



 **MAINTENANCE OPTIONS**



MAINTENANCE OPTIONS

Some industrial processes require continuous operation, however the equipment in place is subject to wear and deterioration over time. Operators are forced to schedule time for regular maintenance. Some technical solutions can allow the downtime to be reduced to a minimum as well as avoid having to send the valves to the manufacturer for repair.

MAINTENANCE ANTICIPATED DURING DESIGN

Thanks to anticipations made at the design phase of a valve, it is possible to maximize the time period between maintenance shutdowns.

THE HARD FACING OF TIGHTNESS SURFACES

Hard facing of the surfaces responsible for tightness (seat, obturator) prolongs the life of a valve as a result of slower wear to surfaces experiencing friction. In the valve industry, Stellite® is the material most used to harden the sealing surfaces. It is a chrome-cobalt alloy, known for its hardness and resistance to corrosion.

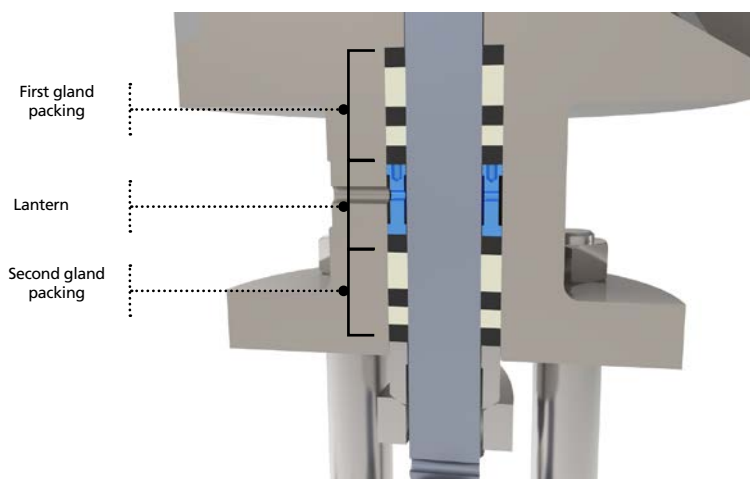
Refer to the chapter entitled "Coating/Surfacing options".

Distinctive Features

- Applicable to all valves where tightness is achieved via metal-to-metal seal
- Prolongs the life of the upstream/downstream sealing surfaces

DOUBLE GLAND PACKING

The use of double gland packing separated by a lantern ring improves the guiding of the stem and consequently, the packing rings tend to wear more uniformly. The second gland packing assures a supplementary tightness in case the first becomes defective



Distinctive Features

- Adaptable to all types of valves having a process/ atmosphere tightness achieved through gland packing.
- Allows for the addition of a leak detector to the gland (see page 5 of this chapter).

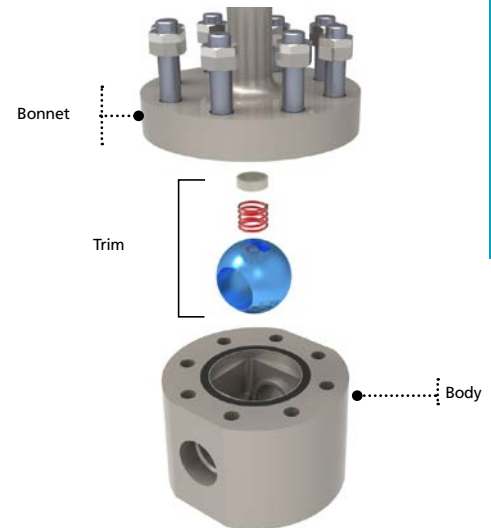
FACILITATING DISASSEMBLY

TOP ENTRY

« Top entry » technology makes it possible to carry out all maintenance operations without dismantling the valve from the line in which it is installed. This can prove to be very practical if the valve is welded in the pipeline (butt weld BW or socket weld SW connections). If necessary, the operator can replace all the trim without disassembling the body.

Distinctive Features

- No need to remove the valve from the line for maintenance → Quick maintenance.
- Reduction of potential leak paths with body seals (here only one access is possible)
- Possibility to mount the valve by BW connections without problems of maintenance
- All functional parts of the valve are easily accessible.



