

LEUCOline

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Magentify Wood Processing.

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Finish cut in a marathon with
Q-Cut G6 Edition

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Extremely high rotational accuracy
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Magentify Wood Processing.

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LEUCO Q-CUT G6 EDITION

FINISH CUT IN A MARATHON

LEUCO introduces the Q-Cut G6 Edition, a new panel sizing saw blade. This meets demanding requirements for cut quality with exceptionally long service lives. Carpenters, furniture manufacturers and interior design specialists now have an even better standard tool at their disposal.

At LEUCO, the "Q-Cut" product family stands for the highest quality in panel sizing saws. Within this family, the Q-Cut G6 Edition is now the new favorite in terms of service life. The new blade extends the already very long service life of the standard Q-Cut G6 saw blade by up to twice and more. This means that wood-working shops now have an alternative to the popular Q-Cut G6 as the standard blade for panel sizing.

LEUCO achieves the improvement through thinner blade bodies and greater lateral tooth projection. This leads to optimized chip flow and thus to less chip friction as well as less heating of the saw blade. Improved grinding parameters also contribute to high cut quality and longer tool life.

Another feature of the Q-Cut G6 Edition is the improved precision class of the patented

The new "Q-Cut G6 Edition" is the favorite in terms of tool life in the LEUCO premium class for HW panel sizing saws. The already very long tool life of the standard "Q-Cut G6" saw blade is extended by up to a factor of two by the new blade.



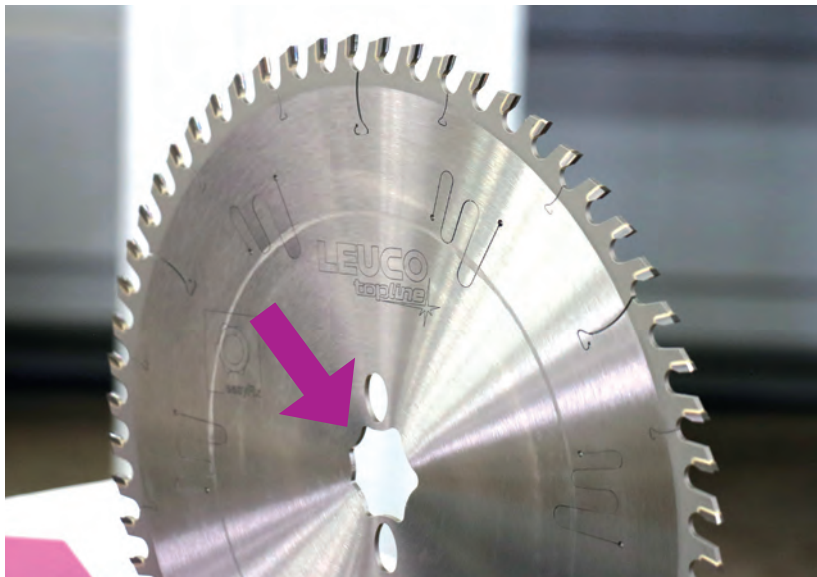
easyFix hole, which has been improved to H7. This makes it easier to slide the saw blade onto the shaft. In addition, the shape is non-round instead of round. This results in fewer points of contact between the blade and the shaft, making it easier to mount without jamming.

The Q-Cut G6 Edition is characterized by quiet and smooth running. Six laser ornaments as well as several expansion slots reduce vibrations and thus also the running noise of the saw blade. This saw blade has a tooth group configuration consisting of two stronger-cutting leading teeth and four consecutive teeth. This feature is common to all panel sizing saw blades in the Q-Cut family. It now consists of five products:

- | Q-Cut G5: Finish-cut quality in plywood, veneered wood-based materials, lightweight panels and panels with sensitive top layers
- | Q-Cut K: Finish-cut quality in the anti-fingerprint materials and in plastics
- | Q-Cut G6: Finish-cut quality with very long tool life, especially cost-effective
- | Q-Cut G6 No Noise: Additionally, very quiet
- | Q-Cut G6 Edition: Finish-cut quality with extremely long tool life, cost-effective

The Q-Cut G6 Edition will be available starting in May 2022. The range will include five sizes from 350 to 450 mm in diameter from the start of sales. Additional sizes are being prepared.

LEUCO EASYFIX SAW BLADE HOLE FOR PRECISE SAW BLADE SEATING



LEUCO is expanding its range and now also offers saw blades with the easyFix hole for vertical panel sizing saws.

LEUCO now offers saw blades with the easyFix hole for vertical panel sizing saws. The new product has a "non-circular" mounting hole. This minimizes the contact points between the shaft and the saw blade. The advantages: smoother running, higher cutting quality, longer service life, easier installation.

LEUCO is expanding its product range: Following the easyFix successes with cross-cut and miter saws, the leading supplier of carbide and diamond saw blades is now also offering this product innovation for vertical panel sizing saws.

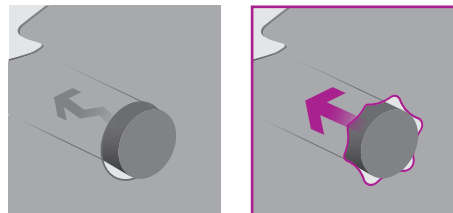
The easyFix principle: Instead of the classic round mounting hole, the new saw blades have a "non-round" hole.

HIGHER CUT QUALITY

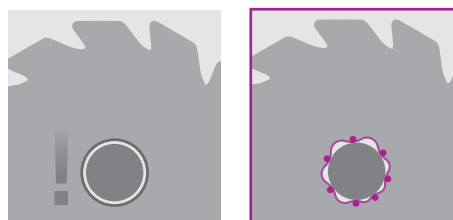
Saw blades with the easyFix hole are connected to the shaft precisely at contact points. Without a radial run-out tolerance, because the fits at the contact points are much tighter. This results in significantly smoother running than with saw blades with circumferential shaft contact. The end effect is improved cut quality.

EASIER MOUNTING

The close point contact between the easyFix saw blade and shaft facilitates handling when

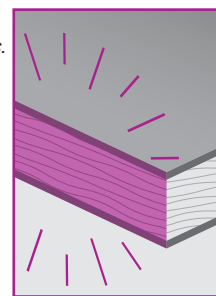


Whereas saw blades were previously pushed onto the shaft in a jerky manner, easyFix saw blades are mounted in one go without jamming.



Round holes are placed on the shaft with a tolerance, otherwise they could not be mounted and removed. The easyFix hole sits snugly and precisely on the shaft at the support points.

The benefit is even more precise saw cuts.



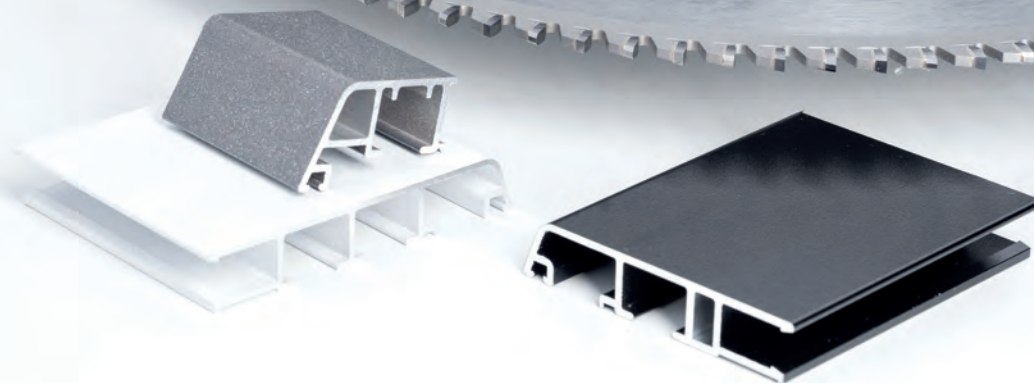
changing tools. The explanation: The frictional resistance is noticeably lower than with round holes. The saw blade can be easily pushed onto the shaft and does not jam.

LONGER SERVICE LIVES

Smoother running also means less vibration and wear. As a result, easyFix saw blades from LEUCO achieve longer tool life than conventional saw blades. The intervals between changes are further apart, the machines are idle less frequently, and tool consumption is reduced. In short: easyFix from LEUCO increases cost effectiveness in the long term.

EasyFix saw blades from LEUCO are now available for vertical panel sizing saws with a 30 mm shaft. Saw blade diameters, range from 220 to 400 mm.

Development continues: In the course of 2022, LEUCO will expand its portfolio of saw blades with the easyFix mounting hole. Following products for clipping and miter saws and vertical panel sizing saws, easyFix saw blades for horizontal panel sizing saws will then also be launched on the market.



LEUCO has developed the HW TR-F-K saw blade especially for aluminum profiles. It is designed for non-ferrous metals and can be used on chop saws, miter saws and table saws.

CIRCULAR SAW BLADES FOR ALUMINUM COMPOSITE PANELS AND ALUMINUM PROFILES FROM LEUCO

SUCCESSFUL SHIFT WORK

Aluminum composite panels place high demands on cutting tools. LEUCO has developed special saw blades with carbide and diamond cutting edges for these materials. These ensure long tool life even for demanding production processes. In addition, LEUCO also offers highly productive and durable tools for aluminum profiles.

Furthermore, as a manufacturer specializing in tools for wood, plastics and non-ferrous metals, LEUCO has developed a program for aluminum composite panels. This is because these composite materials are becoming increasingly common in sectors such as retail store and trade show construction, as well as window and facade production.

CARBIDE CUTTING EDGES FOR DEMANDING APPLICATIONS

Cutting and processing of aluminum composite panels are not difficult when using appropriate tools. LEUCO recommends selecting saw blades according to the number of pieces produced and the type of panel. For single cuts of common composite panels, saw blades with the flat trapezoidal tooth shape (type "TRF-F-FA") are the first choice. LEUCO supplies the TRF-F-FA with cutting edges made of HL Board O4 Plus carbide. This cutting material, first introduced in 2017, is particularly resistant to fracture and impact. Saw blades with this cutting material achieve the longest edge lives that are currently possible at LEUCO for tungsten-carbide products. For sawing non-ferrous metals, HL Board O4 Plus is a good choice.

Saw blades with the TRF-F-FA tooth shape are suitable for common machines, for exam-

ple, from Holz-Her or Striebig, as well as for table saws, for example, from Altendorf, also without a scoring saw blade. This saw blade can be used to process the usual composite panels with intermediate layers of plastic. Such composite panels for construction applications are usually between 2 mm and 6 mm thick, including the two approximately 1 mm thick aluminum top layer. The usual thickness of the panels is 4 mm. The middle layer is usually made of polyethylene or polypropylene.

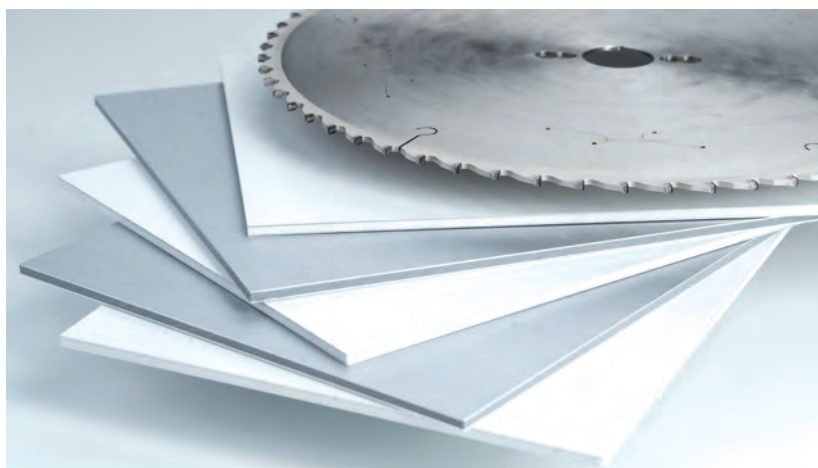
DIAMOND FOR MINERAL-FILLED LAYERS

A special case is aluminum composite panels with mineral-filled polymers, for example, the ALUCOBOND® and ALPOLIC® brands. Due to the mineral fillings, these composite panels achieve very high fire classifications. For such panels LEUCO recommends saw blades with the HR tooth shape and polycrystalline diamond cutting edges (DP).

They achieve surprisingly long service lives

despite the hard middle layers. Another important strength of the two tooth shapes TRF-F-FA and HR are the almost burr-free cuts. This is one of the most important quality criteria when evaluating circular saw blades for non-ferrous metals.

Aluminum composite panels place high demands on cutting tools. The use of specially designed tools from LEUCO makes cutting and machining easy and very economical.



Processing of aluminum composite panels in packs is also extremely demanding. For this purpose, a combination of DP cutting material and the TRF-F-FA tooth shape has proven to be the best. This saw blade is sharp and robust enough to cut several layers of aluminum composite panels in one pass. At the same time, it achieves a tool life with which this highly productive type of processing also makes economic sense.

