

A photograph of an offshore oil rig in the North Sea at sunset. The rig is illuminated with lights, and a helicopter is flying in the sky above it. The sky is dark with scattered clouds, and the sea is dark and calm.

Aids to Navigation

for the North Sea



Orga is a world leader with over 40 years of experience in developing and manufacturing state-of-the-art hazard warning lights, helideck lighting, radar response beacons (racon), foghorns, fog detectors and many other navigational aids, solar power supply systems and explosion-proof solutions for customers in the offshore, aviation and petrochemical industries worldwide.



Dedicated staff deliver effective and reliable solutions that help our customers to understand and meet safety regulations and stakeholder requirements.

“Our customers value Orga as a trustworthy and experienced partner. We are proud of our reputation.”

Operational safety underpins the offshore and aviation industries’ licences to operate. Up-to-date navigational aids and obstruction lighting that meet the relevant operational needs and safety regulations are vitally important to maintaining these licences.

The future will bring even more stringent regulations. Orga can help you to meet these challenges and has three business groups that fully understand safety and operational requirements:

- Orga Offshore provides customised navigational aid and helideck lighting solutions for the oil and gas industry, as well as risk free power to remote location using renewable technologies such as photovoltaic and wind.
- Orga Aviation provides smart aviation obstruction lighting systems.
- Orga X-proof offers consultancy on the custom design, certification and manufacture of explosion-proof products.

As our customers operate in many different countries, we are familiar with the latest international and national regulations and safety standards. We have locally based support teams and work with international partners to deliver the right solutions and services to our customers around the world.

It is our strategy to build continually on our experience and know-how, and to develop, with our customers and the regulatory authorities, cost-effective and flexible solutions that enhance safety levels at sea, onshore and in the air.



The wider Orga organisation

Orga's three business groups each have marketing, sales and technical resources to support the needs of their different customers, market applications and product portfolios. Each business group focuses on the requirements, trends, culture and customs of a particular market, and takes close interest in the practical requirements for products and the needs of their system installers and end-users. They have support from our research and development, marketing, sales, consultancy, production, quality control, service and logistics teams.



At Orga, we manufacture a wide range of standard products, but also have engineers and production specialists who focus on custom-made products and systems. The philosophy of our in-house product manufacturing is to deliver high-quality products, on time and right first time.

Our production area and our facilities cover more than 4000 m². We have a flexible and lean production workflow to maximise production rates, and use Kanban concepts to ensure continuity of materials supply

and provide excellent responsiveness and product availability.

The clean, modern and energy-efficient environment of our logistics department incorporates materials, production, finished goods and dispatch.

Efficient management of stock levels, production and resources is ensured through our up-to-date enterprise resource planning system and long term agreements with suppliers of key materials.

We are situated close to major roads, airports (Amsterdam-Schiphol airport and Rotterdam-The Hague Airport) and sea freight (Port of Rotterdam) terminals, which enables us to offer freight-on-board and full international delivery services.

"At Orga, we value trust and customer loyalty. We respond quickly to customer requests and deliver what we promise on time."



Orga Offshore

Orga Offshore offers innovative navigational aids and helideck lighting products, and applies the latest technology to smart and simple perimeter lights, windsocks and status lights. Our systems are recognised as being state of the art, reliable, energy saving and operationally cost-effective.



We work closely with our customers to continually develop complete solutions, including functionality such as day-night control, flash synchronisation, overvoltage protection and comprehensive performance monitoring. We understand that project stakeholders prefer to use reliable, long-life products that survive the harsh environmental conditions they will be exposed to and balance these requirements with the need to meet regulatory requirements and ensure safe operation.

When training and on-site support services are required, we have factory-based engineers available to provide installation, commissioning and troubleshooting support.

Orga Offshore works with regulatory bodies around the world and provides systems that comply with national regulations and those of the International Civil Aviation organization (ICAO), local civil aviation authorities and the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA).

“Orga’s offshore solutions are at the forefront of design and technology, and help its customers to meet future challenges.”

The systems we supply are suitable for installations in a Zone 1 gas hazardous area. There is a calculated battery backup on every navigational aid system that guarantees the safety of the offshore structure in the event of electricity supply problems.

