

HELITRONIC VISION

Maximum precision and dynamic performance
for volume production.



Key parameters

The HELITRONIC VISION system produces rotationally symmetrical tools and production parts with very complex geometries in series with a high level of precision. Diameters range from 3 to 320 mm, tool lengths can be up to 370 mm, each item may weigh up to 50 kg.



Grinding



Eroding



Laser



Measuring



Software



Customer Care

Walter Maschinenbau GmbH

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

Its solid mineral cast machine bed is well damped to suppress vibrations and ensures that the very dynamic drive acts directly on the grinding wheel and its low temperature sensitivity makes the grinding process particularly stable. These are the best conditions to produce series and even large series of rotationally symmetrical tools in production and/or resharpening facilities. The HELITRONIC VISION range represents a high performance product family for grinding tools.



Grinding



Software

The HELITRONIC VISION system at a glance

Application

- Grinding rotationally symmetrical tools for metalworking and woodworking industries
- For production and/or regrinding
- Also for volume production in resharpener facilities
- Fully automated, complete machining with only a single clamping cycle
- Machinable materials include HSS, carbide, cermet, ceramic

The machine

- 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 motor spindle with one end
- Each spindle end can take up to three grinding wheels
- FANUC, the global standard for control equipment
- A variety of automatic loading systems
- Numerous efficiency options



HELITRONIC VISION – with a belt-driven spindle and two ends, no compromises are made in productivity or precision.

Software

- 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 with the robot loader (left) and grinding wheel changer (right) options and a servo axis table – the top configuration for high performance.

