



Features

- ◆ **Anti-blow out stem** : This part, being assembled from the inside of the bonnet, is shouldered and does not bear the strain on the ball.
- ◆ **External sealing** : Tightness is achieved by O-ring with graphite gasket backup.
- ◆ **Solid trunnion ball** : Working under full rated differential pressure with no displacement of the ball. Reduces seat wearing. Large bushing ensure a longer life.
- ◆ **Self lubricated bearing** : Low and constant torque even at high pressure and for large diameters.
- ◆ **Seat design** : The pressure seal principle of the seat ring, ensures bi-directional Sealing, even at low pressure. The original seat ring design, with piston effect, allows the double in-line sealing (Possibility of bleed valve). Seat pockets are machined in the one-piece body, which ensures a perfect alignment of the seals on the ball. The self-relieving of the body cavity pressure is higher from 0 to 10 % of the upstream Pressure.
- ◆ **Top Entry design** : One-piece body construction with one single sealing joint, not affected by pipe stress. The number of components has been kept to a minimum in order to simplify assembly and minimize spare parts. Simple dismantling of the bonnet gives access to all internals (possibility to weld the valve in line).
- ◆ **Actuation** : The bonnet is a large and robust plate which allows easy mounting of any kind of actuator and steam extension.

Options

- ◆ **Metal - to - metal sealing** : This feature is required when pressure / temperature ratio exceed the soft seals performance, or when solid particles are present. For this application, ball and seats are hard faced (Hard chromium plating, stellite or tungstene carbide).
- ◆ **Extension for low temperature** : On request, the bonnet can be supplied with an extensions to move the stem packing away from the cold source.
- ◆ **Extended stem** : When top entry ball valves are to be installed on buried pipe lines or where not easily accesible, operators can be remote mounted by means of suitable stem extension. Drain lines and Sealant fittings (if required) will be piped up to the top of the extension for an easier access. The distance between valve centre-line and operator handwheel must be specified.
- ◆ **Pups** : Buttwelding ends valves may be supplied with transition pieces (pups) to avoid any risk of seat and seal damage during welding and post-weld heat treatment. Length of pups and matching pipe details must be specified.
- ◆ **Bleed valve** : On request Top Entry valves can be fitted with a drain valve allowing to check the seats tightness or the bleed function pressure is higher from 0 to 10 % of the upstream Pressure.
- ◆ **Valve stem packing injection system** : On request Top Entry ball valves can be equipped for the injection of stem packing to establish on emergency sealing along the stem.
- ◆ **Secondary sealing by sealant injection** : The double in-line sealing of Top Entry ball valve is designed to provide high integrity shut-off and does not require additional Sealant. However, in case of difficult maintenance, a secondary sealing by Sealant injection system can be provided upon request, in order to restore temporary integrity of valve.
- ◆ **Overlay in seat pockets and along steam** : For some corrosive applications, seat pockets and steam bore can be protected with a corrosion resistant overlay
- ◆ **Graphite back-up on seat rings** : On customer's request seat rings can be equipped with graphite back-up.
- ◆ **Spring energized seat rings** : The standard top entry valve has a double in line selling to maintain the selling capacity of the valve even in the case of upstream seat failure, it can be equipped, on request, will independent spring energize seats.
- ◆ Can be supplied with GRAYLOC END HUB, under project license from GRAYLOC PRODUCTS®, UK.



* Compliant to NACE MR-0175 (2002)