

LEUCOline

H I G H L I G H T S 2 0 1 8

FOCUS

MACHINING MODERN MATERIALS – KNOW-HOW!

The number of materials and the use of the most diverse materials in one board has never been as high as it is today. LEUCO demonstrates tool solutions and how to saw, mill and bore these mixed materials cleanly and efficiently.

LEUCO. Magentify Wood Processing.



CONTENT

MATERIALS



4 DIVERSE MATERIALS AS OPPORTUNITY

| Machining modern materials – know-how.

6 KNOW-HOW:

| Sawing and milling magnet bond boards

7 KNOW-HOW:

| Saw blades for trimming window profiles
| Milling facade board fasteners with locking function



SAWING



8 SAW BLADES

| The innovative DIAREX sizing saw blades
| The proven tungsten carbide-tipped "g5-System" saw blades

9 LEUCO nn-SYSTEM DP FLEX

| The diamond-tipped and extremely quiet saw blades for a large range of materials

10 PANEL SIZING SAW BLADES

| U-Cut & Q-Cut: new tungsten carbide-tipped panel sizing saw blade product families

11 PANEL SIZING SAW BLADES

| Coated diamond-tipped panel sizing saw blades
| Innovative HW cutting materials "HL Board O4plus"

THROUGH-FEED



12 JOINTING CUTTERS

| DIAMAX and DIAREX with innovative airFace design

14 JOINTING CUTTERS

| "LEUCO SmartJointer" with DP-tipped changeable cutting edges in the new airFace design

15 SCRAPER TRIO FOR ANY APPLICATION

16 MULTI-PROFILE CUTTERS

| "flexClick" for standard through-feed machines



CNC

SOLID WOOD

COMPANY



17 DP SHANK-TYPE CUTTER
 | Basic product line with new axis angle

18 NESTING
 | Nesting – 2-milling-cutter strategy
 | Expanded nesting shank-type cutter product family

20 CNC INNOVATIONS
 | New LEUCO p-System grooving shank-type cutters
 | LEUCO tool alternatives for the new LAMELLO® Cabineo connector
 | 8.5 mm rear panel grooves in one cutting step

22 DRILL BITS
 | Dowel and through-hole drill bit product line
 | The new LEUCO HW cylinder boring bits “Light”
 | Dowel and through-hole drill bits with solid tungsten carbide cutting component

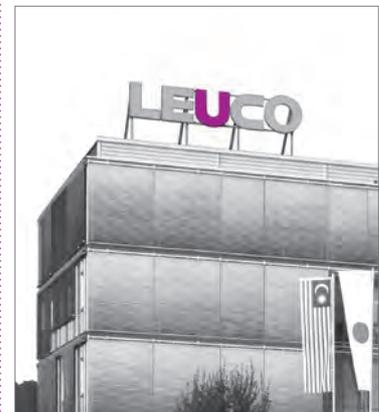


24 LEUCO surfCut TRIMMING CUTTERHEAD
 | Used for premium timber homes

26 MILLING
 | High-performance finger joint cutters
 | Counter profile cutterheads

27 TOOL COATINGS

28 TOOLCLOUD
 | Digital tool twin
 | Clouds, platform, big data and more



30 ABOUT LEUCO
 | 20 years of LEUCO in Malaysia
 | New head of sales at LEUCO Switzerland



31 LEUCO ONLINE CATALOG
 | Making tools easy to find
 | German Brand Award

SERVICES

Diverse materials as opportunity

EXPERTISE IN MACHINING MODERN MATERIALS

The trend toward diversity and individuality is the perfect reflection of our current society. For a long time, it has been incorporated into the panel machining industry as well as in interior store design and the furniture and kitchen design industry. Smaller job shops are also being confronted with these diverse materials. Individual living through personal furniture and kitchen design as well as practical living combined with ambitious designs are what today's end customers are looking for. When it comes to processing materials, this means builders are no longer using solely wood materials.

Wood is used as a starting material or combined with other materials. Design materials, such as structural, high-gloss and feelwood panels appeared on the market along with materials focusing on additional functions such as anti-fingerprint and magnet bond boards. In order to combine both design and function, materials were combined, such as high-gloss panels with an anti-fingerprint surface. Since each of these composite materials is individually constructed, machining is often very demanding.

As a machine manufacturer, LEUCO has expanded its expertise in machining these new materials in close cooperation with material manufacturers and end customers. The goal is to be able to offer users an affordable, economic solution from the standard tool product line. In this case, LEUCO has determined not only the best tool geometry, rather also offers information on the ideal cutting speed and tooth feed for each product. There are already various machining tips on manufacturer-specific materials to download from the LEUCO website. Also the recommended tools for the individual material can be filtered via the online catalog. It also displays different LEUCO standard tools as "problem-solvers" for ambitious composites with a focus on the processing quality and edge life performance. Worth mentioning here are the new panel sizing saws "Q-Cut TR-F K," the DIAREX airFace jointing cutters as well as the "Light" cylinder boring bits.

There are already various machining tips on manufacturer-specific materials to download from the LEUCO website. Also the recommended tools for the individual material can be filtered via the online catalog.

- 1 www.leuco.com/products
- 2 Click "workpiece materials" filter
- 3 "special manufacturer materials"
- 4 Choose manufacturer and material

→ Select saw blades, hogsers, cutters, drill bits



Because almost every material reacts individually in the machining process and the variety of materials will only increase, LEUCO will continue to conduct comprehensive testing on new materials in the future, recommend the right tools or initiate the development of new tools.

For LEUCO, diverse materials represent an opportunity to further optimize our tool expertise and our solutions. And it is your opportunity to stand apart from your competitors and create for your customers new construction options.

Together we knowingly turn variety into opportunity.

LEUCO. Magentify Wood Processing.



EXAMPLE OF MACHINING ANTI-FINGERPRINT SURFACES

THE PROBLEM: abrasive surface is tending toward micro chipping on the edge and reduces the edge life performance of the tools

THE SOLUTION: LEUCO tool samples for outstanding cutting quality and an economic price-performance ratio

1. Through-feed machining: DIAREX airFace jointing cutter

- | Suitable for demanding abrasive panel materials
- | Optimum cutting quality thanks to a very large shear angle
- | Increased edge life performance compared to standard jointing cutters
- | Noise reduced by a further 2 dB(A) compared to predecessor version through airFace design
- | Resharpener area 3 mm

2. Panel sizing: Q-Cut TR-F K panel sizing saw blade

- | Micro cuts in new materials with complex surface and plastics
- | In LowNoise design
- | Starting in mid-April 2018, available in the standard product line for different material types



The new jointing cutter "DIAREX airFace" is, among others, an outstanding problem-solver for anti-fingerprint materials, for more info, see page 12.



Anti-fingerprint materials and many other materials are milled cleanly and efficiently using the shank-type cutter Z=3+3, for more information, see page 17.

3. Drilling: "Light" cylinder boring bits for hinge drilling

- | Chip-free bore holes even on partly open holes near the edge of the panel thanks to a particular spur geometry
- | Excellent chip removal thanks to big gullets
- | Low cutting pressure
- | The shorter center point allows for drilling deep holes close to the bottom of panel

4. CNC machining: high-performance shank-type cutter DP Z3+3

- | Optimum cutting quality thanks to shear angle, alternating top and bottom
- | Smooth running thanks to spiral cut configuration
- | With DP plunge tip for diagonal plunge-cutting
- | Optimum chip removal thanks to upward spiral and Chip-Meister version
- | Resharpener area approx. 3 mm

Under www.leuco.com, in the "Services / Downloads / processing instructions," you will find available tool recommendations for various materials from different manufacturers. LEUCO customer service representatives would be happy to advise you.



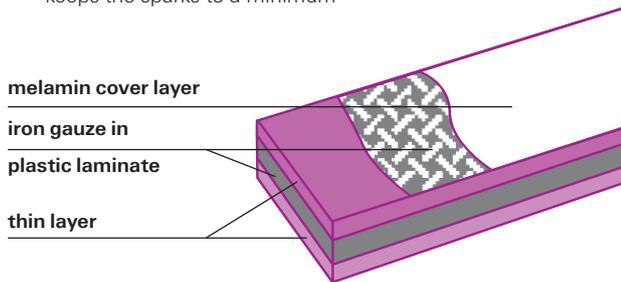
KNOW-HOW: Sawing and jointing magnet bond boards

CLEAN, RELIABLE AND LONG EDGE LIVES

Magnet bond boards are popular among end customers. Depending on the board manufacturer, a thin metal film or, alternatively, a metal mesh is embedded in the laminate to produce the adhesive force. Woodworkers who use standard tools to cut and machine this modern material quickly become disenchanted because of the extremely short tool edge lives, chipped edges and protruding fibers. Also because using them can cause dangerous sparks.

Tungsten carbide-tipped saw blades for boards with thin metal film

For a good two years, LEUCO has been offering a circular saw blade made of the special hard metal "HW Steel 17" for cutting these magnet bond boards. And the blade has quickly proven to be effective. It can cut just the laminate or even also the material, including the supporting plate, without chipping. It also has a long edge life. This special type of hard metal keeps the sparks to a minimum



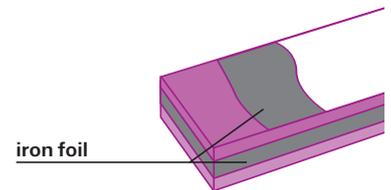
Diamond-tipped saw blades for boards with metal mesh

To cut magnet bond boards with metal mesh, LEUCO recently introduced a new diamond-tipped saw blade at the LIGNA 2017 trade fair. In principle, this blades is ideal for razor-sharp cutting hard and fibrous materials, not to mention boards with mesh, and more, also in CRFP/GFRP. Using the LEUCO DIAREX DP saw blade with "hollow back (HR)" toothed geometry, users benefit from very long edge lives.

The diamond-tipped saw blade with hollow-back tooth geometry "LEUCO DIAREX HR" is perfect for cutting magnet bond boards with metal mesh.



Saw blades made of special hard metal "Steel 17" for magnet bond boards with iron film



CNC: finishing cutter for sizing and jointing

To date, conventional VHW finishing cutters with alternating helix angles have been used for machining magnet bond boards on the CNC. Set to the right parameters – speed between 3,000-4,000 rpms, approx. 2 m/min feed speed; machining with feed – machine operators can achieve a good cutting quality when jointing. The edge life fluctuates depending on whether magnet bond boards with iron mesh or iron film are being machined. It can be considerably extended if the shank-type cutters oscillate when in use.

New tungsten-carbide milling cutters pay off

LEUCO is now offering new VHW shank-type cutters made from a newly developed tungsten-carbide cutting material that is highly wear-resistant and ensures longer tool lives. The tools made of this special hard metal are now in stock and available both in 12 mm and 18 mm cutting diameters.



At the same time, customers receive the application parameters on the CNC for the milling cutter used for sizing and jointing magnet bond boards.



KNOW-HOW: Saw blades for trimming window profiles

THE SYSTEMATIC METHOD OF CUTTING WINDOW PROFILES - LEUCO g5-AND g7-SYSTEM SAW BLADES

At the Fensterbau Frontale trade fair in Nuremberg, LEUCO presents the "g5" and "g7-System" saw blades for clipping and miter cuts. Technicians who work with PVC and aluminum window profiles can expect a great deal from these blades, including outstanding cutting quality and chip-free edges on the window profile as well as long edge lives in the saw blades, thin cutting widths and low noise levels.

The carbide-tipped saw blade "g5-System" is used for clipping and miter cuts in plastic profiles. The diamond-tipped version is applied for very abrasive materials such as fiber-reinforced profiles. g7-System saw blades are used due to their extremely low-noise cuts and low wear in aluminum profiles.

Also, these saw blades have a special tooth group geometry and body design to provide excellent cutting quality and low cutting pressure. Compared to conventional saw blades with a triple chip flat geometry, noise has been reduced by up to 6 dB(A). A reduction of 6 dB(A) makes users think that the noise has been "halved."

Proven and tested: window manufacturers and clipping and miter saw manufacturers confirm that clipping and miter cuts on PVC window profiles using the LEUCO g5-System and on aluminum profiles using g7 saw blades feature higher quality, less noise and are cost effective due to long edge lives.

