

cableworld 2|2011



Lapp Group Customer Magazine

Innovations at the
Hanover Trade Fair, and
the Intersolar exhibition

Application examples:
Diving lamps
from GRALmarine
Voith fine paper machine
Special cables
for safety valves

Welcome back home!
ÖLFLEX® returns



LAPP GROUP

Title

18



The Lapp Group presented two innovative junction boxes at the Intersolar exhibition. One of them has been specially developed for organic photovoltaic modules.

10



For underwater use in the pit caves in Mexico, the lamps have been connected to the battery with an ÖLFLEX® 550P cable.



The Oscar Lapp Research Prize, including the 12,000 Euro financial award, has been presented to cardiologists Dr. Karl Toischer and Dr. Dennis Rottländer.

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Fit for the future

Dear Sir or Madam,

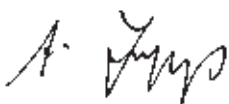
The energy revolution is coming. The reactor disaster at Fukushima in Japan has given new impetus to the global trend towards renewable energies.

Nevertheless, the opportunities and risks of this trend will definitely be discussed for a long time yet. One thing is certain - we are faced with some major challenges - and huge opportunities.

For the Lapp Group, renewable energies have been an important growth industry for many years. We already provide an extensive range of perfect cable and connection technology products for photovoltaics, wind power and biogas plants. With new products such as the exceptionally sturdy and EMC-safe EPIC® ULTRA rectangular connector housing and the revolutionary EPIC® SOLAR RAZOR junction box, we are not only demonstrating our expertise in innovation, but also giving an impressive indication that we work side by side with our customers - with you - to develop tailored solutions that contribute to our mutual success.

We want to continue to use our shared know-how to develop forward-looking products. We are here to support you with our expertise and passion. Together, we can make our world fit for the future.

With best regards,



Andreas Lapp



Numerous innovations from the Lapp Group

Trade fairs are the shop window for the industry and a barometer of the market opportunities for new innovative products. For the Lapp Group, the Hanover Trade Fair and Intersolar Europe in Munich are among the most important platforms. In Hanover alone, the company welcomed more than 26,000 guests to its stands in halls 11 and 25, more than double the number of visitors of last year. Intersolar Europe was similarly successful. Here, the Lapp Group presented two revolutionary innovations for the photovoltaics sector. In this issue of kabelwelt, we present the most important new products for you.

Photovoltaics:

Adaptable junction boxes

The extremely flat EPIC® SOLAR RAZOR is a new, revolutionary junction box for photovoltaic modules, providing a modular construction and unique accessibility of the electronics. It is made of extremely strong aluminium, waterproof to protection class IP 67 and also drastically reduces the risk of fire. The function blocks, such as electronic disconnection of individual modules, performance monitoring and performance optimisers, are easily accessible from the front of the module. Future technologies such as MPP Tracker can be installed at a later point in time. The photovoltaic modules can be fitted or upgraded in the factory, by the dealer or by an installation engineer. The connection socket was developed by Lapp in conjunction with [EPE Fischer](#), manufacturer of globally patented aluminium junction boxes for

The interior components of the EPIC® SOLAR RAZOR can be accessed quickly and easily



photovoltaic modules, and is pre-assembled with the EPIC® SOLAR 4 THIN solar connector. Due to its welded contacts, the contact resistance of the connector is at a level so low that it is unrivalled.

Based on the technology of the EPIC® SOLAR 4 THIN connector, Lapp has developed the new EPIC® SOLAR MAP junction box for organic photovoltaic modules. Like the innovative connector, the junction box is welded, thus enabling continuous connection of organic PV modules. Thanks to the welding technology, the junction box and the connector are extremely flat - a key requirement for use with organic modules, which are designed as flexible films. This opens up totally new applications for mobile use of solar energy and in building-integrated photovoltaics.

Also at the Intersolar trade fair, two Declarations of Intent for joint ventures were signed: The Lapp Group will be cooperating with FPE Fischer on connection systems for the global photovoltaics industry and with [Konarka Technologies](#), for which Lapp has already developed the new EPIC® SOLAR MAP junction box for organic photovoltaic modules.

