DNA GENERATION.
POWER + DENTAL INTELLIGENCE = PERFORMANCE

Our milling machines are created fully in-house and exclusively at Amann Girrbach headquarters in Koblach, Austria. Based on decades of experience in CNC technology and strong development skills we have the expertise to develop and manufacture our machines in-house from scratch.

In-house development of all elementary components, and in particular the new control units, allows us to meticulously adapt and continually further develop our milling units to the specific requirements of dental technology. A distinctive profile emerges in terms of precision, speed and CAM processes, precisely adapted to the mechanical quality of dental materials - we call it the “Ceramill DNA.”

- **HARDWARE**: Powerful components (drive-construction, spindle, etc.)
- **CONTROL UNIT**: 100% built INHOUSE - with integrated “dental intelligence"
- **PROCESSES**: Highly efficient milling strategies enabled through perfect integration of hard- and software
- **TIME SAVING**: up to 60% for milling and grinding
THE RIGHT CHOICE FOR EVERYONE.

SPECIALIZED

- MILLING
- GRINDING
- CARVING

ALL-IN

- MILLING
- GRINDING
- CARVING

**ceramill® mikro**

4X

Easy entry or efficient upgrading.

- MILLING

**ceramill® mikro**

5X

5-axis technology concentrated in minimum space.

- MILLING

**ceramill® mikro ic**

4X

The power pack for highly efficient wet processing.

- MILLING
- GRINDING
- CARVING

**ceramill® motion 2**

5X

One for all - all in one.

- MILLING
- GRINDING
- CARVING

* coming soon
Ceramill Mikro is an extremely robust and compact 4-axis milling machine for dry processing blanks and single blocks such as zirconia, hybrid ceramics or dry millable composite materials. Equipped with high-performance components for permanent stability, economy and precision with low investment costs, the Mikro enables easy entry into CAD/CAM fabrication in-house in the laboratory or optimizes the efficiency and productivity of the laboratory routine. With the full range of conventional laboratory indications, Ceramill Mikro 4X paves the way to profitable in-house value creation, economy and accurately fitting framework quality without preparation or reworking.

**High Performance milling due to DNA milling strategies**

**Easy entry or efficient upgrading thanks to low investment costs and high amortisation**

**Highly versatile due to 4-axis dry processing of blanks and hybrid ceramic blocks**

**Precise and durable thanks to high-quality components and robust machine design**

**"INTELLIGENT" 4-AXIS PROCESSING**

Lock the 4th axes to any desired position

Undercuts can be milled
High-frequency spindle
extremely robust and precise

6 tool spaces
with automatic tool changer

Blank holder
conversion in only a few steps

Interior lighting
for visual control of milling

Tool length measuring unit
incl. fracture check

Presence sensor
for milling tools

Connection for extraction
protects the internal mechanism
against contamination
optimum with Ceramill Airstream, but
also for central extraction
5-AXIS TECHNOLOGY CONCENTRATED IN MINIMUM SPACE.

Splints, bars, implant bridges – the 5-axis unit Ceramill Mikro 5X not only masters conventional crown and bridge work but was also designed for fabricating more complex indications with dry millable materials. The high rigidity and stability of the machine are based on the compact construction design of the sister model Ceramill Mikro 4X, without having to forego the advantages of 5-axis technology. The result is absolutely low-vibration processing, which in combination with Ceramill control technology produces impressive precision on the blank.

Fast processing times, maximum quality and a wide range of indications and materials make the Ceramill Mikro 5X a genuine winner in the laboratory in terms of productivity.

- High Performance milling due to DNA milling strategies
- Maximum range of indications in the 5-axis dry milling/grinding category
- Space-saving, compact design with the latest 5-axis technology
- Fast, stable and efficient thanks to low-vibration monocoque design
- High-quality machine components guarantee constantly high precision and durability
High-frequency spindle extremely robust and precise

8 tool spaces with automatic tool changer

Blank holder conversion in only a few steps

Interior lighting for visual control of milling

Tool length measuring unit incl. fracture check

Presence sensor for milling tools

Connection for extraction protects the internal mechanism against contamination optimum with Ceramill Airstream, but also for central extraction
THE POWER PACK WITH THE “CARVING-MODE”.

This compact 4-axis milling unit extends in-house fabrication of conventional laboratory indications to include the option of wet grinding/milling. Titanium abutment blanks can also be processed with this unit in the same way as composites, hybrid and glass-ceramics. The monocoque design, typical for Ceramill units, gives the machine stability and torsion resistance despite its small footprint. In combination with the solid design of the axis system and quiet-running, powerful high-frequency spindle the respective milling strategies can be precisely transferred to the blank using high feed rates. This is particularly effective when using the “Carving Mode”. This innovative process reduces the processing times of single blocks up to 60%.

- High Performance grinding, carving due to DNA grinding strategies
- Solid design enables the highest degree of precision with maximum speed rates
- “Carving Mode” technology significantly reduces the processing times of single blocks
- Special holder design ensures easy handling and accuracy when processing hard materials (titanium, glass-ceramics etc.)

