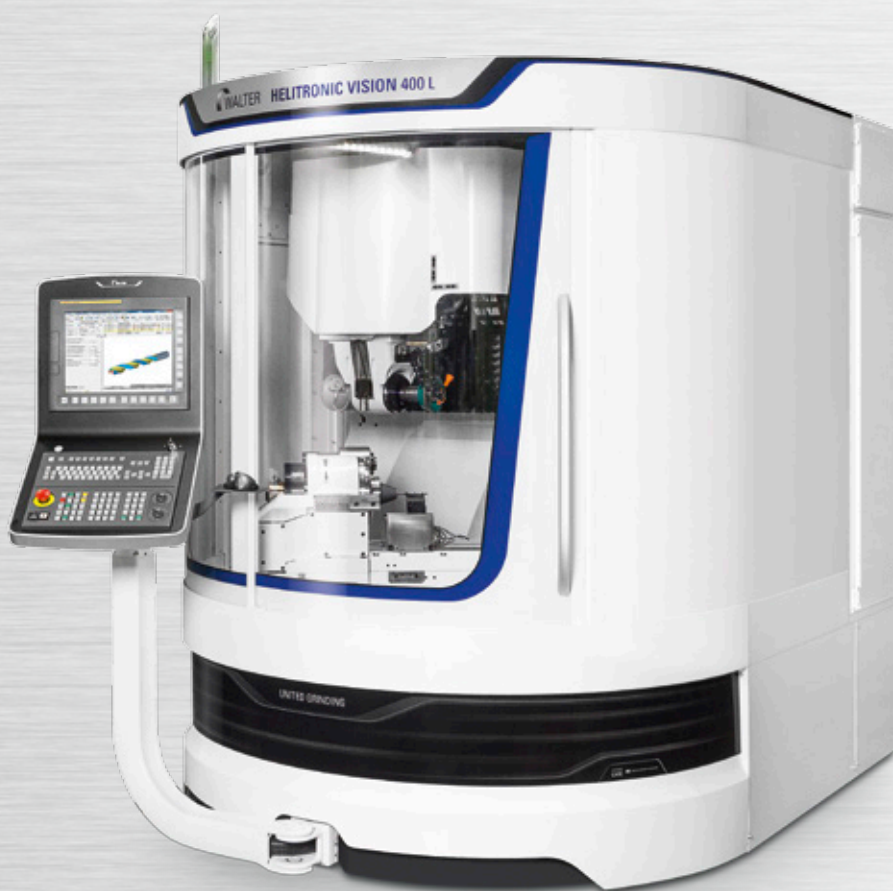


# HELITRONIC VISION 400 L

Ultimate precision and dynamic performance in volume production of tools with a length up to 420 mm



## Key parameters

The HELITRONIC VISION 400 L produces rotationally symmetrical tools and production parts with complex geometries in series with a high level of precision. Permissible diameters up to 315 mm, tool lengths up to 420 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. With the introduction to the market of the HELITRONIC series for the complete machining of rotationally symmetrical tools, WALTER became the leader of the world market. Today, our product range is supplemented by fully automated CNC measuring machines in the HELICHECK series for contact-less complete measurement of tools and production parts.

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

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

# HELITRONIC VISION 400 L

The HELITRONIC VISION 400 L is the next generation of the globally established HELITRONIC VISION. An even more rigid mineral cast machine bed with very good vibration dampening ensures that the highly dynamic drive acts optimally on the grinding wheel and its extremely low temperature sensitivity makes the grinding process particularly stable. The high-precision CNC tool grinding machine can grind lengths of up to 420 mm on the perimeter and provides optimum conditions for grinding rotationally symmetrical tools in production and/or resharpener facilities.



