

HELITRONIC FUSION

FOR THE MANUFACTURE OF ROTATIONALLY SYMMETRICAL CUTTING TOOLS
WITH FULLY INTEGRATED AUTOMATION FOR BOTH WORKPIECES AND TOOLS

NEW



C.O.R.E.®

WALTER

HELITRONIC FUSION

APPLICATION

- Grinding of rotationally symmetrical tools for numerous industrial sectors
- Production and re-sharpening in a single set-up
- Fully automated complete machining, with tool and workpiece changes carried out in parallel
- Materials: HSS, carbide, cermet, ceramics
- Short non-productive times thanks to ultra-fast changeover processes
- High process stability thanks to a thermally optimised machine design

MACHINE

- Cross-bed design with high thermal stability and rigidity
- Symmetrical kinematics for stable force transmission and consistent precision
- Linear axes for enhanced accuracy
- Motor spindle: 20 kW peak power, internal cooling, HSK-50 chuck without lubrication
- 3 x grinding wheel changer, sensorless, <6 s changeover time
- Axis drives tailored to requirements and optimised axis cooling
- Reduced extraction power
- Compact footprint with optimum accessibility
- Optimised "Total Cost of Ownership" through low-maintenance components

SOFTWARE

- C.O.R.E. OS for intuitive operation and modern machine integration
- HELITRONIC TOOL STUDIO for design, programming, simulation and production
- A wide range of software options to boost efficiency and optimise performance
- Improved stability and user-friendliness
- IoT-ready and compatible with the latest generation of Fanuc drives

« The HELITRONIC FUSION is a tool grinding machine with fully integrated automation for both workpieces and tools, setting new standards in terms of production quality, efficiency and footprint. »

SILAS JUNGER, PRODUCT MANAGER

YOUR BENEFIT

Manufacturing and regrinding rotationally symmetrical tools in a single set-up – even with complex geometries. The HELITRONIC FUSION combines a compact footprint with generous workpiece capacity (max. grinding length 380 mm, max. tool diameter 260 mm), thereby offering maximum flexibility for current and future applications.

Fully integrated automation ensures short non-productive times and a consistently efficient process flow. The vibration-damping mineral cast bed and the symmetrical axis design guarantee highly precise grinding results, even with demanding workpieces.

Thanks to state-of-the-art Fanuc drive technology, high energy and operational efficiency, and intuitive IoT-ready software, the machine remains future-proof and can be optimally integrated into digital production environments.



Optionally available with a robot loader
and a grinding wheel changer 8 x

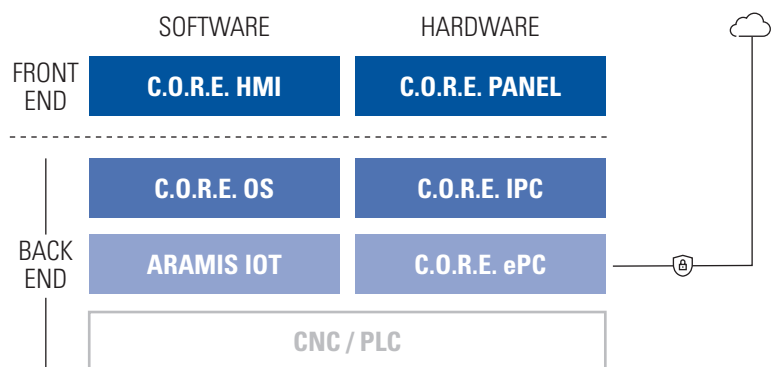
C.O.R.E. – CUSTOMER ORIENTED REVOLUTION

With C.O.R.E., we make your production fit for the digital future.

The C.O.R.E. system from UNITED GRINDING is a future-oriented hardware and software platform that takes the operation, networking and digitalisation of machine tools to a new level. C.O.R.E. was developed to make our machines and your production environment fit for the digital industry of tomorrow. Operation is simple and intuitive via the multi-touch display, with a modern and customisable user interface. Thanks to the standardised

hardware and software architecture, all UNITED GRINDING machines equipped with C.O.R.E. technology are network-compatible and can be easily integrated into digital factories. All common interface formats are supported. C.O.R.E.'s modern IoT technology core also enables data-based value-added services and integration and communication with cloud-based customer platforms.

C.O.R.E. ARCHITECTURE



C.O.R.E. PANEL & HMI – NEXT-GENERATION MACHINE OPERATION

Like a large smartphone

With C.O.R.E., UNITED GRINDING has redefined the interaction between man and machine tool. Modern design combined with the most advanced technology to meet the operator requirements of tomorrow. The 24" multi-touch display enables navigation by touch and swipe gestures, similar to a smartphone. The uniform HMI for all UNITED GRINDING machines facilitates set-up, operation and general maintenance. Customisable user roles enable the display and restriction to role-relevant information and thus increase user-friendliness and safety. With the integrated front camera on the panel, assistance can be provided directly at the machine via Remote Service.

