



Magazine of the Friedhelm Loh Group

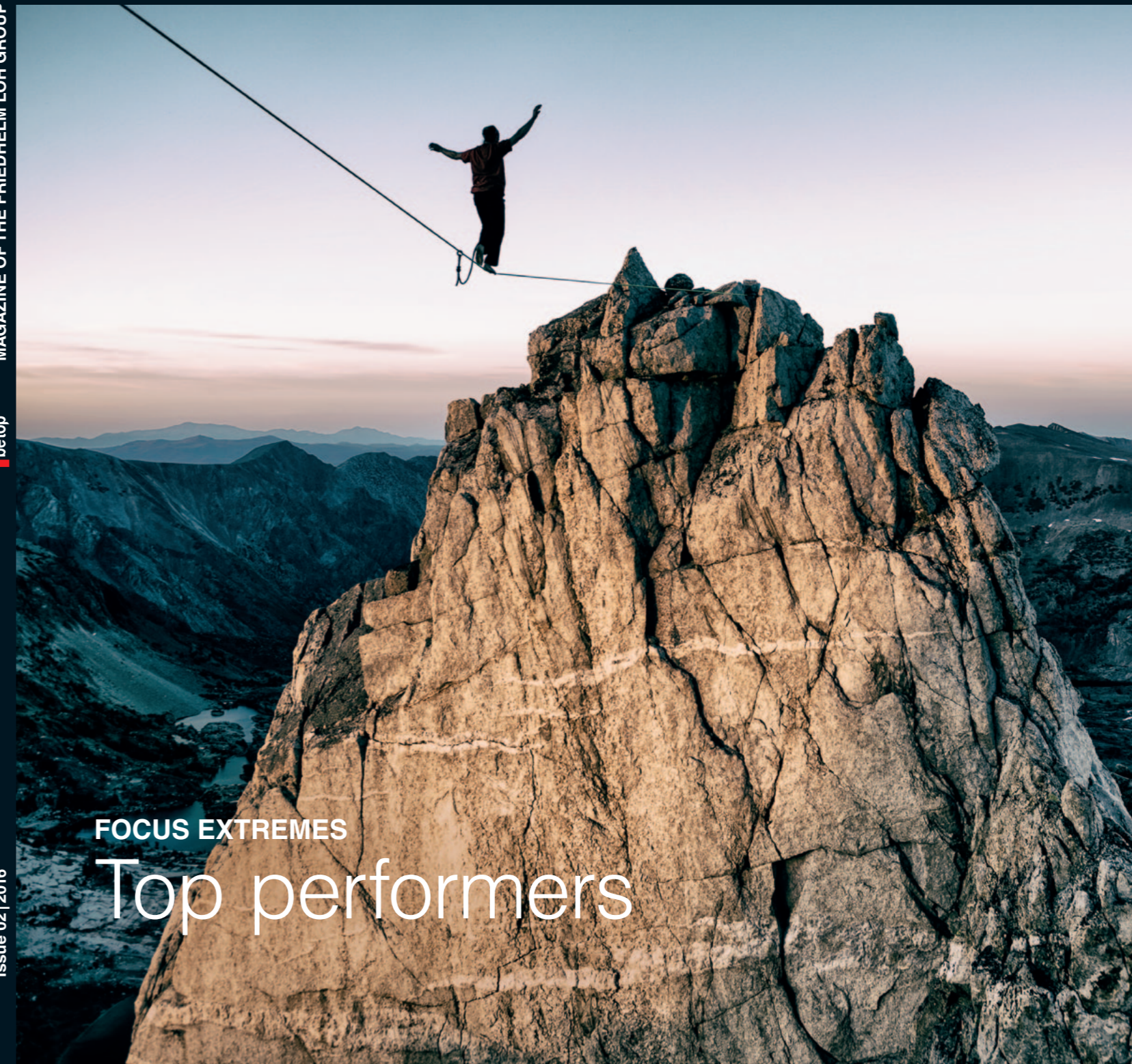
EXPERTISE Cooling technology – High-tech from Northern Italy
EXPERIENCE Automotive industry – Stahlo fulfils the highest standards
COMMITMENT Integration – Results of a pilot project for refugees

MAGAZINE OF THE FRIEDHELM LOH GROUP

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FOCUS EXTREMES

Top performers

FRIEDHELM
LOH
 GROUP

Friedhelm Loh Stiftung & Co. KG
 Rudolf-Loh-Straße 1
 35708 Haiger, Germany
 Phone +49 2773 924-0
 Fax +49 2773 924-3129
 E-mail: info@friedhelm-loh-group.com

www.friedhelm-loh-group.com

THE COURAGE TO DARE

Dear readers,

Boldness is a trait of character. An act of will. It enables people to dare to take action, achieve exceptional results and not be deterred by risks – as so vividly expressed by the word “audacity”.

What actually drives people to be bold and to risk going to extremes? Why do athletes, and even engineers for that matter, push things to their limits and beyond? It's the great, often unparalleled opportunities that present themselves in these moments. The chance to make the impossible possible. To venture forth into uncharted territory, where no one has gone before.

This determination is something that we've taken to heart at the Friedhelm Loh Group from the very beginning. We wouldn't be here today if we hadn't had the boldness to always try new things and take risks. And that this still holds true today is demonstrated by our current investments at our German locations: with 250 million euros among other things, we're completely realigning Rittal's production landscape here in the region. In Haiger, in the state of Hesse, a completely new, state-of-the-art factory for the production of compact enclosures is coming into being.

Beginning in 2018 and according to the principles of the Industrial Internet of Things (Industry 4.0), sheet metal processing, painting and enclosure assembly will be completely digitally networked and equipped with state-of-the-art machine technology. Using our customers' configuration data, customised products will be produced on short notice – and even starting at batch size 1.

We're also moving into uncharted territory with the establishment of the Rittal Innovation Center in Haiger. The Innovation Center makes Industry 4.0 tangible in control and switchgear engineering. Working with innovative partnerships, we'll develop solutions there with our customers to make them more competitive and thereby more successful.

All of this – and more – to benefit our customers. For you. You can see how this is achieved in this issue of *be top* with the selected real-world examples from Eplan, Cideon, Rittal and LKH. Not to mention Stahlo: since May, the Steel Service Center has been delivering top quality sheet steel as a series supplier to the major league of the automotive industry. And that's uncharted territory, too!

I hope you enjoy reading the magazine and find inspiration within its pages! Sincerely,

Dr Friedhelm Loh



DR FRIEDHELM LOH
Owner and CEO of the Friedhelm Loh Group



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HOLIDAY FEELINGS

The **Therme Erding** is not only the world's largest thermal baths – with saunas, thermal healing pools, slides and a wave pool – but also a holiday paradise with 365 days of summer. Twenty-six slides, the aforementioned wave pool and 25 saunas are just a few of the attractions for warmth, water and wellness. But ensuring that the processes in this wellness oasis all run seamlessly requires sophisticated technology behind the scenes. The spa and pool worlds of the **WUND Group** therefore use IT infrastructure solutions from Rittal.

Rittal delivers IT racks, Liquid Cooling Packages, cold-aisle housings and the RiZone data centre infrastructure management platform. At the individual locations WUND handles a wide variety of tasks, including **visitor management, gastronomy** and numerous **building control systems**, for instance **watering the palm trees**.

→ LINK TIP: www.therme-erding.de/en



YELLOW GOLD

Oil and natural gas continue to be the most important global energy sources. The majority of the world's population – by now more than seven billion people – depend on them in their everyday lives. But regenerative energies are gaining ground every day and will play an increasingly important role in the future. The **Neuman & Esser Group** delivers oil-free and water-cooled piston compressors for both segments – oil and natural gas – as well as regenerative energies, specifically **biogas**. For the **development and production of these**

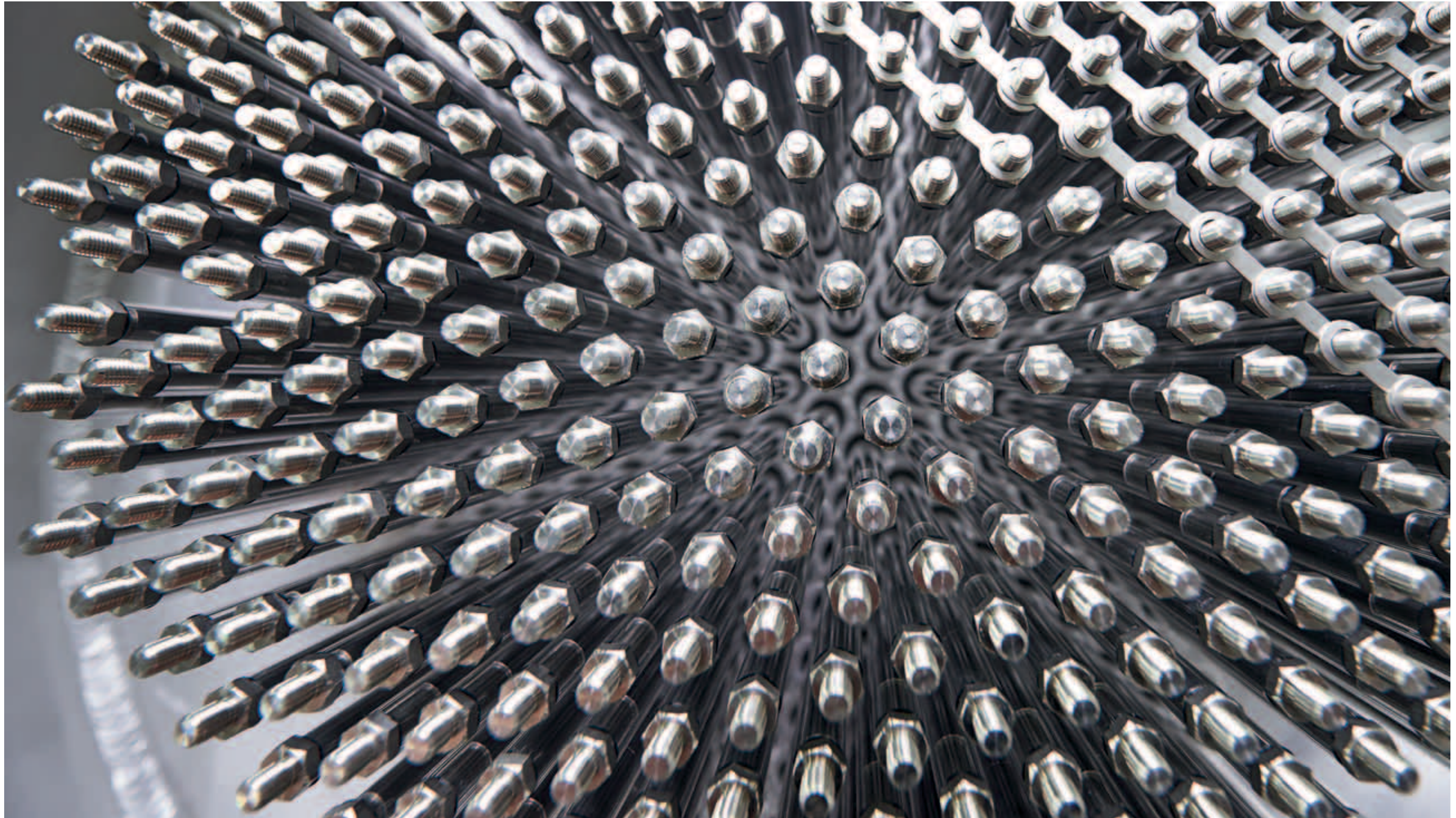
systems, the company depends on the ERP system from SAP. With support from Cideon, the company has also introduced the Autodesk Plant Design Suite and an integrated SAP PLM solution. Now the Neuman & Esser Group can easily manage CAD data and documents across all company processes. The result: higher rates of reutilisation, lower error rates, extremely shortened turnaround times and significantly more efficient order fulfilment. [→ LINK TIP: www.neuman-esser.de/en](http://www.neuman-esser.de/en)



CLEAN WATER

Water management – supplying fresh water and treating wastewater – is a significant part of the infrastructure in modern societies. And as is the case for infrastructure facilities everywhere, energy efficiency is the name of the game. One energy-consuming process is the production of ozone, which is required to treat water. The company **Xylem** manufactures **ozone generators** that are particularly energy efficient with their patented electrical design (see the picture). The high voltage of 5.5 kilovolts for this ozone generator is generated in a

switchgear system housed in a TS 8 enclosure system. In order to cool the intricate electrical technology required, Xylem depends on cooling units from the new Blue e+ series in the enclosures (you can find a full report on page 57). With this new generation of cooling units, Xylem saves money when manufacturing these systems, and their customers benefit from lower operating costs thanks to the energy-efficient cooling units. [LINK TIP: www.xylemwatersolutions.com](http://www.xylemwatersolutions.com)



FASTER – BETTER – EVERYWHERE

Global Player. The Friedhelm Loh Group has a global presence with 78 subsidiaries around the world. Ideas from Germany are in demand on every continent.

Canada
UNDER THE SEA

Around two-thirds of the Earth's surface is covered by water. This is clearly evident in the three great oceans that surround the world's landmasses. Yet to this day, only a very small part of the world's oceans has been explored by humans. To change this, the Canadian company **Aspin Kemp and Associates** has developed power and propulsion systems that also work for maritime applications. The company, founded in 1996, relies on the large TS 8 enclosures from Rittal, thanks to their comprehensive certifications.



Brazil
REALLY BRIGHT

Nothing less than the world's most state-of-the-art **particle accelerator** is currently being built in Brazil. Its goal: to generate a super-bright light – also known as synchrotron radiation – by accelerating electrons to the speed of light. Researchers at the **Laboratório Nacional de Luz Síncrotron** hope that the microscopic effects this produces will provide insights into the structure of molecules. Enclosures from Rittal will be utilised for this project starting in 2017.

England
EXTREMELY CONNECTED



Ten machines, ten manufacturers, ten interfaces – this is now a thing of the past for **Saint Gobain Performance Plastics**. Since 2015, with the assistance of Eplan Electric P8 and the Eplan Data Portal, the company has networked the machines at its English facility in Bristol into **integrated production lines**. The result: higher efficiencies, more accurate documentation and significantly reduced susceptibility to errors.

Croatia
READY FOR A HOLIDAY?

The airport in Dubrovnik handles more than 1.5 million passengers each year – and the numbers are rising. Unsurprisingly, the operators are now planning to construct **another terminal** to deal with the growing influx of visitors. The stated goal: to escort around 3.5 million passengers along their journeys annually. For its IT infrastructure, Dubrovnik Airport is counting on a fully equipped data centre from Rittal.

3.5 m.

Belgium
WELL BREWED

How many cases of beer fit in a warehouse? For Belgium's **Moortgat Brewery**, around 25 per cent more since summer 2015. The reason: a new **palette stacking machine**, the mechatronic foundation for which was developed by machine builder IMA on the basis of the newest insights from Eplan Experience.

25%



China
BIG DATA IN "TALENT CITY"

It is located at the heart of China's high-tech stronghold Guiyang: **International Talent City**. For the past three years, this 125,000-square-metre site has housed countless start-ups and global players. To provide them with the necessary IT infrastructure, the Chinese government has opened an absolutely top-notch data centre. Equipped with comprehensive IT solutions from Rittal, the companies located here can draw on the technical infrastructure of Talent City's operator, the state joint venture **Guizhou Wing Cloud High Technology Ltd.**



BEYOND ALL LIMITS

Extremes. Higher, deeper, further: what drives athletes and engineers to keep pushing beyond their limits?

Text: Boris Hänßler



Excellence without limits

People are pushing limits every day, whether in sports or technology. And boundaries are there to be broken through. This is also true for Friedhelm Loh Group as shown by the following examples.

75

The new Blue e+ cooling units from Rittal require 75 per cent less energy on average.

FREEDIVING

Freedivers can go up to 120 metres in depth without any sort of technical aids. Some of the world's best in this discipline can hold their breath for up to twenty minutes.

Jill Heinerth is one of the world's best divers. In the Antarctic she dove 40 metres at a water temperature of minus 1.6 degrees Celsius. While deep below the surface she came across a cave system, colourful sea squirts, starfish and other bizarre sea creatures. "Most people think I'm an adrenaline junkie," she says. "But the description doesn't fit. Frankly, I'm quite risk-averse. Cave diving is like a puzzle for me: I love to do something that nobody has done before me, to dive where no one has ever been, and it's not about the adrenaline, but instead, during preparation, to put all the pieces together like a puzzle so that it works in the end."

There are plenty of adventurers like Heinerth who go to extremes. Some run ultramarathons in the debilitating heat of the Sahara Desert. Others climb Mount Everest without oxygen tanks. A few parachute to the Earth from the stratosphere. Every one of them is risking their lives each time. Extreme athletes are all too often portrayed as egoists who don't want to grow up, have an unhealthy relationship to fear or are pathologically fearless. In actuality, most take their fears quite seriously.

The psychologists Eric Brymer and Robert Schweitzer at Queensland University of Technology in Brisbane, Australia, examined how extreme athletes deal with anxiety. Their study quotes a base jumper: "The intensity of the fear I feel is horrible. The idea that we don't have any fear or love our fear is nonsense! Nobody does this because they love fear." They eventually came to the conclusion that the athletes practice their sports despite the danger and not be-

cause of it. Although they intensely experience fear, they make a rational decision to keep going. A mountain climber explained to the researchers: "Sometimes I just want to turn around and run away, but I can't do that of course, because I've come to keep on going, and that's how I face the fears. Once you've done that often enough, you have the feeling that experience will help you get out of any difficult situation."

People who get to know extreme athletes a bit better emerge with a different picture: they're people who consciously take a calculated risk to test limits and to advance humankind or themselves. Ultimately, no outstanding achievements are possible without a human vision and the courage to try.

Engineers also accomplish extreme performances, something that outsiders sometimes consider madness and then, when a project's complete, marvel at: fascinating installations such as the Skyrail Rainforest Cableway, a 7.5 kilometre scenic cableway running above the Barron Gorge National Park in Queensland, Australia, or the flood protection system costing 14 billion dollars that is to protect New Orleans from further catastrophes. And not least, the tremendous Gotthard Tunnel, bringing Europe even closer together. Engineers often have similar motives to adventurers. Earlier research into extreme athletes showed that they wanted to use their sports to

free themselves from the social world's everyday rules, restrictions and limits. Once those who push their own personal limits to the extreme have overcome their fear, this is replaced with a feeling of harmony and a deep connection to nature. Similarly, technicians, engineers and scientists want to overcome limits to achieve successes with extreme technical performances that previously seemed unachievable – but without taking an irrational approach. The risks for people and the environment must be calculable.