Grinding



Software

# The HELITRONIC VISION 400 L at a glance

## Application

- Grinding rotationally symmetrical tools for the metalworking and woodworking industries
- For production and/or regrinding
- Also for volume production in resharpening facilities
- Fully automated, complete machining in a single clamping
- Materials include HSS, carbide, cermet, ceramic

## The machine

- FEA-Optimised, low-vibration, solid mineral cast, gantry type construction (patented)
- Linear X, Y, Z axes with linear drives
- Rotating A, C axes with high torque motors
- Belt-driven spindle with two ends or belt-driven spindle with one end or motor spindle with one end
- Each spindle end can take up to three grinding wheels
- FANUC, the global standard for control equipment
- Flexible robot loading system
- Numerous efficiency options



HELITRONIC VISION 400 L – no compromises in terms of productivity or precision – with single-ended belt-driven spindle for use with wheel changer.

## Software

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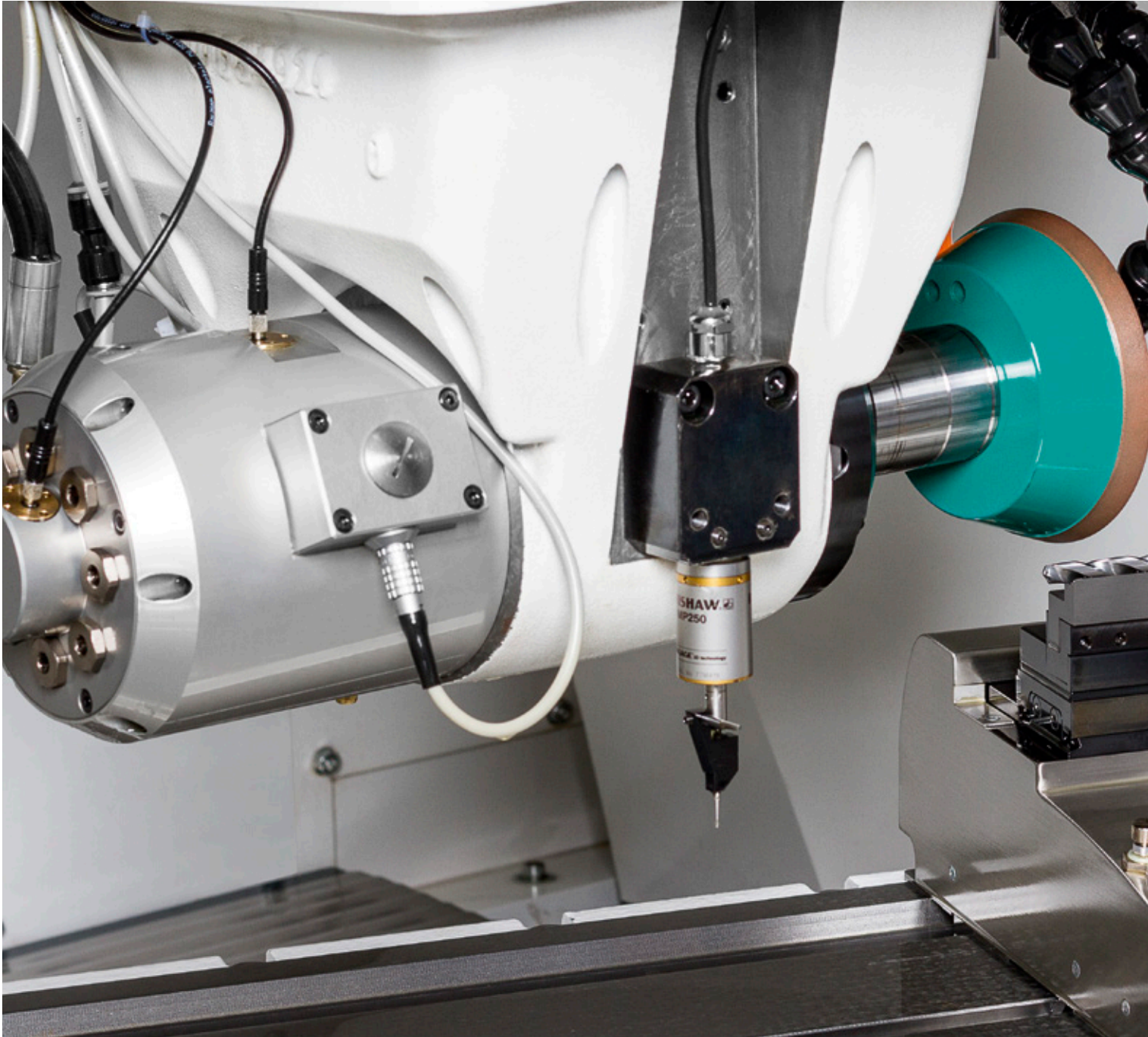
- HELITRONIC TOOL STUDIO, CAD/CAM software for design, programming, simulation and production
- Walter Window Mode WWM
- Numerous software options to extend the system's performance and to increase its efficiency



