LEUCOline

HIGHLIGHTS 2014

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Tools on LEUCO p-System basis

„ECONOMIC MIRACLE“

How do you calculate the economic efficiency of a tool? Economic efficiency is defined by profit divided by expenditure. Transferred to tools, profit means edge life and expenditure means the price of the tool.
In order to make a tool economical the edge life performance must be higher in proportion to the surplus price.

How can you calculate the economic efficiency of the LEUCO p-System tools?
You only have to consider the edge life in relation to the tool´s shear angle. The edge life of a tool with a shear angle of 55° is twice as long compared to a common shear angle of 35° for instance. The p-System tool with a shear angle of 70° reaches 8 times the edge life. This was documented by the engineers of the LEUCO R&D department.

Why does each degree in shear angle count?
The edge life of tools is clearly increasing with larger shear angles. The cutting edge is exposed to less pressure. This means less wear and longer edge life.

THIS INCREASE OF EDGE LIFE BY ITSELF MAKES THE p-SYSTEM THE MOST ECONOMIC TOOL IN THE INDUSTRY SEGMENT.

How are resharpening costs of the diamond-tipped LEUCO p-System tools included?
After resharpening, the tools reach the extremely long edge lives once again and additionally increase the profit.

Free of charge ...
Apart from the reduction of tool costs and the increase in profit you will receive:
- free of charge excellent cutting quality,
- reduced machine downtimes thanks to less tool changes,
- chip-free quality when cutting on end, new
- processing possibilities also for difficult materials
- and much more.

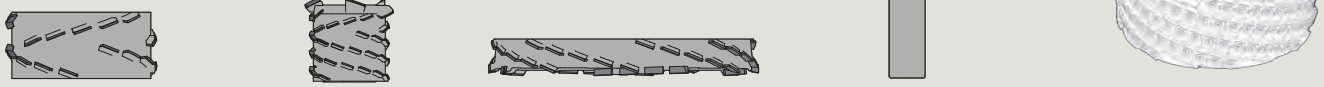
Please read the examples on pages 3, 4, and 16.

LEUCO System Philosophy

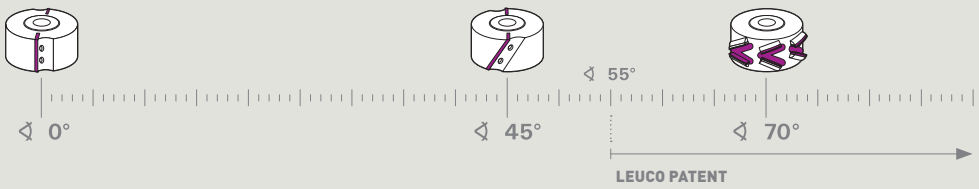
LEUCO p-SYSTEM

p-system®

JOINTING **CHAMFERING** **RABBETING** **GROOVING** **PROFILE CUTTING**



PEELING – THE REVOLUTIONARY WOOD PROCESSING TECHNOLOGY BY MEANS OF THE PATENTED p-SYSTEM



FOR THE STATIONARY OR THROUGH FEED PROCESSING

PEEL IT, SEE IT, FEEL IT!
- best cutting quality in the whole industry segment
- long edge lives
- materials and applications which have been considered as technically impossible so far.

Video about www.leuco.com / LEUCO p-System

WHY SHOULD I BUY A p-SYSTEM?

BECAUSE EVERY DEGREE OF SHEAR ANGLE MORE PAYS OFF!

Report of the LEUCO edge life documentation

THE JOURNEY TO DUBAI

Or: only a nail can stop us

What did you do in November 2010? LEUCO mounted a p-System tool for milling the long side of hard wood scantlings. The cutter which was in operation at the parquet manufacturer Bauwerk in Switzerland was stopped in February 2014 only because of a steel pin in the wood.

„It is true that planing knives are much less expensive compared to a p-System tool, but after 4,906,729 running meters and an edge life of 3.5 years the p-System proved highly efficient," says Paul Hehle of Bauwerk. **„The p-System was not resharpened. I only cleaned it from time to time."**

„The approx. 5 million running meter match the distance between Hamburg and Dubai. Each single cutting edge cut the distance between Leipzig and Göteborg", explains Dr. Dressler from the LEUCO R&D Department.

„Even if I was given the planing knives free of charge, the p-System would be more inexpensive," states Hehle.

A parquet scantling processed with the damaged tool still shows an excellent cutting quality next to the damaged spot on the cutting edge. The microscope picture shows that next to the break the cutting edge is still sharp.

This means that the way back from Dubai to Hamburg would certainly have been possible without the steel pin. With all advantages.

Stop after 4,906,729 running meters only because of a nail in the wood.

The most economical tool of the industry segment

REAL-LIFE EXAMPLE

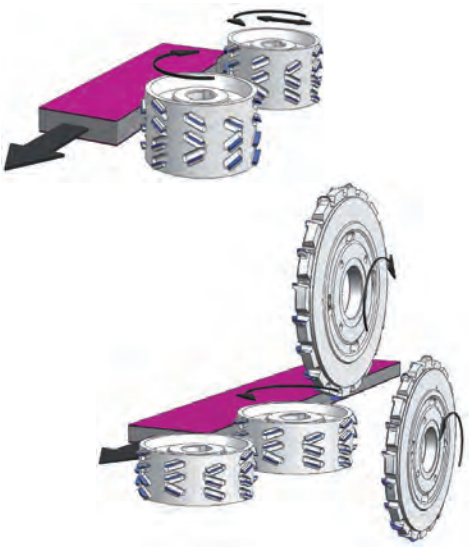
How does the LEUCO p-System pay off for a kitchen manufacturer?

A large kitchen manufacturer produces the cabinet components on several production lines and processes pre-coated 16 mm and 19 mm particle boards. Production is made on through-feed machines with feedrates of up to 70 m/min. The customer´s demand as to jointing is finish-quality as the edging of the panel is done directly afterwards.

For approx. 2 years the kitchen manufacturer has been using LEUCO p-System jointing cutters with a shear angle of 70°. Detailed edge life analyses prove: compared to the previous standard jointing cutters this solution offers 1 million running meters per edge life which means 10 times the edge life of the standard cutters.

The production manager reports:
„We were able to reduce waste due to edge chippings in the decor by 80-90%. As well, machine downtime caused by the change of jointing cutters could be reduced by 90%."

These two factors by themselves allowed savings in the six-digit range. The LEUCO p-System pays off!



**On one machine jointing is done without hoggers with and against feed.
On another machine hogging is done with LEUCO PowerTec hoggers in a double hogging process. The next step is jointing with LEUCO p-System cutters.
Below: p-System jointing cutter**

Applications

NEW QUALITY DIMENSIONS AND APPLICATION POSSIBILITIES

Peeling - The revolutionary wood processing technology by LEUCO

Milling with finish-cut quality without postprocessing

The p-System produces edges in finish-cut quality, time-consuming sanding is no longer necessary.

Chip-free jointing of veneerd boards

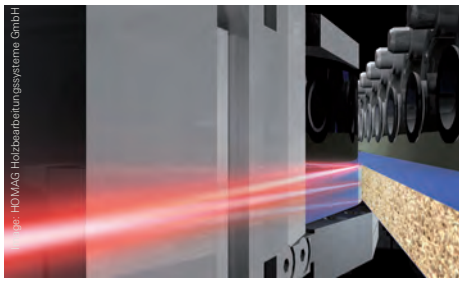
The cutting edges of the p-System cut veneer like a sharp knife. Across the veneer they hardly exert cutting force and make a clean cut, regardless whether the veneer overlap is 2 or 10 mm.

Long edge lives in the case of high-gloss material with protection foil

As soon as the foil was no longer cleanly cut, the tools were changed. Thanks to the shear angle design the p-System cuts the foil „sharp as a razor“ which allows to benefit from the whole edge life of the cutter.

Reduction of downtimes

In the case of end-grain cutting, the p-System often allows to pass the edge against the feed without causing edge chipping. This also works with edged workpiece materials depending on edge thickness and board quality; tool changes are no longer necessary, machine downtimes can be reduced.



Preparing edges for zero joint

Thanks to the cutting edges with very large shear angle, p-System tools cut the surface „like a pair of scissors“ with exceptional edge quality without micro chippings.

EASY MILLING OF LIGHTWEIGHT PANELS

PEEL IT!
SEE IT!
FEEL IT!

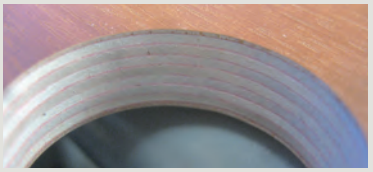
Why is the LEUCO p-System the ideal tool system?

Especially thanks to the LEUCO p-System fibres can be cut extremely well. This results in a good cutting quality not only along the grain but also across the grain. Thus, in wood-based panels such as plywood a clearly increased surface quality can be obtained already by jointing. In such material the critical cutting direction across the grain determines the cutting quality. The round opening on the pictures clearly shows the difference in quality. The p-System cut separates all layers cleanly, the turnover knife cut creates a raw surface in all layers across the grain.

Machining of solid wood with a diamond-tipped tool

In addition, we want to point out that the LEUCO p-System tool is a diamond tool with a much longer edge life than a carbide-tipped turnover knife tool. So far, the meaning was that such materials consisting of solid wood layers require the sharper cutting edge of tungsten carbide.

So far: Jointing quality with TC tipped turn over knives



New: Opening in the same poplar plywood processed by means of a diamond-tipped LEUCO p-System tool. It can be seen and felt that all layers have a smooth and clean surface in spite of the difficult fibrous wood type poplar.

LEUCOline

Recently included in the product range!

UPDATE OF DP JOINTING CUTTERS WITH FULL HEIGHT DIAMOND TIPS

One-part jointing cutter up to D 220 and an adjustable DP jointing cutter

NEW:
Adjustable diamond tipped (DP) jointing cutter

Both jointing cutters are destined for the use on double-end tenoners and are suitable for chip-free jointing of melamine-, paper-, HPL-laminated and veneered panels! The one-part jointing cutters with diameters ranging between 180 and 220 mm are often used for jumping jointing.
Both cutters replace their predecessors and offer improved performance and optimized smaller gullets for better quality and more comfortable noise-reduced working. The large shear angle provides excellent cutting quality even in the case of loose cores and for laser edging.

Which are the advantages of an adjustable jointing cutter?
The cutter covers cutting widths from 22 – 28 mm. Customers processing panel thicknesses from 19 – 25 mm can adjust the cutter 3 times and reach up to 4 single edge lives per resharpening interval.

Which are the advantages of full height diamond tips?
Full height tips mean a resharpening area of 4 mm. Considering an average material removal of 0.35 mm during resharpening, both cutters can be resharpened approx. 11 times. This means a very long life time! The less material is removed per resharpening the higher the number of possible resharpenings.
The adjustable two-part jointing cutter increases this effect as per resharpening interval up to 4 edge lives can be reached. Thus, in an ideal situation the lifetime of the adjustable jointing cutter is 4 times as long.
Full height tipping means maximum economic efficiency. Until the cutter has to be replaced many single edge lives can be reached.

Who benefits most from the new cutters?
Users with high throughput and output quantities for whom the principle of economic efficiency is not only a slogan. Users whose demands include excellent cutting quality also in sensitive materials apart from high output quantities as well as appliers of laser edging.

