



DENTAL MACHINE



Dental Machine

The dental CAD-CAM specialist

The strength of focus

**Close to the client in
his own laboratory**

Dental Machine is an Italian company, completely independent from material and tool producers, who has been designing and manufacturing milling machines only for dental CAD-CAM since it was established, without any compromise with other industrial sectors.

We make your work easier

**We provide a solid base
so that the dental technician
can focus on creating
a beautiful and
functional prosthesis**

Our digital technology relieves the dental technicians of the most boring and repetitive tasks and allows them to focus on the key elements - functionality and aesthetics - in which they can fully express their professionalism and experience.

We are partners, not just suppliers

**"The seller must support
the client and help him to
do his job better and earn
more, sharing the results"**

We do not just sell machine;
we provide our customers with
our knowledge, based on 40
years of experience in numerical
control machines and 10 years in
dental CAD-CAM. Our aim is to
help our customers to improve
in terms of quality, time and
productivity and share the results.



5 *reasons*

to innovate
with Dental Machine

Reliability and growth over time

Our machines are designed and reviewed together with the top European dental laboratories, to combine performance with ease of use.

To meet the needs of the market and of new materials, we offer continuous innovation in hardware and software, along with innovative algorithms developed specifically for dental CAM, as well as the possibility of in-field upgrading of our machines.



Free and open system

Full compatibility with the main CAD systems on the market.

We share the philosophy of completely open and transparent systems; the client is not obliged to buy any specific material or tool.

There is no mandatory need to update the CAM software every year as it will continue to work even if not updated.



Quality, delivery time and cost

The basis of digital technology is to allow the dental lab to do its jobs faster, more accurately and - last but not least - at a much lower cost compared to traditional process or to an external milling centre. In-house milling provides a full control of the process in time, quality and cost.

