



Through Conduit Slab Gate Valve

Technical brochure

COMPANY PROFILE

AMPO is an **international leader** with over 50 years of experience in the design and manufacture of **highly engineered valve solutions** for the most severe applications across a wide variety of industry sectors.



Fully inhouse
manufacturing
process



Worldwide
references



Project based
on people



Innovative
spirit



700+
people



In more than
60 countries



Most important
partners in the industry



Cutting edge
technologies



Our commitment:
the best service



Customer
focus



Since
1964



API



NORSOK



INDUSTRY SECTOR

AMPO's Through Conduit Slab Gate valves are engineered to fulfill severe service applications where reliability and safety are both ours and our clients primary concern:

- Offshore / Onshore applications
- Scrapers / Pig Traps / Pig Launchers and Receivers
- Oil and Gas production / Transportation isolation
- Upstream Gas compressor isolation
- Critical and primary isolation
- Reinjection offshore platforms
- Blowdown skids

Our customized solutions and robust designs create complete reliability due to their optimum performance.



THROUGH CONDUIT SLAB GATE VALVE

AMPO POYAM VALVES Slab Gate valve is a real fully metal to metal highly engineered valve to guarantee a high reliable tight shut off service during a long service life.

Standard:

API 6D, ASME B16.34, ASME B16.5, ASME VIII Div 1 & Div 2, NACE MR0103.

Sizes and pressures:

API 6D		
300#	600#	900#
6" up to 48"	6" up to 48"	6" up to 48"
1500#	2500#	
6" up to 42"	6" up to 24"	

* Other sizes and pressure ranges on request.

Design features:

- Metal to metal reliable seat design.
- Load fluctuation during the service life is considered in the design in order to guarantee a service life operation.
- Specific through conduit valves design for a very dirty service.
- Double Block and Bleed (DBB).
- Fire Safe.
- Fully Piggable valve.
- Antistatic design.
- Rising Stem design.
- All type of ends are available.

Sealing:

- Bi-Directional sealing design.
- The sliding sealing surface is fully hard faced by ultimate Tungsten carbide hard facing.
- Tungsten carbide hard facing metal to metal gate and seat seals.
- Double stem packing sealing solution.