LEUCO Compact Hoggers

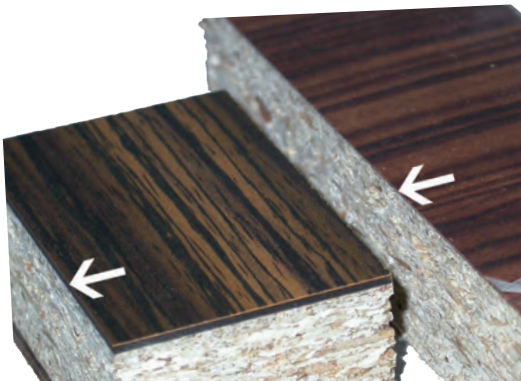
LEUCO POWERTEC III TOPLINE:

High feedrates, perfect quality, more resharpenings, clever cutting widths

Since the market launch the „LEUCO PowerTec III Topline" hogger has established itself on the market as one of the best-selling hogger systems.
The basic difference with regard to the PowerTec predecessors is that the finish cutting edge (negative hook angle) and pre-hogging cutting edge (positive hook angle) are integrated in one gullet. Thus the number of cutting edges can be increased while the diameter remains unchanged. This allows higher feedrates on double-end tenoners.

Advantages of the „PowerTec III Topline"
- The cutting edges of common hoggers partly show large chippings due to high mechanical load caused by foreign substances enclosed in the wood-based panels. In the case of the PowerTec III Topline LEUCO uses reinforced peripheral and finish-cut cutting edges. Less material has to be removed when resharpening which increases the number of possible resharpenings.
- The „PowerTec III Topline" has twice as many peripheral pre-hogging cutting edges than the „PowerTec III" hogger. This advantage pays particularly when cutting across the grain when the cutting edges emerge against the edge. This is why high quality cutting results can be obtained even in the case of low-quality cores of the workpieces. Thanks to its exceptional tooth geometry excellent quality in the decor can be obtained even with high running performances.
- Experience shows that the majority of customers is working with a size allowance of up to 5 mm per side. This is why LEUCO offers the PowerTec III Topline with cutting widths of 8 mm and 15 mm. The 8 mm cutting width hogger can be resharpened in a very economical way.

In addition, LEUCO customers receive the following positive features of the „PowerTec III Topline" free of charge:
- Measurably lower power consumption, audibly lower noise than with common hoggers, long edge life, constant hogging width during the whole lifecycle.
- For all common applications of double hogging for workpiece thickness exceeding 8 mm.
- Available with a number of teeth of up to Z 36 for LEUCO s-System with D 160 mm and D 192 mm



Thanks to the double scraper the last chip creating the surface is always equally thin

BEWARE OF POLISHING!

High-gloss made easy thanks to acrylic coated boards untrimmed in size.

»Good and bad are separated only by one hundredth of a millimeter. This is where Twinblade makes the difference.« Peter Schuon

The furniture manufacturer and supplier MS Schuon shows how the milled radius on the edge band can be brought to high gloss.
30 years ago, MS Schuon produced solid wood bedroom furniture. Today, the furniture manufacturer located in Haiterbach in the Northern Black Forest is processing modern furniture materials in an expert manner. The product range includes furniture fronts laminated with lacquered glass or ceramics. The excess material is flush smoothed, chamfered and polished with the applied edge. Furthermore, there are the most different plastic coatings in high-gloss or super matt as well as aluminum frame elements. For the past 15 years the company has been using this know-how not only for its own furniture programs but has been acting as a supplier for other furniture manufacturers.

Separate supplier area

Here you can find a PUR Hotmelt production line which is laminating boards in a format of 2.80 x 1.3 m with high-gloss acrylics such as „Senosan". These surfaces are offered by MS Schuon under the name of »MS – Acryl«. The glass-like version is called »MS – Organic Glass«. Sharp light reflections testify to the excellent surface stability. In addition, this hall contains the first diode-laser edge banding machine by Homag in whose development MS Schuon participated as a pilot user.

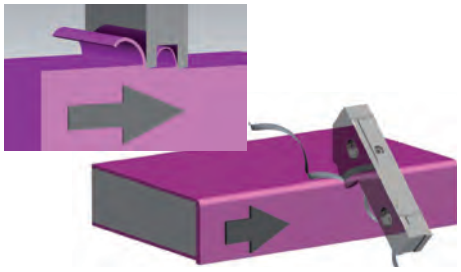
This machine has now been upgraded with the double profile scraper »Twinblade« made by LEUCO. To do this, the Homag mechanic needed one day. The first scraper removes the most part of the material whereas the second removes material only very slightly. Material fracturing caused by the first knife is removed by the second.

Reproducible quality

Peter Schuon says: »surface, edge and rounding shine in an identical way. Thanks to the scraper the machine operator can reach the quality standards much easier. A polishing aggregate would only leave streaks on the surface and deteriorate the result.«

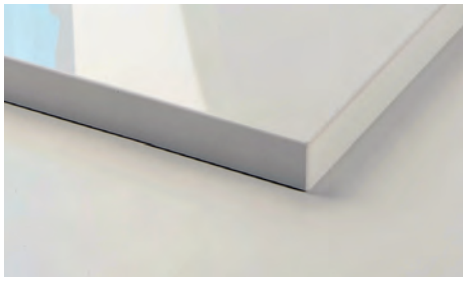
Customer: MS-Schuon GmbH, 72221 Haiterbach/Germany
www.ms-schuon.com

Pictures: Georg Molinski und F. Hermann, abstract, the original report was published in the dds magazine 1/2014



The first knife removes the material, the second creates the surface.

The stepped tool is positioned by CNC. The second knife is responsible for high-gloss.



From their own production and processed with double scraper: MS – Acryl

Through-feed edge trimming

MILLING AND SHINING IN ONE STEP

Function, advantages and application of the „TwinBlade“ Scraper

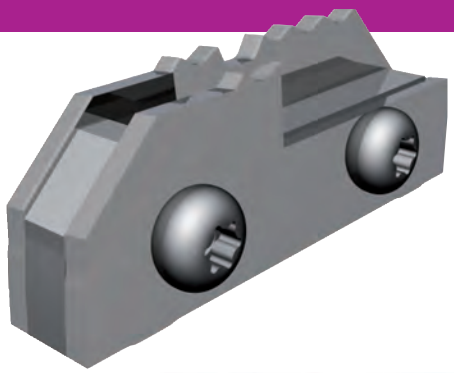
In the case of high-gloss finish, material fracturing has been a challenge for furniture manufacturers for a long time already. The progress made thanks to laser edging of acrylic-coated panels and the precisely tuned step-like arranged knives of the LEUCO „TwinBlade“ Scraper makes it possible to produce a consistent shining surface which appears as if it were lacquered.

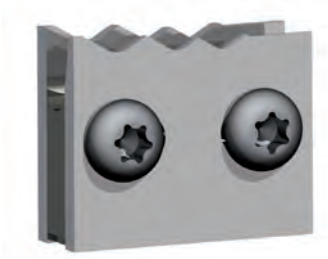
Highest performance for the TwinBlade Scraper

The stepped cut of the LEUCO scraper is produced by two cutting edges which are positioned exactly one behind the other. In the first step knife marks and unevenness are removed. Step two creates a smooth and high-gloss surface without material fracturing. Customers confirm „surface, edge and radius shine in an identical way“. These quality demands are reproducible and no polishing is required. On the contrary, a polishing aggregate would worsen the result by creating streaks.

For six month LEUCO has been offering a new geometry for the TwinBlade scraper which even increases the brilliance by up to 20%. Thanks to the TwinBlade, all PP materials receive their brilliance on one aggregate.

Materials such as ABS and PVC cannot be given a mirror finish by means of the double-knife scraper. Nevertheless, you do not have to renounce on a radius or chamfer even with these materials. For this application the Twin Blade-version for Homag machines offers a single working area on the blade with three freely selectable radii- or chamfer-combinations.
So the LEUCO statement is: „TwinBlade, the best choice for high-gloss edges in one workstep.“





LEUCO TwinBlade for Homag aggregates (above) and IMA aggregates (below)

Through feed edge trimming on HolzHer machines

LEADING THE CHIP IN THE RIGHT DIRECTION

Edge trimming with a chip caption degree of 97%

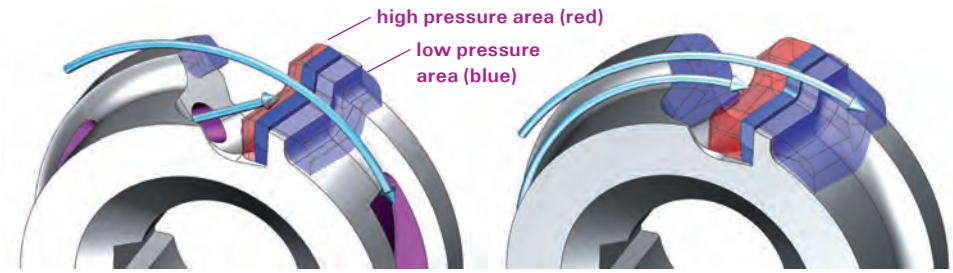
Where work is done you have to clean up chips. This fact was already known by our grandfathers. Now, in cooperation with HOLZ-HER, LEUCO found a solution to show the chips the right direction, furthermore without loud noise.

In the case of edge trimming, everybody wants a clean machine and no chips on the workpiece. With the new „AirStream-System“ we actively influence the chip flow. The AirStream-System uses the rotation of the tool and exerts targeted effect on the air flow to direct the chip flow. In combination with the hood the chip is „told“ at the right time when and in which direction it has to leave the gullet. Thus, a chip caption degree of 97% can be reached! Furthermore, the improved chip direction prevents double hogging of the chips. This has positive effects on the edge life.

How do tools work on the LEUCO „AirStream“ basis?

In the case of standard tools, a low pressure area is created behind the cutting edge and on one side of the gullet as here the air flow stalls. A high pressure area is created on the face of the cutting edge. These different air pressure areas try to level out and the pressure fluctuations are perceived as noise. In the case of „AirStream“ tools a bore at the right place on the tool prevents the creation of air pressure areas. So where nothing is, nothing has to level out and in addition to the 97% chip caption a sound reduction of 3 dB(A) is reached. For the machine operators this means a halving of the sound source. They have the impression that only one tool is in operation.

With immediate effect, the AirStream-System is integrated in all HOLZ-HER edge trimming machines with aggregates 1826 and 1828.
Quite a lot of technology in one single tool: LEUCO and HOLZ-HER show that innovation and quality are in the details.



APPLICATION AIRSTREAM-SYSTEM

- all HOLZ-HER edge trimming machine aggregates 1826 and 1828
- edge rounding cutter and edge jointing cutter
- for jointing and flush-cutting of solid wood, veneer and plastic edge bands

System-based LEUCO saw blades

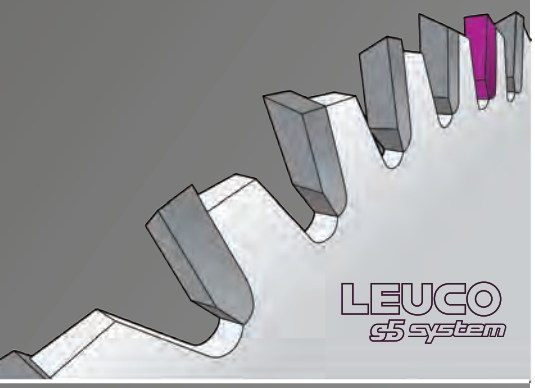
g5-SYSTEM

The same tooth group combination is used for different LEUCO saw blade types.

