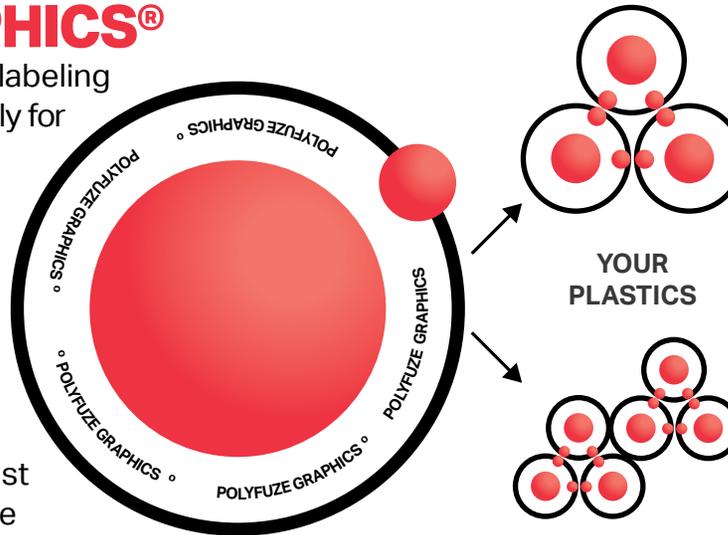


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ABOUT POLYFUZE GRAPHICS®

Polyfuzer Graphics® are different from other labeling technologies. They are manufactured specifically for your polyethylene or polypropylene plastic parts, using high quality pigmented polymers.

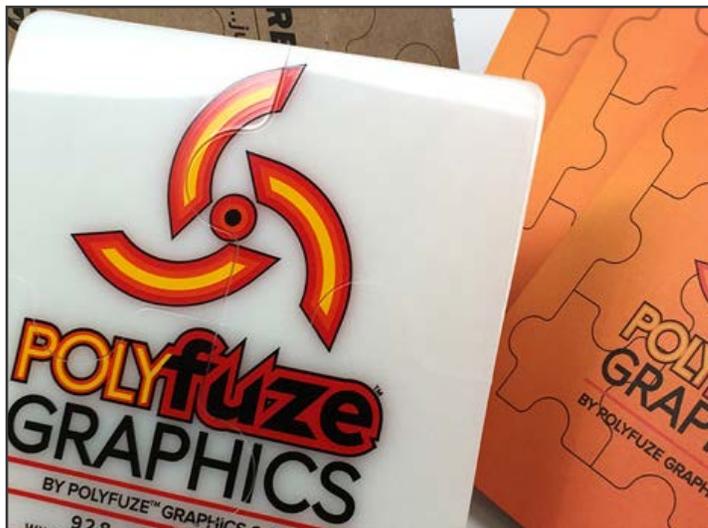
We do NOT use stock inks, or adhesives like other labeling technologies. Polyfuzer Graphics labeling technology doesn't just stick, it actually fuses into your plastic to become one polymer material. Following some natural laws of plastic cohesion means we must follow some general design guidelines to make sure we get it right for you. **Please follow this guide.**



HOW TO USE THIS GUIDE:

Click one of the navigation parameters in the menu bar on the left or click to the next page to view the guidelines in each section.

This guide is intended to help you determine if Polyfuzer Graphics are going to work for your project and to help you prepare your design to the best specifications possible to achieve amazing quality with a Polyfuzer Graphic.



**Custom Made
Pigmented Polymer
Graphics Technology
For Permanently
Labeling Your Durable
Plastic Goods.**

Unlike any other labeling technology!



**LEARN MORE ABOUT OUR
COLORIZATION GUIDELINES
ON THE NEXT PAGE...**

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COLOR GUIDELINES

Choosing your colors to help us formulate your Polyfuze Graphic is a key choice in moving any project forward. Your digital designs must be converted from RGB screen colors to the color options that we use in our manufacturing process.

Our Polyfuze Graphics can be manufactured with*:

- PANTONE® color matching
- RAL color matching
- MUNSELL color matching
- ANSI color matching
- CMYK color processing

* **Please note:** If you do not require specific color system swatches as mentioned above, we do provide in-house color choices. The Polyfuze graphic process cannot guarantee all color matches, as the color conversions from digital artwork or CMYK paper printing do not directly translate to the plastic pigmentation process. Please speak to our team in regards to color processing your graphic.

▶ CHOOSING COLORS

Polyfuze Graphics can be processed using the color choices mentioned on the left.

You Can Choose:

- ▶ SINGLE COLOR or
- ▶ MULTI-COLOR OPTIONS
- ▶ Photorealism and half-tone effects can be achieved when choosing CMYK multi-color processing.

