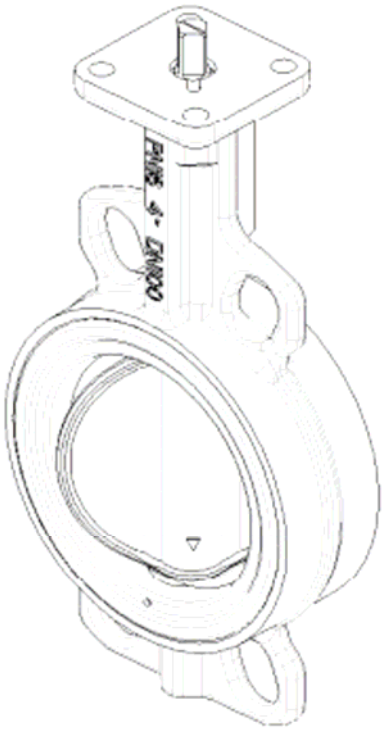
Uni-Valve A/S
VENTILER & INSTRUMENTER
Telefon (+45) 43 43 82 00 • Telefax (+45) 43 43 74 75 • mail@uni-valve.com • www.uni-valve.com

UNI-VF730/733	Butterfly-valve	Installation and Operating manual

UNI-VF730 wafer type
UNI-VF733 lug type



Please read all of this instruction before installing your UNI-VF butterfly valve

CE marking and the pressure equipment directive 97/23/EC

This has been implemented in European Union law by the pressure Equipment Regulations SI 1999/2001.

The regulations apply to all valves with a maximum allowable pressure higher than 0.5 bar. Valves with a maximum allowable pressure not exceeding 0.5 bar are outside the scope of the Directive. Valves are categorized in accordance with the maximum working pressure, size and ascending level of hazard, which is dependent on the fluid being transported. Fluids are classified as Group 1, dangerous fluids or Group 2, all other fluid including steam. Categories are SEP (sound engineering practice) and for ascending levels of hazard, I, II, III or IV. All valves designated as SEP do not bear the CE mark and require a Declaration of Conformity. Categories I, II, III or IV carry the CE mark and require a Declaration of Conformity. (Note – all valves up to and included 25 mm (1") having a maximum allowable pressure greater than 0.5 bar are designed SEP regardless of fluid group.)

Product life cycle

The life of the valve is dependent on its application, frequency of use and freedom from misuse. Compatibility with the system into which it is installed must be considered. The properties of the fluid being transported such as pressure, temperature and the nature of the fluid must be taken into account to minimize or avoid premature failure or non-operability. A well-designed system will take into consideration all the factors considered in the valve design, but additionally electrolytic interaction between dissimilar metals in the valve and the system must be examined. Before commissioning a system, it should be flushed to eliminate debris and chemically cleaned as appropriate to eliminate contamination, all of which will prolong the life of the valve.

Limits of use

The valves to which these installation, operation and maintenance instructions apply have been categorized in accordance with the Pressure Equipment Directive.

The fluid to be transported is limited to Group 2 fluids i.e. non-hazardous and on no account must these valves be used on any Group 1 fluid.

The seat material of these valves determines the limit of application as noted in the following table:

Fluid	Group 2 Liquid Only		
Seat Material	PN	DN	Category
EPDM	10	40 – 500 550 – 900	SEP I*
	16	300 ↓	SEP

* Category I requires CE mark

Fluid	Group 2 Gas and Group 2 Liquid		
Seat Material	PN	DN	Category
Nitrile	10	40 - 100 125 – 350 400 – 500 550 – 900	SEP I* II* III*
	16	40 - 50 65 – 200 250 – 300	SEP I* II*

* Category I, II and III require CE mark

Operating pressures and temperatures:

PN rated valves

Seat Material	Non-shock pressure at Temperature range	Non-shock pressure at Max. temperature
EPDM	10 bar from -20℃ to 120℃	10 bar at 120℃
	16 bar from -20℃ to 120℃	16 bar at 120℃
Nitrile	10 bar from -10℃ to 80℃	10 bar at 80℃
	16 bar from -10℃ to 80℃	16 bar at 80℃

Not suitable for fatigue loading, fire testing, fire hazard environment, corrosive or erosive service, transporting fluids with abrasive solids.

