

New perspectives with  
**Danfoss Saginomiya 4-Way Reversing Valves**



**Reliable season change**



**CHV, STF, VHV 4-way reversing valves**

• **Wide application range**

- complete capacity range
- available for all common refrigerants (R407C, R410A, R134a, R22)
- many different connection diameters and configurations

• **High reliability**

- unique design
- instantaneous changeover at minimum pressure differential
- mechanism to prevent incomplete changeover
- minimized leakage

• **CE & UL approved**

4 Way valve selection

| R407C       |      |           |      |         |      |                              |              |                               |              |             |
|-------------|------|-----------|------|---------|------|------------------------------|--------------|-------------------------------|--------------|-------------|
| Code number | CHV  | Discharge |      | Suction |      | Capacity / kW (condition 1*) |              | Capacity / kW (condition 2**) |              | qty per box |
|             |      | mm        | inch | mm      | inch | Δ p: 0,1 bar                 | Δ p: 0,2 bar | Δ p: 0,1 bar                  | Δ p: 0,2 bar | pcs.        |
| 061L1002    | 0101 | 8.1       | 1/4" | 9.7     | 3/8" | 3.76                         | 5.3          | 3.48                          | 4.9          | 10          |
| 061L1052    | 0201 | 9.7       | 3/8" | 12.95   | 1/2" | 7.18                         | 10.11        | 6.63                          | 9.34         | 8           |
| 061L1000    | 0301 | 12.95     | 1/2" | 16.15   | 5/8" | 8.73                         | 12.29        | 8.06                          | 11.34        | 10          |
| 061L1001    | 0401 | 12.8      | 1/2" | 19.15   | 3/4" | 15.91                        | 22.4         | 14.7                          | 20.7         | 4           |
| 061L1005    | 0712 | 19.15     | 3/4" | 22.3    | 7/8" | 27.03                        | 38.05        | 24.98                         | 35.17        | 2           |

| R407C       |       |           |      |         |        |                              |              |                               |              |             |
|-------------|-------|-----------|------|---------|--------|------------------------------|--------------|-------------------------------|--------------|-------------|
| Code number | STF   | Discharge |      | Suction |        | Capacity / kW (condition 1*) |              | Capacity / kW (condition 2**) |              | qty per box |
|             |       | mm        | inch | mm      | inch   | Δ p: 0,1 bar                 | Δ p: 0,2 bar | Δ p: 0,1 bar                  | Δ p: 0,2 bar | pcs.        |
| 061L1012    | 0101Z | 8.1       | 1/4" | 9.7     | 3/8"   | 3.76                         | 5.3          | 3.48                          | 4.9          | 50          |
| 061L1161    | 0104Z | 8.1       | 1/4" | 9.7     | 3/8"   | 4.45                         | 6.26         | 4.11                          | 5.79         | 50          |
| 061L1008    | 0201Z | 9.7       | 3/8" | 12.95   | 1/2"   | 7.18                         | 10.11        | 6.63                          | 9.34         | 40          |
| 061L1162    | 0202Z | 9.7       | 3/8" | 12.95   | 1/2"   | 7.18                         | 10.11        | 6.63                          | 9.34         | 40          |
| 061L1129    | 0204Z | 9.7       | 3/8" | 16.03   | 5/8"   | 7.18                         | 10.11        | 6.63                          | 9.34         | 40          |
| 061L1130    | 0205Z | 8.1       | 1/4" | 12.95   | 1/2"   | 7.18                         | 10.11        | 6.63                          | 9.34         | 40          |
| 061L1135    | 0208Z | 9.7       | 3/8" | 16.03   | 5/8"   | 7.18                         | 10.11        | 6.63                          | 9.34         | 40          |
| 061L1128    | 0209Z | 9.7       | 3/8" | 12.95   | 1/2"   | 7.18                         | 10.11        | 6.63                          | 9.34         | 40          |
| 061L1163    | 0214Z | 12.95     | 1/2" | 16.03   | 5/8"   | 7.18                         | 10.11        | 6.63                          | 9.34         | 40          |
| 061L1009    | 0301Z | 12.95     | 1/2" | 16.15   | 5/8"   | 8.73                         | 12.29        | 8.06                          | 11.34        | 36          |
| 061L1132    | 0306Z | 12.95     | 1/2" | 19.2    | 3/4"   | 8.73                         | 12.29        | 8.06                          | 11.34        | 36          |
| 061L1010    | 0401Z | 12.8      | 1/2" | 19.15   | 3/4"   | 15.91                        | 22.4         | 14.7                          | 20.7         | 20          |
| 061L1164    | 0404Z | 12.8      | 1/2" | 19.15   | 3/4"   | 18.13                        | 25.53        | 16.76                         | 23.6         | 20          |
| 061L1125    | 0409Z | 12.8      | 1/2" | 22.4    | 7/8"   | 15.91                        | 22.4         | 14.7                          | 20.7         | 20          |
| 061L1166    | 0413Z | 16        | 5/8" | 22.4    | 7/8"   | 15.91                        | 22.4         | 14.7                          | 20.7         | 20          |
| 061L1167    | 0420Z | 12.8      | 1/2" | 22.4    | 7/8"   | 18.13                        | 25.53        | 16.76                         | 23.6         | 20          |
| 061L1011    | 0712Z | 19.15     | 3/4" | 22.3    | 7/8"   | 27.03                        | 38.05        | 24.98                         | 35.17        | 12          |
| 061L1126    | 0715Z | 22.5      | 7/8" | 28.7    | 1 1/8" | 27.03                        | 38.05        | 24.98                         | 35.17        | 12          |
| 061L1169    | 0728Z | 22.25     | 7/8" | 22.3    | 7/8"   | 27.03                        | 38.05        | 24.98                         | 35.17        | 12          |

