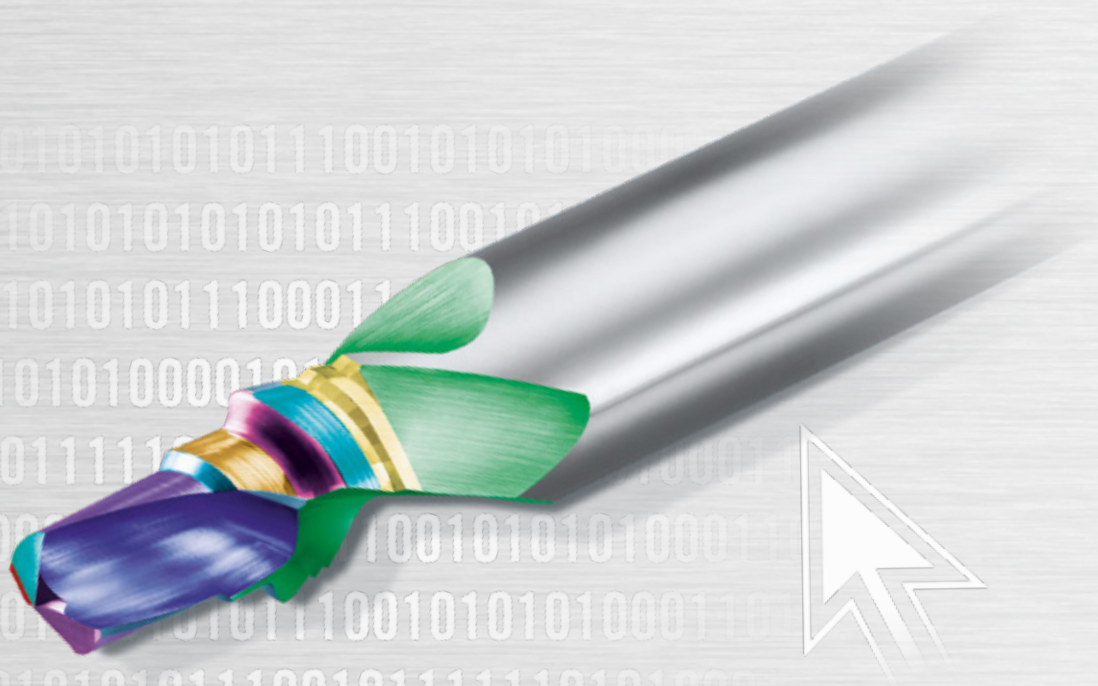# HELITRONIC TOOL STUDIO

The intelligent
tool machining solution

Key parameter

HELITRONIC TOOL STUDIO is the proven CAD/
CAM software for meeting the current and future
market requirements of the tooling industry.
It can process all tool parameters from con-
struction through to production. HELITRONIC
TOOL STUDIO helps turn the user into a grinding
professional!

WALTER

Grinding   Eroding   Laser   Measuring   Software   Customer Care

Walter Maschinenbau GmbH

WALTER has produced tool grinding machines since 1953. Today, our product range is supplemented by tool eroding machines and fully automated CNC measuring machines in the HELICHECK series for contactless complete measurement of tools and production parts.

Walter Maschinenbau GmbH is part of the UNITED GRINDING Group. Together with our sister company, Ewag AG, we consider ourselves to be a supplier of systems and solutions for the complete machining of tools and can offer a wide range of products, including grinding, rotary eroding, laser machining, measurement and software.

Our customer focus and our global sales and service network of company-owned locations and employees has been appreciated by our customers for decades.

HELITRONIC TOOL STUDIO

Users around the world consider the HELITRONIC TOOL STUDIO grinding software with integrated wizard technology by WALTER to be the simple solution for creating the perfect tool. It is now possible to grind extremely complex geometries in one clamping, thanks to the interplay between the HELITRONIC TOOL STUDIO and HELITRONIC CNC tool grinding machines. Design, programming, simulation and production are the four steps towards implementing the quick solution for each production task.

Software

HELITRONIC TOOL STUDIO at a glance

Application

- Design, programming, simulation and production of rotationally symmetric tools and production parts
- Grinding and regrinding of complex tool geometries in one clamping
- Economic efficiency from a batch size of 1 through to large-scale production

Software

- HELITRONIC TOOL STUDIO with integrated wizard technology (WALTER knowledge database)
- Standard license for producing and regrinding rotationally symmetric tools and production parts
- Advanced license with enhanced functionality for producing sophisticated tools and designing user-defined tools without wizard support
- Numerous options and upgrades for greater functionality and special applications
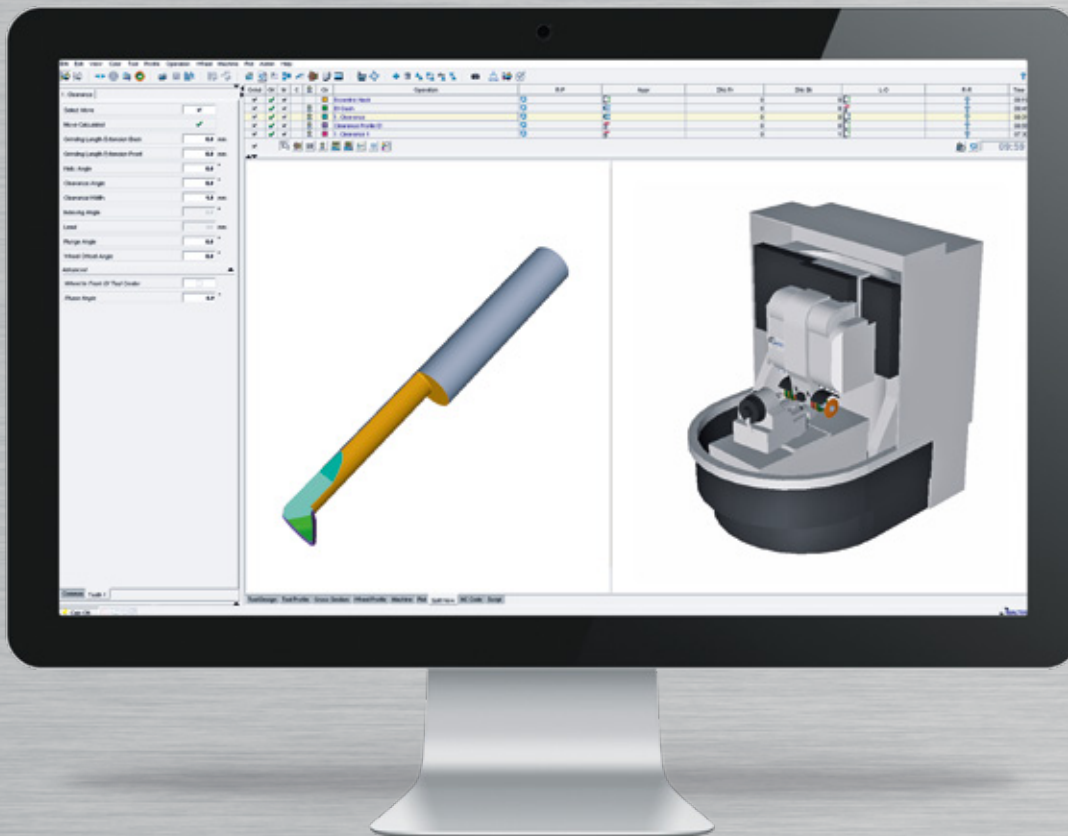
"What you see is what you grind" is an adaptation of the famous quote from Microsoft founder Bill Gates "What you see is what you get" and conveys the philosophy of the HELITRONIC TOOL STUDIO.

