigerants such as: R290, R1234yf, R1234ze(E), R32[2)], R454B, R454C
- Medium temperature: -30°C ~ +105°C
- Ambient temperature: -30°C ~ +55°C
- Relative humidity: 0 to 95%RH
- Installation position:
  - liquid, suction and discharge line
  - preferably coil upwards and flow direction corresponds to the arrow
- Declaration according to LVD and PED

1) MDF series is not suitable for "oil free" systems; customized models for such application are available on request
2) With R32 only respecting MOP 45 bar

MDF-A02 (NO) SERIES
SOLENOID VALVE

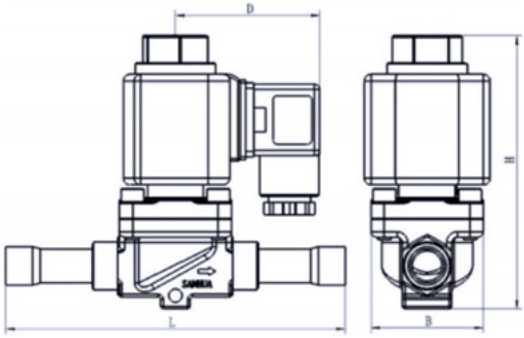
TECHNICAL PARAMETERS OF VALVE BODY

Valve Body Solder	Usable Coils	Normal position	Actuation	Kv [m³/h]	MOP [Mpa]	Max. OPD [Mpa]	Min. OPD[4] [Mpa]
MDF-A02-6H	AC/DC	NC[1]	Pilot[2]	0,8	4,5	2,8[3]	0,02
MDF-A02-10H				1,9			
MDF-A02-15H				2,3			
MDF-A02-20H				5			
MDF-A02-22H				6			

Note: 1) NO means: Normally open valve
2) Membrane operated
3) Max. OPD with liquid is 2,1 MPa, Max. OPD at 85% Ue
4) Min. OPD: values referred to 100% of nominal flow

DIMENSIONS

Valve Body - Solder Connection



Model Valve Body	Part Number[1)2)]	Solder Connection ODF		Kv [m³/h]	PED Category Fluid Group 1	Dimensions [mm]			
		[inch]	[mm]			L	B	D	H
MDF-A02-6H 002	10125001802	3/8		0,8	4.3	111	36	53	95
MDF-A02-6H 004	10125012302	1/2		0,8	4.3	127	36	53	95
MDF-A02-6H 006	10125009702		10	0,8	4.3	111	36	53	95
MDF-A02-6H 008	10125012402		12	0,8	4.3	127	36	53	95
MDF-A02-10H 002	10125012002	1/2		1,9	4.3	127	42	53	102,5
MDF-A02-10H 004	10125012702	5/8	16	1,9	4.3	160	42	53	102,5
MDF-A02-10H 006	10125012802		12	1,9	4.3	127	42	53	102,5
MDF-A02-15H 004	10125013102	7/8	22	2,3	4.3	176	52	53	107,5
MDF-A02-15H 006	10125013202	5/8	16	2,3	4.3	176	52	53	107,5
MDF-A02-20H 002	10125013502	7/8	22	5	4.3	191	60	53	124
MDF-A02-20H 004	10125013602	1-1/8		5	4.3	214	60	53	124
MDF-A02-20H 008	10125013702		28	5	4.3	214	60	53	124
MDF-A02-22H 002	10125013802	7/8	22	6	4.3	281	60	53	124
MDF-A02-22H 008	10125014002	1-1/8		6	4.3	281	60	53	124
MDF-A02-22H 012	10125015202		28	6	4.3	281	60	53	124

Note: 1) Extent of delivery: valve body without coil
2) Available also as industrial package. Contact Sanhua for more details.

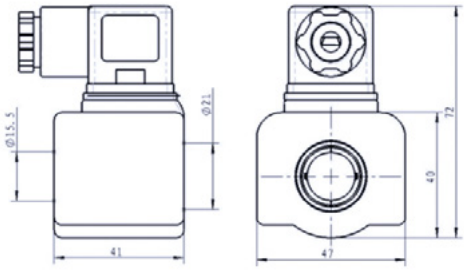
TECHNICAL PARAMETERS OF COIL

Model Coil	Part Number[1)]	Plug type[2)]	Supply	Rated Voltage [V]	Power [W]	Voltage Tolerance	Insu-lation Class	Protection Class (w/plug)	UL Approval
MQ-A02024-000001	10820004502	DIN Plug	AC	24	12,5 (50Hz) 10,5 (60Hz)	-15% +10%	F	IP67	NO
MQ-A0211A-000001	10820003702			110 to 120					NO
MQ-A0222G-000001	10820004102			220 to 240					NO
MQ-D02012-000001	10820006702		DC	12	10	±10%			NO
MQ-D02024-000001	10820006902			24					NO

Note: 1) ÑExtent of delivery: coil body, fastening screw for the coil body, plug for electrical connection incl. Gaskets and fastening screws
2) Outer cable diameter: 7,1 to 9,7mm and cable core 0,75 to 2,5mm^2

DIMENSIONS - COILS

MQ-A02 (Coils with DIN Plug):

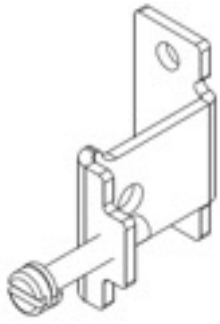


ACCESSORIES

Bracket

Model[1)]	Part Number	Applicable Valve Models	
		Solder	Flare
MDF-A03-033001	20125000902	MDF-A02-6H	MDF-A02-6L
		MDF-A02-10H	MDF-A02-10L
		MDF-A02-15H	MDF-A02-15L

Note: 1) Extent of delivery: bracket and screw



LDF SERIES

SOLENOID VALVE

LDF series solenoid valves are direct operated or pilot operated solenoid valves, mainly used in refrigerant control of various devices such as refrigerating and freezing systems, air conditioners and heat pumps.
All the Solenoid Valves listed in this datasheet can be installed in system using flammable refrigerants HFO (categories A2* and A2L*), and Hydrocarbons HC (category A3*).

R290

FEATURES

- COILS: LOW ENERGY CONSUMPTION, RELIABLE
- LOW INTERNAL LEAKAGE
- COMPACT DESIGN, EASY TO INSTALL.
- CERTIFIED ACCORDING PED CAT.II BY TUV RHEINLAND

GENERAL SPECIFICATIONS

- Applicable for all common HCFC, HFC and HFO refrigerants such as: R22, R134a, R404A, R407A/C/F, R410A, R507A, R448A, R449A, R450A, R452A, R513A, R32[1)], R1234yf, R1234ze, R454A/B/C, R455A, R290, R1270, R600a
- Medium temperature TS min./max.: -30°C / 120°C
- Ambient temperature min./max.: -30°C / +50°C
- Relative humidity: 0 to 95% RH
- Max. operating pressure PS: 4.5Mpa
- 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, UL approval

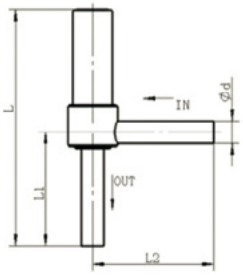
Note: *according ANSI-ASHRAE 34-2016 and EN-378-1 ANNE EN 378-1:2016 Annex E
1) With R32 only respecting MOP 45 bar

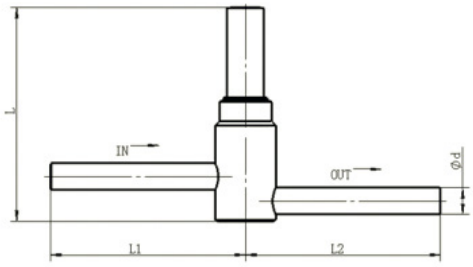
SOLENOID VALVE

TECHNICAL PARAMETERS OF VALVE BODY

Model Valve Body	Part Number	Normal Position	Actuation	Ø Seat [mm]	Kv [mm]	MOP [MPa]	OPD [MPa]		Ød ODM [inch]
							Max	Min	L2
LDF2A01	10127000102	NC	Direct	2	0.12	4.5	3.1	0	1/4
LDF2A02	10127000402			2	0.12	4.5	3.1	0	1/4
LDF3A08	10127001802		Pilot	3	0.26	4.5	3.1	0.005	1/4
LDF4A08	10127001102			4	0.3	4.5	3.1	0.005	1/4
LDF6A08	10127001202			5.8	0.6	4.5	3.1	0.005	5/16
LDF8A01	10127000502			8	0.9	4.5	3.1	0.005	3/8
LDF8A02	10127000602			8	1.1	4.5	3.1	0.005	3/8

Model Valve Body	Ød ODM [inch]	Dimensions			Drawings number
		L	L1	L2	
LDF2A01	1/4	51,6	40	39,5	2
LDF2A02	1/4	79,6	38,5	40	1
LDF3A08	1/4	91	45,8	46,7	1
LDF4A08	1/4	91	45	46	1
LDF6A08	5/16	95	48,5	49	1
LDF8A01	3/8	67	71	71	2
LDF8A02	3/8	120,7	69,5	71	1

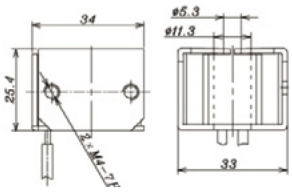




TECHNICAL PARAMETERS OF COIL

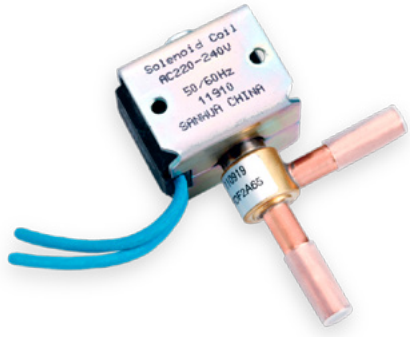
Model Coil	Rated voltage [V]	Power [W]	Voltage Tolerance	Insulation Class	Wiring type	Part Number
FQ-A05 024-000709	AC 24	5 (50Hz) 4,5 (60Hz)	+10% -15%	B	Lead Wires	10800072302
FQ-A05 120-001098	AC 120	5 (50Hz) 4,5 (60Hz)				10800062002
FQ-A05 22G-001044	AC 220-240	5 (50Hz) 4,5 (60Hz)				10800058002

DIMENSIONS - COIL



FDF (NC) SERIES

SOLENOID VALVE



FDF series solenoid valves are direct operated or pilot operated solenoid valves, mainly used in refrigerant control of various devices such as refrigerating and freezing systems, air conditioners and heat pumps.
All the Solenoid Valves listed in this datasheet can be installed in system using flammable refrigerants HFO (categories A2* and A2L*), and Hydrocarbons HC (category A3*).

R290

FEATURES

- COILS: LOW ENERGY CONSUMPTION, RELIABLE
- GREAT VALVE OPENING PERFORMANCE, HIGH MOPD
- CERTIFIED ACCORDING PED CAT.II BY TUV RHEINLAND

GENERAL SPECIFICATIONS

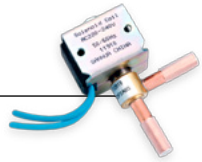
- Applicable for all common HCFC, HFC and HFO refrigerants such as: R22, R134a, R404A, R407A/C/F, R410A, R507A, R448A, R449A, R450A, R452A, R513A R32[1)], R1234yf, R1234ze, R454A/B/C, R455A R290, R1270, R600a
- Medium temperature TS min./max.: -30°C / 120°C
- Ambient temperature min./max.: -30°C / +50°C
- Relative humidity: 0 to 95% RH
- Max. operating pressure PS: 4.5Mpa
- Installation position:
  - Liquid, suction and discharge line
  - Coil upwards, coil axis ± 15° tolerance versus vertical axis
  - Flow direction corresponds to the arrow
- Certifications: UL and declaration according to LVD/PED

Note: *according ANSI-ASHRAE 34-2016 and EN-378-1 ANNE EN 378-1:2016 Annex E
1) With R32 only respecting MOP 45 bar

TECHNICAL PARAMETERS OF VALVE BODY

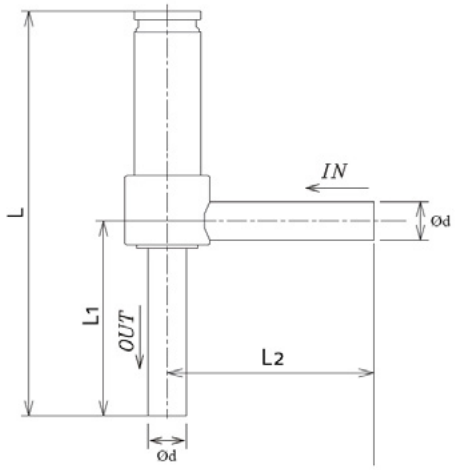
Model Valve Body	Part Number*	Normal Position	Actuation	Ø Seat	Kv	MOP	Max. OPD	Min. OPD	Ød OD	Ød OD	Measurement [mm]		
				[mm]	[m³/h]	[MPa]	[MPa]	[MPa]	[mm]	[inch]	L	L1	L2
FDF 2A 94	10120019802	NC	Direct	1,9	0,08	4,5	3,4	0	6,35	1/4	66,5	32	34
FDF 3A 08	10120019302		Pilot	2,7	0,26		3,4	0,01	7,94	5/16	81	34,5	35,5
FDF 4A 10	10120006502			4,0	0,30		3,4	0	6,35	1/4	81	35	38
FDF 6A 58	10120018702			5,8	0,56		3,4	0,01	7,94	5/16	81	34,5	35,5
FDF 11A 16	10120020302			11	2,40		2,8	0,02	12,7	1/2	114	61	61
FDF 13A 12	10120020502			13	3,5		2,8	0,02	15,88	5/8	114	61	61

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

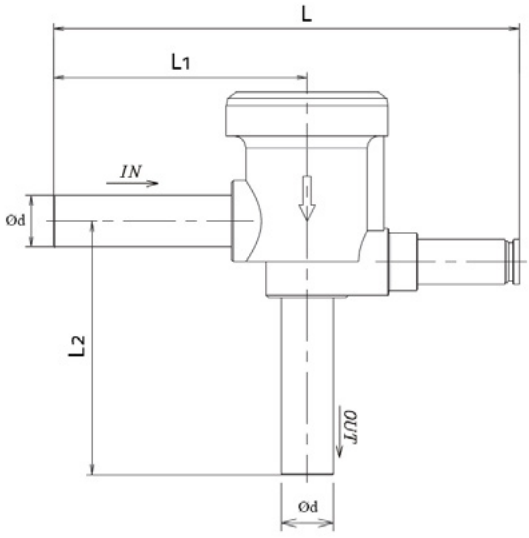


DIMENSIONS - VALVE BODY

FDF 2A ... FDF 6A



FDF 8A ... FDF 13A

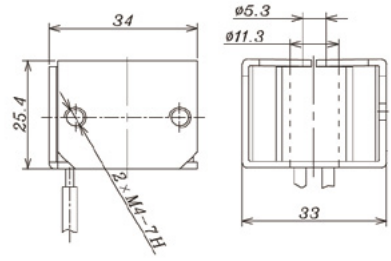


TECNHICAL PARAMETERS OF COIL

Model Coil	Part Number*	Rated Voltage [V]	Supply	Power [1] [W]	Freq. [Hz]	Voltage Tolerance	Insulation Class	Wiring type
FQ-A05 22G-001022	10800058002	220 to 240	AC	5,0 (50Hz) 4,5 (60Hz)	50/60	-15% +10%	B	flying leads

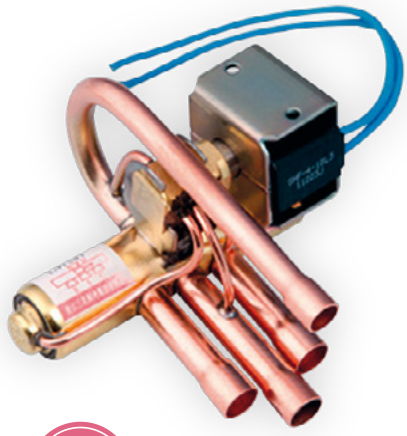
Note: 1) Power consumption based on 220V

DIMENSIONS – COIL (FQ-A05)



SHF SERIES

4 WAY REVERSING VALVE



R290

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. SHF valves can be installed in system using flammable refrigerants HFO (categories A2 and A2L*), and Hydrocarbons HC (category A3*).
*according ANSI-ASHRAE 34-2016 and EN-378-1 ANNE EN 378-1:2016 Annex E

FEATURES

- WIDE APPLICATION RANGE
- SUITABLE FOR COOLING CAPACITIES FROM 3.5 TO 409KW (R290, CONDITION 2, ΔP=0.1BAR)
- SEVERAL DESIGNS AVAILABLE
- CERTIFIED ACCORDING PED CAT.II BY TUV RHEINLAND

GENERAL SPECIFICATIONS

- Applicable for all common HCFC, HFC, HFO, HC refrigerants such as: R22, R134a, R404A, R407A/C/F, R410A, R507A, R448A, R449A, R450A, R452A, R513A, R32, R1234yf, R1234ze, R454A/B/C, R455A, R290, R1270, R600a
- Medium temperature TS min./max.: -30°C / +135°C
- Ambient temperature min./max.: -30°C / +50°C
- 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/CSA3) and declaration according to LVD and PED

4 WAY REVERSING VALVE

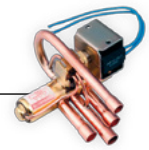


TABLE 1: MODELS SUITABLE FOR USAGE ON SYSTEM WITH VARIABLE SPEED (INVERTER)

General Characteristics											
Valve Model	Product Number	Type of System [Variable or Fixed Speed]	Ø Port	Kv	Connections ODF		MOP	OPD		PED Category	
					ØD	ØE/S/C		Max.	Min.	Fluid	Fluid
			[mm]	[m³/h]	[inch]	[inch]	[MPa]	[MPa]	[MPa]	Group 2	Group 1
SHF(L)-3H-12U-52	10180953202	Variable & Fixed	7,4	1,5	1/4	5/16	4,7	4	0,1	4,3	4,3
SHF(L)-4H-23U-52	10180952502	Variable & Fixed	8	1,6	5/16	3/8	4,7	4	0,1	4,3	4,3
SHF(L)-7H-34U-52	10180952602	Variable & Fixed	11,1	2,9	3/8	1/2	4,7	4	0,1	4,3	4,3
SHF(L)-7H-34-52	10180953302	Variable & Fixed	11,1	2,9	3/8	1/2	4,7	4	0,1	4,3	4,3
SHF(L)-7H-35-52	10180950002	Variable & Fixed	11,1	2,9	3/8	5/8	4,7	4	0,1	4,3	4,3
SHF(L)-11H-34U-52	10180953402	Variable & Fixed	11,5	4,5	3/8	1/2	4,7	4	0,1	4,3	4,3
SHF(L)-11H-35U-52	10180952402	Variable & Fixed	11,5	4,5	3/8	5/8	4,7	4	0,1	4,3	4,3
SHF(L)-11H-45D1-52	10180950102	Variable & Fixed	11,5	4,5	1/2	5/8	4,7	4	0,1	4,3	4,3
SHF(L)-11H-46D1-52	10180953502	Variable & Fixed	11,5	4,5	1/2	3/4	4,7	4	0,1	4,3	4,3
SHF-14A-46	10325030102	Variable & Fixed	13,5	6,6	1/2	3/4	4,7	4	0,1	4,3	4,3
SHF-20D-46-02	10325051602	Variable	17,2	9,5	1/2	3/4	4,7	4	0,1	4,3	4,3
SHF-20D-47-02	10325055702	Variable	17,2	9,9	1/2	7/8	4,7	4	0,1	4,3	4,3
SHF-20D-57-02	10325060202	Variable	17,2	9,9	5/8	7/8	4,7	4	0,1	4,3	4,3
SHF-20D-67-02	10325060102	Variable	17,2	9,9	3/4	7/8	4,7	4	0,1	4,3	4,3
SHF-35B-47-04	10325058802	Variable	20	14,7	1/2	7/8	4,7	4	0,1	4,3	4,3
SHF-35B-57-04	10325059002	Variable	20	14,7	5/8	7/8	4,7	4	0,1	4,3	4,3
SHF-35B-59-04	10325059102	Variable	20	14,7	5/8	1 1/8	4,7	4	0,1	4,3	4,3
SHF-35B-67-04	10325050802	Variable	20	14,7	3/4	7/8	4,7	4	0,1	4,3	4,3
SHF-35B-69-04	10325058502	Variable	20,9	14,7	3/4	1 1/8	4,7	4	0,1	4,3	4,3
SHF-35B-79-04	10325058302	Variable	20,9	14,7	7/8	1 1/8	4,7	4	0,1	4,3	4,3
SHF-50A-79	10325059702	Variable & Fixed	22,8	18,3	7/8	1 1/8	4,5	4	0,1	4,3	4,3
SHF(L)-70-810-20	10325049401	Variable	28,6	28,5	1	1 1/4	4,5	4	0,15	4,3	II
SHF(L)-70-810-21	10325048501	Variable	28,6	28,5	1	1 1/4	4,5	4	0,15	4,3	II
SHF(L)-70-911-20	10325048701	Variable	28,6	28,5	1 1/8	1 3/8	4,5	4	0,15	4,3	II
SHF(L)-70-911-21	10325048901	Variable	28,6	28,5	1 1/8	1 3/8	4,5	4	0,15	4,3	II
SHF(L)-70-913-25	10325049301	Variable	28,6	28,5	1 1/8	1 5/8	4,5	4	0,15	I	II
SHF(L)-70-913-23	10325049101	Variable	28,6	28,5	1 1/8	1 5/8	4,5	4	0,15	I	II
SHF(L)-100-911	10325054502	Variable & Fixed	34,8	40,5	1 1/8	1 3/8	4,5	4	0,15	I	II
SHF(L)-100-911-01	10325054602	Variable & Fixed	34,8	40,5	1 1/8	1 3/8	4,5	4	0,15	I	II
SHF(L)-100-913	10325054302	Variable & Fixed	34,8	40,5	1 1/8	1 5/8	4,5	4	0,15	I	II
SHF(L)-100-913-01	10325054402	Variable & Fixed	34,8	40,5	1 1/8	1 5/8	4,5	4	0,15	I	II
SHF(L)-100-1012	10325053702	Variable & Fixed	34,8	40,5	1 1/4	1 1/2	4,5	4	0,15	I	II
SHF(L)-100-1012-01	10325054002	Variable & Fixed	34,8	40,5	1 1/4	1 1/2	4,5	4	0,15	I	II
SHF(L)-100-1013	10325053902	Variable & Fixed	34,8	40,5	1 1/4	1 5/8	4,5	4	0,15	I	II
SHF(L)-100-1013-01	10325054202	Variable & Fixed	34,8	40,5	1 1/4	1 5/8	4,5	4	0,15	I	II

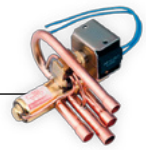


TABLE 1: MODELS SUITABLE FOR USAGE ON SYSTEM WITH VARIABLE SPEED (INVERTER)

General Characteristics										
Valve Model	Product Number	Type of System [Variable or Fixed Speed]	Ø Port	Kv	Connections ODF		MOP	OPD		PED Category
					ØD	ØE/S/C		Max.	Min.	Fluid	Fluid
			[mm]	[m³/h]	[inch]	[inch]	[MPa]	[MPa]	[MPa]	Group 2	Group 1
SHF(L)-140-1113	10325053402	Variable & Fixed	41	58,4	1 3/8	1 5/8	4,5	4	0,15	I	II
SHF(L)-140-1213	10325053502	Variable & Fixed	41	58,4	1 1/2	1 5/8	4,5	4	0,15	I	II
SHF(L)-140-1214	10325053302	Variable & Fixed	41	58,4	1 1/2	1 3/4	4,5	4	0,15	I	II
SHF(L)-140-1313	10325053602	Variable & Fixed	41	58,4	1 5/8	1 5/8	4,5	4	0,15	I	II
SHF(L)-175-1217	10325054902	Variable & Fixed	46,4	70,5	1 1/2	2 1/8	4,5	4	0,15	I	II
SHF(L)-175-1317	10325055002	Variable & Fixed	46,4	70,5	1 5/8	2 1/8	4,5	4	0,15	I	II
SHF(L)-210-1321	10325055102	Variable & Fixed	50	84,4	1 5/8	2 5/8	4,5	4	0,15	I	II
SHF(L)-350-1721	10325055202	Variable & Fixed	59	138,4	2 1/8	2 5/8	4,5	4	0,15	I	II
SHF(L)-420-2125	10325055302	Variable & Fixed	69	177	2 5/8	3 1/8	4,5	4	0,15	I	II

TABLE 2: MODELS OPTIMIZED FOR USAGE ON SYSTEM WITH FIXED SPEED (ON/OFF COMPRESSORS)

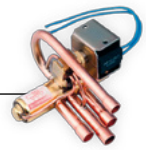
General Characteristics										
Valve Model	Product Number	Type of System [Variable or Fixed Speed]	Ø Port	Kv	Connections ODF		MOP	OPD		PED Category
					ØD	ØE/S/C		Max.	Min.	Fluid	Fluid
			[mm]	[m³/h]	[inch]	[inch]	[MPa]	[MPa]	[MPa]	Group 2	Group 1
SHF-20D-46-01	10325051502	Fixed	17,2	9,5	1/2	3/4	4,7	4	0,1	4,3	4,3
SHF-20D-47-01	10325057402	Fixed	17,2	9,9	1/2	7/8	4,7	4	0,1	4,3	4,3
SHF-20D-57-01	10325057302	Fixed	17,2	9,9	5/8	7/8	4,7	4	0,1	4,3	4,3
SHF-20D-67-01	10325050102	Fixed	17,2	9,9	3/4	7/8	4,7	4	0,1	4,3	4,3
SHF-35B-47-01	10325058702	Fixed	20	14,7	1/2	7/8	4,7	4	0,1	4,3	4,3
SHF-35B-57-01	10325058902	Fixed	20	14,7	5/8	7/8	4,7	4	0,1	4,3	4,3
SHF-35B-59-01	10325050202	Fixed	20	14,7	5/8	1 1/8	4,7	4	0,1	4,3	4,3
SHF-35B-67-01	10325050702	Fixed	20	14,7	3/4	7/8	4,7	4	0,1	4,3	4,3
SHF-35B-69-01	10325058402	Fixed	20,9	14,7	3/4	1 1/8	4,7	4	0,1	4,3	4,3
SHF-35B-79-01	10325052702	Fixed	20,9	14,7	7/8	1 1/8	4,7	4	0,1	4,3	4,3
SHF(L)-70-810-10	10325048302	Fixed	28,6	28,5	1	1 1/4	4,5	4	0,15	4,3	II
SHF(L)-70-810-11	10325048402	Fixed	28,6	28,5	1	1 1/4	4,5	4	0,15	4,3	II
SHF(L)-70-911-10	10325048602	Fixed	28,6	28,5	1 1/8	1 3/8	4,5	4	0,15	4,3	II
SHF(L)-70-911-11	10325048802	Fixed	28,6	28,5	1 1/8	1 3/8	4,5	4	0,15	4,3	II
SHF(L)-70-913-15	10325049202	Fixed	28,6	28,5	1 1/8	1 5/8	4,5	4	0,15	I	II
SHF(L)-70-913-13	10325049002	Fixed	28,6	28,5	1 1/8	1 5/8	4,5	4	0,15	I	II

NOMINAL OPERATING CONDITIONS

Nominal Operating Conditions	Condition 1	Condition 2
Condensing Temperature t_c	38°C	54,4°C
Evaporating Temperature t_o	5°C	7,2°C
Superheat Δt_{sc}	5K	5K
Subcooling Δt_{sr}	0K	5K

Notes for Capacity Selection Tables: 1) Pressure drop is valid for flow on low pressure side (from ØC to ØS or from ØE to ØS)

4 WAY REVERSING VALVE

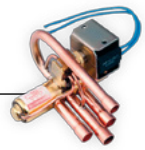


1) CAPACITY TABLES – NOMINAL WORKING CONDITION 1

Capacity Selection Table								
Valve Size	Nominal Cooling Capacity (condition 1)							
	R290		R1270		R600a		R32	
	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	4,1	5,8	4,5	6,4	2,6	3,6	5,2	7,4
SHF(L)-4H	4,4	6,2	4,8	6,8	2,7	3,9	5,6	7,9
SHF(L)-7H	7,9	11,2	8,7	12,4	5,0	7,0	10,1	14,3
SHF(L)-11H	12,3	17,4	13,6	19,2	7,7	10,9	15,7	22,2
SHF-14A-46	18,0	25,5	19,9	28,1	11,3	16,0	23,0	32,5
SHF-20D-46	25,9	36,7	28,6	40,5	16,3	23,0	33,1	48,8
SHF-20D-xx	25,9	36,7	28,6	40,5	16,3	23,0	33,1	46,8
SHF-35B	40,1	56,8	44,3	62,6	25,2	35,6	51,3	72,5
SHF-50A-79	50,0	70,6	55,1	77,9	31,3	44,3	63,8	90,2
SHF(L)-70	77,8	110,0	85,8	121,3	48,8	69,0	99,4	140,5
SHF(L)-100	110,6	156,4	121,9	172,4	69,3	98,0	141,2	199,7
SHF(L)-140	159,4	225,5	175,8	248,6	99,9	141,3	203,6	287,9
SHF(L)-175	192,5	272,2	212,2	300,2	120,6	170,6	245,8	347,6
SHF(L)-210	230,4	325,8	254,1	359,3	144,4	204,2	294,2	416,1
SHF(L)-350	377,8	534,3	416,6	589,2	236,8	334,9	482,5	682,3
SHF(L)-420	483,2	683,3	532,9	753,6	302,8	428,2	617,1	872,6

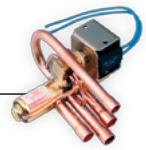
Capacity Selection Table								
Valve Size	Nominal Cooling Capacity (condition 1)							
	R1234yf		R1234ze		R454B		R455A	
	ΔP: 0,1 bar	ΔP: 0,2 bar	ΔP: 0,1 bar	ΔP: 0,2 bar	ΔP: 0,1 bar	ΔP: 0,2 bar	ΔP: 0,1 bar	ΔP: 0,2 bar
	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
SHF(L)-3H	2,2	3,2	2,2	3,0	4,4	6,2	2,9	4,1
SHF(L)-4H	2,4	3,4	2,3	3,2	4,7	6,6	3,1	4,4
SHF(L)-7H	4,3	6,1	4,2	5,9	8,4	11,9	5,6	8,0
SHF(L)-11H	6,7	9,5	6,5	9,1	13,1	18,5	8,7	12,4
SHF-14A-46	9,8	13,9	9,5	13,4	19,2	27,1	12,8	18,1
SHF-20D-46	14,2	20,0	13,6	19,3	27,6	39,1	18,4	26,1
SHF-20D-xx	14,2	20,0	13,6	19,3	27,6	39,1	18,4	26,1
SHF-35B	21,9	31,0	21,1	29,8	42,7	60,4	28,5	40,3
SHF-50A-79	27,3	38,5	26,2	37,1	53,2	75,2	35,5	50,2
SHF(L)-70	42,4	60,0	40,9	57,8	82,9	117,2	55,3	78,2
SHF(L)-100	60,3	85,3	58,1	82,1	117,7	166,5	78,6	111,1
SHF(L)-140	87,0	123,0	83,7	118,4	169,8	240,1	113,3	160,2
SHF(L)-175	105,0	148,5	101,1	143,0	205,0	289,8	136,8	193,4
SHF(L)-210	125,7	177,7	121,0	171,1	245,4	347,0	163,7	231,6
SHF(L)-350	206,1	291,5	198,4	280,6	402,3	569,0	268,5	379,7
SHF(L)-420	263,6	372,7	253,8	358,9	514,6	727,7	343,4	485,7

