

performa

Your CAD-CAM



CAD-CAM in dentistry

Advantages

CAD-CAM technology is more and more widespread and used for the creation of prosthetic products in dentistry, as it offers increasingly useful and accessible advantages to dentists, technicians and patients:

- **optimization** of material and production time in the lab;
- **greater flexibility** in the creation of the shape of the prosthetic artifact;
- **subgingival volume** individualized and **ideal positioning of margins** with less problems in cementation phases;
- **better management of soft tissues** for excellent esthetic results;
- **maximum in personalization** for the patient based on the type of rehabilitation required.

...and limitations of current solutions

The fast development of the digitals often is not accompanied by standardised protocols and specific expertise, thus creating criticalities during the application by the new users.

Moreover, in many cases, the companies do not offer all the instruments for a complete management of the workflow, increasing the complexity of the processes.

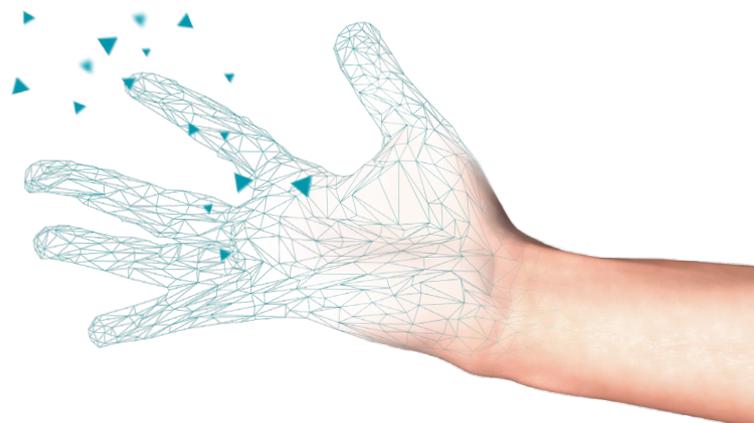
Performa, your CAD-CAM

Since 2015, Geass has developed a **milling service** to be a **reliable partner** in the workflow of CAD-CAM restorations, applying the **industrial and design know-how** acquired during decades of production entirely dedicated to the dental sector.

The Performa customised prosthesis offers:

- **wide range of materials**;
- **versatility of productions**;
- **flexibility** in meeting the needs of the lab.

Whatever the level of digitalization of the operator is, Geass is able to give a **service**, which perfectly integrates with the lab workflow.



Metals

Customised abutments and screwed crowns

In the single elements, Geass has come up with an innovative solution to overcome the limits of current CAD-CAM productions on implants present on the market.

A unique technology which integrates the advantages of **milling** for the anatomical part with the advantages of **machining** to achieve precise and repeatable connections, working from **bar** instead of disk or pre-milled.



The anatomical part is produced through **MILLING**

Advantages

- Greater freedom in shapes, thanks to an optimized management of the undercuts;
- the absence of the support pins avoids any intervention of removal in critical areas, such as margins, thus allowing for a **faithful reproduction** of the planned profiles;
- **volume corresponding** to the planned .stl file;
- the production in a single phase avoids the repositioning of the workpiece, ensuring **perfect axuality** between anatomical part and passing-through screw.



The tool moves in three directions



The connection is produced through **MACHINING**

Advantages

- **Implant connection** which is identical in precision, reliability and safety to traditional **industrial abutments**: the same **machining**, the same **control standards** and the same **tolerance values** (0.01 mm);
- repeatable precision and implant-abutment coupling, identical to the **industrial abutments**, for a reliable connection.



The connection is produced through machining

Avoiding subsequent adjustments, the correspondence with the planning is always guaranteed, therefore the abutment and the corresponding cap can be planned and prepared simultaneously.

Bridges and screwed structures

As a guarantee of **correct fit** of the artifact on more elements, the Performa procedures foresee two specific passages:

- 1) in pre-production phases, **the contact scanning** of the model is carried out with an **industrial probe**, so that any error connected to the optical scanning is rectified;
- 2) in post-production phases, before being sent to the laboratory, each structure is submitted to an internal **control test**, based on the Sheffield test principal, which verifies the effective fit of the Performa structure on model supplied*.

