frenstar VALVES

PHB
PH BORNEO SDN BHD (1087707-K)

MANUFACTURER STOCKIST PROJECT SPECIALIST

frenstarvalves.com

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COMPANY PROFILE

With over 40 years experience
Frenstar Valves are one of the leading valve manufacturers in the world. Frenstar provide tailored valve solutions to market leaders.

Frenstar's network of in-group and partner factories are at the core of our ability to provide **fast-track delivery of high specification valves**. These **competitively priced** valves, come with full traceability from manufacture to delivery.

Utilising our **large stock holding** we can fulfil urgent deliveries in a wide range of materials and sizes with same day dispatch available.

Areas of Specialisation
- Manufacture and deliver valve and actuator packages correct to client specifications
- Quality assured - ISO /API audited factories for all valve types including exotic alloys
- Fast delivery
- Valve experts with extensive project experience supplying major Oil & Gas end users
- Delivered on-time every time

Frenstar guarantees reliable valves according to the highest industry standards; API/ASME/ISO. This reliability is proven by thousands of in-line valves still providing zero leakage after high cycles.

We work in close partnership with our customers. By building on previous supply we are able to apply lessons learned to ensure successful project outcomes and **continual improvement**.

LONG-TERM FRAMEWORK CONTRACTS WITH MAJOR END USERS ARE TESTAMENT TO OUR INDUSTRY REPUTATION

Rapid Response / Fast-Track Services
- Rapid response to quotation requests
- Valves manufactured in 5-8 weeks (material dependant)

"HARD TO FIND VALVES ARE OUR SPECIALITY"

WHY US?

QUALITY ASSURANCE

DELIVERY

COST EFFECTIVE SOLUTIONS

ENGINEERING EXPERTISE

EFFICIENCY

AFTER SALES SUPPORT

QUALITY AND SAFETY
INTEGRAL TO OUR SERVICE

INDUSTRIES

REFINERY

OIL & GAS

FPSO, MARINE & SHIP BUILDING

LNG

WATER & WASTEWATER

PULP & PAPER

MINING

TRUSTED SUPPLIERS OF

CONCENTRIC RUBBER LINED BUTTERFLY VALVES

PRODUCT DESIGN DATA

Description	BUTTERFLY VALVE Concentric Rubber Lined
Design Code	API 609 / EN593
Size Range	NPS 1½" - 48" / DN 40- 1200
Maximum Pressure /Rating	**IVGK / IVTL** 20 bar 150# **IVDF** 16 bar PN16
Design Temperature	-40°C to +180°C
Seat Leakage	Bubbletight EN12266-1 rate A / Bi-directional
End Connections	Wafer / Lug / Double Flanged
Face to Face	API609 Cat A Table 2 & 3C
Body Seat	**IVGK** - Replaceable / Bonded **IVTL / IVDF** - Bonded to body

MATERIALS OF CONSTRUCTION

BODY		
Ductile Iron / Cast Iron	GGG40, GG25	
Carbon Steels inc. Low Temp	WCB, LCB, LCC	
Austenitic/ Super Austenitic Stainless Steels	CF8, CF8M, CF3M, 6MO	
Copper Alloys	Aluminium bronze	
Duplex/Super Duplex Alloys (1A-6A)	CD3MWCuN, CD4MCuN	
Superalloys	Hastelloy® B, C, Inconel	
Nickel Alloys	Monel®, Alloy 20	
Others upon request		
SHAFT	AISI 410, AISI316, 17-4Ph, Monel® K500, UNS32760, Titanium	
SEAT	Nitrile, EPDM, Viton, Hypalon, Silicone, Neoprene	
APPROVALS	API609 API 598 ASME B16.34 BS EN593	ATEX PED – Category III NACE DOT RULE 54B
CERTIFICATION	EN 10204 – 2.2/3.1/3.2	

MODELS

IVGK
Wafer Concentric

IVTL
Lugged Concentric

IVDF
Double Flanged Concentric

IVGK

IVTL

IVDF

DOUBLE OFFSET BUTTERFLY VALVES

PRODUCT DESCRIPTION

A high performance butterfly valve. This valve has two stems offset from the centre. It is capable of providing accurate, stable, throttle flow control.