Future-proof

The digital capabilities of your machine with C.O.R.E. technology continue to grow. The C.O.R.E. HMI is continuously being expanded with new functionalities, widgets and apps to make it even more user-friendly and personalisable. The arrangement, type and size of the tiles on the HMI can be customised so that every machine operator always has the information that is important to him or her at a glance.

In future, new software updates and functionalities will be easy to install via the customer portal, so you will always be up to date.



Technical data

- 24" Full HD Multitouch-Display
- Override rotary switch with cycle start
- Standardised function keys
- Integrated 2-hand start
- Electronic key system (RFID)
- Integrated front camera
- Tilt adjustment



FURTHER DETAILS

EFFICIENT AND EASY TO USE

The HELITRONIC FUSION is designed to offer users a consistently efficient and convenient grinding process. The fully integrated automation system enables tool and workpiece changes to take place simultaneously, significantly reducing non-productive times. The extremely fast 3 x grinding wheel changer operates without sensors and achieves changeover times of under 6 seconds – a clear advantage in day-to-day operation.

The new motor, with a peak power output of 20 kW and internal cooling, ensures high productivity and grinding accuracy. The optimised axis design, short travel distances and the high rigidity of the cross-bed contribute to stable, precise machining whilst simultaneously reducing active machining times.

Optimally dimensioned axis drives, reduced extraction power and modern glass scales without purge air ensure increased energy efficiency. The compact design, with a minimal footprint and good accessibility, facilitates set-up, operation and servicing. Usability has been further enhanced by fitting the multi-adjustable C.O.R.E. panel to the machine.

Overall, this creates a working environment characterised by fast operations, high process stability, low non-productive times and an ergonomic machine design – thereby noticeably increasing efficiency and comfort in day-to-day use.



INNOVATIVE WALTER GRINDING TECHNOLOGY

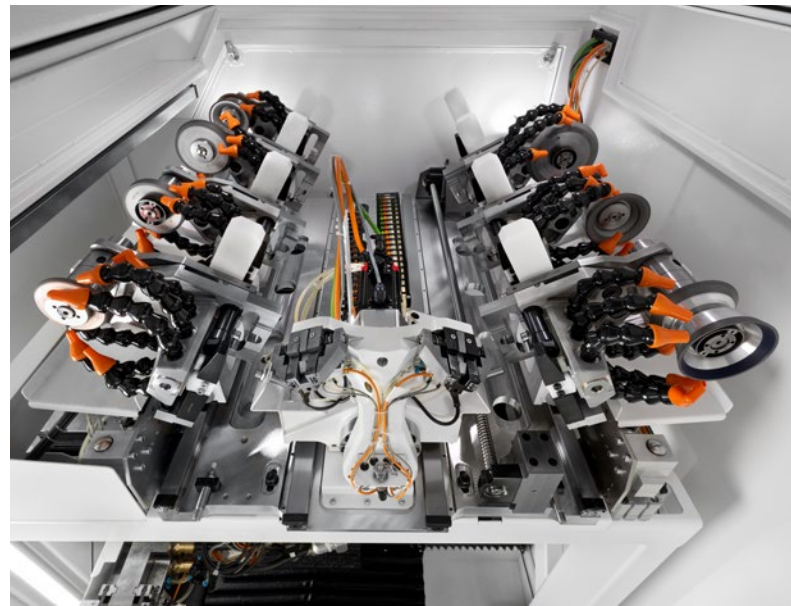


- Cross-bed design for high thermal stability and rigidity
- Optional integrated robot loader with very short non-processing times
- 3 x grinding wheel changer with changeover times of less than 6 seconds
- New motor spindle with 20 kW peak power and efficient cooling

With the HELITRONIC FUSION, WALTER demonstrates how modern grinding technology is being consistently reimagined. The switch from the previous gantry design to a cross-bed design results in a structure with high thermal stability as well as static and dynamic rigidity. The symmetrical kinematics and short force paths enhance precision consistency, even during demanding grinding operations and with complex tool geometries.

A key technological advantage of the HELITRONIC FUSION is the optional integrated robot loader. It is fully embedded in the machine concept and enables tools and workpieces to be handled without additional floor space or external systems. All change-over processes therefore run in parallel, resulting in short non-productive times. The triple disc changer operates without sensors and achieves change times of under 6 seconds – a technological benchmark in this machine class.

Overall, the HELITRONIC FUSION provides a technologically leading grinding platform: precise axis design, high rigidity, ultra-fast changeover processes, integrated robotic automation and optimised spindle technology – a machine concept that surpasses existing solutions in all relevant performance areas.



Option: grinding wheel changer 8 x

The grinding wheel changer 8 x enhances the HELITRONIC FUSION with additional flexibility and capacity. With eight sets of grinding wheels available, it enables long machining runs, complex geometries and frequent profile changes without the need for manual intervention. The unit is fully integrated into the machine and requires no additional floor space. The robust, fast-change mechanism ensures high process reliability and supports a consistently efficient grinding process.

