

POWER

#17

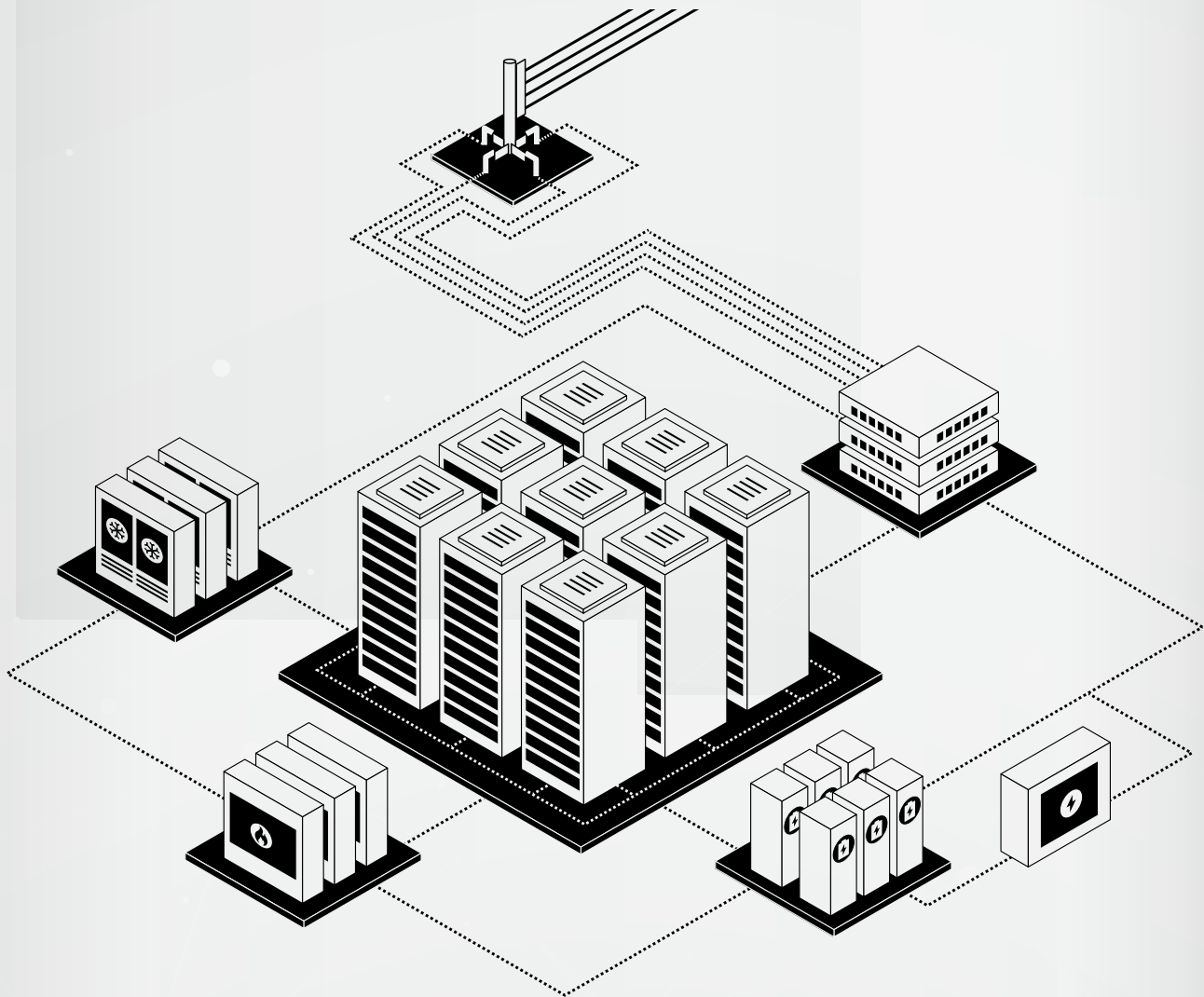


Real-Time Inspection

How AI is making cable manufacturing smarter

Page 12

The Control Centre of Artificial Intelligence



Data centres are essential for the development and use of artificial intelligence. They offer enormous computing and storage capacities that make the training of complex AI models and the construction of cloud-based infrastructure possible. For this, reliable and high-performance energy and data transmission is a basic requirement. What roles do HELUKABEL solutions play in this? Read more on the last page!

Learn more on page 35.





Dear Reader,

"Can machines think?" – This was the question that Alan Turing, one of the most important visionaries in informatics and computer technology, was already trying to answer back in 1950. Seventy-five years later, artificial intelligence has developed to a degree that he would never have dreamed of. Artificial intelligence has become an integral part of many areas of our daily lives. When was the last time you held a physical map in your hands instead of looking to Google Maps to show you the way?

Whether it's to optimise product processes, to plan predictive maintenance, to analyse data, or for customer service, the utilisation of AI is showing enormous potential for companies, too. We discuss at length the exciting possibilities of AI and what you need to pay attention to with expert Dr. Andreas Liebl. You can find this article on page 8.

As an industry leader in innovation and technology, we at HELUKABEL have already successfully implemented artificial intelligence into our production facility in Windsbach, for example. Here, we are able to take the quality control abilities of the AI-based, optical inspection system of our joint venture, nLine, to a whole new level. Learn more about how this works on page 12.

This high standard of quality plays a key role in how we develop the solutions that help our customers take the next step forward. In this issue, read about how TRACTO, the pioneer in drilling technology, equips their machines for trenchless cable installations with robust and durable steel drag chains from HELUKABEL (page 22). Or learn more about the oil and moisture-resistant speciality cables that our colleagues in the USA developed for their customer Anderson Electric Controls who constructs testing stands for electric vehicles (page 18). These fascinating stories exemplify just how expansive the HELUKABEL portfolio has become.

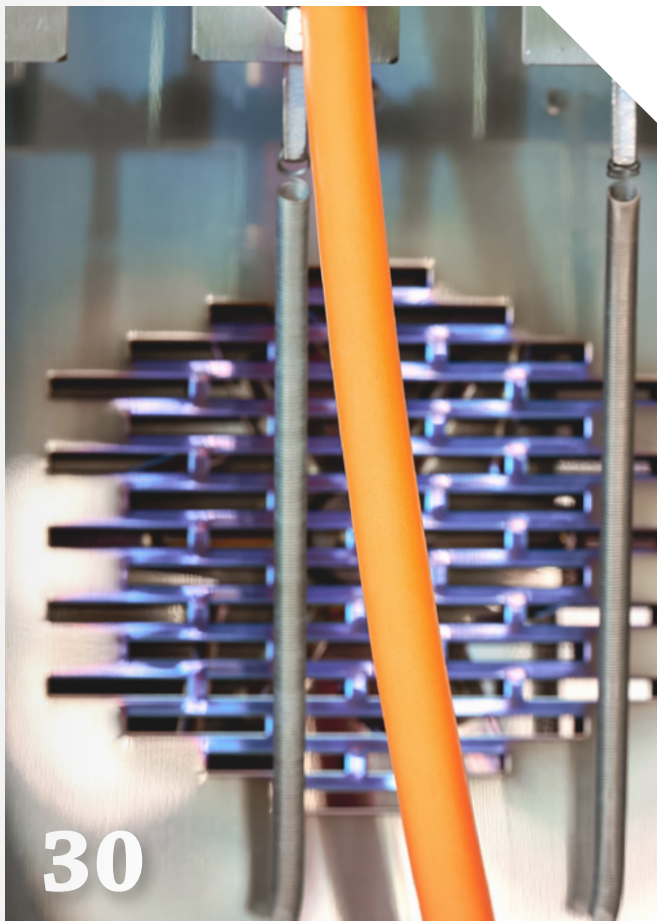
It's my hope that you'll find this edition engaging and that it offers some valuable takeaways.

Kind regards,

Marc Luksch, Managing Director HELUKABEL GmbH

Robust Drag Chains for Horizontal Drilling Machines

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© Andreas Metzner, Klaus Gruber, KD Busch

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In Brief

New to the Programme

MODULAR SYSTEMS FOR DRAG CHAIN CABLES

HELUCHAIN MULTISPEED drag chain cables are specially designed to withstand the high mechanical loads of drag chains. They are available as a modular system in a number of diameters and with different plastic qualities including especially robust and abrasion-resistant TPE, bend-resistant PUR, and cost-effective and versatile PVC. Customers can find the optimal cable for every application and for every budget.

SOLARFLEX CABLES ACCORDING TO UL AND CSA

The HELUPOWER SOLARFLEX family of products for photovoltaic systems is growing. Two new variations, the SOLARFLEX-X RPVU90-AL and SOLARFLEX-X RPVU90-CU with aluminium and copper conductors are available now. These cables are constructed according to UL standard 4703 and CSA standard C22.2 No. 271, which are important criteria for specifically the American market.

BROCHURE FOR EVENT AND MEDIA TECHNOLOGY

In event and media technology, stable and safe electrical connections are essential, regardless of whether they're used in mobile applications or are subjected to mechanical loads or weathering. HELUKABEL has been a reliable supplier of the industry for many years and their comprehensive range of products has been neatly summarised in a new brochure: HELUKABEL EVENT. It's worth the read! Download here:

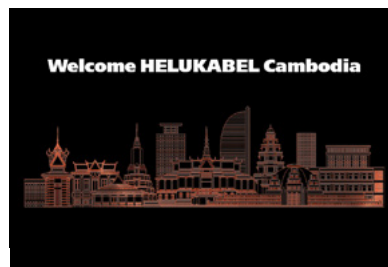
helukabel.de/media-technology-brochure

New Subsidiaries in Australia and Cambodia

Starting this year, HELUKABEL will be represented internationally in two more countries. At the beginning of 2025, the company founded a new subsidiary in Cambodia. With a convenient location in the capital city of Phnom Penh and their own warehouse capacities, the subsidiary will be able to supply customers throughout not just the country, but also in neighbouring countries, with comprehensive service and short delivery times.



