

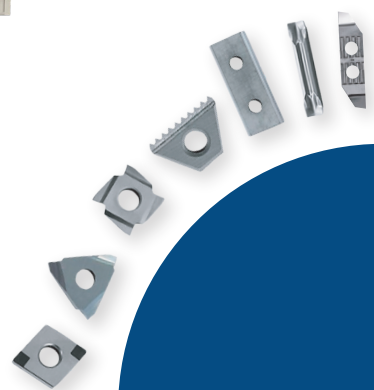


TTB

SWISS  PRECISION

TTB EDGE

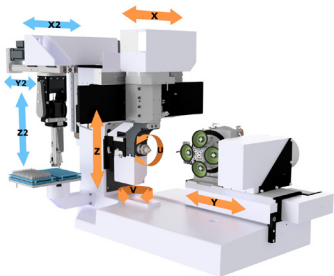
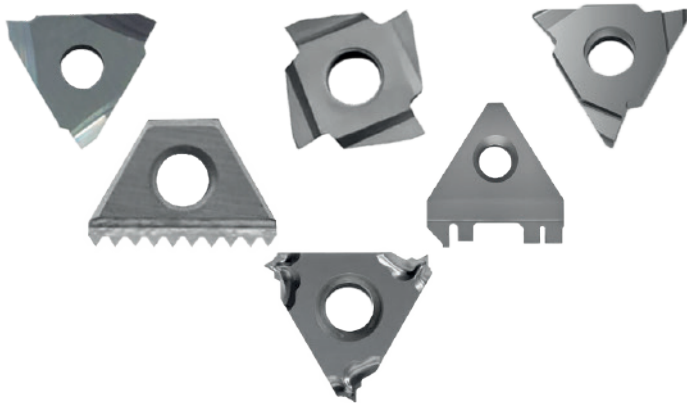
GRINDING MACHINE FOR INSERTS



AUTOMATIC INSERT GRINDING

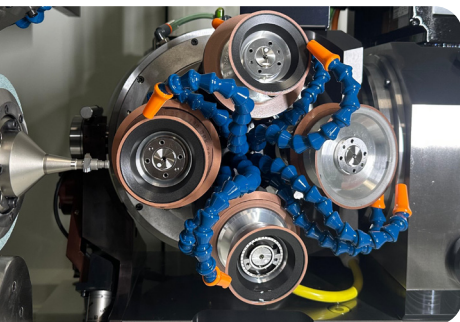
The **EDGE** is TTB's latest innovation, designed for fully automatic grinding of inserts with a wide variety of geometries. Thanks to its dedicated

handling and clamping system, it performs peripheral edge, profile, and chipbreaker grinding in a single clamping.



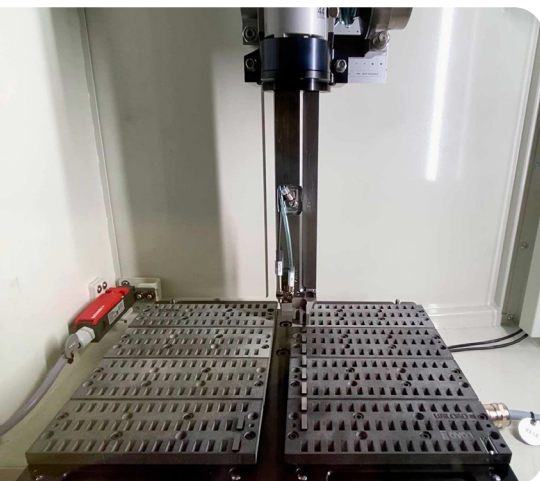
Unique Kinematics

TTB's exclusive kinematics are its hallmark. Thanks to its innovative technology, it ensures exceptional isolation from external vibrations. In addition, the unique axis movements guarantee extremely precise and repeatable positioning.



Revolver

The innovative revolver, with 4 or 5 positions, allows both perfect wheel alignment with a positioning repeatability of less than $0.3 \mu\text{m}$ and an ultra-fast wheel change in just 2 seconds!



Fast Loader

The integrated 3-axis CNC loader, equipped with a double gripper, performs synchronized loading and unloading operations in only 20 seconds, minimizing downtime.

High Capacity

The loading area can hold 2 or 4 pallets, offering high production autonomy. Series of up to 612 pieces can be produced in complete autonomy, without operator supervision.

