Italian Commitment To Technical Textiles

TW, NCSU, ACIMIT and ICE collaborate in an exploration of Italian technology applicable to US technical textiles and nonwovens.

James M. Borneman, Editor In Chief

Interest in the technical textile and nonwovens segments of the US textile industry continues to gain traction around the world. Recently, the Italian Trade Commission (ICE) and The Association of Italian Textile Machinery Manufacturers (ACIMIT) invited Textile World and a contingent of educators and researchers from North Carolina State University’s (NCSU’s) College of Textiles, Raleigh, N.C., to participate in an information exchange in Italy. ACIMIT President Paolo Banfi, who also is CEO of Comez S.p.A., in the company of a group of Italian machinery producers, welcomed the US delegation. Alessandro Mussa, assistant trade commissioner from ICE’s Atlanta office, then explained the mission of the exchange was to present the trends in the US industry and highlight some of the many research projects underway at NCSU. Additionally, a tour of Italian textile machinery manufacturers was arranged to observe the latest developments supporting technical textiles and nonwovens production.

Presentations

Each member of the US delegation delivered a presentation to the assembled ACIMIT members. TW led off with a report detailing the transition of the US textile industry and highlights of US companies that have embraced change and innovation to survive and thrive during the challenges of the last 10 years.

Dr. A. Blanton Godfrey, dean and Joseph D. Moore Professor, NCSU College of Textiles, drilled down in his presentation to illustrate the size and vibrancy of the textile and nonwovens industries active in North Carolina. Godfrey also explained the depth of programs and research underway at the college, which has more than 1,000 textile-focused undergraduate, graduate and doctoral students.

Dr. Behnam Pourdeyhimi, NCSU College of Textiles associate dean for industry research and extension, William A. Klopman Distinguished Chaired Professor, and director, The Nonwovens Institute, focused on the possibilities and trends in nonwovens — from fiber and polymer through process and post-process technology and end-use. Additionally, as director of the Nonwovens Cooperative Research Center, a facility established in 1991 as a partnership between NCSU and the nonwovens industry, Pourdeyhimi was able to share the current trends in research throughout various nonwovens industry sectors.
Dr. Behnam Pourdeyhimi (standing, center) presented his observations on the future of nonwovens.

Dr. Gregory N. Parsons, professor, NCSU Department of Chemical & Biomolecular Engineering, shared information about the Parsons Research Group’s work on atomic layer deposition and its implications for surface modification of functional textiles.

Dr. Russell Gorga, assistant professor, Fiber and Polymer Science Program, NCSU Department of Textile Engineering, Chemistry and Science, presented his work on developing polymer nanocomposites and nanofibers with improved properties. Applications include filtration and tissue scaffolds.

Following the presentations, one-on-one bilateral meetings took place between ACIMIT members and the US delegation. These meetings provided an opportunity for all to investigate the possibilities for cooperation in promoting Italian participation in US technical textiles and nonwovens developments.

Corporate Visits

Chiara Bonino with Bonino Carding Machines S.r.l. introduced the delegation to the Bonino product line, which has its roots in producing cards to support the wool industry in the Biella region. After World War II, the company pursued development of nonwovens in support of the blanket and carpet businesses. Having expanded from an Italy-centric supplier to a European marketer, the company in the 1980s pursued development of a short-fiber cotton card, which, as the open-end spinning market declined, was applied to the bleached cotton business of sanitary napkins. More recent developments, after having added fiber preparation machines to its line, include the commercialization of a Turbo airlaid card that produces 40-gram-per-square-meter (g/m²) and heavier products. The Turbo’s gentle carding action keeps short fibers in the product — the opposite result from many traditional carding systems. Bonino systems are standard structures and concepts, but according to the company, typical orders are 20- to 25-percent custom.

Brothers Ezio and Marco Aletti with Aletti Giovanni & Figli S.r.l. — makers of buffing and sueding machinery for a broad range of textile, tannery and rubber applications — also welcomed the delegation to their facility. The process provides classic surfaces such as leveling, peach pile, nubuck and others, but by utilizing an embossed roll similar to a flexographic engraved roll, a pattern effect can be achieved by abrading the surface of the fabric when forced forward by raised parts of the engraving while not affecting the fabric surface where the fabric can fall away into the recessed areas of the engraved roll. The machine has a high level of precision and calibration, which aids in product reproducibility.

Sales and Marketing Director Paolo Dini (center) welcomed the US delegation to A.Celli Nonwovens.

Well-known paper and nonwovens industry supplier A.Celli Nonwovens S.p.A. offered an overview of its two independent divisions. Sales and Marketing Director Paolo Dini explained the development of A.Celli’s business for customized winders and slitter-rewinders, which are used for processing nonwovens fabrics. He explained the long-term relationship the nonwovens industry demands and the significant market share A.Celli has been able to earn. The company has also developed Wingformer, an airlaid forming technology; as well as an integrated winding, slitting and roll-packaging process called Slittopack.

