



Taiwan Valve Centre Co., Ltd.

DUAL PLATE WAFER STYLE CHECK VALVE

INSTALLATION AND MAINTENANCE INSTRUCTIONS

Characteristic

Water hammer of prevention

Because aided by a spring, before the flow reverses **Top Check** was almost closed, so greatly reducing water hammer. If used a special high torsion spring and mounted horizontally, the **Top Check** shall be such as “silent”.

Cheap to install

Traditional flanged **Swing Check Valves** are heavy and therefore requires special foundations or supports which are expensive. **Top Check** on the other hand are relatively light and shall be hung directly on the pipe without any support whatever.

Most of traditional **Swing Check Valves** will not close properly in case of the heavy disc will hang slightly open. and the plates in the **Top Check** are so light and are maintained in the close position by a spring, so the **Top Check** may be mounted in any position from horizontal to vertical.

Lower pressure drop

The open area through **Top Check** is about the same as through **Swing Check Valves**. The plates in most of **Swing Check Valves** doesn't open fully so the clear area is the shape of a crescent. The bridge across **Top Check** reduce the clear area by about the same amount. The big difference between the two styles is in the amount of energy required to open them and keep them open.

No slamming

Because of the spring, **Top Check's** plates start closing against the flow before the stops. The flow, therefore, cushions the plates and slows them down.

Seat leakage

Our products --- **Top Check** is tested to **API – 598** which has a metal to metal seat permitted seat leakage of 3 c.c./inch of bore/mm (when use hdro.test). And if we use pneumatic test is according to **API – 598** which has a metal to metal seal permitted seat leakage of 700 c.c./inch.



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Design

The basic design of **Top Check** was originated by what is now separate unit within the Engineering department. The basic design was field tested for performance evaluations.

Some of the design criterions was determined through the use of **ASME, ASTM, API, DIN, ISO** and **JIS** standards. Many hours of empirical testing and evaluation data were spent before the design standards could be determined. The standards will be discussed in detail later.

An intensive strain – gage test program was initiated and accomplished to confirm the design of the **Top Check**. Electrical resistance wire strain gages were placed on the plate and body rib. From the strain gage test data, the correction factors were determined the could be applied to standard accepted stress formulas. These factors will be shown in the respective formulas.

The design formulas were checked by Engineering department by independently evaluating the strain gage test results.

Any new design work done on Nuclear valves will be documented and checked by a Registered Professional Engineer.

All design work will be thoroughly and independently checked for adequacy of design by the use of alternate or simplified calculational methods. The checking process will be performed by a separate group within our own Engineering department.

Any and all design changes including field changes will be reviewed and approved by the Registered Professional Engineer. He will insure that all original specifications and design criteria have been met



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Step 1. Before installed the **Top Check**, please check the interior pipes side whether is anything or not (figure 1).



Figure 1

Step 2. In horizontal piping, it can be vertical lay the **Top Check** between the flanged by used the eye – bolt on the **Top Check** from 6" and larger sizes (figure 2).

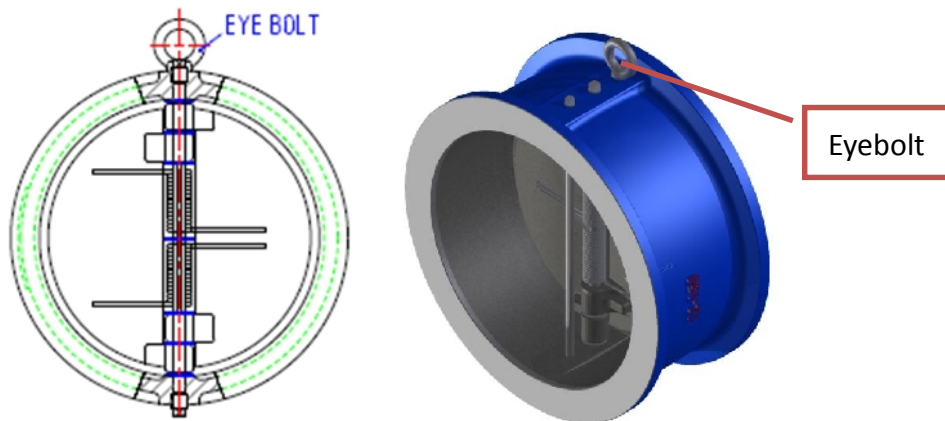


Figure 2

Step 3. Lay pipes so that the cast direction of the **Top Check**'s body corresponds with the flow direction (figure 3).

