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InPractice

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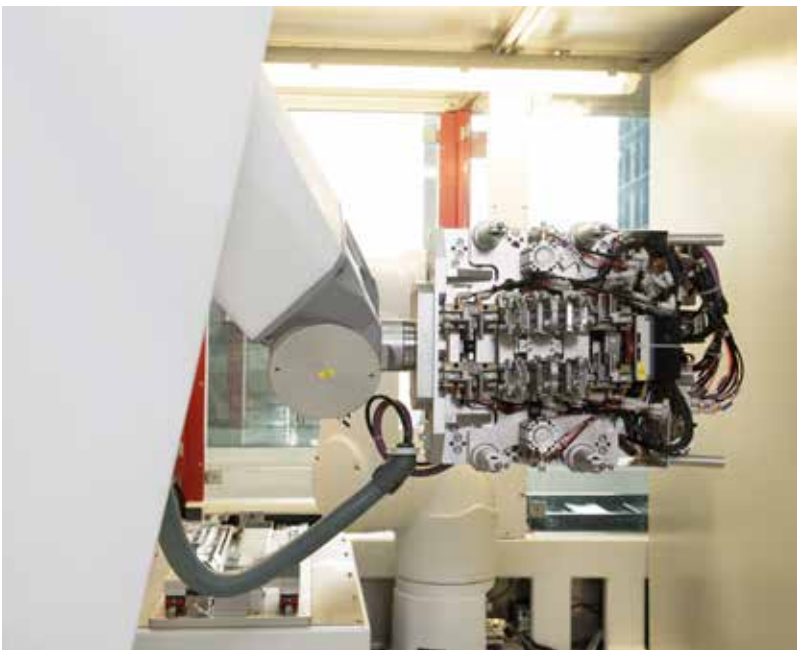

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Advanced, automated plastic injection moulding techniques

Editorial

Dear Reader,

What does success mean to you? At SFS, it means collaborating with customers to create added value, tapping into the vast range of our application and technology expertise and directing it in innovative ways. It means creating partnerships with our customers that are built on mutual trust, infused with respect and fuelled by flexibility.

It means “Inventing success together”.

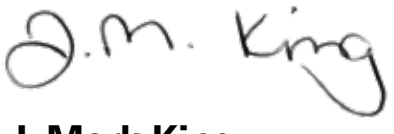
SFS is all around you every day, though you don’t always notice us; invisible to the naked eye. It’s what you don’t hear in the quiet cabin of a new aeroplane, thanks to our fastening solutions that eliminate noisy vibrations. It’s in the pain you don’t feel, thanks to a pain management device built with a monopolar probe from us. It’s in the car accident you did not have, thanks to state-of-the-art brake components made by us.

Our customers will tell you that “Inventing success together” leads to higher quality, lower manufacturing costs, and more efficient procedures. This is achieved through value engineering which enables us not only to optimise the products and processes but also to embrace the potential for digitisation.

That is why for us close customer partnerships form the basis for joint growth. In the following pages we will introduce you to some examples – this time with a new layout – demonstrating this concept and reflecting the reality of our stated goal of “Inventing success together”. We hope you enjoy this issue of InPractice and would really welcome your feedback (see the insert).

As a small token of our appreciation for your input, we will be raffling five Apple Watches among the respondents.

Yours sincerely



J. Mark King
Head of Medical Division

Higher, faster, further.

Extensive flexibility

Automotive

The site extension in Hungary is providing a lot more space in the 3,000 square metre stores area. The state-of-the art material flow concept enables a harmonious and highly efficient production throughput. Together with savings in time and money, the new inside door opening module offers, due to the new assembly system, very impressive reductions in scrap rates.

Roman Bergler
roman.bergler@sfs.biz

The starting position
Automotive customer requirements have changed dramatically. The need for inside door opening mechanisms with additional features such as loud speakers, switches and lighting has risen steadily. A manual assembly of increasingly complex and variable products is time-consuming and prone to failure. That's why SFS decided on a fully-automated assembly line and site expansion.

A fully automated assembly system
Jánossomorja, a small town to the north west of Hungary, has become the focal point of the new 3,000 square metre building project for the Automotive division. From outside the new stores space looks unspectacular; it is inside that the futuristic aspect comes to life. The fully-automated assembly line for inside door opening modules was developed by the SFS Group in association with an external partner. The result is a modern multiplex system consisting of numerous individual stations connected via a circulating system, with the individual assembly steps carried out by six-axis robots.

Extensive flexibility
Today's door mechanisms are supplied in a huge range of variants, depending on the vehicle model and chosen interior. SFS has set itself up to meet the needs of the automotive industry with the new assembly system and is in an optimum position to rapidly address new projects, offering thirty-plus different individual assembly solutions.

SFS value proposition
Using sensors and cameras, the assemblies are checked and inspected at every stage, resulting in exceptionally low reject levels. At the end of the assembly process, a laser engraves the finished component with a number and date reference, ensuring complete traceability. At full production, the Jánossomorja site will be producing 1.8 million complete inside door opening mechanisms per year.

SFS is installing new production lines in the USA and the Czech Republic. One of the reasons behind it is the increased order level from Brose, thanks to the economic and technical advantages resulting from the process-optimised cold formed component developed by SFS. The component is used globally in seat height adjustment mechanisms, helping Brose to achieve savings in the design concept. The bottom line is a win-win situation for both Brose and SFS.

Global player

Matthias Germann, Roland Deisböck
matthias.germann@sfs.biz
roland.deisboeck@sfs.biz

The starting position
Brose, a family concern, supplies around 80 vehicle manufacturers and over 40 of their suppliers with mechatronic systems for vehicle doors and seat units, door modules, electric motors and electronics inter alia for steering, braking, transmission systems and engine cooling. Against an ever-increasing product range and associated complexity in electronic seating systems, Brose has elected to streamline their product offer, producing a uniform range of seat structures universally suitable for diverse brands and models.

Three become one
So it was that in the spring of 2013 various suppliers were invited to attend a strategy workshop. After a thoroughgoing examination of the production processes, SFS found considerable scope for optimisation potential in the core design and duly won a major order. Working in

harmony with the customer, SFS developed a new cold formed part to replace what was originally three individual components.

Success leading to a global roll-out
The economical cold formed component, integrated into the new universal seating platform, impresses with its technically demanding geometry and savings on the costs associated with logistics, storage and assembly. It is set to become part of their success story as Brose rolls out the new system internationally.

