

Underwater cables for oceanography & seismic systems



The Quality Connection

LEONI

LEONI solutions for Marine applications

LEONI is a global provider of products, solutions and services for energy and data management in the automotive sector and other industries.

With the market Marine LEONI provides the customers with all the expertise of a global enterprise, focused on the needs of the shipbuilding industry. With an extensive portfolio of products and services LEONI will assist you across the entire lifecycle of your projects – world-wide.

As a strong partner, LEONI offers application-specific cable and cable system solutions meeting national and international standards. You can trust in the well-founded sector and product knowledge as well as many years of experience.

Your needs: Innovative quality products, proven and project-related system solutions, as well as highest availability and sustainable service management are matter of course for LEONI.

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What sets LEONI apart:

Research & Development

We invite you to benefit from the globally interlinked know-how of the LEONI Group and the work done by our Corporate Research & Development department. By conducting research projects that transcend individual sectors we tap synergies within the group and thereby provide additional potential for innovation.

A high degree of vertical integration in cable production This is something virtually no other cable manufacturer can boast: from ultra thin copper wire through to hybrid cable thick as an arm, everything is done in our own production plants. Optimized results are achieved by using components which are matching up.

Cable systems

We also offer ready-to-connect and ready-to-fit assembled cable systems and fully wired modules.

Global presence

We have our own production facilities in all of the world's key industrial regions and are therefore always in close proximity to you.

Underwater cables

for oceanography & seismic systems



LEONI offers cables for underwater applications that ensure interference-free telemetry of seismic activity on the seabed. In addition, the cables supply e.g. underwater robots with data and energy, both in fixed and mobile systems, i.e. also when a robot is pulled through water on the seabed.

Available are hybrid round cables, e.g. for a sonar system, for a scanning sonar, for electromagnetic measuring systems and for marine measuring applications. LEONI also develops underwater cables for the connection between lighthouse and land, trailing cables for offshore applications, underwater fibre optic cables with steel reinforcement and deep-sea cables.



Our technical competence

Which elements can we integrate into a towing and underwater cable?

- Power cores up to 6 kV
- Control cores, pairs, triples and quads
- Data elements up to Cat. 7
- Bus cable elements
- Fiber optic elements
- Air, gas and fluid hoses
- All kinds of screening elements
- Strength members – steel and aramid – up to a load of 100 kN
- Cross-linked and non cross-linked sheathing materials

Which cable characteristics can we realize?

- Standard towing cables up to a load of 100 kN
- Neutrally buoyant cables
- Floating cables
- Torque balanced cables
- Sea bottom layable cables
- Water blocked cables longitudinally up to 100 bars and transversally up to 5000 bars
- Hybrid cables
- Cable assemblies

On the following pages you will find some of our realized projects. All our cable solutions are individually designed and manufactured according to the customer special requirements.

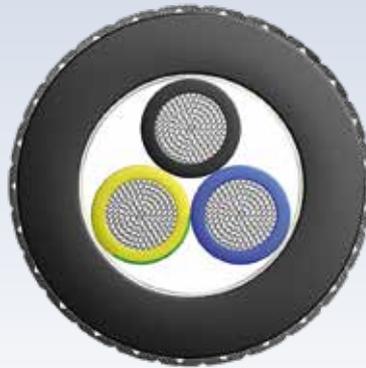
Hybrid round cable

for a sonar system

Underwater cable

for the connection between a light house and the shore

Hybrid round cable



Description

Developed for the connection of a control unit with the lateral sonar of a submarine.

It contains the power supply, which is screened separately, as well as three data wire pairs.

The cable is exposed to a water pressure of up to 40 bars in the depth during a diving session.

Designed for the connection between the shore and a light house.

Due to the applied reinforcement by steel mesh wire the cable features a highly mechanical stability. This allows even installation in a stony riparian area without any problem.

This is a new development especially for use in a float, in order to allow for deeply submerged submarines the communication from deep areas.

For this purpose the float carries various sensors, which allow communication in different networks. In a modified version a civil application could be thinkable and will thus be offered for example to marine engineering institutions for platforms or other facilities.

The cable also provides towing the float, besides the data transmission task and supplies the required energy.

Fields of application

- For outdoor
- For use in humid rooms as well as in sea- and brackwater

- For outdoor and underwater use

- For underwater applications with fiber optic element for data transmission and power supply

Outer jacket

Polyether-Polyurethane

Polyether-Polyurethane

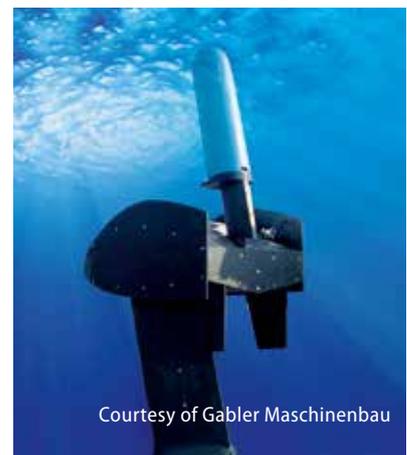
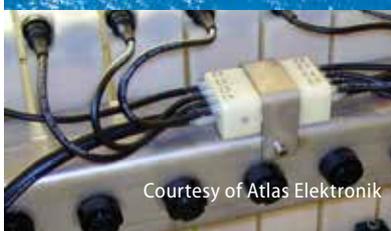
Polyether-Polyurethane

