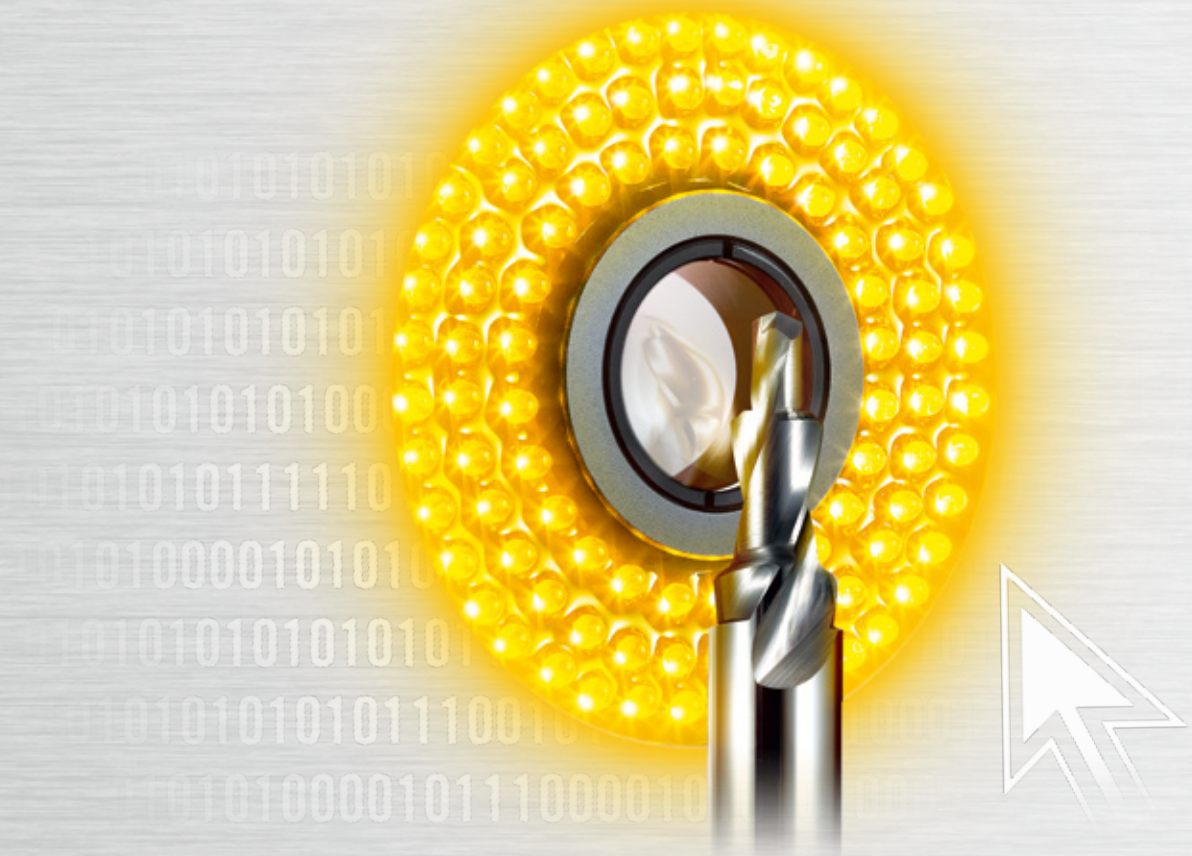# MEASUREMENT TECHNOLOGY SOFTWARE

For WALTER HELICHECK
CNC tool measuring machines

Key parameters

WALTER measuring technology software for fully automatic, contactless complete measurement of rotationally symmetrical tools, production parts such as grinding wheels, dressing rolls, indexable inserts and profile tools.

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.