An international production platform offering customers added value
As the new component is now being produced in its millions at the Heerbrugg, Switzerland HQ, in future it is planned to service the markets in Europe, the USA and Asia. With its global manufacturing reach, SFS is perfectly set to meet this challenge and will be in a position to transfer the manufacturing know-how gained in Heerbrugg to sites in Medina, USA and Turnov in the Czech Republic. The customer benefits not only from the synergy effect, but also from the manufacturing proximity, reducing logistic costs to an absolute minimum.

To be continued
In consideration of the excellent co-operation and increased order levels, SFS was again honoured with the Key Supplier Award in 2018, in recognition of the long years of partnership between the two companies.

Extending the partnership

Automotive

The STIWA Group, an experienced partner in the field of product and high-performance automation, has been working successfully with SFS for many years. To date, orders for the automotive area have been fulfilled using the core technology of cold forming. On the latest project, SFS was able to offer convincing solutions via another of their core technologies, namely the plastic injection moulding technique and thereby extending the offer of their customer.

Fabian Beck
fabian.beck@sfs.biz

Strive for technology change
It was mid-2016 when this customer approached various partners in search of a supply solution for plastic injection moulded gear selector forks for midsize and premium vehicles for a major German car manufacturer. Because of the demanding end-customer requirements, STIWA Advanced Products were looking for an alternative technology option, from ultrasonic joining to injection moulding. The challenge, in addition to process matching, lay in the development and design of a manufacturing solution enabling all seven design variants of the selector forks to be automatically moulded.

Developing the ideal solution
In order to achieve the most cost-effective project solution, the SFS team of experts first needed to choose the ideal manufacturing site. Considering the handling and transport costs of an annual 350 tons of material, it became clear that the manufacturing site had to be situated close to the customer. Thanks to SFS's international manufacturing platform, it proved possible to identify the plant in Korneuburg, Austria as the best possible location. It was, moreover, not only the physical location, but rather the production costs, problem-solving capabilities and adherence to customer delivery dates which were decisive for STIWA Advanced Products in choosing SFS for this project. This is also the view of Oliver Zeintlinger, the buyer responsible at STIWA: "Once again SFS identified themselves as a really technical capable development partner in the automotive field."

Extending the manufacturing range
Following placement of the order in the summer of 2017, SFS were to benefit from their pre-investment during the quotation stage; rapidly finalising their tooling and handling concepts. Working in unison with STIWA Automation, they soon met the process automation requested by the customer for the injection moulding of the selector forks: perfectly executed with the help of a complex assembly line consisting of three six-axis robots. The alternative manufacturing technology and associated extension of the manufacturing range to include plastic injection moulding is now fully operational at STIWA Advanced Products; with Korneuburg well anchored as their trusted supply partner.

Fascination of technology

Electronics

Hard disc drives (HDD) are one of the commonest data storage systems. They function by saving binary data to a thin film of ferro-magnetic material bonded to polymer discs through magnetisation. In use, these discs rotate at over 1,000 rpm. To ensure faultless data storage and retrieval the discs are retained by special clamps. Using stamping technology, Unisteel has been able to decisively improve the manufacturing process for these disc clamps, generating added value for both the customer and Unisteel.

Calvin Ng
calvin_ng@unisteeltech.com

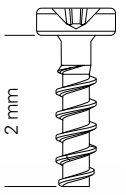
The starting position
The manufacture of HDD clamps together with miniature and precision components represent the core business of Unisteel. Traditionally, these disc clamps have been produced by machining – a process which is not only highly time consuming and therefore expensive, but also incurs a high material wastage.

Process optimisation via stamping
Following intensive analysis and evaluation of alternative potential manufacturing solutions, the experts at Unisteel developed a process consisting of an initial stamping operation and subsequent machining of the clamps.

Added value for the customer and Unisteel
The outcome has been a win-win situation for the customer and Unisteel alike with an energy-saving, faster production cycle and more efficient use of materials resulting in lower overall costs. What's more, the stamping process increases the mechanical stability of the disc clamps and thus their working lives.

HDD disc clamps: small parts meeting big demands
High purity is one of the key requirements of HDD disc clamps. To achieve this, ultrasonic cleaning, using special cleansing agents, is deployed. The reliability and precision of the cosmetic inspection procedure has been further enhanced by Unisteel using a blend of automatic and manual inspection techniques. This has served to reduce the failure rate to one part per million (ppm).

Small components with great effect



SFS REMFORM® Ø0.5 × 2.0 mm
Scale: 10:1

Industrial

Sonova is the global leader when it comes to innovative solutions to hearing issues. With more than 14,000 employees, the company offers a comprehensive product portfolio: from hearing aids to cochlear implants, as well as wireless communication solutions.

Manfred Frei
manfred.frei@sfs.biz

Sonova has now developed a world first in the shape of a new fast-charging battery-powered hearing aid with an extended battery life, which placed extreme demands on miniaturisation. SFS was brought on board for the connection of the battery contact to the housing. The project was realised thanks to a comprehensive pooling of experience and ideas in close collaboration.

Aesthetics and functionality in unison
Due to the limited available space, the fastener needed to be just 0.5 mm in diameter! What's more, a secure process was needed which would enable the fastener to be inserted directly without damaging the delicate plastic housing.

Tiny but tight: pushing back the physical barriers
The stainless steel REMFORM® Ø0.5 × 2.0 mm realised by SFS is currently the world's smallest thread forming screw manufactured by cold forming. The entire manufacturing process had to be revamped to create this component, with new demands on tooling, cold forming and thread rolling techniques. In addition to achieving a technological solution, pushing back the previous production limits, a fully capable insertion process was developed, enabling Sonova to considerably increase productivity.

Small plastic components as part of the overall solution
Stamm, a reliable partner for micro injection moulding, has been producing complex, miniature plastic solutions for Sonova for many years. Only close collaboration throughout and an extensive know-how interchange could enable the required design and functional requirements to be met.

Different technologies from a single source
SFS offers both miniature fastener solutions and micro injection moulding capabilities from one source, reducing the number of interfaces and producing system solutions with every part operating in unison.

Stamm is a member of the SFS Group

Sensors: the sensory organs of the digital age

The company Sick AG, based in Waldkirch, Germany, which offers 40,000 different sensors, is the world leader and unchallenged trailblazer in sensor technology. The innovative concern and its products are playing a significant part in the development of Industry 4.0. In order to achieve the maximum possible functionality of their sensors, Sick AG works closely with Stamm, the specialist in high-precision miniature plastic components.

Detlef Moll
d.moll@stamm.ch

Industry 4.0
Digitisation, individualisation, networking and autonomous machines are the buzzwords of the digital age. The basis of Industry 4.0 is the digital perception of our environment. These days this demanding task is often performed by sensors, operating as the sensory organs of our digital world. They recognise, measure, count and transfer real-life occurrences into digital signals, which in turn perform or instigate various activities.

