The HELU Group Customer Magazine — Autumn 2026

POWER

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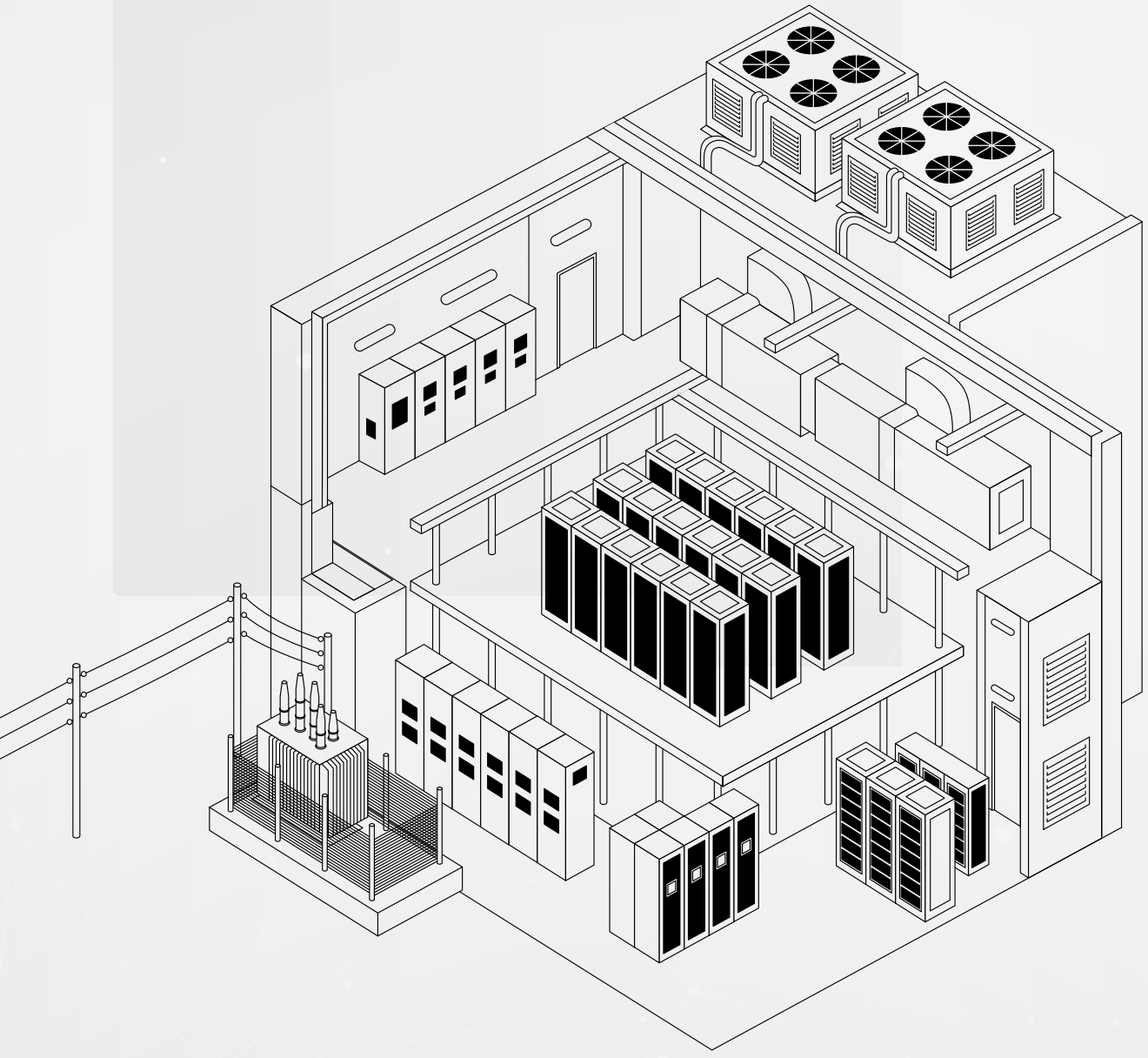
Navigating Infinity with Precision

How HELU Drag Chains Make Peering Into the Universe Possible.

Always stay electrified.

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From the Grid To the Rack



In data centres, power supply, cooling, and data transmission present different challenges for connection technology. HELU has a broad portfolio of cables, wires, and accessories that are tailored according to each function—from grid connection to the server rack.

Learn more on page 39



Dear Reader,

Data centres have become an integral part of our daily lives—even if we barely see them. Whether in cloud applications, artificial intelligence, video conferences, or networked production, they are in the background ensuring the consistent availability of enormous volumes of data. As digitalisation advances, the importance of data centres grows, along with the demands for performance, efficiency, flexibility, and sustainability.

This is why the focus of this issue of POWER is on data centres. Our customer Gföllner provides us with a compelling illustration of this. The Austrian company develops mobile and modular infrastructure solutions that allow for the flexible, demand-driven expansion of data centre capacities.

For another equally fascinating application, we take a look at the Atacama Desert in Chile. CPI Vertex utilises HELU drag chains in the radio antennas that make up the ALMA telescope. Here, they are subjected to extreme conditions and the highest demands for reliability and precision.

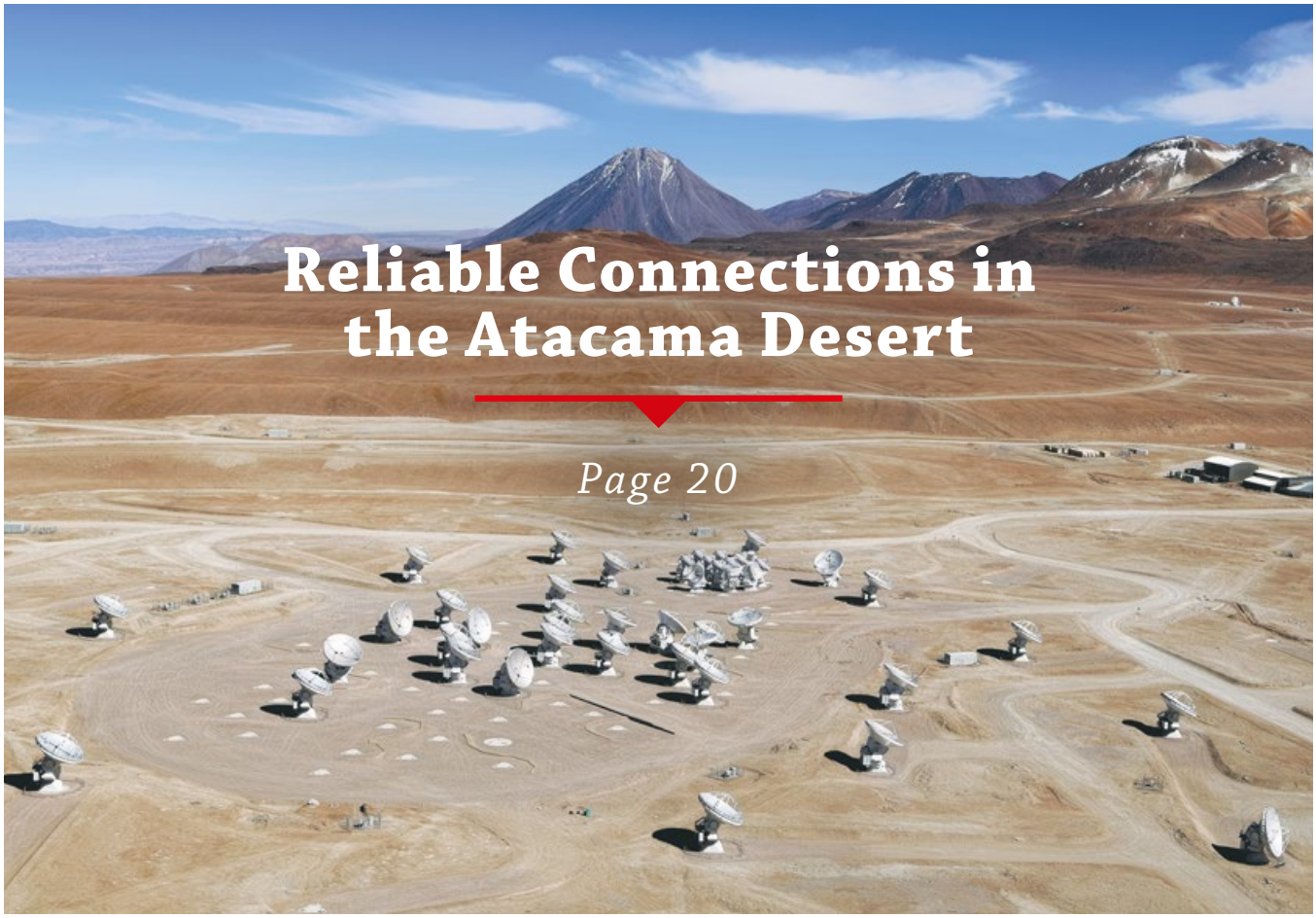
Sustainability also plays a large role in this issue. In our interview with our experts, Katharina Lehr and Cosima Deutschländer, we talk about how companies can both reduce their impact on the environment and climate, as well as make it more transparent. Additionally, we discuss how we at HELU tackle these challenges.

These articles show just how versatile modern connection technology has become. It keeps digital infrastructure running, as well as supports cutting-edge scientific research and the development of future-proof industrial solutions.

I wish you an enjoyable read!

Sincerely yours,
Marc Luksch, Managing Director

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Reliable Connections in the Atacama Desert

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In Brief

New to the Programme

INDUSTRIAL LUMINAIRES IN THE ONLINE SHOP

HELULIGHT brand industrial LED luminaires can now be found in the HELU Online Shop. At the same time, the product range has expanded to include additional, new models such as the robust and versatile HELULIGHT SOLID30, the HELULIGHT TUBE for applications with stringent hygiene requirements, the wide-area HELULIGHT SURFACE50, and the space-saving HELULIGHT INTEGRATED.