PRECISION
PRODUCTIVITY

VERSATILITY

It is ideal for turning and milling inserts, profile inserts, grooving or parting inserts, with one, two, or no holes. The **EDGE** is

used in numerous industries, including watchmaking, automotive, aerospace, woodworking, and many others.

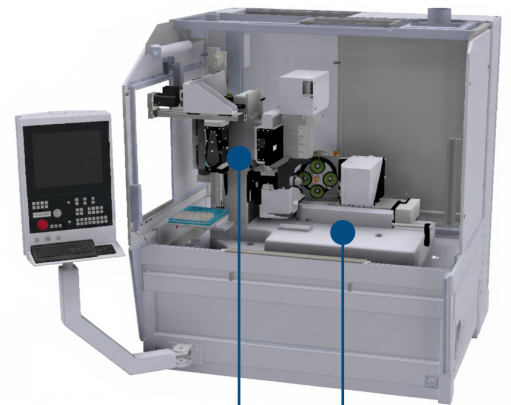


Thermal Stability

Outstanding thermal stability thanks to the use of cutting oil for cooling the machine structure and the integration of dedicated thermal sensors.

Mechanical Stability

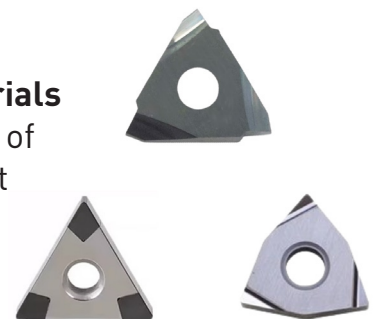
The adoption of low-wear mechanical solutions ensures process stability and a machine lifespan that extends over decades.



The cutting oil flows inside the machine base, keeping the internal temperature constant.

Various Materials

Capability to grind not only a wide range of geometries but also inserts made of different materials: from carbide to CBN to ceramic.



Multiple operations, a single clamping

Clamping the insert with a pin ensures high processing flexibility, allowing peripheral edge, profile, and chipbreaker grinding in a single setup.

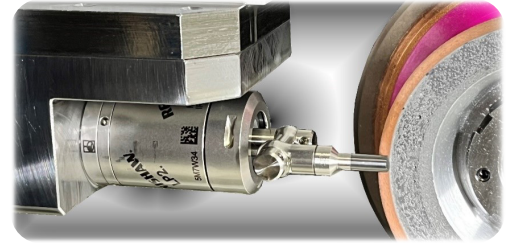


STABILITY
FLEXIBILITY

CONTINUOUS MONITORING

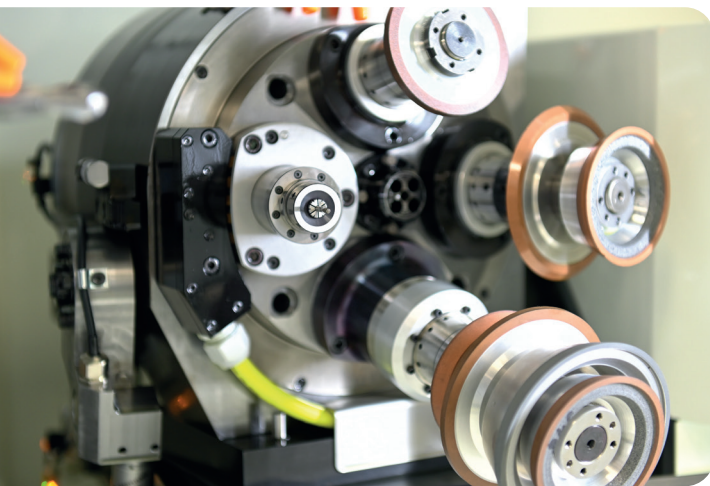
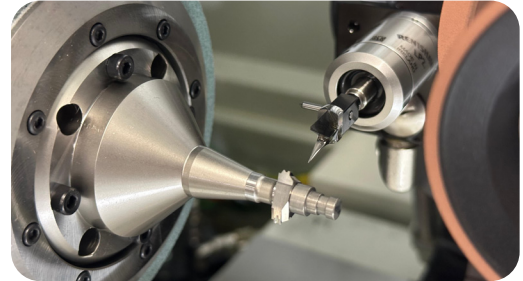
WHEEL PROBE

Monitoring of grinding wheel wear via precision probe, with auto-calibration to ensure maximum measurement accuracy. Wheel probing can also be performed during the machining cycle.



