



## Model Duplication Fabrication Technique

*Using the Platform and Using Pellets for Mounted Models*

*Safety glasses should be worn for all lab procedures as well as gloves when handling acrylics. Items featured in this technique are found on the last page.*



An accurate model duplication matrix can be made of soft material (Bioplast or mouthguard material) on the pressure molding machine. It can be poured to reproduce a specific dental mold at any time. Whether duplicating a model for appliance construction or creating a matrix to be poured many times for hands-on training courses, the pressure molding process is an economical technique to obtain detailed accuracy. Orthodontic study, dental work, or articulator-mounted models can be duplicated using the Biostar/Ministar.



- 1 Apply liquid separator to all model surfaces that will come into contact with the formed material.



- 2 Place the model onto the platform with the heel facing the open chamber.



- 3 Place a sheet of 2mm or 3mm thick mouthguard or Bioplast material on the pressure chamber. Secure in place with the clamping frame. Input code 183 (60 seconds heating) for 2mm thick material or 233 (90 seconds heating) for 3mm thick material. Position the heater over the clamped material to start the heating cycle.



- 4 Once the heating cycle is complete, remove the lamp and swing the pressure chamber over the model on the platform. Lock the chamber in place by rotating the handle on the right side of the machine from the 12 o'clock position to a 6 o'clock position. Maintain proper air pressure while the material cools for 120 seconds (2 minutes).



- 5 Once the pressure molding cycle has concluded, evacuate the air pressure from the chamber and unlock the chamber with the handle on the right side (12 o'clock position) of the machine. Slide the clamping frame to the left to release the formed material from the pressure chamber. Open the pressure chamber.



- 6 Remove the model with formed material from the platform. Pull the opposite corners (kitty-corner) to release the material from the model. Holding the model base, carefully pull the model from the mold without turning the mold inside out.



- 7 Measure the dental stone or plaster powder-to-water ratio as recommended by the manufacturer. Vacuum spatulate the mix for 30 seconds then vibrate it for 10 seconds while continuing the vacuum. With a plaster spatula, apply a small amount of gypsum mix into the matrix while vibrating. Allow the mix to flow through the cusp tips before adding more material. Add more gypsum while vibrating until the mold is filled.



- 8 The bottom of the mold may be submerged in a flexibowl filled with water to brace the matrix from the weight of the gypsum. This will result in more accurate model duplication. Allow the gypsum to set for 30-45 minutes. Then remove the duplicate model from the matrix following the same procedures that were used to remove the initial model.



### Model duplication technique of an articulator-mounted model.

- 1 Apply liquid separator to all model surfaces that will come into contact with the formed material.



- 2 Remove the platform and pellets from the large cup. Place the mounted model into the cup and fill the space around the model with pellets. Adjust the pellets with a 1" paintbrush so they contact the bottom of the model base and the inside edge of the cup's rim.



- 3 To prevent pellets from sticking to the mouthguard material, a 0.10mm Isofolan material is cut out and placed over the model after it is placed in the pellets. Place Isofolan over the model and trace the model base by viewing from above with a sharpie marker. With no. 55 lab shears, cut out the drawn pattern from the Isofolan sheet and discard the center portion. Place the cutout sheet around the model. The cut out should fit closely down over the model to cover the pellets from the model base to the cup's rim.



4 Place a sheet of 2mm or 3mm thick mouthguard or Bioplast material on the pressure chamber. Secure in place with the clamping frame. Input code 183 (60 seconds heating) for 2mm thick material or 233 (90 seconds heating) for 3mm thick material. Position the heater over the clamped material to start the heating cycle.



5 Once the heating cycle is complete, remove the lamp and swing the pressure chamber over the model on the platform. Lock the chamber in place by rotating the handle on the right side of the machine from the 12 o'clock position to a 6 o'clock position. Cool formed material under pressure for 120 seconds.



6 Once the pressure molding cycle has concluded, evacuate the air pressure from the chamber and unlock the chamber with the handle on the right side (12 o'clock position) of the machine. Slide the clamping frame to the left to release the formed material from the pressure chamber. Open the pressure chamber.



7 Remove the model with formed material from the platform. Pull the opposite corners to release the material from the model. Holding the model base, carefully pull the model from the mold without turning the mold inside out.

**Items featured in technique:**

235-010	Astro Spec Safety Glasses (reg./blue)	215-016	Whipmix Orthodontic Stone
235-062	N-Dex Non-latex Gloves (Med)	210-109	Large Hygienic Flexiboles
175-034	Liquid Separator	210-106	7 1/2" Nylon Spatula
075-007	Separator Brush	205-017	Handler Heavy Duty Vibrator
021-031	2mm Clear Mouthguard Material	030-002	0.10mm Round Isofolan
021-032	3mm Clear Mouthguard Material	220-023	No. 55 Plate Shears



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