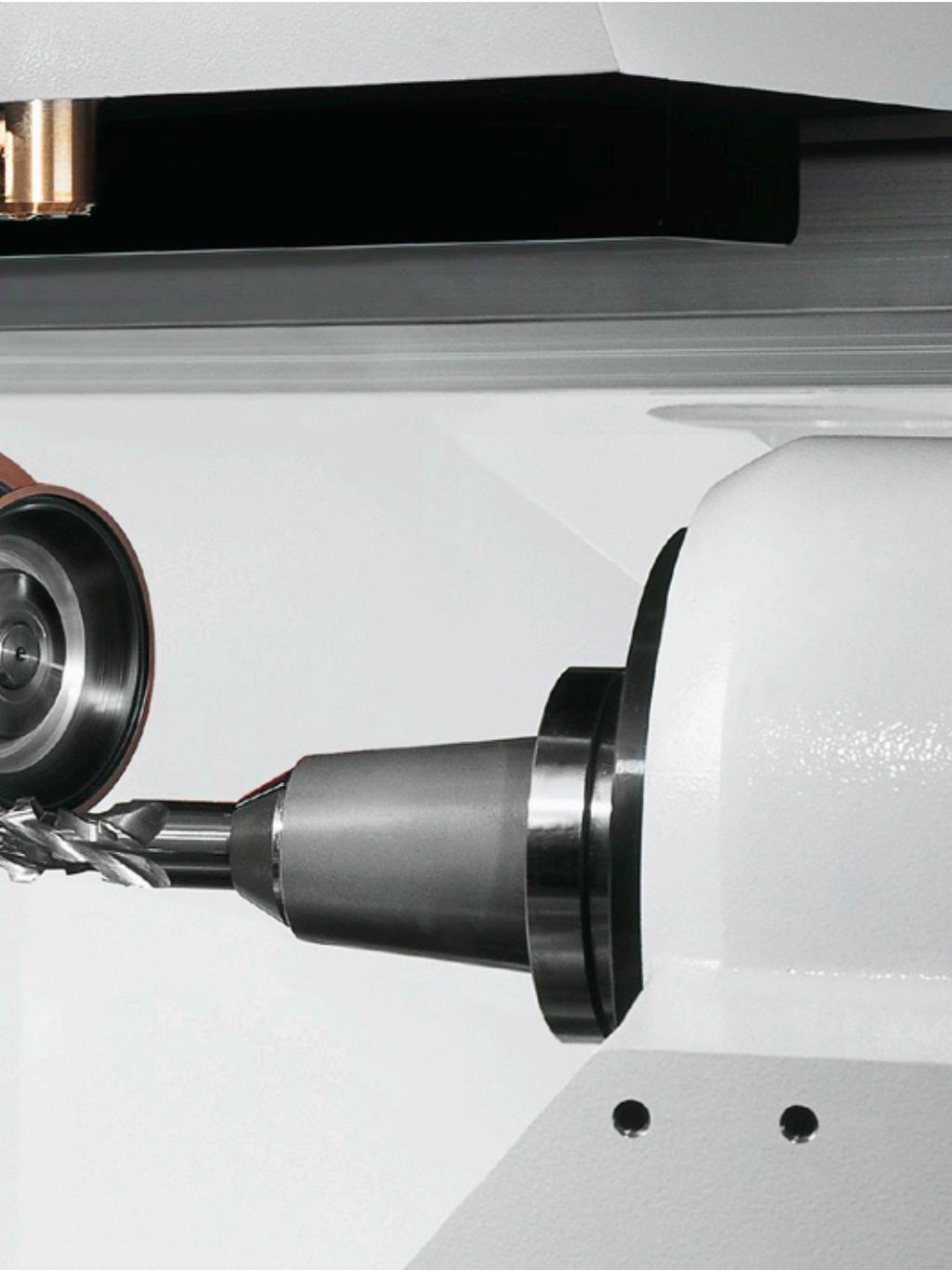
Efficient and easy to use

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**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





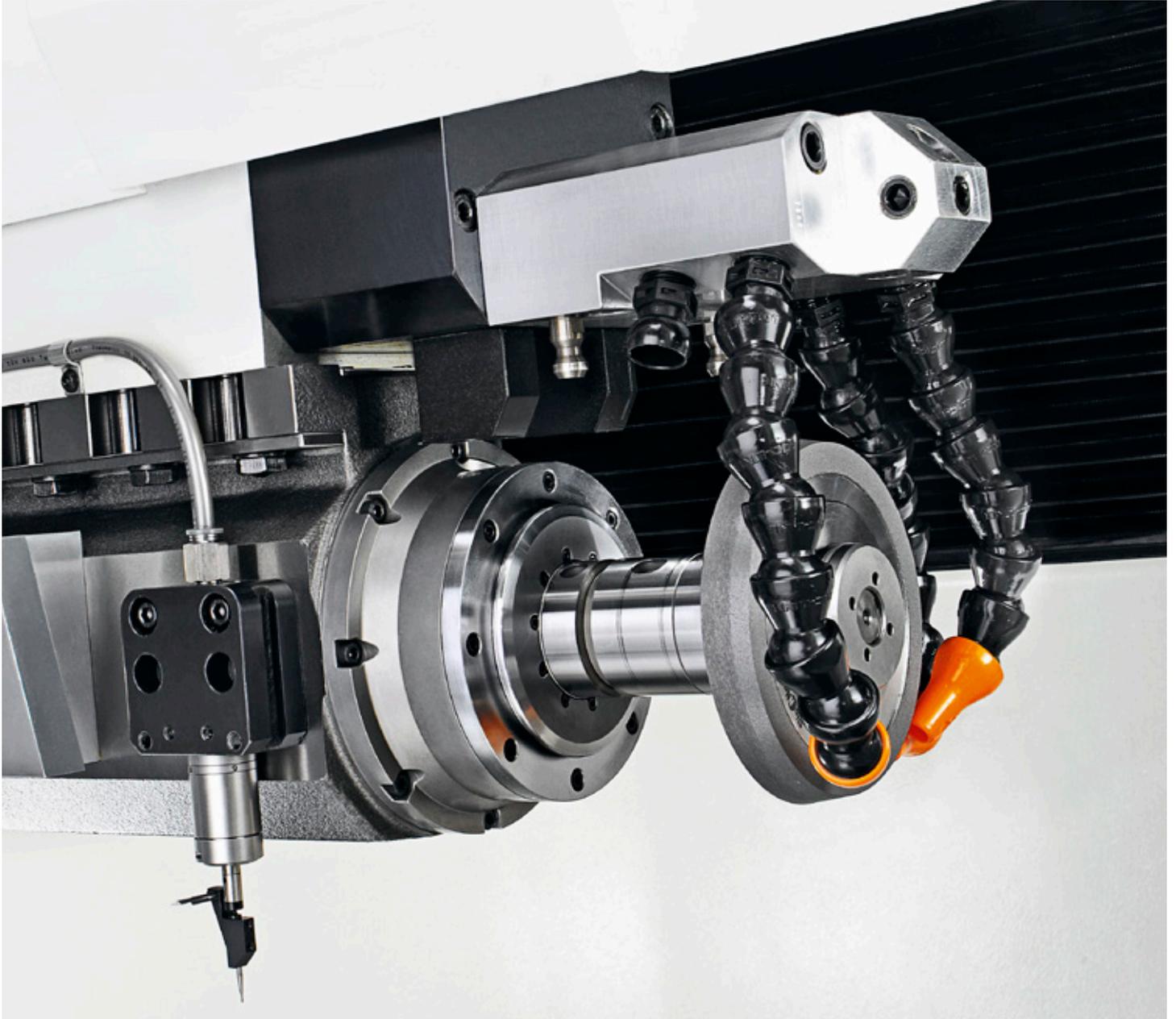
When producing precision tools for metal or wood, the HELITRONIC VISION is the worldwide benchmark. Decades of tried and tested WALTER expertise in hardware, software and application knowledge come together in this machine. Its linear technology makes it an efficient and very productive companion and its robust gantry construction in mineral cast concrete guarantees perfect, high precision tool surfaces.