As they were for the Baluarte Bridge in northern Mexico. Running a length of 1,142 metres, it connects the coastal city of Mazatlán with the federal state of Durango, which has a rugged terrain of mountain ranges that the inhabitants call *el espinazo del diablo* – the devil's backbone. The bridge brought an isolated, impoverished region a small economic boom, but first it had to be built – and across the 400-metre-deep gorge of the Río Baluarte.

When engineers first visited the location about ten years ago, they had to ride horses for four hours just to get there. Unperturbed, Mexican companies got to work, transporting 12,000 tonnes of steel over 20 kilometres of bad roads. A construction site arose at dizzying heights, where 1,300 engineers and labourers spent years on end. "We set up an entire village," says Salvador Sanchez, one of the project's engineers.



"Cave diving is like a puzzle for me: I love to do something that nobody has done before me."

Jill Heinerth, cave diver

And the project completed its entire run without a single fatality. The engineers' pluckiness paid off in the end: according to the *Guinness Book of World Records*, it became the world's highest cable-stayed bridge when it opened in autumn 2012. It's held in place by 76 steel cables spanning up to 520 metres. As Sanchez explains with some pride: "You could put heavy lorries from one end of the bridge to the other and nothing would happen."

The company Herrenknecht in Schwanau, Germany, also has experience with seemingly impossible undertakings. "Our entire operational area is in extremes and we're always moving in difficult environments," says Josef Gruseck, Member of the Management Board of Traffic Tunnelling. The company builds tunnels in Peru, Tibet, Mongolia, beneath the Bosphorus or in the middle of Hong Kong. Whether one of the mobile tunnel factories must be assembled in the desert at 50 degrees Celsius, in the middle of a megacity, at 4,000 metres above sea level or after being transported across icebound streets and rivers – these environments place high demands on technology, logistics and people: extreme temperatures and elevations, tough geological conditions, immense dust generation, difficult-to-reach locations. During projects lasting several months at an altitude of 4,000 metres, oxygen tents are a normal part of a team's work equipment. Herrenknecht recruits employees from around the world who are qualified and ready to tackle the challenges.

One of the greatest of these was the Gotthard Base Tunnel – two 57-kilometre-long tunnels, a once-in-a-century project through the Alps. Herrenknecht tunnel boring ma-

chines – steel giants measuring 400 metres long with a drilling head measuring about 9.5 metres across – drilled more than 85 kilometres of the main tunnels, grinding their way through hard stone and creating ear-splitting noise in the process, while skiers cheerfully glided over the snow-covered slopes above, never noticing a thing going on about 2,000 metres beneath them. The total volume of the material removed from the Gotthard Base Tunnel is equivalent to five times the volume of the Cheops Pyramid.

THROUGH THE MOUNTAIN AT 250 KM/H

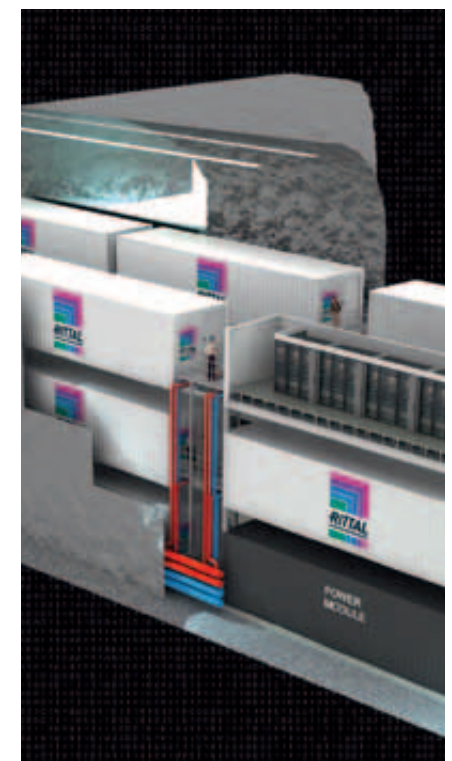
The first high-speed trains will begin rushing through the Base Tunnel at between 200 to 250 kilometres per hour towards the end of 2016. The travel time from Zurich to Milan will then be just two hours and forty minutes – an immense time savings for both freight transport and for tourism. "The greatest accolade we could receive as a company was that the Swiss trusted in Herrenknecht technology," says company Chairman of the Board of Management Martin Herrenknecht.

The tunnel builders take their jobs very seriously and they have great respect for the power of nature. "You always have to utilise quality to generate quality," Gruseck says. That's one of the reasons why these tunnelling professionals depend on Rittal technology. Enclosure systems from the TS 8 series, compact AE enclosures and busbar systems are all used in many of the gigantic systems that drill through the masses of rock and simultaneously master the construction of the tunnel walls. Which is also the case for Herrenknecht's latest and most massive tunnel boring machine: assembled in late August, the drilling giant weighs 4,800 tonnes and with a diameter →

LEDFAL MINE DATACENTER

GIGANTIC

The Lefdal Mine Datacenter in Måløy, Norway, one of the preeminent data centre projects, is due to come online in late 2016. Located in a former mine adjacent to a fjord, the world's largest data centre will be powered and cooled solely by wind turbines and hydropower. A tunnel system stretching over six storeys with 75 chambers offers 120,000 square metres of space for infrastructure with a total capacity of 200 megawatts.



130

kilowatts of cooling output will be able to be generated by the cooling units that Rittal and its partner Hewlett Packard Enterprise are jointly developing.

7.6

million downloads of CAE and CAD files of Rittal components have taken place through Rittal's website and the Eplan Data Portal.

URBANISATION

The megacity's growth continues to challenge traffic planners. Tunnels are an effective tool, as is the case here at the construction site installation for the subway in Singapore.

1
million pieces of device and component data were downloaded by users from the Eplan Data Portal in June 2016. The portal currently provides 661,263 data sets from 157 manufacturers.

14
-fold security for load testing against fracture – Rittal enclosures are rock-solid, and clearly much more robust than the 8-fold protection as required by the standards.



**OVERCOMING LIMITS**

Every tunnel is different. For every project – in this case, the Eurasia Tunnel in Istanbul – Herrenknecht develops a prototype for the tunnel boring device beforehand. Some are as large as small factories.



“Our entire operational area is in extremes and we’re always moving in difficult environments.”

Josef Gruseck, Member of the Management Board of Traffic Tunnelling at Herrenknecht

of 15.87 metres is Europe’s largest tunnel boring machine. The machine will be carving out a new road tunnel in the Apennines near Florence, Italy.

Various aspects play a role when choosing components for such an enormous construction project. “We’re working in the construction industry, therefore the enclosures must be resistant to torsion,” says Reinhold Mattes, Director of Electro-technology at Traffic Tunnelling, explaining one of the important selection criteria for these extreme environments. Herrenknecht manufactures the load-bearing base/plinth for the enclosures themselves, which ensures that the subassemblies for the drive and drill process, for debris removal and for the deploying of the tunnel wall elements are installed to be vibration resistant. Thanks to the IP 55/66 protection category, the extreme amounts of dust or even potential water ingress pose no problem for the technology installed in the enclosures.

“We source our Rittal enclosures through distributors, just in time, and can therefore exactly plan the assembly without have to keep large inventories,” Mattes reports. “The fact that Rittal also produces in China naturally helps us for projects in Asia.” Because the company requires both standard as well as customised solutions, Rittal’s flexibility and dependability means Herren-

knecht considers themselves well taken care of. “We build for a wide variety of requirements, it’s almost always a prototype, so to speak, so the first shot has to be a bullseye. That’s why it’s important to us to know that we can depend on the components,” Mattes continues. What’s more, the company aspires to reuse these prototypes. “With standardised components, we can achieve advantages with logistics and assembly as well as disassembly,” Gruseck says. Built-in components that complement the TS 8 standard noticeably reduced turnaround times for commissioning.

1,800

Stahlo’s new slitting line can generate 1,800 newtons of tensile strength. Starting in 2017, that means 61 strips of steel can be slit into five-millimetre-thick slits at the same time.

IP 55

is the protection category of Rittal roof-mounted fans (previously IP 43). This means they’re suitable for use in harsher industrial environments.

EXTREME VALUE CREATION

But before a tunnel boring machine ever begins digging its way through masses of stone, making an important contribution to international trade routes and advancing urbanisation, Herrenknecht further counts on Eplan software. The company uses Eplan Pro Panel for designing and building the control enclosures and switchgear systems. The software supplies all the data relevant for manufacturing. And since Eplan Pro Panel integrates existing automation technologies, Herrenknecht can process the enclosures and assembly plates in no time at all with the assistance of the Perforex machining centre from Rittal Automation Systems. As Gruseck explains: “This matches our understand-

ing of value creation. We’re always trying to develop suppliers into true value creation partners.” And Eplan Pro Panel can even help with manual tasks. “We incorporate links to smart PDFs to provide specific instructions for our colleagues who work directly with the machines, so that they know how assembly and installation must take place.”

The Eplan Data Portal also plays an important role in designing the tunnel boring machines. The database, which currently includes device data for more than 660,000 components, won over the tunnelling specialists with its comprehensive macros. Mattes: “The quantity and accuracy is imperative for us, since a machine of this magnitude easily involves up to 1,500 pages of wiring plans.”

Technical advances and boldness will continue to ensure that athletes and engineers keep breaking through new limits. There are plenty of visionary ideas that may be more likely to greeted with patronising smiles: A bridge between Africa and Europe? A space elevator that can bring people to the moon? A trans-Atlantic tunnel? Crazy ideas? Who knows! As Franklin D. Roosevelt famously pronounced, expressing a sentiment first credited to Michel de Montaigne: “The only thing we have to fear is fear itself.” ■



I KNOW MY LIMITS

Interview. Ellen Brennan is known as the world's fastest flying woman. She says that going to extremes has made her more relaxed.

Interview conducted by Boris Hänßler

INTERVIEW PARTNER

Who? Ellen Brennan (28), also known as the "World's Fastest Flying Woman"

What? Wingsuit jumper

Where? Born and raised in the United States, since 2009 she's been living in Chamonix, France, not far from Mont Blanc.

“We only get one life, just one try, which is why I always want to have the newest and best equipment.”

Ellen Brennan, wingsuit jumper

How did you get into wingsuit jumping?

Ellen Brennan: I was never very good at team sports, like football for instance. Since my father was a skydiver, I thought: maybe that could be something for me. After all, I'm completely on my own when doing it.

How do you mean?

Brennan: Because I decide all by myself when and under what weather conditions I jump. And which gear I use, how I prepare for my jump and which techniques I use – that's all my sole responsibility.

So you first got started with skydiving – and what came next?

Brennan: The next thing I tried was base jumping. Then I saw a few of my friends jump in wingsuits. It seemed boring to me at first, but when I saw them glide over the valley like birds, I understood how exciting it is. Jumping is an adventure. I see the world in a way that most people never get to see.

Extreme athletes say that they feel closer to nature through the sport – is it similar for you?

Brennan: I have great respect for the mountains. When I jump, I have to work with the conditions that nature provides. When I start hiking uphill, I'm already paying attention to the mountain, its condition, the trees, the wind, the temperature – to all of these details. Once, early one morning, I met a local woman and asked her whether the wind always blew that way at that time. She had no idea. And that astonished me. That's when I noticed that I perceive nature differently.

Are you nervous before a jump? Are you fearful?

Brennan: I'm always nervous. If you aren't, then you're crazy. It's not natural to stand at the edge of a cliff and jump off it. I can get a handle on the nervousness, but if I were really afraid I wouldn't jump. If I'm feeling fearful, then I prefer to stand down. I would be too tense to control my body.

How do you overcome your fears?

Brennan: There are various techniques.

First, you have to acknowledge that you're scared: that your stomach is feeling queasy, your hands are sweaty or your heart is racing. Then I take a step back and take a deep breath in order to calm my body. When I'm feeling scared, I often have a narrowed field of vision, in which case I look for a point off in the distance and focus on it. Starting from there, I open my eyes to the immediate environment, to the rocks, flowers, birds or trees. This is how I calm down and my body relaxes a bit.

What does flying through the air feel like?

Brennan: That's difficult to describe if you've never experienced it yourself. As soon as I jump, it takes just a few seconds and my nervousness disappears, the tension is gone. I get a feeling of physical freedom and inner satisfaction. It's unbelievably fun, and then I really want to make the most of it. If I know the course well, then I can also look at the surroundings, the mountain goats, an eagle, but the best feelings don't come until after the landing. That's when a lot of dopamine gets released into the body again, which is why it can become addictive. It's like falling in love every single day.

How important is it for you to constantly be on the lookout for new challenges?

Brennan: Very important, otherwise it gets boring. I can jump closer to the ground, do

shorter jumps or higher ones. But I also know my limits. I find very short jumps too dangerous, aside from which I pay attention to the weather before I try out something new, as well as to my mood, whether I'm full of energy or tired. I don't take any unnecessary risks.

What role does technology play in wingsuit jumping?

Brennan: It's essential. There have been many advances over the past ten years; the wingsuits have been influenced by paragliding technology. There are aerial inserts that inflate during flight and stabilise you. But at the end of the day, I have to blindly trust the technology. We only get one life, just one try, which is why I always want to have the newest and best equipment. I also use video analysis, especially when I'm testing new equipment.

Accidents continue to happen. What do you think causes them?

Brennan: The technology is so well-engineered that product defects seldom cause accidents. The majority of accidents happen because the people either don't have enough experience or have too much and get cocky.

How do you feel when you hear about accidents?



INNER HAPPINESS

Ellen Brennan (28) loves extremes – and prefers jumping from cliffs in a wingsuit to playing football. After landing, the body releases a lot of dopamine and puts her into a sort of state of intoxication. For Brennan, it's the best feeling.

Brennan: That depends on the accident. If someone makes a mistake doing something I would never do myself, then that doesn't scare me. But with accidents that could have happened to me, too, I take a really hard look at those to learn from them. Those types of accidents remind me how fatal mistakes can be in this sport when you get too careless.

Have you ever ended up in dangerous situations?

Brennan: I once jumped with a wingsuit that I had flown with twenty times, but from a higher location. I was moving too long in the wrong direction, was flying at the wrong angle and got closer to the cliffs than I had planned. There were a few seconds when I thought I'd lost control.

And then?

Brennan: When I landed, I cried and thought how dumb I had been. I didn't

jump for a week after that. But when I analysed the videos, I saw that it wasn't as dangerous as I had thought. Nevertheless, I don't ignore something like that. It's important to me that I always keep learning new things.

Do all wingsuit jumpers share a similar mindset?

Brennan: I think there are two groups of wingsuit athletes: people who have very stressful careers and considerable responsibilities, such as doctors or firemen, and people who simply love life and are happy when they are up in the mountains. But what they all have in common is that they cope well with stressful situations.

How does this sport affect you personally? Has it calmed you down?

Brennan: When I was little, I was shy. My fellow students used to bully me. My mother couldn't push me too hard on the swing

because I was scared I'd fly away. I've overcome all of that. Today, I'm much less anxious. A job interview, for example, would have scared me half to death back then. Today I'm easy-going about it. I have the feeling I can do anything if I want to.

Thank you for this interview. ■

IBM AND RITTAL: A SOLID PARTNERSHIP

THE COMPANIES STRENGTHEN THEIR LONG-STANDING COLLABORATION

Rittal has extended its existing partnership with IBM in Europe, the Middle East and Africa and is now working worldwide with the IT consulting firm on the planning, construction, operations and service of data centres. As part of the collaboration, IBM is offering more IT infrastructure components from Rittal in its project business. This includes products such as IT racks, climate control solutions, power supply and monitoring systems, security solutions and standardised RiMatrix S data centre modules. "These days, companies want to build a fail-safe IT infrastructure with transparency in cost calculations. Working with IBM, our modular and pre-certified container solutions facilitate fast, simple construction of cutting-edge, sustainable data centres," says Rittal's Managing Director Sales and Marketing Hans Sondermann.

➔ **LINK TIP:**
For more information about Rittal's data centres, please visit www.tinyurl.com/rittal-ibm



ORIENTATION DURING CHANGE

ENTREPRENEURSHIP AWARD

Dr Friedhelm Loh, owner and CEO of the Friedhelm Loh Group, received the "Connected World" Leadership Award from the Vogel Business Media publishing house, which honoured him as an "impressive personality" in the "Energy" category. "Your entrepreneurship and creativity inspire industry and society. Your vision provides a point of orientation in a world of digital change." The media company publishes many of the most successful trade journals in the German-speaking world.



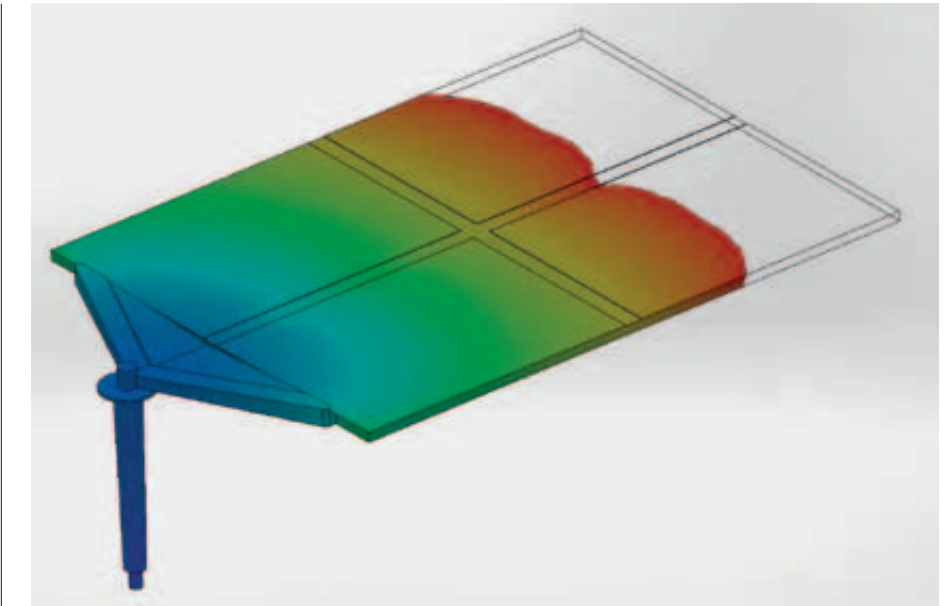
DR FRIEDHELM LOH
The owner and CEO of the Friedhelm Loh Group was delighted to receive the award.

