Issue 02 | 2014

be top

MAGAZINE OF THE FRIEDHELM LOH GROUP

KNOW-HOW Data as the new raw material
EXPERIENCE Three minutes to customer satisfaction
ENGAGEMENT Music's instrumental!

ECONOMIC WONDERLAND SOUTH KOREA

Germany's Asian twin

THE WILL TO INNOVATE

Dear Readers,

South Korea and Germany have much in common; one example is the economic miracle: the German one began in the 1950s, the South Korean in the 1970s. What in Germany is referred to as the “Miracle on the Rhine” is known in South Korea as the “Miracle on the river Han”. In resource-poor countries such as South Korea and Germany, what counts is a wealth of ideas, quality and a constant will to innovate in order to remain successful economically.

At first almost unnoticed by the European public, South Korea has grown to become a leading economic powerhouse. The country has oriented itself towards Germany in many respects. Today, Germany and South Korea cooperate as partners in a number of key technologies, including information, nano- and biotechnology and energy and environmental engineering. Both countries are on a path of shifting their industry into a new era – represented by the keyword Industry 4.0. The intelligent factory of the future is based on a new raw material: data. Software connections and a mastery of interfaces will govern everything in the future.

South Korea is also a growth market for the Friedhelm Loh Group. Major industrial enterprises in leading sectors rely on solutions from our companies. The Friedhelm Loh Group is investing in South Korea and is thereby strengthening its presence in Asia. Rittal’s new administration and logistics complex is currently being built in the Inchon Songdo free-trade zone. The goal is to capture the market with quality products from the group on the one hand, and at the same time offer our global customers technical standards and system solutions in South Korea – meaning the same quality and identical service worldwide.

South Korea shares with us an understanding of innovation: “Faster, better, everywhere” – that is the central goal and vital interest of the Friedhelm Loh Group. With our companies, we will help make the future of industry a successful one.

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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YOUR OPINION MATTERS!
Do you have questions, suggestions, praise or criticism about the current issue? Simply mail the editorial team at: betop@friedhelm-loh-group.com

1,889

metres above sea level is where Mount Rushmore National Memorial in South Dakota (USA) is located. It was blasted, hewn and chiselled into the granite of **Mount Rushmore** by sculptor John Gutzon de la Mothe Borglum over fourteen summers between 1927 and 1941. Portrayed from left to right are George Washington, Thomas Jefferson, Theodore Roosevelt and Abraham Lincoln. Each sculpture is about **18 metres** tall. One of the most famous movie scenes filmed at the monument is the dramatic showdown in Alfred Hitchcock's **North by Northwest,** in which Eva Marie Saint and Cary Grant fight for their lives between the illuminated presidential heads. The **controls for this illumination** are securely stowed in **Rittal enclosures.**

➔ www.mtrushmorenational memorial.com

115

student teams from 26 countries took to the track at the Hockenheimring to test the mettle of their self-constructed racers during the **Formula Student Germany** at the end of July. The young designers were also demonstrating the **performance** of their racing cars to attending industry and business experts. The international design competition has been hosted by Formula Student Germany under the aegis of the **Association of German Engineers** since 2006. Eplan sponsored a total of nine teams. They designed and constructed their vehicles with **Eplan Electric P8** and **Eplan Harness proD.** Well-designed wiring is important since it must fit into the tiniest of spaces.

➔ www.formulastudent.de

70

per cent energy savings and even more are offered by the current range of Rittal **enclosure cooling units.** And the potential for innovation is far from exhausted. For computing-intensive branches, such as finance, this savings potential offers an attractive perspective. Apropos perspective, there are high-tech solutions from **Rittal** in many of the buildings that make up the Frankfurt skyline, including the **IBC** building complex – the abbreviation stands for Investment Banking Center. The IBC tower (at right) rises an imposing **112 metres.** At the beginning of spring, its corners and edges are illuminated – blue in the morning and pink in the evening – as a luminous greeting to the city.

➔ www.ibc-frankfurt.com


ibc

FASTER, BETTER, EVERYWHERE ...

Global player. The Friedhelm Loh Group is present on every continent with more than sixty subsidiaries. A selection of six reports from around the world.

Canada

AWARD-WINNING EMPLOYER

Rittal Canada was distinguished as a "Great Place to Work." Anthony Varga, president of Rittal Canada, accepted the award. Outstanding customer focus has always been Rittal's primary objective. Explaning the exemplary ranking Varga says that "the path to becoming a customer-friendly company starts with the dedicated employees who make up Rittal. Becoming one of Canada's best employers can be achieved only through teamwork and trust." Evaluation for the Great Place to Work award includes a comprehensive employee survey and an expert assessment of the corporate culture.

Norway

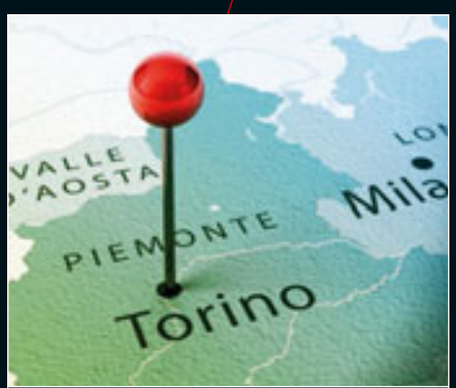
TREASURE SEEKERS

With 33 server racks and climate-control systems from Rittal, the Ramform Titan goes out in search of crude oil. One of the newest ships in the fleet of Norwegian geophysics service provider Petroleum Geo-Services, it records data from the ocean floor and spots oil deposits beneath the oceans around the world. The system integrator is the Japanese corporation Mitsubishi Heavy Industries. The Ramform Titan has state-of-the-art technology on board as well as comforts: for the up to eighty crew members and guests, there is a 225-square-metre gymnasium, a theatre and other entertainment options.

Netherlands

KPN COUNTS ON RITTAL

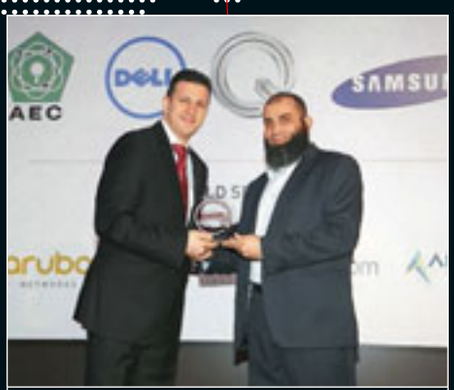
KPN is one of the Netherlands' largest providers of digital services. In one of the country's biggest infrastructure projects of the past ten years, the speed of the current data network is to be increased. To achieve this, KPN is using innovative "Fibre to the Kerb" technology and outdoor enclosures from Rittal. As part of the network upgrade, more than 4,000 outdoor enclosures from Rittal will be delivered to KPN. According to Rittal Telecom Account Manager Ger Dirks, "this creates the necessary space for the active network components from Alcatel, the interface between the fibre-optic rings and the copper-wire network. In the end, around 400 homes that use the fast V-DSL connections can be connected to each enclosure."



Italy

FLEXIBILITY COUNTS

The global logistics company BCube is counting on two RiMatrix S data centres in the Single 6 version, one of the first foreign companies to do so. The flexible deployment option for the RiMatrix S in a container is what convinced BCube. "We're moving into new company headquarters soon," says Ezio Aprile, CIO at BCube, "so it was important to us that we have a flexible data centre that we can move to our new location. The RiMatrix S container solution makes this possible right from the start." The global logistics company headquartered in Coniolo in Piedmont, Italy, has more than 4,000 employees around the world at eighty branches.



Saudi Arabia

ARABIAN IT AWARD

Starting immediately, the Saudi Arabian subsidiary of Rittal Middle East can call itself the "Best Data Centre Vendor of the Year – Kingdom of Saudi Arabia (KSA) Market". Mohammed Zaher (left), Territory Sales Manager for IT for the KSA, accepted the prize at the celebration of this year's "ITP Channel KSA Awards" in Riyadh. This award is one of the most important in the Middle East and honours local IT suppliers for their outstanding contribution to the growing IT industry in Saudi Arabia. The prize was awarded for the fourth time. Rittal Middle East views the ITP Channel KSA Award as a great acknowledgement, and also as an opportunity to open doors to new possibilities. They further see it as a motivation to perform even better.

China

LOGISTICS EXPERTISE

While construction is ongoing in Germany and South Korea, Rittal China in Beijing has opened its sixth logistics centre. With 2,700 square metres of warehouse space and a modifications centre, it complements the locations in Shanghai, Shenyang, Xi'an, Chengdu and Shenzhen. With it, Rittal is continuing to develop its international logistics concept and can ensure much faster delivery in the future. The one hundred invited customers as well as trade journalists were impressed and followed the opening ceremony with great interest. Rittal has around 1,200 employees in China and is represented nationwide with 31 sales offices.

GROWING GROWTH

SYMBOL OF IMMORTALITY
Mugunghwa – the hibiscus – is South Korea's national flower. Mugung means "immortality". The flower represents the Korean people's determination and resilience.

On the rise. South Korea is Germany's Asian twin as an economic wonderland. It managed to rise from a poor agrarian country to a wealthy industrial nation in just two generations. The two countries have close ties.

Text: Marisa Robles Consée and Jürgen Jehle

You hear the words "palli, palli" everywhere: on the streets, in factories, at supermarkets. Palli, palli means "quick, quick," and it is the slogan in the economic wonderland of South Korea. Quickly, within fifty years, the country surrounded by three bodies of water (a strait and two seas) has ascended from an agrarian country to one of the most important national economies in the world. Technical progress has quickly conquered not only the factories but everyday life too: chip cards and the personal fingerprint have replaced keys for the door to the flat. There are no longer paper tickets for public transport: passengers pay with their mobile phone, a rechargeable chip card or with T-money. You can order groceries en passant from posters on supermarket shelves via QR codes – prompt delivery to your home included.

"South Korea's economy just grows and grows. Even at the peak of the world economic crisis, gross domestic product grew by about 0.3 per cent."

Friedhelm Loh, owner and CEO of the Friedhelm Loh Group

With a per capita gross domestic product (GDP) of 26,700 euros per person in 2012, the Republic of Korea – South Korea's official name – achieved the level of an average member of the European Union. With a per capita GDP of 19,562 euros in 2013, the country ranked fifteenth among national economies globally. The country's automotive, electrical, steel and shipbuilding industries are powerful forces in the global economy. How did they manage this feat? The ingredients were and remain "the extraordinary sense of duty, coupled with an ambitious work culture and swift action and response times," says Martin Rotermund, CEO of Rittal South Korea for the past ten years. Rittal founded a subsidiary in Seoul back in 1996; eighty Rittal employees and fifteen from Eplan work in South Korea today. In 2014, the cornerstone was laid for the new Rittal headquarters and warehouse – the companies of the Friedhelm Loh Group have been very successful in this growing region.

South Korea's economic upswing was guided by the state – by means of education reforms in the 1960s and the focused expansion of heavy industry in the 1980s. Today, the country's economy is characterised by very large conglomerates (chaebol in Korean), such as Samsung, Daewoo, LG Chem and the Hyundai Kia Automotive Group. Fifteen of these giants generate about three-quarters of the national income. Influential families control these conglomerates. The chaebols aren't just engaged in a variety of industries; they are also active around the world – and so a company like Rittal with global operations is an ideal partner for them.

German brand products are very popular in South Korea. "Germany is very reputable," explains Changsoo Kim, professor of economics at Pusan National University. "Around 80 per cent of all vehicle imports to South Korea come from Germany." The professor sees this figure as an indicator of the country's strong purchasing power, as well as of the South Koreans' love of luxury goods.

For German companies, South Korea has become the third-largest sales market in Asia. South Korean companies also like to purchase brand goods, including machinery, which German companies are happy to accommodate. Although German machinery is considered more expensive, merchants say the products manufactured with them often sell better. Expertise and investments from Germany are always welcome. "The South Korean government has a great interest in attracting foreign investors, especially when they want to invest in knowledge-intensive industries with high value creation," says Carolin ➔

MOBILE POWER
South Korea is one of the world's largest car manufacturers, with around 3.8 million vehicles produced annually. Mobility and flexibility are characteristic of the South Korean attitude towards life: act quickly, and always be on the move and available. It's an attitude that has helped lead the country to success.

Ratzeburg, manager for the Asia-Pacific region at Germany Trade and Invest (GTAI). South Korea's entire economy is concentrated in the metropolitan areas, including Seoul, Pusan and Inchon. Seoul is especially popular; its greater metropolitan region has 23 million inhabitants of the total 50 million living in South Korea. Rittal will thus concentrate its operations in Inchon Songdo, located about 50 kilometres southwest of Seoul. There, in one of the largest metropolitan areas of the world, New Songdo City is being built, a city of the future with an international business park. Eplan will also be moving into space at the new location so that the synergies between the companies can be optimally exploited in South Korea too.

The administration and logistics buildings will be completed by the end of 2014 and equipped with state-of-the-art Rittal technology. Rittal's headquarters, currently in Seoul, will move to Inchon Songdo after that, as will the delivery centre and manufacturing, currently located in Ansan. With this investment, the company is creating the conditions needed for additional growth in South Korea. The Chinese market can also be served very well from Inchon Songdo; Rittal has had a branch in Shanghai for almost twenty years. Rittal South Korea has been skyrocketing since 1996; annual sales growth has been in the double digits for around ten years now. "Because our products offer decisive advantages over the products of local competitors, our name recognition and the number of customers have been continuously on the rise, year by year," says Rittal South Korea Managing Director Rotermund. Customers include companies such as Doosan Infracore, the largest machine tool manufacturer in South Korea; SeAH, the system integrator for control and switchgear engineering in the industries of industrial automation, crane building and nuclear power plants; and the Hyundai Motor Company. Friedhelm Loh, owner and CEO of the Friedhelm Loh Group (F.L.G.), visited these and other customers during a business trip that also took him and other company representatives to China. The F.L.G. not only advises and supplies machine manufacturers and the automotive industry in South Korea; customers also include the shipbuilder Hyundai Heavy Industries and LG Chem. LG Chem, the country's largest chemical company, made the TS 8 enclosure the enclosure standard for its energy-storage systems: Rittal delivered 1,400 enclosures to LG Chem in 2013, and another 3,000 will follow in 2014.

COUNTRY OVERVIEWS

		
FORM OF GOVERNMENT	South Korea has been an independent republic since 1948. The head of state is **president** Park Geun-hye.	Germany has been a parliamentary federal republic since 1955. Angela Merkel has been **chancellor** since 2005.
AGE	Life expectancy is about 80 years; the average age is **40.6 years.**	Germans become just as old as Koreans. The average age is **45.7 years.**
RELIGION	**31.6 per cent** are Christian, 24.2 per cent Buddhist and 43.3 per cent nonreligious.	In Germany, **68 per cent** of the population – more than two-thirds – are Christian.

GOOD EDUCATION POLICIES

For Friedhelm Loh, Germany and South Korea have much in common. Economically speaking, both lack raw materials and have strong toolmaking and automotive industries. And there are historical parallels too. "Both of our countries are familiar with the phases of an economic miracle," said Friedhelm Loh during an event in Seoul. In West Germany, American assistance provided the impetus. Clever reforms and good education policies in South Korea in the 1960s made the "Miracle on the river Han" possible. "They've had dramatic growth, which I hold in high regard." Loh also sees good conditions for the country's development in their great passion for technology and opportunity-driven thinking. South Korea's economic ➔

SELECT CUSTOMERS OF THE FRIEDHELM LOH GROUP IN SOUTH KOREA

THE BACKBONE OF THE MAJORS

HYUNDAI HEAVY INDUSTRIES

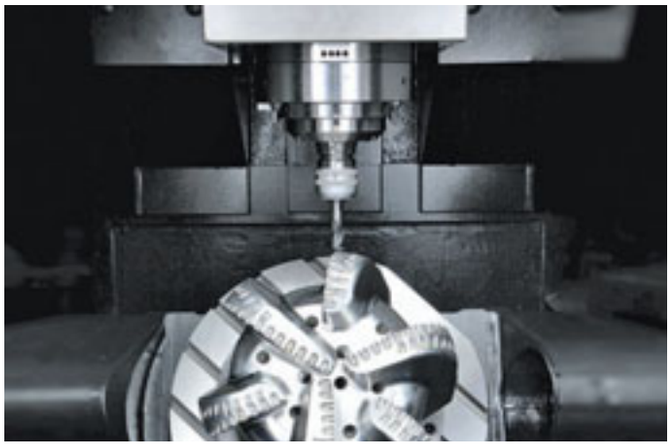
Industry relevance: The world's largest shipbuilding company. More than 27,000 employees.
Products: Tankers, bulk freighters, container ships, chemical tankers, diesel motors, offshore installations and much more.
Partnership with the F.L.G.: Hyundai uses TS 8 enclosures and AE enclosure systems from Rittal for ship control technology and ballast water cleaning systems. Eplan Electric P8 licences are in use for electrical engineering.

LG CHEM

Industry relevance: South Korea's largest chemical company, among the top twenty globally. Around 20,000 employees.
Products: Petrochemical products, chemicals for the electrical industry, lithium batteries, energy storage systems.
Partnership with the F.L.G.: TS 8 enclosures from Rittal were established as the enclosure standard for the world's leading energy storage system by LG Chem. Rittal delivered 1,400 enclosures to the company in 2013, and will deliver 3,000 in 2014.

HYUNDAI MOTOR COMPANY

Industry relevance: With 3.68 million vehicles produced annually, Hyundai is among the top seven manufacturers the world over.
Products: Cars. The portfolio currently includes 31 models; subsidiary Kia Motors has 27 models.
Partnership with the F.L.G.: Hyundai uses Rittal products in its factories in South Korea and China as well as Eplan solutions for engineering. Their globally binding standard for car body construction investments is based on enclosure technology from Rittal, including TS 8, AE/KL and PC enclosures.



DOOSAN INFRACORE

Industry relevance: Largest machine tool manufacturer in South Korea and the fifth-largest for metalworking machine tools globally.
Products: Machine tools. Doosan Infracore produces 12,000 machine tools annually, with sales of one billion euros.
Partnership with the F.L.G.: Doosan Infracore uses CP 120 support arm systems from Rittal for high-end machine tools.

MARITIME GIANT
South Korea is surrounded by water on three sides, and has a strong shipbuilding industry. Hyundai Heavy Industries, the world's largest shipbuilding company, is a Rittal customer.

upswing also benefits from free-trade agreements. The country has signed 46 such agreements since 2004: with the European Union in 2011, and China will probably follow in 2015. The free-trade agreements not only open the doors for foreign investors; they also helped South Korea become the world's seventh-largest exporter of goods, surpassing countries such as Great Britain, Russia, Italy and Belgium. However, it is the conglomerates that benefit the most. Barbara Zollmann, managing director of the German Chamber of Industry and Commerce in South Korea, knows that small and medium-sized businesses don't have it easy: "the difficulty in succeeding abroad isn't caused by the different mentalities and language barriers alone. The major issue is that the companies' export departments often don't have enough personnel to really serve the markets adequately. Much potential in exporting business gets lost because of this." In comparison, German small and medium-sized businesses are active, on average, in sixteen foreign markets simultaneously.

According to GTAI expert Ratzeburg, strengthening small and medium-sized companies is a huge challenge that should be approached from various angles. "One problem is that the conglomerates exploit their market power to pressure their suppliers with respect to pricing, for example. Although the South Korean Fair Trade Commission has been dealing with this issue since 2012, it remains difficult because the conglomerates are the country's most important investors." Furthermore, companies such as Samsung and LG are popular employers. A majority of South Koreans would like to work there; people who work for the large conglomerates usually receive better pay, have access to a variety of interesting career development opportunities and are considered successful by South Korean society. "If small and medium-sized enterprises manage to offer more attractive working conditions, they could become more interesting to younger employees," Ratzeburg says. "Perhaps that will cause Korean society to rethink things." One of the greatest challenges is to achieve a change of thinking among the population so that people who don't work for the chaebols or as civil servants are appreciated more. Smaller and medium-sized companies would then become more attractive as employers.

Yet the fact remains that while the chaebols may be responsible for around 70 per cent of the economic output, they provide just 12 per cent of the jobs. The many small and medium-sized companies are especially active in the service sector. The number of one-person businesses is exceptionally high: anyone who has taken a stroll through Seoul and counted the number of food stalls and kiosks knows why. But there are very few internationally active and competitive service providers.

Rittal is also an attractive employer. "It isn't difficult to arouse interest in our systems," Martin Rotermund explains. "Rittal products and technologies are highly valued, as is its commitment to high quality." To date, Rittal has invested in local assembly of the TS 8 enclosures in Ansan. "Many big South Korean corporations prefer nationally produced products in order to strengthen domestic industries ➔

OVERVIEW OF ECONOMIC DATA

		
GDP	In 2013, South Korea's gross domestic product (GDP) was **1,305 trillion US Dollar.**	The German twin's GDP was **3,635 trillion US Dollar.**
EXPORT/IMPORT	In 2013, exports from South Korea increased by 2.1 per cent over the previous year, reaching a total of **426.1 billion euros**.	In 2013, Germany imported South Korean products valued at about **8 billion euros.**
UNEMPLOYMENT	With an unemployment rate of just **3.2 per cent,** South Korea is doing marvellously by international comparison.	With an unemployment rate of **5.3 per cent,** Germany is also performing quite well.

FRIEDHELM LOH IN ASIA

CORNER-STONE LAID

Companies such as Hyundai Motor Company, Hankook Tire Group, the South Korean Stock Market, LG Chem and the world's largest shipbuilder, Hyundai Heavy Industries, all count on Rittal. During his trip through South Korea and China, Friedhelm Loh and other company representatives visited numerous businesses. They also laid the cornerstone for the new headquarters and delivery centre, which will be completed in Inchon Songdo by the end of 2014. Covering 10,000 square metres, the site will include a 15-metre-high warehouse with space for 4,000 pallets.