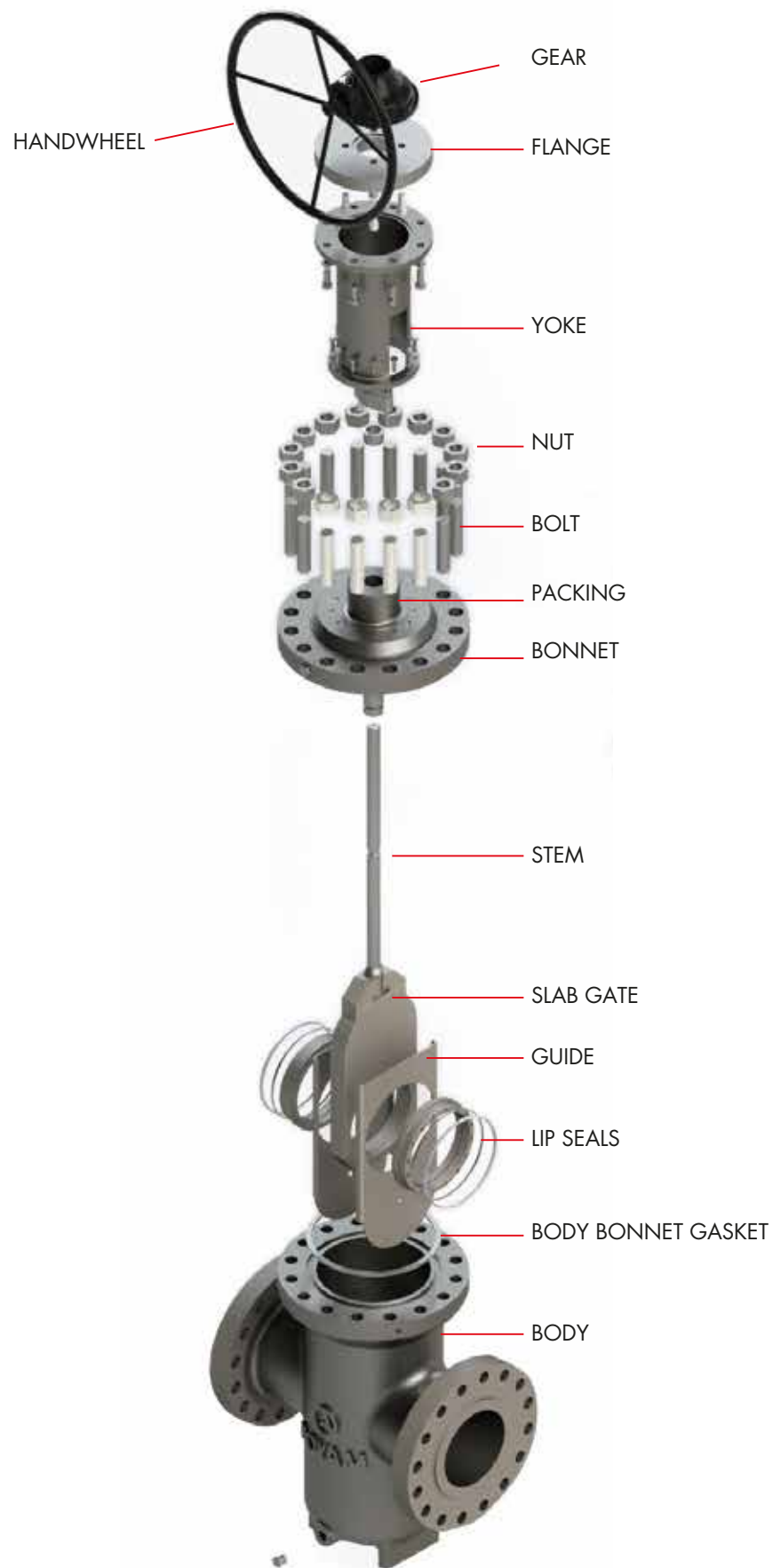


Acuation:

- Manual
- Electric
- Pneumatic
- Hydraulic

Other features:

- Materials are selected properly to guarantee mechanical and corrosion resistance considering extreme service conditions and sour service NACE requirements.
- CRA weld overlay available in-house, partial or fully clad for corrosion protection.
- Customized bores are available under request.
- External vent and drain are available.
- Stem injection for extra sealing is available.
- Standard acting and reverse acting are available to accommodate the floating movement of the gate during valve operation.



WHY CHOOSE OUR THROUGH CONDUIT SLAB GATE VALVE?

LOW OPERATION TORQUE
provides ease of operation due
to the inherent design of the valve.



FAST CLOSURE
reliability when fast operation is
required.



MECHANICAL STOPS
prevent damage due to
over-torque.



MINIMUM MAINTENANCE:
AMPO POYAM VALVES' Through
Conduit Slab Gate Valve is
designed to maintenance free
operation between turnarounds.



A GUIDED DESIGN permits the
valve to be installed vertically or
horizontally and for high
pressure differentials.



INHERENTLY FAIL SAFE
safety assured by design.



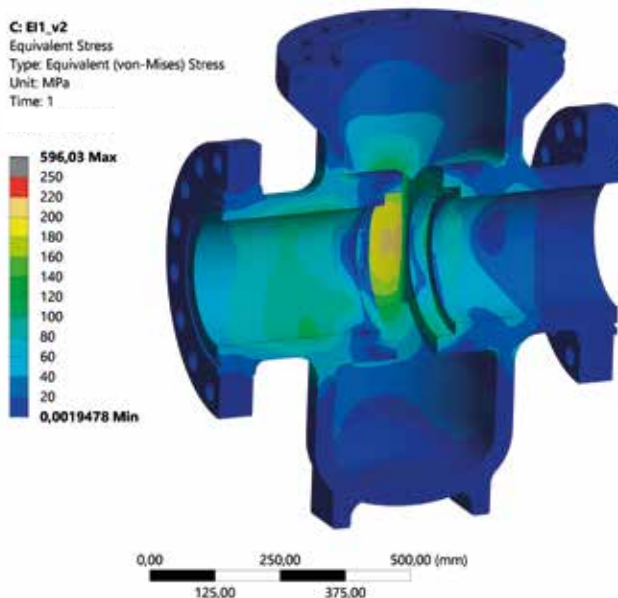
TECHNICAL FEATURES

1. FINITE ELEMENT ANALYSIS (FEA CFD):

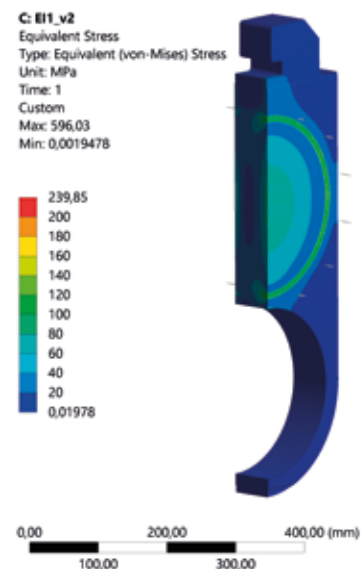
Structural integrity of each pressure containing component and pressure controlling components are validated with advanced FEA simulation tools that assure the correct performance of each component ensuring long life service and ultimately a robust valve design. CFD capacities to verify fluid dynamic performance.

