



YOUR PARTNER FOR

INTEGRATED HELIDECK LIGHTING SYSTEM

**FLOOD LIGHTS
PERIMETER LIGHTS
OBSTRUCTION LIGHTS
ILLUMINATED WINDSOCKS
STATUS LIGHTS
TD/PM CIRCLE & H LIGHTING
INTEGRATED CONTROL SYSTEM**

TRANBERG

STAHL

THE STRONGEST LINK.

EXTREME ENVIRONMENT

– REQUIRES HIGH QUALITY PRODUCTS

Very little differentiates the early seafarers from the high-tech vessels of today. The sea is still fiers and frightening; in fact even worse as today's shipping and activities go further north than the boldest seamen of the past. More than ever, you need to put your faith in your skilled personnel and craftsmanship of your key suppliers. Quality manufacturers of marine products have the know-how to select materials and to combine them to provide you with top-notch products that you can depend on, and bet your life on, because that is what this ultimately is all about.

BRASS

Brass and stainless steel are probably the most widely used metals for marine components. Although brass for decorating products is selected for its shiny surface, TRANBERG as a quality manufacturer of outdoor lighting and navigation aids, prefer brass due to the non-corroding and

stable properties. In the extreme environment that the sea presents, with seawater, wind, rain, heavy waves, high and low temperatures, and sometimes extreme sunshine, it doesn't take long to understand why these materials are simply the best.

But there is more to durability than just

the known fact that plastic turns brittle in a very short time. The constant pounding of water flooding the products, or ice build-up that needs to be hacked off the lanterns or junction boxes, are two extreme, but very common factors to take into account when selecting the right products for a vessel that will sail the seven seas.

STAINLESS STEEL

Stainless steel is probably the safest choice for a non-corroding material onboard a vessel. In addition it has excellent mechanical properties which makes it withstand impacts.

Tranberg supplies several types of marine products that are made of stainless steel such as decklights, floodlights and searchlights. These products are normally very exposed to wind and sea, which is why we use a layer of powder coat paint to fully cover all sides of the products.

This is a paint that is hardened at 185 °C, and which naturally withstands high temperatures after being cured.

More importantly, the paint sticks very well to the stainless steel surface, which is partly due to the fact that stainless steel expands only half of that of aluminum. This is why aluminum products often shed the paint after only a few months into service.

GLASS

Another material that for years has acclaimed a reputation for high durability is glass. This is due to the ability to withstand both high and low temperatures, and a hard surface that withstand tear and wear significantly better than the more inexpensive plastic.

Transparency and colour stability are probably the two most important elements for a lantern lens, all while the lantern is still one of the most important navigational instruments onboard. If paint gets on the lens, it is not a problem to clean it with chemicals and the salt particles will not grade the glass and reduce the visibility.



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 and increased demand for smaller equipment with total lower lifetime cost and products suitable for use in arctic environment.



Tranbergs Quality Management System is certified by DEKRA

Manufacture and supply of 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

SOUND AND LIGHTING SYSTEMS

- Navigation-, signal lights and control systems
- Searchlights and control systems
- Floodlights and control systems
- Luminaires, obstruction lights and control systems
- Helideck lighting and control system
- Typhoons
- Electrical heating equipment for winterization
- Installation material

ENCLOSURE SYSTEMS

- Junction boxes / Instrument enclosures
- Cable glands
- Panel building
- Switches and distribution systems
- High voltage enclosure systems for subsea umbilical



Since its establishment in 1901, Tranberg has designed, manufactured and supplied high quality electromechanical products for use on ships and offshore installations. In 2006, Tranberg became a member of the R. STAHL Technology Group. R. STAHL is the world's leading supplier of electrical and electronic products and systems for explosion protection. In 2015, global sales amounting to EUR 312.9 million were generated by 1,894 employees.



