



**PRINTWORKS**

INSPIRING PRINT

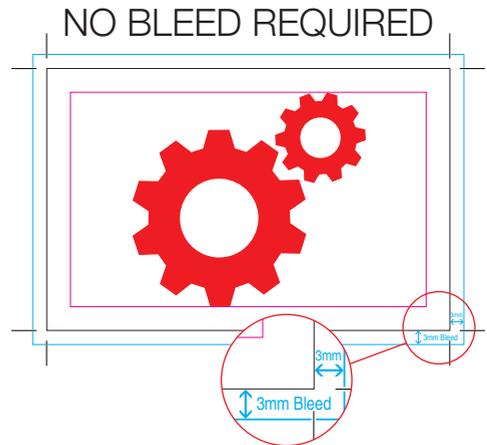
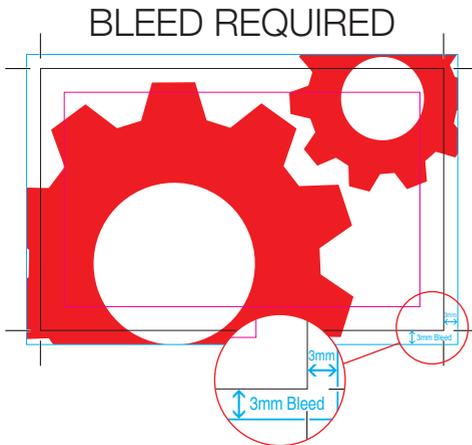
# A GUIDE TO PRINT

With this guide, we are going to examine ways to prepare files for print. This is a basic guide aimed to help people just starting out in the print design business or are looking to learn more about preparing files better to send to press. You can also use it as a checklist when designing your job and sending it to print.

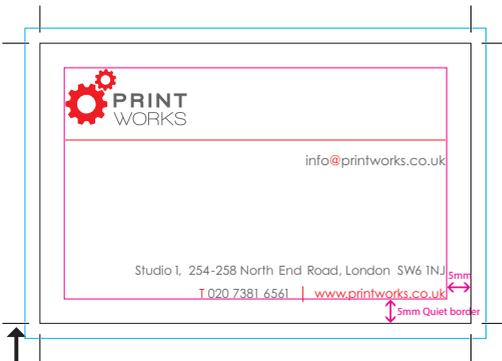
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**Bleed** is the 'edge' of a piece of artwork that goes beyond the trim edges of the printed piece. We require Bleed to allow for the tolerance of our equipment, booklet makers, binders, guillotines and folding machinery - even with our state of the art equipment, there is a margin of error with all mechanical processes.

In your artwork make sure that any graphic elements or photographs that you want to print right to the edge of the paper actually go beyond the edge by 3mm - after your job is printed it will be trimmed off.



**Margins** ('Quiet Border') is the distance you should allow from the edge of your finished page size for text, logo, diagrams or images not going to bleed.



There is always a small amount of movement during print finishing and keeping items off this safe area (approx. 5mm in from the edge) ensures that they don't accidentally get trimmed off.

'Professional' design programmes, such as InDesign, Illustrator, QuarkXPress or Canva allow elements to extend beyond the size of the page. This makes it very easy to bleed backgrounds and pictures beyond the trimmed edge.

**Crop Marks:** Indicates where to cut the paper.

Most people are familiar with the A series which includes A4 the usual letterhead size. There is also a B series which provides larger sizes. The C series is for envelopes - a C4 envelope being ideal for holding an A4 sheet.

### All dimensions in millimeters

<u>A Sizes</u>		<u>B Sizes</u>		<u>C Sizes</u>	
A0	841 x 1189	B0	1000 x 1414	C0	917 x 1297
A1	594 x 841	B1	707 x 1000	C1	648 x 917
A2	420 x 594	B2	500 x 707	C2	458 x 648
A3	297 x 420	B3	353 x 500	C3	324 x 458
A4	210 x 297	B4	250 x 353	C4	229 x 324
A5	148 x 210	B5	176 x 250	C5	162 x 229
A6	105 x 148	B6	125 x 176	C6	114 x 162
A7	74 x 105	B7	88 x 125	C7	81 x 114
A8	52 x 74	B8	62 x 88	C8	57 x 81
A9	37 x 52	B9	44 x 62	C9	40 x 57
A10	26 x 37	B10	31 x 44	C10	28 x 40

Printers also use different paper sizes - RA and SRA - to allow enough room for grip, trim and bleed. The sheets are then trimmed down to their finished size after printing.

