

# MAKA

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A sparkling water please?

A MAKA characteristic: the application engineer

Good engineering inspires: whether for woodworking or aircraft construction



CNC Spezialmaschinen

# Dear Readers,

There is a good reason for the Chinese dragon which adorns the title page of this issue of *MAKA Info*. We take great pleasure in a sales success, with which MAKA has recently opened the door to another big market of the future. More details are given in the "Taiwan Story".



Klaus Kern, MD



Thomas Rubbe, owner



Paul Lerbinger, owner

The order from the Far East and the high utilisation of our works demonstrates that we are on the right track. We have expert leadership with two owners that provide a sound financial base and an experienced manager with a tailored technical background. Together with our motivated and highly qualified team, we are well equipped to meet your exacting standards.

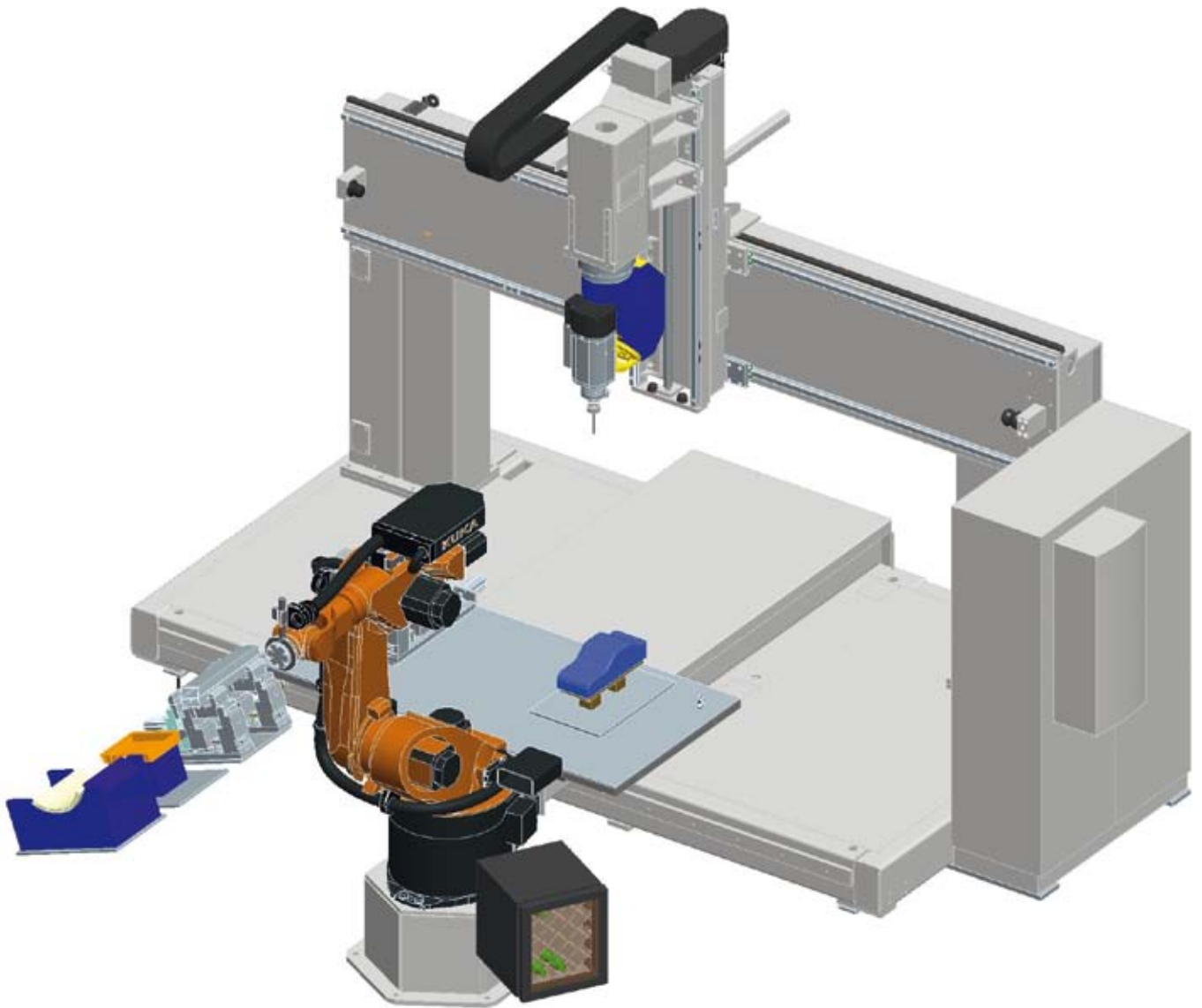
Naturally, the focus of *MAKA Info* is on our CNC manufacturing solutions that are used, for example, in aircraft construction and the automotive industry, but also for intricate timber construction throughout the world. Similarly, when it comes to materials, MAKA expertise recognises no boundaries; regardless of whether it is for engineering composites, aluminium or your own special material. Our daily business is to find the right solutions for individual production tasks. Each MAKA is a unique machine, realised by enthusiastic, creative minds. You will get to know some of these people, who may well be working for you in the near future, in *MAKA Info*.