1

MILLION DOWNLOADS

SUCCESS FOR EPLAN DATA PORTAL

This June, the Eplan Data Portal, launched eight years ago, recorded one million parts data downloads. Currently, device data for over 660,000 components, as well as over 1.2 million variations, are available via configuration at the Portal. One hundred fifty-seven manufacturers are represented, including world-famous names like Cisco and Hyundai. The portal saves users considerable time by allowing them to integrate verified, up-to-date data directly into Eplan projects via drag-and-drop.



MEETING OF EXPERTS

VIBRACOUSTIC AND LKH PRESENT A PLASTICS EXPERT DAY

As a result of their smooth collaboration on various R&D and standard projects, Vibracoustic invited LKH to an expert day in Hamburg to present the latest findings on plastics to employees. Over 30 participants from different departments at the global market leader in the field of automotive vibration control technology attended the specialist presentations. The LKH team presented its expertise in the most diverse areas of plastics processing and structured project management. Marcus Kiesewetter, a member of LKH's R&D team, demonstrated the possibilities of highly cutting-edge simulation software that allows LKH to recognise and rectify design problems early on. Plastic is also replacing steel as a material in Vibracoustic projects; in addition to such advantages as weight reduction and nearly unlimited component design options, it offers new possibilities for component integration. During the expert day, both companies were also given the opportunity to examine current problems.



TU KAISERSLAUTERN
The Institute of Technology is working on a research contract for LKH.

RESEARCH CONTRACT

LKH JOINS TRANSFER INITIATIVE

LKH has been a member of the Rhineland-Palatinate transfer initiative since July 2016. This creates closer links between the Heiligenroth plastics specialist and the economic and scientific communities. The regional government initiative fosters the development of products and services and brings the right cooperation partners together. LKH has already awarded a research contract in the area of "Lightweight Construction and New Materials" to TU Kaiserslautern (Institute of Technology).

➔ **LINK TIP:**
More about the initiative at www.transferagentur-rheinland-pfalz-saarland.de/transferinitiative



3 PHASE POWER SYSTEMS
Power control solutions of the Canadian company are deployed in a number of industries, including the mining industry.

INCREDIBLE TOOL

Efficiency. Shorter processing times, a more integrated data flow and greater macro precision: Eplan has been supporting 3 Phase Power Systems with their electrical designs since 2013. Together, they contribute to Canada's power supply.

Text: Lisa Krekel

An additional module? Newly arranged components? A modified cut-out on the enclosure? For a long time, what for customers was just a phone call meant something completely different for Dwayne Donaldson, Senior Electrical Designer & Project Manager at 3 Phase Power Systems in Canada: it meant more work. After every change, he and his team had to amend and modify drawings, prepare new drilling patterns and pass on the information to manufacturing and warehousing. So, back in 2013, it was unsurprising that Donaldson came to a decision: things can't go on like this.

He and the company needed a more efficient solution. During his research, Donaldson came across the software solutions from Eplan. Since then, quite a bit has changed at the headquarters of 3 Phase Power in southern Vancouver. One of the best examples of this: those smaller orders mentioned above that repeatedly landed on Donaldson's desk. "Instead of having to produce new technical drawings and drilling patterns for every single one of them, now I can just forward a PDF to manufacturing with the 3D view of the switchboard, including the drill holes," Donaldson says. But there's also been a lot of progress made in the area of turnaround times. "For larger projects we used to need about six weeks from receiving the order to delivery," Donaldson says. "Today we need just two." The reason for this dramatic acceleration in turnaround is the sophisticated reutilisa-

tion of data. Often, the incoming orders have only minimal differences to projects that have already been archived.

MORE PRECISE WITH JUST ONE CLICK

"Today I can copy the template from Eplan Electric P8 with just a click and automatically import the electrical design data into Eplan Pro Panel," Donaldson explains. "Previously I had to create a new directory folder and then copy over and painstakingly modify each individual file." This often led to problems in manufacturing. "Sometimes components were missing or the wrong ones were selected," Donaldson recalls. "We were constantly running around trying to find the needed parts." This was a problem, especially for time-sensitive projects – after all, many of the company's customers are directly involved with ensuring the power supply nationwide. Greater data consistency and precision weren't just desired, but were actually essential. "We've been able to achieve a precision of 97 per cent for our macros, as compared to an estimated 60 per cent in the previous system," Donaldson says. The company is supported by the Eplan Data Portal in this, with around 1,500 macros – altogether, the Eplan Data Portal provides around 660,000 parts records. "We've certainly downloaded hundreds of parts macros from the Eplan Data Portal. It's an incredible tool." ■

3 PHASE POWER SYSTEMS

BURSTING WITH ENERGY

3 Phase Power Systems, a supplier of electrical components, is headquartered in British Columbia, Canada's westernmost province, where the company develops technical solutions for an uninterrupted power supply. The spectrum of products runs the gamut from converter devices to motor control units to switchgear systems and drives with variable frequencies. Rittal technology is often used at 3 Phase Power Systems as well. The company's main clients include the mining, oil and gas industries as well as vendors in the area of renewable energies.

WHEN THE EARTH ROCKS...

Natural catastrophe. Earthquakes like the one that struck Christchurch, New Zealand, often destroy large amounts of infrastructure. The functioning IT systems at energy supplier Orion helped ensure a speedy reconstruction.

Text: Dr Jörg Lantzsch



It was 12.15 p.m. – time for the lunch break for many employees at Orion in Christchurch, New Zealand – when the ground began to shake from one of the largest earthquakes to ever hit the city on the country's southern island. On 22 February 2011, the quake, measuring 6.3 on the Richter scale, needed just 25 seconds to damage thousands of buildings and cause 185 deaths. "It was something I hope I never have to experience again," says Neville Digby, an Orion employee. The company, which used to be headquartered in the middle of town, runs the electricity grid in the greater Christchurch area and has 195,000 customers – both private homes and businesses – that it supplies with electricity. After the earthquake, the infrastructure in the entire region around Christchurch was also hard hit: many streets were initially impassable, water mains and wastewater pipes burst and the power supply failed in around 80 per cent of the entire urban area. It was an enormous challenge for Orion – but the company itself had also fallen victim to the quake: the building that housed Orion's company headquarters was substantially damaged. And the company's data centre in the building's first storey was also seriously affected.

Senior Systems Engineer Digby, who is responsible for the company's IT systems, recalls: "The server room, which was six metres wide, sank about 60 centimetres on one side." Nonetheless, the IT enclosure systems and the LCP air/water heat exchangers survived the shaking, which included vertical accelerations of up to 2.2 g, so that the servers could initially be kept running.

RISKS OF AFTERSHOCKS

"Of course we quickly had to find a replacement," Digby says, "if for no other reason than entering the damaged building was really very risky." Strong earthquakes like the one in Christchurch are always followed by aftershocks, which can then sometimes cause damaged buildings to collapse. The company's employees remained uninjured by the natural catastrophe for the most part; they got off quite lightly, all things considered: just one employee was slightly injured by a door that slammed shut due →

HEAVY DAMAGE

In Christchurch, New Zealand, the Cathedral of the Blessed Sacrament wasn't the only building that was seriously damaged in 2011. The data centre of the regional energy supplier Orion was almost completely destroyed.



“After only five hours all the systems were operational at the new location – I’m certain that’s a new world record.”

Neville Digby, Orion employee

to the quake – a black eye the only visible sign. Relatively quickly, the company was able to get all employees into an older, two-storey building close by that remained practically undamaged by the quake. But the data centre required a fast solution. “A container solution, like the Rittal Data Center Container (RDCC) was something that we had once considered previously,” Digby says. “After the earthquake, we then quickly decided for that solution. But it still took twelve weeks before the RDCC arrived in Christchurch. The RDCC is housed in a purpose-built container. All the components are already included: server racks, including the power supply, access controls, monitor-

ing systems, uninterruptible power supply, climate control system and fire alarm and extinguishing system. The raised flooring has 30 centimetres of space, more than enough for cabling. With this plug-and-play concept, the data centre is ready for operations directly upon delivery – only the energy supply and network cabling need to be connected. “To move all the hardware from the old data centre into the RDCC, we knocked a hole in the wall of the old server room and transported all the components across a temporary outside stairwell,” Digby explains. A week after the RDCC arrived, all the IT systems were once again fully functional and

the energy supply for the greater Christchurch area was secured. After the earthquake, Orion decided to build a new headquarters several kilometres outside of the city centre. The data centre naturally also had to be relocated for the move, which displayed yet another strength of the RDCC. “We powered down all the systems at the old location in the city centre at 10.30 a.m.,” says Digby. “At 3.30 p.m., all the systems were operational at the new location – I’m certain that’s a new world record.” After powering down, the container just had to be loaded onto a lorry with a crane and then, after being driven eight kilometres, once again lifted by crane into its new location at the new company headquarters.

For Digby, the concept of a mobile data centre has already proven its value: “With the mobile RDCC, the data centre isn’t tied to a building and, in case of an emergency, can quickly and easily be transported.” Meanwhile, Orion has purchased a second RDCC as a backup system and set it up 14 kilometres away. That way the company is definitely prepared for any extreme situations that might arise in the future. ■

DATA CENTRE ARRIVAL

The new Rittal data centre arrived at Orion in Christchurch twelve weeks later. Damage from the earthquake was still clearly visible.



EARTHQUAKE SIMULATION

The effects of shocks and vibrations can be simulated in the Rittal Test Laboratory. Here a TS 8 enclosure with an earthquake kit is shown.

BETTER EARTHQUAKE-PROOF

Almost all of the world’s countries are potentially endangered by earthquakes – especially where tectonic plates meet. In order to take the various hazards into account, different earthquake risk zones have been defined which describe how likely a quake is and at what strength it could hit. When discussing earthquake safety, the safety of buildings is often paramount. This makes sense since damage to buildings usually leads to the majority of casualties as well as to most of the property damage suffered. Nonetheless, technical infrastructure such as electrical switchgear systems and data centres must also be effectively protected against earthquakes as well. Important precautionary measures must be taken for the installation of electrical switchgear systems and IT infrastructure depending on the level of earthquake hazard, the standards for which may differ from country to country.

SHAKEN, NOT DESTROYED

There are three standards of particular importance for the seismic safety of switchgear systems worldwide: DIN EN/IEC 60068-3-3, IEEE 693 and Telcordia GR-63-CORE. To meet these standards, Rittal customers can easily retrofit their enclosures with an earthquake kit. Whether it’s struts, gusset plates or base/plinths: even small measures requiring just a few easy steps can increase stability. But even without added protection, Rittal enclosures – depending on the application and respective configuration – are ready for use in earthquake risk zones. After all, the enclosures are regularly subject to laboratory testing for their earthquake safety. Mounted on shaking tables, they must withstand the shock load without any structural or functional damage.

→ LINK TIP:

You can find a whitepaper on the topic of earthquake safety for enclosures at www.tinyurl.com/rittal-earthquake



EARTHQUAKE KIT

With optional seismic upgrade accessories, the construction of the enclosure frame according to framing principles can be reinforced to such an extent that the TS 8 also fulfils the high standards of Zone 4 according to GR-63-CORE.

MADE FOR LIFE!

Stainless steel. Enclosures made of steel with the “rust free” quality seal are extremely robust and look great. Whether or not the steel actually develops small rust spots depends on a number of factors, some of which can be controlled.

Text: Beate Schwarz

The secret of rustproof steel? It's hidden behind the letters Cr, the chemical symbol for chromium. If the element is added during production, it forms an extremely thin protective layer of chromium oxide on the steel's surface. The alloy doesn't make it invulnerable, however. “The term ‘rust free’ is a bit misleading,” says Joachim Becker, Director of Quality Management and head of the test laboratory. “If the surface gets damaged or if the steel isn't suited to the environment or application, even so-called rust-free steel can rust.”

The alloy on the surface protects the steel from water and oxygen. In addition, it offers self-healing powers: if there's damage, the chromium oxidises very quickly at that spot so that the “wound” closes and the protection is restored. But if particles of another metal remain stuck to the surface, corrosion can result. “Typical examples include non-rustproof screws or damage caused by the fork of a forklift,” Becker says. Even the smallest particles carried through the air can cause rust. “It can suffice if an angle grinder is used nearby.” This phenomenon is referred to as flash rust.

FINDING THE RIGHT TYPE OF STEEL

Along with physical damage, abrasive chemical compounds can cause rust, such as chlorinated air from swimming pools. “Acids can corrode the chromium oxide layer,” explains Andreas Fabrizius, Laboratory Engineer for Materials and Corrosion Protection Technology. “An enclosure installed on a drilling platform in the harsh North Sea is exposed to concentrated salt.” This is why choosing the right type of steel for the planned application is so important. “When we discuss the configuration of enclosures with customers, we first analyse the requirement and then select the suitable steel,” Becker says.

Of the approximately 100 types of stainless steel with the attribute “rust free” produced globally, Rittal has filtered out a handful of good ones. These are suited for daily use under extreme conditions on the one hand, and the focus on a few but outstanding materials enables efficient, cost-effective manufacturing on the other hand. As an example, rust-proof stainless steel type 1.4301 is appropriate for the high hygiene standards of the food and pharmaceutical industries, while rust-free stainless steel type 1.4404 would be the first choice for maritime applications.

“Rittal applies a coating to the surface depending on the requirements,” Fabrizius explains. “The coating prevents the steel from coming into contact with oxygen and water, while offering additional protection against damage and abrasive chemicals in addition to the chromium alloy.” Before this powder coating is applied, the sheet steel undergoes a nanoceramic pre-treatment. This environmentally friendly pre-treatment process further improves corrosion protection. Steel treated in this fashion can withstand 720 hours of salt spray testing according to DIN EN ISO 9227 and come out unscathed. Despite this, the same maintenance procedure applies to enclosures and all items made of rustproof steel or stainless steel: regularly wipe them down with a rag and water. And there are special cleaners for burgeoning rust blooms. ■

→ LINK TIP:

You can find a whitepaper on this topic at www.tinyurl.com/flash-rust



“GOOD CARE IS IMPORTANT”

Interview. Marcus Wassenberg, at the stainless steel manufacturer Aperam, explains why “rust-free” steel can rust and how to properly care for this material.

Is the term “rust-free” confusing because such “rust-free” steel can actually rust under certain conditions?

Marcus Wassenberg: The term “rust free” is perhaps a bit inexact technically speaking, but rightfully established as a trademark, and it continues to be successful. It can potentially be misleading for private consumers since they often don't know enough about how to deal with the terminology and the various material properties. As a European manufacturer we're happy to advise our clients about applications. Because in practice, the question frequently asked is: “corrosion-resistant to what?” Simplifying things, you could say that “non-rusting steel” in the as-delivered condition is “rust free” and will remain so when factors such as processing, environment, application and care continue to ensure this.



Can the properties continue to be improved upon? What sort of research is taking place?

Wassenberg: Our research and development is continually working on improving our current materials and on new materials. Since the fundamental parameters are often defined according to particular norms, development usually focuses on factors such as improved workability or lower costs without any loss of corrosion properties and processing. The impulse often comes from industry and the processors themselves – they basically determine what's needed.

What's the best way to care for stainless steel, whether it's flatware or an enclosure?

Wassenberg: Although different materials are used in these cases, what can be said is that both materials should be kept far away from corrosive media. Erosive applications that destroy the material's passive layer should also be avoided. Usually pure water and a mild detergent are more than enough for gentle care. Where the use of other substances is required – in areas such as medicine, the

chemical industry, pharmaceuticals – proper application is an absolute necessity. Otherwise permanent damage can occur, for instance due to chlorides. In many cases we as manufacturers find that end users often aren't supplied with any explicit care instructions. Provided the material is suited to the application and a person understands how rust-free stainless steel “works”, product made of stainless steel are often made for life!

Are there alternatives to non-rusting steel?

Wassenberg: There are of course alternatives to rustproof stainless steel in individual areas. But aside from traditional users, rust-free stainless steel is increasingly being deployed in other areas. Hardly any other material combines so many specification requirements. And although its manufacturing is relatively energy-intensive, the final product is up to 100 per cent recyclable in the majority of cases and can be used again for subsequent material without any degradation at all. And since there is an increasing focus on sustainability, new, interesting fields of application keep opening up for rust-free stainless steel.

HIGH-TECH MADE IN ITALY

Technology. Innovative technology from northern Italy has an excellent reputation. Cooling technology is particularly popular. This is another reason why Rittal produces its Blue e+ series here in accordance with Industry 4.0 criteria.

Text: Lisa Krekel and Joscha Duhme

Bicycle manufacturer Sarto is located halfway between Venice and Padua. Virtually unnoticed by the general public, this small company has been building state-of-the-art, handcrafted bicycles for over 60 years. For international cycling pros and fans, a bike from this time-honoured manufacturer is considered an absolute insider tip. Approximately 2,500 one-off models leave the factory every year, each one tailored to a customer's individual needs, then reinforced with carbon fibres and tested repeatedly. This is precisely how Antonio and Enrico Sarto, the two founders of the company, envision "perfection made in Italy." To that end, they made a conscious decision to establish their "manifattura" in the heart of the Veneto region, known around the world as a site for innovation in technology and production.

From the food and beverage industry to the textile industry to heating and climate control technology, countless sectors have settled over the years in this high-tech region of northern Italy. Still, since the 1950s, the focus has unquestionably been on heating and climate control technology. Veneto is now home to about 150 cooling specialists, approximately 60 per cent of the total number throughout Europe. "This is further supported by the locally based University of Padua, which is extremely well regarded in this field," adds André Benner, explaining this concentration of expertise. Benner, who works at Rittal Man-

ufacturing Engineering, is very familiar with this internationally recognised site for technology and production location. In fact, Rittal also stands for innovative and high-quality cooling solutions "made in Italy." Since 2015, the company has been producing Blue e+, its new series of cooling units, in Valeggio sul Mincio, a small town south of Lake Garda. On average, Blue e+ saves users 75 per cent of the energy previously required for enclosure climate control. The secret of the highly efficient cooling units lies in a unique combination of passive and active cooling. A special feature of the Rittal plant in Valeggio: new cooling units are produced in compliance with Industry 4.0 principles, on a total area of nearly 9,000 square metres. At this plant, Rittal also assembles recooling units, chillers, heat exchangers and thermoelectric coolers.