CHOP SAW BLADES FOR ALUMINUM PROFILES

Unlike panels, profiles are usually hollow sections. These are also used in many industries. This includes window and trade show construction - but also the machinery sector. There, aluminum profiles serve as the basis for the construction of fixtures and machine enclosures. In any case, before mounting the profiles must be cut accurately, and, for example, manufacturers of windows with aluminum frames usually use miter cuts. For such work, LEUCO has developed cross-cut and miter saw blades designed for light metals.

The newest development in this area is the HW TR-F-K saw blade. It can be used on cross-cut and miter saws as well as table saws. It is intended for cutting non-ferrous metals such as aluminum, copper and magnesium. The HW TR-F-K is specially designed for machines from Kaltenbach, Elumatec, Emmeggi, RAPID and Eisele as well as for companies that process such profiles in large numbers. This gives them a tool that produces the best quality with exceptionally long tool life. Wall thicknesses of profiles can be up to 5 mm. The saw blade achieves its highest productivity with thicknesses of 2 to 3 mm. The HW TR-F-K is available with diameters from 350 to 600 mm.

SAWING FIBER-REINFORCED PLASTICS

SAW BLADES FOR DIFFICULT CASES

The material mix for wood-working companies continues to grow. Fiber-reinforced plastics such as CFRP or GFRP need to be processed ever more frequently. However, common saw blades wear out extremely fast with such materials. LEUCO offers saw blades with diamond-tipped cutting edges and special tooth geometries that last considerably longer.

Fiber-reinforced plastics have one thing in common: They are very difficult to process. This is because very hard materials are usually selected as the fibers. Most of the time, these materials are glass, car-

bon and aramide. These abrasive fibers cause severe wear on the cutting edges of saws. In such materials, saw blades with tungsten carbide tips often last for only a few meters.

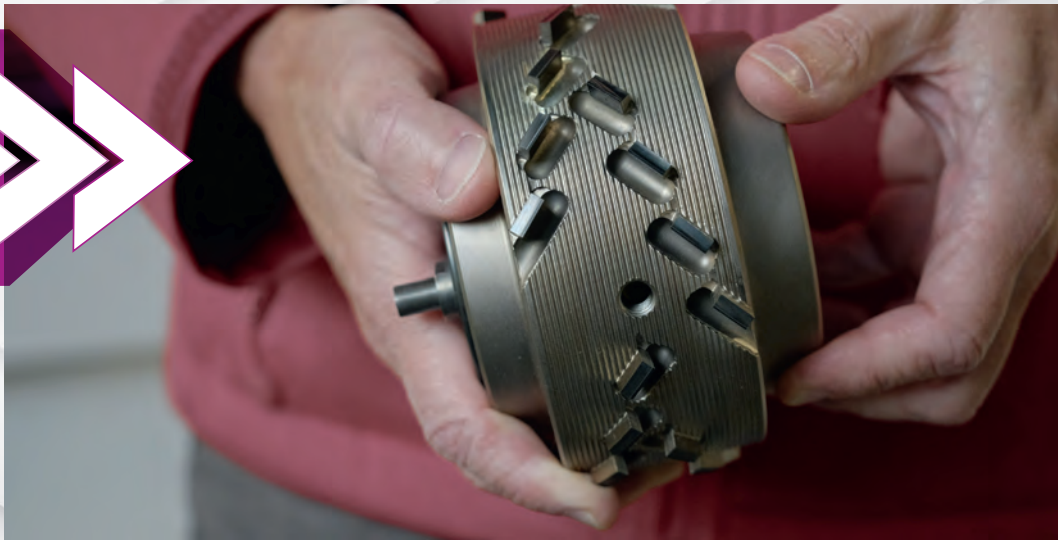
LEUCO offers a solution for these situations: Saw blades with diamond-tipped cutting edges and special tooth geometries. They make processing of fiber-reinforced plastics economically feasible. These saw blades achieve a 10 to 50 times longer edge life.

The DIAREX DP HR sizing saw blade is the favorite for reinforced plastics: It achieves outstanding results in all materials up to a thickness of 20 mm. Three other saw blades also achieved good to very good results, depending on the material. These are the sizing saw blades DP G5, nn-System DP flex and DP "TR-F-FA" Pos-Neg. They process fiber-reinforced elastics with acceptable edge lives.

The diamond-tipped saw blade "DIAREX HR" is currently the most economical solution on the market for cutting CFRP ("Carbon"), GFRP and AFRP. Diamond as the cutting material and the special tooth shape ensure long edge lives with good cut quality when cutting panel material or trimming profiles made of fiber-reinforced plastics.



MAGENTIFY YOUR EFFICIENCY



LEUCO DIAREX airFace: diamond-tipped, low-noise, with integrated balancing system and hydraulic clamping

EDGE QUALITY OF THE HIGHEST LEVEL HOGGING OR JOINTING CUTTERS?

The excellent quality and the award-winning design (Red Dot Award) are the reasons why the office furniture manufacturer Blaha from the Lower Austria has earned an excellent reputation in this sector. To achieve this, you have to be consequent, says the production manager Thomas Hoch, even HPL-compact boards can be machined at Blaha in a quality that does not need any rework. The suitable high-performance tools required for this come from LEUCO.

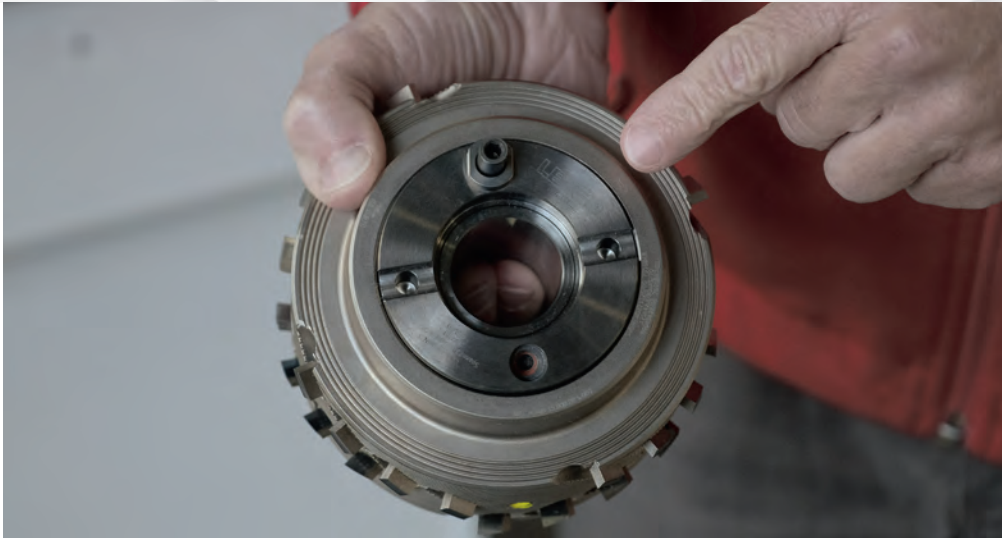


LEUCO p-System 70 shear angles enable a "pulling" cut

The company was founded in the 1930ies and has always had high demands on the manufacturing quality, says the manager of wood and textile production Thomas Hoch. "In 2018 we started to modernize our machinery step-by-step. Several machines had to be replaced and it was always clear that we wanted to do this together with our long-standing suppliers Homag and LEUCO." No sooner said than done: We started with the edge banding machines, adds Hoch. Today two Homag Edgeteq S-800 are part of our machinery. Many things had to be taken into account: "At the beginning, we had to decide whether we want to hog or joint the edges. We finally chose the jointing with peeling method – because the LEUCO p-System is perfectly suited to achieve a zero joint even with the use of a conventional EVA gluing system."

SIMULATION SOFTWARE HELPED TO MAKE THE RIGHT DECISION

At the LIGNA 2019, LEUCO presented a useful tool, adds Key Account Manager Roman Edelhofer: "Format Concept allows us to select visually the jointing aggregates to be used directly at and with the customer. We can discuss even before the selection of a machine configuration whether the LEUCO p-System with a shear angle of 70° or the DIAREX airFace with a shear angle of 48° is better suited for the materials to be machined. Even details, such as the symmetrical arrangement of cutting edges for the fully-automatic adjustment of the mo-



| Hydraulic clamping bushing for smoother running

tor axes or a noise-reduced airFace version, are taken into account. This simulation of different tool options, explains Edelhofer, is used to define how the plant with the aggregates from the machine manufacturers can be adapted to the planned machining process."

HIGH PERFORMANCE CUTTERS WITH HYDRAULIC CLAMPING

In front of one of the two edge banding machines, Edelhofer can explain the practical implementation: "In this case, the DIAREX airFace jointing cutter has been mounted with a so-called hydro bushing with a hexagonal fastener for the suitable hydro motors. This clamping method ensures a smooth running. The tool is provided with a shear angle of 48° and is designed as a Z-4 tool which means four edges per row and is exactly adapted to the feed rates of the customer." The special characteristic is the corrugated structure of the tool body: "This ensures a very quiet tool."

Balance screws integrated in the tool body facilitate the balancing of the tool without drilling holes into the tool body – the additional weight of the edges after a re-tipping can be compensated. Diamond cutting edges have twice the thickness compared with conventional edges and are extremely robust. Apart from hydraulically clamped tools, also aggregates with conventional clamping can be found in the Homag lines: "They are designed for LEUCO p-System with a shear angle of 70°."

LEUCO has been a reliable partner for many years, says Hoch: "As expected, all the tools that were discussed perform as expected - without problems." With a smile, he concludes, "So, if someone comes and asks - LEUCO."

Source: Holzkurier 42/2020.



| Roman Edelhofer: "Hydraulic clamping is smoother running"



| Thomas Hoch: "So, if someone comes and asks - LEUCO."

Photos: Holzkurier

POWERTEC AIRFACE HOGGERS

LONG-TERM WINNER IN PLUG & PLAY

Thanks to its high productivity and the very long edge lives, the PowerTec is one of the most successful hoggers manufactured by LEUCO for panel materials with various coatings. The most recent version in the airFace design has a prolonged tool life. Thanks to the constant diameter and cutting width throughout its service life, it can be put into operation promptly after each sharpening without machine adjustments.

Due to the suitability for high feed speeds and the long edge lives, the LEUCO PowerTec is one of the most established tools in the furniture and kitchen design industry. Feed rates up to 100 m/min for panels from a thickness of 8 mm can easily be reached using this hogger. The edge lives of the new PowerTec airFace could be improved by up to 15 percent thanks to a more advantageous tooth geometry. This means an even longer service life without tool change and thus a higher productivity.

SMOOTH RUNNING THANKS TO A STREAM-LINED DESIGN

To improve the noise reduction, the PowerTec is provided with the flow-optimized surface airFace. This design to be recognized by the grooves in the body generates a uniform air flow around the tool. By this, the noise emission is reduced.

Another special feature of the PowerTec also optimizes the smooth running. Compared to the usual hoggers, the number of tooth wings is reduced by half. This also means reduced turbulence. This benefit can be achieved through the arrangement of two cutting edges next to each other: a precutting and a finish cutting edge. The noise emissions are not only reduced by the airFace design but also by the reduced number of tooth wings acting on the material.

HOGGING OF LAMINATED PANELS IN A FAST AND MATERIAL PROTECTING WAY

The PowerTec cuts materials with hard coatings and those with sensitive, high-gloss surfaces such as anti-fingerprint designs. Even at high feed rates, a constantly high surface quality can be achieved with this hogger.

ECONOMICAL TOOL DESIGN AND REDUCED SETUP TIMES

In addition to the above features, the PowerTec users appreciate the constant cutting width, which remains the same over the entire life cycle. The cutting edges of many other hoggers become thinner after each sharpening cycle and do no longer reach the initially possible cutting width. The cutting width of the PowerTec airFace remains the same over the entire tool life. Right from the start, the hogger can be designed for the maximum cutting width required by the customer.

The same applies to the consistency of the diameter. For years now, the PowerTec hogger line has retained a constant diameter, even after repeated sharpening. This saves the user time-consuming adjustment work during tool changes, shortening the setup time and machine downtime in the factory.

The new version of the established PowerTec hogger allows feed rates of up to 100 m/min for panels with a thickness of at least 8 mm. The body is equipped with the optically distinctive airFace. The noise emission is reduced. The hogger is available in the PowerTec airFace (left) and PowerTec airFace S (right) versions. The latter is equipped with a higher number of cutting edges. As a result, it achieves a higher material removal rate compared with the already powerful basic model



IN DETAIL:

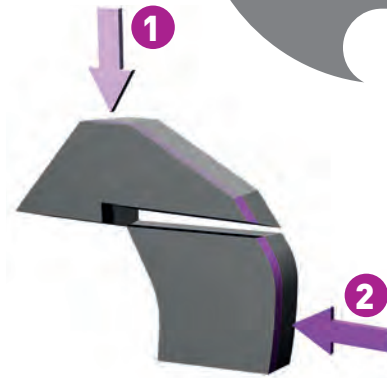
POWERTEC AIRFACE – CONSTANT DIAMETER & CUTTING WIDTH

START UP AGAIN AFTER EACH SHARPENING WITHOUT NEW MACHINE SETTINGS

1. CUTTING WIDTH CONSISTENCY

The cutting width consistency is achieved via the trapezoidal shape of the cutting edge. Thanks to this functionality, the hogger can be designed for the maximum cutting width required by the user right from the start. This saves unnecessary mm² of the expensive DP cutting material as well as sharpening costs.