Behind  
the versatile  
manufacturing  
solutions  
are versatile  
people

# MAKA



On show at the MAKA stand in Hall 12:  
5-axis CNC machining on an MK 7 with robotic connection

# at Ligna 2015

Under the catchphrase “Surprisingly versatile”, the LIGNA 2015 timber trade exhibition is seeking to draw attention to alternative materials. MAKA has long since covered a complete spectrum of materials with its CNC machining centres - from wood through to composites and aluminium. We have been developing high quality machining solutions for our international customers for many years. An increasingly important role is being played by parts-handling, and areas such as programming, logistics and tool systems.

While the automatic feed of components is already solved, the handling of heavy fixtures and devices still presents a challenge. In Hanover, MAKA will demonstrate to you how complex processes and movements are simplified; even when dealing with small lot sizes. As a very successful solution provider, MAKA has the right answer for all types of ancillary tasks such as clamping, sensors, pneumatics or logistics. Making light of the most difficult task, robotics is an advanced technology that is proving to be of valuable service in this respect.

At LIGNA you can experience how a robot carries out the complete set-up of fixtures, required for complex components, fully automatically. Our precise and highly effective zero point clamping system opens and closes automatically. Manual intervention is no longer required. Pneumatic and hydraulic systems can also be automatically controlled in a similar manner using electrical connectors and mechanical couplings. You can read more about this in our “Taiwan Story”.

The same high MAKA standard applies to the case when many different fixtures have to be moved. This usually presents a serious problem for the production process. MAKA „Device Management“ allows you to calmly go about your task. Sensors check the fixture and you can read off from the screen whether it is the correct part and whether it is correctly clamped. A single control command and your production runs.

## Making light of the most difficult task



# Choose your machine: set your own limits



Whether it is a high-end system or a productive single machine, there are virtually no limits for MAKA manufacturing solutions. Workpieces up to 4,000 mm high and 60 metres long stand as their own testimony. Linkable tandem tables as well as two or even more spindles further assist in increasing your productivity.

Shipbuilding, the aerospace industry, prototypes and large components in the timber industry are the domain of MAKA machines. The technology is also successful in kit house manufacture.

When it comes to the efficient use of resources, the machines positively shine with the MAKA energy-saving concept, which was awarded the environmental award from the Federation of German Industries (BDI).

