



Hydro-Valve



TECHNICAL
SPECIFICATION

Hydro-Valve Technical Specification

2.0 OPERATION

2.1 General

A Hydro-Valve is a device for controlling fluid flow by hydraulic effect without requiring moving parts. At low flow rates, water enters through the inlet passes through the vortex chamber to the outlet with no restriction. As head height increases hydrostatic pressure also increases, this pressure forces fluid through the valve with enough energy to create a vortex in the vortex chamber which results in a considerable pressure drop between the inlet and outlet restricting flow to the required discharge rate (e.g. 5 l/s)

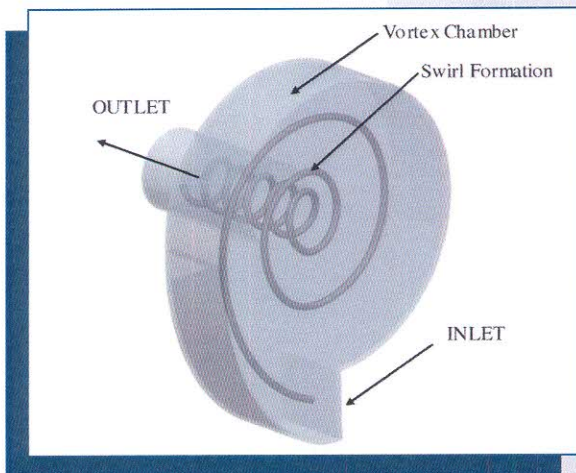


Fig. 3 (Vortex Chamber)

The creation of a forced vortex in the chamber allows an outlet orifice much larger in size (3-5 times the CSA) than that of conventional devices. A forced vortex ensures highest velocity will occur at the outer wall, this will inherently shift any solids towards the centre where velocity is lowest. The solids can then exit the valve minimising the risk of blockage.

Hydro-Valves have many advantages which include no moving parts, self activating, self cleansing, no external power source required and minimal maintenance.

2.2 Performance

DESIGN FLOW

This is generally the maximum flow that is required at the designed upstream head of water. (e.g. Pre-development run-off rate of 5 l/s)

FLUSH FLOW

This is the point at which a pressure difference begins to initiate in the vortex chamber having a throttling effect over the flow. The closer this is to the design flow the more water that will pass through this unit in the early stages of a rainstorm event.

KICK-BACK FLOW

This is the point at which the vortex has been initiated and at which time the curve begins to return back to that of an orifice plate performance curve.

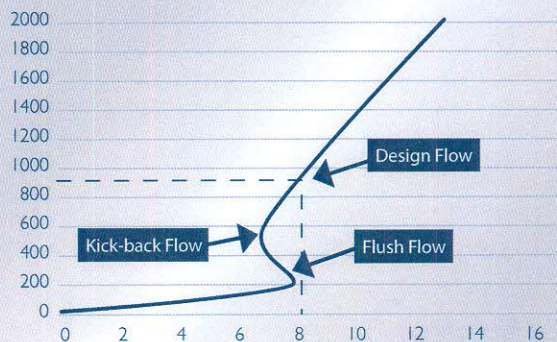


Fig. 4 (Typical Discharge Curve)

