G-Blok® VALVES

Precision Isolation,
Superior Protection.

20 YEARS
TRUSTED
SINCE 2006

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AFF
AUSTRALASIAN FITTINGS & FLANGES

GLOBAL PLAYER.
LOCAL MANAGEMENT.

Australasian Fittings & Flanges (AFF), as part of the Galperti Group, manufactures the G-Blok® Double Block & Bleed (DBB) valves, specifically designed to provide precision isolation to sections of pipelines, process systems, and instrumentation to safeguard your operations and guarantee efficiency.

G-Blok® VALVES

Galperti Engineering G-Blok® range of standard and special valves includes double block and bleed valves, API valves and slimline compact monoflanges. Specific for oil and gas, petrochemical and power generation industry, G-Blok® valves are custom designed to fulfill project applications and specifications: for pipeline or instrumentation, topside or subsea/deep sea, high or low temperature, corrosive or hazardous fluids.

G-Blok® valves' design include specific features developed along the years, and widely laboratory and field tested. G-Blok® DBB/SBB design is fully optimised to minimise space, weight and leak paths. Our modular solutions are designed to maximise a project's system reliability and to reduce the total cost of ownership.

All G-Blok® valves are in-house forged, and are available in all materials.

G-Blok® DBB/SBB Valves (Ball, Needle, Gate) Sizes up to 2"

The G-Blok® Single/Double Block and Bleed Valves are available in several configurations, design options and material grades in order to meet all range of applications and every specification requirements.

Applications

- Instrument Single/Double Block and bleed for chemical injection and sampling
- Instrument Single/Double Block and bleed for pressure connections
- In-line Modular Single/Double Block and bleed for process isolation

Valve Design

- Floating Ball
- Trunnion Mounted Ball
- Wedge Gate
- Monoflange Needle
- Root Needle

Size

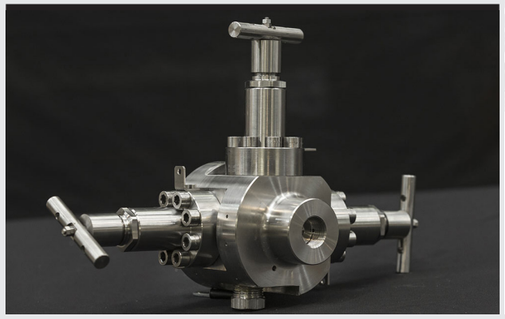
- NPS ½ to NPS 2
- DN 15 to DN 50

Rating

- Up to ASME 4500
- Up to API 15,000psi

Technical Features

- Pressure containing components made by solid forged materials
- Soft or Metal-to-Metal configuration
- Fire-Safe design or certification
- Anti-static design
- Optimised face to face dimension
- Engineered, manufactured, tested and optimised for your specific application



G-Blok® DBB/SBB Valves (Ball, Needle, Gate) Sizes over 2"

The G-Blok® DBB/SBB design is fully optimised to minimise space, weight and leakpaths.

Applications

- In-line Modular Single/Double Block and Bleed for process isolation
- Best design option in offshore environment to reduce weight, space requirements and leak paths by integrating as many valves as possible into a single product

Valve Design

- Side-Entry Trunnion Mounted Ball
- Top-Entry Trunnion Mounted Ball

Size

- NPS 2½ to NPS 24
- DN 65 to DN 600

Rating

- Up to ASME 4500
- Up to API 15,000psi

Technical Features

- Pressure containing components made by solid forged materials
- Soft or Metal-to-Metal configuration
- Fire-Safe design or certification
- Anti-static design
- Optimised face to face, compact overall dimensions
- Engineered, manufactured, tested and optimised for your specific applicationn

G-Blok® Ball Valves

The G-Blok® valves are the highest quality valves with top-notch reputation within the Oil & Gas and Petrochemical industries, coupled with our best-in-class integrated vertical production process and our first-class on-site services. The G-Blok® Ball Valves are available in several configurations, design options and material grades to meet all range of applications and specification requirements.