DATA CABLE FOR POWERFUL LIVE PERFORMANCES

HELU expands its portfolio with the HELUEVENT Cat 7 PUR BROADCAST FLEX cable, a robust data cable designed for event and media technology. Its soft, PUR outer sheath provides for comfortable haptics and makes daily handling easy. At the same time, the cable is more flexible than traditional office data cables, making it highly suited for the particular requirements of stage and event applications.

SERVO CABLES FOR DRAG CHAIN APPLICATIONS

The HELUCHAIN TOPSERV 221-TPE UL/CSA servo cable was specifically designed for use in highly dynamic drag chain applications. Its high-quality, TPE outer sheath makes it resistant to abrasion, UV radiation, and temperatures, and thanks to its UL/CSA approval, the cable is suited for use in the North American market. These cables can be quickly stripped without the use of tools due to their integrated ripcord, thus saving time during assembly.

Modern Offices for HELU Switzerland

The Swiss HELU subsidiary held the grand opening for its new offices in Bremgarten near Zurich. The modern, new construction marks an important step in the development of the company and lays optimal groundwork for further growth.

With around 5,500 m² of warehouse space and over 6,000 pallet spaces, the new offices have more room for better logistics capabilities, and their production capacities for producing, e.g., cable assemblies, have expanded significantly. The new infrastructure features attractive, ergonomic workstations and a showroom. “Since we started in 1995, we have made ourselves into a reputable partner and supplier for Swiss industry,” Renato Guccione, Managing Director of HELU Switzerland, tells us at the opening celebration. “With our new offices, we look forward to being able to process orders more quickly and efficiently.”



Markus Hilbig: New Managing Director at KABELMAT



On 1 June 2026, Markus Hilbig assumed the role of Managing Director of the HELU subsidiary, KABLEMAT Wickeltechnik. He brings more than 15 years of leadership experience in medium-sized manufacturing companies, as well as comprehensive expertise in optimising, digitising, and transforming operative processes with him.

At KABELMAT, Markus Hilbig intends to support the company's growth first and foremost through his strengths in enhancing operational processes and developing staff. We wish him nothing but success! Welcome to the HELU family!

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HELU Is Now a Member of the German Datacenter Association



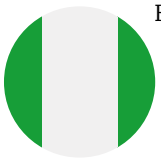
The HELU Group is one of the newest members to join the German Datacenter Association e.V. (GDA). With this, the company is stepping up its involvement in the German data centre industry network.

"Data centres are a key component of digitalisation, innovation, and economic performance. As a member of the GDA, we look forward to deepening our exchanges within the industry and contributing with our broad experience in the field of electrical connection technology. Our goal is to work together with partners and customers to create solutions that satisfy all of the requirements of modern digital infrastructure," says Marc Luksch, Managing Director of HELU Germany.

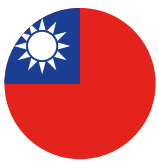
With its membership in the GDA, HELU is eager to take on an active role in guiding current developments within the data centre industry and to utilise its own systems competence to support this dynamically growing, future market.

New Subsidiaries in Nigeria and Taiwan

The HELU Group is expanding its international presence even further: with new subsidiaries in Nigeria and Taiwan, the company is building closer ties with important growth markets and local customers.



HELU Nigeria is located in the country's economic centre, Lagos, and will be led by Solomon Ezenne. Born in Nigeria, he is intimately familiar with the local market and the customers' needs. Over the past two years, he worked at HELU in Germany servicing the Nigerian market from there. As managing director, he will assume the task of building up and strengthening the local subsidiary. Nigeria offers great potential in the energy, infrastructure, and telecommunications industries, to name a few.



HELU is also strengthening its local presence in Taiwan. The new subsidiary is located in Taipei, a globally leading hub for research and technology companies. Led by Ying-Lan Yang, HELU Taiwan consists of a three-person team. They are focusing in particular on semiconductors and industrial automation. Furthermore, the subsidiary will support Taiwanese customers with international projects together with the global HELU Network.

Standing Behind the VfB Women

The VfB Stuttgart women's football team achieved a remarkable feat by making club history in the summer of 2026 with their promotion to the Women's Bundesliga. From the 2026/27 season onward, the VfB Women will take to the pitch featuring the logo of the HELU Group on the rear of their shirts.

"We are proud to be a part of this historic moment and are looking forward to standing by them as new history is written," says Dr. Petra Luksch, Head of Global Marketing Communications at HELU. "We share values such as team spirit, passion, and the drive to achieve success. This is what makes this partnership so special."



HELU has been an official Club Partner of VfB Stuttgart since 2024, one of the sporting clubs with the most members on the entire planet. The shirt sponsorship with the women's team takes this cooperation to the next level. "Whether in industry, power distribution, or in the football stadium, our goal is always to create long-term connections," emphasises Dr. Petra Luksch.



The Heart of the Digital World

How data centres keep cloud systems, AI, and industry running, and what role electrical connection technology plays.

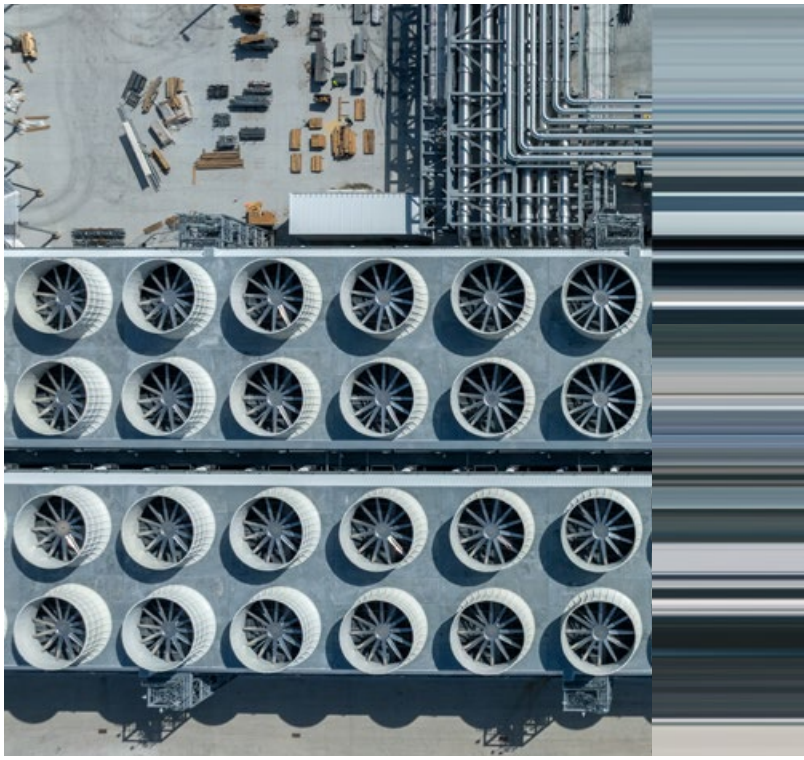
Without data centres, there would be no cloud, no networked production, and no artificial intelligence. However, holding up this digital world is enormous physical infrastructure. Power supply, cooling, and data transmission must work in harmony around the clock. With growing power density come increasing requirements for connection technology.

Whenever you think of a data centre, you probably imagine long rows of blinking server racks. Modern data centres, on the contrary, are more akin to high-availability, industrial systems. Electrical energy is fed in and distributed, and servers process data and generate heat which must then be extracted from the building. In the middle of all of this, you will also find transformers, substations, battery systems and uninterruptible power supplies (UPS), emergency generators, pumps, fans, sensors, fire alarms, and security technology. All of these systems must be reliably supplied with power, signals, or data. In this regard, cables and wires effectively form the neurons of the system.

Demand is growing rapidly, particularly due to cloud applications and artificial intelligence. According to Bitkom, data centres in Germany reached an installed capacity of approximately 2,980 megawatts in 2025, with electricity consumption standing at 21.3 terawatt-hours. AI applications already accounted for around 15 per cent of installed capacity, a figure that could reach roughly 40 per cent by 2030. The International Energy Agency expects global data centre electricity consumption to roughly double by 2030 compared to the middle of the decade.



Thomas Merkle manages HELU's Data Centre segment and is keenly aware of the industry's needs and requirements.



PHYSICAL INFRASTRUCTURE FOR DIGITAL GROWTH

What appears to be a digital development is, in reality, quite physical. Greater computing power requires increased electrical power, higher-capacity cooling, and infrastructure that operates reliably despite growing loads. This is precisely wherein one of the key challenges lies: data centres must not only become larger, but simultaneously more efficient, flexible, and sustainable.

In the view of Thomas Merkle, who is jointly responsible for the Data Centre segment at HELU, connection technology is only considered in detail during late planning stages in many projects, despite being what links numerous trades together. If cross-sections, cable routes, bending radii, fire safety requirements, EMC, or connection points are specified too late, this can result in higher losses, thermal issues, additional installation effort, and constraints on future expansion.

"The most expensive cable in a data centre is often not the one with the highest price per metre, but the one that is incorporated into planning too late," as Merkle succinctly puts it. Selecting the correct cable depends to a large extent on the specific application. Power supply demands high current-carrying capacity, minimal voltage loss, and robust temperature resistance. For frequency-controlled pumps and fans, screening and electromagnetic compatibility (EMC) play a vital role. Fire behaviour, smoke emission, and corresponding CPR classifications also come into play in building installations.