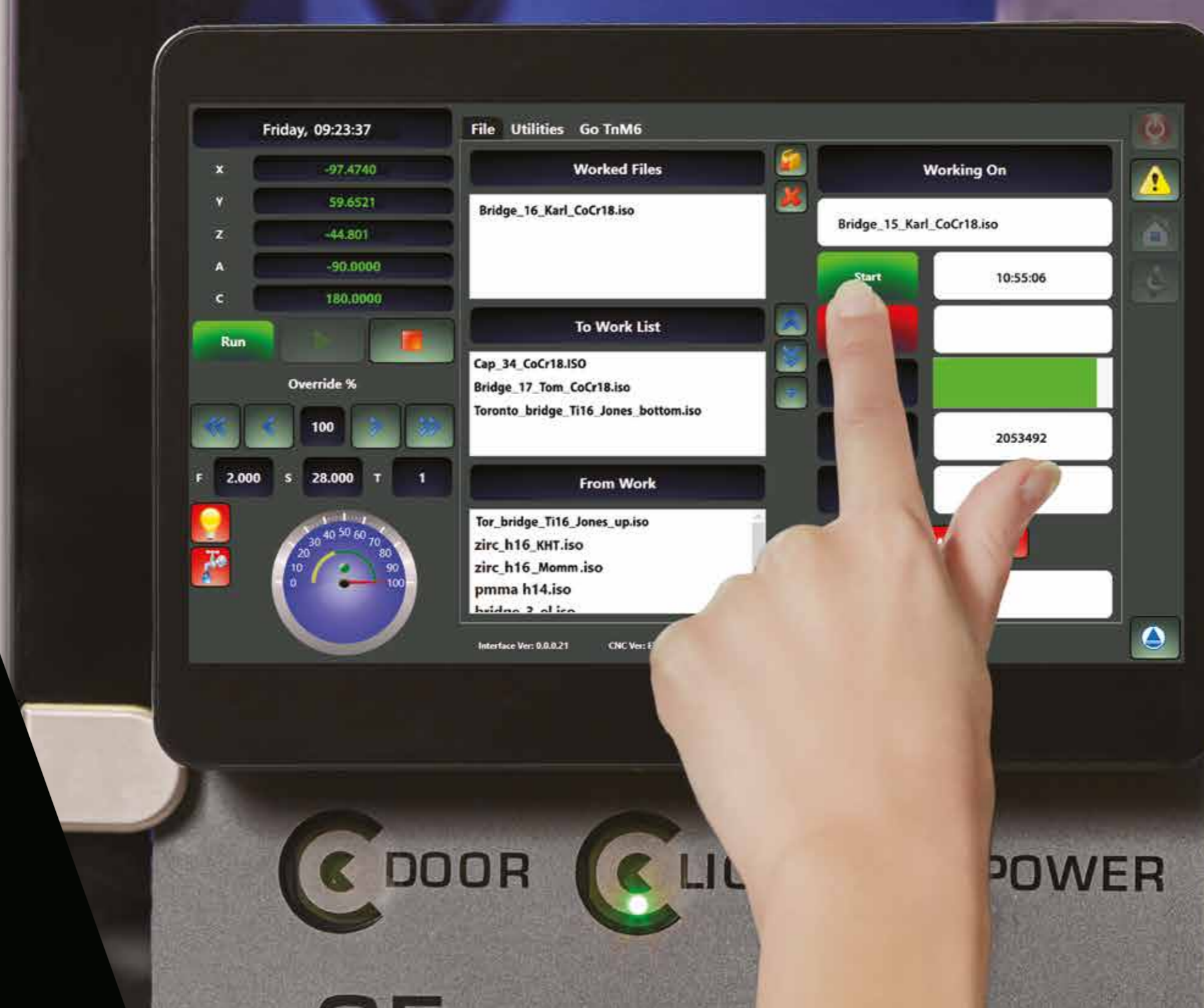


Ease of use

Working is... hard, but using a NC milling machine may also be enjoyable!

Thanks to a numerical control and an interface developed specifically for dental CAD-CAM, the machines are very easy to use, even by those who have no previous CAD-CAM knowledge.

Our multi-lingual interface can be easily set to customer's own language, so there is no need to learn a foreign language.



Continuous innovation

New materials, new prosthesis, new protocols and new software involve a continuous improvement in dental labs and milling technology.

Dental Machine works alongside material and software producers - as well as several top European dental labs – in order to cope with such evolution both by developing new machines and by looking at solutions to revamp those already in-field, to increase their service life.

We will never let you alone...



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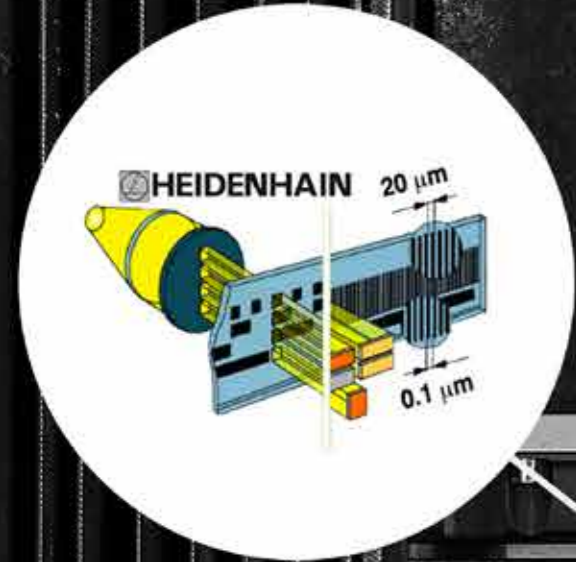
***Materials and
technologies***



Granite for exceptional stability

Granite is a one-of-a-kind material: it is so stable that over time the tomb of Cheops is still intact after 4,500 years. Today is mainly used in building synchrotrons and top-grade measuring instruments.

Thanks to its holocrystalline structure, it shows a very low thermal expansion and - instead of reflecting vibrations - it absorbs them and provides an exceptional stability and accuracy, far superior to all modern materials.

