

# PROFILE LINE

Production of interchangeable and highly complex cutting insert geometries

**NEW**



## Key parameters

The PROFILE LINE, with its innovative technology, focuses on applications for interchangeable cutting inserts. Sintered indexable insert blanks from 3 mm inscribed circle to 50 mm circumcircle diameters, and rotationally symmetrical tools from 1 to 100 mm, are machined efficiently.



Grinding



Eroding



Laser



Measuring



Software



Customer Care

## Ewag AG

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The origins of Ewag AG date back to 1946 when the company manufactured precision tool grinding machines for the Swiss watch industry. Today the EWAG product range includes manual machines for grinding and regrinding tools as well as the production of small precision parts, CNC tool grinding machines for grinding as well as laser machines for indexable cutting inserts and rotationally symmetrical tools made from carbide.

Ewag AG is part of the UNITED GRINDING Group. Together with our sister company, Walter Maschinenbau GmbH, 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.

# PROFILE LINE

The PROFILE LINE is the grinding center for efficient production of highly complex interchangeable cutting insert geometries, ideally made of pre-sintered tungsten carbide blanks. The machine's high efficiency, coupled with its autonomous multi-shift operation, is ensured by the smart integrated flexible FANUC 6-axis robot. The compact design of the grinding center supports optimal utilization of frequently limited production areas.



Grinding



Grinding



Software

# The PROFILE LINE at a glance

## Application

- For interchangeable cutting inserts
- Rotationally symmetrical drilling and milling inserts
- For profile indexable insert geometries
- Complete machining in a single setup
- Autonomous 24/7 multi-shift operation
- HSS, tungsten carbide, cermet, ceramic materials

## The machine

- Low vibration, solid gray cast iron gantry design
- X, Y, Z linear axes with ball screw drives
- Glass scales on all linear axes
- A, C rotary axes
- Automatic HSK 50 grinding spindle
- 6-wheel grinding wheels changer
- Automation cell with 6-axis robot
- FANUC, global control technology standard

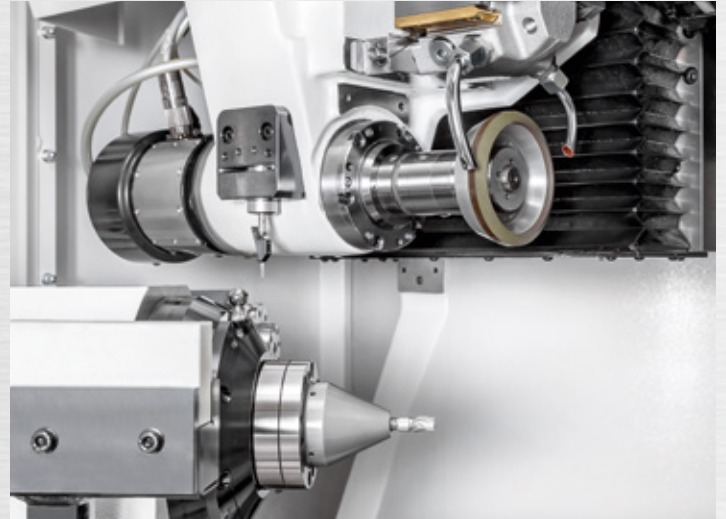


PROFILE LINE – high precision and flexible 5-axis grinding center for efficient machining of interchangeable cutting inserts.

## Software

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- EWAG ProGrind software
- WALTER HELITRONIC TOOL STUDIO
- CAD/CAM software for design, programming, and production
- Vision System part detection software
- Software options to extend performance and increase efficiency



