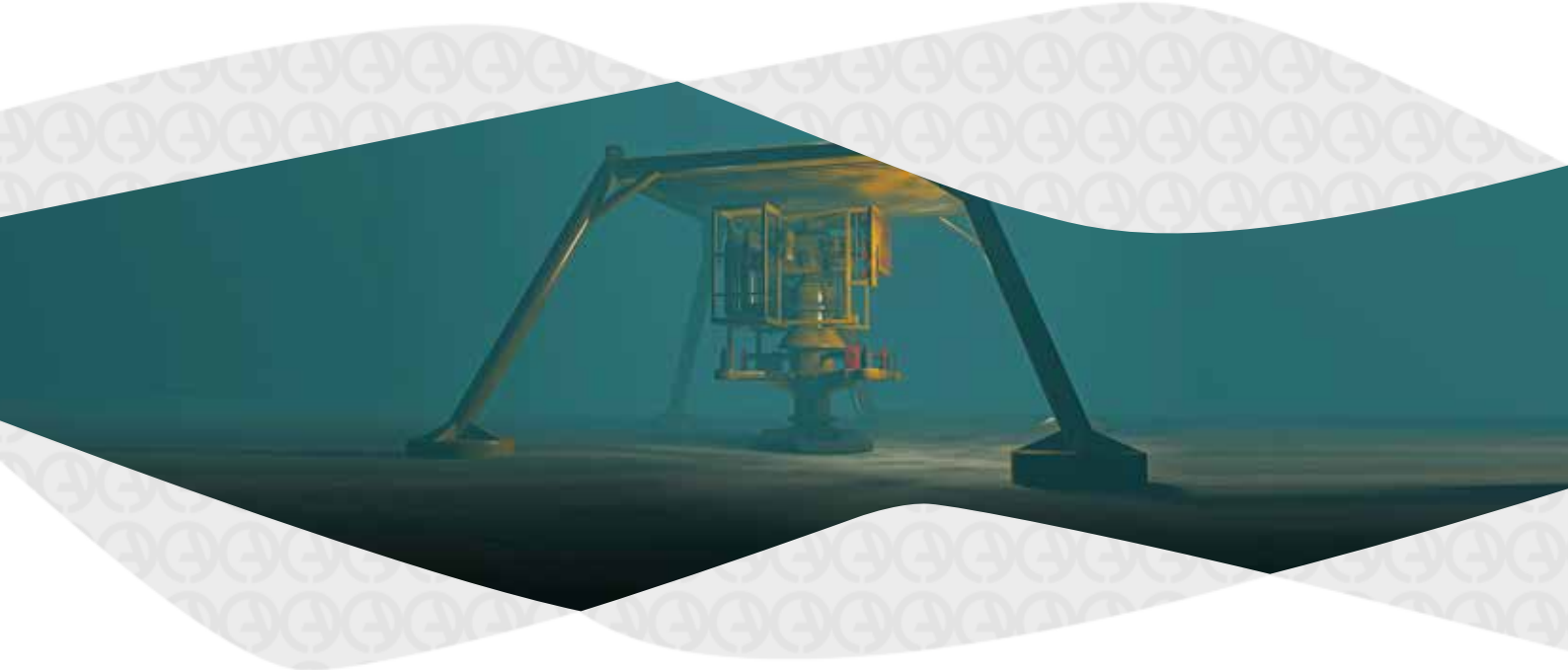


# SUBSEA VALVES

## Brochure



 **AMPO**  
POYAM VALVES

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Commitment made of steel

# 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



## INDUSTRY SECTOR: Upstream Oil & Gas – Subsea

AMPO POYAM VALVES offer a highly engineered range of Ball, Gate and Check Valves, which are designed for all types of subsea applications where reliability and safety are both ours and our clients primary concern.

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



The image displays a collection of certification logos for AMPO POYAM VALVES, arranged in a grid. The logos include:

- ISO 9001:2015
- CE (Conformé aux normes CE)
- API (American Petroleum Institute)
- Lloyds Register (Type Approval)
- ABS (American Bureau of Shipping)
- TÜV (Technischer Überwachungsverein)
- DNV (Det Norske Veritas)
- NOR-SOK (Norwegian Standards)
- ISO 14001:2015
- ISO 45001:2018

# OUR TECHNOLOGIES & SOLUTIONS:

## SUBSEA BALL VALVES

All AMPO subsea ball valves have undergone extensive R&D to guarantee their reliability and suitability for a variety of subsea applications.

