

## The measure of all things

SMALLEST DETAILS DEFINED AND DETERMINED.

**The team service**  
Two are better than one

**Attractive prospects**  
Searching and finding trends

**Designed to shape the future**  
Swiss know-how is in demand

**HAMUEL**  
**REICHENBACHER**  
Members of the SCHERDELGroup



Foreword by Volker Budzinski.

## Perspectives in machine building

Dear business partners, ladies and gentlemen,

As a family-owned machine builder we are proud of our heritage and tradition. With curiosity and open-mindedness, for many decades we have met the challenges presented by our customers' demanding tasks. Many companies have undergone internal changes leaving the decision-makers open to new ideas and approaches. Handicraft businesses are increasingly taking into account the advantages of industrial manufacturing, a fact that is clearly evident in our discussions with their representatives.

Our ambition is to get a clear understanding of and detailed insight into the requirements of our customers so that we can develop the optimum solution for the process and offer the most appropriate machine and systems. This is of great importance to us and distinguishes us from the majority of other machine manufacturers: a prerequisite being the availability of highly specialised engineering-capacities already in the pre-project phase. They enable us to put ourselves in our customer's position, to precisely determine the different needs of individual industries and to offer customised solutions, starting from the handling, via the suitable technical equipment of the machine, up to an optimum selection of tools, machining strategy, extraction unit and automation system.

An additional benefit for our customers is to be seen in the fact that we are dealing with the implementation of process parameters even before the actual order placement: here, productivity, quality and, of course, machine uptime are of ever greater importance. Our close cooperation with various tool suppliers, automation and application specialists, is therefore an integral part of our offer. This is the message of our slogan "Discover new perspectives" to companies that process wood, aluminium and composite materials, as well as innovative hybrid light-weight materials.

Quite a piece of work still lies ahead to transform this approach into a common way of thinking in machine building, but in my opinion this is the only sensible course of action for the future.

**Volker Budzinski**  
Director of Sales  
Reichenbacher Hamuel GmbH



### Report on Coburg University of Applied Sciences

**4-5 Research in keeping with the times**  
Development service provider for industry and trade.

### The team service

**6-7 Two are better than one**  
Service embracing CNC.

### For discerning customers

**8-9 VISION-FLEX – a new machine concept**  
Innovative machining of aluminium profiles.

### Events

**10 Review of the Holz-Handwerk**  
Discover new perspectives.

### Reichenbacher Hamuel

**11 Vocational training at Reichenbacher**  
The best way to start your career.

### Cover topic: Premium AEROTEC

**12-15 The measure of all things**  
Smallest details defined and determined.

### GUSSEK HAUS Franz Gussek GmbH & Co. KG

**16-17 Attractive prospects**  
Searching and finding trends.

### Bach Heiden AG

**18-19 Designed to shape the future**  
Swiss know-how is in demand.

### Imprint

**Publisher:**  
Reichenbacher Hamuel GmbH  
Rosenauer Straße 32  
D-96487 Dörfles-Esbach  
Phone: + 49 9561 599-0  
E-Mail: info@reichenbacher.de  
Web: www.reichenbacher.de

**Responsible for the contents:**  
Mike Beier  
Marketing Management  
Reichenbacher Hamuel GmbH  
Phone: + 49 9561 599-184  
E-Mail: mike.beier@reichenbacher.de

**Edited by:**  
C. WEGNER presse & public relations  
Christina Wegner  
Prader Straße 12/1  
D-89233 Neu-Ulm  
Phone: +49 731 25099273  
E-Mail: info@wegner-pr.com

**Layout:**  
me Grafik-Design  
Moritz Eisentraut  
Rennleinsweg 29  
D-96215 Lichtenfels  
Phone: +49 9571 6398  
E-Mail: info@moritz-eisentraut.de

**Print:**  
Schneider Printmedien GmbH  
Reußenberg 22b  
D-96279 Weidhausen near Coburg  
Phone: +49 9562 98533  
E-Mail: info@schneiderprintmedien.de

**Copyright:**  
The contents must not be copied or published without the prior consent of the publisher, Reichenbacher Hamuel GmbH, Dörfles-Esbach, in October 2018.

# Research in keeping with the times

Development service provider for industry and trade.



It is the university's task to encourage innovation while at the same considering economic challenges. In Coburg the name says it all: 'University of Applied Sciences'. Those responsible at the Institute for Prototypes and Model Technology (IPM) have internalised this philosophy. They combine theory and practice and see themselves as development service providers for industry and craft sectors.

