

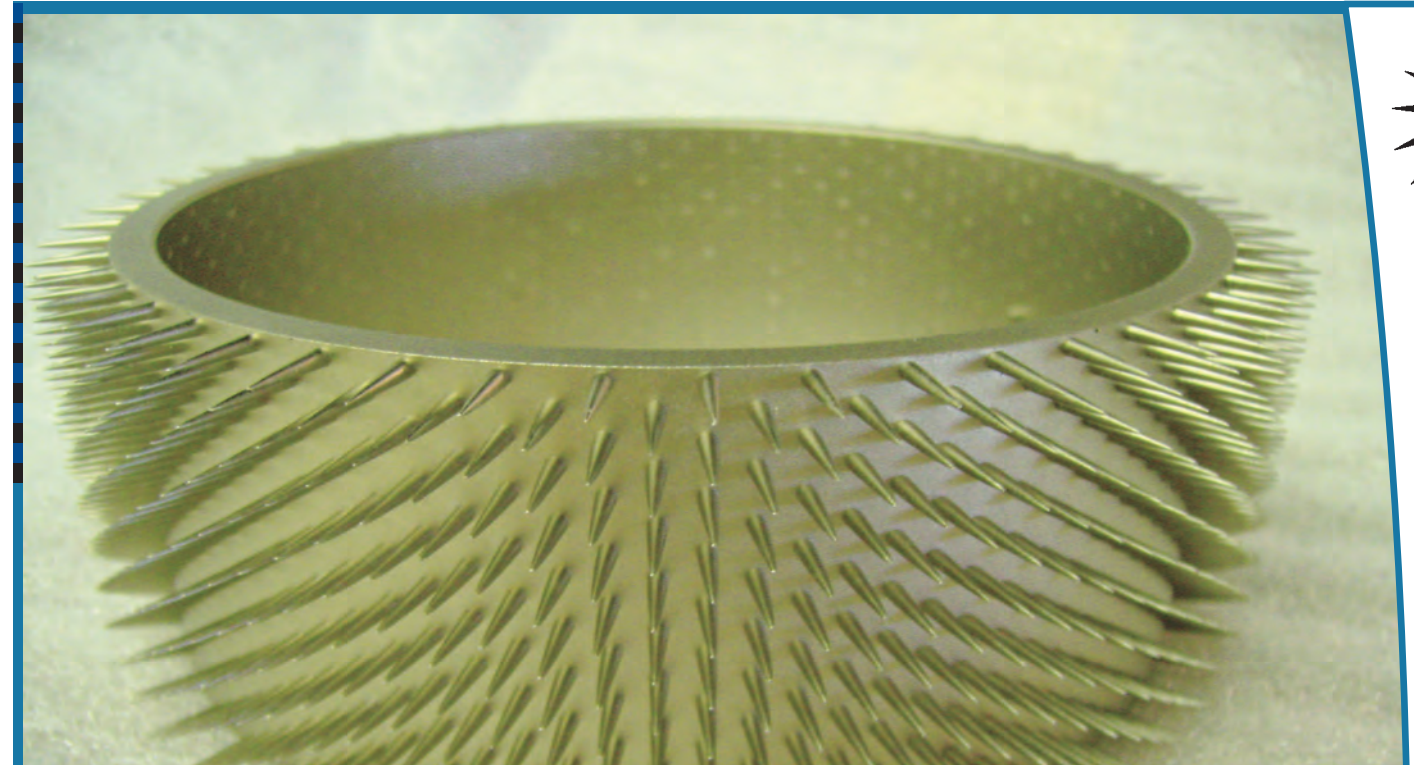
PERFORATION AND EMBOSsing FOR A WIDE RANGE OF INDUSTRIES -

Aerotec -	Aerospace Pressure Tapes Reflective Barrier Insulation
Geotec -	Horticulture Agriculture Horticulture Landscaping Weed-blocker Drainage Control
Buildtec -	Reflective Insulation House Wrap Moisture Control Soundproofing Mold Proofing
Hometec -	Industrial Wallpaper Carpeting Fabrics Acoustics Astroturf
Indutech -	Nonwovens, Films and Foils, Thermoplastics
Meditec -	Bandages Gauze Band-Aid Absorbents Breathable Wound Dressings
Packtec -	Breathable packaging Tapes Pressure Sensitive Tapes Laminates Shrink Films Extrusion
Foodtec -	Decreased Cooking Time Packaging Surface Texturing



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"On the sharp End of Pinpoint Technology"

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PINNED PERFORATION TOOLING

for
 Hot needle and Cold needle
 Nano / Micro- / Macro-Perforation and Embossing



Stewarts of America, Inc.
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Pinned Perforating and Embossing Tooling