PHOTO: HARALD PETTERSEN, STATOIL



MT DESIGN



SALT DESIGN



PHOTO: HARALD PETTERSEN, STATOIL



PHOTO: HAVYARD DESIGN BUIL AT HAVYARD LEIRVIK



PHOTO: BP

HELIDECK LIGHTING AND CONTROL SYSTEM

Developed with close guidance from the CAA and in full accordance with the latest requirements of CAP437, Tranberg's CHLITE TD/PM Lighting System provides the optimal solution to meet the latest requirement on illumination of the Circle and H. The Lit Touchdown/Position Marking (TD/PM Circle) and Lit Heliport Identification Marking ("H") system are designed according to the CAP437 Standards for Offshore Helicopter Landing Areas - Appendix C.



FLOODLIGHTS

According to the letter of March 2006 sent by UK CAA to the offshore industry, four (4) xenon floodlights have to be installed on the deck at an angle of 90° equally spaced around the platform for optimal illumination of the deck. For use in Zone 1, Zone 2 and safe area.

TEF 9964 HELIDECK FLOODLIGHT XENON

For use in Safe Area.

TEF 9970 HELIDECK FLOODLIGHT LED

Ex II 2G Ex d e op is IIB+H2 T4 Gb.

Ex II 2G Ex d e op is IIB+H2 T5 Gb.

For use in Zone 1 and Zone 2.

TEF 9971 HELIDECK FLOODLIGHT LED

For use in Safe Area.



PERIMETER LIGHTS

The colour of the perimeter lights has changed from yellow to green. There are additional requirements to the vertical beam angle of the light and the light intensity is increased from 25Cd to 30Cd. Stahl Tranberg can offer a LED perimeter light which will have a very long lamp life of 50,000 hours. This will result in maintenance savings. The lights should be equally spaced at intervals of not more than 3 meters around the perimeter of the safe landing area. For use in Zone 1, Zone 2 and safe area.

TEF 2430 PERIMETER LIGHT GREEN LED

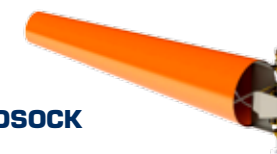
Ex II 2G Ex d e luminaire. For use in Zone 1 and Zone 2.

TEF 2460 PERIMETER LIGHT GREEN LED

Ex e m IIC Gb. For use in Zone 1 and Zone 2 and Safe Area.

TEF 2440 PERIMETER LIGHT GREEN LED

For use in Safe Area.



ILLUMINATED WINDSOCK

A wind direction indicator (windsock) should be provided and located so as to indicate the wind conditions at the offshore location. The windsock should be visible during the approach of the helicopter to the deck. The windsock should be illuminated for night time operations. For use in Zone 1, Zone 2 and safe area.

TEF 9968 ILLUMINATED WINDSOCK

Ex e m IIC Gb. For use in Zone 1, 2 and Safe Area. NORSOK compliant.

HELIDECK STATUS LIGHT SYSTEM



The TEF9980 Status lights is designed to fulfil the latest requirements of CAA UK CAP 437, as well as operator's needs for products that are cost-effective, reliable, requiring no maintenance and applicable for use in all environments.

- ATEX and IECEx certified for use in Zone 1, Zone 2 and safe area.
- Height of light units <25cm. Allows for on-deck installation.
- Automatic monitoring of all light units. No need for redundancy.
- Maintenance free.
- Constructed with durable, high quality materials.
- Wide ambient temperature range; -40°C to +55°C.
- Prepared for remote control and monitoring.



OBSTRUCTION LIGHTS

- Zone 1, Zone 2 and safe area
- Cranes
- Masts
- Complies with: ICAO Annex 14 Vol.1 Ch.6, Low intensity type B
- Integrated terminal box
- Low maintenance
- Rugged construction
- Low power consumption
- Instant light
- Resistant to vibrations
- Very long operating life (up to 50,000 hours)



TEF 2460

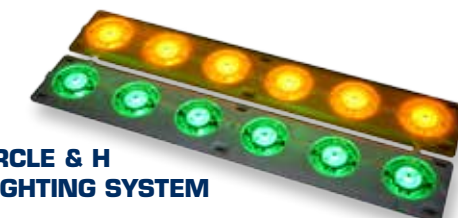
LED Obstruction Low Intensity, Type B IECEx Luminaire Zone 1 & 2 in Brass and Polycarbonate.