WORKPIECE PROBE

High-precision probing of the workpiece, allowing the exact determination of the tool position in space. It is also possible to probe the internal coolant holes of tools with diameters starting from just 0.2 mm. Repeatability is guaranteed up to 1 µm.



GRINDING WHEEL SPINDLES

HSK 32 SPINDLES

Permanently lubricated spindles, available in long and short versions for optimal adaptation to any production requirement. Each spindle can hold up to three wheels.

HIGH-FREQUENCY SPINDLES

High-frequency spindle, up to 150'000 rpm for special machining operations. HF spindle installation and setup are simple and fast. Up to 5 high-frequency spindles can be mounted simultaneously.

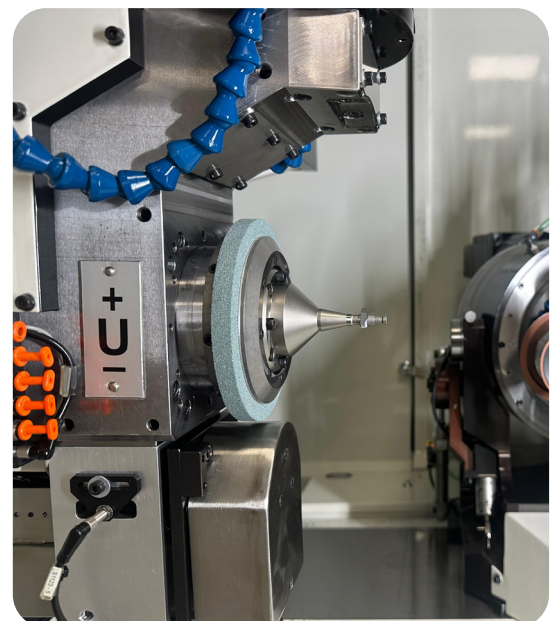
DRESSING AND TRUING OF GRINDING WHEELS

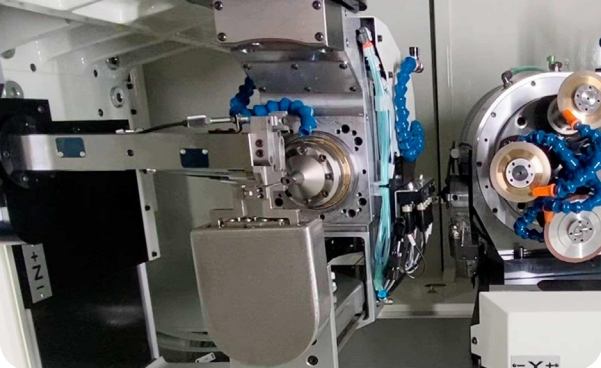
DRESSING WHEEL

In-process wheel dressing to compensate for wear and ensure machine autonomy even for very large series. Dressing wheel mounted behind the tool. Dressing frequency can be programmed according to grinding requirements.

TRUING STICK

Truing stone for restoring the grinding wheel, ensuring better results when sharpening tools. Truing stone mounted beneath the tool. Cleaning frequency can be programmed according to grinding requirements.





INSERT CLAMPING

PIN CLAMPING, INSERTS WITH HOLE

Inserts with a hole are clamped using the innovative TTB system. The shuttle unit extracts and inserts the clamping pin to allow automatic and highly efficient loading and unloading.