The quieter saw blades for fine, chip-free clipping and miter cuts in window profiles
 Left: "g5-System" saw blade for plastic profiles or with fiber-reinforced profiles.
 Right: "g7-System" saw blade for aluminum profiles



KNOW-HOW: Milling facade board fasteners with locking function

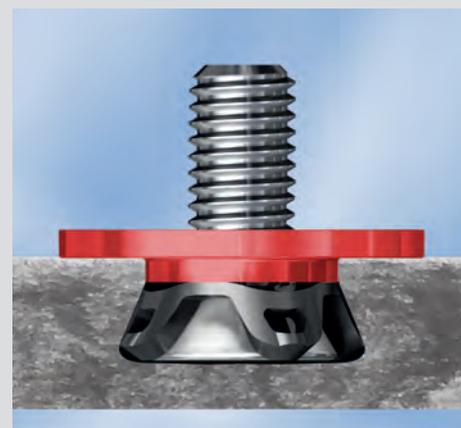
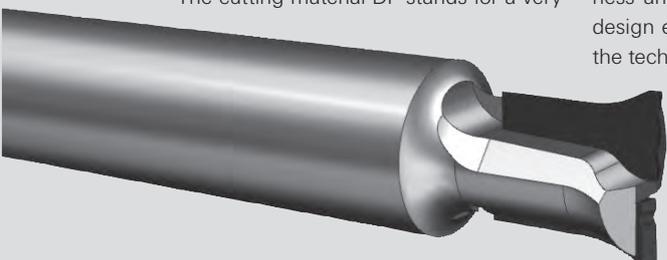
DP FORM CUTTERS FOR FISCHER® UNDERCUT ANCHOR SYSTEM

The diamond-tipped cutter is used to produce undercut drill holes for the fischer® undercut anchor type FZP II- (T) M6 (fischer Zykon panel anchors). Normally, the facade materials to be processed are mineral based materials, high-pressure laminate (HPL) or fiber cement boards.

The cutting material DP stands for a very

long edge life and thus for considerably lower costs per hole compared to conventional solid carbide cutters. A special tooth geometry reduces the friction coefficient and ensures the lowest possible heat generation.

A high-strength tool body guarantees high stiffness and excellent stability. The LEUCO topline design ensures optimal cutting quality thanks to the technically complex edge preparation.



Picture of undercut anchor: fischer innovative solutions

Diamond-tipped sizing saw blades

THE INNOVATIVE DIAREX SIZING SAW BLADES



DIAREX stands for a DP edge version with an optimum price/performance ratio. Since its market launch in 1992, this version has been very popular and is mainly used on the traditional sizing saw machines.

These blades are the end result of LEUCO's comprehensive expertise and experience regarding cutting material, tooth geometries and gullet design.

The LEUCO DIAREX sizing saw blade family has been completely redesigned.

The advantages of the new DIAREX sizing saw blades:

- | Longest edge life: LEUCO is focused on new diamond types and uses them depending on the application and the tooth geometry
- | Significant reduction of the noise level in the surroundings of the machine
- | Optimized number of teeth depending on the tooth configuration and the application

As of now, the user can choose between three tooth geometries.

1. The classic TR-F-FA geometry for the use in raw particle boards and MDF
2. When focusing on the quality of the finish cut, the machine operator chooses the DA-F-FA geometry for a sizing cut in melamine- or HPL-laminated wood-based panels
3. Last but not least, the DIAREX sizing saw blade is available with the proven hollow-back geometry (HR)

Using this HR version, the cutting of fibrous wood-based panels results in an excellent cutting quality. This geometry has proven to be particularly well suited for sawing abrasive and hard plastics such as CFRP or GFRP, and even cutting magnet bond boards. That's why the HR version is also called the "problem solver".



All users of a sizing saw or a vertical panel sizing saw are invited to have a look at the state-of-the-art technology which can be found in the "DIAREX sizing saw blades DP" family. These blades are available and in stock in diameters 250, 303 and 350.

Tungsten carbide-tipped circular saw blades for almost any machine

LEUCO „g5-SYSTEM“

LEUCO g5-System is a product line consisting of tungsten carbide-tipped circular saw blades. The saw's outstanding cutting guide enables it to achieve the best possible cutting quality even with tough materials. **The "g5" enables users to achieve the excellent cutting quality and chip-free edges in a broad variety of materials and applications.**

LEUCO g5-System saw blades have a noticeably unique cutting geometry. Four alternate top bevels plus one flat tooth added together make up the "G5" geometry. LEUCO developers transferred the tooth geometry to the sizing, trimming, panel sizing saw blades as well as grooving cutters for CNC machines. Customers thus receive the same excellent cutting quality on all machine types. Moreover, the saw blade is very quiet when in operation. Thanks to the new LEUCO hard metal type "HL Board 04 plus," the saw blades have extremely long edge lives. The LEUCO g5-System saw blades are ideal for wood-working shops and lumber mills that work with various materials and expect outstanding quality at an excellent price-performance ratio.

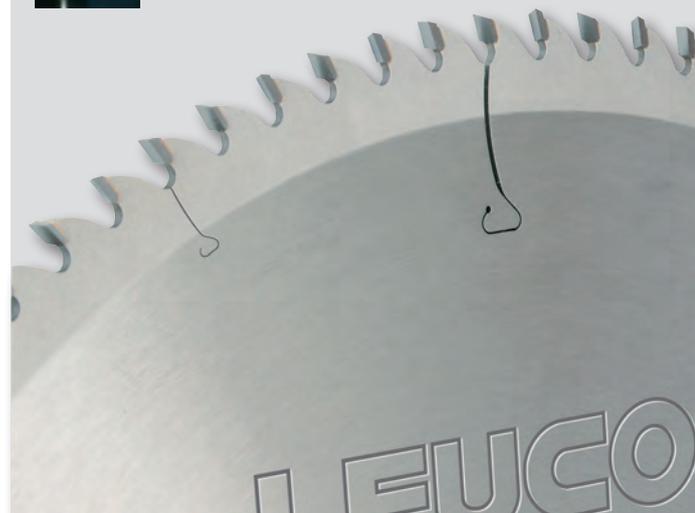


Examples of use:

- | Miter cuts in veneered or foiled-wrapped door frames
- | Sizing cuts in laminated particle boards
- | Chip-free cross-cutting (across the grain)
- | Chop cuts in thin-walled plastic profiles, e.g. shutter profiles



The "LEUCO g5-System" includes all saw blades with the unique g5 tooth group cutting geometry.



Diamond-tipped circular saw blade compatible with almost any machine

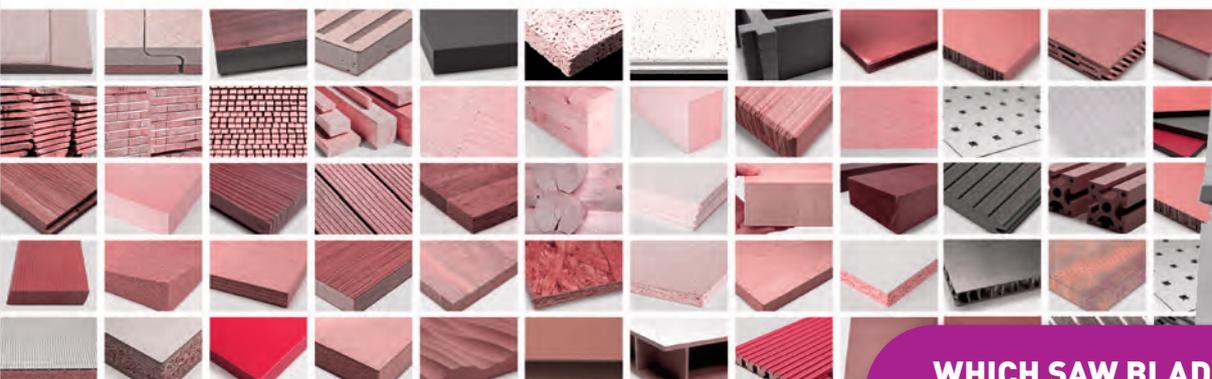
THE “NO-NOISE SAW BLADES” LEUCO nn-SYSTEM DP FLEX

The LEUCO nn-System is a diamond-tipped circular saw blade product line. The “LEUCO nn-System DP Flex” saw blades all have extremely small gullets! And are extremely quiet when idling and during operation! With a noise level of just around 70 dB(A) when idling, the wearing of hearing protection is virtually a thing of the past. They are surprising the industry with how they can be used in so many materials and are impressing users with their outstanding cutting quality due to their particularly hollow-back tooth configuration (HR). Exception: Scoring saw blades have a WS tooth geometry.

And to top it off, they are surprisingly thin! The cutting width is only 2.5 mm. The blades produce noticeably less cutting pressure and therefore require less power when in use.

The edge lives are measurably longer thanks to the diamond tips. Users benefit from the “LEUCO nn-System DP Flex” because it is compatible with almost any machine, including table and miter saws, vertical panel sizing saws, CNCs and through-feed machines

- Super-quiet
- Excellent cutting quality
- Long edge lives thanks to the diamond tips
- For the most diverse materials
- Compatible with many machine types



WHICH SAW BLADE SHOULD I OPT FOR?

→g5-SYSTEM AND nn-SYSTEM DP FLEX SAW BLADES STAND FOR THE HIGHEST CUTTING QUALITY!

LEUCO g5-System

Range of application (various materials) for chip-free sizing cuts as well as clipping and miter cuts in wood-based materials, hard and soft solid woods and plastics

LEUCO nn-System DP Flex

for precise cutting in all common wood-based panels, including unfinished and laminated particle and MDF boards, plywood boards, HDF, WPC, cement and gypsum fiber boards, mineral composites, Alucobond, for crosswise and lengthwise cuts in hard or fibrous solid woods, glued laminated timbers, solid wood, thermotreated wood

Noise (compared to conventional standard HW blades)

approx. minus 6 dB

approx. minus 15 dB

Cutting material and downtime (compared with conventional standard HW blades)

Tungsten carbide (HW HL Board 04 plus) up to 30 %

Diamond (LEUCO DIAMAX) up to 20-times

Cutting width

3,0 mm

2,5 mm

“U-Cut” & “Q-Cut”:

NEW TUNGSTEN CARBIDE-TIPPED PANEL SIZING SAW BLADE PRODUCT FAMILIES



What is new and different compared to the previous saw blade product families?

We feature better cutting quality and a longer edge life than our predecessors. And the product families have been streamlined, leaving two instead of three, to make the selection easier for you. We are replacing the well known UniCut, SpeedCut and FinishCut product families.



HELLO!
Our names are “U-Cut” and “Q-Cut” and we are the new tungsten carbide-tipped panel sizing saw blade product families at LEUCO.

My name is U-Cut or Universal-Cut.

My product family is best suited for traditional trimming cuts. We are the perfect choice for trimming coated panel materials if maximum edge life is important to you. LEUCO has equipped our blades with the brand-new and innovative tungsten carbide cutting material “HL Board 04 plus,” which has been thoroughly tested in long test series. We consistently achieved considerably longer edge lives compared to our predecessors. My product family has four members and we are available from the LEUCO warehouse in Horb:

- | **U-Cut TR-F:** the proven universal saw blade for use on pressure beam machines
- | **U-Cut max:** increased edge life due to special tips. The saw blade can be reconditioned up to five times more often than usual
- | **U-Cut speed:** for high-performance machines with high throughputs, for saw blade diameters of 520 mm with the corresponding number of teeth and robust tool bodies
- | **U-Cut WS:** for trimming cut in veneered wood-based materials, plywood boards, wood core plywood and raw particle boards

My name is Q-Cut or Quality-Cut.

My perfect work environment is producing finish cuts on the horizontal panel sizing saw. My product family was completely redesigned and developed. Our completely new tool body, for example, distinguishes itself by its excellent vibration behavior, allowing us to run very smoothly. Our high-quality tool body has been combined with the new high-performance cutting material “HL Board 04 plus,” and our tooth geometries are the proven G5 and G6 types. All in all, this bundle of features allows us to achieve an edge life that is unprecedented on the market for finish cuts. Make use of the benefits offered by our three-model family! We are available in stock at the LEUCO warehouse in Horb:

- | **Q-Cut G6:** for finish-cut quality with diameters ranging from 280 mm to 520 mm
- | **Q-Cut G6 nn-System:** ideal if it is not only about the cutting quality, but also reducing noise
- | **Q-Cut G5:** for finish-cut quality in plywood, veneered wood-based materials, panels with sensitive top layers as well as lightweight panels
- | **Q-Cut K:** for finish cut quality in the anti-fingerprint materials and in plastics

left U-Cut WS,
right U-Cut TRF



In detail: behind Q-Cut G6, ahead Q-Cut G6 nn-System



Cuts even longer than diamond tips

COATED DIAMOND-TIPPED PANEL SIZING SAW BLADES

Diamond-tipped (DP) panel sizing saw blades from the LEUCO product portfolio are well-known in the industry and are popular because of the long edge lives on the pressure beam machine

Since 2017, LEUCO introduced industry professionals to a solution that offers a longer edge life than its previous diamond-tipped saw blades. The diamond-tipped cutters have a special LEUCO "topcoat" coating that considerably extends the already long edge life. When trimming wood materials, the running meter performance has reached a completely new level when it comes to edge life.

