

# HELITRONIC POWER 400



## Key features

The HELITRONIC POWER 400 is the high-performance top version with maximum flexibility for mid-sized to large series. Around the world, it stands for top quality in the production and resharpening of rotationally symmetrical tools. Permissible diameters range from 3 to 315 mm, machining lengths can be up to 520 mm and weight up to 50 kg.



Grinding



Eroding



Laser



Measuring



Software



Customer Care

## Walter Maschinenbau GmbH

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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 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, 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 POWER 400

For the production and resharpening of rotationally symmetrical tools in a single clamping cycle, even with complex geometries. Regardless of the version, whether with belt-driven spindle with two spindle ends or as a variant with motor spindle: Together with the variety of automation options, it sets standards in productivity and flexibility.



Grinding



Software



# The HELITRONIC POWER 400 at a glance

## Application

- Grinding rotationally symmetrical tools for a wide range of industries
- For production and/or regrinding
- Fully automated, complete machining in a single clamping cycle
- Materials include HSS, carbide, cermet, ceramic

## Machine

- Low vibration, solid grey cast iron, gantry type construction
- X, Y, Z linear axes with ball-type linear drive
- A, C rotating axes with worm drives or optional torque motors
- Glass scales
- Belt-driven spindle with two spindle ends (Standard) for up to six grinding wheels
- Motor spindle with one spindle end (Option)
- High-frequency motor spindle (Option)
- Each spindle end can take up to three grinding wheels
- FANUC, the global standard for control equipment
- Various loading systems
- Numerous efficiency options



HELITRONIC POWER 400 with the options „Top loader“ and „Grinding wheel changer“ (right) – uncompromising in productivity and precision



## Software

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- HELITRONIC TOOL STUDIO, CAD/CAM software for design, programming, simulation and production
- Numerous software options to extend the system's performance and to increase its efficiency



HELITRONIC POWER 400 with wheel changer (right) and the optional „Robot loader“ (left) – the top configuration for maximum performances