MEASUREMENT TECHNOLOGY SOFTWARE

Precision and productivity in modern tool machining are closely linked with both tool expertise and special measuring technology. WALTER HELICHECK CNC measuring machines are known for their precise measuring results and are used by leading tool manufacturers around the world. They supply reliable data with certified precision to enable production optimisation. The software was developed in cooperation with globally leading tool manufacturers.
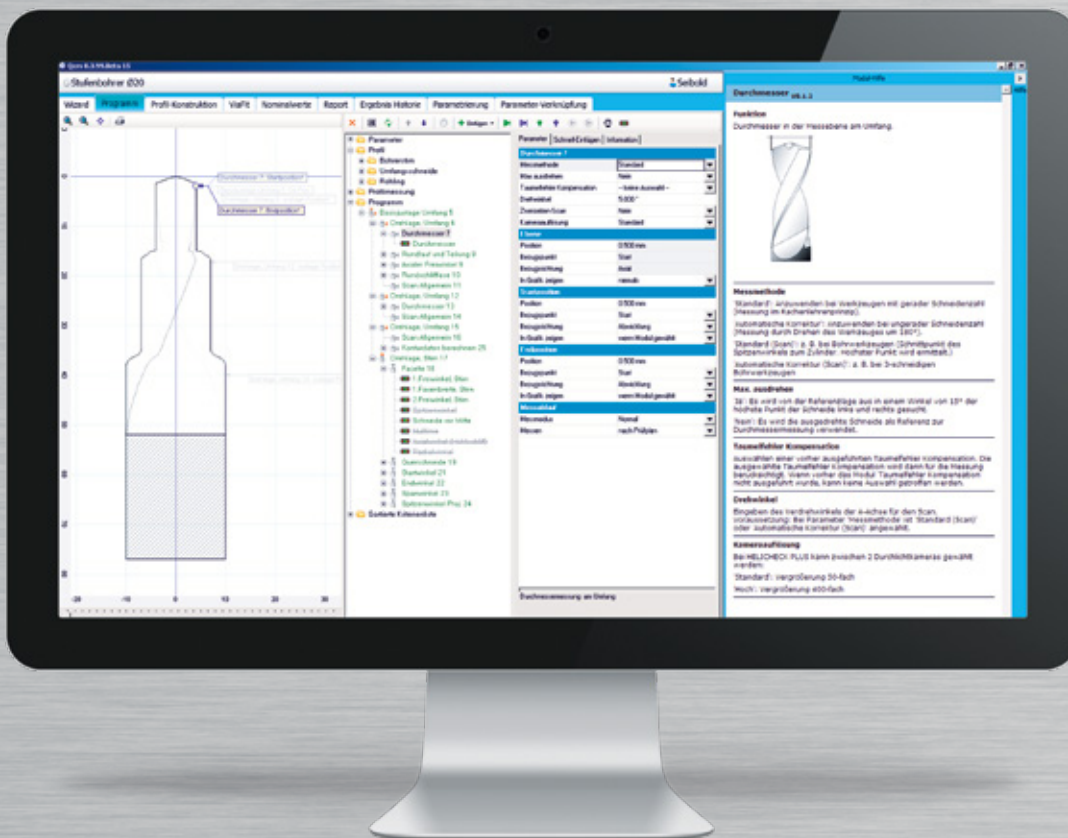
Measuring

Software

Fully automatic tool measuring technology from WALTER

Application

- Complete measurement of complex geometries on rotationally symmetrical tools and production parts
- Complete measurement of rotationally symmetrical production means such as grinding wheels, dressing rolls
- Complete measurement of indexable inserts, profile cutters and flat parts
- Reliable measured values for targeted feedback to the production process
- In-process quality control with automatic tolerance compensation