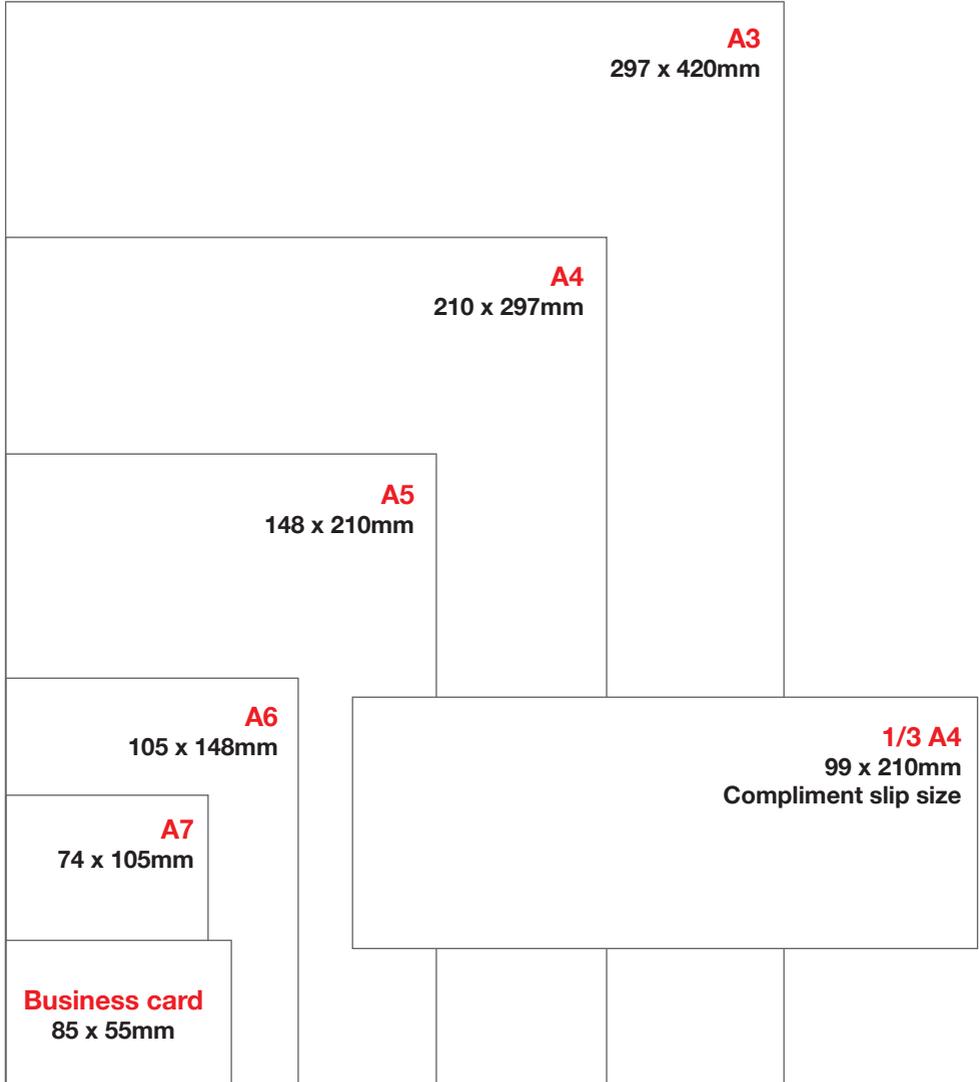
<u>RA Sizes</u>		<u>SRA Sizes</u>	
RA0	860 x 1220	SRA0	900 x 1280
RA1	610 x 860	SRA1	640 x 900
RA2	430 x 610	SRA2	450 x 640
RA3	305 x 430	SRA3	320 x 450
RA4	215 x 305	SRA4	225 x 320

 In North America, the office paper formats widely used today are "Letter" or "US Letter". It measures 8.5 by 11 inches (215.9 mm x 279.4 mm).

