

# SOLENOID VALVES

## SV1



Freddox Solenoid Valve is used for electro-mechanical flow control solution in HVAC-R installations.

Able to be driven under 24V or 230V due to a highly protected IP67 coil. It's maximum operating pressure of 45bar and compatibility with HFC, HFO and HC refrigerant makes the Freddox Solenoid Valve a must have for all kinds of liquid and gas flow control, as pump down cycles, hot gas defrost or multiuse flow management.

The Freddox solenoid valves are available in flare SAE or brazed connections, from 1/4" to 1"1/8 and 6mm. to 28mm.

### Features

- Solenoid valves normally closed
- Kv range from 0.16 to 5 m<sup>3</sup>/h
- Certified coil for flammable refrigerant management ( EU class A2L / A3) (220V only)
- High Max operating pressure up to 45bar (652 psi)
- Operating pressure difference up to 31bar (450 psi)
- Excellent performance with high internal tightness
- Opening action by piloted membrane to minimise pressure drop across the valve ( Kv > 0.8m<sup>3</sup>/h)
- Operating temperature from -30 to +105°C
- Ambient temperature from -30 to +55°C
- Relative humidity from 0 to 95% RH
- Coil control voltage AC 24V or AC 220-240V
- Orientable coil DIN plug for easier wiring
- Compliant with Low Voltage directive. EN 60335-2-24 / 2-40 / 2-89
- Conformity to Directive 2014/68/EU (PED) Art. 4.3



# TECHNICAL DATA

## Valve body



**SV1...S**  
solder ODF



**SV1...T**  
male SAE fittings

MODEL	BRIC CODE	Ø	Kv (m³/h)	Actuation	MOP (Mpa)	Max. OPD (Mpa)	Min. OPD (Mpa)
SV1.016.014I.S	4401-10125033503	1/4"	0.16	Direct	4.5	3.1	0.00
SV1.023.014I.S	4401-10125032303	1/4"	0.23	Direct	4.5	3.1	0.00
SV1.023.006M.S	4401-10125031903	6 mm	0.23	Direct	4.5	3.1	0.00
SV1.023.038I.S	4401-10125032103	3/8"	0.23	Direct	4.5	3.1	0.00
SV1.023.010M.S	4401-10125032403	10 mm	0.23	Direct	4.5	3.1	0.00
SV1.080.038I.S	4401-10125032503	3/8"	0.8	Pilot	4.5	3.1	0.00
SV1.190.012I.S	4401-10125032703	1/2"	1.9	Pilot	4.5	3.1	0.005
SV1.190.012M.S	4401-10125032003	12 mm	1.9	Pilot	4.5	3.1	0.005
SV1.230.016M.S	4401-10125033003	16 mm	2.3	Pilot	4.5	3.1	0.005
SV1.500.078I.S	4401-10125033203	7/8"	5	Pilot	4.5	3.1	0.02
SV1.500.118I.S	4401-10125033303	1"1/8	5	Pilot	4.5	3.1	0.02
SV1.500.028M.S	4401-10125033403	28 mm	5	Pilot	4.5	3.1	0.02
SV1.016.014I.T	4401-10125032603	1/4"	0.16	Direct	4.5	3.1	0.00
SV1.023.038I.T	4401-10125032803	3/8"	0.23	Direct	4.5	3.1	0.00
SV1.080.038I.T	4401-10125032903	3/8"	0.8	Pilot	4.5	3.1	0.00
SV1.190.012I.T	4401-10125032203	1/2"	1.9	Pilot	4.5	3.1	0.005
SV1.230.058I.T	4401-10125033103	5/8"	2.3	Pilot	4.5	3.1	0.005



## Coil with DIN Plug

MODEL	BRIC CODE	Rated Voltage (Vac)	Power (W)	Voltage Tolerance	Insulation Class	Protection Class
SC1.024AC.D.M.000	4401-10820021503	24	10.5 (50Hz) 8.5 (60Hz)	-15% +10%	F	IP67
SC1.220AC.D.M.000	4401-10820021603	220 - 240	12 (50Hz) 10 (60Hz)	-15% +10%	F	IP67

