



Finishing Techniques

Embossing - Debossing

I often refer to paper as the third dimension in your design. To be really comprehensive, embossing or debossing is then truly the fourth dimension. Raising type or an image within your design adds texture by creating shadow and depth - literally adding allure to your brochures, letterheads and business cards.

There are many considerations to take into account when specifying an emboss and preparing the artwork, but the quality, elegance and tactile features of this printing technique are well worth it.

How it works

A die (or mold) of the embossed design is created with a matching counter die (often called a female and male die), which is a mirror image of your design. On a special embossing press, the paper is pressed between those two dies and, with added heat and pressure, the paper is molded into the shape of your design. Some printers emboss without heat, but experts in the field agree that the image is cleaner and sharper when heat is added.

When it comes to embossing, the more popular of the two options, pressure is applied from the back of the sheet, which pushes and raises the type or image above the surface of the stock. In the debossing process, the pressure is applied from the front of the sheet, which forces the paper below the paper surface.

Embossing can make a dramatic effect. Depending on the die and the paper you use, embossing levels can range from subtle .004 inches to dramatic .025 inches. The level of the embossing puts a lot of stress on the paper because it stretches the paper's fibers. As a rule of thumb, Text and Cover papers can withstand 2.5 times the caliper of the paper; therefore a bulky Cover weight can produce a greater embossed height.

The downside in both processes is that you will always see the mirror image on the back of the sheet. There's not much you can do about this, it's part of the process. An elegant solution to hide this mirror image is to incorporate a French Fold, Gate Fold or Duplex into your design and thus cover the less attractive area. Voila.



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Embossing types

There are three levels of embossing / debossing available to you. In some cases, your design will dictate which level of die you should use. In other cases, your budget will lead the way. The larger the embossed area and the more complex or sculptured the design, the more costly the die.

Single Level Die

This embossing or debossing mold changes the surface of the paper at one level and is generally used for lines, borders and single dimension images, such as line art or type. A die where all the elements of the design are etched on a single level is the least expensive since it is created in a single-step process.

Multi-Level Die

A multi-level die is created in a process of two or more steps, employing bevels, simple curves or standard textures to enhance the design. Multi-level dies are often used with landscapes or single images that have unique details, such as leaves or feathers.

Sculptured Die

A sculptured die is most expensive because the process includes several production steps. This hand-tooled die, usually made of brass, embosses many levels through the use of curves, angles and varying depths, which create many interesting shadows and highlights. This kind of die would be perfect to showcase the intricacy in the image of a rose, for example.

Die Materials

Dies can be made of magnesium, copper or brass. Choosing the appropriate kind of die is determined by the intricacy of the design, the size of the job and the desired life of the die.

Magnesium Dies

These dies are the least expensive of the three options and have the fastest turn around times. The downside is that magnesium dies cannot achieve a high level of detail and are mainly used for large letters and images. These dies are softer than brass and copper dies and are only suitable for quantities of up to 20,000 impressions.

Copper Dies

Moderately priced, copper dies are typically used for run lengths up to 100,000 impressions. They are photochemically etched and work well with designs that exhibit fine lines and detail.



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Brass Dies

The most expensive of the three, brass dies are used for high volume and high quality projects. Brass is used for fine lines, sculptured images, combo foil stamping and embossing and for those images that need extensive hand tooling.

Color and inks

Embossing techniques can be used with or without added color or foil.

Blind Embossing

For a classy, subtle printing effect, use blind embossing. Your design will be raised or indented into the paper surface without any added color. The image can be single-level, multi-level or sculptured to create a variety of effects.

Registered or Printed Emboss

In this kind of embossing, the raised area registers with a printed image. Depending on your requirements and specifications, the raised area can stay inside the printed image or go outside it. If an image features apples and one orange, for example, you could just emboss the orange to draw more attention to it.

Combo Emboss

This process is also known as combination or foil embossing. Utilizing the opaqueness of foils, it draws attention to broad type or a logo and is often completed in one simple print run, thus making it more economical.

Glazing

Glazing is a popular technique used on dark colored stock. The heat used for this process is turned up beyond what would be needed to simply emboss the sheet. This adds shine to the raised surface. Even light colored papers can be scorched to change the paper color if a very high temperature is used.

Paper choices

The softer and heavier the paper, the better. Heavy stocks allow for the most dramatic effects as the die can push deeper into the sheet. When it comes to letterheads, make sure to limit the depth of your embossed area. The heat of the everyday office printer can flatten a too highly raised design.



Cotton fibers are longer than wood fibers and they allow for the die to push the embossed area deeper into the sheet.

Textured papers naturally add a stunning effect when embossed. The die literally “irons” out the texture in the embossed areas, making a great contrast between the sheet and the raised design.

Coated or very smooth sheets have a harder finish and generally allow for less give – less depth in the embossing. But even these sheets can be embossed successfully by utilizing softer edges to avoid cracks and crinkles in the sheet.

As you can see, when specifying an emboss and preparing the artwork, there are many considerations to take into account. Talk to your printer before you begin to help determine the right paper and the right die to meet your expectations.

Even though you will have to consider the extra cost for dies, as well as the extra step in your overall print production, the effects and perceived value of an embossed piece are priceless.

Engraving

You see it on wine labels and fine stationery, invitations and business cards. Strong lines and a sharp definition. Slightly raised ink. Mainly printed in one color. Engraving.

With your trained eye for details you can easily see the difference between thermography and engraving. The lines are much finer, there is more detail in the images and the inks have a more chalky feel.

How it works

Unlike thermography, engraving is done on a separate engraving press.

The design is mechanically or chemically etched into a printing plate – also called a die. The finished plate is filled with ink, ensuring that all sub-surfaces are filled, then the plate’s surface is wiped clean. Slightly moistened paper is pressed against the plate with immense pressure, forcing the ink from the sub-surface onto the substrate. This produces the characteristically embossed feel of engraving.

Steel plates are used for longer or repeat print runs, such as letterheads, stamps and money, while less expensive copper plates are used for one-offs and shorter runs.



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Colors and inks

Even though most engraved pieces you come across will have more subdued colors like black, navy and gray, engraving inks are available in a full spectrum of colors, from pastels to fluorescents. These colors are usually mixed to correspond with the Pantone system.

Engraving inks are much more opaque than offset ones, which means that you cannot build colors in CMYK like you're used to. On the other hand, they make for great readability, even with little contrast to the paper color.

Paper choices

Due to the opacity of the ink, engraving is a great process for colored stocks, with smoother sheets being preferable.

Weights can range from very light to very heavy stocks. Be aware that due to the tremendous pressure during the printing process, there will be a slightly indented impression on the back of the sheet, which naturally is more obvious on lighter sheets.