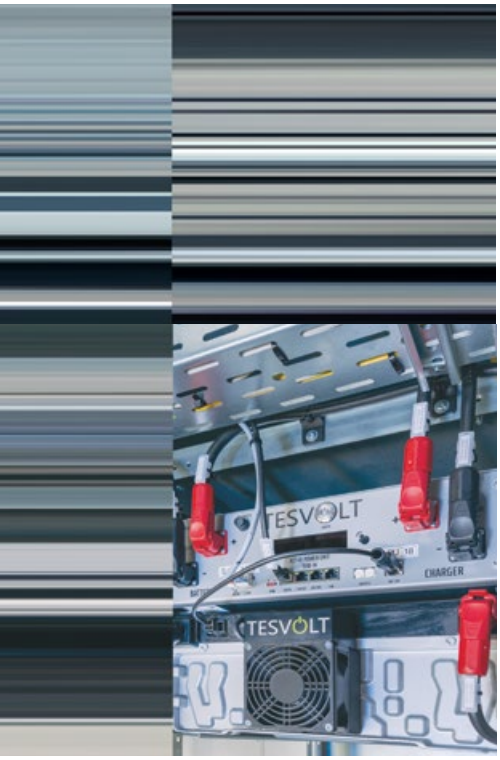
For such installations, more isn't always better. A cable with the maximum specifications is not necessarily the most economical or sustainable solution. It is important to meet the requirements as precisely as possible while avoiding undersized cables or the use of unnecessary materials.

AI CHANGES POWER SUPPLY AND COOLING

This is particularly clear in AI infrastructure where high-density GPU (Graphics Processing Unit) systems for image and video rendering pack significantly more computing power into a smaller footprint. This, however, causes the energy requirements and thermal load of the rack to increase. With high power densities, processors in particular, and increasingly memory modules, rely on direct liquid cooling. Power architecture could also evolve, with high-voltage direct current systems already being developed for future AI infrastructure to reduce conversion losses and material requirements.

This transforms connection technology across several levels, as power cables must reliably handle higher loads and direct current while more complex

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cooling circuits require additional pumps, frequency converters, valves, sensors, and control components. Data infrastructure must also handle higher bandwidths and more fibre-optic connections within a limited space.

Merkle's conclusion is therefore: future-proof does not mean simply installing larger-cross-section cables everywhere today. Maintaining spare capacity in cable routing, physical space, thermal rating, and interfaces is of greater importance. It should be possible to add new power and data connections later without needing to rebuild the data centre from the ground up.

A QUESTION OF LOCATION—AND ACCEPTANCE

As the industry grows, so too does the intensity of societal debates. Data centres are the backbone of the infrastructure required for digitalisation and AI, however they also require significant amounts of electricity and, depending on what type of cooling system is in use, water. Local factors such as space requirements, the integration of high-capacity grid connections, and potential noise emissions, such as from dry coolers and emergency power systems, also play a key role. At the same time, waste heat is being continuously generated, which—provided suitable off-takers and heating networks are available—can be utilised for energy.

HOW CAN POWER SUPPLY FOR DATA CENTRES BE DESIGNED TO BE FUTURE-PROOF?

"Power supply must be included in planning from the beginning. The most important question is not where a data centre can be built, but rather when the required power will actually become available at that particular location. This is why it is important to establish close collaboration between operators, planners, grid operators, and energy infrastructure partners in early project stages. This allows for connected power capacity, expansion paths, and supply security to be realistically planned for.

At the same time, power supply for data centres is increasingly being thought of as an integrated system. The public power grid remains the backbone that is supplemented by local power generators, renewable energies, battery storage systems, emergency power supplies, and intelligent controls. These technologies ensure a reliable timeline for power supply, improve flexibility and resilience, and contribute towards the improved efficiency of energy consumption."



JANNIS LANGE
Global Lead Data Center Solutions,
E.ON Energy Infrastructure Solutions





WHICH FACTORS REPRESENT THE GREATEST RISKS FOR THE AVAILABILITY OF DATA CENTRES?

"The greatest risks lie in the interfacing between different systems, such as where power supply, cooling, and network technology intertwine and a singular error can result in cascading damage. Power supply is often overlooked in this regard. A data centre is only as reliable as its most unremarkable component—in this case, the emergency power system that needs to be able to take over within seconds.

For availability, the correct labelling and documentation of cables play an important role. In emergencies, having to search for which cable belongs to which system costs valuable time. Comprehensible cable routing and up-to-date documentation are the basis for quick troubleshooting and safely making modifications during live operation. It can mean the difference between a quick interruption and a full-blown outage."



JENS AHLBRAND
Managing Director,
GRASS-MERKUR GmbH & Co. KG





The fact that energy and water consumption must now be systematically recorded and rendered more comparable at an EU level demonstrates how resource efficiency has become a key factor regarding location and acceptance.

And it is for this reason that the discussion should not be reduced to the question of how much energy a data centre consumes. It is equally as important to ask how the required energy will be used, how adaptable the systems are to future technology developments, and how much of the infrastructure needs to be rebuilt to accommodate changes?

CAN CONNECTION TECHNOLOGY LEAD TO BETTER SUSTAINABILITY?

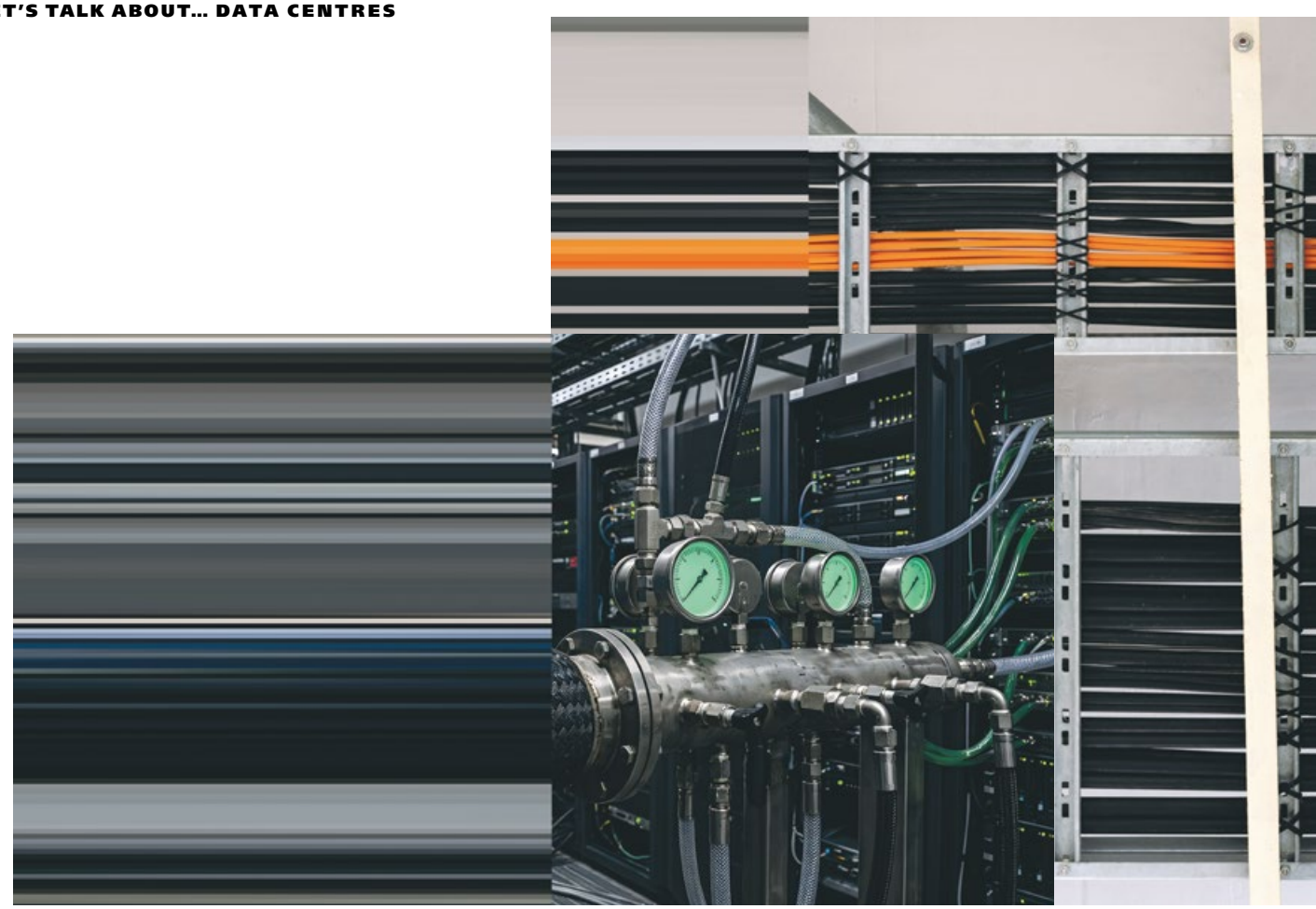
Cables alone cannot make a data centre sustainable. They can, however, contribute towards the efficiency of the overall system. Cables with the correct dimensions and intelligently planned routing reduce electrical losses and unnecessary thermal loads. Having the right connection technology for variable-speed pumps and fans is important for the reliable and efficient operation of cooling technology. At the same time, control and data cables are required for sensors, actuators, and management systems to be able to precisely measure loads, temperatures, and operating states and to control systems according to demand.

Then there is the material side of the equation. Regularly oversizing cables leads to more copper and plastic being used than is technically required. On the other hand, skimping during planning can lead to costly modifications down the line. The more sustainable approach sits somewhere between the two: being precise in specifications while simultaneously planning with future expansions in mind.

WHEN DELIVERY CAPACITY BECOMES A KEY FACTOR FOR SUCCESS

In addition to the technical construction of large data centre projects, the speed of execution is becoming more and more important. Markus Dannheim, Chief Sales Officer at HELU, considers last-minute changes to quantities, changing requirements, and client-side resource constraints as typical challenges. “Customers are no longer merely asking for a product, but rather support with engineering, custom assemblies, logistics, and international implementation,” he explains.