GROUNDBREAKING
Rittal's new headquarters in South Korea are being built in Inchon Songdo.

and have direct access to the suppliers' manufacturing plants," Rotermund says. Suppliers with a local manufacturing presence are seen as "South Korean family members," so to speak. Customers also have high demands in their projects with regard to the delivery of large numbers of enclosures over a very short period of time. Usually the systems are pre-assembled with imported and local accessories, and they are often provided with cut-outs or even in special sizes or special colours. "The local TS 8 assembly makes it possible for us to fulfil these project demands and better participate in the market. Absolute customer focus paired with the highest dependability and a clear added value for the client – that's the most important business principle."

In recent years, South Korea has become an attractive cooperation partner for Germany for a whole series of key technologies. The country wants to expand its information technology, nanotechnology and biotech sectors as well as the energy and environmental engineering sectors, and is seriously investing in research in these areas. A growing number of German research institutions are cooperating with South Korean partners. The institutes of the Fraunhofer-Gesellschaft and the Max Planck Society are particularly active in this area.

WELL-EDUCATED WORKERS

Along with its macroeconomic environment, very good infrastructure and market size, the country can point to the educational level of its 50 million inhabitants as a foundation for its success. Well-educated workers are one of South Korea's locational advantages, according to the World Economic Forum's Global Competitiveness Report 2013–2014. Expectations of academic achievement are very high: in larger cities, children are required to begin learning English and Chinese in kindergarten. In the Programme for International Student Assessment among the 34 member states of the Organisation for Economic Co-operation and Development (OECD), South Korea is in the top bracket – a position it also holds for suicides. The pressure to perform doesn't stop after finishing school. According to a survey conducted by the OECD, 95 per cent of South Koreans want to go to university. "It's difficult in Korea for those who don't make it," says Professor Kim.

Yet experts have pointed to a surplus of university graduates: many have been unable to find an adequate job after graduation. On the other hand, a dual-track education system like Germany's – with apprenticeships and academic learning – is just getting off the ground. This type of system would definitely be good for small and medium-sized companies, and it would also take pressure off families: many have gone into debt on account of expensive tuition fees and the high cost of supplementary courses. The massive decline in birth rates could be a result of this downward educational spiral.

Germany is also aware of the challenges that demographic changes pose. The International Monetary Fund recommended in its "Article IV" report that South Korea should more strongly integrate women in working life; their labour force participation rate is 20 per cent lower than that of men. But attempts at integration often fail due to a lack of childcare solutions. Germany has already started taking countermeasures on this issue. Can it become a model for Seoul?

Economically speaking, there are plenty of opportunities for both countries. Frank Robaschik of GTAI says "Germany is the global leader in the automotive industry, South Korea in certain electronic segments. Germany is rigorous and plans ahead, South Korea is tremendously fast. If these strengths can be combined, they offer an enormous potential for cooperation". ■

→ APP TIP:
You can find additional information on this topic in the be top app.

LUXURY AND LEARNING
South Koreans enjoy going out and love brand products, toys included. Yet the kids don't have much in the way of leisure time: learning is the order of the day, even in kindergarten. Many families take on debt in order to enable their children to study at university or take supplementary courses.

A NATION IN "PALLI, PALLI" MODE

Interview. South Korea is the seventh-largest exporter in the world and a model nation as regards economic growth. Frank Robaschik, South Korea expert at Germany Trade and Invest (GTAI), explains how the country has evolved into an economic dynamo since the 1970s.

Text: Marisa Robles Consée and Jürgen Jehle

What makes South Korea so attractive for German companies?
Frank Robaschik: Germany has a positive image. South Koreans value our consumer goods and our brand-name and luxury products. Around two-thirds of all imported cars are German makes, particularly in the premium class. South Korea is the fourth-largest economy in Asia. As measured by gross value added from the manufacturing sector, it is still the fifth-largest industrial country in the world, ahead of Italy. This position explains its attractiveness to suppliers of capital goods, which make up the lion's share of German exports to South Korea.

With its free-trade zones, South Korea has established itself as a logistics and distribution hub in Asia. How do you explain its strong position?
Robaschik: South Korea has excellent infrastructure. The government plans to expand the ports in Pusan and Gwangyang as well as Inchon International Airport. Thanks to its geographical location, it's easy to transport goods to China and Japan. Pusan is one of the largest trans-shipment ports in the world, and in 2013 Inchon International was the fourth-largest cargo airport worldwide.

On the other hand, South Korea also wants to expand its export trade. How important are Germany and the European Union as markets?
Robaschik: Since the first free-trade agreement was signed in 2004, South Korea has entered into similar agreements with more than 45 countries. EU member states account for more than half of these agreements. Most of South Korea's exports go to China, but some of these China-bound exports are further processed elsewhere, such as the United States or the European Union.

What are South Korea's greatest advantages as a business location?
Robaschik: Its well-trained workforce, its stable, well-developed infrastructure and a high level of product, process and service innovation in a diversified economy. The highly qualified employees are extremely hard-working and very quick. Palli, palli – "hurry, hurry" – is an important aspect of South Korean culture. In addition, with its geographical location and free-trade agreement with the EU, South Korea offers excellent business opportunities for German companies. Around five hundred German firms have now opened offices in South Korea. The highest concentration of South Korean firms in Germany can be found in the Rhine-Main region around Frankfurt.

What are some of South Korea's top exports?
Robaschik: Just about everything it has launched successfully on the world market, most especially electronics such as memory chips, flat-screen monitors and mobile phones. In addition, the country is ➔

INTERVIEWEE

Who? Frank Robaschik (44) is the director of the Asia-Pacific section of Germany Trade and Invest (GTAI).

What? GTAI promotes Germany abroad as a location for business and technology while also providing small and medium-sized German companies with information about foreign markets. The agency has a worldwide network of correspondents who research foreign markets on-site.

Where? be top met the Asia expert in Bonn at the Federal Ministry for Economic Affairs and Energy.


Asia
West Pacific
INDIAN
OCEAN

the number-one shipbuilder and battery manufacturer in the world. It ranks fifth or sixth worldwide in the production of cars, machine tools and steel. Another little-known fact is that South Korea has built up a large petrochemical industry, although it has very few natural resources. Generally, South Korea is attempting to promote engines of economic growth – for example, batteries for electric cars and energy storage systems. General Motors is producing batteries for the Chevrolet Volt in cooperation with LG Chem, and BMW has recently expanded its collaboration with Samsung to manufacture battery cells for its i3 electric car and i8 hybrid.

What do South Koreans do when they're not working?
Robaschik: Going out to eat with friends is very popular, as is noraebang, or karaoke singing. South Koreans have very little free time because of their long working hours and like to spend it in the company of others. Travelling is also becoming more popular. South Koreans were not permitted to travel freely until around 1989 – the year the Berlin Wall came down. In March 2012, schools stopped holding classes on Saturdays. As a result, recreational activities have boomed and imports of leisure goods have increased rapidly.

What, for South Koreans, makes a good employer?
Robaschik: Where they work is very important to them. Companies like Samsung and LG are popular, and most South Koreans would want to work for them. Employees of large corporations are considered successful in South Korea. They earn a better salary and have more diverse and more attractive advancement opportunities. Because of the considerable cultural differences, it's very important for German companies to gain an understanding of South Korean employees, partners and customers.

What are the biggest differences between the working cultures in Germany and South Korea?
Robaschik: On average, South Koreans work around 50 per cent longer than Germans. Average annual working time is 2,090 hours, above the OECD average of 1,765. German workers come in far below this, working an average of only 1,397 hours a year. Not only are South Koreans used to working a lot; they take very few holidays, although they're entitled to 25 days a year. In fact, they often take only a small number of their holidays and have the rest paid out. On the other hand, compared to Germans they are less loyal to their employers. South Koreans change jobs twice as frequently – on average, once every five years. Germans switch jobs once every eleven years.

German companies benefit from their good reputations, but they need to familiarise themselves with the country's fast-paced culture. What should they keep in mind?
Robaschik: Germans need to be willing to respond quickly and provide prompt information. This behaviour signals a strong interest in an individual and in collaboration. Automatic out-of-office messages sent by a German partner are therefore puzzling for many South Koreans. ➔

SOUTH KOREA EXPERT
Frank Robaschik has been the Seoul correspondent for Germany Trade and Invest for six years. He is particularly impressed by the pace of South Korean life. Everything is done quickly, and information is made available immediately.

Sudden changes in a partner's requests are not uncommon. The same applies to rules and regulations, which are not nearly as stable as they are in Germany.

What are South Korea's secret strengths?
Robaschik: The incredible speed at which people are willing to make things happen. ■

LOCAL DOS & DON'TS

AN ETIQUETTE GUIDE TO SOUTH KOREA

There are many similarities between Germany and South Korea, but also many differences. Here are eight tips for doing business in the country.

1. Shaking hands is not an Asian custom, so shake hands only if your host offers his or hers first. Otherwise it is customary in South Korea to greet people with a polite bow.

2. The company of others is very important – which explains why South Koreans love grills. Some restaurants have small grills set in the middle of the table where people can cook their meat or vegetables themselves.

3. It's never a good idea to bring up Japan. Korea became a Japanese colony after being annexed in 1910. In North Korea and South Korea, the day of national independence is observed on 15 August.

4. In South Korea, relationships are often more important than cost-benefit analyses. A basic requirement for all South Korean employees is a good salary and attractive working conditions with sufficient free time.

5. Foreign companies benefit when they offer women better prospects with regard to position and pay. Women are just as qualified as their male colleagues, but they are given fewer opportunities for advancement in everyday life.

6. As in many other Asian cultures, the principle of saving face is very important in everyday business dealings in South Korea. This principle applies to both parties.

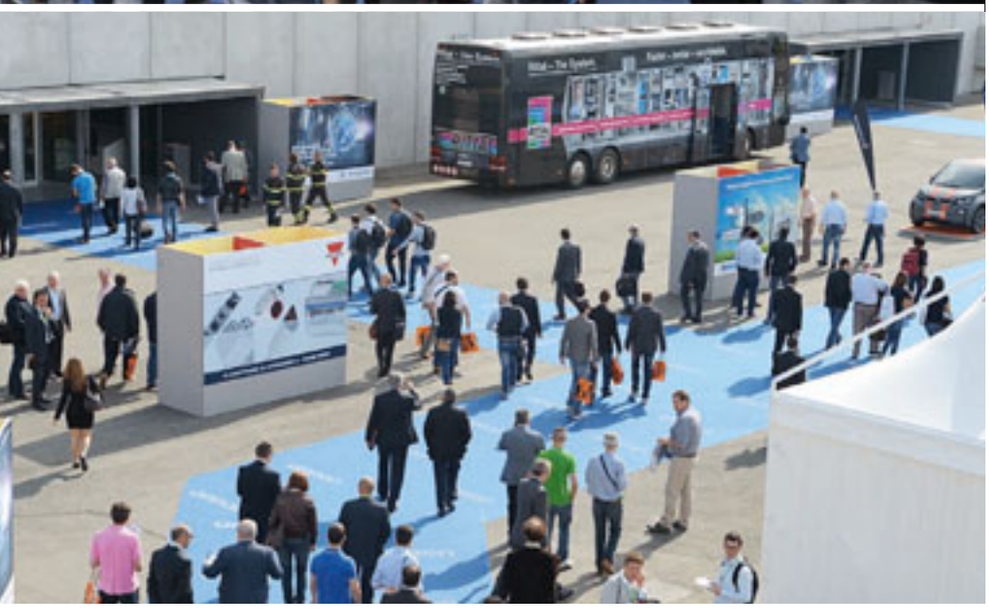
7. A person's gut feeling (kibun, or "mood") is often more important for business success than is a better product. High-quality, readily-available service personnel are also crucial for success.

8. Speed is important. If you keep business partners waiting, fail to provide prompt information or service, or provide it late, you will jeopardise your business success in the country.

WIN A GUIDE!

Send an e-mail to betop@friedhelm-loh-group.com by 15 December 2014 and win one of ten business guides!

→ BOOK TIP:
Branchen international 2014: Geschäftschancen in der Region Asien/Pazifik provides German companies with information about opportunities in the Asia-Pacific region. An updated version of the business guide to South Korea was published in November. Both guides are published by the GTAI and are available online at www.gtai.de (in German only).



FORZA RITTAL!

RECORD TURNOUT AT THE SPS IPC DRIVES ITALIA 2014

The Rittal stand at the fourth SPS IPC Drives Italia in Milan attracted strong visitor interest, exceeding all expectations with a 36 per cent increase over 2013. The large turnout was partly a result of Rittal's concepts for the value chain "Next Level for Industry" and for the roundtable "Technologies and Systems for Mechatronics," in which Massimo Fanelli, Rittal Italy's Business Excellence Manager, discussed the topic "Energy Efficiency in Industrial Automation."

sps ipc drives

➔ LINK TIP:
www.nuernbergmesse.de/en

RECORD ATTENDANCE
Rittal presented new products and the expertise of its employees at the trade fair in Milan.

20 %

PEAK VALUES

ENERGY-EFFICIENCY RATING

One of the European Commission's climate goals is to reduce carbon dioxide emissions by 20 per cent of their 1990 level by the year 2020. Rittal has had its sites in Rittershausen and Herborn evaluated by Siemens' Energy Efficiency Program for Suppliers. Both the product offering and its production received scores of three out of five stars. "In energy efficiency, Rittal ranks in the top 10 per cent of major companies," declares Quality Management's Jürgen Schnaubelt.

THE WHOLE WORLD OF IT IN YOUR POCKET

NEW IN THE RITTAL TECHNOLOGY LIBRARY

The world of information technology is complex, so it is a good thing when IT managers have practical resources within easy reach. The world of IT infrastructures, a new, compact reference book from the Rittal Technology Library, provides valuable IT background information and decision-making criteria. "It contains the answers to questions about how to build or modernise small, medium or large data centres sustainably," says Rittal author Martin Kandziora. The 160-page book provides IT managers with fundamentals and expert knowledge on IT infrastructures as well as on standards and regulations. Moreover, the advantages and capabilities of a standardised data centre are conveyed in a clear and easy-to-understand manner. Decision-makers and technicians will want to have this professional handbook always at their fingertips.

➔ LINK TIP:
The reference book is available via QR code or at http://tinyurl.com/ow5qpax

INNOVATION CLUSTER

SYNERGY EFFECTS FROM IMKK

Since 2009, the innovation cluster Metal-Ceramic-Plastic (Innovationscluster Metall-Keramik-Kunststoff, or IMKK) has been consolidating infrastructure and companies in the key sectors of metal, ceramics and plastic in order to initiate cooperation and promote innovation. The cluster originated as an initiative of the state government of Rhineland-Palatinate. Dr Guido Stannek (photo), CEO of LKH Kunststoffwerk Heiligenroth and President International Purchasing, Procurement and Logistics at Rittal, was elected Chairman of the Board of IMKK e.V. in July. “Our member companies benefit from synergy effects through the cooperation of business, science and public authorities,” explains Stannek. “IMKK also offers companies support in applying for project and business funding and with training programs, personnel recruitment and entrepreneurship, as well as with price reductions at events and trade fairs.”

➔ LINK TIP:
www.metall-keramik-kunststoff.de/en.html

INSTANT HELP

EPLAN SOLUTION CENTER

When a problem occurs, the Eplan Solution Center helps solve it – quickly and around the clock, 365 days a year. The web portal provides worldwide, specific support with guaranteed short response times – soon in 17 platform languages! Eplan users in thirty countries can submit questions via “ticket” and access current processing status at any time.

➔ LINK TIP:
www.eplan.de/en/support/eplan-solution-center

ON THE SHORTEST PATH

LASER SINTERING PLANT AT LKH

LKH Kunststoffwerk Heiligenroth puts products on the shortest path from idea to market readiness. Without tools and in just a few hours, the new laser sintering system produces development results and sample parts directly from electronic CAD data. The high imaging accuracy minimises errors and saves time. In the system, a laser melts plastic powder, which is used to create heavy-duty products made of hardened plastic (polyamide and polystyrene) layer by layer in a space 20 centimetres wide, 25 centimetres high and 33 centimetres deep. With no expensive tools required, production costs remain low. The system is also suitable for the economic production of small batches and individualised products of complex geometry; these requirements would be applicable to the medical industry, among others.

➔ LINK TIP:
For more information on this topic, visit www.lkh-kunststoff.de or scan this QR code (in German only).

QUICK WORK
The laser sintering system produces new products in a jiffy.

TOP-5 TALKS
Daily at 7.00 am, staff begin the talks at group locations at the Rittal plant in Rittershausen and exchange the findings they have made during the past shift. As a result, problems are discussed and resolved in every division at 15-minute intervals up to 9.00 am.

THE IMPROVERS

Quality management. Precisely implemented shopfloor management in the Rittal plants ensures continuous process quality improvement in day-to-day business.

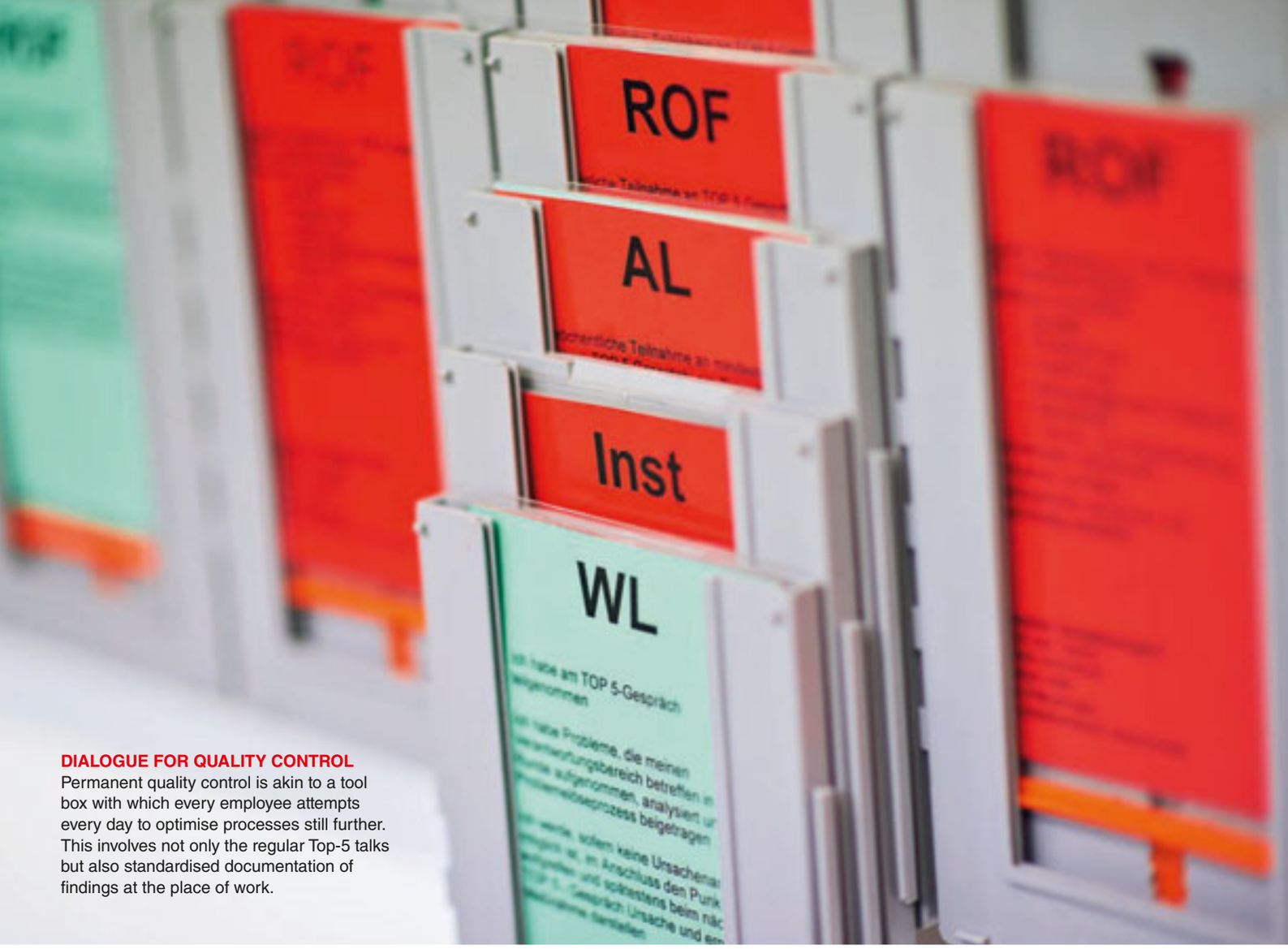
Text: Robert Sopella

A fork lift hums quietly past in the background, cordless screwdrivers rattle away and knocking and hammering are heard everywhere – the typical noises heard, in fact, at the Rittal plant in Rittershausen. Eight men are standing in a circle in a section of the factory building. One of them is Robert Pfister. The 32 year-old has been with Rittal for the past 10 years. He has just told his colleagues on the early shift that yesterday's late and night shifts brought nothing serious to light with regard to job safety and for this there were satisfactory nods all around. Robert Pfister then tells those in the group that he and his team during the night shift noticed that the drill holes in the rear panel of a number of enclosures had not been made precisely in accordance with the specified drawing. He also added that differences in colour of the paint coat had been detected in 14 other enclosures. The group spokesman reports that the enclosures cannot be delivered to the customers as they are. His colleagues listen attentively and take notes until Mr Pfister finishes. Then Jörg Becker from the paint shop chips in. He calmly and factually describes how the differences in paint coating could have arisen. "Something more precise", he says, "can only come from a talk with his colleagues." "This has got to be cleared up as quickly as possible to stop the faults recurring," he adds.

The group disperse after a quarter of an hour. Everyone's knowledge is now at the same level. Cross-divisional problems have been discussed simply and directly with the department reps present. The findings from all the talks will then be submitted to the Works Manager at a closing meeting. This is where everything is bundled together. Problems which group spokesmen and workers were unable to resolve will be discussed and steps agreed so as to avoid more faults arising in the future.

TOP-5 talks is the name given by Rittal to these clearly structured meetings taking place every morning in the plants. Here, the group spokesmen for Preliminary Manufacturing, Paint Coating and →


Kontrollieren
Gewinnerteam
2013
Ideenmanagement



DIALOGUE FOR QUALITY CONTROL
Permanent quality control is akin to a tool box with which every employee attempts every day to optimise processes still further. This involves not only the regular Top-5 talks but also standardised documentation of findings at the place of work.

