

# COMPACT LINE

THE VERSATILE SOLUTION FOR INDEXABLE INSERTS



# COMPACT LINE

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## APPLICATION

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- Production of indexable inserts
- Indexable inserts: from 3 mm inscribed circle to 50 mm circumscribed circle diameter
- 1.6 mm to 10 mm diameter, nail clamping system
- Materials include HSS, carbide, cermet, ceramic, CBN, PCD

## MACHINE

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- 6-axis CNC grinding machine
- Compact design
- Low-vibration grey cast iron machine base
- Linear axes X, Y, Z with glass scales
- Rotary axes A, B with torque direct drives
- C axis clamping brace (option)
- FANUC control, the global standard
- Various clamping systems for securely fixing tools
- "Three in One" sharpening unit for dressing, regenerating, crushing
- 6-axis FANUC robot for automatic loading
- Pallet changer with up to 8 pallets
- Grinding wheel changer (option)

## SOFTWARE

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- ProGrind grinding software
- Input screens with 3D graphics and easy programming
- Human machine interface (HMI) for real-time information
- CyberGrinding 3D simulation
- Pressure grinding module
- Crushing module

« The COMPACT LINE with up to 6 CNC axes is the ideal tool grinding machine for indexable inserts such for grooving, milling, turning and profiling applications. A wide range of clamping systems which are docked within the machine via a plug & play interface offer total freedom in the choice of tools, their sequence and the batch size. Thanks to extremely short set-up times, even very small batches can be economically produced. »

SIMON KÜMMERLE, PRODUCT MANAGER DEVELOPMENTS

## YOUR BENEFIT

With new, high-performance technology, COMPACT LINE sets a new standard in the flexible machining of indexable inserts. As a result of the newly developed optional C axis, the machine is now also optimally equipped for flexible and efficient peripheral grinding and grinding the K-land protective chamfers.



COMPACT LINE – flexible grinding performance in the smallest footprint, with integrated 6-axis FANUC robot.



