

## Competence at all CNC levels

**CNC processing centers are no longer "only" machines, they are now top of the range when it comes to providing a solution for individual production tasks. Productive, flexible and a high level of availability — these are just a few of the customer requirements that ensure optimum results and cost-effective operation in the long term. Part five of the "HOMAG Spotlight" series describes how the HOMAG Group processing centers use intelligent technology to attain this level of performance and what can be achieved with the countless available equipment options.**

The HOMAG Group offers a comprehensive range in the CNC sector — from entry-level machines to drilling and trimming, right through to nesting processing and fully integrated, automated processing cells and large-format processing centers for glue-laminated beams. Or, put differently: The range spans the "BHX 055" by WEEKE, which works with an installation area of less than 5 m<sup>2</sup>, right through to the "WMP" solid wood portal from WEINMANN, which processes panels measuring up to 350 mm high, 5.6 m wide and 50 m long fully automatically. The wide range of products available applies not only to the machines, but also to the units and tools used.

The tools used on HOMAG Group processing centers range from the smallest of engraving cutters for producing ornaments through to saw blades with a diameter of 920 mm for solid wood elements. The typical areas of application have now extended beyond the production of furniture and construction elements. Today, CNC processing centers can be used for anything that can be processed either dry or with minimal lubrication. In addition to wood, this also includes plastics, aluminum, composite materials, and sound-proofing and insulating materials. HOMAG Group CNC processing centers can offer more than just trimming, sawing and drilling — features such as edge banding, cutting, sanding and attaching fixtures all enable comprehensive processing of workpieces in just a single step.

In 2004, the HOMAG Group launched the "Venture" series, featuring fixed-configuration, high-performance CNC technology that corresponds to global demand.

The machines range from entry-level machines to high-tech solutions. With 5-axis and edge banding technology, HOMAG provides for the high end of the CNC technology sector, successfully installing around 4000 "Venture" machines by August 2014. But what are the specific factors that guarantee the success of the processing centers?

The answer: quality and resources. By standardizing components, the "Venture" range offers outstanding quality as standard. The high-quality components include screened cable guides, covered linear guides and the HOMAG Group "Eco Plus" for saving energy and resources. Another example of this high quality level is the controlled suction stubs, which ensure that the suction power is only activated where it is really needed. The machine frames of some "Venture" models are already fitted with high-tech material for intensive solid wood processing.

The "Venture" series offers an optimum balance of standardization and customization. This can be seen, for example, in the variety of different tables and lengths available as well as in the high-end solutions with edge banding units and a fifth axis. In this instance, HOMAG offers a permanently integrated axis, while WEEKE provides a 5-axis solution in the form of "Flex-5" unit technology. The customer requirements specification determines which equipment option is ultimately more efficient. The "Venture" range uses identical components from the CNC module and the HOMAG Group software applications, such as processing units and the "woodWOP" programming system.

Decades of experience in mechanical engineering comes together in the WEEKE, HOMAG and WEINMANN processing centers; this is also reflected in the processing units and machine control units. The "Drive5C+" 5-axis processing head is a perfect example of high-tech trimming. The head is equipped with tensioned crossed roller bearings that are free of play; these ensure a high level of rigidity even under heavy loads. The spindle has a threefold pneumatic interface, which also enables the use of controlled units. The spindle is controlled by returning the actual value via an encoder. This means that the spindle has a high level of speed quality and full torque from machine standstill, even under heavy loads. As such, it can even be used for processing jobs with high speed accuracy requirements, such as thread cutting or edge banding. There is also a spindle sensor installed, which warns of high levels of vibration and protects the spindle from damage.

With more than 40,000 individually available drill spindles per year, the drilling heads of group members WEEKE and HOMAG have set the bar very high when it comes to drilling technology. As a drilling specialist with the HOMAG Group, WEEKE alone supplies around 34,000 of these spindles per year.

