

The HELUKABEL Group's customer magazine

# POWER

Issue

**#6**

2017/01

PAGE 8

**Over the oceans**

PAGE 10

**Control cabinets  
for a steel mill**

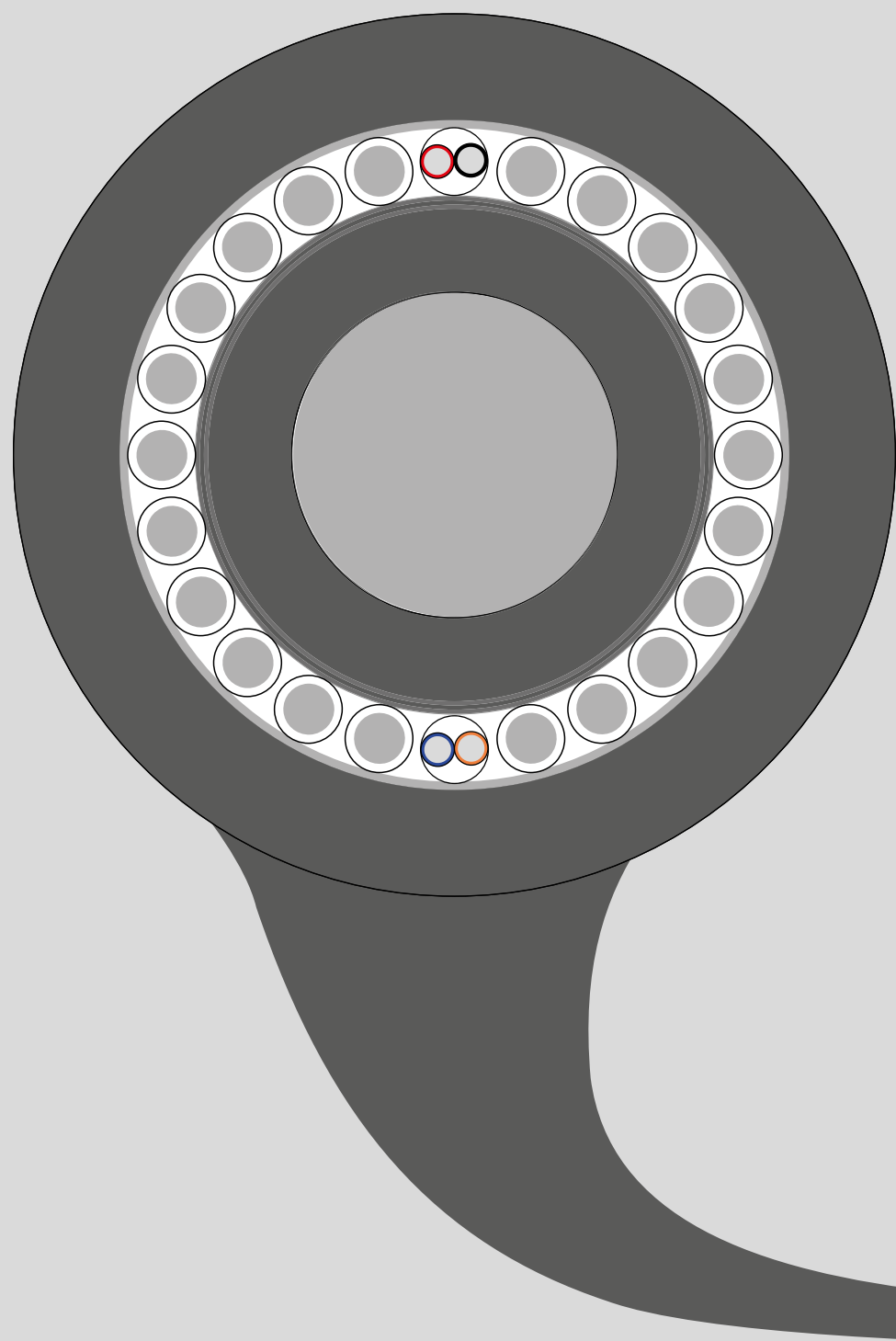
PAGE 16

**More than two is  
series production**

## Below ground

**Schulte-Perk installs medium-voltage  
cables for wind turbines** PAGE 12

# WHERE DOES CABLING GO?



© Title: HELUKABEL / Christa Henke, Editorial: HELUKABEL / KD Busch

DEAR READER,

**T**he year is well underway and we continue to conquer the challenges that attempt to block us from our goals. We took an important step earlier this year when we successfully introduced SAP into our everyday work processes. We have now implemented a system for the future that will provide continued growth and process flexibility. The extraordinary commitment shown by our employees is evidence of their excellent team spirit. My personal thanks goes out to all those who worked on the project as well as those who filled in the gaps to keep day-to-day business going. It was a long journey, but we can be proud of the smooth transition. However, we hope our business partners and customers understand that the occasional hiccup might still occur. It is our intention to work hard in order to minimise these instances because the satisfaction of our customers and business partners is our top priority.

In this latest edition of POWER we once again present many examples of successful cooperation. For example, our cables are sailing "Over the oceans" (P. 8) in mega cruise liners where they guarantee perfect sound and lighting. We look below ground at a wind farm and accompany structural engineering experts Schulte-Perk during the kilometre long installation of HELUKABEL underground cable – a real piece of "Dirty Work" (P. 12). And did you know that we might even have a hand in building your kitchen furniture or coffee table (P. 18)? So sit back, relax and enjoy reading this new edition of POWER.



Yours sincerely,

Helmut Luksch  
Managing Director, HELUKABEL GmbH



# POWER

ISSUE #6 2017/01



## 10 CONTROL CABINET BUILDER



## 16 CUSTOM-BUILT MACHINES



## 18 SINGLE CABLE TECHNOLOGY



## 21 PHOTOVOLTAICS



## 26 NEW SUBSIDIARY IN MEXICO

<b>UPDATE</b>	<b>6</b>
Project and product news.	
<b>OVER THE OCEANS</b>	<b>8</b>
The luxury liner Ovation of the Seas is outfitted with the best entertainment, thanks to cables and wires from HELUKABEL.	
<b>PROJECTS ONLY A FEW DARE TO ATTEMPT</b>	<b>10</b>
EPM develops a special switch cabinet container for a steel mill in Kehl.	
<b>DIRTY WORK FOR CLEAN ENERGY</b>	<b>12</b>
Planning, trenching, drilling: Schulte-Perk's construction engineers connect the wind farm in Damme.	
<b>MORE THAN TWO IS SERIES PRODUCTION</b>	<b>16</b>
Martin Oster, founder of Mecos Welding Installations relies on the fast delivery and high quality of HELUKABEL.	
<b>TURNING TWO INTO ONE</b>	<b>18</b>
IMA Klessmann GmbH trusts in HELUKABEL's TOPSERV Hybrid single cable solution for its drilling machines for woodworking.	
<b>CARBON NEUTRALITY IN COLUMBIA</b>	<b>21</b>
EnerSolax has installed a state-of-the-art photovoltaic plant at Audifarma, a Colombian pharmaceutical service company.	
<b>PACKED WITH CARE</b>	<b>22</b>
HELUKABEL products leave the logistic centre quickly, reliably and intact.	
<b>IN MEXICO WITH GERARDO MONTENEGRO AZNAR</b>	<b>26</b>
A new subsidiary is being established in the Mexican city of Querétaro.	
<b>Service/Legal details</b>	<b>24</b>
<b>In private: Foreign adventure</b>	<b>28</b>
<b>Location: Welcome to Sweden!</b>	<b>30</b>
<b>Where will this lead?</b>	<b>31</b>
<b>What's behind this?</b>	<b>32</b>



## 12

Cover story

## DIRTY WORK FOR CLEAN ENERGY

Dieter Thomas, project manager at Schulte-Perk, is an expert in civil engineering projects. Thomas and his team are responsible for installing the kilometres of underground cables that enable electricity generated in wind turbines to be transported into the local power grid.