INTEGRATED ROBOT LOADER

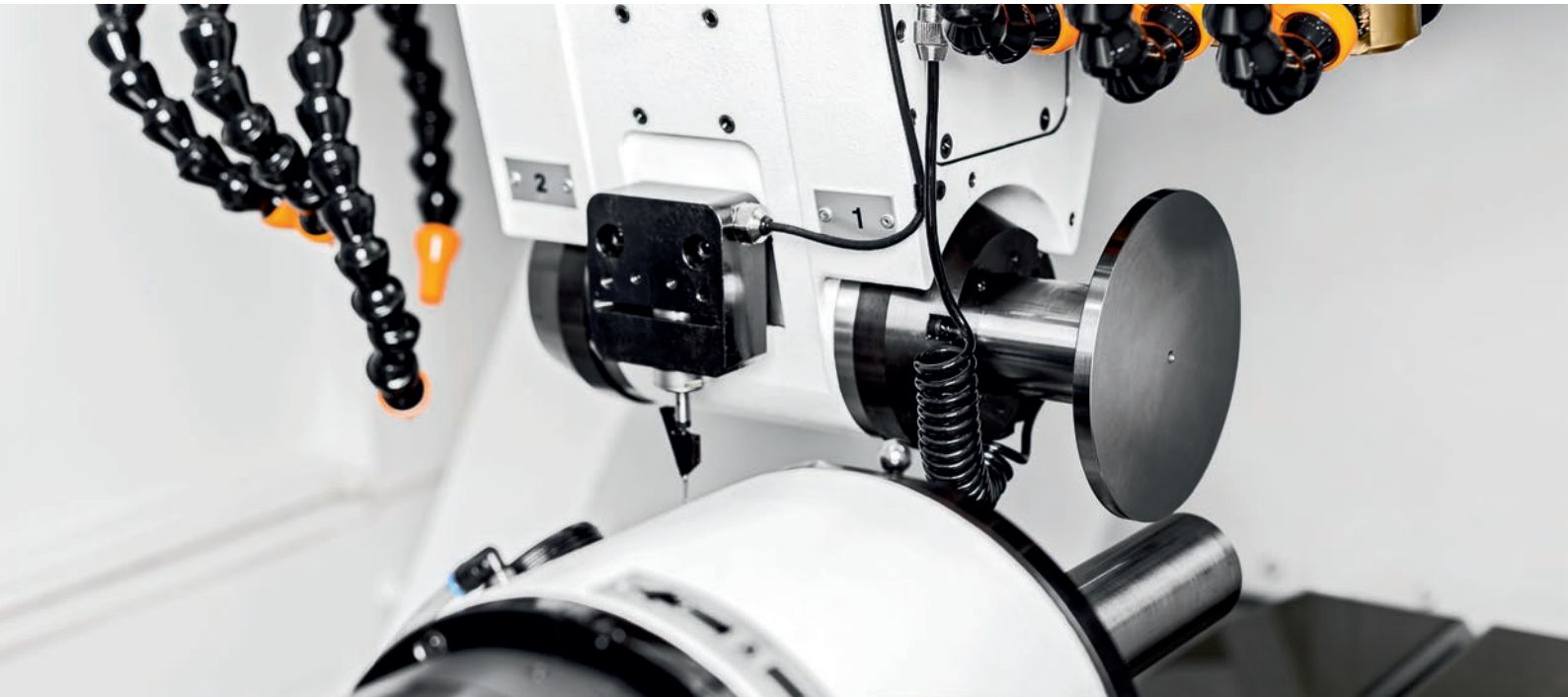


Automatic teaching enables short set-up times. Depending on the type of workpiece or its diameter, up to 1,500 workpieces can be loaded via the robot. The maximum workpiece weight is 3 kg.



