

Aqua Tech



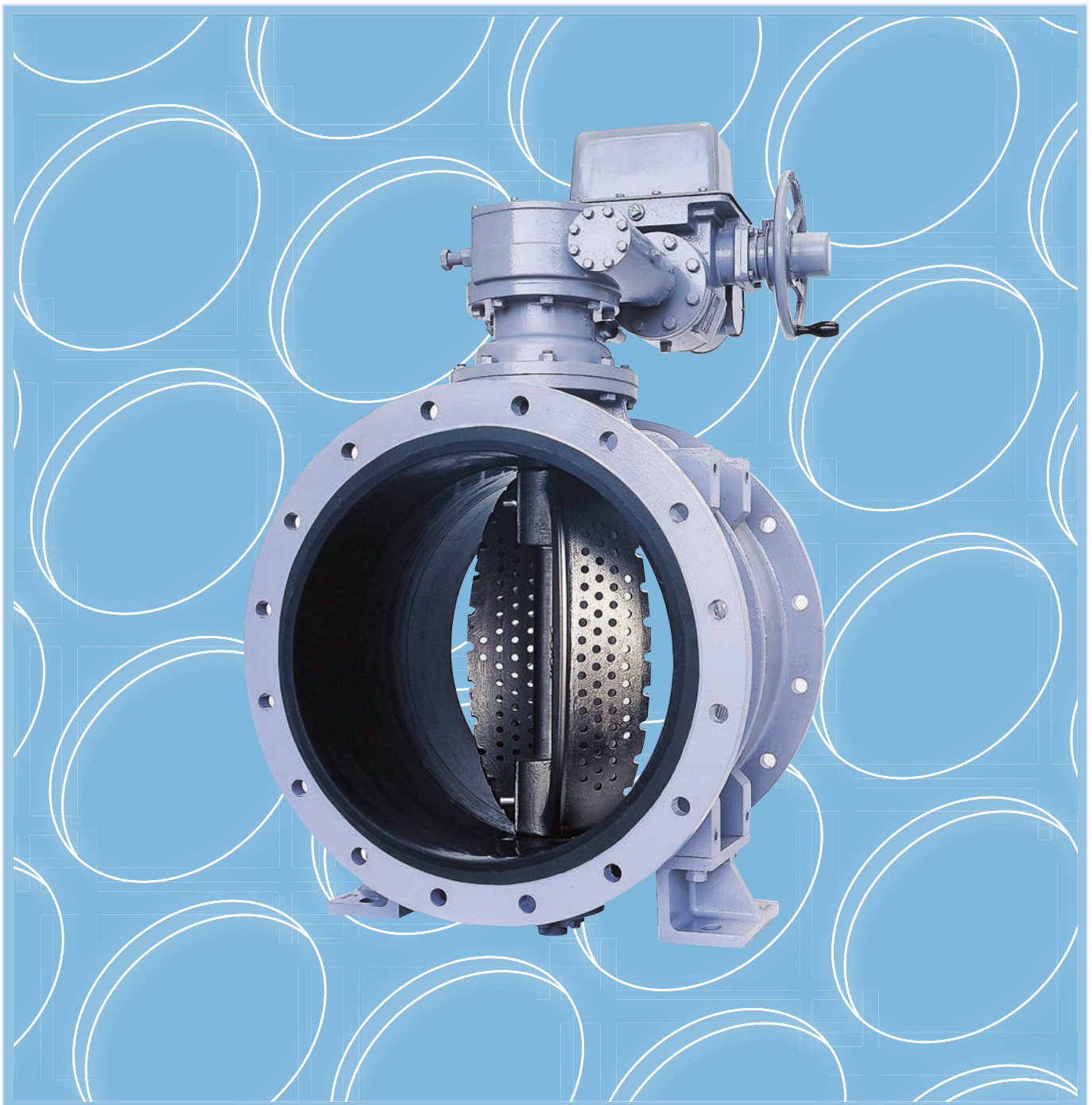
水のマイゼフ

NO. **22e**

JETPORT

A unique flow port design to ensure optimal
controllability and cavitation suppression