© HELUKABEL / Mirko Hertel, Christa Henke, Andreas Böttcher, Detlev Haake, Laura Barragan, EnerSolax, HZWEIA, IMA Klessmann





## ELABORATE LIGHTING FOR SPECIAL OCCASIONS

**TALENT SHOWS, CONCERTS OR EXHIBITION BOOTHS** always try to impress their visitors with spectacular lighting effects. However, the more drama and colour there is on stage, the more complex the engineering is in the background. Full area and focused lighting effects require precision control of thousands of LEDs. Schnick-Schnack-Systems is a supplier of LED systems and an expert when it comes to power supplies, software and control devices for LEDs. Their made-in-Cologne solutions light up TV studios, shop interiors and an array of architectural structures such as ferris wheels, cruise ships and skyscrapers around the world. For perfect background data transmission, the company uses products from HELUKABEL's Media Technology division. ■

## Sunny Delivery

**85,000 SOLAR MODULES** across 41 hectares (101 acres), an area more or less the size of 41 football fields, delivering up to 22 megawatts – are the key figures of the photovoltaic farm built by Austrian LSG Building Solutions GmbH in Braghin, South Belarus last year. HELUKABEL Austria supplied more than 700 kilometres (435 miles) of cable for the farm. These included solar cable to join the panels, medium-voltage cable to feed the electricity into the grid and fibre optical cable to transmit performance data to the operator's control room. „Strict import regulations apply in Belarus which is why we looked for a supplier able to comply with them,” explained Maximilian Bock, authorised signatory at LSG. To clear Belarusian customs, products such as cables need Eurasian Economic Union (EAC) certification. “Since HELUKABEL already had this approval and the quality of their cables met our requirements, we promptly struck a deal,” says Bock. ■



More than 700 kilometres (435 miles) of cable are installed at the photovoltaic farm in Braghin, Belarus.

© HELUKABEL, Schnick-Schnack-Systems, Kabelmat, Klaus Gigg, LSG Group



**IN THE SUMMER OF 2016**, the Semper Opera House in Dresden inaugurated a new 160-seat theatre as its second performance venue. Space was created in the original adjoining restaurant next door, which was remodelled and renovated by Saxon Real Estate and Construction Management. To make sure the audience always sees the protagonists in the best light, experts from Elektro Dresden-West installed high quality stage lighting, which use JZ-500 cables from HELUKABEL to control spotlight dimming. ■

## Strong Helpers

**WITH THE NEW LAGBOI** generation users can look forward to more cable processing possibilities and greater stability. Kabelmat, a HELUKABEL company, has furthered the development of its cable drum storage and manual unwinding system. The result is simplified assembly thanks to custom lasered and welded metal profiles. “The profiles are also powder-coated,” points out Manfred Woessner, Kabelmat's sales manager. “This allows for better surface protection, less susceptibility to corrosion, and more resistance to abrasion and scratches.” Additional holders also provide new ways to attach drums, allowing for greater flexibility. The new LAGBOI generation comes in two sizes: the smaller line size holds up to eight cable drums and the larger holds up to twelve drums. Stationary and mobile versions are available in both sizes. A pressurized spring in the shaft of the mobile system compensates for the weight and facilitates transportation. ■



Up to twelve cable drums can be placed on the stationary LAGBOI 3000.

## PRODUCT TICKER

### CONNECTION AND FASTENING TECHNOLOGY FOR WIND TURBINES

Customers will find an extended range of cabling products for wind turbine applications in HELUKABEL's newly published 340-page catalogue. **More details at** [wind@helukabel.de](mailto:wind@helukabel.de)

### CABLE FINDING MADE EASY

The new edition of the cable finder provides customers with an extensive overview of cables and wires for the automation industry. The 20-page brochure is available in English and five other languages.

**Request a copy at** [www.helukabel.com/publication-order](http://www.helukabel.com/publication-order)



To ensure the safety of their passengers, all buses with a seating capacity of eight or more must comply with the European-wide UN/ECE-R 118 regulation. This requires cables to be particularly flame-retardant. HELUKABEL has successfully submitted a series of products to DEKRA for certification, including single conductors, control and data cables, communication, CAN-BUS and vehicle cables. **More details at** [www.helukabel.com/fireprotection](http://www.helukabel.com/fireprotection)



The luxury liner Ovation of the Seas with 18 decks accommodates 4,180 cruise passengers and 1,550 crew members.

# OVER THE OCEANS

*On board of the luxury liner Ovation of the Seas the best entertainment is guaranteed, even during long days at sea, thanks to cables and wires from HELUKABEL.*

**OVATION OF THE SEAS** is one of the most advanced cruise ships in the world. With a length of 348 metres (1,142 feet) and a total of 18 decks, the luxury liner accommodates 4,180 passengers. During the construction of the ship, the experts at the Meyer Werft shipyard thought about every aspect

of entertainment. Thanks to surf simulators, bumper cars, numerous pools, and a spa and fitness centre, there's no chance of getting bored, even on long cruises. For added entertainment, there are theatre and stage shows that have been created using cable and wiring technology from HELUKABEL.

The Hemmingen experts are also responsible for the loudspeaker cabling in the cabins. As early as last year, Ovation of the Seas, which was commissioned by Royal Caribbean International, began sailing with passengers on board to ports in Asia, Australia and New Zealand. ■



# PROJECTS ONLY A FEW DARE TO ATTEMPT

*Special orders are part of Elektro-Projekt Mittweida GmbH's daily business. Nevertheless, a custom job like this switch cabinet container for a steel mill is something Hubert Timmel doesn't encounter every day.*

Measuring 3 metres wide, 3.6 metres high and 8 metres long (10 feet wide, 12 feet high and 26 feet long), the grey container was constructed in Elektro-Projekt Mittweida GmbH (EPM)'s production area in Frankenberg, Saxony, and soon will find its final home in Kehl, on the Rhine River in Germany. Managing Director Hubert Timmel walks into the ordinary container through one of its recessed doors. Mike Grambow, area sales manager at HELUKABEL, follows him. He's quite excited to see how the cables have been fitted. "As a supplier, I don't get this chance very often. Today though I'm going to attend a live test run." Seven solid metal cabinets – all stuffed full with control gear – fill

the left half of the container. "The container is for Badischen Stahlwerke GmbH (Baden Steelworks, BSW) in Kehl. Its contents include a medium-voltage converter and the control system for an exhaust fan," says Timmel, opening one of the switch cabinet doors. Behind the door is a well-sorted array of cables, connectors and PCBs. "Alongside the usual cables such as

**"We wrestled with every cubic millimetre to fit the converter into the container."**

HUBERT TIMMEL,  
CEO AT EPM GMBH

the medium-voltage cables, there are servo cables for the fan motor. This control cable runs outside of the container and hence, is UV resistant. It connects the container control gear to the steel mill. And finally, there are all the single cores, which join the components in the switch cabinet together," explains Grambow.

Directly next to the open switch cabinet is the heart of the machinery: a medium-voltage frequency converter. "This is a custom feature we developed in collaboration with Siemens. We wrestled with every cubic millimetre to fit the converter into the container," Timmel explains. The converter regulates the fan speed that blows the exhaust gases from the smelting ovens through a gigantic 3-metres (10-

foot) diameter pipe. "Until now the fan had only two states: on and off. BSW wanted to change this and commissioned a refit." EPM's technology will analyse the measured data from the mill and adjust the fan speed accordingly. "The measurement and data transmission cables pass the information from the mill to the computer inside the container," says Grambow, pointing out the relevant cable strands. "BSW can save so much energy this way," Timmel emphasises.