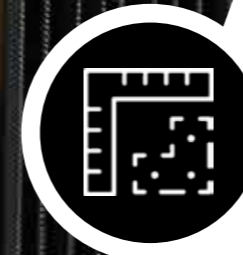


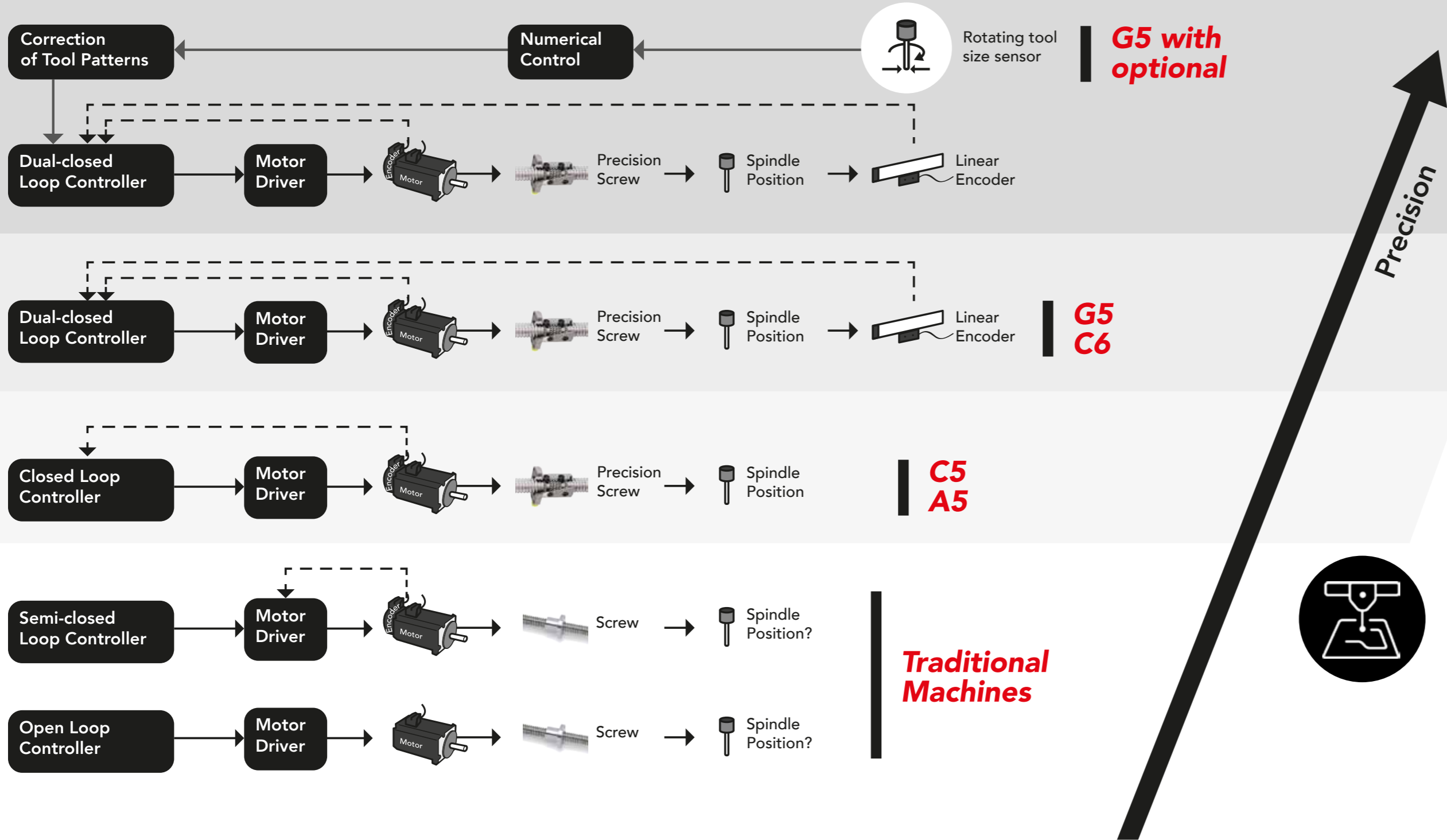
High precision dual closed-loop feedback: The linear encoders

Any moving component heats up when working and thus it expands and loses accuracy. Measuring the average temperature of the machine is not enough since each axis heats up in a different way.

Linear encoders are high-precision digital rulers that continuously read the actual position of the tool and forward it (1,000 times per second for each axis) to the controller of the numerical control, which corrects it when necessary.

Rotary encoders do the same job on the 2 rotating axes for the disc position. Thus the system provides a maximum error of about 0.001 mm on each of the 5 axes.

