

VIRAR VALVOLE®



**Slab & Double
Expanding
Gate Valves**



The Company

ViarValvole is a 100% Italian Family Owned Company, leader in the design and manufacturing of Ball Valves, mainly for Oil & Gas application.

Based in Italy, 50 km north of Milan, ViarValvole started its business as a reliable partner of the main Italian Valve Manufacturers, earning experience in managing National and International projects.

Thanks to the confidence of some International EPC companies, ViarValvole entered the worldwide market getting End users approval and estimation.





ViarValvole extends on a production surface of 10.000 sqm distributed in three locations (main offices and two warehouses in Sumirago and one in Solbiate Arno) and has lifting capability up to 50 tons.

- 1000 sqm for raw materials stock, identification and acceptance of the incoming material
- 4000 sqm for machining, assembly and testing of small and medium range valves
- 4000 sqm for machining, assembly and testing of large size valves + 1000 sqm. dedicated to special testing (cryogenic, slurry service, hyperbaric, PR2, etc.).





Gate

VG

Double Expanding

Characteristics

The main feature of a double expanding gate valve is the 2 pieces obturator that guarantees a simultaneous mechanical seal both in the upstream and in the downstream direction, from low to high pressure.

This is the reason why it is recommended when the contribution of the line pressure to obtain the seal is not required.

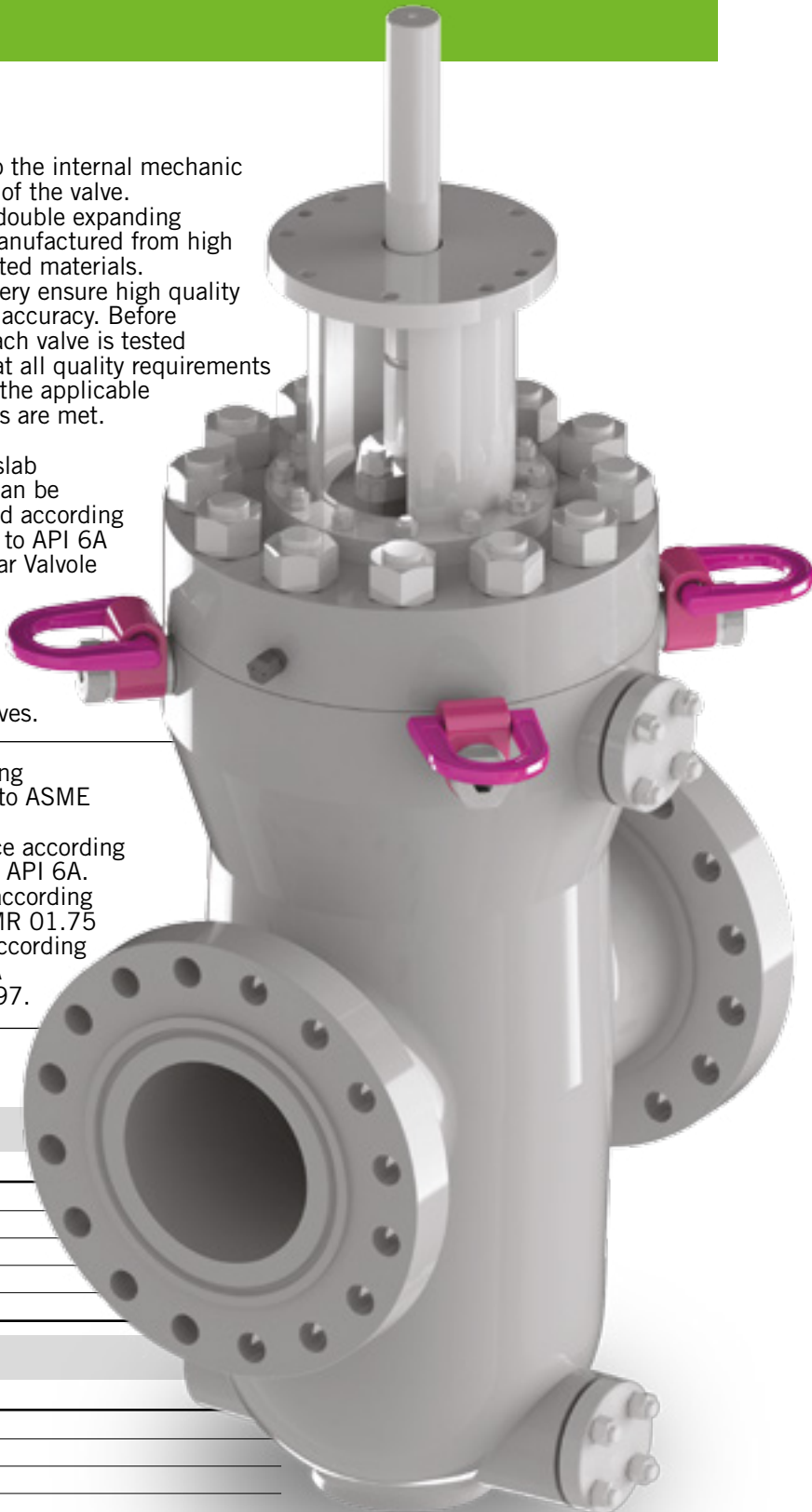
This type of valve is normally used when a high reliability in critical conditions is required: in process lines applications, refineries (execution for high temperature is also available) and pipeline.