High voltage networks with ÖLFLEX® TRAF0

In conjunction with [SMA Solar Technology AG](#), the global market and technology leader in solar inverters, a completely new cable type has been developed for the voltage range up to 1.8/3 kV. It is called ÖLFLEX® TRAF0 and has been specially designed for connecting inverters to a medium voltage transformer. The cable is extremely flexible and durable, has a high current carrying capacity and is



*The EPIC® SOLAR
MAP junction box for
organic photovoltaic
modules*

suitable for direct routing. It is suitable for use in PV systems in extreme climatic zones (-40°C to 100°C) and complies with international standards to allow use almost everywhere in the world. Because of its special braided conductor construction, the ÖLFLEX® TRAF0 can also be used as a torsion cable in wind power plants.

E-mobility: LAPP CHARGE charging system

The new LAPP CHARGE charging system makes the power supply for electric vehicles much easier. The innovative charging system, which was developed together with [Bals Elektrotechnik GmbH](#) from North Rhine-Westphalia, will win over customers with its

ergonomic design and numerous safety features. The design and colour scheme can be adapted to the customer's needs, for instance by adding the manufacturer's logo to the vehicle.

LAPP CHARGE meets the VDE standard, which was defined with input from leading automotive manufacturers. A spiral cable can also be used as a connecting cable. This is halogen-free, flame-retardant, oil-resistant and suitable for use in temperatures from -40°C to 90°C. That is why Lapp offers this charging system as a bespoke solution and recommends the use of special, flexible spiral cables.

Stage: Patented luminous cable

A luminous effect cable was recently patented. It charges up by daylight or artificial light and lights up for at least six hours in yellow or blue in darkness. The luminescence is generated by patented luminous pigments that are mixed into the PVC or PUR cable insulation. The pigments are classified as non-poisonous and do not emit any harmful radiation. Even after three hours, their light intensity is almost double the level prescribed in the DIN standard after one hour of lighting.

Possible applications include concerts and major events, poorly lit rooms, houses, corridors or construction sites. The luminous cables are also great for use in advertising. ■

