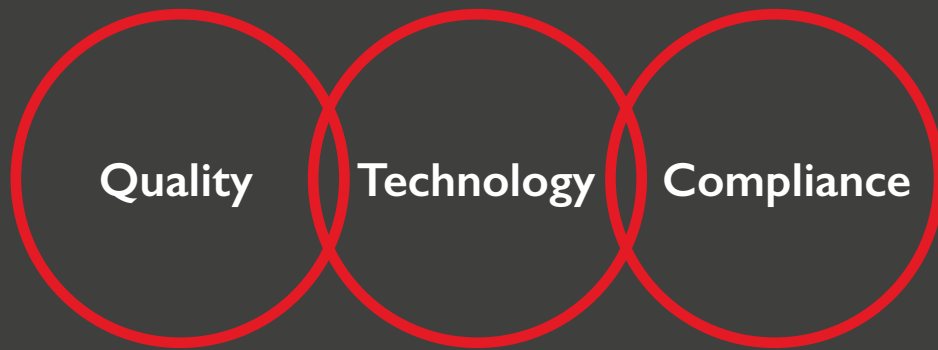
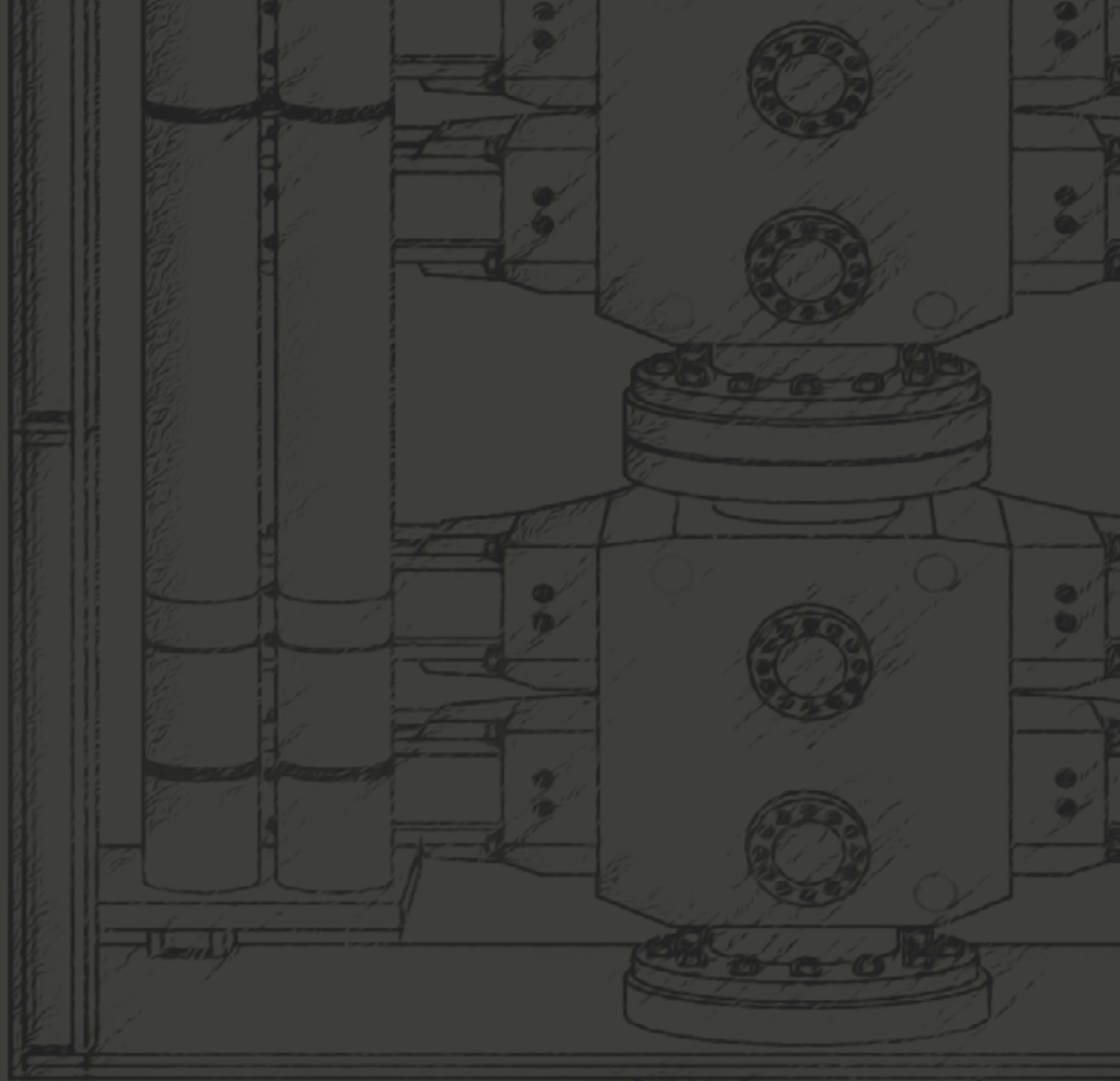