Machines

- Fully automated CNC tool grinding machines and/or tool eroding machines from the HELITRONIC range
- Compatible with PCs and laptops with Windows XP, Windows 7, Windows 8 and Windows 8.1

The delivery scope includes:
Standard and advanced licenses
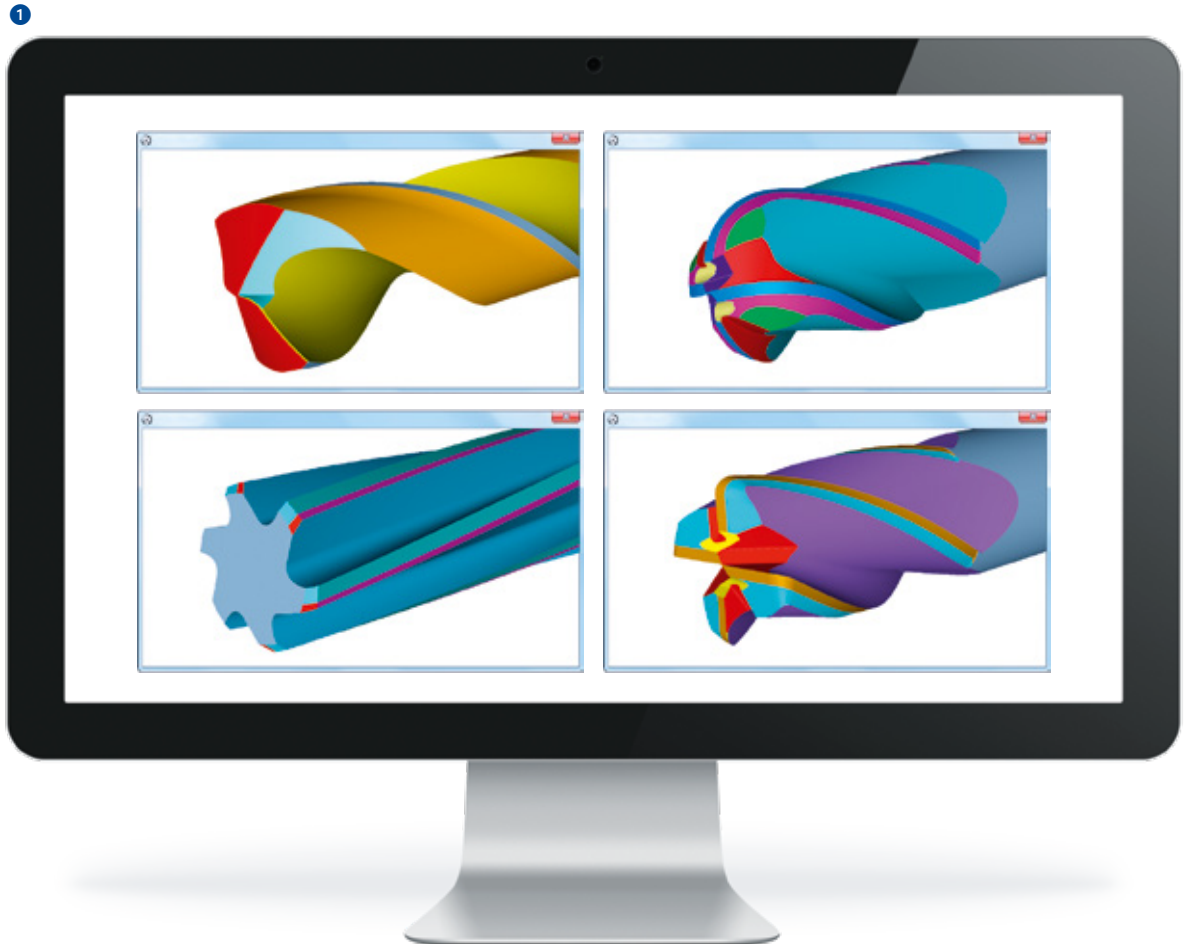
Standard license

The wizard technology integrated into HELITRONIC TOOL STUDIO enables the user to easily create tools using the standard license. The tool wizard is integrated so as to minimise the level of data input. The possibilities for tool geometry settings are virtually endless. To simplify the creation process for a cutter or drill and ensure a high level of usability, WALTER has created pre-defined end face types.

Functionality for producing reamers and ball cutters is integrated into the software and supported by the knowledge database, which makes working easier. Service operations such as the warm-up program, automatic opening of the grinding wheel and cutting operation round off the HELI-TRONIC TOOL STUDIO as a versatile, standard grinding software package.

