



ABN 71098869160

## **HPE** PRODUCT INFORMATION

**PRODUCT PART NUMBER:** WVM Series

**DESCRIPTION:** MULTISTAGE RATIO VALVE

### **PURPOSE**

A Multistage Ratio Valve (MRV) is a pressure reducing valve whose outlet pressure is a fixed ratio of the inlet pressure. Because it has many internal stages it can reduce the pressure over larger ratios than is possible in one or two single-stage valves in series.



### **DESCRIPTION**

The heart of the valve is a series of pairs of poppet-seat sets. Up to eight poppet faces move upwards together on a spindle to open the flow passage, or move downwards together to seal on the mating seat faces.

The valve senses the higher upstream pressure on a fixed area. A piston on the top of the valve senses the downstream pressure and pushes the multi-poppet towards the mating seats. The upward and downward forces balance ensuring that the valve maintains a fixed ratio determined by the geometrical sizes.

On top of the downstream pressure sensing assembly, an adjustable spring arrangement allows a small adjustment range of the ratio.

## FEATURES

- Fast reacting, inherently stable with no hunting tendency. Downstream pressure is determined by the upstream pressure and is not dependent on the characteristics of the downstream system.
- Small adjustment of ratio possible with top cap mounted spring adjuster.
- Capable of operating at very high pressure ratios (e.g. 14 or 20). Even higher ratios are possible if used in conjunction with a dissipator.
- Constant ratio with varying flow, resulting in a stable constant downstream pressure for a fixed inlet pressure.
- Cavitation free operation.
- Cast steel valve body rated up to 25MPa.
- Available in sizes from 50 to 300NB with any standard of hubs or flanges fitted.
- Valves are designed to operate on mine water.

## TECHNICAL SPECIFICATION

### Materials of construction

Valve body	Cast steel--ASTM A216 grade WCC
Flanges	Wrought carbon steel--AISI A105 or as specified
Hubs	As per body
Seals	Ultra-high molecular weight polyethylene polymer
O-rings	Nitrile—70 Shore hardness
Spindle guides	Bronze--ASTM B505C83600
Guide pin etc	AISI 304
Seats & poppets	AISI 431 hardened & ground

Ratio valves generally require a small flow (a few percent of the maximum flow) to control pressure and are generally not tight shut-off valves. For this reason a pressure relief valve is always required to protect low-pressure piping downstream.

### Corrosion protection & finishes

Externally painted	Standard
Alternative coatings	Available to suit customer requirements

The number of stages and ratio are determined for each application.