HELITRONIC VISION 400 L with "robot loader" (left) and "grinding wheel changer" (right) options – the ultimate configuration for high performance.

# 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, thread milling drill, drill





The HELITRONIC VISION 400 L provides the maximum performance during tool grinding for the production of precision tools for the metal- and woodwork industries. Decades of tried and tested WALTER expertise in hardware, software and application knowledge are combined in this machine. Its linear technology makes it an efficient and very productive companion and its robust gantry construction in mineral cast guarantees perfect, high-precision tool surfaces.

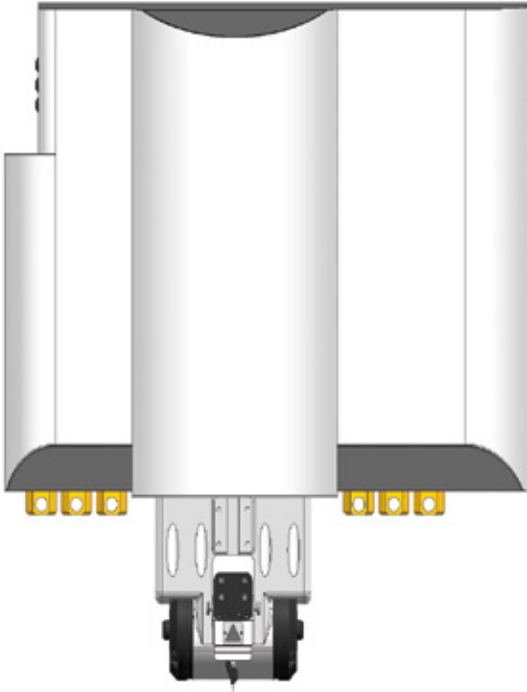
#### **Belt-driven spindle for automatic replacement of grinding wheel sets**

The affordable belt-driven spindle with one end has 24 kW peak power. Up to three grinding wheels can be mounted per grinding wheel holder. In combination with the grinding wheel changer, up to 24 grinding wheel holders (72 grinding wheels) can be used in the grinding process.



# Innovative WALTER grinding equipment

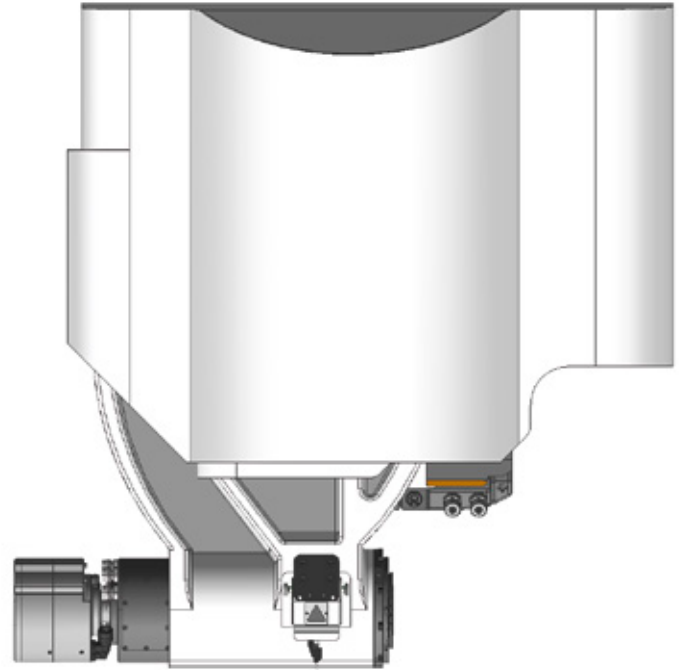
1



## **Belt-driven spindle with two ends**

The double-ended, belt-driven spindle is driven by a powerful motor. Each end of the spindle can take up to three grinding wheels. The grinding wheels sets are allocated to the spindle end and are saved, along with all data.