In open position, the double expanding gate valve allows running of pigs, scraper wipers or hot tap cutters through the pipeline with no danger

or damage to the internal mechanic components of the valve.

Viar Valvole double expanding valves are manufactured from high quality selected materials. CNC machinery ensure high quality dimensional accuracy. Before shipment, each valve is tested to ensure that all quality requirements specified by the applicable specifications are met.

Viar Valvole slab gate valves can be manufactured according to API 6D or to API 6A Standard. Viar Valvole is licensed to apply the API monogram on all of its slab gate valves.



Technical Data

Applicable Standard

- Design according to API 6A, API 6D, API 6DSS, API 17D, ASME VIII div 2; ASME B16.34, PED 2014/68/UE.
- Flanges according to ASME B16.5 for size 2" to 24", to ASME B16.47 for size > 24o".
- Butt Welding according to ASME B16.25.
- Face to face according to API 6D; API 6A.
- Materials according to NACE MR 01.75
- Fire safe according to API 6FA / ISO 10497.

Production Range

API 6A

Class	Dimension
2000 psi	From 2"1/16 through 7"1/16
3000 psi	From 2"1/16 through 7"1/16
5000 psi	From 2"1/16 through 7"1/16
10000 psi	From 1"13/16 through 13"5/8
15000 psi	From 1"13/16 through 4"1/16

API 6D

Class	Dimension
150	From 2" through 48"
300	From 2" through 48"
600	From 2" through 48"
900	From 2" through 48"
1500	From 2" through 42"
2500	From 2" through 24"