DECENTRALISED QM

KNOWLEDGE FOR EVERYONE

Effective quality management is always based on a well-organised from of documentation. The fact that this does not necessarily have to be the centrally organised and often rigid certification management system has been proved by Rittal with its Wiki technology-based RiWiki. The interactive knowledge database permits each and every staff member to access process descriptions, standards and operations. In contrast to the usual documentation systems, RiWiki allows as many employees as possible to be involved in setting them up. Thus, all Rittal employees can start a discussion on any accessible article in which improvement suggestions can be directly made and communicated to the person with process responsibility. In this way, improvements are agreed to, documented and communicated that much quicker. In addition, the documentation is at all times up-to-date. At the same time, the content of each document is attended to by someone responsible for releasing any changes made. In keeping with the competence directive, the process owner clears the final release of any document.

Installation tell of the challenges they had to face during their shift the day before. The meetings represent an important part of shopfloor management which Rittal set up at the Rittershausen plant some two years ago. It is now being successively introduced into all the international plants.

"The whole point of shopfloor management is to secure a maximally efficient production run and keep our product quality at a uniformly high level," explains Michael Weiher, Rittal's President International Operations. To this end, the employees are provided with a variety of steps and tools. Efficient shopfloor management at Rittal is based on the Rittal Production System (RPS) launched some 10 years ago by means of which the complaints quota has dropped 35% since 2010. RPS's key element is group work. The seven other elements – namely total productive management, continuous improvement processes, material systems, workplace organisation, visual management, standardised working and standardised quality processes – form the "tool box" with which all employees try every day to optimise operations still further.

NO TOP-DOWN COMMUNICATION

In shopfloor management these well-known tools are supplemented by employee leadership. "On the one hand, this means employees being increasingly subjected to actively working towards a continuous improvement of the production processes," explains Michael Weiher, who worked for a long time at a leading car company. On the other, it means putting the communication aspect more to the forefront. "By communicating with the Group spokesmen and to one another transparency is created and this helps us to get to the bottom of any problems that much quicker," adds Dirk Sengl, Works Manager in Rittershausen. He adds that only in this way can constant, sustainable improvement come about.

However, shopfloor management does not rely on the usual top-down form of communication. "It's not the managers who determine what is to be done," explains Mr Pfister, "it's more a question of the workers showing where there is a need for action." He admitted this was something new for many staff at the beginning. After all, they had up to then been used to simply putting into practice manager decisions. "Most of our colleagues were also a bit uneasy at the thought of having to speak in front of a group" – something very familiar to Matthias Schäfer of the Central Plant Operations Dept. at Rittal in Herborn. Together with a colleague, he monitors shopfloor meetings and supports the group spokesmen on the spot. This he knows: "particularly when weaknesses are to be spotted in the production process, many colleagues shy away from any clear-cut communication and simply beat around the bush."

This lack of confidence is something all too well known to Udo Schädlich, employee at the Rittershausen plant and group spokesman of his shift in the "Preliminary Manufacturing Run". "It's quite strange at first talking out loud about problems," he admits. However he also notes that they can, as a result, be resolved that much quicker. To improve communicative skills of the employees, they were trained at the Loh Academy, which is part of the corporate group. Further training courses, as needed, in employee leadership, communication and presentation also took place in co-operation with the Festo Didactic consulting agency.

To keep communication between the departments objective at all times, a clearly defined feedback structure was also introduced. Feedback sheets allow both perceptions and findings to be precisely written down and for what one feels to be unemotionally described. In this way, clear, concrete and implementable requests can be formulated and sent to other departments without any misunderstandings arising – requests which, in the end, make production processes in the plant simpler and more efficient.

"As such, shopfloor management is an elementary constituent of Rittal Quality Management," states Dr Martin Lang, EVP Quality Management & Service at Rittal. After all, the prime aim of any effective quality management system is customer satisfaction. "To achieve this, we need quality products which we constantly analyse and monitor using a wide variety of quality instruments, such as product audits." He went on to say that stable processes, however, were also needed to secure product quality. They are ensured through shopfloor management and are regularly checked through process audits. "Effective quality management is practised in all divisions," adds Mr Lang. "This all starts in Design where a product is devised to bring about stable manufacturing processes and goes via Production and dependable transportation through to excellent customer service." After all, with a premium manufacturer such as Rittal, product quality impacts greatly on any decision to purchase or not.

To ensure that Rittal continues to guarantee a high level of product quality worldwide, shopfloor management as already ➔

effectively implemented in the German plants, will be transferred in stages to the plants abroad. A start has already been made and that was at the Shanghai plant in China in September 2013. This year should see the plants at Urbana) and Bangalore (India) following. “We always make a point of observing any specific cultural features and regional conditions and adapt the sequences involved with the managers on the spot,” Mr Weiher explains. “However, it goes without saying that the shopfloor management basics are the same as in Germany. This applies as much to operations as it does to the production machines used.”

According to Mr Weiher, initial reports suggest that shopfloor management has been very well received both by the staff at the German locations as well as by those working in the international plants. “Quality awareness is now very high and especially so with the production staff.” To ensure this awareness grows and intensifies, the quality situation is regularly analysed and looked into in every detail. “In this way, we ensure that no negligence finds its way into the system which could put corporate profitability at risk,” says Mr Weiher.

TRANSFERABLE SUCCESS MODEL

As the next step, the President of International Operations intends to transfer parts of the shopfloor management concept to the company’s administrative divisions. There are no doubt unproductive operations there which are not conducive to product quality. Michael Weiher sees considerable improvement potential particularly in SAP order preparation and control. “There’s always something to improve,” says the experienced manager. “After all, those who have stopped becoming better have stopped being effective.” ■

PRECISION AND CLARITY

To keep communication objective between departments, a clearly defined feedback structure has been introduced. Feedback sheets allow perceptions to be precisely recorded and one’s feelings about matters described.

→ APP TIP:
There’s more on the subject in the be-top app.

THE GROUP'S STRENGTH

Interview. Michael Weiher, President International Operations, introduced shopfloor management to Rittal in 2010. His assessment of developments to date is positive. It is not top-down communication but quality-oriented dialogue in production which is leading the way.

Mr Weiher, what would the perfect factory look like?
Michael Weiher: It would be a place where extremely high quality products would be produced at all times under conditions of the greatest possible efficiency and minimum resource utilisation.

Does this factory actually exist?
Mr Weiher: No, not that I'm aware of. Here at Rittal we work every day to get as near as possible to this perfect factory.

What role does shopfloor management introduced in 2010 play in all this?
Mr Weiher: It enables us to make our employees more aware of quality issues on a daily basis. Recurring faults in production are a key concern. We use a structured, cause-based analysis in dealing with them. It also becomes easier and quicker to spot any variations from specifications. As such, those responsible can act more specifically. This, in turn, raises both our productivity and product quality. In addition, a clear-cut improvement in communications in the plants has come about due in no small measure to the standardised TOP-5 meetings. This is where group spokesmen from the operating sectors report daily on what has happened during the previous shift.

Is this unusual?
Mr Weiher: Given the situation in the factories some 20 years ago, it really is unusual. Decisions as to what happened in the plant only took place in the so-called "carpeted executive storeys". The worker had no contribution to make. This is completely different today – and rightly so. After all, there is no-one better able to tell us, for instance, about any unused improvement potential in production sequences than the person actually doing the work every day.

QUALITY NEEDS TO BE SPURRED ON
"Those who have stopped becoming better have stopped being effective" known all too well to Michael Weiher. He looks upon constant quality communication as the key to quality control and improvement.

How have the employees come to terms with the added responsibility?
Mr Weiher: In an exemplary and responsible manner. Frank communication by supervisors and their role model function have tackled any reservations about speaking openly on problems. The staff have also been thoroughly instructed by external and internal trainers. Management has also been trained as to their new role. Everyone is very much committed to continuously improving both himself/herself and the production processes. Remember that the basic principles of shopfloor management were known of from the Rittal production system which was introduced just under 10 years ago. The key element here is group working which through shopfloor management is even more important today. The employees involved, group spokesmen and managers are now aware of their roles in the system and better fulfil them.

What is still lacking in achieving the perfect factory?
Mr Weiher: The perfect factory will probably never exist considering that non-company conditions such as standards, laws, technological opportunities, markets and demand are always changing. All this forces us to adjust our production processes and ways of working. Things that are highly efficient today may not be so in five years time.

Isn't that a sobering thought?
Mr Weiher: No, no, not at all. Getting the best possible outcome from constant optimisation is a truly stimulating challenge.

→ APP TIP:
The QR code gets you to the Rittal shopfloor image gallery in the be top app.

HUGE SAVINGS POTENTIAL
Data centres are run, on average, at 15.5°C. But instead of cooling entire areas, it is considerably more efficient to operate with direct cooling in the rack or in individual aisles. As a result, the ambient temperature can be doubled with this, in turn, markedly reducing the cooling costs.

END OF THE ICE AGE

IT deployment. Often the cooling in data centres is not optimally designed and, as such, considerable energy is wasted. This is where new, energy-efficient IT infrastructures are helping out – as attested to in a White Paper.

Text: Marisa Robles Consée

NEW IT FINDINGS

MODULAR INSTEAD OF FIXED

More than 60% of the companies interviewed for the IT survey expect that Industry 4.0 will place greater requirements on their IT infrastructure. The expectation is one of a considerable rise in productivity. Although they want to use public cloud capacities to implement the changed market requirements, they shy away from the risks involved. Forward-looking IT infrastructures and rational processes are indispensable for enhancing competitiveness. The answer here comes with Rittal's RiMatrix S data centre solution. The system lends weight to the requirement for more agility, scalability and energy efficiency.

On behalf of Rittal in May 2014, the International Data Corporation (IDC) – an internationally operating market research & consultancy firm in information technology and telecommunications – interviewed around 500 managers and those with IT responsibility over a period of 125 hours. They work for small and medium-sized businesses – referred to as the "Mittelstand" in Germany – and employ at least 100 staff or operate 30 servers. The survey entitled "Business growth through IT: How efficient data centres promote enterprise growth" has been carried out in 5 European countries – namely in Germany, Great Britain, Italy, the Netherlands and Sweden. Chris Ingle, Andreas Olah and Georgio Nebuloni, the IDC Research writers, were surprised at how much leeway the Mittelstand still have to make up in "green IT".

EXISTING FACILITIES HAVE A PROBLEM

The writers established that the data centres of those with IT responsibility who were interviewed for the IT White Paper operate at a 2.4 PUE figure. PUE stands for Power Usage Effectiveness and is an internationally accepted measured value for data centre energy efficiency. PUE is defined as the ratio of the total electrical energy consumption of the data centre (IT equipment plus infrastructure components) to the electrical energy consumption of the IT equipment. 57% of those interviewed on behalf of Rittal indicated a figure of over 2.0. This means that for every kilowatt hour of power used by the IT equipment, a further 1+ kWh for cooling and other building/installation technology is used. "The closer the PUE figure gets to 1, the more efficiently the data centre operates. A PUE figure of 1.4 is considered as excellent in the industry. Major IT service providers with optimised equipment even come up with 1.2 or less," explains Bernd Hanstein, Vice President IT Product Management at Rittal.

One reason for the poor PUE figures are the over-cold regulated data centres. The IT managers interviewed said they operated their data centres at a mean 15.5°C. For Bernd Hanstein, this is a pure waste of energy. "Instead of cooling entire spaces, it is considerably more efficient to operate with direct cooling in racks or in individual aisles. This allows for a higher average temperature inside and the cooling costs drop," referring, as he does here, to the savings potentials. He added that from the technical side far higher temperatures were possible in any case. The American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE), in fact, talks of a temperature up to 40°C with which data centres could be run under certain conditions. Even if working in such hot surroundings is admittedly not very pleasant, Bernd Hanstein still advises designing a data centre for a high degree of energy efficiency in such a way that "one sweats on the cold side". Anyway, there were no problems to using indirect free cooling in Germany. One of the reasons for the poor energy efficiency is the advanced age of the facilities. According to the IDC survey, the average age of the Mittelstand data centres is 6.9 years. "This is down to the fact that most components came into operation when interest in green IT and energy efficiency in data centres was only just starting", says Hanstein.

"Modular data centres" such as RiMatrix S from Rittal could spur on an efficient form of modernisation. According to the IT White Paper, this concept ➔

> "Modular data centres represent a meaningful way of meeting on-going business challenges."
>
> Chris Ingle, Vice President IDC

IT WHITE PAPER MITTELSTAND

IT SUCCESS FACTORS

Continuous IT development is necessary so that a data centre can support business requirements. The IT White Paper "Business growth through IT: How efficient data centres promote enterprise growth" reveals how optimised infrastructure concepts bring about competitive benefits for companies.

JUST A CLICK AWAY
The IDC Research White Paper is ready for downloading online free of charge.

➔ LINK TIP:
www.rittal.com/de_de/it-marktstudie/public/index.php/en/

supports the requirement from companies for greater agility and scalability. It allows shorter product life cycles, new system launchings and implementation of revised provisions to be rapidly undertaken. "Modular data centres represent a meaningful way of meeting on-going business challenges," says Chris Ingle, Vice President of IDC. However, the trouble is that most of those asked have not heard of the modular data centre concept. Only 6% make use of modular data centres in day-to-day operations. The concepts are still relatively recent, the market segment has increased in the two-digit bracket over the past few years and modular data centres are a meaningful way of meeting ongoing business challenges. The pre-configured modules and containers cost less than building the data centre anew and they can be set up within just a few weeks.

PRESSURE ON IT COSTS RISES

In interviewing IT specialists and decision-makers, IDC also established that low operating costs were the main reason for deciding on a modular data centre – followed by lower overall costs. This comes as no surprise since the data quantities to be dealt with by data centres are growing all the time. As a result, IT budgets are under pressure – all the more so since energy prices are rising. This, in turn, exerts pressure on data centre energy efficiencies.
It was interesting to note that banking, finance and IT companies placed higher energy efficiency above that of cost aspects. Moreover, a number of IT managers were of the opinion that modular facilities ensured greater security and an additional value in view of the short time needed for them to become operable. This comes as no surprise given that modular systems are not only attractive due to the short time needed for planning and implementation but also in respect of any additional adaptations. The key word here is IT and cyber security which the German government has just given top priority to.

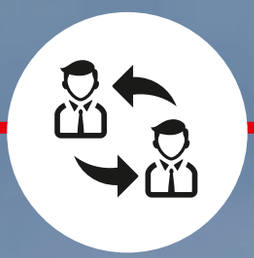
The survey also reveals the extent to which data centres influence the profitability of the Mittelstand. The findings show that for most companies the IT infrastructure and their own data centres are indispensable to ensure and develop their own competitiveness. Companies performing well invest 20% more on average in their IT than firms with a turnover at the same level. The fact of a company operating profitably in 2013 had a direct impact on the IT budget. 98% of the organisations with an increasing turnover indicated they would either increase their investment in IT or keep it at the same level.
According to the survey, the companies need to invest, in particular, in forms of failure backup. Redundancy concepts are often outdated and not reliable enough to assure a high level of availability – something which their customers come to expect in the intensely competitive market environment. 24% of the IT managers asked stated redundant infrastructure as being the most important area for modernisation. All in all, only 46% of the IT specialists assessed the sustainability of their own IT as being very high. Even so, most (79%) of the IT decision-makers think that all of the challenges enquired into can be solved. ■

FACTS: BUSINESS GROWTH THROUGH IT

Together with IDC – the internationally recognized analysis company – Rittal carried out a market survey in Germany, Italy, the Netherlands, Great Britain and Sweden. 500 CIOs and IT managers in small & medium-sized businesses were interviewed as to the stage reached with their IT infrastructure and as to their requirements and planned IT investments. Here a review of the findings and how data centres promote corporate growth:

98 % of the organisations reporting sales growth either invest in their IT or keep their IT budget at a stable level.

– Economically successful companies invest in their IT infrastructure.
– Almost 100% of the companies surveyed have a great deal of confidence in their current IT infrastructure.



33 % of companies would like to improve their customer offering and know-how in order to maintain global competitiveness.

More than **75 %** of companies anticipate revising their IT strategy, either to incorporate mobile or Big Data technology. New IT systems help strengthen a company's market position.

Although **60 %** of companies would like to implement new market requirements using cloud technology but are concerned over the potential risks.

93 % of the companies see an in-house data centre as the key to financial success.

97 % of the companies with sales growth surveyed operate in-house data centres.

However, the data centres are around **7 years** old on average.

In the short and medium term, companies will be facing comprehensive modernisation, or even total reconstruction, of their data centres. Investing in modern data centres helps to lower running costs and increases competitiveness. This enables companies to react quicker to changing market requirements.

Planning and building a new data centre can take several years but this can be shortened significantly by using modular data centres.

Economically successful companies invest an average of **20 %** more in their IT than enterprises with stagnating sales. These investments are clearly money well spent.

CREATING SPACE

DIN EN 61439. A new standard will change system engineering from November. Emphasis is being increasingly placed on the interaction of switchgear components. This creates room for productivity.

Text: Elke Bieber

Fail-safe operations are what is wanted in handling electrical low-voltage switchgear and control equipment. And this needs to be considered when designing and constructing the equipment," says Michael Schell, Head of Power Distribution Product Management. The 43 year-old works on fail-safe operation matters every day – and with the standards supplying the answers. According to the Deutsche Institut für Normung (DIN) established in 1917, standards are "the language of business". They reflect the stage reached in technical engineering and their specifications facilitate applications that occur again and again.

But that is not all they can do. They also ensure compatibility of products and services. They raise quality and productivity and make products and their components safer. The International Electrotechnical Commission (IEC) based in Geneva prepares standards and specifications which the member states of the Word Trade Organisation take on. The standardisation work of the DIN is also internationally oriented. It represents Germany in the international standardisation organisations, such as in the IEC. In order to remove any weak points, it was the IEC which revised the existing standards for low-voltage switchgear combinations in 2011. The outcome was the German and European standard – DIN EN 61439 Part 1 and Part 2 – which came out in 2012. Its previous version and predecessor standard DIN EN 60439-1 are no longer effective as of 1 November 2014. The revised version has considerable repercussions on electrical power distribution and control equipment in industry, on project sites and in domestic installation work. Rittal has adjusted its products and solutions to the requirements of the standard and developed instruments with which planning, design and standard-compliant documentation can be fulfilled. "We are pleased to pass on this knowledge to our customers," says Michael Schell.

RITTAL SUPPORTS IMPLEMENTATION

For the standard to be effective, manufacturers, system engineers and operators are each responsible for certain tasks. Ideally, they work together especially in highly sensitive matters such as short-circuit strength, electric shock protection, installation type and operability. For Rittal, close cooperation with the customer is a must. The company also commits itself in matters of implementing things new such as with DIN EN 61439. (see box, page 43). Charged with this knowledge, the customers can implement the standard accordingly. Basically, the revised standard requires design verifications instead of the type-tested switchgear and ➔

STANDARDS RAISE QUALITY
They ensure compatibility of products and services. They raise quality and productivity and make products and their components safer.

"Standards also create more legal clarity. A systems constructor who points to the standard conformity of his system improves his position in any dispute."

Michael Schell, Head of Power Distribution Product Management at Rittal

THE BOOK ON THE SUBJECT

READ ME!

Rittal's book entitled "Standard-compliant switchgear and controlgear production" provides company users with a manual for DIN EN 61439-based switchgear and control equipment engineering.

➔ DOWNLOAD TIP:
The book can be downloaded free of charge at the following link:
http://tinyurl.com/p2f7vvb

controlgear combinations (TTA), partially type-tested switchgear and control gear combinations (PTTA) and type verification test reports. "Some of these terms were not always properly interpreted," explains Mr Schell. A design certificate comprises 13 individual verifications. Some endorse the interaction of various components of a switchgear. For instance, the protecting conductor system in the switchgear is examined to demonstrate short-circuit strength. Verification from the protecting conductor rail alone does not suffice. It can only come about in the enclosure system. This is because the impact of magnetic fields is particularly pronounced given a short-circuit which, in turn, can lead to damage of the entire structure. An examination can establish this. Only by applying the Rittal system products for power distribution within a switchgear can the short-circuit strength be verified.

Equipment set up on the basis of a modular system, such as with Rittal Ri4Power, already has a design certificate. However – and particularly in the operation of machinery and processes – many switchgear and control appliances are individually based. Even so, a number of verifications can be met by using the Rittal system technology.

DIN EN 61439 stipulates that equipment rating data is no longer of substance in the specification of circuits. Instead, appliances need to conduct the current with every precision under the installation situation chosen. This is where the difference is. After all, "there are always influencing factors affecting the mode of operation," adds Michael Schell.

The revised standard stipulates significantly greater precision, in particular, for temperature rise verification of low-voltage switchgear. The aim is to stop the inside of designated equipment from becoming too hot. "This verification is the most complex one if brought about without any additional aids," says Shell. But there are aids on hand. A tested modular system such as Rittal's Ri4Power makes an additional test unnecessary. Those wanting to resort to simple calculations instead of complicated verification procedures would do best to heed a number of points in planning & design matters. It is here that Rittal's Power Engineering software (see box on the right) provides valuable support. Even the temperature rise can be calculated that much simpler thanks to using the Rittal RiTherm programme. It even establishes the right appliances for enclosure cooling. The standard limits itself not only to calculations when high amperage switchgear is involved. In fact, the individual production appliances are subjected to various stress tests. "To make it easier to establish their findings, Rittal has developed an automated form available on our home page," explains Michael Schell.

And even if it sounds unbelievable, well attuned standards lessen documentation outlay. "Everything points, in any case, to more standardisation", comments Michael Schell. "It reduces fault potentials and helps us to further automate our production processes. This raises competitiveness and that's good." ■

ALL MOUNTING FORMS FROM A SINGLE KIT

THE STANDARD-COMPLIANT RI4POWER low-voltage switchgear assists companies with the required documentation.