Users love the easy and safe operation of the HELITRONIC VISION. The range of applications for the HELITRONIC VISION encompasses the entire spectrum of rotationally symmetrical tools to machine metal or wood, including special tools. Even more complex geometries can be machined in a single clamping.



Innovative WALTER grinding technology

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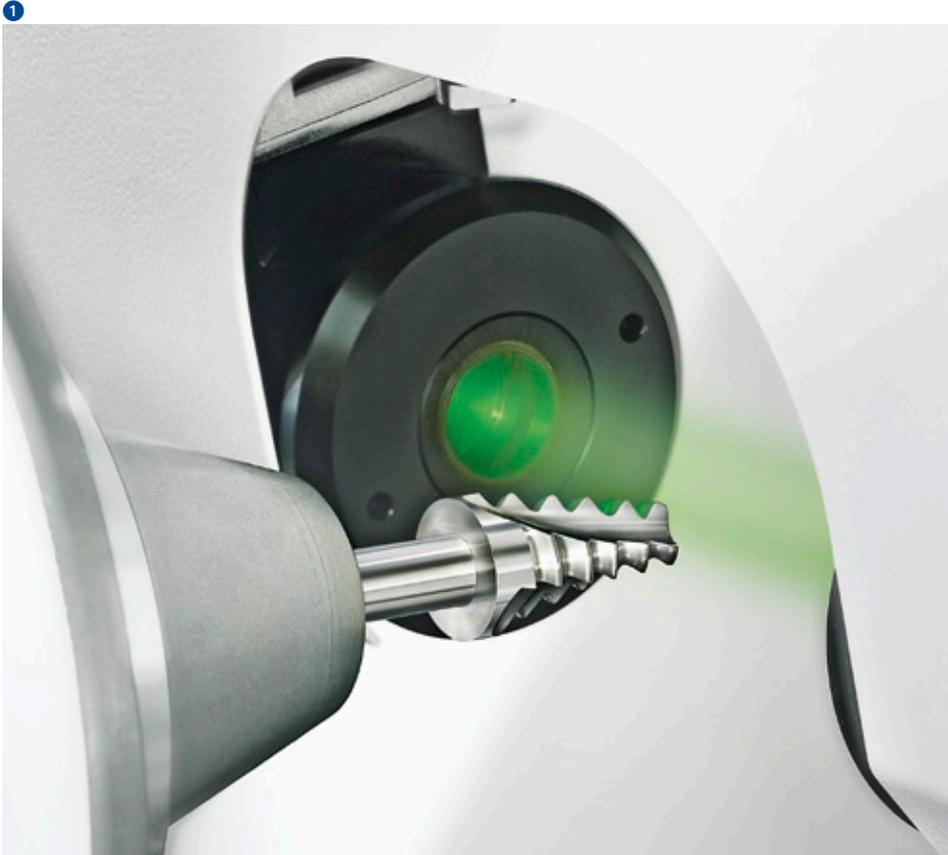


