

GLOBE VALVE DESIGN DISC STYLE TYPES

OPERATION

Australian Pipeline Valve globe valves are for services requiring frequent operation for on-off isolation service as well as throttling. Never attempt throttling at under 20% of stem travel. Closer throttling, can result in higher pressure drops which may cause excessive velocities or cavitation and could cause vibration or high noise levels resulting in damage to the valve or adjacent components/structure.

LIFE

Heavy construction provides years of reliable service.

DESIGN

Available in bolted and pressure seal bonnet, outside screw and yoke, rising stem with ball or plug type disc, and have flanged or butt weld ends. Screw down non-return (Stop check) also available. Stem with precision Acme threads and burnished finish. Valve suitable for horizontal installation. Conical seating surfaces 13Cr hardfaced/stellite, ground and lapped to a Ra 0.4~0.8 μm finish. Tapered plug type disc as standard. Body guided disc on larger sizes, and higher classes on smaller sizes, accurately mates the hardfaced surface of the disc with the surface of the seat. Body and bonnet joint accurately machined. fully enclosed gasket. Rotating stem nut. Austenitic ductile iron Gr. D-2C, renewable in-line.

STANDARD

To ASME B16.34 / API 623.

Dimensions to ASME B16.10 and ISO 5752.

Wall thickness, stem smoothness and stuffing box finish complies with API 623.

APV stuffing box smoothness \leq Ra 3.2 μm superior to API 623 / API 600.

Stem smoothness \leq Ra 0.80 μm as per API 600/API 623.



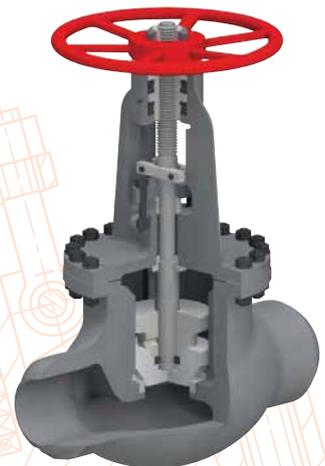
API 622 & ISO 15848-1
Fugitive Emission Certified



Endurance Tested

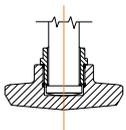


API 607-7th & ISO 10497
Firesafe Certified

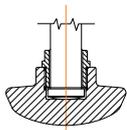


API 623 Guided disc style

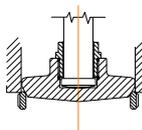
COMMON DISC STYLES



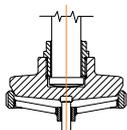
Plug Disc



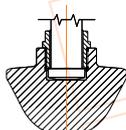
Ball Disc



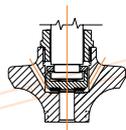
Body Guided Disc



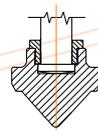
Pin Guided Disc



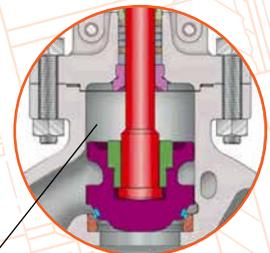
Parabolic Disc



Equilibrated Disc

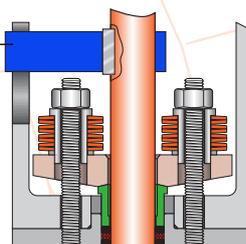


Vee Point Disc
(Needle)



Torque Arm

Used in larger sizes and higher pressures the torque arm prevents stem movement which reduces wear on packing rings and enables better sealing as well as reducing torque. Non rotating stem, only the stem nut rotates. The arm also provides visual stem position indication and can be interfaced with position switches. Optional live loaded packing system is shown. Provides improved valve life for throttling applications.



Body Guided Disc

Body guided disc style eliminates side thrust and provides longer disc, seat and body life as well as ensuring positive shut-off and low closing torque. Provides improved valve life for throttling applications.