TEF 4600 INTEGRATED HELIDECK LIGHT CONTROL SYSTEM

The TEF 4600 integrated Helideck Lights Control is an industry-first integrated control system an easy and safe control and monitoring of all lights installed on and at helideck.



The unique design of the control system can be delivered for use in both safe areas and Zone 1 areas. All types of Stahl Tranberg lights can be connected, such as perimeter lights, floodlights, obstruction lights, illuminated windsocks, Circle and H lights, status lights, and more.



CHLITE TD/PM CIRCLE & H IDENTIFICATION LIGHTING SYSTEM

CHLITE Touchdown/Positioning Marking (TD/PM Circle) and Lit Heliport Identification Marking ("H") system according to the latest CAP437 Standards for Offshore Helicopter Landing Areas.

TRANBERG HELIDECK LIGHTS ACCORDING TO INTERNATIONAL STANDARDS

Helideck equipment manufactured by Tranberg is delivered to offshore installations, oil tankers, ships, hotels and hospitals all over the world. Helideck equipment from Tranberg is used for operation on elevated and non-elevated helidecks onshore and offshore in extreme environments.

The light give pilots a visual awareness of their position relative to the helidecks.

CAP 437 is issued by the UK's Civil Aviation Authority (CAA) and describes the standards for offshore helicopter landing areas. As such, it is considered worldwide to be a world leader in the field, and is considered best practice and dominant to operational safety of offshore helidecks. All Tranberg Helideck Lighting products comply with, and often exceed, all requirements set by CAP437.

CHLITE TD/PM CIRCLE & H IDENTIFICATION LIGHTING SYSTEM

CHLITE Touchdown/Positioning Marking (TD/PM Circle) and Lit Heliport Identification Marking ("H") system according to the latest CAP437 Standards for Offshore Helicopter Landing Areas.

HELIDECK STATUS LIGHT SYSTEM

A visual warning system should be installed if a condition can exist on an installation which may be hazardous for the helicopter or its occupants. The system (Status Lights) should be a flashing red light (or lights), visible to the pilot from any direction of approach and on any landing heading. The aeronautical meaning of a flashing red light is either "do not land, aerodrome not available for landing" or "move clear of landing area". The system should be automatically initiated at the appropriate hazard level (e.g. impending gas release) as well as being capable of manual activation by the HLO.

PERIMETER LIGHTS

The colour of the perimeter lights are changed from yellow to green and there are additional requirements to the vertical beam angle of the light and the light intensity is increased from 25Cd to 30Cd. TRANBERG can offer a LED perimeter light which will have a very long lamp life of 50.000 hours, which will result in maintenance savings. The lights should be equally spaced at intervals of not more than 3 meters around the perimeter of the safe landing area.

FLOODLIGHTS

In the absence of sufficient cultural lighting, the CAA recommends that installation owners consider a deck level floodlighting system consisting of four deck-level xenon floodlights (or alternative lights having the same photometric specification) equally spaced around the perimeter of the helideck. Floodlights may be used for the purpose of providing a source of illumination for on-deck operations, such as refuelling and passenger handling.

The floodlighting should be arranged so as not to dazzle the pilot and, if elevated and located off the landing area clear of the LOS, the system should not present an obstacle to helicopters landing and taking off from the helideck.

For some larger helidecks it may be necessary to consider fitting more than four deck-level xenon floodlights. The CAA does not recommend more than six units even on the largest helidecks.

OBSTRUCTION LIGHTS

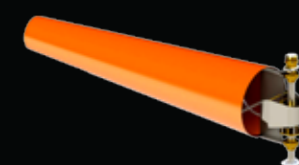
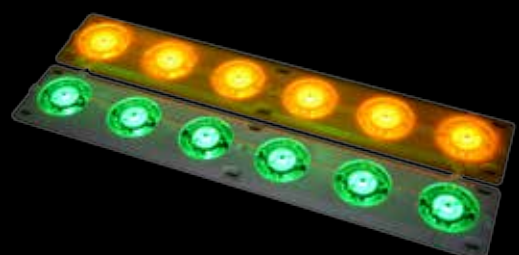
Obstruction lights for use on top of windsock – cranes derricks – bridges and other obstructions. According to CAP437 : Omnidirectional steady red lights of at least 10 cd intensity should be fitted at suitable locations to provide the helicopter pilot with visual information on the proximity and height of objects which are higher than the landing area and which are close to it or to the LOS boundary. This should apply, in particular, to all crane booms on the installation.