It does not always have to be a big machine: Even the universal MK 7, presented at LIGNA, is already equipped with a 5-axis head with a

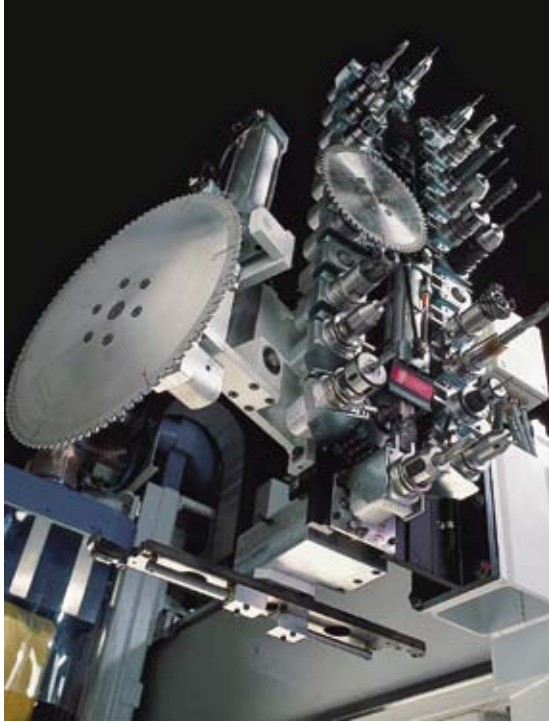
50-degree configuration, which is particularly advantageous for complex components. An in-house manufactured high-performance spindle is used for machining. The use of many components, that are also installed in the larger machines, raises the MK 7 to the same level of quality and ensures a high degree of standardisation. Two tool changers guarantee high efficiency with minimal set-up.

We put our trust in the market leader Siemens for the control system. The open concept is extremely flexible and the company is renowned for continuous development of its systems. The integrated operating data capture allows for detailed analysis of the production process and is the perfect base for future process optimisation.

With the Siemens Energy Control energy saving mode including energy recovery, the MK 7 achieves highly efficient use of resources and is positioned at the cutting edge of technology.

