

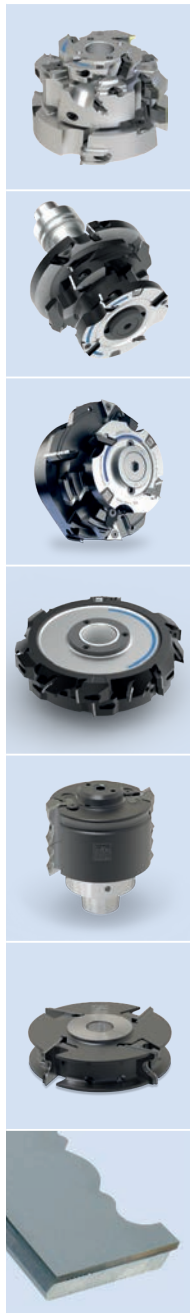
Profile tool systems

Leitz Lexicon Edition 7

Version 2



10. Profile tool systems



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Profiling with Leitz: The perfect solution for every application

The market requirements for profile tool systems are diverse. On one hand, high numbers of the same parts, on the other small batches of customised products. A company cannot be expected to have a complete tool set for each profile, even less if the tool service life exceeds the life of the profile. The right tools are needed for efficient production. Whether windows, doors, furniture boards or panels – Leitz provides you with the perfect solution for every application.

Field of application and features	ProfilCut Q, ProfilCut Q Premium	ProfilCut Q PLUS, ProfilCut Q PLUS Premium	ProfilCut Q Diamond	ProFix F	VariForm	PowerKnife System PKS®
Preferred applications	Furniture, windows, doors, mouldings	Furniture, windows, doors, mouldings	Advanced Materials, furniture, windows, doors, mouldings	Furniture, mouldings, glue-joint profiles	Furniture, mouldings	Mouldings
Prototypes, samples, small series					•	•
Small and medium series	•		•		•	•
Medium and large series	•	•	•	•		•
MAN feed for spindle moulders	•	•	•		•	
MEC feed for continuous feed and machining centres	•	•	•	•	•	•
Multi-purpose profiles				•	•	•
High-speed delivery programs for customised profiles	•				•	•
Sharpenable		•	•	•	•	•
Diameter and constant profile	•	•	•	•		
Set tools with staggered cut for processing suitable material	•	•	•			
Aluminium design	•	•	•	•		
Combinability with other Leitz tool systems	•	•	•	•		

ProfilCut Q, ProfilCut Q Premium

Multi-functional profile tool system for perfect finishes. Standardised clamping system for profile and turnblade knives.

ProfilCut Q PLUS, ProfilCut Q PLUS Premium

Multi-functional and resharpenable profile tool system with constant diameter and profile for perfect finishes. Standardised clamping system for profile and turnblade knives.

ProfilCut Q Diamond

Combination of an aluminium tool body and resharpenable diamond profile knives with constant diameter.

ProFix F

The high-performance profile tool system for industrial applications, in combination with planing cutterheads and universal tool bodies. Lowest operating costs for high volumes. Resharpenable and with constant diameter.

VariForm

Modular profile tool system for all applications with excellent value-for-money-ratio. For prototype, individual or small series production.

PowerKnifeSystem (PKS®)

The compatible tungsten carbide knife system for multi-purpose cutterheads with serrated back knives.

10. Profile tool systems

10.2 ProfilCut Q System Group

The multifunctional profile tooling system for perfect finishes

Higher productivity? Better quality? More flexibility? The demands on a profile tool system for window, door or furniture production are high.

With the multifunctional tool family ProfilCut Q, exchangeable knife and resharpenable constant diameter systems, as well as carbide and diamond cutting edges can be optimally combined. This unbeatable advantage enables a tailor made and economic solution for any requirement which is unique within this scope.

Your benefits:

- Maximum performance and cutting quality
- Tailor made solution for nearly every requirement, every material and every machine



Productivity and efficiency

More economy through lower machining costs

- Higher parts output and reduction of the cutting time due to increase of the cutting speed (v_c) up to 120 m/s
- Longer lifetime due to innovative cutting material technology
- Shorter set-up times through automatic knife positioning without the need of adjustment aids
- Knife change possible in mounted tool set
- Low maintenance through dust protected clamping elements

Quality and reliability

Reduction of reject and rework due to surfaces in finish cut quality

- Perfect finish quality thanks to extra sharp cutting edges
- Vibrations removed due to high balance quality
- Better dynamics through light metal tool body
- Perfect repeat accuracy after each knife service thanks to precise, automatic knife clamping
- Less noise due to closed tool body construction

Flexibility

Tailor made solution for any requirement through multifunctional tool family

- Maximum cost efficiency through flexible use of exchangeable knife or resharpenable constant diameter systems
- Optimally matched cutting tool materials due to the combinability of carbide and diamond in the tool set
- Suitable for various working material such as solid wood, wood derived materials, plastics, aluminium, fibre composites and gluelam
- Applicable for all conventional moulders

10. Profile tool systems

10.2 ProfilCut Q System Group

Overview system group

ProfilCut Q

For maximum precision and cutting quality

Productivity	■ ■ ■ ■ ■
Efficiency	■ ■ ■ ■ ■
Quality	■ ■ ■ ■ ■

At a glance

- Tungsten carbide cutting edges with Marathon coating
- Applicable for solid wood, wood derived materials and plastics

ProfilCut Q PLUS

The resharpenable system supplement

Productivity	■ ■ ■ ■ ■
Efficiency	■ ■ ■ ■ ■
Quality	■ ■ ■ ■ ■

At a glance

- Tungsten carbide cutting edges with Marathon coating
- Applicable for solid wood, wood derived materials and plastics
- 5 times resharpenable
- Constant profile and diameter after sharpening
- For high production volumes

ProfilCut Q Diamond

The specialist with diamond cutting edges

Productivity	■ ■ ■ ■ ■
Efficiency	■ ■ ■ ■ ■
Quality	■ ■ ■ ■ ■

At a glance

- Diamond cutting edges (PCD) for 20 times longer life time
- Applicable for wood derived materials, plastics, aluminium as well as for fibre material or gluelam
- 5 times resharpenable
- Constant profile and diameter after sharpening
- Wear-resistant tool body
- For cutting speeds (v_c) up to 120 m/s

ProfilCut Q Premium

Productivity	■ ■ ■ ■ ■
Efficiency	■ ■ ■ ■ ■
Quality	■ ■ ■ ■ ■

At a glance

- ProfilCut Q features
- For cutting speeds (v_c) up to 120 m/s
- Tool body with wear resistant coating

ProfilCut Q PLUS Premium

Productivity	■ ■ ■ ■ ■
Efficiency	■ ■ ■ ■ ■
Quality	■ ■ ■ ■ ■

At a glance

- ProfilCut Q PLUS features
- For cutting speeds (v_c) up to 120 m/s
- Tool body with wear resistant coating
- Particularly suitable for machines with high volume output

Technical features

	Tool system group		
	ProfilCut Q ProfilCut Q Premium	ProfilCut Q PLUS ProfilCut Q PLUS Premium	ProfilCut Q Diamond
Max. diameter	600 mm	600 mm	600 mm
Cutting width	8-80 mm 8-120 mm with turnblade WP8	15-60 mm 8-120 mm with turnblade WP8	15-50 mm 8-120 mm with turnblade WP8
Tool body	Lightweight construction / steel	Lightweight construction / steel	Lightweight construction / steel
Min. diameter for boring tools	Zero diameter 85 mm for bore size 30 mm	Zero diameter 90 mm for bore size 30 mm	Zero diameter 90 mm for bore size 30 mm
Version with centre cutting	Yes	Yes	Yes

10. Profile tool systems

10.2 ProfilCut Q System Group

10.2.1 ProfilCut Q

For highest precision and cutting quality

A profile tool system proves its superiority when it covers a wide range of applications and at the same time ensures outstanding cut quality with long tool life.