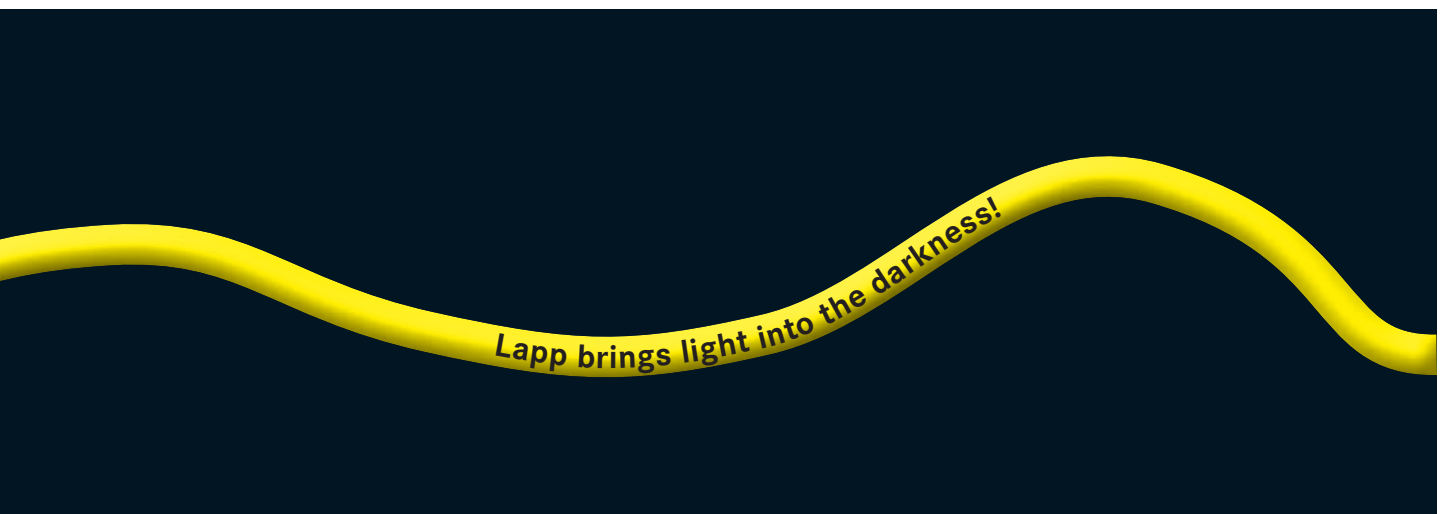
www.fpe-fischer.de

www.konarka.com

www.sma.de

www.bals.com

*Cables can also
provide light - thanks
to a new Lapp patent*

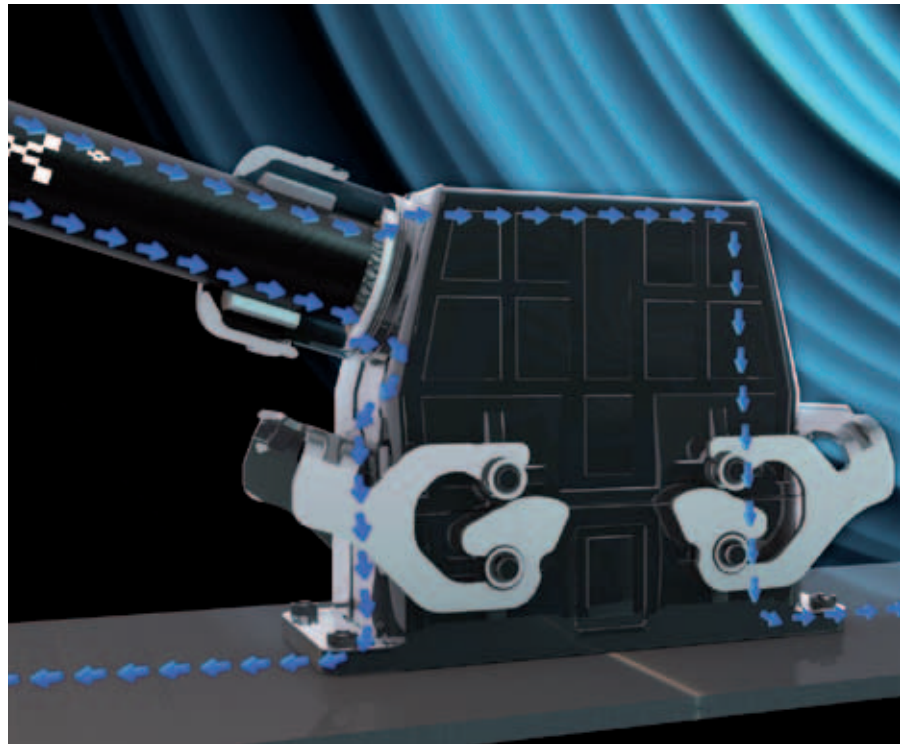


EPIC® ULTRA: Reliable screening for the toughest environments

The Lapp Group launched the new EPIC® ULTRA rectangular connector housing at the Hanover Trade Fair. The EPIC® ULTRA is scratch, impact and corrosion resistant, making it ideal for use in harsh environments, for example in offshore wind turbines. In conjunction with the SKINTOP® BRUSH cable gland, the connector is absolutely EMC compliant and guarantees fault-free transmission of currents.

To guarantee complete EMC shielding, the connection between the cable screen and the earth potential must be low resistance. This is achieved by making the contact surfaces as large as possible. Ideally, the cable screen, the connector and the housing wall create a closed connection with no openings. It must be a low inductance connection. This means that the cable screen must be routed to the housing wall by the shortest route and with the widest possible cross section. Ideally, the selected contact should completely enclose the internal conductor.

These requirements are the key elements in the design of the EPIC® ULTRA. The nickel plated surface not only gives the connector a shiny appearance. The conductive nickel layer on the surface of the connector provides a connection with optimum conductivity. Seals normally act as electrical insulators. Therefore, on this rectangular connector the seals are located inside the connector housing. Between the connector housing sections and at the base of the housing, the metallic conductive housing sections have a large contact area. There are sealing materials that are electrically conductive, by adding soot for example, but conductivity is far lower than with a metallic conductive connection. The seals on



the EPIC® ULTRA are not only pressed together by the metallic stop, but also mechanically protected.