The members of the Formula Student Team 'CAT-Racing', who take part in an international design competition for race cars every year, also benefit from this pragmatic attitude, as well as from the modern teaching methods and research techniques. Apart from this competition, the institute handles other fascinating projects that demonstrate the multifaceted nature of activities there. Master model-maker Michael Schmitz explains in great detail the essential work stages, such as 3D scanning and the milling of master models, required for the reconstruction of medieval portal figures from the 12th century for Bamberg Cathedral. No less demanding was the manufacture of carrier platens from acrylic glass, into which glass shards five hundred years in age from the windows of Würzburg Cathedral could be fit precisely. Now, this glass puzzle provides visitors with an impression of the beauty the historical windows, which were destroyed in an air raid in March 1945, once held.



Model construction is about high material removal rates: roughing is done from the solid material, while at the same time a good surface quality and precision for the subsequent finishing process are required.



For reasons of the considerable size of the table and its execution the Reichenbacher unit with its stationary bridge portal is in heavy welded design and completely enclosed by a protective cabin.

As diverse these projects may be, they have one thing in common: the models used were processed on a modern 5-axes CNC-unit manufactured by Reichenbacher, which had been acquired in 2001 during a high-tech offensive with financial assistance from the Free State of Bavaria. The manufacture of moulds and models from wood and wooden materials, block material, plastics and composites has undergone a continuous development over these past 16 years: no matter whether it concerns grips for archery, moulds for the carbon frame of a racing cycle or moulds for interior and exterior trims for the automotive industry, both for race cars and for tuning or off-road vehicles.

Looking back, the initial profile of requirements stated for the machine has proven extremely effective from the manufacturing point of view. Michael Schmitz still very clearly recalls these requirements: „We wanted a large table and a high Z-axis. Moreover, the machine was to be an extraordinarily robust machine, as model construction deals with high material removal rates. At the same time it asks for good surface quality and precision for the subsequent finishing operation. Therefore, we needed a powerful spindle in a unit designed for high feed rates.”

The ECO-2126-A Sprint machining centre meets these requirements. It possesses a stationary, vibration-free bridge portal and, for reasons of the considerable size of the table and its execution, is in heavy welded design and completely enclosed by a protective cabin. Attached to the portal is the sturdy unit slide for the transverse and vertical movements of the working units. In dealing with the massive unit, the Institute's employees have become CNC experts. Nonetheless, they rely on the know-how of Reichenbacher, above all for material testing. "It presents an advantage to have the machine manufacturer in the same city and to be able to count on a close cooperation," Professor Markus Stark, Head of the Institute, Subject Area Design, Additive Manufacturing and Lightweight Construction, outlines the special relationship.

They perform roughing, finishing and milling operations, and the components vary with respect to size, as well as to geometry and materials. The smallest parts measure a mere 120 x 150 mm: mould halves for a water tap, the manufacture of which requires less than one hour including finishing process. A clearly bigger component is the monocoque for the CAT-Racing car with approximate dimensions of 1,800 x 800 x 400 mm. Here, also two mould halves are made from block material, though 50 to 60 hours need to be envisaged for the milling work to be completed.

The Formula SAE competition registers participation from universities all over the world. This project is a challenging task for prospective engineers: within one year they have to develop a race car completely new from the scratch ready for evaluation with respect to aspects, such as aerodynamics, chassis, statics, brakes, control technology, electronics and drive technology. They use the findings of previous years as a basis, while the prototype must continuously be improved in terms of weight reduction, aerodynamics and other properties. The core team consists of 50 students cooperating in several specialist teams and belonging to various faculties. With this car they enter into international competition.



Master model-maker Michael Schmitz and Head of the Institute, Professor Markus Stark, with the current race car of the Formula Student Team „CAT Racing“.

## Two are better than one

Service embracing CNC.

Our interview partners:



Thomas Neeß, head of service for HAMUEL machinery



Matthias Wolf, head of service for Reichenbacher machinery



**Interviewer:** At HAMUEL Reichenbacher there is not only one, but there are two heads of the service department. Why is this the case?

**Wolf:** What had started out as the combination of the service departments of two separate companies, has now become a powerful merger. Each of us places his focus on other priorities: I have been at Reichenbacher since 1980 and have held the responsibility for the Reichenbacher lines as head of the service department since 1999. My colleague, Mr. Neeß, has been employed at HAMUEL for 20 years and knows the HAMUEL machines by heart. This dual leadership puts us in a position, where we can offer the optimum service – our customers, and naturally also our staff members, do almost always have a competent partner for their individual concerns at their disposal. The data for all machines from both companies are readily accessible for both of us in the service filing system and so we can easily step in for each other.

**Interviewer:** Whom should the customer approach, when there is a technical issue to be solved?

**Wolf:** Incoming cases are taken on by two members of the service centre and immediately forwarded to our technical

hotline. Our staff members can provide assistance for most issues immediately on the phone. More complex situations will be dealt with by our experts.