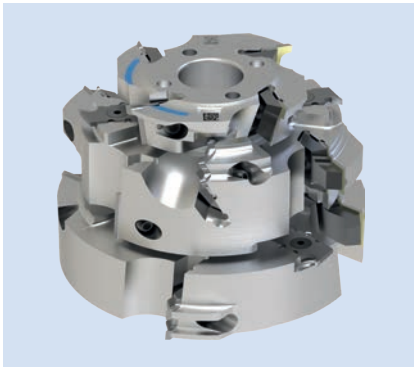
The Leitz ProfilCut Q cutterhead system offers these advantages and sets the standard in the industry. Even unusual profiles can be perfectly implemented. Whether in manual or industrial use for window, door and furniture production – ProfilCut Q delivers perfect results.

Your benefits

- For most profiling tasks
- Excellent cut quality over the entire tool life
- Long tool life
- Minimum set-up times
- Easy handling

At a glance

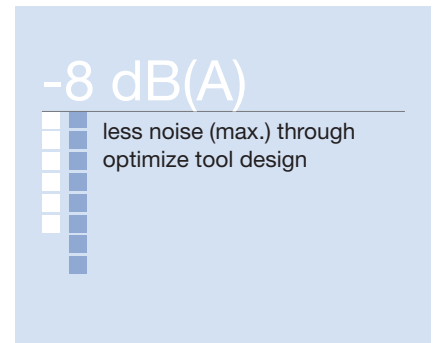
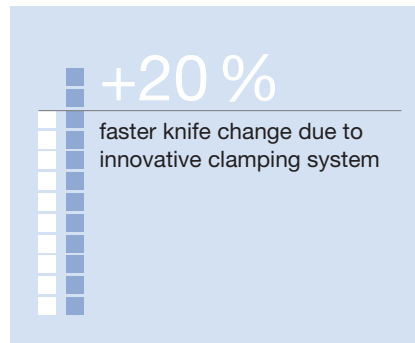
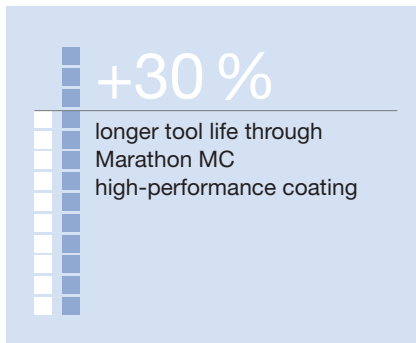
- For cutting speeds (v_c) up to 90 m/s
- Tool body mostly manufactured from light metal
- Includes Data Matrix Code or RFID chip for networked communication
- Suitable for all conventional machines
- Applicable in solid wood, wood derived materials and plastics
- TC cutters with Marathon high-performance coating



10. Profile tool systems

10.2 ProfilCut Q System Group

10.2.1 ProfilCut Q



Flexibility

The system with the unbeatable versatility

- Most types of profile can be implemented
- Use in most conventional machines possible
- A wide range of materials can be processed
- Different cutting material and knife combinations possible

Quality

Highest machining quality over the entire life cycle

- Excellent surface quality through extra-sharp cutting edges and low vibration lightweight construction
- Reduced splintering on the wood due to the profiled chip breaker
- Optimally matching TC grades can be combined with diamond

Productivity and efficiency

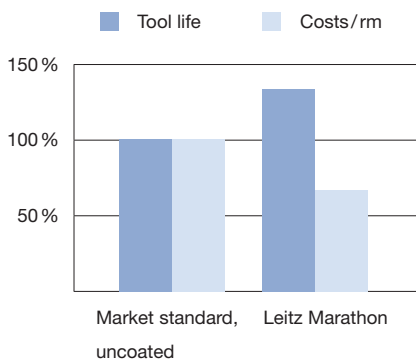
More production with easy handling and less maintenance

- Less machine downtime and longer runs in use due 30 % longer tool life
- Fewer rejects and rework due to surfaces in finish quality
- Quick set-up times through automatic knife positioning without setting devices
- Low maintenance due to dustproof elements
- Optimized costs through the combination of several knife types such as turnblades, profile cutting edges, edge rounders, spurs etc.

Marathon high-performance coating

Standard for all ProfilCut Q tools

- Resource-friendly through 30 % longer tool life at least
- Shorter machine downtimes
- Lower running costs



10. Profile tool systems

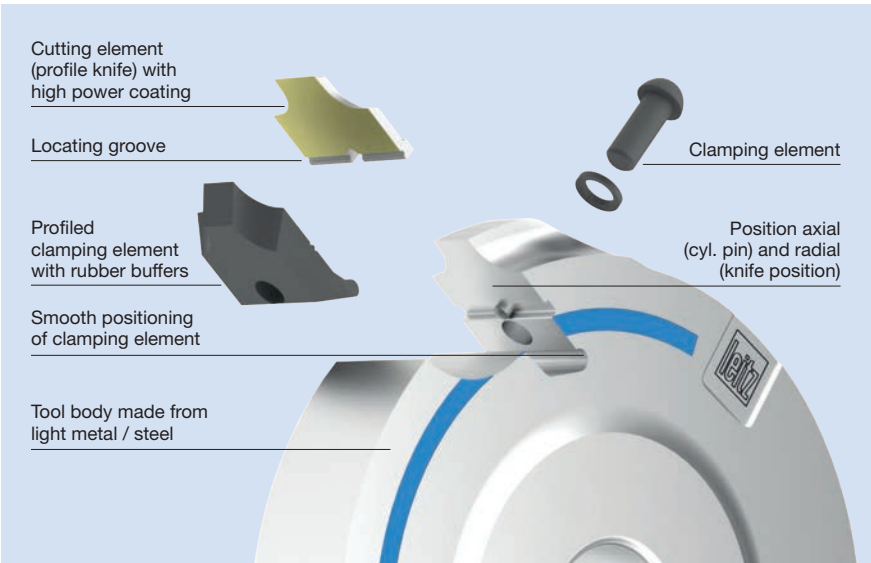
10.2 ProfilCut Q System Group

10.2.1 ProfilCut Q

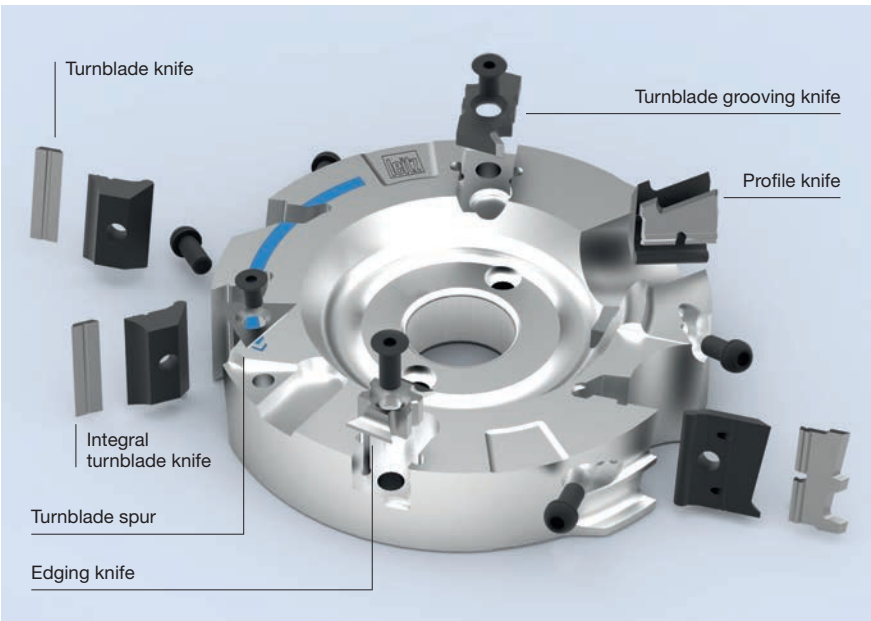
Technical specifications

For special surface quality demands, we recommend splitting the cutting edge (2-part design instead of a 1-part design - independent of the cutting width).

