

## Stunning staircases

INNOVATION MEETS TRADITION

**Trendsetting styling from aluminium**  
*Luxurious appeal and authenticity*

**KANYA**  
*Concrete for tool making? Yes, of course*

**Premium doors made by professionals**  
*Quality and functionality as the top priority*

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



Foreword by Udo Schneider.

## Take us at our word...

Dear customers, business partners and colleagues,

I am very pleased that the current edition presents right away on the first pages a project in my responsibility.

Alutrim, suppliers for very renowned car manufacturers, decided to invest in CNC-machining centres a few years ago. A first award procedure ended with contract placing to a competitor. Obviously though, they couldn't quite forget our technical concept. When more machines were required later on, the people in charge directly got in touch with us stating their very specific requirements. This time we got the contract – and we supplied four ingenious lines at once, which manufacture exclusive interior parts from aluminium for the automotive industry.

I have just remembered something else about this very trusting business relationship. In the initial stage, I said about the very complex machine design: "We can do it, and if you want to have something special, you will get green cookies on top." Before the signing of the contract, the representatives from Alutrim actually recalled my very personal offer and mentioned it to Mr. Czwiolong and me – and guess what? Of course, I had brought green cookies (freshly baked by my wife the day before), put them on the table and said "Reichenbacher always keep their word." A nice little side story.

Back to our Insight 8: we want our employees to have a greater say and have asked them a few questions – sometimes with a wink. Be inspired by their partly amusing, partly serious answers and get to know the people at Reichenbacher even more personally. We conclude by presenting again one company from our group: KANYA, who have developed a convincing solution for the manufacture of polymer concrete for HAMUEL.

I hope you will enjoy reading this issue,

Dipl.-Ing. (FH) **Udo Schneider**  
Key-Account  
Reichenbacher Hamuel GmbH



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## Trendsetting styling from aluminium

*Luxurious appeal and authenticity.*

It is undeniable that decorated aluminium in a car interior exudes a special charisma. The people at Alutrim Europe GmbH in Brandenburg have taken this up as a profession, as they transfer inspirations found in nature and industry into decorative surfaces from genuine metal.

Premium car manufacturers apply high standards as to visual aesthetics and a pleasant surface feel of their components. The parts produced at Kyritz for Audi A6 and A7, the G-class from Daimler, Maybach, Porsche Cayenne, Rolls Royce Phantom and BMW meet these demands. Considering this customer group, it is a logical consequence to further the production of these trim parts by future-oriented machine technology.

A major project for Audi necessitated a considerable expansion in milling capacities in 2017. The project in question was the production of sixteen different components from aluminium for 2,400 cars Audi C8 per week. As Alutrim had already gathered experience in CNC-machining, a comprehensive profile of requirements for the 5-axes milling units was defined rather quickly.