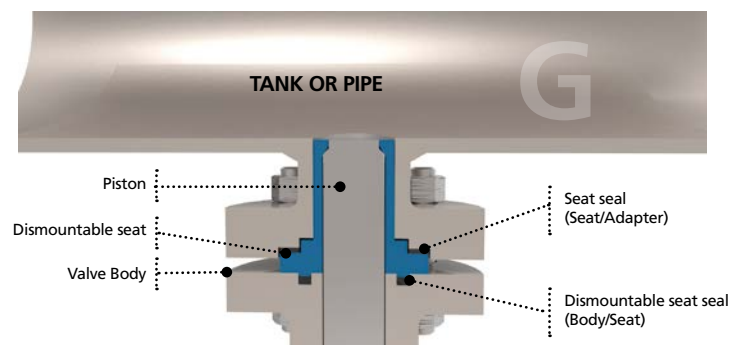
■ Example of « Top entry » on a ball valve

DISMOUNTABLE SEAT

Two types of seat mounting exist : fixed seat and dismountable seat. The fixed seat is integral to the valve body. The tightness surfaces are therefore machined directly into the body. The dismountable seat is in itself a complete separate part. It is machined separately, then mounted to the valve body.

Distinctive Features

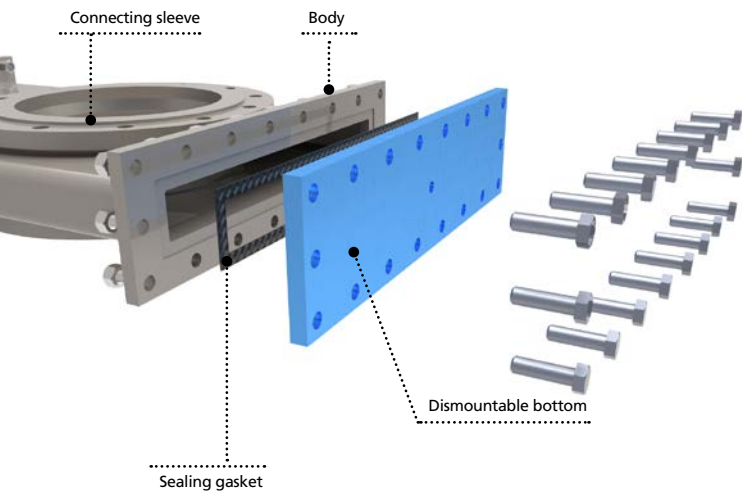
- Applicable for all valve technologies
- Tightness surfaces are easily repaired. Replacement of the seat by a new one.
- May require a supplementary seal (additional potential leak path)



MAINTENANCE OPTIONS

DISMOUNTABLE BOTTOM

When valves are very cumbersome and their dismantling is a source of complication, notably for handling, it is possible to equip them with a dismantlable bottom. This access hatch allows the operator to clean the inside of the valve body, to verify the state of the tightness surfaces, or even change certain parts inside the valve.

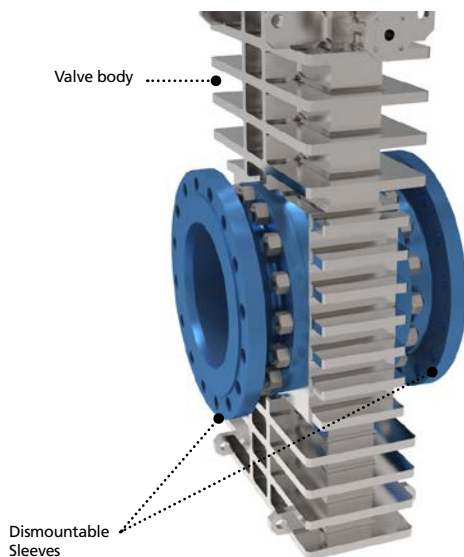


Distinctive Features

- Easy and quick access to trim and inside of the body → easy diagnosis without dismantling from the line
- Cleaning inside the valve body without disassembling the entire valve
- Requires mounting a supplemental seal, creating a potential leak path.
- Adapted to valves with retention zones

DISMOUNTABLE SLEEVES

Dismountable sleeves allow for easy access to components responsible for tightness. Usually coupled to dismantlable seats, dismantlable sleeves facilitate maintenance of the seating surfaces.



Distinctive Features

- Easy access to trim and the inside of the body; nevertheless requires dismantling from the piping
- Requires mounting a supplementary seal, creating a potential leak path.

