

HELICHECK COMPACT

THE ECONOMICAL ENTRY TO UNCOMPROMISING
MEASUREMENT QUALITY

NEW



 **WALTER**

HELICHECK COMPACT

APPLICATION	MACHINE	SOFTWARE
- Fully automatic measurement of all tool parameters and complex profiles and shapes on rotationally symmetrical tools and grinding wheels - Targeted feedback of measurement results - Ideal for in-process quality control	- Solid granite base, low-vibration and thermally stable for maximum measurement accuracy - HELICHECK COMPACT 4-axis CNC machine with 3 cameras - Measurement uncertainty $E_{UX,MPE} = 1.4 + (L/300) \mu m$ - Repeatability $\leq 1.0 \mu m$ - Suitable for use in production or in a metrology laboratory - Numerous interface options	- WALTER metrology software "Walter Metrology Centre (WMC)" including template technology "Easy Check" for fast, interactive measurement without the need for programming "ViaScan" for automatic profile recognition "ViaFit" for profile comparisons and evaluations - Option: "Grinding wheel measurement" for preparing grinding wheels for the production machine - Numerous other options for improving efficiency

« With a measurement uncertainty of $E_{UX,MPE} = 1.4 + (L/300) \mu m$, the HELICHECK COMPACT delivers reliable results for modern manufacturing requirements. The block construction principle* enables precise measurement results and high repeatability in back and incident light measurements, allowing even complex tool geometries to be captured and measured accurately and reliably. The WALTER Metrology Centre provides a powerful, intuitive software platform for efficient measurement processes. »

BERND SCHWENNIG, STRATEGIC PRODUCT MANAGER MEASURING TECHNOLOGY

*Block construction principle: A solid granite block providing a low-vibration, temperature-stable base for precisely aligned guides.

YOUR BENEFIT

The HELICHECK COMPACT offers a precise measurement solution for tools in the standard and macro ranges. It provides a cost-effective entry point into professional metrology and delivers measurement quality based on the tried-and-tested design of the HELICHECK PRO/PLUS, whilst deliberately focusing on the essential functions. Thanks to a wide range of interfaces and the full range of functions offered by the WALTER Metrology Centre (WMC), it can be seamlessly integrated into existing workflows.



HELICHECK COMPACT



FURTHER DETAILS

WALTER MEASUREMENT TECHNOLOGY: SUPERIOR TECHNOLOGY

Reference $E_{UX,MPE}$: A benchmark for accuracy

The $E_{UX,MPE}$ value is the most important machine-specific parameter for evaluating a measuring machine. It defines the one-dimensional, axis-parallel length measurement deviation of coordinate measuring machines. The smaller the $E_{UX,MPE}$ value, the narrower the range of permissible measurement deviation and the more accurately the measurement result reflects the actual value. The value of the permissible measurement uncertainty, when considered in isolation, does not in itself provide a reliable indication of a measuring machine's performance, but it is an important prerequisite. In addition, repeatability must also be taken into account in this context.

For the HELICHECK COMPACT, the permissible range of measurement uncertainty is $E_{UX,MPE} = 1.4 + (L/300) \mu\text{m}$, enabling process-reliable quality assurance even for production tolerances $\leq 10 \mu\text{m}$. The smaller the $E_{UX,MPE}$ value, the more accurate the measurement results. The repeatability is also impressively high at $\leq 1 \mu\text{m}$.

Measurement system capability

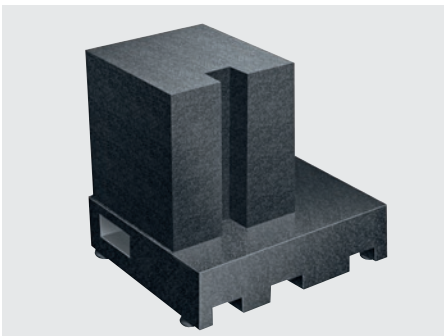
Measurement system capability is of great importance when assessing whether a measurement system is capable of representing and validating processes with the required accuracy. Cg/Cgk values > 1.33 are an absolute 'must' in this regard. To demonstrate measurement system capability, every HELICHECK measuring machine undergoes extensive acceptance testing as part of the machine acceptance process, and its measurement system capability is documented. The acceptance tests are carried out using DAkkS-certified gauges and correspond in their characteristics to the future measurement objects or tools to be measured.