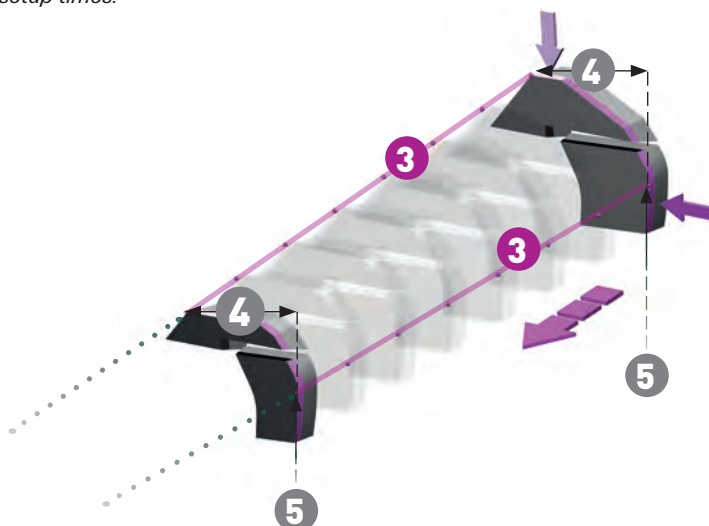
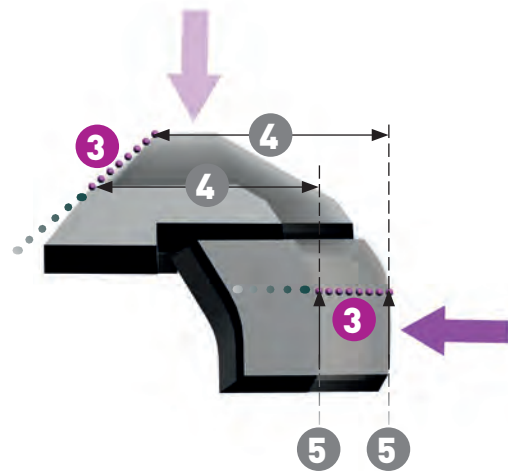
- 1 Hogger tooth
- 2 High-quality cutting edge
- 3 Tool life cycle = sharpening operations x
- 4 Cutting width consistency
- 5 Diameter consistency



2. DIAMETER CONSISTENCY

Like any other tool, hoggers must be properly adjusted to the respective panel thickness and to each other. It is important here that the overlapping area between the lower and upper hoggers is set correctly. The diameter point of the quality cutting edge is required for this (magenta marking). This point is always indicated in the tool card.

What is special here: With the PowerTec hogger, this point remains on the same diameter throughout all resharping cycles. This allows the user to continue working directly with the same overlap setting used before resharping, thereby reducing setup times.



KANTENNACHBEARBEITUNG IN DER PRAXIS

EIN FRÄSER FÜR ZWEI DREHRICHTUNGEN



The multi-profile lip trimmer from LEUCO is a special version. This is designed for operation with the feed as well as against the feed.

The kitchen furniture manufacturer Schüller Möbelwerk KG uses only one edge milling cutter for the edge trimming of plastic as well as veneer edges: A special multi-profile lip trimmer from LEUCO. The special feature: It can operate both with the feed and against the feed.

With around 2,000 employees, Schüller Möbelwerk KG produces around 150,000 customized kitchens a year that are sold worldwide.

CHANGE OF DIRECTION EASILY AUTOMATED

To ensure that the edges on furniture fronts look smooth and are of high quality, edge trimming is carried out on appropriate machines. The challenge here is that the machining of plastic edges is carried out against the feed. In the case of solid wood and veneer edges, however, processing ideally takes place with the feed. The reason: Unlike plastic, wood fibers tear easily when the lip trimmer works against the direction of the fibers. To prevent this, the machine mills with the feed for wood.

In the past, the machine stopped at Schüller and the motor was replaced. Many furniture manufacturers even produce the different types of fronts on several edge banding machines to solve the problem. Alternatively, one machine is equipped with several units for the same application. Schüller asked LEUCO and IMA Schelling if they could develop a tool that would solve this problem.

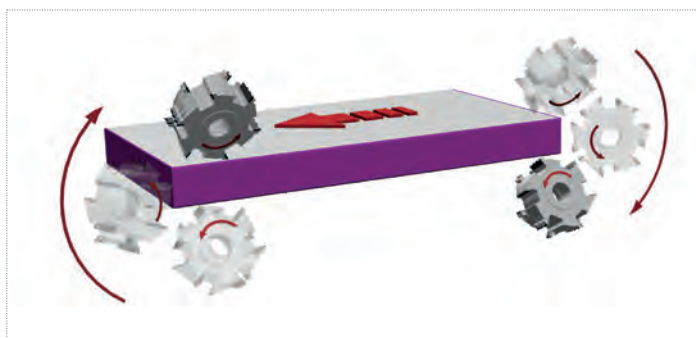
DEVELOPMENT OF THE SINGLE MULTI-PROFILE LIP TRIMMER

LEUCO developed a suitable tool for milling in both directions in the future. IMA Schelling modified the equipment to meet the requirements. New programming now shows the edge banding machine when a change in the direction of rotation is about to occur.

With the fully automated change in the direction of rotation, Schüller saves about 20 minutes with this solution. Depending on the furniture front, the machine control stops the machining and the motor. The change in the direction of rotation is initiated and the tool moves into position. This process takes about 20 seconds. For many users, this solution eliminates the need for additional equipment or a second machine. Depending on how they used to deal with this issue previously.



Schematic view of the machining of veneer edges - upper corner with the feed.



Schematic view of the machining of plastic edges - upper corner against the feed.

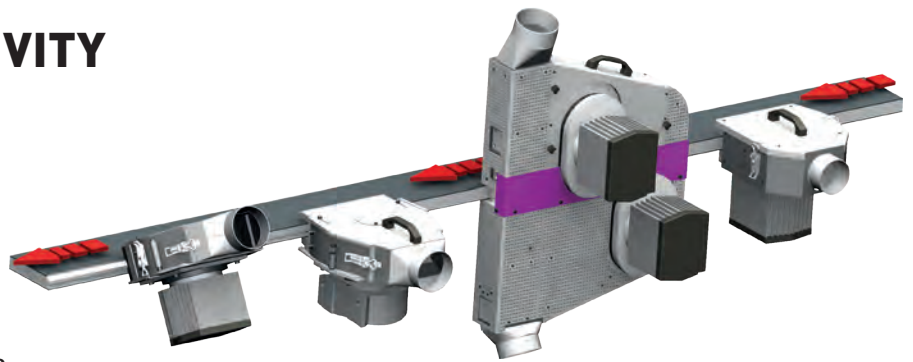
EXTRACTOR HOODS FROM LEUCO TUNING FOR PRODUCTIVITY

LEUCO has a new modular system for extractor hoods in furniture manufacturing. The hoods can be configured quickly and for a precise fit. They are now assembled from pre-defined components. LEUCO supplies such hoods for all common through-feed machines. In addition, the tool manufacturer continues to produce custom extractor hoods for various applications and to specific dimensions.

The modular system includes two types of hoods. For joining, chamfering, grooving and profiling applications, LEUCO has developed sliding hoods. They are available in three sizes. For double hogs, LEUCO offers a two-piece hood for HOMAG and IMA machines. It is available in a standard version as well as a version for increased noise reduction.

The double hogger hood also has a unique advantage: it automatically adjusts to different thicknesses of the panel via the upper pressure beam. Ideally, the gap between the hood and the workpiece is always only 2 mm. With such a gap, this hood constantly provides the best suction. The hogger and equipment thus remain cleaner than with the changing gap heights of conventional hoods.

LEUCO configures the furniture hoods after direct consultation with the customer in order to adapt ideally them to the requirements. The modular system allows the quick replacement of wear parts so that the machine downtime is reduced to a minimum. Both types of extractor hoods can be adapted to existing machines.



LEUCO extractor hoods for industrial furniture manufacturing for better workpiece quality, increased economic efficiency in the process and more safety in the machine environment. Hood examples from left to right: chamfering, grooving/profiling, double hogging, joining/jump-milling

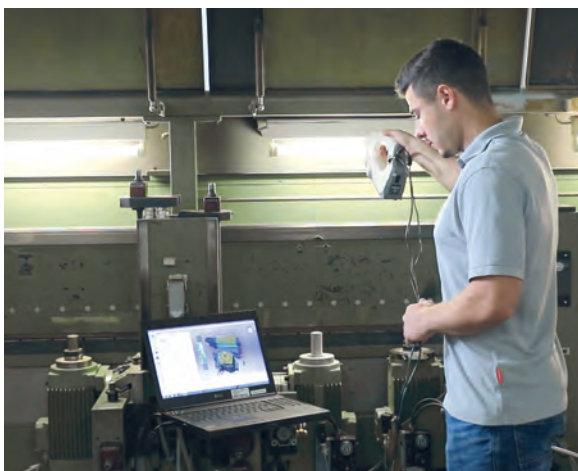
OPTIMIZED HOODS FOR HIGH MACHINE AVAILABILITY

These precision-fit extractor hoods for woodworking machines offer advantages in terms of efficiency and the quality produced. For instance, the hoods enable the systems to get by with fewer cleaning cycles, as they remain largely free of chips. This increases machine availability and in turn productivity. With these extraction systems, plant operators can save electricity because lower flow rates are sufficient thanks to the high chip collection efficiency of the hoods.

Tool changes are quick and safe with LEUCO extractor hoods. The hoods can be easily slid to the side or flipped open. The tools are then readily accessible. The good extraction performance of the hoods prevents double hogging, which extends the life of the tools. This has a positive effect on the quality of the workpiece, as the machining environment remains largely free of chip material. This means that hardly any chips inadvertently get between the tool and the workpiece.



Anchoring of the patented two-piece hood to the upper pressure beam allows the ideal gap to be set automatically for each panel thickness. The sandwich construction with sound-absorbing material reduces noise by 2 to 3 dB.



A highly precise measurement of the production line using 3-D scanning technology is the basis for custom-fit and efficient extractor hoods.

MILLING LIGHTWEIGHT PANELS

NEW VHW ROUGHING/FINISHING CUTTER

LEUCO has developed an additional version of its VHW roughing/finishing cutter that frequently provides better cutting results, particularly in many lightweight construction materials, e.g. honeycomb panels (plastic, aluminum), lightweight panels, plywood, composite panels with a hard foam core.

A rule of thumb for tool selection is basically to choose the most suitable tool for each material to be machined. The criteria are the cutting material of the tool, the tooth geometry, number of teeth and application parameters. Depending on the quantity to be machined and the required quality and tool life, it is better

to choose either a universal or a special tool.

Especially in the age of the so-called material mix with combinations of extremely different materials in an attempt to provide very special panel materials, new ideas are required.

Research results and experience at LEUCO show that VHW spiral end mills with roughing or finishing geometry or the combination of both have proven successful for many lightweight panels.

In LEUCO's new cutters for lightweight panels, a very close roughing tooth arrangement ensures reduced cutting pressure and, in combination with the finishing cutting edges, high cutting quality is achieved. The alternating spirals guarantee very good edge cleanliness on the top and bottom, and a special carbide ensures good edge life.



The new cutters are problem solvers for milling of honeycomb panels (plastic, aluminum), lightweight panels, plywood, and composite panels with a hard foam core.



In the new lightweight panel cutters, LEUCO combines closely arranged roughing teeth with finishing cutting edges. High cutting quality is achieved with long edge life.

The range of these new problem solvers initially includes two tool dimensions in diameter 12 mm, so that smaller inside radii are also possible. The Z=2+2 tools are available from stock with cutting lengths of 20 or 40 mm. Our customers thus have another highly interesting alternative for the processing of lightweight panels at their disposal.

DIAMOND FOR POWERTOOLS

DP FLUSH AND CHAMFER CUTTERS WITH THRUST RING

The hand router still finds daily use in many areas of furniture making, interior fitting and industry. Professional carpenters, assembly technicians or interior designers use hand-held machines where the more complex programming of a CNC application is not worthwhile or for final flush milling or chamfering of workpieces during on-site assembly.

If tools with a thrust ring are used, carbide-tipped cutters or tools with replaceable HW cutting edges are usually used. These are usually suitable for the wide range of materials to be machined, such as solid wood, wood composites, panel materials, MDF and plastics quite well.

However, the amount of time and material required can increase drastically very quickly if particularly abrasive materials such as Corian®, Varicor®, HPL, solid core panels or even

very hard laminates, such as glass laminates in the furniture sector, have to be processed.

For these applications, LEUCO is supplementing its range of hand routers with one DP-tipped flush cutter and one 45 chamfer cutter. Depending on wear, the chamfer cutter (187372) can be resharpened 1-2 times

The DP tips offer a much longer tool life and optimum cutting performance with maximum efficiency.