	<u>Millimetres</u>		<u>Inches</u>	
	Width	Length	Width	Length
A4	210.0	297.0	8.26	11.69
Letter	215.9	279.4	8.50	11.00

## The 'A' Range

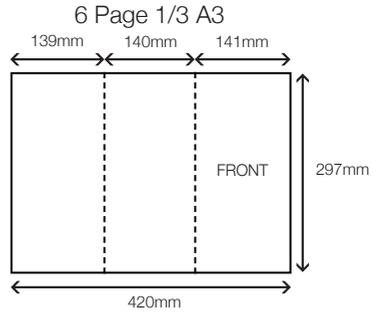
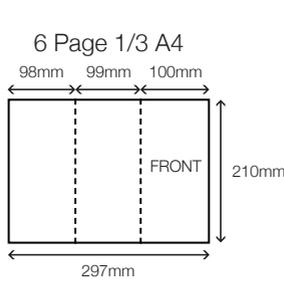
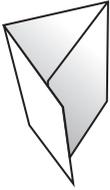
The 'A' range is the finished trimmed size of paper used in printing and related industries.



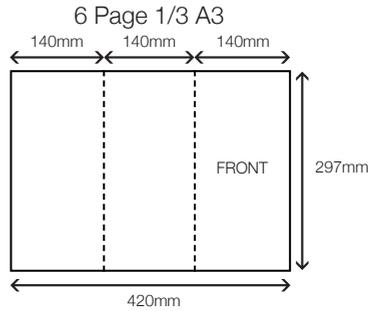
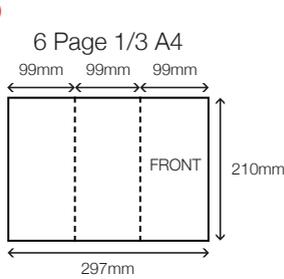
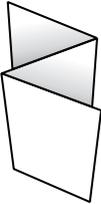
**Other Sizes:**

- A2** 420 x 594mm
- A1** 594 x 841mm
- A0** 840 x 1189mm

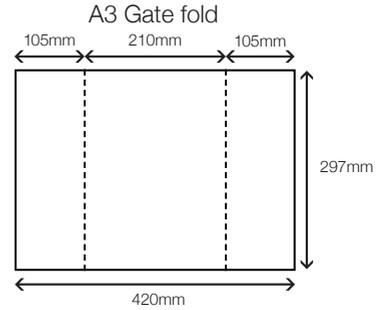
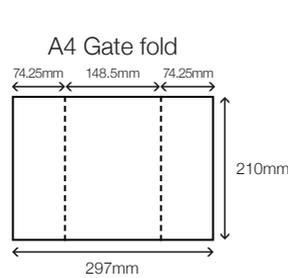
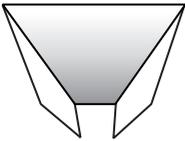
## LETTER FOLD



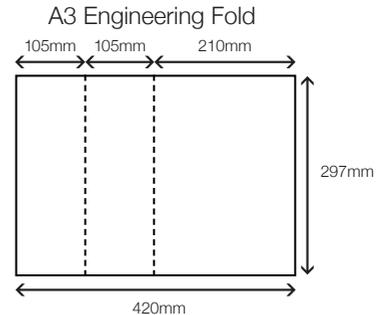
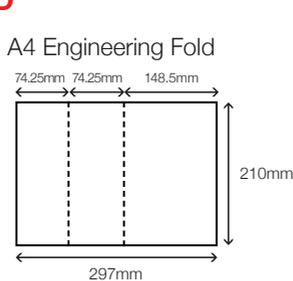
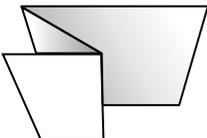
## CONCERTINA FOLD



## GATE FOLD

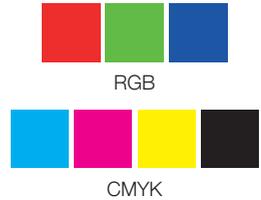


## ENGINEERING FOLD



## RGB VS CMYK:

Your computer, scanner, digital camera and monitor create images using combinations of just three colours: Red, Green and Blue (called RGB). Printing presses use four different colours to print these images - Cyan, Magenta, Yellow and Black (called CMYK - also known as Process Colour). At some stage of production, RGB images and colours must be converted to CMYK.