Why?
At first this combination was applied to sizing saw blades. Then the principle was transferred to chop and miter saw blades, panel sizing saw blades and grooving cutters for stationary processing.

Which is the benefit for users?
This tooth group combination has won real fans among the users. They can rely on the perfect features - for sizing cuts, chop and miter cuts, dividing cuts on the panel sizing saw or grooving on stationary machines -

G5-SYSTEM TOOLS WITH A COMBINATION OF ATB RIGHT-LEFT-RIGHT-LEFT AND A FLAT TOOTH



g5-SYSTEM STANDS FOR

- excellent cutting quality
- low cutting pressure
- thin kerfs
- long edge lives
- low noise level

USE

- wood-based panels, solid wood, plastics, material mix, lightweight construction
- table saws, panel sizing saws, cross-cut saws, CNC

www.leuco.com

LEUCO´s new diamond-tipped saw blades

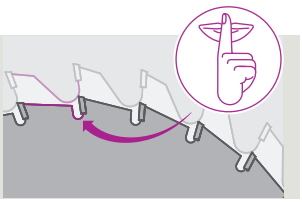
„NO-NOISE“ SAW BLADES

What is it about?
Nobody likes the well-known loud, high-frequent noise of diamond-tipped saw blades during operation.
Thanks to a radical minimization of gullets, LEUCO succeded in reducing the noise of idling diamond-tipped saw blades by up to 6 dB(A) compared to conventional diamond-tipped saw blades.

Is there really „no noise“?
The name of the saw blade program „NoNoise“ is not to be mixed up with no noise at all. It stands it stands for no aggravating noises when working and thus for a new and previously not achieved sound level on horizontal panel sizing saws and table saws which will certainly be appreciated by the machine operators.

And this works in practice?
Yes. The small gullets have proven effective for more than two years in the case of chop saw blades for edge trimming. This principle was transferred to the LEUCO diamond-tipped panel sizing saw blades and sizing saw blades „nn-System“. This principle is reliable.

THE INDUSTRY SEGMENT MUST GET ACCUSTOMED TO A NEW NOISE LEVEL DURING OPERATION WITH LEUCO NN-SYSTEM SAW BLADES: THE PICTURE SHOWS THE GULLETS OF THE PREVIOUS SAW BLADE IN THE BACKGROUND COMPARED TO THE SMALL GULLETS OF THE NEW NN-SYSTEM SAW BLADES.

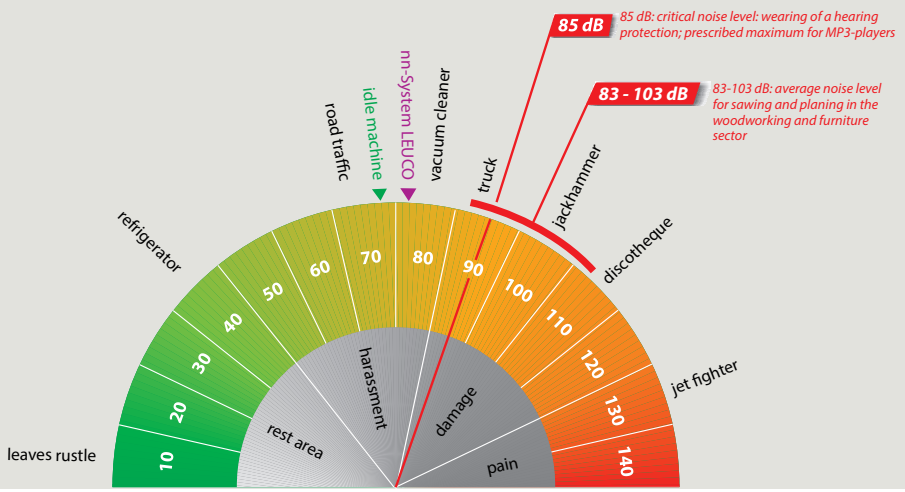


DID YOU KNOW? THE MOST NOISY PLACE IS AT THE SAW

Noise emissions in our industry segment: According to the EU Directive „Noise“, companies are obliged to provide hearing protection for workplaces with a noise level higher than **80 dB**. From 85 dB on, employees are required to wear hearing protection.
Most workplaces in the woodworking and furniture industry as well as in joineries exceed the noise level of 85 dB. The noisiest production steps are **sawing** and **planing** with noise levels between **83 and 103 dB**, followed by milling with 82 to 94 dB.

Noise is caused either by idle running of the tools or during operation. In the case of saw the machine is idling for a long time and the saw blade is just rotating without touching the workpiece material. Nevertheless, noises arising during idling can be louder than during operation. This is the case with so-called „whistling“ saw blades.

Source: Institute for machines (IfW) of the University of Stuttgart, origin of sounds and measures for noise reduction on woodworking machines, 2006



LEUCO

LEUCO´s new diamond-tipped saw blades

LEUCO NN-SYSTEM BLADES IN 2 VERSIONS

PANEL SIZING AND SCORING SAW BLADES

The LEUCO DP Panel Sizing Saw Blade program „NoNoise" with innovative minimal gullets is available up to diameter 450 mm with tooth geometries:

- triple chip - flat with chamfer TR-F-FA for stack cuts and finish cuts, universal application
- tooth group G6 like TR-F-FA, but even longer edge life and less power consumption
- tooth group G3 for stack cuts and finish cuts in raw, veneered or plastic-laminated wood-based panels

Excellent cutting quality on the classic pressure beam machines also requires a scoring saw blade which is optimally adapted to the main saw blade.

This is why LEUCO offers the matching diamond-tipped scoring saw blades. Available tooth geometries:

- conical-flat: universal application in laminated panel boards
- conical WS: for veneered boards
- conical-hollow back: excellent cutting quality in all coating

New are the visibly minimized gullets. These gullets are responsible for the noise reduction of 6 db(A) when idling and provide an acceptable noise level during operation.

SIZING AND SCORING SAW BLADES

The design (tooth geometry and tool body design) guarantees universal application in almost all conventional wood-based panels as well as solid woods and is characterized by an excellent cutting quality. Thanks to the tipping height in LEUCO DIAMAX quality it offers very long tool life. In addition, the DIAMAX tipping guarantees 2 resharpenings. Thus, compared to conventional DP saw blades, the nn-System edition saw blades are much more efficient from the economic point of view.

The diameters 260 mm, 303 mm and 350 mm with a **cutting width of 2.5 mm** are suitable for all **common sizing and table saws, vertical panel sizing saws and chip saws**.

The hollow back geometry provides precise cutting in all common wood-based panels as well as precise longitudinal and cross cuts in solid wood. The low cutting pressure caused by this tooth geometry allows almost rebound-free working.

Matching the main saw blades we also offer scoring saw blades with the tooth geometry conical / alternate top bevel and the diameters 120 mm and 125 mm, also with small gullets.

LEUCO nn-System in use

HERE YOU CAN HEAR THAT NOTHING DISTURBS YOU:

We measured the noise level of a standard diamond-tipped saw blade, the new „nn-System edition" and the idling machine with respectively 4,500 U/min. There is a similar relationship between the „nn-System" edition for panel sizing saw blades and the previous design. Only the absolute values measured differ.

This is how it works:
Read the QR-code with a smartphone. You will be connected with a www address and can listen to the different noise levels of the saw blades.

No matter at which volume level you listen to the „sound" of the saw blades - the difference is clearly audible.
You will find out that in the case of the new nn-System saw blades there is nothing to disturb you!

Machine idling without saw blade, 69.6 dB (A)

Standard: diamond-tipped saw blade, cutting width 3.2 mm, 88 dB(A)

LEUCO nn-System edition: diamond-tipped saw blade, cutting width 2.5 mm, 72,6 dB(A)

Carpenters, joiners, wood mechanics etc. feel the quality level by means of their hands and fingers. In addition, they learn to rate processes from an acoustic point of view and to distinguish even subtle sound nuances. **When sawing with the new LEUCO saw blades you will get familiar with a new sound! We are looking forward to your feedback.**

SAW BLADES MAKE THE WORLD GO ROUND!

Trends, solutions and challenges surrounding panel sizing saw blades

Are there any significant trends in panel-sizing saw blades (horizontal/ vertical) or is this topic artificially hyped by the tool manufacturers?

At first sight, you may think that the tool manufacturers are pushing this topic artificially to persuade a change in the technical environment. But if you look closer, you can see the speed of the reaction to changes.

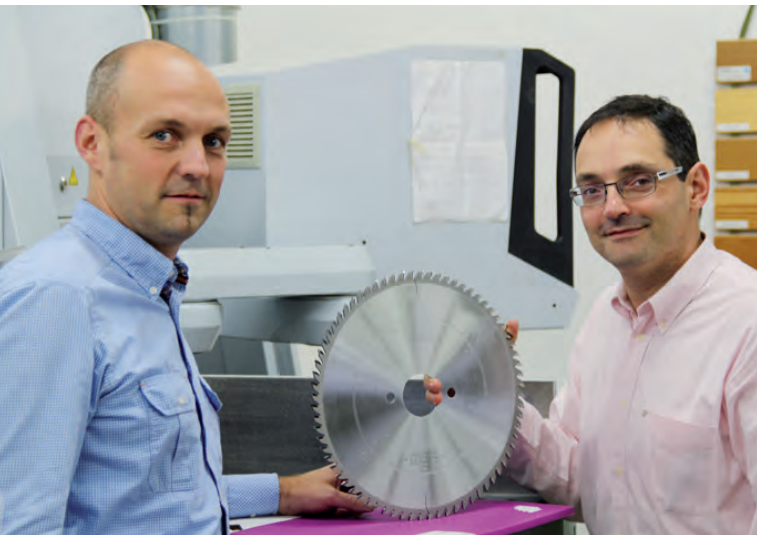
In fact it is not only the variety of materials, surfaces and combination of materials but also the flexibility in production that are of great importance. This is determined by the customer in their search for more individualism and the new combinations discovered along the way. Everything should be unique and at the same time affordable. A challenge for all furniture manufacturers and all involved in the production process.

How can a saw-blade convert these contradictions into a satisfactory solution?

Defining cutting materials, the tooth quantity and geometry, the position and design of expansion slots and laser ornaments, chip space geometry, blade thickness and production processes are all daily tasks for saw blade designers. The designer must know how the components interact with one another in order for the combination to work.

"BIG SOLUTIONS FOR SMALL BATCH SIZES, DIVERSE BOARD MATERIALS, HIGH QUALITY DEMANDS. THIS IS HOW WE SATISFY OUR CUSTOMER NEEDS."

LEUCO saw-blades guarantee body rigidity, for multi-functional applications, optimized tool life and high cutting quality, resource-efficient chipping, and remaining below noise emission standards.



Markus Erkenbrecher, LEUCO Product manager circular saw blades (left) and Dr. Dominique Fendeleur, Head of research and development circular saw blades and finger-jointing tools, are in permanent dialogue with customers and machine manufacturers in order to find the best solution.