FANUC Robot 200iD 4S
LR Mate

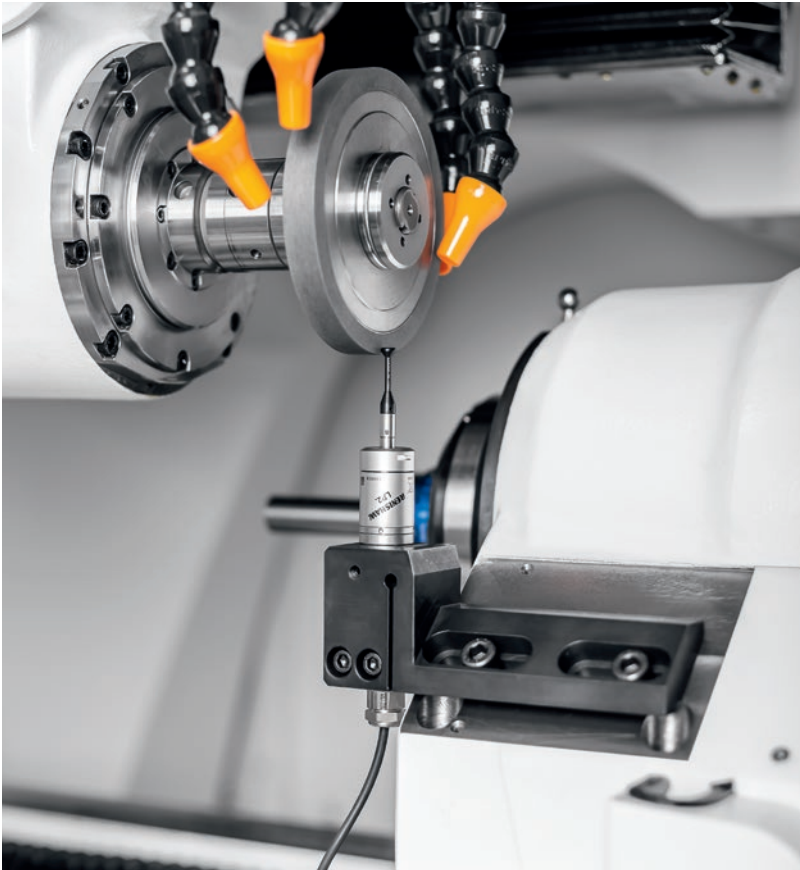
FURTHER OPTIONS



- Maximum precision of measurement results through exact positioning of the axes via electrical contact
- Automatic mechanical inspection of the dimensional accuracy of the C axis
- Significant time savings with automatic operation in comparison to the manual measurement method
- Valuable working time of the employees can be used for other tasks
- Eliminates errors caused by the human factor
- Short amortisation time for your investment

Automatic, electrical measurement of the machine reference

Take advantage now of the benefits of automatic, electrical measurement of the machine reference on the HELITRONIC FUSION from WALTER.



Automatic grinding wheel measurement

For even more efficient production. Normally, the machine operator manually adjusts the grinding wheel data during the production process based on the current tool geometries, so that the tool's geometry can be maintained at the target dimension. With automatic grinding wheel measurement, the wear on the grinding wheel's coating can be automatically determined, precisely documented and compensated for using tactile measurement. The measurement is carried out during the production process. Both the diameter and length of the grinding wheel can be measured and compensated for. This ensures that the user always has the optimum grinding wheel data available at the desired time. Furthermore, the user can draw conclusions about grinding wheel wear and thus influence and optimise the production process.

The probe for tactile measurement is fitted to the workpiece carrier and is mounted in place of the electric dresser.



Whetstone holder

With the permanently installed whetstone holder, WALTER enables the automatic opening of the disc coating during production. The HELITRONIC TOOL STUDIO software controls the disc-opening process and allows the operator to open the coating at a time of their choosing.

Manual steady rest (not shown)

To support the workpiece during grinding. It is mounted on the upper table.

FURTHER OPTIONS



- Determination of the rake angle, the outer diameter and the core diameter for cylindrical tools
- Tactile measuring system for fully automatic tool positioning
- Fully automatic thermal compensation of the linear axes

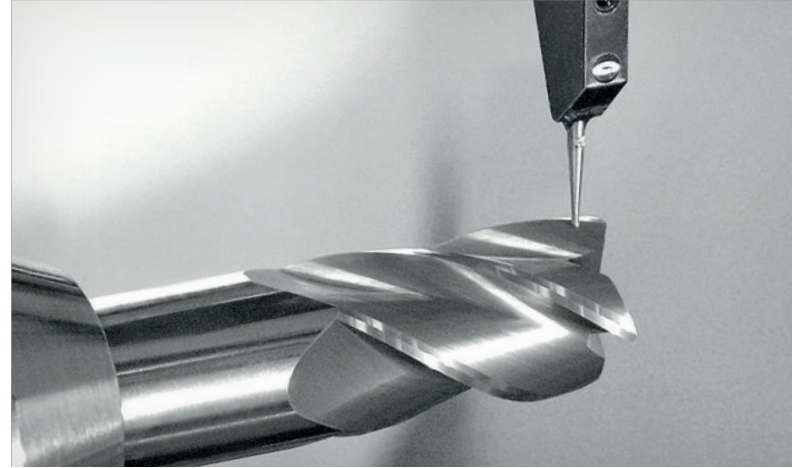
Integrated Measuring System (IMS)

With the Integrated Measuring System (IMS), the operator can use the probe ball to determine the rake angle, the outer diameter and the core diameter of cylindrical tools without having to unclamp the tool. By defining tolerances, HELITRONIC TOOL STUDIO can compensate for any deviation from the target dimension – for example, due to thermal expansion or grinding wheel wear – and thus prevent scrap. The operator no longer needs to intervene to make corrections, and the dressing cycle of the grinding wheels remains constant. Both factors increase efficiency, particularly in large-scale production runs.



Calibration (standard)

Consists of a calibration sphere and software. For automatic calibration of the machine's X, Y and Z axes using the loader. The timing of the calibration can be freely selected in the loader programme. For machines without a loading system, calibration can be carried out manually.



"Heli-Probe" automatic positioning and measurement system (standard)

Heli-Probe records key tool parameters to ensure a perfectly positioned tool in the shortest possible time. This provides the best conditions for short cycle times, quality and productivity.