Valve assembly sealing performance is engineered for operating load combinations applied. Valve operation is verified when the maximum operating load combination from the connected piping is applied. FEA report demonstrated by the analysis of bending moments, pressure effects, external loads, thermal analysis, thermo mechanical analysis and functional verification are available upon request.

FEA ANALYSIS FOR BODY AND BONNET:

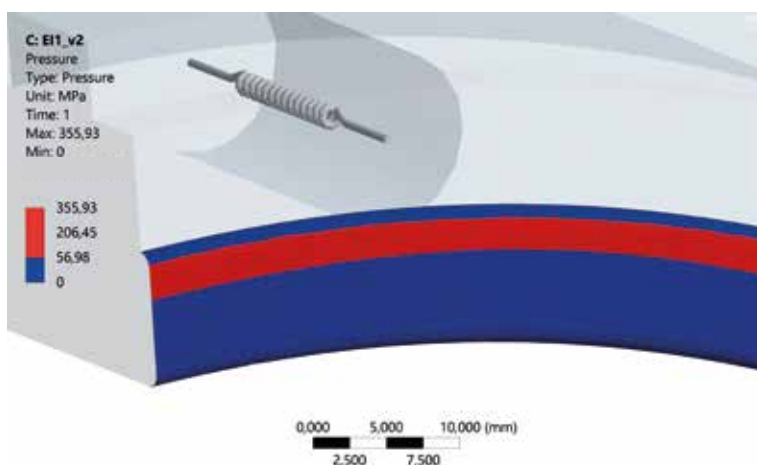


FEA STATIC/STRUCTURAL ANALYSIS FOR GATE:

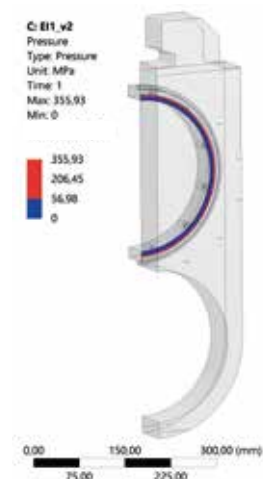


Gate static structural analysis

FEA PRESSURE CONTACT ANALYSIS TO ENSURE THE CORRECT SEAL:



Contact pressure distribution between gate and seat



2. SEAL SOLUTIONS:

SEAT SEALING RELIABILITY

AMPO POYAM VALVES Through Conduit Slab Gate valve is a real fully metal to metal valve, designed to guarantee a high reliable tight shut off service during a long service lifetime.

The dynamic sealing surfaces between seats and gates are hard faced by Tungsten Carbide with a special surface finishing to reach and maintain the tight shut also at high pressure and with dirty and abrasive suspension medium.

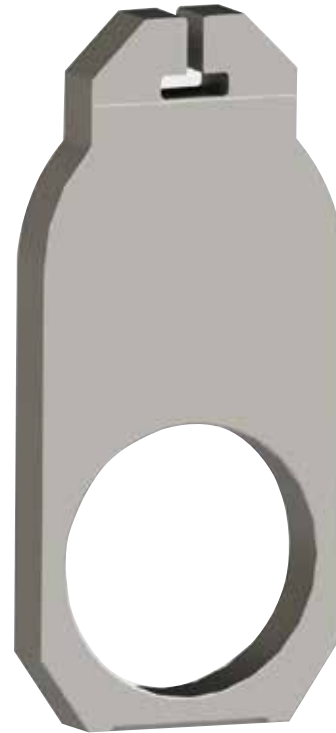
The seat tight shut off is maintained without need to inject any sealant compound.

FEA based Precision engineering designed seats with the additional Hard-faced metal to metal sealing surfaces provide a reliable sealing performance.