As this core competency is incorporated into all WEEKE machines, this continuous experience is taking effect and is particularly visible in the lasting quality of all drilling gears. The company prides itself on this level of expertise, which is why you will find configurations with up to 90 individually available drilling spindles in WEEKE's stationary "BHX" series. In the throughfeed area, there can be as many as 674 individually available spindles in a single machine. The patented spindle clamp guarantees a high level of lateral stability during drilling. HOMAG and WEEKE successfully use synergy effects when developing software and machine operation elements. All CNC processing centers benefit from comprehensive, integrated modules and tools for control, programming and user support. "wood**WOP**" is a prime example of this. With regard to HOMAG's specifications, no other CNC programming system can look back on such a long and successful history of development. The system, which was brought to life back in 1992, has now become the standard against which workshop-oriented programming is measured and has even established itself in vocational schools and universities as the standard for CNC training. With the new version 7 released at Holz-Handwerk 2014, the HOMAG Group has taken machine-oriented programming to a new level. In addition to a range of new functions, the optional CAM plugin, in particular, facilitates a new approach to programming milling paths.

With regard to the integrated operating concept, the HOMAG Group achieved a milestone at LIGNA 2013. With "power**T**ouch", visitors discovered a brand-new control philosophy: straightforward, uniform, ergonomic and evolutionary. The innovative touchscreen operating concept combines design and function in a new generation of control systems. At the heart of the concept is a large, widescreen multitouch monitor that allows machine functions to be controlled directly by touch. The entire interface is optimized for touch operation and offers numerous new help and assistant functions that simplify working processes.

The complete product range also includes an integrated software suite.

"wood**CAD|CAM**" already offers a tool for 3D planning, which automatically generates production data. IT Engineering supports comprehensive production control for linked machines. The production path is determined, the orders divided into batches and a stack assigned. All machines are then supplied with the required order data. This allows parts to be automatically identified by their barcode or RFID, alternative production paths to be considered and faulty parts to be ejected. The MMR software module records all data, which is then analyzed in the office.

Those working with the "**easyEdge**" edge banding unit use a simple and efficient comprehensive solution for edge processing on processing centers. The "**easyEdge**" turns a CNC router into an edge banding machine in the blink of an eye. This unit is the ideal solution in particular for the production of smaller volumes using standard edge materials (veneer, ABC, PP, melamine, PVC). In conjunction with a manual snipping unit, even 360-degree abutting edge banding is possible.

If you want to produce the perfect zero joint, the "**laserTec**" process on CNC processing centers is the perfect choice. To date, more than 20 "**laserTec**" units for stationary technology have been sold and optimum process reliability has been achieved. Meanwhile, the "**powerEdge**" edge banding unit with swivel unit has also established itself on the market.

If you want to increase productivity and run times and reduce the operator's workload, tailored automation is the perfect solution. Whether using the "TBA" docking feeder as an entry-level solution for mixed production with manual and automatic loading or fully automated production cells, there is a solution for every material handling requirement. These solutions are based on many years of experience building complex systems and robotic systems as well as horizontal storage systems of HOMAG Automation.

## Statements: What HOMAG Group customers and the experts say

### 1) Customer interview:

**Manuel zum Buttel, Managing Director at ZB-Holzsysteme**

#### **Mr. zum Buttel, your company was established in 2002. What has been achieved in the technology sector since then?**

To begin with, alongside my training to be a carpenter, I spent my evenings with a friend building and selling loudspeaker enclosures. The demand was so great that we then purchased a used CNC machine (a ten-year-old "BP 10" from WEEKE) so that we could produce higher quality products at a faster pace. Business went well and, in 2006, we founded ZB-Holzsysteme. Thanks to the experience I gained during my training and our good rapport with the former machinery dealer Glasmacher (now our sales partner Maschinen Kaul), we used HOMAG Group machines from the very beginning. Nowadays, our core machinery comprises a "BMG 411" WEEKE processing center, a BRANDT "KDF 650" edge banding machine, a HOLZMA "HPP 350" panel dividing saw and a BÜTFERING "SWT 315" sanding machine.

#### **As a comparatively small business, why does ZB-Holzsysteme rely on high-tech machinery solutions?**

With just three employees, we do have a small team, but we supply over 1000 customers across the region and throughout the rest of Germany. In just eight years, we have established a very strong manufacturing company, which is equipped with the latest machinery and software connections. We focus on state-of-the-art units and are therefore able to offer "best in class" solutions. This is something that our customers appreciate.