“Carving Mode” - excess material is being cut off as a whole
Interior lighting for visual control of milling

High-frequency spindle highly precise, stable, quiet running

8 tool spaces with automatic tool changer

Tool length measuring unit incl. fracture check

Presence sensor for milling tools

Blank holder conversion in only a few steps

Coolant supply tank connection large volume capacity ensures long operating cycles
The Ceramill Motion 2 is a benchmark in terms of the range of indications and materials in-house. The 5-axis milling unit combines wet and dry processing in one unit and enables the value-creation chain to be kept virtually completely in-house in the laboratory. The Ceramill Motion 2 can be used either as a purely dry or wet unit or in combined operation for an unlimited range of materials and indications. Equipped with the innovative control technology and robust machine concept from Amann Girrbach, the Ceramill Motion 2 is guaranteed to be future-proof, economic and precise.

- High Performance milling, grinding, carving due to DNA milling/grinding strategies
- Maximum range of materials and indications thanks to 5-axis wet and dry processing in one unit
- Innovative processing procedures ensure maximum ROI (e.g. rotational milling of titanium, processing of full dentures)
- Intelligent machine design guarantees optimum protection of all electronic components during wet operation

"Carving Mode" - excess material is being cut off as a whole
**Ceramill® Motion 2**

- **High-frequency spindle**
  - Highly precise, stable, quiet running

- **Tool length measuring unit**
  - Incl. fracture check and calibration

- **Blank holder**
  - Exchangeable, depending on material or indication

- **6 tool spaces**
  - With automatic tool changer

- **Blank holder and wet/dry processing mode**
  - In only a few steps

- **Suction cup**
  - For increased suction performance and reduction of spray water

- **Coolant supply tank connection**
  - Large volume capacity ensures long operating cycles

**Standard milling strategies**

**5-axis exterior processing using Ceramill CAD/CAM**

**Easy change of the blank holder for conversion from milling to grinding**

**Ceramill Coolstream - integrated coolant preparation in the cart and connection for the Airstream extraction during dry processing**
HIGH TECH SOUL.
NEWLY DEVELOPED FROM SCRATCH - CONTROL TECHNOLOGY FOR MAXIMUM DENTAL PERFORMANCES
CNC ≠ CNC. 35 YEARS OF EXPERIENCE IN MACHINE CONSTRUCTION -
CONDENSED FOR DENTAL TECHNOLOGY.

CNC-controlled dental milling units are now mainly defined by a wide range of applications and a great scope of processable materials. The quality of a CNC unit, however, is not only defined by its equipment details and versatility from a dental technology aspect. Decisive for the long-term precision and stability of a CNC unit are the structural design and reduction of moveable parts to a minimum. The more compact and low-vibration of the construction, the greater the possibility of long-term smooth operation while maintaining the necessary precision.

In addition to an intelligent design, which guarantees the stability and torsion resistance of the machine, the processing accuracy of desktop machines is decisively influenced by the quality of their construction components. Axis guidance and spindle thus contribute significantly to compensating for the forces and vibrations generated during the milling/grinding process. The components used in Ceramill CNC units are well above the load limit, independent of the material to be processed. In combination with the robust design, they ensure long-term process reliability and milling and grinding results of maximum precision.

- Monocoque (single-cast) design of every Ceramill unit chassis guarantees stability and torsion resistance
- Hermetically sealed milling area – electronic components are optimally protected
- Industrially precise axis guidance ensures mechanical rigidity due to minimum of moveable parts
- Interior space made from surface-coated casting for maximum protection – comparable with industrial CNC units
MILLING, GRINDING, + CARVING –
POWER AND INTELLIGENCE BUNDLED FOR ULTIMATE PERFORMANCE

Our dry and wet units are equipped with quiet-running and powerful high performance spindles. Therefore maximum productivity can be achieved. Even material that is very hard to process, like hybrid ceramics or lithium disilicate, can now be processed with up to 100,000 rpm which makes them the most powerful component that can be used for desktop mills.

The interplay of control, drive components, spindle and tools is of key importance, as a strong performance can only be achieved in combination with correspondingly designed milling strategies.

Perfectly balanced, these parameters result in big savings of processing time maintaining the highest precision standard (HD milling).

The latest development resulting out of these enhancements as is a brand new processing strategy we call “Carving Mode”. Using “Carving Mode” can result in up to 60% time savings.

- Hybrid bearing, high-performance, high-frequency spindle (100,000 rpm)
- Highly efficient processing of hybrid materials with the highest precision
- Reduction of grinding times up to 60%
- Optimally protected against dust, chips and liquids

**Competitor (Ø performance)**

| Standard grinding strategies* |
| Rpm: 30,000 |
| Power: 300W |

= Standard grinding
E.g. hybrid ceramics:
Ø processing time = ca. 40 min.

**Ceramill DNA generation**

| DNA carving strategies* |
| Rpm: 100,00 |
| Power: 750W |

= DNA performance carving
E.g. hybrid ceramics:
Ø processing time = ca. 15 min.