| R407C       |      |           |        |         |        |                              |              |                               |              |             |
|-------------|------|-----------|--------|---------|--------|------------------------------|--------------|-------------------------------|--------------|-------------|
| Code number | CHV  | Discharge |        | Suction |        | Capacity / kW (condition 1*) |              | Capacity / kW (condition 2**) |              | qty per box |
|             |      | mm        | inch   | mm      | inch   | Δ p: 0,1 bar                 | Δ p: 0,2 bar | Δ p: 0,1 bar                  | Δ p: 0,2 bar | pcs.        |
| 061L1016    | 1511 | 22.5      | 7/8"   | 28.9    | 1 1/8" | 30.12                        | 42.39        | 27.82                         | 39.17        | 1           |
| 061L1170    | 1512 | 28.9      | 1 1/8" | 32.05   | 1 1/4" | 30.12                        | 42.39        | 27.82                         | 39.17        | 1           |
| 061L1171    | 1513 | 22.5      | 7/8"   | 32.05   | 1 3/8" | 30.12                        | 42.39        | 27.82                         | 39.17        | 1           |
| 061L1172    | 1514 | 28.9      | 1 1/8" | 35.22   | 1 3/8" | 30.12                        | 42.39        | 27.82                         | 39.17        | 1           |
| 061L1031    | 2011 | 22.5      | 7/8"   | 28.9    | 1 1/8" | 38.49                        | 54.18        | 35.56                         | 50.08        | 1           |
| 061L1032    | 2501 | 25.7      | 1"     | 32.05   | 1 1/4" | 58.18                        | 81.89        | 53.74                         | 75.68        | 1           |
| 061L1105    | 3001 | 32.05     | 1 1/4" | 38.4    | 1 1/2" | 82.13                        | 115.61       | 75.87                         | 106.83       | 1           |
| 061L1182    | 4002 | 38.35     | 1 5/8" | 45.15   | 1 3/4" | 114.64                       | 161.37       | 105.9                         | 149.12       | 1           |
| 061L1181    | 5007 | 38.25     | 1 5/8" | 54.4    | 2 1/8" | 148.86                       | 209.54       | 137.52                        | 193.64       | 1           |