"Conversion to Industry 4.0-compatible production doesn't suddenly happen at the flip of a switch. It is an ongoing process," notes Nicola Salandini, Plant Director at the Valeggio site. The initial lean production measures were already being implemented in 2012. In addition, the company introduced a modular production system. "This allows us to adjust serial production of various devices quickly and flexibly, even if the geometries and dimensions are completely different," explains Tobias Heilmann, Team Leader Assembly Processes at Rittal Manufacturing Engineering.

STANDARDS ENABLE FLEXIBILITY

The flexibility gained is also possible because new standardised work processes ensure that "we are no longer moving half-finished equipment from one stage of work to another. Instead, one or more employees working in semi-autonomous groups oversee cooling units up to their completion," says Benner. To that end, the production planning team from Rittal headquarters in Herborn is already involved in the product development phase. "Not only can we determine which assembly sequence is the fastest and most efficient, we can also intervene directly during development to optimise assembly," says Heilmann. Thus, after detailed analyses, the Manufacturing Engineering department can determine at which point a given manual action is to be carried out when the product is first assembled. "At the same time, as a result of our notes during the design phase of the components, they are easier to assemble – using retainers for lifting devices, for example. As a result, work steps can be carried out more ergonomically in the long run," says Heilmann. In 2015, Rittal also digitised the assembly line for Blue e+. This is not only noticeable at the plant, but to customers as well – thanks to products of the highest precision and quality. "This is the first production line equipped with touch screens. As a result, our employees always have a picture of the current assembly status and work instructions," explains Salandini. "Until now, this required a lot of paper, which is →

INSIDER TIP: SARTO

Professional athletes consider racing bikes from Italian bicycle manufacturer Sarto an absolute insider tip. Founders Antonio and Enrico Sarto invest several years of research and development in every model because they have one primary goal: to be better than the competition. Each bicycle is tailor-made to a customer's individual needs. That's why it is no surprise that only around 2,500 of these one-off models leave the "manifattura" in Pianiga each year.



INDUSTRY 4.0 YOU CAN TOUCH

The automated assembly line of the new Blue e+ cooling units brings the principles of Industry 4.0 to life. In Valeggio, employees also produce cooling units, chillers, heat exchangers and thermoelectric coolers.



now almost completely eliminated. Employees now simply scan a bar code over the device and, in seconds, all necessary information is displayed on the screen, including particularly critical work steps, which are now prominently indicated," adds Benner. The implementation of barcode scanning facilitates a) documentation of a workpiece's production status, b) work instructions and c) verification as to whether the proper component is actually installed in its intended location. Moreover, components used can be traced back much more easily. "We know exactly which compressor was installed in a device, for example, and when it was manufactured by our supplier. In the event of a quality problem on the part of the supplier, we can determine exactly which of our customers were delivered the device and notify them specifically," explains Benner. With these "traceability" measures, there is a complete profile on every cooling unit.

ACID TEST

At the end of the assembly process, the team in Valeggio puts each cooling unit through a 100 per cent function test. "Al-

though it is our aim to evaluate the quality of our products before they are completed, it is more important to us to ensure their quality throughout assembly by using innovative processes that virtually eliminate defects," says Heilmann, adding: "Even with optimised assembly processes, it is impossible to recognise from the outside whether an individual component might be faulty. This is why we check all important functions, such as temperature sensors or the performance of the device." Every day, about 450 cooling units leave the plant after passing this acid test.

Before the end of the year 2017, further optimisations are planned for the Italian plant, which is to serve as a pilot project for other sites worldwide. This includes configurators, which customers can use for chillers and whose parts, sequence and process lists are then immediately transferred to production. Fully automated warehouse management is another scheme that will soon be introduced at Valeggio, with "Pick2Light" systems that quickly direct employees toward the appropriate components. Until then, their "good name"

counts first and foremost. "Our employees log in each morning with their personnel code. Each individual is putting his or her reputation on the line to vouch for a high quality of production," says Benner. This cuts down on working time while reducing the risk of error. The system now creates fully automated quality protocols, in place of the written ones every employee was once obliged to complete. It is already evident that Rittal is prepared for "la quarta rivoluzione industriale." ■

CUSTOMER SURVEY

SATISFIED CUSTOMERS



MARCO VILLA
Managing Director
at Rittal Italy

For the second time since 2013, Rittal has conducted a survey of its customers in Italy – with excellent results. Rittal received a positive evaluation from 367 industry and IT customers. "We find it both validating and encouraging that the quality of our products is considered our greatest strength, for which we receive better ratings than the competition," says Marco Villa, Managing Director at Rittal Italy. In May and June 2016, respondents evaluated their experiences with Rittal on a scale of 0 (not at all satisfied) to 10 (completely satisfied).

8.8

Rittal received an average of 8.8 out of ten possible points from its Italian customers for **product quality**. They characterised it as the greatest asset of the company. In 2013, customers had given Rittal a score of 8.4 points.

8.0

Italian customers gave Rittal an average of 8.0 out of ten possible points for **sales and consulting** – 0.3 points more than in 2013.

8.5

Rittal managed **8.5 – 8.9** out of ten points for internationality, **competence** and reliability. Customers gave Rittal Italy 8.0 – 8.4 points for **being innovative**, solution-oriented and responsible – an outstanding evaluation.

+30%

Rittal's **Net Promoter Score** is +30%. This key figure is calculated based on answers to the question: "How likely are you to recommend Rittal?" It is an important measure of **customer loyalty**.

DATA PROTECTION IS A BURNING ISSUE

Fire. Even data can fall victim to fire. Early fire detection and an active extinguishing system protect IT systems, thereby preventing data loss and downtimes in an emergency.

Text: Dagmar Puh

Endless lines at check-in desks, hours of waiting and even cancelled flights – anyone who wanted to fly with a certain American airline between 8 and 12 August 2016 went through a nightmare. The reason for the chaos: a power failure that caused a fire in a data centre which, in turn, completely crippled the airline's IT systems. Experts estimated the losses for the company were in the high double-digit millions. The damage to the company's image was probably much greater.

This example demonstrates how important it is for companies to protect their IT infrastructure from fire. Institutions including the Department of Homeland Security in the United States and the Federal Office for Information Security in Germany compel companies to undertake "state of the art technical and organisational measures" to prevent disruptions if an IT failure at their company could have implications for the general public. Yet even companies whose server enclosures or data centre only cover their own IT infrastructure may be neglecting the seriousness of this topic. "Unfortunately they underestimate the fact that fires are more common than one might think," says Bernd Hanstein, Vice President IT Product Management at Rittal. Many companies have gaps in their fire protection systems that, in an emergency, could lead to massive data losses and downtimes in company operations.

Protecting sensitive technology is definitely complex. Since many operators have no idea how to find the suitable solution for their own data centres, Rittal offers support with consulting services and suitable products. "The first question when establishing an extinguishing system is that of size," Hanstein explains. Is it enough when the system protects individual racks? Or must an entire room be covered? "You must bear in mind that room solutions often require follow-up investments," he says. "If for instance in the case of fire a whole room

must be flooded with nitrogen, you need a pressure release in the space and arrangements for protecting people." Visual and acoustic signals would warn of the incoming gas. For small IT applications, it often makes more sense to implement fire protection at the level of individual IT racks.

NO EASY CHOICE

The selection of extinguishing agent is also of utmost importance: "At customers' sites it's happened that we've found working sprinkler units over the server enclosures." Naturally the extinguisher should neither be conductive nor leave residues, so that the electronics aren't compromised. Inert gases such as argon and nitrogen meet these requirements, as do chemical extinguishing agents such as Novec 1230. They either displace the oxygen or remove the heat from the fire. To best guarantee this, it's advisable to sufficiently seal the rack. This prevents the extinguishing agent's concentration from plummeting and the fire from flaring up again if the power supply hasn't been disconnected. In any case, it should be arranged that the power supply be interrupted in the case of fire.

The third pillar of fire protection is an early fire detection system, which should include a highly sensitive smoke detector and an "active" smoke extraction system. Pipes installed in the rack constantly extract air from the server enclosure and direct it across the smoke detector. "Otherwise it can sometimes take a long time for smoke to arrive at a smoke detector, especially if the cooling system directs air horizontally in the rack," Hanstein says. So that fire protection remains active even when there's a power failure, the solution should also have a built-in emergency power supply with batteries. ■

PRODUCTS

PROTECTION MADE BY RITTAL

Rittal offers various fire alarm and extinguishing systems. One example is the Rittal DET-AC III family of products for closed server enclosures. It is made up of an early fire detection system as well as an active extinguishing system. Novec 1230 is used as the extinguishing agent. Just two litres in a 19-inch rack of one height unit suffices to extinguish a volume of 2.8 cubic metres. The built-in emergency electricity supply can bridge a gap of up to four hours without voltage supplies during a power outage. The integrated smoke extraction system works with a two-step system. An integrated CAN bus interface allows this fire protection system to be directly connected to existing alarm systems.



FLIGHT CANCELLATIONS

A power failure caused a fire in the data centre of an American airline, resulting in the cancellation of countless flights. It's an incident that demonstrates the importance of well-protected IT infrastructure for the smooth running of day-to-day business.





FAULT IN THE SYSTEM

Comprehensive communication protocols are available to locate the cause of the original fault. Eplan uses OPC UA, which is expected to establish itself as a communication standard between machinery and IT.

MALFUNCTION? CONSIDER IT FIXED!

Communication protocol. On the basis of OPC UA technology, Eplan and Murrelektronik are demonstrating how to facilitate fault diagnosis and troubleshooting in complex systems. This innovative type of diagnostics is a springboard for Industry 4.0.

Text: Rebecca Lorenz

The very mention of the word “malfunction” causes plant operators and service technicians to break out in a sweat. Until a malfunction is located and fixed, each moment that passes brings it closer and closer to an emergency. Even a simple short circuit can paralyse an entire plant. Reactivity during commencement of operations, maintenance or repairs determines the duration of shutdowns – and the resulting costs. “However, traditional fault diagnosis is usually complicated and time-consuming,” says Thomas Michels, Eplan Head of Product Management. “Often, when technicians consult paper documentation for the causes of a mechanical malfunction, they have only incomplete information. Even when tracing faults via signals from a programmable logic controller (PLC), they are also dealing with a variety of PLCs and interfaces from a wide range of manufacturers.” Negotiating a number of different standards takes considerable time during diagnostics. This is why Eplan and Murrelektronik have been researching a pragmatic solution approach since early 2016: a direct connection between wiring plans and machines and their automation components using the OPC UA (Open Platform Communication Unified Architecture) communication protocol. “This makes communication possible, regardless of manufacturer and platform, from the shop floor level all the way to Eplan Engineering,” explains Wolfgang Wiedemann, Head of Application&Sales Support Business Unit Automation at Murrelektronik.

NO KNOWLEDGE OF PLC REQUIRED

The great advantage of this approach to finding solutions is that the data from different controllers is available via OPC server access. “An error can then be displayed in the wiring plan via an OPC client and Eplan software, enabling maintenance engineers to identify it right where it occurs. By viewing the

device information, they can diagnose the condition of components, initiate the replacement or take other action to correct the fault,” says Dieter Pesch, Senior Vice President of Product Management and Development at Eplan. This also makes the system suitable for electricians with no knowledge of PLC, since they can perform diagnostics using a wiring plan. In addition, separate diagnostics programming of individual PLCs is no longer necessary.

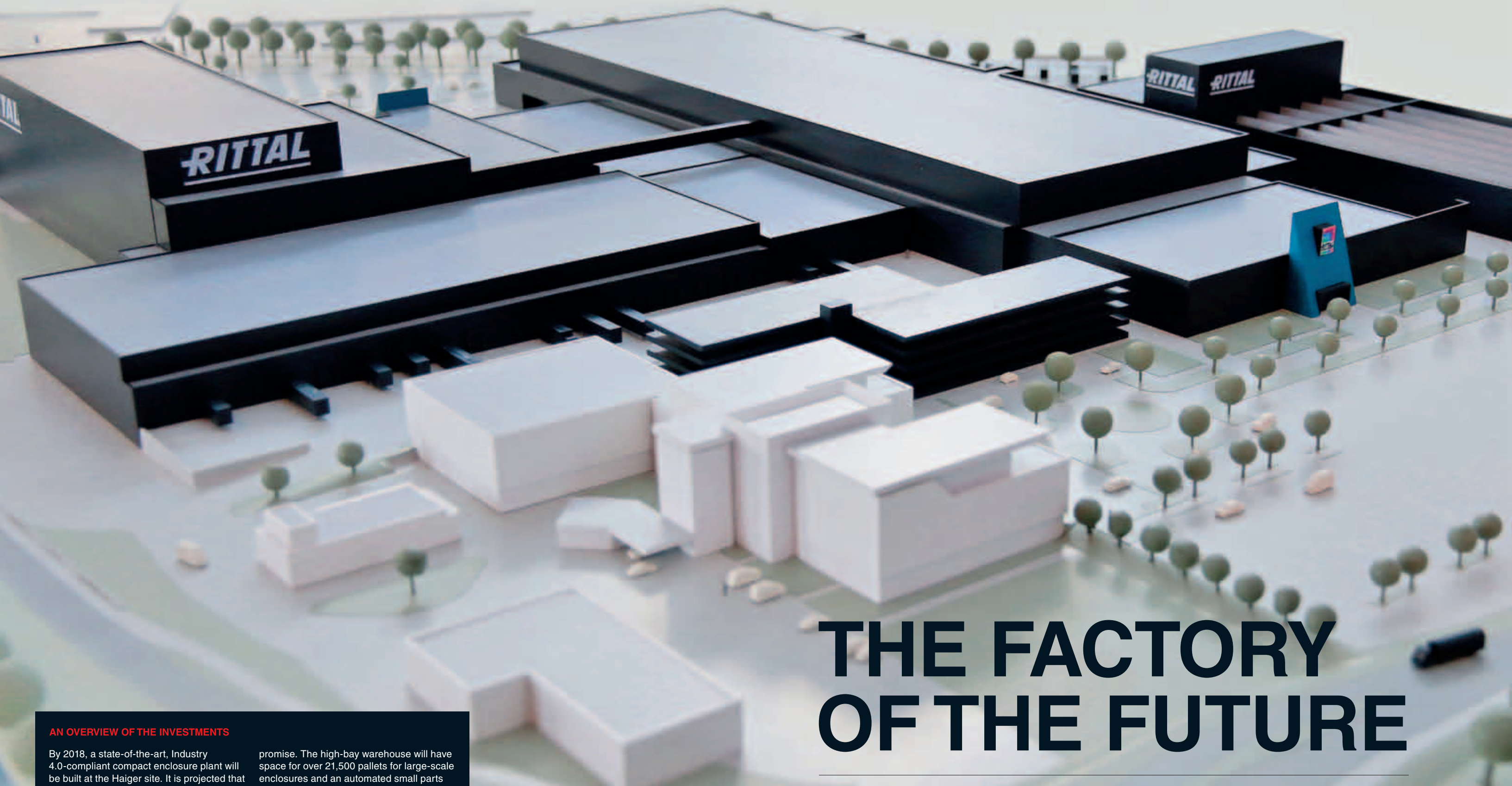
“In general, OPC UA technology is of interest to all Eplan Electric P8 users, since comprehensive preventive diagnostics can be implemented with very little effort,” adds Wiedemann. It is also suitable for users with their own mechanical and plant engineering. Expanding the diagnostics options can be substantially more cost-effective, particularly when it comes to small-batch production of special-purpose machines, rather than implementing detailed diagnostic programming via PLC.

OPC UA also serves as the springboard for Industry 4.0 projects. As workpieces in the Smart Factory go through individual production modules – equipped with order and production data on barcodes or transponders, which the modules use to control the system components – human intervention would be limited to administration. “In order for this to work, we need to ensure not only the availability of the data, but also the arrival of the right data in the right format and at the right place at the right time,” explains Michels. “To do this, we use the interface to OPC UA. Without it, it’s nearly impossible to master this new complexity with more and more automation components for control and data acquisition in production machinery.” ■

MURRELEKTRONIK GMBH

LEADING SUPPLIER

Murrelektronik GmbH develops, produces and sells electrical and electronic automation technology. The company, with headquarters in Oppenweiler in Baden-Württemberg (Germany), is one of the leading companies in the field of mechanical and plant equipment, from enclosure to interface to field. Murrelektronik employs around 2,200 people across the globe.



THE FACTORY OF THE FUTURE

AN OVERVIEW OF THE INVESTMENTS

By 2018, a state-of-the-art, Industry 4.0-compliant compact enclosure plant will be built at the Haiger site. It is projected that extensive automation and digitisation will reduce the production time of compact enclosures to five days. The grounds also house the newly opened Global Distribution Center, which provides the ideal conditions for adhering to the 24/48-hour delivery

promise. The high-bay warehouse will have space for over 21,500 pallets for large-scale enclosures and an automated small parts warehouse, which will provide adequate storage space for Rittal standard products and accessories. In addition, the plant grounds house the Rittal Innovation Center and the headquarters of the Friedhelm Loh Group, as well as a future training centre.

Investments. Rittal is investing a total of 170 million euros in a new, Industry 4.0-compliant compact enclosure plant. In mid-August 2016, the company laid the cornerstone of the new building in Haiger (Hesse).

Text: Rebecca Lorenz

THE NEW SITE

TO THE MAX

24,000

square metres of production space is being built at the Haiger site. The new plant will be one of the largest Rittal plants in the world.

290

employees will be working in the plant starting in 2018. On the basis of an integrated flow of data, they will produce compact enclosures as ordered by customers.

250 m

Rittal will be investing 250 million euros in its German sites in the years to come. This is the biggest capital expenditure in company history.

9,000

compact enclosures are projected to leave the state-of-the-art plant in Haiger each day. To achieve this, production will be highly automated.

Hinges, turn-lock fasteners and gland plates: as if by magic, the fresh supply of building components is whisked into the warehouse via conveyor belt as soon as it is unloaded from the truck. A manual comparison with the bill of delivery is unnecessary, because everything is done digitally here.