Innovative sensor technologies demand complex plastic components
With 9,000 employees worldwide, Sick AG manufactures 40,000 different sensors. Whether you can see them or not, they control our daily lives. They include distance sensors, detection and measurement solutions, lighting controls, photoelectric barriers and light grids: a world without these sensitive and highly precise sensors has become unthinkable, with so many processes resulting from the interplay between the physical and virtual worlds we inhabit.

In order for sensors to fulfil their requirements to the optimum, they must be afforded the utmost protection against environmental influences. In designing the optic housings the experts from Stamm analyse the sensor type concerned and carefully elaborate the required plastic injection mouldings. The challenge is to take the tight space into account whilst meeting the technical requirements regarding complexity and precision. This is achieved by drawing on years of successful collaboration and know-how swapping. This means that Sick AG benefits from a partner able to offer a comprehensive one-stop-shop support platform, from the initial concept through design and development of prototypes, right up to the mass production of faultless end products.

Stamm is a member of the SFS Group

Tegra Medical

Medical

When a medical device company needs the sharpest needle for rotator cuff repair, a complicated titanium implant for spinal surgeries or a precise external fixation device for trauma patients, they often turn to experts like Tegra Medical.

Betty Coleman
bcoleman@tegramedical.com

Tegra Medical represents the core of SFS's Medical division. As a contract manufacturer of medical components, the company focuses exclusively on making products for medical device manufacturers. This allows those companies to concentrate their resources on their core strengths, such as research and development, product design, regulatory approvals, and marketing.

In the beginning
Tegra Medical was formed in 2007 when three well-respected medical device manufacturing firms joined forces, combining their specialties in precision grinding on sliding head machines, laser processing, electrical discharge machining and needle manufacturing. They were soon joined by another firm that added capabilities for spinal implants and orthopaedic instruments.

Headquartered in Franklin, Massachusetts, USA the company has three manufacturing locations in the US and one in Costa Rica. Each location has experienced recent investments in growth, including new buildings devoted to product development and many new additions to manufacturing techniques and equipment.

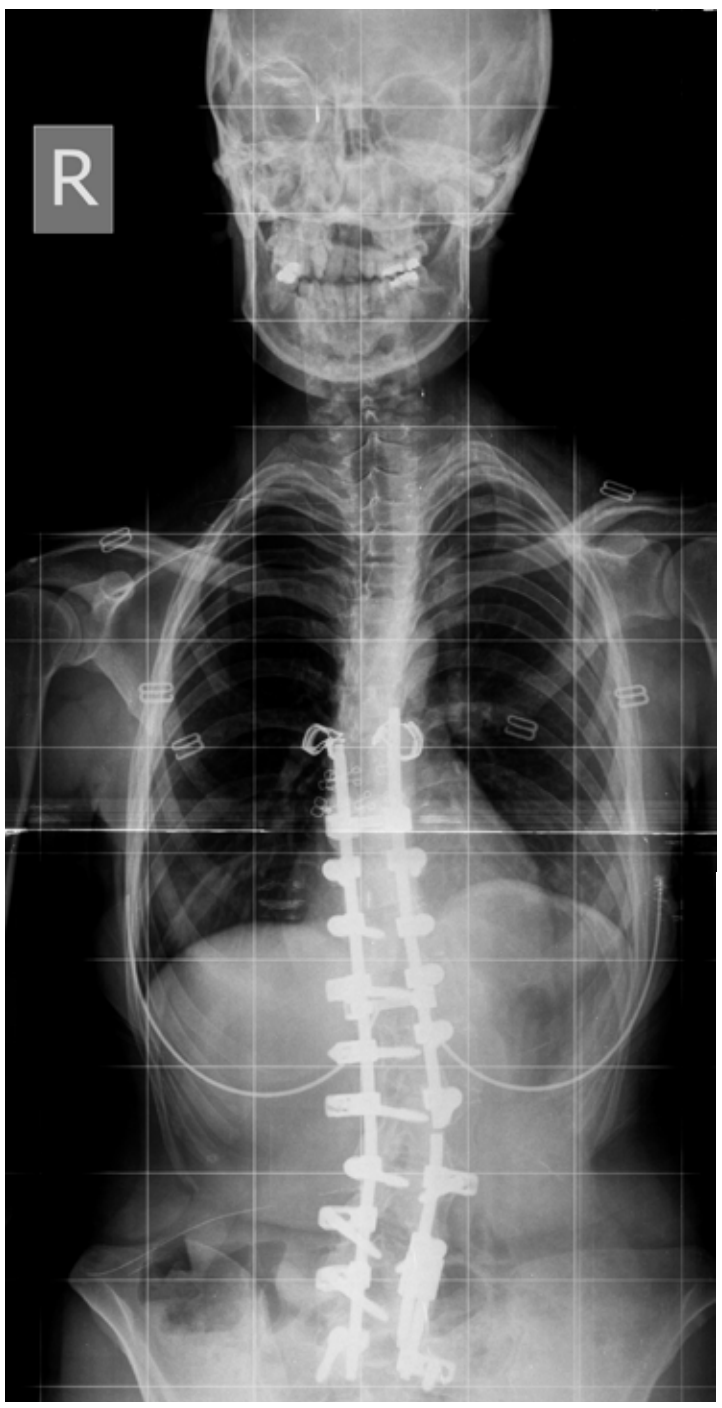
Tegra Medical's core competencies in metals and plastic have grown considerably over the years in response to customer needs. Previously the bulk of the company's work was manufacturing components, but today Tegra Medical also produces complete medical devices, from assembly and finishing to packaging and distribution.

Making a point
Medical devices often have a "business end," which is the sharp part connected to the rest of the device and the handle. A typical component would be just the sharp, metal part of an instrument, such as razor blades. Tegra Medical is renowned in the industry for its know-how in keeping the sharp edges sharp throughout the entire manufacturing process. Whether it's a complete medical device or just a component, sharpness is a quality hallmark.

How the devices and instruments are used
The types of devices and components Tegra Medical makes are used in medical procedures such as arthroscopy, endoscopy, joint reconstruction, biopsies, and drug delivery and in medical specialties like orthopaedics, cardiac care, gynaecology, neurology, ophthalmology, radiology, pain management, and diabetes.