The goal of the LEUCO developers was also to design the tool body so that it is suitable for extremely long periods of operation. The laser ornaments with their special arrangement and shape and filled with a dampening material are the result

of intense development work. Users are guaranteed to receive the same high cutting performance and quality throughout the entire life cycle of a saw blade. The "marathon runners" among cutting tool operators who want to achieve the maximum tool life will choose blades with the optional "LEUCO topcoat" coating. LEUCO has received outstanding feedback from industry professionals regarding this new innovation.

To coat or not to coat – the blades are available with three different toothed geometries:

- | G6: for finish cuts on unfinished and coated composite wood boards individually or in packages up to 80 mm.
- | G3: for finish cuts in fibrous composite wood boards such as wood core plywood, veneer plywood and lightweight panels.
- | HR-TR: for the finish cut on HPL and solid core materials.



The new DP-tipped product line with the new laser ornaments filled with a dampening material is immediately available.

The diamond-tipped teeth of the new panel sizing saw blades are additionally coated, allowing customers to achieve an edge life that has never been seen on the market.

INNOVATIVE "HL BOARD 04 PLUS" CUTTING MATERIALS

HL Board 04 plus is a tungsten carbide specially developed for LEUCO. This material is unprecedented on the tool market. Its optimized performance results from an unusual combination of components.

While its hardness is comparable to that of previous tungsten-carbide cutting materials, the HL Board 04 plus performs better in terms of break and impact resistance. This significantly reduces the risk of cutting edge breakage during operation.

For the customer, this means a considerable increase in the edge lives. A 30% increase in edge life resulted with the "HL Board 04 plus" compared to the previously used cutting material HL Board 03 plus.

Since May 2017, LEUCO has been using this innovative HW cutting material for a large range of product families. That's why all new U-Cut and Q-Cut panel sizing saw blades are equipped with the innovative cutting material, but also several sizing saw blades for finish cuts, e.g. circular saw blades from the g5-System family.

With the HL Board 04 plus cutting material, many materials

can be machined at outstanding quality and with long edge lives, from traditional particle board and wooden composites to plastics.

DID YOU KNOW?!

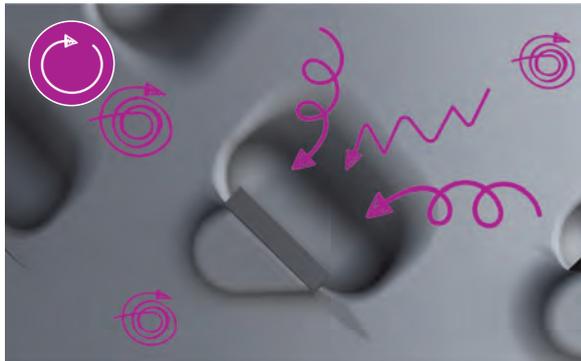
Under the microscope: hard metal consisting of cobalt and tungsten carbide. A certain ratio between wear resistance and toughness depends on the distance ratio between the elements. This, in turn, determines the cutting material grade and its field of application. The composition of the elements in the cutting material "HL Board 04 plus" is a special ratio that has not yet previously existed on the tool market.



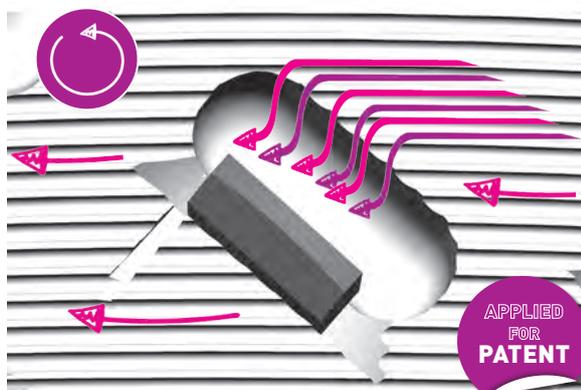
INNOVATIVE SIZING TOOL DESIGN –

One wing beat ahead!

Bionics is the technical term used for developing new engineering approaches by using examples from nature. The owl is an animal that has much to offer in this regard. Their sophisticated feather structures allow them to fly almost noiselessly so that they do not startle their prey. Most of the noise is generated by turbulences at the rear edge of the wing. The "owl wing" concept smoothes the air flow by means of the serrated edge and scatters noise, which allows nearly noiseless flight characteristics without having a negative effect on the aerodynamics.



Previously: air turbulences at the cutting edge generated noise that negatively impacted the working environment around the machine.



NEW: when looking closer at the new surface structure of the body, the gullet forms an irregular shape, like the edge of an "owl-wing" which channels the air at this spot, thus reducing noise.



Learning from nature's example

This concept has been used by LEUCO as a design template to develop more aerodynamic sizing tools and to further reduce noise they produce. With the slogan "always one wing beat ahead" and thanks to the completely new design approach, the tools will be designed for the first time without studs behind the edge and with a special surface! This kind of design has never been used in the field of woodworking and therefore represents a milestone in the jointing cutter evolution.

When operating the tools, their rotation generates air turbulences - particularly on projecting edges - for example on the front of the cutting edge and in the gullet of the jointing cutter. This is where the air flow is the strongest and most uncontrolled. When idling and during processing, these air flows generate noise which negatively impacts the working environment around the machine.

The owl wing is the role model for the new "LEUCO airFace design"

LEUCO has recognized the advantages of the owl wing structure and implemented this concept in the design of the new generation of jointing cutters. The aim was to systematically guide the air flow around the diamond-tipped DP cutting edges and to reduce turbulences.

The so-called "LEUCO airFace" surface over the entire body of the jointing cutter is the result of intense research and development work by experienced engineers.

The main purpose of the gullet with the "owl wing edge" is to channel the air at this spot.



New seat for DP cutting edges

In order to achieve a continuous "airFace" surface, the new jointing cutters have been designed for the first time without studs behind the edges. Instead of a stud, the diamond-tipped edge is equipped with a stable tungsten carbide supporting plate. This ensures stability in the new design.

airFace was developed specifically for machine operators

The new LEUCO DIAMAX airFace reduces noise by up to 1 dB at idle speed. Its "big brother," the LEUCO DIAREX airFace, has actually reduced noise by up to 2 dB(A) at idle speed – compared to the already quiet predecessor model. This means a clear noise reduction for this industry segment. These cutters are the quietest jointing cutters with steel body.

Continuous aerodynamic design

The aerodynamic design principle on the body is consequently implemented. To avoid the negative influence of balancing bores on the airFace surface, LEUCO has decided to manufacture the body with defined threads for balancing screws. In the future, these balancing screws will be used in production for the process-related setting of the tools' highly-precise concentricity tolerance.

Best performance at a fair price

The new LEUCO DIAREX airFace will be additionally equipped with a larger shear angle. It is therefore excellently suited for machining novel materials such as anti-fingerprint panels, for example. Both the DIAMAX and the DIAREX keep their proven resharpening areas: 1.5 mm for the LEUCO DIAMAX airFace and 3.0 mm for the LEUCO DIAREX airFace. Both tools have a very good price-performance ratio and represent the ideal option for the demanding craftsmanship and the industrial application with high performance requirements!

Available now from LEUCO!

LEUCO introduced the new generation of airFace jointing cutters for the first time at last year's LIGNA trade show. The new concept generated a great deal of interest from industry insiders and was successfully tested in the field by select customers. That's how the new jointing cutters in the airFace design have meanwhile become standard at LEUCO. The LEUCO online catalog lists the machine types that can accommodate the new DIAMAX and DIAREX airFace jointing cutters.

In addition to the new DIAMAX and DIAREX jointing cutters, the noise-reduction concept was also applied to the "LEUCO SmartJointer airFace" jointing cutters. For LEUCO design engineers, further reducing noise is an important criterion when developing tools. LEUCO intends to transfer the airFace design, for which a patent application has been filed, to other tools.

NEW!



LIKE BRAND NEW!

“LEUCO SmartJointer” jointing cutter with the new airFace design

Now even more stylish, the LEUCO DP jointing cutterhead from the “Smart-Jointer plus” series comes with exchangeable knives! The new version named “SmartJointer airFace” is now available for a variety of machine types.

Smart: low weight and low noise

Previous SmartJointer versions have also been characterized by very low noise, which is partly due to its significantly reduced weight compared to conventional tools. The low weight of the SmartJointer is made possible by its high-tensile aluminum body. With this cutter, dynamic processes such as jump milling consume only a fraction of the previously required energy. Furthermore, the load on the spindle bearings is less thanks to a reduced imbalance. In addition, the light aluminum body vibrates less and creates less noise when at idle and during use. Together with the optimally designed knives with little protrusion, this leads to an audibly lower noise level on the jointer aggregate of the edge banding machine. Noise is further reduced with the new airFace surface, which allows the air to be channeled while the tool is rotating. Therefore, both at idle and while moving, the Smart-Jointer airFace has the lowest noise level in comparison with other jointing cutters. At the same time, the new airFace look makes it easy to distinguish it from the conventional SmartJointer version, which only partly allows segments to be changed.

Smart: stainless segments, reusable body

The segments now come with a stainless steel body and are thus fully protected against oxidation. The objective is still to use the aluminum body as often as possible. As most machine operators know, cutting edges along with the chip gullets are the areas of a cutter head that are most susceptible to wear. During a segment change on the SmartJointer airFace, the chip gullets are replaced at the same time. This prevents wear of the aluminum body and enables long-term multiple use.

SmartJointer – allowing customers to be independent

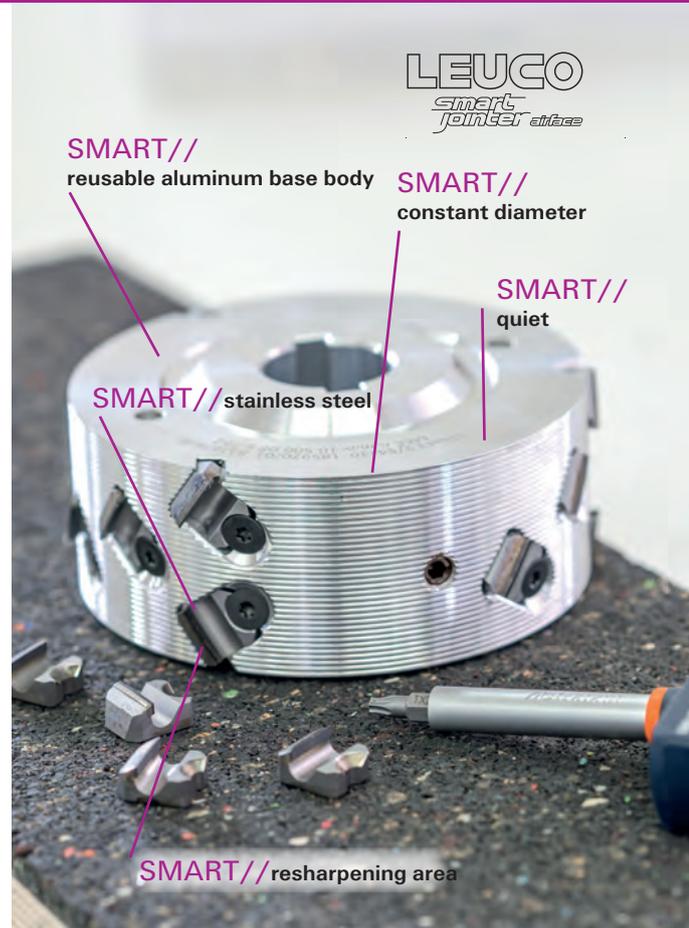
The new airFace version is ideally suited for customers who want quieter machines and/or do not want to rely on sharpening stations. Provided with a set of suitable replacement segments, they will be able to re-equip their tools at any time. Any items needed for the replacement, such as DP replacement segments, torque wrenches and screws, are available from LEUCO. It is important to replace only complete sets of segments in order to avoid differences in cutting edge protrusion.

Diameter consistency saves time

Consistent tool diameters provide a clear advantage when inserting knives in mint condition. This avoids time-consuming adjustment procedures on the aggregate and allows users to promptly resume production!