Aids to navigation

Marine 'Aids to Navigation' products and regulations for the North Sea

The UK Department of Energy and Climate Change regulations requires three types of marine lanterns, main, secondary and subsidiary in order to meet their 'Standard marking schedule for offshore installations regulations':

The regulatory requirements are designed to allow the safe marking of offshore structures and vessels during night and low visibility conditions. Automatic activation and monitoring is available and in conjunction with redundancy capabilities and low maintenance requirements this makes the Orga Offshore product range the leading supplier of both visual and audible Aids to Navigation systems worldwide.

L410EX-W-15F

Main & Secondary Marine Lantern



**15&10NM white, LED marine lantern
Works in conjunction with NCCP
Light weight
Strong and corrosion free design**

To meet with the regulatory requirements of the UK Department of Energy and Climate Change – Standard marking schedule for offshore installations requirements, Orga Offshore offers the L410EX-W-15F combined Main & Secondary lantern. Any offshore structure should be marked by one or more combined white 15NM/10Nm Marine & Secondary Lanterns mounted to ensure that at least one light is visible upon approaching the structure from any direction.

The L410EX-W-15F is designed to provide 15NM white omni-directional visual coverage during normal mains supply operation and provides a 10NM White omni-directional visual coverage on failure of the 15NM lantern part or during mains failure, when powered from an independent power source. The L410EX-W-15F has a minimum average intensity of 12,000Cd for the main lantern part and 1,400Cd for the secondary lantern part and flashes white light, Morse code 'U' every 15 seconds controlled by the Orga Navaid's Central Control Panel NCCP.

L410EX-R-03

Secondary Marine Lantern



**3NM Red, LED marine lantern
Works in conjunction with NCCP
Light weight
Strong and corrosion free design**

The Orga Offshore red flashing subsidiary light is the L410EX-R-03 which fully complies with the requirements of the UK Department of Energy and Climate Change – Standard marking schedule for offshore installations regulations.

The subsidiary lantern(s) should mark the offshore structure at night by ensuring that at least one light is visible upon approaching the structure from any direction. The lanterns should be activated 15 mins before sunset until sunrise and at all times when the meteorological visibility in any direction is 2 NM or less.

The L410EX-R-03 explosion proof marine lantern is designed to provide 3 NM red omni-directional visual coverage. The L410EX-R-03 has a min effective intensity of 15Cd and is flashing red light, Morse code 'U' every 15 secs controlled by the Orga Navaid's Central Control Panel (NCCP).

SS24EX

External Photocell



**Automatic ON/OFF control of lanterns
Works in conjunction with NCCP
Light weight
Strong and corrosion free design**

Used in conjunction with the Navaid's Central Control Panel, the explosion proof external photocell provides automatic control of the marine lanterns at dawn and dusk. The photocell is compact design with specious cable connection compartment. Because of the photocell control the light source average life will be extended and power savings are being made.

NCCP

Nav aids Central Control Panel



Smart modular design for easy maintenance and set-up
Touch screen user interface to allow full system interaction
Control and monitoring of all Aids to Navigation equipment

A major component of the Aids to Navigation system is the control panel. Orga has designed a state of the art modular control panel that is capable of full user interaction via the touch screen. Available in both non-certified and certified (Zone 1) version, the

new modular nav aids central control panel (NCCP) has full alarm, history and status monitoring capabilities as well as offering full redundancy and being easy to maintain and set-up. The design features control through compact modules resulting in a control panel

that takes up minimal floor space. When used in conjunction with Orga's marine lanterns, visibility meters, racons and foghorns the system will deliver low power and a fully reliable design to meet all our clients regulatory and project needs.

FH800(3)EX

Combined Main/ Secondary Foghorn



2NM combined main/secondary
Omni-directional foghorn
Works in conjunction with NCCP
Strong and corrosion free design

In the United Kingdom main/secondary foghorns are required to meet the UK Department of Energy and Climate Change – Standard marking schedule for offshore installations regulations.

The FH800(3)EX complies with this request, and due to smart technology these two foghorns are integrated into one foghorn, with a double power source to meet redundancy requirements.