Diameter	Shank tool 0-400 mm Tools with bore 70-600 mm
Cutting width	8-80 mm ProfilCut Q 8-120 mm turnblade knife
Closed profiles	Z 2, from zero diameter 60 mm max. number of teeth depends on diameter
Tool body	Aluminium/steel
Number of teeth	Single-sided profiles: Z 1, up to zero diameter 40 mm Z 1/1, from zero diameter 40 mm
Profile depth	PT max. 20 mm (straight tool body) PT > 20 mm (cranked tool body)



Example for possible turnblade and throwaway knives combination



10. Profile tool systems

10.2 ProfilCut Q System Group

10.2.2 ProfilCut Q Premium

For highest performance and cutting quality

Modern machines and manufacturing processes increase the demands on the tools used with regard to performance and machining quality. Commercially available systems usually reach their performance limits.

ProfilCut Q Premium is the ultimate solution for companies that want to get more out of their production. With cutting speeds of up to 120 m/s it is one of the fastest tool systems in the industry. The resulting reduction in cutting time saves users time and money.

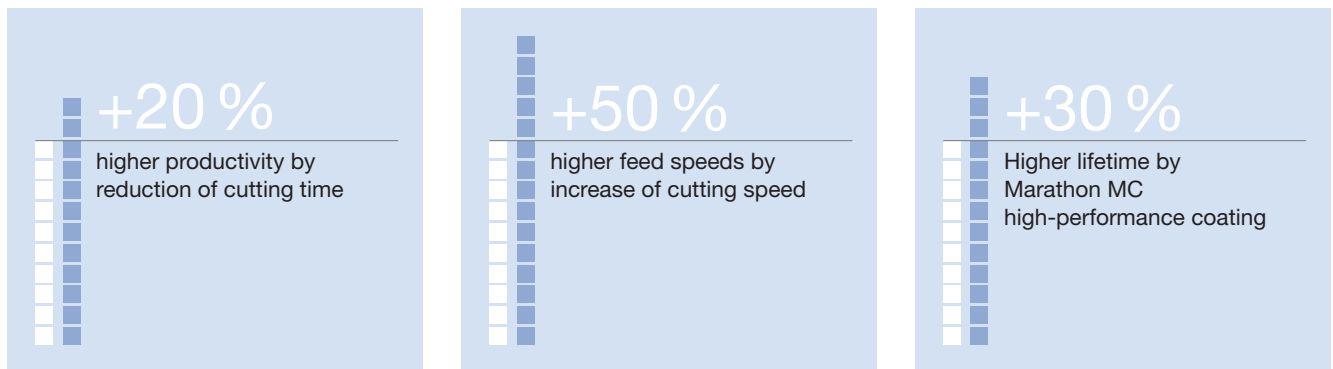
Your benefits

- Reduced processing times
- Perfect cutting quality during the entire tool life
- Long lifetime
- Minimal set-up times
- Easy handling

At a glance

- For cutting speeds (v_c) up to 120 m/s
- Light metal tool body with performance-enhancing coating
- Includes Data Matrix Code or RFID chip for networked communication
- TC-cutting edges with Marathon high-performance coating





Productivity and efficiency

More parts in less time and with less effort

- 20 % higher part output by reducing the cutting time
- 50 % higher feed rate by increasing the cutting speed to 120 m/s
- 30 % longer tool life through cutting edges with Marathon high-performance coating
- Shorter set-up times through automatic knife positioning without setting devices
- Lower maintenance, effort and reduced machine downtime due to longer tool life
- Cost-efficient through the combination of several knife types such as turnblades, profile cutting edges, edge rounders, spurs etc.

Quality

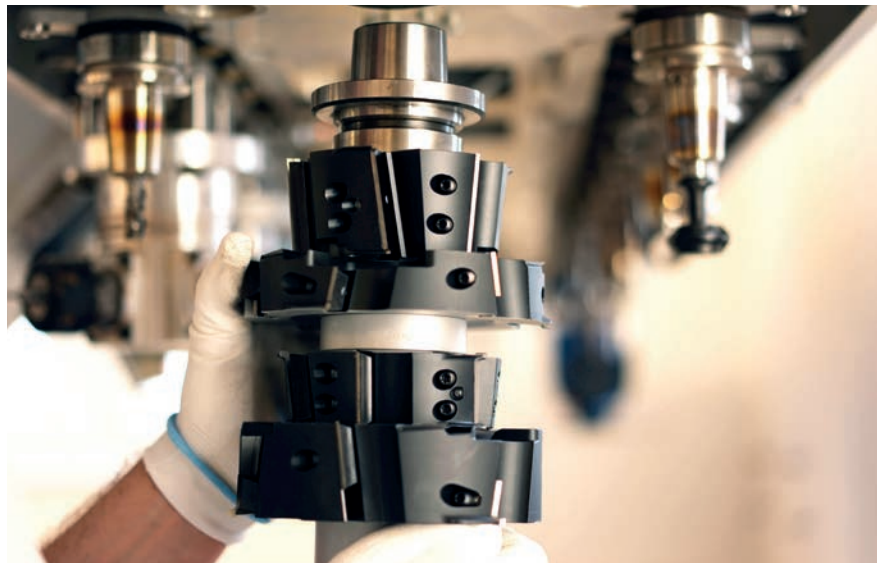
Surfaces in finish quality for fewer rejects and rework

- Perfect finish quality due to extrasharp cutting edges and lowvibration lightweight construction
- Reduced splintering on the wood due to special chipbreaker with profile
- Optimally matching TC types can be combined with diamond

Sustainability

Resource-friendly and quiet

- Up to 8 dB(A) less noise through optimized tool design
- Reduced knife consumption due to longer lifetime of the knives
- Maximum wear protection and reduced dirt adhesion to the tool body through functional coating
- Resource-friendly through reusable tool body



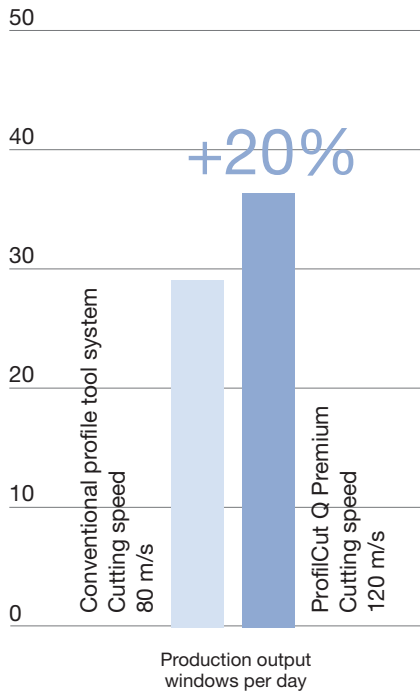
10. Profile tool systems

10.2 ProfilCut Q System Group

10.2.2 ProfilCut Q Premium

Process example: window production

- Production output 30 windows per day
- Average cutting time 42 % per window
- Comparison of conventional profile tool system with Leitz ProfilCut Q Premium