Pressure / temperature rating

- Valves rated at PN10 to EN12334 must be installed in a piping system whose normal pressure and temperature do not exceed these ratings.
- If system testing will subject the valve to pressure in excess of the working pressure rating, this should be within the test pressure for the body with the pressure applied upstream of the obturator.
- The maximum allowable pressure in valves as specified in the standards is for non-shock conditions. Water hammer and impact for example, should be avoided.
- If the limits of use specified in these instructions are exceeded or if the valve is used on applications for which it was not designed, a potential hazard could result.

Storage condition

For tentative storage before piping operation or for long-term storage, keep valves indoors in a cool (temperature: -10 to 50 deg., humidity: 70% or less) and dark room, and maintain valve open at round 10 degree. Do not remove the plastic bag covering the valve body. Keep away from excessive dust and take care in protecting the valve and driving unit from excessive load.

Installation

- Unpack the valve and check the inner parts are clean and free from foreign material and the disk could be operated smoothly. All special packaging material must be removed.
- The Fig. VF-730/733 butterfly valves are wafer pattern and are designed for bi-direction tight shut off and to fit between flanges, located within the flange bolting.
- Valves are precision manufactured items and as such, should not be subjected to misuse such as careless handling, allowing dirt to enter the valve through the end ports, lack of cleaning both valve and system before operation and excessive force during bolting.
- When large valves are provided with lifting lugs or nuts, these should be used to lift the valve.
- When installing butterfly valve directly to a check valve or pump, an extension piece should be employed to prevent the disc of valve from touching check valve or pump.
- Valves must be provided with adequate support. Adjoining pipework must be supported to avoid the imposition of pipeline strains on the valve body.
- Valve end protectors should only be permanently removed immediately before installation. The valve interior should be inspected through the end ports to determine whether it is clean and free from foreign matter.
- The mating faces of the valve and of the adjoining pipework flanges should be checked for correct gasket contact face, surface and condition. If a condition is found which might cause leakage, no attempt to assemble should be made until the condition has been corrected.
- Install the valve after the completion of all welding operations around the valve in order to prevent damage caused by adhesion of welding patters.
- Wait until the welded flange has cooled before installing the valve to the pipe. Never weld the flange with the valve installed.

- Parallel alignment of flanges is especially important in the case of the assembly of a valve into an existing system.
- Chamfer the edged of the flange mating with valve seat ring to avoid possible damage to the seat ring.
- Do not blow air after the valve installed in the pipe. Otherwise this may damage seat ring.
- Clean the matching flange surface, if any rust or foreign matter adhere, remove with solution such as organic solvent.
- Check and see any distortion of the piping flange, misalignment, and damage to the gasket surface of the flange.
- Set a jack bolt to maintain the gap between flanges to insert the valve, the distance between flanges should be 10mm wider than valve body, then the valve could be inserted without interfere with flanges.
- After center the pipe, insert bolts through the lugs of the valve and prevent it from dropping.
- Before tightening the piping bolts, make sure the disc at an opened position and does not interfere with the flange.
- Tighten the piping bolts with a torque not higher than the torque shown in following table.

Bolt size	Torque	
	ft-lb	Nm
5/8” (M16)	110	150
3/4” (M20)	200	270
7/8” (M22)	320	434
1” (M26)	480	650
1-1/8”(M28)	600	815
1-1/4”(M32)	840	1140

- The piping bolts should be tightened alternately and evenly. Tighten one bolt and another diagonally, and then repeat the same procedure to insure well balanced tightening. Please refer to above **BOLT TIGHTENING SEQUENCE.**
- On the completion of the piping, open and close the valve to make sure that the disc does not touch the piping or gasket.

