

EN   
2<sup>nd</sup> Edition

 **dental machine**  
DENTAL CAD-CAM SPECIALIST

by  **TECNO-GAZ**  
INDUSTRIES



# dental machine

DENTAL CAD-CAM SPECIALIST

**DIGITAL WORKFLOW  
THE FUTURE IS NOW**

CAD/CAM Systems  
support and management project



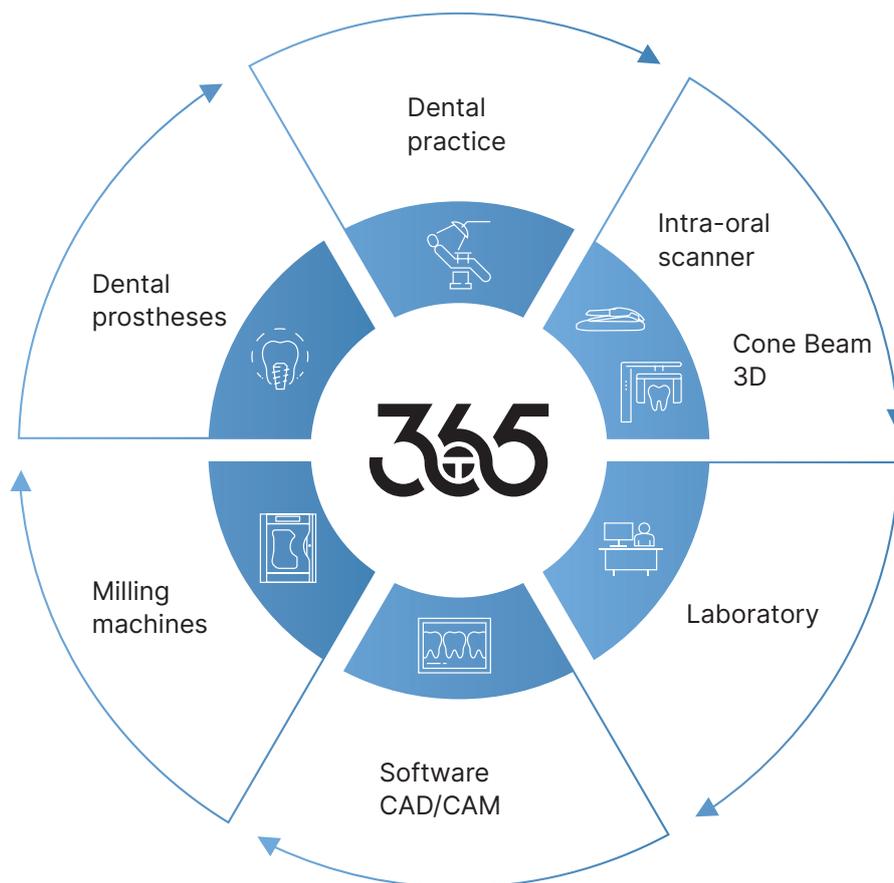
# digital work

**Evolving to develop opportunities**



# flow

in the world of dentistry.



The profession of dental technician has always been linked to the manual skill and training of individual technicians. In recent years, it has started to completely change thanks to new digital technologies. Digitization, virtualisation and CAD/CAM systems are the new tools, the new language of dental technicians. At the dawn of the fourth industrial revolution, there are great opportunities to be seized for anyone who is able to intuit and master change.

# Digital Workflow Tecno-Gaz



## Software CAD/CAM



### ExoCad

The CAD software is simple, intuitive and functional! Ideal for modeling a small size crown or more complex implant structures.

### MillBox

CAM software perfectly optimised with the Tecno-Gaz milling flow.



## New generation milling machines



### AxyLab

Dental Machine Compact Milling Machines. No compromise. Superior quality and reliability. Medium volumes.



### Vector

Ideal for zirconia and glass ceramics up to Titanium and Chromium-Cobalt. Excellent performance on metal milling. Medium-high volumes.



## Accademia Archimede

The Academy project is the package of high value training services for Tecno-Gaz digital workflow. High profile trainers are able to teach the operators in the use of the most advanced technologies, in order to achieve the maximum quality and profit throughout the investment lifecycle.  
[www.accademiaarchimede.com](http://www.accademiaarchimede.com)





## Milling machines



**C5 Plus**

### C Range

Ideal for zirconia and glass-ceramics, as well as titanium and cobalt-chrome. Excellent metal milling performance. Medium to high volumes.



**C6**



**G5**

High-end milling machine, structured for the milling of high quality implant solutions - custom abutments, bars, Toronto etc. High production volumes.



## Sintering



**TecnoSint**

Sintering furnace for latest generation zirconia.



**MV-R**

Sintering furnace. Max. temperature 1650°C. 8 min to 1500°C

## An open workflow which can grow with you.

This concept is the basis of the whole qualitative line which is subsequently followed for every manufactured product. For the creation of lines of milling machines, Tecno-Gaz aimed at simple, practical and innovative concepts. All these characteristics reflect every structural detail of this extraordinary range of products.

## .stl and .ply flow

Perfect integration with your customers thanks to open, universal environments and standards.

Wide range of applications and features in the basic version.



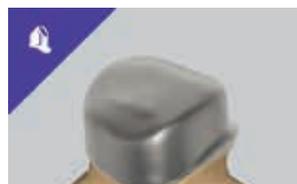
### Waxup

Handmade waxups can be scanned, modified and milled for copying. You can also create digital waxups.



### Bridges

Design of bridges and complete structures, including aesthetics with a few clicks. Several beautiful tooth libraries to choose from.



### Telescopic crowns

Exocad guarantees maximum flexibility in the design of telescopic crowns.



### Anatomical crowns

Design of crowns with minimum effort. There are several high quality tooth libraries available.



### Simple/ anatomical copings

Based on global anatomy, you can take advantage of cutback options to create optimal copings.



### Attachments

You can add or remove attachment shapes from a large library.



### Inlay and onlay restorations

Quick and simple design of beautiful and natural looking inlay and onlay restorations.



### Aesthetic facets

High aesthetic level results with a few clicks. Several beautiful tooth libraries to choose from.



**Tecno-Gaz is an exocad Official Reseller.**



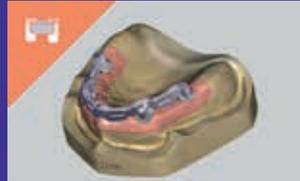
# Exocad

No limits with DentalCAD  
Additional modules



## Implant Module

Design of abutments and screwed bridges.



## Bar Module

Advanced bar design for both standard and complex bars.



## Model Creator

Creating physical models from fingerprint scans.



## Bite Splint Module

Design of bites for bruxism.



## Provisional Module

Provisional pre-filling from preoperative scans.



## PartialCAD

Design of structures for partial mobile prostheses.



## Full Denture Module

Digital design of total prostheses.



## TruSmile Module

Realistic rendering of dental restorations.



## Virtual Articulator

Simulation of mandibular movement and analysis of dynamic occlusion.



## Jaw Motion Import

Importing jaw measurements from devices.



## DICOM Viewer

Digital design of total prostheses.



## Smile Creator

Innovative smile design: the best of 2D and 3D.

# MillBox

## The simplest Dental CAM software

### MillBox ECO

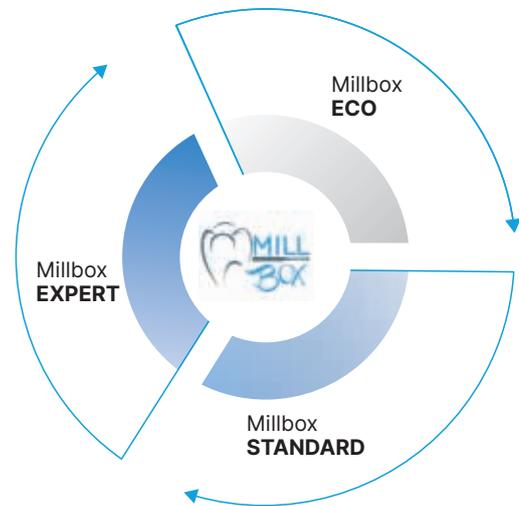
A simple and intuitive version of the software. Few and simple "clicks" to manage all the machining of cemented prostheses.