Type MBV-JP

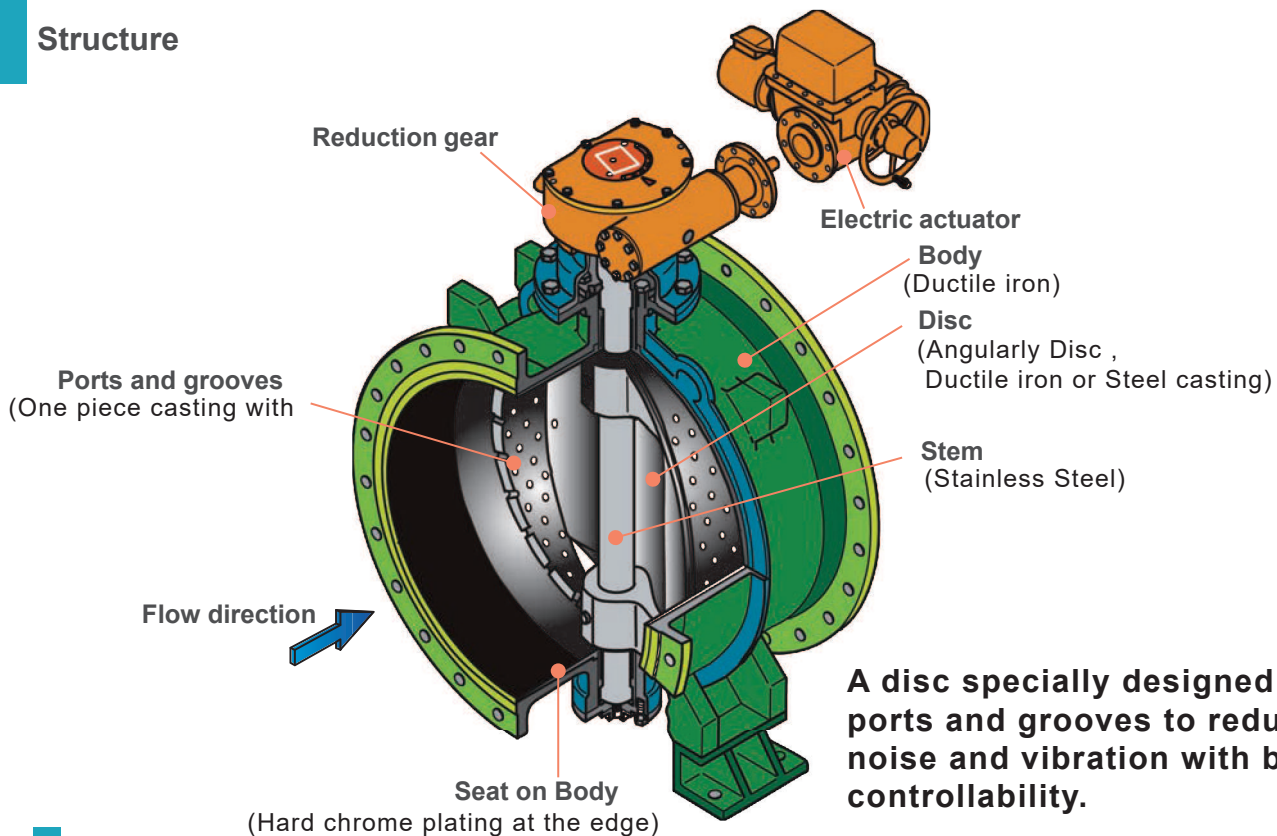


Maezawa Industries, Inc.

Structure & Standard specification

Optimal Design Based on Fluid Property Research

Structure



Standard specification

Nominal Size	100mm - 1200mm	
Media	Potable water	
Type	Type 2 (7.5K)	Type 3 (10K)
Operating Pressure	0.75MPa	1.0MPa
Shell Test	1.75MPa (DN100 - DN350)	2.30MPa (DN100 - DN350)
	1.40MPa (DN400 - DN1200)	2.10MPa (DN400 - DN1200)
Seat Leakage Test	0.75MPa	1.0MPa
Flange dimensions	Conforming to JIS B 2062 (DN100 - DN150)	
	Conforming to JWWA B 138 (DN200 - DN1200)	
Face-to-Face dimensions	Conforming to JIS B 2062 (DN100 - DN150)	
	Conforming to JWWA B 138 (DN200 - DN1200)	

*Over Type 4(16K) operating pressure are available on request.

Standard materials

Material	Body	FCD450-10(ASTM 65-45-12)
	Disc	SCS13(ASTM CF-8) (DN100-300)
	Stem	SUS403(ASTM S 40300)
	Seat on Body	Hard chrome plating at the edge
	Seat on Disc	Synthetic Rubber

Operator Type

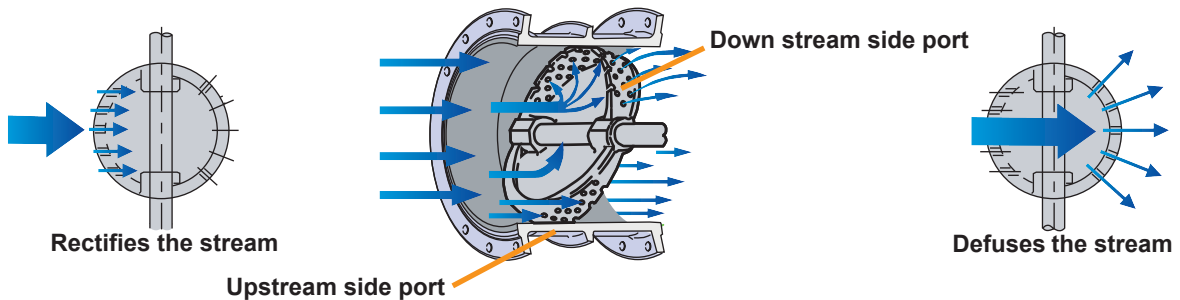
Operator Type	Manual Pneumatic Electric Float type
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Features