ILLUMINATED WINDSOCK

A wind direction indicator (windsock) should be provided and located so as to indicate the wind conditions at the offshore location. The windsock should be visible during the approach of the helicopter to the deck. The windsock should be illuminated for night time operations.

TEF 4600 INTEGRATED HELIDECK LIGHT CONTROL SYSTEM

The TEF 4600 integrated Helideck Lights Control is an industry-first integrated control system an easy and safe control and monitoring of all lights installed on and at helideck.



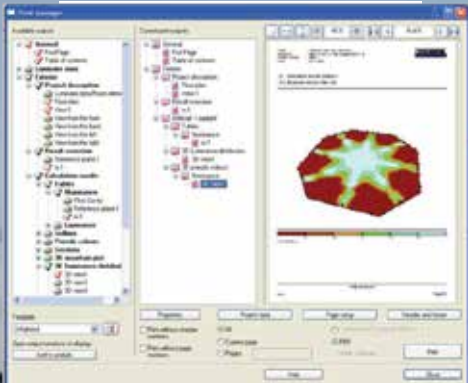
TRANBERG YOUR PARTNER FOR HELIDECK LIGHTING

ALL HELIDECK LIGHTING PRODUCTS FROM TRANBERG:

- Compact and rugged construction
- Resistance to vibration
- Integrated terminal box
- Quick opening for installation
- LED perimeter lights with very long operating life (up to 50.00 hours)
- Products certified for use in Zone 1, Zone 2 and Safe Area
- All products complies with : ICAO Annex 14 Vol. II and CAP437
- LED perimeter lights in compliance with IMO on 150mm height restrictions of IMO

LIGHT CALCULATIONS

To document that Tranberg lighting on helideck is according to standards, light calculations will be delivered by Tranbergs technical department.



REFERENCES

All major helideck manufacturers in the world:

- Aluminium Offshore, Singapore
- Bayards Aluminium, Netherland
- Marine Aluminium, Norway
- Maritime Products, Norway
- Kapp Aluminium Tretum Offshore, Norway
- Northsea Offshore, China

Marine / Oil&Gas newbuilding market - worldwide

Replacement market - worldwide. Rig owners, Shipowners, Oil Companies

CHLITE TD/PM CIRCLE & H IDENTIFICATION LIGHTING SYSTEM ACCORDING TO THE LATEST CAP437 STANDARDS

CHLITE TD/PM CIRCLE & H IDENTIFICATION LIGHTING SYSTEM

CHLITE Touchdown/Positioning Marking (TD/PM Circle) and Lit Heliport Identification Marking ("H") system according to the latest CAP437 Standards for Offshore Helicopter Landing Areas.

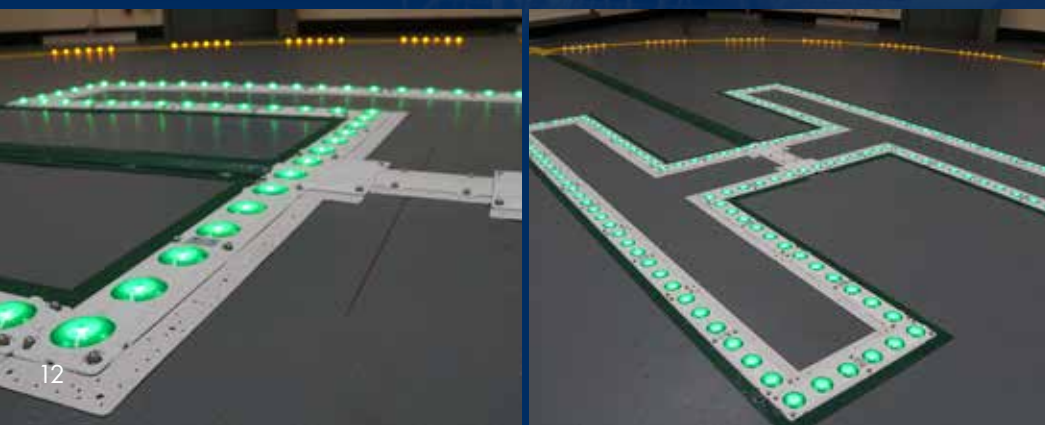
The CHLITE Helideck Lighting Solution is a cooperation between Calzoni S.r.l. – founded 1834 in Bologna-Italy (today an L-3 Company) and Tranberg - founded 1901 in Stavanger - Norway (today member of the R.Stahl Group).