## A special order

Actually, custom jobs such as this one aren't really anything out of the ordinary for EPM. Exceptional solutions are a part of the company's business model. "We do things that only few dare to attempt." By 'things', he means switchgear and control gear cabinets for customers in the automotive and industrial sectors as well as manufacturers of machinery for custom applications. "We consider ourselves to be a one-stop supplier. Our scope of service ranges from hardware and software planning to shipment and commissioning." EPM has been very successful with this concept. When Timmel founded the company in the early 90s, he had 16 employees – now he has 130.

Nonetheless, the Baden Steelworks order is no ordinary one, not even for Hubert Timmel. "For this project, it was essential that everything run smoothly, both technically and time-wise." A steel mill might seem to be resilient and strong, but it is actually very susceptible to faults. You can't just turn it off. Once the ovens have cooled down it takes days for them to reach their operating temperature again. A solution had to be found which didn't interrupt operations. Complicated on-site refits were out of the question, which meant the only alternative was a ready-to-use container solution. "BSW allocated two days for the commissioning." To keep to the deadline, Hubert Timmel needed reliable suppliers. EPM was the general contractor for BSW. Up to six different companies had to be precisely integrated into the tight time schedule. "We've been working together with HELUKABEL for many years, so we knew we could rely on punctual delivery."

As Timmel and Grambow leave the container, Timmel recalls the successful dress rehearsal. During extensive testing over the past few weeks, every function was simulated multiple times. At the end, the technology was inspected and accepted by BSW representatives. Now it has to prove itself in practice. Walking away from Grambow, Tim-

mel explains that the container starts its journey tomorrow; a 550 kilometre (342 mile), 10-hour journey on a low-bed trailer.

## Assembly at dawn

One day later, at five o'clock in the morning, Timmel is standing on the grounds of the steel mill with a team of four employees who travelled with him. Most people are still asleep at this time, but Timmel and his team are wide awake. They watch with excitement as the 12-tonne container is carefully lowered by a crane, under Timmel's direction, onto a customised platform built some 15 metres (50 feet) above ground. When compared to the imposing steel mill, the container looks like a tiny building block. "So that's the first stage completed," says Timmel, who immediately goes down to work with his team. At the end of the second day of assembly, there is a collective sigh of relief. They did it! The technology is running smoothly. But if a component should fail, a replacement is on hand. "The top of the container can be easily removed without disconnecting any power or control cables. Even larger parts can be replaced without interrupting operation for any significant length of time." ■

© HELUKABEL / Mirko Hertel, Elektro-Projekt Mittweida GmbH



Huge but sensitive: the Baden steel mill in Kehl



Hubert Timmel (I.), CEO of EPM, and Mike Grambow, area sales manager at HELUKABEL, test one again the cable connections in the switching cabinet container.



Special orders like this switching cabinet container are well within the capabilities of EPM.



# DIRTY WORK FOR CLEAN ENERGY

*Below ground at a wind farm is just as exciting as what is above. Installing kilometres of medium-voltage cable is a complex business for structural engineering experts such as Schulte-Perk. We paid a visit to the building site.*

Three single-core medium-voltage cables allow the power to be transported from six wind turbines. Thanks to its resilient outer sheath, the cable can easily withstand the tough mechanical stresses encountered during installation and operation.

© HELUKABEL / Christa Henke

The job of adding six additional wind turbines to the wind farm in Damme (Lower Saxony) is in full swing. A tractor towing a 15-metre-(50-foot)-long cable-laying machine turns off the road on to a dirt path across from Borringhauser Moor Windpark. The 30-tonne colossus comes to a halt alongside a ditch. Dieter Thomas, project manager at Schulte-Perk's pipeline construction division, is waiting there. Directly behind the giant machine, HELUKABEL's area sales manager Lars Behrje is getting out of his car. "It's great to be here today. I don't have the chance to see cable being laid first hand very often."

Three drums of NA2XS(F)2Y single-core, medium-voltage cable are sitting on the cable-laying machine. This cable is particularly robust thanks to its resilient polyethylene outer sheath that can easily withstand the tough mechanical stresses encountered during installation and operation. Additionally, it's longitudinally watertight, which means water in the cable cannot spread out alongside the conductor and no moisture can make its way through the sheath to the inner conductor.

## Minimalised transmission losses

Schulte-Perk workers unwind the single-core, medium-voltage cable from each drum and bundle the three cables together to form a cable system. They lay the bundled cable, metre by metre, next to stretches of the ditch that are easily accessible to heavy machinery. An excavator follows behind the workers and lifts the



three-strand bundle carefully into the 120-centimetre (4-foot) deep and 60-centimetre (2-foot) wide ditch. In places where the excavator can't access, Schulte-Perk's men have to use pure muscle to lift the cable into the ditch. "We are working on two sections of the route here at Borringhauser Moor. Each section contains the cable system for three of the six wind turbines. The NA2XS(F)2Y medium-voltage cable we are using has a cross section of 150 square millimetres (300 kcmil). The cable system needs to be split in half to minimise power losses during the four kilometre (2.5 mile) journey. The longer the section, the greater the losses," explains Thomas. The strands of the two cable systems meet at the coupling station. From here on, the electricity is fed through a single cable bundle to the transfer station, which is in the direct vicinity of the transformer station. "For this section we had to use three single-cores with cross sections of 630 square millimetres (1250 kcmil). This solution allows the power to be transported from all six wind turbines and we are able to keep conduction losses to a minimum," says Thomas. The transfer station belongs to the transformer station that is operated by a regional utility company, which feeds the power into the AC grid.

### Deep below ground

The Schulte-Perk team has already laid a couple hundred metres. Plastic conduits and a copper wire lay beside the black, medium-voltage cable in the ditch. "The copper wire grounds the system and prevents potential differences that develop between the coupling station and the wind power plants," explains Thomas. The conduits protect fibre optic cable that will be pulled through later. This cable will transmit control commands to and data from the wind turbines for remote maintenance and evaluation by the wind farm's operator.

Whenever the installation route crosses a road, stream, water pipe or some other piece of existing infrastructure, things start getting complicated for the Schulte-Perk construction engineers. "We have to dig deep below the ground at that point," says Thomas. To cross a road, for example, Thomas and his colleagues have to resort to wash boring. First of all, a drill head cuts its way through the ground. A back reamer, or hole opener, then widens the tunnel to the required diameter. Things start to get tricky when the tunnel goes around a bend, which might be anything between ten and fifty metres (33 and 165 feet) long. Varying soil consistency along the installation path is also an issue, which is why the tunnel needs to be stabilised by mixing bentonite into the drilling water. This is just one of Schulte-Perk's many engineering skills that are in high demand for jobs like this.



Six additional wind turbines will be installed at the wind farm in Damme to replace 15 existing turbines.



Magnus Perk, CEO at Schulte-Perk GmbH, Berthold Klatte, CEO WPD Windpark Damme GmbH & Co. KG, Dieter Thomas, project manager at Schulte-Perk, and Lars Behrje, area sales manager at HELUKABEL



Schulte-Perk workers bundle the three single-core, medium-voltage cables and lay them into the ground.



Lars Behrje and Dieter Thomas take a look at the 65-metre (213-foot) long rotor blades.



Robust and powerful: The single-core, medium-voltage NA2XS(F)2Y cables.

### Quality test passed

Dieter Thomas and Lars Behrje walk along the dirt path and check the other construction work going on at the wind farm. In one field, red and white rotor blades are lying on the ground as they wait to be put into operation. The wind turbine towers have been erected and the underground work is almost finished. Soon after, the turbine's nacelle will be mounted. Later, a high-voltage test of the medium-voltage cables will be carried out. This involves loading every cable section with a test voltage of 54,000 volts for one hour even though the cables only have to transmit a maximum of 30,000 volts during normal operation. The medium-voltage cable with the larger cross section already passed this test back in November. "Before we fill in the ditch, we have to be absolutely sure everything's working properly," says Thomas. "We guarantee that the cables we installed have been tested according to the technical regulations before operations start. This is something the wind parks operator can rely on".

