

be top

MAGAZINE OF THE FRIEDHELM LOH GROUP

KNOW-HOW World's first: Revolution in cooling unit technology

EXPERIENCE Machine engineering: Standard and design in balance

ENGAGEMENT Rittal Foundation: Integration through education

FOCUS ON INNOVATION

Committed to
customer benefit!



COMMITTED TO CUSTOMER BENEFIT!

Dear Readers,

Just 28 per cent of German small and medium-sized enterprises are still investing in innovation. This result from the KfW Group Innovation Report worries me. It should worry anyone who wants to see Germany remain a step ahead economically. Certainly, Germany is still leading in patent applications at the European Patent Office – but the majority of these applications come from just a few large corporations. Because small and medium-sized companies are the driver of the German economy and employ almost 60 per cent of the workers paying into the social insurance system, the question needs to be asked: Why are these companies increasingly refraining from investing in innovation?

If we direct our attention to the United States, by contrast, we see an atmosphere of optimism. Companies are being founded in many places; moreover, a dynamic culture of investment has evolved. Americans are fast, flexible, open to new things – as Prof. Dietmar Harhoff, chair of the Commission of Experts for Research and Innovation, established by the German federal government, has found – and they boldly implement new ideas. The determination to transform ideas into products that ultimately create value for millions of people is characteristic of innovators. And fostering this quality is our main task in German business. It requires rethinking things and a climate of innovation. It requires know-how and commitment. Worldwide digitalisation is the driver.

The companies of the Friedhelm Loh Group grow and live for innovations that bring great value. We only just achieved a technological quantum leap in energy use and ease of service with the development of the Blue e+ generation of cooling units. And with our integrated expertise in engineering software, enclosure system technology and automation technology, we are going to seize our opportunities in the United States; the Friedhelm Loh Group will soon be opening a global Competence Centre in Houston, Texas. Eplan and Rittal Automation Systems will resolutely present themselves as innovators.

I invite you on an exciting and varied journey of innovation. I hope this new issue of *be top* inspires you. Enjoy the read!

Sincerely,



Friedhelm Loh



FRIEDHELM LOH
Owner and CEO of the Friedhelm Loh Group



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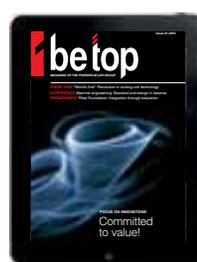
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be top as an app!

Regular updates on the topics in this issue.



Simply scan the QR code and discover even more information, interviews and features in the app!



2014

As of last year there were 24,867 wind turbines in Germany. Wind power's total installed capacity amounted to **38,115 megawatts** (MW). By way of comparison: 100 MW of wind power – 100 million watts – can supply energy to around 62,800 households. With about 34,000 MW of installed capacity, Germany is number one in Europe. And of the installed capacity in Germany, 43 per cent originates from **Enercon**. The largest German manufacturer of wind turbines, Enercon has built more than 22,000 wind farms globally. **Rittal** has equipped these farms with **TS 8 enclosures**, which house the control components; for instance, the control module for the rotor blades and frequency converter are hidden in the masts and gondolas. Enercon has installed well over 100,000 TS 8 enclosures so far, including in the Geycek wind farm, Anatolia's largest; its total capacity of 150 MW is generated by 70 wind turbines stretched over an area of 28 square kilometres along a mountain ridge.

→ LINK TIP:
www.enercon.de/en-en/



1946

was the year in which the American Marion Donovan used a shower curtain to create a plastic cover for cloth nappies – and the birth year of the future **disposable nappy**. Today, nineteen out of twenty babies in Germany wear the high-tech product – as do increasing numbers of adults in an ageing society. Producing the nappy is **technically complex**: each one consists of several layers and various materials. Machines from firms such as **Curt G. Joa** manage this complicated production process; their output reaches up to one thousand nappies per minute. The American machine engineering company, which has customers in 55 countries, uses **Eplan Electric P8**. The engineering time saved by Curt G. Joa thanks to Eplan solutions benefits the nappy manufacturers, who have more time to present their configuration requirements for a machine.

→ LINK TIP:
www.joa.com



116

years old this year, Italian car manufacturer **Fiat** launched its first model back in 1899, the 3.5 CV, with a production run of twenty. Just 25 years later, a **Fiat Mefistofele** would set a new speed record, reaching an impressive 145 mph (234 km/h). The company has been part of Fiat Chrysler Automobiles since 2014. Eleven marques, including **Ferrari**, Alfa Romeo and Jeep, make it the world's **seventh-largest** car manufacturer. In Turin, the birthplace of Fiat, cars can be seen, experienced and purchased on the **70,000 square metres** of the Mirafiori Motor Village. Cars are built directly next to the huge visitor attraction, and around four hundred **Rittal cooling units** ensure that it's not just on the assembly line that employees keep a cool head.

→ LINK TIP:
www.fcagroup.com

FASTER – BETTER – EVERYWHERE.

Global Player. The Friedhelm Loh Group is present on every continent with 78 subsidiaries. A selection of six reports from around the world.



USA

EXTREMELY FLAT

One of the world's leading manufacturers of flat-glass technology for the solar, automobile and architecture industries has decided for know-how by Rittal. The market leader uses fifty free-standing TS 8 racks in its production facility. "We were able to win the company's trust," says David Walters, Sales Engineer at Rittal Corporation in the United States, "not just because of our convincing TS 8 technology, but also because of our outstanding worldwide enclosure technology service. This is a major success for Rittal."



Switzerland

FAST NETWORKING

A fast Internet connection requires fibre optic cables. For distribution to every house, outdoor enclosures are used to protect the router and switches. Connect Com AG offers network providers complete customised solutions. The Swiss company relies on Rittal outdoor enclosures made of aluminium, which are extremely weather-resistant and robust and offer a wide variety of solutions by way of their platform concept. Connect Com AG appreciates the quality and especially the short delivery times made possible by volume production.



Spain

TWO AWARDS

This spring Rittal was the recipient of two awards in Madrid. The data centre of Spanish insurance company Agrupación in Sant Cugat del Vallès (Barcelona) was selected as the most sustainable and environmentally friendly data centre in Spain by industry magazine *Data Center Market* (see photo); several modules contribute to this performance, among them the Liquid Cooling Package from Rittal. In addition, the standardised RiMatrix S data centre concept was acclaimed as an innovative solution for data centres by the Spanish IT magazine *ComunicacionesHoy*, against giants such as Emerson and HP. The independent panel from the magazine was made up of chief information officers (CIOs) from leading Spanish companies.



Austria

GREEN IT

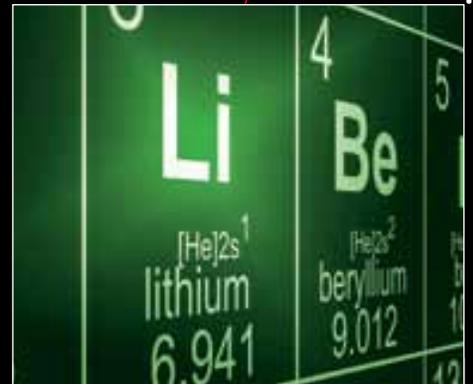
The new data centre of energy provider Linz AG has been in operation for just about one year. It earned the designation of "green data centre" because of its photovoltaic facade and its efficient well-water cooling system. Linz AG hopes to save 200,000 euros in energy costs annually. Rittal played a major role with consulting, racks, climate control solutions and power distribution, delivering 160 TS IT racks along with the power supply and climate control solutions. The data centre has a redundant design and is available to Linz AG as well as their external clients.



China

LOOKING GOOD

The Mercedes-Benz Cars division pioneers vehicle designs of the future at several locations, one of them being Beijing. Its ideas and developments, however, mustn't fall into the wrong hands, which is why its design data is particularly well secured. Rittal installed an intelligent and sophisticated system in Beijing, with smart fire protection, access protection and cooling system: the Micro Data Centre Level E. Because the Daimler Tower has a fully glazed facade, the solution also had to look good and save space.



South Korea

ENERGY STORAGE

SK Innovation, South Korea's largest energy corporation, is conducting extensive research into lithium-ion batteries – after all, the storage of renewable energy is a key determinant of mastering the transition to an energy supply of the future. TS 8 racks from Rittal are the bedrock of the energy storage system developed by SK Innovation. The racks, including cooling and monitoring solutions, are designed to withstand extreme testing conditions and require little space.

TREND 1

**ATTENTION
ECONOMY***

Attention is one of the most important currencies of the twenty-first century. We prioritise impressions in real time and learn to filter out what's relevant.

TREND 2

SHY TECH*

High Tech is becoming Shy Tech. Complicated devices with switches, cables and buttons are being replaced by intuitive interaction interfaces. Only the immediately accessible feature remains visible.

TREND 3

DATA ERA*

There is more data rushing through the Internet every second than the total of all saved data twenty years ago. The Data Era enables us to turn individual records into common data sets; keyword: cloud services.

*** SMARTER BY THE DOZEN!**

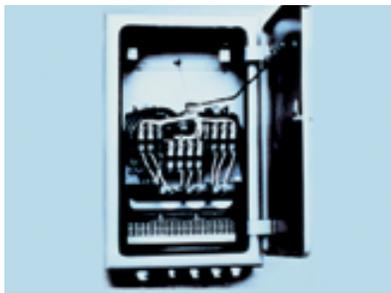
On this and the following pages you will learn about twelve trends that are spawning or influencing innovations. The sources include blogs such as trendblog.net as well as analyses by trend researchers. The selection is by no means exhaustive.

ANY IDEAS?

Innovation. Germany is one of Europe's most innovative countries. If the country wants to keep its lead in the future and continue expanding it, it might benefit from following the American model of conspicuous digital networking. A look at the culture of innovation as the prerequisite for new ideas.

Text: Jürgen Jehle and Beate Schwarz

INNOVATIONS MADE BY THE FRIEDHELM LOH GROUP



1961

AE SERIES ENCLOSURE

Rittal's success starts in the early 1960s – during the era of the “economic miracle” in Germany – with the first mass-produced AE series enclosure, directly available from stock.



1983

CLIMATE CONTROL AND POWER DISTRIBUTION

Over the course of industrial automation, Rittal adds to its product portfolio. The business fields of climate control and power distribution as well as IT infrastructure follow. Additionally, the company establishes its own division for compressor-based cooling units – another company milestone.

Faint bubbling in a saucepan, aromatic scents of cheese and joyfully irrepressible anticipation – for Julien Hartung, the pleasure of eating Swabian cheese noodles, known as *Spätzle* in German, is pure bliss. It also meant hours of work for his mother Susann Hartung. Every week she mixed the dough, scraped it bit by bit into the boiling water and cleaned up the mess, all so she could serve her son the homemade dish. At some point she'd had enough. Enough of stirring. Enough of scraping. And really more than enough of cleaning up afterwards! The fifty-one-year-old was certain: there had to be a better solution. And so she and her son pressed the dough through a colander to make it finer, put it in a jar, and then added a few marbles so that it would become more fluffy. The simple but ingenious idea for the Spätzle Shaker was born. Today this household aid – sold under the motto “fresh Spätzle in three minutes” – is yet another successful product made in Germany. This Swabian innovation even received a place of honour on display in the patent information centre in Stuttgart's government headquarters.

INNOVATIONS REQUIRE BOLDNESS

It is people like Susann Hartung who change the world with their ideas and who help provide strong stimulus to the economy. Many inventions originated in Germany, and more than a few have made lasting changes to our everyday lives or were the basis for other new innovations. Think of the dynamo, invented by industrialist Werner von Siemens in 1866, which revolutionised power generation shortly thereafter. Or the computer that Berliner Konrad Zuse constructed in 1941; originally developed in order to save the civil engineer from having to do bothersome calculations, almost 75 years ago the machine rung in the digital era, which is still revolutionising all areas of human life today.

Many product and service ideas may seem absurd initially, yet Dr Jens Weidmann, president of the Bundesbank, Germany's central bank, isn't the only one who is confident: “Innovations are crucial for the competitive intensity and productivity of national economies. They are the driving forces of economic growth.” Indeed, Rittal enclosures are a prime example of an initially underappreciated and now very suc-

cessful innovation that has been continuously improved upon. “We wanted to mass-produce enclosures,” said Irene Gilbert-Loh, the recently deceased wife of company founder Rudolf Loh. “The experts of the era laughed at the endeavour. Yet we stuck with our idea. Not long after that the experts' laughter turned into astonishment.” Rudolf Loh's plan to mass-produce enclosures became the cornerstone for building the group of companies.

Keeping the fires of innovation burning over the long term requires dedication: one characteristic of innovation leaders is that they actively push for change. This approach requires creativity at both the strategic and the operative levels. “Innovation is a combination of invention and application,” says Prof. Dietmar Harhoff. “An original, new thought isn't an innovation until it has an application.” He should know. Harhoff, an economist, is the chair of the Commission of Experts for Research and Innovation established by the German federal government. He is also director of the Max Planck Institute for Innovation and Competition, where the 56-year-old heads the Innovation and Entrepreneurship Research department, and teaches at Ludwig-Maximilians-Universität Munich as Honorary Professor of Entrepreneurship and Innovation.

Harhoff expressly warns against mistaking high export rates for strength in innovation: “Germany is very successful in manufacturing and exporting in the areas of machine engineering, chemistry and automobile manufacturing. Yet the country is lacking in the new industries of the past three to four decades: computers, software, biotechnology, information science. This situation isn't due to the sciences, but rather to Germany having missed out on transforming these new fields into products and results. There are niche areas in these fields where German companies are active and competitive, but that doesn't change anything about the overall picture.”

Germany must catch up if it wants to score in these new technological fields. After all, those who have shaped a market once can also do it a second and third time. An analysis by the Munich Strategy Group, a management consulting firm specialising in small and medium-sized enterprises, clearly demonstrated that the respective market leader across all industries is the company that provides crucial →

TREND 4

AMBIENT INTELLIGENCE

Electronic systems network among themselves and form a “smart environment.” They autonomously adapt to users. Keyword: smart grid.

TREND 5

FEMALE SHIFT

An increasing number of well-educated women push forward the change to a more emancipated society. In their private lives, men and women live in new relationship and family models.

TREND 6

DOWN-AGEING

Older people are feeling younger for longer. Through volunteering, working or studying, they’re again playing an active role in shaping society.

TREND 7

INDIVIDUALISATION

The “culture of choice” is gaining acceptance. Biographies are turning into “multi-graphies” with disruptions and fresh starts. But more individual freedom also entails constant decision-making pressures.

INNOVATION INDICATORS 2014

A QUICK COUNTRY CHECK: WHICH NATIONAL ECONOMY IS HOW INNOVATIVE?

Germany is well positioned when it comes to strength in innovation. But the results of the Innovation Indicator show that the gap separating Germany from leading nations such as Switzerland and Singapore remains large. The study has been published since 2005 by the Deutsche Telekom Foundation and the Federation of German Industry (BDI). Based on analyses of 35 national economies, it shows where Germany’s strengths and weaknesses lie in comparison to relevant competitors, such as the United States. The study examines the fields of business, science, education, government and society.

→ LINK TIP:

www.innovationsindikator.de/english.html



OVERALL INNOVATIVE POWER

Development is stagnating: the United States **ranked thirteenth** in 2014 – in 2005, it ranked among the top three.

GLOBAL CHAMPIONS

The United States determines the tempo and direction of innovations on the market. It had an impressive **395** Global Champions in 2013.

SUB-INDICATOR EDUCATION

Along with the sciences, the education system also influences a country’s innovative power. The United States **ranked fourteenth**.



Germany **ranked sixth** overall in 2014. Switzerland remains the frontrunner in 2014.

With **87** Global Champions (as of 2014), Germany is behind third-place Japan (with 197), but closely followed by China with 82.

Germany **ranked eleventh** in 2014, behind Belgium. Right at the front: Singapore (1), Taiwan (2) and – as is often the case – Switzerland (3).

TREND 8

CONNECTIVITY

People organise themselves in networks, and even machines are increasingly communicating among themselves. With the new culture of openness, companies open outwards.

TREND 9

NEW WORK

Corporate structures and workspaces are shifting towards more mobility, more flexibility and greater personal initiative. The borders between professional and private life are blurring.