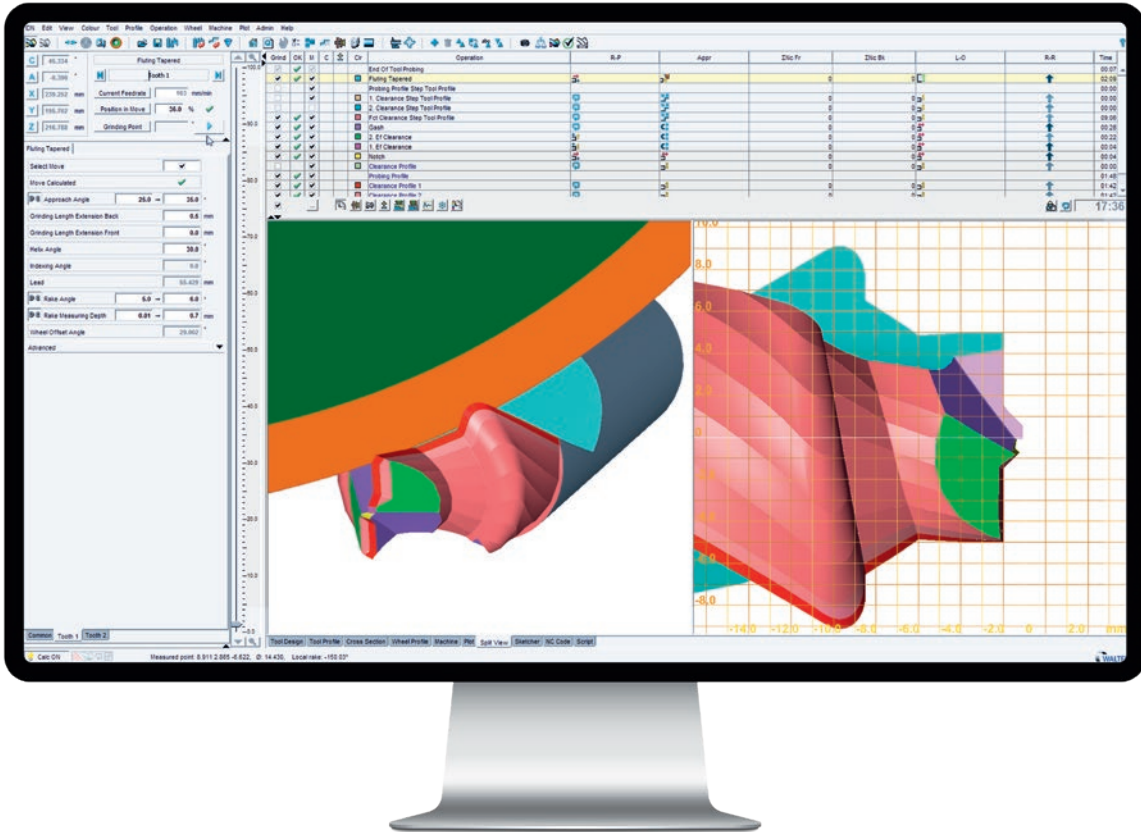
C-axis in torque version (standard)

The advantage of the torque-type C-axis lies in its durability during dynamic and constantly repetitive axis movements.

Glass scales (standard)

Glass scales for enhanced positioning accuracy and greater resistance to thermal effects. This leads to improved quality in tool production. A notable feature is that no purge air is required.

APPLICATION SOFTWARE FOR TOOL MACHINING



HELITRONIC TOOL STUDIO –

Ease of use for all grinding applications

HELITRONIC TOOL STUDIO is WALTER's path to the perfect tool. Based on the tried-and-tested 'What you see is what you grind' principle, it takes just a few mouse clicks to produce a perfect precision tool: design, programming, simulation and production.

HELITRONIC TOOL STUDIO: This is the ease of programming combined with maximum flexibility. With minimal effort, HELITRONIC TOOL STUDIO allows the user to programme machining steps and motion sequences for both rotationally symmetrical standard tools and special-purpose tools.

The tool displayed on the screen corresponds exactly to the tool that will subsequently be produced. This means that, using the realistic 3D simulation, the result can be checked and, if necessary, corrected as early as the design phase.

The wizard technology enables the operator to quickly identify the tool type, the parameters to be entered and their specific tool. WALTER offers programme packages for all common tool families, which make handling considerably easier.

EFFICIENCY OPTIONS

- Drawing and grinding with just one software package
- Import and export of DXF drawings

- Up to 30 % time saved
- Optimum feed rate
- Optimise existing IDNs

- Global production of tools with consistent quality based on a reference model

“Sketcher”

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 ID numbers and grind the desired tool in a single software package thanks to the “Sketcher” option. 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 ID numbers attempt to re-connect with the tool simulation model. Users can also import and export DXF drawings, and save drawings as PDF documents. Your benefit: save time and resources through a central software solution!