**Neeß:** Our department comprises a total of 36 very committed employees. 4 staff members handle the technical hotline and the manpower planning for the service technicians, 10 colleagues are responsible for organisational aspects and spare parts procurement. Our 22 service technicians work in all parts of the world, and that is why many of them are employed in the respective countries: for example in the service subsidiaries in England, France, the Benelux countries or Hungary; in China there are 5 colleagues. Moreover, we have another 15 service partners with their own teams worldwide, who carry out assembly work for us. All these interventions, including the provision and coordination of the spare parts required, are managed by our service centre.

**Interviewer:** What challenges do you expect in the future?

**Neeß:** There are ever increasing challenges, also since we are offering retrofits: they deal with the upgrading of older lines. As they are in ever greater demand, their share in our turnover will certainly show a considerable increase over

the next few years. This requires a great deal of expertise and human resources. Currently, we have annual deliveries of about 130 machines, which need to be put into operation, require regular maintenance and have always to be kept in optimum condition. Meaning that one definite challenge of the future will be the provision of sufficient expert staff.

**Wolf:** What is fascinating about service work is that it is very diverse and interesting. However, young people today don't consider constant travelling as appealing as former generations did. We count on increasingly training our own people, on introducing them to this task, and on filling them with enthusiasm for service work and travelling. In addition, we focus on expanding our global network of service partners, so that we are close to our customers and in a position to quickly intervene, if necessary.

**Interviewer:** Should a customer actually not be satisfied with the performance of his line, how do you deal with such a situation?

**Wolf:** Especially where very comprehensive projects or lines are concerned, which we must quite honestly regard as special solutions, it can happen that problems become only evident once the line is running under production conditions at the customer. In such a case, we will have to provide for a solution as soon as possible, as we know the customer himself to be under pressure then. We consider it our most important task as service department to use our huge experience to quickly grasp the essence of the problem and to solve it in cooperation with the specialist department concerned. Then, our technicians will intervene at short notice to properly implement the optimisation measures envisaged.

**Neeß:** Our customers can be confident that the line purchased from our company will meet the contractual requirements. If, for whatever reasons, modifications to reach an optimisation were necessary, we would need a certain time frame. Together we will then have to fix the date and the conditions for the modification work as soon as possible. If required, this means that we will carry out this work also at night or on weekends in order to avoid interruptions at the customer. Our technicians will do their utmost to quickly satisfy our customers.

**Interviewer:** What can the customer expect from such a service intervention?

**Wolf:** Mutual trust is extremely important, even more so if a failure occurs. This is why we try to send always the same technicians to support the customer. On the other hand, for demanding projects it makes sense to designate someone responsible always to be contacted at the customer, the so-called project manager. If the need arises, he will be authorised to access all departments and to instruct them to carry out the work required. In the case of large-scale projects, where special know-how from all departments, such as the design department, the PLC-experts and from application technology, is required, our service technicians can only become active based on detailed information from the respective department. Coordination and organisation at the customer should always be in the same hands.

**Neeß:** And in close cooperation we will find a quick solution for any problem to keep our machines at the customers running in a reliable and precise way for a long service life.



## VISION-FLEX – a new machine concept

Innovative machining of aluminium profiles.

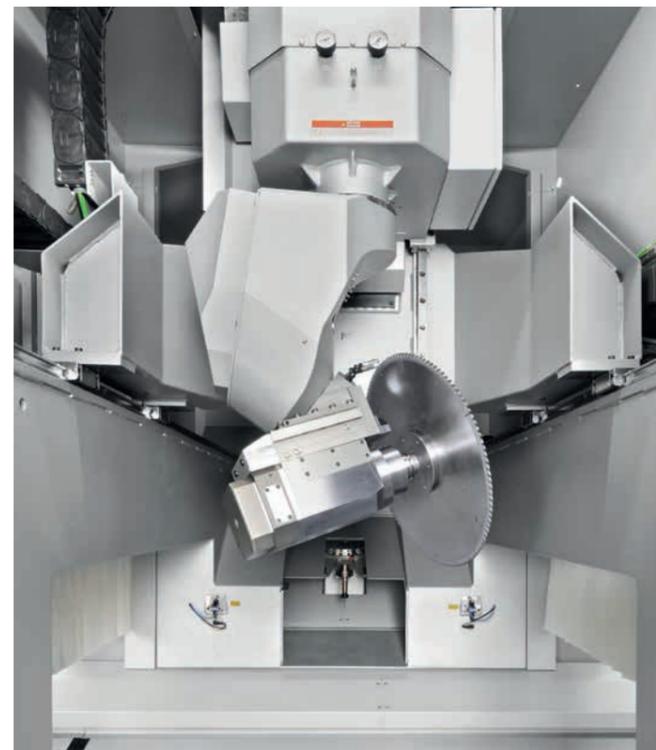


*There exist three different modes for the VISION-FLEX: the machining of single bars with excess length, of multi-bars with different contours and – last but not least – alternate operation, which clearly minimises machine downtime, as loading and unloading is carried out during machining.*

