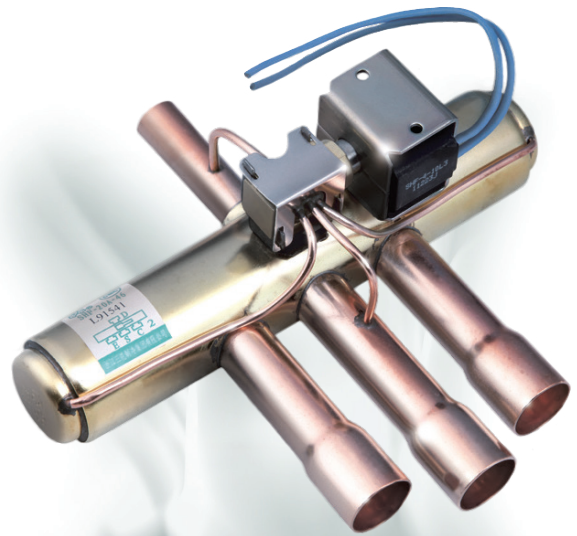




## 4 Way Reversing Valve

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



### FEATURES

- WIDE APPLICATION RANGE
- SUITABLE FOR COOLING CAPACITIES FROM 3 TO 240KW (R407C, CONDITION 1)
- SEVERAL DESIGNS AVAILABLE

### GENERAL SPECIFICATIONS

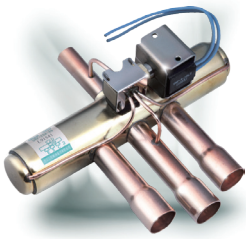
- Applicable for all common HCFC and HFC refrigerants such as: R22, R134a, R404A, R407C, R410A, R507A
- Medium temperature TS min./max.: -30°C / +120°C
- Ambient temperature min./max.: -30°C / +50 or +70°C (Depending on used coil)
- Relative humidity: 0 to 95% RH
- Max. operating pressure PS: 4,5 MPa (45 bar)
- Installation position:
  - Coil upwards or with body axis in horizontal alignment
  - Flow direction according to installation instruction
- Certifications: UL/CSA\* and declaration according to LVD or PED