### MillBox STANDARD

A complete version of the software able to deal with all the processes of the dental laboratory. From the cemented prosthesis to the screwed prosthesis.

### MillBox EXPERT

A version dedicated to the most experienced people in the CAM sector. Suitable for those who want to have full control of their milling machine.



	MillBox Eco	MillBox Standard	MillBox Expert	
<b>Objects</b>	Cement Prosthesis	✓	✓	✓
	Hybrid prosthesis	✓	✓	✓
	Models and Abutments	✓	✓	✓
	Bite & Surgical Guides	✓	✓	✓
	R.P.D.	✓	✓	✓
	Telescopic Prosthesis	✓	✓	✓
	OPT Screwed Prosthesis	OPT	✓	✓
	Mobile Prosthesis	✓	✓	✓
	Superstructures	✓	✓	✓
	Cutting Aligners	-	-	✓

<b>Material</b>	Milling Blocks	OPT	OPT	OPT
	Premilled milling	OPT	OPT	OPT
	Dry Disc Milling	✓	✓	✓
	Wet Disc Milling	✓	✓	✓
	Metal Discs Milling	NON	✓	✓

<b>Features</b>	No. of axes	5	5	5
	Artificial Intelligence	✓	✓	✓
	Comfort Module	OPT	✓	✓
	Advanced Module	OPT	OPT	✓
	SUM3D Open	NO	NO	✓
	Strategy editor	NO	OPT	OPT
	Make&Mill ©	NO	OPT	OPT

OPT Available upon request

# MillBox

## Additional modules



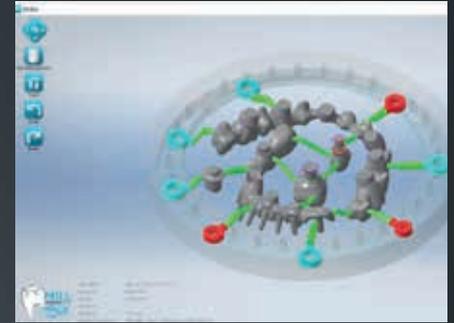
### COMFORT Module

- Reduce the cavity axis
- Change the angle of the axis hole
- Multiple STL file import
- Shadowing of undercuts in pin-contact areas
- Complete kinematic simulation
- Automatic raw selection
- MillBox supports printing and scanning of barcodes



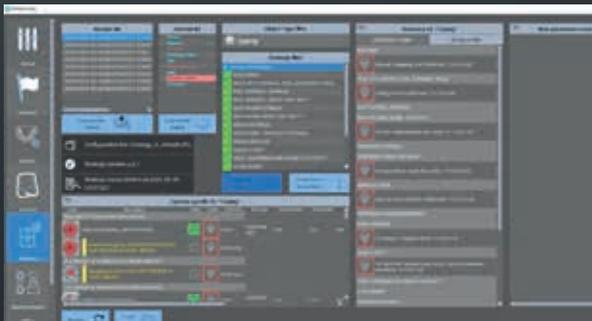
### ADVANCE Module

- Milling of only some objects
- Importing interfaces
- Interface extraction update
- Hole axis/angle change angled



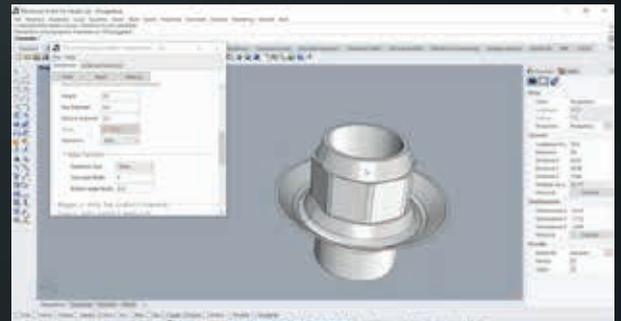
### Make&Mill

Available as a MillBox module, Make&Mill allows two technologies to be used within a single application: additive and subtractive. If the object is created with additive technology, in sintered metal or resins, the Make&Mill solution allows you to take the object back into milling. The advantage is twofold: the additive technology guarantees economy and less commitment of the operators, while the subtractive technology brings precision, refining the surfaces of the artifact.



### Strategy Editor

The new configurator represents an unprecedented improvement in strategy management. It allows you to both select and duplicate predefined strategies as a basic user and to access and create fully customized strategies as an expert user, all based on your specific needs. In both cases, the strategy will automatically grow and be updated along with the software, freeing you from the need to modify, test and fine-tune it from time to time. The benefit? Saving time and resources that puts you at the forefront of dental manufacturing innovation.



### Implant Connections Editor

Using the Implant Editor you can create custom implant connection geometries in a very simple way. The software, in fact, guides you along the geometry design step by step, through basic shapes. Optimized protections can be designed for connections, to reduce both milling time and tool overuse. CAD can be automatically imported into MillBox with a perfect adjustment of settings and parameters. With Implant Editor you have the freedom to design and save your library like never before and building geometries will no longer be a problem.

# MillBox

## Main features of the software



### Multi-Layer Materials

In MillBox all the materials currently used in the dental field are manageable, with the possibility of visualizing the colour of the material in use and its gradient. You can also use and create “shaded” and “multilayered” materials, with which the user can insert and move the element to the most appropriate position, thanks to the display of the different colours.

### Multiple Sessions

MillBox allows the simultaneous opening of multiple work sessions. In addition, in the Windows taskbar, a “Progress Bar” is shown that highlights the progress of the calculation. Each MillBox session can work on different projects and with different machines, making the system extremely versatile and productive.



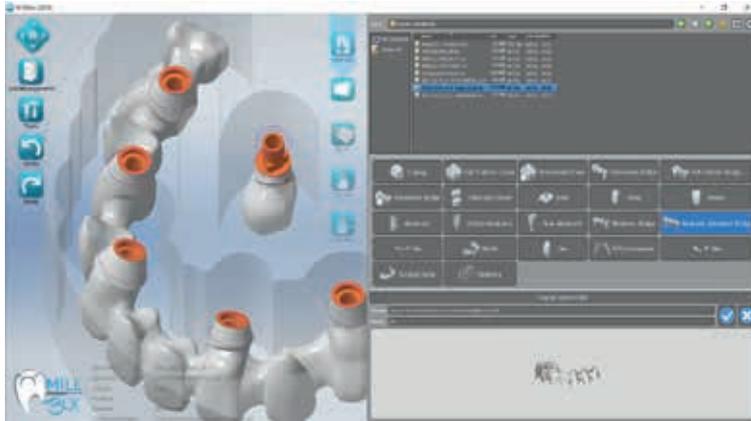
### Abutment Fit

If the coupling does not meet the needs of the dental technician, it is possible to intervene by adjusting the friction between the abutment and the analogue with the abutment fit, without having to completely re-mill the object.