10. Profile tool systems

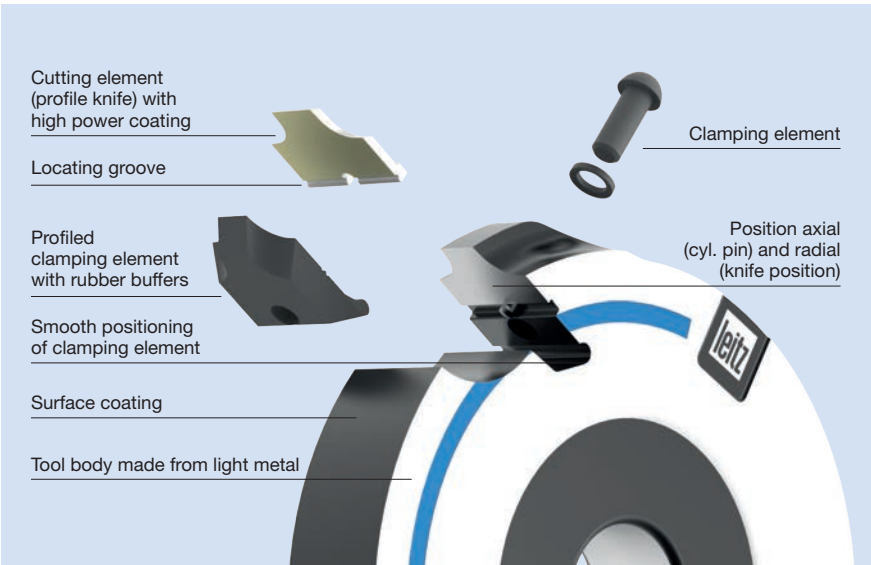
10.2 ProfilCut Q System Group

10.2.2 ProfilCut Q Premium

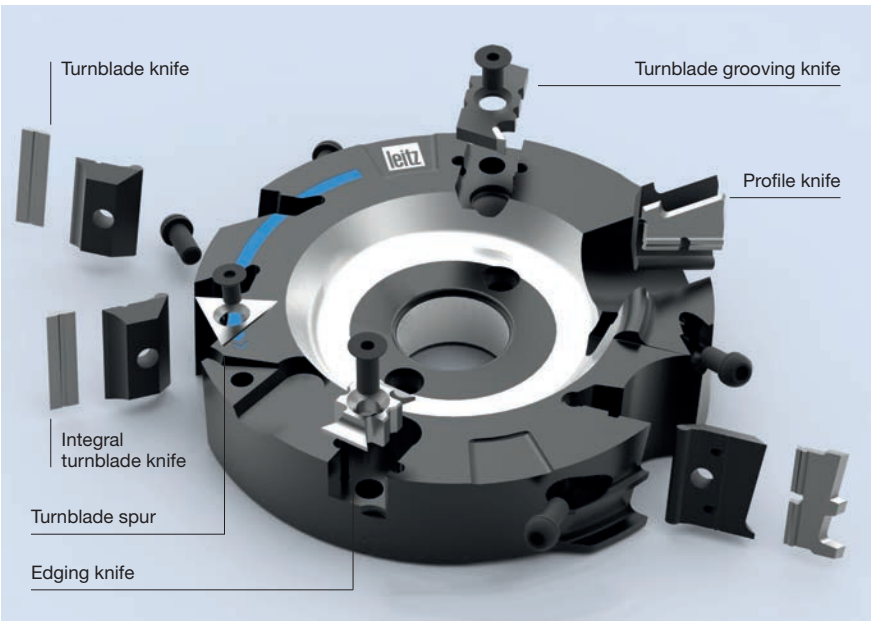
Technical specifications

For special surface quality demands, we recommend splitting the cutting edge (2-part design instead of a 1-part design - independent of the cutting width).

Diameter	Shank tool 0-400 mm Tools with bore 70-600 mm
Cutting width	8-80 mm ProfilCut Q Premium 8-120 mm turnblade knife
Closed profiles	Z 2, from zero diameter 60 mm max. number of teeth depends on diameter
Tool body	Aluminium / steel
Number of teeth	Single-sided profiles: Z1, up to zero diameter 40 mm Z1/1, from zero diameter 40 mm
Profile depth	PT max. 20 mm (straight tool body) PT > 20 mm (cranked tool body)



Example for possible turnblade and throwaway knives combination



10. Profile tool systems

10.2 ProfilCut Q System Group

10.2.3 ProfilCut Q PLUS

The resharpenable constant diameter tool system

In cases where high running meter performances are required, the use of conventional tooling systems can result in high cost.

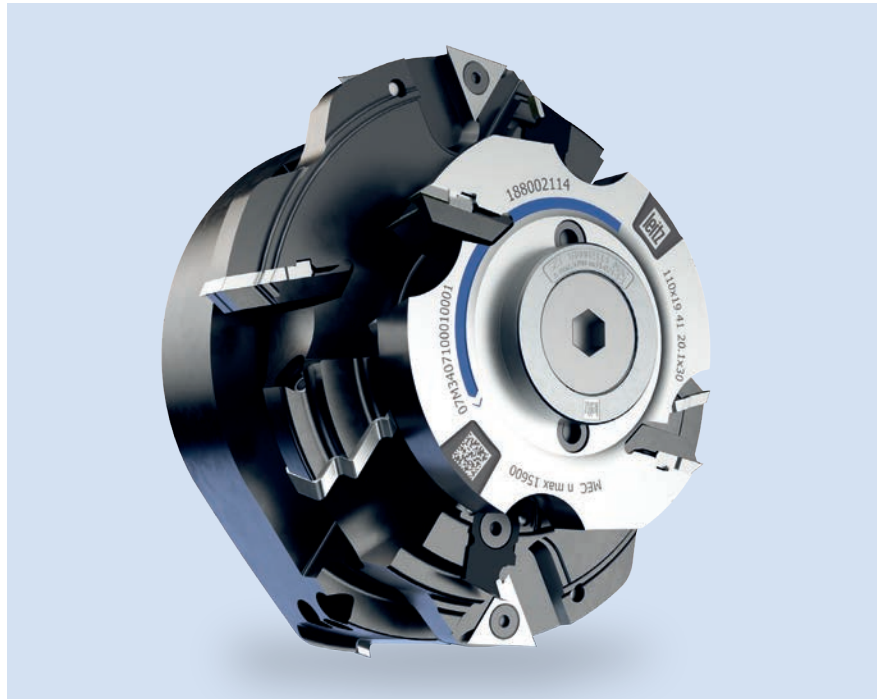
ProfilCut Q PLUS sustainably reduces manufacturing costs with resharpenable, constant diameter and profile cutting edges. Especially for plants with a high output of parts, this system offers more efficiency and productivity while saving resources.

Your benefits

- 5 times resharpenable
- Constant profile and diameter after sharpening
- Reduced processing times with maximum performance
- Minimal set-up times

At a glance

- **ProfilCut Q PLUS** for cutting speeds (v_c) up to 90 m/s
- **ProfilCut Q PLUS Premium** for cutting speeds (v_c) up to 120 m/s
- Tool body mainly of light metal
- Includes Data Matrix Code or RFID chip for networked communication
- Specially suitable for systems with high output
- TC cutting edges with Marathon high-performance coating



6

tool lives per knife



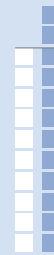
-20 %

costs per running meter
through resharpenable
cutting edges



+20 %

higher productivity with
ProfilCut Q PLUS Premium



Efficiency and productivity

Reduces the production costs significantly

- Reduced tool costs due to six tool lives per knife
- Maximum cost efficiency through the flexible use of disposable or resharpenable constant diameter systems
- 50 % higher feed rate by increasing the cutting speed to 120 m/s
- 20 % higher part output by reducing the cutting time
- Shorter set-up times through automatic knife positioning without setting devices
- Cost-efficient through the combination of several types of knives such as turnblades, profile cutting edges, edge rounders, spurs etc.