**The highly dynamic 5-axes CNC-machine VISION-FLEX is perfect for the advanced processing of aluminium profiles, as it revolutionises the cutting and machining even of larger profile cross-sections. The processing of profiles of up to 7,300 mm in length, three-sided and end-of-profile machining, are only some of the technical highlights of this new machine concept.**

When you use this series, you will succeed in saving precious working time and thus in achieving cost reductions. How is this possible? The absolute position measuring system for the CNC-axes renders referencing unnecessary. Clamping blocks with individual drives, which can also be displaced in groups, result in a significant reduction in set-up and manufacturing times, and owing to automatic clamp positioning this time advantage becomes even more drastic in alternate operation.

The innovative milling head technology with cardan mounting of the spindle permits a pivot range with an undercut of up to  $-20^\circ$ . This is rendered possible by the connection of the pivot block to the B-axis arm at an angle of  $50^\circ$ . The locating edge at the front of the table provides an ergonomic advantage even for the loading of long profiles. This is supplemented by the safety concept with bumpers, which ensures also considerable space savings.



*Cardan 5-axes working head with attached milling spindle ( $20^\circ$  undercut) for milling, drilling and sawing work.*

Positioning of the clamps for profile processing is carried out automatically by the control system. Even during processing, the motor-driven clamping blocks can be moved and displaced in groups. Without any problems it will also be possible to open the clamps as a function of the profile and to fix the profile with only one clamp. Moreover, the component can additionally be fixed in the Z-direction by a vertical clamp at the beam. If machining is to take place in the range of the clamp, the latter can be withdrawn.

The automatic tool changer comprises 20 tools and is freely configurable by the operator. Bigger tools and additional heads can be used. The magazine is attached to the portal, thus permitting a tool change during the portal movement, which in turn considerably reduces non-productive times.

The VISION-FLEX provides for all the machining possibilities required by a manufacturer of aluminium profiles: freeing of the saw blade, quick notching from below, bevel notching, notching step-by-step, embedded notching, undercut machining, cycled processing, friction drilling, thread forming and powerful 5-axes milling. This line takes you a big step closer to the manufacturing of the future.

# Discover new perspectives

Review of the Holz-Handwerk.



The great number of people that visited our stand at the Holz-Handwerk fair speaks a clear language. Director of Sales, Volker Budzinski, and his team made a virtue of necessity. No machine could be exhibited, as none was available for reasons of the good economic situation. This is why we decided spontaneously to leave well-trodden paths and to attract attention with a new communication concept instead. There were no limits to creative freedom.

Tribar, a so-called impossible object, has been chosen as the symbol for our theme "Discover new perspectives": for the first time to be shown at the fair, in the future to represent our philosophy of drawing our customers into the solution-finding process for new machine conceptions by assimilating their visions and suggestions. As this is what it is all about: to come together to discuss requirements and requests and in



doing so to get the right perspective for the targeted development of customised machines. The changes taking place in the management structures of handicraft businesses act in our favour, as the trend towards industrial processing will more and more assert itself.

This has met with great approval from our visitors. Our booth's distinction by its creative design yielded increased perception at the fair. Vivid discussions took place: about the symbol, about the vision behind it, about the solutions we have successfully implemented for many years – and this will stay in mind. And we are convinced that this will bring us a big step closer to our ambitious aim of making this idea a common way of thinking in machine building by Ligna 2019.



# Vocational training at Reichenbacher

The best way to start your career.

In most cases, you need to look beyond the classroom to find your dream job. No matter, whether you already have a precise idea in mind for your future profession or whether you are still completely clueless, you will have to make an important decision: **Which vocational training will be best for you?**

We are sure that at Reichenbacher you will find a career **that suits your personality**. Do you prefer an occupation that is preceded by an apprenticeship in the **technical** or rather in the **commercial** sector? Or do you want to get impressions of various occupations during an internship?

We will support your career plans from the very beginning, **as the training of our junior staff is of great importance to us**. We are looking for enthusiastic, young people, who want to gather their first experience at a successful machine builder.

### Commercial training

Exciting, manifold and offering perspectives: as a male/female industrial clerk at our company you will learn the fundamentals in sectors, such as sales, marketing, purchasing, service, logistics, controlling and human resources. And at our company you will naturally also get to know the technical processes taking place in our production sector. Furthermore, there will be the possibility of gathering insights on an international level, as our activities are global ones.