SMOKE SIGNALS

The “talking pictures” in this *be top* focus on innovation are from **Thomas Herbrich**, who believes that a good picture is like the first sentence of a story that the reader should continue writing. One hundred thousand images were needed to filter out twenty unique images for the *Smoke Plume* series. The results are a melange of a strategic approach, inspiration, happy coincidence and, last but not least, mistakes. Likewise for innovations: they also result from the principle of trial and error.

impulses for innovation. A central condition is that the company understands how to use its market power. The analysis was conducted in 2011 in cooperation with *Wirtschaftswoche* magazine by reviewing the innovation performance of more than 1,600 small and medium-sized companies. The results show that 20 per cent of the companies generated sustainable growth in revenues and continued profitability through their innovation results. However, the remaining 80 per cent failed to get their innovative horsepower out onto the road, meaning that these companies were also unsuccessful in making a decisive strategic move in direct comparison to competitors.

Day in and day out, companies experience how difficult it is to actually work in an innovative way under the constant pressure to innovate. There is no panacea for this predicament. “Innovation doesn’t work like a recipe, where you only need certain in-

gredients and perform the necessary steps, and then your schnitzel is ready,” says Prof. Dr Nikolaus Franke, Director of the Institute for Entrepreneurship and Innovation at the Vienna University of Economics and Business (see also the interview on page 24). What Franke criticises are the routine patterns of thinking, fixed working processes and pronounced control mechanisms found in companies, which usually lead to insufficient leeway for the development of innovations. To change this situation, experts believe that companies must open themselves up and usher in a culture of innovation.

BOLD THINKERS NEEDED

In the Friedhelm Loh Group, the will to innovation is strongly anchored in the company principles: “Our inspiration and creativity result in our competitive advantage. We must, therefore, continually strive to generate ideas and initiatives that can

translate into effective implementation.” Friedhelm Loh, Owner and CEO of the Friedhelm Loh Group, adds, “I want more people who think in terms of opportunities, who drive change with courage and industriousness. We have great opportunities in a changing business world with its many risks.” What Friedhelm Loh is referring to specifically are the opportunities of the fourth industrial revolution, which require revolutionary thinking in order to quickly and broadly establish ideas that embrace risk. This approach also includes the courage to seek constructive transnational cooperation. One step in this direction is the German government’s standardisation offensive for Industry 4.0.

In February, Matthias Machnig, state secretary at the Federal Ministry for Economic Affairs and Energy, met Dr Richard Soley, executive director of the Industrial Internet Consortium, to discuss these issues. Machnig said, “The topic of Industry 4.0 is of great importance to Germany. We want to demonstrate with specific practical examples that the digitalisation of production processes presents enormous opportunities for growth and employment. It is therefore important for industry and the digital economy to become even more strongly interconnected.”

In this process, Germans are often their own worst enemies. Whereas here in Germany there is often just talk about digital networking, American companies, for example, simply implement it. “It required an ugly nodule on four wheels to finally deliver the wake-up call to Germany’s core industries,” is how the German magazine *Manager Magazin* put it, mocking the rolling data-mobile Google Car. When Google presented its self-driving car, the industry was astonished by what is technically possible these days. Google’s dedication was eventually one of the main reasons why Audi, BMW, Mercedes-Benz and Volkswagen took great efforts to present their newest developments at this year’s Consumer Electronics Show in Las Vegas. The Internet giant shook up the German automobile manufacturers: Look here, anything goes! Anyone can build a car; data and networking are the moneymakers of the future!

American companies in particular recognised early on the great importance of broad networking. “Amazon and Google can contact customers hourly because

mobile Internet-capable devices can be found everywhere these days,” says Harhoff. “If these types of companies occupy the customer interface, it can potentially have far-reaching consequences, even for manufacturers that are actually leaders in their fields.” The problem: in Harhoff’s experience, innovation processes in Germany are much too perfectionist. “Google quickly gets new prototypes to the customers, and then continues to iterate and optimise them until they get a good product. And even then it is continuously being improved. Of course, you can’t simply transfer an innovation process from the Internet sector to all other fields, but, generally, we have to be faster.”

VALUE CREATION AS DRIVER OF IDEAS

For this reason Rittal, one of the world’s leading system providers for IT and industrial infrastructure, is putting the pedal to the metal in the United States: from enclosure technology to power distribution and climate control to complete data centres as well as software and services, the company offers comprehensive solutions for all IT and industrial applications. The company sees considerable potential in integrated industrial value creation processes.

“We’re not talking about the component business, but rather about synergies that give our customers added value for their own competitiveness,” says Hans Sondermann, Managing Director Sales and Marketing at Rittal (see the interview on page 23). Sondermann is referring to the value creation maxim of the Friedhelm Loh Group, with which the intelligent integration of the range of products and services from Eplan, Cideon, Rittal and Kiesling leads to a continuous value chain, for instance in control and switchgear engineering.

This potential is something especially appreciated by companies in the land of opportunity. For example, an increasing number of important machine engineering companies have decided for solutions from Eplan over the past several years, including leading providers of power and electricity generation systems and U.S. aerospace firms. “Our main goal is to increase our market share in the United States and South America by simplifying companies’ machine engineering with innovative system solutions, such as the automated wiring plan production through Eplan →

INNOVATIONS MADE BY THE FRIEDHELM LOH GROUP



1999

TOP SELLER: TS 8 ENCLOSURE

New on the TS 8 – of which more than ten million have been sold – is the patented, extremely stable vertical profile. Because of its symmetry, the TS 8 system from Rittal can be extended at will; additional enclosures can easily be bayed together.



2004

EPLAN ENGINEERING CONFIGURATION (EEC)

With EEC, Eplan combines mechanical and electrical engineering, control technology and documentation. EEC offers integrated configuration and automated documentation for sales, engineering and production.



“Americans practice over-selling, Germans practice over-engineering. Of course, this isn’t true of all innovations, but there is a kernel of truth in it.”

Professor Dietmar Harhoff, chairperson of the Commission of Experts for Research and Innovation established by the German federal government

INNOVATIONS MADE BY THE FRIEDHELM LOH GROUP



2008

RITTAL – THE SYSTEM.

The whole is more than the sum of its parts. This adage holds true for “Rittal – The System.” The TS 8 enclosure system forms the foundation for the system programme, with power supply, climate control technology, an IT structure and planning tools bundled into one platform.



2013

RIMATRIX S DATA CENTRE

Along with customised solutions, since 2013 Rittal also offers the standardised RiMatrix S data centre, a modular system of complete data centre modules.

Engineering Configuration One, and, by doing so, raising CAE automation overall to a very new level in the United States,” says Ray Gaynor, President of Rittal Corporation in the United States.

This systematic approach makes sense, because to survive on the U.S. market, you have to positively set yourself apart from the competition. From this perspective, the Friedhelm Loh Group – with Eplan, Cideon and Rittal Automation Systems – has an ace up its sleeve with its expertise in intelligent process and systems solutions and competitive, innovative products. In particular, the market for products and services from the innovation cluster of Industry 4.0 disciplines is enormous: with an annual economic growth of around 2 to 3 per cent, the U.S. market has seldom been more attractive for international companies than it is right now. In the world’s third-largest country, innovative ideas have always found fertile soil. The joint presence of Eplan, Cideon, Rittal and Rittal Automation Systems and the complementary portfolio of products and services are attractive for the entire continent.

In order to reach as many customers as possible, Rittal has identified seventeen major metropolitan areas in order to enable focused customer service and support. In addition, companies are guaranteed delivery times of just 48 hours for standard products within a 400-mile radius from warehouses. In a country that is almost 27 times larger than Germany, keeping this delivery promise is possible only with sophisticated logistics. Hans Sondermann: “Logistics is a very crucial point. For Rittal this means putting into place a network of logistics providers on the American market so that customers across this vast country quickly receive their products. It’s important to establish an infrastructure that enables us to rapidly serve customers, be-

cause short delivery times also bring benefits for customers’ business.”

Rittal Corporation in the United States is always searching for new ideas to inspire its customers. So that customers can experience quality Rittal products – keyword: innovation leadership – the company will soon be opening its first global Competence Centre in the United States in Houston, Texas. The new space will be presenting solutions just for the oil and natural gas industry; a majority of the world’s oil and natural gas projects are developed and designed in the Greater Houston region. The design of the Competence Centre tackles this industry’s needs head-on, highlighting the unique selling points of Eplan and Rittal Automation Systems. Once companies are familiar with the spectrum of offerings from the Friedhelm Loh Group, they opt for these new solutions. In Texas alone, Rittal’s business is growing by about 30 per cent annually. The company wants to increase its market presence across the entire American market with its presence on the ground, with high-quality products and with creative service ideas.

HOTSPOT FOR DECISION-MAKERS

It’s a timely decision. In the United States, the Friedhelm Loh Group faces very different market conditions than those found in Germany. Digitalisation in the United States is already much further advanced, and the general business climate differs considerably from Germany’s, especially because start-up companies are sprouting up everywhere, which has led to a new investment and business culture in the United States over the past several years. Investment-hungry venture capitalists and multibillion government stimulus programmes support founders and entrepreneurs without con-





TREND 10

NEARSHORING

Outsourcing is a thing of the past. High costs for energy and transport are making production facilities near the point of use attractive once again.

TREND 11

**NEO-
ECOLOGY**

Economy, ecology and social commitment – reuse, reduce, recycle – are more in demand than ever. The new lifestyle necessitates a new business morality, not just at the product and service levels.

TREND 12

BIOLOGY

Genetic engineering and bionics create new solutions for technology and society. Organic 3D printing has become a reality and may revolutionise medical science.

TWO FRIEDHELM LOH GROUP CUSTOMERS IN THE UNITED STATES

STRONG PARTNERS



CORDYNE

Industry relevance: Leader in the design and production of control units and electrical equipment in Houston, Texas. Founded in April 1987.

Products: Wide spectrum of high-quality control units for industry; customised and mass production.

Partnership with F.L.G.: Cordyne uses the Rittal TS 8 series for special and standard designs for electronic components in the oil and natural gas industry.



NETAPP

Industry relevance: NetApp, headquartered in Sunnyvale, California, is a leading provider of innovative memory and data-management solutions. NetApp is a member of the NASDAQ-100 and ranks on the Fortune 500 list.

Products: The company enables data storage and management from around the world.

Partnership with F.L.G.: In the Global Dynamics Lab 2, a highly automated testing laboratory for developers, Rittal racks reliably get the job done.

straints or strict guidelines and regulations. This favourable climate becomes apparent with the American offshoot of the Industrial Internet Consortium (IIC), which has come out in favour of cooperation with the federal government on the topic of Industry 4.0 to advance the connection of the physical and the digital world in industry. The IIC is a platform for companies and research institutions from around the world; along with IT giants Intel, Cisco, IBM, Toshiba, Dell and HP, industrial companies such as General Electric, Toyota and German companies Bosch and Siemens are represented by the association. The goal: connecting stakeholders, modernising business models and, with the assistance of big data, optimising work processes and resource allocation. When asked what Germany could learn from these sorts of developments in the United States, innovation expert Dietmar Harhoff replied, "Speed, flexibility, openness to new ideas. Of course we also shouldn't forget our advantages. But as an American friend sometimes says, 'In Germany there was the "net" long before the Internet – "net" in the sense of "not": We don't have that, we don't do it that way, we can't do it.' We should part ways with this attitude."

STANDARDISATION ON THE RISE

Germany may (still) be ahead by a nose in many technical developments, and, according to the Innovation Union Scoreboard, Germany – along with EU member states Denmark, Finland and Sweden – was once again one of the innovation leaders in Europe in 2014. Yet despite these positive impressions, the country must make an effort to remain a driver of innovation, especially with respect to the much-discussed Industry 4.0. The interesting question is whether it will be possible to transfer the Internet of Things to the field of production, a field in which Germany is particularly strong. Harhoff: "For a long time, our IT expertise was adapted to the creation of smart peripheral devices, to embedded intelligence. Now, however, intelligent decisions are moving up into higher system levels. In science, in the area of analytics, we have plenty of important skills, but cooperation between informatics and system engineers still isn't working optimally. I'm optimistic that progress can be achieved in this arena, but – to name just

one example – standardisation and the establishment of testing facilities at the moment seem to be happening more quickly in the United States than here in Germany." Indeed, the race for the lead on markets began ages ago, and international competition could swiftly offset German industry's lead in the automotive, chemical, machine engineering and electrical engineering industries. This development makes it all the more important to anchor in corporate culture those structures and behaviours that promote innovation. "In view of the great competitive pressures internationally, we must be careful to keep our leading scientific and economic positions," says Germany's Federal Minister for Education and Research Prof. Dr Johanna Wanka.

To achieve this goal, the German federal government provided around 11 billion euros in 2014 alone for improvements and new developments in the areas of digitalisation, sustainability, Industry 4.0, health, mobility and security. Will it be enough? Probably not. If Germany plans to continue playing in the premier league of innovative national economies in the future, its high-tech strategy geared to creative ideas must also make possible specific innovations. One such approach is the customisation of production, which would make batch sizes more flexible with nearly unchanging production costs. "It will change our lives," says Dr Nikolaus Franke. "Today we are constantly making compromises. Twenty years from now, my grandchildren will give me bemused looks when I explain to them what shopping was like in 2015. They won't believe that you had to try on one finished standard product after the other instead of directly receiving one custom-made to your own specifications. Much like we shake our heads about Napoleon, who, for his Grande Armée during the invasion of Russia in 1812, had a standardised boot produced – in the same size for everyone and with an identical left and right foot." ■



➔ APP TIP:

More information is available through the *be top* app.

LESSONS IN SPEED FROM THE USA

Interview. Rittal is expanding its activities in the United States. Hans Sondermann, Managing Director Sales and Marketing at Rittal, talks about the perspectives for German companies in the United States and the specific strengths of the Friedhelm Loh Group.



HANS SONDERMANN

has been Managing Director Sales and Marketing at Rittal since October 2014.

What framework conditions must a company create to develop innovations?

Hans Sondermann: A culture of innovation requires freedom. It must be free from taboos, must allow discussion and above all must encourage creativity. To remain competitive, companies must also know their customers' processes. Then solutions can be developed that the customers themselves never even thought of.

The United States often is ahead of Germany when an idea is being brought to market maturity. Why is this?

Sondermann: The willingness to take the risk of implementing an idea, which is also associated with high investment costs, is much lower in Germany. In the United States, the equity market is set up very differently and supports start-ups much more intensively. We Germans are much more hierarchically organised; the bureaucracy is more pronounced. Decisions are made more quickly in the United States. If we want to be successful, we have to adapt to these principles.

How does a German company become successful in the United States?

Sondermann: The American markets – like the German – are very technology-minded. If companies offer extremely positive distinguishing features – in the best case, temporary unique selling points – then they can grow quickly.

Rittal will soon be opening a Competence Centre in Houston, Texas. What does Rittal and the Friedhelm Loh Group expect from it?

Sondermann: Texas is where the decision-makers in oil and gas are. From here, an innovator such as Rittal can quickly obtain information about what the market needs – and has the best chances to be recognised as an innovation leader in this network.

The Friedhelm Loh Group streamlines value chain processes with products and solutions from Eplan, Cideon, Rittal and Kiesling. Should all of the activities of all business units be advertised in the United States?

Sondermann: Definitely. We're not talking about components business, but rather about the synergies that exist within our customers' entire value chains. We need to let the oil and gas industry know about this.

Industry 4.0 is a German initiative, yet the United States seems to be a few steps ahead in the installation of smart factories.

Sondermann: Industry 4.0 represents significantly improved information and communication technologies in the industrial process landscape. The software components are of great importance – which is where the United States has an enormous potential for development. Research institutes have clear expectations about where this trend is heading, as they do in Germany too, but this trend is less pronounced in industrial settings and with our customers.

But Eplan, Cideon, Rittal and Kiesling can show what potential there is for value chains.

Can you give us an example?

Sondermann: There are many time-consuming and costly tasks that can be standardised and automated. For Rittal, the focus is on the software side of things. Through Eplan, we can significantly shorten the design and layout process in enclosure engineering, as well as automate the mounting, wiring and machining processes.

Who will win this race, the Americans or the Germans?

Sondermann: Whoever can resolve the interfaces most efficiently! In the United States there are many competitors, which I see as positive pressure. The Friedhelm Loh Group has Eplan as a member within its ranks, one of the market leaders in this field. That makes me very optimistic that America isn't the only country where we can hold our lead and expand it.

Rittal produces in Ohio; Eplan has an office in Detroit. Why are business locations so important in the United States?

Sondermann: A company that doesn't produce in the United States will never be able to be successful there. Local adaptations and requirements can be better and more quickly achieved on location in the country.

How important is logistics?