Motor spindle

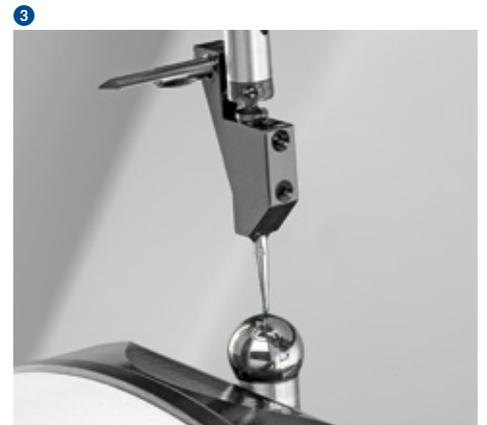
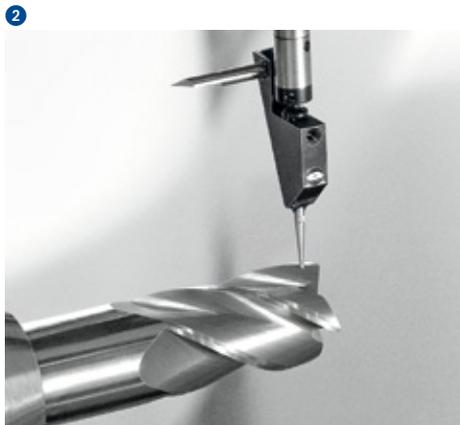
The single-ended directly driven motor spindle with a high drive power, is equipped with a liquid cooling system. Up to three grinding wheels can be mounted per grinding wheel holder. In combination with the grinding wheel changer, up to eight grinding wheel holders (24 grinding wheels) can be used in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

Belt-driven spindle

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



- Fully automatic measurement of contours in the machine
- Tactile measurement system to position the tools fully automatically
- Fully automatic thermal profile compensation for the linear axes



“Heli Contour Check HCC” option

Camera measurement system integrated into the machine to measure the tool contour immediately after grinding, without tool change. High speed camera, high precision telecentric lens, high power LED illumination. The camera and the lighting unit are safely protected by an oil-tight housing. The optics are automatically cleaned via integrated air nozzles. This way the measured contour errors can be directly adjusted.

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. Any calibration time 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 3,500 workpieces can be loaded using the robot.

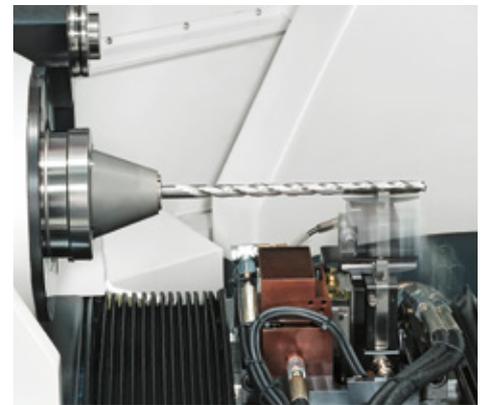


Pallet loader/HSK loader

Up to 280 tools. With the pallet loader, short tool change times are a given. All loader movements are controlled and monitored by the machine's control unit. A large diameter range is covered without changing the gripper with a one-range gripper. Preferred application is for production and regrinding series. Also available as an HSK loader.

