Aldente DUNAFORM PLUS – Durodent Tips and Tricks

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Congratulations on purchasing your new Dunaform Plus Pressure Former.

You will need to do some test and trials to perfect your models and heating times initially before producing perfect thermoformed devices. Here are some tips and suggestions how to get the best results.

** IMPORTANT - Must only use suitable compressed air that is clean, oil free and has filtered moisture free air **

Key Factors To Working Through

1. Model Preparation
2. Model Placement using Granulate or Metal Plate
3. Heating Times / Cooling Times
4. Air Pressure
5. Cleaning Machine

Model Preparation

Model preparation is very important. Visually survey model. Because the pressure former is producing much firmer tighter adaption than a vacuum former, if there is undercuts or sharp parts it may affect essentially how the material flows over the model which might thin out to much in some areas or trap air.

For best results the thermoforming material needs to be able to smoothly form and stretch over the model.

Therefore, it is critical you prepare your model carefully.

1. Trim model neatly and remove sharp edges. Make all the edges as smooth as possible.
2. Avoid undercuts. If it has undercuts, they should be blocked out.
3. Reduce the height of the model as much as possible by removing excess base material

Either use the granulate beads in the black holder or the metal plate. Not both.

Metal plate is cleaner to work with and most popular.

Using Metal Granulate Beads

Only put the metal granulate in the black plastic holder with handle. This allows you to contain and remove them later.

Embed the model into the granules as deep as possible up to 2.00mm under the edge of the teeth.

Using Metal Plate

If you are trimming your models right down to a horseshoe (no base in the model), it is best to get a small screw and nut to block the hole in the middle of the metal plate (if the plate supplied with your unit came with a hole).

This is not essential but helps form the material better over the model.

Placement Of Model In Chamber

Dunaform is hinged from left to right as the material comes down over the model.

Some users find having the Front of the model facing the heater / foil left side is best.

(Compared to a vacuum former which is different as it comes top to bottom. And the adaption is not quite as tight, therefore it is more forgiving)

Cleaning and Maintaining Machine

Keep that machine and air chamber clean. Free from dust and liquids.

DO NOT allow liquid, moisture or dust to enter the machine through the vent mesh hole at the bottom of the chamber. This may lead to internal issues on the PCB electronics.

Regularly wipe the inside of the chamber clean.

Air Pressure Setting

It is recommended to start using your machine with approximately 3.0 bar pressure depending how thick the material is (*Working Pressure Factory Set: 4.5 bar)*. This is normally more than sufficient pressure and should provide excellent adaption and form.

If the pressure is to high, along with heat it will thin out the material a lot and possibly cause issues with holes or very thin areas.

Starting Suggestions:
1.0mm Hard Splint Material – Air Pressure Approx 3.0 bar – 3.5 bar
4.0mm Mouthguard – Air Pressure Approx 4.0 bar – 4.5 bar

Material Heating / Cooling Program Comparison List

The names shown in the programs represent **Aldente Material brand names**.

Within each material type there is **various material thicknesses** to use. The thickness, colour and type of material effects the heating times, cooling times and how much air pressure to use.

To Change Heating Time Programs Settings

Access and Change through **FOIL PROCESSING** on main menu

1. **FOLIFLEX BLEACH** – Chemical characteristics: EVA: ethyl-vinyl-acetate - Soft EVA, Laminate, Bleaching Tray Materials
    a. Other brand names of this material type
        i. Erkoflex Bleach - Erkodent
        ii. Briteguard Laminate
        iii. Gibling Laminate

2. **FOLIFLEX** – Chemical characteristics: EVA: ethyl-vinyl-acetate – Soft EVA, Mouthguard Material, Laminate, Bleaching Tray Materials, Niteguard
    a. Other brand names of this material type
        i. Erkoflex – Erkodent
        ii. Proform Niteguard - Keystone

3. **FOLIDUR N** – Chemical characteristics: PETG Copolyester – Hard Splint Material
    a. Other brand names of this material type
        i. Proform Splint Material - Keystone
        ii. Erkodur - Erkodent