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

### 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 $\Delta t_{oh}$	5K	5K
Subcooling $\Delta t_{cu}$	0K	5K





# SANHUA SHF SERIES 4 Way Reversing Valve

## GENERAL CHARACTERISTICS

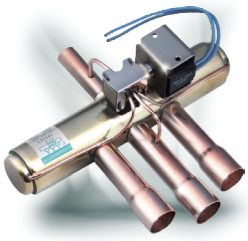
Valve Model	Product Number	Ø Port	Kv	Connections ODF		PS	OPD		PED category
				ØD	ØE/S/C		MAX	MIN	
		[mm]	[m <sup>3</sup> /h]	[inch]	[inch]	[MPa]	[MPa]	[MPa]	
SHF(L)-4H-23U	SHF-19001	8,0	1,7	5/16	3/8	4,5	3,1	0,25	3,3
SHF(L)-7H-34U	SHF-19002	11,1	3,1	3/8	1/2	4,5	3,1	0,25	3,3
SHF(L)-9H-35U	SHF-19003	11,5	3,6	3/8	5/8	4,5	3,1	0,3	3,3
SHF(L)-11H-45D1	SHF-19004	11,5	4,5	1/2	5/8	4,5	3,1	0,3	3,3
SHF-14-46	SHF-50001	13,5	6,3	1/2	3/4	4,5	3,1	0,3	3,3
SHF-14-47	SHF-50002	13,5	6,3	1/2	7/8	4,5	3,1	0,3	3,3
SHF-14-57	SHF-50003	13,5	6,3	5/8	7/8	4,5	3,1	0,3	3,3
SHF-20A-46	SHF-50004	15,6	7,9	1/2	3/4	4,5	3,1	0,3	3,3
SHF-20A-47	SHF-50005	15,6	7,9	1/2	7/8	4,5	3,1	0,3	3,3
SHF-20A-57	SHF-50006	15,6	7,9	5/8	7/8	4,5	3,1	0,3	3,3
SHF-20A-67	SHF-50007	15,6	7,9	3/4	7/8	4,5	3,1	0,3	3,3
SHF-20D-46-02	SHF-50008	17,2	9,9	1/2	3/4	4,5	3,1	0,3	3,3
SHF-35A-47	SHF-50009	20,0	13,9	1/2	7/8	4,5	3,1	0,3	3,3
SHF-35A-57	SHF-50010	20,0	13,9	5/8	7/8	4,5	3,1	0,3	3,3
SHF-35A-59	SHF-50011	20,0	13,9	5/8	1-1/8	4,5	3,1	0,3	3,3
SHF-35A-67	SHF-50012	20,0	13,9	3/4	7/8	4,5	3,1	0,3	3,3
SHF-35A-69	SHF-50013	20,0	13,9	3/4	1-1/8	4,5	3,1	0,3	3,3
SHF-35A-79	SHF-50014	20,0	13,9	7/8	1-1/8	4,5	3,1	0,3	3,3
SHF-35B-67-02	SHF-50015	20,9	14,7	3/4	7/8	4,5	3,1	0,3	3,3
SHF-50-911D2	SHF-50016	25,6	18,5	1-1/8	1-3/8	4,5	3,1	0,3	3,3
SHF(L)-70-810	SHF-50017	28,6	28,5	1	1-1/4	4,5	3,1	0,3	3,3
SHF(L)-70-810-01	SHF-50024	28,6	28,5	1	1-1/4	4,5	3,1	0,3	3,3
SHF(L)-100-1012	SHF-50018	34,8	40,5	1-1/4	1-1/2	4,5	3,1	0,3	I
SHF(L)-100-1012-01	SHF-50025	34,8	40,5	1-1/4	1-1/2	4,5	3,1	0,3	I
SHF(L)-140-1214	SHF-50019	41,0	58,4	1-1/2	1-3/4	4,5	3,1	0,3	I
SHF(L)-175-1217	SHF-50020	46,4	70,5	1-1/2	2-1/8	4,5	3,1	0,3	I
SHF(L)-210-1321	SHF-50021	50,0	84,4	1-5/8	2-5/8	4,5	3,1	0,3	I
SHF(L)-350-1721	SHF-50022	59,0	138,4	2-1/8	2-5/8	4,5	3,1	0,3	I
SHF(L)-420-2125	SHF-50023	69,0	177,0	2-5/8	3-1/8	4,5	3,1	0,3	I

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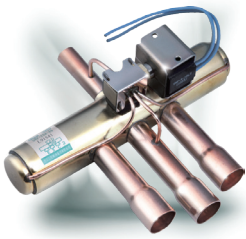
# SANHUA SHF SERIES 4 Way Reversing Valve