The sound character, of the main foghorn, shall be Morse code 'U' every 30 secs and is controlled from the NCCP. The effective range of the main foghorn is at least 2 NM (134dB(A) at 1 m) with the secondary being at least ½ NM in any direction. The foghorn signal shall be activated whenever the meteorological visibility in any direction is 2 NM or less, and should be capable of operating continuously at full power from a UPS supply which will activate in the event of mains power failure.

VDX05EX

Visibility Meter



Automatic ON/OFF control in low
visibility
Works in conjunction with NCCP
Strong and corrosion free design

The Orga Offshore visibility meter is based on the back scatter operating principle with a long life laser LED providing a continuous visibility indication for direct read-out, or via telemetry. The unit is provided with two fixed output contacts for automatic control of the lanterns and foghorns. The unit is made of stainless steel and provided with self-monitoring functions to ensure long term installation.

ITR04EX

Racon Beacon



Automatic vessel identification
X and S bands with side lobe
suppression
Strong and corrosion free design

This heavy duty racon beacon has been designed in accordance with IALA specifications and is suitable to transmit a Morse code character, which appears on the radar display of a passing vessel. The unit operates in the X and S bands and has the possibility to activate the side lobe suppression, the built-in self test and self calibration capabilities ensure unattended service.

SS24EX External Photocell

Automatic ON/OFF control of lanterns
Works in conjunction with NCCP
Light weight
Strong and corrosion free design