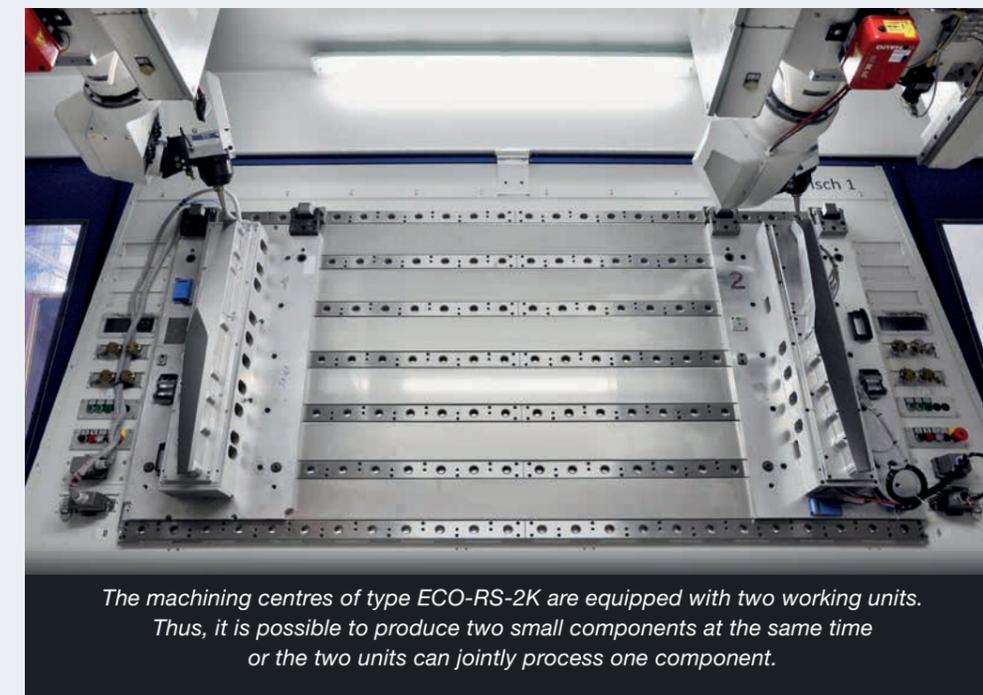
A quick agreement was possible on the ECO as the series most suitable for these challenging requirements according to Udo Schneider (Key-Account, Reichenbacher). Especially striking about the milling centres of type ECO-RS-III is their distinctive design. As they are equipped with rotary tables, the footprint of each unit is limited to 5,800 mm x 3,600 mm x 3,000 mm (X/Y/Z). A high degree of flexibility exists, as each unit is a crane hook machine, easily displaced and integrated into other production lines.

The ECO-RS-III is torsion-resistant, but – at a weight of about 15 metric tons – requires no special foundation work. The machine table with its two table areas is in an almost vertical position (inclined by 12°), installed on a rotary device, to be turned around by 180° for loading. This feature permits the loading of the unit while milling takes place simultaneously. Safeguarding of the rotary movement of the table is by laser scanners located at the loading and the unloading side of the machine. The tables are for double use, as each machine is equipped with two cardanic 5-axes machining units positioned almost vertically with respect to the Y-axis. During production, regular measuring of the head geometry takes place to ensure absolute precision of the milling results, as the defined objective is a zero gap dimension.

Double use offers the advantage that each clamping operation permits the milling of two different components, as the machining steps, during which, for example, the outer contours or cut-outs for the gear shift are milled, are relatively short ones. At each table side two lockable Harting plugs have been installed, which are responsible for the control and coding of the milling and clamping devices and enhance process reliability. Currently, at Alutrim one CNC-machining centre produces about 200 - 400 components per shift. They make, for instance, for the Audi types A6 and A7 eight different components per car at a rate of about 100,000 sets per year.



*The ECO-RS is a machine with an inclined machine bed, which means that the machine table is on the machine in an almost vertical position and rotatable.*



*The machining centres of type ECO-RS-2K are equipped with two working units. Thus, it is possible to produce two small components at the same time or the two units can jointly process one component.*

## Change in perspectives

In our series “Team members at Reichenbacher Hamuel” we present Haoyang Wu, Business Director Asia Pacific.

**Interviewer:** Can you briefly outline your background?

**Wu:** I was born at Huludao in China in 1983, studied at Beijing Institute of Technology, achieved a Bachelor's Degree in Industrial Engineering, and thereafter worked as Production Manager for a major electronics group (production of LCD-panels) and as Sales Engineer for a real-time data base.

Then, I went to Germany to join the Laboratory for Machine Tools and Production Engineering (WZL) of RWTH Aachen University. In 2011, I obtained my Master's Degree in Mechanical Engineering and started my career as a Sales Representative for special CNC-manufacturing centres. We have recently moved to Heilbronn, as my wife is working as Postdoc at TUM Heilbronn Campus, where she conducts operational research to optimise the hospital system.

**Interviewer:** What do you like best about your job?

**Wu:** I like engineering in general and finding technical solutions for the individual customer in particular. Especially the complexity of these remarkable machine systems never fails to impress me.