2



## **Motor spindle**

The powerful single-ended directly driven motor spindle is equipped with a liquid cooling system. Up to three grinding wheels can be mounted per grinding wheel holder. In combination with the grinding wheel changer, up to 24 grinding wheel holders (72 grinding wheels) can be allocated for use in the process. The result is the highest levels of efficiency and productivity.

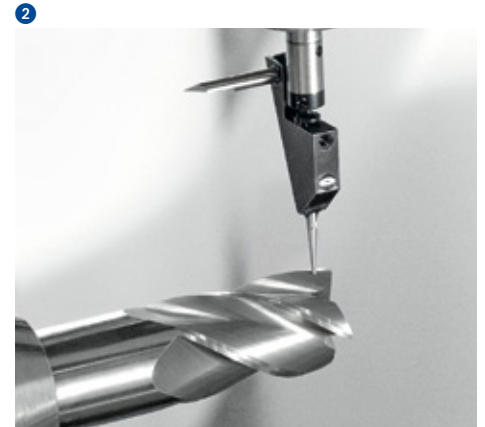




- Determination of the rake angle, the outer diameter and the core diameter for cylindrical tools
- Tactile measurement system to automatically position the tools
- Fully automatic thermal growth compensation of linear axes

### Integrated Measurement 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.



### Automatic positioning and measurement system "Heli-Probe"

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

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.

## Automation options



### 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 1,500 workpieces can be loaded with the standard model using the robot.

The upgrade options for the robot loader provide the user (depending on the type of workpiece or the workpiece diameter) with a capacity of up to 7,500 workpieces of 3 mm in diameter or the possibility of automatically loading/unloading tools with HSK holders.



- Flexible loading systems
- Up to 7,500 workpieces
- Up to 24 grinding wheel holders with grinding wheel changer