# TECHNICAL DATA

## Selection Table

MODEL	ΔP (bar)	NOMINAL COOLING CAPACITY (LIQUID LINE) <sup>(1)</sup> (kW)												
		R134A	R407C	R407F	R407A	R448A	R449A	R450A	R513A	R1234ze	R452	R410A	R1234yf	R32
SV1.016_	0.15	3.04	3.13	3.18	2.91	2.73	2.81	2.76	2.46	2.72	2.17	3.21	2.27	4.57
SV1.023_	0.15	4.37	4.50	4.57	4.18	3.93	4.04	3.97	3.53	3.91	3.12	4.62	3.26	6.57
SV1.080_	0.15	15.2	15.6	15.9	14.5	13.7	14.0	13.8	12.3	13.6	10.9	16.1	11.3	22.8
SV1.190_	0.15	36.1	37.2	37.8	34.5	32.4	33.3	32.8	29.2	32.3	25.8	38.1	26.9	54.3
SV1.230_	0.15	43.7	45.0	45.7	41.8	39.3	40.4	39.7	35.3	39.1	31.2	46.2	32.6	65.7
SV1.500_	0.15	95.0	97.8	99.3	90.8	85.3	87.7	86.3	76.7	84.9	67.9	100	70.9	143

MODEL	ΔP (bar)	NOMINAL COOLING CAPACITY (SUCTION LINE) <sup>(1)</sup> (kW)												
		R134a	R407C	R407F	R407A	R448A	R449A	R450A	R513A	R1234ze	R452	R410A	R1234yf	R32
SV1.016_	0.15	0.27	0.34	0.37	0.34	0.29	0.35	0.25	0.26	0.22	0.31	0.46	0.24	0.58
SV1.023_	0.15	0.39	0.49	0.53	0.48	0.42	0.50	0.36	0.38	0.32	0.45	0.66	0.35	0.83
SV1.080_	0.15	1.37	1.70	1.83	1.68	1.46	1.74	1.25	1.32	1.12	1.56	2.28	1.20	2.90
SV1.190_	0.15	3.26	4.05	4.34	4.00	3.46	4.12	2.96	3.15	2.67	3.70	5.41	2.86	6.88
SV1.230_	0.15	3.94	4.90	5.25	4.84	4.19	4.99	3.59	3.81	3.23	4.48	6.55	3.46	8.32
SV1.500_	0.15	8.57	10.7	11.4	10.5	9.11	10.9	7.80	8.28	7.03	9.75	14.2	7.52	18.1

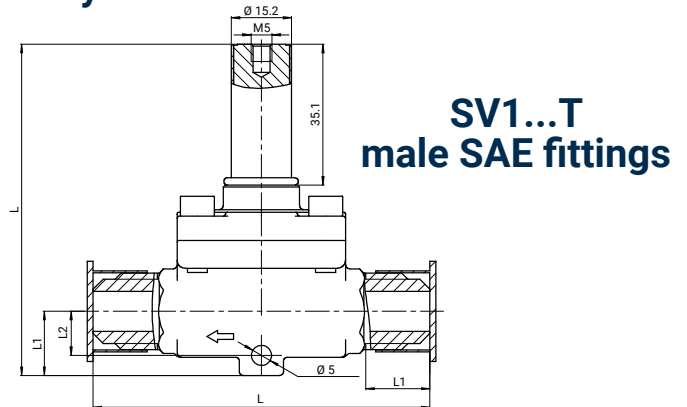
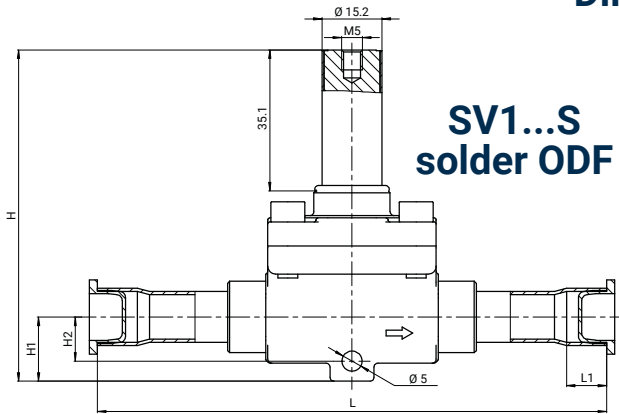
MODEL	ΔP (bar)	NOMINAL COOLING CAPACITY (DISCHARGE LINE) <sup>(2)</sup> (kW)												
		R134a	R407C	R407F	R407A	R448A	R449A	R450A	R513A	R1234ze	R452	R410A	R1234yf	R32
SV1.016_	0.8	1.21	1.60	1.68	1.54	1.41	1.54	1.11	1.11	1.01	1.29	1.86	1.01	2.42
SV1.023_	0.8	1.74	2.30	2.42	2.22	2.02	2.21	1.59	1.59	1.46	1.85	2.68	1.45	3.48
SV1.080_	0.8	6.04	7.99	8.42	7.72	7.04	7.70	5.54	5.53	5.06	6.44	9.31	5.03	12.11
SV1.190_	0.8	14.3	19.0	20.0	18.3	16.7	18.3	13.2	13.1	12.0	15.3	22.1	11.9	28.8
SV1.230_	0.8	17.4	23.0	24.2	22.2	20.2	22.1	15.9	15.9	14.6	18.5	26.8	14.5	34.8
SV1.500_	0.8	37.8	49.9	52.6	48.3	44.0	48.1	34.6	34.6	31.6	40.2	58.2	31.4	75.7