# MillBox

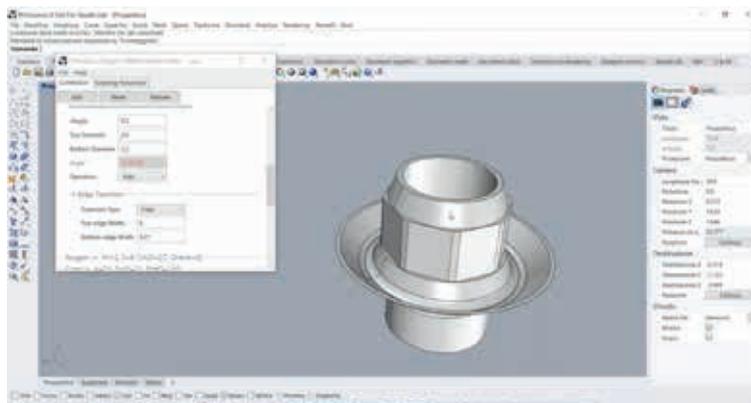


## Main features of the software



### Element Import

With MillBox you can import any type of dental element (crown, bridge, etc.) from any CAD source. The recognition of the type and morphology of the element is completely automatic, regardless of the CAD system used. For each object, the appropriate automations (connectors, margin lines, offset, orientation, etc.) are applied, as well as the optimized positioning in relation to the machine used.



### Replace

MillBox provides for the automatic and manual replacement of implant connections. There are several libraries of these connections to be inserted directly during CAM processing, replacing those present or missing in the files from the CAD modelling. The library, completely customisable by the user, allows the association to the interface of specific strategies (shape and size of the tools, technological parameters, type of processing, etc.).

# CAD CAM milling machines

Choose your milling machine. Create your digital workflow.



## AxyLab

AxyLab



## Vector

Vector  
Vector Loader

365  
NEW



365  
NEW



AxyLab	✓	✓	✓	✓	✓	✓	✓
Vector	✓	✓	✓	✓	✓	✓	✓
C Range	✓	✓	✓	✓	✓	✓	✓
G5	✓	✓	✓	✓	✓	✓	✓

**PMMA**  
POLYMETHYL-  
METHACRYLATE

**ZrO<sub>2</sub>**  
ZIRCONIA

**VCer**  
FIBREGLASS

**PEEK**  
PEEK

**Comp**  
COMPOSITES

**CInSL**  
ALL-CERAMICS  
AND LITHIUM SILICATES

**CIbr**  
HYBRID  
CERAMICS

### Metal milling

- High frequency spindle
- Brushless motors
- Heavy rigid frames
- Absolute encoders

### Implantology

- High frequency spindle
- Brushless motors
- Heavy duty rigid frames
- Optical stripes
- Granite construction

### Soft materials

- High frequency spindle
- Brushless motors
- Wet and dry
- 5 axis

## C Range

- C5 Plus
- C5 Plus + K10
- C6



## G5



✓ AXILAB WITH WETSMART

✓

✓

✓

✓

✓

✓

✓

✓

✓

**Pre**  
TITANIUM AND CHROME-COBALT PREMILLED

**Ti**  
TITANIUM

**Cr-Co**  
CHROME-COBALT

# Winning design philosophy

How should the most important machine in your laboratory be built?



**Solidity, durability, precision and efficiency are the key aspects on which Tecno-Gaz/Dental Machine have developed their entire product range.**

The fundamental aim pursued by the Tecno-Gaz/Dental Machine is to build all products using the same construction logic, not leaving anything out, even on entry-level machines. This is easy to see on visual inspection.



For any dental laboratory, the milling machine is the productive centre, the main source of revenue and service and, as a matter of fact, the most important element.



Most of the metalworking commissioned from dental laboratories is sent to large milling centres, which is why laboratories must now look to become autonomous.

**ZrO<sub>2</sub>**  
ZIRCONIA

**PEEK**  
PEEK

**VCer**  
FIBREGLOSS

**Clbr**  
HYBRID CERAMICS

**Ti**  
TITANIUM

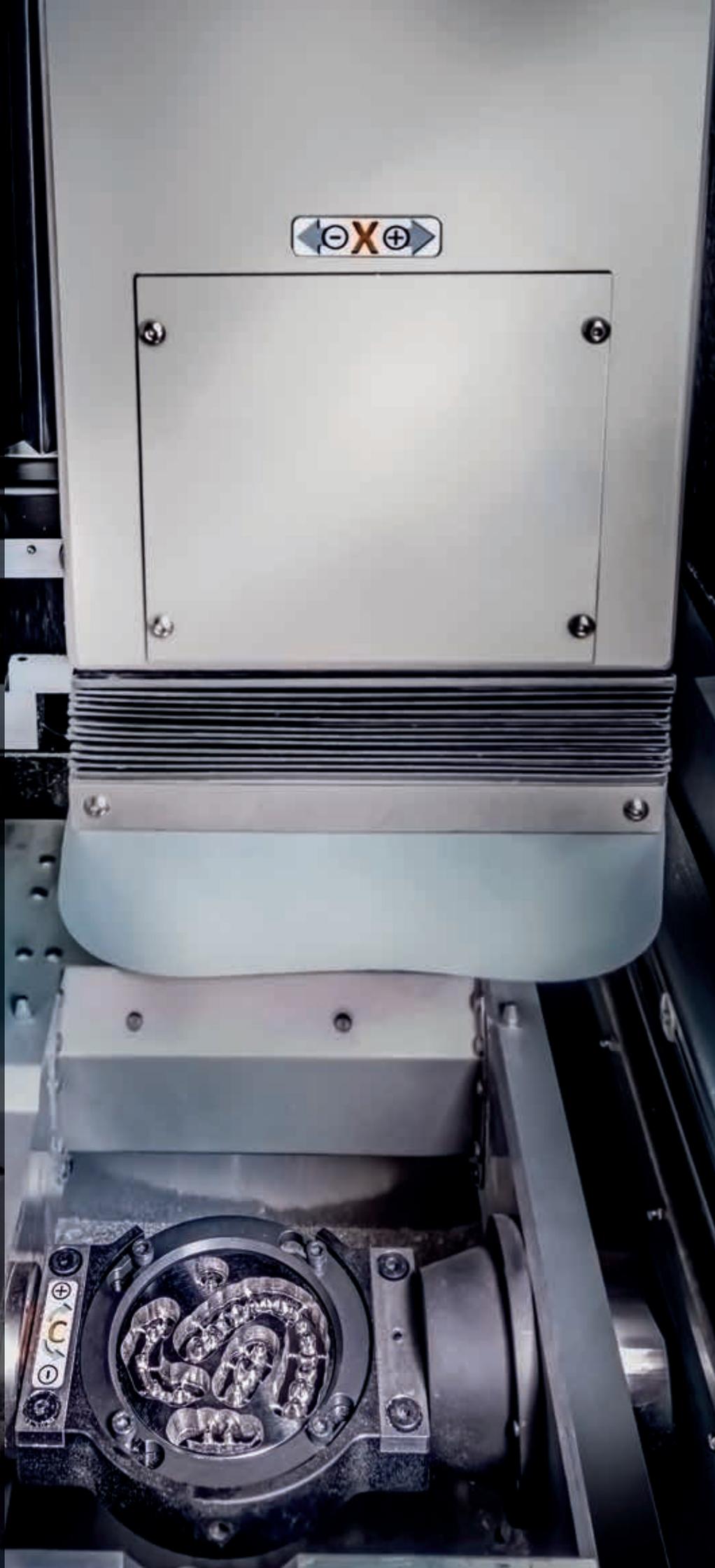
**PMMA**  
POLYMETHYL-  
METHACRYLATE

**Pre**  
TITANIUM AND CHROME-  
COBALT PREMILLED

**ClnSL**  
ALL-CERAMICS  
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**Comp**  
COMPOSITES

**Cr-Co**  
CHROME-COBALT



# Dental Machine and metalworking

Extend the working autonomy of your workshop  
with perfect metalworking.



This would lead to digital independence for laboratories. Since 13 years, Dental Machine has been designing machines that allow this working autonomy.