### UNTIL THE ROTOR BLADES ARE TURNING

As expected, the cables passed the test and have been transporting the power generated by the six new wind turbines, as planned, since December 2016. Berthold Klatte, CEO of WPD Windpark Damme GmbH & Co. KG, is delighted that the turbines are finally running. They are able to generate 55 million kilowatt hours a year, making them as efficient as the 15 existing turbines. "It was rather hectic on the construction site last December, but the commissioning, which was carried out by Siemens, went just as smooth as Schulte-Perk's underground work," explains Klatte. "It's really amazing how fast things went once work was finally allowed to begin. We started the planning and approval procedure back in 2008, but the project's existence was put in jeopardy when a sea eagle nested near the farm," he recalls. "The compromise was to drop four of the original 10 wind turbines. This allowed us to maintain sufficient distance to the nature reserve." The sea eagle is now undisturbed, and clean electricity is being generated by the wind farm for homes in the area.



In the past 20 years, Martin Oster's company MECOS has built special machines for customers all over the world.

## MORE THAN TWO IS SERIES PRODUCTION

*With complex, custom-built machinery, MECOS Welding Installations has established its own foothold in the market. Because speed and quality are essential for survival, the company trusts in HELUKABEL.*

Large welders for tanker manufacturers is one of the many specialties of MECOS.

Someone who battled through a mechanical engineering degree at the renowned RWTH Aachen University and then spent five years earning a doctoral degree in the same field, is someone who wants to make things happen. That someone is Martin Oster who, with a doctoral degree in his pocket, finally embarked on his professional career in 1995. The working world was initially a shock to him though. "I was over-qualified for most entry-level jobs or, put another way, too expensive," recalls Oster. This reality is why he decided to take fate into his own hands, venturing into self-employment and establishing an engineering firm specialising in welding applications – the start of a company with a successful history.

### Complex one-offs

Now, after more than 20 years, Oster is standing in the production area of MECOS Welding Installations. The building is big, roomy and bathed in light, and still smells new – the 52-year-old and his eight employees moved into the new facility near Siegen, Germany only a couple of months ago. "It's great to have more space to build bigger machinery all at once," says Oster, pointing to welding machine for tank trailers they're in the process of building for a Chinese customer. Like all the machinery built in the MECOS factory and shipped throughout Germany, Europe and the rest of the world, this welding machine is a tailor-made project. "As soon as we produce more than two of the same machine, it becomes a series production for us," says Oster smiling.

Since this seldom happens, MECOS designs, constructs, manu-

factures and assembles a significant number of one-offs: from large welders for tanker manufacturers and well-known ports to special applications for companies with a staff of just 30. All projects have one thing in common: tight deadlines. "We often have to build complete welding systems to customer specifications from scratch, in just 16 weeks," explains Oster. Supply delays are unacceptable to him, which is why the welding engineering specialist values HELUKABEL's fast delivery times and high product availability. His welding machines contain a broad diversity of sensors, power and control cables from the German cable manufacturer.

### Top quality

"It goes without saying, that we always offer a warranty on our machinery and equipment. We are only able to do this because we can rely on our components being of the highest quality," explains Oster. "Many of the HELUKABEL cables we use are suitable for drag chains and

*"We often have to build complete welding systems to customer specifications from scratch, in just 16 weeks."*

MARTIN OSTER, CEO AT MECOS

live up to expectations in hard daily use. This can't be taken for granted." HELUKABEL's continuous support is another factor that is important to Oster. Time and again he needs cables fitted with supply and control

functions to connect the welding machine's sensors to the control system. Thanks to Fieldbus technology, these cables simplify the time-consuming job of cabling switch cabinets and machinery. Peripheral interfaces can be moved out of the switch cabinet and onto the machinery. "I only need to contact HELUKABEL and they send me the required assembly in the right length with the correct plugs," says Oster.

HELUKABEL's area sales manager, Torsten Stein, explains how the company is able to respond quickly to customer needs: "We offer our customers a very wide range of wires and cables. To be able to maintain this quick and reliable supply of diverse products, we make use of a highly modern logistics centre. This enables us to fulfil our customers' wishes in a timely manner." This also applies to the cables MECOS needs for international orders. "If I'm working on a machine for the US market, I pass this information on to HELUKABEL who send me UL-approved cables compliant with US norms, both in terms of colour coding and core dimensions, which fit perfectly into the machine," explains Oster.

### Self-made future

A look at Oster's order book shows that life is going to be anything but boring at MECOS in the coming months. "We can't complain about a lack of demand," he says. The biggest challenge Oster expects to face in the future is finding qualified staff. Despite this though, the managing director is taking a vigorous and pragmatic approach: "Since there is a dire shortage of suitably qualified candidates in the job market, we are training our staff ourselves." ■





HELUKABEL'S Dirk Spranger (left) with Marcel Sulewski (right) on a company visit to IMA Klessmann

# TURNING TWO INTO ONE

*Single cable solutions for servomotors are becoming increasingly popular as they require less connection technology, which leads to quicker installations and overall cost savings. Thanks to continuous drag chain tests, HELUKABEL was the first cable manufacturer to prove in the spring of 2014 that their hybrid cables were capable of error-free, digital data transmission using the HIPERFACE DSL protocol, even after more than five million cycles.*

Unlike the traditional two-cable solution in which the servomotor is connected to the controller by separate power and feedback cables, the single cable solution integrates the motor feedback cable into the servo's power cable. However, the downside of this solution is that the power conductors could impair data transmission if the proper screening is not on each cable element. The high durability and reliability of HELUKABEL's hybrid cables in daily use has been frequently endorsed by machine builders. One of the latest recommendations is from IMA Klessmann, who recently implemented single cable solutions. The company, based in Lübbecke/Westphalia, is a global manufacturer of assembly lines and woodworking machinery for the furniture industry. IMA has 900 employees worldwide and has been a

customer of HELUKABEL since 1996. Marcel Sulewski is the electrical purchasing team leader at IMA; his direct contact person at HELUKABEL is field technical sales representative, Dirk Spranger.

## Drilling machines for woodworking

The furniture industry deploys IMA drilling machinery as both stationary and through-feed machinery. With feed speeds of approximately 30 metres (100 feet) per minute, multiple drills simultaneously drill horizontal and vertical holes into workpieces, which are later assembled into living room, bedroom and office furniture. Up to 90 axes can be involved in such applications.

IMA have been using OCT (one cable technology) from Beckhoff Automation in their CNC drilling systems and complex manufacturing equipment since the beginning of 2015. This required a cable conversion and after being advised by HELUKABEL, the machine builder chose to use TOPSERV Hybrid servomotor cables, which have been rigorously tested and are ideally suited for highly dynamic drag chain applications. "The cables have already proven their worth in many of our IMAGIC drilling systems despite the high levels of mechanical stresses, such as narrow bending radii and fast changing bending cycles in the drag chains, as well as abrasion from wood dust," explains Sulewski. IMA has already updated their drilling applications to one cable technology. "As far as I know, there's only one motor left to be changed over in the CNC machining centres; the new generation will then be complete."