HELU’s high ex-stock availability and in-house production capabilities help them to meet even high or short-notice demand. Cables can be pre-cut to length, bundled ready for installation, and delivered on demand in the precise sequence needed.



"For the customer, this streamlines on-site operations and minimises the risk of errors or delays," emphasises Dannheim.

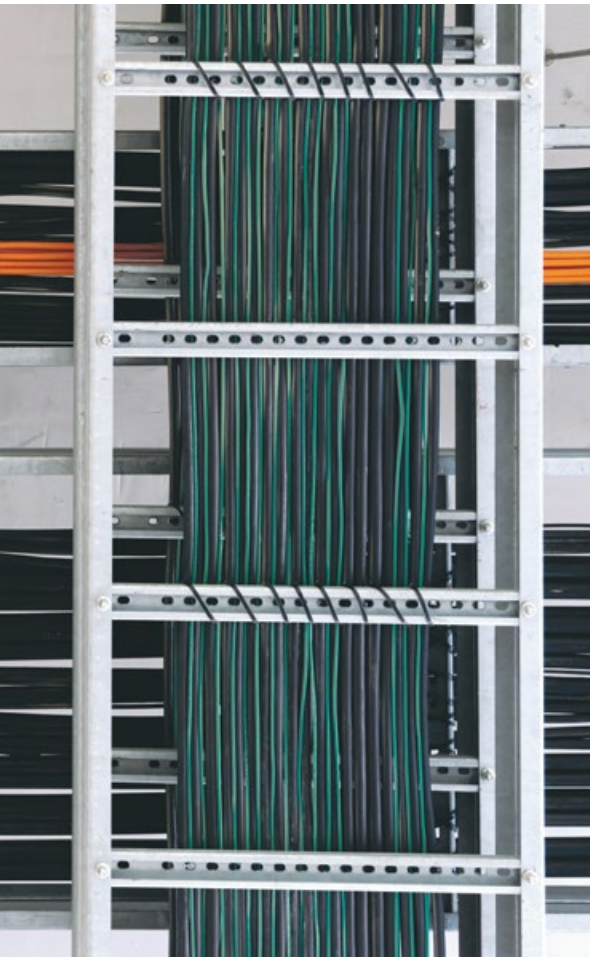
Because the shift towards modularly constructed data centres is driving incremental expansion through standardised power, data, and cooling interfaces, pre-assembled, clearly defined connections are becoming essential for rapid scalability.

As major operators seek to standardise technical architecture across multiple sites, international projects must reconcile two opposing forces. They need unified global designs, but they must still adapt to varying local approvals, regulations, and supply chains. For Dannheim, the ability to realise functional designs with global consistency while adapting them to local markets is therefore becoming increasingly vital.

KEEPING FUTURE OPTIONS WIDE OPEN

Beyond international borders, flexibility must also address future demands, where power densities, cooling concepts, and power architectures are evolving quickly. It is not possible to anticipate every technological advancement, and not all existing data centres are able to be so flexibly reconfigured. This is why it is so important to define all possible use-case scenarios and implement flexibility into the design early where it is technologically and economically sensible. Modular concepts, sufficiently sized infrastructure pathways and standardised interfaces can help with the expansion of capacities according to demand.

The digital world may appear immaterial. Its foundations, however, are not. Cloud applications, AI, and networked industry only function when power, data, and heat are physically managed and well-thought-out down to the last connection with regard to reliability and efficiency.





For Markus Dannheim, Chief Sales Officer at HELU, delivery capacity is of significant importance for data centre projects.



REGARDING DATA CENTRE EFFICIENCY, WHAT IS ONE THING THAT IS COMMONLY UNDERVALUED?

“The one thing that is commonly undervalued is building automation. This is where the information from electrical technology, cooling, sensors, and many other sources comes together. The technical infrastructure can only run efficiently if this data is fully available and control strategies are properly tuned.

A simple example for this is free cooling. If the outdoor temperature is cool enough, this allows for the reduced demand for mechanical refrigeration, or even for such systems to be turned off. In order for this to occur automatically, sensors, controls, and refrigeration technology must be correctly connected to one another from the planning stage. If this information is missing or if thresholds are programmed incorrectly, the data centre may begin consuming unnecessary amounts of energy. This why I consider building automation one of the most important systems when it comes to efficient operations.”



PETER JUNKER
Associate Partner, Drees & Sommer SE

Computing Power by the Container

Gföllner relies on HELU for the cabling in their mobile data centre solutions.



© Gföllner Fahrzeugbau und Containertechnik GmbH

Data centres require high-performance infrastructure that is quickly available and can be flexibly scaled for future growth. The Austrian manufacturer of technical containers, Gföllner, packs complex power supply, cooling, and backup technology into modular and mobile solutions. For cabling these high-tech systems, the company relies on HELU for cables such as connection and control cables. This is a partnership that pays off, particularly in international projects.

The Austrian company Gföllner develops and manufactures large technical containers in which key data centre components can be fully pre-assembled. The containers can, for example, house uninterruptible power supply (UPS) systems, power distribution units, heating, ventilation, and air conditioning (HVAC) systems, as well as monitoring systems. The modules are extensively fitted and tested at the factory. This results in ready-to-connect solutions that can be quickly set up at their eventual place of use and commissioned with minimal personnel.

COMPLEX INFRASTRUCTURE FROM A SINGLE SOURCE

One of their key strengths lies in their high level of vertical integration. Gföllner intertwines engineering and construction, steelwork and sheet metal working, welding technology, corrosion protection, technical equipment, and final assembly. This allows for even complex, large-scale projects to be realised by a single source. Depending on the project, the container designs can measure up to 25 metres in length, be 5 metres wide, and 4.2 metres in height. Beneath a raised floor with a height of up to a metre, power, signal, and communication cables can be organised and installed separated from one another. "This approach allows us to turn a container into a mobile utility or technology room—a core building block of critical infrastructure," explains Christoph Hagauer, Head of Engineering Technical Containers at Gföllner.

NO CABLES? NO AVAILABILITY.

Electrical connection technology is critical for the reliable operation of these systems. Gföllner sources connection and control cables from HELU for wiring power supply and distribution systems, as well as other electrical and control components within their technology containers. A large proportion of these cables are currently destined for projects in the USA, for example, for data centre modules and technical systems that require a reliable power supply at remote or particularly demanding installation sites.

The portfolio of solutions used in these containers includes the halogen-free, oil-resistant, and highly flame-retardant control and connection cables from the MEGAFLEX series or the JZ-604 TC TRAY CABLE which, thanks to its TC-ER approval, is suited for exposed installation on cable trays. Gföllner also uses particularly robust SUPER-PAAR-TRONIC 340-C-PUR data cables. All cables supplied have the UL approvals required for the US market. This is an important criterion for the export-oriented systems engineers.


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The requirements can vary considerably from project to project. Depending on the intended use, halogen-free versions are available for indoor applications, while UV-resistant cables may be employed outdoors. Many applications also require resistance to oil or chemicals. “For data centre projects, there is no room for compromise when it comes to infrastructure,” stresses Hagauer. “Once installed, our technology containers must operate reliably and integrate seamlessly into the overall system. To achieve this, we need components that we can trust to have the quality, approvals, and availability we can rely on.”

WHEN DELIVERY CAPABILITY BECOMES A COMPETITIVE ADVANTAGE

Gföllner and HELU have worked together for almost 20 years. While competitive pricing has played an important role, predictable deliveries and fair, customer-focused collaboration have been particularly crucial to this long-term partnership. The importance of these factors became particularly clear during and after the COVID-19 pandemic. Globally, supply chains were put under pressure as the availability of raw materials and components was severely limited. “For us as systems engineers operating internationally, a missing component can quickly put the plan for an entire project in danger,” says Gerhard Mühlbacher, Head of Procurement at Gföllner. In this situation, HELU was able to score major points with high deliverability thus contributing to Gföllner’s ability to complete ongoing projects in a timely manner.

“On a demanding, international stage, it’s not just important that a cable is technically suitable. It’s equally as important that the right design is available when it’s needed and that all relevant requirements for the target market are met,” explains Moritz Barlage, Head of Sales Europe at HELU. "This is precisely where we aim to give our customers peace of mind: technically, logistically, and through personal support." After all, errors often only become apparent when a required approval is missing, a delivery date shifts, or a cable fails to meet the requirements for an application. Therefore, the goal is to remove such risks from the project as early as possible.

A FUTURE CONNECTION

The boom in AI applications, cloud computing, and decentralised IT infrastructure is likely to continue to drive further demand for high-performance and flexibly scalable data centres. For suppliers like Gföllner, this opens up additional possibilities: Rather than constructing all infrastructure directly on site, core functional areas can be prefabricated as modules, tested, and subsequently transported to their destination virtually ready for installation.

Behind that hides complex interplay between many components. Steelwork, cooling, power distribution, safety technology, and in the middle of it all, many metres of cables and wires that ensure that power and signals are delivered where they are needed. “HELU is the ideal partner for this. They are able to reliably provide us with everything we need in the highest of quality and from a single source,” summarises Gerald Schützenberger, Senior Expert Engineering for Technical Containers. “We are very pleased with the collaboration and already planning our next joint projects.” ◀



"Once installed, our technology containers must operate reliably and be able to be seamlessly integrated into the system. To achieve this, we need components that we can trust to have the quality, approvals, and availability we require."