Thanks to integration of the SKINTOP® BRUSH cable gland into the housing design, the connector sets new standards in terms of easy and reliable connection of the cable shielding to the housing. While the shielding was previously secured with a spring solution, this function is now performed by thousands of bristles arranged in a ring. The advantage: The large, variable clamping range makes assembly, dismantling and allocation quicker and easier. The cable is centred, attached, strain relieved and hermetically sealed in a single operation. This guarantees maximum freedom of assembly when it comes to

In conjunction with the SKINTOP® BRUSH cable gland, the EPIC® ULTRA is absolutely EMC-compliant

Trade fairs 2011

BRAZIL WINDPOWER,

Rio de Janeiro, Brazil, 31.8. – 2.9.2011

PV SEC,

Hamburg, Germany, 5. – 8.9.2011

ELECTRIC INDONESIA,

Jakarta, Indonesia, 21. – 24.9.2011

SPS/IPC/DRIVES,

Nuremberg, Germany, 22. – 24.11.2011

adjustment and rotation. The currents induced on the cable screen are efficiently discharged by the low resistance 360° circular shielding. This is especially important for the transmission of sensitive signals.

As well as the transition between the cable screen and the housing, integration of the shielding into the overall system is of crucial importance. Investigations have shown that full utilisation of the screening efficiency of a cable is only guaranteed if the cable screen has a low impedance connection to the reference ground (PE/earth) at both ends over the entire frequency range. This is normally the case for a galvanic, large area, low resistance all-round contact.

The effectiveness of the shielding against fields generated by currents is determined by the surface transfer impedance. It is frequency related and can also be expressed as the screening attenuation (dB). According to current knowledge, the surface transfer impedance is approximately constant in the range from 0Hz to 0.1MHz and corresponds to the value of the DC resistance of the screening components.

Joachim Strobel, Product Manager at Lapp Kabel warns: "Using unsuitable components, incorrect contact design or heavy PE potentials can lead to significant losses of screening performance over the entire transmission path. Heavy PE potentials can also contribute to the spread of low and high frequency faults and, under certain circumstances, cause unforeseen electromagnetic incompatibility."

As a result: The individual system components must be coordinated in the development phase. The EPIC® ULTRA rectangular connector housing gives users the security they need. ■

*The innovative
EPIC® ULTRA
rectangular
connector housing*



Lapp takes the plunge

The Polish company **GRALmarine** specialises in producing diving lamps. When manufacturing underwater lamps for extreme depths (more than 100 metres), it is vital for the connection between the lamp's metal housing and the power supply cable to be absolutely impermeable. This is achieved using special apertures with a rubber sealing material and polyurethane filler.

This method enables the diving lamps to function with no problems, even at a depth of 1,000 metres. For the connection to the batteries inside the hermetically sealed housing, SKINTOP® BS cable glands are used to provide better protection for the cable. ÖLFLEX® 440P or ÖLFLEX® 550P are installed throughout the circuit. Both of these are ideal for harsh conditions, flexible at low temperatures, wear-resistant and protected against water and dirt.

For the most spectacular diving applications, Lapp's branded products are the preferred choice for GRALmarine. For example, last summer Dariusz

