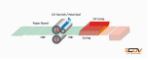
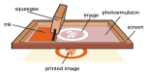
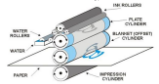
Finishes are usually applied for the following reasons:

1.) To **PROTECT** the material from moisture, wear, abrasion, fungus, mould or insect attack.
2.) To change the materials **APPEARANCE**, its colour or texture.
3.) To enhance the materials **PROPERTIES** such as **durability, surface hardness or other properties.**

1. Paper And Board Finishing

1	**Laminating** 	**Lamination** is the technique/process of manufacturing a material in multiple layers, so that the composite material achieves improved strength, stability, sound insulation, appearance, or other properties. Laminating paper products, such as photographs, can prevent them from becoming **creased, faded, water damaged, wrinkled, stained.**
2	**Embossing & Debossing** 	Embossing and debossing are the processes of creating either raised or recessed relief images and designs in paper and other materials. An embossed pattern is raised against the background, while a debossed pattern is sunken into the surface of the material. **Embossing** enables you to highlight **important** elements of your printed products, such as letters (company names) and designs (corporate logos), to make sure they **stand out**.
3	**Varnishing**	The term varnish refers to an overcoating applied to a printed pieces following printing. Designed to **seal in and protect the ink** on the printed surface. Applying varnish to paper or card produces a **smooth and consistent texture**. As well as improving the look and feel of a printed piece. Varnishes can be **gloss, matt or silk.**
4	**UV Varnishing And Spot Varnishing** 	This method can be very effective when used on **book covers, business cards or postcards**, by **enhancing** the printed design. The varnish itself is used to **create part of the design** by forming the text, pattern or an image which is then printed on to a solid colour background. UV varnish is a special type of varnish that's finished using an **ultraviolet drying machine**. It creates a more vivid, more luxurious and more tactile finish when compared to non-UV varnishes.

1. Paper And Board Finishing

5	**Foil Blocking** 	Foil blocking (or hot foil stamping) is the process of **applying metallic or pigment foil** to paper or card, where a heated die is stamped onto the foil. Metallic foils are often used to **highlight a product as premium or category-leading.**
6	**Screen Printing** 	The **process** of pressing ink through a stencilled mesh **screen** to create a **printed** design. The **process** is sometimes called serigraphy or **silk screen printing.**
7	**Flexographic And Offset Lithographic Printing** 	**A printing** technique that uses a **printing** plate to transfer an image to an intermediate carrier and then onto the **printed** surface. Images or text are **etched** by a laser on to an **aluminium plate** which has a coating on it. This plate is then put on to the printing press which is made up of lots of rollers that the material goes through. The plate is inked up and transferred to a rubber blanket. This is based on the repulsion of oil and water, the offset technique employs a flat image carrier on which the image to be printed obtains ink from ink rollers; while the non-printing area attracts a water-based film, keeping the non-printing areas ink-free.
8	**Digital Printing** 	This refers to methods of printing from a **digital-based image** directly to a variety of media including paper. It usually refers to professional printing where **small-run jobs from desktop publishing** and other digital sources are printed using large-format and/or high-volume **laser or inkjet printers**.

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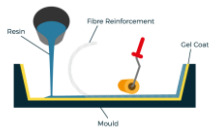
2. Polymer Finishing

1	**Acrylic spray paints** 	Extremely hard wearing and available in a whole spectrum of colours including metallic. This finish is both durable and hardwearing. **Common acrylic uses include:** ❑ Window frames ❑ Car panels ❑ Shop fronts ❑ Bicycles
2	**Thermoplastic Elastomer** 	These have many physical properties of rubbers, e.g., softness, flexibility, and resilience. Can be processed using conventional techniques, such as **injection moulding** and **extrusion**. Soft TPE can be easily moulded or extruded onto hard thermoplastic materials, making it great for **soft touch grips on products**.
3	**Gel Coats When Laminating GRP** 	A special resin called gelcoat is always used as the outermost layer in fibreglass lamination. This un-reinforced resin provides a smooth, glossy, protective layer between the glassfibre and outside moisture. It is applied as the first layer in the mould, by using a pigmented gel coat, either pre-mixed or mixed on the job with up to 10 per cent of a suitable polyester pigment paste, you can impart the surface colour of your choice to the fibreglass.
4	**Smart Pigments Such As Thermochromic Or Phosphorescent**	Applied to the surface of a product, these **Thermochromic** dyes are **used** in safety warnings signs, advertising, consumer packaging, product labels, security printing, anti-counterfeit inks, novelty applications such as temperature sensitive plastics and inks printed onto ceramic mugs, promotional items and toys. 

