Weaving giant sale

GEORGIA, USA-based Mohawk Industries is to purchase the Wovens Division of Crown Crafts for approximately $40 million in cash.

The business has annual sales of $85 million and about 600 employees, most of whom will receive offers of employment from Mohawk. Included in the sale will be inventory, buildings, machinery and equipment at sites in Calhoun, Dalton and Chatsworth, Georgia, Blowing Rock in North Carolina, and Manchester, New Hampshire.

Crown is believed to have the largest jacquard weaving capacity in the woven textile products industry and is a leader in the woven throw, bedspread and coverlet markets. Products range from decorative pillows and wall tapestries to throws in various fabrics, bedspreads and coverlets.

"All of the manufacturing facilities that will be purchased are in close proximity to our existing sites in northwest Georgia, providing opportunities to take advantage of manufacturing synergies," said Mohawk COO Jeffrey Lorberbaum.

Tolaram Fibres future

RHODIA of France has purchased Tolaram Singapore for $9 million.

This gives Rhodia control of Latvia's leading textile business, Tolaram Fibres, which went bust last year with a loss of 2,700 jobs, 700 of which are now expected to be rescued.

Rhodia announced net sales of Euro 5,403 million for the first nine months of 2000, representing 33% growth compared with the same period in 1999.

"Despite the persistent rise in raw material prices of almost 40% since the beginning of the year, Rhodia was able to increase EBITDA by more than Euro 100 million compared with the same period in 1999," said chairman and CEO Jean-Pierre Tirouflet. "The continuing drive to reduce costs has enabled us to withstand the sudden drop in the business environment led by the rapid increase in oil prices."

The increase in sales includes integration of Albright & Wilson for six months (+15.5%), and currency impacts.

Net sales by the Industrial Specialties Division were up by 15% but it was particularly affected by the increase in raw material prices.

The Polyamide Division is still benefiting from an extremely buoyant level of activity and net sales rose 23% as a result of both higher prices and stronger volumes.

PICTURED at its final inspection stage is the 2.5-metre-wide coater laminator which is being shipped by the UK's Mercer Adhesive Systems to Mendrisio in Switzerland. The unit is fitted with an ITW Dynatec Dynafiber head and will be employed to expand the Swiss company's range of cast co-extruded films and laminates.

DuPont merges units

DUPONT is to integrate its apparel, home textiles and related businesses into a new global organisation to be called DuPont Apparel and Textile Sciences.

The Lycra elastane, Nylon textile and Dacron branded specialties and fiberfill businesses, which have a current combined revenue of $3 billion, will become a single unit in 2001.

DuPont group vice-president Steven R. McCracken will lead the new organisation.

"Working with DuPont will become easier and more efficient," he said. "In addition, we'll be able to simply and quickly translate complex market needs into value differentiating offerings."

The new organisation will have approximately 10,000 employees and dedicated marketing, technical and manufacturing operations in every region of the world.

"We believe this centralised market approach will provide economies of scale and scope," Mr McCracken added.

● Separately, Dupont's Lycra division will invest $70 million in Dupont Fibres (China) Ltd, a joint venture in which DuPont holds 86%.

The investment will boost production from 3,800 to 10,000 tonnes.

DuPont set up the $100 million textile fibre joint venture with two partners in Shanghai in 1998, China's Worldbest Development Corp holding 10% and Toray Industries the remaining 3.5%.

In Brief

GRETAGMACBETH has acquired McMahan Electro Optics based in North Carolina, USA.
The company makes electro-optic and scientific instruments.

CHINA'S textile industry recorded profits worth 13 billion yuan (US$1 = 8 yuan) in the first seven months of this year, an increase of 8.7 billion yuan as compared with the same period in 1999, according to the Xinhua news agency.
State and state-controlled textile plants were profitable during the period, after recording a loss in 1999.

TEXTILE air conditioning and filtration systems manufacturer Pneumafil Corporation, of Charlotte, North Carolina, USA, has acquired Abington, a US maker of high vacuum waste handling and recovery systems.
The alliance makes the latest air handling technology available to the industry from a single source.

THE EUROPEAN Commission is threatening Greece with legal action at the European Court of Justice because its police have been confiscating textile goods made from hemp that carry a cannabis leaf logo.
Athens claims that the products promote illicit drug taking, but the Commission says that its action is breaking EU freedom of movement of goods laws.

A NEW textile agreement negotiated between the European Union and Vietnam has been signed by EU trade Commissioner Pascal Lamy and Vu Khoan, Vietnamese trade minister.
It has been provisionally implemented since July and eases restrictions on Vietnamese exports of a wide range of textiles and clothing by 30%.

An emphasis on quality marked the recent ATME-I in Greenville, South Carolina, writes Adrian Wilson

Relaxed and upbeat

COMING barely 18 months after ITMA '99 in Paris, there was understandably little that was completely new at the recent ATME-I 2000 held in Greenville, South Carolina, but the weather stayed extremely kind for visitors and the atmosphere was both relaxed and upbeat.

The organisers, ATMA and Textile Hall Corporation, anticipated the dip in attendance of around 8%, but stressed the quality of those attending. They also announced their intention to stick to the two-show format for ATME-I events in 2004 and 2005 (see *World News*).

A noticable number of new exhibitors were the e-commerce companies promoting online trading for the textile industry which have quickly emerged and will be the subject of a special feature in the February 2001 edition of TM.

The largest exhibitor by far at the last show four years ago was Hollingsworth on Wheels, which took a colossal amount of machinery to the show. This year, however, reflecting a new company emphasis on card clothing and accessories, the centrepiece of its much reduced presence was a 150-year-old carding machine.

