



**Graphenano**  
DENTAL

# Work process



**G-CAM**

CE  
1984

FDA  
cleared



Made in  
Spain

## Clinical and laboratory work process for G-CAM restorations

### Cemented prosthesis

1. Dental impression and prosthesis design.
2. In order to verify the correct assessment of the prosthesis design, we recommend a PMMA to check the adjustment and occlusion. A photography will be helpful to warranty the definitive design of the prosthesis.
3. Mill the finish G-CAM structure and sandblast the internal part of the crown for clinical cementation process.

### Implants prosthesis

1. Dental impression.
2. Dental implant verification + wax occlusion rims (for record the vertical dimension and intermaxillary relation of the patient). Passivity checkup with an orthopantomography and reference lines on the wax rims.
3. Denture wax test for functionality occlusion and aesthetics. Request a photography to verify the test or perform the corresponding corrections, as appropriate.
4. Finish the G-CAM structure, ready for the screw process by the dentist and cover the screw hole with composite. We recommend one last X-Ray to check the correct positioning of the restoration and perform a new occlusion check.

\* The occlusal check-up in the clinic is extremely important once the prosthesis is placed in the mouth. Please note that the patients have jaw movements which technicians cannot record in a conventional articulator, except for face bow record for a fully adjustable articulator.

## G-CAM work process

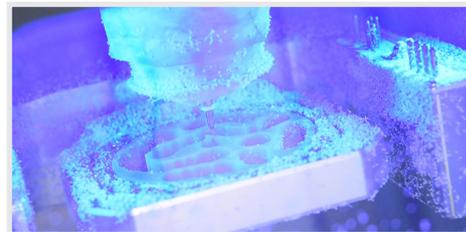
### Process

1. Scan the models and design the prosthesis. Always setting the G-CAM parameters by Graphenano Dental.
  - The minimum thickness for the walls of the reconstructions should be 0.6 mm in occlusal and 0.4 mm in cervical areas.
  - The cross-sections of the connectors in the anterior area should not be less than 9 mm<sup>2</sup> or less than 13 mm<sup>2</sup> in posterior areas.
  - No more than three elements between two teeth.
2. For implants structures, we must consider the following data:
  - **Number of implants and distance between implants:** no more than three pontics.
  - **Submerged implants:** It is necessary to place with transepithelial or Abutments with the appropriate base height, raising the implant connection levelness to the height of the gingiva.
  - **Vertical dimension:** assess whether to place Ti-base or Abutment. If height of the Ti-base does not exceed the 50% of the height of the restoration, should be replaced with Abutment, to ensure the stability of the structure and avoid descementation.
  - **The radius thickness** of the base of the abutment should be at least 0.15mm.
  - **The cantilever** must not exceed 11 mm in length and do not individualize in the palatal or lingual area of the structure.
  - **Occlusion:** Crowns: light occlusion in intercuspal occlusion and without contacts in excursive movements. Half arch: functional occlusion in intercuspal occlusion and bilateral group function. Full arch: balanced articulation.
3. Mill the G-CAM structure with the PMMA strategy and extract the prosthesis from the disc.
4. In case of implants structures, the first step consists of doing the Ti-base or abutments cementation. (Follow the cementation process).
5. Prepare the prosthesis with grinding instruments and finish the G-CAM structure with the assigned characterization. (Follow the characterization protocols).

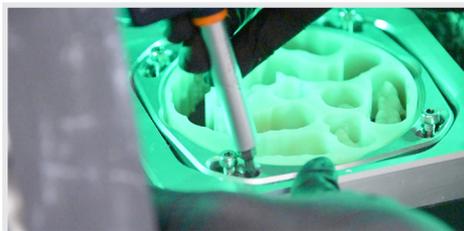
## Characterization with superficial stains



1. Scanning and design



2. CAD/CAM drilling



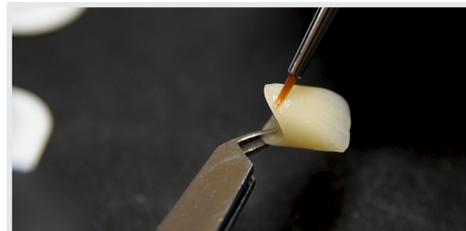
3. G-CAM disc removal



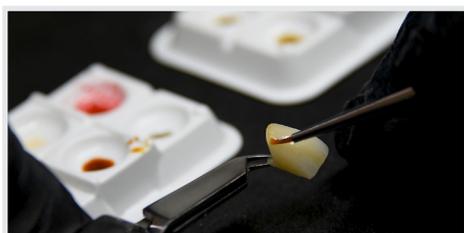
4. Remove and anatomical verification of tooth