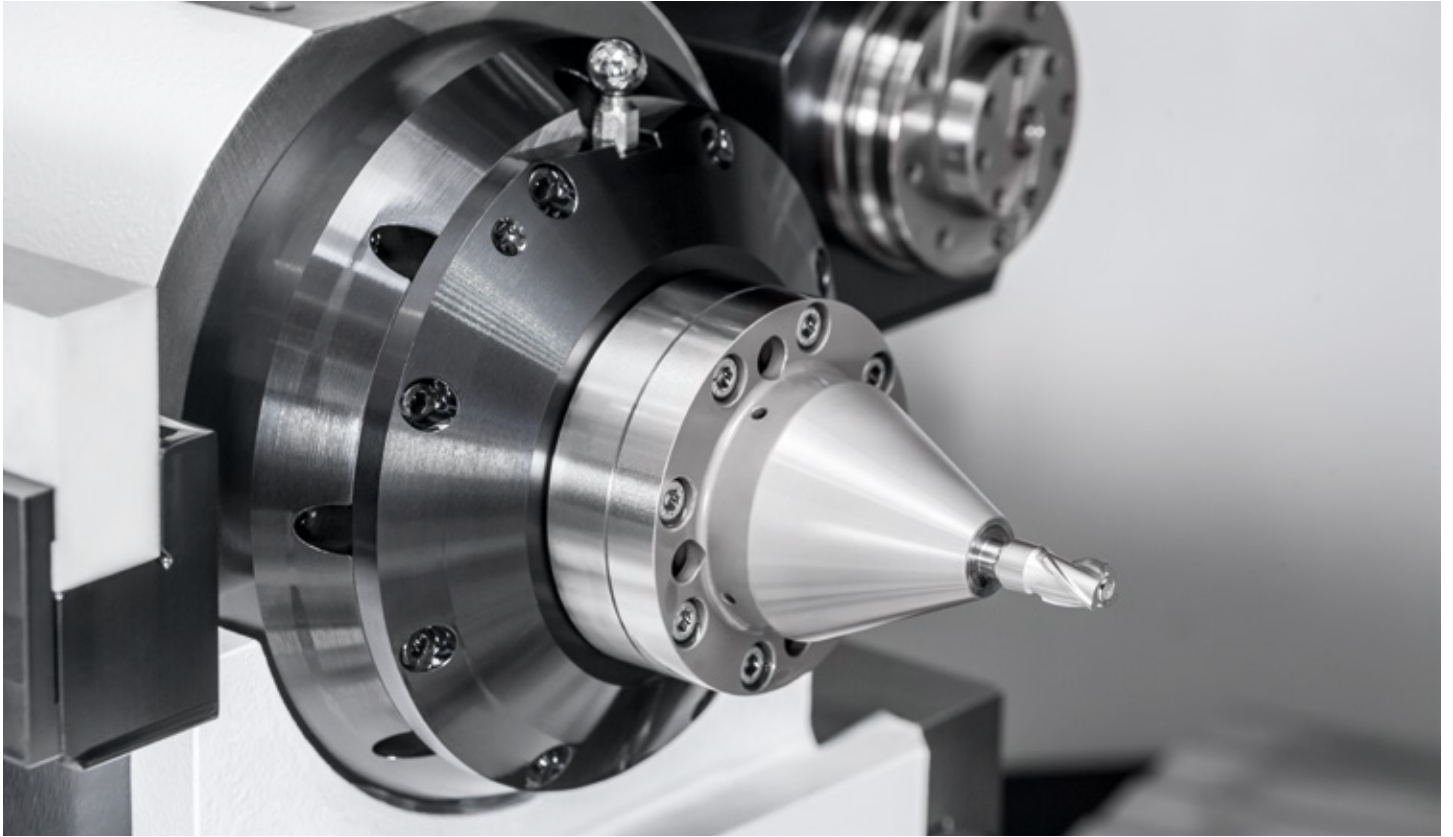
### **Variable grinding spindle**

The grinding spindle can optionally be configured as a belt spindle with two spindle ends, with up to 3 grinding wheels per spindle; or as an automatic grinding spindle with HSK 50 interface, in conjunction with the wheel changer. The smart integrated 6-wheel grinding wheels changer exchanges the grinding wheels with an optimally configured coolant supply in the machine. The resulting gain in efficient cooling allows for optimal cutting rates of the sintered blanks.

### **Gantry design**

The proven gantry design, with its extreme rigidity and good damping properties, turns the high dynamics of the digital drives into grinding precision with low vibration.

# Flexibility and productivity according to customer requirements



## EWAG Tooling Competence

With EWAG Tooling Competence, a multitude of specific clamping solutions can be optimally aligned with customer requirements in each case. The new and successful smart chuck series from EWAG allows the highest levels of accessibility, with the largest possible grinding wheels, to be implemented. Even the smallest diameters, down to 1 mm, can be handled without clamping sleeves. The concentricity error is therefore not further reduced through the use of reduction sleeves. Even clamping equipment with feeder threads can be seamlessly integrated with the PROFILE LINE.

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**“Integrated Measuring System IMS” option –  
automatic compensation during production**

Using this option and the integral machine measuring probe, the five most important quality parameters for cylindrical tools in series production are measured automatically, and deviations compensated. All measurement results are shown in a measurement log on the screen.