## Spot colours

Pantone Spot colours are used in traditional printing. Spot colours are mixed like paint and printed one at a time. Ensure all colours in spot colour jobs are assigned Pantone colours (or are 'Black'). CMYK and RGB colour used in spot colour printing may cause production issues or require correction



## Important note:

There can be a noticeable difference between viewing your work on a computer screen and seeing the final printed version - this is because computer screens are RGB devices whereas most printers are CMYK. For more accurate viewing use a colour calibrated screen and convert all your RGB images to CMYK.

## Blacks

When printing with black colour, there are two types of black you can use.

**Flat Black:** 100 K: can be used for body copy and barcodes

**Rich Black:** 40/30/30/100 — always confirm with us

**Note:** Rich black specifications may differ from printer to printer, so you should ask your printer what they recommend. For regular body text, do not use Rich Black.

**RGB Black:** Please note if you use RGB black (R 0, G 0, B 0) as vector fill colour this will be automatically converted to CMYK black (C 0, M 0, Y 0, K 100) by our work-flow. Please also avoid having vector RGB black joining bitmap RGB black in your design as the join will be extremely noticeable once the conversion has taken place.

## Colour Density (Tints)

**High Density:** A very high application of ink in one spot may not dry properly and result in smear. We do not recommend using a colour density higher than 300%.

**Low Density and Gradient Colour:** Working with a very low colour density (up to about 10 or 15%) always incurs a certain amount of unpredictability. Depending on offset ink application and the paper used, the colours might have a diminished visibility, and gradient designs (fades to white and crossfades) might not start or end exactly where you intended.

Digital images can usually be divided into two distinct categories. They are either **bitmap files** or **vector graphics**. If you work in prepress, you need a good understanding on the advantages and disadvantages of both types of data.

### Bitmap image:

As a general rule digital pictures and scanned images are bitmap files. These are sometime also called raster images.



72dpi



300dpi

### Vector graphic:

Drawings made in applications like Adobe Illustrator are saved as vector graphics.



Vector file



Outlined view

**Image Resolution:** Resolution is the measurement of the number of pixels or dots in an inch that will determine the quality of the final printed piece.

**⚠ The Rules of Resolution:** Images should be 300 dpi (dots per inch) at the final size in the layout. Low resolution images print fuzzy, jagged and blurry.

**⚠ Please note:** Images and logos saved from websites are most likely to be between 72 to 96dpi, they may look fine on your computer monitor but will appear blurry or pixelated in print and therefore are unsuitable for print.

Sourcing images: always try to use professional images, low quality images will only downgrade your designs. Images can be purchased from stock photography agencies online (Ex: iStockphoto, Shutterstock, Fotolia, ...).

Spot UV can be quite tricky to get right. When setting up your artwork, you must signal to the printer that certain elements of the design are not created using the normal CMYK inks and are instead created using the spot UV gel. Below are instructions on how you can do this using Adobe InDesign and Illustrator.

## HOW DO I SET UP MY ART WORK FOR SPOT UV?

### 1. Create a Unique Spot Colour in Your Design Programme

- i. Create a new colour swatch in the swatches panel
- ii. Change the 'Colour Type' to 'Spot'
- iii. Create a new colour value (we recommend using a bright colour to distinguish your spot colour from the colours you're actually using in your design – we use 50% Magenta and 100% Yellow)
- iv. Name this new colour swatch "Spot UV" – this is very important because our system has been set up to recognise the name Spot UV



### 2. Design Your Spot UV Layer

- i. Create a second layer for your design (you might like to rename this layer to make things easier when you switch between the two)
- ii. Toggle your viewing setting so that you can see what's on the layer underneath
- iii. Copy elements from your first layer that you want to be emphasised by spot UV and paste them into your second layer – or, design completely new elements in the second layer. (Note: these elements should be vectorised shapes for best quality)
- iv. Recolour all elements in the second layer with your unique 'Spot UV' colour.



