***TENAZ** (Semi-flexible injectable thermoplastic polyamide)*
TECHNICAL INSTRUCTIONS

This is a descriptive manual of the technical steps, indications and suggestions for the making of BULKFLEX dentures with injected polyamide TENAZ. We clarify that many indications are only suggestions in order to achieve a better performance of your BULKFLEX denture.

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MAKING OF THE DENTURE

MODEL CASTING

It is recommended to make the models in **special plaster type III or type IV (Densita)**.

PARALLELIZATION OF THE MODEL

In the same way as with chrome, it is recommended to use a pendular parallelometer to look for the most favorable insertion axle, determining the dental equator, according to which the retainers we will be designed. Then, proceed to eliminate all the inconvenient or blind spots, applying wax and passing the rod**.**

RETENTIVITY

Once the parallelization has been completed, tidy up any wax excess that may have been left over the dental equator and the gingival pad, from the medial area until the retainer's end. This will give the dentures the necessary retentivity.

RELIEFS

Perform reliefs in wax covering a band of 1 mm to 1.5 mm.

DUPLICATE

Make a duplicate of the model to work on hereafter.
Duplicates can be made with:

- ✓ Alginate
- ✓ Gelatin (for plaster)
- ✓ Silicone

*Place the model into water for 5 minutes in case of using Gelatin or Alginate.

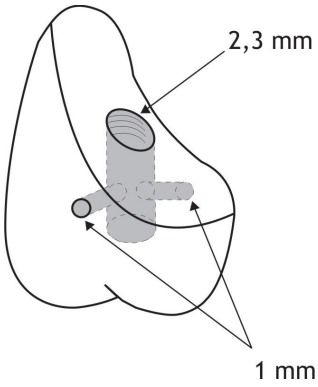
IMPORTANT!
Perform the casting with plaster type IV (Densita), which is able to withstand the pressure to be used in the injection.

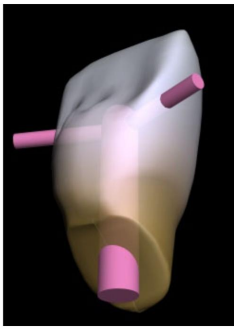
OCCLUSION PAD

Once the working model has been completed, we will make the occlusion pad.

ALIGNMENT – TEETH'S MECHANICAL RETENTION

- Minimum recommended thickness for the base plaque:
  - ✓ Upper dentures = 1.5 mm
  - ✓ Lower dentures = 3 mm
- Leave a minimum wax thickness of 1mm between the teeth's heel and the model, since the material must be able to pass through the space remaining between one and the other during the injection.
- Since this material is translucent, it is necessary to grind (scrub) the teeth's heel, leaving the aesthetically wanted coronary height, calculating 1 mm of insertion in the waxing.
- Perforations giving mechanical retention must always be made, since the chemical union is not enough.





- Make the perforations with a straight bur. Do not use an inverted cone shape.
- The lateral retentions must be made according to proximity.
- These lateral retentions must be connected to the central retention.
- Recommendation: make the perforations after having ground the teeth's heel; Not before.
- Do not apply wax on the retainers, since they would be distorted during the test.

DEFINITIVE WAXING

Because of the characteristics of the polyamide, for the retainers to have resistance, good memory and aesthetics, it is suggested that they are applied on the third part of the gingival area (tooth's retentive area), covering part of the gums.

In order to be injected, the retainers require a minimum of 1.5 mm. Once they have been injected, we recommend lowering the thickness from the greater to the lesser thickness, from the gingival area towards the tooth. This reduction in the area of contact with the tooth will give a subtle finish of the retainer, elasticity and greater translucence

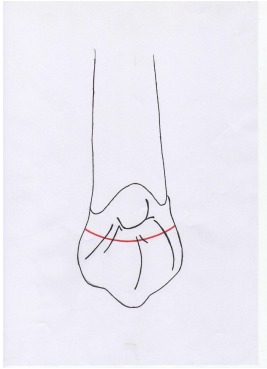
Occlusal supports

Niche for BULKFLEX: For the occlusal supports to be resistant, they must be wider and deeper that the ones performed with metal.
Recommended depth = 1.3 mm.

It is recommended to create a space grinding the artificial tooth through proximal orientation (adjoining the pillar tooth) to give greater body and resistance to the support connector.

Supports in front teeth

Where possible, to assess the possibility of making covering supports over the front teeth's cingulum, a design that offers resistance, good distribution of loads and avoids the leverage is suggested.