The importance of metalworking is also directly proportional to the field of implant surgery, as **prosthetic work requires perfect metalworking, extending the working remit of laboratories.**



## Dental Machine and implantology

For metal milling, the manufacturing requirements listed above are necessary: **granite unit, high frequency spindle, brushless motors, threadless screws and automatic tool changer.** This technology also enables the laboratory to acquire high-level prosthetic/implant work.

# Dental Machine

## Excellence in its uniqueness

Extend the potential of your laboratory

### 1 Brushless Motors - Servo Motors

The rotational movements are much more seamless than the stepper motors, therefore much more accurate in angular movements. The use of bi-directional control electronics (ring system) and sensors (encoders) allow the servomotor to perform better than traditional stepper motors, therefore much more accurate in angular movements. The use of bi-directional control electronics (ring system) and sensors (encoders) allow the servomotor to perform better than traditional motors.

**Increased efficiency thanks to the constant power torque control.**

- + Surface Details
- + Repeatability
- Calibrations
- Noise



### 2 High frequency spindle

Manufacturer renowned for its high quality. The motors provide an adequate power output even at low speeds which means a great advantage in maintaining the correct number of revolutions without power losses and ensuring a homogeneous rotation of the tool.

**It guarantees optimal use of the tools and correct milling of the processes.**

- + Tool life
- + Power
- Vibrations
- Maintenance



### 3 Worm screws

The ball recirculation screw is a type of worm screw that can be considered as an improvement of the screws generally used as they guarantee a much higher efficiency to ensure greater repeatability, precision and durability over time.

**The absolute axial rigidity and the reduction of friction between the contact parts allow a high wear resistance of the component and guarantee high long-lasting performance.**

- + Surface Details
- + Accuracy in movements
- Wear
- Maintenance



### 4 Rigid frame [AxyLab]

The cast aluminium structure ensures excellent absorption of movements during milling. Our frame is oversized for the power developed during the motor movements.

**Immediate quality of final and long-term results since all moving parts are not subjected to excessive stress.**

- + Tool life
- + Power
- Vibrations
- Maintenance



## 5 Wet & Dry

All our milling machines have the possibility to be used dry or wet, depending on the material you want to use.

**Unrestricted processing on all materials.**

- + Versatility
- + Freedom to use different materials

## 6 Tool Change with Cone Change [G5]



ISO20 - ER20 tool holder with conical connection that allows to drastically reduce the situations of errors related to tool rotation. In addition, the cone change allows the customer to use tools with different diameters (tool shank).

**Better tool performance derived from the increase in rigidity of the assembly: Electrosindle - Cone - Tool**

- + Static and dynamic stability
- + Stiffness
- + Repeatability during tool change
- Eccentricity



## 7 Absolute encoders

The angular position transducer, with electronic engineering also called Encoder, is an electromechanical device that converts the angular position into short electrical pulses.

**These pulses are sent in real time to the motor drive to control the desired position.**

- Calibrations
- + Efficiency
- + Precision in surface details



## 8 Optical lines [G5; C6]

The optical line is a high-precision digital "ruler", which reads the instantaneous and effective position of the tool and transmits it (1,000 times per second for each of the 3 Cartesian axes) to the milling machine management software (numerical control), which corrects it also taking into account thermal expansions.

**The optical line checks the position of the axis 1000 times per second and compensates for the thermal expansions present on the axis.**

- + Accuracy
- + Repeatability
- + Milling efficiency
- Calibrations

## 9 Granite structure\* [G5]

The G5 is the only milling machine in the Dental Machine range to have not only the base but all 3 Cartesian axes in granite, ensuring precision and stability over time.

**Greater precision and accuracy in the milling of prostheses on implants where these characteristics are indispensable.**

- + Thermal and Dimensional Stability
- Component stress
- + Wear resistance over time
- Vibrations



# AxyLab

5-axis compact milling machines for milling soft materials.



# AxyLab

**Choose AxyLab and be at the centre of a digital ecosystem designed for you!**

The first truly "Compact" Dental Machine without sacrificing the performance of the most structured milling machines in our range. The Smart Wet Lubrication system is essential for the processing of Glass Ceramics and Composites up to the milling of individual titanium abutments through Premilled.



WETSMART  
SYSTEM

11"

TOUCH  
MONITOR



BUILT-IN  
CAMERA



BUILT-IN  
COMPRESSOR

# AxyLab

## 5-axis compact milling machines



Precision	●●●●●●
Repeatability	●●●●●●
Machinable materials	●●●●●○
Production volumes	●●●●●○

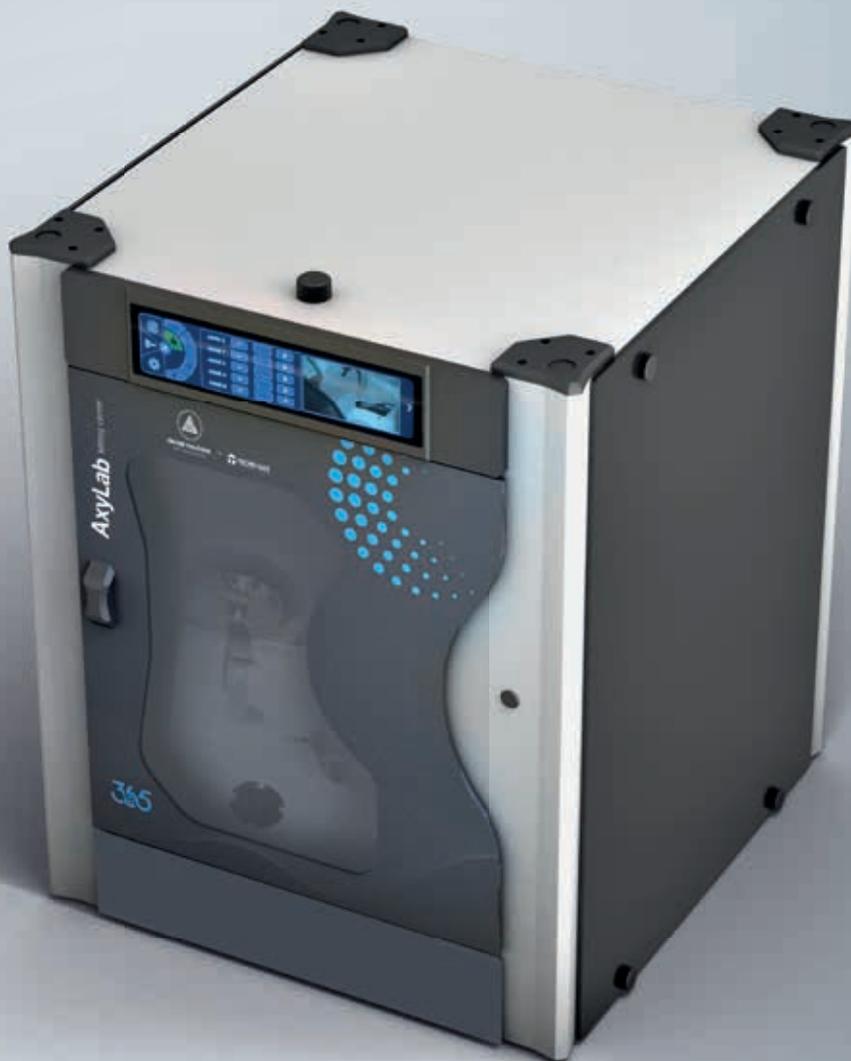


Foto Laboratorio Dental Style – Erbusco (Bs)

**PMMA**  
POLYMETHYL-  
METHACRYLATE

**ZrO<sub>2</sub>**  
ZIRCONIA

**PEEK**  
PEEK

**VCer**  
FIBREGLOSS  
OPTIONAL

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COMPOSITES

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ALL-CERAMICS  
AND LITHIUM SILICATES