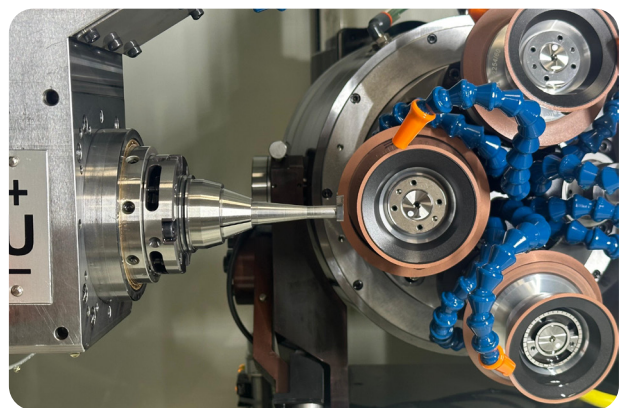
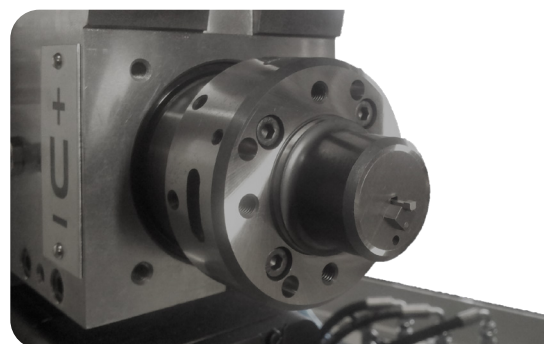


COLLET CLAMPING, INSERTS WITHOUT HOLE

For inserts without a hole, clamping is performed using flat collets or shaped collets with an integrated mechanical stop. This system, supported by a pushing unit, ensures extremely precise positioning of the insert against the reference stop.

SPECIAL CLAMPING

For parting inserts, a special prismatic clamping system is provided, customized according to the insert, with an integrated mechanical stop. This system, supported by a pushing unit, ensures extremely precise positioning of the insert against the reference stop.



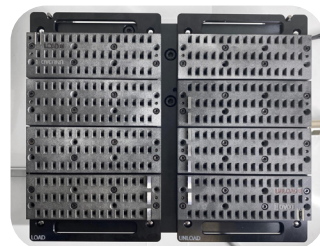
VERSATILE SYSTEM, SHANK TOOLS AND MECHANICALLY FASTENED INSERTS

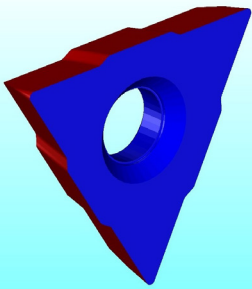
The adoption of modular components allows quick production changes, both between different types of inserts and between inserts and rotary tools.

For small insert series, it is also possible to fix the inserts with a screw on a shank holder and clamp it with cylindrical collets.

LOADING PRECISION, DEDICATED PALLETS AND LOCATING STOP

The dedicated pallets for inserts ensure absolute precision in loading the blanks. The locating stop integrated into the first loading position serves as a reference: each blank is initially placed by the loader in this alignment position before being transferred to the machining area. This double step guarantees excellent clamping accuracy of the insert, reducing tolerances and optimizing machining performance.





SOFTWARE

NUMROTO®

State-of-the-art programming software, intuitive and easy to use. Equipped with 3D simulation and an integrated collision-control system, it allows fast program changes while ensuring precision, safety, and productivity.

TTB DASHBOARD

Data export interface compliant with Industry 4.0 standards; dedicated hour counters for each component enable effective preventive maintenance management. An intuitive dashboard, also accessible from smartphones, provides real-time monitoring.

ENERGY SAVING

The Eco function significantly reduces the machine's power consumption while still ensuring maximum performance during machining. Cycle optimization and intelligent resource management are fully integrated.

COMPLETE SUPPORT

Our commitment does not end with the delivery of the machine: we offer a 360° after-sales service designed to ensure continuity, efficiency, and maximum performance for your TTB machines.

- Support for productivity improvement
- Minimization of machine downtime
- Production continuity



FAST AND EFFICIENT INTERVENTIONS

Carried out by our specialized technicians.



DEDICATED SPARE PARTS WAREHOUSE

For fast and guaranteed supply.



VIDEO TUTORIALS

With instructions for repairs and part replacements.

REMOTE ASSISTANCE

For maintenance and programming support.



MAINTENANCE AND PREVENTIVE INSPECTION PACKAGES

To prevent problems and machine downtime.



SERVICE PACK

Box containing wear parts such as filters and relays.



