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# VERSAFLEX SYSTEM

## SET-UP & DECORATING INSTRUCTIONS

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### **GRAPHICS STORAGE CONDITION REQUIREMENTS**

**Prior to application, GRAPHICS must be stored in climate controlled environment as follows:**

GRAPHICS should not be pressed or stacked upon. GRAPHICS should be stored at a temperature between 10°C - 35°C / 50°F - 95°F, and should not be stored in direct sunlight or high humidity. Partially used GRAPHICS rolls need to be re-rolled tightly and taped in place after initial use. Store in a box with an airtight lid if possible.

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Applying Polyfuzer Graphics™ to PP and PE components using the Versa Flex system is similar to hot stamping and heat transfer decorating while utilizing "Pad Printing" style equipment. The Versa Flex system allows much greater flexibility and the ability to compensate for part variation, surface imperfections and the unique ability to decorate hollow parts using the same basic principals of other decorating techniques. The combination of pressure, temperature and dwell is required to transfer an image from a carrier to a part. These three components are interdependent and a change in any one of them, may affect success or failure in the application process. Unlike standard heat transfers and hot stamp foils, Polyfuzer Graphics™ do not have any ink or adhesives used in their composition.



## 1) PRESSURE

There is no specific pressure setting on a Versa Flex machine. The air pressure regulator should be set between 0.6 - 0.8 bar and you should be looking for approximately 25% compression of the stamping pad as a good starting point to insure sufficient contact pressure on the hotplate and part. The compression of the stamping pad is controlled by the stroke length adjustments on the side of the stamping head.

This is a lot lower pressure requirement than hot stamping and heat transfers. The part should be well supported to prevent shifting during the stamping process.



## 2) TEMPERATURE

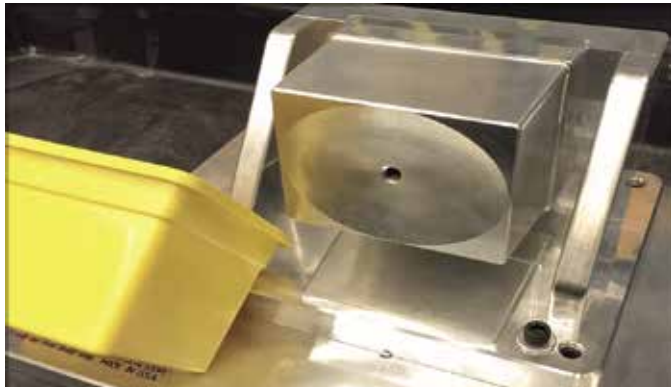
The Polyfuzer Graphic™ requires an application temperature of 430-470°F. This is a lot higher than the temperature required for hot stamping and heat transfers. This is the temperature that we require at the VersaFlex Heating element face which may put the temperature control setting around 425-450°F. Hot parts may require a lower temperature or a shorter dwell time.



## 3) DWELL TIME

The time that the VersaFlex Heating Element is in contact with the Polyfuzer Graphic and the part. This depends on the temperature of the part and the VersaFlex Heating Element. **This time will usually be from 3 to 6 seconds.**

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## 4) PART SUPPORT FIXTURES

Part Support Fixtures are required to secure and hold parts while being decorated, support the stamping area and locate/position part for repeatability. Support fixtures should be manufactured to be user friendly and easy for automation or an operator to load and unload parts.

Fixtures are manufactured out of various materials as dictated by the part shape, substrate, size and support requirements. The fixtures should minimize movement or deflection of the part as much as possible.

VersaFlex machines are much more forgiving than traditional Hot Stamp machines as the soft stamp pad can conform to surface imperfections and compensate for some deflection when working with hollow parts. More support is always better and whenever possible the support area should be larger than the size of the graphic being applied. Hollow parts may need to be pressurized with air or internally supported some other way depending on the wall thickness and rigidity.



## 5) SILICONE RUBBER PRINTING PADS and VERSAFLEX HEATING ELEMENT

Versa Flex Heat Elements combined with Silicone rubber stamp pads are used to apply graphics when using a Versa Flex machine. The Pad Printing pads provide the pressure and the Heat Element provides the heat. Pads are available in a wide variety of shapes, sizes and durometers. We recommend

using stamp pads provided by authorized manufacturers of Versa Flex equipment. Polyfuze Graphics Branding Specialists can assist you with Versa Flex Heat Element and printing pad selection based on your parts and specific application parameters.



## 6) STRIP DELAY VARIATIONS

Strip delay or Head Up delay are functions on a traditional hot stamp machine to allow the part to cool for just a few seconds before the carrier material is stripped off. There are basically two ways to accomplish "strip delay" using a VersaFlex system. The "Table Up / Down" or "Strip Bar"

functions can be used to achieve the same result. Both are timed functions that use different mechanical actions of the machine to help strip off the carrier material after a set amount of time following the stamping process. There are different timers for these features and your machine may have one or the other or both functions available but only one will be used at any given time. The timers start when the stamping head lifts off the part after stamping. For the "Table Up / Down" function the table will be in the "Up" position during stamping, then after the delay timer counts down the table will drop down moving the part away from the carrier material. For the "Strip Bar" function, a steel bar will move across between the part and the carrier material after the delay timer has counted down. This bar will separate the carrier material from the part surface in one quick, clean motion. The "Table Up / Down" and the "Strip Bar" timers are usually set between 1 and 3 seconds. This allows the part to have air flow around it for that time to allow cooling. By allowing this cooling and then removing the carrier material in one clean motion, the resulting finish on the part is much more consistent.

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## BEFORE YOU START STAMPING

- 1) Make sure the face of your VersaFlex Heating Element is at least 430-470°F and clean from all debris.
- 2) Make sure your tooling is lined up with the application die and everything is bolted tight.
- 3) Make sure the Polyfuze Graphics™ are tracking straight through the press. The guide rollers should have the film approximately 1/2" above the part.
- 4) Set the correct stroke for the "Back" position over the hot plate as well as the "Front" position over the part.
- 5) Set stamp time and be sure "Table Up/Down" is turned on and proper delay is set. Or, the stripper bar is activated and the proper delay is set.
- 6) Check all safety devices on the press.

**Remember: Your part should be well supported in the machine. A solid fixture will help insure success!**

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## DETERMINING WHAT IS A GOOD APPLICATION

To determine if the graphics have been applied properly there are a few tests that can be done after the part cools.

- 1) **Visual Inspection.** Was all of the graphic applied and is it straight with no wavy lines? Do you see an impression from the VersaFlex Heating Element showing the melt line around the graphic? This is our Quality Control mark. When you see this mark you know that the graphic is fused into the part.
- 2) **Touch Test.** Run your finger across the graphic. Does it feel like it is on top of the plastic? Polyfuze Graphics™ are designed to fuse into the plastic. The surface should feel smooth depending on the base material.
- 3) **Scratch Test.** If the graphic scratches off easily with a fingernail, it isn't fused. However, if you dig at it to remove it, and damage the part in doing so, it's fused.
- 4) **ASTM D3359-09 Crosshatch Tape Test.** Score the graphic with a knife into 1/8" squares. Apply Scotch 893 tape over the crosshatch pressing firmly. Peel the tape off perpendicular to the graphic and inspect for any graphic on the tape.

*For any additional help or concerns in starting your Polyfuze Graphics™ decorating, please contact Jason Brownell, VP, Polyfuze Graphics™ Corporation at (928) 634-8888 x156.*