①
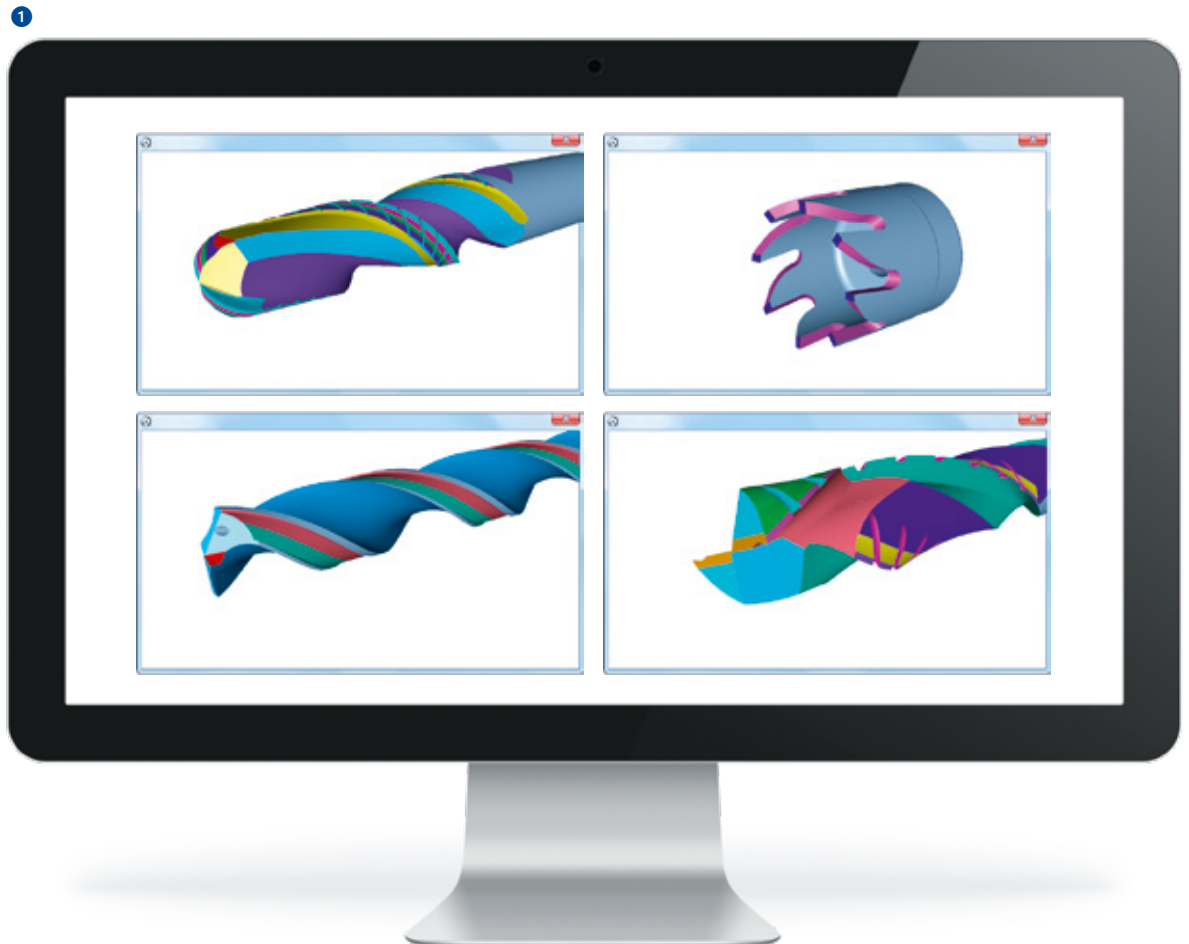
Advanced license

The advanced license provides ultimate flexibility in order to meet the highest demands and enables the user to implement most of the grinding operations that are available in HELITRONIC TOOL STUDIO. The tool design can be individually modified or adapted, even without the need for the tool wizard. The user can also choose to create user-defined tools without the support of the creation tool wizard.

① Examples of tools using the advanced license

The solution for creating the perfect tool:
Design, programming, simulation and production
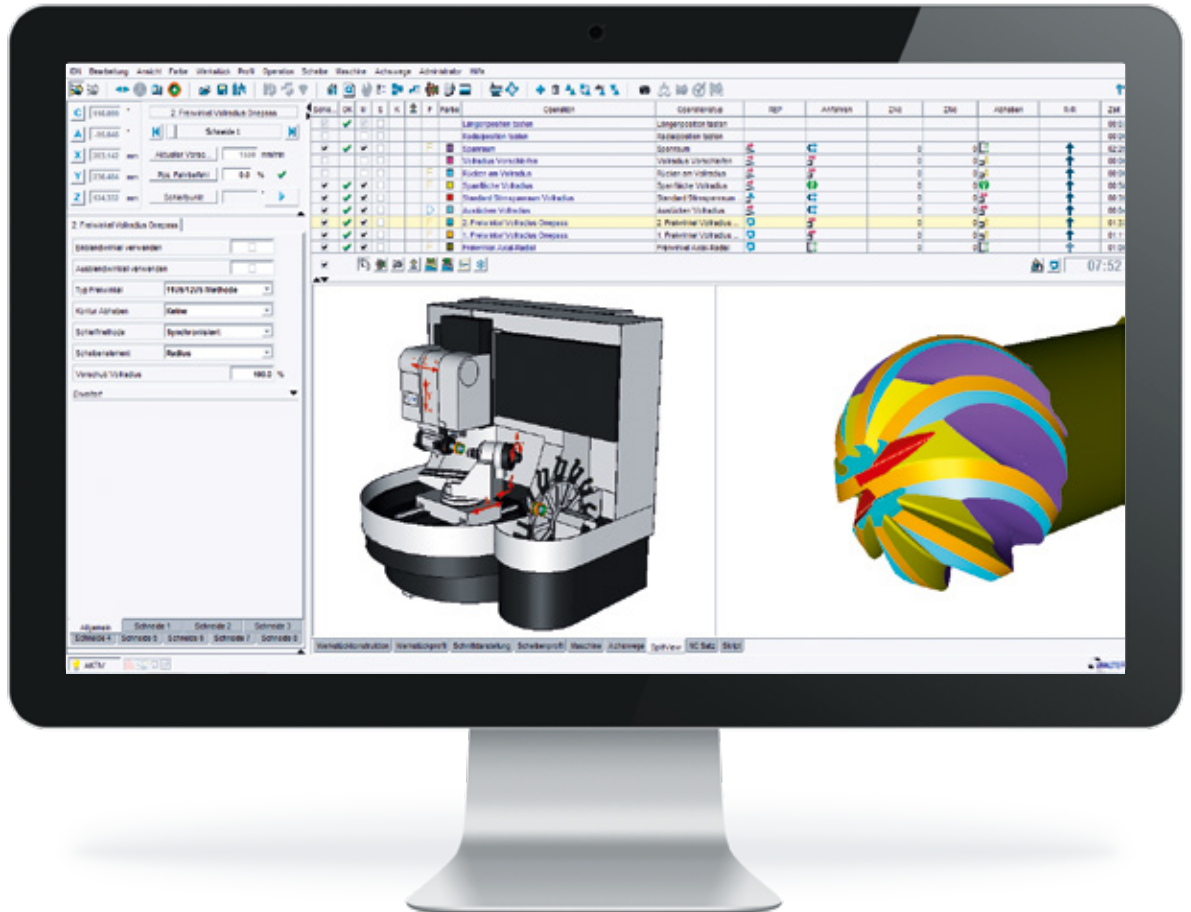
Usability

The user has access to all information at a glance, whether in relation to grinding parameters, grinding operations and/or tool/machine simulations. The user can simply set the relevant view. He is not overloaded with unnecessary data, which therefore enables him to concentrate on the essential details.

Flexibility – the way to the future

The modular construction of the HELITRONIC TOOL STUDIO means that tools of varying complexity can be created. This is made possible through the freely combinable operations such as flutes, end face geometries with clearance angles and gashes as well as circumference operations. There are no limits in terms of the number of operations that can be used for each tool. The user is able to construct a tool in line with his own ideas and requirements. Thanks to the modular structure of HELITRONIC TOOL STUDIO, the user is also well prepared for future developments.

Automatic collision control

To prevent collisions during subsequent grinding operations, a collision control feature is integrated into HELITRONIC TOOL STUDIO. The machinery space, chuck and grinding wheel are all mapped therein, as well as any possible superstructural parts such as dressers and steady rests. The collision test takes place automatically before each grinding operation. In the event of an emergency, the machine stops automatically to prevent a crash.