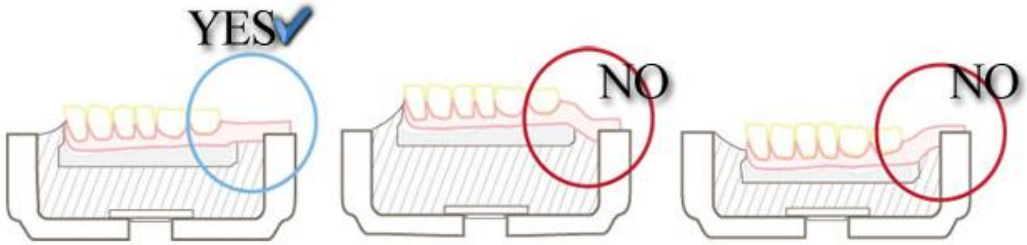
PLACING IN THE MUFFLE

- Put a thin layer of vaseline in the muffle and counter muffle.
- Scrub the retentive areas of the plaster teeth.
- Bear in mind that the counter muffle is the one with three holes for air flow.

38 ml of water
200 gr of special plaster type IV
Spatulating: 1' minute

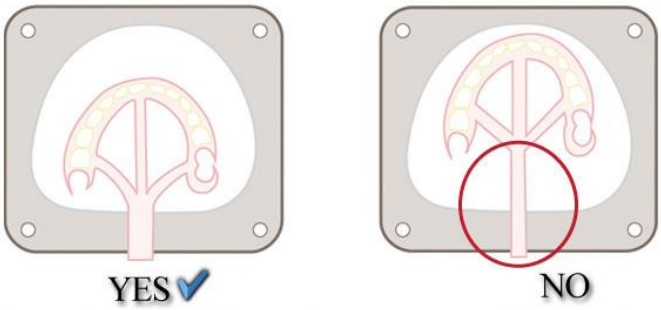
*The above mentioned quantities are approximate. Adjust the proportions according to the plaster type used.

INJECTION TUBES

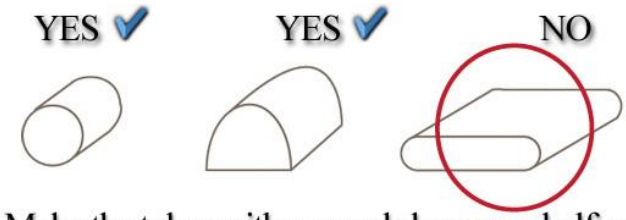


Perform tubes in wax. The tubes must follow a straight path on the material income plane during the injection. For this reason, the model must be placed on that same plane; it must neither be buried nor be much higher than the muffle plane.

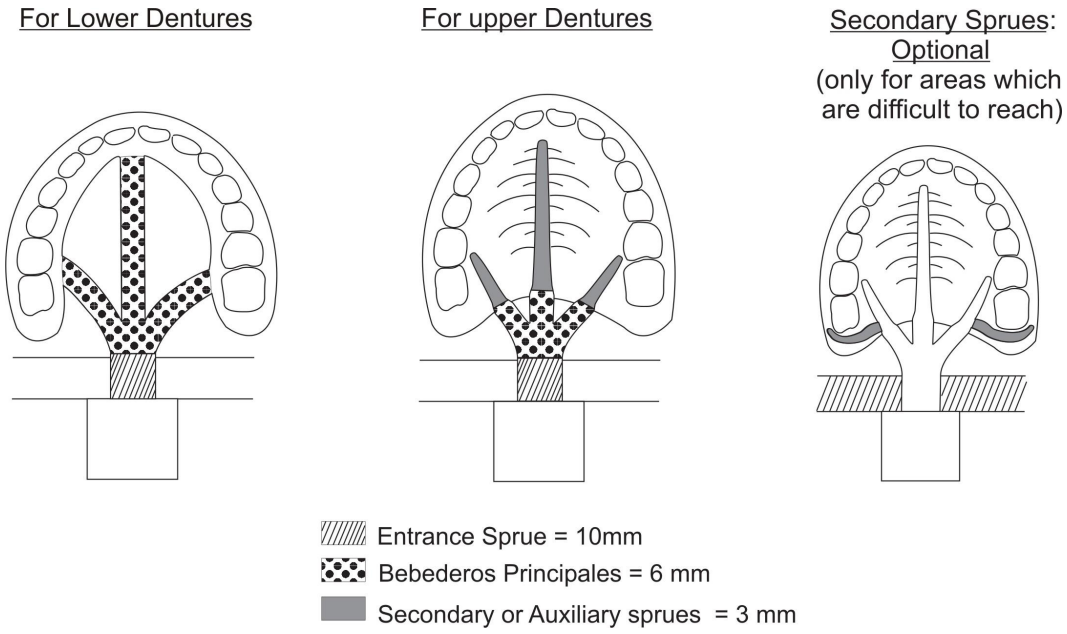
IMPORTANT!
Do not leave the waxing flanks submerged in the plaster.



Place the model as close as possible to the entrance orifice of the muffle.



