

LAB APPLIANCE FABRICATION REQUIREMENTS

FUNCTIONAL

General Guidelines

Prescriptions

Please provide complete and signed Rx with every case.

Impressions

- Accurate impressions with any kind of impression material are acceptable.
- Impressions must adequately reflect **all relevant** anatomy.
- Impressions material **must not** be separating from the impression tray.
- Consider pouring your models right away if your impressions are moisture, temperature or time sensitive.
- Impressions sensitive to moisture content should be wrapped in a damp paper towel and placed in a sealed plastic bag if models are not poured immediately.
- Only metal impression trays and those with PVS impression material will be returned.
- The nature of impression materials currently on the market may contribute to common model problems encountered in the laboratory. Have you ever encountered porosity (bubbles, voids) or poor surface quality? Plaster or stone mixes are water based and they interact with impression surfaces in a water-like manner. Liquids placed on solid surfaces will be either attracted to, or repelled from that surface in varying degrees. Please be aware when selecting impression material if it is hydrophilic or hydrophobic:
 - **Hydrophilic:** is attracted to or can be wetted by water.
 - **Hydrophobic:** is when liquid is repelled, or fails to bond with liquids.

Polyvinyl siloxane (PVS) options can be hydrophobic or hydrophilic. Alginate is hydrophilic.

- There are advantages and disadvantages to these impression options but there are products on the market to help reduce the disadvantages. Surfactants and debubbler sprays can be used to lower surface tension between surfaces making the impression material more hydrophilic and assure a better impression result.
- Great Lakes carries ACU-Flow™ a PVS impression material which is hydrophilic and requires NO surfactant spray for surface tension reduction, eliminating bubble formation. Surfactants must be used properly and excess surfactant should not be allowed to pool in the cusp tips. This can cause loose, sandy-like cusp tips. Excess surfactant needs to be blown out leaving a wet look only before pouring.

Models

- Plaster or stone models are acceptable. Generally, the durability of the stone is preferred.
- Models should be reasonably trimmed, yet sufficiently thick for strength considerations.

- No horse shoe shaped models; all models should have bases of at least 7mm in the thinnest area.
- Bases will be added as necessary for an additional fee to the models without bases, or lacking adequate base thickness or strength.
- Please indicate if your model must be duplicated, as work models may get damaged during appliance fabrication process.

Bite Records

- Please package bite registrations carefully.
- Bite records **must not** be left between models for shipment to the lab.
- Dedicated packaging should be considered for brittle materials such as Delar wax.
- Please identify the nature and the intent of each bite record, if more than one is being supplied.
- Please consider mounting the maxillary model, before sending it to the lab, for those cases requiring mounting. Sending such items as face bows, bite forks and mounting jigs through the mail often results in unreliable mountings.

Articulators

We use the following articulators and their accessories in our laboratory:

- | | |
|-----------------------|---------------|
| • SAM 1, SAM 2, SAM 3 | • Hanau |
| • Danar | • Stratos 200 |
| • Panadent | • Artex |
| • Whip Mix | • Kavo |

Please consider that fully mounted models may not transfer perfectly from your articulator to the one in the lab.

Materials and Components

- (*) Biocryl resin: Cold Cure Acrylic MMA (Methyl methacrylate)
- Clear Biocryl: Thermo formable PETG (Polyethylene terephthalate glycol)
- Colored/patterned Biocryl: Thermo formable PVC (Polyvinyl chloride)
- Splint Biocryl: Thermo formable PETG
- Triad® (Visible Light Cure)
- Mouthguard material: Thermo formable EVA (Ethylene vinyl acetate)
- (*) Duraloy: Cobalt/Chromium Alloy
- (*) Stainless Steel: Chromium/Nickel Alloy
- (*) NiTi: Nickel Titanium Alloy
- TMA: Titanium/Molybdenum Alloy
- Menzanium: Nickel-free Stainless Alloy
- (*) Silver Solder

() Material is potentially allergy causing in sensitive patients.*

Twin Block

Technical Requirements

- Upper and lower models required.
- Construction bite registration is required.
- Stone models are preferred.

Default Materials

- Clear Cold Cure Acrylic
- Duraloy
- Stainless Steel

Practical Considerations

- Construction bite should reflect the exact desired mandibular position with the following parameters in mind:
 - Anterior-Posterior Correction: as desired.
 - Vertical Opening: at least 5mm posterior inter-occlusal clearance as measured in the bicuspid area. If opening is insufficient, the lab will increase opening unless instructed not to alter.
 - Dental Midlines Relationship: skeletal symmetry is the objective regardless of mid-line alignment. Should there be a misalignment of upper and lower dental midlines in a desired construction bite, please diagram this on the Rx.

Herbst

Technical Requirements

- Upper and lower models required.
- Stone models are preferred.
- Treatment specific bite record is required.

Default Materials

- Clear Splint Biocryl and Clear Cold Cure Acrylic
- Duraloy
- Stainless Steel

Practical Consideration

- Construction bite should reflect the exact desired mandibular position with the following parameters in mind:
 - Anterior-Posterior Correction: as desired.
 - Vertical Opening: should be at least 2mm at nearest contact area for acrylic splint Herbst. If opening is insufficient, the lab will increase as necessary. No vertical concern for crown or band based Herbst.
 - Dental Midlines Relationship: skeletal symmetry is the objective regardless of mid-line alignment. Should there be a misalignment of upper and lower dental midlines in a desired construction bite, please diagram this on the Rx.