In requiring design and quantity certificates as well as temperature rise verifications, the revised DIN EN 61439 standard obliges switchgear constructors to undertake detailed documentation. From 1 November 2014, all new low-voltage switchgear must comply with the standard. A good many design certificates are already available for the new 185 mm busbar system. These certificates also take into account enclosure and power distribution component combinations. Moreover, the installation itself of a low voltage switchgear combination has a prime role to play in the revised standard – something is to be heeded, for instance, in enclosure climate control. The Power Engineering design software helps both in designing and configuring switchgear and also with documentation. At the touch of a button, the software prepares the design certificates and required test reports. The engineering tool also includes checklists. In this way, the user can check to see if all requirements in planning and designing the switchgear comply with the standard.

→ LINK TIP:
More information on Rittal Ri4Power can be found at www.rittal.com.

DIRECT SUPPORT

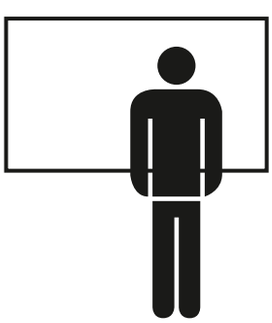
Customer support. Rittal provides its customers with extensive support and services for trouble-free implementation of the standard in day-to-day operations. Here is the brief check.

BOOKS

Rittal has already published four manuals from its technology library. They provide the customer with instructions and information on switchgear and control unit engineering. Just printed: “Standard-compliant switchgear and controlgear production” (see also page 42).

SEMINARS

Rittal’s regular technical seminars and instructional training provide customers with support. As such, our specialists can clarify practical everyday questions.

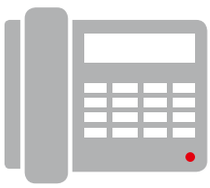


CONSULTING

Our field service provides technical advisers for customers. After all, a host of technical issues can best be settled on the spot prior to commissioning.

HOTLINE

Help in matters of standardised lowvoltage switchgear is also on hand on Rittal’s hotline, phone +49 (0)2772 505-9052, E-mail: mtv@rittal.de



DESIGNING. RITTAL’S POWER ENGINEERING software generates checklists which even at the system design stage check whether all standard-compliant requirements have been met. In addition, Rittal provides supportive **CHECKLISTS** for switchgear constructor-only verifications.

CAPABLE OF DEVELOPMENT
Production in the combination technology plant is in full swing. Even from the start, the areas held in reserve on the new site in Chemnitz were being fully utilised. Siemens is already planning an extension.

ON AN EXTENSIVE SCALE

Siemens WKC. Using Eplan software tools, Rittal system technology and Kiesling automation solutions, Siemens manufactures over 500,000 electronic components and some 30,000 switchgear panels every year at the combination technology plant in Chemnitz. The capacities have now been combined at a large, new manufacturing and development location.

Text: Beate Schwarz

Electronic drives, control systems and all-in electrical installations for mechanical engineering & plant construction are produced in the Chemnitz Combination Technology Plant (WKC). The company has five locations in the city with a population of 250,000, and has not stopped growing. At the inaugural ceremony of the new manufacturing complex at the end of August, Professor Nils Kroemer, the WKC Plant Manager, said that plant output had more than quadrupled and employee numbers had practically tripled since 2000. Four times as many engineers now work for WKC compared to the situation 14 years ago. A new plant for development and production was constructed over a 34,000 square metre area – the size of five football pitches – as the existing locations could not be extended. Verdion, the London real estate investor, bears the 30 million euro costs for the new building. Siemens leased the tailor-made property for an initial 10 years and invested 3 million euros in fitting it out. The City of Chemnitz provided 3.1 million euros for infrastructure steps. Four Chemnitz production and logistics facilities have moved to the site and with them 750 of the 1,700 employees in Chemnitz.

At the inaugural ceremony attended by Stanislaw Tillich, Premier of the State of Saxony, Professor Siegfried Russwurm, Siemens AG Management Board Member, pointed to the considerable importance that WKC had in implementing the vision behind Industry 4.0. “Not only on account of your considerable flexibility as a total solution provider are you also working here in Chemnitz towards realising this vision,” said Siegfried Russwurm. He added that the development work in conjunction with other industrial companies was a pre-condition for this.

Friedhelm Loh, owner and Chief Executive Officer of the Friedhelm Loh Group, congratulated Siemens on behalf as well of the Zentralverband Elektrotechnik und Elektroindustrie e.V. (electrical engineering/industry association) on what they had achieved and on the new building. “We live in an era of radical upheavals brought about by dramatic technological changes. This is something for audacious, creative minds and for doers who in assessing risks give pride of place to the opportunities available.” He stressed how important cooperation was for the Industry 4.0 vision to become a reality. “The times of mechanical design, electrical planning and IT operating far away from each other are over. Tomorrow’s organisation is mechatronics. It is also the basis of cooperation between ➔


SIEMENS

Siemens and the Friedhelm Loh Group companies." For many years now, Rittal has been the system supplier in enclosure systems, climate control and power distribution for Siemens. Eplan and Siemens jointly developed, for instance, the Eplan Pro Panel which has become the leading market CAE solution for 3D enclosure and switchgear engineering. Mr Loh described unifying Eplan P8 with "Seizer," the Siemens design tool, as a collective vital assignment for the future. Furthermore: WKC will continue to grow. Even now Siemens is negotiating with the City of Chemnitz on potential areas for extension. ■

→ VIDEO TIP:
Just scan the QR code and find out more about the value-added chain of Eplan, Rittal and Kießling at Siemens WKC.

Extracts from the address given by Friedhelm Loh, owner and Chief Executive Officer of the Friedhelm Loh Group, at the inaugural ceremony of the largest and most up-to-date control system site in Europe:

"For a very long time oil lubricated the global economy. Now it's the turn of computerised **data.** That is data with the capacity to logically and **efficiently control processes** from customer to customer in, for instance, the value chain – something that includes product development, purchase, design calculation, production and logistics. Gigantic quantities of data are generated every day. The future will see them being measured in zettabyte and no longer in terabyte, petabyte or exabyte. **A zettabyte is a "1" with 21 noughts behind it.** By 2020 the global data volume will be 40 zettabytes. This is 50 times the 2010 figure – simply gigantic.

DIGNIFIED INAUGURAL CEREMONY
(from left at the front) Dr Albrecht Donner, Head of MC Development at the Siemens Chemnitz location, Dr Frank Büchner, Head of Energy Management Siemens Germany, Barbara Ludwig, Mayoress of the City of Chemnitz, Friedhelm Loh, owner and Chief Executive Officer of the Friedhelm Loh Group and Honorary President of ZVEI, Professor Siegfried Russwurm, Management Board Member of Siemens AG, Saxony Premier Stanislaw Tillich and Professor Nils Kromer, Head of the Combination Technology Plant.

“Siemens and the Friedhelm Loh Group companies are working closely together and in good faith in widely differing areas both for their mutual benefit and particularly for that of their customers. Knowing it is technically possible, what our customers want are total **system solutions** from a single source which are both standardised and yet flexible in deployment. It is precisely this expertise that the German electrical industry has as a system partner. It is also the basis for the long-standing and – if I might say so – effective partnership between you all and **Rittal, Eplan and Kiesling.** One which has developed from just being on a supplier basis into an exemplary development partnership.

“Joe Kaeser, Chief Executive Officer of Siemens AG, established the following at the ZVEI Congress a few weeks ago. The biggest challenge facing us as companies is to comprehend **the digitalised-based transformation** and as far as possible to shape it. There is no doubt that the key to industrial success will lie – aside from the networks – in software competence. **Industry 4.0** winners will be those optimally combining **software, networks, hardware, electronics, electrical engineering** and **automation technology** with mechanical engineering. 4.0 is not only a business model. 4.0 represents a significant change in our industrial culture. 4.0 is full of criss-cross themes from three disciplines: mechanical engineering, the electrical branch and information and telecommunications.

“Close cooperation between you all and Eplan is allowing us to jointly develop an engineering solution for computer-assisted virtual positioning of all components in the enclosure, including component cabling. Since our cooperation started in 2004, Eplan Pro Panel has **developed** into the leading market **3D solution.** Thanks to the Eplan, Engineering Tools Electric P8, EEC One and the Eplan Engineering Center, we have made a decisive contribution to standardisation. Individual design planning is now behind us. **Macro-based configuration** has produced significantly better quality under markedly reduced throughput times. Cooperation between you all and Group company Kiesling has resulted in Rittal in being intensely concerned with automatic wiring. That is why – as the world’s first control system constructor – you will be receiving **the world’s first wiring robot.**

PROFESSORSHIP FOR CHEMNITZ

PROMOTING RESEARCH

Rittal is engaged in many R&D fields. The most recent example is the System Technology and Switch Module Endowment Professorship at the Chemnitz University of Applied Sciences. The agreement was signed by Friedhelm Loh, owner and Chief Executive Officer of F.L.G. in June. The company will defray the costs of the professorship and in equipping it with personnel and resources. The idea is for the endowment professorship to intensively pursue research. At the centre of things will be the use of new materials and lightweight technologies in enclosure construction, development of machinery and production aids for enclosure production and setting up automated value-added chains. “We need the humus of multiple knowledge in international competition”, said Friedhelm Loh at the signing stage. He concluded by saying that he hoped the endowment professorship would produce tangible positive results.

FLYING HIGH THANKS TO AUTOMATION
A strong currency, high wages and a lack of young engineers put pressure on Switzerland as a manufacturing country. Nevertheless, many Swiss companies are prevailing on highly competitive world markets despite, or perhaps because of, clever automation.

PINNACLES OF AUTOMATION

Efficiency. There is plenty of potential for optimisation in switchgear and control engineering. Swiss company W. Althaus AG examined all of their processes and automated them as much as possible, helping ensure the company stays competitive.

Text: Jan-Henry Schall and Jens von Kiesling

Switzerland is a country with high wages, and the Swiss franc is a very strong currency. "That's why we're always looking for possibilities to optimise within our company," says Walter Althaus, who is the second-generation director of this medium-sized company.
The contracts that W. Althaus AG receives are usually for custom-developed control and switchgear equipment. Althaus has been working with Eplan Electric P8 for more than twenty years in its electrical engineering as part of the hardware engineering. The virtual prototype is created with Eplan Pro Panel. The quality of the prototype is highly contingent upon data being available for all used components, which includes detailed data for the electrical connections along with mechanical measurements. Furthermore, commercial data such as order numbers and contract descriptions are also important. It is easiest to get this data from the Eplan Data Portal, which currently has about 480,000 parts and device data sets available from more than seventy major manufacturers, and to download them directly into the local Eplan database. "With the Eplan tools and the interface to our enterprise resource planning system, we control practically all processes within the company," says CEO Althaus. "That's why it's particularly important to us that the data in the Eplan Data Portal is as complete as possible, which is the case for Rittal system components."

COMPLETE DATA IS A MUST

With the modular system from Rittal, control and switchgear equipment becomes standardised. Components from some manufacturers, the data for which are not fully available, require a great amount of effort and expense to keep the internal database complete and up to date. Data created during electrical engineering and prototyping must be able to be re-used continuously throughout the process – which is the only way that the subsequent processes can be controlled with the necessary efficiency. This requirement does not pose a problem for data from the Eplan platform.

REPLACING MANUAL LABOUR

Fabrication in control and switchgear engineering usually still involves a considerable amount of manual labour. At W. Althaus AG, however, they rely on as high a degree of automation as possible. For instance, routing for wiring and cabling is executed directly from Eplan Pro Panel. All of the data are already in place in electrical engineering and in the virtual prototype. The completely automated machine for wiring and cable assembly is directly controlled with this data. As part of cable assembly, cables are cut to length, labelled, stripped and, depending on the connection technology, furnished with a wire end ferrule (for example). All of the wiring cables required for the order are then pre-assembled and made available, already labelled. Connecting the components within the enclosure is thus quite simple. "In principle, any non-technical personnel can carry out this task, because both the cables and the components are labelled," Althaus explains.
The company also counts on automation for processing metal parts of the enclosures. In order to machine enclosure parts such as doors and side panels as well as mounting plates, Perforex machines from Kiesling Maschinentechnik are used, among others. Machines from Kiesling, which like Eplan and Rittal belongs to the Friedhelm Loh Group, are suitable for operation with all materials commonly used in switchgear engineering, including steel, stainless steel, aluminium, copper and synthetics. They can also quickly and automatically handle boring, threading and cut-outs. ➔

W. ALTHAUS AG

CLEVER DEVELOPER

Swiss company W. Althaus AG, based in Aarwangen in the Canton of Bern, was founded in 1968 and specialises in automation technology for machine tool engineering. The company has more than one hundred employees and mainly supplies companies in Switzerland. W. Althaus AG developed the Athex automatic assembly machine, which is distributed by Kiesling Maschinentechnik.

CONTINUOUS GROWTH
W. Althaus AG develops electrical controls and complex automation solutions at two locations in Aarwangen.

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

These Kiesling Maschinentechnik machines are also fed with data directly from Eplan Pro Panel. “This flow of data is crucial for smooth integration of the various manufacturing processes,” Althaus says. “That’s the only way we can achieve the desired efficiency.”

ATHEX EQUIPS THE TOP HAT RAILS

Along with cable harnessing and metal processing, the mounting of terminals onto top hat rails is a labour-intensive step in fabrication that still requires much manual labour. W. Althaus AG looked for improvements in this area too. The actual assembly process – putting the terminals onto the top hat rails and snapping them into place – is not terribly complex. And so came the idea to automatically mount the terminals onto top hat rails with a machine, namely, the Athex automatic assembly machine. The centrepiece of the machine is an assembly arm that takes the appropriate terminal from a magazine and snaps it onto the top hat rail at the right location. Depending on the configuration, the automatic assembly machine can hold up to six thousand terminals. The labelling of the terminals is also executed directly within the machine.

An ideal complement to the assembly machine is a Cutex cutting machine. It can automatically cut top hat rails to the correct length and also directly label them. If more than one order is being worked on, Cutex can minimise waste at the same time. Both machines work directly with data from the Eplan project.

The combined use of both machines can considerably reduce the amount of manual labour in this part of switchgear engineering. “We expect that mounting of the top hat rails is now possible with 50 per cent fewer personnel than before,” Althaus says of the potential of automated assembly. The result is pre-assembled and labelled top hat rails that just need to be mounted in the enclosure and wired.

W. Althaus AG originally designed and developed the Athex automatic assembly machine for its own fabrication. A short time later, they realised they could develop the machine to market maturity and sell it. “As control system manufacturers, we weren’t able to market such a machine ourselves, so we turned to Kiesling Maschinentechnik, with whom we have a long-term working relationship,” Althaus explains. Kiesling Maschinentechnik integrated the Athex into its own programme and now markets it worldwide.

A major advantage of automated processes in fabrication – along with efficiency and cost benefits – is higher-quality products. Consistently labelled cables, top hat rails and terminals help ensure that fewer mistakes are made when wiring, for example. Nonetheless, testing the control equipment before delivery is an essential part of standard procedure. Any mistakes that are noticed and corrected before delivery can prevent unnecessary additional costs.

60 PER CENT TIME SAVINGS

Testing can also be automated. The Panel Scout from Kiesling Maschinentechnik handles this task, with the control system enabling time savings of up to 60 per cent as compared to conventional testing methods. Aside from the time savings, the increased reliability speaks for automated testing. “Of course, mistakes can be made in conventional testing as well. We can avoid these by using Panel Scout,” Althaus says. The Panel Scout is a computer that is connected to the control system of the test specimen by means of an adapter station fitted to the application. “Automated testing pays off for us for batch sizes of more than thirty,” Althaus says.

The many optimisations implemented by W. Althaus AG in recent years have transformed it into one of the most modern control system engineering companies in Switzerland, if not in all of Europe. “Through additional optimisations along the process chain,” Althaus says, “we’ve achieved gains in efficiency of around 20 per cent in fabrication alone over the past two to three years.” One precondition for this high efficiency is the continuity of data along the entire process chain from engineering to fabrication to testing. In addition, commercial processes such as costing, procurement and logistics are also optimally integrated. “We’ve fostered a very close working relationship with the companies of the Friedhelm Loh Group – Eplan, Rittal and Kiesling Maschinentechnik – for many years and have always decided for the newest developments to advance efficiency in the company.” There will be more advancements in the future. “Automated wiring of components, which is possible with the Averex wiring robot from Kiesling, is something we’ll definitely take a look at.” ■

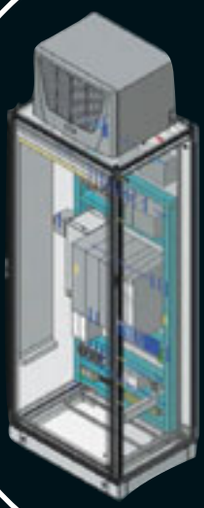
SAVING TIME STEP BY STEP
Continuous access to data for all components has positive effects for engineering and fabrication. The Athex automatic assembly machine (photo lower right) extracts terminals from a magazine and places them on the top hat rails. Althaus sees strong potential in the Averex wiring robot (top right) for making fabrication even faster.

DATA AS THE NEW RAW MATERIAL

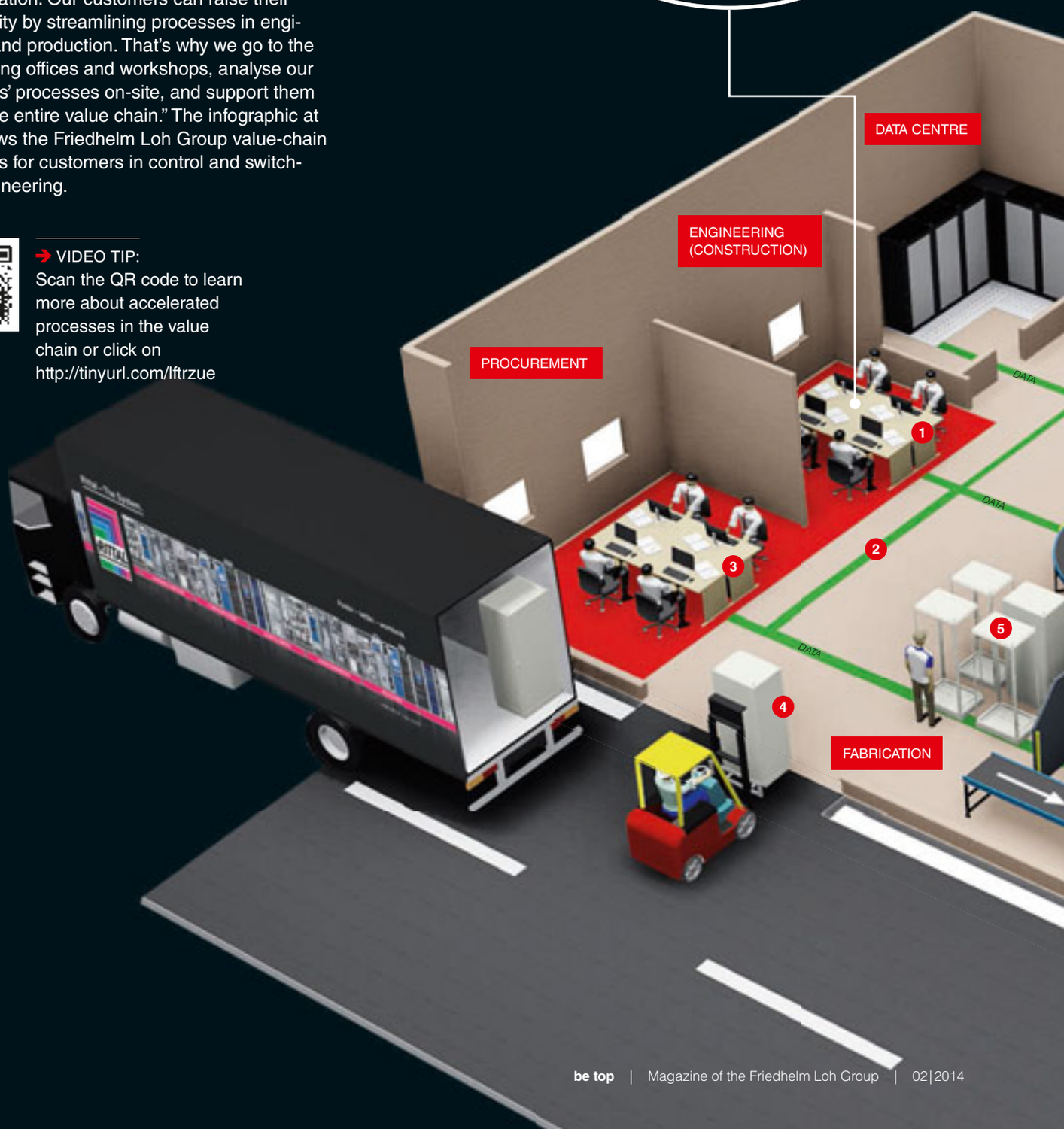
DR THOMAS STEFFEN,
President International Research and Development at Rittal, has his eye on value creation.

"Software integration and command of interfaces will be decisive in the future," Dr Thomas Steffen says. "The keyword for this evolution is Industry 4.0. Together the companies of the Friedhelm Loh Group – Eplan, Cideon, Rittal and Kiesling – offer huge potential for enhancing value creation. Our customers can raise their productivity by streamlining processes in engineering and production. That's why we go to the engineering offices and workshops, analyse our customers' processes on-site, and support them across the entire value chain." The infographic at right shows the Friedhelm Loh Group value-chain processes for customers in control and switchgear engineering.

→ VIDEO TIP:
Scan the QR code to learn more about accelerated processes in the value chain or click on http://tinyurl.com/lftrzue



Virtual data as raw material
Before a switchgear system comes into existence in the "real world," engineers develop a virtual 3D model. The data for the enclosure, accessories and equipment come from the Eplan Data Portal (see also page 54), which currently contains 480,000 data sets from major manufacturers. Along with the technical data, many graphical 3D data for components are also available which are necessary for prototyping.



1 Product development
With software from Eplan and Rittal, as well as the 480,000 items and device data, design engineers can quickly generate control and switchgear systems on the computer.

