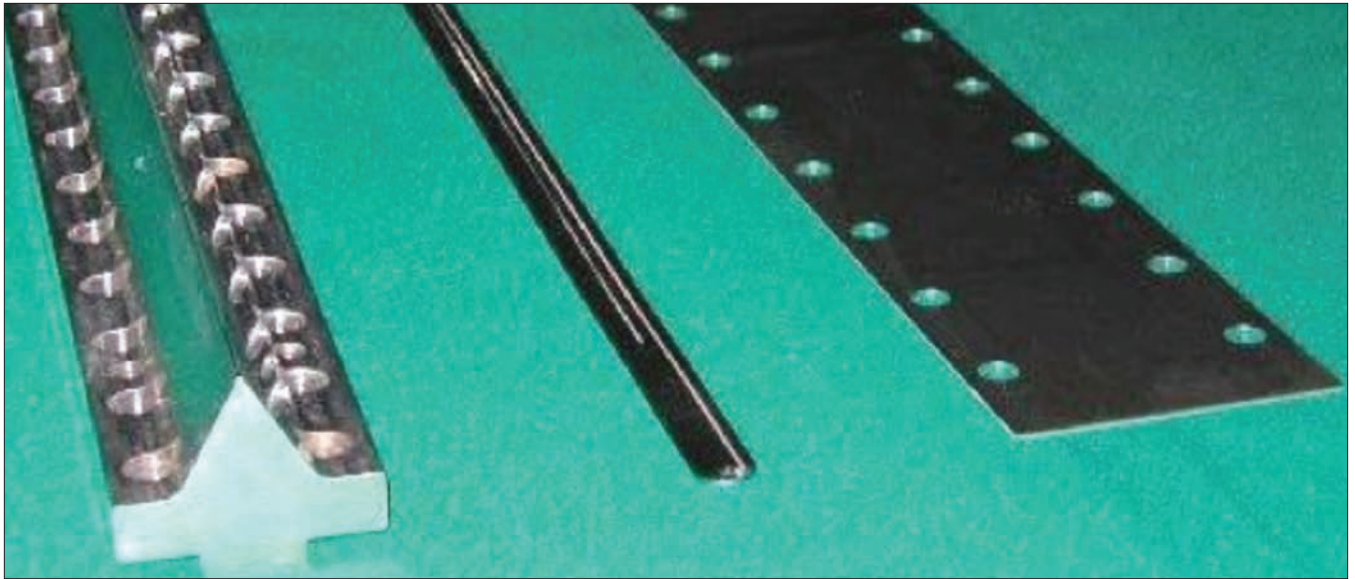


Nippon Nozzle Looking to Improve Spunlace Jetstrips

BY AL THOMAS, FRANKL & THOMAS, INC.



Spunlace jetstrips and melblown die

The process of spunlacing or hydroentangling is perhaps the fastest growing technology in the nonwovens field. The principle is unique unto itself as ultra fine, high velocity jets or “needles” of water are volleyed against a fiber web or other similar substrate. The kinetic energy transferred from the water causes the fibers to entangle, wrap, and knot about each other in the web. The resulting product is one with many conventional textile properties such as softness of hand, drapability, durability, and the ability to be patterned.

NEW MARKETS

Spunlaced nonwovens are expanding into new and heretofore difficult to penetrate markets such as apparel, home furnishings and domestics. Moreover, end use products such as personal wipes, domestic wipes and institutional wipes continue to grow for spunlaced nonwovens. Industry experts estimate that approximately 12% of all nonwovens are made through the spunlaced process.

Vital to the success or failure of the hydroentangling process is the

spunlace jetstrip. The jetstrip is the key critical component that determines the overall characteristics of the nonwovens produced. The jetstrip is the metal strip with many small orifices through which water is pumped at very high pressures - sometimes approaching 9,000 psi. It is therefore critical to have a jetstrip made to withstand high pressures while simultaneously producing accurate, uniform, needles of water that will deliver energy powerfully and efficiently.