What changes have been made?

An essential step has been made in the right direction in terms of the typical LEUCO-LowNoise features, the carbide grade and tooth geometry.

The LEUCO LowNoise features combine in this case the position and design of laser ornaments and expansion slots to achieve a 4- fold dampening effect in comparison with standard saw blades.

The second important change is the use of a special carbide grade, that boasts an extreme bending strength despite its rigidity and has an up to 20% longer tool life, even under extreme conditions.

And last but not least the tooth geometry has been further improved to achieve an optimum combination in terms of quality and tool performance whether for a single or for a stack of boards.

What solution does LEUCO offer?

We have the 2 families within the carbide-tipped panel sizing saw blades – UniCut plus and FinishCut plus. The FinishCut plus focuses on the cutting quality when processing single boards or small stack heights. Whereas the UniCut plus achieves almost identical cutting quality when processing larger stack heights.

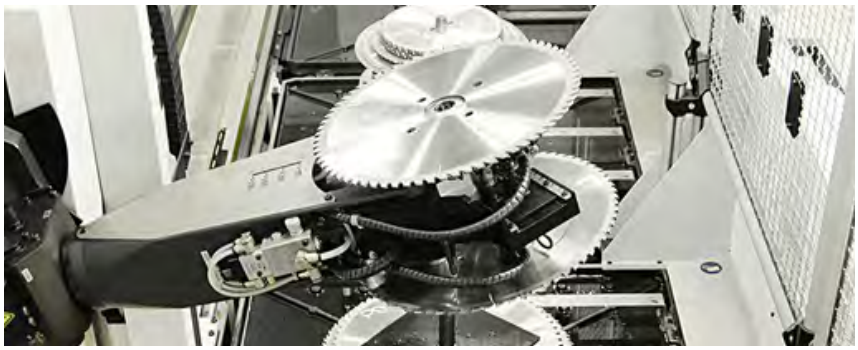
What role do scoring saw blades play?

Every LEUCO sales rep will stress the importance of having a perfect match between main saw blades and scoring saw blades. Therefore the saw blades should ideally be seen as a set. A new generation of scoring saw blades has been developed especially for the FinishCut and UniCut families with a 20% longer tool life.

What are the challenges?

Small batch sizes due to variety and the increasing heterogeneity in material quality when using material with a high recycled content in production, are of great importance.

Also the demand for a finished quality with maximum possible tool life, corresponding with Blue Competence values of a thinner cutting width, is increasing. For the design of a circular saw blade, these requirements are a contradiction in terms.



LEUCO G5- AND G7-SAW BLADES

The systematic way of cutting window profiles

Latest innovation! LEUCO presents the g5- and g7-System saw blades for clipping and miter cuts which will certainly meet the expectations of processors of PVC window profiles: excellent cutting quality and chip-free edges of the window profiles and at the same time long edge life, thin kerf and low noise.

The carbide tipped saw blade „g5-System“ is applied for clipping and miter cuts in plastic profiles. The diamond-tipped version is applied for very abrasive materials such as fiber reinforced profiles. Extremely low-noise cuts and low wear in aluminum profiles are obtained by the g7 saw blades. Their special tooth group geometry and body design provide excellent cutting quality and low cutting pressure. Compared to conventional saw blades with a triple chip – flat geometry noise is reduced by up to 6 dB(A). A reduction of 6 dB(A) gives the feeling of a noise reduction by halves.

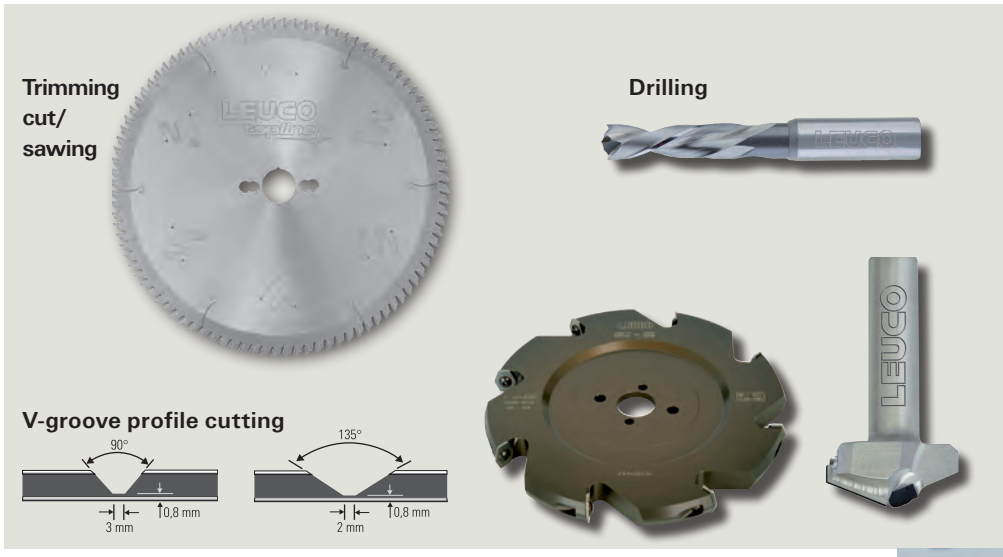
The noise reduced saw blades for fine, chip-free clipping and miter cuts in window profiles left: saw blade „g5-System“ for plastic profiles or fiber reinforced profiles. right: saw blade „g7-System“ for aluminum profiles

Proven and tested: Window manufacturers and manufacturers of clipping and miter saws confirm that clipping and miter cuts of PVC window profiles with the LEUCO g5-System and of aluminum profiles with g7 saw blades are characterized by higher quality, less noise and economic efficiency thanks to long edge lives.

PROCESSING OF ALUMINUM COMPOSITE MATERIALS

LEUCO product range for sawing, milling and drilling

Images: ALUCOBOND®, 3A Composites GmbH



Sawing/trimming cut

Aluminum composite panels can be divided on vertical or horizontal panel sizing saws or on table saws.

Usually, carbide-tipped saw blades are used. Tooth geometry: triple chip/flat with protection chamfer for burr-free edges. Large quantities or panels belonging to fire protection classification A1 can be cut efficiently by means of diamond-tipped saw blades.

Milling

LEUCO V-groove profile cutterheads with anodized aluminum body are tools with consistent cutting circles. They guarantee simple handling thanks to quick knife change. They are used on horizontal panel sizing saws.

On CNC machines the special tooth geometry of diamond-tipped shank-type tools provides excellent cutting surfaces and very long edge lives particularly in abrasive wood-based panels with mineral core.

Drilling

Spiral drill bits made from high speed steel (HS) with a sharp angle of 100° – 140° are suitable for aluminum composite materials.

Longest edge lives with excellent drilling quality in all kinds of panels (A1, B1, B2) can be reached with HW-tipped drill bits of the Mosquito series or the patented LEUCO solid carbide high performance drill bit (HL VHW).

Due to the variety of machines and tasks we recommend to discuss your special application cases with a LEUCO representative.

OPTIMIZED TOOL CONCEPTS FOR CNC MACHINES

Door manufacturing

Pictures: Door production site Brunegg, Switzerland

The development of a tool concept for a machining center is very complex. All details have to be put together individually and must be coordinated. Exact product analysis, listing of items and quantity calculations make possible optimal consulting and an economic tool concept. The economic calculation is the decisive factor.

Door manufacturing: serial production or batch size 1 on the same CNC

The demands

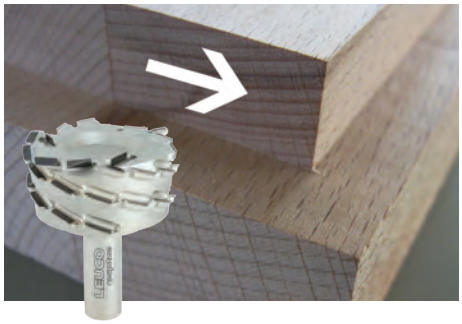
Different rabbet heights and depths, single rabbets and double rabbets with different door thicknesses, all kinds of door locks, all variants of fittings and hinges have to be cut in a chip-free quality. There is a multitude of materials and especially composite materials with hardboard and aluminum covers are not easy to process which is above all due to edge life reasons. Door core materials range from fir wood up to hard wood. All wood types have to be milled with finish-quality requiring no further postprocessing. There are standard profiles which are used in serial production and single doors with special profiles and fittings.

The tool system

The LEUCO Modula-System is the ideal basic component for the whole range of cutters. It is based on a design-kit principle. The modular design of the tools offers high flexibility at lowest costs. Cutterheads available from stock can also be supplemented with LEUCO-DIA cutters. Excellent cutting quality and long edge lives can be obtained in solid wood and also in hardboards. The turnover knives often have to be turned after approx. 200-300 doors only. Expensive machine downtimes and time-consuming knife changes can thus be reduced.
The economic efficiency of a tool is revealed by the costs per running meter.
Regarding the price, a tool can be more expensive by 50% whereas the costs per running meter can be inferior by 60%.

Small but highly productive

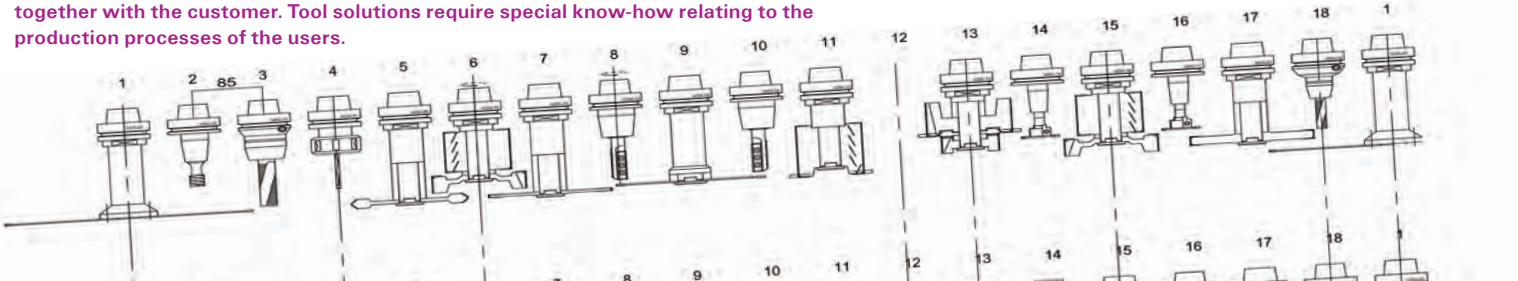
At the present time, Modula is the smallest tool system of its kind on the market. The root diameter of Ø 70 mm allows for high RPM which lead to an increased productivity.
Real-life examples
A complex Modula door set allows an RPM of 14,500 U/min. With a feed of 0.3 mm per tooth this results in a feed of 8.7 m per minute. Conventional sets with a larger diameter are limited to an RPM of 13,000 U/min and reach a feed of 7.8 m with the same cutting performance. Thus the increase in performance amounts to 11%.
Rabbeting sets for feeds > 13 m/min with a door thickness of 50 mm can also be realized.



Perfect high performance rabbeting on tilted spindles.

