



Offshore Solutions



Photo: Deg Weestrond / StabHydro

TRANBERG®

Member of the R. STAHL Technology Group



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Tranberg was established in 1901 and is located in Stavanger, the "oil capital" on the west coast of Norway. Due to the oil industry, oil companies and offshore vessel ship owners have found their base in Stavanger. This has made it possible for Tranberg to develop and test products in close cooperation with our customers.

Since the start, Tranberg has designed, manufactured and supplied high quality electromechanical products for use on ships and offshore installations.

Equipment capable of performing under all climatic conditions, from arctic cold to tropical heat, is a special feature for products produced by TRANBERG. High product quality and durability have been developed by TRANBERG through delivery of equipment to the demanding maritime and offshore markets for the last 100 years.

Our flexible production and dedicated workers have made it possible to adapt to quickly changing developments, increased demand for smaller equipment with total lower lifetime cost and products suitable for use in arctic environment.

Manufacture and supply products with reliable quality for their purpose shall continue to be the image of TRANBERG.

Tranberg develops, manufactures and distributes:

HEATING SYSTEMS

- Heat trace / De-Ice systems
- Design engineering
- Supervision
- Control, monitoring and distribution panel
- Material supply
- Energy saving temperature controllers
- Junction boxes
- Heating cables
- Connection accessories
- Mechanical protection
- Enclosure heaters
- Protection and heating of instruments
- Tube trace

LIGHTING SYSTEMS

- Navigation & Signal light systems
- Floodlights
- Searchlight systems
- Deck lights
- Installation material
- Helideck lighting system
- Obstruction lights
- NavAids

ENCLOSURE SYSTEMS

- Junction boxes / Instrument enclosures
- Cable glands
- Panel building
- Switches and distribution systems
- High voltage enclosure systems for sub sea umbilicals



In 2006 Tranberg became a member of the R. STAHL Technology Group. R. Stahl is one of the global market leaders in explosion protection business, and with the integration into this group, Tranberg is now a part of their international distribution network. Within the R. STAHL Technology Group, Tranberg will serve as the competence centre for marine lighting, de-ice on ships and heat tracing systems.



The company's quality assurance system is certified by DET NORSKE VERITAS to ISO 9001:2000. ATEX notification for Quality System.

Customized Ex-Enclosures in Stainless Steel 316L

Tranberg has manufactured enclosures for hazardous areas for the offshore installations in the North Sea since the beginning of the Norwegian oil history. Our strength is to develop enclosures together with customers to meet the demands for flexibility and best solutions. All our enclosures are produced in thin plate material, Stainless Steel 316L, to meet the market for lighter weight and increased quality demands.



Our enclosures are used for a wide range of installations. Normal solutions are for the Electro, Instrument and Telecom market, ESD's and control stations i.e. They can be equipped with cable glands, terminals, pushbuttons and lamps, instruments, relays, fiber optical connections and patch panels, medium voltage connections up to 6,6kV.

The series TEF 1060 is our most flexible enclosure system. The enclosures are often used for RIO systems, switching and distribution panels, high voltage solutions etc.

High Voltage Enclosures/ TUTU's



Tranberg high voltage enclosures:

- High voltage enclosures up to 36kV
- Signal cable junction boxes
- Fibre cable junction boxes
- Complete and customized solutions
- Cost effective installation
- Light weight
- Short delivery times

Tranberg has delivered medium and high voltage connection systems to hazardous areas for topside connection of subsea umbilical cables (TUTU's), including high voltage, signals and fiber optical cables. Our high voltage solution is also used on refinery installations and Non-Ex areas.

Control and Distribution Panels

(EEx d enclosures encapsulated in EEx e Stainless Steel 316L cabinets)



Tranberg enclosure system TEF1060 also includes solutions for encapsulating smaller EEx d enclosures for Non-Ex components. Our solution is to use an aluminium EEx d enclosure inside a TEF1060 EEx e Stainless Steel 316L cabinet. This results in a very flexible and cost efficient solution.

Historically, the market has been reluctant to use aluminium enclosures offshore due to the rough environment. At the same time products with low cost and low weight are required. With the combination of an encapsulated aluminium enclosure in a Stainless Steel 316L cabinet Tranberg achieves both; lower weight and lower cost.

Control Stations

Tranberg offers a wide range of EEx de control stations in Stainless Steel 316L for use in hazardous environment. Our certificate gives the opportunity to deliver various sizes of Tranberg control stations with various numbers and types of push buttons, lamps etc.

All control stations are delivered as standard with:

1. 1 x Tranberg gland type E204-3B-M25 (Ø13-17mm)
2. 1 x Tranberg trafolyte label for TAG.
Text can be agreed upon.
3. Contact switches and cable glands as for typical installations, other to be agreed upon or according to specifications.



DE-ICE Solutions

25% of the known oil and gas reserves on earth are in the arctic regions. In cold climate waters the formation of ice on ships and offshore platforms can create serious problems impacting the safety of the personell and the economies of operation. Icing can be caused by sea spray and/or atmospheric water (snow, rain, fog). The equipment and areas requiring measures against ice formation on ships have been divided into two categories by Det Norske Veritas (DNV):

Category I: Equipment or areas necessary for navigation, steering, propulsion, anchoring and lifesaving.