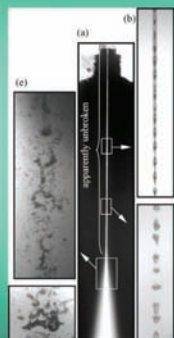
As line speeds increase and water

Frankl & Thomas and Nippon Nozzle recently made a donation of wet spun spinnerettes to support new fiber research at Clemson School of Material Science and Engineering. Al Thomas (right) is shown with Professor Philip Brown during the presentation.

Al Thomas is on the board of advisors The School of Material Science and Engineering at Clemson and has a relationship with Clemson going back nearly 30 years.



Why Nippon Nozzle?



- Water Jet Straightness
 - High entanglement efficiency
 - Save energy loss
 - Save water consumption
 - Save motor power
- Why water jet straightness is long
 - Smooth finish inside capillary (less than 0.01Ra)
 - Straightness of capillary
 - High elastic strength of strip material

Material

- Variety of materials of Nippon Nozzle water jet strips
 - SUS 316 Soft - about HV200
 - SUS 631 Hard - about HV440
 - NN20 Harder - HV500 or more
 - Inconel 718 Harder and less corrosive - HV460
- Example of elasticity difference in tensile strength
 - SUS 300 series - about 500 N/mm²
 - SUS 631 - about 1100 N/mm²
 - NN20 - about 1700 N/mm²
 - Inconel 718 - about 1400 N/mm²

pressures increase especially for heavier weight fabric, new materials must be found that are harder, stronger, more flexible and that better resist wear and damage. The charts show the most common materials used today to produce jetstrips. Nippon Nozzle's new NN 20 has superior physical characteristics compared to other materials. It began testing in 2009. So far the results look to be very promising. If this material performs as well as the initial outcome, it may well be the material of the future for spunlace jetstrips.

NEW APPLICATIONS

Spunlaced nonwovens are finding new applications and end-use markets, such as apparel and home furnishings. These new markets, along with the growing markets of personal and industrial wipes, demand higher and higher weight fabrics. Nippon Nozzle is committed to lead the technological developments for spunlacing to meet these new market demands through their technology and uncompromising commitment to quality and innovation. 

For more information contact: Frankl & Thomas

Email: info@frankl-thomas.com Website: www.frankl-thomas.com

The meaning of Excellence

The spirit of excellence: Everything we do is underpinned by a clear set of values where the market and every single customer are at the center of all our activities.

The creation of the unique and recognized DIGICONE® winding system or the invention of the exceptional *preciflex*™ are just two of many highlights in this long tradition.

SSM's drivers of excellence:

- Indulging users in delivering **first-class machinery** with state-of-the-art technology and plug n'wind philosophy.
- **Ensuring Customers top** "Inside-out" quality **products** produced on SSM machines: perfect shapes as well as reliable package build-up and yarn processing.
- Giving customers the **support** they need to develop and conduct their business successfully through an **outstanding network** of local sales & service offices around the world.
- **Environmentally conscious** engineering.



ex-cel-lence ['ɛksələns] (uncountable)

1. The quality of being excellent; state of possessing good qualities in an eminent degree; exalted merit; superiority in virtue.
2. Something in which one excels.
3. An excellent or valuable quality; that by which any one excels or is eminent; a virtue.

Synonyms

- superiority
- pre-eminence
- perfection
- worth
- goodness
- purity
- greatness

Source: <http://wiktionary.org/wiki/excellence>

SSM - leading Swiss technology for yarn processing and winding.

→ www.ssm.ch 



SSM Schärer Schweiter Mettler AG
 CH-8812 Horgen · Switzerland
 Phone +41 44 718 33 11
 Fax +41 44 718 34 51

Application fields of the SSM yarn processing and winding machines:

Dye Packages / Rewinding	Air Texturing	Air Covering / Intermingling
Assembly Winding	Singeing	Sewing Thread Finish Winding
		Preparation Processes