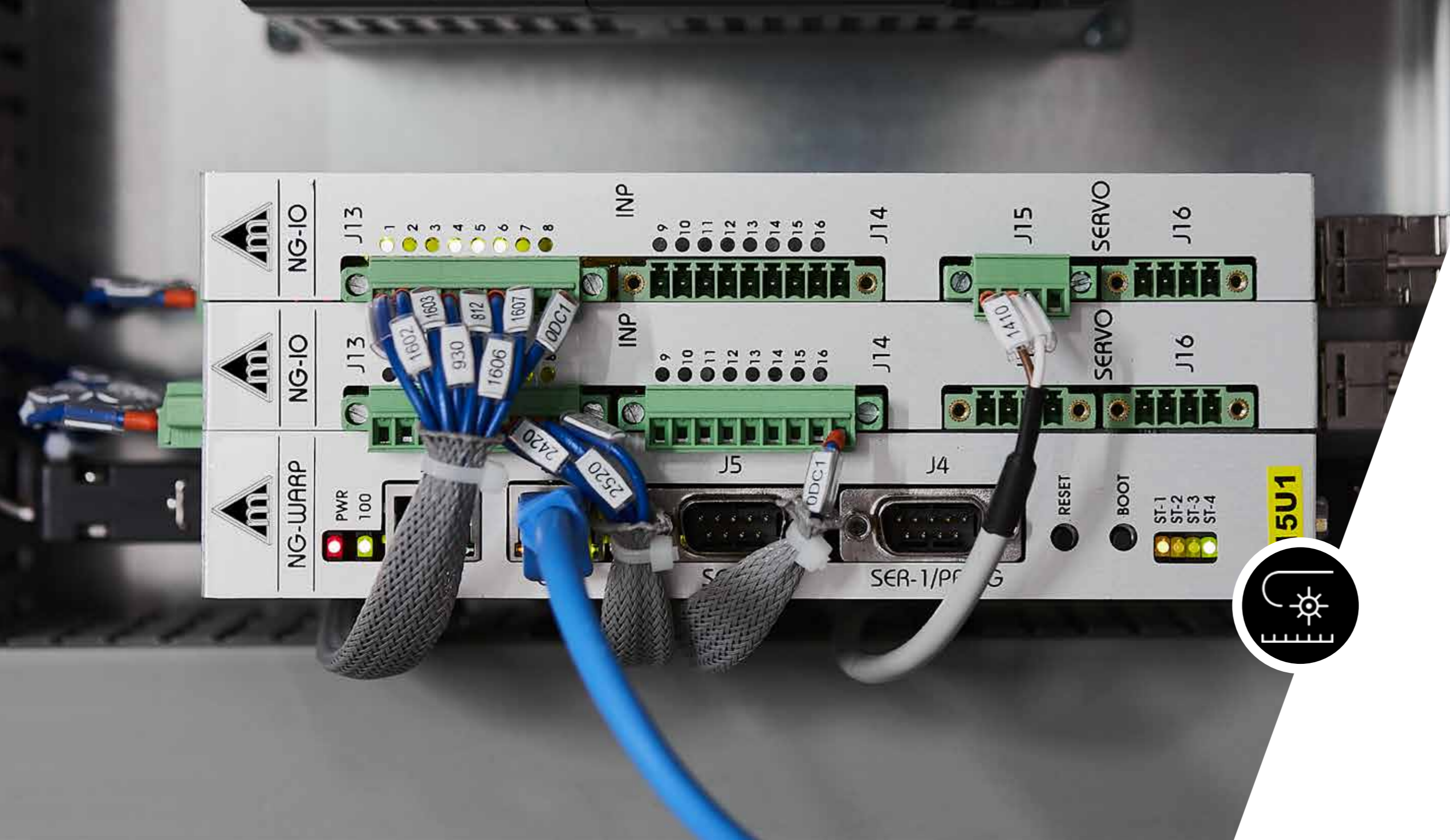




Automatic compensation of tool error

All tools have some errors that affect the accuracy of the prostheses, such as an actual diameter different from the nominal one, or a small flexion of the tip compared to the stem. Thus the "working" diameter is different from the theoretical one.

Dental Machine has developed an accessory that overcomes such inaccuracy by measuring the "working" diameter of the rotating tool and forwarding it to the numerical control, which changes the paths accordingly, and totally recovers the tool error.



The numerical control system

Dental Machine numerical control system is designed specifically for dental CAD-CAM, which involves a clear dominance of curved paths over straight ones.

Special algorithms avoid sudden adjustment manoeuvres, that are replaced with a slight rounding, to maintain accuracy and improve the milled surface.

The "look ahead" function takes into consideration the future spindle positions and adjusts, instant by instant, the speed of each individual axis based on "what comes next", in order to increase the average speed and reduce vibrations.



The components

Brushless motors with precision encoder and closed loop. Cartesian movements with ground and polished worm screws and recirculating ball bushings, with direct coupling (no belts and pulleys).

Rotary movements with lubricated-for-life hypocycloidal or epicycloidal gears with zero backlash.

Jaeger spindle with high frequency electronic control.

High quality components, manufactured in Italy, Germany and Japan to guarantee top accuracy and reliability.



DM Cloud

Thanks to Dental Machine platform, the client can manage his milling machine from any place in the world – by browser / App and a PC or tablet or smartphone – likes he does by the touch screen monitor of the machine itself.

In addition to that, the platform offers several additional services, such as remote diagnosis and maintenance, info on preventive maintenance, etc. and even the possibility of exchanging work between laboratories, to cope with a high workload.