The following gauges are used for this purpose: stepped gauge pins for length and diameter measurements, angle gauges for clearance and rake angle measurements, and corresponding contour gauges. The basis for this measurement system capability of the HELICHECK measuring machines is the solid granite machine base and the minimal travel distances of the sensors in use.



INNOVATIVE WALTER MEASUREMENT TECHNOLOGY

The absence of moving parts in the optical system forms the basis for greater stability, as well as measurement and repeatability accuracy. The permanently installed cameras are securely protected from dust and extraneous light within the machine's enclosed measuring chamber. Segmented LED light sources for all cameras create the ideal conditions for maximum accuracy. No compromises were made regarding the control system or the entire axis system. Mechanically unstable manual guides have been completely replaced by innovative drive and software solutions. The linear axes of the measuring machines are fitted with glass scales to ensure the best possible positioning accuracy. This results in very short positioning times and a positioning resolution of $0.005\ \mu\text{m}$, achieved by the corresponding control unit.



Solid granite base

A solid granite base, with its considerable weight, provides the foundation for accuracy and precision. It dampens vibrations and is thermally stable. These are the prerequisites for the highest measurement accuracy and reliable measurement results.



Certified accuracy

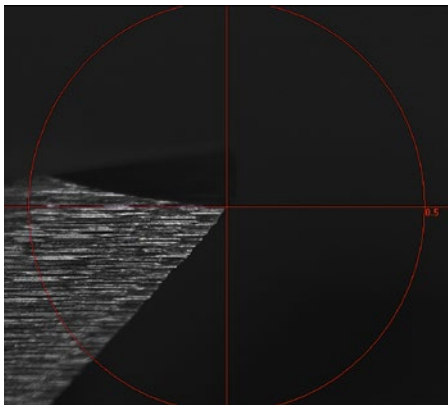
In accordance with VDI/VDE 2617, the accuracy of a measuring machine is assessed by carrying out various measurements at different intervals on certified calibration standards. WALTER uses DAkkS-certified standards for this purpose, such as stepped gauge pins and angle gauges. The standard requires at least three measurements. WALTER carries out each of these measurements ten times. The high accuracy of the gauges is confirmed by calibration certificates issued by the Physikalisch-Technische Bundesanstalt (PTB), Germany's national metrology institute.

HELICHECK COMPACT: HIGH-PERFORMANCE PRECISION MEASURING MACHINE

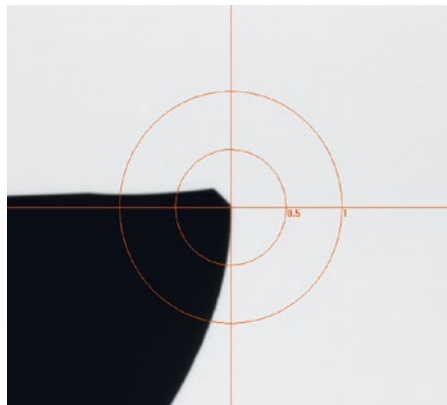
- Contactless
- Fully automatic
- No-Wear

Scope of application

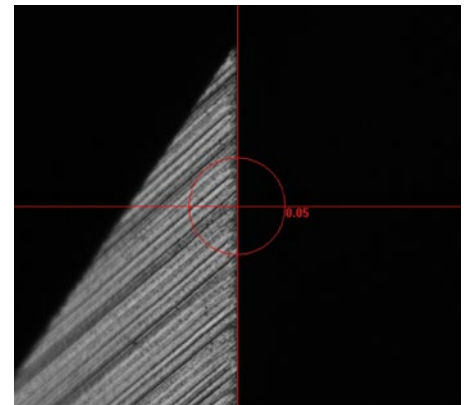
- Standard tool diameter 1–255 mm (single-sided); snap gauge principle 180 mm
- Standard length up to 360 mm (the measuring range may be reduced depending on the tool holder used).



