

Features of Direct Acting Type <OB-30>



**Application**  
 For small heat exchanger, HVAC and plating apparatus.

**Red or Blue handle**

Red for heating and blue for cooling. Easily adjust the temperature by handle without any tool.

**Dial**

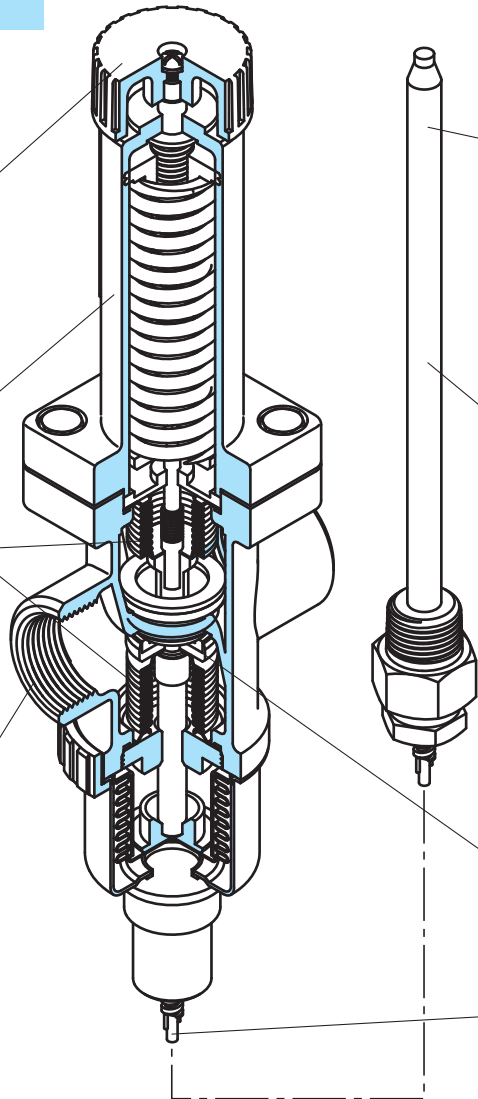
For checking the set temperature.

**Pressure balancing mechanism**

Equipped with two bellows called balance bellows which ensure stable temperature regulation, the OB-30 is not affected by inlet pressure fluctuation.

**Light and compact**

Enables easy piping construction.



**Thermal bulb**

Thermal bulb can be installed in any position because the temperature is sensed by sealing gas which will not be mixed with fluid in case of breakage. It is especially recommended to the food processing industry.

All sizes of both heating and cooling type use same thermal bulb. It is available with stainless steel (SUS304) made thermal well as an option.

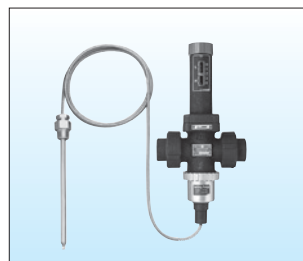
**High durability and sealing function**

Stainless steel and PTFE materials are used for the valve disc, which ensures high durability and sealing function.

2 m is the standard of capillary tube. 3 m and 5 m is also available.



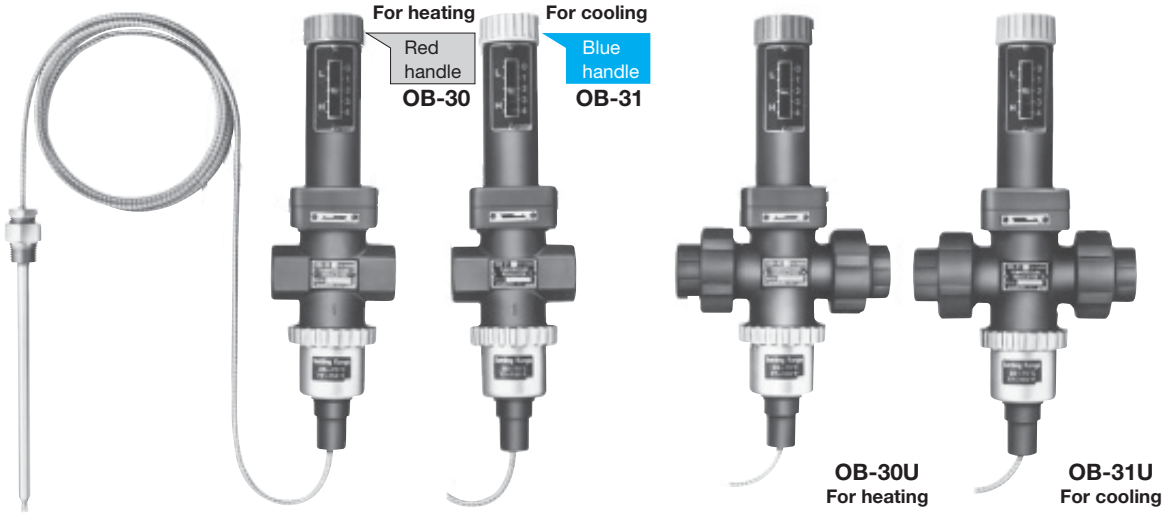
OB-30



OB-30U

# OB-30,30U OB-31,31U

- Direct acting type  Pilot operated type  Heating  Cooling
- Bellows  Diaphragm  Single valve  Double valve
- Soft seat