# Sub-X™

Wellhead / BOP & Production System Ring Gaskets

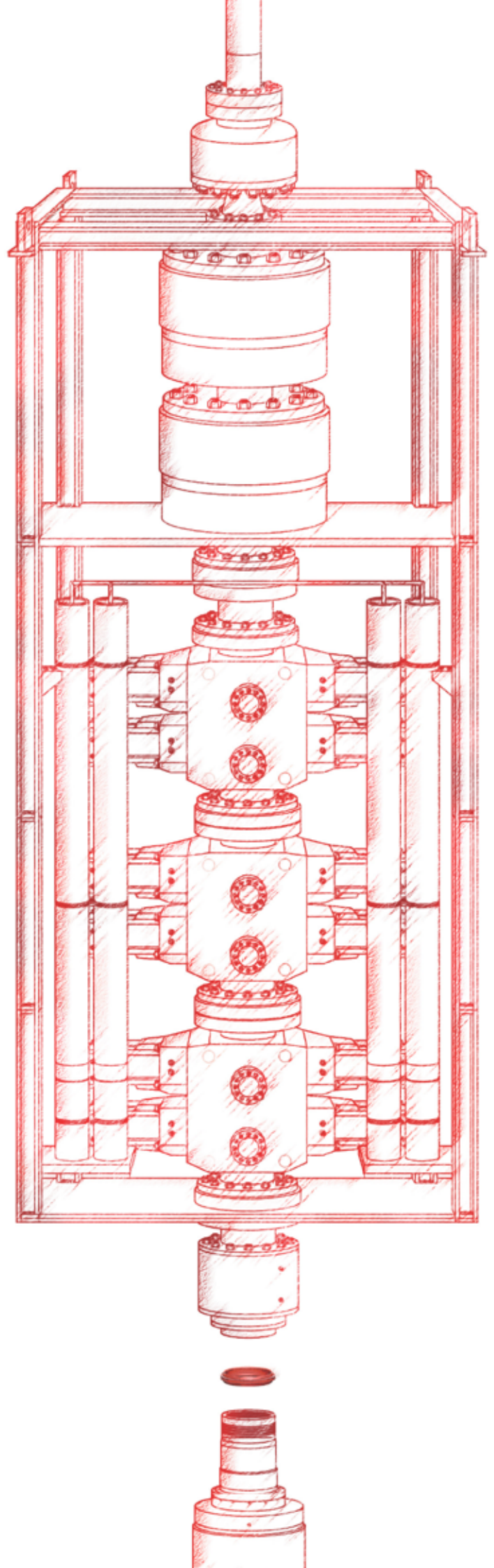
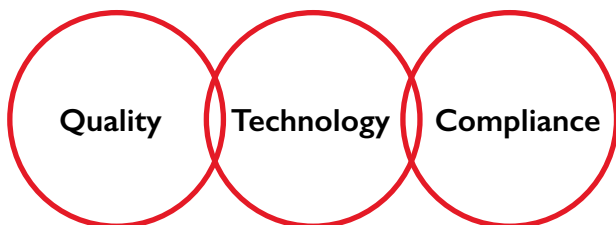




# Sub-X™

## Wellhead / BOP & Production System Ring Gaskets

- 01 Overview
- 02 Quality
- 03 Technology
- 04 Compliance
- 05 Qualification
- 06 Qualified Gasket Range  
Standard Service
- 07 Qualified Gasket Range  
High Temperature / Deep Water