Software

- "Quick Check Modular QCM" tool standard measuring technology software
- "QCM Order Management"
- "Easy Check" for profile detection
- "Teach-in Mode" for specific company measurement standards
- Numerous efficiency options such as "ViaScan" and "ViaFit" for recording contours, "DXF Generator" for data conversion, "Form Tool Compensation FTC", "Heli Contour Check HCC"
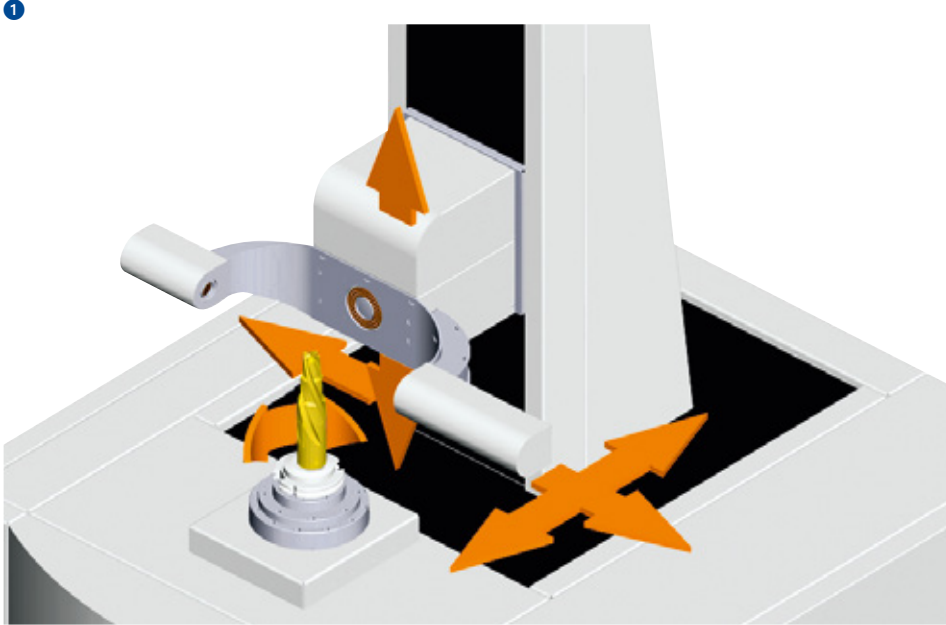
The machines

- Fully automatic HELICHECK PRECISION/ADVANCED CNC
  tool measuring machines
- Fully automatic HELICHECK PRO/PLUS and
  HELICHECK PRO LONG/PLUS LONG CNC tool measuring machines
- The measuring technology standard software "Quick Check Modular
  QCM" with integrated order management is installed on all
  HELICHECK measuring machines
- Numerous efficiency options
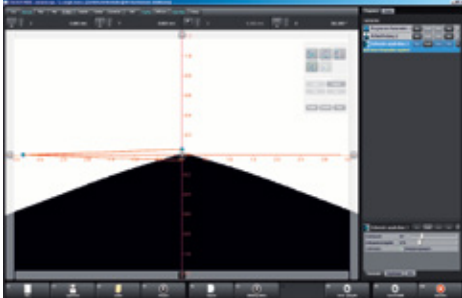
WALTER "Easy Check" software

❶

- Greater precision
- Greater quality
- Fewer rejects

Take advantage of the latest innovative tool measuring technology with fully automatic profile detection.
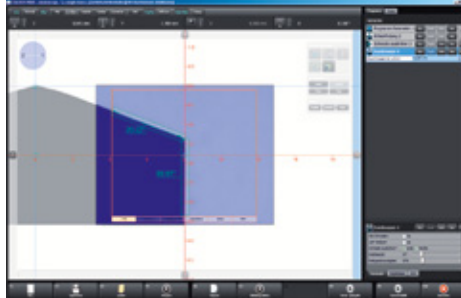
"Easy Check" is the extremely convenient and technically smart alternative to standard manual profile projectors and presetting devices. It measures tools and detects profiles digitally and automatically with a click of a mouse on WALTER CNC measuring machines. No complex preparatory work is required – the CNC axes are controlled fully electronically on the screen during the measurement process. Manual mechanical movements by winding or sticks are no longer required, the position is measured precisely, fully-automatically and reliably without intervention by the operator. The macro function allows measurement data to be copied and made available as measuring programs for further measuring processes. Thus, other identical parts can be measured rapidly and efficiently in the fully automatic measuring sequence.
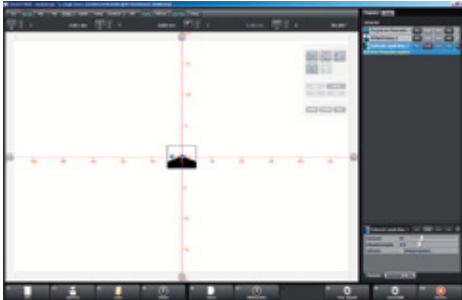
An outstanding feature of WALTER "Easy Check" is its interactive operating system, which can be learned intuitively and rapidly by any employee with one brief training session.