Sondermann: Logistics is a crucial point, which is why Rittal is establishing a network of logistics centres so that customers across this vast country can get deliveries quickly and on schedule. In regions with a good infrastructure, we've made it our goal to deliver standard products within 24 hours.



THE INTERVIEW

Who? Nikolaus Franke, a 48-year-old tenured professor, has been Director of the Institute for Entrepreneurship and Innovation at the Vienna University of Economics and Business since 2001. He is also Director of User Innovation Research Initiative Vienna.

What? Franke's main areas of interest are entrepreneurship, innovation management and marketing. One of the leading experts on open innovation and user innovation, he has received numerous research honours.

Where? *be top* met with Dr Franke at the Vienna University of Economics and Business.



“INNOVATION IS NOT A GAME OF CHANCE”

Interview. Censoring ideas and focusing on cost reduction stifle innovation, says Dr Nikolaus Franke. The professor for entrepreneurship and innovation research explains why new development still needs rules.

Text: Jürgen Jehle and Beate Schwarz



A FOCUS ON INNOVATION

Dr Nikolaus Franke is considered one of the most important research professors in the German-speaking world. In recent years, he and his institute have implemented more than five hundred projects with industry partners – from start-ups to global corporations.

What does being innovative mean to you?

Nikolaus Franke: Creating and implementing – that is, really realising – useful new ideas. Utility is crucial – maximum utility for as many customers as possible. The larger the problem solved by an innovation, the better. Musings or inventions alone are not enough.

From a scientific perspective, how do you measure strength in innovation?

Franke: For some twenty years now, we have been evaluating the innovative strength of medium-sized German companies during our “TOP 100” competition, which utilises two measurement approaches. First, we look at how successful a company has been with its innovations. This aspect is reflected in a number of indicators, such as technological leadership, patents and sales volume or profit shares from innovations. The question of potentials can be even more exciting, as we examine whether or not the entire company is systematically geared towards the generation and realisation of innovations.

What does “geared towards innovations” mean?

Franke: We ask if upper management demands, encourages and initiates innovation. Does the corporate climate provide fertile ground for new ideas, or are conformity and fear prevalent? Are new ideas supported or stifled by processes and regulations? Is a company open and outward-looking, or is it isolated? Achievements and potentials are connected in the long term. After all, innovation is not a game of chance.

According to the “Global Innovation Index 2014,” Germany is one of the most innovative countries in the entire world. Yet other countries are more innovative. What can we learn from the trailblazers?

Franke: Investment in education, science and research is particularly worth emulation. Switzerland, Singapore and Scandinavian countries show us how it should be done. In the long term, this type of investment is the most significant factor in an

economy’s innovativeness, which in turn determines its prosperity.

When do companies become innovative?

Franke: When the market and competition force them to. Monopolies, planned-economy infrastructures and government-owned enterprises usually generate very little innovation.

Is there a perfect innovation process?

Franke: Innovation does not follow a recipe. Treating innovation like a routine process will only lead to pseudo-innovation. On the other hand, that does not mean that coordination is unnecessary. Developing innovation is a complex process, most of the time involving many people and fields. Anarchy leads to chaos, not innovation. A balance between autonomy and supervision is essential.

Many medium-sized enterprises have difficulty implementing new ideas. How can companies encourage innovation?

Franke: What is important is the intent to innovate, with all its consequences. One needs to be aware that structures conducive to innovation are not cost-cutting. Innovation means experimenting, trying things out, risking a step into the unknown. This approach inevitably means that some things will not work. I know companies whose management, after announcing that the era of innovation had begun, sacked the first person to make a mistake. Naturally, that is an innovation killer.

But to answer your question: if there is a desire for more than just window dressing, the subject must be approached holistically. Management, culture, processes and outward orientation must be consistently geared towards innovation.

Are German companies tapping their full innovation potential?

Franke: For more than a decade, I have been Scientific Director of the “TOP 100” innovation competition. Each year I see some extremely impressive examples. Small and medium-sized enterprises, in particular, are maximising their potential very well. But there are also companies that still consider mega-trends like globalisation and the Internet to be fads. And there are companies so obsessed with cost-cutting that they starve themselves to death.

Scientist Stuart Kauffman describes innovation as a series of combinations in a particular “adjacent possible.” This characterisation implies that innovation has its limits.

Franke: There are always limits. But we do not know what they are at the beginning of the innovation process. That’s why it does not work if controlling departments want exact sales figures for the third post-rollout year. One has to be able to live with uncertainty and constant changes in plans. Some people find that awful, but it is exactly what others find exciting about innovation!

Innovation often emerges when skills, motivation and autonomy are present. How are German companies doing in this regard?

Franke: Better and better! However, the proper incentive structure needs to be in place. I recently did a workshop at a company that is considered very innovative. I asked the participants beforehand what they would do if they could choose between Project A, with a 100 per cent likelihood of a 500,000-euro profit, and Project B, with a 90 per cent likelihood of a million-euro profit and a 10 per cent likelihood of a total loss,

or zero. It is obviously better for the company to do many Type B projects rather than Type A ones. The losses even out, and ultimately the profit is 80 per cent greater. But all the managers at the workshop, without exception, chose Project A! All of them! What went wrong? One participant put it in a nutshell: “At our company, one doesn’t receive more praise for greater success. But pity the person who screws up one project!”

Silicon Valley icon Bill Joy once said, “There are always more smart people outside your company than within it.” How can companies and society use this knowledge?

Franke: In the first place, one has to know how to systematically tap into the immense creativity and knowledge resources outside a company. The focus must be on methods and tools, such as crowdsourcing, lead-user techniques and toolkits for user innovation and design. Secondly, one has to get a company’s natural defensive reactions under control. Do you know the expression NIH – “not invented here”? It describes the tendency of many companies to denigrate outside ideas and concepts. There are many reasons for this attitude, but the most important one is that they feel threatened.

What does the term “open innovation” mean?

Franke: It means opening up the innovation process and systematically bringing outside ideas and creativity into a company. This process is easier than ever because today’s world is networked. Moreover, users and customers are sharing more ideas and creativity than ever before.

Can innovation be facilitated by policy?

Franke: Definitely! Innovation is possible because of legal protections, low taxes, minimal bureaucracy, investment in education and research, transfers and an entrepreneurial culture and mentality – not because of funding schemes requiring one to fill out 500-page forms and wait years for notification.

Looking to the future, what is the way forward for innovation in Germany?

Franke: I hope we are heading towards more courage, more prudence and more investment! ■



→ APP-TIPP:

Read about five open innovation trends observed by Nikolaus Franke – an exclusive in the *be top* app.

SERIAL PRODUCTION TS 8

RITTAL RECEIVES INNOVATION AWARD

Rittal's large-scale production of enclosures is one of the innovations of the past 120 years that has made industrial history. In a show of confidence, the publishers of *MM MaschinenMarkt* magazine presented their "Innovation Leader Award" in the category of "Electrical Equipment" to Rittal. National and international companies were honoured for their inventions in a total of twelve categories. At the ceremony, *MM MaschinenMarkt* editor Reinhold Schäfer recognised Rittal's courage in making the invention of mass-produced enclosures a global triumph. Recently, the ten-millionth TS 8 large enclosure – the fourth generation since the very first ones in 1961 – rolled off the assembly line. Rittal holds 1,500 patents worldwide.



A MILESTONE IN INNOVATION

MM MaschinenMarkt editor Reinhold Schäfer (left) presented the "Innovation Leader Award" in the category of "Electrical Equipment" to Friedhelm Loh, owner and CEO of the Friedhelm Loh Group.

130

PAGES OF IT EXPERTISE

NEW BROCHURE FROM RITTAL

"IT infrastructure: Efficiency-boosting solutions" provides IT experts with a 130-page guide to the RiMatrix S standardised data centre and to modular system solutions for small and large networks.



➔ LINK TIP:
Scan this QR code to download or order a copy at <http://tinyurl.com/Rittal-Guide>

IT PAYS OFF!

PERFOREX ROI CALCULATOR

Manual machining of enclosure parts (i.e. drilling, thread-tapping, milling, engraving and deburring) is one of the most time-consuming and cost-intensive procedures in enclosure engineering. With the Perforex machining centre, developed by Kiesling, every procedure is fully automated. Want to know whether and when a Perforex is profitable? Find out with the Perforex ROI Calculator, which can calculate how long it will take to amortise the investment.

➔ LINK TIP:
www.kiesling.net/en/produkte/roi.php



SAFETY COMPACT

NEW GUIDE

Electrical energy storage is one of the key challenges of the energy transition. Yet substandard or hazardous energy storage systems remain in use. This situation is about to change, as several associations, including the Bundesverband Energiespeicher e.V. (German Federal Association of Energy Storage – BVES), have published a safety guide to lithium-ion domestic storage tanks. Rittal helped create the guide, which aims to improve and streamline safety standards until the standards for storage systems have been finalised.

→ LINK TIP:

Download the guide at www.bves.de

STRONG TOGETHER

NEW AFFILIATE PROGRAMME

Rittal has launched an international affiliate programme for data centre infrastructure in order to take advantage of market opportunities with existing and new partners (including system integrators, systems houses and value-added resellers). “Working together, we are confident that we can resolve any data centre challenges our customers may face,” says Andrew Grace, who is in charge of managing Rittal’s international partnerships. Big data, mobile/cloud computing and security demand the modernising of current and the building of additional data centre capacities. As part of the programme, partners benefit from Rittal’s international presence and an online partner platform. Moreover, Rittal offers exclusive access to product documentation and training resources.

RITTAL



PARTNER PROGRAMME

HOUSE OF MECHATRONICS

EPLAN AND CIDEON UNDER THE SAME ROOF IN STUTT GART

As affiliates in the Friedhelm Loh Group of companies, Eplan and Cideon continue to consolidate. This process is evident in terms of content, because both are pursuing topics such as CAE, M-CAD and the corresponding data/interface management under the banner of “efficient engineering.” And yet another team-building activity was about space: the Eplan sales office in Stuttgart, the Eplan development team for Eplan Engineering Configuration and the Cideon software development team for SAP-Dassault interfaces have been sharing office space since March 2015. With mechatronics as a focal topic, customers of both companies will benefit from the proximity and the concentrated solutions expertise.



→ LINK TIP:

Scan this QR code for more information or visit www.eplan.de/en/start/ and www.cideon.com/site/d/en/holding/



CREATIVE TEAMWORK

Eplan and Cideon development teams have been sharing office space in Stuttgart since March



WORLD'S
FIRST

Quantum leap
in economic
efficiency

COOL PREMIERE

Cooling units. Rittal has set new records for energy use and performance with the new generation of Blue e+ cooling units. A drastic reduction in the variety of models also substantially simplifies warehousing as well as service and maintenance.

Text: Robert Sopella

THE NEW BLUE E+ SERIES

STAY COOL!

With Blue e+ Rittal has achieved a quantum leap in efficiency. Energy use can be radically lowered through the combination of passive and active cooling with the heat pipe, on the one hand, and a fan and a compressor, on the other. Here the advantages at a glance:

75%

in peak energy cost savings for Blue e+ cooling units as compared to previous Blue e devices.

3 million

tonnes of carbon dioxide – this is how much less carbon dioxide could be emitted across Europe each year if all enclosure cooling units currently in use on the continent were replaced by Blue e+ devices.

6,000 W

of output is generated by the most powerful Blue e+ unit (previously 4,000 W).

When it comes to efficient and sustainable factories, it is very difficult to surprise Volkswagen's management board. After all, the automobile manufacturer with its "Think Blue" sustainability campaign is considered a pioneer in the areas of reduction of carbon dioxide emissions, waste prevention and resource-conserving production. And VW has relied on Rittal's Blue e energy-efficient cooling units for enclosure climate control in its factories for quite some time.

Yet during Rittal's presentation of its new generation of Blue e+ cooling units in Wolfsburg, Germany, the VW board members were nonetheless astonished. As part of a test installation, Blue e and Blue e+ cooling units ran continuously for 24 hours under typical climatic conditions of VW factories. The analysis of the energy use once the test was over made everyone prick up their ears: while the already quite efficient Blue e unit had clocked about 12 kilowatt-hours of energy use on its meter, the new generation unit used just 3 kilowatt-hours. Several months of evaluations of test installations at other industrial enterprises showed similar results. "Our customers' responses to the Blue e+ devices have been thoroughly positive so far," says Steffen Wagner, Director Product Management Climate Control at Rittal. This confirmation is encouraging for Rittal's fifteen-member development team in Herborn, Germany – they spent almost two and a half years working on the new wall-mounted cooling units.

The technical centrepiece of the new generation of devices is the patented integration of a heat pipe in the classic compression refrigeration circuit, which enables passive cooling of enclosures without any additional energy consumption. If this addition does not provide enough cooling output, Blue e+ devices are also outfitted with a conventional active cooling system consisting of a fan and a compressor. The kicker: the active cooling system is continuously variable and can therefore be exactly adjusted to the individual requirements. This hybrid system with heat pipe and adjustable compressor – and fans – has a

positive effect on energy use, but that isn't the only thing up its sleeve. "Conventional enclosure cooling systems usually work with a two-point controller that turns the compression refrigeration circuit on and off as needed," Wagner explains. For a typical system, this arrangement means that it cools at full power until the desired temperature is achieved, and then completely switches off. When the temperature rises again, the motor must restart at maximum performance, resulting in high energy consumption as well as an enormous strain on the motor, fan and other components. Moreover, the enclosure components being cooled are exposed to permanent thermal stress, which significantly reduces their service life.

PARTIAL LOAD REDUCES COSTS AND STRESS

Continual partial load operation is possible with the Blue e+ units, resulting in less energy use, less thermal stress, less strain on motors and fans, and much lower service and maintenance costs than before. Motor performance controllability is made possible by way of the innovative inverter technology. A positive side effect: "While we previously had to have various devices in the portfolio for every voltage range, the new Blue e+ cooling units are multi-voltage-enabled due to the inverter technology," Wagner says. For users, this innovation means the devices can be easily used worldwide without having to worry about the available voltage range.

Thanks to this technical innovation, the climate control units of the Blue e+ series can be used much more flexibly than before, allowing Rittal to significantly reduce the existing model variety. Alongside the technical evolution of the proven Blue e technology, the developers of the Blue e+ devices paid particular attention to improving ease of operation. For the first time the new generation of Rittal cooling units comes equipped with an intelligent TFT touch display on the front panel. The dual-language display offers a clear status indicator for the device and enables easy configuration and operation. Set point and threshold →

WORLD'S FIRST

A summary of the advantages of the new Blue e+ cooling units:

GREAT EASE OF OPERATION

The TFT display presents information at a glance. System reports are shown in plain text. Communication interfaces allow integration into a production plant's control system. The near field communication (NFC) interface enables parameter-setting for several devices by way of a mobile end device.

LOW OVERALL OPERATING COSTS

Motor performance controllability means the motor for active cooling is not constantly being turned on and off, but instead runs as needed and at the regulated speed needed in each case. The low energy consumption leads to even lower operating costs; the purchase price is quickly recovered in savings.



COMPREHENSIVE PERFORMANCE STRENGTH

Blue e+ units cover an output range of up to 6,000 watts (previously a maximum of 4,000 watts), and can be deployed in temperatures ranging from -30° to $+60^{\circ}$ Celsius.

LOW ENERGY USE

The heat pipe provides for passive cooling without energy consumption. Fan and compressor are operated only when the passive cooling no longer suffices. Furthermore, the devices' output can be regulated, and the devices cool precisely according to need.

HIGHLY VERSATILE

Blue e+ cooling units are multi-voltage-enabled through the innovative inverter technology and can be easily deployed worldwide. Use of the cooling units in the United States is also possible without additional certification.

SUCCESSFUL FIELD TESTING

THREE TIMES TOP IN TESTING

Since January 2015, a Rittal Blue e+ test unit has been undergoing final performance testing at Audi AG. The testing process at the automobile manufacturer headquartered in Ingolstadt, Germany, is to run for a year and is currently verifying that the newly developed Blue e+ units are yielding the expected energy savings, even under real industrial operating conditions. The performance metrics confirm energy savings of 75 per cent for enclosure climate control. The results of field testing at Kapp Werkzeugmaschinen GmbH in Coburg, Germany, are similarly gratifying. There, thanks to the Blue e+ the thermal stresses due to temperature swings were reduced by 95 per cent as compared to traditionally controlled cooling units. Similar results for cost-effectiveness were also found during tests in the field at machine manufacturer J. G. Weisser Söhne in Sankt Georgen, Germany.

values can be preset through the display, as can alarm relays.