It is still also possible to have the SmartJointer airFace resharpened in the conventional way at the LEUCO ServiceCenter. For such cases, the tool is provided with a resharpening area of 1.5 mm, allowing several resharpening processes on the jointing head. This method is particularly suitable for industrial companies, considering that no extra effort is required for segment replacement and that regular replacement cycles are scheduled anyway for production lines.

The entire previous SmartJointer product line has now been converted to the airFace version! Please contact us for help in selecting the tool dimensions best suited for your machine and in making your production “smarter” with the new SmartJointer airFace.



DID YOU KNOW – machine manufacturer Homag delivers all its standard edge banding machines equipped with the LEUCO SmartJointer airFace as a standard component.

SMART//handling
 The segments can be replaced by the customers themselves with only few accessories!
 Video instructions on YouTube
 Simply scan QR code:



TIP:
 Since the tooth rows are subject to different levels of wear, users can replace tooth rows already worn from cutting the top layer with rows from the core layer. Depending on the jointing quality requirements, this method can be useful to prolong the edge life. Of course, you will find all the information needed for proper segment replacement in the operating instructions supplied with the tool.

SMALL BUT POWERFUL!

Scraper trio for any application – LEUCO gives you the choice!

Scrapers allow you to apply that perfect finishing touch to your workpiece after edging. Though just a few millimeters in size, these small tools are indispensable for achieving the desired finishing touch on the wooden workpiece! Mounted in a machine-specific scraper clamp, the scraper removes a last thin chip from the edge during the "post-cleaning process." The standard blades are made of tungsten carbide and their different grinding profiles allow the most diverse shapes to be machined. These so-called multi-profile scrapers, in contrast, can handle up to six different profiles using only one scraper, but require a specially designed unit.



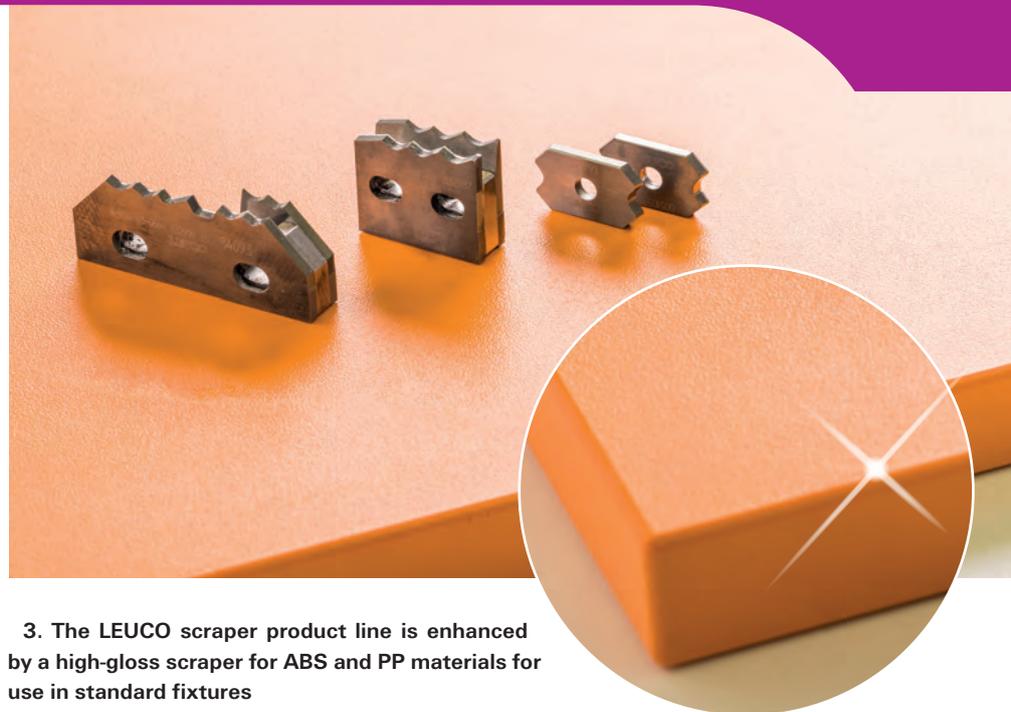
LEUCO TwinBlade principle: in the first step, the machine removes cutter marks and irregularities. The second step involves removing a very fine chip to achieve a highly glossy finish across the entire radius.

1. Standard scraper for ABS, PP and PVC edges

LEUCO customers are familiar with this scraper and it is available both as a single-profile scraper and as a multi-profile scraper for various machine types. It is well suited for finishing edges in ABS, PP and PVC

2. LEUCO TwinBlade for PMMA edges

LEUCO recommends the TwinBlade scraper for finishing PMMA edges with a transparent high-gloss look. This type of scraper is still the only one in the product range to provide acrylic edges with a smooth and very glossy surface by removing two defined chips. The TwinBlade scraper is available with customized profiles for Homag and IMA machines equipped with the corresponding scraper clamp.



3. The LEUCO scraper product line is enhanced by a high-gloss scraper for ABS and PP materials for use in standard fixtures

This scraper features a finer grinding pattern and a polished front, combined with the proven anti-stress whitening bevel. These additional technical features reduce friction and improve chip evacuation. The lower friction resistance, in turn, leads to reduced vibrations and helps reduce the wear of the blade. With standard edge materials like ABS and PP, the benefits of this scraper are reflected in a low stress whitening rate and an increased gloss level of the workpiece. The high-gloss scrapers will in future be available for all machine types. Switching to a different scraper type is made easy for users, since no special fixture is required for the new scrapers. Based on a good price-performance ratio, customers can select their scraper types according to their preferences in terms of visual quality.

This three-stage concept meets the various requirements in the furniture industry, ranging from standard furniture to high-quality furniture with special finishes and moisture-resistant properties.

LEUCO's scraper trio gives customers the option of choosing the ideal tool for producing the desired workpiece finish while also relying on an efficient and economic production process.

1.



Result with "Standard" scraper for edges in ABS, PP and PVC

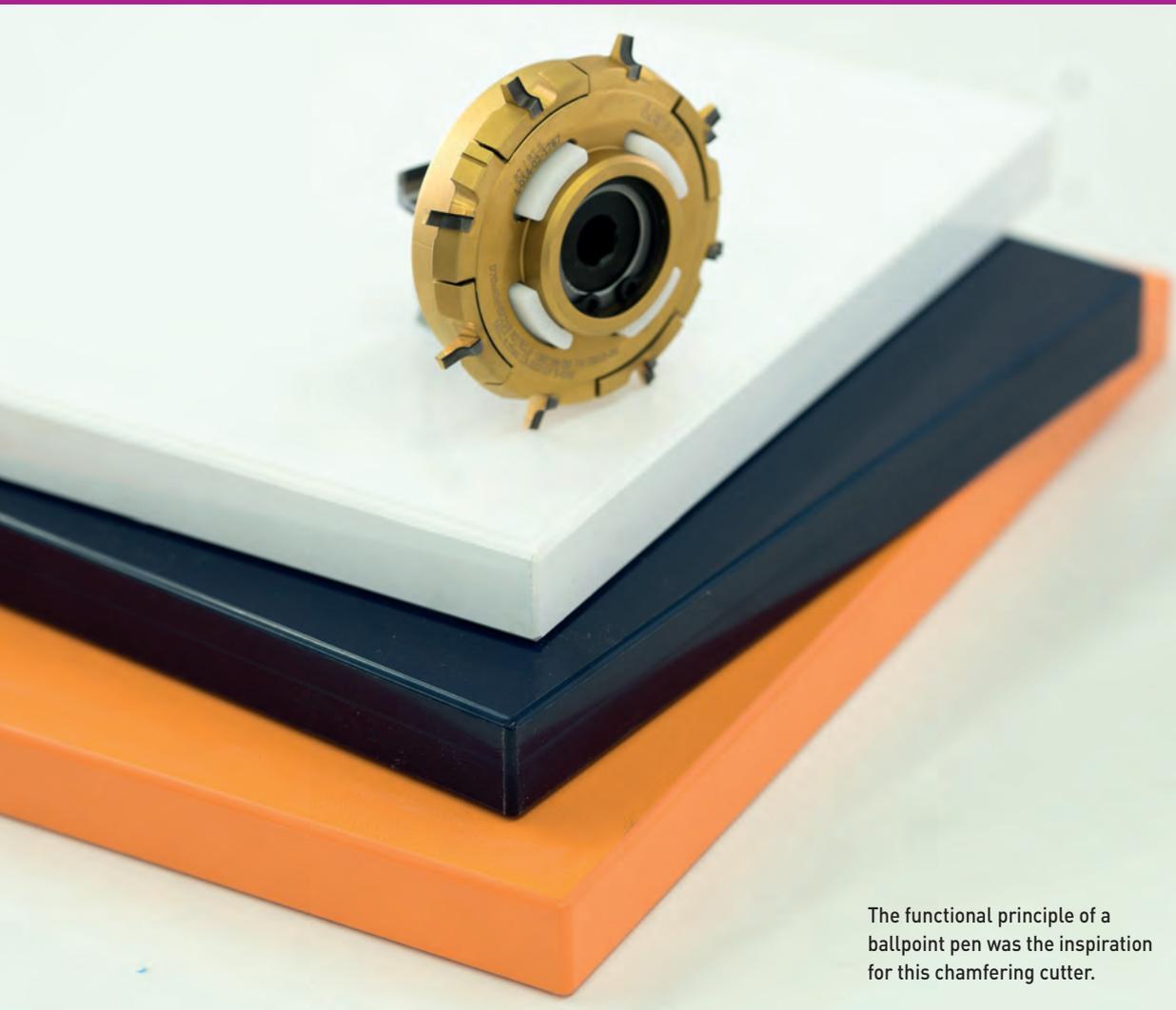
2.



TwinBlade scraper: high gloss for PMMA edges

3. **NEW:** very smooth edge, without any chatter marks – high-quality result with a consistently flat surface achieved with the "high-gloss standard scraper" for ABS and PP materials





The functional principle of a ballpoint pen was the inspiration for this chamfering cutter.

GREATER FLEXIBILITY WITH JUST ONE CLICK!

Keywords such as “batch size 1,” “cost-effectiveness” and “low machine downtimes” are inconceivable nowadays in the industrial wood processing sector. Yet even in the wood-working sector, increasing flexibility and work efficiency are in demand to meet individual customer requirements in the furniture-building and interior design sectors, while still being able to produce cost-efficiently.

Therefore, in cooperation with HOMAG edging technology, LEUCO has developed the flexClick multi-profile milling cutter. The expertise from already existing multi-profile technologies was used as the basis for this project. However, FlexTrim, FK31 and other machines are used exclusively in industrial applications and require special motors for control. The challenge was therefore to create a 2-profile technology that can be switched between by simply pressing a button and without having to remove the machine cover. The flexClick tool was successfully developed based on the principle of the ballpoint pen.

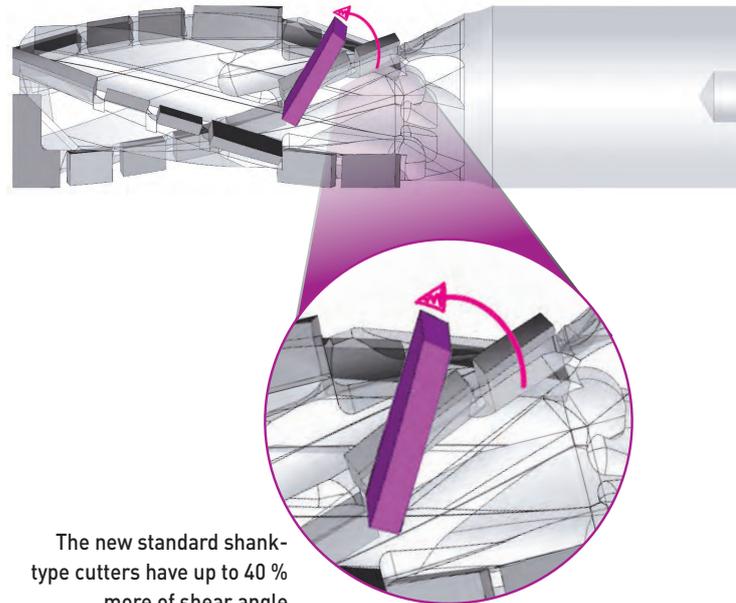
The benefit for customers: is an automated switchable 2-profile technology for small edge banding machines. It enables 2 different profiles to be machined without the time-consuming hassle of changing the tool and long machine downtimes. In other words, “batch 1,” “cost-effectiveness” and “low machine downtimes” now also apply to woodworking.