Reliability

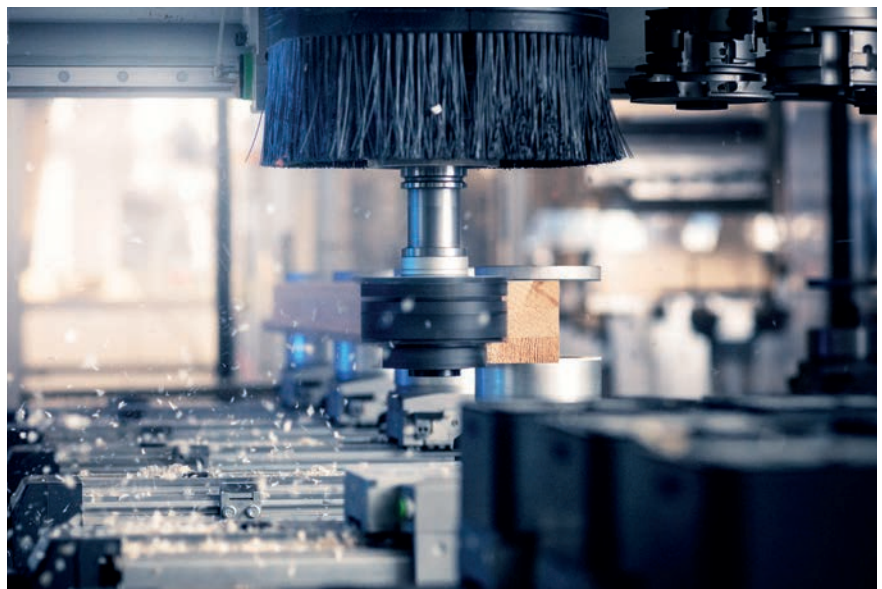
Consistent quality and maximum user-friendliness

- Constant profile and diameter after sharpening
- Perfect repeatability after every knife service through precise, automatic knife clamping
- Knife change possible in mounted tool set

Sustainability

Protects man, material and machine

- Up to 8 dB(A) less noise through optimized tool design
- Reduced knife consumption due to longer lifetime of the cutting edges
- Highest wear protection and reduced dirt adhesion through functional coating
- Protection of resources through reusable tool bodies



10. Profile tool systems

10.2 ProfilCut Q System Group

10.2.4 ProfilCut Q Diamond

Maximum performance for profile tools

Abrasive materials or composite materials are not easy to machine due to their properties. Tool and cutting materials wear quickly, which in turn increases production costs.

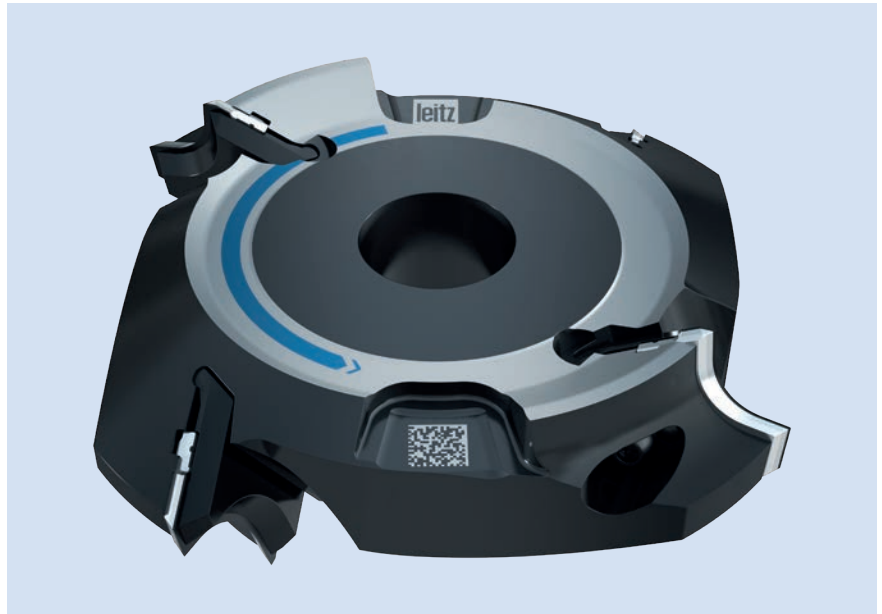
With the unique combination of an ultra-light aluminium tool body and resharpenable, profile and diameter constant diamond changing knives, ProfilCut Q Diamond ensures efficient machining of abrasive materials. Precise and without loss of performance.

Your benefits

- Long lifetime
- Constant profile and diameter after sharpening
- Lightweight construction for high-speed applications
- Minimal set-up times
- Easy handling

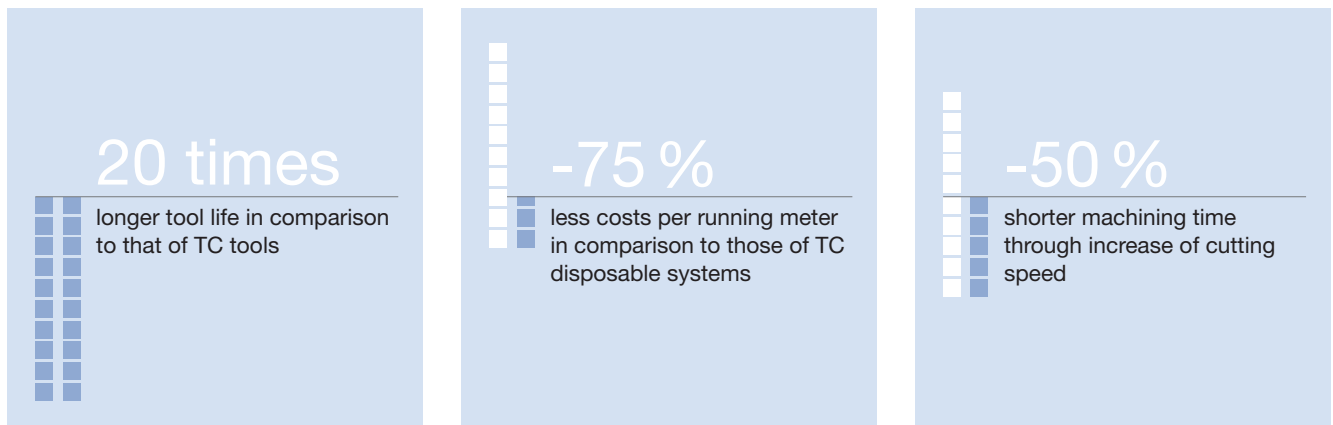
At a glance

- For cutting speeds (v_c) up to 120 m/s
- Includes Data Matrix Code or RFID chip for networked communication
- 5 times resharpenable
- Especially suitable for systems with high part output
- Preferably used in wood derived materials, plastics, aluminium as well as fibre or layered composites



10. Profile tool systems

10.2 ProfilCut Q System Group 10.2.4 ProfilCut Q Diamond



Productivity and efficiency

More parts in less time and with less effort

- 20 times longer tool life through diamond cutting edges compared to TC
- Reduce tool costs through six tool lives per knife
- 50 % higher feed rate by increasing the cutting speed to 120 m/s
- Shorter set-up times through automatic knife positioning without setting devices
- Reduced maintenance effort and machine downtime through higher life times
- Maximum cost efficiency through the flexible use of disposable or resharpenable constant diameter systems

Reliability

Constant machining quality and user-friendliness

- Profile and diameter constant after sharpening
- Perfect precision repeatability after each knife service through precise, automatic knife clamping
- Knives can be changed in the assembled tool set

Quality

Maximum machining quality during the entire life cycle

- Perfect finish quality due to low vibration lightweight construction
- Optimally matched TC grades can be combined with diamond