## Expert technical advice

As the key account manager, Dirk Spranger often gets involved at IMA as early as the test construction phase. "If the cables move as a result of being integrated in a drag chain, for example, I need to know the traverse paths, speed, acceleration, number of cycles and, of course, the bending radius in order to provide the right product," he explains. "Thanks to our cable know-how, we are supporting their engineers and giving specific advice on cable constructions." A multitude of information and operating parameters, such as the required temperature range, chemical resistance, mechanical stress, approvals and norms, must be known to provide expert technical advice about which cable to use. "We have relatively specific applications. Therefore, the advice provided by HELUKABEL is unique to us. It's very much a give and take situation," is how Sulewski views their cooperation. "There's a large technical component to the decision-making in purchasing. We discuss the general technical framework in detail with Dirk Spranger who then makes specific suggestions which we analyse together."

**"It's the assembly and installation cost savings that make the single cable solution particularly attractive to us."**

MARCEL SULEWSKI, ELECTRICAL PURCHASING TEAM LEADER AT IMA KLESSMANN



We put our trust in suppliers like HELUKABEL. After all, they are the experts and they test their products rigorously for us," Spranger adds, "We regularly discuss customer requirements with our engineering department at the Windsbach plant. The information provided by our customers is very valuable to further develop our hybrid cables. With specific test scenarios, our engineering department can run simulations to verify if our cables can meet customer requirements." For IMA, these tests proved that HELUKABEL was able to provide an appropriate solution for their drilling applications using standard hybrid cables from stock.

## Significantly reduced installation times

With the single cable solution, IMA was able to reduce the installation time for drilling machinery by an estimated 20 to 30 per cent. "Cable assembly, installation and wiring is now quicker," says Sulewski. "The space savings with the single cable solution was lower than expected though, despite there being half the number of cables. This was due to greater cross sections in the drag chains; a factor which needs to be considered as well." Far more

important than the space savings from fewer cables are the reduced cable assembly and installation times. Cable replacement is also quicker and the spare part stocking levels are reduced. This occurs because it's no longer necessary to keep one set of cables for the feedback signal and one for power. But what about the costs of these high-tech cables? "I only need one cable, but it's a more expensive one," points out Sulewski. "That may not initially appear to be an argument in favour of the single cable solution. However, if you include the cable assembly and installation time-



Multiple drills prepare the piece of furniture for further processing.

© HELUKABEL / Detlev Haake HZWEIA / IMA Klessmann



savings, the single cable solution soon pays for itself. In technical purchasing, the focus should be on the solution as a whole, not just on the product's price."

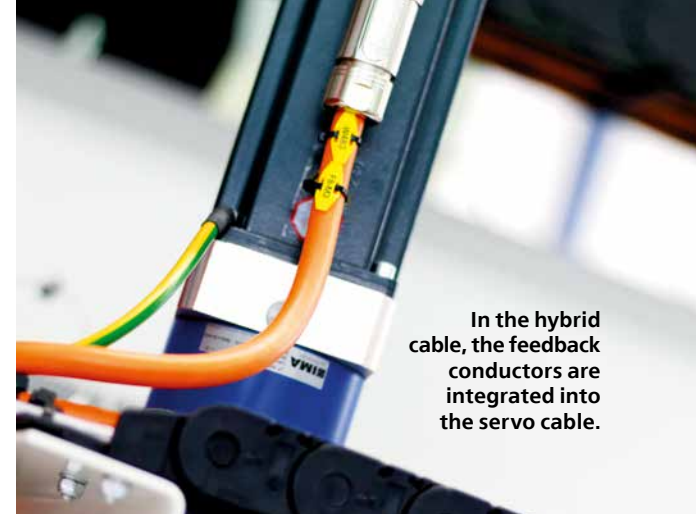
At IMA, some of the applications that use single cable technology are 30 metres (100 feet) away from the switch cabinet. The first machines have been successfully operating at the customer's facility for more than a year now. "In the periods between scheduled maintenance, the cables have shown themselves to be very resilient and absolutely reliable," says Sulewski. "Even after more than five million cycles, there's never been an outage, as far as I know."

### It's the screening that does it

How do cable manufacturers such as HELUKABEL meet the challenge of being able to provide machine builders with functional and, above all, durable hybrid cables? At the Hanover Fair in the spring of 2014, HELUKABEL announced the addition of a new hybrid cable for single cable technology to its highly successful and well-known TOPSERV product family.

At that point in time, drive manufacturers had no long-term field experience with one cable technology. This made it even more important for HELUKABEL to prove within realistic drag chain tests that their hybrid cables were properly screened and transmitting signals error-free via the HIPERFACE DSL interface, even after more than five million cycles. "If a motor is working properly, the quality of the signal received is the key factor," explains Thomas Pikkemaat, drive technology product manager at HELUKABEL and business manager at the Windsbach plant. "Reducing external interference on the feedback cores increases the reliability of the data received. Protection from EMC interference is provided by data pair screening. The longer the screen keeps working, the longer interference protection can be maintained."

In static applications, screening lasts practically forever. However, this is not the case for applications like robots, machine tools and handling equipment,



In the hybrid cable, the feedback conductors are integrated into the servo cable.

etc. where cables are moving in drag chains and along various axes. If the screen degrades, the worst outcome is an unreadable feedback signal. Hence, the result of choosing an unsuitable cable might not be noticed until the machine has been operating for several months. What measures can be taken to ensure permanent and reliable screening in such dynamic applications? "Mechanical tensile loads on the outer radius can cause the bare or tinned copper braided screen to break which, over time, can reduce the screen's effectiveness," explains Pikkemaat. "To avoid this, the braiding angle and level of coverage of the woven screen in the hybrid cable must be optimised to the dynamics of the application and the required bending radii, as well as the speed and acceleration parameters. This is the only way to guarantee the EMC screen, even after several million cycles." For maximum screen durability, the braid should always be wrapped around the conductors at an obtuse angle. Not only does this result in higher coverage, it also improves elasticity, which reduces the tensile forces. Alongside the braided screens, the hybrid cables can also contain a special metallic, evaporated fleece.

New technologies such as single cable solutions for drives are challenging cable manufacturers to develop and test innovative solutions. Thanks to the close relationship with leading machine builders such as IMA Klessmann, HELUKABEL is able to further develop its products in a realistic environment. ■

TOPSERV Hybrid cables easily withstand high levels of continuous mechanical stress.

# Carbon neutral in Colombia using solar power

*Columbian pharmaceutical services company Audifarma wishes to set an example by becoming the first carbon neutral company in its region. To accomplish this goal, it has installed a state-of-the-art photovoltaic plant. Below are the key facts about the project.*

## ☀️ What is the project all about?

Audifarma, one of Colombia's largest pharmaceutical services companies, recently installed a 60 kW photovoltaic plant at its headquarters in Pereira, Colombia. The system covers 16 per cent of the building's energy needs. Completing this project has brought Audifarma one step closer to its ambitious environmental goal of becoming the first carbon neutral company in its region and market.

## ☀️ What role does HELUKABEL play?

EnerSolax, a local expert in solar energy, carried out the project, from initial planning to installation. The company's technology team

used cables, wires and accessories from HELUKABEL for the project. However, this is just a small part of a larger collaboration between the two companies. EnerSolax will use HELUKABEL products at all plants that it designs and installs in the future. For the Audifarma project, the following HELUKABEL products were used: SOLARFLEX-X photovoltaic cables, HELUTOP HT cable glands, HELUcond PA6 cable protection tubes, KF tubular cable lugs, T-WS cable ties as well as pliers.