**Interviewer:** What is your prognosis for the development of RH in the future?

**Wu:** Based on their sophisticated machine systems, RH will reach even deeper process integration: then, apart from CNC-machining (turning, milling, drilling, grinding...), for example also 3D-printing, welding, ultra-sonic cutting and other progressive manufacturing processes will be incorporated in ONE machine.

RH have already put on the market many customised machines with individually enhanced functions. Important industries, such as the aerospace sector, automotive and rail vehicle construction, will increasingly use innovative materials in the near future. RH are perfectly prepared for this, as, in my opinion, only we offer machines suitable for ALL materials, including ceramics, super carbides, steel, composites, plastics and wood.



**Interviewer:** When you compare the CNC- and manufacturing industries of China and Germany: What is different and where are the strengths of the respective country?

**Wu:** In China, the CNC-industry emerged much later than in the EU, but has developed very quickly – all kinds of high-tech CNCs are in great demand. Chinese CNC-manufacturers are capable of building a standard machine tool with high accuracy and great rigidity, whereas they lack sufficient experience for designing machines to customer-specific requirements.

**Interviewer:** Where do you see the biggest differences between the Chinese and the German economies?

**Wu:** While German companies favour a more conservative approach, Chinese companies quickly respond to new opportunities. In doing so, they do not shy away from taking high risks, although there exists no traditional risk propensity in China. Here, the American style has had a great deal of influence.

However, “hot money” (the flow of funds or capital from one country to another in times of speculative foreign exchange or money transfers only under the aspect of generating short-term profits) does not genuinely support the manufacturing sector in the long term. Chinese companies should learn from German companies to focus on technology and knowhow rather than on quick profitmaking, while German companies could be more aggressive in the Chinese and Asian markets.

This year, I noted that an ever-increasing number of Chinese manufacturers needs customised machines affording high productivity, while the suppliers of standard machinery can no longer offer appropriate solutions. In my opinion, this trend shows a great opportunity for being successful in the Chinese market – not only for RH, but also for other German high-tech companies.

# KANYA

*Concrete for tool making? Yes, of course.*

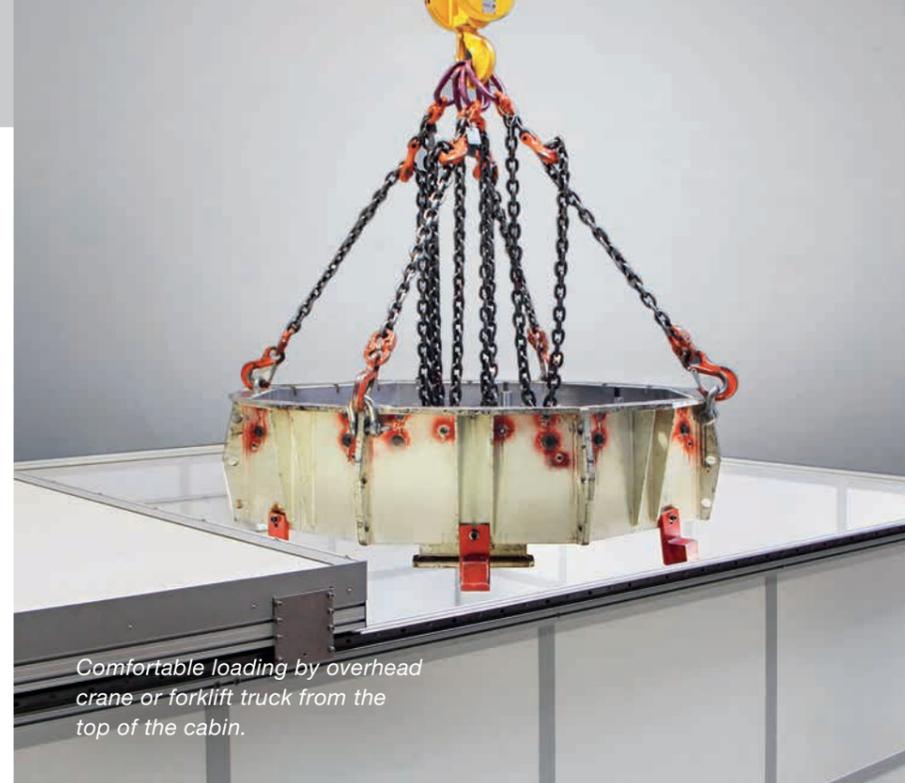
**HAMUEL Maschinenbau GmbH & Co. KG in Meeder show us how. In which way? By using polymer concrete.**