Incident light measurement front:
CCD camera with 300x magnification



Back light measurement:
CCD camera with 75x magnification



Incident light measurement endface:
CCD camera with 300x magnification

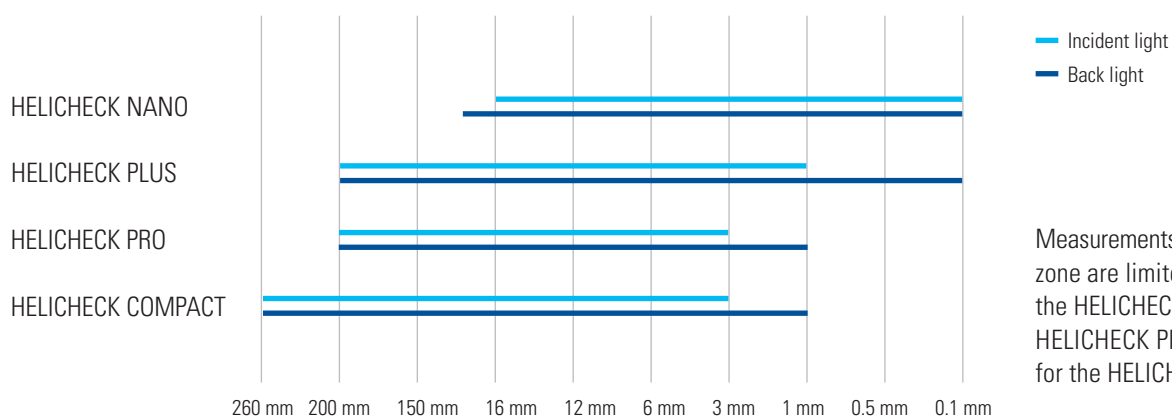
MACHINE COMPARISON



	HELICHECK COMPACT	HELICHECK PRO
Magnification, back light	75x	75x
Magnification, incident light	300x	300x
Camera resolution back light	1.5 megapixels	1.5 megapixels
Measuring range, back light measurements	Ø 1 – 255 mm	Ø 1 – 200 mm
Measuring range, incident light measurements	Ø 3 – 70/255* mm	Ø 3 – 70/200* mm

*depending on parameters

AREAS OF APPLICATION



Measurements in the chip clearance zone are limited to Ø 70 mm for the HELICHECK COMPACT and HELICHECK PRO, and to Ø 60 mm for the HELICHECK PLUS.





HELICHECK PLUS

75/600x

600x

1.5 megapixels

Ø 0.1 – 200 mm

Ø 1 – 60/200* mm

HELICHECK NANO

75/600x

100/200/400/1000x

12 megapixels

Ø 0.1 – 60 mm

Ø 0.1 – 16 mm

OPTION

Incident light illumination / diffuser

The HELICHECK COMPACT offers a special incident light illumination system with a diffuser as an optional extra. This is the ideal solution for non-contact measurement of, for example, the face geometry of drill bits, thanks to the uniform, diffuse illumination of the face geometry. This ensures optimal illumination, particularly for complex face geometries, which in turn delivers more precise measurement results and higher contrast.

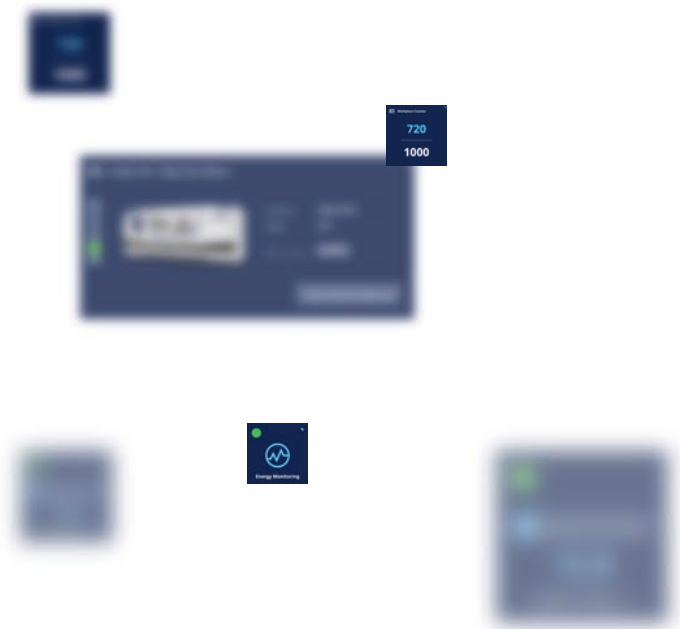


C.O.R.E. HMI – NEXT-GENERATION MACHINE OPERATION

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 27" 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.



