

# Understanding the Embossing Process

## Embossing

*Embossing by definition is the process of giving a 3-dimensional look to a material or product. Pressure is applied to the surface of the material and results in an image remaining on the surface of the material. 'Relief' is another term used to encompass the process of embossing.*

## How does the process work ?

*There are 3 basic elements in achieving an emboss:*

*\*Pressure \*Time \*Heat.*

*It is the combination of these three elements that determine the final quality of the emboss and the variation of these elements in relation to the material to be embossed.*



## Hobby Embossing.

*In its simplest form, an emboss can be achieved by wetting a piece of leather and using a metal die (metal pattern), striking the die (pressure) with a hammer to cause the image to be embossed into the leather. When the leather has dried the image will remain.*

## Commercial Embossing.

*Embossing in the commercial world adds 'heat' and 'time' in the form of a manual or mechanical press to better control the repetition of the embossing process.*



## The Hand Press.

*The basic press is a thermostat controlled hand press which heats the metal image to a specified temperature and the operator pulls down on a lever to apply pressure. This process is effective but due to the fact that the press relies on human strength, variations in pressure will impact on the consistency of the embossed image.*

### Typical Pneumatic Press

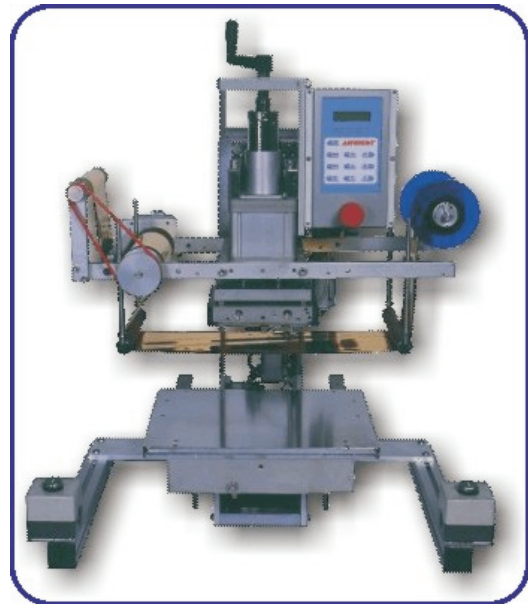
The pneumatic press can take many forms but the operating principle remains the same.

1: The press will have a heating element to produce heat and a thermostat to maintain a consistent temperature.

2: There will be a timer to ensure that there is consistent amount of time that the heat is applied.

3: The Press will be controlled by a pneumatic system with variable pressure settings which is set to give a consistent amount of pressure.

The press comes in many sizes and is usually measured by the maximum amount of pressure it is able to apply, eg 1 ton, 2 ton etc.



### The Image Stamp (Block).

The image to be embossed is either engraved or photo etched into a piece of metal. The depth of the etched image is one factor that will impact on the depth of emboss that can be achieved.

#### Brass block:

A brass block is engraved out of brass...the engraving process gives vertical edges to the image which ensures that the image will be embossed retaining the most accurate details and can if required give greater depth.

**Photo etched block:** A block processed by photo etching is less expensive than an engraved block and often quicker to have produced.

The edges of the block are often a bit rough and there are also variations in the angle at the edge of the image...from 45° to 80°. The flatter the angle the less the image will be able to be embossed without causing a poor appearance and a loss of detail.

It goes without saying that the better the quality of the block the greater the opportunity to achieve a high quality emboss.

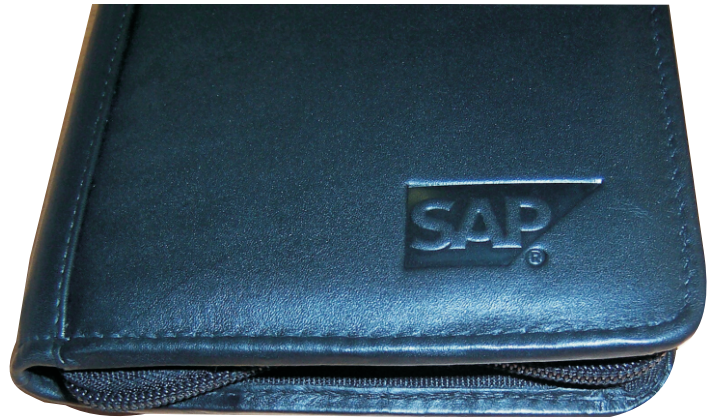


### **Factors determining the finished appearance.**

*A finished appearance of a simple emboss is determined by the thickness and the quality of the material to be embossed.*