High-performance butterfly valves are a lower-cost valve option with benefits including high-quality to API 609, firesafe design and bi-directional sealing.

The double offset butterfly valve is generally used in:

- Oil & Gas
- Petrochemical
- Power Generation
- Process & Chemicals
- Water & Wastewater Treatment
- Marine

PRODUCT DESIGN DATA

Description	BUTTERFLY VALVE High Performance Double Offset Fire Safe
Design Code	API 609 / EN593
Size Range	NPS 2" - 50" / DN 50- 1250
Maximum Pressure / Rating	20 bar - 150#/ 50bar - 300#
Design Temperature	-50°C to +500°C (MOC Dependant)
Seat Leakage	Bubbletight EN12266-1 rate A /Bi-directional
End Connections	Wafer / Lug
Face to Face	API609 Cat B Table 3A
Body Seat	PTFE / RPTFE / Metal

MATERIALS OF CONSTRUCTION

BODY	
Carbon Steels inc. Low Temp	WCB, LCB, LCC
Austenitic/ Super Austenitic Stainless Steels	CF8, CF8M, CF3M, 6MO
Copper Alloys	Aluminium bronze
Duplex/ Super Duplex Alloys (1A-6A)	CD3MWCuN, CD4MCuN
Superalloys	Hastelloy® B, C, Inconel
Nickel Alloys	Monel®, Alloy 20
Others upon request	

SHAFT	AISI 410, AISI316, 17-4Ph, Monel® K500, UNS32760, Titanium	
SEAT	PTFE, RPTFE, Inconel 625, SS316	
APPROVALS	API609 API598 ASME B16.34 BS EN593	ATEX PED – Category III API 607 NACE
CERTIFICATION	EN 10204 – 2.2/3.1/3.2	

MODELS

IVEX-T
Non Firesafe

IVEX-F
Firesafe

IVEX-M
Firesafe
Metal Seated

PRODUCT PORTFOLIO

TRIPLE OFFSET BUTTERFLY VALVES

PRODUCT DESCRIPTION

A high performance butterfly valve. This valve has three offsets from the centre. The third offset is the elliptical seat geometry. This along with the two eccentric shaft offsets, allows the disc to seal against the seat with no friction.

This seat design allows for uniform sealing, and thus bi-directional tightness at maximum differential pressure.

This triple offset design is a lower cost, lower torque option than alternative style metal seated valves. It is low maintenance and offers extended valve life.

The triple offset butterfly valve is used for critically demanding applications in:

- Oil & Gas
- Petrochemical
- Power Generation
- Process & Chemicals
- Water & Wastewater Treatment
- Marine

PRODUCT DESIGN DATA

Description	BUTTERFLY VALVE High Performance Triple Offset Metal Seated Fire Safe
Design Code	API 609 / EN593
Size Range	NPS 3" – 96" / DN 80-2400
Maximum Pressure /Rating	150# to 1500#
Design Temperature	-50°C to +450°C (MOC Dependant)
End Connections	Wafer / Lug / Double Flanged / Butt-Weld
Face to Face	API609 Cat B Table 3A & 3C
Body Seat	Metal + GRAPHITE Solid Metal
Seat Leakage	Bi-Directional Bubble Tight Shutoff (CL.150 ~ 600) Uni-Directional Bubble Tight Shutoff (CL.900 ~1500)

MATERIALS OF CONSTRUCTION

BODY	
Carbon Steels inc. Low Temp	WCB, LCB, LCC
Austenitic/ Super Austenitic Stainless Steels	CF8, CF8M, CF3M, 6MO
Copper Alloys	Aluminium bronze
Duplex/ Super Duplex Alloys (1A-6A)	CD3MWCuN, CD4MCuN
Superalloys	Hastelloy® B, C, Inconel
Nickel Alloys	Monel®, Alloy 20
Others upon request	