| R410A       |      |           |        |         |        |                              |              |                               |              |             |
|-------------|------|-----------|--------|---------|--------|------------------------------|--------------|-------------------------------|--------------|-------------|
| Code number | VHV  | Discharge |        | Suction |        | Capacity / kW (condition 1*) |              | Capacity / kW (condition 2**) |              | qty per box |
|             |      | mm        | inch   | mm      | inch   | Δ p: 0,1 bar                 | Δ p: 0,2 bar | Δ p: 0,1 bar                  | Δ p: 0,2 bar | pcs.        |
| 061L1173    | 1511 | 22.5      | 7/8"   | 28.9    | 1 1/8" | 36.9                         | 52.05        | 33.25                         | 46.9         | 8           |
| 061L1174    | 2011 | 22.5      | 7/8"   | 28.9    | 1 1/8" | 47.19                        | 66.55        | 42.52                         | 59.98        | 8           |
| 061L1175    | 2501 | 25.7      | 1"     | 32.05   | 1 1/4" | 73.1                         | 100.56       | 64.24                         | 90.62        | 2           |
| 061L1176    | 3001 | 32.05     | 1 1/4" | 38.4    | 1 1/2" | 100.66                       | 141.98       | 90.71                         | 127.96       | 2           |
| 061L1179    | 4001 | 41.7      | 1 5/8" | 41.7    | 1 5/8" | 140.51                       | 198.18       | 126.61                        | 178.6        | 1           |
| 061L1180    | 5001 | 38.35     | 1 5/8" | 54.4    | 2 1/8" | 175.11                       | 246.98       | 157.78                        | 222.56       | 1           |

Condition 1\*: 38°C condensing / 5°C evaporating / 5°C super-heat

Condition 2\*\*: 54,4 °C condensing / 7,2°C evaporating / 5°C super-heat / 5°C sub-cooling

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| R410A       |       |           |      |         |        |                              |                      |                               |                      |             |  |
|-------------|-------|-----------|------|---------|--------|------------------------------|----------------------|-------------------------------|----------------------|-------------|--|
| Code number | STF   | Discharge |      | Suction |        | Capacity / kW (condition 1*) |                      | Capacity / kW (condition 2**) |                      | qty per box |  |
|             |       | mm        | inch | mm      | inch   | $\Delta p$ : 0,1 bar         | $\Delta p$ : 0,2 bar | $\Delta p$ : 0,1 bar          | $\Delta p$ : 0,2 bar | pcs.        |  |
| 061L2047    | 0101G | 8.1       | 1/4" | 9.7     | 3/8"   | 4.61                         | 6.5                  | 4.16                          | 5.87                 | 50          |  |
| 061L1143    | 0104G | 8.1       | 1/4" | 9.7     | 3/8"   | 5.46                         | 7.69                 | 4.91                          | 6.93                 | 50          |  |
| 061L1144    | 0201G | 9.7       | 3/8" | 12.95   | 1/2"   | 8.81                         | 12.43                | 7.94                          | 11.2                 | 40          |  |
| 061L1139    | 0202G | 9.7       | 3/8" | 12.95   | 1/2"   | 8.81                         | 12.43                | 7.94                          | 11.2                 | 40          |  |
| 061L1145    | 0204G | 9.7       | 3/8" | 16.03   | 5/8"   | 8.81                         | 12.43                | 7.94                          | 11.2                 | 40          |  |
| 061L1146    | 0205G | 8.1       | 1/4" | 12.95   | 1/2"   | 8.81                         | 12.43                | 7.94                          | 11.2                 | 40          |  |
| 061L1147    | 0208G | 9.7       | 3/8" | 16.03   | 5/8"   | 8.81                         | 12.43                | 7.94                          | 11.2                 | 40          |  |
| 061L1148    | 0209G | 9.7       | 3/8" | 12.95   | 1/2"   | 8.81                         | 12.43                | 7.94                          | 11.2                 | 40          |  |
| 061L1149    | 0214G | 12.95     | 1/2" | 16.03   | 5/8"   | 8.81                         | 12.43                | 7.94                          | 11.2                 | 40          |  |
| 061L1150    | 0301G | 12.95     | 1/2" | 16.15   | 5/8"   | 10.69                        | 15.08                | 9.63                          | 13.59                | 36          |  |
| 061L1151    | 0306G | 12.95     | 1/2" | 19.2    | 3/4"   | 10.69                        | 15.08                | 9.63                          | 13.59                | 36          |  |
| 061L1152    | 0401G | 12.8      | 1/2" | 19.15   | 3/4"   | 19.5                         | 27.51                | 17.6                          | 24.8                 | 20          |  |
| 061L1153    | 0404G | 12.8      | 1/2" | 19.15   | 3/4"   | 22.23                        | 31.35                | 20                            | 28.3                 | 20          |  |
| 061L1154    | 0409G | 12.8      | 1/2" | 22.4    | 7/8"   | 19.5                         | 27.51                | 17.6                          | 24.8                 | 20          |  |
| 061L1155    | 0413G | 16        | 5/8" | 22.4    | 7/8"   | 19.5                         | 27.51                | 17.6                          | 24.8                 | 20          |  |
| 061L1156    | 0420G | 12.8      | 1/2" | 22.4    | 7/8"   | 22.23                        | 31.35                | 20                            | 28.3                 | 20          |  |
| 061L1157    | 0712G | 19.15     | 3/4" | 22.3    | 7/8"   | 33.14                        | 46.74                | 29.85                         | 42.11                | 12          |  |
| 061L1158    | 0715G | 22.5      | 7/8" | 28.7    | 1 1/8" | 33.14                        | 46.74                | 29.85                         | 42.11                | 12          |  |
| 061L1160    | 0728G | 22.5      | 7/8" | 22.3    | 7/8"   | 33.14                        | 46.74                | 29.85                         | 42.11                | 12          |  |

