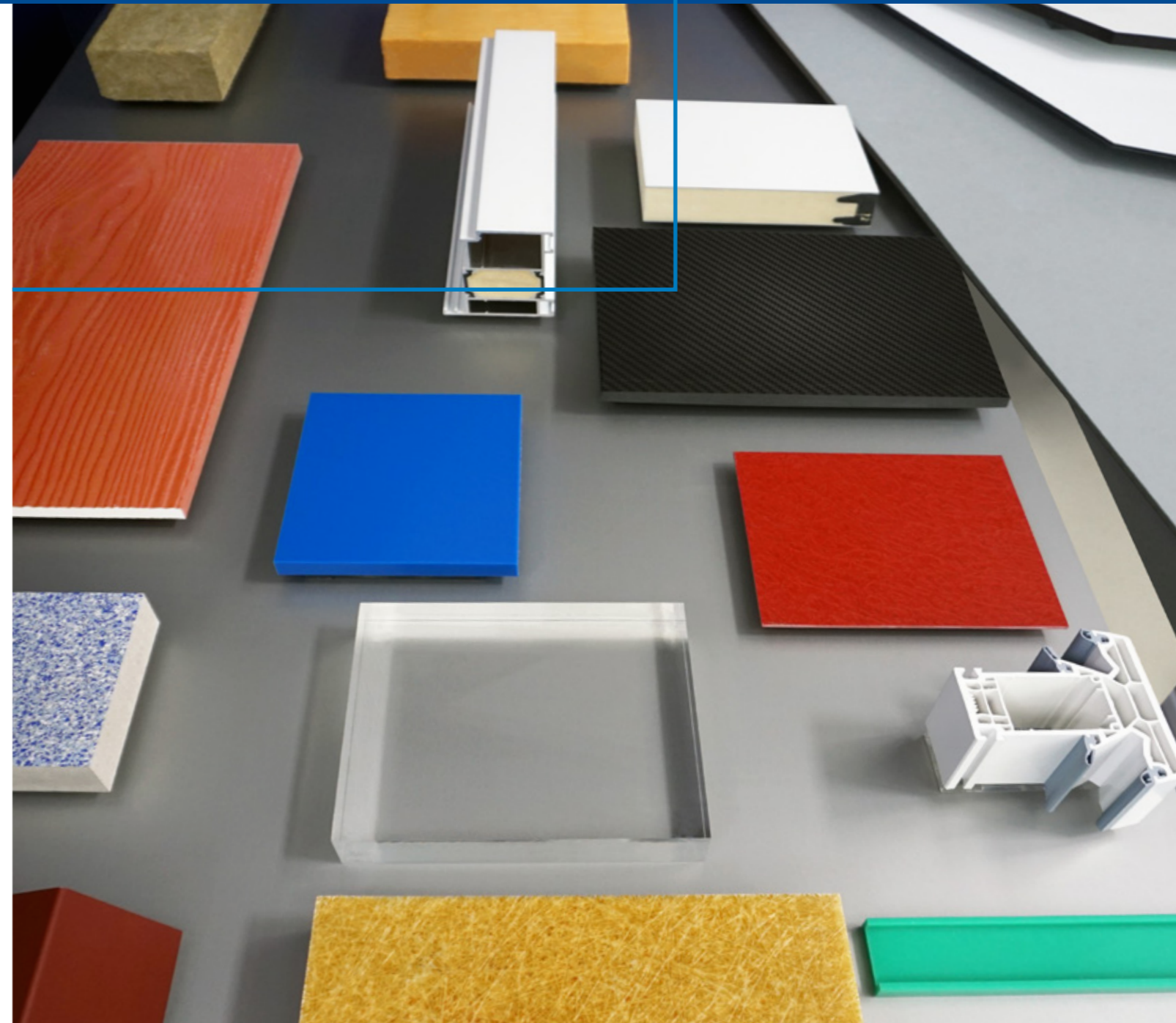


# Advanced Materials

Processing solutions  
for specialist engineers



Your local contact:  
Scan QR Code or visit  
[www.leitz.org](http://www.leitz.org).



[www.leitz.org](http://www.leitz.org)

10/2020 Subject to changes prior to technical developments.

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**Advanced Materials – a term that is reflected in numerous products that surround us in our daily lives. As ordinary as these products appear, as challenging is their manufacture.**

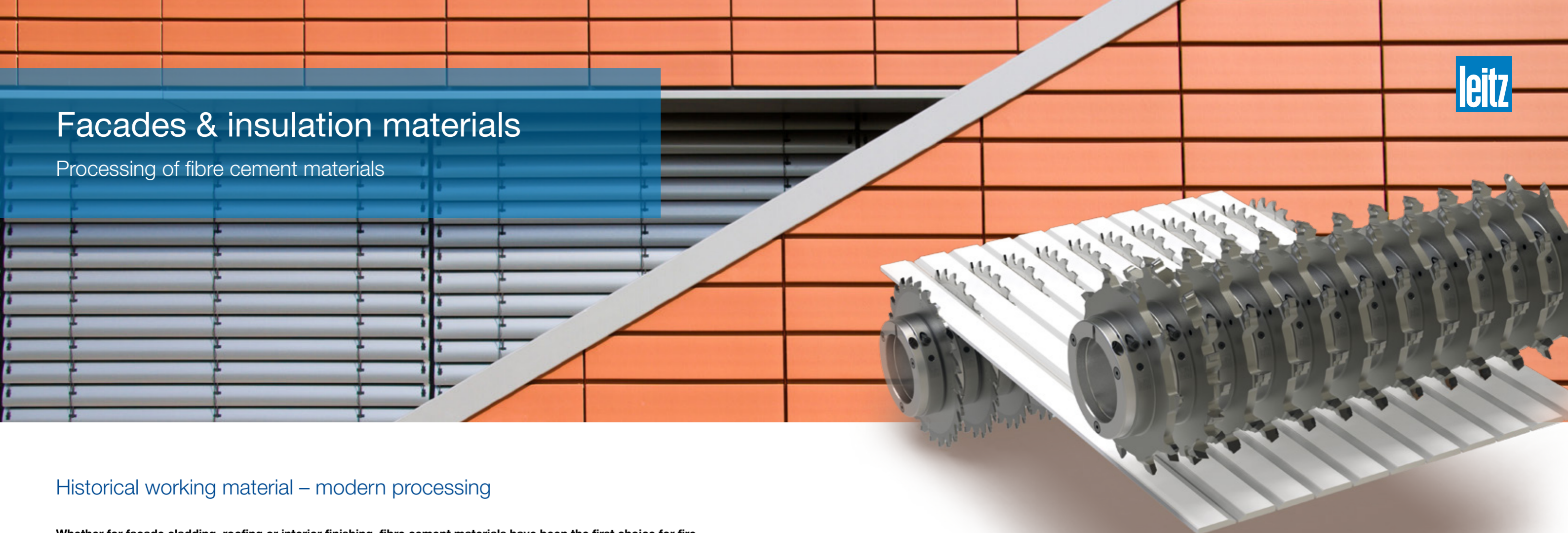
For manufacturing and processing industries, precisely this aspect is of key importance, therefore makes them absolute specialists. The more specialized the knowledge about these materials and their production and processing is, the higher the requirements of the tool and processing solutions used. Particularly with regard to existing quality specifications, the comprehensive consideration of tool solutions, technical conditions and processes is the basis for economic success. However, this success can only be ensured in the long term by using individually adapted technology and service concepts.