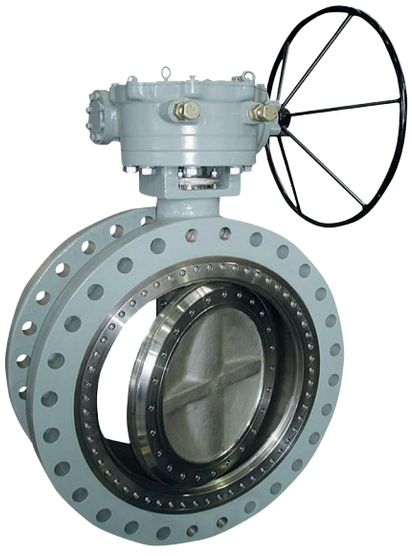
SHAFT	AISI 410, AISI316, 17-4Ph, Monel® K500, UNS32760, Titanium	
SEAT	SS304 / SS316 / SS316L / Inconel with Graphite or PTFE	
HARD-FACING	Stellite Gr. 6 / Gr.21 / 13% Cr. Weld Overlay	
APPROVALS	API609 API598 ASME B16.34 BS EN593	ATEX PED – Category III API 607 NACE
CERTIFICATION	EN 10204 – 2.2/3.1/3.2	

MODELS

TOV-L
Lugged high performance
Triple Offset Butterfly Valve

TOV-W
Wafer non-lugged high performance
Triple Offset Butterfly Valve

TOV-F
Double Flanged high performance
Triple Offset Butterfly Valve



CRYOGENIC BUTTERFLY VALVES

PRODUCT DESCRIPTION

LNG Cryogenic valves are manufactured to help transport and store cryogenic gases safely and efficiently. This demanding service has difficult challenges namely stringent safety requirements, fugitive emissions, seat leakage and handling of unstable gases, all of which can be overcome with the correct valve partner.

Frenstar's Triple Eccentric Metal Seated Cryogenic butterfly valves are suitable for bi-directional flow and bubble tight shut-off at full rated pressure with extended bonnet according to BS 6364, direct mount ISO table, adjustable gland packing, one-piece blow-out proof stem, pinned disc and metal seat.

The triple offset cryogenic butterfly valve is used for cryogenic industrial applications in:

- LNG liquefying terminals, receiving terminals
- LNG satellite terminals
- LNG tank vessels
- LNG tank trucks
- Ethylene Plants
- Gas Production Plants

FEATURES

- Anti-Blowout Shaft Design
- Fire Safety Design
- Safety Integrity Level 3 Design
- Manual / MOV / Pneumatic Operation
- NACE MR 0175 / 0103 Compatible
- Fugitive Emission Proof Packing Design
    a. ISO 15848
    b. TA-LUFT

MATERIALS OF CONSTRUCTION

BODY	Stainless 316 / 316L
DISC	Stainless CF8M / CF3M + STELLITE
EXTENDED BONNET	Stainless CF8M / CF3M
COVER	Stainless 316L
STEM	Austenitic stainless steel XM-19
SEAT	Stainless 316L
APPROVALS	ASME B16.34 /API 609 API 607 API 598 /BS6364

PRODUCT DESIGN DATA

Description	CRYOGENIC BUTTERFLY VALVE Triple Eccentric Metal Seated Cryogenic butterfly valves
Design Code	API 609 / EN593/ASME B16.34 /EN 12516
Size Range	NPS 4" - 80" / DN 100- 2000
Pressure Classes	ANSI 150#, 300#, 600#, 900# & 1500#
Design Temperature	-196°C to +815°C
Seat Leakage	Bi-Directional Bubble Tight Shutoff (CL.150 ~ 600) Uni-Directional Bubble Tight Shutoff (CL.900 ~1500)
End Connections	Double Flanged / Butt-Weld
Face to Face	API 609 / ASME B16.10 / ISO 5752
Test Standard	BS 6364, Shell MESC SPE 77/200
Ambient Test Standard	API 598 / ISO 5208 / EN 12266-1 / FCI 70-2

MODELS

TOV-LF
Flanged

TOV-LBW
Butt-Weld

PTFE LINED BUTTERFLY VALVES

PRODUCT DESCRIPTION

PTFE lined butterfly valves are used with aggressive media or with demanding anti-friction service requirements. PTFE is extremely unreactive and stable when in contact with aggressive substances such as chlorine. PTFE lined butterfly valves offer maximum operational safety and longevity with corrosive media applications.