4 WAY REVERSING VALVE

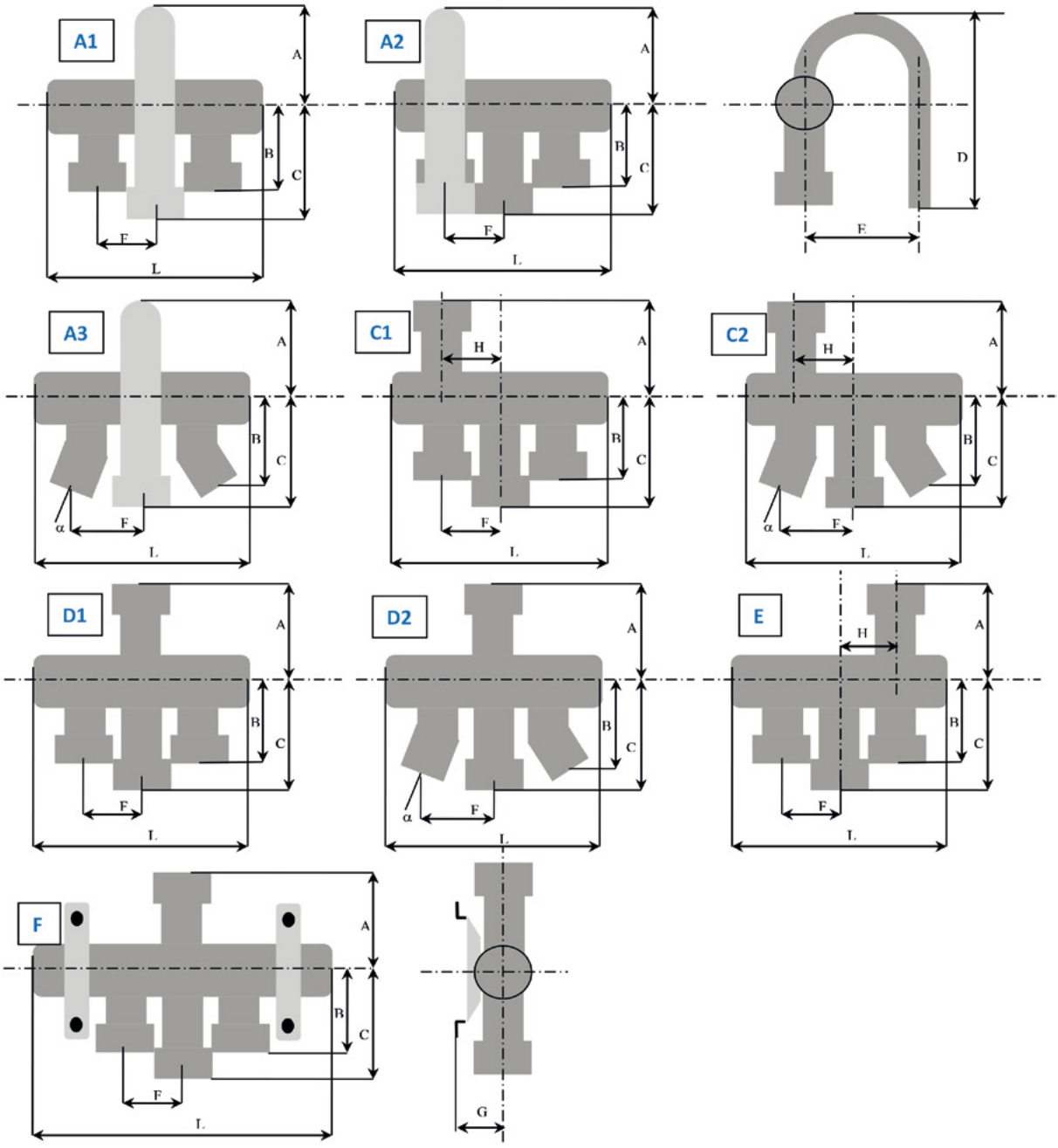


Capacity Selection Table								
Valve Size	Nominal Cooling Capacity (condition 2)							
	R290		R1270		R600a		R32	
	ΔP: 0,1 bar	ΔP: 0,2 bar	ΔP: 0,1 bar	ΔP: 0,2 bar	ΔP: 0,1 bar	ΔP: 0,2 bar	ΔP: 0,1 bar	ΔP: 0,2 bar
	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
SHF(L)-3H	3,8	5,3	4,2	5,9	2,4	3,4	4,9	6,9
SHF(L)-4H	4,0	5,7	4,4	6,3	2,6	3,6	5,2	7,4
SHF(L)-7H	7,3	10,3	8,1	11,4	4,7	6,6	9,5	13,4
SHF(L)-11H	11,3	16,0	12,5	17,7	7,2	10,2	14,7	20,8
SHF-14A-46	16,6	23,5	18,3	25,9	10,6	15,0	21,6	30,5
SHF-20D-46	23,9	33,8	26,4	37,3	15,2	21,6	31,0	43,9
SHF-20D-xx	23,9	33,8	26,4	37,3	15,2	21,6	31,0	43,9
SHF-35B	37,0	52,3	40,8	57,7	23,6	33,4	48,0	67,9
SHF-50A-79	46,0	65,1	50,8	71,9	29,4	41,5	59,8	84,6
SHF(L)-70	71,7	101,3	79,2	111,9	45,7	64,7	93,1	131,7
SHF(L)-100	101,8	144,0	112,5	159,1	65,0	91,9	132,3	187,2
SHF(L)-140	146,8	207,6	162,2	229,4	93,7	132,5	190,8	269,9
SHF(L)-175	177,2	250,6	195,8	276,9	113,1	160,0	230,4	325,8
SHF(L)-210	212,2	300,1	234,4	331,5	135,4	191,5	275,8	390,0
SHF(L)-350	347,9	492,0	384,4	543,6	222,1	314,0	452,3	639,6
SHF(L)-420	445,0	629,3	491,6	695,2	284,0	401,6	578,4	818,0

Capacity Selection Table								
Valve Size	Nominal Cooling Capacity (condition 2)							
	R1234yf		R1234ze		R454B		R455A	
	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	2,1	2,8	2,0	2,8	4,0	5,7	2,6	3,7
SHF(L)-4H	2,2	3,0	2,1	3,0	4,3	6,1	2,8	4,0
SHF(L)-7H	3,9	5,5	3,8	5,4	7,8	11,0	5,1	7,2
SHF(L)-11H	6,0	8,5	6,0	8,4	12,1	17,1	7,9	11,2
SHF-14A-46	8,9	12,5	8,8	12,4	17,7	25,1	11,6	16,4
SHF-20D-46	12,8	18,0	12,6	17,8	25,5	36,1	16,7	23,6
SHF-20D-xx	12,8	18,0	12,6	17,8	25,5	36,1	16,7	23,6
SHF-35B	19,7	27,9	19,5	27,6	39,5	55,9	25,8	36,5
SHF-50A-79	24,6	34,7	24,3	34,4	49,2	69,5	32,2	45,5
SHF(L)-70	38,3	54,1	37,8	53,5	76,6	108,3	50,1	70,8
SHF(L)-100	54,4	76,9	53,8	76,0	108,8	153,9	71,2	100,6
SHF(L)-140	78,4	110,9	77,5	109,6	156,9	221,9	102,6	145,1
SHF(L)-175	94,6	133,9	93,6	132,4	189,5	267,9	123,9	175,2
SHF(L)-210	113,3	160,2	112,0	158,5	226,8	320,7	148,3	209,7
SHF(L)-350	185,8	262,8	183,7	259,8	371,9	526,0	243,2	343,9
SHF(L)-420	237,6	336,1	235,0	332,3	475,6	672,7	311,0	439,8



DIMENSIONS - VALVES



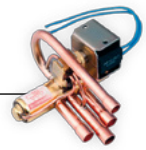


TABLE 3: MODELS SUITABLE FOR USAGE ON SYSTEM WITH VARIABLE SPEED (INVERTER)

Dimensions - Valves												
Valve Model	Valve Style	L	A	B	C	D	E	F	G	H	Angle α	Weight
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[°]	[kg]
SHF(L)-3H-12U-52	A1	88,2	38,5	38	50	88,5	43	11	-	-	0	0,2
SHF(L)-4H-23U-52	A1	94,4	43	50	62	105	43	12	-	-	0	0,2
SHF(L)-7H-34U-52	A1	113	52	59	71	119	52	16	-	-	0	0,3
SHF(L)-7H-34-52	D1	113	52	59	71	-	-	16	-	-	0	0,3
SHF(L)-7H-35-52	D2	113	52	57	72	-	-	23,5	-	16	0	0,3
SHF(L)-11H-34U-52	A1	115,5	51	59	71	119	52	16	-	-	0	0,3
SHF(L)-11H-35U-52	A3	115,5	51	57	71	119	52	23,5	-	-	15	0,3
SHF(L)-11H-45D1-52	C2	117	52	62	87	-	-	25	-	16	15	0,32
SHF(L)-11H-46D1-52	C2	117	52	82	87	-	-	32,5	-	16	20	0,35
SHF-14A-46	D1	163	67	83	95	-	-	23,8	-	-	0	0,72
SHF-20D-46-02	D1	183,6	67	83	95	-	-	28,6	-	-	0	0,75
SHF-20D-47-02	D1	183,6	67	83	95	-	-	28,6	-	-	0	0,75
SHF-20D-57-02	D1	183,6	67	83	95	-	-	28,6	-	-	0	0,75
SHF-20D-67-02	D1	183,6	67	83	95	-	-	28,6	-	-	0	0,75
SHF-35B-47-04	D1	212,2	82	87	100	-	-	33	-	-	0	1,3
SHF-35B-57-04	D1	212,2	82	87	100	-	-	33	-	-	0	1,3
SHF-35B-59-04	D1	212,2	82	87	100	-	-	33	-	-	0	1,3
SHF-35B-67-04	D1	212,2	82	87	100	-	-	33	-	-	0	1,3
SHF-35B-69-04	D1	212,2	82	87	100	-	-	33	-	-	0	1,3
SHF-35B-79-04	D1	212,2	82	87	100	-	-	33	-	-	0	1,3
SHF-50A-79	D1	217	91	96	128	-	-	33	-	-	0	2,1
SHF(L)-70-810-20	D1	303	111	117	131	-	-	46	-	-	0	3
SHF(L)-70-810-21	F	303	111	117	154	-	-	46	58	-	0	3
SHF(L)-70-911-20	D1	303	111	117	154	-	-	46	-	-	0	3
SHF(L)-70-911-21	F	321	111	117	131	-	-	49	58	-	0	3,5
SHF(L)-70-913-25	D1	321	111	117	131	-	-	49	-	-	0	3,5
SHF(L)-70-913-23	F	321	111	117	131	-	-	49	58	-	0	3,5
SHF(L)-100-911	D1	321	111	117	131	-	-	49	-	-	0	3,5
SHF(L)-100-911-01	F	303	111	117	131	-	-	46	58	-	0	3
SHF(L)-100-913	D1	303	111	117	154	-	-	46	-	-	0	3
SHF(L)-100-913-01	F	303	111	117	154	-	-	46	58	-	0	3
SHF(L)-100-1012	D1	321	111	117	131	-	-	49	-	-	0	3,5
SHF(L)-100-1012-01	F	321	111	117	131	-	-	49	58	-	0	3,5
SHF(L)-100-1013	D1	321	111	117	131	-	-	49	-	-	0	3,5
SHF(L)-100-1013-01	F	321	111	117	131	-	-	49	58	-	0	3,5
SHF(L)-140-1113	F	390	135,6	148,7	168,7	-	-	58	63	-	0	7,2
SHF(L)-140-1213	F	390	135,6	148,7	168,7	-	-	58	63	-	0	7,2
SHF(L)-140-1214	F	390	135,6	148,7	168,7	-	-	58	63	-	0	7,2
SHF(L)-140-1313	F	390	135,6	148,7	168,7	-	-	58	63	-	0	7,2
SHF(L)-175-1217	F	390	135,6	148,7	198	-	-	58	63	-	0	7,6
SHF(L)-175-1317	F	390	135,6	148,7	198	-	-	58	63	-	0	7,6
SHF(L)-210-1321	F	452	135,6	148,7	198	-	-	71,5	63	-	0	8,7
SHF(L)-350-1721	F	531	176,5	184	240	-	-	75	82,5	-	0	22
SHF(L)-420-2125	F	611,7	176,5	184	240	-	-	93	82,5	-	0	26

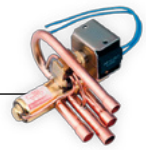
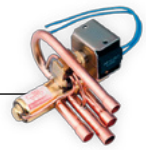


TABLE 4: MODELS OPTIMIZED FOR USAGE ON SYSTEM WITH FIXED SPEED (ON/OFF COMPRESSORS)

Dimensions - Valves												
Valve Model	Valve Style	L	A	B	C	D	E	F	G	H	Angle α	Weight
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[°]	[kg]
SHF-20D-46-01	D1	183,6	67	83	95	-	-	28,6	-	-	0	0,75
SHF-20D-47-01	D1	183,6	67	83	95	-	-	28,6	-	-	0	0,75
SHF-20D-57-01	D1	183,6	67	83	95	-	-	28,6	-	-	0	0,75
SHF-20D-67-01	D1	183,6	67	83	95	-	-	28,6	-	-	0	0,75
SHF-35B-47-01	D1	212,2	82	87	100	-	-	33	-	-	0	1,3
SHF-35B-57-01	D1	212,2	82	87	100	-	-	33	-	-	0	1,3
SHF-35B-59-01	D1	212,2	82	87	100	-	-	33	-	-	0	1,3
SHF-35B-67-01	D1	212,2	82	87	100	-	-	33	-	-	0	1,3
SHF-35B-69-01	D1	212,2	82	87	100	-	-	33	-	-	0	1,3
SHF-35B-79-01	D1	212,2	82	87	100	-	-	33	-	-	0	1,3
SHF(L)-70-810-10	D1	303	111	117	131	-	-	46	-	-	0	3
SHF(L)-70-810-11	D1	303	111	117	131	-	-	46	-	-	0	3
SHF(L)-70-911-10	D1	303	111	117	154	-	-	46	-	-	0	3
SHF(L)-70-911-11	F	321	111	117	131	-	-	49	58	-	0	3,5
SHF(L)-70-913-15	D1	321	111	117	131	-	-	49	-	-	0	3,5
SHF(L)-70-913-13	F	321	111	117	131	-	-	49	58	-	0	3,5

SHF SERIES
4 WAY REVERSING VALVE

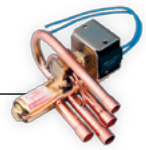


Coil Characteristics												
Coil Model [1]	Winding Code	Part Number	Electrical Function/ Connection Type	Cable Length	Power Supply	Rated Voltage	Power Consumption AC 50Hz	Power Consumption AC 60Hz	Power Consumption DC	Protection Clas	Insulat. Class	Max. Op. Temp.
				[mm]	[-]	[V]	[W]	[W]	[W]	[-]	[-]	[°C]
SQ-A25 22G-00 0001	SHF-4-10L3	10805029102	Lead Wires	500	AC	220-240	4,5	3,5	-	IP54	B[2]	130
SQ-A25 200-00 0001	SHF-4-10L2	10805027002	Lead Wires	500	AC	200	4,5	3,5	-			
SQ-A25 100-00 0001	SHF-4-10L1	10805023602	Lead Wires	500	AC	100	4,5	3,5	-			
SQ-A25 11A-00 0001	SHF-4-10L4	10805150302	Lead Wires	500	AC	110-120	4,5	3,5	-			
SQ-A25 024-00 0001	SHF-4-10L5	10805227602	Lead Wires	500	AC	24	4,5	3,5	-			
SQ-A25 26H-00 0001	SHF-4-10L6	10805231902	Lead Wires	500	AC	265-277	4,5	3,5	-			
SQ-A25 22G-00 0870	SHF-4-10L3	10805240702	Lead Wires	1500	AC	220-240	4,5	3,5	-			
SQ-A25 11A-00 0840	SHF-4-10L4	10805240802	Lead Wires	1500	AC	110-120	4,5	3,5	-			
SQ-A25 024-00 0161	SHF-4-10L5	10805023002	Lead Wires	1500	AC	24	4,5	3,5	-			
SQ-A47 22G-00 0001	SHF-4-10FA5	10805263402	Spade (Faston)[3]	-	AC	220-240	6	5	-	IP00	F[2]	155
SQ-A47 220-00 0001	SHF-4-10FA1	10805273402	Spade (Faston)[3]	-	AC	220	6	5	-			
SQ-A47 11B-00 0001	SHF-4-10FA2	10805273302	Spade (Faston)[3]	-	AC	120	6	5	-			
SQ-A47 10A-00 0001	SHF-4-10FA3	10805268702	Spade (Faston)[3]	-	AC	100-110	6	5	-			
SQ-A47 024-00 0001	SHF-4-10FA4	10805263302	Spade (Faston)[3]	-	AC	24	6	5	-			
SQ-A47 26H-00 0001	SHF-4-10FA6	10805273502	Spade (Faston)[3]	-	AC	265-277	6	5	-			
SQ-D44 012-00 0001	SHF-4-10FA8	10805231802	Spade (Faston)[3]	-	DC	12	-	-	10			
SQ-D44 024-00 0001	SHF-4-10FA9	10805070102	Spade (Faston)[3]	-	DC	24	-	-	11			
SQ-A27 100-00 0001	-	10805063202	Bi-stable/ Lead W.	500	AC	100	18	18	-	IP54	B[2]	130
SQ-A27 200-00 0001	-	10805063802	Bi-stable/ Lead W.	500	AC	200	18	18	-			
SQ-A27 20K-00 0001	-	10805222902	Bi-stable/ Lead W.	500	AC	220-240	18	18	-			
SQ-D27 012-00 0001	-	10805069302	Bi-stable/ Lead W.	500	DC	12	-	-	20			

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

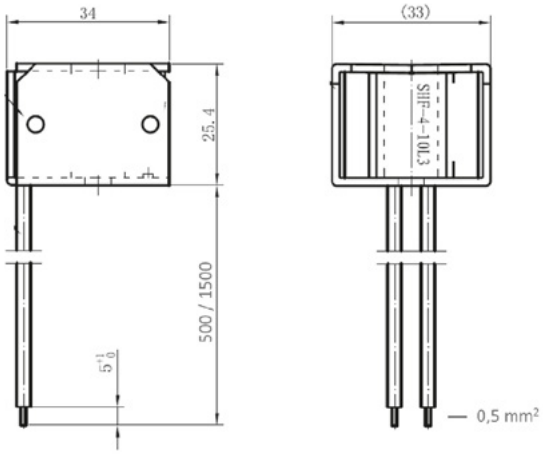
ACCESSORY

Wire Harness		
Model	Part Number	Cable Length [mm]
SQ-000000-090028	20805136301	1200
SQ-000000-090029	20805149201	2000

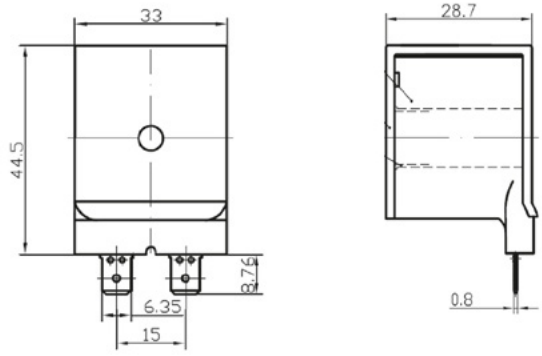


DIMENSIONS - COILS

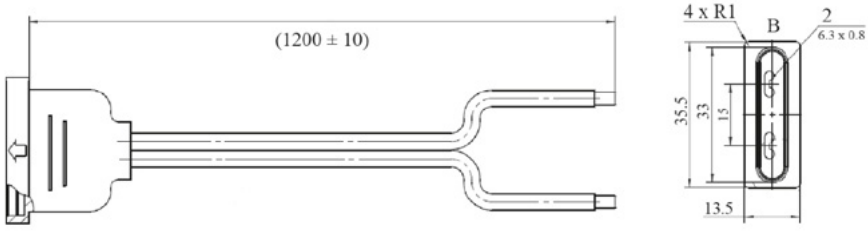
Coils with Lead Wires (SQ-A25 Series)



Coils with Spade Connections (SQ-A47)

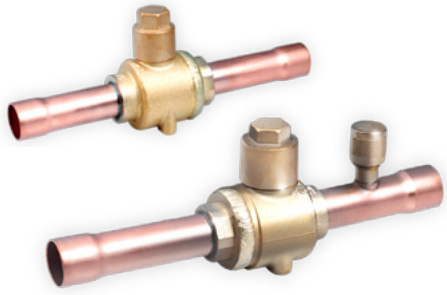


Wire Harness (SQ-000000-0900xx)



SBV/SBV-R *SERIES*

BALL VALVE



The ball valve of series SBV/SBV-R 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. All the Ball Valves listed in this datasheet can be installed in system using flammable refrigerants HFO (categories A2* and A2L*), and Hydrocarbons HC (category A3*).
*according ANSI-ASHRAE 34-2016 and EN-378-1 ANNEX EN 378-1:2016 Annex E

R290 R32

FEATURES

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

GENERAL SPECIFICATIONS

- Applicable for all common HCFC, HFC and HFO refrigerants such as: R22, R134a, R404A, R407A/C/F, R410A, R507A, R448A, R449A, R450A, R452A, R513A, R32, R1234yf, R1234ze, R454A/B/C, R455A, R290, R1270, R600a
- Medium temperature TS min./max.: -40°C / +120°C
- Max. operating pressure PS: 4,5 (45bar) or 4,9 MPa (49 bar) depending by the model
- Installation position: liquid, suction and discharge line in all directions
- PED declaration
- Certifications: UL/CUL available only for models with size until SBV07. For bigger sizes on request

Note: 1) SBV: Peak temperature of +150°C for short term use
2) SBV-R: Peak temperature of +135°C for short term use

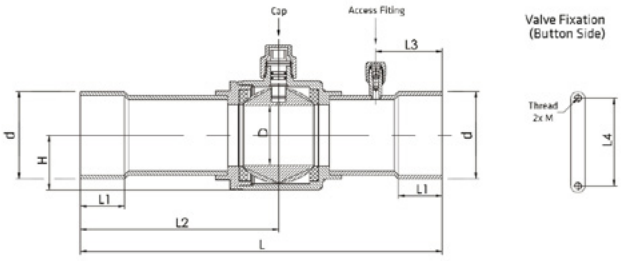
BALL VALVE

GENERAL CHARACTERISTICS

Without Access Fitting		Connections Ø d ODF		Kv	Wrench Size Cap	PS	PED Category [Fluid Group 1]	PED Category [Fluid Group 2]	With Access Fitting	
Model	Part Number*	[inch]	[mm]	[m³/h]	[mm]	[bar]			Model	Part Number*
SBV02-020	10150092002	-	6	1,9	19	45	Art. 4.3	Art. 4.3	SBV02-320	10150094702
SBV02-019	10150091902	1/4	-	1,9	19	45	Art. 4.3	Art. 4.3	SBV02-319	10150094602
SBV03-019	10150091802	3/8	-	5,5	19	45	Art. 4.3	Art. 4.3	SBV03-319	10150094802
SBV03-020	10150092102	-	10	5,5	19	45	Art. 4.3	Art. 4.3	SBV03-320	10150094902
SBV04-020	10150092202	-	12	10,2	19	45	Art. 4.3	Art. 4.3	SBV04-320	10150095102
SBV04-019	10150090502	1/2	-	10,2	19	45	Art. 4.3	Art. 4.3	SBV04-319	10150095002
SBV(M) -A5YHSY-2-S	10150057602	-	15	13,2	14	45	Art. 4.3	Art. 4.3	SBV(M) -JA5YHSY-2-S	10150057702
SBV(M) -A5YHSY-1-S	10150053302	5/8	16	13,8	14	45	Art. 4.3	Art. 4.3	SBV(M) -JA5YHSY-1-S	10150053402
SBV(M) -A6YHSY-2-S	10150054602	-	18	19,5	17	45	Art. 4.3	Art. 4.3	SBV(M) -JA6YHSY-2-S	10150054502
SBV(M) -A6YHSY-1-S	10150054302	3/4	-	19,5	17	45	Art. 4.3	Art. 4.3	SBV(M) -JA6YHSY-1-S	10150054202
SBV(M) -A7YHSY-1-S	10150053502	7/8	22	28,0	17	45	Art. 4.3	Art. 4.3	SBV(M) -JA7YHSY-1-S	10150053602
SBV09-120R	10150103602	-	28	51,5	17	49	Cat. 2	Art. 4.3	SBV09-420R	10150103702
SBV09-119R	10150097102	1 1/8	-	51,5	17	49	Cat. 2	Art. 4.3	SBV09-419R	10150106502
SBV11-119R	10150103802	1 3/8	35	80,0	17	49	Cat. 2	Cat. 1	SBV11-419R	10150103902
SBV13-119R	10150104402	1 5/8	-	120	17	49	Cat. 2	Cat. 1	SBV13-419R	10150106702
SBV13-120R	10150106602	-	42	120	17	49	Cat. 2	Cat. 1	SBV13-420R	10150106802
SBV17-119R	10150104502	2 1/8	54	225	19	49	Cat. 2	Cat. 1	SBV17-419R	10150106902
SBV19-120R	10150107002	-	64	225	19	49	Cat. 2	Cat. 1	SBV19-420R	10150107102
SBV21-119R	10150107202	2 5/8	-	305	19	49	Cat. 2	Cat. 1	SBV21-419R	10150107302

Note: • SBV-R model with connection size 3-1/8" (80mm) available on request*
• SBV-R model with connection size 3-5/8" (92mm) available on request*
* Size actually not covered by PED cat.II certification

DIMENSIONS & WEIGHT

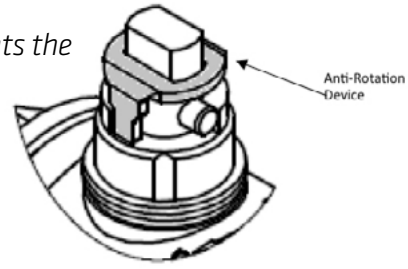


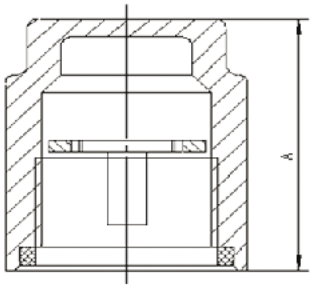
Part Number		L	L1	L2	L3[1)]	L4	D	H	M	Weight
Without access fitting	With Access Fitting	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
SBV02-020	SBV02-320	132	10	68	31	16	10	14	M4 x 0,7	0,2
SBV02-019	SBV02-319	132	10	68	31	16	10	14	M4 x 0,7	0,2
SBV03-019	SBV03-319	132	10	68	31	16	10	14	M4 x 0,7	0,2
SBV03-020	SBV03-320	132	10	68	31	16	10	14	M4 x 0,7	0,2
SBV04-020	SBV04-320	160	10	85	42,5	16	10	14	M4 x 0,7	0,21
SBV04-019	SBV04-319	160	10	85	42,5	16	10	14	M4 x 0,7	0,21
SBV(M)-A5YHSY-2-SA	SBV(M)-JA5YHSY-2-SA	160	13	85	31	22	14	16	M4 x 0,7	0,3
SBV(M)-A5YHSY-1-SA	SBV(M)-JA5YHSY-1-SA	160	13	85	31	22	14	16	M4 x 0,7	0,3
SBV(M)-A6YHSY-2-SA	SBV(M)-JA6YHSY-2-SA	185	16	99	37	30	19	20	M4 x 0,7	0,51
SBV(M)-A6YHSY-1-SA	SBV(M)-JA6YHSY-1-SA	185	16	99	37	30	19	20	M4 x 0,7	0,51
SBV(M)-A7YHSY-1-SA	SBV(M)-JA7YHSY-1-SA	185	17	99	37	30	19	20	M4 x 0,7	0,52
SBV09-120R	SBV09-420R	208	21	112	44	38	25	25	M4 x 0,7	0,73
SBV09-119R	SBV09-419R	208	21	112	44	38	25	25	M4 x 0,7	0,73
SBV11-119R	SBV11-419R	251	25	136	44	48	32	31	M6 x 1,0	1,42
SBV13-119R	SBV13-419R	281	28	151	56	55	38	35	M6 x 1,0	1,9
SBV13-120R	SBV13-420R	281	28	151	56	55	38	35	M6 x 1,0	1,9
SBV17-119R	SBV17-419R	305	34	167	56	74	50	46	M6 x 1,0	3,74
SBV19-120R	SBV19-420R	305	34	167	70	74	50	46	M6 x 1,0	3,79
SBV21-119R	SBV21-419R	305	37	167	56	74	60	56	M6 x 1,0	6,08

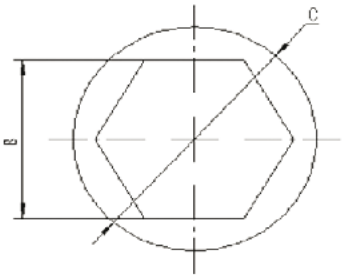
Note: 1) Applicable to versions with access fitting

ACCESSORIES

The steel ring placed on the stem under the cover cap prevents the accidental rotation of the ball during the system operation







Anti-Rotation Device

Model	Part Number*	Applicable for SBV models with:		Cap Nut	Dimensions mm		
		Inch connections:	Metric connections:		A	B	C
SK01	10150061902	1" 1/8 - 1" 3/8	28mm - 35mm	M18X1-6H	27,0	H17	Ø 24
SK02	10150062002	1" 5/8	42mm	M22X1-6H	27,5	H17	Ø 26
SK03	10150062102	2" 1/8 - 2" 5/8	54mm - 64mm	M22X1-6H	27,5	H19	Ø 28
SK04	10150062202	3" 1/8 - 3" 5/8	80mm - 92mm	M26X1-6H	29,5	H24	Ø 32
SK05	10150062302	4" 1/8 - 4" 1/4	105mm - 108mm	M32X1-6H	32,0	H29	Ø 38

Note: 1) Steel Anti-Rotation ring and Brass Cover Cap are in the extent of delivery
* Available also as industrial package. Contact Sanhua for more details.

YCVS/YCVS-R SERIES

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 to prevent backflow. All the Check Valves listed in this datasheet can be installed in system using flammable refrigerants HFO (categories A2* and A2L*), and Hydrocarbons HC (category A3*).

R290 R32

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, APPLICABLE TO COMPRESSOR DISCHARGE PIPES IN SINGLE OR MULTI COMPRESSOR SYSTEMS (YCVSH & YCVSH-R SERIES)
- LOW PRESSURE DROPS DURING OPERATION
- CERTIFIED ACCORDING PED CAT.II BY TUV RHEINLAND

GENERAL SPECIFICATIONS

- Applicable for all common HCFC and HFC refrigerants such as: R22, R134a, R404A, R407A/C/F, R410A, R507A, R448A, R449A, R450A, R452A, R513A, R32, R1234yf, R1234ze(E), R454A/B/C, R455A, R290, R1270, R600a, R744
- Medium temperature TS min./max.: -50°C / +150°C
- Max. operating pressure PS: 4,6 (46bar) or 4,9 MPa (49 bar) depending by the model
- Installation position:
  - Flow direction corresponds to the arrow
  - The suggested positions are described in the installation instructions
- Declaration according to PED
- Certifications: UL/CSA available only for models with size until YCVS20. For bigger sizes on request

Note: *according ANSI-ASHRAE 34-2016 and EN-378-1 ANNE EN 378-1:2016 Annex E

CHECK VALVE – PISTON TYPE

1. MODELS WITH NORMAL PISTON SPRING

General Characteristics													
Model	Product Number	Type	Connections Ø d ODF		Kv	Min. OPD	Dimensions			Weight	PS	PED Category [Fluid Group 1]	PED Category [Fluid Group 2]
							ØD	C	E				
			[inch]	[mm]	[m³/h]	[kPa]	[mm]	[mm]	[mm]	[Kg]	[bar]		
YCVS 5-11GSHC-1	10160030202	S	-	6	0,6	5	5	90	18	0,046	46	Art. 4.3	Art. 4.3
YCVS 5-22GSHC-1	10160024502	S	1/4	-	0,6	5	5	90	18	0,046	46	Art. 4.3	Art. 4.3
YCVS 8-33GSHC-1	10160024602	S	3/8	-	1,4	5	8	110	18	0,056	46	Art. 4.3	Art. 4.3
YCVS 8-33GSHC-2	10160031302	S	-	10	1,4	5	8	110	18	0,057	46	Art. 4.3	Art. 4.3
YCVS 10-33GSHC-1	10160023802	S	-	12	2,1	5	10	130	22	0,081	46	Art. 4.3	Art. 4.3
YCVS 10-44GSHC-1	10160023902	S	1/2	-	2,1	5	10	130	22	0,081	46	Art. 4.3	Art. 4.3
YCVS 13-55GSHC-1	10160024002	S	5/8	16	3,9	5	13	140	28	0,154	46	Art. 4.3	Art. 4.3
YCVS 17-55GSHC-1	10160024202	S	-	18	5,5	5	17	165	34	0,223	46	Art. 4.3	Art. 4.3
YCVS 17-66GSHC-1	10160024102	S	3/4	-	5,5	5	17	165	34	0,224	46	Art. 4.3	Art. 4.3
YCVS 17-77GSHC-1	10160025002	S	7/8	22	5,5	5	17	165	34	0,231	46	Art. 4.3	Art. 4.3
YCVS 20-77GSHC-1	10160030002	L	7/8	22	13,2	10	20	132	87	0,427	46	Art. 4.3	Art. 4.3
YCVS 26-88GSHC-1R	10160055602	L	-	28	19,0	10	26	196	123	1,050	49	Cat.II	Art. 4.3
YCVS 26-99GSHC-1R	10160055802	L	1 1/8	-	19,0	10	26	196	123	1,132	49	Cat.II	Art. 4.3
YCVS 31-BBGSHC-1R	10160056002	L	1 3/8	35	29,1	10	31	196	123	1,154	49	Cat.II	Art. 4.3
YCVS 31-DDGSHC-1R	10160056202	L	1 5/8	-	29,1	10	31	196	123	1,182	49	Cat.II	Art. 4.3
YCVS 31-DDGSHC-2R	10160056402	L	-	42	29,1	10	31	196	123	1,184	49	Cat.II	Art. 4.3

Note on layout type: S = straight-way shape; L = angle shape

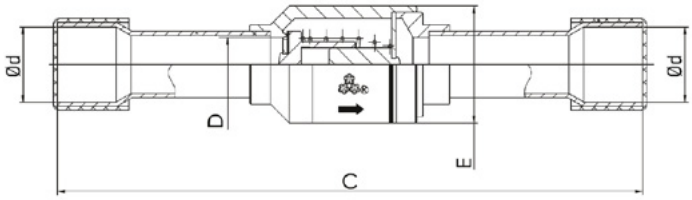
Note: For the simulation of the performance, please refer to the Sanhua selection tool "Quickfinder" or ask your local support.

2. MODELS WITH REINFORCED PISTON SPRING

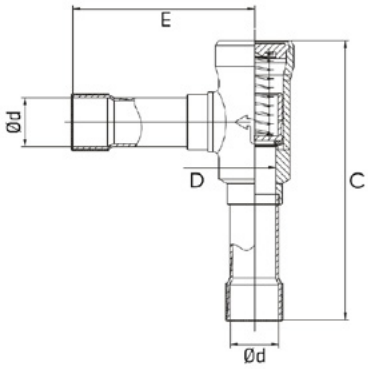
General Characteristics													
Model	Product Number	Type	Connections Ø d ODF		Kv	Min. OPD	Dimensions			Weight	PS	PED Category [Fluid Group 1]	PED Category [Fluid Group 2]
							ØD	C	E				
			[inch]	[mm]	[m³/h]	[kPa]	[mm]	[mm]	[mm]	[Kg]	[bar]		
YCVSH 8-33GSHC-1	10160030502	S	3/8	-	1,4	15	8	110	18	0,056	46	Art. 4.3	Art. 4.3
YCVSH 8-33GSHC-2	10160033202	S	-	10	1,4	15	8	110	18	0,057	46	Art. 4.3	Art. 4.3
YCVSH 10-33GSHC-1	10160029102	S	-	12	2,1	15	10	130	22	0,081	46	Art. 4.3	Art. 4.3
YCVSH 10-44GSHC-1	10160024802	S	1/2	-	2,1	15	10	130	22	0,082	46	Art. 4.3	Art. 4.3
YCVSH 13-55GSHC-1	10160024902	S	5/8	16	3,9	15	13	140	28	0,154	46	Art. 4.3	Art. 4.3
YCVSH 17-55GSHC-1	10160036902	S	-	18	5,5	15	17	165	34	0,223	46	Art. 4.3	Art. 4.3
YCVSH 17-66GSHC-1	10160028202	S	3/4	-	5,5	15	17	165	34	0,225	46	Art. 4.3	Art. 4.3
YCVSH 17-77GSHC-1	10160037502	S	7/8	22	5,5	15	17	165	34	0,231	46	Art. 4.3	Art. 4.3
YCVSH 20-77GSHC-1	10160034602	S	7/8	22	13,2	30	20	132	87	0,429	46	Art. 4.3	Art. 4.3
YCVSH 26-88GSHC-1R	10160055702	S	-	28	19,0	30	26	196	123	1,061	49	Cat.II	Art. 4.3
YCVSH 26-99GSHC-1R	10160055902	L	1 1/8	-	19,0	30	26	196	123	1,063	46	Cat.II	Art. 4.3
YCVSH 31-BBGSHC-1R	10160056102	L	1 3/8	35	29,1	30	31	196	123	1,154	49	Cat.II	Art. 4.3
YCVSH 31-DDGSHC-1R	10160056302	L	1 5/8	-	29,1	30	31	196	123	1,195	49	Cat.II	Art. 4.3
YCVSH 31-DDGSHC-2R	10160056502	L	-	42	29,1	30	31	196	123	1,195	49	Cat.II	Art. 4.3
YCVS 31-DDGSHC-1R	10160056202	L	1 5/8	-	29,1	10	31	196	123	1,182	49	Cat.II	Art. 4.3
YCVS 31-DDGSHC-2R	10160053602	L	-	42	29,1	10	31	196	123	1,184	49	Cat.II	Art. 4.3

Note on layout type: S = straight-way shape; L = angle shape

Straight-way



L-shape



Quick Finder

SELECT THE RIGHT PRODUCT

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SYJ SERIES

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. All the Sight Glasses listed in this datasheet can be installed in system using flammable refrigerants HFO (categories A2* and A2L*), and Hydrocarbons HC (category A3*).