The following belong inter alia to the product portfolio:
- Soft tissue removal tools
- Implants made of metal and plastic
- Needles and cannulas
- Catheters
- Fixation systems
- Razor blades
- Suture passers
- Probes for a wide range of uses

introduces itself



Surgery for scoliosis includes the insertion of pedical screws, one on each side of the vertebra

Smooth manufacturing
Although the name Tegra Medical is not marked on products, the input and expertise of the company is engrained into nearly every aspect of a product's journey from conception to distribution.

The company's role often begins with refining a customer's device design, so it can be manufactured efficiently. Using a process known as Design for Manufacture and Assembly (DFMA), the engineers in Tegra Medical's GENESIS Tech Center® experiment with prototypes of the product, making minute adjustments to the product's geometry or materials that have a big impact on a manufacturing process that is repeated over and over again.

The benefits of automation
Automation is a key technology Tegra Medical uses to make the manufacturing process faster and more efficient. The company's first collaborative robots have safety features that allow them to operate side-by-side with humans, performing monotonous and repetitive tasks such as feeding parts into magazines. Newer robots are performing more advanced tasks such as automated inspections.

In keeping with its commitment to fostering employees' progress, Tegra Medical ensures that no one loses their job after the process is automated. Employees freed up from repetitive tasks are allocated more demanding work, thus advancing their careers.

People come first
Helping people and the community is a big part of corporate culture at Tegra Medical. Employee development is reinforced by many internships, apprentice programmes and training. Typical outreach projects include blood donor drives, fundraisers, sport sponsorships, war veteran assistance, food and toy collections and more. At Tegra Medical, the commitment to people is as important as producing the best medical products.

In purchasing the old Domino Sugar factory in New York, USA and transforming it into a series of residential and commercial buildings, Two Trees Management Company has once again made their philosophy "people prosper when neighbourhoods bloom" come true. To secure the unique façade of the building, the customer used the NV3 hidden fastening system from NVELOPE®, to create not just an eye-catching feature on the Brooklyn Skyline but also a solution that will last for a very long time.

Larry Hilovsky, Matthew Dealy
larry.hilovsky@sfs.biz
matthew.dealy@sfs.biz

The old sugar factory
In 2012, Two Trees Management Company – a $4 billion family business, based in New York, that already manages 2,000 apartment units and 3 million square feet of commercial space – purchased the one hundred and fifty-year-old decommissioned Domino Sugar factory just across from Manhattan's Lower East Side. Their intent was to develop a series of residential and commercial buildings that would use modern design techniques to hark back to the historic, industrial past of the Williamsburg district of Brooklyn, thus creating a vibrant neighbourhood community.

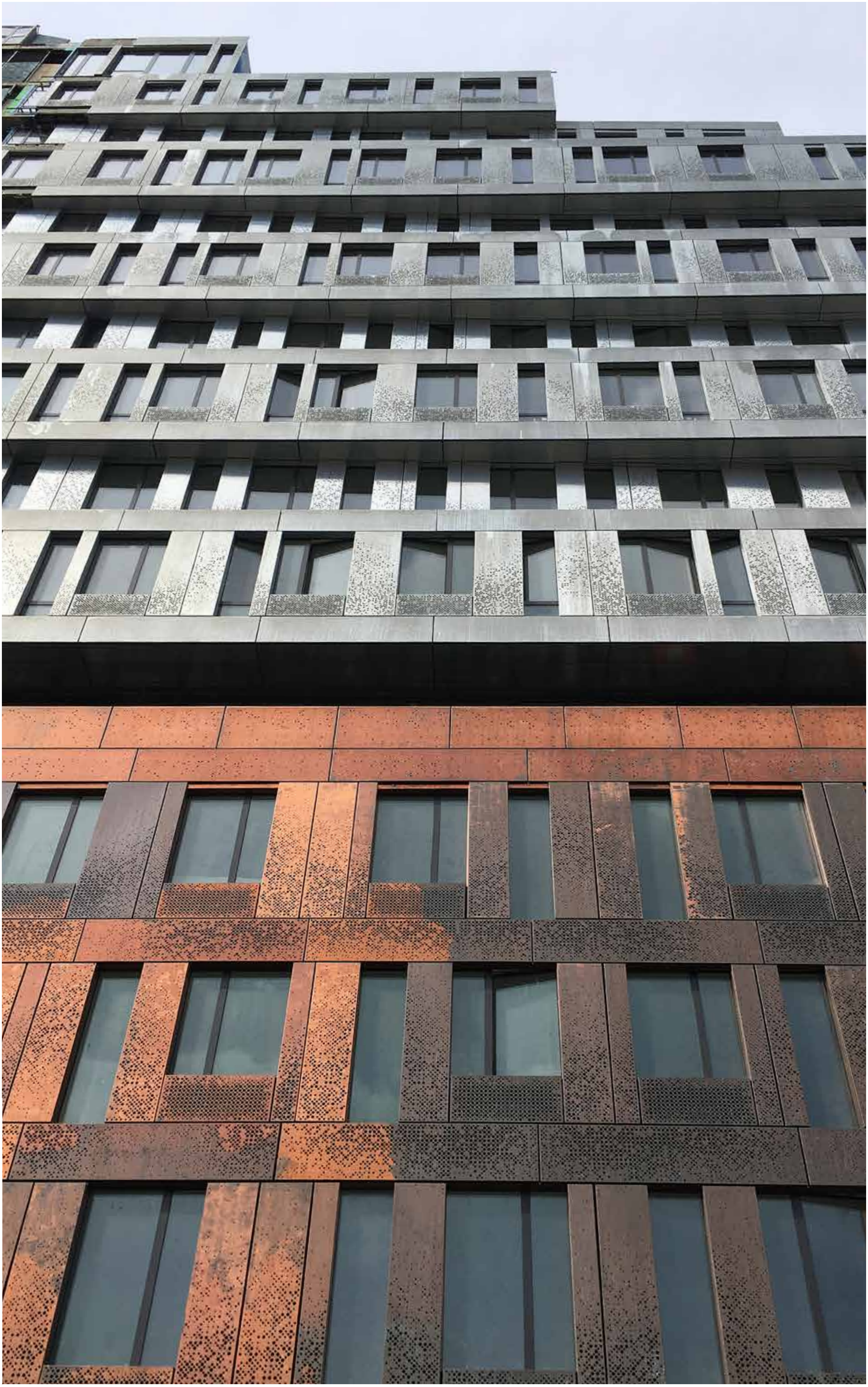
The transformation
The first of five buildings built as part of this new neighbourhood welcomed its first tenants in the summer of 2017. The building is enveloped by a façade of perforated panels, fabricated from raw copper and zinc sourced from Bulgaria and France, which are attached to the building's exterior walls by the NVELOPE® NV3 hidden-fastening system.