When they implemented this objective, they relied on one of the group of companies that form the SCHERDELGroup. KANYA Deutschland GmbH, a specialist for optimum solutions for cabins, protective covers and sophisticated door systems, have developed a tempering cabin with a flexible loading system for HAMUEL, which significantly improves mineral casts for machine building applications.

The business segment "mineral casts" for machine beds and functional parts from polymer concrete, which has constantly been growing for several years now, has made HAMUEL a much sought-after partner for the aviation and aerospace sector, the machine tool industry, medical engineering and many other industries.

But let's start at the beginning: polymer concrete is a material which consists, among other things, of mineral fillers, such as quartz gravel and sand, as well as of an epoxy resin system acting as a binder. This results in much better vibration-damping properties than those of grey cast iron or steel, for example. Polymer concrete shows its decisive advantages wherever machines for highly dynamic production technologies are in demand.

For this process of polymer concrete manufacturing, the new tempering cabin ensures the optimum control of the mineral cast during its curing phase by exposing the components after the initial casting process to an elevated temperature curve for several hours. This improves the mechanical properties AND considerably reduces the time between one casting process and the subsequent one: ergo two positive aspects of notable advantage for the customer.



*Comfortable loading by overhead crane or forklift truck from the top of the cabin.*



*Isolated cabin with complex door and roof openings.*



*Tempering cabin in modular design to keep open options for the future.*

The demands on the experts of KANYA were challenging:

- One request was for an isolated cabin with a high degree of energy efficiency and complex door and roof openings.
- Comfortable loading by overhead crane or forklift truck was to be possible.
- The concept was to be realised in modular design to ensure uncomplicated additions and expansions on the one hand and to keep open options for the future on the other hand, so that the handling of the entire HAMUEL product range is possible.

The outcome was the new tempering cabin with dimensions of 8,000 x 4,000 x 3,700 mm and several highlights. Thus, the isolated sliding roof of 4,000 x 4,000 mm (W x L) is equipped with an electric drive which permits the roof to be opened across the entire cabin width and half the cabin length. Moreover, there is a double sliding door with an opening of 3,000 x 3,500 mm integrated into a face wall of only 4,000 x 3,800 mm. Pre-assembly of all wall and door elements takes place at KANYA, meaning that the company can guarantee short installation times.

KANYA is a proven partner for Reichenbacher, too, whom we completely rely on regarding the realisation of the individual safety concepts for our machine series. People need particular protection in the danger zones of the production lines: no matter whether by fences, light barriers or complete protective cabins. Here, profiles from KANYA's modular system provide for a likewise appealing and economic solution. Adaptation of the protective housing to individual customer demands is possible by adding the respective panel elements and access facilities.