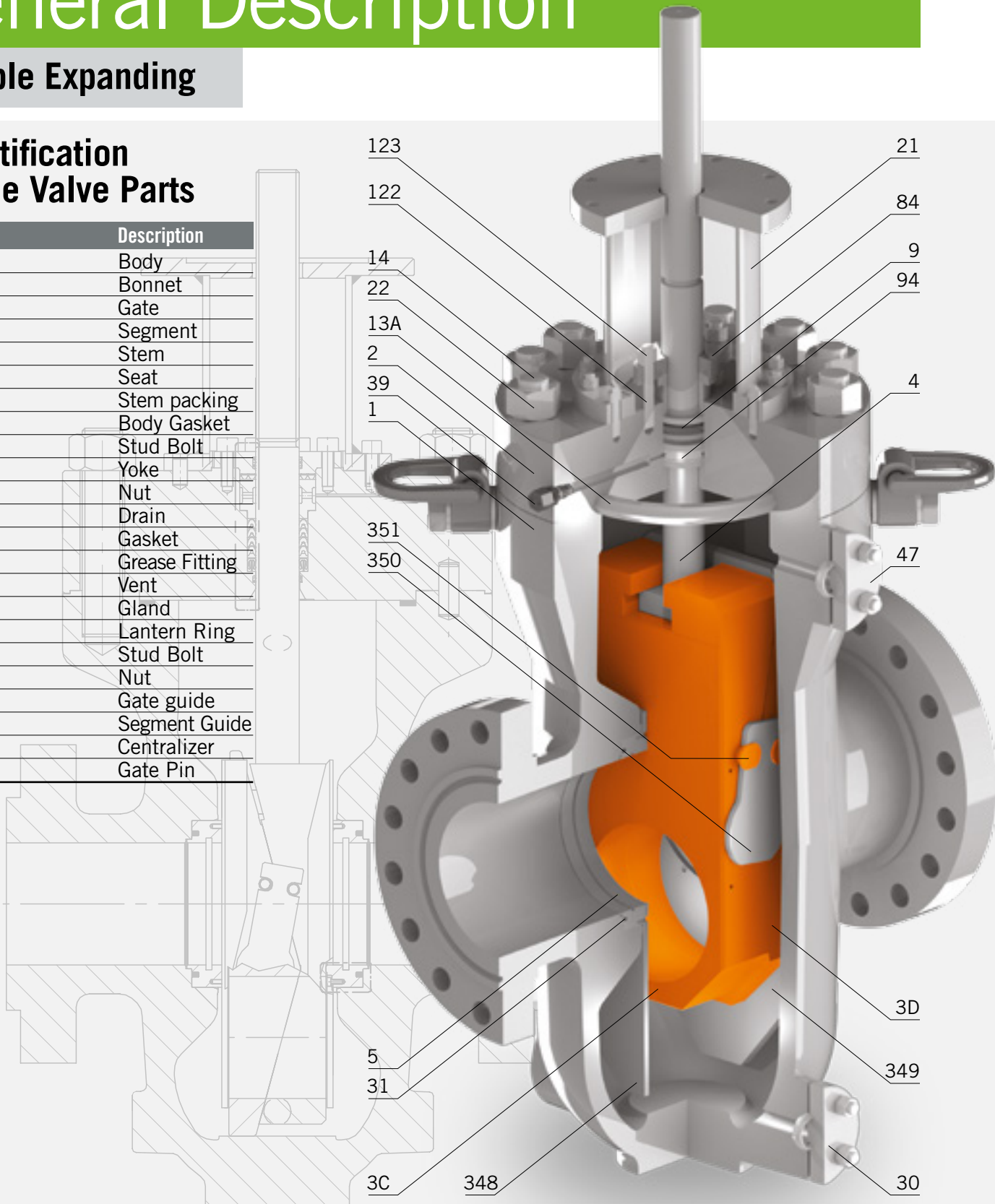
Gate

General Description

Double Expanding

Identification of the Valve Parts

Pos.	Description
1	Body
2	Bonnet
3C	Gate
3D	Segment
4	Stem
5	Seat
9	Stem packing
13A	Body Gasket
14	Stud Bolt
21	Yoke
22	Nut
30	Drain
31	Gasket
39	Grease Fitting
47	Vent
84	Gland
94	Lantern Ring
122	Stud Bolt
123	Nut
348	Gate guide
349	Segment Guide
350	Centralizer
351	Gate Pin





Gate

Design Features

Double Expanding

How Does It Work

The Expanding Gate Valve achieves its sealability by mechanically expanding the 2-piece obturator assembly (gate and segment) against the seats.

Fully Closed

In the full expanded closed position, the segment has engaged the lower stop and the gate is wedged downward, expanding the gate and segment against the upstream and downstream seats forming a tight mechanical seal.

The gate is attached and driven by the stem and a centralizer mechanism retain the gate segment assembly during the open and closing travel. The valve must be torqued fully open or fully closed to seal properly.

Mid Position

During open and closing travel, the gate-segment assembly the gate travels across the wedge angle of the segment. The centralizer mechanism allows the gate and segment assembly to travel freely without sticking or wedging preventing relative movement between the gate and segment.

This design prevents damage to the sealing surfaces of the gate and seat and isolates the body cavity preventing buildup of foreign material, increasing the life of the valve.

