



# 700Z

HVAC

Water  
Supply

Food  
Process

OEM for  
Equipment

The revolutionary design provides higher performance and a wider range of applications.

## Instruction Manual

### Standard Specifications

Model	700Z	
Body type (Connection)	Concentric rubber seated butterfly valve, flangeless (wafer) type	
Valve nominal size	40, 50, 65, 80, 100, 125, 150, 200, 250, 300mm	
Max. working pressure	1.0 MPa	
Allowable seat leakage rate	JIS B 2003 <sup>2013</sup> Rate A (Tight shut-off)	
Flow direction	Bi-direction	
Applicable Standards	Face-to-face dimensions	JIS B 2002 <sup>1987</sup> Series 46 (ISO 5752 table5/BS5155/API609)
	Flange accommodation	JIS5K/10K, ASME125/150Lb, DIN NP10, BS4504 PN10, GB/T 9113.1 1MPa
	Top flange	Lever/Gear type: Valve integrated type; Cylinder/ Electric motor type: In accordance with ISO 5211
Standard materials	Body	ADC12 (Aluminum diecast alloy)
	Disc <sup>*1</sup>	SCS13 (A351 CF8), SCS14 (A351 CF8M), PPS [40~200mm]
	Stem <sup>*1</sup>	SUS420J2 (AISI420)
	Seat ring <sup>*2*3</sup>	EPDM (Option:NBR)
Working temperature range	EPDM: -20 ~ 120°C (Option:NBR: -10 ~ 80 °C)	
Allowable temperature in continuous use <sup>*4</sup>	EPDM: -10 ~ 100°C (Option:NBR: -0 ~ 60 °C)	
Test Pressure	Body shell test	1.5 MPa (Hydraulic pressure) <sup>*0.75MPa for JIS5K</sup>
	Seat leak test	1.1 MPa (Pneumatic pressure) <sup>*0.55MPa for JIS5K</sup>
Actuator <sup>*5</sup>	Manual, pneumatic, electric	
Pipe flow velocity (limit value)	Up to 3 m/s (Valve fully-open and continuous operation)	
Coating	Urethane coating (Munsell 2.5BG 6/12)	

- ※1 Materials shown in ( ) :equivalent materials in ASTM/AISI standard.
- ※2 If the fluid contains even a slight amount of oil, never use an EPDM rubber seat ring. If the fluid contains chlorine, the seat ring may deteriorate early due to combined factors including density and temperature. For details consult our sales office.
- ※3 In the pipe lines where chemicals containing calcium are supplied, it is recommended to use an EPDM rubber seat ring to protect pipes.
- ※4 Fluid temperature range for more than one hour of continuous use. It is required that the fluid does not freeze.
- ※5 The actuator of the product cannot be replaced.
- ※6 Oil-Free type / Oil-Removal type available on request.
- ※7 In case of continuous use over 80 deg-C for high spec high temperature water generator, boiler exhaust heat recovery, generator cooling water line etc. PTFE seated butterfly valve (Model: 846T) or high performance butterfly valve (Model: 304Y) shall be required. Please contact us for the details.

### Handling Precautions

#### Using an impact wrench

Please be careful when using a high-output impact wrench for installation and tightening piping bolts of rubber seated butterfly valves. Doing so can deform or damage parts such as the valve body, seat ring, piping flange (especially the resin lining pipe) and bolts, depending on the type of impact wrench and how it is used.

If you wish to use an impact wrench, use one with a maximum output that is no more than the values (piping bolt strength) given in the table below.