## Sub-X™ *Overview*

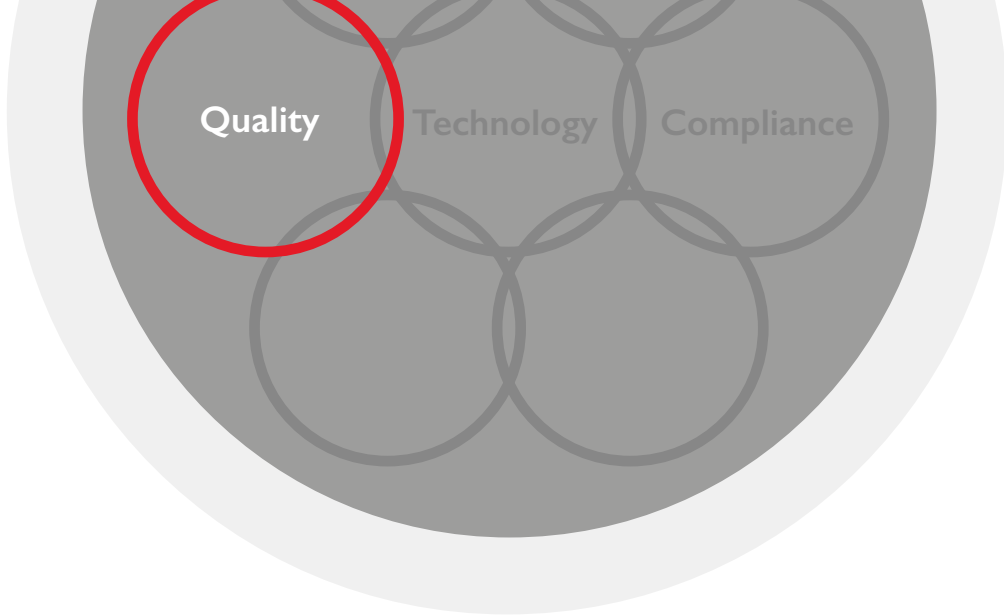
For over 30 years Sub-X™ wellhead / BOP and production system ring gaskets have been installed in drilling and production equipment worldwide for deep sea exploration and production of oil and gas. Our unique PR2-F qualified range of subsea ring gaskets offers unrivalled quality and sealing technology in full compliance with the latest governing national standards.

Our global client base sees the Sub-X™ trademark as a symbol of quality, market-leading sealing technology and consistent performance. We take pride in providing the level of customer service our clients expect and respond quickly to any client requirements.

We continually seek out opportunities to improve our gasket technology, manufacturing methods and processes, and hold stock in support of our valued client base which has sealed our position as the subsea gasket manufacturer of choice.