*Divers in the pit
cave in Mexico*



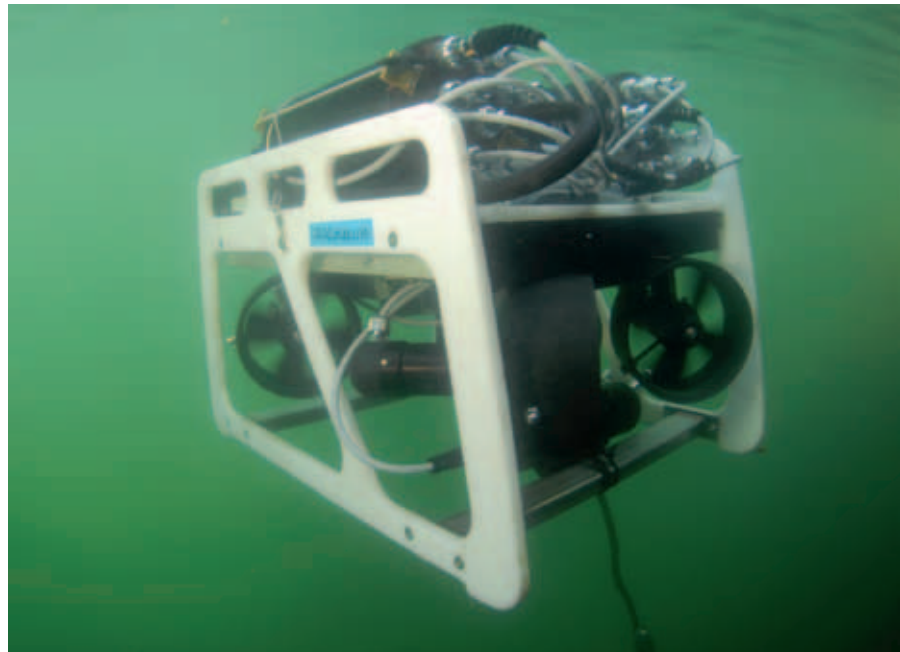
Photo: Irena Stangierska

Wilamiowski set a new Polish diving record with a depth of 264 metres in Lake Garda (Italy). He reached this depth in the 18th minute of his record attempt. The entire operation, including decompression, lasted more than 12 hours. He used more than 100,000 litres of breathing mixture. To help him keep his bearings, he was equipped with two lamps specially designed for this kind of exercise. Both lamps were connected to the battery with an ÖLFLEX® 400P cable.

The film industry also depends on GRALmarine and Lapp: A well-known scene from Jan Jakob Kolski's 2010 film "Venice" features a flooded cellar. A faithful reproduction of the original location in Venice was constructed and was illuminated by three HMI lamps (1,200 W) installed underwater. The connections were all with ÖLFLEX® CLASSIC 110 cables.

Lapp was also involved in a diving expedition in the flooded Tuna Hastberg ore mine in Sweden. HMI 1,200W lamps were used to illuminate the large underwater spaces, some of them 100 by 40 metres in size. The power supply was provided with a 150 metre long heavy-duty H07RN-F rubber hose cable, which was unwound from a roll as required.

Meanwhile, the search for a link between two underwater cave systems, each extending over several kilometres in Mexico, also involved Lapp cables and GRALmarine lighting. First of all, a photographic record of the caves was produced. This required extremely powerful illumination. The divers used a battery-operated 200 W HMI discharge lamp and LED lamps, which were connected to the battery by an



An underwater vehicle with ÖLFLEX® CLASSIC 400P

ÖLFLEX® 550P cable with orange polyurethane insulation. The lamps had to operate at a depth of 100 metres.

Henryk Pałys from Lapp Kabel in Poland told us: "None of these Lapp products was originally intended for such extreme requirements. However, both the rubber and polyurethane insulated cables proved to be ideally suited in terms of their mobility and mechanical strength. The diving lamps and cables were tested in pressure chambers and by several independent diving teams under different conditions. This all shows that Lapp branded products can stand up to the toughest treatment. ■

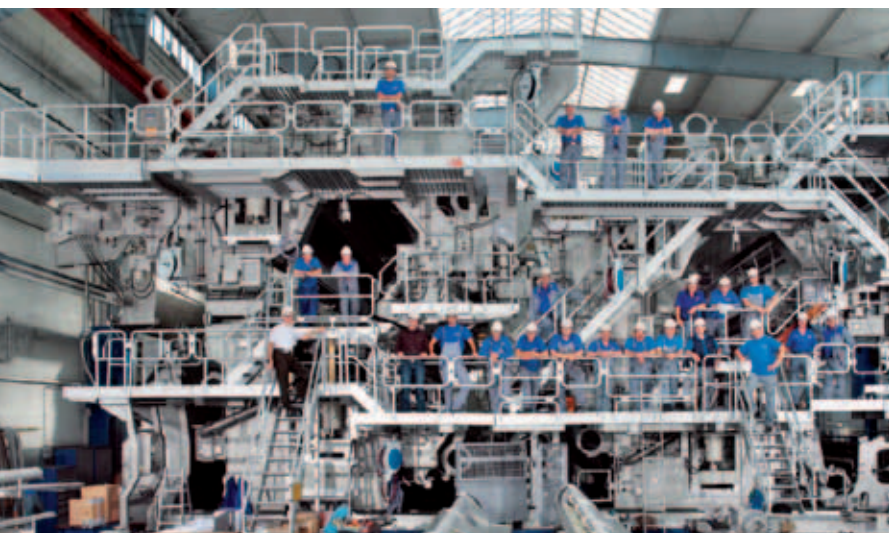
www.gralmarine.com

Global market leader Voith prefers Lapp cables

The Stuttgart-based Lapp Group and the global market leader Voith from Heidenheim have worked in partnership for several decades. Lapp is a key supplier for the paper division. This means that many of Voith's paper machines feature Lapp branded products. Examples include the world's largest fine paper machine, which has been installed on the Chinese island of Hainan for the paper manufacturer Asia Pulp & Paper (APP).