Impressions from the 17th Vocational training fair of the Chamber of Industry and Commerce at Congress House Coburg on June 8 and 9, 2018.

### Technical training

Our company offers you a choice from four technical apprenticeships: electronic technician for plant technology, industrial mechanic, mechatronics technician or technical product designer. We place a strong focus on practical applications, profound expert knowledge and most modern technology in the sectors of development, production and service. Those fascinated by technology and computer-controlled processes will certainly find an interesting vocational training with us.

The great thing about Reichenbacher is: if you do a good job, you can **achieve a lot** at our company. And the hiring rate after the completion of the vocational training is well above average, as we don't want to let good people leave...

We have been present on many platforms for the recruitment of young talent over the years. You can find us at vocational training fairs or educational fairs initiated by the Chamber of Industry and Commerce, as well as at trade fairs and school events. Thanks to the great cooperation with the Chamber of Industry and Commerce and with other educational institutions here at Coburg, the number of apprenticeship contracts concluded with us is encouragingly high. Early vocational orientation is very important to keep it that way. Therefore, take advantage of the numerous attractive events on offer.



By the way, you will recognise us from **our campaign "We want you"**. We have interviewed young people as to what kind of picture would appeal to them, and based on their ideas a **graffiti** has been designed by the famous local sprayer Alex.

# The measure of all things

*Smallest details defined and determined.*

In general, in the aircraft industry even the smallest deviation in the precision of component machining is unwanted. The question, whether this is of importance for all the components, remains unanswered. Nevertheless, it is certain that this demand is made on numerous components of military and civil aircraft and that machining accuracy is the most important criterion for machine manufacturers.

Ten years ago, Reichenbacher, a manufacturer of special CNC-machines, was confronted with exactly these demands. At that time, first negotiations with Premium AEROTEC took place. Specifically, the negotiations were about heavy centres for the machining of carbon fibre composites (CFRP) and aluminium for their Augsburg facilities. Such a project presents a respectable challenge for a renowned machine manufacturer, however associated with an equally high prestige, as Premium AEROTEC is not just any supplier of the aircraft industry.

Having emerged from the former Messerschmitt AG, the company with currently about 4,000 people employed at Augsburg site and its one hundred years of history is among the most traditional ones in the industry worldwide. The people there have always attached great importance to using visionary approaches in aircraft development and manufacture and they still feel committed to this tradition. Premium AEROTEC is one of the leading tier-1-suppliers worldwide for civil and military aircraft structures, as well as a partner in large-scale international aerospace programmes. Their structural components are used in all the Airbus programmes, which explains why civil aviation is their most important business segment.

The core business of the company, which operates out of several locations, is the development and manufacture of large aircraft components from aluminium, titanium and CFRP. In Augsburg the main industrial focus is on the manufacture and assembly of fuselage sections and high-strength structural components, as well as on 5-axes heavy-duty machining – with the aim of obtaining maximum longevity of the products. To account for this objective, all the machines used in the production process must deliver top machining precision.



Heavy H-profile beams for the floor structure.



The line permits 5-axes CNC-machining at high dimensional and repeat accuracy.

The cooperation between Premium AEROTEC and Reichenbacher was launched in 2008, when the first of a total of four machines from the UNIVERS series was put into operation. „The use of NC-drilling machines became mandatory for drilling the holes into the floor crossbeams from CFRP and aluminium-lithium alloys, as well as into the seat rails and longitudinal beams from aluminium, when we had taken on the work package for the floor structure of the A380 and the A350 of Airbus”, explains Andreas Reichenbach, Production Engineer Floor Crossbeam Assembly. Until then, the position of the holes had been measured manually and they had been entered by hand-drills.



© Airbus SAS 2017

On one hand, the demands made on the lines with respect to manufacturing technology were based on floor crossbeams 7,000 mm in length. Only a line with a long machine bed could be considered for producing them. On the other hand, the focus was on a 5-axes working unit. In this context Florian Mauch, Area Sales Manager Southern Germany, points out „that the specifications as to high-precision dimensional and repeat accuracy were considerable“. Finally they requested a modification of the NC-programmes to permit the integration of the automatic beams of the machine table, as the component is always measured on the machine prior to each machining sequence in order to be able to determine its exact position on the machine. This virtually eliminates faulty holes.