#### **Grinding wheel changer 4/8 x**

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

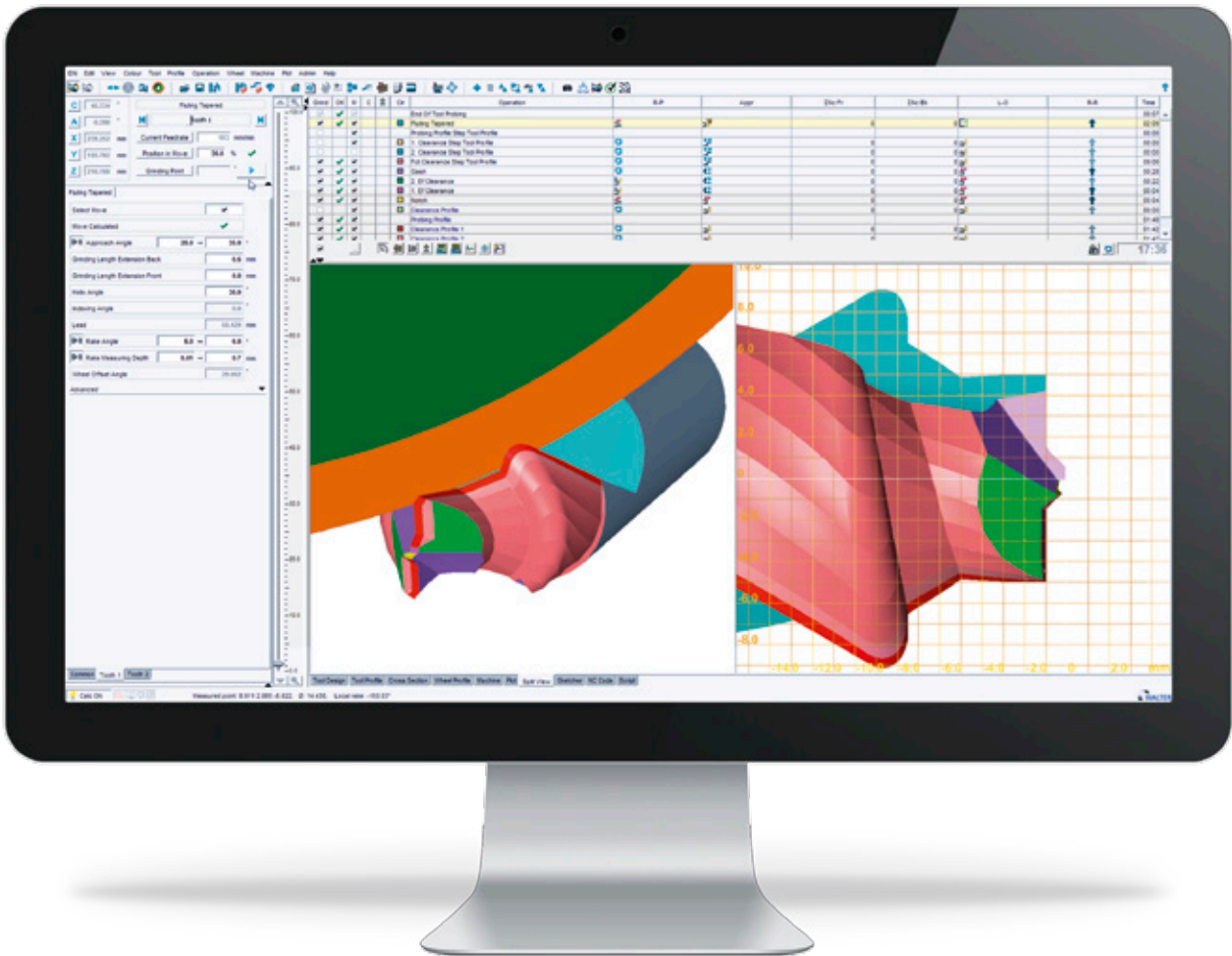
#### **Grinding wheel changer 12/24 x**

A real machine enhancement from WALTER. With a capacity of up to 72 grinding wheels it increases the grinding wheel capacity of the HELITRONIC VISION 400 L by a factor of twelve. The double gripper allows fast replacement times and the max. grinding wheel diameter is 254 mm. When used in combination with tool loading systems, the flexibility is increased significantly. This applies primarily to complex geometries and large volumes. The coolant manifold and the grinding set form a single unit. This ensures reliable, fast wheel set replacement and optimum cooling.

#### **Automated work table**

The automated work table option can be equipped with up to two upper slides: one automatic and one permanent. This way, long tools can be supported by a moveable steady rest and/or a tailstock. The surface quality and tool precision is increased thanks to the constant support at the contact point of the grinding wheel.

# Application software for tool machining



## HELITRONIC TOOL STUDIO adds operational convenience to 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 minimum complexity, machining steps

and movement sequences for both rotationally symmetrical standard tools and for special tools can be programmed by the operator. 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 only one single software
- Import and export of DXF drawings

