



CERAMIC PLUG AND SEAT VALVES

1. Introduction

Ceramic Plug and Seat Valves, available from PrepQuip, were initially developed to replace conventional pinch-type valves on column tails discharge systems, in order to reduce excessive downtime and maintenance costs incurred through the frequent replacement of worn pinch valve sleeves.

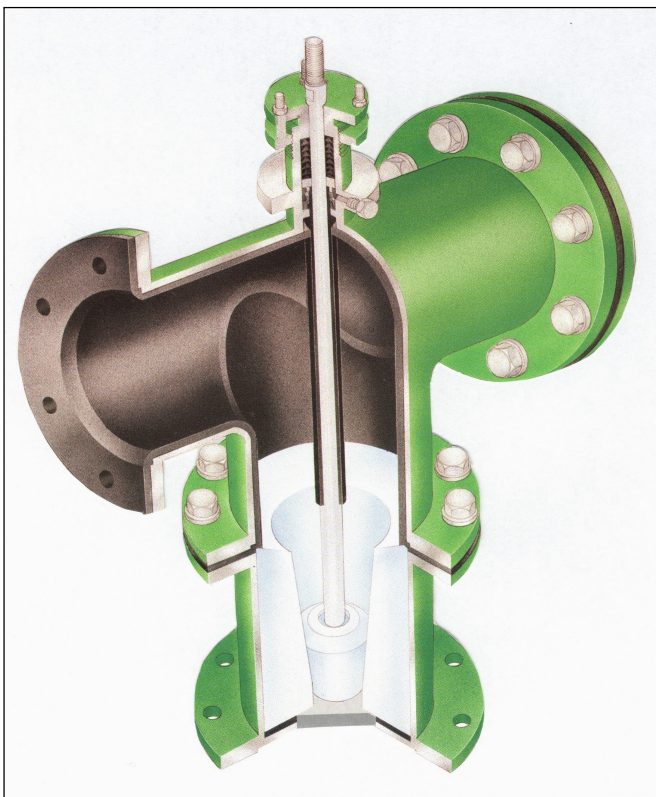


Figure 1: Ceramic plug and seat valves

The Ceramic Plug and Seat Valves, which can be automated with an actuator to suit customer applications, are used to control abrasive slurries with a maximum particle size



of 3 mm. Ceramic Plug and Seat Valves can achieve at least ten times the life of conventional control valves, eliminating the need to inspect and replace valves, and reducing process downtime.

2. Features

The ceramic valve is available in various **standard sizes and ranges from 100 to 500mm (NB, see table below)**. The valve has a **linear stroke to flow rate relationship**. This simplifies flow control within a required flow range. The valve can be adjusted to a specific application by selecting the correct **choke nozzle size**. The valve is designed with **wear resistant** components to ensure trouble free operation for long periods. The ceramic valve gives an excellent **cost to life ratio**. Most actuators can be fitted to the ceramic valve with only **minor modifications** to the mounting bracket.

The ceramic valve is **easy to maintain**. Worn components can be quickly replaced. No special skills are required to maintain or overhaul the valve. All ceramic valve components are **readily available** from PrepQuip.

3. Operating principle

Slurry enters the valve at the inlet, and then changes direction by 90 degrees (see picture). The slurry flows through the valve choke passing the valve plug. The slurry then exits the valve through the choke nozzle.

An actuator is mounted onto the valve and connected to the valve shaft. On receiving a control signal the actuator moves the valve shaft forwards or backwards. The plug, which is connected to the shaft, moves forwards or backwards. This varies the flow restriction of the slurry through the choke and past the plug. In this way the valve controls the amount of slurry allowed to pass the plug. This is activated by a control signal received by the actuator.