The paper machine installation on site is primarily uses ÖLFLEX® CLASSIC connecting and control cables, which were the preferred choice due to their lower diameter and excellent flexibility. Uses of the ÖLFLEX® cables include connecting one junction box to another. As some of these connections need to be routed directly through the machine, existing traverses have to be used, which only have a rela-

Huge fine paper machine from Voith



tively small diameter due to the design. Thanks to ÖLFLEX®, the pipes on the machine can be kept relatively small.

The exceptionally versatile ÖLFLEX® connecting and control cables were also the preferred choice for the sensors and actuators and for the control sections. This is because the extremely restricted spaces require optimised cable diameters at the cable entries. Peter Schmidt, Key Account Manager at Lapp, explains: "We maintain regular contact with the electronics specialists at Voith and advise them on their choice of products and all logistical issues."

Voith sets standards in the energy, oil & gas, paper, raw materials and transport & automotive markets. Founded in 1867, with almost 40,000 employees, sales of 5,2 billion Euros and locations in around 50 countries, Voith is one of Europe's largest family-owned companies.

A large proportion of total paper production is now produced on Voith paper machines. A quarter of all energy obtained worldwide from water power is generated using turbines and generators from Voith Hydro. Meanwhile, drive components from Voith Turbo are used around the globe, both in industrial plants and on railways, roads and in the water. Voith Industrial Services is one of the leading suppliers of technical services. ■

www.voith.com

Special cables for safety valves in oil pipelines

After the devastating oil disaster in the Gulf of Mexico, safety and environmental protection have become critical issues for the oil and gas industry. **Lapp Muller SAS** from Grimaud in Southern France, part of the Stuttgart-based Lapp Group, is particularly pleased about this. Because of their many years' experience and excellent reputation, Lapp Müller recently won a contract from the Italian company Breda Energia for an international project in conjunction with **GISMA** and **SEACON** from the USA.

The contract involves the development and production of an underwater cable (umbilical), made up of high-pressure hoses and control cables for safely opening and closing underwater valves in oil pipelines at a depth of up to 50 metres off the Mediterranean coast of Egypt.

The cable has been produced in a single length of 900 metres. It has a tensile strength of nine tons and weighs a total of almost six tons. The construction of the cable is mightily impressive. It has a diameter of 71 mm and is filled with two high-pressure hoses for up to 210 bar, as well as special four-wire screened control cables, which are stabilised by a central steel cable in the centre of the underwater cable. All components are surrounded by a three-part sheathing layer, made up of a polyurethane sheath, extremely strong aramide fibres and an outer polyurethane shielding.

The control cables open and close the 56 inch valves using the high-pressure hoses. The cables are

also connected to the controllers and drives, which control the position of the valves.

The internal logistics alone brought major challenges for the employees, as the project had to be completed in less than three months. To complete the job, additional machines had to be rented, along with a crane for loading the three metre high cable drum. Before the underwater cable was approved and delivered to the customer, it was tested for safe functioning and reliability for a week by specialists from SEACON. ■

www.gisma-connectors.de

www.seaconworldwide.com

www.lappmuller.fr

The SEACON safety valves have to withstand extreme loads



ÖLFLEX® - Welcome back home!

It was surely the longest birthday party ever. The 50th birthday of the hugely successful ÖLFLEX® brand was celebrated for an entire year. Following the breathtaking launch event in Stuttgart, featuring star guest Anastacia, the ÖLFLEX® cable drum, accompanied by the famous "Lapp Artists", set off on the ÖLFLEX® World Tour. The journey took it to France, Spain, South Africa, India, China, Chile, the USA, Sweden and the Netherlands. And wherever it went, it was given a warm welcome by employees and customers.

A few days ago, it returned to Stuttgart. "ÖLFLEX® - Welcome back home!" Of course, a lavish reception had been prepared for the ÖLFLEX® in Stuttgart, lasting the whole day. More than 500 guests first of all attended an in-house exhibition about cable production and the latest product innovations.

A talk by legendary climber Reinhold Messner about risk management also attracted huge interest.

Finally, the homecoming of ÖLFLEX® was celebrated in fitting style in a specially constructed Lapp wine village. With Swabian specialities and wines from the region, around 1,500 guests enjoyed a genial and atmospheric evening. And when star guest Dieter Thomas Kuhn took to the stage, the whole tent joined hands and sang along... ■

More reports, videos and pictures are available at www.oelflex50.com.