Bionator / Orthopedic Correctors

Technical Requirements

- Upper and lower models are required.
- Stone models are preferred.
- Treatment specific bite record is required.

Default Materials

- Clear and pink Cold Cure Acrylic
- Duraloy

Practical Considerations

- The bite should reflect the **exact** desired mandibular position with the following parameters in mind:

CL - II, Deep Bite

- Anterior-Posterior Correction: as desired (usually 2-6mm of mandibular advancement).
- Vertical Opening: at least 2mm inter-incisally. If opening is insufficient, the lab will increase opening unless instructed not to alter.
- Dental Midlines Relationship: skeletal symmetry is the objective regardless of mid-line alignment. Should there be a misalignment of upper and lower dental midlines in a desired construction bite, please diagram this on the Rx.

CL - II, Open Bite

- Anterior-Posterior Correction: as desired (usually 2-6mm of mandibular advancement).
- Vertical Opening: at least 2mm clearance at the nearest posterior contact. If opening is insufficient, asking the lab to increase it is almost certain to result in a non-fitting appliance.
- Dental Midlines Relationship: skeletal symmetry is the objective regardless of mid-line alignment. Should there be a misalignment of upper and lower dental midlines in a desired construction bite, please diagram this on the Rx.

CL - II, Neutral Vertical

- Anterior-Posterior Correction: as desired (usually 2-6mm of mandibular advancement).
- Vertical Opening: at least 2mm clearance at the nearest posterior contact and at least 2mm inter-incisally. If opening is insufficient, asking the lab to increase it is almost certain to result in a non-fitting appliance.
- Dental Midlines Relationship: skeletal symmetry is the objective regardless of mid-line alignment. Should there be a misalignment of upper and lower dental midlines in a desired construction bite, please diagram this on the Rx.

CL - III

- Anterior-Posterior Correction: mandible is in habitual position or comfortably retruded.

- Vertical Opening: at least 2mm clearance at the nearest posterior contact and at least 2mm inter-incisally. If opening is insufficient, the lab may be able to increase it on customer's request in lieu of taking a new bite record.
- Dental Midlines Relationship: skeletal symmetry is the objective regardless of mid-line alignment. Should there be a misalignment of upper and lower dental midlines in a desired construction bite, please diagram this on the Rx.

Activator

Technical Requirements

- Upper and lower models are required.
- Stone models are preferred.
- Treatment specific bite record is required.

Default Materials

- Clear and pink Cold Cure Acrylic
- Duraloy
- Stainless Steel

Practical Considerations

- Construction bite requirements are the same as for Bionators.
Although it is not a technical requirement, Activators usually have a greater vertical dimension of approximately 10mm.

Function Regulator (Fränkel)

Technical Requirements

- Upper and lower models are required.
- Stone models are preferred.
- Treatment-specific bite record is required.
- Complete and signed Rx.

Default Materials

- Cold Cure Acrylic
- Duraloy

Practical Considerations

- Models should reflect the resting depth of the vestibule (usually 10+ mm inferior to the gingival margins of #23, #26 and 10+ mm superior to the gingival margins of #3 and #14).
- Construction bite should reflect the exact desired mandibular position with the following parameters in mind:

CL - I: (FR-I, FR-IV)

- Anterior-Posterior Correction: none.

- Vertical Opening: at least 2mm posterior inter-occlusal clearance. If opening is insufficient, the lab may be able to increase it on customers request in lieu of taking a new bite record.
- Dental Midlines Relationship: skeletal symmetry is the objective regardless of mid-line alignment. Should there be a misalignment of upper and lower dental midlines in a desired construction bite, please diagram this on the Rx.

CL - II: (FR-II)

- Anterior-Posterior Correction: as desired, (usually 2-6mm of mandibular advancement)
- Vertical Opening: at least 2mm posterior inter-occlusal clearance. If opening is insufficient, the lab may be able to increase it on customers request in lieu of taking a new bite record.
- Dental Midlines Relationship: skeletal symmetry is the objective regardless of mid-line alignment. Should there be a misalignment of upper and lower dental midlines in a desired construction bite, please diagram this on the Rx.

CL - II: (FR-V)

- Anterior-Posterior Correction: as desired, (usually 2-6mm of mandibular advancement)
- Vertical Opening: at least 2mm posterior inter-occlusal clearance. If opening is insufficient, asking the lab to increase it is almost certain to result in a non-fitting appliance.
- Dental Midlines Relationship: skeletal symmetry is the objective regardless of mid-line alignment. Should there be a misalignment of upper and lower dental midlines in a desired construction bite, please diagram this on the Rx.

CL - III: (FR-III)

- Anterior-Posterior Correction: mandible is comfortably retruded.
- Vertical Opening: at least 1mm clearance at the nearest posterior contact and at least 1mm inter-incisally. If opening is insufficient, asking the lab to increase it is almost certain to result in a non-fitting appliance.
- Dental Midlines Relationship: skeletal symmetry is the objective regardless of mid-line alignment. Should there be a misalignment of upper and lower dental midlines in a desired construction bite, please diagram this on the Rx.