Cambodia is, as is the entire region of South East Asia, a highly valued growing market for HELUKABEL. Important industries such as the manufacturing, automation, infrastructure, communications, and energy transmission industries are located here. In its preliminary phase, the subsidiary will be supported by their colleagues from HELUKABEL Thailand who have established a strong market presence in the neighbouring country over the years.



Furthermore, as of recent, HELUKABEL can also be found in Australia. At the beginning of the year, the company acquired the Cable & Electrical business unit of its long-standing sales partner, the international service and trading group DKSH. The HELUKABEL Australia team consists of around 35 dedicated and experienced employees located in Melbourne, Sydney, and Perth. In the future, we want to support customers in Australia, New Zealand, and neighbouring markets with the most optimal connection solutions for their applications.

The HELUKABEL Group is continuing to grow and is now present on all continents except Antarctica. With 76 locations in 43 countries, we're a quick, flexible, and reliable global partner for every aspect of electrical connection technology. ◀

53,000

The number of cable drums HELUKABEL collected from its customers in 2024. This corresponds to 2,518 tonnes of wood, or around 17 hectares of forest. In managing the product life cycle, cable drums are reused if possible, or professionally and sustainably disposed of. ▶

Joining the German Robotics Association



DEUTSCHER
ROBOTIK
VERBAND

Shaping the future through robotics: This has been the goal of the German Robotics Association (Deutscher Robotik Verband e.V.) since its founding in 2020. This association of companies, research institutes, and other experts has set out to promote the manufacturing and use of robotics in Germany, amongst other things, and provides a network for the sharing of information and promotion of collaboration. The members of the association are working on solutions for robotics and automation that are both easy to use and affordable for end users.

HELUKABEL is now also a member of the German Robotics Association. As a systems supplier for electrical connection technology, we have partnered with notable robotics manufacturers and integrators for many years. "We look forward to becoming part of this strong network and developing the innovative and high-performance robotics solutions of tomorrow," says Ufuk Erdugan, Product Manager Robotics at HELUKABEL. "I am sure that everyone involved will benefit enormously from these exchanges." ◀

HELUKABEL Acquires IC Automation



HELUKABEL expands its presence and strengthens its position in France, one of the most important European markets, with the acquisition of the French systems integrator IC Automation. IC Automation is a leading manufacturer of pre-assembled cables and system solutions for mechanical and plant engineering in France, where they have three locations.

HELUKABEL first opened its own subsidiary in France in 1998. Now, HELUKABEL France will be lead by Clément Bayon, Managing Director of IC Automation. Through this merger, customers have access to an even larger portfolio of top-performing products and benefit from their expertise in cables, assemblies, and drag chains, all from a single source. ▶

The Integration of EKD and Sangel Is a Success

The HELUKABEL Group is celebrating another milestone in their growth strategy. The integration of their two subsidiaries, EKD Systems and Sangel Systemtechnik, has been successfully completed. These two subsidiaries have contributed to the HELUKABEL portfolio with their high-quality drag chains, cable assemblies, and industrial luminaires since 2022. Both companies will now operate under the name of HELU Connectivity Solutions. With a uniform appearance, clear contact persons, and simplified processes, HELUKABEL aims to reduce complexity and better utilise synergies within the group.

By integrating these subsidiaries into the company and pooling its competencies under a single roof, HELUKABEL is able to set itself apart in the market by manufacturing and perfectly tailoring all of its first-class components to one another, from cables to installation-ready complete systems, in its own production facilities. With this, the company is laying the foundations for future success and further cementing its position as a leading systems supplier for electrical connection technology. The goal is to provide their customers worldwide with custom energy and data transmission solutions for all of their needs. ▶

A Game Changer for Business Processes

How businesses can benefit from artificial intelligence

Artificial intelligence (AI) has gone from science fiction to a commonplace megatrend and has topped headlines for months thanks to its rapid development. Even for companies, the use of AI has resulted in many unexpected benefits in a number of applications across all business departments. In this special feature, we'll take a closer look at how AI can be profitable for companies, what groundwork must be laid to achieve this, and what lies ahead for AI.

You would be hard pressed to find another topic as widely discussed as artificial intelligence. Many scholars are calling it the most important technological advancement of the 21st century thus far. The release of the ChatGPT chat bot at the end of 2022 allowed the greater public to experience the impressive abilities of AI in action with their own eyes. Even at that

time, most people were already familiar with different AI applications such as voice-enabled virtual assistants like Apple's Siri or advanced driver-assistance systems in modern cars. But the rapid development and new uses that have resulted from it, such as text and image generation, were and still are astonishing.

Unlike classic software that follows man-made rules and algorithms, AI learns by analysing data. This makes it capable of independently recognising patterns and making decisions, without needing to be explicitly programmed to do so. With the right training, AI models are able to adapt to new and changing conditions and improve with time – given they're fed high-quality, correct data. This effect can be observed in image generation tools such as Midjourney which delivers even more accurate and sophisticated results with each new version.

Analytics

Optimisation

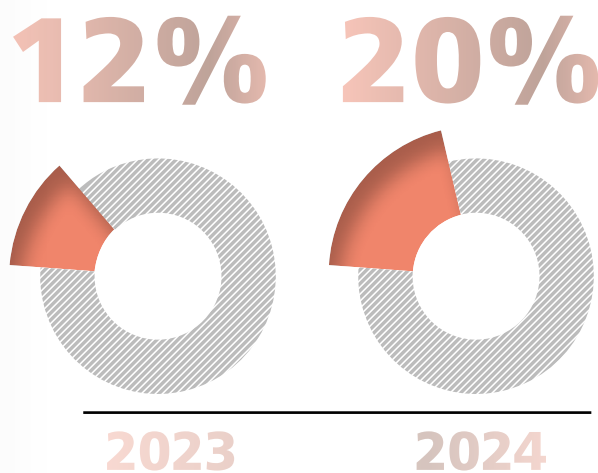
Sensor
Technology

Content
Creation

Speech
Comprehension

MORE AND MORE COMPANIES ARE USING AI

Many companies have also discovered AI's enormous potential. According to a survey conducted by the Federal Statistical Office, in 2024 in Germany alone, 20 percent of companies were using AI technology – which is up eight percent from the previous year. The reason is clear: AI is able to complete diverse tasks not only quicker, but more efficiently, precisely, and reliably. In some cases, it even makes completely new business models possible.



Twenty percent of all companies in Germany have already been using AI technology since 2024, according to a survey by the German Federal Statistical Office. Interesting to note: With 48 percent, the share of large companies with more than 250 employees is significantly higher. Only 17 percent of smaller companies with fewer than 50 employees utilise artificial intelligence.

"In most companies, the use of AI is hard to avoid, regardless of the company's size," says Dr. Andreas Liebl, Managing Director of appliedAI Initiative GmbH. Founded in 2017, the initiative supports companies throughout Europe with implementing and using various AI technologies. "Artificial intelligence and its uses are developing so rapidly that companies are needing to adapt now to keep pace with it in the future." AI isn't merely the application of a new technology, it's a process that is causing companies to make fundamental changes.

Accordingly, there's a certain degree of general and application-independent maturity which must be defined, explains Liebl. "Companies must first learn how to use AI, as it functions completely differently to software. It requires specific organisational structures, responsible use must be defined, acceptance and competence among leadership and employees must be built up, and much more. The good thing is that everything can be approached very systematically, this maturity can be improved in a very structured manner."

MANY POSSIBLE APPLICATIONS

For companies, the important questions are which applications should be converted to artificial intelligence and what do they want to achieve with it? "We identify five different fundamental capabilities of AI: sensing, analysing, language comprehension, content generation, and optimisation procedures," adds Andreas Liebl. Sensory AI is based on information from cameras, microphones, or sensors. It is used, for example, in quality assurance for production processes, or in autonomously driving vehicles. On the contrary, analytic AI is able to make sales and pricing predictions or predictively plan production and logistics processes, as well as maintenance intervals.

Currently, generative AI is causing quite the fuss. These are systems that independently generate content according to the user's input. "Here, we are already implementing RAG-based models for companies. RAG stands for Retrieval Augmented Generation," explains Liebl. "These are language models that analyse different information from internal data and databases that they have access to. This can help users



"Companies must first learn how to use AI, as it functions completely differently to software. It requires specific organisational structures, responsible use must be defined, acceptance and competence among leadership and employees must be built up, and much more."

*Dr. Andreas Liebl,
Managing Director,
appliedAI Initiative GmbH*

to read handbooks, analyse contracts, or compile large amounts of customer data, for instance." Even chat bots, which independently answer customer questions on company websites, belong to this category.

AUTONOMOUSLY MANAGE COMPLEX PROCESSES

The next step in development for artificial intelligence, according to Andreas Liebl, is what is called agent-based AI. "These systems, with the help of machine learning and language processing, will be able to completely automate even complex work steps," says the expert. In the future, this technology could autonomously manage entire supply chains, optimise processes in real time, and react to unexpected disruptions in a targeted manner. These types of models can even be used in development to independently write the code for new software. "This technology is still in the

early stages of development," according to Liebl. "But it will soon have the potential to make the most diverse applications many times more efficient."