**Clbr**  
HYBRID  
CERAMICS

**Pre**  
TITANIUM AND CHROME-  
COBALT PREMILLED  
OPTIONAL

### Compact and rational design

Bench machine, designed for soft materials

### Built to work hard... with soft materials

Solid steel structure for maximum stability (150 Kg)

### All the controls you need

Optimized strategies for continuous 5-axis milling on all materials



### High-end mechanical components

Cartesian movements with rectified screws and ball-circulating bushings

### Super-optimized operation

11-position automatic tool change with low air consumption electric tool change. Thanks to this optimization, AxyLab is equipped with an integrated compressor that generates the necessary requirements for its operation

### Undisputed quality

High-frequency piloted spindle, 0.55 kW and 60,000 rpm per 3 mm tool shank

# AxyLab

Destined to become a leader

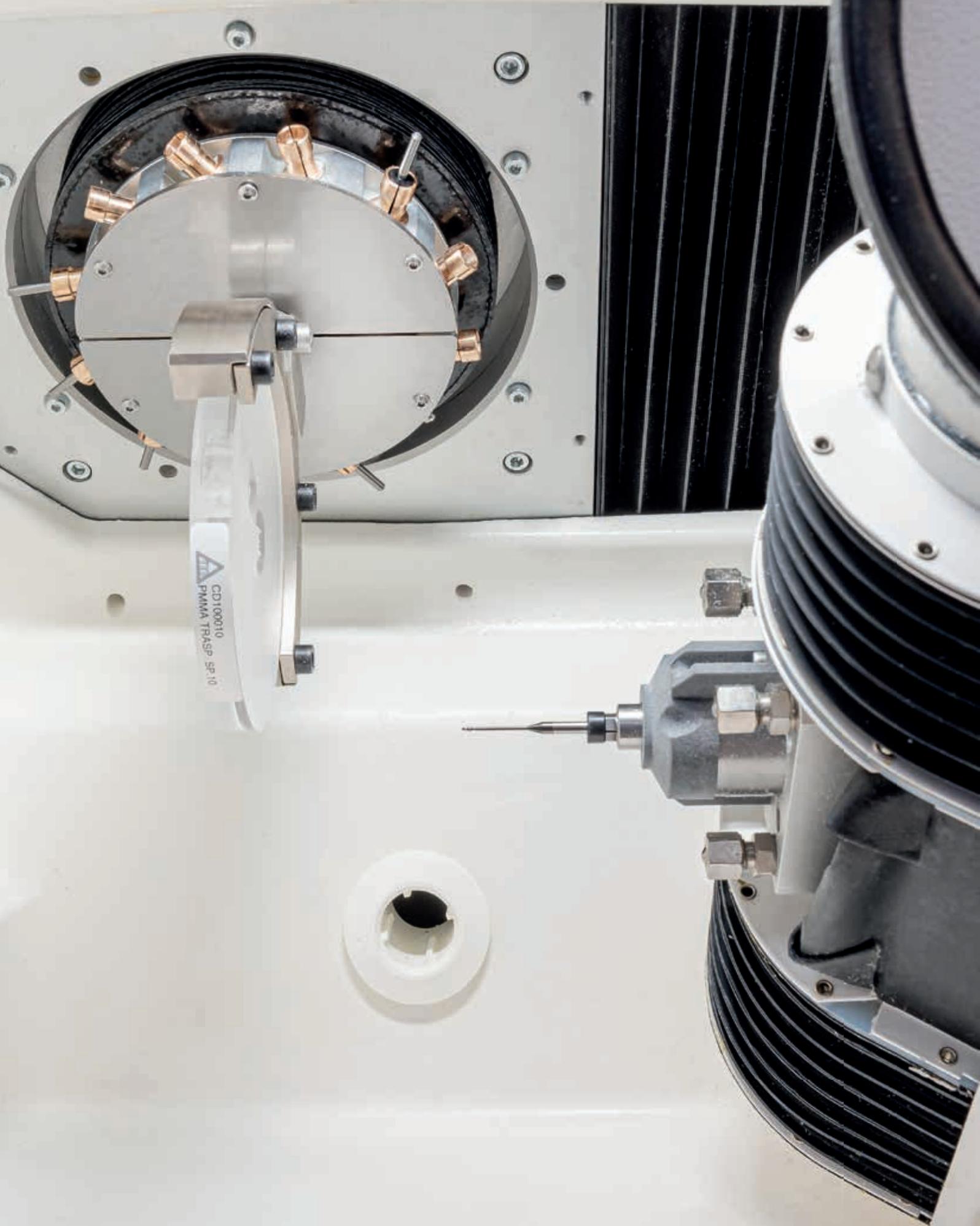


Creating a range of products means thinking about your customers and their needs and with this logic AxyLab was created.

AxyLab was created to meet the needs of those who face the digital world, but do not want compromises and demand the performance for which high-end Dental Machine systems are famous.

## **A power concentration on a compact and functional chassis**

- Compact 5-axis milling system
- High frequency Electrospindle 550W
- Smart Wet Lubrication System
- Built-in compressor



# Vector

Next-generation performance  
in a compact design

Display 15.6"



Compact  
design

# Vector

**CNC desktop milling machine with 5 axes continuously interpolated with dry and wet machining.**

Vector is the intermediate milling machine of Dental Machine developed for the dental laboratory that wants to take full advantage of CAD-CAM technology and achieve a high return on investment. It is a desktop milling machine, very simple to use, with numerical control with 5 axes continuously interpolated.

UP TO

**+/- 30°**

AXIS  
INCLINATION

**18**

6MM SHANK  
TOOLS

**15.6"**

TOUCH  
MONITOR



BUILT-IN  
CAMERA

# Vector

## Accuracy and versatility



Precision	●●●●●●
Repeatability	●●●●●●
Machinable materials	●●●●●●
Production volumes	●●●●○



### 5-axis movements

Linear movements on 3 Cartesian axes with rectified ball-recirculation screws driven by brushless motors with absolute encoders for continuous position control while the 2 rotary axes use the same motors with epicyclic gearboxes.

### Built-in camera

Allows you to view in real time the operations inside the milling chamber.

### Axis inclination up to $\pm 30^\circ$

Thanks to the axes inclination up to  $\pm 30^\circ$ , Vector is able to complete highly complex machining operations with high undercuts.

**PMMA**  
POLYMETHYL-  
METHACRYLATE

**ZrO<sub>2</sub>**  
ZIRCONIA

**VCer**  
FIBREGLASS

**PEEK**  
POLIETERETER  
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TITANIUM AND CHROME-  
COBALT PREMILLED

**Ti**  
TITANIUM

**Cr-Co**  
CHROME-COBALT



### **18 × 6mm shank tools**

18 Automatic exchange tools with measurement and verification technology using a very high precision sensor.

### **High frequency electrospindle 3.2 KW 60.000 rpm**

Thanks to the 3.2 KW electrospindle, [C5 Plus - Vector - C6] it is possible to process any kind of "hard" material on any type of machining. It is possible to autonomously mill threaded prostheses, abutments, bars, etc... with excellent quality and timing.

# Machining and workable materials



## Workable materials

It can mill all soft materials such as wax, PMMA, pre-sintered chromium cobalt, PEEK, up to the hardest materials such as glass ceramics, composites, chrome-cobalt and titanium. With Vector, laboratories can count on a high-performance milling machine especially on Cr-Co and Titanium!



## Types of machining

- Bridges and Crowns
- Inlays
- Bars and implant bridges
- Customized abutments only with bracketing
- Premilled
- Bar & Implant Bridge: Rotational Connections\*
- Abutment: Anti-rotational Connections\*



### Any material

Our target and effort is to implement day after day all the materials available in the market.



### Any format

We guarantee compatibility with the most popular CAD software (Exocad - 3Shape - DentalWings).



### No constraints

No annual update required.  
Recommended updates on Millbox and exocad.