# Stunning staircases

*Innovation meets tradition.*

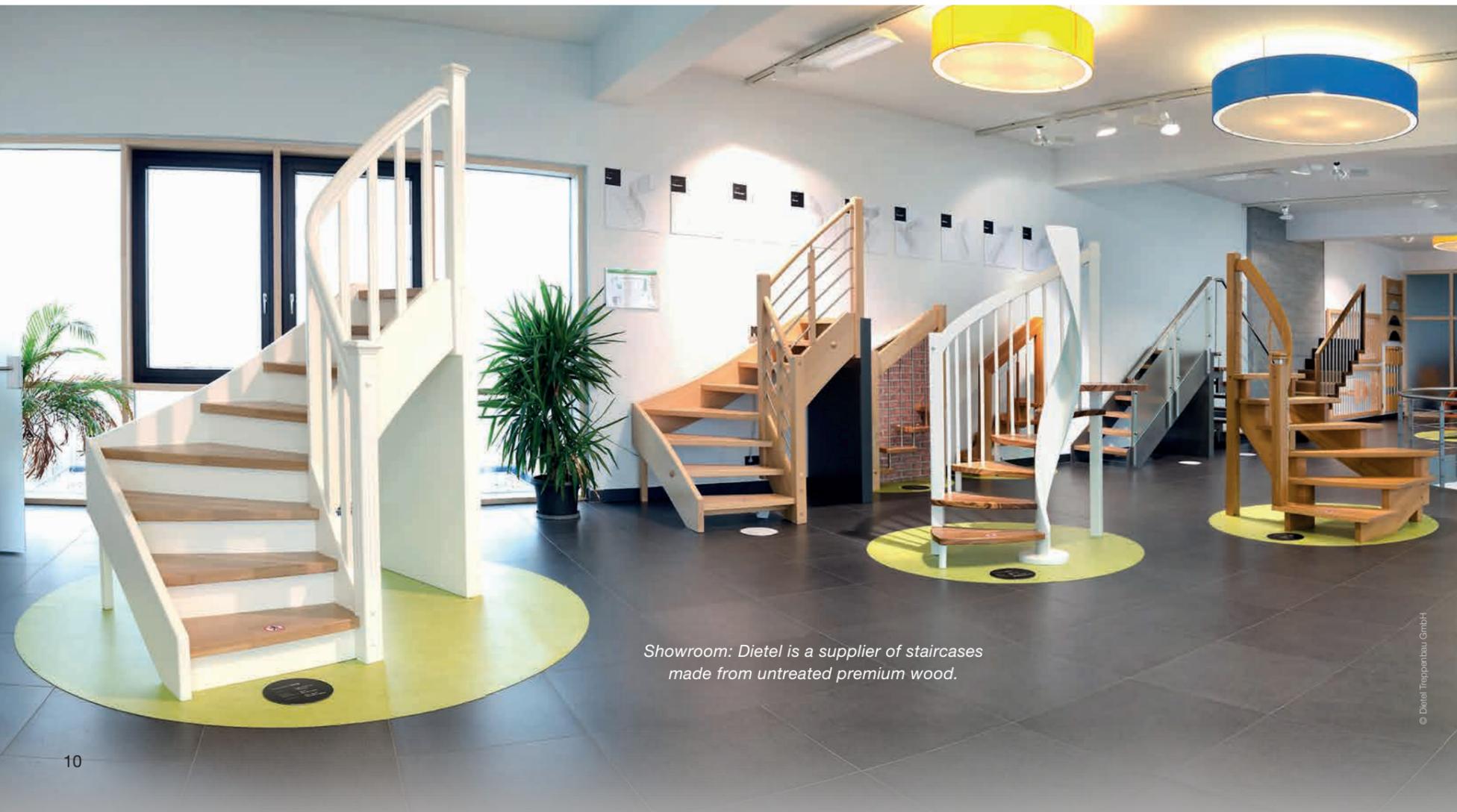
Wood processing has a long tradition in the densely wooded Erzgebirge and the people there have perfected their workmanship for generations. Dietel Treppenbau feel a strong commitment to this tradition, too. Many years ago, the company adopted our CNC-processing technology, thus updating production for the future.

Founded as a joinery shop in 1950, the children of the company founder had to start all over again after the German reunification. In 1990, they lost all their customers, as until then their activities had been limited to those of an automotive supplier for Trabant. A successful restart took place with wooden windows and staircases, which were standardised at that time and thus immediately marketable. They were in great demand, anyway.

In today's world, staircases made by Dietel do not simply connect various stories but, by their uniqueness, contribute to their design. In the second generation, Thomas Dietel is the managing director of the company, which has 80 employees and manufactures solid wooden stairs from untreated premium wood ready for installation. He is proud that these staircases make them stand out from their competitors in the best sense of the word. Prerequisite is their open-mindedness for new approaches to combine traditional workmanship and modern manufacturing technology.