R290

FEATURES

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

GENERAL SPECIFICATIONS

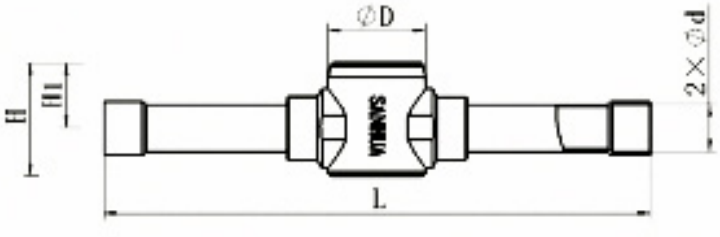
- Applicable for HC, HFC/HFO, HFO refrigerants[1)] such as: R22, R134a, R404A, R407A/C/F, R410A, R507A, R448A, R449A, R450A, R452A, R513A, R32, R1234yf, R1234ze(E), R454A/B/C, R455A, R290, R1270, R600a
- Ambient temperature min./max.: -50°C / +80°C
- Medium temperature TS min./max.: -50°C / +80°C
- Max. operating pressure PS: 4,6 MPa (46 bar)
- Installation position:
  - Liquid and suction line
  - Preferably in vertical lines, recommended position for horizontal lines are upwards without inclination in any direction
- Declaration according to PED (all products have been covered by Art.4.3 PED Directive 2014/68/EU)

Note: *according ANSI-ASHRAE 34-2016 and EN-378-1 ANNE EN 378-1:2016 Annex E
1) This datasheet shows models applicable for usage with fluids GROUP 1 according to Directive 2014/68/EU or GROUP A3/A2L according to ANSI-ASHRAE 34-2016 considering safety aspects and legislation. Performance data (moisture indication limits for each specific refrigerant) – on request.

SYJ: version with Solder Connections, MOP 46 bar

General Characteristics										
Model Series	Model Name	Part Number (multi package)[1)]	Connection Type [inch]	Connecting dimensions Ød		Dimensions & Weight				
						L	H	H1	Weight	Drawing
				[inch]	[mm]	[mm]	[mm]	[mm]	[g]	
SYJ6	SYJ06H12	10285007102	ODF x ODF solder	-	6	101	24	14	100	A
SYJ6	SYJ06H11	10285007002		1/4	-	101	24	14	100	
SYJ10	SYJ10H11	10285007202		3/8	-	119	24	14	100	
SYJ10	SYJ10H12	10285007302		-	10	119	24	14	100	
SYJ12	SYJ12H11	10285006902		1/2	-	146	30	17	200	
SYJ12	SYJ12H12	10285007402		-	12	146	30	17	200	
SYJ16	SYJ16H11	10285007502		5/8	16	146	30	17	200	
SYJ19	SYJ19H11	10285007602		3/4	-	173	37	21	300	
SYJ22	SYJ22H11	10285007702		7/8	22	173	37	21	300	

1) Available also as industrial package. Contact Sanhua for more details.



"Drawing A"

DTG *SERIES*

UNI-FLOW FILTER DRIERS

GreenTech range: for fluids GROUP 1 according to Directive 2014/68/EU or GROUP A3/A2L according to ANSI-ASHRAE 34-2016)

R290

FEATURES

- HIGHLY 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: SOLDER

GENERAL SPECIFICATION

- Applicable for HC, HFC, HFO refrigerants such as: R290, R1234ze(E), R1234yf, R447A, R452B, R454B, R454C
- Ambient temperature min./max.: -30°C / +70°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 (all products have been covered by Art.4.3 PED Directive 2014/68/EU)

TECNHICAL PARAMETERS *Desiccant Selection Table*

	Medium Type	80% 3Å desiccant and 20% active alumina	100% 3Å desiccant
Refrigerant	HC	Applicable	Applicable
	HFC	Applicable	Applicable
	HFO	Applicable	Applicable
Oil	Mineral oil or AB	Applicable	Applicable
	Pure POE or PAG	Applicable	Applicable
	POE or PAG with additive	Not applicable	Applicable

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

DTG SERIES
UNI-FLOW FILTER DRIERS

Model Designation Legend

1	**Product Code**	**Filter Drier Series**	
	DTG	Indicates unidirectional filter drier	
2	**Filter Core**	**Structure and Material**	
	B	Solid core, 100%3Å desiccant	
	F	Solid core, 80% 3Å desiccant and 20% active alumina	
3	**Internal Volume**	**Expressed in [inch³]**	**Expressed in [cm³]**
	03	3	49
	05	5	82
	08	8	131
	16	16	262
	30	30	492
	41	41	672
4	**Connection Size**	**Pos. 5 shows "0": Solder [inch]**	
	02	1/4	
	03	3/8	
	04	1/2	
	05	5/8	
	06	3/4	
	07	7/8	
	09	1 1/8	
	Connection Size	**Pos. 5 shows "1": Solder [mm]**	
	06	6	
	(08) *	(5/16" version can be used e.g. DTG-B03 250)	
	10	10	
	12	12	
	(16) *	(5/8" version can be used e.g. DTG-B08 050)	
	(22) *	(7/8" version can be used e.g. DTG-B16 070)	
	28	28	
5	**Pipe Connection**	**Type**	
	0	Solder with inch connections	
	1*	Solder with metric connections	
6	**Version Number**	**Description**	
	901	Standard product	

Note: * Solder connections which fit to metric and inch are marked with inch product codes e.g. 8, 16 and 22 mm

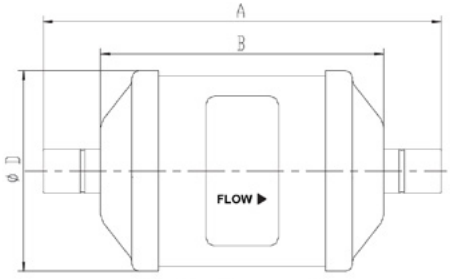
MODEL DESIGNATION EXAMPLE

Position Number						According to Model Designation Legend
1	2	3	4	5	6	
DTG	B	03	06	1	901	Unidirectional filter drier
DTG	**B**	03	06	1	901	Solid filter core with 100% 3Å desiccant
DTG	B	**03**	06	1	901	3 inch³ internal volume
DTG	B	03	**06**	1	901	When Pos. 5 is "1": connection size 6mm
DTG	B	03	06	**1**	901	Solder connection metric
DTG	B	03	06	1	**901**	Standard product

GENERAL CHARACTERISTICS OF DTG-B FILTER - SOLDER CONNECTION

Filter	Model [inch]	Part Number (multi package)[1] [inch]	Model [mm]	Part Number (multi package)[1] [mm]	Nominal Volumen		Connection		Dimensions & Weight[2]				PED Category[3] (Fluid Group 1)
							Solder		ØD	B	A	Weight	
					[inch³]	[cm³]	[inch]	[mm]	[mm]	[mm]	[mm]	[g]	
DTGB032s	DTG-B03 020-901	10230008302	DTG-B03 061-901	10230008702	3	49	1/4	6	45	65	103	160	Art. 4.3
DTGB0325s	DTG-B03 250-901	10230008402	DTG-B03 250-901	10230008402	3	49	5/16	8	45	65	103	160	Art. 4.3
DTGB033s	DTG-B03 030-901	10230008502	DTG-B03 101-901	10230008802	3	49	3/8	10	45	65	103	160	Art. 4.3
DTGB034s	DTG-B03 040-901	10230008602	DTG-B03 121-901	10230008902	3	49	1/2	12	45	65	113	160	Art. 4.3
DTGB052s	DTG-B05 020-901	10230010202	DTG-B05 061-901	10230010802	5	82	1/4	6	69	76	114	450	Art. 4.3
DTGB0525s	DTG-B05 250-901	10230010402	DTG-B05 250-901	10230010402	5	82	5/16	8	69	76	114	450	Art. 4.3
DTGB053s	DTG-B05 030-901	10230010502	DTG-B05 101-901	10230010902	5	82	3/8	10	69	76	114	450	Art. 4.3
DTGB054s	DTG-B05 040-901	10230010602	DTG-B05 121-901	10230011002	5	82	1/2	12	69	76	124	450	Art. 4.3
DTGB055s	DTG-B05 050-901	10230010702	DTG-B05 050-901	10230010702	5	82	5/8	16	69	76	124	450	Art. 4.3
DTGB082s	DTG-B08 020-901	10230009502	DTG-B08 061-901	10230011302	8	131	1/4	6	69	98	136	550	Art. 4.3
DTGB0825s	DTG-B08 250-901	10230009402	DTG-B08 250-901	10230009402	8	131	5/16	8	69	98	136	550	Art. 4.3
DTGB083s	DTG-B08 030-901	10230009302	DTG-B08 101-901	10230011402	8	131	3/8	10	69	98	136	550	Art. 4.3
DTGB084s	DTG-B08 040-901	10230009602	DTG-B08 121-901	10230011602	8	131	1/2	12	69	98	146	550	Art. 4.3
DTGB085s	DTG-B08 050-901	10230009702	DTG-B08 050-901	10230009702	8	131	5/8	16	69	98	146	550	Art. 4.3
DTGB162s	DTG-B16 020-901	10230012002	DTG-B16 061-901	10230012702	16	262	1/4	6	69	118	156	660	Art. 4.3
DTGB1625s	DTG-B16 250-901	10230012102	DTG-B16 250-901	10230012102	16	262	5/16	8	69	118	156	660	Art. 4.3
DTGB163s	DTG-B16 030-901	10230012202	DTG-B16 101-901	10230012802	16	262	3/8	10	69	118	156	660	Art. 4.3
DTGB164s	DTG-B16 040-901	10230012302	DTG-B16 121-901	10230015902	16	262	1/2	12	69	118	166	660	Art. 4.3
DTGB165s	DTG-B16 050-901	10230012402	DTG-B16 050-901	10230012402	16	262	5/8	16	69	118	166	660	Art. 4.3
DTGB166s	DTG-B16 060-901	10230012502	-	-	16	262	3/4	-	69	118	178	660	Art. 4.3
DTGB167s	DTG-B16 070-901	10230012602	DTG-B16 070-901	10230012602	16	262	7/8	22	69	118	178	660	Art. 4.3
DTGB303s	DTG-B30 030-901	10230013902	DTG-B30 101-901	10230014502	30	492	3/8	10	81	193	231	1550	Art. 4.3
DTGB304s	DTG-B30 040-901	10230014002	DTG-B30 121-901	10230014602	30	492	1/2	12	81	193	241	1550	Art. 4.3
DTGB305s	DTG-B30 050-901	10230014102	DTG-B30 050-901	10230014102	30	492	5/8	16	81	193	241	1550	Art. 4.3
DTGB306s	DTG-B30 060-901	10230014202	-	-	30	492	3/4	-	81	193	253	1550	Art. 4.3
DTGB307s	DTG-B30 070-901	10230014302	DTG-B30 070-901	10230014302	30	492	7/8	22	81	193	253	1550	Art. 4.3
DTGB309s	DTG-B30 090-901	10230014402	DTG-B30 281-901	10230014802	30	492	1 1/8	28	81	193	263	1550	Art. 4.3
DTGB414s	DTG-B41 040-901	10230013202	DTG-B41 121-901	10230013602	41	672	1/2	12	94	194	242	2050	Art. 4.3
DTGB415s	DTG-B41 050-901	10230013302	DTG-B41 050-901	10230013302	41	672	5/8	16	94	194	242	2050	Art. 4.3
DTGB417s	DTG-B41 070-901	10230013402	DTG-B41 070-901	10230013402	41	672	7/8	22	94	194	254	2050	Art. 4.3
DTGB419s	DTG-B41 090-901	10230013502	DTG-B41 281-901	10230013802	41	672	1 1/8	28	94	194	264	2050	Art. 4.3
DTGB757s	DTG-B75 070-901	10230014902	DTG-B75 070-901	10230014902	75	1229	7/8	22	94	333	393	3400	Art. 4.3
DTGB759s	DTG-B75 090-901	10230015002	DTG-B75 281-901	10230015102	75	1229	1 1/8	28	94	333	403	3400	Art. 4.3

Note:
1) Available also as industrial package. Contact Sanhua for more details.
2) Dimensions are rounded up to integral mm
3) PED Directive 2014/68/EU. Category evaluated considering product as a "vessel"



Solder Connection

UNI-FLOW FILTER DRIERS

GENERAL CHARACTERISTICS OF DTG-F FILTER - SOLDER CONNECTION

Filter	Model[1] [inch]	Part Number (multi package)[2] [inch]	Model[1] [mm]	Part Number (multi package)[2] [mm]	Nominal Volumen		Connection		Dimensions & Weight[3]				PED Category[4] (Fluid Group 1)
							Solder		ØD	B	A	Weight	
					[inch³]	[cm³]	[inch]	[mm]	[mm]	[mm]	[mm]	[g]	
DTGF032s	DTG-F03 020-901	10230016102	DTG-F03 061-901	10230016502	3	49	1/4	6	45	65	103	160	Art. 4.3
DTGF0325s	DTG-F03 250-901	10230016202	DTG-F03 250-901	10230016202	3	49	5/16	8	45	65	103	160	Art. 4.3
DTGF033s	DTG-F03 030-901	10230016302	DTG-F03 101-901	10230016602	3	49	3/8	10	45	65	103	160	Art. 4.3
DTGF034s	DTG-F03 040-901	10230016402	DTG-F03 121-901	10230016002	3	49	1/2	12	45	65	113	160	Art. 4.3
DTGF052s	DTG-F05 020-901	10230017702	DTG-F05 061-901	10230017202	5	82	1/4	6	69	76	114	450	Art. 4.3
DTGF0525s	DTG-F05 250-901	10230017602	DTG-F05 250-901	10230017602	5	82	5/16	8	69	76	114	450	Art. 4.3
DTGF053s	DTG-F05 030-901	10230017502	DTG-F05 101-901	10230017102	5	82	3/8	10	69	76	114	450	Art. 4.3
DTGF054s	DTG-F05 040-901	10230017402	DTG-F05 121-901	10230017002	5	82	1/2	12	69	76	124	450	Art. 4.3
DTGF055s	DTG-F05 050-901	10230017302	DTG-F05 050-901	10230017302	5	82	5/8	16	69	76	124	450	Art. 4.3
DTGF082s	DTG-F08 020-901	10230018102	DTG-F08 061-901	10230018602	8	131	1/4	6	69	98	136	550	Art. 4.3
DTGF0825s	DTG-F08 250-901	10230018202	DTG-F08 250-901	10230018202	8	131	5/16	8	69	98	136	550	Art. 4.3
DTGF083s	DTG-F08 030-901	10230018302	DTG-F08 101-901	10230018702	8	131	3/8	10	69	98	136	550	Art. 4.3
DTGF084s	DTG-F08 040-901	10230018402	DTG-F08 121-901	10230018802	8	131	1/2	12	69	98	146	550	Art. 4.3
DTGF085s	DTG-F08 050-901	10230018502	DTG-F08 050-901	10230018502	8	131	5/8	16	69	98	146	550	Art. 4.3
DTGF162s	DTG-F16 020-901	10230019302	DTG-F16 061-901	10230020002	16	262	1/4	6	69	118	156	660	Art. 4.3
DTGF1625s	DTG-F16 250-901	10230019402	DTG-F16 250-901	10230019402	16	262	5/16	8	69	118	156	660	Art. 4.3
DTGF163s	DTG-F16 030-901	10230019502	DTG-F16 101-901	10230020102	16	262	3/8	10	69	118	156	660	Art. 4.3
DTGF164s	DTG-F16 040-901	10230019602	DTG-F16 121-901	10230020202	16	262	1/2	12	69	118	166	660	Art. 4.3
DTGF165s	DTG-F16 050-901	10230019702	DTG-F16 050-901	10230019702	16	262	5/8	16	69	118	166	660	Art. 4.3
DTGF166s	DTG-F16 060-901	10230019802	-	-	16	262	3/4	-	69	118	178	660	Art. 4.3
DTGF167s	DTG-F16 070-901	10230019902	DTG-F16 070-901	10230019902	16	262	7/8	22	69	118	178	660	Art. 4.3
DTGF303s	DTG-F30 030-901	10230020902	DTG-F30 101-901	10230021502	30	492	3/8	10	81	193	231	1550	Art. 4.3
DTGF304s	DTG-F30 040-901	10230021002	DTG-F30 121-901	10230021602	30	492	1/2	12	81	193	241	1550	Art. 4.3
DTGF305s	DTG-F30 050-901	10230021102	DTG-F30 050-901	10230021102	30	492	5/8	16	81	193	241	1550	Art. 4.3
DTGF306s	DTG-F30 060-901	10230021202	-	-	30	492	3/4	-	81	193	253	1550	Art. 4.3
DTGF307s	DTG-F30 070-901	10230021302	DTG-F30 070-901	10230021302	30	492	7/8	22	81	193	253	1550	Art. 4.3
DTGF309s	DTG-F30 090-901	10230021402	DTG-F30 281-901	10230021802	30	492	1 1/8	28	81	193	263	1550	Art. 4.3
DTGF414s	DTG-F41 040-901	10230022402	DTG-F41 121-901	10230022802	41	672	1/2	12	94	194	242	2050	Art. 4.3
DTGF415s	DTG-F41 050-901	10230022502	DTG-F41 050-901	10230022502	41	672	5/8	16	94	194	242	2050	Art. 4.3
DTGF417s	DTG-F41 070-901	10230022602	DTG-F41 070-901	10230022602	41	672	7/8	22	94	194	254	2050	Art. 4.3
DTGF419s	DTG-F41 090-901	10230022702	DTG-F41 281-901	10230023002	41	672	1 1/8	28	94	194	264	2050	Art. 4.3
DTGF757s	DTG-F75 070-901	10230023102	DTG-F75 070-901	10230023102	75	1229	7/8	22	94	333	393	3400	Art. 4.3
DTGF759s	DTG-F75 090-901	10230031102	DTG-F75 281-901	10230023302	75	1229	1 1/8	28	94	333	403	3400	Art. 4.3

Note: 1) Delivery time on request
2) Available also as industrial package. Contact Sanhua for more details
3) Dimensions are rounded up to integral mm
4) PED Directive 2014/68/EU. Category evaluated considering product as a "vessel"

DTG SERIES
UNI-FLOW FILTER DRIERS

SELECTION TABLE

Model	Capacity[1) 2)] [kW]			
	R290	R454B	R1234yf	R1234ze(E)
DTGB032s	9.22	9,50	5.55	6.76
DTGB0325s	11.17	11,51	6.72	8.19
DTGB033s	14.53	14,98	8.75	10.65
DTGB034s	28.58	29,45	17.21	20.95
DTGB052s	10.44	10,75	6.28	7.65
DTGB0525s	11.12	11,56	6.75	8.22
DTGB053s	23.80	24,52	14.33	17.44
DTGB054s	29.36	30,25	17.67	21.52
DTGB055s	40.58	41,81	24.43	29.74
DTGB082s	10.88	11,21	6.55	7.97
DTGB0825s	12.49	12,86	7.52	9.15
DTGB083s	25.36	26,13	15.27	18.59
DTGB084s	30.19	31,11	18.17	22.13
DTGB085s	52.62	54,22	31.68	38.57
DTGB162s	12.92	13,32	7.78	9.47
DTGB1625s	12.49	12,86	7.52	9.15
DTGB163s	25.36	26,13	15.27	18.59
DTGB164s	32.92	33,92	19.82	24.13
DTGB165s	50.62	52,16	30.48	37.10
DTGB166s	54.57	56,23	32.85	40.00
DTGB167s	55.35	57,04	33.32	40.57
DTGB303s	30.19	31,11	18.17	22.13
DTGB304s	39.02	40,20	23.49	28.59
DTGB305s	53.40	55,03	32.15	39.14
DTGB306s	73.55	75,78	44.28	53.90
DTGB307s	73.89	76,13	44.48	54.15
DTGB309s	82.81	85,33	49.85	60.69
DTGB414s	41.36	42,61	24.90	30.31
DTGB415s	70.67	72,82	42.54	51.79
DTGB417s	105.44	108,65	63.48	77.28
DTGB419s	107.98	111,26	65.00	79.14
DTGB757s	107.20	110,45	64.53	78.56
DTGB759s	111.98	115,38	67.41	82.07

SELECTION TABLE

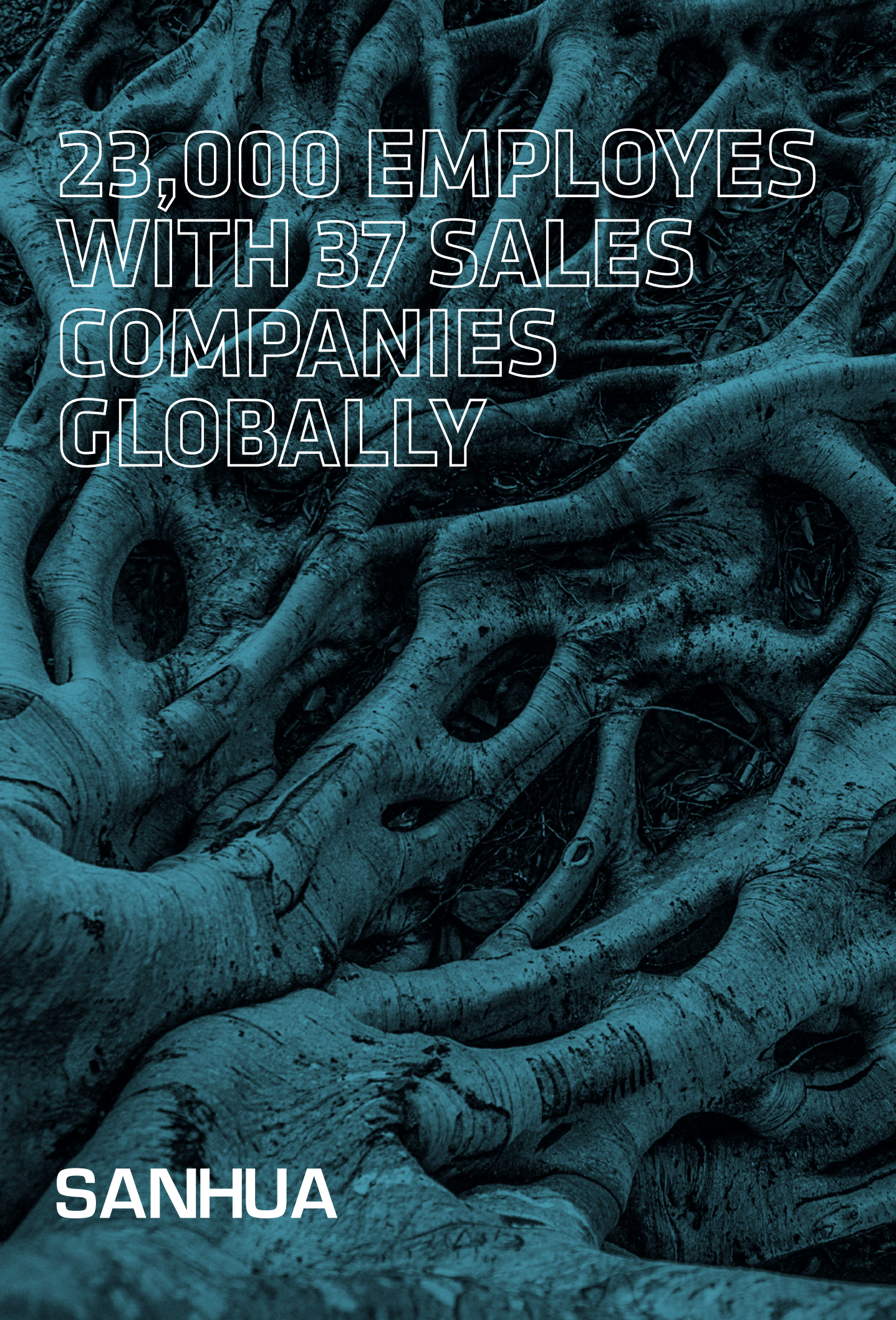
Model	Capacity[1) 2)] [kW]			
	R290	R454B	R1234yf	R1234ze(E)
DTGF032s	9.22	9,50	5.55	6.76
DTGF0325s	11.17	11,51	6.72	8.19
DTGF033s	14.53	14,98	8.75	10.65
DTGF034s	28.58	29,45	17.21	20.95
DTGF052s	10.44	10,75	6.28	7.65
DTGF0525s	11.12	11,56	6.75	8.22
DTGF053s	23.80	24,52	14.33	17.44
DTGF054s	29.36	30,25	17.67	21.52
DTGF055s	40.58	41,81	24.43	29.74
DTGF082s	10.88	11,21	6.55	7.97
DTGF0825s	12.49	12,86	7.52	9.15
DTG-F083s	25.36	26,13	15.27	18.59
DTGF084s	30.19	31,11	18.17	22.13
DTGF085s	52.62	54,22	31.68	38.57
DTGF162s	12.92	13,32	7.78	9.47
DTGF1625s	12.49	12,86	7.52	9.15
DTGF163s	25.36	26,13	15.27	18.59
DTGF164s	32.92	33,92	19.82	24.13
DTGF165s	50.62	52,16	30.48	37.10
DTGF166s	54.57	56,23	32.85	40.00
DTGF167s	55.35	57,04	33.32	40.57
DTGF303s	30.19	31,11	18.17	22.13
DTGF304s	39.02	40,20	23.49	28.59
DTGF305s	53.40	55,03	32.15	39.14
DTGF306s	73.55	75,78	44.28	53.90
DTGF307s	73.89	76,13	44.48	54.15
DTGF309s	82.81	85,33	49.85	60.69
DTGF414s	41.36	42,61	24.90	30.31
DTGF415s	70.67	72,82	42.54	51.79
DTGF417s	105.44	108,65	63.48	77.28
DTGF419s	107.98	111,26	65.00	79.14
DTGF757s	107.20	110,45	64.53	78.56
DTGF759s	111.98	115,38	67.41	82.07

Note: 1) the above data is based on clean system at ideal conditions; with impurities accumulated in the filter, the capacity may decrease

2) given capacity is for all available types of connection for the same model: solder [inch] and equivalent solder [mm]

SELECTION FORMULAS

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


23,000 EMPLOYES
WITH 37 SALES
COMPANIES
GLOBALLY
SANHUA

DTG-M02 SERIES

1.5 IN³ FILTER DRIER

DTG-M02 series 1.5in³ filter drier are mainly used for light commercial refrigeration applications, with unidirectional flow to absorb moisture and filter out the impurities.

R290

FEATURES

- STAINLESS STEEL HOUSING WITH HIGH-STRENGTH
- HOUSING SURFACE ADOPTS ADSORPTION PRINCIPLE TO FORM A NANO-SOLID FILM TO ANTI-RUST, SURVIVES MORE THAN 1500 HOURS OF NEUTRAL SALT SPRAY TEST.
- SOLID FILER CORES, HIGHLY EFFICIENT IN MOISTURE ABSORPTION, FILTERING IMPURITY.
- COMPACT DESIGN, MEETING THE STRICT 150G SYSTEM LIMITS FOR FLAMMABLE REFRIGERANTS SUCH AS R290.

GENERAL SPECIFICATIONS

- Applicable refrigerants: HCFC, HFC, HC, HFO
- Medium temperature: -30°C~+120°C
- Ambient temperature: -30°C~ +55°C
- Max. Operation pressure PS max: 4.83MPa (48,3bar) – 700 PSI
- Installation position:
  -Flow direction corresponds to the arrow
  -Preferably installed in liquid line
- Certification: UL/CSA and PED declaration

DTG-M02 SERIES
1.5 IN³ FILTER DRIER

Model Designation Legend

1	**Product Code**	**Filter Drier Series**	
	DTG	Indicates unidirectional filter drier	
2	**Filter Core**	**Structure and Material**	
	M	Solid core, 100%3Å desiccant, stainless steel housing	
3	**Filter core volume**	**[inch³]**	**[cm³]**
	02	1.5	25
4	**Connection Size**	**Pos. 5 shows "0": Solder [inch]**	
	02	1/4	
	03	3/8	
	04	1/2	
4	**Connection Size**	**Pos. 5 shows "1": Solder [mm]**	
	06	6	
	10	10	
	12	12	
5	**Pipe Connection**	**Type**	
	0	Solder with inch connections	
	1 *	Solder with metric connections	
6	**Version Number**	**Description**	
	901	Series number	

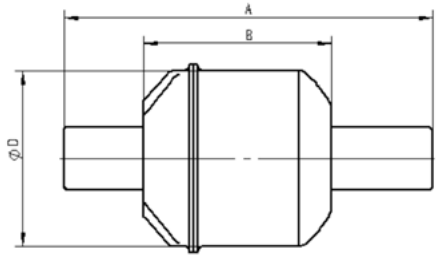
MODEL DESIGNATION EXAMPLE

Position Number						According to Model Designation Legend
1	**2**	**3**	**4**	**5**	**6**	
DTG	M	02	02	0	901	Unidirectional filter drier
DTG	**M**	02	02	0	901	Solid filter core with 100% 3Å desiccant, stainless steel housing
DTG	M	**02**	02	0	901	1.5 inch³ filter core volume
DTG	M	02	**02**	0	901	When Pos. 5 is "0": connection size 1/4" inch
DTG	M	02	02	**0**	901	Solder connection inch
DTG	M	02	02	0	**901**	Series number

DTG-M02 SERIES

1.5 IN³ FILTER DRIER

GENERAL CHARACTERISTICS



Filter	Model	Part number (Industrial pack)[1]	Solder connection		Dimensions & Weight				PED Category
					ØD	B	A	Weight	
			[inch]	[mm]	[mm]	[mm]	[mm]	[g]	
DTGM022s	DTG-M02020-901	10230041401	1/4		42	45	77	95	Art. 4.3
DTGM023s	DTG-M02030-901	10230039601	3/8		42	45	77	95	Art. 4.3
DTGM024s	DTG-M02040-901	10230041501	1/2		42	45	83	95	Art. 4.3

Note: 1) Please contact Sanhua representative regarding availability and exact item number. Products can be supplied in industrial boxes only.