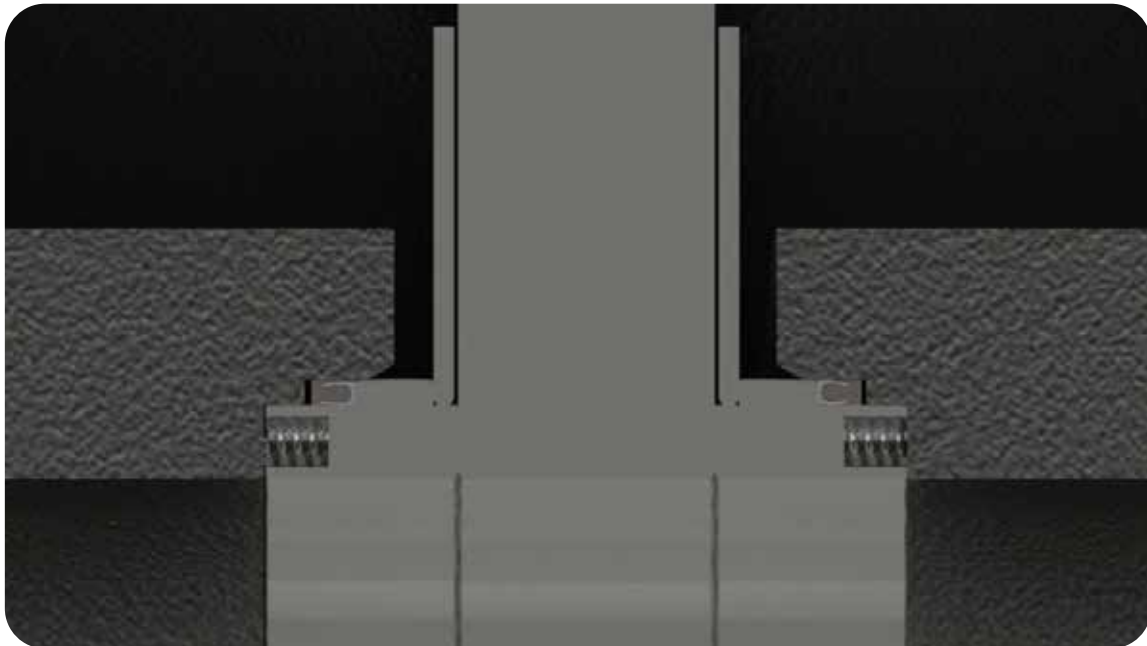
Different sealing technologies are available and all of them are engineered with FEA analysis in stationary position and under operational cases.

The seat ring design includes a spring energized floating seat, with a positive shutoff sealing against the slab gate.

GATE



SEATS



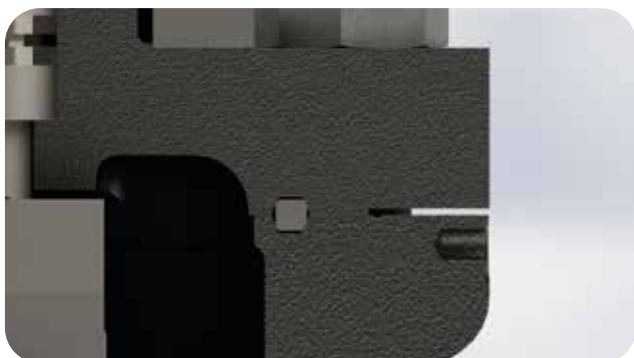
Seats are Tungsten Carbide HVOF coated with Metal to Metal contact between seats and gate.

SEALING TO THE ATMOSPHERE

Different solutions are available as bolted bonnet sealing solutions. Typically, spiral wound type and ring joint type are used. More sealing solutions are available upon request.



Spiral Wound type sealing solution.