## CAPACITY SELECTION

Valve Model <sup>1)</sup>	Product Number	Nominal Capacity (condition 1)							
		R407C <sup>2)</sup>		R410A		R134a		R404A / R507	
		ΔP: 0,1 bar	ΔP: 0,2 bar	ΔP: 0,1 bar	ΔP: 0,2 bar	ΔP: 0,1 bar	ΔP: 0,2 bar	ΔP: 0,1 bar	ΔP: 0,2 bar
		[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
SHF(L)-4H-23U	SHF-19001	3,8	5,3	4,5	6,4	2,9	4,2	3,2	4,6
SHF(L)-7H-34U	SHF-19002	7,0	9,9	8,5	12,0	5,5	7,8	6,0	8,5
SHF(L)-9H-35U	SHF-19003	8,0	11,3	9,6	13,6	6,3	8,9	6,8	9,7
SHF(L)-11H-45D1	SHF-19004	10,1	14,3	12,2	17,3	7,9	11,2	8,7	12,3
SHF-14-46	SHF-50001	13,9	19,7	16,8	23,8	10,9	15,5	11,9	16,9
SHF-14-47	SHF-50002	13,9	19,7	16,8	23,8	10,9	15,5	11,9	16,9
SHF-14-57	SHF-50003	13,9	19,7	16,8	23,8	10,9	15,5	11,9	16,9
SHF-20A-46	SHF-50004	17,6	24,8	21,2	30,0	13,8	19,5	15,0	21,3
SHF-20A-47	SHF-50005	17,6	24,8	21,2	30,0	13,8	19,5	15,0	21,3
SHF-20A-57	SHF-50006	17,6	24,8	21,2	30,0	13,8	19,5	15,0	21,3
SHF-20A-67	SHF-50007	17,6	24,8	21,2	30,0	13,8	19,5	15,0	21,3
SHF-20D-46-02	SHF-50008	22,1	31,3	26,7	37,8	17,4	24,6	19,0	26,8
SHF-35A-47	SHF-50009	30,9	43,7	37,3	52,8	24,3	34,3	26,5	37,5
SHF-35A-57	SHF-50010	30,9	43,7	37,3	52,8	24,3	34,3	26,5	37,5
SHF-35A-59	SHF-50011	30,9	43,7	37,3	52,8	24,3	34,3	26,5	37,5
SHF-35A-67	SHF-50012	30,9	43,7	37,3	52,8	24,3	34,3	26,5	37,5
SHF-35A-69	SHF-50013	30,9	43,7	37,3	52,8	24,3	34,3	26,5	37,5
SHF-35A-79	SHF-50014	30,9	43,7	37,3	52,8	24,3	34,3	26,5	37,5
SHF-35B-67-02	SHF-50015	32,6	46,2	39,4	55,7	25,6	36,2	28,0	39,6
SHF-50-911D2	SHF-50016	41,2	58,3	49,8	70,4	32,3	45,7	35,3	50,0
SHF(L)-70-810	SHF-50017	63,6	89,9	76,7	108,5	49,9	70,5	54,5	77,0
SHF(L)-70-810-01	SHF-50024	63,6	89,9	76,7	108,5	49,9	70,5	54,5	77,0
SHF(L)-100-1012	SHF-50018	90,3	127,7	109,0	154,1	70,8	100,2	77,4	109,4
SHF(L)-100-1012-01	SHF-50025	90,3	127,7	109,0	154,1	70,8	100,2	77,4	109,4
SHF(L)-140-1214	SHF-50019	130,0	183,8	156,9	221,9	102,0	144,2	111,4	157,5
SHF(L)-175-1217	SHF-50020	157,1	222,2	189,7	268,2	123,2	174,3	134,6	190,4
SHF(L)-210-1321	SHF-50021	188,0	265,9	227,0	321,0	147,5	208,6	161,1	227,8
SHF(L)-350-1721	SHF-50022	308,3	436,0	372,2	526,3	241,8	342,0	264,1	373,5
SHF(L)-420-2125	SHF-50023	394,4	557,7	476,1	673,3	309,4	437,5	337,9	477,9

**Note:** 1) Pressure drop is valid for flow from ØC to ØS or from ØE to ØS  
2) R407C data based on dew point conditions





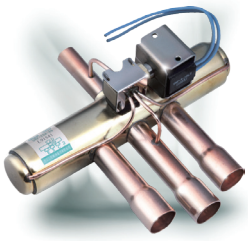
# SANHUA SHF SERIES 4 Way Reversing Valve