Following a planning phase of about one year – which is a relatively short time span in aircraft manufacturing – during which even smallest details were defined and fixed, the machining centres could be designed and built to provide customised solutions. On one hand, the concept took into account the range of materials to be machined, which reached from CFRP via aluminium to aluminium-lithium alloys, and on the other hand the remarkable geometries of the components. The cross-sections of the beams cover 250 x 80 mm with a leg thickness of 5 – 10 mm and lengths of 6,500 – 7,200 mm. The dimensions for the seat rail profiles are 80 x 60 mm with a leg thickness of 3 – 5 mm and profile lengths of 0.5 – 6.0 m.

Each of the four centres of the UNIVERS Sprint series has specifically been designed for the heavy-duty machining of CFRP and aluminium. A cardanic 5-axes working unit allows for vertical milling, drilling, sawing and grinding operations at a power of 15 kW and a speed from 12,000 to 24,000 rpm. The tool magazine provides 24 tools and is attached at the rear side of the portal. In addition, each of the four centres is equipped with a cooling jet and lubricating device and with a blasting nozzle attached to the milling spindle. Both are automatically controlled via programme function.

Tool measuring is performed by the system Blum „LaserControl“ based on the light barrier principle. When the axes of the machine are displaced, the tool passes through a light barrier. One measuring cycle with breakage detection takes about 2 seconds. Moreover, there is a 3D probe available in the tool magazine for measuring the part positions. The 8 beam units of the automatic table are arranged in the Y-direction and adjustable via programme control in the X-direction by means of a positioning axis, each. The positions of the beams are displayed on a screen at any time. Moreover, each beam disposes of its own positioning drive. Positioning accuracy is in the range of  $\pm 1$  mm. In order to guarantee a smooth transition directly into the production cycle, comprehensive test runs were carried out during the commissioning of the first machine for reasons of the high standards in aeronautics and of the regulations applicable to production equipment.

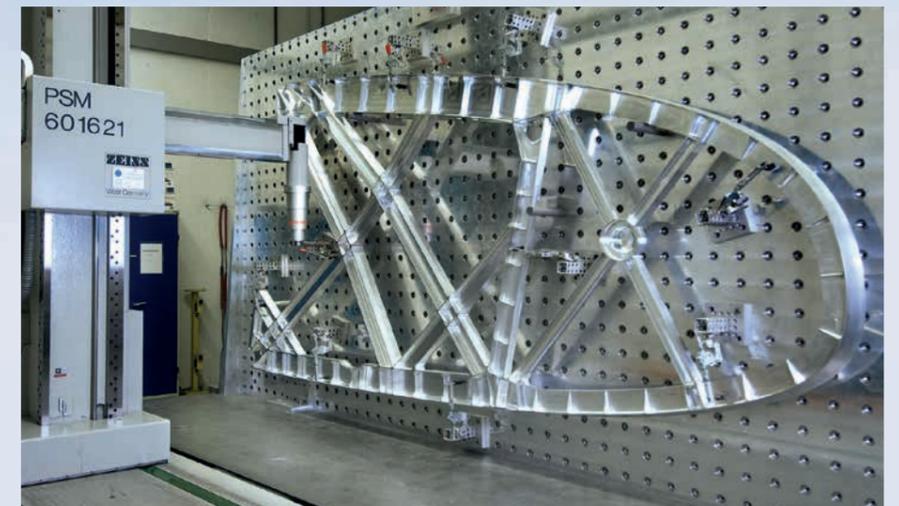
The individual components are manually placed onto the CNC-machine and fixed with clamping devices. The particular challenge in doing so is the fact that the required accuracy for the holes is  $\pm 0.1$  mm. This necessitates the probing of the components with a measuring probe. Only once they have precisely been aligned and positioned, the machining operation will start, which, depending on the component, can take 10 minutes for short seat rails and up to 1.5 hours for CFRP floor crossbeams.



Among other things, Premium AEROTEC manufacture components for the Airbus A350.



For the cable passages in the floor structures, numerous holes in the floor profiles are required.



Heavy-duty structural components for airplanes from various military and civil programmes.

Two of a total of four Reichenbacher machines are in use in Augsburg. On one UNIVERS NC-drilling machine the holes for the floor crossbeams and the seat rails for the A380 are drilled at a current rate of 2 airplanes a month. On the other line the floor crossbeams for the A350 are manufactured at a current rate of 8 airplanes a month. In a next step these milled or drilled components are assembled to form the floor structure, which is in turn integrated into the so-called fuselage assemblies. During final assembly, these are combined with the wings into a plane.

The use of NC-machines today not only permits the drilling of the holes three times faster than before – deviations, too, are almost non-existent. This guarantees consistently high quality. The installation of the unit therefore does not only have positive effects on costs and product quality, but also on health protection, as can be seen from the example of the enclosed extraction unit for drilling dusts.

# Attractive prospects

Searching and finding trends.