4. **FOLIDUR S** – Chemical characteristics: SBS Styrol-butadien-styrol – Medium hardness springy material

5. **FOLILEN** – Chemical characteristics: PE: polyethylene – Soft elastic, resilient material. *Does not bond with acrylic.*
    a. Other brand names of this material type
        i. Erkolen - Erkodent

6. **COMBILOC PLUS** – Dual Laminate - Hard / Soft Materials

    a. Chemical characteristics:
        i. PETG, hard side (1,2,3+4mm): copolyester.
        ii. TPU, soft side (1mm): polyurethane.
        iii. PE, insulating foil: polyethylen.

    b. Other brand names of this material
        i. Erkoloc Pro - Erkodent
        ii. Proform Dual Laminate - Keystone

7. **FOIL 1 / 2 / 3 / 4 – 12** – Custom Program Spaces
    a. Change the heating times and cooling times to your desired settings.
    b. You are best to write down what was Custom Program is used for on a list, so that all users know what settings to used for what material type, material colour, material thickness.

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MATERIAL HEATING TIMES

FOR BRITEGUARD AND GIBLING MATERIAL and VARIOUS OTHER BLANKS

MOUTHGUARDS

Please note - Depending on the brand, colour and thickness of material heating times will vary.

These times are only approximate.

White 4mm – Heating Time: 90 seconds – Approx 4.0 Bar Pressure

Black 4mm – Heating Time: 70 seconds – Approx 4.0 Bar Pressure

Other colours 4mm – Heating Time: 80 seconds – Approx 4.0 Bar Pressure

For 5mm thickness heat blank a little with a Heat Gun (not flame torch) prior to placing under heating element as this will ensure a more even heat though blank as the infra-red elements heat very fast

Cooling time may need to lengthen to ensure better adaption if material is heated to much.

SOFT LAMINATE

1mm Soft Laminate – Heating Time: 40 seconds– Approx 3.0 Bar Pressure

2mm Soft Laminate – Heating Time: 62 seconds– Approx 3.0 Bar Pressure

HARD SPLINT MATERIAL

Keystone hard Splint Material 1mm – 45 seconds

Essexs Splint Material 0.8mm – 40 seconds

Folidur 0.6mm – 40 seconds

Folidur 0.8mm – 40 seconds

Folidur 1.0mm – 45 seconds

SOFT / HARD DUAL LAMINATES

Proform 3mm – 90 seconds

Combiloc Plus 2mm – 60 seconds

Combiloc Plus 3mm – 80 seconds

Combiloc Plus 4mm – 110 seconds

Combiloc Plus 5mm – 130 seconds

DUAL LAYER MOUTHGUARDS AND LAMINATING MOUTHGUARDS

If laminating a Mouth Guard with a second layer, it is important to have good model preparation, positioning and finishing first layer guard well. To avoid air bubbles being trapped there are some key things to watch out for.

1. **Model preparation is key.** Visually survey model. Because the pressure former is producing much firmer tighter adaption there is more hills and valleys, sharp or lumpy parts which will affect how the second layer is formed and essentially flows over. The air needs to be able to escape from between the layers and not be hindered.
2. **Make sure no sharp angles on the model.** Remove hills and valley (any sharp areas) on first suck down
3. **Finishing and preparing the first layer guard properly is the key before doing second layer.** Make sure guard is well trimmed, remove or flatten undercuts, lumps or sharp valleys as much as possible using Red Medium Scotchbrite wheels to minimise areas that the second layer of material might get stuck or trap air.
4. **Think about the placement of model in machine.** Dunaform hinged from left to right as the material comes down over the model. Some users find having the Front of the model facing the heater / foil left side is best. (A vacuum former is different as it comes top to bottom. And the adaption is not quite as tight, therefore it is more forgiving.)
5. Use same heating times but **preheat the first layer finished guard with a hot air heat gun** (not a flame torch) for 10 seconds before sucking down the second layer to ensure a better bond.
6. **Possibly reduce amount of pressure on the first layer forming, so the adaption is not as sharp**. Allowing the second form to flow better.