The gold flexClick tool is now available on machines from Homag Kantentechnik GmbH and from LEUCO for retrofitting.

NEW STANDARD FOR THE STANDARD PROGRAM

The DP shank-type cutter by LEUCO is provided consistently with new properties

LEUCO has always been striving to integrate core features of successful developments into standard tools in order to enable its customers to achieve even more positive effects and results in their daily machining operations. The development of the LEUCO p-System with its extremely large shear angle of 70° was such a revolutionary development. The LEUCO patent includes all tools with shear angles of 55° and more.



THE DP SHANK-TYPE CUTTER BASIC PROGRAM WITH LARGER SHEAR ANGLES FOR LONGER EDGE LIFE, HIGHER QUALITY AND MANIFOLD APPLICATION POSSIBILITIES

LEUCO presents a new program in the field of standard DP tools. Now all tools have a significantly higher shear angle.

The benefit for our customers:

- | Performance improvement compared with the previously achieved edge life
- | Improved processing quality in both the trimming cut and finishing areas
- | A wider range of materials that can be machined with each tool

The proven **DIAMAX series Z=2+2** becomes the new **DIAREX Z=2+2**. After repeated customer requests, the program has been enlarged by several shank-type cutters with a cutting diameter D16 mm and by shank-type cutters with a cutting length of 65 mm. In the future, the cutters will have a shear angle that is up to 40% higher.

For the high performance cutters Z=3+3, the increase is in the same range.

The **Z=5+5 flagship for highest feed rates is now delivered with** a 25 mm cutting diameter. Again, the edges are angled by a few degrees more.

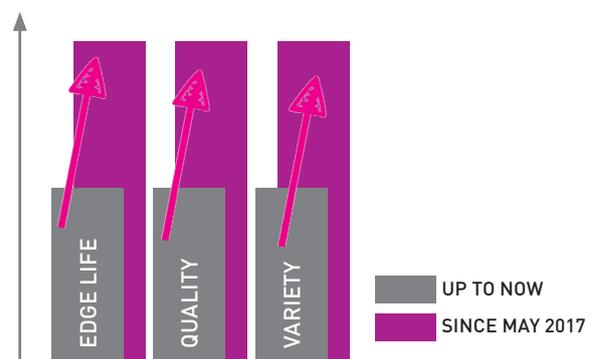
The high performance trimming router bit program

Z=4+2+4, which includes cutters with four different cutting widths ranging from 22 to 48 mm now offers our customers a shear angle of 48°.

The positive feedback so far on the new products shows that the new program has become very well established.



New standard program: significantly longer edge life, higher quality in trimming cut and finishing, suitable for a wider range of materials



A special customer solution

NESTING. WITH A DIFFERENCE.

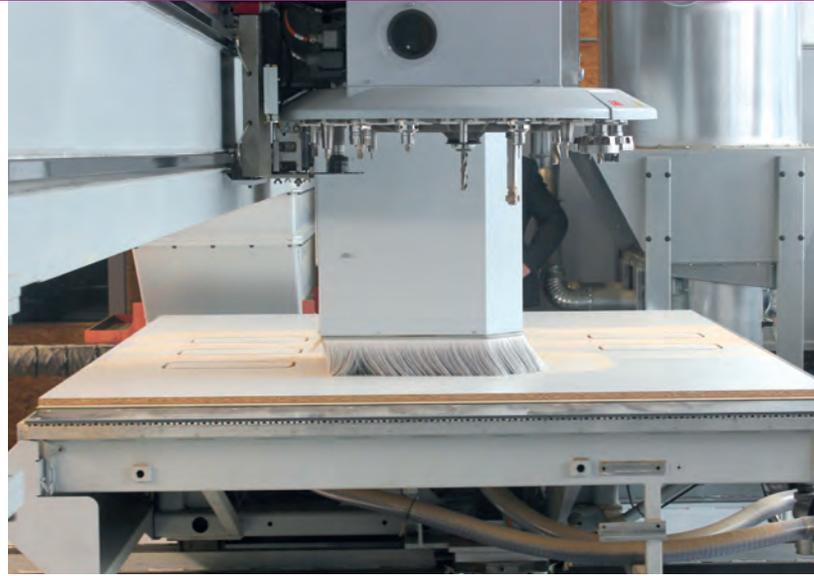
A customer produces furniture pieces and wood elements for industrial and private customers using an automated 4-axis/5-axis combination Homag BOF722. The machine is equipped with nesting technology for this purpose.

The facts so far:

During the nesting process, every single component part is completely milled. This occurs against feed because with the parting cut, the against-feed side indicates finished cut quality while the with-feed side of the groove does not. This means that for cutting, practically two cutting through-feeds are necessary.

When nesting small parts, milling occurs in two runs so that no parts are shifted. Here, too, each individual part must be milled which raises the entire number of milling feed-throughs, thereby also the machining time.

In a joint project with LEUCO's customer furniture-maker Messebau D. Schweinforth, the LEUCO p-System milling cutter with a 70° axis angle was used for the first time for nesting. Because, what the conventional diamond shank-type cutter



In the first work step, a LEUCO p-System milling cutter is used together with the AEROTECH turbine system. The chips are routed optimally to the extraction system.

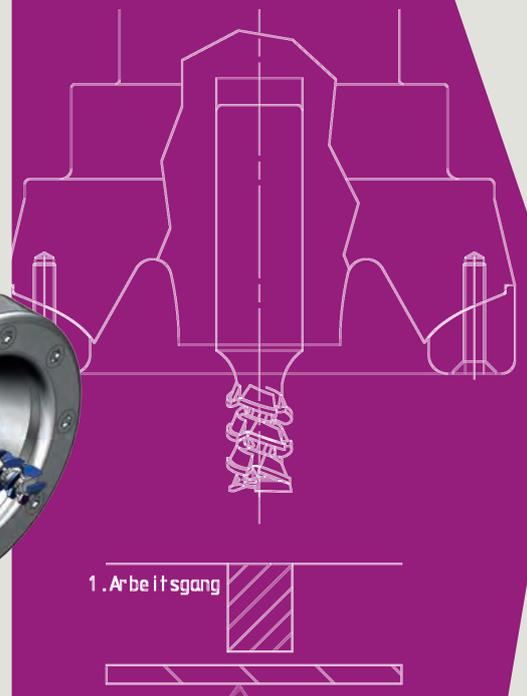
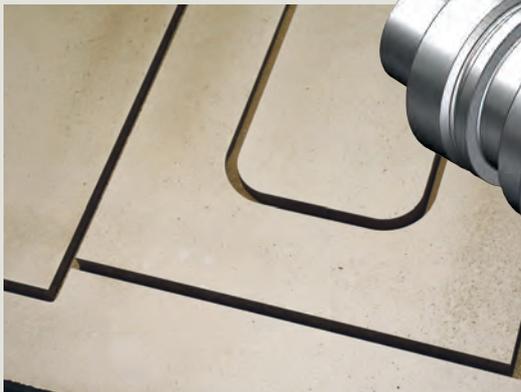
is unable to do is no problem for the patented LEUCO p-System shank-type cutters, namely cutting boards with perfect edge quality on both sides of the cut. This has evolved into a two-milling nesting solution that really works.

The advantages

- | The customer shortened its machining times by up to 30% thanks to the new nesting process
- | Lower cutting because only 1 milling path and a lower parts distance are necessary
- | No shifting the workpieces for small parts or low vacuum performance
- | Longer tool lives

1. OPERATION

- | Tool: DP p-System groove shank-type cutter $\varnothing 12 \times 18.2$ mm, $Z=1$, 70° axis angle, negative
- | Clamping device: AEROTECH turbine system, D $\varnothing 95$, HSK63F, hydro clamp
- | Software from the BOF722 cutting pro (fit) Nesting V10 from Homag
- | Process: depth setting 16.5 mm, feed: 13.5 m/min,
- | Machining the nest image in one go = 1 milling path



Nesting shank-type cutter product family welcomes new additions

HOW TO PRODUCE FINE GROOVES IN MASSIVE MATERIALS

The expanded diamond-tipped Nesting shank-type cutter range Z=2+2 meets the special challenges of MDF and multiplex boards as well as similar wood materials.

LEUCO will also be presenting three new diamond-tipped Nesting shank-type cutters especially designed for machining multiplex and MDF panels.

Diamond-tipped, high performance shank-type tools are commonly used for Nesting. These triple-tooth cutting tools (Z=3+3) can handle feed speeds of 25 m/min and more for particle boards. However, if very dense or very hard materials are machined, such as MDF or multiplex boards, the situation changes noticeably. The volume of the chip material produced by the cut MDFs increases dramatically, which means that the chip gullet in the tool quickly fills up, thus producing more cutting pressure and friction. This, in turn, generates heat, reduces the tool's edge life and may even cause the loss of teeth.

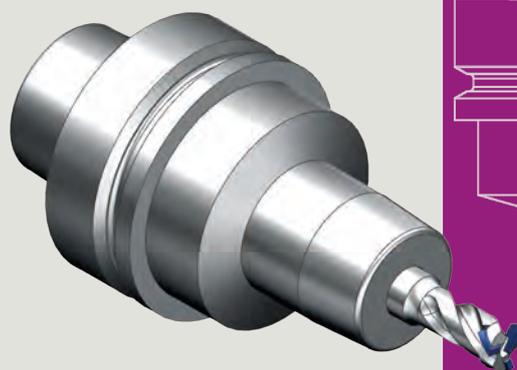
The new Nesting shank-type cutter range from LEUCO featuring double-edge tools is a true problem-solver for such applications.

The number of teeth Z=2+2 leads to an increased gullet volume. This guarantees that chip evacuation goes more smoothly, literally. New additions to the DP Nesting cutter product family include tools with 12 mm and 16 mm cutting diameters and cutting lengths for common panel thicknesses.

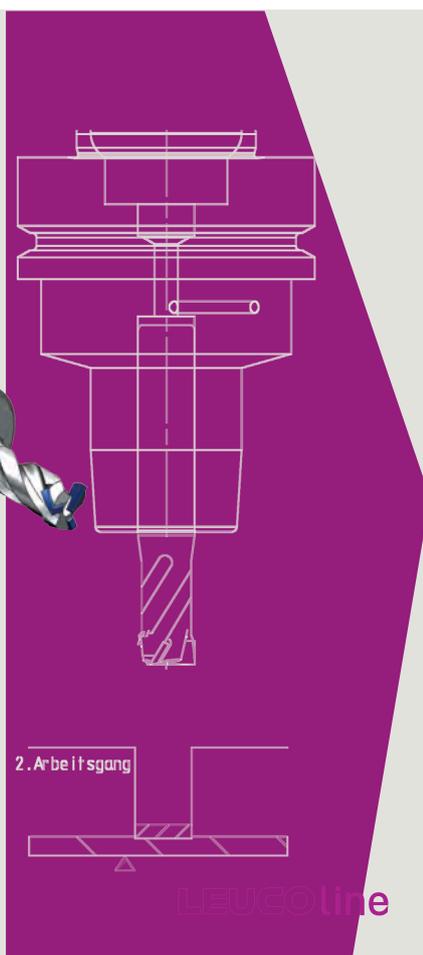


2. OPERATION

- I Tool: DP shank-type cutter Ø12 x 5 mm, Z=2+1
- I Clamping device: hydro-expansion chuck HSK63F
- I Software from BOF722 cutting pro(fit) Nesting V10 from Homag
- I Process: cutting, remaining depth, feed: 15 m/min
- I Machining the nest image in one go = 1 milling path



From the left: Rudolf Noll (LEUCO Application Engineering), Dirk Schweinforth (CEO of furniture-maker Messebau D. Schweinforth) and Ricardo Finn (LEUCO technical consultant) are pleased with the cutting quality on the with-feed and against-feed side produced in only one milling step.



NEW LEUCO p-SYSTEM GROOVING SHANK-TYPE CUTTERS

Chip-free milling grooves in all layers

In addition to traditional grooves for rear cabinet paneling, grooves and milling grooves for pilaster strips, (connection) fittings, hinges, assembly plates, etc. rank among the most often used milling processes of a grooving shank-type cutter.