Both tools are suitable for use on hand routers with 8 mm shank mount. In the event of wear or damage to the thrust ring, the complete thrust ball bearing unit can be replaced quickly and easily, saving the user the time-consuming task of assembling individual components.

If the important application instructions for all DP tools are observed (careful use, gentle application and a uniform feed), then such cutters also utilize their significant tool life advantages in the best possible way.



With diamond-tipped Powertool cutters, users benefit from the much longer tool life and optimum cutting quality when working with abrasive materials.

A TOOL FOR EVERY APPLICATION

FLEXIBILITY AS STANDARD

Solid-core panel and facade material processors get complete flexibility with the two new diamond-tipped multifunction cutters from LEUCO.

With just a single tool, the user is able to join, mill cutouts, drill, countersink and chamfer.

Precise coordination of material, tool and application parameters for the application is the ideal solution for maximum productivity and efficiency in particular when it comes to a large number of pieces or daily use.

For one-off production, initial orders or small-volume production, which is often the case in project business, this often means one or more special tools with less than common dimensions, though. This could be, for example, through holes with or without a countersink in diameters 8.5, 9, 9.5, 11 or even 13. Naturally, with no chipping on the exit side.

Formatting, joining & cutouts small and large. A protection chamfer is also required at the top in some cases.

Lots of functions and lots of tools, purchasing costs, delivery times and tool changer positions are involved.

MULTIFUNCTION TOOLS FOR JOINING, MILLING, DRILLING AND CHAMFERING

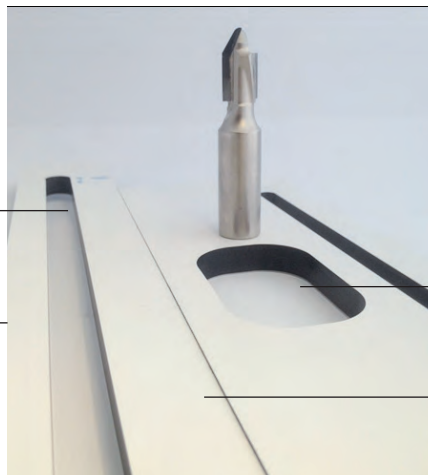
LEUCO is expanding its already comprehensive catalog range to include two smart, multifunctional tool solutions. Each of these new multifunction tools represents a broad range of applications, high flexibility and ease of use with a clear investment. The flexible cutters are listed in the catalog and available off the shelf as standard.

*Plunge-cutting/
plunging in Z*

*Formatting
Joining
60° chamfer*

Cutouts

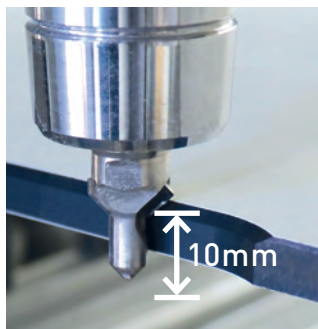
*Profile groove
R = 3*



DP multifunction cutter: The bigger brother

Dimensions: 16 dia. x 20/30.8 x 20 dia., Z = 2 + 1, 60° plunge tip, R = 3

Formatting, milling, chamfering and plunging in the Z-direction or plunge-cutting with a helix, cutout cutting or an R = 3 profile groove.



DP multifunction cutter: Plunge/chamfering cutter

Dimensions: 8/16 dia. x 10 x 16 dia., Z = 1 + 2, 45°: Plunging in Z with 8 mm dia. or even in a helix with no chipping on the exit side and expansion of the holes to almost any desired diameter. 45° cutting edges for clean countersinking of holes and chamfering of smaller or narrow cutouts. Ideal for common panel thicknesses under 10 mm.

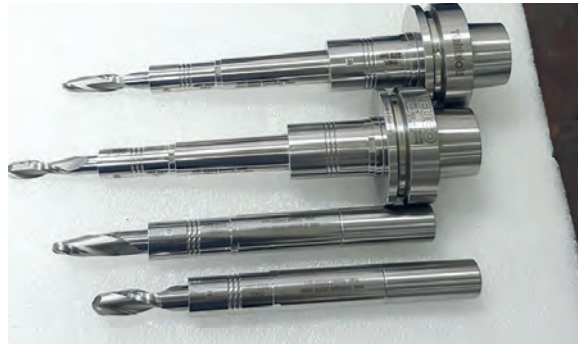
Right: Usage examples of this cutter: plunging, expanding, countersinking and chamfering

LEUCO CNC TIP

LONG CLAMPING CHUCKS OR EXTENSIONS?

Milling deep cavities and pockets requires long tool projections. Long or extra-long special tools made of highly rigid solid tungsten carbide are frequently used for this. LEUCO recommends two helpful alternatives where more cost-effective and generally more quickly available standard tools can be used:

- I Long to extra-long clamping chucks, with collet chuck technology or in the heat-shrink version
- I Tool extensions with heat-shrink, power-shrink or hydro-expansion technology



Very clever: TRIBOS extensions (A = 160 mm) enable the use of standard solid tungsten carbide or DP tools for the precise milling of preformed parts. On the other hand, the TRIBOS clamping chuck can also be used without extensions for standard applications with optimal quality.

WHEN DOES IT MAKE SENSE TO USE THE DIFFERENT TECHNOLOGIES? WHAT ARE THE ADVANTAGES?

Selection of the most sensible clamping system is primarily defined by the maximum possible interference contour resulting from processing.

WHAT IS THE MAXIMUM DIAMETER THAT THE CLAMPING ELEMENT MAY HAVE?

The advantage of long clamping chucks is their compact construction design, including the interface like the HSK63F. The collet chuck systems offer high flexibility with the shank diameters of the tools used. At LEUCO, this means that the patented ZETA clamping system with internal clamping nut offers a very small outside diameter (OD) of the clamping system in comparison to a conventional clamping system with an external clamping nut (OD: 60 to 63 mm). The tool change can easily be carried out by the user themselves.

CLAMPING ELEMENTS	OD	FOR SHANK DIA.	DIMENSION A
ER 16	29 mm	1 - 10 mm	76 - 150 mm
ER 32	48 mm	2 - 20 mm	60 - 200 mm
OZ 25	51 mm	2 - 25 mm	76 - 225 mm

EXTENSIONS: SLIMNESS TRUMPS

Tool extensions are predestined and designed for precise processing in hard-to-reach spots and where the smallest possible interference contours are required. This is why they exhibit an even smaller outside diameter. Small-diameter tools with a diameter of less than 12 are usually clamped.

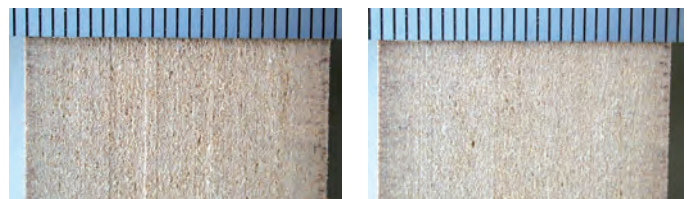
TRIBOS extensions are available in lengths ranging from 100 to 250 mm and have an outside diameter of 20 mm.

Heat-shrink extensions with a length of 160 mm also cover common clamping diameters from 8 to 16 mm. The outside diameter is 25 mm.

Both extension systems can be clamped in just about any precision tool holder, so they can be flexibly used in hydro-expansion, TRIBOS, heat-shrink or, if necessary, collet chuck systems as well. The clamping and unclamping of the tool in the extension occurs using a TRIBOS press or a heat-shrink device. Most users make use of the service provided by their tool supplier or tool service here.

By using long clamping systems and extensions, standard metal cutting tools can be used instead of expensive special tools. Both technologies exhibit the corresponding precision, concentric accuracy and clamping force.

The slim clamping system with internal clamping nut has a balance quality of G 2.5 and offers high running accuracy.



Cutting quality comparison with 19 mm MDF: standard collet chuck on the left, high-precision TRIBOS collet chuck on the right



SUCTION TURBINE FOR CNC

TOOL HOLDER, CHIP VACUUM SYSTEM AND COOLING COMBINED

One solution with many advantages for stationary processing is the patented AEROTECH technology, which involves a suction turbine being positioned about the milling cutter at all times. This turbine also acts as the tool holder as well as cooling the tools by generating a fast airflow of 80 m/s from the ambient air. The one-part compact construction made from high-quality and specially hardened steel provides the guaranteed balance quality of < G 2.5 and the resulting advantages of smooth running and safety. AEROTECH products can hardly be outperformed as they have a clear advantage over suction turbines which are composed of several individual components.

EXAMPLES OF USE:

PROCESSING WOOD-BASED PANELS SUCH AS MDF AND PARTICLE BOARD

The special features of the AEROTECH take effect not only particularly in Nesting processes but also in the case of processes that generate high levels of chips and dust such as the volume production of shutter grooves, door fillings, pockets in stair stringers, grooves or pockets in acoustic panels, milling of MDF, particle boards etc.

PROCESSING PMMA (E.G. PLEXIGLAS®)

As a general rule, Z1 tools with a draw cut are used to process PMMA to achieve optimum chip formation. With an AEROTECH, the number of cutting edges and therefore also the feed can be increased through continuous suction extraction of the chips. Cooling of the tool extends its service life. The draw cut of the milling cutter can be replaced by a pushing cut which can even cut the protective film on

the PMMA cleanly too. With Z2 or Z3 instead of the previous Z1, processing time is reduced significantly.

PROCESSING OF CFRP AND GFRP

When using the AEROTECH on thermosets containing glass fiber or carbon fiber, the principal advantage is that the jet of chips can be captured better, reducing the volume of sawdust in the ambient air that could otherwise get inhaled by operatives. Continuous cooling of the cutting edges on the tool substantially reduces the rate at which they get rounded off. This extends the edge life of the milling cutter and reduces the formation of burrs.

Example of MDF: Remaining chip quantities with AEROTECH (left) compared to conventional processing (right).



AEROTECH Hydro (right) for ultimate true-running accuracy of tools in high-performance processing.

AEROTECH Faceplate (left): Particularly when nesting MDF and particle board, small remnants can occur. The patented "Faceplate" Aerotech version prevents these remnants from entering and clogging the turbine. Faceplate is available in combination with the AEROTECH Uni-T and AEROTECH Hydro models.

AEROTECH Uni-T with collet technology: Specially developed precision collets are available for shank diameters (D) of 6 thru 16 mm.



An example of milling cutters in the AEROTECH system for CFRP processing (left): the bundled chip jet can be seen clearly to be heading for the exhauster. Right without AEROTECH, milling with diffuse dust distribution

SHARP AND NEAT

LEUCO t3 SYSTEM CUTTERS

With its newly devised 't3 system cutter', LEUCO enables jointing, hemming and sizing of solid wood and wood-based materials even in extremely confined spaces. At a high level of milling performance, the triangular turnover knives on these cutters can create chip-free surfaces and their compact construction equips them perfectly for the milling of freeforms, e.g. for staircase construction.

The time-consuming task of reworking irregular surfaces and edges after the milling process is not one of the most popular of wood processing tasks. The innovative t3 system cutter from LEUCO's comprehensive range of milling heads does more than simply provide a wide range of potential uses: its special arrangement of cutting edges, in contrast to conventional spiral cutterheads, can create chip-free jointing and hemming surfaces. This new system finds its field of use on CNC machines for solid wood processing and on joinery machinery in applications ranging from demanding craftsmanship to industrial applications with high output requirements.

This innovative arrangement of cutting edges on the t3 from the LEUCO thinktank has already been submitted by its manufacturer for patent protection.

It only has one incisive drawback...

The editor in chief of HOB magazine, Peter Schäfer, asked LEUCO product manager Alexander Steinhart some probing questions about how the t3 system milling cutter came into being.



Newly devised: the special arrangement of cutting edges and the rounded edges of the triangular turnover knives equip the t3 perfectly for the chip-free milling of freeforms

Your t3 milling head cutter has established itself on the market within a short period of time. Did you anticipate this level of success?

After the initial practical tests, we were convinced that it would be a success, but we did really expect our t3 to carve itself out a robust reputation quite so rapidly.

What prompted your development department to depart from the conventional miller path and to blaze entirely new trails in the arrangement of cutting edges?

The initial spark actually came from a customer enquiry. On conventional millers, whether square or triangular, the outer cut-

ting edge faces outwards and this creates ragged edges. On the t3, all cutters face the plate at all times, meaning that you can joint as well as mill, and it always delivers clean, high-quality surfaces and edges requiring absolutely no time-consuming rework.

How long did it take to develop this milling head, from the idea to the launch of volume production?

It all happened relatively fast. All in all, inside about six months.

For a new concept, that is a remarkably short time – were no difficulties encountered in the course of development?

Not really. Our many years of experience and extensive expertise stood us in good stead in terms of the material, the knife arrangements, the angles and the forces involved – basically we knew what needed to be done to process wood, a wonderful but unpredictable natural product with properties very different from aluminum or plastic. The initial results confirmed this, whether working with hardwood or soft wood, including timber with many branch knots.

What distinguishes the t3 system milling cutter from conventional cutters with a square or triangular reversing plate? Which special features set it apart?