Combining the extensive company experience of Calzoni S.r.l. – addressing the extremely demanding Aerospace & Defense market and Tranberg AS, which is the worlds leading helideck lighting solution provider for Maritime and Oil&Gas offshore applications – resulted in a superior product which is designed and manufactured for hazardous and non-hazardous areas within the international maritime and Oil & Gas offshore industry.

The CHLITE Helideck Lighting Solution has been tested extensively inhouse to meet the high quality and reliability standards of Tranberg and Calzoni. The main customer benefits are main-tenance free Helideck Lightning Solution, which is extremely easy and fast to install, since no over-deck junction boxes are required.

FEATURES

- Quick installation
- Maintenance free on deck
- Factory sealed LED lighting element
- No electrical components on deck surface
- Easy to install: Minimum impact on helideck surfaces with no over-deck junction boxes
- Extremely low profile (20mm), under the required specifications
- Versatile Installation: Cable routing above deck or below deck
- No metallic parts: Corrosion free high performance resin suitable for both aluminium and steel decks
- Antislip surface
- Low power consumption
- High Reliability
- CAP437 Compliant 8th Ed. with Amendment
- Atex and IECEx certified, suitable for Zone 1 and 2
- Operational temperature -30°C + 55°C
- Ingress protection IP66/67 (EN 60529)





CHLITE TD/PM CIRCLE & H IDENTIFICATION LIGHTING SYSTEM

Developed with close guidance from the CAA and in full accordance with the latest requirements of CAP437, Tranberg's CHLITE TD/PM Lighting System provides the optimal solution to meet the latest requirement on illumination of the Circle and H. The Lit Touchdown/Position Marking (TD/PM Circle) and Lit Heliport Identification Marking ("H") system are designed according to the CAP437 Standards for Offshore Helicopter Landing Areas - Appendix C.

CHLITE TD/PM CIRCLE & H IDENTIFICATION LIGHTING SYSTEM

Material Corrosion free high performance resin

Light intensity According to CAP437, 8th Ed.

Dimensions light element 750x125mm, height 20mm

Dimensions power box 650x900x300mm

Ingress protection IP66 (EN 60529)

Electrical power

H overall System < 100 W

C overall System < 100 W

Supplied by the Power Box (Safe Area)

Operational temperature -30°C + 55°C

Installation interface

M6 fixing, optional interface layer
for irregular surfaces

CERTIFICATES

CAP437 Compliant 7th Ed. with Amendment

ATEX certified, suitable for Zone 1 and 2

Marking: Ex II 2G Ex mb IIC T6 Gb

IECEX CES 15.0002X

Marking: Ex mb IIC T6 Gb

19th March 2015

Tranberg A.S
P.O. Box 8033
N - 4068 Stavanger,
Norway

Dear Mr Berg-Hagen

Tranberg Circle and H lights (product name CHLITE)

HCA have evaluated the Tranberg CHLITE in regards to the specifications set forth in the latest revision of CAP437. During this evaluation process Tranberg have submitted all and every required document regarding accredited test results and certificates related to the system, as well as completed a standard questionnaire from HCA relating to specific aspects of this lighting system.

HCA have concluded that the Tranberg CHLITE lighting system from Tranberg fully meet the specifications in CAP437 Appendix C. Consequently, HCA accepts the Tranberg CHLITE system.

Please note, it remains the responsibility of the installation or vessel operator to ensure the lights are mounted/fix to the helideck using an appropriate method.

For and on behalf of
Helideck Certification Agency Ltd
Alex Knight

Alex Knight

Managing Director



Helideck Certification Agency

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