ERRORS IN PLAIN TEXT INSTEAD OF CODES

Error messages are presented in plain text instead of as error codes, as was previously the case. “Consequently, if servicing is required the fault is evident at a glance,” Wagner explains. This feature saves time and money for service technicians and users. And so that, ideally, servicing will not be necessary at all, Rittal has outfitted its new cooling units with a preventive warning system. To this end, certain indicator values are regularly monitored and analysed. If one of these values is in danger of falling outside the tolerance range, the unit displays an on-screen maintenance recommendation, such as, “Please change the filter.” This system considerably increases operational reliability and reduces downtimes.

Furthermore, the Blue e+ units are downright communicative. Firstly, they are outfitted with a near field communication (NFC) interface: with the assistance of a suitable mobile end device such as a smartphone,

when in immediate proximity to the cooling unit you can call up its configuration data, change it, and transmit it back to the unit. This capability is especially interesting for installations with several devices, because the parameter settings must be defined only once and can then be transferred to the other devices through the app. The cooling unit can also be simply integrated into existing control technology and remotely monitored through the optional Ethernet port. “With the Blue e+ series, we’ve developed new reference products and therefore strengthened our technology leadership in the area of climate control devices,” Wagner says. More units are already in planning; among them, a performance-controllable roof-mounted device will be developed over the medium term. Rittal also plans to further expand the wall-mounted unit portfolio. ■



→ LINKTIPP:
Scan this QR code for more information
<http://tinyurl.com/blueeplus1>



QUANTUM LEAP IN EFFICIENCY

Interview. Dr Thomas Steffen, Managing Director Research and Development at Rittal, is confident that the new cooling units of the Blue e+ series set new standards in every respect.

Dr Steffen, why was it time for a new generation of cooling units?

Dr Thomas Steffen: Across Europe there are around two million enclosure cooling units on the grid. In aggregate they represent a considerable macro-economic consumption potential, with an assumed connected load of two gigawatts, and are responsible for a total of about four million tonnes of carbon dioxide annually. As a system manufacturer and innovation leader, Rittal is committed to reducing the energy consumption of cooling units to a level that can bring about significant positive contributions to climate protection and confront rising energy costs head on. It was a huge challenge because our current Blue e series on the market is already a very energy-efficient device. Furthermore, we wanted to considerably increase the device's user-friendliness and reduce its complexity.

Were the objectives met?

Dr Steffen: Definitely. We've managed a quantum leap in efficiency with Blue e+. Through the combination of passive and active cooling with the heat pipe, on the one hand, and a fan and a compressor, on the other, we were able to lower peak energy consumption by around 75 per cent as compared to the Blue e devices. The new intelligent display on the front of the cooling units presents important information, such as fan speed and temperature, clearly, in plain text. In addition, small details, such as the ability to change the filter by way of a front inspection door, increase ease of operation. A key contribution to reducing complexity is that the new devices are multi-voltage-enabled and cover a wider range of outputs than before.

How is that possible?

Dr Steffen: The output of all new cooling units can be controlled through the innovative inverter technology, which means that we no longer have to offer a particular device for each performance category, but instead offer one unit for the



ENERGY EFFICIENCY INCREASINGLY IMPORTANT

The demand for powerful and at the same time extremely energy-efficient cooling units is increasing worldwide, says Dr Thomas Steffen, Managing Director Research and Development at Rittal.

ranges 450 to 1,500 watts, 750 to 2,500 watts, and 1,800 to 6,000 watts. The expansion of performance from the previous 4,000 to the current 6,000 watts enabled us, for instance, to significantly reduce the number of cooling units in an installation. Furthermore, the inverter technology enables multi-voltage capability, so we no longer need a stand-alone unit for every voltage variant.

What are the economic benefits for users of the new devices?

Dr Steffen: In an industrial environment, consideration of overall operating costs is becoming increasingly important. The Blue e+ units have the distinction of being highly efficient, with energy cost reductions of up to 75 per cent. The constant temperature levels within the enclosures also reduce breakdowns and therefore downtimes in the production plant. Furthermore, the reduction in model variety substantially reduces costs for spare parts, service logistics and warehousing.

What would happen if all enclosure cooling units currently deployed in Europe were replaced with Blue e+ devices?

Dr Steffen: There would be about three million fewer tonnes of carbon dioxide emissions annually. Theoretically, by virtue of the considerably reduced power consumption, you could shut down a medium-sized nuclear power plant. This figure impressively demonstrates that Rittal is accepting its corporate and social responsibility with these devices – and in fact going far beyond the statutory requirements for compressor-based cooling devices as found in the European Union's Ecodesign Directive.



→ APP TIP:
Find out more in the *be top* app



PROMINENT VISITORS

Chancellor Angela Merkel and India's Prime Minister Narendra Modi standing beside a Blue e+ – the world's most efficient cooling unit – at Rittal's booth. The two leaders were joined by Friedhelm Loh, Owner and CEO of the Friedhelm Loh Group (left), and Steffen Wagner, Rittal's Director of Climate Control Product Management (second from left).

CLIMATE SUMMIT

Hannover Messe 2015. With its new generation of cooling units, Blue e+, the Friedhelm Loh Group presented an international innovation in the field of enclosure climate control. And what's more, together with Eplan, Cideon and Kiesling, the systems provider showed how value chains in accordance with Industry 4.0 can be considerably streamlined.

Our Expertise – Your Benefit.” Under this motto, Rittal presented the added value of its system programme for industrial and IT customers in Hall 11 at the 2015 Hannover Messe. Highlights included the introduction of the completely new Blue e+ generation of cooling units – currently the world's most economical line of cooling units – and a visit by Chancellor Angela Merkel and India's Prime Minister Narendra Modi. At Rittal's booth, the two leaders learned about the technology inside the new generation of Blue e+ cooling units (see page 30), which can reduce energy needs by up to 75 per cent. Merkel expressly praised Rittal's innovative capacity. Together with its affiliates Eplan, Cideon and Kiesling, Rittal also demonstrated how manufacturers of machinery, control systems and switchgear systems could streamline their value chains – from engineering to manu-

facturing – using the principles of Industry 4.0, with potential savings of up to 50 per cent. For instance, with Kiesling's new 3D laser centre, the Perforex LC 3015, switchgear manufacturers can quickly and accurately laser-cut panels, complete housings and enclosures.

Eplan – with its booth in Hall 7 – announced a global collaboration with the Energy Division of Schneider Electric. In the future, Eplan's E-CAD solutions will be used at the Energy Division's R&D and production sites and business departments across the world. In addition, with Eplan Experience (see page 62), Eplan is helping customers to use engineering software more efficiently and to improve processes. Eplan introduced the two fields of action Codes & Standards and Design Methods at the SPS IPC Drives show in November 2014. At the Hannover Messe it presented →



A HIGH-TECH EXPERIENCE

Trade visitors listened to the Blue e+ presentation with great interest (below). Data are read and parameters are set in the new cooling units by means of a special app on an NFC-enabled mobile device (left).



STRONG PARTNERS

Together with its Ri4Power partners, including ABB, Eaton, Emerson, GE, Inotec, Janitza, Siemens and Trips, Rittal demonstrated the close collaboration in switchgear engineering.



INTEREST FROM INDIA

Rittal's booth was frequented by groups of visitors from India, the partner country of this year's Hannover Messe. Rittal is represented at eighteen locations on the subcontinent and provides a wide range of industries with enclosure solutions.



2,000 SQUARE METRES

Rittal's slogan at the 2015 Hannover Messe was "Our Expertise – Your Benefit." At its 2,000-square-metre booth, Rittal demonstrated the added value of its systems for customers from industry and IT.



AT THE EPLAN BOOTH

At the Hannover Messe, Eplan presented its new Web-based service: the Eplan Data Portal Professional. Users receive comprehensive functionalities to update or enhance device data as well as significantly enhanced filtering possibilities.



FOCUS ON YOUTH

In keeping with the slogan "Our Expertise – Your Benefit," young people demonstrated the added value of "Rittal – The System." Prof. Dr Johanna Wanka, German Federal Minister of Education and Research, was given information at the Rittal booth during the Tec2You.



Product Structure and Platform Setup. All eight fields aim for greater engineering efficiency.

More than six thousand young people flocked to Hannover as part of the Tec2You youth initiative, which offered guided tours to generate enthusiasm for technical professions. Rittal's booth in the Tec2You pavilion was a popular destination for the tours. Supported by a team of Rittal trainees, the young visitors assembled a wall puzzle and learned that teamwork was just as important as speed and skills in the working world. German Federal Minister of Education and Research Prof. Dr Johanna Wanka was equally enthusiastic: "We need people who develop creative ideas and launch innovations. It is only with motivated and highly qualified professionals that Germany will be able to compete successfully in the global marketplace." ■



FOCUS ON 3D PRECISION

The new Perforex LC 3015 from Kiesling, a specialist in machine technology.

PRESENTING PRECISION UP-CLOSE

With Kiesling's new 3D laser centre, the Friedhelm Loh Group demonstrated innovative automation solutions for control system and switchgear production. The laser centre has allowed Kiesling – a specialist in machine technology – to significantly expand the capabilities of its Perforex enclosure machining system. With the new Perforex LC 3015, control system and switchgear manufacturers can quickly and accurately laser-cut panels, complete housings and enclosures. Housings and enclosures such as the AE compact enclosure and the TS 8 system, as well as fully welded enclosures such as Rittal's SE 8, can be machined in one operation from several sides without the need for re-clamping. The powerful alliance between Eplan, Cideon, Rittal and Kiesling has made it possible for manufacturers of machinery, control systems and switchgear systems to use the continuous flow of data from engineering to production in order to streamline their value chains, with potential savings of up to 50 per cent. ■





PREMIERE IN HANNOVER

In Hall 8, Eplan, Rittal and Phoenix Contact presented solutions for full data integration in the engineering and production process. Prof. Dr Johanna Wanka, German Federal Minister of Education and Research, was impressed by the seamless integration process explained by Dr Thomas Steffen, Rittal's Managing Director for Research and Development (right), Maximilian Brandl, President of Eplan (second from right), Olaf Graeser of Phoenix Contact (left), and Prof. Dr Gunther Olesch (second from left) and Roland Bent (third from left), both members of the Executive Board at Phoenix Contact.

INDUSTRY 4.0: CLEVER ENGINEERING RE-ORGANISES PRODUCTION PROCESSES

The term Industry 4.0 generally refers to the re-organisation and management of value chain networks. At a joint booth at the Hannover Messe, Eplan, Rittal and Phoenix Contact – the three leading providers of engineering solutions for enclosure system and automation technology – showed how practical the concept is in practice under the slogan “From the Top Floor to the Shop Floor.” The “Smart Engineering and Production 4.0” technology network demonstrated a continuous automated process extending from the digital component to engineering and production. Through the example of an enclosure, visitors learned how the data from a comprehensive virtual product description flowed via standard interfaces from the development phase to the production process. A number of stations illustrated

the digital description of the end product, engineering based on enclosure configuration, the CNC-supported mechanical machining of components, and the automated intelligent assembly of modules. One great advantage is that the digital description can be used across the entire product life-cycle right up to plant start-up, operation and maintenance. Prof. Dr Johanna Wanka, German

Federal Minister of Education and Research, was visibly impressed by the integration and visited the joint booth on the first day of the show. ■



➔ **VIDEO TIP:**
Further information is available at www.smartengineeringand-production.de/en/



JOINT INNOVATION

The new “Smart Engineering and Production 4.0” technology network – consisting of Eplan, Rittal and Phoenix Contact – presented innovative solutions for data integration in engineering and production processes.





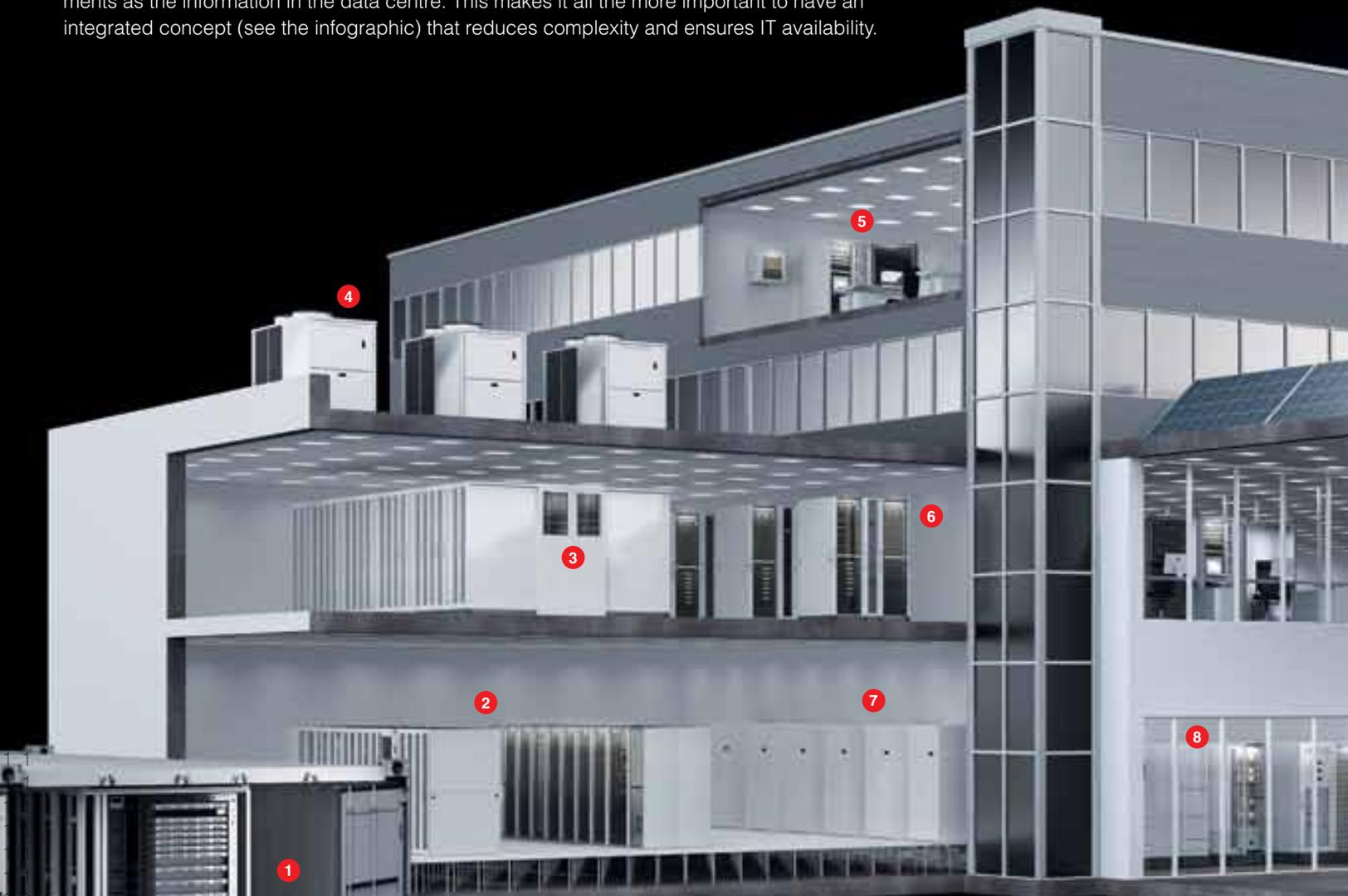
IT EVOLUTION 4.0

IT infrastructure. The foundation for digitalisation, and therefore for Industry 4.0, is secure and flexible IT infrastructures required for the configuration of highly automated production processes. Rittal, a reliable partner, offers the components needed.

Text: Kerstin Ginsberg and Jörg Kreiling

SOLID IT FOUNDATION FOR THE FUTURE

IT solutions are no longer used only in data centres, but also in production environments. Rittal offers high-quality solutions for all demands in the Industry 4.0 environment. The infographic shows where smart devices reside in the IT environment of factory distributors. These systems' data and connections must be as protected from hot and dusty production environments as the information in the data centre. This makes it all the more important to have an integrated concept (see the infographic) that reduces complexity and ensures IT availability.



1 RiMatrix S

The standardised data centre – shown here as a container solution – serving, for instance, as a backup data centre.

2 TS IT server enclosures

The intelligent modular system with flexible network and server racks can be used everywhere. The ideal racks for data centres no matter the size.

3 Aisle containment

Door and ceiling elements separate the warm and cool air in the data centre – increasing energy efficiency.