For Leitz, the success of its customers and a long-term partnership is the main focus. As a leading supplier of technically high-quality tool solutions, it is our goal to increase efficiency, productivity, quality and sustainability for our customers. This is made possible by our more than 140 years of experience in tool manufacturing and our particularly deep knowledge of our customers needs and that of the market. All of this and a worldwide Leitz service network with more than 120 of our own service stations as well as our certified quality promise, make Leitz the partner for your success.



# Facades & insulation materials

Processing of fibre cement materials



## Historical working material – modern processing

Whether for facade cladding, roofing or interior finishing, fibre cement materials have been the first choice for fire protection, weather resistance and durability for over 100 years.

With its knowledge of processes and production focuses, Leitz offers individual product solutions, including state-of-the-art extraction technologies, for the modern and high-quality processing of fibre cement materials.

## Sizing & grooving

CNC-processing of fibre cement panels

Especially for small batch sizes or individual designs, machining on CNC machining centres offers many advantages. Leitz offers tool solutions for efficient machining on CNC machines in its extensive standard program.



## Splitting & profiling

Splitting and profiling of fibre cement materials to perfection

Whether in the continuous process in special or standard machines – Leitz offers its extensive knowledge of the efficient design of production processes. Depending on customer requirements, individual tool solutions are created which offer added value in the mechanical processing of fibre cement materials.



### Highest productivity

A DP shank cutter Z 2 was previously used for machining fibre cement panels on a CNC machining centre using the nesting method. Using the Leitz router cutter Diamaster PRO Z 3+3, the machining process in terms of machining speed, production quantity and operating costs could significantly optimized.

The result: higher quantities at lower costs!

### YOUR BENEFITS

- 100 % increased feed rate
- 50 % more running metres
- 50 % less operating costs

# Facades & insulation materials

Machining aluminium composite panels



## Solutions for greater quality & performance

In architecture, industry and vehicle construction, aluminium composite panels are often used. Special requirements are placed on the stability and formability of construction elements, on the durability of surfaces and on weight reduction. Panels of the most varied shape, sizes and textures are used, which can make the processing of these materials a real challenge.

The Leitz tool range for machining aluminium composite panels delivers with its versatility as well as its high quality and performance.

### Sizing

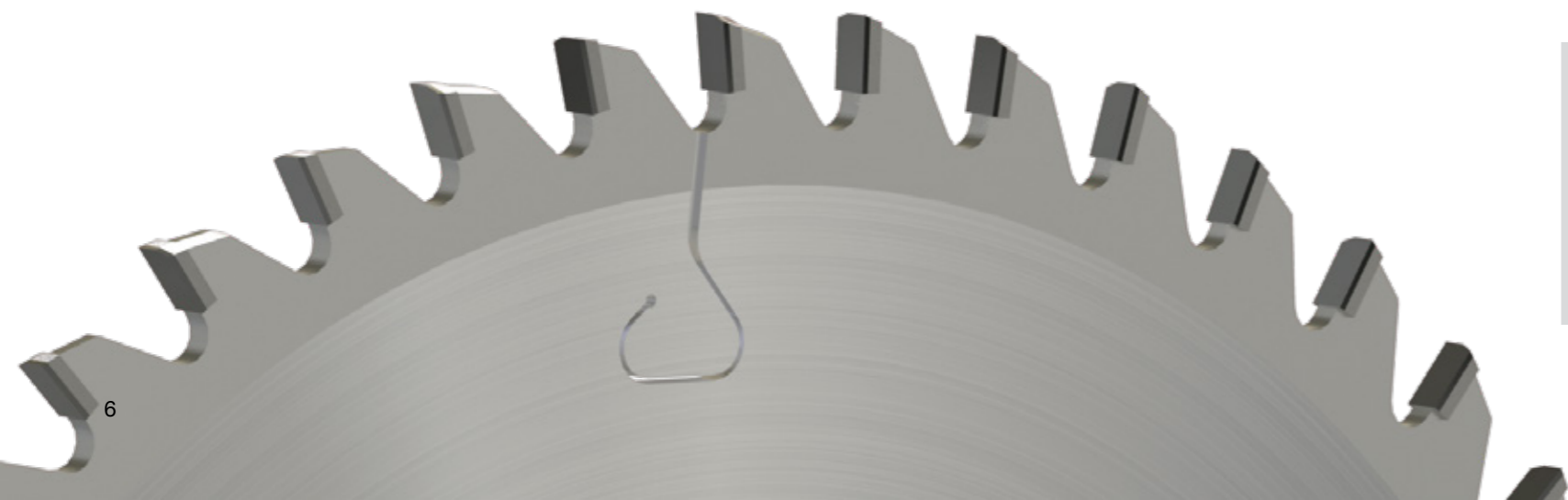
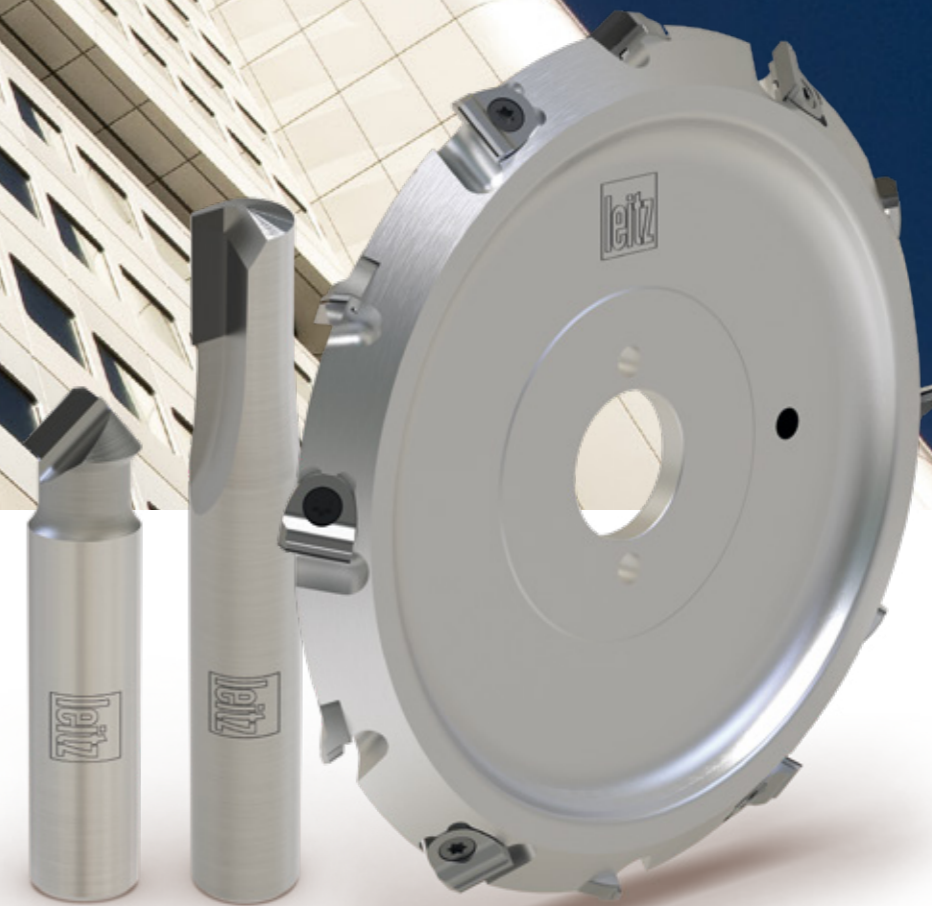
Cut by cut to the finished part