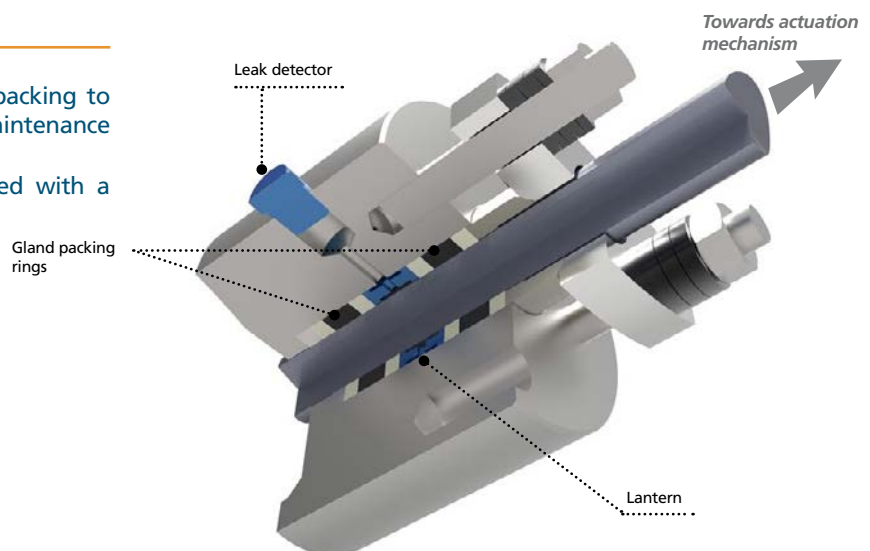
MAINTENANCE DURING OPERATION

LEAK DETECTOR

The installation of a special lantern between the gland packing makes it possible to put in a leak detector. This detector screws directly in the stuffing box of the gland and measures the pressure difference between the gland and the process. If the pressure in the gland begins to approach the process pressure, this indicates that the packing is no longer doing its job. It then requires changing.

Distinctive Features

- Allows the evolution of the wear of the packing to be monitored in real time → preventive maintenance optimized
- Adaptable to all types of devices equipped with a gland

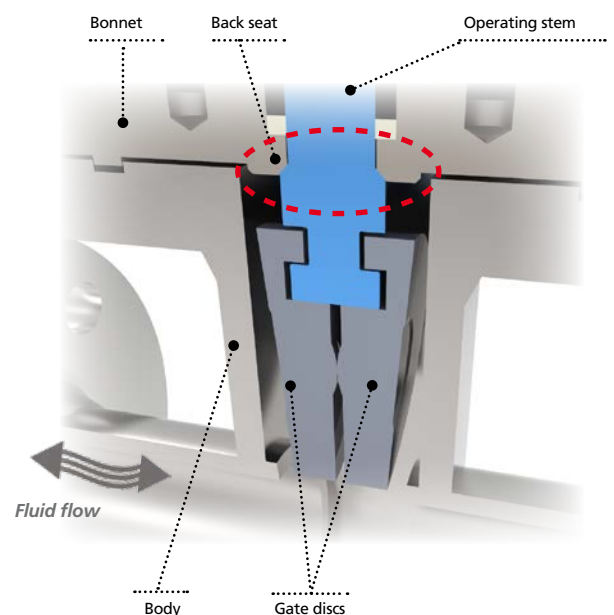


BACK SEAT

The back seat enables the replacement of the gland packing without removing the valve from the pipeline and without stopping the process in which the valve is installed. When fully opened, the stem is pressed against the back seat of the bonnet. The two parts in contact assure a temporary tightness between the process and the atmosphere (metal/metal). This makes it possible to remove the packing without risk, even if the valve is under pressure.

Distinctive Features

- Packing is easily accessible and replaceable in service
- Is not applicable for all types of valves ; primarily used for gate valves and in-line globe valves.



■ Example of back seat on gate valve

MAINTENANCE OPTIONS

SEAT CLEANING BY INJECTION

Certain “sticky” fluids can deposit residue on the seating surfaces. To avoid any risk of flow between upstream and downstream when the valve is closed, it is possible to add a cleaning system by adding a steam injection nozzle to the seat. When the valve is closed, steam is injected on the sealing surfaces of the seat and the obturator. All foreign objects that risk damaging the sealing surfaces are then evacuated.

Distinctive Features

- Customized study and design
- Increased life of the sealing surfaces (reducing risk of leakage at the seat)
- Requires a group of supply vapors (nitrogen, air, water...)