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.

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

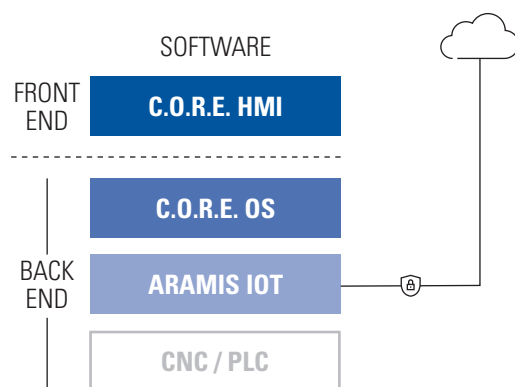
With C.O.R.E., we make your production fit for the digital future.

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.



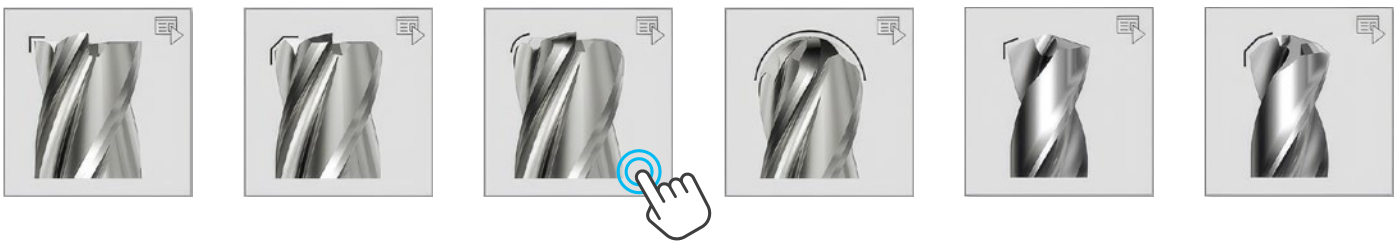
C.O.R.E. ARCHITECTURE



QUICK ASSISTANT – TARGET REACHED IN ONLY TWO STEPS

Step 1

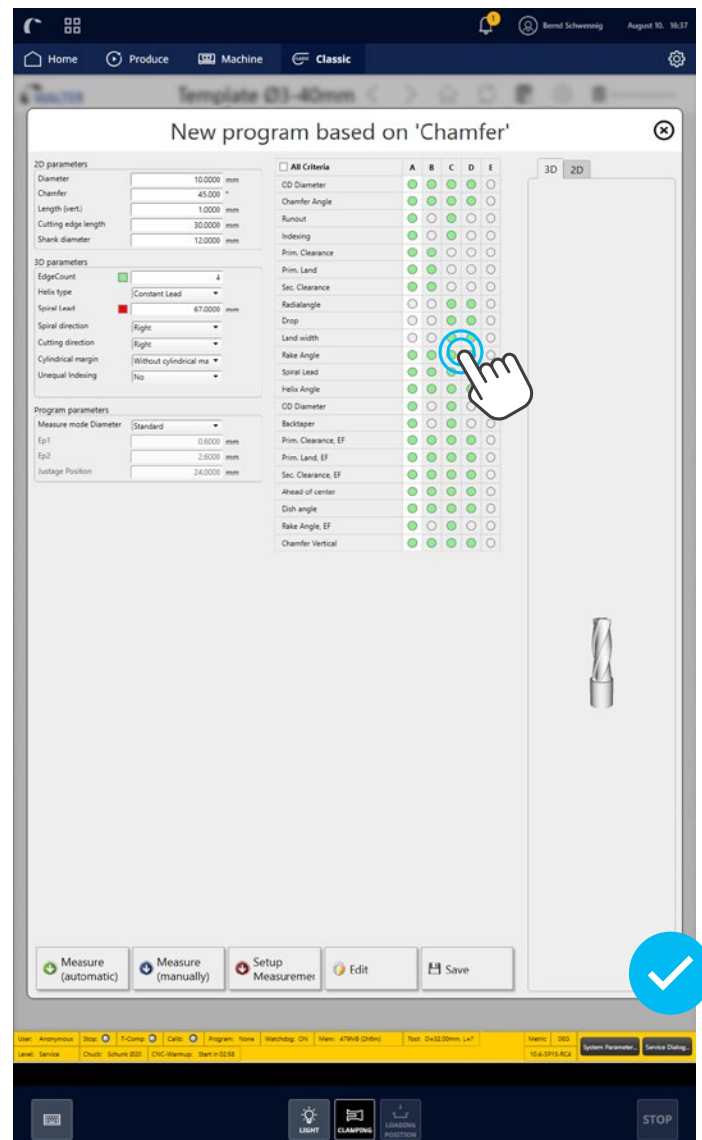
Select the tool family (example icons from the 'Cylindrical Shank Milling Cutters' tool family). Operating WALTER measuring machines has never been easier. The clearly designed icons enable intuitive use of the software. No prior knowledge is required.