Mechanical characteristics

- Seawater resistant
- Transversally water blocked
- Halogen free

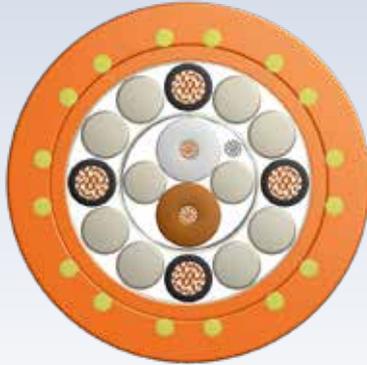
- Seawater resistant

- Seawater resistant



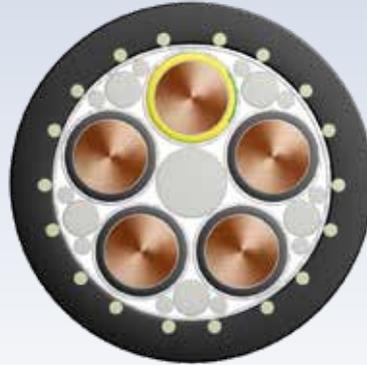
Hybrid round cables

for a scanning sonar



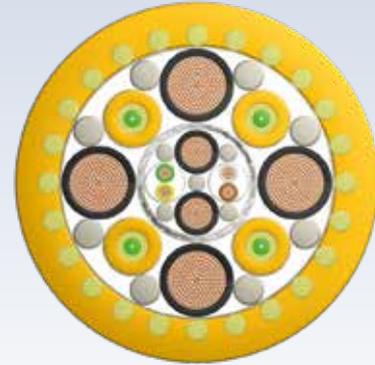
Round cable

for an electromagnetic measurement system



Hybrid round cable

for sea measurement applications



The Scanning-Sonar head is an echo depth finder, which can cover a semi spherical area.

The sonar functions at a frequency of 200 kHz and can display depth profiles of large areas.

The cable adopts also the occurring towing forces by means of an aramid braid.

- For outdoor and underwater use

Polyether-Polyurethane

- Seawater resistant

This partially longitudinal water tight cable provides power supply.

Even at damages of the outer cable jacket the function remains intact.

A tension-relieved hybrid design with aramid reinforced polyurethane double jacket.

Connected components, such as plugs, couplings and distributors remain undamaged at a water pressure of up to 60 bars (no water intrusion).

- For outdoor and underwater use

Polyether-Polyurethane

- Seawater resistant
- Transversally water blocked

Developed for the connecting vessels with a pipeline inspection robot.

A tension-relieved hybrid design with aramid reinforced polyurethane double jacket.

- Hybrid round cable with tensile strength of min. 12 kN for pulling applications

Polyether-Polyurethane

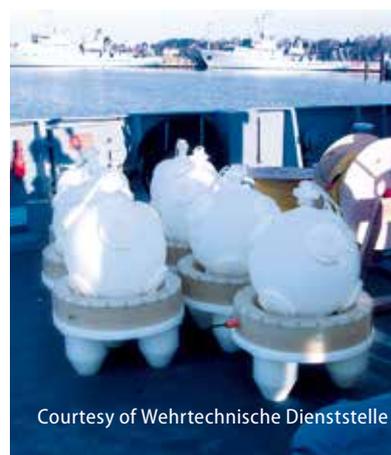
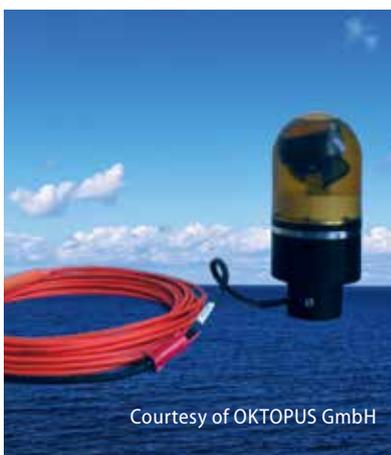
- Seawater resistant
- For flexible installation
- Tearproved

Description

Fields of application

Outer jacket

Mechanical characteristics



Towing cable

for offshore applications

Underwater fiber optic cable

with steel reinforcement

Deep sea cable



Description

This offshore cable connects a master station with a submarine hammer, which fixes mechanical elements at the sea ground.

Because of the high mechanical load, the cable features double outer jacket with embedded aramid mesh.

A hybrid design with a fiber optics element and several copper conductors for the power supply of the optic-electric converters.

The cable has been installed already in the bay of Gdansk.

The deep sea cable is filled with a special gel. This ensures a form stable behavior at up to 500 bars lateral pressure.