With an Allen key, all 18 knives can be removed, cleaned and replaced in about 10 to 15 minutes



Alexander Steinhart, t3 system product manager at LEUCO

As I mentioned before, the other milling cutters available on the market invariably have one side that faces away from the wood, whereas on our t3, all three cutting inserts always face the wood. This milling cutter can machine any kind of solid timber for furniture-making quickly and cleanly. There is almost never any need for rework because the specialist design of our slim shank-type cutter with its ingenious arrangement of knives and blades delivers very precise and accurate results, only leaving very filigree shavings...

You have just mentioned furniture-making. What benefits does it deliver in other sectors, for example in staircase construction? With its compact construction, it is predestined for the precise, fast processing of one-off workpieces and the milling of freeforms such as round arches or string wreaths.

How about tool life - is it durable?

Based on our experience to date, tool life is about the same as conventional milling cutters, regardless of whether they are triangular or square.

That sounds very cost-effective, especially since there is no need for rework – how user-friendly are then, for example when tools need to be cleaned or replaced?

Very simple with a standard hex-head Allen key. The knives centre themselves during installation, with the help of a two-sided guide. It only takes about 10 to 15 minutes to remove, clean and replace all the plates.

You developed the t3 in response to a customer enquiry. What has been the response to your new development up to this point?

Positive, entirely positive. Not a single milling cutter has been returned to us – many custom-

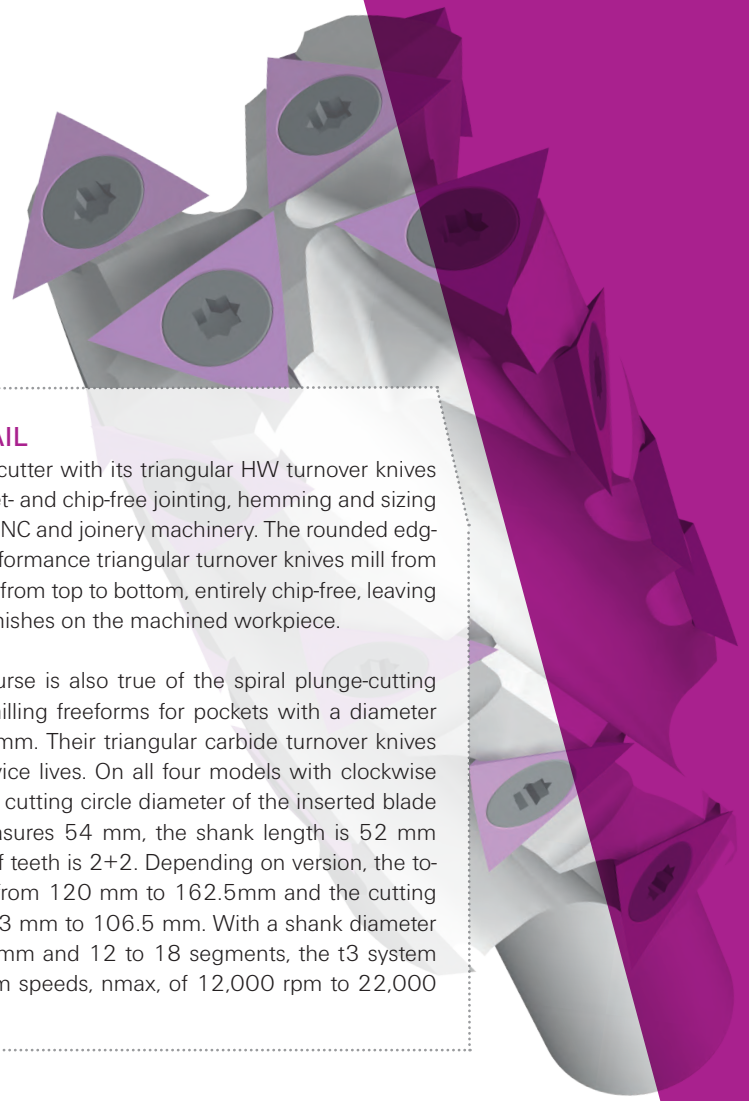
ers wanted to hang on to them right after a demonstration by our Sales team! It really only has one incisive drawback: you need to wear gloves when you pick it up because the knives are so sharp...

Excerpt, original article was published in the HOB magazine, March 2021 issue

THE t3 IN DETAIL

The end milling cutter with its triangular HW turnover knives is suitable for offset- and chip-free jointing, hemming and sizing of solid wood on CNC and joinery machinery. The rounded edges on the high-performance triangular turnover knives mill from bottom to top and from top to bottom, entirely chip-free, leaving absolutely no blemishes on the machined workpiece.

The same of course is also true of the spiral plunge-cutting of the t3 when milling freeforms for pockets with a diameter of more than 60 mm. Their triangular carbide turnover knives achieve three service lives. On all four models with clockwise cutting action, the cutting circle diameter of the inserted blade milling cutter measures 54 mm, the shank length is 52 mm and the number of teeth is 2+2. Depending on version, the total length ranges from 120 mm to 162.5mm and the cutting width measures 63 mm to 106.5 mm. With a shank diameter of 20 mm or 25 mm and 12 to 18 segments, the t3 system achieves maximum speeds, n_{max}, of 12,000 rpm to 22,000 rpm.



PLANT CAPABILITY BETTER UTILIZED WITH LEUCO TOOLS

DYNAMIC DUO



Space-saving: The Krüsi MC 15 was installed "in the wall" and the control cabinets above the machine.



Swiss made: Joinery machines from the Swiss company Krüsi AG come equipped from the factory with Swiss LEUCO tools, because both products are matched to each other.

Over the decades, the recently installed MC 15 is by no means the first Krüsi joinery machine at Nägeli. For the Appenzell-based woodworking shop, this is now the third "Krüsimatic" - pardon - this time it is an MC 15. It can process beams from six sides without turning. Krüsi joinery machines come from the factory equipped with tools from LEUCO - not without reason.

Even today, Stefan Nägeli still raves about the particularly simple operation of the first Krüsimatic: "The control system was sensationally simple, and after a short introduction, practically anyone could work with it. In the timber construction company taken over from his father Hannes Nägeli in 1988, beams or stud walls were initially still joined by hand: "In 1998, he purchased the first joinery machine, and at the beginning of 2021, we were able to put our third "Krüsimatic" - pardon, it's now an MC 15 - into operation," with which, Nägeli adds, they are "once again very satisfied.

SWISS SUCCESS STORY

The success story of Krüsi Maschinenbau AG began in 1961 with a mechanical workshop founded by Fritz Krüsi. In the mid-1980s, they designed the world's first CNC joinery machine with a tool changer, and the current MC 15 model is a very powerful modular system "that can be equipped with different units, loading and unloading stations according to customer requirements," explains Krüsi project manager Pascal Stehli. According to Stehli, the MC 15 is a special machine concept: "The workpiece is moved, not the machine head. This has considerable advantages: "The unit carriers are therefore very stable and the tools can be guided very precisely. The individual units are permanently loaded and movable in five axes: "This makes the machine very fast even for complex machining operations,

we don't need any tool changes, and we can achieve high feed rates and high machining quality due to above-average stability of the unit carriers." The Krüsi MC 15 Q2 installed at Nägeli Holzbau also has two such unit carrier beams: "This enables six-sided machining without having to turn the workpiece. The upper unit carrier machines five surfaces - top, the two longitudinal surfaces and the two end surfaces - except the bottom, while the lower unit carrier machines the five surfaces, except the top, from the bottom." Which apparently makes the unit very nimble - a shifter, no matter where and at what angle it is placed on the beam, is literally made in seconds, and to follow the milling of a dovetail with the naked eye, one would almost have to use slow motion.



The workpiece is moved, the unit carrier is stationary.



After a short introduction, practically every employee can work with the Krüsi, Holzbau Nägeli is satisfied.



Andreas Brunner (LEUCO)



Good cooperation: Stefan Nägeli



Pascal Stehli (Krüsi)

EFFICIENT LOADING AND UNLOADING, SPACE-SAVING

To put it bluntly, "shooting the workpieces through the machine" would be of little use, however, if loading and unloading were not at least as efficient, Stehli is convinced: "We therefore place particular emphasis on these areas; the customer can design working lengths, buffers, and the like precisely to his needs." For example, in Nägeli's system, residual pieces can be discharged again in the direction of the material feed, and placed in a buffer for later use.

To save space, the plant at Nägeli was virtually built into the wall: "This allows Nägeli to use almost all of the hall space for handling large parts and material quantities." Part of the machine width was pushed outward "through the wall," so the feed tables lie close to the hall wall. According to Stehli, how the auxiliary units are accommodated is very "special": "We have located the switchgear and hydraulic cabinet, as well as the pneumatics of the machine on the "upper floor" above the plant."

FIVE UNITS

With its five units, the Krüsi MC 15 Q2 can process beam cross-sections of up to 650 x 300 mm: "We have two two-spindle units, each with a rabbeting cutter head and a 40 mm roughing cutter, then two four-spindle units with various drills, finishers and dovetail cutters. In addition, a high-speed gearbox can be mounted to increase the speed from 7,000 to 15,000 rpm, as well as a saw unit."

More on YouTube:



The tools can be controlled in five axes.



From all sides, the workpieces can be processed from the top...



...and from the bottom unit carrier.

SWISS MADE

The cooperation between two Swiss quality brands is actually quite obvious, says Andreas Brunner, LEUCO Sales Manager in Switzerland: "Our LEUCO tools are designed for the highest possible cutting performance in the Krüsi systems, in order to cope with the high feed rates that can be run with these machines and, above all, to make full use of the available capability. After all, you don't mount the tires of a compact car on a Formula 1, Brunner laughs.

WEAR-RESISTANT AND HIGHLY PRECISE

The rabbeting and grooving cutter head, for example, is one such "Swiss made" quality product, he explains: "We have an aluminum base body here in a beautiful (LEUCO) color" he grins, "but this color is not just for looks, it has a purpose above all: the anodized layer gives us a denser and harder surface, which improves the wear resistance of the tool body." The pre-cutter plates were arranged in a spiral around the head: "This reduces the cutting pressure, even when we are cutting hard, and the tool life improves noticeably." At the same time, he says, the cutting edges of the turnover knives do not have rounded edges as usual: "as a result, they fit very precisely because they are optimally guided on three sides."

CUTTER WITH HIGH MILLING PERFORMANCE

The 40 mm HSS roughing cutter was developed in cooperation with Krüsi for a special fixture, Brunner explains: "The profile has good chip breaking and a high "feed rate," which we need to machine effectively at the high feed rate of the Krüsi."

For the dovetail cutter as well, the main development goal was high cutting performance: "This cutter is a two-flute cutter, which allows us to split chip removal and reduce the cutting pressure." It goes without saying that all the cutters are not only powerful, but also enable a particularly high machining quality, says Brunner: "In the case of the dovetail cutter, for example, the chamfers have already been integrated into the profile, which enables a fixed and finished joint with just one milling operation."



The roughing tool was developed by LEUCO especially for Krüsi in order to utilize the high performance capability.



Alexander Steinhart (LEUCO)

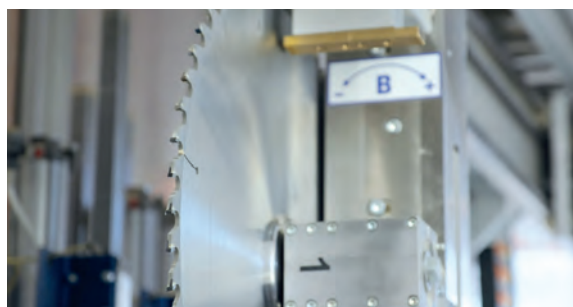
FIVE TEETH THAT CUT AND PLANE

One of LEUCO Product Manager Alexander Steinhart's specialties is the G5 joinery saws: "With the G5 saw blade, both longitudinal and cross-cutting are possible with good cutting quality - virtually as if planed. The special G5 tooth geometry has various advantages: for example, very low cutting pressure, resulting in a very light cut even with large material cross sections." It is therefore possible to run high feed rates with these saws, assures Steinhart: "With very low tear-out and a long service life of the saw." The principle is as simple as it is obvious: "We arrange one trapezoidal tooth as a "guide tooth", followed by four change-over teeth with special tooth angles. The leading tooth does the 'rough' cutting, the following teeth cut while pulling and planing the cut surfaces, as it were." In this way, two things can be achieved, he says: "On the one hand, a clean, 'planed' cut across the grain, and on the other hand, a high cutting speed along the grain without the saw getting hot." Another pleasant side effect is "that you don't need a longitudinal saw unit and another cross-cutting saw unit, as with conventional joinery machines, but the Krüsi can cut in any direction with just one saw unit."

NEVER CHANGE A WINNING TEAM

The machine was supplied with LEUCO tools as original equipment, Nägeli says: "This works out very well. We are satisfied with the speed and the cut surfaces." When it comes to tools, Krüsi works closely with LEUCO, says Krüsi Project Manager Stehli: "If we need newly developed or special tools, LEUCO always helps us. We are very successful with each other, which is why we equip our machines with LEUCO from the factory."