SELECTION TABLE

Model	Capacity[1] [kW]					Moisture Absorption (gram H_2O)							
	R134a	R404A / R507A	R290	R407C[2]	R410A	R134a		R404A / R507A		R407C[2] / R410A		R22	
						75°F / 23,9°C	125°F / 51,7°C	75°F / 23,9°C	125°F / 51,7°C	75°F / 23,9°C	125°F / 51,7°C	75°F / 23,9°C	125°F / 51,7°C
DTGM022s	2.33	1.64	2.56	2.36	2.36	3.2	2.8	3.5	2.9	2.7	2.5	3.0	2.2
DTGM023s	3.50	2.46	3.85	3.54	3.54	3.2	2.8	3.5	2.9	2.7	2.5	3.0	2.2
DTGM024s	4.67	3.28	5.13	4.72	4.82	3.2	2.8	3.5	2.9	2.7	2.5	3.0	2.2

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

DTG-M02 SERIES
1.5 IN³ FILTER DRIER

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) 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):

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

STG SERIES

BI-FLOW FILTER DRIERS

(GreenTech range: for fluids GROUP 1 according to Directive 2014/68/EU or GROUP A3/A2L according to ANSI-ASHRAE 34-2016)

R290

FEATURES

- HIGHLY 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: SOLDER

GENERAL SPECIFICATION

- Applicable for HC, HFC, HFO refrigerants such as: R290, R1234ze(E), R1234yf, R447A, R452B, R454B, R454C
- Ambient temperature min./max.: -30°C / +70°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 (all products have been covered by Art.4.3 PED Directive 2014/68/EU)

TECNHICAL PARAMETERS *Desiccant Selection Table*

	Medium Type	80% 3Å desiccant and 20% active alumina	100% 3Å desiccant
Refrigerant	HC	Applicable	Applicable
	HFC	Applicable	Applicable
	HFO	Applicable	Applicable
Oil[1)]	Mineral oil or AB	Applicable	Applicable
	Pure POE or PAG	Applicable	Applicable
	POE or PAG with additive	Not applicable	Applicable

Note: 1) 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	**Product Code**	**Filter Drier Series**	
	STG	Indicates bidirectional filter drier	
2	**Filter Core**	**Structure and Material**	
	B	Solid core, 100%3Å desiccant	
	F	Solid core, 80% 3Å desiccant and 20% active alumina	
3	**Internal Volume**	**Expressed in [inch³]**	**Expressed in [cm³]**
	03	3	49
	05	5	82
	08	8	131
	16	16	262
	30	30	492
4	**Connection Size**	**Pos. 5 shows "0": Solder [inch]**	
	02	1/4	
	25	5/16	
	03	3/8	
	04	1/2	
	05	5/8	
	06	3/4	
	07	7/8	
	09	1 1/8	
	Connection Size	**Pos. 5 shows "1": Solder [mm]**	
	06	6	
	(08) *	(5/16" version can be used e.g. STG-B08 250)	
	10	10	
	12	12	
	(16) *	(5/8" version can be used e.g. STG-B16 050)	
	(22) *	(7/8" version can be used e.g. STG-B16 070)	
	28	28	
5	**Pipe Connection**	**Type**	
	0	Solder with inch connections	
	1*	Solder with metric connections	
6	**Version Number**	**Description**	
	901	Standard product	

Note: * Solder connections which fit to metric and inch are marked with inch product codes e.g. 8, 16 and 22 mm

MODEL DESIGNATION EXAMPLE

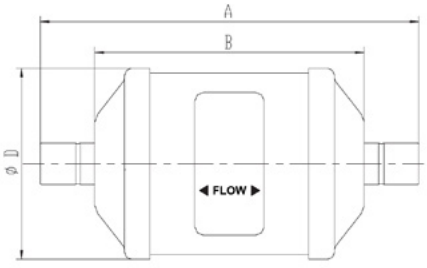
Position Number						According to Model Designation Legend
1	2	3	4	5	6	
STG	B	05	06	1	901	Bidirectional filter drier
STG	**B**	05	06	1	901	Solid filter core with 100% 3Å desiccant
STG	B	**05**	06	1	901	3 inch³ internal volume
STG	B	05	**06**	1	901	When Pos. 5 is "1": connection size 6mm
STG	B	05	06	**1**	901	Solder connection metric
STG	B	05	06	1	**901**	Standard product

BI-FLOW FILTER DRIERS

GENERAL CHARACTERISTICS OF STG-B FILTER - SOLDER CONNECTION

Filter	Model [inch]	Part Number (multi package)[1] [inch]	Model [mm]	Part Number (multi package)[1] [mm]	Nominal Volumen		Connection		Dimensions & Weight[2]				PED Category[3] (Fluid Group 1)
							Solder		ØD	B	A	Weight	
					[inch³]	[cm³]	[inch]	[mm]	[mm]	[mm]	[mm]	[g]	
STGB052s	STG-B05 020-901	10235005902	STG-B05 061-901	10235007602	5	82	1/4	6	69	76	114	450	Art. 4.3
STGB053s	STG-B05 030-901	10235006002	STG-B05 101-901	10235007802	5	82	3/8	10	69	76	114	450	Art. 4.3
STGB054s	STG-B05 040-901	10235006102	STG-B05 121-901	10235007902	5	82	1/2	12	69	76	124	450	Art. 4.3
STGB082s	STG-B08 020-901	10235006202	STG-B08 061-901	10235007702	8	131	1/4	6	69	98	136	580	Art. 4.3
STGB0825s	STG-B08 250-901	10235007402	STG-B08 250-901	10235007402	8	131	5/16	8	69	98	136	580	Art. 4.3
STGB083s	STG-B08 030-901	10235006302	STG-B08 101-901	10235008002	8	131	3/8	10	69	98	136	580	Art. 4.3
STGB084s	STG-B08 040-901	10235006402	STG-B08 121-901	10235008102	8	131	1/2	12	69	98	146	580	Art. 4.3
STGB163s	STG-B16 030-901	10235006602	STG-B16 101-901	10235008202	16	262	3/8	10	81	118	156	900	Art. 4.3
STGB164s	STG-B16 040-901	10235006502	STG-B16 121-901	10235008402	16	262	1/2	12	81	118	166	900	Art. 4.3
STGB165s	STG-B16 050-901	10235006702	STG-B16 050-901	10235006702	16	262	5/8	16	81	118	166	900	Art. 4.3
STGB167s	STG-B16 070-901	10235006802	STG-B16 070-901	10235006802	16	262	7/8	22	81	118	178	900	Art. 4.3
STGB303s	STG-B30 030-901	10235006902	STG-B30 101-901	10235008302	30	492	3/8	10	81	193	231	1700	Art. 4.3
STGB304s	STG-B30 040-901	10235007002	STG-B30 121-901	10235008502	30	492	1/2	12	81	193	241	1700	Art. 4.3
STGB305s	STG-B30 050-901	10235007102	STG-B30 050-901	10235007102	30	492	5/8	16	81	193	241	1700	Art. 4.3
STGB306s	STG-B30 060-901	10235007202	-	-	30	492	3/4	-	81	193	253	1700	Art. 4.3
STGB307s	STG-B30 070-901	10235007302	STG-B30 070-901	10235007302	30	492	7/8	22	81	193	253	1700	Art. 4.3
STGB309s	STG-B30 090-901	10235007502	STG-B30 281-901	10235010202	30	492	1 1/8	28	81	193	263	1700	Art. 4.3

Note: 1) Available also as industrial package. Contact Sanhua for more details.
2) Dimensions are rounded up to integral mm
3) PED Directive 2014/68/EU. Category evaluated considering product as a "vessel"



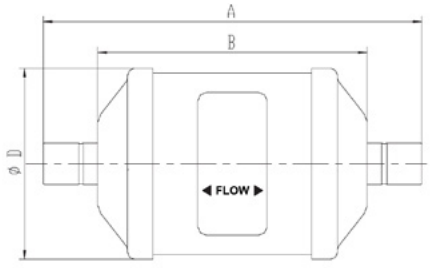
Solder Connection

BI-FLOW FILTER DRIERS

GENERAL CHARACTERISTICS OF STG-F FILTER - SOLDER CONNECTION

Filter	Model[1] [inch]	Part Number (multi package)[2] [inch]	Model[1] [mm]	Part Number (multi package)[2] [mm]	Nominal Volumen		Connection		Dimensions & Weight[3]				PED Category[4] (Fluid Group 1)
							Solder		ØD	B	A	Weight	
					[inch³]	[cm³]	[inch]	[mm]	[mm]	[mm]	[mm]	[g]	
STGF052s	STG-F05 020-901	10235010302	STG-F05 061-901	10235010602	5	82	1/4	6	69	76	114	450	Art. 4.3
STGF053s	STG-F05 030-901	10235010402	STG-F05 101-901	10235010702	5	82	3/8	10	69	76	114	450	Art. 4.3
STGF054s	STG-F05 040-901	10235010502	STG-F05 121-901	10235010802	5	82	1/2	12	69	76	124	450	Art. 4.3
STGF082s	STG-F08 020-901	10235011202	STG-F08 061-901	10235011602	8	131	1/4	6	69	98	136	580	Art. 4.3
STGF0825s	STG-F08 250-901	10235011302	STG-F08 250-901	10235011302	8	131	5/16	8	69	98	136	580	Art. 4.3
STGF083s	STG-F08 030-901	10235011402	STG-F08 101-901	10235011702	8	131	3/8	10	69	98	136	580	Art. 4.3
STGF084s	STG-F08 040-901	10235011502	STG-F08 121-901	10235011802	8	131	1/2	12	69	98	146	580	Art. 4.3
STGF163s	STG-F16 030-901	10235012202	STG-F16 101-901	10235012602	16	262	3/8	10	81	118	156	900	Art. 4.3
STGF164s	STG-F16 040-901	10235012302	STG-F16 121-901	10235012702	16	262	1/2	12	81	118	166	900	Art. 4.3
STGF165s	STG-F16 050-901	10235012402	STG-F16 050-901	10235012402	16	262	5/8	16	81	118	166	900	Art. 4.3
STGF167s	STG-F16 070-901	10235012502	STG-F16 070-901	10235012502	16	262	7/8	22	81	118	178	900	Art. 4.3
STGF303s	STG-F30 030-901	10235013902	STG-F30 101-901	10235013102	30	492	3/8	10	81	193	231	1700	Art. 4.3
STGF304s	STG-F30 040-901	10235014002	STG-F30 121-901	10235013202	30	492	1/2	12	81	193	241	1700	Art. 4.3
STGF305s	STG-F30 050-901	10235014102	STG-F30 050-901	10235014102	30	492	5/8	16	81	193	241	1700	Art. 4.3
STGF306s	STG-F30 060-901	10235014202	-	-	30	492	3/4	-	81	193	253	1700	Art. 4.3
STGF307s	STG-F30 070-901	10235012902	STG-F30 070-901	10235012902	30	492	7/8	22	81	193	253	1700	Art. 4.3
STGF309s	STG-F30 090-901	10235013002	STG-F30 281-901	10235013402	30	492	1 1/8	28	81	193	263	1700	Art. 4.3

Note: 1) Delivery time on request
2) Available also as industrial package. Contact Sanhua for more details
3) Dimensions are rounded up to integral mm
4) PED Directive 2014/68/EU. Category evaluated considering product as a "vessel"



Solder Connection

STG SERIES
BI-FLOW FILTER DRIERS

SELECTION TABLE

Model	Capacity[1) 2)] [kW]		
	R290	R1234yf	R1234ze(E)
STGB052s	9	5.45	6.6
STGB053s	20.1	12.1	14.7
STGB054s	30.4	18.4	22.3
STGB082s	10.7	6.45	7.85
STGB0825s	19.2	11.6	14.1
STGB083s	21	12.6	15.3
STGB084s	31.2	18.85	23
STGB163s	24	14.5	17.6
STGB164s	36.8	22.2	27
STGB165s	41.6	25	30.4
STGB167s	51.4	31	37.6
STGB303s	30.4	18.4	22.3
STGB304s	37.6	22.7	27.5
STGB305s	43.2	26	31.6
STGB306s	48.3	29	35.2
STGB307s	56.6	34	41.4
STGB309s	66	39.8	48.3

SELECTION TABLE

Model	Capacity[1) 2)] [kW]		
	R290	R1234yf	R1234ze(E)
STGF052s	9	5.45	6.6
STGF053s	20.1	12.1	14.7
STGF054s	30.4	18.4	22.3
STGF082s	10.7	6.45	7.85
STGF0825s	19.2	11.6	14.1
STGF083s	21	12.6	15.3
STGF084s	31.2	18.85	23
STGF163s	24	14.5	17.6
STGF164s	36.8	22.2	27
STGF165s	41.6	25	30.4
STGF167s	51.4	31	37.6
STGF303s	30.4	18.4	22.3
STGF304s	37.6	22.7	27.5
STGF305s	43.2	26	31.6
STGF306s	48.3	29	35.2
STGF307s	56.6	34	41.4
STGF309s	66	39.8	48.3

Note: 1) the above data is based on clean system at ideal conditions; with impurities, accumulated in the filter, the capacity may decrease

2) given capacity is for all available types of connection for the same model: solder [inch] and equivalent solder [mm]

SELECTION FORMULAS

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

SANHUA

ECO-FRIENDLY PRODUCTS & SOLUTIONS

Our target is to provide components and solutions to different industries in order to help the protection of the environment by reducing their energy consumption and increasing their system efficiency.


R3Z
Product Line Series

Product Line Series

The Sanhua R32 Product Line Series belongs to a new group of products developed for the next generation refrigerants. The European Regulation EU No. 517/2014 on fluorinated greenhouse gases (F-Gas Regulation) imposes a clear plan to gradually reduce the use and the impact of HFCs with high GWP. The final goal is to reduce dramatically the quotes in the market of the refrigerants with GWP above 2500 (first step) and the ones with GWP above 150 (second and final step). In some critical applications like domestic refrigerators and freezers the prohibition of HFC with GWP > 150 started from the 1st of January 2015. Many other applications see as deadline for the use of high GWP HFCs the 1st of January 2020 or the 1st of January 2022.

In Air Conditioning (A/C) application the extensive use of the R410A, a refrigerant with a GWP equal to 2088, in few years will have to stop introducing alternative refrigerants with a GWP lower than 700. A good substitute for R410A is R32, a high-density refrigerant with a GWP limited to 675.

In comparison to the R410A the refrigerant R32 imposes a slightly higher working pressure, so all the Sanhua R32 Product Line Series have an enhanced Design Pressure (PS) of 49bar.

The refrigerant R32 is classified as A2L (lightly flammable refrigerant) according to ASHRAE STANDARD 34-2016 and EN 378-1:2016 Annex E. R32 also belongs to Group 1 which includes substances and mixtures, as defined in points 7 and 8 of Article 2 of EC Regulation No 1272/2008, that are classified as hazardous in accordance with physical or health hazard classes as laid down in Parts 2 and 3 of Annex I to that Regulation. A list of 18 classes of hazardous fluids is included in point 1.a of Article 13 (explosive, flammable, oxidizing, toxic).

According to the PED Directive 2014/68/EU (Art.4.1 and ANNEX II), in case of usage with fluids Group 1, the valves with Nominal Diameter > 25mm belong to Category II and they must satisfy the essential safety requirements set out in Annex I. All these models (Cat.II) are covered by a third part certification issued by a recognized European notify body. The complete Sanhua R32 product line series can also be used with HFC refrigerants (A1 ref.), classified in Group 2 according to EC Regulation No 1272/2008.

All the electromechanical valves present in the Sanhua R32 Product Line Series ensure a protection against the electric shock respecting the appropriate mounting described in the installation manual. Each valve and coil respect, where applicable, the prescription of the EU Directive 2014-35-EU (Low Voltage Directive).

An additional third part certification issued by VDE institute guarantees the respect of the prescriptions indicated in the LVD and in the standards listed below, ensuring a safety usage of the product in systems operating with flammable refrigerants (A2L ref.) and (A3 ref.):

EN 60335-2-24; EN 60335-2-24 Subclause 22.110.
EN 60335-2-89; EN 60335-2-89 Subclause 22.109.
EN 60335-2-40; EN 60335-2-40 + A11:2004 + A12:2005 + A1:2006 + A2:2009 + A13:2012 +A13:2012/AC:2013

subclause 22.116 (no electrical component, which could be a source of ignition in case of normal operation or in the event of a leak);
subclause 22.117 (Annex BB).

Most of the products especially designed for R32 applications can guarantee enhanced working limits. Besides the Design Pressure increased to 49bar, in many cases the maximum allowed refrigerant temperature is equal or above 150°C. This limit permits a reliable installation also on the discharge line in R32 system without liquid injection circuit.

DPF-TS/S *SERIES*

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 REVERSIBLE SYSTEMS: BIDIRECTIONAL FLOW
- 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

GENERAL SPECIFICATION

- Applicable for all common HFC, HFO refrigerants such as: R134a, R404A, R407A/F, R407C, R410A, R448A, R449A, R450A, R452A, R513A, R507A And also for flammable refrigerants like R32, R290, R1234ze(E), R1234yf
- Cooling capacity: 2 to 121 kW (for R410A)
- 500 steps (full stroke); 32 ± 20 opening steps
- Medium temperature TS min./max.: -40°C / +85°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
- Certifications: UL/CSA and declaration according to LVD or PED
- Suitable with the EN 60335-2-24 / 2-40 / 2-89

DPF-TS/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, unipolar actuation
- Excitation rate:
  - Seat Ø 1,3 to 3,2 mm: 30 to 90pps
  - Seat Ø 4,0 to 6,5 mm: 30 to 40pps
- Activation of self-holding mechanism: Maintain excitation in stop position min. 0,1~1,0sec.
- Min. motion time from completely open to completely closed:
  - Seat Ø 1,3 to 3,2 mm: 6s @ 90pps
  - Seat Ø 4,0to 6,5 mm: 13s @ 40pps
- Coil current:
  - Seat Ø 1,3 to 3,2 mm: 260mA/phase (20°C)
  - Seat Ø 4,0 to 6,5 mm: 375mA/phase (20°C)
- Coil resistance:
  - Seat Ø 1,3 to 3,2 mm: 46 ± 3.7 Ω/phase (20°C)
  - Seat Ø 4,0 to 6,5 mm: 32± 3.2 Ω/phase (20°C)
- Insulation class of coil: E
- Protection class: IP67
- Compatible with Sanhua controller SEC series

GENERAL CHARACTERISTICS

Valve Model	Part Number[1)]	Seat Φ (mm)	Kv (m^3/h)	MOP[2)] [Bar]	MOPD Direct[3)] [Bar]	MOPD Rev.[4)] [Bar]
DPF(TS1)1.3C-21	10130389302	1,3	0,05	49	35	≥25
DPF(TS1)1.65C-36	10130391702	1,65	0,08			
DPF(TS1)1.8C-69	10130391802	1,8	0,1			
DPF(TS1)2.0C-33	10130392402	2	0,16			
DPF(TS1)2.2C-24	10130392702	2,2	0,2			
DPF(TS1)2.4C-40	10130392602	2,4	0,23			
DPF(TS1)3.0C-29	10130389902	3	0,39			≥15
DPF(TS1)3.2C-30	10130389502	3,2	0,43			
DPF(S03)4.0C-01*	10130355702	4	0,5			≥7
DPF(S03)4.5C-01*	10130035502	4,5	0,7			
DPF(S03)5.5C-01*	10130355802	5,5	0,9			
DPF(S03)6.5C-02*	10130355902	6,5	1,1		30	

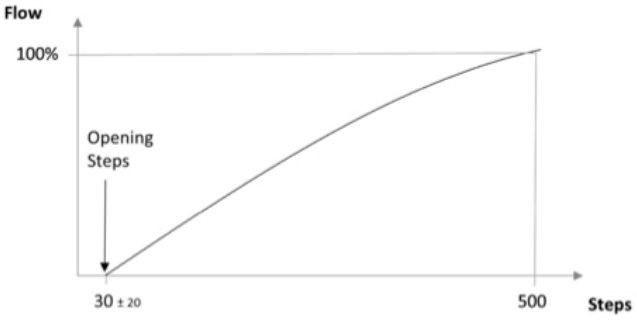
Note: 1) Coil is separated
2) MOP = Maximum Operating Pressure
3) MOPD Direct = Maximum Operating Pressure Difference in Direct flow direction
4) MOPD Rev = Maximum Operating Pressure Difference in Reversible flow direction
* These models are limited at -30°C / 70°C for the medium temperature

DPF-TS/S SERIES
ELECTRONIC EXPANSION VALVE

Valve Model	Max Cooling Capacity @ 5°C/38°C/0K/0K [kW]									
	R134a	R513A	R407C	R404A R507A	R410A	R452A	R32	R290	R1234yf	R1234ze
DPF(TS1)1.3C-21	4,1	3.5	5,4	3,6	6,1	4.1	9.2	5.5	3	3.3
DPF(TS1)1.65C-36	6,9	5.9	9,2	6,2	10,4	6.9	15.5	9.3	5.1	5.5
DPF(TS1)1.8C-69	8,3	7	10,9	7,4	12,4	8.1	18.4	11	6.1	6.5
DPF(TS1)2.0C-33	10,2	8.7	13,5	9,2	15,3	10.1	22.7	13.7	7.5	8.1
DPF(TS1)2.2C-24	11,0	9.3	14,5	9,9	16,5	10.8	24.4	14.7	8	8.7
DPF(TS1)2.4C-40	12,9	11	17,1	11,6	19,4	12.7	28.7	17.3	9.5	10.2
DPF(TS1)3.0C-29	21,7	18.2	28,6	19,4	32,5	21.1	47.6	28.6	15.7	17
DPF(TS1)3.2C-30	23,7	20	31,3	21,2	35,5	23.2	52.4	31.5	17.3	18.7
DPF(S03)4.0C-01	39,3	33.3	51,9	35,3	59,0	38.7	87.2	52.4	28.8	31.1
DPF(S03)4.5C-01	53,0	44.6	70,0	47,6	79,5	51.7	116.6	70.2	38.5	41.6
DPF(S03)5.5C-01	61,0	51.6	80,6	54,7	91,5	59.9	135	81.2	44.5	48.1
DPF(S03)6.5C-02	74,5	62.7	98,4	66,9	111,8	72.8	164	98.8	54.2	58.5

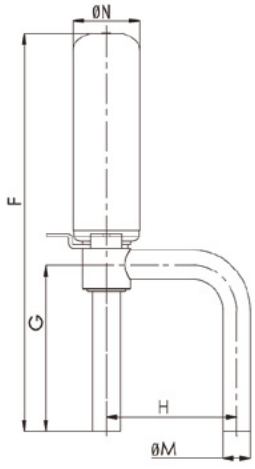
For others running points or others refrigerants, please contact your local support or download our selection software – Quick Finder with the link : www.sanhuaeurope.com/en/quick-finder-software-download

FLOW CHARACTERISTIC

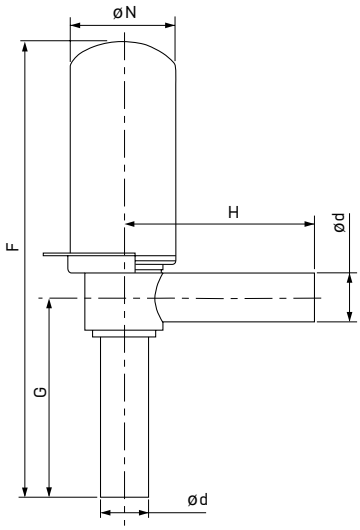


ELECTRONIC EXPANSION VALVE

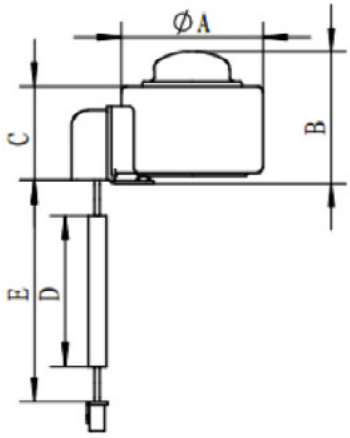
DIMENSIONS



DPF 1.3 ~ 2.4



DPF 3.0 ~ 6.5



Valve Model	Dimensions [mm]					Weight [kg]
	F	G	H	Ød	ØN	
DPF 1.3~2.4	78	36	30	6.35	17.35	0.04
DPF 3.0~3.2	85	43	53	7.94	17.35	0.05
DPF 4.0~6.5	148	64.7	63.4	15.88	35.3	0.26

Coil Model	Product Number	Valve Model	Dimensions [mm]					Terminal	Weight [kg]
			ØA	B	C	D	E		
PQ-M10012-001059	10810138802	DPF 1.3~3.2	38.5	35.8	25.6	700	600	XHP-5	0.12
PQ-M10012-001016	10810134602		38.5	35.8	25.6	1500	1400	XHP-5	
PQ-M10012-001091	10810142402		38.5	35.8	25.6	1500	1400	XHP-5	
PQ-M10012-001002	10810130702		38.5	35.8	25.6	2000	1800	XHP-5	
PQ-M03012-001004	10810141302	DPF 4.0~6.5	67.5	74.4	33.3	2000	1900	XHP-5	0.5

VPF SERIES

ELECTRONIC EXPANSION VALVE

R290 R32

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, HFC, HFO and flammable refrigerants such as: R134a, R513A, R404A, R407A, R407C, R407F, R450A, R452A, R452B, R410A, R507A, R1234yf, R1234ze, R290, R32, R454C, R455A, ...
- Cooling capacity: from 54 to 1495 kW (R134a nominal capacity)
- Up to 3800 steps (full stroke); Valve starts opening with
  - VPF12.5, VPF25: 110 steps
  - VPH50...VPF400: 165 steps
- Medium temperature TS min./max.: -40°C / +90°C
- Ambient temperature min./max.: -40°C / +60°C
- Relative humidity: 0 to 100% RH
- Installation position:
  - Major flow direction from connection A to B
  - Installation in horizontal and vertical pipes possible
  - Installation position in horizontal lines with stepper motor preferably upwards
- Certifications: EAC, PED Declaration for fluids group 2 full range and fluid group 1 for VPF12.5 to 100.

ELECTRONIC EXPANSION VALVE

ELECTRICAL PARAMETER

- Rated voltage: 12VDC, rectangular wave
- Actuating mode: 2-phase 4-step permanent magnet stepping motor
- Excitation mode: 2 phase excitation, bi-pole actuation
- Coil resistance: 52 ± 5,2Ω/coil (20°C)
- Insulation class of coil: E
- Protection class: IP 67

	Voltage drive	Current drive
Excitation rate	150 pps Max	300 pps Max
Motion time from completely open to completely closed	VPF12.5...VPF50 : 17,3s	VPF12.5...VPF50 : 8,7s
	VPF100 : 23,3s	VPF100 : 11,7s
	VPF150...VPF400 : 25,3s	VPF150...VPF400 : 12,7s
Nominal motor current*	124mA RMS per phase in control operation	100mA RMS per phase in control operation
Peak motor current*	238mA RMS per phase in control operation	140mA RMS per phase in control operation

* Specified motor currents are based on max. excitation rates

VPF SERIES
ELECTRONIC EXPANSION VALVE

Model Designations

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

MODEL DESIGNATION EXAMPLE

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

VPF SERIES
ELECTRONIC EXPANSION VALVE

TECHNICAL PARAMETER

VPF 12.05 to 150
MWP (Max Working Pressure) = 50 bar
MOPD (Max Operating Pressure Differential) A-> B or B-> A = 39 bar

Model	Part Number[1)]	Valve Shape	Sight Glass	Connections ød ODF Inlet A x Outlet B		Seat ø	Kv[2)]	PED Cat. Fluid	
				[inch]	[mm]	[mm]	m^3/h	Group 1	Group 2
VPF12.5H52	10130349502	straight	-	5/8 x 5/8	16 × 16	7,5	0,8	Art. 4.3	Art. 4.3
VPF12.5H53	10130350202			7/8 x 7/8	22 × 22			Art. 4.3	Art. 4.3
VPF12.5H58	10130342102	L-shape	-	5/8 x 5/8	16 × 16			Art. 4.3	Art. 4.3
VPF12.5H59	10130349802			7/8 x 7/8	22 × 22			Art. 4.3	Art. 4.3
VPF25H52	10130349202	straight	-	5/8 x 5/8	16 × 16	7,5	1,4	Art. 4.3	Art. 4.3
VPF25H53	10130356202			7/8 x 7/8	22 × 22			Art. 4.3	Art. 4.3
VPF25H58	10130343202	L-shape	-	5/8 x 5/8	16 × 16			Art. 4.3	Art. 4.3
VPF25H59	10130356102			7/8 x 7/8	22 × 22			Art. 4.3	Art. 4.3
VPF50H51	10130337702	straight	-	7/8 x 7/8	22 x 22	11,4	2,3	Art. 4.3	Art. 4.3
VPF50H52	10130347002			7/8 x 1 1/8	-			Art. 4.3	Art. 4.3
VPF50H53	10130356502			1 1/8 x 1 1/8	-			Art. 4.3	Art. 4.3
VPF50H54	10130342302			1 1/8 x 1 3/8	-			Art. 4.3	Cat. I
VPF50H56	10130347102			-	22 x 28			Art. 4.3	Art. 4.3
VPF50H57	10130347202			-	28 x 28			Art. 4.3	Art. 4.3
VPF50H58	10130342402			-	28 x 35			Art. 4.3	Cat. I
VPF 50H01	10130341102	straight	with sight glass	7/8 x 7/8	22 x 22			Art. 4.3	Art. 4.3
VPF 50H02	10130346702			7/8 x 1 1/8	-			Art. 4.3	Art. 4.3
VPF 50H03	10130344802			1 1/8 x 1 1/8	-			Art. 4.3	Art. 4.3
VPF50H04	10130342802			1 1/8 x 1 3/8	-			Art. 4.3	Cat. I
VPF50H06	10130346802			-	22 x 28			Art. 4.3	Art. 4.3
VPF50H07	10130346902			-	28 x 28			Art. 4.3	Art. 4.3
VPF50H08	10130342502			-	28 x 35			Art. 4.3	Cat. I
VPF100H51	10130347502	straight	-	1 1/8 x 1 1/8	-	14,4	4,0	Cat. II	Art. 4.3
VPF100H52	10130347602			1 1/8 x 1 3/8	-			Cat. II	Cat. I
VPF100H53	10130342602			1 3/8 x 1 3/8	35 x 35			Cat. II	Cat. I
VPF100H54	10130347702			-	28 x 28			Cat. II	Art. 4.3
VPF100H55	10130347802			-	28 x 35			Cat. II	Cat. I
VPF100H01	10130356802	straight	with sight glass	1 1/8 x 1 1/8	-			Cat. II	Art. 4.3
VPF100H02	10130347302			1 1/8 x 1 3/8	-			Cat. II	Cat. I
VPF100H03	10130356602			1 3/8 x 1 3/8	35 x 35			Cat. II	Cat. I
VPF100H05	10130347402			-	28 x 35			Cat. II	Cat. I
VPF100H06	10130343102			-	28 x 28			Cat. II	Art. 4.3
VPF150H01	10130357002	L-shape	with sight glass	1 1/8 x 1 3/8	-	14,8	7,7	O.R	Cat. I
VPF150H02	10130356702			1 5/8 x 1 5/8	-			O.R	Cat. I

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

VPF SERIES
ELECTRONIC EXPANSION VALVE

TECHNICAL PARAMETER

VPF 250 & 400
MWP (Max Working Pressure) = 45 bar
MOPD (Max Operating Pressure Differential) A -> B or B -> A = 35 bar

Model	Part Number[1)]	Valve Shape	Sight Glass	Connections ød ODF Inlet A x Outlet B		Seat ø	Kv[2)]	PED Cat. Fluid	
				[inch]	[mm]	[mm]	m^3/h	Group 1	Group 2
VPF250H01	10130348002	straight	with sight glass	1 1/8 x 1 1/8	-	25	11,9	O.R	Art. 4.3
VPF250H02	10130342902			1 3/8 x 1 3/8	35 x 35			O.R	Cat. I
VPF250H03	10130356402			1 5/8 x 1 5/8	-			O.R	Cat. I
VPF250H04	10130348102			-	28 x 28			O.R	Art. 4.3
VPF250H05	10130341202				42 x 42			O.R	Cat. I
VPF400H01	10130344902	straight	with sight glass	1 5/8 x 1 5/8	-	33	17,0	O.R	Cat. I
VPF400H02	10130349002			-	42 x 42			O.R	Cat. I
VPF400H03	10130343302			2 1/8 x 2 1/8	54 x 54			O.R	Cat. I

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

COOLING CAPACITIES

Model	Steps	Nominal Cooling Capacity[1)] [kW]								
		R134a	R407A	R407C	R407F	R404A R507A	R410A	R32	R1234yf	R1234ze
VPF12.5	2600	54	67	71	76	50	82	126	41.9	43
VPF25	2600	116	144	152	162	108	176	262	87	92
VPF50	2600	221	275	290	310	206	336	527	173	175
VPF100	3500	319	397	418	447	297	484	748	248	253
VPF150	3800	574	714	752	804	534	871	-	432	455
VPF250	3800	892	1108	1168	1249	830	1353	-	692	706
VPF400	3800	1495	1857	1958	2094	1392	2269	-	1161	1183

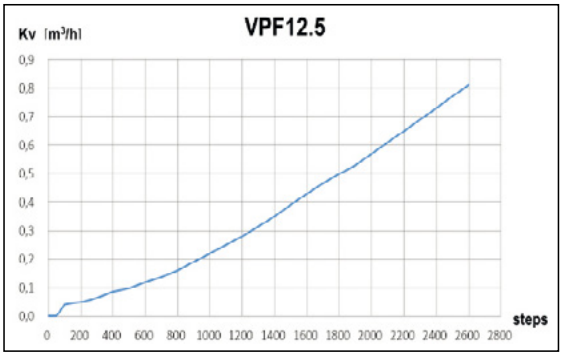
Note: 1) NNominal conditions : Condensing temperature 38°C / Evaporating temperature = +4,4°C / liquid temperature = 37°C
2) For refrigerants with glide, performances are given in dew point

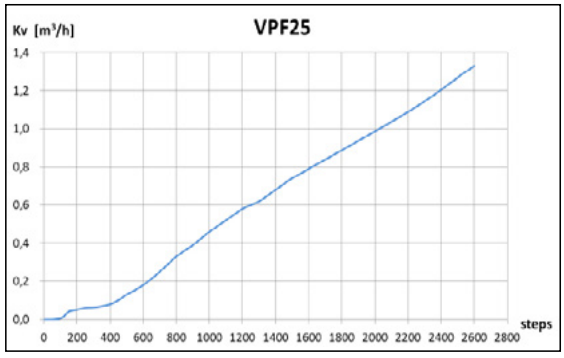
For others running points or others refrigerants, please contact your local support or download our selection software – Quick Finder with the link :

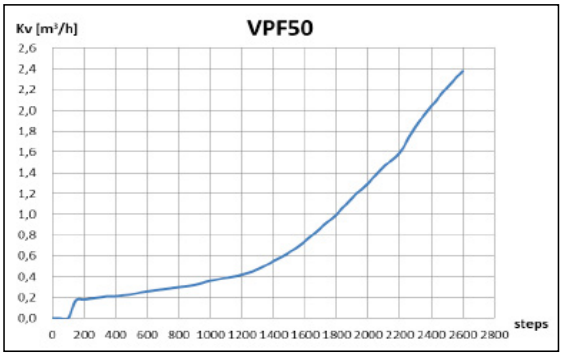
www.sanhuaeurope.com/en/quick-finder-software-download

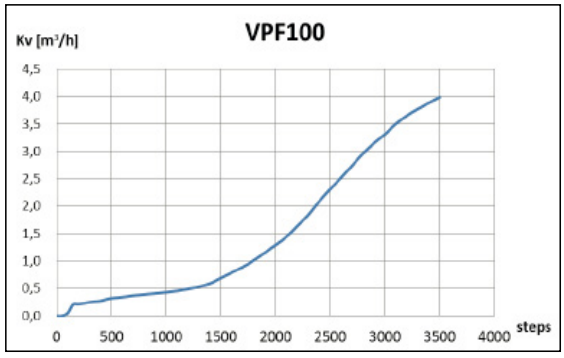
FLOW CHARACTERISTIC

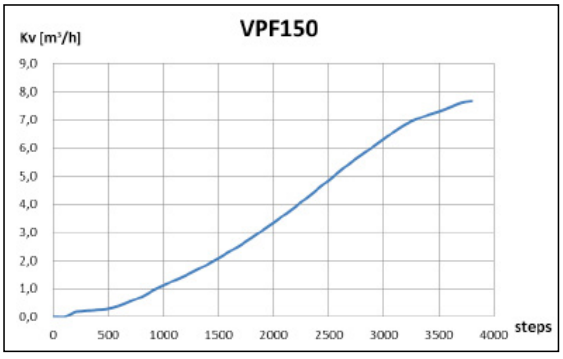
Add drawing for VPF12.5 + VPF 400 into catalogue