Fully Open

In the full expanded open position, the segment has engaged the upper stop and the gate is wedged upward expanding the segment and the gate into the seats sealing against both seats. This protects the seat faces from line flow, while isolating the body cavity from the flow bore.

Seat and Disc

The 2-piece obturator and the seats are manufactured from forged steel.

Both are HVOF Tungsten or Chrome carbide coated. Sealant can be injected, as a temporary solution when damage occurs in the sealing members.

Stem Design and Seal System

The valve is engineered with rising stem. The standard stem seal is with braided graphite and can be fitted with an emergency grease injection device. In the event of a gasket failure, this feature allows restoring of the sealing.



Double Block and Bleed

The DBB design is a standard feature of the Viar Valvole double expanding gate valve. When the valve is in fully

closed position, pressure and or fluid in body-bonnet cavity can be released through the body drain system.

In the same position, a double isolation between the two sides of the valve is achieved.

Relieving Device

Expanding Gate Valve design will trap pressure in the valve body cavity when the valve is in the full open or closed position. To protect the valve from overpressure, in case of fluid

thermal expansion and, generally, when pressure in the body cavity exceeds the pipeline pressure, the valve can be provided with upstream relief piping/valve which relieves excess body pressure in excess to the upstream side.

Full Bore Through Conduit

The pressure drop is minimized without any turbulence. The valve is Piggable: Pigs and scrapers can be run through the valve without damages to the valve.

Optional Features

- Material Options (CRA Alloys for Very Corrosive Service Media)
- Seat & Stem Sealant Injection System
- Actuation

Benefits

- Compact Design
- Gas Tight, Metal to Metal Sealing
- Corrosion Resistant
- Easy Maintenance

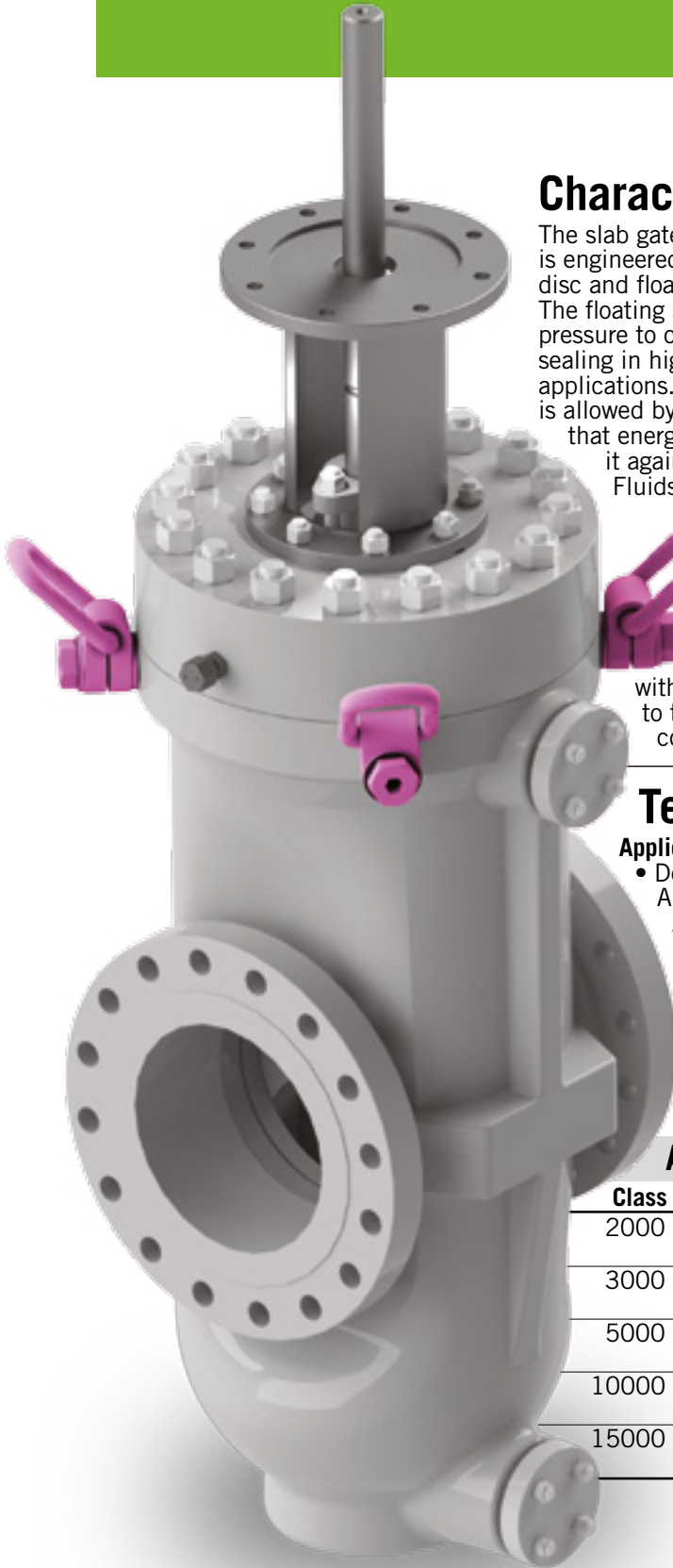
- High Pressure / High Temperature
- Bi-directional Sealing
- Fast Closing
- Fire Safe.