# Efficient and easy to use

1

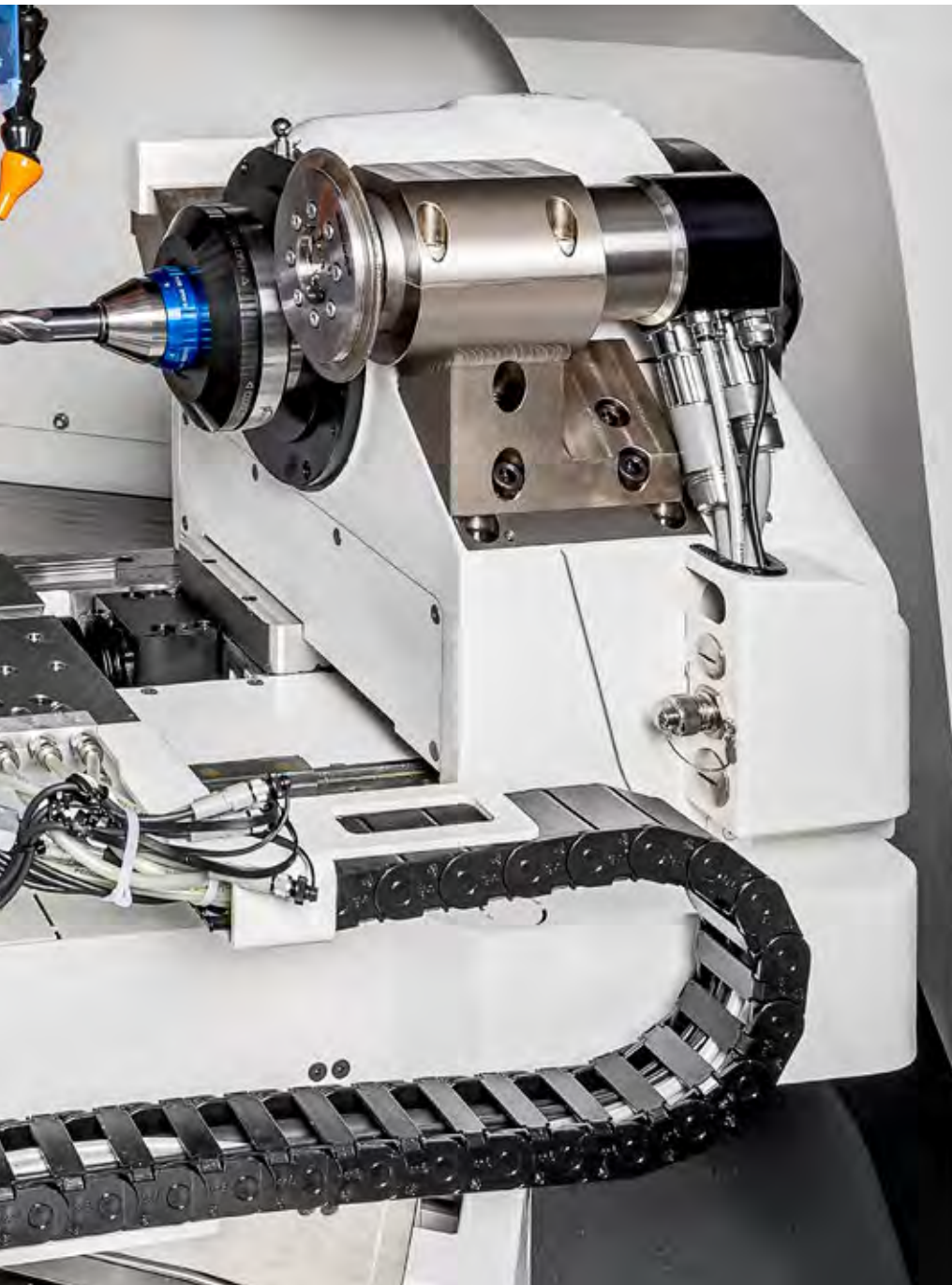


## Example tools (from left to right):

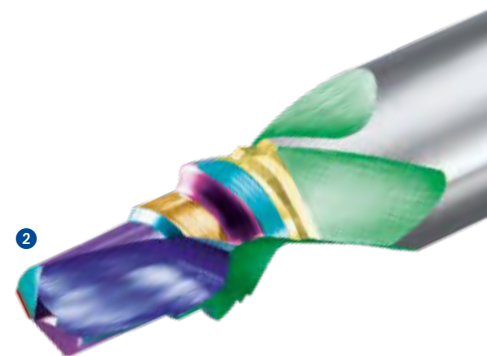
Corner radius mill, fir tree tool, shaping tool, straight contouring tool, shaped lathe tool, 2 x stepped drill bit, ball nose tool with variable helix angle, thread milling drill, drill with variable helix angle





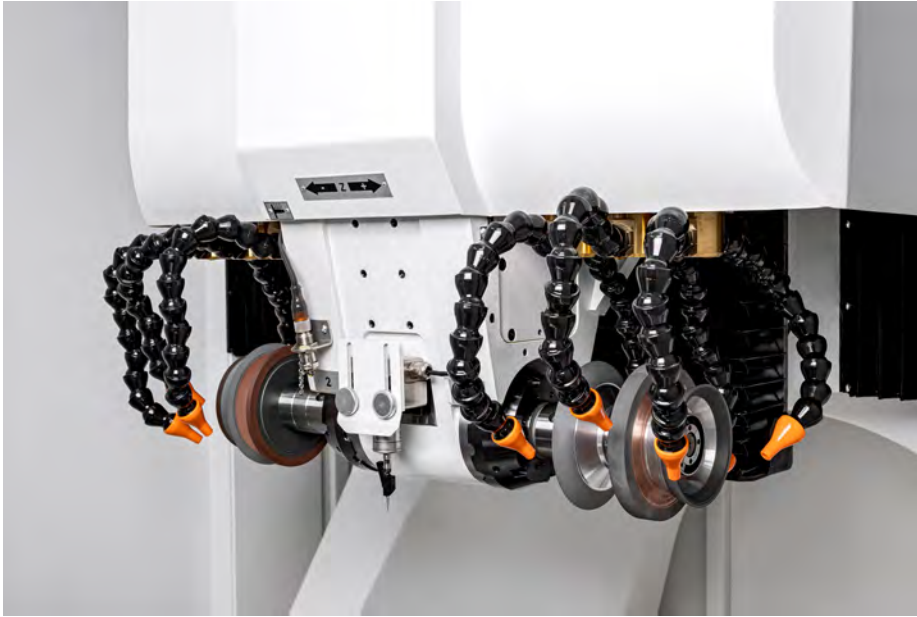
**“Automated work table” option**

This option can be equipped with up to two upper slides: one with automatic traverse and one fixed. This way, long tools can be supported by a moveable steady rest and/or a tailstock. The surface quality and tool precision are enhanced as a result.