Christoph Hagauer, Head of Engineering, Technical Containers, Gföllner





1 **HELU supplies Gföllner with connection and control cables for wiring infrastructure and systems technology.**

2 **Reliable and predictable delivery times help build the backbone for long-term partnership.**

3 **In the Gföllner factory, connecti-on-ready modules are produced that can then be quickly installed and put into operation on site.**

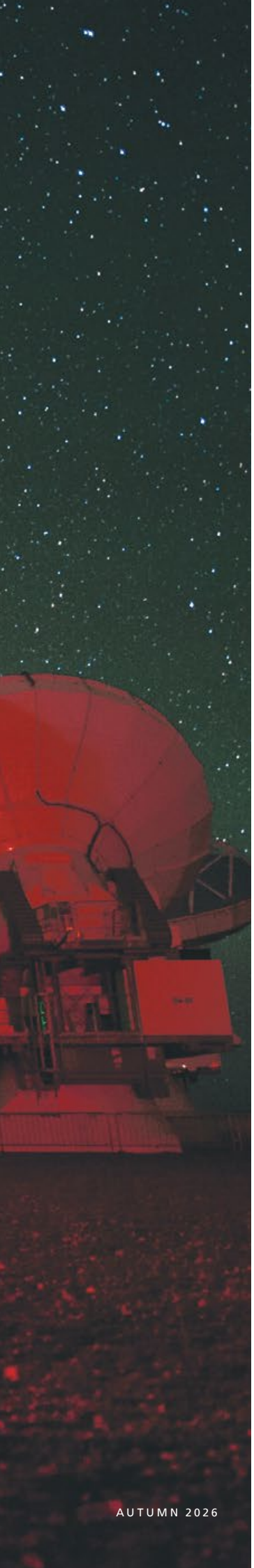
ABOUT GFÖLLNER

Gföllner develops and manufactures solutions for container technology, railway technology, automotive manufacturing, and the rental container sector. The company achieved a turnover of 143 million Euros for the 2025 financial year. In the data centre sector, the portfolio includes power supply modules, compute cluster modules, emergency power and backup containers, and server environment containers.

Learn more at gfoellner.com



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The Window to the Universe

The ALMA radio telescopes from CPI Vertex are looking for the beginning of the universe. In order to capture these signals, the utmost precision is required from these 100-tonne antennas. HELU drag chains deliver reliable performance, even in the inhospitable environment of Chile's Atacama Desert.

The light bouncing off the parabolic reflector this morning has already been travelling for billions of years. It originates from a time before the earth even existed. And yet, it is not lost.

The antennas capturing this light weigh around 100 tonnes and have reflectors that are 12 metres across. Sixty-six of these giants are spread across a vast area of Chile's Atacama Desert. The installations are up to 16 kilometres apart, and together, they form the world's largest telescope capable of detecting electromagnetic radiation in the submillimetre wavelength range. This is how the Atacama Large Millimeter/submillimeter Array, or ALMA for short, got its name.

The Chajnantor Plateau is, so to speak, the window to the universe. Here, scientists from all over the world search for answers to the truly big questions: How do stars, planets, or even entire galaxies form? How did the earth form? Are there other forms of life out there?

NO SIGNAL IS LOST

Perhaps it is no coincidence that, on a plateau 5,000 metres above sea level, it feels a bit like being on another planet. The air is thin; the ground is dry... Perfect conditions for the antennas. The extremely dry air means that hardly any signals from space are lost.

ALMA detects radiation in the part of the electromagnetic spectrum between infrared light and radio waves that is invisible to the human eye. The signals originate from the coldest and most remote corners of the cosmos, emerging from distant galaxies and cold clouds of gas and dust where new stars are forming. For optical telescopes, these dust clouds are impenetrable. However, the longer-wavelength radiation is not lost in the darkness. In this way, the observatory is able to peer directly into the nurseries of stars and planets.

To achieve this, the 66 individual radio antennas are linked together and function as a single,

giant telescope that works just as precisely as each individual antenna. For this to work smoothly, they must be able to move in perfect synchronisation, always pointing precisely at the same point in the sky.

MAXIMUM PRECISION, MADE IN GERMANY

Around the globe, there are only a few firms that have mastered the construction of antennas this precise. Of the 66 total ALMA antennas, 25 were constructed by CPI Vertex Antennentechnik GmbH. The company located in Duisburg works with space agencies like the ESA and NASA, research institutions like the Max-Planck Institute, and telecommunications companies around the globe. "You can think of our company as one large engineering firm," explains Lars Springer, Head of Procurement at CPI Vertex. These plug-and-play antennas are pre-integrated in Duisburg. This enables the company to guarantee swift, hassle-free installation for clients around the globe.

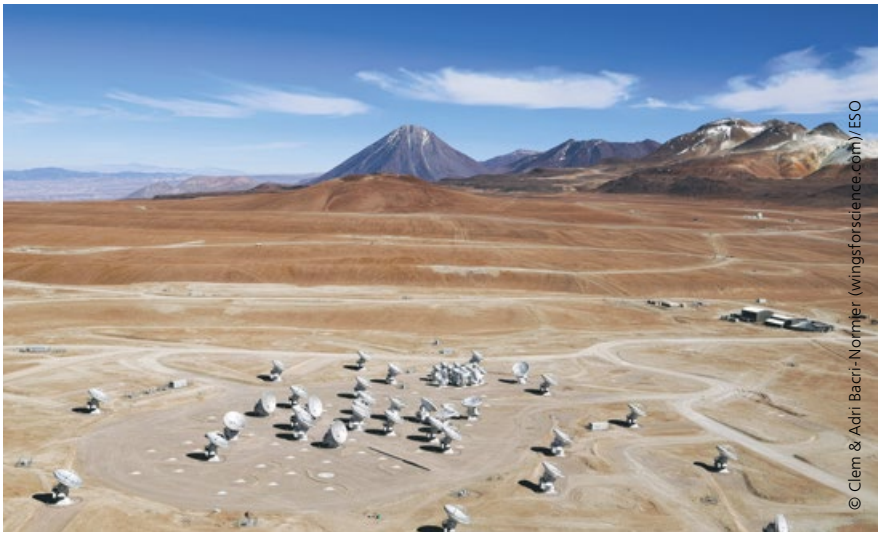
> **"We can always rely on HELU's competence."**
>
> *Lars Springer, Head of Procurement, CPI Vertex*

For the ALMA project, the antennas are assembled at the base station at an altitude of 2,900 metres, and subsequently transported to the plateau using specialised vehicles. There, the antennas have now been in continuous operation for over ten years, delivering numerous new scientific discoveries and insights.

CABLE MANAGEMENT IN EXTREME CONDITIONS

HELU solutions also play a role in ensuring that these giant instruments operate reliably in this inhospitable environment. Tracking a single point in the sky over the span of hours requires the antennas to move continuously. This really puts the electrical connection technology to the test. As repair work at altitudes of over 5,000 metres is extremely





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A view of the desert where 66 radio antenna form the ALMA Telescope.



Radio antenna from CPI Vertex weigh around 100 tonnes and can be adjusted down to the millimetre.

© AUI/NRAO, Carlos Padilla



For the sharpest images possible, all of the antennas must move in perfect sync.



Steel drag chains from HELU provide the cables on the axes of the antenna with gapless protection.

ABOUT CPI VERTEX

Located in Duisburg, CPI Vertex Antennentechnik GmbH develops and constructs highly precise antenna systems, radio telescopes, and turnkey ground stations. The company originated from Krupp Industrietechnik in 1993 and is now part of the US-based CPI Group. Its clients include telecommunications companies, research institutions, and space agencies worldwide.

Learn more at vertexant.com

difficult and maintenance at the base station is very time-consuming, it must be particularly durable. And this in one of the driest deserts on earth. The technical components are subjected to dust and sand stirred up by gusts of wind, intense UV radiation, and large fluctuations in temperature. "Conditions in the Atacama Desert are extreme," says Lars Springer. Nevertheless, the antennas are expected to operate continuously for 10 to 15 years.

Without special protection, the cables and wires installed on the antennas to supply power to their motors and control systems would be unlikely to operate reliably for so long. The external conditions would put even the highest-quality sheath material under such strain that damage and failures would eventually occur. This is why CPI Vertex has already been relying on the expertise of HELU for decades. Two custom versions of the HELUCHAIN STEEL LINK 4-SL steel drag chain, alongside four SFK stainless steel HELUCHAIN STEEL LINK 1-SF conduits for each antenna, protect the cables along the axis that allows the antenna to tilt up and down.

The true innovation is at the ends. Where a cable would normally leave the drag chain unprotected for a few centimetres, desert dust and UV radiation would have found a point of weakness. "To combat this, we constructed additional, robust connection boxes," explains Karsten Göbel, who as Sales Manager Solutions at HELU is providing guidance for the project. "Like a dust cover, they provide gapless coverage for the cables."

PARTNERS FOR 30 YEARS

Lars Springer looks back positively on the collaboration in developing these designs. "We can always rely on HELU's expertise across numerous other projects as well," he says. For around 30 years, he has been in touch with his contact at HELU, Karsten Göbel. "Our communication has remained quick, unbureaucratic, and consistently excellent over all these years," praises Springer.

Over time, this has led to an increasing number of joint projects. CPI Vertex also relies on cable management systems from HELU in other plug-and-play antennas. The two companies are currently co-developing new drag chain systems for this application. "We are extremely satisfied with our working relationship and continue to build on this partnership wherever we can," emphasises Springer.

No one can predict what exciting discoveries the ALMA telescopes will lead to in the future. What is certain, however, is that these giant antennas will continue searching for answers to humanity's greatest questions—and remain perpetually in motion to do so. ◀



"Where standard products just won't cut it, we develop custom solutions."

Karsten Göbel,
Sales Manager Solutions,
HELU



RAISE THE CURTAIN, THE STAGE IS SET!

Every summer since 1987, the Castle Festival in the German town of Bad Vilbel transforms the historic moated castle in the heart of the city into an open-air theatre. Behind this extraordinary backdrop hide technical challenges for electrical cabling: The load and signal cables remain installed outdoors on site throughout the year, requiring them to withstand moisture, temperature fluctuations, UV radiation, and mechanical stress.

