

SHF-R SERIES**4 WAY
REVERSING VALVE**

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 185 KW (R32, CONDITION 2, $\Delta P=0.1\text{BAR}$)
- 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)

4 WAY REVERSING VALVE

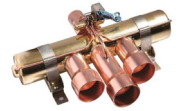


TABLE 1: SHF-R MODEL LIST

General Characteristics											
Valve Model	Product Number	Type of System [Variable or Fixed Speed]	Ø Port	Kv	Connections ODF		MOP	OPD		PED Category	
			[mm]	[m³/h]	ØD	ØE/S/C		Max.	Min.	Fluid	Fluid
					[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

4 WAY REVERSING VALVE



NOMINAL OPERATING CONDITIONS

Nominal Operating Conditions	Condition 1	Condition 2
Condensing Temperature t_c	38°C	54,4°C
Evaporating Temperature t_e	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 $\emptyset C$ to $\emptyset S$ or from $\emptyset E$ to $\emptyset S$)

Capacity Selection Table										
Valve Size	Nominal Cooling Capacity (condition 1)									
	R32		R454B		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	$\Delta P: 0,1$ bar	$\Delta P: 0,2$ 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

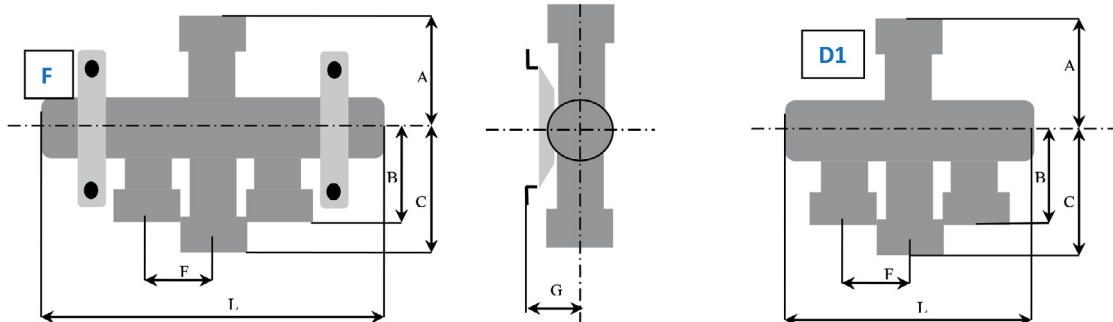
Capacity Selection Table										
Valve Size	Nominal Cooling Capacity (condition 2)									
	R32		R454B		R410A		R134a		R404A / R507	
	$\Delta P: 0,1$ bar	$\Delta P: 0,2$ bar	$\Delta P: 0,1$ bar	$\Delta P: 0,2$ bar	$\Delta P: 0,1$ bar	$\Delta P: 0,2$ bar	$\Delta P: 0,1$ bar	$\Delta P: 0,2$ bar	$\Delta P: 0,1$ bar	$\Delta P: 0,2$ 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

4 WAY REVERSING VALVE



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	213	82	87	100	-	-	33	-	-	0	1,3
SHF-35R-57	D1	213	82	87	100	-	-	33	-	-	0	1,3
SHF-35R-59	D1	213	82	87	100	-	-	33	-	-	0	1,3
SHF-35R-67	D1	213	82	87	100	-	-	33	-	-	0	1,3
SHF-35R-69	D1	213	82	87	100	-	-	33	-	-	0	1,3
SHF-35R-79	D1	213	82	87	100	-	-	33	-	-	0	1,3
SHF-50R-79	D1	235	91	96	109	-	-	37	-	-	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



4 WAY REVERSING VALVE



NOMINAL OPERATING CONDITIONS

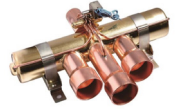
Coil Characteristics												
Coil Model ¹⁾	Winding Code	Part Number	Electrical Function/ Connection Type	Cable Length	Power Supply	Rated Voltage	Power Consumption			Protection Class	Insulat. Class	Max. Op. Temp.
							AC	AC	DC			
							50Hz	60Hz				
[mm]	[-]	[V]	[W]	[W]	[W]	[-]	[-]	[°C]				
SQ-A37024-000004	SHF-4-10L25	10805357502	Lead Wires	500	AC	24	4,5	3,5	-	IP54	F ²⁾	155
SQ-A37100-000001	SHF-4-10L21	10805357602	Lead Wires	500	AC	100	4,5	3,5	-			
SQ-A37115-000013	SHF-4-10L24	10805358302	Lead Wires	500	AC	115	4,5	3,5	-			
SQ-A37200-000001	SHF-4-10L22	10805357702	Lead Wires	500	AC	200	4,5	3,5	-			
SQ-A3720D-000001	SHF-4-10L34	10805357902	Lead Wires	500	AC	200	/	3,5	-			
SQ-A37220-000001	SHF-4-10L3	10805341402	Lead Wires	500	AC	220	6	5	-			
SQ-A3722G-000001	SHF-4-10L3	10805341302	Lead Wires	500	AC	220-240	4,5	3,5	-			
SQ-A3726H-000003	SHF-4-10L26	10805359202	Lead Wires	500	AC	265-277	4,5	3,5	-			
SQ-A3722G-000057	SHF-4-10L3	10805349102	Lead Wires	1500	AC	220-240	4,5	3,5	-			
SQ-A37115-000028	SHF-4-10L24	10805372902	Lead Wires	1500	AC	115	4,5	3,5	-			
SQ-A37024-000001	SHF-4-10L25	10805355602	Lead Wires	1550	AC	24	4,5	3,5	-			
SQ-A5022G-000001	SQ-A5022G	10805356002	Spade (Faston) ³⁾	-	AC	220-240	4,5	3,5	-	IP00	F	155
SQ-A5011A-000001	SQ-A5011A	10805355902	Spade (Faston) ³⁾	-	AC	110-120	4,5	3,5	-			
SQ-A50024-000001	SQ-A50024	10805355802	Spade (Faston) ³⁾	-	AC	24	4,5	3,5	-			
SQ-D44 012-00 00015)	SHF-4-10FA8	10805231802	Spade (Faston) ³⁾	-	DC	12	-	-	10			
SQ-D44 024-00 00015)	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	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: Max ambient temperature up to +50°C