Gate



Slab



Characteristics

The slab gate valve design is engineered with a single piece disc and floating seats. The floating seat uses the line pressure to obtain a downstream sealing in high-pressure differential applications. Low-pressure sealing is allowed by coil springs that energize the seat pushing it against the gate. Fluids flow freely with a minimum of turbulence. In open position, running of pigs, scraper wipers or hot tap cutters through the pipeline is allowed with no danger or damage to the internal mechanical components of the valve.

Viar Valvole slab gate valves are manufactured from high quality selected materials.

CNC machinery ensure high quality dimensional accuracy. Before shipment, each valve is tested to ensure that all quality requirements specified by the applicable specifications are met.

Viar Valvole slab gate valves can be manufactured according to API 6D or to API 6A Standard.

Viar Valvole is licensed to apply the API monogram on all of its slab gate valves.

Technical Data

Applicable Standard

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Class	Dimension
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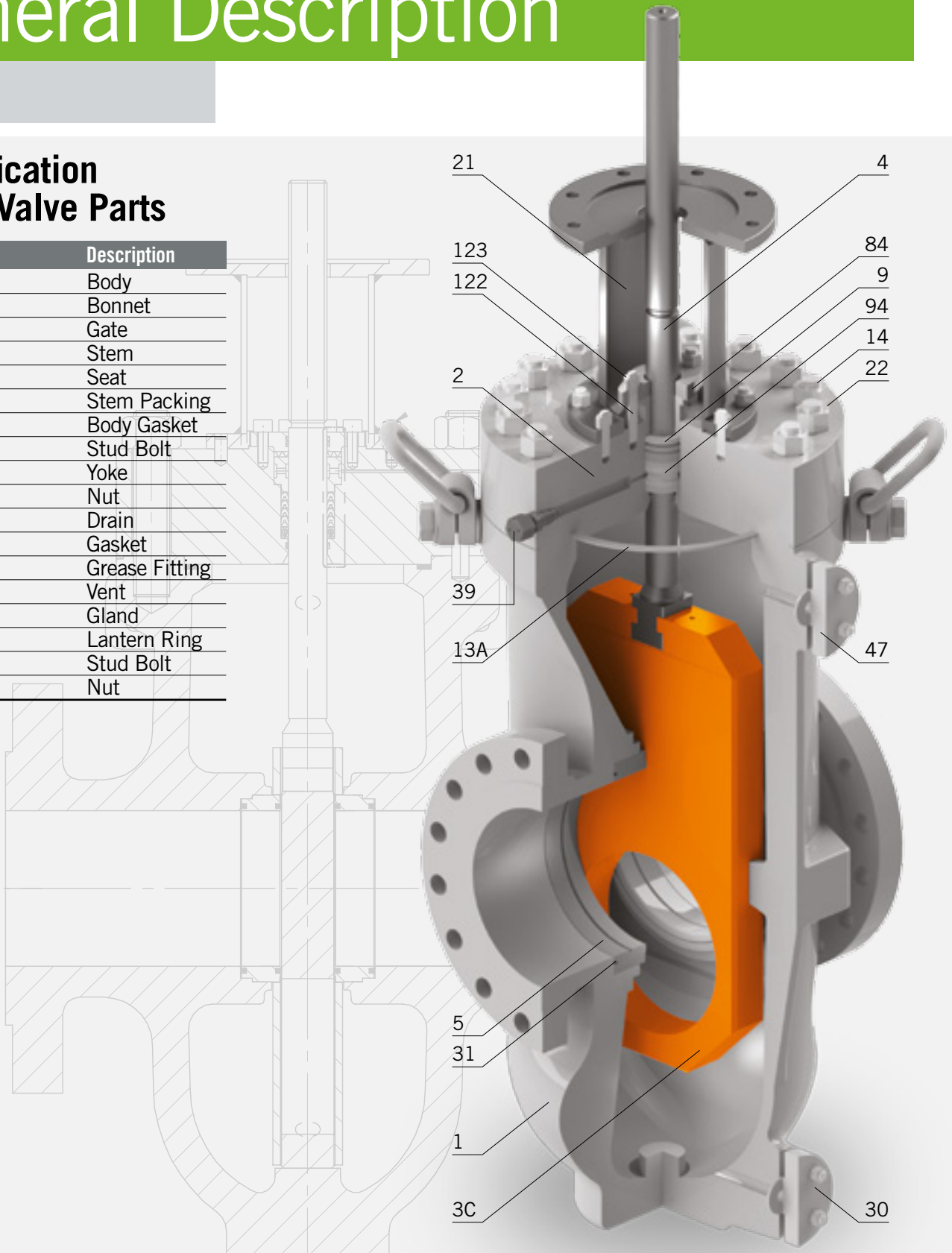
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General Description