Click & edit

Modifications can be made by simply clicking on the geometry of the tool that you wish to change. For example, click on the flute to display the relevant parameters. These can be modified quickly and effortlessly. You do not need to spend time searching on different menu pages.

Simple measuring function

Tools can of course be measured prior to grinding. In this case the measurement does not depend on the current position of the graphic as the cutting edges, such as for a CAD system, are automatically identified.

The scaling function

If a finished tool must be completely modified, for example if it must have a larger diameter, then all you need to do is simply enter the desired value. Other parameters such as clearance angle widths and flute depths etc., are automatically adjusted by HELITRONIC TOOL STUDIO in relation to the desired value – flexible scaling for efficient working practices.

Tool simulation – "what you see is what you grind"

The software includes an impressive, integrated 3D tool simulation feature throughout the entire creation process. As required the user can update the simulation after each parameter modification and then obtain an optimal illustration of the tool. The 3D simulation always illustrates the tool as it will be ground on the machine, because all the important values such as REF data, grinding wheel data and blank data etc. are included in the calculation.

Flute calculation –"virtual probing"

HELITRONIC TOOL STUDIO is ideal for fluting as it supports many flute types and various calculation types. The calculation of the constant land width is also extremely important for variable flutes – the land width of the tool with a varying groove profile is automatically kept constant.

Online grinding times for each operation

HELITRONIC TOOL STUDIO takes into account most influencing values such as REF data, grinding wheel data, blank data, feed rates and cutting speeds etc. In doing so, HELITRONIC TOOL STUDIO always calculates the current grinding time for the entire tool as well as for each individual operation. The machine movements while repositioning the grinding wheel are also included in the grinding time calculation.

The tool wizard

Our tool wizard is an addition to the most popular tool families. The tool wizard input screens are integrated so as to minimise the level of data input. The system requests the most important basic data for the tool and transfers this automatically via the input screens. HELITRONIC TOOL STUDIO accesses the stored WALTER knowledge database in parallel. Important grinding information is stored on the database and is used to help quickly find solutions for all machining tasks.
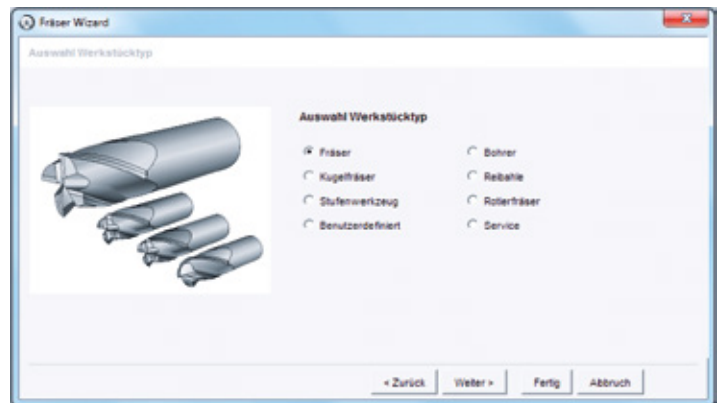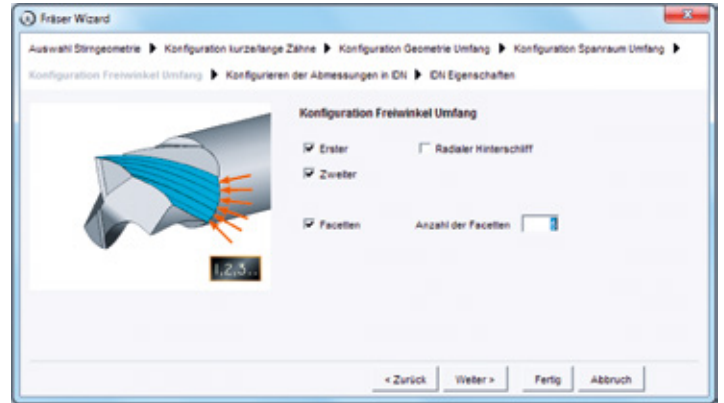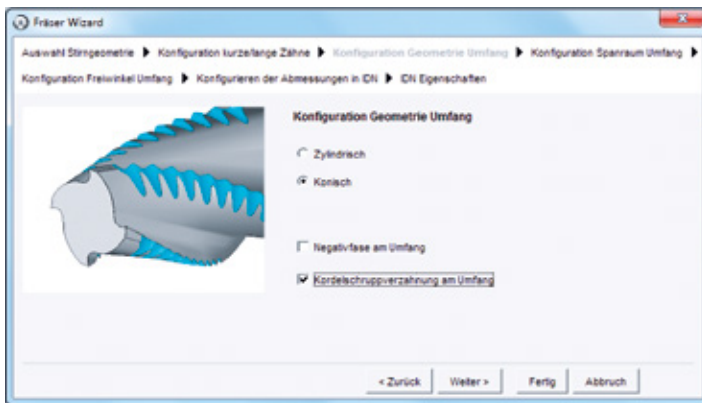

1. Selecting the tool family
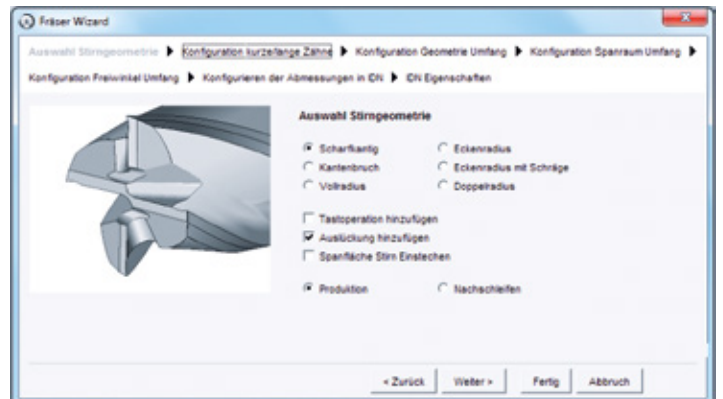
2. What end face geometry is required?
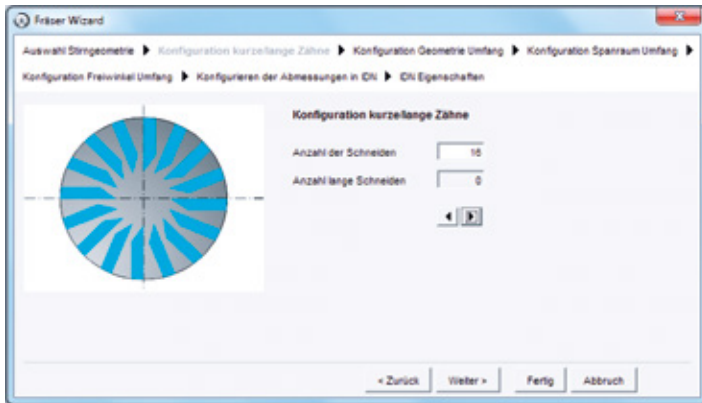
3. How many flutes are required?