5. Sandblasting



6. Apply adhesive and light-cure

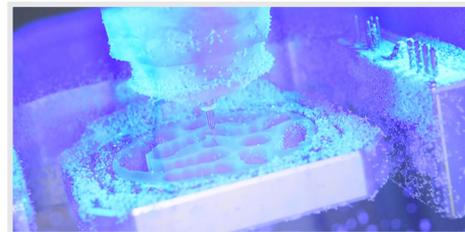


7. Stain and glaze of light-curing tooth

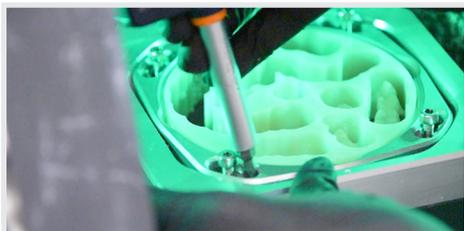
## Stratification with transparent flask



1. Scanning and design



2. CAD/CAM drilling



3. G-CAM disc removal



4. Remove and anatomical verification of tooth



5. Muffles preparation



6. Cut-Back method



7. Muffle process



8. Reworking and sandblasting of tooth



9. Apply adhesive and light-cure



10. Stain and glaze of light-curing tooth

## Characterization protocol with stains and incisal / pink gingiva stratification

1. Sandblasting the G-CAM structure with aluminum oxide (110 microns), with 2/3 bars of pressure in the areas that we are going to characterize. Remove the remaining aluminum oxide and do not clean with water stream.
2. Spray the structure with alcohol or isopropyl alcohol to eliminate the superficial tension, grease and helps for an optimal bond with the characterization material. It is very important to let the alcohol dry completely.
3. Add a thin layer of acrylic adhesive.
4. Light curing.
5. Characterize the G-CAM structure with stains or stratification with incisal or pink gingiva. Example: Vita Akzent LC, GC Optiglaze, Crea.ling-Bredent, etc.
6. Finally, two types of finishes: Manual Polishing or Glaze (read the instruction sheet for an optimal light curing). If we use superficial stains, we must apply a thin layer of glaze to fix the stains, but in both cases, we recommend finish the polish with a cotton thread polishing wheel at 10.000 rpm, to remove the excess of the glaze and seal the G-CAM surface.

\* Important: depending on the material that we are going to use for the characterization, the manufacture company will stablish the time and the wavelength necessary for an optimal light curing of the material. (Check that the light curing machine is the correct and read the instruction sheet of the material.

## G-CAM Ti-base or abutment cementation

For a single crown we recommend to do the cementation on the work model and without the gingiva, so we can ensure the correct position of the Abutment and the crown.

In case of structures of more than one implant, the cementation of the Ti-base or Abutment must be carried out separated the work model and then couples the structure with the model. It is important a completely passivity of the G-CAM structure.

### Cementation protocol

1. Check the restoration setting with the margin line of the Ti-base or Abutment.
2. Sandblasting the inside of the G-CAM restoration and the metal body of the Ti-base or Abutment with aluminum oxide (110 micron) at 2/3 bars of pressure and do not clean with water stream.
3. Remove the remaining aluminum oxide, clean the G-CAM structure with alcohol and let it dry completely.
4. Apply a thin layer of acrylic adhesive in the internal area of the G-CAM structure metal adhesive for the abutment.
5. Place the cement directly on the outside of the Ti-base or Abutment and immediately place the G-CAM structure. Example: Multilink Hybrid Abutment, DTK-Bredent, etc. (Read the instruction sheet for a correct use).
6. Remove the excess of the cement and light curing.
7. If the structure has more than one implant, check the entrance of the G-CAM structure and if necessary, grind inside of the Ti-base or Abutment until the structure is passive.
8. Screw the G-CAM structure to the work model for one last review.

## G-CAM cementation to natural tooth

### Cementation protocol

1. Check the cervical sealing and proximal fit.
2. Sandblasting the inside of the G-CAM restoration. If sandblasting has not been done recently, you must repeat the operation before the cementation, then remove the remaining aluminium oxide and do not clean with water stream.
3. Apply to the G-CAM restoration a thin layer of universal light-cure adhesive and light-cure.
4. Wash and dry the tooth for etching process and isolate the work area.
5. Apply the primer to the tooth, dry and light curing.
6. Apply the cement directly inside the G-CAM restoration. Use specific cements for the cementation of resin or composite restorations. Example: Multilink o Variolink N - ivoclar, Duo Link - Bisco, 3M relyx unicem, etc.
7. Place immediately in the prepared tooth applying moderate pressure.
8. Remove the excess of the material.
9. Light curing all the margins.
10. If necessary, finish and polish the margin.

\* Important to read the instruction sheet of the material to be used for cementation, each cement may need a specific protocol.