### 3. Save as PDF and Send to Print

Large format printing design is very different to the usual print design, obviously the size of the documents you will be working with but also the variety of products in large format.



The product range includes Posters, Roller banners, mount boards, twist banners, tension roller banners and retail backlit graphics. Although they differ greatly, the principles in creating them are very similar

If you wish to create attention and grab prospects interest a large format banner is the way to achieve this. The design requires high impact graphics and a good strong strap line or message to be successful.

**Generic sizes of large format are:**

- A2** 420 x 594 mm
- A1** 594 x 841 mm
- A0** 840 x 1189 mm

**Some key points for making your large format product stand out include:**

- Keep text brief; a wall of text will be difficult to digest
- Create your artwork in actual size to avoid loss of quality with pixel blur
- Create any design artwork using colour mode CMYK

**Typical real-world standards:**

<b>Viewing Distance</b>	<b>Effective DPI</b>
Posters close-viewed	200 – 300 dpi
Roller banners	120 – 150 dpi
Outdoor banners	50 – 100 dpi



Roll-up banners



Canvas



Posters



Mount Boards



Outside Banner



Window Vinyl

There is a wide variety of technologies that are used to print stuff. The main ones are:

**Offset** – The full name of this process is offset lithography. It is the most widely used printing technique on the market, suitable for printing on paper, cardboard, plastic and other flat materials. Offset is used for printing books, newspaper, stationery, packaging, etc. Litho printing can be quite costly as you need to pay for the plates and the setting up of the machine for print. However for higher volume printing, the price per page is reduced. In addition Litho printing produces high quality print and it is very fast and efficient. However it does require a longer drying time, which needs to be factored into deadlines.



**Digital printing** – A number of different printing technologies such as inkjet and xerography are often referred to as digital printing. These are the newest processes and as such they are gradually replacing other processes. They also offer new possibilities such as variable data printing, in which each printed copy is different from the previous one.

## Tips:

- Digital is more suitable for shorter runs and Litho for longer runs.
- Digital is generally less expensive for the shorter runs and Litho for the longer runs. Prices reduce significantly for the very long runs.
- Litho printing requires an intermediate, such as a plate, whereas Digital prints direct from the file to the machine and each copy comes off the machine collated.
- Digital set ups are generally quicker and more simple than Litho setups which are more complex and take longer.



**Screen printing** – This printing technique can handle a wide range of materials and the printing surface does not have to be perfectly flat. Printing t-shirts or glass surfaces or on wood are some of the possibilities.

These brief definitions will help you better understand how each file format is best used.

## **PDF/X-1a or PDF/X-4 (Preferred)**

PDF/X is the recommended format for professional printing.

- **PDF/X-1a** Flattens transparency and converts colours to CMYK (traditional print workflow).
- **PDF/X-4** Preserves live transparency and colour profiles (modern colour-managed workflow).

## **EPS (EPS acceptable only if specifically requested)**

EPS (short for Encapsulated PostScript) is a vector format designed for printing to PostScript printers and image-setters. It is considered the best choice of graphics format for high resolution printing of illustrations. EPS files are created and edited in illustration programs such as Adobe Illustrator or CorelDRAW.

Vector graphics are a scalable, resolution-independent format composed of individual objects or shapes. Vector images can be resized easily without loss of quality making them an ideal format for initial logo designs and illustrations to be used in multiple sizes.

## **JPG (Preferred for images)**

JPG (short for Joint Photographic Experts Group, and pronounced jay-peg) is a file format best used for photo images which must be very small files, for example, for web sites or for email. JPG uses lossy compression (lossy meaning “with losses to quality”). Lossy means that some image quality is lost when the JPG data is compressed and saved, and this quality can never be recovered.