4 Chiller for IT cooling

The chiller delivers cold water for IT cooling devices in the data centre, such as Liquid Cooling Packages (LCPs) and Computer Room Air Conditioning (CRAC).

5 IT administrator

The control centre for all IT processes with RiZone Data Centre Infrastructure Management (DCIM) software. Access to the data centre, climate control, power supply and security are administered, monitored and controlled from here.

6 TS IT

Network enclosure (see also the TS IT server enclosure) with variable interior installations and divided rear doors for minimal space requirements.



7 IT Power

Ensures an interruption-free power supply to the data centre and, thanks to the Power Distribution Unit (PDU) from Rittal with its many management and monitoring functions, is especially economical.

8 Ri4Power

The centrepiece: the low-voltage switchgear system used for both production and the data centre.

9 PDR Rack

For sub-distribution to the individual enclosure suites in the data centre.

10 UPS and battery pack

Ensures the uninterruptible power supply (UPS) and protects from power fluctuations.

11 Compact enclosure AE

Contains optimised production-line infrastructure components such as switches for high-performance Ethernet and all active components and sensors on the line.

12 Control and switchgear system

TS 8 enclosures with water cooling (IT or industrial LCP), see also TS IT racks.

13 PC enclosure

Protects sensitive hardware, such as computer, monitor and printer, in the production line's harsh industrial environment.

14 TopConsole system

Serves as the machine control system on the production line. The upper section can house, for example, surveillance monitors, the middle section an input system, and the console's base can hold control components.

15 TS IT racks

Network factory distributors on the production line with active components, with cooling by means of the Liquid Cooling Package (LCP).

PANORAMIC CUSTOMER

The Swiss Südostbahn AG is another Rittal Switzerland customer. Rittal designed, planned and realised a customised data centre for the company.



CONFEDERATE OF THE SWISS CONFEDERATION

THIRTY YEARS OF RITTAL IN SWITZERLAND

“Rittal is a partner on whom we depend completely,” says Daniel Kobler, ICT Department Manager for the Südostbahn AG (SOB) in Switzerland. The company is one of the many Swiss Confederation customers for whom Rittal Switzerland has been working for more than thirty years. Rittal has two locations in the country, in Neuenhof and Yverdon-les-Bains. The photo shows the SOB Alpine Express on the 365-metre-long Sitter Viaduct, which with a height of 99 metres is Switzerland’s tallest railway bridge and also has the largest span of any Swiss railway bridge.

60

PER CENT TIME SAVINGS

PANEL SCOUT TEST CONTROL

Optimise the testing process, save time and lower costs; the new Panel Scout Test control from Kiesling does this and more. Switchgear manufacturers can achieve time savings of 60 per cent; the newly developed system fully automatically tests and documents the proper functionality of switchgear systems.

→ LINK TIP:
<http://tinyurl.com/testcontrol>

STEEL IN AESTHETIC PRECISION



STAHLO IS FIRST CHOICE

Hettich is one of the largest manufacturers of furniture fittings and has been in business for more than 125 years. The family-owned company employs more than six thousand people in 38 subsidiaries and locations as well as production sites in the Americas, Europe and Asia. Stahlo has been one of Hettich’s most important steel suppliers for more than ten years and has delivered several thousand tonnes of slitted coils to produce furniture fittings, hinges and guides.

PERFECT FUNCTIONALITY
 Hettich uses steel from Stahlo for hinges and guides.



AWARD-WINNING INNOVATION

Rüdiger Braun, Director Sales and Engineering at LKH (left), and Heiko Holighaus, Director Advanced Development at Rittal, with the pro-K Award.

THE 40-SECOND STAR

FLEX-BLOCK RECEIVES PRO-K-AWARD

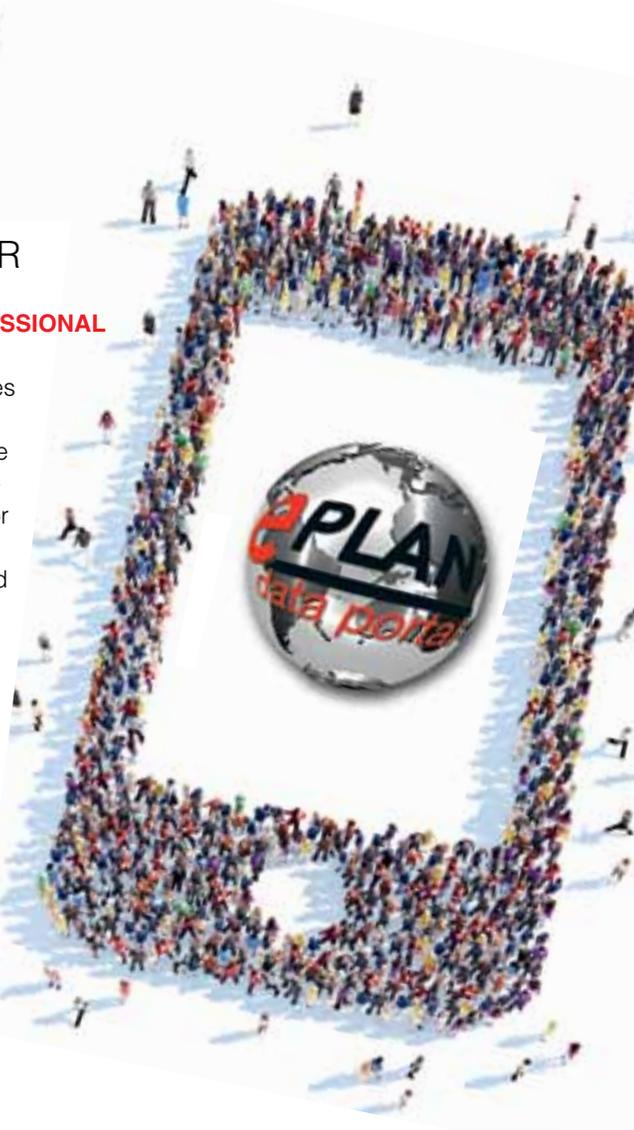
“The highly practical assembly solution ... is remarkable for its speed of assembly.” And with this verdict, the jury gave the pro-K Award for one of the best plastic products to the Flex-Block by LKH. With the new enclosure base/plinth system that LKH developed for and with Rittal, switchgear manufacturers can save a great deal of time over conventional solutions: Flex-Block assembly takes just forty seconds, whereas the old Rittal base/plinth system made of sheet steel took four minutes. For more than thirty years, the pro-K Award has honoured new, creative and functionally designed products made of plastic.

FILTER DATA BETTER

EPLAN DATA PORTAL PROFESSIONAL

A new Web-based service makes things even more convenient for Eplan Data Portal users. With the professional version, users have comprehensive functionalities for updating and enhancing device data, and significantly expanded filtering possibilities. Users also receive notifications when downloading articles that are new. The expansion is a great marketing argument for component manufacturers.

→ LINK TIP:
www.eplandataportal.com



CO₂ HEROES STAHL AND LKH

OUTSTANDING ENERGY MANAGEMENT IN BOTH COMPANIES

A broad energy efficiency programme at LKH and Stahlo has resulted in around 250 fewer tonnes of carbon dioxide emissions annually. In 2014, both companies implemented numerous technical and organisational measures within the framework of the DIN EN ISO 50001 standard. The effort was a success: in December, the LKH plastic factory in Heiligenroth and the Stahlo Steel Service Center in Dillenburg (both in Germany) received ISO certification to this DIN EN standard.

UNDER ONE ROOF

NEW LOCATION FOR RITTAL LITHUANIA

Rittal's Lithuanian subsidiary began 2015 with a hat trick: they rang in the year with the national introduction of the euro, the switchover to SAP business processes, and a move into new business premises near the capital city of Vilnius. Now all of the activities required to support the wide-ranging market are combined under one roof. The new building is the delivery hub for all of eastern Europe. Rittal Lithuania added a new showroom and ModCenter, where enclosures can be individually customised. Despite doubling the warehouse space, a new logistics strategy enables loading and unloading in half the time. In other words, Rittal is staying true to its motto: Faster – better – everywhere.



SHORT DISTANCES

Rittal supplies all of eastern Europe from Vilnius.

COMPACT MACHINE MARVEL

Supfina Grieshaber has managed to develop an even more compact and economical machine, the Planet V, without compromising precision, productivity or ease of operation.





supfina
PLANET V4

FULLY CUSTOMISED STANDARD

Customised standard solutions. The trend for machines is moving increasingly toward design. With enclosure system technology from Rittal, Supfina Grieshaber offers an interesting solution: the Planet V machine series.

Text: Hans-Robert Koch and Uwe Scharf

SUPFINA GRIESHABER

BRILLIANT
PROSPECTS

Supfina Grieshaber is the world's largest system provider of superfinishing machines and accessory equipment. An offshoot of the trade firm Grieshaber Drehteile (founded in 1903) and Bergische Werkzeugfabrik (founded in 1910), the company looks back on more than one hundred years of machine building tradition. Under the name Supfina Grieshaber since 1995, the company offers well-founded expertise, practical solutions and flexible machines for superfinishing with stone and tape tools for its customers in the automobile, supplier and rolling bearing industries from its locations in Germany, the United States and China. Supfina has 190 employees worldwide.

Machine manufacturers like Supfina Grieshaber are always working at the borders of technical possibility. As the leading manufacturer of superfinishing and grinding machines worldwide, the company strives to bring to market even more compact and economical machines without compromising precision, productivity or ease of operation, something they achieved in 2014 with the development of the Planet V. The Planet V, a double disk grinding machine, can process workpieces with diameters of 6 to 85 millimetres and thicknesses of 0.6 to 40 millimetres, on one or both sides. One of the machine's key features is significantly improved vibration dampening with absolute thermal stability. Powerful grinding spindles enable the removal of up to 0.5 millimetres in one pass-through with an output of 26 kilowatts. The Planet V keeps parallelisms to under 0.005 millimetres. Along with throughfeed grinding, the machine also easily masters pendular- and multiple-throughfeed processing. The patented tilted navigation and integrated tool-change device reduce retooling time to an absolute minimum. Thanks to the Planet V's space-saving design, the machine can easily be integrated into new or existing production lines.

EXTRA-SHORT DELIVERY TIMES

Along with technical innovations, development especially focused on an appealing exterior. "We wanted to underscore the machine's high quality with the elegant design, and demonstrate what is possible with our innovations, namely, the manufacturing of exquisite, smooth surfaces," says Supfina Grieshaber Product Manager Thomas Harter. "Design is a clear trend in machine manufacturing, one that we've contributed to from the outset. But ultimately this is about quality and performance: a machine's efficiency always drives the purchasing decision." One of the challenges that the company faces, along with price wars, is shorter and shorter machine product cycles, the so-called time to market; the time it takes from developing a product until delivery to the customer. "What this means for us is an ever swifter development pace and having to react to market demands," Harter explains.

Reputable automobile manufacturers such as BMW, Daimler, Audi and Chrysler and their suppliers demand very short delivery times. On average, delivery times for machines are about ten months. But it can go faster. Supfina Grieshaber can also build machines within six months – and relies on

systematic standardisation. "We use standard components and manufacture customised solutions from them. We are always trying to expand and improve our modular construction kit," Harter says.

"OUTSOURCED" INFRASTRUCTURE

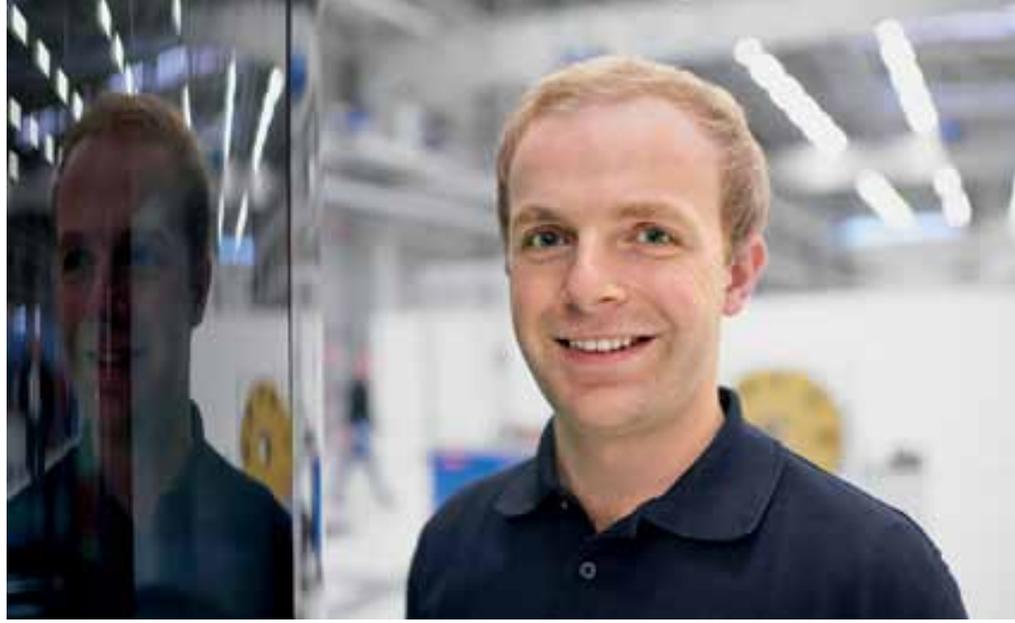
The Planet V infrastructure components also include standard products from the "Rittal – The System." programme. From enclosure technology to cooling technology to the power supply, Rittal is one of the machine manufacturer's essential suppliers. One novelty of the Planet V as compared to other machine construction concepts is that the electrical equipment – all of the control (PLC), servo-CNC drive, security and cooling technology for the spindle and enclosures – is not located within the machine, but instead contained outside of it in TS 8 standard enclosures in a matching design. The "outsourced" and en-suite enclosure infrastructure, connected to the machine via a channel, encompasses five TS 8 enclosures, integrated fluid-based cooling solutions from the LCP Industrial series, a standardised TopTherm chiller series recoler and the RiLine60 busbar system.

Externalising the enclosure infrastructure brings a number of benefits. It enables individual customer requirements to be better fulfilled, for instance with respect to the machine's installation. "With the externalised enclosures we can design more customised machine layouts depending on the space available," Harter says. In the predecessor series, in which the enclosures were completely integrated into the machine, the company was constrained by the machine's installation surface. "Now the basic machine is smaller and we can customise the enclosures in production to integrate them into new or existing production lines and arrange them as necessary," Harter continues. The compactness of the machines is crucial for Supfina Grieshaber, because installation areas are limited and cost money.

The externalised enclosures increase the machine's accessibility for loading and retooling. Machine operators always have easy, convenient access to the built-in operating equipment. Another important advantage is that the externalisation of the enclosure technology means that vibrations – such as those caused by moving parts, among them, valves and compressors – cannot be transferred to the machining centre. Furthermore, the solution presents logistical benefits: the machine and enclosures can be transported separately on smaller vehicles. →

AN EYE FOR ELEGANT MACHINE DESIGN

Along with technical innovations, development especially focused on an appealing machine design. "We wanted to underscore the machine's high quality with the elegant design, and demonstrate what is possible with our innovations, namely, the manufacturing of exquisite, smooth surfaces thanks to the high-precision technology," says Supfina Grieshaber Product Manager Thomas Harter (photo).



THE ALL-ROUNDER PLANET V 4

The new double disk grinding machine can process workpieces with diameters of 6 to 85 millimetres and thicknesses of 0.6 to 40 millimetres, on one or both sides. It offers the highest degree of precision and absolute thermal stability.



“Rittal creates considerable value creation potential for customers through the systematic standardisation of its solutions.”

Uwe Scharf, Executive Vice President Product Management at Rittal

THE CRUX OF THE MATTER

INGENUITY TIMES THREE

According to Uwe Scharf, Executive Vice President Product Management at Rittal, the development of the Planet V by Supfina brings three important insights to light. “Firstly, the use of standard solutions in machine manufacturing ensures maximum efficiency – which also applies to enclosures and climate controls for a design-oriented machine,” Scharf says. “Secondly, maximum flexibility for space-optimised machine installation is not achieved by means of monolithic devices, but by flexible configuration of machine segments. And thirdly, the decoupling of necessary technical equipment (electric, pneumatic and hydraulic) by externalising the enclosure technology reduces thermic and mechanical influences on the machine and increases quality.”