**01**  
The chain-type  
magazine of the CR 27 with  
up to 51 tool places

**02**  
High-torque MAKA  
HSK milling spindle for  
flexible operation



01



02



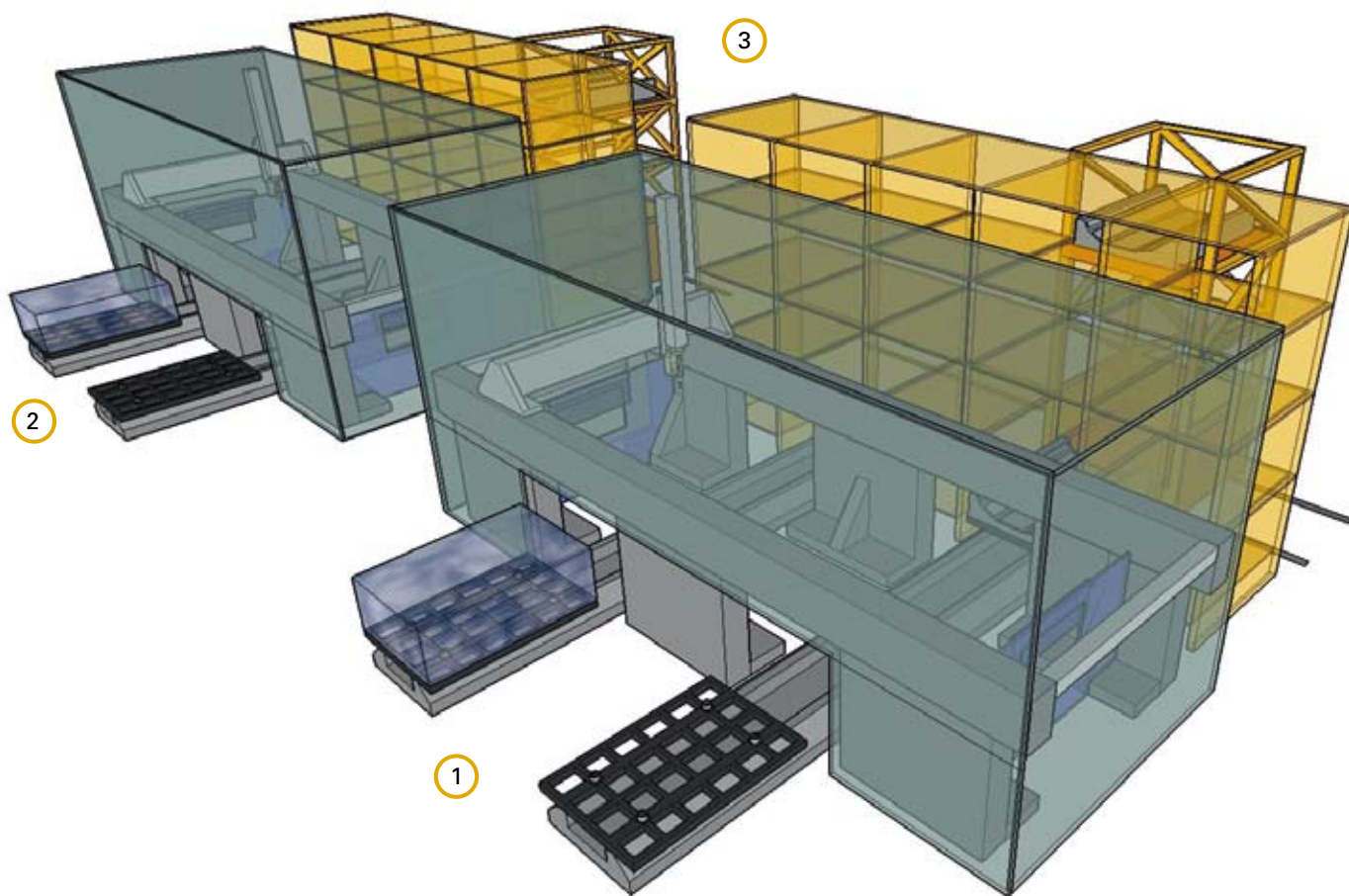
MAA





## Individual systems and solutions

With its individual CNC solutions, MAKA offers a comprehensive spectrum – from wood to composites and aluminium. For many years, we have been developing high-end machines and systems for 5-axis machining for our international customers. With robot technology, from standard to high-end – our developers will not stop developing until you set the limits.



The heart of the system is the BC 150 production solution, which is equipped with two tandem tables operating in alternating mode. While the part is machined on one table, the other table travels out and can be loaded with the next component. The parts are machined using 5-axis technology (1).

A second, similarly equipped machine is coupled to the first machine (2). Both machines are linked with the racking system (3). An unmanned stacking device fetches the fixtures stored in the racking system using a telescopic gripper and feeds them to the machine table. A zero point clamping sys-

tem is used for positioning and fixing. Sensors monitor the correct clamping tension. The workpieces are drawn on and released automatically with vacuum technology. Harting connectors link the production system to the control system.



# The Taiwan Story

Wooing  
the Dragon

**It is said that if you win over the Chinese dragon you can look forward to luck, happiness and a long life. If this is true, the signs are auspicious for MAKA, as in future, the largest aircraft and component manufacturer in Taiwan will be working with manufacturing technology from Nersingen.**

Aircraft construction is an advanced technology sector and sets the highest demands on the supply partner. It is critical that the tightest tolerances are met. And in the case of the Taiwanese company the bar was set even higher: The requirement stipulated a fully integrated solution for the production of small quantities, from a batch size of one, and automated device management. In practice, this meant the handling of fixtures weighing up to three tonnes. Added to this were the demands of a large industrial giant for on-time delivery and service. In the end, MAKA was awarded the multi-million value contract against stiff global competition. Klaus Kern, Managing Director of MAKA, was particularly pleased with „a further success in the Asian market, which confirms both our Asian growth strategy and our industry expertise in the aviation industry.“ Superior technical design and the on-site service in Asia were decisive for the success.

The MAKA solution is based on two type BC 150 coupled machines in the tandem table version. The high-performance machine tools are being used

for machining. A robust operation feed and efficient control system ensure reliable processing for optimum management of the fixtures weighing up to 3,000 kg. The management also includes an intelligent approach to changing the fixtures and devices. MAKA developed a purpose built racking system, from which the fixtures are automatically fed to the machine. The complexity of the application is tremendous: Due to the wide variety of components in very small quantities about 250 (!) fixtures are required. The handling had to be perfectly integrated into the manufacturing process. Up till now, forklifts were used for this, but with the new racking system the aircraft manufacturer has increased efficiency considerably.