And it is no surprise that the operation of the adjacent state-of-the-art 3D laser centre is also data-based. The high-precision machine cuts, drills and mills holes and recesses in all formats in panels and even entire enclosures; after all, the exact manufacturing data is received directly from the customer's configuration.

If the stock of mounting plates is running low, driverless transport systems deliver a fresh supply, entirely self-organised and just in time. Long downtimes and technical hiccups become a thing of the past thanks to knowledge-based systems. When certain threshold values are exceeded, an alarm is automatically triggered that initiates the ordering of replacement parts and informs the employee about the upcoming repair.

Processing companies around the world are still debating these cutting-edge production processes. At Rittal, things are different, because the company is unafraid to take the Industry 4.0 plunge. To do so, the enclosure technology system provider will have invested about 250 million euros in its German locations in Haiger, Hof and Rittershausen by the end of 2018. The cornerstone was laid in Haiger in mid-August 2016, in the presence of customers, employees, journalists and politicians.

Dr Friedhelm Loh, owner and CEO of the Friedhelm Loh Group, explains the investment: "Although our plants are already among Germany's most cutting-edge production facilities, we are going one step further in order to remain competitive in the long term." In concrete terms, this means that as of 2018, up to 9,000 compact enclosures will be produced daily at the 24,000-square-metre facility in Haiger alone – and production will be highly automated.

"Our three-stage production – sheet metal processing, painting and assembly – is digitally networked throughout and equipped with processing machinery from Rittal Automation Systems," explains Carsten Röttchen, Executive Vice President Production. "Ultimately, we want to work as efficiently as possible, not only at, but also among our respective locations."

A PARADIGM FOR THE FUTURE

Röttchen is referring to the future joint production network formed by the production sites in Haiger, Rittershausen and Hof. Their machine parks will be digitally networked to work together in perfect coordination. Once tested, this paradigm will serve as a model for the company's international production sites as well.

"Of course, I can understand how the mountains of data to be processed and critical security considerations might deter some companies from taking a radical step like this," says Dr Loh. "But production in networks is crucial to the future of Germany as an industrial location. This is the only way we can generate sufficient productivity to be prepared for international competition."

A new, direct link from customer to production demonstrates the sincerity of Dr Loh's declaration. With the opening of the new plant in Haiger, future orders will be submitted to production directly via the online shop and the Rittal Configuration System and processed automatically (see p. 48 for more information on the Rittal Configuration System). As a result, processing will become much faster and production time will be reduced to five days.

In addition, the newly opened Global Distribution Center, located right next to the planned location of the new compact enclosure plant in Haiger, will also dramatically accelerate the delivery time of orders. At an over 4,000-square-meter, 32-metre-tall facility, products will be automatically transported to their storage location in minutes for pick-up.

"As a supplier, we've observed that our customers want to keep as few parts →



A GOOD REASON TO CELEBRATE

On 19 August 2016, the cornerstone of the new compact enclosure plant was laid in Haiger. In attendance were (left to right) Carsten Röttchen, Executive Vice President Production; Dr Karl-Ulrich Köhler, CEO of Rittal International; Mario Schramm, Mayor of Haiger; Wolfgang Schuster, District Administrator of the Lahn-Dill district; Dr Friedhelm Loh, with his wife Debora; and Hesse Premier Volker Bouffier.



RITTAL INNOVATION CENTER

Along the value chain, Rittal employees pursue intensive communication with customers at the newly opened Innovation Center, where they can discuss new and optimised solutions for the value chain in control system and switchgear engineering.

VALUE STREAM: FROM CUSTOMER TO CUSTOMER

In the future, from enclosure configuration and ordering to production and delivery, digitisation and networking will be the basis for efficient process steps. For Rittal, Industry 4.0 means not only increased utilisation of sensors and profitable data evaluation and analysis; rather, Industry 4.0 means networking different production systems and integrating them into the entire Rittal value chain – from customer to customer.



ORDERING

Customers use the Rittal Configuration System, developed by Rittal and Eplan, to build their compact enclosures, which they can order at the online shop.

VERIFICATION

The system verifies that all parts have been correctly selected. Standard products are available immediately. The system forwards custom orders to production.

MANUFACTURING

During manufacturing, the necessary information and machine programmes are automatically created from configuration data. Manufacturing and logistics work together in a coordinated and self-organised manner.

DELIVERY

Both standard products and custom solutions are sent to the customer via the Global Distribution Center.

VALUE CREATION

“The Rittal System Configurator is a perfect example of data consistency in the value chain, in total compliance with Industry 4.0,” declares Maximilian Brandl, Managing Director of Eplan. The foundation of the new tool is precisely managed data that is provided by Rittal and processed for the Eplan Data Portal with Eplan support. Supplemented by the standard in the Eplan Engineering Configuration, smart CAD data is generated for use. “Further processing of digital Rittal enclosures using Eplan Pro Panel is integrated, in order to complete the construction of digital models with automation components,” explains Brandl. “All process steps go hand in hand – it’s the ultimate in data consistency and error reduction!”



“Production in networks is crucial to the future of Germany as an industrial location.”

Dr Friedhelm Loh, owner and CEO of the Friedhelm Loh Group

in stock as possible,” says Andreas Nögel, Vice President Global Logistics at Rittal. “This trend will intensify in the future, solidifying the importance of guaranteed delivery times.” Rittal already promises that items ordered will be delivered to the customer within 24 hours. In remote regions with weak infrastructure, this delivery time can rise to 48 hours.

“Thanks to the state-of-the-art logistics infrastructure in the new Global Distribution Center, we have been able to increase the quantity of shipped products by 50 per cent, cut lead times in half and increase delivery quality by over 50 per cent,” explains Nögel. This clear improvement in efficiency provides the best conditions for keeping and surpassing a given delivery promise.

“Step by step, we are developing Haiger as a future-oriented location,” Dr Loh asserts. It goes without saying that this is only possible with the cooperation of customers and employees. “They are the focal point of all we do; after all, our company would not exist without their ideas and input.” System products or software solutions, it’s all the same: Rittal’s motto was and is “listen and give it a try.” This is another reason the company and its affiliates Eplan and Cideon have opened the 1,200-square-metre Rittal Innovation Center very near the Global Distribution Center and the planned compact enclosure plant. “These are the questions we must ask ourselves again and again,” notes Dr Loh. “What can we do to improve our products, our logistics and the value chain for the customer?”

To find answers to these questions, Rittal would like not only to present its customers with innovations and explanations, but also to invite them to the new spaces to try things

out and discuss them. “The Innovation Center is intended to serve as an intensive and fruitful point of exchange for us and our customers,” confirms Jan-Henry Schall, Director of the Rittal Innovation Center. “Regardless of whether it is praise, criticism or questions, every suggestion is welcome.” In fact, the intense communication with customers, partners and suppliers is firmly anchored in Rittal’s history: many products which are now an integral part of the company’s portfolio were created exactly this way. “I would estimate that, in the 55 years of the company’s existence, about two-thirds of our 1,500 patents came about through a mutual exchange of ideas with our customers,” says Dr Loh.

FOCUS ON CUSTOMERS

From standardised large-scale enclosures to the Micro Data Center to Blue e+ cooling units, Rittal’s success story is closely interwoven with the needs of its customers. “That’s why it is all the more important for us to not only train employees and customers at the Innovation Center, but to work with them as well in finding solutions to optimise the value chain in control system and switchgear engineering,” says Schall.

In Haiger, this means that visitors to the Innovation Center scrutinise each individual process step from engineering to systems technology to system configuration. “Only by analysing, discussing and grasping every single station in the value chain can we discover previously hidden efficiency potential,” says Schall. “In addition to new automation options, this also includes cost savings and shortened lead times.”

Increasing productivity, developing consistent innovation and accelerating pro-

duction and delivery are the express goals of the new, future-oriented site in Central Hesse. To that end, Rittal is already planning its next capital investment. “The Global Distribution Center, the Innovation Center and the new compact enclosure plant in Haiger are just the beginning. Our next project is the construction of a new plant for stainless steel enclosures in Rittershausen.” And it will also be Industry 4.0-compliant, of course. ■

IN THE HEART OF HESSE

Rittal has been manufacturing housing and enclosure technology in Haiger for over 55 years. The company has made a major contribution to the development of the region as a successful location for business. The ground-breaking ceremony at the compact enclosure plant and the opening of the Global Distribution Center (GDC) solidify Rittal's commitment to the region and its future-oriented development. In addition to its accessible location in the heart of Europe, there are other good reasons why Central Hesse is poised to compete in the global market.



MODEL
Hesse's Minister President Volker Bouffier (right) listens attentively to Dr. Friedhelm Loh as Dr. Loh uses a model to introduce the new factory in Haiger at the Hessentag political summit.



MULTIFACETED AND A GREAT PLACE TO LIVE

The Lahn-Dill district, known as the Land of Kings for its many castles and palaces, borders the Westerwald, the Rothaar Mountains and the Taunus. Haiger is the ideal starting point for hikes on the **154-kilometre-long Rothaarsteig**. Johann Wolfgang von Goethe, who worked as an apprentice in Wetzlar, extolled the surrounding countryside for its indescribably beautiful nature.

From Haiger to the whole world in 24 hours...48 hours, tops! Thanks to its excellent geographical location and optimal access to transportation, Rittal can guarantee speedy deliveries. The production site is located in the heart of Europe near the border between Rhineland-Palatinate and North Rhine-Westphalia. By connecting to the motorway network, **transports reach fourteen countries in ten hours by car** (six in under five hours).

Another advantage of the geographic location is the **proximity to universities** such as those of Frankfurt, Darmstadt, Giessen, Marburg, Kassel, Siegen, Koblenz, Cologne and Bonn.

MANY GOINGS-ON

Rittal has maintained a close-knit relationship with Herborn – where it is headquartered – since its founding in 1961. This is yet another reason why the company supports cultural events in the town, including the Hessentag, which took place in Herborn this year.

DIGITISATION POTENTIAL

Innovation. Digitisation: a matter for American IT corporations? In a conversation with the ZVEI (German Electrical and Electronic Manufacturers' Association), Dr Karl-Ulrich Köhler, CEO at Rittal, demonstrates how German industry is also playing a major role.

Text: Johannes Winterhagen, courtesy of „Ampere – Das Magazin der Elektroindustrie“

The low-rise building is inconspicuous from the outside except for the sign reading “Innovation Center.” It is probably an office space, or maybe an exhibition hall. Inside comes the surprise: a light-filled hall containing high-tech production machinery. “You are in the right place,” says Karl-Ulrich Köhler invitingly. Rittal's CEO explains why we are in Haiger walking into a sample production of enclosures: “At our Innovation Center, we can map the entire value chain process of our customers. We see this as a working environment where our developers work on new solutions together and with customers.” At an assembly workstation, Köhler enthusiastically demonstrates how a digitally pre-designed enclosure is made. Each individual step is displayed on a tablet in exactly the right order. This will preclude the possibility of an improper installation; Köhler sees this as just one example of the potential inherent in complete digitisation – from planning to order and manufacturing right through to the utilisation phase.

Köhler, who is no stranger to handling a screwdriver, is obviously very much at home in his new job. He has only chaired the Management Board since 1 July of this year after being employed by various steel corporations for over 35 years, most recently as a CEO. It is rare for a high-level executive from a large publicly traded enterprise to move to a family business. “The size of the company is irrelevant to me,” says Köhler. “It's more about the systems approach: ‘Think big, act fast.’ And that is precisely the kind of culture that I've found here.” This came as no surprise to Köhler; after all, he had been a member of the Advisory Board of

the Friedhelm Loh Group (Rittal's parent company) for over ten years. In Germany, digitisation is often associated with IT companies from the United States. On the other hand, Köhler counters: “The medium-sized electrical industry is a major economic factor with substantial innovative power.” When companies focus on digitising individual sub-steps of industrial processes or, as in the case of Rittal, on the entire value chain, new ideas can be implemented extremely quickly.

INVESTING IN INNOVATION

As a matter of fact, according to a study on the capacity for innovation in the German economy, the electrical industry invests 9.9 per cent of its sales revenue in innovation. This also includes investment in equipment used for research and development. The electrical industry is on a par with vehicle manufacturing and significantly more innovative than the chemical and pharmaceuticals industry, which invests 7.7 per cent of its sales revenue in the future. However, the same study reveals that 78 per cent of the total expenditure on innovation is accounted for by large companies. The authors warn that “the share of small and medium-sized enterprises (SMEs) has been declining for many years.” A problem with this observation is the fact that SMEs are defined as companies with a maximum of 499 employees; all others are statistically classified as large enterprises. “One might wonder if this is an adequate categorisation,” cautions Köhler. “Family businesses like us, without the resources of a DAX-listed corporation, but with 11,500 employees worldwide, fall through the cracks” – when, for example, the Federal Ministry of Educa-

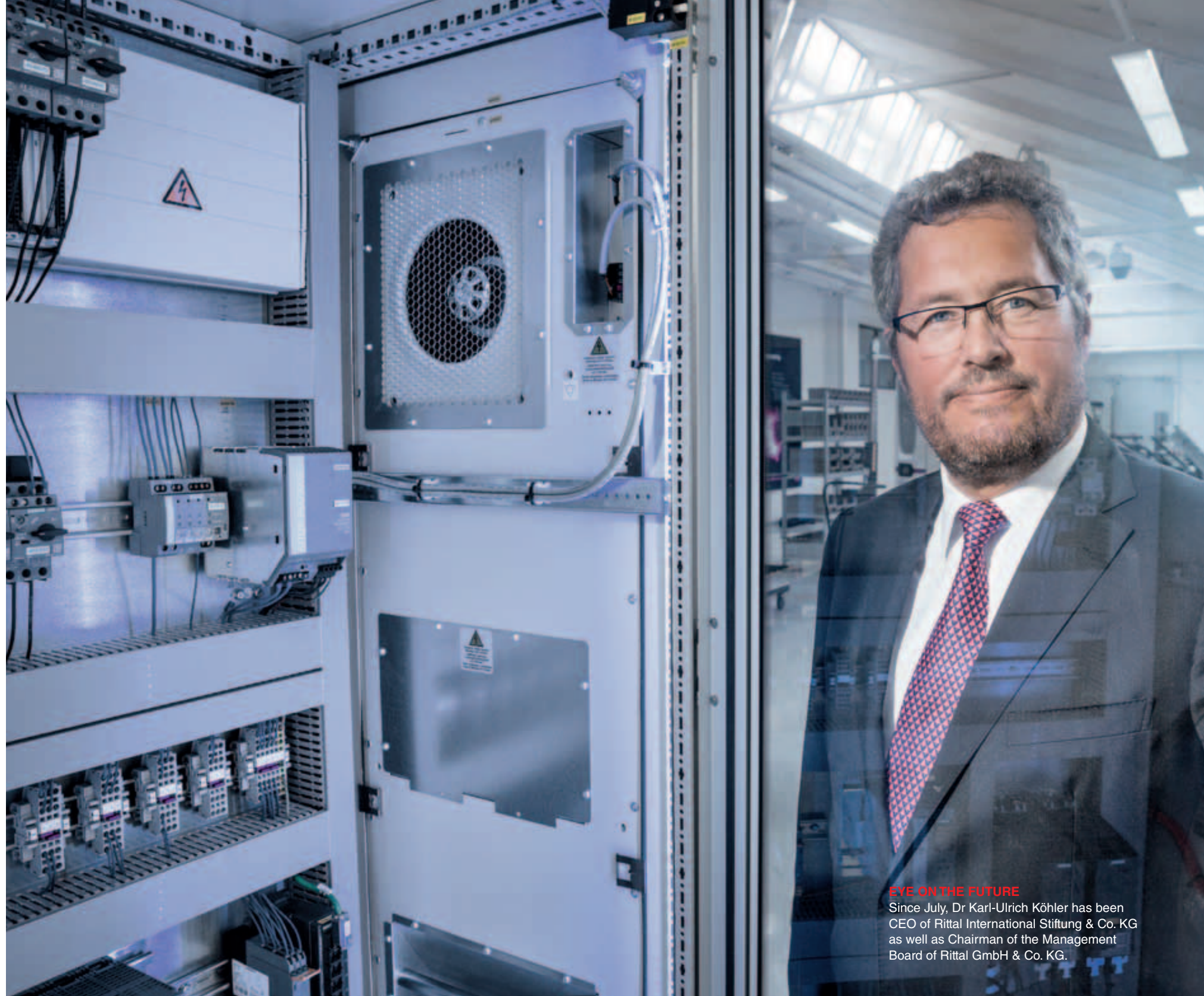
tion and Research implements a 320-million-euro programme to “strengthen medium-sized businesses.” In any case, even in a digitised, globalised world, Köhler does not feel that the family business model is obsolete. “In a knowledge-driven industry, longevity is an advantage. And family-owned companies nurture a mindset of constant reinvestment.” This is also important because so far no one has the all-encompassing solution for Industry 4.0. “We are all on a learning curve. Companies need a culture that allows them

to learn from mistakes.” Networked value chain structures, so typical for the German economy, are helpful in quickly sharing and increasing knowledge – as is a vocational training system that is unparalleled in the world. Even if the small town of Haiger is not renowned for the hipness of its establishments, Köhler is not worried about finding young talent. Currently, Rittal receives more applications each year than it has employees worldwide. Köhler is optimistic: “We have considerable options and we want to use them.”

In spite of these positive conditions, the overall situation needs to be viewed critically, Köhler warns. He considers China the main major competitor after the United States. China's new five-year plan, which continues into 2020, stipulates that 60 per cent of future economic growth should result from advances in science and technology. Digitisation plays a crucial role in this process. “Policy in Germany and Europe must respond to this government focus. Companies will have creative and needs-driven solutions,” says Köhler.

Through the glass pane of the conference room, he points to the model factory. “This is the proper platform for developing these solutions.” ■

➔ **LINK TIP:**
For more information, head to www.tinyurl.com/Ampere-Industrie-4-0



EYE ON THE FUTURE
Since July, Dr Karl-Ulrich Köhler has been CEO of Rittal International Stiftung & Co. KG as well as Chairman of the Management Board of Rittal GmbH & Co. KG.