# C5 Plus

An efficient solution for processing all materials



## C5 Plus

## C6



Precision ●●●●●●

Repeatability ●●●●●●

Machinable materials ●●●●●●

Production volumes ●●●●○

# C Range

**Numerically controlled worktop milling machine with 5-axis continuous interpolation for dry and wet milling.**

C5 PLUS and C6, are universal milling machines suitable for all materials and all processes from cemented to screw-retained dentures. These machines are designed for metalworking thanks to the Jager 3.2Kw liquid-cooled electrospindle, and the tailstock system with two-point disk clamping (as opposed to traditional systems that clamp the disk in one point).



# C5 Plus with K10

## Milling machines with multiple disk feed system

**The goal of today's companies is to respond efficiently and more quickly to market changes and needs. Following this logic, Tecno-Gaz and Dental Machine have combined their resources to develop an innovative technological project.**

The processing of all dental materials such as chromium cobalt, titanium, zirconia, acrylics, ceramics etc. and new future materials, is therefore possible with a single machine, practically without restrictions.

## C5 Plus + K10



After extensive research and development and the collaboration of a large number of professionals, we have created a new range of milling machines, focused on the needs of dental laboratories. The machines are designed and manufactured entirely in Italy, in the Tecno-Gaz/Dental Machine plants. Tecno-Gaz produces most of the equipment it sells, directly or in companies that are part of the group.

The same constructive philosophy of our milling machines we have developed on the disk loading system called K10 that was created with the combined quality of electro-pneumatic systems. The development has been designed to offer maximum ease and the flexibility of automatic production; the dental milling machine with automatic disk change expands the production and profits of the laboratory. With an automatic disc change from 5 to 10 slots, it offers users exceptional powerful, efficient and economical dental restoration solutions (it comes with 5 discs).



### Functions



### Advantages



### Benefits

Fully automatic

Easy to manage

Low operator control

10 disc holders

Versatile

Complete milling

Zero Clamping system

Perfect positioning of the supports

Guaranteed high precision

## The Zero Clamping Schunk® system

Very high precision centring system

5x

INCREASED FORCE TIGHTENING



The zero Clamping Schunk® system allows a simple replacement of the empty support at the simple push of a button. Using this system, the disc holder can be removed, checked (e.g. implant fitting) and replaced with the guarantee of perfect repositioning. Particularly suitable for implant milling and long machining where it is necessary to remove partially milled pieces, check the surface, fitting etc. and resume machining.

The milling machines are produced with or without K 10 and it will not be possible to add the system to the milling machines produced without K 10.

The system comes with 5 supports, other supports can be ordered as needed.

# G5

Solidity and maximum reliability for high production volumes on all materials

Touch screen tablet



# G5

**Universal milling machine for the dental sector,  
5 axes continuously interpolated on dry and wet machining.**

G5 is the universal machine developed specifically for the dental sector, composed by many relatively small laboratories, it is the universal machine. You can mill any artifact in any material. Thanks to the 5 continuous axes it can produce customized abutments, give excellent surface finishes and reduce manual finishing times.



# G5 Designed to last over time

Highest quality for high volumes



Precision	●●●●●●
Repeatability	●●●●●●
Machinable materials	●●●●●●
Production volumes	●●●●●●

## Solid frame construction in natural granite

Accurately rectified, on the three axes X, Y and Z axes plus 2 rotary axes for tilting of the disk. Movement with ground recirculating ball screws, with backlash recovery.



**PMMA**  
POLYMETHYL-  
METHACRYLATE

**ZrO<sub>2</sub>**  
ZIRCONIA

**VCer**  
FIBREGLASS

**PEEK**  
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**Pre**  
TITANIUM AND CHROME-  
COBALT PREMILLED

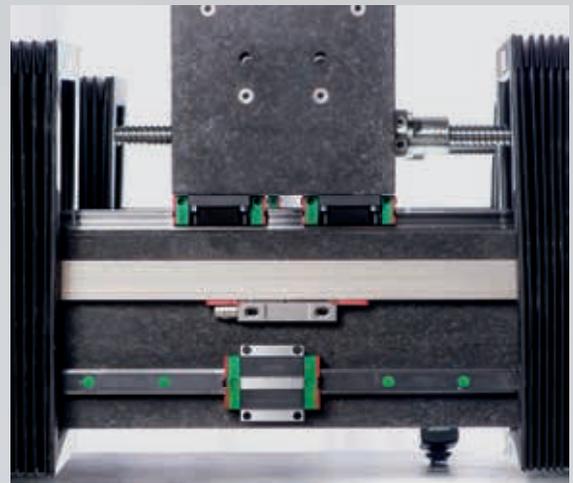
**Ti**  
TITANIUM

**Cr-Co**  
CHROME-COBALT



### High frequency spindle Maximum power 2.1 kW at 50,000 rpm

German market leading manufacturer: quality guarantee, performances and durability for optimal milling both at low speed (e.g. alloys, Cr-Co and titanium), and at high speed (e.g. ceramics). Wet cooling with external unit supplied.