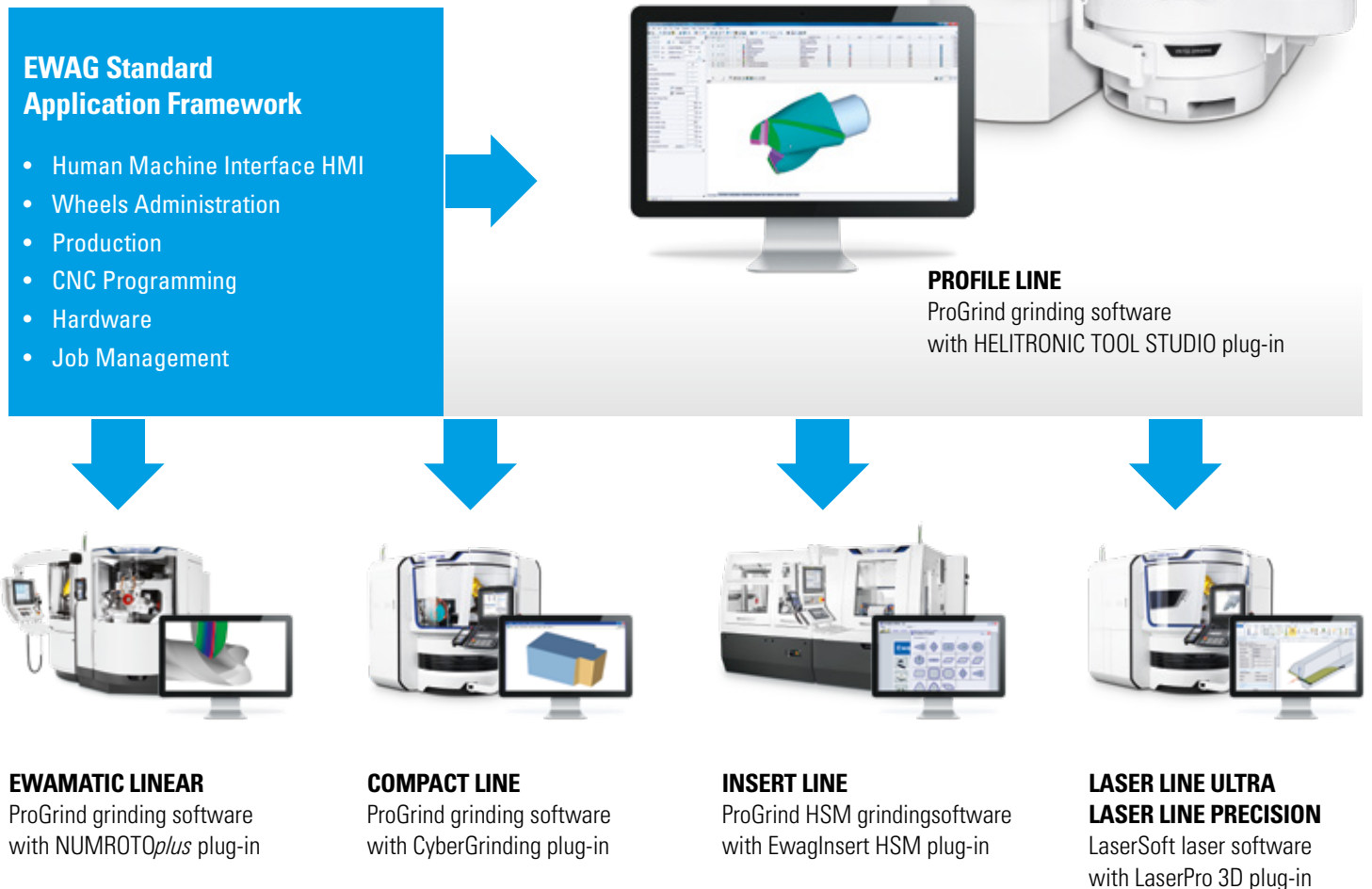
# EWAG ProGrind grinding software with HELITRONIC TOOL STUDIO plug-in

## The EWAG ProGrind software with HELITRONIC TOOL STUDIO plug-in takes operating convenience to the next level

Innovation calls for innovative software. ProGrind, as customer-oriented in-house developed EWAG software, fully meets all of your very high expectations. On all EWAG CNC machines, programs can be generated quickly and easily, thanks to ProGrind. The input masks are supported using 3D graphics. Ethernet allows integration of the machines in your company network. At the same time, our specialists have access for diagnostics and maintenance.