INTEGRATED SYSTEM SOLUTION

Another special feature is the integration of the entire fluid-based cooling technology in the TS 8 enclosure system. The Liquid Cooling Package (LCP) Industrial by Rittal – a climate-control enclosure with air/water heat exchanger – allows for the economical and secure discharging of heat losses in the enclosure. In the most compact of spaces and with a high packaging density, cooling outputs of up to 10 kilowatts can be achieved. The cooling occurs by means of circulating air, whereby the heat loss in the enclosure is passed to the water in the air/water heat exchanger and then discharged outside the enclosure. The LCP is installed between the chiller and the enclosure and blows the cool air into the enclosure from the left side, where the frequency converters are installed. Two powerful blowers ensure optimal air circulation inside the enclosure. The complete separation of water circulation and electronic components in the enclosure guarantees maximum security.

LCP Industrial operation requires the installation of a water supply (inlet and return) and a recooling system for cooling the water at the heat exchanger. Supfina Grieshaber decided for an integrated solution here as well with the TopTherm chiller by Rittal. The chiller is made of three modular units – water and cooling modules, and an electronic module with a controller – and has a cooling output of 16 kilowatts. The TopTherm chiller, aside from delivering the refrigerant for the enclosure climate control, also supplies the coolant to the precise, technology-relevant spindle cooling for the Planet V. The reduction to a fluid-based cooling circuit with just one compressor contributes to an increase in the

machine’s energy efficiency. Another advantage: the fluid-based circuit is an integrated process that does not encumber the ambient air.

“By integrating the enclosure technology, cooling solution and power distribution technology into one comprehensive solution, we ensure that everything is technologically compatible,” Harter says. “As a result, we have one contact person for the system and reduce our organisational expenses.” Another key issue for the company is the worldwide availability of the standard components. “Especially when the cooling technology fails, it leads to machine downtime – and that means production grinds to a halt.” For Supfina Grieshaber, the global service – especially in Asia – is another important point in Rittal’s favour. ■



→ APP TIP:

More information is available in the *be top* app.

A SYSTEM WITH MANY ADVANTAGES



EVERYTHING IN THE RIGHT PLACE

The system programme by Rittal provides considerable time and cost benefits.

Manufacturing machines distinguished by easier operation and space-saving design whilst simultaneously reducing system costs require a clever mix of cost-effective series components and customised design elements. The reference solution from Supfina Grieshaber demonstrates the advantages of standard solutions from the "Rittal – The System." programme:

- rapid availability through products from the series programme and thus considerable time and cost benefits;
- everything from one source through a harmonised system programme, from enclosures to climate control and power distribution technology;
- high flexibility for customer-specific solutions through modular solution

variety and comprehensive system accessories;

- energy efficiency by way of perfectly matched cooling solutions for nearly every individual application;
- security for service calls through worldwide availability of Rittal products and a global service network;
- one contact partner for one system provides time and cost benefits.



→ LINK TIP:

For more information about "Rittal – The System." visit www.rittal.com



TECHNOLOGICAL INSIGHTS

This enclosure has a lot to offer. From left to right: Rittal TopTherm chiller, LCP Industrial and enclosure with frequency converter and Rittal power distribution technology.



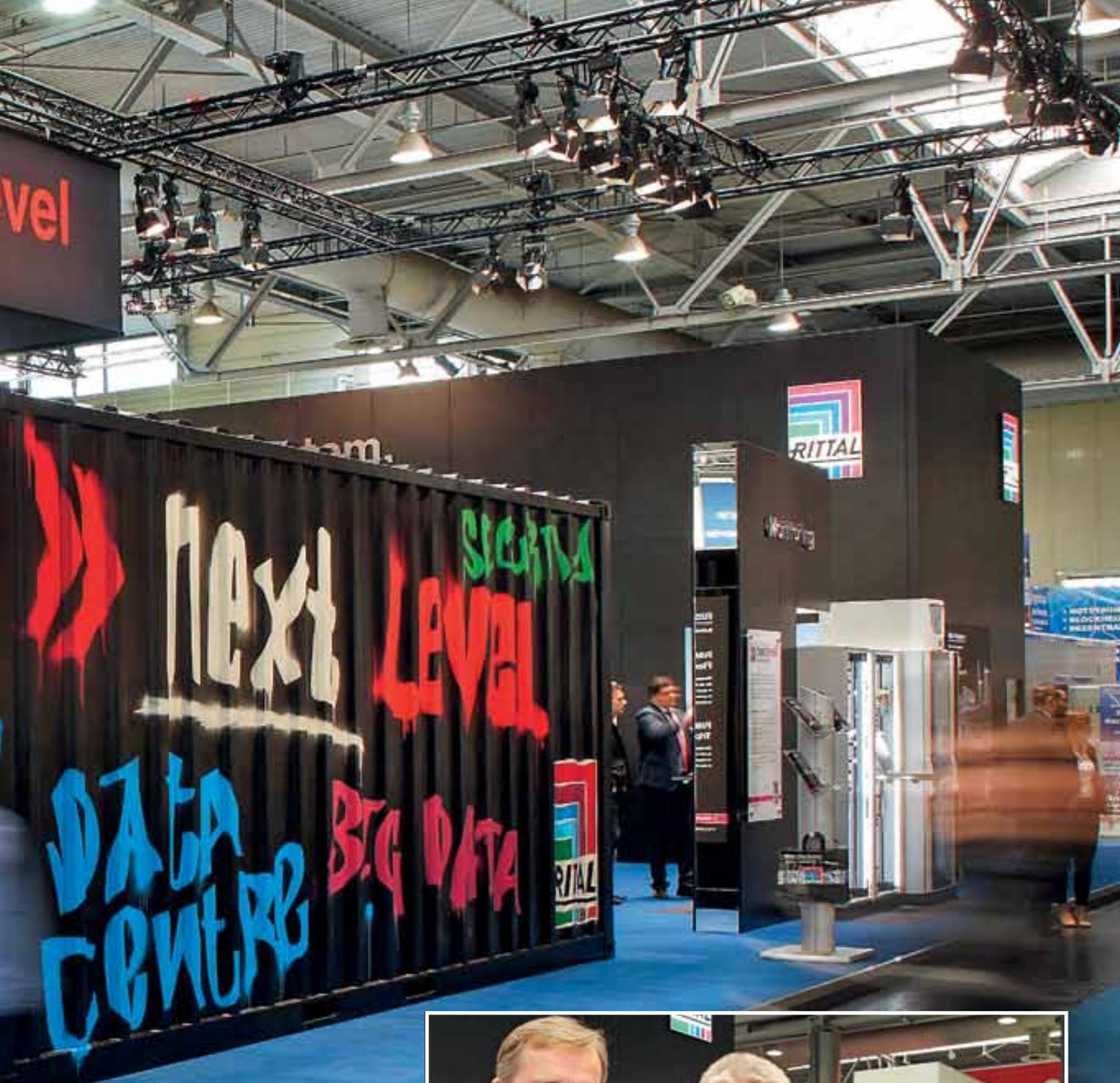
WELCOME BACK, RITTAL!

CeBIT 2015. Following a one-year hiatus, Rittal returns to the world's most important IT event with a new presentation dedicated to "d!conomy" and Industry 4.0.

CeBIT is (re)gaining momentum. In year two of its focus on the professional business customer, CeBIT has confirmed its position as the world's most important IT and digitisation event, with more exhibition space, more attendees, more acceptance among mid-sized companies, a stronger international scope and a consummate conference programme. These developments offered compelling arguments for Rittal to return to CeBIT with a new presentation after a one-year hiatus. At its booth in Hall 12, Rittal

introduced solutions for secure IT infrastructure from rack to complete data centre tailored to the demanding applications in big data, Industry 4.0 and the like. "We have the right solutions at the right time. The big story is big data. When a market is growing, one must stay ahead technologically, and we have the widest range of excellent products," said Friedhelm Loh, Owner and CEO of the Friedhelm Loh Group at the start of the trade fair. One of these excellent products, undoubtedly, is the TS IT server and network enclosure.

The TS IT kit, consisting of various enclosure dimensions and equipment options, makes customised solutions possible. "It is the ideal foundation for all network and server technology requirements," said Rittal Director of IT Business Development Marcus Fischbach, who was in his element explaining the merits of the TS IT to attendees from all over the world. "We now offer maximum installation diversity and customised solutions for server and network enclosures with very short delivery times," added Rittal Product Manager for IT →



RITTAL: TOP EXHIBITOR

Rittal has been one of the main exhibitors at CeBIT for 25 years. In appreciation of the many years of solidarity and Rittal's involvement in the world's largest IT trade fair, Friedhelm Loh (large photo, centre) received the "Certificate of Appreciation" from Deutsche Messe CEO Dr Wolfram von Fritsch (left) and board member Oliver Frese.





STANDARDISATION: FOCUS ON RIMATRIX S AND TS IT

Green Party leader Reinhard Bütikofer (left) visited Rittal's booth at the trade fair, where Vice President of IT Product Management Bernd Hanstein (right) explained the modular, standardised, extremely energy-efficient RiMatrix S data centre.



SOUGHT-AFTER TS IT EXPERT

Rittal Director of IT Business Development Marcus Fischbach described the advantages of the TS IT modular system to trade fair attendees.



Infrastructure Claudia Strohauer. "This makes the TS IT a flexible foundation for all other components such as power distribution, climate control, monitoring and security." Of the more than 140 versions, 35 are in stock and available for immediate delivery. The delivery time for all others is only fourteen days.

In addition to the TS IT, other innovations from Rittal attracted attention. In particular, the RiMatrix S standardised data centre was given a close inspection by Reinhard Bütikofer, spokesperson for the German Green Party delegation and co-chairman of the European Green Party. Rittal Vice President of IT Product Management Bernd Hanstein gave the high-ranking politician an explanation of this comprehensive solution, which can provide energy savings of up to 50 per cent, thus contributing to a significant reduction in CO₂ emissions and costs.

INTERNATIONAL PARTNER PROGRAMME

Just in time for CeBIT, Rittal also launched an international partner programme for data centre infrastructure. Its goal is to utilise both existing and new partnerships in order to exploit market opportunities in the international arena and to grow faster than the market. Rittal's partners benefit from its international presence – with more than sixty subsidiaries, forty agencies, eleven production sites and an online partner platform. ■

EVERYTHING AT A GLANCE

Jessica Gamsjäger (left) and Claudia Strohauer at the TS IT Selector, an online tool that allows customers to find quick and easy implementation options for network and server applications.



TOP DEAL 1

Rittal finalised a major contract with China at CeBIT: in the Chinese province of Guizhou, data service provider Wing Cloud Guizhou will install four prefabricated RiMatrix S Double 9 modular data centres. Thanks to this standardised data centre solution, provincial capital Guiyang will be a central hub for cloud computing and big data in China by 2020. Left: Tide Lv (Technical Director, Wing Cloud Guizhou); right: George Wang (CEO of Rittal China).

TOP DEAL 2

Rittal also signed an important contract with Norway at CeBIT. Friedhelm Loh (left) and Lefdal Mine Datacenter Chairman of the Board Egil Skibenes arranged the delivery of two RiMatrix S containers. Another one to three hundred are to follow in the next few years, because the investors from Lefdal Mine and IBM rely on Rittal expertise in equipping Europe's largest data centre.



DATACENTERDYNAMICS

GLOBAL AND LOCAL IT EXPERTISE

Internationally renowned experts met at CeBIT for a DatacenterDynamics (DCD) conference titled "The Business of Data Centers." Discussion topics included the best ways to future-proof data centres and manage IT infrastructures. These issues were also addressed by experts from Rittal, including Rittal Senior IT Solutions Engineer Herb Villa (left), Vice President of IT Product Management Bernd Hanstein and Rittal Lithuania Product Division Manager Konstantin Bobyliov. The aim of the conference was to answer questions by using global knowledge and to concretise them by taking up practical local examples. This event was not the first co-sponsored by Rittal as a premium partner. In addition to lectures and discussion forums, Rittal also presented its latest data centre solutions at other DCD international conferences. Every year, more than 30,000 experts participate in DCD events in 42 countries.



➔ **LINK TIP:**
For more info, visit www.datacenterdynamics.com



QUO VADIS, DATA CENTRE INFRASTRUCTURE?

Rittal experts Herb Villa (United States, left) and Konstantin Bobyliov (Lithuania, small photo, second from left), explained where data centres are headed.

1,000

volts of AC current

– the voltage that the LKH plastic components can tolerate.

40

kilos of static load

per running metre is how much the plastic supports must withstand. Dynamic loads are added on top of that during equipment transport.

5,500

amperes

can be managed thanks to the integrated Flat-PLS busbar system in the Ri4Power equipment.

4

live flat busbars

can be assembled as a single-pole or even a 3- and 4-pole system.

SAFETY FIRST FOR HEAVYWEIGHTS

Special plastics. Plastic components in enclosures must withstand extremes. Working with Nilit Plastics Europe GmbH, LKH has developed polyamides especially for these demands which are free from halogens and red phosphorous.

Text: Hans-Robert Koch and Beate Schwarz

Plastic components in enclosures are subject to extreme demands. They must be designed for tremendous dielectric strengths, high static and dynamic loads, and increased temperatures. These requirements are to ensure the highest-possible safety – for both human and machine. Furthermore, the plastic components must allow easy assembly and be as cost-efficient as possible. For design engineers, it's not a simple proposition. Rittal, the system provider for enclosure technology, counts on its strong development partnership with plastics specialist LKH. The assignment proved challenging for the plastics engineers; power distribution equipment by Rittal with copper busbar systems as thick as an arm give an idea of what amperages and voltages are being switched in these systems and the loads involved. For instance, up to four sequentially stacked live busbars in the Flat-PLS system carrying 5,500 amperes at 1,000 volts of AC current create around 40 kilograms of static load per running metre alone for the plastic supports. "If there's a short circuit, the electric conductors pro-

FORCE APPLIED HERE

Power distribution equipment by Rittal with heavy copper busbar systems give an idea of what amperages and voltages are being switched in these systems and the loads involved. The plastics used must withstand extreme conditions.

duce large vibrations and put very high electrodynamic stresses on the plastic supports," says Jörg Kayma, Product Manager at Rittal, describing a few of the conditions to which the plastic supports are subject. "A short circuit also creates a lot of heat that gets transferred to the plastic." They must safely attain unusually high dielectric strengths despite their small construction volume, as well as resist high mechanical loads at high temperatures and be impervious to deformation within tight tolerances. And the flame retardant requirements for plastic components in enclosure engineering are also exacting. Kayma says, "This isn't just for human safety. Operational reliability is very important for our customers. And this reliability must be guaranteed across the entire, sometimes decades-long operational life-cycle of the equipment."

Plastics specialist LKH, which uses an injection moulding process to produce a great majority of the components that Rittal uses, had clear guidelines for the new product: mechanical parameters and dielectric strength had to achieve the same values as the high-temperature materials that contained the old fire-protection additives and had been used to date. Furthermore, the new products had to be economically manufactured. Another important point was the flexibility and availability of the plastic because the individual materials were required in varying amounts. Whilst the smallest control compo- ➔



WHAT ARE COMPOUNDS?

Compounds are mixtures of polymers with processing agents, reinforcing agents, bulking agents, dyes and other organic and inorganic additives. They are developed when pure polymer mixtures do not yield the unique properties or high quality that must be met to fulfil certain technical requirements. Attempts are then made to selectively modify the polymer materials through the incorporation of organic and inorganic additives. For instance, the thermal load for semi-crystalline polymers can be improved considerably over that for non-reinforced products.



“Comprehensive simulations, constructive adaptation of items and injection moulding forms, and the use of various materials are the methods we use.”

Rüdiger Braun, Director Sales and Engineering at LKH

QUALITY MANAGEMENT

PLAYING IT SAFE

Plastics specialist LKH has established a sophisticated and certified quality management system for its entire workflow. Manufacturability is checked once a customer inquiry comes in, and all results of the preliminary examination are documented. Potential failure scenarios are simulated by means of a failure mode and effects analysis. LKH specialists derive a superordinate control plan from the inspection and test results and develop additional component-specific testing plans. Ongoing audits during series production, documented through the computer-aided quality system and available at all times, guarantee the quality of the series production.



nents in certain colours are required only in the kilogram range each month, the standardised, voluminous construction elements require tonnes of material. The supply must be guaranteed in all cases – and, due to the certifications necessary, over a period of many years.

COOPERATION WITH NILIT PLASTICS

“Comprehensive simulations and tests, constructive adaptation of items and injection moulding forms, and the use of various materials are the methods we use,” says Rüdiger Braun, Director Sales and Engineering at LKH. The company extensively tested various groups of materials to determine process-related and/or construction changes to tools and items with newer flame retardants and/or different materials suppliers. Components for which the geometry demanded high flowability from the material were particularly challenging. In cooperation with materials supplier Nilit Plastics, the requirements were met with polyamide 6.6 compounds. The new material is certified pursuant to current safety standards, which include DIN EN 61439 and listings from Underwriter Laboratories (UL), an organisation in the United States that develops standards, carries out testing and issues certifications.