For perfect cutting quality on both rabbet sides on machines with a tiltable spindle LEUCO offers the diamond-tipped p-System Rabbeting Cutters with patented shear angle geometry.
Used on spindles tilted by 5° these DP tools create maximum cutting quality on both rabbet sides, chip-free cuts also on the exit side and longest edge lives.

The customers´ wishes are often distinctive and individual - like a fingerprint. Tool solutions for special applications are worked out by LEUCO at the customer´s site together with the customer. Tool solutions require special know-how relating to the production processes of the users.



Stationary processing

ROUGHING-CUTTER

Shank-type roughing cutters are ideal for operations to remove material as effectively and quickly as possible when a particularly high dimensional accuracy and surface finish is not required.
In hard, abrasive materials such as hard wood, wood-based panels, HPL compact boards and composite materials the edge lives of VHW roughing cutter are often drastically reduced. The new LEUCO diamond-tipped roughing cutters exceed by far the edge lives of coated solid tungsten carbide cutters particularly in the above mentioned materials.
The extensive gullets provide high milling performance, the cutting edges with alternating shear angle guarantee chip-free cutting edges in roughing quality. These economical LEUCO high performance tools are available from stock with cutting and shank diameters of respectively 20 mm with cutting length of 35 mm or 55 mm.

5-axis stationary routing

LEUCO SPHERICAL CUTTER

„The ideal tool for the basic equipment of a 5-axis machine", said a LEUCO customer.
The high removal volume reached by the LEUCO Spherical Cutterhead and the simple change of the tungsten carbide knives are certainly two important features of this tool. It is excellently suitable for the milling of shapes and contours in solid wood and wood-based panels. The cutterhead with a milling radius R=32.5 mm - ideally clamped in a precision clamping system (ps-System, hydro expansion chuck, Tribos or heat shrink-fit chuck) - is approved for max. RPM of 15,000 U/min. This means excellent cutting quality and cutting speed.

Considering the radius the diamond-tipped Spherical Cutterhead with R=20 mms his „small brother", regarding the performance it is his „big brother".
The spherical head cutter is the long-distance runner in the production of string wreaths, 3D mold designs and many other 5-axis applications. The harder the material the better and the more economical is this tool.

The standard program will include the radii 20, 15 and 10 mm. Other radii are available on request.

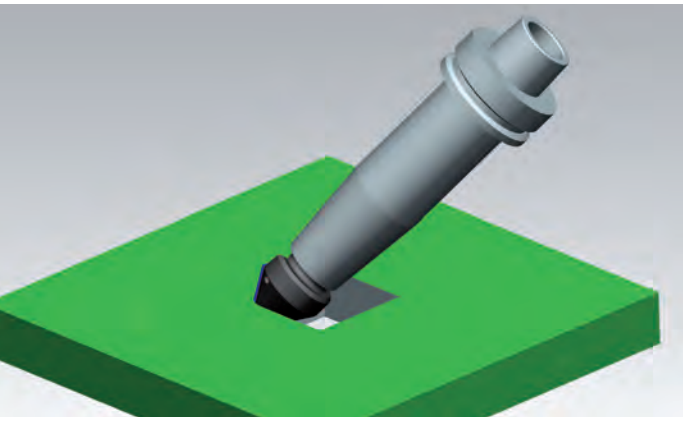
Spherical Cutterhead:
diamond tipped ▸
tungsten carbide ▾

Perfect for jointing of contours and form in solid wood and wood based panels

New scribing cutter

RAZOR SHARP

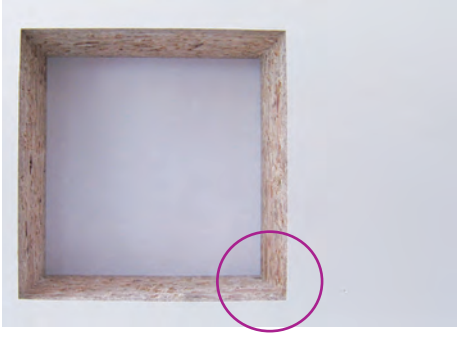
Clean inside corners without manual post-processing



90° corners are no problem for a 5-axis CNC machine. The inside corners are milled by means of a scribing cutter and no additional manual work is required. Whether veneered, laminated or coated with synthetic resin - the corners are cleanly milled. The new LEUCO scribing cutters with turnover knives no longer need manual work. Glass cut-outs or other 90° corners can be made in razor sharp quality. The turnover knife version is very advantageous as length and diameter of the tool remain constant. On the tool-card the application angle is exactly defined and can be transferred directly to the machine.

The overall solution includes more than only a tool!
From LEUCO you do not get only tools but also solutions for the production. For the most common processes in interior design LEUCO is supplying program aids in which the processes are clearly described and visually recognizable. This includes documentation on feeds, speeds and other evidence for optimal production.

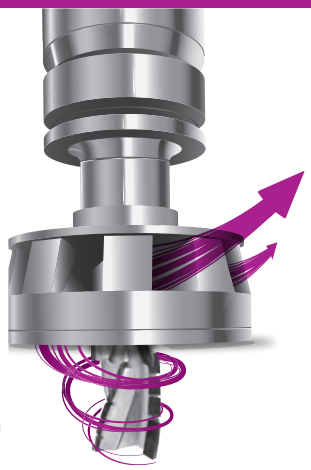
The new scribing cutter:
no matter which material, whether veneered, laminated or coated with synthetic resin...



...the corners are cleanly milled without manual work required.

CLEAN WORKING ENVIRONMENT, PERFECT EDGE QUALITY AND LONGER EDGE LIVES

Solutions for optimized working at the CNC machining center



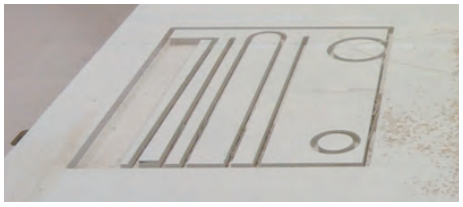
Processors of raw MDF material on stationary machines know the problem: How to cope with the fine dust to keep the machine surroundings clean and to minimize the health risks for machine operators?

If chips are not extracted well – especially in the case of dividing cuts (Nesting!) – there will be the effect of double hogging. This inevitably leads to increased heat development and thus accelerates the dulling of the tool.
The cutting edges and the gullets of a diamond-tipped LEUCO „CM" high performance shank-type cutter are designed to make sure that the chips created during the hogging process are mostly lead upwards in the direction of the dust extraction. By means of this measure the chip caption degree is considerably improved already. „CM" stands for „Chip Meister" , casually formulated „Lord of the chips". This means increased edge lives, increased machine availability and at the same time excellent workpiece quality. The advantages for the customers are increased productivity and economic efficiency of the machine.

The "Lord of the chips" is characterized by maximum gullet size designed to optimize the chip flow. The CM concept was realized for the DP Nesting High Performance Shank-Type Cutters, too.

The chip extraction turbine AEROTECH Universal allows the use of shank diameters from 6 to 16 mm.

The directed chip flow thanks to the optimized „LEUCO CM" cutting edge geometry can be seen during the milling process on a machine.



Remaining chip quantities when nesting with CM Cutters & AEROTECH

Optimization of the whole CNC system thanks to the chip turbine AEROTECH

The turbine-like clamping and chip removal system funnels the chips which are lead upwards by the CM cutter and guides them through integrated openings to the dust extraction of the machine.
The impressive effectiveness of the system is shown by the small quantity of chips remaining on the workpiece or in the cutting gaps. In addition, the cooling effect which is created has a positive effect on the edge lives of the tools. The positive effects are increased edge lives.

The special features of the AEROTECH take effect not only particularly in Nesting processes but also in the case of chip- and dust-intensive processes such as in series production of shutter grooves, door fillings, pockets in stair stringers, grooves or pockets in acoustic panels, milling of MDF or machining of Eternit panels or even GFK materials.

Apart from the proven AEROTECH Universal (with collet chuck technology) the LEUCO AEROTECH program offers as well the AEROTECH Hydro 25 with easy to handle but high precision hydro expansion clamping.

Welcome AEROTECH HYDRO 16!

The most recent member of the AEROTECH family: The AEROTECH Hydro 16 - ideal for the direct mounting of tools with a shank diameter of 16 mm.
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. AEROTEC products can hardly be outperformed as they have a clear ad-vantage over suction aids which are composed of several individual components.

Clamping device and extraction turbine at the same time

AEROTECH – OVERVIEW

Handling, application, availability

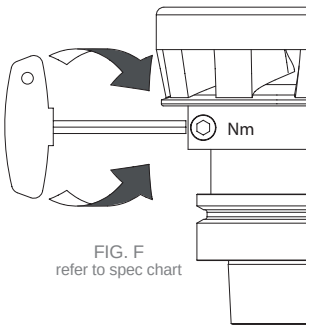


FIG. F
refer to spec chart

Simple but high-precision clamping in the case of the AEROTECH Hydro:
The clamping screw must be screwed in up to the stop by means of an allen key (10 Nm).

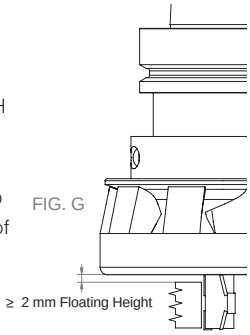


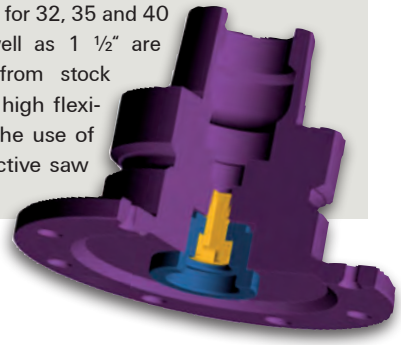
FIG. G

The ideal floating height ranges between 2 and 10 mm, depending on the AEROTECH version

AEROTECH	interface	shank [mm]	tool [mm]	clamping	no. of wings	field of application
Universal	HSK F63	ø16	ø95	collet chuck	7	low density materials (e.g. soft wood), plywood, gypsum boards, etc.
Universal	HSK F63	ø16	ø95	collet chuck	9	particle board, MDF, OSB, hard wood, aluminum, plastic
Hydro 16	HSK F63	ø16	ø95	hydro expansion	9	
Hydro 25	HSK F63	ø25	ø105	hydro expansion	9	
Hydro 20	SK 30	ø20	ø95	hydro expansion	9	

SMART SOLUTION FOR SAWING ON CNC MACHINES

CNC machine operators know the multitude of workpiece materials which have to be processed every day: wood-based panels, solid wood, plastic boards, aluminum, composite materials, acrylic glass. The standard saw blade is not equally well suited for all materials. The question is, what kind of saw blade should be used for which material. As soon as the optimal saw blade has been found there is another problem: it has a different bore diameter and does not fit on the available adapter. Is it better to buy an additional adapter or a special saw blade with a matching bore.
The LEUCO combi adapters with HSK 63 F interface have exchangeable centering adapters (standard: 30 mm). In addition, these high-precision centerings for 32, 35 and 40 mm as well as 1 ½" are available from stock and offer high flexibility for the use of the respective saw blade.



