# AL-280

**3**

**Safety Relief Valve**

| Full bore type | Lift type | Safety valve | Relief valve |
| Safety relief valve | Lever type | Closed type | Dash-pot structure |
| Handle type | Stainless | High pressure gas testing products |
| Diaphragm | Non-leakage |

## ■Features

1. Relief valve, exclusive for the pressure control of pumps with high pulsation pressure or large pressure fluctuation.
2. The trim parts (valve and valve seat) are designed to continuously discharge fluid against its set pressure change without popping (patent pending), preventing chattering and hunting.
3. Stainless steel with excellent corrosion resistance is used for the adjusting spring.

## ■Specifications

| Structure | | Closed type |
|---|---|---|
| Application | | Cold and hot water, Oil (heavy oil A, heavy oil B, kerosene) Non dangerous fluid (Less than 20 cst) |
| Working pressure | | 0.05-1.0 MPa |
| Maximum temperature | | 120°C |
| Material | Valve case | Ductile cast iron |
| | Spring case | Ductile cast iron |
| | Valve, valve seat | Stainless steel |
| | Adjusting spring | Stainless steel |
| Connection | | JIS 10K FF flanged |

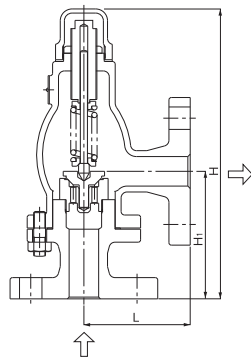· Please refer to the chart in P.**3**-82 for set pressure range.

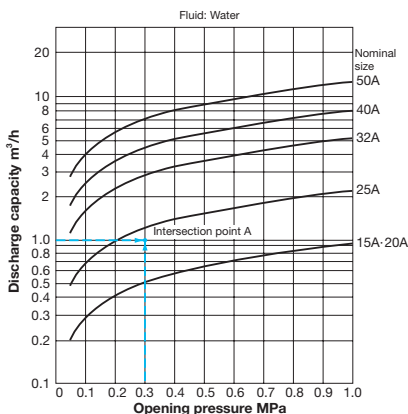· **Dashpot structure**

## ■Dimensions and Weights          (mm)

| Nominal size | L | H₁ | H₁ | Weight (kg) |
|---|---|---|---|---|
| 15A | 90 | 245 | 108 | 4.7 |
| 20A | 90 | 245 | 108 | 5.0 |
| 25A | 90 | 245 | 108 | 6.2 |
| 32A | 91 | 285 | 115 | 8.6 |
| 40A | 91 | 285 | 115 | 8.8 |
| 50A | 105 | 331 | 132 | 13.0 |

■**Flow rate chart**

The flow rate to each nominal size when the accumulation (overpressure to the set pressure) is 25% is as shown in Fig. 1. See Fig. 2 when the accumulation is less than 25%.

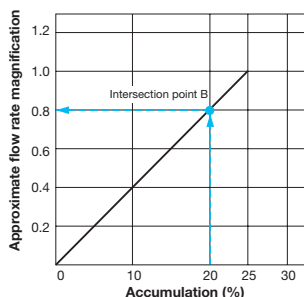**Fig. 1: Nominal size selection chart**



**Fig. 2: Approximate flow rate magnification**

When the accumulation is less than 25%, select an approximate flow rate magnification matching the accumulation based on this chart, and multiply the flow rate at 25% accumulation by the selected magnification.



[Example]
To select a nominal size when the working conditions are pressure: 0.3 MPa and discharge capacity: 1.0 m³/h, first find intersection point A of the pressure of 0.3 MPa on the horizontal axis and the discharge capacity of 1.0 m³/h on the vertical axis in Fig. 1.
Since intersection point A lies between the curve of nominal sizes 15A · 25A and the curve of nominal size 25A, select the larger one, 25A.

[Example]
To obtain the flow rate when the working conditions are nominal size: 25A, setting pressure: 0.1 MPa, and accumulation: 20%, first find the flow rate at an accumulation of 25% in Fig. 1. Then, mark intersection point B of the accumulation of 20% and the diagonal straight line in Fig. 2. Trace horizontally to the left from this intersection point B, and reach the point of 0.8 on the axis of approximate flow rate magnification.

· Discharge capacity (reference) (accumulation: 25%)

(m³/h)

| Nominal size | Flow area (mm²) | Opening pressure (MPa) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.05 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1.0 |
| 15A·20A | 16.7 | 0.20 | 0.29 | 0.41 | 0.51 | 0.59 | 0.66 | 0.72 | 0.78 | 0.83 | 0.88 | 0.93 |
| 25A | 39.2 | 0.49 | 0.69 | 0.98 | 1.20 | 1.38 | 1.54 | 1.69 | 1.83 | 1.96 | 2.07 | 2.19 |
| 32A | 91.9 | 1.14 | 1.62 | 2.29 | 2.81 | 3.24 | 3.63 | 3.97 | 4.29 | 4.59 | 4.87 | 5.13 |
| 40A | 143.6 | 1.79 | 2.53 | 3.58 | 4.39 | 5.07 | 5.67 | 6.21 | 6.71 | 7.17 | 7.61 | 8.02 |
| 50A | 224.3 | 2.80 | 3.96 | 5.60 | 6.86 | 7.92 | 8.86 | 9.71 | 10.49 | 11.21 | 11.89 | 12.53 |

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**Safety Relief Valve**

### ■Relief Valve Discharge Piping

Select a pipe with a same or larger diameter than the outlet diameter of the valve.

Keep at least 500 mm for maintenance space.

Select a pipe with a same or larger diameter than the outlet diameter of the valve.

AL-280

Discharge pipe

Piping support

Check valve

Fitting pipe base

As short as possible.

Liquid discharge port

Flexible joint

Select a pipe with a same or larger diameter than the inlet diameter of the valve.

Pump

P

Piping support

Water tank

Foot valve