**Nominal conditions :**

(1) Evaporating temperature  $t_e = -10^\circ\text{C}$ . condensing temperature  $t_c = +30^\circ\text{C}$ . subcooling of refrigerant  $\Delta t_{sc} = 4\text{K}$  and superheating of refrigerant  $\Delta t_{sh} = 5\text{K}$   
(2) Evaporating temperature  $t_e = -10^\circ\text{C}$ . condensing temperature  $t_c = +40^\circ\text{C}$ . subcooling of refrigerant  $\Delta t_{sc} = 4\text{K}$  and superheating of refrigerant  $\Delta t_{sh} = 5\text{K}$

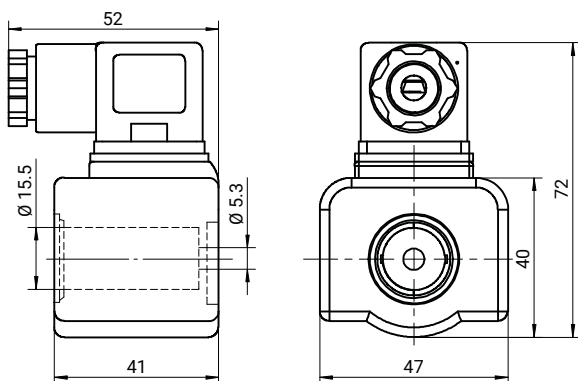
# TECHNICAL DATA

## Dimensions - Body



MODEL	BRIC CODE	Ø	L (mm)	L1 (mm)	H (mm)	H1 (mm)	H2 (mm)	Weight (kg)
SV1.016.014I.S	4401-10125033503	1/4"	102	7	70	14	9	0.185
SV1.023.014I.S	4401-10125032303	1/4"	102	7	70	14	9	0.185
SV1.023.006M.S	4401-10125031903	6 mm	102	7	70	14	9	0.185
SV1.023.038I.S	4401-10125032103	3/8"	117	9	70	14	9	0.209
SV1.023.010M.S	4401-10125032403	10 mm	117	9	70	14	9	0.209
SV1.080.038I.S	4401-10125032503	3/8"	111	9	75	14	10	0.252
SV1.190.012I.S	4401-10125032703	1/2"	127	10	82.6	16	11	0.404
SV1.190.012M.S	4401-10125032003	12 mm	127	10	82.6	16	11	0.404
SV1.230.016M.S	4401-10125033003	16 mm	176	12	87.7	20	15	0.602
SV1.500.078I.S	4401-10125033203	7/8"	191	17	103	18.5	-	0.992
SV1.500.118I.S	4401-10125033303	1"1/8	214	22	103	18.5	-	1.030
SV1.500.028M.S	4401-10125033403	28 mm	214	22	103	18.5	-	1.029
SV1.016.014I.T	4401-10125032603	1/4"	59	12	70	14	9	0.186
SV1.023.038I.T	4401-10125032803	3/8"	70	14	70	14	9	0.212
SV1.080.038I.T	4401-10125032903	3/8"	69	14	75	14	10	0.264
SV1.190.012I.T	4401-10125032203	1/2"	84	16	82.5	16	11	0.419
SV1.230.058I.T	4401-10125033103	5/8"	104	18.5	87.7	20	15	0.626

## Dimensions - Coil



MODEL	BRIC CODE	Weight (kg)
SC1.024AC.D.M.000	4401-10820021503	0.083
SC1.220AC.D.M.000	4401-10820021603	0.083

Manufacturer reserves the right to change any product specifications without notice.. Ref. : 4401-SV1\_2307\_EN