“Feedrate Optimizer”

This enhancement to the 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 the 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 low wheel loads will be accelerated and, this is particularly important, movements where the desired wheel load is exceeded are slowed down. Even existing IDNs can be conveniently optimised with just one click. First, 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.

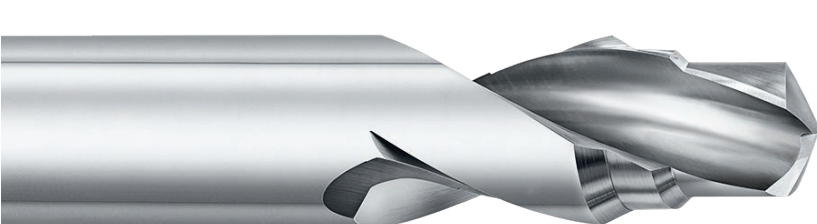
“Quality Assurance”

Customers worldwide require consistently high tool quality in terms of material and geometry, no matter which production location is concerned. In order to satisfy these customer and market requirements, WALTER has brought the efficiency-boosting “quality assurance” solution onto the market for the established tool grinding software HELITRONIC TOOL STUDIO. By using a reference model as a basis, qualitatively equivalent tools can be produced at different locations around the world. The current model is compared to the fixed reference model at all times and a visual display shows the effect of changing any parameters. This way, deviations in quality can be detected immediately and eliminated.

- External measurement of any parameters
- Automated compensation
- No additional hardware required

“Closed Loop”

Parameter compensation refers to the external measurement of any parameters on HELICHECK measuring machines. The data is then imported into HELITRONIC TOOL STUDIO, where the recorded data is automatically used for compensation on the grinding machine. A key advantage is that no additional hardware is required on the grinding machine for this purpose.





CUSTOMER CARE

WE ARE HERE FOR YOU!

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.

Our products are designed to meet customer demands for as long as possible, they are intended to operate efficiently, reliably, and be available at any time.

From "Start up" through to "Retrofit" – our Customer Care is there for you throughout the working life of your machine. For this reason, you can rely on competent HelpLines worldwide and Service Engineers near you:

- We will provide you with fast, straight-forward support.
- We will help to increase your productivity.
- We work professionally, reliably and transparently.
- We will provide a professional solution to your problems.

DIGITAL SOLUTIONS

Digital Solutions stand for products and services that open up the data space of your machine through IoT-based networking, enable seamless integration across the entire store floor in digital value-added networks and provide data-based value-added services and digital services – for greater efficiency, productivity and competitiveness.

You can find out more about the services of Digital Solutions on our website under the Customer Care section.



Start up

Commissioning
Extension of the guarantee



Qualification

Training
Product support



Prevention

Maintenance
Inspection



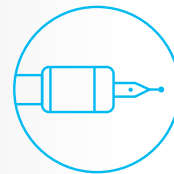
Service

Customer service
Customer advice
Helpline



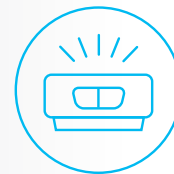
Digital Solutions

Remote Service



Material

Spare parts
Replacement parts
Accessories



Rebuild

Machine overhauling
Refurbishing of assemblies



Retrofit

Conversions
Retrofitting parts

TECHNICAL DATA, DIMENSIONS

AXES

X axis	565 mm
Y axis	275 mm
Z axis	440 mm
Rapid traverse speed X, Y, Z	max. 15 m/min
C axis	340°
A axis	∞
Linear resolution	0.00001 mm
Radial resolution A axis	0.0001°
Radial resolution C axis	0.00001°

GRINDING SPINDLE DRIVE

Max. grinding wheel diameter	204 mm
Grinding spindle speed	0–10,000 min ⁻¹

HELITRONIC FUSION with motor spindle (standard)

Spindle ends	1
Tool holder	HSK 50
Peak power	20 kW

OTHER

Machine weight	approx. 5,750 kg
Power consumption at 400 V/50 Hz	approx. 30 kVA

TOOL DATA ¹⁾

Min. tool diameter	1 mm
Max. tool diameter	260 mm
Max. workpiece length, peripheral grinding ²⁾	400 mm
Max. workpiece length, end face grinding ²⁾	380 mm
Max. workpiece weight	30 kg