Dilo's Hyperpunch needleloom was once again the heaviest piece of machinery at the ATME-I, weighing in at 70,000 pounds and linked up to the latest preparation, carding and airlay system developed by the Dilo Systems Group.

Launched at the event was Neumag's new line for bulked continuous filament production, the MAC (modular assembly concept) for the production of mono or multicoloured BCF yarn.

The aim during the lengthy development phase of this machine was to reduce the customer's total project costs by delivering a pre-assembled plant that could be installed in just two weeks.

In addition, in response to a demand for polymer flexibility, each module can accommodate all of the major polymers – PP, PA, PET and PTT – based on the company's proven components.

Because the system is equipped with standard Neumag parts, existing customers who purchase the new MAC can continue to use spare components from their existing stock. Only the control system has been upgraded – either from Siemens or AB/Rockwell – to avoid interface or communication problems.

The machine and related utilities are placed into a steel frame consisting of platforms, on which the components are already fixed, including the cabling and piping.

This assembly work is carried out at Neumag. The ready-made platforms fit exactly into 40-foot containers which can be directly shipped to the customer's plants.

At the plant, the platforms are fixed to the vertically-arranged columns and start-up can be carried out after just eight days.

Barmag supplies a pre-heating oven, a three-month start-up set (including Dowtherm, spin finish, filters and screens), low voltage distribution, a process control system, supervision of erection and start-ip and technical training.

Air-conditioned electrical switch cabinets (closed loop) can also be located centrally in the machine frame, and the quench air unit and Dowtherm can be completely incorporated.

The PP mono-colour plant is already prepared for PA and PET, so that with conversion kits it can be quickly and easily converted for their use. Modules with two, four or six positions are offered with the three-end mono-colour plant and four and six positions for tricolour yarn.

Above right: Neumag's new MAC BCF system

Below: Dilo's Hyperpunch needle loom – the heaviest machine at the show

Weaving technology has been used for many years to weave net shape products to very tightly-controlled dimensions. Shaped products are expanding into many new areas.

Third Dimension

SHAPE 3, based in Wuppertal in Germany, believes 3D woven preformed parts will be a key technology in achieving almost 100% automisation in respect of the manufacturing of complex shaped composite parts.

At the Techtextil in Atlanta earlier this year, the company displayed an automotive inside door panel manufactured from carbon fibre by a combination of 3D preform weaving and thermoset moulding.

The 3D preforms were seamless and directly shaped on the loom, with each part taking three minutes to weave. Moulding is said to have proven easier and more efficient using the new 3D preforms, since, because the textile is already shaped, there are no forces to affect fibre placing during the moulding process.

Not only can this reduce cycle times, since in making up composite parts no cutting and manual lay-up of single 2D pieces is required, but will result in better surface quality of the products.

Shape 3 developments

Shape 3 has been developing new 3D weaving technologies for the past five years, employing highly specialised looms and CAD systems to create programmed shapes in the weaving process.

The two main types it has developed are shells for use in helmets, seat shells, dashboards etc. and tubes. Applications are in automotive components and also aerospace, medical textiles, protective clothing, filtration, construction and machine building.

TEAM Inc., of Slatersville, Rhode Island, USA, is also involved in similar processing. At Techtextil North America the company's Steve Clark explained that the differences between 3D and 2D weaving are in how the warp yarns are set up and how the take up of the fabric is accomplished.

Architecture

In 2D weaving, all the warp yarns interlace with the filling yarns, but in the case of 3D woven fabrics, multiple layers of warp and fill yarns are arranged one above the other to selected architecture or yarn paths.

For some applications, all of the warp yarns traverse in the Z direction. In some cases this Z movement is limited to adjacent layers (ply-to-ply interlock weaves) and in others the warp yarns go all the way through the thickness (angle interlock or thru-thickness weaves).

In other cases, only the 'Z' yarns interlace with the filling yarns. In this manner the warp yarns that do not interlace become the 0° yarns and are kept straight for maximum in-plane strength.

Also, in 2D fabrics, take-up takes place after every single pick insertion. In 3D woven fabrics, however, several picks can be inserted before take-up occurs. The picks get stacked one below the other, creating the thickness of the fabric.

Two primary product areas are emerging within the 3D net shape fabric or 'preform' arena, Mr Clarke said.

One involves weaving large and/or thick structures with integral tapers, bifurcations, holes and curvature or stiffening elements incorporated. Usually the preform removed from the loom makes up the entire finished structure.

The other product area utilises narrow fabric weaving machinery to produce smaller and simpler net shape 3D woven structures, which are usually used for pultrusions or as sub-components to make larger structures in conjunction with 2D fabric piles.

Composite examples of the large complex variety include:

- Fan blades and vanes for aircraft engines, which utilise the toughness and damage tolerance allowed by the 3D weave.
- Bearing pads for cryogenic applications, which utilise the low-thickness CTE of a 3D weave.
- Carbon-carbon structures which use the 3D weave to overcome matrix deficiencies.
- Missile and munition system components that employ the high interlaminar shear properties of 3D woven materials to overcome acceleration or impact-induced stresses.

Due to the size, rigidity and complexity of these structures, purpose-built looms are often employed, with proprietary CAD systems.

"Beyond designing the preforms themselves, there is also a need to develop composite design and analysis systems that can accurately model 3D woven structures," Mr Clarke said. "To predict performance in terms that application engineers can understand, and with sufficient confidence that decision makers are comfortable." **TM**