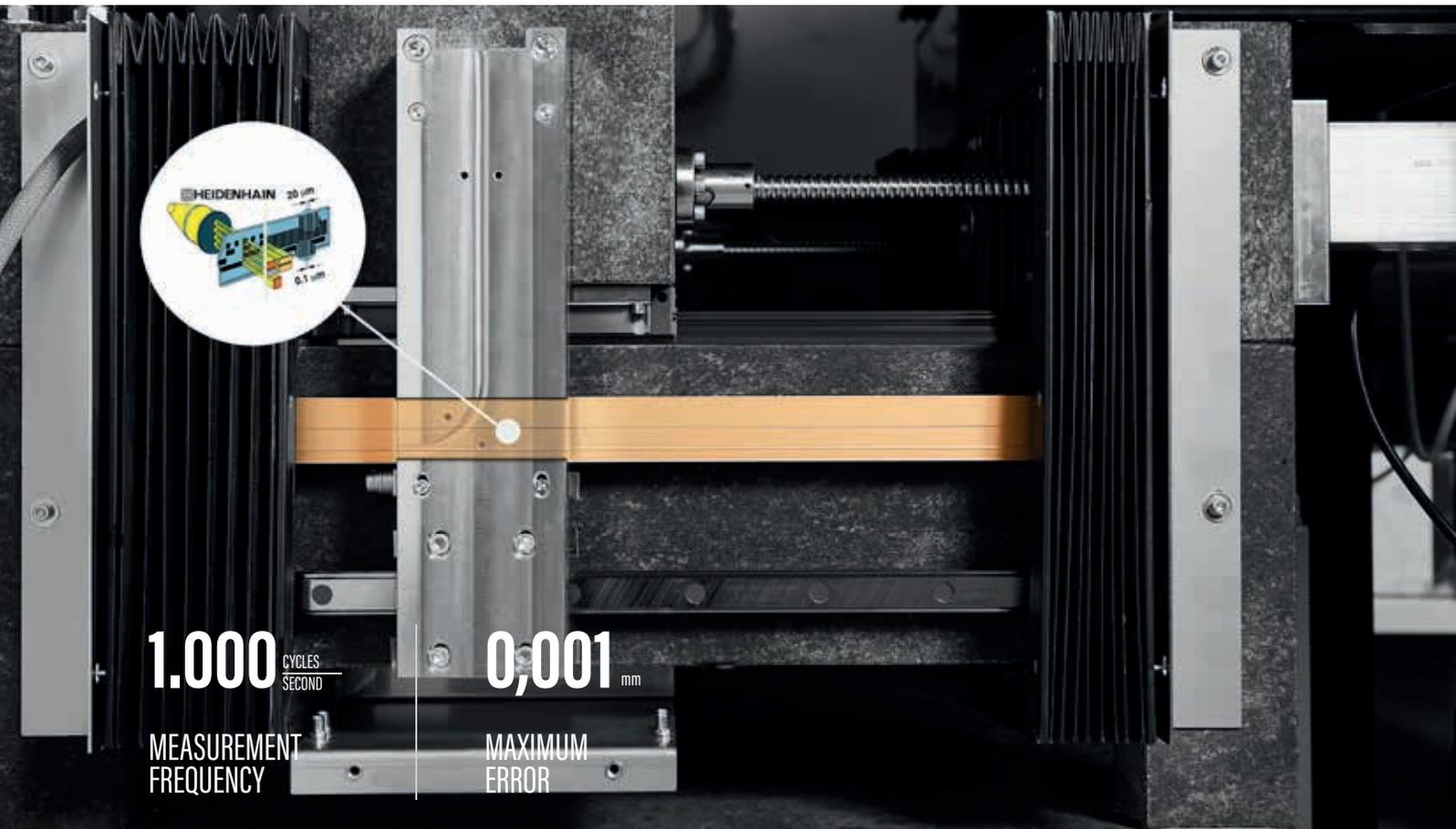


### Granite supports on all 3 Cartesian axes

Prepared for milling 24 hours a day, 7 days a week, the structure of the G5 is solid and oversized to support any stress and workload of a large milling centre.

# G5

## Optical lines, for higher precision



### Heidenhain optical lines on the 3 Cartesian axes

At work, any mechanical component heats up so it expands and loses precision. Measuring the “average” temperature of the machine is not enough to correct the error because each axis works differently.

The optical line is a high-precision digital “ruler”, which reads the instantaneous and effective position of the tool and transmits it (1,000 times per second for each of the 3 Cartesian axes) to the numerical control, which corrects it if necessary.

Rotary optical encoders perform the same function on the 2 rotating axes. This system therefore guarantees a maximum error of approximately 0.001 mm on each of the 5 axes.

# G5

## Cone change: 19 tools with automatic change

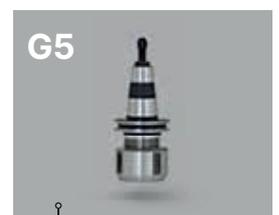


### Accurate tool assembly

The electrospindle does not grip the tool directly, but a ground cone equipped with an ER20 tool holder precision gripper ( $\varnothing$  shank from 1 to 10 mm). The tools on the cones are mounted on the bench, with greater alignment accuracy (tool supplied)..

- Better torque absorption
- Maximum static and dynamic rigidity
- Improved and repeatable precision in tool change
- Lower tool eccentricity
- Better metal milling surface, better tool performance.

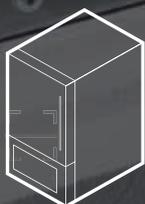
Traditional tool change



Tool change with high precision conical grip

# Tecno Sint

Ideal for digital workflow



The TecnoSint kiln is ideal for integrating smaller CAD/CAM systems through to larger workshops and milling centres. The optimal synthesis of price and high quality.



## TecnoSint is ideal for zirconia

TecnoSint is the compact furnace for sintering zirconia and is a device that fully meets the most varied requirements, not only in terms of economic efficiency and reliability, but above all as with respect to sintering quality of modern materials.





### Precise control at high temperatures

Resistances in molybdenum disilicide (MoSi<sub>2</sub>) offer a maximum furnace temperature of 1650° C.



### Operational flow optimization

The capacity of the sintering tray equals to Ø = 100 mms and can contain up to 20 elements; the 9 sintering programs can be easily inserted and stored in the furnace panel, moreover each program contains 4 steps for optimal sintering control.



### Avoiding contamination risks

The pre-set support programs will help you during routine maintenance and to remove resistance elements to avoid any kind of contamination.

Refractory parallelepiped support

Container extraction tool

Sintering balls

Ø 100 mm container



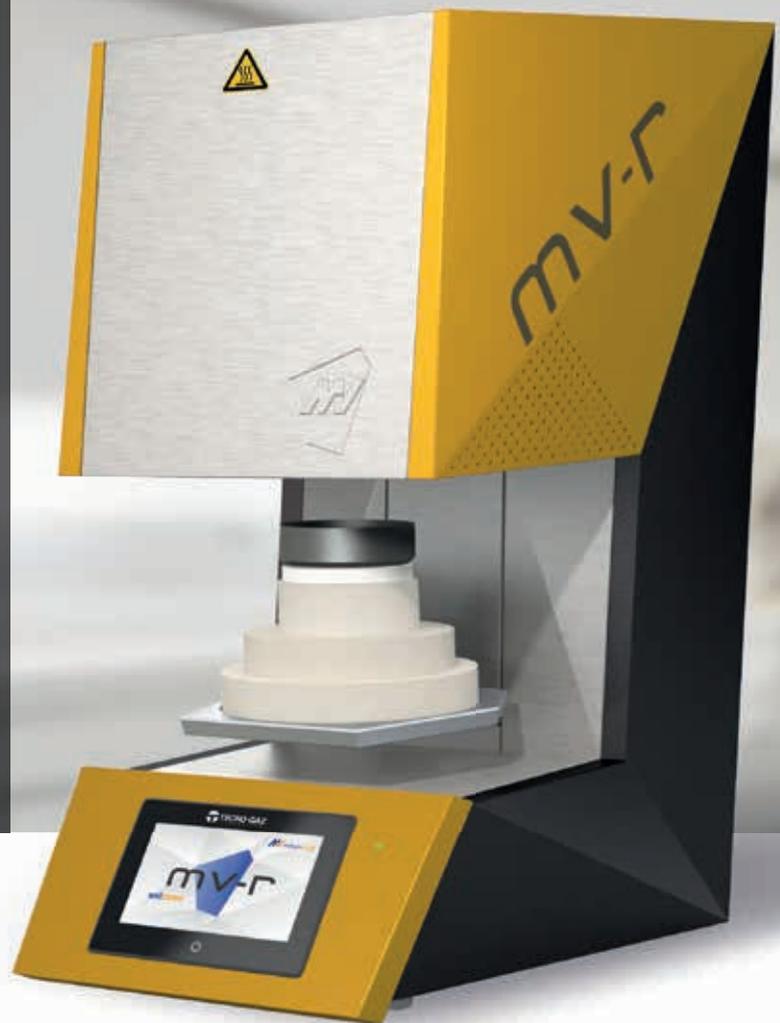
# MV-R

## A revolution in zirconia sintering



From 0 to 1500°C  
in 8 minutes!

Fast furnace for sintering zirconia. High productivity and maximum operational flexibility.



### Maximum temperature 1650°C.

Due to significant further development of our heating technology, we have achieved a heating rate of up to 200 °C / min. and can thus meet our customers' demands for shorter sintering times.



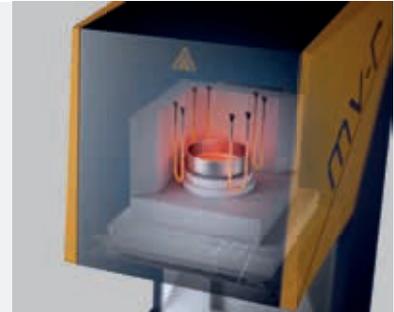
### Touch display and sintering programs

Molybdenum disilicide (MoSi<sub>2</sub>) resistors offer a maximum furnace temperature of 1650 °C.



### 40 Single crowns or Sintering disc ø 100

- Possibility of inserting up to 40 zirconia elements with support with a diameter of 100 mm.
- 7" Touch Screen Display.
- Error reporting via QR code.
- USB interface for software updates.
- Controlled cooling.
- Timer: scheduled start.