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

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

## “Sketcher” enhancement

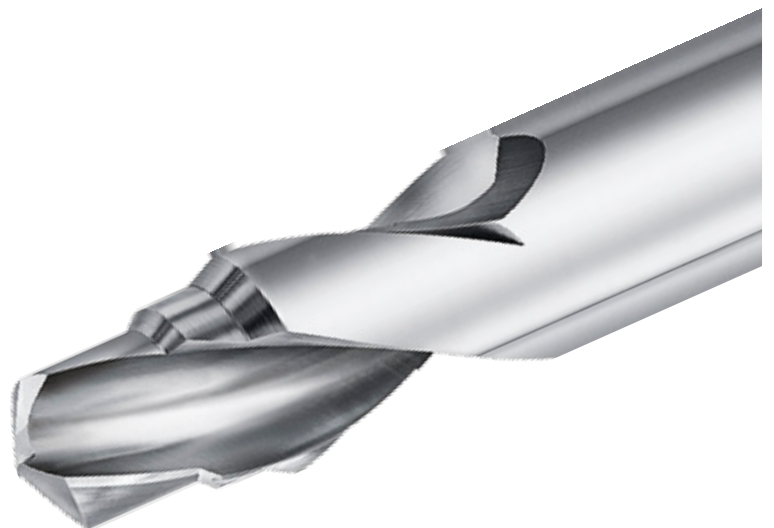
Do you sometimes wonder why you need to draw tools separately in a CAD program and then recreate the desired tool in another software package? Thanks to the “Sketcher” option, this is now a thing of the past. You can now create CAD drawings, program tool ident numbers and grind the desired tool in one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

## 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.



## 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

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, the No. 1 in 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 leadership 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



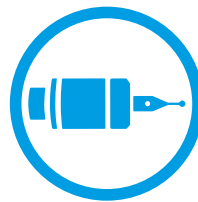
## Prevention

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

# Technical data, dimensions

## Mechanical axes

X axis	500 mm
Y axis	350 mm
Z axis	700 mm
Rapid traverse speed X, Y, Z	max. 50 m/min
C axis	± 200°
A axis	750 rpm
Linear resolution	0.0001 mm
Radial resolution	0.0001°

## Grinding spindle drive

Max. grinding wheel diameter	254 mm
Grinding spindle speed	0 – 10,500 rpm

### HELITRONIC VISION 400 L with belt-driven spindle and two ends

Tool adaption	HSK 50
Peak power	30 kW
Spindle Diameter	100 mm

### HELITRONIC VISION 400 L with single-ended belt-driven spindle for use with wheel changer

Tool adaption	HSK 50
Peak power	24 kW
Spindle Diameter	100 mm

### HELITRONIC VISION 400 L with motor spindle for use with grinding wheel changer

Tool adaption	HSK 50
Peak power	30 kW

## Others

Weight of machine including coolant system	approx. 7,100 kg
Power consumption at 400 V/50 Hz	approx. 35 kVA

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

Min. tool diameter	3 mm
Max. tool diameter	315 mm
Max. tool diameter (without work table)	360 mm
Max. workpiece length, peripheral grinding <sup>2)</sup>	420 mm
Max. workpiece length, end face grinding <sup>2)</sup>	390 mm
Max. workpiece weight	50 kg

## Options

### Coolant system

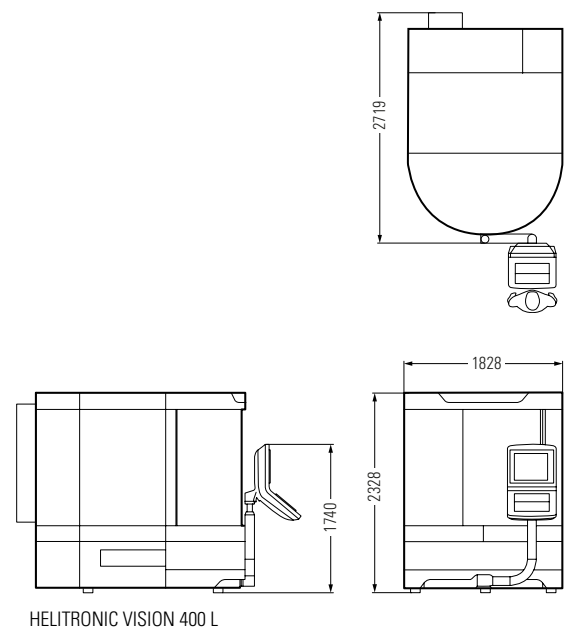
On request – several types are possible

### Loading systems

Robot loader

### Others

Grinding wheel changer, frequency-controlled pump 80 – 120 l/min at 7 – 20 bar, high frequency spindle, Heli Contour Check HCC, automated work table, software 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> From the theoretical taper diameter of the workpiece holder.