10. Profile tool systems

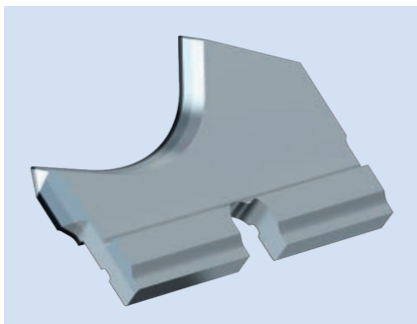
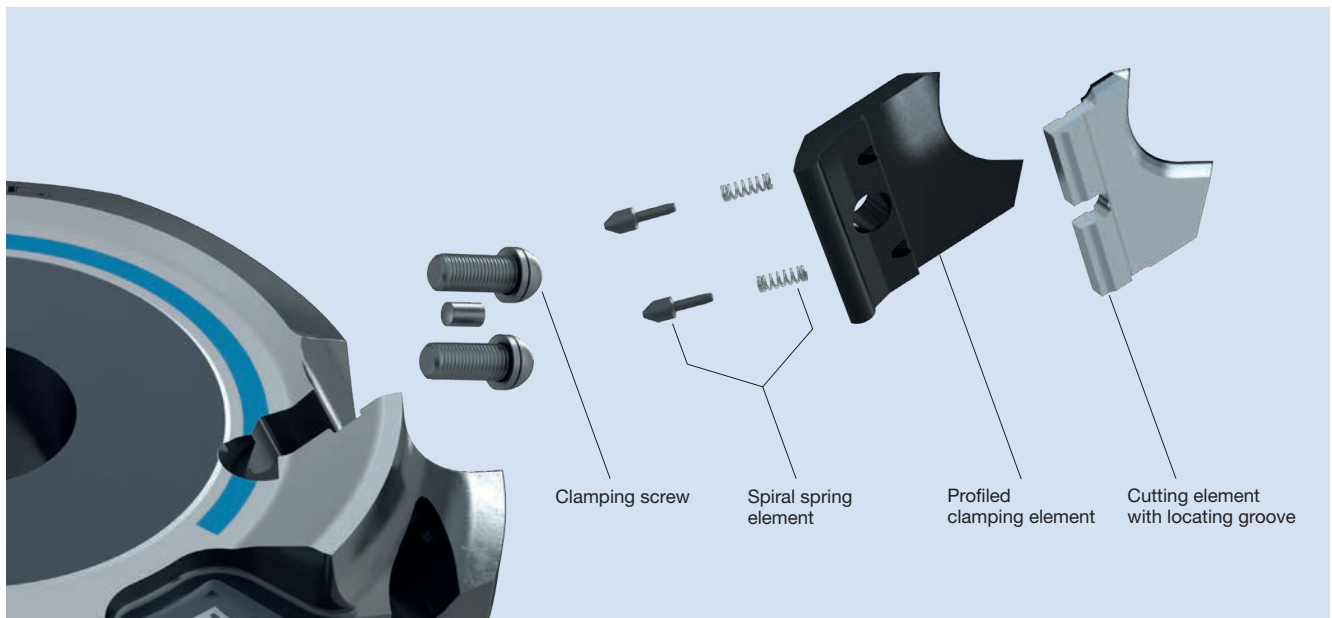
10.2 ProfilCut Q System Group

10.2.4 ProfilCut Q Diamond

Technical specifications

- sharpen knives five times
- constant profile and diameter
- many times longer tool life
- polycrystalline diamond (PKD) – the hardest material on earth

Cutting speed	$v_c = 120 \text{ m/s}$
Cutting width	Max. 50 mm to profile depth 15 mm
Datamatrix Code	Product information available
Diamond cutting edge	Resharpen knives five times polycrystalline diamond (PCD)
Lightweight	Combined lightweight construction with diamond cutting edges
Number of teeth	Single-sided profiles: Z 1, up to zero diameter to 45 mm Z 1/1, from zero diameter to 45 mm



For greater flexibility

ProFix F means increased flexibility. New ProFix profile knives in different tungsten carbide qualities allow for varying cutting widths up to 100 mm in one tool body. Moreover, the profile knives can be positioned any place on the tool body. The profile construction based on a constant zero diameter reduces machine set-up after profile change.

ProFix F is the perfect solution for any four-sided moulder applications, doubleending tenoner or stationary overhead routers with frequently profile changes.

Your benefits

- Can be resharpened many times
 - Constant profile and diameter after sharpening
 - Multi-purpose tool body for a wide range of profiles
 - Reduced set-up times
-

At a glance

- Free choice of axial position of the profile knives
 - Ideal for customer-specific versatile and frequently changing profile production
 - Especially suitable for medium and large series production
-



16



tool lives per knife (max.)

-30 %

costs per running meter
through resharpenable
cutting edges**Efficiency and flexibility**

Significantly reduced manufacturing costs

- Reduced tooling costs thanks to 16 tool lives per knife
- Shorter setup times thanks to easy knife mounting
- Quick replacement of different profile knives in one tool body

Reliability

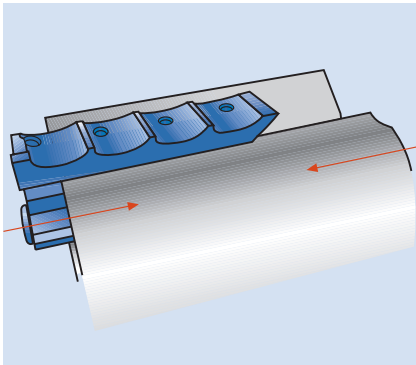
Consistent quality and maximum user-friendliness

- Constant profile and diameter after sharpening
- Reproducible profile production according to data sheet without tool measurement, sample milling, and machine readjustment

Sustainability

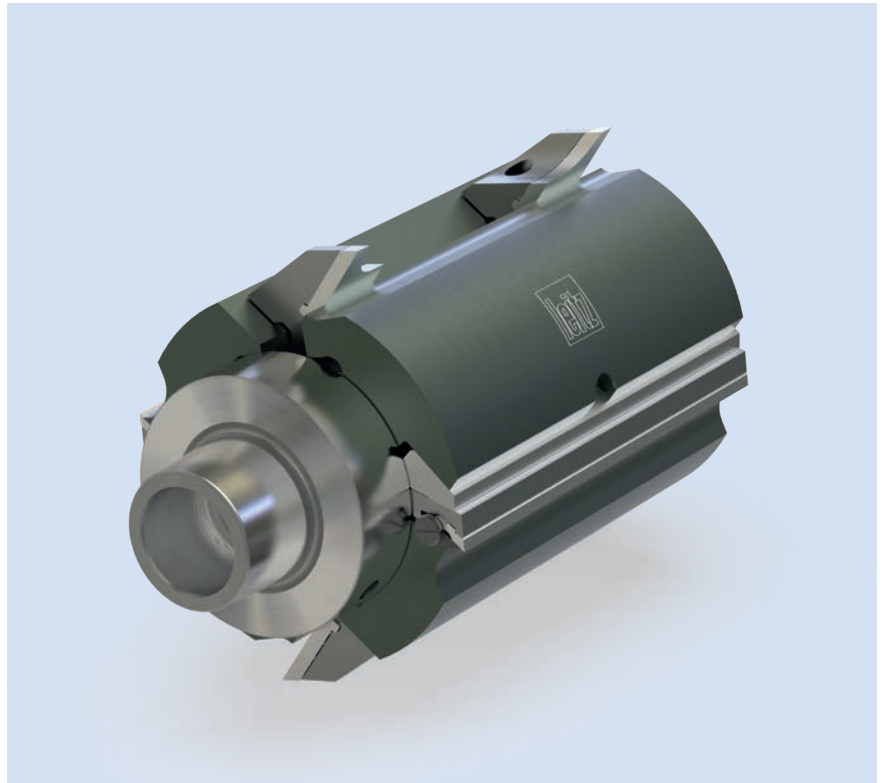
Responsible use of high-quality cutting material

- Reduced knife consumption due to longer lifetime of the cutting edges
- Protection of resources through reusable tool bodies



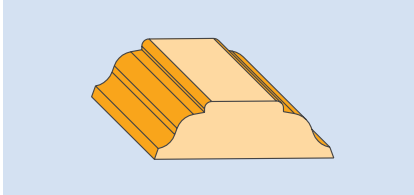
Knife insertion in the machine possible from left or right.

ProFix F incorporates a VariPlan moulding cutterhead, e.g. of manufacturing door frames of different widths etc.