Stefan Nägeli sums up accordingly: "Krüsi and LEUCO work well together, we won't interfere and change that."



The G5 saw can cut "like planed", lengthwise and crosswise.

FLEXIBLE USE WITH HIGH PERFORMANCE

ONE INSTEAD OF TWO: NEW FINGER JOINT CUTTERS FOR ALL PU GLUE TYPES

With a new finger geometry, LEUCO is adding an innovative cutter to its program that can be used with both fiber-containing and fiberless PU glue. The cutter is ideal for companies that make joints with both PU glues, but also provides many advantages for all other companies.

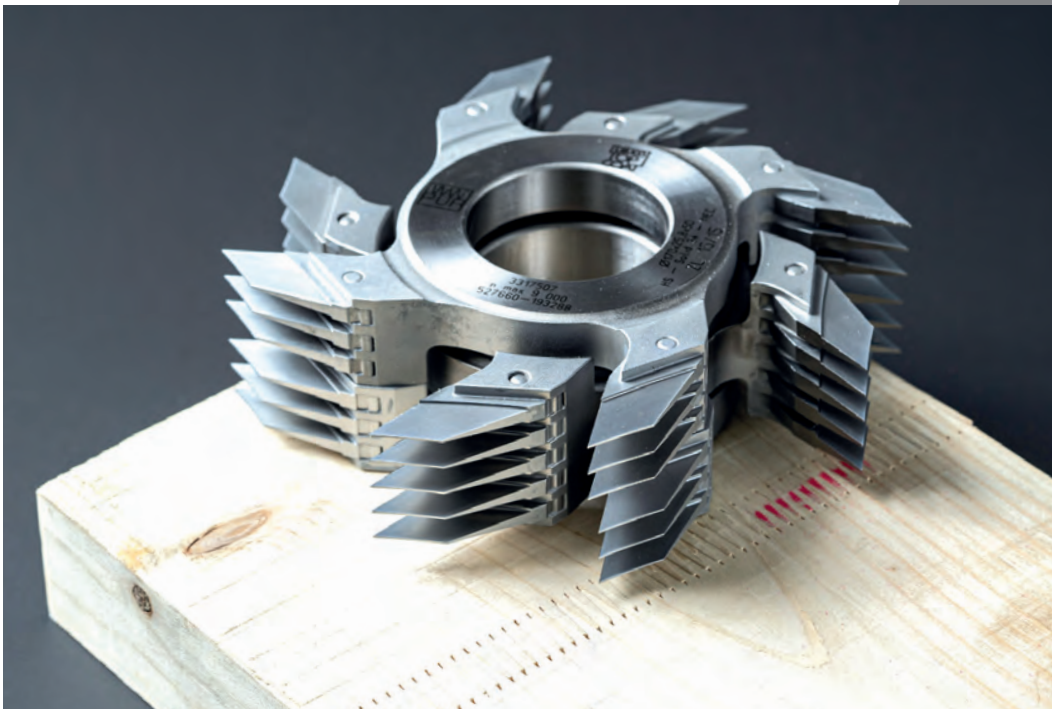
Due to the universal application possibilities, the machine operator will no longer have to change the cutter in the future, i.e. machine downtimes will be reduced. On the other hand, there is no longer any danger of mixing up the previously different cutters, which reduces the reject rate.

In addition, the optimized geometry increases the stability of the fingers and significantly minimizes edge splits, increasing the output quality.

GREAT COST-EFFECTIVENESS

Compared to traditional HS finger joint cutters, the edge life of the new finger cutters is up to 5 times as long. LEUCO achieves this through the combination of the cutting material Solid 34 and the LEUCO topcoat coating. The high bending strength of the cutting material reduces the risk of tooth breakage while maintaining the same finger jointing quality compared to standard designs. This is true even at high feed rates thanks to double the number of teeth compared to the standard design. The benefits of the LEUCO topcoat coating are retained in full after resharpening.

The new version ZL 15/15 actually Z4 is available from stock. Other versions are available on request. To achieve optimum strength in finger joints, all influencing factors such as material, glue, machine or tool must be optimally matched. LEUCO tool experts always advise finger jointing operations after taking into account all influencing variables.



One cutter instead of two as previously: The new finger geometry is used for cutting joints for fiber-containing and fiberless PU glue in knotty softwood. The new cutting material of the cutters together with a coating as well provides up to 5 times the edge life.

EXTREMELY HIGH ROTATIONAL ACCURACY UP TO A 300 MM WORKING HEIGHT

PROFILED QUALITY PRODUCT



| Markus Schindhelm from LEUCO and Dominik Strobel (from left to right).

Automatic moulders are a common machine, but a beam planer that can profile glulam beams up to 300 mm in impressive quality is not something you see every day. This "miracle" was made possible by extremely tight tool tolerances of a few thousandths of a millimeter, with which LEUCO pushed the limits of what was technically possible.

Of course, glulam beams are profiled elsewhere in one go. But what father and son Strobel get out of their recently built beam planer is quite remarkable and could already inspire one to use adjectives like "extreme". Hörden Holzwerke in Gaggenau, founded in 1985, specializes in the production of construction timber, quality laminated timber, glulam con-

struction timber, cross laminated timber, blockboard and glulam beams, and has gained a good reputation.

Not only can you finish plane on four sides, with chamfering or separation in the finishing planer, explains Dominik Strobel, Managing Director, but you can also "add log home profiling directly in the planer." Sounds simple, but it's not necessarily so given the dimensions the plant can handle: Up to 300 mm working height is possible. And the length of these vertical change shafts is also the point, says Strobel: "The line can run up to 120 m/min, imagine the effect

on quality from an imbalance of the profile tools? After all, these are not planing shafts turned from solid stock, but throat tools on an axis." However, we wanted a precise fit of the glulam beams, as well as the most attractive surface possible, continues Strobel: "We asked several tool manufacturers, but only LEUCO had the confidence to meet our tolerance specification of 2/100 mm for a log home profile."

TOOL WITH ONLY 5 μ TOLERANCE

In order to meet the customer's specification of 2/100 mm, a tool was developed for Hörden "whose properties outshine everything we have developed and manufactured to date," says Markus Schindhelm, LEUCO Segment Manager with obvious pride. "In order to manufacture a tool to the tolerance required by the customer, it is necessary for everything to be made with high precision. That means both the pockets and the cutters have to be manufactured within a range of less than 5/1000 mm." And five thousandths is a high level of accuracy, he adds.



| The pocket and cutter tolerances are extremely tight.



| Hörden Holzwerke achieve an excellent surface quality of the milled logs thanks to the tools from LEUCO.



| Good fit and virtually no chipping are the result of LEUCO's efforts.

More on YouTube:



TOOL SET WITH VARIABLE PROFILE HEIGHT

Using a Vario 100 tool set as an example, Schindhelm explains the design: "The Vario 100 is adjustable over a range of 90 - 270 mm block height." In addition, he says, it is also still possible to "switch on and off" details such as the chamfering, which means "I have the option of customizing the profile between 90 and 270 mm, depending on what is to be manufactured."

This is achieved with a combined tool set, in which individual tools are assembled according to a diagram to form various profile configurations and block heights (- the machining height of the tool). The shaft has a total length of 500 mm: "up to the largest profile, these shafts are utilized almost completely."

TIGHT TOLERANCES FOR HIGH ROTATIONAL ACCURACY

The specifications - profile production tolerance, cumulative tolerance of the individual tools - would therefore require an extremely precisely manufactured tool, Schindhelm explains, "but the very tight tolerances also promote very high

rotational accuracy at the same time." And that, in turn, is the key to virtually vibration-free operation of the long vertical shafts "and thus fine planing quality." Such precision, he says, is "very difficult to implement technologically and for the machine tools used to produce these tools, and it took a lot out of us." But the above-average rotational accuracy has an additional "side effect," Schindhelm says: "Extremely long tool life can be achieved." Which was a good thing, because that, along with the surface quality of the beams produced, was one of the main requirements of the Hördener Holzwerke lumber mill, smiles Schindhelm.

REQUIREMENTS FULFILLED COMPLETELY

In order to produce marketable glulam beams, attention must be paid to the tolerances of the product, says Managing Director Strobel: "We currently produce glulam beams up to 13 m long. When you make beams of this length, you have to pay very close attention to the tolerances. In other words, our main focus was on: 'Can the tool manufacturer meet our requirements?' And we were really highly satisfied with LEUCO. They accepted the challenge and were actually able to meet our needs 100%."

Strobel points out that the company had already worked successfully with LEUCO in the past: "For example, in optimizing our finger jointing line. In that case, LEUCO was able to achieve a noticeable improvement in time fit and quality, while also increasing plant performance."



The finished planed profiles have a tolerance of 2/100 mm over lengths of up to 15 m.



Change shafts of the planer fitted with Vario 100 tool sets. A block height of up to 300 mm can be machined.



In the new finish planing hall of Hördener Holzwerke.



The line dresses the sides, then profiles and planes the top and bottom.



With two vertical shafts, the planer can process profiles in one go.

TOOTH GEOMETRY IS EVERYTHING WITH A FINGER JOINT

LEUCO Segment Manager Schindhelm explains how it was possible to achieve better finger quality and more output: "We were able to make some optimizations for Hörden-er. By using different angle geometries - for clearance angle as well as for flank and effective cutting angle - we were able to achieve lighter cutting pressure in the line, lower noise emissions and, accordingly, improved tear-out quality in the finger joints."

Here, he says, the lamella width is of particular interest: "The higher the lamella in the line, the more decisive the cutting pressure becomes for the performance of the line. And the performance of the system, the performance of the motors, is then again decisive for the feed rate that can be run." That means, he says, LEUCO has also been able to "stabilize the tool life and make some gains in the tear-out behavior of the cutter through the individual optimizations of the milling tool, for example through

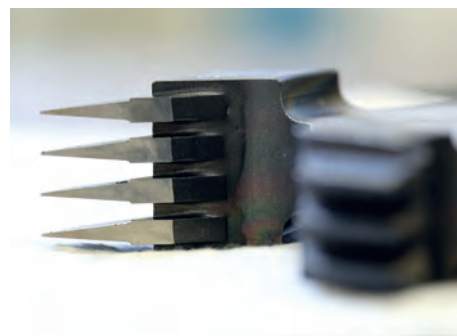
different cutting times." You can hear whether a finger jointing cutter has to work hard, says Schindhelm: "And it can also be measured by the power consumption of the motors and the achievable feed rates. Optimizations to the tooth geometry can therefore influence system performance in a positive way."

"VERY GOOD COOPERATION"

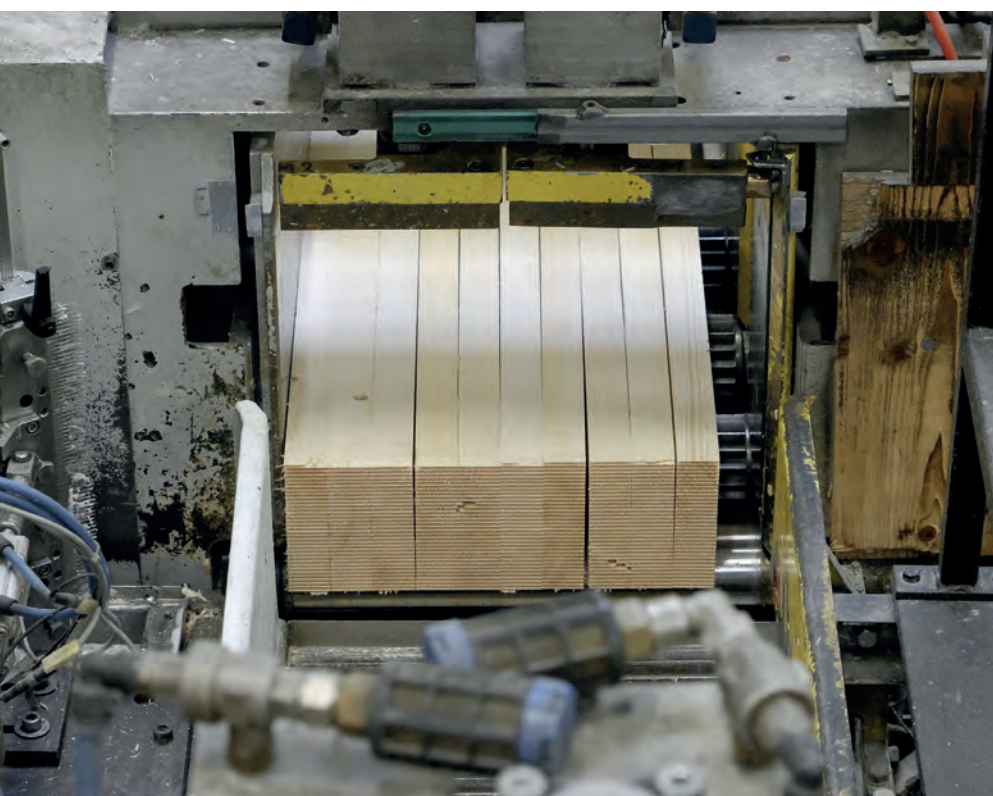
Dominik Strobel values good relationships with customers and suppliers: "This is important to us, and with LEUCO in particular we have a very good working relationship. Short distances, quick contact with our contact persons, in addition to the quality of the tools, it is also important to us that this works as we actually imagine it."