1 | France, Forbach



2 | Spain, Madrid and Barcelona





3 | South Africa, Johannesburg



4 | India, Bangalore and Delhi



5 | China, Shanghai



6 | Japan, Tokyo



7 | Chile, Santiago



8 | USA, New York and New Jersey



9 | Sweden, Gothenburg



10 | Benelux, Eindhoven





11 | Germany, Stuttgart



Global News



Siegbert Lapp at the foundation stone ceremony in Bhopal

Close to the heart of the Oskar-Lapp Foundation

The Stuttgart-based Oskar-Lapp Foundation has attracted attention with two major events. At the end of March, as part of the 77th annual conference of the Deutsche Gesellschaft für Kardiologie – Herz und Kreislaufforschung e.V. (DGK) [German Association for Cardiology and Cardiovascular Research] in Mannheim, the prestigious Oskar Lapp Research Prize was presented. It was shared by the two scientists Dr. Karl Toischer from the Göttingen

Ceremonial prize presentation: Left to right Prof. Dr. Gerd Hasenfuß, Dr. Karl Toischer, Ursula Ida Lapp from the Foundation, Dr. Dennis Rottländer and Prof. Dr. Michael Böhm



New production plant in India

Major investments are also being made in Asia. At the end of March, the ceremonial laying of the foundation stone for a second Lapp production plant in India took place. The site covers 30 hectares. Three production buildings are planned. Siegbert Lapp comments: "India is a huge growth market, which we want to benefit from with our connection solutions." The total investment will be around 16 million Euro over a two-year period.

Heart Centre and Dr. Dennis Rottländer from the Heart Centre at the University Hospital in Cologne. Both prize winners have made important contributions to cardiovascular research through their scientific work. In mid-May, the "Risk of Heart Attack for Our Society – Staying Competitive Despite an Aging Society" symposium also attracted huge interest, with the Lapp family who run the foundation securing former Hamburg Mayor and German Minister of Research and Education, Dr. Klaus von Dohnanyi, as the main speaker. The Oskar Lapp Foundation was founded in 1992 in honour of the Stuttgart-based businessman Oskar Lapp, who died on 25 April 1987 as a result of a heart attack. The Oskar Lapp Research Prize is intended to motivate young scientists to dedicate themselves to cardiovascular research. The Oskar Lapp bursary is also awarded every year. If you wish to make a donation to the Oskar Lapp Foundation, the foundation's bank details are as follows: Account No. 2076087 - Baden-Württembergische Bank - Sort code 600 501 01

www.oskar-lapp-stiftung.de

**Joining in is worthwhile:
Prizes for our readers**

"This makes picnics so much more fun," reported a delighted Susana Nunez Ortiz, from the automotive supplier Mahle. She won a stylish picnic basket in the online survey about the new kabelwelt layout, which was presented to her in person by Dr. Markus Müller, the Chief Editor of kabelwelt and Lapp sales representative, Dirk Prandl.

The second and third prizes were also perfect for the summer: Fred Neumann was delighted to win a Jamie Oliver kettle barbecue, while Bernhard Westphal from the electrical wholesaler Alexander Bürkle won a practical picnic blanket.

Many thanks to everybody who took part in the survey and provided numerous great suggestions. Of course, we will be pleased to receive more of your suggestions for articles. Simply write to cableworld@lappgroup.com.

**Logistics and service centre
almost complete**

Construction work on the new logistics and service centre in Ludwigsburg is now almost complete. "We are right on schedule," confirms Matthias Fillibeck, Managing Director of Lapp Immobilien. Construction should be completed by August. The progress of the work can be followed on our Webcam at <http://baustelle.strabag.com>.



Dr. Markus Müller and Dirk Prandl present Susana Nunez Ortiz and her colleague Oliver Hausser with the picnic basket

Opening in Diessenhofen

The official opening ceremony for the extension to Lapp Kabel's injection moulding plant at Diessenhofen (Switzerland) was held a few days ago. This doubles the production area at the plant. As well as plastic SKINTOP® versions, the plant also produces the innovative EPIC® SOLAR 4 THIN solar connector. The Lapp Group is investing a total of around seven million euros in the new building, tools and assembly capacity.



Production capacity set to double at the Diessenhofen site (Switzerland)

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