Whether shank cutter or circular sawblade – depending on the production quantity and degree of individualization, the user can decide which is the optimum machining method on CNC machining centres. With its wide product range, Leitz offers solutions for both processes that deliver through quality, performance and productivity.

### V-groove cutting on CNC machining centres

Perfect folding edges are the be-all and end-all

When it comes to shape, aluminium composite panels can be very flexible. Perfect appearance requires a defined folding edge. A perfect V-groove is required to ensure that the aluminium composite panels can be chamfered and folded safely without errors. Here, the innovation is in the detail of the groove design and the tool.



**Higher efficiency**

A special circular sawblade from Leitz is used for the CNC finish cutting during the manufacturing of aluminium composite panels. High running quality and a special cutting geometry make the cutting edges so perfect that no rework becomes necessary. In addition, at around 0.2 mm, the plunging depth of the tool is so small that the support plate positioned underneath it needs replacing less often. The result: significantly shorter production times and less follow-up costs!

**YOUR BENEFITS**

- Less wear and rework
- Perfect cutting quality
- Short production times
- Support plate protection
- Long tool life

# Facades & insulation materials

Processing of insulation panels XPS, EPS & PU-hard foam



## Insulation materials with that special touch

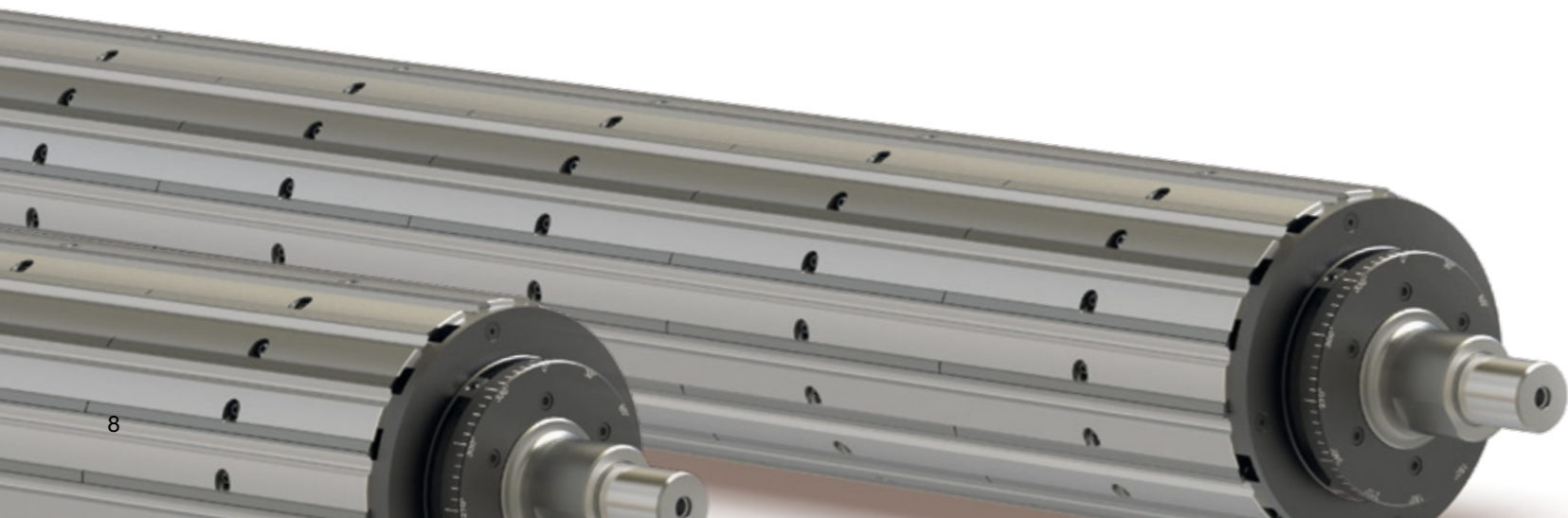
The applications for foamed insulation materials range from roof and facade insulation to perimeter insulation and impact sound insulation. The diversity of application types, compositions, material thicknesses or compressive strengths pose challenges to manufacturing and processing companies when it comes to achieving perfect results.

Leitz offers tool systems in its product range with class-leading performance which can be flexibly adapted to different product requirements.

## Jointing & thickness calibration

Smoothness is the key

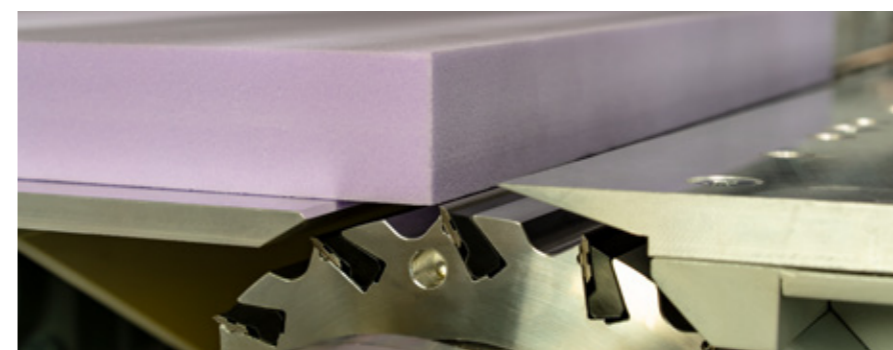
During jointing and thickness calibration, the surface and final thickness of the foam materials are defined. Different quality levels for construction and industrial applications, such as exterior insulation or bathroom design require different processing quality levels. Above all, the uniform visual structure of the end product is particularly important for further processing.



## Machining along & across the grain – medium cut quality

Side processing of high-density foams to perfection

Smooth edges, stepped rebates, tongue and groove connections – these profile types are the most common ways in which high density foam panels can be given corresponding profiles and shapes. From the proven tool with tungsten carbide tipping, to the weight-optimized CentroFix interchangeable knife system or the highly productive system with circular sawblades, to the state-of-the-art HeliCut tool with interchangeable knives.