❶ In the measuring process, the CNC axes are controlled electronically via the innovative mouse function only.
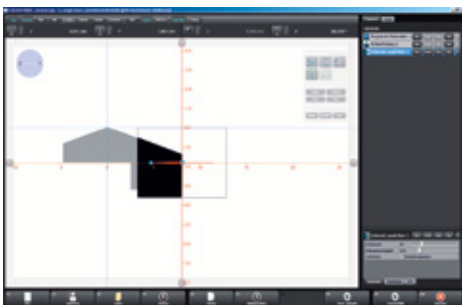
Automatic positioning of the tool tip.

Automatic detection of the tool shape based on the coordinates.
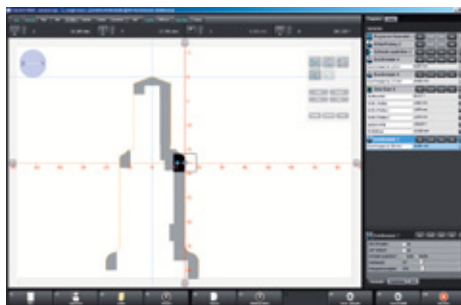

The coordinate system is the master for the orientation.

The tool contour is gradually recorded for variable profile detection.

Fixing the next coordinate point.

The "trained" measuring sequence is saved as a file.

Tool measurement with "Easy Check":
Interactive profile detection, fully automatic, with maximum positioning accuracy.

Advantages for you
- There is now a convenient, high-precision electronic alternative to manual tool and profile measurements in the production environment.
- From now on, you can forget mechanical movements of axes and operator-induced deviations when measuring tools and detecting profiles.
- Precise measurement results prevent rejects and you can set or readjust your grinding machines perfectly.
- The ease of operation means that no cost-intensive training courses are required and you can assign your employees flexibly.
- Benefit from cost savings due to rapid and reliable measurement.

WALTER measuring technology software:
Quick Assistant – target reached in only three steps

Step 1

Select tool family

Step 2

Select tool type

Step 3

Select/deselect required measurement
parameters and start measurement

Quick Assistant – incredibly easy to use

- Measurement in only three steps
- Simple, graphic user interface
- For cylindrical and conical milling cutters and drills
- No need to measure nominal values
- No need for records

Example icons of "Cylindrical end mills" tool family
It's never been so simple to use WALTER measuring machines. The clearly arranged icons allow the software to be used easily. No prior knowledge necessary.
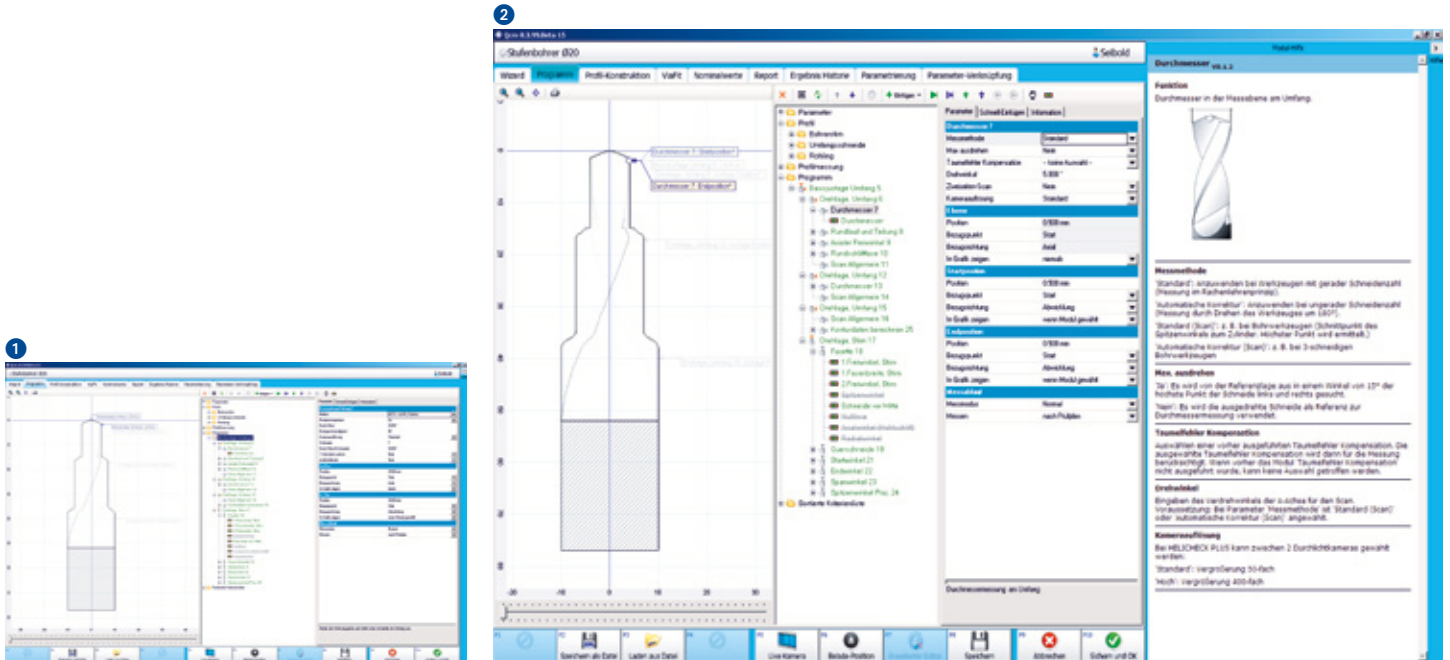