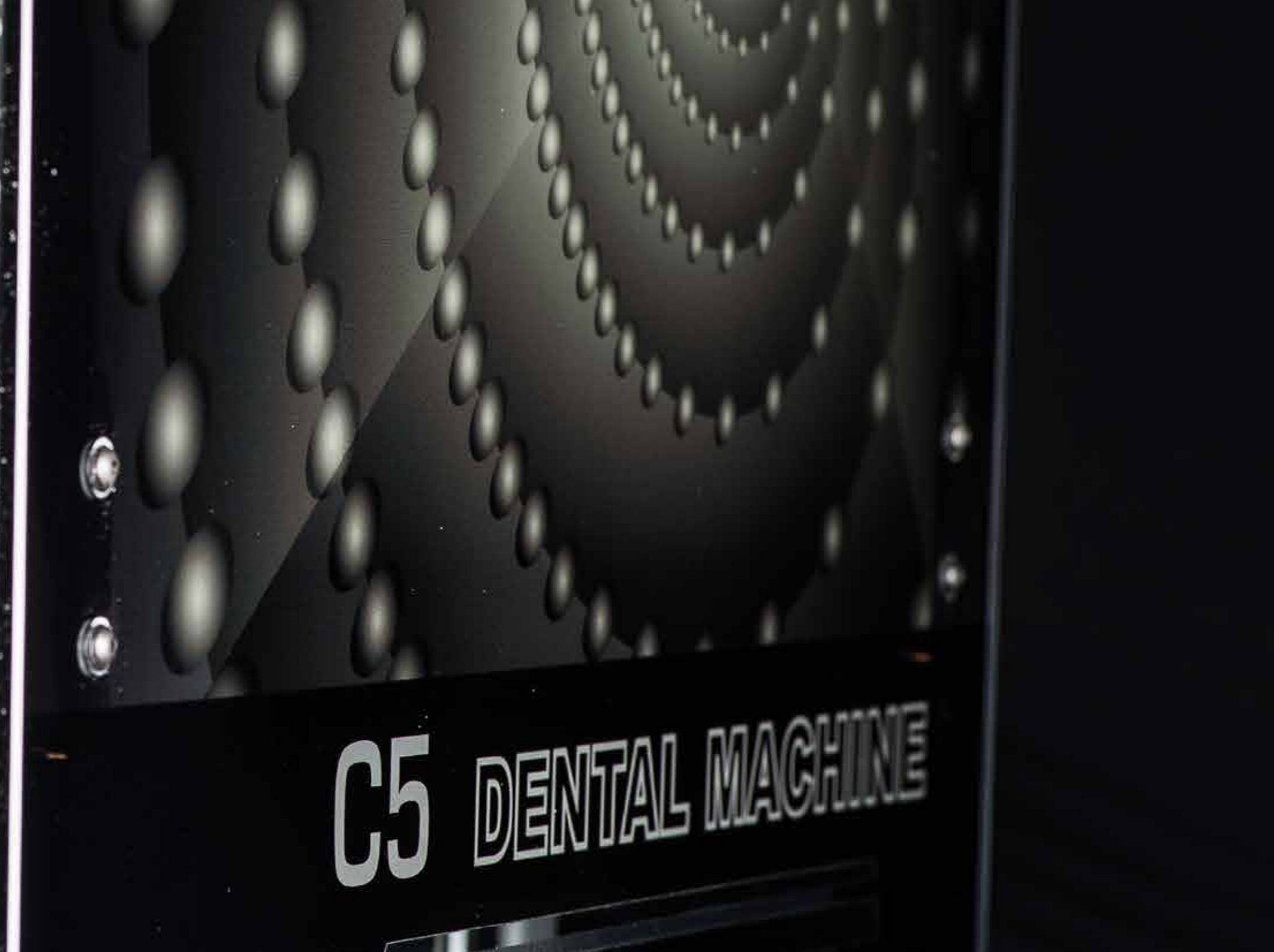


***Product
range***

Four solutions, for any size of dental lab and dental clinic

Same technology and different solutions according to customer's needs.

From "entry level" solution for soft material and small dental lab to the "heavy metal" ones, for screwed prostheses and hard alloys (Ti and CoCr), we offer a solution for any size of lab and dental clinic, any materials and any type of prosthesis.



