

# edge

HOMAG GROUP MAGAZINE  
— 2018

HOMAG

HOMAG

HOMAG

**04** LEADING EDGE

**18** THE ECOSYSTEM

**34** OPEN HEART SURGERY



DEVELOPMENT OF SALES REVENUE in millions of euro



5.2%

is the R&D quota of the HOMAG Group in 2017.

1.36

billion euro is the value of incoming orders received by the HOMAG Group in 2017.

# Worldwide



# 1.222

billion euro is the sales revenue achieved by the HOMAG Group in 2017.

# >30%

is the global market share of the HOMAG Group.

# 6,400

people are employed by the HOMAG Group across the world.

# Profile

The HOMAG Group is the world's leading provider of integrated solutions for production in the woodworking industry and woodworking shops. Its 14 specialized production sites, 23 Group-owned sales and service companies and approximately 60 exclusive sales partners world-wide make the company a unique system provider. Backed by a workforce of some 6,400 employees the HOMAG Group offers its customers solutions for digitized production, based on digital data continuity from point of sale through the entire production process, combined with a comprehensive software suite. In addition, the open ecosystem "tapio" (open Internet-of-Things platform) maps the data flow along the entire value chain of the timber industry.

# Editorial

**Dear Readers,**

**The HOMAG Group is one of the driving forces of the digital transformation. Together with our customers, we want to use the opportunities around digitization, networking and automation. Our open digital ecosystem tapio, a comprehensive software suite and our automation solutions create completely new options for the whole industry. We offer our customers an integrated manufacturing execution system with uniform control. By providing customized solutions, we will lead the wood processing industry and trade securely into the digital future – as a solution partner in a fast-changing environment.**

**Find out more about our passion and efficiency – enjoy the latest edge magazine.**



Pekka Paasivaara, CEO of the HOMAG Group

# Contents

04

## **LEADING EDGE**

Lending a calm design to the complex world of work and giving digitalization a contemporary feel: The new generation of machines from the HOMAG Group.

12

## **DIGITAL PIONEER**

Taking an entire industry into the future: Interview with CEO Pekka Paasivaara and CFO Franz Peter Matheis.

18

## **THE ECOSYSTEM**

The transparent way to combine strengths: tapio, the first digital platform for the woodworking industry.

22

## **LAUNCHING AHEAD**

How to continuously improve the most exquisite craftsmanship – and why Swabia is metaphorically by the sea.

28

## **FRIENDS FOR LIFE**

How to build strong relationships: From routine checks to emergency interventions and comebacks.

34

## **OPEN HEART SURGERY**

How to modernize a production process from the ground up, without ever interrupting operations.

40

## **ALL FOR ONE**

How a team of motivated individuals across three continents develop a completely new product in just 18 months based on a single idea.

44

## **HOMAG IN FIGURES**

Trends within the HOMAG Group in 2017.







# Leading Edge

Simple shapes are the overriding design feature of the new machines from the HOMAG Group, giving digitalization a contemporary feel. With functionality as the core focus, operation has been simplified to make work a very special experience.







**Daniel Loddenkemper**  
HOMAG Group, Senior Manager Marketing

Straight lines, smooth surfaces, clear edges – these are all features of high-quality furniture. But they are also key components of the new generation of machines in use within the HOMAG Group since March 2018. “Clarity and a modern look are the key visual features,” says Marketing Manager Daniel Loddenkemper, speaking about the implementation of the new design. The entire fleet of machines (approximately 190 models) will now gradually be adapted to the new specifications.

The last time the HOMAG Group undertook a comprehensive remodel of its machines was over ten years ago. According to Loddenkemper, “There have been changes since then, for example, due to the new guidelines in relation to occupational health and safety.” The time was ripe for a change – after all, design always reflects the Zeitgeist.

But there was also another factor driving the decision to implement new colors and designs: The HOMAG Group is changing. For decades, the Group consisted largely of independent production companies, all working with different standards and procedures. Over the last two years, the Group has been focused on bringing to market an increasing number of integrated solutions. The uniform standards, methods and processes seen in these solutions will now be reflected in the appearance of individual products.

#### **CALM DESIGNS FOR A COMPLEX WORLD OF WORK**

Clear design is the perfect antidote to a world in which markets, technologies and products are becoming ever more complex. At one time carpenters would craft individual pieces by hand, but that approach has long since changed. Today, furniture is manufactured quickly and individually by machines. Millions of data points flow into the process to shape production. “The increasing complexity demands a soothing design,” says Loddenkemper.

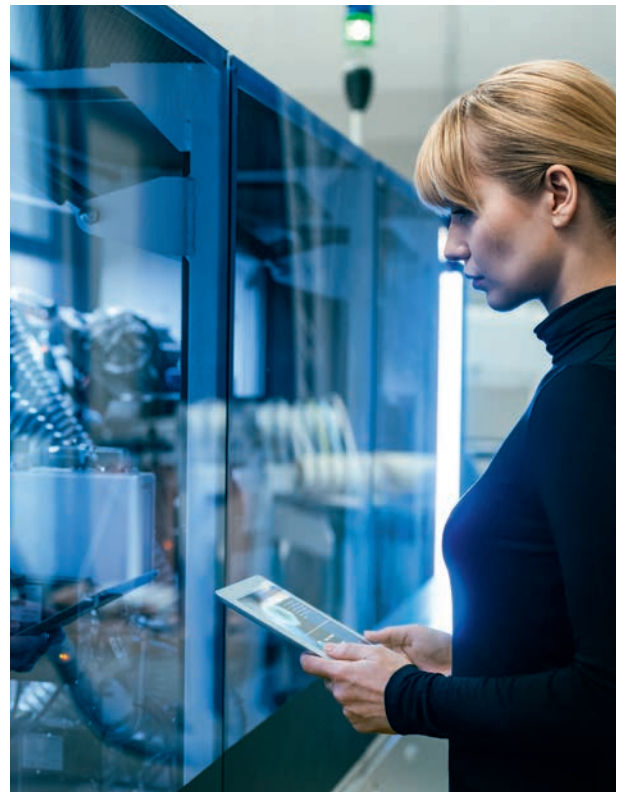
But how do you make saws, drilling stations and processing centers meet this requirement? What factors should affect the design and color selected? Questions such as these shaped the search for the new machine design.

#### **SAY FAREWELL TO THE HOMAG WAVE**

The design experts used everyday products as a starting point. They noted that, over the years, products such as smartphones and cars had become increasingly streamlined and clearly arranged. Curves, arcs and flourishes were no longer modern! The design experts found that this trend could also be applied to the design of high-quality machines. “At the heart of our design approach for HOMAG is the transformation of our brand values, such

## » Clarity and a modern look are the key visual features of the new generation of machines. «

Daniel Loddenkemper, HOMAG Group,  
Senior Manager Marketing



as precision, reliability and productivity, into a calm, iconic and unified product design,” says Eric Seidlitz. Seidlitz works at the Dresden-based design agency ma design. Together with his colleague Friedemann Pahner, he was responsible for managing the project to produce the new design.

The developers completely removed key elements of the previous design. This includes the traditional HOMAG wave, reminiscent of wood graining and found on almost all machines. This icon will no longer exist in future. “It brought a certain unease to the overall appearance,” says Eric Seidlitz. “Our goal was to modernize the brand image of the Group as a whole and, above all, to harmonize things.”

The new identifying feature of the brand is a black pillar with an icon at the upper end, developed by Christian Zerbe and Bernd Geiger from the central development department of the HOMAG Group. It depicts the initials of HOMAG and will appear on every stationary machine in future. In the case of particularly high-end products, it will also feature white LED lighting. “This underscores our commitment to quality,” says Loddenkemper. Aesthetics are important in mechanical engineering too. Company bosses should feel proud when showing visitors around the production halls.

#### **CONTRASTING COLORS PROVIDE CLARITY**

The new color scheme also symbolizes clarity. The new HOMAG machines are no longer factory gray, but signal white. “This gives them a new, fresh appearance – even if they are covered with dust,” says Seidlitz. Areas used for sawing, gluing and drilling, on the other hand, are designed in dark colors.