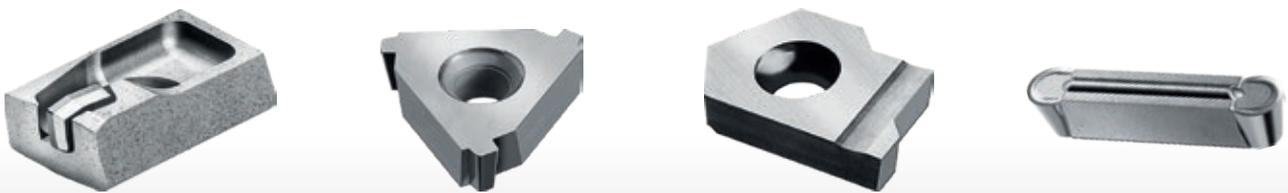
## FURTHER DETAILS

Creating Tool Perform

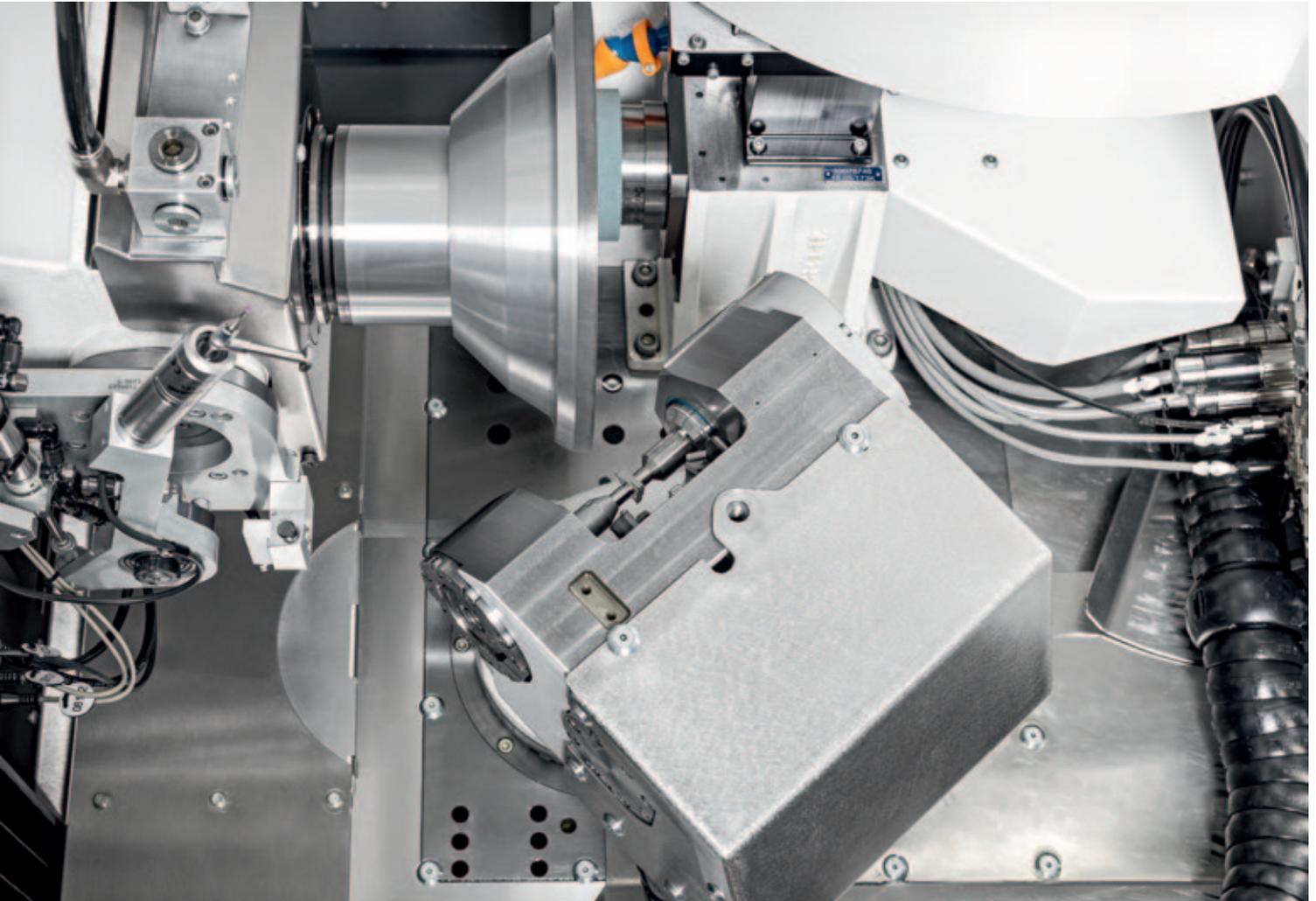
## ERGONOMICS AT THE HIGHEST STANDARD

The ergonomic concept of the COMPACT LINE instantly turns the operator into a pro for indexable inserts of varying geometry. All operating elements are ergonomically laid out within the reach of the operator.

Tool examples:  
Ground on the COMPACT LINE



## MODULES FOR DYNAMIC GRINDING PERFORMANCE



- Automatic clamping systems
- Rapid wheel change
- 3D tool measuring

**Flexible peripheral grinding, thanks to the 6-axis kinematics**  
With high-performance technology, COMPACT LINE scores in the flexible machining of indexable inserts. As a result of the optional C axis, the machine is also optimally equipped for flexible and efficient peripheral grinding and grinding the K-land protective chamfers

### **Compact interior**

In the COMPACT LINE, all grinding movements are performed around the working axis B. Short axis paths support the high grinding precision with short interpolation travel and reduced downtimes.

### **Automatic clamping systems on the B axis**

The Plug & Play systems are mounted in exactly the same way on the B-axis, thus enabling them to be exchanged quickly. The result is the highest level of reliability and minimal change-over times.

### 3D tool measuring

Tools are measured in the production process using an integrated measuring probe. Impermissible tolerances are automatically compensated. The same is true of the clamping position.



### Pin clamping system

The ideal system for complete machining. The indexable inserts are fixed using a tension pin, enabling free access from all sides.



### Grinding wheel change with HSK-E 50

The HSK-E 50 automatic grinding wheel interface clamps the wheel package with great precision. Wheel changing times are reduced to a minimum.