### Options

- Floating or trunnion mounted, Full or reduced bore
- Valve body configurations; fully welded, top entry and split body
- Metal to metal valve seat, soft seat as option
- Single Piston Effect (SPE) or Double Piston Effect (DPE) seat designs available
- Double or single block configurations
- Various end connections options
- Smooth internal bore for optimum pig movement
- Double sealing philosophy applied for environmental sealing, primary bidirectional metal to metal seal and secondary environmental soft seal
- Different stem sealing technologies available, including metal sealing
- CRA overlay available - sealing areas or fully clad.
- Valves can be delivered with an additional emergency sealant injection for seat rings and stem rings.
- Bleed connections plugged and seal welded after FAT.

### Sizes & Pressure Ratings

API 6DSS (ISO 14723)		
150 – 600	900 – 1500	2500
2" – 42"	2" – 30"	2" – 20"

API 6A / 17D (ISO 1042 / 13628)	
3000 psi – 5000 psi	10000 psi
2 1/16" – 16 3/4"	1 13/16" – 13 5/6"

Other sizes and pressure range on request

### Actuation Options

- Manual (via Diver or ROV)
- Hydraulic
- Electric



## SUBSEA THROUGH CONDUIT SLAB GATE VALVES

All AMPO subsea through conduit slab gate valves are designed in accordance with latest industry standards.

### Options

- Metal to metal gate and seat sealing, with tungsten carbide hard facing
- Internal bi-directional sealing, allowing cavity relief in both the open and closed position
- Double or single block configurations
- Various end connections options
- Double sealing philosophy applied for environmental sealing, primary bidirectional metal to metal, secondary soft seal
- Different stem sealing technologies available, including metal sealing

### Sizes & Pressure Ratings

API 6DSS (ISO 14723)		
150 – 600	150 – 600	2500
2" – 30"	2" – 30"	2" – 20"

API 6A / 17D (ISO 1042 / 13628)	
3000 psi – 5000 psi	10000 psi
2 1/16" – 16 3/4"	1 13/16" – 9"

Other sizes and pressure range on request

### Actuation Options

- Manual (via Diver or ROV)
- Hydraulic
- Electric



## SUBSEA SWING CHECK VALVES

All AMPO subsea ball valves have undergone extensive R&D to guarantee their reliability and suitability for a variety of subsea applications.

### Options

- Metal to metal seats, with tungsten carbide or stellite hardfacings available
- ROV lockable
- Smooth internal bore for optimum pig movement
- Clapper locking mechanism designed to allow reverse pigging operations
- Various end connections options
- Double sealing philosophy applied for environmental sealing, primary bidirectional metal to metal, secondary soft seal
- Different stem sealing technologies available

### Sizes & Pressure Ratings

API 6DSS (ISO 14723)	
600 – 1500	2500
6" – 26"	6" – 16"

API 6A / 17D (ISO 1042 / 13628)	
3000 psi – 5000 psi	10000 psi
2 1/16" – 16 3/4"	2 1/16" – 11"