## **TIFF (Preferred for high resolution images)**

TIFF (short for Tagged Image File Format) is an industry standard designed for handling raster or bitmapped images. TIFF files can be saved in a variety of colour formats and in various forms of compression. TIFFs use lossless compression to maintain image integrity and clarity and are often used for professional photography.

## **GIF and PNG**

GIF (short for Graphics Interchange Format) is a file format for storing graphical images up to 256 colours. It uses a lossless compression method which makes for higher quality output. PNG (short for Portable Network Graphics) was created as a more powerful alternative to the GIF file format. PNGs are not restricted to the 256 colour limitation of GIF files and have better compression. A PNG file can be saved with a transparent background which allows you to place your image on top of another image without an outlining white box.

GIF files are probably the most popular on the web being used in logos and colour images. Even though PNG files are widely supported, GIF is still the most popular.

**Finding the right paper stock isn't simply about choosing the most expensive or highest quality available. To help, we have put together 6 top tips to help you select the most suitable paper for your project.**

## 1. Identify your paper

Paper comes in all sorts of guises and the type of stock can reflect on the purpose of your printed project. For example: is it a simple flyer that will be looked at briefly? Or will it need to demonstrate 'quality' or have a 'professional' feel – such as a business plan, brochure or stationery? We are always happy to discuss your requirements and provide suggestions and samples.

## 2. Decide on your finish

We offer a variety of finishes – gloss, matt, silk, non-coated or spot coated. Some finishes can significantly enhance the design. For example: gloss can bring to life images, whereas uncoated can give a more misty, romantic look.

## 3. Paper colour

If your job is printed on an off-white paper, this may have a slight effect on the ink colour, as all inks are transparent. E.g. it may turn out slightly darker than anticipated.

## 4. Weight of paper

The weight of your paper not only affects the price of your printing, but also can affect the cost of any mailing. GSM is an acronym standing for 'Grams per Square Meter'. Quite simply, it allows print buyers and print suppliers to know exactly about the quality of paper that is being ordered. The higher the GSM number, the heavier the paper.

### **80gsm to 100gsm**

Most household printer paper. The stuff you might pick up in packs of 500 sheets at the office depot.

### **120gsm to 160gsm**

Sturdy enough to withstand a bit of wear and tear. Ex: posters, flyers, letterheads...

### **200gsm to 300gsm**

This paper stock range is approaching card but will still have a bit of a bend when held with two fingers. Ex: Premium flyers, magazine cover...

### **350gsm to 400gsm**

This GSM is essentially card. It will stand up under its own weight Ex: Business cards, greeting cards.

## 5. Printing on paper

Certain digital papers are now suitable for both digital and lithographic printing, we can advise you on the best paper to choose to suit the print process, the resulting impact and any subsequent processes the paper may be subjected to. The paper you choose needs to suit the printing process.

## 6. Costing

The cost of paper significantly impacts on the cost of a printing project. There are a lot of ways that you can save on the paper cost, so if you feel your quotation is a little on the high side, please speak to us for alternative suggestions.

**A variety of methods are used to bind multiple pages of a printed document. Some methods are more time consuming than other and therefore can affect the cost of the project. Get in touch with us and we'll discuss your requirements and provide suggestions.**

### Wire Binding

Wire bound books are made of individual sheets, each punched with a line of round or square holes on the binding edge. Wire binding allows books to have smooth crossover and is available in many colours. This binding is ideal for annual reports and software manuals.

### Comb Binding

Uses a rectangular hole pattern punched near the bound edge. Very flexible and possible to lose binding. Some pages can be punched and gathered into ring book very easily. So for the documents or book to be replaced or updated regularly.

### Saddle Stitch

A binding process in which a booklet is stapled through the middle fold of its sheets using saddle wire. Generally used for thin documents and book printing jobs.

 Avoid objects which cross pages. It's unlikely that objects which cross pages will line up exactly.