# Innovative WALTER grinding technology

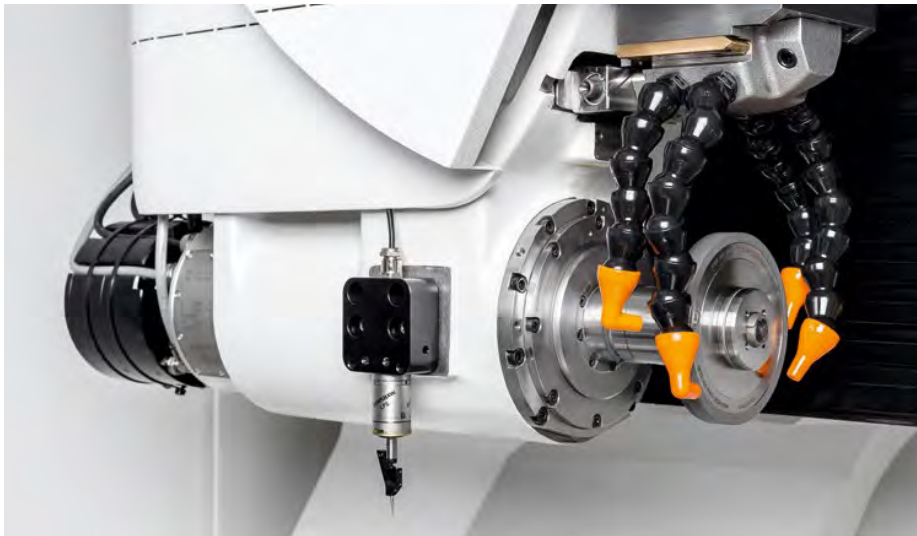
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## **Belt-driven spindle with 2 spindle ends (Standard)**

The powerful belt-driven spindle with two spindle ends can accommodate up to 6 grinding wheels and has a peak power of max. 24 kW. With this equipment, both more complex and common tool geometries can be produced economically, in medium batch sizes (automation option is required). The various grinding wheel sets are assigned to the spindle ends with all their data.

2



## **Direct driven motor spindle (Option)**

Up to three grinding wheels can be mounted per grinding wheel adaptor. In combination with the grinding wheel changer, up to eight grinding wheel adaptors (24 grinding wheels) can be used in the grinding process. The peak power is 26 kW. The result is the highest levels of efficiency and productivity.

## **High-frequency motor spindle (option - without illustration)**

Up to 3 grinding wheels can be mounted per grinding wheel adaptor or one grinding pin can be mounted. The speed is infinitely variable between 0 - 24.000 min<sup>-1</sup>, the peak power is 26 kW.



# Grinding wheel changer

1



## **Grinding wheel changer 4 x resp. 8 x (option)**

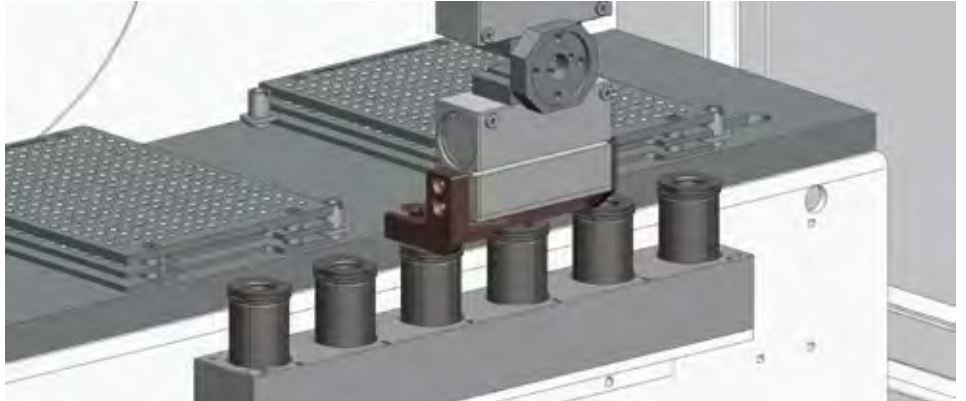
Affordable, compact, and flexible too. With a capacity of up to 24 grinding wheels, it quadruples the grinding wheel capacity of the HELITRONIC POWER 400. The max. grinding wheel diameter is 254 mm. The coolant supply and the grinding set form a single unit. This ensures reliable wheel set replacement and optimum coolant delivery.

## Robot loader automation option



### **"Combi" equipment package for robot loaders**

Gripper rapid replacement system for handling cylindrical tools and tools with HSK-63 mounting shank. The word "Combi" is an exact description of the contents of this equipment package: Namely the two equipment packages "Cylindrical tools" and "HSK" plus the rapid replacement interface for fast, user-friendly retooling.



### **"Multi-Range" equipment package for robot loaders**

The Multi-Range equipment package sets new standards in terms of flexibility. Large diameter coverages with a pair of gripper fingers and a collet replacement (Schunk bayonet) are possible with this equipment package.