2 Costing
How much does it cost to bore a hole or wire a mounting plate? Cideon is a master at interfacing commercial and production-related costing data.

3 Ordering
Once technical planning is completed and an offer from Rittal is received, procurement can place the order.

4 Delivery
With "Rittal – The System." system engineers receive standardised components for the construction of enclosures, housings, climate-control systems and busbar systems as well as accessories.

5 Preparation
Side panels and mounting plates are put together for further assembly; rack frames are mounted onto base/plinth systems.

6 Panel processing
Using Eplan data for the virtual assembly, the Perforex machining centre from Kiesling can drill, mill and tap flat parts such as doors completely automatically.

7 Terminal installation
Athex, Kiesling's automatic assembly machine, installs the terminals in an enclosure onto top hat rails. The Cutex cutting machine automatically cuts and labels the rails.

8 Cable assembly
Eplan software determines the optimal wire and cable pathways in the virtual 3D model and wiring diagram.

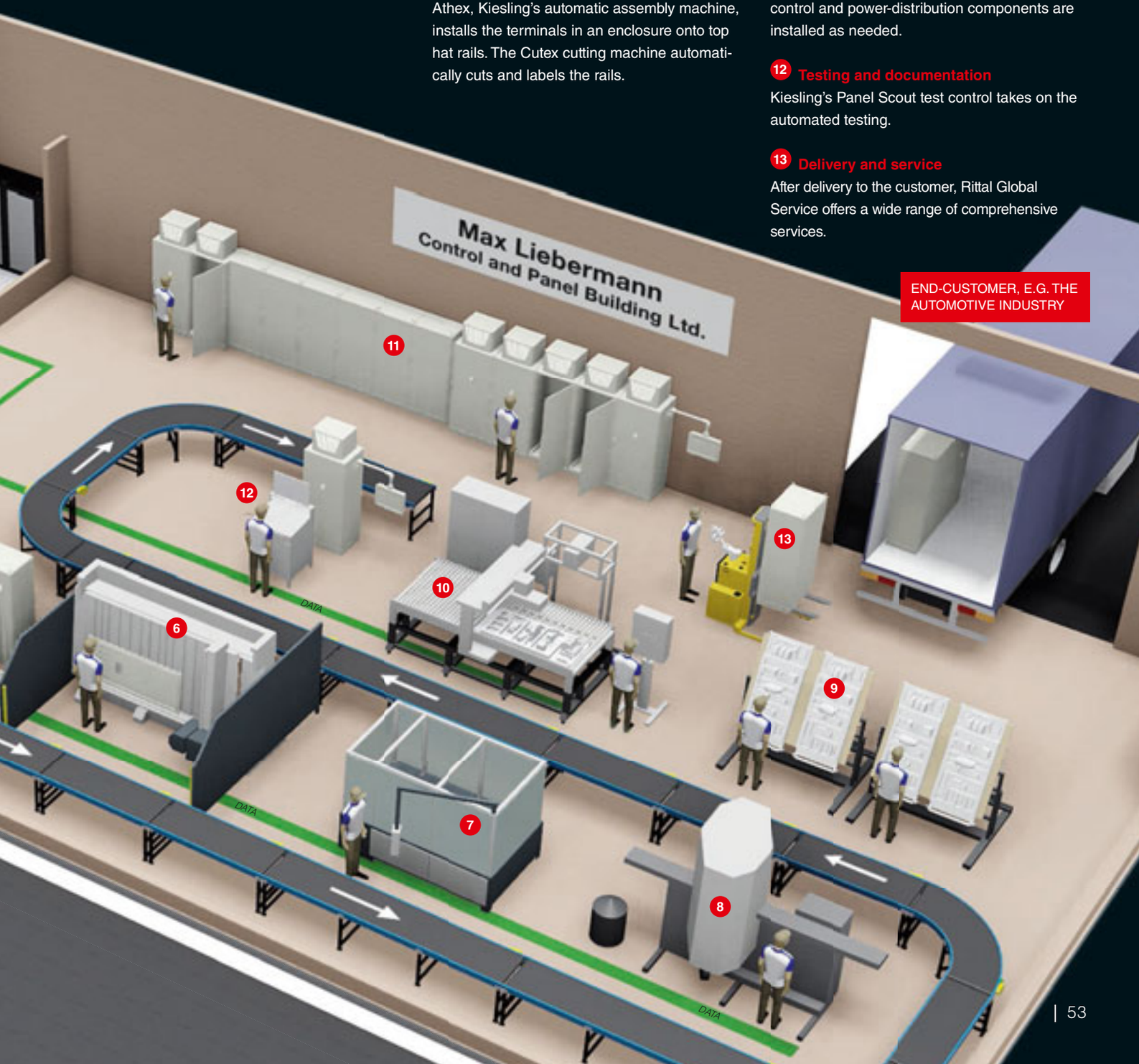
9 Manual wiring
An ergonomically designed assembly table improves working conditions.

10 Automatic wiring
Manual cable preparation and wiring takes on average 180 seconds per connection. The Averex wiring centre from Kiesling does the same job in just 40 seconds.

11 System configuration
Once all of the components have been processed and wired, the Rittal enclosures are assembled into a system solution. Climate-control and power-distribution components are installed as needed.

12 Testing and documentation
Kiesling's Panel Scout test control takes on the automated testing.

13 Delivery and service
After delivery to the customer, Rittal Global Service offers a wide range of comprehensive services.




480,000 DATA

NEW DIMENSION

Engineering. The newest version of Eplan Data Portal is here! Data on 480,000 parts, including schematic macros, geometric dimensions and documents, can be imported to engineering automatically. One of the many bonuses in this update is the integrated 3D viewer.

Text: Birgit Hagelschuer

ENGINEERING FUEL
The new version of Eplan Data Portal provides not only even more data, but even more features and convenience as well.

Choices are good, but variety and timeliness are better: this could be the slogan of the August relaunch of Eplan Data Portal. Users now benefit from a wide range of data on 480,000 parts – an increase of more than 20 per cent – which is continuously being expanded. Starting with this update, renowned manufacturers such as the Italian company Finder are represented in the portal with almost 700 records. Another new addition: ifm electronic, which supports its customers with almost 500 records in the fields of sensors and evaluation systems. The new integration of the Vega Configurator is also extremely interesting (see interview, page 57): the user is provided not only with standard components for process measurement technology from Vega Grieshaber KG, but also with the option of individually selecting and configuring components according to project demands. Manufacturers that were already integrated into Eplan Data Portal have also amended or expanded their product portfolios. Siemens, for example, has added more than 2,100 records from the 3VA series to the portal. In addition to commercial data, switch symbols for Eplan and documents, 3D data including production information is also now available. SMC Pneumatics has updated and expanded its product spectrum. Fluid users now have a variety of cylinders, valves and hoses at their disposal from more than 15,000 records. ABB, General Electric, Icotek, Helukabel, Numatics, Rockwell Automation, Sick and Wieland have also updated their product portfolios in Eplan Data Portal. All data can be imported to engineering automatically and expeditiously.

ADDED VALUE FOR PROFESSIONALS

Eplan Data Portal's user interface has also been optimised. The view of the seventy currently participating manufacturers has been adapted to the design of the Eplan Data Portal app. Displaying manufacturer logos in a grid speeds up navigation. ➔

The feedback function has also been expanded. Users can respond to manufacturers in the application directly with information about missing components or faulty representations, for example. In this way, the quality of the data constantly increases. Participating manufacturers benefit at the same time. “Being in direct contact with users is a crucial added value for manufacturers,” says Eplan product manager Timm Hauschke. “And as operator of the portal, we are particularly pleased with its interactivity. After all, it is in our interest to have manufacturers store the most complete portfolios and data possible.” It is a win-win situation for both parties when the user has a direct line to the manufacturer in the event that important features or device data are not being provided. After all, the user is the best judge of which component data will be necessary for project management. Subsequently, higher-quality data means gradual benefits for the user, and the manufacturer gets a sense of the components that are needed.

PAPERWORK A THING OF THE PAST

Eplan Data Portal’s optimised search function is a further innovation: part or type numbers are directly displayed as the first search results, so that a component can now be found even faster. This benefit is key: thanks to the popular and frequently used Eplan Data Portal app, data is available anytime, anywhere. “Designers especially appreciate being able to access currently available data anywhere, such as at the commissioning of a machine. Our app offers the ideal way to access components locally,” says Hauschke. It also eliminates a lot of paperwork: before now, if a user needed detailed information about a device (e.g. user manuals or a data sheet), he would have to bring printouts of these data to the construction site. Thanks to the Eplan Data Portal app, this step is no longer necessary.

Another plus is the 3D viewer, which has been newly integrated into Eplan Data Portal. It contributes to project success by giving users a direct view of components and enabling them to assess the spatial position in the enclosure and obtain useful, crucial evaluation criteria. Timm Hauschke explains that “after very positive experiences with our Eplan View app, we decided to integrate the viewer right into Eplan Data Portal as well. Users searching for various components now have 3D functionality available to them”. In short, viewing, evaluating and selecting components is now even faster and more convenient. ■

→ APP TIP:
More information can be found in the be top app.

NEW INTERFACE

SAP INTEGRATION

Eplan’s sister company Cideon has developed a new interface to enable fully automatic data synchronisation between Eplan Platform and SAP PLM and SAP ERP. The integrated workflow between these leading systems supports controlled throughput in materials management for both BOMs and document management. The new standard Eplan–SAP direct integration enables the secure storage of projects in the SAP system and the exchange of parts lists and BOMs.

→ LINK TIP: www.eplan.de/en/start

VEGA CONFIGURATOR NOW IN DATA PORTAL

Interview. The customers of Vega Grieshaber KG have been using Eplan Data Portal to design and analyse applications since late summer 2014. Holger Sack, director of product management at the measurement specialist, spoke about the benefits that the integration of Vega Configurator provides to his customers.

Mr Sack, what can the Vega Configurator do?
Holger Sack: The Vega Configurator contains information about all of our products – not only performance data, but also potential application environments including resistance to certain substances. Plant engineers can use it to select and configure customised measuring instruments.

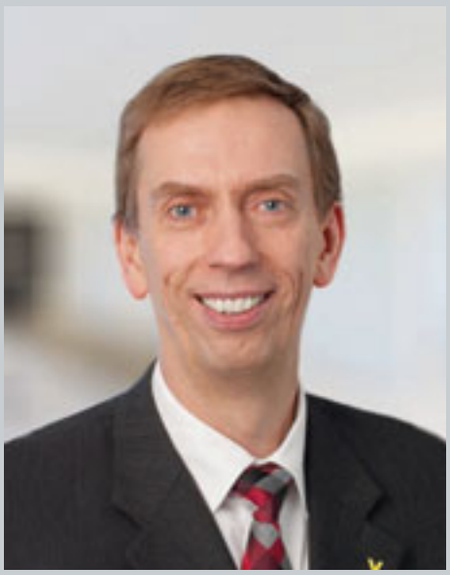
What is the benefit of its integration into Eplan Data Portal?
Sack: Automatic transfer of all data in both directions. When I select a product, the part number and all of the product info are available in the system without any extra steps. The appropriate macro is stored and can be immediately assigned. Moreover, the Eplan platform automatically generates BOMs from the designs, including part numbers, which saves time and prevents transcription errors.

How many records can Vega customers access when working with Eplan Data Portal?
Sack: So far 288 records in the areas of level and switching measurement have been fed into Eplan Data Portal. They consist primarily of data and macros for the rather complex devices required to link our sensors to larger systems. With the macros for the devices that we have entered so far, almost all sensor systems can be connected – even though not all of the sensors in our portfolio are available in Eplan Data Portal.

Your company developed the Vega Configurator years ago. It can be accessed using apps or on the Vega website. Why did you decide to integrate it into Eplan Data Portal?
Sack: Many of our customers use Eplan Data Portal. We were being asked more and more frequently if it might be possible to offer Eplan macros and integrate the Vega Configurator directly. And of course, we make every effort to offer our customers everything they want.

You didn't need much time to think about it?
Sack: Well, a certain amount of effort was required, which is why we first checked out which planning tools are most popular in the industry. And Eplan is at the forefront, especially in Europe.

How elaborate was the integration process for you and your team?
Sack: Not very, in relation to the benefits. Eplan has always been very supportive of us, and we felt very well tended to during the workshops. The Eplan experts know precisely what to do. Even if the majority of our customers do not use Eplan Data Portal, integrating the configurator was definitely worth the effort!



HOLGER SACK,
director of product management at Vega Grieshaber KG.

VEGA GRIESHABER KG

Vega specialises in level, switching and pressure instrumentation; its current portfolio includes over three hundred basic versions of measuring instruments, with thousands of custom options and a wide range of accessories. The instruments are used in a variety of industries, such as water supply and sewage; energy generation; mining; the chemical, pharmaceutical, and food and beverage industries; shipbuilding; and the paper and cement industries. Vega's advancements measure all kinds of substances, from gases to the coarsest bulk solids: in chemically aggressive or abrasive substances, under vacuum and high-pressure conditions, and in nearly all temperature ranges.
The company, founded in 1959, is a global leader in its field and has been the market leader in radar level measurement for over fifteen years. Vega employs 1,100 people; 600 of them work at the headquarters in Schiltach, Germany.

THE FORM OPTIMISER

Interview. Carl Bass is the visionary CEO of Autodesk. The be top team met this unconventional thinker, who does not fear making unusual decisions. Bass spoke about the market for development software and the role of system houses such as Cideon, the most recent addition to the Friedhelm Loh Group.

Text: Ralf Steck

In your opinion, how are customers' requirements for technical development software changing?
Carl Bass: Interest in quality has been replaced by cost reductions and enhancing efficiency. Speed and flexibility are the current buzzwords. Questions customers care about include: how can I get better products to market more quickly? How do I differentiate myself from the competition?

What position are companies in today?
Bass: I think that companies have powerful tools available and are now searching for opportunities to improve processes. Mechanical development shouldn't be an island unto itself, but should work together with electrical, electronics, software development and other company departments. Processes within the departments are already well organised, but there's a lack of interconnectedness and networking of these processes between departments.

How is Autodesk reacting to this?
Bass: We develop integrated solutions, which is about more functionality on the one hand, but also about improved interfaces between the individual departments' software solutions. In practically every company, we are dealing with heterogeneous system landscapes, and we must be good at handling heterogeneous data. The vault solution for data management has been able to do this for some time now. Autodesk's most important goal is to get the tools out of the way, so to speak; we want to design them so that users can focus on their tasks instead of dealing with the software, which is actually just supposed to be a tool.

What challenges do you see for the near-term?
Bass: We're in the middle of a process of change. Production is undergoing a renaissance, especially here in the United States. Companies' interest in how things are produced is on the rise again. Furthermore, new processes are being developed in manufacturing: additive production processes, for instance, as well as new materials such as carbon-fibre-reinforced polymers. Companies require tools to be able to use these new technologies; they want to rethink their products and develop unconventional, never-before-seen ideas. Only then will they be able to exploit the opportunity that the processes and materials offer. I find machines that combine subtractive processes very interesting. The integration of simulations and ➔

AUTODESK UNIVERSITY

CREATIVE CO-WORKING

As part of Autodesk University, which took place in Darmstadt, Germany at the end of October, Carl Bass spoke about the visions and challenges of CAD and PDM solutions among other topics. As an Autodesk Platinum Partner, Cideon was represented with two success stories as well as its own trade fair stand at the event. Specialists, design engineers, architects and planners from the areas of construction, machine engineering, suppliers and product development meet at the university each year and exchange news about the latest developments.
With more than 25 years of experience, Cideon is an Autodesk Platinum Partner and certified training centre with thirteen locations in Germany. The profound expertise of our employees provides the foundation for analysis, consulting and both individual and standard training, as well as installations and implementation of Autodesk CAD and PDM solutions.

➔ LINK TIP:
Find out more about Cideon and Autodesk at:
http://tinyurl.com/n5boubz

➔ APP-TIP:
More information at www.autodesk.com and in the be top app.

visualisations in CAD software is another aspect that will change the working world for developers and engineers. We're thinking about allowing simulations to run in parallel with modelling processes so that designers get real-time feedback to keep them from going down the wrong track. Over time, this refines users' intuition so that they can become consistently more efficient.

What role does the Autodesk cloud offering play, marketed under the Autodesk 360 moniker?
Bass: We consider the entire workflow, from development through to fabrication, and find many points of contact where the cloud's technical possibilities make sense and open up new opportunities: the unlimited computational resources in the cloud and the always-accessible central coordination space. With the help of tablets, you can access your data at any time and from any place, communicate, work, and find out about the status of your project.

What does that specifically mean?
Bass: The next generation of engineers will see cloud and social-media functions in software tools as natural parts of these and expect them to be available. The fact is that the tools we're using for today's challenges are essentially twenty years old.

What functions will software companies and resellers have?
Bass: It's been years since we've had partners that just deliver software and sell licences. Software companies today must find optimal solutions for customer demands, provide the right tools and interfaces, and integrate these into a seamless workflow.

How important is Cideon, a subsidiary of the Friedhelm Loh Group, as a Platinum Partner for Autodesk?
Bass: Cideon has been a wonderful partner over many years. They have a fantastic approach to the deep integration of various tools in an overall solution – that's exactly what German users want and expect. The disciplines of mechanical and electrical engineering working hand in hand is another topic of great importance, especially in Germany. We're happy to have partners who can use our products and interfaces to create a development environment for the kinds of software packages that are in demand in their respective regions. It's important to be close to the customer, and companies like Cideon are the connection between us and the customer. So they play a very crucial role.

How important is the manufacturing sector for Autodesk?
Bass: Very important! Autodesk has a huge interest in computer-supported fabrication and other technologies related to manufacturing, and with HSM software and the Delcam portfolio we have offerings for the mid-range market as well as for the high-end arena. It's simply not enough to model and simulate products; the manufacturing process must also be integrated into the workflow.

What role does Autodesk play in this market?
Bass: It's not as if there aren't any CAM software packages; the market actually has plenty of solutions that work quite well for the most part. It's our job to integrate CAM into the processes and to interlock these established functionalities with the rest of the product development cycle.

Which problems must be solved?
Bass: As always, companies are asking themselves why it takes so long to get products to market. It should be easier to get from the idea to the finished product. One direction we're researching is performance-based design. That means that you leave the computer to do the design engineering and just prescribe the limiting conditions and functions that the product should cover. To put it another way, it's the result of combining modelling and simulation: the exterior form of a component results from the function and requirements – the rest is optimising the form.

What will be topics of the future?
Bass: It will be about the possibilities that new fabrication processes and materials offer us. I think we will see astounding new solutions that will only become possible when we exploit these processes and materials without taking previous construction paradigms into account. ■

TINKERING XXL

Carl Bass has set up two workshops at home, one for woodworking and one for metalworking. Each is about 1,800 square metres in size and has all the equipment of a hobbyist's wildest dreams: milling centres, CNC machines, hand tools and 3D printers. This is where the 57-year-old spends his leisure time. He is certain that even the best plant machinery isn't worth a thing if a person cannot demonstrate any DIY skills or technical expertise. Bass worked for many years as a carpenter and boat builder while he was in college studying mathematics.

A LASTING IMPRESSION

AFTER EIGHT YEARS HEADING ZVEI, FRIEDHELM LOH IS NOW HONORARY PRESIDENT

The German Electrical and Electronic Manufacturers' Association (ZVEI) bid farewell to Friedhelm Loh in June after his three-term tenure as president. As thanks, the association unanimously voted the CEO of the Friedhelm Loh Group Honorary President of the organisation. "As a professing Christian, you once said: Faith should be a great motivation to do more than others do," said ZVEI board member Walter Mennekes in his laudatory speech in Frankfurt am Main. This sentiment also applied to Friedhelm Loh as ZVEI president. Mennekes continued: "The ZVEI is well positioned – in Berlin as well as in Brussels. His voice is clear, is distinct, and it is heard, especially in politics!" Loh understood how to make the significance of the electrical and electronics industry understandable for top German and European politicians and how to anchor it in the political landscape. Loh shaped the association to an extraordinary degree from the start of his presidency in 2006, and set it on a forward-looking path by way of various reforms.

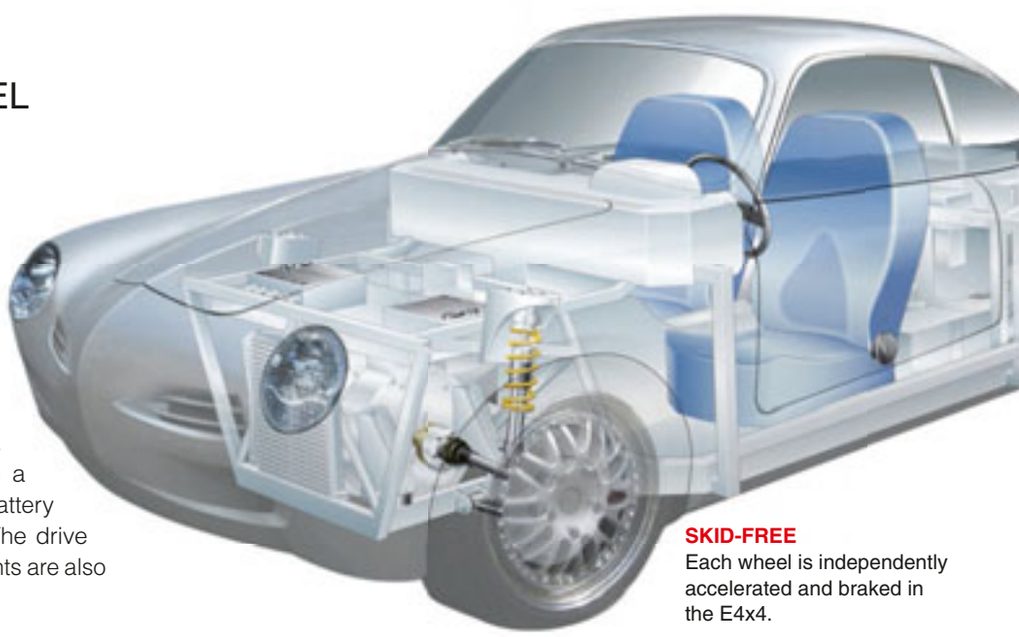
Loh stated that it had been an honour for him to be ZVEI president. For the family-business owner, the electrical and electronics industry is in the mainstream of society. The digitalisation of society will progress further with the energy transformation, energy efficiency, smart buildings and smart homes, new forms of mobility, embedded systems and Industry 4.0. And what's more: "We are a key industry globally." He referred to positive developments in the electrical and electronics industry over the past eight years despite the difficult economic crisis. These industries' exports, which totalled around 158 billion euros in 2013, were about 22 billion euros higher than in 2005, and the number of employees in Germany had increased by 38,000. Furthermore, one-quarter of all private-sector expenditures for research and development in Germany were spent by companies in the electrical and electronics industry.