* Average performance data of normal market desktop mills
“CARVING” - THE QUICKEST METHOD IS USING A CURVE.

The “Carving Mode” - is based on the CNC technique of trochoidal milling, which Amann Girrbach transferred to the processing of dental hybrid and glass-ceramics using grinding tools. In contrast to conventional milling or grinding, the tool does not follow a linear, constant feed movement during trochoidal processing but moves over curved paths. The continuously rotating grinder moves towards the blank contour in a curved path. In this way, excess material is completely separated, thus avoiding grinding down the blank to the actual geometry. Low machining forces and their uniform distributions over the entire tool length enable higher processing speeds, resulting in significantly shortened fabrication times with increased service life and component quality.

The procedure, unprecedented in dental CAD/CAM technology until now, results in a massive saving in time when fabricating single-tooth indications made from hybrid or glass-ceramic and corresponds to processing times using a twin spindle (approx. 15 min./crown).
Industrial CNC guidance unit – highly precise, torsion resistant / designed with a minimum of moveable parts

Highly precise, durable spindle with a concentricity of ≤1μm

CNC axis system designed for high loading; short processes for long-term stability

Milling area separated from the control unit to avoid dust on electronic components

Electronic components installed in the housing

Very compact machine design
D/W/H: 18.31 x 20.28 x 23.03"
Industrial CNC guidance unit – highly precise, torsion resistant / designed with a minimum of moveable parts

Powerful. Super-high frequency spindle with speeds up to 100,000 rpm

Milling area separated from the control unit to avoid dust on electronic components. Monocoque chassis guarantees absolute stability

Solid axis system enables high milling speeds with maximum precision

Electronic components installed in the housing

Very compact machine design
D/W/H: 18.31 x 22.83 x 23.03”
Modular, flexible, versatile - the Plug & Play quick-change holder concept enables full exploitation of the material and indication potential of each Ceramill unit. In this way users have the option of flexibly and cost-effectively extending their milling unit to include new materials or adapting it to changing requirements. Handling is easy and uncomplicated thanks to effortless attachment of the blank holder to the connection bolts inside of the machine. The tool holder connected to the blank holder ensures that milling cutters or grinders for the respective material remain permanently in position.
MILL IN THE LABORATORY - EASILY, QUICKLY AND PRECISELY.

The automatic, clear user interface of the Ceramill Match 2 CAM software provides reliable, simple operation. Experience in CAM or milling is not required for use. Even users with little experience can easily and quickly create milling programs for fabricating crown and bridge frameworks using the interface. An ingenious Ceramill Match 2 collision control (and collision avoidance) guarantees a high degree of process reliability.

- Easy positioning and aligning of frameworks in the blank
- Easy changing of the position, size and alignment of connectors
- Fast calculation of milling paths
- Sinter cushion in thermodynamically optimum design shape for accurately fitting sintering of long-span zirconia restorations

Intelligent nesting concept according to the VITA Classical shade guide

Processing of VITABLOCS® TriLuxe forte using rendered representation of the shade gradient

Easy positioning of the connectors on the frameworks
## ENDLESS POSSIBILITIES

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<th>INDICATIONS</th>
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<td>Multi-unit, screw-retained restoration on titanium bases</td>
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<td>VITA ENAMIC®</td>
<td>Hybrid ceramic</td>
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<tr>
<td>VITABLOCS® Mark II / TriLuxe forte</td>
<td>Fine-structure feldspar ceramics</td>
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<td>IPS e.max CAD, Ivoclar Vivadent</td>
<td>Lithium disilicate ceramic</td>
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* coming soon Please note that not all materials are available in all markets. Contact your local distributor to confirm availability.
## TECHNICAL DATA

<table>
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<tr>
<th></th>
<th><strong>ceramill® mikro 4X</strong></th>
<th><strong>ceramill® mikro 5X</strong></th>
<th><strong>ceramill® mikro ic</strong></th>
<th><strong>ceramill® motion 2</strong></th>
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<td>18.31 x 20.28 x 23.03</td>
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<td>100-230V 50/60 Hz</td>
<td>100-230V 50/60 Hz</td>
<td>100-230V 50/60 Hz</td>
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## MILLING AND GRINDING TOOLS FOR CERAMILL CAD/CAM

CNC milling and grinding tools are essential components in processing dental materials. The quality, geometry, coating and number of blades of tools contribute greatly to the surface quality, detail definition and precision of a restoration. Based on this, we meticulously match our milling and grinding tools to the material-specific milling strategies, design parameters and, of course, the material itself. This way, we not only guarantee perfect framework quality but also optimum service lives as well as smooth, efficient milling and grinding processes.

An overview, including ordering information about all Ceramill CAD/CAM milling and grinding tools can be found at: www.amanngirrbach.com
<table>
<thead>
<tr>
<th>Product</th>
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<td>Ceramill Coolstream</td>
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Availability of products subject to local registration.