4. Purpose of the tool at circumference 1

5. Purpose of the tool at circumference 2

6. Configuration of the clearance angle at circumference
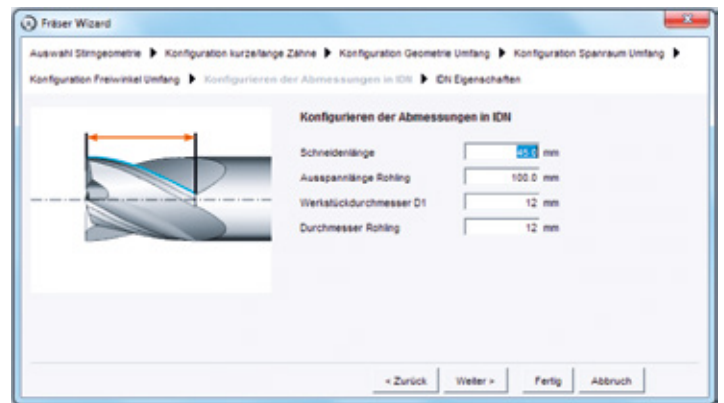
7. What are the required dimensions of the subsequent tool?
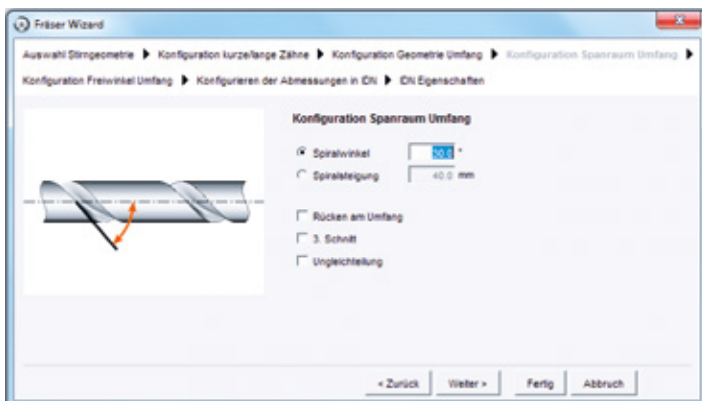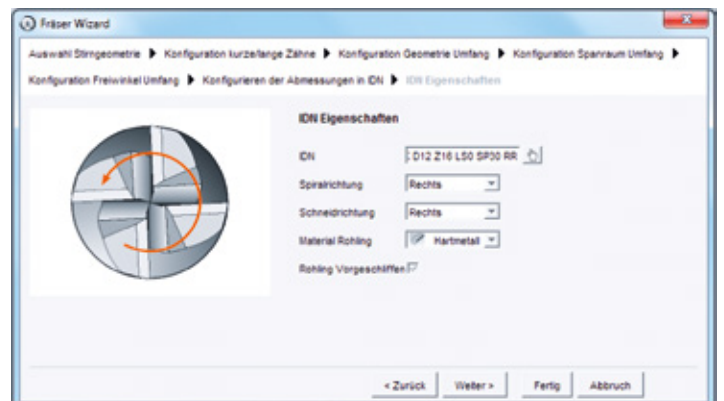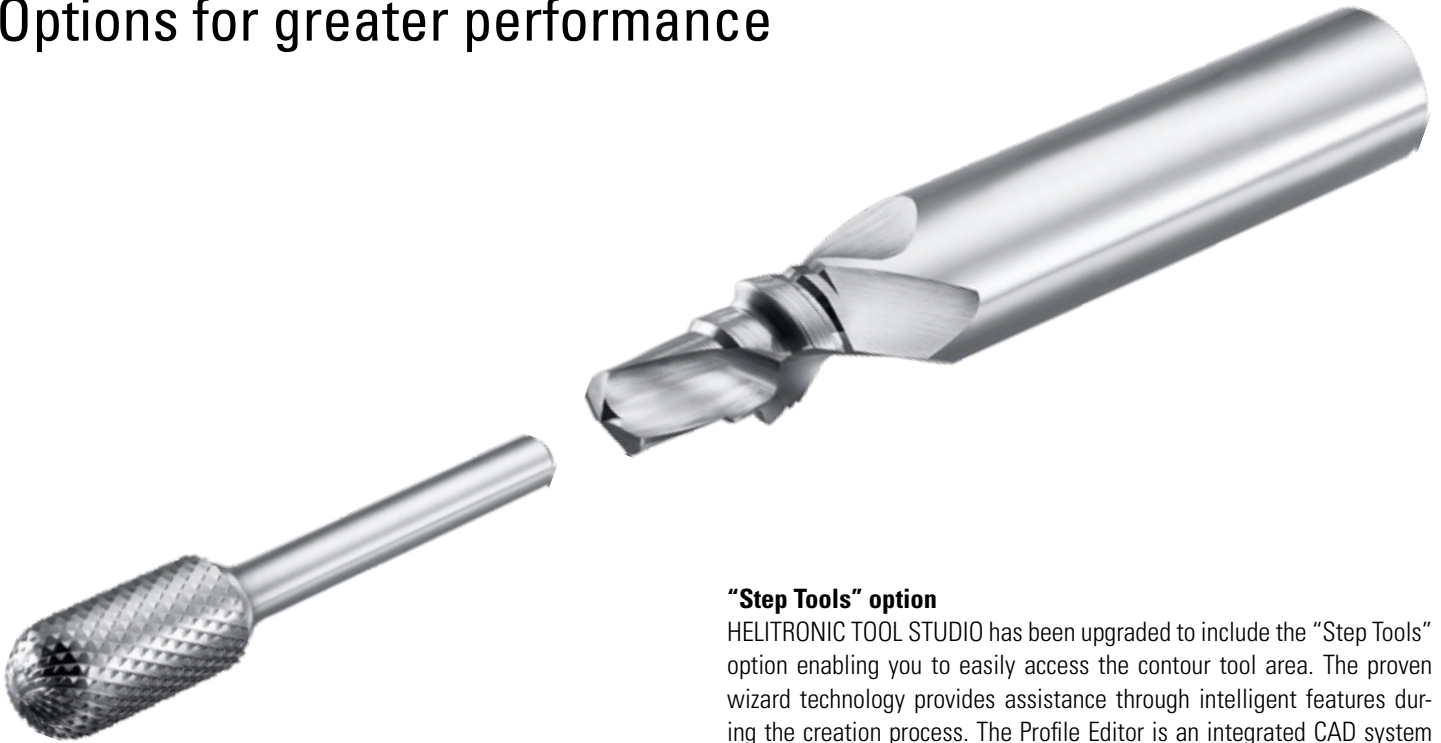

8. Additional features and specification of tool ID number

HELITRONIC TOOL STUDIO
Options for greater performance

"Step Tools" option

HELITRONIC TOOL STUDIO has been upgraded to include the "Step Tools" option enabling you to easily access the contour tool area. The proven wizard technology provides assistance through intelligent features during the creation process. The Profile Editor is an integrated CAD system that you can use to effortlessly design the tool profile. End face types for drill tips and end mill end faces can be selected at the click of a mouse. Therefore are different flute profiles and types to choose from to deliver the best possible result, and a large number of grinding operations round off this option.