Tolerances of a few thousandths allow the high rotational accuracy, which results in a very nice surface quality of the milled logs produced.



The details of a finger jointing cutter can make or break finger quality and performance.



| *The wider the individual lamella, the higher the cutting pressure.*



Reduced cutting pressure means less motor power, a higher feed rate, and it's quieter, too.



| The LEUCO UniType (left) and ProType cutters (right and in the middle) are designed especially for thin-walled composite components.

PCD MILLING TOOLS FROM LEUCO

OPPORTUNITIES THROUGH USE OF DIAMOND-TIPPED CUTTERS

In the automotive industry, polycrystalline diamond (PCD) is still a rarely used cutting material when machining fiber-reinforced plastics. However, for those who need long edge life and the best surface quality, LEUCO offers the right solution with its PCD-tipped UniType or ProType cutters.

When milling fiber-reinforced plastics (FRP), most cutting materials quickly reach their limits. The cutting edges of carbide cutters can be so worn after only a few running meters of material that they no longer cut cleanly or the dimensional accuracy of the component can no longer be maintained. Even the most modern CVD diamond coatings offer only a limited remedy here.

In the automotive industry in particular, very thin-walled and geometrically complex components, which are produced in medium to large series using the RTM process, usually have to be processed. The classic PCD cutters, which are otherwise used on a large scale in engine block production, for example, are unsuitable for this purpose because they do not meet the requirements for smooth running. Negative consequences include vibrations, tool failure as well as poor cutting quality and, at the same time, insufficient edge life.

In contrast, LEUCO offers PCD cutters that are adapted to the special requirements of

machining FRP in the automotive industry. Through use of cutters with many teeth and sophisticated tool geometries, it is also possible to cut unstable and thin components without vibration and with minimal cutting forces. Only in this way can the advantages of the extremely wear-resistant PCD cutting edges be used fully.

In other fields of application as well, PCD cutters from LEUCO are always adapted to the individual requirements so that the diamond-tipped blades can be utilized to their full potential. As a result, LEUCO has an economical solution for companies that require long edge lives in conjunction with high quality when processing FRP.

LEUCO is a leader when it comes to manufacturing machine tools for woodworking - with decades of experience. Since both wood and FRP are inhomogeneous composite composites that behave in an amazingly similar way in terms of machining, LEUCO can offer almost unrivaled possibilities with its PCD cutters optimized for FRP.

AN IMPORTANT ADVANTAGE HERE IS LEUCO'S PROCESS CONSULTING.

This is because there are many basic conditions to be observed when economically finishing or roughing with milling tools: What is the application? Do you want to cut, trim, groove or is copy milling the main task? What

is the primary material to be processed? Which machine and which clamping devices will be used? Cycle time requirements, workpiece clamping and much more. LEUCO offers various types of milling cutters, some of which can be used universally while others are designed for special applications, such as machining aramid fiber-reinforced plastics (AFK).

PCD CUTTERS FROM LEUCO

FINE FINISH PLUS LONG EDGE LIFE

A supplier to the aircraft industry is now achieving its goals in the production of CFRP stringers: exceptionally smooth surfaces with long cutter edge life. The solution: two complementary PCD tools from LEUCO. They easily meet both requirements.

Stringers are long, profile-like braces that reinforce aircraft fuselages, among other things. The stringers consist of CF-PEEK – carbon fibers with a thermoplastic PEEK matrix. The challenge here is to achieve the required extremely smooth surface with a surface roughness value (Ra) of less than 3.2 µm. This surface quality can certainly be achieved with some tools available on the market. However, the cutting edge wear is then too high to meet the quality requirements over an extended period of time.

The combination of roughing and finishing with PCD cutters achieves the goal in stringer production.

The supplier tested a combination of a roughing and a finishing tool recommended by LEUCO. This brought the breakthrough: Combined machining with these PCD tools significantly extended tool life. The surface roughness value of less than 3.2 µm was no problem for the roughing and finishing tool combination.



PANELING AND STRUCTURAL PARTS WITH CLEAN VISIBLE EDGES

DP BALL END MILLS

Over the last few years, fiber-reinforced plastics have grown increasingly important in the automotive industry. Whether as visible paneling parts in sports cars or as structural parts in electric vehicles, fiber reinforced plastics, once the supporting actor, have now taken over the lead role and are being touted as a top-selling feature by many manufacturers. However, this shift has not taken place without effort, many companies are aware of the challenges that can emerge in the machining process.



With this in mind, LEUCO'S broad assortment of ball end mills offers the ideal tool solution for machining both block materials in moldmaking as well as composite materials with abrasive fibers.

These milling tools are used, for example, to machine connection points or the surfaces of CFRP RTM parts in automobile manufacturing. LEUCO uses a particularly wear-resistant PCD type to achieve a reliably consistent milling quality. In addition, LEUCO production applies the most modern manufacturing methods to create the required sharpness in all of its ball end mills to produce a clean cut. A good surface quality is also ensured by a minimally alternating shear angle in the cutting edges while simultaneously having no impact at all on the smooth running. All these features have turned what seems like a simple tool into a sophisticated and targeted industry solution.

Diamond-tipped milling cutter for milling clean visible edges on paneling and structural parts with very long edge lives



The traffic light system shows green for tool store, yellow for currently on the machine. In the case of red, the tool is currently being serviced by the tool manufacturer.

be created manually in Twinio. The customer can create his own individual parameters for each tool. These possibilities provide the greatest possible flexibility in tool management.

AUTOMATED MACHINE COMMUNICATION

The first machine types are already connected to Twinio. In this case, the exchange with Twinio takes place via the machine. All tool data required for controlling the machine is transferred to the control system. Edge life, hogging volume and the number of cuts are automatically transferred to Twinio.

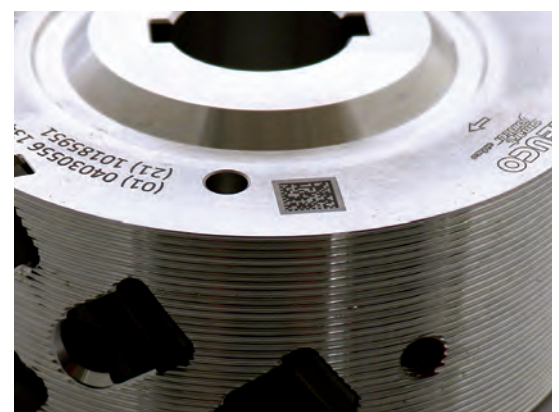
This interesting scenario shows us where the journey is headed. Communication between machine and tool will continue to develop. Additional machine types are being added, so that in the future it will be possible to speak more and more of a standard here.

Twinio provides the basis for this with the management of serialized tools. Twinio displays the status of how many meters have already been produced with the tool compared to an individually definable limit value in charts.

FORWARD-LOOKING NETWORKING

Analog tools together with digitally collected production data allow a detailed analysis of the tools. Performance, actual condition and predictive maintenance can be visually displayed and performed.

LEUCO lasers a data matrix code onto each of its tools.



DIGITIZATION AND SERIALIZATION OF TOOLS TOMORROW'S TOOL MANAGEMENT

In the future, tools will have a digital twin. The Twinio app from the Tapio company makes it achievable based on the relevant parameters - digitally and physically. A traffic light system indicates whether the tool is currently ready for use, is on the machine or is currently being serviced by the tool manufacturer. All possible on a smartphone, computer or tablet. LEUCO supported development of the app by Tapio with its tool and process expertise. The first customers are already successfully using this digital tool management system.

What a day! The production schedule is already tight and now this order. "Can you give me a minute?" in the past, sweat would have broken out on the foreheads of many production managers and machine operators. Now the answer is simply: "Yes!". You reach for your smartphone. Enter the required parameters and the corresponding tools appear in the display. They are all marked by a colored dot so that the location of the tools becomes transparent at a glance.

DIGITIZATION OF TOOL MANAGEMENT

Basically, Twinio is digital management of the real tool. This is how the app works: Previously, there was the tool companion

card, on which all important parameters are shown. With Twinio, the user now scans the tool into the app via a data matrix code.

The code is lasered onto the tool. Behind this is a unique serial number for corresponding identification in Twinio. LEUCO provides all data for this tool automatically in digital form in the app. On the one hand, this includes static master data of the tools, such as the number of teeth or also safety-relevant parameters such as the collision dimensions or also the maximum speed. On the other hand, these data are the diameters, lengths and, for some types of tools, cutting widths that change after each tool repair.

The information is stored by LEUCO directly in Twinio. This means that users can access it wherever they are needed - on their end device, in the tool store or at the machine. However, since not all tools are yet clearly provided with a data matrix code, LEUCO subsequently offers its customers the option of having their tools "upgraded" for digital management by the repair department.

Thanks to Tapio's open ecosystem, other tool manufacturers are already connected to Twinio. Tools from manufacturers who are not integrated in the ecosystem can also be managed in Twinio. For this purpose, a tool can

LEUCO GB CELEBRATED 40 YEARS

1981 - 2021 

LEUCO GB was incorporated into the LEUCO Group of companies on the 21st May 1981, having previously sold the LEUCO brand of products through Arpal (Engineers) Ltd who at the time were also agents for IMA, and various other machinery companies.

Terry Ives was the Managing Director at that time and grew the company from zero sales to 4 million Pound by 1999, LEUCO GB at that time had 16 employees and was a selling company dealing with end users and dealers, and from day one LEUCO GB made a profit.

In 1999 the group purchased Stehle, Stehle UK was moved to Bishop's Stortford. UK Terry Ives was Managing Director of both companies although he took a back seat for LEUCO that year, looking after just Stehle UK. In March 1999 we purchased a small company called Surecut

which became our first service centre in the UK it was based in Cleckheaton near Leeds, which is in the North of England, up to that point LEUCO GB was the only LEUCO company without a service centre.

We invested in TCT saw grinders with loaders, and two diamond machines as well as the manual machines, which were already there.

I had joined the company in September 1987 as area sales manager covering the South of England and Wales. In 2000 I officially became Managing Director of LEUCO GB, in October 2000 we opened our second service centre in Chipping Sodbury, near Bristol in the South of England. We only invested in TCT saw grinders with loaders and manual machines for TCT all diamond service was shipped to the Cleckheaton site, the loader machines

helped us to keep the staffing levels down to a minimum in both service centres. Terry Ives subsequently retired in May 2003, there has only been two managing directors at LEUCO GB since 1981 and we have never failed to make a profit.

*Steve Limbrick
Managing Director LEUCO Ltd.*



25 YEARS LEUCO AUSTRALIA PEOPLE ARE AN ASSET

1997 - 2022 



LEUCO Australia Headquarters in Sydney/Revesby: MD Neil Staggs (4th from right) and the service team

1997 looks like a long time ago, but really time goes so fast it seems like only yesterday we made the change from Sydney saw works to LEUCO Australia it was a big move for the owners at the time.

For all of us it was quite a big step, similar to moving from second division to the big game, becoming a factory team, a big player, big brand name with a

great reputation, excellence in quality, factory support, it was all a little overwhelming.

The benefits were widespread and the service to our clients lifted to the next level, from the contact to technical advice, expertise and all other benefits of being a factory company.

In the past 25 years, we have seen and undergone many changes, like establishments of LEUCO

Australia in Adelaide (South Australia), Brisbane and Melbourne (Victoria).

Today we have 4 service facilities and 40 staff. Many staff have been with the company in one form or another for over 25 years, like all companies I believe staff is what has made us a success.

The industries we serve have also gone through many changes. Many industries have moved operations into Asia, included in this is the furniture industry, shop fitting, commercial furniture and so on, as a result e.g. the custom cutter profile head market no longer exists.

We moved more into flat panel / nesting as the market moved, we adapted and remained



Branch LEUCO in Melbourne

LEUCO CHINA

25 ANNIVERSARY

1997 - 2022 



| Domotex 2021

Since establishing the service point in Shanghai in 1997, LEUCO has developed its business in China for 25 years, developing from a pure service point into an integrative supplier for woodworking tool package solutions.

In 1997, we co-operated with Huili Group to establish a service center in Pudong, Shanghai. At that time, there were around 12 employees. We provided the DP tools service to the market only. All new tools were imported from Germany headquarters. With good quality, LEUCO China became the trustable partner of many customers. Sometimes, the customers even made the line waiting for our serviced tools by cash trading.

With the development of China market, LEUCO's business developed fast and steadily. In 2006, LEUCO China moved its office to

Taicang, Jiangsu and expanded its range to new tool production and service.

The growing process was not always smoothly. In 2008, the worldwide financial crisis happened without any warning. LEUCO China also faced a harsh business environment, and the demand shrunk dramatically by more than 40%. Although LEUCO still trusted China market, with strategical insight, LEUCO decided to invest in more highly qualified production capacity to meet the future demand. The afterwards fact witnessed this wise decision. In 2009, LEUCO China quickly caught the recovering market demand and developed very well. In 2015, the market had a similar situation to the financial crisis again; LEUCO China still got through smoothly.