NVELOPE® becomes an engineering partner
According to the Two Trees architect and project manager Mark Dwyer, the entire building was modelled using 3D GPS. Every panel, bracket, and rail of this bespoke façade system was mapped to a specific location on the building. This level of sophistication and complexity caused Mark and his team to search for a façade support system partner whose engineering and design expertise would add value above and beyond the component price. The NVELOPE® team of Welwyn Garden City UK proved to be the ideal partner to meet Mark's needs.

The challenge
Despite the building's exterior cascading visual effect, all façade panels needed to create a smooth vertical plane, where panels were plumb with one another to enable their interconnection. Because of the truly unique "helping hand" feature of the NVELOPE® bracket, which allows for 40 mm of façade panel adjustability, contractors were able to achieve the smooth vertical planes of the façade panels during the installation process across the wide spans of the building. As Mark Dwyer enthusiastically commented: "That building is a miracle. You go anywhere you like and look up, and it's a smooth plane."

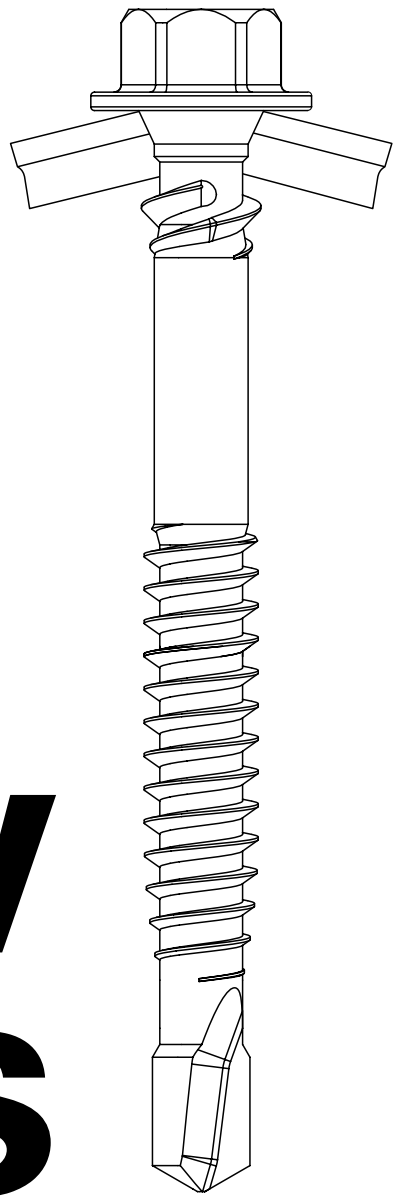
A long lasting and jointly developed solution
Ultimately, the NVELOPE® team was able to partner with the Two Trees Management Company to support their vision of creating a building that will stand as a hallmark for a flourishing community. One hundred years from now, when the brilliant zinc and copper façade panels age like the patina seen on the Statue of Liberty in New York Harbour, the NV3 system, made of high-quality anodised rails with great corrosion resistance, will still be supporting the panels that have seen generations of people prosper in a blooming neighbourhood.

A sustainable solution



The building is enveloped by a façade of perforated panels which are attached to the building's exterior walls by the NVELOPE® NV3 hidden-fastening system

A screw sets new standards



Construction

In developing the latest, ergonomic SXC5 drilling screw, SFS has again set new standards. Though perhaps not evident at first sight, it is the massively increased technical parameters which really make this component so different to conventional drilling screws – particularly when it comes to its main application, the increasingly important sandwich panel construction area.

“At SFS we always try to get close to our customers and partners. Over the past five years we have together identified a trend towards ever thinner substructures. This made us aware that drilling screws with improved technical parameters would have a great future.”

Martin Rüdisühli, Project Manager SFS

Martin Rüdisühli
martin.ruedisuehli@sfs.biz

Creative minds and high expertise
Eight creative thinkers launched the development project at SFS. Intensive thought showers during a dedicated workshop provided a wide range of product concepts. Two months later, 27 different ideas were critically evaluated, with just two making it through to the final round.

From prototype to SXC5
The project team developed 15 different variants for each of the two competing designs, with the next step being to produce and trial 30 different prototypes: an essential capability available to SFS in-house. In up to 20 separate production steps the individual drilling screws were manufactured and put to the test using realistic conditions with the sole aim of increasing the key technical parameters.

An innovative fastener with countless advantages
Achieving a larger flange and head diameter were clearly the least problematic issues; likewise, the project team soon managed to create the required asymmetric threading, visible to the naked eye, by working closely with manufacturing colleagues. The real challenge lay in the micro-metre adjustments required. Nevertheless, these creative minds managed to achieve a massive 50% increase over the previous tear-out performance. The thread geometry of an individual SXC5 could be adjusted to offer the customer two savings: either reducing the number of fastener positions and/or optimising the thickness of the substructure. Both options translate into considerable savings for the customer.

Aesthetic meets stability

The Dynamic 3D universal door hinge range from SFS has been extended to offer greater load handling and increased stability. These hinges also attract the eye with their slim design and range of colour and material options.

Sonia Malavasi
sonia.malavasi@sfs.biz

High demands
The demands made on today's hinges can be immense. Extremely heavy doors have to be supported, while their constant daily use calls for long-term stability and functionality. At the same time the aesthetic aspects have to be considered. Ideally the appearance of the hinge should reflect the door and its surroundings. All these requirements are met in spades by the new Dynamic 3D hinge range from SFS.

Sophisticated technology
To ensure maximum load bearing, the Dynamic 3D 20 mm dia. is divided into three sections retained by a continuous powerful bearing bolt. In addition, the integrated, maintenance-free sleeve bearing ensures a long-term, easy door closure.

The simple adjustments (+/– 4 mm in height, +/– 3 mm sideways and +/– 2 mm contact pressure) are all made with a 4 mm Allen key. These very effective fine setting adjustments, coupled with the drill guide provided, ensure rapid, easy installation. The technical strength of the hinges has been proven by rigorous SFS in-house tests, performing 200,000 successive door opening and closing cycles.

A real head turner
The 20 mm dia. Dynamic 3D is available in a wide range of powder coat colourways and even customer-specified shades if required.

Facts at a glance
- Simple and speedy installation
- Available to fit two rebate sizes: 16 mm and 20 mm
- Adjustments in height, width and contact pressure achieved with ease
- Up to 160 kg load bearing
- Suitable for fire doors
- Perfect setting of the hinges thanks to the three-piece construction and through bearing bolt
- Integrated slide bearing, offering lasting, easy door closing
- A wide range of standard and even customer-specific powder coat colours
- Certified to CE EN 1935-2002 and patent protected.