"Burrs" option

Burrs are usually manufactured in standard profiles that are controlled by the HELITRONIC TOOL STUDIO with "Burrs" option. The following profiles are possible: A, B, C, D, E, F, G, H, J, K, L, M and N – incl. chip breaker. Additional profiles can also be produced through the user-defined function. Burrs are mainly used for the following work steps: Deburring, machining of contours, reaming for the preparation of overlay welding, levelling of welded seams, machining of acute angles and inner contour machining, i.e. circumference and end face cutting, in dentistry.

"Integrated Measuring System IMS" option

With the integrated measurement system IMS, the outside diameter, rake angle and core diameter can be measured using the probe ball without having to unclamp the tool. By defining the tolerances, HELITRONIC TOOL STUDIO can compensate for any deviation of the measured values, for example by thermal growth or wheel wear-and-tear, and adjust to the nominal measure, therefore preventing scrap. The operator no longer needs to make active adjustments and the dressing cycle of the grinding wheels remains constant. Both increase the efficiency, especially when it comes to large-volume production.

"Network" option – Network administration

This option in HELITRONIC TOOL STUDIO offers enhanced network functionality that significantly increases productivity, safety and working efficiency. The benefits include the administration of user rights and central database administration enabling IDNs to be opened on the server and simultaneously transferred to the machine.

"Wheel Shape" option – Defining the wheel profile

Calculation of the required wheel profile based on a flute shape specified by the user. The flute profile can be created using a CAD file (DXF) or pre-parameterised flute profiles (e.g. Helidrill profile). This option offers the user maximum flexibility for flute dimensioning.

"Dressing" option – Dressing all popular grinding wheel profiles

The dressing operation can be inserted at any point within an IDN (even at several points). Several grinding wheels for a set can be dressed within one IDN. Any part areas on the grinding wheel with different parameters can also be dressed. This saves time because the entire grinding wheel does not always need to be dressed.

"Custom Wheel Path" option – Manual grinding path

When using this option, the grinding path is programmed directly in the tool coordinate system. This enables machine-independent programming in the relative or absolute tool coordinate system, a more flexible tool design for special geometries and, if required, external calculation (in Microsoft Excel, for example) of the grinding path with subsequent import into HELITRONIC TOOL STUDIO.

"NC Code Programming" option – NC operation

This is used for individually programming tools and production parts via NC set programming in the machine coordinate system.

"Wheel Data Connect" option – grinding wheel measurement with Helicheck measuring machines from WALTER

Measurement of standard grinding wheel sets using "Quick Check Modular QCM" on a WALTER measuring machine. The data is transferred directly from the grinding machine via an existing network or via a portable storage medium. Double data entry is not required as the grinding wheel set to be measured is automatically defined using the HELITRONIC TOOL STUDIO grinding wheel set.

"Tool Measure Interface TMI" option – creation of measurement programs directly in HELITRONIC TOOL STUDIO

The option provides an interface between HELITRONIC TOOL STUDIO and WALTER measuring machines and enables the user to easily select parameters directly in HELITRONIC TOOL STUDIO. This prevents parameters from being entered twice. The end face and the circumference geometry are measured along with the associated parameters such as diameter, flute angle, spiral angle, clearance angle, clearance angle width, runout, flute depth and diameter taper.

Efficiency-increasing enhancement
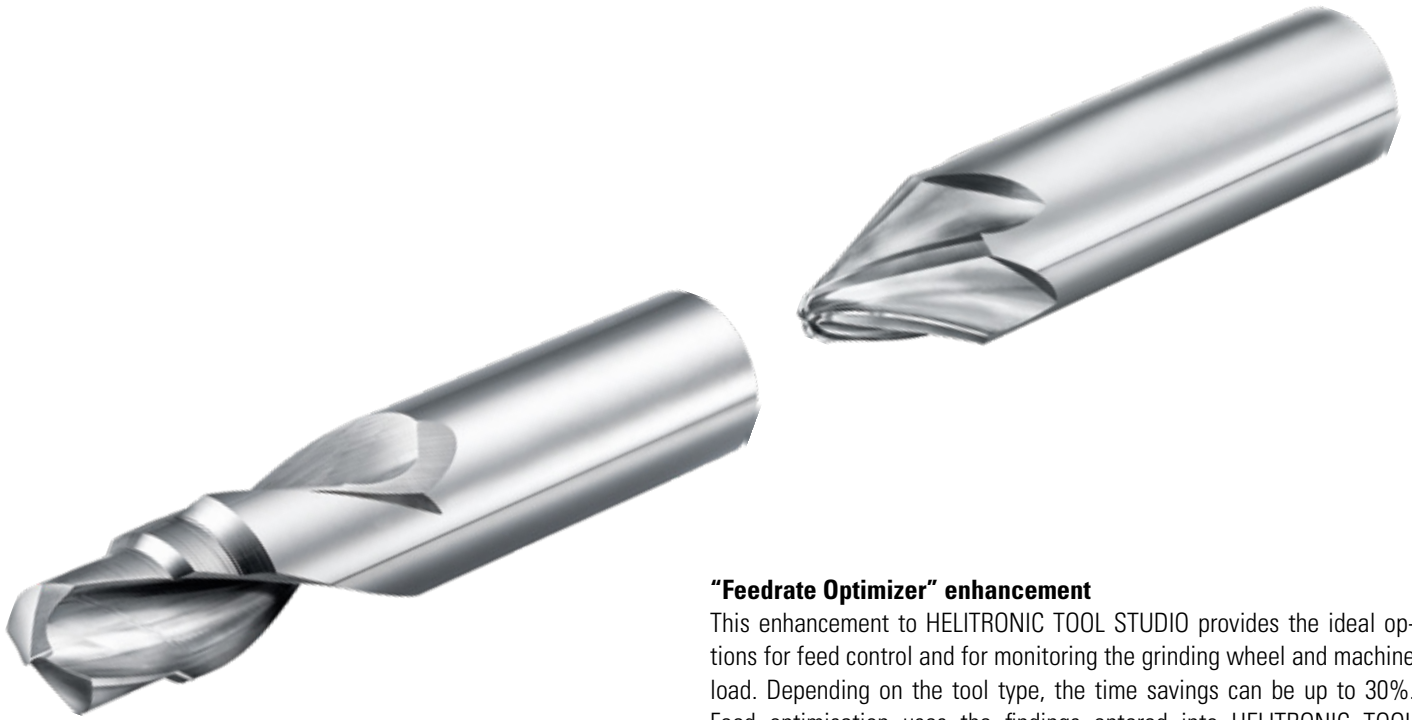
"Feedrate Optimizer" enhancement