HELU supplies the event organisers with robust connection solutions for stage and media systems that are engineered specifically around individual application requirements and operational demands. From load cables to DMX, loudspeaker, microphone, and coaxial cabling, their portfolio contains solutions to ensure reliable power, control, and audio signal transmission in even the harshest of environments.

© Eugen Sommer





“Quality and Sustainability Aren’t Mutually Exclusive”

Sustainability is becoming an increasingly important factor in industrial procurement and product decisions—including for electrical connection technology. But how do you measure this? What roles do CO_2 footprints, supply chains, and service lives play? And what do companies need to keep in mind when sustainably procuring cables and wires? We cover these topics together with Katharina Lehr, Sustainability and ESG Manager, and Cosima Deutschländer, Carbon Footprint Manager at HELU.

© K.D Busch, iStock

What inspired each of you to enter the field of sustainability?

Cosima Deutschländer: I studied business administration with a focus on controlling and completed an internship at an automotive manufacturer between my bachelor's and master's degrees. I enjoyed the analytical work, but also asked myself what else I wanted to accomplish with it. This is why I specialised in sustainability in my master's programme. Today, I am able to combine data analysis with tangible impacts.

Katharina Lehr: I studied international business and wrote my bachelor's thesis at HELU. Afterwards, I focused intensively on sustainability. It quickly became clear to me just how multifaceted the subject is. It is constantly evolving and involving completely different departments. It is this intersectionality that I find the most exciting.

> **"Some conversions come with immediate costs, but can still make financial sense thanks to reduced energy and material consumption."**
>
> *Cosima Deutschländer, Carbon Footprint Manager, HELU*

Sustainable solutions can be associated with additional costs from the get-go. What kinds of conflicting goals can arise, and how do you reconcile sustainability and economic viability?

Deutschländer: Some operational changes require upfront investment, and the financial impact cannot always be directly attributed. In the long run, these initiatives can still prove cost-effective by reducing energy and raw material usage.

Lehr: Copper is a valuable raw material and is highly recyclable. Retaining raw materials within circulation can therefore also drive positive financial outcomes. To that point, sustainability management is also risk management. Extreme weather, disrupted supply chains, or rising prices for raw materials and energy can have a direct, financial impact

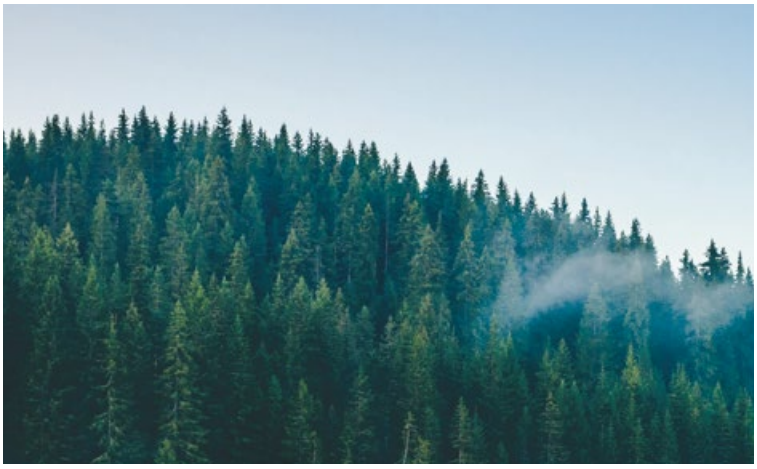
The corporate carbon footprint serves as a core framework. How does it work?

Deutschländer: The corporate carbon footprint, or CCF, measures a company's greenhouse gas emissions. We follow the Greenhouse Gas Protocol, which categorises emissions across three distinct scopes. Scope 1 involves direct emissions from, for instance, manufacturing or company vehicles. Scope 2 looks at indirect emissions from purchased energy such as electricity or heat. Scope 3 encompasses the entire upstream and downstream value-added chain including raw materials, transport, business travel, waste, and the disposal of products at the end of their service lives.

Scope 3 is very extensive. For our products, the role copper plays is critical as emissions are produced during both extraction and processing. And complex supply chains do not always come with perfect data. That is why it is important to transparently document which primary data, assumptions, secondary data, or average values were worked with. First, one must create a sturdy foundation. Then, the quality of the data can be gradually improved. Based on these results, we are able to identify the largest producers of emissions, develop reduction measures, and finally test how effective these measures are.

"The longer a cable can be used, the longer the resources utilised remain in circulation and the less waste is produced."

Katharina Lehr,
Sustainability & ESG Manager, HELU



Customers request data on the carbon footprint of products quite often. What does a PCF tell us, and what does this mean for HELU as a manufacturer and for customers?

Deutschländer: For the product carbon footprint, we look at the emissions of a singular product. In doing so, we use the cradle-to-gate approach, meaning we look at the whole journey from the extraction of the raw material to the doors of our factory. This calculation includes materials and packaging, production processes, and the transport steps in between. The utilisation and end-of-life phases lie outside of the limits of this system.

We must differentiate between several factors. For products that we produce ourselves, in addition to data on the materials used, we are also able to include our own production processes and energy consumption in the calculation. For products that we procure, we must rely more on the data from the respective manufacturers. The more specific this data is, the more reliable the product carbon footprint is.

For example, this is relevant for our customers when one of our cables is being used in one of their machines or systems. These resulting emissions are then factored into their product carbon footprint or scope 3 accounting. It is for this reason that product-specific data delivers a more exact baseline than generic, average values, and helps in identifying potentials for reduction.

Can a purchaser compare the PCF of two cables and simply take the lower value?

Deutschländer: Only when the underlying assumptions are comparable. The three most essential elements include identical system boundaries, uniform data quality (for instance, the share of primary data), and aligned methodologies or underlying emission factors. Only then is a direct comparison truly meaningful.

When buyers are deciding between two products that are similar in terms of technology and price, we rarely see products being specifically chosen for their lower PCF value. However, whether a manufacturer can provide such data at all is becoming increasingly relevant. Data availability itself can become a key selection criterion in procurement.

With cables, is less material automatically more sustainable?

Lehr: Not necessarily. The reduced usage of materials can be sustainable as long as the function, safety, and service life of the product are maintained. However, for cables and wires, the length of their service life is an important factor for sustainability. The longer a cable can be reliably used, the longer the resources utilised remain in circulation and the less waste is produced. This is why it is critical that the design is chosen for each particular application. Evaluated over its entire life cycle, a cable with slightly more material can

turn out to be the more sustainable solution if it leads to it having a significantly longer service life. Quality, durability, and sustainability go hand in hand.

Deutschländer: Service life is highly dependant on the application. Under different conditions, the same cable can have different service lives. This is why it is important for our employees to know where and how a cable will be used.

How does HELU manage sustainability risks in its supply chain?

Lehr: We take a risk-based approach. This involves supplier questionnaires and a software tool that evaluates risks based on raw material, industry, and country. Direct suppliers benefit from audits, regular exchanges, and long-term relationships.

What are HELU's initiatives with regard to its subsidiaries to reduce emissions and material usage?

Deutschländer: We are taking action in different ways, including power supply, production, raw material handling, and packaging. In production, this includes, for instance, photovoltaics, energy-efficient buildings, waste heat utilisation, and chilled water circuits. The corporate carbon footprint helps us to categorise the effectiveness of these actions and to identify the areas with the greatest potential for reductions.

Lehr: At the same time, we are looking at the circulation of resources. Remnants from production are sorted as well as possible—for instance copper and sheath materials—and then recycled. We even circulate cable drums and offer our customers a pick-up service for empty drums.

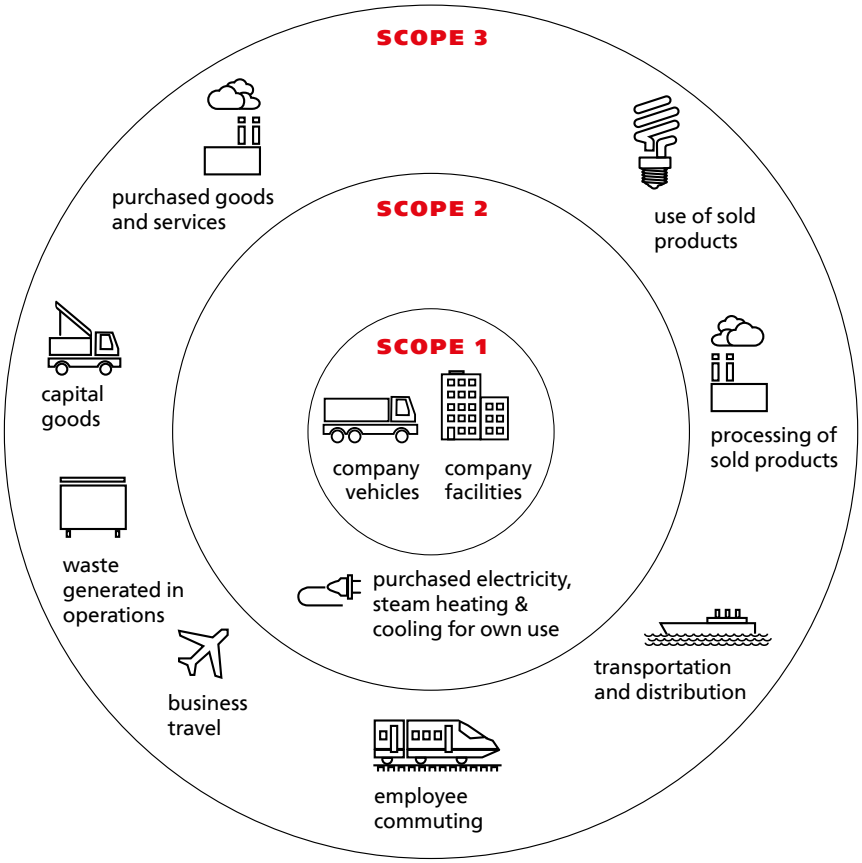




Two experts with one mission: Katharina Lehr, Sustainability & ESG Manager (above) and Cosima Deutschländer, Carbon Footprint Manager at HELU.