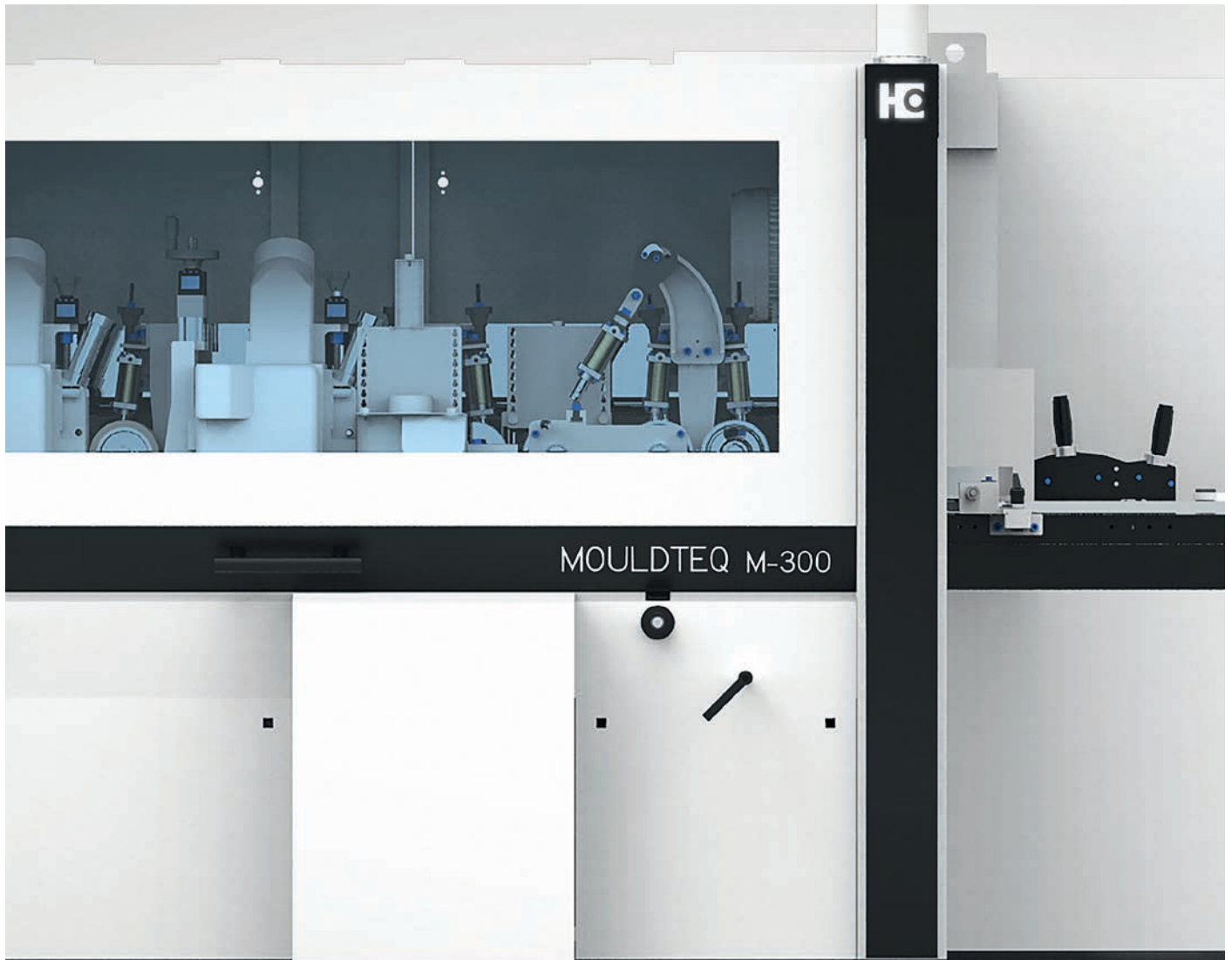
This creates orientation, guides the user and helps to monitor the flow of production. This is also the reason why the danger zones of the new HOMAG machines are glazed with a transparent and shatterproof material, known in the trade as Makrolon. Makrolon fulfills two functions: Firstly, it allows the operator to observe every work step while being protected from splinters and chips. Secondly, it lends the new HOMAG design language another essential ingredient in the form of the characteristic blue color.

The principle of clarity is a recurring theme throughout the design of the new generation of machines. The design is not just about shape and color, but also about logical operation. The digital display follows the same pattern in every machine. A menu guides the user through the functions. The idea is that anyone who can operate just one of the HOMAG Group machines should also be able to operate a good proportion of the Group’s 190 products without any difficulty.

## EDGE TEQ S-380

More clarity with naming conventions too: The old, complex codes have been replaced with names that quickly make the function and performance of the machine clear.





» **The increasing complexity demands a soothing and clear design.** «

Daniel Loddenkemper, HOMAG Group,  
Senior Manager Marketing

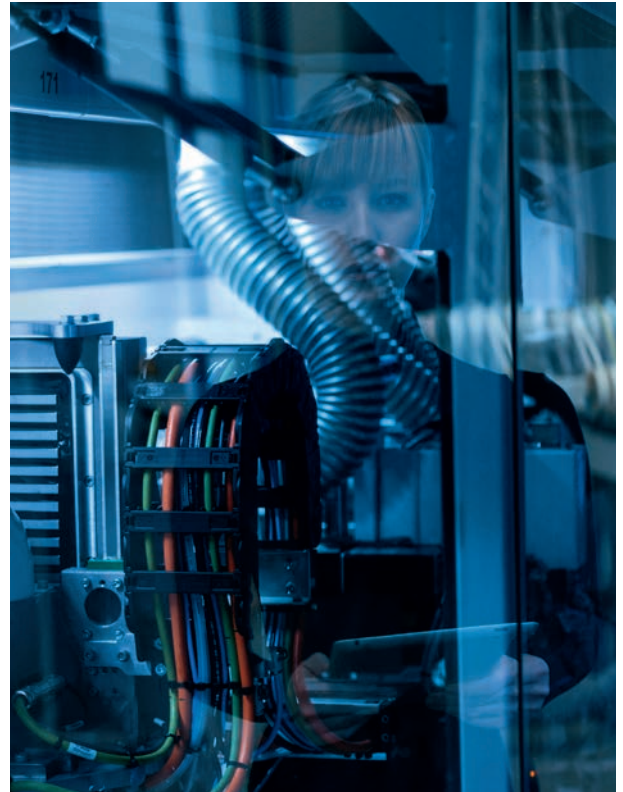


## FEWER MACHINE FAMILIES – MORE CLARITY

Rapid familiarization for customers should not be limited to just the machines themselves. We also want to deliver fast orientation within our diverse product range. For this reason, the HOMAG Group's Product Management led by Achim Homeier together with the Marketing teams worked with the agency Welke Consulting to develop customer-friendly naming conventions for the machines. Reducing complexity meant reducing the number of product families from 74 to 24. Furthermore, the names now tell customers all the key information quickly and simply. The new nomenclature gives a clear indication of the technology and solution to which a name relates. For example: EDGETEQ relates to edge banding machines, SAWTEQ is for sawing, and DRILLTEQ is for drilling technology.

The previous designations are based on a code from the 1990s. Customers needed a bit of practice to work out which product the combination of 20 characters was referring to. And the codes were becoming ever more complex due to the increasing number of products. The revised nomenclature helps customers, and also new generalists in the sales teams, to navigate the comprehensive range of products.

Long, detailed codes are now only used for internal purposes. Customers are not affected by these codes. Thanks to simple names and clean designs, the functions of the machines should quickly become apparent to customers. And it should be immediately clear to them that they are looking at a HOMAG Group product – representing precision, simple handling and optimum processing.



**Eric Seidlitz**  
ma design,  
Machine Design Project Manager

**Friedemann Pahner**  
ma design,  
Industrial Design Engineer

» **At the heart of our design approach for HOMAG is the transformation of our brand values, such as precision, reliability and productivity, into a tranquil, iconic and unified product design.** «

Eric Seidlitz, ma design, Machine Design Project Manager

# Digital pioneer

**The digital transformation will have a major effect on the HOMAG Group in the coming years. CEO Pekka Paasivaara and CFO Franz Peter Matheis explain how they plan to lead not only their company but also the entire industry into a new era of production solutions.**

**Digitization is at the center of your strategy. But the HOMAG Group's machines and systems already operate within a network today. How do you intend to take this development to the next level?**

**Pekka Paasivaara:** Yes, indeed, our machines and systems have been capable of data exchange within the same factory for a long time. In the future, they will also communicate with the cloud via the Internet. This will enable data to be exchanged across companies, too, and will offer customers completely new possibilities.

**Such as?**

**Franz Peter Matheis:** It will only take them seconds to use programs that optimize their production. If, for example, a furniture manufacturer wants to divide the panels for a special order in a way that produces minimal wastage, it can install an app on the machine and use it until the order is completed. The data is exchanged via our new cloud-based digital ecosystem tapio.









#### **What's special about tapio?**

**PP:** Since May 2017, the HOMAG Group has been offering a platform for the entire woodworking industry, and is the world's first mechanical engineering company to do so. The open platform can be used by tool and material suppliers as well as by other manufacturers to offer their digital products and services.

#### **How does opening tapio to competitors benefit the HOMAG Group?**

**PP:** Not only do we want to be the market leader for woodworking machinery, but we also want to lead the entire industry into a digital future. That's why tapio is an Internet platform, a marketplace and an app store, all in one – an ecosystem for the entire woodworking industry.

**FPM:** This has great benefits for our customers. Although they have a lot of HOMAG Group machines in their workshops, they also have some products from other manufacturers. What good would it be to the customer if, via tapio, we only offered services for our own machines? It would only be half a solution.

#### **What motivates your partners to join tapio?**

**PP:** Being the market leader, we provide them with broad access to customers, whom they can offer their products. This gives them opportunities to grow, which they didn't have before.