Extra-long draw-in collet chucks with internal lock nut

LEUCO SMART CNC

Use of standard tools at the CNC thanks to draw-in collet chuck

The modern 5-axis technology proves its benefit with the appropriate accessories. LEUCO offers extra-long slim draw-in collet chucks for CNC machine aggregates with a standard HSK-F63 interface. This allows to reach areas on workpieces which are hard to access with standard cutters and drill bits. For the processing of special moldings with deep cavities, i.e. manufacturing of stairs, chairs, etc. expensive extra-long special tools are often no longer required.

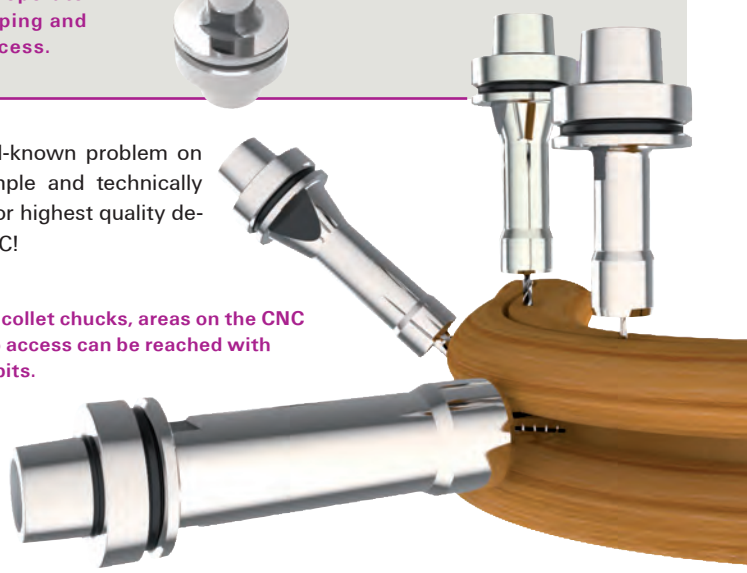
The balance quality of G 2.5 allows high RPM up to 36,000 U/min and guarantees extremely smooth running of the tools and excellent surface quality. The required high clamping forces are reached thanks to the patented internal Zeta® safety profile. Thanks to the unique form fit of clamping key and clamping nut there is no danger of injury (slip off) for the operator during the clamping and unclamping process.

Thanks to the unique form fit of clamping key and clamping nut there is no danger of injury (slip off) for the operator during the clamping and unclamping process.

The slim LEUCO draw-in collet chuck with internal lock nut has a balance quality of G 2.5 and offers high precision running. It is available in several diameters and length, partly up to 250 mm.

Smart solution for a well-known problem on stationary machines, simple and technically perfect implementation for highest quality demands - LEUCO SmartCNC!

Thanks to the new LEUCO collet chucks, areas on the CNC machine which are hard to access can be reached with standard cutters and drill bits.



Praxisbericht über den Einsatz des p-System-Eckenfräser im Holzwerk Dold/Buchenbach

A FAREWELL TO THE WOOD CHIP DOGMA

„Peeled" wood shavings prevent tear-outs and fit into the pellet press

Instead of hogged wood chips the Dold sawmill produces wood shavings for pelletizing when profiling during the recut. For this purpose, LEUCO developed a new tool in cooperation with EWD. The p-System-profile cutter operates at an angle of 70° with a pulling cut. This makes for extremely long edge life and high quality sawn timber.

A raw material traded below value for a long time has now spurred demand in recent years. In the form of wood pellets, wood shavings and sawdust have wound up in a high value market, which has been booming for years. Prices for sawdust have tripled in the past decade. It comes as no surprise that the attitude of woodworking entrepreneurs towards sawmill by-products has changed. Quality hogged chips are increasingly used for pellet production when seasonal demand is high. However, the chips must be downsized for that purpose. Yet a new generation of tools makes this process obsolete. LEUCO, Horb am Neckar/DE, has developed a profile cutter with 160 knives, which produces „granular particles" that can go directly onto the belt dryer of the pellet plant. The necessary saw line know-how comes from EWD, Altötting/DE. Together they have implemented the „p-System" in Dold's sawmill in Buchenbach/Germany.

Dr. Martin Dressler presenting „the heaviest tool in the history of LEUCO"

No tear-offs at the center boards

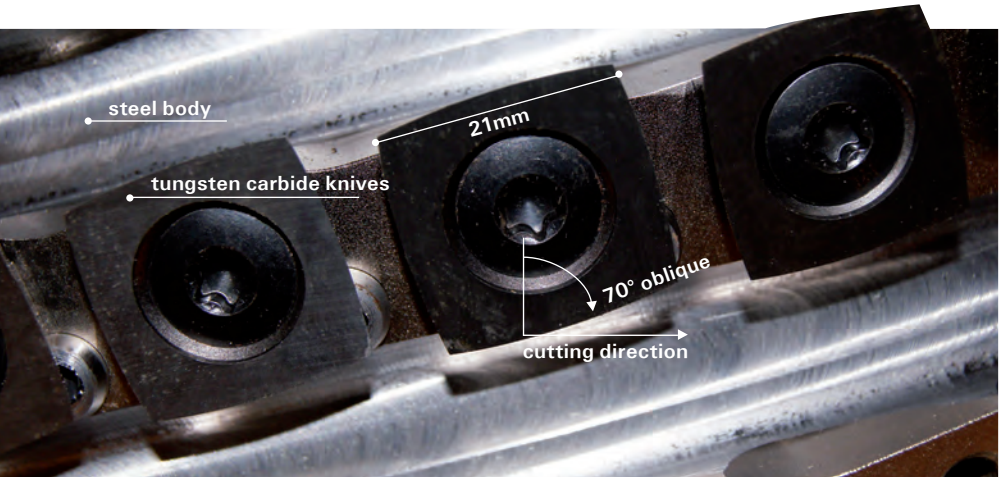
The chipper canter in Buchenbach was supplied by EWD. The resaw unit installed in 2002 was the ideal machine for the extensive testing. Milling unit FR15 – followed by milling and sawing unit FR16 – machines the center wood and cuts off the side boards. Such a system configuration is ideal for testing new tools. If the new product does not stand the test, the well-proven second unit can step in. But that was not necessary. The new tool fulfilled everybody's expectations.

The chipper canter is followed by a profile cutter which is to shape the center wood in such a way that it yields sharp-edged boards. This step involves a long unresolved problem: Conventional tools follow the paradigm of the TMP-chips and form large particles. However, the forces at play here cause damage to the center wood – especially at the fiber around knots. The p-System („P" stands for „peel") of LEUCO, on the other hand, prevents tearing. The cutting edges of the tool system which was presented three years ago perform an extreme pulling cut. So far, this type of cutting edges are employed mainly with wood materials and in furniture making. Now the system makes its entry into the sawmills. However, the requirements placed on a tool there are completely different from those in particle board processing.

The challenging development work can be summed up in one sentence: Yes, it works, because LEUCO built the largest tool that ever left the factory buildings.

160 carbide cutting edges on 36 cm

The tools had to be compatible with Dold's system. This led to a tool with a diameter of 36 cm, 12 cm height and a weight of 100 kg. It sits on a vertical shaft with a diameter of 8 cm. The body of the prototype was still made of aluminum. For the final product, LEUCO developed a steel body for its p-System profile cutter. In the case of vertical shafts, the tool has four segments which can be detached individually for easier handling. Tools for horizontal shafts can be removed individually and are therefore made in one piece. Eight rows of coin-sized, four-sided cutting edges sit along the periphery in spiral array – alltogether 160 pieces. Unlike conventional p-System tools, the profile cutter edges do not consist of diamond material, but are made of hard metal. Because of its impact resistance, this material is much better suited for harsh sawmill everyday life than the material of pure carbon.



2 million running meters tool life is impressive

In September 2012, the p-System profile cutter was tested at Dold's premises in a week's trial session – but only on the left side, which facilitated a comparison between old and new tools. „After this week, they did not allow us to take off the new profile cutter anymore", says Dr. Martin Dressler, who headed the project for LEUCO. The few days' trial has made it quite clear: The cutting quality is superior to the one produced by tools previously used.

Meanwhile, the p-System profile cutter has been in operation for more than a year. According to Herbert Dold, CEO of Dold Holzwerke, the time factor is important to evaluate a new product, as it must stand the test when processing summer warm spruce and frozen fir alike. So now it is time to draw a conclusion: Depending on who you ask, responses vary – but they are always positive.

Sawmiller Dold primarily emphasizes the cutting quality. „We use the center boards in the adjacent panel plant for producing solid wood panels. As with the new p-System cutter there are no more tear-outs, we have more immaculate boards suitable for the cover layers", he says.

Being all tools researcher, Dressler on the other hand stresses the stability factor. „We need to rotate the knives only every four months now. Sharpening is not necessary. In Dold's workshop we have reached cut lengths of more than 2 million running meters. This is far more than we had expected." Worn-out cutting edges do not produce a poorer cutting quality, but instead lead to an increased power consumption, says Dressler.

For the third advantage of the new tool, Christian Wangler is the best person to talk to. The manager of the integrated pellet plant says: „Sawdust and shavings coming from the profile cutter can go directly onto the belt dryer. Since they are finer than wood chips, drying takes less energy." Not only that, thanks to the LEUCO profile cutter Dold has decided not to purchase a hammer mill for wet wood chips treatment. Nevertheless, the 40,000 t/yr-pelletizing plant has enough raw material coming out of the sawmill with a log consumption of 300,000 sqm.

LEUCO

The tool works its way through the center wood at up to 75 m/min leaving a squeaky clean edge

Shavings come from the profile cutter this fine and are collected separately

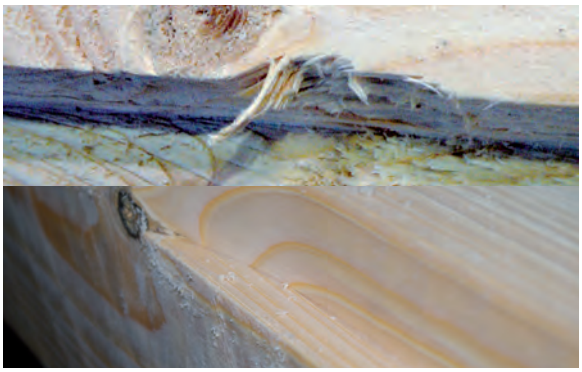
In the adjacent pellet plant, the shavings achieve added value in the form of EN-Plus Pellets

Credit side prevails

The three advantages summarized: The pulling cut facilitates the production of higher quality side and center boards. Set-up times are significantly lower because the resharpening can be omitted and service life is several times higher. In the downstream pellet production, the energy requirement for drying and down-sizing is reduced. Of course, there are also disadvantages. Compared with classical tools, a p-System profile cutter requires more energy. In addition, a tool with a 160 carbide knives is initially more expensive. But these two aspects are more than outweighed by the benefits, Dold is convinced. Due to the older design of the primary cut unit of his sawmill, no p-System cutters can be retrofitted there. But once this part of the saw line is up for renewal, it can be assumed that the pulling cut will be introduced there as well. In addition, LEUCO, EWD and Dold are working on how to use this technology elsewhere in the saw line.

Retrofitting possible, but not everywhere LEUCO markets the p-System profile cutter exclusively for machines of its development partners EWD and Linck, Oberkirch/DE. Saw lines designed by these two companies can be retrofitted – but not all. „If required, we will check the machine for installation options. Then we will come up with suggestions for adaption", says EWD technology manager Klaus Klett. Especially in companies with integrated pellet production, this retrofit can pay off quite quickly.