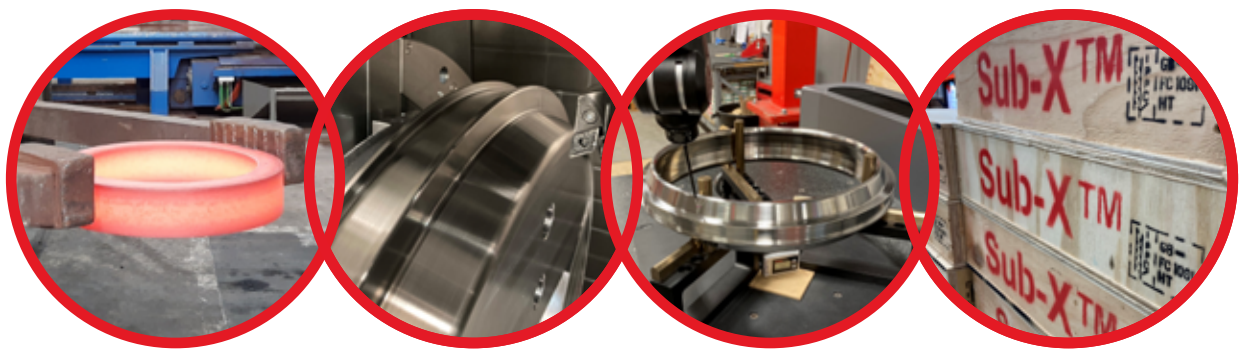




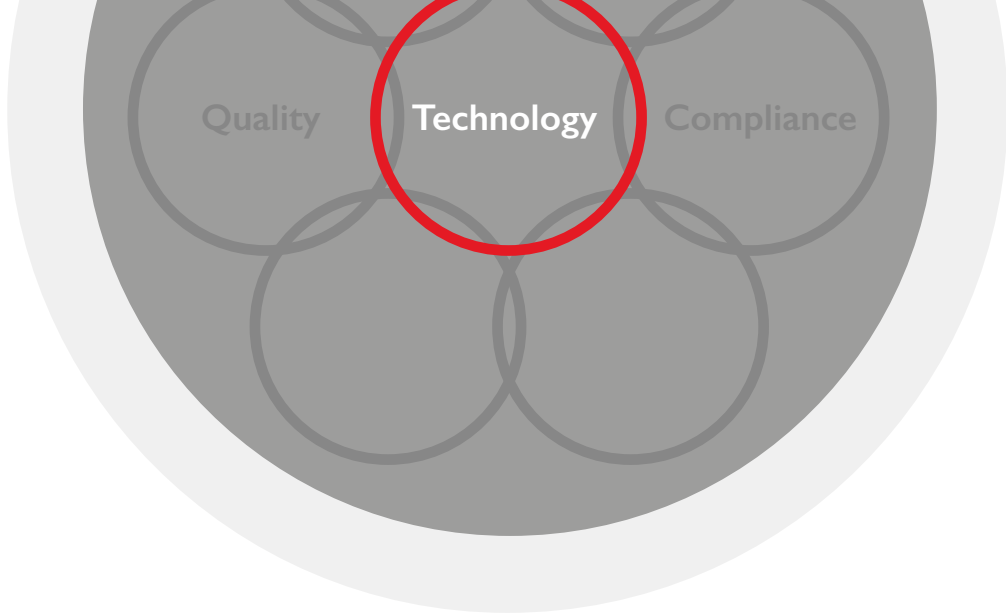


## Sub-X™ *Quality*

All Sub-X™ wellhead / BOP and production system gasket manufacturing processes are carried out at our purpose-built state-of-the-art manufacturing plant in Westhill, Aberdeenshire, UK. Sub-drill's ongoing commitment to continual improvement of our manufacturing processes and product quality and performance ensures that every Sub-X™ subsea ring gasket is produced to the exacting standard our clients have come to expect.

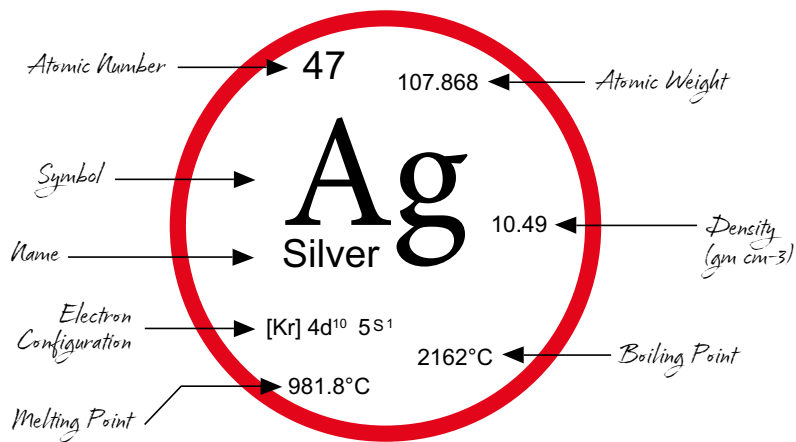


From the forging of the raw material to the final QC inspection before packing, every Sub-X™ Subsea Gasket is subject to a minimum of 12 individual quality control checks including a 100% CMM inspection during the manufacturing process to ensure every gasket is fit to bear the Sub-X™ brand trademark.



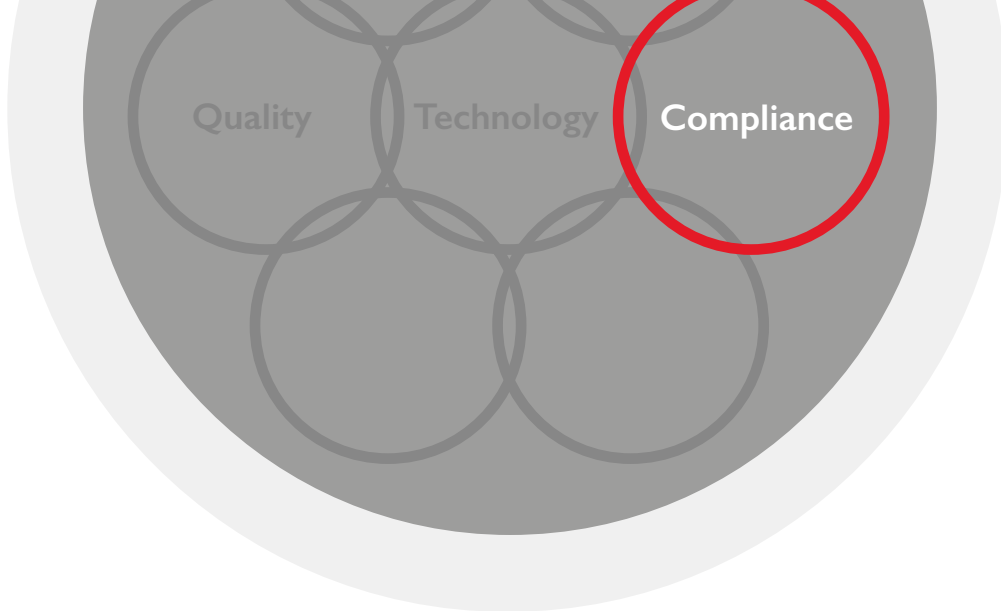
# Sub-X<sup>TM</sup> Technology

Sub-drill's unique patented gasket technology has been developed after years of intensive research and development into gasket behaviour when subjected to the most extreme combinations of well conditions. The outputs from our intensive R&D project were used to optimise the performance of the Sub-X<sup>TM</sup> ring gasket range which has led to a market-leading product offering.



Sub-drill's ring gasket sealing technology offers a unique advantage by improving the condition of the major equipment's sealing surfaces that the gasket is installed in. This is achieved using our fully qualified proprietary silver plating and surface technology which starts to improve the condition of the major equipment's sealing surfaces from the moment a Sub-X<sup>TM</sup> subsea ring gasket is installed and pre-loaded. Our proprietary silver plating technology maintains a full metal-to-metal gas-tight seal while completely removing the risk of resin contamination of the major equipment's sealing surfaces posed by other commonly used surface coatings.

**UK Granted Patent 2608252**

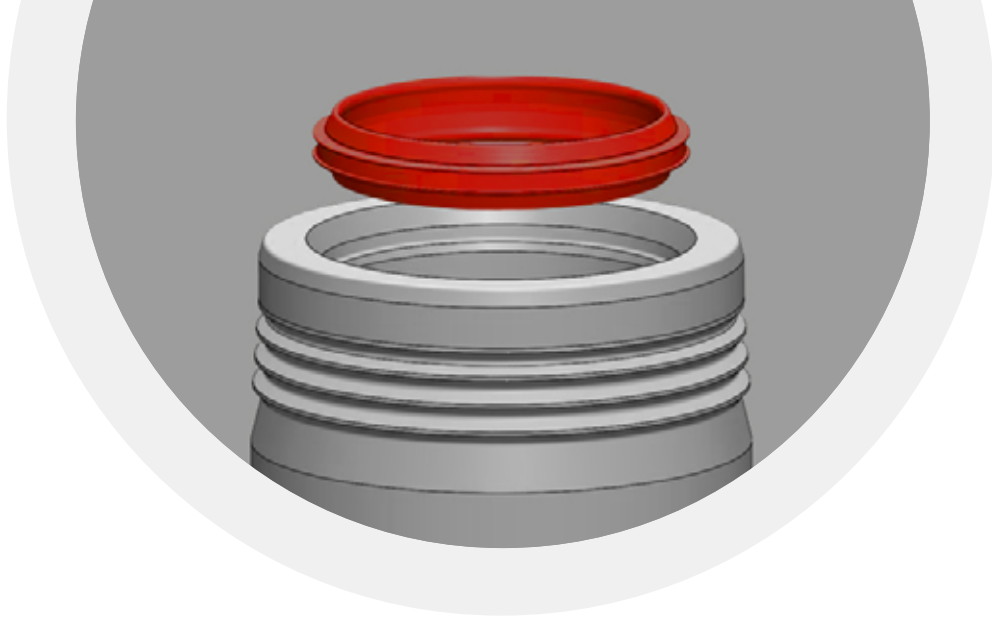


## Sub-X™ Compliance

Regulatory compliance is an important aspect for any equipment being used in a subsea environment and compliance with the international standards that govern these requirements should be at the forefront for all end users and companies that design and manufacture equipment for use in subsea environments. These requirements can be arduous to achieve but are in place to ensure only equipment that is truly fit for purpose can be used in these specialised environments.