Applications

- **Upstream Operations**: Wellhead Isolation and Christmas Tree Assemblies
- **Midstream Operations**: Pipeline Transportation and Gas Processing Plants
- **Downstream Operations:** Refineries and Petrochemical Plants
- Storage and Distribution Facilities

Valve Design

- Side-Entry Trunnion Mounted Ball
- Top-Entry Trunnion Mounted Ball
- Side-Entry Floating Ball

Size

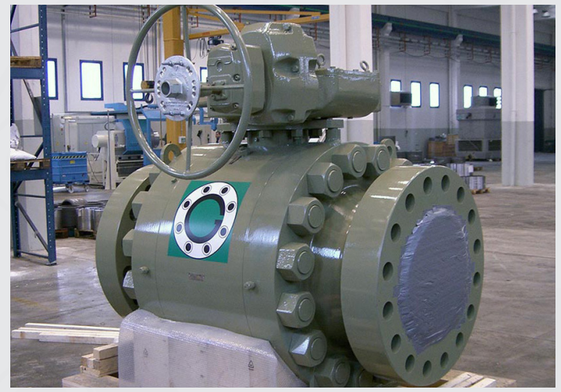
- NPS 2½ to NPS 48
- DN 65 to DN 1200

Rating

- Up to ASME 4500
- Up to API 15,000psi

Technical Features

- Pressure containing components made by solid forged materials
- Soft or Metal-to-Metal configuration
- Fire-Safe design or certification
- Anti-static design
- Robust construction, quick and easy operation with low maintenance requirements
- Engineered, manufactured, tested and optimised for your specific application



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Subsea Valves and Actuators

Galperti Engineering API 6DSS qualified since the first edition of the standard and has been supplying subsea valve since 1997. The Subsea Engineering team is able to customise the best valve and actuator configuration based on your project requirements. Subsea valves and actuators are available in several configurations, design options and material grades to meet all range of applications and specification requirements.

Applications

- Permanent subsea
- Temporary subsea
- Corrosive services
- Deep water
- Rapid cycling operating conditions over extended periods of time
- Severe conditions with no routine maintenance requirements

Valve Design

- Manual or Actuated Side-Entry Ball
- Manual or Actuated Top-Entry Ball
- Manual or Actuated DB/DBB Side-Entry Ball
- Manual or Actuated DB/DBB Top-Entry Ball
- DB/DBB Monoflange Needle

Size

- NPS ½ to NPS 48
- DN 15 to DN 1200

Rating

- Up to ASME 4500
- Up to API 15,000psi

Technical Features

- Pressure containing components made by solid forged materials
- Design according to API 6DSS, 17D or 6A
- Full in house testing capacity for valves, hydraulic actuators and gears (quarter turns and linear) : hyperbaric chamber, test benches, HPU and ROV tools
- Design DNV-RP-F112 with in-house FEM verification
- Full customisation for all test ports, scraper rings, high visibility letters and relief systems
- Engineered, manufactured, tested and optimised for your specific application

G-Blok® HT – High-Temperature Isolation Valves

G-Blok® HT valves deliver reliable isolation in extreme environments, combining the simplicity of a floating ball design with robust sealing technologies. Designed for high-temperature, high-pressure, and corrosive conditions, these valves are ideal for demanding industrial processes.

Applications

- **Oil & Gas:** Volatile hydrocarbons, viscous fluids, aggressive liquids
- **Chemical Processing:** Hazardous chemicals, acids, caustics
- **Power Generation:** Superheated steam, molten salts, peak shaving
- **Specialty Services:** Hydrogen isolation, delayed coking, catalyst cracking

Seal Technology

- Chrome carbide-coated ball-seat surfaces
- Metal-to-metal configuration for low fugitive emissions
- Spring-loaded upstream seat for cavity protection
- High-performance graphite packing with live loading

Key Features

- **Size Range:** NPS ½ to NPS 24
- **Pressure Rating: A**SME 150 to ASME 4500
- **Temperature Range:** Up to 899°C (1650°F)
- **Materials:** All steel types and nickel alloys
- **Actuation:** Manual or powered options available

G-Blok® HT valves are built to exceed industry standards, offering enhanced safety, reduced maintenance, and long-term reliability in the harshest operating conditions.