## CAPACITY SELECTION

Valve Model <sup>1)</sup>	Product Number	Nominal Capacity (condition 2)							
		R407C <sup>2)</sup>		R410A		R134a		R404A / R507	
		$\Delta P:$ 0,1 bar	$\Delta P:$ 0,2 bar	$\Delta P:$ 0,1 bar	$\Delta P:$ 0,2 bar	$\Delta P:$ 0,1 bar	$\Delta P:$ 0,2 bar	$\Delta P:$ 0,1 bar	$\Delta P:$ 0,2 bar
		[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
SHF(L)-4H-23U	SHF-19001	3,4	4,8	4,0	5,7	2,7	3,9	2,7	3,9
SHF(L)-7H-34U	SHF-19002	6,4	9,0	7,5	10,6	5,1	7,2	5,1	7,2
SHF(L)-9H-35U	SHF-19003	7,3	10,3	8,5	12,0	5,8	8,2	5,8	8,2
SHF(L)-11H-45D1	SHF-19004	9,2	13,0	10,8	15,2	7,4	10,4	7,3	10,4
SHF-14-46	SHF-50001	12,7	17,9	14,8	21,0	10,1	14,3	10,1	14,3
SHF-14-47	SHF-50002	12,7	17,9	14,8	21,0	10,1	14,3	10,1	14,3
SHF-14-57	SHF-50003	12,7	17,9	14,8	21,0	10,1	14,3	10,1	14,3
SHF-20A-46	SHF-50004	16,0	22,6	18,7	26,5	12,8	18,0	12,7	18,0
SHF-20A-47	SHF-50005	16,0	22,6	18,7	26,5	12,8	18,0	12,7	18,0
SHF-20A-57	SHF-50006	16,0	22,6	18,7	26,5	12,8	18,0	12,7	18,0
SHF-20A-67	SHF-50007	16,0	22,6	18,7	26,5	12,8	18,0	12,7	18,0
SHF-20D-46-02	SHF-50008	20,2	28,5	23,6	33,4	16,1	22,8	16,1	22,7
SHF-35A-47	SHF-50009	28,2	39,8	33,0	46,6	22,5	31,8	22,4	31,7
SHF-35A-57	SHF-50010	28,2	39,8	33,0	46,6	22,5	31,8	22,4	31,7
SHF-35A-59	SHF-50011	28,2	39,8	33,0	46,6	22,5	31,8	22,4	31,7
SHF-35A-67	SHF-50012	28,2	39,8	33,0	46,6	22,5	31,8	22,4	31,7
SHF-35A-69	SHF-50013	28,2	39,8	33,0	46,6	22,5	31,8	22,4	31,7
SHF-35A-79	SHF-50014	28,2	39,8	33,0	46,6	22,5	31,8	22,4	31,7
SHF-35B-67-02	SHF-50015	29,7	42,0	34,8	49,2	23,7	33,5	23,7	33,5
SHF-50-911D2	SHF-50016	37,5	53,1	43,9	62,1	30,0	42,4	29,9	42,3
SHF(L)-70-810	SHF-50017	57,9	81,9	67,7	95,8	46,2	65,3	46,1	65,2
SHF(L)-70-810-01	SHF-50024	57,9	81,9	67,7	95,8	46,2	65,3	46,1	65,2
SHF(L)-100-1012	SHF-50018	82,2	116,3	96,2	136,1	65,6	92,8	65,5	92,7
SHF(L)-100-1012-01	SHF-50025	82,2	116,3	96,2	136,1	65,6	92,8	65,5	92,7
SHF(L)-140-1214	SHF-50019	118,4	167,4	138,5	195,9	94,5	133,6	94,3	133,4
SHF(L)-175-1217	SHF-50020	143,1	202,3	167,4	236,7	114,2	161,5	114,0	161,2
SHF(L)-210-1321	SHF-50021	171,2	242,1	200,3	283,3	136,6	193,2	136,5	193,0
SHF(L)-350-1721	SHF-50022	280,7	397,0	328,5	464,6	224,0	316,8	223,7	316,4
SHF(L)-420-2125	SHF-50023	359,1	507,9	420,2	594,3	286,6	405,3	286,2	404,8