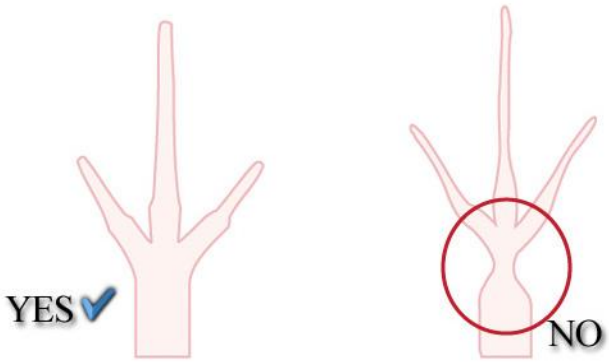
Make the tubes with a round shape or a half-round shape. Flat sprues are not recommended, since the material will not have enough space to flow inside.



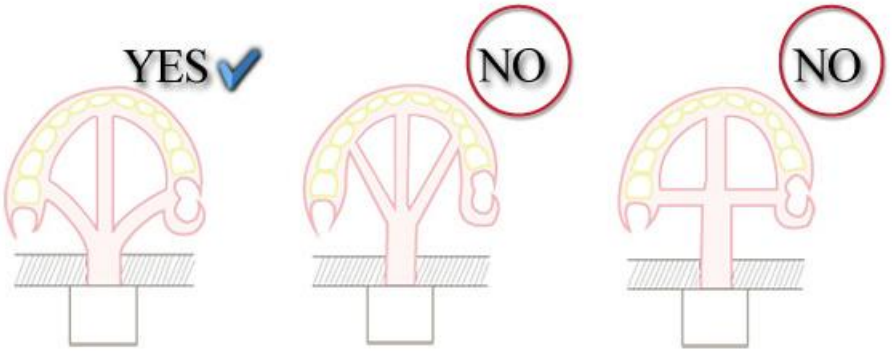
Entrance sprue: 10 mm.
(The same diameter as the muffle hole).
This is a wax pad that should only take up the entrance space of the muffle.

Main sprues: 6 mm.
They start at the very entrance of the muffle in such a way that the material is distributed among the main sprues as soon as it gets into the muffle. These sprues must rest on the muffle plaster, they are not aerial.

Secondary or auxiliary sprues: 3 mm.
For upper Dentures and areas which are difficult to reach for the material. Secondary sprues are placed on the waxing. They must never be aerial.



Progressive transition from the entrance sprue to the main three ones.



Direct the secondary side sprues towards molar / premolar in a "V" shape

DO NOT orientate them very close to the previous sector

DO NOT place them perpendicularly to the central sprue

COUNTER MUFFLE

- Put plaster separator.
- Present counter muffle and screw.
- Remember that the crews must be placed on the counter muffle side.

66 ml of water
255 gr of special plaster type IV
Spatuling: 1' minute

* The above mentioned quantities are approximate. Adjust the proportions according to the plaster type used.

MUFFLE CLEANSING

- Loosen the screws two turns before cleansing.
- Immersion time: from 6 to 8 minutes.

TUBES CORRECTION – TEETH PERFORATIONS' CLEANSING

- Once the muffle has been cleansed, we must rectify and correct all the tubes, eliminating any thin layer or excess that may have remained. This will prevent a plaster fragment from breaking in the injection and being kept in the denture.
- Check that each perforation made on the teeth (mechanical retentions) is free and clean, since the polyamide must be able to enter through it and allow the necessary fixing.

AIR LEAKS (Optional use)

These are channels that will relieve the injection compression.
They can be performed in wax, with tubes of 3 mm, or they can be directly performed in the counter muffle plaster with a 3 mm bur. They must be placed opposite from where the injection takes place.

SEPARATOR FOR ACRYLIC

- Let the muffle cool down before applying the separator, so as to allow the plaster humidity to vent.
- 2 or 3 layers must be applied, according to the kind of separator used. It is important to let it dry out completely between one layer and the next one.
- Do not overuse the separator in any sector of the muffle, so as to avoid lumps.
- Let it dry out completely before injecting as humidity can affect the properties of the material.

PREPARATION OF THE MUFFLE FOR THE INJECTION

- Put the screws on the counter muffle side (where the holes for air flow are), and tighten them together with the one diagonally opposed.
- Control that there is no plaster or wax residue in the orifice of the injection.

INJECTION

Polyamide TENAZ Parameters	
Temperature	260ºC +/- 5ºC = 500ºF +/- 9ºF
Lamination time (injection cycle)	15' Minutes
Injection upkeep time	30-60" Seconds
Air pressure	3,5-4,5 Kg/cm2 = 3,5-4,5Bar = 50 - 65 PSI

Note: Injection parameters indicated for Deflex injection machine. For other injectors, consult the manufacturer or supplier of the equipment.