#### **How does digitization change the relationship between you and your customers?**

**FPM:** The relationship becomes closer as customers can use more and more new software that makes their machines and systems even more efficient.

**PP:** This will change our relationship with customers. In the past, we would sell them machines and sometimes not hear from them again for three to five years. From now on, we will keep in contact.

#### **How do you ensure that your customers' data is secure?**

**FPM:** Both tapio and all other HOMAG Group systems fulfill the most stringent data protection requirements, thanks to state-of-the-art security technology. Our tapio partners include companies of many different sizes. They all have strict data policies and fully agree with our security standards.

#### **How will the HOMAG Group's internal processes change as a result of the digital transformation?**

**FPM:** We also want to be a pioneer when it comes to our own processes. For example, we plan to calculate certain financial figures in real time – and this will enable us to keep track of our company's performance.

**PP:** We are going in the same direction in our production, so we will be able to access the current manufacturing status at any time. We can then see straightaway on the tablet if there are any issues.



**» Since May 2017, the HOMAG Group has been offering a platform for the entire woodworking industry, and is the world's first mechanical engineering company to do so. The open platform can be used by suppliers as well as by other manufacturers to offer their digital products and services. «**

Pekka Paasivaara, CEO of the HOMAG Group





**The digital transformation represents a new era for the HOMAG Group. Are the employees supporting you on this journey?**

**PP:** Developments in traditional mechanical engineering can last several years. In the digital world, innovation cycles are shorter. We have shown that we have what it takes in this regard. It took a good year to develop tapio before it was ready to be launched.

**FPM:** Experienced developers were impressed, because they saw that unconventional thinking and acting is desirable. Now they think even more intensively about what sensor technology is required and how data can be analyzed in the cloud.

**PP:** To continue on this path, we need a corporate culture that rewards free thinking. But it takes more than that, of course. We definitely also need the right expertise.



# » To continue on this path, we need a corporate culture that rewards free thinking. «

Pekka Paasivaara, CEO of the HOMAG Group

## **You need software and data experts. How do you want to secure these skills?**

**PP:** We must stop doing everything ourselves. So far, we have been performing 80 percent of our development work in-house. In the future, it will be 50 percent. We have access to worldwide skills, for example in India or Eastern Europe, for which we will enter into partnerships.

## **In which markets do you want to grow?**

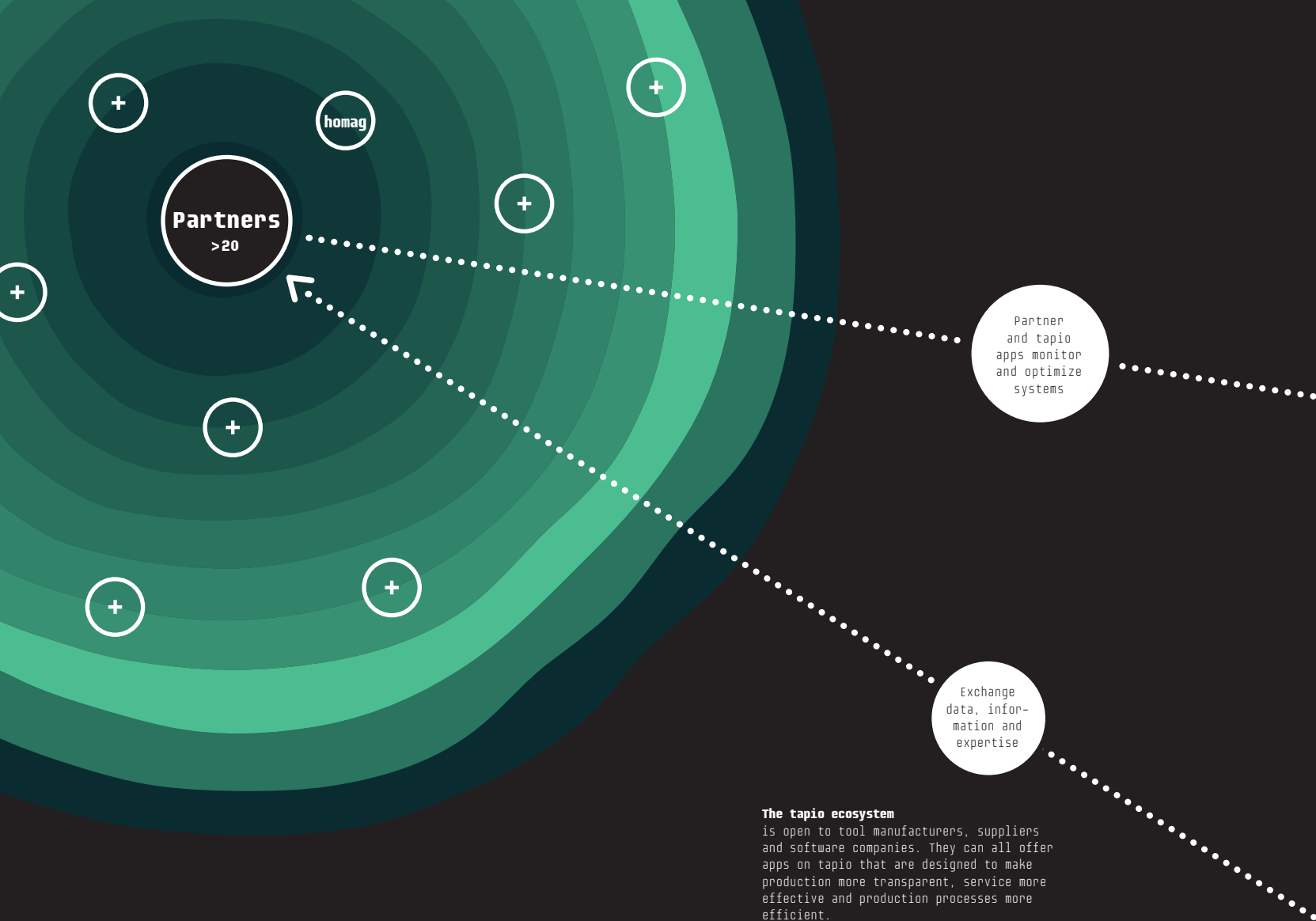
**FPM:** We expect different levels of organic growth in all regions worldwide. In China, our growth continues to be very rapid. The middle class there is becoming increasingly wealthy and consumerism is flourishing. Young couples are furnishing their apartments.

**PP:** This leads to furniture manufacturers investing in new machines. It's one of the reasons why China's share in our overall sales has risen to 17 percent from nine percent last year. We are also seeing growth in North America, and the situation in Europe and Germany is encouraging, too.

## **Are you worried about the increasing protectionism around the world?**

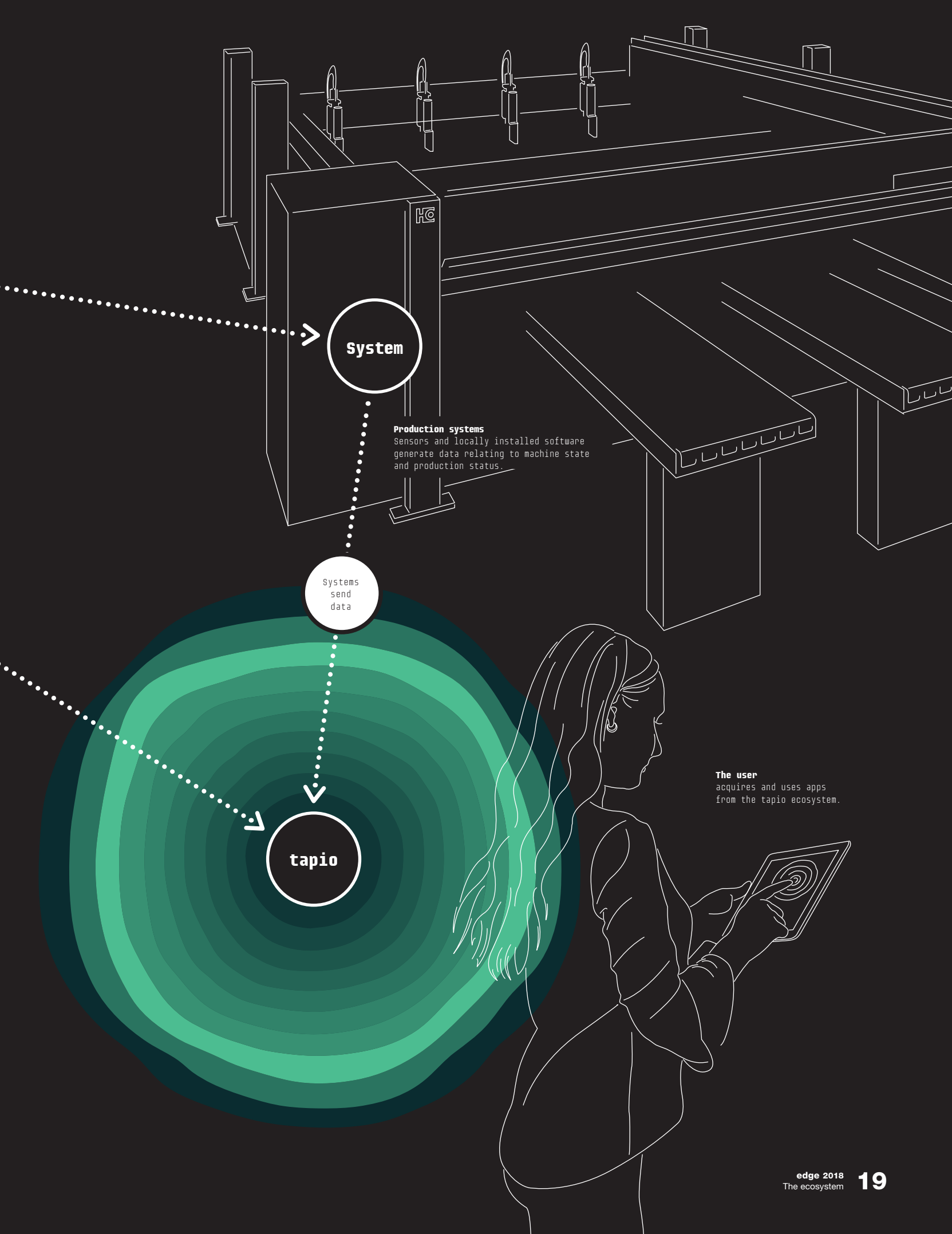
**PP:** We generate 80 percent of our sales abroad and have traditionally operated close to the customer. That's why we have our own plants in our key markets and currently don't expect any negative impact.