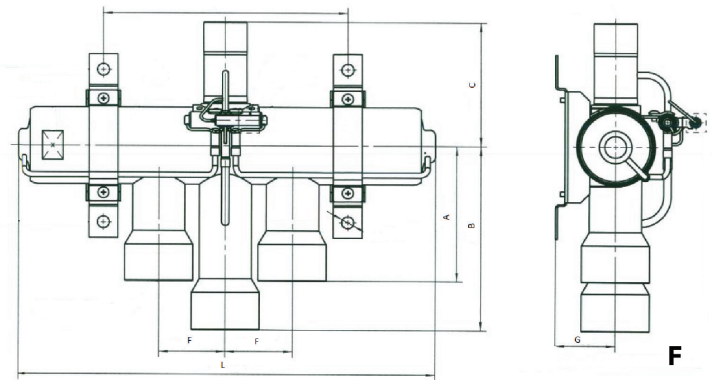
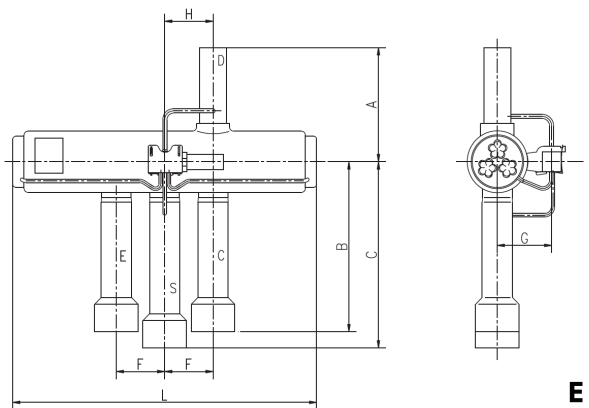
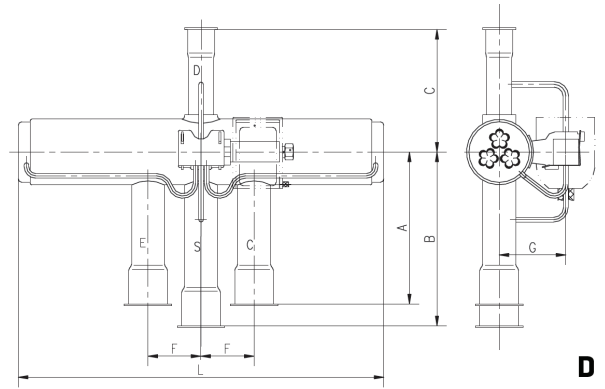
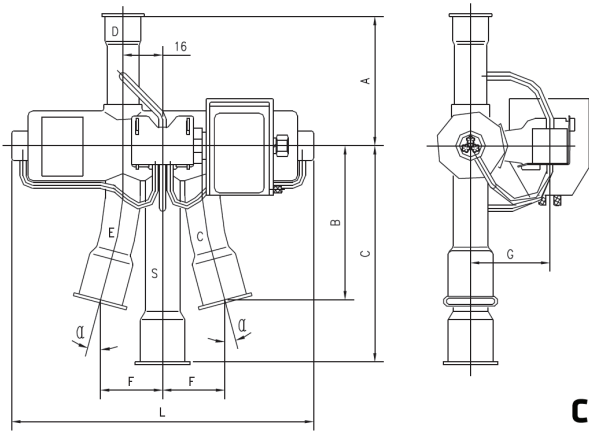
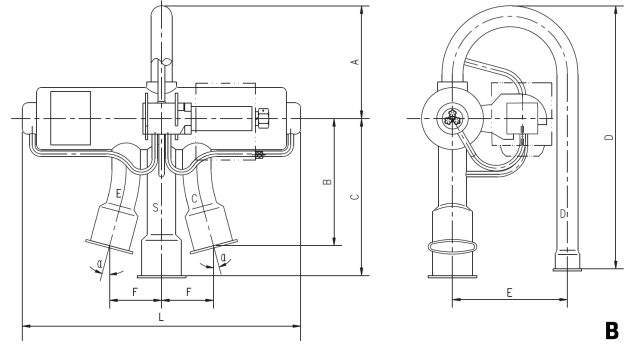
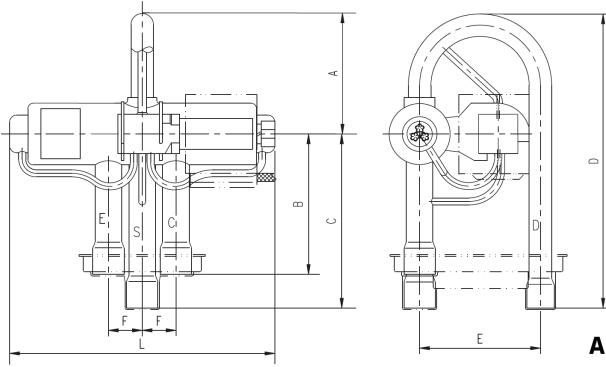
**Note:** 1) Pressure drop is valid for flow from ØC to ØS or from ØE to ØS  
2) R407C data based on dew point conditions