With its service support centre in China, MAKA can ensure optimum care of the aerospace company in the future. Klaus Kern hopes to use this platform to further develop the relationship with the Chinese dragon.



“We see tremendous potential in the Asian region and therefore we make every effort to ensure maximum machine availability for all those involved.”

# The two Hillers - cast in the MAKA mould

## Hiller Junior (A.)

*"The key question for us is: What does the customer want to achieve?"*

## Hiller Senior (H.)

*"With the robot alone you start with a blank sheet. By programming the doors are opened."*

When it comes to robotics and control systems, one name is always mentioned at MAKA: Hiller. Both father and son combine exceptional know-how with a passion for their field of expertise and the joy of dealing with customers; simply cast in the MAKA mould. MAKA *Info* spoke to the two during a break.



**MAKA Info: After 36 years at MAKA do you still enjoy the work?**

H. Hiller: Yes, of course! Every MAKA machine is unique, which means that every day there is a new challenge. And apart from that we have a very good team spirit.

**MAKA Info: And how did the next generation come to be at MAKA?**

A. Hiller: I came here as a student trainee. Then I gained some practical experience in another company.

Later I came back to Germany via MAKA UK. I think the prospects are good at MAKA, and I compliment my father perfectly.

**MAKA Info: What is the focus of Hiller Senior in the team?**

H. Hiller: I am mainly responsible for Robotics and have helped shape the development in this area right from the beginning. Since then, we have become a systems partner for KUKA, which provides us with the hardware.

All of the subsequent processes are fully managed by MAKA. This gives the customer an invaluable advantage as he only has one point of contact. We match the design of the machine tool to the robotics technology. This applies to final axis drives, clocking, and especially the safety technology. This is then followed by the programming work. Once we have perfectly integrated the interface to the customer software the robotics work almost like magic.

**MAKA Info: And what is the area of activity for Hiller Junior?**

A. Hiller: I am mainly responsible for the control system and PC interfaces. That means PLC programming and Windows expertise. I provide the optimum connection of the MAKA machine solution to the robot. Ultimately, the consistency of the data flow is the lifeblood of an efficient plant.