Chain loader 300plus

The chain loader with an HSK interface is designed for 70 tools up to a diameter of 63 mm, or 35 tools up to a diameter of 160 mm, or 21 tools up to a diameter of 320 mm. This is a globally unique system for the production and resharpening of rotationally symmetrical tools.



- A flexible loading system for all requirements
- Up to 3,500 tools
- Multiply grinding wheel capacity by 6 times with a grinding wheel changer

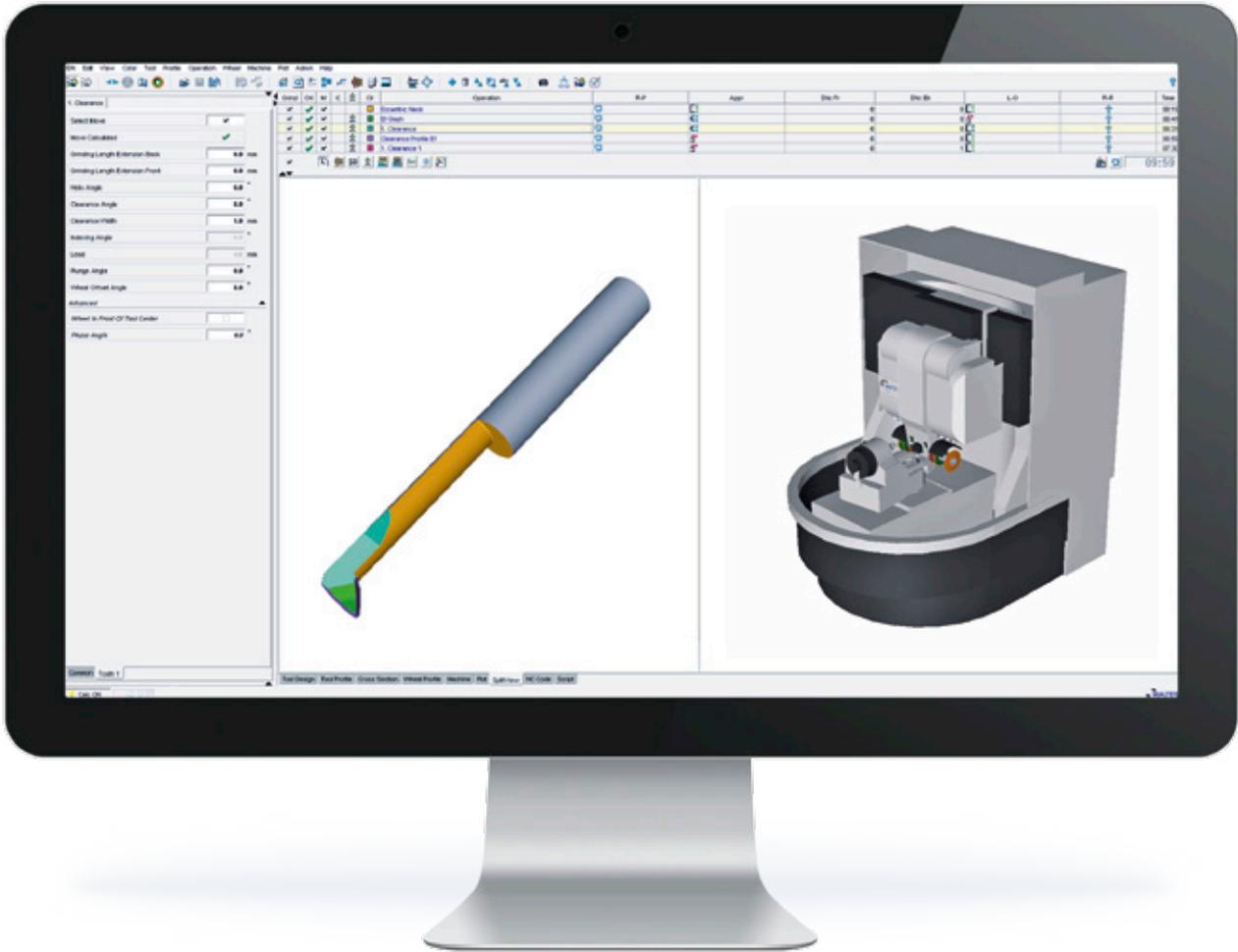
Grinding wheel changer

A real machine enhancement from WALTER. With a capacity of up to 36 grinding wheels it multiplies the HELITRONIC VISION's grinding wheel capacity by six times. In combination with loading systems, the flexibility of the CNC machine increases enormously. This applies primarily to complex geometries and large volumes. The coolant supply and the grinding set form a single unit. This means quick wheel set changes and that an optimum cooling is always maintained.