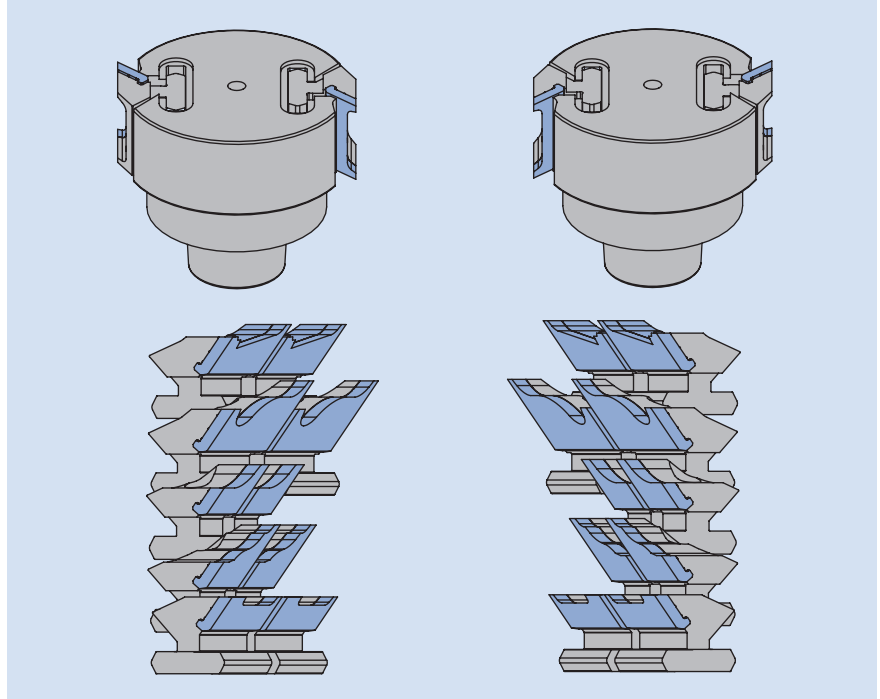


ProFix F reduces the tool changer

Compared to conventional profile cutterheads made to a unique profile, ProFix F reduces the number of tools in the magazine. Only profile knives instead of complete tools are required. The design allows for precise profile replacement in the tool without setup or measuring.



Example strip production:
Stockage of ProFix F profile knives
instead of complete profile tools.



Technical features

Profile depth	max. 25 mm
Cutting width	20-100 mm
Sharpening range	5 mm
Cutting speed	
– steel tool body	max. 80 m/s
– aluminium tool body	max. 70 m/s
Concentricity	0,05 mm
Cutting angle	15°-25°
Shear angle	0°

10. Profile tool systems

10.4 VariForm universal profile tool system

The ingeniously easy and versatile multi-purpose profiling tool system

Whether in industrial or artisan production – profiling of different materials and shapes can be a challenge for operators. The ideal profile cutting tool must therefore be capable in numerous disciplines simultaneously.

With the VariForm profiling tool system, Leitz provides users with the multipurpose solution for combining quality, variety and cost effectiveness. Its concept is simply ingenious: flexible thanks to a simple tool body design, low tool costs due to multiple resharpening possibilities, versatile due to numerous knife profiles.

Your benefits

- Individual profile design
- Easy handling
- Resharpenable knives

At a glance

- Steel tool body, hardened clamping elements
- High precision, centrifugal force supported knife clamping
- For CNC machining centres, table milling machines (MAN) and through-feed machines (MEC)
- Suitable for soft and hard woods, panel material and glued woods
- Tungsten carbide cutting material, adopted for many applications



4 times

resharpenable (max.)

50 fold

longer lifetime in comparison to knives of alloyed tool steel

Flexibility

Variable in all aspects

- Nearly every profile request is possible
- Use in various materials from solid wood to wood derived materials and plastics
- Can be used on machines for manual feed, throughfeed systems and CNC machining centers

Efficiency

Time and costs at a glance

- Optimum use of cutting edges through multiple resharpenability
- Quick and easy knife changes without setting gauges
- Long tool life through optimized tungsten carbide grades

Reliability and quality

Consistent quality

- Long lifetime due to steel tool body and hardened clamping elements
- High machining quality due to extra sharp cutting edges



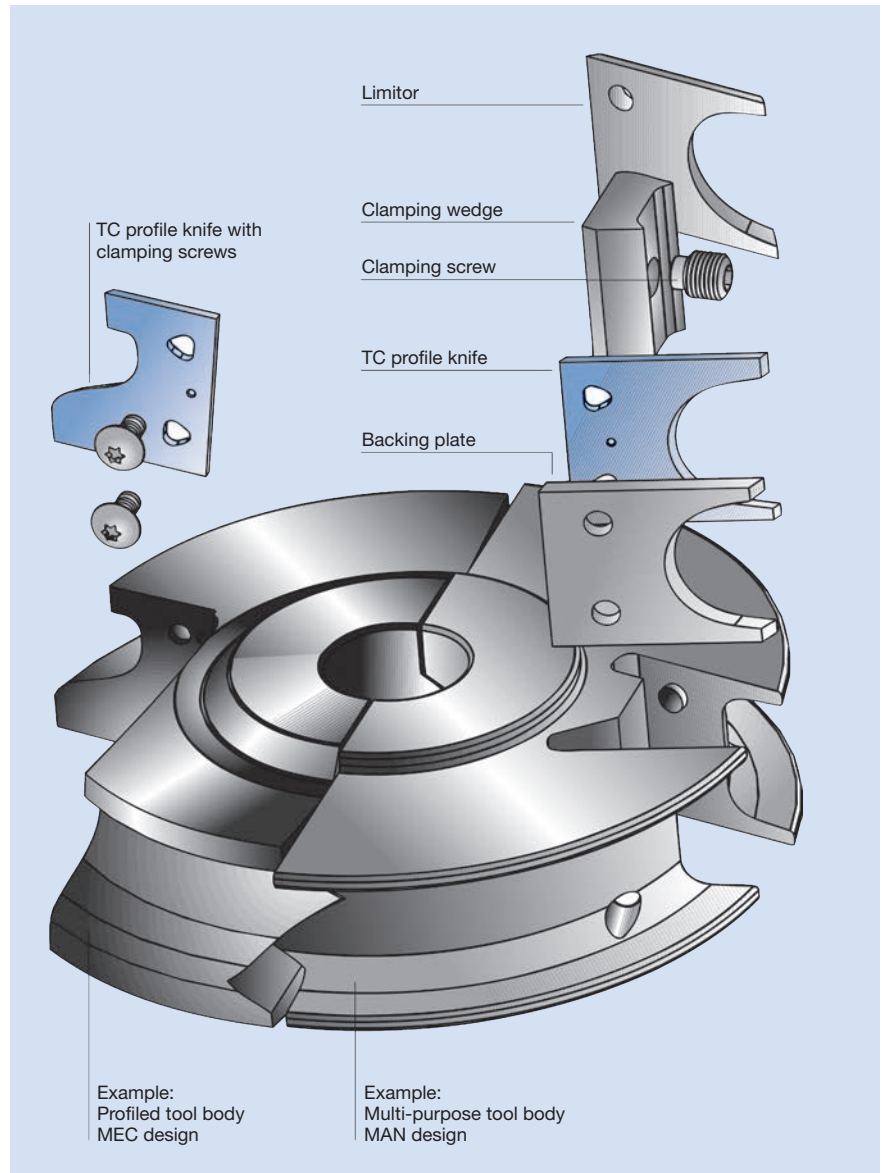
Easy handling

The VariForm knife clamping “overrides centrifugal force”.

3-point support, the knives are centered, clamped and positioned radially by the centrifugal force.

That means no movement at high speeds and precise and safe working at the optimum cutting speed range of 70 to 80 m/s.

Another advantage: As there are no side stops, you can profile the blank knives around the entire periphery.



Note:

Small tool diameters or profile depths exceeding 20 mm require profiled tool bodies.

