THE BRONX GROUP

PATTERN COATING AND SPECIALTY FINISHES

Enhancing Metal with Quality Equipment and Customer- Focussed Solutions

www.thebronxgroup.com

The Bronx Group and Coil Coating

Celebrating 85 years of providing high quality coil processing solutions, The Bronx Group of companies continues to remain a trusted specialist across the globe. The Bronx Group offers a range of coil coating solutions, from renowned colour coating lines to our embossing line range as well as a host of products which can be placed into an existing line.

The Bronx Group believes that providing access to the best technologies to all its customers, such as roll and embossing technology, allows for the highest quality finishes, and improving the global standard. We proudly collaborate with our suppliers to ensure faultless operation and a high quality result.

Coil coating provides an opportunity to produce a wide range of different visual effects. These effects can be used by producers to differentiate their product offer within the market to win and maintain market share.

Although some of these effects can be achieved by utilising specialty paints, others require special equipment to be incorporated into the line. It is important when designing a line that consideration be given to the products that are to be offered so that this equipment, or provision for it, is made at installation.

Specialty Finishes

Specialty finishes are becoming increasingly popular in the coil coating industry due to their ability to diversify your product. With a large range of patterns available, there are infinite possibilities.

- Provide interesting effects
- Provide extra character to the finished product
- More visually appealing
- Impart special properties, allowing the strip to be used in a wider range of applications.
- These finishes can require extra equipment to apply unique patterns
- Paint with special additives to provide a different appearance (e.g. metallic pigments.)

Bronx uses both Rotogravure Roll and Embossing Technology to create decorative patterns for the market.

Pattern Coating

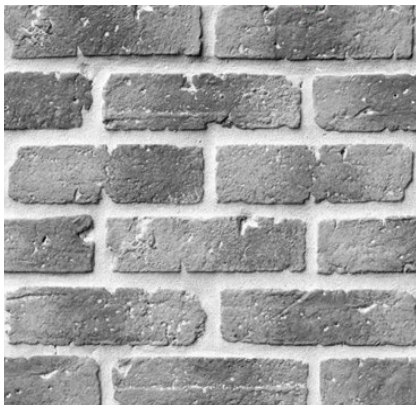
This process involves the application of a pattern ink, either as a single or multiple colours, over a uniform base colour. Most commonly the patterns are wood grains, brick, rock, stars, clouds, slate, marble or abstract geometric designs. The inks are a contrasting colour to the base coat. They require an extra protective layer of a clear coating to ensure that the pattern is not worn off by abrasion nor prematurely eroded away on external exposure. There is generally no restriction on the paint, ink and clear coating types that are used for pattern coatings.

Polyester base coats, inks and clear coat are the most commonly used in the building and construction industry. However, where extra performance is required better performing systems like PVDF can equally be used.

How Does It Work?
Rotogravure Roll

The offset rotogravure patterning process involves applying ink to the engraved roll, wiping excess ink from the surface of the roll and into the pattern with a doctor blade. The pattern is then transferred to a conventional polyurethane applicator roll, which then transfers the pattern to the strip (which has had a base colour coat already applied to it). A clear protective coating is applied over the ink pattern.

Dependent on whether primer is required under the base coat, this process is either a double or single pass through the line.
Fundamental to the success of this printing process is the precise positioning of the specialty engineered doctor blade. With careful consideration of roll pressures and speeds, the resultant pattern gives remarkable definition, clarity and realistic shading of the pattern.