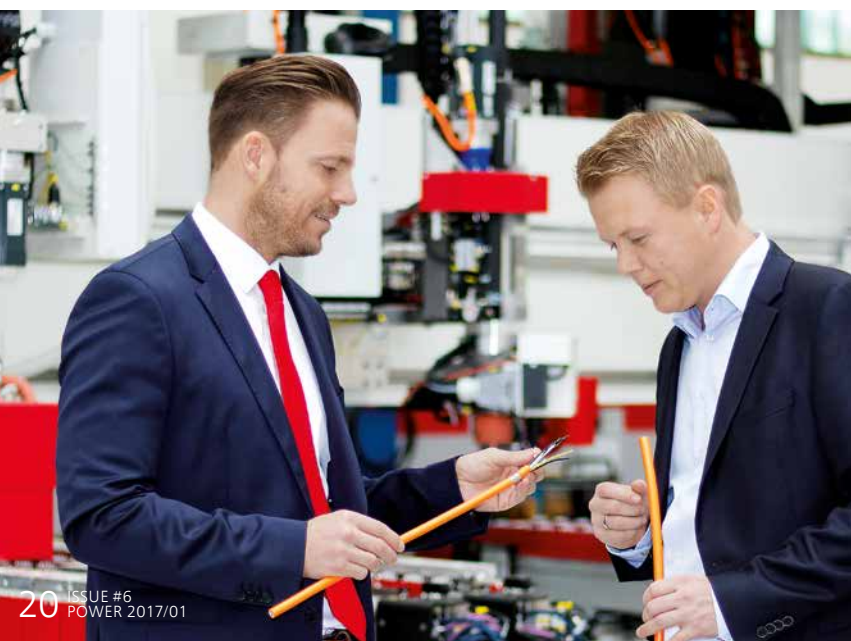
## ☀️ What is the plant's capacity?

The photovoltaic plant generates 95,000 kW hours of electricity each year, which will reduce CO<sub>2</sub> emissions by around 750 tonnes over the course of its service life. In

addition to transmitting power, the cables and wires perform the important task of transmitting data that sensors collect on solar radiation, ambient and module temperature, and wind speed.

## ☀️ Why is this data collected?

First, to monitor how well the plant is functioning. Second, EnerSolax uses this data to develop future photovoltaic plants in this region. The company sees huge potential in this project. Colombia, and Pereira especially, is an area where solar radiation is among the highest in the world. However, energy in this region is still supplied primarily by gas and water power plants. EnerSolax is working on changing this energy mix. ■




© HELUKABEL / Detlev Haake HZWELA / IMA Klessmann, EnerSolax





# PACKED WITH CARE

**HELUKABEL'S CUSTOMERS ARE NOT ONLY ABLE TO RELY** on quick shipments, but also on the secure and complete packaging of their goods. This guarantee is provided by a 20-member team working in two shifts at 10 pick and pack stations in the logistics centre. Their ergonomic workplaces are fitted with handling equipment specially developed for HELUKABEL. This does not only benefit the workers, but also the goods as it prevents the use of rough equipment such as forklifts. The pick-packers know which parts belong to what order from the assignments allocated to them by the warehouse management system. Furthermore, a digital screen showing them the number of drums, spools, boxes and other packaging types helps them to pack more efficiently. Each article is assigned a barcode which the packer scans. A visual inspection and comparison with the digital packaging screen provides additional assurance that the shipment is complete. The vacuum suction lifting tool then gently picks up the parcel and places it onto the shipping pallet. This accuracy pays off as it means the order arrives at the customer's premises complete, intact, on time and ready for use.

 **POWER-INSIGHTS AT A GLANCE:** POWER 2014/01: Incoming goods/ POWER 2015/01: High-bay warehouse/ POWER 2015/02: Small parts warehouse/ POWER 2016/01: Cut-to-length area/ POWER 2016/02: Heavy-duty cutting station/ POWER 2017/01: Pick-Packing



## TRADE FAIR DATES



**17. – 22. April 2017**

**China International Machine Tool Show**  
Peking, China

**24. – 28. April 2017**

**Hannover Messe**  
Hall 13, Booth C98, Hannover, Germany

**9. – 12. May 2017**

**ELFAK**  
Booth B06:79, Göteborg, Sweden

**22. – 25. May 2017**

**AWEA WINDPOWER 2017 Conference & Exhibition**  
Booth 3266, Anaheim / CA, USA

**23. – 25. May 2017**

**SPS IPC Drives Italia**  
Parma, Italy

**6. – 8. June 2017**

**Africa Automation Fair 2017**  
Booth B1 / B4, Johannesburg, South Africa

**11. – 13. July 2017**

**Asian Oil, Gas & Petrochemical Engineering Exhibition  
OGA 2017**  
Kuala Lumpur, Malaysia

**12. – 15. September 2017**

**HUSUM Wind**  
Hall 5, Booth B20, Husum, Germany



## ALWAYS UP-TO-DATE

HELUKABEL's newsletter is published once a month to provide up-to-date information about the company's activities. Whether it's product news, trade fairs, the latest edition of POWER or contests, HELUKABEL's newsletter keeps readers in touch with the latest developments.

**Subscribe to HELUKABEL's newsletter now:**



## LEGAL DETAILS

**POWER** • Publisher: HELUKABEL® GmbH  
Dieselstraße 8–12 • 71282 Hemmingen  
Tel.: +49 7150 9209-0 • Fax: +49 7150 81786  
www.helukabel.com • info@helukabel.de

CEO: Helmut Luksch,  
Marc Luksch, Andreas Hoppe  
Chief Editors: Maren Karlin, Dr. Petra Luksch,  
Reimar Schuster, Kevin Siegel

Editing and design: pr+co GmbH,  
Katharina Dickhoff, Martin Reinhardt,  
Monika Unkelbach, Deivis Aronaitis  
All rights reserved. Publication, reprinting and  
reproduction, even excerpts, require the  
permission of HELUKABEL® GmbH

# FAQ

*Some questions are asked again and again.  
In each issue, one of our experts answers one of  
these Frequently Asked Questions  
(or FAQs as they're referred to on the Internet).*

## WHAT DOES 'CAT' STAND FOR IN THE ETHERNET WORLD?

**THE EVOLUTION** of 'Ethernet' LAN technology began in the 1990s. Guidelines listed under the name 'IEEE 802.3', have long been a global standard. For organizational reasons, the technical components were subdivided into categories (Cat) 1 to 8. Each category reflects a generation of technology and defines specific data transmission properties of the cables. Of the eight current categories, the first four are only for historical purposes today. With data transmission rates of a few kilo- or megahertz, they offer snail pace speeds and go back to a time when ISDN was state-of-the-art.

Cat 5 defines a transmission frequency of 100 megahertz and speeds of 100 Mbit/s, which means it can be used to implement traditional computer networks in office buildings. The most widespread category these days is Cat 6. This category guarantees operating frequencies of 250 megahertz for voice and data transmission in the gigabit range. Cat 6A manages 10 gigabit rates at 500 megahertz

frequencies. Cat 7 also transmits at 10 gigabit but a higher frequency of 600 megahertz for maximum transmission length. The latest generation, Cat 8, is being used for data network visualization and 40 gigabit Ethernet data centres.

Cat 4 to Cat 7A components fully integrate with one another. For permanently fixed components such as cables, installing the highest category variant is recommended to ensure their future performance. In contrast, plugs and data sockets can easily be replaced at any time. The result is a mixed network which requires a second designation, this time into classes A to F. The class applies to the entire network and is based on the lowest common denominator. This means the component with the lowest class determines the overall class of the network. For example, if a network contains a Cat 7 (F) cable and Cat 6 (E) plug, the network is assigned the class of the plug i.e. class E.



## ABOUT THE AUTHOR:

Jürgen Berger is head of data, network and bus technology in Hemmingen and an expert in data communication technology.

**3** FIGURES FOR  
**HELUKABEL**

**39**

**area sales managers**

are on the road visiting  
HELUKABEL customers  
all over Germany.

**9.163**  
**km<sup>2</sup>**

(3,538 mi<sup>2</sup>) is the average size  
of each manager's territory;  
this is two and a half times  
the size of Majorca.

**63**

**parking and  
speeding tickets**

were handed out to them in  
2016 – a sign of real dedication  
to their customers. Incidentally,  
none of them ended up having  
to walk to their customers.