Unique roofing

The unusual roof design was achieved using the inductive welding system Isoweld® from SFS

Construction

Doing a pull test is sometimes like a box of chocolates: you never quite know what you're going to get. It was certainly the case in August 2016, with an enquiry from the roofing consultants Kevin Burch and Raymond Lovelace of REI, at the J.S. Dorton Arena in North Carolina.

Mike Roy
michael.roy@sfs.biz

One of a kind
The arena was built in 1951 for agricultural and entertainment industry shows, and is one of the most unusual buildings in North America. The construction of the building consists of two opposing 90 foot high parabolic arches anchoring a suspended cable roof system: actually the first one in the world to be so constructed. Metal roofing panels were then welded to the cable system, thereby leaving a clear and unobstructed view from any viewpoint inside the arena.

Evaluating the ideal roof solution
While doing the pull tests on the roof, the consultants discussed the type of roof that was going to replace the old, approximately 40,000 square foot, fully adhered white EPDM roof system. Because of the unique contours and the multiple fastening points scattered throughout the roof, the experts thought an induction weld system would best suit the shape of the roof.

For the next several months the roofing consultants evaluated the offers submitted during the bidding process before deciding in spring 2017 to realise the project with Owens Roofing of Raleigh. In a next step the SFS experts got in touch with Owens Roofing and introduced the isoweld® induction weld tool system and the tool loaner programme from SFS.

Moreover the new isoweld® backpack tool was presented and evaluated as a potential help working at the very apex of the roof with its severe slope. The in-depth knowledge and detailed attention to the customer's specific needs convinced Owens Roofing to realise the project with SFS and their isoweld® system.

Making the project a reality
In June 2017 an expert team of the SFS engineering department came to Raleigh with two prototype backpack isoweld® tools and the actual project began. Some of the roofing crew members had used induction weld tools before, thus making tool training even easier. With their ongoing support and visits, SFS ensured that the project was running smoothly and on time. The induction weld part of the job went very well, and wrapped up at the end of August, leaving just a few weeks to complete the detail work before the State Fair opened in October 2017.

The companies involved, especially the management of Owens Roofing, were very happy with the chosen isoweld® tools and the great collaboration between themselves and SFS.

Safety at heady heights

The new airport in Istanbul impresses not only by its size, but also through the innovative fall protection system "Soter"

Construction

The new Istanbul airport represents a truly prestigious construction project without equal. Even before completion of the build, the innovative "Soter" fall protection system from SFS was making its mark.

Peter Sencar
peter.sencar@sfs.biz

The starting position
A new airport has emerged in Istanbul, becoming one of the largest in the world. Over 20,000 people were employed on the project, striving successfully to complete the airport in good time for the official opening ceremony on 29 October 2018. Supporting rapid, secure progress on this extraordinary project, working hand-in-glove with the customer, SFS developed application-specific fastener solutions all around the build – demonstrating the company's depth of understanding and competence as a supply partner for a diverse range of requirements.

Safety at heady heights
Those responsible for the new airport worked closely with SFS to evaluate fall safety systems to protect the installation crews and construction workers on the airport's roofing. It was the wide range of efficient and secure fastener solutions, and guaranteed punctual delivery dates, coupled with the comprehensive application guidance available from SFS, which persuaded the airport planners to choose the innovative "Soter" fall protection system. 2,200 individual Soter units have been installed across the 400,000 square metres of standing seam roof area. These have been linked by more than 18 km of stainless steel cable. The system's roof fixing will be achieved using GESIPA® PowerBird® installation units; so impressive in terms of their robustness, speed and ergonomic design.

A comprehensive range of special products
Besides the fall protection system, SFS was able to win over the planners with other key products: a diverse range of special fasteners to retain the walls and roofing enveloping the build will help ensure that this new airport, destined to become one of the world's largest transportation hubs, despatches up to 200 million passengers per year when they are ready for take-off.

Radisson Red Project

Construction

Scottish Roofing and Cladding Contractors Procladd (Scotland) Ltd have collaborated with fastener specialist SFS on the eagerly anticipated new build Radisson Red Hotel, which opened its doors in Glasgow on schedule in spring 2018. A striking building situated on the north bank of the River Clyde on the Scottish Event Campus, it is near the SEC Centre, the Clyde Auditorium and the Hydro Arena.

"It has been great to be involved in this prestigious project. The main feature of the building is the aluminium rainscreen system which is coloured in a unique red. SFS worked very closely with us to ensure that a perfect colour match was achieved and we couldn't be happier with the results."

Keith Burrell, CEO and Stuart Tulloch, Managing Director of Procladd (Scotland) Ltd

Kate Every
kate.every@sfs.biz

A new luxury address
The ten-storey luxury hotel designed by ADF Architects is a £30 million project and will be Europe's first new build for the Radisson Red brand. The hotel features 176 rooms and an impressive rooftop sky bar with views over the city. The hotel's opening had been eagerly anticipated by the city's tourism leaders.

A shimmering red catches the eye
Appointed by main contractor Balfour Beatty Construction, Procladd (Scotland) Ltd commenced work on the 3,500m^2 aluminium rainscreen system in May 2017, consisting of a Booth Muirie Alucobond Spectra ACM (Aluminium Composite Material) panel system, finished in a distinct Red Brass colour with iridescent "colour shift" properties. The colour stands out as the main feature of the hotel, carefully matching the Radisson Red brand and continually changing nuances with the reflection and refraction of light.

SFS as engineering partner
Following extensive discussion with the customer, SFS provided the fasteners to perfectly match the iridescent red of the Alucobond Spectra ACM panels. Chosen for its superior aesthetics, SFS's self drilling SX3 fastener with its unique patented irius® head has a low profile and smooth, unblemished appearance that can be perfectly colour matched to any finish.

In close collaboration with the customer, A4 316 stainless steel fasteners were chosen for the application due to their enhanced performance and anti-corrosive properties, helping to extend the life of the building and therefore qualify for SFS's extended warranty.

SFS provided the fasteners that perfectly match the red "Alucobond Spectra ACM" panels

Since the summer of 2017 the night sky over Augsburg, Germany has been illuminated in the colours of the Augsburg football club, FCA. The new external shell enveloping the WWK Arena is the reason. The complex modern façade system was designed and built by the Roschmann Group, who turned to GESIPA® when it came to the question of fastening the unusual mesh-like façade consisting of interwoven aluminium and transparent plastic tubing. The result was an innovative, economic solution.