| Square end | Chamfer | Corner radius | Ball nose |

"Quick Check Modular QCM" – including "Autocheck"
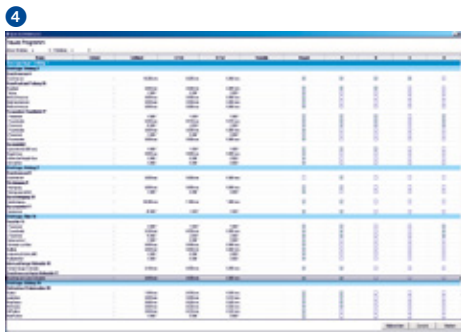

- Modular structure
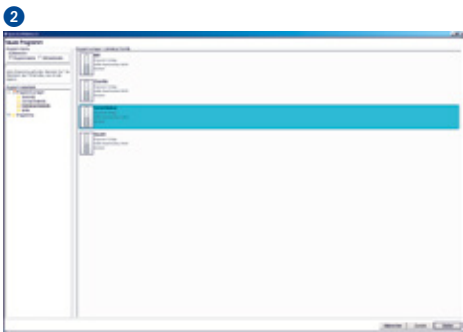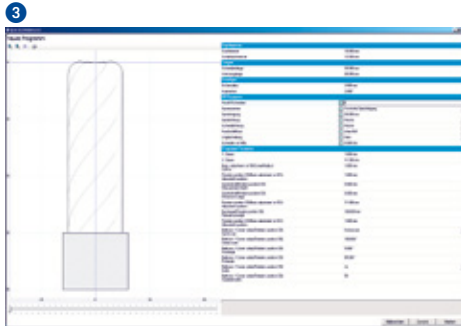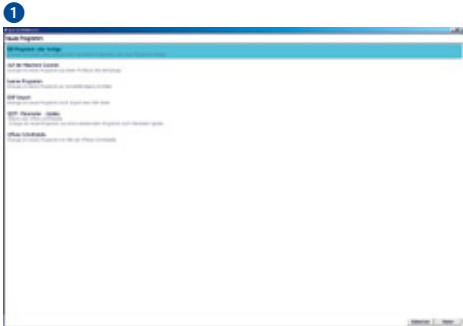- Individual measuring sequences

Reliability and simple operation including "Auto Check"

Maximum flexibility, simple operation and rapid programming via preset program templates are outstanding features of "QCM". You can measure all types of tools with just one software package. The geometries of all renowned manufacturers are already integrated. "QCM" also allows you to work offline on an external PC, which greatly reduces idle times of the machine.

The modular structure allows you to change measurement options and measurement sequences easily according to your requirements. A "Wizard" greatly simplifies operation. It can be used to create a new measuring program in just a few clicks of the mouse. The "Wizard"

can be expanded independently to meet your requirements. Even without the "Wizard", you can now start measuring programs without any entries using the new "Autocheck" function. The system automatically detects the geometric parameters required via a geometry and tool cutter analysis.