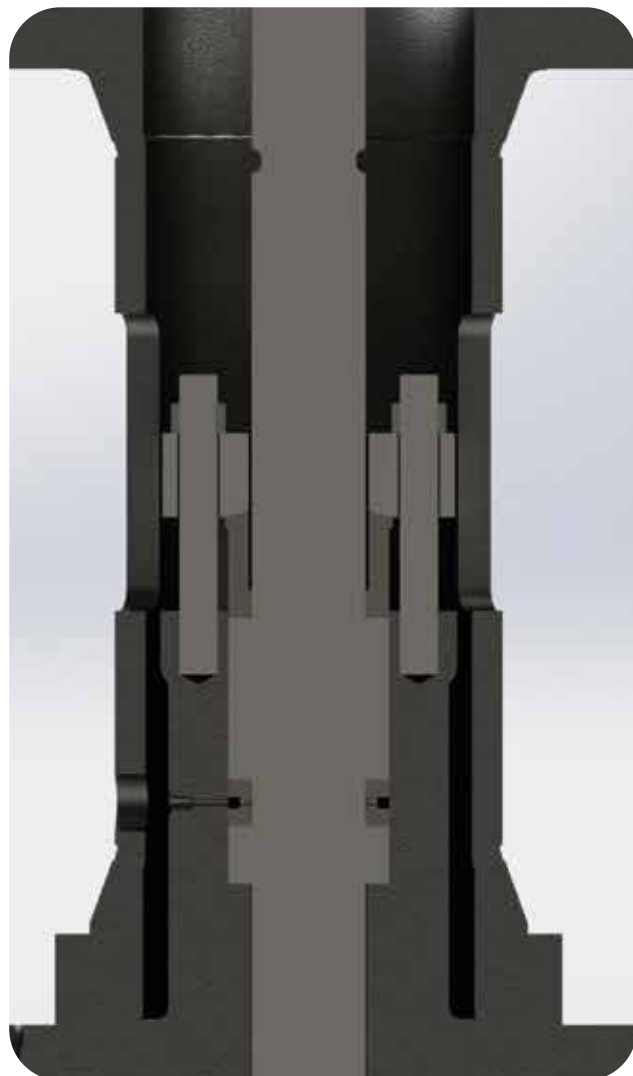


BX type sealing solution.

STEM SEALS

The AMPO POYAM VALVES Through Conduit Slab Gate valves stem seal design has a double barrier system. Includes at least two seals to prevent ingress of fluid. Double stem barrier seal is made compound of high-density graphite packing separate by a metal ring. A lantern ring may be provided with a secondary injection fitting. Stem packing is adjustable from the outside.

Multiple choice for dynamic sealing solutions are available.



Double Barrier Graphite Packing separate by metal ring.

3. OPERATION:

Through Conduit Slab Gate valve is designed with a floating slide between both seats that allows different operating positions.

OPEN POSITION:

The valve internal design allows a full-bore conduit for a pigging service.



CLOSE POSITION:

1. In case the fluid comes from the upstream side, the gate floats against the downstream seat and causes a positive sealing in the valve's seats.

2. In case the fluid comes from the downstream side, the gate floats against the upstream seat and causes a positive sealing in the valve's seats.



The slide is guided. These guides allow the gate to maintain the position in open and close for better tightening.

AMPO POYAM VALVES Through Conduit Slab Gate valves isolate in downstream and upstream seat surfaces and are designed for tightening in open and close positions.

QUALIFICATION

AMPO values quality and therefore our operating and production processes are implemented and controlled by a quality assurance system, certified since 1991 under the ISO 9001 Standard, API Spec Q1&6D, API 6DSS, API 6A&17D and SIL 3 and accredited by various independent third part inspection agencies, such as Lloyd's Register, Bureau Veritas (BV), Det Norske Veritas (DNV) and American Bureau (ABS).

We are equipped with modern testing facilities and highly qualified Internal Quality Control Personnel to ensure the reliability of our valves. We carry out Non-Destructive Testing such as X-ray, Dye Penetrant, Ultrasonic Test, Magnetic Particle and PMI (Positive Material Identification), Impact Tests, Visual inspections, Hydrostatic Tests, Pneumatic Tests, Low Temperature and High temperature Tests, Fugitive Emission Tests, Vacuum Tests, High Temperature Tests, High Pressure Tests, etc.

Our management is completely based on the strictest quality standards, which is the foundation to enable



AMPO to develop the product which best satisfies our customer.

The standard testing procedure of our Through Conduit valve is based on the API 598.

To assure the AMPO POYAM VALVES quality, all tests specified on the standard are performed as mandatory, even the optional ones such as High Pressure Closure tests.

Fugitive Emission Class A standard design is achieved on these valves following ISO 15848. API 624 fugitive emission compliant valve can be offered as an option as well. Client specific specifications can also be incorporated upon request.

All the painting works are performed fully in house, and special requirements for high temperatures or adhesions tests are available for special processes.

MATERIAL SELECTION

PRESSURE CONTAINING COMPONENTS - FORGED OR CAST

Carbon steel, low alloy steel, stainless steel, duplex, super duplex and Inconel.

PRESSURE CONTROLLING COMPONENTS – FORGED

Stainless steel, duplex, super duplex, nickel-based alloys
Hard Facing – Tungsten Carbide, Stellite.

CLADDING CAPABILITIES

CRA weld overlay available in-house, partial or fully clad.



AMPO SERVICE

AMPO SERVICE are available to provide commissioning and life of field support to our clients. Our experience and high trained service technicians in conjunction with our resources based locally and at our headquarters can provide industry leading levels of support and guidance.



Commitment made of steel



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