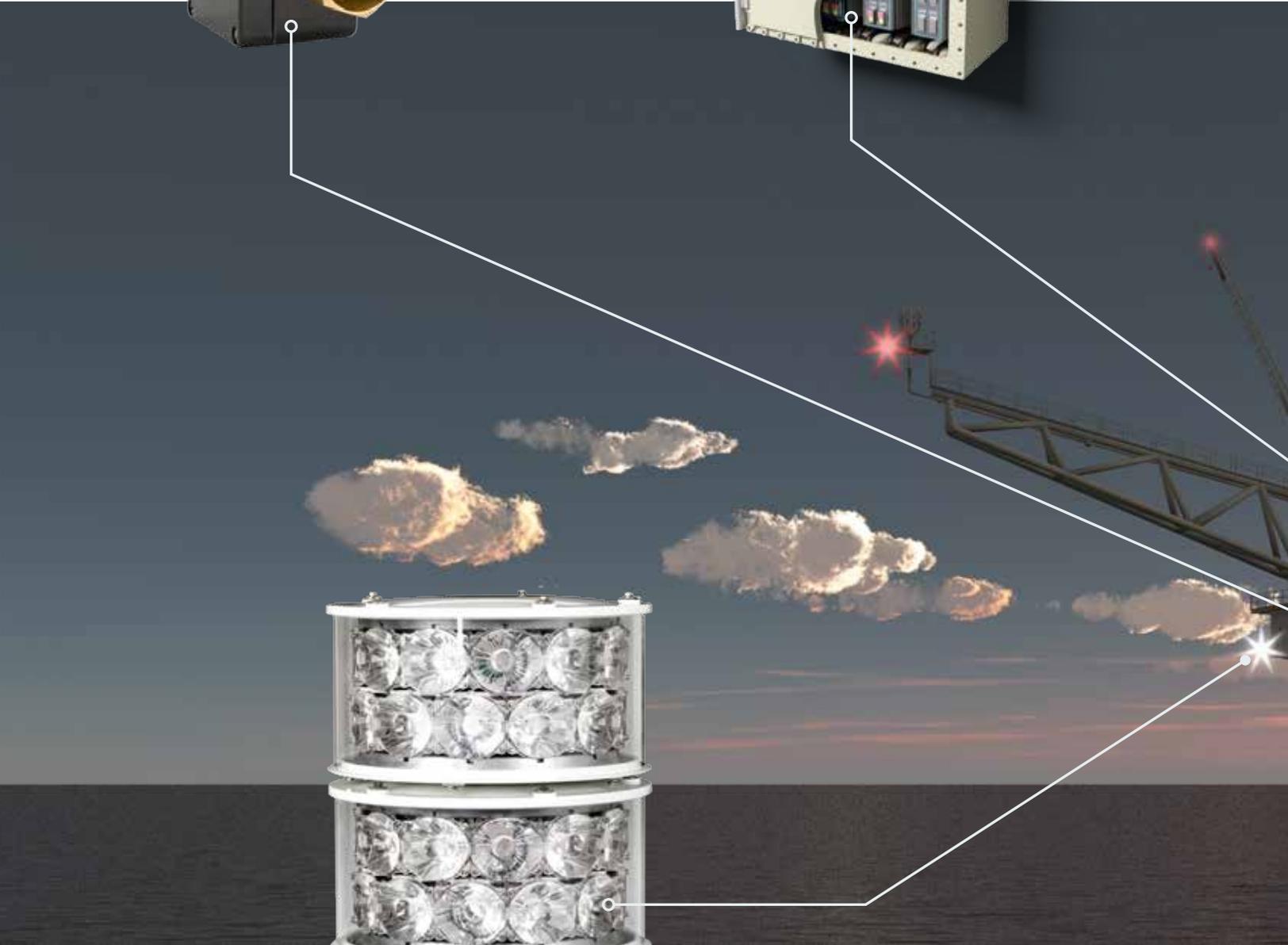
NCCP Nav aids Central Control Panel

Smart modular design for easy maintenance and set-up
Touch screen user interface to allow full system interaction
Control and monitoring of all Aids to Navigation equipment



L410EX-W-15F Main & Secondary Marine Lantern

15&10NM White, LED marine lantern
Works in conjunction with NCCP
Light weight
Strong and corrosion free design



VDX05EX Visibility Meter

Automatic ON/OFF control in low visibility
Works in conjunction with NCCP
Strong and corrosion free design



ITR04EX Racon Beacon

Automatic vessel identification
X and S bands with side lobe suppression
Strong and corrosion free design



L410EX-R-03 Subsidiary Marine Lantern

3NM Red, LED marine lantern
Works in conjunction with NCCP
Light weight
Strong and corrosion free design



FH800(3)EX Combined Main/Secondary Foghorn

2NM combined main/secondary
Omni-directional foghorn
Works in conjunction with NCCP
Strong and corrosion free design

Regulations

Effective, reliable navigational aids systems are essential for safety and ensuring that offshore structures are visible to vessels in all weather conditions.

The navigational aid systems we supply are based on the European EN and ATEX regulations and follow the UK Department of Energy and Climate Change - STANDARD MARKING SCHEDULE FOR OFFSHORE INSTALLATIONS regulations and IALA recommendations (O-139).

- Are you looking for robust navigational aid systems with low life-cycle costs and no maintenance requirements?
- Do you want to go for a reliable brand when it comes to Aids to Navigation systems?
- Are you sure your Aids to Navigation systems comply with the latest regulatory requirements?
- Are you familiar with the latest local and IALA recommendations for the safety of shipping?

Extracts from UK Department of Energy and Climate Change - STANDARD MARKING SCHEDULE FOR OFFSHORE INSTALLATIONS

SECTION A – STRUCTURE (OR VESSEL)

1. GENERAL

(a) Operators are required, as a condition of the consent of the Secretary of State to which this Schedule is attached, to have an auditable system to ensure that the Aids to Navigation (AtN) requirements specified in this Schedule and/or as required in the consent are fully complied with at all times. A written record shall be kept of the date and time of the inspections, and of any faults found and repairs made, and made available for inspection by any person authorised by the Environmental Management Team, Department of Energy & Climate Change (DECC) at any reasonable time.

3. LIGHT

To determine the effective intensity of lights, the reduction in stationary intensity arising from the rhythmic exhibition of the light shall be computed in accordance with the current IALA Recommendation on determination of effective intensity of marine aid to navigation signal lights.

3.1 MAIN LIGHT(S)

(a) The main light(s) shall be a flashing white light (or lights operated in unison) to exhibit Morse letter "U" every 15 seconds composed to conform to the following:

- (i) The duration of each dot shall be equivalent to the duration of darkness between the dots and of that between the dot and the dash.

(ii) The duration of the dash shall be three times the duration of one dot.

(iii) The eclipse between successive Morse letters shall be not less than 8 seconds and not more than 12 seconds.

