Aqua Tech
水のマエザワ

NO. 13e

LO-TM

Butterfly Valve with toothed Vane disc
Flow control over a wide range

Type MBV-LT

LO-TM has angularly shaped disc with vane,like tooth.
This vane is capable of changing flow into several jets,thereby energy of fluid can be dispersed and makes cavitation less than ordinary butterfley valves with lens shaped disc.

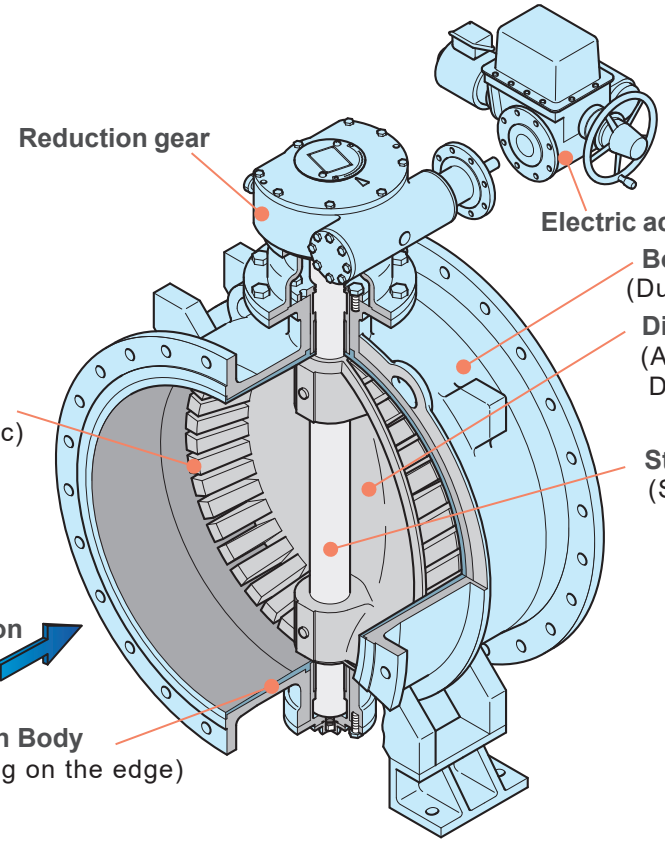
Features

- **High efficient control**
  LO-TM can be used for severe throttling thus enabling wider control range.
- **Exellent anti-cavitation characteristsic**
  Toothed vane will change the flow into several jet streams to disminish the cavitation damages.
- **Low vibration**
  LO-TM suppresses noise and vibration with exellent anti-cavitation characteristics.
- **Tight-shut off**
  LO-TM has fully rubber lined body interior that ensures tight-shut off.

Maezawa Industries, Inc.

Structure & Standard specification

Structure



Standard specification

Nominal Size	100mm - 2200mm	
Media	Potable water, industrial water, irrigation water and river water	
Type	Type 2 (7.5K)	Type 3 (10K)
Operating Pressure	0.75MPa	1.0MPa
Shell Test	1.75MPa (DN150 - DN350)	2.30MPa (DN100 - DN350)
	1.40MPa (DN400 - DN2200)	2.10MPa (DN400 - DN2200)
Seat Leakage Test	0.75MPa	1.0MPa
Flange dimentions	Conforming to JIS B 2062 (DN100 - DN150) Conforming to JWWA B 138 (DN200 - DN1500) Conforming to JWWA B 121 (DN1600 - DN2200)	
Face-to-Face dimensions	Conforming to JIS B 2062 (DN100 - DN150) Conforming to JWWA B 138 (DN200 - DN1500) Conforming to JWWA B 121 (DN1600 - DN2200)	

*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)
		FCD450-10 (DN350 - DN1500)
	Stem	SUS403(ASTM S 40300)
	Seat on Body	Hard chrome plating at the edge
	Seat on Disc	Synthetic Rubber

Operation Type

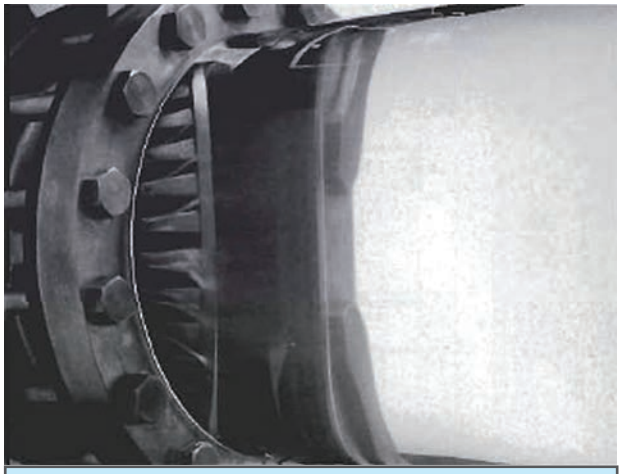
Operator Type	Manual Pneumatic Electric Float type

LO-TM has wide controllability for severe conditions.
Integral Casting tooted vane disc can reduce the flow by 200-300% compared to the conventional lens shaped disc.
The flow control with 2 butterfly valves can be replaced by 1LO-TM.

Cavitation at throttling valve operation

Lens disc (ordinary type)

The acrylic pipe is smashed by big cavity bubbles, and shock waves cause great deal of noise.