Table1. Use of Metal Flange (Nm)

Bolt dia.	M12	M16	M20	M22
Max. impact wrench output (Nm)	43 or less	106 or less	206 or less	280 or less

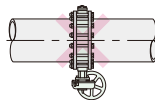
Table2. Use of Resin Flange / Resin Lining Flange (Nm)

Valve port dia.	Bolt dia.	Recommended torque
40 to 100 mm	M16	40
125 to 200 mm	M20	80
250 to 350 mm	M22	100
400 to 500 mm	M24	130
550 to 600 mm	M30	250

#### Piping Instructions

- Verify the materials of the seat ring and disc of the valve before installation.
- When installing a butterfly valve directly to a check valve or pump, install an extension or spacer to prevent the disc of the butterfly valve from contacting the check valve or pump.
- Install the valve only after completing all welding operations around the valve to prevent damage caused by the solder and other welding materials.
- After welding is performed on a flange, wait until it has sufficiently cooled before installing the valve. Never perform welding on a flange with the valve installed.
- In the surrounding piping, make sure that no

welding residue, pipe waste, scaling, or dust remains in the pipe. Clean the inside of the pipes if necessary prior to installation.



- Before blowing air to remove any foreign matter in the piping, install an extension tube with face-to-face dimensions equal to that of the valve in place of the valve. Do not blow air with the valve installed in the pipe, for this may damage the seat ring.
- Clean the mating surface of the flange with compressed air before installation. Remove rust or foreign particles with cleaning alcohol or a neutral detergent.
- With a zinc plated flange, attention must be paid to avoid flange leakage due to an uneven surface of the flange.
- Make sure that there is no warpage in the flange, misalignment, or damage to the mating surface of the flange.
- Be sure to properly align the valve and mounting flanges.
- Install the jack bolts taking care not to damage the seat ring of the valve and adjust the face-to-face dimensions. The face-to-face dimensions should be such that the piping is spread open 3 to 5mm to allow the valve to be inserted.
- If possible, avoid mounting the actuator with it facing downward. Especially for valve sizes of 350mm or larger, where the lower portion of the valve stem bears thrust loads, never install the actuator facing downward.
- After centering the pipes, insert bolts at the proper locations so that the bottom of the valve can rest upon them to prevent the valve from falling through.
- Before tightening the installation bolts, make sure that the disc of the valve does not contact any portion of the flange when it is fully opened.

- The installation bolts should be tightened evenly and in the proper sequence. Tighten one bolt a small amount, and then proceed to another bolt that is located on the other side. Proceed tightening each bolt a little at a time by crisscrossing across the flange to insure well-balanced tightening.
- Upon completion of installation, fully open and close the valve once again to make sure that the disc does not touch the piping or gasket.

#### Operational Instructions

- Prior to operation, clean the outside of the piping with compressed air, and the inside of the piping with running water.
- If the valve is to be used at an opening angle of 30 or under for flow constriction, consult us beforehand.

#### Others

- After installation, open and close the valve once every two weeks if the valve is not used for a long period of time, and open and close the valve a few times before starting actual operation.
- For pressure tests of the piping (where pressures exceed the rated pressure), always keep the valve fully open. Never fully close the valve or use it as a blind flange.
- If the actuator is a manual gear, pneumatic cylinder, electric motor, diaphragm or other similar type, and the ambient temperature is extremely high, it may be necessary to change the O-rings and other rubber components using special materials, or change the motor or solenoids to those with higher insulation levels, so be sure to consult us beforehand.
- Always operate lock lever, worm gear, or center handle type actuators by hand. Never use an extension bar on the lever or a wheel key on the gear handle, for they might damage the handle or lever. Unlike gate valves or globe valves, tightening with a high torque is unnecessary.

**CAUTION**

We will indicate "level" of danger caused by neglecting these cautions as the following:



this mark indicates "possibility of serious injury to persons or damage to components"

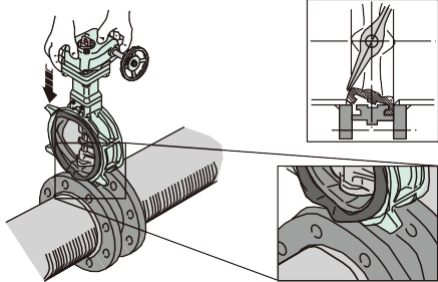
We will indicate following marks for your attention.