### Intelligent functionality

- Temperature control (only with test kit)
- Cleaning of the heating chamber
- Regeneration of resistors



## Up to 200°C / min.

- Sintering with pre-drying of all commercially available zirconia in the traditional to fast cycle
- Linear cooling
- USB interface for software updates
- Resistors (MoSi<sub>2</sub> - Molybdenum Disilicide)
- Accuracy to 1,500 °C +/- 1 °C



# Technical Features



## AxyLab

**Dimensions (WxHxD)** 59 × 75 × 60,5 cm

**Number of Axes** 5 continuous

**Weight** 150 Kg

**Tool change** Automatic

**Number of tool positions** 11

### Electrospindle

high frequency spindle 0,55 KW - 60,000 rpm  
Change tools: Electric

**Spindle torque** 8 Ncm

**Axis rotation angle A** = up to ±15° C= 360°

**Disc diameter** 98mm

**Tool rupture detection** Automatic

### Power supply (single-phase)

220÷240 V - 50÷60 Hz

### Compressor

AxyLab: Standard

**Linear axis resolution** ± 0.003 mm (3μ)

**Duplicated tool management** Optional

**Dry processing** Yes

**Wet processing** Yes

**External suction prearranged** Automatic



## Vector

**Dimensions (WxHxD)** 60,2 × 85 × 88 cm

**Weight** 220 Kg

**Tool change** Automatic

**Number of tools on board** 18

**High frequency spindle** 3,2 KW - 60.000 rpm

**Axis rotation angle A**= up to ±30° C=360°

**Disk Ø** = 98,5 mm with rim

### Disk locking Ø

Ø = 98 mm with tailstock system

### Cooling

liquid with heat exchanger

**Tool diameter (shank)** 6 mm

**Tool length** 37 – 50 mm

**Tool measurement accuracy** ± 0,001 mm (1 μ)

**Tool rupture detection** Automatic

### Power supply (single phase)

220÷240 V; 50÷60 Hz

**Compressed air** 7 atm (external) - 100 litres/min

**Brushless motors** with absolute encoder

**Noise level** <60 dB

### Linear axis resolution

± 0,00005 mm (0.05 μ)

**Rotation axis resolution** ± 0,0008 rad

**Tool duplicate management** Optional

### Arrangement for external suction

Prearranged



## C Range

### Dimensions (WxHxD)

[C5 Plus; C6] 66 × 100 × 95 cm

### Dimensions (WxHxD)

[C5 Plus + K10] 115 × 100 × 95 cm

**Weight** [C5 Plus; C6] 220 Kg

**Weight** [C5 Plus + K10] 340 Kg

**Tool change** Automatic

**Number of tools on board** 18

**High frequency spindle** 3,2 Kw - 60.000 rpm

**Axis rotation angle** A= ±19° C=360°

**Disk** Ø = 98,5 mm with edge

**Disk locking** Ø = 98 mm with tailstock system

**Liquid cooling** external cooling

**Tool diameter (shank)** 4 o 6 mm

**Tool length** 37 – 50 mm

**Tool measurement accuracy**

± 0,001 mm (1 µ)

**Tool rupture detection** Automatic

**Power supply (single phase)** 220÷240 V; 50÷60 Hz

**Compressed air** 7 atm (external) - 100 litres/min

**Brushless motors** with absolute encoder

**Noise level** <60 dB

**Linear axis resolution** ± 0,00005 mm (0.05 µ)

**Rotation axis resolution** ± 0,0008 rad

**Tool duplicate management** Optional

**Arrangement for external suction** Prearranged



## G5

**Dimensions (WxHxD)** 76 × 196 × 104 cm

**Weight** 800 Kg

**Tool change** Automatic

**Number of tools on board**

19 positions, cone change

**High frequency spindle** 2,1 Kw 10-50.000 rpm

**Axis rotation angle** A = ± 20° C /± 25° C= 360°

**Disk** Ø = 98,5 mm avec épaulement

**Tool diameter (shank)** 2 or 8 mm

**Tool length** up to 60 mm

**Tool measurement accuracy**

± 0,001 mm (1 µ)

**Tool rupture detection** Automatic

**Power supply (single phase)**

220÷240 V; 50÷60 Hz

**Compressed air** 7 atm (external) - 120 lt/min

**Brushless motors** with absolute encoder

**Noise level** <60 dB

**Linear axis resolution** ± 0,00005 mm (0.05 µ)

**Rotation axis resolution** ± 0,0008 rad

**Tool duplicate management** Optional

**Arrangement for external suction** Prearranged

# Machinable materials

Processing	AxyLab	Vector C5 - C6 - G5
Inlay	●	●
Onlay	●	●
Veneers	●	●
Crown	●	●
Anatomical crown	●	●
Anatomical bridge - cemented	●	●
Anatomical bridge - screwed	●	●
Telescopic crown	●	●
Bar on implants - cemented	●	●
Bar on implants - screwed	●	●
Secondary bar	●	●
Toronto bridge	●	●
All-on-4 / All-on-6	●	●
Ti / Cr-Co abutment	●	●
Ti / Cr-Co hybrid abutment	●	●
Abutment from pre-milled material	●	●
Removable prosthetics	●	●
Partially removable prosthetics	●	●
Occlusal Splint / Bite	●	●
Surgical template	●	●

Materials	AxyLab	Vector C5 - C6 - G5
Zirconia	●	●
PMMA	●	●
PMMA composite	●	●
PEEK	●	●
PU	●	●
Wax	●	●
Fibreglass	●	●
Pre-sintered Cr-Co	●	●
Disilicates	●	●
Glass-ceramic	●	●
Aluminium	●	●
Grade 2 Titanium pod	●	●
Grade 5 Titanium pod	●	●
Cr-Co alloy pod	●	●
Pre-milled Titanium	●	●
Pre-milled Cr-Co	●	●

- Recommended/suitable
- Not recommended

# Technical Features



## MV-R

**Dimensions (WxHxD)** 39 × 78 × 54 cm

**Weight** 65 kg

**Voltage range/Frequency** 220-240 V / 50-60 Hz

**Power max.** 3500 W

**Shortest heating period** 1500°C in 8 min.

**Max. temperature** 1650°C

**Heating elements** MoSi<sub>2</sub> (4 elements)

**Heating chamber height** 75 mm

**Thermocouple type** PtRh-Pt, type S

**Max. heating-chamber capacity** 2 trays -  
100/30 mm



## TecnoSint

**Dimensions (WxHxD)** 40 × 60 × 40 cm

**Weight** 55 kg

**Voltage range/Frequency** 220-240 V / 50-60 Hz

**Power max.** 1500 W

**Process capacity** Classic

**Max. temperature** 1650° C

**Heating elements** MoSi<sub>2</sub> (4 element))

**Heating elements** 42 mm

**Max. heating-chamber capacity** 100/30 mm

# Services and support

## At the service of your productivity



### Maximum customer support

#### Technology-oriented pre-sales courses

Pre-sales information courses for customers to find out about the most appropriate technology for their needs.

#### Installation service and certified education

Installation only by authorised technicians and certified education through issuing training documents.

#### Technical support via help desk centre

Technical, operational and procedural support for the use and management of milling machines/scanners and user protocols.



### Give your investment a greater value in time

- Post-sales training (Academy project)
- 2nd level training (Academy project)
- Subscription to 1<sup>st</sup> level technical support
- Subscription to 2<sup>nd</sup> level technical support
- Subscription to 3<sup>rd</sup> level technical support



### Services offered

- Installation
- Level 1 education
- Level 2 education
- Help Desk support



## Accademy project



The Academy project is the package of high value training services for Tecno-Gaz digital workflow. High profile trainers are able to teach the operators in the use of the most advanced technologies, in order to achieve the maximum quality and profit throughout the investment lifecycle.



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i n d u s t r i e s

# DIGITAL WORKFLOW

CAD/CAM Systems support and management project



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**SUSTAINABLE FUTURE**



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Ph: + 39 0523 93.66.04  
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