Other sizes and pressure range on request



## WHY CHOOSE OUR SUBSEA VALVES ?

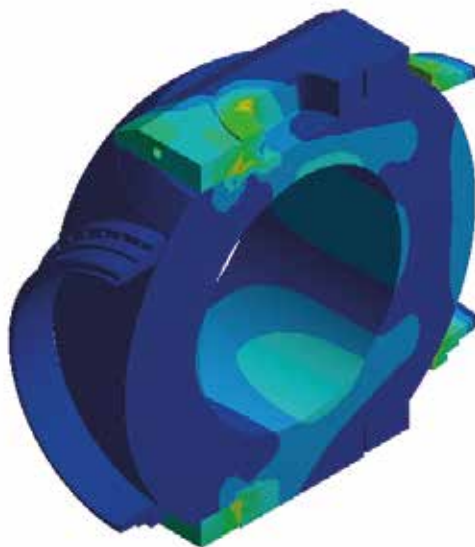
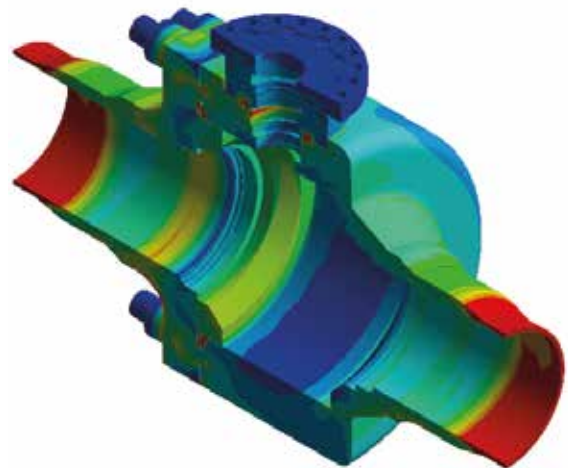
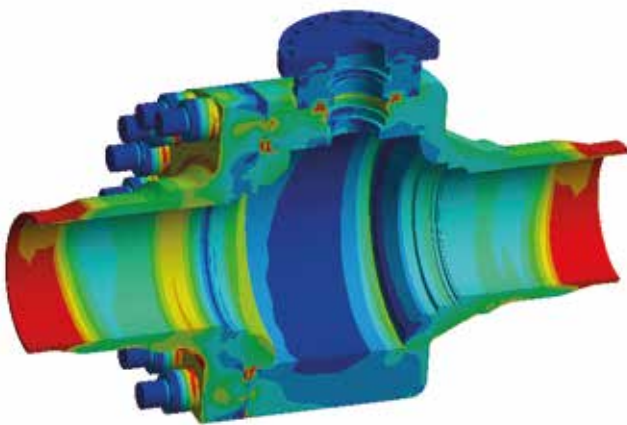
- C**ustomized valves under high specification
- O**ptimum performance, high flexibility and adaptability
- M**inimum maintenance costs
- M**aximum care of our customers, suppliers and environment
- I**n-House manufacturing process
- T**rouble free and on-time delivery of quality products
- M**etal Sealing Technology
- E**xpertise and experience
- N**ew technologies development
- T**eamwork



## TECHNICAL FEATURES

## 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.





## SEALING TECHNOLOGIES

### ENVIRONMENTAL SEALING

Double barrier sealing philosophy system against environment, a primary and a secondary seal system is standard in all AMPO's subsea designs.



*Double barrier sealing technology*

### INTERNAL SEALING RELIABILITY

Spring energized polymeric single piston (SPE) and double piston effect (DPE) design with metal to metal seat. Soft seats are available as seat solution between the ball and the seat.

Single piston effect seat design will relief to the line at low pressure.

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



*Seat ball Metal sealing solution*



*Thermoplastic ball to seat sealing solution*

### STEM SEALS

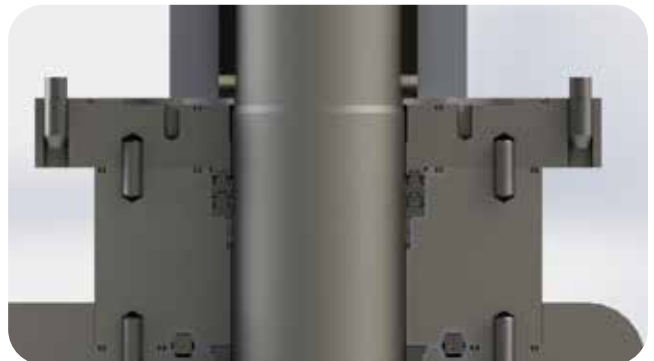
The stem seal design has a double barrier system. Includes at least two seals to guarantee operational lifetime.

AMPO guarantee the high performance of the valve using a primary multi spring energized polymeric solution.

Stem dynamic sealing solution, PTFE based packing compound on spring energized polymeric and V-stack multi sealing solution to assure good operability valve stem vertical position.

Multiple choice for dynamic sealing solutions are available.

The bonnet and stem sealing prevent ingress of seawater at design water depth with no internal pressure in the valve.



*Spring energized polymeric and V stack design sealing technology*

For the most critical applications and where ultimate reliability is required, our standard approach is to incorporate a true metal to metal stem sealing solution to guarantee operational extended life.

# QUALIFICATION & IN-HOUSE TESTING

AMPO POYAM VALVES has successfully performed a wide range of industry standard and in-house qualifications:

- Hydrostatic body test and hydrostatic seat test per ISO 10423/API 6A and ISO 13628/API 6DSS.
- Gas body and gas seat testing according to ISO 10423/API 6A and ISO 13628-4/17D and ISO 13628/API 6DSS. Acceptance criteria per ISO 5208.
- Vent and drain plugs testing.
- Independently tested primary and secondary seal.
- Functional and performance testing of valve w/ operator and ROV override.
- Functional performance testing for DBB and DPE tightening qualification test.
- Sand Slurry testing according to ISO 10423-Annex I.
- PR2 design validation. Pressure and temperature cycle testing according to ISO 10423-Annex F .
- Functional verification and endurance cycling testing.
- Qualification test with External Bending Moment loading.
- Hyperbaric Testing of Valve-Operator assembly per API 17D.
- Hyperbaric Testing of Valve-Operator assembly per API 6DSS