### **Advantages of the "Combi" equipment package**

- Rapid replacement sequence thanks to only one cylinder head screw
- Pallets that have already been taught do not need to be taught again when grippers are replaced
- Pneumatics and teaching cable need to be connected only once (installation)
- Retrofitting at existing robots possible (software must be adapted)
- Easy handling
- Ergonomic form

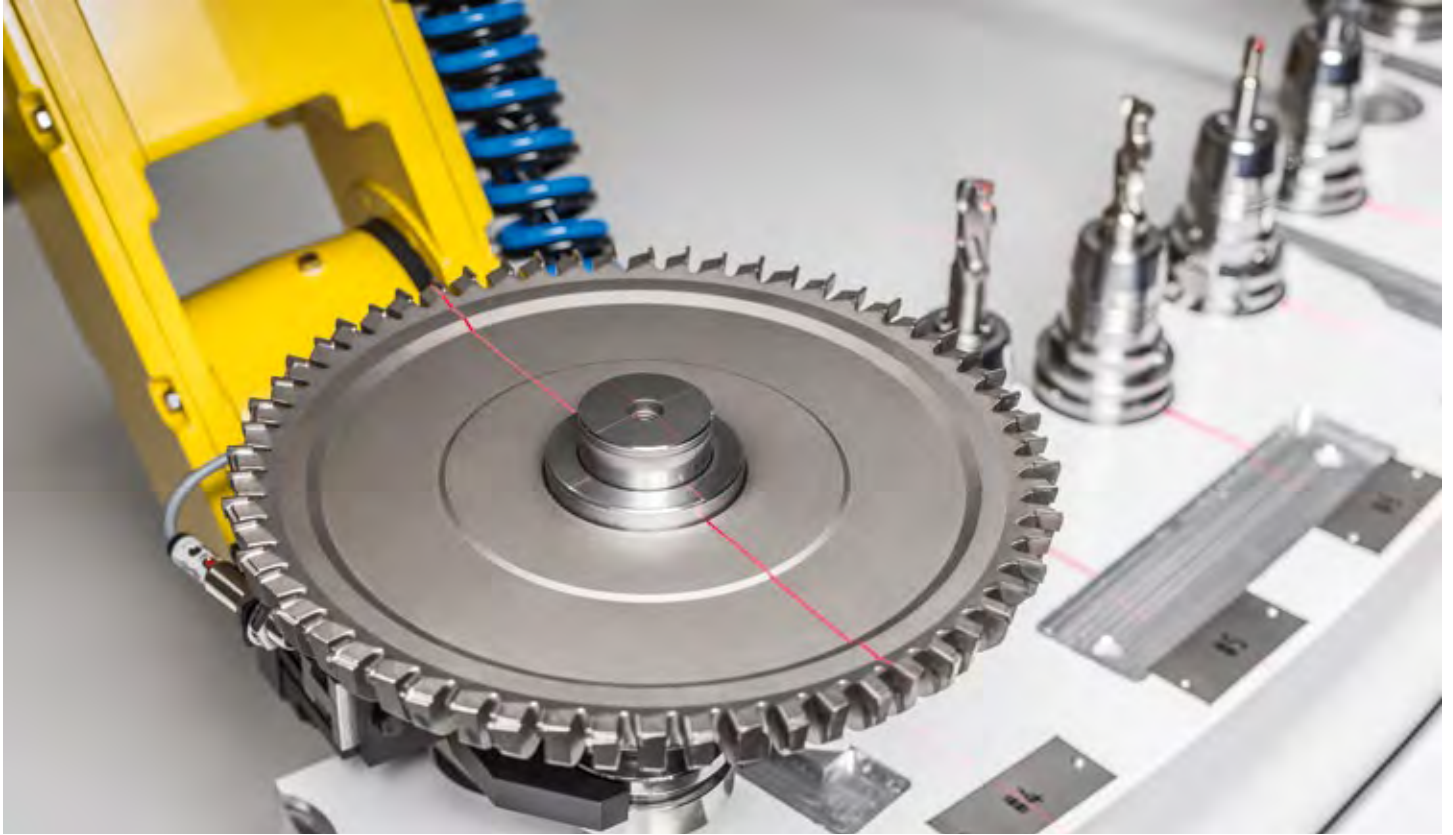


### **Robot loader**

The robot improves accessibility to the workpieces and makes special applications possible. Depending on the type of workpiece or the workpiece diameter, up to 7,500 workpieces can be loaded using the robot.