In 2022, at its 25th anniversary, LEUCO China can provide DP and TCT tools' service and DP new tools' production for the Chinese market. Currently, LEUCO China has more than 100 employees. LEUCO Group and its international technical platform and expert support, LEUCO China can assure high quality, global trends, timely delivery, on spot consulting, and all-around solution capability. Apart from the production base in Taicang, Jiangsu, LEUCO China also has set up service centers in Danyang, Dongguan, Wuxi, and Yuyao to provide close and timely customer service.

As the words of our HQ in Germany and Mr Udo Leiber (Managing Director of LEUCO Asia), LEUCO China has set up a flag; our target is to realize 100 million RMB sales turnover and profitable growth in near several years.

To implement this flag target, LEUCO China will expand its factory space soon, buy more high-tech machines, upgrade our ERP system, and get into a smart production base for the furniture and flooring industry and the composite material industry.

With the wise decision-making from LEUCO top management and solid implementation by local employees, we trust that LEUCO China shall realize its target in the strategic way of trendsetting, innovation, and reliable development!

Tony Yuan
Managing Director

ned dominant, and then journey down the path of nested base manufacture. With lots of hard work and help from our friends, we have been able to remain a market leader in this segment as well.

We have lots to do in the next 25 years to ensure we stay at the level required to stay relevant in the changing time.

So 25 years, a time full of change, thanks is well due for all LEUCO Australia staff, your commitment and dedication to our customers and our company is what makes us a success I humbly thank you.

Neil Staggs
Managing Director



| Taicang production workshop



| LEUCO China Headquarters in Taicang



Frank Diez (right), CEO of LEUCO, and Daniel Schrenk, Managing Director Sales and Marketing, see their company on a good course. They expect further growth in 2022.

INNOVATIONS SECURE TECHNOLOGY LEADERSHIP

LEUCO is considered one of the big players among the manufacturers of precision tools for woodworking. In order to be able to defend its leading position in the future, the right strategic course must be set. That is why the company continuously invests in its sites - such as currently in Horb and Beinheim - and sets benchmarks with clever innovations. In an exclusive interview, managing directors Frank Diez and Daniel Schrenk give an insight into current plans and projects.

LEUCO is considered one of the market and technology leaders among tool manufacturers. How would you currently assess the company's position?

//Diez: A top position has to be earned anew every day. Who ultimately holds position this is decided by the customer. In recent years, we have made intelligent investments to secure our technological leadership. This applies to new machining processes and philosophies as well as to internal processes such as order control. Overall, the focus is on the topics of automation and flexibility.

Schrenk: As far as the term market leadership is concerned, it should be noted: reliable fig-

ures on market sizes do not exist. Our industry is too small for that. However, there are many indicators which show that we have grown faster than the market in many areas. This confirms our assumption that we have been able to increase further market share. We achieved gains particularly in sawmills, the solid wood sector and composite materials.

What is the situation specifically in the furniture industry, where LEUCO has traditionally been very strong?

//Schrenk: As one of the leading suppliers to the German furniture industry, we have also been able to grow faster than the market here. In the international arena, this is not quite so easy to quantify. However, if you look at large furniture markets such as France, Poland or China, we see a very positive development there.

Where is LEUCO currently investing primarily?

//Diez: We have completed two major construction projects at our production sites in Horb and Beinheim (Alsace). In Horb there is now a new service location with a direct connection to production and administration. This creates synergies between the individual departments. The size of the factory in Beinheim has also been expanded and capacities were ramped up significantly. Overall, the aim is to further develop and continuously advance manufacturing and service technology. At the same time, the focus is also on optimizations in material flow and in the use of resources. We responded quickly to the special situation of

IN RECENT YEARS, WE
HAVE MADE INTELLIGENT
INVESTMENTS TO SECURE
OUR TECHNOLOGICAL
LEADERSHIP.

FRANK DIEZ

increased demand with investments, which is now benefiting our customers..

LEUCO is also doing a lot in the digital field. What projects are you pursuing in this regard?

//Schrenk: Our new e-commerce platform was launched in the summer of 2020. That was a big challenge, but we mastered it well and it also came at exactly the right time, namely when digital demand picked up sharply due to the pandemic. In this way, we were able to support the classic sales structure in regional and trade sales and gave customers the opportunity to check the availability of our tools 24/7 and to buy them. In addition, the journey has also continued for the digital twin. Step by step, the tools in our portfolio are being serialized. This process forms the basis for the next steps that will allow us to provide all data digitally to customers in the creation process as well as in the application process.

How far along do you think the industry is regarding the subject of the digital twin?

//Schrenk: The basic rules of the game are defined. How digital communication between furniture, machine and machining tool can take place across interfaces is clear. We are already in concrete applications with pilot customers. How quickly the topic is being pushed further in the industry now depends on demand. Some customers know exactly where they want to go and what they need, while others have not yet made a decision.

Which future markets are currently in your sights?

//Diez: Vietnam is an exciting and strategically important growth market for us. We are successful there and have therefore established a local service company. As a result, we are now in a position to offer a DIA service to our industrial customers. We are also continuing our internationalization and growth strategy in other markets. Examples include Eastern Europe and Russia. However, we ask for your understanding that we cannot go into detail here yet.

And how are things going in the established markets, such as Western Europe?

//Diez: Germany is extremely strong, and demand in France is also pleasing. In the UK, we felt the difficulties of Brexit, but this was offset by the good performance in other markets. We have rarely had a situation where things have

gone so well in almost all countries. Poland, Russia, China and other Asian countries are also developing extremely positively. We have rarely had a situation where things have gone so well in almost all countries.

High-performance measurement technology down to the last micrometer in LEUCO production





Even before the pandemic, LEUCO was working intensively on new industries and materials. What is the current status here?

//Schrenk: New materials are generally a challenging undertaking that requires staying power. Success takes time. Our key to success was that we built up this field separately in terms of personnel right from the start and targeted customer segments. Our constant efforts are now paying off: Customers are now approaching us with their issues. From that point of view, we are very satisfied as far as this area is concerned.


How can LEUCO further improve its internal processes?

//Diez: Improving internal processes is an important topic for all medium-sized companies. Our primary focus is currently on standardizing and straightening out the process and IT landscape. This requires not just one measure, but many small steps. People always talk about the digitization of business processes. This is not, however, simply a matter of digitally mapping existing processes, but of examining what optimal processes with digital support might look like. The cost/benefit ratio must be right.

Due to the canceled Ligna 2021 - at least as a physically attended trade fair, product innovations have recently moved somewhat into the background. What innovations does LEUCO have to offer?

//Schrenk: Despite the lack of physically attended trade fairs, we have not stopped development work and have used the time to position ourselves well with regard to new products. For example, we have been successful with the "t3" three-blade cutterhead system for solid wood processing. In nesting panel machining, we have launched a new program with various diamond shank-type cutters that achieve very good performance values. We are breaking new ground in the area of novel diamond-tipped drilling tools. In the case of panel sizing saw blades, the "Q-Cut" theme stands out. Similarly, "Easyfix" saw blades are a further development that allows a reduction in dynamic imbalance and provides advantages in handling. In the area of sizing - especially with lot sizes of 1 - the main focus is on modular, adjustable jointing cutter systems, and in edge trimming on flexibility for tool changes. In these fields as well, we have been able to further increase the level of innovation in cooperation with machine manufacturers.

Ten years ago, LEUCO launched the "p-System", creating completely new possibilities for customers in the woodworking industry. How firmly is the system now established in the industry?



OUR CONSTANT EFFORTS ARE NOW PAYING OFF: CUSTOMERS ARE NOW APPROACHING US WITH THEIR ISSUES.

DANIEL SCHRENK

//Diez: The "p-System" has been established for years. Customers appreciate the advantages very much. This applies to the furniture as well as the flooring and door industries, and also to new materials. The necessary prerequisite for the "p-System" was a new EDM process, from which the entire tooling industry now benefits. The large number of illegal copies or tools approaching the patent limits is the best proof of the importance of the system in the market.

How do you tackle the illegal copiers of the "p-System"?

//Diez: As a first step, we try direct contact and factual arguments. In many cases, this is successful and an amicable solution is reached. If this does not succeed, the only way forward is through patent law.

Was there another innovation of similar magnitude to the "p-System" in the years that followed?

//Schrenk: You can't come up with a blockbuster every year. The comparison between individual innovations is also always difficult: The "p-System" is undoubtedly a very successful product, but other topics were also able to decisively shape the market. I can think of our "No Noise" diamond-tipped saw blades, for example. Both in terms of customer appreciation and internal evaluation, these are in no way less successful than the "p-System". The only difference is that the saw blades, like many other innovations, cannot be experienced as vividly as the "p-System" and the added value is often only obvious at second glance.

Finally, a look ahead: What do you forecast for 2022?

//Diez: Despite the economically pleasing year 2021, it is difficult to make a forecast. In any case, we are entering the new year in a positive mood, despite the many risks and adversities with the coronavirus pandemic, the advancing regulatory mania or the energy price explosions. We believe in further growth, but this growth must first be achieved. In a constantly rising cost environment and in view of the continuing shortage of skilled workers, we also need this growth in order to be able to make the necessary investments.

The interview was led by Markus Schmalz. Excerpt, published in full in the trade journal "HK" issue 06/2021.

A LOOK AT LEUCO

LEUCO ranks among the leading international suppliers of complex tools solutions and intelligent services for the wood-working industry.

Our goal is to improve the opportunities for our customers and partners through forward-looking innovations and to open up the potential of wood and related materials as a recyclable raw material to benefit people.

In close contact with our industry, we design and develop tungsten carbide and diamond-tipped circular saw blades, hoggers, boring and shank-type tools, drill bits, turnover knives and clamping devices. Our goal is to streamline the processes of our customers in the construction, furniture and panel industry, in lumber mills and interior design companies while also opening up new opportunities in working with the growing variety of materials.

Comprehensive consulting services, our sharpening service at manufacturer quality and future tool management solutions have made LEUCO a one-stop tool shop for our customers.

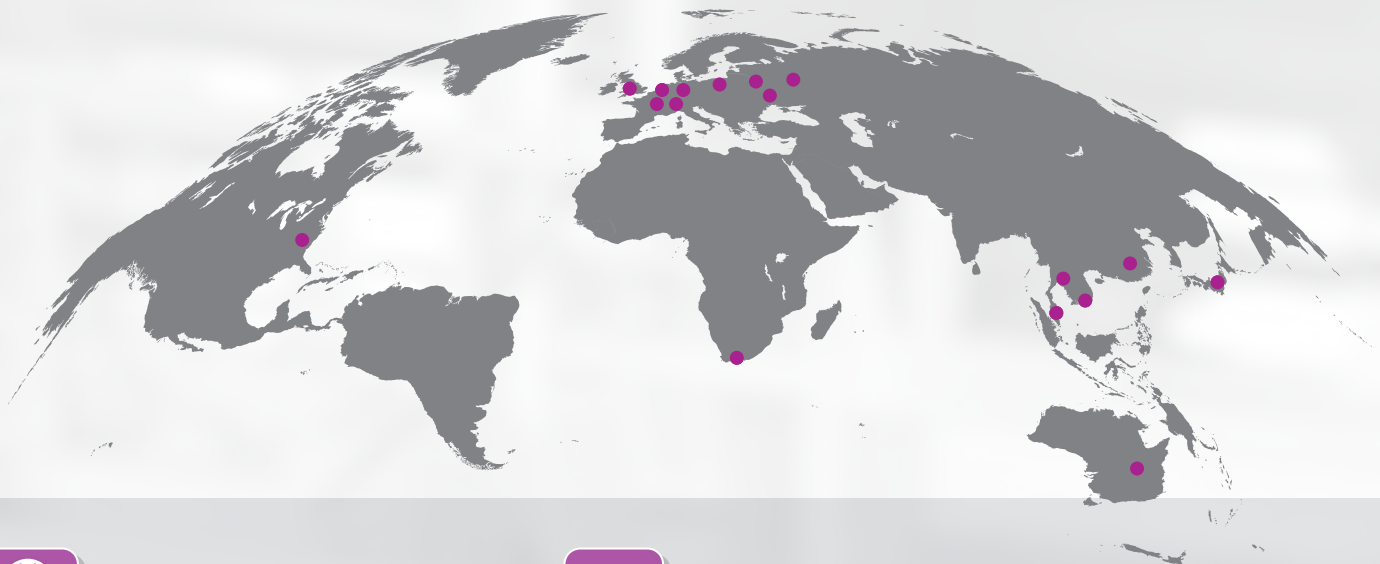
Today, around 1,200 employees work for LEUCO worldwide. With sales subsidiaries in Australia, Belarus, Belgium, England, Japan, Poland, Thailand, Ukraine and Belarus, as well as sales and production locations in China, France, Malaysia, Russia, Switzerland, South Africa, the USA and Vietnam, our company is represented on all five continents.

LEUCO
Magentify Wood Processing

WE ARE HERE FOR YOU:

64 Countries
1.200 Employees worldwide

20 Subsidiaries
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