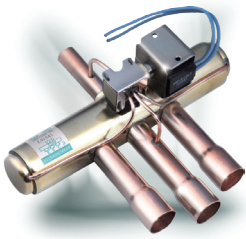




# SANHUA SHF SERIES 4 Way Reversing Valve

## DIMENSIONS - VALVES





# SANHUA SHF SERIES 4 Way Reversing Valve

## DIMENSIONS - VALVES

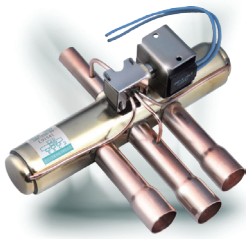
Valve Model	Product Number	Valve Style	L	A	B	C	D	E	F	G	H	Angle $\alpha$	Weight
			[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[°]
SHF(L)-4H-23U	SHF-19001	A	94,4	43	50	62	105	43	12	-	-	0	0,20
SHF(L)-7H-34U	SHF-19002		113	51	59	71	119	52	16	-	-	0	0,28
SHF(L)-9H-35U	SHF-19003	B	115,5	51	57	72	119	52	23,5	-	-	15	0,30
SHF(L)-11H-45D1	SHF-19004	C	121,5	52	62	87	-	-	25	31,5	16	15	0,32
SHF-14-46	SHF-50001	D	184,2	67	83	95	-	-	28,6	35,5	-	0	0,72
SHF-14-47	SHF-50002		184,2	67	83	95	-	-	28,6	35,5	-	0	0,72
SHF-14-57	SHF-50003		184,2	67	83	95	-	-	28,6	35,5	-	0	0,72
SHF-20A-46	SHF-50004		176	67	83	95	-	-	28,6	35,5	-	0	0,75
SHF-20A-47	SHF-50005		176	67	83	95	-	-	28,6	35,5	-	0	0,75
SHF-20A-57	SHF-50006		176	67	83	95	-	-	28,6	35,5	-	0	0,75
SHF-20A-67	SHF-50007		176	67	83	95	-	-	28,6	35,5	-	0	0,75
SHF-20D-46-02	SHF-50008		183,6	67	83	95	-	-	28,6	35,5	-	0	0,75
SHF-35A-47	SHF-50009		211	82	87	100	-	-	33	40	-	0	1,30
SHF-35A-57	SHF-50010		211	82	87	100	-	-	33	40	-	0	1,30
SHF-35A-59	SHF-50011		211	82	87	100	-	-	33	40	-	0	1,30
SHF-35A-67	SHF-50012		211	82	87	100	-	-	33	40	-	0	1,30
SHF-35A-69	SHF-50013		211	82	87	100	-	-	33	40	-	0	1,30
SHF-35A-79	SHF-50014		211	82	87	100	-	-	33	40	-	0	1,30
SHF-35B-67-02	SHF-50015		213	82	87	100	-	-	33	40	-	0	1,30
SHF-50-911D2	SHF-50016		E	269	97	149	174	-	-	41,3	40	41,3	0
SHF(L)-70-810	SHF-50017	D	303	111,8	117	131	-	-	46	86	-	0	3,00
SHF(L)-100-1012	SHF-50018		321	111,8	117	131	-	-	49	86	-	0	3,50
SHF(L)-70-810-01	SHF-50024	F	303	111,8	117	131	-	-	46	86	-	0	3,00
SHF(L)-100-1012-01	SHF-50025		321	111,8	117	131	-	-	49	86	-	0	3,50
SHF(L)-140-1214	SHF-50019		390	135,6	148,7	168,7	-	-	58	97	-	0	7,20
SHF(L)-175-1217	SHF-50020		390	135,6	148,7	168,7	-	-	58	97	-	0	7,60
SHF(L)-210-1321	SHF-50021		452	135,6	148,7	168,7	-	-	71,5	97	-	0	8,70
SHF(L)-350-1721	SHF-50022		553	176,5	180	235	-	-	75	112	-	0	22,00
SHF(L)-420-2125	SHF-50023		613	176,5	180	235	-	-	93	113	-	0	26,00

