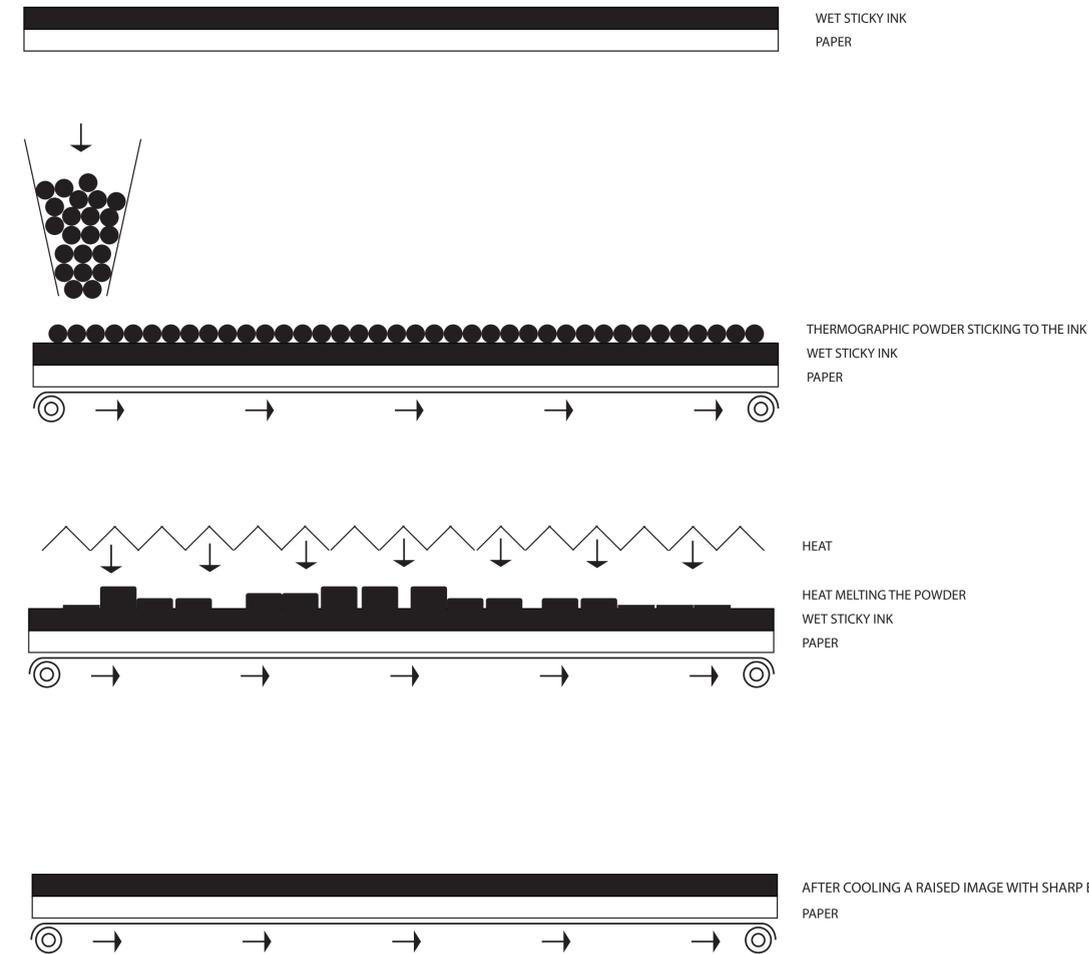


What is Thermography?

By definition Thermography is the production of raised image prints by the use of heat. To break it down to basic components the process involves covering a wet sticky ink with a thermoplastic powder, heating it until it flows and forms a coating over the ink, then cooling it down so the covering sets. The process is explained in the diagrams below:



Guide to Good Thermography

The Art of Good Thermography

To obtain good results from your Thermographic machine you must first obtain a high quality image from your printing press. This may sound obvious, but there are certain differences between printing for Thermography and just producing normal flat prints.

Inks

Thermography needs ink that says 'open' or tacky, in fact sticky would be a better word, so that the powder can adhere to it in sufficient quantity to give a suitable raise and smooth finish. Most Thermography can be produced using standard inks but if necessary the characteristics can be altered by the addition of varnish to achieve the desired 'tack'.