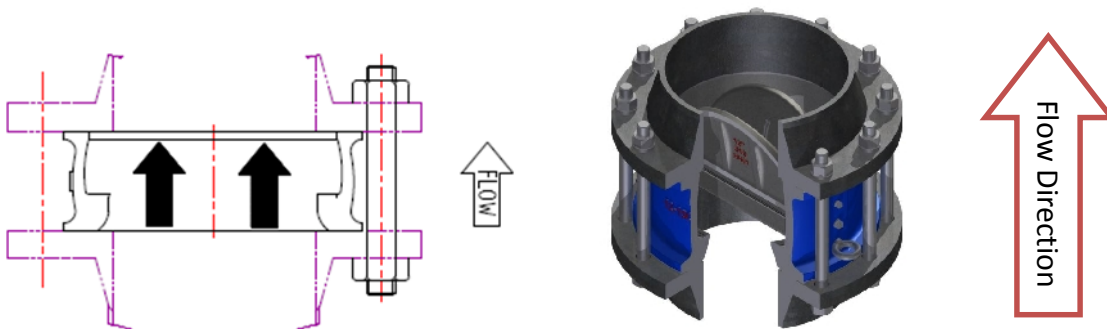


Figure 3



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Step 4. We suggested that Top Check can be in compliance with figure 4 to install.

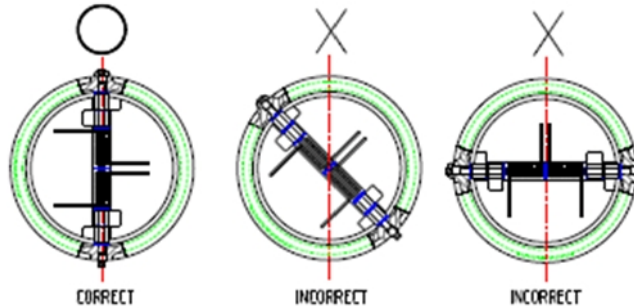


Figure 4

Step 5. In horizontal piping, set the rib of Top Check vertically and be in according to figure 5.

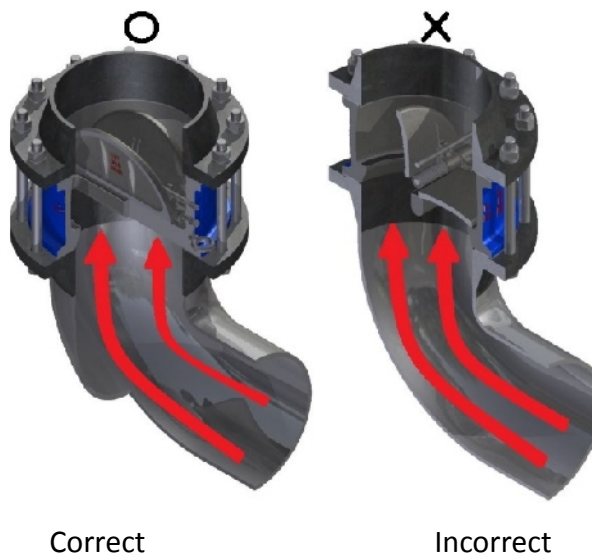


Figure 5



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Step 6. It never connect **Top Check** to the others directly (figure 6).