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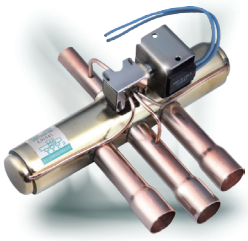
# SANHUA SHF SERIES 4 Way Reversing Valve

## COIL CHARACTERISTICS

Coil Model <sup>1)</sup>	Winding Code	Product Number	Electrical function / connection Type	Cable Length [mm]	Power Supply [-]	Rated Voltage [V]	Power Consumption			Protection class [-]	Insulation class [-]	Max. Op. Temp. [°C]
							AC 50Hz [W]	AC 60Hz [W]	DC [W]			
SQ-A25 22G-00 0001	SHF-4-10L3	SHF-56001	Lead Wires	500	AC	220-240	4,5	3,5	-	IP54	B <sup>2)</sup>	130
SQ-A25 200-00 0001	SHF-4-10L2	SHF-56002	Lead Wires	500	AC	200	4,5	3,5	-			
SQ-A25 100-00 0001	SHF-4-10L1	SHF-56003	Lead Wires	500	AC	100	4,5	3,5	-			
SQ-A25 11A-00 0001	SHF-4-10L4	SHF-56004	Lead Wires	500	AC	110-120	4,5	3,5	-			
SQ-A25 024-00 0001	SHF-4-10L5	SHF-56005	Lead Wires	500	AC	24	4,5	3,5	-			
SQ-A25 26H-00 0001	SHF-4-10L6	SHF-56006	Lead Wires	500	AC	265-277	4,5	3,5	-			
SQ-A25 22G-00 0870	SHF-4-10L3	SHF-56024	Lead Wires	1500	AC	220-240	4,5	3,5	-	IP00	F <sup>3)</sup>	155
SQ-A25 11A-00 0840	SHF-4-10L4	SHF-56025	Lead Wires	1500	AC	110-120	4,5	3,5	-			
SQ-A25 024-00 0161	SHF-4-10L5	SHF-56009	Lead Wires	1500	AC	24	4,5	3,5	-			
SQ-A44 22G-00 0771	SHF-4-10FA5	SHF-56012	Spade (Faston) <sup>4)</sup>	-	AC	220-240	6	5	-			
SQ-A44 220-00 0001	SHF-4-10FA1	SHF-56013	Spade (Faston) <sup>4)</sup>	-	AC	220	6	5	-			
SQ-A44 11B-00 0001	SHF-4-10FA2	SHF-56014	Spade (Faston) <sup>4)</sup>	-	AC	120	6	5	-			
SQ-A44 10A-00 0001	SHF-4-10FA3	SHF-56015	Spade (Faston) <sup>4)</sup>	-	AC	100-110	6	5	-			
SQ-A44 024-00 0771	SHF-4-10FA4	SHF-56016	Spade (Faston) <sup>4)</sup>	-	AC	24	6	5	-			
SQ-A44 26H-00 0831	SHF-4-10FA6	SHF-56017	Spade (Faston) <sup>4)</sup>	-	AC	265-277	6	5	-			
SQ-D44 012-00 0001	SHF-4-10FA8	SHF-56019	Spade (Faston) <sup>4)</sup>	-	DC	12	-	-	10	IP54	B <sup>2)</sup>	130
SQ-D44 024-00 0001	SHF-4-10FA9	SHF-56020	Spade (Faston) <sup>4)</sup>	-	DC	24	-	-	11			
SQ-A27 100-00 0001	-	SHF-56021	Bistable/ Lead W.	500	AC	100	18	18	-			
SQ-A27 200-00 0001	-	SHF-56022	Bistable/ Lead W.	500	AC	200	18	18	-	IP54	B <sup>2)</sup>	130
SQ-A27 20K-00 0001	-	SHF-56027	Bistable/ Lead W.	500	AC	220-240	18	18	-			
SQ-D27 012-00 0001	-	SHF-56023	Bistable/ Lead W.	500	DC	12	-	-	20			