**Many thanks for the interview.**



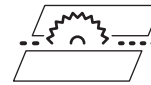
# The ecosystem

**The tapio digital platform doesn't simply network machines; it creates an open ecosystem for the entire woodworking industry. This allows companies to draw on combined expertise in order to bring their customers maximum benefit from the production process.**

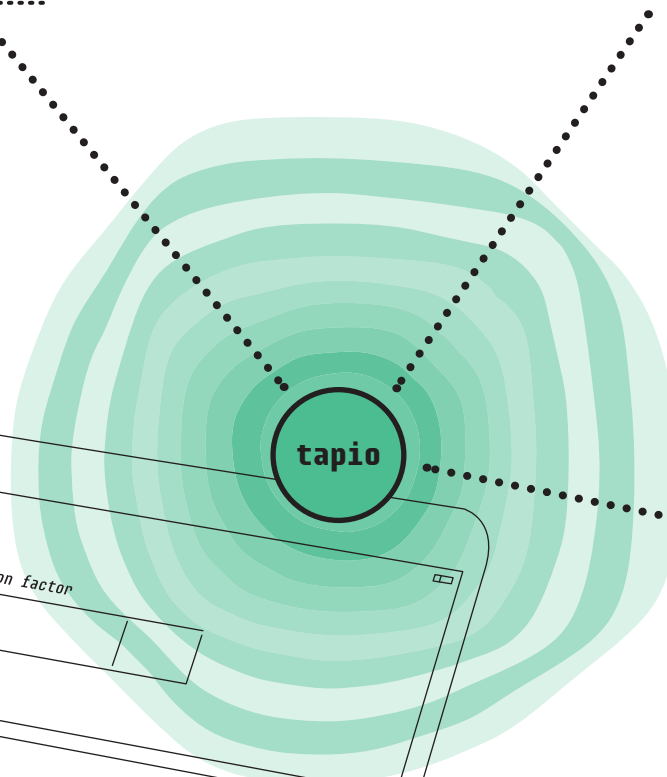




MachineBoard



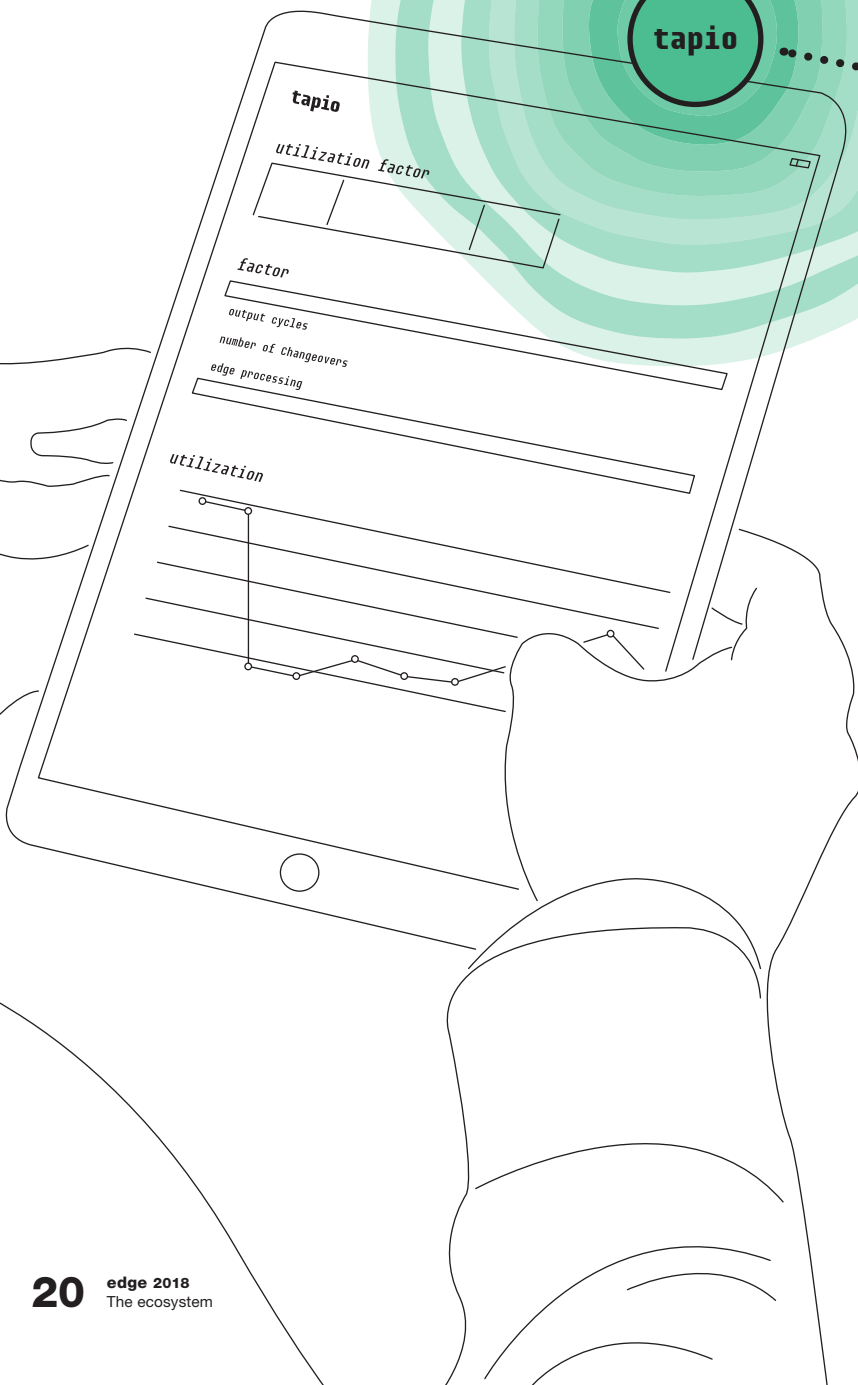
IntelliDivide



tapio



ServiceBoard



### PROBLEM DETECTED, DANGER AVERTED

If you are continuously monitoring your fleet of machines, you can intervene immediately if there is a problem anywhere. This is possible thanks to the MachineBoard app – a program you can download onto your tablet or smartphone via tapio. All you need is an internet connection and then you can monitor whether the cutting systems, edge banding machines and drilling stations in your factory are working correctly – wherever you are. Like all apps on tapio, MachineBoard can be used on tapio partner products from a variety of manufacturers.

MachineBoard is the perfect illustration of the benefits of the tapio ecosystem. Its approach goes far beyond a conventional IoT platform for mechanical and systems engineering. This is because tapio is open to all companies that are active in the



#### The MachineBoard app

Provides real-time access to machine data and machine state information. Using error messages and warnings delivered via push notification and by displaying remaining process times, this app provides a complete overview of the machine fleet - wherever you are.

#### The IntelliDivide app

This app determines the optimum cutting pattern for sawing and trimming, be it to minimize waste, ensure simple handling or deliver a short run time.

#### The ServiceBoard app

Contacts a manufacturer in seconds and supports troubleshooting using remote diagnostics with photos and videos. Provides an overview of all previous service cases and assists in the planning of upcoming maintenance; includes online access to spare parts shop.

woodworking industry. Machine and tool manufacturers, suppliers, software companies – they can all offer apps on the platform. tapio Managing Director, Christian Neumann, compares the work of tapio with that of a gardener. “We are preparing the ground from which a variety of digital solutions from our partners can grow, for the benefit of customers.”