- 1) Every coil is applicable to all above specified valve models
- 2a) SQ-A37: insulation class according to UL is "B". Max Operating temperature: +130°C
- 2b) SQ-A37: insulation class according to VDE is "F". Max Operating temperature: +155°C
- 3) Wire Harness for coil with Fast-on connector available as accessory
- 4) SQ-A27 coils can be used only with SHF valves from size 3 to size 100
- 5) SQ-D44 cannot be used in combination with SHF valves installed in systems operating with A2L and A3 refrigerants.

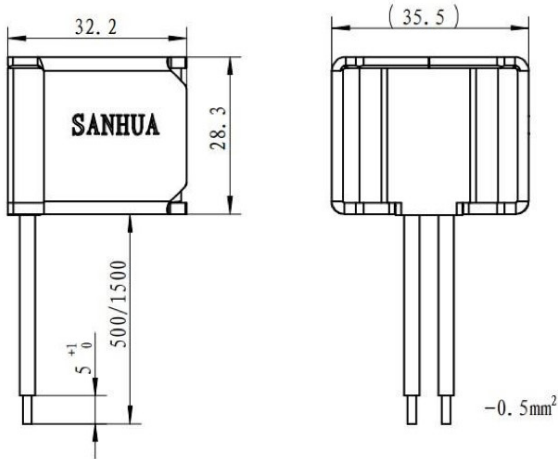
ACCESSORY

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

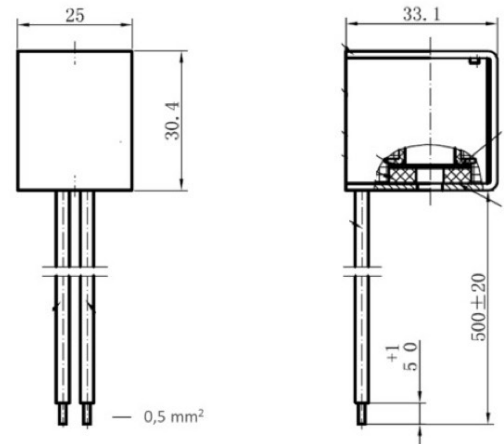


DIMENSIONS - COILS

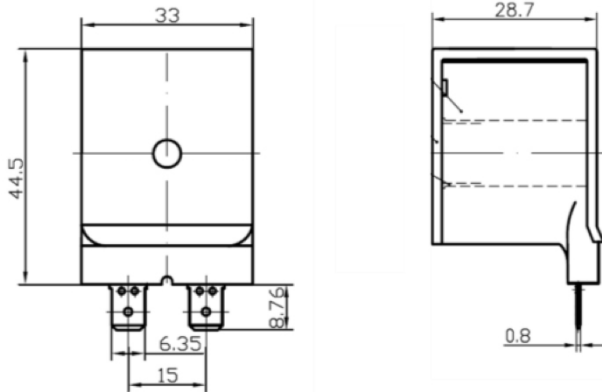
Coils with Lead Wires (SQ-A37 Series)



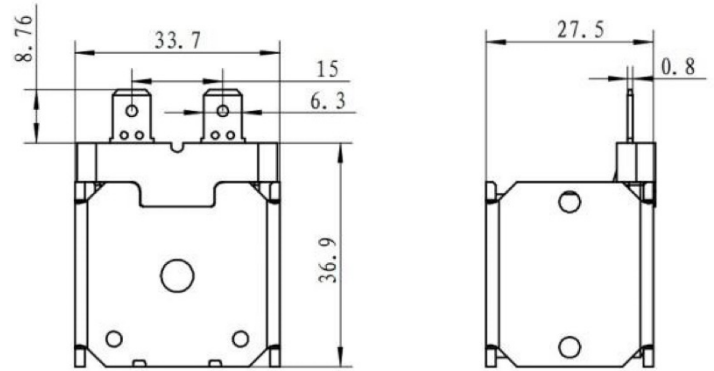
Bistable Coils (SQ-A/D27 Series)



Coils with Spade Connections (SQ-D44 Series)



Coils with Spade Connections (SQ-A50 Series)



Wire Harness (SQ-000000-0900xx)

