

# PRESSURE REGULATING VALVES

High Volume OEM Item (Type DPR)

Type SPR & DPR



## GENERAL DESCRIPTION

- Type SPR ... Direct operated, 2-way valves, designed for maintaining suitable compressor suction pressure in refrigeration or air conditioning units.

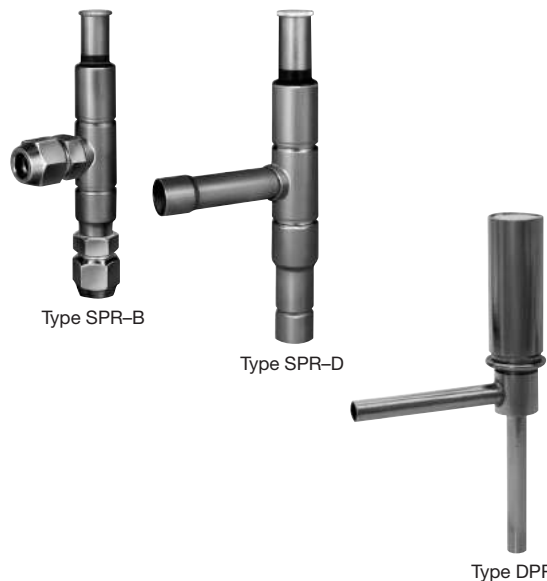
Fitted in suction line after the evaporator to prevent compressor overload.

- Type DPR ... Fitted in by-pass line between compressor discharge and suction line in refrigeration or air conditioning units. (Quantity order only.)

Senses excessive compressor discharge pressure and releases it through the bypass line to the low pressure side to protect the compressor from overloading.

Reduces frequency of cut-in and cut-out of high pressure switch to keep the compressor operating.

A typical advantage is in the heating cycle of heat pump systems during spring or autumn, or at the time when filter is clogged with foreign materials.



## SPECIFICATIONS (Type SPR)

| Operation Specifications | Standard model  | Set pressure range wide model   |
|--------------------------|---|---|
| Max. Working Pressure    | 2.5MPa {25kgf/cm <sup>2</sup> }   |   |
| Airtight Test Pressure   | 3MPa {30kgf/cm <sup>2</sup> }   |   |
| Fulid Temp.              | to 100°C  |   |
| Pressure Adjustment      | ○ Increase 1604 to 05: Approx. 0.08MPa {0.82kgf/cm <sup>2</sup> } /rotation<br>1905 to 07: Approx. 0.05MPa {0.51kgf/cm <sup>2</sup> } /rotation<br>3011 to 13: Approx. 0.03MPa {0.31kgf/cm <sup>2</sup> } /rotation | ○ Increase 1604 to 05: Approx. 0.13MPa {1.33kgf/cm <sup>2</sup> } /rotation<br>1905 to 07: Approx. 0.07MPa {0.71kgf/cm <sup>2</sup> } /rotation<br>3011 to 13: Approx. 0.04MPa {0.41kgf/cm <sup>2</sup> } /rotation |

## TYPE NUMBER SELECTION

Type SPR – Standard model

| Catalog No. |       | Fluid                    | Port Size (mm) | Nominal Capacity (U.S.R.T.) {kW}                      |           |            |            | Connection         |        | Wt. (kg) |
|-------------|-------|--------------------------|----------------|---|-----------|------------|------------|--------------------|--------|----------|
| Type        | Model |                          |                | CT38°C ΔP0.049MPa {0.5kgf/cm <sup>2</sup> } ET – 10°C |           |            |            | Copper Tube (O.D.) | Style  |          |
|             |       | R22                      | R134a          | R404A   | R407C     |            |            |                    |        |          |
| SPR-        | 1604B | Fluorinated Refrigerants | 15             | 1.4 {4.9}   | 0.9 {3.2} | 1.1 {3.9}  | 1.3 {4.7}  | 1/2"               | Flare  | 0.3      |
|             | 1605B |                          |                |   |           |            |            | 5/8"               |        |          |
|             | 1905B |                          | 20             | 3.0 {10.5}  | 1.8 {6.3} | 2.5 {8.8}  | 3.1 {10.9} | 3/4"               | Solder | 0.5      |
|             | 1906B |                          |                |   |           |            |            | 1/2"               |        |          |
|             | 1604D |                          | 15             | 1.4 {4.9}   | 0.9 {3.2} | 1.1 {3.9}  | 1.3 {4.7}  | 5/8"               | Solder | 0.2      |
|             | 1605D |                          |                |   |           |            |            | 3/4"               |        |          |
|             | 1905D |                          | 20             | 3.0 {10.5}  | 1.8 {6.3} | 2.5 {8.8}  | 3.1 {10.9} | 7/8"               | Solder | 0.4      |
|             | 1906D |                          |                |   |           |            |            | 1-1/8"             |        |          |
|             | 1907D |                          | 29             | 5.0 {17.6}  | 2.7 {9.5} | 4.5 {15.8} | 5.4 {19.1} | 1-3/8"             | Solder | 1.3      |
|             | 3011D |                          |                |   |           |            |            |                    |        |          |
| 3013D       |       |                          |                |   |           |            |            |                    |        |          |

• Nominal capacity is based on condensing temp. 38°C, evaporating temp. – 10°C, pressure drop across the valve 0.049 MPa {0.5kgf/cm<sup>2</sup>}, and Set Pressure R134a...0.2MPa {2kgf/cm<sup>2</sup>}, R22,R407C...0.4MPa {4kgf/cm<sup>2</sup>}, R404A...0.5MPa {5kgf/cm<sup>2</sup>}.