SHIP PERMITS SIMPLIFIED

RITTAL BUSBAR SYSTEMS SAVE TIME AND COSTS FOR CERTIFICATION

Control panels that are used on ships or other offshore applications are subject to special certification ordinances. While the IEC 61439 and IEC 60529 standards that apply to control systems and switchgear engineering are generally used, these certifications are insufficient for the maritime requirements of the international classification societies Lloyd's Register, DNV GL and American Bureau of Shipping. Accordingly, busbar systems and associated components must also have cer-

tifications for vibration stability and fire protection along with affidavits for short-circuit resistance, insulation capacity and thermal resistance. Control panels installed in closed areas such as machine rooms must be able to defy temperatures of up to 55 degrees Celsius as well as vibrations with the requirement of 0.7 grams in the frequency range of 5 to 100 Hertz. The Rittal RiLine busbar systems, Maxi-PLS and Flat-PLS, have now successfully passed their environmental testing

and received approval from the international classification societies. With Rittal busbar systems, plant manufacturers can now simplify their certification processes during inspections of the overall system and clearly save both time and money. The classification societies have at their disposal all the relevant product information, including the products' testing reports, user manuals and technical parameters.

EPLAN PLATFORM 2.6

NOW ALSO IN TURKISH

The new Eplan Platform version 2.6 includes Turkish as an additional software language and numerous technical upgrades. Many functions have been optimised to simplify the integration of the Eplan Platform into existing customer processes. Examples of new functions include terminal design and project data management, the depiction of piping in fluid power engineering and optimised IT integration. With the addition of Turkish, the Eplan Platform is now available in a total of eighteen languages.

→ LINK TIP:
For more information on the Eplan Platform head to www.eplan.de/platform



INVENTX AG This Swiss company is the IT partner for leading banks and financial institutions.

BUSINESS AT THE BANK

IBM AND RITTAL IMPLEMENT DATA CENTRES FOR INVENTX.

With the help of Rittal and IBM, Swiss bank services provider Inventx built two new data centres in Switzerland. Rittal delivered server enclosures for the compact installation of IT components and, working with IBM and Inventx, developed a climate-control concept which will optimise operating costs. Moreover, Rittal and IBM won the company over with intelligent cable management for efficient maintenance work and system expansion. Both data centres are classified to Tier Level 3, so they are nearly 100 per cent error free and failsafe.

VOLUME DELIVERIES

STAHLO SUPPLIES VOLKSWAGEN

EuroBLECH, the international technology trade fair for sheet metal processing in Hannover, Germany, marked a milestone for Stahlo. The Steel Service Center for the Friedhelm Loh Group is now an authorised volume supplier for automobile manufacturer Volkswagen in Zwickau, Germany. Stahlo thus demonstrates its claim to be a "major league" Steel Service Center that is able to supply automobile manufacturers and suppliers. "The cooperation with Volkswagen Zwickau is very valuable to us," says Stahlo Managing Director Guido Spenrath. Stahlo won the contract after comprehensive quality testing at the production site in Gera, Germany. Stahlo will immediately begin delivering contoured blanks for outer panel components of the VW Golf VII Variant.



VALUABLE CONTRACT WIN
Stahlo establishes itself as a Level 1 supplier with the Volkswagen contract.



WATER TREATMENT

Freshwater processing is tremendously important for both domestic and industrial customers. It requires a great deal of power and efficient technology.

CLEANED, COOLED, CONSERVED

Cooling technology. Xylem, a market leader in ozone systems, attaches great importance to high energy efficiency. Xylem relies on Blue e+ cooling units to keep their enclosures cool.

Text: Dr Jörg Lantzsch and Hans-Robert Koch

Freshwater provision and wastewater treatment have a very high energy requirement. Purification of domestic wastewater accounts for three to five per cent of the electricity consumption in a private home. Processing and transport of freshwater for households, agriculture and industry, along with purification of industrial wastewater, are also associated with a high level of energy consumption. Pumps consume a large portion of this energy. Electricity is also required for the production of ozone, with which water is processed in an environmentally friendly manner. However, since ozone has a short half-life, ozone production equipment must always be installed on site, i.e. at the waterworks or the wastewater treatment plant.

At Xylem Services GmbH in Herford (Germany), about 250 employees develop, produce and market ozone systems and UV water disinfection systems, known worldwide by the brand name Wedeco. The largest systems can produce up to a tonne of ozone per hour. The amount of ozone required is dependent on the amount of water. In addition, the type of pollution must be taken into consideration. "The ozone production needs to be adjustable depending on the application," explains Franz-Josef Richardt, Global Product Manager Ozone Systems at Xylem Services GmbH.

20 KILOS OF OZONE PER HOUR

A system that produces one kilogram of ozone per hour has an electrical power consumption of approximately five to six kilowatts. The system currently under review can produce up to 20 kilos of ozone per hour and thus has a total connected load of more than 100 kilowatts. The power loss of a system like this, which is converted to heat in enclosures, is about eight per cent. The greatest amounts of heat are generated by the transformers and the power

electronics for the frequency converters. Part of the heat produced is dissipated by water cooling.

To protect the other components from overheating, Rittal cooling units are also installed in the enclosures. The temperature inside the enclosures should remain at 35 degrees Celsius. If temperatures are higher, the loss rate of a programmable logic controller increases significantly. The service life of some components (e.g. frequency converter capacitors) is also shortened at higher temperatures. Losses must be avoided in ozone systems in water management, which rely on high availability. "In the past, redundant systems were often built so that the wastewater treatment or water processing could go on under any circumstances," recalls Richardt. "Today, our systems have an availability of nearly 100 per cent."

To ensure a maximum temperature of 35 degrees Celsius in the enclosures, two cooling units from Rittal's new Blue e+ series are used, each with a six-kilowatt cooling output (right). Units with this much cooling output have only been available since the introduction of the latest generation. Two years ago, Xylem supplied an ozone system with identical output to the same customer. "At that time, we had to install five different cooling units in the enclosures in order to achieve the necessary cooling output," recalls Richardt. Since the cost pressure from customers is generally high, Richardt is pleased about these savings. "The new cooling technology is a great individual savings for ozone systems, not only because of the reduction in the number of units, but also because of the lower installation costs."

SAVINGS IN THE FIVE FIGURES

Blue e+ series cooling units have a significantly higher level of energy effi- ➔

AWARD

"OSCAR" FOR COOLING

Rittal's Blue e+ cooling units won over the jury at the 2016 RAC Cooling Industry Awards. Energy efficiency and CO2 savings of up to 75 per cent as well as worldwide applicability led to Blue e+ being named the first winner of the international award, making the cooling unit the de facto "Refrigeration Product of the Year." "We are very pleased to receive this award," said Dr Thomas Steffen, Rittal's Managing Director Research and Development. "It shows that Blue e+ is not only an innovative product for our customers – it also supports climate protection."



AWARD WINNERS

Steffen Wagner, Director Product Management Climate Control (left) und Jörg Knetsch, Project Director Research and Development, accepted the award on behalf of Rittal.



“High energy efficiency and the resulting savings in operating costs are a major advantage of our systems.”

Franz-Josef Richardt, Global Product Manager at Xylem Services GmbH

ciency than previous models. Hybrid operation in particular, with its combination of heat pipe and compressor cooling, can result in major energy savings in part-load operation. The cooling is designed for an enclosure temperature of 35 degrees Celsius with an equivalent external temperature of 35 degrees Celsius. At lower external temperatures, as one finds in moderate latitudes almost year-round, cooling units require significantly less energy. In addition, compressor cooling operates in an energy-optimised manner. Frequency-controlled components allow the cooling unit to always provide just as much cooling power as is currently required. A further advantage is that the enclosure temperature has significantly reduced fluctuations, which in turn leads to lower thermal stress on the components in use and longer service life. “High energy efficiency and the resulting savings in operating costs for the customer are a major advantage of our systems,” stresses Richardt, making a simple calculation: “Our systems run virtually round the clock. If the enclosure cooling has a power consumption of two kilowatts, at 8,500 operating hours per year this will quickly lead to a five-digit sum that the customer can save on energy costs over the lifetime of the system.” The specific savings depend mainly on external temperatures at the installation site. However, the Blue e+ cooling unit series offers advantages not only in terms of energy efficiency. Multi-voltage capability is particularly important for international companies like Xylem. Whether the system is delivered to the USA, Japan, Mexico, the UK or Germany, the cooling units can handle the local voltage range. Previously, Xylem had to either install a suitable cooling

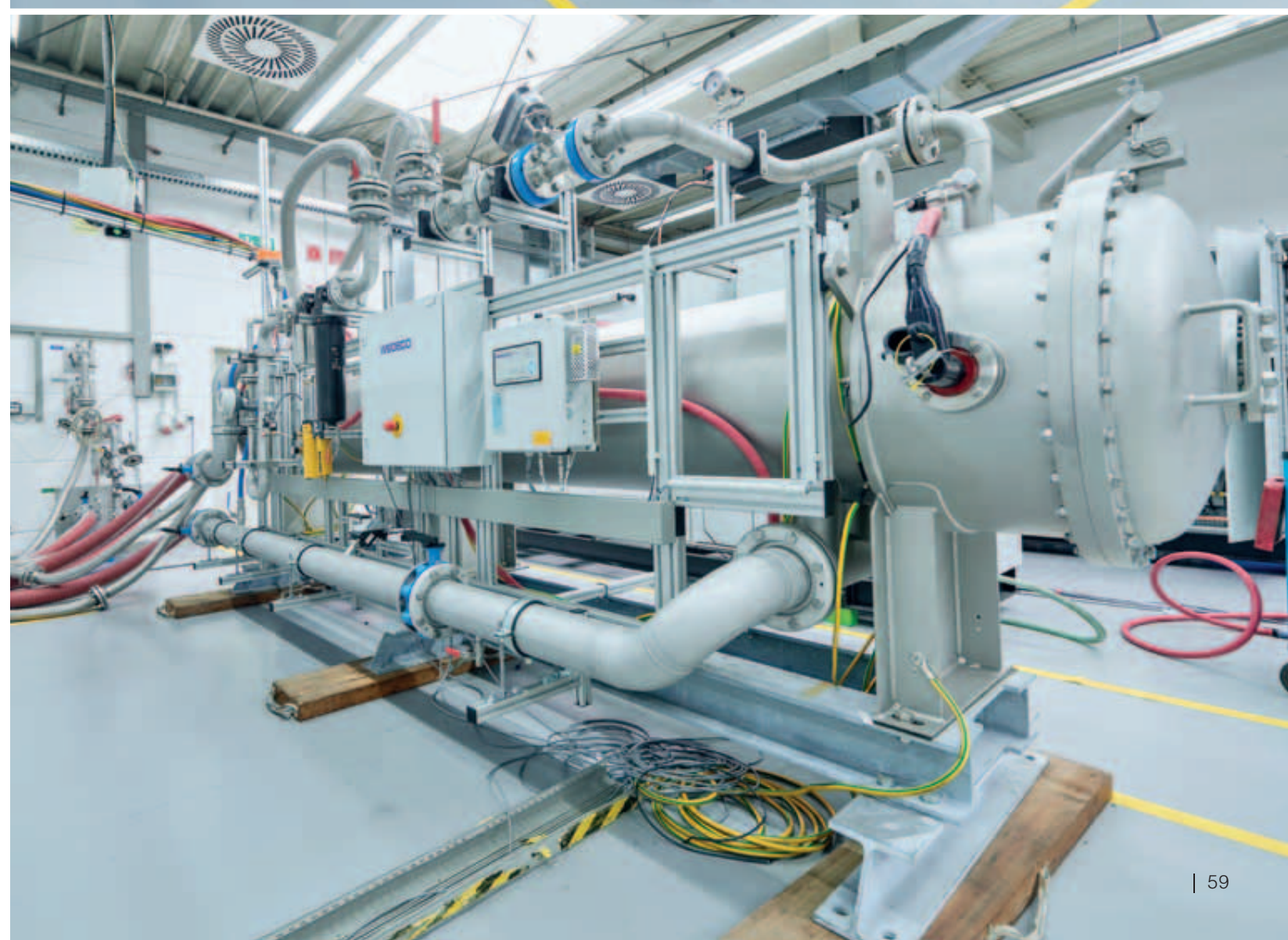
unit for the respective voltage range or use an additional transformer. “Thanks to the new units, we no longer need to do that,” says Richardt. “Every transformer we eliminate means not only fewer costs, but also less power loss.” In addition, the UL listing of refrigerators is of particular importance in the international market. Permit formalities and regulations vary depending on where the system is in operation. “When we put a system into operation in the USA, for example, it is important that all components have a UL listing,” says Richardt. “This makes the whole permit process much easier.” International availability of components and proper service (or spare parts supply) are also important to Xylem. After a system is commissioned, technicians from the local Xylem distributorship usually handle service. And with an internationally established supplier like Rittal, they have a competent local contact. “On the whole, we rarely need to take advantage of the service option,” Richardt clarifies. “We are sold on the quality of the Rittal cooling units and there were very few complaints in the past several years.” The current system is being tested extensively in Herford before delivery to Taiwan. The cooling units are pushed to the limit of their capacity. The system will not be put into operation at the customer’s site until all tests have been successfully completed. In the system intended for a wastewater treatment plant in a chemical factory in Taiwan, the entire electrical engineering is housed in TS 8 enclosures from Rittal. “Enclosures with a power supply are always an integral part of every system we produce,” explains Richardt. Xylem relies on Rittal for enclosures for several reasons,

as Richardt knows: “Rittal delivers the enclosures and the proper cooling technology with exceptional reliability. Since we are currently experiencing lead times in production of just four weeks due to high demand, a systems supplier like Rittal is very important to us.” ■

→ **LINK TIP:**
For more information about Blue e+ cooling units, please visit www.rittal.com/de_de/blue_e_plus/public/en



POTENT PAIRING
To achieve a maximum temperature of 35 degrees Celsius in the enclosures, two cooling units from the Rittal’s Blue e+ series are used, each with a six-kilowatt cooling output.



BOOSTING PRIDE IN WORK

Cideon. Economically logical. Technically correct. And coherently communicated. The engineering experts from Cideon demonstrate how new software can be successfully positioned at a company. Experience shows: communication is everything.

Text: Ulrich Kläsener

Scheuch is currently bringing together what belongs together: design and development. The digital centerpiece of both departments, which are scattered across the globe at several different company sites, is a new product management system. Implemented in close cooperation with Cideon, Scheuch, the Austrian experts for ventilation and environmental technology, can now simply and easily exchange all types of product data – independent of time, location, language, department and even individual know-how. “Our goal is to create a future-oriented engineering environment,” says Scheuch’s Managing Director Stefan Scheuch, a graduate engineer (Dipl. Ing.) – the company replaced 180 workstations as part of this process. But what Scheuch and Cideon accomplished together cannot solely be reduced to key identifiers such as shorter project turnaround times, improved product quality and increased flexibility within projects. Even with all the digitisation, people remain the ultimate designers of their working processes. And these processes have undergone significant change at Scheuch with the replacement of the old 2D/3D workstations.

“Acceptance of the new system was the first hurdle that we had to clear,” says Scheuch Project Director Sascha Tremel, also a graduate engineer. “Good, intelligent standard software is just the backbone for smart comprehensive solutions.” Cideon Linz Managing Director Dr Harald Schrenk adds: “When we look at business processes as a whole, as we did at Scheuch, and need to change some of them, what comes first and foremost is involving all the employees. This means including every individual planner, designer, builder and salesperson at the company. As a service provider, what we have to bring to the table is our expertise and years of experience with communicating IT implementation pro-

jects.” Dr Schrenk touches upon a simple fact that often becomes a stumbling block when introducing new software: non-acceptance and failure of the new solution due to a lack of or poor communication. Ideally employees are precisely, coherently and frankly informed about upcoming changes early in the process and introduced to the topic step by step. If this doesn’t happen, reactions become more polarised.

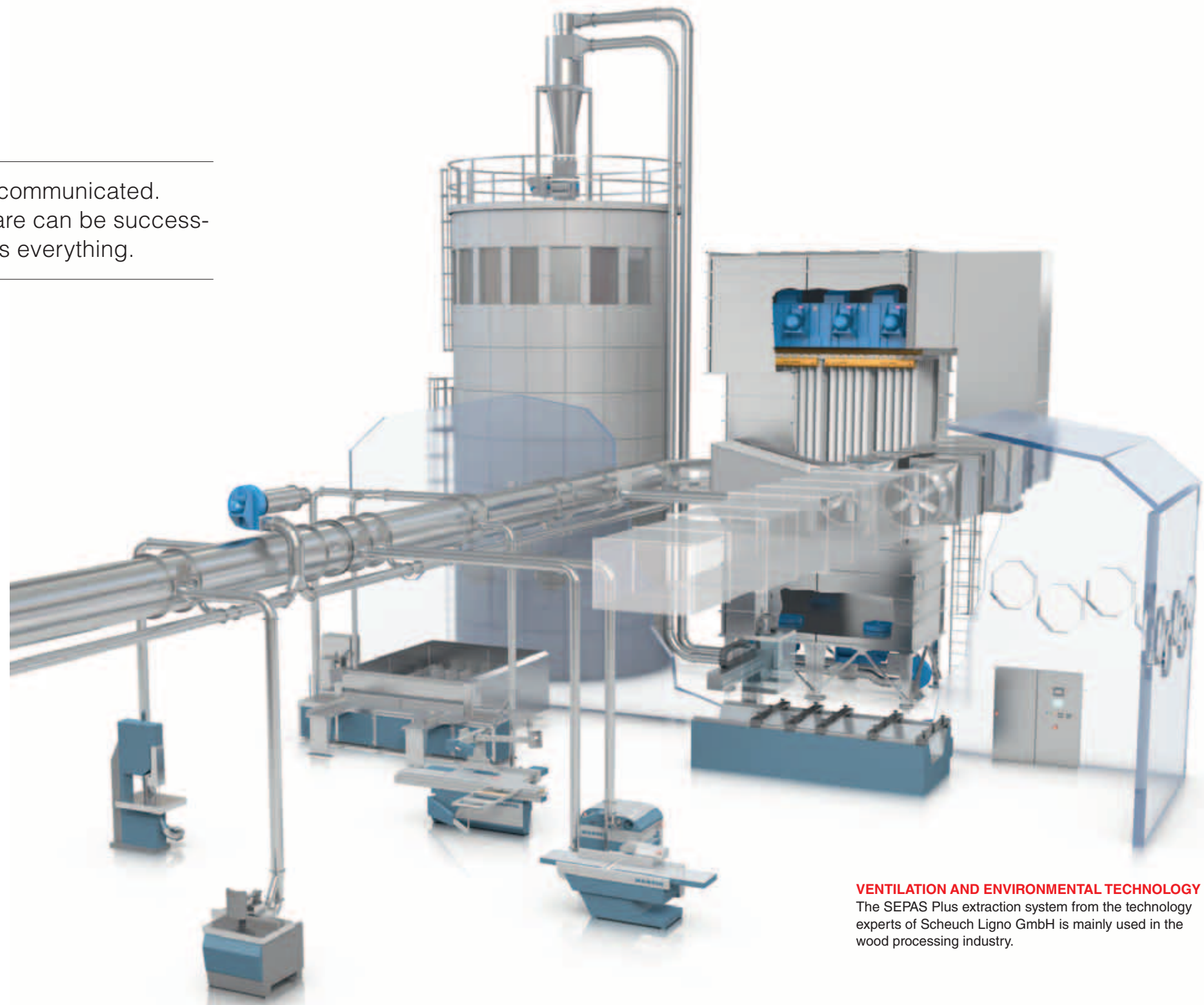
BEFORE IT COMES TO A BOYCOTT

The worst-case scenario: those responsible at the company prohibit any open discussions within the company and simply instruct employees to use the software and “learn to live” with the process. This is undoubtedly the wrong path to take in a day and age that requires employees to be proactive and think for themselves; mindlessly following orders, as in the old days, stifles innovation. In practice, such an approach undermines the goal of increasing efficiency with the new solution: discontented, unmotivated employees criticise the software and/or the process – in the best case they do this openly, or in the worst case there is an unofficial boycott with the establishment of a “shadow IT landscape”. The sobering lesson: money gone up in smoke, wasted time, a loss of trust and motivation within the company, increased absences from work and employee turnover, a missed chance to increase productivity and a tarnished reputation for the service provider.