SUPERLATIVE FINGERPRINT
Friedhelm Loh received a large-scale image of his fingerprint from the new ZVEI president Michael Ziesemer, ZVEI board member Walter Mennekes and ZVEI managing director Dr Klaus Mittelbach (from left to right).

MOTOR ON EVERY WHEEL

E-MOBILE RESEARCH PROJECT

The E4x4 impressed with its exterior and intrinsic qualities: each wheel is powered by its own electric motor. The prototype, in Karmann-Ghia style, is the result of a research project by Creative Data AG in Cologne and Dortmund University of Applied Sciences and Arts. The goal: increased driving safety for electric autos. Beneath the bonnet, four contactors in a Rittal AE compact enclosure control the battery power of 40 kilowatts per wheel motor. The drive control and the 12-volt distributor for the lights are also installed in Rittal enclosures.



SKID-FREE
Each wheel is independently accelerated and braked in the E4x4.

ENERGY SAVED

ECO-PROJECT AWARDED PRIZE

The Rittal production plant in Burbach is one of the eleven companies in the municipality that have taken part in the “Ökoprofit” energy-saving project. They were recognised for this endeavour by North Rhine-Westphalia’s Ministry for the Environment. A total of 2.7 million kilowatt-hours of power were saved in Burbach, thus resulting in 900 fewer tonnes of carbon dioxide emissions. The Burbach municipality initiated the Ökoprofit project. Energy experts from the Baum Consult consulting agency assisted the companies in identifying specific energy-saving measures and implementing them. In Burbach, where Rittal has around 350 employees, the environmental team realised numerous energy-saving measures, including the installation of a new air compressor, replacement of the factory lighting and the heating systems, and the commissioning of a combined heating and power system that runs on sustainably cultivated vegetable oil.

ACCOLADES
North Rhine-Westphalia’s Minister for the Environment Johannes Remmel honoured factory director Hubertus Spiekermann and Jörg Kühn (from left to right). At right: Mayor of Burbach Christoph Ewers.

VERY EASY-TO-PLAN IT

INFRASTRUCTURE CONFIGURATOR FROM RITTAL SIMPLIFIES SELECTION

IT infrastructure can now be very easily planned online. The IT infrastructure configurator “Make IT easy” from Rittal supports partners, system integrators, system engineers and users. Anyone can assemble a customised data centre equipped with as many or as few individual products as necessary, including racks, climate control and monitoring systems. Users can select the most appropriate components for their applications according to various criteria.

➔ LINK TIP: http://tinyurl.com/mskku2x

SO THAT'S WHAT THEY LOOK LIKE!
The technical consultants of Rittal's customer hotline: Anke Bobenau, Angela Zutt (top row), Thilo Neumann, Rolf Wagner, Björn Steinebach (middle row), Norbert Horn, Hartmut Lohrey, Klaus Schimke (bottom row, all left to right).

THREE MINUTES TO CUSTOMER SATISFACTION

Technical customer support. Rittal Technical Hotline employees respond to over 50,000 requests a year. It takes them only three minutes on average to provide professional assistance to customers. be top takes a look at these experts' daily routine.

Text: Robert Sopella

After making a final push of a button to reroute his calls, Björn Steinebach takes off his headset and clocks off – it's time for a well-earned rest. For the past eight hours, he has provided intensive consultation, answering questions about highly complex technical issues and explaining how to work with Rittal technology. Outside, the sun is shining in a deep blue sky, and it is 28 degrees Celsius in the shade. "On days like this," he says, "the calls suddenly multiply." One customer has problems with his blade server's cooling system, and another complains of heat build-up in his enclosure, while others simply need a replacement part or just have an unanswered question. But all callers have one thing in common: they need help, preferably immediately. Since 2004, providing that help has been the daily challenge at the Rittal Technical Hotline at Rittal's headquarters in Herborn, Germany.

Steinebach is one of the hotline's five full-time technical consultants. An additional eight team members help out when needed. They serve clients from all over the world and speak fluent German, English and Hessian. They know every product, application and usage inside and out, a prerequisite for working here. Along with inner calm and serenity, says Steinebach – even when that is not always easy.

In addition, all but one of the hotline staff originally learned a technical trade. They are trained radio, electrical or information engineers. The one exception, 44-year-old Klaus Schimke, is the team's "rara avis". Trained in industrial management, he has been employed at Rittal since 2001, working in the company's internal sales department for more than a decade before joining the hotline team. Thanks to his many years of experience, he is extremely familiar with customer needs. And his innate understanding of and interest in technology are not just essential for his work, he says, but also make it extremely enjoyable.

EXPERTISE ON THE LINE

"Hello, I'm Anke Bobenau. How can I help you?" The speaker, seated at her desk, is the only woman with a full-time position at the hotline. Now 44, she started working for Rittal in 1992 and has been a technical consultant on Rittal's hotline team since 2008. The customer on the phone has a very old cabinet in need of a spare part. Obtaining the necessary information is often very difficult, according to Anke Bobenau's coworker Thilo Neumann, seated across from her. Over the course of years in harsh work environments, identification plates displaying the specific model numbers go missing – and this time was no different. "The customer is sending photos," the trained radio and television engineer informs her coworkers. As soon as the photos arrive, the team will do research until the enclosure has been identified and the part can be ordered. Although it often takes only →

RITTAL SERVICE IN NUMBERS

TING-A-LING!

The Rittal Technical Hotline team responds to approximately 50,000 telephone enquiries and 15,000 e-mails each year: 70 per cent of all enquiries are resolved over the phone; 30 per cent require additional research or evaluation. In February 2014, the hotline received 380 telephone enquiries in a single day, a record high.

→ RITTAL HOTLINE:
Do you have technical questions, or would you like to commend our support team? Then just call us at +49 (0) 2772 505-9052.

> “Which hotline situation is particularly memorable for you?”

EPLAN AND STAHLO SUPPORT

FULL SERVICE

F.L.G. subsidiaries Eplan and Stahlo also offer top technical support: with the modern, web-based Eplan Solution Center, customers have round-the-clock access to solutions provided by the global support team.
Stahlo offers technical application support from expert Kerstin Hirsch. Among the services provided are savings options through the right choice of steel grade, materials testing and material training courses.

➔ LINK TIP:
Eplan Solution Center: www.eplan.de/en/support/eplan-solution-center

➔ CONTACT:
Technical application support at Stahlo:
phone +49 (0) 2771 302-6854,
E-mail: hirsch.k@stahlo.de

a few minutes, sometimes they need a little more time. Thilo Neumann is proud to report that they always succeed sooner or later. One just has to keep at it, adds Anke Bobenau.

50,000 CALLS EACH YEAR

Rittal’s absolute determination to try and help customers is one reason why the hotline is not simply farmed out to an anonymous call centre, explains Hartmut Lohrey, head of Rittal’s marketing, training and support department. Technical customer service requires comprehensive professional know-how, something that cannot be simply outsourced or learned on the fly. Most of the consultants have been at Rittal for well over ten years – seven of them have actually been on staff for more than twenty. The working atmosphere is collegial and friendly, and employee turnover is very low. Along with constant exchange between team members and in-house departments, this setting ensures consistently high-quality support. After all, each customer has the right to expert advice, says the department head, who has been with Rittal since 1988. Customers exercise this right about 50,000 times each year – that is how often the phone rings at the Rittal Technical Hotline. According to Lohrey, 70 per cent of all telephone enquiries get an immediate response. The rest require additional evaluation, research or even application testing. On average, it takes his expert team only three minutes to come up with a competent solution. However, if the questions are about standards or special, unusual applications, the answer can sometimes take a little longer. And in the time available when the phones are not ringing, the team manages to process some 15,000 mail enquiries each year. But because the phones are rarely quiet, explains Lohrey, a mail response can sometimes take a bit longer. For urgent matters, therefore, it is always advisable to call. If all consultants are serving other customers, an automatic callback can be initiated as soon as a line becomes available. This step is coordinated in the background by modern phone software, thus ensuring that no calls are lost.
Shortly before 5 pm, Björn Steinebach reroutes his calls with a quick push of a button and takes his headset off for the last time today. He has received, considered, evaluated, researched and responded to about fifty calls today. Just a normal summer day, he says, picking up his bag. A parting glance at his co-workers is his last act of the workday. “I’m out of here – till tomorrow.” ■

THILO NEUMANN, 40
Technical Consultant

"We don't have the power to invalidate the laws of physics, but we will gladly explain that a fan-and-filter unit with an ambient temperature of 40 degrees Celsius cannot have an internal temperature of 35 degrees."

BJÖRN STEINEBACH, 34
Technical Consultant

"One customer wanted a coffee-cup holder on the enclosure. Because this is not one of our standard features, we developed a customised solution for him."

ANGELA ZUTT, 46
Technical Consultant

"After the switchboard transferred him, one customer asked me to connect him with the technical hotline. He must not have been expecting a female technical consultant."

HARTMUT LOHREY, 59
Head of Marketing Training/Support

"An engineer from the Bundeswehr called us with a technical problem. As we later discovered, he was calling directly from the Afghan crisis zone in Mazar-i-Sharif."

NORBERT HORN, 48
Technical Consultant and Training Instructor

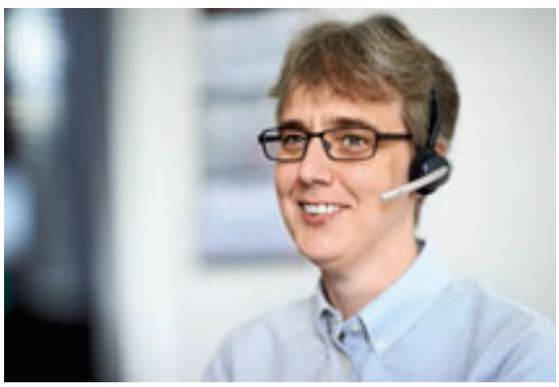
"Our customers are grateful for our technical support. Naturally, their questions also provide us with ideas that we can pass on to other customers."

KLAUS SCHIMKE, 44
Technical Consultant

"Often the most difficult part of an enquiry isn't the technical issue, but rather a customer's dialect. But over time one develops a good ear."

ROLF WAGNER, 56
Technical Consultant
and Training Instructor

"Cultural differences are very interesting to me. While Europeans are usually satisfied with a quick solution, Asians often have detailed questions about background information and solutions."



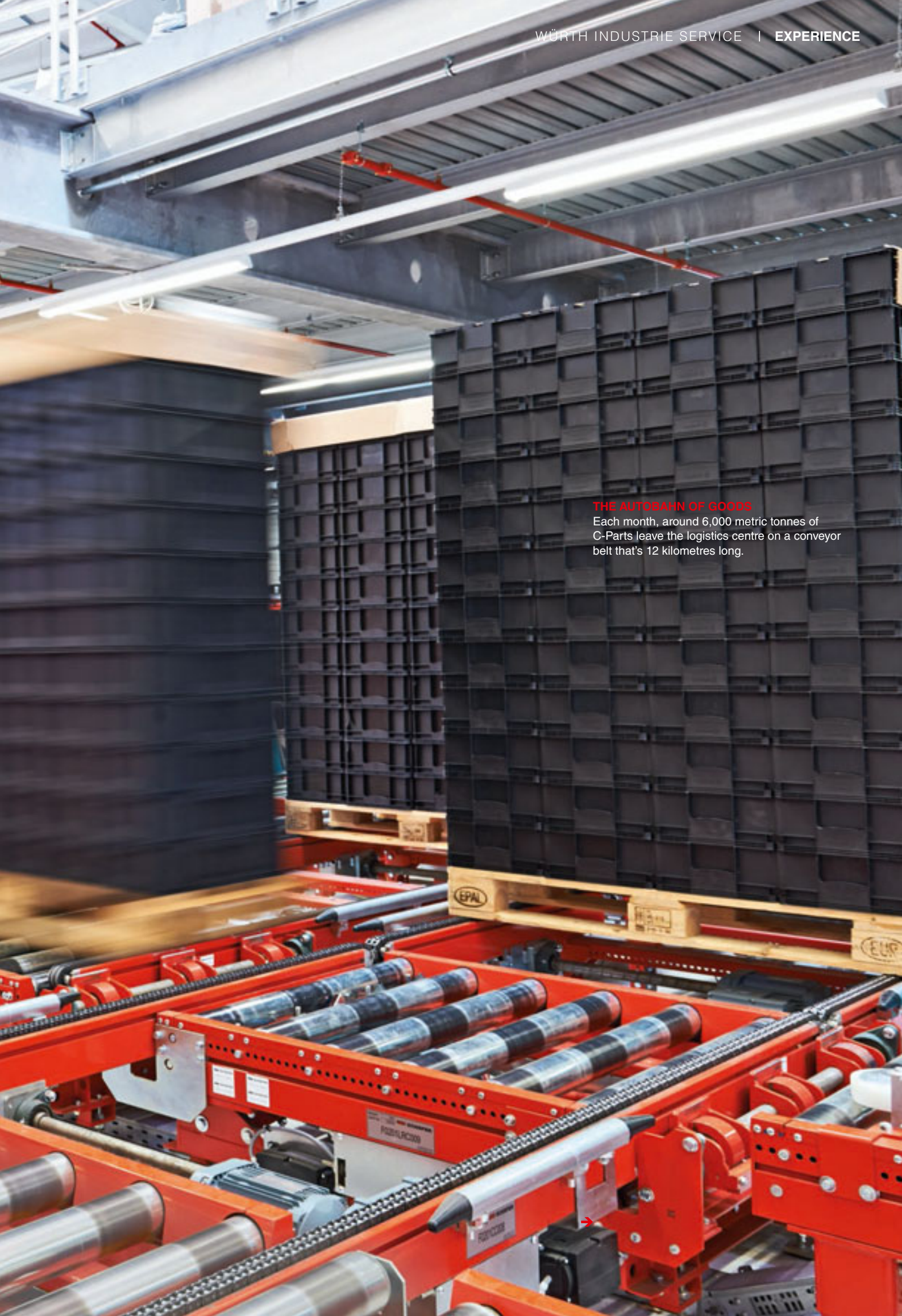
ANKE BOBENAU, 44
Technical Consultant

"Many customers ask us questions about the technical inner workings of the enclosures. We often explain at that point that we do not manufacture the complete inner workings of the enclosures."

LOGISTICS WORLD CHAMPION

Kanban technique. Europe's most state-of-the-art logistics centre for supplying industry is located in Baden-Württemberg, Germany, and belongs to Würth Industrie Service GmbH. The C-Part needs of more than 20,000 customers are taken care of here across 122 hectares. Plastics specialist LKH has been involved in developing these new forward-looking solutions, such as iPush technology, from the very start.

Text: Rebecca Lorenz and Jürgen Jehle



THE AUTOBAHN OF GOODS
Each month, around 6,000 metric tonnes of C-Parts leave the logistics centre on a conveyor belt that's 12 kilometres long.

Europe's most modern logistics centre for supplying industry is surrounded by dense forests, lush green meadows and gently rolling hills with vineyards. Würth Industrie Service GmbH set up shop in Bad Mergentheim in northeast Baden-Württemberg, Germany, fifteen years ago. The subsidiary of Adolf Würth GmbH & Co. KG, the world's leading wholesaler of fasteners, offers its clients customised procurement and logistics solutions. Its core business – dealing in C-Parts – operates on an area the size of more than 122 football pitches. The range of products includes more than 1.5 million articles such as bolts, nuts and washers. Every day, more than 1,300 employees are responsible for covering the C-Part needs of 20,000 customers, including those involved in plant and machine tool engineering.

Constant replenishment of C-Parts is important for customers such as Liebherr, Bosch, Rittal and Siemens. In order to maintain production efficiency, an uninterrupted supply of these small parts must be guaranteed. If an assembly operator runs out of bolts, the entire production line comes to a halt. So that this doesn't happen, the required C-Parts must be available at the right place at the right time. Yet the procurement and logistics of C-Parts is extremely complex. "The value of C-Parts themselves is many times less than the resulting process costs," says Ronald Kerekjarto, key account manager at Würth. "Since many of our customers aren't interested in spending resources on C-Parts, we offer C-Parts in tandem with integrated logistics system solutions."

Christian Schorndorfer, managing director of Würth Industrie Service, explains how the comprehensive carefree package works at Würth: "we deliver C-Parts just-in-time and directly where customers use them. We control the material flow at a customer's site by means of self-developed kanban containers [W-KLT] with barcoded labels. They specify the storage location, the item, the container, the batch and the fill quantity. Order initiation takes place via RFID-supported system solutions for around 12 per cent of all kanban customers at Würth."

Fast data transfer creates even more supply security than the barcode-based kanban, which already ensures secure supplies. Container data for reordering is imported directly into Würth's proprietary enterprise resource planning system.

This comprehensive service offers a lot of potential to manufacturers. Just-in-time delivery of C-Parts saves warehousing and process costs, and within the scope of its value chain also assists companies in efficiently manufacturing products and reacting more quickly and flexibly to changes in the order situation.

NEW DEVELOPMENT WITH LKH

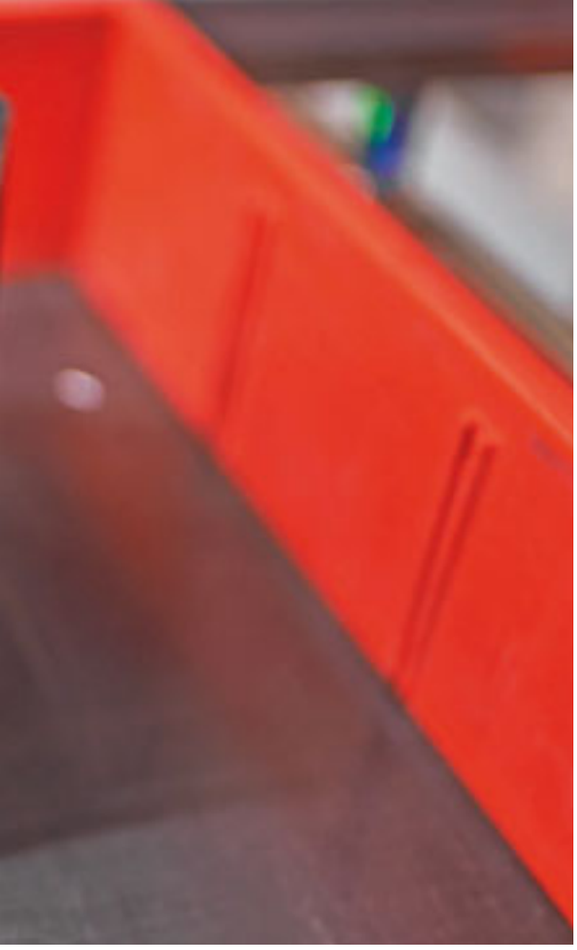
To become more like the factory of tomorrow today, Würth develops its own kanban containers. The W-KLT 2.0 – which already comes with a standard RFID tag – is an integral part of the Würth system universe. The company relies on expert support as part of this process. "As a young company, we need partners who assist us with implementing our ideas in a targeted manner," says project coordinator Franziska Engert. Together with LKH, the plastics processing specialist in the Friedhelm Loh Group, Würth developed the iPush enclosure. The iPush can be mounted either in the W-KLT 2.0 itself or without a container directly onto the shelf. All that's needed to trigger an order is a simple push of the iPush button.

Discussing the decision for LKH as a partner, Franziska Engert says "we needed ideas that we could get our hands on. LKH was flexible and quickly implemented our ideas. The company made a significant contribution to the development of ➔

WÜRTH INDUSTRIE SERVICE

QUICK AND EASY

The iPush is an important element in the industrial revolution of C-Part management and another component in the Würth Industrie Service system universe. On the road to data-controlled Industry 4.0, the demands of industry partners fundamentally change – as do the logistics. Upstream and downstream processes in particular will become more complex and must be optimised continually by industry partners. The iPush from Würth Industrie Service GmbH & Co. KG integrates and automates provision in C-Parts management on the basis of RFID technology.



SUPERLATIVE LOGISTICS
Würth Industrie Service operates its core business – dealing in C-Parts – on an area the size of more than 122 football pitches. The range of products includes more than 1.5 million articles such as bolts, nuts and washers.

"LKH meets all of our requirements in all areas. The company is a powerful, flexible partner that offers outstanding support."

Christian Schorndorfer, managing director of Würth Industrie Service

the enclosure with their own ideas and expertise". The demands on LKH in the production of the iPush enclosure were extensive: the enclosure had to be stable and robust because it was going to be attached to both containers and warehouse shelves. Furthermore, there had to be enough easily accessible space for the RFID technology on the inside. Also important to Würth was that the final product look modern and attractive, and that it could be produced economically.

PIONEERING TECHNOLOGY

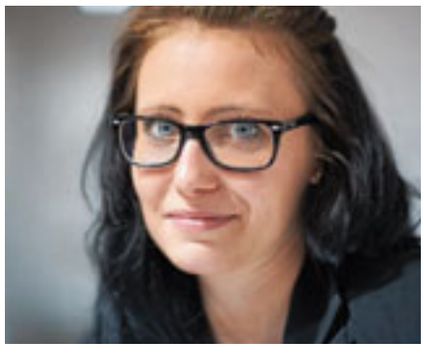
LKH fabricated the first almost-production-quality 3D prototype in a rapid prototyping process directly from the electronic design data. The process used the newest laser sintering technology (see page 29). The enclosure prototype was created layer by layer in a generative fabrication process. "We can manufacture development results and sample components with a high degree of accuracy and component strength," says Dr Guido Stannek, managing director of LKH. "We consistently focus on state-of-the-art technology with our laser sintering equipment for the manufacturing of sample components made of plastic, and so make considerably faster market entry possible for our customers." After initial testing, LKH fabricated 250 enclosures by means of the rapid manufacturing process, which Würth then intensely tested. Thanks to close consultation, the final version of the iPush enclosure was completed in just a few months. The result is a mobile enclosure that can be universally utilised in a container, at a storage location, on a production line or even at a workstation itself.