Increased productivity, fewer errors, lower costs, and more flexibility are all possibilities that AI promises to deliver for companies. Liebl knows that it is still, however, not guaranteed that companies will be able to immediately benefit from AI. "I like to compare it to a marathon. Just because I buy the best running shoes, that doesn't mean that I can immediately run the entire distance. I need to start small and systematically improve. It's exactly the same with AI. It's not enough to simply buy into an application. Instead, companies should view AI as a competency that needs to be developed, including the necessary culture, data infrastructure, and governance. Only then is a company ready to implement this technology in a meaningful way." ◀

ABOUT APPLIEDAI

AppliedAI Initiative GmbH, located in Munich, is Europe's largest initiative for the application of trustworthy AI technology in companies. Since their founding in 2017, they have educated more than 40,000 people on the subject and supported hundreds of companies in successfully employing artificial intelligence.

Learn more at appliedai.de/en

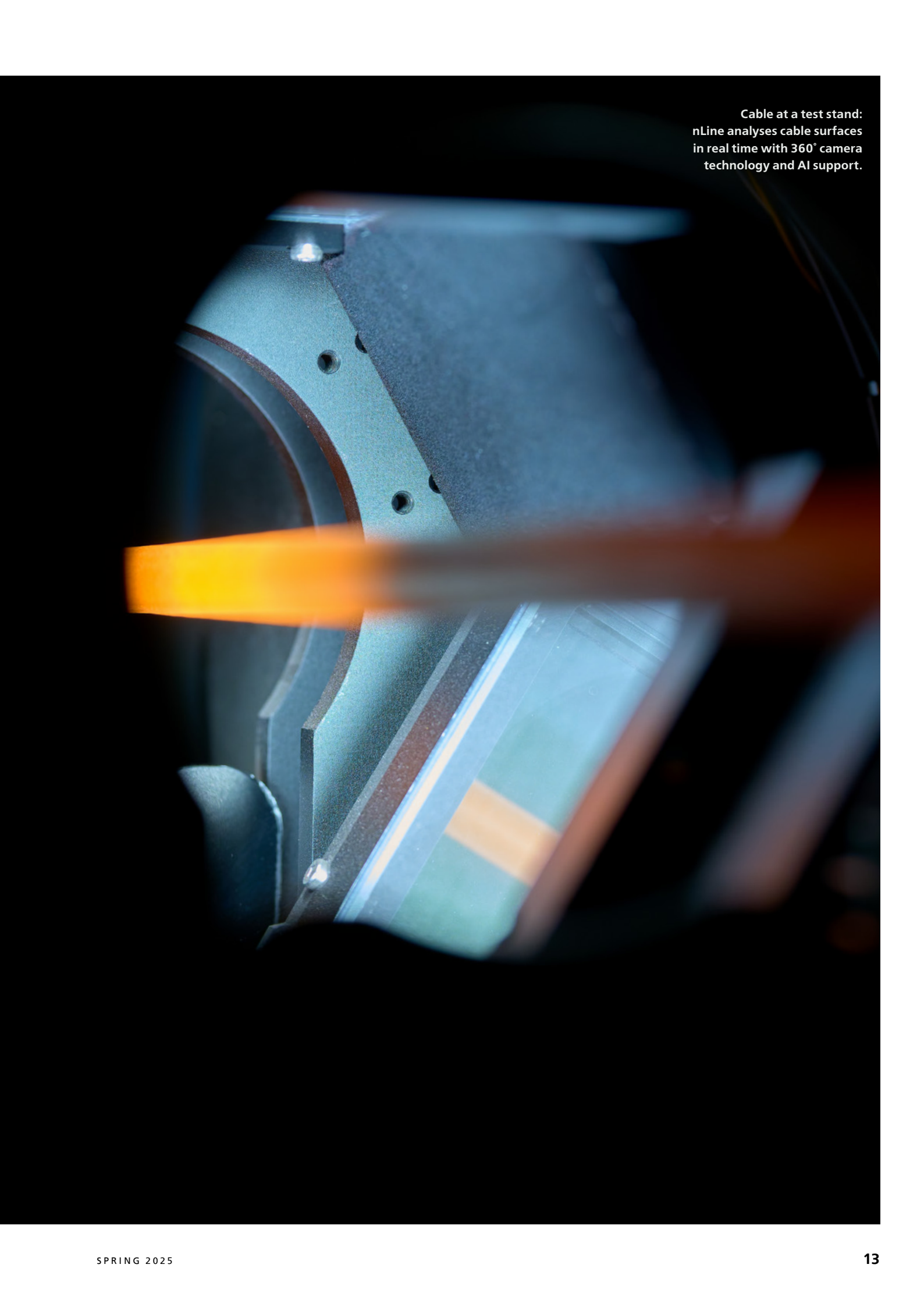
Rethinking Quality Control

How nLine is optimising production at HELUKABEL

While many companies are still deciding how best to implement artificial intelligence, HELUKABEL has already integrated game-changing nLine technology at their cable production facility in Windsbach. nLine is an intelligent inspection system that takes optical quality control to an entirely new level. But it was a long journey full of technical challenges, ambitious goals, and close collaboration between Jürgen Prütting, Head of Process Engineering at HELUKABEL, and Hubert Eberle's team, who is the Head of Sales at nLine.

A CHANCE DISCOVERY

Sometimes, unexpected findings bring about major changes, just as when Jürgen Prütting became aware of nLine by chance in 2020. He has been at home in the cable industry for over 45 years working as a process engineer with many global players and knows the field inside and out. "Till now, surface inspection systems have often fallen short of what we needed," remembers Prütting. However, this modern, AI-based optical inspection solution caught his attention.



Cable at a test stand:
nLine analyses cable surfaces
in real time with 360° camera
technology and AI support.



With an extensive catalogue of requirements and high expectations, he approached the company. In continuous production, such as is the case with cables, optical inspection must be gapless, reliable, and operate in real time. The fact that nLine not only met these requirements, but also exceeded them, was something he had not predicted. The first tests in Windsbach made one thing clear: This could be the start of something big.

ON THE WAY TO SERIES PRODUCTION

The first test installation delivered promising results. "We quickly realised that the system has potential," says Prütting. "Both the implementation in production lines, as well as its integration into our existing quality control processes, were easy and smooth." But perfection does not happen overnight. Together with Hubert Eberle and his team, nLine was further developed and continuously optimised for the conditions in Windsbach.

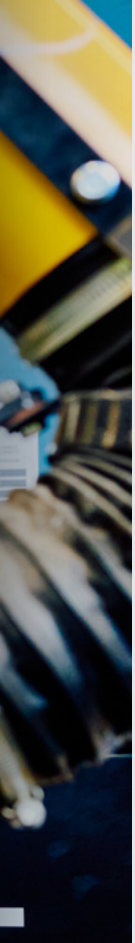
The 360-degree inspection using three cameras, precisely calibrated lighting, and a fan that provides slight positive pressure and prevents dust and abrasion are critical features and were designed with the goals of reducing maintenance costs and ensuring a high detection rate. The system additionally has intelligent pattern recognition which learns from past inspections and continuously improves itself.



"The development of nLine was a collaboration between the expertise in Windsbach and our innovativeness."

*Hubert Eberle,
Head of Sales, nLine*

"Because we have different product variations, we have roughly 13,000 articles. To inspect these automatically is itself an art form," says Prütting. "Extrusion involves countless influencing factors." It is here that the advantages of the nLine system become clear, as it is able to learn extremely quickly. It scans the cable from every angle to create an overall image, which AI then uses to precisely identify and classify irregularities. One real advantage this system has over conventional systems is that their accuracy is reduced by light reflections and shadows.



Jürgen Prütting, Head of Process Engineering at HELUKABEL Windsbach, is more than confident in the precision of the system and ensures that everything runs smoothly.

A NEW CALIBRE OF CONTROL

nLine can do far more than simply identify scratches or material irregularities. It can differentiate between harmless, individual water droplets from the cooling process and real defects, which makes an essential difference when evaluating the quality.

"Currently, we're performing simultaneous inspections with our old measurement system and nLine," says Prütting. "This way, we can collect comparative data and precisely evaluate the performance. So far, we are more than satisfied with the results from nLine." Defects are identified in real time, and, thanks to precise control protocols, anomalies or deviations can be localised with pinpoint accuracy. This saves time, minimises rejections, and prevents defective products from being distributed.

THE TECHNOLOGY OF TOMORROW

This is just the beginning. "We want to see more than just that a defect exists. We want to understand why it happened," explains Prütting. The goal is to perform a cause analysis directly through nLine. Is there an issue with the material batch? With the extrusion process? "The better we can understand these relationships, the more accurate our countermeasures can be."

This is where AI is able to show its true potential. It should do more than just inspect; it should actively help to optimise production. "Our vision is to implement technology in a way that supports people," says Hubert Eberle. "The development of nLine was a collaboration between the expertise in Windsbach and our innovativeness."

A LOOK AHEAD

Two nLine systems are already running in Windsbach to great success. The databases are growing, and the AI is continuously improving. A full audit has yet to be performed, but one thing is already clear: In the future, nLine could completely replace the existing measurement technology, as HELUKABEL Windsbach has set the goal for themselves of becoming one of the most modern facilities in the industry.

"We need partners who are clever, creative, and solution oriented," says Prütting. "Because you can only stay at the top if you keep pushing forward."

Detecting defects today could revolutionise production management tomorrow. Self-learning algorithms that do more than simply report defects, but actively optimise processes, are the next step. "With nLine, we've taken an important step forward," says Prütting. "And I am certain that this is just the beginning." ◀

ABOUT NLINE

nLine offers a visual quality control solution that combines efficiency and precision in production. Collaboration with HELUKABEL has shown that the combination of digital and industrial competence can revolutionise processes. nLine finds itself in the position to take quality assurance to the next level globally.