The CentroFix system with its changeable knives is very service-friendly and produces an excellent finish quality in nearly all XPS and EPS foams.



The HeliCut system is perfect for the side processing of insulation panels.

# Facades & insulation materials

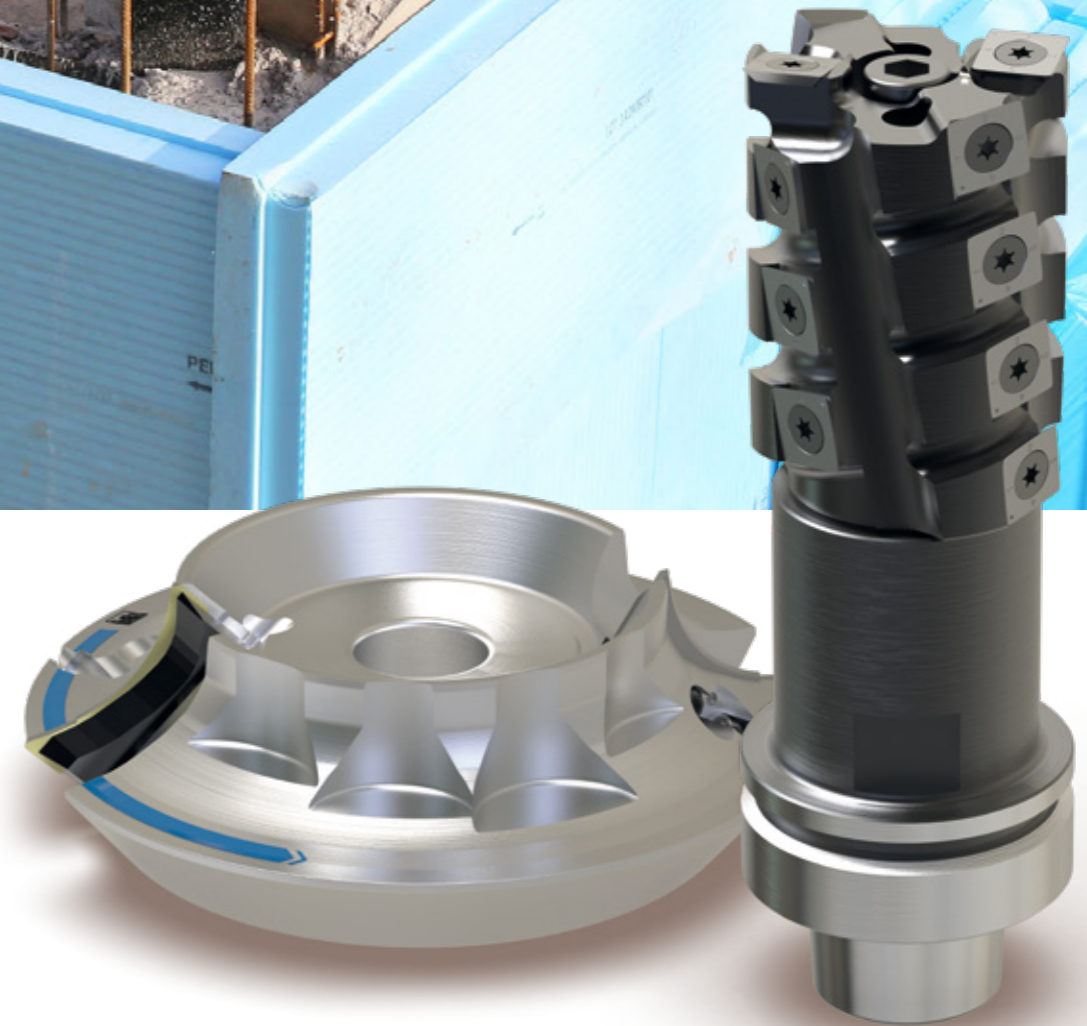
Processing of insulation panels XPS, EPS & PU-hard foam



## Grooving, shaping, shredding

From the semi-finished product to the individual product

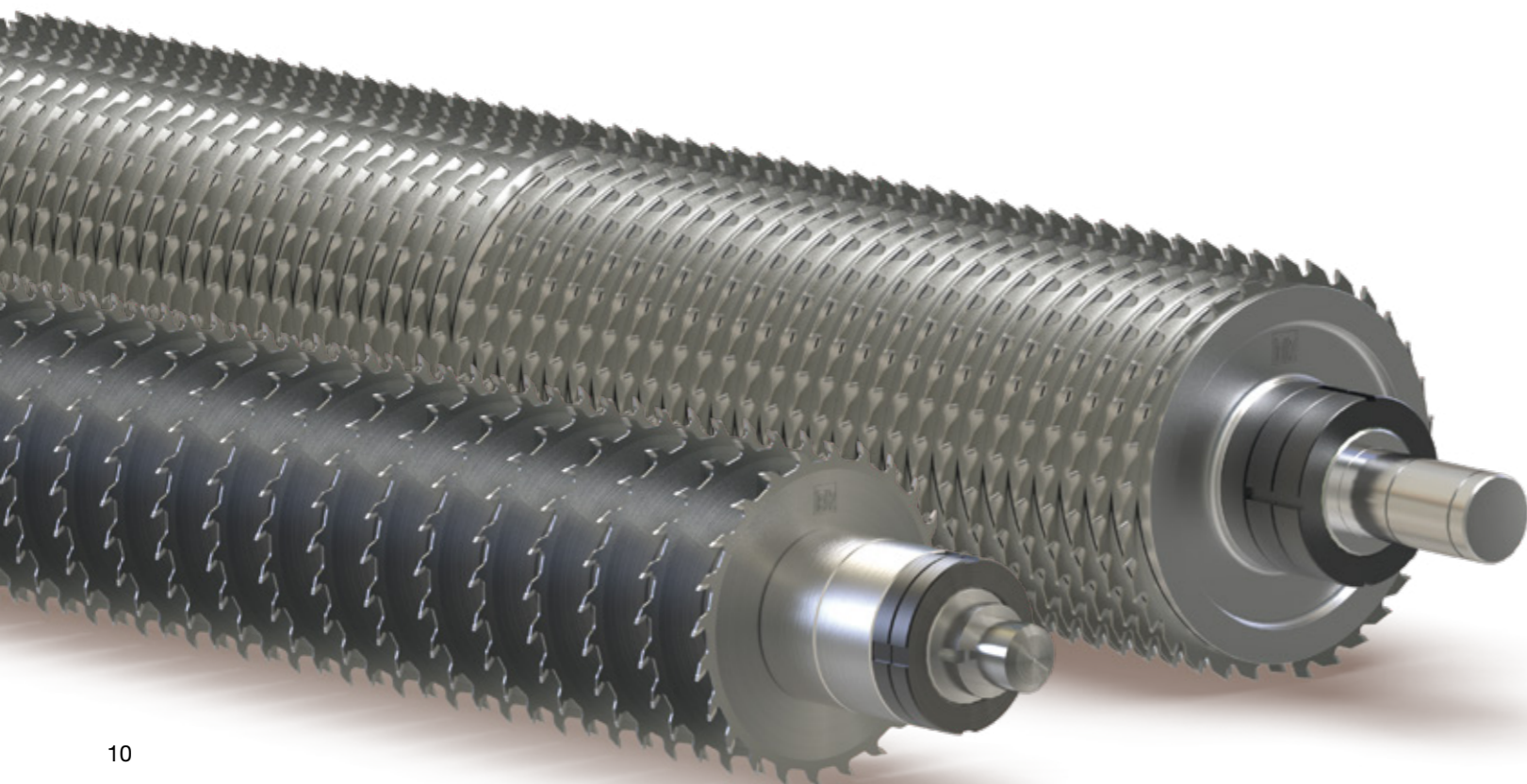
Depending on the requirements and process design, individual tool solutions are needed for subsequent processing. With specific applications such as the insertion of grooves, the cutting of decorative molds or the re-processing of residual materials into the manufacturing process enables subsequent processing to be carried out quickly and cost-effectively. Leitz, with its detailed process and material know-how, helps its customers find efficient and result-oriented tool solutions for every requirement.