A5

Number of axes	5 continuous
Size - mm - WxDxH	660 x 1000 x 950
Weight - kg	186 (410 lb)
Tool change	automatic
Number of tool positions	8 or 16
Electrospindle	Jäger 0.5 kW - 60,000 rpm
Axis-tilt angle	A = ±30° C = 360°
Disc diameter - mm	98.5 with step
Tool stem diameter - mm	3 or 4
Tool length - mm	37+50
Precision of tool length measure - mm	0.001
Tool breakage recognition	automatic
Power supply (single-phase)	220÷240 V - 50÷60 Hz
Compressed air need	7 atm - 50 lt/min
Brushless motor with closed loop encodes	standard
Noise level	< 60 dB
Linear axis resolution	± 0.00005 mm (0.05μ)
Rotary axis resolution	± 0.0008 rad
Managing of duplicated tool	optional
Wet / dry machining	standard
Managing of vacuum unit - external	standard
Pre-milled / block holder	optional
Closed loop digital encoder on linear axes	No
Closed loop digital encoder on rotary axes	No
Touch screen monitor	optional

- Table top, designed for soft materials and disilicates
- Heavy steel structure for maximum stability
- 5-axes continuous milling
- Optimised strategy for 5-axes continuous milling on all materials
- Brushless motors with high resolution (20 bit) encoders for closed loopw
- Linear movements with ground and polished worm screws and recirculating ball bushings, with direct coupling (no belts and pulleys).
- Rotary movements with lubricated-for-life hypocycloidal or epicycloidal gears with zero backlash
- Automatic tool change with 8 or 16 tool positions
- Jäger 0.5 kW, 60,000 rpm HF spindle
- Wet ↔ dry change in less than one minute

A5 Entry level milling center



C5

Number of axes	5 continuous
Size - mm - WxDxH	661 x 1000 x 950
Weight - kg	221 (487 lb)
Tool change	automatic
Number of tool positions	16
Electrospindle	Jäger 1 kW - 60,000 rpm
Axis-tilt angle	A = ±30° C = 360°
Disc diameter - mm	98.5 with step
Tool stem diameter - mm	4 or 6
Tool length - mm	37+50
Precision of tool length measure - mm	0.001
Tool breakage recognition	automatic
Power supply (single-phase)	220+240 V - 50+60 Hz
Compressed air need	7 atm - 80 lt/min
Brushless motor with closed loop encodes	standars
Noise level	< 60 dB
Linear axis resolution	± 0.00005 mm (0.05μ)
Rotary axis resolution	± 0.0008 rad
Managing of duplicated tool	optional
Wet / dry machining	standard
Managing of vacuum unit - external	standard
Pre-milled / block holder	optional
Closed loop digital encoder on linear axes	No
Closed loop digital encoder on rotary axes	No
Touch screen monitor	optional

- Table top, designed for all materials
- Heavy steel structure for maximum stability
- 5-axes continuous milling
- Optimised strategies for 5-axes continuous milling on all materials
- Brushless motors with high resolution (20 bit) encoders for closed loop
- Linear movements with ground and polished worm screws and recirculating ball bushings, with direct coupling (no belts and pulleys).
- Rotary movements with lubricated-for-life hypocycloidal or epicycloidal gears with zero backlash
- Automatic tool change with 16 tool positions
- Jäger 1.0 kW, 60,000 rpm HF spindle
- Wet ↔ dry change in less than one minute

C5 Medium size milling center



C6

Number of axes	5 continuous
Size - mm - WxDxH	662 x 1000 x 950
Weight - kg	230 (507 lb)
Tool change	automatic
Number of tool positions	18
Electrospindle	Jäger 3 kW - 60,000 rpm
Axis-tilt angle	A = ±30° C = 360°
Disc diameter - mm	98.5 with step
Tool stem diameter - mm	4 or 6
Tool length - mm	37+50
Precision of tool length measure - mm	0.001
Tool breakage recognition	automatic
Power supply (single-phase)	220+240 V - 50+60 Hz
Compressed air need	7 atm - 150 lt/min
Brushless motor with closed loop encodes	standard
Noise level	< 60 dB
Linear axis resolution	± 0.00005 mm (0.05µ)
Rotary axis resolution	± 0.0008 rad
Managing of duplicated tool	optional
Wet / dry machining	standard
Managing of vacuum unit - external	standard
Pre-milled / block holder	optional
Closed loop digital encoder on linear axes	standard
Closed loop digital encoder on rotary axes	No
Touch screen monitor	optional