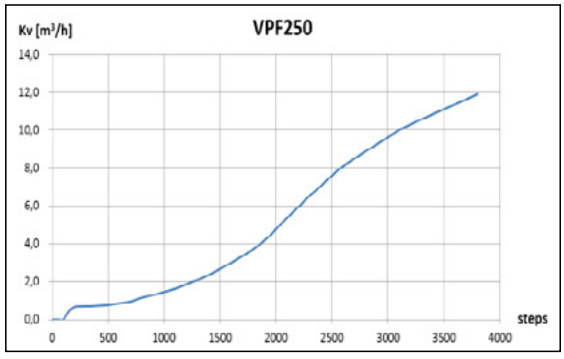


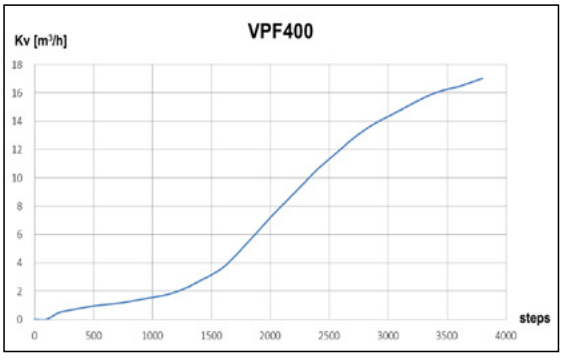






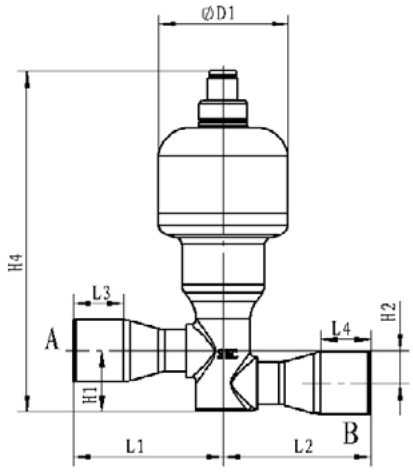




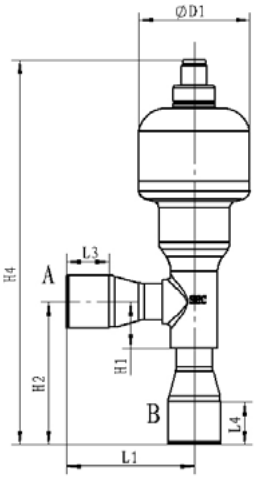


DIMENSIONS

Model	Part Number	Dimensions [mm]								
		L	L1	L2	L3	L4	H1	H2	H4	øD1
VPF12.5H52	10130349502	120	60	60	13	13	25,6	13	136	52
VPF12.5H53	10130350202	120	60	60	20	20	25,6	13	136	52
VPF12.5H58	10130342102	-	60	-	13	13	22,5	66,5	178	52
VPF12.5H59	10130349802		60		20	20	22,5	66,5	178	52
VPF25H52	10130349202	120	60	60	13	13	25,6	13	136	52
VPF25H53	10130356202	120	60	60	20	20	25,6	13	136	52
VPF25H58	10130343202	-	60	-	13	13	22,5	66,5	178	52
VPF25H59	10130356102		60		20	20	22,5	66,5	178	52



VPF12.5, VPF25, Straight version

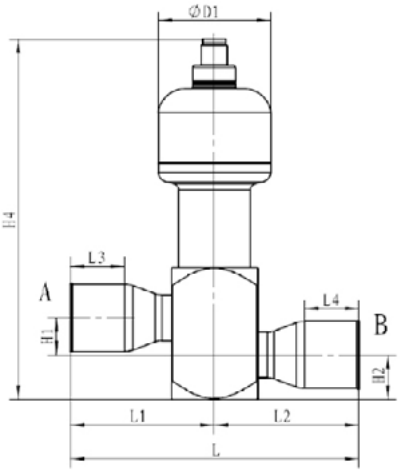


VPF12.5, VPF25, L-Shape version

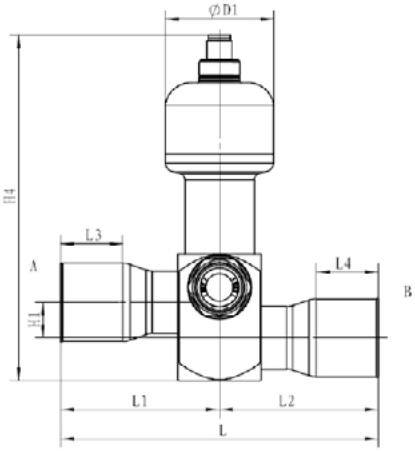
ELECTRONIC EXPANSION VALVE

DIMENSIONS

Model	Part Number	Dimensions [mm]								
		L	L1	L2	L3	L4	H1	H2	H4	øD1
VPF50H51	10130337702	112	56	56	20	20	17	20,5	166	52
VPF50H52	10130347002	122	56	66	20	25	17	20,5	166	52
VPF50H53	10130356502	132	66	66	25	25	17	20,5	166	52
VPF50H54	10130342302	142	66	76	25	30	17	20,5	166	52
VPF50H56	10130347102	122	56	66	20	25	17	20,5	166	52
VPF50H57	10130347202	132	66	66	25	25	17	20,5	166	52
VPF50H58	10130342402	142	66	76	25	30	17	20,5	166	52
VPF50H01	10130341102	112	56	56	20	20	17	20,5	166	52
VPF50H02	10130346702	122	56	66	20	25	17	20,5	166	52
VPF50H03	10130344802	132	66	66	25	25	17	20,5	166	52
VPF50H04	10130342802	142	66	76	25	30	17	20,5	166	52
VPF50H06	10130346802	122	56	66	20	25	17	20,5	166	52
VPF50H07	10130346902	132	66	66	25	25	17	20,5	166	52
VPF50H08	10130342502	142	66	76	25	30	17	20,5	166	52
VPF100H51	10130347502	132	66	66	25	25	17	20,5	166	52
VPF100H52	10130347602	142	66	76	25	30	17	20,5	166	52
VPF100H53	10130342602	152	76	76	30	30	17	20,5	166	52
VPF100H54	10130347702	132	66	66	25	25	17	20,5	166	52
VPF100H55	10130347802	142	66	76	25	30	17	20,5	166	52
VPF100H01	10130356802	132	66	66	25	25	17	20,5	166	52
VPF100H02	10130347302	142	66	76	25	30	17	20,5	166	52
VPF100H03	10130356602	152	76	76	30	30	17	20,5	166	52
VPF100H05	10130347402	142	66	76	25	30	17	20,5	166	52
VPF100H06	10130343102	132	66	66	25	25	17	20,5	166	52
VPF150H01	10130357002	-	76	-	30	25	24	70	195	52
VPF150H02	10130356702		76		25	25	33,5	89	212	52



VPF50, VPF100 without sight glass

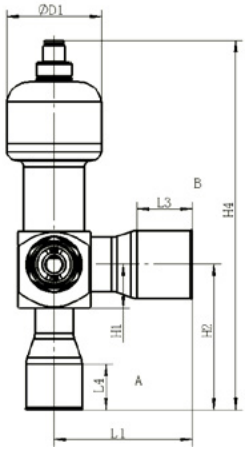


VPF50, VPF100 with sight glass

ELECTRONIC EXPANSION VALVE

DIMENSIONS

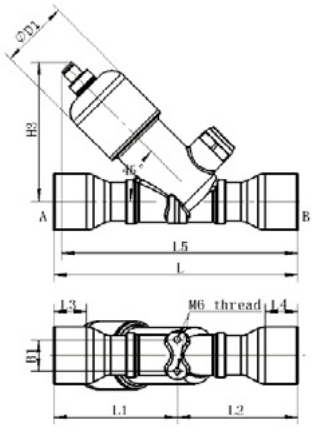
Model	Part Number	Dimensions [mm]								
		L	L1	L2	L3	L4	H1	H2	H4	øD1
VPF150H01	10130357002	-	76	-	30	25	24	70	195	52
VPF150H02	10130356702		76		25	25	33,5	89	212	52



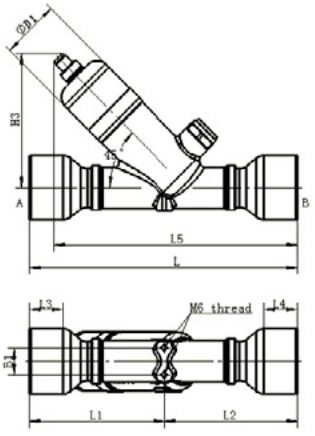
VPF150 with sight glass

DIMENSIONS

Model	Part Number	Dimensions [mm]								
		L	L1	L2	L3	L4	H1	H2	H4	øD1
VPF250H01	10130348002	166	84	82	25	25	170	107	24	52
VPF250H02	10130342902	186	94	92	30	30	180	107	24	52
VPF250H03	10130356402	186	94	92	25	25	180	107	24	52
VPF250H04	10130348102	166	84	82	25	25	170	107	24	52
VPF250H05	10130341202	186	94	92	25	25	180	107	24	52
VPF400H01	10130344902	203	104	99	30	30	198	118	24	52
VPF400H02	10130349002	203	104	99	30	30	198	118	24	52
VPF400H03	10130343302	240	121	119	30	30	218	118	24	52



VPF250 with sight glass

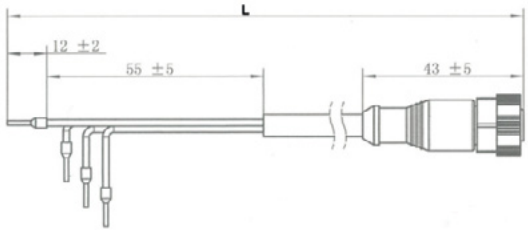


VPF400 with sight glass

ACCESSORIES

Connection Cable

Model	Part Number	Cable Length (L) [mm]	Tolerance [mm]	IP
Y02A	20130669202	2000	± 40	67
Y08A	20130661202	8000	± 160	67



MDF-R *SERIES*

SOLENOID VALVE

MDF-R 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 working with R32 refrigerant.

R32

FEATURES

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

GENERAL SPECIFICATION

- Applicable for R32
- Maximum Operating Pressure:
  MDF-A03-2RH...22RH: 4,9 MPA (49 bar)
- Medium temperature TS min./max.: -30°C/105°C
- Ambient temperature min./max.: -30°C / +55°C
- Relative humidity: 0 to 95% RH
- Installation position:
  - Liquid, suction and discharge line
  - Preferably coil upwards and flow direction corresponds to the arrow
- Declaration according to LVD or PED

MDF-R SERIES
SOLENOID VALVE

TECHNICAL PARAMETERS OF VALVE BODY

Valve Body / Solder	Normal position	Actuation	Kv [m³/h]	MOP [Mpa]	Max. OPD [MPa]	Min. OPD[4] [Mpa]
MDF-A03-2RH	NC[1]	Direct	0,16	4,9	3,1[3]	0,00
MDF-A03-3RH			0,23			
MDF-A03-6RH		Pilot[2]	0,8			0,005
MDF-A03-10RH			1,9			
MDF-A03-15RH			2,3			
MDF-A03-20RH			5,0			0,02
MDF-A03-22RH			5,9			

Note: 1) NC means: Normally closed valve
2) Membrane operated
3) Max. OPD at 85% Ue. Other coils on request

DIMENSIONS

Valve Body - Inch Solder Connection, Models with MOP 49 bar

Model Valve Body	Part Number[1)2)]	Solder Connection ODF	Kv	PED Category Fluid Group I	Dimensions [mm]			
		[inch]	[m³/h]		L	B	D	H
MDF-A03-2RH01	10125023002	1/4	0,16	4.3	102	30	53	82
MDF-A03-3RH01	10125023202	1/4	0,23	4.3	102	30	53	82
MDF-A03-3RH03	10125023302	3/8	0,23	4.3	117	30	53	82
MDF-A03-6RH01	10125021402	3/8	0,8	4.3	111	36	53	88
MDF-A03-6RH03	10125021502	1/2	0,8	4.3	127	36	53	88
MDF-A03-10RH01	10125021802	1/2	1,9	4.3	127	42	53	95
MDF-A03-10RH03	10125021902	5/8	1,9	4.3	160	42	53	95
MDF-A03-15RH05	10125022202	5/8	2,3	4.3	176	52	53	100
MDF-A03-15RH03	10125022102	7/8	2,3	4.3	176	52	53	100
MDF-A03-20RH01	10125022302	7/8	5	4.3	191	60	53	117
MDF-A03-22RH01	10125022602	7/8	5,9	4.3	281	60	53	117
MDF-A03-20RH03	10125022402	1-1/8	5	4.3	214	60	53	117
MDF-A03-22RH09	10125022802	1-1/8	5,9	4.3	281	60	53	117
MDF-A03-22RH03	10125022702	1-3/8	5,9	Cat. II	281	60	53	117

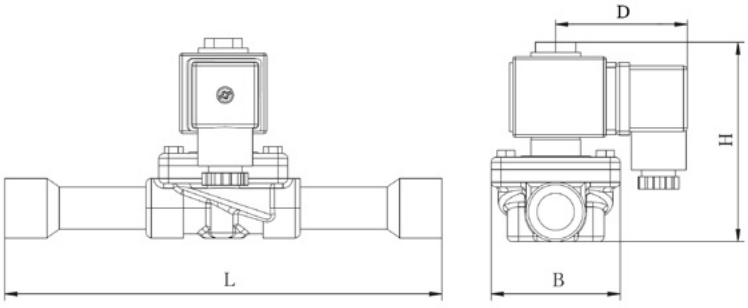
Note: 1) Extent of delivery: valve body without coil
2) Available also as industrial package. Contact Sanhua for more details.

DIMENSIONS

Valve Body – Metrical Solder Connection, Models with MOP 49 bar

Model Valve Body	Part Number[1)2)]	Solder Connection ODF	Kv	PED Category Fluid Group I	Dimensions [mm]			
		[mm]	[m³/h]		L	B	D	H
MDF-A03-2RH03	10125023102	6	0,16	4.3	102	30	53	82
MDF-A03-3RH05	10125021202	6	0,23	4.3	102	30	53	82
MDF-A03-3RH07	10125021302	10	0,23	4.3	117	30	53	82
MDF-A03-6RH05	10125021602	10	0,8	4.3	111	36	53	88
MDF-A03-6RH07	10125021702	12	0,8	4.3	127	36	53	88
MDF-A03-10RH05	10125022002	12	1,9	4.3	127	42	53	95
MDF-A03-10RH03	10125021902	16	1,9	4.3	160	42	53	95
MDF-A03-15RH05	10125022202	16	2,3	4.3	176	52	53	100
MDF-A03-15RH03	10125022102	22	2,3	4.3	176	52	53	100
MDF-A03-20RH01	10125022302	22	5	4.3	191	60	53	117
MDF-A03-22RH01	10125022602	22	5,9	4.3	281	60	53	117
MDF-A03-20RH07	10125022502	28	5	4.3	214	60	53	117
MDF-A03-22RH11	10125022902	28	5,9	4.3	281	60	53	117
MDF-A03-22RH03	10125022702	35	5,9	Cat. II	281	60	53	117

Note: 1) Extent of delivery: valve body without coil
2) Available also as industrial package. Contact Sanhua for more details.



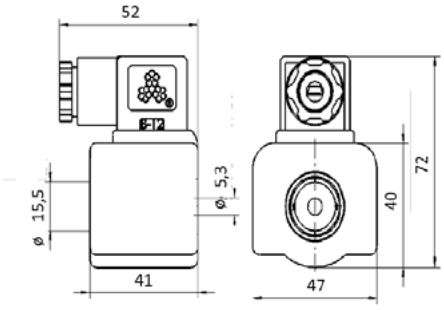
TECHNICAL PARAMETERS OF COIL

Model Coil	Part Number[1)]	Plug type	Supply	Rated Voltage [V]	Power [W]	Voltage Tolerance	Insulation Class	Protection Class (w/plug)	UL Approval
MQ-A0322G-000001[2)]	10820010002	DIN	AC	220 to 240	12 (50Hz) 10 (60Hz)	-15% +10%	F	IP67	NO

Note: 1) Extent of delivery: coil body, fastening screw for the coil body, plug for electrical connection incl. Gaskets and fastening screws
2) Coil MQ-A0322G-000001 is third party certified for usage with flammable refrigerants (A2L, A3). Usage of the other coils with flammable refrigerants – please contact Sanhua.

DIMENSIONS - COILS

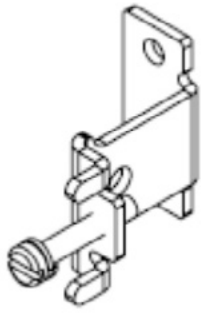
MQ-A03 (Coil with DIN Plug):



ACCESSORIES

Bracket

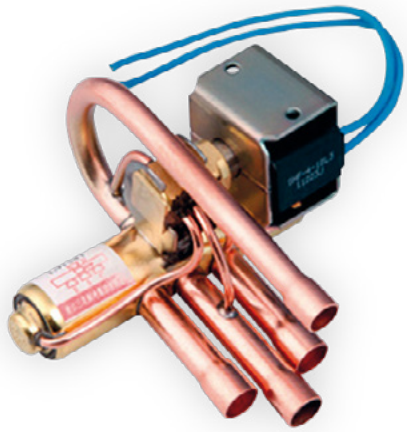
Model[1)]	Part Number	Applicable Valve Models
		Solder
MDF-A03-033001	20125000902	MDF-A03-2RH
		MDF-A03-3RH
		MDF-A03-6RH
		MDF-A03-10RH
		MDF-A03-15RH



Note: 1) Extent of delivery: bracket and screw

SHF-R SERIES

4 WAY REVERSING VALVE



R32

SHF-R 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. The Versions SHF-R use a special internal slide material able to resist to refrigerant temperatures until +150°C, making them suitable for R32 systems without liquid injection and high discharge temperatures.

FEATURES

- SUITABLE FOR R32 SYSTEMS WITH HIGH DISCHARGE TEMPERATURES
- SUITABLE FOR COOLING CAPACITIES FROM 41.5 TO 116.7 KW (R32, CONDITION 2, ΔP=0.1BAR)
- SEVERAL DESIGNS AVAILABLE
- CERTIFIED ACCORDING PED CAT.II BY TUV RHEINLAND

GENERAL SPECIFICATION

- Applicable for R32; also compatible with all common HCFC, HFC, HFO, HC refrigerants such as: R22, R134a, R404A, R407A/C/F, R410A, R507A, R448A, R449A, R450A, R452A, R513A, R1234yf, R1234ze, R454A/B/C, R455A, R290, R1270, R600a
- Medium temperature TS min./max.: -30°C / +150°C
- Ambient temperature min./max.: -30°C / +50°C
- Relative humidity: 0 to 95% RH
- Max. operating pressure PS = 4.9 MPa (49 bar)
- Installation position:
  - Coil upwards or with body axis in horizontal alignment
  - Flow direction according to installation instruction
- Certifications: Manufacturer declaration according to LVD or PED
  Third part Certification according to PED directive cat.II
  UL/CUL not available (on request)

SHF-R SERIES
4 WAY REVERSING VALVE

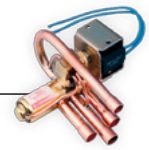
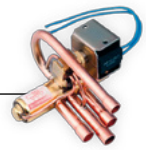


TABLE 1: SHF-R MODEL LIST

General Characteristics											
Valve Model	Product Number	Type of System [Variable or Fixed Speed]	Ø Port	Kv	Connections ODF		MOP	OPD		PED Category	
					ØD	ØE/S/C		Max.	Min.	Fluid	Fluid
			[mm]	[m³/h]	[inch]	[inch]	[MPa]	[MPa]	[MPa]	Group 2	Group 1
SHF-35R-47	On Request	Variable & Fixed	20	12,7	1/2	7/8	4,9	3,6	0,1	4,3	4,3
SHF-35R-57	On Request	Variable & Fixed	20	12,7	5/8	7/8	4,9	3,6	0,1	4,3	4,3
SHF-35R-59	On Request	Variable & Fixed	20	12,7	5/8	1 1/8	4,9	3,6	0,1	4,3	4,3
SHF-35R-67	10325061102	Variable & Fixed	20	12,7	3/4	7/8	4,9	3,6	0,1	4,3	4,3
SHF-35R-69	On Request	Variable & Fixed	20,9	12,7	3/4	1 1/8	4,9	3,6	0,1	4,3	4,3
SHF-35R-79	10325061602	Variable & Fixed	20,9	12,7	7/8	1 1/8	4,9	3,6	0,1	4,3	4,3
SHF-50R-79	10325061702	Variable & Fixed	22,8	18,3	7/8	1 1/8	4,9	3,6	0,1	4,3	4,3
SHF(L)-70R-810	On Request	Variable & Fixed	28,6	25,3	1	1 1/4	4,9	3,6	0,15	4,3	II
SHF(L)-70R-810-01	10325062102	Variable & Fixed	28,6	25,3	1	1 1/4	4,9	3,6	0,15	4,3	II
SHF(L)-70R-911	10325063902	Variable & Fixed	28,6	25,3	1 1/8	1 3/8	4,9	3,6	0,15	4,3	II
SHF(L)-70R-911-01	10325061202	Variable & Fixed	28,6	25,3	1 1/8	1 3/8	4,9	3,6	0,15	4,3	II
SHF(L)-70R-913-05	On Request	Variable & Fixed	28,6	25,3	1 1/8	1 5/8	4,9	3,6	0,15	I	II
SHF(L)-70R-913-03	10325061802	Variable & Fixed	28,6	25,3	1 1/8	1 5/8	4,9	3,6	0,15	I	II
SHF(L)-100R-911	On Request	Variable & Fixed	35,7	36,1	1 1/8	1 3/8	4,9	3,6	0,15	I	II
SHF(L)-100R-911-01	On Request	Variable & Fixed	35,7	36,1	1 1/8	1 3/8	4,9	3,6	0,15	I	II
SHF(L)-100R-913	On Request	Variable & Fixed	35,7	36,1	1 1/8	1 5/8	4,9	3,6	0,15	I	II
SHF(L)-100R-913-01	On Request	Variable & Fixed	35,7	36,1	1 1/8	1 5/8	4,9	3,6	0,15	I	II
SHF(L)-100R-1012	On Request	Variable & Fixed	35,7	36,1	1 1/4	1 1/2	4,9	3,6	0,15	I	II
SHF(L)-100R-1012-01	10325061002	Variable & Fixed	35,7	36,1	1 1/4	1 1/2	4,9	3,6	0,15	I	II
SHF(L)-100R-1013	On Request	Variable & Fixed	35,7	36,1	1 1/4	1 5/8	4,9	3,6	0,15	I	II
SHF(L)-100R-1013-01	10325061902	Variable & Fixed	35,7	36,1	1 1/4	1 5/8	4,5	3,6	0,15	I	II
SHF(L)-140R-1113	10325066502	Variable & Fixed	41,0	58,4	1 3/8	1 5/8	4,9	3,6	0,15	I	II
SHF(L)-140R-1213	10325071302	Variable & Fixed	41,0	58,4	1 1/2	1 5/8	4,9	3,6	0,15	I	II
SHF(L)-140R-1214	10325066402	Variable & Fixed	41,0	58,4	1 1/2	1 3/4	4,9	3,6	0,15	I	II
SHF(L)-140R-1313	10325071102	Variable & Fixed	41,0	58,4	1 5/8	1 5/8	4,9	3,6	0,15	I	II



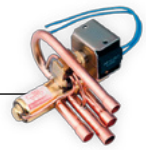
NOMINAL OPERATING CONDITIONS

Nominal Operating Conditions	Condition 1	Condition 2
Condensing Temperature t_c	38°C	54,4°C
Evaporating Temperature t_o	5°C	7,2°C
Superheat Δt_{sc}	5K	5K
Subcooling Δt_{sr}	0K	5K

Notes for Capacity Selection Tables: 1) Pressure drop is valid for flow on low pressure side (from ØC to ØS or from ØE to ØS)

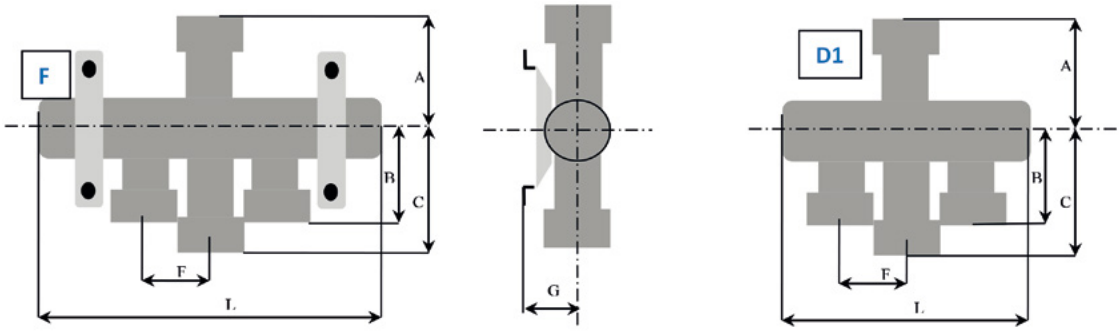
Capacity Selection Table										
Valve Size	Nominal Cooling Capacity (condition 1)									
	R32		R454B		R410A		R134a		R404A / R507	
	ΔP: 0,1 bar	ΔP: 0,2 bar	ΔP: 0,1 bar	ΔP: 0,2 bar	ΔP: 0,1 bar	ΔP: 0,2 bar	ΔP: 0,1 bar	ΔP: 0,2 bar	ΔP: 0,1 bar	ΔP: 0,2 bar
	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
SHF-35R	44,3	62,6	24,2	34,2	34,4	48,6	22,0	31,1	36,9	52,2
SHF-50R	63,5	89,8	53,0	75,0	49,3	69,7	31,2	44,2	34,6	48,9
SHF(L)-70R	88,2	124,7	48,1	68,0	68,5	96,9	43,8	62,0	73,5	104,0
SHF(L)-100R	125,9	178,0	68,7	97,1	97,8	138,3	62,5	88,4	104,9	148,4
SHF(L)-140R	197,3	279,0	107,6	152,2	153,3	216,8	98,0	138,7	164,5	232,7

Capacity Selection Table										
Valve Size	Nominal Cooling Capacity (condition 2)									
	R32		R454B		R410A		R134a		R404A / R507	
	ΔP: 0,1 bar	ΔP: 0,2 bar	ΔP: 0,1 bar	ΔP: 0,2 bar	ΔP: 0,1 bar	ΔP: 0,2 bar	ΔP: 0,1 bar	ΔP: 0,2 bar	ΔP: 0,1 bar	ΔP: 0,2 bar
	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
SHF-35R	41,5	58,7	34,1	48,3	31,2	44,1	20,4	28,9	21,1	29,9
SHF-50R	59,5	84,2	48,9	69,1	44,8	63,3	29,1	41,1	30,3	42,8
SHF(L)-70R	82,7	116,9	68,0	96,1	62,2	87,9	40,7	57,6	42,1	59,6
SHF(L)-100R	118,0	166,8	97,0	137,2	88,7	125,4	58,1	82,2	60,1	85,0
SHF(L)-140R	185,0	261,6	152,1	215,1	139,1	196,7	91,1	128,9	94,2	133,3

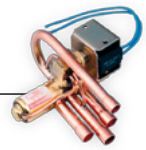


DIMENSIONS - VALVES

Dimensions - Valves												
Valve Model	Valve Style	L	A	B	C	D	E	F	G	H	Angle α	Weight
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[°]	[kg]
SHF-35R-47	D1	212,2	82	87	100	-	-	33	-	-	0	1,3
SHF-35R-57	D1	212,2	82	87	100	-	-	33	-	-	0	1,3
SHF-35R-59	D1	212,2	82	87	100	-	-	33	-	-	0	1,3
SHF-35R-67	D1	212,2	82	87	100	-	-	33	-	-	0	1,3
SHF-35R-69	D1	212,2	82	87	100	-	-	33	-	-	0	1,3
SHF-35R-79	D1	212,2	82	87	100	-	-	33	-	-	0	1,3
SHF-50R-79	D1	217	91	96	128	-	-	33	-	-	0	2,1
SHF(L)-70R-810	D1	303	111	117	131	-	-	46	-	-	0	3,1
SHF(L)-70R-810-01	F	303	111	117	154	-	-	46	58	-	0	3,1
SHF(L)-70R-911	D1	303	111	117	154	-	-	46	-	-	0	3,1
SHF(L)-70R-911-01	F	321	111	117	131	-	-	49	58	-	0	3,6
SHF(L)-70R-913-05	D1	321	111	117	131	-	-	49	-	-	0	3,6
SHF(L)-70R-913-03	F	321	111	117	131	-	-	49	58	-	0	3,6
SHF(L)-100R-911	D1	321	111	117	131	-	-	49	-	-	0	3,6
SHF(L)-100R-911-01	F	303	111	117	131	-	-	46	58	-	0	3,1
SHF(L)-100R-913	D1	303	111	117	154	-	-	46	-	-	0	3,1
SHF(L)-100R-913-01	F	303	111	117	154	-	-	46	58	-	0	3,1
SHF(L)-100R-1012	D1	321	111	117	131	-	-	49	-	-	0	3,6
SHF(L)-100R-1012-01	F	321	111	117	131	-	-	49	58	-	0	3,6
SHF(L)-100R-1013	D1	321	111	117	131	-	-	49	-	-	0	3,6
SHF(L)-100R-1013-01	F	321	111	117	131	-	-	49	58	-	0	3,6
SHF(L)-140R-1113	F	390	135,6	148,7	168,7	-	-	58	63	-	0	7,2
SHF(L)-140R-1213	F	390	135,6	148,7	168,7	-	-	58	63	-	0	7,2
SHF(L)-140R-1214	F	390	135,6	148,7	168,7	-	-	58	63	-	0	7,2
SHF(L)-140R-1313	F	390	135,6	148,7	168,7	-	-	58	63	-	0	7,2



SHF-R SERIES
4 WAY REVERSING VALVE

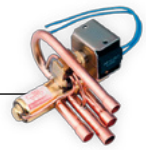


Coil Characteristics												
Coil Model [1]	Winding Code	Part Number	Electrical Function/ Connection Type	Cable Length	Power Supply	Rated Voltage	Power Consumption			Protection Clas	Insulat. Class	Max. Op. Temp.
							AC 50Hz	AC 60Hz	DC			
				[mm]	[-]	[V]	[W]	[W]	[W]	[-]	[-]	[°C]
SQ-A25 22G-00 0001	SHF-4-10L3	10805029102	Lead Wires	500	AC	220-240	4,5	3,5	-	IP54	B[2]	130
SQ-A25 200-00 0001	SHF-4-10L2	10805027002	Lead Wires	500	AC	200	4,5	3,5	-			
SQ-A25 100-00 0001	SHF-4-10L1	10805023602	Lead Wires	500	AC	100	4,5	3,5	-			
SQ-A25 11A-00 0001	SHF-4-10L4	10805150302	Lead Wires	500	AC	110-120	4,5	3,5	-			
SQ-A25 024-00 0001	SHF-4-10L5	10805227602	Lead Wires	500	AC	24	4,5	3,5	-			
SQ-A25 26H-00 0001	SHF-4-10L6	10805231902	Lead Wires	500	AC	265-277	4,5	3,5	-			
SQ-A25 22G-00 0870	SHF-4-10L3	10805240702	Lead Wires	1500	AC	220-240	4,5	3,5	-			
SQ-A25 11A-00 0840	SHF-4-10L4	10805240802	Lead Wires	1500	AC	110-120	4,5	3,5	-			
SQ-A25 024-00 0161	SHF-4-10L5	10805023002	Lead Wires	1500	AC	24	4,5	3,5	-			
SQ-A47 22G-00 0001	SHF-4-10FA5	10805263402	Spade (Faston)[3]	-	AC	220-240	6	5	-	IP00	F[2]	155
SQ-A47 220-00 0001	SHF-4-10FA1	10805273402	Spade (Faston)[3]	-	AC	220	6	5	-			
SQ-A47 11B-00 0001	SHF-4-10FA2	10805273302	Spade (Faston)[3]	-	AC	120	6	5	-			
SQ-A47 10A-00 0001	SHF-4-10FA3	10805268702	Spade (Faston)[3]	-	AC	100-110	6	5	-			
SQ-A47 024-00 0001	SHF-4-10FA4	10805263302	Spade (Faston)[3]	-	AC	24	6	5	-			
SQ-A47 26H-00 0001	SHF-4-10FA6	10805273502	Spade (Faston)[3]	-	AC	265-277	6	5	-			
SQ-D44 012-00 0001	SHF-4-10FA8	10805231802	Spade (Faston)[3]	-	DC	12	-	-	10			
SQ-D44 024-00 0001	SHF-4-10FA9	10805070102	Spade (Faston)[3]	-	DC	24	-	-	11			

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

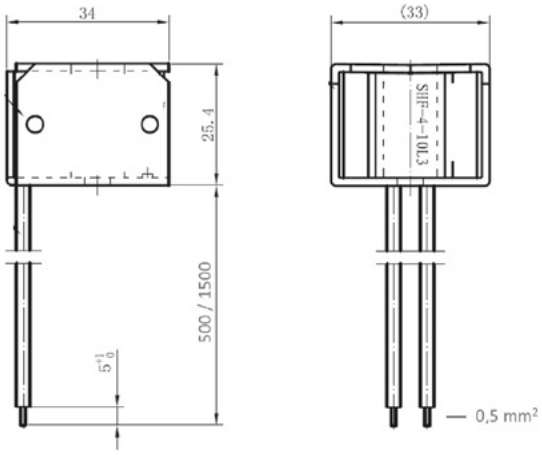
ACCESSORY

Wire Harness		
Model	Part Number	Cable Length [mm]
SQ-000000-090028	20805136301	1200
SQ-000000-090029	20805149201	2000

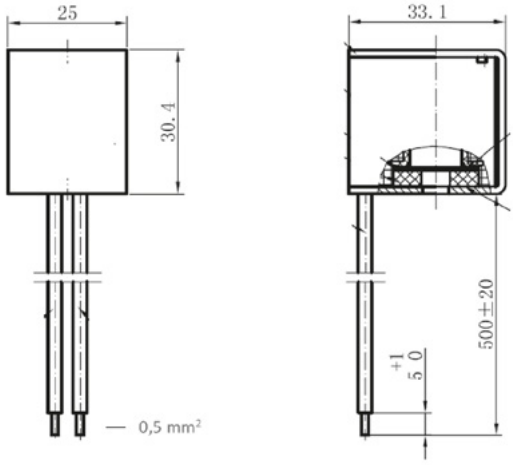


DIMENSIONS - COILS

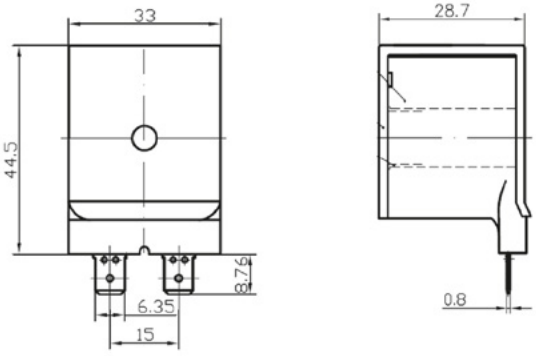
Coils with Lead Wires (SQ-A25 Series)



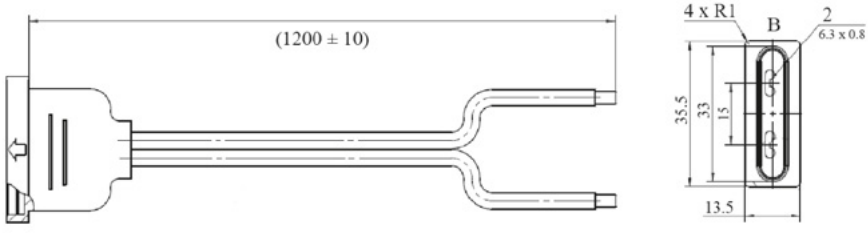
Bistable Coils (SQ-A/D27 Series)



Coils with Spade Connections (SQ-A47 and SQ-D44 Series)

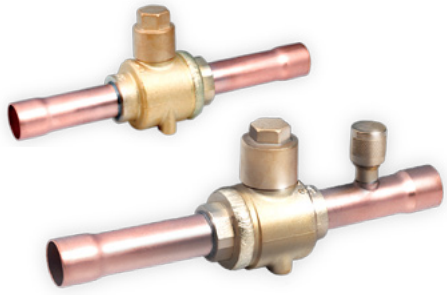


Wire Harness (SQ-000000-0900xx)



SBV-R *SERIES*

BALL VALVE



The ball valve of series SBV-R 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. The Design Pressure (PS) of the versions SBV-R has been increased to 49 bars allowing the usage in R32 systems.