# MATERIAL SELECTION

## PRESSURE CONTAINING COMPONENTS - FORGED OR CAST

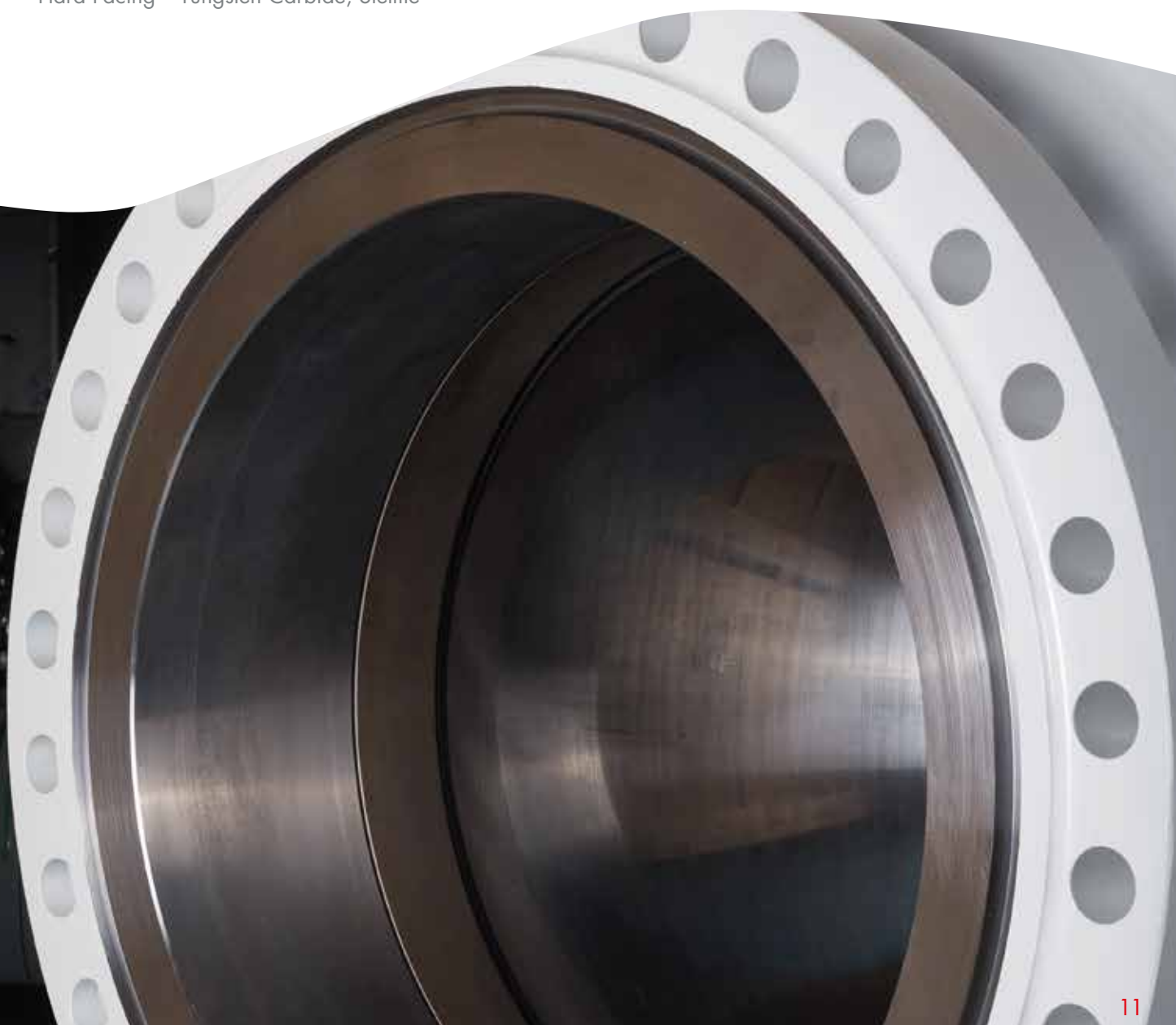
Carbon steel, low alloy steel, stainless steel, duplex, super duplex and Inconel

## 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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