Upon request, Geass issues a **certificate** with iconographic documentation, attesting the correct fit **.

Advantages

- No risk of stress on implant or prosthetic components
- No need of corrections for the laboratory



*the models supplied must be provided with new analogs and removable gingiva.

** the request must be made when placing the order and it is subject to a supplement.

Surface finish



Supragingival portion

Two finish options are available:

Basic: standard machining, which requires subsequent processing by the dental technician.

Top: optimised surface for the type of prosthetic restoration, facilitating adhesion of cement or covering material. No need of additional processing in the lab.



Advantages

- Excellent solution for all kind of covering
- Flexible choice for the lab



Subgingival portion

All products include a smooth portion, characterized by a surface with Ra equal to 0.29 micron.

Advantages

- Minor plaque adhesion and minor bacterial proliferation
- Stability and health of soft tissues over time

▸ Laser Melting

The Performa production center offers customized solutions in laser melting, relying on the latest manufacturing technologies linked to 3D printing.

Techniques of Additive Manufacturing allow for more freedom in the production of anatomically complex morphologies, compared to subtraction techniques.

The quality and physical-chemical characteristics of the dusts, together with the laser technique, guarantee precise productions, in line with the design files and stable in the subsequent phases of refining and ceramization.

The Performa laser melting productions are available in two different levels of surface finish: basic and top.

The Basic solution foresees sending of the artifact complete of support flaps, that the technician must remove.

The Top production foresees the supply of structures without support flaps, typical of laser melting productions; there is no need therefore of further processing in the laboratory.

The internal level of finish remains the same for both products.



basic finish



top finish



▸ Zirconia

Dedicated production center

The milling machines are dedicated and optimised for the production of customized prosthesis in ceramic material, thus maximising the **production efficiency** and ensuring **products not contaminated** by other materials.

Quality of raw material

Geass has selected the producers of zirconia, able to guarantee the **best physical-chemical characteristics** and a perfect **esthetic result**.

Wide range of materials

A wide range of types of zirconia is available to allow the technician to choose the perfect material, based on the kind of prosthetic restoration:

- Matt zirconia 1200-1400 Mpa
- Translucent zirconia 1000-1200 Mpa
- Multilayer zirconia 600-800-1000 Mpa

Customized coloring

The infiltration of the work is characterized by a **high level of flexibility**, according to the requests from the laboratories, offering a **particularly detailed final characterization**.



▸ PMMA

The Performa production center offers processings in PMMA for management of **temporary prosthetic structures**.

The offered materials differ on the basis of the colour. Besides **standard colours**, **multilayer materials** are also available for a more detailed characterization of the work.



3D printing

The Performa production center completes the range of digital solutions, offering **resin models**, obtained from 3D printing, starting from -stl file. The 3D printing technology used by the Performa production center and the know-how of the operators guarantee **precise productions and fast development times**, ensuring the **efficiency** of the digital flows.

The productions differ on the basis of the **kind of material** and the prosthetic **purpose** of the models:

- models on **natural teeth** with **removable elements**;
- models on **implants** with housing for digital analogs;
- **orthodontic** models;
- models for the management of immediate loading in **guided surgery**;
- bone **replicas**

The materials available are the following:

- standard resin for **models** and **test structures**;
- resin for **intraoral impression models** and high definition **guided surgery**;
- transparent resin for **orthodontic bites**;
- biocompatible resin for **surgical guides**.

To complete the digital workflow, a wide range of digital analogs is available, **with the related libraries**.



Materials and CAD-CAM processes available

		Ti	Cr Co	laser melting Cr Co	Zr matt	Zr translucent	Zr multilayer	PMMA neutral	PMMA multilayer
	Bridges, crowns and caps on natural elements	✓	✓	✓	✓	✓	✓	✓	✓
	Customized abutments	✓			✓	✓			
	Screwed crowns	✓	✓	✓	✓	✓	✓	✓	✓
	Screwed bridges and Toronto	✓	✓	✓	✓	✓	✓	✓	✓
	Linear bar for overdenture	✓	✓						

The processings and services available are: scanning, modelling, creation of false gingiva, model cut, threaded hole, tilted hole



Tilted hole

For the screwed prosthetic **restoration on implants**, it is possible to request the processing with tilted hole, when the screw access hole does not allow for an excellent esthetic result.