- Note:**
- 1) Every coil is applicable to all above specified valve models
  - 2) Max ambient temperature up to + 50°C
  - 3) Max ambient temperature up to + 70°C
  - 4) Wire Harness for coil with Faston connector:  
SQ-000000-090028 (Part Number: SHF-56026)

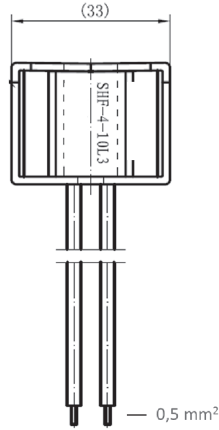
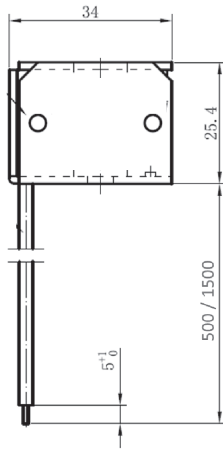




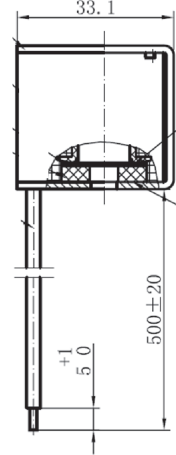
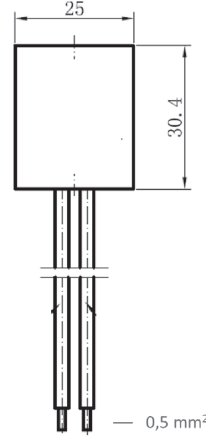
# SANHUA SHF SERIES 4 Way Reversing Valve

## DIMENSIONS - COILS

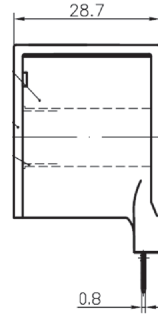
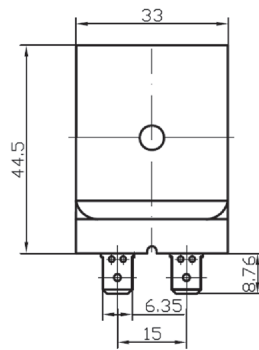
Coils with Lead Wires (SQ-A25 Series)



Bistable Coils (SQ-A/D27 Series)



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



Wire Harness (SQ-000000-090028)