Martin Felsberg
martin.felsberg@gesipa.com
Roger Glaser
roger.glaser@gesipa.com
Andrea Lawitschka
andrea.lawitschka@gesipa.com

The starting position
In August 2016, the Roschmann Group of Germany was awarded the contract to create a new external envelope for the WWK Arena. The result is a modern, sophisticated construction of aluminium tubes. These wind round the arena like a cocoon on multiple levels. The Roschmann Group approached various companies with the challenge to propose a suitable fastening solution. GESIPA® was able to fully accommodate the customer's needs in terms of economy, technical security and ease-of-assembly with their proposal to use blind rivet nuts. Experts from the two companies put their heads together to detail a solution enabling safe, efficient installation.

A challenging installation
The aim: to integrate 135 transparent plastic tubes fitted with LED's into the 20 km network of Aluminium tubing and fix these securely to the substructure of the WWK Arena. Working in unison to tackle this challenge, experts from GESIPA® and Roschmann identified a suitable fastener for the job. As the use of the chosen blind rivet nut was not fully approved, Roschmann applied for a one-off permission for this application. Load tests were subsequently carried out on the fasteners retaining the aluminium tubes, including tear-out and shear evaluations, as well as associated component assessment by the gbd LAB GmbH and the Labor für Stahl- und Leichtmetallbau (approved inspection house for steel and light-weight construction research). The A4 stainless steel M8 blind rivet nuts used in combination with the Firefox® 2 installation equipment were identified as ideal. The next step was for GESIPA® to prepare a special, one-off installation manual for the customer. This would ensure the smooth, continuous and simple installation of the blind rivet nuts without issue.

Customer closeness creates confidence
GESIPA® started working on the optimum solution for the customer from the outset, right through to the comprehensive verification of the chosen fastener (A4 stainless steel M8 blind rivet nut) and support in setting up and carrying out the assembly operation; hand-in-hand with the customer.

"The collaboration with GESIPA® was frictionless. Their technical support enabled the right fastener solution to be used on the WWK Arena, offering an expedient, economical solution. Around 22,000 GESIPA® blind rivet nuts were used on the project, safely securing 20,000 m of aluminium tubing."

Michael, Skopp, Technical Director of the Roschmann Group

WWK Arena

Speed rivet technology

Riveting

Two Korean subcontractors, Shin Heung Co. Ltd. and Fine DNC Co. Ltd, produce electronic components for a well-known manufacturer of flat screen TV sets. In order to optimise their service, the two subcontractors chose speed rivet technology, also known as magazine-fed riveting, from GESIPA®. The Korean companies were especially attracted to the time and cost savings available to them through the use of GESIPA® equipment and technology.

Christopher Neidhardt
christopher.neidhardt@gesipa.com
Andrea Lawitschka
andrea.lawitschka@gesipa.com

At a glance
Speed rivet technology, also known as magazine-fed riveting, is an assembly technique requiring only single-sided access and offering rapid cycle times due to the magazine loaded rivets and automatic feed. As each rivet operation is completed, the setting tool feeds the next rivet into place automatically. This technology is used extensively in areas like industrial mass assembly, electronics, lighting, light-weight construction and aerospace.

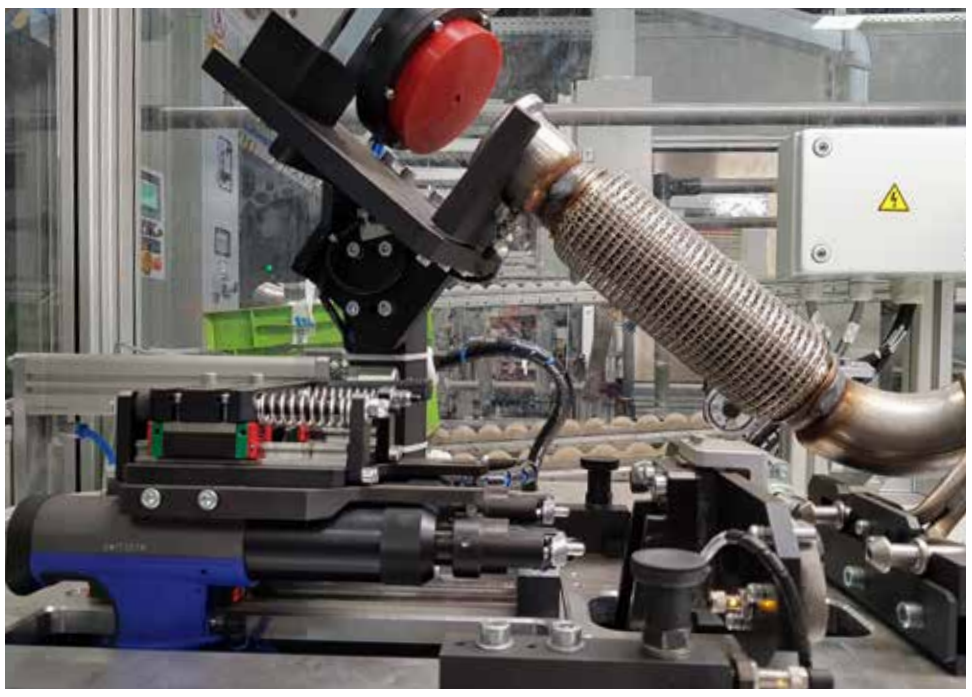
Exciting technology
Since 2014 GESIPA® has been working with various vendors in the electronic arena, offering suitable trial equipment for rivet testing. In this way customers were able to benefit from actual hands-on testing as well as expert advice from GESIPA® engineering. What really appealed to the subcontractors Shin Heung Co. Ltd. and Fine DNC Co. Ltd was the ease of use. The GESIPA® magazine feed is characterised by the immediate availability of successive rivets. Thanks to the use of ready-to-fit, one-way mandrels, the operator can quickly swap empty magazines without risk of injury. Other advantages are the light weight and ergonomic design of the units.

The bottom line: decisive advantages
GESIPA® experts consulted the Korean subcontractors to understand their needs, while taking on board the requirements of the electronics OEM to determine the optimum solution. Working together with Shin Heung Co. Ltd. and Fine DNC Co. Ltd, speed rivet technology was identified as ideal, as it produced the best results during customer tests in terms of productivity, operator safety and cost. The suppliers now benefit from a time saving of 25 % and a considerable increase in productivity by employing magazine-fed riveting.