Learn more at nline.ai/en

nLine integrates seamlessly into existing production lines and operates with maximum precision.

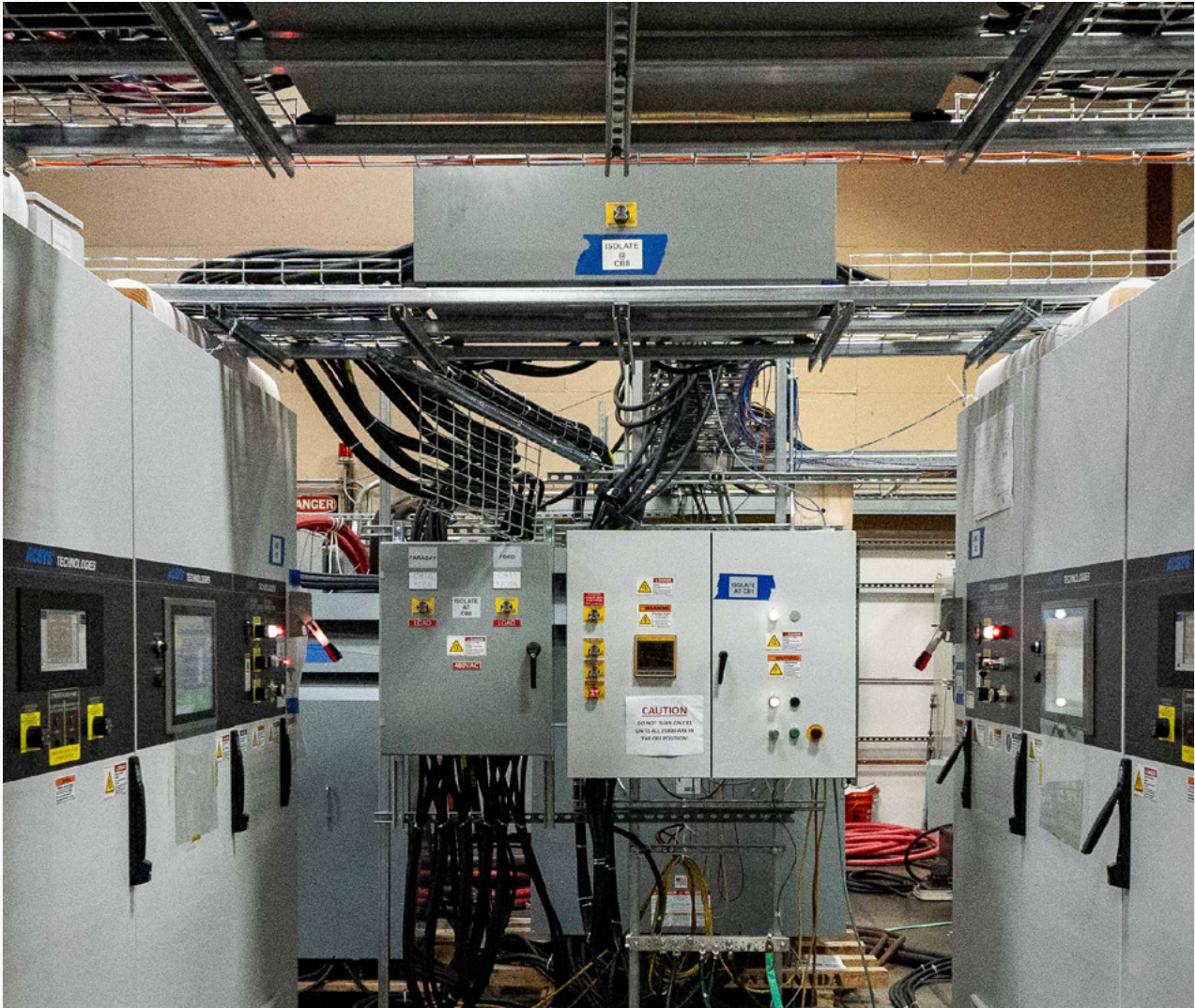


THE ENTIRE UNIVERSE IN A LAB

The particle acceleration facility FAIR in Darmstadt is one of the largest and most complex construction projects for cutting-edge research in the world. Covering an area of around 20 hectares, this one-of-a-kind building complex contains a wealth of newly developed, advanced technological equipment that will be used to create and research matter that otherwise can only be found in outer space. Researchers from around the globe are expecting to gain new insights into the universe's structure and development, starting with the big bang.

HELUKABEL is directly invested in this exciting project, supplying one of the major contractors with timely and reliable shipments of different infrastructure cables, such as underground and medium-voltage cables, directly to the construction site. The project is expected to be completed in 2028 (the image shown here is a visualisation). We look forward to all of the amazing new revelations that will come from this research!





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Custom Test Stand Cables

HELUKABEL USA develops custom solutions
for Anderson Electric Controls

American company Anderson Electric Controls (AEC) assembles testing stands for electric vehicles and drive batteries. When these specialists required a custom connection cable for a contract where standard products would not fulfil a customer's complex requirements, AEC turned to HELUKABEL, experts in connection technology, whose design engineers rose to the occasion with the right solution at the right time.

Electric mobility is rapidly increasing in popularity. The global number of new registrations for electric cars has risen from around 128,000 in 2012 to approximately 17 million in 2024. Thanks to continuous technical developments, the availability of charging infrastructure for electric vehicles has improved, driving ranges have increased, and charging times have shortened. These developments were inspired by an increase in environmental awareness in consumers as well as various governmental funding and subsidy programs. Owning an EV today has never been more exciting and affordable for drivers.

The battery is the heart of every electric vehicle. It is what determines how far the user can drive on a charge and how long it takes for the vehicle to recharge. Battery manufacturers are continuously working on the latest improvements to batteries, such as making them increasingly compact and lightweight, while simultaneously improving their power and performance. Even automakers are heavily investing in the research and development of vehicles and batteries that function more in harmony with one another.

FROM TUNNEL BORING MACHINES TO ELECTRIC MOBILITY

"Our customers use test stands specifically designed to evaluate a wide range of functions and scenarios under lifelike conditions," describes Ron Hansen, President at Anderson Electric Controls, Inc. (AEC). The company, which is located in the city of Kent in the US state of Washington, specialises in the production of test stands for original equipment manufacturers (OEMs) in the automotive industry. AEC has its roots in control technology for tunnel boring machines, however over time, their portfolio has grown to include additional segments.

ABOUT ANDERSON ELECTRIC CONTROLS:

Anderson Electric Controls, Inc. is a leading engineering and manufacturing firm that specialises in custom built power conversion devices which serve a broad range of industries. Founded in 1969 by H.J. "Andy" Anderson, they first provided electrical controls for tunnel and raise boring machines. The success achieved with their boring machines led the company to seek out new industries. AEC now serves a diverse group of companies in the automotive, renewable energies, aerospace, mining, manufacturing, and transportation industries.

Learn more at aecontrols.com



AEC specialises in the manufacturing of test stands for OEMs in the automotive industry



The AEC team (from left: Steven Hansen, Ron Hansen, Jared Weyer, and Matt Tavares) is satisfied with their collaboration with HELUKABEL.

"We develop and supply our customers with battery cyclers and emulation systems, for example," explains Steven Hansen, Chief Engineer, further. "These are electrical devices that are used with test stands to simulate the behaviour of a real vehicle battery." The capacity, current charge, or construction of the battery cells can be flexibly configured. This means that the user can easily imitate different battery

types, scenarios, and operational environments. "Automobile manufacturers use these systems to test and optimise the behaviour of drive batteries and electrical systems in their vehicles," says Ron Hansen. "With this, they are also able to test the expected output of the vehicle battery, as well as identify concerns regarding charging, capacity, efficiency, or safety."

HIGH DIELECTRIC STRENGTH REQUIRED

The exact features of test stands are customised by AEC depending on the requirements of the customer. Such was the case for an international automobile manufacturer who required a new test stand for a plant in the US. To connect the drive batteries to the cycler, very specific connection cables are required. "One big challenge with this was the high voltages, which reach 2kV or more, and that the cables need to carry during the testing process," explains Matt Tavares, Mechanical Engineer. "Other requirements were a UL approval, a TC-ER certification for exposed runs, as well as low inductivity to prevent EMC-related disruptions."

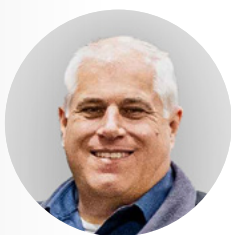
It quickly became clear to the team at AEC that a standard cable would not be able to fulfil all of these complex specifications. In their search for a suitable solution, they would soon come across HELUKABEL. The international leader in electrical connection

technology possesses a well-known, high level of competence when it comes to constructing custom cables according to customers' individual requirements. The AEC team was advised by the HELUKABEL subsidiary in the USA. "Over the course of several discussions, we became convinced that HELUKABEL was the right partner for this project," remembers Tavares.

CUSTOM CABLES - ON TIME

Once the details had been ironed out, the HELUKABEL engineers began to design a connection cable for the proposed battery test stand. "At HELUKABEL, we have decades of experience in developing solutions customised according to individual customer needs and teams of experts dedicated to this task," says David Newton, Regional Sales Manager. "So, developing a product with the required characteristics was no issue at all." The cable that was developed specifically for AEC has impressive oil and moisture resistances, which are important criteria for use in industrial applications. "The cable also has a TC-ER approval, which means that it can be installed without a pipe or closed cable duct," adds Newton. "And of course, we had the cable approved by Underwriter's Laboratory (UL), the leading certification organisation in the US."