# Robot loader 25 automation option

**1**


## Robot loader 25

For tools in an HSK holder with a total weight of up to 20 kg and a tool diameter of up to 315 mm in combination with the HELITRONIC POWER 400. Thanks to the innovative, recently developed loader software, "chaotic" loading on up to 7 pallet levels is now possible. An automatic diameter determination is also optionally available and ensures a smooth, automated and flexible production sequence.

Capacity of the available pallets:

- 21 tools, max. diameter 315 mm
- 28 tools, max. diameter 220 mm
- 70 tools, max. diameter 105 mm

**2**


## Top loader automation option

1



2



### Top loader

This space-saving and inexpensive automation solution is integrated directly into the machine envelope. Automatic teaching enables short setup times. Depending on the tool diameter, the Top loader offers a maximum of 500 places for tools.

Tool capacity, max. (sample diameters):

- 500 tools: diameter 3 mm
- 42 tools: diameter 20 mm
- 20 tools: diameter 32 mm



## Other options

1



### **“Grinding wheel dresser” option**

When it comes to the conditioning/dressing of grinding wheels during the production process, with subsequent software-controlled compensation, the high-performance electrical grinding wheel dresser is the perfect solution.

2



### **“Sharpening stone holder” option**

With the permanently installed sharpening stone holder, WALTER enables the automatic opening of the wheel bond during production. The HELITRONIC TOOL STUDIO software controls the process and enables the operator to open the bond at the appropriate time according to the grinding wheel condition.

## Other options

1



### **Automatic grinding wheel measurement**

For even more efficient production. Normally the machine operator corrects the grinding wheel data in the production process manually so that the geometry of the tool can be maintained at its nominal dimension. With the automatic grinding wheel measurement, the wear on the bond of the grinding wheels can be determined automatically via tactile measurement, exactly documented and compensated for. The measurement is carried out during the production process. Diameter and length of the grinding wheel can be measured and compensated for. This means that the operator always has the optimum grinding wheel data at the desired time. Furthermore, the user can monitor the grinding wheel wear and thus influence the production process and optimise it.

The probe for the tactile measurement is fitted on the tool carrier and is mounted in place of the electrical dresser.

2

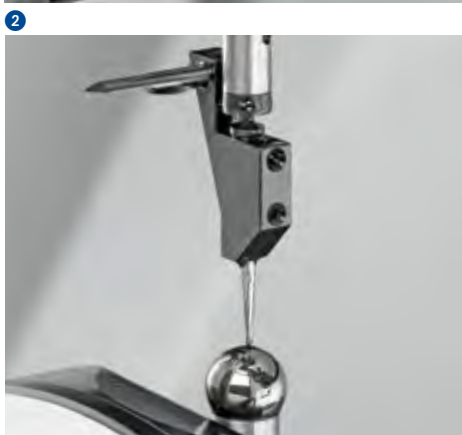


### **Automatic, electrical measurement of the machine reference**

Now use the advantages of the automatic, electrical measurement of the machine reference in the grinding and eroding machines from WALTER.

- Maximum precision of measurement results through exact positioning of the axes via electrical contact
- 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 positioning and measurement system "Heli-Probe" (standard)

Heli-Probe records important tool parameters for a perfectly positioned tool in the shortest space of time. This is the best precondition for quick and accurate grinding, quality and productivity.