Currently, Würth is working with LKH on another promising project. Christian Schorndorfer says that "the demands on customer–supplier relationships have changed in recent years and will continue to change in the future. Trends show that provisioning in the future will not occur via a centralised C-Part warehouse, but instead will become more decentralised until it reaches the workstation itself. As of this year, we're able to manufacture a workstation customised to the customer's demands". The W-KLT can be modularly expanded with a W-KLT clip and be flexibly integrated through a track system into the iBIN WP workstation. The iPush is also an important element in our system universe in that it helps continue to advance it. And LKH, Schorndorfer says, is a great partner in developing solutions for the future. ■

IPUSH–INDUSTRY 4.0–LOGISTICS

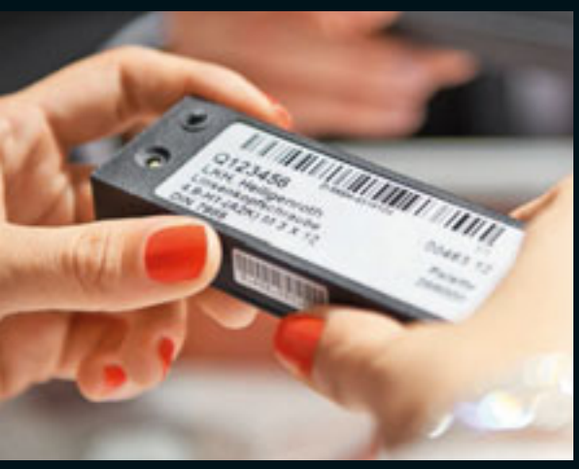
STRONG TEAMWORK

The final version of the iPush housing was developed in just three months. LKH's flexibility, speed and constructive ideas proved persuasive in the end. "LKH contributed to the enclosure's development with their own ideas and expertise," says Franziska Engert (below), project coordinator at Würth Industrie Service, in praise. "We received the first prototypes very fast, and LKH was able to quickly turn around our changes."



CONSTRUCTIVE COLLABORATION
Franziska Engert of Würth Industrie Service appreciates LKH's expertise.

INTELLIGENT PLASTIC ALL-ROUNDER



COMPACT INFORMATION VIA RFID TAG
For ordering via RFID in the logistics centre, the label of the iPush enclosure contains all important data, such as item and storage location.

The iPush from Würth Industrie Service revolutionises C-Parts management in Industry 4.0. At the push of a button, the iPush sends an order placement for article inventory and for reordering. This happens directly in the Würth Industrie Service enterprise resource planning system, completely independent of where it's being used. A number of requirements were important for development of the iPush, which LKH and Würth realised in close collaboration.

– The enclosure required a short lead-time to facilitate rapid time-to-market for the product.
– The iPush enclosure had to be made of the same material as the container: robust PP plastic.
– There had to be enough easily accessible space for the electronics to be integrated.
– There had to be space for the label on the enclosure.
– The final product had to be both visually appealing and practical.
– The iPush enclosure had to be cost-effective in manufacturing.

➔ LINK TIP:
Scan the QR code for more information about the iPush enclosure.

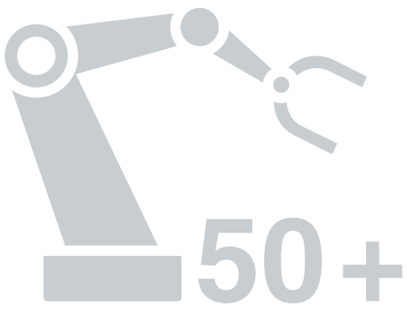
VALUE-ACHIEVER LKH

Single source. Employees at the LKH branch in Heiligenroth, Germany, develop and manufacture a wide array of products aimed at helping LKH customers achieve smooth development and processes.

6,000 m²
is the size of the production area at the LKH branch in Montabaur-Heiligenroth.

With machine sizes running from 25 to 1,000 metric tonnes of closing force and injection weights running from 1.0 gram to 6.5 kilograms, LKH processes all thermoplastics using injection-moulding techniques.

All!



LKH has at its disposal a comprehensive machine park with more than fifty powerful state-of-the-art injection-moulding machines.

INNOVATION HUB

LKH is a technological leader that utilises free-form designs in plastic with high-tech laser sintering equipment (also see page 29). Individual parts and small series are manufactured from standard pellets with 3D CAD data but without tools. The components are constructed additively – meaning layer by layer – from the 3D CAD data with the tiniest drops of plastic. In this way, customised, fully functional components can be economically produced beginning with a batch size of one without any injection-moulding tools.

Using around **800** various tools, LKH processes more than **15 METRIC TONNES** of almost **200 DIFFERENT** pellet variants each day.

Source: LKH

3D

MAKING THE IMPOSSIBLE POSSIBLE

Services. Delivery practically overnight? The Stahlo Steel Service Center has done it before and can do it again. Core business services are currently being expanded, with a focus on stepping up technical applications support.

Text: Robert Sopella

Short-term delivery requests are part of everyday business for Guido Spenrath, managing director of Stahlo Stahlservice GmbH & Co. KG, a member of the Friedhelm Loh Group. Yet there is one particular call that he won't soon forget. One Tuesday, at 4.00 pm, his office phone rang; it was a representative from a large car manufacturer on the line: the press installation for sheet metal parts had broken down. The representative asked if Stahlo was in a position to handle production and deliver parts by Thursday at 6.00 am. After a moment's consideration, Spenrath answered in the affirmative. Yet neither were the appropriate press tools available nor was the special steel in stock. "We didn't even have the technical drawings for the parts at that moment," he recalls. Despite these circumstances, and under this intense pressure, the production plans were changed, shift schedules reworked, and delivery of the tools and the steel coordinated with the car manufacturer. "On Thursday, the sheet metal parts – in the highest quality, of course – were on time at 6.00 am. in the manufacturer's production facility for further processing."

Spenrath says that this example very clearly sums up what Stahlo is all about. "Our customers expect quick response times and fast delivery as well as top-quality product," he explains. The company ensures the latter through comprehensive quality-assurance measures. "Every coil that leaves our production lines undergoes extensive chemical and mechanical testing."

In the company's testing labs, a tensile testing machine precisely records the material's mechanical characteristics under tension. Furthermore, a vacuuwm emission spectrometer very quickly analyses the mass fraction of up to sixteen different elements in the sheet metal. Continual supplier audits and certification according to ISO standards – such as ISO/TS 16959 for the automotive industry – additionally ensure a consistently high level of quality.

RECOMMENDING THE RIGHT STEEL

Another important component of quality assurance is technical application support, whereby Stahlo assists its customers in finding the optimal steel for the respective application. One great advantage of this service is that the company remains independent of specific manufacturers. "This way we can select the best material for our customers from the whole spectrum of various steels available," Spenrath says. There are no less than 3,500 different types of steel – with physical, chemical and environmental properties differing within these types. When making a selection, solid professional expertise built over decades is required, an expertise that Stahlo commands, Spenrath says. "We always view technical application support as an anticipatory investment in a long-term partnership." ■

APPLICATION SUPPORT

GOOD CHOICE

Technical application support from Stahlo ensures that the steel grade selected is the one that perfectly fits the application. This choice lays the foundation for the highest product quality – with potential cost reductions and gains in efficiency.

➔ DIRECT CONNECTION:
If you would like to take advantage of our technical application support, please contact Kerstin Hirsch by calling +49 (0) 2771 302-6854 or via e-mail at hirsch.k@stahlo.de.

ALL-ROUND PERFECTION
At the branches in Dillenburg and Gera, Stahlo produces slitted coils, blanks, standard sheets, cut-to-size sheets and contoured blanks in all common grades – from high-strength to ultra-high-strength.

EXPANDING SUPPORT

Interview. Guido Spenrath, managing director of Stahlo Stahlservice GmbH & Co. KG, speaks about how the company's expertise in ultra-high-strength steels sets it on a path for future growth.

What are your goals over the medium term?
Guido Spenrath: We want to position Stahlo more broadly and establish additional services for our core business that make us more independent from fluctuations in the economy. At the same time, we are making long-term partnerships with our customers possible; drawing from our extensive expertise, we can provide support for their production processes, from design to implementation.

Which services do you mean exactly?
Spenrath: For one, we want to continue to intensify our activities in steel trading. Furthermore, we will be considerably expanding technical application support and our range of processing.

Does this include plans for upgrading production capacities?
Spenrath: We're currently analysing the possibility of expanding our capacities at our Gera location, where a property of about 40,000 square metres is available. Additionally, we intend to continue investing in state-of-the-art production equipment. With a tensile strength of up to 1,600 newtons, Stahlo has a clear technological edge over its competitors in the area of ultra-high-strength steels. We want to expand this capacity because demand is on the rise.

Does Stahlo intend to expand internationally?
Spenrath: Many of our customers are active in Asia. That's why we are definitely considering strengthening our position there.

HERBS, CHEESE AND IT CLIMATE CONTROL
Along with high-quality organic products, Weiling GmbH now also has a stable IT infrastructure. Michael van Dülmen, IT director at Weiling GmbH, decided on the RiMatrix S standardised data centre from Rittal.

XXL FRESHNESS

Sustainable IT. Weiling GmbH grew from a small organic food shop to a natural foods wholesaler. Along with their offerings and logistics, another key to success is a sophisticated IT infrastructure. Weiling counts on the modular RiMatrix S data centre solution.

Text: Rebecca Lorenz

We currently have more than six hundred types of cheese from different vendors in our range of products, and we chose every single one of them ourselves," says Dr Peter Meyer, CEO of Weiling GmbH, with obvious pride. "We also know our suppliers personally." Their assortment of goods encompasses more than 11,000 products, leaving nothing to be desired: fruits and vegetables, dairy products, meats and cosmetics, and even three hundred different wines. Since its founding in 1975, the organic wholesaler Weiling, headquartered in Coesfeld in Münsterland, North Rhine-Westphalia, has proved that a company can be extremely successful in the trade of organic products. High-quality products, lean internal processes and dependable logistics have made the company the market leader in the rapidly growing organic sector. The key to success also lies in sophisticated IT. For a wholesaler that cooperates with more than 685 suppliers and that delivers to over 1,200 customers, stable IT infrastructure is extremely important. Michael van Dülmen, IT director of this medium-sized family-owned company, says, "in our daily business, performance and availability must be guaranteed". This essential was just one of the reasons that Weiling recently decided to replace their somewhat outdated server rooms with a modular data centre solution from Rittal.

"We had repeated difficulties because our old IT infrastructure finally reached its absolute limits after a software conversion," says Peter Meyer. His requirements for high-performance IT: "we wanted to invest in a new, fail-safe and sustainable data centre." The IT infrastructure for the company's two locations in Coesfeld and Lonsee is centrally controlled from Coesfeld, and an outage would be catastrophic for the organic wholesaler. Describing why the company's IT infrastructure must be fail-safe, van Dülmen explains that "we ascertain the status of all goods through our software: when will they arrive at the location? When are they brought to a storage location, and when are they forwarded to the customer? This type of information is immensely important to us, because it allows us, for example, to plan pre-ordering and to pick goods in the best possible way".

FOCUS ON EFFICIENCY

For Weiling, the changeover to the RiMatrix S data centre meant the switch to a higher, TÜV-certified security standard, fire and burglary protection, redundancies, and protection from leaks, along with an uninterruptible power supply. The modular and standardised data centre solution from Rittal is perfectly suited to the needs of small and medium-sized companies. Michael Nicolai, Director International Project & Product Support with Rittal, knows from experience: "small and medium-sized companies need flexible data centre solutions with a clearly defined service package, and specified delivery times and costs." (Also see the article on pages 36 to 39.) The container delivered by Rittal holds everything a data centre needs: server and network racks, climate control, an uninterruptible power supply including power distribution adapted to the system, and the Computer Multi Control III (CMC III) monitoring system. The CMC III system uses sensors to collect important data, including temperature and humidity, and immediately notifies administrators when the values reach critical levels for the server. ➔

ECO-PIONEER WEILING

ORGANIC SINCE 1975

Starting back in 1975, Weiling GmbH was one of Germany's first companies to sell organic products. What started as a small organic food shop is now a full-service retailer with more than 11,000 products of the highest organic quality. At its two locations in Coesfeld and Lonsee, the medium-sized, family-owned company works with around 685 suppliers from around the world. In 2013, the 520 employees of the organic wholesaler generated revenues of around 160 million euros.

"The modular concept of the RiMatrix S enabled us to integrate it into our on-site conditions."

Dr Peter Meyer, CEO Weiling GmbH

INDIVIDUALITY DESPITE STANDARDS

"We want to expand the company premises in Coesfeld in the future, so we were looking for a modular data centre solution," CEO Meyer explains. Because the company wasn't interested in short-term modification of the 14,000 square metres of logistics space, those responsible for the project wanted a data centre with a small footprint. Yet the requirements for its physical protection remained high: ideally, the company's new data centre was to be a high-security area with a rugged safety door and a classic key system. "Entry to the data centre area is now limited to a small circle of people responsible for hardware and IT," says IT specialist van Dülmen. Rittal also made a persuasive argument in the area of cooling. The indirect, free cooling of the data centre is perfectly adapted to the local conditions for Weiling GmbH (see information at right). "The air is very dusty because there are numerous farms in the area," Peter Meyer explains. The strain on the cooling filters with a direct, free cooling system would be too great; the necessary replacements would be too time-consuming and expensive over the long run.

Furthermore, customisations of the RiMatrix S weren't a problem for Rittal. Even during the incredibly short planning phase, Rittal optimally customised the modular data centre to the needs of Weiling GmbH. "Whereas a conventional data centre requires one to two years to get from conception to commissioning, the time frame for the RiMatrix S data centre is just about six weeks," says Michael Nicolai. Because the data centre components are standardised, a lot of planning effort on the part of the company is no longer required. And despite the customisations, the time to delivery for Weiling remained short.

The new data centre's efficiency is evident every time CEO Dr Peter Meyer reads the monthly electricity bill. Because all of the components for the RiMatrix S are designed for energy efficiency, the data centre achieves a power usage effectiveness (PUE) of up to 1.15. That the new data centre goes easy on the environment through the efficient use of energy is an especially important side effect for the wholesaler of ecologically correct foods. ■

→ APP TIP:
Using the RiMatrix Selector, you can configure your own standardised data centre.

CLEVER CLIMATE CONTROL

COOLING FROM THE ROOF

The indirect, free cooling for the RiMatrix S data centre is perfectly in tune with the local conditions for Weiling GmbH at its location in Coesfeld (see photo, right). The refrigeration container responsible for cooling the data centre is located on the company's roof. In the integrated heat exchanger, the inflowing cold air from outside cools the warm water. The cold water then cools the server air intake in the data centre, while the warm exhaust air is once again fed to the refrigeration container via the heated water circuit.

PERFECT SOLUTION
To the delight of CEO Dr Peter Meyer (left), the medium-sized company can now react flexibly to its IT requirements. The switch to the modular RiMatrix S data centre (top) with the refrigerated container on the company's roof (lower right) offered many advantages to Weiling.

THE SYSTEM FOR THE SMART GRID

Renewable energies. Smart generation, distribution and storage are key for the energy supply of the future. Dependable enclosure systems form the backbone, enabling technology to function at every link along the chain.

Text: Beate Schwarz and Hans-Robert Koch

TS 8 ENCLOSURES

ROBUST BODYGUARD

The TS 8 enclosure system from Rittal forms the foundation for control cabinets for wind power turbines and housings for central inverters. Whether for indoor or outdoor applications, they are designed to handle great dynamic stresses and can also be equipped with climate-control systems.

The wind howls across the land at 100 kilometres per hour. There is little evidence of this weather 135 metres above the ground in the nacelle, the heart of the wind energy facility, where the technology reliably does it job. Hidden within the hub is the pitch control, which regulates the alignment of the rotor blades in the wind in order to produce more or less electricity depending on demand. The nacelle also holds frequency inverters that convert the current generated into grid-compatible alternating current. And there are also power distribution components that ensure the power is fed into the low-voltage grid. All modules must be securely positioned and able to withstand both dynamic stresses and difficult environmental conditions: freezing cold and extreme heat, salty and sandy air, storms and rain. Companies in the wind energy industry aren't the only ones to know that their technology is securely stowed in Rittal enclosures. The enclosure solutions are also in demand at all central junctions in the electricity grid of the future: generation, distribution and the increasingly important field of storage.

Integrating renewable energies into the electricity grid is a Herculean task because security of supply must be guaranteed. Germany's Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) expects that by 2030, half of the energy generated in Germany will be coming from installations that are weather-dependent. According to BMUB estimates, wind energy alone will supply about half of the energy used in Germany by 2050, which is predicted to be 468 terawatt-hours.

Rittal is a global systems partner for more than 120 active wind-energy installations, component manufacturers and control systems manufacturers. Enercon, the third-largest manufacturer in 2013 for newly installed wind-energy capacity, installs several hundred large enclosures from the TS 8 series week by week.

FACILITATING FLEXIBILITY

For photovoltaic installations such as the 75-megawatt project from SMA Solartechnology AG in Kalkbult, South Africa, Rittal is delivering the enclosure technology for the central power inverter. In addition, climate-control solutions ensure the removal of waste heat, and power distribution components guarantee that power is reliably fed into the low-voltage electricity grid. Rittal's international focus and its globally consistent quality standards are important reasons for customers in the energy sector to work with Rittal. The company's specialists always keep an eye on developments in the energy technology market. "Currently, we're looking into the feasibility of an industry solution for string inverters," says Mathias Heun, branch manager for Renewable Energies at Rittal. "The goal is for our customers to ➔

SOLUTIONS FOR EVERY WIND CONDITION
Inside the tower it is 140 metres straight up. Enclosures and climate-control technology by Rittal ensure comprehensive protection for the electronic components as they feed in green power at the wind farm in Siegbach, Germany. The installation is one of Nordex's three 2.5-megawatt wind energy plants.

DEPENDABLE SUN-CATCHER
SMA equipped one of the first large-scale photovoltaic power plants on the African continent with 84 Sunny Central 800CP inverters and Rittal outdoor enclosures. The Kalkbult 75-megawatt project went into operation in South Africa in 2013. Over an area roughly equivalent to 140 football pitches, the plant will produce 145 million kilowatt-hours of solar energy annually – enough to supply the energy needs of 35,000 South African households.

PUT THROUGH ITS PACES

Every component in Rittal products is tested according to international codes and regulations. Controls by external testing institutes guarantee compliance with global standards. Here a selection of approvals received:

be able to operate with more flexibility on the volatile photovoltaic market without being dependent on high-pressure die-casted tools, as is currently the case with conventional enclosure solutions for string inverters on the market." The necessary expertise from Rittal in the area of renewable energies comes from many years of experience in the industry and close collaboration with market leaders in wind energy such as Enercon, Siemens and General Electric, as well as with leading photovoltaic companies such as SMA and Bonfiglioli.

ADVANCING STORAGE TECHNOLOGY

Aside from renewable energy generation, efficient and secure storage is another important component of the energy transition. Only when it's possible to store weather-generated energy will the necessary degree of grid stability, quality of supply and security be achieved. Without energy storage systems, Germany will not succeed in supplying 80 per cent of the country's energy needs with renewable energies by 2050. Since 2013, Rittal has been working with major testing institutes, energy generators, and battery and energy storage system manufacturers in the context of its work for the German Energy Storage Association. The goal is to define uniform guidelines, standards and quality criteria for safe and secure energy storage systems.

The German government's Energy Storage Funding Initiative is lending support for a technological breakthrough and cost reductions, as well as for the quick market introduction of new energy storage systems. Such a roll-out requires a great deal of practical know-how about the respective storage technologies. Lead-based technology was introduced decades ago – lithium technology is still in its infancy. Battery management must be optimally adapted to the cell in order to guarantee reliable operation and a long lifespan.

Enclosure technology is also important because sensitive electronic components must be safely stowed away. Only in this way can a storage system be protected against outside influences and guarantee reliable operation as well as the longest service life possible. Depending on the respective storage dimensioning, solutions run the gamut from small enclosures to containers with or without climate-control systems, power distribution, vandalism protection and protection in the event of earthquakes. Rittal offers many solutions. "Experience shows the earlier we are involved in the product design process, the greater the benefits for the customer," says Markus Buchborn, responsible for energy business development at Rittal. "Together with Eplan and Kiesling, we offer high added value to optimise value chain processes, which is especially true for the engineering of complex systems." ■

➔ LINK TIP:
Reference projects and additional information can be found at http://tinyurl.com/ngxmp8s
The Energy Storage Funding Initiative provides a wide variety of information, including initial research results at www.forschung-energiespeicher.info/en/.

TS 8 ENERGY STORAGE ENCLOSURES

MODULAR, ROBUST

The TS 8 enclosure system from Rittal can be easily adjusted to meet the requirements for energy storage. Its modular construction means that the enclosure's storage capacity can be flexibly adapted. Predefined rack-mounted systems ensure simple and fast swapping of battery packs. The stable connection between the rack-mounted system and battery pack allows for earthing and thus safe operation. Another crucial factor is the high load-bearing capacity of the TS 8. To integrate lithium-ion batteries in the enclosure, users can choose either the modular 19-inch mounting technology or conventional solutions such as heavy-duty shelves that are designed for loads of up to 100 kilograms.

WORKING AT THE (CLIMATE) LIMIT
High temperatures are normal in an iron foundry. Only high-performance and dependable enclosure climate control systems can ensure trouble-free plant operations.