The PTFE lined butterfly valve is generally used for:

- Chemical Industry
- Pharmaceutical Industry
- Food Industry
- Paint Manufacture & Processing
- Purification Plants
- Corrosive Chemical Media
- Aggressive Media
- Chlorine Gas
- Alkalines
- Acids
- Dyes
- Caustic Media

FEATURES

- Sealing system ensures safer handling of corrosive media
- Low abrasion design - reduces friction and increases operational life
- Reliable superior tightness with leakage free service throughout the operational lifetime
- Various mounting options to suit lever, gear and actuators
- Higher temperature options available
- Fast-track delivery (2-4 weeks)

MATERIALS OF CONSTRUCTION

BODY	CI, 316SS, Carbon steel, Plastic
DISC	PFA, SS, 316SS, Titanium Grade 2, Hastelloy C
SHAFT	SS, PFA Coated
SEAT	PTFE

PRODUCT DESIGN DATA

Face to face acc. to	EN 558 Series 20; ISO 5752 Series 20
Size / Connection Range	PN10 - PN16: NPS 1.5” – 6” / DN 40- 150
	PN10: NPS 8” – 24” / DN 200- 600
	PN 6: NPS 26” – 42” / DN 650- 1050
	ANSI 150#
	JIS 10K
Design Temperature	-20°C to +200°C
End Connections	Wafer / Lug
Actuation	Manual, Pneumatic, Electric, Hydraulic

WHY USE PTFE LINED BUTTERFLY VALVES?

This valve has excellent shut off protection for highly corrosive liquid or gas applications regardless of flow direction. The thick PTFE liner comes with disc and shaft encapsulated in PFA.

MODELS

IVTLE

Butterfly Valve lined with PTFE / PFA for high chemical corrosive service demands

AIR VACUUM VALVES

PRODUCT DESCRIPTION

Air Vacuum Valves are used in pressurised pipe work systems to allow large volumes of air to be exhausted from or admitted into a pipeline as it is being filled or drained.

There are three types of air valve:
· Air & Vacuum Valves
· Automatic Air Release Valves
· Combination Air Valves

Air & Vacuum Valves
Automatically discharge air at high flow rates during system start up (filling) and intake air at high flow rates during draining.

Start-up: When filling the pipeline air vented water fills the valve, raising the float until the valve seat is pushed back against the orifice closing it from the atmosphere.

Draining: When draining the pipeline, the float drops, allowing air to enter, preventing loss of pressure.

Automatic Air Release Valves
Release entrapped air while the system is under pressure. The air release flow rates of the automatic air release valves are lower than those of the air vacuum valves.

Combination (Tri-Function) Air Valves
Include both air & vacuum and automatic air release. They perform both of the above functions.

The Air Vacuum valve is used for critically demanding applications in:
· Oil & Gas
· Petrochemical
· Marine

MATERIALS OF CONSTRUCTION

BODY/ BONNET	Super Duplex, Titanium, Stainless steel, 6MO, Hastelloy, Monel, Inconel, Ali Bronze
SEAT	NBR, EPDM

PRODUCT DESIGN DATA

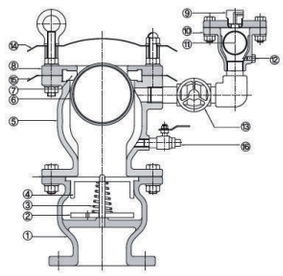
Size Range	DN25mm – DN150mm
Manufacturing Standard	API2000
Pressure Class	0.4 - 20 bar
Temperature Range	-10°C to +60°C

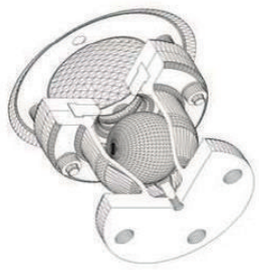
MODELS

FAV
Air & Vacuum Valve

FAR
Automatic Air release

FTF
Tri Function





FLOATING BALL VALVES

PRODUCT DESCRIPTION

The Frenstar Valves range of high quality metal and soft seated floating ball valves are designed for many applications in the oil & gas, petrochemical, power & general process industries and are constructed for durability.