### COLLABORATION CREATES STRENGTH

Currently, 20 companies are business partners within the tapio ecosystem. “There is no upper limit,” says Neumann. tapio was founded by the HOMAG Group, but the Group does not claim any special status; it sees itself as just one of many partners – tapio is neutral. This approach is also in the interests of the HOMAG Group, and is the reason why tapio opted to base itself not in Schopfloch with the parent company, but in Munich and Nagold.

The goal of the apps on tapio is to create new possibilities for customers and to make manufacturing in the woodworking industry more efficient. “As part of the collaboration, each partner decides which module it will provide,” says Neumann. The idea is to combine strengths in the most logical way possible. One partner may know

about machines, another maybe at home with tools, and the third may be a materials specialist. The goal is to produce the best possible solutions that will benefit customers throughout the woodindustry. Ultimately, every customer is faced with the same reality: They use machines, materials and tools from a diverse range of manufacturers. This scenario must be reflected in the digital world. This is the reason why tapio functions not as a conventional vertical IoT platform, but as an open ecosystem. All users need to do is download the apps they require – be they mobile apps, web pages, desktop applications or machine add-ons – and then connect their systems with tapio. The rest happens automatically. New machines from the HOMAG Group are already enabled for tapio. Older machines and systems can in many cases easily be retrofitted.

### APPS FOR FOUR DIFFERENT AREAS

There are currently four key areas driving development of the ecosystem. The first is to ensure that the production sequence is made more transparent. Helping to achieve this aim alongside MachineBoard is the MESBoard app. It updates you in seconds about production status and supplies data about jobs, waste, quality and any scheduling discrepancies for each machine.

The second area is a focus on fast and effective service, in order to keep production quality high and downtime as short as possible. For example, the ServiceBoard app available on tapio can contact a manufacturer within seconds. With the help of photos or videos, experts can resolve problems in minutes. Previous service cases are documented and maintenance intervals are logged. The app also includes online

access to a spare parts shop. WerkbliQ provides customers with specialist support with service planning for its offerings. The third work area for tapio concerns optimizing production processes. For example: The HOMAG Group offers an app called IntelliDivide. It is suitable for both furniture factories and joinery workshops. The program can be operated online, e.g. when plates for a specific job need to be cut in very unusual shapes. The application detects which route the saw or trimmer must take. The user can choose whether he wants to minimize waste, keep handling simple or have a short run time.

### BENEFITS FOR CUSTOMERS

The fourth tapio focus area is ensuring optimum interaction of tools and materials. The aim for the future is to identify algorithms for how a machine should be adjusted if material from a specific supplier is used. With the right app, this kind of knowledge could be fed automatically into the production process.

tapio customers access online applications via the cloud. This is also the case for processing power, as complex programs need powerful computers that work extremely quickly. However, it can be uneconomical for companies to have their own computers for this purpose, because the expensive software may only be used occasionally. tapio customers can therefore simply run their computing processes in the cloud.

# Launching ahead

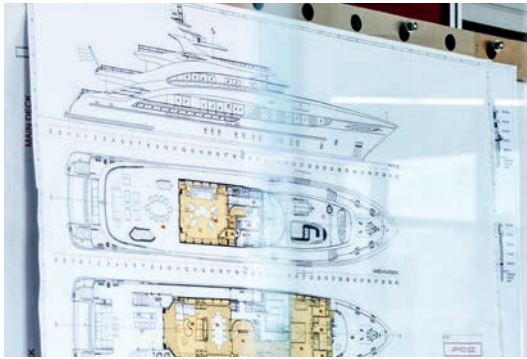




**Fitz Interior builds the interiors for high-end yachts. The employees of this family-run business have honed their craft to perfection. The medium-sized company is also well prepared for the digital future, and machines from the HOMAG Group are always a key part of the mix.**



**Josef Fitz** took over his father's small carpentry business and turned it into an internationally renowned go-to company for yacht interiors.



Each year, Fitz Interior builds **the interiors** for a maximum of two or three luxury yachts measuring between 50 meters and 115 meters in length.

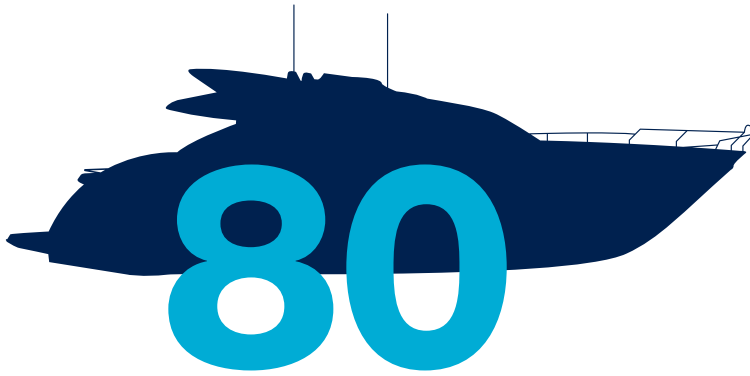
Mertingen, north of Augsburg. This Swabian municipality is hundreds of kilometers away from the sea. The journey south to Venice or north to Ostend takes hours. But the sea is never far from the thoughts of Josef Fitz – it is the driving force behind the work he does every day. His company, Fitz Interior, was founded in 1956 by his father, and back then it was just a small carpentry business. Today, it is internationally renowned as one of the go-to companies for yacht interiors. A truly special manufacturing experience. Here is how it all happened: In 1997, the Emir of Qatar commissioned a yacht. An architect got Fitz involved and his company built certain parts of the interior. The work was well-received and additional commissions followed, at first for entire cabins and then later for the complete interior of a boat. Fitz kept enhancing his skills, never said no, and his business grew. The Swabian carpenters became skilled and meticulous craftsmen, able to confidently tack-

le a variety of materials and tasks. They are now equally comfortable working with exotic woods or materials, dried banana leaves used as ceiling panels, marble, deerskin for the on-board cinema, furniture, electrics, plumbing and ventilation. Each year, the 50 full-time employees and 40 freelance fitters now build the entire interior of a maximum of two or three luxury yachts measuring between 50 meters and 115 meters in length. The cost of one of these boats is at least EUR 100 million, and often much more than that. Josef Fitz – amiable, with a firm handshake and an air of casual sporty elegance – shows no signs of having let it go to his head that his extremely wealthy customers fly in by helicopter. As the 57-year-old provides a tour of the modern production and assembly halls, he gives the impression of being a down-to-earth businessman and a passionate craftsman. “We are very involved in our commissions and outsource almost none of the work to subcontractors. This is the key to producing something outstanding.” He is happy to be hands on with painting and filling, and recently applied bronze overlay to a piece of furniture.

#### WITH HAND AND HEAD

Craftsmanship is at the heart of Fitz Interior. The production hall is filled with employees wearing orange T-shirts bent over work tables. All totally dedicated to the task at hand, which may be delicate burl wood detailing, applying fiddly circular veneers, working with table inlays made from petrified wood (costing EUR 10,000) or applying a goat-leather covering to the headboard of a bed. They are supported in their work by the latest technology. Fitz always relies on the HOMAG Group, be it for CNC machining, sanding, edge gluing or his latest acquisition – a saw-storage combination. The reason for his loyalty is clear: “Our customers, quite rightly, expect the best – that is why we need the latest machines and the most reliable service.”


Panel storage is where production begins: Controlled as if by magic, a gripper suspended under the hall ceiling lowers, automatically finds the correct wooden panel and guides it to the saw. The control system assigns a barcode to the cut parts. The barcode contains all the data and information required for subsequent drilling, trimming or edge processing. This process ensures that production and logistics are both transparent and efficient. “We are currently in the process of fully networking all our machines, one by one,” explains Josef Fitz. “We expect to finish the work this year. We will then be able to digitally track the location of each specific part.”



A total of 80 trucks are required to transport the materials used to create the interior of a 75-meter yacht.

**Fitz always relies on state-of-the-art technology** from the HOMAG Group. For instance: The HPP 300 multiTec enables simultaneous sawing, drilling and trimming.





