

## MAINTENANCE INSTRUCTION MANUAL

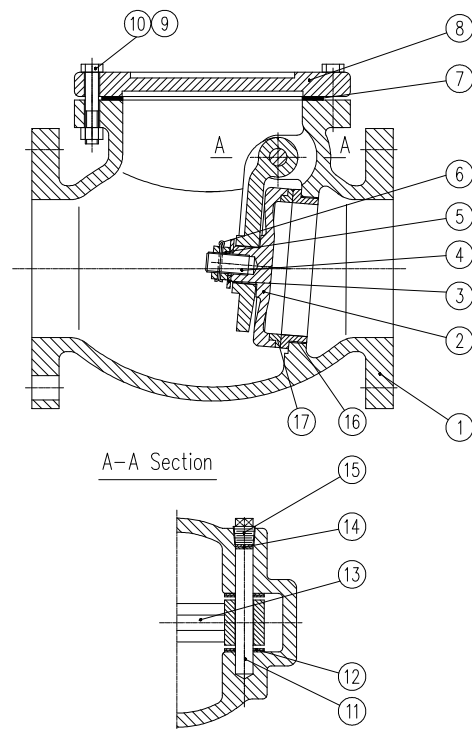
Fig. 5101

### Swing Check Valve Configuration

#### Parts List

Number:	Description:	Material:
1	Body	ASTM A126 Class B
2	Disc	ASTM A126 Class B
3	Washer	Carbon Steel, Zinc Plated
4	Bolt	ASTM B16 C36000
5	Nut	ASTM B16 C36000
6	Cotter Pin	AISI 304
7	Gasket	Graphite
8	Cover	ASTM A126 Class B
9	Bolts	Carbon Steel, Zinc Plated
10	Nuts	Carbon Steel, Zinc Plated
11	Hanger Pin	AISI 420
12	Washer	PTFE
13	Hanger	ASTM A536 65-45-12
14	Washer	EPDM
15	Plug	ASTM B16 C36000
16	Seat	ASTM B62 C83600
17	Disc Ring	ASTM B62 C83600

#### Valve Configuration



#### PRESSURE/TEMPERATURE RATING

These valves must be installed in a piping system whose normal pressure and temperature do not exceed the above ratings non-shock pressure 16bar at temperature  $-10^{\circ}\text{C}$  to  $120^{\circ}\text{C}$ .

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.

#### LAYOUT AND SITING

These Check valves may be installed in horizontal pipework and vertical pipework if the flow is in an upwards direction.

Swing check valves having 6 diameters of straight lengths of pipe upstream and 3 diameters downstream are suitable for velocities up to 3 metres/second. If the valve is situated such that turbulent flow enters the

valve or is situated close to reciprocating pumps then the velocity should not exceed 2 metres/second.

### **Lever and Weight (optional)**

If the valve is used in a vertical pipeline with a lever and weight, this must be stated on the order so that the lever and weight assembly can be positioned accordingly.

It should be considered at the design stage where valves will be located to give access for operation (lever and weight option only), maintenance and repair.

Valves must be provided with adequate support. Adjoining pipework must be supported to avoid the imposition of pipeline strains on the valve body. Heavy valves may need independent support or anchorage.

**Note:-** Check valves must not be fitted in vertical pipework with the flow downwards.

### **INSTALLATION**

Prior to installation, a check of the identification plate and body marking must be made to ensure that the correct valve is being installed.

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.

All special packaging material must be removed.

**REMOVE WOODEN OR PAPER CHOCKS FROM INSIDE THE VALVE**, which are fitted before despatch to prevent disk movement.

In horizontal pipework the valve must be installed so that the bolted cover is uppermost and horizontal.

**Note:** The valve must be installed with the direction arrow on the body coincident with the direction of flow in the pipeline. For vertical pipework the flow direction should be upwards only.

When large valves are provided with lifting eye bolt, these should be used to lift the valve.

Immediately prior to valve installation, the pipework to which the valve is to be fastened should be checked for cleanliness and freedom from debris.

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 flange (both valve and pipework flanges) should be checked for correct gasket contact face, surface finish and condition. If a condition is found which might cause leakage, no attempt to assemble should be made until the condition has been corrected.

The gasket should be suitable for operation conditions or maximum pressure/temperature ratings.

The gaskets should be checked to ensure freedom from defects or damage.

Care should be taken to provide correct alignment of the flanges being assembled. Suitable lubricant on bolt threads should be used. In assembly, bolts are tightened sequentially to make the initial contact of flanges and gaskets flat and parallel followed by gradual and uniform tightening in an opposite bolting sequence to avoid bending one flange relative to the other, particularly on flanges with raised faces.

Parallel alignment of flanges is especially important in the case of the assembly of a valve into an existing system.

Flanged joints depend on compressive deformation of the gasket material between the flange surfaces.

The bolting must be checked for correct size, length, material and that all connection flange bolt holes are utilized.

At the conclusion of installation and before operating, all dust deposits shall be removed from the equipment.

## **OPERATING**

The Swing Check valve is self-acting.

**The lever and weight if fitted may be positioned accordingly to assist opening or closing.**

## **MAINTENANCE**

The valve should be at zero pressure and ambient temperature prior to any maintenance.

Maintenance Engineers & Operators are reminded to use correct fitting tools and equipment.

Tools are either 'single spark' e.g. screwdriver, spanner, impact screwdriver or 'shower of sparks' e.g. sawing or grinding.

Tools causing showers of sparks are only permissible if:

- no hazardous explosive atmosphere is present.
- dust deposits have been removed and no dust cloud is present.

A full risk assessment and methodology statement must be compiled prior to any maintenance. This must include the removal of dust deposits by good housekeeping.

A maintenance program should therefore include checks on the development of unforeseen conditions, which could lead to failure.

Under normal working conditions the Check Valve should need little attention but when required, the following procedure is recommended.

### **Replace Cover Gasket**

It is recommended that the valve is isolated from the system and the valve is drained.

1. Loosen and remove the nuts/bolts from cover/body flange by rotating anti-clockwise.
2. Remove cover by placing a thin bladed screwdriver or wedge between cover and body and tap with mallet to release adhesion.
3. Ensure gasket and body/cover jointing faces are clean.
4. Examine internal parts to ensure correct operation.
5. Fit new gasket in place.
6. Carefully position cover ensuring gasket is not displaced.
7. Re-fit nuts/bolts and tighten diagonally and evenly.