The test plan concept ensures efficient workflow organisation. You can define any number of measurement criteria in various test plans for any tool. In test plan A, for example, the only parameters that are measured are those that have to be checked during the production process. On the other hand, test plan B is used for quality control and logging and includes all the parameters.

- Autocheck for parameter detection
- Ideal process organisation

Advantages for you

- "QCM" helps make programming simple and quick. You save time via preset program templates.
- Work according to your customers' requirements by simply adapting the WALTER program templates and creating programs, without having to start new programs from scratch.
- Work to highest standards via parameterisable geometry descriptions and measurement parameters, all the way to test plans which can be preset and changed to your requirements.

1 Program selection from the template
2 Preselection of tool type in the wizard
3 Enter general geometry parameters
4 The parameters for each tool can be selected as required
5 Measuring reports for quality records

WALTER "Quick Check Grinding Wheels" software

- High grinding quality
- High grinding performance
- Process stability

Improve your grinding quality

WALTER "Quick Check Grinding Wheels" Software is a perfect addition to "QCM" and helps you improve the grinding quality significantly. It controls the fully automatic measurement of complete grinding wheel sets and reduces subsequent corrections to an absolute minimum. This avoids production of waste. An extensive database of standard wheels is available, while special wheels can be defined and generated easily. The grinding point can also be varied. Interfaces to grinding mac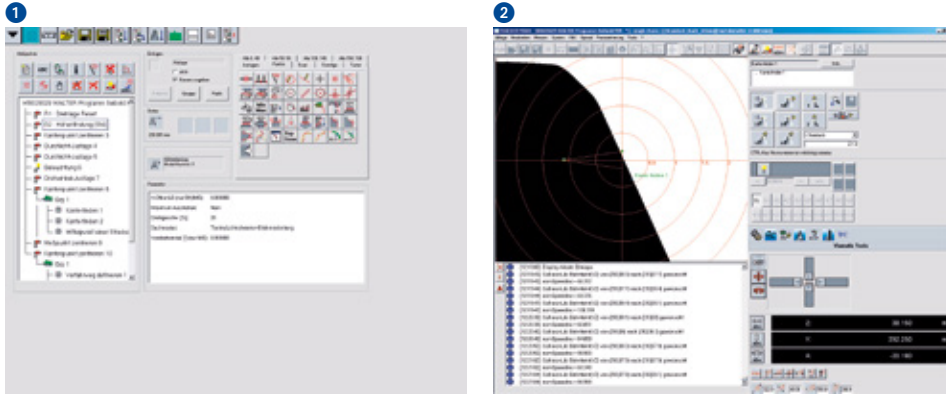hines from various manufacturers are available for data transmission of the measuring results. The "Wheel Data Connect" interface is responsible for data exchange between the HELICHECK measuring machine and the HELITRONIC grinding machine from WALTER. Detailed information on the grinding machine software can be found in the WALTER "HELITRONIC TOOL STUDIO" brochure.

Advantages for you

- Save costs and stabilise processes via fully automatic measurement of complete grinding wheel sets.
- Offer your customers maximum quality which pays for itself.
- The standard wheel database reduces your programming workload.
- Define and generate custom wheels easily, maximising your flexibility.
- WALTER "QCM Order Management" can be linked to the WALTER "Quick Check Grinding Wheels" software.

WALTER "Teach-in Mode" software

- High component diversity
- Geometry freedom
- Large area of application

Measuring technology without limits
In order to allow you to use your own measurement standards and measure any test parts, WALTER developed the "Teach-in Mode" software. Take advantage of this flexible and freely programmable software to measure all tools and even tool parameters. Combined with the "Light Table" hardware for example, flat test parts can be measured in addition to all rotation-symmetrical parts. Therefore, it is ideal for indexable inserts or profile plates.

The software itself contains macros and modules down to an individual item level, which can be combined variably and learned taught-in directly on the test part. This flexibility is unique and allows you to create any number

of measurement tasks with separate optimised measurement standards. This high level of universality greatly increases the scope of application of your measuring machines to any test parts outside tool measurement measurement technology.