Step 2

Select a test plan and start the measurement; create a new test plan by clicking on it and start the measurement.

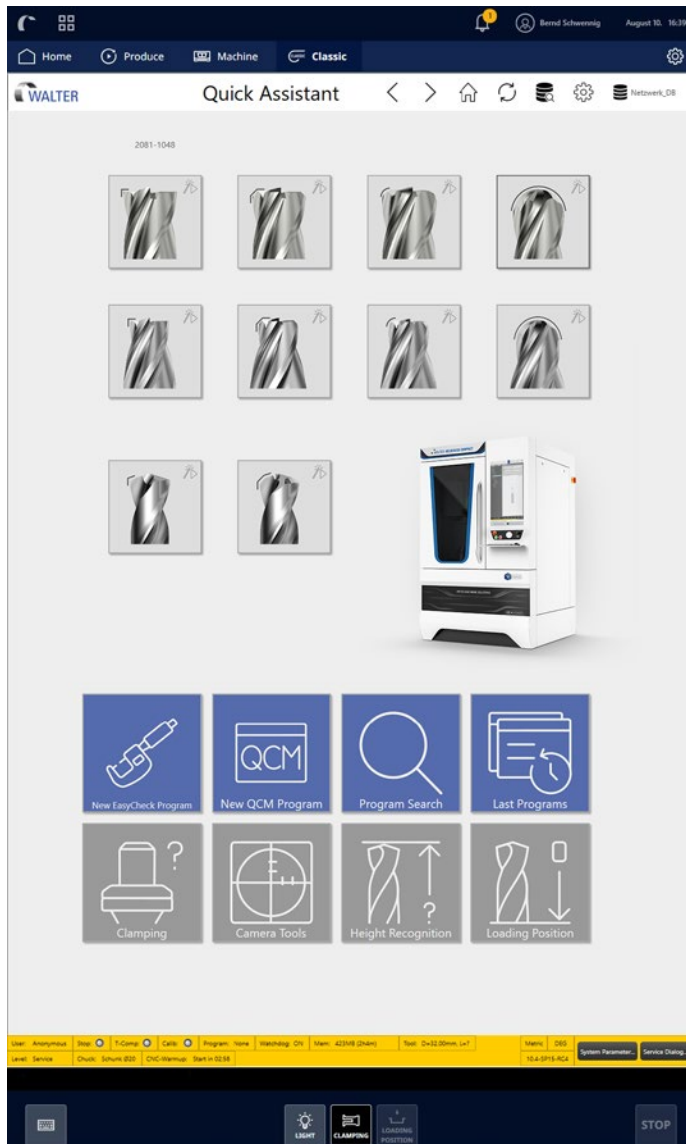
- Measurement in just two steps
- Simple, graphical user interface
- For cylindrical and tapered milling cutters and drills
- No need to enter target parameters
- Automatic recording of measurement data







LOGGING – EVERY MEASUREMENT VALUE IS TRACEABLE



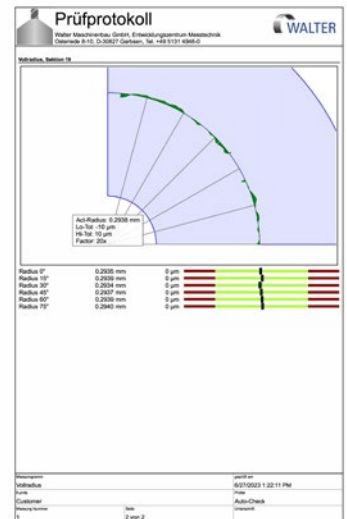
Prüfprotokoll

Walter Messtechnik GmbH, Entwicklungszentrum Messtechnik
Chiemweg 9/10, D-83627 Garmisch, Tel. +49 89 3131 4980-0