Lorenzo Marsiglio with Tecnorama S.r.l. showed the delegation through the facilities of the well-known dispensing systems manufacturer. Founded in 1984, the company launched the patented Dosarama system at the 1987 ITMA in Paris. Tecnorama has evolved the technology in terms of accuracy; ability to dispense powders; automated dissolving; movement from weight-based systems to volumetric,
fully automatic sample and small production machines; and the incorporation of online spectroscopy. Most recent developments include the addition of an automatic system for analyzing the curves of a dyestuff exhaustion model to the DOS&DYE® system creating the DOS&DYE®Spectrody. Later, both transmission and reflectance data were combined into one automated system to create the Spectrorama® system.

With all of the recent interest in recycling textiles, the delegation visited Dell’Orco & Villani S.r.l., a firm with a long history in the field. Giovanni Dell’Orco and Silvano Villani came together in the 1960s to manufacture innovative tearing machines that were particularly suited for reclaiming man-made fibers. Dell’Orco & Villani entered fiber opening and blending for spun yarn manufacturing as well as for nonwovens used for insulation panels in automotive and building products. Recent sales include placement of recycling lines at major US carpet manufacturers. According to Dell’Orco & Villani Associate Frank J. Levy of Quogue, N.Y.-based PCC Processing Technologies LLC, interest continues to grow.

Cormatex President Riccardo Querci meets with the US delegation at Cormatex’s Prato office.

Cormatex S.r.l. President Riccardo Querci, representing the second of three generations in the family business, explained his company’s current position in the woolen spinning and nonwovens machinery businesses. The company opened in 1938 and developed an expertise in the carding and spinning of woolen yarn including cashmere, angora, camel hair and blends with fine wool. Cormatex’s nonwovens lines include opening and blending machines, fine openers, card feeders, high-production cards, lap formers, and cutting and winding systems. The delegation was able to observe the lap formair, an airlaid nonwovens section that uses a new aerodynamic fiber-batt formation system to create a highly uniform batt for subsequent needling or thermobonding. With a production capacity of more than 1,500 kilograms per hour (kg/hr) and a product weight range of 150 to 3,000 g/m², the system shows promise for applications in both fibrous and non-fibrous products.

Giovanni Bettarini, sales director of Bettarini & Serafini S.r.l. - bematic®, spoke of the challenges associated with supplying turnkey lines and the success the company has had in the United States with seven installed airlaid nonwovens lines. Bematic’s direct felt line has at its heart the Bemaformer, a batt-forming machine that uses a new air-forming technology to produce a randomly oriented high-volume, low-density felt. The product is then ready for bonding by oven, needleloom or quilting machine. Bematic also produces computerized nonwoven cards in widths of 2,000 to 3,500 millimeters and with production up to 1,500 kg/hr. All supporting opening and feeding equipment is also supplied by Bematic.

Well-known traditional textile finishing machinery manufacturer Biancalani S.p.A. hosted the delegation at its facility in Prato. With 50 years’ experience in improving the hand of textiles, Biancalani President Rosanno Biancalani made it clear the company is dedicated to applying its technologies in the nonwoven and technical textile segments. The recently developed Airo® 24 achieves a continuous process with many of the effects possible in the batch-oriented Airo machines. As fabric enters and exits the machine at a speed of up to 40 meters per minute, a reserve of fabric in the machine is accelerated to a high speed and impacts a treatment grid while remaining in an open width. As the fabric continues to enter and exit the machine, the process is reversed, accelerating the fabric to the back of the machine and impacting the rear grid. This back-and-forth impact continues as new, untreated fabric enters the machine and softened, bulked fabric exits. The Airo 24 can process up to 600 kg/hr at a maximum temperature of 200°C. A variety of finishing effects can be achieved including permanent soft touch and drape, softening without chemicals, resin polymerization and increased pliability.
One quick look at the reference list from OMMI S.p.A., and a global base of world-class customers is quickly apparent. OMMI shares a similar history with many producers in the region, having focused on wool processing from opening, cleaning, blending and semi-worsted spinning. Later, the company expanded on those technologies, entering nonwovens and systems for fibers other than wool. It developed technologies to deal with the special circumstances presented in opening and blending fibers such as glass, carbon and cellulose. At a nearby facility, OMMI presented an operating blending facility with chute-fed cards. The company offers an extensive catalogue with the ability to customize production lines for clients interested in processes from spinning to nonwovens, and automotive applications to waste reclamation.

**Continued Cooperation**

There is little doubt that Italian machinery companies are committed to those manufacturers seeking technologies to enter or extend their presence in the nonwovens and technical-textiles marketplace. One observation, in looking at the history of the companies visited, was of their commitment to adapting and developing their businesses to fill the needs of changing times. Throughout the history of their local and global markets, they successfully adapt, improve and reinvent their product lines to offer the textile industry new opportunities to compete and win.

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