### Calibration (standard)

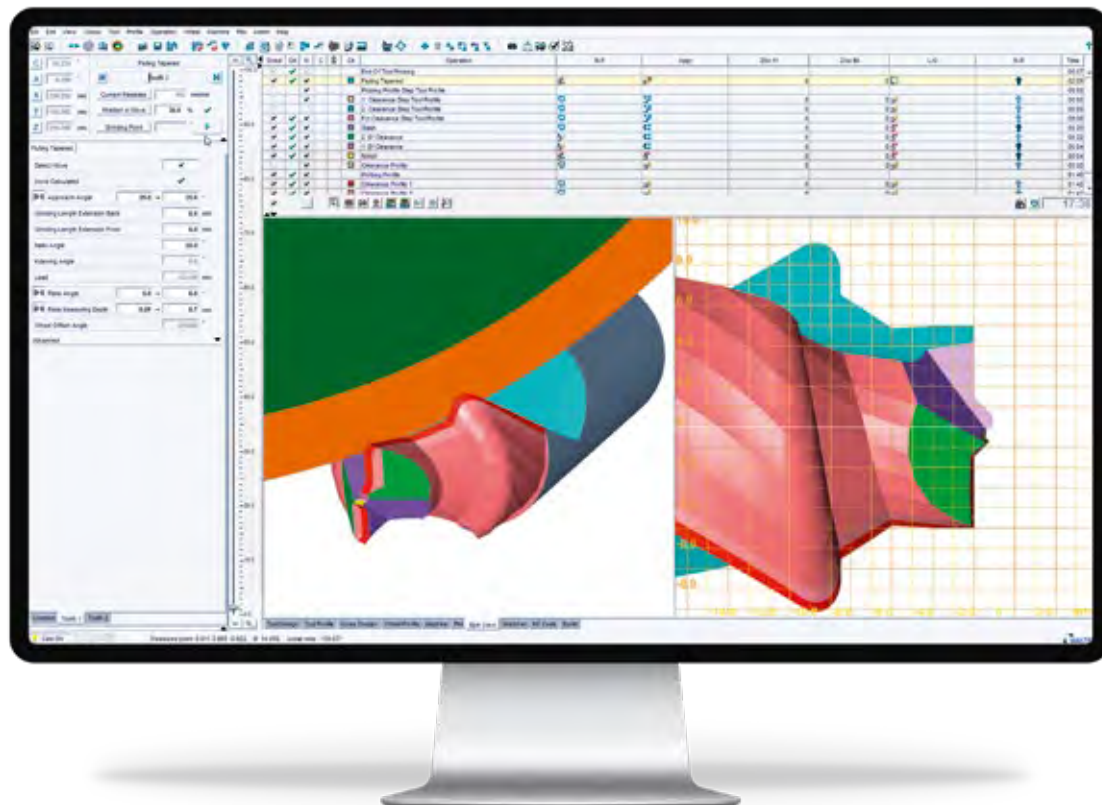
Calibration consists of a calibration ball and software. It is used to automatically calibrate the X, Y and Z axes of the machine with a loader. The calibration frequency can be freely chosen in the loader program. Machines without a loading system can be calibrated manually.

### Integrated Measuring System IMS

With the integrated IMS measurement system, the outside diameter, rake angle and core diameter can be measured using the probe ball without having to unclamp the tool. By setting the tolerances, HELITRONIC TOOL STUDIO can compensate for any deviation of the measured values, e.g. by thermal growth or wheel wear-and-tear, and adjust to the nominal measure and thus prevent 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.

- Determination of the rake angle, the outer diameter and the core diameter for cylindrical tools
- Tactile measurement system to position the tools fully automatically
- Fully automatic thermal profile compensation for the linear axes

# Application software for tool machining



## HELITRONIC TOOL STUDIO – operational convenience with all grinding applications

HELITRONIC TOOL STUDIO is the WALTER way to the perfect tool. According to the tried and tested method of “What you see is what you grind”, just a few mouse clicks are all that separate you from producing the perfect precision tool: Design, programming, simulation and production.

HELITRONIC TOOL STUDIO: This combines ease of programming with the greatest possible flexibility. With the HELITRONIC TOOL STUDIO, only a little work is needed by the user to program machining steps and movement sequences for both rotationally symmetrical standard tools and for special tools.

The tool shown on the screen corresponds exactly to the tool which will then be produced. This means that, as early as the design phase, the result can be checked and, if necessary, corrected thanks to the true-to-life 3D simulation.

The operator can quickly find the tool type, the parameters to be entered and the tool by using the assistant. WALTER provides programme packages for all standard tool families, which make handling significantly easier.



# Efficiency options

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

- Up to 30% time savings
- Optimum feed rate
- Optimize existing IDNs

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

## “Sketcher”

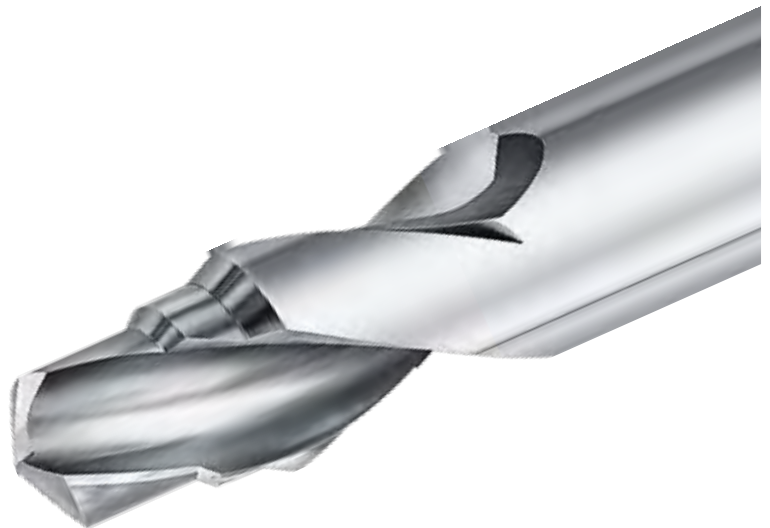
Do you sometimes wonder why you need to draw tools separately in a CAD program and then recreate the desired tool in another software package? Thanks to the “Sketcher” option, this is now a thing of the past. You can now create CAD drawings, program tool ID numbers and grind the desired tool in a single 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. Benefit to you: Save time and resources through a central software solution!