OPTIONS

Coolant system

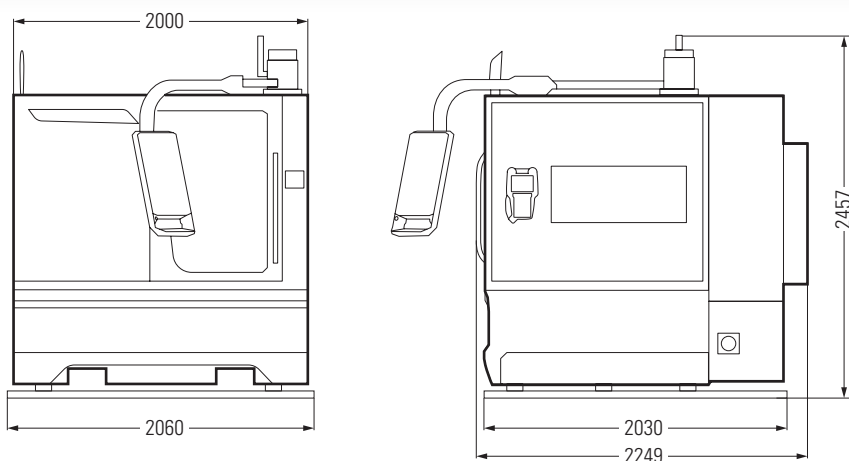
On request – several types are possible

Loading systems

Robot loader

Others

Manual steady rest; software; automatic grinding wheel measurement; automatic, electric measurement of the machine reference, etc.



HELITRONIC FUSION

Dimensions in mm. Options, accessories or doors in the open position may increase the machine's dimensions. Subject to changes made in the interests of technical progress and errors excepted. Information provided without guarantee.

¹⁾ The maximum tool dimensions depend on the tool type and geometry, as well as the type of machining.

²⁾ Based on the theoretical conical diameter of the workpiece holder.

CREATING TOOL PERFORMANCE

We are a global leader among market-oriented technology and service companies, and a system and solution partner 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 rotation-symmetrical tools and workpieces, as well as indexable inserts

Machines	Use Materials	Tool dimensions ¹⁾ max. length ²⁾ / diameter
HELITRONIC FUSION	P R HSS TC C/C CBN	400 mm / Ø 1 – 260 mm
HELITRONIC G 200	P R HSS TC C/C CBN	235 mm / Ø 1 – 125 mm
HELITRONIC RAPID	P R HSS TC C/C CBN	255 mm / Ø 1 – 100 mm
HELITRONIC MINI PLUS	P R HSS TC C/C CBN	255 mm / Ø 1 – 100 mm
HELITRONIC RAPTOR	P R HSS TC C/C CBN	280 mm / Ø 3 – 320 mm
HELITRONIC POWER 400	P R HSS TC C/C CBN	520 mm / Ø 3 – 315 mm
HELITRONIC VISION 400 L	P R HSS TC C/C CBN	420 mm / Ø 3 – 315 mm
HELITRONIC MICRO	P R HSS TC C/C CBN R HSS TC C/C CBN	220 mm / Ø 0.1 – 12.7 mm 220 mm / Ø 3 – 12.7 mm



EROSION

Eroding and grinding of rotation-symmetrical tools

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 RAPTOR DIAMOND	P R HSS TC C/C CBN PCD	270 mm / Ø 3 – 400 mm
HELITRONIC POWER DIAMOND 400	P R HSS TC C/C CBN PCD	520 mm / Ø 3 – 380 mm
HELITRONIC VISION DIAMOND 400 L	P R HSS TC C/C CBN PCD	420 mm / Ø 3 – 315 mm



LASER

Production of tools with laser

Machines	Use Materials	Tool dimensions ¹⁾ max. length ²⁾ / diameter
VISION LASER	P R TC CVD-D PCD MCD	400 mm / Ø 3 – 250 (300) mm



MEASURING

Contact-free measurement of tools, workpieces and grinding wheels

Machines	Use	E _{UX} /MPE-value	Tool dimensions ¹⁾ max. length ²⁾ / diameter
HELICHECK COMPACT	M	(1.4 + L/300) µm	360 mm / Ø 1 – 255 mm
HELICHECK PRO	M	(1.2 + L/300) µm	360 mm / Ø 1 – 200 mm
HELICHECK PRO LONG	M	(1.2 + L/300) µm	800 mm / Ø 1 – 200 mm
HELICHECK PLUS	M	(1.2 + L/300) µm	360 mm / Ø 0.1 – 200 mm
HELICHECK PLUS LONG	M	(1.2 + L/300) µm	800 mm / Ø 0.1 – 200 mm
HELICHECK NANO	M	(1.2 + L/300) µm	120 mm / Ø 0.1 – 16 mm



AUTOMATION

Solutions for complete tool production: From loading systems that are integrated into the machine's working area to robot loaders and Automated Tool Production (ATP), our innovative solution for networking grinding, eroding and measuring machines from WALTER.



SOFTWARE

The intelligence of tool machining and measuring for production and regrinding



CUSTOMER CARE

Comprehensive range of services

¹⁾ The maximum tool dimensions depend on the type of tool and its geometry, as well as the type of machining.

²⁾ From theoretical taper diameter of the workpiece holder.

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 Monocrystalline diamond

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 of the HELICHECK series for contactless complete measurement of tools and production parts.

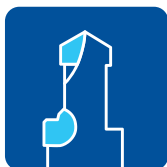
Walter Maschinenbau GmbH is a company of the UNITED MACHINING SOLUTIONS. Together with EWAG, we consider ourselves to be a supplier

of systems and solutions for the complete machining of tools and can offer a wide range of products, including grinding, 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.