R32

FEATURES

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

GENERAL SPECIFICATION

- Applicable for all common HCFC, HFC and HFO refrigerants such as: R22, R134a, R404A, R407A/C/F, R410A, R507A, R448A, R449A, R450A, R452A, R513A, R32, R1234yf, R1234ze, R454A/B/C, R455A, R290, R1270, R600a
- Medium temperature TS min./max.: -40°C / +120°C
- Max. operating pressure PS: 4,9 MPa (49 bar)
- Installation position: liquid, suction and discharge line in all directions
- PED declaration
- Certifications: UL/CUL not available (on request)

Note: 1) Peak temperature of +135°C for short term use

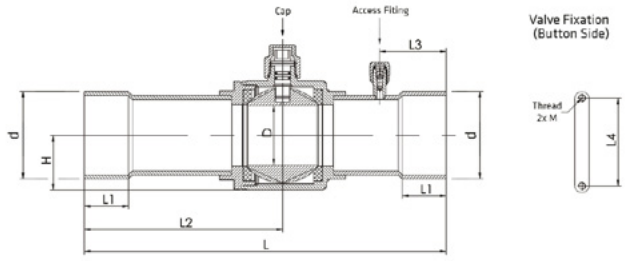
SBV-R SERIES
BALL VALVE

GENERAL CHARACTERISTICS

Without Access Fitting		Connections Ø d ODF		Kv	Wrench Size Cap	PED Category [Fluid Group 1]	PED Category [Fluid Group 2]	With Access Fitting	
Model	Part Number*	[inch]	[mm]	[m³/h]	[mm]			Model	Part Number*
SBV02-020R	10150104702	-	6	1,9	19	Art. 4.3	Art. 4.3	SBV02-320R	10150104902
SBV02-019R	10150104602	1/4	-	1,9	19	Art. 4.3	Art. 4.3	SBV02-319R	10150104802
SBV03-019R	10150105002	3/8	-	5,5	19	Art. 4.3	Art. 4.3	SBV03-319R	10150105202
SBV03-020R	10150105102	-	10	5,5	19	Art. 4.3	Art. 4.3	SBV03-320R	10150105302
SBV04-020R	10150105502	-	12	10,2	19	Art. 4.3	Art. 4.3	SBV04-320R	10150105702
SBV04-019R	10150105402	1/2	-	10,2	19	Art. 4.3	Art. 4.3	SBV04-319R	10150105602
SBV05-120R	10150105802	-	15	13,2	14	Art. 4.3	Art. 4.3	SBV05-420R	10150106002
SBV05-119R	10150100402	5/8	16	13,8	14	Art. 4.3	Art. 4.3	SBV05-419R	10150105902
SBV06-120R	10150106102	-	18	19,5	17	Art. 4.3	Art. 4.3	SBV06-420R	10150106302
SBV06-119R	10150104302	3/4	-	19,5	17	Art. 4.3	Art. 4.3	SBV06-419R	10150106202
SBV07-119R	10150098702	7/8	22	28,0	17	Art. 4.3	Art. 4.3	SBV07-419R	10150106402
SBV09-120R	10150103602	-	28	51,5	17	Cat. 2	Art. 4.3	SBV09-420R	10150103702
SBV09-119R	10150097102	1 1/8	-	51,5	17	Cat. 2	Art. 4.3	SBV09-419R	10150106502
SBV11-119R	10150103802	1 3/8	35	80,0	17	Cat. 2	Cat. 1	SBV11-419R	10150103902
SBV13-119R	10150104402	1 5/8	-	120	17	Cat. 2	Cat. 1	SBV13-419R	10150106702
SBV13-120R	10150106602	-	42	120	17	Cat. 2	Cat. 1	SBV13-420R	10150106802
SBV17-119R	10150104502	2 1/8	54	225	19	Cat. 2	Cat. 1	SBV17-419R	10150106902
SBV19-120R	10150107002	-	64	225	19	Cat. 2	Cat. 1	SBV19-420R	10150107102
SBV21-119R	10150107202	2 5/8	-	305	19	Cat. 2	Cat. 1	SBV21-419R	10150107302

Note: • SBV-R model with connection size 3-1/8" (80mm) available on request*
• SBV-R model with connection size 3-5/8" (92mm) available on request*
* Size actually not covered by PED cat.II certification

DIMENSIONS & WEIGHT



Part Number		L	L1	L2	L3[1)]	L4	D	H	M	Weight
Without Access fitting	With Access Fitting	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
SBV02-020R	SBV02-320R	132	10	68	31	16	10	14	M4 x 0,7	0,20
SBV02-019R	SBV02-319R	132	10	68	31	16	10	14	M4 x 0,7	0,20
SBV03-019R	SBV03-319R	132	10	68	31	16	10	14	M4 x 0,7	0,20
SBV03-020R	SBV03-320R	132	10	68	31	16	10	14	M4 x 0,7	0,20
SBV04-020R	SBV04-320R	160	10	85	42,5	16	10	14	M4 x 0,7	0,21
SBV04-019R	SBV04-319R	160	10	85	42,5	16	10	14	M4 x 0,7	0,21
SBV05-120R	SBV05-420R	160	13	85	31	22	14	16	M4 x 0,7	0,30
SBV05-119R	SBV05-419R	160	13	85	31	22	14	16	M4 x 0,7	0,30
SBV06-120R	SBV06-420R	185	16	99	37	30	19	20	M4 x 0,7	0,51
SBV06-119R	SBV06-419R	185	16	99	37	30	19	20	M4 x 0,7	0,51
SBV07-119R	SBV07-419R	185	17	99	37	30	19	20	M4 x 0,7	0,52
SBV09-120R	SBV09-420R	208	21	112	44	38	25	25	M4 x 0,7	0,73
SBV09-119R	SBV09-419R	208	21	112	44	38	25	25	M4 x 0,7	0,73
SBV11-119R	SBV11-419R	251	25	136	44	48	32	31	M6 x 1,0	1,42
SBV13-119R	SBV13-419R	281	28	151	56	55	38	35	M6 x 1,0	1,90
SBV13-120R	SBV13-420R	281	28	151	56	55	38	35	M6 x 1,0	1,90
SBV17-119R	SBV17-419R	305	34	167	56	74	50	46	M6 x 1,0	3,74
SBV19-120R	SBV19-420R	305	34	167	70	74	50	46	M6 x 1,0	3,79
SBV21-119R	SBV21-419R	305	37	167	56	74	60	56	M6 x 1,0	6,08

Note: 1) Applicable to versions with access fitting

ADDITIONAL TECHNICAL INFORMATION

Please refer to standard SBV catalogue for the following technical information:

- Accessories list

GREEN TECHNOLOGY FOR LOW CARBON FOOTPRINT

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RBV-R *SERIES*

BALL VALVE

The ball valve of series RBV-R 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. The Design Pressure (PS) of the versions RBV-R has been increased to 49 bars allowing the usage in R32 systems. Moreover, the use of graphite sealing material guarantees a wide refrigerant temperature range [from -60°C to +160°C], and the possibility to install RBV-R valves in the high temperature discharge line of R32 systems.

R32

FEATURES

- STRAIGHTWAY TYPE, FULL PORT, LOW PRESSURE DROPS, COST-EFFECTIVE
- HUGE REFRIGERANT TEMPERATURE RANGE ADMITTED
- 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
- CERTIFIED ACCORDING PED CAT.II BY TUV RHEINLAND

GENERAL SPECIFICATION

- Applicable for all common HCFC, HFC and HFO refrigerants such as: R22, R134a, R404A, R407A/C/F, R410A, R507A, R448A, R449A, R450A, R452A, R513A, R32, R1234yf, R1234ze, R454A/B/C, R455A, R290, R1270, R600a
- Medium temperature TS min./max.: -60°C / +160°C
- Max. operating pressure PS: 4,9 MPa (49 bar)
- Installation position: liquid, suction and discharge line in all directions
- Models with access fittings are not available
- PED declaration
- Certifications: UL/CUL not available (on request)

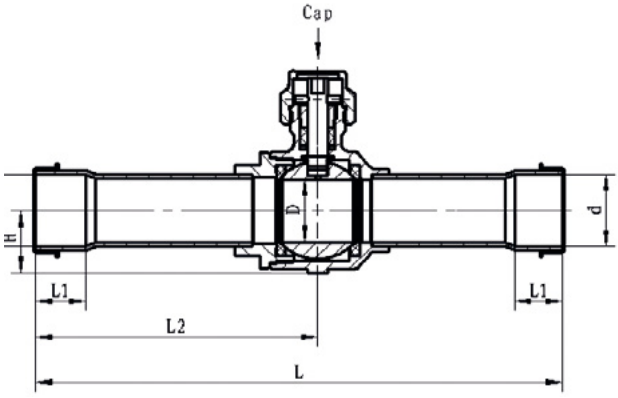
GENERAL CHARACTERISTICS

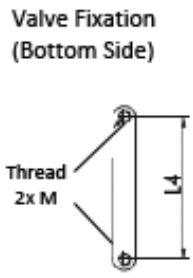
Without Access Fitting		Connections Ø d ODF		Kv	Wrench Size Cap	PED Category [Fluid Group 1]	PED Category [Fluid Group 2]
Model	Product Number	[inch]	[mm]	[m³/h]	[mm]		
RBV02-003R	10150107402	1/4	-	1,9	24	Art. 4.3	Art. 4.3
RBV02-004R	10150107502	-	6	1,9	24	Art. 4.3	Art. 4.3
RBV03-003R	10150107602	3/8	-	5,5	24	Art. 4.3	Art. 4.3
RBV03-004R	10150107702	-	10	5,5	24	Art. 4.3	Art. 4.3
RBV04-003R	10150107802	1/2	-	10,2	24	Art. 4.3	Art. 4.3
RBV04-004R	10150107902	-	12	10,2	24	Art. 4.3	Art. 4.3
RBV05-003R	10150100302	5/8	16	13,8	24	Art. 4.3	Art. 4.3
RBV06-003R	10150108002	3/4	19	19,5	26	Art. 4.3	Art. 4.3
RBV07-003R	10150108102	7/8	22	28,0	26	Art. 4.3	Art. 4.3
RBV09-003R	10150108202	1-1/8	-	51,5	26	Cat. 2	Art. 4.3
RBV09-004R	10150108302	-	28	51,5	26	Cat. 2	Art. 4.3
RBV11-003R	10150108402	1-3/8	35	80,0	30	Cat. 2	Cat. 1
RBV13-003R	10150108502	1-5/8	-	120	30	Cat. 2	Cat. 1
RBV13-004R	10150108602	-	42	120	30	Cat. 2	Cat. 1
RBV17-003R	10150108702	2-1/8	54	225	30	Cat. 2	Cat. 1

Note:
- RBV-R model with connection size 2-5/8" available on request*
- RBV-R model with connection size 3-1/8" (80mm) available on request*
- RBV-R model with connection size 3-5/8" (92mm) available on request*

* Size actually not covered by PED cat.II certification

BALL VALVE





Dimensions & Weight								
Product Number Without Access Fitting	**L**	**L1**	**L2**	**L4**	**D**	**H**	**M**	**Weight**
	[mm]	**[mm]**	**[mm]**	**[mm]**	**[mm]**	**[mm]**	**[mm]**	**[kg]**
RBV02-003R	136	10	72	22	14	16,2	M4×0,7	0,33
RBV02-004R	136	10	72	22	14	16,2	M4×0,7	0,33
RBV03-003R	136	10	72	22	14	16,2	M4×0,7	0,34
RBV03-004R	136	10	72	22	14	16,2	M4×0,7	0,34
RBV04-003R	164	10	89	22	14	16,2	M4×0,7	0,34
RBV04-004R	164	10	89	22	14	16,2	M4×0,7	0,34
RBV05-003R	164,5	13	89,5	22	14	16,2	M4×0,7	0,35
RBV06-003R	187	16	101	30	19	21	M4×0,7	0,54
RBV07-003R	185	17	101	30	19	21	M4×0,7	0,55
RBV09-003R	208	21	112	38	25	25	M4×0,7	0,74
RBV09-004R	208	21	112	38	25	25	M4×0,7	0,74
RBV11-003R	251	25	136	48	32	32	M6×1,0	1,48
RBV13-003R	281	28	151	55	38	36	M6×1,0	1,92
RBV13-004R	281	28	151	55	38	36	M6×1,0	1,92
RBV17-003R	305	34	167	74	50	47	M6×1,0	3,78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CCV SERIES

CHECK VALVE – MAGNETIC TYPE

Magnetic 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 to prevent backflow; the magnetic actuator guarantees a high reliability standard. The Design Pressure (PS) of the versions CCV [49 bars] and the allowed refrigerant temperatures range [from -40°C to +160°C], permits a safe and reliable installation in R32 systems without liquid injection and high discharge temperatures.

R290 R32

FEATURES

- THIS VALVE CAN ENSURE THE ONLY CORRECT FLOW DIRECTION
- MAGNETIC CLOSURE ELEMENT FOR HIGH RELIABILITY STANDARDS
- COMPACT AND SEALED DESIGN WITH NO RISK OF EXTERNAL LEAKAGE: HIGHLY SUGGESTED FOR APPLICATIONS WITH FLAMMABLE REFRIGERANTS
- LOW PRESSURE DROPS DURING OPERATION
- CERTIFIED ACCORDING PED CAT.II BY TUV RHEINLAND

GENERAL SPECIFICATION

- Applicable for all common HCFC and HFC refrigerants such as: R22, R134a, R404A, R407A/C/F, R410A, R507A, R448A, R449A, R450A, R452A, R513A, R32, R1234yf, R1234ze, R454A/B/C, R455A, R290, R1270, R600a
- Medium temperature TS min./max.: -40°C / +160°C
- Max. operating pressure PS: 4,9 MPa (49 bar)
- Installation position:
  - Flow direction corresponds to the arrow
  - CCV can be installed in any position and direction in the system
- Declaration according to PED

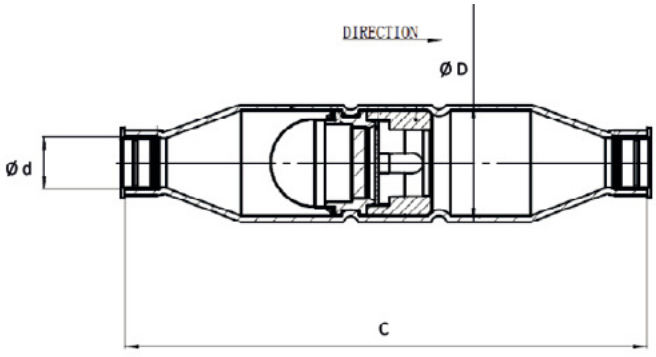
CCV SERIES
CHECK VALVE – MAGNETIC TYPE

GENERAL CHARACTERISTICS

Model	Product Number	Connections Ø d ODF		Kv	Min. OPD	Dimensions		Weight	PED Category [Fluid Group 1]	PED Category [Fluid Group 2]
						ØD	C			
		[inch]	[mm]	[m³/h]	[kPa]	[mm]	[mm]	[kg]		
CCV10-021	10160047202	1/4	-	0,8	0,1	19,8	101,6	0.084	Art. 4.3	Art. 4.3
CCV10-019	10160045902	3/8	-	1,2	0,1	19,8	101,6	0.087	Art. 4.3	Art. 4.3
CCV17-001	10160040902	1/2	-	2,7	0,1	25,6	127,0	0.160	Cat.II	Art. 4.3
CCV17-017	10160043502	5/8	16	2,9	0,1	25,6	127,0	0.164	Cat.II	Art. 4.3
CCV17-018	10160051302	3/4	-	2,9	0,1	25,6	127,0	0.172	Cat.II	Cat.I
CCV25-020	10160047102	7/8	22	6,5	0,1	39,0	177,5	0.304	Cat.II	Cat.I
CCV32-001	10160050102	1 1/8	-	11,4	0,1	48,6	212,5	0.412	Cat.II	Cat.I
CCV38-001	10160050202	1 3/8	35	16,2	0,1	63,5	239,0	0.738	Cat.II	Cat.I
CCV50-001*	10160050602	1 5/8	-	24,0	0,1	76,1	270,0	0.98	N.A.	Cat.I

Note: * model CCV50-001 is not covered by certificate PED cat.II, so it cannot be used in combination with Fluids 1 (e.g. A2L and A3 refrigerants). Please contact your Sanhua referent to verify the possibility to extend the certification for flammable refrigerants.

DIMENSIONAL DRAWING



YCVS-R *SERIES*

CHECK VALVE – PISTON TYPE

R290 R32

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 to prevent backflow. The Design Pressure (PS) of the versions YCVS-R equal to 49 bars and the internal structure able to resist to refrigerant temperatures until +150°C, making them suitable for R32 systems without liquid injection and high discharge temperatures.

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, APPLICABLE TO COMPRESSOR DISCHARGE PIPES IN SINGLE OR MULTI COMPRESSOR SYSTEMS (YCVSH-R SERIES)
- LOW PRESSURE DROPS DURING OPERATION
- CERTIFIED ACCORDING PED CAT.II BY TUV RHEINLAND

GENERAL SPECIFICATION

- Applicable for all common HCFC and HFC refrigerants such as: R22, R134a, R404A, R407A/C/F, R410A, R507A, R448A, R449A, R450A, R452A, R513A, R32, R1234yf, R1234ze, R454A/B/C, R455A, R290, R1270, R600a, R744
- Medium temperature TS min./max.: -50°C / +150°C
- Max. operating pressure PS: 4,9 MPa (49 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

CHECK VALVE – PISTON TYPE

1. MODELS WITH NORMAL PISTON SPRING

General Characteristics												
Model	Product Number	Type	Connections Ø d ODF		Kv	Min. OPD	Dimensions			Weight	PED Category [Fluid Group 1]	PED Category [Fluid Group 2]
							ØD	C	E			
			[inch]	[mm]	[m³/h]	[kPa]	[mm]	[mm]	[mm]	[Kg]		
YCVS 5-11GSHC-1R	10160053602	S	-	6	0,6	5	5	90	18	0.046	Art. 4.3	Art. 4.3
YCVS 5-22GSHC-1R	10160053702	S	1/4	-	0,6	5	5	90	18	0.046	Art. 4.3	Art. 4.3
YCVS 8-33GSHC-1R	10160053802	S	3/8	-	1,4	5	8	110	18	0.056	Art. 4.3	Art. 4.3
YCVS 8-33GSHC-2R	10160054002	S	-	10	1,4	5	8	110	18	0.057	Art. 4.3	Art. 4.3
YCVS 10-33GSHC-1R	10160054202	S	-	12	2,1	5	10	130	22	0.081	Art. 4.3	Art. 4.3
YCVS 10-44GSHC-1R	10160054402	S	1/2	-	2,1	5	10	130	22	0.081	Art. 4.3	Art. 4.3
YCVS 13-55GSHC-1R	10160054602	S	5/8	16	3,9	5	13	140	28	0.154	Art. 4.3	Art. 4.3
YCVS 17-55GSHC-1R	10160054802	S	-	18	5,5	5	17	165	34	0.223	Art. 4.3	Art. 4.3
YCVS 17-66GSHC-1R	10160055002	S	3/4	-	5,5	5	17	165	34	0.224	Art. 4.3	Art. 4.3
YCVS 17-77GSHC-1R	10160055202	S	7/8	22	5,5	5	17	165	34	0.231	Art. 4.3	Art. 4.3
YCVS 20-77GSHC-1R	10160055402	L	7/8	22	13,2	10	20	132	87	0.427	Art. 4.3	Art. 4.3
YCVS 26-88GSHC-1R	10160055602	L	-	28	19,0	10	26	196	123	1.050	Cat.II	Art. 4.3
YCVS 26-99GSHC-1R	10160055802	L	1 1/8	-	19,0	10	26	196	123	1.132	Cat.II	Art. 4.3
YCVS 31-BBGSHC-1R	10160056002	L	1 3/8	35	29,1	10	31	196	123	1.154	Cat.II	Art. 4.3
YCVS 31-DDGSHC-1R	10160056202	L	1 5/8	-	29,1	10	31	196	123	1.182	Cat.II	Art. 4.3
YCVS 31-DDGSHC-2R	10160053602	L	-	42	29,1	10	31	196	123	1.184	Cat.II	Art. 4.3

Note on layout type: S = straight-way shape; L = angle shape

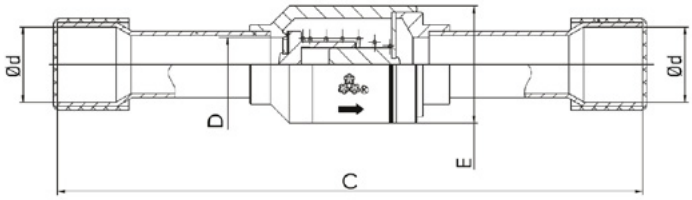
Note: For the simulation of the performance, please refer to the Sanhua selection tool "Quickfinder" or ask your local support.

2. MODELS WITH REINFORCED PISTON SPRING

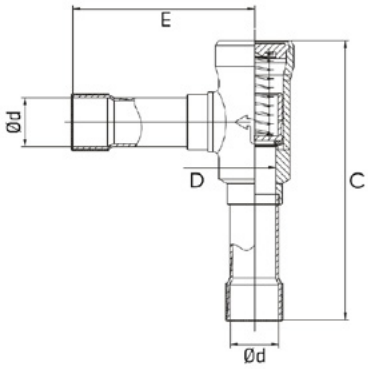
General Characteristics												
Model	Product Number	Type	Connections Ø d ODF		Kv	Min. OPD	Dimensions			Weight	PED Category [Fluid Group 1]	PED Category [Fluid Group 2]
							ØD	C	E			
			[inch]	[mm]	[m³/h]	[kPa]	[mm]	[mm]	[mm]	[Kg]		
YCVSH 8-33GSHC-1R	10160053902	S	3/8	-	1,4	15	8	110	18	0.056	Art. 4.3	Art. 4.3
YCVSH 8-33GSHC-2R	10160054102	S	-	10	1,4	15	8	110	18	0.057	Art. 4.3	Art. 4.3
YCVSH 10-33GSHC-1R	10160054302	S	-	12	2,1	15	10	130	22	0.081	Art. 4.3	Art. 4.3
YCVSH 10-44GSHC-1R	10160054502	S	1/2	-	2,1	15	10	130	22	0.082	Art. 4.3	Art. 4.3
YCVSH 13-55GSHC-1R	10160054702	S	5/8	16	3,9	15	13	140	28	0.154	Art. 4.3	Art. 4.3
YCVSH 17-55GSHC-1R	10160054902	S	-	18	5,5	15	17	165	34	0.223	Art. 4.3	Art. 4.3
YCVSH 17-66GSHC-1R	10160055102	S	3/4	-	5,5	15	17	165	34	0.225	Art. 4.3	Art. 4.3
YCVSH 17-77GSHC-1R	10160055302	S	7/8	22	5,5	15	17	165	34	0.231	Art. 4.3	Art. 4.3
YCVSH 20-77GSHC-1R	10160055502	L	7/8	22	13,2	30	20	132	87	0.429	Art. 4.3	Art. 4.3
YCVSH 26-88GSHC-1R	10160055702	L	-	28	19,0	30	26	196	123	1.061	Cat.II	Art. 4.3
YCVSH 26-99GSHC-1R	10160055902	L	1 1/8	-	19,0	30	26	196	123	1.063	Cat.II	Art. 4.3
YCVSH 31-BBGSHC-1R	10160056102	L	1 3/8	35	29,1	30	31	196	123	1.154	Cat.II	Art. 4.3
YCVSH 31-DDGSHC-1R	10160056302	L	1 5/8	-	29,1	30	31	196	123	1.195	Cat.II	Art. 4.3
YCVSH 31-DDGSHC-2R	10160056502	L	-	42	29,1	30	31	196	123	1.195	Cat.II	Art. 4.3
YCVS 31-DDGSHC-1R	10160056202	L	1 5/8	-	29,1	10	31	196	123	1,182	Cat.II	Art. 4.3
YCVS 31-DDGSHC-2R	10160053602	L	-	42	29,1	10	31	196	123	1,184	Cat.II	Art. 4.3

Note on layout type: S = straight-way shape; L = angle shape

Straight-way



L-shape



SYJ-RH SERIES

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.

R32

FEATURES

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

GENERAL SPECIFICATIONS

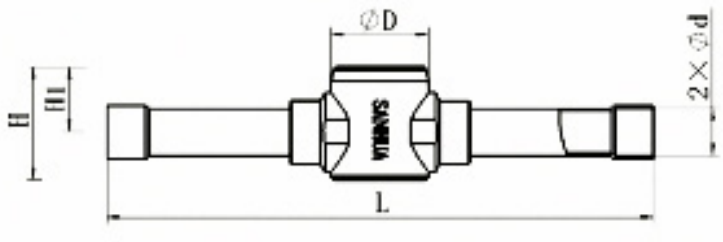
- Applicable for refrigerants such as R32
- Ambient temperature min./max.: -50°C / +80°C
- Medium temperature TS min./max.: -50°C / +80°C
- Max. operating pressure PS: 4,9 MPa (49 bar)
- Installation position:
  - Liquid and suction line
  - Preferably in vertical lines, recommended position for horizontal lines are upwards without inclination in any direction
- Declaration according to PED (all products have been covered by Art.4.3 PED Directive 2014/68/EU)

SIGHT GLASS

Version with Solder Connections, MOP 49 bar

General Characteristics										
Model Series	Model Name	Part Number (multi package)[1)]	Connection Type [inch]	Connecting dimensions Ød		Dimensions & Weight				
						L	H	H1	Weight	Drawing
				[inch]	[mm]	[mm]	[mm]	[mm]	[g]	
SYJ6	SYJ06RH12	10285011502	ODF x ODF solder	-	6	101	24	14	100	A
SYJ6	SYJ06RH11	10285011402		1/4	-	101	24	14	100	
SYJ10	SYJ10RH11	10285011602		3/8	-	119	24	14	100	
SYJ10	SYJ10RH12	10285011702		-	10	119	24	14	100	
SYJ12	SYJ12RH11	10285012302		1/2	-	146	30	17	200	
SYJ12	SYJ12RH12	10285011802		-	12	146	30	17	200	
SYJ16	SYJ16RH11	10285011902		5/8	16	146	30	17	200	
SYJ19	SYJ19RH11	10285012002		3/4	-	173	37	21	300	
SYJ22	SYJ22RH11	10285012102		7/8	22	173	37	21	300	
SYJ28	SYJ28RH11	10285012202		1 1/8	28	173	37	21	300	

1) Available also as industrial package. Contact Sanhua for more details.



"Drawing A"

DTG SERIES

UNI-FLOW FILTER DRIERS FOR R32

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.

R32

FEATURES

- HIGHLY EFFICIENT IN MOISTURE ABSORPTION, FILTERING IMPURITY, PAINT REMAINS AND MUD REMOVAL
- 100% 3Å DESICCANT
- DURABLE AND SOLID FILTER CORES
- FILTERING FINENESS: 20μm
- CORROSION RESISTANT PAINTING SURVIVES SALT SPRAY TEST OF 500 HOURS
- CONNECTION TYPE: SOLDER

GENERAL SPECIFICATION

- Applicable for refrigerants such as R32[1)]
- Ambient temperature min./max.: -30°C / +55°C
- Medium temperature TS min./max.: -30°C / +120°C
- Max. operating pressure PS max.: 4,9 MPa (49 bar) - 711 PSIG
- Installation position:
  - Flow direction corresponds to the arrow
  - Preferably installed in liquid line
- Certifications: UL/CSA and PED declaration (all products have been covered by Art.4.3 PED Directive 2014/68/EU)

TECNHICAL PARAMETERS *Desiccant Selection Table*

	Medium Type	100% 3Å desiccant
Refrigerant	R32	Applicable
Oil	Mineral oil or AB	Applicable
	Pure POE or PAG	Applicable
	POE or PAG with additive	Applicable

Note: [1)] Other refrigerants (HFC or HC) – on request

DTG SERIES
UNI-FLOW FILTER DRIERS

Model Designation Legend

1	**Product Code**	**Filter Drier Series**	
	DTG	Indicates unidirectional filter drier	
2	**Filter Core**	**Structure and Material**	
	B	Solid core, 100%3Å desiccant	
3	**Internal Volume**	**Expressed in [inch³]**	**Expressed in [cm³]**
	03	3	49
	05	5	82
	08	8	131
	16	16	262
	30	30	492
	41	41	672
4	**Connection Size**	**Pos. 5 shows "0": Solder [inch]**	
	02	1/4	
	03	3/8	
	04	1/2	
	05	5/8	
	06	3/4	
	07	7/8	
	09	1 1/8	
	Connection Size	**Pos. 5 shows "1": Solder [mm]**	
	06	6	
	10	10	
	12	12	
	(16) *	(5/8" version can be used e.g. DTG-B08 050)	
	(22) *	(7/8" version can be used e.g. DTG-B16 070)	
	28	28	
5	**Pipe Connection**	**Type**	
	0	Solder with inch connections	
	1*	Solder with metric connections	
6	**Version Number**	**Description**	
	932	Standard product for R32 (MOP 49 bar)	

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

MODEL DESIGNATION EXAMPLE

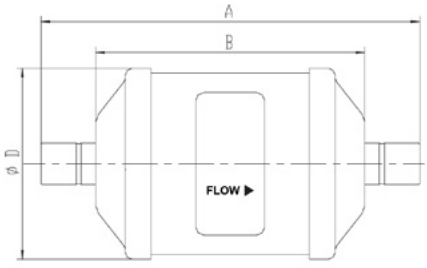
Position Number						According to Model Designation Legend
1	**2**	**3**	**4**	**5**	**6**	
DTG	B	03	06	1	932	Unidirectional filter drier
DTG	**B**	03	06	1	932	Solid filter core with 100% 3Å desiccant
DTG	B	**03**	06	1	932	3 inch³ internal volume
DTG	B	03	**06**	1	932	When Pos. 5 is "1": connection size 6mm
DTG	B	03	06	**1**	932	Solder connection metric
DTG	B	03	06	1	**932**	Standard product for R32 (MOP 49 bar)

UNI-FLOW FILTER DRIERS

GENERAL CHARACTERISTICS OF DTG-B FILTER - SOLDER CONNECTION

Filter	Model [inch]	Part Number (multi package)[1] [inch]	Model [mm]	Part Number (multi package)[1] [mm]	Nominal Volumen		Connection		Dimensions & Weight[2]				PED Category[3] (Fluid Group 1)
							Solder		ØD	B	A	Weight	
					[inch³]	[cm³]	[inch]	[mm]	[mm]	[mm]	[mm]	[g]	
DTGB032s	DTG-B03020-932	10230045602	DTG-B03061-932	10230047802	3	49	1/4	6	45	65	103	160	Art. 4.3
DTGB033s	DTG-B03030-932	10230045702	DTG-B03101-932	10230047902	3	49	3/8	10	45	65	103	160	Art. 4.3
DTGB034s	DTG-B03040-932	10230045802	DTG-B03121-932	10230048002	3	49	1/2	12	45	65	113	160	Art. 4.3
DTGB052s	DTG-B05020-932	10230045902	DTG-B05061-932	10230048102	5	82	1/4	6	69	76	114	450	Art. 4.3
DTGB053s	DTG-B05030-932	10230046002	DTG-B05101-932	10230048202	5	82	3/8	10	69	76	114	450	Art. 4.3
DTGB054s	DTG-B05040-932	10230046102	DTG-B05121-932	10230048302	5	82	1/2	12	69	76	124	450	Art. 4.3
DTGB055s	DTG-B05050-932	10230046202	DTG-B05050-932	10230046202	5	82	5/8	16	69	76	124	450	Art. 4.3
DTGB083s	DTG-B08030-932	10230046302	DTG-B08101-932	10230048402	8	131	3/8	10	69	98	136	550	Art. 4.3
DTGB084s	DTG-B08040-932	10230046402	DTG-B08121-932	10230048502	8	131	1/2	12	69	98	146	550	Art. 4.3
DTGB085s	DTG-B08050-932	10230046502	DTG-B08050-932	10230046502	8	131	5/6	16	69	98	146	550	Art. 4.3
DTGB163s	DTG-B16030-932	10230046602	DTG-B16101-932	10230048602	16	262	3/8	10	69	118	156	660	Art. 4.3
DTGB164s	DTG-B16040-932	10230046702	DTG-B16121-932	10230048702	16	262	1/2	12	69	118	166	660	Art. 4.3
DTGB165s	DTG-B16050-932	10230046802	DTG-B16050-932	10230046802	16	262	5/8	16	69	118	166	660	Art. 4.3
DTGB166s	DTG-B16060-932	10230046902	-	-	16	262	3/4	-	69	118	178	660	Art. 4.3
DTGB167s	DTG-B16070-932	10230047002	DTG-B16070-932	10230047002	16	262	7/8	22	69	118	178	660	Art. 4.3
DTGB305s	DTG-B30050-932	10230047202	DTG-B30050-932	10230047202	30	492	5/8	16	81	193	241	1550	Art. 4.3
DTGB306s	DTG-B30060-932	10230047302	-	-	30	492	3/4	-	81	193	253	1550	Art. 4.3
DTGB307s	DTG-B30070-932	10230047402	DTG-B30070-932	10230047402	30	492	7/8	22	81	193	253	1550	Art. 4.3
DTGB309s	DTG-B30090-932	10230047502	-	-	30	492	1 1/8	-	81	193	263	1550	Art. 4.3
DTGB417s	DTG-B41070-932	10230047602	DTG-B41070-932	10230047602	41	672	7/8	22	94	194	254	2050	Art. 4.3
DTGB419s	DTG-B41090-932	10230047702	-	-	41	672	1 1/8	-	94	194	264	2050	Art. 4.3