## CNC-processing

“HeliCut is the tool that makes it work”

As a specialist tool, the HeliCut copying cutter head shows excellent processing results in materials such as polyethylene (PE), polypropylene (PP), extruded polystyrene rigid foam (XPS) and polyethylene terephthalate (PET). The great strength of this copyshaping cutterhead, in addition to the high processing quality of the HeliCut-system, is its high productivity: highest cutting performance, high feed rates, no melting and produces small chips that are easy to dispose of.



### Maximum quality

The CentroFix Plus long planerhead from Leitz is the first choice for the thickness calibration of high-quality insulation boards. On delivery, the tool is already finely balanced and can be individually readjusted on the machine thanks to special balancing segments. This reduces vibrations on the spindle from the machine side. The result: perfect finish when planing and saving the machines bearings!

### YOUR BENEFITS

- Perfect cutting quality
- Long tool life
- Proven planing technology
- Reduced set-up time

# Facades & insulation materials

Processing of mineral wool



## Utilizing stone & glass wool as ideal insulation materials

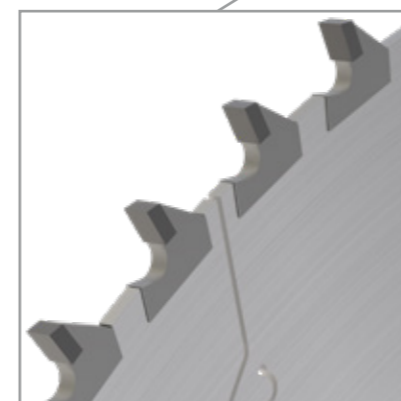
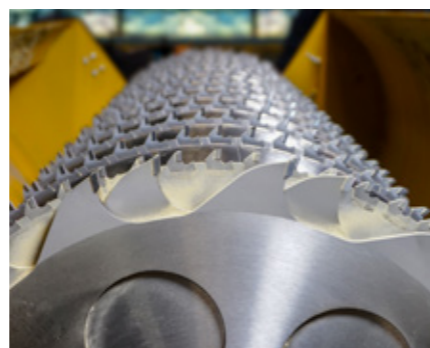
With the implementation of climate protection regulations, the requirements for energy efficient building and renovation are increasing. At the same time, the materials used for the insulation of buildings and the necessities for their material properties are changing. Logically, the technologies for processing these materials must also adapt to these conditions.

Leitz tool solutions for the length and crosswise processing of mineral wool products deliver through their high productivity and contribute to environmental protection throughout the entire process chain.

## Sizing, profiling & drilling

Density as defining criterion

Due to the extremely abrasive properties of rock wool and glass wool, specific tool solutions are required for their machining. Depending on the density and composition of the material to be machined, consistently perfect results must be maintained over long-term use. The challenge in cutting, profiling or boring is to maximize the tool life and performance of the tools used to make the overall process as efficient as possible.



TC tooth and gullet area.



### Reliability

When sawing mineral wool, the high abrasiveness of the material contributes massively to rapid tool wear. For circular sawblades, Leitz use solid carbide to protect the gullet wear areas and prevents rapid deterioration of the blade body. The result: maximum tool life.

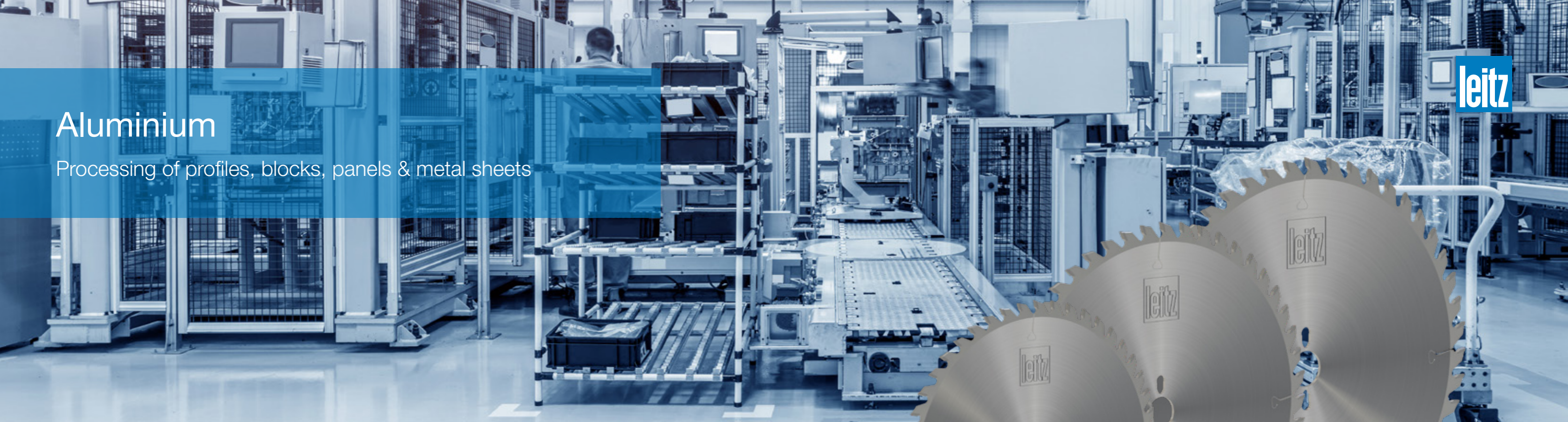
### YOUR BENEFITS

- Long tool life
- Perfect cutting quality
- High productivity

Not only the teeth, but also the gullet area of the circular sawblades are made of solid tungsten carbide and thus effectively prevent washing out of the tool body. This results in excellent durability and a maximum tool life.