Dedicated screws and specifically developed instruments allow for cad planning and the production of **access holes tilted with respect to the original prosthetic axis**, thus avoiding to affect the vestibular or incisal portion of the tooth.

Moreover, this solution facilitates also the clinician in **tightening of the prosthesis**, making the access in cases of restricted vertical spaces easier.

The proposed system allows for the management of holes **with inclination up to 20°** for the optimization of screwed restorations.

The screw head is characterized by a spherical engagement, allowing to incline the access canal of the screw itself.

Geass **screws** for tilted hole are distinguished from the standard ones by a **yellow colouring** and they are to be handled with the same specific instruments for tilted hole, whatever the implant connection is.



Performa standard screw



Screw tilted hole



tilted hole on direct screwed structure



tilted hole on linker

Accessories

In order to help clinicians and technicians to **develop efficient and integrated workflows**, Geass offers a wide range of **scanbodies and digital analogs complete of integrated libraries in the main Cad modelling softwares**. By using Geass scanbody, it is possible to take intraoral impressions on implants, to pass directly to **digital modelling** of the prosthesis or to plan and produce **3D models** with housing for the analogs.

Scanbody

To transfer the position of the implant from reality to the CAD software in three dimensions. **They always have to be matched up with Geass library; the use of the matting spray is not required** during scanning.

For implants with conical connections, the scanbody is made in part from titanium, so that repositioning is precise and repeatable.

For some implant lines, a version with a higher transmucousal height is also available, useful in cases of particularly subcrestal implant placement.

Use on model

To tighten with Performa Torque at **4 N•cm**.

Use on patient

As it is **sterilizable**, Geass scanbody can also be used for **intraoral scanning**; in this case use the Performa insert for fixing.



Digital analog

Specific for processings that derive from **taking digital impressions**, it ensures correct repositioning on the 3D printed model thanks to the presence of hexagonal sides, which also facilitate insertion.

The screw, included in the pack, ensures analog stability in the model and in many cases avoids the use of adhesive substances. The screw must be tightened with the Performa Torque tool.

Geass digital analogs are complete with the **implant libraries** necessary for virtual modelling through the main CAD softwares and for the creation of models using 3D printing.





Linker

Linkers are **bases in titanium**, acting as an interface between implant and CAD-CAM artifact. They **guarantee high precision and resistance in the connection** even when materials different from titanium are used for the creation of the prosthesis.

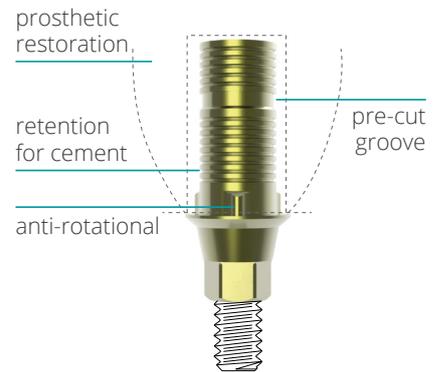
Using the **bonding technique**, thanks to Linkers it is possible to create in complete safety single elements or multiple structures in materials like zirconia, lithium disilicate, PMMA or laser melting.

The **checkering** present on the upper part improves retention of the cement, while the fine border on the lower part allows you to place the esthetic material; the **coloring** is yellow to facilitate the obtainment of the esthetic result also from a chromatic point of view.

The height of the Linker is easily adaptable to the clinical situation, thanks to the **pre-cut groove** which, finding correspondence in the libraries, also facilitates the technician in the design of the prosthesis.

It is available in **rotating and non-rotating version**; the latter has three emerging elements in the higher part as an anti-rotational reference for repositioning of the CAD-CAM element.

Especially in cases of **high esthetic value**, Linkers are the ideal support to unite the advantages deriving from new materials, with the reliability of the titanium-titanium interface for the connection with the implant.





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