Operating

- Prior to operation, clean the outside of the piping by air-purging, and the inside of the piping by running water through the pipe.
- On the completion of piping, open and close the valve once every two weeks, if the valve was not in use for a long duration, open and close several times before actual operation.
- Keep the valve fully open during the pressure test (in which applied pressure exceeds the rated pressure). Never fully close the valve and use it as a blind flange.
- To avoid possible damage to the lever, hand-wheel and valve, never use an extension bar on the lever or “F” wrench on the hand-wheel. Unlike gate valves or glove valves, no torque tighten is required.
- Do not release the piping bolts before de-pressure the pipe system.

Maintenance

The many Value features minimize wear and maintenance requirements. No routine lubrication is required. All components - stem, disc, seat, taper pin, bushing, stem- seal, etc., are field replaceable, no adjustment is required. If components require replacement, the valve may be removed from the line by placing the disc near the closed position, then supporting the valve and removing the flange bolts.

Disassembly and assembly:

Disassembly

1. 2"(50A) - 12"(300A) Valve.

a. Remove handle, manual gearbox or actuator from mounting flange.
b. Open the valve and position the disc around 135 degree from the fully close position. The retainer pin is then exactly positioned inside the slot of the top flange.
c. Remove the retainer pin with a screwdriver or any sharp tool.
d. Pull out the stem from the body.
e. Take out the disc and liner from the body.

2. 14"(350A) - 36"(900A) Valve.

a. Remove handle, manual gearbox or actuator from mounting flange.
b. Put a match mark on disc before knock out the taper pins.
c. Knock out the taper pins.
d. Pull out the upper stem and bottom stem.
e. Take out the disc and liner from the body.

Assembly

1. 2"(50A) - 12"(300A) Valve

- Push the valve liner into an oval and push it into the body with seat stem holes aligned to body stem holes.
- Insert stem seal and bushing, then push the stem into the stem hole of the body until the bottom of the stem is flush with the inner top edge of the liner.
- Install a light coating of silicone on the I.D. of the liner. Insert the disc into the seat by lining up the disc hole with the stem hole of the seat. (Note: The broached octagon hole in the disc must be toward the bottom of the valve body)
- With a downward pressure the stem back and forth and rotating the disc, until the stem touches the bottom of the body stem hole.
- Pull out stem slightly and replace the stem seal and bush, make the dent of square stem to be parallel with disc, then replace the retainer pin and push back the stem.
- Drive the disc clockwise to close position.
- Reassemble the actuator and adjust the open and close position.

2. 14"(350A) - 36"(900A) Valve.

o Push the valve liner into an oval and push it into the body with seat stem holes aligned to body stem holes.
o Insert stem seal and bushing, then push the bottom stem into the stem hole of the Body until the bottom of the stem is flush with the inner top edge of the liner.
o Install a light coating of silicone or grease on the I.D. of the liner. Place the mounting flange of the body on the ground vertically. Insert the disc into the seat by lining up the disc hole with the stem hole of the seat. (Note: The match marks made on the disc before disassemble are recognized which is upper side.)
o Upside down the body let the bottom side of the body on the ground vertically and rotating the disc and the bottom stem will go into the disc hole automatically.
o Push the upper stem into the stem hole of the body, and replace the taper pins and knock the pins tight.
o Reassemble the actuator and adjust the open and close position.

Inspection

- The valve should be at zero pressure and ambient temperature prior to any inspection.
- Maintenance Engineers & Operators are reminded to use correct fitting tools and equipment.
- A full risk assessment and methodology statement must be compiled prior to any maintenance.
- The risk assessment must take into account the possibility of the limits of use being exceeded whereby a potential hazard could result.
- A maintenance program should therefore include checks on the development of unforeseen conditions, which could lead to failure.
- In systems where corrosion could be a potential hazard, wall thickness checks on the body and bonnet should be made. This requires the removal of the valve from the pipeline at zero pressure. If the wall and disc thickness has reduced by 25%, the valve must be replace.
- For the supply of genuine Value spares, technical assistance or Value Valve Service contact: