Metallic gaskets are used in high pressure and typically hazardous pipelines constituting a huge safety risk in the event of a failure.

For this reason leakage testing prior to pressurising the pipeline is of utmost importance. However traditional leak testing carries heavy production downtime and subsequent loss of earnings.

Traditional leakage testing
Leakage testing a newly erected or amended pipeline is carried out by filling the pipeline with pressurised water or gas to monitor any changes in pressure which indicate a defective joint. The process is carried out in sections by blanking off an area of a pipeline using shut-off valves or blinds.

Depending on the valve location it may be a large section of pipeline that must be pressurised to test a single flange connection and in some cases it is not practicable to leak test all of the joints. Leak testing large portions of pipeline is a time consuming process, increasing production downtime and consequently induces economic loss.

Reverse Integrity
Gasket leakage testing
Reverse Integrity Gaskets are designed to allow leakage testing to be carried out on individual gasketed connections to determine if tightness has been achieved before introducing internal pressure and also allows monitoring of the joint throughout its lifespan.

» Allows leak testing on individual flanged joints without the need to pressurise the full system.
» Leak test both the primary and secondary sides of the seal.
» Speeds up the leakage testing reducing plant downtime.
» Significantly reduces the volume of testing media required.
» Validates individual joint integrity at installation reducing the need to re-visit the joint.
» Joints can be tested and adjusted if leakage occurs, in one visit to the flange.

Klinger Sentry RTJ Gasket
Gasket test port
Plug fitting tool
Klinger Sentry RTJ Gasket
RTJ flange
KLINGER
trusted. worldwide.
Ring Type Joints (RTJ) are precision-engineered components designed to be used in conjunction with precision-machined flanges. The ring gasket is located within annular recesses in the opposing faces of the flanges. The ring gasket is compressed into the groove and the angled sealing faces deform to match the grooves and create a seal.

The pressure classes and geometries of the gaskets and flanges are given in the standards API 6A, ASME B16.20 and ASME B16.5.

The ring gaskets can be supplied in the following materials.

- Kansas City
- SENTRY
- RTJ GASKET

The Sentry can be used in both ring joint and raised face flanges. The Sentry metallic ring joint gaskets are heavy duty, high-pressure gaskets largely used in offshore petrochemical applications.

The Klinger Maxiprofile is a composite gasket, which utilises a serrated metal core with a soft facing material. The Sentry designed for use in raised face flanges is based on a Maxiprofile.

Facing Materials
- Expanded graphite is the most common facing material used for Maxiprofile gaskets. However, other materials can be used, such as PTFE for chemically aggressive duties or mica for high temperature duties.

Core Materials
- Maxiprofile gaskets can also be manufactured from a range of core materials according to media compatibility and temperature considerations.

**Material** | **Brinell Hardness**
---|---
Soft Iron | 90
Low Carbon Steel | 120
4-6% Cr 15% Mo | 130
304 | 160
316 | 160
321 | 160
347 | 160
410 | 170
Monel (N04400) | 135
UNS N08904 | 180
Inconel 625 | -
Incoloy 825 | -
Hastelloy C-276 | -
Titanium | -

*Soft iron and carbon steel gaskets are zinc plated to prevent corrosion.

Sentry RTJ Gasket

Sentry RTJ assembled with blind plug after testing
The KGIT decreases the risk of injury to divers’ hands and fingers as the engineered profile is designed to locate accurately within the lower bolts of the flange, ensuring the gasket sits correctly in the groove. With well positioned holes designed to accommodate standard subsea tooling, the KGIT aids transportation and fitting. Flange alignment tools can be left in the flange as the gasket is fitted minimising movement of the flanges ensuring there is no ‘bruising’ or ‘pinching’ to the gasket.

The KGIT offers improved flange make up times and increased safety. The shape of the tool also prevents the handle from rotating in front of the studbolt holes, ensuring the gasket doesn't need to be repositioned to add the remaining bolts.

Once installation is complete, the handle of the KGIT can be easily broken off giving access to the Sentry test duct. The tag can be retained for records. After a period of time, the KGIT corrodes away due to a cathodic reaction, as a result of immersion in salt water.
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