## PRECISION AND PRODUCTIVITY IN MULTI-SHIFT OPERATION

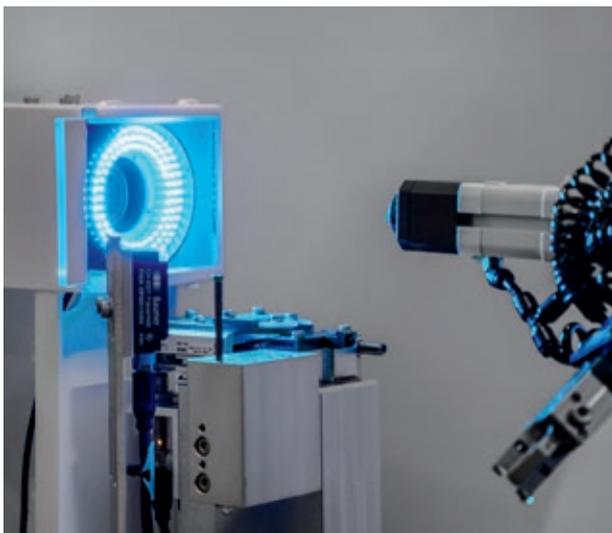
### **Flexible automation**

An integrated 6-axis FANUC robot considerably accelerates the machining cycle with automatic loading and unloading of tools. In this process, the indexable insert is directly transferred from the robot gripper to the automatic clamping system. The indexable insert is guided into the bore-hole of the clamping system using the pin, resulting in the precise guiding and alignment of the tool for the most economical grinding process.

### **Grinding wheel changer (option)**

With the grinding wheel changer you increase flexibility and can automatically change up to 3 grinding wheel sets with a maximum of 2 grinding wheels each. These grinding wheel sets and 2 gripper heads are stored in racks in the robot cell of the machine and therefore do not increase the footprint of the machine. The maximum weight per set of grinding wheels is 4 kg.





#### **Vision System CCD-HD (Option)**

The highly efficient vision system enables loading from grid pallets using a magnetic gripper. The system is used for perfect part alignment and for detecting the smallest of sintering imperfections. The result is a consistently uniform loading into the loading prism and thus a further enhancement of process reliability.



#### **“Three in One” – dressing, regenerating and crushing (Option)**

The “Three in One” sharpening unit ensures consistently perfect grinding wheels: Dressing, regenerating or crushing is carried out automatically, depending on the grinding application. Of significance to profile wheels here is the crushing process, in which the target profile is imprinted on the grinding wheel with a profiled steel roll (crushing roll). One module in the ProGrind grinding software controls the axis feed rate by evaluating the current force between the crushing roll and the grinding wheel, and matches this to the machine feed rate. The maximum load of the machine axes is monitored throughout the process, and the highest form quality applied to the grinding wheel. This results in a major boost to the precision and economy for efficiently grinding profile inserts.



#### **Pallet changer (Option)**

A sufficiently large tool magazine is essential for minimally-manned multi-shift operation. Two standard pallets can be held in the robot cell, increasing to eight with the pallet loader option which ensures the greatest autonomy in the COMPACT LINE.

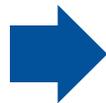
# PROGRIND GRINDING SOFTWARE WITH CYBERGRINDING PLUG-IN