TTB EDGE

GRINDING MACHINE FOR INSERTS

TECHNICAL DATA

Linear Axis Travel		Rotary Axis Travel	
X Axis	290 mm	V Axis	270 °
Y Axis	250 mm	U Axis	∞
Z Axis	155 mm		

Axis Feed Rates	
X, Y, Z Axes	6m/min
V Axis – Orientation	36'000 °/min
U Axis – Orientation	72'000 °/min
U Axis – Rotation	0 - 1'500 rpm
Axis Resolution	
Linear Axes X, Y, Z	0,0001 mm
Rotary Axes U, V	0,0001 °

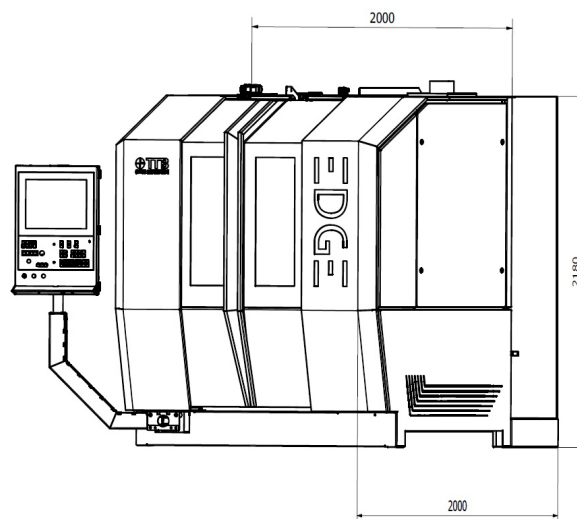
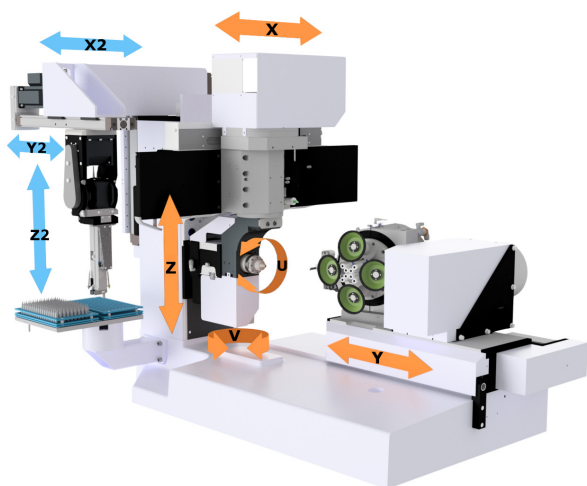
Measurement System	
Linear Axes X, Y, Z Resolution	0,01 µm
Rotary Axis V Resolution	± 2"
Rotary Axis U Resolution	± 20"

Revolver and Grinding Wheel Spindles	
Number of grinding wheel spindles (HSK C32)	4 o 5
Spindle drive power (Pn-S1)	10,0 kW
Max spindle speed	12'000 rpm
Number of wheels per spindle	1 - 3
Wheel revolver positioning	2 sec.

Workpiece Clamping	
Clamping system	With pin Flat and shaped collets W25, W20, 215 Hydraulic clamping
Clamping diameter	1 - 25,4 mm
Clamping length	Up to 250 mm

Application	
Insert size	9,00 – 33,00 mm
Insert thickness	3,00 – 7,00 mm
Inner hole	Ø 2,50 - 6,00 mm

CNC Control	
Dimensions (see figure below)	2'000 x 2'000 x 2'180 mm
Approx. Weight	3'950 kg

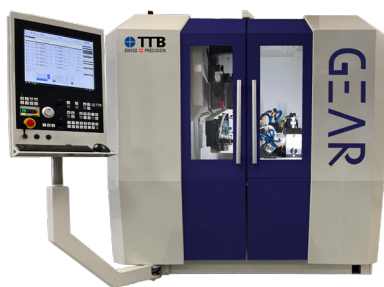


THE WORLD TTB

SWISS  PRECISION



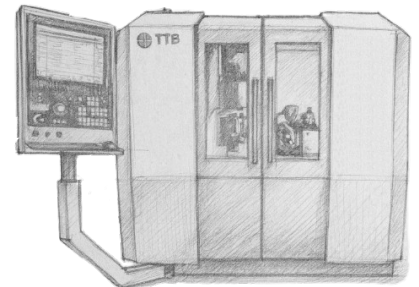
TTB EDGE
FOR INSERTS



TTB GEAR
FOR GEAR CUTTING TOOLS



TTB NEXT
FOR ROTARY CUTTING TOOLS



ONE OFF
FOR SPECIAL APPLICATIONS

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