## ■Features

1. Red handle type is for heating and blue handle type for cooling. It is possible to identify their application at a glance.
2. Excellent durability and high sealability ensured by valve part of stainless steel and fluororesin.
3. Single valve and balance bellows structure offers stable temperature control without being affected by inlet pressure fluctuations.
4. Easy changeable thermal specification by easy attachment and detachment of the body and thermal bulb.
5. Wide temperature adjusting range, applicable to wide variety of applications.
6. The thermal bulb is usable for heating and cooling, which is common for all sizes (15 to 25A). It is possible to select models considering the temperature adjusting range only.
7. Easy setting of the initial temperature by handle operation.

## ■Specifications

### • Body

| Model                      | OB-30                            | OB-30U                       | OB-31                   | OB-31U                       |
|----------------------------|----------------------------------|------------------------------|-------------------------|------------------------------|
| Purpose                    | For heating                      |                              | For cooling             |                              |
| Application                | Steam, Hot water                 |                              | Cold water, Refrigerant |                              |
| Maximum pressure           | 1.0 MPa [1.7 MPa for hot water]  |                              | 1.7 MPa                 |                              |
| Max. differential pressure | 1.0 MPa                          |                              |                         |                              |
| Valve seat leakage         | 0.05% or less of rated flow rate |                              |                         |                              |
| Max. temperature           | 185°C                            |                              |                         |                              |
| Material                   | Body                             | Cast bronze                  |                         |                              |
|                            | Valve disc                       | PTFE                         |                         |                              |
|                            | Valve seat                       | Stainless steel              |                         |                              |
| Connection                 | JIS Rc screwed                   | JIS Rc screwed (union joint) | JIS Rc screwed          | JIS Rc screwed (union joint) |

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Temperature Regulator

· Sensor

|                           |                |                                      |
|---------------------------|----------------|--------------------------------------|
| Heated fluid              |                | Cold and hot water, Oil, Liquid      |
| Cooled fluid              |                |                                      |
| Maximum pressure          |                | 1.0 MPa                              |
| Material                  | Thermal bulb   | Copper pipe (nickel chrome plated) * |
|                           | Capillary      | Copper pipe                          |
|                           | Capillary tube | Stainless steel                      |
| Standard capillary length |                | 2 m                                  |
| Connection                |                | JIS Rc screwed                       |

- Available with thermal well (stainless steel made). Please refer to P.13-37.
- \* In the case of attached to spring chamber, the bush of thermal bulb will be unnecessary. Please refer to P.13-36.
- Available with capillary of 3 or 5 meter.

■ Temperature Adjusting Range

| Temperature adjusting range (°C) | Withstand temperature (°C) |
|----------------------------------|----------------------------|
| 0-35                             | 75                         |
| 25-70                            | 110                        |
| 40-100                           | 140                        |
| 60-130                           | 170                        |
| 70-150                           | 190                        |

- The term “withstand temperature” means the temperature from pressure resistance of the bellows.
- The maximum temperature of the thermal bulb for cooling is 100°C.

■ Dimensions (mm) and Weights (kg)

· Body (OB-30-31)

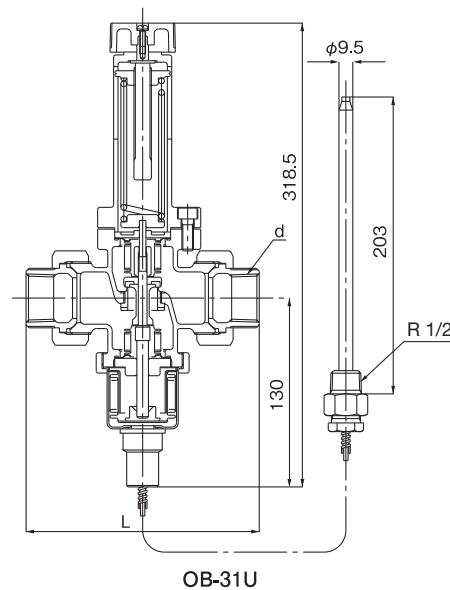
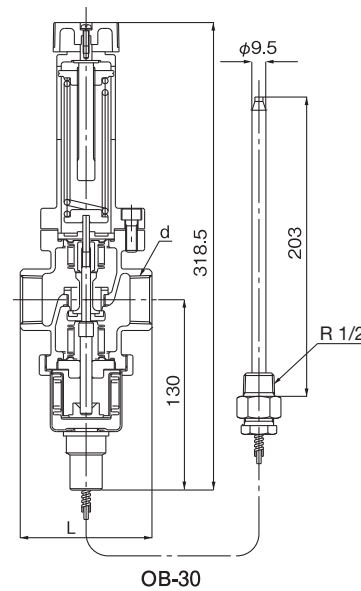
| Nominal size | d      | OB-30-31 |             |
|--------------|--------|----------|-------------|
|              |        | L        | Body weight |
| 15A          | Rc 1/2 | 75       | 2.1         |
| 20A          | Rc 3/4 | 80       | 2.2         |
| 25A          | Rc 1   | 90       | 2.4         |