## ProGrind – more than just software!

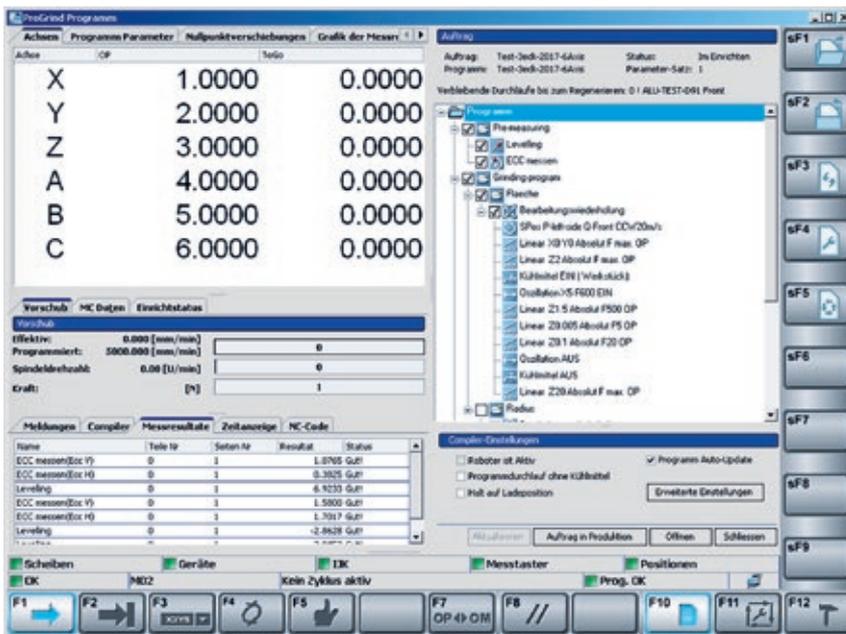
Innovation demands innovative software. As customer-centric software, ProGrind meets all your exacting demands. Programs can be created quickly and easily with ProGrind. The input screens feature 3D graphics. The machines can be integrated within your company network via Ethernet. At the same time, our specialists have access for diagnostic and maintenance purposes.

### Standard Application Framework

- Human Machine Interface (HMI)
- Wheels Administration
- Production
- CNC Programming
- Hardware
- Job-Management



**COMPACT LINE**  
ProGrind grinding software  
with CyberGrinding plug-in



### Human Machine Interface (HMI)

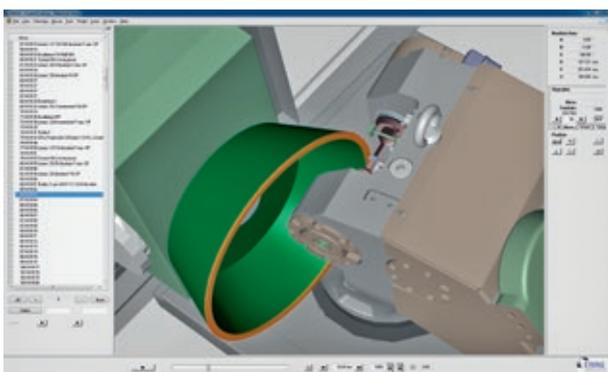
The HMI contains all relevant data views. It supports the operator when setting up production orders, at the same time displaying production-related facts in real time.



- Flexible programming
- PCD grinding pressure module with crushing function
- 3D simulation

### “Three in One” sharpening unit

Simple wizard-based programming enables easy handling of the “Three in One” sharpening unit. Grinding wheel dressing can be optimally supported with the ProGrind software.



### 3D simulation/CyberGrinding

In a 3D simulation of the indexable insert, the operator can immediately see the consequences a parameter change may have. This allows prevention of errors in advance and increases productivity.



## FANUC CONTROL UNIT, THE GLOBAL 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.

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





## CUSTOMER CARE

# WE ARE HERE FOR YOU!

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.

Our products are designed to meet customer demands for as long as possible, they are intended to operate efficiently, reliably, and be available at any time.

From "Start up" through to "Retrofit" – our Customer Care is there for you throughout the working life of your machine. For this reason, you can rely on competent HelpLines worldwide and Service Engineers near you:

- We will provide you with fast, straight-forward support.
- We will help to increase your productivity.
- We work professionally, reliably and transparently.
- We will provide a professional solution to your problems.

# UNITED GRINDING DIGITAL SOLUTIONS™

We develop solutions to support you in simplifying processes, boosting your machines' efficiency and increasing overall productivity under the "UNITED GRINDING Digital Solutions™" brand.

We are continuously expanding our solution portfolio in the key areas of CONNECTIVITY, USABILITY, MONITORING, and PRODUCTIVITY to make your work in the digital age significantly easier.

Find out more about UNITED GRINDING Digital Solutions™ services on our website in the Customer Care section.