Another added benefit of choosing HELUKABEL was that the cable being requested could be delivered within the timeframe required by AEC. "With other manufacturers, the lead times were simply too long, which would have resulted in us having to make our customers wait, too," says Tavares. "HELUKABEL quickly, competently, and reliably delivered us a solution that is exactly what we envisioned." The doors for further cooperation with Anderson Electric Controls are wide open, hints Ron Hansen. "The next order has already been placed, and future collaborative projects are already being planned." ◀



"HELUKABEL quickly, competently, and reliably delivered us a solution that is exactly what we envisioned."

*Matt Tavares,
Mechanical Engineer,
Anderson Electric Controls*

helukabel_youngsters
Helukabel GmbH

FOLLOW US AROUND



Kabelmat



Expanding our horizons together: Our trainees had the opportunity to spend a week this year with our subsidiary KABELMAT, where they got exciting first-hand experience in their work.



helukabel_youngsters
Helukabel GmbH

HELUKABEL VfB VIP LOUNGE



Because HELUKABEL is a VfB Stuttgart Club Partner, our Youngsters have the chance to experience games together with colleagues and customers live from our box. It's always a real highlight!



HELUKABEL®
INTERNSHIP
ABROAD
CANADA



What's one of the advantages of doing your internship at an international company? Getting international experience, of course! Our very own Leon Löffler, who is completing his dual studies program with us, was able to spend three months with HELUKABEL Canada.



Visit us on
Instagram!

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**BERNHARD
SCHANZ**

Training Referee
for the location
Hemmingen

#WELCOME

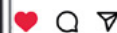


Welcome to the Team!

Bernhard Schanz, a specialist in education, has joined the HELUKABEL team at our headquarters in Hemmingen in February. If our Youngsters have any questions or concerns, he's their guy! "Meaningful support and teamwork built on mutual respect are core values for us. This is how we provide training that benefits you not only professionally, but also personally."



helukabel_youngsters
Helukabel GmbH



Feedback is always welcome! We're constantly checking in on our Youngsters to make sure they're satisfied with how their programs are going. Check out their stories on our Instagram channel!



The Mega Mole: Now Even More Robust

TRACTO equips their drilling rigs with
steel drag chains from HELUKABEL



When it comes to installing pipes and electrical cables, trenchless drilling methods are in style.

These machines save you time and money, as well as minimise environmental impacts. TRACTO, a pioneer in drilling technology, equips its newest generation of GRUNDODRILL directional drilling machines with robust, steel drag chains from HELUKABEL. The increased stability and durability of these chains play a pivotal role in enabling these mighty machines to reliably burrow through any kind of substrate.

One of TRACTO's longest-standing and undoubtedly most prominent employees is only a few centimetres long. "Mauli", short for the German word for mole, "Maulwurf", has been the official trademark for the company located in the Sauerland region since 1970. TRACTO, which is a pioneer in trenchless pipeline construction, develops, produces, and operates machines and accessories used in the resource-saving and sustainable installation and replacement of pipelines, which is commonly referred to locally as "Maulwurf technology".

"Our technology is used globally—in stadiums, in the mountains, in rough terrain, and in environmentally protected areas," explains R&D Engineer Stefan Hermes with TRACTO. "Trenchless construction saves resources, is less destructive, and generates less noise, CO₂, and particulate emissions. Furthermore, it shortens construction times and saves on costs." As a pioneer in

the field, TRACTO has since garnered international success and has 850 employees around the globe.

DIRECTIONAL DRILLING THROUGH ANY TERRAIN

With just one look into TRACTO's assembly halls, which are located at their headquarters in Lennestadt, you'll immediately notice that Maui's mechanical coworkers are many times larger and more powerful than he is. Their line of machines ranges from the GRUNDOMAT series of soil displacement hammers, which use air pressure to shoot through the earth, to the snow-groomer-sized directional drilling machines of the GRUNDODRILL family, which are designed to be able to drill both straight and curved holes even at large diameters for electricity, gas, communications, or water pipes, and through any type of terrain. This is called horizontal directional drilling, or HDD for short.

GRUNDODRILL machines feature a directional drill head which is typically used to drill a pilot hole along the length of the planned drill hole. Behind this, there is a magazine of rods which are added to the drill rod every three metres to increase its total length to 200 metres or longer, depending on the model. A drilling fluid consisting of water and bentonite, a clay mineral, prevents debris from clogging the drill bit. When pulling the drill rods back, the diameter of the drill hole is increased using an expander head, to which a pipe is attached and pulled into the hole. "Operators are able to constantly

monitor and correct the direction of the drill head using a tracking system and a transmitter located in the drill head," adds Hermes. "This enables operators to steer the drill over or under obstacles, such as existing pipes."

EXTREME OPERATING CONDITIONS ARE PART OF THE DAILY ROUTINE

Underground construction companies, energy suppliers, and network operators are just a few of those who rely on TRACTO technology. Dust and dirt, moisture, extreme temperatures, and strong vibrations are just some of the often rough operating conditions that create challenges for these drilling machines. For the manufacturer, it is therefore essential that all components are of the highest quality to ensure long service lives for the machines.

Both the enormous drill rig, which is responsible for pushing and pulling the bore head, and the automatic rod magazine are hydraulically driven. The hoses that power these parts are enclosed in drag chains, which protect them from external factors and from being crushed or damaged when the machine moves. "In the past, we used plastic drag chains," remembers Hermes. "It turned out that, in practice, they were not robust enough to reliably withstand the high operational demands." The resulting frequent downtime and repairs lead the experts at TRACTO to look for a better solution.

THE SOLUTION? REPLACE PLASTIC WITH STEEL

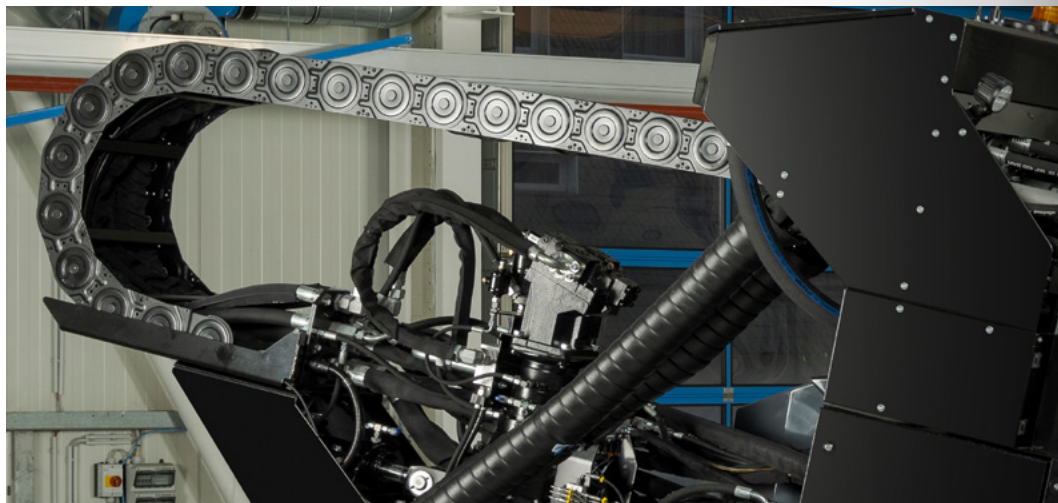
They found what they were looking for at HELUKABEL. The specialists in electrical connection technology have an extensive portfolio of high-quality and custom, plastic and steel drag chains. For these demanding applications, the designers decided to go with drag chains from the HELUCHAIN STEEL LINK 4-SL series. These are extremely robust, steel-link drag chains that are built for traversing extensive unsupported distances, and housing large quantities of cables or, such as with TRACTO, heavy hydraulic hoses. Four of these drag chains with lengths between 80 cm and 4 metres are installed on the new generation of GRUNDODRILL drilling machines.

"In our first conversations with TRACTO, we were able to score points by demonstrating the high quality of our drag chains and their cost-effectiveness," reports Karsten Göbel, Sales Manager Solutions at HELUKABEL. "Our technicians were continuously in contact with TRACTO engineers to ensure that our solutions were optimally tailored to their specific requirements." The HELUCHAIN STEEL LINK 4-SL drag chains are fitted with plastic separation bars and come in widths suitable for precisely and reliably guiding hydraulic hoses. Edge-protection profiles and rounded bars prevent abrasion and damage to the hoses, thereby extending their service life.

OPTIMAL COLLABORATION

TRACTO's engineers are wholly satisfied with the new steel drag chains from

HELUKABEL supplies robust HELUCHAIN STEEL LINK 4-SL drag chains for the GRUNDODRILL family of directional drilling machines.



HELUKABEL. "The drag chains effortlessly perform their functions in the machines and significantly improve the robustness and stability of the entire drilling machine," says Stefan Hermes. "Thanks to HELUKABEL's competent consultation and the direct, uncomplicated collaboration between our two development departments, we were able to quickly and efficiently implement the new solution." In contrast to the previously used plastic drag chains, the HELUCHAIN steel drag chains do not limit the functionality and flexibility of the machine in any way, as the steel chain's modular construction allows it to be easily adjusted according to different requirements.

Some of the drag chains were delivered by HELUKABEL already filled with the required hydraulic hoses and electrical cables. "We are able to easily procure everything we need from a single source which simplifies the installation process," explains Hermes. "Switching to steel drag chains allowed us to further improve the durability and quality of our machines, which are important criteria for lasting success."