Fields of application

- For power and control supply
- For outdoor and underwater applications

- For fixed installation
- Installation in cable ducts and conduits as well as on cable racks or underground laying
- For a max. depth of 50 m under water (sea or fresh)

- For research **up to 5000 m** water depth

Outer jacket

Polyether-Polyurethane

Polyethylene (HDPE)

Reinforced Polyurethane sheath

Mechanical characteristics

- Halogen free
- Sunlight resistant

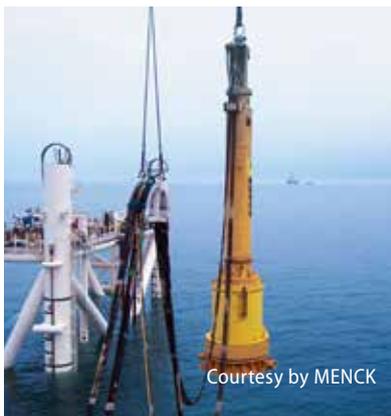
- Sea water resistant
- Longitudinally and laterally water resistant
- Oil, petrol, acid and leach resistant
- Crush resistant

- Sea water resistant
- 3.5 mill. bending cycles longitudinally and transversally watertight
- Pressure resistant up to 500 bars

Approvals

UL 1581, sec. 1200
VDE 0472, part 815

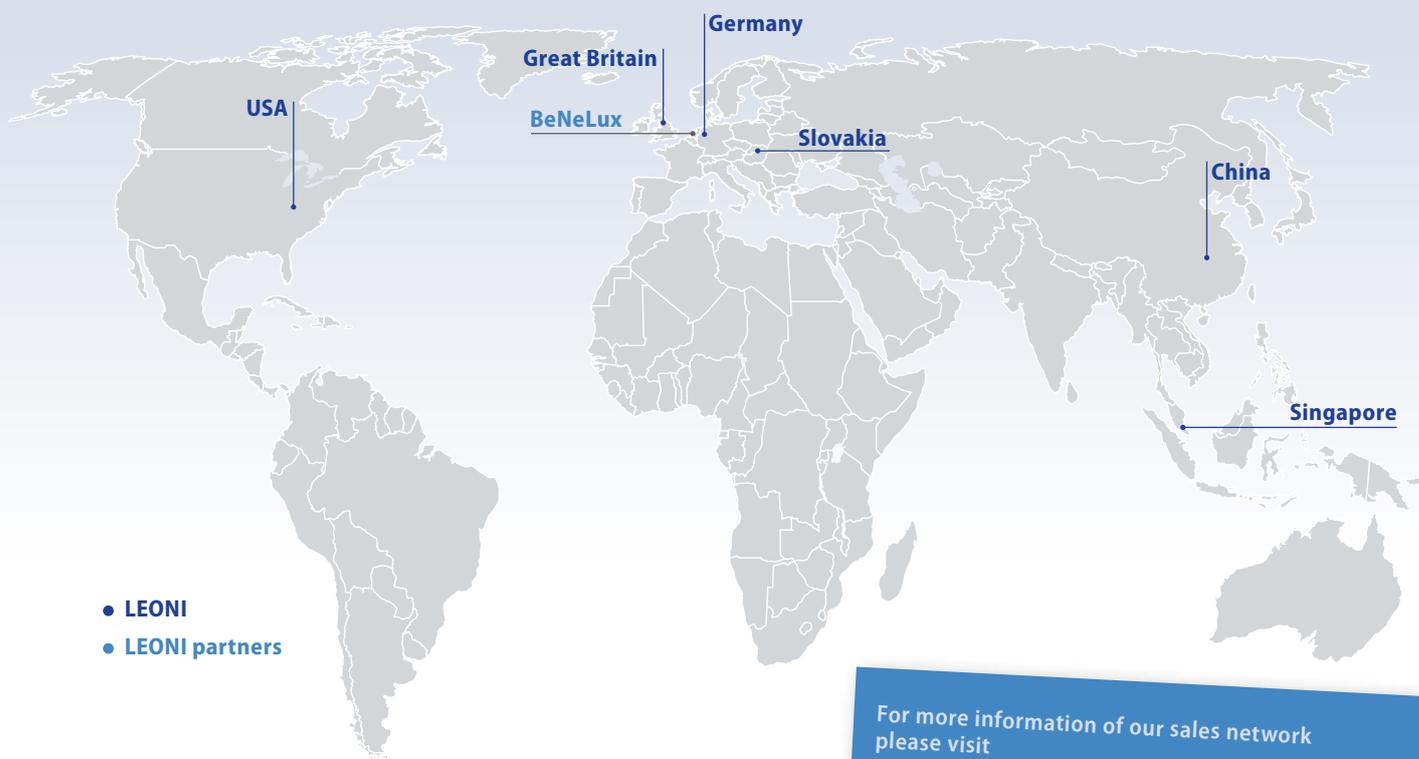
IEC 60794-3
EN 187105
DIN VDE 0888-3
DIN VDE 0899



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