*DIETEL Bauelemente GmbH and DIETEL Treppenbau GmbH have their headquarters in the industrial area of Jöhstadt at the heart of the Erzgebirge.*



*Showroom: Dietel is a supplier of staircases made from untreated premium wood.*



*The VISION-II-ST 5-axes permits the processing of components up to a total length of 6,900 mm.*

In the end, order-related individual manufacturing means that the dimensions for each staircase vary in the same way as its shape, number of steps, storey height or type of wood. Each staircase needs to be re-designed. A special software by Compass is in use to ensure an optimum implementation. First, the experts at Dietel design the staircase, then they make 3D-drawings for authorisation by the customer, and afterwards they generate the CNC-programme.

The Saxon company's experience with CNC-processing dates back to the year 1996. Even back then, the wood specialists from Jöhstadt were familiar with the name Reichenbacher. They knew that we are active in the field of solid wood processing machinery and that our machines are very sturdy and massive. "Exactly what it takes for portal machines, especially when you want to mill solid wood, in particular oak," the managing director says. In 2005, two new lines replaced the initial one, but, a few years ago, even those reached their capacity limits.



There are three additional milling motors installed at the Y-slide and connected to the cardanic working head.



At Dietel, two CNC-lines of the VISION series are in use.

The logical conclusion was the acquisition of an additional machining centre. After due consideration, they decided on the customised staircase manufacturing CNC-line VISION-II-ST proposed by area sales manager Florian Mauch, which provides for utmost precision and economic efficiency and is capable of processing components up to a total length of almost 6,900 mm.

What makes this line special is the following: apart from the main 5-axes unit, it is equipped with three additional milling motors for staircase manufacturing in particular which are installed at the Y-slide and connected to the cardanic working head. Each of these additional units is set individually and possesses a collet chuck. Here, one unit mills the outer contours for the strings and steps while another one makes the string housings and the grooves for the risers and the third one the precision profiles. This assigns the working processes to several milling spindles and, thus, considerably reduces tool-changing time. Now, the 5-axes milling unit is exclusively responsible for horizontal processes or free-form milling and for sawing work at the steps. For this purpose, the tool magazine, which moves along with the X-axis, keeps 24 tools available.

Thomas Dietel is impressed, as this saves a lot of tool changing in comparison to the machining centres known so far. Moreover, they reach new dimensions by the two step-manufacturing stations with one separator, each. "Alternate loading increases our manufacturing speed by up to 25 percent," he stresses and adds, "An extra bonus point is the 5-axes unit, as it puts us into the position to produce all components of a staircase, even the wreaths and strings, on a single line and with only one clamping operation required." Excellent cutting accuracy, a fully automatic control system and minimum material losses ensure consistently high-quality results, as only machines can provide them.



© Dietel Treppenbau GmbH

In addition to its practical purpose, above all a staircase has to fulfill a decorative function. Apart from its shape, primarily the material of a staircase has a special effect and exudes a unique charm. Dietel process light-coloured types of wood, such as pine, maple, birch or beech, as well as dark ones, such as mahogany, walnut, smoked oak or amazoué; either with colourless lacquer coating, oiled or with eco-friendly glazing. "Nature gives us wood as a material and we know what we owe to nature in return. Thus, we do not consider environmental protection a necessary evil," Thomas Dietel emphasises.

Even in times of Corona, for them the market situation is a stable one, as building activities will go on. The company owner is well aware of the fact that customers will be reluctant over the next few months. "As we do not rely on large-scale customers, we are relatively optimistic for the future, because house building will continue all the same. Almost every house builder needs a staircase, even if the respective order will be placed a few weeks later," he concludes.



Dietel supply staircases ready for installation with the steps already fitted.



Workmanship with tradition: many production steps at Dietel are manual ones – gluing, too.