**Start up**  
Commissioning  
Extension of the guarantee



**Qualification**  
Training  
Product support



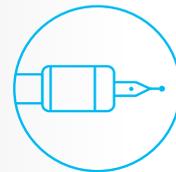
**Prevention**  
Maintenance  
Inspection



**Service**  
Customer service  
Customer advice  
Helpline



**Digital Solutions**  
Remote Service  
Service Monitor  
Production Monitor



**Material**  
Spare parts  
Replacement parts  
Accessories



**Rebuild**  
Machine overhauling  
Refurbishing of assemblies



**Retrofit**  
Conversions  
Retrofitting parts

# TECHNICAL DATA, DIMENSIONS

## AXES

X axis	450 mm
Y axis	180 mm
Z axis	150 mm
Rapid traverse X	15 m/min
Rapid traverse Y, Z	10 m/min
A axis	- 15 to + 25°
B axis	∞
C axis	∞

## ACCURACY

Linear resolution	0.0001 mm
Rotary resolution	0.0001°

## DRIVES

Peak power	5.5 kW
Grinding spindle speed	0 – 7,000 rpm
Max. grinding wheel diameter	250 mm

## OTHERS

Power consumption at 400 V/50 Hz	approx. 12 kVA
Weight incl. robot cell	approx. 4,000 kg

## TOOL DATA <sup>1)</sup>

### Automatic clamping system for indexable inserts

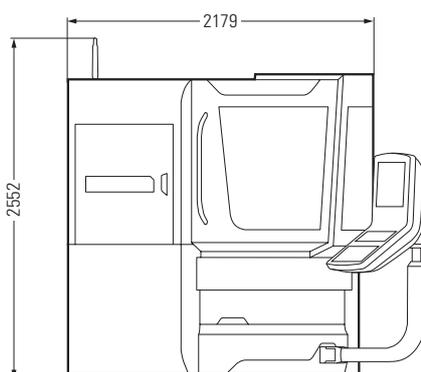
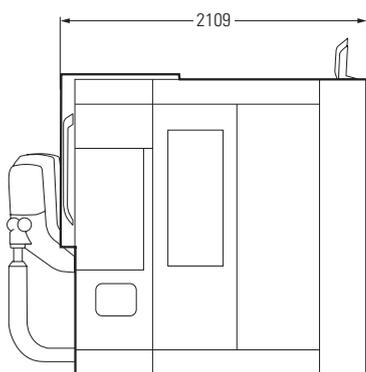
Min. indexable insert inscribed circle	3 mm
Max. indexable insert circumscribed circle	50 mm

### Pin automatic clamping system

Pin diameter min./max.	1.6 mm/10 mm
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## OPTIONS

- Manual clamping system (for lathe tool holder)
- Auto clamping system (turning, milling, grooving inserts)
- Pin clamping system (hole clamping)
- Clamping brace type clamping system (C axis)
- Automation with 6-axis FANUC robot
- Vision system for automatic insert detection
- Pallet changer (pallet loading system)
- Automatic regeneration unit
- Crushing function
- Pressure grinding
- Automatic fire-extinguishing system
- Coolant systems
- Coolant mist extraction systems



## COMPACT LINE

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

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

# CREATING TOOL PERFORMANCE

We are a global leader among market-oriented technology and service companies, and a system and solution partner 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, as well as indexable inserts

Machines	Use   Materials	Tool dimensions <sup>1)</sup> max. length <sup>2)</sup> / diameter
HELITRONIC G 200	<b>P</b> <b>R</b> <b>HSS</b> <b>HM</b> <b>C/K</b>	235 mm / Ø 1 – 125 mm
HELITRONIC MINI PLUS	<b>P</b> <b>R</b> <b>HSS</b> <b>HM</b> <b>C/K</b> <b>CBN</b>	255 mm / Ø 1 – 100 mm
HELITRONIC RAPTOR	<b>P</b> <b>R</b> <b>HSS</b> <b>HM</b> <b>C/K</b> <b>CBN</b>	280 mm / Ø 3 – 320 mm
HELITRONIC POWER 400	<b>P</b> <b>R</b> <b>HSS</b> <b>HM</b> <b>C/K</b> <b>CBN</b>	520 mm / Ø 3 – 315 mm
HELITRONIC VISION 400 L	<b>P</b> <b>R</b> <b>HSS</b> <b>HM</b> <b>C/K</b> <b>CBN</b>	420 mm / Ø 3 – 315 mm
HELITRONIC MICRO	<b>P</b> <b>R</b> <b>HSS</b> <b>HM</b> <b>C/K</b> <b>CBN</b> <b>R</b> <b>HSS</b> <b>HM</b> <b>C/K</b> <b>CBN</b>	220 mm / Ø 0.1 – 12.7 mm 220 mm / Ø 3 – 12.7 mm