# Aluminium

Processing of profiles, blocks, panels & metal sheets



## Extended material competence

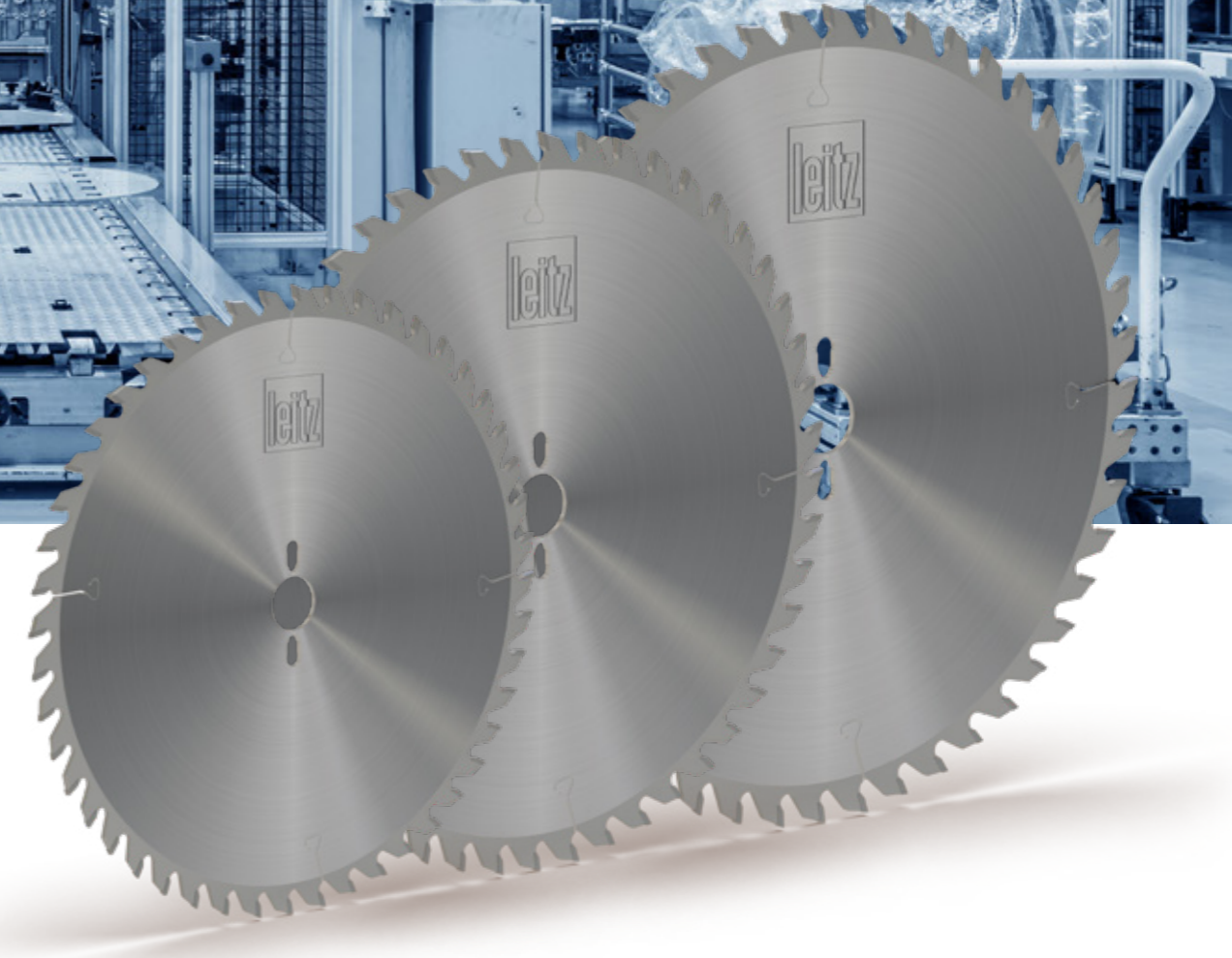
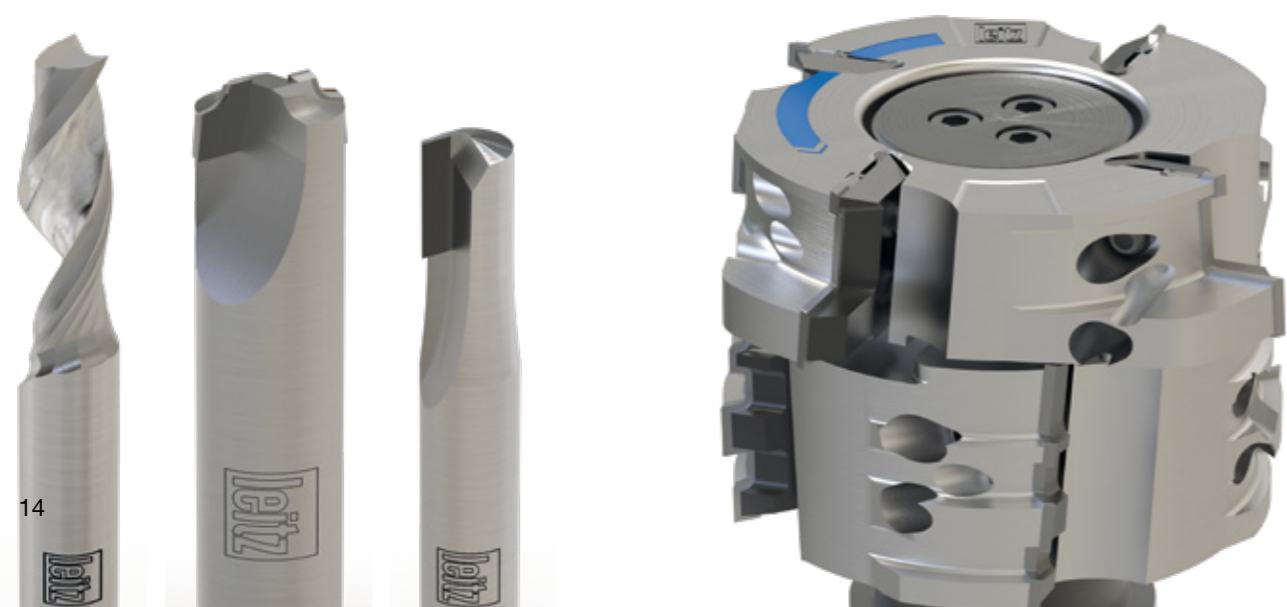
The processing of aluminium and non-ferrous metals repeatedly present manufacturers with requirements that need special solutions. Thin-walled profiles are likely to vibrate, whereas solid materials present completely different behavior during machining.

Drawing on its long experience in the professional machining of non-ferrous metals, Leitz continually develops its range of tools and is able to offer solutions for the many challenges in the machining of profiles, blocks, plates or sheet metal.