## „Feedrate Optimizer“

This extension of HELITRONIC TOOL STUDIO provides ideal opportunities for feed rate control and for monitoring grinding wheel and machine loads. 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.



## Global standard of control technology



- Multi-processor system – high system security
- FANUC bus for digital drives – fault-free communication
- CNC and robots from a single manufacturer – no interface problems
- 19-inch touchscreen as standard

With the FANUC control unit, WALTER relies on the global standard of control technology. For the user, this means the highest degree of reliability, availability and operating comfort.

WALTER, famous for tool machining, and FANUC, the No. 1 in CNC control units, together make an unbeatable team.

# 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**

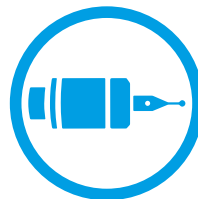
Maintenance  
Inspection

**Service**

Customer service  
Customer advice  
Helpline  
Remote service

**Digital Solutions**

Remote Service  
Service Monitor  
Production Monitor

**Material**

Spare parts  
Replacement parts  
Accessories

**Rebuild**

Machine overhauling  
Refurbishing of assemblies

**Retrofit**

Conversions  
Retrofitting parts  
Taking machines back



# Technical data, dimensions

## Mechanical axes

X axis	650 mm
Y axis	350 mm
Z axis	720 mm
Rapid traverse speed X, Y, Z	max. 15 m/min
C axis	± 200°
A axis	∞
Linear resolution	0.0001 mm
Radial resolution	0.0001°

## Grinding spindle drive

Max. grinding wheel diameter	254 mm
Grinding spindle speed	0 – 7,000 rpm

### HELITRONIC POWER 400 with belt-driven spindle (Standard)

Spindle ends	2
Tool holder	HSK 50
Peak power	24 kW
Spindle diameter	80 mm

### HELITRONIC POWER 400 with motor spindle (Option)

Spindle ends	1
Tool holder	HSK 50
Peak power	26 kW

### HELITRONIC POWER 400 with High-frequency motor spindle (Option)

Spindle ends	1
Tool holder	HSK 50
Peak power	26 kW
Spindle speed	0 – 24.000 min <sup>-1</sup>

## Tool data <sup>1)</sup>

Min. tool diameter	3 mm
Max. tool diameter	315 mm
Max. workpiece length, peripheral grinding <sup>2)</sup>	520 mm
Max. workpiece length, end face grinding <sup>2)</sup>	380 mm
Max. workpiece weight	50 kg

## Options

### Coolant system

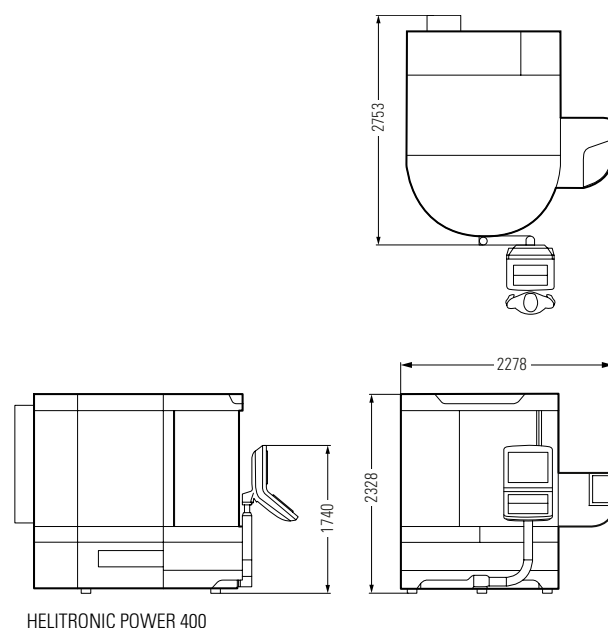
On request – several types are possible

### Loading systems

Top loader, Robot loader, Robot loader 25

### Others

Motor spindle, High-frequency motor spindle, Frequency-controlled pump 80 – 120 l/min at 7 – 20 bar, torque motor A-axis 750 rpm, torque motor C-axis, glass scale, automation upper plate, Walter Window Mode software, automatic grinding wheel measurement, automatic electrical measurement of the machine reference, etc.