Nilit Plastics delivers to LKH PA6 and PA6.6 compounds free from halogens and red phosphorous, which always have all relevant certifications regarding fire safety – even for customised formulas or colours for specific applications. Certifications for newly developed components or components now being made with more economical materials can therefore be quickly obtained. Moreover, LKH's production is compliant to UL standards. The UL-com-

pliant production environment and logistics deliver components to Rittal and other customers – and not just in the electrical sector – that dramatically simplify and accelerate later certification of complete assembled systems. “LKH therefore provides another building block in our strategy; we are on top both technologically and with respect to setting new standards for safety and project running times,” says Rittal Product Manager Kayma.

To date, the cooperation between LKH and Nilit Plastics has resulted in the new development of more than one hundred flame-retardant items for Rittal, which are based on PA6.6 compounds or the conversion from typical high-temperature materials to PA6.6 compounds. These items include components in the range of one-tenth of a gram as well as structural elements, cladding and housings weighing more than a kilo. Depending on the batch size, they are manufactured in facilities with various levels of automation or even in complex production cells. The solutions ensure that the systems are dependable over the long term and run at a high level of safety. “Last but not least, the production capability for polyamide 6.6 and the security of supply for all required materials are an important argument for the cooperation with Nilit Plastics,” Kayma says. “Even minimum quantities of special material variants must be reliably made available by the stipulated deadline in order to deliver certainty for the supply chain.” ■

COMPLEX SOLUTIONS

Perfect production of complex components and the use of innovative material combinations – such as for the manufacturing of extremely resilient power distribution components made of plastic for Rittal – is an LKH speciality. The primary focus of development work is on optimised, application-specific mechanical attributes – such as the power distribution components for Rittal (see detailed photo) – based on PA6.6 compounds. LKH develops and manufactures a wide array of products from plastic for the electrical industry as well as products for the automobile industry, the industrial sector and construction.





VALUABLE EXPLORATION

Eplan solutions often offer – after updates, for example – more perspectives than users realise. Eplan Experience helps unearth these treasures.

MULTIPLY THE BENEFITS

Eplan Experience. With its Eplan Experience initiative, Eplan is helping customers make more efficient use of engineering software and improve their processes. Quantum leaps are definitely possible.

Text: Beate Schwarz

Machine tool manufacturer Heller Maschinenfabrik GmbH has put its engineering processes to the test, exploring alternatives, becoming intimately acquainted with its engineering software and making a number of changes to its in-house processes. This effort has resulted in significant increases in efficiency. "For example, we have reduced the time spent on hardware design by almost half," says Klaus Riexinger, Senior Manager Controls Engineering. The southern German company decided to work with Eplan about ten years ago. "Our main goal was to find a common platform for electrical and fluid engineering and a system that lays the foundation for real mechatronic design." This goal was achieved, as Heller is now "immersed" in the possibilities offered by Eplan solutions, says Riexinger. The companies are connected in a successful partnership. "We offer Eplan many suggestions, but we also follow their advice again and again."

MANY UNTAPPED OPPORTUNITIES

Knowledge is key to success. Therefore, knowledge growth is at the core of the international programme with which Eplan Software & Service seeks to offer customers a competitive edge. "In our estimation, the majority of our customers have been taking advantage of only a fraction of the possibilities offered by Eplan Software," says Eplan Head of Consulting Uwe Harder. "Most complete a training course," adds

Eplan Head of Product Management Thomas Michels, "only when new software is introduced. But our solutions continue to develop through updates and functional innovations – in many cases, without customers having more than a superficial sense of this ongoing development or integrating it into their work." Eplan Experience alerts them to untapped potential and benefits, offering a concrete guideline to optimise their engineering processes.

This process often requires the kind of analysis than an outsider can more objectively and easily render than a user who has internalised a company's processes after working there for years. The consultants at Eplan take an objective look at product development, design and production, clarify data sets and gauge optimisation potential. Then they make recommendations and point out where the company can economise, which also ensures that employees do not spend time on unnecessary tasks, thereby motivating them as well. Selecting the most efficient design methodology guarantees that engineering know-how is acquired and made available to an entire team. This approach leads to consistent results and makes resource planning possible.

This multistage process of change takes time and, above all, requires supporters and acceptance. Often, employees from previously unrelated areas will need to communicate. Production processes and departmental structures may have to →

HELLER MASCHINENFABRIK

INVESTMENT IN THE FUTURE

Heller Maschinenfabrik earns about 60 per cent of its sales in the automotive segment. With its comprehensive integration of electrical and fluid engineering, the machine tool manufacturer saves considerable time in the design of production lines, which can include up to fifty machines. The time savings amounts to about 50 per cent for hardware design.



EPLAN EXPERIENCE

GO DEEPER!

With its diverse consulting and training programme, Eplan enables its customers to become more familiar with the capabilities of applications and to improve their engineering processes. Since 2014, users can also train to become an Eplan Certified Engineer in six months.



ON TARGET

Eplan Experience covers eight fields of action: IT Infrastructure, Platform Setup, Codes & Standards, Product Structure, Design Methods, Workflow, Process Integration and Project Management.

be changed; investment in IT may be necessary. "Having outside consultants manage and see these processes through is helpful and expedient," says Harder. Companies should budget at least one year for these processes. Everything need not be tackled at once, of course. And what is the benefit? "Often, real quantum leaps. In switching from manual construction to configuration, efficiency gains of 80 per cent are possible."

INTENSIVE CUSTOMER SURVEYS

Eplan Experience was developed by an international team, with staff from three continents. It is based on the experience of many successfully completed projects and feedback from customers, as well as their leads and requirements, with more than 110,000 installations in fifty countries all over the world in a variety of industries. At its core is a methodical, step-by-step approach to increase engineering efficiency and design optimisation. Eplan Experience is grounded in analysis, consultation and diverse training opportunities. Training programmes, online courses, conferences and videos prepare Eplan customers in eight fields of action. These fields of action include IT Infrastructure, Platform Setup, Codes & Standards, Product Structure, Design Methods, Workflow, Process Integration and Project Management. At the start

of the initiative in November 2014, Eplan brought Codes & Standards and Design Methods (see interview) into focus; in 2015, Product Structure and Platform Setup will be further elaborated. The huge response demonstrates that companies are really interested in taking full advantage of Eplan software and that they are willing to question their processes. Eplan Training Director Harald Weiß says, "Since the launch of Eplan Experience, there has been a very high amount of requests for its multifaceted training opportunities." ■

→ LINK TIP:

Eplan offers consulting services online or on site, in person. More information at www.eplanexperience.de/en

EPLAN EXPERIENCE FIELDS OF ACTION

In eight core areas, users can expand their knowledge and thus increase engineering efficiency and design optimisation. Eplan Experience is grounded in analysis, consultation and diverse training opportunities. There are precise training courses, workshops and

webcasts for all fields of action. In addition, the Eplan Certified Engineer training programme allows users to become professionals within six months.

<p>IT Infrastructure</p> 	<p>Codes & Standards</p> 	<p>Design Methods</p> 	<p>Process Integration</p> 
<p>Platform Setup</p> 	<p>Product Structure</p> 	<p>Workflow</p> 	<p>Project Management</p> 

PLAN GLOBALLY BUT SHARE EXPERTISE

Interview. Uwe Harder, Eplan Head of Consulting, and Thomas Michels, Eplan Head of Product Management, on the potential that lies in new ways of thinking, particularly when it comes to different design methods.

Mr Harder, why is it important to avoid the beaten path?

Uwe Harder: Always following the same path helps one feel secure, of course. But looking at other avenues often leads to faster and better solutions. It is always worthwhile to question one's behaviour.

Mr Michels, when it comes to engineering, why shouldn't I stick to old projects?

Thomas Michels: It is a fallacy that revisiting earlier projects saves time. One ends up changing everything anyway. Besides, when making a copy, there is also the danger of reproducing obsolete data or errors.

What is the alternative?

Michels: Working from a library. If everyone always uses the library, they will always have access to the latest templates. Any error that might occur need only be corrected in one place, and it will never occur again.

Building a library takes time, and people often don't have the time in their daily routine.

Michels: The relief that a library provides is immediately felt – by all users. The time needed to set it up is less than one might think. Besides, all of its “shelves” need not be filled all at once.

The library is the foundation for good, efficient engineering. You offer your customers a way to filter out and implement the right engineering method. How do these methods differ from each other?

Harder: The “maximum project technique” works with variants and options. Let's take the example of the conveyor belt. We start by designing a plant that contains everything one could possibly desire: one or many workstations, rough and fine machining, forward and backward running direction, and much more. The user simply selects what is currently needed in the specific engineering pro-



CONSISTENT FOUNDATION, VARIANT TECHNOLOGY

Eplan Software & Service's Uwe Harder (left) and Thomas Michels are confident that it pays for companies to put their own established engineering processes to the test.

cess, thus deriving the actual customer project from the maximum project.

How is this different from the generation principle?

Harder: The generation principle is based on the principle of addition. With the conveyor belt, for example, there are individual schematics for each belt. The specific requirements are then assembled from individual parts. This planning process can be used not only in electrical engineering, but across all disciplines, including mechatronics.

What about the configuration principle?

Harder: That is the ultimate! I consider it to be the ideal engineering technique for manufacturing companies that operate internationally. Using the configuration principle, every user can perform a configuration. But the knowledge on which the

configuration principles are based is hidden and not visible to third parties. Making engineering possible all over the world without loss of knowledge is the desire of many companies in highly industrialised countries – knowledge secures market position.



➔ LINK TIP:

Scan the QR code to learn more about Eplan Experience or go to www.eplanexperience.de/en/



TWO



EVERYTHING PERFECT

Once the machine has completed the welding process, it displays the message "OK," and the worker may remove the part.

TOP TEAMS

System integration. KUKA Industries' Magnetarc welding machines are precision giants for the highest weld quality. Machine operators and customers are delighted with their perfect results. The high-tech process is supported by Rittal's TS 8 enclosure system.

Text: Elke Bieber

KUKA INDUSTRIES

THE AUTOMATION EXPERT

KUKA Industries is a division of the KUKA Group, whose headquarters are in Augsburg, Germany. This global provider of robotics, cells and systems has more than 12,000 employees and an annual sales revenue of about 2.09 billion euros. KUKA Industries specialises in intelligent process- and customer-oriented cells and solutions. Employees develop and integrate automation ideas for tomorrow's efficient and sustainable production. From the initial idea to production support, customers receive all products and solutions from a single source. Automation expertise and in-depth process knowledge enable KUKA Industries to offer its customers a competitive advantage on the market.



A spark, a controlled arc path – that is how workpieces are welded by Magnetarc welding machines from the production line manufacturer KUKA Industries of Augsburg, Germany. Rear axles, wheel suspensions and drive-shafts must be 100 per cent reliable. “These safety-related components must withstand maximum stresses constantly,” says Walter Weh, Departmental Manager of Advanced Welding Solutions at the global company. “There is probably no other method that joins these components more quickly and safely.” KUKA Industries introduced the Magnetarc welding joining technology back in 1972. Since that time, the technique has been continually developed: clamping workpieces, switching on current, igniting and rotating the arc, and compressing the parts together are all automated. “Once the workpieces have been inserted into the machine, the operator pushes a button, the door closes and the process runs in the machine,” explains Robert Hummel, who is responsible for the electrical design of the equipment. “Every human operation poses a risk, so maximum safety is an integral part of our machine concept.” This process no longer involves a welder wearing a leather apron, goggles and long gauntlet gloves amidst a glittering shower of sparks. “In practice, the customer provides us with a component or drawing. We look into which process is optimal for the manufacture of that component, with the greatest benefit to the customer,” says Weh. “We test and validate these components on our own equipment with the customer present, in order to come up with the perfect solution for the task.” Magnetarc welding machines are adapted to the welding task, guaranteeing optimum

utilisation of production space. Multiple machines can be easily automated in conjunction with robotic or portal solutions. Preset parameters (e.g. welding time, welding voltage, magnetic coil current, forge pressure) are integrated in an automatic machine cycle. KUKA Industries developed its own process control and monitoring system that allows the operator to keep an eye on parameters and results, localise and resolve any malfunctions and manage process data with ease. The level of automation depends on the customer. “The higher the number of units and the lower the variance, the more advantageous the use of robots,” says electrical designer Hummel. Using 3D process simulation, for example, KUKA Industries can realistically check the suitability of automatic component loading and unloading for certain lot sizes or of linking multiple machines for special joining sequences.

TS 8 IN USE RIGHT FROM THE START

The TS 8 has always housed the electrical and electronic components of Magnetarc welding machines. KUKA Industries has used this enclosure system for the equipment since it came on the market back in 1999. At the time, Rittal scored big with a design that was symmetrical in all directions: the system could be expanded freely. If necessary, additional enclosures could be bayed easily. KUKA Industries also found this concept compelling. “There are a lot of modules at different heights, widths and depths,” Hummel emphasises. Furthermore, ease of use, timely support and reliability are cost-effective. “We needed a no-maintenance enclosure.” In addition, as a supplier to the automotive industry, KUKA Industries must →



TOP-NOTCH TECHNOLOGY

Mechanics designer Robert Hummel (top photo), with a workpiece made on the Magnetarc system from KUKA Industries.

Left: Completed sub-assemblies and optimised components make KUKA's commissioning phase simple and efficient.

Above: KUKA's "triple power" ensures appropriate voltage in the enclosure.

TS 8: STAR IN EVERY INDUSTRY

A high level of flexibility and quality, as well as security and availability worldwide, has made the TS 8 the standard, and not only at KUKA Industries. With ten million enclosures manufactured by 2014, the TS 8 is used in 92 per cent of the world's 1,005 branches of industry, conquering almost all of them in just fifteen years. Core industries include mechanical engineering, control and switchgear production, the automotive industry and energy, as well as information technology and telecommunications.

FLEXIBLE AND EFFICIENT

As a platform for the "Rittal – The System." modular system, customised solutions can be created thanks to the optimum technical interaction of components from mechanics, climate control and power. With the TS 8 CAD configurator, a 3D model of a complete TS 8 enclosure is only a few clicks away.

SAFETY AND HIGH QUALITY

The corrosion protection of the TS 8 is unique on the market. A three-phase surface treatment with nanoceramic pretreatment, electrophoretic dipcoat priming and subsequent powder coating ensures optimal surface protection. Rittal's own accredited lab at the corporate headquarters in Herborn, Germany, guarantees its quality.

AVAILABLE WORLDWIDE

In addition to having all major international certifications, the TS 8 is available almost instantly worldwide, because it is manufactured in Germany, the United Kingdom, the United States, India and China. More than one thousand Rittal service engineers provide a wide range of services.



“Our equipment is often the focal point of production. That is why a good visual appearance is a high priority for us.”

Walter Weh, Departmental Manager of Advanced Welding Solutions at KUKA Industries

adhere to the highest quality standards applicable to all components. Every component is validated during the production processes. It is very important to the automation specialist that leading automakers have established the TS 8 from Rittal as a factory standard. Not only does this facilitate access to all industries around the world, it pays off too. “If we can utilise the enclosure anywhere rather than having to redesign it to meet the demands of every customer, we lower production costs,” says Hummel. Thanks to completed sub-assemblies and enclosure design using Eplan software, layout design goes quickly and easily, including the integration of cooling units and Rittal command panel solutions. Only adjustments made to fulfil specific customer preferences necessitate an individualised design.