Advantages for you
- The "Teach-in Mode" guarantees maximum flexibility and precision with your own measurement standards.
- Optimised program workflows with minimised travel distances and logical processing sequences can reduce measurement time. You determine the scope and quality yourself down to individual measurement points.

- "Can't be measured" is a thing of the past! The "Teach-in Mode" allows you to perform even the most difficult measurement tasks today without cost-intensive custom software solutions for special applications.
- Expand your scope of application from any type of tool to measurement parameters for test parts of any kind.
- WALTER "QCM Order Management" can be linked to WALTER "Teach-in Mode", which allows you to integrate this process fully in your test organisation and data management system.

"Teach-in Mode" in practice
Diamond dressing roll, cutter and many others.

❶ "Teach-in Mode" measurement point modules   ❷ "Teach-in Mode" program control

Optional software packages

- Best-fit function
- Contour detection
- Data compatibility

"ViaScan" and "ViaFit" –
Precision contour recording and
exact comparison of contours.
An unrivalled team.

"ViaScan" detects any tool and workpiece con-
tours. You define the start and end points or
limits, after which contours are recorded fully
automatically via the smart contour tracking
function in seconds. The specifically controlled
generation of shell curves for spiral tools, for
example, shows the actually active impact
profile of the tool. Various processes including
filter functions are available for special tasks.
The digitised contour can be processed in the

WALTER software packages "Teach-in Mode",
"Easy Check" and "QCM" and evaluated for
various parameters such as length, diameter
and radius. A target/actual comparison with
the original DXF contour trace of the test part
can also be run. "ViaFit" compares the contour
traces recorded using "ViaScan" with the DXF
template and runs a target/actual comparison
with Best-fit function. The integration using the
various degrees of freedom can be controlled
as required depending on the task. Deviations
are shown in graphs with vertical exaggeration.
The operator can choose the scale of the excess
freely. Tolerances can be specified to evaluate
the deviations; Where the values are higher,
this is highlighted in colour for rapid visual con-
trol. Extremes can be marked as required and
labelled with the value of the deviation. This
allows even unknown profiles to be reproduced
rapidly and reliably.

"DXF Generator" – automatic DXF
generation for compatible data
from unknown contour traces.

The "DXF Generator" creates a DXF file from the
digitised contour trace after scanning the tool,
including automatic shape and element detec-
tion. Individual fine machining to optimise the
DXF using graphical auxiliary functions is possi-
ble. This file can be saved as a DXF and used as
a basis for design and production. That makes it
ideal for use in producing prototypes.

Advantages for you

- Coordinated software options allow you
  to supplement your quality management
  intelligently and reliably.
- You are free to choose what you want to
  use for recording contours and comparing
  contours.
- Utilise cost reduction potential via precise
  automatic recording of the contour with
  an exact comparison of the target with the
  actual values.
- "ViaScan" and "ViaFit" can be integrated
  directly in "Teach-in Mode" and "QCM".

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❶ "ViaFit" contour detection   ❷ "DXF-Generator"

WALTER "FTC" correction software

**"Form Tool Compensation FTC" –
use a "closed loop" for your
target-actual comparison**
The WALTER "Form Tool Compensation FTC" Software compares target and actual contours of profiles and automatically generates a correction DXF. Not only individual points or form segments are measured, entire profiles are scanned. The deviation of the actual contour is determined using a DXF comparison and the correction DXF is sent to a WALTER HELITRONIC grinding machine. This creates a closed quality control loop via automatic correction calculation – integrated in your production process.

Advantages for you
- System-related control between the measuring technology and grinding machine, giving you integrated quality assurance with all its advantages.
- "FTC" allows you to master production tolerances which would not be achievable without a measuring machine.
- This gives you a reliable, fully automatic process which optimises your production rapidly and precisely and provides you with multiple cost advantages.

- Parameter target-actual comparison
- Automatic tolerance compensation
- Closed-loop quality process

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

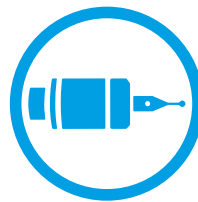**Qualification**
Training
Support for production

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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BLU**e**CO**M**PETENCE
Alliance Member

Partner of the Engineering Industry
Sustainability Initiative