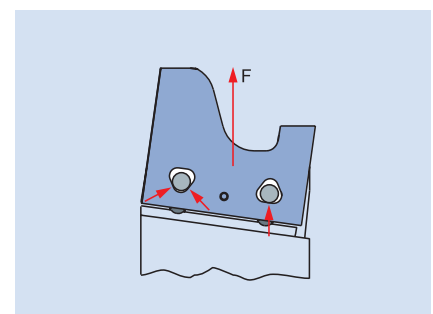
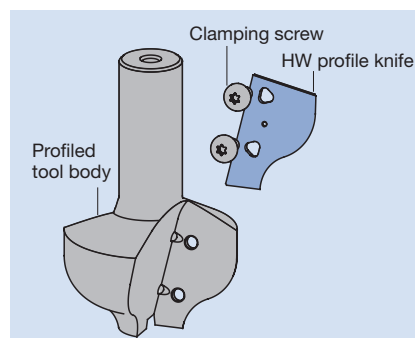
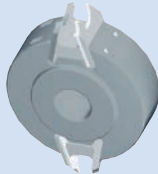
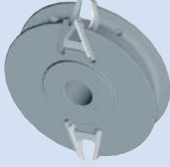




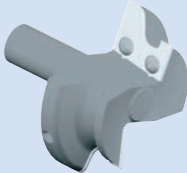


Diagram of the knife clamping

VariForm – main designs and data at a glance

Design variants	Profile depth up to 15/19 mm	Profile depth up to 20 mm	Profile depth up to 35 mm
MAN feed for spindle moulders	 multi-purpose tool body	 partially profiled tool body, channel	 profiled tool body cranked right/left
Cutting width:	40/45 mm and 50/60 mm	40 mm to 60 mm	40 mm to 60 mm
MEC feed for four-side planing machines, -edgebanding and sizing machines (suitable for quick-clamping systems)		 partially profiled tool body, channel, L profile, I profile	 profiled tool body cranked right/left
Cutting width:		40 mm: L / I profile 40/60 mm: U profile	40 mm to 60 mm
MEC feed (CNC) for CNC router cutters and CNC machining centres	 multi-purpose tool body		 profiled tool body cranked right/left
Cutting width:	40/45 mm and 50/60 mm		30 mm to 50 mm



Manufacturing profiled mouldings is important. Profiled mouldings are used, for example, at floor level as skirting boards, around doors as frame profiles, and in cabinetry as decorative mouldings. Such products are usually manufactured on four-sided moulders on through-feed machines and pose specific requirements on the tool system.

- Profile changes need to be actioned quickly by suppliers. This means the user must be able to profile and sharpen the tool system.
- The increase in MDF lining profiles requires wear-resistant tungsten carbide.
- For high production volumes, the tool system needs to be either jointable or, in the case of new machine generations, be HSC-suitable, i. e. suited to high rotation speeds up to $n = 12000 \text{ min}^{-1}$.
- Furthermore, the number of staff required for tool preparation must not be too high, as the staff is needed to produce the mouldings.



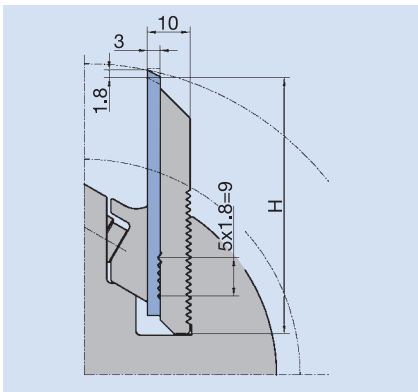
Leitz has developed a user-friendly and highly efficient knife system called PowerKnife System, or simply PKS®, specifically for the high requirements of profile moulding production.

PKS® is a development of the Leitz MicroSystem, which has provided valuable service over the years. It is compatible with all serrated back profile cutterheads with 60° serration, either with bore or HSK. The system consists of a tungsten carbide blank knife and a hardened steel backing plate. Both parts are form-fitting via a serration, but can be separated from each other. The backing plate is secured in the serration of the cutterhead by its serrated back.

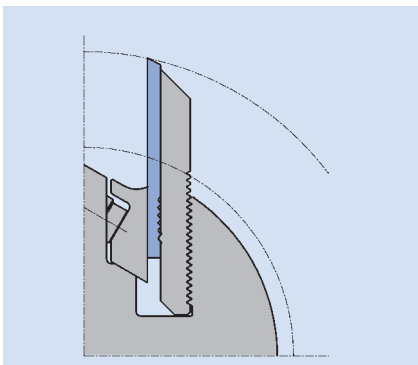
This system offers major advantages compared to tipped knives with brazed-on tungsten carbide, and other two-part knife designs:

- For the maximum concentric running, the knives are profiled or resharpened when installed in the cutterhead, machining the tungsten carbide edges and the steel backing plate separately with the appropriate grinding wheel. The backing plate is profiled only once, while the tungsten carbide edge is resharpened several times and can be replaced separately. Thanks to the single-material machining of tungsten carbide or steel, grinding wheel consumption, processing time and tool cost are reduced.
- The resharpening depth of the tungsten carbide knife is 10.8 mm, approx. 40 single average performance times.
- The adjustment area of the knife system is defined by the design. It is not possible to project the knife too far out of the tool. This ensures safe operation of the system at all settings.
- The form-fitting connection between the tungsten carbide knife and the backing plate by just one serration ensures the parts are in contact over the whole surface, enabling maximum positioning accuracy, as one serration by definition does not lead to pitch errors.
- The comparatively large increments of 1.8 mm when adjusting the tungsten carbide knife enable six to eight resharpening processes in one installed position. In relation to the overall single performance time of one knife, this reduces knife mounting and setting time.
- The two-part design allows use of more wear-resistant tungsten carbide grades compared to brazed tungsten carbide knives and significantly increased performance times.
- Only ultra-fine tungsten carbide grain grades are used. And the cutting face has a mirror finish. Combined, these give extremely sharp cutting edges and a perfect surface finish.

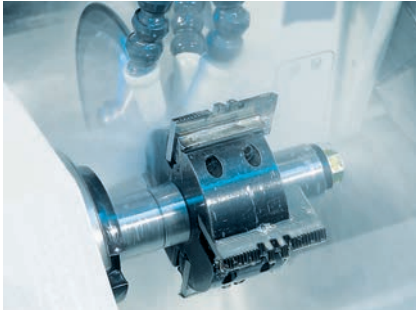
PowerKnife System PKS® Tungsten carbide blank knife with backing plate for serrated back profile cutterheads



PKS®: New condition



PKS®: Resharpen several times, in end position



The PowerKnife System PKS® is available as

- non-profiled blank knives with the heights 50, 60 and 70 mm for profiles to a profile depth of 33 mm
- knives with a height of 40 mm for planing or jointing. This knife height matches the tool diameters for jointing in the moulder.

Only ultra-fine grain tungsten carbide qualities are used as:

- HW-30F for solid wood, preferable hardwood
- HW-10F for wood materials such as MDF, WPC.



Tool example for PKS®:
Multi-profiling of MDF mouldings

The knives can be jointed in the moulder. When used with HSK tools, experience has shown that the ground accuracy is sufficient to allow a Z2 tool at 12000 min^{-1} , e. g. in MDF to run at a feed speed of 50 m/min, and give a finish quality even without jointing. Productivity can be increased still further through parallel profiling of several mouldings and subsequent splitting. PKS® with cutting widths of up to 310 mm are available.

Even if profiled by the user, it is sometimes necessary to use the competence, expertise and equipment of a specialist to prepare the tools. Leitz, with its service centres around the world, offers this service. The tools are mounted, ground and measured. The profile specific measuring points are defined as specified by the user and the measured data documented on the accompanying tool card. The tools are returned in a reusable transport container. Your production staff can concentrate more effectively and efficiently on their actual task – producing mouldings. This service package is extended still further by integrating the user's CAD profile data in the service centre grinding programs, as well as providing a telephone hotline for urgent cases.