If for no other reason, IT service providers and customers should work out a precise communication strategy, as Scheuch did. To start, a short animated film informed employees about the fundamental decision of reorganising engineering processes. Communication professionals bestow kudos: the necessary commitment was transferred “from above” subtly, but understandably and clearly to the relevant target group. The

same applies to the use of social media channels, which provided communicative penetration “from outside”.

“Fundamentally, what’s at stake for the entire progression of the project is participation, motivation and orientation for the employees – it’s impossible without it,” says Dr Schrenk. “That’s why communication tailored to the addressees can be called the most important part of a good project culture. At the point where those affected become participants in a process, where they see personal and company-wide benefits in the new solution, that’s when there is a swift increase in the chances for timely, pro-



VENTILATION AND ENVIRONMENTAL TECHNOLOGY

The SEPAS Plus extraction system from the technology experts of Scheuch Ligno GmbH is mainly used in the wood processing industry.

ductive utilisation of the new software. At the same time, the need to control and regulate the process can be reduced.” Good communication also naturally includes close communication between the service provider and customer, which Cideon supported at Scheuch with a landing page. The manufacturer of the standard software was also brought on board, and they dealt with system integrator Cideon and end customer Scheuch in customised ways. Accompanied by continuous employee information at Cideon and Scheuch about the state of the project, in conjunction with classic training, there was yet another

organisational measure that proved very effective. First, the workstations for a small pilot group were converted after intense familiarisation with and briefings on the new system. From that time on, the pilot group has functioned as a driver for the participating Scheuch workforce.

The status today is that the introduction of the PDM system went off in an exemplary manner. Pride in this new modernisation at the company is spreading. Not least this is due to the extensive coverage of the migration in specialist magazines and company publications. The major project was highlighted as an example of “best practices”

at a variety of events. All praise aside, the normative power of the facts on the ground has taken hold. Project Director Tremel: “The system enjoys enormous popularity among the colleagues. Everyone is happy that there was a changeover and that the systems were harmonised. After all, it has also made the work a lot easier.” ■

➔ LINK TIP:
www.cideon.de

IT'S THE DATA THAT COUNTS

Workflow. Automation specialist Blumenbecker uses digitised processes and consistent data management to ensure a high level of efficiency from planning to delivery – all in the spirit of the Industrial Internet of Things (Industry 4.0).

Text: Dr Jörg Lantzsch

With its white walls, clean floors and calm yet busy working environment, Blumenbecker Automationstechnik's sunlit production hall in Beckum (Germany) does not look the way one would normally picture the metal and electrical shop of a switchgear manufacturer. Wherever you look, across over 8,000 square metres of floor space, there is clarity and order at the workbenches and machinery, rather than bustling chaos. From the receiving area, one has a view of production all the way to quality control. The over 100-metre-long facility, where everything seems to be perfectly organised, is, among other things, the work of Heinz-Josef Schmitz, who manages switchgear production at the medium-sized company. He is visibly proud of the excellent organisation in the production hall, which has been in operation since 2014: "We have optimised workflow inside the hall in all processes to achieve a high level of efficiency." From electrical engineering to production to shipping, every process is grounded in consistent data management. "We consider the automation of our processes through digitisation an important step toward Industry 4.0," Schmitz points out.

SUCCESS FACTOR: ELECTRICAL ENGINEERING

"A system's electrical engineering is the foundation of all subsequent activities," says Martin Settele, Team Leader for Control Technology. Without a good foundation here, a high level of efficiency cannot be achieved in production. Settele and his team are responsible for electrical engineering and assembly design. Team members create a virtual 3D prototype in which all enclosure components are placed. The parts lists from electrical engineering and the 3D prototype form the basis of all sub-

sequent processes and production steps at Blumenbecker. Business processes (e.g. purchasing, costing and logistics) and production alike rely on this data. Data quality, of course, is key. "The data must be accurate to prevent obstacles in production," explains Peter Kindt, Team Leader for Control Technology. The geometric dimensions are important, for example, in ensuring that everything fits into the enclosure as planned in the assembly design.

Blumenbecker maintains an internal database with about 70,000 different components, of which 15,000 to 20,000 are utilised regularly. For each component, there are also 3D files for assembly design. The company accesses a lot of component data in the Eplan Data Portal. At this web-based platform, designers will find 660,000 records and some 1.2 million variants of configurable parts data sets from 157 manufacturers. Unfortunately, not all vendors provide their data and not always in the proper quality, requiring the staff themselves to intervene in many cases. "A high level of quality is necessary to make the best use of the data provided here. Rittal is exemplary in this, which is why the company is one of our main suppliers," says Kindt. Twice a week, a Rittal truck comes to deliver enclosures, housings, power distribution systems and climate control components to Blumenbecker – just-in-time, in effect. The design tools come from Eplan, which is part of the Friedhelm Loh Group, just like Rittal. Blumenbecker uses the Eplan Electric P8 CAE system for electrical engineering; Eplan Pro Panel, the 3D engineering tool, is used for the creation of the 3D prototype. Seamless re-use of data is a major benefit of the systems. The software generates the control data from electrical engineering and assembly design data, which enables the machinery to →



GOOD PLANNING

From now on, from engineering all the way to shipping, consistent data management is standard procedure for team leader Martin Settele and the entire Blumenbecker company.



“A high level of quality is necessary in order to make the best use of the data provided. Rittal is exemplary in this.”

Peter Kindt, Team Leader for Control Technology at Blumenbecker

work in the production process – like CNC machining centres, for example, that make holes, threads and cut-outs in enclosure parts and mounting plates. Cable assembly machines produce suitable cable harnesses; automated cutting machines trim cable ducts and DIN rails. All machines rely on the electrical engineering and assembly design data. Based on this data set, components are assigned to a project and parts are labelled. “It is important for all production machinery and processes to have the proper interfaces,” notes Schmitz. “This is the only way for us to take advantage of consistent data management.”

OPTIMISED PROCESSES

Logistics within production is largely automated as well. Staff members assemble all the components needed for a project on a trolley. The automated mini-load system tells them in which containers the various parts are located. In addition, a projector displays which components are to be put together in assemblies. After this preparation, the components are installed in the enclosure: the 3D assembly plans from Pro Panel, in which the assembly of all top hat rails, cable ducts and electrical engineering components is precisely documented, simplifies the process and prevents errors. During the final production step, the fully assembled enclosures are wired. “Since the cable harnesses are pre-assembled

and labelled, we are very efficient in this step as well,” Schmitz notes. Instead of a wiring diagram, team members will sometimes use only a wiring list, on which they can execute all connections successively. Assembly and wiring of all components is followed by quality control, the documentation of which is also based on data originally generated during planning. In turn, data is required for the subsequent shipping of the installations. In addition to sizes and weights, this includes information related to customs formalities. Here, too, it pays off for Blumenbecker when the data provided is as complete as possible – and this is standard procedure at Rittal. “On the whole,” concludes Harald Golombek, Managing Director at Blumenbecker Automatisierungstechnik, “consistent data management, from planning to production to shipping of the finished installation, is the key to efficient management of our projects.” ■

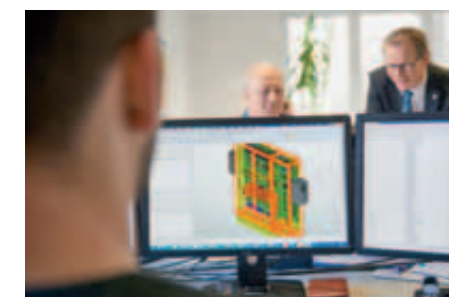
A WATCHFUL EYE AND PLENTY OF ELBOW GREASE

Even during enclosure installation, employees can access electrical engineering and assembly design data (top). The employees pre-assemble all the required components on a trolley (bottom).

DIGITISATION

UTILISING POTENTIAL

In its study “Digital Europe,” McKinsey Global Institute examined digitisation in the European economy. Its findings revealed that Germany currently takes advantage of only ten per cent of the economic benefits of digitisation. If the country were to make optimum use of its digital potential, it could boost GDP growth by one per cent a year until 2025. That translates into around 500 billion euros. According to the authors of the study, businesses should be constantly on the lookout for digitisation options for their business model. At the same time, companies should use digital tools to improve their internal processes and communication with their customers.





QUALITY ON THE LINE

Automotive. The raw material for a car body is almost as delicate as an eggshell. Volkswagen's steel suppliers need to offer the highest quality – as Stahlo does.

Text: Julia Frese

With the luggage in the trunk, the children buckled up in the back seat and the GPS programmed, the beach holiday can now begin. The family, cruising southward in their comfortable, brand-new VW Golf Variant, would find it impossible to imagine that the parts of their car were gliding on robotic arms through large factories just a short time ago. And even more so that their vehicle began as steel coil only a few weeks prior to that. It takes just under ten days for a Golf Variant to undergo the transformation from raw material to finished car. Its body contains about 370 kilogrammes of steel.

Only certain types of steel sheet come into consideration for the outer shell of an automobile. The material must be both firm and pliable, in order to provide the occupants maximum protection in the event of a collision. Furthermore, the outer shell of a passenger car in particular must be as corrosion-resistant as possible. For this reason, the preliminary material is subjected to a special treatment right at the steelworks. The steel specialists apply a phosphate layer to cold-rolled sheet, which is then electrolytically galvanised. Both processes increase the resistance of the steel surface. This special treatment requires maximum

precision, as does the supply of the blanks. In order to be considered by VW Sachsen (Germany), suppliers must provide such precision – and Stahlo, the steel service centre, based in Dillenburg (Hesse) and Gera (Thuringia), does just that. Volkswagen learned of the steel company through the pro-active initiative of Stahlo's employees: a team of four handles the acquisition of new customers. "Naturally, when we approached VW, we were aware that this customer would have extremely high standards," explains Frank Werner, Stahlo Quality Manager in Gera.

In addition to the high quality of material, there was another argument for working with the company: its state-of-the-art blanking line. This machine gives the material the shape it will need for its subsequent use as side panel, roof or tailgate. That was the decisive factor for Volkswagen.

ONE-STOP SERVICE

In the initial stage, the material is straightened to create a flat surface. The machine then punches the desired shapes out of the steel plate. "Actually, we are the only steel service centre in Germany that has a facility this cutting-edge," says Werner, not without some measure of pride. VW Sachsen is the first major volume customer for the blanking line at the Gera-based company. "The cooperation with Volkswagen is very important for Stahlo," says Guido Spenrath, Managing Director of Stahlo. Prior to this, Stahlo had →

WORKMANSHIP

The blanking line smoothes out the steel surface and punches out the shapes for the sides, roof and tailgate of the Golf Variant.



“The cooperation with Volkswagen is very important for Stahlo.”

Guido Spenrath, Managing Director of Stahlo

already achieved a solid reputation in the region as an aftermarket sheet steel supplier.

The Volkswagen managers particularly praised the high level of cleanliness throughout the Stahlo site. This was a crucial factor, as the slightest impurity – even a single hair – is immediately visible on the material surface of the blanks. There are few things more annoying to a new car buyer than discovering an already existing imperfection on the paint job of one's new acquisition. In addition to the cleanliness of the site, Stahlo also scored high marks for the competence of its team and the quality of its steel. After the meeting, the cooperation agreement was only a formality.

JUST-IN-TIME DELIVERY

In Gera, Stahlo produces blanks for Volkswagen, which are first transported to their joint logistics centre in Glauchau. The parts are stored there, until VW orders them as needed to Zwickau. This JIT (just-in-time) manufacturing principle ensures that Stahlo will be able to supply Volkswagen with the necessary quantity of blanks at any time. This swing system has advantages for Stahlo as well: trucks can be better utilised and empty runs to return the empty pallets avoided. This reduces costs and is environmentally friendly.

Due to the extreme sensitivity of the blanks, transporting them requires the utmost care and precision. “The blanks are loaded onto specially modified pallets,” explains Werner. “They are equipped with a system of eight locking posts.” This prevents sliding and enables the blanks to make it through every truck ride in optimal condition.

Ten times a week, a truck delivers the blanks to the pressing plant, located on the over 400 acre site of the Volkswagen factory in Zwickau. The car body parts for the Golf, Golf VII Variant, Passat Variant and various Bentley models are built here in six steps. A robot lifts each individual blank from its stack via an electronically activated magnetic field and places it in its respective pressing tool. At the end of the pressing procedure, employees check the sensitive steel surface for even the smallest scratches and impurities. Subsequently, the car body parts are joined together and receive several layers of paint.

Each day, the machines in the pressing plant mould more than 100,000 car body components from about 340 tonnes of steel and aluminium. By way of comparison, a single Golf VII Variant body consists of around 400 sheet metal parts. As cutting-edge as their production technology is, Stahlo and VW also rely on tried-and-true methods. Communication is one example: “If there's an issue, we pick up the phone or stop by. That's really easy,” says Werner, laughing. ■

THE GOLF VARIANT

SKIN OF STEEL

The Golf Variant was first introduced in 1993. The Golf VII Variant, in existence since 2013. Since March, Stahlo has been supplying blanks for Golf Variant roof and side panels and since October for its tailgate as well. With its state-of-the-art blanking line, the company produces 9,000 parts per week for Volkswagen. Right at the steelworks, electrogalvanisation is used to apply a phosphate layer to the surfaces to prevent corrosion. Ultimately, the body of a Golf Variant contains about 370 kilogrammes of steel. The steel used in the outer shell must be ultra-strong as well as thin in order to provide occupants of the car maximum safety in the event of a crash.



QUALITY CONTROL

A logistics system for the highest quality outer shell: locking posts ensure that no blanks on the pallets slide out of place (top photo). Stahlo Quality Manager Frank Werner (r.) invited Volkswagen Quality Assurance Manager Steffen Neumann (l.) to visit the Stahlo facility. During the tour, Neumann quickly recognised that the company was an ideal partner for VW.





MAKING KIDS STRONG

THE PETER HÄRTLING SCHOOL TEACHES SELF-CONFIDENCE FOR EVERYONE

When the more than forty elementary school students frolic in the hallways of the Peter Härtling School (PHS), it's really plain to see: everyone is happy to be here. That's because the kids learn in small groups across grades with individualised textbooks and materials – and do it all at their own speed. There are also lots

of after-school clubs, most of which are run by the students themselves. In addition there are activities that involve the school and students' families. "We were impressed by the close and fruitful collaboration between the school, parents and students," says Rittal Foundation Chairman Friedemann Hensgen.

Thanks to the donation of 30,000 euros, PHS can offer more courses and activities for the kids to expand and strengthen their interpersonal skills.

→ LINK TIP:
www.phs-wetzlar.de

HELP FOR ITALY

ITALIAN SUBSIDIARY AND OWNER DONATE TO EARTHQUAKE VICTIMS IN THE APENNINES

Hundreds of people lost their lives when an earthquake shook central Italy in August 2016. In order to help alleviate the enormous social consequences of the quake, Rittal Italy, Kelvin and Eplan – all subsidiaries of the Friedhelm Loh Group – supported the Italian Red Cross with a cash donation. The appeal for funds quickly brought together a total of around 50,000 euros, including a major donation by company owner Dr Friedhelm Loh. The Italian Red Cross General Secretary Flavio Ronzi thanked the company for its donation saying, "Thanks also to your support, we were able to act promptly during this severe emergency and are now additionally in a position to continue our work over the coming months."

DEVASTATION

On 24 August 2016, Central Italy was struck by a severe earthquake that caused widespread damage. The town of Amatrice – and its Basilica di San Francesco pictured.



A MIDSUMMER DAY'S FUN

EMPLOYEE FOOTBALL TOURNAMENT

The Rittal Cup saw a total of 56 matches before the team from Rittershausen, Germany, was declared victor. Employees from Germany, Poland and the Czech Republic came to participate in the football tournament. Dr Friedhelm Loh was also enthused by the event: "We've seen matches characterised by fairness and team spirit." The tournament's proceeds benefit social institutions in the region.

RITTAL FOUNDATION CELEBRATES ANNIVERSARY

FOUNDATION SUPPORTING SOCIAL PROJECTS FOR FIVE YEARS

It's already become an institution in the region of Middle Hesse: the Rittal Foundation. Which isn't surprising, because over the past five years the foundation has supported around 150 projects in the areas of welfare and social work, culture and education with a total of more than 650,000 euros. On the occasion of its anniversary, the foundation sent out an appeal for a very special donation campaign: a raffle as part of the ground-breaking ceremony for the new factory. Raffle ticket sales had reached some 30,000 euros by the end of just one afternoon. The donations will go to the Eschenburg Addiction Clinic, the "Sing & Act" choir from Haiger and the Vocational Schools in Dillenburg.