Features

1. Low-noise and low vibration

- A) Upstream side: Ports and grooves are placed parallel along with water flow to rectify the stream into uniform Jetstream, thus avoiding swirl to reduce the flow noise.
- B) Downstream side: Ports and grooves are placed to diffuse water flow from the center of the disc to the edge, turning the flow into Jetstream to reduce noise and vibration.



2. Excellent cavitation characteristics

Optimized design of the disc with ports and grooves change water flow into weaker Jetstream, preventing the valve from being damaged by cavitation.

3. Superior controllability

With the best ideal placement of ports and grooves, any % change in the opening from its current value changes the flow by the same percentage of its current value at current opening, i.e. equal percentage valve characteristics.

4. Low dynamic torque

The chevron-profiled reinforced disc will suppress the dynamic torque produced by the water flow which will reduce the load to the gear especially at the middle opening range allowing smooth control operation.



5. Bubble tight shut-off

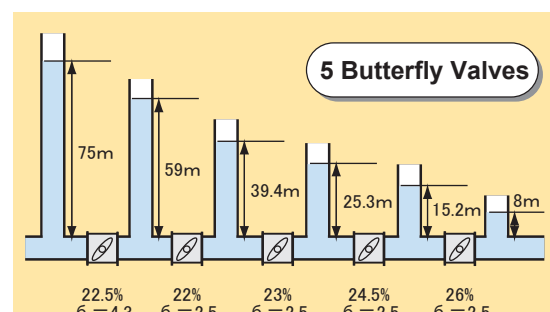
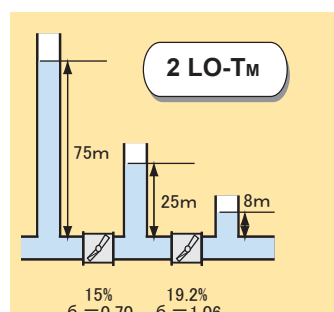
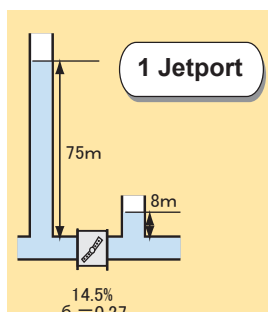
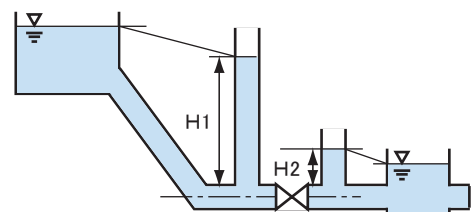
Rubber lining inside the valve body will ensure the bubble tight shut-off low-noise, low vibration and anti-cavitation feature of the valve.

6. Rust-free

Full rubber lining inside the valve body and stainless steel disc reinforce the corrosion-resistance and thus the valve ensures rust-free.

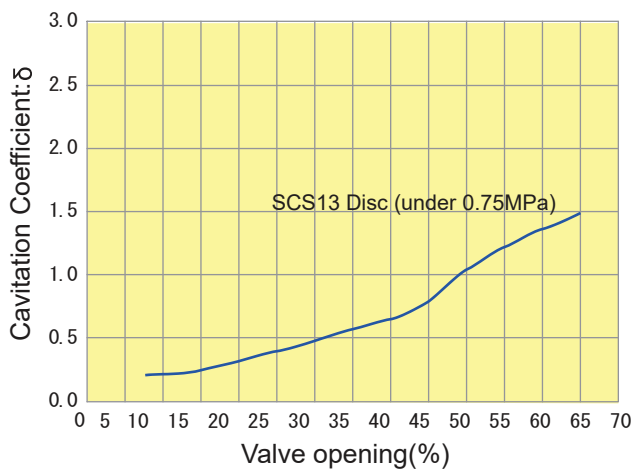
Valve Replacement

- Condition Nominal Size of the valve : $d = \phi 600\text{mm}$
 Primary Pressure Head : $H_1 = 75\text{ m}$
 Secondary Pressure Head : $H_2 = 8\text{ m}$
 Flow Rate : $Q = 825\text{ m}^3 / \text{h}$