(b) The light(s) shall normally be mounted at not less than 12 metres and not more than 30 metres above MHWS (sea level in the case of floating rigs or vessels) and shall be arranged so that an unobstructed flashing white light is visible in any direction.

(c) The effective intensity of each light after all losses including lantern glazing etc., have been taken into account is to be not less than 12,000 candela. The beam axis shall be directed so that it is not elevated above the horizontal or depressed below the horizon. The total beam width in the vertical plane shall be not less than 2.5° at the points on the curve of intensity distribution where the intensity is 10% of the maximum.

(d) In exceptional cases where the height of the platform of a permanent structure is such that the main light(s) cannot be mounted below 30 metres, they may be mounted at a height above MHWS of not more than 35 metres. In such cases the beam axis shall be directed at the horizon.

(e) The light(s) shall be exhibited from 15 minutes before sunset until sunrise and at all times when the meteorological visibility in any direction is 2 miles or less.

(f) The structure (or vessel) shall be equipped with a secondary lighting system to come into operation automatically on failure of the main white light(s). The secondary lighting system shall be capable of continuous operation at full power for at least four calendar days (96 hours) from a power source independent of that by which the main light(s) is (are) operated. The secondary light(s) shall exhibit Morse letter 'U' every 15 seconds as detailed in paragraph 3.1(a) above and shall be mounted as required by 3.1(b) above and so arranged that an unobstructed flashing white light is visible in any direction. The effective intensity of each light after all losses including lantern glazing etc., have been taken into account is to be not less than 1,200 candela.

3.2 SUBSIDIARY LIGHTS

(a) Flashing red lights shall also be provided and should exhibit the same characteristics as the main light(s) as described in paragraph 3.1(a) of this section; the red lights should operate in unison with each other but not necessarily in unison with the main light(s).

(b) The subsidiary lights are to be so positioned as to clearly indicate the horizontal extent of the structure or vessel except those extremities which may have already been marked by main flashing white lights as provided by paragraph 3 above. Each subsidiary light is to provide the maximum arc of illumination possible when viewed from approaching vessels.

(c) The effective intensity of each light after all losses including lantern glazing and red filter etc., have been taken into account is not to be less than 15 candela. The beam



axis shall be directed so that it is not elevated above the horizontal or depressed below the horizon. The total beam width in the vertical plane shall be not less than 2.5° at the points on the curve of intensity distribution where the intensity is 10% of the maximum.

(d) The lights shall be exhibited from 15 minutes before sunset until sunrise.

4. FOG SIGNALS

(a) The usual range of the fog signal is to be computed in accordance with the IALA Report "The Definition and Method of Calculation of the Nominal Range and Usual Range of a Fog Signal", dated February 1968.

(b) The fog signal(s) shall be sounded whenever the meteorological visibility in any direction is 2 sea miles or less.

(c) The fog signal (or signals operated in unison) shall sound the Morse letter 'U' viz:

Blast	0.75 secs	} 6 secs
Silent	1.00 "	
Blast	0.75 "	
Silent	1.00 sec	
Blast	2.50 secs	

Silent 24.00 secs

Total period 30.00 secs

(d) The fog signal emitter(s) shall be mounted at not less than 12 metres and not more than 35 metres above Mean High Water Springs (sea level in the case of floating rigs or vessels) and shall be so arranged that the fog signal shall have a usual range* of at least 2 sea miles in any direction.

(e) All structures (vessels) shall be equipped with a secondary fog signal system, with a usual range of at least ½ sea mile in any direction. The secondary fog signal, which shall be independent of the main signal is to come into operation automatically in the event of total failure of the main signal, or if partial failure of the main signal results in the usual range falling below ½ sea mile in any direction.

(f) The main and secondary fog signals shall each be capable of operating continuously at full power for at least 96 hours from a power source independent of the main supply.

(g) Whenever more than one electromagnetic sound emitter is fitted to a structure (vessel) no pair or emitters shall have frequencies differing by less than 10 Hz. This restriction does not apply to vertically grouped emitters or "stacks" which are designed to depress the angle of vertical sound distribution.

Innovation and technology

Orga started 40 years ago as an electrical service and maintenance company working on North Sea offshore oil and gas platforms. While inspecting and servicing installed marine lanterns, foghorns, aviation obstruction lights, DC power systems and explosion-proof electrical equipment, the company developed ideas and innovative products to improve the reliability of these systems and contribute toward enhanced safety and lower operating expenses.