· Body (OB-30U-31U)

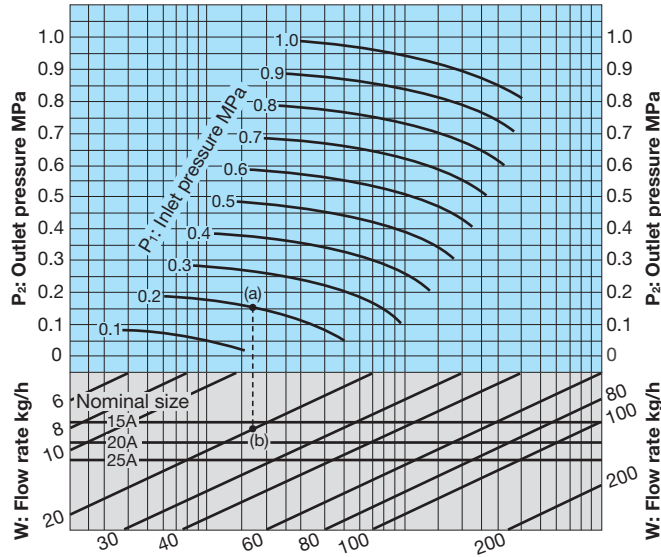
| Nominal size | d      | OB-30U-31U |             |
|--------------|--------|------------|-------------|
|              |        | L          | Body weight |
| 15A          | Rc 1/2 | 160        | 3.1         |
| 20A          | Rc 3/4 | 160        | 3.1         |
| 25A          | Rc 1   | 160        | 3.1         |

· Sensor (Common to OB-30-31-30U-31U)

|                  |        |
|------------------|--------|
| Capillary length | 2 m    |
| Weight           | 0.6 kg |



■OB-30-30U Nominal Size Selection Chart (For Steam)

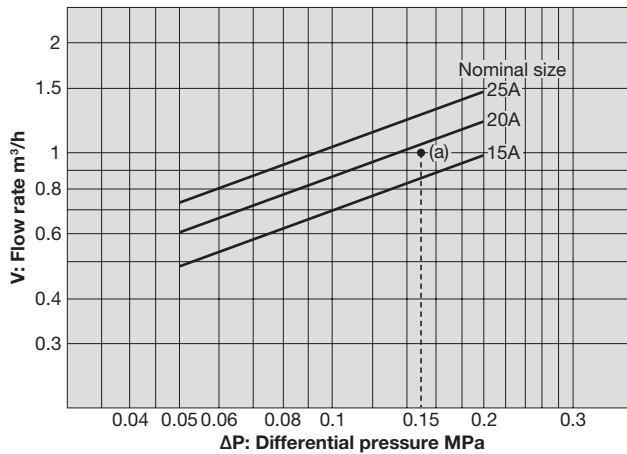


**How to use the chart**

When selecting the nominal size of a temperature regulator whose inlet pressure ( $P_1$ ), outlet pressure ( $P_2$ ), and steam flow rate are 0.2 MPa, 0.15 MPa, and 20 kg/h, respectively, first find intersection point (a) of the inlet pressure of 0.2 MPa and the outlet pressure of 0.15 MPa. Trace down vertically from this intersection point (a) to find intersection point (b) with the flow rate of 20 kg/h. Since this intersection point (b) lies between nominal sizes 15A and 20A, select the larger one, 20A.

\* Chart of the flow rate is a reference value.

■OB-31-31U Nominal Size Selection Chart (For Water)



**How to use the chart**

When selecting the nominal size of a temperature regulator whose inlet pressure, outlet pressure, and flow rate are 0.3 MPa, 0.15 MPa, and 1 m<sup>3</sup>/h, respectively, first find intersection point (a) of the differential pressure ( $\Delta P$ ) of 0.15 MPa (0.3 MPa – 0.15 MPa) before and after the valve and the flow rate of 1 m<sup>3</sup>/h. Since this intersection point (a) lies between nominal sizes 15A and 20A, select the larger one, 20A.

· When the OB-30 or OB-30U is used and the fluid is hot water, use the selection chart shown above.

\* Chart of the flow rate is a reference value.