Prüfteil:
Item: 1

Messgrößen	Actual	Nominal	Min/Max	La/Lo	Diff	Stat
Name	0.8033 mm	0.8000 mm	0.7950 mm	-0.0100 mm	0.0083 mm	
Durchmesser	10.00°	10.00°	1.00°	-1.00°	0.49°	
Spannenmaß (0.540 mm)						
Radius (Mittellinie)	0.2038 mm	0.3000 mm	0.0100 mm	-0.0100 mm	-0.0962 mm	
Leitenform	0.0008 mm	0.0000 mm	0.0020 mm	-0.0020 mm	0.0008 mm	
1. Freiwinkel	10.00°	10.00°	1.00°	-1.00°	0.00°	
1. Flankenwinkel	0.9428 mm	0.0000 mm	0.0100 mm	-0.0100 mm	-0.9572 mm	
2. Freiwinkel	24.00°	20.00°	1.00°	-1.00°	-0.00°	

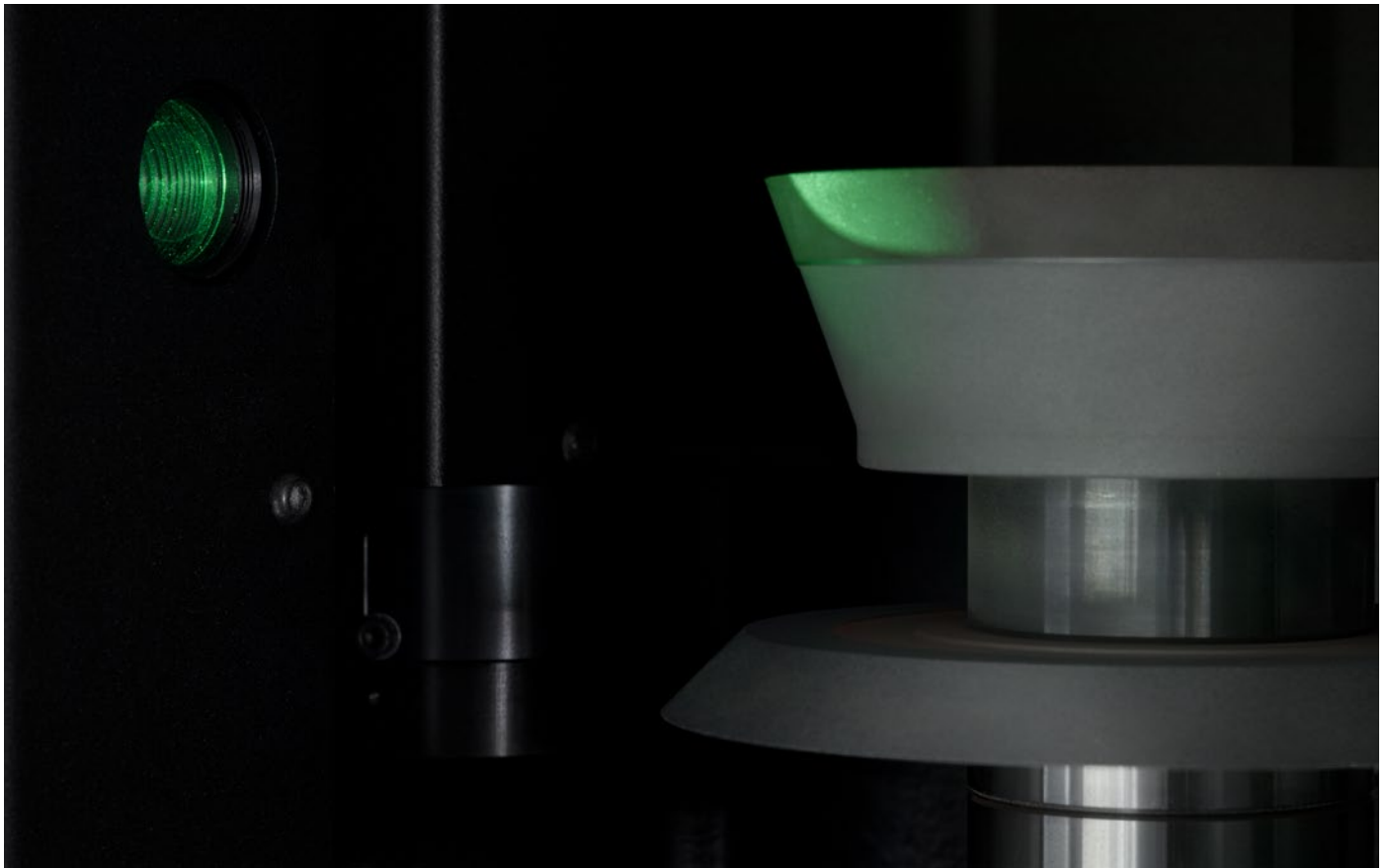
Measurement Date: 6/27/2023 1:22:11 PM
Customer: AutoCheck
Measuring Method: 1, 2 mm Ø



