
SPECIFICATIONS FOR HDPE FLAP VALVES

APPLICATION:

A Non-Return Valve for Tidal Waters and permanently below the waterline applications. Regulating water flow in one direction and preventing back flow. Applied to all size applications and environments for gravity flow conditions.

DESCRIPTION:

The flap valve shall be provided with a hinged flap/door to close round -, square - or rectangular shaped openings. The single / on-seating tightening shall be effected by means of a special EPDM spherical/lip shaped rubber profile placed around the opening in the door.

After installation the flap valve shall be watertight on one side (on-seating) up to a pressure of 1 meter water column (long time duration for 50 years) above the culvert and 5 meter water column (short time duration) without any visible deformation.

MATERIALS:

The door of the flap valve shall be of HDPE (high density poly-ethylene) with a minimum thickness of 30 mm, which will be reinforced with HDPE strengthening ribs with a minimum thickness of 30 mm. If necessary and depending upon dimension and pressure the door will be provided with stainless steel AISI 316L strengthening profiles.

The HDPE door shall be provided with an easy replaceable EPDM spherical/lip shaped rubber profile. In this way only the door has to be removed for replacing the seal.

The flap valve door unit shall be positioned under an angle of 10 ° for the PTK-A model.

The hinge construction for the flap valve will be of the “confined closed hinge” type. The confined closed hinge consists of two side segments and a cover plate. The cover plate protects the hinge against settling of dirt. The confined hinge increases strength and stability.

These hinge parts are connected both by means of HDPE welding and parker bolts with a length of at least 25 mm. The hinge axes shall be of stainless steel AISI 316L (solid) bar material with a minimal diameter of 12 mm. The horizontal movement of the axe is limited by 2 HDPE cover plates on each side of the hinge segment (which at the same time to ensure easy replacement of the axe). This design also ensures that the weight of the door is supported equally on each side of the hinge for increased stability.

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Between the moving HDPE parts AISI 316L washers will be applied.

The maximum opening angle of the door is - depending upon dimensions – between 63 – 76 degrees. Upon request the opening angle can be increased to 90 degrees. The limitation of the door movement is controlled by the specific shape of the valve rib(s) and the confined closed hinge, which ensures the door will be automatically closed.

The HDPE flap/door shall be provided with ballast to prevent the door from floating in the water and ensure complete closing of the door under the water line. The ballast applied on the door ensures that the specific weight of the door is being increased to 1100 kg / M3 ensuring full closing of the door below water level and yet maintains differential opening pressures of less than 10 mm water column when completely submerged.

The valve seating shall be of HDPE with a minimum thickness of 30 mm, which is positioned at an angle 10° to the frame/tube material. The frame shall be of HDPE tube in case of circular openings and HDPE plate material in case of rectangular or square openings.

The model suitable for wall mounting (model A) shall have an anchor plate with a minimum thickness of 15 mm, welded onto the frame. The anchor plate for wall mounting shall follow the shape of the opening. The anchor holes for wall mounting will be positioned at a minimum distance of 50 mm from the opening.

The tightening between the wall and the anchor plate shall be of neoprene cell rubber tape to be stucked on the anchor plate according to installation instructions.

INSTALLATION:

The flap valve shall be mounted perpendicularly and free of tension. By preference mounting has to be effected with fixing anchors manufactured from stainless steel AISI 316.