In 1985, Orga started manufacturing its own product range, and, since then, has continually improved its product technology by working with customers to develop systems specifically adapted to their requirements.

Delivering innovation starts with understanding our customers and their challenges. Our research and development team works in close cooperation with our marketing team, whose members understand the various markets and the specific requirements of clients, regulatory authorities and stakeholders. Together, they translate regulations and customers' requirements into new concepts and cost effective products.

"Our products continuously improve through working in close cooperation with customers and industry organisations to develop innovative solutions."

The research and development team's expertise encompasses optics, acoustics, lamp control circuits, electromagnetic compatibility, radio frequency interference, condition data gathering and transmission, specific lightning protection, mechanical constructions, explosion-proof constructions and hardware and software development.

Our products incorporate state-of-the-art technology solutions, based on the requirements of national and international regulations, safety and quality standards, that are developed to offer users high reliability with the lowest cost of ownership.

We continue to build on our track record of providing the right technology. Site surveys, maintenance, training programmes and sophisticated remote product health monitoring are all part of the services we offer. We continue to invest in research and development, and the expertise and skills of our people.



Quality control

Quality is an important fundamental attribute of Orga's products and services. Our quality management focuses on not only product quality but also the means for achieving it. We constantly monitor our management, production and inspection processes to ensure fit-for-purpose products and systems, and to improve efficiency and reliability. Our quality management system uses internal audits, client feedback and management reviews to monitor how well we are achieving our quality goals.



Our clients continue to choose us over our competitors, as they trust the quality, reliability and cost effectiveness of our products and systems to help them achieve their goals and the support services we consistently deliver.

Our quality assurance system is accredited to ISO 9001:2008 by the Dutch certification body DEKRA.

DEKRA has also certified Orga for the production of explosion-proof electrical equipment in accordance with ATEX Directive 94/9/EC and European Standard EN13980. This authorises us to manufacture equipment and protective systems components for use in potentially explosive atmospheres.

"Our products differentiate us from our competitors in terms of quality, design and service life, availability and sustainability."

We value the input from our clients and welcome your feedback; therefore we would like to ask you to fill in our feedback form (available on our website).



Service



Orga's service department provides the following services:

- commissioning,
- troubleshooting,
- inspection and survey,
- renovation,
- maintenance,
- training and consultancy services.

To ensure proper installation of specific products, we offer installation supervision and commissioning services for navaid systems, helideck lighting equipment, obstruction lights, utility uninterruptible power systems, photovoltaic (solar) panels, chargers and battery systems.

Orga Offshore actively promotes installed base inspection management systems and advises its customers to inspect product systems regularly to ensure a more proactive inspection and maintenance approach. This after-sales service for lanterns, foghorns, perimeter lights, obstruction lights and related products includes inspection visits, reporting on the status of installed products, and advice to the customer on near-future maintenance, the expected life time of products and options to update to newer technology.

Our service team operates from our main facilities in The Netherlands, and from our office in Malaysia. It offers on-site but also in-house repair services. A 24/7 service is available for immediate support. In addition, Orga works in close cooperation with key partners around the world to provide a locally based fast first-line support to its customers and product end-users. Troubleshooting service on site is generally offered within 24 to 48 hours, depending on the location. Each inspection or maintenance visit comes with a full inspection report.

One-day training workshops for customer personnel can be organised at the client's offices, at our head-office, but also on-site. These workshops are tailored to specific needs of the customer. Training groups are generally small with maximum of 10 people. In addition to the above mentioned product services, Orga's service department also carries out field research for the R&D department to support technology improvements.

Our service engineers have extensive international experience. They work safely and efficiently – all have safety, medical and emergency certificates, including the Basic Elements of Safety (VCA/SCC) certificate and approved basic OLF, NOGEP and OPITO certificates. In addition, they have specific application, working at height, product and culture know-how which ensures a responsive and high-quality service. Our service engineers are dedicated, enthusiastic, friendly and always willing to go that extra mile.

**For further information
contact our head office**

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Monopile designed in consultation with KCI