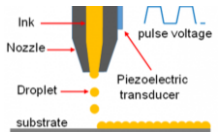
Methods of applying finishes











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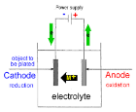
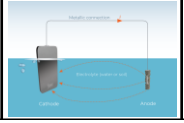
3. Metal finishing

1	**Cellulose Paint**	This is especially useful where a shorter drying time is required due to it being a "air drying" paint. As soon as its applied the thinners will begin to evaporate leaving a film of paint on the surface. Cellulose paint will require 4-5 layers to achieve a full and proper finish. **Common cellulose uses include:** Car panels (including bumpers), Doors, Building panels, Picture frames
2	**Acrylic Paint**	Extremely hard wearing and available in a whole spectrum of colours including metallic. This finish is both durable and hardwearing. **Common acrylic uses include:** Window frames, Car panels, Shop fronts, Bicycles.
3	**Electro-plating** 	**Electroplating** is a process that uses an electric current to reduce dissolved metal cations so that they form a thin coherent metal coating on an electrode. Silver plating and gold plating of jewellery or silverware to improve its appearance and value. Chromium plating improves the appearance of objects and also improves its wear. Zinc or tin coatings are applied to give corrosion resistance.
4	**Dip Coating** 	**Dip coating** is the precision controlled immersion and withdrawal of any product into a reservoir of liquid for the purpose of depositing a layer of paint / material.
5	**Powder Coating**	Applied as a **dry powder**. Is typically applied **electrostatically** and then set under **heat** or with **Ultraviolet light**. It provides a high-quality, **durable finish**, allowing for fast production, little waste, and simplified environmental compliance due to no waste. Used as functional (**protective**) and **decorative** finishes.
6	**Galvanising**	The process of applying a **protective zinc** coating to steel or iron, to **prevent rusting**. The most common method is **hot-dip** galvanizing, in which the parts are submerged in a bath of molten hot zinc
7	**Sealants**	Sealant is a substance used to block the passage of fluids through surfaces, joints or openings in materials. A thin, plastic coating often painted on the surface. The most widely used, the most versatile **sealant** to use for **metals** is silicone. Silicone has many uses for sealing many types of **metal** structures. The various **metals** it can be applied to are iron, copper, aluminum, **steel**, stainless **steel** and galvanized **steel**.
8	**Preservatives**	Non-Rust lubricating liquids and **preservatives** are used for various **metal** applications to preserve ferrous and/or other **metal** parts such as all types of engines, and other systems such as hydraulic systems, compressors, transmissions, and gear boxes.
9	**Anodising**	An **electrochemical process** that converts the metal surface into a decorative, durable, corrosion-resistant finish. **Aluminum** is ideally suited to anodising, although other nonferrous metals, such as **magnesium and titanium**, also can be anodised.
10	**Plating**	Plating (Electroless) is a method of plating metal by **chemical** rather than electrical means, in which the piece to be plated is immersed in a chemical which changes metal ions to metals which forms a deposit on the piece. The plating of printed electronic circuits, nickel plating, although silver, gold and copper layers can also be applied in this manner.
12	**Cathodic Protection** 	A technique used to control the corrosion of a metal surface by making it the cathode of an electrochemical cell. This connects the metal to be protected to a more easily corroded "sacrificial metal" to act as the anode. Cathodic protection is commonly used to protect structures against corrosion, such as ships, offshore floaters, subsea equipment, harbours, pipelines.

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4. Wood Finishing

1	Polyurethane Varnish	**Polyurethane** is a synthetic resin and type of **varnish** used in the finishing of floors, cabinets and other woodwork. It is a desirable choice of **varnish** because it is transparent, water, fungus and mildew resistant, and resists abrasions.
2	Acrylic Varnish	A transparent, colourless varnish forms a good bond with painted surfaces yet still be removable without affecting the painting. It is usually a combination of a resin and a solvent and applied to the surface when it thoroughly dry. Provides a hard, protective, removable coat.
3	Water Based Paints	Water based paints contain microscopic plastic particles of binder, filler and pigment, dissolved in water. Water based paints are water soluble, but become water-resistant when dry. Quick drying and non-toxic.
4	Stains	A finish that will change or enhance the natural colour of wood. Stains penetrate wood deeply to highlight the grain, intensify existing tones, or change the colour. They do provide a level of protection from the elements but their primary function is for decorative use.
5	Colour Wash	A mixture of paint and water, used to produce a very thin, pale colour. Add a translucent **colour** to bare or unpainted **wood**. The **coloured** stain lightly tints **wood**, enhancing its natural beauty. **No protection.**
6	Wax Finishes	Waxes have been used for centuries to enhance **wooden** furniture and provide **wood** protection against stains. Made from natural ingredients, they produce a soft, satin sheen and give furniture a silky feel. It can be applied directly onto bare **wood**. Waxes do not penetrate the **wood**, but rather coat it.
7	Danish Oil	A **wood** finishing **oil**, often made of Tung **oil** (**oil** obtained by pressing the seed from the nut of the Tung tree), or polymerized linseed **oil**, there is no defined formulation so its composition varies, but it provides a hard-wearing, often water-resistant satin finish, or serve as a primer on bare **wood** before applying paint or varnish.
8	Teak Oil	A blend of Tung **oil** and linseed **oil**, which nourishes, protects and enhances the natural beauty of hard, exotic and oily **woods**, including **teak**, rosewood and iroko. With added UV additives for protection against fading from sunlight **Teak Oil** is suitable for interior and exterior use.
9	Pressure Treating With Chemical Preservatives.	**Pressure treating** is a process that forces a **chemical preservative** deep into the **wood using a pressure / vacuum vessel**. Helps prevent rot and repel insects. Examples such as tantalised wood(Tanalith)