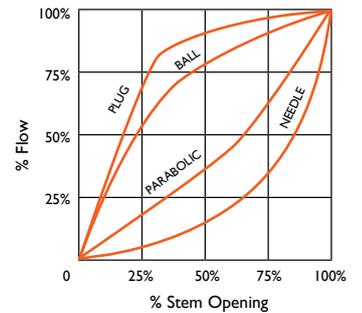
APPLICATIONS OF DIFFERENT DISC TYPES

Globe valves can be supplied with various types of disc depending on the application.

Each style provides various levels of control. The correct selection of disc and material of construction and hardfacing, will minimise wear caused by cavitation in more severe applications.

Disc Functionality

The chart shows the stem opening related to the quantity of flow provided. It also indicates the grade of control over the fluid between the different type of discs.



PARABOLIC TYPE DISC

It is similar to the ball type disc, but its parabolic design provides a higher flow regulation, having a better behavior against wear.



NEEDLE TYPE DISC

With the needle disc design the flow rate is better controlled than other disc designs and a fine regulation is achieved.



BALL TYPE DISC

Lower half of the disc has a ball shape, permitting flow passage and flow stop, having the possibility to control partially the flow mainly in low pressure service.



PLUG TYPE DISC

The disc has a flat finished bottom, being the most common standard globe disc type, as well as simple and economical. Designed to permit flow passage or flow stop without a high degree of regulation. In larger sizes and higher pressures a guided disc and a stem guide is required for throttling applications. It is primarily used for positive shut off service and is also used to control flow. Whilst it has a taper, it is also available in superior longer and more tapered design variants depending on size, class and valve style.

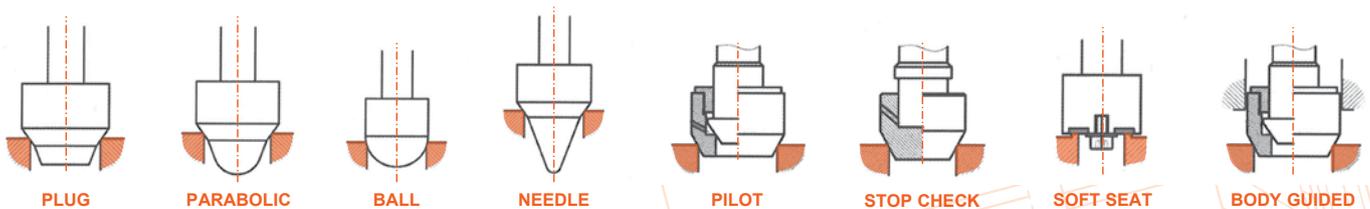


Caution

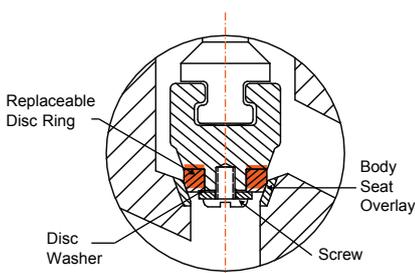
Using a standard plug disc for flow control should be done with a high degree of caution - refer to API RP 615 section 5:3 and USA Process Industries Practices PCECV001

Never use globe valves to throttle at under 20% of stem travel. Over 60% of stem travel may also significantly reduce valve life unless disc is body guided and a stem guide is fitted.

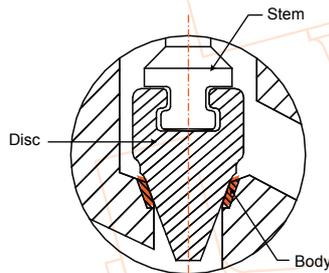
FULL RANGE OF DISC STYLES



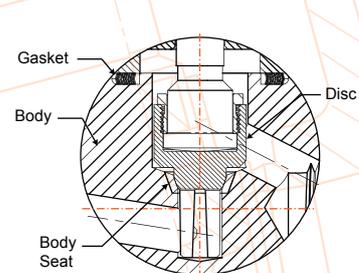
FORGED GLOBE VALVE SEATING/DISC TYPES



Elastomeric or Plastic Seat Insert



Needle Point Metering Plug



Flow Control Nozzle