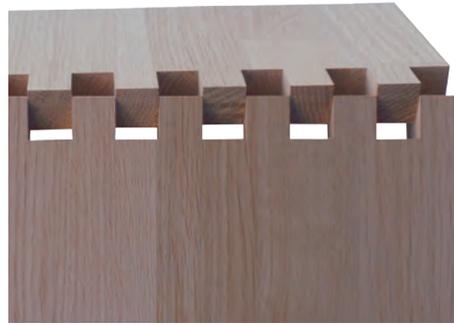
LEUCO p-System grooving shank-type cutters with small dimensions

At the same time, to round out its trade fair exhibits and demos, LEUCO will be showing exciting application samples that were all produced using

cutters from the new shank-type cutter product line. At first glance, you wouldn't think that some of the workpieces could be produced by a grooving shank-type cutter. Since grooves are not only cut into the surface, but also on the front and longitudinal edges, this is an interesting area of application for this grooving shank-type cutter. It is possible to produce flat and deep grooves and milling grooves on almost all surfaces without generating chips.



Cleanest, chip-free surfaces when grooving starting at 1 mm depth and, regardless of lengthwise or crosswise to the grain, in wood-based materials, solid woods, veneer, synthetic resin and other materials, even plastic-coated boards.



Example of chip-free dovetailing on the CNC using a LEUCO p-System grooving shank-type cutter.

LEUCO p-System grooving shank-type cutters are available for different grooving widths and depths



Solid larch wood with diagonal grooves or circular cuts, clean and chip-free with and against the fibers, cut using a p-System grooving tool.

LEUCO TOOL ALTERNATIVES FOR THE NEW LAMELLO® CABINEO CONNECTOR



Picture: BENZ GmbH Werkzeugsysteme

The new Cabineo is a one-part connector for drilling or milling and is ideal for connecting two bodies through pure surface machining.

Machining can be done on any CNC machine either by milling or drilling.

If the customer opts for milling, the necessary shape can be produced using an end milling cutter with a cutting diameter of $\varnothing 10$ mm or $\varnothing 12$. To prevent chipping in the top layer, we recommend a negative twisted VHW finishing cutter, a compression cutter or even a corresponding DP nesting cutter.

Alternatively, users can also opt for HW hinge drill bits with a diameter of $\varnothing 15$ mm. LEUCO recommends using the "Light" series cylinder boring bits.

One special LEUCO development for the Cabineo system are the new tungsten carbide-tipped "3-in-1" drill bits.

Designed specifically for the new BENZ Cabineo power unit, they produce the Cabineo contour in just one stroke. The very special geometry of these drill bits offers the best edge hole quality, outstanding chip evacuation, extremely low cutting pressure and the highest possible edge lives.

REAR PANEL GROOVES IN ONE CUTTING STEP AT 8.5 MM

Producing relatively wide grooves – for 8 mm rear panels, for example – often requires two cutting runs on CNC machines with 5 mm grooving cutters.

This is time-consuming, but often necessary because the machining volume of a very broad milling cutter leads to a high cutting pressure and thereby also greater power consumption in the motor. For many grooving machines, manufacturers therefore define the maximum groove width and groove depth per cutting step.

Grooving is also still one of the loudest types of machining. LEUCO solved this problem many years ago with the "G5" grooving cutters and is now a market leader for this segment. This "LEUCO g5-System" cutting combination made up of rotation and flat tooth geometries paired with the right axis angles ensures first-class cutting quality, long service lives and, most of all, extremely low noise emissions.

At the Holz Handwerk [European trade fair for woodworking & wood processing] trade fair in Nuremberg, LEUCO unveiled two prototype tools that demonstrate the current development status of carbide-tipped G5 grooving cutters with an 8.5 mm cutting width. The initial test results indicate very low power consumption and also an acceptable noise level.





LEUCO OFFERS ITS CUSTOMERS THE BROADEST RANGE OF DOWEL DRILL BITS AND THROUGH-HOLE DRILL BITS ON THE MARKET

Customers can select from seven different drill bit types, from the inexpensive “ECOLine” to the premium range “VHW topline” and “VHW high-performance dowel and through-hole drill bits.” Whether your focus is on cost, standard quality or premium quality drill bits with a long service life:

**LEUCO has the right drill bits for you.
Get the advice you need now!**

AN INTRO TO DOWEL AND THROUGH-HOLE DRILL BITS

It depends on:

- | The harder the cutting material (hard metal types), the more wear-resistant it is
- | The roughing tool influences the cutting quality and the service life
- | The geometry of the tip also influences the cutting quality and the service life.
- | The grinding quality influences the cutting pressure and the service life
- | The basic body material influences stability, service life and potential feed
- | The back-guide is the problem solver when it comes to problems in the hole edges, deep bore holes, etc.



Dowel bits of LEUCO



Through-hole bit of LEUCO

CHECK THE DRILL BITS IN YOUR WORKSHOP:

Dowel bits				
Type	<input type="checkbox"/> Disposable	<input type="checkbox"/> Resharpenable		
HW quality	<input type="checkbox"/> Medium grain	<input type="checkbox"/> Fine grain	<input type="checkbox"/> Finest grain	<input type="checkbox"/> Ultra-fine grain
Roughing tool	<input type="checkbox"/> Tip	<input type="checkbox"/> Rounded	<input type="checkbox"/> Positive	<input type="checkbox"/> Negative
Centering point	<input type="checkbox"/> Tip	<input type="checkbox"/> Roof shape	<input type="checkbox"/> Faceted	
Grinding quality	<input type="checkbox"/> Normal	<input type="checkbox"/> Fine		
Basic body	<input type="checkbox"/> Steel	<input type="checkbox"/> VHW		
Back-guide	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
Through-hole bit				
Grinding quality	<input type="checkbox"/> Standard	<input type="checkbox"/> Fine		
HW quality	<input type="checkbox"/> Medium grain	<input type="checkbox"/> Fine grain	<input type="checkbox"/> Finest grain	<input type="checkbox"/> Ultra-fine grain
Clearance tip	<input type="checkbox"/> Roof 60°	<input type="checkbox"/> Facet short	<input type="checkbox"/> Facet long	
Grinding quality	<input type="checkbox"/> Normal	<input type="checkbox"/> Fine		
Basic body	<input type="checkbox"/> Steel	<input type="checkbox"/> VHW		
Back-guide	<input type="checkbox"/> Yes	<input type="checkbox"/> No		

The new LEUCO "Light" HW cylinder boring bit

CHIP-FREE HINGE HOLES – EVEN ON THE PANEL EDGE



The new LEUCO "Light" HW cylinder head drill is a powerful all-purpose device

The new LEUCO "Light" HW cylinder head drill is a powerful all-purpose device for tear-free drilling of fitting holes and edge holes in solid wood and wood materials. This hard-metal-tipped drill soon will be indispensable in every shop that drills fitting holes on CNC processing centers, automatic drills and fitting drill machines.

The drill contains plenty of intelligent technology, such as a very wear-resistant hard metal for the taper tap, a special taper tap geometry, large chip spaces and a short, effective center point of less than 1 mm. The drill offers a long service life, has outstanding chip ejection, and works with measurably far lower cutting pressure. These features allow the user to use the "Light" cylinder head drill to bore very close to the bottom cover layer. The center point doesn't poke through. The

decoration doesn't arch. The new LEUCO "Light" cylinder head drill is available with bore diameters of 15 mm to 35 mm and drill lengths of 57.5 mm to 70 mm, as a right or left version, directly from stock. **Tip: The new "Light" cylinder head drill can bore standard fitting holes faster. The low cutting pressure and good chip ejection make for better performance.**

Fig. Approx. 150% enlarged



NEW: Now with solid tungsten carbide cutting edge

DOWEL AND THROUGH-HOLE DRILL BITS

LEUCO is continuing a success story: LEUCO's tungsten carbide (HW) topline dowel and through-hole bits have been unrivaled in the premium segment of the industry for more than a decade due to their unique tooth geometry. The high drilling quality and extremely long edge life of the LEUCO HW topline drill bits are legendary.

The LEUCO Research & Development team has devoted much attention to enhancing its existing premium drill bit range. Both the dowel drill bits and the through-hole drill bits were provided with a drill spiral of fine-grained solid tungsten carbide (VHW). The spiral design of the dowel drill bit was optimized.

With the new VHW version, users can benefit from increased edge life compared to the previous HW version. The solid tungsten carbide makes the drill more rigid, which ensures a



smooth drilling operation and increases edge life. The improved chip evacuation of the dowel drill bit reduces the risk of double hogging in the borehole. This has another positive effect on the edge life.



The “surfCut” joining cutterhead was designed with a higher axis angle, the turnover knives are larger and more stable. Together with the slightly rounded cutting inserts, this considerably improves the quality of the cutting results, leads to longer edge lives with a simultaneously higher feed speed.

THINGS ARE MOVING AHEAD

Timber home builder Rolf Rombach uses the “LEUCO surfCut” joining cutterhead to build “Nur-Holz” premium timber homes. And for good reason.

It all really started nine years ago. Rolf Rombach began producing “Nur-Holz” elements for luxury home construction. What was new at the time was that all the prefabricated elements were produced from solid beech lumber using threaded rods and no glue. What follows is a success story. Rombach makes every effort to streamline his production processes which is why the inventive timber home builder uses the new high-performance “LEUCO surfCut” joining cutterhead.

It is anything but standard

When manufacturing the solid wood elements for “wood only” homes, planed tongue and groove planks are laid in cross and diagonal layers on the assembly tables. An internally configured machine subsequently drills blind holes on the surface in defined grid patterns and screws in the solid wood threaded screws. In the meantime, the machine’s counter indicates over

1.7 million. This construction design is patented and delivers torsion-resistant components joined entirely without glue. The company Rombach Bauholz und Abbund GmbH has evolved into one of the leading builders of timber homes. It has been a long and intense road from a small workshop to one of the most innovative timber home construction companies with roughly 70 employees. Though the “threaded connection holds considerably better than the wooden dowels normally used for this purpose, they are not as easy to produce,” explains Rombach. To produce the wood screws, Rombach himself has designed and built a machine to machine wood screws. “We have built a

second one in the meantime which is three times as fast and is even more precise,” says Rombach with a smile.

Uniqueness is key

After stiffly jointing the pieces on the customized production system, another decisive step follows. The elements measuring 2.90 x 8.60 m in size are milled flat and evenly on a Hundegger portal machining center. First of all, this step eliminates the projections on the threaded rods; secondly, the surface is calibrated so that the other side of the element can be evenly grinded later on. With such large sizes, it is a time-intensive process, not to mention the other working steps, such as sizing, folding, grooving, and machining the cut-outs for windows and doors. These cut-outs are already taken into account when laying the boards on the assembly table and only have to be milled to a finish at a later time. The rational manufacturing method for the elements also brings with it numerous problem spots when plain milling the walls.

CARPENTER FRANK SCHMID

Because each time the plain milling cutter is moved back and forth and chipping occurs with the feed and against the feed, the tool not only goes in and out of the edges numerous times, it also goes through the cut-outs for doors and windows. The cutting quality of the plain milling cutter is therefore decisive, especially because it also functions as the router, grooving cutter and folding unit. “When machining such solid wood, chipping often occurs when the tool exits the wood if moving with the feed,” adds Steffen Hampel, head of tool development at LEUCO. The company has addressed these challenges by designing the “LEUCO surfCut” joining cutterhead.

»With the new joining cutterhead, we can work twice as fast compared to the conventional tools, thus reaching about 75% of the machine’s potential feed speed, compared to 50% with other tools«

What is the difference

"Compared to conventional joining cutterheads, we have created the "surfCut" joining cutterhead with a larger axis angle and also designed the turn-over knives to be bigger and more stable," explains Daniel Armbruster, product manager at LEUCO. Together with the slightly rounded cutting inserts, this leads to a considerable quality improvement in the milling results, longer edge lives with a simultaneously higher feed speed. It is no coincidence that Rombach was the first user who recognized the potential of an improved cutting head, especially since it doesn't matter who the manufacturer is when purchasing tool accessories. The company has been using the "surfCut" for roughly one and a half years and has saved time and money in the process. "With the new joining cutterhead, we can work twice as fast compared to the conventional tools, thus reaching about 75% of the machine's potential feed speed, compared to 50% with other tools," explains carpenter Frank Schmid, based on his experience. Expert Steffen Hampel can explain this phenomenon: "The tool geometry is optimized specifically for machining spruce and pine. In the process, a lot of branches are chipped, in other words, milled on the front. For this work to go smoothly, the cutting pressure is crucial. And it also depends on the functioning and rapid transfer of the chips out of the tool's gullet." With "surfCut," the gullet is larger and its shape developed and optimized based on these requirements. This prevents twigs and branches from getting jammed, which can increase the cutting pressure and would result in poorly produced surfaces. "In addition, the large gullets and the solid design of the cutting edges largely prevent an edge break," adds Hampel.