With all of this praise, it's no wonder that TRACTO would like to continue working with HELUKABEL in the future. "We strive to build long-term partnerships with our suppliers and rely on tried and tested solutions," explains Hermes. "This way of doing business doesn't just benefit us, but also our customers." With the average GRUNDODRILL machine's approximately 10,000 operating hours, the flawless performance of the HELUCHAIN STEEL LINK 4-SL drag chains has proven their long-term reliability. "Together with HELUKABEL, we have definitely found a solution that works," sums up Hermes. "We see no need to change what just works." ◀

"Switching to steel drag chains allowed us to further improve the durability and quality of our machines, which are important criteria for lasting success."

*Stefan Hermes,
R&D Engineer, TRACTO*



Successful collaboration: Stefan Hermes (r.), Engineer at TRACTO, and Karsten Göbel, Sales Manager Solutions at HELUKABEL.

ABOUT TRACTO

TRACTO has devoted itself to developing solutions for the trenchless installation of pipes and cables for over 60 years. The owner-operated company, headquartered in Lennestadt in North Rhine-Westphalia, Germany, is a pioneer in this technology and is globally active with multiple international sister companies.

Learn more at en.tracto.com

Mutual Understanding and Holistic Solutions

From automation technology to wind power, or from cables to industrial luminaires, the HELUKABEL product landscape is constantly growing. As Director Product Area, Matthias Eick is always in the middle of the action working with his team to manage and expand the company's product portfolio. In this interview, he will reveal what drives him, which future trends he thinks are game changers, and what makes a day at the office a real success.

Mr. Eick, you've been a member of the HELUKABEL Family since 2021 and were initially specialised in the areas of automation and drive technology. What did your career path look like up to that point?

After completing my studies in electrical engineering, my first bit of professional experience was at a large-scale supplier of automation technology. Later, I was hired by a HELUKABEL competitor, which was my first encounter with the cables and assemblies sector. In the time I was there, I performed many different tasks before switching to HELUKABEL four years ago. As the "Head of Automation", I was at first responsible for drive and automation technology. Nowadays, as a division manager, I am accountable for the entire product area since February 2024. This includes our entire product portfolio with which we supply solutions for the most diverse applications in all sectors.

What was it that made you decide in favour of HELUKABEL at the time?

In the industry, you, of course, observe your competitors very closely, and to see how consistently HELUKABEL was growing, and still is doing, left a lasting impression on me. Another reason was that HELUKABEL is a family-run company, and I was able to identify with their mindset and principles. Compared to large corporations, things here are looked at through a more sustainable lens, which had a significant impact on my decision.

You've been in a new position as Director Product Area since last year. What exactly does this position entail?

Mid 2023, HELUKABEL decided to make organisational changes, specifically to strengthen individual business units such as sales and product management. With the restructuring now complete, I am responsible for the product area de-

partment. This includes all products in our portfolio, regardless of application or sector, including cables and wires, drag chains and drag chain systems, handling technology, and industrial luminaires. Within the product area, there are five departments which focus on different technologies. Our goal is to position the HELUKABEL portfolio as best we can to support its further development. Furthermore, we are available to advise our global colleagues in optimally marketing our products in a way that is logical and easy to understand for our customers.

What are some of your tasks in this new position? What does a typical workday look like for you?

I prefer to start the day early, so that I have a bit of quiet time before the day really starts. A large part of my job involves working with our locations and subsidiaries on a product level. I answer questions such as: What will our next products be? Which customer gave





Together with his team, Matthias Eick is working to continually optimise the HELUKABEL portfolio.

us which idea? How can we further optimise our portfolio and develop solutions for our customers? I am also in close contact with other departments, as the product area also functions as an interface between purchasing, marketing, sales, and finance.

You are also the managing director of the subsidiaries HELU Connectivity Solutions Haan and Bielefeld (previously EKD Systems and Sangel Systemtechnik). Both have been a part of the HELUKABEL Group for about three years, and with their recent renaming, the integration process has been completed. What exactly did this entail?

Both companies have been active in the market for a long time, are experts in their fields, have long histories, and have extensive know-how, especially when it comes to knowing what products their customers need. With this integration, we wanted to also integrate their wealth of knowledge into the entire HELUKABEL Group, giving us all an even better understanding of what it means to develop holistic solutions, and allowing us to offer our customers even more value. To that end, we're aiming

to adjust our portfolio and really harmonise the different products the companies of our group offer, like cables, assemblies, and drag chains, and to make it all work together as well as it can. This benefits not just us, but also our customers most importantly. We are able to supply them with perfectly tuned complete systems.

Through these acquisitions, HELUKABEL has significantly expanded its portfolio and strengthened its position as a supplier of electrical connection technology systems. What does this mean for the company and for the customers?

For us, this means that we need to really think about our products. We need to coordinate with each other as to which technological challenges and market tendencies there are that we need to adapt to, and how we can develop a holistic system out of this knowledge. For the customer, this means they can trust that they will receive a high-quality and custom solution from us. It will also be easier for them as they will now only have a single contact person for electrical connection technology instead of two or more. On the sales side of things, we want to embody the

principle of "one face to the customer". At the same time, on a product level, we want to assist our customers with our expertise and offer them the best-possible, most optimally tuned, and reliable system solutions.

Going forward, HELUKABEL aims to increasingly offer its customers comprehensive solutions. In your opinion, what is the difference between products and solutions, and what makes the solutions business so special?

The difference between products and solutions is that with solutions, we, as well as the customer, need to invest more time at the beginning. We aim to really understand the customer's needs. This, of course, requires a certain amount of effort, especially with complex jobs. But in the end, we both get something from it. We can optimally align ourselves with our customers and provide solutions that are individually tailored to their needs, and the customer has the certainty that we are able to manufacture these solutions, retain their designs, and can deliver them when and where the customer needs, anywhere in the world. For us, it

doesn't matter where the customer's next project is taking shape. We will serve them, wherever they need it. And I'd say no one comes close to us in that regard.

If you want to be a global leader, you need to be at the forefront of technology. How do you manage to keep pace with the ever-accelerating development and the high, industry-specific demands of your customers?

If you look at how HELUKABEL has developed, you'll see that we have brought many true industry experts on board. In my opinion, this is a very important step to take if you want to stay at the front of the pack. These colleagues help us to better understand the different markets and adapt to technological advancements early. Our goal is to set up a so-called "Early Involvement" system with our customers, which would involve us in technological developments at an earlier stage. This will then allow us to offer suitable products and solutions for innovative technologies. We are also concentrating on committee work to, for instance, play an active role in the standardisation process.

In your opinion, which sectors or topics have the most future potential for HELUKABEL? And what innovations does the company have in the pipeline that you could maybe share a little bit about?

We are focusing primarily on the current mega trends, such as automation, the transition to renewable energies, infrastructure, or mobility. I think big data is also a very important topic, especially the question as to how we all can better understand this ever-more networked world of ours. HELUKABEL

needs to leverage specifically this enormous potential to separate us from the masses. The transition to renewable energies is also an especially important subject for us. We have developed a comprehensive portfolio of products related to the areas of energy production and distribution, e-mobility, and charging infrastructure. In addition to this, we are working on expanding our portfolio for the automation sector, so that every customer can easily find the right product with us. For example, we recently presented a new drag chain at the Hannover Messe that is both exceptionally robust, but also quick and easy to in-

"Our goal is to understand the customer and exactly what their application calls for."

stall. The development of this drag chain required the invention of brand-new technologies, never before seen on the market. And we want to continue on this path of continual development going into the future.

A successful solution ideally means that we have a satisfied customer. What makes a workday a success to you?

I am always happy when we are able to satisfy a customer and develop a solution together that they really value. Our goal is to help our customers by simplifying things without cutting corners, whether it's in procurement or in the practical implementation of certain functions or processes. If we can manage this, then I too can go home happy and satisfied. ◀

MATTHIAS EICK HAS TO DECIDE!

Tea or coffee?

→ I start the day with a classic North German cup of black tea. After that, however, I'm a typical coffee junkie.

Suit or jeans?

→ There are certainly occasions where a suit is appropriate, but these are becoming fewer and fewer, which is good because I definitely prefer jeans.

Early bird or night owl?

→ For years, the day has started for me shortly after 5 o'clock, as I am the most productive in the mornings.

Fish sandwich or buttered pretzel?

→ I love anything to do with the ocean, including fish sandwiches. But as a frequent traveller and part-time Swabian, I've also learned to value a good buttered pretzel.

Do you prefer playing sports or watching them?

→ I really enjoy watching sports, for instance I'm a big fan of football, but I have plans to participate myself on my to-do list.

Summer or winter?

→ Summer, no competition. I prefer to be too warm as opposed to too cold.

Go camping or stay in a resort?

→ I prefer all-inclusive resorts. It's such a nice feeling to not have to worry about anything when on holiday.

Mountains or the sea?

→ I'm in my element when around water. When I'm on holiday, not a day goes by that I don't spend some time in the ocean.

City or village?

→ I feel at home in a village, as I think community is of much greater importance there. So, I would say that I am and will always be a small-town kid.