This will also include systematic environment and energy management.

At HELU, sustainability means more than just environmental protection. ESG (Environment, Social, Governance) also includes social responsibility with regard to our employees. For us, this includes safe and ergonomic working conditions, as well as health, work-life balance, and personal development. This includes



Three categories form the Corporate Carbon Footprint: direct emissions from the company (scope 1), indirect emissions from purchased energy (scope 2), and other indirect emissions important for HELU along the value-added chain (scope 3).

height-adjustable workstations, lifting and handling aids in production and logistics, health and prevention services, and flexible working models.

Another key focus is the long-term development of our employees. Our Personnel Development team supports them with tailored training and professional development programmes. At the same time, we aim to create opportunities for employees to contribute ideas, take on responsibility, and develop both professionally and personally. As a family business in particular, we therefore view sustainability as a long-term responsibility with regard to the people who work at HELU.

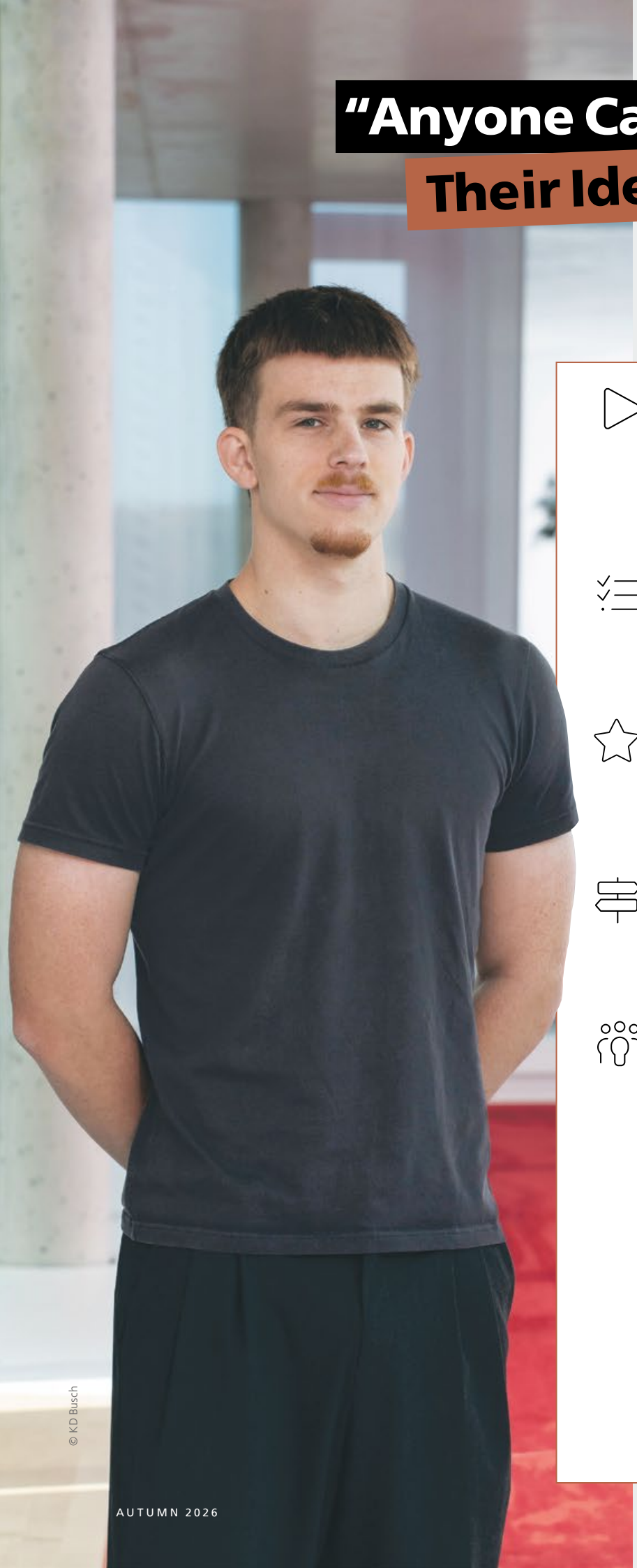
What are your recommendations for customers who want to sustainably procure and utilise cables and wires?

Lehr: First and foremost, they should speak to us about it early on. Our customers all have very different goals. One requires a PCF, the other is interested in materials or would like to better understand his scope 3 emissions. The better we understand what the customer wants to achieve, and in what application the cable will be used, the better we can support and work together with them to create a solution.

Deutschländer: You should not search for just one single keyword. PCF and material data are important information, but technical suitability, quality, and service life are equally as important. A product that is a perfect fit for your application and has a reliably long service life can be a significant contributor to sustainability. The more transparently data is exchanged between raw material suppliers, manufacturers, and customers along the entire value chain, the better the actual potential can be recognised and joint improvements implemented.

"Anyone Can Find Their Ideal Path"

Even when our Youngster Nils Chrétien was still in school, he was already certain that a dual-studies programme in Business Information Systems was the right path for him. After three years at HELU, he now has his long-awaited qualification under his belt, and the keen IT enthusiast has already planned his next steps.



© KD Busch

Beginning my journey at HELU:

Even as a school student, I was researching the possibilities for completing a dual-studies degree in Business Information Systems. It was a tip from a friend that made me aware of HELU. Following a quick application process and positive interview, I immediately knew this would be a great environment in which to learn and grow.

My tasks:

During my three years of study, I had the opportunity to rotate through different business units including purchasing and accounting. However I spent the majority of my time in practicals in IT where I was eventually offered a permanent position.

A highlight from my time as a Youngster:

There were many, but one that I remember fondly is the business trip to Switzerland. There, I had the chance to work together with the team and support them with a Business Central implementation. I also enjoyed being able to get to know the colleagues there personally.

My next steps:

Now that I have successfully completed my studies, I will be supporting the IT Business Central team moving forward. I was very pleased to hear that I had been hired, as I was most interested in this department from the beginning.

My advice for other Youngsters:

Stay curious and ask questions. Do not let yourself get discouraged by placements that you may find less interesting because there are plenty of opportunities and anyone can find their ideal path!

GET YOUR BACKSTAGE PASS!

Follow the HELU Youngsters on Instagram and TikTok

Instagram

TikTok

THE SERIES AT A GLANCE:
LOGISTICS // **PRODUCTION** // TESTING

Where Components Are Transformed into Solutions

Cables and connectors—one is inconceivable without the other. However, for the two to even work together, several processing steps are required. In our series on the subject of cable assemblies, we will show you what these steps are. For this second instalment, we're focusing on the subject of production.



At HELU, 3,500 different types of assemblies are produced regularly.

© Mirko Hertel



Once an order has been picked, the actual manufacturing can begin. Cables, contacts, and connectors are assembled to create installation-ready solutions that are precisely tailored to each particular application. At HELU, more than 3,500 different types of assemblies are in regular production. Around 17,000 product variations have bills of materials, routings, and all required documentation prepared, making short-notice manufacturing possible. The spectrum ranges from simple, unterminated cable assemblies to complex system solutions.

An essential basis for this is our large-capacity cable warehouses which are linked directly to cutting systems. This allows for cables to be supplied as required and cut to the required length. However, not just the material needs to be delivered on time. Manufacturing documentation, work plans, and testing programmes accompany the product through production. They contain all relevant information for the individual manufacturing steps.

Well prepared for connection

Before a contact or plug can be attached, the cable must be prepared. Depending on the design, it is cut, stripped, and then the individual cores are also stripped or shortened. Which steps are required depends on the construction of the cable and the desired assembly.

The most common processing step when connecting cables is crimping. This involves conductors and contacts being permanently joined via mechanical deformation. For common products and larger quantities, automated crimping machines are used. These also monitor the crimping force throughout the process. This is important because a faulty connection can result in increased contact resistance. In the worst case, the contact may become hot enough to cause a fire.

For smaller quantities, special contacts, or custom designs, additional hand crimping tools are available. Another option is soldering. This is a manual process performed by specially trained employees. Depending on the customer's requirements, the cables may also be delivered with ferrules or with unterminated cable ends.

Every work step is uniquely assigned to the respective order and is fully traceable within the production process. This makes it possible for the structured control and monitoring of manufacturing processes, even with a wide range of product variations.

Ask the Expert

When are assemblies manufactured at a single workbench, and when on a production line?

This depends, first and foremost, on the product, on the batch size, and on the complexity of the individual work steps. Small series, frequently changing variations, and custom designs are typically manufactured at individual workbenches. There, our employees are able to flexibly react to different requirements.

For larger numbers of parts, we structure the manufacturing process as an assembly line. The individual work steps are divided between multiple stations and perfectly aligned. This allows for large quantities to be efficiently processed without sacrificing the necessary level of care.

How flexibly can HELU respond to special requests from customers?

Our range stretches from small order quantities to expansive, large-scale projects. In addition to classic cable assemblies, we also manufacture, for example, completely assembled drag chain systems. Dimensions, components, and designs can be tailored down to the finest detail for the specific application.

The close integration of our warehouse, cutting machines, and production helps us to realise even short-notice customer requests. For particularly urgent orders, we also provide a 24-hour turnaround service, following technical review. The key requirement is that all required materials and manufacturing documentation are in place, and that the specified product can be reliably produced within the allocated time frame.



ABOUT THE EXPERT

Frank Smigielski is the Head of Production at HELU Connectivity Solutions Bielefeld



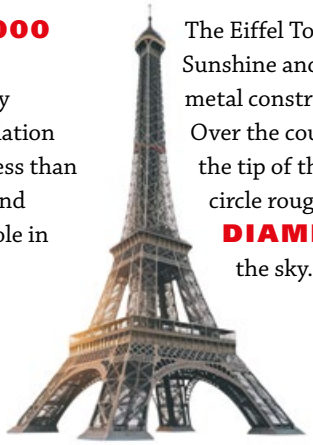
Welcome to France!