Customers take a close look

The use of the "surfCut" joining cutterhead has reduced the machine downtimes in the company. "Previously, when production was operating in two shifts, cutters had to be replaced every other day, but now, despite higher feed speeds, the cutters only have to be replaced every third or fourth day," explains Schmid. The reduced downtimes and smooth production processes naturally make company CEO Rolf Rombach very happy. Because the "quality demands of our customer base have increased substantially. It's not for nothing that we are always on the look out for better solutions for each working step and have invested heavily in equipping our machine fleet,



In Oberharmersbach, Germany, Rombach produces all prefabricated elements from solid beech wood using threaded rods and no glue. The design is patented and produces torsion resistant components without the use of glue.

which includes a grinding machine for machining the surfaces of the exposed ends. Roughly 95% of the elements will not be further planked later. Our customers want to see the wood, so the surface has to be perfect," says Rombach. That's why the surface quality produced using simple milling tools is becoming increasingly insufficient. For Rombach, it is no longer an issue. "Using the LEUCO tool, we can work faster, the edge lives are longer and, in the process, we achieve a cleanly machined surface that looks good," he adds.



From the left: company owner Rolf Rombach, carpenter Frank Schmid and Reinhold Isenmann - more info under www.nur-holz.com



The work on the portal machining center from Hundegger was improved using the "LEUCO surfCut" by woodworker Rolf Rombach. His customers now demand an outstanding surface quality. Plain milling the elements is such a basic working step that now takes less time using the new tool, Tobias Wehrle shown here.



Cut-outs for windows and doors are taken into account when laying the boards and only have to be milled to a finish later on. Because each time the plain milling cutter moves back and forth and chipping occurs with and against the feed, the tool goes in and out of the edges numerous times. With the LEUCO "surfCut", Rombach can operate the machine with 75% of its potential feed speed.

AT A GLANCE – "LEUCO SURF-CUT" JOINING CUTTERHEAD PRODUCES A QUALITY FINISH

Planing, hemming, tenoning or grooving: The new joining cutterhead "LEUCO surfCut" impresses lumber mills and carpentry shops

- | Very smooth, chip-free surfaces – even with branches
- | Long edge lives – can be operated up to four times longer than conventional ones
- | Large gullets can handle high volumes of chips, branches do not get jammed in the gullet
- | Reduced machine downtimes – new joining cutterhead comes with fewer cutters with improved performance
- | Compatible on all cutting centers, regardless of the manufacturer



NEW AT LEUCO

HIGH-PERFORMANCE FINGER JOINT CUTTERS SHORT FINGER JOINTING WITH 6/7 MM AND 4/4.5 MM



When it comes to producing slats for furniture and windows, the perfect material yield is always the basis for innovation. This applies particularly to longitudinal and cross joints in short cuts of woods. Another starting point is the machine's productivity, which can be increased through higher cycle rates, feed speeds and RPMs.

The new finger joint cutters from LEUCO with short finger lengths of 4/4.5 mm or 6/7 mm and a higher number of cutting edges meet both requirements. Due to the low cutting pressure, it cuts broad cross joints, depending on the machine, into short slats starting at approx. 250 mm without risking a lever-effect at feed speeds up to 52 m/min. RPMs and finger jointing quality are the same as with milling cutters with less cutting edges.

Data at a glance:

- | Cutting material: high-alloy tool steel [HS Solid 24]
- | Runout accuracy of 5µm thanks to high-precision manufacturing of the tool body

Advantages:

- | Double feed speed possible with the same RPM and finger joint quality
- | Reduced risk due to stringing up short cuts of woods
- | Less chipping when removing the cutter from the wood, even if the milling cutter is reaching the end of its service life



COUNTER PROFILE CUTTERHEADS - HIGH-QUALITY SOLID WOOD FURNITURE CONSTRUCTION WITH HARD AND SOFT WOODS

CUSTOMERS WILL ALWAYS GET THE BEST POSSIBLE SOLUTION WITH CUTTER-HEADS DEVELOPED BY LEUCO:

Using "LEUCO UltraProfiler plus," customer-specific profiles are milled at very high levels of precision. The special cutter clamp positions the cutter independently and free of clearance. The new UltraProfiler plus thus reaches a cutting speed of up to 80 m/min. With its aluminum base frame, the cutterhead is used in double end tenoners and molding machines as well as in spindle molders and machining centers to shape solid timber and wood materials.



When processing massive wooden door frames, the "counter-profile cutterheads" from LEUCO also produce outstanding profiling results. One tool can now be used to produce the length profile and the matching counter profile.

Furniture doors can be easily, quickly and precisely profiled, on both sides using the LEUCO counter profile set. The grooving cutters can be easily removed manually, thus switching from producing length profiles to the right cross profile. The general design of the milling cutter for manual feed allows the use of both a CNC machine as well as a spindle molder. The light aluminum base body is more comfortable for users and can be mounted on a CNC spindle. It can be selected from nine profiles that are part of a standard product line. It is possible to produce customer-specific profiles at any time. By using the high-performance cutting material "Board O6," which is particularly suitable for hard woods and wood-based materials, our customers have an outstanding solution for difficult woods.



WEAR REDUCTION AND THE NON-STICK EFFECT – EACH MATCHING THE RELEVANT APPLICATION

LEUCO TOOL COATING SYSTEMS!

Coating the tools makes sense if it increases their usefulness. To decide whether to do this, you have to understand the tool, the material and the expectations of the customer. To cover the most diverse areas of application in the woodworking and furniture industry, LEUCO has four “LEUCO topCoat” coatings in its product portfolio. The different features of these special coatings represent the ideal solution for the respective customer needs.

Selection criteria

- I Tool type:** Whether circular saw blade, shank-type cutter, planing knives, etc., the tool type plays an essential role in deciding what coating to opt for
- I Tool material:** The material the tool is made of also defines the type of coating, e.g. whether tungsten carbide or diamond-tipped
- I Workpiece:** The material to be machined defines the type of coating, e.g. solid wood or panel materials
- I Performance improvement:** The more systematically the coating was selected for the particular scenario, the better the coating delays wear and dirt, thus increasing its use.

How the coatings work

“Non-stick effect” for the cutting edge. This prevents dirt from sticking, especially when milling or profiling solid wood, e.g. using finger jointing tools, turnover knives, or cutters. Except for scrapers, LEUCO does not necessarily recommend coatings for machining plastics. For plastic materials, it is better to focus on the quality and sharpness of the tungsten carbide than working with coatings.

“Wear reduction” is definitely the most frequent reason why customers turn to coating technology. The increased surface hardness provided by the coating delays wear on the cutting edges. This applies for HW and DP saw blades, brazed cutters, finger jointing tools and scrapers.

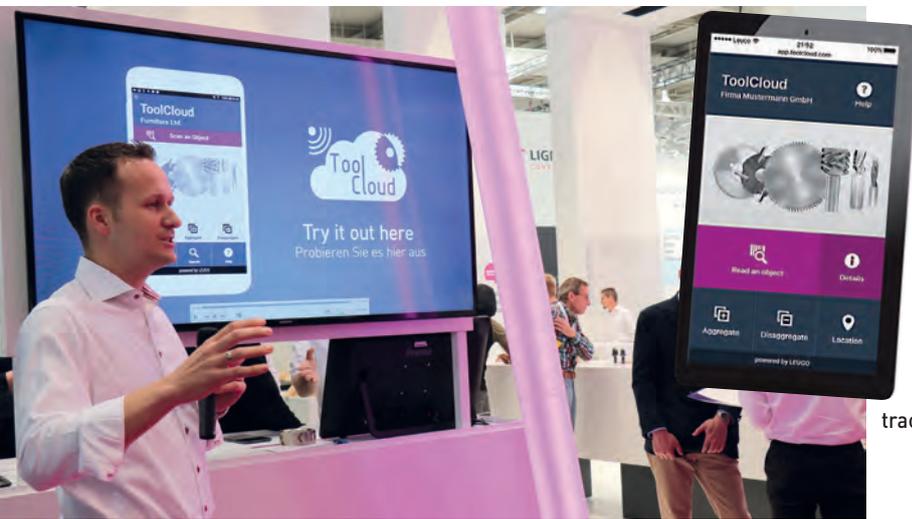
You can improve the performance of your LEUCO tools with the “topCoat 5,” “topCoat 2,” “topCoat 8” and “topCoat 9” coatings. LEUCO has coated tools in stock. However, as a rule, the coating is applied to a tool based on the customer’s need and after consulting with a LEUCO customer service representative. This allows the customer’s needs and the intended purpose of the tool to be ideally taken into consideration.



LEUCO topCoat	Objective	Description	Saw blades DP	Shank-type cutters DP	Saw blades HW	Cutters with bore HW	Shank-type cutters VHW	Saw blades-hoggers	Cutter heads	Planing knives HS	Turnover & profile knives	Scrapers	Block finger joint cutters	Disk finger joint cutters
topCoat 9	Wear protection, smoothing the rake surface	Increase in service life through fewer deposits and hardening the cutting edge (solid wood)			X	X	X	X	X	X	X	X	X	X
topCoat 8	Wear protection	Increased in service life by hardening the cutting edge									X			
topCoat 2	Wear protection	Increase in service life by hardening the cutting edge (panel materials)	X	X			X						X	
topCoat 5	Hardening	Increased in service life by hardening the cutting edge										X		

ToolCloud

THE DIGITAL TOOL TWIN



The "Read an Object" function allows users to scan a respective object and to retrieve information such as measured data, drawings, current status information, etc. on a tool. The functions "Aggregate" and "Disaggregate" carry out "marriages" and "divorces". Tool adapters get "married to" or "divorced from" tools, the same applies to tools with machines or motors. At the same time, each recording process is accompanied by data which are important for the aggregation. In case of a "marriage" between an adapter and a tool, these are new measurement and application data. In case of a "divorce" between a tool and a machine, the number of manufactured pieces or the running meters are documented. The "Location" function assigns the storage locations and tracks the incoming and outgoing tools.

Tool management using a "digital twin in the ToolCloud"

In the future, a digital image of the tool will be created in parallel over the entire life cycle. That means that a digital twin of the physical cutting tool is created for its entire service life. From generating the master data to all processes in the customer's facility (warehouse management, machine data acquisition, etc.), all data are stored in the "data cloud."

Most everyone knows that a tool goes through several repair/sharpening cycles and can, therefore, be repeatedly found in the service department and in the customer's production. The new tool management software also takes these processes into account.

The app is used to digitally record each process ("event") on and with the tool and to save it to the data cloud. Because the "location" of the tool is always recorded, operators can always look up whether the tool is currently on the machine, in the service department or in the warehouse. Just like the actual cutting tool changes during its service life, the data of the digital tool twin are recorded and updated over the whole life cycle of the tool. Since all data are stored in the cloud, users can retrieve and evaluate the data anywhere, anytime and in real time and to take appropriate action, if needed.

Digital tool management in practice

At the beginning of the process, LEUCO will make the master data of the new tools available in the cloud. At their site, users register their machines and storage locations. The individual objects, such as tools, tool adapters, motors, machines and storage locations are clearly identified by means of a data matrix code or a RFID chip. The code or chip contains no data storage, rather only a globally unique serial number. The object data can be found in the data cloud. Since only the object's unique serial number is transmitted, the user has a certain degree of independence. Through these events / recording procedures, the individual process steps are consistently reported in real time.

The digital twin represents unprecedented transparency and offers new possibilities in the tool world, thus paving the way to DIGITALIZATION.



Benefits of the ToolCloud

- | Trend-setting tool management in this industry segment
- | Data model applicable for all tools independent of LEUCO
- | Consistent reporting of the individual process steps in real time

Info

- | Data storage in a safe, neutral and platform-independent cloud
- | Data model in compliance with the VDMA standard sheet 8849: attributes such as diameters, lengths, cutting widths, and others have been standardized by all machine and tool manufacturers, thus ensuring manufacturer-independent communication between machine and tool.
- | Clear identification of the globally unique numbers is guaranteed by the Serialized Global Trade Item Number (SGTINs) from the standardization service GS 1 Germany GmbH.
- | A solution regarding the digital tool management has been developed together with other project partners in the supported Tool Cloud project

**BIG DATA
Analytics**

**TOOLS
LEUCO & OTHER BRANDS**

Standardized
interfaces

Digitalization in the wood and furniture industry

CLOUDS, PLATFORMS, BIG DATA AND MORE.