EWAG ProGrind with HELITRONIC TOOL STUDIO: This is ease of programming with the greatest degree of flexibility. With little effort, the user can program machining stages and movement sequences for both rotationally symmetrical interchangeable standard tools and special tools. The tool shown on the screen exactly matches the tool to be produced. This means that, even in the design phase, the realistic 3D simulation allows you to check the result and correct it if needed.

Wizards support the operator in quickly locating tool type, related parameters, and tool. EWAG offers program packages for common tool families, which facilitate handling significantly.



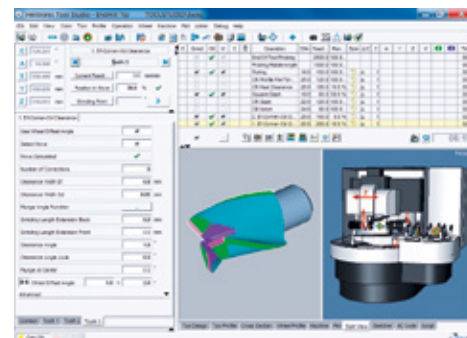
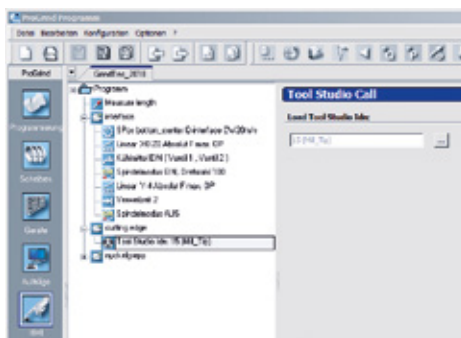
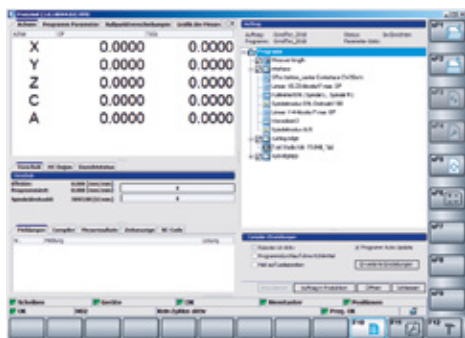


# Software highlights

- EWAG Standard Framework
- Optimal operating convenience
- Real-time data display

- Flexible programming
- Fully integrated dressing/  
measuring cycles
- Flexible robot teach software

- Wizard technology
- 3D simulation
- Efficiency options



## EWAG Human Machine Interface HMI

The HMI contains all relevant data views. It supports the operator during setup of production jobs, while providing production-related information in real time.

## EWAG ProGrind

The flexible ProGrind software is optimally designed for the broad application spectrum of interchangeable cutting insert geometries. Dressing and measuring cycles are fully integrated in the grinding process as standard functions, which can be simply switched on.

## WALTER HELITRONIC TOOL STUDIO

For highly complex rotationally symmetrical cutting insert geometries, the HELITRONIC TOOL STUDIO can also be called up on the PROFILE LINE. This software synergy takes flexible production of tools to a new level.

- Time saving of up to 30 %
- Optimal feedrate
- Optimization of existing IDNs

- Mass center of gravity analysis
- Tool balancing

- Continuous target-to-actual torque comparison

## Feedrate Optimizer

This extension offers ideal opportunities for feedrate control and control of wheel and machine loads. Depending on the tool type, the time saving is up to 30 %. This feedrate optimization uses the wheel and simulation model to calculate actual wheel and machine loads and to adjust the optimal feedrate at any point. Movements with low wheel load are accelerated, and movements that exceed the permitted wheel load are slowed down.

## Tool Balancer

The Tool Balancer is a simple method for analyzing and, where necessary, balancing center-cutting tools with an odd number of chip spaces, tools with irregular pitch, or special tools. The efficiency-enhancing method has two core functions: on the one hand, it analyzes the mass center of gravity and, on the other, it automatically balances the tool using various strategies. Balanced tools have a longer life, higher speeds, produce better quality surfaces, and reduce wear.

## Adaptive Control

The continuous target-to-actual torque comparison ensures more efficient, yet at the same time safer, production. If the torque increases, the feedrate is reduced accordingly. If the torque decreases, the feedrate increases accordingly. With AC grinding, alternating grinding wheel loads are suppressed by continuous loading. Any potential grinding wheel overload is prevented.