Everything you need to know about the HELU subsidiary and the country

- HELU France was founded in 1998 with a five-person team. Since then, they have grown into an established national subsidiary with modern infrastructure and a steadily growing portfolio of solutions.
- To serve their customers, HELU France stocks around 1,000 different products from compact cable rings to large cable drums with diameters of more than 1,600 mm.
- Logistics plays a central role at their location in Burnhaupt-le-Haut: Seventeen employees, seven cable cutting machines, and more than 3,000 pallet spaces ensure that cables and wires can be quickly prepared and delivered to where they are needed.
- Their inventory experiences a high rate of utilisation: In 2025 alone, the team delivered around 3,494 tonnes of cable, not even including drums and pallets.
- Through the integration of IC Automation, HELU France expanded their expertise even further. The systems integrator specialises in pre-assembled cables and system solutions for mechanical and plant engineering. For customers, this means having a single source for all of their electrical connection technology needs.

FUN FACTS

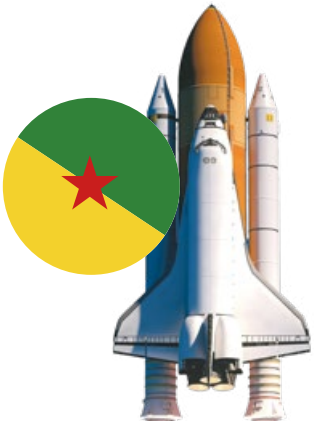
France consists of roughly **35,000 MUNICIPALITIES** (for comparison, Germany has roughly 11,000). Around half of the population lives in small communities with less than 10,000 residents. Local identity and regional traditions play a major role in the country.



The Eiffel Tower moves. Sunshine and heat cause the metal construction to expand. Over the course of a sunny day, the tip of the tower can trace a circle roughly **15 CM IN DIAMETER** through the sky.

The fastest train in the world comes from France: In 2007, a specially prepared TGV train reached a **SPEED OF 574.8 KM/H**, which remains a record to this day for conventional railway vehicles.





EUROPE'S GATEWAY TO SPACE is located in **FRANCE** and, at the same time, in South America: Europe's Spaceport, located in Kourou in the French overseas region French Guiana, sits roughly 500 km north of the equator. The earth's rotational speed near the equator gives rockets a boost in velocity during launch.



THE BAGUETTE is **OFFICIALLY** considered a piece of **FRENCH CULTURAL HERITAGE**: The expertise and cultural significance surrounding this baton-shaped loaf of white bread have been officially considered a piece of UNESCO heritage since 2022.

© adobestock, iStock, KD Busch

FAQ

Can you rely directly on published current-carrying capacity tables?

Not always. The current carrying capacity of a cable depends on more than just the cross-section of its conductors. Equally decisive are the installation method, the ambient temperature, the number of loaded cores, and whether multiple cables are routed close together.

When electricity flows through a cable, heat is generated. This waste heat must be dissipated to the environment so that the permissible operating temperature of the conductor is not exceeded, as this can damage the insulation and shorten the service life of the cable.

The installation method makes the difference
The ability of the cable to shed heat heavily depends on the installation method. Cables installed in open air can disperse heat to the environment relatively well. Inside a conduit or a wall, however, heat dissipation is restricted, and the permissible current-carrying capacity is correspondingly lower.

This is clearly demonstrated in the table values: A multi-core NYM cable with three loaded cores and a conductor cross-section of 2.5 mm² may be loaded with 24 amperes at a conductor temperature of 70 °C and an ambient temperature of 30 °C with direct installation on the wall. When installed in a surface-mounted conduit, the value drops to a mere 20 amperes.

Heat and grouping reduce capacity
The ambient temperature also plays a large role. When it rises, the heat produced in the conductors is shed less efficiently. To combat this, the permissible current-carrying capacity must be reduced using derating factors.

The same applies when multiple loaded cables are installed side by side. They heat each other up and can dissipate less heat to their environment. Depending on the number and arrangement, different factors apply to this type of grouping.

A real-life example
We will be using the previously mentioned NYM cable with a 2.5 mm² cross-section. When installed individually on a wall, they have a current-carrying capacity of 24 amperes. However when three are installed next to one another, each cable can only be loaded with 19 amperes (grouping factor: 0.79). If ambient temperatures of 40°C are present, the current-carrying capacity is once again reduced by a factor of 0.87.

The result: Through temperature and grouping, 24 amperes is reduced to only 16.5 amperes. This example shows that, for a realistic installation, it is not enough to look at the conductor cross-section and nominal voltage alone.

Actual operating conditions are key
Those who install cables and wires should clarify where and how the cables are to be installed, what temperatures are present, and whether other loaded cables will be installed in close proximity. Once this is established, you can choose the suitable table value and adjust it with the corresponding conversion factors if needed.

About the expert:
Christian Dettmer, Head of Technical Department, HELU



LEARN MORE

For an overview of current-carrying capacities, routing methods, conductor structures, and derating factors, refer to HELU's technical reference manual.

OUR TRADE SHOW DATES

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

HELU ON SOCIAL MEDIA

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

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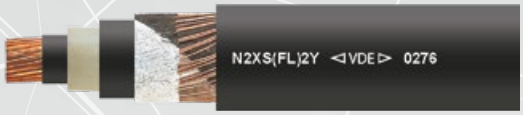
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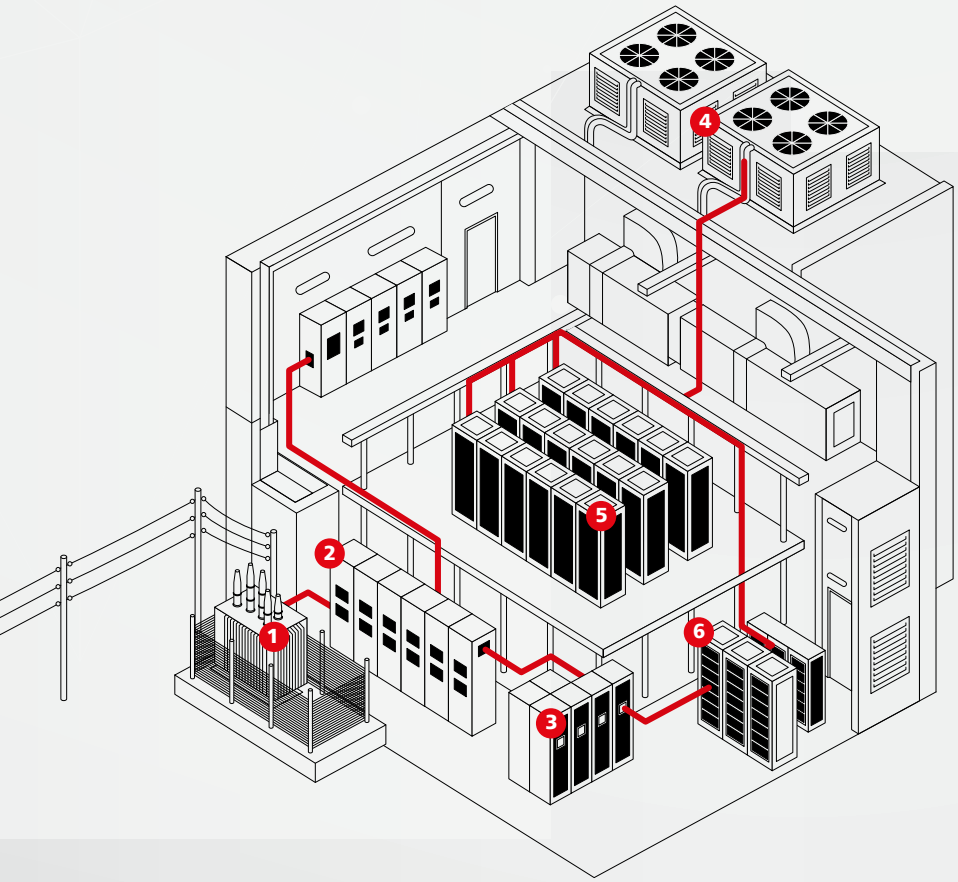
Power supply, cooling, and data transmission present different challenges for connection technology in data centres. To meet these challenges, HELU offers a large portfolio of cables, wires, accessories, and components that are all tailored according to users' exact applications—from grid connection to the server rack.



1 Switchgears: Medium-voltage cables such as the N2XS(FL)2Y transmit electrical energy reliably at medium voltage currents, making them essential for connecting data centres to the grid.



2 Building automation technology: Data cables such as the PAAR-TRONIC-Li-2YCYv transmit control and communication signals and make the networking and monitoring of technical systems in data centres possible.





3 Uninterrupted power supply (UPS): Power cables such as the HELUPOWER HIGH AMP-X are designed to transmit high currents, making them suited for demanding connections in uninterrupted power supply systems.



4 Climate control: Motor cables such as the TOPFLEX-EMC-UV-2XSLCHK-J are suited for providing reliable power supply for motors and drives, such as in pumps, fans, and other air-conditioning and cooling technology components.



6 Battery storage & backups: The low-voltage N2XH power cable is used to distribute power and is used to create reliable connections to battery storage and backup systems.



5 Server racks: RJ45 Ethernet patch cables ensure quick and reliable network connections between servers, switches, and other active components in the rack.


HELU
Always stay electrified.
More than just cables: At HELU, it is our mission to provide our customers and their applications with the custom energy and data-transmission solutions they need, including cables, drag chains, assemblies, and installation-ready complete systems. This is how we create connections that keep you and your applications electrified.
helu.com