## Machining of profiles

Coated or uncoated – each material brings new challenges

Thin or thick, coated or sheathed. The types of aluminium profiles are many and varied and to ensure the optimum machining of workpieces, the requirements on the tool solutions are just as varied.



## Processing of block & plate material

Dry or wet – a philosophical question

In order to keep the heat development (the friction of the cutting edge on the material) as low as possible, manufacturers have a choice. Either additional coolants and lubricants are needed, or tool designs with corresponding geometry, construction and cutting material are required. Leitz has specialized in so-called 'dry machining' and offers efficient and economically interesting tool solutions for sawing and cutting non-ferrous metals without coolant.



### Increased productivity

When sawing aluminium profiles, the tool life and tooth feed are of particular importance, besides the quality of the cut. By selecting the right application parameters, tool life can be increased by up to 50 percent and the cutting tool feed rate by up to 70 percent. The result: more products in a reduced machining time and quicker set up!

### YOUR BENEFITS

- Short production times
- Long life time
- Perfect cutting quality



# Plastics

Processing of thermoplastics, duroplastics & mineral composites



## Diverse in application, diverse in requirements

**A closer look at various types of plastics shows an almost unbelievable abundance of material, processing and application possibilities. However, a key distinction is made between the material groups of thermoplastics, duroplastics and elastomers. Each of these material groups has its own special properties and each material has different features which have to be taken into account during machining.**

Leitz knows that only tool solutions adapted to the material and the respective process guarantee optimum success in terms of quality, efficiency and safety. Leitz proves this with the solutions from its standard tool range but also within individual tool system solutions that make for very satisfied Leitz customers.

## Thermoplastics – special working material

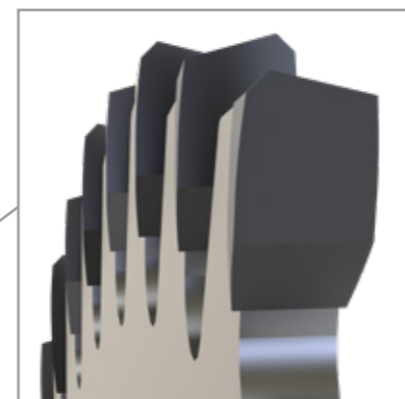
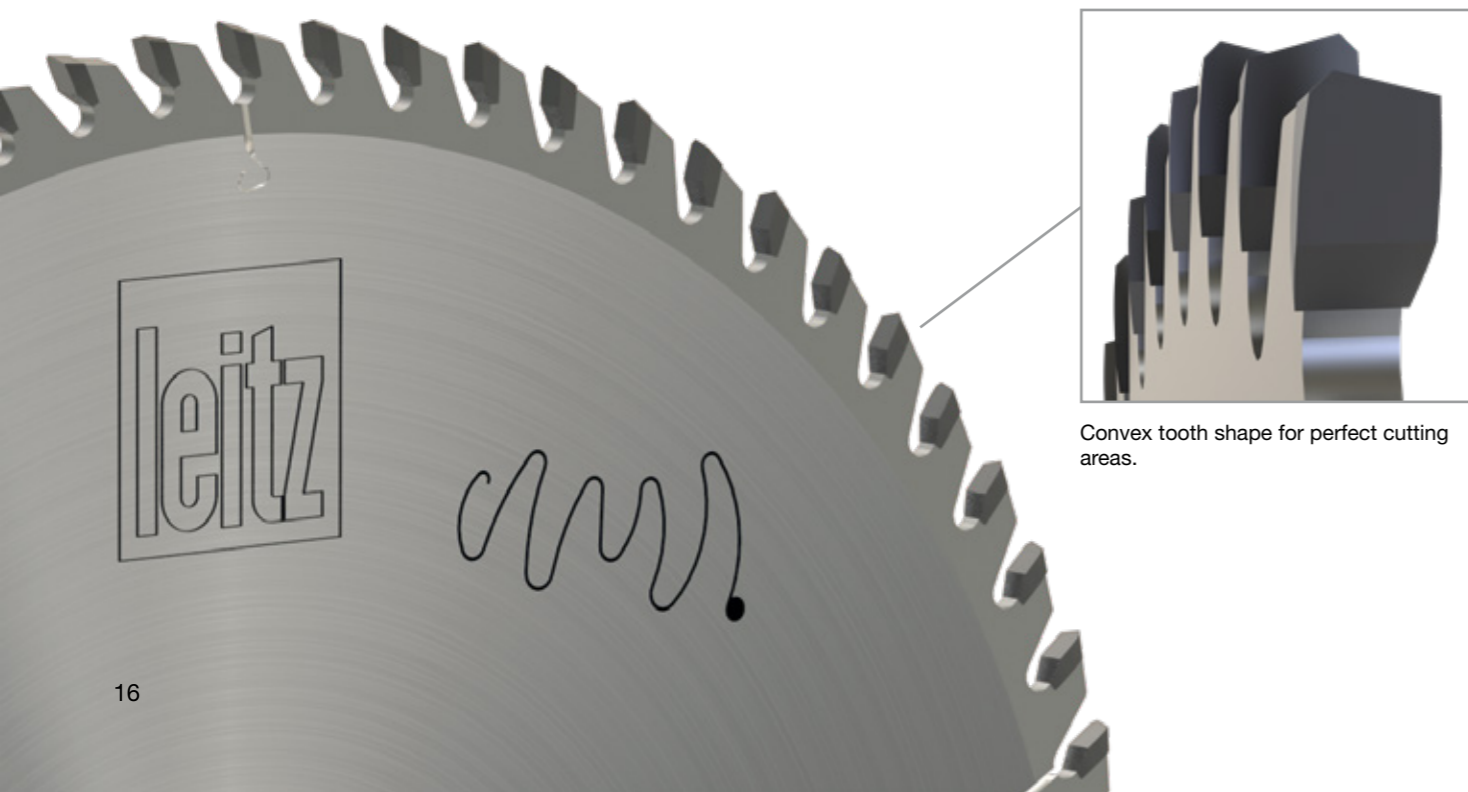
In the machining of thermoplastics, the choice of process parameters is of great importance, besides the special tooth geometries and gullet areas. Transparent plastics, such as acrylic glass, also play a special role. It is here above all that all the cutting edges and cutting surfaces that must be smooth and free of marks so that the overall appearance of the workpiece is not damaged.

## Duroplastics – a material with specific properties

Duroplastics are usually brittle and hard. Diamond is the preferred cutting material. Typical examples of duroplastic materials include compact laminates, high-pressure laminates (HPL laminates) made of melamine or phenolic resin-impregnated paper or printed circuit boards (PCBs) made of hard paper.

## Mineral-bound materials – versatile in use & particularly long-lasting

The best-known mineral material is Corian® and consists of one third acrylic glass (PMMA) and two thirds natural minerals with the main component of aluminium hydroxide. The fields of application are vast and range from decorative materials in thin sheet thickness, to medium-thick worktops, through to thicker sheets for covers, claddings and tables. Mineral working materials can be processed with conventional wood processing tools.