Authorized translation of the Holzkurier-article: „Abkehr vom Hackschnitzel-Dogma", published in issue 4/2014 on January 23rd 2014



p-System in greater detail: The hard metal knives work at extreme angles

Weighs 100 kg and is subdivided into four segments – LEUCO's p-System-profile cutter at the Dold sawmill

NEW FROM LEUCO: HIGH PERFORMANCE FINGER JOINT CUTTERS

Short fingers of 6/7mm

Ideal material yield is a cornerstone of efficiency. Especially for the production of gluelam and solid wood furnitures the raw material saving use of longitudinal and cross joints is important. Another cornerstone is machine productivity. Machine productivity can be obtained by increasing cycle rates, feedrates or RPM.
The new finger joint cutter with a finger length of 6/7 mm and a higher number of cutting edges fulfils both demands: short fingers also for cross joints in short woods, feedrates up to 52 m/min. RPM and finger quality are identical with those of cutters with less cutting edges.

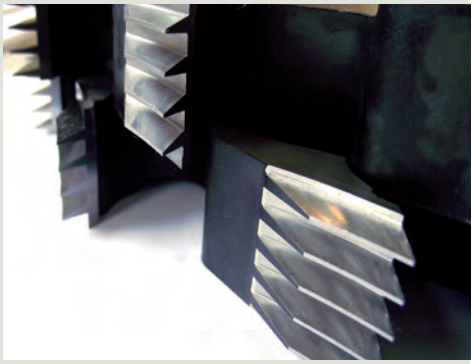
Data at a glance

- Cuttting material: High speed steel [HS]
- 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
- Minimized risk of shrinking of short wood pieces
- Minor chipping when exiting the wood even at the edge life´s end

Sealed finger joints with 6 mm



The new LEUCO High-Performance Finger Joint Cutter: short fingers and high feedrates

LVT – RISING STAR OR SUSTAINABLE TREND?

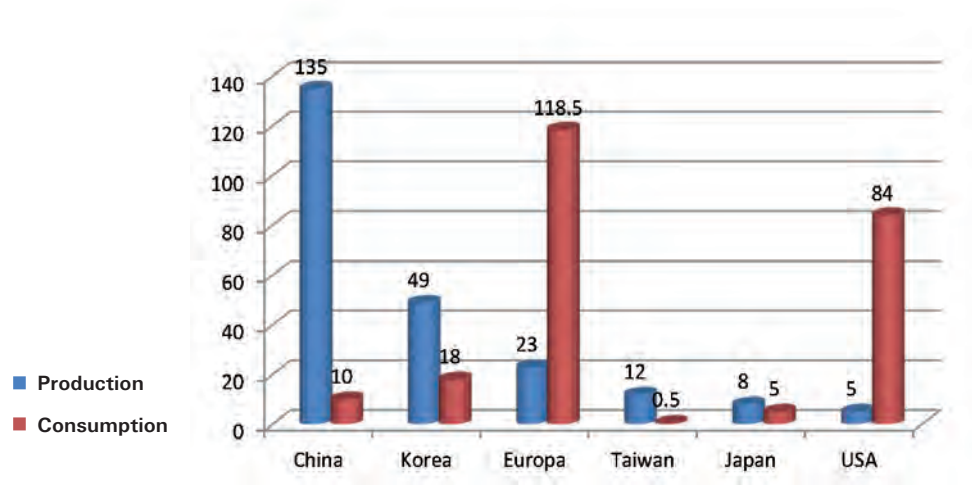
There is a new magic word in the flooring industry

LVT Luxury Vinyl Tile is a thermoplastically produced heterogeneous flooring that is available in a vast range of surface designs. LVT stands for Luxury Vinyl Tile, and as the name suggests, it is predominantly sold in the high-quality segment of the market.

To suspect that it is just a niche product would be fundamentally wrong. This segment covers approximately ¼ of the sold square metres of laminate flooring worldwide. The rising global figures have aroused interest and have led to diverse investments.

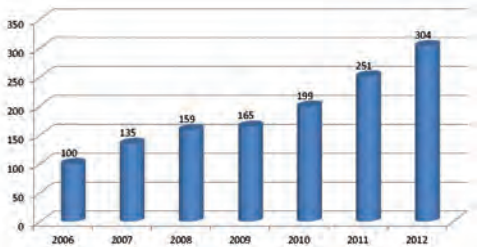
The vast majority of the worldwide production volume is currently produced in China.
The almost unlimited design possibilities, and the fact that it is available as a click-system, have both significantly contributed to the products breakthrough on the market. If you compare the global production with global consumption, you can see that China and Korea are currently the leading worldwide manufacturers.

Production vs. consumption of LVT in million square meters



Source: China Export and own calculations

Increase in Chinese LVT exhibits in %



Source: China Export and own calculations

From an applications point of view, LVT is a very interesting product. Its structure and design make it very suitable as a flooring option in intensively used commercial properties, it is water resistant and is not as thick as laminate flooring with a standard thickness of 4 to 5 mm.

There are already some products on the market with a thickness of just 3mm and a click system. In this case the click system has to be produced to a high degree of conformity and precision.

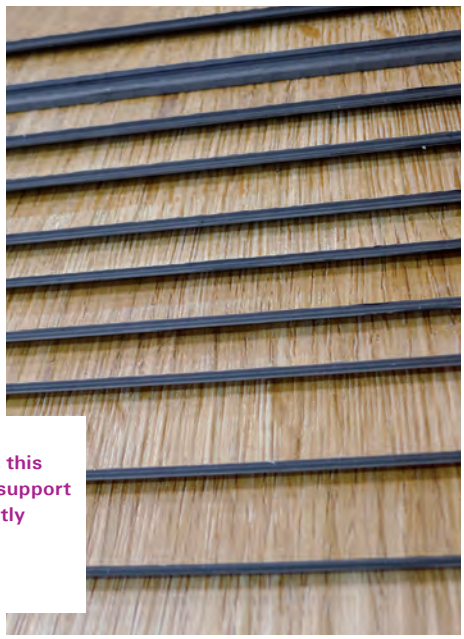
This is reason enough for the diamond tool specialists LEUCO to look intensively at this interesting product.

The material itself places high requirements in terms of machines and tools. The filling material is extremely abrasive and therefore courses rapid tool wear. Carbide tools are not hard enough for working this material and therefore diamond tipped tools are absolutely necessary.

Furthermore, the material is thermically mouldable due to the PVC content. This places even higher demands on the tools cutting geometry. All the resulting chipping and dust are electrostatically chargeable and require new hood and extraction concepts.

As a tool retailer in China with our own production and 4 sharpening centres, LEUCO has positioned itself as a leader in this segment, due to our experience with laminate flooring and our intensive research and development into this product. By working closely with Novalis International Ltd., the first LVT manufacturer in China (since 1987), there is already a long-standing wealth of experience and all standard profile patents (Unilin, Välinge etc.)can be processed according to customer specifications and adjusted specifically in the tool design.

Due to worldwide co-operation with all major machine manufacturers in the flooring industry, and its own international network, LEUCO can sustainably meet all relevant customer needs, whether in China or elsewhere in the world. A recipe for success for a product that will quite literally be trampled on!



Initially dismissed by many critics as PVC flooring, this product has emerged as a growth and innovation support for an entire industry worldwide. There are currently worldwide, production plants in the planning and implementation stages for 200 million dollars.

LEUCOline

I ALWAYS HAVE TO RELY ON THE DRIVER FOR THE SHARPENING SERVICE.

JUST ONE? WE HAVE 7500 DRIVERS!

A PICK-UP DRIVER? WE HAVE 7500 OF THEM!

Tool collection from the customer via a parcel service.

The new customer service offer from LEUCO which started in 2013, has proven to be very much in demand. Dull tools can be put in a specially designed service box, and are then collected by a parcel service.

How does the sharpening service via service box and parcel service work?

The LEUCO sales representative explained the process in detail at the company Wössner, and left a service box with them. The production manager can call a special LEUCO hotline to request the sharpening of dull tools when necessary. Within 48 hours the service box will be collected at the customer and delivered direct to a designated LEUCO tool sharpening centre. After the re-sharpening has been carried out to manufacture standard, the service box is returned to the customer within 9 days.

What do the service boxes look like?

The specially designed LEUCO services boxes are made of plastic and are available in 2 different sizes. Up to 13 saw blades can be transported in these robust boxes from the customer's production site to the next designated sharpening centre. The maximum diameter of 450 mm applies for these boxes.

Advantages of this service

With this service concept, LEUCO offers its customers complete control as to when dull tools are collected, sharpened to manufacturer standard and returned. This allows the customer a high level of flexibility.

The parcel service is ideally suited to...

Small and medium size businesses in the wood and furniture industry with normal to increased and/or irregular sharpening cycles.
For more information on the LEUCO service box, the LEUCO sales department and representatives are willing to help.

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iBlade – the tool Intelligence

TRANSPARENCY AND COST CONTROL

Thanks to the „iBlade", LEUCO offers their customers a system for tool data tracking

iBlade® the tool intelligence

Where is the tool-card? When did I buy the tool? How much did I pay for it? How often has it been serviced so far? Is it worth while buying such a tool again? These are questions which arise as soon as a tool has to be replaced and costs and benefit have to be considered.

Tool data management „iBlade®"

The whole system consists of a RFID-Chip (Radio-Frequency Identification) which is attached to the tool, an iBlade® data reading pen and the iBlade® software. The chip allows to save more than 30 service cycles as well as other information. It can be attached to almost every tool. The existing tool inventory and new tools can easily be equipped. The chip is resistant to interferences such as magnetic fields, ultrasound, temperatures of up to 150° etc.
The „iBlade® Reader", a scanner and writing pen, reads and writes the data with a distance of max. 3 mm to the chip.

By the iBladeReader data is read from the chip or uploaded to the chip

Overview of tool inventory

As soon as all data is in the system you only need two mouse clicks in the tool management program to find out which tools are in operation, in service or in the storeroom.
The iBlade® allows new concepts in the woodworking and furniture sector, whether with through-feed and stationary processing or sawing no matter if it is an industrial enterprise or a craftsman´s workshop. The decisive factor is the wish for tool transparency.

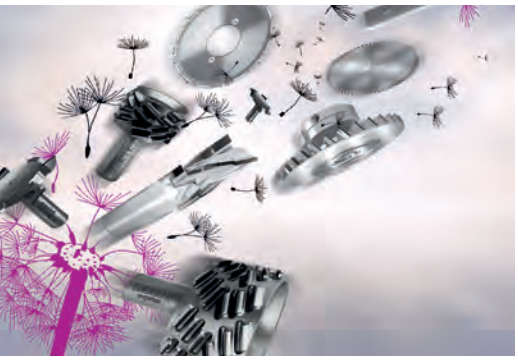
With the new „RFID-System iBlade" LEUCO provides its customers with a system, where data stored on the chip in the tool can easily be transferred to a PC and then processed using the i-Blade software, whether as protocols, analysis, or use and production flow optimisation.

BLUE COMPETENCE

LEUCO stands for sustainability - always

What is Blue Competence?