The trend towards "Industry 4.0" and digitalization is unmistakable. Everywhere we look, information technology is increasingly finding its way into our lives and determining our daily routines. Even in our industry, systems are growing together, communications and interfaces are being created. In an interview, Roland Albert (LEUCO, head of industrial engineering) and Paul Götz (LEUCO, ToolCloud project manager) explain how to keep an eye on machine manufacturer platforms and big data using LEUCO's new tool management platform ToolCloud.



Paul Götz, project manager ToolCloud



Roland Albert, head of industrial engineering

//At its booth during the LIGNA trade fair, the company Homag introduced Tapio as "the digital platform for the wood industry's value chain." Other machine manufacturers also presented their own platforms, including Weinig (MindSphereWorld), Biesse (Sophia), SCM Group (Maestro Datalink). We at LEUCO are relying on ToolCloud how do our customers now know what the platform is for and what the cloud is?

Götz: Our customers use ToolCloud to manage their entire inventory of tools in the form of a "digital twin." They map their tool data in the cloud using an app. Tool status and processing data can be called up and analyzed in real time, of course worldwide. Our cloud solution makes it possible to interact with parent systems or platforms like Tapio, MindSphere, Sophia, etc. using standardized interfaces.

//As a customer, what systems or organizational requirements should I have in place to successfully use a ToolCloud solution?

Albert: The basic requirement for successfully using a ToolCloud solution are clearly marked tools. The medium for identifying the tools can be either a data matrix code or an RFID chip. All data regarding the movement and technological status of each individual tool is clearly assigned via the cloud.

//As a customer, what is the time frame I should estimate for introducing a ToolCloud system?

Götz: With the ToolCloud, we are still in the test phase of the application prototype. In the near future, LEUCO intends to deliver serialized tools and make the matching data records available to individual customers in the ToolCloud. As soon as the app is available, customers can get started right after registering and creating a master data set. The time required to do this will vary from customer to customer because it depends on the number of tools in relevant customer's tool inventor.

//What do you do about existing tools already on the market?

Albert: These have to be identified later on and provided with the necessary master data in the cloud.

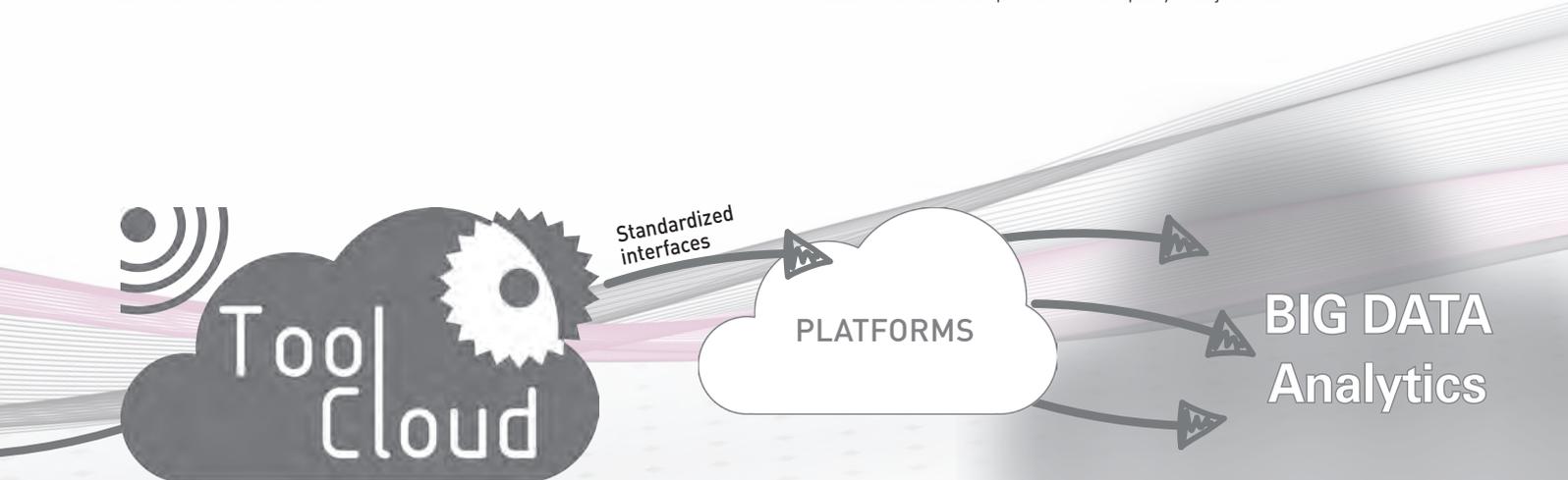
//Normally, customers use different machines and tool systems from various suppliers. Do customers limit themselves if they opt for a ToolCloud solution instead of third-party solutions?

Albert: No, in fact the opposite is true. The ToolCloud is purposefully designed to work with an open system architecture and therefore allows other partners, such as machine and tool manufacturers, to connect using pre-defined interfaces. For us, this is a basic requirement to ensure for our customers the greatest level of flexibility and, in turn, guarantee their independence. Despite the open architecture, the data are secure. formware® – an external, independent cloud supplier – guarantees both the data security as well as a proven authorization concept for the ToolCloud.

//If someone in the field of "Big Data Analytics" wants to be well-positioned for the future, what advice would you give them?

Götz: The increasing connectedness in the age of the internet of things is leading to a greater availability of heterogeneous data that is referred to as "big data." The analysis of these mountains of data, which represent the starting basis for Industry 4.0, can considerably influence all corporate processes and sustainably support them. Essentially, it is all about dealing openly with digitalization and identifying opportunities that arise from it.

The transparency that will emerge in the future through digitally mapping processes will create new and – today unforeseeable – opportunities for our partners, tool, machine, panel and edge banding machine manufacturers to optimize their production processes and, of course, let's not forget users. Processes can be streamlined and strategic decisions made on a more solid basis in order to improve the company's objectives.





One team, one vision - LEUCO Malaysia celebrated its 20th anniversary with an original Asian "Lion Dance" and a meal together with LEUCO CEO Frank Diez (2. row, 11. f.left.), managing director LEUCO Asia Udo Leiber (2. row, 5. f.left.), LEUCO finance director Frank Seifert (3. row, 2. f. left.), LEUCO Malaysia management-team Goh Kun Wha (1. row, 4. f.left.) und Ellen Teh (2. row, 12. f. left.)



20 YEARS LEUCO MALAYSIA 1998 – 2018

Dear customers, partners and friends of LEUCO Malaysia,

LEUCO Malaysia began its journey in Malaysia since Feb 1998 with a promise to consistently provide innovative tooling systems and progressive solutions to manufacturers in Malaysia and neighbouring countries. We started the company with 14 employees.

In year 2001, we had moved to our current location in Cheng Industrial area. Due to the increasing demand on wood tooling solutions, we had established local production in year 2002 with the aim to provide design and solution, speed and excellent customer service to our customers in South East Asia (SEA). We had started with 1 unit of QWD, 1 unit of QW and 1 unit of Schneeberger.

Today, we have become one of the leading names in wood tooling solutions in SEA. With the ability to design with our unigraphics team (connected to holding company), we are able to produce innovative tooling locally. Our Maho 5-Axis milling machine and the latest erosion technology, Vollmer QXD 250 enable LEUCO Malaysia to cater any demand and requirement of our customers. Following vision of LEUCO, we continue to introduce LEUCO innovation tools example p-System, AirStream jointing cutter, PowerTec Hogger and more into SEA

market. When we think about growth, we don't think in terms of office space, employees or revenue. Instead, we're on the verge of disrupting markets, changing our operations to enable faster global market penetration and improving the customer experience. We're working hard to deliver our vision.

We stayed so motivated through the last 20 years in tooling industry. We know it can be done better. And we are going to prove it. The next 20 years could bring even more startling transformations. We will continue to keep our words to provide innovative tooling systems and progressive solutions.

Many thanks to the incredible team in LEUCO Malaysia and the customers that have been so supportive from the start. We are so proud to be part of LEUCO.

From LEUCO Malaysia Management-Team
Goh Kun Wha Ellen Teh

NEW HEAD OF SALES AT LEUCO IN SWITZERLAND

Daniel Gfeller started his new job as the head of sales at LEUCO Switzerland on November 1, 2017.

He is 40 years-old with many years of experience in sales and mechanical engineering and he has big plans to bring in a new era at LEUCO Switzerland. Leuco AG is located in the Swiss city of St. Margrethen and has 30 employees.

In addition to producing special tools, its core expertise also lies in its grinding service. The

Rhine valley company's 8 sales reps cover the entire country. **For the Swiss market, Daniel Gfeller has already set his targets:**

"TOGETHER WITH MY SALES TEAM, WE INTEND TO SECURE AND EXPAND LEUCO'S MARKET POSITION IN SWITZERLAND IN ORDER TO ALWAYS OFFER OUR CUSTOMERS THE BEST PRODUCTS AND SERVICES."



TOOLS ARE EASY TO FIND IN THE ONLINE CATALOG

CHOOSE TOOLS BASED ON MATERIAL, MACHINE, FEATURES OR APPLICATION

From the entire LEUCO tool line, with about 8,500 items, customers can target the right tools to choose. The filters "Material", "Machine", "Feature" and "Product name" narrow down the choice of possible tools further and further.

Example: The user has a certain material and wants a tool for processing it, so he clicks on the Material filter for that material.

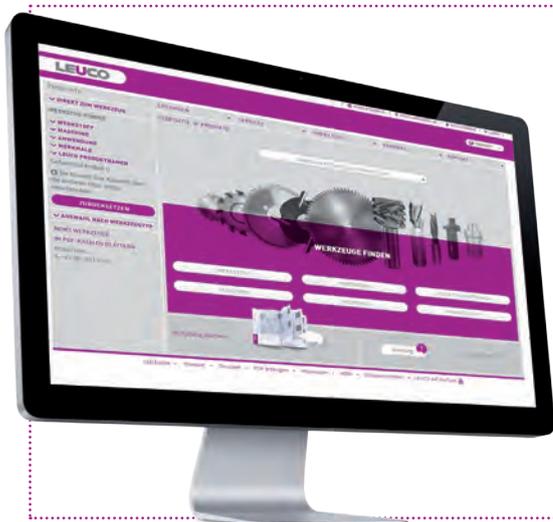
He is shown a number of LEUCO tools and tool types that are suitable for processing the material.

If the user gets too many hits, he can easily narrow down the selection, such as by specifying the tool type more precisely by selecting "circular saw" and the diameter he wants.

The online catalog is extremely flexible. Another of many search options can be chosen, such as first the machine that the tool is needed for, then closer specification of the tool's features, and finally the material to be processed, for example.

Comparison option and price queries

The "Compare" function shows the features or relevant tools side by side. Promising tools are placed in the "Get price" basket. After the address is provided, there is always the option to ask for tool prices.



LEUCO ONLINE CATALOG

FIND TOOLS EASY!

- | **Where:** www.leuco.com/products
- | **What:** Filter tools from the comprehensive, up-to-date LEUCOLine precisely, quickly and easily
- | **When:** 365 days a year, round the clock for everyone
- | **How:** Intuitive to use, without a password, login, etc.

Languages: German, English, Russian, Chinese, French

→ See for yourself how easy it is at
www.leuco.com/products

LEUCO RECEIVES THE "GERMAN BRAND AWARD" FOR THE SECOND CONSECUTIVE YEAR

As part of a festive gala held in Berlin's German Historical Museum in June 2017, LEUCO was awarded the "German Brand Award" in the category "Industry Excellence in Branding."

When it comes to its national and international branding, LEUCO has relied on a consistent corporate design for many years. It includes the areas of company, products, distribution, advertising and communication. This guarantees that the 20 subsidiaries worldwide have a uniform and impressive brand identity that reflects the company's values and objectives. The German Brand Award is the best proof for the success of this strategy.

The German Brand Institute aims to strengthen the importance of the brand as a decisive success

factor for companies in national and international competitive environments. The award is given annually for brands with a clear concept that sets the company apart from the masses. The award is exclusively based on a nomination made beforehand by the interdisciplinary jury comprising companies, science, consulting, services and agencies. In the "Industry Excellence in Branding" category where LEUCO is represented, an award is given to companies with the best product and company brands.

"We are very proud to receive this prestigious award for the second time in a row after 2016," emphasizes LEUCO Marketing Manager Wolfgang Maier.



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, hoppers, 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, Belgium, England, Japan, Poland, Singapore, Thailand, Ukraine and Belarus, as well as sales and production locations in China, France, Malaysia, Russia, Switzerland, South Africa and the U.S., our company is represented on all five continents.

LEUCO
Magentify Wood Processing



ONLINE-CATALOG 24/7
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