Pantone®
Standardized
Color Matching
System

Learn more at:
<https://www.pantone.com/color-finder>

RAL
Classic Color
System

Learn more at:
<https://www.ralcolorchart.com/>

MUNSELL
Color
System

Learn more at:
<http://www.munsell.com/>

ANSI
Color
System

Learn more at:
<https://www.ansi.org/>

CMYK
Color
Processing

Learn more at:
https://en.wikipedia.org/wiki/CMYK_color_model

* **Please note:** Not all pigmented color formulations can fulfill resistance or government regulations for color set requirements. Some color combinations may not pass regulatory requirements. Please ask our team when inquiring about color and resin type compatibility.

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SHAPE GUIDELINES

A Polyfuze graphic is flexible to your plastic parts as they heat or cool within different environments, but the application of the graphic must follow some general shaping guidelines to correctly match your die and fixture, and to accept an even distribution of heat and pressure when being stamped with a hot stamping machine.

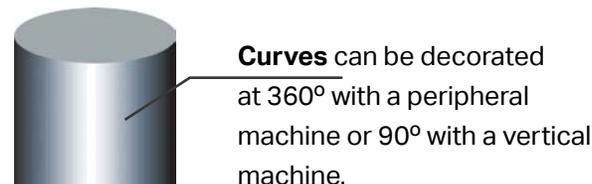
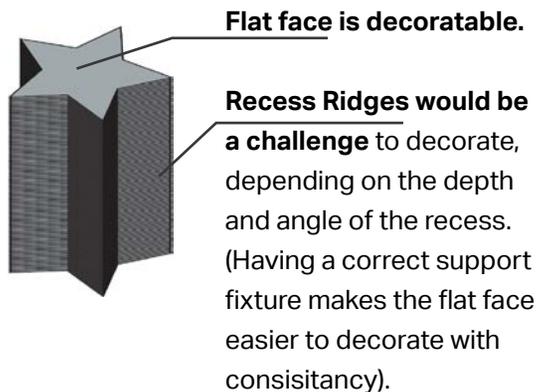
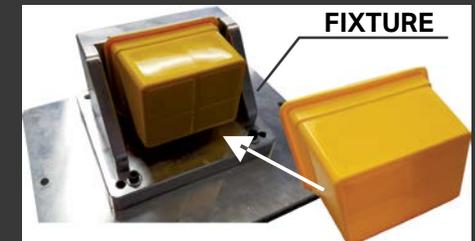
Compound curves, concave, convex, cylindrical, conical shapes can be difficult to decorate. It depends on the relationship between the size of the graphic and the nature of the curve.

Rule of thumb = If you can lay a piece of paper that is the size of the proposed image on or in the part without it wrinkling, then you also should be able to decorate with a Polyfuze graphic.

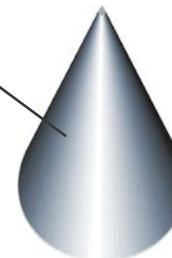
All part stamping with a Polyfuze Graphic will require a "fixture" for support.

▶ SHAPES THAT WORK:

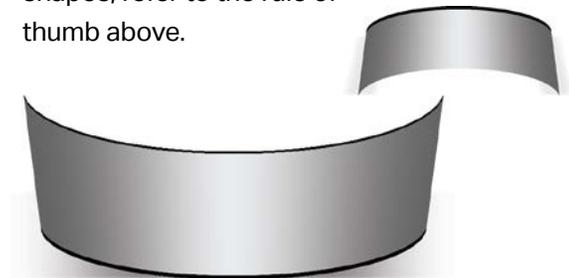
- ▶ **Flat surfaces with a support fixture**
- ▶ **Cylindrical shapes (see below)**
- ▶ **Conical shapes (see below)**
- ▶ Using a fixture is required to consistently stamp a part with enough support for the graphic stamping pressure.



Conical shape can be decorated with a fixed angle "Arc" using a peripheral machine.



For Convex or Concave shapes, refer to the rule of thumb above.



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SIZING GUIDELINES

A Polyfuze graphic needs to be calculated for the finished production sizing. Based on some simple calculations of width and height, we can get things formatted to fit and ready for a quote.

Our Polyfuze Graphics have very low pressure requirements compared to other decorating methods.

Using only 75 psi from a standard hot stamping machine, you can get a Polyfuze graphic fused into your plastic parts with ease.

A Standard Max Size that Polyfuze can process into usable artwork is = 24" x 36"

▶ CALCULATING PRESSURE REQUIRED TO STAMP YOUR GRAPHIC:

Take your artwork measurements in inches:

$$\text{HEIGHT} \times \text{WIDTH} \times 75 / 2000 = \text{Tonnage of Pressure}$$

This formula can also help you in selecting the correct tonnage rating when looking at stamping machines.