RETOUCHING and POLISHING

TUBES CUTTING

Item:	**Toothed steel disc**

THICK RETOUCHING

Item:	**Tungsten Carbide Drill (with red ring crossed multi-blade)**

Optional item: Conventional stones.

ELIMINATE EXCESSES

Item:	**Steel brush (of thin and soft threads)**
Use	Low speed

FINE RETOUCHING

Option A	**Abrasive rubber**

Option B	**Water sandpaper Nº 240 and Nº 600**
Use	Cut in stripes of 15 cm of length by 2 cm of width, place them in a sandpaper mandrel, and roll them up. Use at low speed.

POLISHING

Item:	**Item: Water sandpaper Nº 1000 and Nº 1500**
Use	Cut in stripes of 15 cm of length by 2 cm of width, place them in a sandpaper mandrel, and roll them up. Use at low speed.

IMPORTANT!
Sandpapers Nº 1000 and Nº 1500 can be use as an alternative or complement to the pumice stone. It is recommended to use convergent bristle brush, of 2 and 4 rows.

BRIGHTNESS

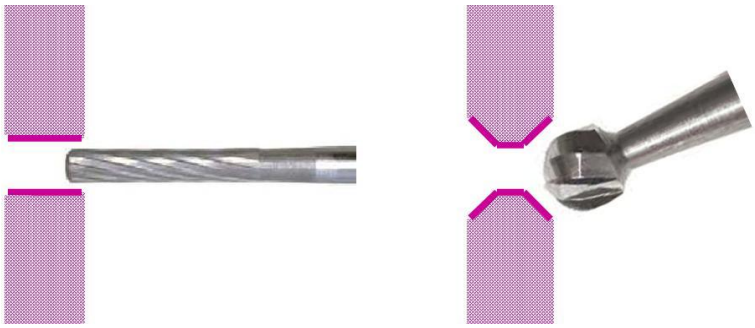
Item:	**High Brightness Paste**
Use	Use a cloth or fabric wheel. The denture must be clean and dry (without any pumice residues). Polish with intermittent horizontal sweeping movements so as not to overheat the material.

ADDITIONS, RELINES AND REMOUNTS

IMPORTANT!
To make repairs, perforations giving mechanical retention must always be made.

ADDITION THROUGH RE-INJECTION

Ask the dentist for a pickup impression with the fitted denture.
Slightly reduce the surface where we will make the repair, without making it too thin.
Make the perforations to act as mechanical retentions of 1 mm to 2 mm diameter. Then they are ground with a larger diameter bur, both inside and outside, so that the retention remains in the form of a rivet.



Make the mechanical retentions on the tooth.
Wax the addition.
Place it in the muffle, guiding the waxing sector towards the entrance orifice, covering with plaster all the denture already injected, and freeing only the wax part and the tooth of the addition.
Put the wax tube, complete the counter muffle, inject, retouch and polish.

ADDITION WITH SELF-CURING ACRYLIC

Ask the dentist for a pickup impression with the fitted denture.
Slightly reduce the surface where we will make the repair, without making it too thin.
Make the perforations to act as mechanical retentions of 1 mm to 2 mm diameter. Then they are ground with a larger diameter bur, both inside and outside, so that the retention remains in the form of a rivet.

Apply cyanoacrylate in the addition sector, which will act as bonding. Let it dry for 1 minute.
Prepare the acrylic to put in the repair.
Humidify the tooth with liquid for it to have chemical adherence.
Put the acrylic providing the desired shape and pressurize.
Retouch and polish in the conventional way.

ACRYLIC RELINE

Reduce the internal surface and the denture borders.
Make superficial mechanical retentions (not through).
Paint al the reline surface with cyanoacrylate, and let it dry for 1' minute.
Apply the acrylic in a plastic state and pressurize.
Retouch and polish in the conventional way.

Suggestion:
Make a guide so as not to alter the occlusion and the positioning of the denture in the mouth.

CHROME COMBINED WITH TENAZ

When placing it in the muffle, cover the retentive area and the chrome with plaster, only letting the wax and the acrylic teeth free. Place a tube for each sector and inject with polyamide.
Retouch and polish in the conventional way.

Suggestions:

- It is recommended to produce the frame with all the retainers, since this will make the fixing and positioning easier during the test in the mouth performed by the dentist.
- The metallic retainers that will be replaced by polyamide must be cut before the alignment.
- It is convenient NOT to perform the vents towards the vestibular area to prevent the metal from being shown. That is, it is not necessary to extend the vent towards the vestibular area as much as we would do if we used acrylic, since the polyamides high resistance will offer enough fixing, without any fracture risk.
- In the cases in which the vent is shown and compromises the aesthetics in the front area, Opaquer can be applied.

CE

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