Convex tooth shape for perfect cutting areas.



### Quality

Transparent plastics, such as acrylic glass, play a special role. In this case, all cutting edges and cut surfaces must be smooth and free of marks so that the overall appearance of the workpiece is not damaged or blemished. The BrillianceCut circular sawblade provides the optimum quality here. The result: less rework, perfect edges and surfaces.

### YOUR BENEFITS

- Finish cut quality
- No rework required
- Long life time
- Less noise

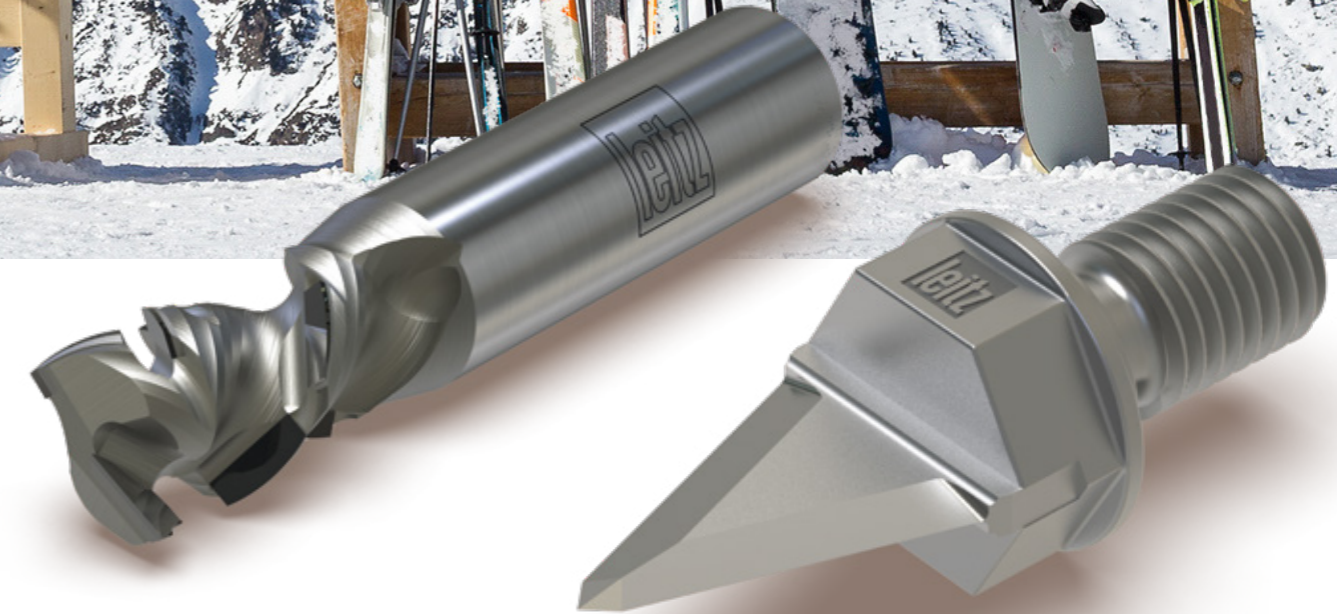
# Lightweight & composite materials

Processing of fibre-reinforced materials



## Efficient machining of new materials

The rapidly growing need for mobility worldwide has a magnetic effect on new material qualities and attracts new applications. This new dynamism is reflected in high volume growth in products and lightweight materials. Lightweight and composite materials are the winners due to their favorable ratio of weight to strength.



Rotor blade production for wind power plants



Processing of lightweight materials in boat and shipbuilding



Processing of structural components in the aircraft industry



Trimming of cockpit parts

## Fibre-reinforced materials

Lightweight, future-oriented materials

Light and high-strength materials have become indispensable for high-end applications in the aviation, automotive and leisure industries as well as in boat building. Fiber composites demonstrate their strengths, particularly in multi-material lightweight construction. In order not to negatively influence this potential through complex machining, tooling solutions are required that are specially designed to optimize processes in terms of efficiency and productivity.



### Absolute reliability

When cutting glass, carbon or carbon fiber mats, the demands on the tool are extremely high. Precise cuts, highest cutting quality and long tool life are required. Leitz oscillating knives meet these requirements exactly. A further advantage is Leitz's service competence. This offers reconditioning in manufacturer quality.

The result: a perfect cut and a reliable overall process!

### YOUR BENEFITS

- Long life time
- Maximum precision
- Perfect cutting quality
- Regrinding in manufacturer quality

# Leitz Service

Tool service in manufacturer quality

## Arguments for your success

Tools as good as new – this is based on the philosophy of maximum tool life and perfect machining quality throughout the entire life cycle of Leitz products. The Leitz tool service plays a decisive role in this. Taking the highest quality standards into account, Leitz is able to regrind tools of all types and from all manufacturers and deliver them back to the customer in manufacturer quality for use again – and that means around the globe in over 150 countries.



**120**

Service locations



**1000**

Service employees worldwide



**15 Mio**

Tools per year

## Your benefits due to ...



### QUALITY

... in good hands

- Uniform service and quality standards worldwide
- Absolute precision throughout the whole service process
- Handling by qualified Leitz personnel
- Complete service process documentation



### RELIABILITY

... with us as your partner

- Local personal contact partner
- Reliable tool collection and delivery
- Transparent pricing



### KNOW-HOW

... through our know-how

- Our own service education center for international employee and customer training
- Continuous updating of qualifications for our employees with special focus on technology and production
- Consultation service in almost all areas of the wood and wood-based materials processing industries



### PRODUCTIVITY

... is our incentive

- Quick accessibility, fast reactivity
- Understanding of your production processes
- Short set-up times due to programming aids and application data (Plug-and-Play)
- Optimal use from your tools over their entire life cycle



### FLEXIBILITY

... through our solutions

- Most modern machines and technologies
- Individual customer care through various service models (e.g. Complete Care)
- Re-grinding tooling from all manufacturers
- Flexible pricing models (square meters, running meters, number of products, ...)



### EFFICIENCY

... through our processes

- Simple and short administration processing
- State-of-the-art electronic data collection systems via smartphone or tablet
- Comprehensive and transparent working steps



### SUSTAINABILITY

... for the environment

- Raw material and optimized wear – as little as possible, as much as necessary
- Paperless administration and production
- Careful handling of valuable resources

# Leitz worldwide

Partner in your market



**36**

National companies



**120**

Service locations worldwide



**150000**

Satisfied customers



**3000**

Employees



## NORTH- & CENTRAL AMERICA

- 3 national companies
- 8 service locations



## SOUTH AMERICA

- 1 national company
- 1 production plant
- 3 service locations



## EUROPE

- 23 national companies
- 5 production plants
- 91 service locations



## ASIA

- 7 national companies
- 1 production plant
- 16 service locations



## AUSTRALIA / OCEANIA

- 2 national companies
- 5 service locations