In the flexible film and foil industry, films can be embossed when laid flat, or with Stewarts of America’s **INSIDE-OUT** technology, bags can be embossed and/or perforated from the inside to the outside AFTER the bag is formed into a tube!

**STEWARTS INSIDE-OUT** technology features a clever floating system that allows the embossing to appear on the outside of the bag. Perfect for anti-slip properties.

**STEWARTS INSIDE-OUT** technology is simple and effective. The embossing depth can be controlled accurately by a hand operated penetration control.
**Precision tooling for Precision Embossing**

**CUSTOM MADE PINNED TOOLING FOR NEW AND EXISTING APPLICATIONS**

**THE HOLE SOLUTION**

**EMBOSSING TOOLING**

A number of different materials can be used as pressure rollers:
- Flat tipped pins to make a wide array of diameters
- Pins can be ground flat or ball nose pins can be used
- Films can be embossed flat or from inside a tube with STEWARDS INSIDE-OUT technology.

**PINNED SLEEVES**

- Use the most accurate pins, manufactured to world class precision
- Pins are heat treated and polished for long life.
- Round head or flat point pins can be used
- Pins are typically High Carbon Steel, but Stainless and other metals also optional.
- Wide range of pin diameters and geometries are available
- Custom pin patterns are available.
- For warm applications, we Utilize a bi-metallic bronze/steel steel that optimizes thermal transfer between pins.
- Pinned sleeves can be made from Steel, Bronze, Brass, UHMW, Detrin, and a host of other materials.
- Precision fitted to center shaft to optimize thermal transfer.
- For warm applications sleeves can be drilled and tapped to hold in place on center shaft.
- Sleeves can be drilled with male/female dowel pins to ensure a consistent pin pattern when mounted to the center shaft.
- An internal dower can be machined into the sleeve for orientation.

**PINNED EMBOSsing TOOLING:**

- Max Cylinder Dia: 660mm
- Length: 4000mm
- Max pin pop: 5000ppin2 / 775ppcm2

A wide range of coatings are available on the various types of pinned tooling. From Teflon based Non-stick coatings, to diamond coatings that extend pin life even further than normal.

**COMMON APPLICATIONS:**

- RAISED SURFACES
- CHANGES IN TEXTURE
- INCREASING SURFACE AREA
- INTERFERENCE FITS
- GRIPPING SURFACES

**PINNED PUNCH EMBOSsing**

- Punches can be made with or without heating systems
- Multi position punches can be made for quick change stations
- Quick change tooling optional
- Reliable production operation
- Can be automated to be timed with your existing lines

**FLEXIBLE INTEGRATION**

Stewarts of America pinned tooling for embossing can be a great value add, and is easily integrated into the following standard equipment:
- Extrusion Lines
- Bonding Lines
- Thermoforming Lines
- Slitter / Re-winders
- Simple Unwinds and Rewinds
- Laminators
- Printing Presses
- Bag/Pouch Making Machines
- Post Gussetting Equipment
- and more.....