### Perfect Binding

A bookbinding method in which pages are glued rather than sewn to the cover. Perfect binding is suitable for books thicker than approximately 3mm. Perfect binding is commonly used for softcover books. When PUR glue is applied, it can also be used for certain hardcover applications.

### PUR Binding

PUR (polyurethane reactive) glue is the most durable binding glue available, offering design flexibility for any number of applications, including catalogues, instruction manuals and art books. PUR adhesives differ from conventional EVA hot melts in that they cure by cross-linking via a chemical reaction with moisture contained in the paper stock or surrounding air. Once cured, the adhesive's higher molecular weight provides a tough, pliable bond that is resistant to temperature extremes.

 If you require binding heavy stock paper into a book, perfect binding will not work well.

 Visual loss with perfect binding: Perfect bound products do not open flat, therefore there is always an amount of page in the spine area which can't be seen. Page elements should avoid this area (10mm margin in the back of each page is usual for perfect binding).

**Hardcover binding** A hardbound book has rigid covers and is stitched in the spine.



Wire Binding

Comb Binding

Saddle Stitch

Perfect/PUR Binding

Hard Back Binding

**Bleed** – A term that refers to printing that goes beyond the edge of the sheet after trimming. The bleed is the part on the side of your document that gives the printer that small amount of space to move around paper and design inconsistencies.

**Coated stock** – Paper coated on one or both sides with a mixture china clay, latex and other loadings to fill up surface pits and improve the printing surface. The process can be accomplished either on-line on the papermaking machine (machine coated) or as a separate operation (off-machine coated).

**DPI** – (dots per inch) is a measure of spatial printing or video dot density, in particular the number of individual dots that can be placed within the span of one linear inch (2.54 cm). The DPI value tends to correlate with image resolution, but is related only indirectly.

**GSM / grams per square metre** – The weight of paper or board, measured in grams per square metre. For example, office copier paper is normally 80gsm, whereas the cover of a book might be 350gsm.

**Image Resolution** – Describes the detail an image holds. The term applies equally to digital images, film images, and other types of images. Higher resolution means more image detail.

**Margin** – Is the area where your art and type should be safely tucked into so they are not trimmed or cut-off.

**PANTONE Colour** – The PANTONE MATCHING SYSTEM is the definitive international reference for selecting, specifying, matching and controlling ink colours.

**PDF** – (Portable Document Format) is a file format created by Adobe Systems in 1993 for document exchange. PDF is used for representing two-dimensional documents in a manner independent of the application software, hardware, and operating system

**Process Colour** – Is a subtractive colour model, used in colour printing, also used to describe the printing process itself. CMYK refers to the four inks used in most colour printing: cyan, magenta, yellow, and key black.

**Score** – A pressed mark in a sheet of paper, usually a thick paper, to make folding cleaner and easier.

**Spot UV** – (Ultra Violet) refers to the placement of a glossy coating on specific areas of the card.

**Trim** – The final size of a product after its unnecessary parts have been cut off or removed.

**Uncoated paper** – Paper which has not been coated in clay – as opposed to ‘coated’ paper such as matt and gloss. An example of uncoated paper is bond. Uncoated paper is often used for stationery.

## File preparation

Before you upload your file, make a quick check against our preferred artwork settings to ensure there are no issues with your print job. If you have a question, please write to [info@printworks.co.uk](mailto:info@printworks.co.uk) or call us on **020 7381 6561**.

## Bleed and Margins

3mm bleed, 5mm margins.

see page 3

## Paper sizes

Set up document to correct size.

see page 4

## Colours

The job contains no RGB images.  
Any Pantone or Spot colours are specified.  
Rich Black used for large black areas only.

see page 7

## Images

Photos are high resolution: 300dpi

see page 8

## Spot UV

Named spot colour (e.g. "Spot UV"), separate layer, 100% tint, overprint enabled

see page 9

## Large format

Resolution appropriate for viewing distance.

see page 10

## Binding

Avoid objects which cross pages.  
Avoid Important elements in the spine/punched area.

see page 14

## Other

Double sided artwork are supplied in single pages, not as spreads  
Folded items supplied as spreads for proofing  
Multi-page documents supplied as single pages in page order