In a floating ball design, the ball is not fixed inside the housing but floats between two seats. In the shut off position the ball seals against the seat on the low-pressure side, pushed downstream by a positive pressure differential.

Floating ball valves are available with a side-entry and top-entry design.

The top entry design is specified when frequent maintenance activities are expected on the valve due to easier, faster access to the ball when compared to side entry.

The main differences between these two ball valve designs are:

- Top entry ball valves are generally manufactured with cast bodies. Side entry valves are manufactured with forged bodies
- Top entry ball valves are made by one single piece. Side entry valves have a two or three piece assembly
- Top entry ball valves require more non-destructive testing due to their cast bodies
- Side entry ball valves are easier to assemble and manufacture than top entry

MATERIALS OF CONSTRUCTION

BODY	Nickel Alloys (Monel®, Inconel®, Hastelloy®, Incoloy®), Duplex and Super Duplex, Carbon Steel and Low Temp Carbon Steel, Low Alloy Steel, Stainless Steel, Titanium, Zirconium and other exotics upon request

AUTOMATION SERVICE

Frenstar Valves can provide a valve automation service which includes design, manufacture, assembly and testing of actuated ball valve assemblies.

PRODUCT DESIGN DATA

Description	Floating Metal Seated Ball Valves / Floating Soft Seated Ball Valves (Fire safe API607, API6Fa) Anti blow-out stem / Anti static design Full bore and reduced bore
Design Code	API6D, API598, API6A / ASME B16.34, B16.5, B16.10 / MSS-SP-55
Size Range	NPS 1/2” – 10”
Pressure Range	ANSI 150 – 2500#
End Connections	Flanged /Butt Weld/Socket Weld/Threaded/Hub
Body Seat	Metal / TFM, PTFE, RPTFE, PEEK, POM, PCTFE, NYLON, DEVLON
Operation	Lever / Gear / Actuator (pneumatic – electric)

MODELS

FMF
Metal seated floating ball valves

FSF
Soft seated floating ball valves

TRUNNION MOUNTED BALL VALVES

PRODUCT DESCRIPTION

The Frenstar Valves range of high quality metal and soft seated trunnion ball valves are designed for many applications in the oil and gas, petrochemical, power & general process industries.

The trunnion design employs a ball, with two trunnions, affixed to the ball at the top and bottom. The unit fits into a space in the valve body and cannot move along the flow axis.

Trunnion ball valves are suited to high pressure or larger valves with low operational torque and long durability.

Trunnion-mounted ball valves are available with a side-entry and top-entry design.

The top entry design is specified when frequent maintenance activities are expected on the valve due to easier, faster access to the ball when compared to side entry.

The main differences between these two ball valve designs are:

- Top entry ball valves are generally manufactured with cast bodies. Side entry valves are manufactured with forged bodies
- Top entry ball valves are made by one single piece. Side entry valves have a two or three piece assembly
- Top entry ball valves require more non-destructive testing due to their cast bodies
- Side entry ball valves are easier to assemble and manufacture than top entry

MATERIALS OF CONSTRUCTION

BODY	Nickel Alloys (Monel®, Inconel®, Hastelloy®, Incoloy®), Duplex and Super Duplex, Carbon Steel and Low Temp Carbon Steel, Low Alloy Steel, Stainless Steel, Titanium, Zirconium and other exotics upon request

AUTOMATION SERVICE

Frenstar Valves can provide a valve automation service which includes design, manufacture, assembly and testing of actuated ball valve assemblies.