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

<sup>2)</sup> Starting from the theoretical taper diameter of the tool carrier.

Dimensions in mm. Options, accessories or doors in the open position may increase the dimensions of the machine. Subject to modifications due to technical progress and errors. No guarantee is provided for this information.

# 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 <sup>1)</sup> max. length <sup>2)</sup> / diameter
HELITRONIC ESSENTIAL	P R	HSS HM C/K CBN	255 mm / Ø 1 – 100 mm
HELITRONIC MINI POWER	P R	HSS HM C/K CBN	255 mm / Ø 1 – 100 mm
HELITRONIC MINI AUTOMATION	P R	HSS HM C/K CBN	255 mm / Ø 1 – 100 mm
HELITRONIC RAPTOR	P R	HSS HM C/K CBN	280 mm / Ø 3 – 320 mm
HELITRONIC POWER 400	P R	HSS HM C/K CBN	520 mm / Ø 3 – 315 mm
HELITRONIC VISION 400 L	P R	HSS HM C/K CBN	420 mm / Ø 3 – 315 mm
HELITRONIC VISION 700 L	P R	HSS HM C/K CBN	700 mm / Ø 3 – 200 mm
HELITRONIC MICRO	P R	HSS HM C/K CBN HSS HM C/K CBN	120 mm / Ø 0.1 – 12.7 mm 120 mm / Ø 3 – 12.7 mm



## Eroding – Electrical discharge machining and grinding of rotationally symmetrical tools

WALTER machines	Use	Materials	Tool dimensions <sup>1)</sup> max. length <sup>2)</sup> / diameter
HELITRONIC DIAMOND EVOLUTION	P R	HSS HM C/K CBN PKD	185/255 mm / Ø 1 – 165 mm
HELITRONIC RAPTOR DIAMOND	P R	HSS HM C/K CBN PKD	270 mm / Ø 3 – 400 mm
HELITRONIC POWER DIAMOND 400	P R	HSS HM C/K CBN PKD	520 mm / Ø 3 – 380 mm
HELITRONIC VISION DIAMOND 400 L	P R	HSS HM C/K CBN PKD	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 <sup>1)</sup> Inscribed / circumscribed circle
COMPACT LINE	P R	HSS HM C/K CBN PKD	Ø 3 mm / Ø 50 mm



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

EWAG machines	Use	Materials	Tool dimensions <sup>1)</sup> max. length / diameter
LASER LINE ULTRA	P R	HM C/K CBN PKD CVD-D MKD/ND	250 mm / Ø 0.1 – 200 mm
LASER LINE PRECISION	P R	CBN PKD CVD-D MKD/ND	250 mm / Ø 0.1 – 200 mm

EWAG machines	Use	Materials	Indexable inserts <sup>1)</sup> Inscribed / circumscribed circle
LASER LINE ULTRA	P R	HM C/K CBN PKD CVD-D MKD/ND	Ø 3 mm / Ø 50 mm
LASER LINE PRECISION	P R	CBN PKD CVD-D MKD/ND	Ø 3 mm / Ø 50 mm



## Measuring – Contactless measurement of tools, workpieces and grinding wheels

WALTER machines	Use	E1-Value	Tool dimensions <sup>1)</sup> max. length / diameter
HELICHECK ADVANCED	M	(1.8 + L/300) µm	420 mm / Ø 1 – 320 mm
HELICHECK PRO	M	(1.2 resp. 1.4 + L/300) µm	300 mm / Ø 1 – 200 mm
HELICHECK PRO LONG	M	(1.2 resp. 1.4 + L/300) µm	730 mm / Ø 1 – 200 mm
HELICHECK PLUS	M	(1.2 resp. 1.4 + L/300) µm	300 mm / Ø 0.1 – 200 mm
HELICHECK PLUS LONG	M	(1.2 resp. 1.4 + L/300) µm	730 mm / Ø 0.1 – 200 mm
HELICHECK 3D	M	(1.8 + L/300) µm	420 mm / Ø 3 – 80 mm

Use: **P** Production **R** Regrinding **M** Measuring

Materials: **HSS** High speed steel **TC** Tungsten carbide **C/K** Cermet/ceramics **CBN** Cubic boron nitride **PCD** Polycrystalline diamond **CVD-D** Chemical vapour deposition  
**MCD/ND** Monocrystalline diamond/natural diamond

<sup>1)</sup> Maximum tool dimensions are dependent on the tool type and geometry, as well as the type of machining.

<sup>2)</sup> From the theoretical taper diameter of the workpiece holder.









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