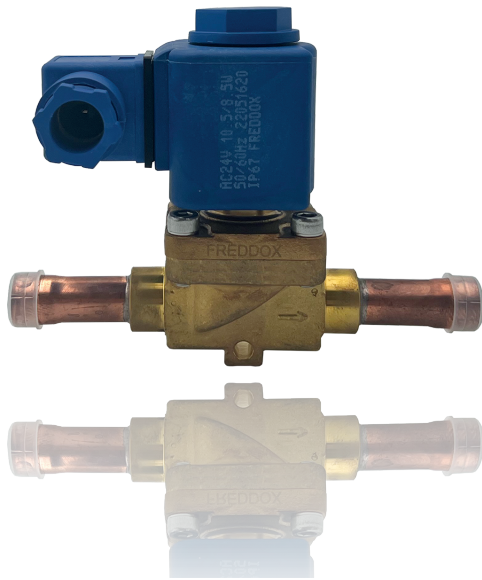


# SOLENOID VALVES

## SV1



Freddox solenoid valve are used for electro-mechanical flow control solution in HVAC-R installations.

Able to be driven under 24V or 230V thanks to their highly protected IP67 coil, their maximum operating pressure of 45bar and compatibility with HFC, HFO and HC ( refrigerant make them a must have choice for all kind 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 minimize 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<br>(m <sup>3</sup> /h) | Actuation | MOP<br>(Mpa) | Max. OPD<br>(Mpa) | Min. OPD<br>(Mpa) |
|----------------|-------------------|-------|---------------------------|-----------|--------------|-------------------|-------------------|
| SV1.016.014I.S | 4401-MDFA032H006  | 1/4"  | 0,16                      | Direct    | 4,5          | 3,1               | 0,00              |
| SV1.023.014I.S | 4401-MDFA033H016  | 1/4"  | 0,23                      | Direct    | 4,5          | 3,1               | 0,00              |
| SV1.023.006M.S | 4401-MDFA033H020  | 6 mm  | 0,23                      | Direct    | 4,5          | 3,1               | 0,00              |
| SV1.023.038I.S | 4401-MDFA033H018  | 3/8"  | 0,23                      | Direct    | 4,5          | 3,1               | 0,00              |
| SV1.023.010M.S | 4401-MDFA033H022  | 10 mm | 0,23                      | Direct    | 4,5          | 3,1               | 0,00              |
| SV1.080.038I.S | 4401-MDFA036H016  | 3/8"  | 0,8                       | Pilot     | 4,5          | 3,1               | 0,00              |
| SV1.190.012I.S | 4401-MDFA0310H010 | 1/2"  | 1,9                       | Pilot     | 4,5          | 3,1               | 0,005             |
| SV1.190.012M.S | 4401-MDFA0310H012 | 12 mm | 1,9                       | Pilot     | 4,5          | 3,1               | 0,005             |
| SV1.230.016M.S | 4401-MDFA0315H014 | 16 mm | 2,3                       | Pilot     | 4,5          | 3,1               | 0,005             |
| SV1.500.078I.S | 4401-MDFA0320H018 | 7/8"  | 5                         | Pilot     | 4,5          | 3,1               | 0,02              |
| SV1.500.118I.S | 4401-MDFA0320H020 | 1"1/8 | 5                         | Pilot     | 4,5          | 3,1               | 0,02              |
| SV1.500.028M.S | 4401-MDFA0320H022 | 28 mm | 5                         | Pilot     | 4,5          | 3,1               | 0,02              |
| SV1.016.014I.T | 4401-MDFA032L004  | 1/4"  | 0,16                      | Direct    | 4,5          | 3,1               | 0,00              |
| SV1.023.038I.T | 4401-MDFA033L010  | 3/8"  | 0,23                      | Direct    | 4,5          | 3,1               | 0,00              |
| SV1.080.038I.T | 4401-MDFA036L001  | 3/8"  | 0,8                       | Pilot     | 4,5          | 3,1               | 0,00              |
| SV1.190.012I.T | 4401-MDFA0310L006 | 1/2"  | 1,9                       | Pilot     | 4,5          | 3,1               | 0,005             |
| SV1.230.058I.T | 4401-MDFA0315L006 | 5/8"  | 2,3                       | Pilot     | 4,5          | 3,1               | 0,005             |



## Coil with DIN Plug

| MODEL             | BRIC CODE           | Rated voltage<br>(Vac) | Power<br>(W)              | Voltage tolerance | Insulation class | Protection class |
|-------------------|---------------------|------------------------|---------------------------|-------------------|------------------|------------------|
| SC1.024AC.D.M.000 | 4401-MQA03024000021 | 24                     | 10,5 (50Hz)<br>8,5 (60Hz) | -15%<br>+10%      | F                | IP67             |
| SC1.220AC.D.M.000 | 4401-MQA0322G000044 | 220 - 240              | 12 (50Hz)<br>10 (60Hz)    | -15%<br>+10%      | F                | IP67             |

# TECHNICAL DATA

## Selection table

| MODEL    | $\Delta P$<br>(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    | $\Delta P$<br>(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    | $\Delta P$<br>(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  |

