

A Deluxe Presentation When it Really Matters

From presentations to the Royalty and Presidents to luxurious cosmetics and corporate branding - Gold and Silver has been used for deluxe presentations for many centuries.

Modern Application.

The modern processing of gold and silver decoration is by use of metallic foils. The decoration is applied with the use of printing machine. The machine presses the image onto a product and the foil which has an adhesive on the back is bonded to the product.

How it Works.

The process uses three elements to achieve the final result:-

HEAT

PRESSURE

TIME

Printing machines have been manufactured to combine these three elements and achieve a consistency in each element.

***Heat** - is achieved by using a heating element placed within a metal plate. The metal plate is heated and the heat controlled by a thermostat to maintain consistency.*

***Pressure** - can be achieved either by manual or pneumatic means. Consistency is best achieved when a pneumatic system is in place and a pressure control valve and gauge ensure that the pressure remains at the correct level.*

***Time** - is best regulated by an electronic count-down timer which is set to allow the correct amount of heat and pressure to achieve a quality result.*



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.

Time is either mentally counted out or if long times are required, then a second hand watch or clock can assist.

This process is effective but due to the fact that the press relies on human strength, variations in pressure and time will impact on the consistency of the printed image.

Typical Pneumatic Press

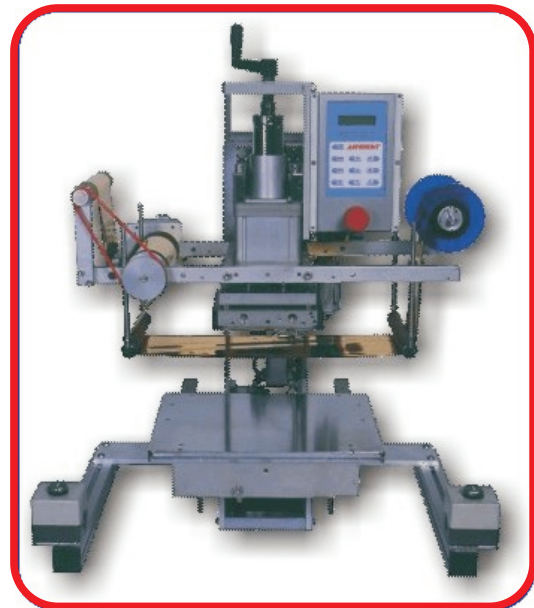
The pneumatic press can take many forms but the operating principle remains the same.

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 foil printed 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 quality of the foil print that can be achieved.

Brass block:

A brass block is engraved out of solid brass sheeting or block. The engraving process gives vertical edges to the image which ensures that the image will be sharp and retain the most accurate details.

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 accurate the image reproduction and in some cases 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 print.

The Foil.

The foil printing (hot stamping) process requires 'foil' which can either be metallic, coloured or clear. The foil is stamped onto the product to decorate or provide corporate identity to the product.

The structure of foil.

The foil is a combination of layers of Polyester (carrier); Pigment (colour) and an Adhesive (glue) which work together to leave an image on a product.

The Polyester is a high temperature material which is able to withstand the varying temperatures applied to cause the adhesive and pigment to adhere to the product.

The foils have a range of different adhesives designed to stick to different surfaces.



Foil Colours.

Foil is usually used to get a High Gloss Metallic finish. A range of metallic colours are available - Gold and Silver are most common and in addition a range of reds, blues, greens and combination colours are available.

Di-fractional Foils.

In recent years special foils have been developed to give a range of changeable colours. As the angle of the light changes, so the colour changes.

Materials onto which foils can be printed.

Foil printing is suitable for many products and surfaces and as stated, economically is best suited to flat surfaces. Irregular surfaces require special dies and blocks which are not cost effective unless large quantities are to be printed.

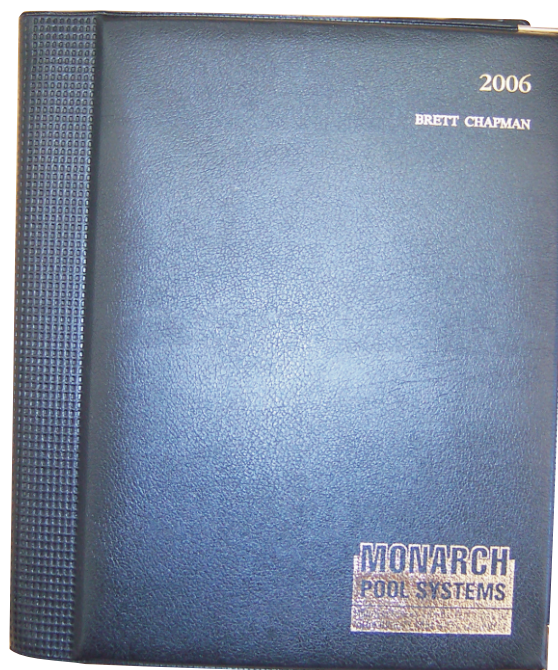
Suitable materials listed:-

Leather - PVC - Polyurethane - Polycarbonates - Styrene - Polypropylene - Polyethylene - Most plastics - Paper - Cardboard.

Other (special applications): Timber

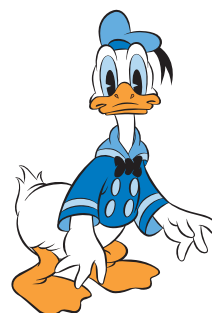
Major Features

- 1: Provides a highly reflective metallic Gold, Silver or other metallic colours.
- 2: The process often gives a subtle emboss to the print which can assist with wear.
- 3: Gives a high quality and luxury appearance to the finished product.
- 4: A selection of specialty foils with unusual decorative and di-fractional properties.
- 5: Great for Personalising a product with individual names or initials.
- 6: Suitable for a wide range of materials and decorative styles.
- 7: Adaptable for application of heat transfers.



Transfers

Another application for the hot stamping process is the application of pre-printed transfers. The transfers can be multicoloured and by using a heated silicone pad, the transfer can be used to provide a complex image onto a product in a single operation. The transfers can be expensive, are made overseas and the process is best suited to large volume runs.



© Disney

Sublimation Transfers

Sublimation transfers are mainly used to provide a permanent image onto moulded product where the end use of that product may require regular cleaning and would result in damage to a regular print or transfer. Examples of this process are heart monitors and other medical equipment where the product is regularly cleaned or scrubbed with disinfectants for hygiene purposes.

Limitations

- 1: The foils have a limited colour range so matching PMS colours is not possible.*
- 2: The process requires pressure and is only suitable for solid products.*
- 3: Print position is often restricted due to accessibility*
- 4: The process is best suited to flat print areas.*
- 5: Uneven print surfaces are printable but require special tooling-can be expensive.*
- 6: Due to the embossing effect of the process, recovery of product where the print is not perfect (not necessarily the fault of the printer), recovery is difficult.*
- 7: Pressure will often be a limiting factor in the image size that is printable.*
- 8. The pressure required to achieve a good adhesion may cause the substrate(support material) to become visible and detract from the finish.*

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*