This enhancement to HELITRONIC TOOL STUDIO provides the ideal options for feed control and for monitoring the grinding wheel and machine load. Depending on the tool type, the time savings can be up to 30%. Feed optimisation uses the findings entered into HELITRONIC TOOL STUDIO in relation to grinding movements, and the grinding wheel and tool simulation model in order to calculate the current grinding wheel and machine loads and set the optimum feed at any time. Movements with a low grinding wheel load are accelerated and movements where the desired grinding wheel load is exceeded are slowed down. You can optimize existing IDNs at the click of a button. First of all, the profile of the grinding wheel load is determined via a progressive simulation analysis. Then, the feed is optimised in such a way that the wheel load remains constant during the entire processing run.
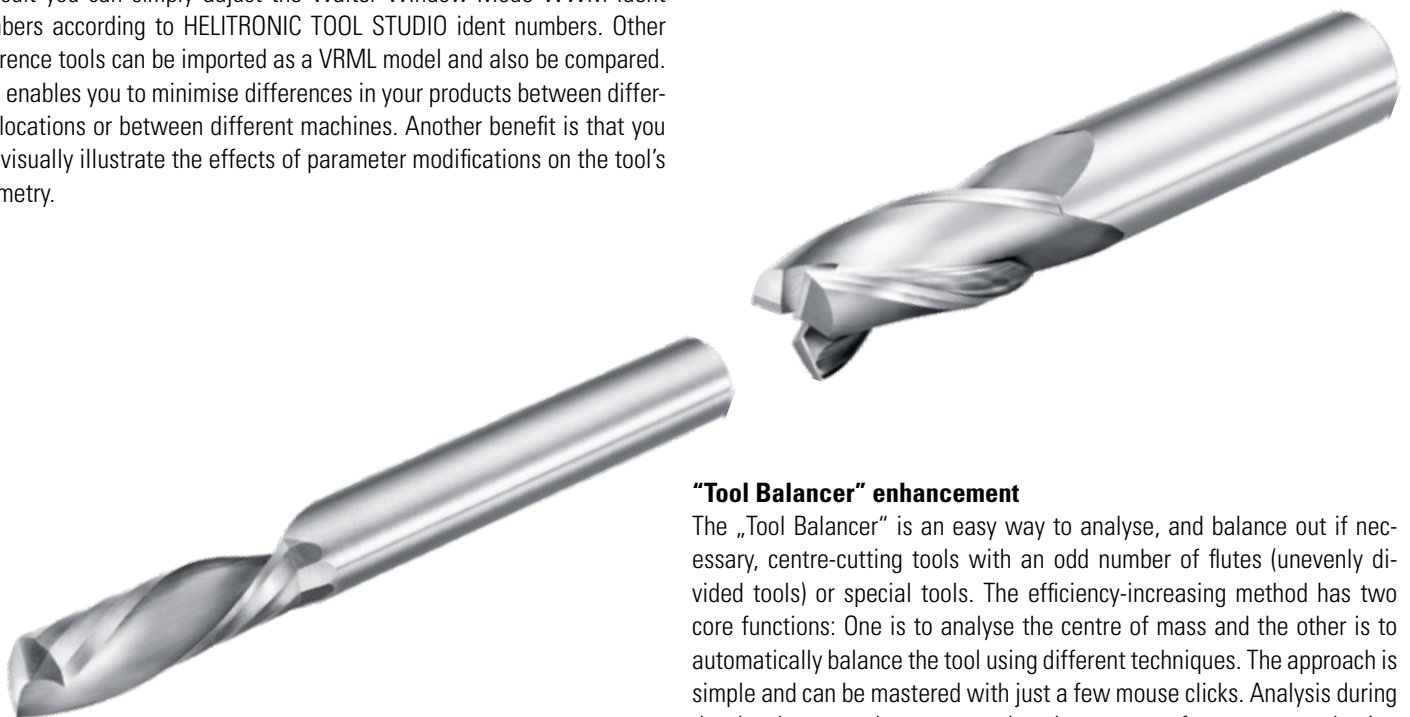
"Sketcher" enhancement

Do you sometimes wonder why you need to draw tools separately in a CAD program and then recreate the desired tool in another software package? Thanks to the "Sketcher" option, this is now a thing of the past. You can now create CAD drawings, program tool ident numbers and grind the desired tool in one software system. HELITRONIC TOOL STUDIO includes an integrated CAD system with an intuitive icon-based user interface for creating tool and grinding wheel drawings. The tool simulation and CAD drawing features are linked in HELITRONIC TOOL STUDIO, meaning that each parameter modification is not only reflected in the simulation model but also in the associated CAD drawing. CAD drawings can be re-used for different tools as the CAD elements used for other tool ident numbers attempt to re-connect with the tool simulation model. Users can also import and export DXF drawings, and save drawings as PDF documents. Benefit to you: Save time and resources through a central software solution!
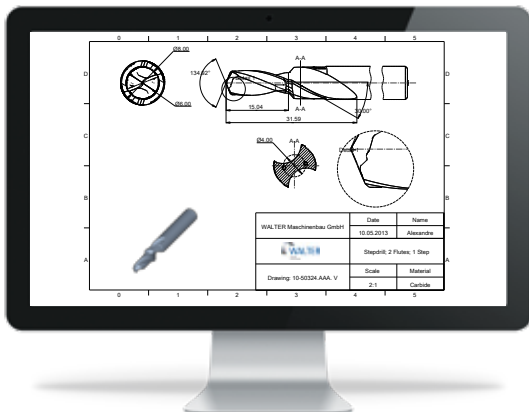
"Quality Assurance" enhancement

„Quality Assurance" enables you to use a previously stored 3D tool model as a reference and compare it with a newly created 3D tool model. As a result you can simply adjust the Walter Window Mode WWM ident numbers according to HELITRONIC TOOL STUDIO ident numbers. Other reference tools can be imported as a VRML model and also be compared. This enables you to minimise differences in your products between different locations or between different machines. Another benefit is that you can visually illustrate the effects of parameter modifications on the tool's geometry.

"Tool Balancer" enhancement

The „Tool Balancer" is an easy way to analyse, and balance out if necessary, centre-cutting tools with an odd number of flutes (unevenly divided tools) or special tools. The efficiency-increasing method has two core functions: One is to analyse the centre of mass and the other is to automatically balance the tool using different techniques. The approach is simple and can be mastered with just a few mouse clicks. Analysis during the development phase means that the process of prototype production can be significantly shortened. Balanced tools have a longer tool life, can machine at higher speeds, produce higher-quality surfaces and result in less wear-and-tear. Asymmetrical tools are well-suited to machining processes with high rotation speeds up to a point where significant imbalance forces occur.

Customer Care

WALTER and EWAG deliver systems and solutions worldwide for all areas of tool machining. Our claim is based on ensuring maximum availability of our machines over their entire service life. For this we have thus bundled numerous services in our customer care program.