Machines	Use   Materials	Indexable insert <sup>1)</sup> Inscribed circle/ circumscribed circle
COMPACT LINE	<b>P</b> <b>R</b> <b>HSS</b> <b>HM</b> <b>C/K</b> <b>CBN</b> <b>PCD</b>	Ø 3 mm / Ø 50 mm



## EROSION

Eroding and grinding of rotation-symmetrical tools

Machines	Use   Materials	Tool dimensions <sup>1)</sup> max. length <sup>2)</sup> / diameter
HELITRONIC DIAMOND EVOLUTION	<b>P</b> <b>R</b> <b>HSS</b> <b>HM</b> <b>C/K</b> <b>CBN</b> <b>PCD</b>	185/255 mm / Ø 1 – 165 mm
HELITRONIC RAPTOR DIAMOND	<b>P</b> <b>R</b> <b>HSS</b> <b>HM</b> <b>C/K</b> <b>CBN</b> <b>PCD</b>	270 mm / Ø 3 – 400 mm
HELITRONIC POWER DIAMOND 400	<b>P</b> <b>R</b> <b>HSS</b> <b>HM</b> <b>C/K</b> <b>CBN</b> <b>PCD</b>	520 mm / Ø 3 – 380 mm
HELITRONIC VISION DIAMOND 400 L	<b>P</b> <b>R</b> <b>HSS</b> <b>HM</b> <b>C/K</b> <b>CBN</b> <b>PCD</b>	420 mm / Ø 3 – 315 mm



## LASER

Production of tools with laser

Machines	Use   Materials
VISION LASER	<b>P</b> <b>HM</b> <b>PCD</b> <b>CVD-D</b> <b>MKD/ND</b>



## MEASURING

Contact-free measurement of tools, workpieces and grinding wheels

Machines	Use   E <sub>UX,MPE</sub> -value	Tool dimensions <sup>1)</sup> max. length <sup>2)</sup> / diameter
HELICHECK ADVANCED	<b>M</b> (1.8 + L/300) µm	420 mm / Ø 1 – 320 mm
HELICHECK PRO	<b>M</b> (1.2 + L/300) µm	300 mm / Ø 1 – 200 mm
HELICHECK PRO LONG	<b>M</b> (1.2 + L/300) µm	730 mm / Ø 1 – 200 mm
HELICHECK PLUS	<b>M</b> (1.2 + L/300) µm	300 mm / Ø 0.1 – 200 mm
HELICHECK PLUS LONG	<b>M</b> (1.2 + L/300) µm	730 mm / Ø 0.1 – 200 mm
HELICHECK NANO	<b>M</b> (1.2 + L/300) µm	120 mm / Ø 0.1 – 16 mm
HELICHECK 3D	<b>M</b> (1.8 + L/300) µm	420 mm / Ø 3 – 80 mm



## AUTOMATION

Solutions for complete tool production: From loading systems that are integrated into the machine's working area to robot loaders and ATP- Automated Tool Production, our innovative solution for networking grinding, eroding and measuring machines from WALTER.



## SOFTWARE

The intelligence of tool machining and measuring for production and regrinding



## CUSTOMER CARE

Comprehensive range of services

<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 theoretical taper diameter of the workpiece holder.

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

# 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 of the HELICHECK series for contactless complete measurement of tools and production parts.

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

Walter Maschinenbau GmbH is a company 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, eroding, laser machining, measurement and software.