Logging

Comprehensive logging of all measured parameters, including tolerance analysis and graphical representation. Measurement results and logs are available in printed form as well as in digital format for further processing in various applications.

GRINDING WHEEL MEASUREMENT



Option: “Grinding wheel measurement”

Before the grinding wheel is fitted to the production machine, its profile can be measured non-contact using the HELICHECK COMPACT. The HELICHECK COMPACT’s sensor captures the contour, diameter and profile geometry in a matter of seconds and compares them with the target values. This enables you to detect wear or deviations at an early stage, ensure process reliability during dressing and reduce downtime on the grinding machine.

INTERFACES TO EXTERNAL SYSTEMS



Interfaces

The HELICHECK COMPACT features comprehensive interface concepts for integrating the measuring machine into the production environment. These range from simple data interfaces, via the import of target data and tolerance limits, to the generation of fully parameterised measurement sequences from higher-level production control systems. Similarly, the measured actual data can be processed across systems for quality assurance and documentation purposes.

Interfaces to third-party systems for

- Measurement sequence generation
- Parametric measurement sequence generation
- Documentation purposes



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



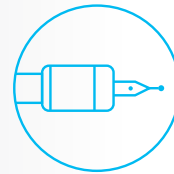
Service

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	270 mm
Y axis	365 mm
Z axis	250 mm
A axis	360°

ACCURACY

Measurement uncertainty	$E_{UX,MPE} = 1.4 + (L/300) \mu m$
Diameter measurement/length measurement ¹⁾	
Repeatability	$\leq 1 \mu m$
Positioning resolution for all linear axes X, Y, Z	0.005 μm
Position resolution for rotation axis A	0.25 arcsec
Measurement value resolution	0.25 μm

MAGNIFICATION ²⁾

Back light	75x
Incident light	300x
Top light	300x

OTHERS

CONNECTED LOAD

Connected load at 230 V/50 Hz	< 1.5 kVA
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WEIGHT

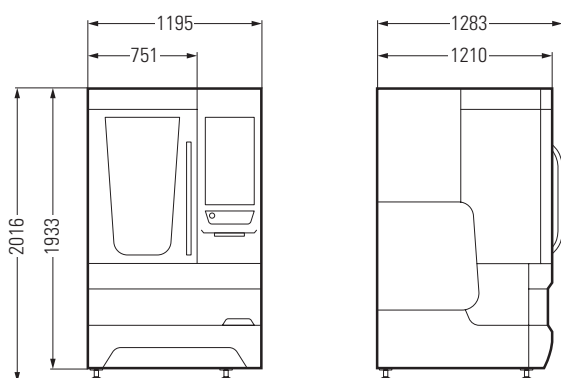
HELICHECK COMPACT	approx. 2,150 kg
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TOOL DATA

Max. tool diameter	255 mm
Diameter (snap gauge principle)	180 mm
Max. tool length ⁴⁾	360 mm
Max. tool weight	25 kg

OPTIONS

Preparation for external workstation, RFID user identification, front diffuser, enable switch, interfaces of all kinds



HELICHECK COMPACT

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⁾ Measured using the certified stepped mandrel under constant ambient conditions.