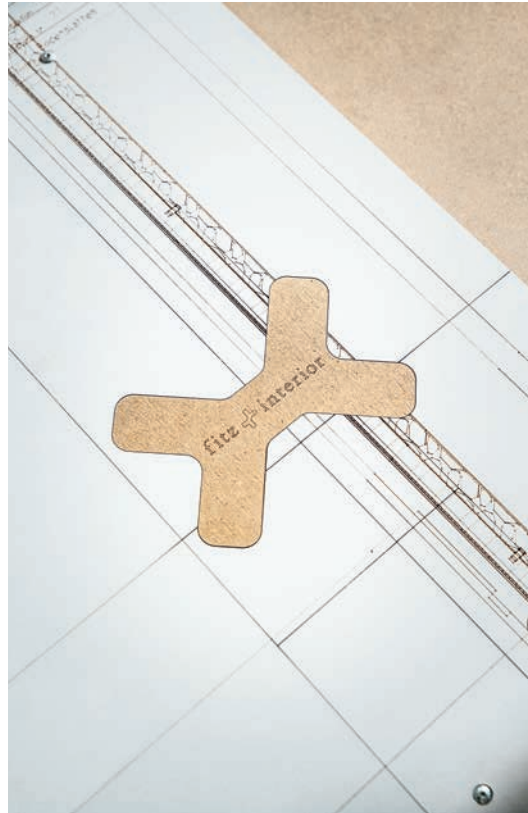
» **Our customers, quite rightly, expect the best – that is why we need the latest machines and the most reliable service.** «

Josef Fitz, CEO of Fitz Interior GmbH

**The skilled and meticulous craftsmen**

confidently tackle a wide variety of materials and tasks. They are equally comfortable working with exotic woods or materials, marble, deerskin, furniture, electrics, plumbing and ventilation.





The importance of having an overview like this becomes clear when you consider this statistic: The materials required to create the interior for a 75-meter yacht fill 80 trucks. Fitz needs to ensure optimum performance throughout the entire process, not just in terms of craftsmanship – until all parts have been fitted in the yacht and every precious vase and every cashmere cushion is in its rightful place. Success is only guaranteed if the company completes each and every step to perfection.

#### **THE FUTURE: DIGITAL ALL THE WAY**

For Josef Fitz, digitalization is not just a buzzword but a reality, and a way to help safeguard the future for his company. An example: Currently, all the interior fittings for a yacht are fully assembled in the assembly hall in Mertingen. This is where they are inspected by the owner, who requests any changes that might be required. Everything is then broken down again, modified as necessary, packed up and transported to the relevant shipyard. This is a huge undertaking. “In two years from now at the most, I would like to be at the stage where we are only assembling and demonstrating a few example pieces,” explains Josef Fitz – i.e. just one of the passenger cabins as a reference point, not all of them. The labor and cost savings for the company would be immense. In order to make this happen, the entire process must be digitally conceived and implemented, right from the planning and design stage. All data must be available in the IT system from the start to the end of yacht production. The data must also be able to be modeled and linked to production.

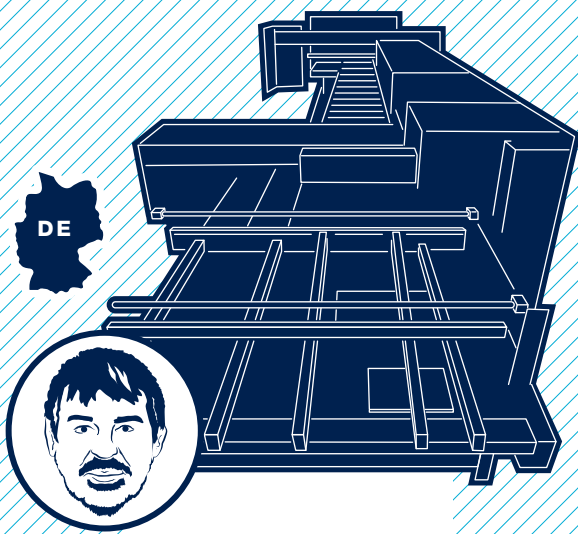
**The interior fittings of a yacht at an early stage** in the assembly hall in Mertingen. Once they are complete, they will be broken down and transported to the relevant shipyard.

Josef Fitz outlines the plan: “We are working on ensuring all data is fully integrated, from each drill hole right through to highly complex 3D designs; from the first drafts through to the final work at the shipyard construction site.” This is another area where the machines from the HOMAG Group can provide effective support. “Data storage and transfer is well-structured, consistent and secure. All software interfaces work smoothly.”

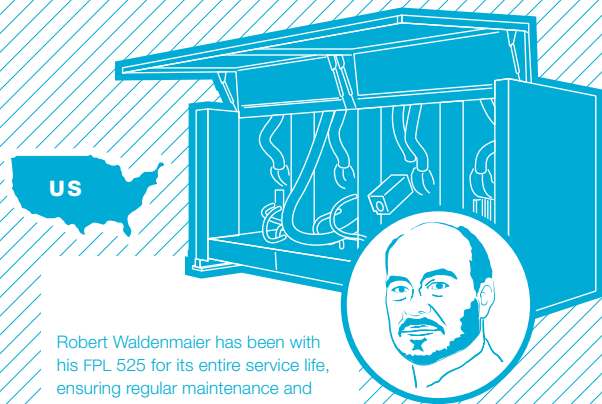
The businessman is quite optimistic about the future. Josef Fitz would like to take on 25 new employees, and “sooner rather than later.” There is a definite need to increase the workforce. He was recently able to appoint six master carpenters for the design and production team, but this is the exception rather than the rule as the region has almost full employment. So there is a lot for Fitz Interior to do. The order books are full, the market is booming and, in addition to yachts, the company would also like to focus more in future on interiors for villas and corporate headquarters. Despite all this, Josef Fitz maintains a relaxed, typically Swabian approach: “It’ll be fine.”

# Friends for life

**HOMAG machines can be found all over the world. They deliver reliable, sawing, gluing and sanding operations for years, or even decades. But any machine can have a bad day once in a while. Fortunately, HOMAG technicians are on hand everywhere. Here are two stories about a lasting friendship between man and machine, with the usual highs and lows.**

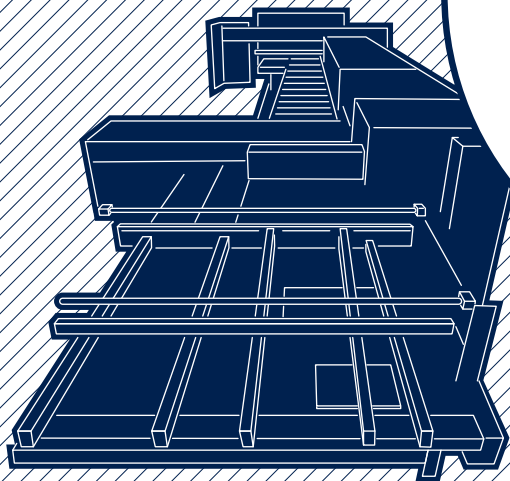


Hans-Jürgen Neuss knows every screw of his KFR 24 powerLine and could practically dismantle the machine with his eyes closed. If it sticks, he immediately knows what's wrong and how making just a minor repair can solve a major problem, or even prevent a problem altogether.



Robert Waldenmaier has been with his FPL 525 for its entire service life, ensuring regular maintenance and dispensing rapid "first aid" in an emergency. This has sometimes meant driving through the night across three US states – good friends really are always there for each other.





### HANS-JÜRGEN NEUSS

Hans-Jürgen Neuss, 52, has worked as a service technician in the wood processing industry for 28 years; for 14 of those years, he has maintained and repaired HOMAG machines all over the world. The customers on his books are based in countries including China, Denmark, Switzerland and, of course, Germany – and among them is bathroom fittings manufacturer Duravit.

#### LOGBOOK:

Duravit, KFR 24 powerLine, edge banding machine.  
(Batch size 1 machine)

#### 2001:

The machine is assembled and put into operation at Duravit in Schenkenzell, Baden-Württemberg.

#### April 2009:

The transport chain is not running smoothly, the machine is no longer processing workpieces accurately; two service technicians, four working days.

**» The transport chain is subject to considerable loads and should be checked regularly; a replacement costs between EUR 150,000 and EUR 200,000. My colleague, Harald Stehle, and I found a much less expensive solution that is just as effective: We replaced all 2160 running bearings. After that, the machine ran smoothly again, even with the old chain, and the customer was extremely satisfied. «**

January 2013:  
Routine check, 1 service technician, 4 working days

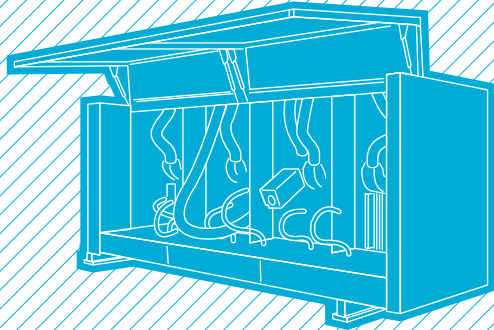
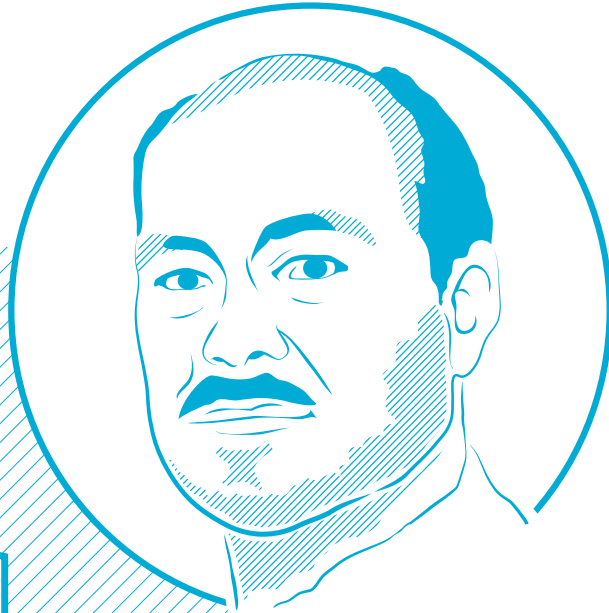
**»See, hear, feel: These are the most important aspects of the annual inspection. To start with, I observe the machine during production for a couple of hours, focusing on the noises it makes and placing my hands on the covers. If I hear a strange noise or feel any jerking motions, something is not right.«**

January to March 2018:  
20 links in the transport chain have stretched, causing angle problems; analysis: 1 service technician, 3 working days; repair: 2 service technicians, 5 working days.