KEEPING A COOL HEAD

Enclosure climate control. Extremely high enclosure temperatures are the norm in a foundry industrial environment. At Bosch Rexroth, which specialises in drive and control technology, a new climate-control solution from Rittal has been introduced to keep temperatures constant and save a lot of energy in the process.

Text: Max Franz and Hans-Robert Koch

CALM IN A ROUGH ENVIRONMENT
High temperatures inside enclosures pose a challenge in the rough industrial environment of foundries. They are not a problem for Andreas Geeb, who works in the foundry's investment and factory planning department at Bosch Rexroth AG.

Things get unpleasant for electronics above 40 degrees Celsius," says Andreas Geeb, who works in the investment and factory planning department at the Bosch Rexroth AG foundry. The company operates its own iron foundry with sand processing facility at a site in Lohr am Main, Germany. The on-site control technology is exposed to extreme environmental conditions. Geeb speaks from experience: "in summer we used to have temperatures of 50 degrees Celsius and more in the enclosures." Radiant and residual heat can be found almost everywhere within the foundry. Previous attempts to achieve cooling did not lead to the desired results.

SOLUTION FOR OVERHEATING

With this in mind, Bosch Rexroth AG began working with Rittal to find a solution to ensure process security – independent of the extreme environmental conditions – that does not drive costs through the roof. As a countermeasure against the overheating, the companies decided to go with a liquid-based cooling solution using heat exchangers with built-in redundancy from the TopTherm chiller series from Rittal that was connected to the factory's water system. In addition, there are air/water heat exchangers – also from Rittal – for each enclosure climate control system. "Setting up a centralised climate-control infrastructure with water as the cooling medium was the only solution that made sense," says Andreas Geeb. "It was the only way to completely remove the high heat loads from the enclosures and to avoid adding more thermal stress to the ambient air." Cost advantages became apparent in the purchase, energy savings and maintenance. Instead of each enclosure having its own cooling unit and installing its own cooling circuit, the thermal energy is transferred via the air/water heat exchangers into one single cooling circuit. The advantage of having a central supply of coolant water is about a 40 per cent reduction in energy costs. Service and maintenance costs are also noticeably reduced, because just one compressor and one water pump must be serviced.

In order to make the cooling output of the recooling units available for the enclosures, each individual enclosure's air/water heat exchanger was connected to the cool-water circuit. Rittal handled the entire installation – except for piping. Leak sensors ensure high safety for the equipment, as they display alarm messages, pass these messages on to corresponding monitoring units and shut magnetic valves. The air/water heat exchangers with a cooling output of 3,000 watts have smart eco-mode controls, which turn the interior fans on or off depending on the temperature inside the enclosure. "The idea of a fluid-based, centralised cooling solution was extremely well received," Geeb says. Meanwhile, additional standardised steps for active cooling of electrical enclosures at strategically important production facilities have followed. Bosch Rexroth is working with Rittal to set up a factory standard for space-saving and efficient climate control of enclosures that are difficult to cool due to their small size or the high density of electronics within them. ■

THE TOPTHERM CHILLER

ALWAYS KEEPING COOL!

The TopTherm chiller is Rittal's standardised solution developed for TS 8 enclosure systems. The series is made up of just a few modular units: the housing and modules for hydraulics, cooling, electronics and software. Yet it is so flexible that it requires just seven different output levels to cover the conventional cooling output range from 8 to 40 kilowatts.

The only cooling solutions certified to
EN standards

8–40 kW performance diversity

40 % savings compared to conventional cooling

➔ APP TIP:
Find out more at www.rittal.com and in the be top app.

THE TOPTHERM CHILLER

The modularly constructed heat exchanger has five sizes to cover seven cooling output levels running from 8 to 40 kW. The climate control solution integrates water and cooling modules as well as the electrical controls. Spare parts management is reduced to a minimum.

The control module: energy-efficient
Thanks to its bi-frequency design (400 V/50 Hz, 460 V/60 Hz), the control module can be used internationally. The temperature can be adjusted with either a fixed or a differential value. The microcontroller with smart logic decreases the on/off cycles of operation for the components and increases energy efficiency.

The cooling module: variable
Maximum availability is guaranteed by means of an optimally adjusted, pre-assembled cooling module. Custom-design these variable modules, with a choice of air- or air-and-water-cooled condensers. Optimal positioning of the cooling components makes the cooling module especially easy to service.

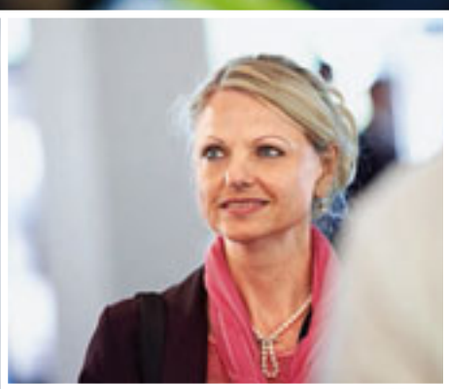
The water module: dependable
The water module (hydraulic) is very dependable because a series monitoring function is integrated into the plate heat exchanger for protection against icing. The plastic tank ensures maximum security against leakage. The water module can be easily modified as needed.

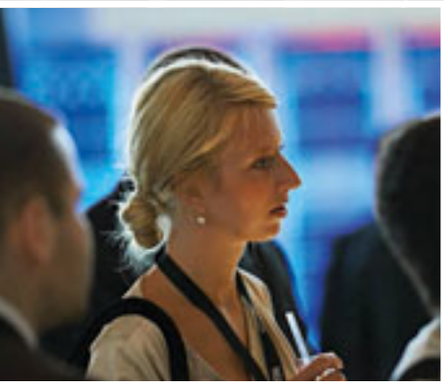
The housing: space-saving
The integration into the TS 8 enclosure means the chiller can be inserted flexibly and modularly into existing standing spaces. The vertical component arrangement saves considerable space and guarantees a minimal footprint.

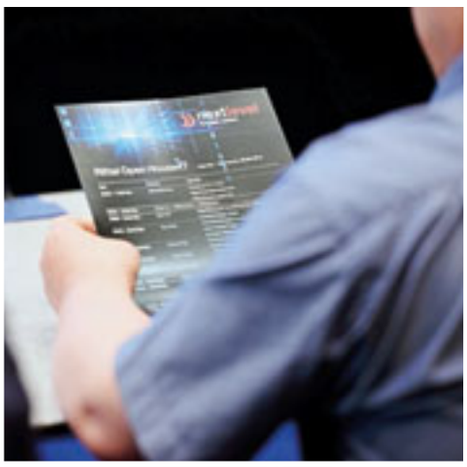
TREND SUMMIT FOR IT VISIONARIES

Rittal Open House IT. In June, leading figures from the IT industry met at Rittal's headquarters in Herborn, Germany, for four days to discuss new data centre solutions and trends.

Between 23 and 26 June, Herborn was a centre of knowledge transfer for IT professionals. Within the framework of the summit "Rittal Open House IT – next level for data centre," the company opened its doors to IT professionals from all over the world. Offering talks, workshops, panel discussions and exclusive product presentations and tours, the summit gave these experts the opportunity to expand their knowledge and gain valuable first-hand tips. For example, Andreas Gillhuber, Infrastructure Director at RWE IT, described the current IT infrastructure challenges facing international companies. Other topics included Rittal's new products and the extent to which IT infrastructure has a direct impact on a company's success (see page 37). "This event is an ideal platform for an exchange of ideas among experts. Rittal has proved that it has a lot to offer in the data centre field," says Dirk Miller, Executive Vice President Marketing at Rittal. ■

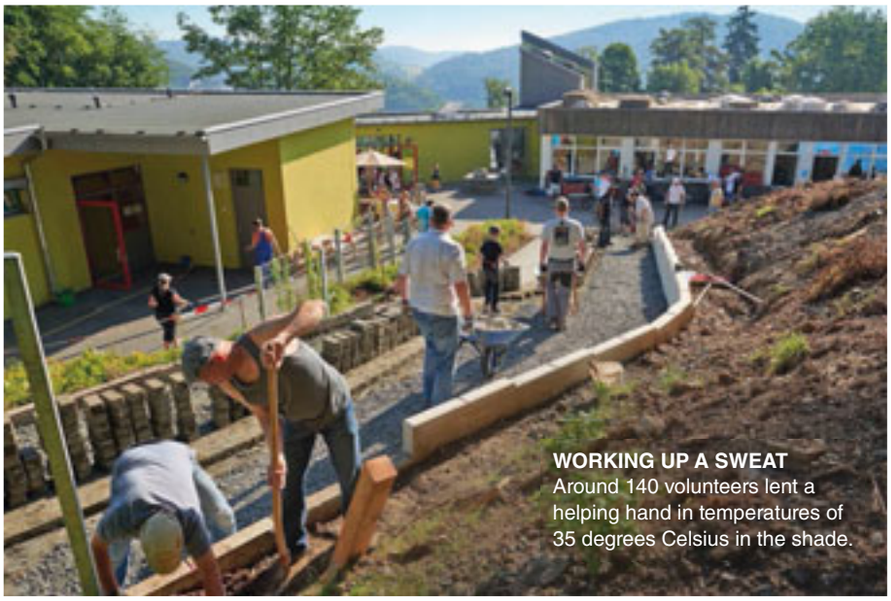






HIGHLIGHTS AND IMPRESSIONS

1. Opening: Andreas Gillhuber, Infrastructure Director at RWE IT, delivered the keynote address.
2. Tours: the participants took a great interest in the guided tours. The visit to Rittal's quality-testing lab was a big hit.
3. Talks: "accurate and reliable planning" is an important factor for Bernd Hanstein, Vice President IT Product Management at Rittal. Hanstein discussed methods for optimising cooling strategies in modular data centres.
4. Visions of the future: Mats Andersson, marketing director of Lefdal Mine Datacenter, described his vision for a new data centre in the Norwegian mine.
5. Products: on tours of the plant and at product presentations, the IT experts were introduced to the entire range of Rittal products.



WORKING UP A SWEAT
Around 140 volunteers lent a helping hand in temperatures of 35 degrees Celsius in the shade.

SPRUCING UP SCHOOL GROUNDS

RITTAL'S EMPLOYEES HELP OUT IN DILLENBURG

As part of its initiative for the Otfried Preußler School for Disabled Students in the Hessian town of Dillenburg, the Rittal Foundation donated building materials worth 20,000 euros and recruited some 140 helpers for a day's worth of work. In a total of 21 projects, Rittal staff members spruced up the school grounds, which were badly in need of renovation after forty years of use. With great enthusiasm and dedication, the volunteers built, among other things, an accessible elevated garden, a bike path for road safety education and a soft play zone around the children's seesaws. School director Elizabeth Cloos was delighted: "I get goose pimples when I see how all of you sacrificed your time to help us. Thank you so much!"

AID AFTER THE FLOOD

130,000 EUROS FOR THE BALKANS

Aid for the flood victims in south-eastern Europe: in response to the devastation caused by flooding in Serbia, Bosnia and Herzegovina in May, employees of the Friedhelm Loh Group and company owner Friedhelm Loh joined forces to launch a major fundraising campaign. A total of 130,000 euros was raised and distributed to six international aid organisations: Caritas International, the German Red Cross, Diakonie Katastrophenhilfe, Help – Hilfe zur Selbsthilfe, Humedica and World Vision. The money will be used, among other things, to distribute food, water and aid, make available water pumps and drying equipment and fund the reconstruction effort. Friedhelm Loh, owner and CEO of the Friedhelm Loh Group, thanked his employees for their generous donations. "This campaign demonstrates once again that we are a team that is willing to take responsibility for others." Heavy rainfall caused the worst flooding in the Balkans on record, affecting more than 1.3 million people and killing more than fifty.

130,000

AN INCLUSIVE ENVIRONMENT

PEOPLE WITH DISABILITIES AT LKH

"It's not easy to find reliable, motivated employees for simple tasks," says Frank Riebow, assembly manager at the plastics specialist LKH in Heiligenroth. Like Dr Guido Stannek, managing director of LKH, he is pleased that the integration of three colleagues with mental disabilities is going well. One employee with a mental disability is currently completing an internship in LKH's administration department and is hoping for a permanent position. "The outlook is good," says Stannek.

HAPPY AT WORK
Jennifer Dörr making parts for Rittal's RiLine 60 busbar system.

GOOD DEEDS WITH MUSIC

THE RITTAL FOUNDATION'S MAJOR BENEFIT CONCERT

"Do good and swing" – that could have been the motto of the benefit concert held by the Rittal Foundation in late September at the Rittal Arena Wetzlar. An audience of around 1,600 were treated to a show of a lifetime featuring the Big Band of the German Armed Forces. Under the direction of Christian Weiper, the ensemble opened the concert and was accompanied by singer Bwalya Chimfwembe, a native Zambian who has been touring with the musicians for eight years. During the second half of the event, the talented 19-year-old musician Jördis Tielsch from the town of Sinn in the district of Lahn-Dill performed with her band. All proceeds from the evening will go to three regional social institutions: Tour der Hoffnung raises funds for children with cancer; the Kleine Wege autism centre in Wetzlar provides counselling for autistic people and their families; and the Amadeus Junior Academy (see page 92) promotes young musicians. Speaking on the evening of the event, Friedhelm Loh, chairman of the Rittal Foundation's board of trustees, emphasised that he would not have been able to establish the foundation without the commitment of Rittal's employees. "We need people who go through life alert to the world around them, who are constructively critical and sympathetic towards others." Friedhelm Loh also reminded the audience that "the region needs you not only for the people who aren't as fortunate as us, but also for the coming generation!"

A GREAT PROGRAMME
Glenn Miller, Shirley Bassey, Ray Charles, Tom Jones, John Miles and Pharrell Williams: the programme performed by the Big Band of the German Armed Forces read like a Who's Who of music greats from almost a century of music history.

➔ LINK TIP:
www.friedhelm-loh-group.com

MOVING DUET
When Jördis Tielsch (left) and Bwalya Chimfwembe intoned "That's What Friends Are For," the audience could not contain their enthusiasm. They gave a standing ovation for the performance, the evening and the Rittal Foundation's charitable work.

CATHLEEN SOPHIE SCHÜTTE (10)
“I started playing piano a year ago. Sometimes I play a little concert at home for my parents and grandparents. The training at the Amadeus Junior Academy helps me improve.”

MUSIC'S INSTRUMENTAL!

Sponsoring young students. "Rock me, Amadeus!" sang Falco back in the day. The Amadeus Junior Academy doesn't go quite that far, but it does have music on the brain – and wants to get students enthused about it.

Text: Rebecca Lorenz

It's a sunny September day, and school holidays will soon be ending in Hesse, Germany. At Wilhelm-von-Oranien Secondary School in Dillenburg, preparations for the new school year have already begun. Teachers can be seen around the schoolyard and in the hallways of the school. Yet there are students, too, who want to be present when some very special cargo arrives. Just like Markus Hoffmann, faculty director for language, literature and art at the school, they are happy to see the vehicle that Ulrich Kögel is driving onto the school grounds. The cargo he's carrying is quite valuable to the students and music teachers: an alto saxophone, a flute, two acoustic and one electric guitar. The instruments that Hoffmann, Kögel and their colleagues unload were purchased with the assistance of a donation from the Rittal Foundation. "We've never been able to buy so many different instruments at once," says Kögel, a music teacher at Wilhelm-von-Oranien. They will soon be played by participants in the Amadeus Junior Academy, a collaborative project of the Rittal Foundation, the Lahn-Dill Academy and Wilhelm-von-Oranien Secondary School, which is supporting music studies.

"We want to develop and foster the music education offerings in Dillenburg and the surrounding area," Hoffmann explains. It cannot be done with local state funding alone. "The school system subsists on its contacts to politics and businesses," says Armin Müller, spokesperson for the music programme at Wilhelm-von-Oranien Secondary School. "Otherwise we wouldn't be able to realise larger projects."

Children and youth benefit considerably from early music education. This effect has been recognised in Germany since the late 1990s at the latest, when Dr Hans Günther Bastian, a professor of education science in Frankfurt, presented the results of a long-term study at a Berlin elementary school. The findings showed that playing music increased children's social skills and encouraged their creativity, and also resulted in increased intelligence and enhanced powers of concentration.

FOSTERING MUSICAL EDUCATION

The Amadeus Junior Academy to promote musical development was founded on 23 May 2014. It has several goals, one of which is improving the music education offerings in Dillenburg and the surrounding area, as well as pooling available resources more effectively. The Rittal Foundation has been supporting music at schools for years. The collaboration with Wilhelm-von-Oranien is also nothing new for the non-profit foundation. The Friedhelm Loh Group has contributed to music projects at the school for over twelve years, since 2012 under the aegis of the Rittal Foundation.

Friedhelm Loh, owner and CEO of the Friedhelm Loh Group, established the Rittal Foundation on the occasion of Rittal's fiftieth anniversary and endowed it with starting capital of five million euros. Founding the Amadeus Junior Academy was another step for the Rittal Foundation along its path of continued expansion of projects it cares deeply about: promoting educational, cultural and social projects in Lahn-Dill county. "I'm pleased that this project-based cooperation has led to long-term and self-sustaining music education," says Friedemann Hensgen, a Rittal Foundation board member.

So that the Amadeus Junior Academy could get started promoting musical education, numerous desperately needed instruments and furnishings for teaching music had to be purchased. The school did not have the necessary funds available. Fortunately, this situation soon changed at the traditional spring concert at ➔

WILHELM-VON-ORANIEN SECONDARY SCHOOL

LOVE OF MUSIC

Music is a tradition at Wilhelm-von-Oranien Secondary School. Along with the performance of musicals, concerts also belong to the school's cultural repertoire. The school's spring concert this year marked the beginning of a new, major musical project: the Amadeus Junior Academy. This academy for promoting music is a collaborative project of the Rittal Foundation, the Lahn-Dill Academy and Wilhelm-von-Oranien Secondary School. The Rittal Foundation donated 10,000 euros so that the necessary instruments and furnishings for teaching music could be purchased. Since the start of the 2014/15 school year, music teachers of the Lahn-Dill Academy are now offering music lessons at the school – at a reduced price thanks to additional annual support from the Rittal Foundation.

GENEROUS DONATION
Debora Loh handed over a cheque for 10,000 euros to the project leaders.

➔ LINK TIP:
Learn more about Rittal Foundation: http://www.friedhelm-loh-group.de/en/rittal_foundation/index.asp

LOUISE BEDENBENDER (10)
"I can read sheet music since I was six. I would like to learn to play cello now because I don't like playing piano. But a regular cello is too big for me. That's why the Amadeus Junior Academy bought a right-sized cello, just for me."

ERIC KARY (12)
"Playing an electric guitar is exciting, and I can really just forget about everything. I still have a lot to learn before I can play my first real concert."

MARO HAFFER (9)
"I'm learning how to play the drums really well at the Amadeus Junior Academy. I even know a few pieces by heart already. I'd like to form my own band with some classmates someday."

PAULA REEH (10)
"I enjoy classical music. I especially like the composers of the First Viennese School. My favourite piece is the Surprise Symphony by Joseph Haydn."

Wilhelm-von-Oranien: Debora Loh, Rittal Foundation board member, handed over a cheque for 10,000 euros to the organisers of the Amadeus Junior Academy. "Music education is an essential part of an overall education," Loh said. "It contributes to the growth of one's personality and is important for maintaining regional cultural offerings. That is why we are pleased to be supporting this project."

The Rittal Foundation not only supported the purchase of new instruments; it also provides another 10,000 euros each year so that a lack of financial resources does not stand in the way of learning to play an instrument. These funds allow the Amadeus Junior Academy to subsidise the monthly fees for the music courses.

Music education has become a private matter and almost incidental in Germany. Learning instruments that require intensive instruction, such as the piano or the violin, is often feasible only for those children who can attend a music school or who have a private instructor. The situation has become so dire in recent years that the German Music Council has warned of a degradation of musical life in Germany.

To ensure this doesn't happen, Wilhelm-von-Oranien Secondary School is closely collaborating with the Lahn-Dill Academy. "Since the start of the 2014/15 school year, we've been offering music courses in rooms at Wilhelm-von-Oranien as part of the Amadeus Junior Academy programme," says Günter Bedenbender, director of the Lahn-Dill Academy music school. This arrangement relieves parents from having to drive music students from one school to the other. Furthermore, the school's after-school programme has been expanded with an exclusive offering. Twenty-five children and youths signed up for the academy during the summer holidays.

Günter Bedenbender is satisfied with the project's development – even against the backdrop of the increase in all-day school programmes that are greatly changing the music school landscape. "Cooperation partners such as Wilhelm-von-Oranien lend themselves to our programme. Only by working together can we create new structures and increase interest in music courses." ■

PROMOTING MUSIC

MAKING MUSIC TOGETHER

Numerous studies show the positive effects of playing music on the development of children and youth. Making music together in school, choirs and big bands fosters children's social, intellectual and physical skills. In comparison, young musicians are more open, better socially integrated and more interested in culture generally than children who only passively consume music. Because playing an instrument is a complex activity requiring abstract and complex thinking, musicians often have above-average intelligence. Children who play music are also well ahead of their peers in the areas of concentration and creativity. They can better concentrate over a longer period of time and have higher creative potential at their command. Children's great creativity becomes especially apparent when they use their musical abilities to take part in organising the region's cultural offerings.

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 largest ship

The largest vessel in operation is 398 metres long and 58 metres wide. The shipping company Mærsk operates eight "Triple E" container ships, an additional twelve are in planning.

Most kilometres travelled

Irvin Gordon's red Volvo P1800S, built in 1966, has more than 4.8 million kilometres behind it, enough to circle the planet 120 times. Gordon still drives it every day.

The longest film

Modern Times Forever is the name of the longest film, clocking in at 240 hours' running time. It shows the virtual decay of a building over centuries, compressed into ten days

The longest railway

The Trans-Siberian Railway between Moscow and Vladivostok runs 9,288 kilometres, has more than 400 stations and crosses seven time zones. Yes, the journey is the reward.

The longest tennis match

The longest tennis match of all time ran eleven hours and five minutes over three days in 2010. The match between John Isner and Nicolas Mahut was interrupted numerous times.

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