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TEXTURE GUIDELINES

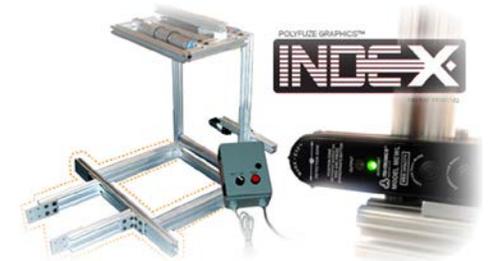
A Polyfuze graphic can be processed with a smooth or textured surface, but there are some rules of thumb and tips that can help those instances achieve the best results possible.

For smooth surfaces:
Choose a finish of "Glossy" or "Matte" and stamp as normal.

For textured surfaces:
Depending on the aggressiveness of the texture, you may have to double stamp.

Double stamping consists of first stamping to knock down the texture (creating a relatively non-textured area), then indexing the graphic in and stamp to the area. Photocell registration will keep the first and second stamp consistent.

- ▶ **SMOOTH** surfaces can be stamped with a Polyfuze graphic.
- ▶ **TEXTURED** surfaces may need double stamping.



POLYFUZE Photocell registration can be used to retro-fit an existing machine, keeping consistent alignment of the artwork when stamping.

SMOOTH SURFACE
WITH "GLOSSY"
FINISH



SMOOTH SURFACE
WITH "MATTE"
FINISH



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RESIN TYPE GUIDELINES

A Polyfuze graphic can decorate Polyethylene, Polypropylene and their derivatives. Refer to the list below for generally successful applications, but please speak to our team for confirming your specific plastic type in question.

For plastics decoration with:

- HDPE
- MDPE
- Structural Foam
- Talc Filled PP
- TPE
- TPR
- Flexible PVC
- LDPE
- UHMW
- Glass Filled PP
- TPO
- TPV
- SEBS

► Polyfuze Graphics are formulated for:*

UV Resistance
 Battery Acids Resistance
 Chemical Resistance
 Petroleum Resistance
 Salt Water Resistance
 & more

Formulating for compliance with: CPSIA, FDA, ROHS, or other federal compliance can be achieved.

* **Please note:** Not all pigmented color formulations can fulfill resistance or government regulations for color set requirements. Some color combinations may not pass regulatory requirements. Please ask our team when inquiring about color and resin type compatibility.



RECESSED AREA GUIDELINES

A Polyfuze graphic can decorate different materials and shapes, but some guidelines must be applied when attempting to decorate any extreme recesses, bends, or corners.

For plastics with the following design challenges:

- Carrier film should not exceed a 45 Degree angle in a recess. (eg. a vertical wall of 20mm graphic placement would be 20mm from that wall.) (see image 1 below)
- Carrier film cannot exceed the recess area on all 4 sides of the recess. This will result in wrinkling of the film when the die pushes down into the recess. Limit of only two sides entering the recess. Closest cut of film to the image is 3.17mm. (see image 2 below)

► Please note your plastic parts shaping:

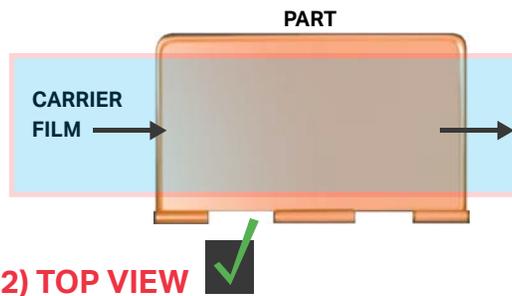


Ask our sales team about decorating recessed, bent or corners with Polyfuze Graphics.



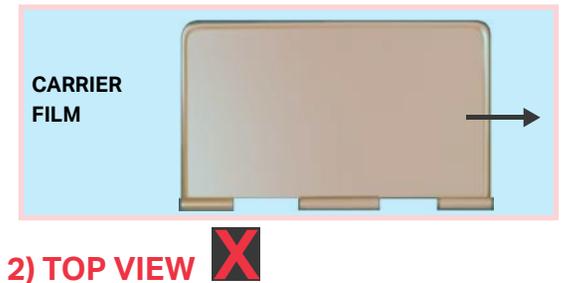
1) SIDE VIEW

OF PART WITH FILM LAYING ACROSS AND INSET DURING STAMPING.



2) TOP VIEW

OF PART WITH FILM LAYING ACROSS AND FILM NOT EXCEEDING IN RECESS ON ALL 4 SIDES OF THE PART BEING STAMPED.



2) TOP VIEW

OF PART WITH FILM LAYING ACROSS AND FILM EXCEEDING IN RECESS ON ALL 4 SIDES OF THE PART BEING STAMPED. (Avoid this)