**»There's life in the old dog yet: The machine was actually scheduled for replacement back in 2016. That is why I invested so much time and attention in the analysis. My colleague, Hermann Geiselhart, and I replaced the stretched chain links. Of the 20 or 30 machines of this type, mine is the only one still running with the original chain – after 17 years and around 15 million machined parts.«**

Summer 2019:  
Duravit plans to replace the KFR 24 powerLine with a new HOMAG edge banding machine.

**»I don't yet know what will happen to my machine then. Maybe I will encounter it again somewhere in the world with another customer. But I am looking forward to the challenge of getting to grips with the technology in the new machine.«**



### ROBERT WALDENMAIER

Robert Waldenmaier, 55, has been working at HOMAG subsidiary Stiles Machinery for 18 years; prior to that he served in the US Navy. The "Production flooring" team leader takes care of customers throughout the USA, and one of the most important customers is flooring manufacturer Shaw Industries.

#### LOGBOOK:

Shaw Industries, FPL 525, double-end profiler for longitudinal processing of workpieces

#### January to March 2002:

The machine is assembled and put into operation at Shaw Industries in Dalton, Georgia.

#### July 2003:

After 3000 work hours, the first routine check and replacement of wear parts; 40 technician hours across 4 days.

**»A routine check like this is just as important for the machine as an annual check with my doctor is for me. I remove all the covers and look at the machine very closely. But above all I listen closely, because this tells me a lot about the machine's state of health. If, for example, I hear muffled noises, I know that the linings in the transport chain are worn and need to be replaced.«**

November 2003:

A cry for help: The 100-millimeter-thick steel drive shaft is bent, the bolts on the conveyor belt and the screws for opening and closing are broken, meaning the machine can no longer be operated; 9 hours of error analysis + 15 hours of repairs.

**» I was on the road in North Carolina when I heard about the emergency callout from Shaw Industries. I immediately got in the car and drove nonstop to Dalton, arriving at 1 a.m. I had to dismantle the entire right-hand side of the machine to make the repair. Luckily I was prepared, and had stored all the spare parts at the customer's premises. «**

July 2012:

Emergency! A fire broke out at the Shaw Industries premises. Fire, water and chemical extinguishing agents caused a lot of damage to the FPL 525; 12 weeks later, the machine was ready for use again.

**» The water had got into the electronics. We were faced with a difficult decision – make costly repairs to the machine, or replace it. Luckily my old friend was given a reprieve! The rescue operation was laborious, and for the most part I had to rely on my intuition and experience. But it was worth it: Over the next four years my pal ran without any problems. «**

October 2017:

After almost 16 years, the FPL 525 was decommissioned: The plant at which the machine is located is being shut down.

**» It was a strange feeling to see my machine so lifeless and silent. I hope to see it make a comeback in another factory in the near future. Then I will be able to take care of it again – nobody knows it as well as I do. «**



# Service in figures

# 100

HOMAG has conducted service appointments in over 100 countries to date.

# 650

Over 650 spare parts orders are processed daily.

# 18,500 km

The longest trip a HOMAG technician has ever made for a service appointment.

# 1,200

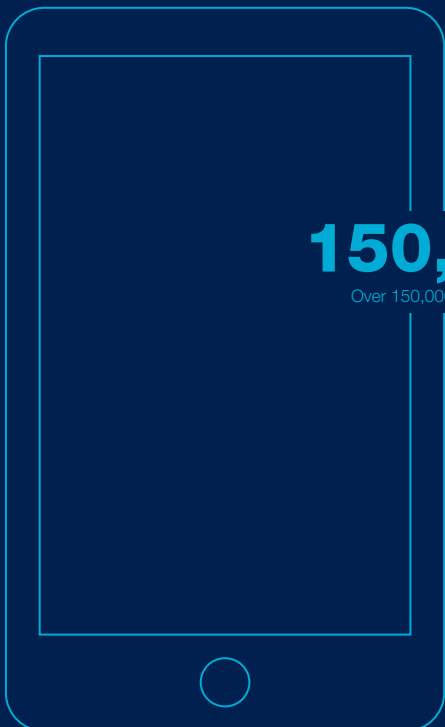
Over 1200 service employees worldwide.

# 150,000


Over 150,000 machines maintained.

# 90%

Over 90% success rate for remote diagnostics – and fewer onsite appointments as a result.



# Open heart surgery





**The Canadian office furniture manufacturer Artopex is a fan of the latest trends – and not just for desks, cabinets and chairs. It has commissioned the HOMAG Group to build a fully automated production line, and production is continuing simultaneously in the same hall.**

Stacked up behind the safety fence are hundreds of wooden panels in a variety of colors and finishes. A vacuum gripper whizzes back and forth across the storage area. It knows exactly where to find the right panel, lowers down onto it, and then picks it up and places it on the conveyor belt. Shortly afterwards, the saw bites into the wood and cuts the panel into several pieces. The pieces will be used to make furniture that will be used just days later in an office somewhere in North America. The state-of-the-art two-tier storage system and the fully automated robotic saws represent the first successful stage of a major replacement and expansion investment for which Canadian office furniture manufacturer Artopex has commissioned the HOMAG Group. Over a two-year period, the old production systems at the site in Granby near Montreal will be gradually replaced with a fully automated production system.

#### HELP FROM A DIGITAL TWIN

Between now and 2019, the experts from Germany will deliver and assemble all the machines in such a sequence that production is not interrupted. This process is as complex as performing open heart surgery. Under no circumstances must there be unexpected production downtimes. This would be both disastrous and costly. The HOMAG Group is well-versed in projects such as this. "Perfect planning and a lot of experience are essential," says Wolfgang Kläger from the technical sales team within the Business Unit "Systems". Each individual delivery within the staggered implementation process is finalized way in advance and is rehearsed until everything runs smoothly. The setup is achieved in part through the help of a 3D simulation model that creates a virtual map of the production line. This digital twin is used to run various tests. The most important of these relates to the controllerMES production control system. This HOMAG Group software platform pulls together all aspects of the networked production process in a real operation environment. It issues commands to each machine relating to what it must do and allow, and the integrated reporting functions mean it can monitor whether the instructions have been followed.

#### FAITH IN THE HOMAG GROUP

Given the meticulous preparations, Denis Bergeron remains relaxed about the situation. He has worked in collaboration with the HOMAG Group for many years now. "I know I can rely on them to take care of the implementation," says the Artopex Vice President. He works closely with businessman Daniel Pelletier, who took over the 38-year-old French-Canadian family business in 1993. Today, Artopex employs 650 people across five different locations. The company designs and builds high-quality office furniture: desks, stor-

age furniture, industrial chairs, soft seating, acoustic panel systems and partition walls. The furniture has its own unique style. Simple shapes, bright colors and individuality are the key features of the product range. "Our aim is to meet the needs of our customers in every respect," says Bergeron. It is often the case in contemporary companies that designers create strict parameters in order to give the office landscapes a definitive look. This is why Artopex is set up to manufacture each piece individually, yet with an assembly line approach.



The fully automated HOMAG Group storage system optimizes the flow of materials between delivery and the processing machine, maintains transparent stock management and ensures optimum, energy-efficient utilization of resources.





**» I know I can rely  
on the HOMAG  
Group to take  
care of the imple-  
mentation. «**

Denis Bergeron, Vice President, Artopex inc.



## THE DIGITAL TWIN

The use of digital twins is becoming increasingly common in the mechanical engineering sector. What we mean by this is a virtual machine that is mapped on the basis of a real machine before the real machine is assembled. The twin is created as a real-time-enabled, hardware-in-the-loop simulation. The simulation makes it possible to test all the machine functions on the digital twin even before the real machine is assembled.

Other benefits of the twin: Mapping complex material flows within a realistic framework makes it possible to optimize systems and also to carry out risk-free testing of new software. Using the system throughout the entire life cycle of a machine could, in the future, lead to problems being replicated in service cases and thus being solved more quickly.



The new pride and joy: The HPS 320 flexTec from HOMAG – a cutting cell for individual panels. It bears the first name of the company's President, Daniel Pelletier.