# Premium doors made by professionals

Quality and functionality as the top priority.

Style is not all the same – that is the maxim Göbes and schutz in form at Hardheim in Baden apply when manufacturing special doors that meet the highest requirements not only with respect to appearance and quality, but also to fire and smoke protection, as well as noise and burglary protection.

Evidence of their great appeal is their long list of customers, which comprises the Kempinski Grand Hotel in Heiligendamm along with the Deutsche Bundesrat in Berlin or the Deutsche Bundesbank in Mainz. Thanks to their complexity and versatility, the company benefits from well-filled order books for projects such as school buildings, kindergartens, banking houses, museums or hotel complexes.

The two family businesses managed by Christiane Göbes define quality and functionality as their top priorities. Schutz in form focus on fire and smoke protection, as well as on burglary protection doors. Göbes produce special doors, but are also active in interior construction and furniture making, thus providing a holistic approach to the harmonic overall design of interiors.

In order to achieve this economically, the company relies on modern CNC-technology. After all, the features not visible from the outside are those with the highest demands on machining: hidden hinges and three-dimensional hinge systems, flush versions, special sizes, custom-made products, multi-point locks, decorative vertical friezes or cross-veneer door leaves with frames having square edges.

When a replacement investment became necessary, they paid particular attention to the technical equipment. Göbes were looking for a machine manufacturer with sufficient experience to respond to their special requests. Decisive for their decision proved our focus on building customised lines. What made the most lasting impression on Christiane Göbes was “that managing director Thomas Czwiolong and regional sales manager Florian Mauch acquainted us with concepts for particular machining processes, which enabled us to implement certain operations in a better and more efficient way.”



Managing director Christiane Göbes and Michael Amend in front of their customised door manufacturing line VISION-II-TT 5-axes.



The machine with its lower machine bed is equipped with PINS that put the door leaf into an elevated position.

“We had a definite idea. The door blank was to enter at the machine front and the finished door leaf to exit at the machine rear,” Michael Amend, who is in charge of the VISION-II-TT 5-axes, explains. “Our requirements: We wanted to have a through-feed machine equipped with PINS and a lower machine bed that puts the door leaf into an elevated position. Thus, the pivot movements of the 5-axes-head permit an easier machining of the bottom edges of the door leaf. Moreover, for door processing many tools are necessary; the 41 places available in the tool magazine provide for an ideal situation. The 5-axes unit allows for the machining of rebates for special applications, as well as for the milling of glazing cut-outs and of corners, which are normally cut out round, now to be cut out in an angular way.” It is necessary to be capable of working both, horizontally and vertically, to permit the introduction of all the door fittings nowadays required for multi-functional doors. No problem for the VISION.



In both companies, speed is not the top priority, but nonetheless there is substantial time saving. An example: machining an arched door with a herringbone pattern is subject to stringent technical requirements. This applies to the fittings, as well as to the lock and the hinges required, the floor door closer, the three-point locking system or an additional cable duct needed for an electric opener. Formerly, these operations took two workers and about one and a half to two days. Now, the entire proceedings for door leaf dimensions of 2,400 x 1,200 mm require 60 to 70 minutes on the CNC-line, including all work stages and only one clamping operation. Moreover, they have embarked on a more innovative path with the machine; today even the milling of inlays with a great variety in veneer type and thickness takes place right on the machine.

After almost three years, Christiane Göbes sums up their experience with the very positive statement that “Reichenbacher has turned out to be a very fair and reliable business partner through all the stages.”



Aligning equipment with pneumatic lifting on multiple roller strips intended for the alignment of the components in the Y-direction.



Door machining: flexibility for doors with special rebates, milling in all planes due to the free accessibility of the doors.



The CNC-machining centre is a through-feed line equipped with roller tracks.



Linear stop for pneumatic positioning intended for a maximum veneer overhang of 1 - 50 mm.

## Grown up at RH!

In our series “Team members at Reichenbacher Hamuel” we present Dominik Langhojer, Head of Development Software and Automation.