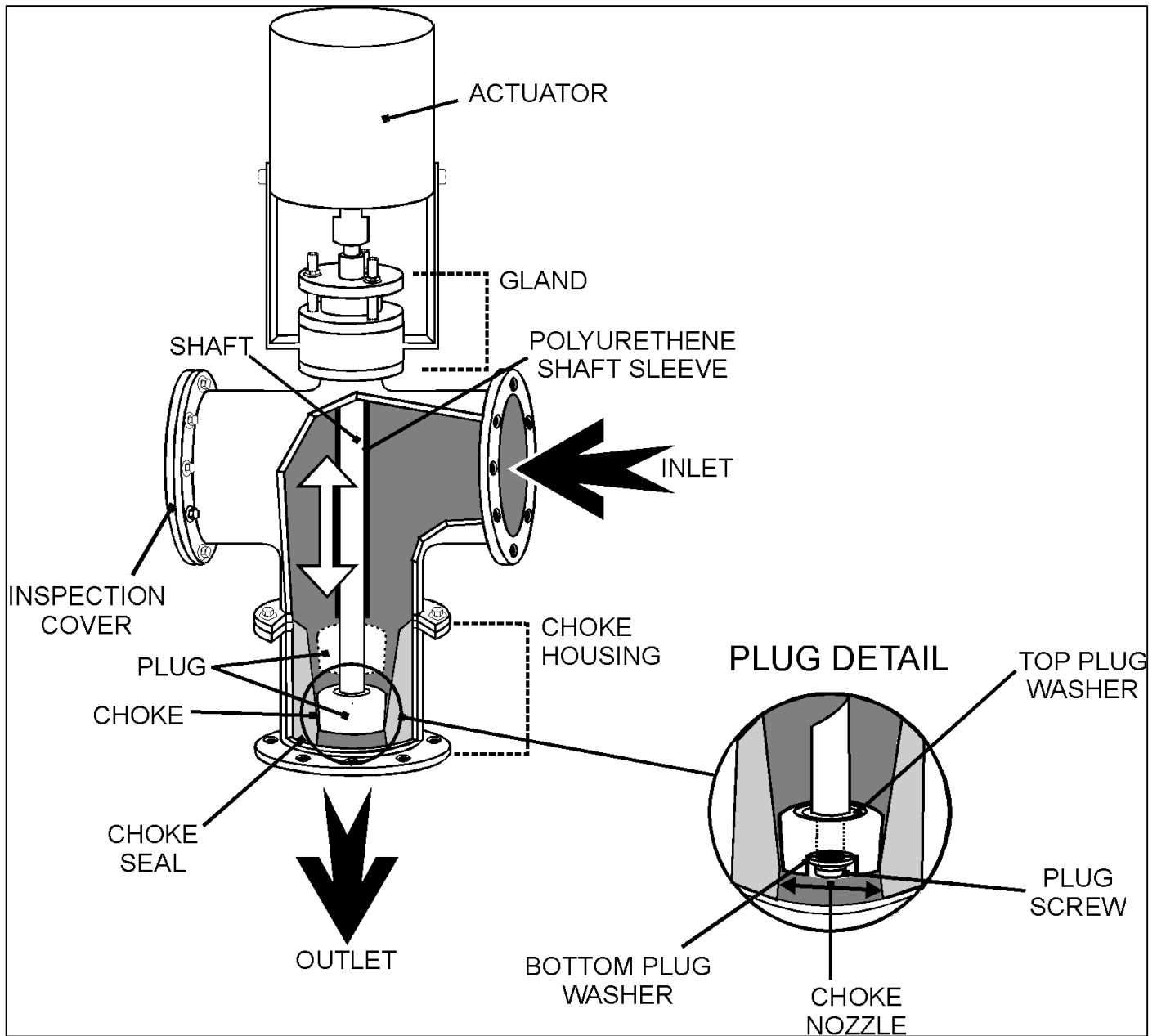


Figure 2: Operating principle

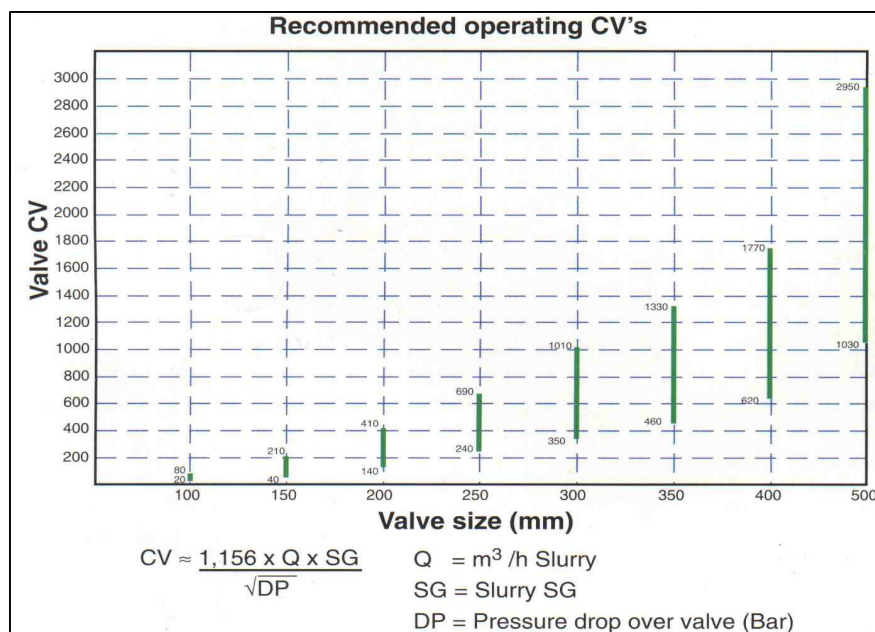
An important feature to note as previously mentioned is the linear stroke to flow ratio. Which simply explained means that if the valve is **10% open, the flow will be 10%** of the maximum flow. This feature simplifies control on systems dramatically.



TABLE 1: VALVE TECHNICAL INFORMATION

Valve size (NB mm)	Choke nozzle size (mm)	Stroke length (mm)	Seal water flow (l/min)
100	40	65	0.5
100	50	65	0.5
150	60	100	0.7
150	80	100	0.7
200	110	100	0.9
250	140	120	1.1
300	170	150	1.2
350	195	200	1.4
400	225	200	1.6
500	290	250	1.8

TABLE 2: RECOMMENDED OPERATING CV's



Please feel free to contact us at process@prepquip.com or visit our website www.prepquip.com for more information.