Blue Competence is an initiative for innovative, environmentally-friendly product processing, product design and ecological technologies in all branches of the German machine manufacturers association (VDMA).



We, as a tool manufacturer, consider ourselves responsible to provide the wood processing industry with solutions for reduced consumption of resources and energy.

Blue competence – how does it work?

All associated companies publish their specific reports and solutions for this current high priority subject. This task is supported by directives from the VDMA as the head organisation, and its sub-organisation "wood".
Strict sustainability criteria and standards must be adhered to by all the associated companies.

How does LEUCO implement Blue Competence?

LEUCO does not regard the subject of sustainability to be a trend or just something to talk about – it is and has been for a long time an important guideline in the company's history. For decades we have been engaged with the task of sustainability and the combined task of protection and improvement of the quality of life. Prominent highlights for LEUCO sustainability are Duplovit saw-blades, i-system tooling, quick clamping systems and hoggers.

What does Blue Competence mean for LEUCO's customers?

- Efficient use of raw materials within the tool production.
- Optimum utilization of the DP cutting material with p-System tools.
- Optimized carbide grade and carbide dimensions achieve a better tool life while wasting fewer raw materials on the new LEUCO scoring sawblades.
- Reduced reject ratio for our customers when using high quality and high performance tooling systems and therefore reduced costs per piece.
- Significantly reduced noise- and dust emissions, for example by using LowNoise and or Chipmeister system tools.

On **www.bluecompetence.net** the VDMA publishes more information about linked partner associations and companies.

LEUCO IS HOMAG'S SUPPLIER OF THE YEAR 2013

LEUCO Ledermann GmbH & Co. KG has been awarded a prize as supplier of the year 2013 by the woodworking machine manufacturer HOMAG Holzbearbeitungssysteme GmbH. LEUCO prevailed against the 50 biggest suppliers to HOMAG. HOMAG Holzbearbeitungssysteme GmbH is the worldwide leading manufacturer of machines for the woodworking industry and has been providing complete solutions for the industry for more than 50 years. HOMAG uses an extensive evaluation system in order to determine the supplier of the year. A committee consisting of members from quality control, purchasing and research and development departments, rated the following criteria "quality", "competitiveness", "logistics and delivery punctuality", "customer care and innovation".
LEUCO wishes to express its gratitude for this award. Both management and the entire staff are pleased that the tool selection and overall performance are appreciated by HOMAG. LEUCO sees the award as a further incentive for a good working relationship in the future.

LEUCO France

NEW LEUCO SERVICE CENTER IN FRANCE

Many customers attended the opening ceremony in September 2013 in Meyzieu to get an impression of the new service center. They were enthusiastic about the new technology and the new bright rooms.

The new LEUCO France Service Center in Meyzieu near Lyon is the largest LEUCO service center in France with more than 900 m². „At the former location in Genas we had only 400 m² and no possibility to develop" the managing director of LEUCO France, Thierry Nicolet, explained the reason to move after 18 years. For the new location in Meyzieu, LEUCO France purchased a new machine for the service of diamond-tipped tools.

Many customers attended the opening ceremony in September 2013 in Meyzieu to get an impression of the new service center. They were enthusiastic about the new technology and the new bright rooms.
LEUCO France with 60 employees is one of the leading manufacturers of woodworking tools in France. The headquarter is located in Ostwald (near Strasbourg), further LEUCO Service Centers are in Vitrolles, La Primaube, Ballan Miré and Ostwald.

LEUCO China

ONLY AN E-MAIL THAT DREW ATTENTION TO THE MOVE

LEUCO China in new building in Banqiao

"LEUCO Chinas move within Taicang to Banqiao went so smoothly, that customers first noticed we had moved after receiving the e-mail with a change of address notice! There was no loss in production time" commented Wolfgang Ueberschaer, CEO of LEUCO China.

LEUCO China used the first week in October, which is traditionally dedicated to Chinas national holiday and which the government advises to be work-free, to move the entire production and administration to the newly renovated building. Within the week all machines and equipment were successfully up and running and everyone in administration could continue work as usual.
LEUCO China was established in Shanghai in 1997. Banqiao is located near to Shanghai.

LEUCO Asia

NEW LEUCO SUBSIDIARY

CEO Udo Leiber

The newly founded company LEUCO Asia PTE LTD based in Singapore, co-ordinates all LEUCO activities in Asia together with the existing subsidiaries in Japan, Malaysia, Singapore, Thailand and China. Udo Leiber, long-standing CEO of LEUCO China is the CEO of the new subsidiary.

The wood and furniture industry in China has been developing positively over the past few years, and the development of a new subsidiary for Asia as a whole is a logical step in providing a sustainable service for our Asian customers. The synergies of the Asian subsidiaries and trading partners in India, Indonesia, Korea, Philippines, Taiwan and Vietnam are now all grouped together.

LEUCO Switzerland

SPONSORING THE JOINERY WORLD CHAMPION

Prisco Egli (right) with his advisors in Leipzig

At the WorldSkills Leipzig 2013 the best professional craftsmen came to compete for the champion title. A total of 178 participants were presented with either gold, silver or bronze awards. At this event which takes place every 2 years, competitors up to the age of 22, compete in this world cup of professions. Prisco Egli is the first swiss person to win gold in the joiner category – and he beat the 3 silver medallists with a great distance. "The Worldskills in Leipzig are over and it was a fantastic experience" said Prisco Egli enthusiastically. LEUCO Switzerland donated tools for the championship.

LEUCO Poland

10 YEARS SUCCESS

The subsidiary "LEUCO POLSKA" was founded in December 2003 and is located near Poznan. It is a technically well-equipped service centre for sharpening carbide and diamond tipped tools, as well as being a contact and customer care for our polish key account customers. The team energetically developed the business, and have been selling new tools directly to the customer for 2 years now. The further development to a competent partner for the polish wood and furniture industry is the aim for the future. 10 years on, LEUCO Polska employs 20 people.

CEO Przemysław Ratajczak (left) with colleagues from LEUCO Polska

LEUCO Slovakia

20 YEARS PARTNERSHIP WITH HOFLEX

Margita Gatciova (CEO), Andrej Gatci (Key Account Manager), Jan Schwarz, sen. (Company founder), Marianna Cifrova (Administration), Jan Schwarz, jun. (Key Account Manager), Margita Schwarzova (company founder) (from left to right)

HOFLEX s.r.o. was founded in 1993 by Jan Schwarz and Margita Schwarzova in Topolcany/Slovakia. From day one on, HOFLEX has been the sales partner for LEUCO tools. Due to the Schwarz family's commitment, the foundation for a good working relationship was laid. Margita Gatciova took over the role of CEO at HOFLEX 10 years ago.
The co-operation between HOFLEX and LEUCO was always based on a partnership level. LEUCO congratulates HOFLEX on its 20th anniversary and wishes every success for the future.

LEUCO: SUCCESSOR FROM WITHIN THE COMPANY

Daniel Schrenk succeed Jörg Reiner Dimke as a member of the management board for Sales and Marketing

Daniel Schrenk

Effective January 1, 2014 Daniel Schrenk became the successor of Jörg Reiner Dimke, who will go into well-earned retirement. We would like to express our sincere thanks to Mr. Dimke for his commitment.

Mr. Schrenk is married and has 3 children. He completed a training as wood technician and after one year of practical work he successfully graduated his studies of wood technology at the Hochschule Rosenheim.

He joined LEUCO on October 18, 1999 as sales area manager for OEM. After several management tasks in the departments product management / marketing he assumed the position of sales manager Germany and OEM business worldwide.
With Mr. Schrenk´s appointment to the management board, the members of the executive board and supervisory board count on succession from within the company.

Mr. Schrenk will be responsible for Sales and Marketing. Mr. Frank Diez will continue to be chairman of the management board and the executive board.

60 years LEUCO

About LEUCO

THAT'S LEUCO

Innovative, trend-setting and reliable - right from the beginning!

The company Ledermann & Co. was founded in 1954 by Willi Ledermann and Josef Störzer in Horb am Neckar / Germany. The LEUCO brand was born.

Today, almost 60 years later, LEUCO is one of the world´s largest suppliers of carbide and diamond-tipped machine tools for wood and plastic processing.

Wealth of ideas and technical know-how have been the heart of LEUCO since the beginning. The product range includes circular saw blades, hoggers, bore-type and shank-type cutters, drills, clamping systems and inserts.
Sharpening service, application consulting and service packages bundled under the term „Tool management" complete the spectrum.
LEUCO sells via direct sales. Our customers are sawmills, building-, furniture- and paneling-industry as well as interior finishing.
Internationally, around 1,100 employees work for LEUCO.
Sales affiliates are in Australia, Belgium, England, Japan, Poland, Singapore, Thailand, Ukraine and Belarus. Sales and production subsidiaries are in China, France, Malaysia, Russia, South Africa, Switzerland and USA.

1954
foundation
of the Ledermann & Co.
production site in Horb a.N

carbide-tipped tools for metal working, automotive engineering and machine construction

1956
brazed tools for milling and drilling in wood and plastic

introduction of the LEUCO hollow-ground circular saw blade

1957
Segment Hogger for stepped cut and circular cut

1962
first cutterhead with HW turnover knives for wood and plastic

1966
introduction LEUCOMAT (grinding machine)

Jointing / Chamfering Cutterhead with 12 mm turnover knife and with or without spurs

TODAY – 2014

1991
LEUCO DIAMAX

Topline Circular Saw Blade

1996
Tilted pre-cutting laminate flooring

1999
PowerTec Hoggers

i-System tools

2000
FinishCut Panel Sizing Saw Blade

2001
Clamping Chuck "Tribos"

2002
Hogger with cone-shaped gullets

2003
SpeedCut+ Panel Sizing Saw Blade

Hogger with optimized gullet

LEUCOline

FOUNDATION 1954

WEALTH OF IDEAS AND TECHNICAL KNOW-HOW HAVE BEEN THE HEART OF LEUCO SINCE THE BEGINNING.

1973
synchronically adjustable jointing and pre-milling cutterhead

1975
s-System for Circular Saw Blades and Hoggers

Scoring Saw Blade D192 and D110

LEUCO is the first tool manufacturer to present diamond tools on the LIGNA

1979
Cylinder Boring Bit with turnover knives

1983
SuperProfiler with bore

1985
Clamping chuck ps-System

1987
Diamond Saw Blade

THE DIALOG WITH OUR CUSTOMERS IS THE KEY

2005
Topcoat Saw Blade coating

NE Diamond Saw Blade

2006
Power DIA Profiler

2007
g5 Sizing Saw Blade (for excellent cutting)

2008
Solid Tungsten Carbide High-Performance Drill Bit

2010
LEUCO p-System tools

PowerTec III Hoggers

2011
Aerodynamic LowNoise Jointing Cutters

2013
LEUCO g5-System

Saw Blades and Grooving Cutters with a tooth group combination of 5 teeth: noise reduced, low cutting pressure, excellent cutting quality

2014
LEUCO nn-System

„NoNoise" saw blades: Diamond tipped sizing and panel sizing saw blades

No noise, but a comfortable noise level and high performance

LEUCO

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Further information and news can be found at:
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DATES AT LEUCO IN HORB
Welcome!

LEUCO meeting point
23.09. – 26.09.2014

LEUCO TREFFPUNKT

LEUCO symposium
30.10.2014

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