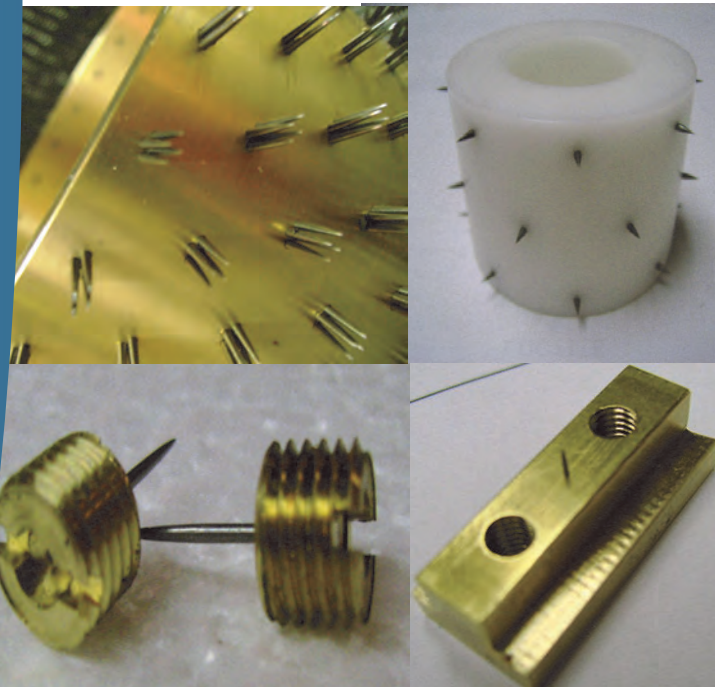
PINNED PERFORATING TOOLING:

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:

- **HOT NEEDLE ROTARY PERFORATION**
- **HOT NEEDLE PUNCH PERFORATION**
- **COLD NEEDLE ROTARY PERFORATION**
- **COLD NEEDLE PUNCH PERFORATION**
- **COLD PIN EMBOSSING**



FLEXIBLE INTEGRATION

Stewarts of America pinned tooling for perforating and embossing can be a great value add, and is easily integrated into the following standard equipment:

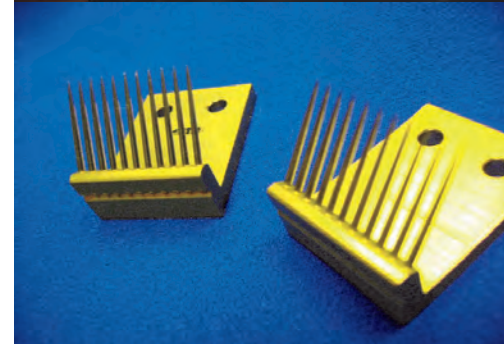
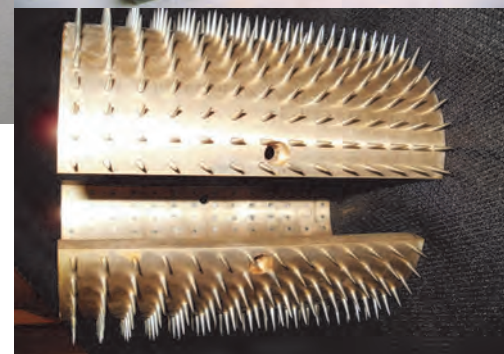
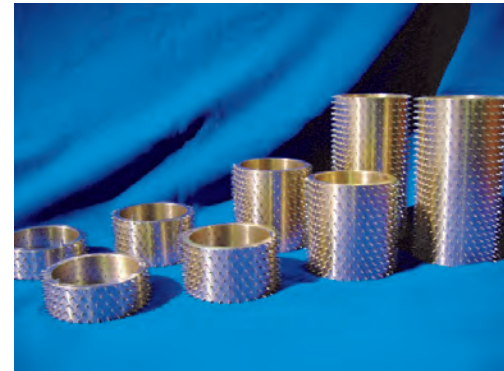
- Extrusion Lines
- Bonding Lines
- Thermoforming Lines
- Slitter / Re-winders
- Simple Unwinds and Rewinds
- Laminators
- Printing Presses
- Bag/Pouch Making Machines
- Post Gusseting Equipment
- and more.....



Precision tooling for Precision Perforating

CUSTOM MADE PINNED TOOLING FOR NEW AND EXISTING APPLICATIONS

THE HOLE SOLUTION



HOT NEEDLE SLEEVES

- Use the most accurate pins, manufactured to world class precision
- Pins are heat treated and polished for long life.
- 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
- Utilize a bi-metallic bronze/steel steel that optimizes thermal transfer between pins.
- Precision fitted to center shaft to optimize thermal transfer
- 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.

COLD NEEDLE SLEEVES

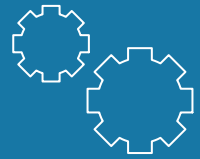
- Use the most accurate pins, manufactured to world class precision
- Pins are heat treated and polished for long life.
- Pins are typically High Carbon Steel, but Stainless and other metals also optional.
- Wide range of pin diameters and geometries are available
- Custom pin patterns are available
- Pinned sleeves can be made from Steel, Bronze, Brass, UHMW, Delrin, and a host of other materials.
- Screw pins are optional
- 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 PUNCH TOOLING

- Punches can be made with or without heating systems
- Use the most accurate pins, manufactured to world class precision
- Pins are heat treated and polished for long life.
- Pins are typically High Carbon Steel, but Stainless and other metals also optional.
- Wide range of pin diameters and geometries are available

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



CUSTOM SOLUTIONS

Stewarts of America have the ability to design and manufacture a custom perforating solution for your specific application. Stewarts of America's engineers are well versed in a wide range of materials and the effects that perforation has on these materials. From Non-wovens to Films and Foils, Stewarts of America are your partners for the *Hole Solution*.



WEB SOLUTIONS

Visit our comprehensive website for a insight of other innovative Pinned Product solutions
Stewarts of America offers the Industry. Signup for our e-newsletter, or download informative brochures at www.StewartsofAmerica.com



GLOBAL SOLUTIONS

Stewarts of America has agents and offices worldwide. We ship to over 50 countries . Our equipment is designed with the global market in mind, utilizing electronic components that are available internationally, with the support of our Stewarts of America trained knowledgeable local agents.



Flexible Perforating Solutions for your converting needs