Stock

Generally, most stocks can be Thermographed, but for best results a stock with a good hard surface and low moisture content is ideal. Ink will actually sit on the surface of the paper catching more powder to give a nice high raise. However, as all stocks are not the same, the weight, texture, colour and moisture content of the paper should be taken into consideration.

1. Heavy paper requires more heat to melt the resin
2. Certain textured stocks may require a larger resin for smooth finish
3. Stocks with too much moisture will have the water boil off under the heaters giving a bubbly or cloudy effect to the raised areas.
4. Dark coloured stocks absorb heat faster than light colours
5. Absorbent stocks soak up thin inks too fast leaving nothing for the powder to stick to.

Water/Ink balance

is an important consideration on offset. Proper control here will keep surplus powder off the sheet. To produce quality work, reduce damping to the minimum but still allow enough ink on the paper to catch sufficient powder for a good raise. Remember you need to run just enough fount to prevent cathing up.

Letterpress

Requires a good quantity of ink to be transferred in the very nature of the process, but if the type is banged into the paper the Thermographic powder will have to raise out of the resulting depression and above the surface of the paper to achieve the desired result. Therefore a little more time spent, making ready, will result in a far better finish.

Guide to Good Thermography

Thermography machine Adjustments

Powder Flow

The hopper should be adjusted for a good flow of powder, and the heaviness of the flow depends on how heavy the printing is. For small printed areas less powder, and more powder flow for larger printed areas. When filling the hopper do not overfill as it is better to keep adding small amounts of fresh powder during the run to maintain good flow and keep static build up at bay. Ensure the powder blanket is clean and undamaged, set the disc rollers to the thickness of the stock to be Thermographed and adjust the powder flow and suction head to clean the paper without removing the powder layer from the ink.

Vaccum

This should be adjusted so that it does not pull too much powder off the ink. The aim should be to use minimum suction - it is surprising how little vacuum is needed to clean the sheet on most stocks. The efficiency of the suction will be impaired if the dust bag is not kept clean, it should be thoroughly vacuum cleaned or washed once a week.

Heat

When setting the heaters for a good Thermographic finish. It is important to remember that it is the heat in paper that melts the powder and therefore the thicker the paper the more heat needed to melt the powder. If you have a four-heater unit set the 1st bank of heaters low, the 2nd a little higher, the 3rd higher and the 4th ever higher. This will pre-heat the paper at the first and second heaters and start melting the powder between the 3rd and 4th and then straight out to the cooler.

SETTING UP YOUR HEATERS IN THE CORRECT WAY IS OF VITAL IMPORTANCE IF YOU WANT TOP QUALITY RESULTS

1. Powder should melt at the end of the heating head so there is not too much spread.
2. If the powder melts early in the heating tunnel, it will continue to melt until it gets under the cooler, which will cause it to over-run the type and flatten out.
3. Too much heat can result in bubbles, an irregular finish or pinholes.
4. Paper subjected to intense heat will curl, but long slow heat will not curl the paper so badly. With light weight papers you may think that only two heaters are required, but by using all of them set very low the powder is brought up slowly and with less paper curl.

Guide to Good Thermography

Press Adjustments

Impressions

When running Thermography the press must be set up differently than when running conventional offset, where minimum ink and heavy impression is used to push the ink into the paper for fast drying. For Thermography the opposite is required, which more ink and the impression cylinder and blanket cylinder adjusted to obtain a 'kiss' impression so the image will be transferred to the paper with the ink sitting on the surface but not being squeezed into it. Letterpress machines should also be set up to run with a 'kiss' impression. The purpose is to lay the ink on the surface of the paper to catch more powder for a better raise.

Impressions

The optimum speed for Thermography is dependent upon graphic design, choice of stock and type of Thermography machine. Press speed must be synchronised with the Thermography machine so the sheets spend maximum time under the hopper and thus collect optimum coverage of powder. This is achieved by ensuring that the sheets entering the Thermography machine have a minimum gap between them. Depending on the Thermography machine, some presses may need to be equipped with an alternate feed attachment ('skipfeed'), or modified by use of slow down pulley to reduce print speeds. This will allow you to synchronise the press to the Thermography machine so that there is a small gap between sheets without overlapping.