Note: 1) Available also as industrial package. Contact Sanhua for more details.
2) Dimensions are rounded up to integral mm
3) PED Directive 2014/68/EU. Category evaluated considering product as a "vessel"



Solder Connection

DTG SERIES
UNI-FLOW FILTER DRIERS

SELECTION TABLE

Model	Capacity[1) 2)] [kW]
	R32
DTGB032s	11.8
DTGB033s	18.6
DTGB034s	36.5
DTGB052s	13.3
DTGB053s	30.4
DTGB054s	37.5
DTGB055s	51.9
DTG-B083s	32.4
DTGB084s	38.6
DTGB085s	67.3
DTGB163s	32.4
DTGB164s	42.1
DTGB165s	64.7
DTGB166s	69.8
DTGB167s	70.8
DTGB305s	68.3
DTGB306s	94
DTGB307s	94.5
DTGB309s	105.9
DTGB417s	134.8
DTGB419s	138.1

Note: 1) he above data is based on clean system at ideal conditions; with impurities, accumulated in the filter, the capacity may decrease

2) given capacity is for all available types of connection for the same model: solder [inch] and equivalent solder [mm]

SELECTION FORMULAS

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

STG SERIES

BI-FLOW FILTER DRIERS FOR R32

R32

FEATURES

- HIGHLY EFFICIENT IN MOISTURE ABSORPTION, FILTERING IMPURITY, PAINT REMAINS AND MUD REMOVAL
- 100% 3Å DESICCANT
- DURABLE AND SOLID FILTER CORES
- FILTERING FINENESS: 20μm
- CORROSION RESISTANT PAINTING CAN SURVIVE SALT SPRAY TEST OF 500 HOURS
- CONNECTION TYPE: SOLDER

GENERAL SPECIFICATION

- Applicable for refrigerants such as R32[1)]
- Ambient temperature min./max.: -30°C / +55°
- Medium temperature TS min./max.: -30°C / +120°C
- Max. operating pressure PS: 4,9 MPa (49 bar) - 711 PSIG
- Installation position: preferably installed in liquid line
- Certifications: UL/CSA and PED declaration (all products have been covered by Art.4.3 PED Directive 2014/68/EU)

TECNHICAL PARAMETERS *Desiccant Selection Table*

	Medium Type	100% 3Å desiccant
Refrigerant	R32	Applicable
Oil	Mineral oil or AB	Applicable
	Pure POE or PAG	Applicable
	POE or PAG with additive	Applicable

Note: [1)] Other refrigerants (HFC or HC) – on request

STG SERIES
BI-FLOW FILTER DRIERS

Model Designation Legend

1	**Product Code**	**Filter Drier Series**	
	STG	Indicates bidirectional filter drier	
2	**Filter Core**	**Structure and Material**	
	B	Solid core, 100%3Å desiccant	
3	**Internal Volume**	**Expressed in [inch³]**	**Expressed in [cm³]**
	05	5	82
	08	8	131
	16	16	262
	30	30	492
4	**Connection Size**	**Pos. 5 shows "0": Solder [inch]**	
	02	1/4	
	03	3/8	
	04	1/2	
	05	5/8	
	07	7/8	
	09	1 1/8	
	Connection Size	**Pos. 5 shows "1": Solder [mm]**	
	06	6	
	10	10	
	12	12	
	(16) *	(5/8" version can be used e.g. STG-B16 050)	
	(22) *	(7/8" version can be used e.g. STG-B16 070)	
	28	28	
5	**Pipe Connection**	**Type**	
	0	Solder with inch connections	
	1*	Solder with metric connections	
6	**Version Number**	**Description**	
	901	Standard product	

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

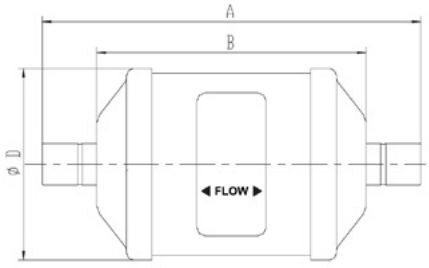
MODEL DESIGNATION EXAMPLE

Position Number						According to Model Designation Legend
1	2	3	4	5	6	
STG	B	05	06	1	932	Bidirectional filter drier
STG	**B**	05	06	1	932	Solid filter core with 100% 3Å desiccant
STG	B	**05**	06	1	932	5 inch³ internal volume
STG	B	05	**06**	1	932	When Pos. 5 is "1": connection size 6 mm
STG	B	05	06	**1**	932	Solder connection metric
STG	B	05	06	1	**932**	Standard product for R32 (MOP 49 bar)

GENERAL CHARACTERISTICS OF STG-B FILTER - SOLDER CONNECTION

Filter	Model [inch]	Part Number (multi package)[1] [inch]	Model [mm]	Part Number (multi package)[1] [mm]	Nominal Volumen		Connection		Dimensions & Weight[2]				PED Category[3] (Fluid Group 1)
							Solder		ØD	B	A	Weight	
					[inch³]	[cm³]	[inch]	[mm]	[mm]	[mm]	[mm]	[g]	
STGB052s	STG-B05020-932	10235019502	STG-B05061-932	10235020602	5	82	1/4	6	69	76	114	450	Art. 4.3
STGB053s	STG-B05030-932	10235019602	STG-B05101-932	10235020702	5	82	3/8	10	69	76	114	450	Art. 4.3
STGB054s	STG-B05040-932	10235019702	STG-B05121-932	10235020802	5	82	1/2	12	69	76	124	450	Art. 4.3
STGB083s	STG-B08030-932	10235019802	STG-B08101-932	10235020902	8	131	3/8	10	69	98	136	580	Art. 4.3
STGB084s	STG-B08040-932	10235019902	STG-B08121-932	10235021002	8	131	1/2	12	69	98	146	580	Art. 4.3
STGB163s	STG-B16030-932	10235020002	STG-B16101-932	10235021102	16	262	3/8	10	81	118	156	900	Art. 4.3
STGB164s	STG-B16040-932	10235020102	STG-B16121-932	10235021202	16	262	1/2	12	81	118	166	900	Art. 4.3
STGB165s	STG-B16050-932	10235019302	STG-B16050-932	10235019302	16	262	5/8	16	81	118	166	900	Art. 4.3
STGB167s	STG-B16070-932	10235020202	STG-B16070-932	10235020202	16	262	7/8	22	81	118	178	900	Art. 4.3
STGB305s	STG-B30050-932	10235020302	STG-B30050-932	10235020302	30	492	5/8	16	81	193	241	1700	Art. 4.3
STGB307s	STG-B30070-932	10235020402	STG-B30070-932	10235020402	30	492	7/8	22	81	193	253	1700	Art. 4.3
STGB309s	STG-B30090-932	10235020502			30	492	1 1/8	28	81	193	263	1700	Art. 4.3

Note: 1) Available also as industrial package. Contact Sanhua for more details.
2) Dimensions are rounded up to integral mm
3) PED Directive 2014/68/EU. Category evaluated considering product as a "vessel"



Solder Connection

STG SERIES
BI-FLOW FILTER DRIERS

SELECTION TABLE

Model	Capacity[1) 2)] [kW]
	R32
STGB052s	12.2
STGB053s	22.3
STGB054s	34.3
STGB083s	21.7
STGB084s	31.2
STGB163s	36.6
STGB164s	37.8
STGB165s	47.2
STGB167s	67.8
STGB305s	52.3
STGB307s	72.8
STGB309s	79.9

Note: 1) the above data is based on clean system at ideal conditions; with impurities, accumulated in the filter, the capacity may decrease

2) given capacity is for all available types of connection for the same model: solder [inch] and equivalent solder [mm]

SELECTION FORMULAS

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

HTG SERIES

FILTER DRIERS WITH REPLACEABLE CORE SERIES HTG FOR R32

R32

The filter driers with replaceable core - HTG series for R32, are designed to be used as drier in liquid line and suction line of refrigerating, freezing and air conditioning system. The filter housing allows to choose different kinds of cores. It's sealed by bottom cover for an easy removal and replacement of core from the bottom. The core holder requires minimum free space to remove the core for replacement.

FEATURES

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

GENERAL SPECIFICATION

- Applicable for R32[1)]
- Ambient temperature min./max.:
  -30°C / +55°C
- Medium temperature TS min./max.:
  -40°C / +70°C
- Max. operating pressure PS:
  5 MPa (50 bar)
- Installation position:
  HTG with SH48-A80 or SH48-A00 in liquid line
  HTG with SH48-A30 or SH48-B00 in suction line
- Certifications: PED declaration
- Installation position:
  preferably installed in liquid line
- Certifications:
  UL/CSA and PED declaration
  (all products have been covered by Art.4.3 PED Directive 2014/68/EU)

Note: [1)] Please contact Sanhua for applicability with other A2L refrigerants

HTG SERIES

FILTER DRIERS WITH REPLACEABLE CORE SERIES

FEATURES OF FILTER ELEMENT

- **SH48-A80 filter element**
  80% 3A desiccant and20% 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.
  Its design optimizes the flow passage generating low internal pressure drop. The core resistance is guaranteed with high level of vibration thanks to an anti-shock design.

- **SH48-B00 filter element**
  Mechanical strainer for filtering dirt particles. Suggested installation position is on the suction line.

DESICCANT SELECTION TABLE:

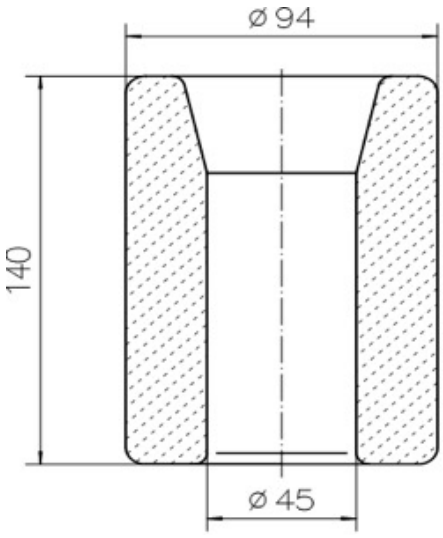
	Medium Type	30% 3A desiccant 70% active alumina	80% 3A desiccant 20% active alumina	100% 3A desiccant	Mechanical strainer
Core Model	-	HTG-A30-010003	HTG-A80-010003	HTG-A00-010003	HTG-B00-010005
With "universal" flange gasket (suitable for standard HTG and HTG for R32): Ø115 mm x Ø121,4 mm and Ø105,6 mm x Ø115 mm	-	20225028602	20225027702	20225028502	20225028702
Suggested Installation position	-	Suction Line	Liquid Line	Liquid Line	Suction Line
Refrigerant	R32	Applicable	Applicable	Suggested	Suggested
Oil[1)]	Pure POE or PAG	Applicable	Applicable	Suggested	Suggested
	POE or PAG with additives	Not applicable	Not applicable	Applicable	Applicable

Note: [1)] when the systems use oil with additive, it is not recommended to use a core with alumina

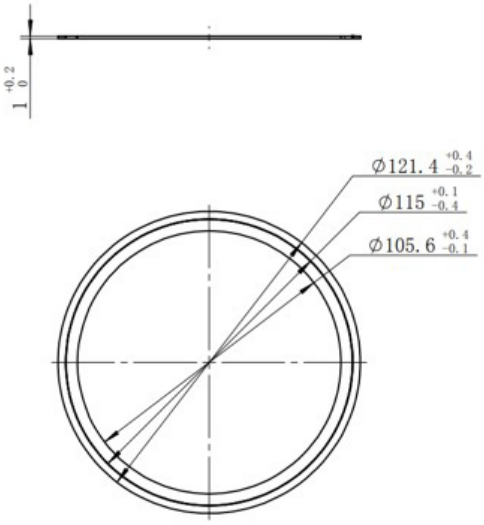
FILTER DRIERS WITH REPLACEABLE CORE SERIES

ACCESSORIES AND SPARE PARTS:

Universal flange gaskets set	Model	Part Number (multi package)
	HTG-000-024006	20225027601



Filter core dimensions



Universal flange gaskets set

Pos. No.	Model Designation Legend		
1	**Product Code**	**Filter Drier Series**	
	HTG	Indicates replaceable core filter drier	
2	**Internal volume**	**Expressed in inch3**	**Expressed in cm3**
	A48	48	787
3	**Connection size**	**Pos. 4 shows "0": Solder - xx/8 [inch]**	
	05	5/8 - (5/8" version can be used for 16 mm)	
	07	7/8 - (7/8" version can be used for 22 mm)	
	09	1 - 1/8	
	11	1 3/8” (1 3/8" version can be used for 35 mm)	
	13	1 - 5/8	
	17	2 1/8 - (2 1/8" version can be used for 54 mm)	
4	**Pipe Connection**	**Type**	
	0	Solder with inch connections	
5	**Version Number**	**Description**	
	801	Product designed for R32 (MOP = 50 bar)	

FILTER DRIERS WITH REPLACEABLE CORE SERIES

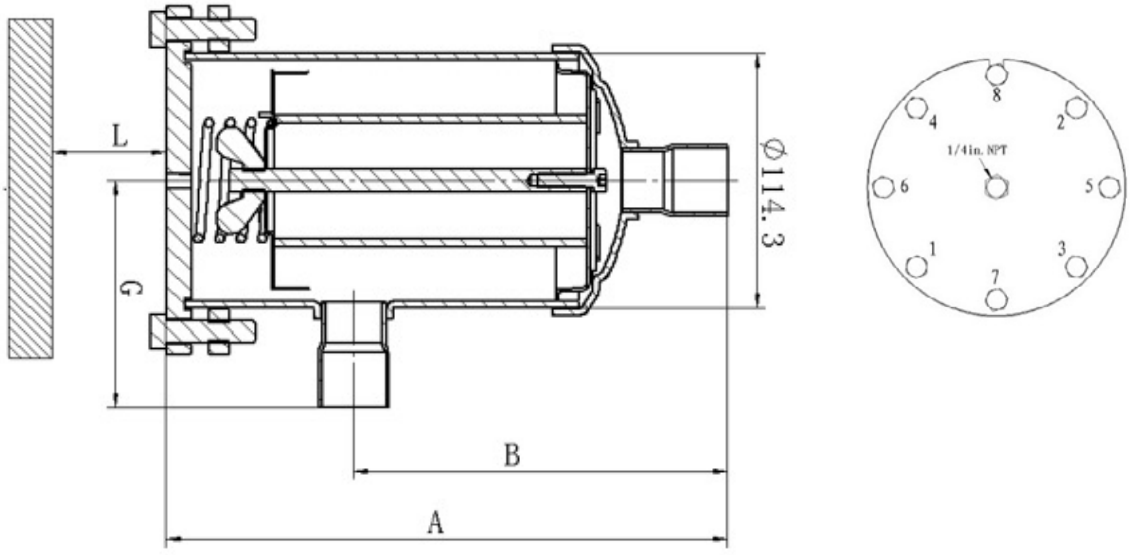
MODEL DESIGNATION EXAMPLE:

Position Number					According to Model Designation Legend
1	2	3	4	5	
HTG	A48	07	0	801	Replaceable core filter drier
HTG	**A48**	07	0	801	48 inch3 internal volume
HTG	A48	**07**	0	801	When Pos. 4 is "0": connection size 7/8 inch
HTG	A48	07	**0**	801	Solder connection, inch
HTG	A48	07	0	**801**	Product for R32 (MOP = 50 bar)

Table 1

General Characteristics of filter												
			Solder Connections ODF		Num-ber of cores	Dimensions & Weight						
						A	B	L	G	Weight[2)]		
			[in]	[mm]		[mm]	[mm]	[mm]	[mm]	[kg]		
HTG A48s	HTG-A48050-801	10225007902	5/8	16	1	249	163	170	97	4,66	5	Art 4.3
	HTG-A48070-801	10225008002	7/8	22		249	163	170	97	4,68	5	
	HTG-A48090-801	10225007802	1 1/8	-		253	168	170	102	4,73	5	
	HTG-A48110-801	10225008102	1 3/8	35		253	167	170	102	4,77	5	
	HTG-A48130-801	10225008202	1 5/8	-		253	168	170	122	4,91	5	
	HTG-A48170-801	10225008302	2 1/8	54		253	168	170	126	5,24	5	

Note: 1) Available also as industrial package. Contact Sanhua for more details
2) Weight of filter shell (must be added the filter core weight: 0.6 kg)



Filter shell dimensions

Table 2

Selection Table - with core SH48-A00				
Model		Capacity [kW] [1)]	Moisture Absorption [gram H_2O]	
		R32	R32	
			75°F	125°F
			23,9°C	51,7°C
HTG-A48050-801	-	126	78.93	67.52
HTG-A48070-801		225		
HTG-A48090-801		295		
HTG-A48110-801		348		
HTG-A48130-801		374		
HTG-A48170-801		402		

Table 3

Selection Table - with core SH48-A80				
Model		Capacity [kW] [1)]	Moisture Absorption [gram H_2O]	
		R32	R32	
			75°F	125°F
			23,9°C	51,7°C
HTG-A48050-801	10	126	63.58	53.15
HTG-A48070-801		225		
HTG-A48090-801		295		
HTG-A48110-801		348		
HTG-A48130-801		374		
HTG-A48170-801		402		

Note: 1) The data reported in the Table 2 and 3 are based on filter driers in a clean system at ideal conditions; with impurities accumulated in the filter, the capacity may decrease

2) Preliminary data. Adsorption capacity of oleic acid at 0.05 TAN (Total Acid Number)

SELECTION FORMULAS:

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

- 0,235 kg/min/kW (1.8lb/min/ton) R32

Note: Data on water absorption is based on the following EPD:

- 60 ppm R32

SUCTION LINE FILTER-DRIERS:

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

Table 4

Suction Line Filter Drier Maximum Recommended Pressure Drop (bar)			
System	Evaporator Saturated Suction Temperature [4] (°C)	Permanent Installation	Temporary Installation
		Refrigerant	
		R32	
Air conditioning	4	0,21	0,56
Commercial	-7	0,14	0,28
Low temperature	-29	0,07	0,14

Table 5

Suction Line Filter Drier Maximum Recommended Pressure Drop (psi)			
System	Evaporator Saturated Suction Temperature [4] (°F)	Permanent Installation	Temporary Installation
		Refrigerant	
		R32	
Air conditioning	40	3	8
Commercial	20	2	4
Low temperature	-20	1	2

Table 6

Suction Line Flow Capacity with core SH48-A30 (kW)[1]				
NO.	Model	Capacity (kW)		
		Evaporation temperature (°C)		
		-40	-20	4,4
		Pressure drop (bar)		
		0,04	0,1	0,21
1	HTG-A48050-801	2.7	7.8	18.3
2	HTG-A48070-801	5.0	14.2	33.0
3	HTG-A48090-801	6.8	18.7	44.3
4	HTG-A48110-801	8.7	24.0	56.0
5	HTG-A48130-801	8.7	24.0	56.0
6	HTG-A48170-801	8.7	24.0	56.0

Note: 1) The capacities listed in the table 6 are rated at the maximum recommended pressure drop for permanent installation. Suction line Filter-Driers guarantees an acid removal and a drying capacity described in table 7:

Table 7

Drying capacity: SH48-A30[1)]		
Filter Type		**HTG-A48**
Number of cores		1
Acid Adsorption capacity (g) [2)]		25,0
Refrigerant	**Evaporating Temp. (°C) [3)]**	**Moisture Absorption [gram H2O] [3)]**
R32	-40,0	36,0
	-20,0	30,0
	4,4	22,0

Drying capacity is expressed during drying in:
R32: EPD = 60 ppm W

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) Preliminary data. Adsorption capacity of oleic acid at 0.05 TAN (Total Acid Number)
3) Standard Evaporating Temperature defined by ANSI. AHRI Standard 731 (SI)-2013. Preliminary data

Product Line Series

R744

CBV SERIES

BALL VALVE

CBV valves are typically used in commercial CO_2 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_2 refrigeration systems and is a perfect choice for all similar CO_2 systems.

R744

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 [1)]
- 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_2)
- Medium temperature TS min./max.: -40°C/+150°C
- Max. operating pressure PS: 6,0 MPa (60bar)
- Installation position: liquid, suction and discharge line in all directions
- Certification: PED declaration.

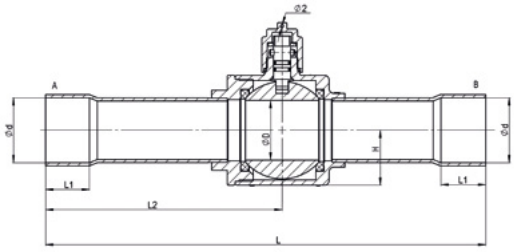
GENERAL CHARACTERISTICS

Model	Part Number*[1)]	Connection Ø d ODF		Kv	Wrench Size Cap	PED Category
		[inch]	[mm]	[m³/h]	[mm]	
CBV02-002	10150074202	-	6	1,9	H14	4.3
CBV02-001	10150074102	1/4	-	1,9	H14	4.3
CBV03-001	10150074302	3/8	-	5,5	H14	4.3
CBV03-002	10150074402	-	10	5,5	H14	4.3
CBV04-002	10150074602	-	12	10,2	H14	4.3
CBV04-001	10150074502	1/2	-	10,2	H14	4.3
CBV05-001	10150074702	5/8	16	13,8	H14	4.3
CBV06-002	10150074902	-	18	19,5	H17	4.3
CBV06-001	10150074802	3/4	-	19,5	H17	4.3
CBV07-001	10150063002	7/8	22	28,0	H17	4.3
CBV09-002	10150075002	-	28	51,5	H17	4.3
CBV09-001	10150062902	1 1/8	-	51,5	H17	4.3
CBV11-001	10150075102	1 3/8	35	80,0	H17	I
CBV13-002	10150062802	1 5/8	-	119,8	H17	I
CBV13-003	10150075202	-	42	119,8	H17	I
CBV17-001	10150075302	2 1/8	54	225,0	H19	I

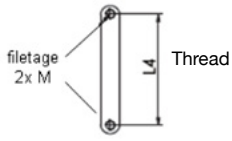
Note: * Available also as industrial package. Contact Sanhua for more details.
1) Extent of delivery: valve body and standard cap

DIMENSIONS & WEIGHT

Cap



Valve Fixation
(Bottom Side)



Model	Part Number*	L	L1	L2	L4	D	H	M	Weight
CBV02-002	10150074202	132	8	68	22	14	16	M4 x 0,7	0,28
CBV02-001	10150074102	132	8	68	22	14	16	M4 x 0,7	0,28
CBV03-001	10150074302	132	8	68	22	14	16	M4 x 0,7	0,29
CBV03-002	10150074402	132	8	68	22	14	16	M4 x 0,7	0,29
CBV04-002	10150074602	160	10	85	22	14	16	M4 x 0,7	0,30
CBV04-001	10150074502	160	10	85	22	14	16	M4 x 0,7	0,30
CBV05-001	10150074702	160	12	85	22	14	16	M4 x 0,7	0,30
CBV06-002	10150074902	185	14	99	30	19	20	M4 x 0,7	0,51
CBV06-001	10150074802	185	14	99	30	19	20	M4 x 0,7	0,51
CBV07-001	10150063002	185	17	99	30	19	20	M4 x 0,7	0,52
CBV09-002	10150075002	208	20	112	38	25	25	M4 x 0,7	0,73
CBV09-001	10150062902	208	20	112	38	25	25	M4 x 0,7	0,73
CBV11-001	10150075102	251	25	136	48	32	31	M6 x 1,0	1,42
CBV13-002	10150062802	281	29	151	55	38	35	M6 x 1,0	1,90
CBV13-003	10150075202	281	29	151	55	38	35	M6 x 1,0	1,90
CBV17-001	10150075302	305	34	167	74	50	46	M6 x 1,0	3,74

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

CBVT *SERIES*

BALL VALVE

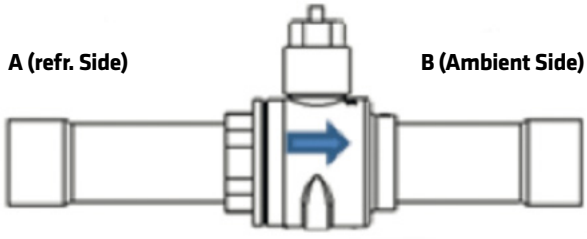
The ball valve of series CBVT is applicable for commercial CO_2 refrigeration applications in order to open and to shut off inner flow path by operating the valve stem. The ball valve of CBVT is applicable for transcritical CO_2 refrigeration systems and is a perfect choice for all similar CO_2 systems.

R744

FEATURES

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

Note: 1) CBVT valves fulfill internal tightness requirements of the standard EN12284, paragraph 9.6.3 only in the direction indicated by the arrow [refrigerant on connection "A"; airside on connection "B"]. Installations with shut off function to the atmosphere (just temporarily for service purpose): Please install the solder connection "B" at the airside. Remark: Welding body junction is always at solder connection "A"



GENERAL SPECIFICATIONS

- Applicable for R744 (CO_2)
- Medium temperature TS min./max.: -40°C / +150°C
- Max. operating pressure PS: 14 MPa (burst pressure: 42MPa)
- Installation position: liquid, suction and discharge line in all directions
- Certifications: PED declaration
- UL attestation

GENERAL CHARACTERISTICS

1) Models with Bi-Metal Connections

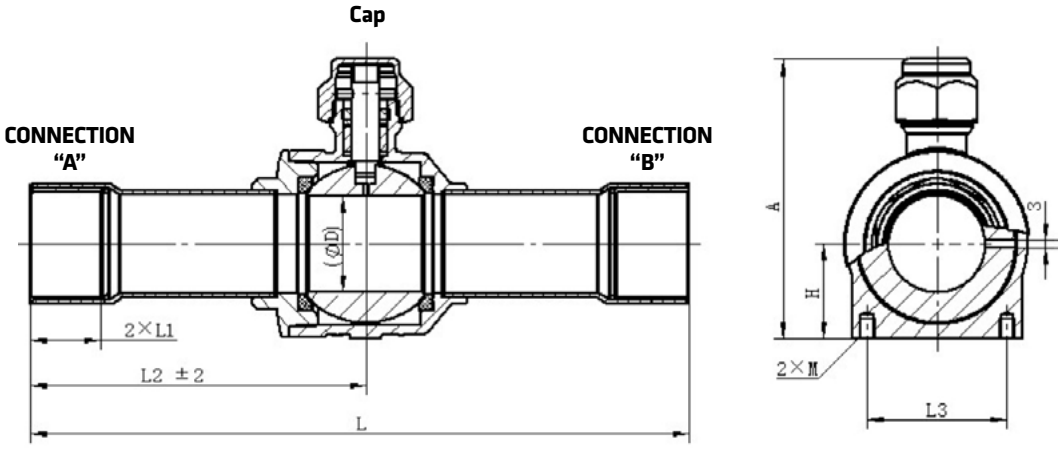
Model	Part Number	Connection Ø d ODF		Kv	Wrench Size Cap	PED Category
		[inch]	[mm]	[m³/h]	[mm]	
CBVT 02H002	10150108802	-	6	1,9	H19	4.3
CBVT 02H001	10150103102	1/4	-	1,9	H19	4.3
CBVT 03H001	10150099502	3/8	-	5,5	H19	4.3
CBVT 03H002	10150109102	-	10	5,5	H19	4.3
CBVT 04H002	10150108902	-	12	7,3	H19	4.3
CBVT 04H001	10150099202	1/2	-	7,3	H19	4.3
CBVT 05H002	10150109002	-	15	13,8	H14	4.3
CBVT 05H001	10150099302	5/8	16	13,8	H14	4.3
CBVT 06H002	10150109302	-	18	20,6	H17	4.3
CBVT 06H001	10150099102	3/4	-	20,6	H17	4.3
CBVT 07H001	10150099002	7/8	22	29,0	H17	4.3
CBVT 09H002	10150109202	-	28	54,2	H17	4.3
CBVT 09H001	10150098902	1-1/8	-	54,2	H17	4.3
CBVT 11H001	10150098502	1-3/8	35	85,5	H17	I
CBVT 13H001	10150098602	1-5/8	-	133,7	H17	I
CBVT 13H002	10150109402	-	42	133,7	H17	I
CBVT 17H001	10150098402	2-1/8	54	225,0	H19	I

2) Models with Stainless-Steel Butt-Welding Connections

Model	Part Number	Connection Ø d ODF		Kv	Wrench Size Cap	PED Category
		[inch]	[mm]	[m³/h]	[mm]	
CBVT 03H302	10150111402	-	10	5,5	H19	4.3
CBVT 04H302	10150111602	-	12	7,3	H19	4.3
CBVT 05H301	10150111702	5/8	16	13,8	H14	4.3
CBVT 06H302	10150111902	-	18	20,6	H17	4.3
CBVT 07H301	10150110302	7/8	22	29,0	H17	4.3
CBVT 09H302	10150112102	-	28	54,2	H17	4.3
CBVT 11H301	10150112202	1-3/8	35	85,5	H17	I
CBVT 13H302	10150112402	-	42	133,7	H17	I

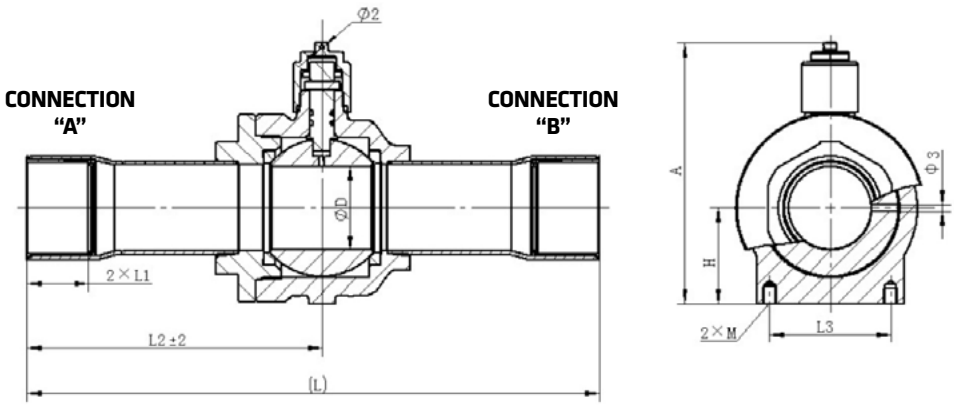
DIMENSIONS

1) Models with Bi-Metal Connections



Model	L	L1	L2	L3	D	H	A	M	Weight
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[g]
CBVT 02H002	126	8	66.5	16	10	14	50,4	M4×0.7	190
CBVT 02H001	126	8	66,5	16	10	14	50,4	M4×0.7	176
CBVT 03H001	132	10	69,5	16	10	14	50,4	M4×0.7	180
CBVT 03H002	132	10	69.5	16	10	14	50,4	M4×0.7	183
CBVT 04H002	139	12	73	16	10	14	50,4	M4×0.7	190
CBVT 04H001	139	12	73	16	10	14	50,4	M4×0.7	188
CBVT 05H002	148	16	77	22	14	16	58,5	M4×0.7	279
CBVT 05H001	148	16	77	22	14	16	58,5	M4×0.7	289
CBVT 06H002	148	16	76	30	19	20	73	M4×0.7	470
CBVT 06H001	152	16	78	30	19	20	72	M4×0.7	491
CBVT 07H001	189	19	97	30	19	20	73	M4×0.7	526
CBVT 09H002	185,5	20	95	38	25	27	85.3	M4×0.7	748
CBVT 09H001	185,5	20	95	38	25	27	85,3	M4×0.7	749
CBVT 11H001	204	25	105	48	32	37	105	M6×1.0	1814
CBVT 13H001	260	28	134	55	38	43,5	118,5	M6×1.0	2734
CBVT 13H002	260	28	134	55	38	43,5	118,5	M6×1.0	2736
CBVT 17H001	284	33	145	74	50	58,5	145	M6×1.0	5787

2) Models with Stainless-Steel Butt-Welding Connections



Model	L	L1	L2	L3	D	H	A	M	Weight
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[g]
CBVT 03H302	132	8	69,5	16	10	14	47,7	M4×0.7	184
CBVT 04H302	139	8	73	16	10	14	47,7	M4×0.7	188
CBVT 05H301	148	/	77	22	14	16	58,7	M4×0.7	269
CBVT 06H302	148	8	76	30	19	20	73	M4×0.7	481
CBVT 07H301	185	/	94,5	30	19	20	73	M4×0.7	512
CBVT 09H302	205	/	105	38	25	27	85.3	M4×0.7	760
CBVT 11H301	205	/	106	48	32	37	105	M6×1.0	1836
CBVT 13H302	242	/	125	55	38	43,5	118,5	M6×1.0	2853

YCQB SERIES

PRESSURE SENSORS YCQB

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 ratiometric 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 AVAILABLE WITH LEAD WIRE DIRECT CONNECTOR OR WITH PACKARD AND MOLEX SOCKET CONNECTIONS
- STABILITY: APPLIED SUPERIOR PRESSURE CORE, GOOD STABILITY UNDER STRICT PROCESS CONTROL;
- DIVERSIFICATION: DIFFERENT PRESSURE RANGES AND DIFFERENT LEVEL OF ACCURACY

GENERAL SPECIFICATIONS

- Applicable for HFC / HFO / flammables refrigerants and CO_2
- Relative humidity: 0 to 95% RH
- Installation position: preferably with vertical axis and sensor upwards
- Certifications: UL/CSA and declaration according to EMC directive

ELECTRICAL SPECIFICATIONS

- Supply voltage: 5V ± 0.25V DC
- Current consumption: Max. 10 mA
- Response time: 10 ms
- Insulation resistance: Min. 100 MΩ
- Load resistance: Min. 10 kΩ
- Protection class: IP66/IP67

MODEL DESIGNATION

YCQ	B	02	L	xxxx	YCQ = Pressure Transmitter
YCQ	**B**	02	L	xxxx	B = Voltage output / C = Current Output
YCQ	B	**02**	L	xxxx	Pressure range 01 : between 0 and 10 bar 02 : between 0 and 20 bar 03 : between 0 and 30 bar 04 : between 0 and 40 bar 05 : between 0 and 50 bar
YCQ	B	02	**L**	xxxx	L = Thread / H= Solder
YCQ	B	02	L	**xxxx**	Digits for additional information

GENERAL CHARACTERISTICS

YCQB with 0.5 to 3.5V output signal

Model Name	Output signal **= 0.5 to 3.5V** (compatible with Sanhua controller = SEC)						
	Part Number	Solder/ Flare*	Pressure range	Max Working pressure	Electrical connection	Accuracy	Medium Temp.
			[bar]	[bar]	Type	%	°C
YCQB02H01	10185004702	Solder	0-20	52,5	2m wires +XHP	±2% FS	-30 / 120
YCQB02H01-01	10185001502		0-20	52,5	2m wires +XHP	±0,8% FS	-40 / 120
YCQB02H18-1	10185015402		0-20	52,5	4.9m wires +XHP	±0,8% FS	-40 / 120
YCQB03H05	10185046602		0-30	75	2m wires +XHP	±0,8% FS	-40 / 120
YCQB05H01	10185004802		0-50	75	2m wires +XHP	±2% FS	-30 / 120
YCQB02L12-1	10185015502	Flare	0-20	52,5	2m wires +XHP	±0,8% FS	-40 / 120
YCQB02L28-1	10185005602		0-20	52,5	4.9m wires +XHP	±0,8% FS	-40 / 120
YCQB03L156	10185046302		0-30	75	2m wires +XHP	±0,8% FS	-40 / 120

*** Flare** = 7/16-20UNF-2B connector **/ Solder** = ¼" connector

YCQB with 0.5 to 4.5V output signal

Output signal = **0.5 to 4.5V**							
Model Name	**Part Number**	**Solder/ Flare***	**Pressure range**	**Max Working pressure**	**Electrical connection**	**Accuracy**	**Medium Temp.**
			[bar]	**[bar]**	**Type**	**%**	**°C**
YCQB02H50	10185004502	Solder	0-13.8	52,5	Packard	±2% FS	-30 / 120
YCQB04H50	10185004602		0-34.5	75	Packard	±2% FS	-30 / 120
YCQB03H06	10185046502		0-30	75	2m wires +XHP	±0,8% FS	-40 / 120
YCQB05H11	10185046102		0-50	75	2m wires +XHP	±2% FS	-40 / 150
YCQB02L01	10185004902	Flare	0-20	52,5	2m wires +XHP	±2% FS	-30 / 120
YCQB02L01-01	10185001402		0-20	52,5	2m wires +XHP	±0,8% FS	-40 / 120
YCQB03L18	10185046402		0-30	75	2m wires +XHP	±0,8% FS	-40 / 120
YCQB05L01	10185007002		0-46	75	2m wires +XHP	±2% FS	-30 / 120
YCQB05L63	10185046002		0-50	75	2m wires +XHP	±2% FS	-40 / 150
YCQB01L50	10185005702		-1 -9.3	52,5	Packard	±2% FS	-30 / 130
YCQB02L50	10185004002		0-13.8	52,5	Packard	±1% FS	-30 / 120
YCQB02L51	10185014102		0-17.2	52,5	Packard	±1% FS	-30 / 120
YCQB03L157	10185046202		0-30	75	Packard	±0,8% FS	-40 / 120
YCQB04L50	10185004202		0-34.5	52,5	Packard	±1% FS	-30 / 120
YCQB05L50	10185004302		0-46	75	Packard	±1% FS	-30 / 120
YCQB05L53	10185013402		0-45	75	Packard	±2% FS	-30 / 130
YCQB05L161	10185045902		0-50	75	Packard	±2% FS	-40 / 150
YCQB02L100	10185009102		0-20	52,5	Molex	±2% FS	-30 / 120
YCQB05L100	10185009202		0-46	75	Molex	±1% FS	-30 / 120

Note: * **Flare** = 7/16-20UNF-2B connector / **Solder** = ¼" connector

YCQB for High pressure use - G ¼

Model Name	**U11**	**Pressure range**	**Max Working pressure**	**Electrical connection**	**Cable length**	**Output signal**	**Medium Temp.**
		[bar]	**[bar]**	**Type**	**[m]**	**[VDC]**	**°C**
YCQB15L01	10185030302	0-150	225	XHP	2	0.5 to 4.5	-30/+85
YCQB09L02*	10185044102	0-90	225	XHP	2	0.5 to 3.5	-40/+40

Note: * suitable with Sanhua superheat controller SEC61.