this mark indicates that "you must not"



**Forcing the valve between the pipe flanges may cause the seat ring to peel off and cause a leak.**



**Do not throw or mishandle the valve. Do not stand on or put objects on the actuator.**



**Below are causes of damage to the valve seat or leakage from the flanges.**

**Excessive Weld**

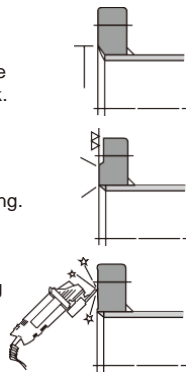
The resulting oversized inner pipe diameter may cause a flange leak.

**Sharp Edges**

May cause damage to the seat ring.

**Rough Surface from Grinding**

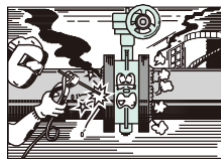
May cause a flange leak.



**Do not install a valve to a flange that has just been welded.**



**Wait until it has sufficiently cooled before installing the valve. Never perform welding on a flange with the valve installed.**



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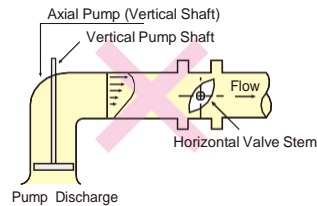
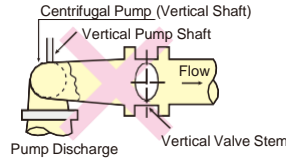
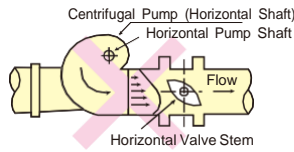
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**PT. TOMOE VALVE BATAM** [www.tomoe-batam.com](http://www.tomoe-batam.com)

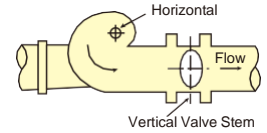
Block F2 Latrade Industrial Park, Tanjung Uncang, Batam Kepulauan Riau 29422, Indonesia  
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**Installing a valve at a pump outlet**

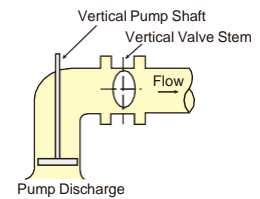
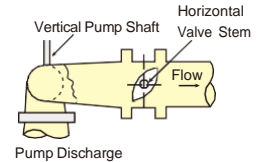
**Incorrect Installation**



**Correct Installation**

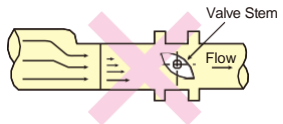
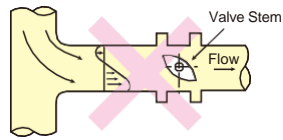
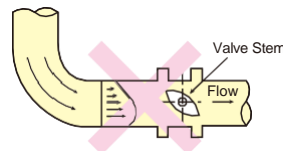


Please do not install the valve on the secondary side of fitting, downstream side of reducer and the secondary side of control valve. Please keep the space of 5 times of the valve diameter at least if you need to install.

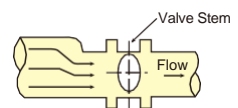
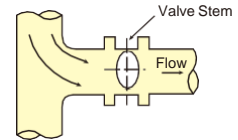
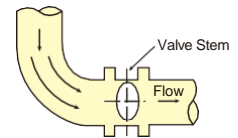


**Installing at an elbow or a reducer**

**Incorrect Installation**

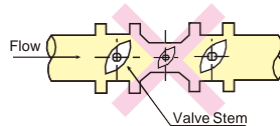


**Correct Installation**



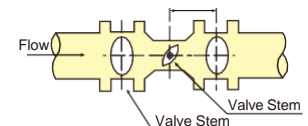
**Combination of a control valve and stop valve**

**Incorrect Installation**



All the valve stems have the same orientation.

**Correct Installation**



The orientation of the valve stems is alternating.