- Premium grade table top milling centre for medium-large labs and dental clinics (any material, any prosthesis, cemented or screwed)
- Heavy steel structure for maximum stability
- 5-axes continuous milling
- Optimised strategies for 5-axes continuous milling on all materials
- Brushless motors with high resolution (20 bit) encoders for closed loop
- Linear encoders on the Cartesian axes for dual closed-loop.
- Linear movements with ground and polished worm screws and recirculating ball bushings, with direct coupling (no belts and pulleys).
- Rotary movements with lubricated-for-life hypocycloidal or epicycloidal gears with zero backlash.
- Automatic tool change with 18 tool positions
- Jäger 3.0 kW, 60,000 rpm HF spindle for heavy duty metal milling with external cooling unit (included)
- Wet ↔ dry change in less than one minute

C6 Heavy metal milling center



G5

Number of axes	5 continuous
Size - mm - WxDxH	760 x 1040 x 1950
Weight - kg	790 (1,742 lb)
Tool change	automatic
Number of tool positions	20 (*)
Electrospindle	Jäger 2.1 kW - 50,000 rpm
Axis-tilt angle	A = ±30° C = 360°
Disc diameter - mm	98.5 with step
Tool stem diameter - mm	from 2 to 10 (*)
Tool length - mm	< 60
Precision of tool length measure - mm	0.001
Tool breakage recognition	automatic
Power supply (single-phase)	220÷240 V - 50÷60 Hz
Compressed air need	7 atm - 120 lt/min
Brushless motor with closed loop encodes	standard
Noise level	< 60 dB
Linear axis resolution	± 0.00005 mm (0.05μ)
Rotary axis resolution	± 0.0008 rad
Managing of duplicated tool	standard
Wet / dry machining	standard
Managing of vacuum unit - external	on request
Pre-milled / block holder	optional
Closed loop digital encoder on linear axes	standard
Closed loop digital encoder on rotary axes	standard
Touch screen monitor	standard
Dynamic tool measure & feedback (**)	optional

(*) High precision ISO20 tool holder; any tool may have its own stem diameter
 (**) Measure of the effective tool diameter (in rotation) and automatic correction

- Premium grade milling centre for medium-large labs and dental clinics (any material, any prosthesis, cemented or screwed)
- 5-axes continuous milling
- Optimised strategies for 5-axes continuous milling on all materials
- Granite gantry system with 6 operating axes (plus tool changer)
- Whole operating structure in solid granite from South Africa (not only the basement) provide exceptional accuracy and stability in time
- Off-line tool assembly on ISO20 cones: each tool may have its own stem diameter (from 2 to 10 mm) and length (both metric and non-metric)
- Automatic tool change with 20 tool positions.
- Brushless motors with high resolution (20 bit) encoders for closed loop
- Linear encoders on the Cartesian axes and rotary encoders on rotary axes provide a dual closed-loop system of an exceptional repeatability and reproducibility of variable parameters (1,000 checks per second and correction when needed, on each of the 6 axes)
- Jäger 2.1 kW, 50,000 rpm HF spindle for heavy duty metal milling with external cooling unit (included)
- Wet ↔ dry change in less than one minute

G5 Granite universal milling center



A5

Entry level

Small dental lab

First approach to dental CAD CAM; soft materials and disilicates

C5

Medium level

Medium size dental lab

Soft material, disilicates and hard material (cemented Ti and CoCr)

C6

Heavy metal

Medium size dental lab or dental clinic

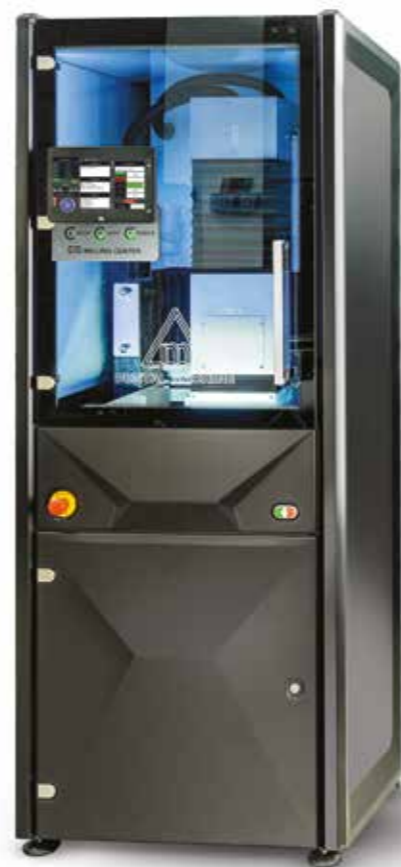
All materials, all jobs; designed for hard material (Ti and CoCr) and screwed prosthesis