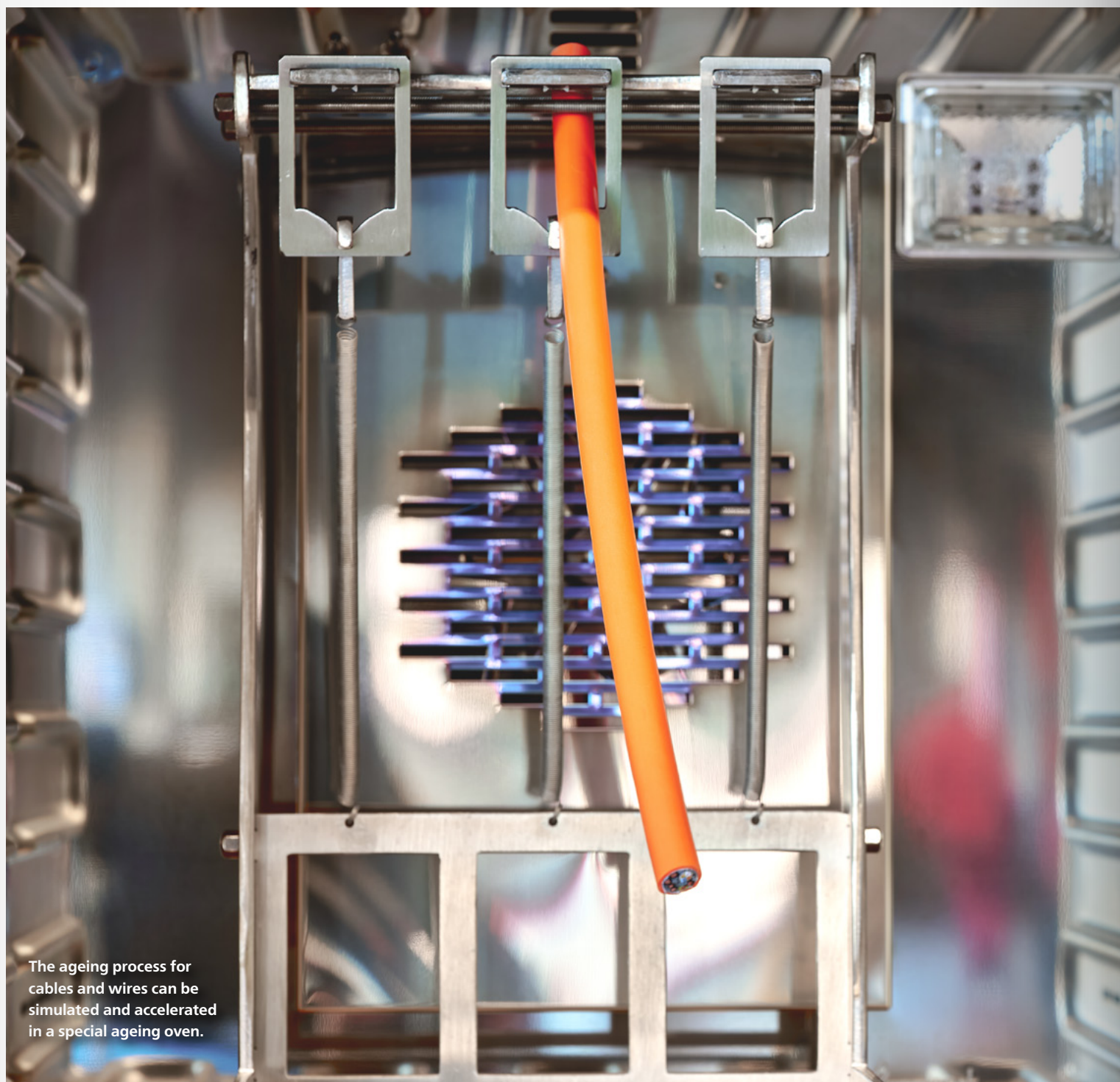


THE SERIES AT A GLANCE:

TORSION TESTS // BENDING TESTS // DRAG CHAIN TESTS // KINK AND ABRASION TESTS //
FIRE TESTS // **AGEING TESTS** // EMC TESTS

Ageing Tests

When developing our cables and wires, every product is extensively tested in our testing laboratories. In this sixth part of our series "Put to the Ultimate Test", we will explain how we perform ageing tests.



The ageing process for cables and wires can be simulated and accelerated in a special ageing oven.



© Klaus Gruber

Cables and wires for industry and infrastructure have an average lifespan of 20 years and need to be able to endure mechanical loads without developing age-related damage such as tears or breakages. To avoid this, organisations such as VDE and UL have defined standards that dictate which types of resistances to ageing that cables and wires must demonstrate. Thermal ageing, specifically, plays a role, meaning the time span in which a cable remains functional given a certain environmental temperature.

HELUKABEL performs strict ageing tests on its products according to these standards. However, waiting 20 years for a result is, of course, not an option. Instead, the insulation and sheath materials that our cables are made out of spend some time in a special ageing furnace. This method recreates specific climatic conditions, thus simulating and accelerating the ageing process. The duration and temperature are separately defined according to the standard being tested for. Typically, tests run for seven, ten, or fourteen days at temperatures between 100 - 155°C. Before and after testing, the tensile strength and fracture strain of the plastic are tested. The pre- and post-ageing results cannot differ significantly. Then and only then can the material pass the ageing test.

Since our cables are subjected to a wide range of conditions in a variety of applications, we also test for resistances to different substances in our testing laboratory. In addition to a special hydraulic testing oil called IRM 902, our experts often also receive customer-specific media to test with, and core insulation and sheath are submerged in these media for many days. Only if the materials are still able to exhibit the required mechanical strength values after this simulated ageing, may these materials be used in cable production. ◀

Ask the Expert

Which insulation and sheath materials are especially resistant to ageing?

That depends heavily on each individual application. Basically, it can be said that cross-linked materials, such as the ones we use in our high-temperature HELUTHERM cables, are the most resistant to ageing. Polyurethanes also exhibit a high resistance to ageing, while PVC ages relatively poorly. In practice, many other factors also play a role, such as whether the materials are halogen free or flame retardant, or whether the cable is used in a fixed or flexible installation. Age resistance can also be affected by different material mixtures or the use of additives.

What can be done to make a cable more resistant to ageing?

Of course, the plastic mixture used has a large impact on resistance to ageing, but even the particular manufacturing processes play an important role. Especially when extruding, meaning when the melted sheath or core insulation material is forced through a die, coating the element beneath, it's important to closely examine all process parameters, selecting appropriate ones that will later allow the cable to exhibit the required durability. If a material fails the ageing test, we always try to make procedural improvements. If this doesn't yield the desired results, a fallback material mixture should be used that is better suited for the specific case.



ABOUT THE EXPERT

Denny Effenberger-Sehm is the Head of Quality Assurance at the HELUKABEL production facility in Windsbach, Germany.

Welcome to Switzerland!

Interesting facts about the HELUKABEL subsidiary and the country



- ▶ The Swiss HELUKABEL AG was founded in 1995 and is the second-oldest, international HELUKABEL subsidiary after Sweden.
- ▶ Switzerland has always been an important international market for HELUKABEL. HELUKABEL AG supplies customers throughout the country from its location, with a special focus on the machinery industry and the manufacturing of specialty cables for demanding applications.
- ▶ The team currently consists of 33 employees. In April 2025, HELUKABEL AG moved its headquarters from Spreitenbach near Zurich to Bremgarten, just a few kilometres away.
- ▶ The new location in Bremgarten comes with a more modern building, optimised logistics processes, additional space for cable assemblies and a larger, 5,500 m² warehouse.

FUN FACTS



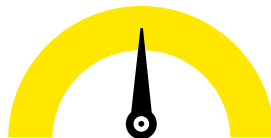
Switzerland has **FOUR OFFICIAL LANGUAGES**: German, French, Italian, and Romansh, making it one of the most linguistically diverse countries in the world.

Measuring 57 kilometres in length, the Gotthard Base Tunnel, which traverses the Alps running north to south, is the **LONGEST RAILWAY TUNNEL** in the world.



In Switzerland, many communities have **MORE COWS THAN PEOPLE**. Roughly 1.5 million cows live here and produce milk for such products as legendary Swiss chocolates.

Swiss geography is shaped not only by the peaks of the Alps, but also by its over **1,500 LAKES**! The most famous of them being Lake Constance and Lake Geneva. No other European state has so many lakes per square kilometre.



Switzerland is known for its **POLITICAL NEUTRALITY**. The country has not been involved in a military conflict since 1815 and is home to many international organisations such as the Red Cross and the United Nations.



According to current statistics, there are approximately 1,192 breweries in Switzerland. With 139 breweries per million residents, Switzerland has the **HIGHEST CONCENTRATION OF BREWERIES IN EUROPE**.



FAQ

What Benefits Do Hybrid Cables Offer in Drive Technology?

In modern production environments, available space is becoming even scarcer. Machines and systems must be built more compact and simultaneously work at higher speeds and accelerations to achieve maximum productivity. This places high demands on the components being used. They must be light and space saving, on top of being high performance.

Hybrid cables, also known as One Cable Technology (OCT), combine multiple functions into a single cable. In drive technology, they can transmit electrical power, brake and temperature monitoring signals, and digital feedback signals such as rotor position, rotational speed, and angle. Typically, two separate cables are used for this, meaning double the expenditure for their assembly and installation.

This single-cable technology reduces these expenditures significantly. Instead of two separate cables, only a single, pre-assembled cable needs to be connected. This saves not only time and space, but also money, since half the number of cables also means half the number of required connectors. Additionally, users need to stock fewer replacement parts.

More compact, efficient, and flexible

Hybrid cables are especially suited for applications in tight spaces that simultaneously demand highly precise and dynamic cables, such as in robotics, in mechanical and plant engineering, or in conveyor technology. By reducing the number of cables, the total weight is also reduced, which is a clear advantage in moving applications. At the same time, the cable error rate is reduced. Even when used in drag chains, hybrid cables provide exceptional durability.

With hybrid cables, protection against electromagnetic disruptions (EMC) is an important factor. Since energy and data-carrying cores are tightly packed next to each other, it is easy for them to influence one another. To combat this, high-quality cables are fitted with special screening such as conductive foils, double screens, or are separated by an inner sheath. Combine this with appropriate connectors to reliably avoid disruptions.