PRODUCT DESIGN DATA

Description	Trunnion Metal Seated Ball Valves / Trunnion Soft Seated Ball Valves (Fire safe API607, API6Fa) Anti blow-out stem /Anti Static design Two Piece Body or Three Piece Body / Split Body Side or top entry / Full bore and Reduced bore / Fugitive emission
Design Code	API6D, API598, API6A / ASME B16.34, B16.5, B16.10 / MSS-SP-55
Size Range	NPS 2” – 48”
Pressure Range	ANSI 150 – 2500#
End Connections	Flanged /Butt Weld/Socket Weld/Threaded/Hub
Body Seat	Metal / Graphite, Devlon, TFM, PTFE, RPTFE, PEEK, POM, PCTFE, Nylon
Operation	Lever / Gear / Actuator (pneumatic – electric – hydraulic)

MODELS

FMT
Metal seated trunnion ball valves

FST
Soft seated trunnion ball valves

OTHER VALVES

Frenstar Valves' comprehensive range of "Other Valve" types are precision manufactured to ensure reliability and extra-long operational lifetime.

Frenstar factories are at the core of our ability to provide short delivery turnaround and competitively priced valves, with visibility/traceability throughout project execution to delivery. This minimises risk for the end user.

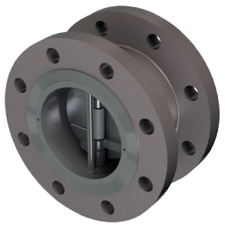
IF WE DON'T HOLD IT, WE WILL MAKE IT OR FIND IT

VALVE TYPES

- Gate
- Globe
- Check
- Double Block & Bleed
- Damper
- Control
- Plug
- Needle
- Solenoid
- Plastic
- Diaphragm

GATE VALVE

CHECK VALVE



ACTUATION

PRODUCT DESCRIPTION

Frenstar Valves offer an extensive range of pneumatic, electric and hydraulic actuators with accessories:

- Single Acting Spring Return
- Double Acting
- Pneumatic Type
- Hydraulic Type
- Electric Type

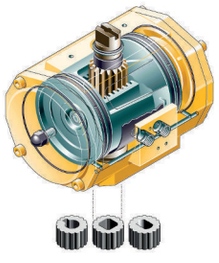
Frenstar can supply butterfly valves complete with factory fitted pneumatic El-O-Matic actuators. EL-O-Matic Pneumatic actuators are powerful and compact double rack and pinion units for use with ball, butterfly and plug valves and any device requiring accurate and dependable quarter turn rotary motion.

BENEFITS OF SUPPLYING WITH FACTORY FITTED ACTUATORS

- Significantly reduces cost
- Saves time
- Excellent lead times
- Factory tested, ready for immediate installation
- Full manufacturers warranty for valve and actuator system

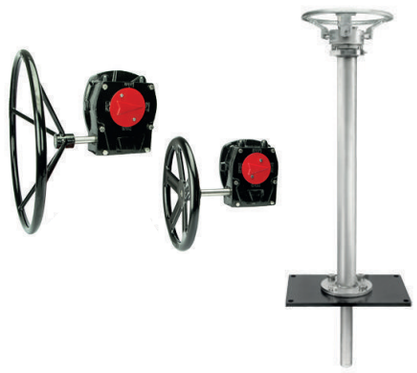
PRODUCT DESIGN DATA

Pressure	Up to 8 bar
Temperature	- 20°C to +80°C
Media	Air (dry or lubricated) Non-corrosive gas or light hydraulic oil
Construction	Suitable for indoor or outdoor installation
Material	Housing - Aluminium Alloy
Drive Shaft	Carbon Steel
Finish	Two coat polyurethane
Rotation (Standard)	Counter clockwise to open. Spring return Actuators air fail to close clockwise
Movement (Standard)	91.5°C from -0.5°C to 91°C counter-clockwise
Lubrication	Factory lubricated for the normal life of Actuators
Life	500,000 operations minimum



ADDITIONAL SERVICES

GEARBOXES, CHAINWHEELS & EXTENSIONS



COATING SERVICES

- Surface Preparation, Blasting & Peening
- Industrial Coatings
  Extensive experience in the application of industrial coatings
- Thermal Spray Coatings
  TSA (Thermal Sprayed Aluminium)
- Specialist Coatings
  Phosphating, Xylan & Powder Coatings

