Foil Stamping Principles

Foil stamping has been around for a while. A pigmented or metallic foil is pressed into a surface by a heated metal die. Generally the die is pressed into the surface by means of an hydraulic or pneumatic cylinder generating an enormous amount of force. This force leaves a deep impression in the surface of the material in the shape of the die. The heat and pressure combined causes the foil to adhere to the surface of the material at the bottom of this impression.

A foil used for die stamping is generally bonded to mylar or some other thin film carrier, and comes in rolls. An adhesive is often used to improve the transfer of the foil to the surface of the product. Properly done, foil stamping provides a beautiful, deep, and very durable impression. Foil stamping isn't the only way to transfer foil to a substrate. Most notably, a thermal printer can be used. And while thermal printers have their uses, die stamping provides several distinct advantages:

1. The foil is transferred under pressure, resulting in a superior bond to the material.
2. The deep impression made by a die further protects the foil from incidental contact, scuffing, and impact, greatly enhanced durability
3. A deep impression is often considered to be much more attractive than a surface film, and gives the impression (pun intended) of quality.

Typically a stamping die is quite large - perhaps several inches wide. The die is driven into the material all at once, making a single large impression. Dies are made from magnesium, brass, or some other easily worked metal, Traditionally by chemical etching. Today dies are made using a CNC milling machine or water-jet.

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