Proven Quality

HELUKABEL tests its hybrid cables under realistic conditions in highly modern testing laboratories. The quality is in the results: After more than five million bending cycles, the cables still easily transmit signals flawlessly, and the screening remains intact.

Conclusion: Hybrid cables increase efficiency and flexibility in industrial automation. They are suited for applications with tight space requirements, require less effort to install, and provide improved operational security. They are a future-proof solution that combines technology with economic efficiency. ◀

About the person:

Philipp Walter is the
Key Account
Manager Drives at
HELUKABEL



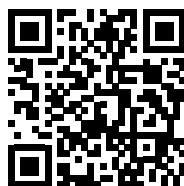
LEARN MORE

Learn more about our
hybrid cables and many
more solutions for
drive technology.
Download our brochure now!



OUR TRADE SHOW DATES

HELUKABEL will be exhibiting at various trade show around the world over the next few months. Please check our website **helukabel.de/trade-shows** for an up-to-date overview of the dates and locations. We look forward to your visit!



HELUKABEL ON SOCIAL MEDIA

We use our social media accounts to share all the latest news from the HELUKABEL world with you: from product innovations and successful customer projects to delving deep and sharing knowledge on technical topics concerning electrical connection technology. Would you also like to stay up to date? Then follow us! We can be found on the platforms listed below:



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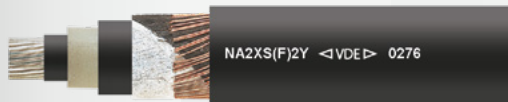
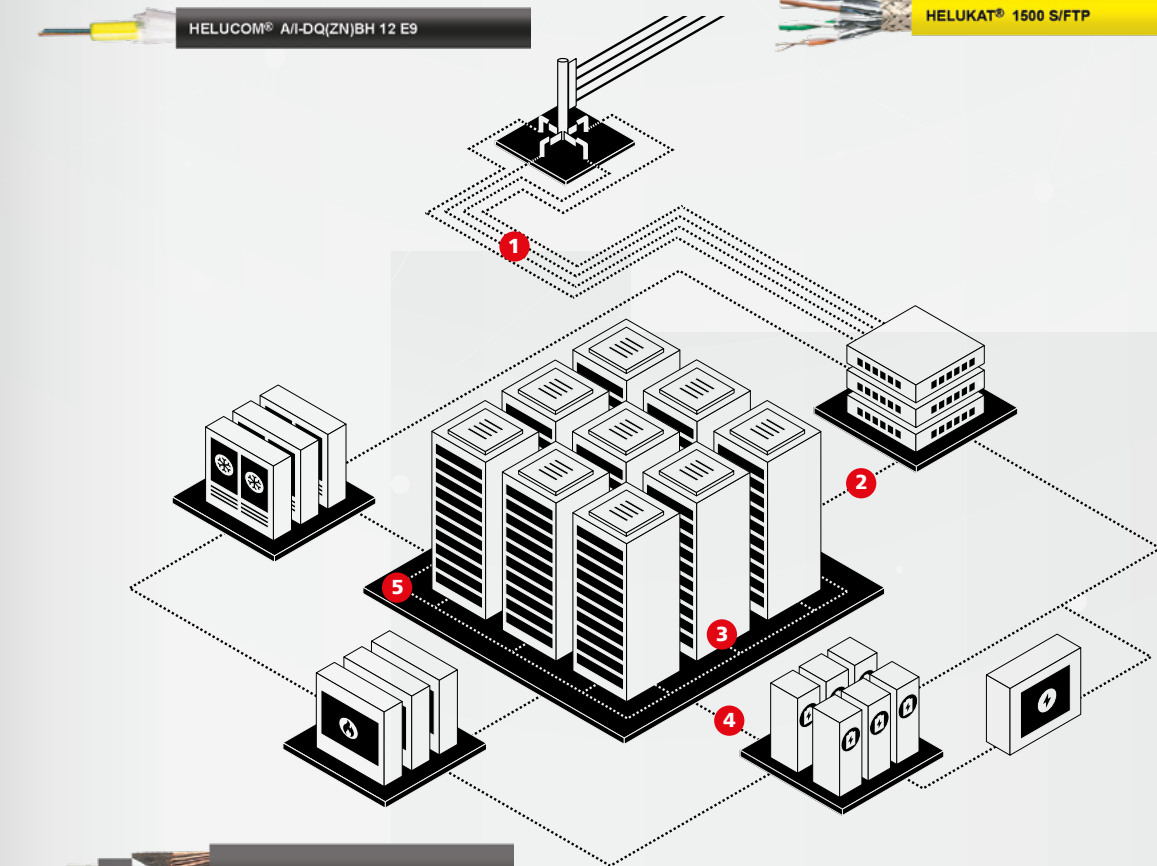
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The HELUKABEL portfolio contains a number of solutions for data centre cabling that reliably transmit energy and data to their destinations in a variety of applications. If the hardware makes up the brains of artificial intelligence, then the cables are the synapses.

- 1 Universal fibre-optic cables** are used to connect data centres to the outside world and are suited for transmitting large quantities of data. Depending on the distance covered, fibre-optic cables with single-mode or multi-mode fibres are used.



- 2** For the internal cabling of data centres, copper HELUKAT 1500 type cables are employed. These data cables are characterised by their large reserve capacities and exceptional performance.

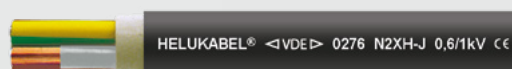


- 4 Medium-voltage cables** such as the NA2XS(F)2Y are needed, for instance, to connect data centres to the power grid. They transmit large quantities of electrical energy, which makes the enormous computing capacities of artificial brains possible.

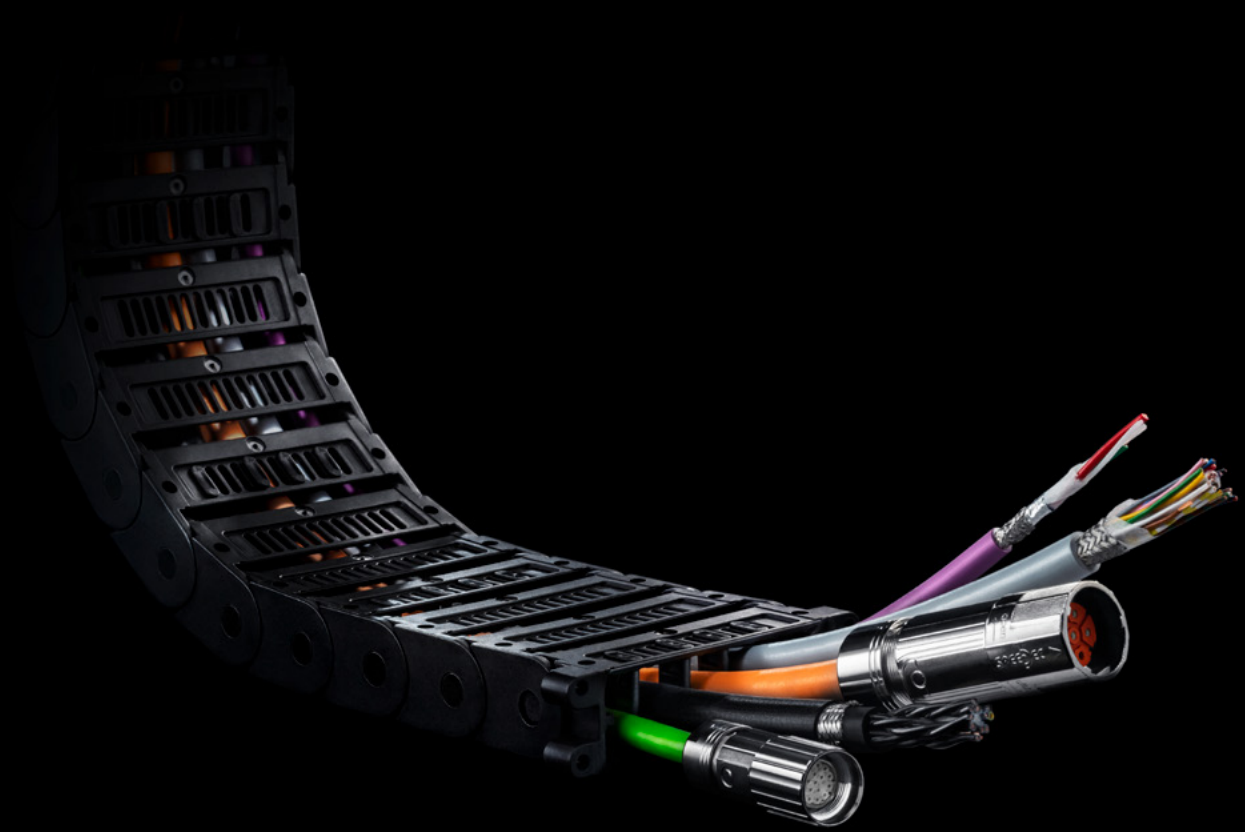
- 3 Fibre-optic patch cables** such as the HELUCOM CONNECTING SYSTEMS I-VH are also utilised in the internal cabling of data centres. They are used to exchange data between servers and network technology.



- 5** Inside data centres, **low-voltage cables** such as the N2XH or N2XCH are used to supply energy. They supply not only the servers, but also other technology such as fire protection, ventilation, and climate control equipment.



Chains, Cables, Assemblies: Quality from a Single Source



**(Channeling
POWER)** 