Grinding



Eroding



Laser



Measuring



Automation



Software



Customer Care

ABOUT US



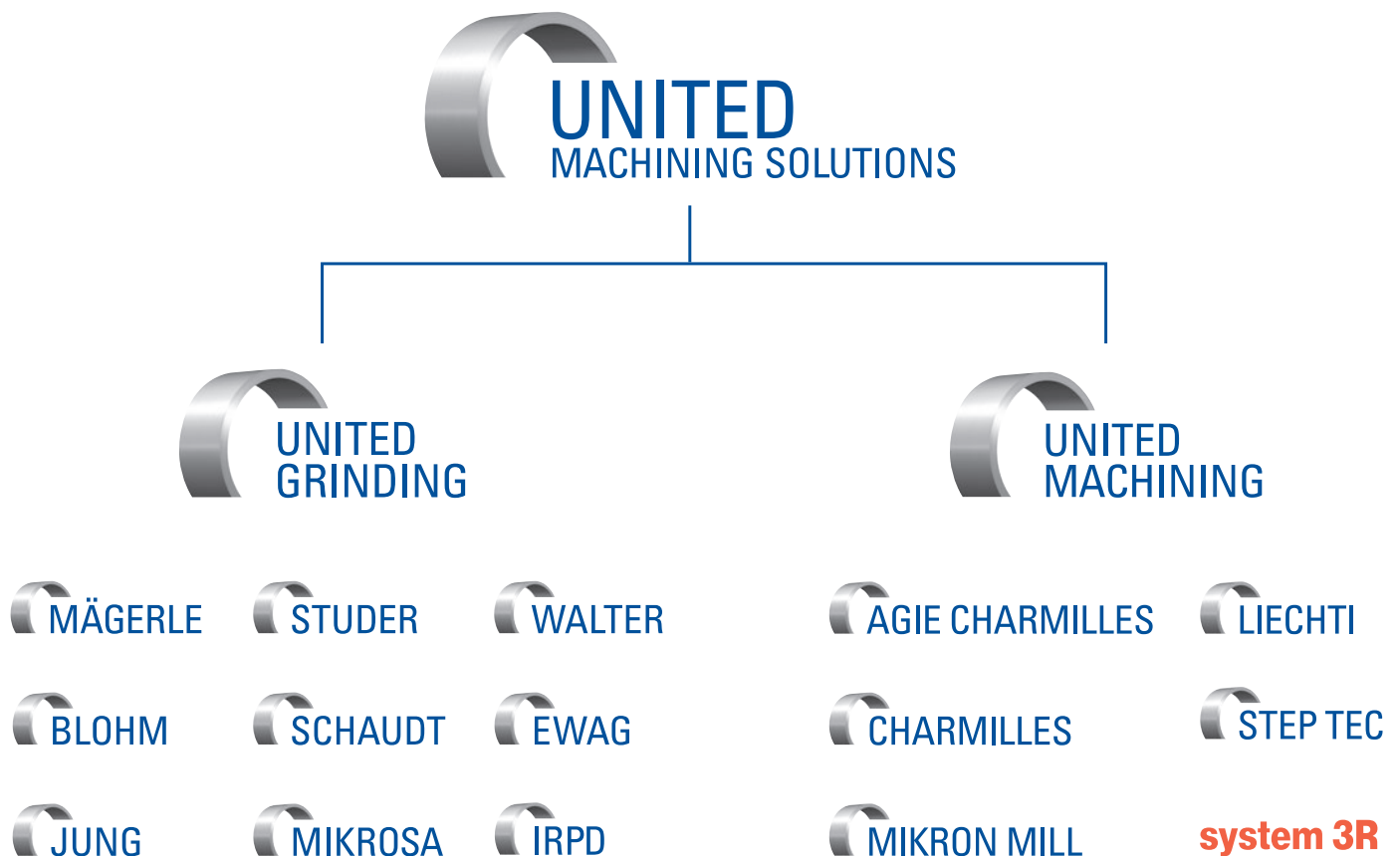
UNITED MACHINING SOLUTIONS

UNITED MACHINING SOLUTIONS is one of the largest machine tool manufacturers in the world. With around 5,000 employees at over 50 global production, service and sales locations, UNITED MACHINING SOLUTIONS is close to its customers and highly efficient. The group is organized into two divisions: UNITED GRINDING and UNITED MACHINING.

UNITED GRINDING includes the brands MÄGERLE, BLOHM, JUNG, STUDER, SCHAUDT, MIKROSA, WALTER, EWAG and IRPD. Its technologies include surface and profile grinding machines, cylindrical grinding machines, machines for tool machining and machine tools for additive manufacturing.

The UNITED MACHINING division includes the brands AGIE CHARMILLES, CHARMILLES, MIKRON MILL, LIECHTI, STEP TEC and SYSTEM 3R. It includes machines for EDM (Electrical Discharge Machining), high-speed milling and laser technology as well as spindle production and automation solutions.

“We want to make our customers even more successful”





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