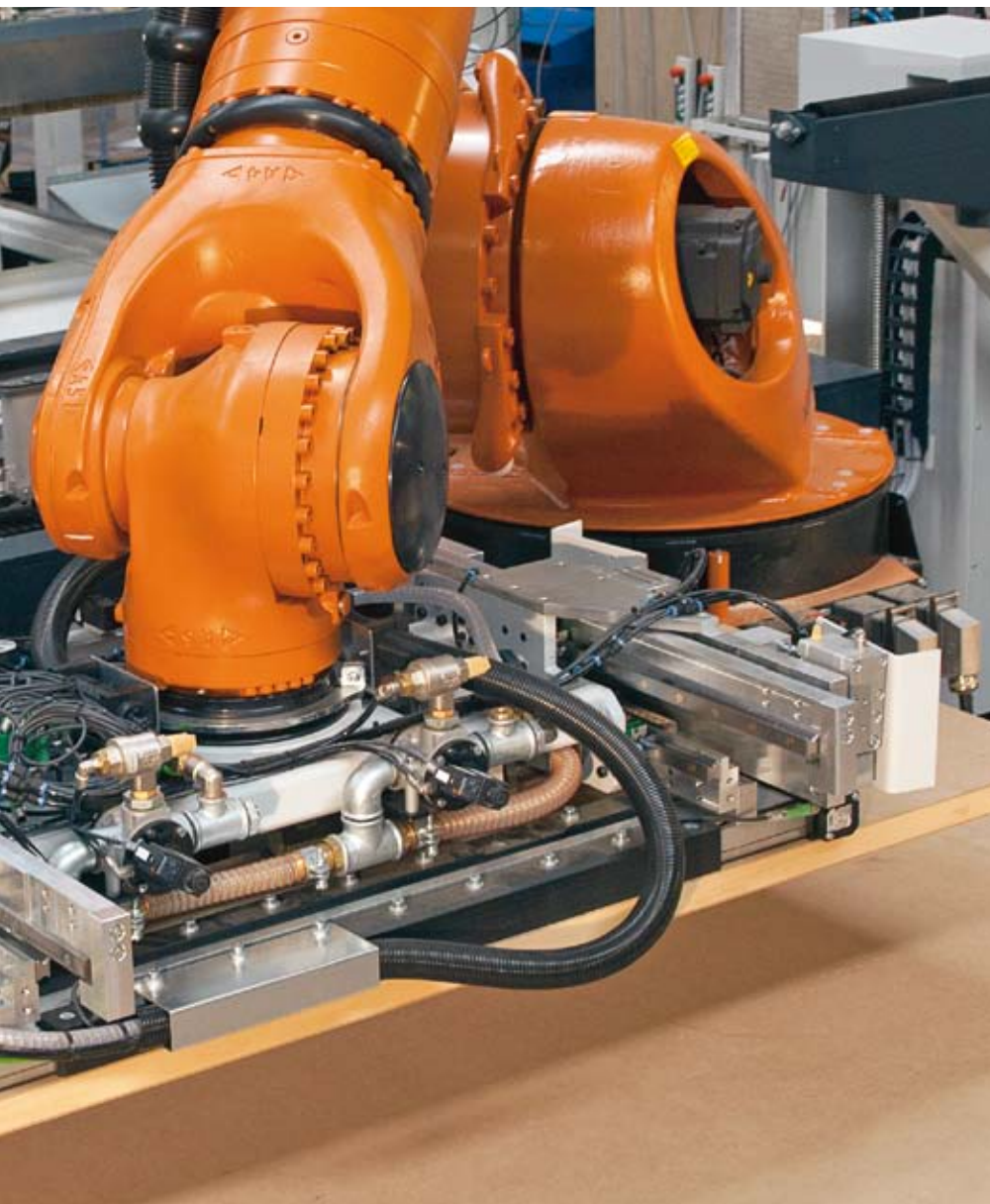
**MAKA Info: Neither of you are the typical computer boffin hiding behind your PC?**

H. Hiller: That just doesn't work at MAKA! The success of MAKA lies in the fact that the optimum solution is found in close contact with the customer. We travel throughout the world and need to have face to face contact. And here in Nersingen we are always available for our customers, too. The Hiller Hotline works perfectly.

A. Hiller: Robotics is a fascinating field with huge potential. With our many international assignments we see ourselves as ambassadors of this technology.

**MAKA Info: With success?**

Both Hillers (laughing): Most certainly! Interest is growing constantly. MAKA has recently sold three systems with robots in Switzerland. The customers are very pleased with the machines. And if the customer is happy, then we are happy.





# A mineral water please?

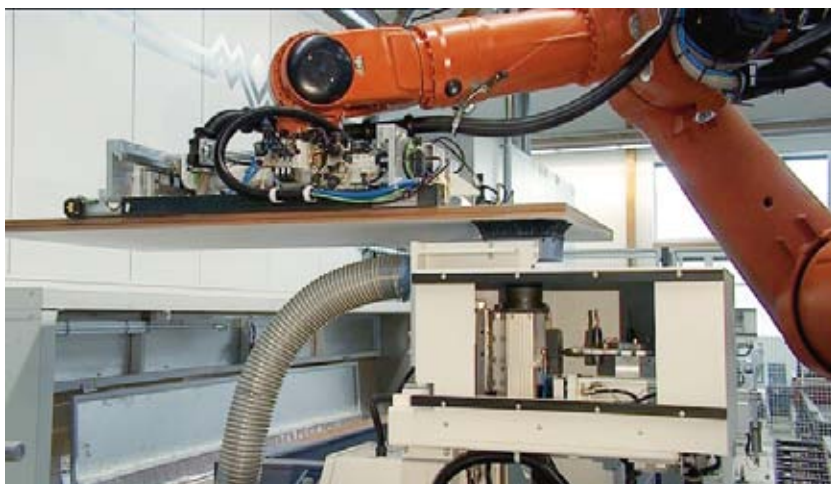
The MAKA stand at LIGNA has a special attraction: A robot not only moves the fixtures to the machine table, in between it also fetches a drink from the refrigerator for the stand visitors. MAKA wishes to use this promotion to draw your attention to the enormous flexibility and performance of the industrial robot. In reality the potential is huge: The core function of the CNC controlled assistant is primarily in the loading and unloading of components. Next to this however, during the system "prime time", the robot often has spare capacity. The efficient use of this auxiliary process time is a task that excites us. This increases the efficiency of the system for you. You can