²⁾ The magnifications are based on a 27-inch screen.

³⁾ These values may vary depending on the options fitted

⁴⁾ From the theoretical zero line of the tool-holding spindle.

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 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 _{LUX} /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



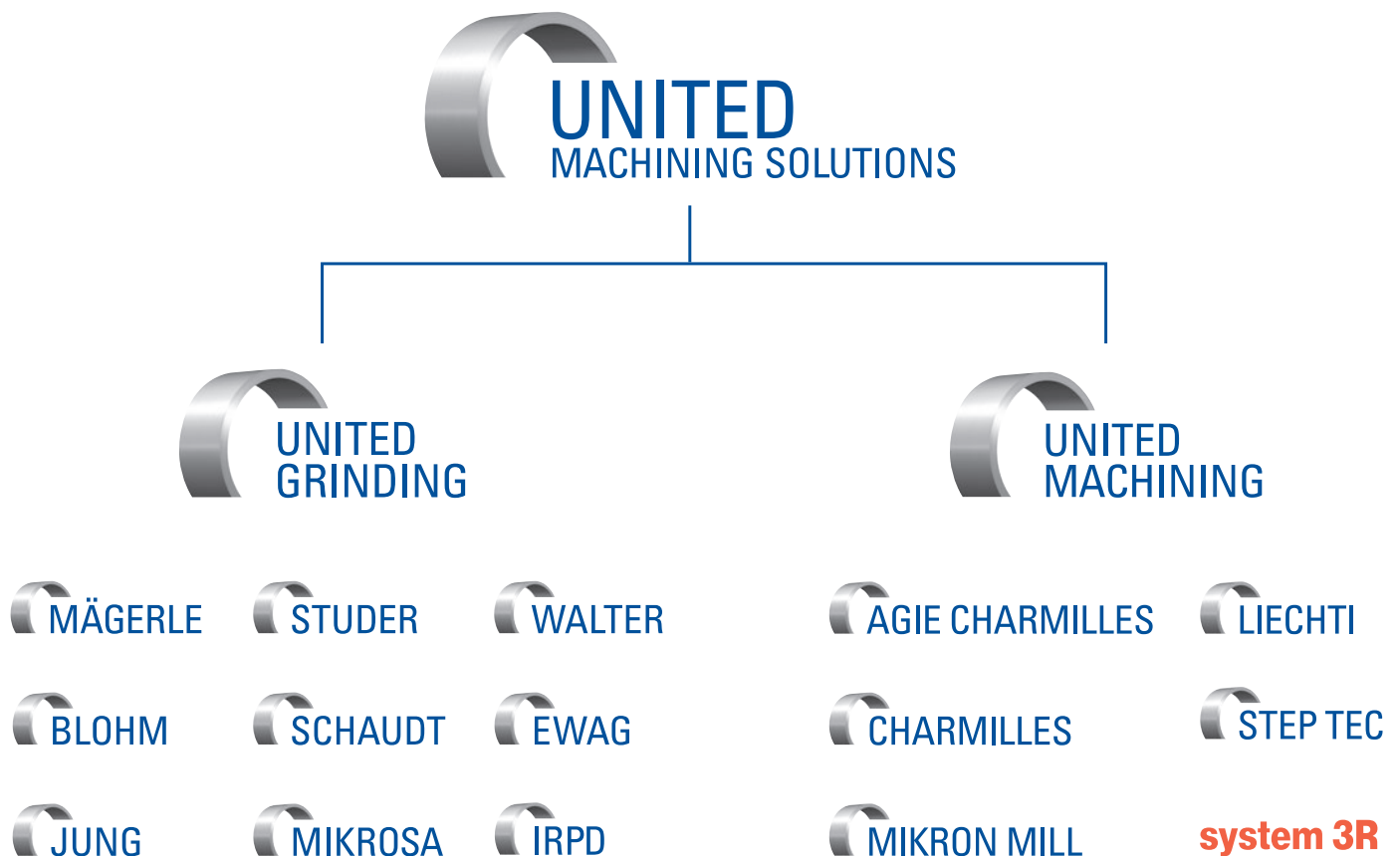
UNITED MACHINING SOLUTIONS

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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