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

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

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.

- Permanent set-actual comparison for the torque

Adaptive Control

By permanently comparing the machine loading, grinding can be made more efficient and simultaneously safer. If the load increases, the feed will be decelerated accordingly. If the load decreases, the speed is increased accordingly. With AC grinding, alternating loads on the grinding wheels will be prevented by a continual load. Any possible overloading of the grinding wheels is excluded.

- Analysis of the centre of gravity
- Balancing the tool

Tool Balancer

The Tool Balancer is an easy way to analyse, and balance out if necessary, centre-cutting tools with an odd number of flutes (unevenly divided tools) or special tools. The efficiency-increasing method has two core functions: One is to analyse the centre of mass and the other is to automatically balance the tool using different techniques. The approach is simple and can be mastered with just a few mouse clicks. Analysis during the development phase means that the process of prototype production can be significantly shortened. Balanced tools have a longer tool life, can machine at higher speeds, produce higher-quality surfaces and result in less wear-and-tear. Asymmetrical tools are well-suited to machining processes with high rotation speeds up to a point where significant imbalance forces occur.

- Determination of the rake angle, the outer diameter and the core diameter for cylindrical tools

Integrated Measuring System IMS

With the integrated measuring system IMS, 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.



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



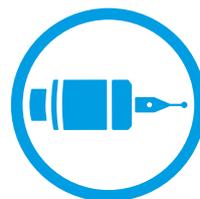
Prevention

Maintenance
Inspection



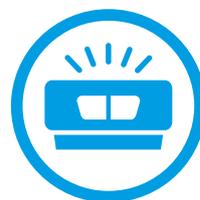
Service

Customer service
Customer advice
Helpline
Remote service



Material

Spare parts
Replacement parts
Accessories



Rebuilt

Machine overhauling
Refurbishing of assemblies



Retrofit

Conversions
Retrofitting parts
Taking machines back

Technical data, dimensions

Mechanical axes

X axis	480 mm
Y axis	320 mm
Z axis	700 mm
Rapid travers 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	200 mm
Grinding spindle speed	0 – 10,500 rpm

HELITRONIC VISION with belt-driven spindle

Spindle ends	2
Tool holder	HSK 50
Peak power	30 kW
Spindle Diameter	100 mm

HELITRONIC VISION with motor spindle

Spindle ends	1
Tool holder	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 ¹⁾

Min. tool diameter	3 mm
Max. tool diameter	320 mm
Max. workpiece length, peripheral grinding ²⁾	370 mm
Max. workpiece length, end face grinding ²⁾	300 mm
Max. workpiece weight	50 kg