imagine, for example, performing additional drilling, sorting parts including bar code printing, cleaning components or setting up the machine table ready for the next part.

The industrial robot has finally come of age. Lower system costs and ease of operation on PCs with Windows interfaces are further increasing its appeal. Please contact us for an individual concept for your manufacturing task. MAKA has an excellent partner in KUKA. Many MAKA technicians are trained in programming KUKA robots. And right up to the delivery of your system, you have the additional advantage of only one contact point - MAKA.

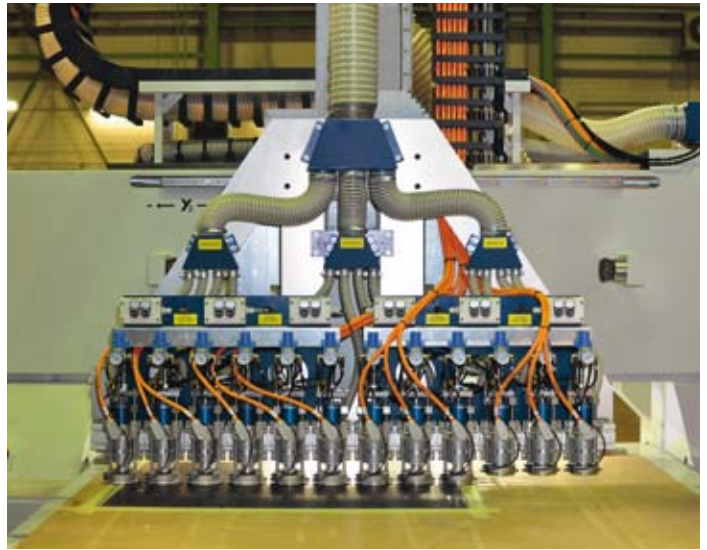
# A MAKA characteristic: the application engineer

When we talk about service at MAKA, we do not mean basic hygiene factors. A hotline, service contracts and a mobile service team of experienced technicians are among the things you expect from a leading system provider. The difference, however, is the MAKA application engineer. He is our response to increasingly complex systems engineering, which requires close coordination between manufactures and customers. The application engineer already supports you in concluding the contract and then remains as your expert and personal contact. He is present on acceptance of your machine in the factory and after installing takes the system into operation with you: So that nothing can really go wrong. Simply a MAKA characteristic.



Multi-talented robot: at RIWAG (Switzerland), the MAKA solution performs milling alongside parts handling.

The range of application of acoustic elements is as diverse as our range of solutions. From timber in interior design to composite materials in the aerospace industry.



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If the heavy-duty drilling unit machines a GRP panel with a stroke time of 0.6 seconds, everything is demanded of the machine technology. If the finished part is then used in an aircraft engine, absolute precision is required. MAKA has also found a solution here that more than satisfies the customers. Since the end of 2014, our plant is operating at a renowned supplier to the aerospace industry and provides thin acoustic elements reliably and at breakneck speed with a multitude of holes: an interesting application in the composites industry, of which we are justly proud. Our engineers have developed a special tracing bell for this with air cushion to avoid scratching the surface.

Good engineering inspires: whether for wood-working or aircraft construction.



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