G-Blok^{H2} – Valves for Hydrogen Service

G-Blok^{H2} valves are designed for 100% hydrogen service to improve reliability, safety and efficiency. They are based on experience in natural gas and subsea products, with all metal parts in austenitic stainless steel and non-metal parts in hydrogen-prequalified materials to resist hydrogen embrittlement.

Applications

- High pressure hydrogen storage
- Medium/Low pressure hydrogen storage
- Hydrogen transportation
- Hydrogen distribution
- Normal temperature electrolysis skids

Valve Design

- Side-Entry Trunnion Ball
- Side-Entry Floating Ball
- Electrolysis Side-Entry Floating Ball

Size

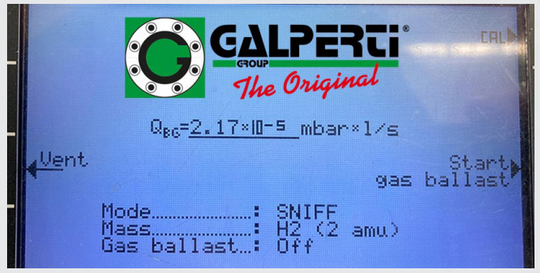
- NPS ½ to NPS 12
- DN 15 to DN 300

Rating

- Up to ASME 2500

Technical Features

- Solid forged pressure-containing components
- Double seal on all leak paths with metal-to-metal Galperti GCCP primary seals (Xylan 1070 coated) and graphite secondary seals
- Redundant anti-static devices with low-stress UNS S31603 springs
- Lip seals and V-packs with UNS S31603 springs
- In-house seat leak and fugitive emission testing using a 95% nitrogen / 5% hydrogen blend
- Engineered, manufactured, tested and optimised for each specific application



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Valves for Carbon Capture and Storage Applications

Engineered for risk-free decompression in sCO_2 applications

G-Blok® CCS valves are engineered for the realities of carbon capture and storage (CCS) for supercritical CO_2 rapid decompression events, low-temperature transients and impurity-driven material attack.

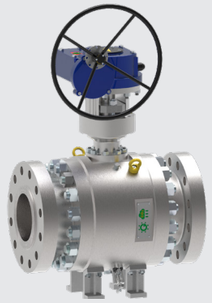
The range offers three confidence levels - Core, Middle-End and High-End - so you can right-size performance to your CO_2 criticality, decompression rates and risk posture. The result offers predictable containment, reliable shut-off and resilience through planned or unplanned pressure/temperature shocks, without over-specifying the entire system.

Tier Design Approach

HIGH-END valves for sCO_2 resilience under high rapid decompression

G-Blok® High-End product line for CCS

- Valve design optimised for sCO_2 resilience for planned or unplanned ultra-high-rate decompression and rapid cooling.
- Stem secondary sealing: high-performance, low-emission graphite packing.
- Static leak paths secured by self-energising metal seal rings.
- Standard high-capacity emergency seat and stem sealant injector.



MIDDLE-END valves with improved design for sCO_2

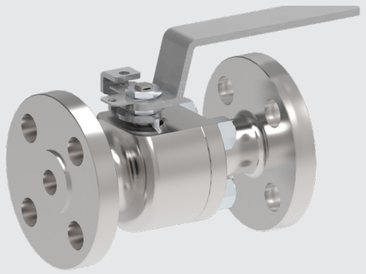
G-Blok® Middle-End product line for CCS

- Valve design for enhanced durability and reliability in sCO_2 services with standard decompression rates.
- Additional CO_2 safety factor applied to the extension wall thickness and bolting.
- No elastomers used.
- Critical service, self-relieving, and self-energised stem sealing (V-pack).

CORE valves with sCO_2 qualified materials

G-Blok® Core product line for CCS

- Optimised valve design for low-pressure services or applications with moderate decompression rates.
- Seat insert selection for sCO_2 mixture compatibility.
- Non-metallic materials qualified to NORSOK M-710 for 100% CO_2 service.
- Elastomers certified to NACE TM0297 for rapid gas decompression in CO_2 service.