Disc with Toothed vane(LO-TM)

Toothed vane changes the flow into several jets. thereby energy of flow can be dispersed,and cavity bubbles become smaller.

Cavitation damage of throttling ordinary valve

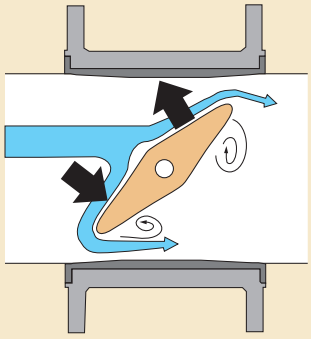
Damage on body

Damage on disc

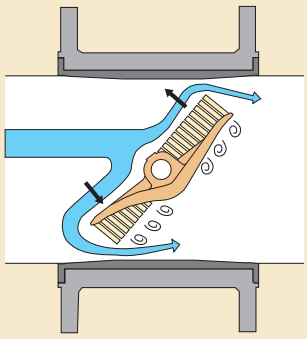
Low dynamic torque

Angularly shaped disc of LO-TM effect a lower dynamic torque than ordinary butterfly valve at intermediate opening position.

Lower torque decrease stress on the reduction gear.



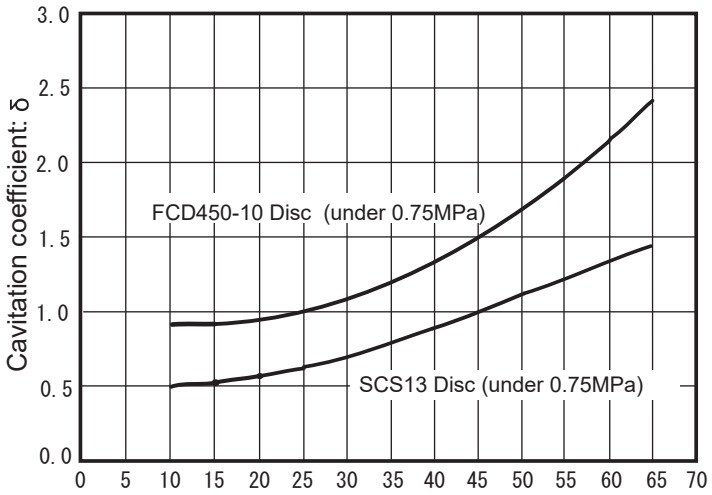
Ordinary butterfly valve



LO-TM

Charcteristics

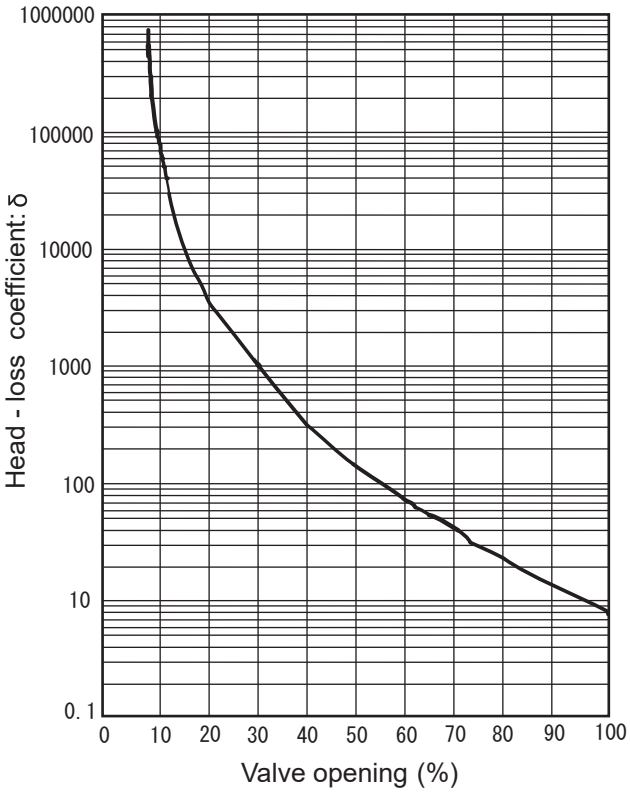
Cavitation characteristics



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

δ = Cavitation Coefficient
H_a = Atmospheric pressure(10.332mAq)
H_1 = Hydrauric head of upstream(mAq)
H_2 = Hydrauric head of downstream(mAq)
H_v = Saturated vapor pressure(0.238Aq20℃)

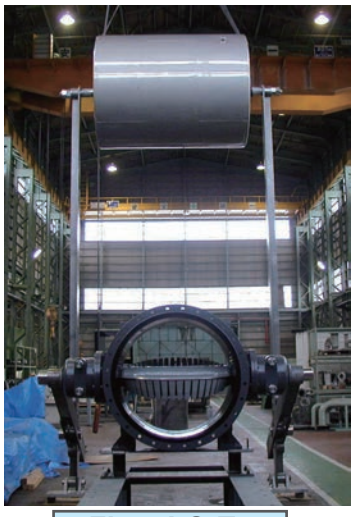
Head- loss coefficient



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

ζ = Head - loss coefficient
V = Flow velocity of valve(m/s)
g = Acceleration of gravity(m/S^2)

Other Options



Float LO-TM

Telescopic Flanged LO-TM

Adjustable length
+5～9 ,-16～50㎜

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