### **FROM TRADITION TO PIONEERING SPIRIT**

At the end of the 1990s, Artopex purchased a storage system with two integrated saws from the HOMAG Group – this was almost unheard of at the time in North America. A few years later, Artopex switched to small-scale production in batch size 1. Since then all machines have been electronically controlled and know how to process each individual part. Quite early on, Artopex purchased a processing center for this purpose, as well as an edge banding machine that was interlinked with the drilling technology. “We were always keen to lead the way on technology,” says Bergeron.

By 2014, the systems had served their time. Bergeron was now considering a new production system. He was spurred on by a technology tour that he took with the HOMAG Group in Europe. A week of visits to various factories – always displaying the latest technology. The representatives from Artopex were excited by what they saw. As a result, Founding President Daniel Pelletier gave the go-ahead to build a fully automated production system. The main aim was to create a system that was faster than the previous one. His requirement was that the system should be able to cut up to 4,000 parts per day, complete with formatting, edging and drilling or trimming. At full capacity, this equates to up to four parts per minute. A sizable figure.

### **NOT FOR THE FAINT OF HEART**

Planning began as soon as the trip ended. Local sales company HOMAG Canada and technical salesman Kläger worked with Artopex to get the project off the ground. The idea was for the five implementation stages to be spread over two years – with no production downtime. The first step was to create the new, fully automated storage system and connect it to the saws. “We walked around the factory with the customer and discussed which parts of the system to move during implementation, and where to, so that the running machines could continue with production,” says Kläger. Not for the faint of heart. The new material must be stored, and sorted in such a way that each part is available immediately as soon as it is needed. Steel, cables, tools – it all adds up to tons in weight. While walking around the factory, Kläger came upon a panel storage area that was no longer in use. This is where the new storage system would be set up and interlinked with the saws. “This first stage was relatively easy to implement,” says Kläger. The storage system and saws have been in operation since the end of 2017. Now for the next steps.

### **A NEW FACTORY, STEP BY STEP**

A decoupling buffer is scheduled for incorporation in the system by fall 2018. It is an important part of the production line – the cut pieces “rest” here, so to speak. If there are no supplies in the warehouse, production can still continue. The edge processing system is also scheduled for completion by the fall. Edges are the hallmark of good furniture. No dirt should gather in the joints. The machines

from the HOMAG Group position the edges on the correct part, in the appropriate color. A laser beam brings the edging strip to melting point and the strip is then pressed against the panel.

Edge processing systems are able to process unusual shapes, but there are limits. If a customer wants a completely non-standard furniture design, Artopex uses a HOMAG Group electronic processing center to take care of edging; this center is designed for more complex jobs and will be positioned alongside the production line.

### **NETWORKED RIGHT TO THE CUSTOMER**

The drilling technology will be added from fall 2018, followed in spring 2019 by the sorting buffer. The sorting buffer puts the processed parts in the correct order for the available assembly conveyor belts. The fifth stage of the process will see another saw and a second edge processing system added. This will double production capacity again and the cutting and edge processing areas will be kept as redundant areas. Artopex already has plans for after the conversion: The company is considering extending the production line. In the future networked machines will also pack the parts. Then all that remains is to load them onto the trucks and assemble them at the customer's premises. “The fully automated production line will then be complete,” says Denis Bergeron. “And Artopex will remain a technology leader into the future.”

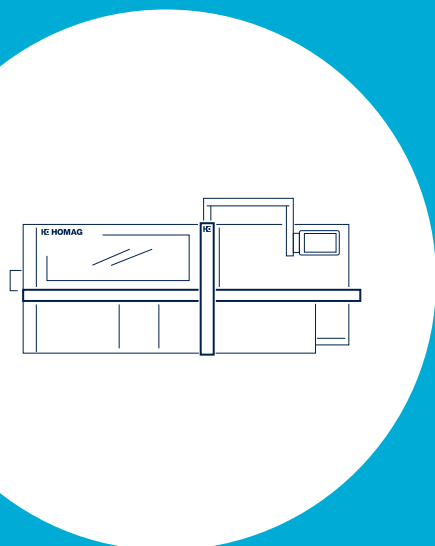
» **Once the fully automated production line is complete, Artopex will remain a technology leader into the future.** «

Denis Bergeron, Vice President, Artopex Inc.



**Russ Suor,**  
**Vice President Stiles Machinery, USA**

In March 2016, the Vice President of HOMAG subsidiary Stiles Machinery presents an idea to the HOMAG Group Executive Board: “Solid wood processing using moulder technology.” In July, a decision is taken to move ahead with this project.



1

# All for one

Until recently, HOMAG machines were primarily focused on surfacing – e.g. using chipboard and MDF boards. Solid wood processing operations were undertaken exclusively by CNC machines. But in the spring of 2016, the idea was born to start processing naturally shaped objects with planing machines, as a supplement to the production processes of window and profile coating systems, for example. The decision to go ahead with the HOMAG moulder project was taken shortly thereafter. The MOULDTEQ M-300 was commissioned and, just 18 months later, a completely new product segment was in production, developed by an international team comprising members from Germany, the USA, France and Taiwan. Leadermac in Taiwan was engaged as a partner for construction of the hardware. Everything else was taken care of by the HOMAG Group itself.



**Werner Düpjohann,**  
**Head of Development, BU CNC**

He takes the project under his wing and gets things started in his Business Unit CNC.

2

3

**Chuck Carter,**  
**Area Product Manager Moulders, Stiles Machinery, USA**

Chuck Carter began work on the moulder program ten years ago, when Stiles Machinery was still just a dealer. He knows exactly what it takes to make a successful solid wood and moulder program, and he offers his expertise.





**Tim Myller, Software and Controls,  
BU CNC at HOMAG Machinery NA, USA**

In collaboration with colleagues in Germany and the USA, Tim Myller develops the control software to transfer the typical HOMAG user experience to a moulder.

4



**Johannes Lang,  
Product Manager, BU Surface**

May 2017: The program is transferred from the Business Unit CNC to the Business Unit Surface. Johannes Lang takes over product management from here, together with his colleague Rainer Winkenstette, Application Engineer.

6

**Josef Zerle,  
Executive Director, BU Surface**

Josef Zerle has been involved from the start as a consultant. In March 2017, his Business Unit absorbs the moulders and solid wood program. He is responsible for advancing the vision and, at the same time, ensuring that HOMAG becomes a key player in the solid wood processing sector as a result of the new offering.



5



**Hero Syue,**  
**Quality Manager at Leadermac, HOMAG, Taiwan**

Appointed by HOMAG in September 2017 and is permanently located on site with the partner Leadermac in Taiwan. He documents, monitors and evaluates every production step in order to guarantee HOMAG quality, "made in Taiwan."

7

8

9



**Thomas Grasedieck,**  
**Service Engineer, HOMAG, Germany**

January to March 2018: Together with his colleague David Hise from Stiles Machinery, he builds the first MOULDTEQ M-300 in France at a customer's premises and puts it through its paces. The two also train the fitters from HOMAG France and those on the customer side.



**Joel Durr, Managing Director, HOMAG France**

The first moulders are sold in July 2017 at the AWFS international trade fair in Las Vegas. In September 2017, with the support of Joel Durr, HOMAG wins over a customer for the MOULDTEQ M-300.



# HOMAG in figures

## GROUP KEY FIGURES

		2017	2016	2015	2014
Order intake	EUR m	1,366.3	1,165.3	1,058.4	911.4*
Sales revenue	EUR m	1,223.6	1,082.0	1,039.3	914.8
Investments	EUR m	26.2	24.3	29.7	32.6
Employees as of December 31		6,371	6,126	5,906	5,659*

\*Adjusted to new calculation method

In 2014, Dürr became the majority shareholder in HOMAG Group AG. An extraordinary general meeting of HOMAG Group AG on March 5, 2015 agreed to the conclusion of a domination and profit and loss transfer agreement between Dürr Technologies GmbH and HOMAG Group AG. Accordingly, since 2016 shareholders have been receiving compensation from Dürr Technologies GmbH to the amount of EUR 1.01 per HOMAG share.

Following a reorganization of the segments at Deutsche Börse AG, shares of HOMAG Group AG have, since March 1, 2017, been listed in the "Basic Board of the Open Market" segment of the Frankfurt Stock Exchange.

## SHAREHOLDER STRUCTURE AS OF MARCH 31, 2018

In percent



- 55.85 Dürr Technologies GmbH
- 22.10 Free float
- 22.05 Schuler / Klessmann shareholder group

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# Outro

**We are already the world leader for integrated woodworking solutions. We are proud of this achievement. But the world does not stand still, and digitalization is generating huge upheaval. This is why we continue to forge ahead with innovations. Our corporate culture encourages free thinking, openness, personal commitment – and networking at all levels:**

**Our teams share ideas across all borders, which results in innovative products. Our machines and systems have long been fully equipped to exchange data, and with the development of tapio we have set completely new benchmarks when it comes to digitalization. Our digital ecosystem for the woodworking industry is leading the entire sector into the digital future.**