"We could never have appreciated when we first started working with GESIPA® CZ s.r.o. just how successful a relationship between customer and supplier would be developed. Since using the GESIPA® equipment we have been able to increase production whilst reducing the amount of compressed air we consume. Our employees got on famously with the GESIPA® equipment and are really satisfied with this GESIPA® kit. As I understand it, we are now testing the next generation equipment, which we intend to purchase in the near future. Now we also use GESIPA® blind rivet nuts. Since using GESIPA® products we have noticed a decent reduction in faults with the parts we produce. In summary you can say we are extremely satisfied with both the equipment and fasteners from GESIPA® as well as the excellent co-operation which we look forward to continuing into the future."

Denis Iliev, Manager of Development and Production at Shin Heung Co. Ltd.

In 2016 an internationally-active exhaust system producer, operating in the premium segment, approached GESIPA® for potential support on developing a process monitored fixture for blind rivet setting in exhaust systems.



Stefan Mala
stefan.mala@gesipa.com
Uwe Herth
uwe.herth@gesipa.com
Andrea Lawitschka
andrea.lawitschka@gesipa.com

The starting position
Road tests carried out under adverse conditions repeatedly demonstrated problems with the durability of the exhaust system fixing. What was needed was a fastening solution for a rubber buffer to retain the exhaust, including process monitoring. The exhaust system concerned is fitted in a mid-range vehicle of a major automotive manufacturer. The challenge was to insert two blind rivets under process monitoring.

From plan to production
The process monitoring was to ensure that the rivet chosen specifically for this application was correctly inserted. During the setting process, all the relevant predefined parameters had to be achieved and the inspection results transferred to the GESIPA® databank for storage.

One critical aspect of correct rivet setting and overall bond durability, even in unfavourable weather conditions, surrounds the exact positioning and fixing of the components. Before setting the blind rivet, it must be ensured that a security or support element is correctly in place. A system for this was developed between GESIPA® and one of their long-term partners in system construction, Herrtwich & Co. of Rodgau, Germany. A manually operated linear axis system was developed in close collaboration with Herrtwich and fitted to an assembly unit. It was thus possible to ensure that the exhaust system was exactly positioned to enable the blind rivets to be correctly set every time.

A further challenge was process monitoring of the setting operation in a blind bore. The normal setting procedure is not possible in such conditions, because the rivet cannot form a closure head. Following considerable deliberation, the GESIPA® project team turned to the TAURUS® C range for inspiration; a system which has been tried and trusted across numerous branches of industry for over fourteen years now. It became obvious that this offered a reliable, economical answer to an application where a fully-automated system could not yet pay for itself with the quantities called for.

Thanks to the fixture supplied by GESIPA®, the necessary high quality standard demanded by the customer could be guaranteed. Indeed so happy was the customer with the output rate and quality from the pilot plant that meanwhile a further seven similar units have been installed in the plant concerned; with the customer commenting on the collaboration with GESIPA® as follows:

"GESIPA® had been our partner for all things rivet-related in other plants. We recognised that GESIPA® was a truly reliable development partner, always able to support us in securing our riveting processes. These solid credentials meant that GESIPA® would be the ideal partner for the new project. For our group, quality and stable, secure processes are the order of the day: riveting operations have certainly become far more secure since we have been using GESIPA® equipment and parts."

Customer from the exhaust system industry

Customised solution

Industry 4.0 at Menzi Muck AG

Distribution & Logistics

Working hand-in-hand with SFS, Menzi Muck AG, based in Rheintal, Switzerland, a commercial and technical world leader in the development and manufacture of walking excavators, is implementing the innovative M2M logistics solution from SFS. This results in reduced processing costs and minimal stores space requirements for Menzi Muck AG.

Boban Lazarevic
boban.lazarevic@sfs.ch

Long-term customer returns to SFS
SFS had been successfully implementing projects with Menzi Muck AG since 1997. After this customer decided to dissolve the collaboration with SFS in 2011, a dedicated project team from SFS repeatedly attempted to breathe life into the relationship once more. Menzi Muck AG were regularly updated on potentially interesting developments until finally the new M2M ("machine-to-machine") logistics solution won them over.

The M2M logistics system
At the heart of the M2M logistics system is the direct interface and automatic information exchange installed between terminals, minimising the costs of warehouse management (purchasing, logistics and handling) of so-called C-class components like washers, nuts and screws: reducing stock levels whilst simultaneously increasing component availability.

Menzi Muck AG on the road to industry 4.0
Once the induction phase had been successfully completed, the SFS project team began installing the new logistics system proper back in late 2016. Within two months the digital ordering system turnLOG2® was installed at the customer's site. Working closely with Menzi Muck AG, the SFS team were able to install the stores hardware within the subsequent three days. That meant transferring 320 items in the stores into turnLOG2® transponder bins. Finally, the central M2M controller was installed on the ceiling of the customer's shop-floor to manage communication between the stores infrastructure, the mobile terminals and the ERP systems.

Successful project conclusion
Menzi Muck AG has spoken most positively about the new generation M2M logistics system from SFS using turnLOG2® following its successful launch; management praised in particular the huge savings on storage space and reduced process costs; and not least the professional collaboration.

1,050 metres

The Lake Mutt dam

Distribution & Logistics

1,050 metres for 2.1 billion Swiss francs: the longest dam in Switzerland is also the highest in Europe. This project – a celebration of superlatives – was completed at Limmern, Linthal in the Canton of Glarus in 2017, following seven years of intensive construction work. The safety hand rails all around the dam were fitted using the fischer fastening system, Superbond from SFS.

Markus Unmüssig
markus.unmuessig@sfs.biz

This dam, over a kilometre in length, stands at 2,500 metres above sea level. It is a central element of the pumped storage power station in Limmern. This major engineering project was planned and financed by the energy company Axpo and the Canton of Glarus.

During the course of the construction project, the volume of Lake Mutt was increased from its original nine to 24 million cubic metres. As a result of the construction of the 1,050 metre-long and up to 35 metre-high gravity dam, the water level in the lake rose by 28 metres to a height of 2,474 metres above sea level. A steel hand rail was fitted all along the lakeside edge of the longest dam in Switzerland to make it safer for pedestrian visitors.

Working with the customer, SFS evaluated a range of fastener options to secure the metal retaining structure of the hand rail, including a firm ground anchorage, with managers from both companies finally opting for the fischer fixings system, Superbond. 680 posts were anchored by means of three fixings apiece in the concrete head, making them more than capable of supporting the calculated horizontal load.

Impressive: 680 posts were securely anchored using the fischer Superbond system from SFS

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Yvonne Geiling, yvonne.geiling@sfs.biz
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SFS Group AG
Rosenbergsaustrasse 8
CH-9435 Heerbrugg

T +41 71 727 51 51
info@sfs.biz
www.sfs.biz