Slab

Identification of the Valve Parts

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22	Nut
30	Drain
31	Gasket
39	Grease Fitting
47	Vent
84	Gland
94	Lantern Ring
122	Stud Bolt
123	Nut





Gate

Design Features

Slab

Seat and Disc

The Solid flat disc and the seats are made from forged steel.

Both can be ENP coated to prevent corrosion or galling. Seats can be provided with a thermoplastic insert in the face in contact with the disc.

This soft seat insert guarantees the primary sealing while the metal contact between disc and seats guarantees the secondary sealing. Metal to metal seating design is available upon request for abrasive service and for high temperature design. In this second case, the seats and the disc are coated

with HVOF Tungsten or Chrome carbide.

In normal operating condition, the slab gate does not need to be lubricated to maintain a seal. Sealant can be injected, as a temporary solution when damage occurs in the sealing members.

Stem Design and Seal System

The valve is engineered with rising stem.

The standard stem seal is with braided

graphite and can be fitted with an emergency grease injection device or/and with a backseat between stem and bonnet.

In the event of a gasket failure, this feature allows restoring of the sealing.

Double Block and Bleed

The DBB design is a standard feature of the Viar Valvole slab gate valves.

When the valve is in fully closed position, pressure and/or fluid in body-bonnet cavity can be released through the body drain system. In the same position, a double isolation between the two sides of the valve is achieved.



Self Relieving Seats

The single piston effect design of the seats automatically relieves the body pressure in excess. In case of fluid thermal expansion and,

generally, when the pressure in the body cavity exceeds the pressure in the pipeline, the seat is forced back into its housing and the pressure in excess is released between the seat and the gate into the line.

Full Bore Through Conduit

The pressure drop is minimized

without any turbulence.

The valve is Piggable: Pigs and scrapers can be run through the valve without damages to the valve.

Optional Features

- Material Options (CRA Alloys for Very Corrosive Service Media)
- Seat and Stem Sealant Injection System

- Actuation
- Tungsten Carbide Coated, Metal to Metal Sealing.

Benefits

- Compact Design
- Gas Tight, Metal to Metal Sealing

- Corrosion Resistant
- Easy Maintenance
- High Pressure/High Temperature
- Bi-directional Sealing

- Fast Closing
- Fire Safe
- Protection against Over Pressure.

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