Type SPR – Set pressure range wide model

| Catalog No. |        | Fluid                    | Port Size (mm) | Nominal Capacity (U.S.R.T.) {kW}                      | Connection         |        | Wt. (kg) |
|-------------|--------|--------------------------|----------------|---|--------------------|--------|----------|
| Type        | Model  |                          |                | CT38°C ΔP0.049MPa {0.5kgf/cm <sup>2</sup> } ET – 10°C | Copper Tube (O.D.) | Style  |          |
|             |        | R404A                    |                |   |                    |        |          |
| SPR-        | 1604BW | Fluorinated Refrigerants | 15             | 1.08 {3.8}  | 1/2"               | Flare  | 0.3      |
|             | 1605BW |                          |                |   | 5/8"               |        |          |
|             | 1905BW |                          | 20             | 2.1 {7.4}   | 3/4"               | Solder | 0.5      |
|             | 1906BW |                          |                |   | 1/2"               |        |          |
|             | 1604DW |                          | 15             | 1.08 {3.8}  | 5/8"               | Solder | 0.2      |
|             | 1605DW |                          |                |   | 3/4"               |        |          |
|             | 1905DW |                          | 20             | 2.1 {7.4}   | 7/8"               | Solder | 0.4      |
|             | 1906DW |                          |                |   | 1-1/8"             |        |          |
|             | 1907DW |                          | 29             | 4.04 {14.2}   | 1-3/8"             | Solder | 1.3      |
|             | 3011DW |                          |                |   |                    |        |          |
| 3013DW      |        |                          |                |   |                    |        |          |

• Nominal capacity is based on condensing temp. 38°C, evaporating temp. – 10°C, pressure drop across the valve 0.049 MPa {0.5kgf/cm<sup>2</sup>}, and Set Pressure 0.5MPa {5kgf/cm<sup>2</sup>}.

## Type DPR

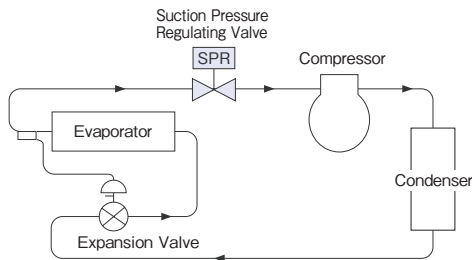
| Catalog No. |       | Fluid                    | Port Size (mm) | * Factory Adjustable Range (MPa) | Connection (mm) |        | Max. Working Press. (MPa) {kgf/cm <sup>2</sup> } | Wt. (kg) |
|-------------|-------|--------------------------|----------------|----------------------------------|-----------------|--------|--|----------|
| Type        | Model |                          |                |                                  | Tube (I.D.)     | Style  |  |          |
| <b>DPR-</b> | 343D  | Fluorinated Refrigerants | 3.4            | 0.98 to 2.45                     | 7.94            | Solder | 2.9 {29}   | 0.11     |

The drawing exchange is necessary for the instruction of working pressure setting. Please contact us before order.

## APPLICATION EXAMPLE

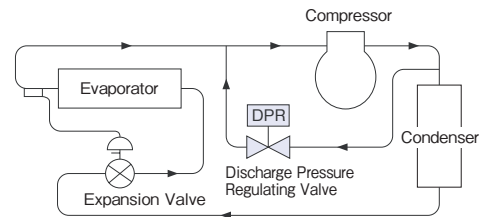
### • Suction pressure regulating valve type SPR

Suction pressure regulating valve is installed between compressor and evaporator in order to keep outlet pressure (suction pressure) under it's setting. In case of rapid increase of load, suction pressure regulating valve could be used to prevent from overload of electric motor for compressor.



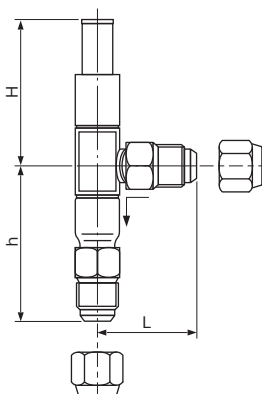
### • Discharge pressure regulating valve type DPR

Discharge pressure regulating valve is mounted in the low-pressure side bypass piping from the discharge piping of a compressor as a control valve to control the discharge pressure to be lower than the specified pressure for the purpose of preventing the compressor from being an abnormal high pressure.

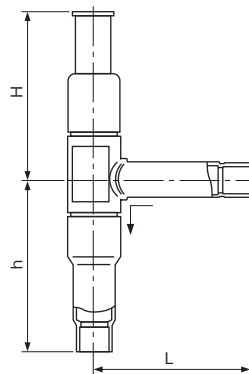


## DIMENSIONS

Type SPR-B

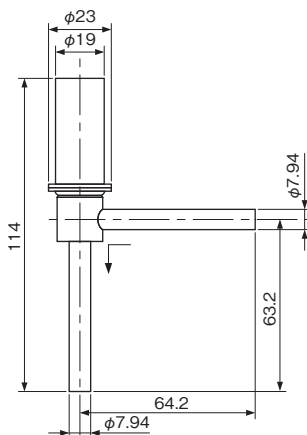


Type SPR-D



| Catalog No. |       | Unit: mm |     |     |
|-------------|-------|----------|-----|-----|
| Type        | Model | L        | H   | h   |
| <b>SPR-</b> | 1604B | 45       | 82  | 91  |
|             | 1605B | 53       |     | 94  |
|             | 1905B | 56       | 109 | 100 |
|             | 1906B | 60       |     | 105 |
|             | 1604D | 71       | 82  | 78  |
|             | 1605D |          |     |     |
|             | 1905D | 100      | 109 | 120 |
|             | 1906D |          |     |     |
|             | 3011D | 140      | 147 | 170 |
|             | 3013D |          |     |     |

Type DPR



Unit: mm