G5

All-jobs

Large dental lab or dental clinic

Universal machine: all jobs, all prosthesis



Features

	A5	C5	C6	G5
Number of axes	5 continuous	5 continuous	5 continuous	5 continuous
Size - mm - WxDxH	660 x 1000 x 950	661 x 1000 x 950	662 x 1000 x 950	760 x 1040 x 1950
Weight - kg	186 (410 lb)	221 (487 lb)	230 (507 lb)	790 (1,742 lb)
Tool change	automatic	automatic	automatic	automatic
Number of tool positions	8 or 16	16	18	20 (*)
Electrospindle	Jäger 0.5 kW - 60,000 rpm	Jäger 1 kW - 60,000 rpm	Jäger 3 kW - 60,000 rpm	Jäger 2.1 kW - 50,000 rpm
Axis-tilt angle	A = ±30° C = 360°	A = ±30° C = 360°	A = ±30° C = 360°	A = ±30° C = 360°
Disc diameter - mm	98.5 with step	98.5 with step	98.5 with step	98.5 with step
Tool stem diameter - mm	3 or 4	4 or 6	4 or 6	from 2 to 10 (*)
Tool length - mm	37+50	37+50	37+50	< 60
Precision of tool length measure - mm	0.001	0.001	0.001	0.001
Tool breakage recognition	automatic	automatic	automatic	automatic
Power supply (single-phase)	220+240 V - 50+60 Hz	220+240 V - 50+60 Hz	220+240 V - 50+60 Hz	220+240 V - 50+60 Hz
Compressed air need	7 atm - 50 lt/min	7 atm - 80 lt/min	7 atm - 150 lt/min	7 atm - 120 lt/min
Brushless motor with closed loop encodes	standard	standard	standard	standard
Noise level	< 60 dB	< 60 dB	< 60 dB	< 60 dB
Linear axis resolution	± 0.00005 mm (0.05µ)	± 0.00005 mm (0.05µ)	± 0.00005 mm (0.05µ)	± 0.00005 mm (0.05µ)
Rotary axis resolution	± 0.0008 rad	± 0.0008 rad	± 0.0008 rad	± 0.0008 rad
Managing of duplicated tool	optional	optional	optional	standard
Wet / dry machining	standard	standard	standard	standard
Managing of vacuum unit - external	standard	standard	standard	on request
Pre-milled / block holder	optional	optional	optional	optional
Closed loop digital encoder on linear axes	No	No	standard	standard
Closed loop digital encoder on rotary axes	No	No	No	standard
Touchscreen monitor	optional	optional	optional	standard
Dynamic tool measure & feedback (**)	No	No	No	optional

(*) High precision ISO20 tool holder; any tool may have its own stem diameter

(**) Measure of the effective tool diameter (in rotation) and automatic correction

Suggestions for choosing the machine: based on jobs to be performed

	A5	C5	C6	G5
Inlay	●	●	●	●
Onlay	●	●	●	●
Veneer	●	●	●	●
Crow	●	●	●	●
Automatic crown	●	●	●	●
Automatic bridge-cemented	●	●	●	●
Automatic bridge-screwed	●	●	●	●
Telescopic crown	●	●	●	●
Bar on implants - cemented	●	●	●	●
Bar on implants - screwed	●	●	●	●
Secondary bar	●	●	●	●
Tronto bridge	●	●	●	●
All-on-4 / All-on-6	●	●	●	●
Abutment Ti /Co-Cr	●	●	●	●
Hybrid abutment Ti / Co-Cr	●	●	●	●
Abutment from premilled	●	●	●	●
Scan abutment	●	●	●	●
Mobile prosthesis	●	●	●	●
Removable partial denture	●	●	●	●
Occlusal Splint / Bite	●	●	●	●
Surgical guide	●	●	●	●

- Ideal
- Feasible
- Not recommended

Suggestions for choosing the machine: based on materials used

	A5	C5	C6	G5
Zirconia	●	●	●	●
PMMA	●	●	●	●
PMMA composite	●	●	●	●
PEEK	●	●	●	●
PU	●	●	●	●
Wax	●	●	●	●
Fiber glass	●	●	●	●
Cr-Co presintered	●	●	●	●
Disilicates	●	●	●	●
Glass ceramic	●	●	●	●
Aluminium	●	●	●	●
Titanium gr2	●	●	●	●
Titanium gr5	●	●	●	●
Co-Cr alloys	●	●	●	●
Ti premilled	●	●	●	●
Co-Cr premilled	●	●	●	●

- Ideal
- Feasible
- Not recommended



The strength of focus



Dental Machine Srl



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