Condition 1\*: 38°C condensing / 5°C evaporating / 5°C super-heat

Condition 2\*\*: 54,4 °C condensing / 7,2°C evaporating / 5°C super-heat / 5°C sub-cooling

Max working pressure for R22 / R407C versions : 33 bar

Max working pressure for R410A versions : 45 bar

Ambient temperature : -20°C to 55°C

The inch values indicated are the closest to the exact mm dimensions.

## APPLICATION AND PRINCIPLES OF OPERATION

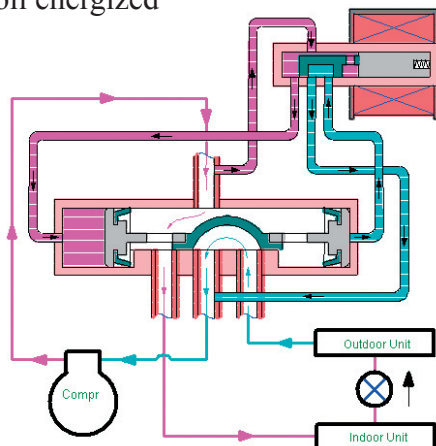
The 4 way valves are used in reversible applications such as heat pumps or reversible air conditioning units and chillers.

The 4 way valve allows an inversion of the refrigeration cycle, changing from cooling mode in summer to heating mode in winter. The cycle inversion is initiated by a small solenoid pilot valve, which pilots the movement of a slider, which changes the direction of the refrigerant. The valve is connected to the discharge and suction pipes.

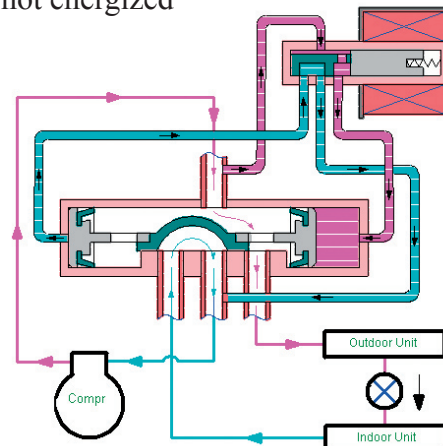
The pilot valve ensures a very reliable changeover from cooling to heating mode; the changeover happens instantaneously with a minimum pressure differential. The valve design also guarantees a minimum pressure drop and a very low risk of leakage.

The STF models offer a wide range of connection dimensions, configurations and capacity for specific applications. The standard CHV models are available in small quantities per box providing increased flexibility.