Anti-icing is defined as the prevention of ice formation, and according to DNV is required for category I equipment or areas.

Category II: Equipment or areas comprising decks and superstructures, helicopter decks, railings and cargo deck area.

De-icing is defined as the melting of ice already formed, and according to DNV is required for category II equipment or areas.



1. De-ice monitoring and control

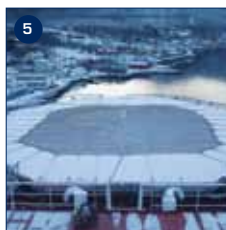
Tranberg TEF 1071 is a new, flexible control and monitoring system for heating cables on vessels, offshore installations or onshore facilities. The system consists of an operator panel that is flush-mounted in the control panel door, providing control of each circuit and displays current status of all circuits. In addition the control panel will indicate common faults. Upon faults, an acoustic alarm, a common alarm relay activation, as well as flashing led's will attract the attention of the personell.

The system is fully compliant with DNV's "Ships for navigation in ice" (January 2008).



2. Stair heater enclosure

A compact heater for use on outdoor staircases onboard ships and offshore platforms. The three versions of the enclosure can deliver 160W, 300W or 350W directly underneath each step.



3. Heating in railings

Heating cables for anti-icing or de-icing of handrails are installed inside the handrail.

4. Heating on deck/hull

Keeping gangways free from ice is crucial for the crews safety.

5. Helideck

De-icing of helideck.

Heat Trace Panel

Tranberg TEF-Trace is a multi-loop monitoring and control system for heat tracing applications. The scalability of the system will match most applications where the need of fully automatic control and supervision is present.

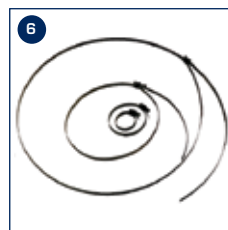
The control panel is located in the panel door.

This Man-Machine Interface provides the personnel with an easy-to-use menu where several parameters can be read and set, while the personnel also have access to alarms, status information, trend data and so forth.

- Easy accessible
- Production according to customer specification



Heat Trace Accessories



Tranberg has designed and manufactured heat tracing equipment and heating accessories for rough environments for more than 25 years. Our product range consists of an assortment of different heat tracing junction boxes in Stainless Steel 316L, capillary and electronic thermostats, protection material and accessories.

1. Wall or pipe mounted heat trace junction boxes
2. Wall or pipe mounted thermostats
3. Cladding protector
4. Flange crossing protection
5. Heater protection rail
6. Pipe strap – stainless steel
7. Aluminium tape
8. Conduit terminator
9. Cladding penetration system
10. Flexible conduit
11. Cable clamps

TEF 9201 Heaters

Self regulating enclosure heaters, EEx e in Stainless Steel 316L. Delivered in sizes from 50-900W. The rugged polymere construction of the heater element ensures reliable performance in harsh and corrosive environments when used in combination with the acid resistant steel housing.

Tranberg can offer three different models:

1. Enclosure heater:

Size 50-900W

Includes an approx. 1 meter long connection cable for termination to power.

2. Enclosure heater with junction box:

Size 100-900W

Includes a junction box for local terminations.

3. Enclosure heater with junction box and thermostat:

Size 100-900W

Includes a junction box with a simple thermostat that turns on the heater as the ambient temperature drops below approx. 3°C.



Helideck Light Fittings and Accessories

The helideck windsock and light systems delivered by Tranberg are designed to meet the toughest conditions in the helicopter landing areas. The floodlights are designed to provide adequate illumination of the whole area without glare to pilots or helicopter personnel in the area. Helideck equipment manufactured by Tranberg is delivered to offshore installations, oil tankers and supply ships, hotels and hospitals all over the world. (All products according to ICAO Annex 14 Vol.II and CAP 437)

1. TEF 9964 Xenon floodlight, EEx de
2. TEF 2430 LED perimeter light, EEx de
3. TEF 2430 Obstruction light, EEx de
4. TEF 9967B Illuminated windsock

5. Commander Utility Helideck Lights Control System

A complete control system for all helideck lights; perimeter lights, floodlights and windsock lights. Ready for installation; comes complete with control panel and enclosure.



REFERENCES:**Heat trace**

Aibel
 Aker Solutions
 Apply
 Bergen Group Rosenberg
 BP
 ConocoPhillips
 Shell
 StatoilHydro

TUTU'S

ABB Power System
 ABB Denmark
 Aibel
 Duco Cable UK
 Framo Engineering
 JDR Cable UK
 ConocoPhillips
 Scanrope Subsea Cables
 Statoil Kårstø

De-Ice

Aker Yards Langsten
 Fiskerstrand Verft
 Flekkefjord Slipp & Maskinfabrikk
 Havyard Leirvik
 Moen Slipp
 Palmer Johnson Norway
 STX Norway Offshore

Helideck

Agip Kazakstan
 Aluminum Offshore, Singapore
 Bayards Aluminium, The Netherlands
 BP
 ConocoPhillips
 ExxonMobile
 Nabors Drilling, USA
 National Iranian Oil Co.
 Newfield Peninsula Malaysia
 Marine Aluminium, Norway
 ONGC, India
 Petrobras Brazil
 Samsung Heavy Industries
 Schlumberger Rig
 Shell
 StatoilHydro
 QatarGas

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