Options

Coolant system

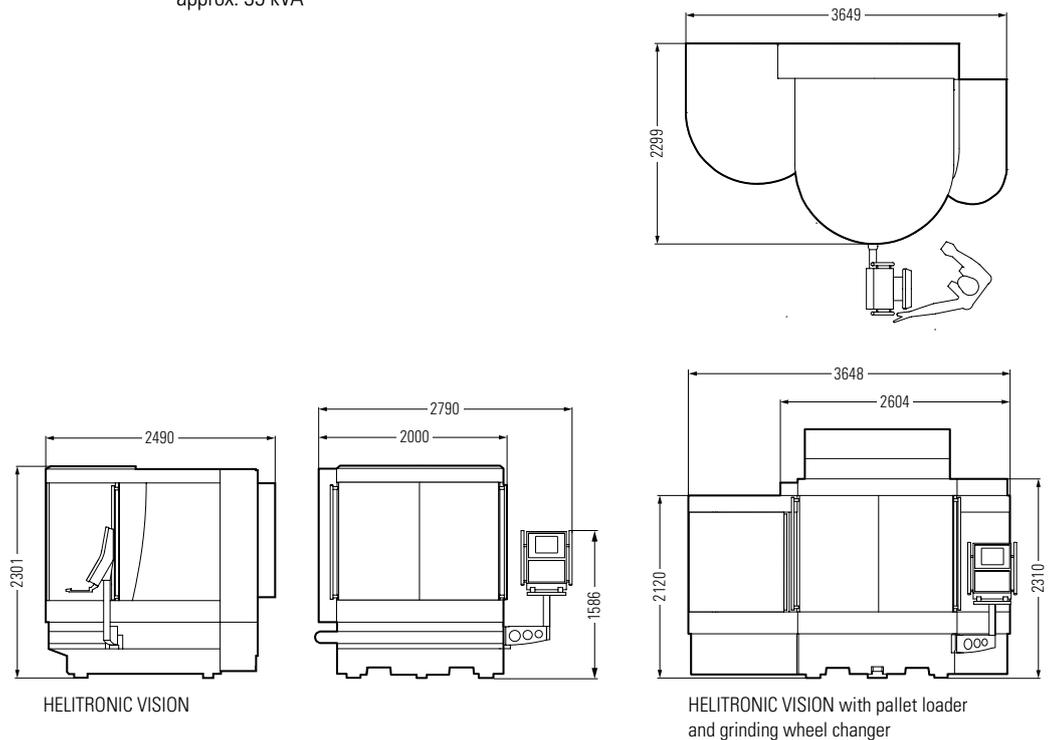
On request – several types are possible

Loading systems

Pallet loader/HSK loader, Robot loader, Chain loader 300plus

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.



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

²⁾ 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 rotation 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 / 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	P R	HSS TC C/C CBN	370 mm / Ø3 – 320 mm
HELITRONIC VISION 700 L	P R	HSS TC C/C CBN	700 mm / Ø3 – 200 mm
HELITRONIC VISION 400	P R	HSS TC C/C CBN	370 mm / Ø3 – 315 mm
HELITRONIC MICRO	P	HSS TC C/C CBN	120 mm / Ø0,1 – 12,7 mm
	R	HSS TC C/C CBN	120 mm / Ø3 – 12,7 mm

EWAG machines	Use	Materials	Tool dimensions ¹⁾ 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	- / bis Ø25 mm
RS15	P R M	HSS TC C/C CBN PCD	- / bis Ø25 mm

Eroding – Electrical discharge machining and grinding of rotation symmetrical tools

WALTER machines	Use	Materials	Tool dimensions ¹⁾ max. length ²⁾ / diameter
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

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

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	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	- / bis Ø25 mm

Laser – Laser machining of indexable inserts and/or rotation symmetrical tools

EWAG machines	Use	Materials	Tool dimensions ¹⁾ max. length / diameter
LASER LINE ULTRA	P	TC C/C CBN PCD CVD-D MCD/ND	200 mm / Ø0,1 – 150 mm

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

Measuring – contactless measurement of tools, workpieces and grinding wheels

WALTER machines	Use	Tool dimensions ¹⁾ max. length ²⁾ / diameter
HELICHECK PRECISION	M	420 mm / Ø1 – 220 mm
HELICHECK ADVANCED	M	420 mm / Ø1 – 100 mm
HELICHECK PRO	M	300 mm / Ø1 – 150 mm
HELICHECK PRO LONG	M	730 mm / Ø1 – 150 mm
HELICHECK PLUS	M	300 mm / Ø0,1 – 25,4 mm
HELICHECK PLUS LONG	M	730 mm / Ø0,1 – 110 mm
HELICHECK 3D	M	
HELISET UNO	M	400 mm / Ø1 – 150 mm
HELISCALE	M	300 mm / Ø2 – 25 mm

Customer Care – Comprehensive range of services

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.



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