Charcteristic

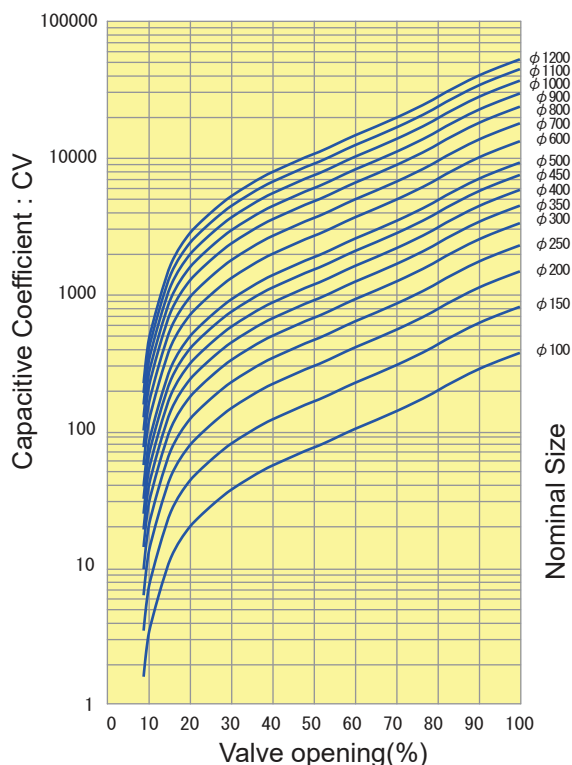
Cavitation characteristic



$$\delta = \frac{H_2 + H_a - H_v}{H_1 - H_2}$$

δ = Cavitation Coefficient
 H_a = Atmospheric pressure(10.332mAq)
 H_1 = Hydraulic head of upstream(mAq)
 H_2 = Hydraulic head of downstream(mAq)
 H_v = Saturated vapor pressure(0.238m, 20°C)

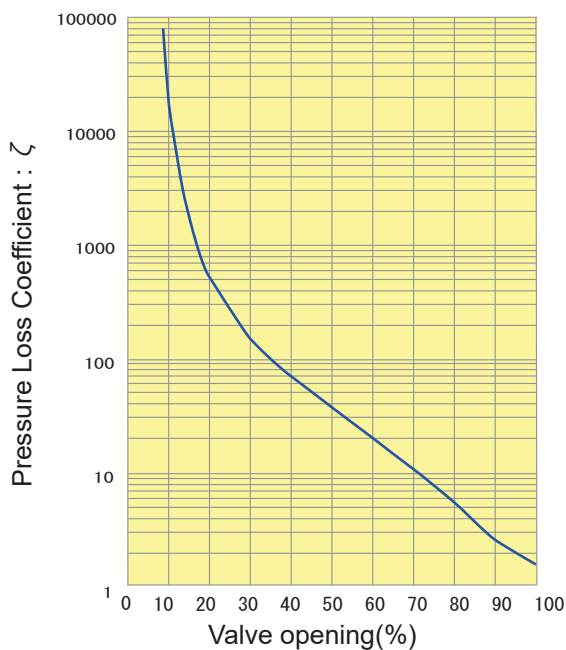
Capacity Coefficient



$$C_v = 0.365 Q \sqrt{\frac{G}{\Delta P}}$$

C_v = Capacitive Coefficient
 Q = Flow Rate(m³ / h)
 ΔP = Differential Pressure of Valve(MPa)
 G = Specific Gravity(Water :1)

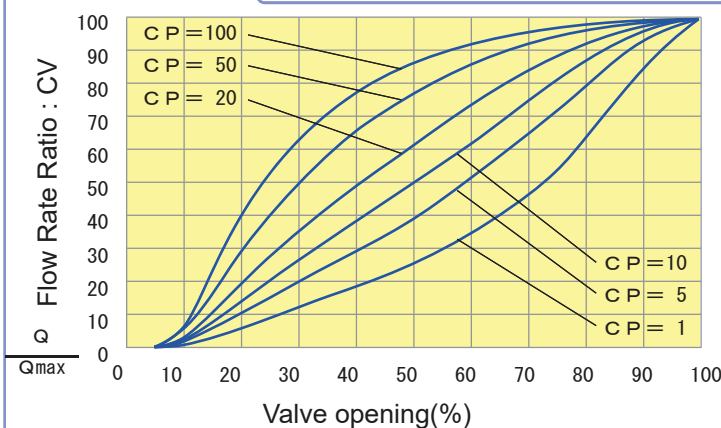
Pressure Loss Coefficient



$$\zeta = \frac{2g(H_1 - H_2)}{V^2}$$

ζ = Pressure Loss Coefficient
 V = Mean Pipe Flow Velocity(m / s)
 g = Specific Gravity(m² / s)

Flow Rate Ratio



$$\frac{Q}{Q_{max}} = \sqrt{\frac{\zeta_{min} + CP}{\zeta + CP}}$$

CP = Pipe Friction Coefficient

Any information in this document is subject to change without notice.



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