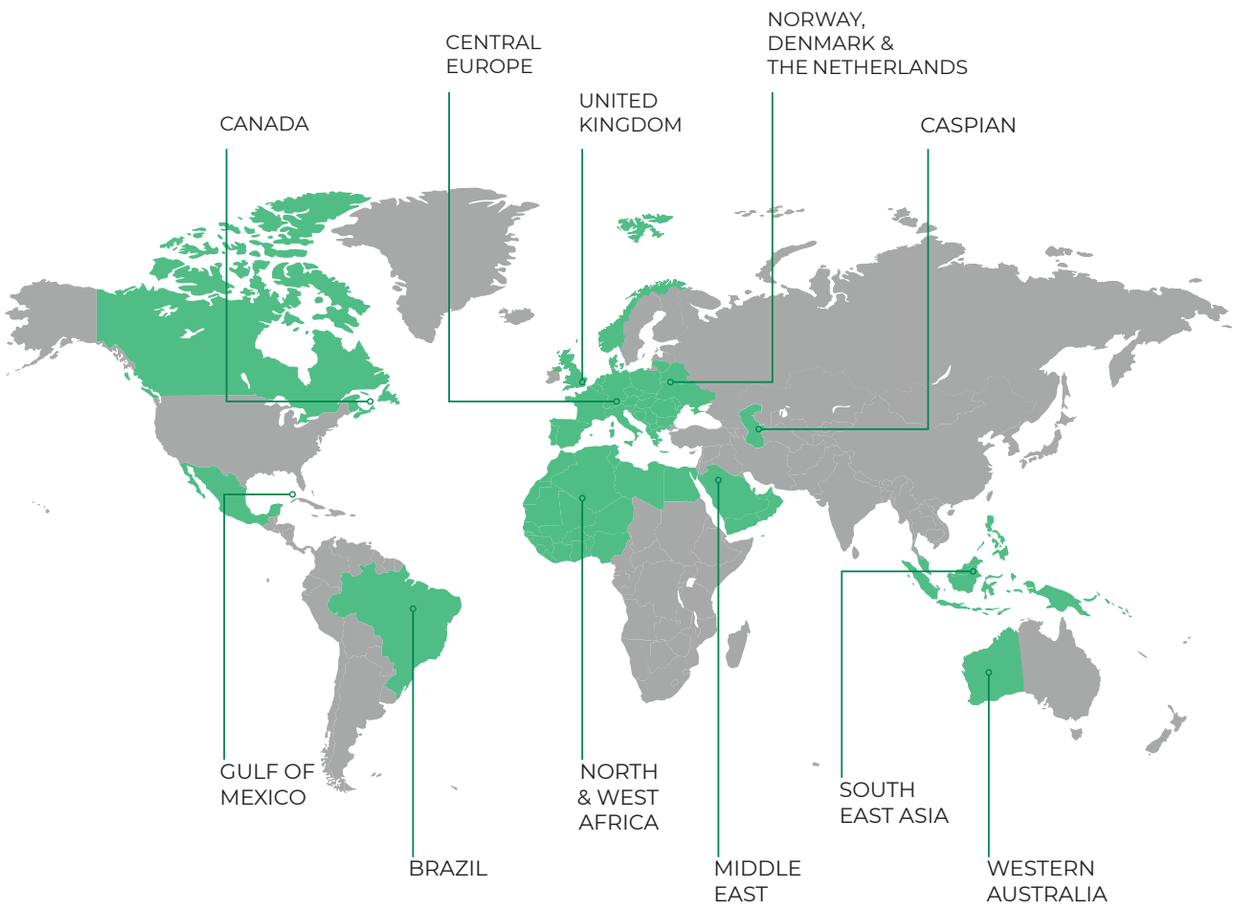
norsok standard

NACE INTERNATIONAL

TESTING SERVICES

- Hydrostatic, Pneumatic & Nitrogen Gas Testing
- Magnetic Particle Testing
- Dye Penetrant Inspection
  (either red dye or fluorescent, on non porous materials)
- Radiographic Examination
  (Gamma & X-Ray)
- Ultrasonic Testing
- Positive Material Identification

IN LINE GLOBALLY



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