# 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, EWAG accesses the world standard of control technology. For the user, this means a high degree of reliability, availability, and operating convenience.

EWAG, well known for tool machining, and FANUC, established in the CNC controller field, together make a formidable 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



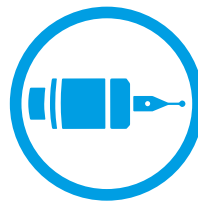
## Prevention

Maintenance  
Inspection



## Service

Customer service  
Customer advice  
Helpline  
Remote service



## 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	330 mm
Y axis	200 mm
Z axis	470 mm
X, Y, Z rapid traverse	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	150 mm
Grinding spindle speed	0 – 10,500 rpm

### PROFILE LINE

Spindle ends	1/2
Tool mounting	HSK 50/NCT
Peak performance	9 kW
Spindle diameter	70 mm

## Others

Machine weight inclusive of coolant system	approx. 3,600 kg
Connected load at 400 V/50 Hz	approx. 25 kVA

### Coolant unit

Capacity	approx. 350 l
Pump	120 l/min at 6 bar

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

Min. tool diameter	1 mm
Max. tool diameter	100 mm
Min. indexable insert inscribed circle 2)	3 mm
Max. indexable insert circumcircle 2)	50 mm
Max. workpiece weight	1 kg

## Options

### Coolant unit

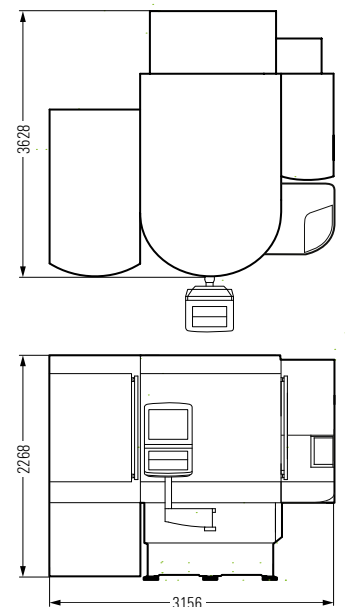
On request – more designs available

### Loading systems

FANUC 6-axis robot

### Miscellaneous

Wheel changer, Vision System, magnetic gripper, cleaning stations, software, etc.



PROFILE LINE with automation cell

<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 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 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 – 290 (320) mm
HELITRONIC POWER	P R	HSS TC C/C CBN	350 mm / Ø3 – 290 (320) mm
HELITRONIC POWER 400	P R	HSS TC C/C CBN	520 mm / Ø3 – 315 mm
HELITRONIC VISION 400	P R	HSS TC C/C CBN	370 mm / Ø3 – 315 mm
HELITRONIC VISION 400 L	P R	HSS TC C/C CBN	420 mm / Ø3 – 315 mm
HELITRONIC VISION 700 L	P R	HSS TC C/C CBN	700 mm / Ø3 – 200 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 <sup>2)</sup> / diameter
EWAMATIC LINEAR	P R	HSS TC C/C CBN PCD	200 mm / Ø0.2 – 200 mm
PROFILE LINE	P R	HSS TC C/C CBN	255 mm / Ø1 – 100 mm
WS 11/WS 11-SP	P R M	HSS TC	– / up to Ø25 mm
RS 15	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 – 290 (400) mm
HELITRONIC POWER DIAMOND 400	P R	HSS TC C/C CBN PCD	520 mm / Ø3 – 380 mm
HELITRONIC VISION DIAMOND 400	P R	HSS TC C/C CBN PCD	370 mm / Ø3 – 315 mm
HELITRONIC VISION DIAMOND 400 L	P R	HSS TC C/C CBN PCD	420 mm / Ø3 – 315 mm



## Software – The intelligence of tool machining and measuring for production and regrinding



## Customer Care – Comprehensive range of services

**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 <sup>1)</sup> Inscribed / circumscribed circle
EWAMATIC LINEAR	P R	HSS TC C/C CBN PCD	Ø3 mm / Ø50 mm
PROFILE LINE	P R	HSS TC C/C CBN	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
RS 15	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 MCD/ND	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 MCD/ND	Ø3 mm / Ø50 mm



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

WALTER machines	Use	Tool dimensions <sup>1)</sup> max. length / 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 PLUS	M	400 mm / Ø1 – 350 mm
HELISSET	M	400 mm / Ø1 – 350 mm

<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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