#### **What particularly impressed you about the CNC BAZ "BMG 411" by WEEKE that you acquired in 2011?**

The high-performance "BMG 411" impressed us most of all with its large drilling head (29 spindles; 21 vertical and 8 horizontal), the 22 tool change slots, the 15-kW trimming motor and the option for five-axis processing with the "Flex5+" unit. I had previously

looked at a few machines on the market, but, in my opinion, the drilling technology and the associated hole quality offered by WEEKE are the best available. WEEKE is a drilling company — and it shows.

### **What were the deciding factors when deciding between a 4-axis machine with a unit solution for the fifth axis and a genuine 5-axis processing center?**

Ultimately, the deciding factors were the stability of a 4-axis machine combined with a 15-kW trimming motor and the "Flex5+" unit as well as the 22 tool change slots. For me, the package offered the best price-performance ratio. At first, we had a few difficulties installing the "BMG" due to the narrow available space, but WEEKE provided an excellent solution. Having had two years of experience with this CNC machine, I would still make the same decision.

#### **2) Expert interview:**

**Ralf Korte, Team Leader at the HOMAG Group Competence Center in Herzebrock, Germany**

### **Mr. Korte, you demonstrate the latest machine technology from the HOMAG Group to customers and interested parties every day. In your experience, what does the CNC sector depend on today?**

The sector depends on availability, flexibility and authenticity, i.e. that the product delivers what it promises. Every day we use live demonstrations to try to convince our visitors that the theory behind the sales conversations is also a reality. We make the performance come alive as far as possible. Recent feedback from our visitors has given us the confidence to continue using this form of communication. We get a very diverse range of visitors — some are interested parties who are planning on establishing themselves in the field of CNC technology, while others are industry customers who are already using complex, linked solutions and want to invest in new technologies. From experience, most customers opt for a CNC machine from the HOMAG Group due to the high level of flexibility, the straightforward operation and because everything comes from a single source. In the Competence Center, we demonstrate the advantages of integrated machine technology and operation, as well

as how more complex solutions, such as bearing-saw-nesting connections, can be put into practice. Live demonstrations are an authentic display of our expertise — it is very hard to hide anything. This goes down well.

### **What do you recommend to customers nowadays and, as a customer, what CNC technology would you invest in?**

It is hard to give just one answer due to the diverse range of customers. For "beginners", it is important to choose the right entry-level solution for each product; this can then be used as a basis to build on in the future. Overlapping or supplementary solutions often take center stage for customers who are experienced in the CNC sector. The keyword here is "handling". A good example would be the parts return to the "BHX 200", an automatic connection with bearing-saw-nesting or even a feed robot. On the whole, I see software as an elementary building block. Investing in good, high-performance software allows complex processes to be displayed simply and/or provides the basis for automation. For example, to ensure barcode integration so that parts can be identified at any time.

### **What do you think will be next for CNC processing centers?**

The trend is continuing to lean toward 5-axis technology. Even if customers do not have a specific requirement, they want to invest in something that will allow them to respond flexibly to future requirements, whether this relates to units or a comprehensive axis solution. "Simple intuitive programming" and "trade automation" are also emerging themes. We can demonstrate examples of this in the Competence Center.

### **Image source: HOMAG Group AG**

#### **Image 1:**

Small and compact: The BHX 055 from WEEKE works with an installation area of less than 5 m<sup>2</sup>

#### **Image 2:**

Equipped for all requirements: The BMG 512 from HOMAG with robot

#### **Image 3:**

The DRIVE5C+ processing head is equipped with tensioned crossed roller bearings that are free of play; these ensure a high level of rigidity even under heavy loads

#### **Image 4:**

Vast dimensions: The WMP solid wood processing center from WEINMANN alone comprises a work table measuring 4 x 60 m

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### **Your contact:**

#### **HOMAG Group AG**

Homagstrasse 3–5  
72296 SCHOPFLOCH  
GERMANY  
[www.homag-group.com](http://www.homag-group.com)

#### **Mr. Alexander Prokisch**

Head of Central Marketing  
Tel. +49 (0) 7443 13-3122  
Fax: +49 (0) 7443 13-8-3122  
[alexander.prokisch@homag-group.com](mailto:alexander.prokisch@homag-group.com)