Normally, you build a house only once in a lifetime. Therefore, the choice of the provider is one of the most important decisions to be made. With about 15,000 prefab houses, Gussek Haus is among the most renowned manufacturers in Germany. For what reasons? The answer given by Dr. Frank Gussek, Managing Partner, is a simple one: "Apparent high-class workmanship even in places that don't attract attention at first sight".

Everything from one source implies that also the individual subsections of the prefab houses are produced by Gussek. As early as in the 70s, they decided to produce windows, front doors, bay windows and staircases under their own auspices in order to ensure their high quality standards. The company founded independent branches of production or companies, respectively, for the CNC-controlled production of its own staircases and of wooden windows, which have developed into efficient units over time. This makes sense, as up to 450 staircases per year are needed in view of an annual production of about 400 houses. In addition, more than 750 staircases are sold on the free market.

Since 1997 they had been working with a Reichenbacher RANC-MC 5-axes machine, which mainly scored by its sturdiness and rigidity. They inevitably had to invest in a replacement with a clear objective in mind: speed. They wanted to avoid tool changing operations as far as possible, and if they were necessary at all they should be quick ones. The Reichenbacher concept was convincing and a VISION-II-ST Sprint has now been in use since 2013, the intelligent configuration of which drastically reduces tool changing times and has thus made the line the core of staircase manufacturing. Cutting accuracy, a fully automatic control system and minimum material losses do not only warrant for efficiency, but also for consistently good results. If you ask Georg Klinge, Head of Production, for details of the efficiency increase experienced in manufacturing, his enthusiasm becomes tangible. „These time savings put us in a position to produce a considerably greater number of parts on the machine. Today, the four sides of the newel posts, where holes



CNC-machining centre VISION-II-ST Sprint with finish-milled staircase steps.



4 newel posts on the machine at the same time.

were drilled manually in the past, are milled in a single pass one after the other. This fact alone has made our newel post manufacturing faster by up to 80 percent." The same applies to stringers, steps and handrails. The entire length of handrails with special wreaths is milled with great precision and in minimum time.

Especially for staircase manufacturing, this machine additionally features three vertical milling motors. They are attached to the Y-slide and connected with the cardanic working head. Each milling motor is positioned separately and equipped with a collet chuck holder. Hubertus Hünker, Area Sales Manager, explains the reasons: „It would be absurd to submit the 5-axes head to unnecessary wear. Operations, such as the milling of outer contours, of recesses or of high-precision profiles, can also be accomplished by simpler motors“. Therefore, the main milling motor is now only used for complex geometries: for horizontal work or freeform processing and for sawing operations at steps. According to Georg Klinge potential savings are about 20 percent in actual production time merely due to the elimination or reduction of tool changing time. An additional benefit: three motors provide for a lot of leeway and even the failure of one motor could easily be compensated.

“In our work we combine the experience resulting from Dutch mass production and real craftsmanship. We represent high quality and elegant lines – and we want and have to make industrial use of these merits, even though we are craftsmen at our very hearts,” says Head of Production Klinge. And Gussek have come up with something else: they have taken the light from the wall and integrated it into the staircase. Thus the edges of the steps are no longer overlooked, and gone are the days when one had to search for light switches and to feel for the first step of a staircase. LEDs are ideally suited for this purpose, as they produce no heat in the wooden component. Gussek's highlight: they „make the light move“, e.g. by switching the light on step by step, depending on whether the user goes upstairs or downstairs. This becomes possible by motion and light sensors linked to an intelligently programmed control system, which permits even the integration of an alarm system. And the high-precision recesses needed are also milled on the VISION-II-ST Sprint.



# Designed to shape the future

Swiss know-how is in demand.

In Switzerland, the name Bach Heiden AG is equated with premium and aesthetically superior fire protection products and with JASO®-doors. The company is among the market leaders in this sector. Founded almost 80 years ago as a village carpentry and joinery, the company has specialised in manufacturing highly intricate components by simultaneous CNC operations.

Particularly striking are their innovative fire protection elements, which satisfy high design standards and convince by their technical, as well as by their creative implementation. The people at Bach Heiden apply the same standards to the manufacture of JASO®-doors. They can assist and support people with impaired walking ability in their mobility, as the reduced swing area of the doors permits a wheelchair user or a person with walking difficulties to operate the door and pass through it without much manoeuvring. Once the passage has been completed, the door can be closed again without the need for additional turn-arounds. In confined spaces it is also used as a space-saving door, as in the case of this patented rotary movement the door panel swings through the door frame and thus needs considerably less space for its movement than a traditional door. In the building sector for handicapped people, the company has gained an excellent reputation with its patented swing and space-saving doors used in hospitals, rehabilitation centres and public buildings.