YCQB for water use

Suitable with pure water and water + glycol till 50%.

Output signal = 0.5 to 4.5V							
Model Name	**Part Number**	**Solder/ Flare***	**Pressure range**	**Max Working pressure**	**Electrical connection**	**Cable length**	**Medium Temp.**
			[bar]	**[bar]**	**Type**	**[m]**	**°C**
YCQB01L503	10185042702	Flare	0-10	52.5	XHP	2	-30/+100

***Flare** = 7/16-20UNF-2B connector

Note: 1) Signal span: VFS=FS (Full Scale) = VA(pr) - VA0

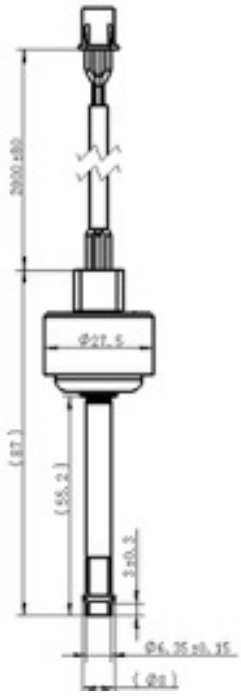
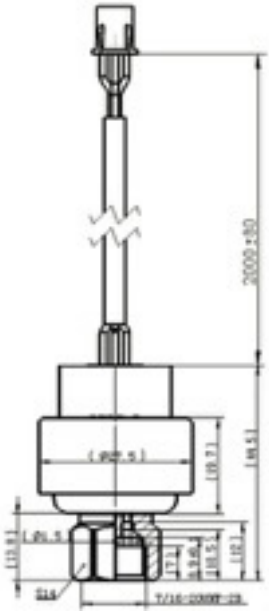
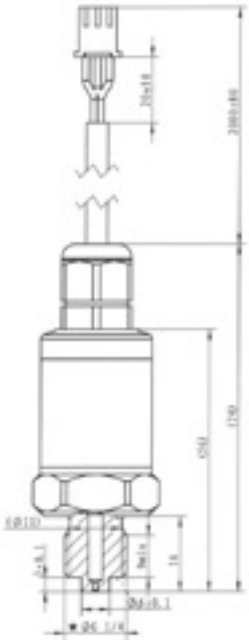
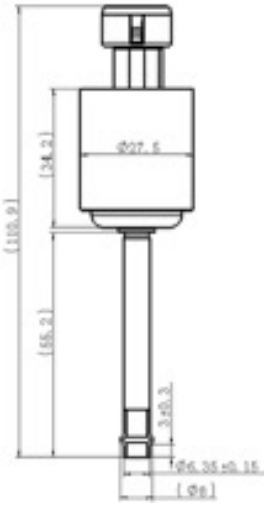
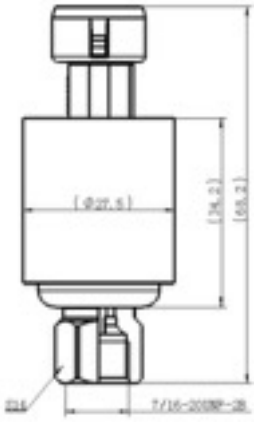
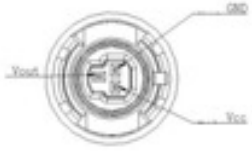
2) Accuracy measured within the temperature ranges shown in Table 1:
Included Nonlinearity (L) and pressure hysteresis. The Nonlinearity is the deviation of the real sensor characteristic VA = f(p) from the ideal straight line. It can be approximated by a polynomial of second order, with the maximum at px = pr / 2.
The equation to calculate the nonlinearity is: L = (VA(px) – VA0) / (VA(pr) – VA0) – px / pr

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

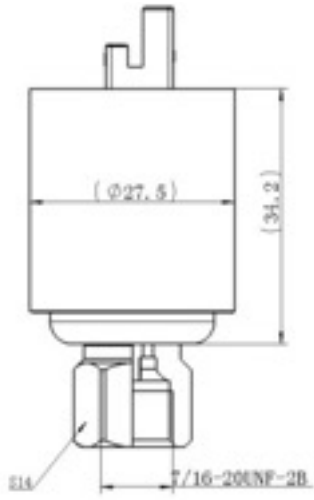
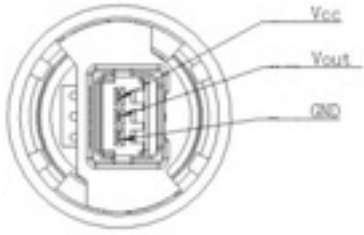
4) Insulation Resistance measured with rated voltage: 500 VDC

For other connection types (M12, M16...) please contact your Sanhua local representative.

DIMENSIONS

Solder connector ¼”	7/16-20UNF-2B	G 1/4	Electrical connector
			**XHP Connector**  1: Vcc – RED 2: VA(pr) - WHITE 3: GND - BLACK
			**Packard connector** 

DIMENSIONS

7/16-20UNF-2B	Electrical connector
	**Molex Socket** 

YCQC SERIES

PRESSURE SENSOR YCQC

Pressure sensors are widely used in Air Conditioning, Refrigeration and Heat Pump system. YCQC pressure sensor uses a DC 10-30V excitation input to provide a 4-20 mA 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 AVAILABLE WITH PACKARD CONNECTOR OR WIRES
- STABILITY: APPLIED SUPERIOR PRESSURE CORE, GOOD STABILITY UNDER STRICT PROCESS CONTROL

GENERAL SPECIFICATIONS

- Applicable for R32 and others HFC/HFO refrigerants
- Relative humidity: 0 to 95% RH
- Installation position: preferably with vertical axis and sensor upwards
- Certifications: declarations according to EMC & PED directives

ELECTRICAL SPECIFICATIONS

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

GENERAL CHARACTERISTICS

YCQC with 4-20mA signal output

Model Name	Output signal = 4- 20mA						
	Part Number	Solder/ Flare*	Pressure range	Max Working pressure	Electrical connection	Accuracy	Medium Temp.
			[bar]	[bar]	Type	%	°C
YCQC03L04	10185011002	Flare	0-30	75	Hirschmann	±0,8% FS	40 / 80
YCQC01L13	10185015202		-0.5-7	52.5	Packard	±0,8% FS	-40 / 80
YCQC02L18	10185017102		-1-12	52.5	Packard	±0,8% FS	-40 / 80
YCQC03L05	10185009302		0-30	75	Packard	±0,5% FS	-40 / 80
YCQC03L06 1	10185009402		0-30	75	Packard	±0,5% FS	-40 / 80
YCQC03L11	10185014402		0-30	75	Packard	±0,8% FS	-40 / 80
YCQC05L09	10185015302		0-44.8	75	Packard	±0,8% FS	-40 / 80
YCQC05L25	10185047002		0-50	75	Packard	±0,8% FS	-40/150

*** Flare** = 7/16-20UNF-2B connector **/ Solder** = ¼" connector

1 Model with 7/16-20 UNF-A (Male), others are 7/16UNF-B (Female)

YCQC with G 3/8A connector

Output signal = 4- 20mA						
Model Name	Part Number	Pressure range	Max Working pressure	Electrical connection	Accuracy	Medium Temp.
		[bar]	[bar]	Type	%	°C
YCQC02L04	10185009902	-1 - 12	52.5	Hirschmann	±0,8% FS	-40 / 80
YCQC02L05	10185009802	-1 - 20	52.5	Hirschmann	±0,8% FS	-40 / 80

YCQC for High pressure use

R744

Output signal = 4- 20mA						
Model Name	Part Number	Mechanical connection	Pressure range	Max Working pressure	Electrical connection	Medium Temp.
			[bar]	[bar]	Type	°C
YCQC15L02	10185042302	G 1/4	0-150	225	Packard +10cm	-20 /100
YCQC09L02*	10185042402	Flare	0-90	135	Packard +10cm	-20 /100

*****: suitable with Sanhua superheat controller SEC61.

YCQC for water use

Suitable with pure water and water + glycol till 50%.

Output signal = 4- 20mA						
Model Name	Part Number	Solder / Flare*	Pressure range	Max Working pressure	Electrical connection	Medium Temp.
			[bar]	[bar]	Type	°C
YCQC01L501	10185036002	Flare	-0.8 -7	52.5	Packard	-40/80

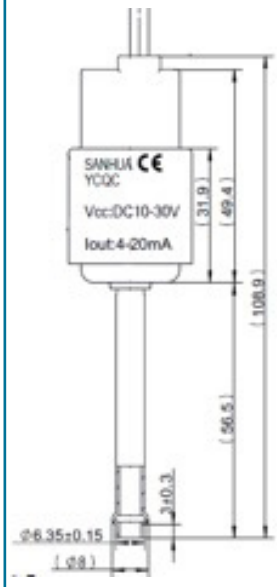
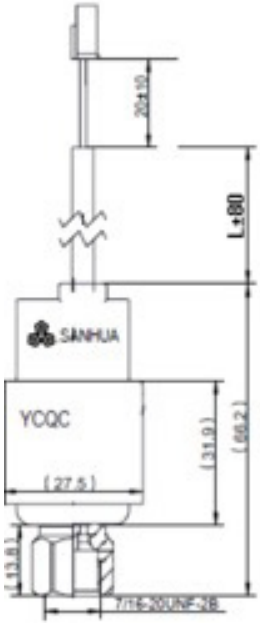
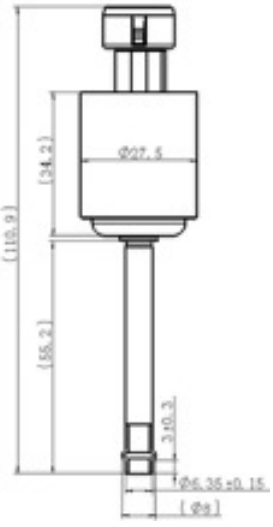
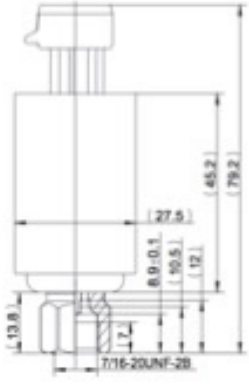
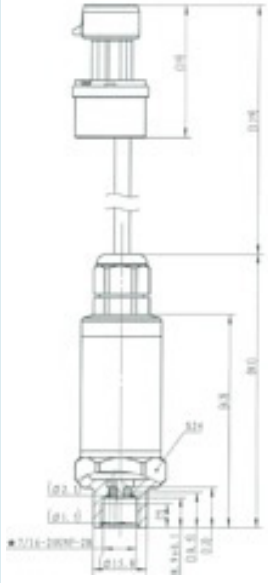
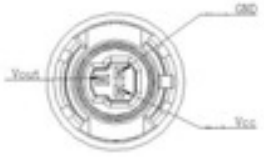
***Flare** = 7/16-20UNF-2B connector

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

2) Insulation Resistance measured with rated voltage: 500 VDC

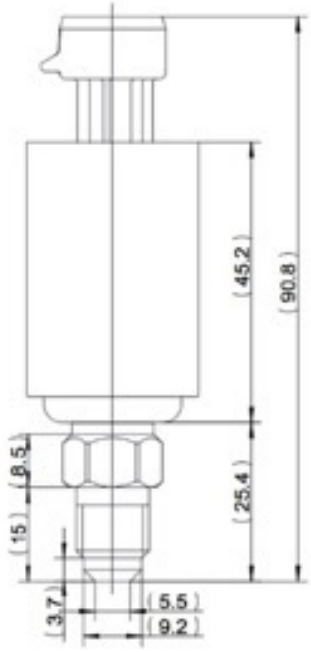
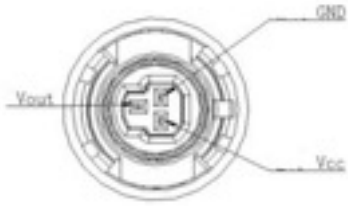
YCQC SERIES
CO2 PRESSURE SENSOR

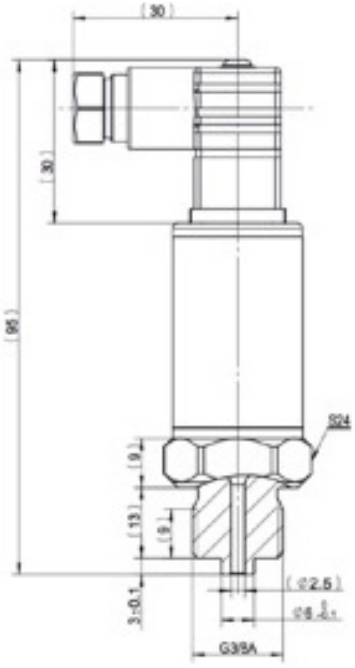
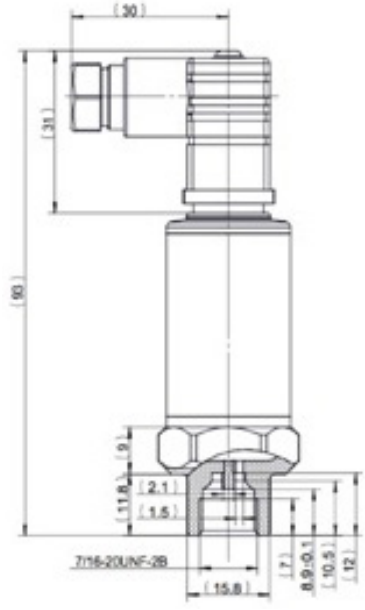
DIMENSIONS

Brazed copper tube	7/16-20UNF-2B		Electrical connector
			**XHP Connector**
			**Packard connector** 

YCQC SERIES

CO2 PRESSURE SENSOR

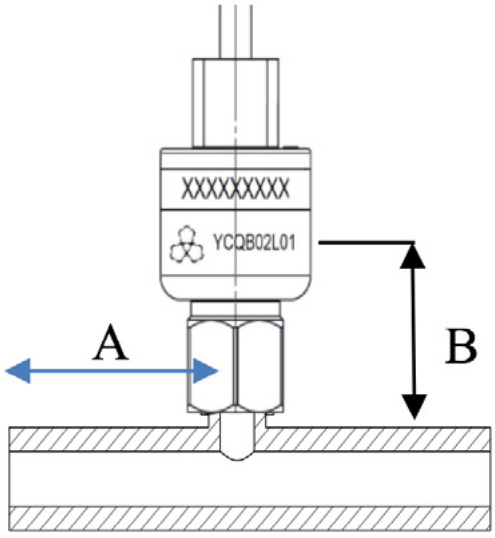
G 1/4	7/16-20UNF-2A (Male)	Electrical connector
		**Packard Connector** 

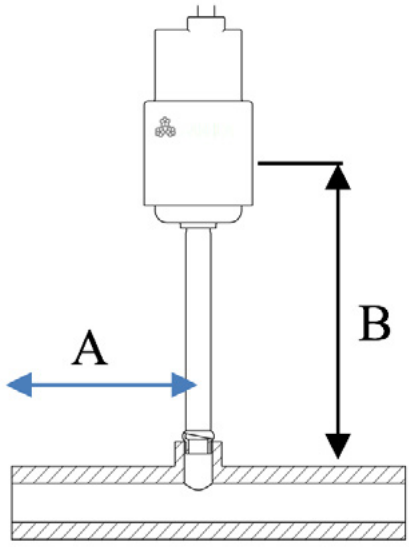
G 3/8A	7/16-20UNF-2B (Female)	Electrical connector
		**Hirschmann**

CO2 PRESSURE SENSOR

OPERATING TEMPERATURES

YCQB or YCQC
Flare and Brazed





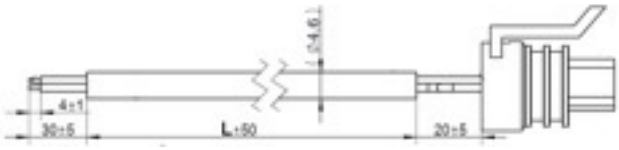
Maxi Medium Temperature	Ambient Temperature	Distance "A"	Distance "B" Flare	Distance "B" Brazed
[°C]	[°C]	[mm]	[mm]	[mm]
150	60	>30	40	70

ACCESSORIES

Packard Cables IP **55** with 3 wires

Model Name	Part Number	Connector Type	Total Cable Length	Terminal
YCQB02-013051	20185014302	Packard	1500 mm	Lead Wires
YCQB02-013052	20185013102	Packard	5000 mm	Lead Wires

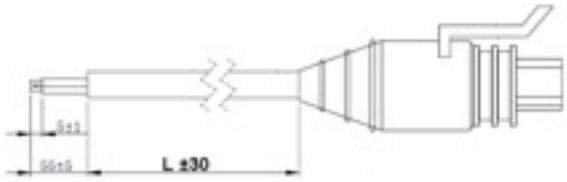
Note: For usage with YCQC models, don't connect the white wire.



YCQ SERIES
CO2 PRESSURE SENSOR

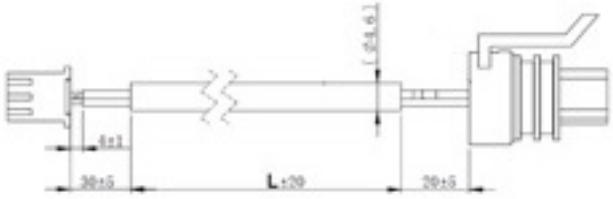
Packard Cables IP **67** with 3 wires

Model Name	Part Number	Connector Type	Total Cable Length	Terminal
YCQB02-013050	20185034002	Packard	1500 mm	Lead Wires
YCQB02-013056	20185034102	Packard	5000 mm	Lead Wires



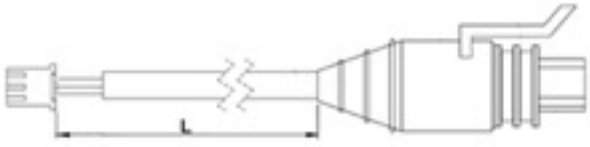
Packard Cables IP **55** + XHP connector with 3 wires

Model Name	Part Number	Connector Type	Total Cable Length	Terminal
YCQB02-013054	20185016702	Packard	6000 mm	XHP-3
YCQB02-013055	20185016802	Packard	9000 mm	XHP-3



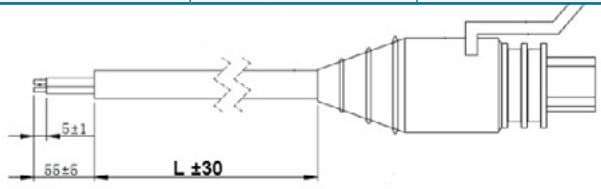
Packard Cables IP **67** + XHP connector with 3 wires

Model Name	Part Number	Connector Type	Total Cable Length	Terminal
YCQC02-013037	20185051102	Packard	2000 mm	XHP-3
YCQC02-013038	20185051202	Packard	5000 mm	XHP-3
YCQC02-013039	20185051302	Packard	9000 mm	XHP-3



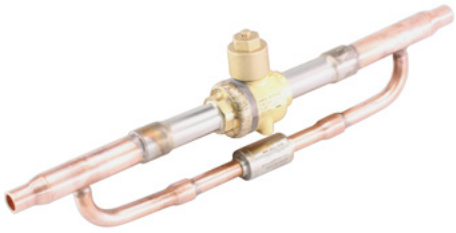
Packard Cables IP **67** with 2 wires

Model Name	Part Number	Connector Type	Total Cable Length	Terminal
YCQC02-013034	20185046602	Packard	2000 mm	Lead Wires
YCQC02-013036	20185051002	Packard	4000 mm	Lead Wires



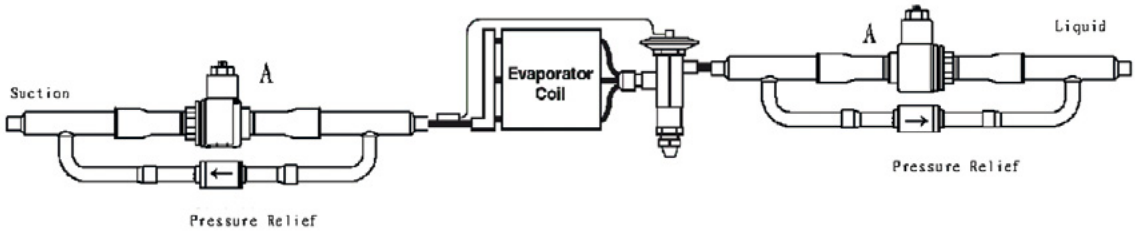
GZJA SERIES

GZJA SUB ASSEMBLY SERIES: BALL VALVE CHECK VALVE [R744 SUB-CRITICAL]



GZJA sub-assemblies include a CBVT ball valve (PS=140bar) and a BCV check valve (PS=90bar); they are typically used in commercial CO_2 refrigeration applications, to isolate specific parts or components present in the system. With the ball valves in closed position the refrigerant cannot achieve the isolated component, but it can be suck up through the check valves. A typical application is keeping evaporator coil isolated without over pressurizing due to warm up.

Figure 1



The symbol 'A' indicates the pressure relief side of the sub assembly. Any pressure builds up on the 'A' side with the ball valve in the closed position can relieve to the other side of the ball valve. When used on an evaporator coil, the 'A' side of the assembly should always be on the coil side. (Refer to Figure 1.)

FEATURES

- RELIABLE WELDING QUALITY, AND AVOID WELDING MISTAKE OF CHECK VALVE DIRECTION
- COMPACT DESIGN TO SAVE INSTALLATION SPACE

GENERAL SPECIFICATIONS

- Applicable for R744 (CO_2)
- Medium temperature TS min./max.: -40°C/+90°C
- Max. Operation pressure PS: 9MPa (90bar)
- Certification: PED declaration
- UL certification – Not available (on request)

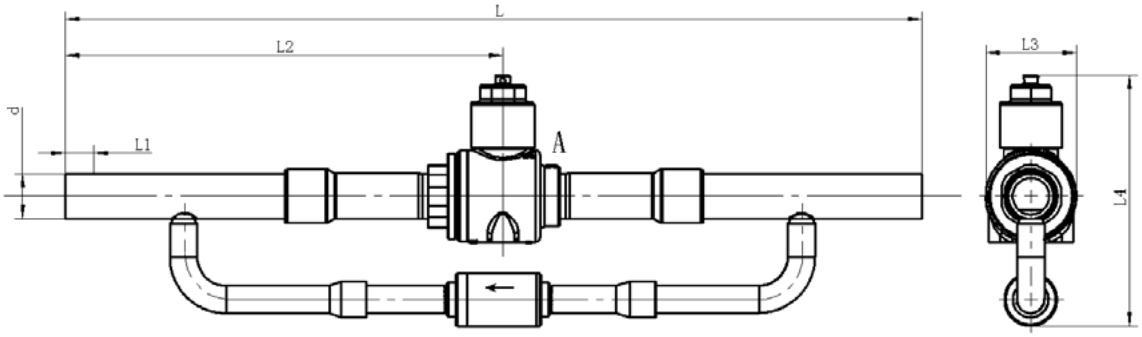
GZJA SERIES

GZJA SUB ASSEMBLY SERIES: BALL VALVE + CHECK VALVE [R744 SUB-CRITICAL]

GENERAL CHARACTERISTICS

Model	Part Number	Solder connection Ø d (ODM)	KV [BALL VALVE]	KV [CHECK VALVE]	Wrench Size Cap	PED Category
		[inch]	[m³/h]	[m³/h]	[mm]	
GZJA66004	10245294201	3/8	13,8	0,9	H19	4.3
GZJA66005	10245294301	1/2	13,8	0,9	H19	4.3
GZJA66006	10245294401	5/8	13,8	0,9	H19	4.3
GZJA66007	10245294501	3/4	20,6	0,9	H19	4.3
GZJA66008	10245294601	7/8	29,0	0,9	H19	4.3
GZJA66009	10245294701	1 1/8	54,2	0,9	H19	4.3

DIMENSIONS AND WEIGHTS



Model	Part number (Industrial pack)	Solder connection Ø d (ODM)	Wrench Size Cap					
			L	L1	L2	L3	L4	Weight
		[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[g]
GZJA66004	10245294201	3/8	302	10	151	32.2	87.3	550
GZJA66005	10245294301	1/2	302	10	151	32.2	88	550
GZJA66006	10245294401	5/8	302	10	151	32.2	88	550
GZJA66007	10245294501	3/4	383.3	10	196.7	40.2	104.8	940
GZJA66008	10245294601	7/8	383.3	10	196.7	40.2	105.4	1000
GZJA66009	10245294701	1 1/8	382.6	10	196.7	53.6	111.8	1600

CSV SERIES

SERVICE VALVES

Brass service valves of CSV series are applicable for R744 systems. The inner path of the valve can be closed by operating the valve stem. The units can be used as service valve for vacuum pumping and refrigerant injection.

R744

FEATURES

- COST EFFICIENT SOLUTION
- RELIABLE AND ROBUST DESIGN
- EASY OPERATION

GENERAL SPECIFICATIONS

- Applicable for R744
- Max. operating pressure PS:12MPa (120 bar)
- Ambient temperature min./max.: -30°C / +60°C
- Medium temperature TS min./max.: -45 °C / +125°C
- Installation position: Preferably liquid and suction line
- Certifications: PED declaration (all the models are in Art.4.3 according to PED Directive 2014/68/EU)

GENERAL CHARACTERISTICS

Model	Part Number[1)]	Connections				Kv
		Port "A"[2)]		Port "B"[3)]		
		Type	Size [inch]	Type	Size [inch]	[m³/h]
CSV-Z22ST-11	10165413301	-	-	Solder - ODF	1/4"	-
CSV-Z22ST-13	10165413401	Solder - ODF	1/4"	Solder - ODF	1/4"	0.33
CSV-Z33ST-10	10165413201	Solder - ODF	3/8"	Solder - ODF	3/8"	0.95
CSV-Z44ST-9	10165413101	Solder - ODF	1/2"	Solder - ODF	1/2"	1.40

Note: 1) Extent of delivery: valve body with charge port & pipe connection(s), dust cap for shut-off port, caps for charge port and pipe connection

2) Port "A" for model CSV-Z22ST-11 is charge connection (Fig.1)

3) Port "B" for model CSV-Z22ST-11 is the connection to system (Fig.1)

DIMENSIONS

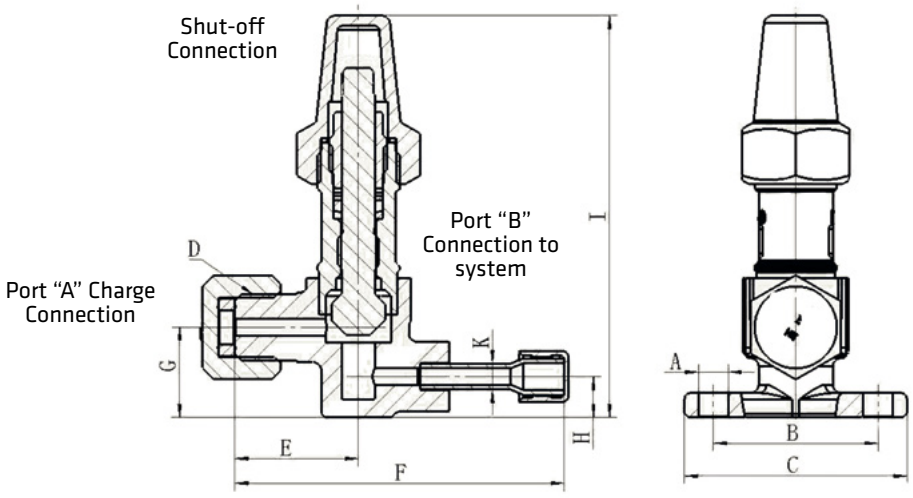


Fig.1 Model: CSV-Z22ST-11

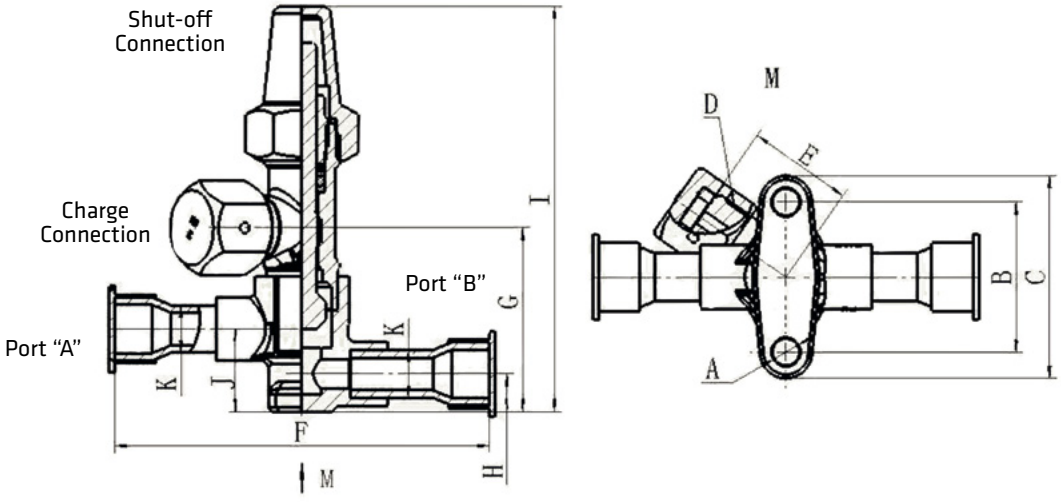


Fig.2 Models: CSV-Z22ST-13, CSV-Z33ST-10 & CSV-Z44ST-9

Model	Charge Connection		Shut-off Connection			Dimensions [mm]							
	Size [inch]	Cap wrench Size	Size [inch]	Cap wrench Size	Stem Size Ø [mm]	ØA	B	C	E	F	H	I	J
CSV-Z22ST-11	M16	H22	M20	H26	6.35	7.2	40	50	28	80	10	98	-
CSV-Z22ST-13	M16	H22	M21	H26	6.35	7.2	40	50	28	100	10	108	22
CSV-Z33ST-10	M16	H22	M22	H26	6.35	7.2	40	50	28	100	10	108	22
CSV-Z44ST-9	M16	H22	M23	H26	6.35	7.2	40	50	28	100	10	108	22

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