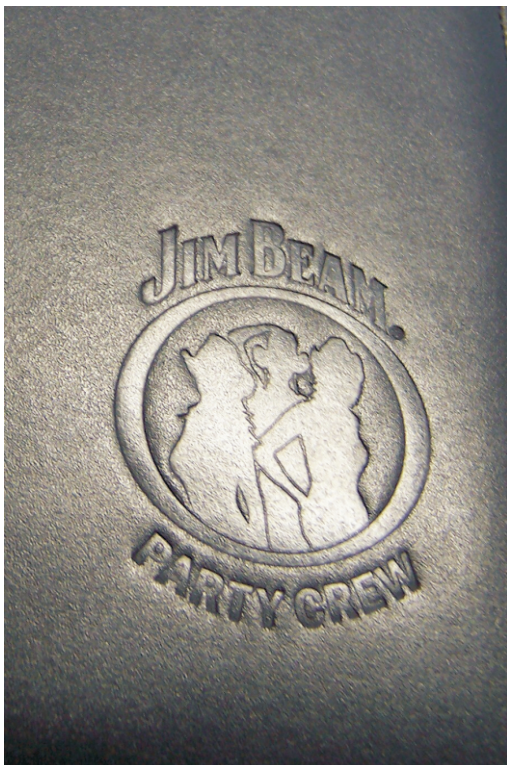
### **Genuine Leather:**

*Genuine leather is a tanned animal hide and will achieve one of the best embossed finishes due to the leather being able to withstand a high temperature which enables the embossed image to be applied more effectively. Leather is often thicker than other materials allowing for the definition of the image to have greater depth contrast.*



### **Bonded Leather:**

*Bonded leather is reconstituted leather - assorted leather fibre pulped and reformed with a laminated surface. The emboss can look very good and best appearance comes from a shallow emboss, however a poor quality lamination (where the glueing is not a good bond) will result in the edges of the image being rounded and not sharp.*



### **'Pleather':**

*A word used to describe a composite of reconstituted leather and plastic. In an effort to have a product described as leather, modern manufacturers of traditional leather products arrange to have their products made of this composite material. One might describe the process as dial your own leather...that is the end user or importer tells the manufacturer what percentage of leather and what percentage of plastic is required to produce the finished product. The governing factor is the price that the product is to be manufactured for to meet the final sale price. As a result the embossing process becomes more difficult as the 'heat' factor must be adjusted to compensate for the lesser amount of leather in the material.*

### Other factors determining the finished appearance.

#### **Synthetic Leather** (PU, PVC or variations)

PU and PVC are non-leather materials which can be embossed, however the quality of the emboss is determined by the underlying material to which the thin coating (.05mm) of PU/PVC is laminated. If the underlying material is smooth, the resulting emboss can look quite good, on the other hand if the underlying material has a woven pattern then that pattern will be very visible in any solid areas of the emboss. This is often an unacceptable result for the final user of the product. It must also be pointed out that the embossed image will not be as sharp around the edges as the image embossed onto a thicker more solid material.



#### **The Finished Result.**

Embossing onto a piece of material/leather 'pre-manufacture' will give the most consistent result because there is only the thickness of the material to emboss into.

Embossing onto a finished product will give some variation due to the fact that there are a number of layers....material/leather, foam, cardboard and often internal pockets. Each layer will have some variation in thickness and the various combinations will generally mean that no two products are exactly the same.

Embossing onto leather will also have variation due to the fact that it is a natural material and the texture of the hides will rarely be the same.

The finished result from embossing is generally very good and gives a quality look to the products that have been embossed.

**Copyright.** This Booklet is the property of JK Multicolor Pty Ltd and is for the information of any interested person.  
The article/booklet is not to be reproduced in full or in part for sale without the written permission of the JK Multicolor Pty Ltd.  
**email: [jk@multicolor.com.au](mailto:jk@multicolor.com.au)**