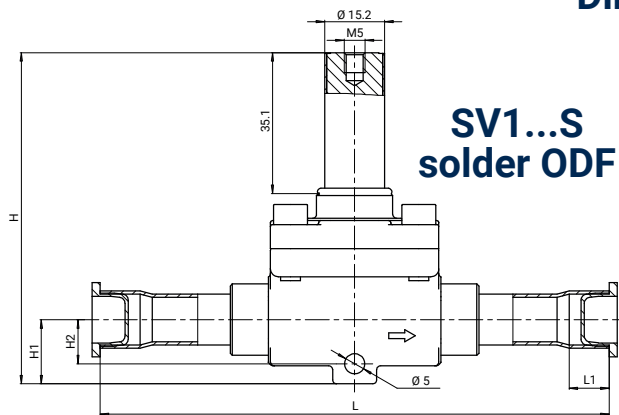
Nominal conditions :

(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  $\Delta t_{sh} = 5\text{K}$

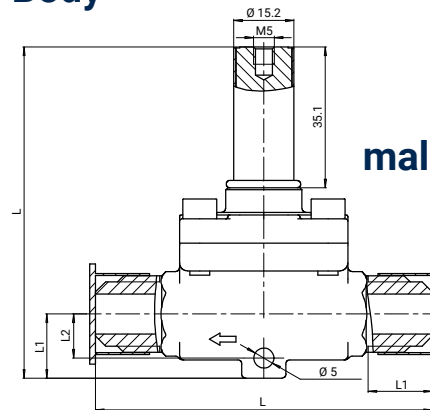
(2) Evaporating temperature  $t_e = -10^\circ\text{C}$ , condensing temperature  $t_c = +40^\circ\text{C}$ , subcooling of refrigerant  $\Delta t_{sc} = 4\text{K}$  and superheating of refrigerant  $\Delta t_{sh} = 5\text{K}$

# TECHNICAL DATA

## Dimensions - Body



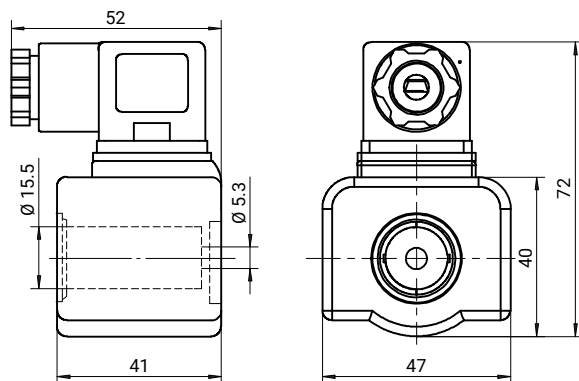
**SV1...S**  
solder ODF



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

| MODEL          | BRIC CODE         | Ø     | L (mm) | L1 (mm) | H (mm) | H1 (mm) | H2 (mm) | WEIGHT (kg) |
|----------------|-------------------|-------|--------|---------|--------|---------|---------|-------------|
| SV1.016.014I.S | 4401-MDFA032H006  | 1/4"  | 102    | 7       | 70     | 14      | 9       | 0,185       |
| SV1.023.014I.S | 4401-MDFA033H016  | 1/4"  | 102    | 7       | 70     | 14      | 9       | 0,185       |
| SV1.023.006M.S | 4401-MDFA033H020  | 6 mm  | 102    | 7       | 70     | 14      | 9       | 0,185       |
| SV1.023.038I.S | 4401-MDFA033H018  | 3/8"  | 117    | 9       | 70     | 14      | 9       | 0,209       |
| SV1.023.010M.S | 4401-MDFA033H022  | 10 mm | 117    | 9       | 70     | 14      | 9       | 0,209       |
| SV1.080.038I.S | 4401-MDFA036H016  | 3/8"  | 111    | 9       | 75     | 14      | 10      | 0,252       |
| SV1.190.012I.S | 4401-MDFA0310H010 | 1/2"  | 127    | 10      | 82,6   | 16      | 11      | 0,404       |
| SV1.190.012M.S | 4401-MDFA0310H012 | 12 mm | 127    | 10      | 82,6   | 16      | 11      | 0,404       |
| SV1.230.016M.S | 4401-MDFA0315H014 | 16 mm | 176    | 12      | 87,7   | 20      | 15      | 0,602       |
| SV1.500.078I.S | 4401-MDFA0320H018 | 7/8"  | 191    | 17      | 103    | 18,5    | -       | 0,992       |
| SV1.500.118I.S | 4401-MDFA0320H020 | 1"1/8 | 214    | 22      | 103    | 18,5    | -       | 1,030       |
| SV1.500.028M.S | 4401-MDFA0320H022 | 28 mm | 214    | 22      | 103    | 18,5    | -       | 1,029       |
| SV1.016.014I.T | 4401-MDFA032L004  | 1/4"  | 59     | 12      | 70     | 14      | 9       | 0,186       |
| SV1.023.038I.T | 4401-MDFA033L010  | 3/8"  | 70     | 14      | 70     | 14      | 9       | 0,212       |
| SV1.080.038I.T | 4401-MDFA036L001  | 3/8"  | 69     | 14      | 75     | 14      | 10      | 0,264       |
| SV1.190.012I.T | 4401-MDFA0310L006 | 1/2"  | 84     | 16      | 82,5   | 16      | 11      | 0,419       |
| SV1.230.058I.T | 4401-MDFA0315L006 | 5/8"  | 104    | 18,5    | 87,7   | 20      | 15      | 0,626       |

## Dimensions - Coil



| MODEL             | BRIC CODE           | WEIGHT (kg) |
|-------------------|---------------------|-------------|
| SC1.024AC.D.M.000 | 4401-MQA03024000021 | 0,083       |
| SC1.220AC.D.M.000 | 4401-MQA0322G000044 | 0,083       |

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