From "Start up" through "Prevention" to "Retrofit", our customers enjoy tailor made services for their particular machine configuration. Around the world, our customers can use helplines, which can generally solve a problem using remote service. In addition to that, you will also find a competent service team in your vicinity around the world. For our customers, this means:

- Our team is close by and can quickly be with you.
- Our team will support you to improve your productivity.
- Our team works quickly, focuses on the problem and its work is transparent.
- Our team solves every problem in the field of machining tools, in an innovative and sustainable manner.

Start up
Commissioning
Extension of the guarantee

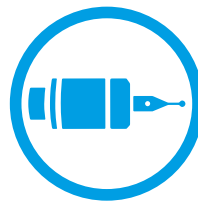**Qualification**
Training
Support for production

Prevention
Maintenance
Inspection

Service
Customer service
Customer advice
Helpline
Remote service

Material
Spare parts
Replacement parts
Accessories

Rebuild
Machine overhauling
Refurbishing of assemblies

Retrofit
Conversions
Retrofitting parts
Taking machines back

Creating Tool Performance

WALTER and EWAG are globally acting market-oriented technology and service companies, and are system and solution partners for all areas of tool machining. Our range of services is the basis for innovative machining solutions for practically all tool types and materials typical for the market with a high degree of added value in terms of quality, precision, durability and productivity.

Grinding – Grinding of rotationally symmetrical tools and workpieces

WALTER machines	Use	Materials	Tool dimensions [1] max. length [2] / diameter
HELITRONIC ESSENTIAL	P R	HSS TC C/C CBN	255 mm / Ø 1 – 100 mm
HELITRONIC MINI POWER	P R	HSS TC C/C CBN	255 mm / Ø 1 – 100 mm
HELITRONIC MINI AUTOMATION	P R	HSS TC C/C CBN	255 mm / Ø 1 – 100 mm
HELITRONIC BASIC	P R	HSS TC C/C CBN	350 mm / Ø 3 – 290 (320) mm
HELITRONIC POWER	P R	HSS TC C/C CBN	350 mm / Ø 3 – 290 (320) mm
HELITRONIC POWER 400	P R	HSS TC C/C CBN	520 mm / Ø 3 – 315 mm
HELITRONIC VISION 400	P R	HSS TC C/C CBN	370 mm / Ø 3 – 315 mm
HELITRONIC VISION 400 L	P R	HSS TC C/C CBN	420 mm / Ø 3 – 315 mm
HELITRONIC VISION 700 L	P R	HSS TC C/C CBN	700 mm / Ø 3 – 200 mm
HELITRONIC MICRO	P	HSS TC C/C CBN	120 mm / Ø 0.1 – 12.7 mm
	R	HSS TC C/C CBN	120 mm / Ø 3 – 12.7 mm

EWAG machines	Use	Materials	Tool dimensions [1] max. length [2] / diameter
EWAMATIC LINEAR	P R	HSS TC C/C CBN PCD	200 mm / Ø 0.2 – 200 mm
PROFILE LINE	P R	HSS TC C/C CBN	255 mm / Ø 1 – 100 mm
WS 11/WS 11-SP	P R M	HSS TC	– / up to Ø 25 mm
RS 15	P R M	HSS TC C/C CBN PCD	– / up to Ø 25 mm

Eroding – Electrical discharge machining and grinding of rotationally symmetrical tools

WALTER machines	Use	Materials	Tool dimensions [1] max. length [2] / diameter
HELITRONIC DIAMOND EVOLUTION	P R	HSS TC C/C CBN PCD	185/255 mm / Ø 1 – 165 mm
HELITRONIC POWER DIAMOND	P R	HSS TC C/C CBN PCD	350 mm / Ø 3 – 290 (400) mm
HELITRONIC POWER DIAMOND 400	P R	HSS TC C/C CBN PCD	520 mm / Ø 3 – 380 mm
HELITRONIC VISION DIAMOND 400	P R	HSS TC C/C CBN PCD	370 mm / Ø 3 – 315 mm
HELITRONIC VISION DIAMOND 400 L	P R	HSS TC C/C CBN PCD	420 mm / Ø 3 – 315 mm

Software – The intelligence of tool machining and measuring for production and regrinding

Customer Care – Comprehensive range of services

Grinding – Grinding of indexable inserts

EWAG machines	Use	Materials	Indexable inserts [1] Inscribed / circumscribed circle
EWAMATIC LINEAR	P R	HSS TC C/C CBN PCD	Ø 3 mm / Ø 50 mm
PROFILE LINE	P R	HSS TC C/C CBN	Ø 3 mm / Ø 50 mm
COMPACT LINE	P R	HSS TC C/C CBN PCD	Ø 3 mm / Ø 50 mm
INSERT LINE	P R	HSS TC C/C CBN	Ø 3 mm / Ø 75 mm
RS 15	P R M	HSS TC C/C CBN PCD	– / up to Ø 25 mm

Laser – Laser machining of indexable inserts and/or rotationally symmetrical tools

EWAG machines	Use	Materials	Tool dimensions [1] max. length / diameter
LASER LINE ULTRA	P R	TC C/C CBN PCD CVD-D MCD/ND	250 mm / Ø 0.1 – 200 mm
LASER LINE PRECISION	P R	CBN PCD CVD-D MCD/ND	250 mm / Ø 0.1 – 200 mm

EWAG machines	Use	Materials	Indexable inserts [1] Inscribed / circumscribed circle
LASER LINE ULTRA	P R	TC C/C CBN PCD CVD-D MCD/ND	Ø 3 mm / Ø 50 mm
LASER LINE PRECISION	P R	CBN PCD CVD-D MCD/ND	Ø 3 mm / Ø 50 mm

Measuring – Contactless measurement of tools, workpieces and grinding wheels

WALTER machines	Use	Tool dimensions [1] max. length / diameter
HELICHECK PRECISION	M	420 mm / Ø 1 – 320 mm
HELICHECK ADVANCED	M	420 mm / Ø 1 – 320 mm
HELICHECK PRO	M	300 mm / Ø 1 – 200 mm
HELICHECK PRO LONG	M	730 mm / Ø 1 – 200 mm
HELICHECK PLUS	M	300 mm / Ø 0.1 – 200 mm
HELICHECK PLUS LONG	M	730 mm / Ø 0.1 – 200 mm
HELICHECK 3D	M	420 mm / Ø 3 – 80 mm
HELISET PLUS	M	400 mm / Ø 1 – 350 mm
HELISET	M	400 mm / Ø 1 – 350 mm

Use: P Production R Regrinding M Measuring
Materials: HSS High speed steel TC Tungsten carbide C/C Cermet/ceramics CBN Cubic boron nitride PCD Polycrystalline diamond CVD-D Chemical vapour deposition MCD/ND Monocrystalline diamond/natural diamond

[1] Maximum tool dimensions are dependent on the tool type and geometry, as well as the type of machining.
[2] From the theoretical taper diameter of the workpiece holder.

WALTER

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BLUeCOMPETENCE
Alliance Member

Partner of the Engineering Industry
Sustainability Initiative