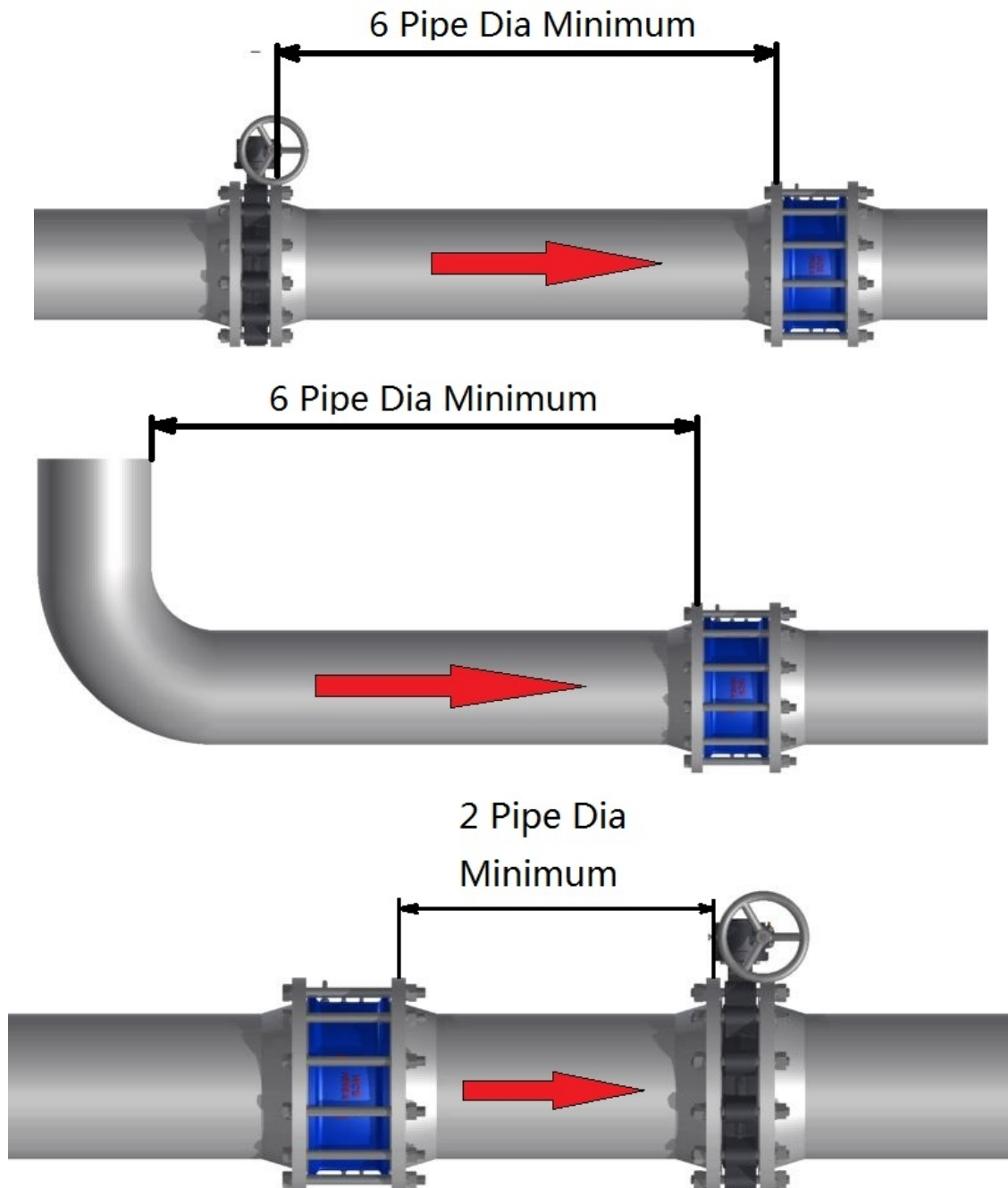


Figure 6



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Step 7. A distance of 6~8 times valve diameter's should be maintained between the Top Check and pump (figure 7).

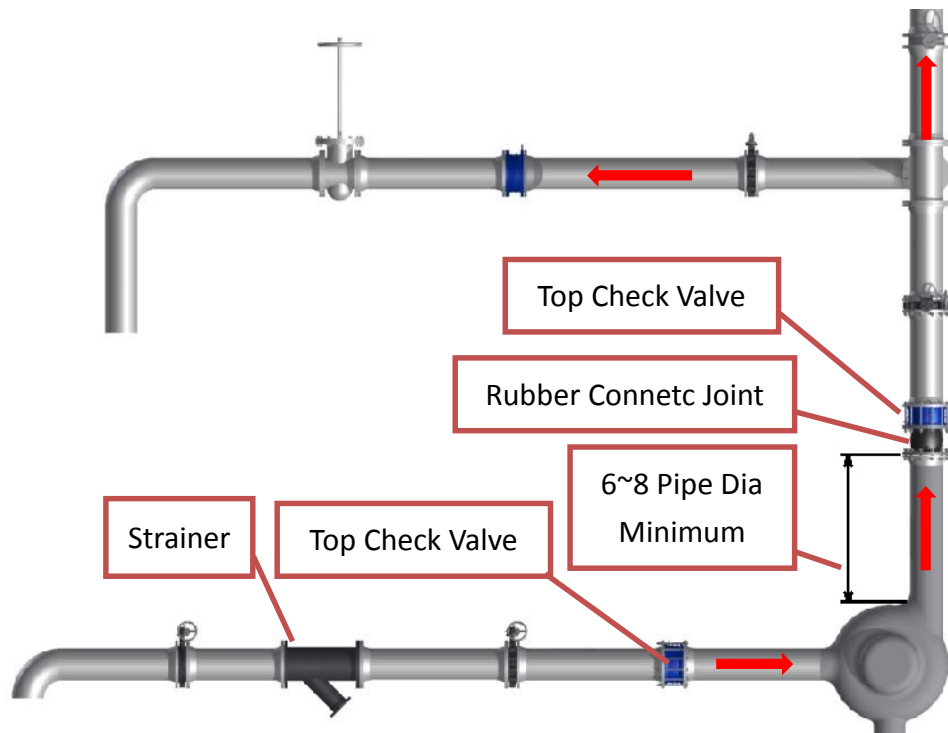


Figure 7



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Maintenance

It is necessary to look over the function of valves and replace the major parts periodically, in order to use a Wafer Check Valve for a long time. The repair parts must be usual stocked up in the warehouse which gained it by recently.

1.Repair parts

Following are the repair parts for ordinary replacement:

Parts name	NO.	Quantity	Remarks
Spring	4.	See remarks	*1.5" ~ 5" each size X 1 pc *6" ~ 22" each size X 2 pcs *24" and larger, each size X 4 pcs
Stop pin	6.	1	
Retainer	7.	4	
Body bearing	8.	2	
Plate bearing	9.	2	