Material Selection - Metallic Parts

- Optimised metallic material selection for the new-energy sector through shared supply-chain expertise.
- Support for selecting optimal metallic components for valve internals.
- Qualifications:
  - NACE TM0297 (rapid gas decompression test, 100% CO_2, elastomers);
  - NORSOK M-710 (sweet ageing, 100% CO_2, thermoplastics and elastomers).
- Sealing elements and interface design optimised for reliable sCO_2 performance.

Typical sCO_2 Mixture for CCS Services

Chemical	Sign	Value (Mol)	Unit
CO_2	≥	95.5	%
CH_4	≤	3	%
H_2	≤	1.2	%
Combined Ar and N_2	≤	1	%
Hydrocarbons	≤	0.3	%
CO	≤	800	ppm
Methanol	≤	700	ppm
H_2O	≤	200	ppm
O_2	≤	50	ppm
SO_x	≤	25	ppm
Amines	≤	20	ppm
Ethanol	≤	20	ppm
H_2S	≤	10	ppm
NO_x	≤	10	ppm

Optimised metallic material selection for the new-energy sector through shared supply chain expertise. Typical guidelines for selecting metallic materials in sCO_2 systems.

Topic	Industry Guideline
Corrosion Resistance	CO_2 when in the presence of water forms carbonic acid. To ensure optimal performance, select internal materials with chemical resistance that are suitable for the project-specific sCO_2 mixture.
Temperature & Pressure	Standard ASME approach.
Material Compatibility	Certain materials may react with CO_2 under specific conditions, leading to degradation or failure. To mitigate these risks it is essential to use a selection of CO_2 compatible materials exclusively.
Material Testing & Qualification	Standard ASME approach.
Special Considerations	The standard ASME approach is to be followed. Any special requirements, such as contaminants or other operating conditions that could impact material performance, must be carefully evaluated.

Material Selection - Non Metallic Parts

Milestones for non-metal sealing elements material selection.

Chemical Compatibility	Anti-Explosive Decompression	OEM Design Expertise
NORSOK M-710 Certification Sweet ageing with 100% CO_2 thermoplastics and elastomers	**NACE TM0297 Certification** Rapid gas decompression test with 100% CO_2 for elastomers	**Sealing Elements & Interface Design** Optimised for reliable sCO_2 performance
All Products	**All Products**	**All Products**

Most common CO_2 criticalities considered in soft material selection:

- **Solubility/Diffusivity Ratio:** High risk of RGD failure is addressed due to the high CO_2 solubility/diffusivity ratio.
- **Impurity Sensitivity:** Enhanced effects of impurities - such as SO_x and NO_x - are considered for material resilience.
- **Degradation Mechanisms:** Material selection accounts for triggers that initiate degradation, affecting chemical and physical properties.

OUR STRENGTHS

Specialised Forged Products: We specialise in customised forged products for demanding applications.

In-House Manufacturing: All manufacturing processes, including forging, heat treatment, machining, and painting, are conducted in-house, ensuring optimal control at every stage

Specification Compliance: We conduct thorough specification reviews to ensure complete compliance with all requirements.

Quality and Traceability: Our commitment to high quality and superior customer service includes full traceability of materials back to the raw source.

Ongoing Support: We provide ongoing solutions, advice, and recommendations throughout the entire lifespan of your plant.

Global Sourcing: We source superior quality products from globally renowned manufacturers, all of whom are ISO 9001 certified.

Material Selection: Our meticulous material selection process ensures extended facility longevity.

Consistent Delivery: Renowned for our consistent delivery of high-quality products.

Prompt Responses: Rely on us for prompt and precise responses to your inquiries.

Comprehensive Project Management: Our services cover order management, technical queries, documentation, expediting, logistics, and more.

Expert Guidance: Receive expert guidance to ensure accurate installation, maintenance, and sustained functionality.

"Bringing the manufacturer to the client" is the principle that drives our success. AFF offers a comprehensive, globally competitive supply chain, delivering innovative and cost-effective solutions tailored to client specifications. Our goal is to be the preferred supply partner, consistently ensuring that our product quality exceeds client expectations.

AUSTRALASIAN FITTINGS & FLANGES

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Citation Certification
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