→ LINK TIP:
www.rittal-foundation.de



LUCKY WINNER
Rittal employee Ralf Schneider and his wife Manuela are happy about the raffle's main prize: a Smart Car.



IN THE THICK OF THINGS!

Commitment. Two young refugees were able to start vocational training at Rittal as part of the promising pilot project “Qualification for Refugees.” The company is taking advantage of the experiences gained from this time for a second round of training – and is also making them available in a guidebook for other interested firms.

Text: Rebecca Lorenz

Luck – it isn’t just a word to 27-year-old Khaibar Fatehzada. It’s the reason that he survived the war in his homeland of Afghanistan unscathed. It’s the feeling of having found a safe home in Germany after months on the run. And it’s the chance to actually be able to realise his dream of a new beginning. “One year ago I never would have thought that I would be standing here,” Fatehzada says with a wide smile on his face, looking around his workplace at the Rittal factory in Wissenbach, Germany. “The contact with my colleagues, the varied work, the possibility to be standing on my own two feet – this apprenticeship has simply changed everything for me.”

Fatehzada has been training to become a machine and plant operator at Rittal for a good twelve months. It all started one-and-a-half years ago with a three-month vocational internship. “Since I had worked as a salesperson in Afghanistan, I didn’t have much in the way of technical knowledge except what I had learned in school,” Fatehzada says. “But I’ve always been interested in technology.” That was yet another reason that the “Qualification for Refugees” pilot project, set up in spring 2015 by the Friedhelm Loh Group in cooperation with the Rittal Foundation, the Lahn-Dill district and the Lahn-Dill Chamber of Industry and Commerce (see *be top* 02/2015, page 76), seemed a perfect fit for him. “Our initial goal as part of the project was to qualify young people for technical training,” explains Matthias Hecker, Director Technical Training at Rittal. “And we did it.” Which means that the newest challenge for Hecker and his colleagues is to facilitate as smooth a transition as possible for the young men from the protected training workshop into the real world of the factory. “We rely on dedicated

BEING THERE FOR EACH OTHER

Trainers, trainees and mentors help each other when there are questions or problems. The results speak for themselves: the first round of the qualification project was a complete success.

employees to make it happen,” Hecker explains. “Mentoring refugees is very time-intensive, mainly due to language barriers. And because the colleagues in the factories also naturally have targets that must be met, it’s difficult to say: he’s there for you now.”

PATIENCE AND PASSION

Sure instincts, plenty of patience and a passionate commitment: these are the qualities that mentors definitely need to bring to the job. “The first thing we had to do was identify who could serve as mentors in the first place,” Hecker says. This is also one of the important tips in the guidebook that Rittal has published to assist other companies. “Our trainees need dependable contact people who are there for them when they have problems – whether on the job, in their studies or in their private lives.” Fortunately the company’s pronounced culture of supporting and helping others proves advantageous for Hecker and his protégés. Whether it’s helping out at a support agency, second-hand clothing organisation or an addiction advice centre – many Rittal employees volunteer to help the socially disadvantaged and have done so for years. “That’s probably because we all share similar values in a family-owned company,” Hecker explains. “And those values are something we wish to practise in our daily lives – not just towards the refugees, but also towards our fellow employees.”

Despite many preconceptions about refugees, Fatehzada and his trainee colleague Eyobel Gebreyesus share these same values. “The two of them are on time and keep tidy,” Hecker says. “They’re both extremely dependable and they accept responsibility. I can only say: I tip my hat to them.” And since both refugees are thankful for the trust that has been placed in them by everyone, they’re very committed. “It’s important that I listen closely, look very carefully and am always fully focused on the work,” Fatehzada says. “If I make a mistake, that’s something I don’t want to repeat.” But the one thing that’s still proving difficult for the up-and-coming machine →

SOCIAL COMMITMENT

MEANINGFUL



DR FRIEDHELM LOH
70 years old, owner and CEO of the Friedhelm Loh Group.

“Our society thrives because of people who do more than they have to. We want to send a signal with our commitment and encourage others!”

VOLUNTEERS

Without volunteers, integration would hardly be achievable. People around the world use their free time to get involved helping refugees. *be top* asked Friedhelm Loh Group employees why they do what they do.



RAINER HERGET
64 years old, Marketing Training Support at Rittal. Volunteers with the Catholic Church’s programme to help refugees in Sinn, Germany.

“People who’ve been forced to flee their homelands due to war and violence and seek shelter with us here should be received with dignity and respect.”



STEFAN SCHILLINGER
48 years old, member of the Rittal Works Council. Volunteers with the Refugee Working Group in Wetzlar, Germany.

“Integration on the job for refugees is one of the essential prerequisites for successful integration into society.”



WINFRIED BECKER
64 years old, former Technology and Service Center Director Technical Planning at Rittal. Volunteers at Lichtblicke e.V. in Rennerod, Germany.

“Talk alone doesn’t help at all – only people who pitch in help to change a situation and find understanding for one another.”



ROBERT HABBABA
47 years old, Trainer at Rittal. Dedicated to helping refugees gain vocational qualifications.

“Good training provides refugees with long-term perspectives.”



NOAH KIRSCHNIOK
20 years old, mechatronics engineer trainee at Rittal. A committed trainee mentor for refugees.

“I consider it my obligation to help people.”

and plant operators is the self-organised learning that is common in Germany. “Over the course of the past year we’ve recognised that we cannot demand too much of the trainees from the very start,” Hecker says. “The four-step method is much, much better to convey the most important contents than having them read specialist texts.” The practical four-step sequence of explain, demonstrate, replicate and practise clearly takes more time for mentors – but is also much more effective at conveying subject matter. “Both sides feel understood and much more secure in the work,” Hecker explains. And the refugees already have enough on their plates in their everyday working lives.

STICKING POINT: LANGUAGE

The best example of this – the vocational school. Because no matter if it’s in class, for homework or exams: despite their lack of work-related knowledge of the German language, refugees don’t receive any additional language assistance at the school. “With the German course organised by the Loh Academy, we have good support from the very start,” Hecker says. “But so that trainees can successfully graduate from school, we need to support them even further.” This is why Hecker has also initiated homework assistance to accompany the proven trainee-mentor model. Once a week, refugees can discuss the homework with other trainees and ask questions as needed.

All this makes it clear: solid language skills are indeed the most important prerequisite for professional integration. This isn’t lost on Fatehzada. “Where other colleagues only need about an hour to prepare for class and do their homework, I definitely need four to five,” he says. And because he loves to read, chats with his peers in the local football club and regularly receives language training from Rittal’s Corporate Communications Director Regina Wiechens-Schwake, his knowledge of German has improved considerably over the past year. “Sometimes I’m lacking a bit of awareness about the grammar, but I hope I’ll have it soon.”

A lack of awareness was also a problem for those responsible for the project – at Rittal, the Rittal Foundation, in the Lahn-Dill district and the Chamber of Commerce and Industry – at its beginning, last year. “We had no idea who would be coming to us,” Hecker recalls. “Schooling, vocational training and desired career: we had to work all of that out ourselves as part of a trial working week.” Today things are different, since in the meantime the Central Hesse Association for Economic Development, Training and Employment Initiatives (Mittelhessische Gesellschaft für Wirtschaftsförderung, Ausbildungs- und Beschäftigungsinitiativen) has taken over the analysis of the potential participants. The previously mentioned guidebook describes how this analysis proceeds.

“It’s much, much easier to approach young refugees in a targeted manner with this type of qualification profile,” Hecker says. Despite this, he finds a three-month vocational internship continues to remain a good idea since the standardised placement test that all the other trainees take doesn’t make sense for the refugees. “Tact and sensitivity is required when meeting the person,” Hecker explains. “It’s only when you’ve met the young person face-to-face that you can say: this will work out or it won’t.” That there’s a bit of truth to this statement became clear during the second round of the qualification project that began in summer 2016. “From the four candidates, this time we were able to offer three young men from Eritrea and Somalia training positions,” Hecker says, happy to relay this news. Last year only two of eight refugees were able to begin vocational training. “It’s a great success for us, because we definitely want to continue the project and lead by example.” Hecker again received support in selecting the applicants this year from a social →

CHALLENGING CAREER START

Transitioning from the training workshop to the factory world is challenging for everyone: for the new trainees, but also for the trainers, who must rely on support from other workers on the factory floor.



worker. "They're important contact people for us since they have direct contact to the responsible authorities," he says. It's an important advantage considering the hundreds of laws that apply solely to the hiring of refugees. "There are tolerated refugees, those who have long-term residency status and those who have just applied for asylum," Hecker says, listing just some of the things that must be considered. Those who wish to successfully navigate this legal labyrinth must closely cooperate with the authorities – in the end there's often just a very thin line between legal and illegal activities.

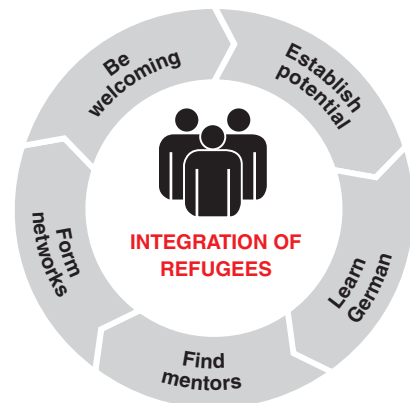
If the conditions are right, there's nothing stopping this project from being successful. The experiences with Fatehzada and Gebreyesus only prove it. "And since we begin rather with hands-on, less book-oriented training and start from scratch, I believe both trainees have great chances for the future," Hecker says, and then adds: "My ultimate goal isn't that they pass their exams with the best possible marks. I just hope that they make it and in the end get good feedback from the plant manager." And because his intermediate exams are already trending in the right direction, Fatehzada now has to decide what he wants to

do following his two-year training programme. "When I speak German better, I would like to follow up with the training to become a mechatronic engineer," he says. "But if not, I'll just keep learning and then work as a machine and plant operator." ■

5 TIPS FOR INTEGRATING REFUGEES INTO WORK LIFE

FROM REFUGEE TO EMPLOYEE

The Friedhelm Loh Group offers a guidebook for interested firms with related links for qualifying refugees for vocational training. The five most important lessons learned from the pilot project are as follows:



1. Establish potential: Successful integration through an internship starts with meeting one another and determining the educational and vocational prerequisites. The state employment agencies and Job Centers in Hesse have access to the refugees' standardised potential analyses. If these analyses have yet to be introduced, a trial working week is a good idea.

2. Learn German: To expand German language skills, trainee mentors, company alumni and volunteers can be deployed as contacts for educational, vocational and private challenges. Furthermore, apps and websites offer e-learning for language acquisition. Occupational language skills are best learned at the workbench.

3. Find mentors: Along with a lack of language skills, refugees are often troubled by fears and loneliness. When trainers, mentors, colleagues and volunteers are prepared to engage with refugees and support them with coaching, practical assistance and personal contact, the refugees more quickly achieve the required level of performance for their training and become better integrated into their working environments.

4. Form networks: Close cooperation with public authorities and sharing experiences within interdepartmental initiatives make developing an integration project easier while also leading to changes in politics, adminis-

tration and laws. The "3+2 Arrangement" that gives refugees and companies the certainty of residency for three years of training and two years of work came into being from discussions from networks such as "We together" ("Wir zusammen").

5. Be welcoming: A culture of helping and supporting others that is put into practice within a company is indispensable for the successful integration of refugees. Setting an example without being biased is the maxim for management and team leaders. They provide orientation for their employees and ensure for the acceptance of the new colleagues among the workforce.



→ LINK TIP:
You can order or download the guidebook (only available in German) at www.rittal.de

WE'VE NEVER LIVED ANY OTHER WAY

Interview. Dr Bianca Dümling holds the Professorship for Migration, Integration and Interculturality, the chair endowed by Dr Friedhelm Loh, at the College of the YMCA Germany in Kassel. She researches the opportunities and challenges of migration.

What exactly does integration mean to you?

Bianca Dümling: I find that there are two sides to integration. On the one hand, it's a task for people who have migrated. In Germany, they need to learn German, qualify themselves for the labour market and respect Germany's Basic Law. On the other hand, everyone who hasn't migrated is also called upon to act. They must create an atmosphere that promotes integration and take an unequivocal stand against xenophobia. This is important, because it's not a question of whether we want to live in a multicultural society. We've never lived any other way.

How can volunteers assist with integration?

Dümling: They can show kindness and affection. That's very important. Along with having lost their material existence, many refugees have also lost family members. Some are traumatised and have lost all hope. Volunteers can encourage refugees with interpersonal relationships so that they can better face the challenges of integration.

How can a helper express kindness?

Dümling: Above all else, it's important to be respectful to people and encounter them as equals. Mutual support in their everyday lives gives refugees their dignity back. This of course can lead to misunderstandings now and then. But it's just like any good relationship: you have to work at it, since affection doesn't just develop on its own.

Are there other hurdles that hamper swift integration?

Dümling: The first things I think of are the mass accommodations and the great uncertainty regarding residency status. These sorts of structural hurdles are probably easier to overcome than social hurdles such as prejudices and racism. We as a society will have to work longer on those.



DR BIANCA DÜMLING
Thirty-eight years old, Dr Dümling was appointed to the College of the YMCA Germany in Kassel on 1 September 2016. She previously worked in a refugee shelter in Berlin and directs the intercultural work of the ecumenical network Together for Berlin (Gemeinsam für Berlin).

How important is it to sensitise volunteers about cultural differences?

Dümling: Of course it's important to inform yourself about cultural characteristics and differences. But as with Christianity, every other world religion is extremely diverse and is lived by each person differently. So it can't remain just "dry runs." Conversations and active discussions bring a lot more. We have to learn not to reduce every conflict to supposed cultural differences. Instead I recommend that people reflect on their own actions and attitudes. All of us have thoughts that aren't always politically correct. But those are ones you have to call into question, not ignore.

What opportunities does migration offer for a society?

Dümling: We need migration – if for

nothing else than to maintain our economy and general prosperity over the long term. For companies in particular, the diversity that people from different cultures bring with them is a great opportunity. New perspectives often lead to new ideas. I see another opportunity in the strengthening of civil society. The fate of the refugees calls on all of us to re-evaluate our material wealth and our great freedom. Because those are things that we've taken for granted for quite a long time, looking at them from a new perspective can lead to more gratitude and an improved relationship between citizens.

ON FIRE

Fire. Countless companies worldwide use Rittal's fire prevention solutions to protect their IT infrastructure – and for good reason. With few exceptions, fire is extremely destructive, as shown by the following examples from around the world.

be top!

Top performances are the order of the day in all Friedhelm Loh Group companies. The record holders on this page are also in top form.



FIERY FRUIT

The Carolina Reaper is the hottest chilli pepper in the world. Its name comes from South Carolina – the American state where it was bred – and the Grim Reaper, the personification of death. This chilli pepper is not for the faint-hearted, generating as much heat as pepper spray.

IT'S ALL ABOUT THE BASS

Extinguishing fires with deep tones? Two American students have developed the first fire extinguisher in the world to put out fires with sound waves. The device, which looks like a vacuum cleaner, emits a deep-toned bass frequency that snuffs out the flames. The pressure waves caused by the bass separate oxygen from the burning material, thus preventing oxidation. The students have already patented their invention.



FLAMES ENGULFED

Scared of fire? That's something completely foreign to Egon Rusch from Austria. Known under the alias of Tanaris, back in October 2012 the famous fire-eater needed just 60 seconds to put out 118 burning torches with his mouth – a new world record! His most important technique: first take a deep breath in order to then smother the flames with carbon dioxide when exhaling.

BURNING MOUNTAIN

The earth in New South Wales in south-eastern Australia has been on fire for around 6,000 years. This makes the "Burning Mountain" the oldest coal fire in the world. Located in a nature reserve of the same name, the fire is eating its way through a 30-metre-deep coal seam at a rate of around one metre per year. Over the years, the fire has covered a distance of six kilometres.



SOME LIKE IT HOT

While an encounter with fire usually ends fatally for living creatures, North American sequoias actually require the flames to reproduce. Their cones – hanging at heights of up to 100 metres – only open and release their seeds when exposed to heat rising from forest fires. The seeds sink into the soil, which has been fertilised by ash, and begin to germinate.

AN OVERVIEW OF THE FRIEDHELM LOH GROUP COMPANIES

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PUBLISHER
Friedhelm Loh Stiftung & Co. KG
CEO: Dr.-Ing. E.h. Friedhelm Loh
Rudolf-Loh-Straße 1, 35708 Haiger, Germany
Phone +49 2773 924-0
E-mail: betop@friedhelm-loh-group.com
www.friedhelm-loh-group.com

RESPONSIBLE EDITOR
Regina Wiechens-Schwake (V.i.S.d.P.)

EDITOR-IN-CHIEF AND COORDINATION
Hans-Robert Koch, Christian Abels,
Patricia Späth, Peter Sting

REALISATION AND DESIGN
muehlhausmoers corporate communications gmbh
Moltkestraße 123–131
50674 Köln
Phone +49 (0) 221 951533-0
E-Mail: info@muehlhausmoers.com
www.muehlhausmoers.com

EDITORIAL STAFF
Stephanie Backhaus, Joscha Duhme, Lisa Krekel, Rebecca Lorenz, **English translation:** Adam Blauhut, Paul Outlaw, Anthony B. Heric; **English copy-editing:** Penelope Krumm; **Consultation:** Martin Planer,

AUTHORS
Stephanie Backhaus, Joscha Duhme, Julia Frese, Viola Görgen, Boris Hänßler, Saskia Kaufhold, Ulrich Kläsener, Hans-Robert Koch, Lisa Krekel, Dr. Jörg Lantzsch, Rebecca Lorenz, Dagmar Puh, Beate Schwarz, Johannes Winterhagen (courtesy of of „Ampere – Das Magazin der Elektroindustrie“)

ART-DIRECTION
Christiane von Bonin, Katrin Kemmerling

IMAGE EDITING
Stefan Hirsch, Philipp Stiller,
Anastasia Strelnikova

GRAPHICS AND PRODUCTION
Andreas Kellotat, Michael Konrad, Nikolai Schütte, Manfred Wirth

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Wilhelm Becker Grafischer Betrieb e.K.,
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