The main international standards that govern the design and qualification requirements of subsea equipment are API 17D / ISO 13628-4 and API 6A / ISO 10423. These standards specify the design requirements for such equipment but also specify the physical testing requirements to qualify the equipment for use in a subsea environment. Subsea ring gaskets must complete one of the most stringent qualification testing programs specified by the governing standards to be accepted for subsea use. This testing program is designed to simulate the internal and external pressure fluctuations combined with the extreme temperature swings that occur during startup, shutdown, and day-to-day operation of a production installation over its entire lifespan. It is essential that the external pressure rating (EPR) testing is carried out at the end of the PR2-F qualification process as specified in the governing standards as this will ensure that the EPR testing is carried out when the gasket is in its most fatigued state after being subjected to the maximum operational extremes that would be experienced over the lifespan of the installation. If the EPR testing is not carried out at this stage of the qualification program, there is no guarantee that the gasket will be able to achieve its external pressure rating when subjected to the extremes of its design conditions and as such the integrity of the production installation or well could be at risk.



## Sub-X™ *Qualification*

Sub-drill has completed the required PR2-F qualification testing program specified by the governing international standards for all VX, VGX and VGX-VT (VGT) type gasket variants. The review requirements for clients, to ensure that a product has been qualified in compliance with the governing national standards can only be confirmed by an indepth audit. Sub-drill requested Lloyd's Register as the independent 3rd party notifiable body to review and witness the entire qualification process and ensure exacting compliance.



On successful completion of each qualification program, TA Certification has been issued for each qualified gasket design which ensures that every Sub-X™ wellhead / BOP and production system gasket supplied is fully certified by a 3rd party notifiable body which not only ensures compliance with the relevant governing standards but also contributes to the duty holder's verification scheme by meeting the requirements of "The Offshore Installations (Safety Case) Regulations SI 2005/3117" and "The Offshore Installations and Wells (Design and Construction, etc.) regulations SI 1996/913" and all equivalent international regulations.



# Sub-X™ *Qualified Gasket Range*

## Standard Service Conditions - Primary & Contingency

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### Sub-X™ VX Type

Subsea Primary Ring Gasket

18 ¾" - Part No. SUBX18V3

16 ¾" - Part No. SUBX16V3



### Sub-X™ VX/VT (VXT) Type

Subsea Contingency Ring Gasket

18 ¾" - Part No. SUBX18VT3

16 ¾" - Part No. SUBX16VT3

Standard Service Gaskets are available in a range of base materials to suit individual operating conditions. Please contact us for additional gasket variants, technical ratings and further information.

# Sub-X™ Qualified Gasket Range

High Temperature and Deep Water Conditions - Primary & Contingency

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**Sub-X™ VGX Type**  
Subsea Primary Ring Gasket

**17.4 PH SS**

18 ¾" - Part No. SUBX18VG11U

16 ¾" - Part No. SUBX16VG11U

**Alloy 718**

18 ¾" - Part No. SUBX18VG5X

16 ¾" - Part No. SUBX16VG5X



**Sub-X™ VGT Type**  
Subsea Contingency Ring Gasket

**17.4 PH SS**

18 ¾" - Part No. SUBX18VGT11

16 ¾" - Part No. SUBX16VGT11

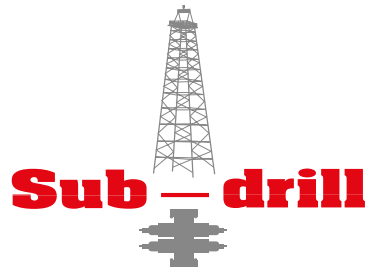
**Alloy 718**

18 ¾" - Part No. SUBX18VGT5

16 ¾" - Part No. SUBX16VGT5

High Temperature/Deep Water Gaskets are available in a range of base materials to suit individual operating conditions. Please contact us for additional gasket variants, technical ratings and further information.





## Sub-drill

Endeavour Drive, Arnhall Business Park  
Westhill, Aberdeenshire, AB32 6UF  
Scotland, UK

+44 (0)1224 724600  
sales@subdrill.co.uk  
sub-drill.com