Measurements in mm. Subject to modifications due to technical progress and errors. We accept no responsibility for the correctness of any information given.



# Creating Tool Performance

WALTER and EWAG are globally leading 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 TC C/C CBN	255 mm / Ø1 – 100 mm
HELITRONIC MINI POWER	P R	HSS TC C/C CBN	255 mm / Ø1 – 100 mm
HELITRONIC MINI AUTOMATION	P R	HSS TC C/C CBN	255 mm / Ø1 – 100 mm
HELITRONIC BASIC	P R	HSS TC C/C CBN	350 mm / Ø3 – 320 mm
HELITRONIC POWER	P R	HSS TC C/C CBN	350 mm / Ø3 – 320 mm
HELITRONIC VISION 700 L	P R	HSS TC C/C CBN	700 mm / Ø3 – 200 mm
HELITRONIC VISION 400 L	P R	HSS TC C/C CBN	420 mm / Ø3 – 315 mm
HELITRONIC VISION 400	P R	HSS TC C/C CBN	370 mm / Ø3 – 315 mm
HELITRONIC MICRO	P R	HSS TC C/C CBN HSS TC C/C CBN	120 mm / Ø0.1 – 12.7 mm 120 mm / Ø3 – 12.7 mm

EWAG machines	Use	Materials	Tool dimensions <sup>1)</sup> max. length / diameter
EWAMATIC LINEAR	P R	HSS TC C/C CBN PCD	200 mm / Ø0.2 – 200 mm
WS11/WS11-SP	P R M	HSS TC	- / up to Ø25 mm
RS15	P R M	HSS TC C/C CBN PCD	- / up to Ø25 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 TC C/C CBN PCD	185/255 mm / Ø1 – 165 mm
HELITRONIC POWER DIAMOND	P R	HSS TC C/C CBN PCD	350 mm / Ø3 – 320(400) mm
HELITRONIC DIAMOND	P R	HSS TC C/C CBN PCD	370 mm / Ø3 – 320(400) 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
EWAMATIC LINEAR	P R	HSS TC C/C CBN PCD	Ø3 mm / Ø50 mm
COMPACT LINE	P R	HSS TC C/C CBN PCD	Ø3 mm / Ø50 mm
INSERT LINE	P R	HSS TC C/C CBN	Ø3 mm / Ø75 mm
RS15	P R M	HSS TC C/C CBN PCD	- / up to Ø25 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	TC C/C CBN PCD CVD-D MCD/ND	250 mm / Ø0.1 – 200 mm
LASER LINE PRECISION	P R	CBN PCD CVD-D	250 mm / Ø0.1 – 200 mm

EWAG machines	Use	Materials	Indexable inserts <sup>1)</sup> Inscribed / circumscribed circle
LASER LINE ULTRA	P R	TC C/C CBN PCD CVD-D MCD/ND	Ø3 mm / Ø50 mm
LASER LINE PRECISION	P R	CBN PCD CVD-D	Ø3 mm / Ø50 mm



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

WALTER machines	Use	Tool dimensions <sup>1)</sup> max. length <sup>2)</sup> / diameter
HELICHECK PRECISION	M	420 mm / Ø1 – 320 mm
HELICHECK ADVANCED	M	420 mm / Ø1 – 320 mm
HELICHECK PRO	M	300 mm / Ø1 – 200 mm
HELICHECK PRO LONG	M	730 mm / Ø1 – 200 mm
HELICHECK PLUS	M	300 mm / Ø0.1 – 200 mm
HELICHECK PLUS LONG	M	730 mm / Ø0.1 – 200 mm
HELICHECK 3D	M	420 mm / Ø3 – 80 mm
HELISSET UNO	M	400 mm / Ø1 – 350 mm
HELISCALE	M	300 mm / Ø1 – 50 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

<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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