FINE series PURE
Adjustable Dual Flow Valves

It came to be able to perform valve travel adjustment for setting up a small flow.

Excellent, Ultimate, Fine, Clean & Safe Technology
Adjustable Dual Flow Valves

Adjustable Dual Flow Valves application is to minimize the particle movement due to drastic introduction of fluid into the chamber. It is developed mainly for semiconductor process equipment.
By switching a small flow and a large flow, it is possible to go up chamber internal pressure smoothly. Moreover, by the conventional Dual Flow Valve, adjustment correspondence with the difficult actual use line is possible.

- Adjustable from Small Flow Rate tp Max. Cv Value
- Compact Design
- High durability (High life)

Lock Nut for Small Flow
Flow rate set is possible to any small flow by this Lock Nut.

Small-Flow Adjustment Screw
Small flow rate control is enabled by adoption of special mechanism.

Actuator
The exact flow rate change is possible by using the piston structure actuator.

Small-Flow Port

Large-Flow Port
Max. Cv Value can be obtained by operation pressure supply to a Large-Flow Port.

Valve Construction
Adopted direct diaphragm structure.

1/4" OD

3/8" OD
### Specifications

<table>
<thead>
<tr>
<th>Valves</th>
<th>Nominal Size</th>
<th>Maximum Operating Pressure</th>
<th>Fluid Temperature Range</th>
<th>Max Cv Value (With NPT at 20°C)</th>
<th>Actuation Pressure</th>
<th>End Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6.35</td>
<td>1MPa</td>
<td>-10～+40°C</td>
<td>0.1</td>
<td>0.4～0.6MPa</td>
<td>UJR, UPG F900</td>
</tr>
<tr>
<td></td>
<td>9.52</td>
<td></td>
<td></td>
<td>0.6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Actual leak rate: External leak:5×10⁻⁸ Pa·m³/sec or less, Seat leak:5×10⁻¹⁰Pa·m³/sec or less
- Tested leak rate: External leak:5×10⁻⁸ Pa·m³/sec or less, Seat leak:5×10⁻¹⁰Pa·m³/sec or less
- All valves are Helium leak tested.
- Excellent Durability: 1 million cycles or more.
- #: Depends on the body end connection and size.

### Part Number Designation

**FPR-NSD-71SS2-6.35**

**FPR-ND -71SS2-9.52**

- **A**: FPR: Normal Close Type
- **B**: Stainless steel small direct diaphragm valve
- **C**: NSD: Stainless steel direct diaphragm valve
- **D**: Maximum Operating Pressure
- **E**: Dual Flow Valves
- **F**: End Connection Sizes 6.35 : 1/4" 9.52 : 3/8"

**D**

- 7 : UJR end connection, UPG end connection
- 9 : F900 end connection

- #: Option or build-to-order article.

It may be written as #A and #B on the end of ordering number at the time of product shipment. #A and #B show the history of a product and do not show the change on a function on a size. Cv Value may be changed with seat material, end connection of Body and fluid temperature.

### Operating Principle

- **Small-Flow Port**
- **Large-Flow Port**

You can download the latest catalogue from "http://www.fujkin.co.jp/go/c72001e"
Dimensions (Unit: mm)

Nominal Diameter 6.35

FPR-NSD-71SS2-6.35

Nominal Diameter 9.52

FPR-ND-71SS2-9.52

Same Face-To-Face Dimension as MEGA©-ONE, NEW MEGA©-ONE

Upgrade of the existing lines is easily possible.

You can download the each drawing from Fujikin’s Cad data service. https://www.fujikin.co.jp/cad_s/
**Performance (Reference Data)**

**Test Conditions**

<table>
<thead>
<tr>
<th>Test Condition</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Fluid</td>
<td>N₂ Gas</td>
</tr>
<tr>
<td>Test Fluid Temperature</td>
<td>Room Temperature</td>
</tr>
<tr>
<td>Test Pressure</td>
<td>Inlet Pressure: 0.01MPa</td>
</tr>
<tr>
<td></td>
<td>Outlet Pressure: Atmosphere</td>
</tr>
<tr>
<td>Operating Pressure</td>
<td>0.4MPa</td>
</tr>
</tbody>
</table>

**Test Procedure**

1. Turn the Small-Flow Adjustment Screw for clockwise until slow flow rate becomes zero.
2. Determine zero point at zero flow rate, from this zero point, turn the Small-Flow Adjustment Screw 45° then lock by unti-clockwise.
3. Measure the flow rate.
4. Calculate from measurement result.
5. It examines by turning the Small-Flow Adjustment Screw every 45 degrees counter-clockwise in the above-mentioned procedure of 2-4.

**Relation between rotation angle of the Small-Flow Adjustment Screw and Cv Value**

![Graph showing the relation between rotation angle and Cv Value]

**How to use Adjustable Dual Flow Valves**

**Example 1**
Avoid particle rise (due to the sudden flow) to the chamber. You can just use this Adjustable Dual Flow Valve instead of using two on-off valves and a needle valve.

**Example 2**
It reduces the sudden exhaustion to the chamber at the beginning of vacuum suction process. You can just use this Adjustable Dual Flow Valves, instead of using a 1/4 valve and a 3/8 valve.

By using this Adjustable Dual Flow Valves as shown above, we can promise to offer total cost merit by shortening your design and assembly time and realizing compact space around the equipment.

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