L to R: Bronx Brick, Stone and Woodgrain Finishes

SPECIALTY

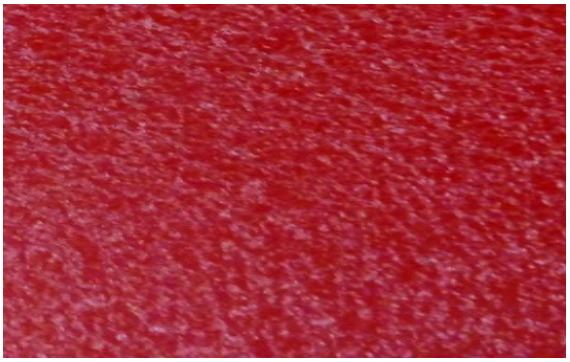
Special Paints

Quite a number of systems, primers and top coats, have been developed that result in appealing visual effects or differing properties. Unlike pattern coating where special rolls are needed, these systems can be applied using the normal coater head equipment included on coil lines.

a) **Metallic Paints** - these are especially visibly appealing. Special pigments, usually aluminium powders or mica flakes are added which give this metallic appearance.

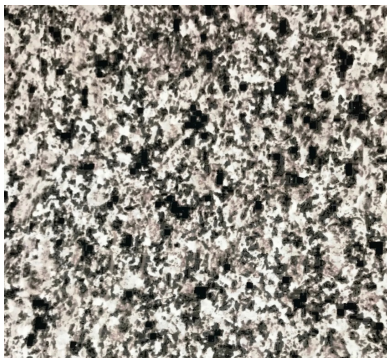
1250 Wide Line,
Pattern Coating for Internal Wood Panelling

b) **Wrinkle Finish Paints** - these are again specially formulated by paint companies, though are readily applied with normal 2 roll coater heads. The wrinkled surface has the effect of increasing the coefficient of friction, making it safer for roofing contractors. Two levels of “wrinkle” can be supplied; one at a coarse wrinkle, the other a micro wrinkle.



Wrinkle Finish Paint Sample

The coarse wrinkle has the additional effect of increasing the surface hardness so that damage resistance is improved. The micro wrinkle has a side effect of giving a low gloss (matte) finish and is often used instead of controlling gloss with other matting agents in the formulation.



L to R: Bronx Woodgrain, Misty and Marble Finishes

FINISHES

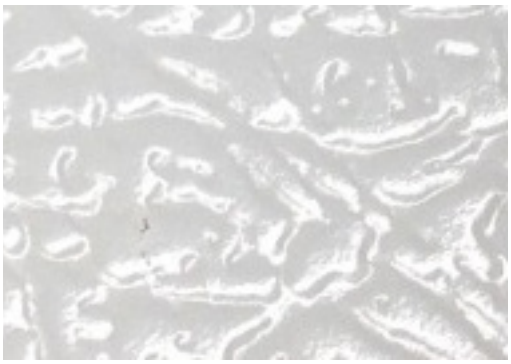
c)**High Build Primers** - these systems are used where extra corrosion resistance is needed. Instead of the 5 um applied, normally extra resistance can be achieved by applying 25 um of primer. These primers are commonly polyurethane based. The polyurethane top coat is also an excellent performer with respect to colour and gloss retention externally. Another high performing coating, PVDF, is also used in conjunction with high build primers. Logically, if a coating is to perform for a long time as a barrier it also needs to retain its appearance over that time.

d) **Plastisol** - this is liquid polyvinylchloride (PVC). This is another means of achieving higher corrosion resistance through increasing the film thickness. As with high build primers the extra thickness forms a barrier to the environment. The thicker dry film thickness is always embossed at the exit of the oven with water cooled rolls, while the film is still approximately 180 degree C. Embossing is used here to guarantee that the surface is uniform. The emboss is usually a leathergrain pattern.

Embossing

Unlike the embossing carried out on plastisols, the base metal is embossed completely (the metal is actually deformed). The purpose of this embossing is less about visual appearance and is more about increasing the strength and stiffness of the base metal such that lighter gauge material can be used.

The most frequent “pattern” used for metal embossing is a stucco pattern which in addition to adding strength and stiffness reduces reflectivity. Other patterns like diamonds or leathergrain can be used.



L to R: Embossed Metal Sample and Leathergrrain Embossing

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