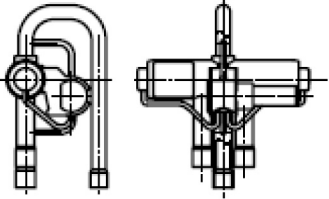
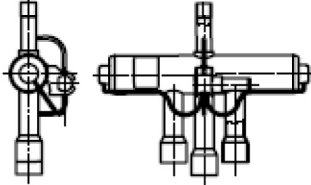
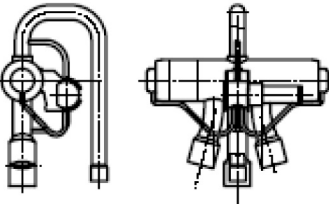
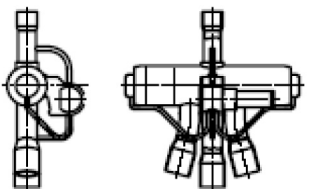
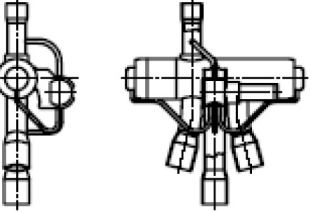
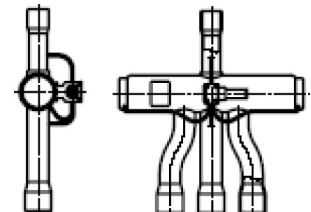
Coil energized



Coil not energized



Valve styles

|          |                                                                                    |                      |                                              |          |                                                                                     |                                                                    |                                                                                                                      |                                           |
|----------|------------------------------------------------------------------------------------|----------------------|----------------------------------------------|----------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| <b>A</b> |   | <b>CHV</b>           | <b>STF</b>                                   | <b>B</b> |   | <b>CHV</b>                                                         | <b>STF</b>                                                                                                           | <b>VHV</b>                                |
|          |                                                                                    | - 0101<br>- 0201     | -0101Z,G<br>-0104Z,G<br>-0201Z,G<br>-0202Z,G |          |                                                                                     | - 0401<br>- 0712<br>- 2011<br>- 2501<br>- 3001<br>- 4002<br>- 5007 | -0205Z,G<br>-0209Z,G<br>-0401Z,G<br>-0404Z,G<br>-0409Z,G<br>-0413Z,G<br>-0420Z,G<br>-0712Z,G<br>-0715Z,G<br>-0728Z,G | -2011<br>-2511<br>-3011<br>-4001<br>-5001 |
| <b>C</b> |   | <b>STF</b>           |                                              | <b>D</b> |   | <b>STF</b>                                                         |                                                                                                                      |                                           |
|          |                                                                                    | -0208Z,G             |                                              |          |                                                                                     | -0204Z,G<br>-0214Z,G                                               |                                                                                                                      |                                           |
| <b>E</b> |  | <b>STF</b>           | <b>CHV</b>                                   | <b>F</b> |  | <b>CHV</b>                                                         | <b>VHV</b>                                                                                                           |                                           |
|          |                                                                                    | -0301Z,G<br>-0306Z,G | -0301                                        |          |                                                                                     | -1511<br>-1512<br>-1513<br>-1514                                   | -1511                                                                                                                |                                           |

Coils

4 way reversing valves work with drip proof resin encapsulated solenoid coil.

Coil codification (example):

**CHV -01A J 504 F 1**  
 I II III IV V VI  
 I CHV, STF or VHV  
 II 01A for valve sizes 01 to 20 series and for 40 and 50 series  
 MOA for valve sizes 25 and 30  
 III **electrical ratings**  
 B: 24V AC  
 D: 110V AC  
 E: 120V AC  
 H: 220V AC  
 I: 230V AC  
 J: 220 to 240V AC  
 IV serial number relating to the coil body  
 V serial number relating to the lead wire / terminal style  
 VI **screw for coil:**  
 1 with screw  
 0 without screw

| Code no. | Type          | Cable length | Rated Voltage | qty per box |
|----------|---------------|--------------|---------------|-------------|
|          |               | mm           | V AC          | pcs.        |
| 061L2011 | CHV-01AH502A1 | 600          | 220           | 20          |
| 061L2017 | CHV-01AB500B1 | 600          | 24            | 10          |
| 061L2013 | CHV-01AJ504F1 | 1200         | 220 to 240    | 10          |
| 061L2033 | CHV-MOAH104A1 | 500          | 220           | 5           |
| 061L2063 | CHV-MOAJ142A1 | 600          | 220 to 240    | 5           |
| 061L2015 | CHV-MOAH108A1 | 1000         | 220           | 20          |
| 061L2062 | CHV-MOAB086A1 | 1200         | 24            | 20          |
| 061L2016 | STF-01AJ504F1 | 1200         | 220 to 240    | 150         |
| 061L2038 | STF-01AB503B1 | 1200         | 24            | 150         |

Standard coils are water-proof (IP67)