**Interviewer:** When did you join RH?

**Langhojer:** In 2005.

**Interviewer:** Could you give us a brief description of your professional career?

**Langhojer:** After secondary school, I started my vocational training in mechatronic engineering here at RH and I worked as a technician in field service on an international basis as of 2009. From 2011 onwards, I studied in parallel at the technical college with specialisation in electrical engineering and started my job as PLC-programmer / commissioning in the E-design department as of 2012. In 2015, I completed my studies as a state-certified technician. At the beginning of 2020, my promotion as Head of Development Software and Automation ensued.

**Interviewer:** What have your principal tasks been so far?

**Langhojer:** I have mainly been handling fully automated special projects, which are characterised by a strong customer focus and great complexity. Moreover, I have significantly been involved in software development for the ECO-LT and VISION-FLEX and in co-responsibility played a leading part in the development of the operator interface for the new QUANTUM. Not to mention the programming, commissioning and servicing of the first Heidenhain TNC640 CNC control system at RH.

**Interviewer:** What tasks do you see for you in the future?

**Langhojer:** Of course, it is my task as department head to further the department in cooperation with my team. This does not merely apply to software development and automation, but also to standardisation processes and quality management. Here, the emphasis will, apart from the selecting and suitability testing of new electric components and control systems, above all be on the conceptual planning of special projects, including consulting services for the technical management and the sales department already in the offer submission phase.

In addition, there are development projects in the fields of electrical engineering, control technology, PLC and software, and, particularly, also the support in internal training (mechatronics technicians, electronics technicians for operations technology, dual students electrical engineering) in the areas of PLC and control technology. Moreover, we want to expedite in our company the challenges of the future, such as “cloud, digital twin, flexibilisation, service orientation”, or, quite generally speaking, the topic “industry 4.0”.

We would like to get to know you more personally, so please complete our favourite questions below in a few words.

**Interviewer:** My job means to me...

**Langhojer:** ...to be technically on the pulse of time and able to work with the latest technologies; that I have turned my hobby into a career where I can share my knowhow and experience with others.

**Interviewer:** I have become a technician in the field of electrical engineering, because...

**Langhojer:** ...already in my childhood I was fascinated by the invisible electricity which causes lamps to light up. Moreover, my brother, who is eight years my senior, strongly inspired me by making me familiar with the initial development stages of PC-technology already at an early age.

**Interviewer:** At Reichenbacher it is important for me that...

**Langhojer:** ...there is challenge and encouragement, always a very direct contact with the customers, and room for my personal development.

**Interviewer:** The greatest satisfaction from my job is when...

**Langhojer:** ...I find components made on our machines in every-day life: in aircraft and cars, in coffins, sinks, skis and snowboards, in wooden toys or in kindergarten furniture. I could tell you interesting stories from each of these sectors...

**Interviewer:** What would you regard as your greatest asset?

**Langhojer:** I am empathic and a good listener.

**Interviewer:** If you had a motto for life and work, what would it be?

**Langhojer:** I have never been able to resist a challenge where the chances of success were slim and I could prove the contrary.

**Interviewer:** One of my special characteristics is...

**Langhojer:** ...that I soak up information like a sponge, am always willing to lend an open ear and try to help somehow.

**Interviewer:** The most important equipment in my job is...

**Langhojer:** ...the PC!

**Interviewer:** Many people have a quirk, i.e. an odd habit.

What about you?

**Langhojer:** Often, I am wandering around while on the phone; my hands must always be busy and I cannot stand odd numbers.

**Interviewer:** If you had to live on a deserted island, what three things would you take with you?

**Langhojer:** PC with internet access, a cow for having fresh milk and Kellogg's Toppas.

**Interviewer:** What do you absolutely need in your life (apart from your family, friends and job)?

**Langhojer:** Kellogg's Toppas, my scooter “Betty”, and the Franconian eating, drinking and festival culture, in general.



Discover new perspectives



The powerful  
answer to new  
challenges!

**HAMUEL**  
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