ZERO VELOCITY VALVE

INSTRUCTION MANUAL ON INSTALLATION OPERATION AND MAINTENANCE

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INTRODUCTION -

The principle behind the design of zero velocity valves is to arrest the forward moving water column at zero movement i.e. when its velocity is zero and before any return velocity is established. This valve is developed to eliminate water hammer problems in pipe lines.

The valves fitted in a pipe line consist of an outer shell and an inner fixed dome leaving a streamlined annular chamber for water. A closing disc is mounted on center and a peripheral guide bar is held at the close position by one or more spiral compressed springs when there is no flow of water. One or more numbers (depends upon the size of valves) by pass arrangement connects the upstream and downstream water on disc. The springs are so designed that the disc remains in fully open position for velocity of water equal to 25% of the designed maximum velocity in the pipe line. In case of closure of pump disc starts closing in relation to decreasing the velocity becomes less than 25% of the maximum velocity, disc starts closing and fully closed when velocity drops near to zero. Thus upstream water column is prevented from creating water hammer wave.

By pass arrangement keeps pressure balance on both sides of disc. It also prevents creation of vacuum in downstream side.

The valves are generally supplied with barrel ends but can also be made flanged ends, if so desired.

High quality finish epoxy coating in the valves makes the zero velocity valve corrosion free for a long life, low maintenance and smooth trouble free operations.

The zero velocity valves are self actuating and do not require any add on actuating devices. The valve can be installed at a remote location.

DVPL zero velocity valves prevents the positive surges by preventing the water column to return, which is achieved by special design of the valve sensitive to the velocity of water and closed by specially arrangement of springs, when the forward velocity reduces to zero.

This breaks the energy of the returning water column and controls the positive surges.

DVPL zero velocity valve has four foot for safe handling during transit and for easy and fast installation for sizes 400mm and above.

ZERO VELOCITY VALVE ARE FEATURED WITH -

- High Quality leak proof sealing guaranteed against leakage problems.
- Heavy duty operation due to its robust construction feature.
- Smooth operation trouble free service.
- Long life.
- Versatile and can be used for all kind of mains.
- Easily installed.
- Low maintenance cost and cost effective then many salutations.
- No noise distortion in operation

INSPECTION ON RECEIPT AND HANDLING -

At receipt of the product, ensure that there is no transit damages to the product received. Use the safe lifting device (e.g. sling, hoists, hook etc.) of adequate capacity. Do not pass the slings through the weak parts of the product / accessory. (e. g. by-pass bends – when it is assembled on the valve).

The valve should be transported so that the inlet side flange rests on the horizontal floor.

Support the vale properly during transportation to avoid toppling.

Handle the product carefully – do not push, drag, drop from height.

STORAGE & PRESERVATION -

If the valve has to be stored at side before installation.

Store it on horizontal level surface in dry and clean atmosphere.

Store the products in well-covered sheds, protected from sun, rain and dust.

CHECK THE VALVE BEFORE INSTALLATION -

Before taking the zero velocity valves for pipe installation, make sure that it is cleaned from inside and outside and there are no foreign or metallic objects sticking on its sealing elements. Also clean the valve interior passages to remove any foreign matter & rust preventive on machined surfaces.

Ensure that the entire rust preventive on the machined surface in the flow area is removed, before the valve is put in pipe-line.

Note the name plate details on the valve details on valve body and valve pressure rating adequacy with respect to operating pressure.

Zero velocity valves are designed to generally operate in horizontal pipe lines or in inclined pipe lines when the flow is upwards – unless otherwise pre specified by the customer.

Operate the zero velocity valves automatically from full close to full open when water in moving with full velocity and full open to full close when water is moving reduced to zero. Ensure that there is no undue resistance / friction in the operation.

CHECKS FOR THE PIPE LINE BEFORE INSTALLATION -

Clean the pipeline shell thoroughly flashed out so that it does not contain any foreign matters which may damage the valve internals.

Avoid parallel, radial and angular mismatch between connecting flanges of valve or barrel ends to weld with pipe and the pipeline.

Upstream and downstream piping should be adequately supported and anchored (if required) in such a way that the piping system does not impose any forces & moments on the valve body and the hydraulic thrust arising due to valve closure is carried & sustained by valve supports.

Provide suitable concrete block for supporting the valves. It is advisable to install a support for the valve at bottom to prevent any sagging to be caused by weight of the valve.

Ensure that pipeline flanges are parallel and are mating the valve flange / barrel ends without leaving any parallel, angular or radial gap between the flanges. That may develop undue stresses in the valve flanges / barrel & body leading their deformation & malfunctioning.

MAINTENANCE INSTRUCTION -

Routing maintenance is not necessary for our valves. If however valve does need to be serviced or repaired. Zero velocity valve has an inspection door to check up and adjustment of the disc for proper seating or not or any foreign materials align with it or not. This valve is also low maintenance cost and smooth trouble free operations.

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