Grinding



Eroding



Laser



Measuring



Automation



Software



Customer Care



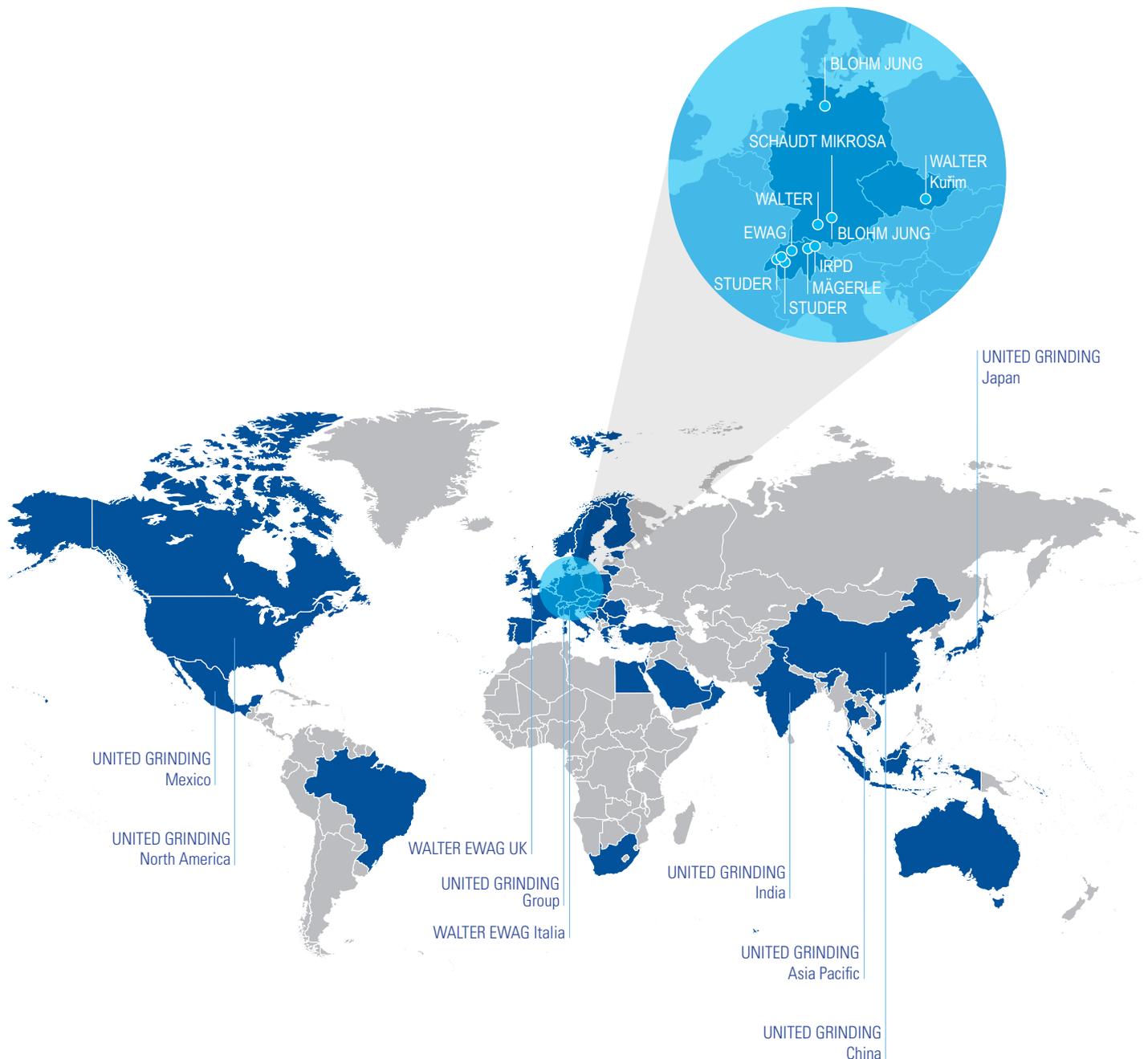
## ABOUT US

# UNITED GRINDING GROUP

UNITED GRINDING Group is one of the world's leading manufacturers of grinding, eroding, laser, and measuring machines, as well as machine tools for additive manufacturing. With roughly 2.300 employees at more than 20 manufacturing, service, and sales locations, the group is organized in a customer-oriented and efficient way.

Through its MÄGERLE, BLOHM, JUNG, STUDER, SCHAUDT, MIKROSA, WALTER, EWAG, and IRPD brands, as well as competence centers in America and Asia, UNITED GRINDING offers broad application expertise, a large product portfolio, and a full range of services for the production of high-precision components.

“We want to make our customers even more successful – UNITED FOR YOUR SUCCESS”





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