FASTER SERVICE WORLDWIDE

With its welding machines in worldwide use, the only suitable partner for KUKA Industries is a systems supplier that can keep pace. Fifty-eight Rittal subsidiaries handle the international marketing of the successful enclosure system. Customers appreciate the immediate availability at some ninety warehouse locations. “KUKA Industries and Rittal have both embraced global expansion and speedy service,” says Weh. But prompt delivery times are not the two companies’ only competitive advantage: their equipment is characterised by durability and safe operation even under difficult conditions. “Strong corrosion protection through a three-phase surface treatment, for example, fits perfectly into our concept because adaptability to tropical climates is important to us.” The attractive design is also a factor: “Our equipment

is often the focal point of production,” says Weh. “That is why a good visual appearance is a high priority for us.” As for further developments, Rittal and KUKA Industries are familiar with the pressure on their customers to be innovative. “The automotive industry is trying to reduce installation space, among other things,” explains Weh. This aim is in line with the resource-efficient approach of the Magnetarc welding process. Moreover, modern mobility requires lightweight solutions. Magnetarc welding combines lightweight yet high-strength steel alloys that create new areas of application for the traditional material. Intelligently designed enclosures that prevent losses and provide energy-efficient cooling are in line with that. “When Rittal offers pertinent innovations, we are happy to embrace them,” says automation specialist Weh. “We work in close cooperation.” ■

→ LINK TIP:
www.kuka-genius.com/en

MAGNETARC WELDING

JOINED BY LIGHT

Magnetarc welding: an arc, rotated by means of a magnetic field, heats the weld surface. The arc’s speed of rotation and orbital path are precisely controlled, as are the progression and the amount of energy input. The workpieces are joined by means of a forging process. The forge velocity and forge force are specifically defined for each component. Precise use of energy is a must because sustainable manufacturing requires efficiency. Low-loss enclosure configuration, intelligent air flow and innovations are important to KUKA Industries, as they help prevent reduced output. KUKA designers constantly monitor an enclosure’s energy consumption. If Rittal comes up with any innovations, such as energy-saving enclosure cooling, they implement them.

EARLY CHILDHOOD DEVELOPMENT

RITTAL FOUNDATION SUPPORTS TWO DAY-CARE CENTRES

The Rittal Foundation has been committed to early childhood development since its founding. Two day-care centres in Lahn-Dill county were happy to receive donations. The Protestant day-care centre “Pustebume” in Eschenburg, Germany, was able to inaugurate a new tepee, the construction of which was made possible by the contribution of numerous donors. The Rittal Foundation joined in by contributing 1,000 euros. In the “Kunterbunt” children’s house in Herborn, Germany, industrious research can now take place: a TS 8 enclosure fitted with a glass door and LED lights serves as a repository for teaching materials. With colourful handprints on the metal enclosure, the children made clear to whom the enclosure belongs: the “Einsteins of the future.”



TS 8 AS RESEARCH ENCLOSURE

In the “Kunterbunt” children’s house, a TS 8 serves as a repository for research materials. So that it can be furnished appropriately with books and learning materials, Rittal employees handed over a check for 500 euros from the Rittal Foundation to Verena Knopf.

GOING FOR GOALS WITH RITTAL

COMMITMENT TO HSG WETZLAR EXPANDED

Starting in the summer of 2015, the Rittal logo will be decorating the front of the tricots for the German national-league handball players of HSG Wetzlar for all away matches. “We’re very thankful that we can continue to depend on the quality Rittal brand and that this active partnership could be expanded,” said HSG

Managing Director Björn Seipp (right) with Dirk Miller, Executive Vice President Marketing at Rittal, during the presentation of the new tricots. Rittal has been supporting the team since 2006; moreover, the company has been active in supporting youth development since the 2013 season.



200,000

ANNUAL DONATION FROM THE FRIEDHELM LOH GROUP

Employees and Friedhelm Loh, Owner and CEO of the Friedhelm Loh Group, donated 200,000 euros for refugees and for families in the region of the company headquarters in Herborn, Germany. Donation recipients included Germany’s relief coalition “Aktion Deutschland Hilft,” the Balthasar Children and Youth Hospice in Olpe, Germany, and the Vitos Rehberg Clinic in Herborn, Germany. Traditionally, employees from the companies of the Friedhelm Loh Group – Rittal, Loh Services, Kiesling, Eplan, Cideon, Stahlo and LKH – pool their resources at the end of the year to help others. “I’m proud of my team,” said Friedhelm Loh, pleased by the large sum.



➔ LINK TIP:
Find out more in the *be top* app.



SATISFIED EMPLOYEES

Daniel Popov works for Rittal in the factory in Rittershausen, Germany. He represents the tens of thousands of employees who feel happy with and appreciated by the Friedhelm Loh Group.

TOP EMPLOYER

FRIEDHELM LOH GROUP DISTINGUISHED FOR THE SEVENTH TIME

The Top Employers Institute once again commended the Friedhelm Loh Group for its forward-looking thinking in human resources and its impassioned managers, social commitment and innovative ideas. The group of companies offers very good working conditions, promotes talented workers, invests in the further development of employees and managers, is committed to equal opportunity and is unusually dedicated to social engagement. "The Friedhelm Loh Group is a role model in employee orientation," says Marcus von Pock, Senior Vice President Human Resources.

1,200

TOP TRAINEES

BEST EXAMINEES HONOURED

Since the year 2000, twelve hundred people have completed their training in nineteen different occupations at Rittal, Eplan, LKH, Stahlo and Loh Services – a top-class qualification as exemplified by the steady stream of awards. The Lahn-Dill Chamber of Industry and Commerce recently honoured four Friedhelm Loh Group trainees as Best Examinees in 2014 – a great success, and not just for the trainees themselves but also for the training workshop of the group of companies.

AFTER-HOURS HEROES

SUCCESSFULLY QUALIFIED

Sixteen Rittal employees recently earned the titles of machine supervisor and plant supervisor after successfully completing training in the Loh Academy on almost every Saturday in 2014. The preparatory course covers the learning contents of a two-year qualification training in just twelve months. The students ranged in age from 25 to 51 years old. Because of the great success, a second course is now underway and currently attended by nineteen long-time employees.

MEETING OF EXPERTS

WORKSHOPS BY RITTAL AND EPLAN

In March, switchgear manufacturers were able to consult with experts from Rittal and Eplan during two user workshops that were held during the "Automatisierungstreff" (automation meeting) in Böblingen, Germany. The goals were to discover fields of action and potential, and to define the necessary engineering tools for future-oriented switchgear engineering. In the exhibition bus, the specialist attendees were also able to learn about the spectrum of products and services offered by "Rittal – The System."



ON THE ROAD

Workshops and the exhibition bus familiarised visitors with Eplan and Rittal.

BRIGHT AND LIVELY

Six-year-old Bedirhan Taskale enjoys the time spent doing HIPPY exercises with his mother. "Doing maths, painting and arts and crafts with mummy is the most fun of all."





LEARNING FOR LIFE

Promoting education. “What you don’t learn as a child, you’ll never learn as an adult,” goes a well-known German proverb. In Herborn and its surroundings, the HIPPY project is providing a solid foundation for children from non-German-speaking homes. The Rittal Foundation is supporting the initiative – and has helped to reduce the number of early-school-leavers at the vocational schools in Dillenburg.

Text: Rebecca Lorenz



HIPPY TIME

Once a week, home visitor Yıldız Alici (top) practices the new exercises with Döndü Taskale. Alici plays the mother, Taskale the child. This role-playing helps Taskale to provide the best support for her son Bedirhan (below) when he does the exercises himself.



Imagine you were a car – how could you help your family?” Döndü Taskale reads the exercise carefully to her six-year-old son Bedirhan. It’s HIPPY time in the Taskale family, which means fifteen minutes spent together on interesting stories, creative crafts and tricky math exercises. Around two years ago Döndü and Bedirha Taskale

able to concentrate over longer periods of time, whether they will be used to working with written texts and whether they feel recognised and valued by their families,” says Angelika Georg. The daily exercises teach these things. “We’ve received positive feedback from kindergarten children, teachers and school physicians,” says

“I always tell the mothers: You don’t have to do everything right. Go ahead and make a few mistakes!”

Yildiz Alici, HIPPY home visitor in Dillenburg

began participating in the family counselling programme “Home Instruction for Parents of Preschool Youngsters” (HIPPY), offered by the Dillenburg chapter of the German Red Cross (DRK). A lot has changed since the family, originally from Turkey, first joined. “We never used to have German-language books at home. Now we get a new story every four to six weeks and a new exercise book every seven days. Using them, I can provide support to my son and also learn German with him,” explains Döndü Taskale. She is assisted by Yildiz Alici, one of the four home visitors in the HIPPY programme in Dillenburg. Alici’s knowledge of Turkish culture is part of the concept. “It fosters trust in the families. Language barriers are overcome much more quickly,” explains Angelika Georg, HIPPY Coordinator in Dillenburg.

SETTING THE COURSE IN EARLY CHILDHOOD

The materials the families receive each week not only provide an initial impression of numbers, letters and shapes, but also train the children’s fine motor skills, hand-eye coordination and visual discrimination. “The most formative period in a child’s development is from birth to six years old. It determines whether children will later be

Georg, pleased about the results. HIPPY is also a great opportunity for many mothers. “Women have often felt isolated because of their poor language skills,” says Alici. The programme has been underway in the region of Dillenburg, Haiger, Eschenburg and Dietzhöhlztal for five years, and it has now been expanded to include Herborn. However, the local chapter of the DRK and the city of Herborn were unable to cover the monthly costs of around 100 euros per participant. The Rittal Foundation will support the programme for three years. The thirteen participating families pay only 5 euros a month.

The 130 teachers at the vocational schools in Dillenburg know what can happen to young people when they receive too little support from their environment. Because of family and school crises, many are unable to concentrate for longer periods of time, explains Theresa Rohde, Department Superintendent. As a result, they have problems moving up to the next form, and there is a high dropout rate at school. To break this cycle, the Rittal Foundation and the district of Lahn-Dill have provided funds for a social education worker since September 2014. A great deal has changed since then in the everyday life of the school (see interview on page 78). ■

PROMOTING EDUCATION

A SECURE FUTURE

Since its inception, the Rittal Foundation has supported non-profit organisations in the district of Lahn-Dill, focusing on the promotion of social, cultural and educational projects. Since 2012, a total of 74 projects – 26 in the area of education – have received funding. “We regard education as the key to a successful life. That’s why our main goal is to help people who without our assistance wouldn’t be able to use the existing educational programmes – whether for physical, medical, language-related or social reasons,” explains Friedemann Hensgen, Chairman of the Rittal Foundation.



FOCUSING ON EDUCATION

Friedemann Hensgen, Chairman of the Rittal Foundation, is familiar with the problems facing the German education system: “Too many young people are still being left behind. We can’t let that happen!”



Rittal Foundation

SIMPLY BEING THERE AND LISTENING

Interview. Lower dropout rates, fewer truants and lessons with next to no disruptions: social education worker Stephanie Rumpf explains what led to these changes, and why social work at schools is so important.

Why is social work at schools so important?

Stephanie Rumpf: If young people receive too little support from their families, it's up to teachers to deal with their problems. That's difficult because in most cases each teacher is responsible for around 25 pupils. In addition, because of our tightly planned curriculum, teachers must work in a goal-oriented manner, which makes individual support for pupils impossible. Pupils quickly fall behind, especially the shy ones. As a social education worker, I can intervene in such cases and offer the necessary support.

How do you know which of the young people need your support?

Rumpf: In different ways. If a teacher notices that a pupil needs help during class, she can advise them to talk to me or tell me about it in the staff room. Recently, however, many young people have approached me directly. I think word has got around that I'm here and listen.

What are the biggest problems?

Rumpf: For many of our pupils the biggest problem is their families. Today only a small number of parents live together in the traditional sense. Some of the young people hardly ever see their families, whether for professional, medical or family-related reasons. And for some, addiction, abuse, violence and bullying play a role in their lives as well.

What can you offer?

Rumpf: Most of all I offer them the opportunity to talk. It's a big help for many young people if they are allowed to let off some steam or if they have the feeling someone is there for them. But I also offer extracurricular activities such as water skiing, job application training and theatre visits. A few weeks ago a theatre group came to the school to perform a play about cyberbullying. Events like this are important because they show the pupils the right and the wrong way to behave.



A COMMITTED SOCIAL EDUCATION WORKER

For 24-year-old social education worker Stephanie Rumpf, the well-being of every student is important. With a great deal of patience, open-mindedness and self-confidence, she counsels the pupils of the Dillenburg vocational schools on a wide variety of matters.

What do you do when these things don't help?

Rumpf: I'm not a therapist and I always tell that to the pupils. I can provide only limited support in this area. In cases of doubt, I encourage them to do therapy.

What has changed since the pupils began seeking out your help?

Rumpf: There's always been a truancy problem at our school, and the dropout rate has been high in recent years. Now that the young people have been able to talk to me about their problems, the number of truants and dropouts has declined. There are also fewer pupils with behavioural issues in the classroom. They no longer need to call attention to themselves by disrupting class or by playing truant. They know that if they need someone, I'm there to help.

Would these successes have been possible without the Rittal Foundation's support?

Rumpf: Absolutely not. The originally planned half-time position for a social education worker was not enough for effective support. That's why we're happy that the Rittal Foundation and the district have provided funds to establish a full-time position. Now it's possible to meet all of the young people's needs.



→ LINK TIP:

Scan the QR code to obtain further information on the Rittal Foundation's educational work or go to www.friedhelm-loh-group.de/en/rittal_foundation/

AN OVERVIEW OF THE FRIEDHELM LOH GROUP COMPANIES

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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.

The fastest track cyclist

Alex Dowsett (26) is track cycling's world Hour Record holder with a distance of 52.937 kilometres. The first world Hour Record holder was Henri Desgrange, who managed 35.325 kilometres back in 1893.



The quickest bird

Birds can achieve enormous speeds in flight. In dives, the peregrine falcon can reach unparalleled speeds of 322 kilometres an hour.



The heaviest star

Astronomers have discovered an extremely dense neutron star. A thimble-full of the star would weigh more than 500 million tonnes.



The most electricity from hydropower

According to the company that operates the world's largest dam on the river Yangtze, it produced almost 100 billion kilowatt-hours of electricity from hydropower in 2014.



The largest motorcycle

The largest drivable motorcycle is 5.10 metres tall and weighs about 5 tonnes. Italian Fabio Reggiani furnished it with a 5.7-litre V8 engine that delivers 280 horsepower.



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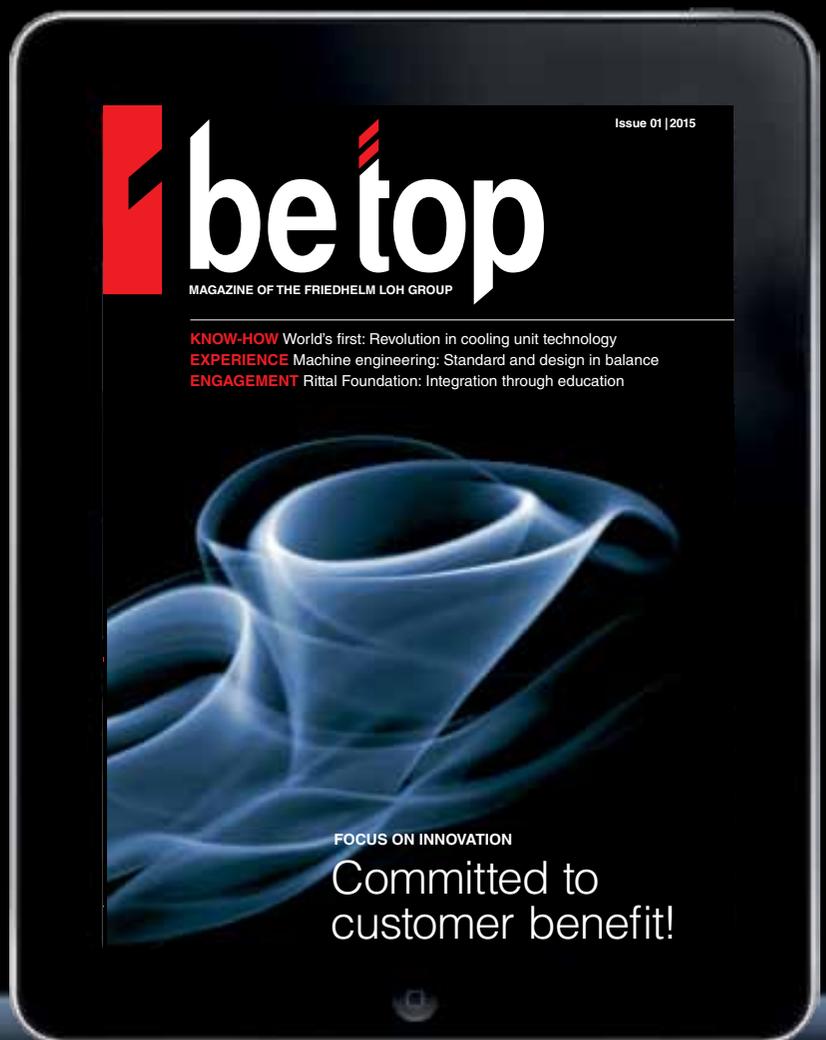
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