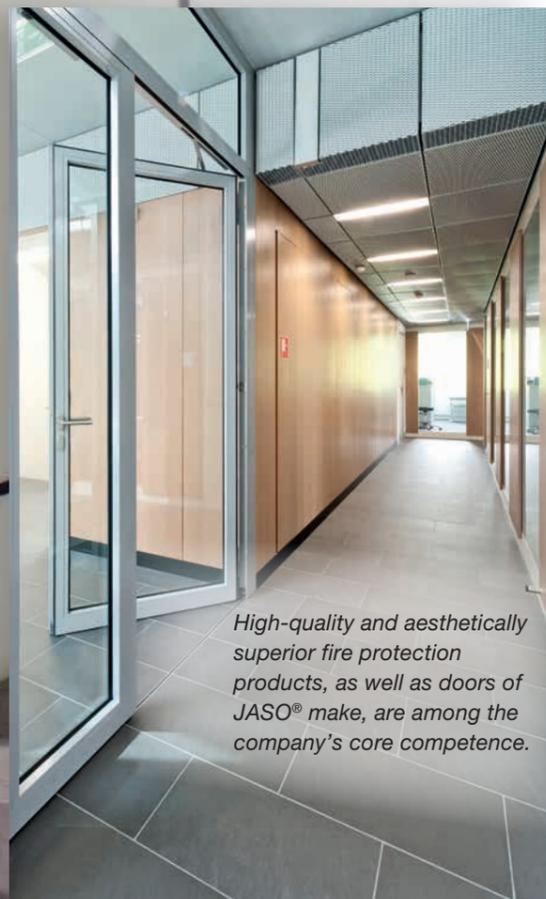
80 percent of their products are fire protection elements for doors, the remaining 20 percent are components from CNC-machining and lightweight construction. The product portfolio is characterised by a wide range of materials: apart from MDF, wooden materials and solid wood, Bach Heiden also machine industrial foams, CFRP, GFRP, glass or aluminium composites. In addition to the aerodynamic components for aviation purposes, in the industrial sector foam parts at millimeter precision for rail vehicle construction or free-form parts for caravans are predominant. Part of the range of products are also supplier parts for the electrical industry or for boat building.

The expanding project business and increasingly complex orders made high-precision machining based on modern CNC-technology imperative.



*Bach Heiden manufacture VKF-certified fire protection elements, which convince by their technical features and their appealing design.*

*Spectacular objects, such as the Hungerburgbahn in Innsbruck, are the result of the technological proficiency of the Reichenbacher machine, where machining isn't limited to wood.*



*High-quality and aesthetically superior fire protection products, as well as doors of JASO® make, are among the company's core competence.*



*The Reichenbacher 5-axes machining centre ECO-1232-B Sprint consists of a stationary 2-column portal with two machining tables, which can be moved separately,*



*Each of the two 5-axes units is equipped with a 24 kW spindle with torque support.*



*In the Bach Heiden AG workshop for each project a decision is made, for which of the parts the machining centre will be used.*

The company had gathered long-term experience with a CNC-router, but in 2010 they wanted to invest into 'technology for the future'. Once the demands, above all with respect to the component size, the spindle power in relation to the variety of materials, interfaces, had been fixed in detail, the 5-axes CNC-line, which is now a central element of manufacturing, was built by Reichenbacher.

The ECO-1232-B Sprint consists of a stationary 2-column portal with two machining tables, which can be moved separately, are equipped with 6 beams, each, and can electronically be connected, if the need arises. At travels of 6,600 mm in width, 10,000 mm in length, and a stroke of the Z-axis of 1,025 mm, this machine complies with their primary target to machine even big components in only one clamping operation, as these components can reach dimensions of 4,450 x 4,450 mm (L x W) and a height of up to 700 mm. All the usual lightweight, wood and plastic materials, as well as highly compacted materials and composites, can easily be machined. Special probing cycles permit precise machining in all axes. Two tool magazines with 40 places, each, for maximum tool lengths of 400 mm, and two pick-up places for circular saw blades with a diameter of 520 mm and a cutting depth of up to 120 mm, provide for great flexibility. Powerful blasting nozzles guarantee optimum cleaning of the components and long tool life.

One aspect is characteristic for all components: all products concerned are products with complex demands on design, dimensioning and choice of material. It is the simultaneous Reichenbacher CNC-technology with radius compensation that only makes the implementation of these components possible. Today, 5-axes technology opens up almost unlimited design options.

# WE WANT YOU



# BEWIRB DICH

[hamuel.de/karriere](http://hamuel.de/karriere)  
[reichenbacher.de/karriere](http://reichenbacher.de/karriere)