# WITH GERARDO MONTENEGRO AZNAR IN MEXICO

*HELUKABEL opens a new branch office in **Querétaro, Mexico**. We look over the shoulder of the future managing director on his well-organized day.*

**8:05 A.M.**

Tortilla chips (chilaquiles), chicken, eggs and fresh fruit – the men enjoy a typical Mexican breakfast while discussing the Mexican subsidiary's business plan. Gerardo Montenegro Aznar (left) and José Luis Avila, HELUKABEL Mexico's new national sales manager, discuss the sales strategy for the first twelve months.



**9:10 A.M.**

Montenegro Aznar's most important tools are his cell phone and his car. Even though he often has to put up with sitting for hours in Querétaro's rush hour traffic, the Mexico native, who lives in Germany, always retains his sense of humour.



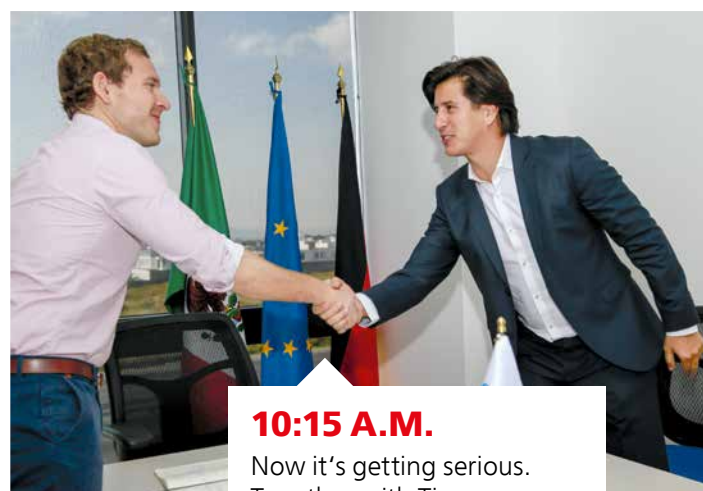
**11:45 A.M.**

Break time? No way! The real estate agent is on the phone and wants to show Montenegro Aznar another property that evening. He writes down the address.



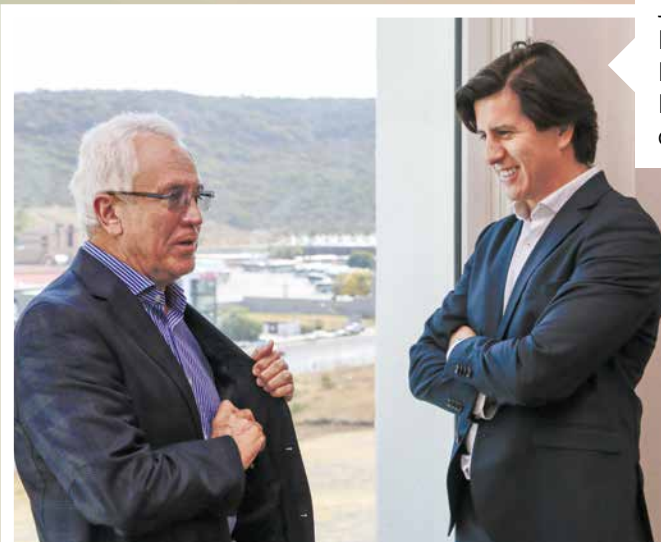
**10:15 A.M.**

Now it's getting serious. Together with Timo Dolleschel, his legal adviser from the law firm commissioned by HELUKABEL, Gerardo Montenegro Aznar is completing the contracts for his employees and the last documents for incorporating the new subsidiary.



**12:30 P.M.**

Janitzio Badillo (left) is managing director of the Marathon Group; the Puebla-based company has been HELUKABEL's sales partner in Mexico for many years. Montenegro Aznar discusses the further development of the cooperation with Badillo.



**14:45 P.M.**

After a tiring morning, Badillo and Montenegro Aznar head towards the restaurant. Joining them are José Luis Avila and Yazmin Guerrero, the new financial and operations managers at HELUKABEL Mexico, respectively.



**15:00 P.M.**

Lunchtime! Everyone enjoys their food at the "Tikua" restaurant. In Mexico, it's quite ok to meet for lunch at 15 p.m.

**17:10 P.M.**

One last thing before finishing for the day: Montenegro Aznar's appointment with the real estate agents. The building is spacious enough for the cables, accessories and offices but the location is not ideal. Although both of them are happy when Montenegro Aznar decides on a property they showed him the last time they met. With this sorted out, Montenegro Aznar can fly back to Germany tomorrow with peace of mind.





# FOREIGN ADVENTURE

As part of HELUKABEL's cooperation with Stuttgart Cooperative State University, three students were sent to subsidiaries in South Africa, Thailand and the USA. Here, they talk about their experiences.



## USA

My name is **MATTHIAS VOLKMER** and as part of my business computer science degree I spent two months at HELUKABEL in the USA. There are 16 people in the office in Elgin, Illinois, a suburb of Chicago. My job was to analyse the logistic processes and provide an evaluation of three software solutions with the aim of automating these tasks. For this reason, I started my internship in the warehouse where I was able to learn first-hand about their logistic operations. I also assisted at the HELUKABEL booth at IMTS, North America's largest

manufacturing technology trade show, which was a real contrast to life in the office.

On the weekends I explored downtown Chicago. The Magnificent Mile, Navy Pier and Millennium Park were at the top of the list of things to see, of course. Another great experience was the view from one of the glass balconies in the Willis Tower (formerly Sears Tower), the tallest building in the 'Windy City'. In the evenings, I often treated myself to a delicious deep-dish pizza which is similar to a quiche. As a keen sports fan, I had a great time watching various American football games, and I even went to see German basketball superstar Dirk Nowitzki and the Dallas Mavericks play the Chicago Bulls.

I really like the American way of life. The laid-back people, vastness of the country, and the grandeur of the cities makes it easy for me to imagine living in the USA one day. I would like to thank the HELUKABEL team, led by President Markus Dannheim, for this unique experience.



## THAILAND

Thailand was the first Asian country that I, **JUDITH FRANK**, had been to. I now have several more gigabytes of photos, my notebook is several dozen pages longer, and my perception of the world has been extended by a few degrees.

A colleague wanted to know if it was true that Germans work hard, but enjoy life to the fullest just as much. Compared to Thais, they do. In Germany, people tend to separate their professional and private lives, but in Thailand they are strongly intertwined. Employees eat, play sports and spend their weekends together. HELUKABEL Thailand is very much committed to the well-being of their employees. To build team spirit, there is collective meditation before work, and yoga in the afternoon.

The Thai language is a stressed language. Stressing a syllable differently in a word completely changes its meaning. My colleague Aei made such an effort to teach me Thai. We



spent so much time trying to get me to stress the right syllable. They were probably too polite to say whether I really made any progress.

Beauty is very important for Thais. Both men and women take care of their appearance and make an effort to stay fit. The women put on make-up very carefully when they arrive at the office, especially if they're expecting customers that day.

I really appreciate my colleagues giving me the opportunity to discover Thailand in the company of locals, rather than from the perspective of a 'farang' (foreigner). I have experienced Thais as very patient people. Their consideration is remarkable. Despite all the warnings, I never experienced any danger, but rather a great willingness to help. I won't forget these encounters for a long time and am grateful for everything I experienced.

My name is **MAX PLEIGER** and the time I spent in South Africa with HELUKABEL, was one of the best times of my life.

When I arrived at Johannesburg airport, I was relieved that Managing Director Doug Gunnewegh was there to pick me up. I don't think I would have handled driving on the left side of the road. It took just as much time getting used to changing gears with my left hand. Even after several weeks at the office, I was still attempting to get into the car on the wrong side in the morning. HELUKABEL South Africa recently moved into a larger facility. My job was to present evaluations, assessments and suggestions for improvements to optimise the new warehouse processes. Before I left Germany, the experts in Hemmingen gave me a few tips on what I needed to look for.

All 34 staff members made me feel very welcome – and not only during working hours. Many of them made the effort to show me their country in the evenings and on weekends. For example, we

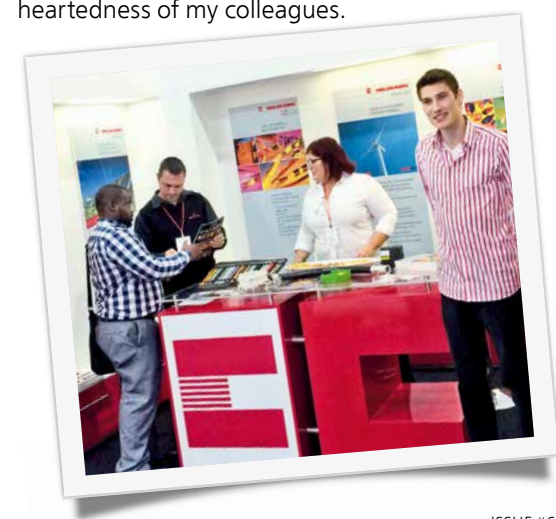


## SOUTH AFRICA

went to Soweto (South Western Township) where we saw Nelson Mandela's house – something you must do to understand South African history.

One of my most unforgettable memories was the 'Braai' evening with a colleague's family. There were all types of barbecued steaks, and pab, which is a sticky kind of rice. Springbok, zebra and crocodiles often find their way onto the barbecue too. I had several adventures with Doug. Motocross is a passionate hobby of his, so we spent several wild weekends touring cross-country. Errol, the sales representative for the area in and around Cape Town, even invited me to spend a few days with him and his family.

My stay in South Africa was really an unbelievable experience. The circumstances with which some people live, made me realise that even simple things shouldn't be taken for granted. Above all though, I will remember the warm-heartedness of my colleagues.





# WELCOME TO SWEDEN!

*HELUKABEL AB: a reliable partner with long-standing experience.*

Järfälla  
Stockholm

In 1990, HELUKABEL celebrated the opening of their first foreign subsidiary in Järfälla, Sweden. Back then, the initial three-man team set up its operations in a former military hangar. Cables and drums are now where military parachutes had been folded and stored. The location was perfect from the outset. Along with a plentiful supply of skilled employees, HELUKABEL AB's close proximity to Stockholm means they are able to quickly and consistently deliver throughout Sweden.

## Success factor: know-how

The subsidiary benefits from the team's sound expertise. Employees such as Anne Rönn, who's been with the company since the beginning and whose experience is a valuable asset, ensures long-standing customer relations. "We would like to grow our market share, expand our team, and enhance our position," says Managing Director Henrik Wäger, on what he wants to build on.

HELUKABEL SWEDEN, AB  
Spjutvägen 1, 175 61 Järfälla  
[www.helukabel.com/se](http://www.helukabel.com/se)



## PURE NATURE

"Anyone with some time to spare should visit the Stockholm Archipelago," says Henrik Wäger. Only a 20-minute boat ride from the centre of Stockholm, the archipelago's 30,000 small islands offer an impressive and natural experience. Visitors can hike, swim, canoe or just relax. Stockholm's Fjäderholmarnas Krog Restaurant with its sea terrace, fresh fish and lobsters is a 'must' for those traveling back to the capital city.



Helukabel AB supplies customers throughout Sweden from its location in Järfälla.



Managing director Henrik Wäger (third from right) can always rely on his employees.

## FACTS

**7** of the **18** Holes at the Swedish Haparanda Golf Club are on Finnish soil. This means golfers play in two countries – and in two time zones.

Swedish parents are entitled to  
**480** Days of paid parental leave.

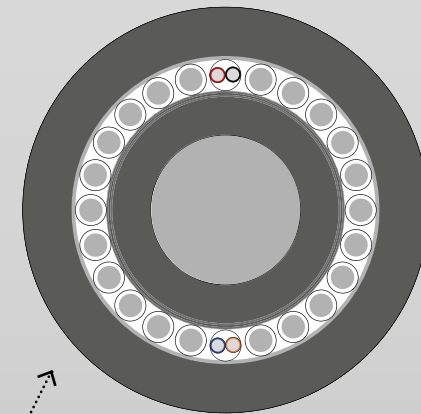
Each week,  
**1** Swede is randomly chosen to take over the official @sweden Twitter account and tweet about his/her life.

# BELOW GROUND

WITH A HYBRID ROUND CABLE FOR REMOTE-CONTROLLED PIPE ROBOTS

**WHETHER THEY'RE FOR PIPELINES IN NUCLEAR** power stations, gas pipelines or pipelines in municipal infrastructures, pipe robots controlled via high-end hybrid cables perform tasks such as recognition, positioning, milling, grinding and hardening. In addition to video, signal and motor cables, the

"lifeline to the outside world" contains media hoses and fibre optic cables, which have been electrically and mechanically developed to guarantee maximum performance under extreme operating conditions.



## RESISTANT TO

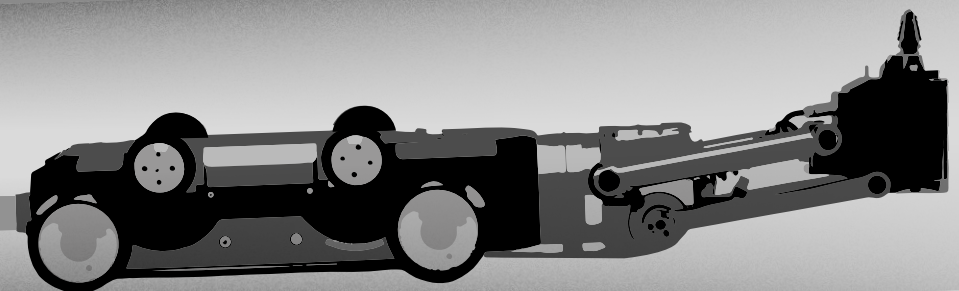
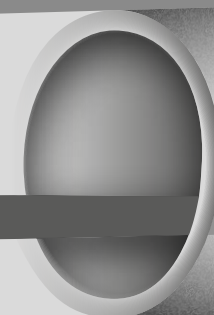
cleaning agents, solvents, acids, oils, UV light and heat during the hardening process of pipe maintenance; the special sheath material ensures resins and adhesives do not stick to the cable.

## PARTICULARLY ROBUST

thanks to the nick-, cut- and abrasion-resistant thermoplastic outer sheath that contains aramid fibres for high tensile and breaking loads.

## EXTREMELY RELIABLE

among the requirements for sub-surface or other ROV (Remotely Operated Vehicle) applications.





A man in a red polo shirt and blue overalls is standing next to a large red industrial machine. He is smiling and looking towards the camera. The machine has various pipes, valves, and gauges. The background is a plain wall.

## A SHARP EYE

Quality begins in one's own factory. It's **Helmut Böckl's** job to ensure that the machinery and equipment required for production are kept in top shape.

When he started working at HELUKABEL in 1991, Böckl was a lone wolf. Now, he's the head of a team of ten who are responsible for keeping production running smoothly. Besides maintaining the machinery and equipment, his service team also keeps a sharp eye on the building's electrical, air-conditioning, ventilation and cooling systems. The extension of the Windsbach production plant is an exciting challenge for Böckl who is very much involved in the planning of the building's technical systems and making sure all the necessary connections are available to operate the new machinery. By assisting with the dismantling and reinstallation of existing machinery, he is contributing to further improvements in production operations and material flow.